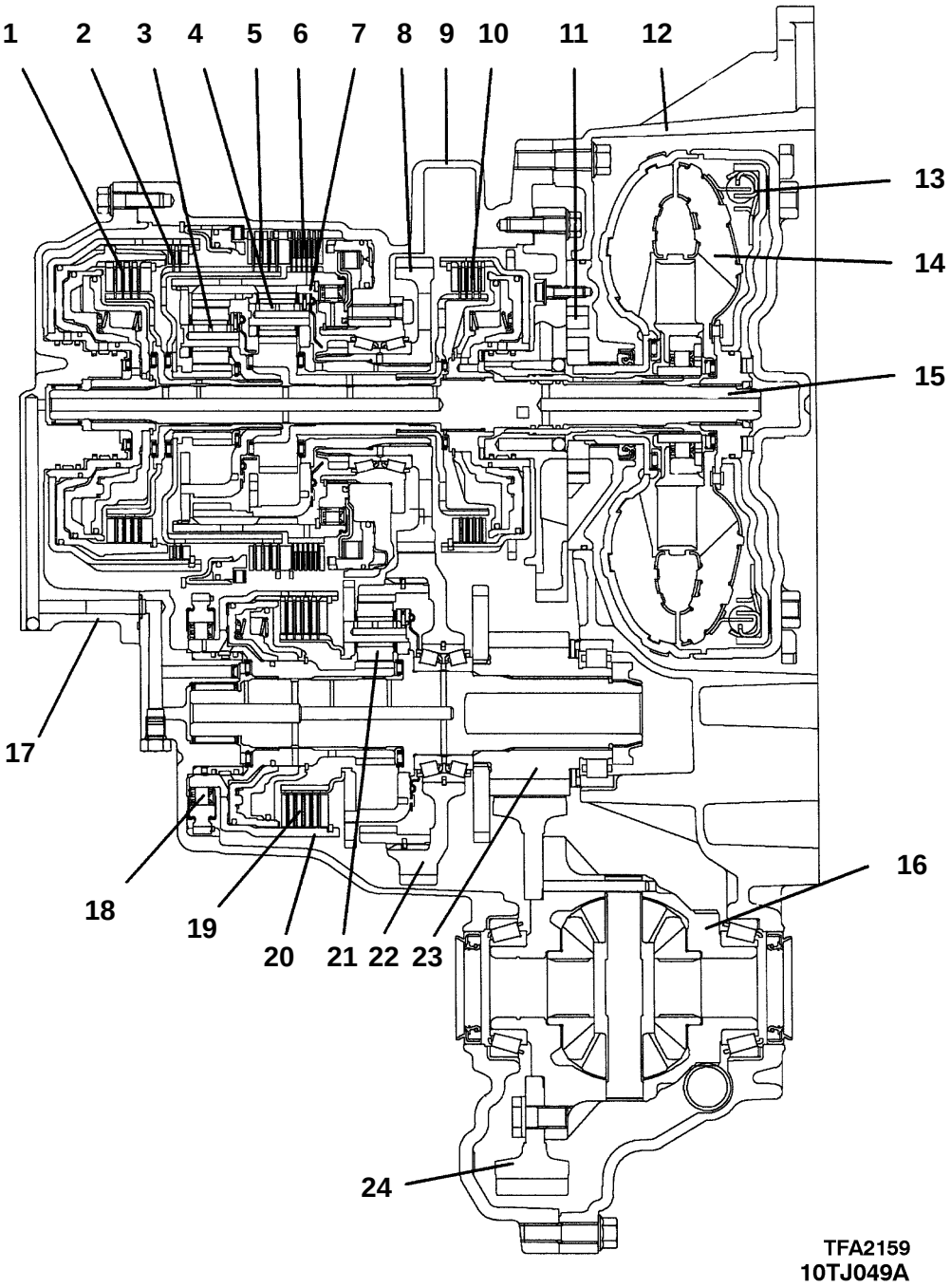
GENERAL INFORMATION

1. The combination of highest-precision electronic and mechanical technology heralds a new era in automatic transmission performance.
2. The gear shifting clutches use a hydraulic balancing mechanism to enable gear shifting at extra-high engine speeds.
3. The number of shafts has been decreased to two and increased use has been made of metal plates which all contributes to reduce the weight.
4. Increased meshing ratios and improved rigidity of the gear supports and casing result in less noise.
5. In addition, adoption of a newly-developed automatic transmission fluid (ATF) increases the service life of the fluid.
6. The number of oil cooler feed tubes is increased to two.

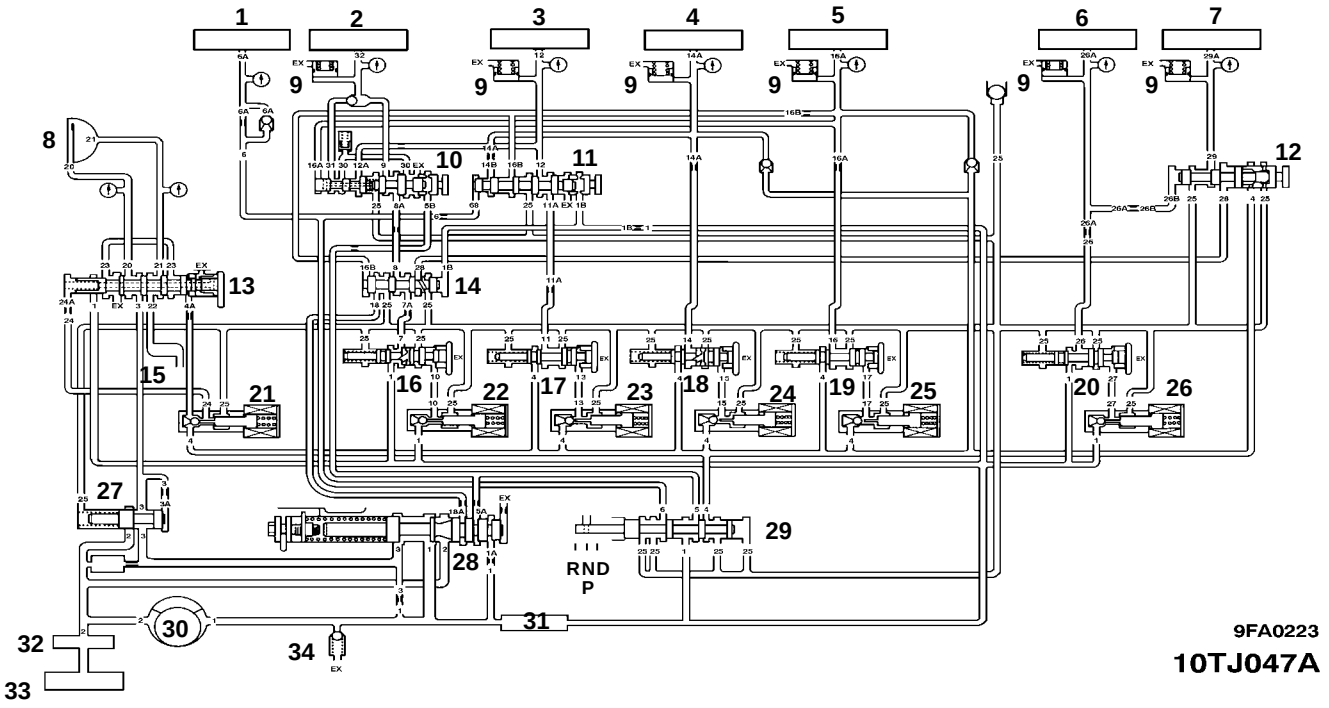
SECTIONAL VIEW

<F5A51/W5A51>



1. Over drive clutch
2. Reverse clutch
3. Overdrive planetary carrier
4. Output planetary carrier
5. Second brake
6. Low-reverse brake
7. One-way clutch
8. Transfer drive gear
9. Transmission case
10. Underdrive clutch
11. Oil pump
12. Converter housing
13. Torque converter clutch
14. Torque converter
15. Input shaft
16. Differential
17. Rear cover
18. One-way clutch
19. Direct clutch
20. Reduction brake band
21. Direct planetary carrier
22. Transfer driven gear
23. Output gear
24. Differential drive gear

HYDRAULIC CIRCUIT



1. Reverse clutch
2. Low-reverse brake
3. Second brake
4. Underdrive clutch
5. Overdrive clutch
6. Reduction brake
7. Direct clutch
8. Torque converter clutch
9. Accumulator
10. Fail safe valve A
11. Fail safe valve B
12. Fail safe valve C
13. Torque converter clutch control valve
14. Switch valve
15. Cooler
16. Low reverse pressure control valve
17. Second pressure control valve
18. Under drive pressure control valve
19. Over drive pressure control valve
20. Reduction pressure control valve
21. Torque converter clutch control valve
22. Low reverse solenoid valve
23. Second solenoid valve
24. Under drive solenoid valve
25. Over drive solenoid valve
26. Reduction solenoid valve
27. Torque converter pressure control valve
28. Regulator valve
29. Manual valve
30. Oil pump
31. Oil strainer
32. Oil filter
33. Oil pan
34. Relief valve

SPECIFICATIONS

GENERAL SPECIFICATIONS

Items		Specifications
Model		F5A51-2-EZB (2WD) W5A51-1-E1DD (AWD)
Type		Electronically controlled 5-speed full-automatic
Torque converter	Type	3-element with torque converter clutch
	Engine stall speed	2100 – 2600 r/min.
Gear ratio	1st	3.789
	2nd	2.057
	3rd	1.421
	4th	1.000
	5th	0.731
Gear ratio	Reverse	3.865
Final gear ratio		3.684

SERVICE SPECIFICATIONS

Items	Standard value
Output shaft preload mm	0.01 – 0.09
Brake reaction plate end play mm	0 – 0.16
Low-reverse brake end play mm	1.65 – 2.11
Second brake end play mm	1.09 – 1.55
Underdrive sun gear end play mm	0.25 – 0.45
Input shaft end play mm	0.70 – 1.45
Differential case preload mm	0.045 – 0.105
Underdrive clutch end play mm	1.60 – 1.80
Reverse and overdrive clutch return spring end play mm	0 – 0.09
Overdrive clutch end play mm	1.6 – 1.8
Reverse clutch end play mm	1.5 – 1.7
Backlash between differential side gear and pinion mm	0.025 – 0.150
Direct clutch end play mm	1.0 – 1.2

VALVE BODY SPRING IDENTIFICATION TABLE

Spring	Wire diameter mm	Outside diameter mm	Free length mm	Number of loops
Regulator valve spring	1.8	15.7	86.7	24
Underdrive pressure control valve spring	0.7	7.6	37.7	25
Overdrive pressure control valve spring	0.7	7.6	37.7	25
Low-reverse pressure control valve spring	0.7	7.6	37.7	25
Second pressure control valve spring	0.7	7.6	37.7	25
Reduction pressure control valve spring	0.7	7.6	37.7	25
Torque converter valve spring	1.6	11.2	34.4	12.5
Torque converter clutch control valve spring	0.7	5.9	28.1	19
Fail-safe valve A spring	0.7	8.9	21.9	9.5
Damping valve spring	1.0	7.7	35.8	17
Line relief valve spring	1.0	7.0	17.3	10
Orifice check ball spring	0.5	4.5	15.4	15

SNAP RING, SPACER, THRUST WASHER, THRUST RACE AND PRESSURE PLATE FOR ADJUSTMENT

Thrust washer (For adjustment of input shaft end play)

Thickness mm	Identification symbol	Part No.	Thickness mm	Identification symbol	Part No.
1.8	18	MD754509	2.4	24	MD753793
2.0	20	MD754508	2.6	26	MD753794
2.2	22	MD754507	2.8	28	MD753795

Snap ring (For adjustment of underdrive clutch and overdrive clutch end play)

Thickness mm	Identification symbol	Part No.	Thickness mm	Identification symbol	Part No.
1.6	Brown	MD759660	2.4	Blue	MD750845
1.7	None	MD759661	2.5	Brown	MD750846
1.8	Blue	MD759662	2.6	None	MD750847
1.9	Brown	MD758892	2.7	Blue	MD750848
2.0	None	MD750841	2.8	Brown	MD750849
2.1	Blue	MD750842	2.9	None	MD750850
2.2	Brown	MD750843	3.0	Blue	MD750851
2.3	None	MD750844			

Snap ring (For adjustment of low-reverse brake and second brake reaction plate end play)

Thickness mm	Identification symbol	Part No.	Thickness mm	Identification symbol	Part No.
2.2	None	MD756784	2.4	Brown	MD758552
2.3	Blue	MD756785	2.5	None	MD758553

Pressure plate (For adjustment of low-reverse brake end play)

Thickness mm	Identification symbol	Part No.	Thickness mm	Identification symbol	Part No.
1.6	F	MD759568	2.4	B	MD759428
1.8	E	MD759425	2.6	A	MD759429
2.0	D	MD759426	2.8	0	MD759430
2.2	C	MD759427	3.0	1	MD759431

Pressure plate (For adjustment of second brake end play)

Thickness mm	Identification symbol	Part No.	Thickness mm	Identification symbol	Part No.
1.6	F	MD759568	2.4	B	MD759428
1.8	E	MD759425	2.6	A	MD759429
2.0	D	MD759426	2.8	0	MD759430
2.2	C	MD759427	3.0	1	MD759431

Snap ring (For adjustment of reverse clutch end play)

Thickness mm	Identification symbol	Part No.	Thickness mm	Identification symbol	Part No.
1.9	None	MD758947	2.4	Blue	MD756694
2.0	None	MD756690	2.5	Brown	MD756695
2.1	Blue	MD756691	2.6	None	MD756696
2.2	Brown	MD756692	2.7	Blue	MD756697
2.3	None	MD756693	2.8	Brown	MD756698

Snap ring (For adjustment of reverse clutch and overdrive clutch spring retainers end play)

Thickness mm	Identification symbol	Part No.	Thickness mm	Identification symbol	Part No.
1.48	Brown	MD755600	1.58	Blue	MD755602
1.53	None	MD755601	1.63	Brown	MD755603

Thrust race (For adjustment of underdrive sun gear end play)

Thickness mm	Identification symbol	Part No.	Thickness mm	Identification symbol	Part No.
1.6	–	MD707267	2.2	–	MD723065
1.7	–	MD759681	2.3	–	MD754796
1.8	–	MD723064	2.4	–	MD724358
1.9	–	MD754794	2.5	–	MD754797
2.0	–	MD707268	2.6	–	MD754798
2.1	–	MD754795			

Snap ring (For adjustment of direct clutch end play)

Thickness mm	Identification symbol	Part No.	Thickness mm	Identification symbol	Part No.
1.9	Brown	MD758946	2.5	Brown	MD753402
2.0	None	MD753397	2.6	None	MD753403
2.1	Blue	MD753398	2.7	Blue	MD753404
2.2	Brown	MD753399	2.8	Brown	MD753405
2.3	None	MD753400	2.9	None	MD753406
2.4	Blue	MD753401	3.0	Blue	MD753407

Spacer (For adjustment of differential case preload)

Thickness mm	Identification symbol	Part No.	Thickness mm	Identification symbol	Part No.
0.83	83	MD756948	1.10	10	MD756957
0.86	86	MD756949	1.13	13	MD756958
0.89	89	MD756950	1.16	16	MD756959
0.92	92	MD756951	1.19	19	MD756960
0.95	95	MD756952	1.22	22	MD756961
0.98	98	MD756953	1.25	25	MD756962
1.01	01	MD756954	1.28	28	MD756963
1.04	04	MD756955	1.31	31	MD756964
1.07	07	MD756956	1.34	34	MD756965

Spacer (For adjustment of backlash between differential side gear and pinion)

Thickness mm	Identification symbol	Part No.	Thickness mm	Identification symbol	Part No.
0.56 – 0.64	–	MD757996	0.86 – 0.94	–	MD757999
0.66 – 0.74	–	MD757997	0.96 – 1.04	–	MD758000
0.76 – 0.84	–	MD757998	1.06 – 1.14	–	MD758001

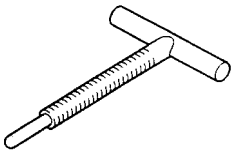
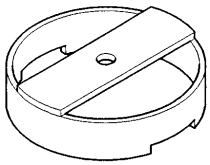
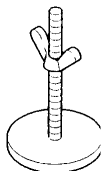
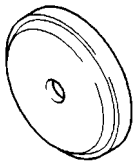
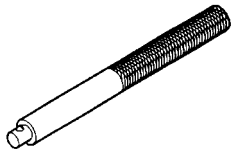
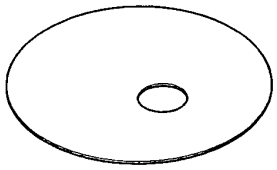
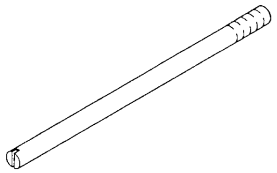
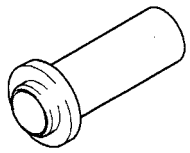
TORQUE SPECIFICATIONS

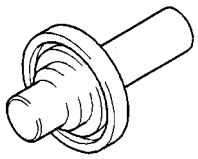
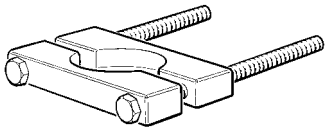
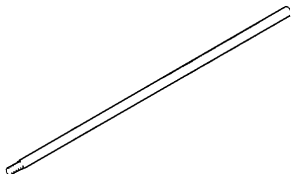
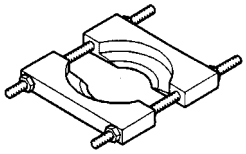
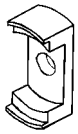
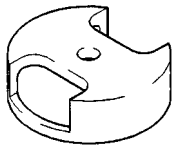
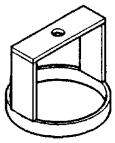
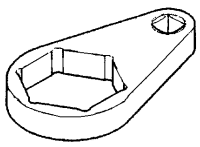
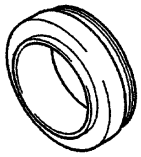
Items		Nm
Transmission	Roll stopper bracket	59 – 79
	Wiring harness bracket	20 – 26
	Control cable bracket	20 – 26
	Eye bolt	27 – 33
	Oil cooler feed tube	10 – 12
	Oil filter	11 – 13
	Input shaft speed sensor	10 – 12
	Output shaft speed sensor	10 – 12
	Manual control lever	19 – 25
	Park/neutral position switch (Inhibitor switch)	10 – 12
	Speedometer gear	3.9 – 5.9
	Valve body cover	10 – 12
	Valve body mounting bolt	10 – 12
	Fluid temperature sensor	10 – 12
	Manual control shaft detent	4.9 – 6.9
	Rear cover	20 – 26
	Torque converter housing	41 – 53
	Oil pump	20 – 26
	Transfer drive gear	32 – 36
	Output shaft lock nut	157 – 177
	Output shaft bearing retainer	20 – 26
	Oil filler plug	30 – 34
	Oil drain plug	30 – 34
Components	Differential drive gear	127 – 137
	Valve body	10 – 12
	Solenoid valve support	5 – 7
	Direct planetary carrier lock nut	157 – 177
	Anchor plug	83 – 113

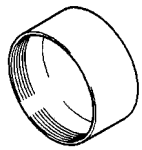
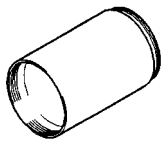
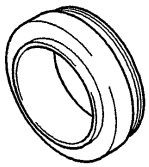
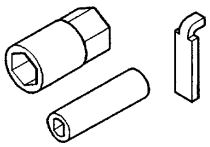
SEALANTS

Items	Specified sealant
Rear cover	Mitsubishi genuine sealant Part No. MD974421 or equivalent
Torque converter housing	Mitsubishi genuine sealant Part No. MD974421 or equivalent
Valve body cover	Mitsubishi genuine sealant Part No. MD974421 or equivalent

SPECIAL TOOLS

Tool	Tool number and name	Supersession	Application
	MD998333 Oil pump remover.	–	Removal of oil pump.
	MB991629 Spring compressor.	EMB991629.	Measurement of underdrive clutch and overdrive clutch end plays.
	MD998924 Spring compressor retainer.		Removal and installation of low-reverse brake snap ring. Measurement of underdrive clutch and overdrive clutch end plays.
	MB990936 Installer adaptor.	–	Installation of differential taper roller bearing outer race.
	MB990938 Handle.	–	Installation of input shaft rear bearing. Use with installer adaptor.
	MB991632 Clearance dummy plate.	–	Measurement of low-reverse brake and second brake end play.
	MD998412 Guide.	–	Installation of oil pump and transfer drive gear.
	MD998334 Oil seal installer.	E9055 (17-010A).	Installation of oil pump oil seal.

Tool	Tool number and name	Supersession	Application
	MD998800 Oil seal installer.	E21M14A.	Installation of drive shaft oil seal.
	MD998801 Bearing remover.	–	Removal of diff bearings.
	MD998913 Dial gauge extension.	E21M44.	Measurement of low-reverse brake and second brake end plays.
	MD998917 Bearing remover.	–	Removal of direct planetary carrier taper roller bearing.
	MD999590 Spring compressor.	EMD999590.	Removal and installation of overdrive clutch snap ring.
	MD998907 Spring compressor.	E21M43.	Removal and installation of underdrive clutch snap ring.
	MB991630 Spring compressor.	–	Removal and installation of direct clutch snap ring.
	MD998834 Torque wrench adaptor.	–	Removal and installation of direct planetary carrier lock nut.
	MD998823 Installer adaptor (48).	–	Install differential bearings.

Tool	Tool number and name	Supersession	Application
	MD998812 Installer cap.	–	Use with installer and installer adaptor.
	MD998813 Installer – (100).	–	Use with installer cap and installer adaptor.
	MD998824 Installer adaptor (50)	–	Installation of transfer drive gear.
	MB991633 Reduction brake wrench set.	–	Removal, installation and adjustment of reduction brake piston.

FORM–IN–PLACE GASKET

The transmission has several areas where the form–in–place gasket (FIPG) is in use. To ensure that the gasket fully serves its purpose, it is necessary to observe some precautions when applying the gasket. 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 the fluid feed line. To eliminate the possibility of leaks from a joint, therefore, it is absolutely necessary to apply the gasket evenly without a break, while observing the correct bead size.

DISASSEMBLY

The parts assembled with the FIPG can be easily disassembled without use of a special method. In some cases, however, the sealant between the joined surfaces may have to be broken by lightly striking with a mallet or similar tool. A flat and thin gasket scraper may be lightly hammered in between the joined surfaces. In this case, however, care must be taken to prevent damage to the joined surfaces.

SURFACE PREPARATION

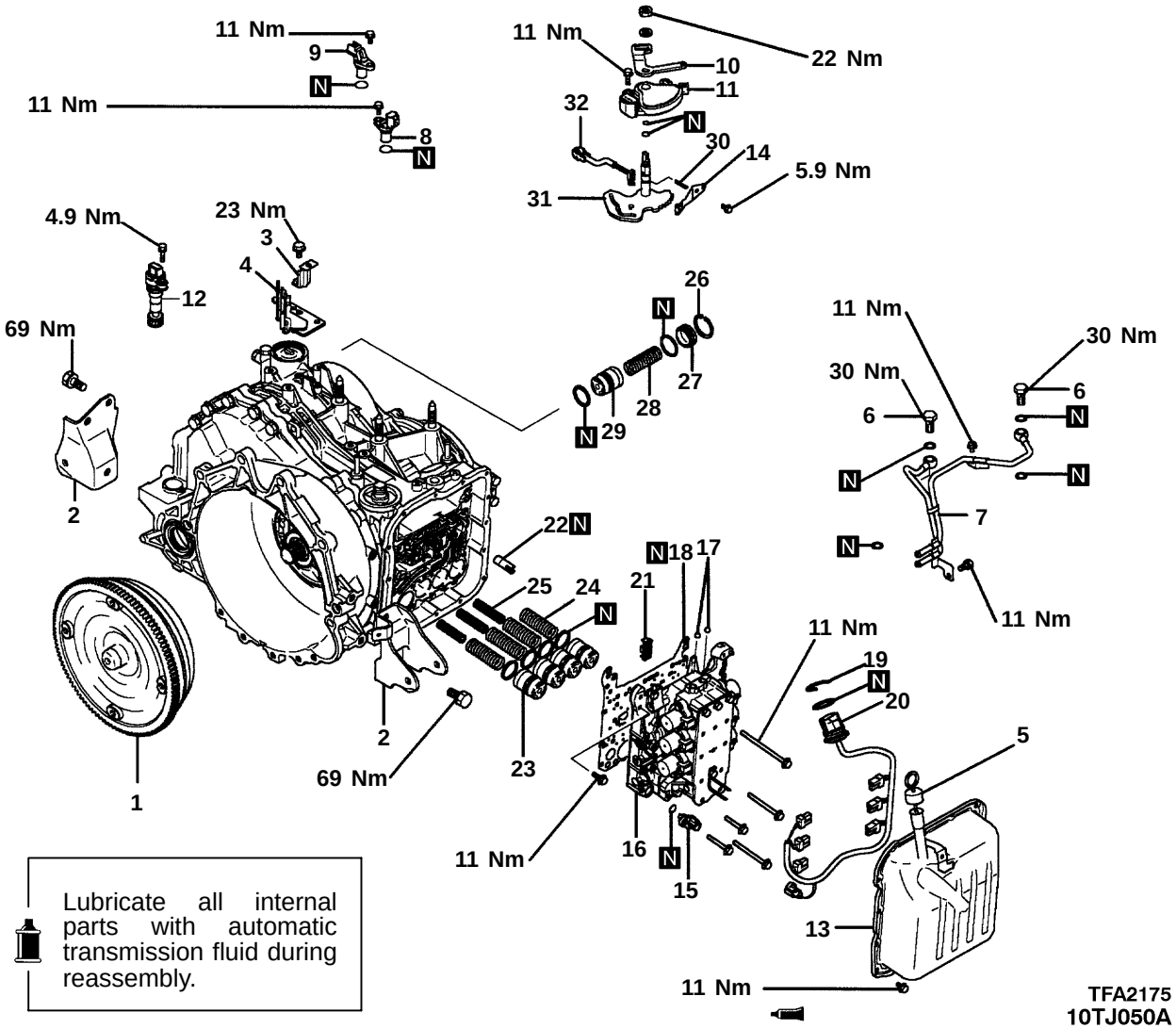
Thoroughly remove all substances deposited on the gasket application surfaces, using a gasket scraper or wire brush. Check to ensure that the surfaces to which the FIPG is to be applied is flat. Make sure that there are no oils, greases and foreign substances deposited on the application surfaces. Do not forget to remove the old sealant remaining in the bolt holes.

FORM–IN–PLACE GASKET APPLICATION (FIPG)

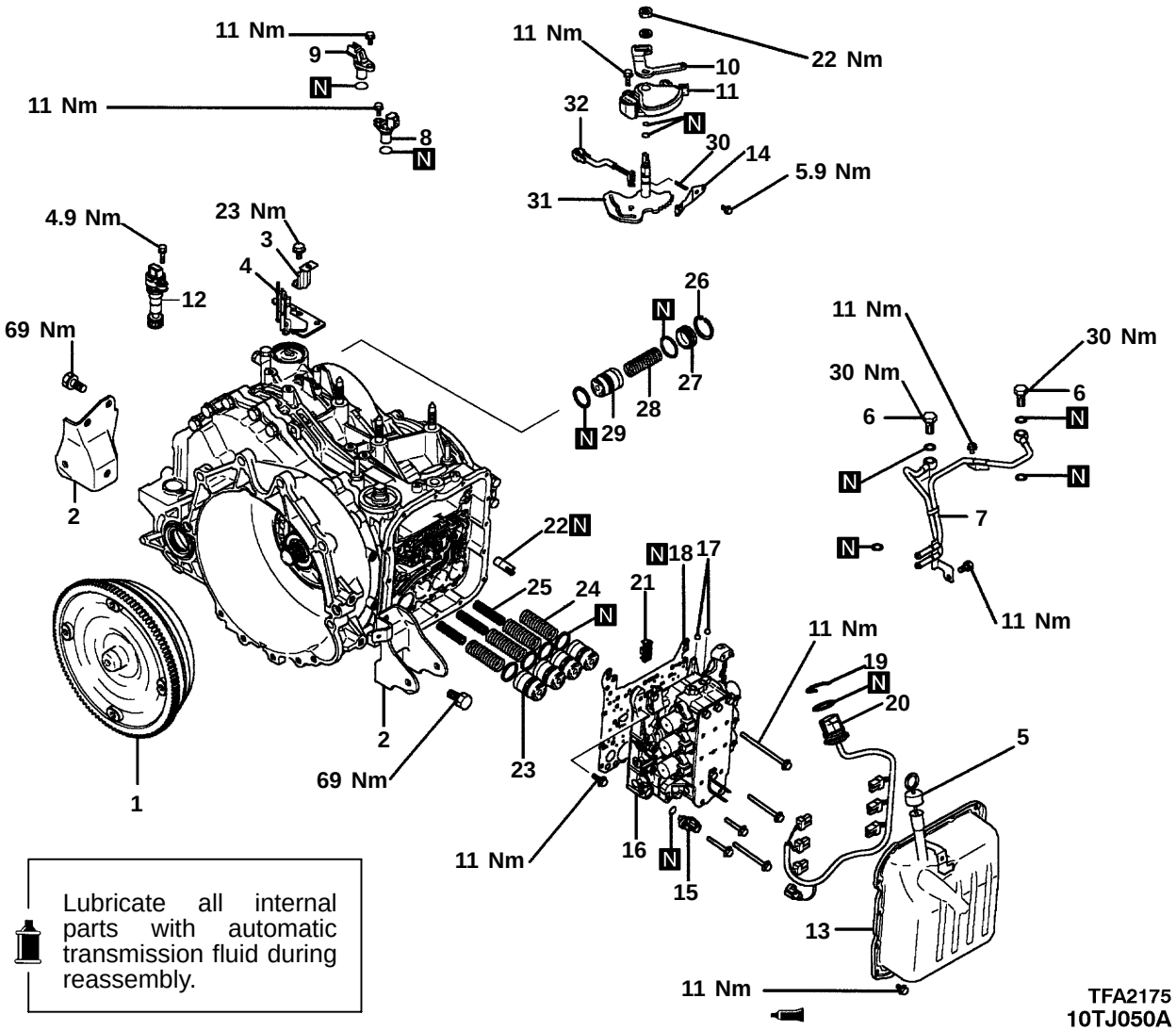
When assembling parts with the FIPG, you must observe some precautions, but the procedure is very simple as in the case of a conventional pre–cut gasket. Applied FIPG bead should be of the specified size and without breaks. Also be sure to encircle the bolt hole circumference with a completely continuous bead. The FIPG can be wiped away unless it is hardened. While the FIPG is still moist (in less than 15 minutes), mount the parts in position. When the parts are mounted, make sure that the gasket is applied to the required area only. In addition, do not apply any oil to the sealing locations or start the engine until a sufficient amount of time (about one hour) has passed after installation is completed. The FIPG application procedure may vary on different areas. Observe the procedure described in the text when applying the FIPG.

