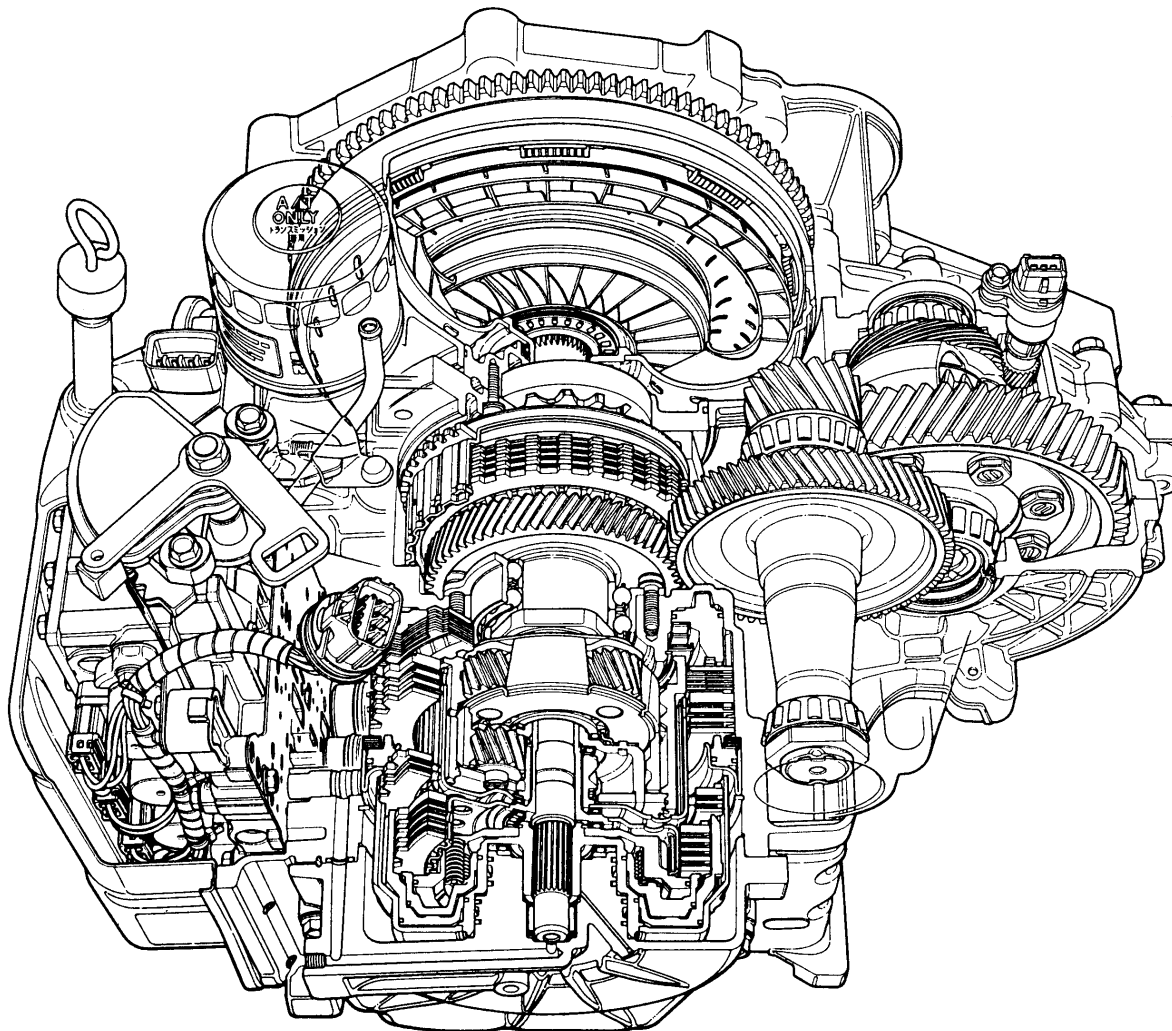


## GENERAL INFORMATION

- (1) The combination of highest-precision electronic and mechanical technology heralds a new era in automatic transmission performance.
- (2) The gear shifting clutches use a hydraulic balancing mechanism to enable gear shifting at extra-high engine speeds.
- (3) The number of shafts has been decreased to two, 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) The number of oil cooler feed tubes is increased to two.

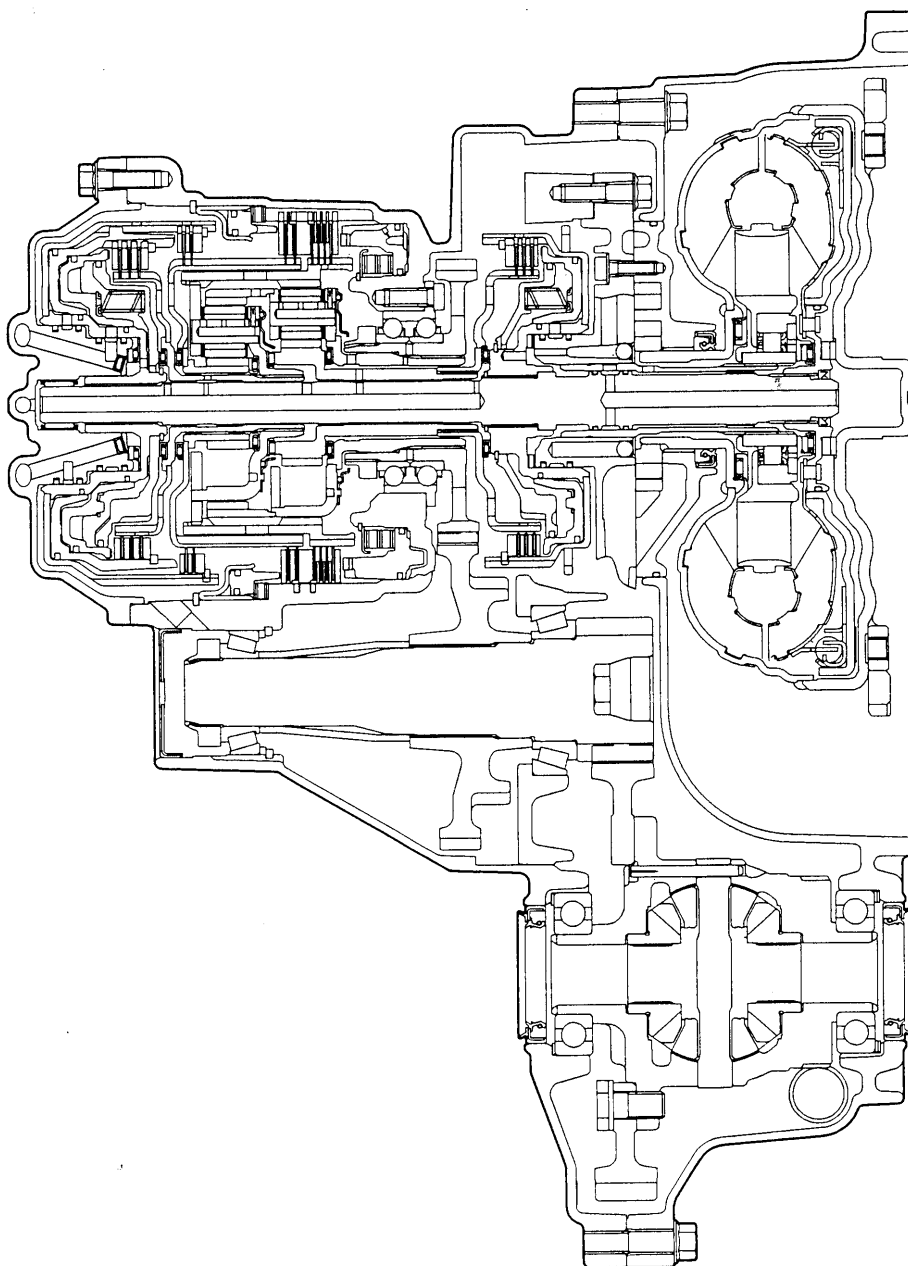
## 3-DIMENSIONAL CROSS-SECTION



TFA1502

SECTIONAL VIEW

<F4A41 up to Dec. 1997>



MAIN

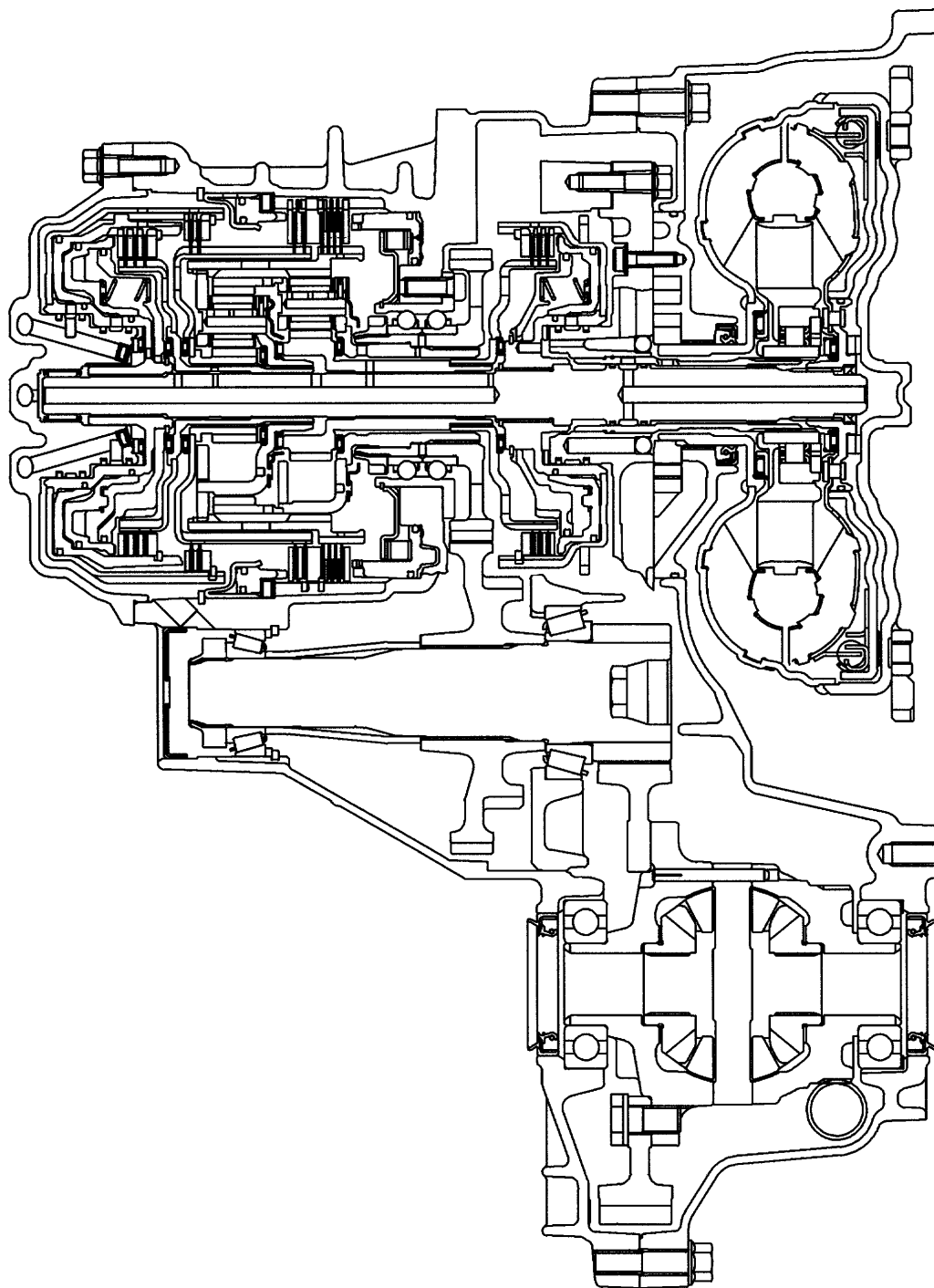
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TFA1548

SECTIONAL VIEW

<F4A41 from Jan.1998>



TFA2252

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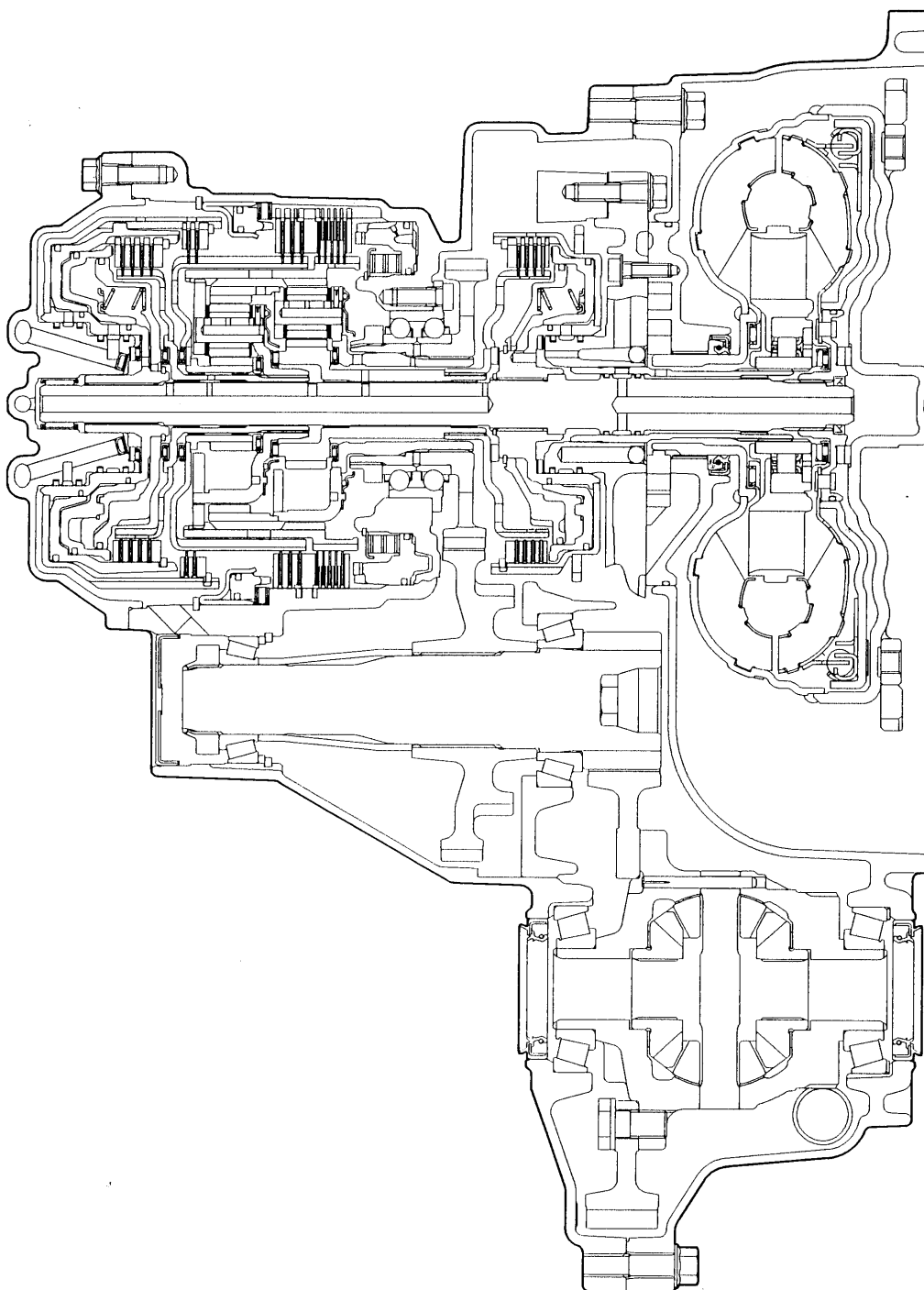
## 23B AUTOMATIC TRANS OVERHAUL BASE – General Information

<F4A42-1 up to Dec.1997>

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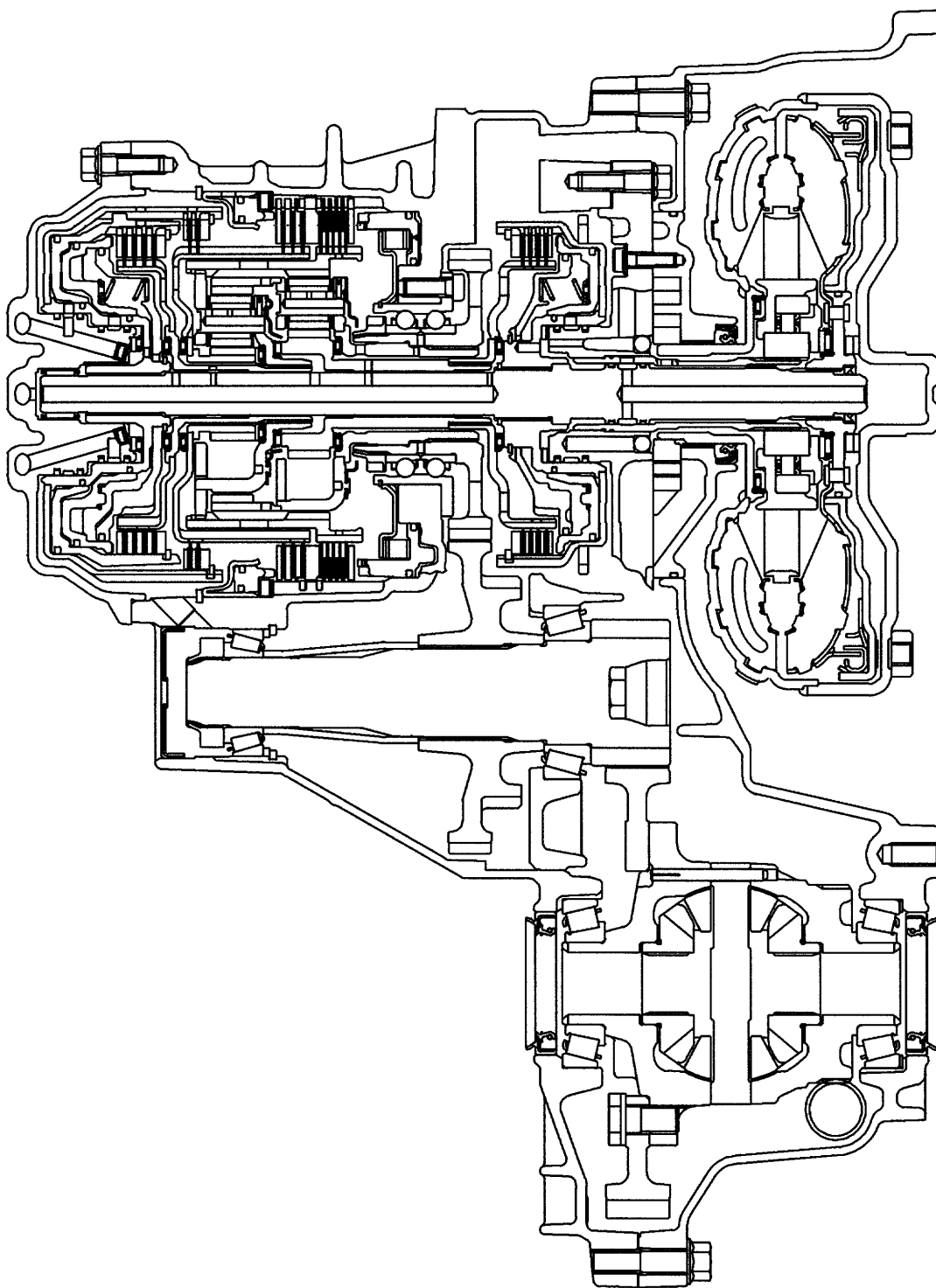
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<F4A42-1 from Jan.1998>

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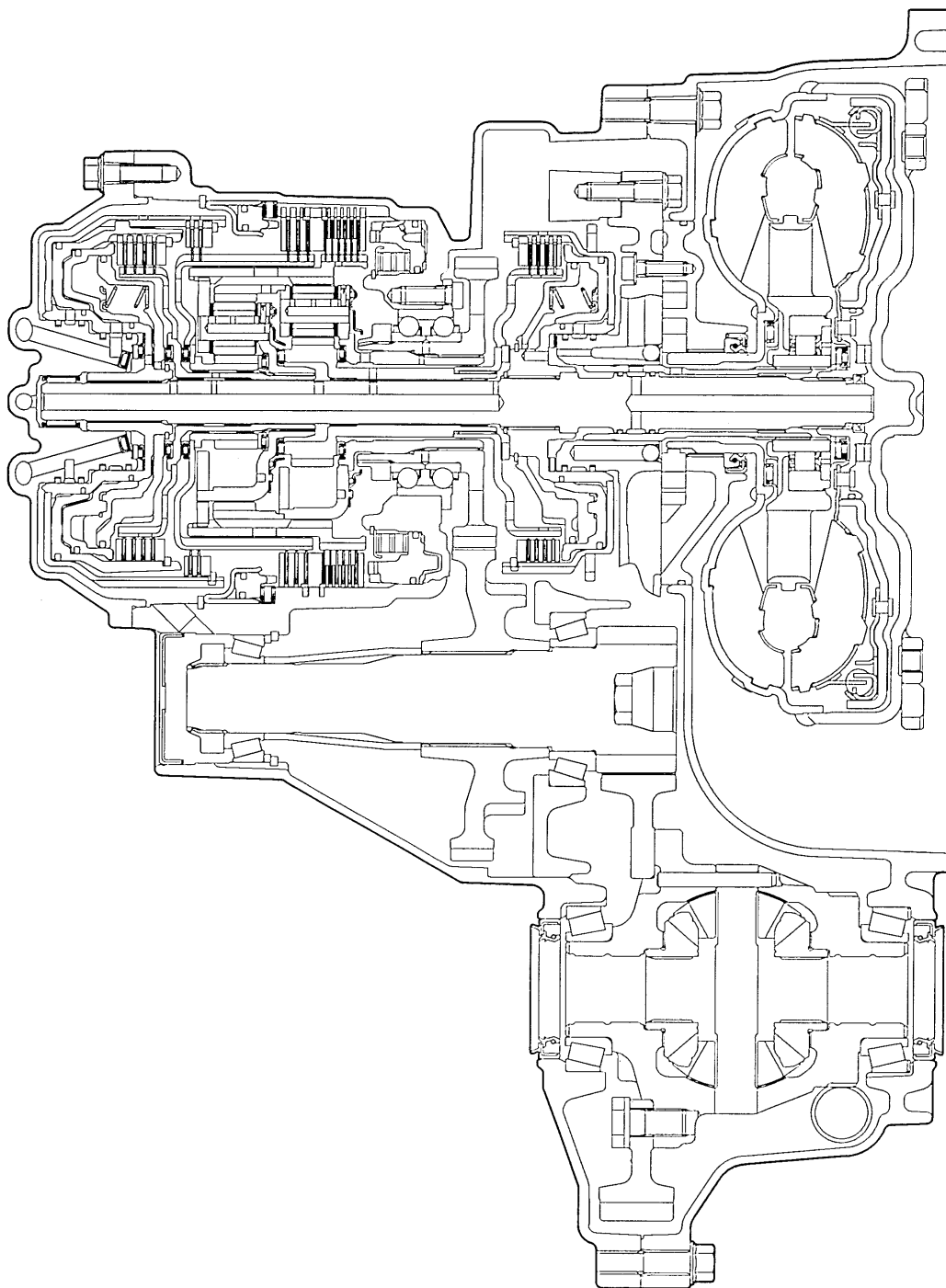
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<F4A42-2 without one-way clutch>

MAIN

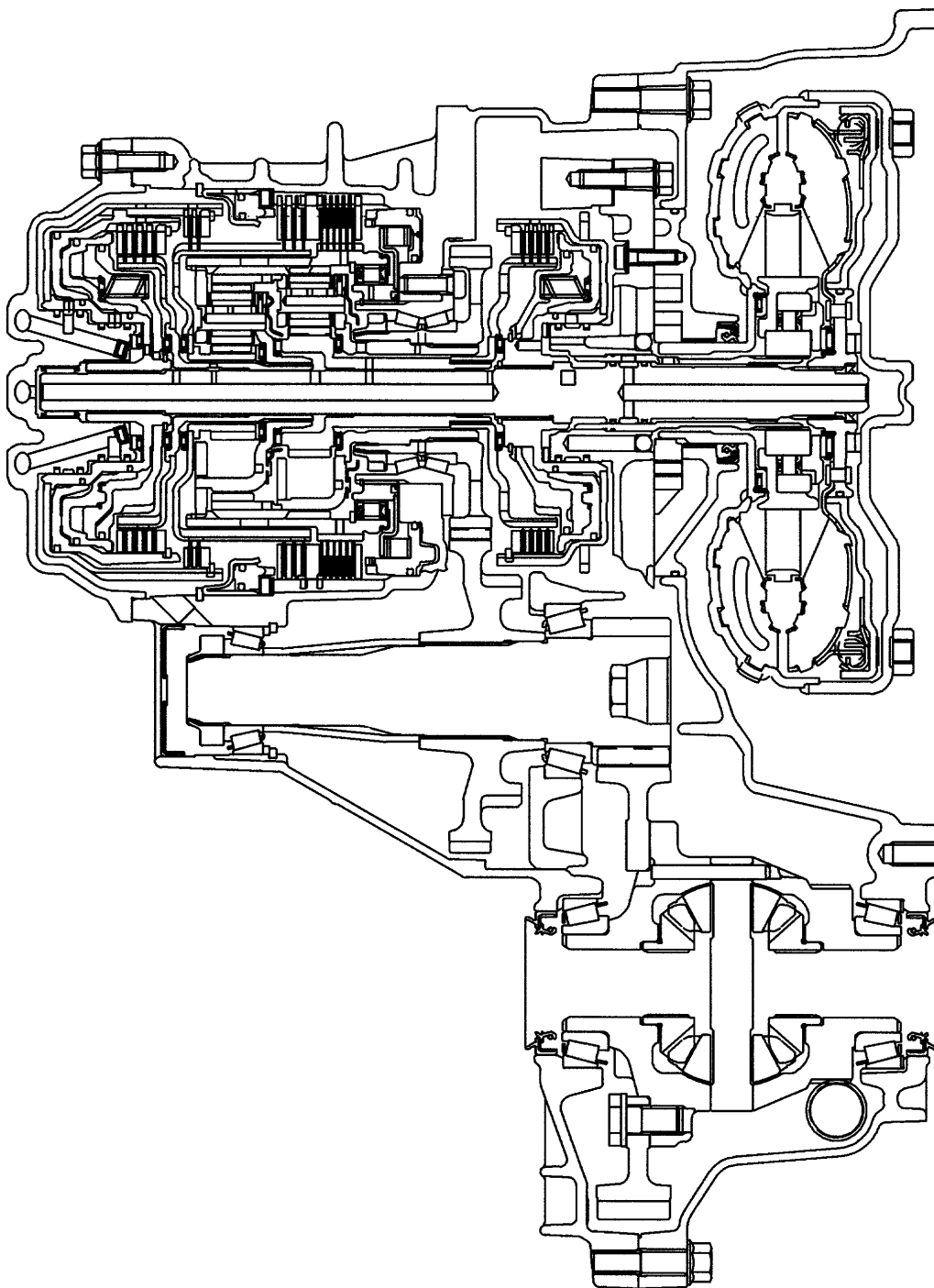
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TFA1504

