MITSUBISHI MOTORS

SERVICE BULLETIN

AFTERSALES SERVICE OFFICE, MITSUBISHI MOTORS CORPORATION

PURPOSE : INFORMATION	ISSUE NO. : MSB-09E23-001	DATE : 2009-03-05
SUBJECT : REDUCTION GEAR PRELOAD AND ADJUSTING SHIMS		<MODEL> <M/Y>
GROUP : AUTOMATIC TRANSMISSION		(EUR/RUSSIA) See following 2. Applicable Manuals table.

1. Description:

For the F/W1CJA transmission, the standard value of the reduction gear preload and the setting of adjusting shims are changed. This Service Bulletin contains the changed descriptions.

2. Applicable Manuals:

See Attached sheets 1 and 2.

There may be some attached sheets not included in this Service Bulletin because they are not applicable to your market. Their sheet numbers are not listed in the above table.

3. Interchangeability:

Interchangeable

4. Effective Date:

From June 8, 2008

5. Details:

- Standard value of reduction gear preload
  <Current> 0.13 – 0.19 mm → <New> 0.11 – 0.17 mm

- Adjusting shims
  Deleted
  2.04 – 2.24 mm (6 pieces)
  Added
  0.56 – 0.60 mm (2 pieces)

Attached sheet 1

<EUR>

Manual/Model	<M/Y>	Pub. No.	Title (Info-ID)	Attached Sheet
2008 OUTLANDER Workshop Manual (4HN information added) (GS45X)(CW0W)	08	CGXE08E2-CD (English) CGXS08E2-CD (Spanish) CGXF08E2-CD (French) CGXG08E2-CD (German)	Service Specifications (M233-20-200-23500-01)	Attached sheet 11, 12
			Snap Ring, Spacer and Thrust Washer Adjustment (M233-20-400-24200-01)	
			Transmission Disassembly and Reassembly (M233-20-800-37400-01)	Attached sheet 13
2008 LANCER Workshop Manual (GS41)(CY0A)	08	CG1E08E2-CD (English) CG1S08E2-CD (Spanish) CG1F08E2-CD (French) CG1G08E2-CD (German)	Service Specifications (M233-20-200-27900-01)	Attached sheet 14, 15, 16
			Snap Ring, Spacer and Thrust Washer Adjustment (M233-20-400-29700-01)	
			Transmission Disassembly and Reassembly (M233-20-800-41500-01)	Attached sheet 17
2009 LANCER SPORTBACK Workshop Manual (GS44S)(CX0A)	09	CG4E09E1-CD (English) CG4S09E1-CD (Spanish) CG4F09E1-CD (French) CG4G09E1-CD (German) CG4I09E1-CD (Italian)	Service Specifications (M233-20-200-17200-01)	Attached sheet 8, 9
			Snap Ring, Spacer and Thrust Washer Adjustment (M233-20-400-32700-01)	
			Transmission Disassembly and Reassembly (M233-20-800-60800-01)	Attached sheet 10
2009 OUTLANDER Workshop Manual (GS45X)(CW0W)	09	CGXE09E1-CD (English) CGXS09E1-CD (Spanish) CGXF09E1-CD (French) CGXG09E1-CD (German) CGXI09E1-CD (Italian)	Service Specifications (M233-20-200-28000-01)	Attached sheet 11, 12
			Snap Ring, Spacer and Thrust Washer Adjustment (M233-20-400-30500-01)	
			Transmission Disassembly and Reassembly (M233-20-800-58900-01)	Attached sheet 13
2009 LANCER Workshop Manual (GS41)(CY0A)	09	CG1E09E1-CD (English) CG1S09E1-CD (Spanish) CG1F09E1-CD (French) CG1G09E1-CD (German) CG1I09E1-CD (Italian)	Service Specifications (M233-20-200-27900-01)	Attached sheet 8, 9
			Snap Ring, Spacer and Thrust Washer Adjustment (M233-20-400-29700-01)	
			Transmission Disassembly and Reassembly (M233-20-800-59000-01)	Attached sheet 10