TRANSMISSION

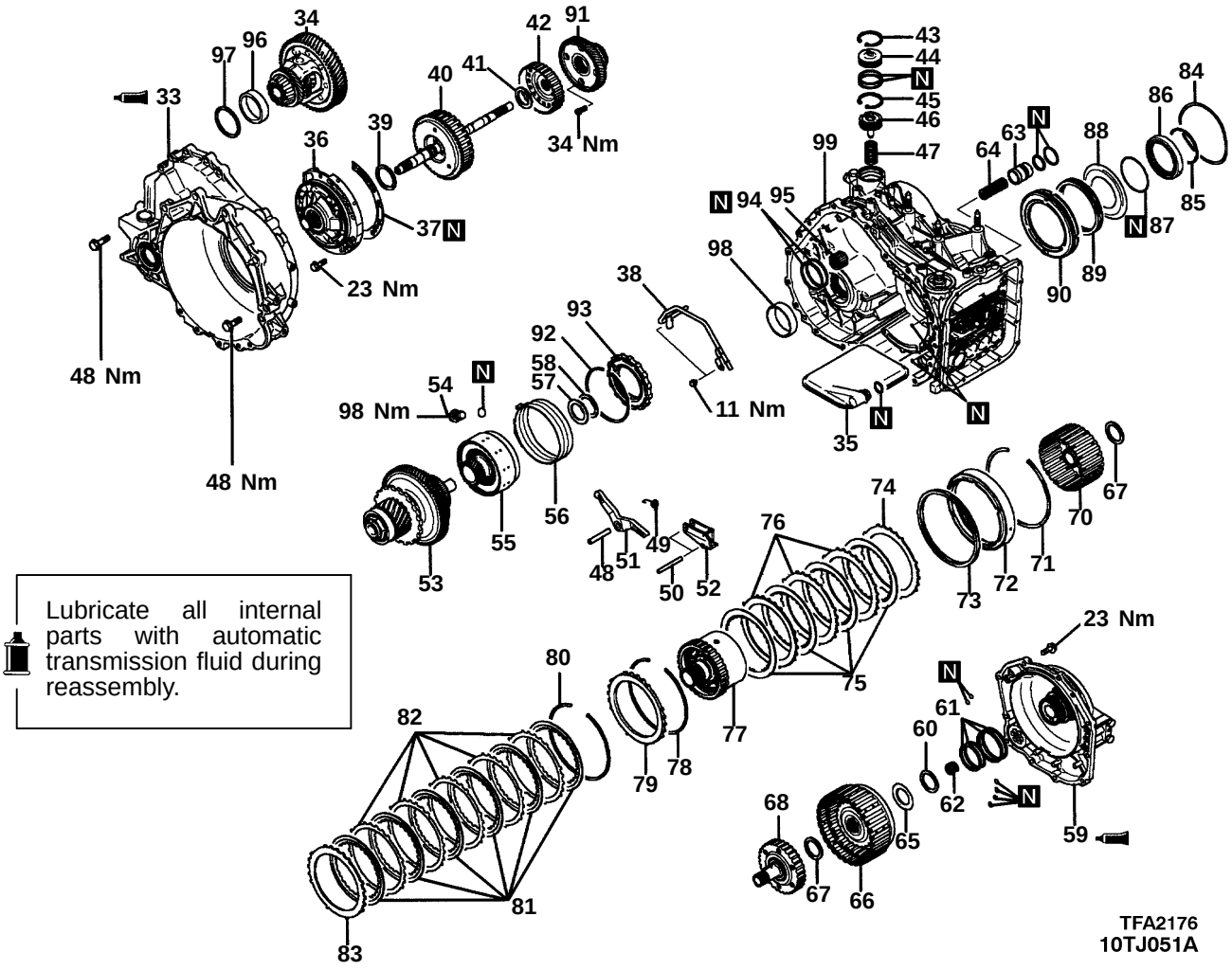
DISASSEMBLY AND REASSEMBLY



1. Torque converter
2. Roll stopper bracket
3. Harness bracket
4. Control cable support bracket
5. Oil level gauge
6. Eye bolts
7. Cooler pipes
8. Input shaft speed sensor
9. Output shaft speed sensor
10. Manual control lever
11. Park/neutral position switch
12. Speedometer gear
13. Valve body cover
14. Manual control shaft detent



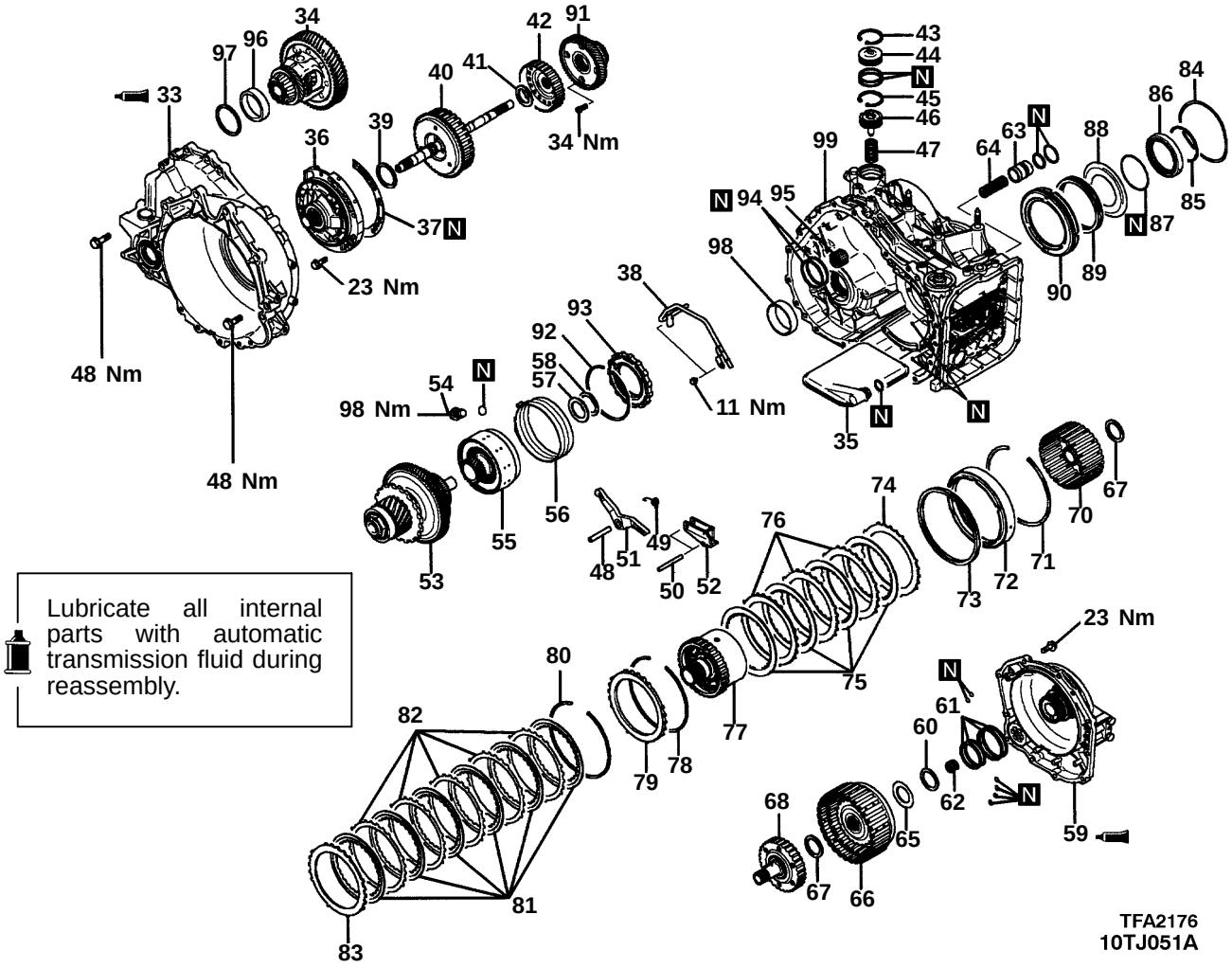
15. Fluid temperature sensor
16. Valve body
17. Steel ball
18. Gasket
19. Snap ring
20. Solenoid valve harness
21. Strainer
22. Second brake retainer oil seal
23. Accumulator piston
24. Accumulator spring
25. Accumulator spring
26. Snap ring
27. Accumulator cover
28. Accumulator spring
29. Accumulator piston
30. Manual control lever shaft pin
31. Manual control lever shaft
32. Parking pawl rod



33. Torque converter housing
34. Differential
35. Oil filter
36. Oil pump
37. Gasket
38. Pipe
39. Thrust washer #1
40. Under drive clutch & input shaft
41. Thrust bearing #2
42. Under drive clutch hub
43. Snap ring
44. Reduction brake piston cover
45. Snap ring
46. Reduction brake piston
47. Reduction brake spring
48. Parking pawl shaft
49. Parking pawl shaft spring
50. Parking roller support shaft
51. Parking pawl
52. Parking roller support
53. Direct planetary carrier
54. Anchor plug
55. Direct clutch
56. Reduction brake band
57. Thrust bearing #11
58. Thrust race #12
59. Rear cover
60. Thrust race #8
61. Seal ring
62. Input shaft rear bearing
63. Accumulator piston
64. Accumulator spring
65. Thrust bearing #7
66. Reverse & overdrive clutch
67. Thrust bearing #6
68. Overdrive clutch hub
69. Thrust bearing #5
70. Planetary reverse sun gear

No. of Brake Discs and Plates

Brake	Brake Disc	Brake Plate
Low-reverse brake	6	5
Second brake	4	3

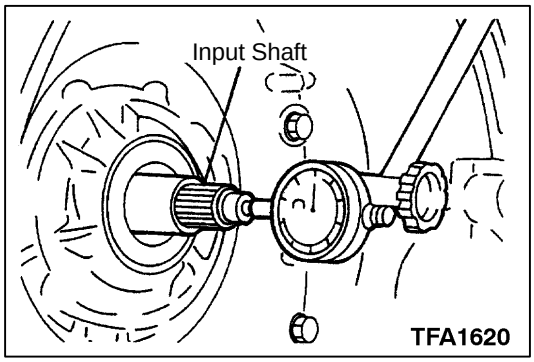


71. Snap ring
72. Second brake piston
73. Return spring
74. Pressure plate
75. Second brake disc
76. Second brake plate
77. Planetary carrier assembly
78. Snap Ring
79. Reaction plate
80. Snap ring
81. Low reverse brake disc
82. Low reverse brake plate
83. Pressure plate
84. Wave spring
85. Snap ring
86. One way clutch inner race
87. O-ring
88. Spring retainer
89. Return spring
90. Low reverse brake piston
91. Transfer drive gear
92. Snap ring
93. One way clutch
94. Seal ring
95. Needle bearing
96. Outer race
97. Spacer
98. Outer race
99. Transmission case

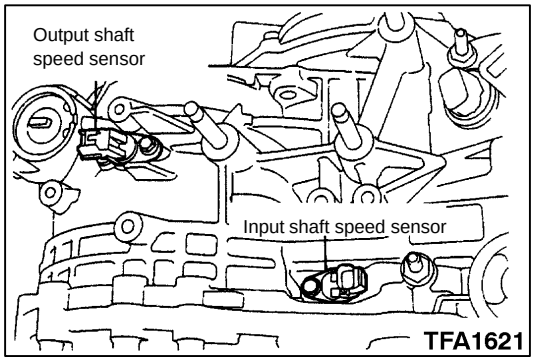
DISASSEMBLY

Caution

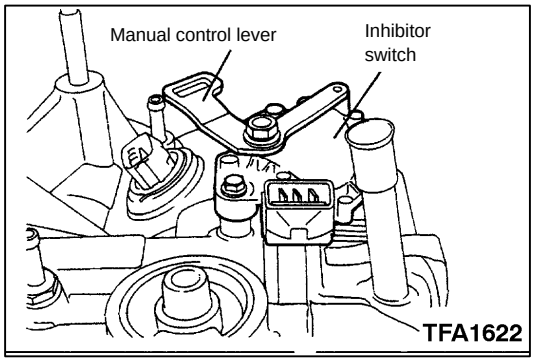
1. **Because the automatic transmission is manufactured from high-precision parts, sufficient care must be taken not to scratch or damage these parts during disassembly and reassembly.**
2. **The working area should be covered with a rubber mat to keep it clean at all times.**
3. **Do not wear any cloth gloves and do not use any rags during disassembly. Use nylon cloth if you need to use something.**
4. **Parts which have been disassembled should all be cleaned. Metal parts can be cleaned with normal detergent, but they should be dried completely using compressed air.**
5. **Clutch discs, plastic thrust plates and rubber parts should be cleaned with automatic transmission fluid (ATF) and keep them out of dust.**
6. **If the transmission body has been damaged, disassemble, flush and clean the cooler system also.**



1. Remove the torque converter.
2. Use the dial gauge to measure the input shaft end play.
3. Remove each bracket.
4. Remove the oil level gauge.
5. Remove the eye bolt, gasket and the oil cooler feed tubes.



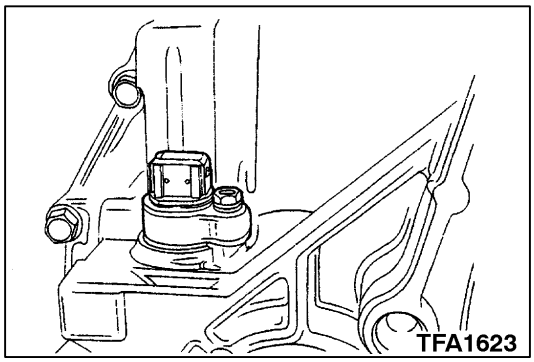
6. Remove the input shaft speed sensor and output shaft speed sensor.



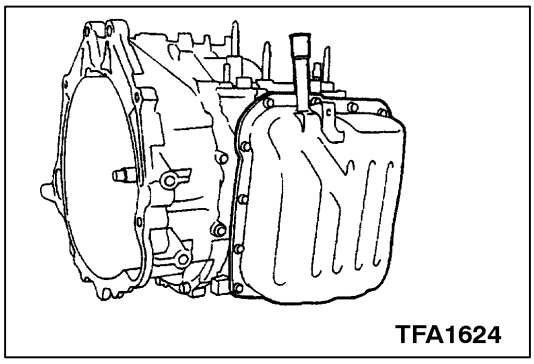
7. Remove the manual control lever, and then remove the park/neutral position switch.

Caution

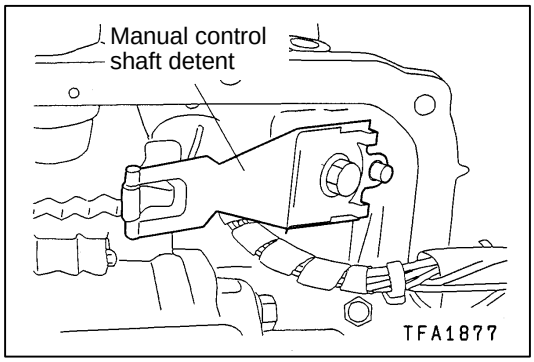
Make sure that the manual control lever installation nut is removed before removing the valve body.



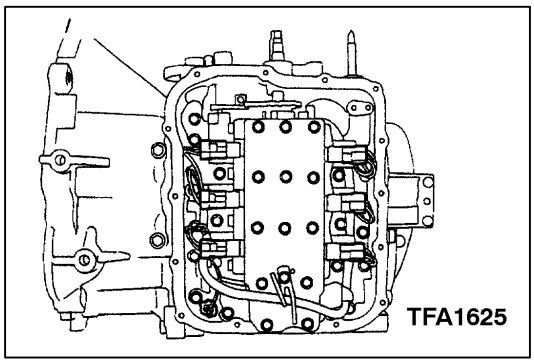
8. Remove the speedometer gear.



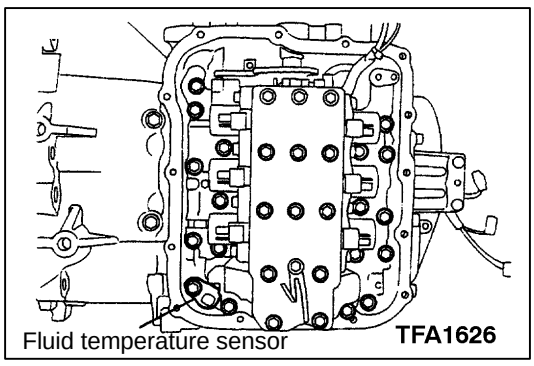
9. Remove the valve body cover.



10. Remove the manual control shaft detent.

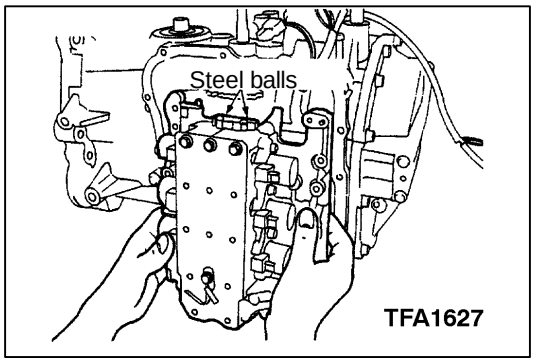


11. Disconnect the harness connectors of the valve body.



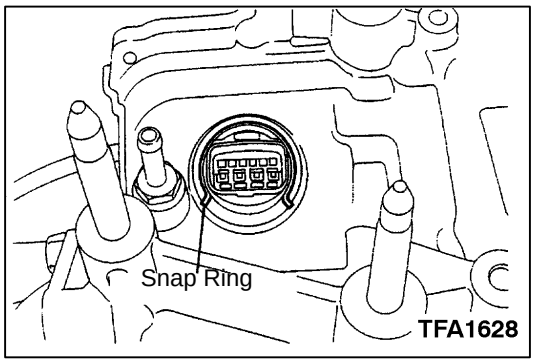
12. Remove the valve body mounting bolts (28 of).
13. Remove the fluid temperature sensor.

Caution
Make sure that the manual control lever and the park/neutral position switch are removed.

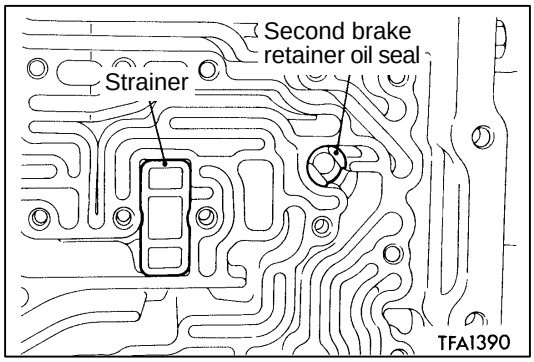


14. Remove the valve body, gasket and the steel balls (2 pieces).

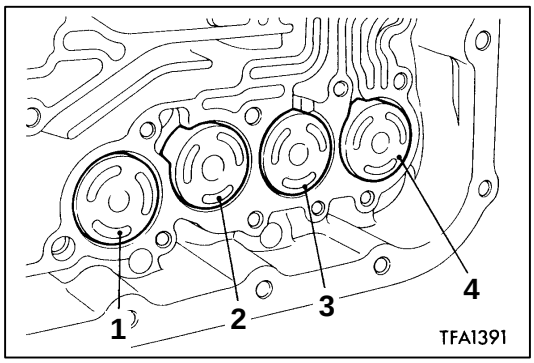
Caution
Do not lose the steel balls (2 pieces).



15. Remove the snap ring, and then remove the solenoid valve harness.



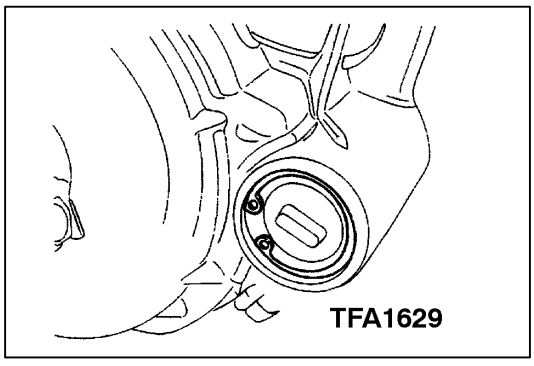
16. Remove the strainer and the second brake retainer oil seal.



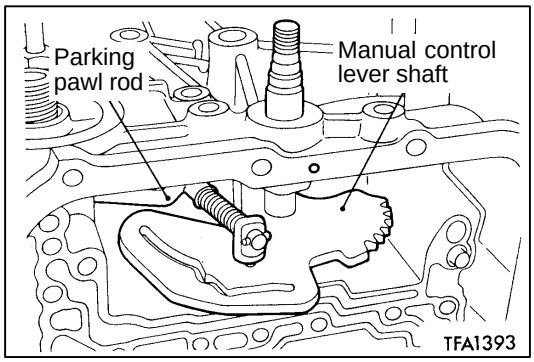
17. Remove each accumulator piston and spring.

No.	Name
1	For low-reverse brake
2	For underdrive clutch
3	For second brake
4	For overdrive clutch

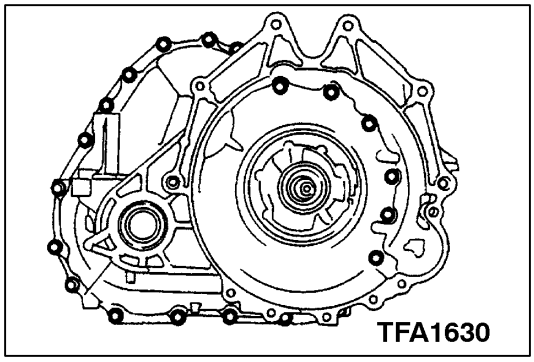
Note: Label each accumulator piston and spring so that they can be reinstalled correctly.



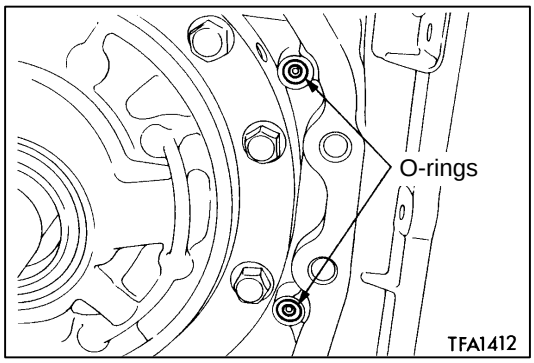
18. Remove snap ring, reduction brake accumulator cover, spring and piston.



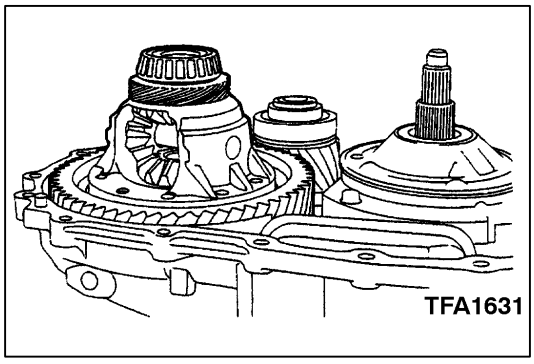
19. Remove the manual control lever shaft roller.
20. Remove the manual control lever shaft and the parking pawl rod.



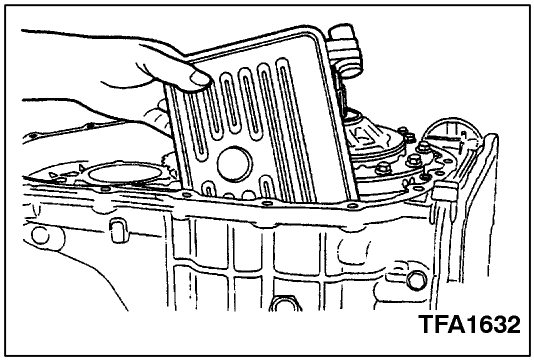
21. Remove the torque converter housing mounting bolts (20 pieces), and then remove the torque converter housing.



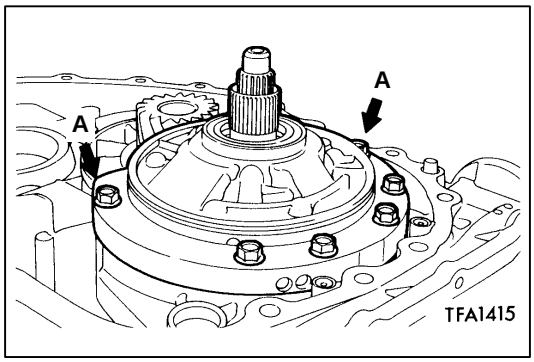
22. Remove the O-rings (2 pieces).



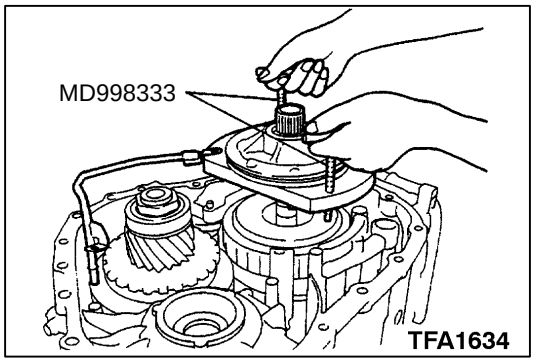
23. Remove the differential.



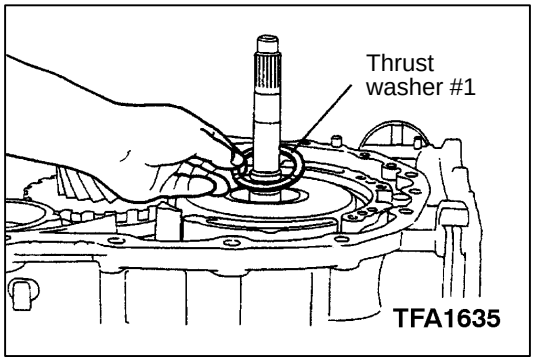
24. Remove the oil filter.



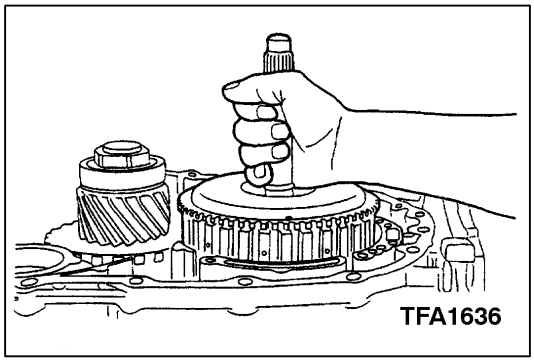
25. Remove the oil pump pipe bolts and mounting bolts.
26. Install the special tools (MD998333) in the holes A.



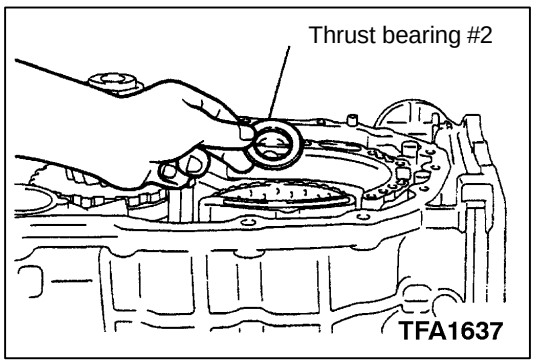
27. Screw the special tool to remove the oil pump and pipe.
28. Remove the oil pump gasket and remove the pipe from the oil pump.