<F4A42-2 with one-way clutch>



TFA2254

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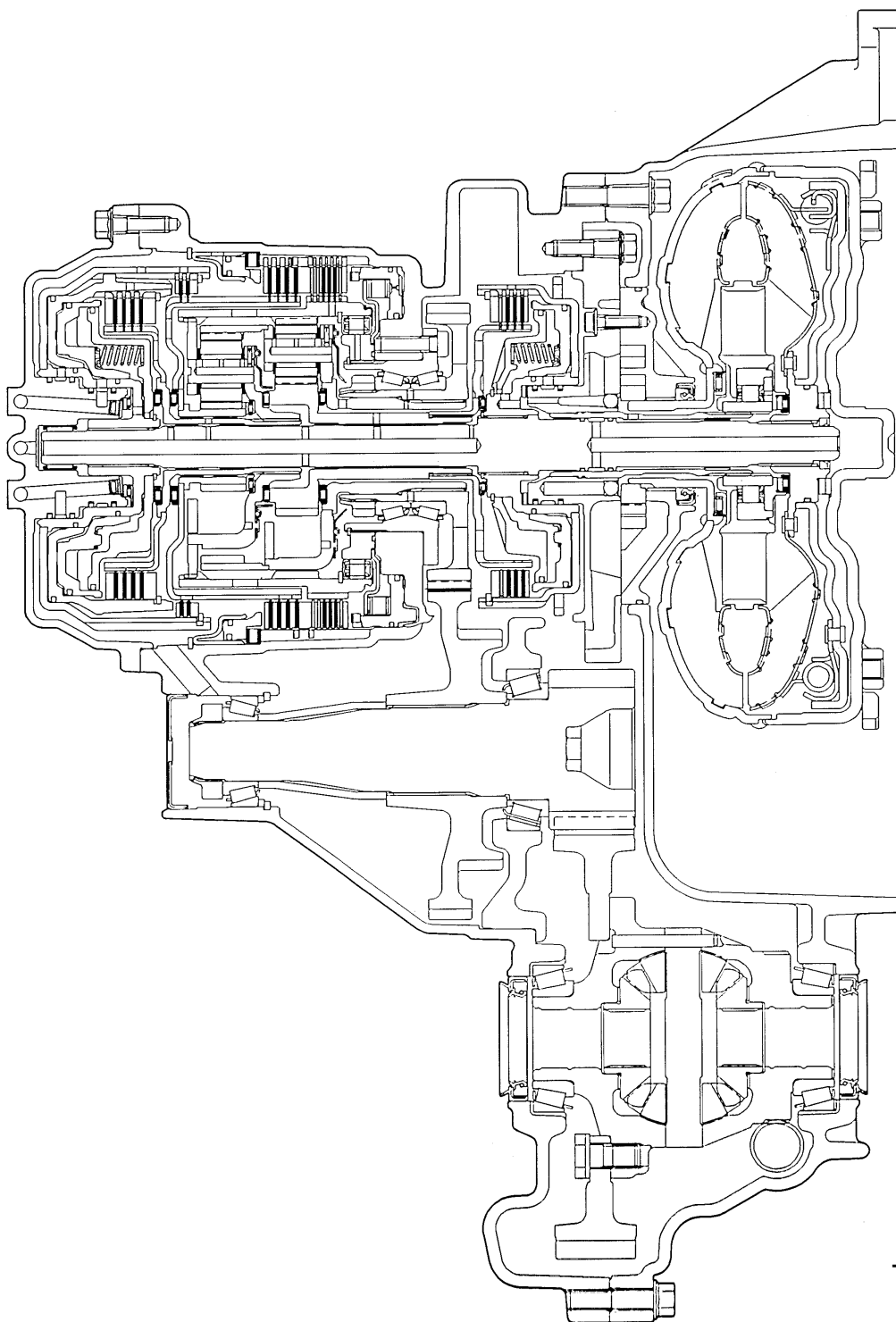
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<F4A51>

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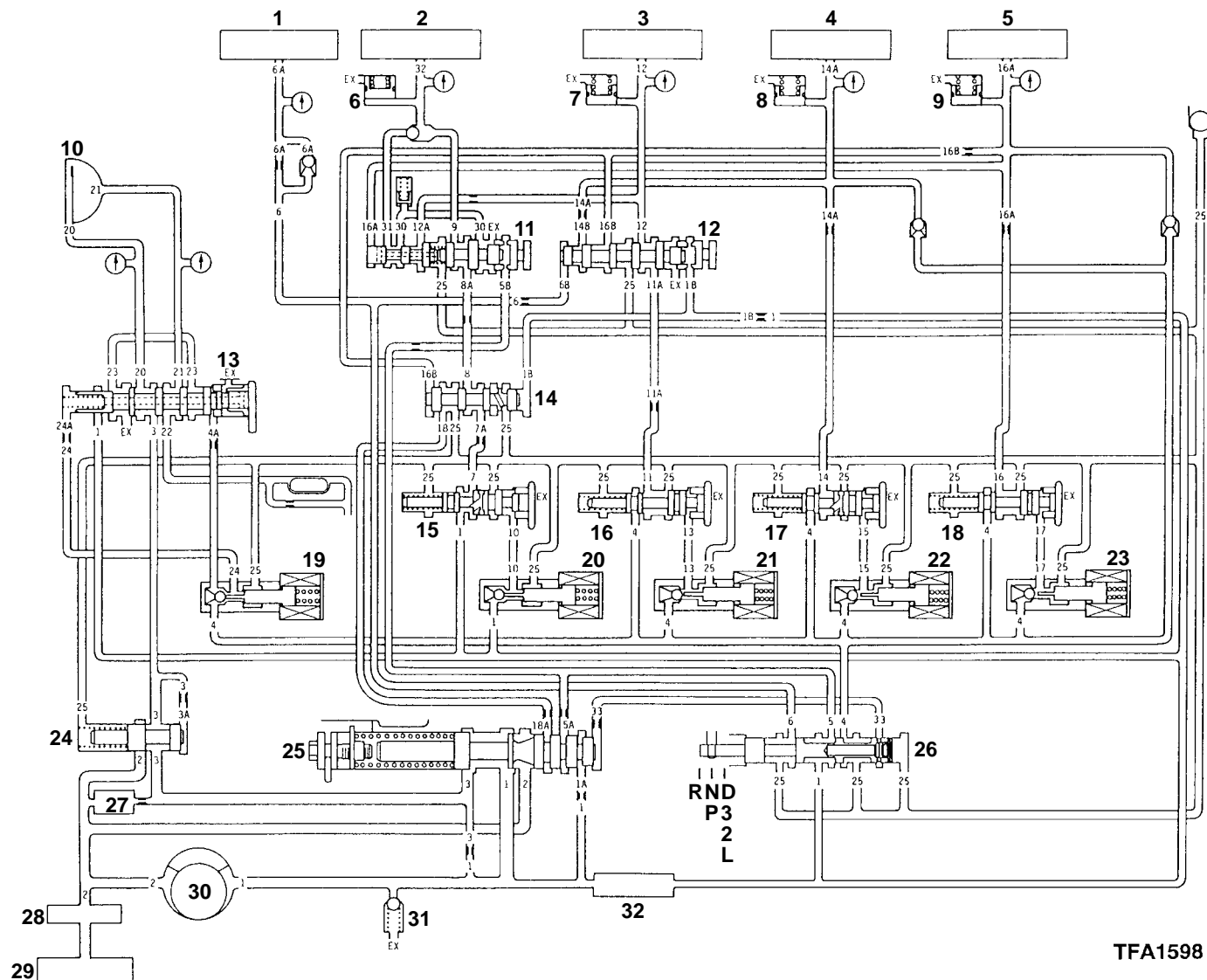
23B



TFA1995

## HYDRAULIC CIRCUIT

Type with external filter



TFA1598

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

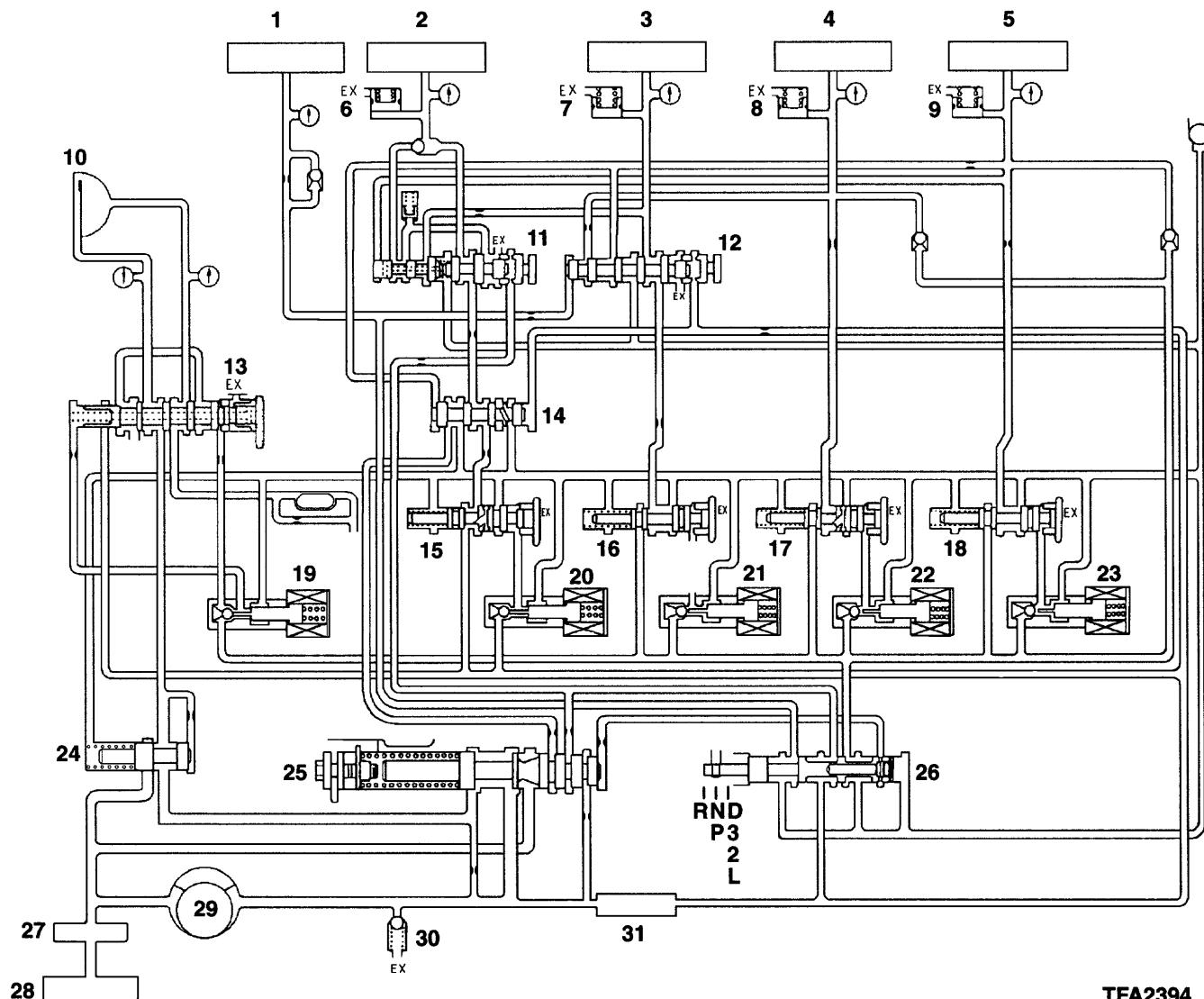
MAIN

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23

23B

## HYDRAULIC CIRCUIT

Type without external filter



TFA2394

- |  |   |
|--|---|
| 1. Reverse clutch                      | 18. Overdrive pressure control valve        |
| 2. Low-reverse brake                   | 19. Damper clutch control solenoid valve    |
| 3. Second brake                        | 20. Low-reverse solenoid valve              |
| 4. Underdrive clutch                   | 21. Second solenoid valve                   |
| 5. Overdrive clutch                    | 22. Underdrive solenoid valve               |
| 6. Low-reverse accumulator             | 23. Overdrive solenoid valve                |
| 7. Second accumulator                  | 24. Torque converter pressure control valve |
| 8. Underdrive accumulator              | 25. Regulator valve                         |
| 9. Overdrive accumulator               | 26. Manual valve                            |
| 10. Damper clutch                      | 27. Oil filter                              |
| 11. Fail-safe valve A                  | 28. Oil pan                                 |
| 12. Fail-safe valve B                  | 29. Oil pump                                |
| 13. Damper clutch control valve        | 30. Relief valve                            |
| 14. Switching valve                    | 31. Oil strainer                            |
| 15. Low-reverse pressure control valve |   |
| 16. Second pressure control valve      |   |
| 17. Underdrive pressure control valve  |   |

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23B

# SPECIFICATIONS

## TRANSMISSION MODEL TABLE

### MODEL 2003

Transmission model		Speedometer gear ratio	Final gear ratio	Vehicle model	Engine model
MMAL	F4A42-2-JZB1	–	4.041	N84W	4G64-S4
MMAL	F4A42-2-JZB	–	4.041	CS6A	4G94

## GENERAL SPECIFICATIONS

Items		F4A41	F4A42-1	F4A42-2	F4A51
Torque converter type		3-element, 1-stage, 2-phase type	3-element, 1-stage, 2-phase type	3-element, 1-stage, 2-phase type	3-element, 1-stage, 2-phase type
Transmission type		4-speed forward, 1-speed reverse	4-speed forward, 1-speed reverse	4-speed forward, 1-speed reverse	4-speed forward, 1-speed reverse
Gear ratio	1st	2.842	2.842	2.842	2.842
	2nd	1.529	1.529	1.529	1.495
	3rd	1.000	1.000	1.000	1.000
	4th	0.712	0.712	0.712	0.731
	Reverse	2.480	2.480	2.480	2.720
Number of underdrive clutch disc		3	4	4	4
Number of overdrive clutch disc		3	4	4	4
Number of reverse clutch disc		2	2	2	2
Number of low-reverse brake disc		4	5	6	6
Number of second brake disc		2	3	3	4

## 23B AUTOMATIC TRANS OVERHAUL BASE – Specifications

### SERVICE SPECIFICATIONS

Items		Standard value
Output shaft preload mm		0.01–0.09
Brake reaction plate end play mm		0–0.16
Low-reverse brake end play mm	F4A41	1.05–1.51
	F4A42–1	1.35–1.81
	F4A51, F4A42–2	1.65–2.11
Second brake end play mm	F4A41	0.49–0.95
	F4A42	0.79–1.25
	F4A51	1.09–1.55
Underdrive sun gear end play mm		0.25–0.45
Input shaft end play mm		0.70–1.45
Differential case end play mm	F4A41	0.045–0.165
Differential case preload mm	F4A42, F4A51	0.045–0.105
Underdrive clutch end play mm	F4A41	1.2 – 1.4
	F4A42, F4A51	1.6–1.8
Reverse and overdrive clutch return spring end play mm		0–0.09
Overdrive clutch end play mm	F4A41	1.2–1.4
	F4A42, F4A51	1.6–1.8
Reverse clutch end play mm		1.5–1.7
Backlash between differential side gear and pinion mm		0.025–0.150

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23B

## VALVE BODY SPRING IDENTIFICATION TABLE

mm

Spring	Wire diameter	Outside diameter	Free length	Number of loops
Regulator valve spring	1.8	15.7	86.7	24
Underdrive pressure control valve spring	0.7	7.6	37.7	25
Overdrive pressure control valve spring	0.7	7.6	37.7	25
Low-reverse pressure control valve spring	0.7	7.6	37.7	25
Second pressure control valve spring	0.7	7.6	37.7	25
Torque converter spring	1.6	11.2	34.4	12.5
Damper clutch control valve spring	0.7	5.9	28.1	19
Fail-safe valve A spring	0.7	8.9	21.9	9.5
Damping valve spring	1.0	7.7	35.8	17
Line relief valve spring	1.0	7.0	17.3	10
Orifice check ball spring	0.5	4.5	17.2	15

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23B

## 23B AUTOMATIC TRANS OVERHAUL BASE – Specifications

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

Part name	Thickness mm	Identification symbol	Part No.
Thrust washer (For adjustment of input shaft end play)	1.8	18	MD754509
	2.0	20	MD754508
	2.2	22	MD754507
	2.4	24	MD753793
	2.6	26	MD753794
	2.8	28	MD753795
Snap ring: F4A41, F4A42 (For adjustment of underdrive clutch and overdrive clutch end plays)	1.6	None	MD759666
	1.7	Blue	MD759667
	1.8	Brown	MD759668
	1.9	None	MD752124
	2.0	Blue	MD752125
	2.1	Brown	MD752126
	2.2	None	MD752127
	2.3	Blue	MD752128
	2.4	Brown	MD752129
	2.5	None	MD752130
	2.6	Blue	MD752131
	2.7	Brown	MD752132
	2.8	None	MD752133
	2.9	Blue	MD752134
	3.0	Brown	MD754680
Snap ring: F4A51 (For adjustment of underdrive clutch and overdrive clutch end plays)	1.6	Brown	MD759960
	1.7	None	MD759961
	1.8	Blue	MD759962
	1.9	Brown	MD759963
	2.0	None	MD750841
	2.1	Blue	MD750842
	2.2	Brown	MD750843
	2.3	None	MD750844
	2.4	Blue	MD750845
	2.5	Brown	MD750846
	2.6	None	MD750847
	2.7	Blue	MD750848
	2.8	Brown	MD750849
	2.9	None	MD750850
	3.0	Blue	MD750851
Snap ring: F4A41, F4A42 (For adjustment of low-reverse brake and second brake reaction plates end plays)	2.2	Blue	MD754786
	2.3	Brown	MD754787
	2.4	None	MD758240
	2.5	Blue	MD758241

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**23B**

## 23B AUTOMATIC TRANS OVERHAUL BASE – Specifications

Part name	Thickness mm	Identification symbol	Part No.
Snap ring: F4A51 (For adjustment of low-reverse brake and second brake reaction plates end plays)	2.2	None	MD756784
	2.3	Blue	MD756785
	2.4	Brown	MD758552
	2.5	None	MD758553
Pressure plate: F4A41, F4A42 (For adjustment of low-reverse brake and second brake end play)	1.6	L	MD759567
	1.8	1	MD759414
	2.0	0	MD759415
	2.2	2	MD759416
	2.4	4	MD759417
	2.6	6	MD759418
	2.8	8	MD759419
	3.0	D	MD759420
Pressure plate: F4A51 (For adjustment of low-reverse brake and second brake end play)	1.6	F	MD759568
	1.8	E	MD759425
	2.0	D	MD759426
	2.2	C	MD759427
	2.4	B	MD759428
	2.6	A	MD759429
	2.8	0	MD759430
	3.0	1	MD759431
Snap ring: F4A41, F4A42 (For adjustment of reverse clutch end play)	1.6	None	MD761085
	1.7	Blue	MD761086
	1.8	Brown	MD761087
	1.9	None	MD752137
	2.0	Blue	MD752138
	2.1	Brown	MD752139
	2.2	None	MD752140
	2.3	Blue	MD752141
	2.4	Brown	MD752142
	2.5	None	MD752143
	2.6	Blue	MD752144
	2.7	Brown	MD752145
	2.8	None	MD752146

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## 23B AUTOMATIC TRANS OVERHAUL BASE – Specifications

Part name	Thickness mm	Identification symbol	Part No.
Snap ring: F4A51 (For adjustment of reverse clutch end play)	1.6	None	MD761008
	1.7	Blue	MD761089
	1.8	Brown	MD761090
	1.9	None	MD758947
	2.0	Blue	MD756690
	2.1	Brown	MD756691
	2.2	None	MD756692
	2.3	Blue	MD756693
	2.4	Brown	MD756694
	2.5	None	MD756695
	2.6	Blue	MD756696
	2.7	Brown	MD756697
	2.8	None	MD756698
Snap ring (For adjustment of reverse clutch and overdrive clutch spring retainers end plays)	1.48	Brown	MD755600
	1.53	None	MD755601
	1.58	Blue	MD755602
	1.63	Brown	MD755603
Thrust race (For adjustment of underdrive sun gear end play)	1.6	—	MD707267
	1.7	—	MD759681
	1.8	—	MD723064
	1.9	—	MD754794
	2.0	—	MD707268
	2.1	—	MD754795
	2.2	—	MD723065
	2.3	—	MD754796
	2.4	—	MD724358
	2.5	—	MD754797
	2.6	—	MD754798

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## 23B AUTOMATIC TRANS OVERHAUL BASE – Specifications

Part name	Thickness mm	Identification symbol	Part No.
Spacer (For adjustment of output shaft preload)	1.88	88	MD756579
	1.92	92	MD756580
	1.96	96	MD756581
	2.00	00	MD756582
	2.04	04	MD756583
	2.08	08	MD756584
	2.12	12	MD756585
	2.16	16	MD756586
	2.20	20	MD756587
	2.24	24	MD756588
	2.28	28	MD756589
	2.32	32	MD756590
	2.36	36	MD756591
	2.40	40	MD756592
	2.44	44	MD756593
	2.48	48	MD756594
	2.52	52	MD756595
	2.56	56	MD756596
	2.60	60	MD756597
	2.64	64	MD756598
	2.68	68	MD756599
	2.72	72	MD760685
	2.76	76	MD760686
Spacer: F4A41 (For adjustment of differential case end play)	1.28	N	MD710458
	1.37	P	MD710460
	1.46	R	MD710462
	1.55	T	MD710464
	1.64	V	MD710466
	1.73	X	MD710468
	1.82	Z	MD710470

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## 23B AUTOMATIC TRANS OVERHAUL BASE – Specifications

Part name	Thickness mm	Identification symbol	Part No.
Spacer: F4A42, F4A51 (For adjustment of differential case preload)	0.71	71	MD754475
	0.74	74	MD727660
	0.77	77	MD754476
	0.80	80	MD727661
	0.83	83	MD720937
	0.86	86	MD720938
	0.89	89	MD720939
	0.92	92	MD720940
	0.95	95	MD720941
	0.98	98	MD720942
	1.01	01	MD720943
	1.04	04	MD720944
	1.07	07	MD720945
	1.10	J	MD710454
	1.13	D	MD700270
	1.16	K	MD710455
	1.19	L	MD710456
	1.22	G	MD700271
	1.25	M	MD710457
	1.28	N	MD710458
	1.31	E	MD706574
	1.34	O	MD710459
	1.37	P	MD710460
Spacer (For adjustment of backlash between differential side gear and pinion)	0.75 – 0.82	–	MD722986
	0.83 – 0.92	–	MD722985
	0.93 – 1.00	–	MD722984
	1.01 – 1.08	–	MD722982
	1.09 – 1.16	–	MD722983

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23B

## 23B AUTOMATIC TRANS OVERHAUL BASE – Specifications

### TORQUE SPECIFICATIONS

Items		Nm
Transmission	Roll stopper bracket	70
	Wiring harness bracket	23
	Control cable bracket	23
	Eye bolt	31
	Oil cooler feed tube (to transmission case)	10
	Oil cooler feed tube (to roll stopper bracket)	11
	Oil filter <Externally mounted>	12
	Input shaft speed sensor	11
	Output shaft speed sensor	11
	Manual control lever	22
	Inhibitor switch	11
	Speedometer gear <If equipped>	5
	Sealing cap <Type without speedometer gear>	5
	Valve body cover	11
	Valve body mounting bolt	11
	Fluid temperature sensor	11
	Manual control shaft detent	6
	Rear cover	23
	Torque converter housing	48
	Oil pump	29
	Transfer drive gear bearing <F4A41 up to Dec 1997, F4A42 up to Dec 1997>	19
	Transfer drive gear <F4A41 from Jan 1998, F4A42-1 from Jan 1998, F4A42-2 with one-way clutch, F4A51>	34
	Output shaft lock nut	170
	Output shaft bearing retainer <F4A41 up to March 2000, F4A42 up to March 2000>	23
	Output shaft bearing retainer <F4A41 from April 2000, F4A42 from April 2000>	29
	Output shaft bearing retainer <F4A51>	54
Components	Transfer drive gear lock nut <F4A41 up to Dec 1997, F4A42 up to Dec 1997>	195
	Differential drive gear	135
	Valve body	11
	Solenoid valve support	6
	Plate	6

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### SEALANTS

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

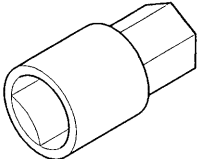
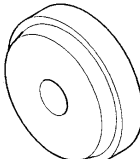

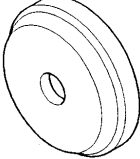
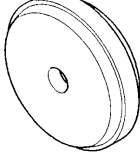
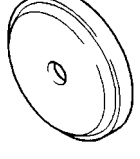
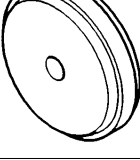
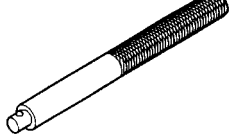
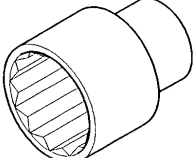
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## SPECIAL TOOLS

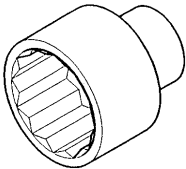
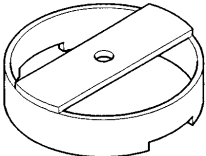
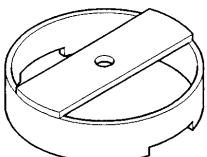
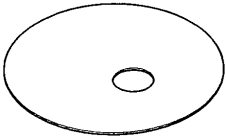
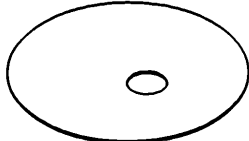
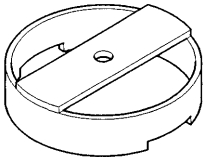
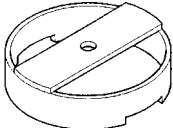
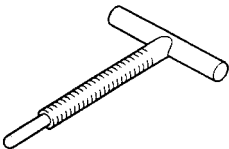
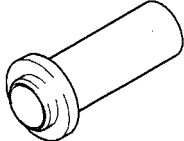
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23B

Tool	Number	Name	Use
	MB990607	Torque wrench socket	Removal and installation of output shaft lock nut
	MB990928	Installer adapter	Removal of transfer drive gear bearing <F4A41, F4A42>
	MB990930	Installer adapter	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	Installation of differential taper roller bearing outer race <F4A51> Installation of output shaft taper roller bearing <F4A41, F4A42>
	MB990937	Installer adapter	Installation of output shaft taper roller bearing <F4A51>
	MB990938	Handle	<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

## 23B AUTOMATIC TRANS OVERHAUL BASE – Special Tools

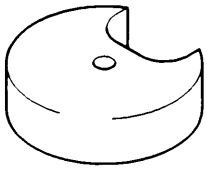
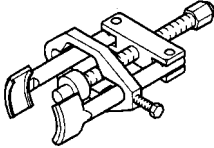
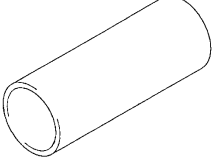
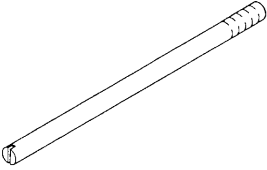
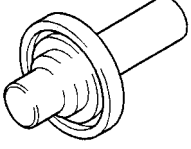
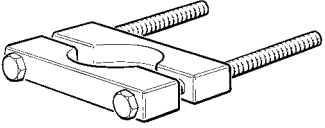
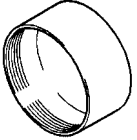
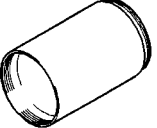
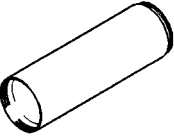
Tool	Number	Name	Use
	MB991626	Socket (60)	Removal and installation of transfer drive gear lock nut <F4A41, F4A42>
	MB991628	Spring compressor	<ul style="list-style-type: none"> <li>Removal and installation of low-reverse brake snap ring &lt;F4A41, F4A42&gt;</li> <li>Measurement of underdrive clutch and overdrive clutch end plays &lt;F4A41, F4A42&gt;</li> </ul>
	MB991629	Spring compressor	Measurement of underdrive clutch and overdrive clutch end plays <F4A51>
	MB991631	Clearance dummy plate	Measurement of low-reverse brake and second brake end plays <F4A41, F4A42>
	MB991632	Clearance dummy plate	Measurement of low-reverse brake and second brake end plays <F4A51>
	MD991789	Spring compressor	Measurement of reverse clutch end play <F4A51>
	MD991790	Spring compressor	Measurement of reverse clutch end play <F4A41, F4A42>
	MD998333	Oil pump remover	Removal of oil pump
	MD998334	Oil seal installer	Installation of oil pump oil seal

MAIN

Group  
23

23B

## 23B AUTOMATIC TRANS OVERHAUL BASE – Special Tools


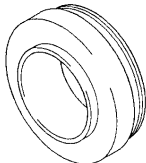
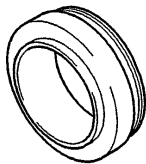
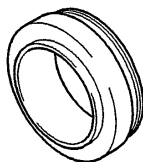
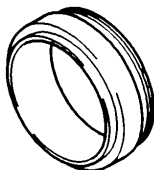

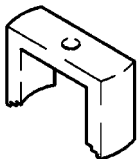

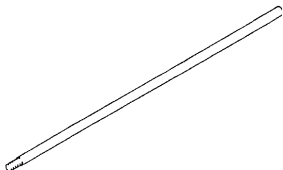
Tool	Number	Name	Use
	MD998338	Spring compressor	Removal and installation of low-reverse brake snap ring <F4A51>
	MD998348	Bearing and gear puller	Removal of transfer drive gear bearing
	MD998350	Bearing installer	Installation of output shaft, collar, bearing
	MD998412	Guide	Installation of oil pump and transfer drive gear
	MD998800	Oil seal installer	Installation of drive shaft oil seal
	MD998801	Bearing remover	Removal of each bearing
	MD998812	Installer cap	Use with installer and installer adapter.
	MD998813	Installer – 100	Use with installer cap and installer adapter.
	MD998814	Installer – 200	Use with installer cap and installer adapter.

