

# AUTOMATIC TRANSAXLE OVERHAUL

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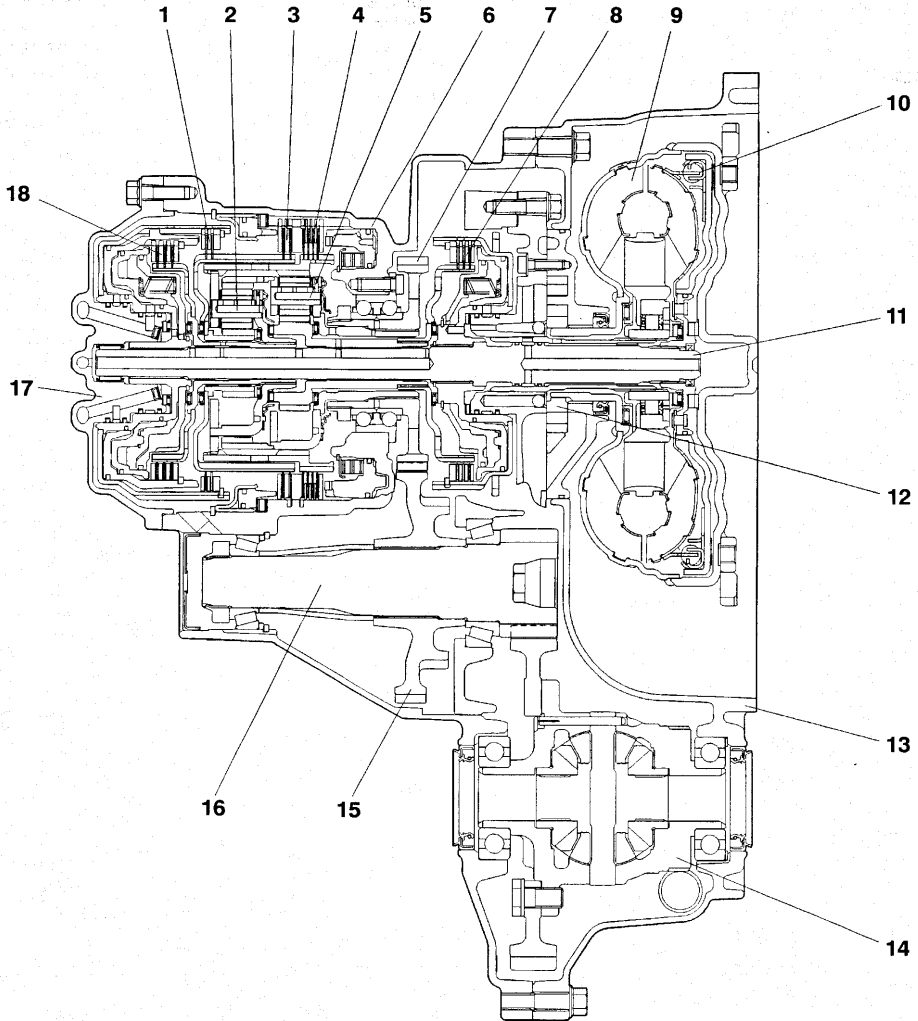
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## GENERAL INFORMATION

- (1) The combination of highest-precision electronic and mechanical technology heralds a new era in automatic transaxle 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, increased use has been made of metal plates and the one-way clutch has been abolished, which all contribute 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) and an external oil filter eliminates the need to periodically replace the fluid.
- (6) The number of oil cooler feed tubes is increased to two.

**SECTIONAL VIEW**

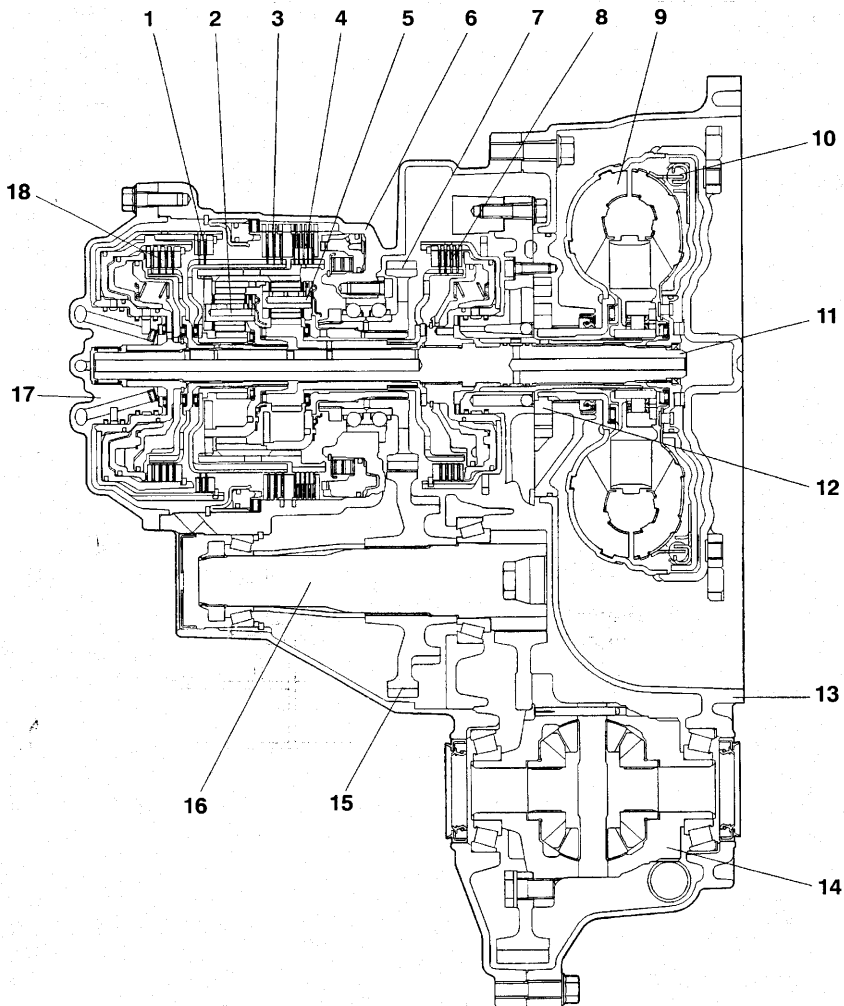
**<F4A41>**



ATFA1571

- |                                |                             |
|--------------------------------|-----------------------------|
| 1. Reverse clutch              | 10. Torque converter clutch |
| 2. Overdrive planetary carrier | 11. Input shaft             |
| 3. Second brake                | 12. Oil pump                |
| 4. Low-reverse brake           | 13. Converter housing       |
| 5. Output planetary carrier    | 14. Differential            |
| 6. Transaxle case              | 15. Transfer driven gear    |
| 7. Transfer drive gear         | 16. Output shaft            |
| 8. Underdrive clutch           | 17. Rear cover              |
| 9. Torque converter            | 18. Overdrive clutch        |

&lt;F4A42&gt;

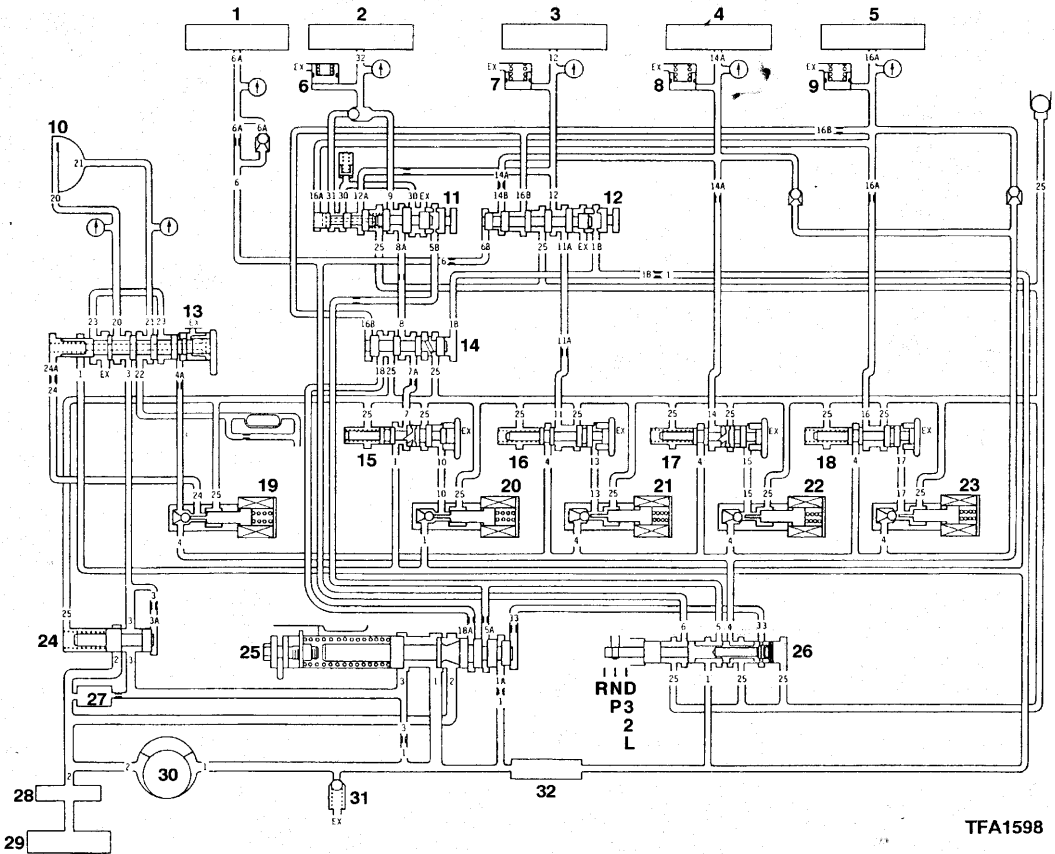


ATFA1503

1. Reverse clutch
2. Overdrive planetary carrier
3. Second brake
4. Low-reverse brake
5. Output planetary carrier
6. Transaxle case
7. Transfer drive gear
8. Underdrive clutch
9. Torque converter

10. Torque converter clutch
11. Input shaft
12. Oil pump
13. Converter housing
14. Differential
15. Transfer driven gear
16. Output shaft
17. Rear cover
18. Overdrive clutch

**HYDRAULIC CIRCUIT**



TFA1598

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. Reverse clutch</li> <li>2. Low-reverse brake</li> <li>3. Second brake</li> <li>4. Underdrive clutch</li> <li>5. Overdrive clutch</li> <li>6. Low-reverse accumulator</li> <li>7. Second accumulator</li> <li>8. Underdrive accumulator</li> <li>9. Overdrive accumulator</li> <li>10. Torque converter clutch</li> <li>11. Fail-safe valve A</li> <li>12. Fail-safe valve B</li> <li>13. Torque converter clutch control valve</li> <li>14. Switching valve</li> <li>15. Low-reverse pressure control valve</li> <li>16. Second pressure control valve</li> <li>17. Underdrive pressure control valve</li> </ol> | <ol style="list-style-type: none"> <li>18. Overdrive pressure control valve</li> <li>19. Torque converter clutch control solenoid valve</li> <li>20. Low-reverse solenoid valve</li> <li>21. Second solenoid valve</li> <li>22. Underdrive solenoid valve</li> <li>23. Overdrive solenoid valve</li> <li>24. Torque converter pressure control valve</li> <li>25. Regulator valve</li> <li>26. Manual valve</li> <li>27. Oil filter</li> <li>28. Oil filter</li> <li>29. Oil pan</li> <li>30. Oil pump</li> <li>31. Relief valve</li> <li>32. Oil strainer</li> </ol> |
|--|---|

## SPECIFICATIONS

23300020133

## GENERAL SPECIFICATIONS

Items		Specifications	
Model		F4A41	F4A42
Type		Electronically controlled 4-speed full-automatic	
Torque converter	Type	3-element with torque converter clutch	
	Engine stall speed	1900 - 2400 r/min	2100 - 2600 r/min
	Stall torque ratio	2.0	2.0
Gear ratio	1st	2.842	2.842
	2nd	1.529	1.529
	3rd	1.000	1.000
	4th	0.712	0.712
	Reverse	2.480	2.480
Final gear ratio		4.042	4.042
Speedometer gear ratio (driven/drive)		31/36	31/36

## SERVICE SPECIFICATIONS

23300030129

Items		Standard value
Output shaft preload mm (in.)		0.01 to 0.09 (0.0004 to 0.0035)
Brake reaction plate end play mm (in.)		0 to 0.16 (0 to 0.0063)
Low-reverse brake end play mm (in.)	F4A41	1.05 to 1.51 (0.0413 to 0.0594)
	F4A42	1.35 to 1.81 (0.0531 to 0.0713)
Second brake end play mm (in.)	F4A41	0.49 to 0.95 (0.0193 to 0.0374)
	F4A42	0.79 to 1.25 (0.0311 to 0.0492)
Underdrive sun gear end play mm (in.)		0.25 to 0.45 (0.0098 to 0.0177)
Input shaft end play mm (in.)		0.70 to 1.45 (0.0276 to 0.0571)
Differential case end play mm (in.) <F4A41>		0.045 to 0.165 (0.0018 to 0.0065)
Differential case preload mm (in.) <F4A42>		0.045 to 0.105 (0.0018 to 0.0041)
Underdrive clutch end play mm (in.)	F4A41	1.25 to 1.45 (0.0492 to 0.0571)
	F4A42	1.65 to 1.85 (0.0650 to 0.0728)
Reverse and overdrive clutch return spring end play mm (in.)		0 to 0.09 (0 to 0.0035)
Overdrive clutch end play mm (in.)	F4A41	1.2 to 1.4 (0.0472 to 0.0551)
	F4A42	1.6 to 1.8 (0.0630 to 0.0709)
Reverse clutch end play mm (in.)		1.2 to 1.4 (0.0472 to 0.0551)
Backlash between differential side gear and pinion mm (in.)		0.025 to 0.150 (0.00098 to 0.00591)

## VALVE BODY SPRING IDENTIFICATION TABLE

23302290044

Spring	Wire diameter mm (in.)	Outside diameter mm (in.)	Free length mm (in.)	Number of loops
Regulator valve spring	1.8 (0.071)	15.7 (0.618)	86.7 (3.413)	24
Underdrive pressure control valve spring	0.7 (0.028)	7.6 (0.299)	37.7 (1.484)	25
Overdrive pressure control valve spring	0.7 (0.028)	7.6 (0.299)	37.7 (1.484)	25
Low-reverse pressure control valve spring	0.7 (0.028)	7.6 (0.299)	37.7 (1.484)	25
Second pressure control valve spring	0.7 (0.028)	7.6 (0.299)	37.7 (1.484)	25
Torque converter spring	1.6 (0.063)	11.2 (0.441)	34.4 (1.354)	12.5
Torque converter clutch control valve spring	0.7 (0.028)	5.9 (0.232)	28.1 (1.106)	19
Fail-safe valve A spring	0.7 (0.028)	8.9 (0.350)	21.9 (0.862)	9.5
Damping valve spring	1.0 (0.039)	7.7 (0.303)	35.8 (1.409)	17
Line relief valve spring	1.0 (0.039)	7.0 (0.276)	17.3 (0.681)	10
Orifice check ball spring	0.5 (0.020)	4.5 (0.177)	17.2 (0.677)	15

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

23302300044

**Thrust washer (For adjustment of input shaft end play)**

Thickness mm (in.)	Identification symbol	Part No.	Thickness mm (in.)	Identification symbol	Part No.
1.8 (0.071)	18	MD754509	2.4 (0.094)	24	MD753793
2.0 (0.079)	20	MD754508	2.6 (0.102)	26	MD753794
2.2 (0.087)	22	MD754507	2.8 (0.110)	28	MD753795

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

Thickness mm (in.)	Identification symbol	Part No.	Thickness mm (in.)	Identification symbol	Part No.
1.6 (0.063)	None	MD759666	2.4 (0.094)	Brown	MD752129
1.7 (0.067)	Blue	MD759667	2.5 (0.098)	None	MD752130
1.8 (0.071)	Brown	MD759668	2.6(0.102)	Blue	MD752131
1.9 (0.075)	None	MD752124	2.7 (0.106)	Brown	MD752132
2.0 (0.079)	Blue	MD752125	2.8 (0.110)	None	MD752133
2.1 (0.083)	Brown	MD752126	2.9 (0.114)	Blue	MD752134
2.2 (0.087)	None	MD752127	3.0 (0.118)	Brown	MD754680
2.3 (0.091)	Blue	MD752128			

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

Thickness mm (in.)	Identification symbol	Part No.	Thickness mm (in.)	Identification symbol	Part No.
2.2 (0.087)	Blue	MD754786	2.4 (0.094)	None	MD758240
2.3 (0.091)	Brown	MD754787	2.5 (0.098)	Blue	MD758241

**Pressure plate (For adjustment of low-reverse brake and second brake end plays)**

Thickness mm (in.)	Identification symbol	Part No.	Thickness mm (in.)	Identification symbol	Part No.
1.6 (0.063)	6	MD759567	2.4 (0.094)	4	MD759417
1.8 (0.071)	1	MD759414	2.6 (0.102)	6	MD759418
2.0 (0.079)	0	MD759415	2.8 (0.110)	8	MD759419
2.2 (0.087)	2	MD759416	3.0 (0.118)	D	MD759420

**Snap ring (For adjustment of reverse clutch end play)**

Thickness mm (in.)	Identification symbol	Part No.	Thickness mm (in.)	Identification symbol	Part No.
1.9 (0.075)	None	MD752137	2.4 (0.094)	Brown	MD752142
2.0 (0.079)	Blue	MD752138	2.5 (0.098)	None	MD752143
2.1 (0.083)	Brown	MD752139	2.6 (0.102)	Blue	MD752144
2.2 (0.087)	None	MD752140	2.7 (0.106)	Brown	MD752145
2.3 (0.091)	Blue	MD752141	2.8 (0.110)	None	MD752146



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

Thickness mm (in.)	Identification symbol	Part No.	Thickness mm (in.)	Identification symbol	Part No.
1.48 (0.0583)	Brown	MD755600	1.58 (0.0622)	Blue	MD755602
1.53 (0.0602)	None	MD755601	1.63 (0.0642)	Brown	MD755603

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

Thickness mm (in.)	Identification symbol	Part No.	Thickness mm (in.)	Identification symbol	Part No.
1.6 (0.063)	-	MD707267	2.2 (0.087)	-	MD723065
1.7 (0.067)	-	MD759681	2.3 (0.091)	-	MD754796
1.8 (0.071)	-	MD723064	2.4 (0.094)	-	MD724358
1.9 (0.075)	-	MD754794	2.5 (0.098)	-	MD754797
2.0 (0.079)	-	MD707268	2.6 (0.102)	-	MD754798
2.1 (0.083)	-	MD754795			

**Spacer (For adjustment of output shaft preload)**

Thickness mm (in.)	Identification symbol	Part No.	Thickness mm (in.)	Identification symbol	Part No.
1.88 (0.0740)	88	MD756579	2.36 (0.0929)	36	MD756591
1.92 (0.0756)	92	MD756580	2.40 (0.0945)	40	MD756592
1.96 (0.0772)	96	MD756581	2.44 (0.0961)	44	MD756593
2.00 (0.0787)	00	MD756582	2.48 (0.0976)	48	MD756594
2.04 (0.0803)	04	MD756583	2.52 (0.0992)	52	MD756595
2.08 (0.0819)	08	MD756584	2.56 (0.1008)	56	MD756596
2.12 (0.0835)	12	MD756585	2.60 (0.1024)	60	MD756597
2.16 (0.0850)	16	MD756586	2.64 (0.1039)	64	MD756598
2.20 (0.0866)	20	MD756587	2.68 (0.1055)	68	MD756599
2.24 (0.0882)	24	MD756588	2.72 (0.1071)	72	MD760685
2.28 (0.0898)	28	MD756589	2.76 (0.1087)	76	MD760686
2.32 (0.0913)	32	MD756590			