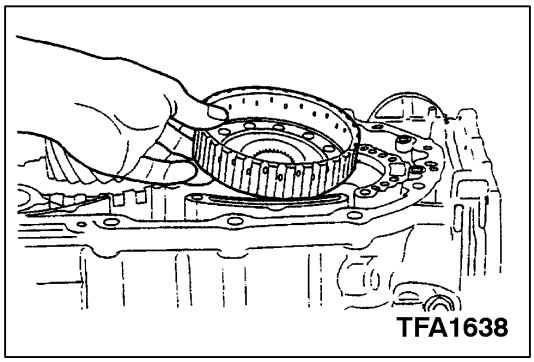
29. Remove thrust washer #1.



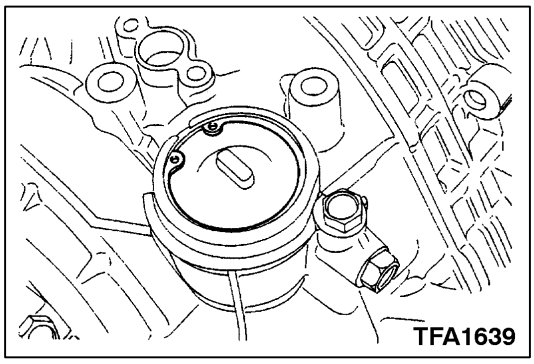
30. Hold the input shaft, and then remove the underdrive clutch.



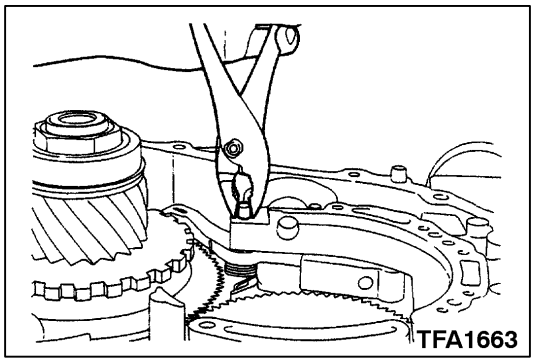
31. Remove thrust bearing #2.


TFA1638

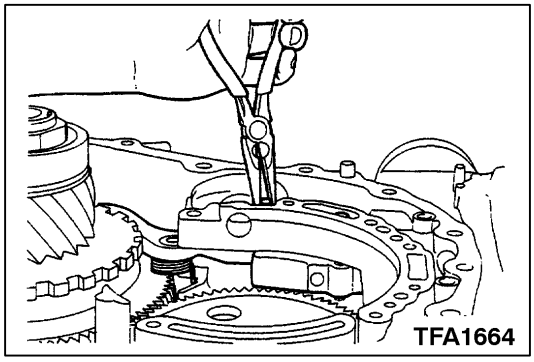
32. Remove the underdrive clutch hub.


TFA1639

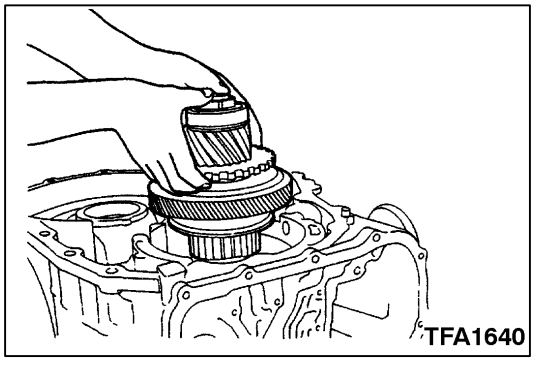
33. Remove snap ring and the reduction brake piston cover.
34. Remove snap ring and then the reduction brake piston and snap ring.


TFA1663

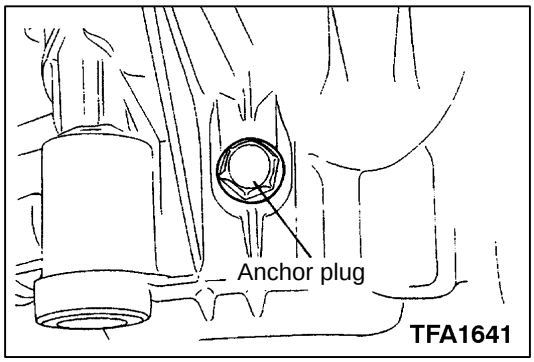
35. Remove the parking pawl shaft and spring.


TFA1664

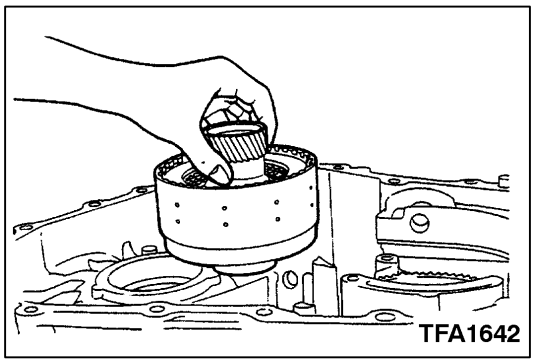
36. Pull out parking pawl roller support shafts out and remove the parking pawl and parking roller support.


TFA1640

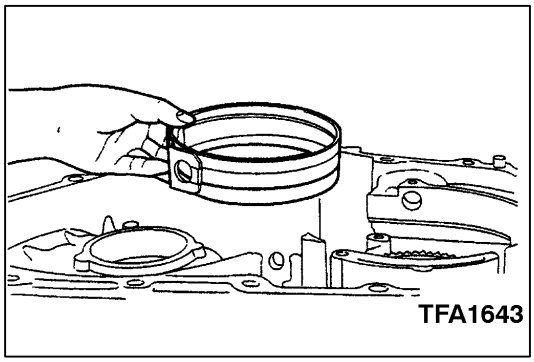
37. Remove direct planetary carrier assembly.



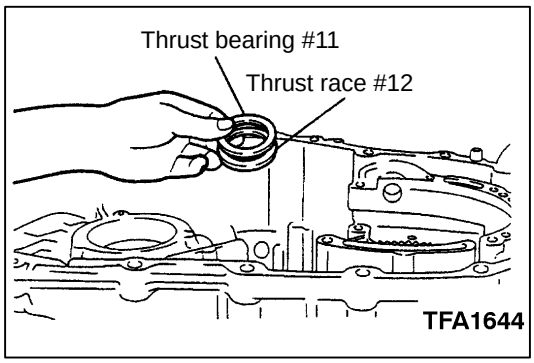
38. Remove anchor plug and o-ring.



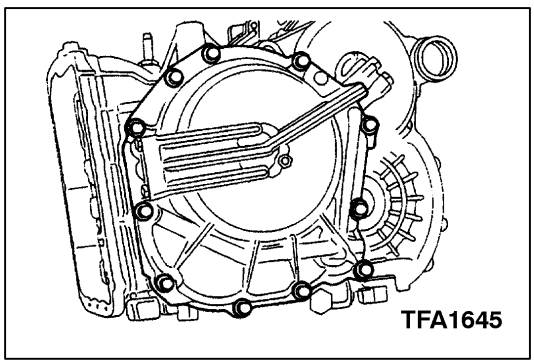
39. Remove direct clutch.



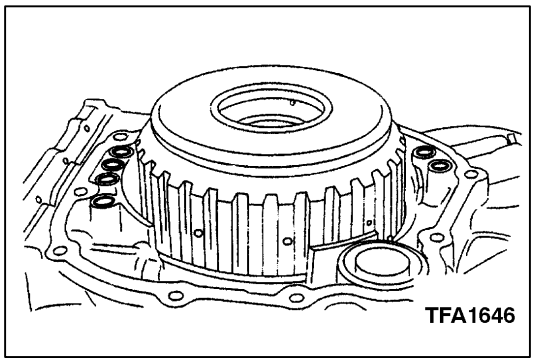
40. Remove reduction brake band.



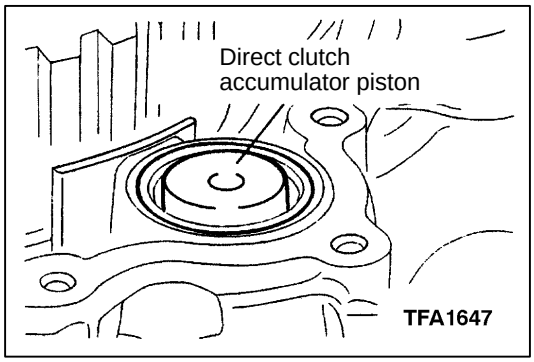
41. Remove thrust bearing #11 and thrust race #12.



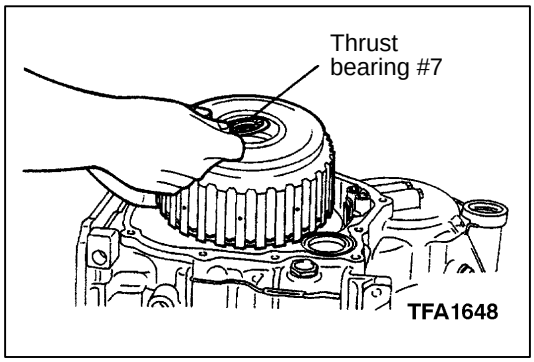
42. Remove the rear cover.
43. Remove the thrust race #8.
44. Remove the seal rings (4 pieces).
45. Remove the input shaft rear bearing.



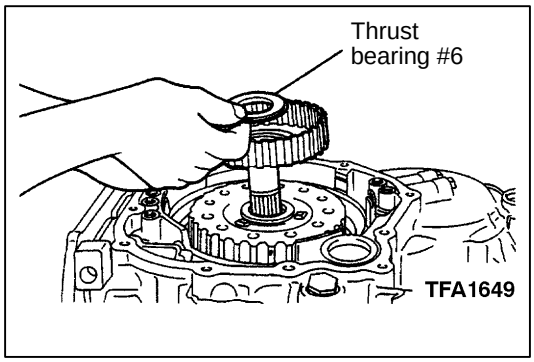
46. Remove the O-rings.



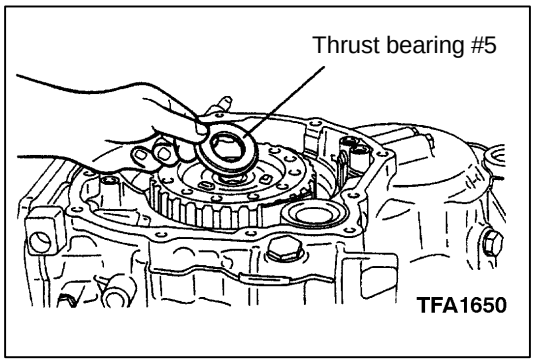
47. Remove o-ring and then direct clutch accumulator piston and spring.



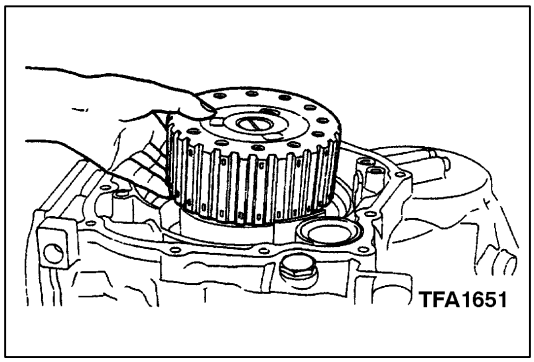
48. Remove the reverse and overdrive clutch and the thrust bearing #7.



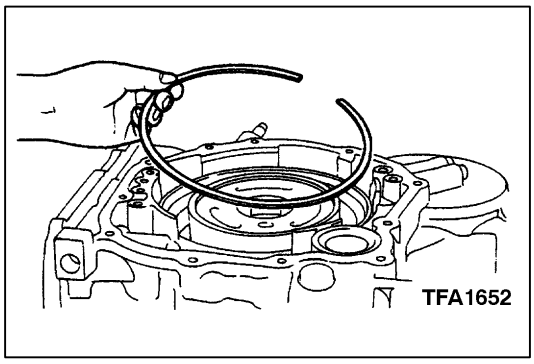
49. Remove the overdrive clutch hub and the thrust bearing #6.



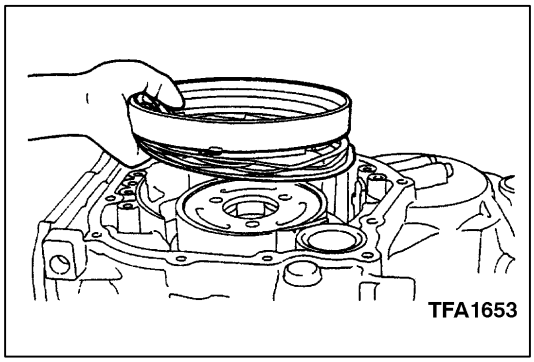
50. Remove thrust bearing #5.



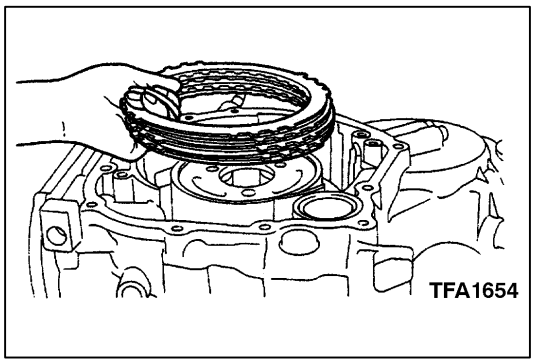
51. Remove the planetary reverse sun gear.



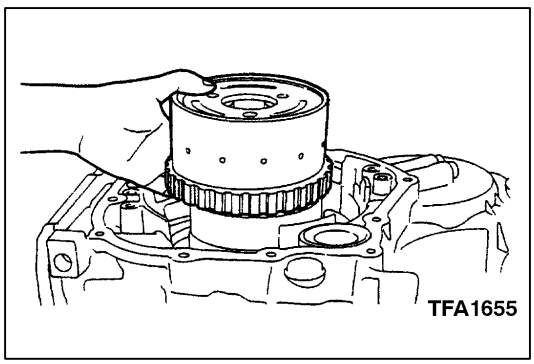
52. Remove the snap ring.



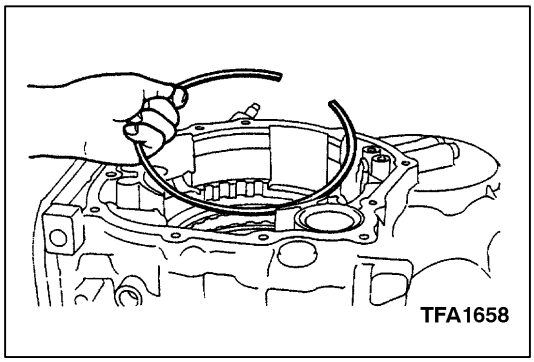
53. Remove the second brake piston and the return spring.



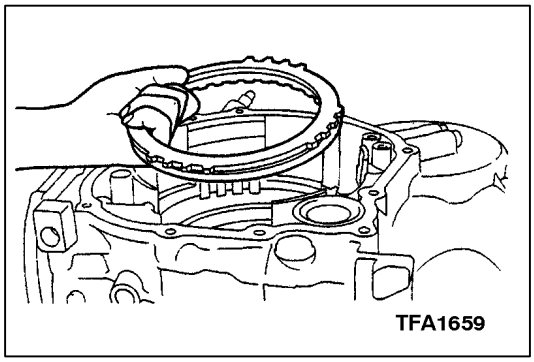
54. Remove the pressure plate, brake discs and brake plates.



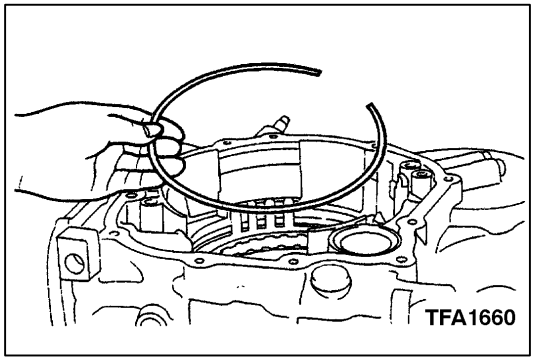
55. Remove the planetary carrier assembly.



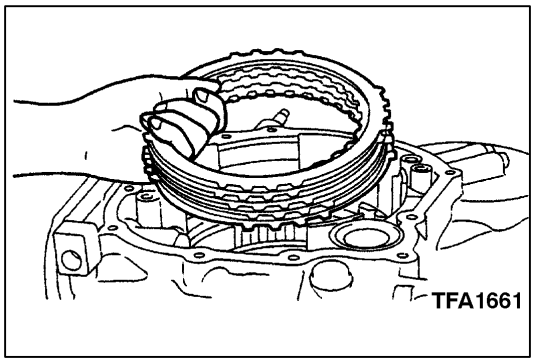
56. Remove the snap ring.



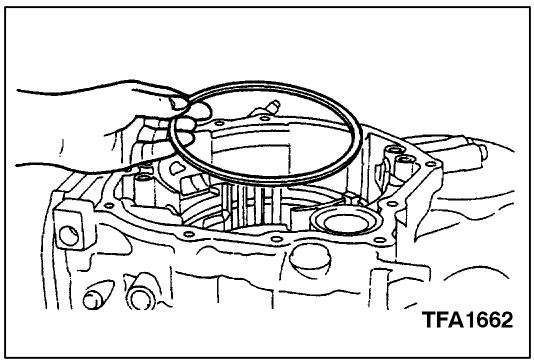
57. Remove the reaction plate and brake disc.



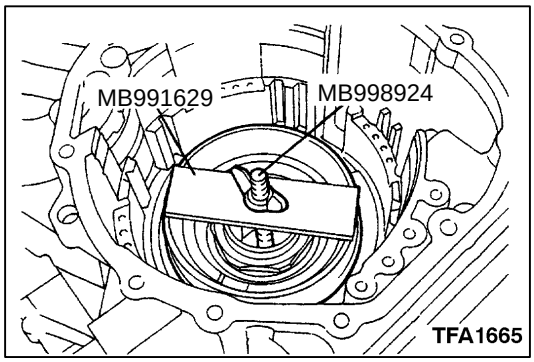
58. Remove the snap ring.



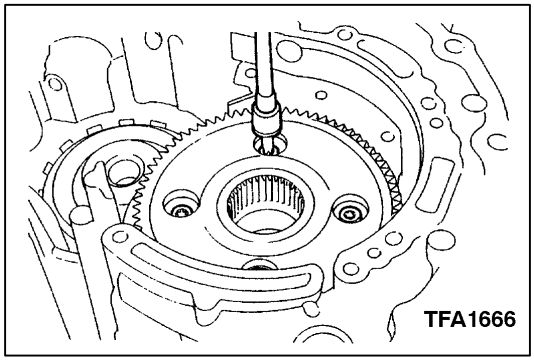
59. Remove brake plates,brake discs and pressure plate.



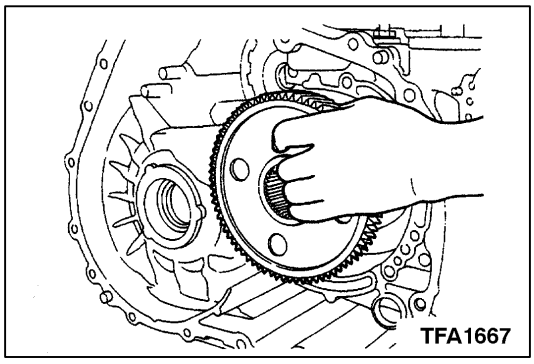
60. Remove wave spring.



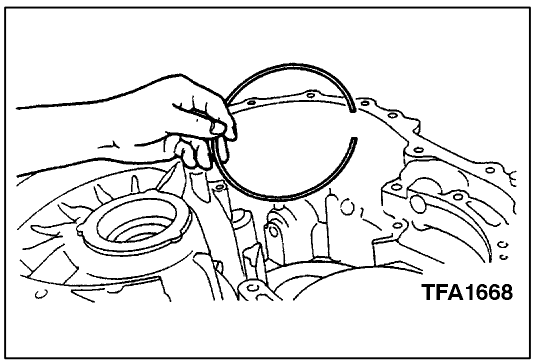
61. Remove the snap ring using special tools.
62. Remove one way clutch race, o-ring, spring retainer, return spring and low reverse brake piston.



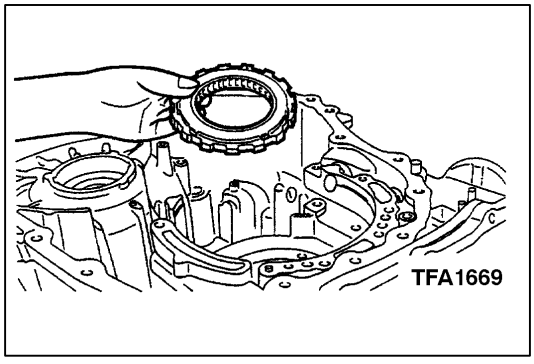
63. Remove the transfer drive gear fixing bolts.
64. After removing the transfer drive gear fixing bolts, turn gear 1/8 of turn and remove remaining bolts.



65. Remove the transfer drive gear.



66. Remove snap ring.

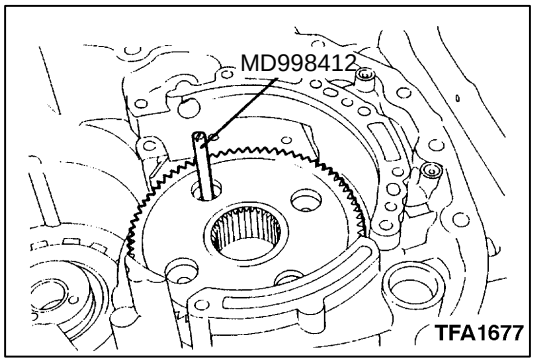


67. Remove one way clutch.
68. Remove seal rings.
69. Remove needle bearing.
70. Remove differential bearing outer race and spacer from converter housing.
71. Remove differential bearing outer race from transmission case.

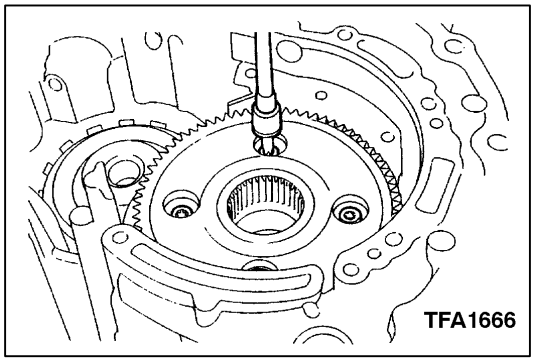
REASSEMBLY

Caution

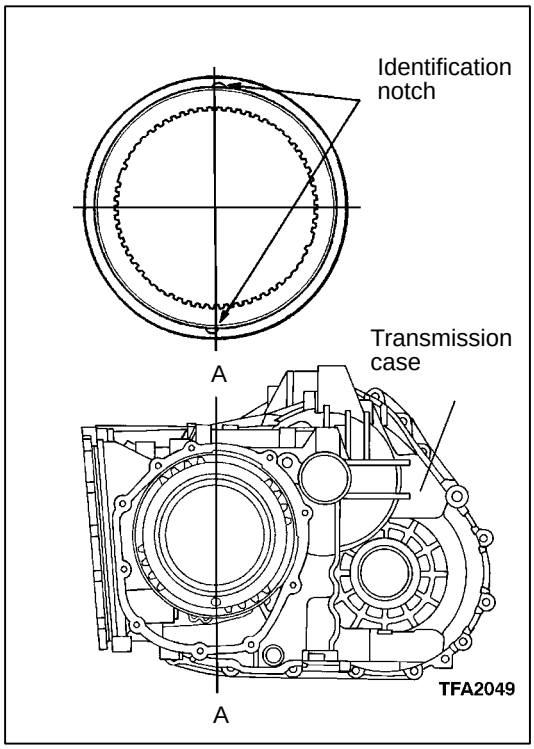
1. **Never reuse the gasket, O-ring, oil seal, etc. Always replace with new ones when reassembling.**
2. **Never use grease other than blue or white petrolatum jelly.**
3. **Apply ATF to friction components, rotating parts, and sliding parts before installation. Immerse a new clutch disc or brake disc in ATF for at least two hours before assembling them.**
4. **Never apply sealant or adhesive to gaskets.**
5. **When replacing a bushing, replace the assembly which it belongs to.**
6. **Never use any cloth gloves or any rags during reassembly. Use nylon cloth or paper towels if you need to use something.**
7. **Change the oil in the cooler system.**



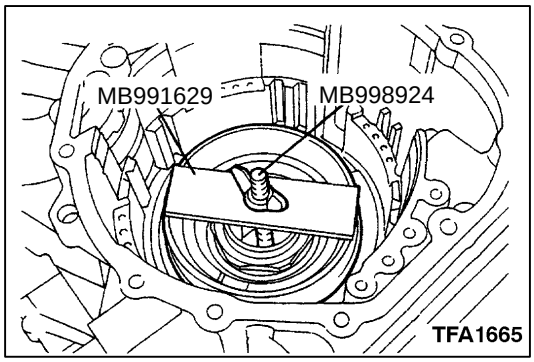
1. Install transfer drive gear using special tool.



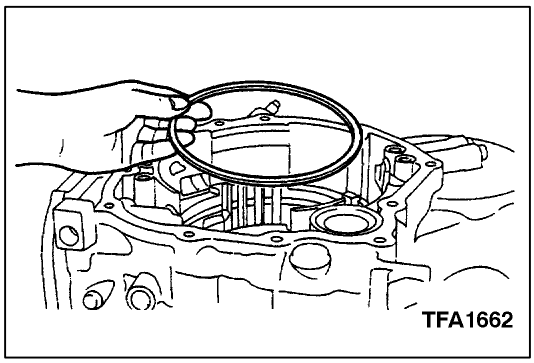
2. Tighten transfer drive gear fixing bolts (8 of) to specified torque.



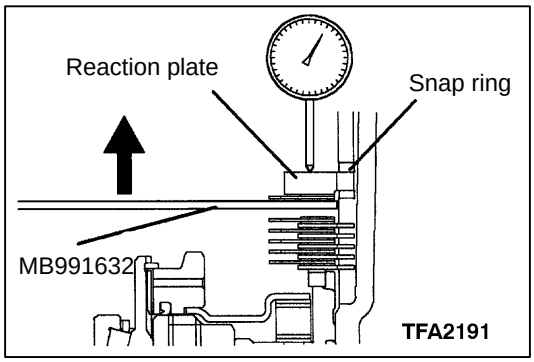
3. Install low-reverse brake piston, return spring and spring retainer.
4. Install new o-ring into the groove of the one way clutch inner race.
5. Check the position of identification notch of the one way clutch inner race and install one way clutch inner race onto the transfer drive gear bearing as the notch comes on A-A line.

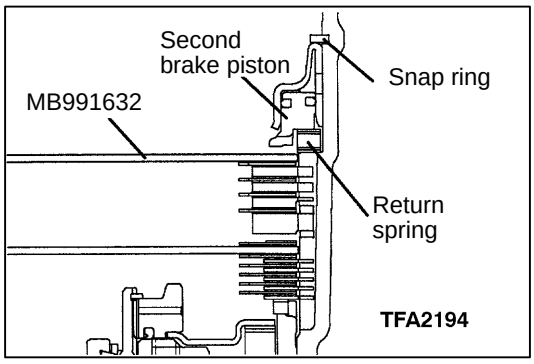


6. Install snap ring using special tools.



7. Install wave spring onto low-reverse brake piston.





8. Install brake discs for low-reverse brake, brake plates and snap ring as shown in diagram.

   Note: Do Not Install Pressure Plate.

   Reference: Number of Brake Discs and Plates

Item	Quantity
Brake Discs	6
Brake Plates	5

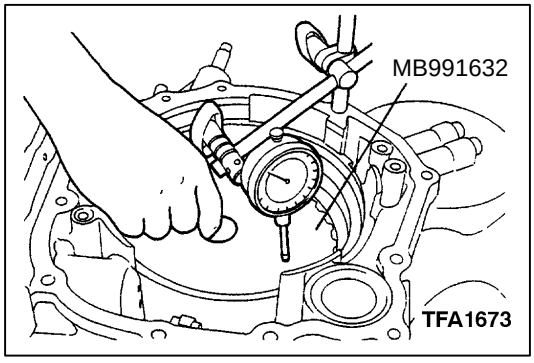
9. Install the special tool on brake disc.
10. Install original reaction plate and snap ring.
11. Move the special tool and measure end play of reaction plate. Select the snap ring which was installed in 10. as it becomes the standard value and reassemble it.