MAIN

Group  
23

23B

## 23B AUTOMATIC TRANS OVERHAUL BASE – Special Tools

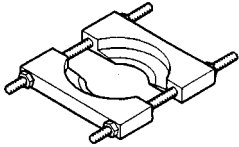
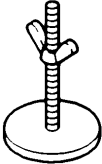
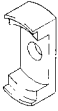
Tool	Number	Name	Use
	MD998819	Installer adapter (40)	Installation of differential ball bearing <F4A41>
	MD998820	Installer adapter (42)	Installation of differential taper roller bearing <F4A42>
	MD998823	Installer adapter (48)	Installation of output shaft taper roller bearing <F4A41, F4A42>, transfer drive gear <F4A41, F4A42>
	MD998824	Installer adapter (50)	Installation of transfer drive gear <F4A51>, differential taper roller bearing <F4A51>
	MD998827	Installer adapter (56)	Installation of output shaft taper roller bearing <F4A51>
	MD998829	Installer adapter (60)	Installation of transfer drive gear bearing <F4A41, F4A42>
	MD998903	Spring compressor	Removal and installation of one-way clutch inner race snap ring <F4A42>
	MD998907	Spring compressor	Removal and installation of underdrive clutch snap ring
	MD998913	Dial gauge extension	Measurement of low-reverse brake and second brake end plays

MAIN

Group  
23

23B

## 23B AUTOMATIC TRANS OVERHAUL BASE – Special Tools

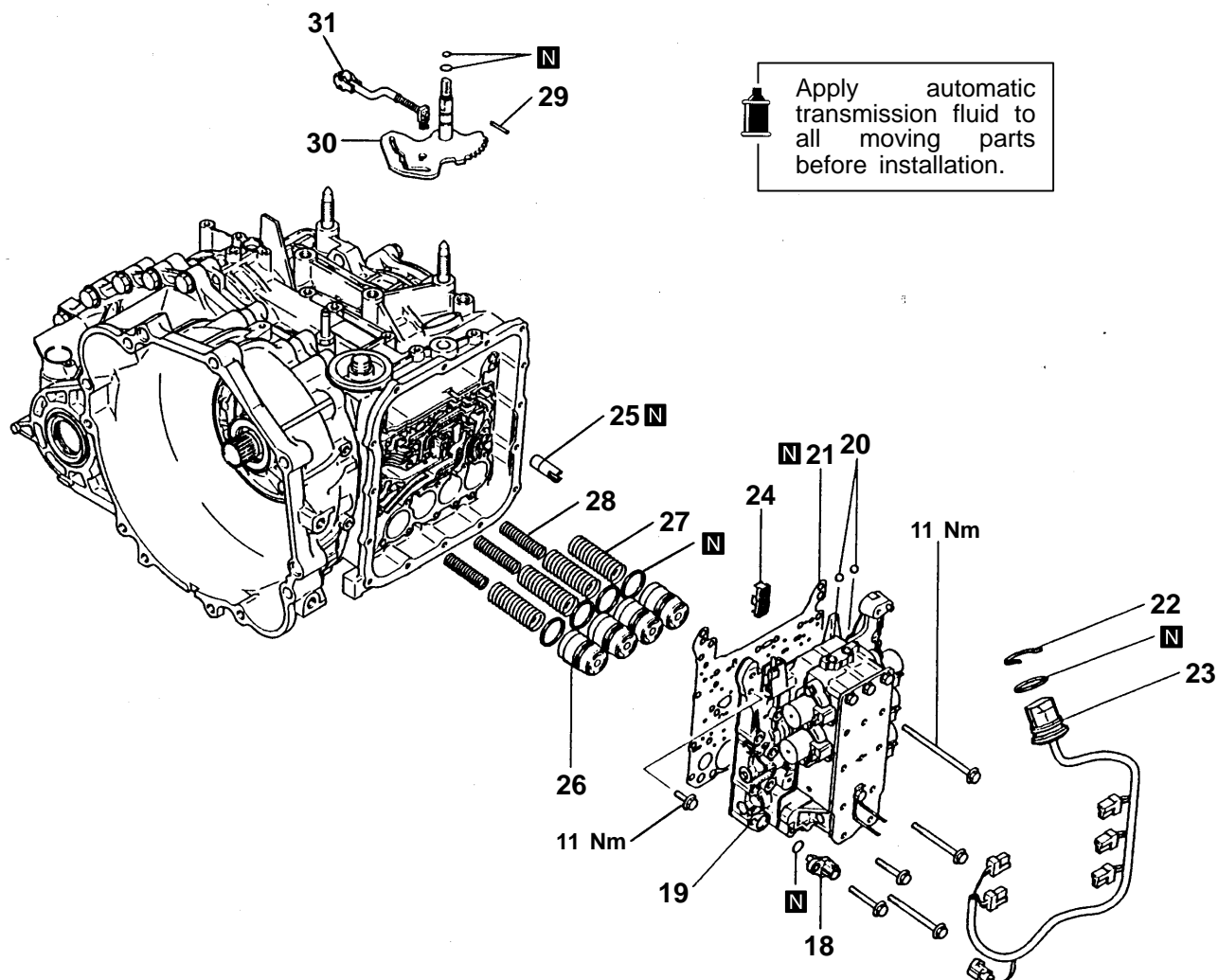
Tool	Number	Name	Use
	MD998917	Bearing remover	Removal of output shaft taper roller bearing
	MD998924	Spring compressor retainer	<ul style="list-style-type: none"> <li>• Removal and installation of low-reverse brake snap ring</li> <li>• Measurement of underdrive clutch and overdrive clutch end plays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

MAIN

Group  
23

23B



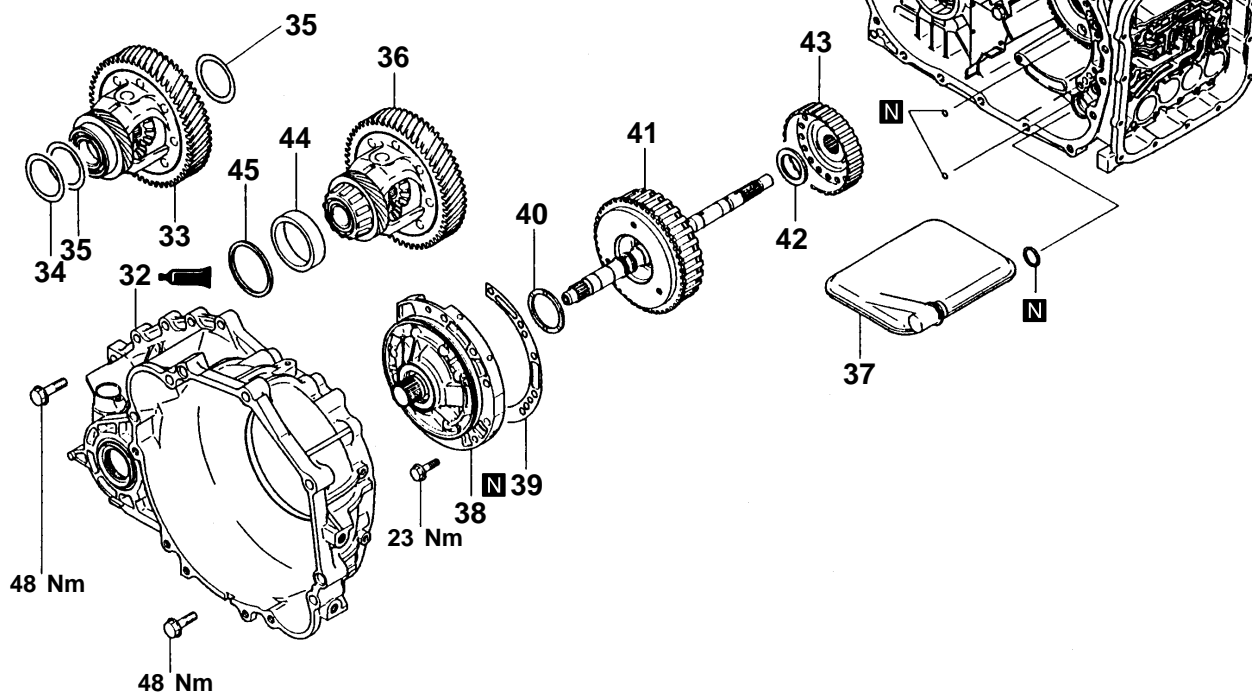


TFA1587

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

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

Apply automatic transmission fluid to all moving parts before installation.



TFA1550

- 32. Torque converter housing
- 33. Differential <F4A41>
- 34. Spacer <F4A41>
- 35. Spacer <F4A41-1-MRA only>
- 36. Differential <F4A42>
- 37. Oil filter
- 38. Oil pump

- 39. Gasket
- 40. Thrust washer #1
- 41. Underdrive clutch and input shaft
- 42. Thrust bearing #2
- 43. Underdrive clutch hub
- 44. Outer race <F4A42>
- 45. Spacer <F4A42>

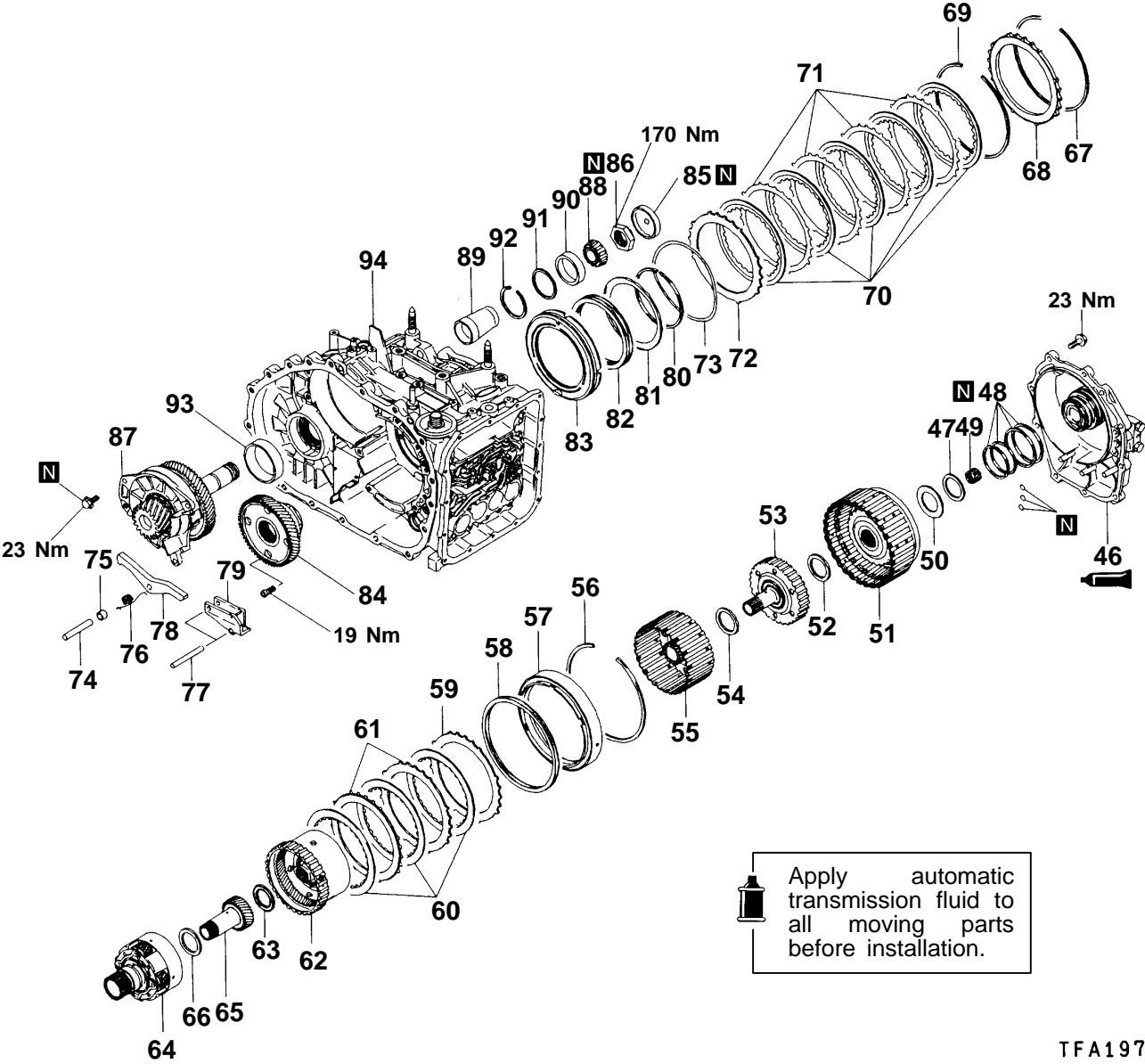
No. of Brake Discs and Plates

Brake	Model	Brake Disc	Brake Plate
Low-reverse brake	F4A41	4	3
	F4A42-1	5	4
	F4A42-2	6	5
Second brake	F4A41	2	1
	F4A42-1	3	2
	F4A42-2		

MAIN

Group 23

23B



## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

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- |                                  |                                  |
|----------------------------------|----------------------------------|
| 46. Rear cover                   | 71. Low-reverse brake plate      |
| 47. Thrust race #8               | 72. Pressure plate               |
| 48. Seal ring                    | 73. Wave spring                  |
| 49. Input shaft rear bearing     | 74. Parking pawl shaft           |
| 50. Thrust bearing #7            | 75. Spacer                       |
| 51. Reverse and overdrive clutch | 76. Parking pawl spring          |
| 52. Thrust bearing #6            | 77. Parking roller support shaft |
| 53. Overdrive clutch hub         | 78. Parking pawl                 |
| 54. Thrust bearing #5            | 79. Parking roller support       |
| 55. Planetary reverse sun gear   | 80. Snap ring                    |
| 56. Snap ring                    | 81. Spring retainer              |
| 57. Second brake piston          | 82. Return spring                |
| 58. Return spring                | 83. Low-reverse brake piston     |
| 59. Pressure plate               | 84. Transfer drive gear          |
| 60. Second brake disc            | 85. Cap                          |
| 61. Second brake plate           | 86. Lock nut                     |
| 62. Overdrive planetary carrier  | 87. Output shaft                 |
| 63. Thrust bearing #4            | 88. Taper roller bearing         |
| 64. Output planetary carrier     | 89. Collar                       |
| 65. Underdrive sun gear          | 90. Outer race                   |
| 66. Thrust bearing #3            | 91. Spacer                       |
| 67. Snap ring                    | 92. Snap ring                    |
| 68. Reaction plate               | 93. Outer race                   |
| 69. Snap ring                    | 94. Transmission case            |
| 70. Low-reverse brake disc       |                                  |

MAIN

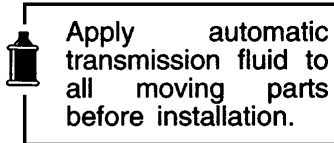
Group  
23

23B

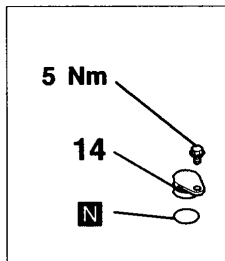
## TRANSMISSION

## DISASSEMBLY AND REASSEMBLY

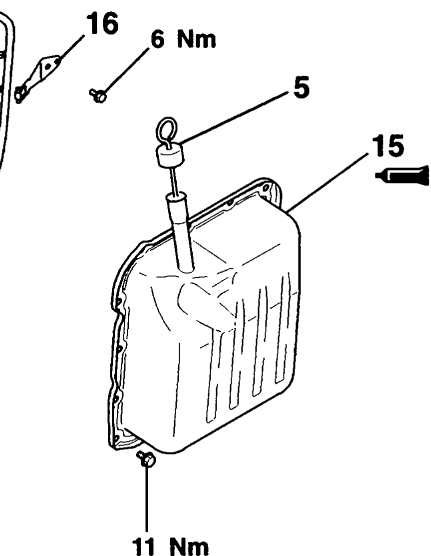
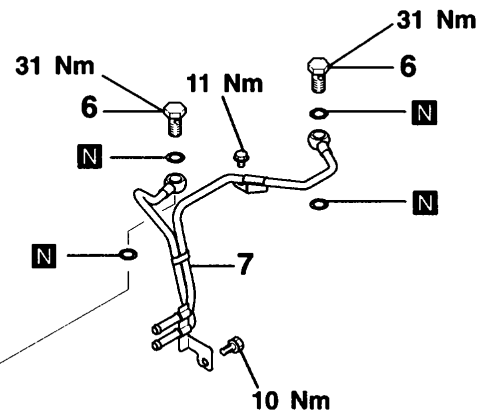
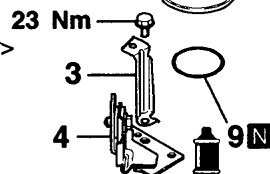
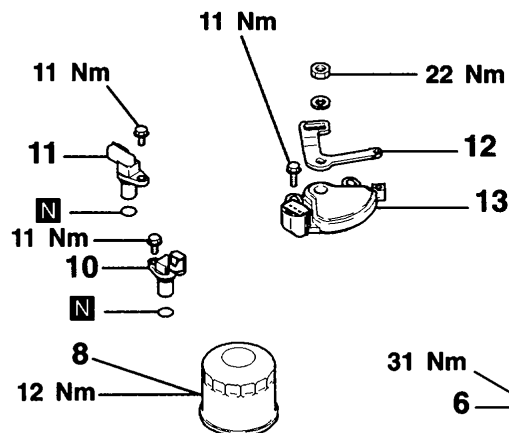
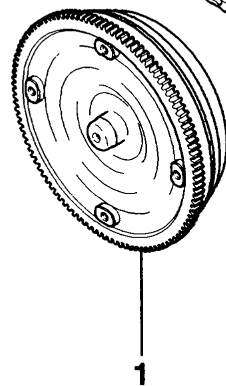
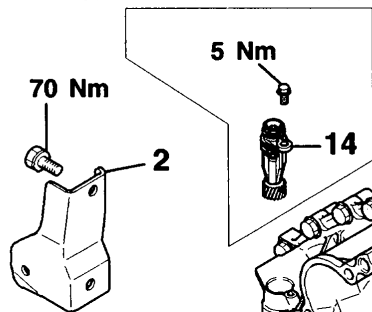
&lt;F4A41 from Jan 1998 and F4A42-1 from Jan 1998&gt;



&lt;Type without speedometer gear&gt;



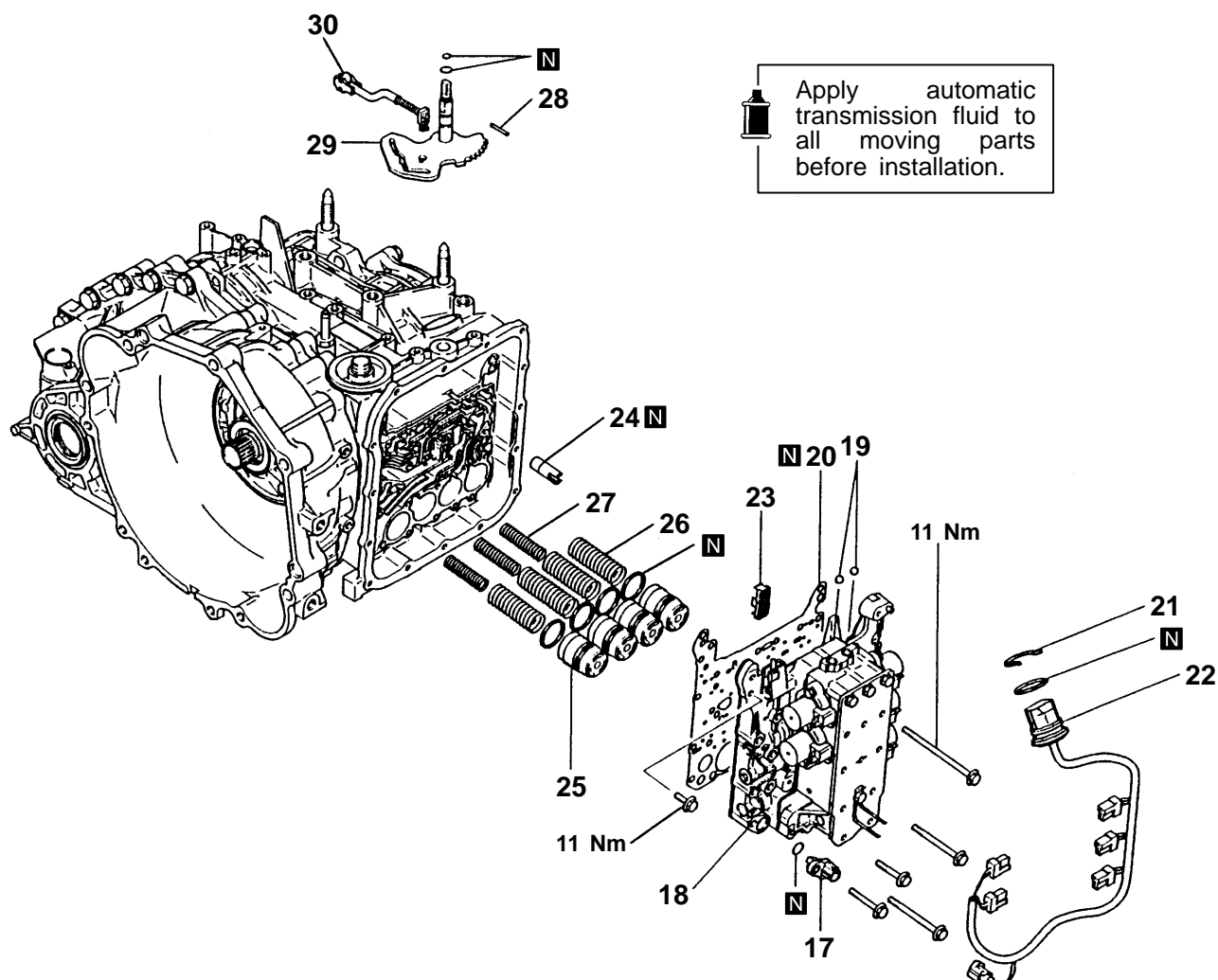
&lt;Type with speedometer gear&gt;



1. Torque converter
2. Roll stopper bracket
3. Harness bracket
4. Control cable support bracket
5. Oil level gauge
6. Eye bolt
7. Oil cooler feed tube
8. Oil filter<Externally mounted type>
9. Oil filter gasket <Externally mounted type>

10. Input shaft speed sensor
11. Output shaft speed sensor
12. Manual control lever
13. Inhibitor switch
14. Speedometer gear <If equipped>  
Sealing cap <Type without speedometer gear>
15. Valve body cover
16. Manual control shaft detent

TFA 2397

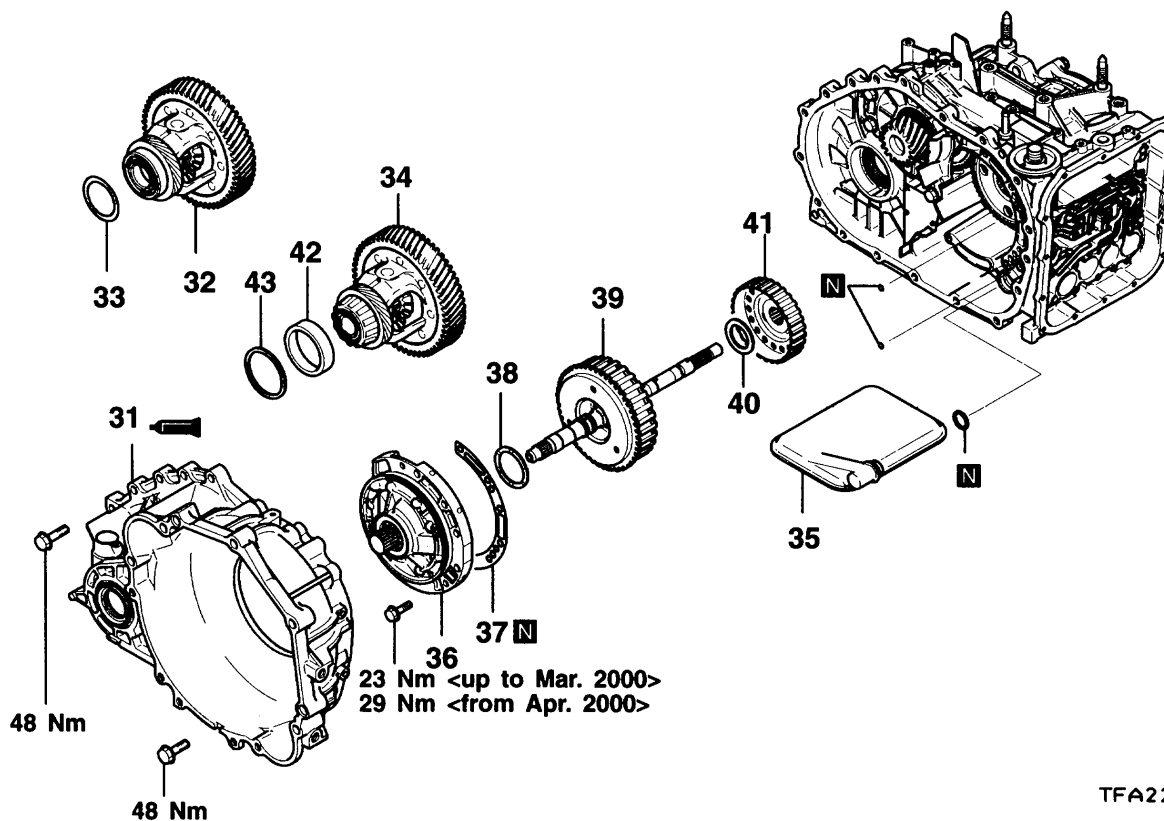


**TFA1587**

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

\*: Not applicable to type with solenoid valve harness incorporating fluid temperature sensor.