**Spacer <F4A41> (For adjustment of differential case end play)**

Thickness mm (in.)	Identification symbol	Part No.	Thickness mm (in.)	Identification symbol	Part No.
1.28 (0.0504)	N	MD710458	1.64 (0.0646)	V	MD710466
1.37 (0.0539)	P	MD710460	1.73 (0.0681)	X	MD710468
1.46 (0.0575)	R	MD710462	1.82 (0.0717)	Z	MD710470
1.55 (0.0610)	T	MD710464			

**Spacer <F4A42> (For adjustment of differential case preload)**

Thickness mm (in.)	Identification symbol	Part No.	Thickness mm (in.)	Identification symbol	Part No.
0.71 (0.0280)	71	MD754475	1.07 (0.0421)	07	MD720945
0.74 (0.0291)	74	MD727660	1.10 (0.0433)	J	MD710454
0.77 (0.0303)	77	MD754476	1.13 (0.0445)	D	MD700270
0.80 (0.0315)	80	MD727661	1.16 (0.0457)	K	MD710455
0.83 (0.0327)	83	MD720937	1.19 (0.0469)	L	MD710456
0.86 (0.0339)	86	MD720938	1.22 (0.0480)	G	MD700271
0.89 (0.0350)	89	MD720939	1.25 (0.0492)	M	MD710457
0.92 (0.0362)	92	MD720940	1.28 (0.0504)	N	MD710458
0.95 (0.0374)	95	MD720941	1.31 (0.0516)	E	MD706574
0.98 (0.0386)	98	MD720942	1.34 (0.0528)	O	MD710459
1.01 (0.0398)	01	MD720943	1.37 (0.0539)	P	MD710460
1.04 (0.0409)	04	MD720944			

**Spacer <F4A41> (For adjustment of backlash between differential side gear and pinion)**

Thickness mm (in.)	Identification symbol	Part No.	Thickness mm (in.)	Identification symbol	Part No.
0.75 to 0.82 (0.0295 to 0.0323)	-	MD755179	1.01 to 1.08 (0.0398 to 0.0425)	-	MD755175
0.83 to 0.92 (0.0327 to 0.0362)	-	MD755178	1.09 to 1.16 (0.0429 to 0.0457)	-	MD755176
0.93 to 1.00 (0.0366 to 0.0394)	-	MD755177			

**Spacer <F4A42> (For adjustment of backlash between differential side gear and pinion)**

Thickness mm (in.)	Identification symbol	Part No.	Thickness mm (in.)	Identification symbol	Part No.
0.75 to 0.82 (0.0295 to 0.0323)	-	MD722986	1.01 to 1.08 (0.0398 to 0.0425)	-	MD722982
0.83 to 0.92 (0.0327 to 0.0362)	-	MD722985	1.09 to 1.16 (0.0429 to 0.0457)	-	MD722983
0.93 to 1.00 (0.0366 to 0.0394)	-	MD722984			

## TORQUE SPECIFICATIONS

23302310047

Items		Nm	ft.lbs.
Transaxle	Roll stopper bracket	69	51
	Wiring harness bracket	23	17
	Control cable bracket	23	17
	Eye bolt	30	22
	Oil cooler feed tube	11	8.0
	Oil filter	12	8.7
	Input shaft speed sensor	11	8.0
	Output shaft speed sensor	11	8.0
	Manual control lever	22	16
	Park/neutral position switch (PNP switch)	11	8.0
	Speedometer gear	4.9	3.6
	Valve body cover	11	8.0
	Valve body mounting bolt	11	8.0
	Fluid temperature sensor	11	8.0
	Manual control shaft detent	5.9	4.3
	Rear cover	23	17
	Torque converter housing	47	35
	Oil pump	23	17
Transfer drive gear	19	14	
Output shaft lock nut	167	123	
Output shaft bearing retainer	23	17	
Components	Transfer drive gear lock nut	191	141
	Differential drive gear	132	98
	Valve body	11	8.0
	Solenoid valve support	5.9	4.3
	Plate	5.9	4.3

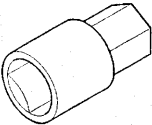
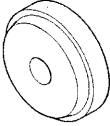

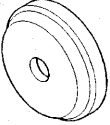
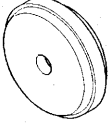
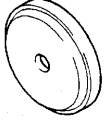
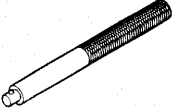
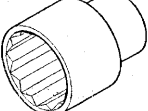
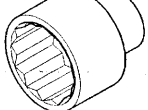
## SEALANTS

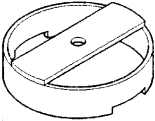
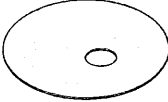
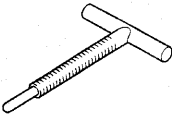
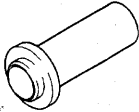
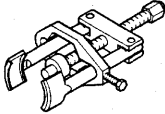
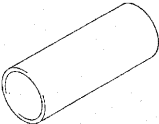
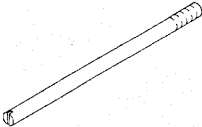
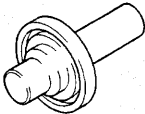
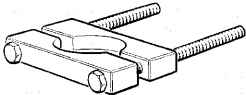
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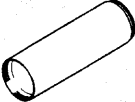

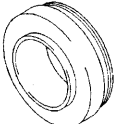
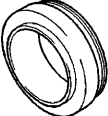


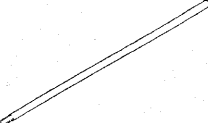
Items	Specified sealant
Rear cover	Mitsubishi genuine sealant Part No. MD974421 or equivalent
Torque converter housing	Mitsubishi genuine sealant Part No. MD974421 or equivalent
Valve body cover	Mitsubishi genuine sealant Part No. MD974421 or equivalent

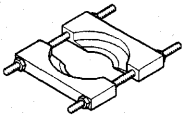
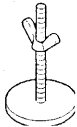

## SPECIAL TOOLS

2330060111

Tool	Tool number and name	Supersession	Application
	MB990607 Torque wrench socket	-	Removal and installation of output shaft lock nut
	MB990928 Installer adapter	-	Removal of transfer drive gear bearing
	MB990930 Installer adapter	MB990930-01	Installation of output shaft taper roller bearing outer race
	MB990931 Installer adapter	-	Installation of cap
	MB990935 Installer adapter	-	Installation of differential taper roller bearing outer race <F4A42>
	MB990936 Installer adapter	MB990936-01	Installation of output shaft taper roller bearing outer race
	MB990938 Handle	MB990938-01	<ul style="list-style-type: none"> <li>● Installation of input shaft rear bearing</li> <li>● Use with installer adapter</li> </ul>
	MB991625 Special socket (41)	-	Removal and installation of output shaft lock nut
	MB991626 Socket (60)	-	Removal and installation of transfer drive gear lock nut

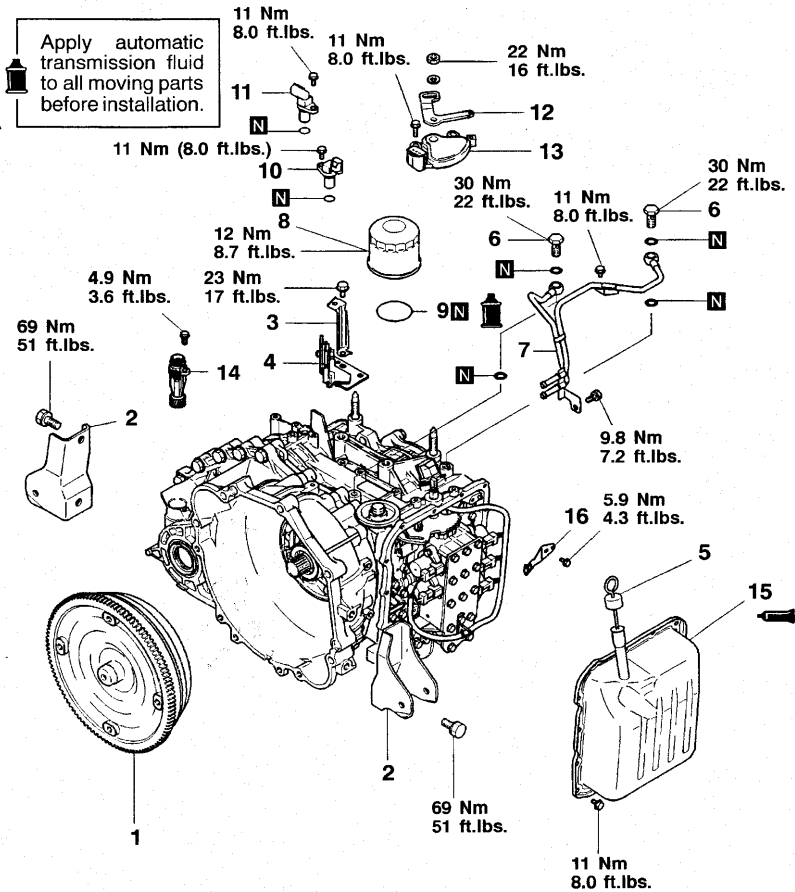
Tool	Tool number and name	Supersession	Application
	MB991628 Spring compressor	-	<ul style="list-style-type: none"> <li>● Removal and installation of low-reverse brake snap ring</li> <li>● Measurement of underdrive clutch and overdrive clutch end plays</li> </ul>
	MB991631 Clearance dummy plate	-	Measurement of low-reverse brake and second brake end plays
	MD998333 Oil pump remover	MD998333-01	Removal of oil pump
	MD998334 Oil seal installer	MD998334-01	Installation of oil pump oil seal
	MD998348 Bearing and gear puller	MD998348-01	Removal of transfer drive gear bearing
	MD998350 Bearing installer	MD998350-01	Installation of output shaft rear taper roller bearing
	MD998412 Guide	MD998412	Installation of oil pump and transfer drive gear
	MD998800 Oil seal installer	-	Installation of drive shaft oil seal
	MD998801 Bearing remover	MD998348-01	Removal of each bearing

Tool	Tool number and name	Supersession	Application
	MD998812 Installer cap	GENERAL SERVICE TOOL	Use with installer and installer adapter
	MD998813 Installer - 100	GENERAL SERVICE TOOL	Use with installer cap and installer adapter
	MD998814 Installer - 200	MIT304180	Use with installer cap and installer adapter
	MD998819 Installer adapter (40)	MD998819	Installation of differential ball bearing <F4A41>
	MD998820 Installer adapter (42)	MIT215013	Installation of differential taper roller bearing <F4A42>
	MD998823 Installer adapter (48)	-	<ul style="list-style-type: none"> <li>• Installation of output shaft taper roller bearing</li> <li>• Installation of transfer driven gear</li> </ul>
	MD998829 Installer adapter (60)	MD998829-01	Installation of transfer drive gear bearing
	MD998907 Spring compressor	MD998907-01	Removal and installation of underdrive clutch snap ring
	MD998913 Dial gauge extension	MD998913-01	Measurement of low-reverse brake and second brake end plays

Tool	Tool number and name	Supersession	Application
	MD998917 Bearing remover	MD998917-01	Removal of output shaft taper roller bearing
	MD998924 Spring compressor retainer	-	<ul style="list-style-type: none"><li>● Removal and installation of low-reverse brake snap ring</li><li>● Measurement of underdrive clutch and overdrive clutch end plays</li><li>● Removal and installation of underdrive clutch and overdrive clutch snap ring</li></ul>
	MD999590 Spring compressor	-	Removal and installation of overdrive clutch snap ring

# TRANSAXLE

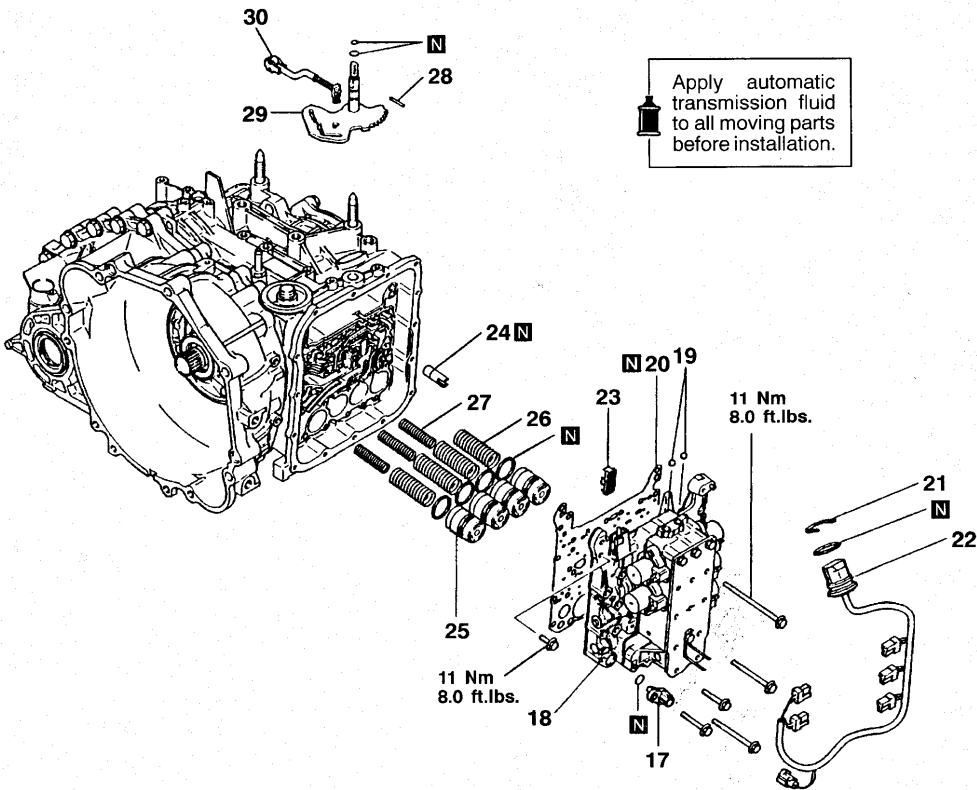
## DISASSEMBLY AND REASSEMBLY



TFA1875

- 1. Torque converter
- 2. Roll stopper bracket
- 3. Harness bracket
- 4. Control cable support bracket
- 5. Oil level dipstick
- 6. Eye bolt
- 7. Oil cooler feed tube
- 8. Oil filter
- 9. Oil filter gasket
- 10. Input shaft speed sensor
- 11. Output shaft speed sensor
- 12. Manual control lever
- 13. Park/neutral position switch
- 14. Speedometer gear
- 15. Valve body cover
- 16. Manual control shaft detent





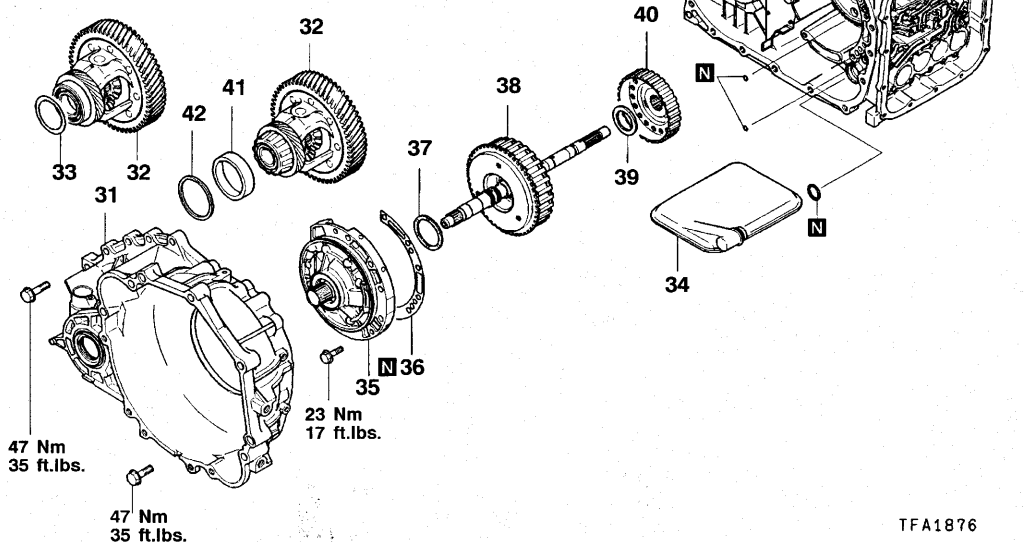
TFA1587

- 17. Fluid temperature sensor
- 18. Valve body
- 19. Steel ball
- 20. Gasket
- 21. Snap ring
- 22. Solenoid valve harness
- 23. Strainer

- 24. Second brake retainer oil seal
- 25. Accumulator piston
- 26. Accumulator spring
- 27. Accumulator spring
- 28. Manual control lever shaft roller
- 29. Manual control lever shaft
- 30. Parking pawl rod



Apply automatic transmission fluid to all moving parts before installation.



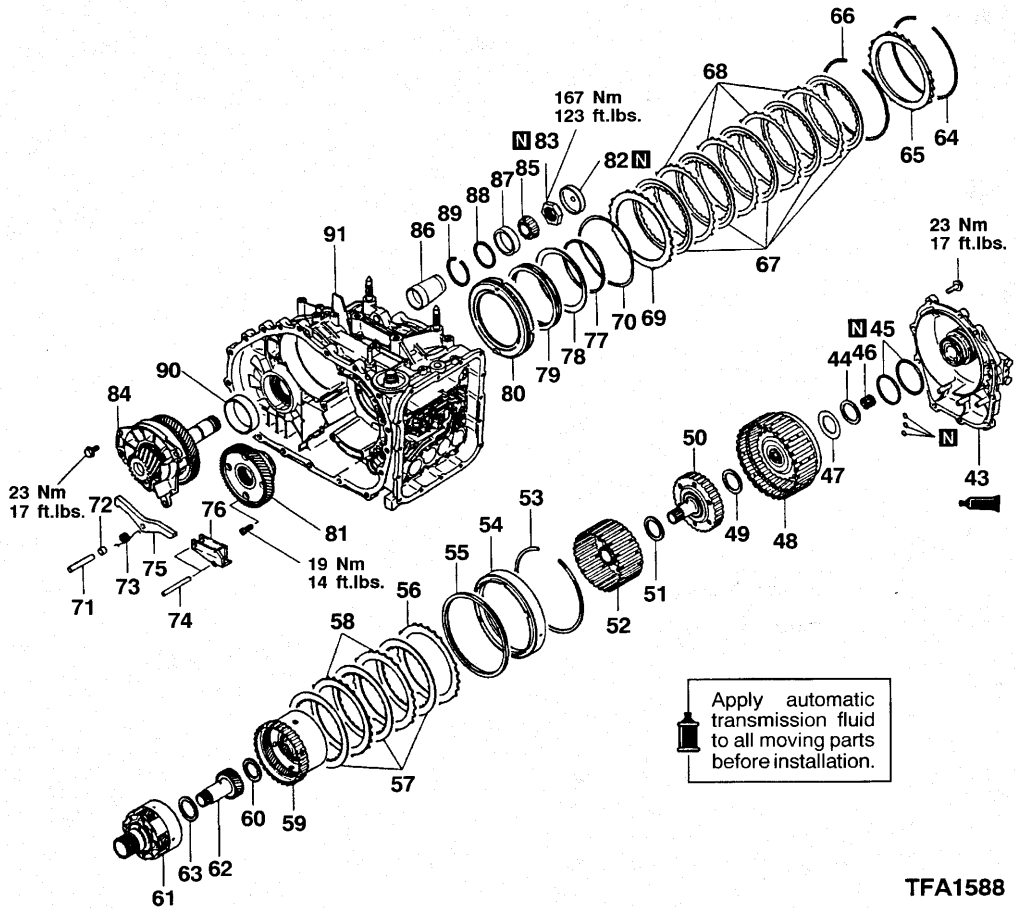
TFA1876

- 31. Torque converter housing
- 32. Differential
- 33. Spacer <F4A41>
- 34. Oil filter
- 35. Oil pump
- 36. Gasket

- 37. Thrust washer #1
- 38. Underdrive clutch and input shaft
- 39. Thrust bearing #2
- 40. Underdrive clutch hub
- 41. Outer race
- 42. Spacer

No. of Brake Discs and Plates

Brake	Model	Brake Disc	Brake Plate
Low-reverse brake	F4A41	4	3
	F4A42	5	4
Second brake	F4A41	2	1
	F4A42	3	2



Apply automatic transmission fluid to all moving parts before installation.