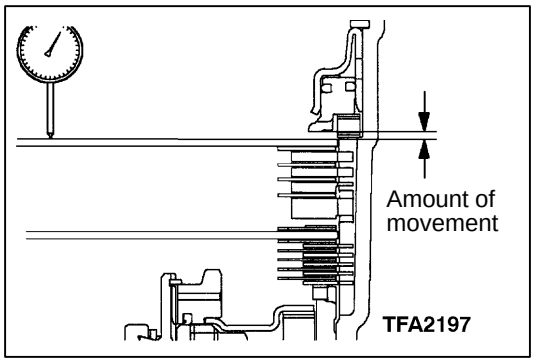
    Standard Value: 0 – 0.16 mm.
12. Install brake disc and brake plate for second brake.

    Note: Do Not Install Pressure Plate.

    Reference: Number of Brake Discs and Plates

Item	Quantity
Brake Discs	4
Brake Plates	3



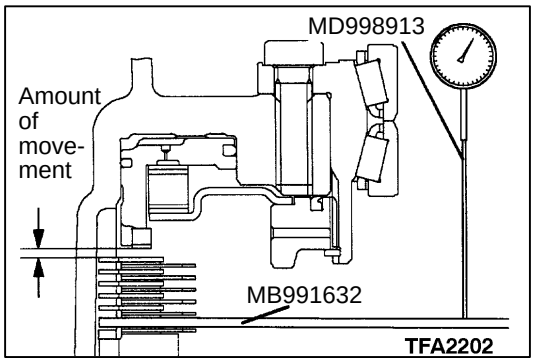


13. Install the special tool.
14. Install return spring, second brake piston and snap ring.
15. Move the special tool and measure the amount of its end play. Select a pressure plate, which has the thickness for the specified amount, from the table below.

    Reference: Standard value of end play for second brake 1.09 – 1.55 mm.

    Pressure plate (second brake)

Amount of end play in mm.	Thickness mm.	Identification Code	Part Number
1.1 – 1.3	1.8	E	MD749425
1.3 – 1.5	2.0	D	MD749426
1.5 – 1.7	2.2	C	MD749427
1.7 – 1.9	2.4	B	MD749428
1.9 – 2.1	2.6	A	MD749429
2.1 – 2.3	2.8	0	MD749430



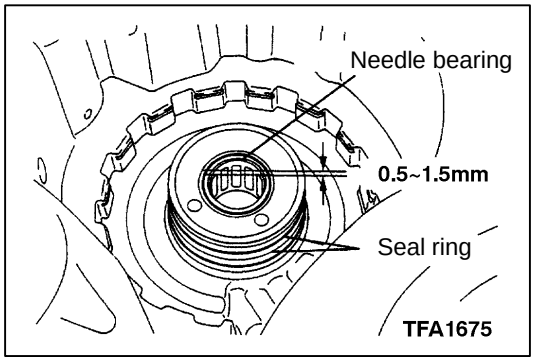
16. Turn the transmission over.
17. Install the special tool (MD998913) on dial gauge, move the special tool (MB991631 or MB991632) and measure the amount of its movement. Select a pressure plate, which has the thickness for the measured amount, from the table shown below.

    Reference: Standard value of end play of low-reverse brake 1.65 – 2.11 mm.

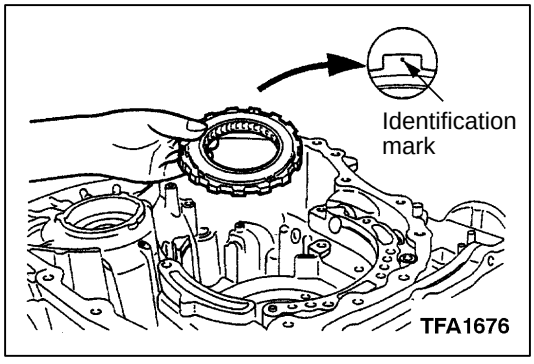
    Pressure plate (low-reverse brake)

Amount of end play in mm.	Thickness mm.	Identification Code	Part Number
1.0 – 1.2	1.6	F	MD759568
1.2 – 1.4	1.8	E	MD759425
1.4 – 1.6	2.0	D	MD759426
1.6 – 1.8	2.2	C	MD759427
1.8 – 2.0	2.4	B	MD759428
2.0 – 2.2	2.6	A	MD759429
2.2 – 2.4	2.8	0	MD759430
2.4 – 2.6	3.0	1	MD759431

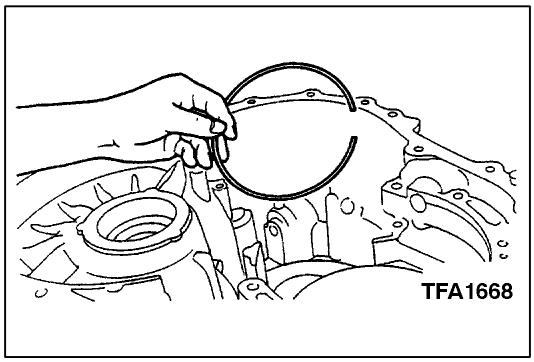
18. Remove the parts which were installed in 7.–17.



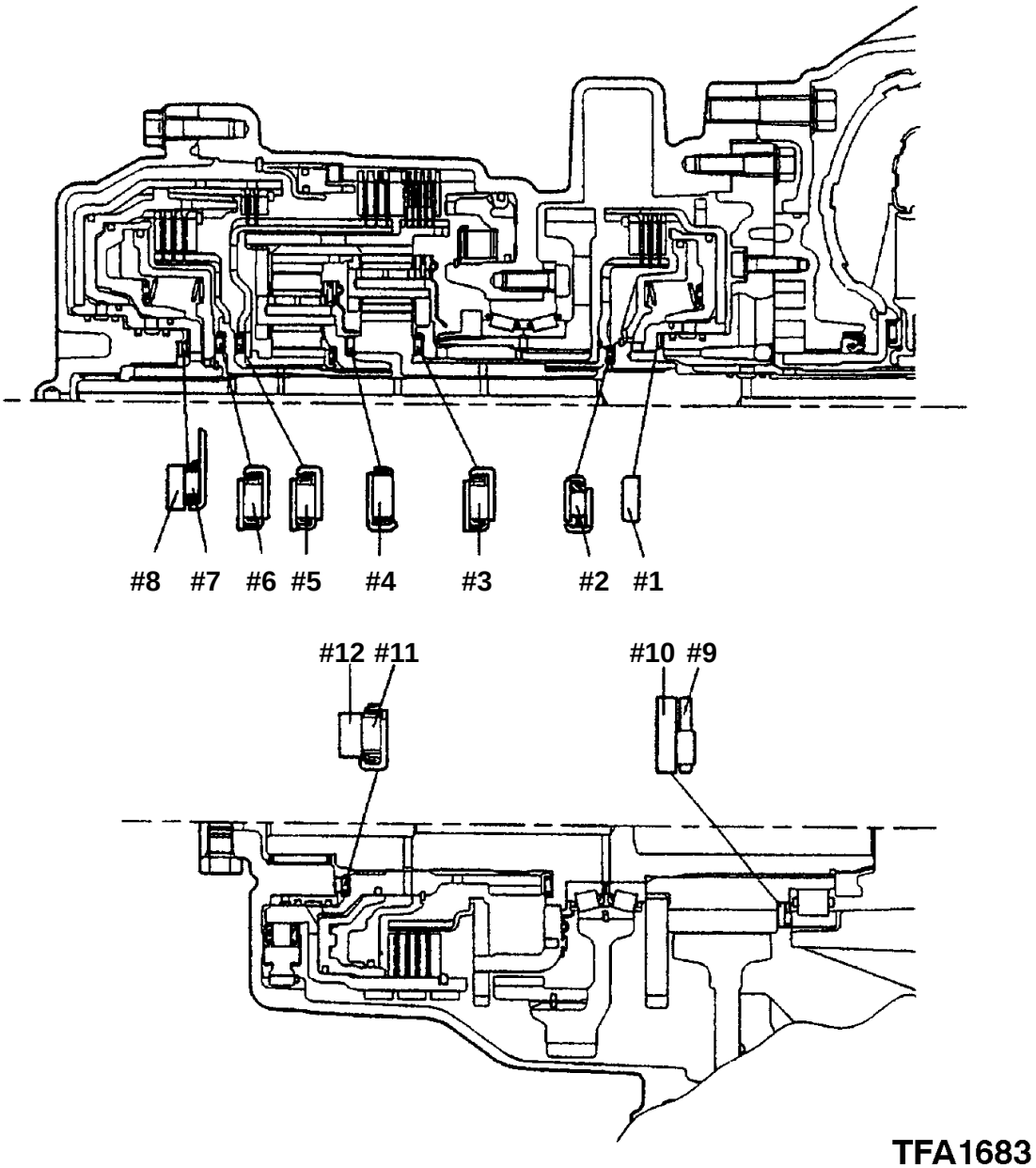
19. Install needle bearing as shown on the figure.
20. Install the seal rings (2 of).



21. Install one way clutch with the identification mark up.



22. Install the snap ring.

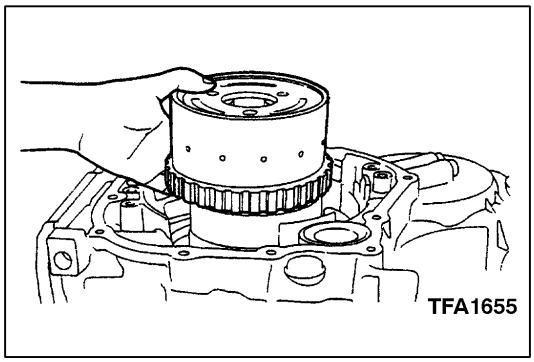


TFA1683

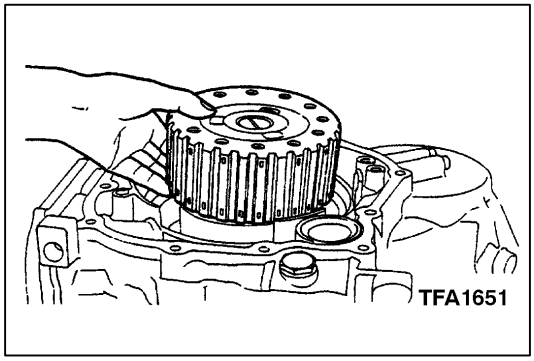
IDENTIFICATION OF THRUST BEARINGS, THRUST RACES, AND THRUST WASHERS (All Units in mm.)

Symbol	O.D.	I.D.	Thickness	Part number
#1	59	47	1.8	MD754509
			2.0	MD754508
			2.2	MD754507
			2.4	MD753793
			2.6	MD753794
			2.8	MD753795
#2	49	34	3.6	MD756846

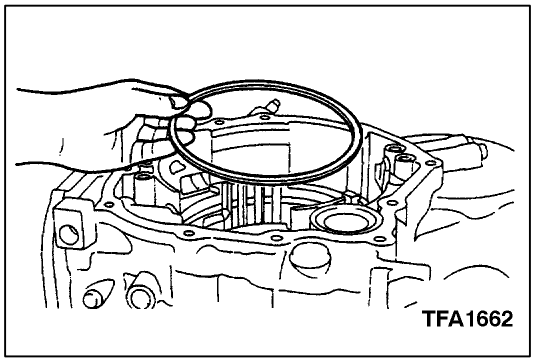
Symbol	O.D.	I.D.	Thickness	Part number
#3	57	38.5	4.12	MD758556
#4	55.4	38.5	3.3	MD761683
#5	57	38.5	4.12	MD758556
#6	57	38.5	4.12	MD758556
#7	59	37	2.8	MD754595
#8	48.9	37	1.6	MD707267
			1.7	MD759681
			1.8	MD723064
			1.9	MD754794
			2.0	MD707268
			2.1	MD754795
			2.2	MD723065
			2.3	MD754796
			2.4	MD724358
			2.5	MD754797
			2.6	MD754798
#9	78.5	60	2.5	MD753250
#10	54.6	43	3	MD753457
#11	58	40.7	4.2	MD762868
#12	80	60	2.5	MD753251



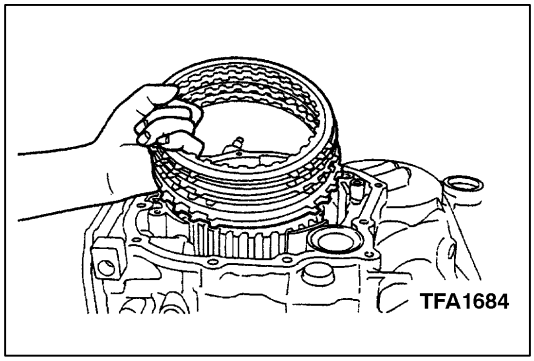
23. Install overdrive planetary carrier.
24. Install planetary carrier assembly.



25. Install planetary reverse sun gear.



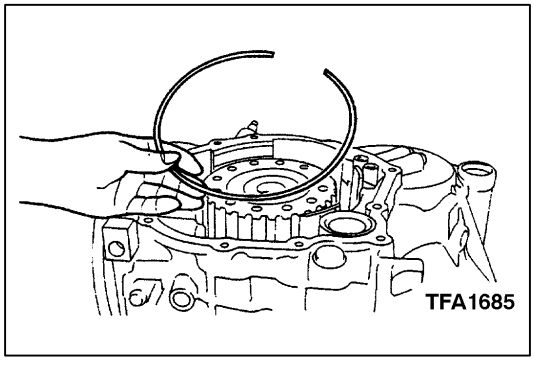
26. Install wave spring on low reverse brake piston.



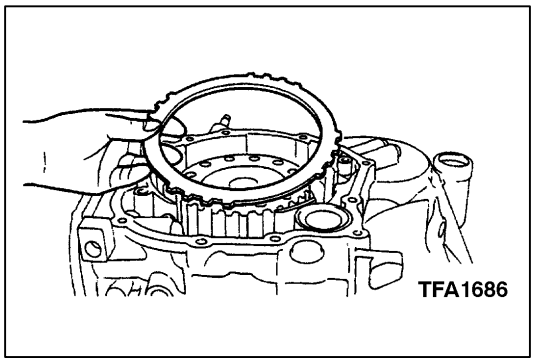
27. Install the pressure plate that was selected in 17. Then install brake discs and brake plates.

Reference: Number of Brake Discs and Plates

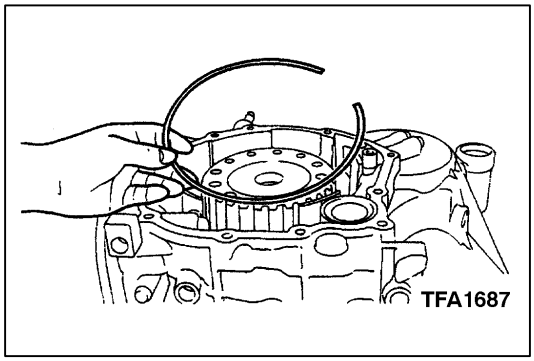
Item	Quantity
Brake Discs	6
Brake Plates	5
Pressure Plates	1



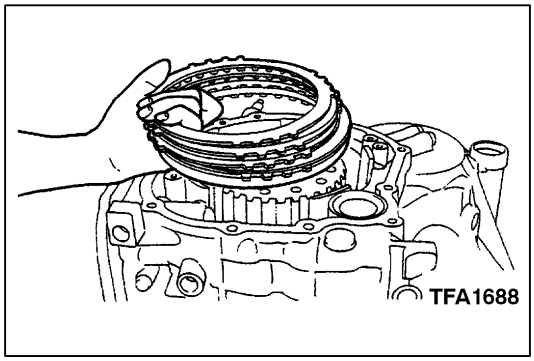
28. Install the snap ring.



29. Install the reaction plate.



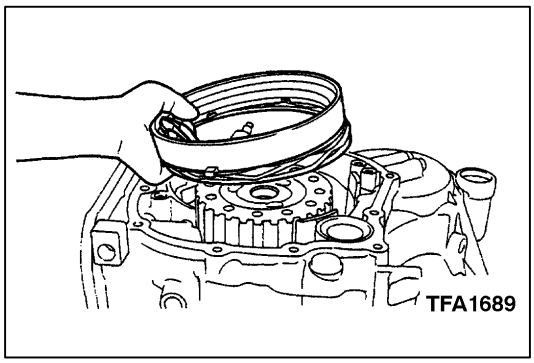
30. Install the snap ring that was selected in 11.



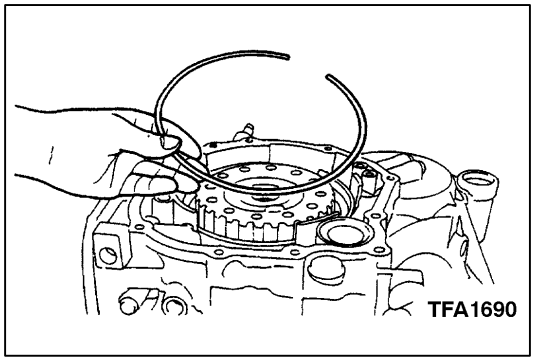
31. Install the brake discs, brake plates and pressure plate that was selected in 15.

Reference: Number of Brake Discs and Plates

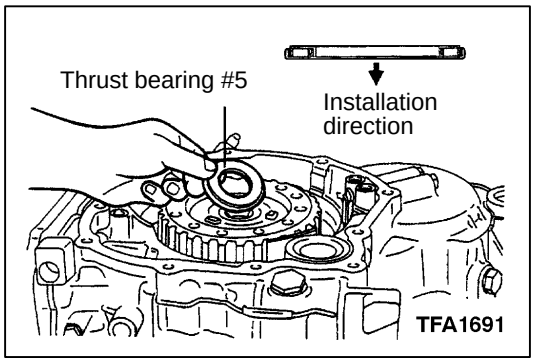
Item	Quantity
Brake Discs	4
Brake Plates	3
Pressure Plates	1



32. Install the return spring and second brake piston.

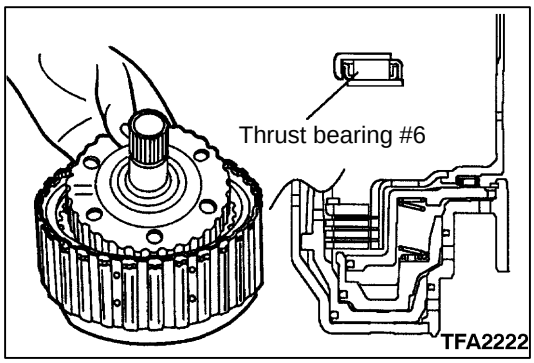


33. Install the snap ring.



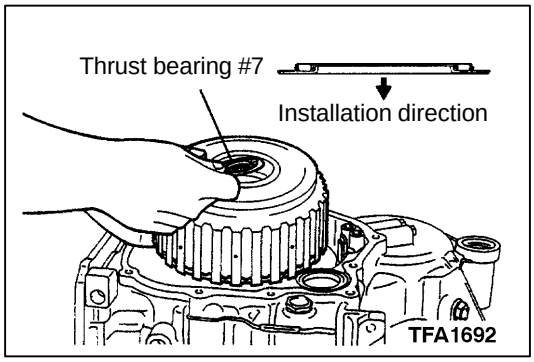
34. Install thrust bearing #5.

Caution:
Install the thrust bearing in the correct direction.



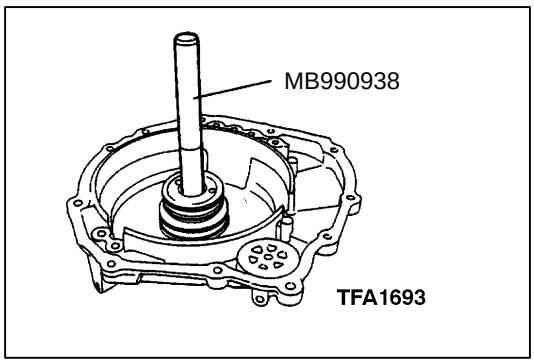
35. Install over drive clutch hub and thrust bearing #6 on reverse & over drive clutch.

Caution:
Install the thrust bearing in the correct direction.

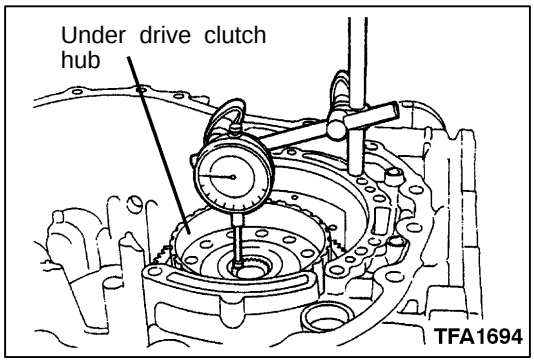


36. Install reverse, over drive clutch and thrust bearing #7.

Caution:
Install the thrust bearing in the correct direction.



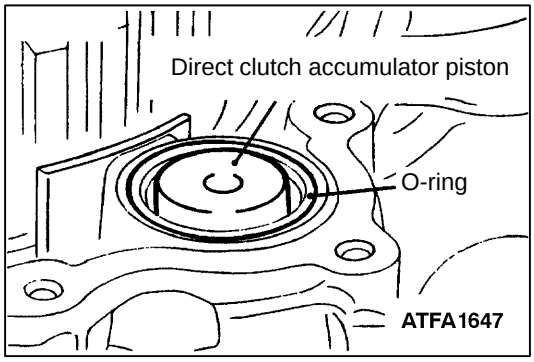
37. Install the input shaft bearing into the rear cover using special tool.
38. Install seal rings (4 of).



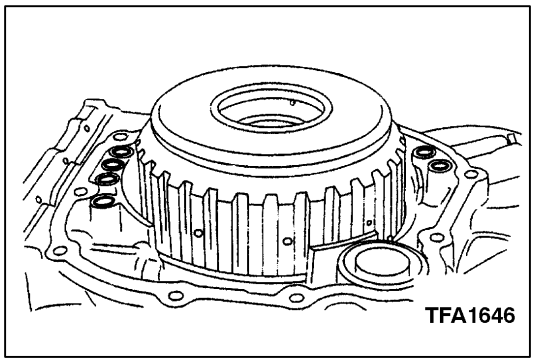
39. Use the following procedure to measure the under drive sun gear end play for the correct selection of thrust race #8.
(a) Install the thinnest thrust race #8 (thickness: 1.6mm, part number MD707267) on thrust bearing #7.
(b) Install rear cover on transmission and tighten bolts to specified torque.
(c) Turn transmission over and put the torque converter housing fixing side up.
(d) Install under drive clutch hub on under drive sun gear.
(e) Measure the end play of under drive sun gear and record the measured value.

Reference:
Standard Value: 0.25 – 0.45 mm.

(f) After the measurement, remove the parts which were installed in the procedure (a) – (d).

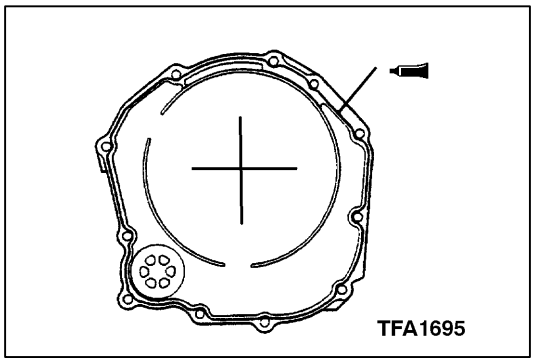


40. Install the direct clutch accumulator spring, piston and then o-ring.



41. Install the O-rings (6 of).
42. Select the thrust race which has the correct thickness for the measured value which was recorded in 39. and install it onto thrust bearing #7.

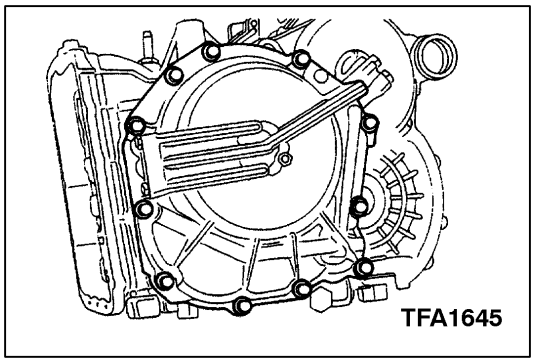
Measured Amount mm.	Thickness mm.	Part Number
0.3 – 0.4	1.6	MD707267
0.4 – 0.5	1.7	MD759681
0.5 – 0.6	1.8	MD723064
0.6 – 0.7	1.9	MD754794
0.7 – 0.8	2.0	MD707268
0.8 – 0.9	2.1	MD754795
0.9 – 1.0	2.2	MD723065
1.0 – 1.1	2.3	MD754796
1.1 – 1.2	2.4	MD724358
1.2 – 1.3	2.5	MD754797
1.3 – 1.4	2.6	MD754798



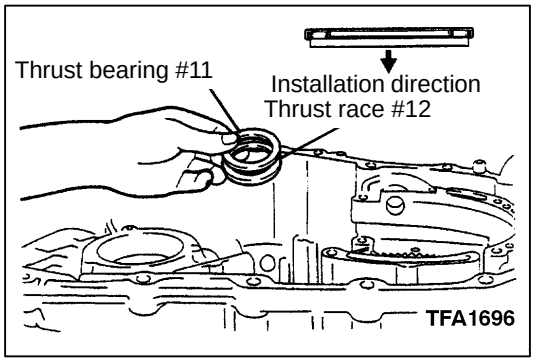
43. Squeeze out liquid gasket of 1.6mm. thickness and apply it to the places on rear cover as shown in diagram.

Reference:

Use Mitsubishi genuine sealant part # MD974421 or Equivalent.



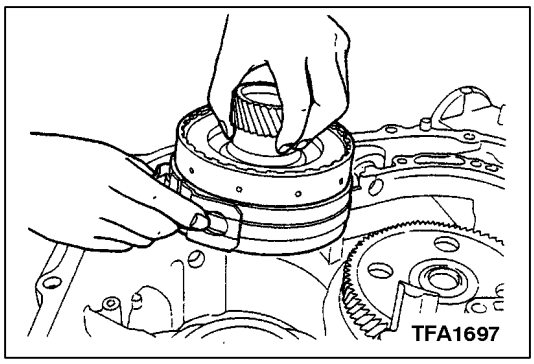
44. Install the rear cover and tighten the bolts to the specified torque.



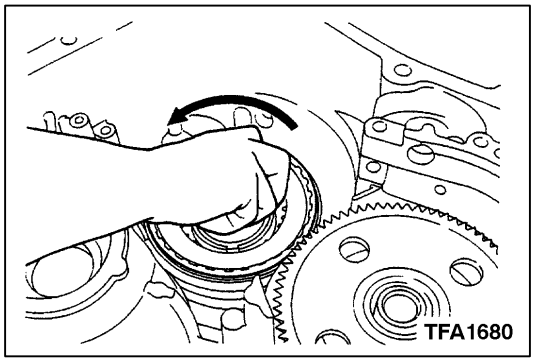
45. Install thrust race #12 and thrust bearing #11.

Note:

Install thrust bearing in the correct direction.



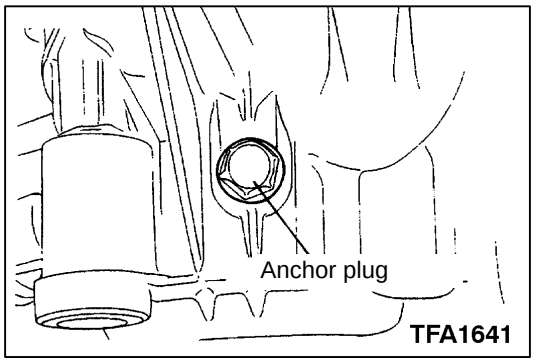
46. Tighten anchor plug and new o-ring temporarily and install reduction brake band and direct clutch at the same time.



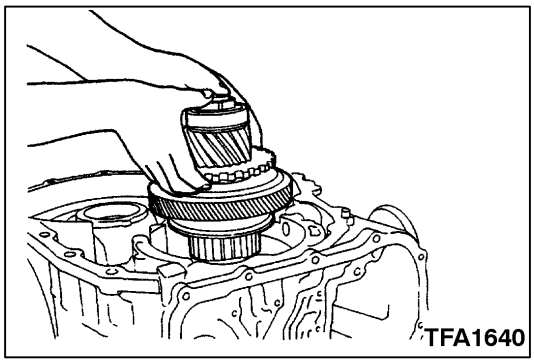
47. Check that the direct clutch only turns in the direction shown in the diagram.

Note:

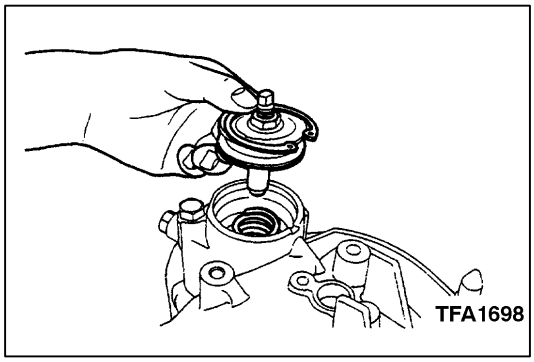
Reinstall one way clutch if it turns in opposite direction to direction shown in diagram.