Apply automatic transmission fluid to all moving parts before installation.



- 31. Torque converter housing
- 32. Differential <F4A41>
- 33. Spacer <F4A41>
- 34. Differential <F4A42-1>
- 35. Oil filter
- 36. Oil pump
- 37. Gasket

- 38. Thrust washer #1
- 39. Underdrive clutch and input shaft
- 40. Thrust bearing #2
- 41. Underdrive clutch hub
- 42. Outer race <F4A42-1>
- 43. Spacer <F4A42-1>

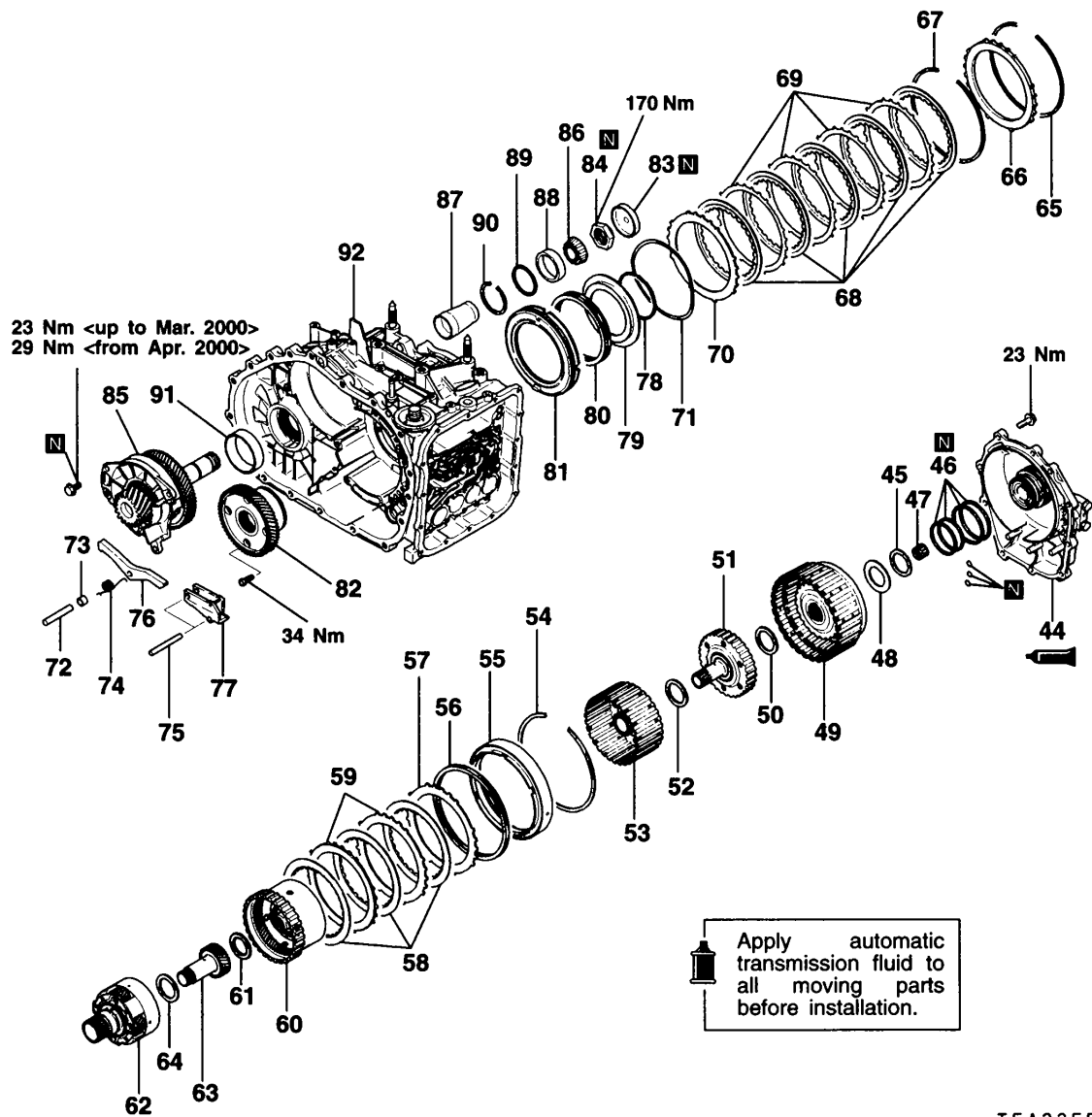
No. of Brake Discs and Plates

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

MAIN

Group  
23

23B



TFA2257

## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

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- |                                  |                                  |
|----------------------------------|----------------------------------|
| 44. Rear cover                   | 69. Low-reverse brake plate      |
| 45. Thrust race #8               | 70. Pressure plate               |
| 46. Seal ring                    | 71. Wave spring                  |
| 47. Input shaft rear bearing     | 72. Parking pawl shaft           |
| 48. Thrust bearing #7            | 73. Spacer                       |
| 49. Reverse and overdrive clutch | 74. Parking pawl spring          |
| 50. Thrust bearing #6            | 75. Parking roller support shaft |
| 51. Overdrive clutch hub         | 76. Parking pawl                 |
| 52. Thrust bearing #5            | 77. Parking roller support       |
| 53. Planetary reverse sun gear   | 78. Snap ring                    |
| 54. Snap ring                    | 79. Spring retainer              |
| 55. Second brake piston          | 80. Return spring                |
| 56. Return spring                | 81. Low-reverse brake piston     |
| 57. Pressure plate               | 82. Transfer drive gear          |
| 58. Second brake disc            | 83. Cap                          |
| 59. Second brake plate           | 84. Lock nut                     |
| 60. Overdrive planetary carrier  | 85. Output shaft                 |
| 61. Thrust bearing #4            | 86. Taper roller bearing         |
| 62. Output planetary carrier     | 87. Collar                       |
| 63. Underdrive sun gear          | 88. Outer race                   |
| 64. Thrust bearing #3            | 89. Spacer                       |
| 65. Snap ring                    | 90. Snap ring                    |
| 66. Reaction plate               | 91. Outer race                   |
| 67. Snap ring                    | 92. Transmission case            |
| 68. Low-reverse brake disc       |                                  |

MAIN

Group  
23

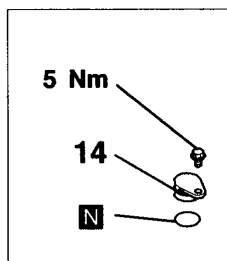
23B

## TRANSMISSION

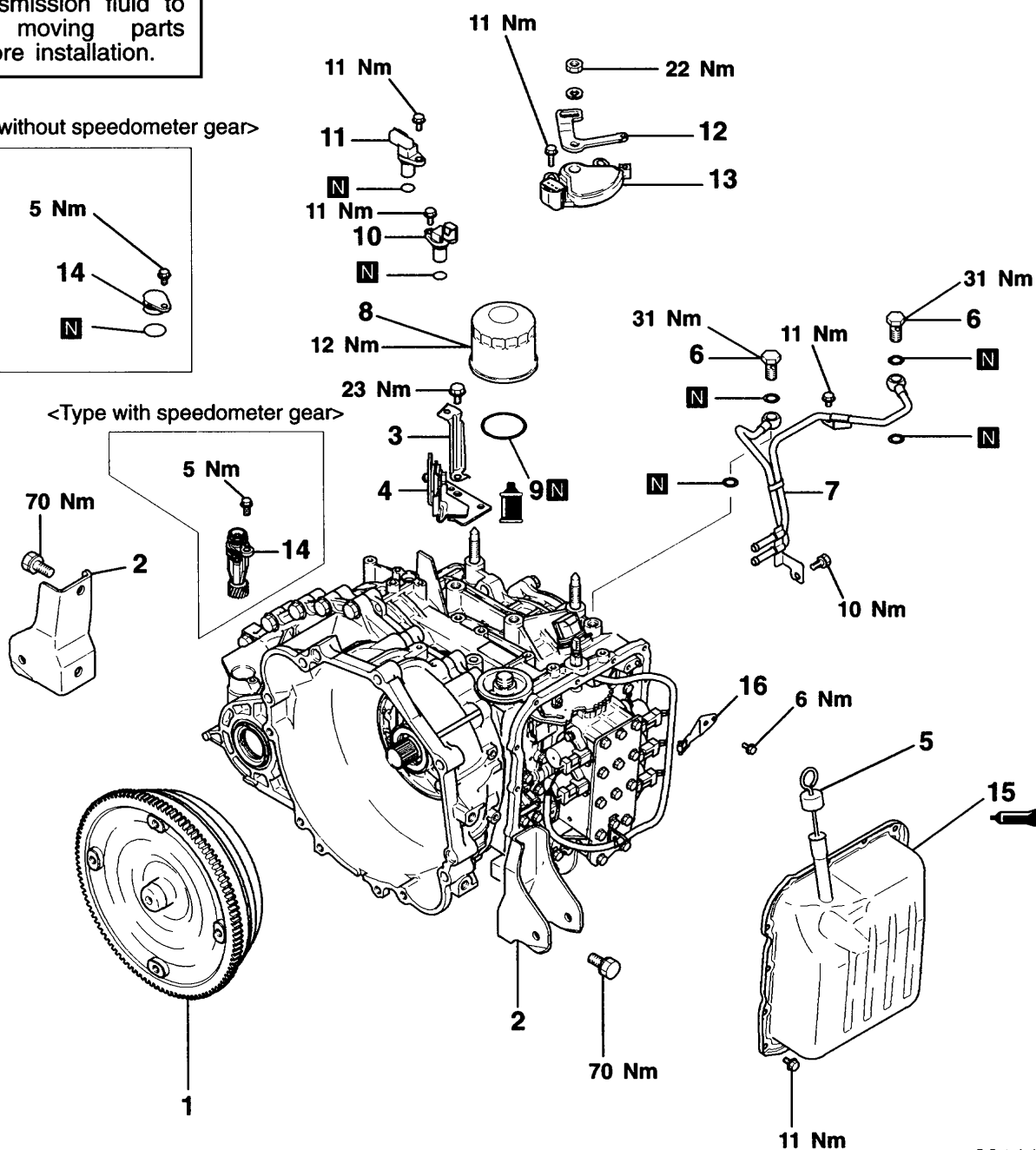
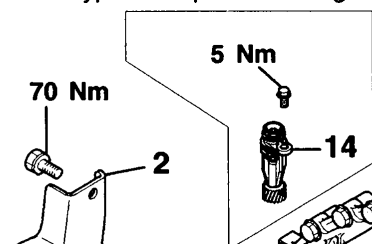
## DISASSEMBLY AND REASSEMBLY &lt;F4A42-2 with one-way clutch&gt;

Apply automatic transmission fluid to all moving parts before installation.

<Type without speedometer gear>



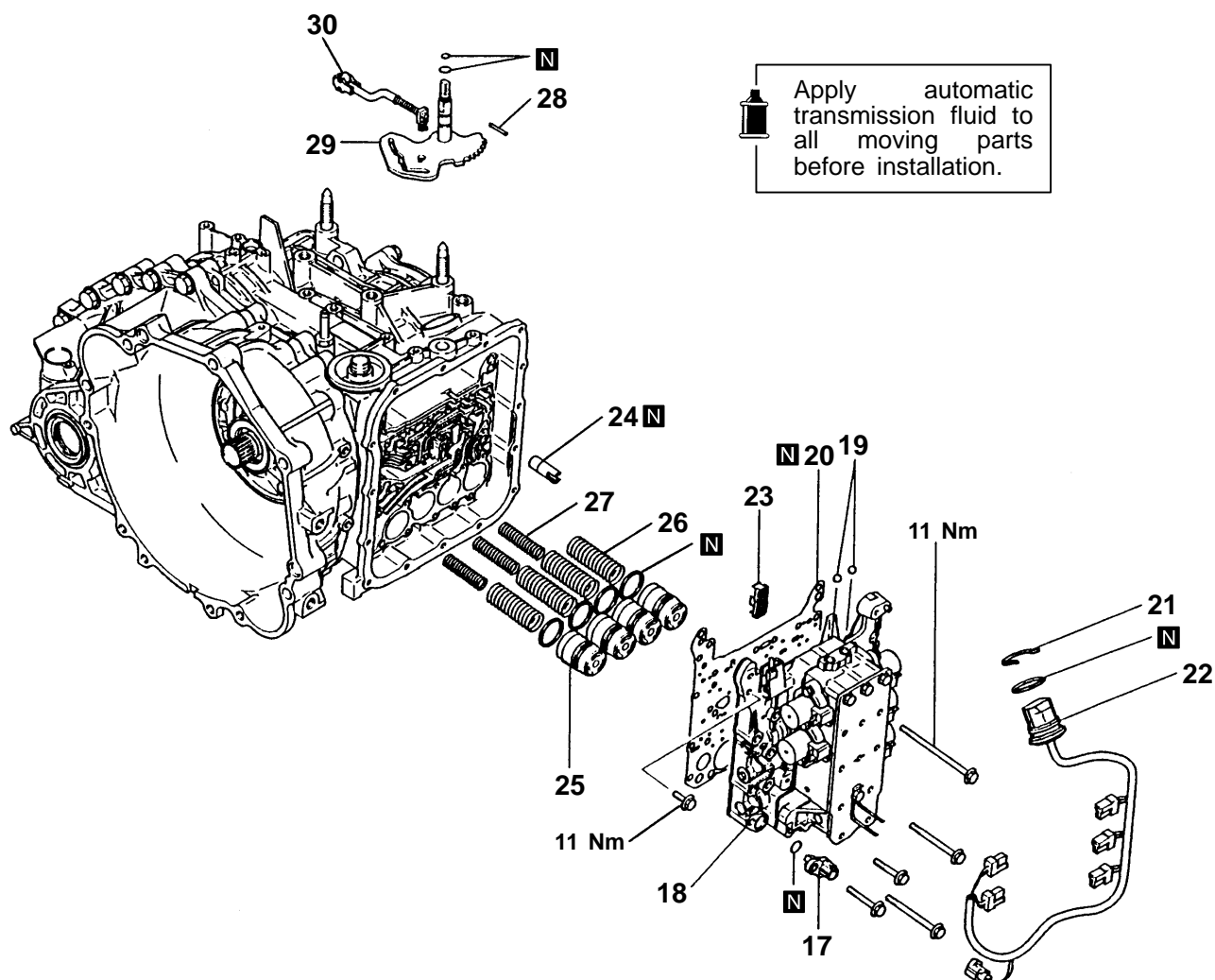
<Type with speedometer gear>



1. Torque converter
2. Roll stopper bracket
3. Harness bracket
4. Control cable support bracket
5. Oil level gauge
6. Eye bolt
7. Oil cooler feed tube
8. Oil filter<Externally mounted type>
9. Oil filter gasket <Externally mounted type>

10. Input shaft speed sensor
11. Output shaft speed sensor
12. Manual control lever
13. Inhibitor switch
14. Speedometer gear <If equipped>  
Sealing cap <Type without speedometer gear>
15. Valve body cover
16. Manual control shaft detent

TFA 2397



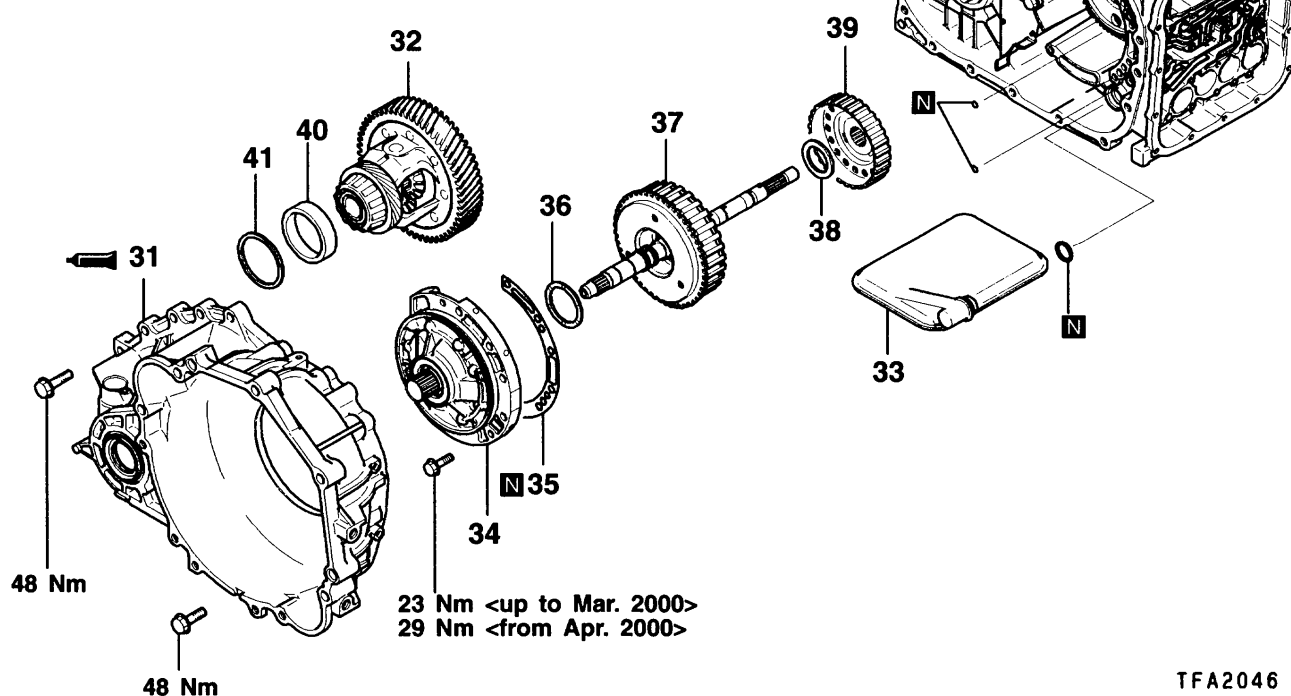
**TFA1587**

- 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

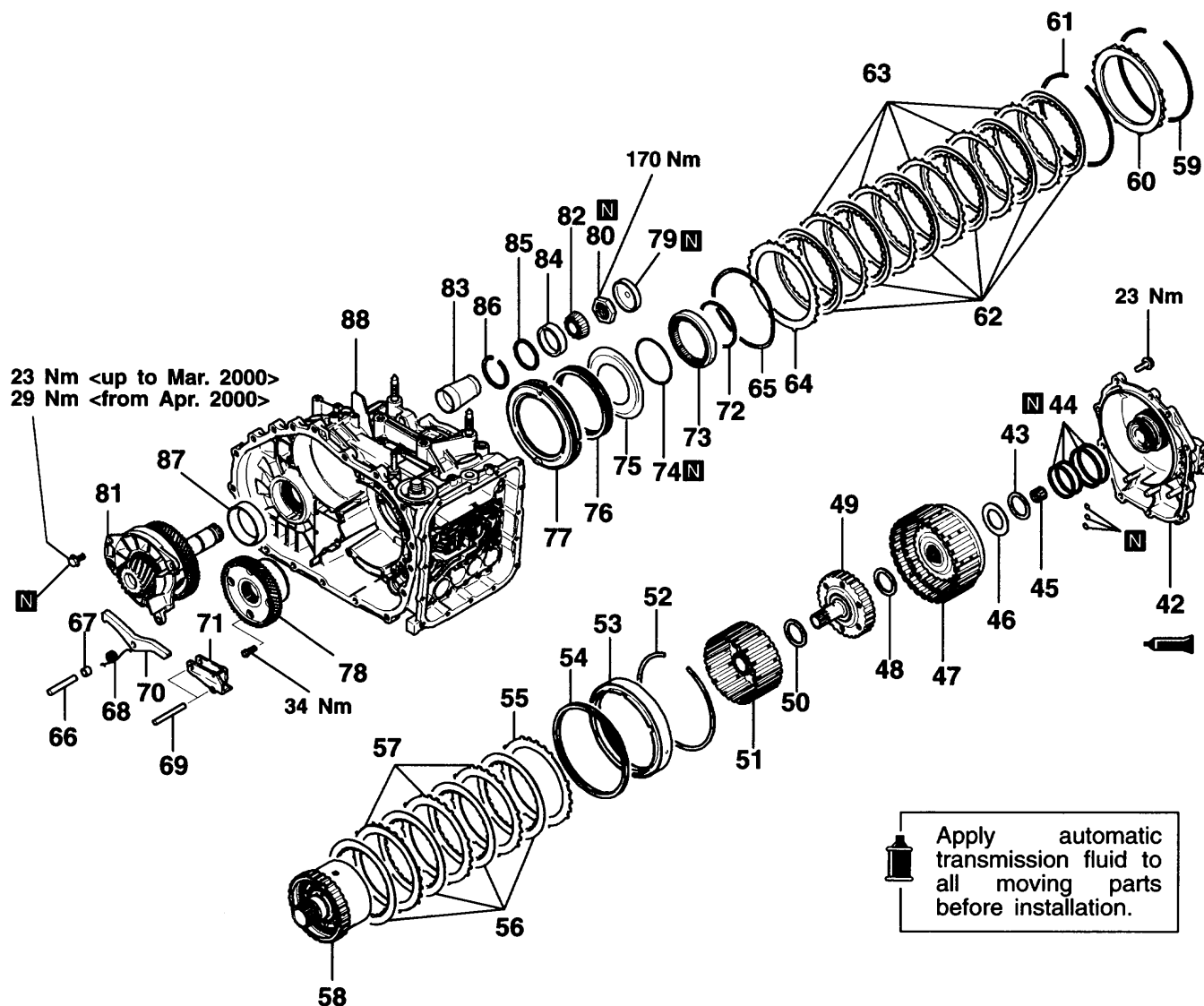
\*: Not applicable to type with solenoid valve harness incorporating fluid temperature sensor.

Apply automatic transmission fluid to all moving parts before installation.