Attached sheet 2

<RUSSIA>

Underneath Manual/Model	<M/Y>	Underneath Pub. No.	Title (Info-ID)	Attached Sheet
2008 OUTLANDER Workshop Manual (4HN information added) (GS45X)(CW0W)	08	N/A	Service Specifications (M233-20-200-23500-01)	Attached sheet 11, 12
			Snap Ring, Spacer and Thrust Washer Adjustment (M233-20-400-24200-01)	
			Transmission Disassembly and Reassembly (M233-20-800-37400-01)	Attached sheet 13
2008 LANCER Workshop Manual (GS41)(CY0A)	08	N/A	Service Specifications (M233-20-200-27900-01)	Attached sheet 14, 15, 16
			Snap Ring, Spacer and Thrust Washer Adjustment (M233-20-400-29700-01)	
			Transmission Disassembly and Reassembly (M233-20-800-41500-01)	Attached sheet 17
			Service Specifications (M233-20-200-17200-01)	Attached sheet 8, 9
			Snap Ring, Spacer and Thrust Washer Adjustment (M233-20-400-22000-01)	
			Transmission Disassembly and Reassembly (M233-20-800-32900-01)	Attached sheet 10
2009 LANCER SPORTBACK Workshop Manual (GS44S)(CX0A)	09	N/A	Service Specifications (M233-20-200-17200-01)	Attached sheet 8, 9
			Snap Ring, Spacer and Thrust Washer Adjustment (M233-20-400-32700-01)	
			Transmission Disassembly and Reassembly (M233-20-800-60800-01)	Attached sheet 10
2009 OUTLANDER Workshop Manual (GS45X)(CW0W)	09	N/A	Service Specifications (M233-20-200-28000-01)	Attached sheet 11, 12
			Snap Ring, Spacer and Thrust Washer Adjustment (M233-20-400-30500-01)	
			Transmission Disassembly and Reassembly (M233-20-800-58900-01)	Attached sheet 13
2009 LANCER Workshop Manual (GS41)(CY0A)	09	N/A	Service Specifications (M233-20-200-27900-01)	Attached sheet 8, 9
			Snap Ring, Spacer and Thrust Washer Adjustment (M233-20-400-29700-01)	
			Transmission Disassembly and Reassembly (M233-20-800-59000-01)	Attached sheet 10

Attached sheet 8

Item		Specifications
Transmission type		Forward automatic continuously variable (steel belt-driven), reverse 1 speed
Gear ratio	Forward	2.349 – 0.394
	Reverse	1.750
Final gear ratio		6.120

SERVICE SPECIFICATIONS

<New>
0.11 — 0.17

Item		Standard value mm
Reverse brake clearance		1.2 – 1.5
Total end play		0.25 – 0.55
Differential preload		0.17 – 0.29
Reduction gear preload <Previous>		~~0.13 – 0.19~~
Oil pump drive sprocket to converter housing clearance		0.10 – 0.23
Mounting bore diameter of reduction gear bearing outer race	Converter housing side	ϕ61.949 – 61.979
	Transmission case side	
Mounting bore diameter of differential side bearing outer race	Converter housing side	ϕ67.949 – 67.979
	Transmission case side	
Mounting bore diameter of reduction gear bearing inner race	Converter housing side	ϕ30.008 – 30.029
	Transmission case side	
Mounting bore diameter of differential side bearing inner race	Converter housing side	ϕ40.026 – 40.051
	Transmission case side	

SNAP RING, SPACER AND THRUST WASHER FOR ADJUSTMENT

Snap rings (For adjustment of reverse brake)

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

Needle bearings (For adjustment of total end play)

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

Attached sheet 9

Adjusting shims (For adjustment of differential preload)

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	–
0.78	–	1.24	–
0.80	–	1.28	–
0.84	–	1.32	–

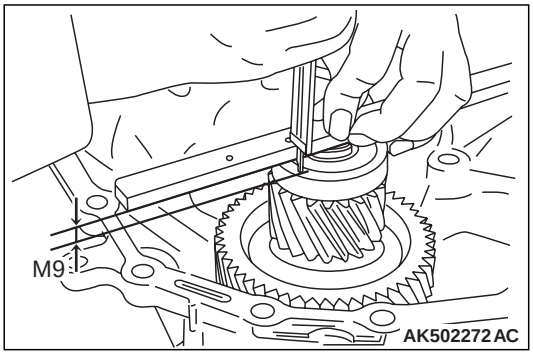
Adjusting shims (For adjustment of reduction gear preload)