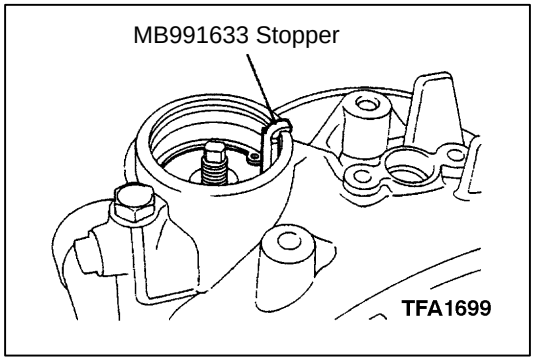
48. Tighten anchor plug to specified torque.



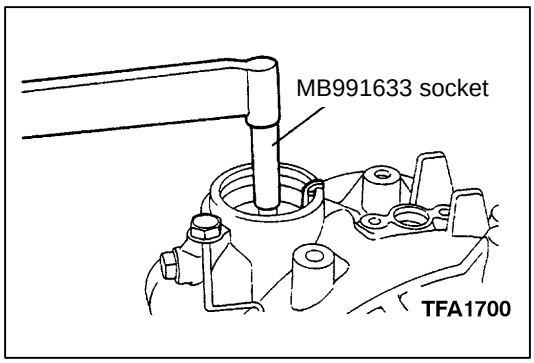
49. Install direct planetary carrier assembly.

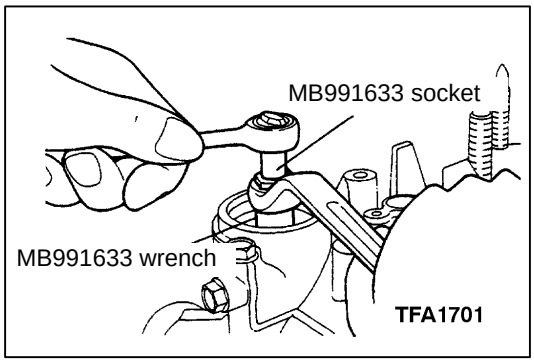


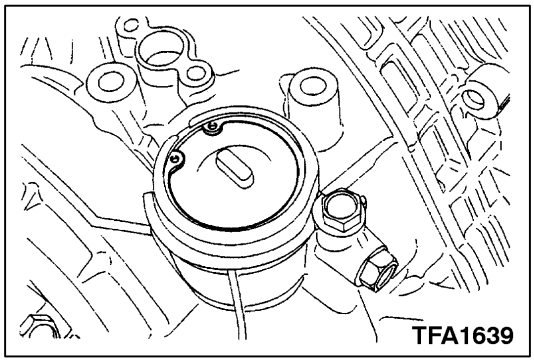
50. Install spring and reduction brake piston in transmission case and then the snap ring.



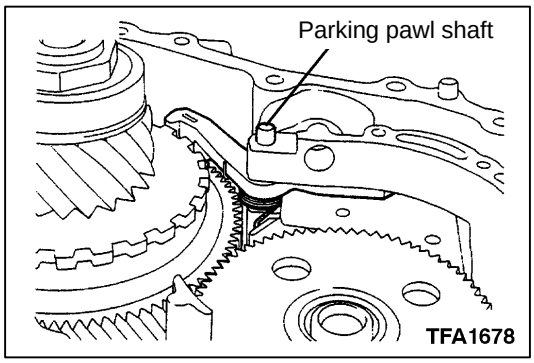
51. Adjust reduction brake piston using the following procedure.
(a) Remove nut from reduction brake piston.
(b) Install the special tool (MB991633 stopper) in order to stop the reduction piston rotating.
(c) Using special tool (MB991633 socket) tighten and back off the adjusting rod to 10Nm twice. Tighten the adjusting rod to 5Nm and then back off the adjusting rod between 5 1/2 – 5 3/4 turns.
(d) Install the nut on the adjusting rod without changing the rod position and tighten the nut using special tool to 19 ± 3 Nm.



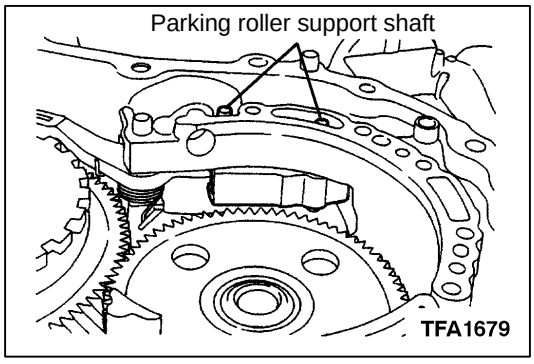




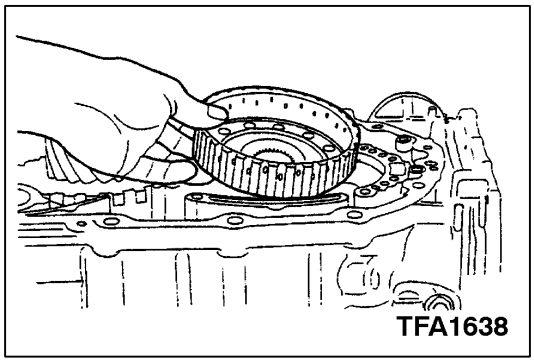
52. Install the reduction brake piston cover and snap ring.



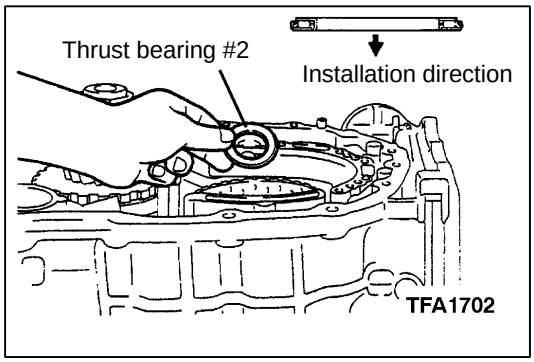
53. Install the parking pawl, spring and parking pawl shaft.



54. Install parking roller support and then parking roller support shafts (2 of).

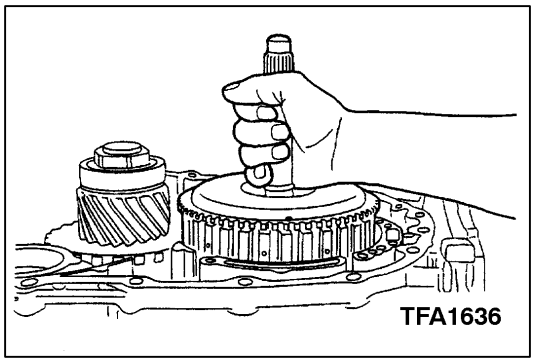


55. Install the under drive clutch hub.

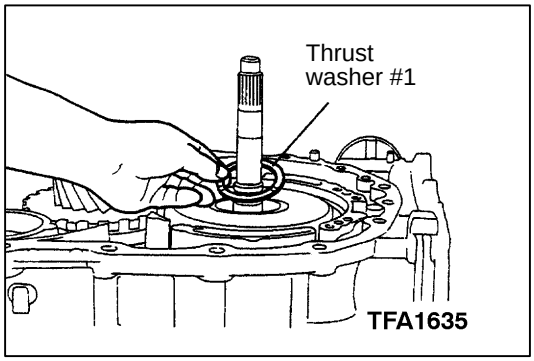


56. Install thrust bearing #2.

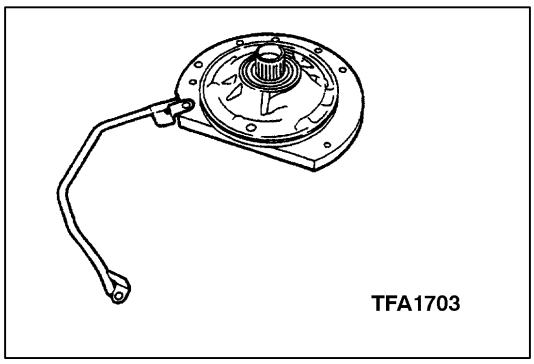
Note:
Install thrust bearing in the correct direction.



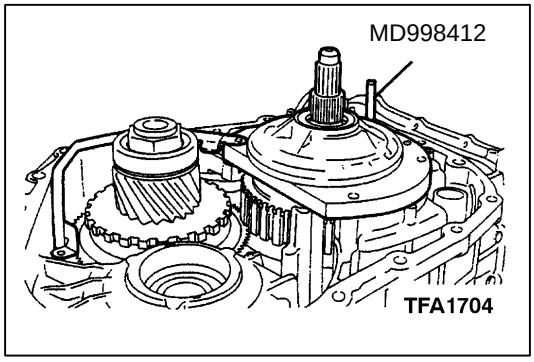
57. Hold input shaft and install under drive clutch.



58. Install thrust washer #1 (thickness: 1.8mm, part number MD754509) for the thinnest input shaft end play on under drive clutch retainer.



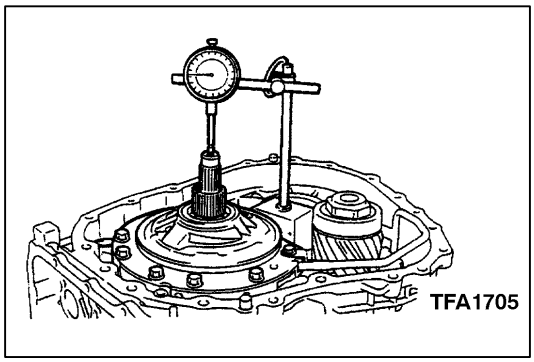
59. Install oil pipe on oil pump.



60. Install new oil pump gasket and oil pump using special tools. Install the pipe at the same time.

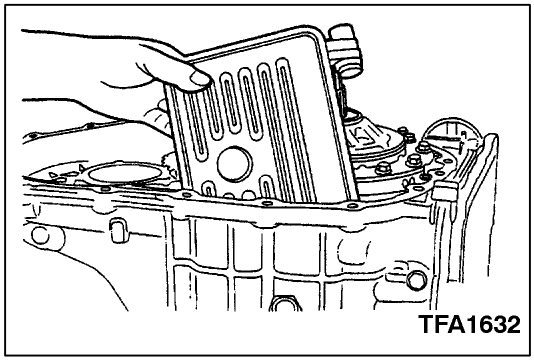
Note:
Do not reuse a gasket even if it has been tightened only once.

61. Tighten oil pump fixing bolts and pipe fixing bolt to the specified torque.

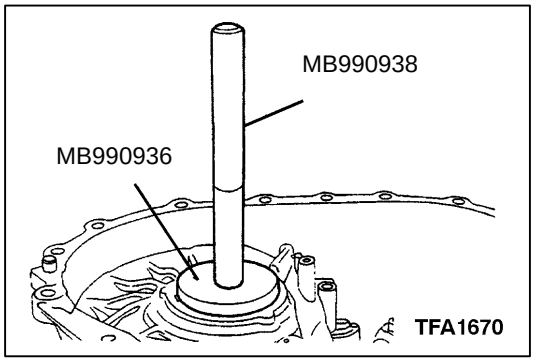


62. Measure the end play of the input shaft. Select thrust washer #1, which has the thickness to obtain the standard value, from the table on page 23D-36 and replace the thrust washer assembled in 58.

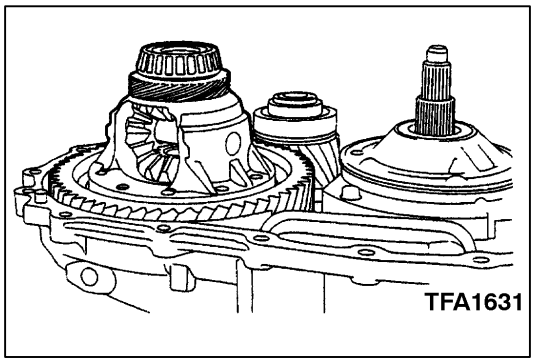
    Reference:
    Standard value: 0.70 – 1.45 mm.



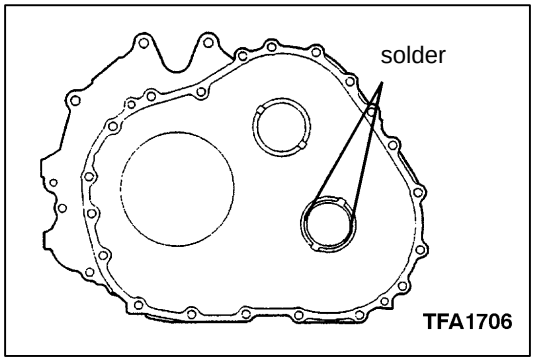
63. Install oil filter.



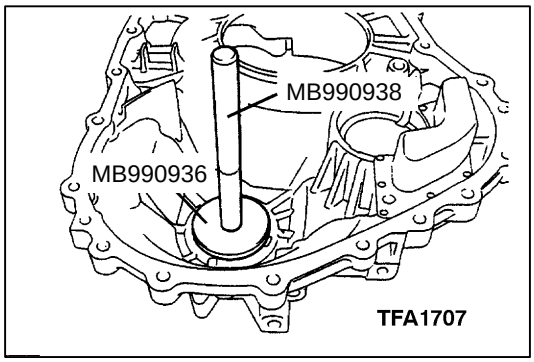
64. Install the differential bearing outer race into the transmission case using special tools.



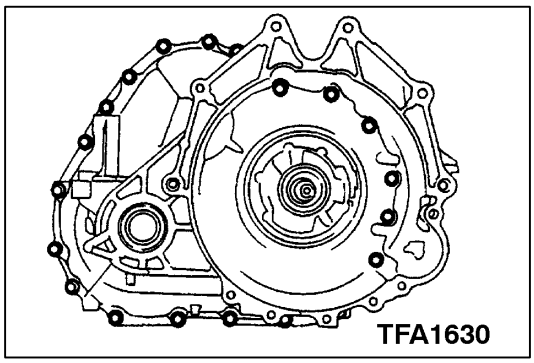
65. Install differential.



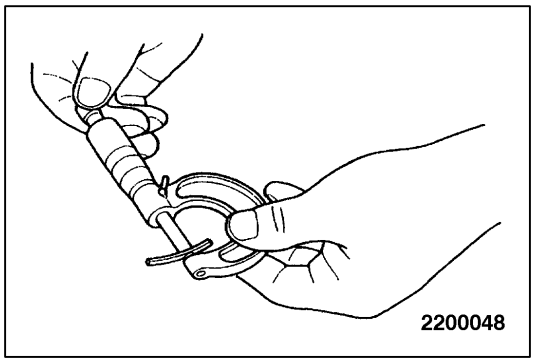
66. Install a piece of solder (approx. 10mm in length and 3mm in diameter) on the torque converter housing in the positions shown.



67. Install outer race using special tools.

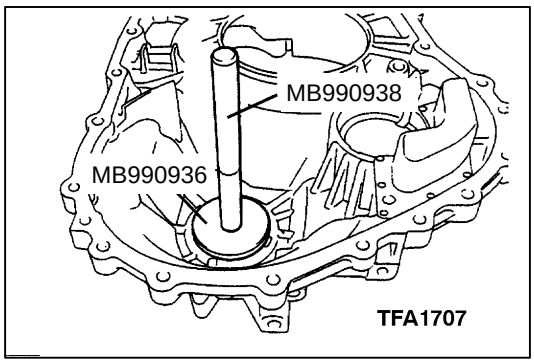


68. Install the converter housing onto transmission without applying liquid gasket and tighten to the specified torque.
69. Loosen the bolts, remove converter housing and then take out the solder.

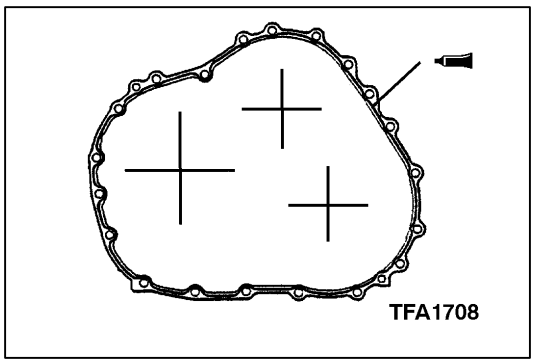


70. Measure the thickness of the crushed solder using a micrometer.
71. Select a spacer, from spacer selection table, which is the measured thickness value plus the standard value of preload.

Reference:
Standard value: 0.045 – 0.105 mm preload.

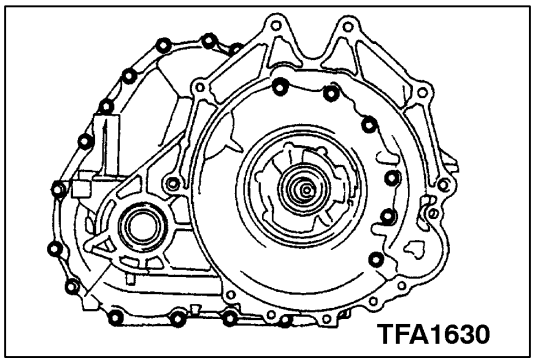


72. Install the spacer selected in 70. into converter housing and tap into place using special tools.

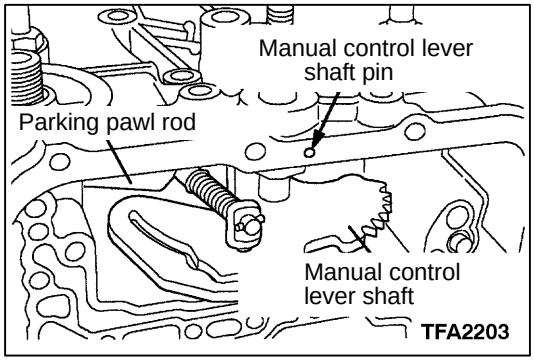


73. Squeeze out liquid gasket of 1.6mm. thickness and apply it to the places on rear cover as shown in diagram.

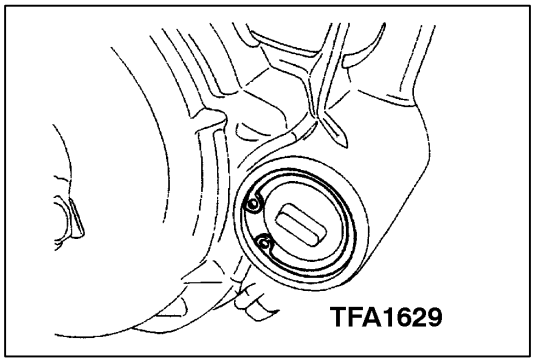
Reference:
Use Mitsubishi genuine sealant part # MD974421 or Equivalent.


TFA1630

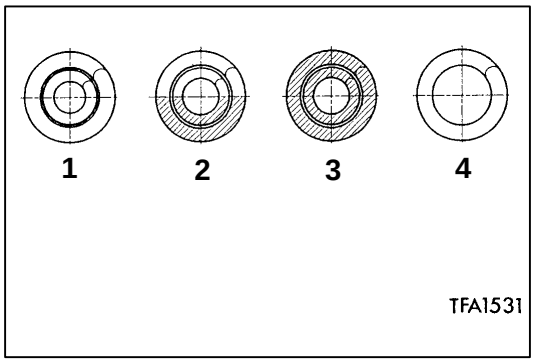
74. Install the converter housing and tighten the fixing bolts to the specified torque.



75. Install the manual control lever shaft and parking pawl rod.
76. Install the manual control lever shaft pin.


TFA1629

77. Install the reduction brake accumulator piston, spring, accumulator cover and snap ring.



78. Install a new seal ring on each accumulator piston.

Reference:

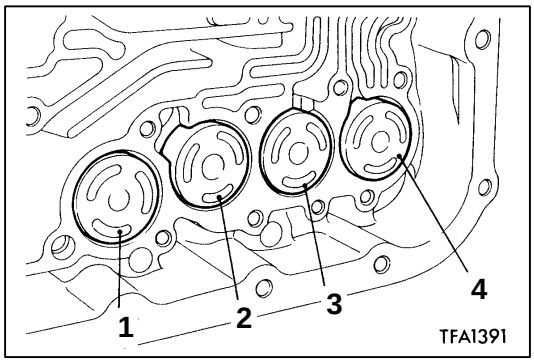
Pistons and seal rings are common parts.

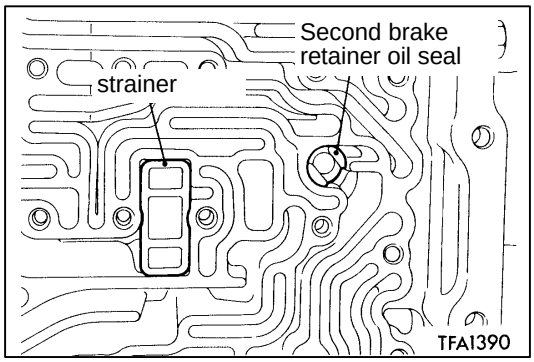
79. Check the identification of the accumulator springs and insert them into each hole of transmission case.

Reference:

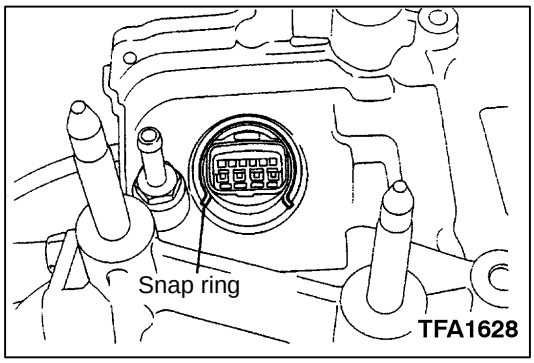
The identification of the accumulator springs are as in the following table and diagrams:

Name	Code	Identification Ink - Blue
Low-reverse brake	1	None
Under drive clutch	2	Half applied
Second brake	3	Fully applied
Over drive clutch	4	None

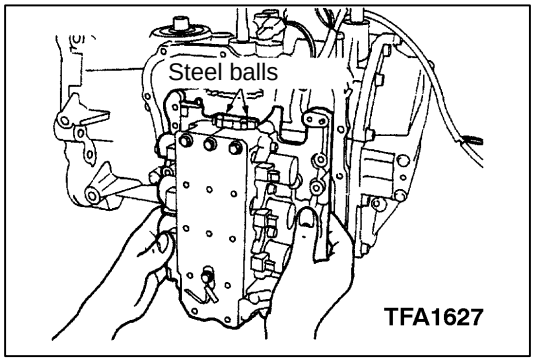




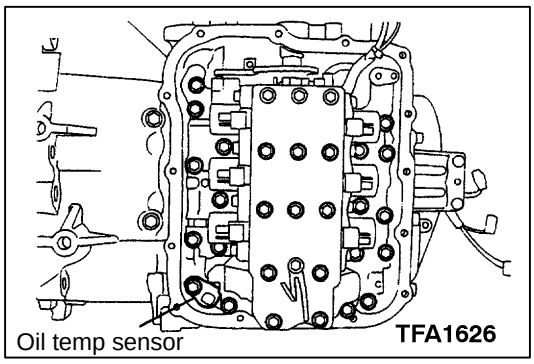
80. Install the strainer and second brake retainer oil seal as shown in the diagram.



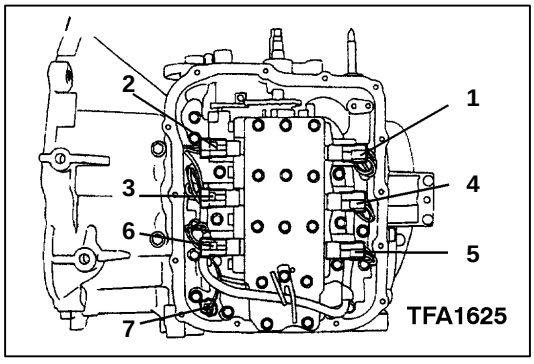
81. Install a new o-ring onto the groove of the solenoid valve harness connector.
82. Insert solenoid valve harness connector in to the hole from the inside of the transmission case as it faces the direction shown in the diagram. Then securely install the snap ring onto the connector groove.



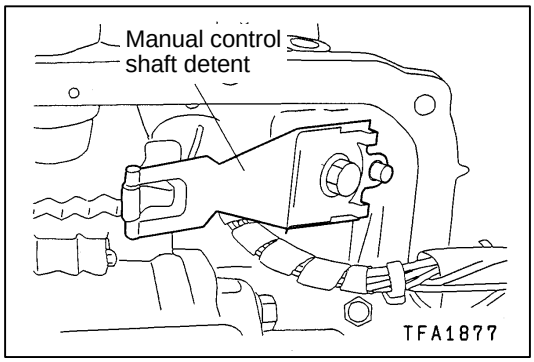
83. Install the steel balls into each of 2 holes on the top of valve body (outside valve body).
84. Install valve body and gasket. Check that manual valve pin is in the detent plate groove of the manual control lever shaft.



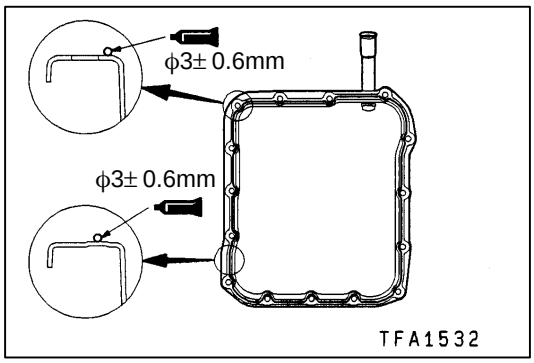
85. Install oil temperature sensor.
86. Install valve body fixing bolts and tighten to the specified torque.
87. Connect connector to valve body.



Code	Fixing Position	Colour of Wire	Colour of Connector
1	Under drive solenoid valve	white,red, red	Black
2	Over drive solenoid valve	orange, red	Black
3	Low reverse solenoid valve	brown, yellow	Cream
4	Second solenoid valve	green,red, red	Cream
5	Damper clutch solenoid valve	blue, blue,yellow	Black
6	Reduction solenoid valve	orange,yel-low,yellow	Black
7	Oil temperature sensor	black, red	Black



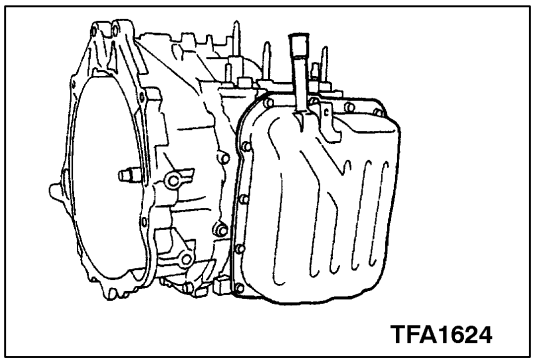
88. Install the manual control shaft detent.



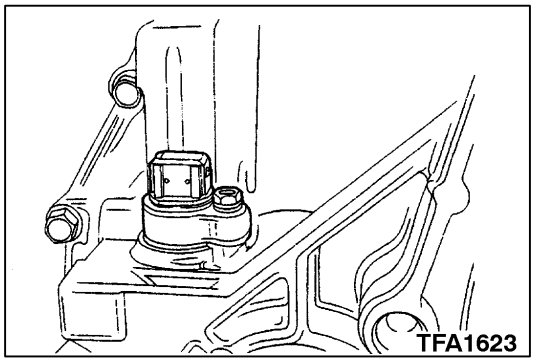
89. Apply liquid gasket to the valve body cover as shown in the diagram.

Reference:

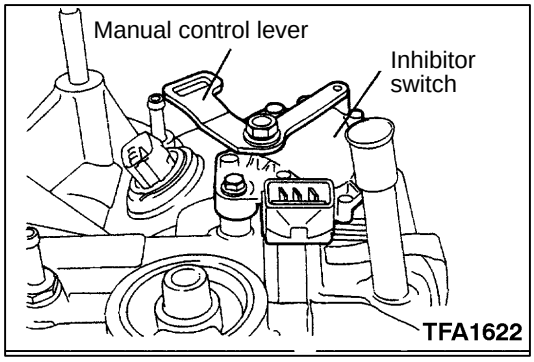
Use Mitsubishi genuine sealant part # MD974421 or equivalent.



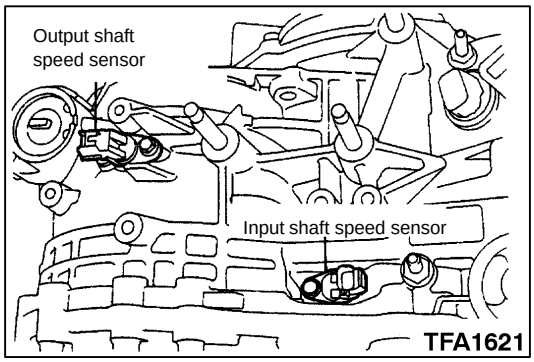
90.. Install the valve body cover and tighten the fixing bolt to the specified torque.



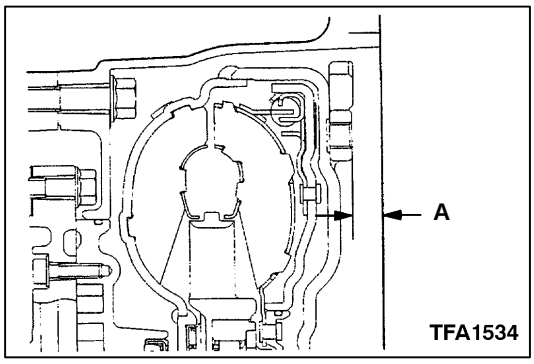
91. Install speedometer gear.