- 31. Torque converter housing
- 32. Differential
- 33. Oil filter
- 34. Oil pump
- 35. Gasket
- 36. Thrust washer #1

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



TFA2048

42. Rear cover
43. Thrust race #8
44. Seal ring
45. Input shaft rear bearing
46. Thrust bearing #7
47. Reverse and overdrive clutch
48. Thrust bearing #6
49. Overdrive clutch hub
50. Thrust bearing #5
51. Planetary reverse sun gear
52. Snap ring
53. Second brake piston
54. Return spring
55. Pressure plate
56. Second brake disc
57. Second brake plate
58. Planetary carrier assembly
59. Snap ring
60. Reaction plate
61. Snap ring
62. Low-reverse brake disc
63. Low-reverse brake plate
64. Pressure plate
65. Wave spring

66. Parking pawl shaft
67. Spacer
68. Parking pawl spring
69. Parking roller support shaft
70. Parking pawl
71. Parking roller support
72. Snap ring
73. One-way clutch inner race
74. O-ring
75. Spring retainer
76. Return spring
77. Low-reverse brake piston
78. Transfer drive gear
79. Cap
80. Lock nut
81. Output shaft
82. Taper roller bearing
83. Collar
84. Outer race
85. Spacer
86. Snap ring
87. Outer race
88. Transmission case

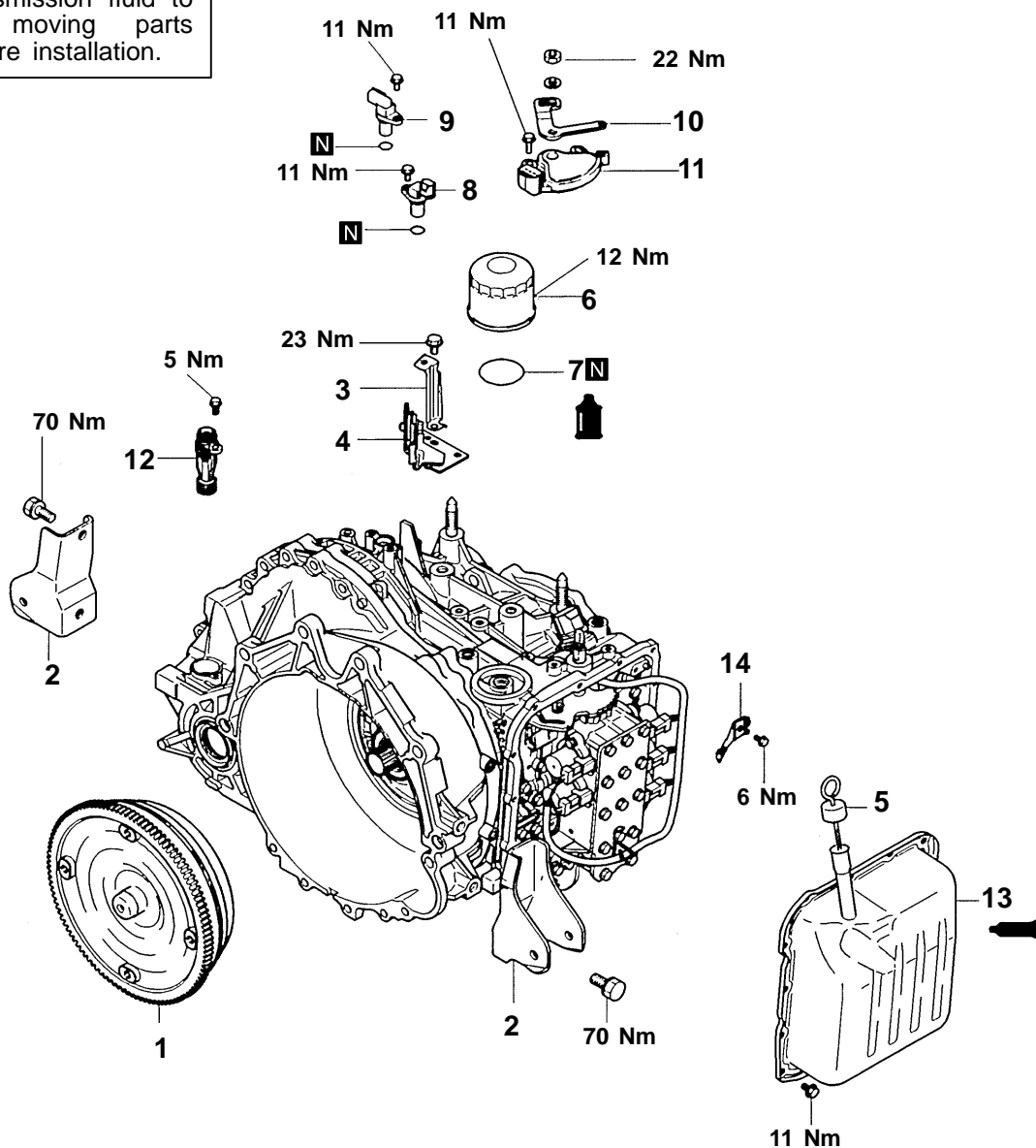
## DISASSEMBLY AND REASSEMBLY &lt;F4A51&gt;

MAIN

Group  
23

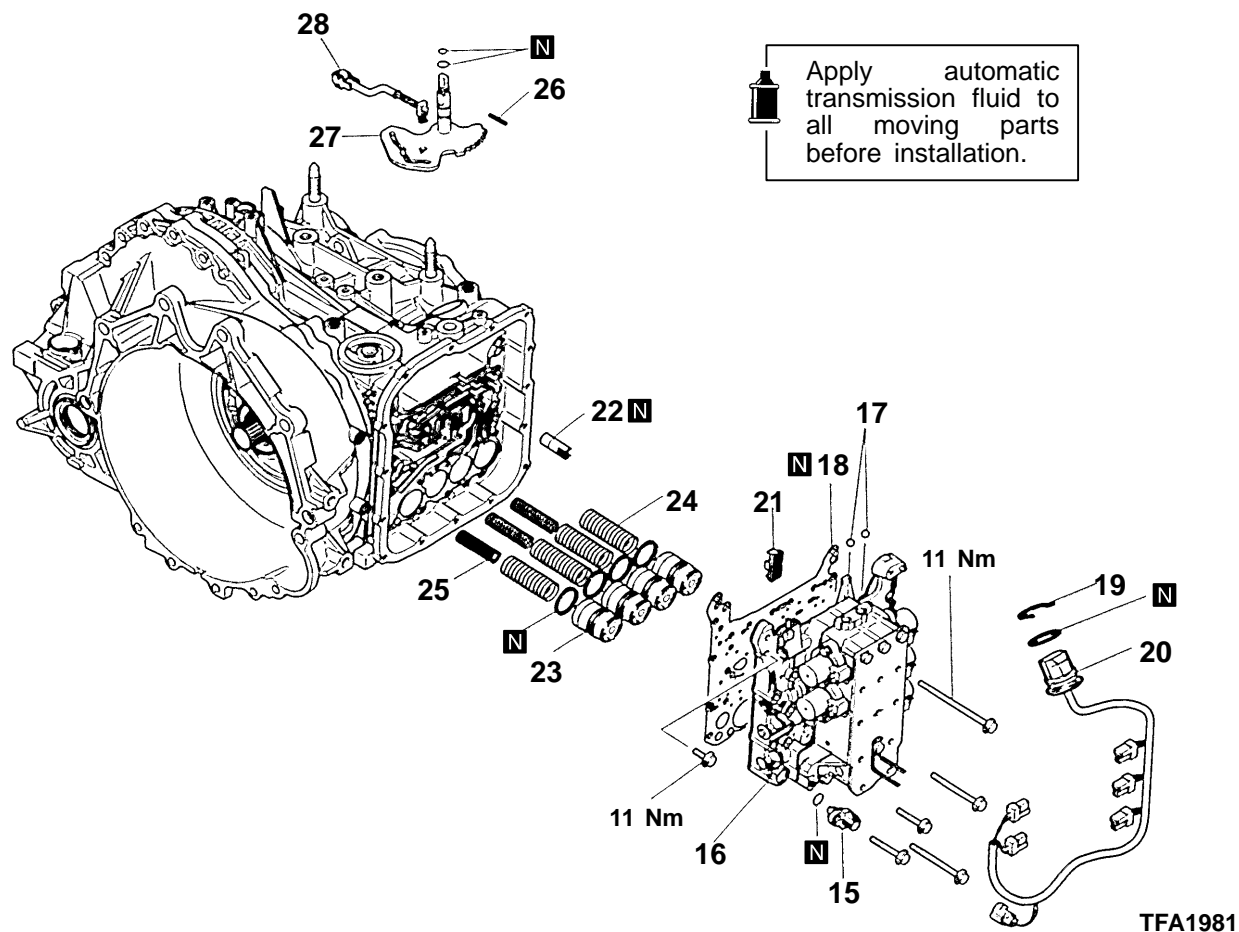
23B

Apply automatic transmission fluid to all moving parts before installation.



TFA1980

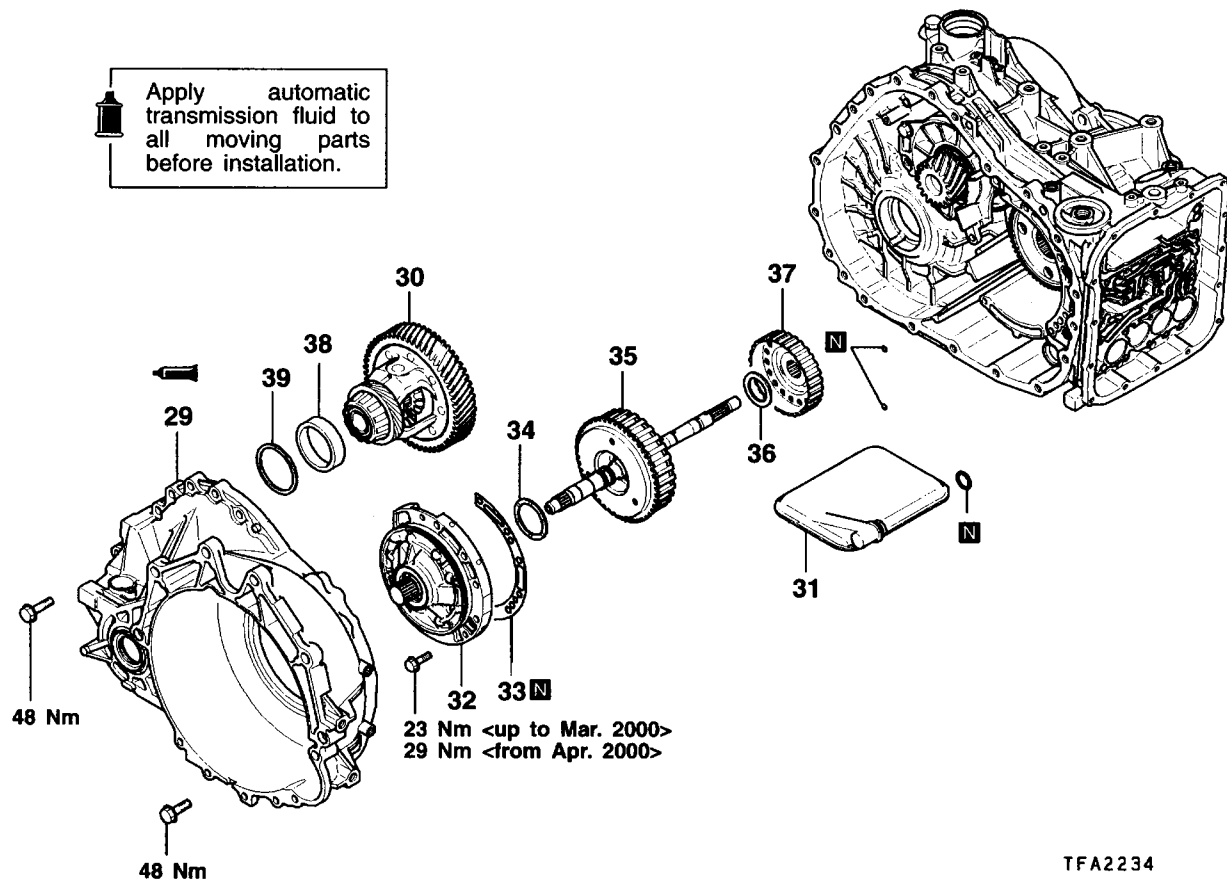
- |  |                                 |
|--|---------------------------------|
| 1. Torque converter                            | 8. Input shaft speed sensor     |
| 2. Roll stopper bracket                        | 9. Output shaft speed sensor    |
| 3. Harness bracket                             | 10. Manual control lever        |
| 4. Control cable support bracket               | 11. Inhibitor switch            |
| 5. Oil level gauge                             | 12. Speedometer gear            |
| 6. Oil filter <Externally mounted type>        | 13. Valve body cover            |
| 7. Oil filter gasket <Externally mounted type> | 14. Manual control shaft detent |



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

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

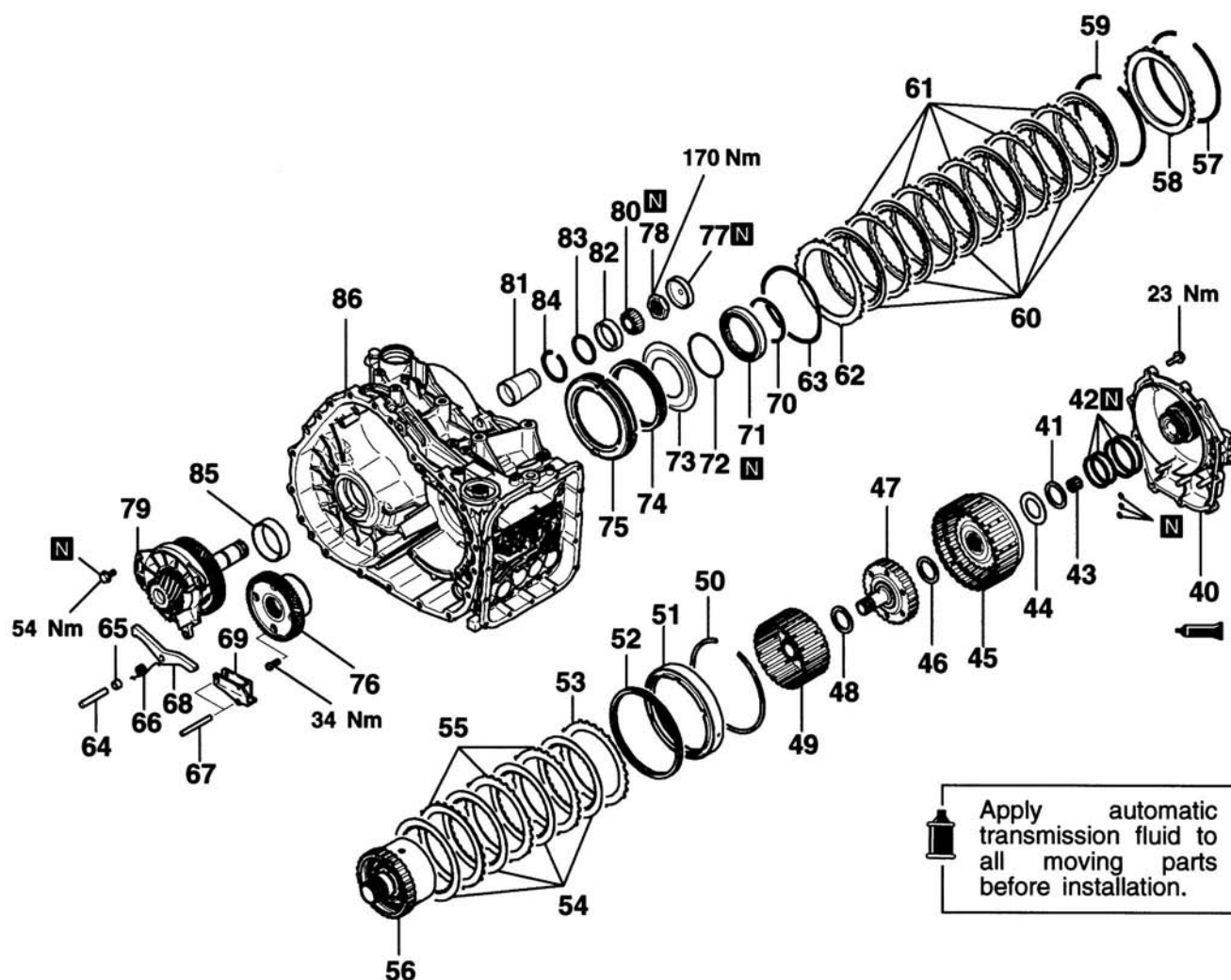
Apply automatic transmission fluid to all moving parts before installation.



TFA2234

- 29. Torque converter housing
- 30. Differential
- 31. Oil filter
- 32. Oil pump
- 33. Gasket
- 34. Thrust washer #1

- 35. Underdrive clutch and input shaft
- 36. Thrust bearing #2
- 37. Underdrive clutch hub
- 38. Outer race
- 39. Spacer

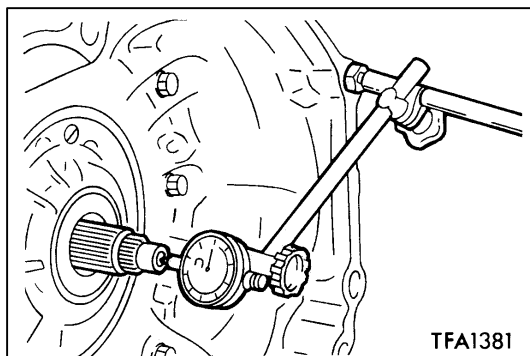


TFA2235

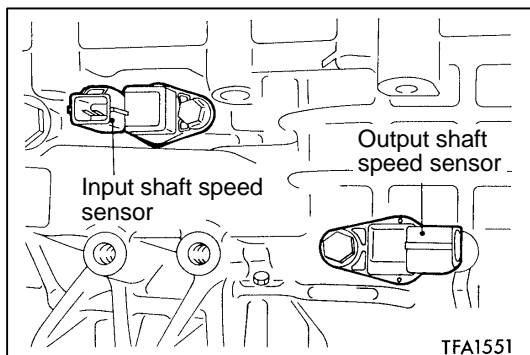
- |                                |                                  |
|--------------------------------|----------------------------------|
| 40. Rear cover                 | 64. Parking pawl shaft           |
| 41. Thrust race #8             | 65. Spacer                       |
| 42. Seal ring                  | 66. Parking pawl spring          |
| 43. Input shaft rear bearing   | 67. Parking roller support shaft |
| 44. Thrust bearing #7          | 68. Parking pawl                 |
| 45. Rear and overdrive clutch  | 69. Parking roller support       |
| 46. Thrust bearing #6          | 70. Snap ring                    |
| 47. Overdrive clutch hub       | 71. One-way clutch inner race    |
| 48. Thrust bearing #5          | 72. O-ring                       |
| 49. Planetary reverse sun gear | 73. Spring retainer              |
| 50. Snap ring                  | 74. Return spring                |
| 51. Second brake piston        | 75. Low-reverse brake piston     |
| 52. Return spring              | 76. Transfer drive gear          |
| 53. Pressure plate             | 77. Cap                          |
| 54. Second brake disc          | 78. Lock nut                     |
| 55. Second brake plate         | 79. Output shaft                 |
| 56. Planetary carrier assembly | 80. Taper roller bearing         |
| 57. Snap ring                  | 81. Collar                       |
| 58. Reaction plate             | 82. Outer race                   |
| 59. Snap ring                  | 83. Spacer                       |
| 60. Low-reverse brake disc     | 84. Snap ring                    |
| 61. Low-reverse brake plate    | 85. Outer race                   |
| 62. Pressure plate             | 86. Transmission case            |
| 63. Wave spring                |                                  |

**DISASSEMBLY****Caution**

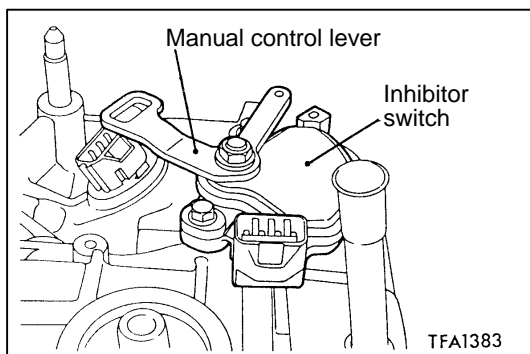
1. Because the automatic transmission is manufactured from high-precision parts, sufficient care must be taken not to scratch or damage these parts during disassembly and reassembly.
2. The working area should be covered with a rubber mat to keep it clean at all times.
3. Do not wear any cloth gloves and do not use any rags during disassembly. Use nylon cloth or paper towels 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) Use the dial gauge to measure the input shaft end play.
- (3) Remove each bracket.
- (4) Remove the oil level gauge.
- (5) Remove the eye bolt, gasket and the oil cooler feed tube.
- (6) Remove the oil filter <Externally mounted type>.



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



- (8) Remove the manual control lever, and then remove the inhibitor switch.

**Caution**

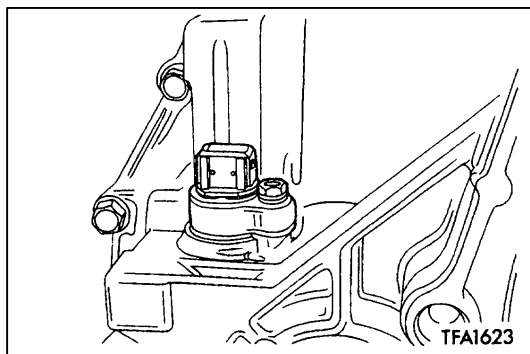
**Make sure that the valve body is installed before removing the manual control lever installation nut.**

## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

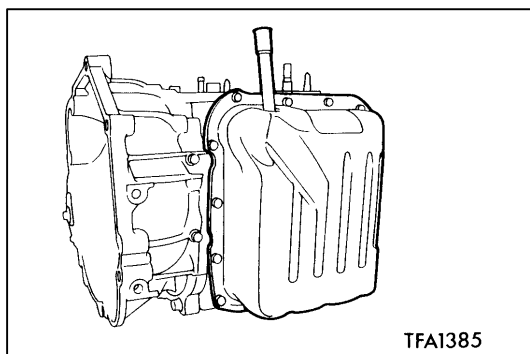
MAIN

Group  
23

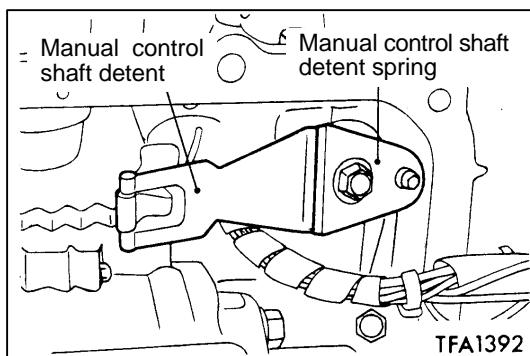
23B



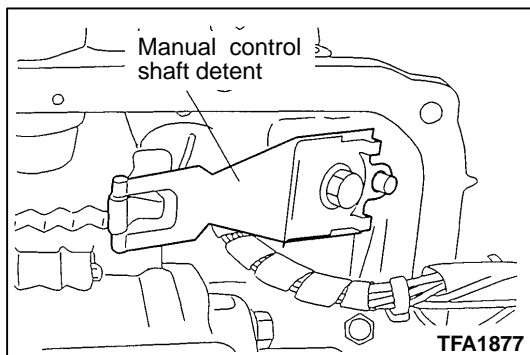
(9) Remove the speedometer gear or sealing cap.



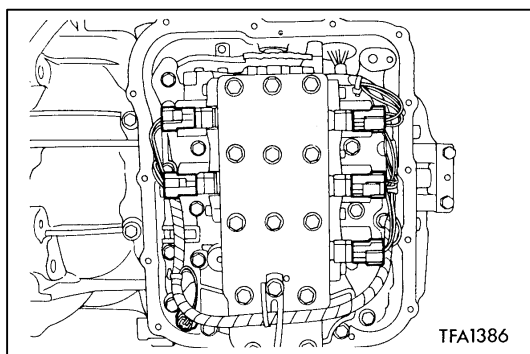
(10) Remove the valve body cover.



(11) Remove the manual control shaft detent spring and the manual control shaft detent. <Model 1996>



Remove the manual control shaft detent. <Model 1997>



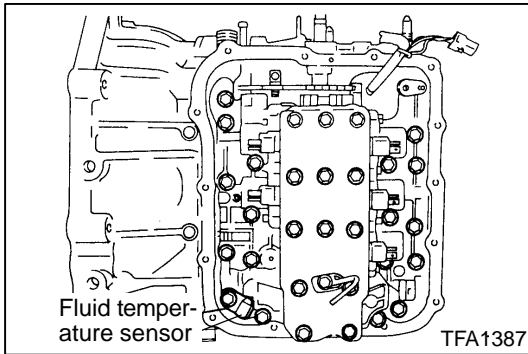
(12) Disconnect the harness connectors of the valve body.

## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

MAIN

Group  
23

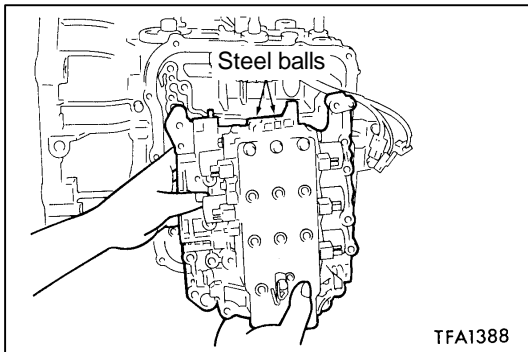
23B



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

### Caution

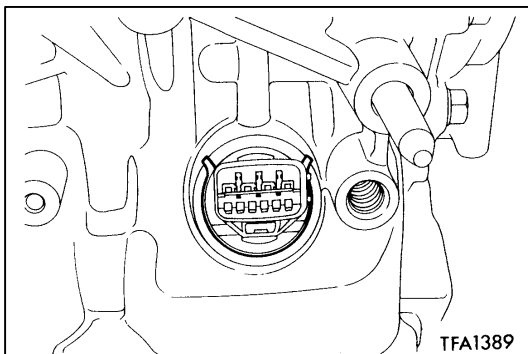
Make sure that the manual control lever and the inhibitor switch are removed.



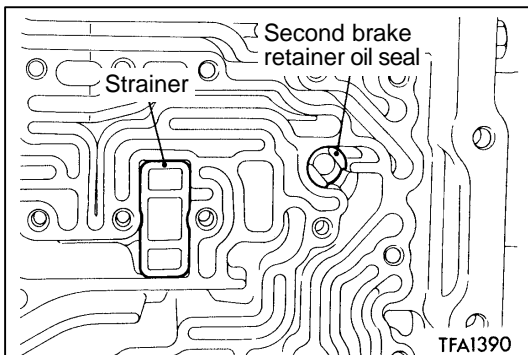
- (15) Remove the valve body, gasket and the steel balls (2 pieces).

### Caution

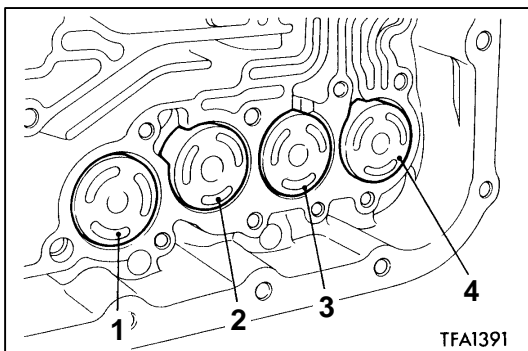
Do not lose the steel balls (2 pieces).



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



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



- (18) Remove each accumulator piston and spring.

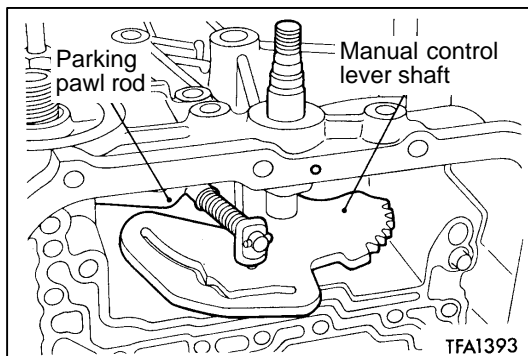
No.	Name
1	For low-reverse brake
2	For underdrive clutch
3	For second brake
4	For overdrive clutch

## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

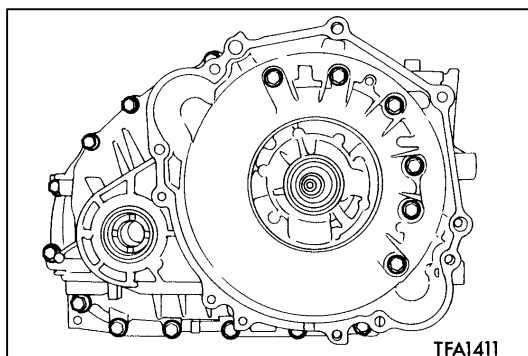
MAIN

Group  
23

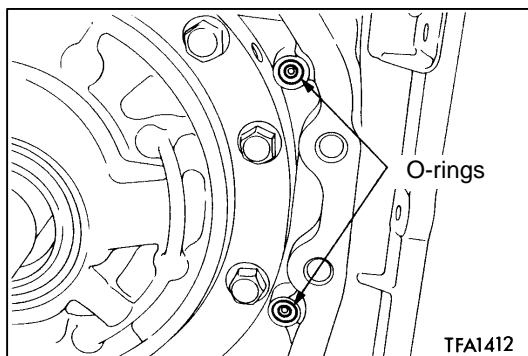
23B



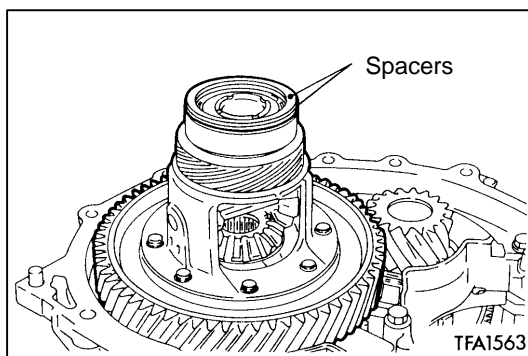
- (19) Remove the manual control lever shaft roller.
- (20) Remove the manual control lever shaft and the parking pawl rod.