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

<Add>

0.56	-
0.60	-

Attached sheet 10



(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

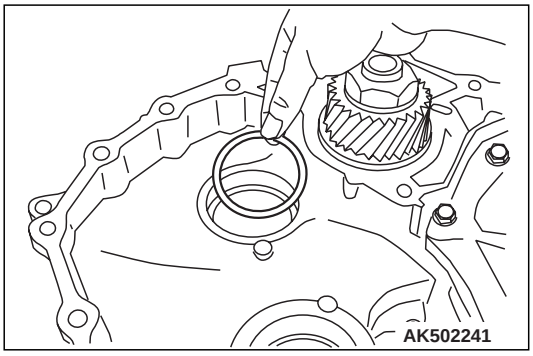
<Previous> <New>

Standard value: ~~0.13 – 0.19 mm~~ ← 0.11 – 0.17 mm

(For reduction gear preload)

⚠ CAUTION

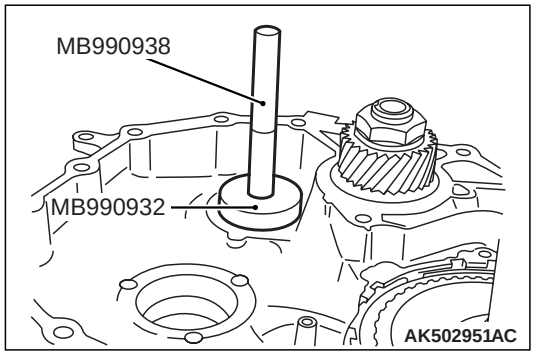
Do not re-use the adjusting shim.



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.**

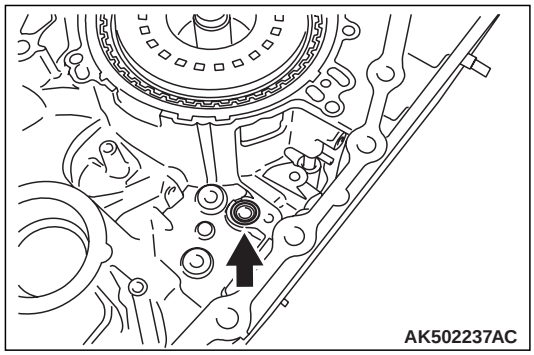


28.Using the special tools, install the outer race of reduction gear bearing on the transmission case.

- Installer adapter (MB990932)
- Installer bar (MB990938)

⚠ CAUTION

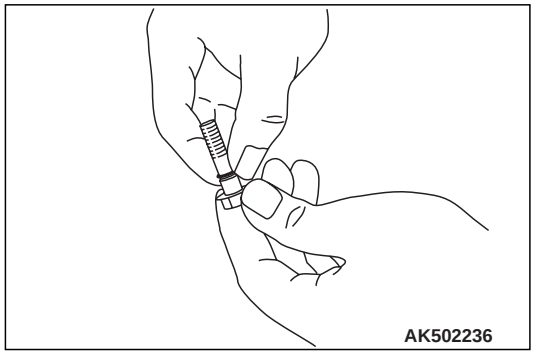
- **Do not re-use the lip seal.**
- **Apply CVT fluid when installing the lip seal.**



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 fastening bolts.