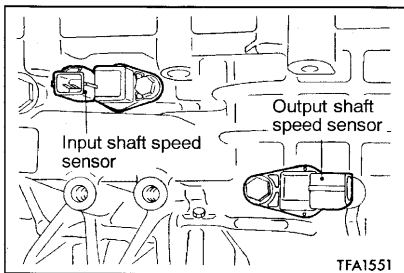
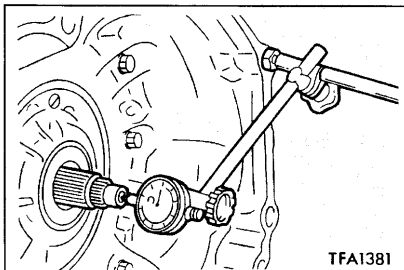
43. Rear cover
44. Thrust race #8
45. Seal ring
46. Input shaft rear bearing
47. Thrust bearing #7
48. Reverse and overdrive clutch
49. Thrust bearing #6
50. Overdrive clutch hub
51. Thrust bearing #5
52. Planetary reverse sun gear
53. Snap ring
54. Second brake piston
55. Return spring
56. Pressure plate
57. Second brake disc
58. Second brake plate
59. Overdrive planetary carrier
60. Thrust bearing #4
61. Output planetary carrier
62. Underdrive sun gear
63. Thrust bearing #3
64. Snap ring
65. Reaction plate
66. Snap ring
67. Low-reverse brake disc
68. Low-reverse brake plate
69. Pressure plate
70. Wave spring
71. Parking pawl shaft
72. Spacer
73. Parking pawl spring
74. Parking roller support shaft
75. Parking pawl
76. Parking roller support
77. Snap ring
78. Spring retainer
79. Return spring
80. Low-reverse brake piston
81. Transfer drive gear
82. Cap
83. Lock nut
84. Output shaft
85. Taper roller bearing
86. Collar
87. Outer race
88. Spacer
89. Snap ring
90. Outer race
91. Transaxle case

**DISASSEMBLY**

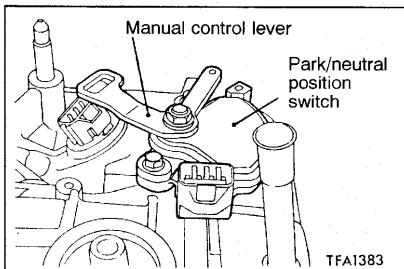
**Caution**

1. Because the automatic transaxle 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) so that they do not become dirty.
6. If the transmission body has been damaged, disassemble and clean the cooler system also.

- (1) Remove the torque converter.
- (2) Remove each bracket.
- (3) Remove the oil level gauge.
- (4) Remove the eye bolt, gasket and the oil cooler feed tube.
- (5) Remove the oil filter and oil filter gasket.



- (6) Remove the input shaft speed sensor and output shaft speed sensor.

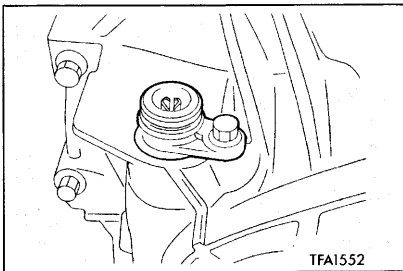


- (7) Remove the manual control lever, and then remove the park/neutral position switch.

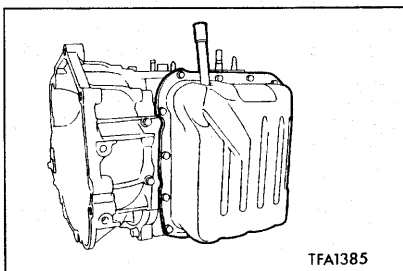
**Caution**

**Make sure that the valve body is installed before removing the manual control lever locking nut.**

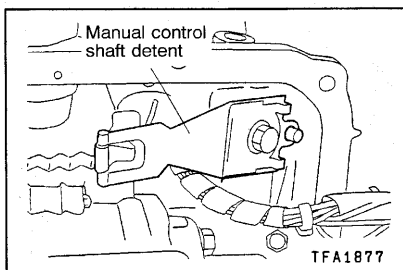
- (8) Remove the speedometer gear.



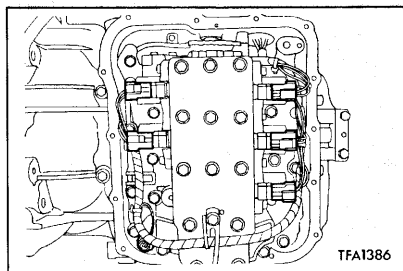
- (9) Remove the valve body cover.



- (10) Remove the manual control shaft detent.

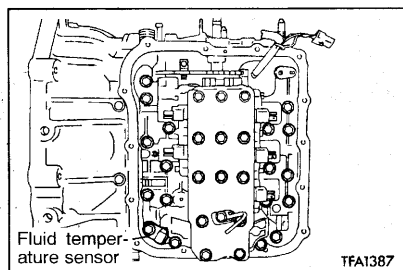


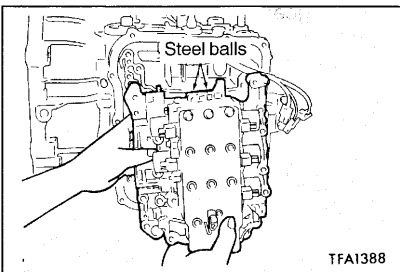
- (11) Disconnect the harness connectors of the valve body.



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

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

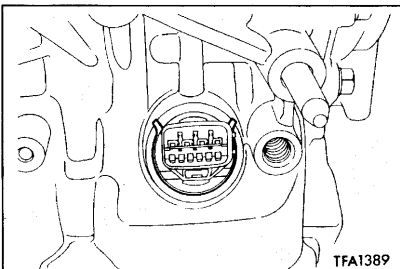




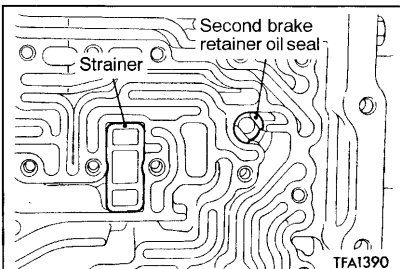
(14) Remove the valve body, gasket and the steel balls (2 pieces).

**Caution**

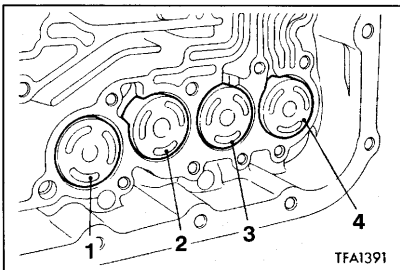
**Do not lose the steel balls (2 pieces).**



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

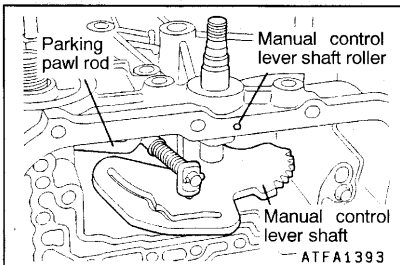


(16) Remove the strainer and the second brake retainer oil seal.

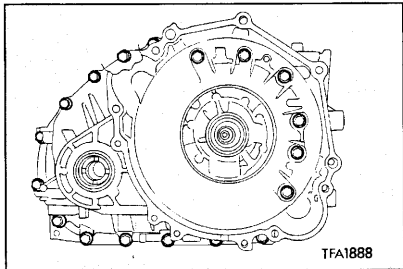


(17) Remove each accumulator piston and spring.

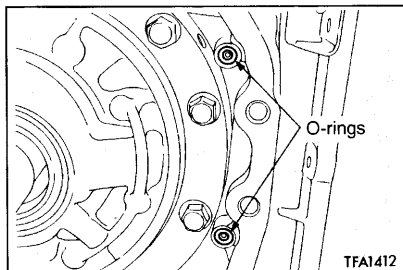
No.	Name
1	For low-reverse brake
2	For underdrive clutch
3	For second brake
4	For overdrive clutch



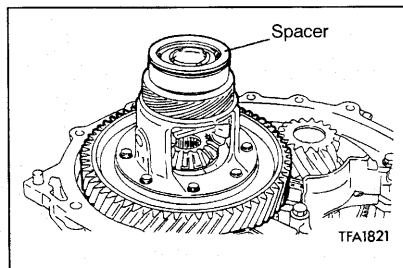
(18) Remove the manual control lever shaft roller.  
 (19) Remove the manual control lever shaft and the parking pawl rod.



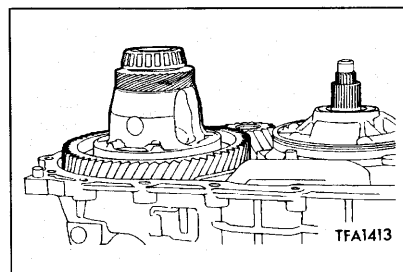
(20) Remove the torque converter housing mounting bolts (18 pieces), and then remove the torque converter housing.



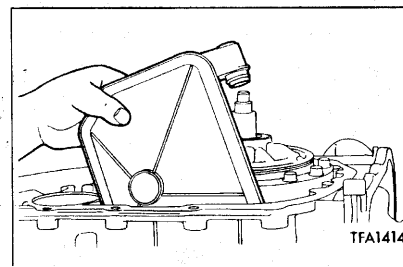
(21) Remove the O-rings (2 pieces).



(22) Remove the differential and the spacer. <F4A41>

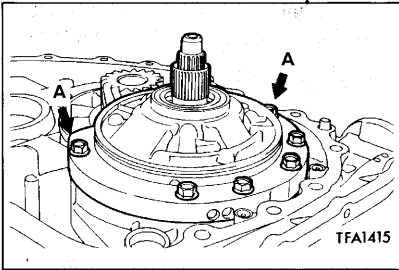


(23) Remove the differential. <F4A42>

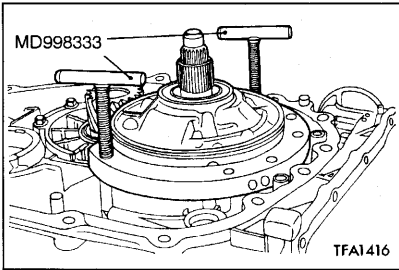


(24) Remove the oil filter.

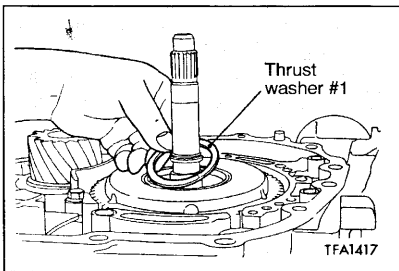




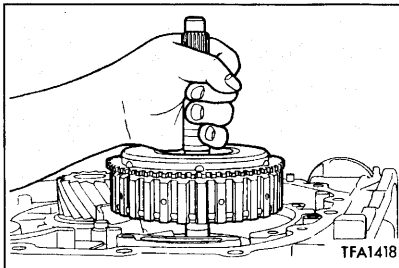
- (25) Remove the oil pump mounting bolts (6 pieces).
- (26) Install the special tool (MD998333) in the hole A.



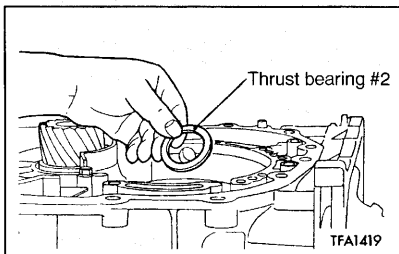
- (27) Screw the special tool to remove the oil pump.
- (28) Remove the oil pump gasket.



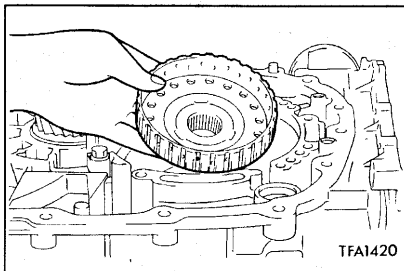
- (29) Remove thrust washer #1.



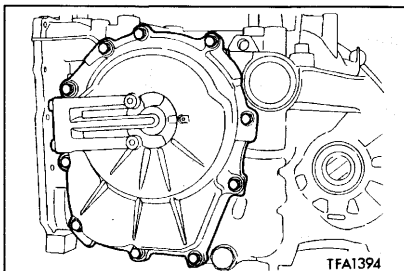
- (30) Hold the input shaft, and then remove the underdrive clutch.



- (31) Remove thrust bearing #2.



(32) Remove the underdrive clutch hub.

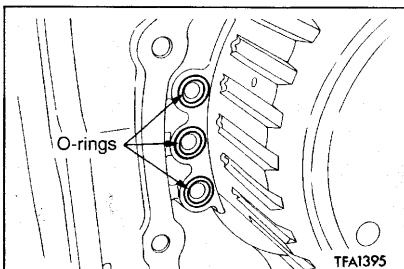


(33) Remove the rear cover.

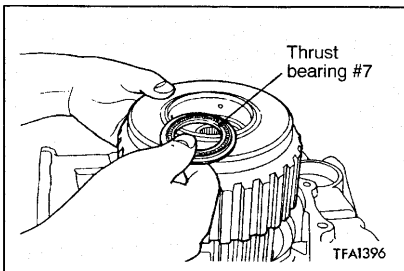
(34) Remove the thrust race #8.

(35) Remove the seal rings (4 pieces) from rear cover.

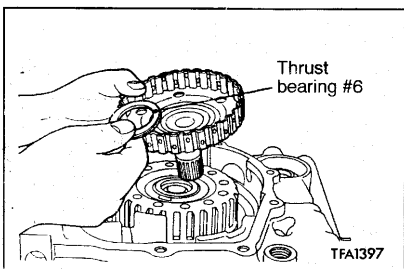
(36) Remove the input shaft rear bearing.



(37) Remove the O-rings (3 pieces).

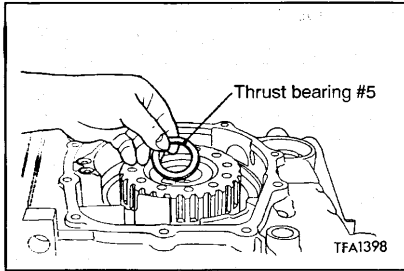


(38) Remove the reverse and overdrive clutch and the thrust bearing #7.

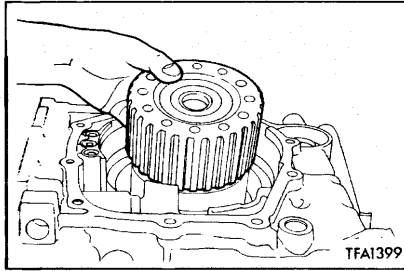


(39) Remove the overdrive clutch hub and the thrust bearing #6.

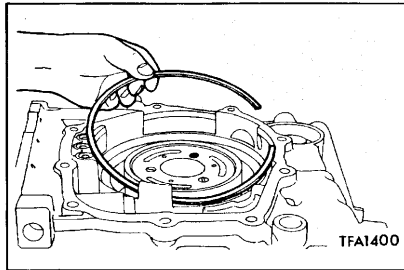
(40) Remove thrust bearing #5.



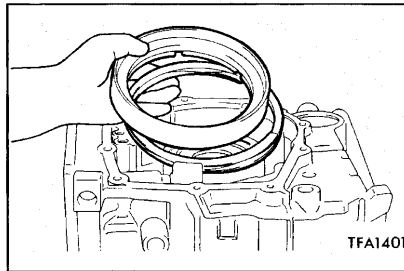
(41) Remove the planetary reverse sun gear.



(42) Remove the snap ring.



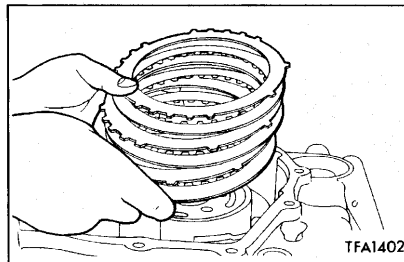
(43) Remove the second brake piston and the return spring.

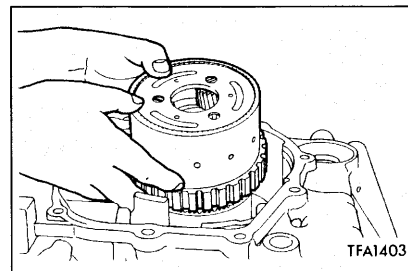


(44) Remove the pressure plate, brake discs and brake plate(s).

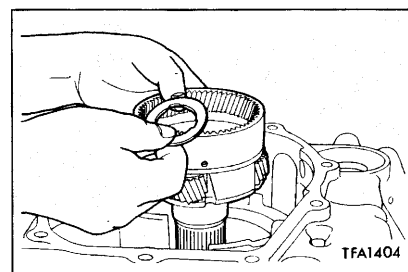
**Number of brake discs and plates**

A/T Model	Brake disc	Brake plate	Pressure plate
F4A41	2	1	1
F4A42	3	2	1

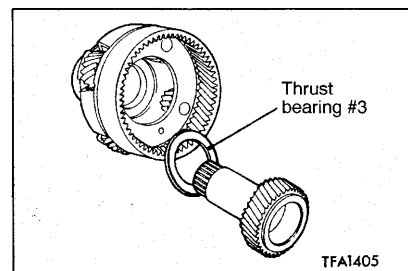




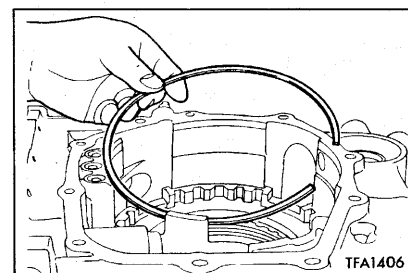
(45) Remove the overdrive planetary carrier.



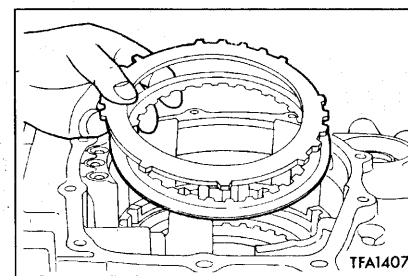
(46) Remove the output planetary carrier and the thrust bearing #4.



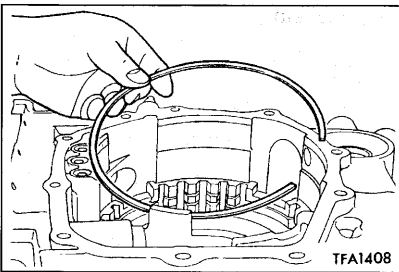
(47) Remove the underdrive sun gear and the thrust bearing #3 from the output planetary carrier.



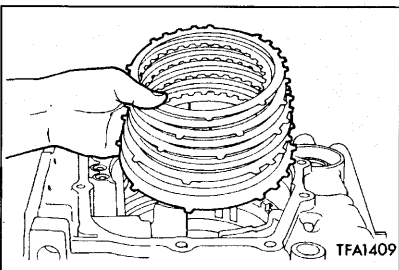
(48) Remove the snap ring.



(49) Remove the reaction plate and the brake disc.



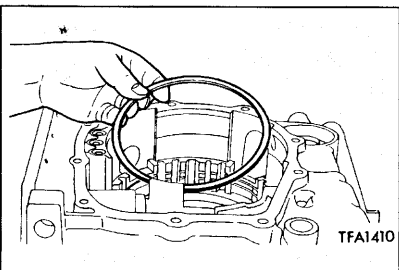
(50) Remove the snap ring.