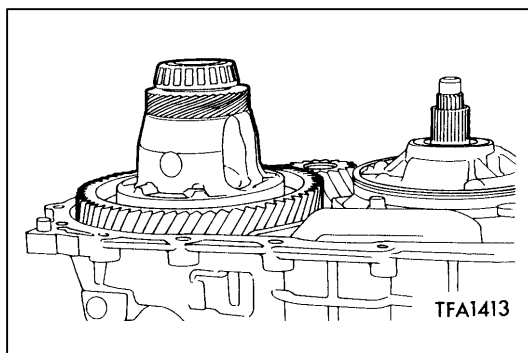
- (21) Remove the torque converter housing mounting bolts (18 pieces), and then remove the torque converter housing.



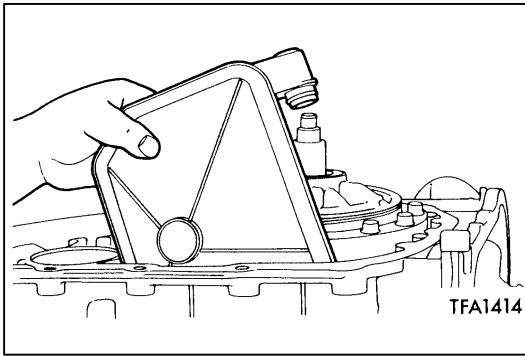
- (22) Remove the O-rings (2 pieces).



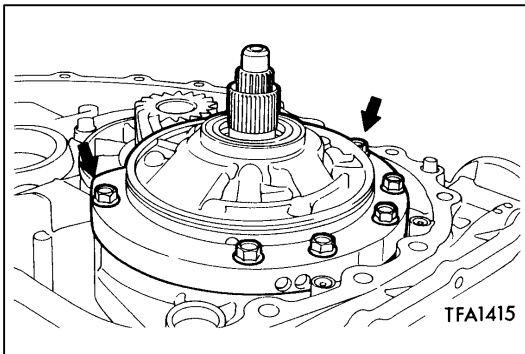
- (23) Remove the differential and the spacer(s) (3 pieces .... F4A41-1-MRA only). <F4A41>



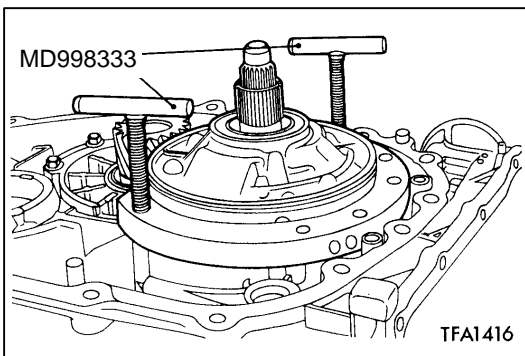
- (24) Remove the differential. <F4A42, F4A51>



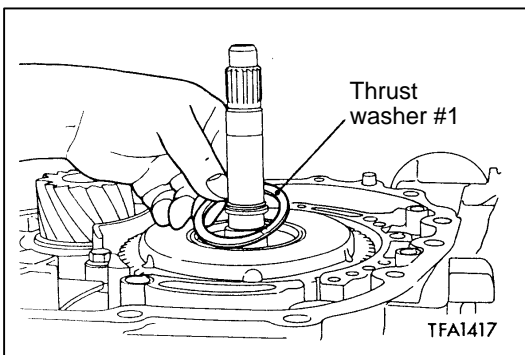
(25) Remove the oil filter.



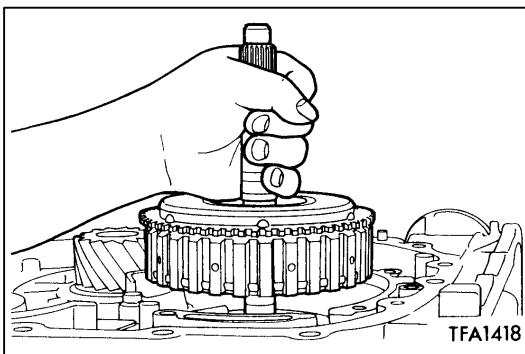
(26) Remove the oil pump mounting bolts (6 pieces).  
(27) Install the special tool (MD998333) in the hole A.



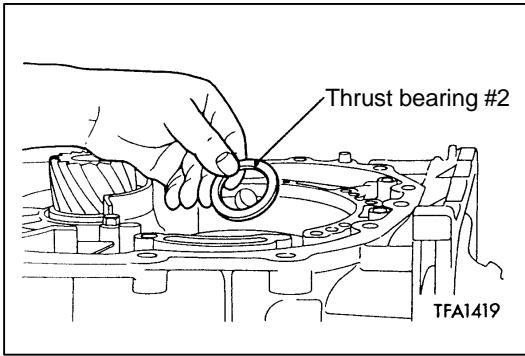
(28) Screw the special tool to remove the oil pump.  
(29) Remove the oil pump gasket.



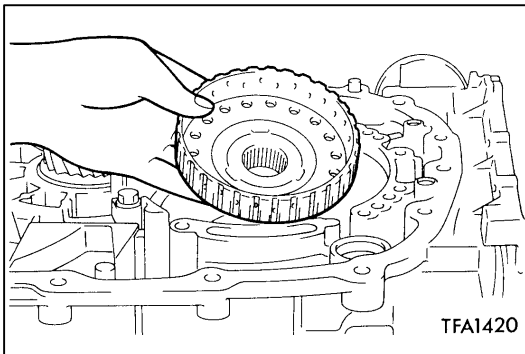
(30) Remove the thrust washer #1.



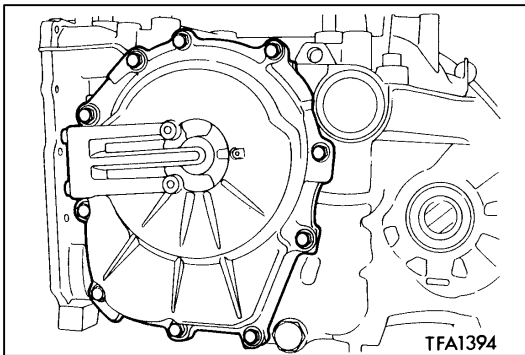
(31) Hold the input shaft, and then remove the underdrive clutch.



(32) Remove the thrust bearing #2.



(33) Remove the underdrive clutch hub.

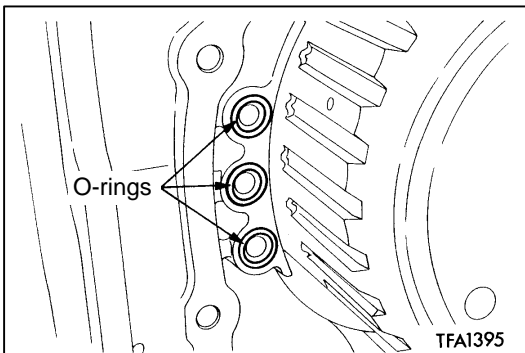


(34) Remove the rear cover.

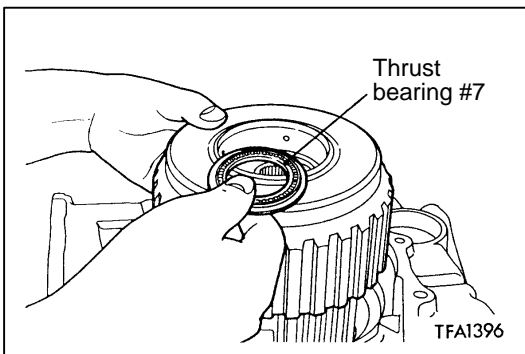
(35) Remove the thrust race #8.

(36) Remove the seal rings (4 pieces).

(37) Remove the input shaft rear bearing.



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



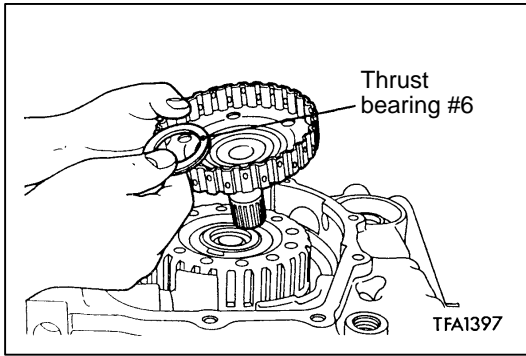
(39) Remove the reverse and overdrive clutch and the thrust bearing #7.

## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

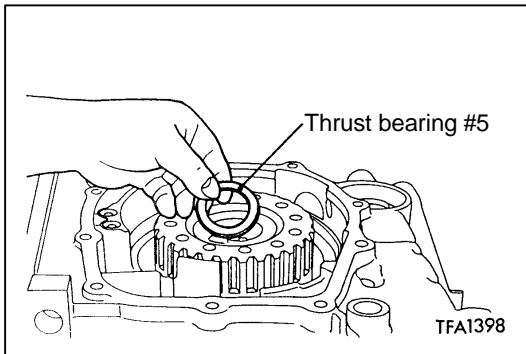
MAIN

Group  
23

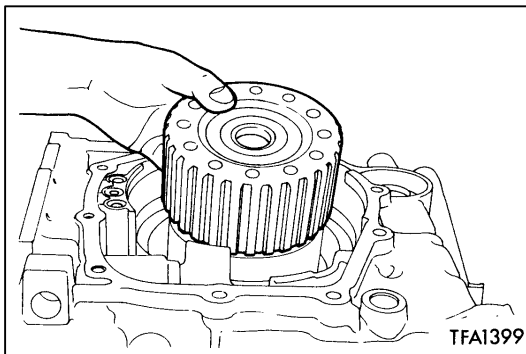
23B



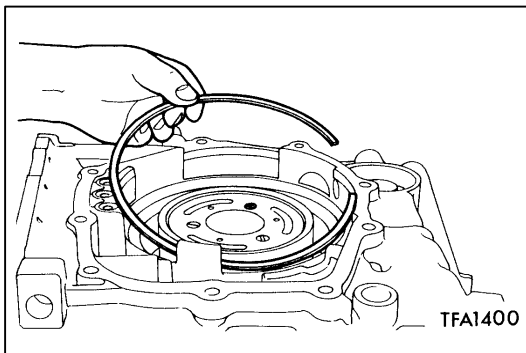
(40) Remove the overdrive clutch hub and the thrust bearing #6.



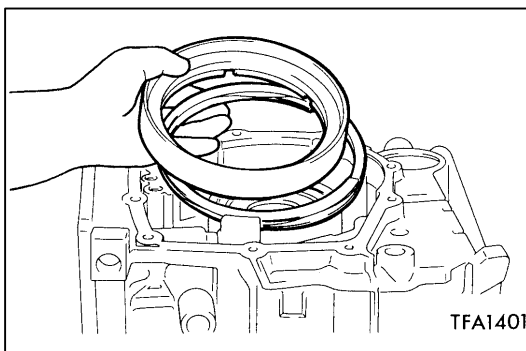
(41) Remove the thrust bearing #5.



(42) Remove the planetary reverse sun gear.



(43) Remove the snap ring.



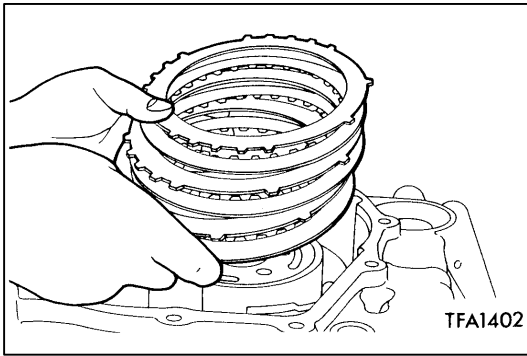
(44) Remove the second brake piston and the return spring.

## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

MAIN

Group  
23

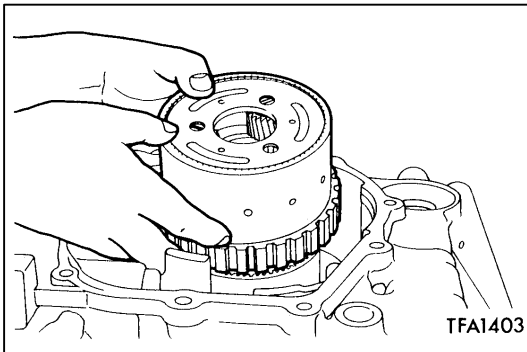
23B



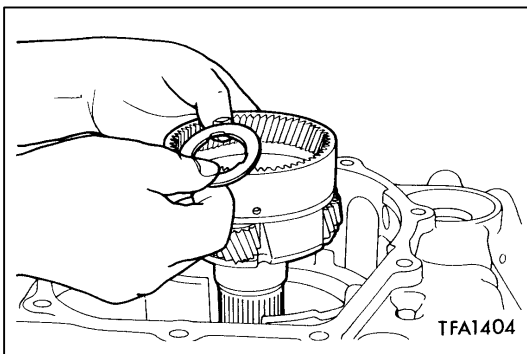
(45) Remove the pressure plate, brake discs and brake plate(s).

### No. of brake discs and plates

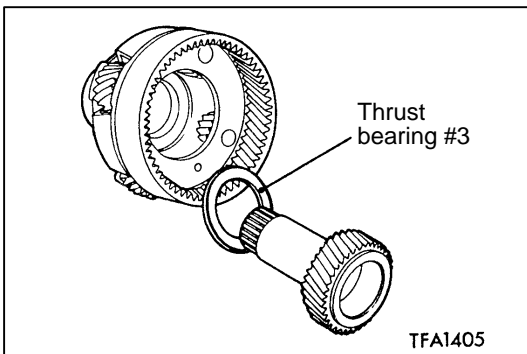
Model	Brake disc	Brake plate	Pressure plate
F4A41	2	1	1
F4A42	3	2	1
F4A51	4	3	1



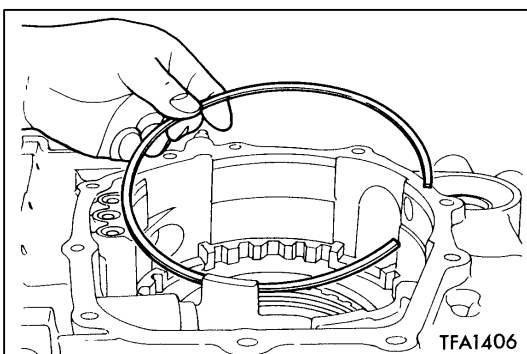
(46) Remove the overdrive planetary carrier <F4A41, F4A42-1 and F4A42-2 without one-way clutch> or planetary carrier assembly <F4A42-2 with one-way clutch and F4A51>.



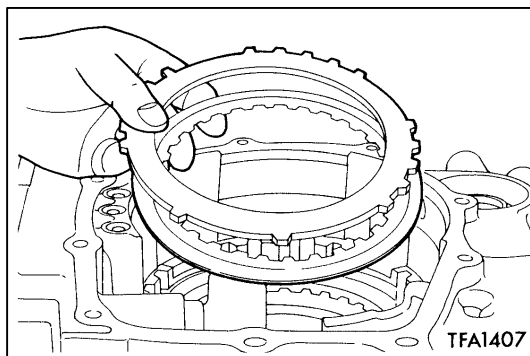
(47) Remove the output planetary carrier and the thrust bearing #4. <F4A41, F4A42-1 and F4A42-2 without one-way clutch>



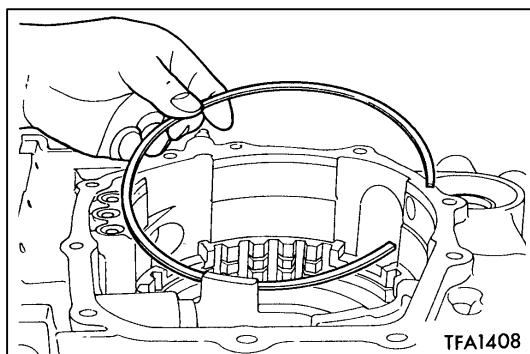
(48) Remove the underdrive sun gear and the thrust bearing #3 from the output planetary carrier. <F4A41, F4A42-1 and F4A42-2 without one-way clutch>



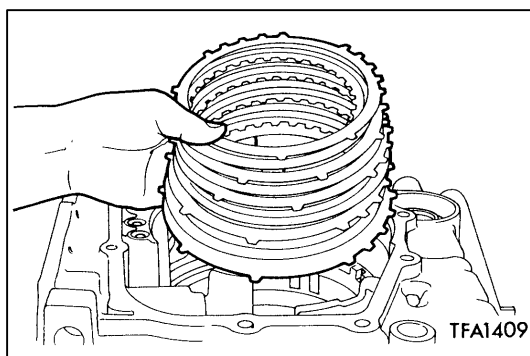
(49) Remove the snap ring.



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



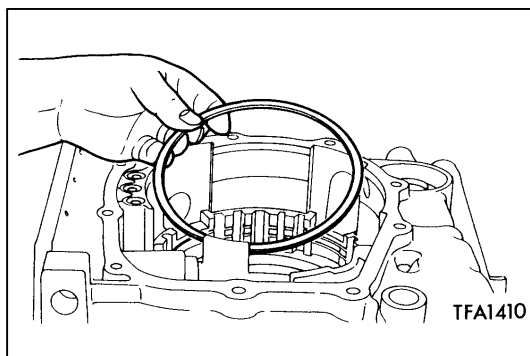
(51) Remove the snap ring.



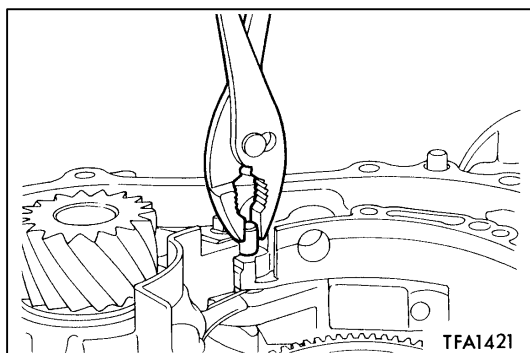
(52) Remove the brake plates, brake discs and pressure plate.

## No. of brake discs and plates

Model	Brake disc	Brake plate	Pressure plate
F4A41	4	3	1
F4A42-1	5	4	1
F4A42-2, F4A51	6	5	1



(53) Remove the wave spring.



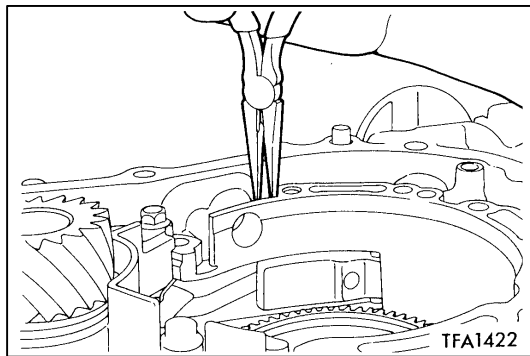
(54) Remove the parking pawl shaft, and then remove the spacer and spring.

## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

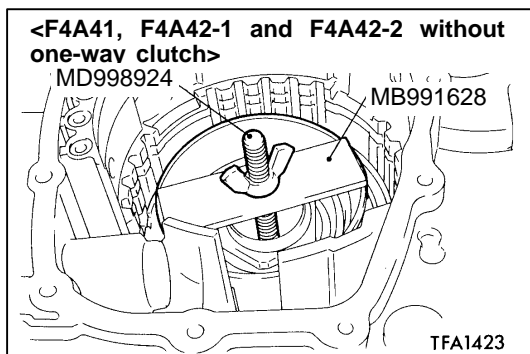
MAIN

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23

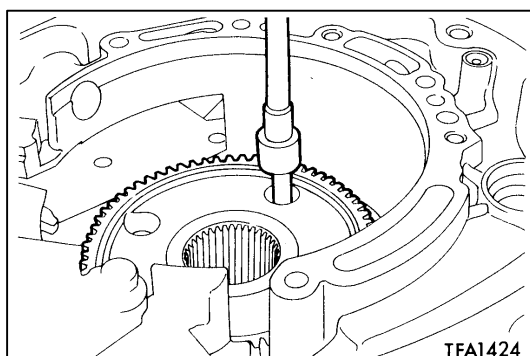
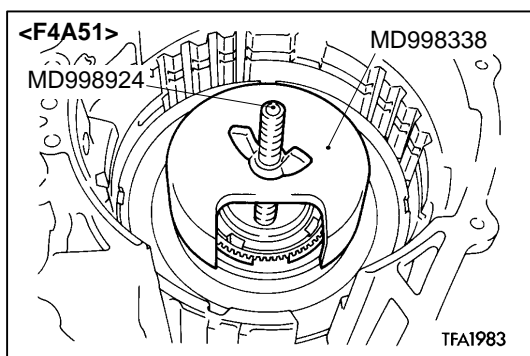
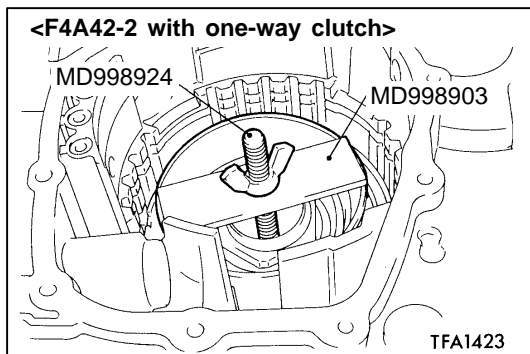
23B



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

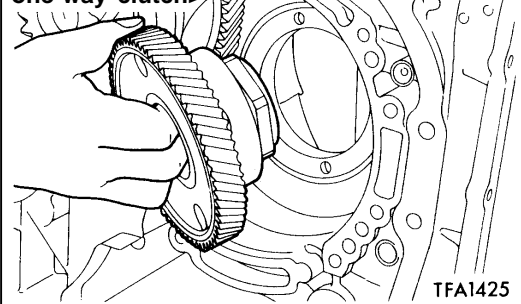


- (56) Use the special tool to remove the snap ring.  
(57) Remove the one-way clutch inner race <F4A42-2 with one-way clutch and F4A51>, O-ring <F4A42-2 with one-way clutch and F4A51>, spring retainer, return spring and the low-reverse brake piston.



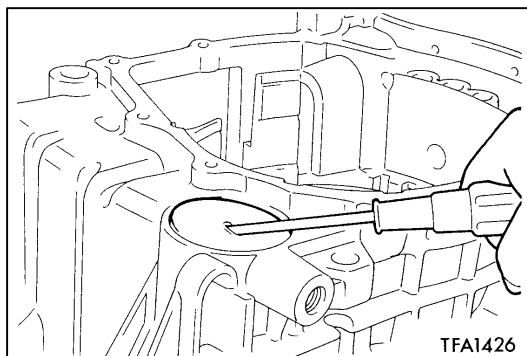
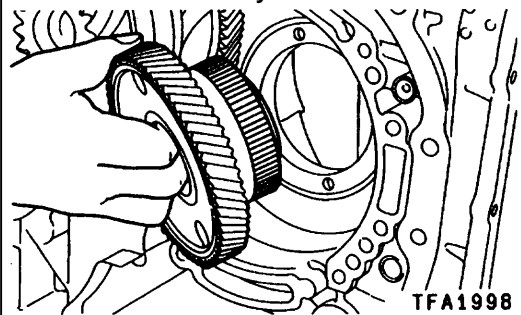
- (58) Remove the transfer drive gear bearing mounting bolts as follows  
F4A41, F4A42-1 and F4A42-2 without one-way clutch:  
... Remove all four mounting bolts.  
F4A42-2 with one-way clutch: First remove 4 or 3 bolts, ... then turn the gear 1/8 turn (45°) and remove the ... remaining 3 or 4 bolts (7 bolts in total).  
F4A51: First remove 4 bolts, then turn the gear 1/8 turn ... (45°) and remove the remaining 4 bolts (8 bolts in ... total).

<F4A41, F4A42-1 and F4A42-2 without one-way clutch>

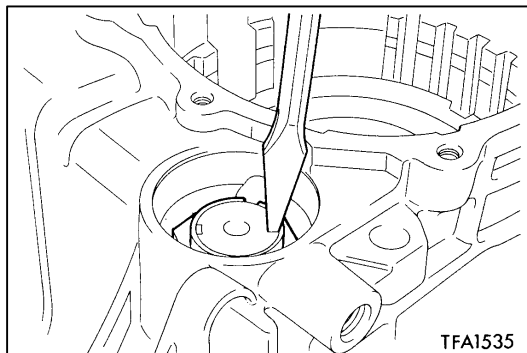


(59) Remove the transfer drive gear.

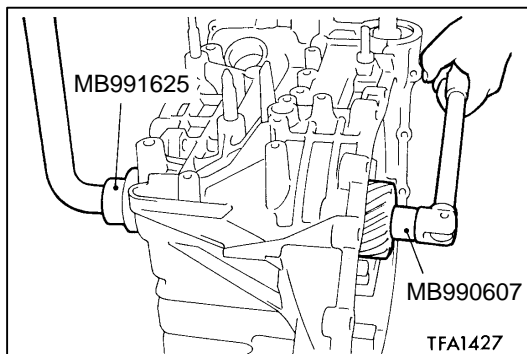
<F4A42-2 with on-way clutch and F4A51>



(60) Remove the cap.



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



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

**Caution**

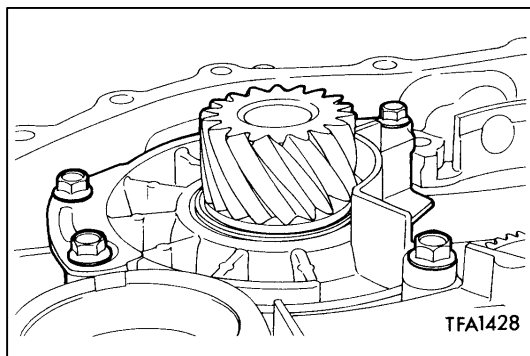
**The lock nut is a left-handed screw.**

## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

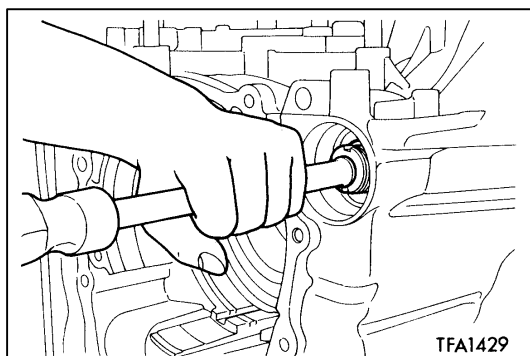
MAIN

Group  
23

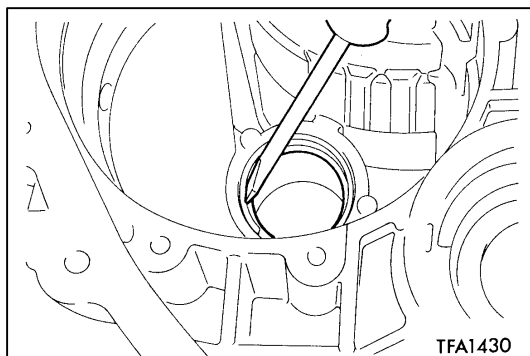
23B



(63) Remove the bearing retainer mounting bolt.