92. Install the inhibitor switch and the manual control lever.



93. Install the input shaft speed sensor and output shaft speed sensor.



94. Install the eye bolt, a new gasket, and the oil cooler feed tube.
95. Install the oil dipstick.
96. Install the brackets.
97. Install the torque converter, and secure it so that the shown dimension (A) meets the reference value.

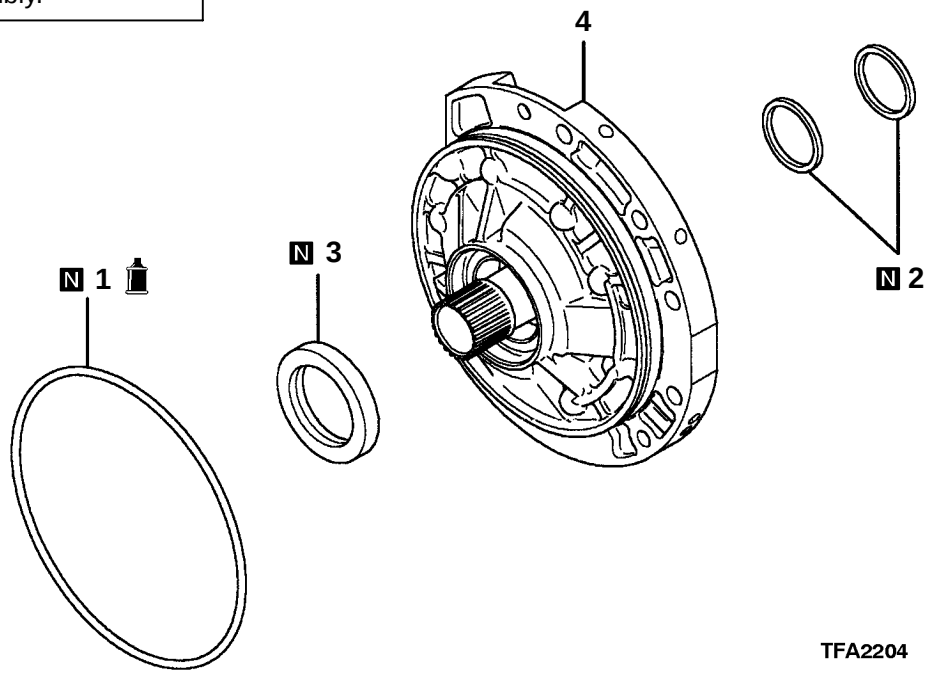
Reference:
Standard value: approx. 9.4 mm

Caution
Apply ATF to the oil pump drive hub before installing the torque converter. Be careful not to damage the oil seal lip when installing the torque converter.

OIL PUMP

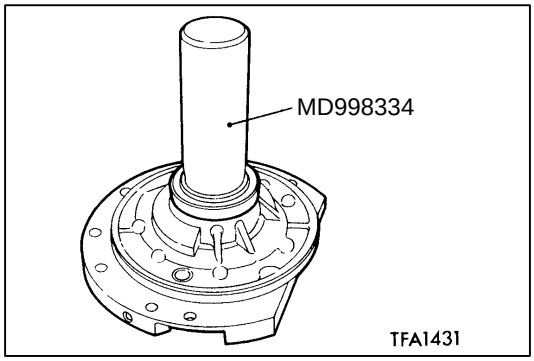
DISASSEMBLY AND REASSEMBLY

Lubricate all internal parts with automatic transmission fluid during reassembly.



Disassembly steps

▶B◀ 1. O-ring
2. Seal ring
▶A◀ 3. Oil seal
4. Oil pump assembly



REASSEMBLY SERVICE POINTS

▶A◀ OIL SEAL INSTALLATION

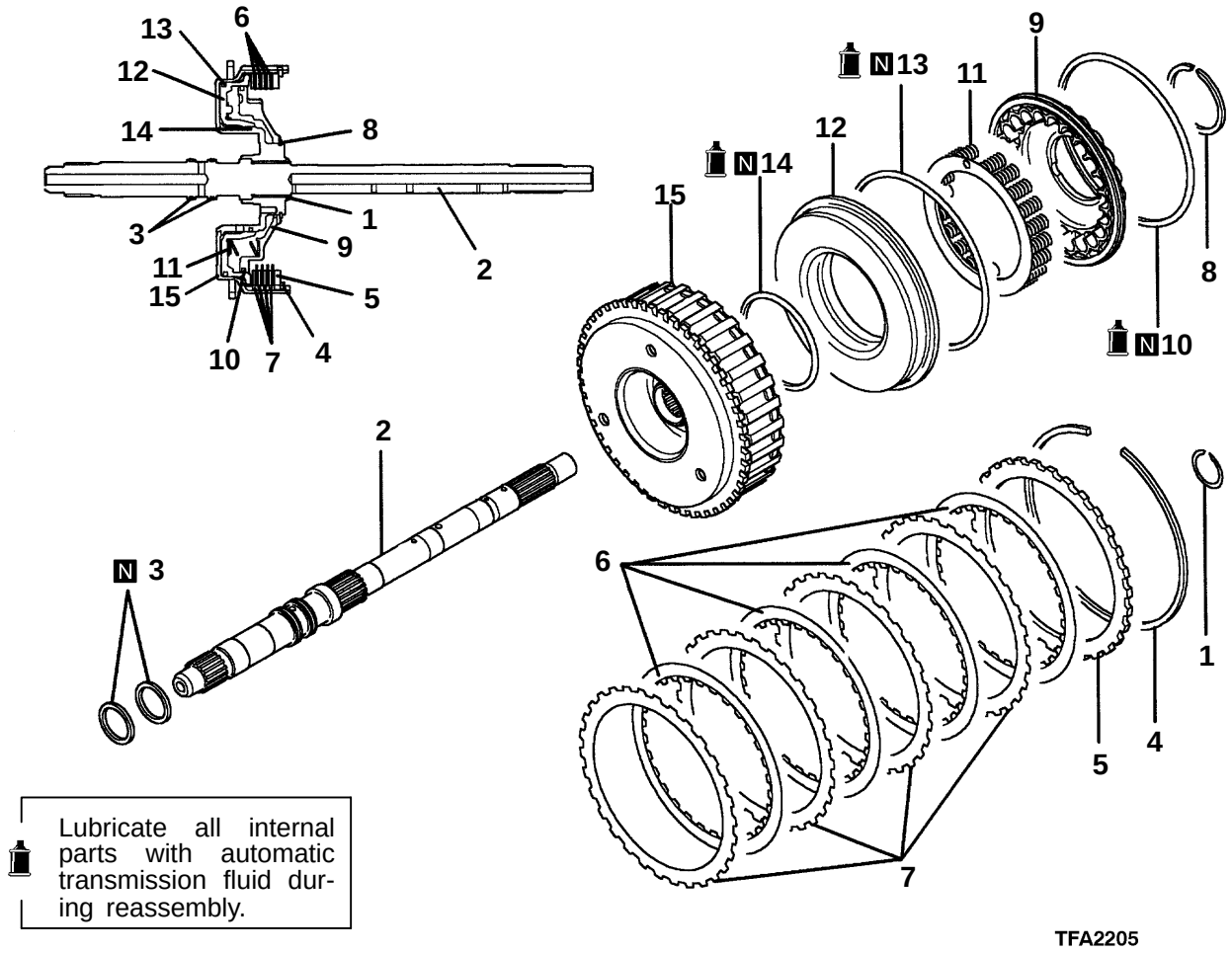
1. Install oil seal using special tool.

▶B◀ O-RING INSTALLATION

2. Install new o-ring to the outside groove of the oil pump, apply ATF, blue or white petroleum jelly to the outside surface of the o-ring.

UNDERDRIVE CLUTCH AND INPUT SHAFT

DISASSEMBLY AND REASSEMBLY

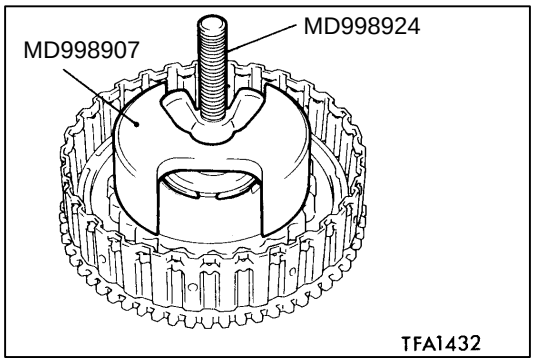


Number of clutch discs and plates

Clutch disc	Clutch plate	Clutch reaction plate
4	4	1

Disassembly steps

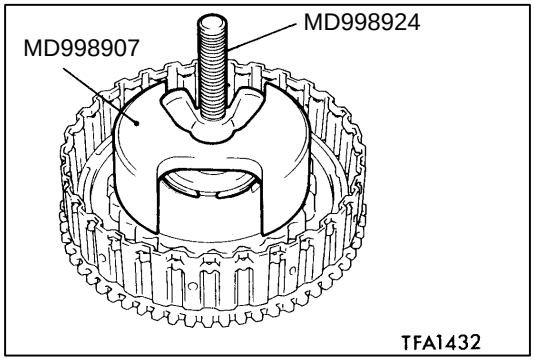
1. Snap ring
2. Input shaft
3. Seal ring
▶D◀ 4. Snap ring
▶C◀ 5. Clutch reaction plate
▶C◀ 6. Clutch disc
▶C◀ 7. Clutch plate
◀A▶ ▶B◀ 8. Snap ring
9. Spring retainer
▶A◀ 10. D-ring
11. Return spring
12. Underdrive clutch piston
▶A◀ 13. D-ring
▶A◀ 14. D-ring
15. Underdrive clutch retainer



DISASSEMBLY SERVICE POINT

◀A▶ SNAP RING REMOVAL

1. Remove snap ring using special tools.



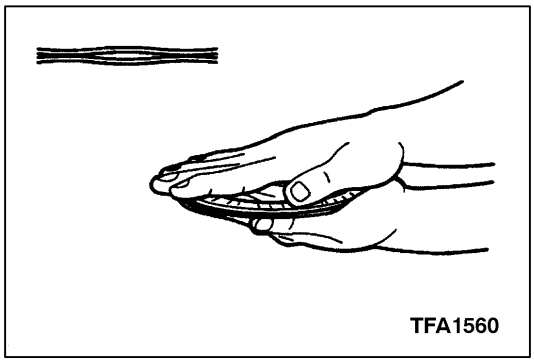
REASSEMBLY SERVICE POINTS

▶A◀ D-RING INSTALLATION

1. Apply ATF, blue petrolatum jelly or white Vaseline to the D-ring, and install it carefully.

▶B◀ SNAP RING INSTALLATION

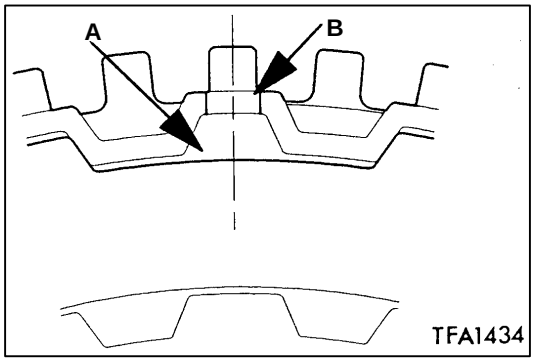
1. Install snap ring using special tools.



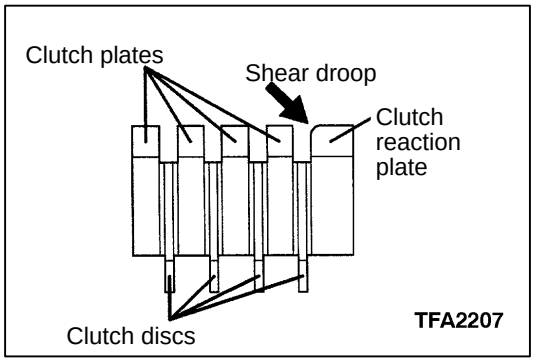
▶C◀ CLUTCH PLATE/CLUTCH DISC/CLUTCH REACTION PLATE INSTALLATION

1. Wave type clutch discs are used. Put two clutch discs together and gradually slide them around, if there is a gap visible between them, they are wave type clutch discs.

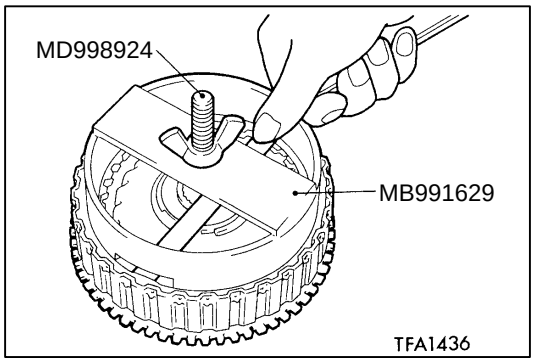
   Caution:
   Immerse the clutch disc in ATF before assembling it.



2. Align the spaces between the teeth (part A) of clutch plate, clutch discs and clutch reaction plate to the outer circumference hole (part B) of the under drive clutch retainer and assemble.



3. Install clutch reaction plate in the direction shown in diagram.



▶D◀ SNAP RING INSTALLATION

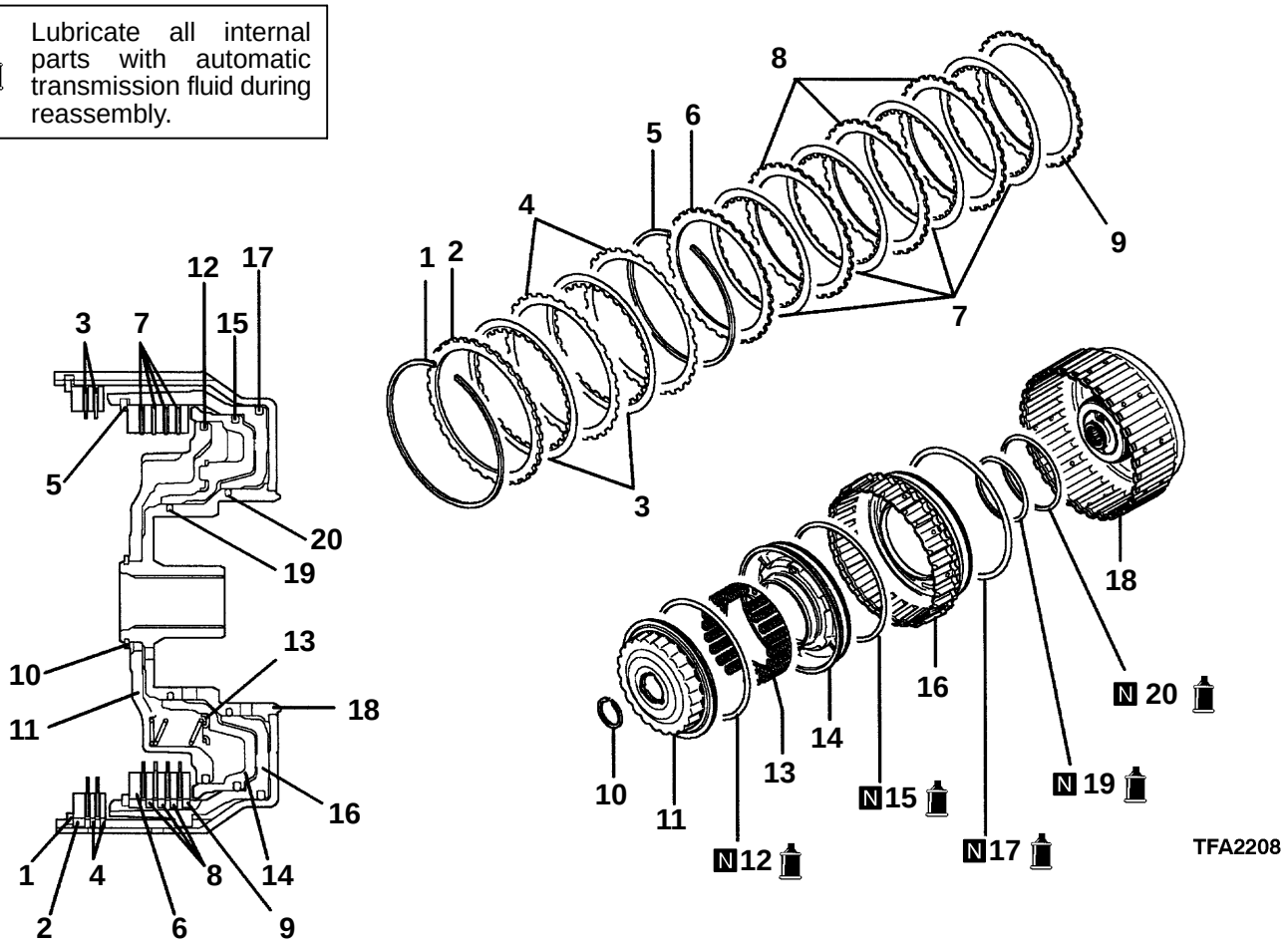
1. Install snap ring
2. When measuring the clearance, use the special tool to press the clutch reaction plate evenly.
3. Check that the clearance between the snap ring and the clutch reaction plate is within the standard value. If not within the standard value, select a snap ring to adjust.

Standard value:
1.7 ± 0.1 mm

REVERSE AND OVERDRIVE CLUTCH

DISASSEMBLY AND REASSEMBLY

Lubricate all internal parts with automatic transmission fluid during reassembly.

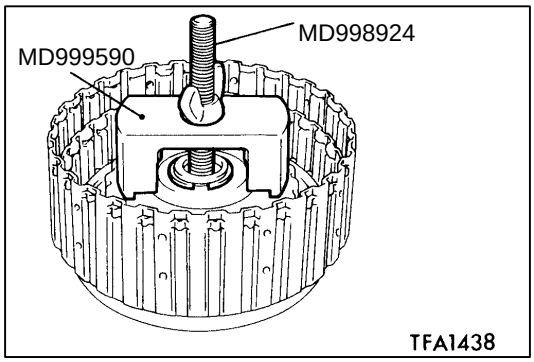


Number of over drive clutch discs and plates

Clutch disc	Clutch plate	Clutch reaction plate
4	3	1

Disassembly steps

- ▶G◀ 1. Snap ring
- ▶F◀ 2. Clutch reaction plate
- ▶F◀ 3. Clutch disc
- ▶F◀ 4. Clutch plate
- ▶E◀ 5. Snap ring
- ▶D◀ 6. Clutch reaction plate
- ▶D◀ 7. Clutch disc
- ▶D◀ 8. Clutch plate
- ▶D◀ 9. Clutch pressure plate
- ◀A▶ ▶C◀ 10. Snap ring
- 11. Spring retainer
- ▶A◀ 12. D-ring
- 13. D-ring
- 14. Overdrive clutch piston
- ▶A◀ 15. D-ring
- ▶B◀ 16. Reverse clutch piston
- ▶A◀ 17. D-ring
- 18. Reverse clutch retainer
- ▶A◀ 19. D-ring
- ▶A◀ 20. D-ring



DISASSEMBLY SERVICE POINT

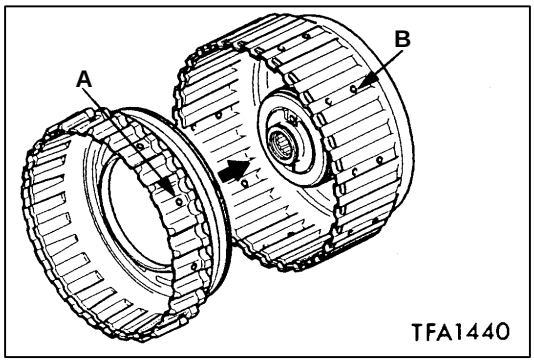
◀A▶ SNAP RING REMOVAL

1. Remove snap ring using special tools.

REASSEMBLY SERVICE POINTS

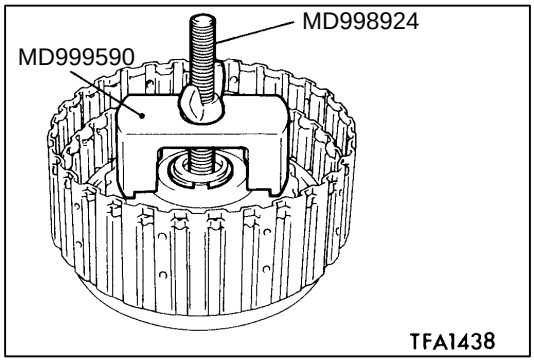
▶A◀ D-RING INSTALLATION

1. Apply ATF, blue petroleum jelly or white Vaseline to D-ring, and install carefully.



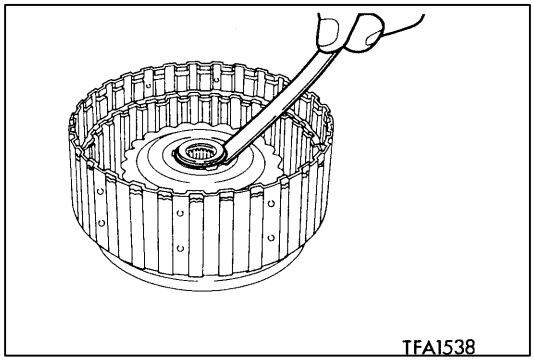
▶B◀ REVERSE CLUTCH PISTON INSTALLATION

1. Align the outer circumference holes (parts A and B) of the reverse clutch piston and the reverse clutch retainer to assemble them.



▶C◀ SNAP RING INSTALLATION

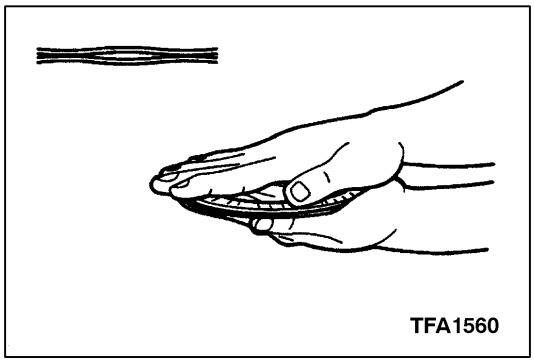
1. Use the special tool to install the snap ring.



2. Push evenly on circumference of return spring retainer firmly (49N {5kgf}).
3. Check that the clearance between the snap ring and the return spring retainer is within the standard value. If not within the standard value, select a snap ring to adjust to standard value.

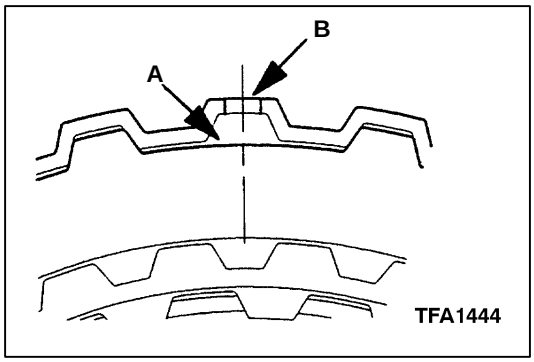
   Reference:

   Standard value: 0 – 0.09 mm



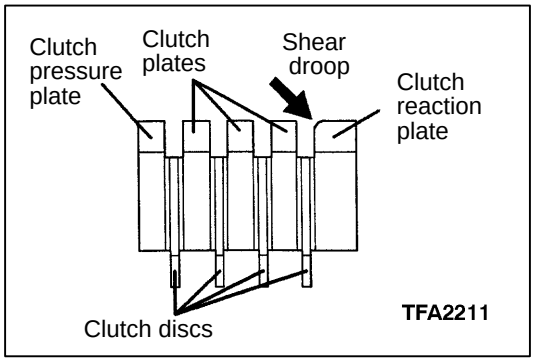
▶D◀ CLUTCH PLATE/CLUTCH DISC/CLUTCH REACTION PLATE INSTALLATION

1. Wave type clutch discs are used. Put two clutch discs together and gradually slide them around, if there is a gap visible between them, they are wave type clutch discs.

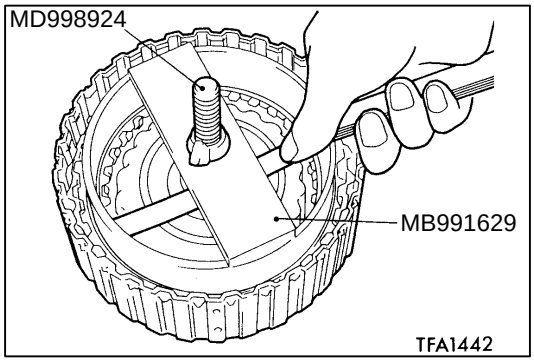


2. Align the spaces between the teeth (part A) of clutch pressure plate, clutch plate, clutch disc, and clutch reaction plate to the outer circumference hole (part B) of reverse clutch piston and assemble.

Caution
Immerse the clutch disc in ATF before assembling the clutch disc.



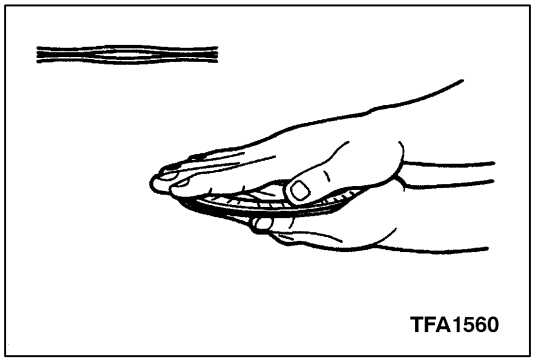
3. Install the clutch reaction plate in the direction shown in the diagram.



▶E◀ SNAP RING INSTALLATION

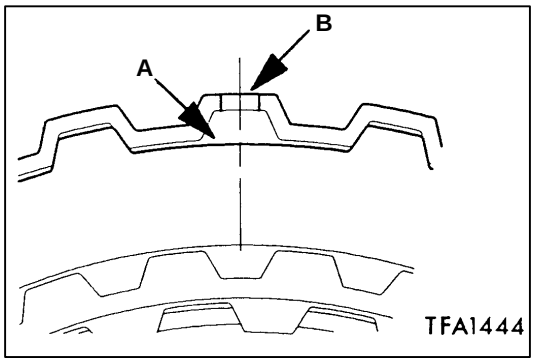
1. Install snap ring.
2. When measuring the clearance, use the special tool to press the clutch reaction plate evenly. Check that the clearance between the snap ring and the clutch reaction plate is within the standard value. If not within the standard value, select a snap ring to adjust.

Reference:
Standard value: 1.7 ± 0.1 mm



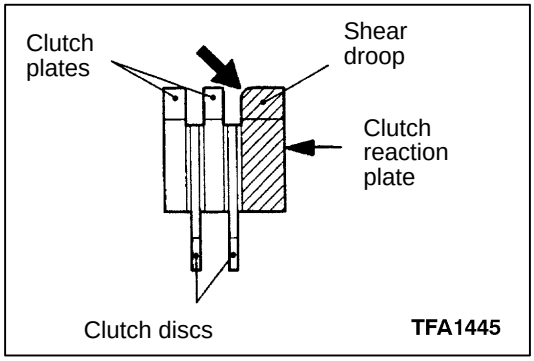
▶F◀ CLUTCH PLATE/CLUTCH DISC/CLUTCH REACTION PLATE INSTALLATION

1. Wave type clutch discs are used. Put two clutch discs together and gradually slide them around, if there is a gap visible between them, they are wave type clutch discs.

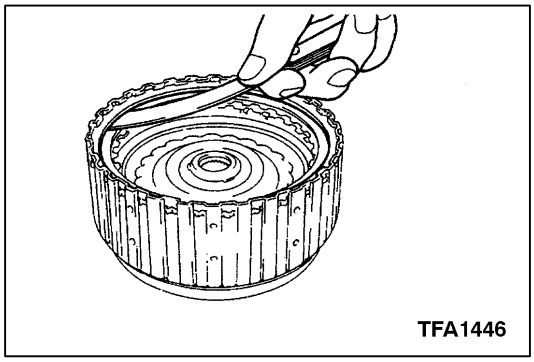


2. Align the space between the teeth (part A) of the clutch pressure plate, clutch plate, clutch disc and clutch reaction plate to the outer circumference hole (part B) of the reverse clutch piston and assemble.

Caution
Immerse the clutch disc in ATF before assembling the clutch disc.



3. Install the clutch reaction plate in the shown direction.



▶G◀ SNAP RING INSTALLATION

1. Install snap ring.
2. When measuring the clearance, press the clutch reaction plate by the weight of 1471 ± 50N (150 ± 5kgf) evenly. Check that the clearance between the snap ring and the clutch reaction plate is within the standard value. If not within the standard value, select a snap ring to adjust to standard value.