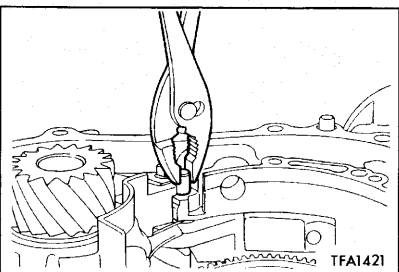
(51) Remove the brake plates, brake discs and pressure plate.

**Number of brake discs and plates**

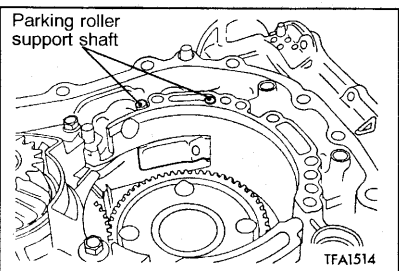
A/T Model	Brake disc	Brake plate	Pressure plate
F4A41	3	3	1
F4A42	4	4	1



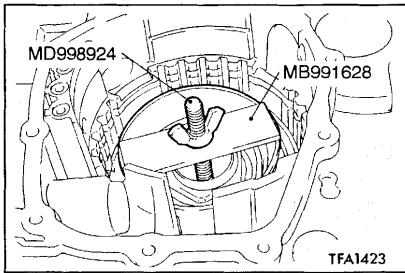
(52) Remove the wave spring.



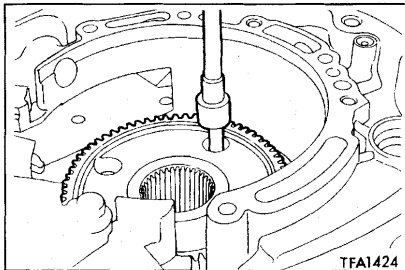
(53) Remove the parking pawl shaft, and then remove the spacer and parking pawl spring.



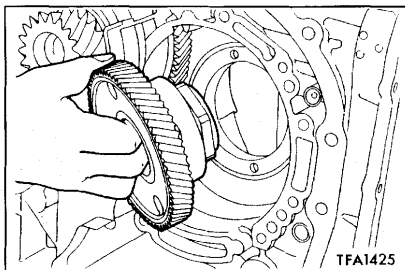
(54) Remove the two parking roller support shafts, and then remove the parking pawl case and parking roller support.



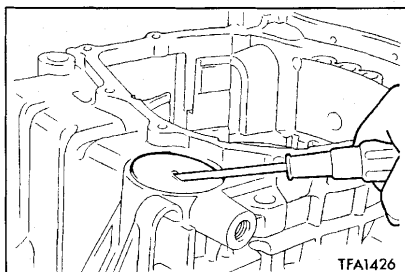
- (55) Use the special tool to remove the snap ring.  
(56) Remove the spring retainer, return spring and the low-reverse brake piston.



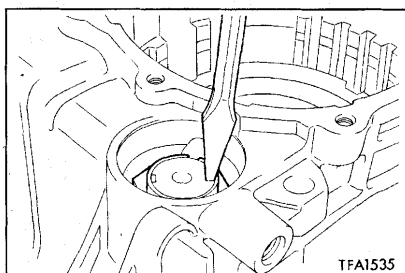
- (57) Remove the transfer drive gear mounting bolts (4 pieces).



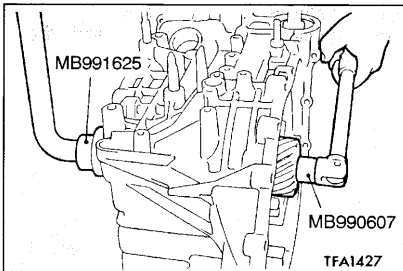
- (58) Remove the transfer drive gear.



- (59) Remove the cap.



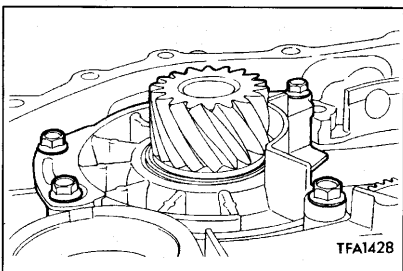
- (60) Straighten the locking tab of the output shaft lock nut.



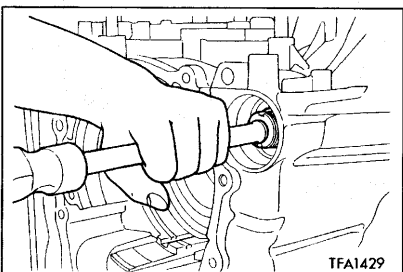
(61) Use the special tool to remove the output shaft lock nut.

**Caution**

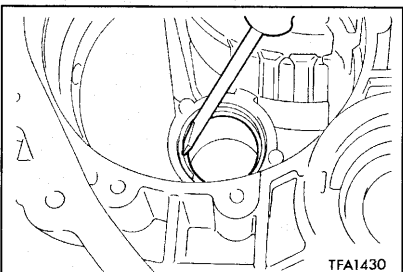
**The lock has left-handed threads.**



(62) Remove the output shaft bearing retainer mounting bolts.



(63) Tap on the rear of the output shaft to remove the output shaft, taper roller bearing and the collar.



(64) Remove the spacer and the outer race.

(65) Remove the snap ring.

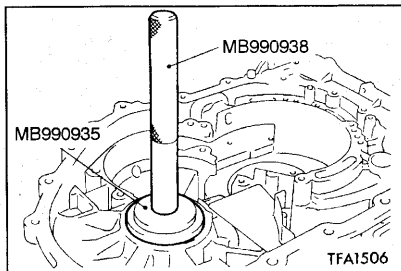
(66) Remove the differential bearing outer race and spacer from the torque converter housing. <F4A42>

(67) Remove the differential bearing outer race from the transaxle case. <F4A42>

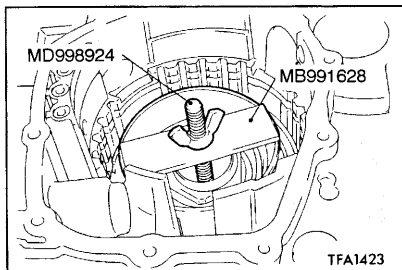
## REASSEMBLY

### Caution

1. Never reuse the gasket, O-ring, oil seal, etc. Always replace with a new one when reassembling.
2. Never use grease other than blue petrolatum jelly and white Vaseline.
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.



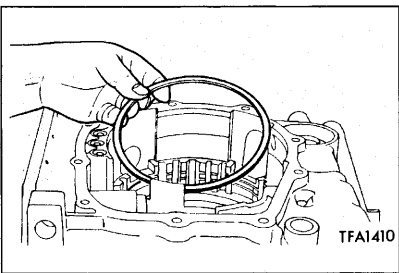
- (1) Use the special tools to tap the differential bearing outer race in the transaxle case. <F4A42>



- (2) Install the low-reverse brake piston, return spring, and spring retainer.
- (3) Use the special tools to install the snap ring.



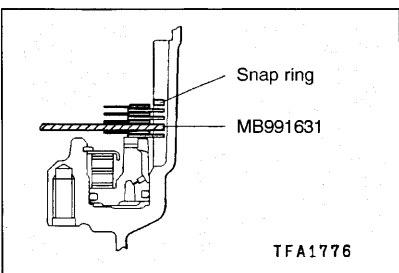
- (4) Install the wave spring.



- (5) Replace the pressure plate of the low-reverse brake with the special tool, and then install the brake disc, brake plate and snap ring as shown in the figure.

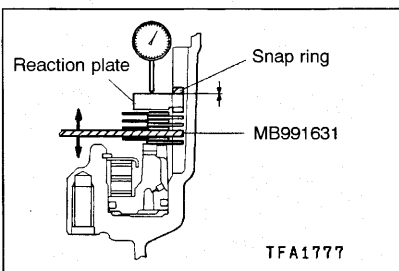
**Number of brake discs and plates**

A/T Model	Brake disc	Brake plate	Special tool
F4A41	4	3	1
F4A42	5	4	1



- (6) Install the reaction plate and the used snap ring.  
 (7) Move the special tool to measure the end play, and then replace the snap ring installed in step (6) to adjust the end play to standard value.

**Standard value: 0 - 0.16 mm (0 - 0.0063 in.)**

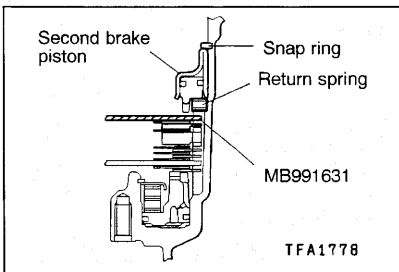


- (8) Replace the pressure plate of the second brake with the special tool, and then install the brake disc and brake plate as shown in the figure.

- (9) Install the return spring, second brake piston and snap ring.

**Number of brake discs and plates**

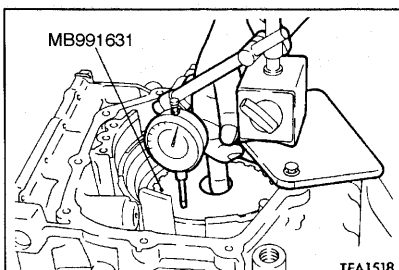
A/T Model	Brake disc	Brake plate	Special tool
F4A41	2	1	1
F4A42	3	2	1

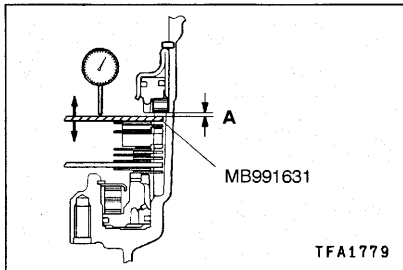


- (10) Move the special tool (MB991631) to measure the end play.

**Standard value:**

**0.49 - 0.95 mm (0.0193 - 0.0374 in.) <F4A41>**  
**0.79 - 1.25 mm (0.0311 - 0.0492 in.) <F4A42>**





Remove the special tool. Use the following formula to determine the proper thickness range for the pressure plate. Install the correct size pressure plate based on your calculations.

#### Reference: Pressure Plate Thickness

A=Special tool end play measurement determined earlier in this step.

##### F4A41

Metric values: [A+(2.0 mm - 0.95 mm)] to [A+(2.0 mm - 0.49 mm)]

English values: [A+(0.079 in. - 0.037 in.)] to [A+(0.079 in. - 0.019 in.)]

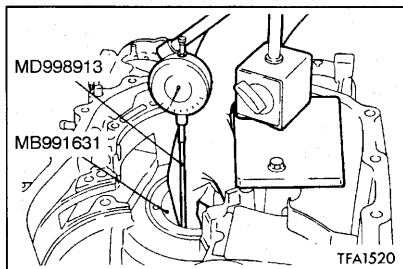
(Please use the above format for the end play measurement text in step 14.)

##### F4A42

Metric values: [A+(2.0 mm - 1.25 mm)] to [A+(2.0 mm - 0.79 mm)]

English values: [A+(0.079 in. - 0.049 in.)] to [A+(0.079 in. - 0.031 in.)]

(11) Turn the transaxle over.

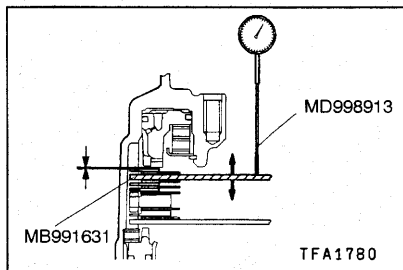


(12) Install the special tool (MD998913) in a dial gauge, and then move the special tool (MB991631) to measure the axial play.

#### Standard value:

1.05 - 1.51 mm (0.0413 - 0.0594 in.) <F4A41>

1.35 - 1.81 mm (0.0531 - 0.0713 in.) <F4A42>



#### Reference

Select a pressure plate which thickness is within the following value, and replace the special tool mounted at the step (5) with it.

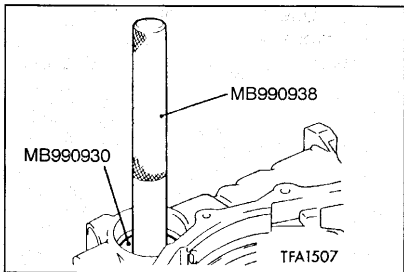
##### F4A41

[A (moving amount) + thickness of the special tool 2.0 mm (0.079 in.) - 1.51 mm (0.0594 in.)] to [A (moving amount) + thickness of the special tool 2.0 mm (0.079 in.) - 1.05 mm (0.0413 in.)]

##### F4A42

[A (moving amount) + thickness of the special tool 2.0 mm (0.079 in.) - 1.81 mm (0.0713 in.)] to [A (moving amount) + thickness of the special tool 2.0 mm (0.079 in.) - 1.35 mm (0.0531 in.)]

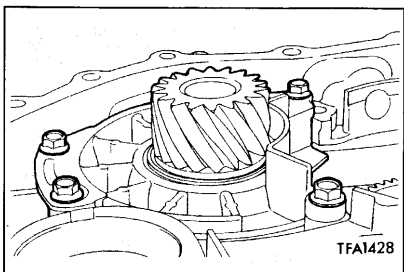
(13) Remove the parts installed from steps (4) to (12).



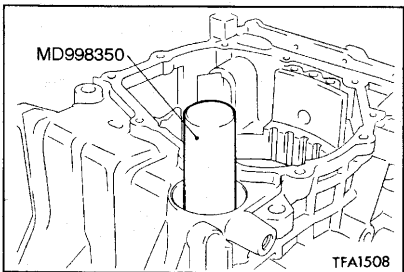
- (14) Use the special tools to tap the output shaft bearing outer race in the transaxle case.
- (15) Install the snap ring and the thinnest adjustment spacer [1.88 mm (0.0740 in.)].

**NOTE**

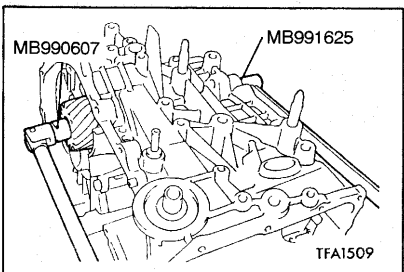
The spacer may have to be replaced with one having an adequate thickness after the end play of the output shaft is checked in step (19).



- (16) Tighten the mounting bolts of the output shaft bearing retainer to the specified torque.



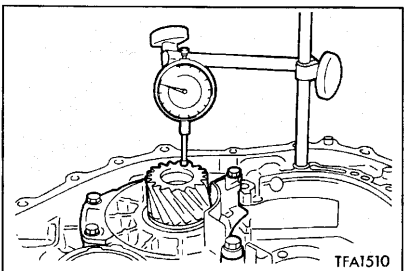
- (17) Install the output shaft in the transaxle case, and then use the special tool to install the collar and taper roller bearing in the output shaft.



- (18) Apply ATF to a new lock nut, and use the special tool to tighten the lock nut to the specified torque. Then turn back one turn, and tighten to the specified torque again.

**Caution**

The lock nut has left-handed threads.



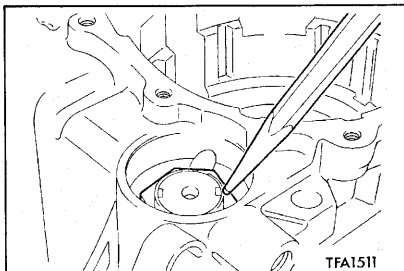
- (19) Move the output shaft to measure the shaft end play, and then replace the spacer installed in step (15) with a new one which thickness is within the following value.

**A=Shaft end play mm (in.)**

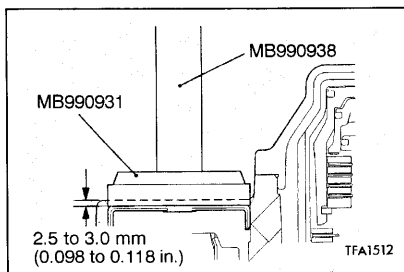
**B=Thickness of spacer assembled in step (15) [1.88 mm (0.0740 in.)]**

**Metric values: [A+B+0.01 mm] to [A+B+0.09 mm]**

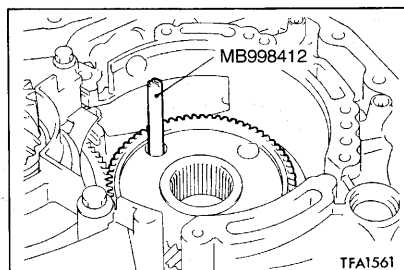
**American values: [A+B+0.0004 in.] to [A+B+0.0035 in.]**



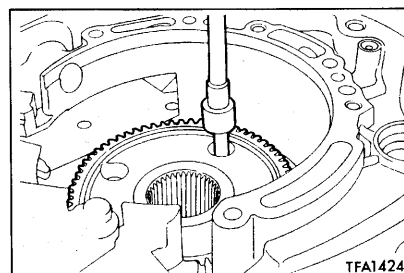
(20) Prevent the lock nut from turning (two parts).



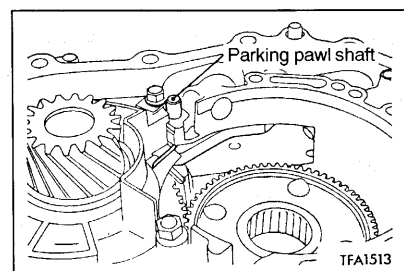
(21) Install the cap as shown in the figure.



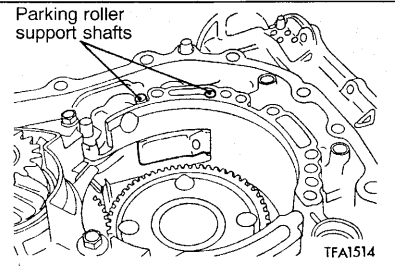
(22) Use the special tool to install the transfer drive gear.



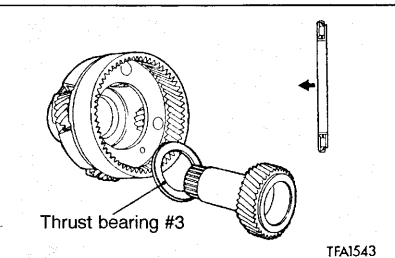
(23) Tighten the four mounting bolts of the transfer drive gear to the specified torque.



(24) Install the parking pawl, spacer, and spring. Then install the parking pawl shaft.



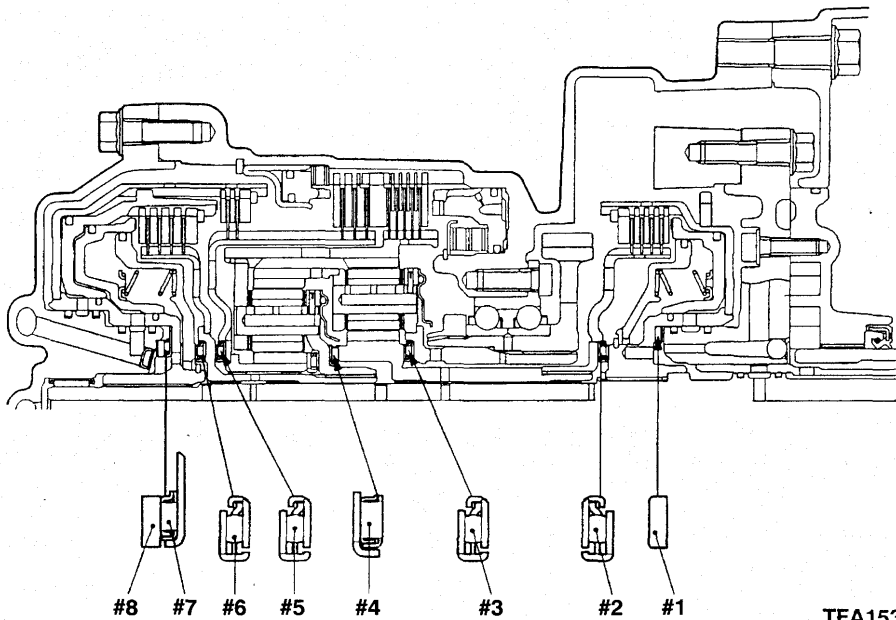
- (25) Install the parking roller support, and then the two parking roller support shafts.