Attached sheet 11

SERVICE SPECIFICATIONS

<New>
0.11 — 0.17

Item		Standard value mm
Reverse brake clearance		1.2 – 1.5
Total end play		0.25 – 0.55
Differential preload		0.17 – 0.29
Reduction gear preload <Previous>		0.13 – 0.19
Oil pump drive sprocket to converter housing clearance		0.10 – 0.23
Mounting bore diameter of reduction gear bearing outer race	Converter housing side	ϕ86.949 – 86.979
	Transmission case side	
Mounting bore diameter of differential side bearing outer race	Converter housing side	ϕ84.941 – 84.976
	Transmission case side	ϕ76.949 – 76.979
Mounting bore diameter of reduction gear bearing inner race	Converter housing side	ϕ30.008 – 30.029
	Transmission case side	
Mounting bore diameter of differential side bearing inner race	Converter housing side	ϕ40.032 – 40.078
	Transmission case side	ϕ40.026 – 40.051

SNAP RING, NEEDLE BEARING AND SHIM FOR ADJUSTMENT

Snap rings (For adjustment of reverse brake)

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

Needle bearings (For adjustment of total end play)

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

Adjusting shims (For adjustment of differential preload)

Thickness mm	Identification	Thickness mm	Identification
0.24	–	0.80	–
0.28	–	0.84	–
0.32	–	0.88	–
0.36	–	0.92	–
0.40	–	0.96	–
0.44	–	1.00	–

Attached sheet 12

CONTINUOUSLY VARIABLE TRANSMISSION OVERHAUL
SNAP RING, NEEDLE BEARING AND SHIM FOR ADJUSTMENT

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

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

Thickness mm	Identification	Thickness mm	Identification
0.64	–	0.92	–
0.68	–	0.96	–
0.72	–	1.00	–
0.76	–	1.04	–

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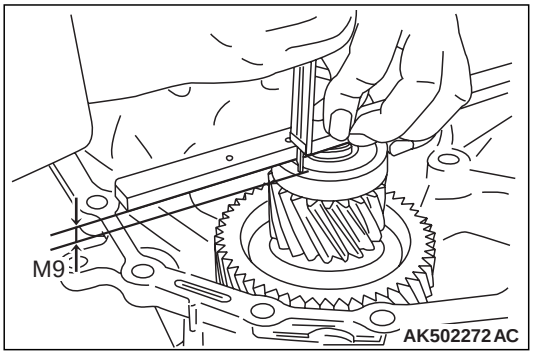
0.56	MSB-09E23-001 (08AT501)	- 8
0.60		-

Attached sheet 13



(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.

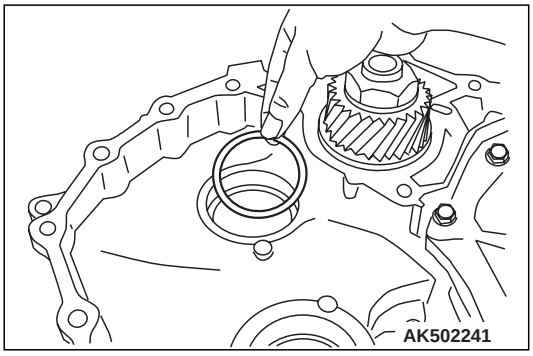
(4) Using the following expression, calculate the difference M10 from the outer race of reduction gear bearing to the edge of converter housing.

M10 = M8 – M9

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

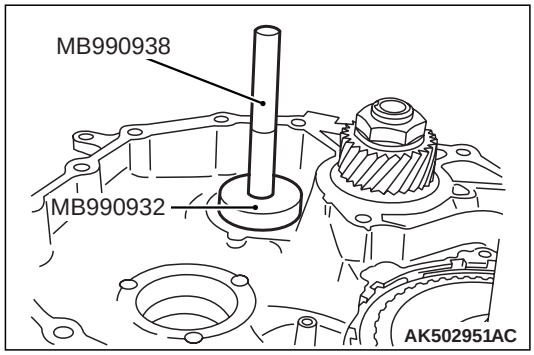
Thickness of adjusting shim = M7 – M10 + preload
Standard value: ~~0.13 – 0.19 mm~~ <Previous> 0.11 – 0.17 mm <New>
(For reduction gear preload)

⚠ CAUTION
Do not re-use the adjusting shim.