Reference:
Standard value: 1.6 ± 0.1mm

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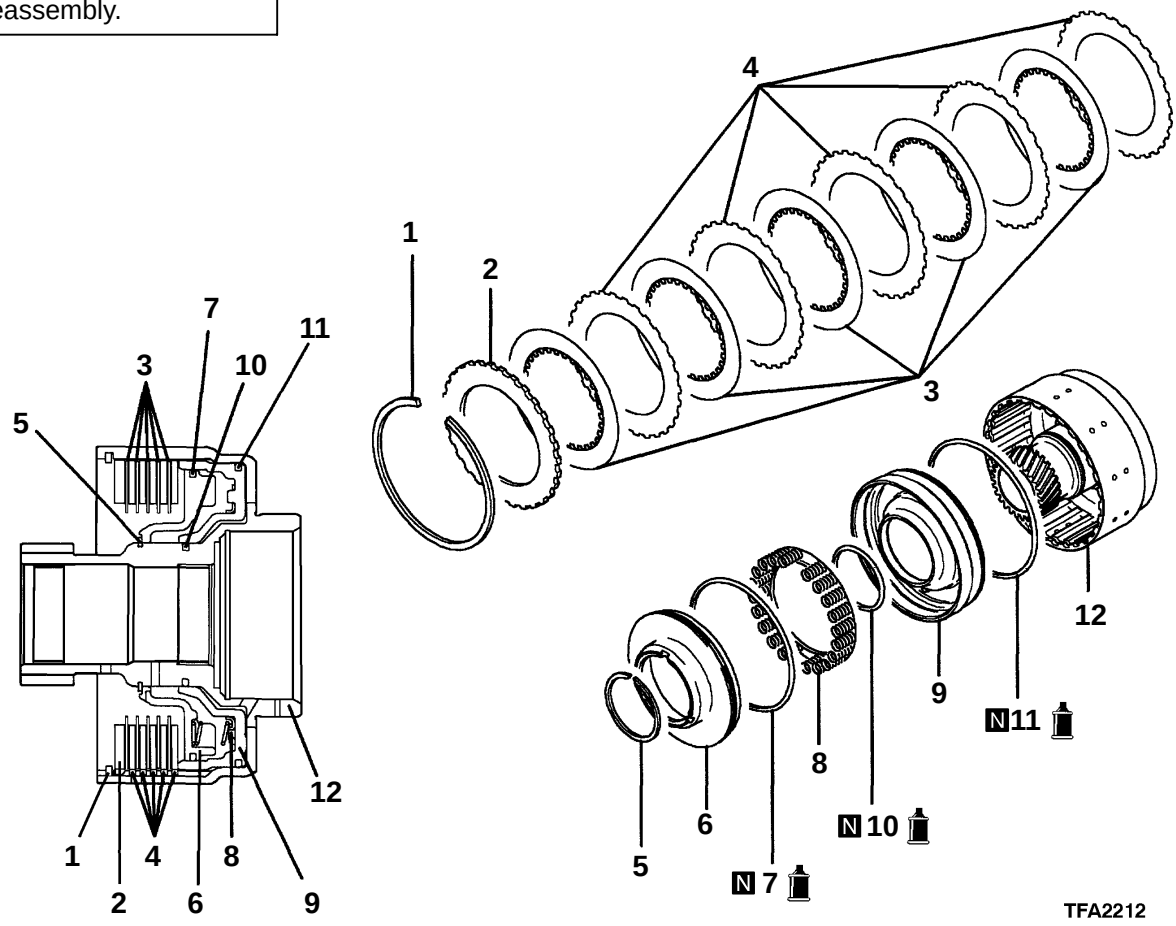
DIRECT CLUTCH

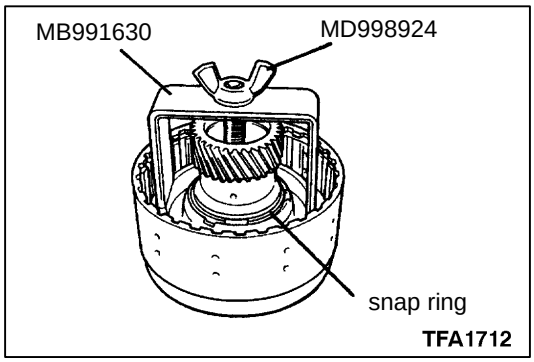
DISASSEMBLY AND REASSEMBLY

Lubricate all internal parts with automatic transmission fluid during reassembly.



Disassembly steps

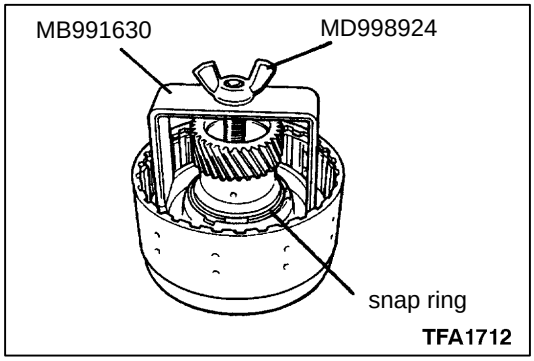
- ▶D◀ 1. Snap ring
- ▶C◀ 2. Clutch reaction plate
- ▶C◀ 3. Clutch disc
- ▶C◀ 4. Clutch plate
- ◀A▶ ▶B◀ 5. Snap ring
- 6. Spring retainer
- ▶A◀ 7. D-ring
- 8. Return spring
- 9. Direct clutch piston
- ▶A◀ 10. D-ring
- ▶A◀ 11. D-ring
- 12. Direct clutch retainer



DISASSEMBLY SERVICE POINT

◀A▶ SNAP RING REMOVAL

1. Remove snap ring using special tools.



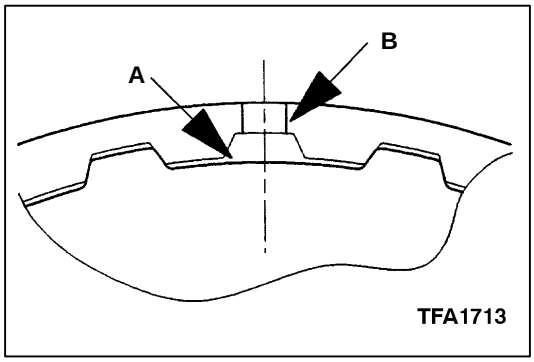
REASSEMBLY SERVICE POINTS

▶A◀ D-RING INSTALLATION

1. Apply ATF, blue petroleum jelly or white Vaseline to D-ring, and install carefully.

▶B◀ SNAP RING INSTALLATION

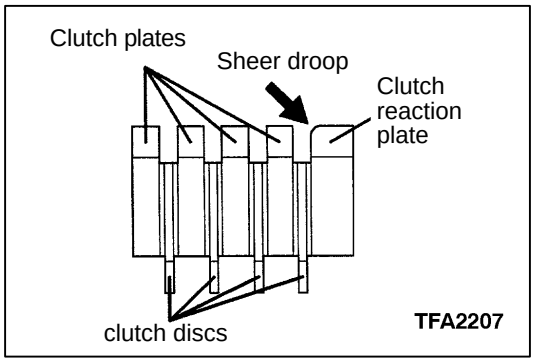
1. Use the special tools to install the snap ring.



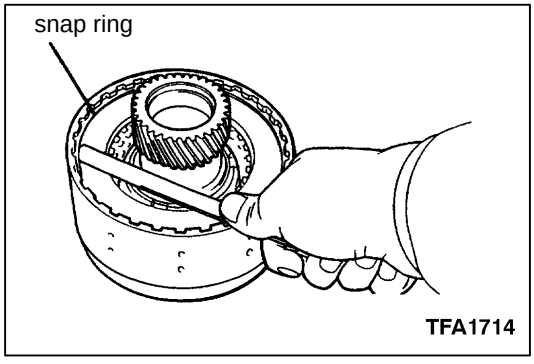
▶C◀ CLUTCH PLATE, CLUTCH DISC AND CLUTCH REACTION PLATE INSTALLATION

1. Align the spaces between the teeth (part A) of clutch plate, clutch disc and clutch reaction plate to the outer circumference hole (part B) of direct clutch retainer and assemble.

Caution
Immerse the clutch disc in ATF before assembling the clutch disc.



2. Install the clutch reaction plate in the direction shown in the diagram.



▶D◀ SNAP RING INSTALLATION

1. Install snap ring.
2. When measuring the clearance, press the return spring retainer by the weight of 49 N (5kgf) evenly. Check that the clearance between the snap ring and the return spring retainer is within the standard value. If not within the standard value, select a snap ring to adjust.

   Reference:
   Standard value: 1.1 ± 0.1 mm

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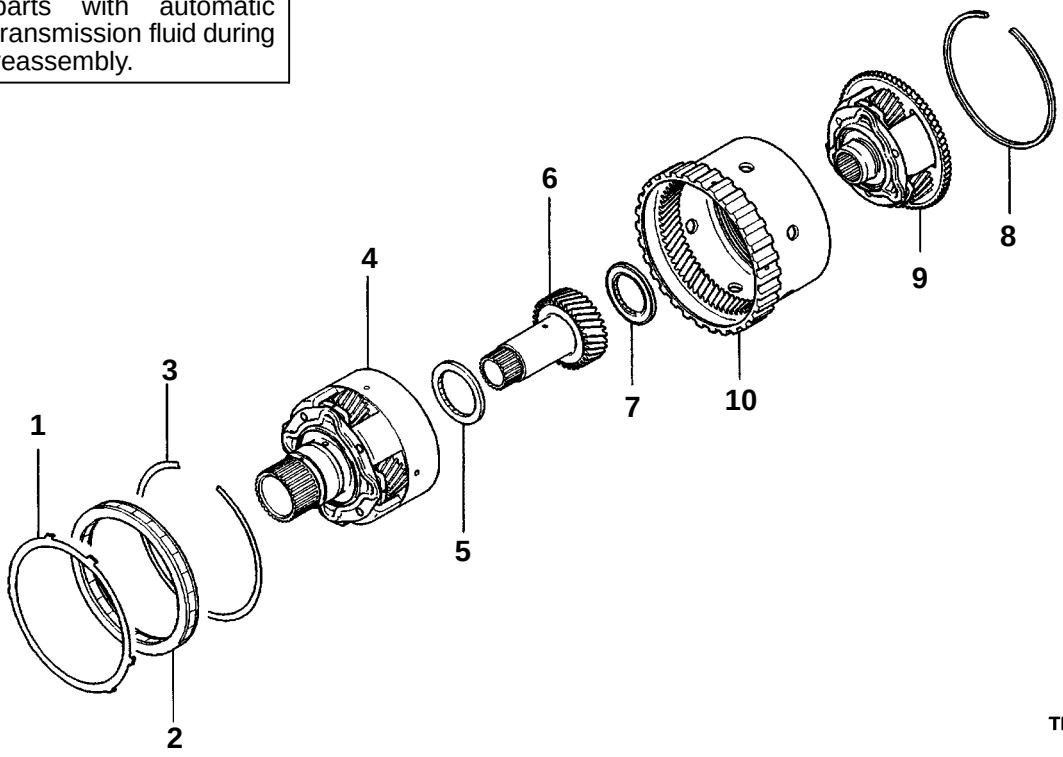
PLANETARY CARRIER ASSEMBLY

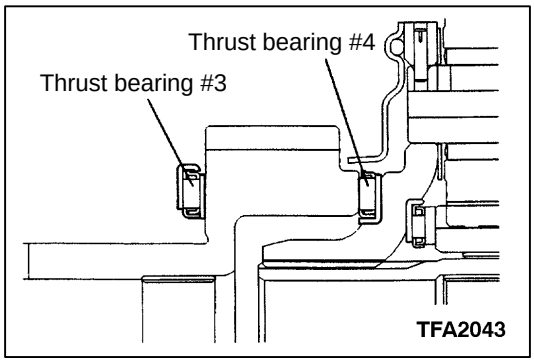
DISASSEMBLY AND REASSEMBLY

Lubricate all internal parts with automatic transmission fluid during reassembly.



Disassembly steps

1. Stopper plate
▶B◀ 2. One-way clutch
3. Snap ring
4. Output planetary carrier
▶A◀ 5. Thrust bearing #3
6. Under drive sun gear
▶A◀ 7. Thrust bearing #4
8. Snap ring
9. Over drive planetary carrier
10. Over drive annulus gear

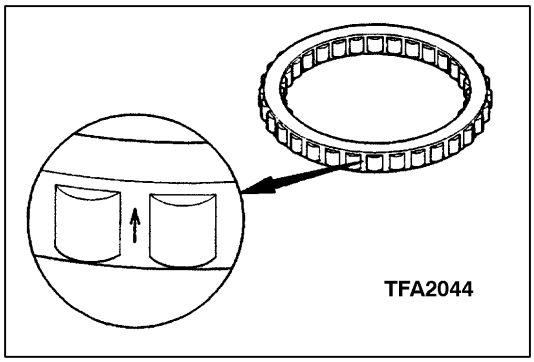


REASSEMBLY SERVICE POINTS

▶A◀ THRUST BEARINGS #3 & #4 INSTALLATION

1. Install thrust bearing #3 and #4 in the position shown in the diagram.

   Reference:
   Install thrust bearings in the correct direction.



▶B◀ ONE WAY CLUTCH INSTALLATION

1. Insert one way clutch into over drive annulus gear as the arrow points to output planetary carrier side.

   Caution:
   Install one way clutch in the correct direction.

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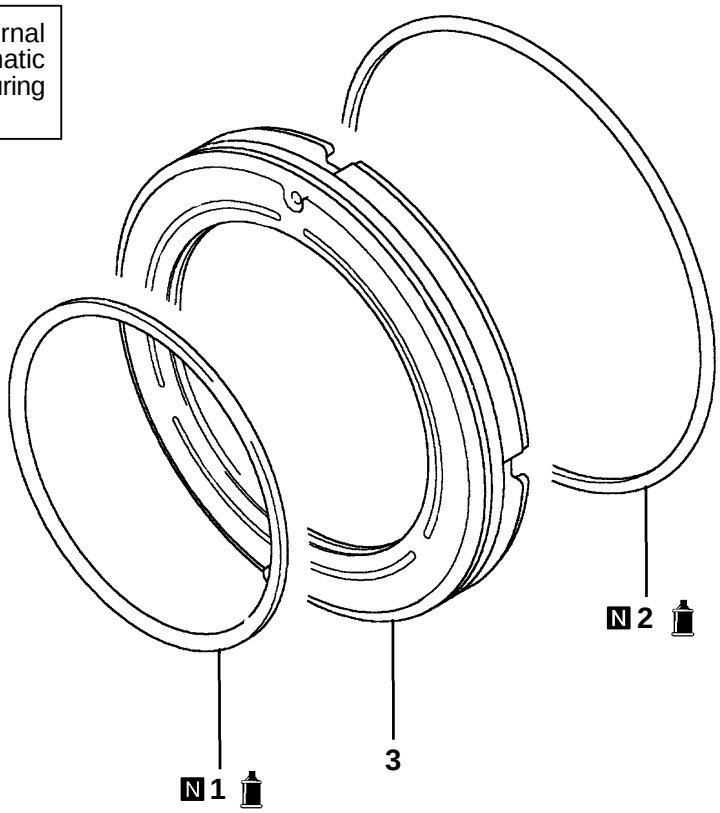
LOW-REVERSE BRAKE

DISASSEMBLY AND REASSEMBLY

Lubricate all internal parts with automatic transmission fluid during reassembly.



TFA2214

Disassembly steps

▶A◀ 1. D-ring
▶A◀ 2. D-ring
3. Low-reverse brake piston

REASSEMBLY SERVICE POINT

▶A◀ D-RING INSTALLATION

Apply ATF, blue petrolatum jelly or white petrolatum jelly to D-ring, and install carefully.

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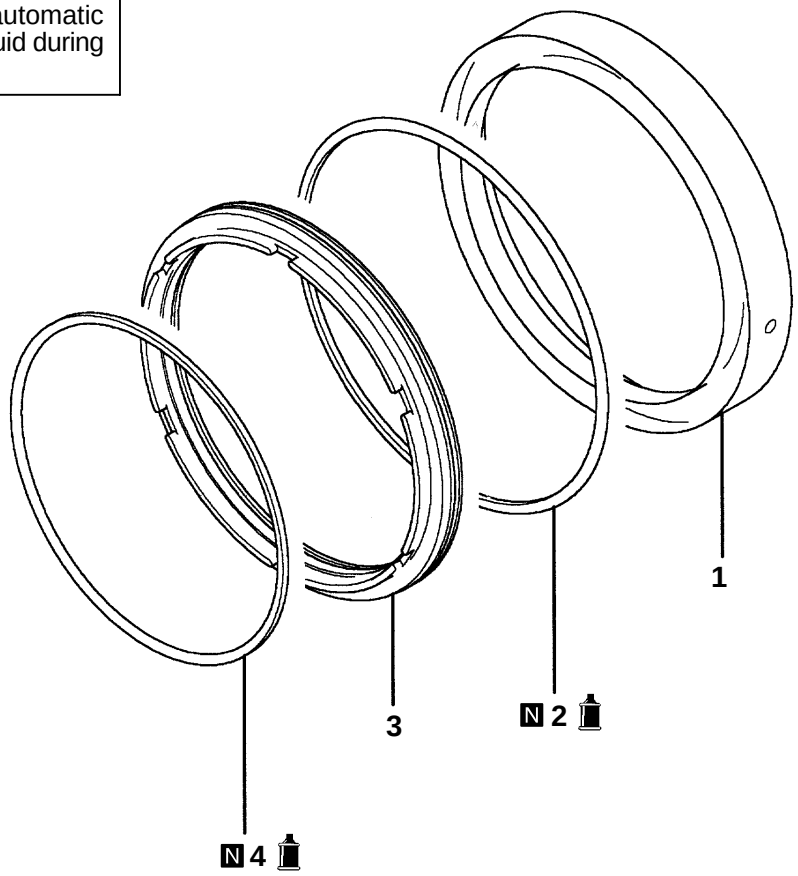
SECOND BRAKE

DISASSEMBLY AND REASSEMBLY

Lubricate all internal parts with automatic transmission fluid during reassembly.



TFA2215

Disassembly steps

1. Second brake retainer
▶A◀ 2. D-ring
3. Second brake piston
▶A◀ 4. D-ring

REASSEMBLY SERVICE POINT

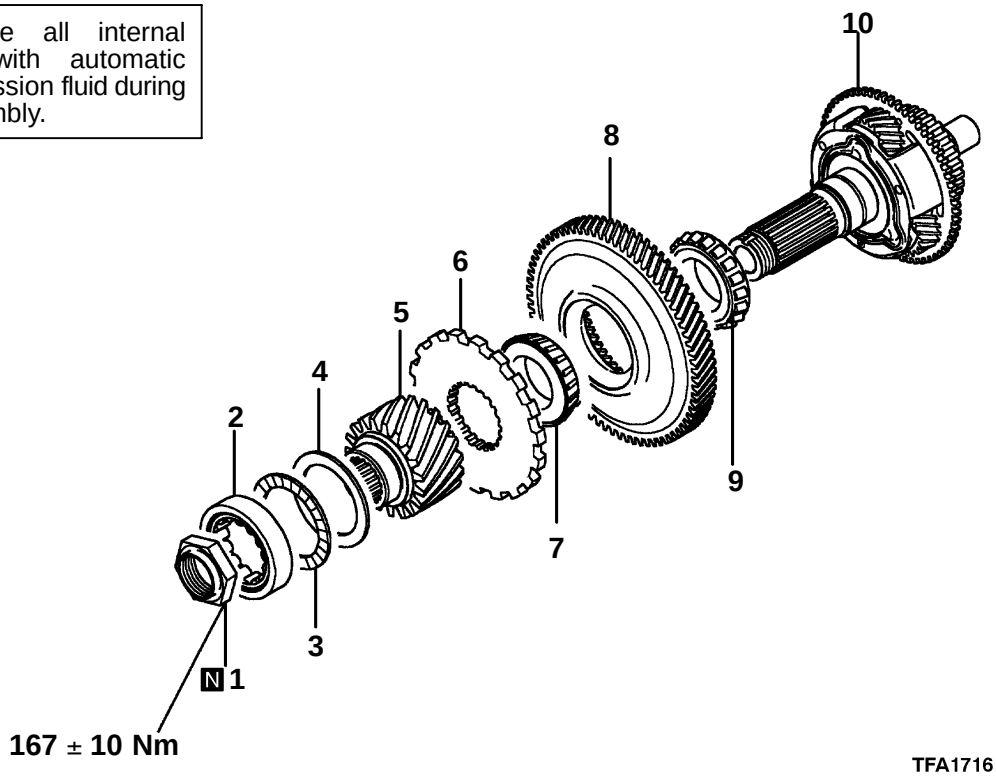
▶A◀ D-RING INSTALLATION

Apply ATF, blue petrolatum jelly or white Vaseline to D-ring, and install carefully.

DIRECT PLANETARY CARRIER

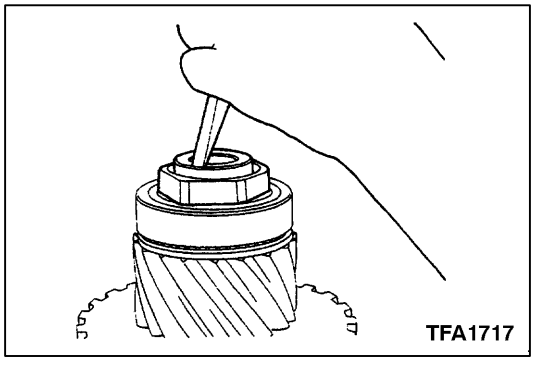
DISASSEMBLY AND REASSEMBLY

Lubricate all internal parts with automatic transmission fluid during reassembly.



Disassembly steps

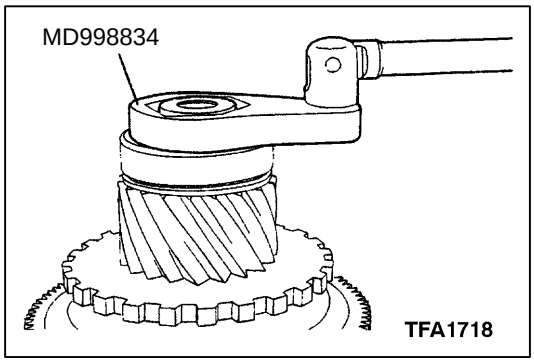
◀A▶ ▶D◀ 1. Lock nut
2. Roller bearing
3. Thrust bearing #9
4. Thrust race #10
◀B▶ ▶C◀ 5. Output gear
◀B▶ ▶C◀ 6. Parking gear
◀C▶ ▶B◀ 7. Taper roller bearing
8. Transfer driven & direct annulus gear
◀D▶ ▶A◀ 9. Taper roller bearing
10. Direct planetary carrier



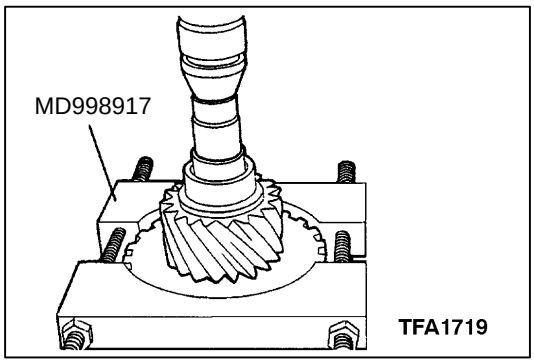
DISASSEMBLY SERVICE POINTS

◀A▶ LOCK NUT REMOVAL

1. Remove stake from lock nut.

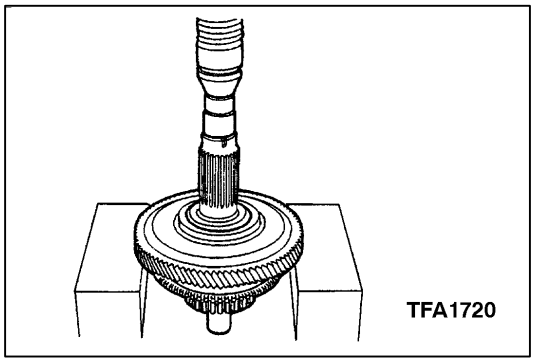


2. Remove lock nut using special tool.



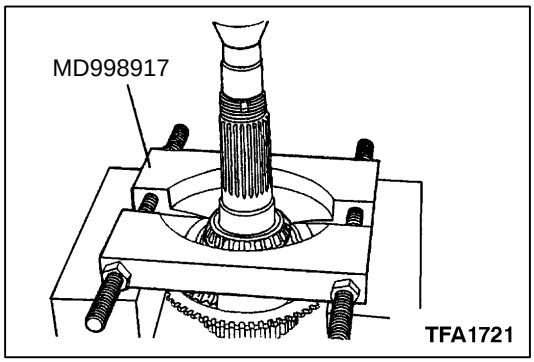
◀B▶ OUTPUT GEAR / PARKING GEAR REMOVAL

1. Remove output gear and parking gear using special tools.



◀C▶ TAPER ROLLER BEARING / TRANSFER DRIVEN GEAR REMOVAL

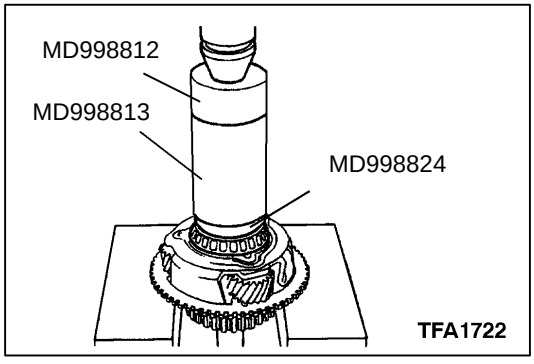
1. Support transfer driven gear as shown in diagram.
2. Push directly on planetary carrier shaft and pull taper roller bearing and transfer driven gear off.



◀D▶ TAPER ROLLER BEARING REMOVAL

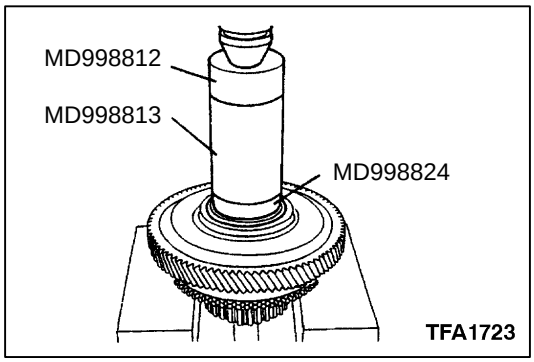
1. Remove taper roller bearing using special tools.

ASSEMBLY SERVICE POINTS



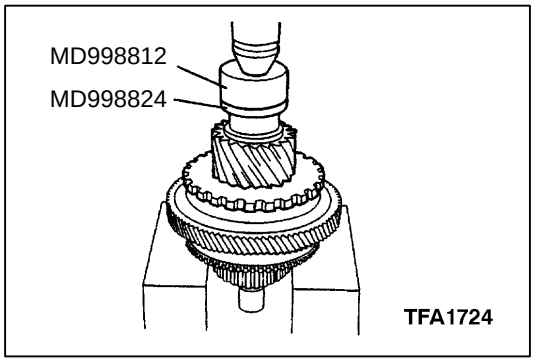
▶A◀ TAPER ROLLER BEARING INSTALLATION

1. Install taper roller bearing using special tools.



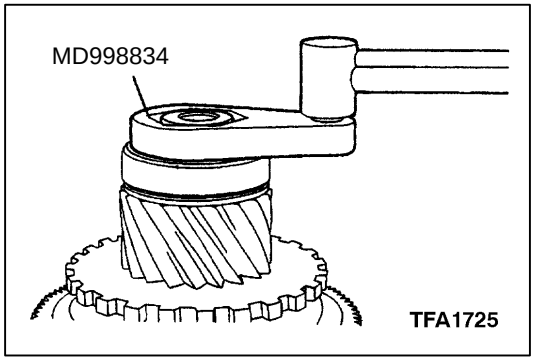
▶B◀ TAPER ROLLER BEARING INSTALLATION

1. Install transfer driven gear and taper roller bearing using special tools.



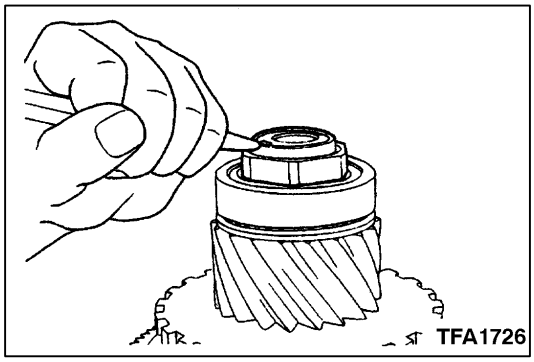
▶C◀ OUTPUT GEAR / PARKING GEAR INSTALLATION

1. Install output gear and parking gear using special tools.



▶D◀ LOCK NUT INSTALLATION

1. Apply ATF to new lock nut and tighten it to the specified torque. Then loosen it one turn and tighten it again to the specified torque.