- (26) Install the underdrive sun gear and thrust bearing #3 to the output planetary carrier.

**Caution**

**Be sure to install the thrust bearing in the correct direction.**



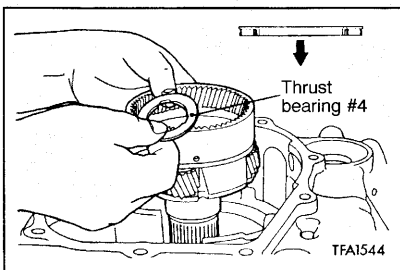
TFA1537

## IDENTIFICATION OF THRUST BEARINGS, THRUST RACES, AND THRUST WASHERS

mm (in.)

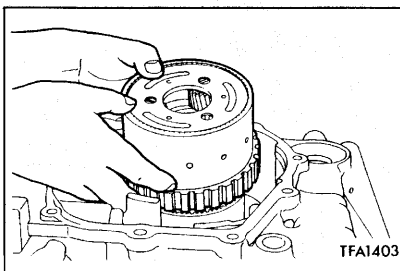
Symbol	O.D.	I.D.	Thickness	Part number
#1	59 (2.32)	47 (1.85)	1.8 (0.071)	MD754509
#1	59 (2.32)	47 (1.85)	2.0 (0.079)	MD754508
#1	59 (2.32)	47 (1.85)	2.2 (0.087)	MD754507
#1	59 (2.32)	47 (1.85)	2.4 (0.094)	MD753793
#1	59 (2.32)	47 (1.85)	2.6 (0.102)	MD753794
#1	59 (2.32)	47 (1.85)	2.8 (0.110)	MD753795
#2	49 (1.93)	36 (1.42)	3.6 (0.142)	MD756846
#3	49 (1.93)	36 (1.42)	3.6 (0.142)	MD756846
#4	45.3 (1.783)	31 (1.22)	3.3 (0.130)	MD757647
#5	49 (1.93)	36 (1.42)	3.6 (0.142)	MD756846
#6	49 (1.93)	36 (1.42)	3.6 (0.142)	MD756846
#7	59 (2.32)	37 (1.46)	2.8 (0.110)	MD754595
#8	48.9 (1.925)	37 (1.46)	1.6 (0.063)	MD707267
#8	48.9 (1.925)	37 (1.46)	1.7 (0.067)	MD759681
#8	48.9 (1.925)	37 (1.46)	1.8 (0.071)	MD723064

Symbol	O.D.	I.D.	Thickness	Part number
#8	48.9 (1.925)	37 (1.46)	1.9 (0.075)	MD754794
#8	48.9 (1.925)	37 (1.46)	2.0 (0.079)	MD707268
#8	48.9 (1.925)	37 (1.46)	2.1 (0.083)	MD754795
#8	48.9 (1.925)	37 (1.46)	2.2 (0.087)	MD723065
#8	48.9 (1.925)	37 (1.46)	2.3 (0.091)	MD754796
#8	48.9 (1.925)	37 (1.46)	2.4 (0.094)	MD724358
#8	48.9 (1.925)	37 (1.46)	2.5 (0.098)	MD754797
#8	48.9 (1.925)	37 (1.46)	2.6 (0.102)	MD754798

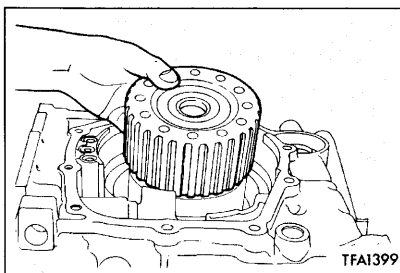


(27) Install the output planetary carrier and thrust bearing #4.

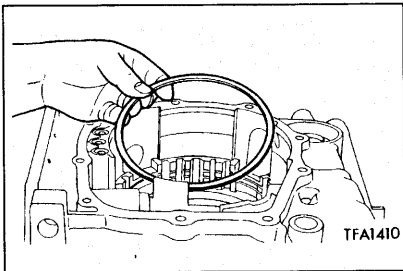
**Caution**  
**Be sure to install the thrust bearing in the correct direction.**



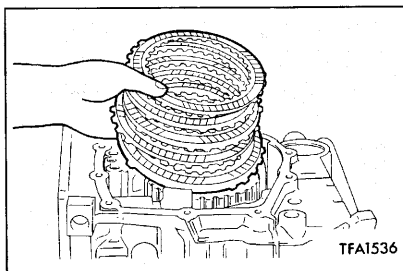
(28) Install the overdrive planetary carrier.



(29) Install the planetary reverse sun gear.



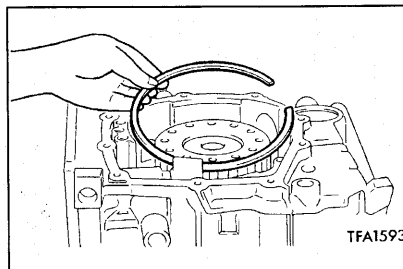
(30) Install the wave spring.



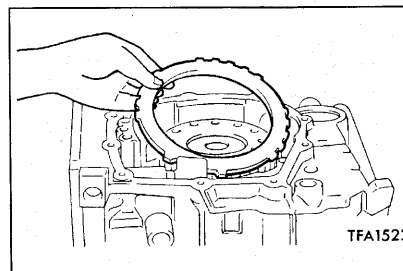
(31) Install the pressure plate, brake disc, and brake plate.

**Number of brake discs and plates**

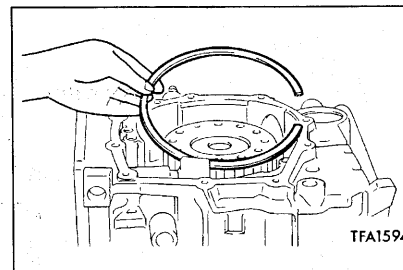
A/T Model	Brake disc	Brake plate	Pressure plate
F4A41	4	3	1
F4A42	5	4	1



(32) Install the snap ring.

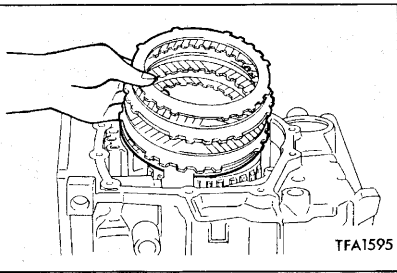


(33) Install the reaction plate.

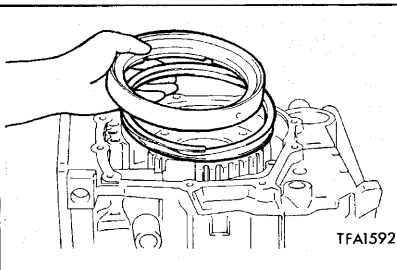


(34) Install the snap ring.

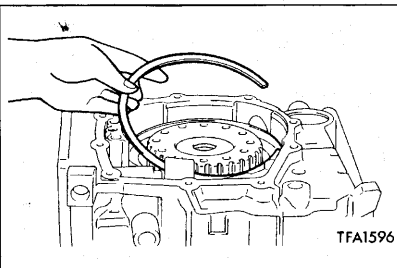




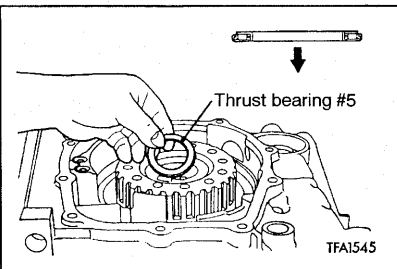
(35) Install the brake disc, brake plate, and pressure plate.



(36) Install the return spring and second brake piston.



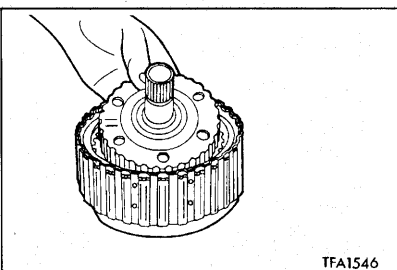
(37) Install the snap ring.



(38) Install thrust bearing #5.

**Caution**

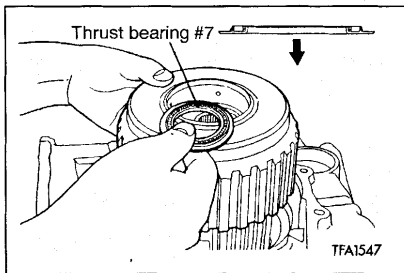
**Be sure to install the thrust bearing in the correct direction.**



(39) Install the overdrive clutch hub and thrust bearing #6 to the reverse and overdrive clutch.

**Caution**

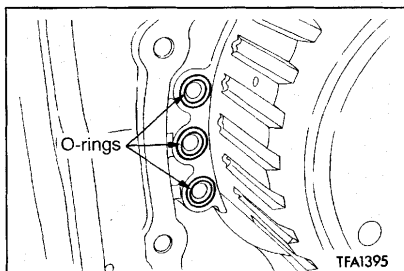
**Be careful about the installation direction of the thrust bearing.**



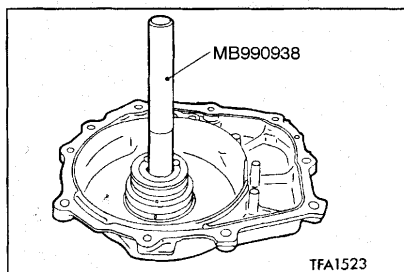
- (40) Install the reverse and overdrive clutch, and thrust bearing #7.

**Caution**

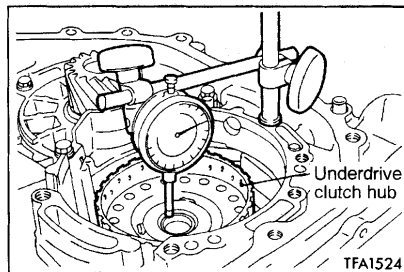
Be careful about the installation direction of the thrust bearing.



- (41) Install the three O-rings.



- (42) Install the input shaft bearing.  
(43) Install the four seal rings.

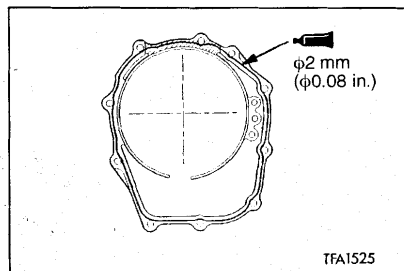


- (44) Install used thrust race #8, and then the rear cover.  
(45) Measure end play of the underdrive sun gear. Replace the thrust race installed in step (44) to adjust the play to the standard value. Refer to the chart on P.23B-37 or the appropriate parts number.

**Standard value: 0.25 to 0.45 mm (0.0098 to 0.0177 in.)**

**NOTE**

Installing the underdrive clutch hub makes it easy to measure the end play of the underdrive sun gear.

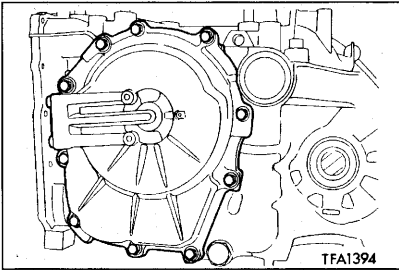


- (46) Apply liquid gasket to the mating surface of the rear cover. Be sure to install the transaxle case within 15 minutes after applying liquid gasket.

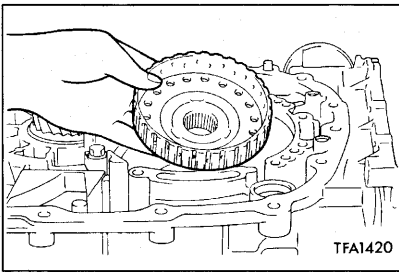
**Liquid gasket:**

**mitsubishi genuine sealant Part No. MD974421 or equivalent**

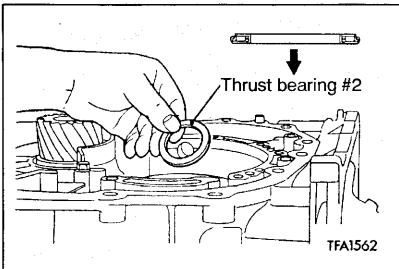
- (47) After installation, wait at least one hour. Never run the transaxle or let ATF touch the adhesion surface during that time.



(48) Install the rear cover, and tighten its mounting bolts to the specified torque.



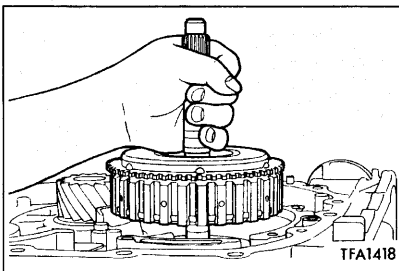
(49) Install the underdrive clutch hub.



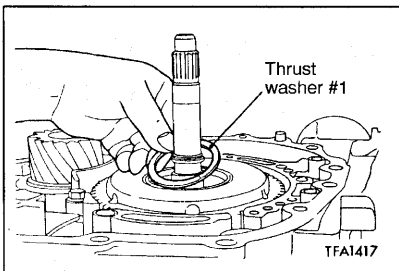
(50) Install thrust bearing #2.

**Caution**

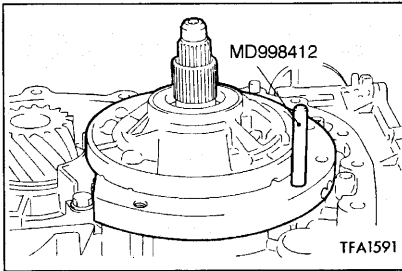
**Be sure to install the thrust bearing in the correct direction.**



(51) Hold the input shaft, and install the underdrive clutch.



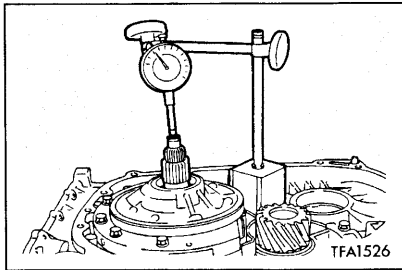
(52) Install the used thrust washer #1.



(53) Use the special tool to install a new oil pump gasket and oil pump.

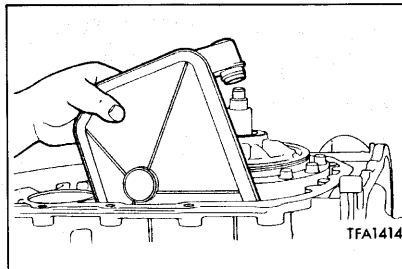
**Caution**  
Never reuse the old gasket.

(54) Tighten the oil pump mounting bolts to the specified torque.

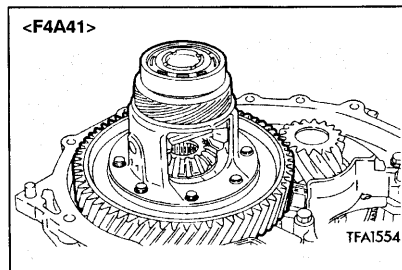


(55) Measure end play of the input shaft. Replace the thrust washer installed in step (52) to adjust the play to the standard value. Refer to the chart on P.23B-37 for the appropriate parts number.

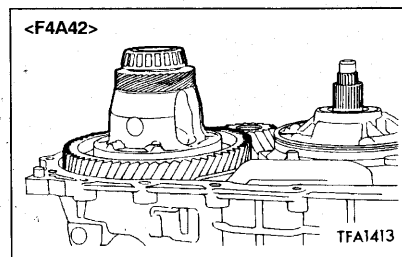
**Standard value: 0.70 to 1.45 mm (0.0276 to 0.0571 in.)**

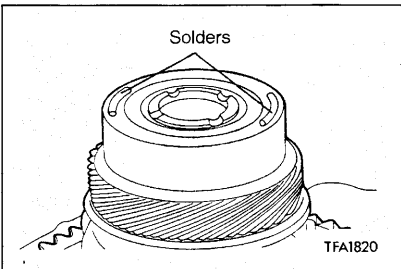


(56) Install the oil filter.

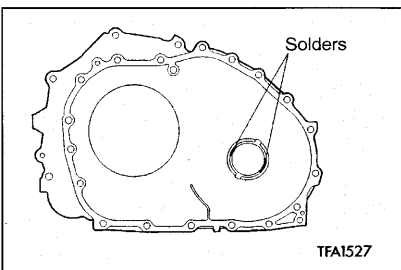


(57) Install the differential.

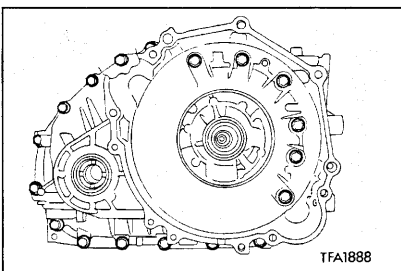




(58) Place a solder (approx. 10 mm (0.39 in.) in length, 3 mm (0.12 in.) in diameter) on the differential as shown in the figure. <F4A41 only>

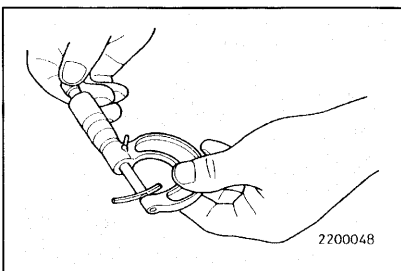


(59) Place a solder (approx. 10 mm (0.39 in.) in length, 3 mm (0.12 in.) in diameter) on the torque converter housing as shown in the figure. <F4A42 only>



(60) Install the torque converter housing to the transaxle case without applying sealant. Tighten its mounting bolts to the specified torque.

(61) Loosen the bolts, and remove the solder.



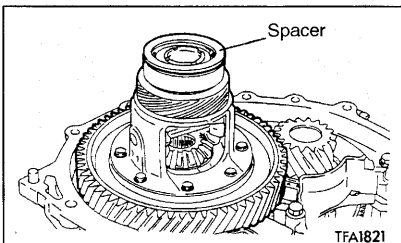
(62) Use a micrometer to measure the thickness of the pressed solder. Select a spacer which thickness is within the following value. Refer to the chart on P.23B-37 for the appropriate parts number.

**F4A41**

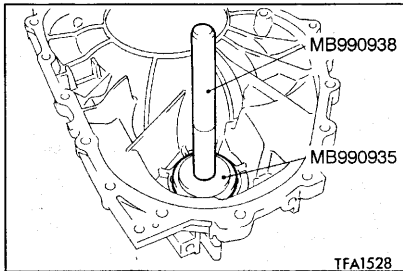
[T - 0.045 mm (0.0018 in.)] to [T - 0.165 mm (0.0065 in.)]

**F4A42**

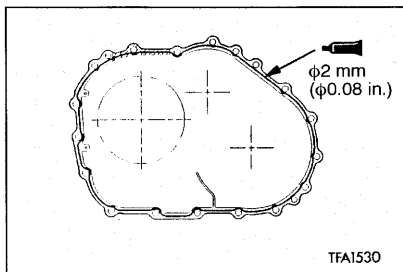
[T + 0.045 mm (0.0018 in.)] to [T + 0.105 mm (0.0041 in.)]



(63) Install the spacer selected in the above step. <F4A41 only>



- (64) Assemble the spacer selected in step (62) to the torque converter housing. Use the special tool to press in the outer race. <F4A42 only>

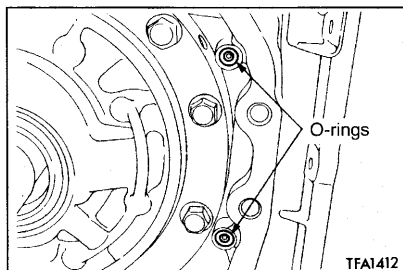


- (65) Apply liquid gasket to the mating surface of torque converter.  
Be sure to install the transaxle case within 15 minutes after applying liquid gasket.