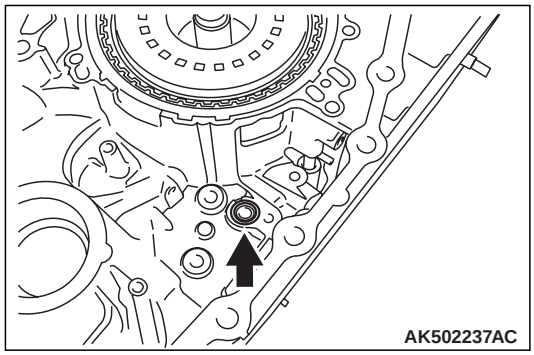
27.Install the selected adjusting shim on the transmission case. For selection of the adjusting shim, refer to "SERVICE SPECIFICATIONS".

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



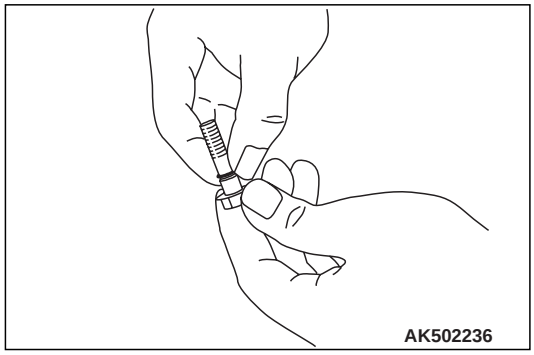
28.Using the special tools, install the outer race of reduction gear bearing on the transmission case.
- Installer adapter (MB990932)
- Installer bar (MB990938)

⚠ 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 fastening bolts.

Attached sheet 14

SERVICE SPECIFICATIONS

<New>
0.11 — 0.17

Item		Standard value mm
Reverse brake clearance		1.2 – 1.5
Total end play		0.25 – 0.55
Differential preload		0.17 – 0.29
Reduction gear preload	<Previous>	~~0.13 – 0.19~~
Oil pump drive sprocket to converter housing clearance		0.10 – 0.23
Mounting bore diameter of reduction gear bearing outer race	Converter housing side	ϕ61.949 – 61.979
	Transmission case side	
Mounting bore diameter of differential side bearing outer race	Converter housing side <F4A>	ϕ67.949 – 67.979
	Converter housing side <W4A>	ϕ84.941 – 84.976
	Transmission case side	ϕ67.949 – 67.979
Mounting bore diameter of reduction gear bearing inner race	Converter housing side	ϕ30.008 – 30.029
	Transmission case side	
Mounting bore diameter of differential side bearing inner race	Converter housing side <F4A>	ϕ40.026 – 40.051
	Converter housing side <W4A>	ϕ60.032 – 60.078
	Transmission case side	ϕ40.026 – 40.051

SNAP RING SPACER AND THRUST WASHER FOR ADJUSTMENT

Snap rings (For adjustment of reverse brake)

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

Needle bearings (For adjustment of total end play)

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

Adjusting shims (For adjustment of differential preload) <F1CJA>

Thickness mm	Identification	Thickness mm	Identification
0.40	–	0.96	–
0.44	–	1.00	–
0.48	–	1.04	–
0.52	–	1.08	–

Attached sheet 15

CONTINUOUSLY VARIABLE TRANSMISSION OVERHAUL
SNAP RING SPACER AND THRUST WASHER FOR ADJUSTMENT

Thickness mm	Identification	Thickness mm	Identification
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 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
0.64	–	1.48	–
0.68	–	1.52	–
0.72	–	1.56	–
0.76	–	1.60	–
0.80	–	1.64	–
0.84	–	1.68	–
0.88	–	1.72	–
0.92	–	1.76	–
0.96	–	1.80	–
1.00	–	1.84	–
1.04	–	1.88	–
1.08	–	1.92	–
1.12	–	1.96	–

<Add>

0.56 - 09E23- 001 (08AT501)	-	11
0.60	-	

Attached sheet 16

Thickness mm	Identification	Thickness mm	Identification
1.16	–	2.00	–
1.20	–	2.04	–
1.24	–	2.08	–
1.28	–	2.12	–
1.32	–	2.16	–
1.36	–	2.20	–
1.40	–	2.24	–
1.44	–	<Delete>	