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



(65) Remove the spacer and the outer race.

(66) Remove the snap ring.

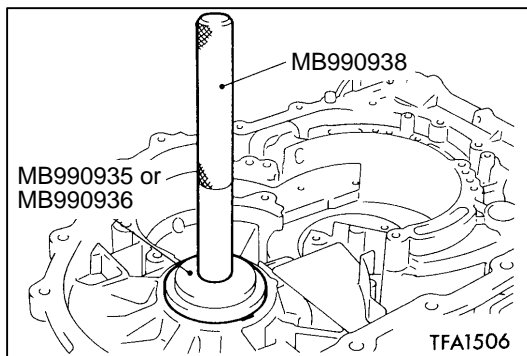
(67) Remove the differential bearing outer race and spacer from the torque converter housing. <F4A42, F4A51>

(68) Remove the differential bearing outer race from the transmission case. <F4A42, F4A51>

## REASSEMBLY

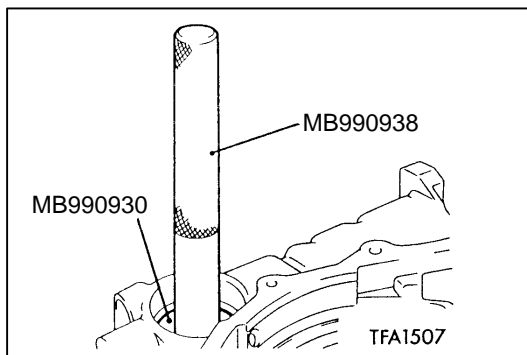
## Caution

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.

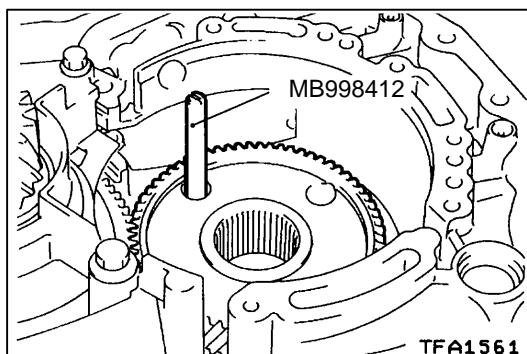


- (1) Use the special tools to tap the differential bearing outer race in the transmission case. <F4A42, F4A51>

Model	Special tools No.
F4A42	MB990935, MB990938
F4A51	MB990936, MB990938



- (2) Use the special tools to tap the output shaft bearing outer race in the transmission case.
- (3) Install the used spacer and snap ring.



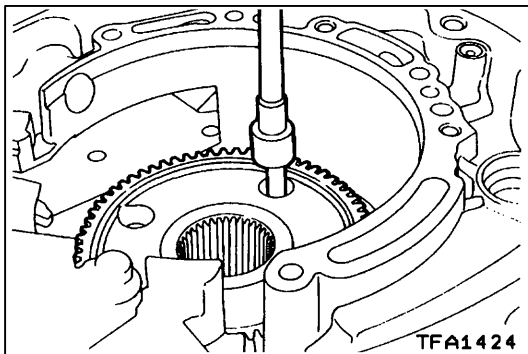
- (4) Use the special tool to install the transfer drive gear. <F4A41 from Jan. 1998, F4A42-1 from Jan 1998, F4A42-2 with one-way clutch and F4A51>

## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

MAIN

Group  
23

23B



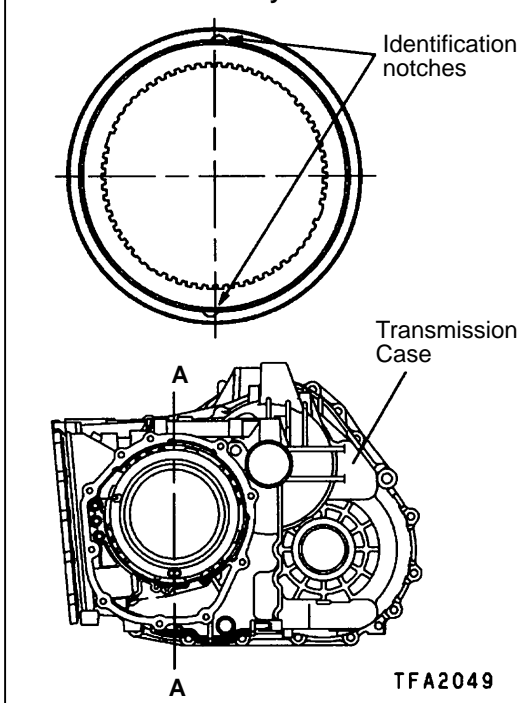
- (4a) Tighten the mounting bolts of the transfer drive gear bearing to the specified torque. <F4A41 from Jan 1998, F4A42-1 from Jan 1998, F4A42-2 with one-way clutch and F4A51>

F4A41 and F4A42-1 = 4 mounting bolts

F4A42-2 with one-way clutch = 7 mounting bolts

F4A51 = 8 mounting bolts

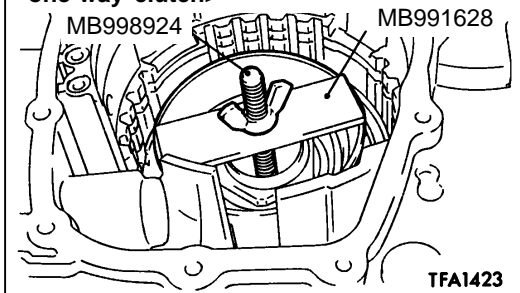
<F4A42-2 with one-way clutch and F4A51>



- (5) Install the low-reverse brake piston, return spring, and spring retainer.

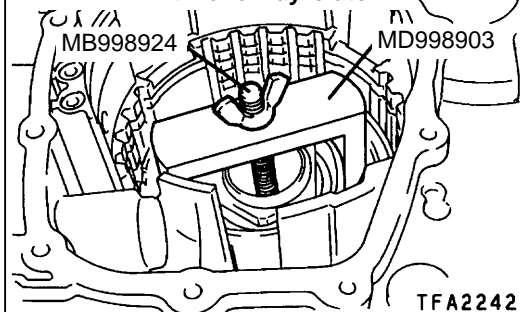
- (5a) Check the placement of the identification notches in the one-way clutch inner race. Install the one-way clutch inner race with O-ring to the transfer drive gear bearing so that the notches fall along the A - A line. <F4A42-2 with one-way clutch and F4A51>.

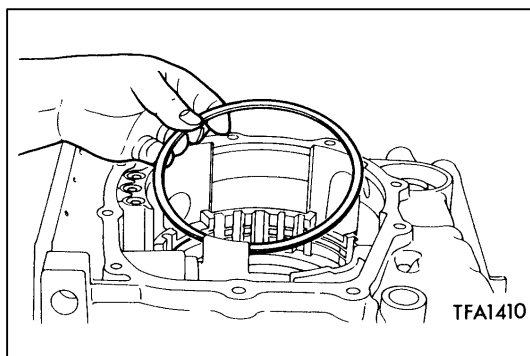
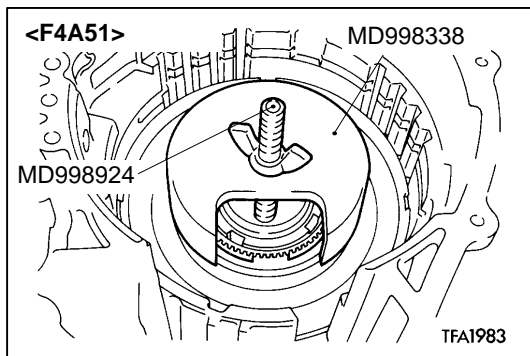
<F4A41, F4A42-1 and F4A42-2 without one-way clutch>



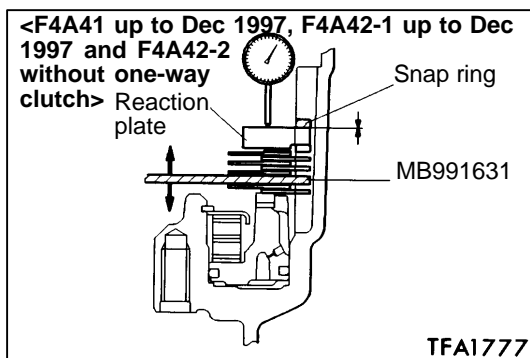
- (5) Use the special tools to install the snap ring.

< F4A42-2 with one-way clutch>





(6) Install the wave spring.



(7) Install the brake disc, brake plate and special tool and snap ring as shown in the figure.

## Caution

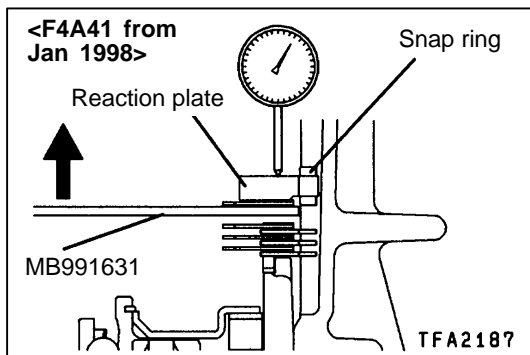
If necessary, take the measurements in steps 9 to 18 after replacing the pressure plate, brake plate and brake disc.

## NOTE

Do not install the pressure plate at this time.

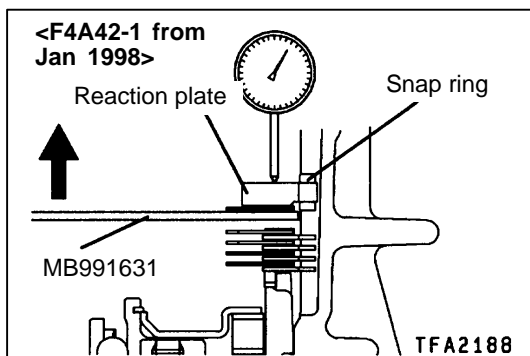
## Number of brake discs and plates

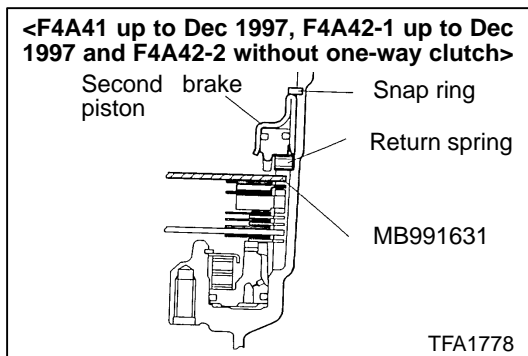
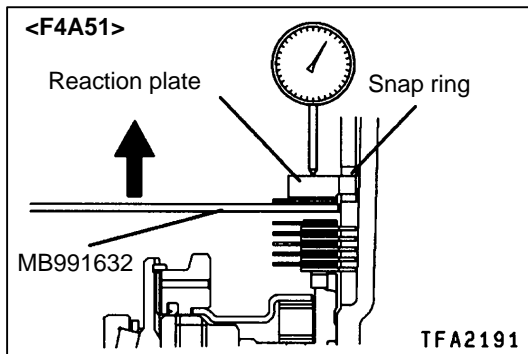
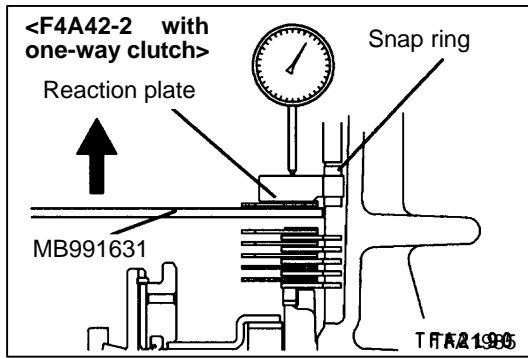
Model	Brake disc	Brake plate	Special tool
F4A41	4	3	1
F4A42-1	5	4	1
F4A42-2, F4A51	6	5	1



(8) Install the reaction plate and the used snap ring.  
(9) Move the special tool to measure the end play, and then replace the snap ring installed in step (8) to adjust the end play to standard value.

**Standard value: 0 – 0.16 mm**

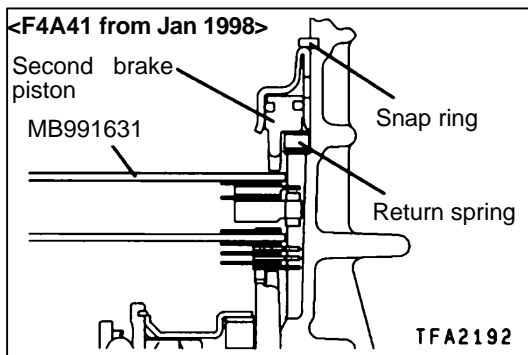




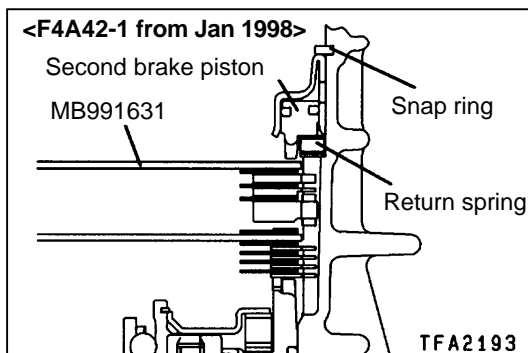
(10) Install the brake disc, brake plate and special tool MB991631 <F4A41, F4A42> or MB991632 <F4A51> as shown in the figure.

## Number of brake discs and plates

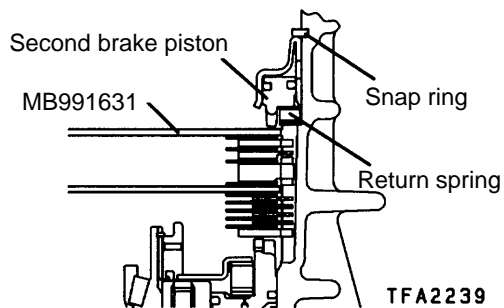
Model	Brake disc	Brake plate
F4A41	2	1
F4A42	3	2
F4A51	4	3



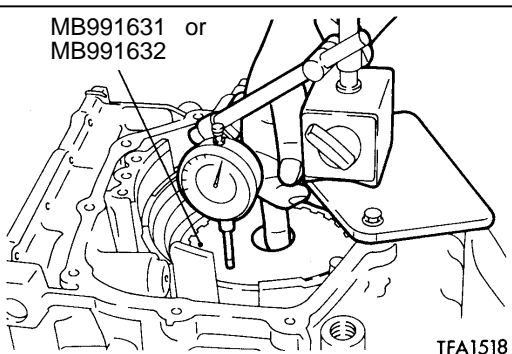
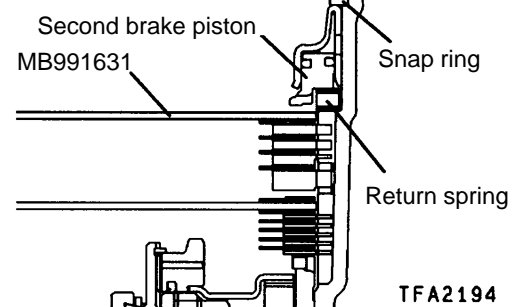
(11) Install the return spring, second brake piston and snap ring.



## <F4A42-2 with one-way clutch>



## <F4A51>



(12) Move the special tool and measure its movement. Select a pressure plate whose thickness corresponds to the measured amount from the following table.

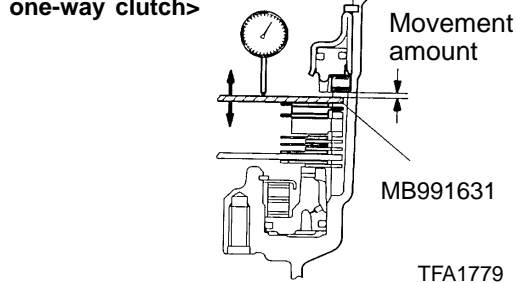
### Standard value:

0.49 – 0.95 mm <F4A41>

0.79 – 1.25 mm <F4A42>

1.09 – 1.55 mm <F4A51>

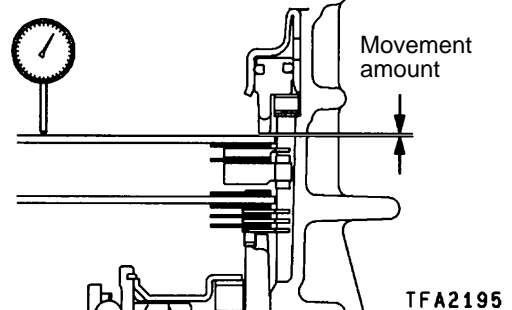
## <F4A41 up to Dec 1997, F4A42-1 up to Dec 1997 and F4A42-2 without one-way clutch>



### Pressure plate for F4A41 and F4A42

Movement amount mm		Thickness mm	ID symbol	Part No.
F4A41	F4A42			
0.3–0.5	0.6–0.8	1.6	L	MD759567
0.5–0.7	0.8–1.0	1.8	1	MD759414
0.7–0.9	1.0–1.2	2.0	0	MD759415
0.9–1.1	1.2–1.4	2.2	2	MD759416
1.1–1.3	1.4–1.6	2.4	4	MD759417
1.3–1.5	1.6–1.8	2.6	6	MD759418

## <F4A41 from Jan 1998>

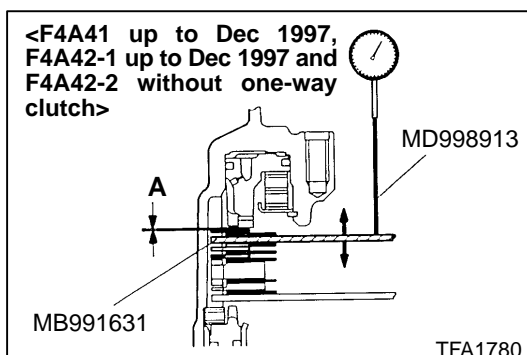
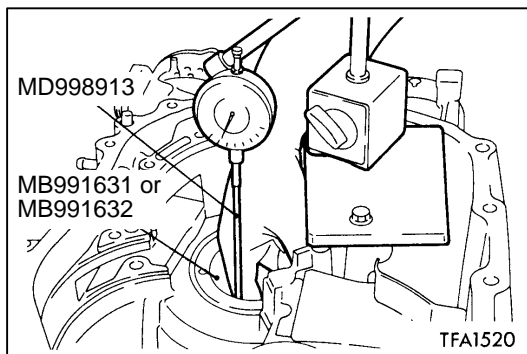
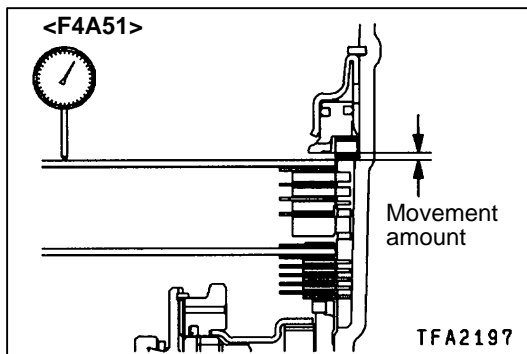
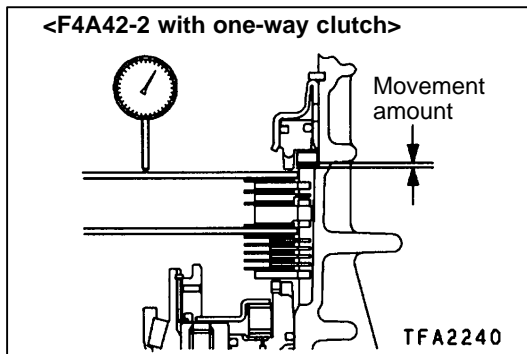
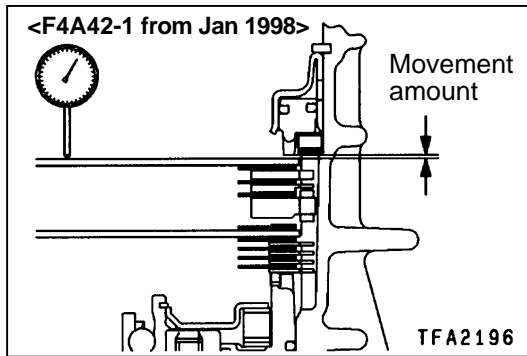


## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

MAIN

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### Pressure plate for F4A51

Movement amount mm	Thickness mm	ID symbol	Part No.
1.1–1.3	1.8	E	MD759425
1.3–1.5	2.0	D	MD759426
1.5–1.7	2.2	C	MD759427
1.7–1.9	2.4	B	MD759428
1.9–2.1	2.6	A	MD759429
2.1–2.3	2.8	0	MD759430

(13) Reverse the transmission.

(14) Install the special tool (MD998913) in a dial gauge, and then move the special tool (MB991631 or MB991632) and measure its movement.

Select a pressure plate whose thickness corresponds to the measured amount of movement from the following table.

#### Standard value:

1.05 – 1.51 mm <F4A41>

1.35 – 1.81 mm <F4A42>

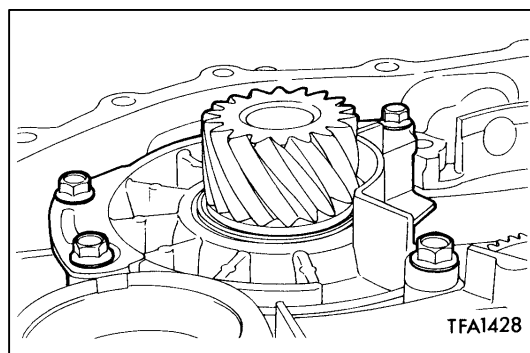
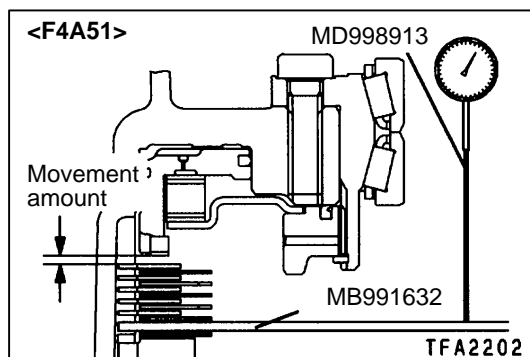
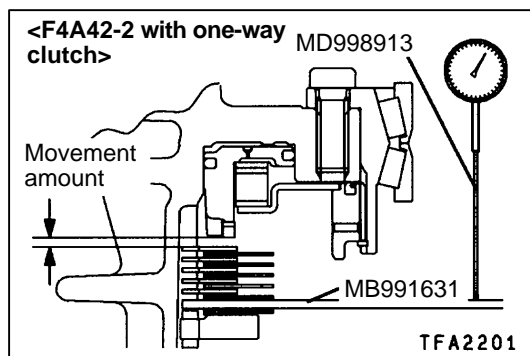
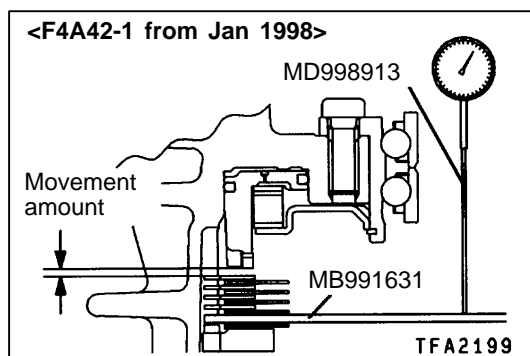
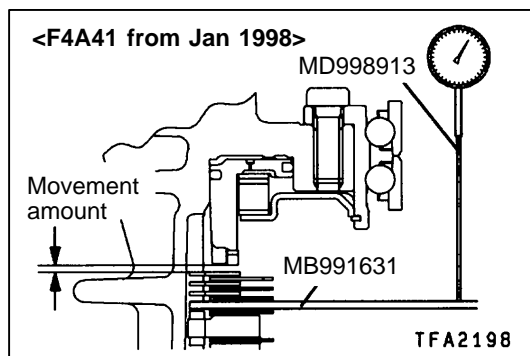
1.65 – 2.11 mm <F4A51>

## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

MAIN

Group  
23

23B



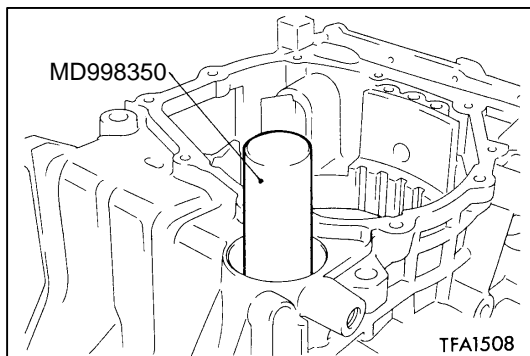
### Pressure plate for F4A41 and F4A42

Movement amount mm			Thick- ness mm	ID symbol	Part No.
F4A41	F4A42-1	F4A42-2			
0.7–0.9	1.0–1.2	1.3–1.5	1.6	L	MD759567
0.9–1.1	1.2–1.4	1.5–1.7	1.8	1	MD759414
1.1–1.3	1.4–1.6	1.7–1.9	2.0	0	MD759415
1.3–1.5	1.6–1.8	1.9–2.1	2.2	2	MD759416
1.5–1.7	1.8–2.0	2.1–2.3	2.4	4	MD759417
1.7–1.9	2.0–2.2	2.3–2.5	2.6	6	MD759418
1.9–2.1	2.2–2.4	2.5–2.7	2.8	8	MD759419
2.1–2.3	2.4–2.6	2.7–2.9	3.0	D	MD759420

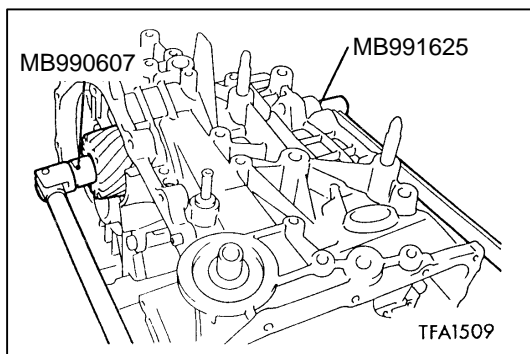
### Pressure plate for F4A51

Movement amount mm	Thickness mm	ID symbol	Part No.
1.0–1.2	1.6	F	MD759568
1.2–1.4	1.8	E	MD759425
1.4–1.6	2.0	D	MD759426
1.6–1.8	2.2	C	MD759427
1.8–2.0	2.4	B	MD759428
2.0–2.2	2.6	A	MD759429
2.2–2.4	2.8	0	MD759430
2.4–2.6	3.0	1	MD759431

- (15) Remove the parts installed from steps (6) to (14).
- (16) Install the output shaft in the transmission case and tighten the mounting bolts of the output shaft bearing retainer to the specified torque.