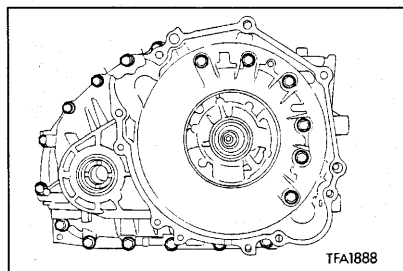
**Liquid gasket:**

**MITSUBISHI genuine sealant Part No. MD974421 or equivalent**

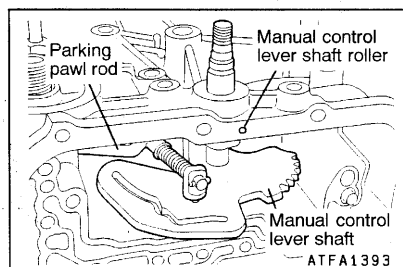
- (66) After installation, wait at least one hour. Never run the transaxle or let ATF touch the adhesion surface during that time.



- (67) Install the two O-rings.

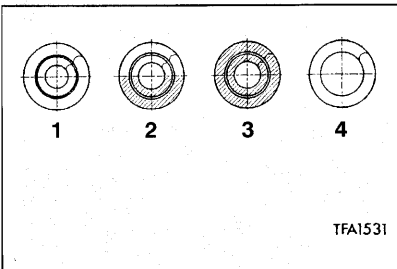


- (68) Install the torque converter, and then tighten its 18 mounting bolts to the specified torque.



- (69) Install the manual control lever shaft and parking pawl rod.

- (70) Install the manual control lever shaft roller.

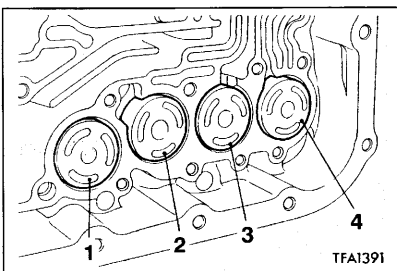


(71) Install the accumulator pistons, new seal rings, and springs.

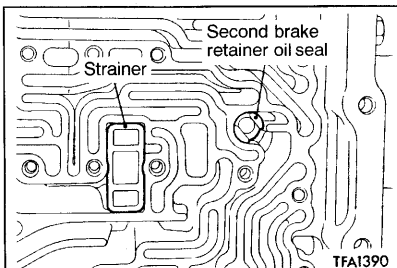
**NOTE**

The accumulator springs are identified as shown in the figure.

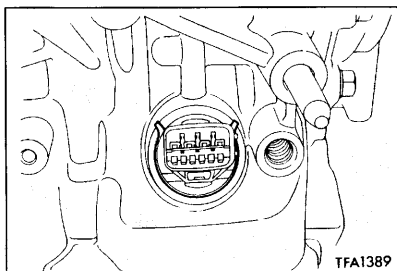
No.	Name
1	For low-reverse brake
2	For underdrive clutch
3	For second brake
4	For overdrive clutch



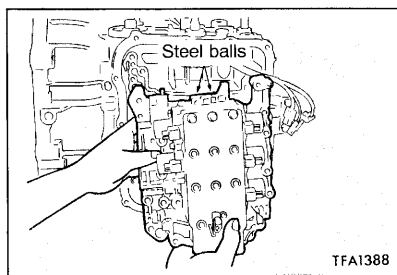
(72) Install the strainer and second brake retainer oil seal.

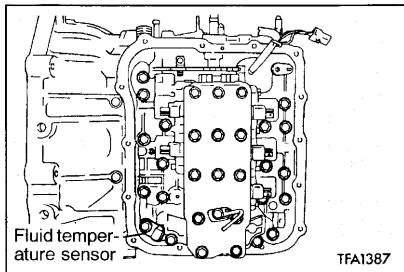


(73) Install the solenoid valve harness, and then secure the snap ring to the connector groove.

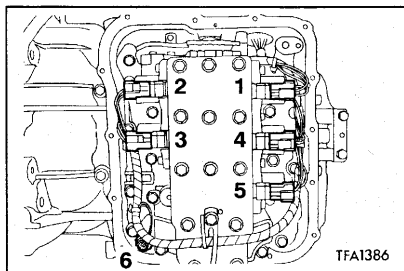


(74) Install the valve body, gasket, and two steel balls.



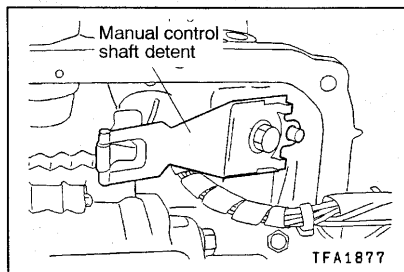


- (75) Install the fluid temperature sensor.  
 (76) Install the 28 valve body mounting bolts.

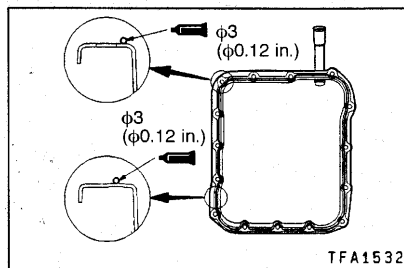


- (77) Connect the valve body connectors.

No.	Parts to be connected	Cable colour	Connector housing colour
1	Underdrive solenoid valve	White, red, red	Black
2	Overdrive solenoid valve	Orange, red	Black
3	Low-reverse solenoid valve	Brown, yellow	Milky white
4	Second solenoid valve	Green, red, red	Milky white
5	Damper clutch control solenoid valve	Blue, yellow, yellow	Black
6	Fluid temperature sensor	Black, red	Black



- (78) Install the manual control shaft detent.



- (79) Apply liquid gasket to the mating surface of the valve body cover.

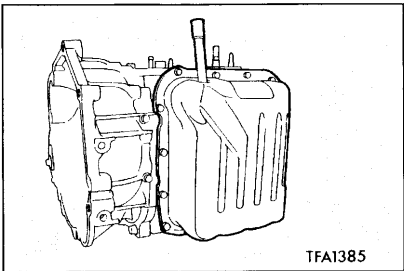
Be sure to install the transaxle case within 15 minutes after applying liquid gasket.

**Liquid gasket:**

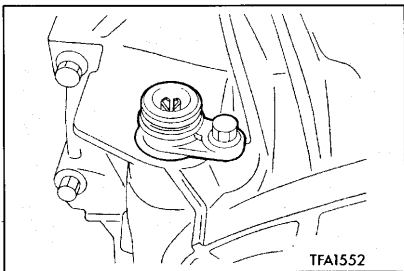
**MITSUBISHI genuine sealant Part No. MD974421 or equivalent**

- (80) After installation, wait at least one hour. Never run the transaxle or let ATF touch the adhesion surface during that time.

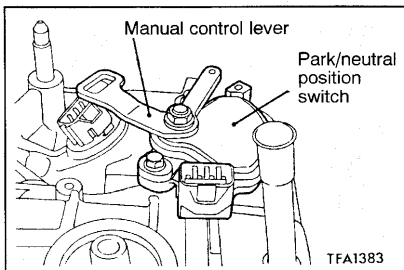




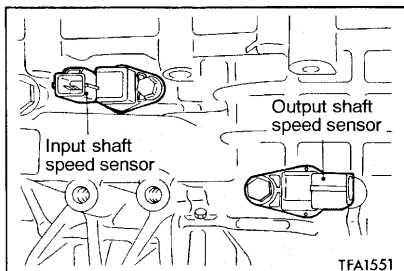
(81) Install the valve body cover, and then tighten its mounting bolts to the specified torque.



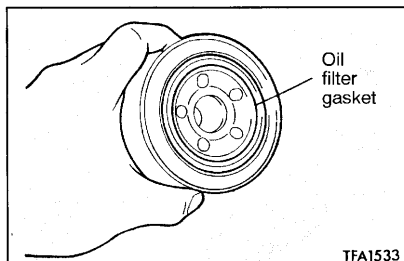
(82) Install the speedometer gear.



(83) Install the park/neutral position switch and manual control lever.



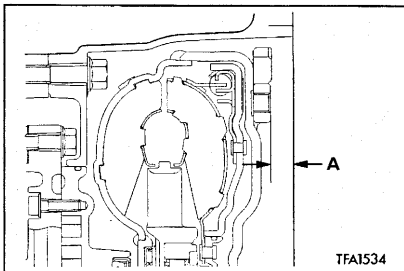
(84) Install the input shaft speed sensor and output shaft speed sensor.



(85) Apply a small amount of ATF to the oil filter gasket. Tighten the filter to the specified torque.

**Standard value: 12 Nm (8.7 ft.lbs.)**

- (86) Install the eye bolt, a new gasket, and the oil cooler feed tube.
- (87) Install the oil dipstick.
- (88) Install the brackets.



- (89) Install the torque converter, and secure it so that the shown dimension (A) meets the reference value.


**Reference value: approx. 12.2 mm (0.480 in.)**

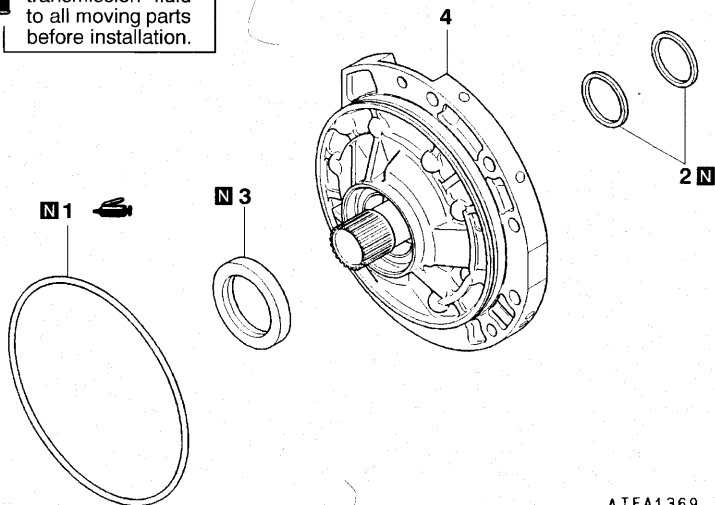
**Caution**

**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

 Apply automatic transmission fluid to all moving parts before installation.



A TFA1369

### Disassembly steps

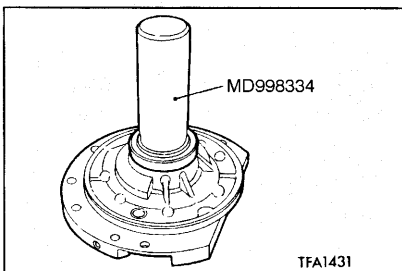
- ▶B◀ 1. O-ring
- ▶A◀ 2. Seal ring
- ▶A◀ 3. Oil seal
- ▶A◀ 4. Oil pump assembly

### REASSEMBLY SERVICE POINTS

#### ▶A◀ OIL SEAL INSTALLATION

#### ▶B◀ O-RING INSTALLATION

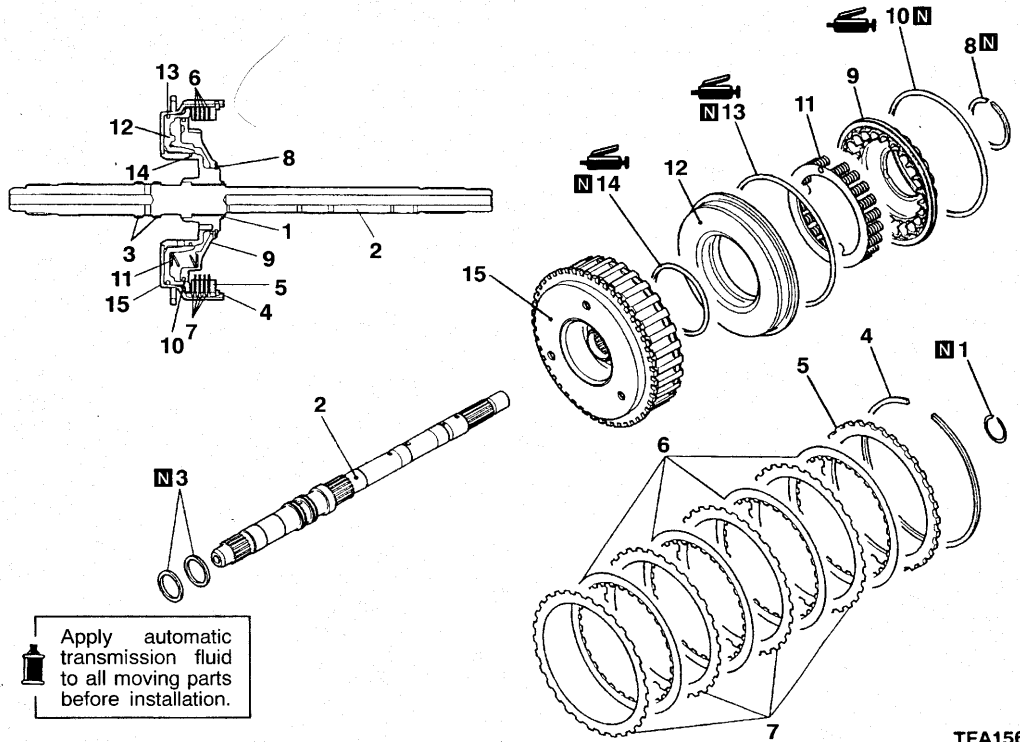
Install a new O-ring to the outer groove of the oil pump, and apply ATF, blue petrolatum jelly or white Vaseline to the outer inside diameter of the O-ring.



TFA1431

# UNDERDRIVE CLUTCH AND INPUT SHAFT

## DISASSEMBLY AND REASSEMBLY



Apply automatic transmission fluid to all moving parts before installation.

TFA1564

Number of clutch discs and plates

A/T Model	Clutch disc	Clutch plate	Clutch reaction plate
F4A41	3	3	1
F4A42	4	4	1

### Disassembly steps

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

**DISASSEMBLY SERVICE POINT**

**◀A▶ SNAP RING REMOVAL**

**REASSEMBLY SERVICE POINTS**

**▶A◀ D-RING INSTALLATION**

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

**▶B◀ SNAP RING INSTALLATION**

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

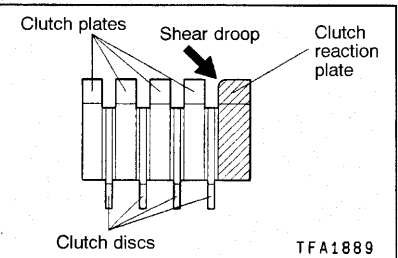
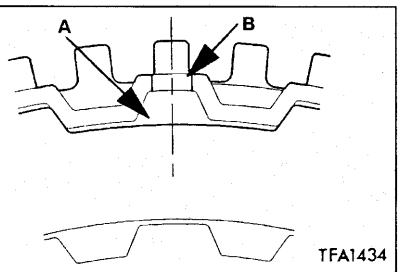
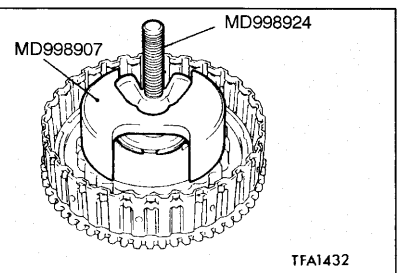
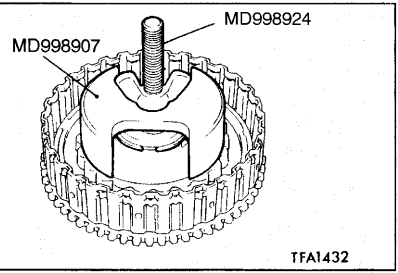
- (1) Align the space between the teeth (part A) of the clutch plate, clutch disc and clutch reaction plate to the outer circumference hole (part B) of the underdrive clutch retainer.

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

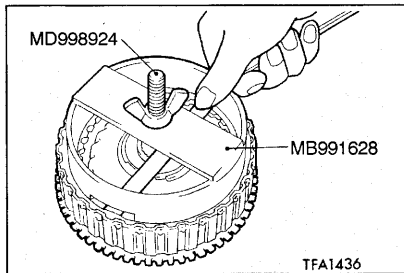
- (2) Install the clutch reaction plate in the shown direction.

**Number of clutch discs and plates**

A/T Model	Clutch disc	Clutch plate	Clutch reaction plate
F4A41	3	3	1
F4A42	4	4	1



# 23B-54 AUTOMATIC TRANSAXLE OVERHAUL - Underdrive Clutch and Input Shaft



## ▶D◀ SNAP RING INSTALLATION

Check that the clearance between the snap ring and the clutch reaction plate is within the standard value.

### Standard value:

1.25 to 1.45 mm (0.0492 to 0.0571 in.) <F4A41>

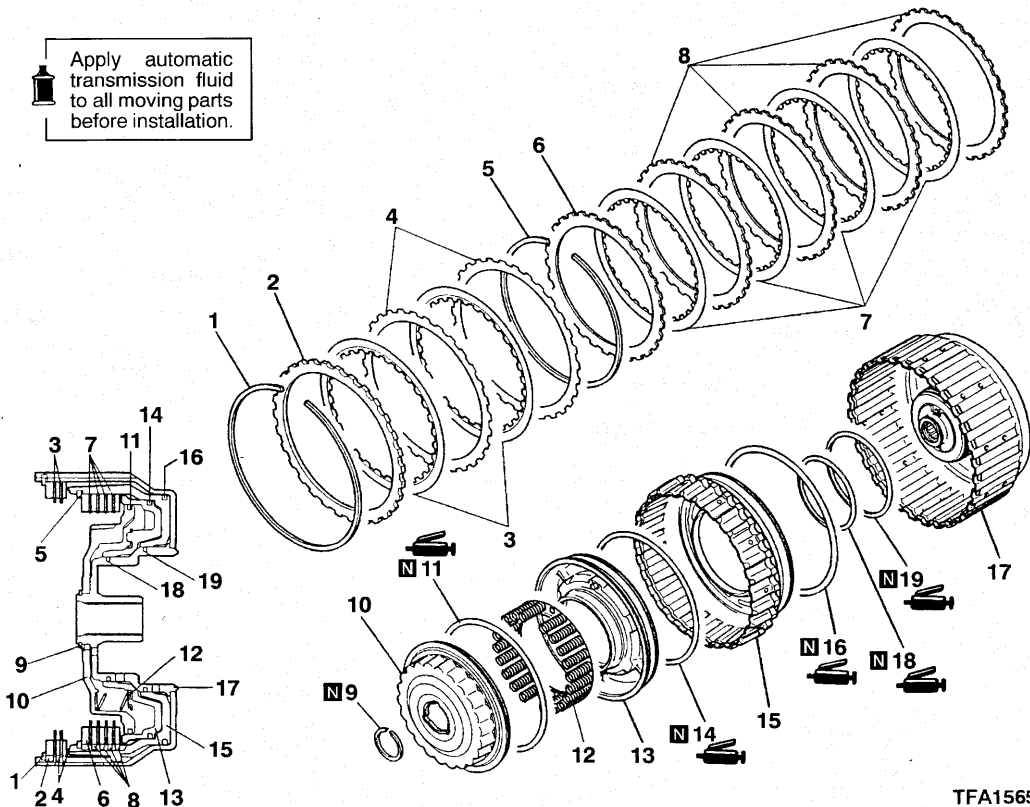
1.65 to 1.85 mm (0.0650 to 0.0728 in.) <F4A42>

When measuring the clearance, use the special tool to press the clutch reaction plate evenly. If not within the standard value, select a snap ring to adjust.

# REVERSE AND OVERDRIVE CLUTCH

## DISASSEMBLY AND REASSEMBLY

Apply automatic transmission fluid to all moving parts before installation.