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

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

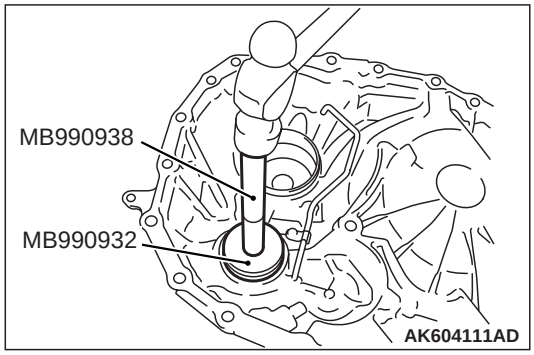
TORQUE SPECIFICATIONS

Transmission

Item	N·m
Detent spring	6.9
Plug	7.5
Cap	6.9
Oil pump	19
Oil pump	28
Control valve assembly	7.9
Manual control valve lever	22.1
Bracket	7.9
Oil strainer	7.9
Oil pan	7.9
Drain plug	34.3
Baffle plate	5.9
Bracket	26
Baffle plate	26
Oil pump cover	26
Baffle plate nut	5.9

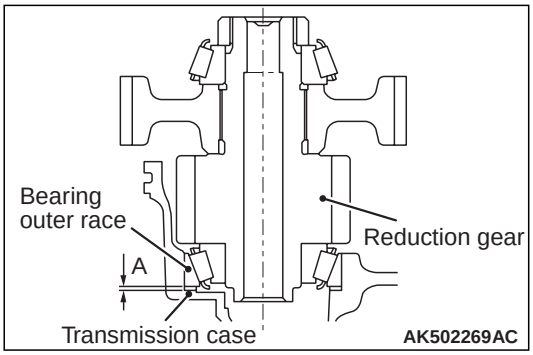
Attached sheet 17

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

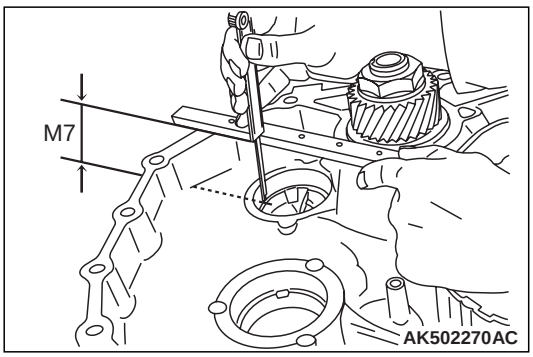


25.Using the special tools, install the outer race of reduction gear bearing on the converter housing.
- Installer adapter (MB990932)
- Installer bar (MB990938)

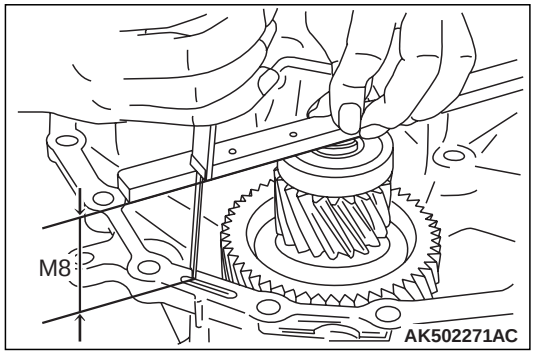
⚠ CAUTION
- **When adjusting the preload, apply CVT fluid to the bearing to make it roll smoothly.**
- **When conducting measurements, measure two or more places, and find the average value.**



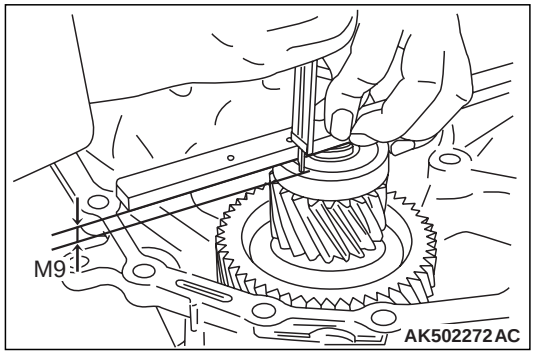
26.Measure the preload A of the reduction gear assembly in the following way.



(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

<Previous> <New>

Standard value: ~~0.13 – 0.19 mm~~ ← 0.11 – 0.17 mm

(For reduction gear preload)