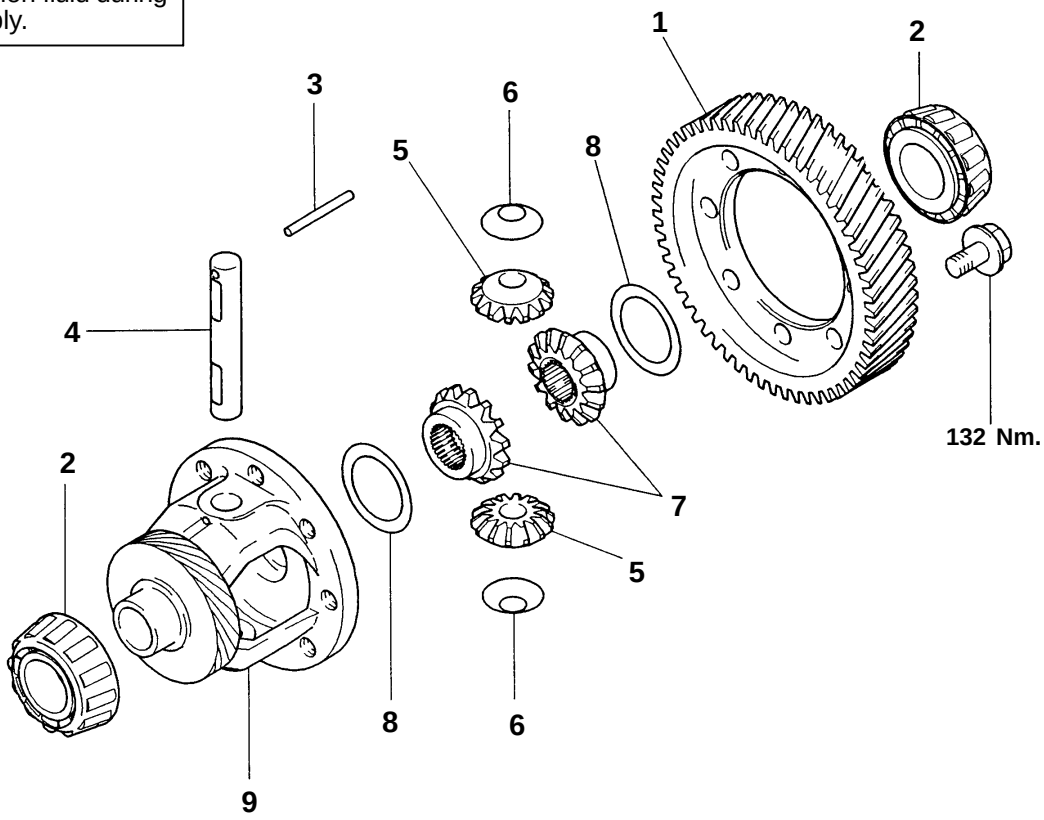


2. Stake the new lock nut in two places to prevent it from turning.

DIFFERENTIAL

DISASSEMBLY AND REASSEMBLY

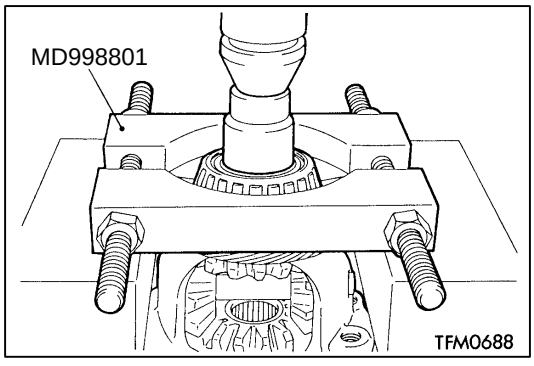
Lubricate all internal parts with automatic transmission fluid during reassembly.



10AE006N

Disassembly steps

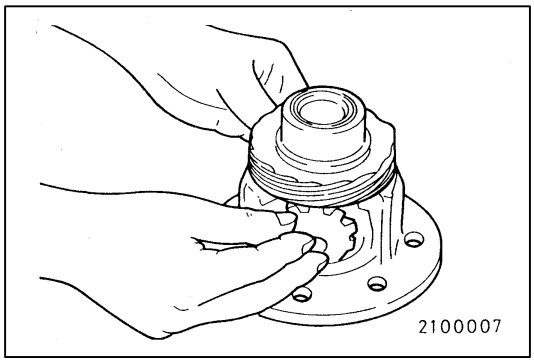
◀A▶ ▶D◀ 1. Differential drive gear
◀A▶ ▶C◀ 2. Taper roller bearings
▶B◀ 3. Lock pin
▶A◀ 4. Pinion shaft
▶A◀ 5. Pinions
▶A◀ 6. Washers
▶A◀ 7. Side gears
▶A◀ 8. Spacers
9. Differential case



DISASSEMBLY SERVICE POINTS

◀A▶ TAPER ROLLER BEARING REMOVAL

1. Remove taper roller bearing using special tools.



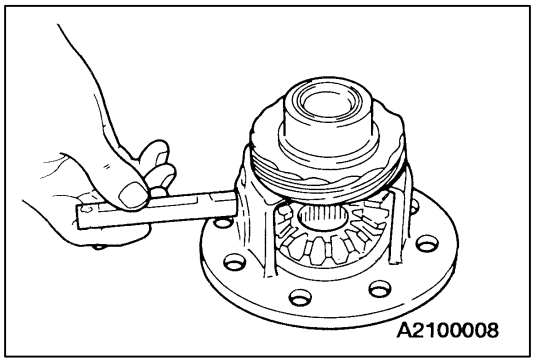
REASSEMBLY SERVICE POINTS

▶A◀ SPACER, SIDE GEAR, WASHER, PINION, PINION SHAFT INSTALLATION

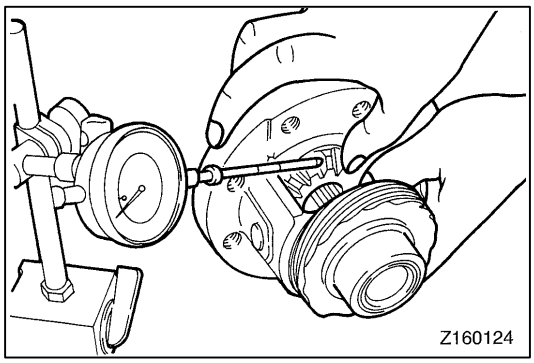
1. Install the spacers to the back side of the side gears, and then assemble the side gears into the differential case.

   NOTE
   Select the medium size spacer [0.93 – 1.00 mm] when assembling a new side gear.

2. Attach the washers to the back side of the pinions, engage the pinions simultaneously to the side gears, and settle the gears to the specified position by turning.



3. Insert the pinion shaft.

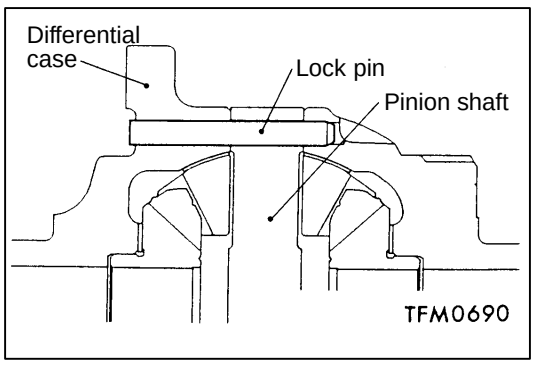


4. Measure the backlash between the side gears and pinions.

   Standard value:
   0.025 – 0.150 mm

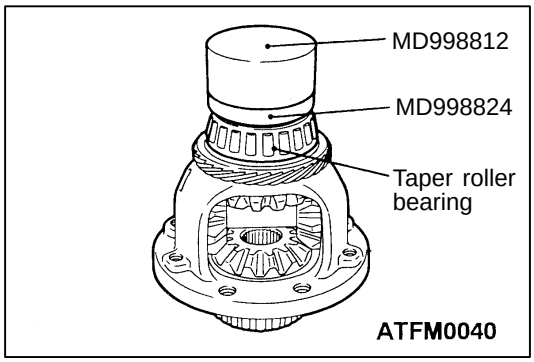
5. If not within the standard value, change a spacer and measure the backlash again.

   NOTE
   Adjust so that both backlashes are equal.



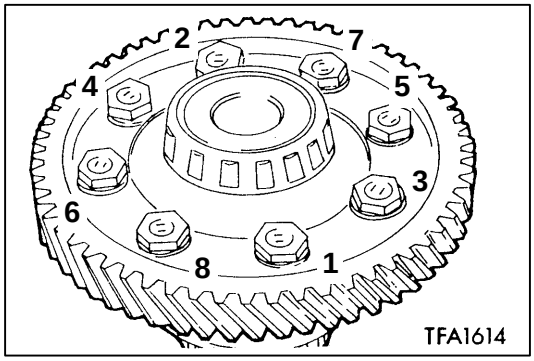
▶B◀ LOCK PIN INSTALLATION

1. Install the chamfered side of the lock pin first, as per diagram.



▶C◀ TAPER ROLLER BEARING INSTALLATION

1. Install the taper roller bearings using special tools.

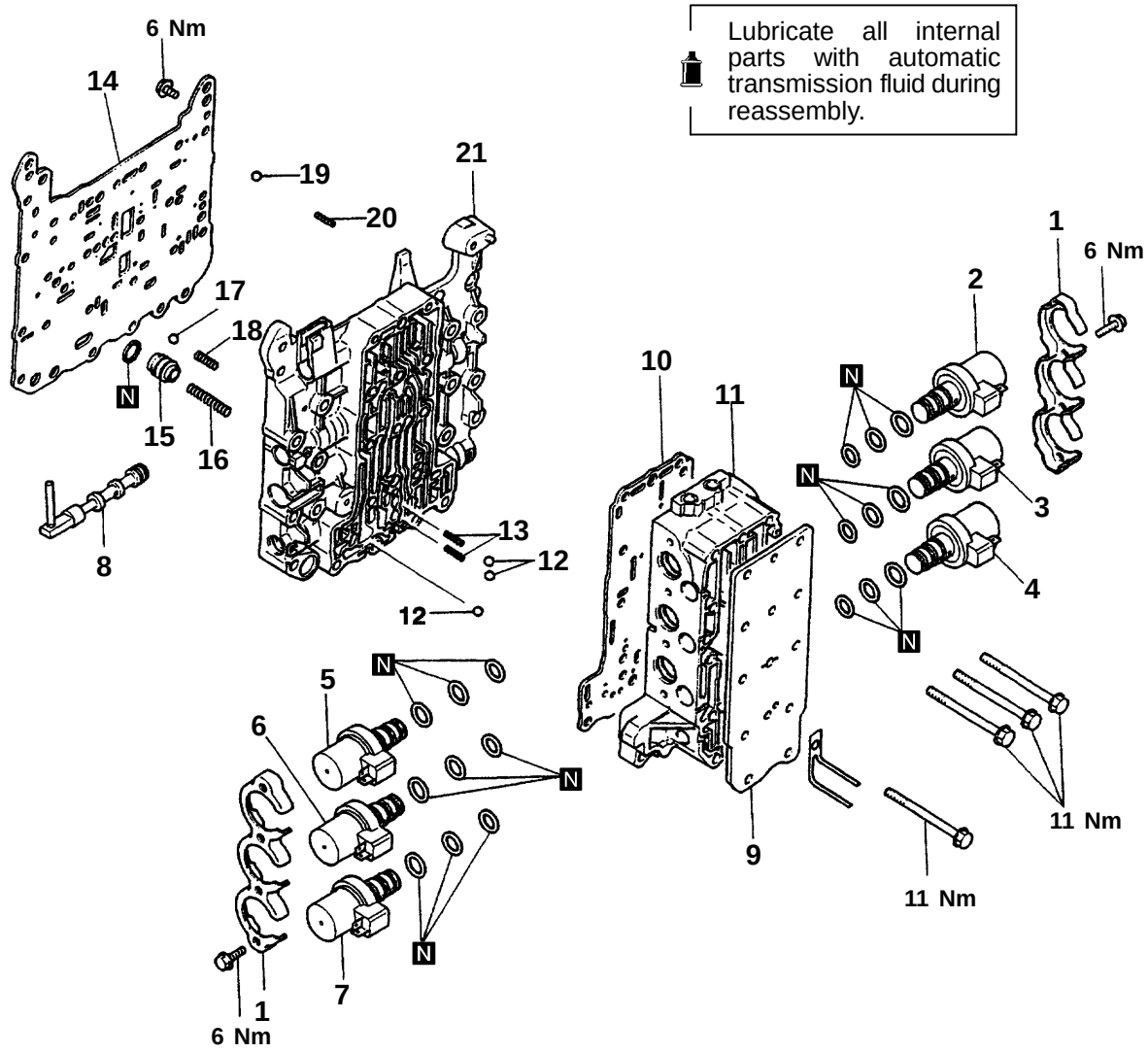


▶D◀ DIFFERENTIAL DRIVE GEAR INSTALLATION

1. Apply ATF to the bolts and tighten to the specified torque in the sequence shown in the diagram.

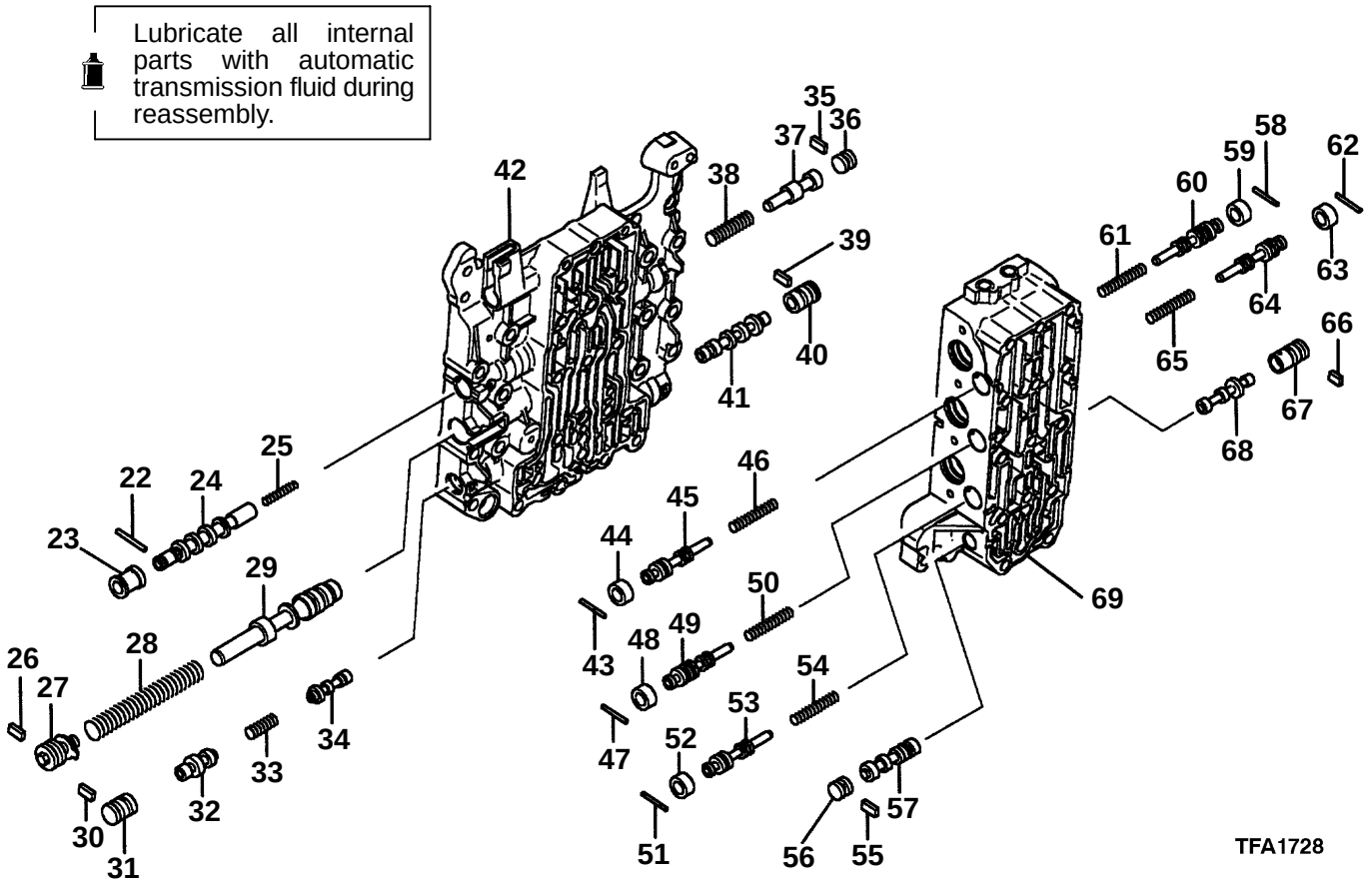
VALVE BODY

DISASSEMBLY AND REASSEMBLY



Disassembly steps

1. Solenoid valve support
◀A▶ ▶C◀ 2. Underdrive solenoid valve
◀A▶ ▶C◀ 3. Second solenoid valve
◀A▶ ▶C◀ 4. Torque converter clutch control solenoid valve
◀A▶ ▶C◀ 5. Overdrive solenoid valve
◀A▶ ▶C◀ 6. Low-reverse solenoid valve
◀A▶ ▶C◀ 7. Reduction solenoid valve
8. Manual valve
9. Cover
10. Plate
11. Outside valve body assembly
▶B◀ 12. Steel ball (orifice check ball)
▶B◀ 13. Spring
14. Plate
▶A◀ 15. Damping valve
▶A◀ 16. Damping valve spring
▶A◀ 17. Steel ball (line relief)
▶A◀ 18. Spring
▶A◀ 19. Steel ball (orifice check ball)
▶A◀ 20. Spring
21. Inside valve body assembly



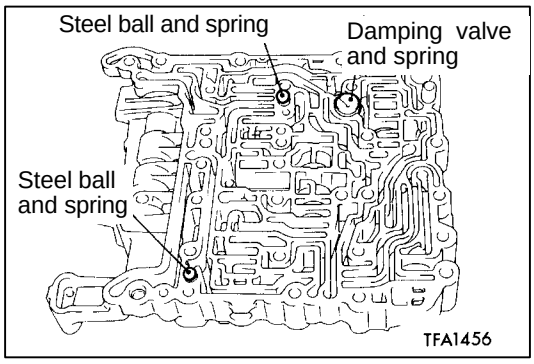
22. Roller
23. Damper clutch control valve sleeve
24. Damper clutch control valve
25. Damper clutch control valve spring
26. Plate
27. Screw
28. Regulator valve spring
29. Regulator valve
30. Plate
31. Fail-safe valve A sleeve
32. Fail-safe valve A2
33. Fail-safe valve A spring
34. Fail-safe valve A1
35. Plate
36. Plug
37. Torque converter valve
38. Torque converter valve spring
39. Plate
40. Fail-safe valve B sleeve
41. Fail-safe valve B
42. Inside valve body
43. Roller
44. Overdrive pressure control valve sleeve
45. Overdrive pressure control valve
46. Overdrive pressure control valve spring
47. Roller
48. Low–reverse pressure control valve sleeve
49. Low–reverse pressure control valve
50. Low–reverse pressure control valve spring
51. Roller
52. Reduction pressure control valve sleeve
53. Reduction pressure control valve
54. Reduction pressure control valve spring
55. Plate
56. Plug
57. Switch valve
58. Roller
59. Underdrive pressure control valve sleeve
60. Underdrive pressure control valve
61. Underdrive pressure control valve spring
62. Roller
63. Second pressure control valve sleeve
64. Second pressure control valve
65. Second pressure control valve spring
66. Plate
67. Fail-safe valve C sleeve
68. Fail-safe valve C
69. Outside valve body

DISASSEMBLY SERVICE POINT

◀A▶ SOLENOID VALVE REMOVAL

NOTE

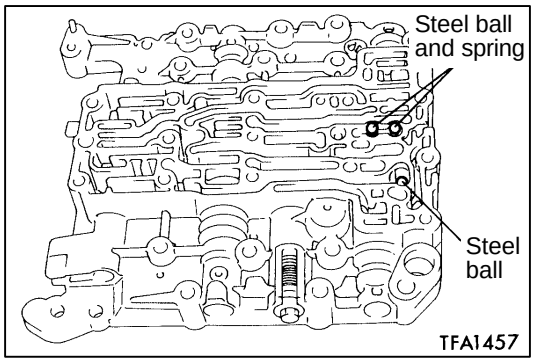
1. Before removing the solenoid valves, identify each solenoid valve with white paint or similar to facilitate reassembly.
2. Store each solenoid valve separately, according to its location, to avoid incorrect reassembly.



REASSEMBLY SERVICE POINTS

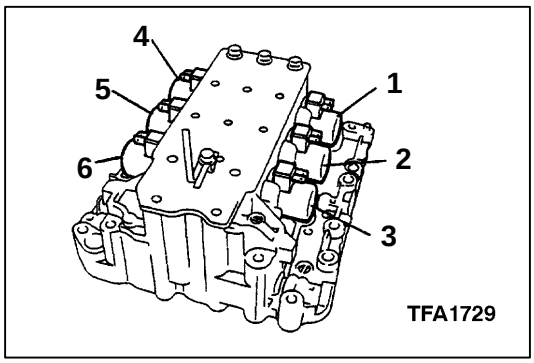
▶A◀ SPRING/STEEL BALL/DAMPING VALVE/DAMPING VALVE SPRING INSTALLATION

1. Install steel balls, springs and damping valve in the positions shown in the diagram.



▶B◀ SPRING/STEEL BALL INSTALLATION

1. Install spring and steel balls in the positions shown in the diagram.



▶C◀ SOLENOID VALVE INSTALLATION

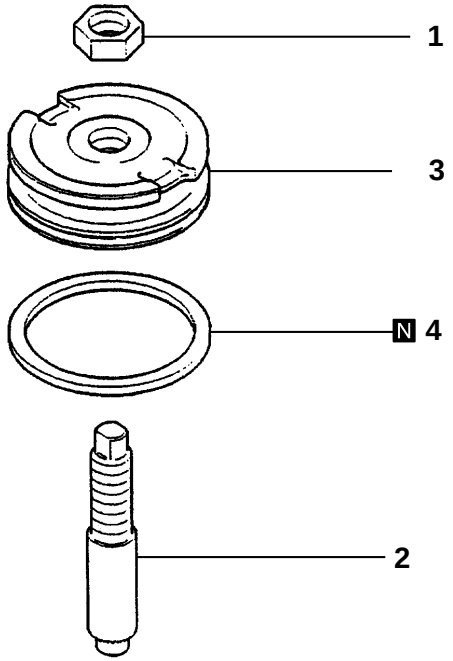
1. Install the solenoid valves by referring to the marks made during disassembly.

No.	Name
1	Underdrive solenoid valve
2	Second solenoid valve
3	Damper clutch control solenoid valve
4	Overdrive solenoid valve
5	Low–reverse solenoid valve
6	Reduction solenoid valve

REDUCTION BRAKE PISTON

DISASSEMBLY AND REASSEMBLY

Lubricate all internal parts with automatic transmission fluid during reassembly.



TFA1730

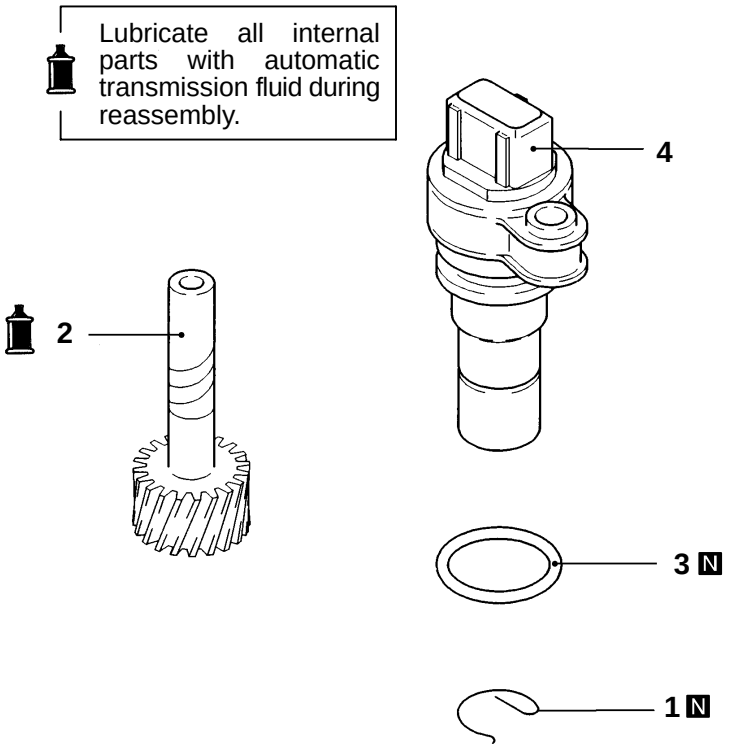
Disassembly steps

1. Nut
2. Adjusting rod
3. Reduction brake piston
4. Seal ring

Main Index
23 Index
23D Index

SPEEDOMETER GEAR

DISASSEMBLY AND REASSEMBLY



TFM0593

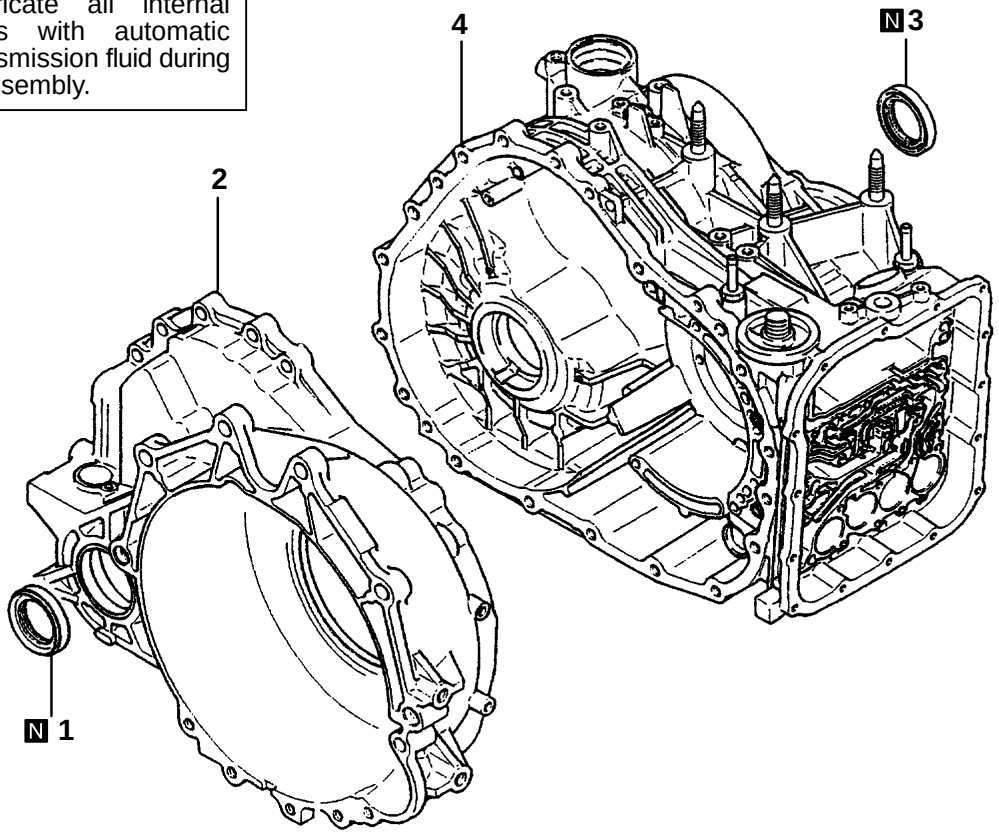
Disassembly steps

1. E-clip
2. Speedometer driven gear
3. O-ring
4. Sleeve

DRIVE SHAFT OIL SEAL

DISASSEMBLY AND REASSEMBLY

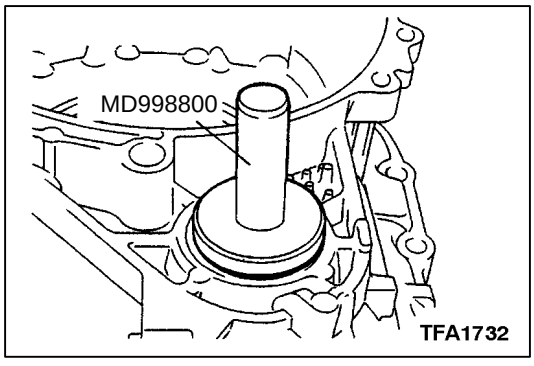
Lubricate all internal parts with automatic transmission fluid during reassembly.



TFA1731

Disassembly steps

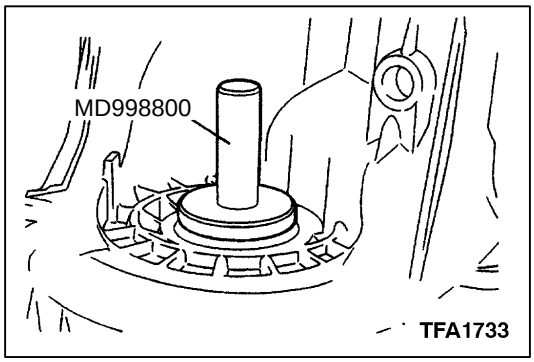
▶A◀ 1. Oil seal
2. Torque converter housing
▶B◀ 3. Oil seal
4. Transmission case



REASSEMBLY SERVICE POINT

▶A◀ OIL SEAL INSTALLATION

1. Install oil seal using special tool.



▶B◀ OIL SEAL INSTALLATION

1. Install oil seal using special tool.