TFA1565

**Number of clutch discs and plates (Overdrive)**

Model	Clutch disc	Clutch plate	Clutch reaction plate
F4A41	3	3	1
F4A42	4	4	1

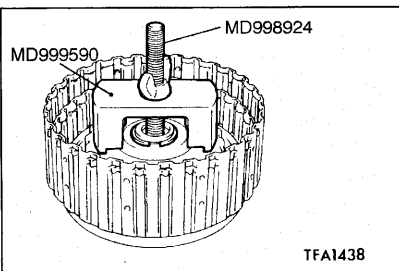
**Disassembly steps**

- ▶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
- ▶C◀ 9. Snap ring
- ▶A◀ 10. Spring retainer

- ▶A◀ 11. D-ring
- ▶A◀ 12. Return spring
- ▶A◀ 13. Overdrive clutch piston
- ▶A◀ 14. D-ring
- ▶A◀ 15. Reverse clutch piston
- ▶A◀ 16. D-ring
- ▶A◀ 17. Reverse clutch retainer
- ▶A◀ 18. D-ring
- ▶A◀ 19. D-ring

## DISASSEMBLY SERVICE POINT

### ◀A▶ SNAP RING REMOVAL



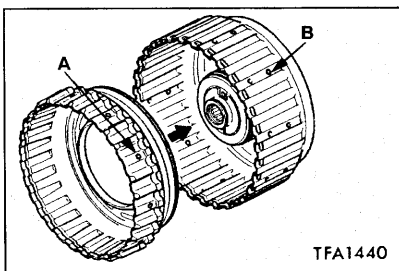
## REASSEMBLY SERVICE POINTS

### ▶A◀ D-RING INSTALLATION

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

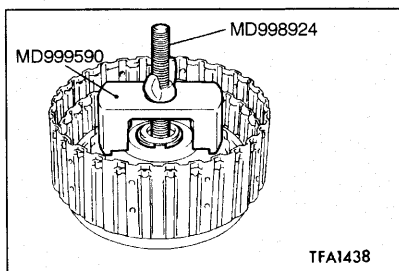
### ▶B◀ REVERSE CLUTCH PISTON INSTALLATION

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



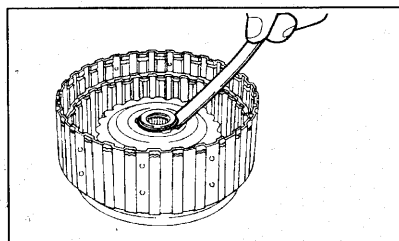
### ▶C◀ SNAP RING INSTALLATION

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

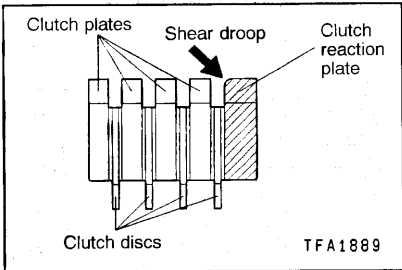


(2) Check that the clearance between the snap ring and the return spring retainer is within the standard value. When measuring the clearance, press the return spring retainer by the weight of 49 N (11 lbs.) evenly. If not within the standard value, select a snap ring to adjust.

**Standard value: 0.01 to 0.10 mm (0 to 0.0035 in.)**







**►D◄ CLUTCH PLATE/CLUTCH DISC/CLUTCH REACTION PLATE INSTALLATION**

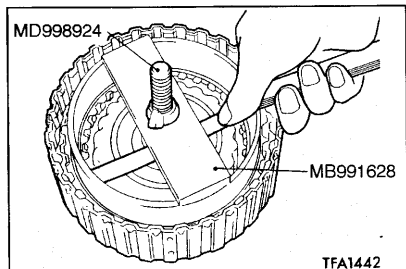
Install the clutch reaction plate in the shown direction.

**Caution**

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

**Number of clutch discs and plates**

AT Model	Clutch disc	Clutch plate	Clutch reaction plate
F4A41	3	3	1
F4A42	4	4	1

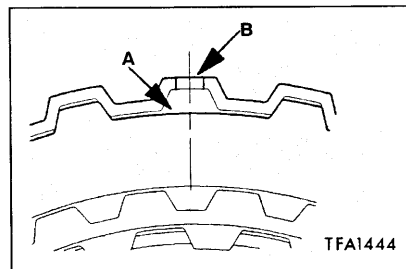


**►E◄ SNAP RING INSTALLATION**

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

**Standard value:**

- 1.2 to 1.4 mm (0.0472 to 0.0551 in.) <F4A41>
- 1.6 to 1.8 mm (0.0630 to 0.0709 in.) <F4A42>



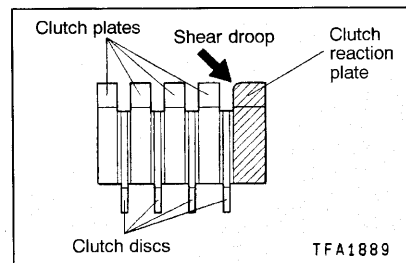
**►F◄ CLUTCH PLATE/CLUTCH DISC/CLUTCH REACTION PLATE INSTALLATION**

- (1) Align the space between the teeth (part A) of the clutch plate, clutch disc and clutch reaction plate to the outer circumference hole (part B) of the reverse clutch retainer.

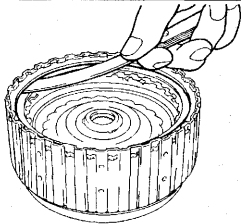
**Caution**

**Immerse the clutch disc in ATF.**

- (2) Install the clutch reaction plate in the shown direction.



## 23B-58 AUTOMATIC TRANSAXLE OVERHAUL - Reverse and Overdrive Clutch



TFA1446

### ▶G◀ SNAP RING INSTALLATION

Check that the clearance between the snap ring and the clutch reaction plate is within the standard value. When measuring the clearance, press the clutch reaction plate by the weight of 49 N (11 lbs.) evenly. If not within the standard value, select a snap ring to adjust.

**Standard value: 1.2 to 1.4 mm (0.0472 to 0.0551 in.)**

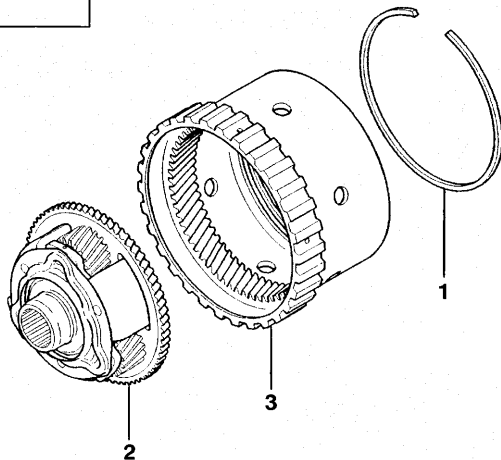
## OVERDRIVE PLANETARY CARRIER

23302510010

## DISASSEMBLY AND REASSEMBLY



Lubricate all internal parts with automatic transmission fluid during reassembly.




TFA1372

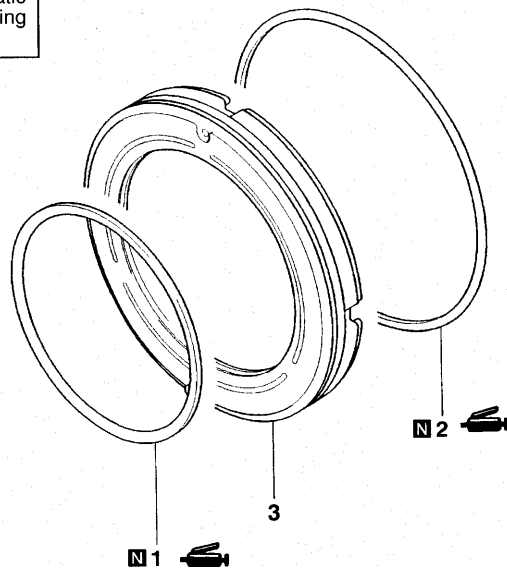
**Disassembly steps**

1. Snap ring
2. Overdrive planetary carrier
3. Overdrive annulus gear

# LOW-REVERSE BRAKE

## DISASSEMBLY AND REASSEMBLY

 Lubricate all internal parts with automatic transmission fluid during reassembly.



TFA1373

### Disassembly steps



1. D-ring
2. D-ring
3. Low-reverse brake piston

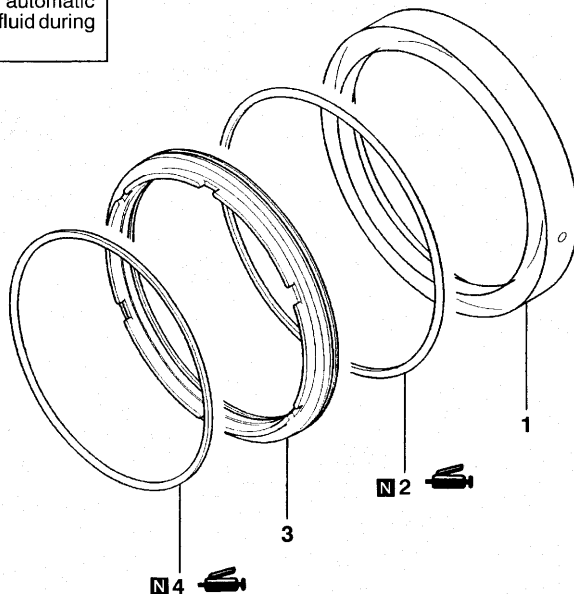
### REASSEMBLY SERVICE POINT

#### ▶◀ D-RING INSTALLATION

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

**SECOND BRAKE****DISASSEMBLY AND REASSEMBLY**

Lubricate all internal parts with automatic transmission fluid during reassembly.



TFA1374

**Disassembly steps**


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

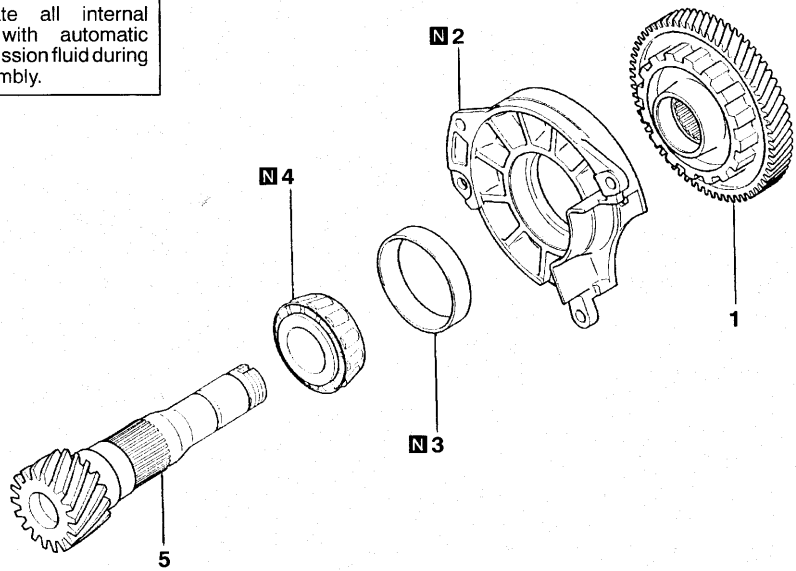
**REASSEMBLY SERVICE POINT****▶◀ D-RING INSTALLATION**

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

# OUTPUT SHAFT

## DISASSEMBLY AND REASSEMBLY

 Lubricate all internal parts with automatic transmission fluid during reassembly.



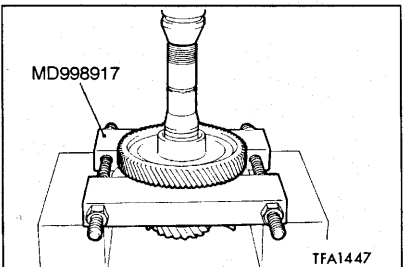
TFA1375

### Disassembly steps

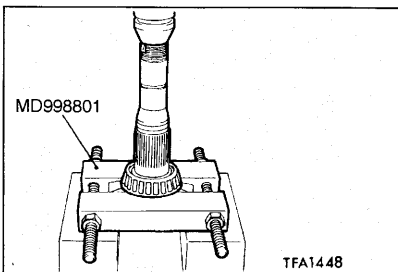
- ◀A▶ ▶C▶ 1. Transfer driven gear
- ▶B▶ ▶A▶ 2. Bearing retainer
- ▶B▶ ▶A▶ 3. Outer race
- ▶B▶ ▶A▶ 4. Taper roller bearing
- ▶B▶ ▶A▶ 5. Output shaft

### DISASSEMBLY SERVICE POINTS

◀A▶ TRANSFER DRIVEN GEAR REMOVAL

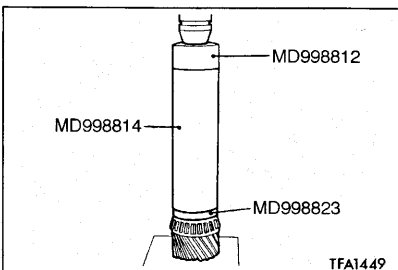


**◀B▶ TAPER ROLLER BEARING REMOVAL**

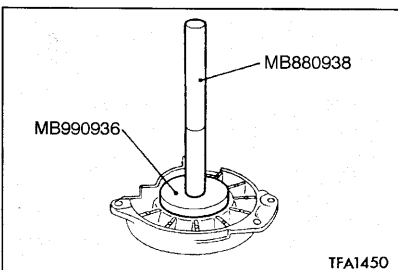


**REASSEMBLY SERVICE POINTS**

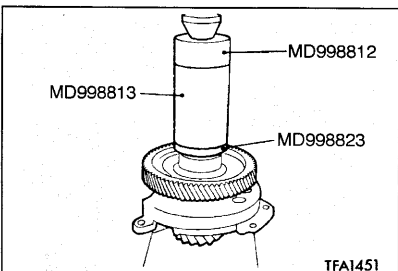
**▶A▶ TAPER ROLLER BEARING INSTALLATION**



**▶B▶ OUTER RACE INSTALLATION**




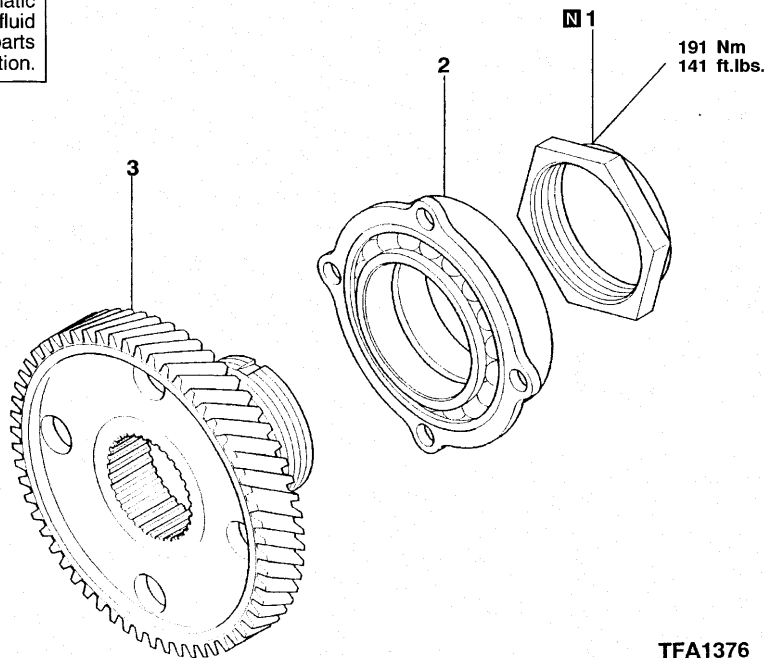
**▶C▶ TRANSFER DRIVEN GEAR INSTALLATION**



# TRANSFER DRIVE GEAR







## DISASSEMBLY AND REASSEMBLY

 Apply automatic transmission fluid to all moving parts before installation.



TFA1376

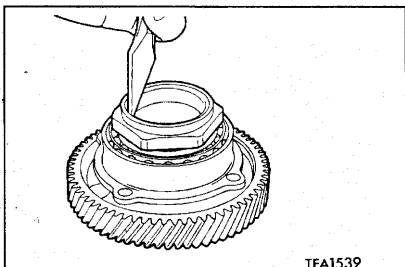
### Disassembly steps

-   1. Lock nut
-   2. Transfer drive gear bearing
-   3. Transfer drive gear

### DISASSEMBLY SERVICE POINTS

#### LOCK NUT REMOVAL

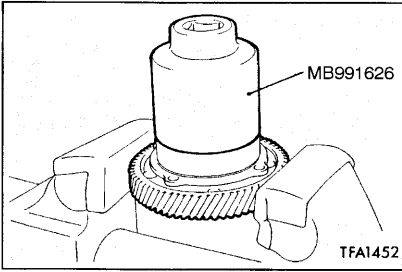
- (1) Using a punch, straighten the locking tab of the lock nut.



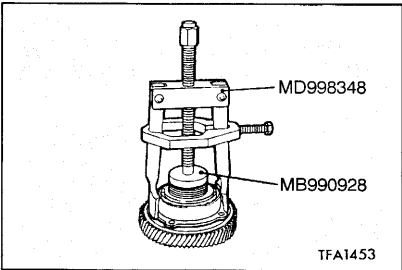
TFA1539



- (2) Use the special tool to remove the lock nut.

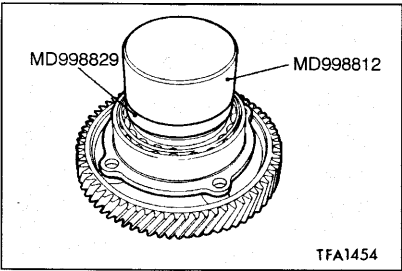


**◀B▶ TRANSFER DRIVE GEAR BEARING REMOVAL**



**REASSEMBLY SERVICE POINTS**

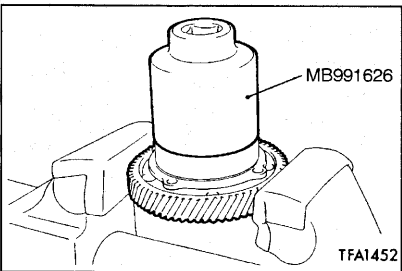
**▶A▶ TRANSFER DRIVE GEAR BEARING INSTALLATION**



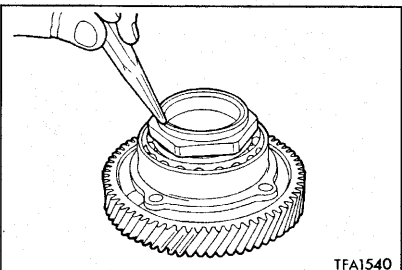
**▶B▶ LOCK NUT INSTALLATION**

- (1) Apply ATF to a new lock nut, and tighten it to the specified torque. Then turn back one turn, and tighten to the specified torque again.

**Standard value: 191 Nm (141 ft.lbs.)**



- (2) Use a punch to caulk the nut at two points.

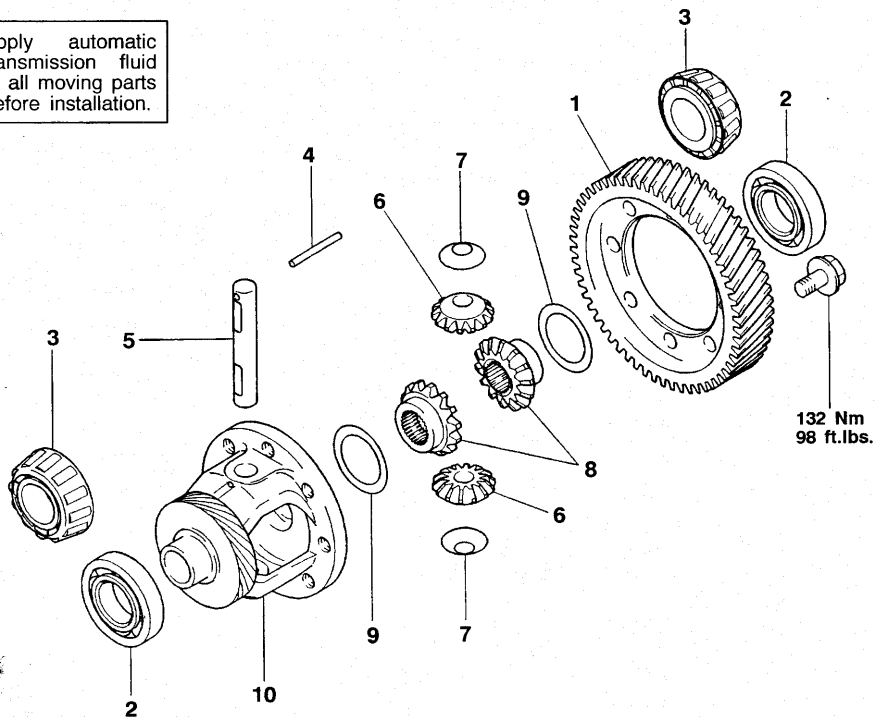


## DIFFERENTIAL

## DISASSEMBLY AND REASSEMBLY



Apply automatic transmission fluid to all moving parts before installation.

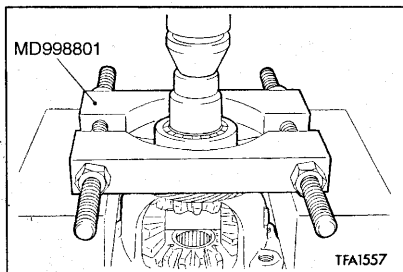


TFA1556

## Disassembly steps

- |     |     |                                  |
|-----|-----|----------------------------------|
| ◀A▶ | ▶E▶ | 1. Differential drive gear       |
| ◀B▶ | ▶D▶ | 2. Ball bearings <F4A41>         |
|     | ▶C▶ | 3. Taper roller bearings <F4A42> |
|     | ▶B▶ | 4. Lock pin                      |
|     | ▶A▶ | 5. Pinion shaft                  |

- |     |                       |
|-----|-----------------------|
| ▶A▶ | 6. Pinions            |
| ▶A▶ | 7. Washers            |
| ▶A▶ | 8. Side gears         |
| ▶A▶ | 9. Spacers            |
|     | 10. Differential case |

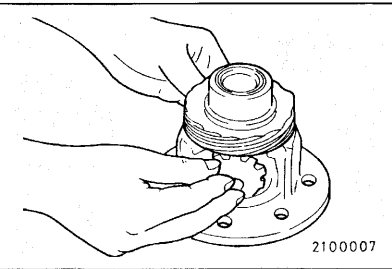
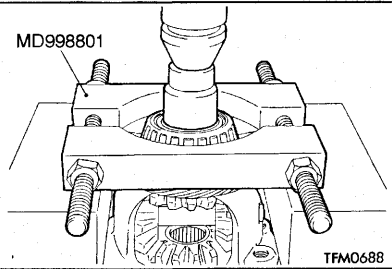


TFA1557

## DISASSEMBLY SERVICE POINTS

## ◀A▶ BALL BEARING REMOVAL

### ◀B▶ TAPER ROLLER BEARING REMOVAL



### REASSEMBLY SERVICE POINTS

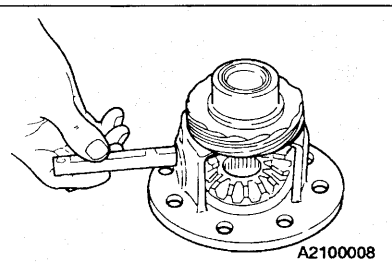
#### ▶A◀ SPACER, SIDE GEAR, WASHER, PINION, PINION SHAFT INSTALLATION

- (1) After a spacer has been mounted on the back surface of the side gear, install the side gear in the differential case.

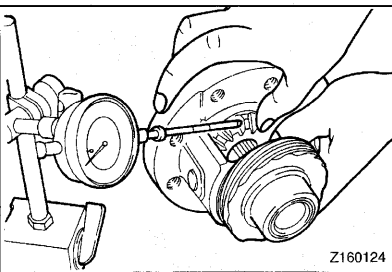
#### NOTE

When a new side gear is to be installed, mount a medium thickness spacer [0.93 to 1.00 mm (0.0366 to 0.0395 in.)].

- (2) Set the washer on the back of each pinion, and put both pinions simultaneously in mesh with the side gears. While rotating them, install them in position.



- (3) Insert the pinion shaft.



- (4) Measure the backlash between the side gears and pinions.

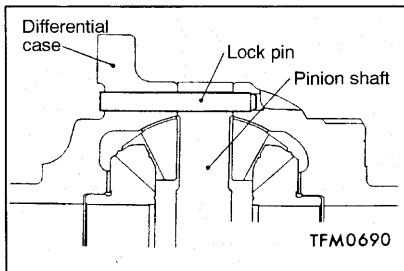
#### Standard value:

**0.025 to 0.150 mm (0.00098 to 0.00591 in.)**

- (5) If the backlash is out of specification, select a spacer and re-measure the backlash.

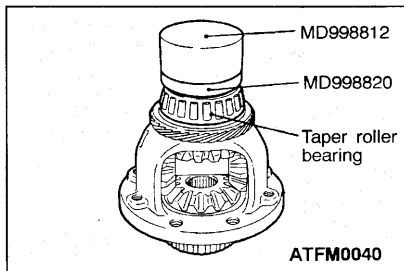
#### NOTE

Adjust until the backlashes on both sides are equal.

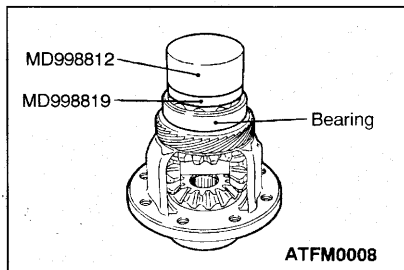


### ►B◄ LOCK PIN INSTALLATION

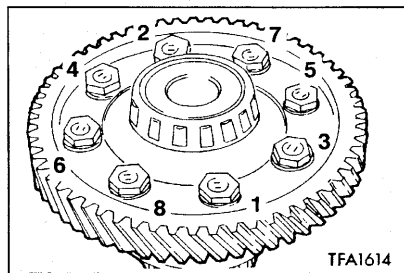
(1) Install the lock pin so that it will be oriented in the direction.



### ►C◄ TAPER ROLLER BEARING INSTALLATION



### ►D◄ BALL BEARING INSTALLATION




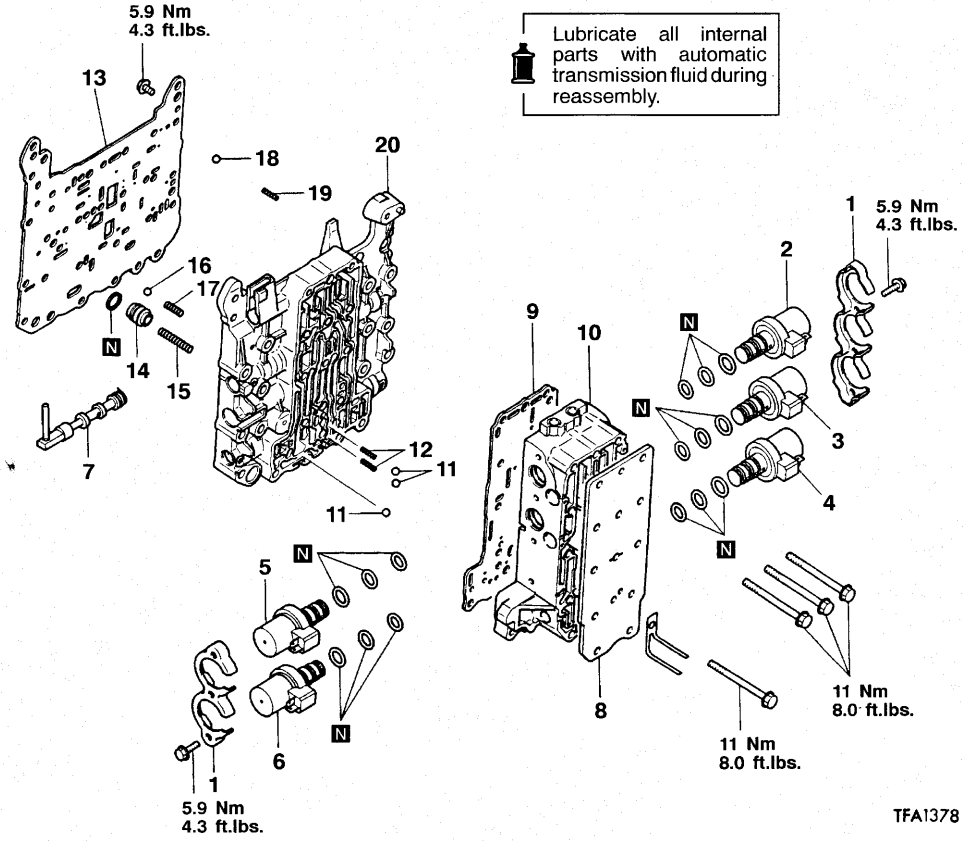
### ►E◄ DIFFERENTIAL DRIVE GEAR INSTALLATION

Apply ATF to the bolt, tighten the bolts to the specified torque in the shown sequence.

VALVE BODY



















DISASSEMBLY AND REASSEMBLY

 Lubricate all internal parts with automatic transmission fluid during reassembly.



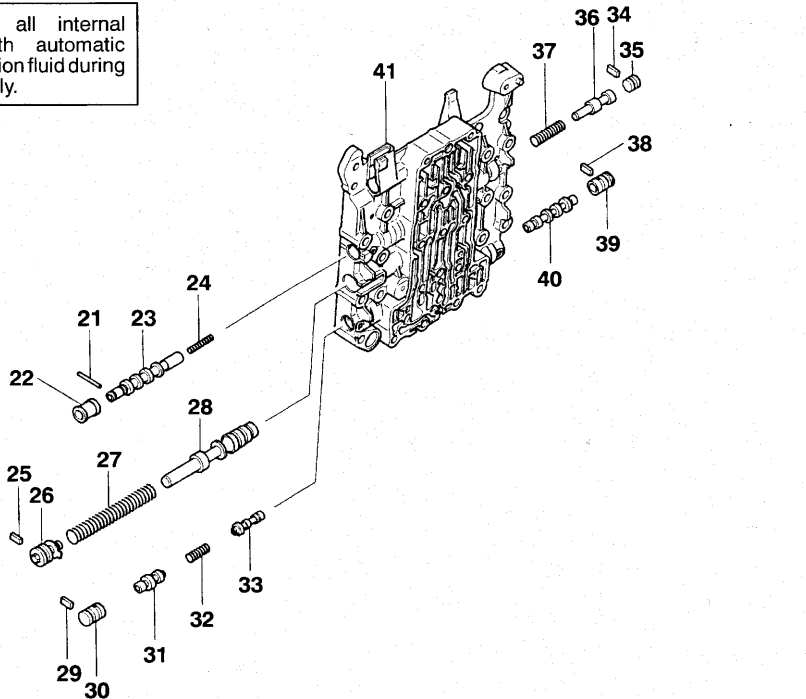
TFA1378

Disassembly steps

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




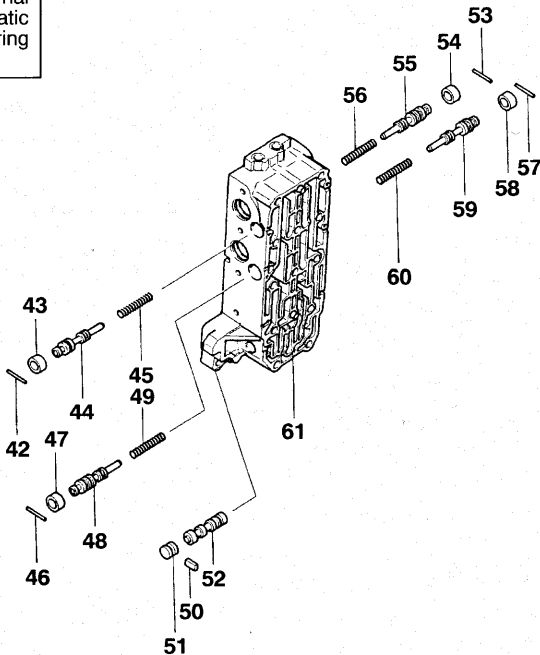
Lubricate all internal parts with automatic transmission fluid during reassembly.



- 21. Roller
- 22. Torque converter clutch control valve sleeve
- 23. Torque converter clutch control valve
- 24. Torque converter clutch control valve spring
- 25. Plate
- 26. Screw
- 27. Regulator valve spring
- 28. Regulator valve
- 29. Plate

- 30. Fail-safe valve A sleeve
- 31. Fail-safe valve A2
- 32. Fail-safe valve A spring
- 33. Fail-safe valve A1
- 34. Plate
- 35. Plug
- 36. Torque converter valve
- 37. Torque converter valve spring
- 38. Plate
- 39. Fail-safe valve B sleeve
- 40. Fail-safe valve B
- 41. Inside valve body

 Lubricate all internal parts with automatic transmission fluid during reassembly.



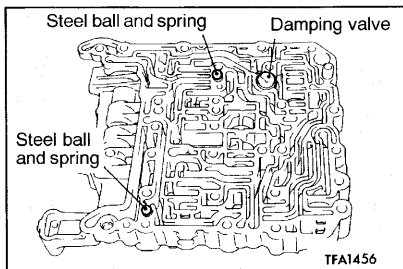
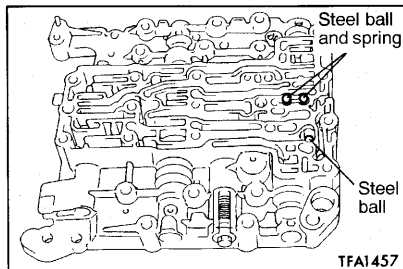
TFA1590

- 42. Roller
- 43. Overdrive pressure control valve sleeve
- 44. Overdrive pressure control valve
- 45. Overdrive pressure control valve spring
- 46. Roller
- 47. Low-reverse pressure control valve sleeve
- 48. Low-reverse pressure control valve
- 49. Low-reverse pressure control valve spring
- 50. Plate
- 51. Plug

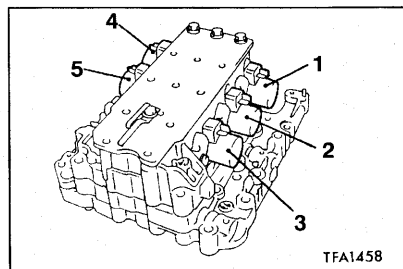
- 52. Switching valve
- 53. Roller
- 54. Underdrive pressure control valve sleeve
- 55. Underdrive pressure control valve
- 56. Underdrive pressure control valve spring
- 57. Roller
- 58. Second pressure control valve sleeve
- 59. Second pressure control valve
- 60. Second pressure control valve spring
- 61. Outside valve body

**DISASSEMBLY SERVICE POINT****◀A▶ SOLENOID VALVES REMOVAL****NOTE**

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****▶B◀ SPRING/STEEL BALL INSTALLATION****▶C◀ SOLENOID VALVES INSTALLATION**

- (1) Apply ATF, blue petroleum jelly or white Vaseline to O-ring, and install carefully.
- (2) Install the solenoid valves by referring to the marks during disassembly.




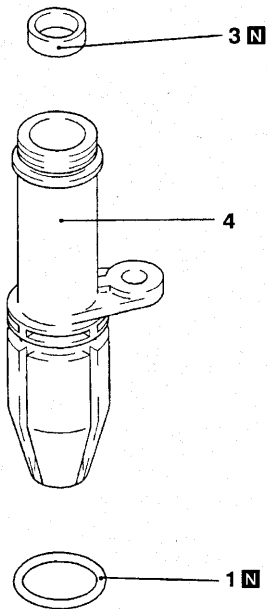
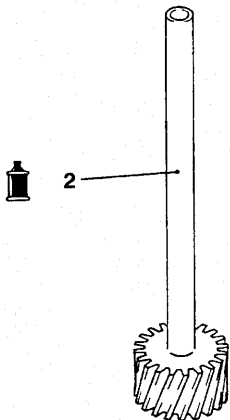
No.	Name
1	Underdrive solenoid valve
2	Second solenoid valve
3	Torque converter clutch control solenoid valve
4	Overdrive solenoid valve
5	Low-reverse solenoid valve



# SPEEDOMETER GEAR

## DISASSEMBLY AND REASSEMBLY

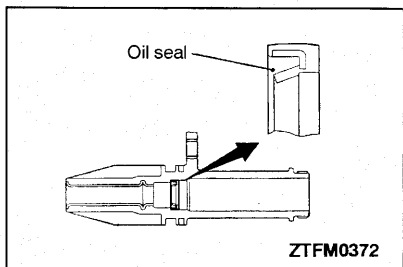
 Lubricate all internal parts with automatic transmission fluid during reassembly.



ZTFM0371

### Disassembly steps

1. O-ring
2. Speedometer driven gear
3. Oil seal
4. Sleeve



ZTFM0372


### REASSEMBLY SERVICE POINT

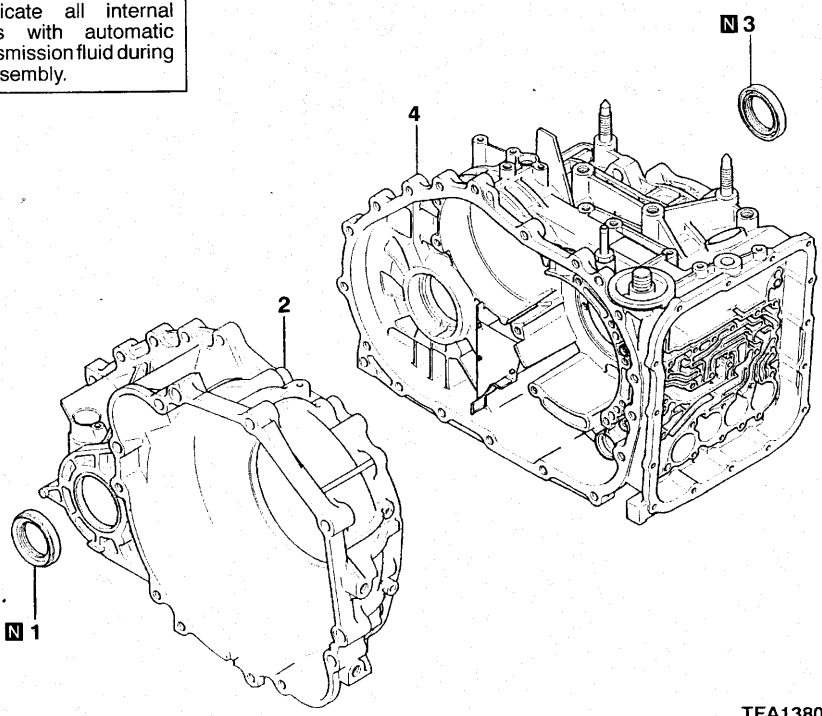
#### ▶A◀ OIL SEAL INSTALLATION

Insert the oil seal in the position and direction shown in the figure.

# DRIVE SHAFT OIL SEAL

## DISASSEMBLY AND REASSEMBLY

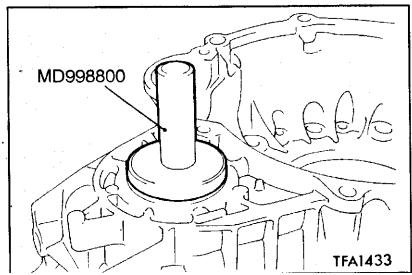
 Lubricate all internal parts with automatic transmission fluid during reassembly.



TFA1380

### Disassembly steps

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



### REASSEMBLY SERVICE POINT

▶A◀ OIL SEAL INSTALLATION

## ▶B◀ OIL SEAL INSTALLATION