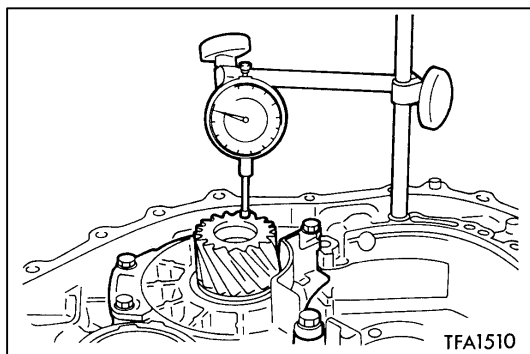
(17) Use the special tool to install the collar and taper roller bearing in the output shaft.



(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.

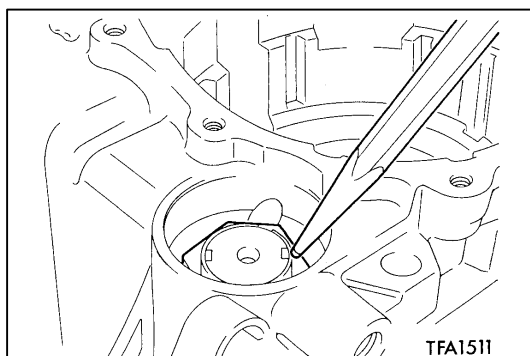
**Caution**

**The lock nut is a left-hand screw.**

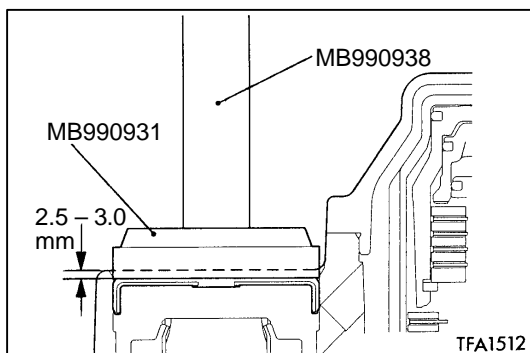


(19) Move the output shaft to measure operating amount (A), and then replace the spacer installed in step (3) with a new one which thickness is within the following value.

**[A (operating amount) + B (thickness of the old spacer) + 0.01 mm] to [A (operating amount) + B (thickness of the old spacer) + 0.09 mm]**



(20) Stake the lock nut with a punch (two places).



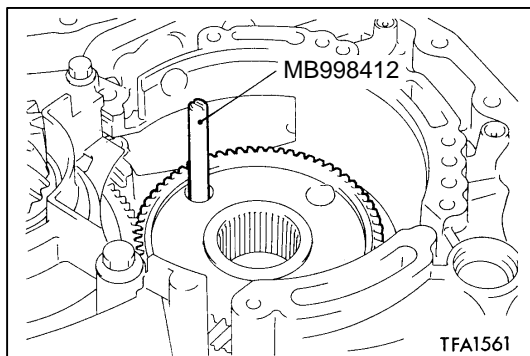
(21) Install the cap as shown in the figure.

## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

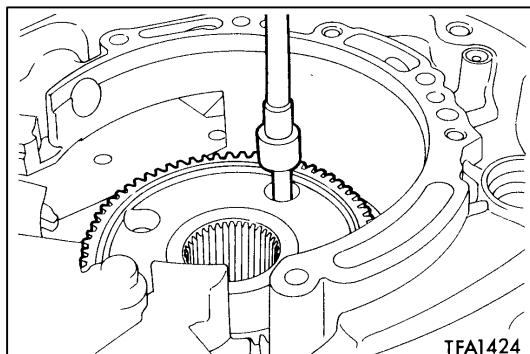
MAIN

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23

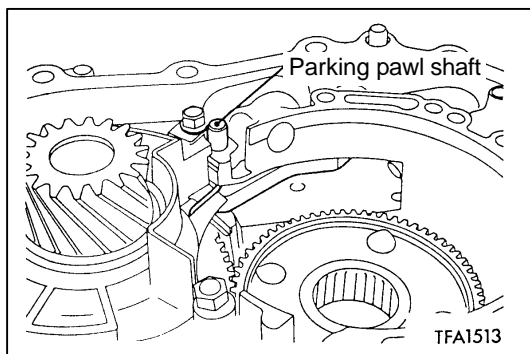
23B



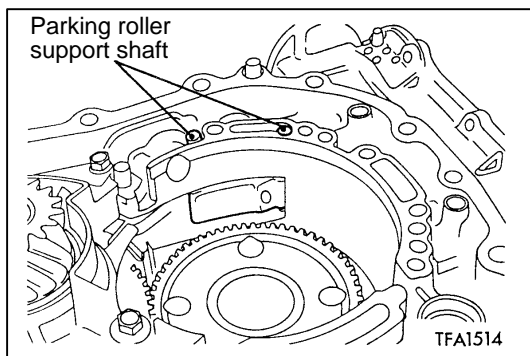
- (22) Use the special tool to install the transfer drive gear. <F4A41 up to Dec 1997, F4A42-1 up to Dec 1997 and F4A42-2 without one-way clutch>.



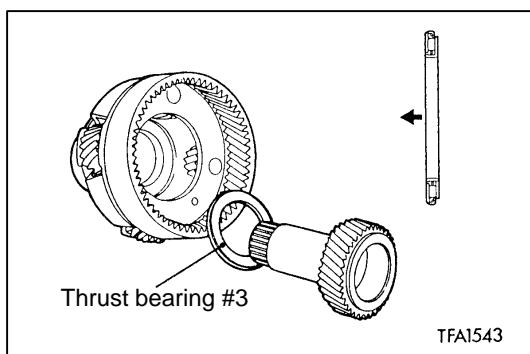
- (23) Tighten the four mounting bolts of the transfer drive gear to the specified torque. <F4A41 up to Dec 1997, F4A42-1 up to Dec 1997 and F4A42-2 without one-way clutch>.



- (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.



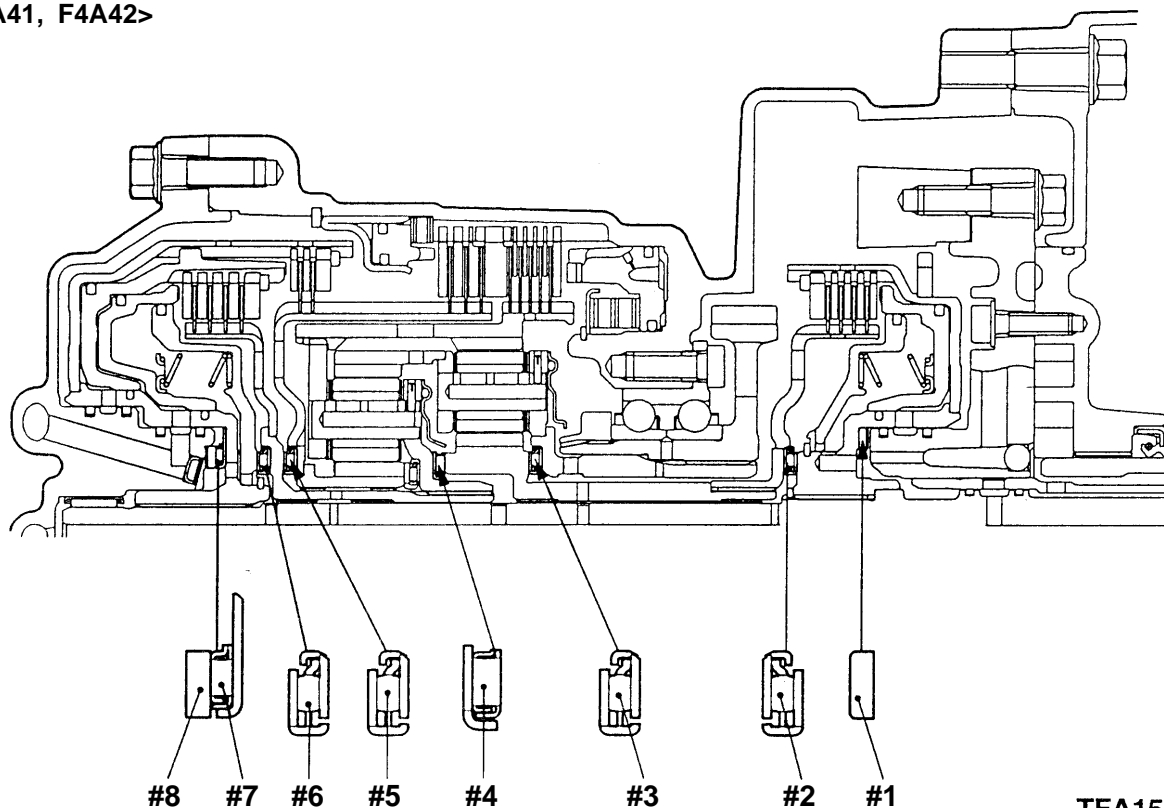
- (26) Install the underdrive sun gear and thrust bearing #3 to the output planetary carrier. <F4A41, F4A42-1 and F4A42-2 without one-way clutch>

### Caution

Be careful about the installation direction of the thrust bearing.

# 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

<F4A41, F4A42>



TFA1537

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

mm

Sym- bol	O.D.	I.D.	Thick- ness	Part number	Sym- bol	O.D.	I.D.	Thick- ness	Part number
#1	59	47	1.8	MD754509	#8	48.9	37	1.6	MD707267
			2.0	MD754508				1.7	MD759681
			2.2	MD754507				1.8	MD723064
			2.4	MD753793				1.9	MD754794
			2.6	MD753794				2.0	MD707268
			2.8	MD753795				2.1	MD754795
#2	49	36	3.6	MD756846				2.2	MD723065
#3	49	36	3.6	MD756846				2.3	MD754796
#4	45.3	31	3.3	MD757647				2.4	MD724358
#5	49	36	3.6	MD756846				2.5	MD754797
#6	49	36	3.6	MD756846				2.6	MD754798
#7	59	37	2.8	MD754595					

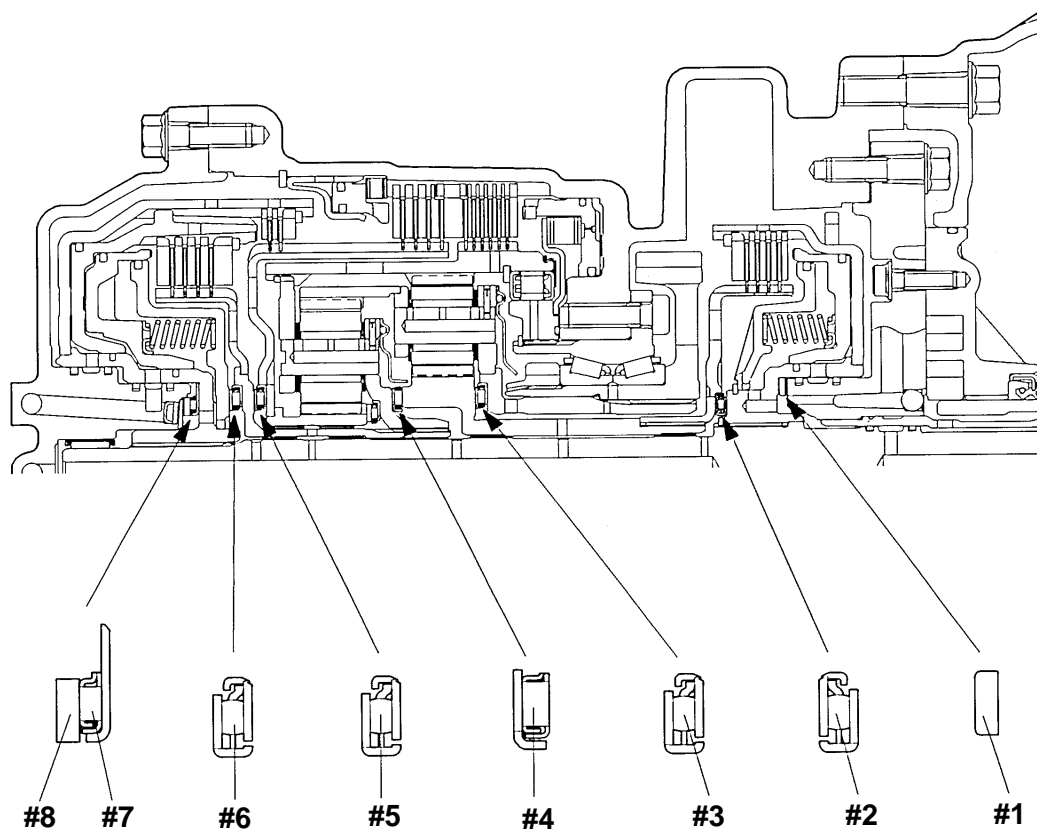
MAIN

Group  
23

23B

# 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

<F4A51>



TFA1989

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

mm

Sym- bol	O.D.	I.D.	Thick- ness	Part number	Sym- bol	O.D.	I.D.	Thick- ness	Part number
#1	59	47	1.8	MD754509	#8	48.9	37	1.6	MD707267
			2.0	MD754508				1.7	MD759681
			2.2	MD754507				1.8	MD723064
			2.4	MD753793				1.9	MD754794
			2.6	MD753794				2.0	MD707268
			2.8	MD753795				2.1	MD754795
#2	49	36	3.6	MD756846				2.2	MD723065
#3	49	36	3.6	MD756846				2.3	MD754796
#4	55.4	38.5	3.3	MD761683				2.4	MD724358
#5	57	38.5	4.1	MD758556				2.5	MD754797
#6	57	38.5	4.1	MD758556				2.6	MD754798
#7	59	37	2.8	MD754595					

MAIN

Group  
23

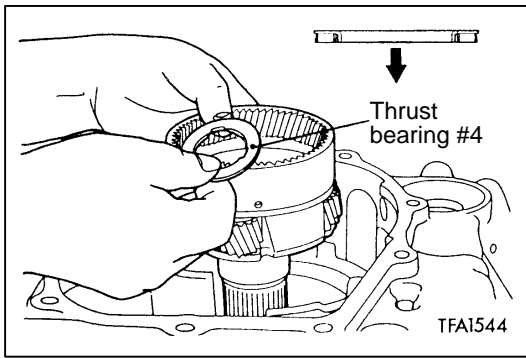
23B

## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

MAIN

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23

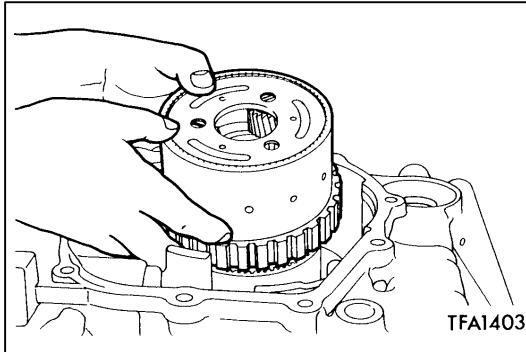
23B



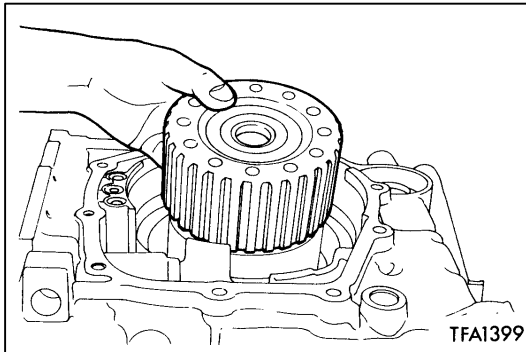
- (27) Install the output planetary carrier and thrust bearing #4.  
<F4A41, F4A42-1 and F4A42-2 without one-way clutch>

**Caution**

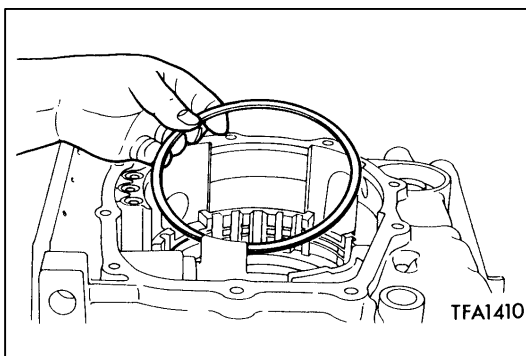
**Be careful about the installation direction of the thrust bearing.**



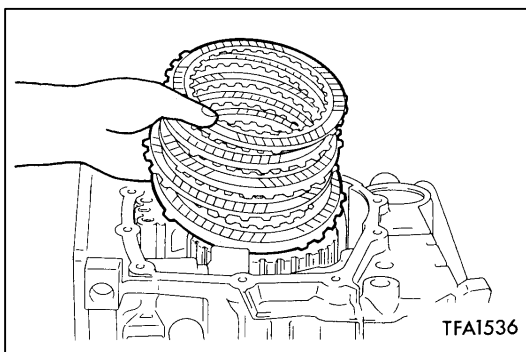
- (28) Install the overdrive planetary carrier <F4A41, F4A42-1 and F4A42-2 without one-way clutch> or planetary carrier assembly <F4A42-2 with one-way clutch and F4A51>.



- (29) Install the planetary reverse sun gear.



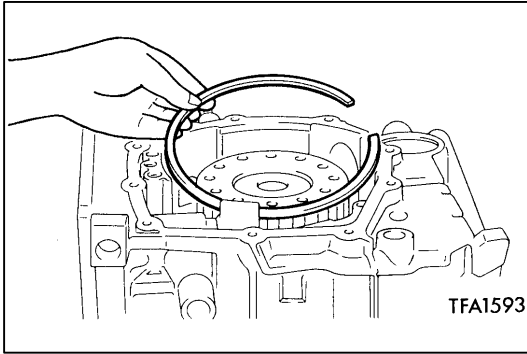
- (30) Install the wave spring.



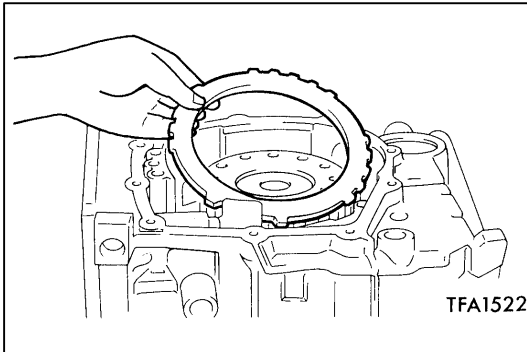
- (31) Install the pressure plate, brake disc, and brake plate.

**Number of brake discs and plates**

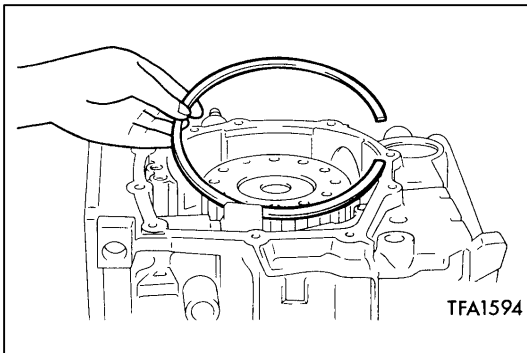
Model	Brake disc	Brake plate	Pressure plate
F4A41	4	3	1
F4A42-1	5	4	1
F4A42-2, F4A51	6	5	1



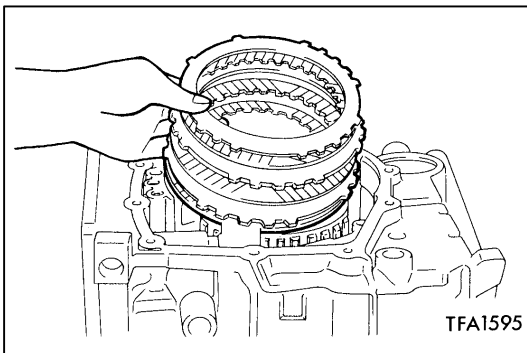
(32) Install the snap ring.



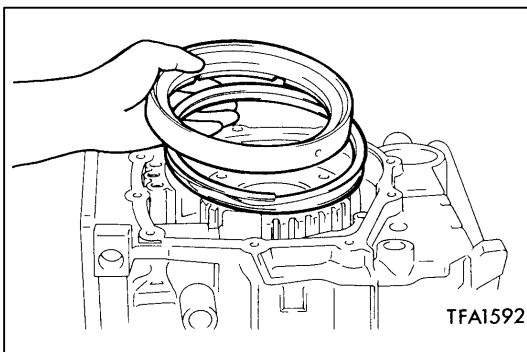
(33) Install the reaction plate.



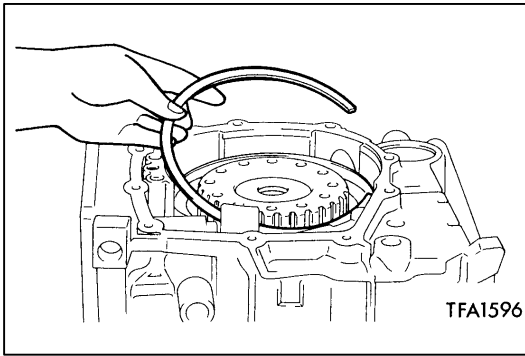
(34) Install the snap ring.



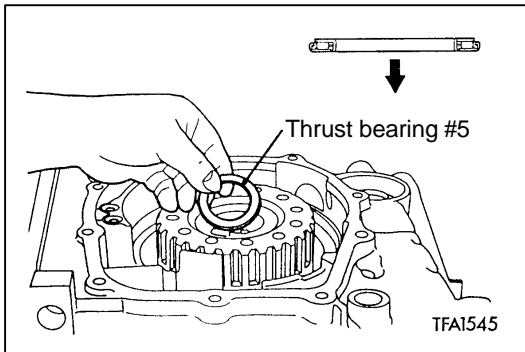
(35) Install the brake disc, brake plate, and pressure plate.



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



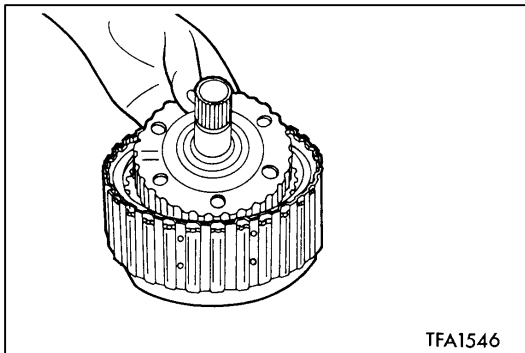
(37) Install the snap ring.



(38) Install the thrust bearing #5.

**Caution**

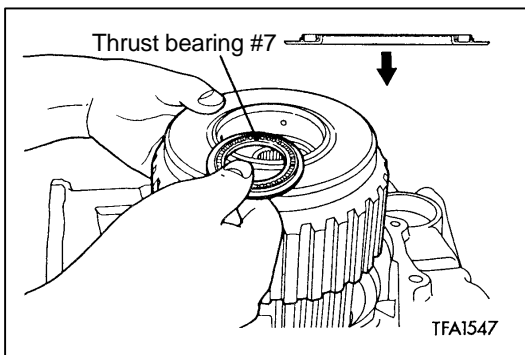
**Be careful about the installation direction of the thrust bearing.**



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

**Caution**

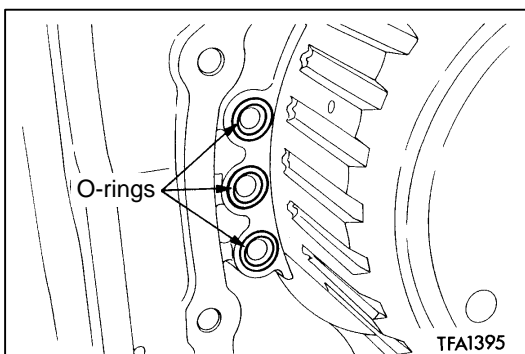
**Be careful about the installation direction of the thrust bearing**



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

**Caution**

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



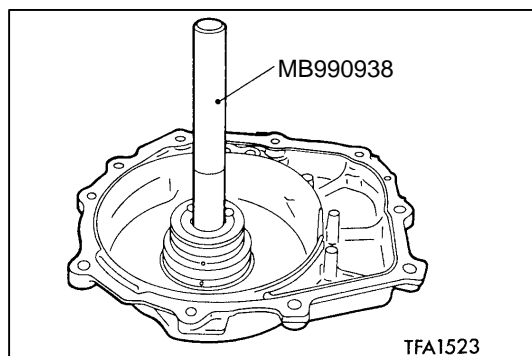
(41) Install the three O-rings.

## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

MAIN

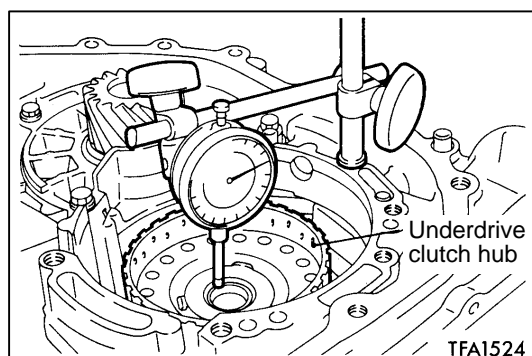
Group  
23

23B



(42) Use special tool and tap the input shaft bearing in the rear cover.

(43) Install the four seal rings in the grooves of the rear cover.



(44) Install the thinnest thrust race #8 (thickness 1.6mm: part No. MD707267) on thrust bearing #7, then install the rear cover and tighten the bolts to the specified torque.

(45) Measure end play of the underdrive sun gear and record the measured value.

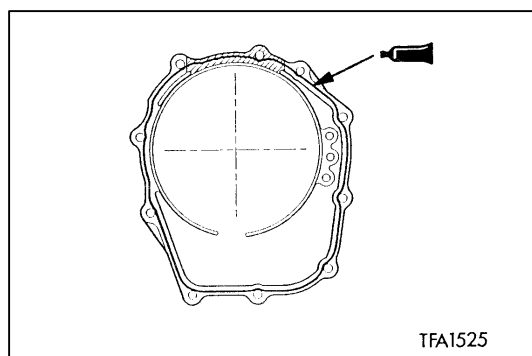
### NOTE

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

**Standard value: 0.25 – 0.45 mm**

Select a thrust race #8 whose thickness corresponds to the measured value from the table below, and replace the thrust race installed in step (44) with the selected one.

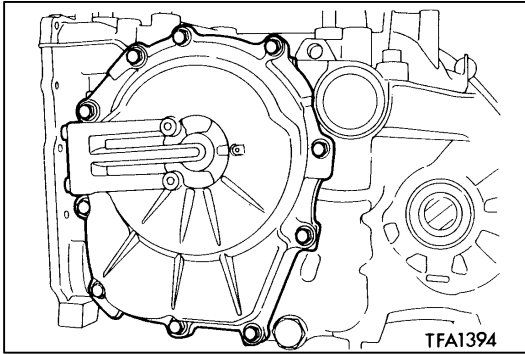
Measurement value mm	Thickness mm	Part No.
0.3–0.4	1.6	MD707267
0.4–0.5	1.7	MD759681
0.5–0.6	1.8	MD723064
0.6–0.7	1.9	MD754794
0.7–0.8	2.0	MD707268
0.8–0.9	2.1	MD754795
0.9–1.0	2.2	MD723065
1.0–1.1	2.3	MD754796
1.1–1.2	2.4	MD724358
1.2–1.3	2.5	MD754797
1.3–1.4	2.6	MD754798



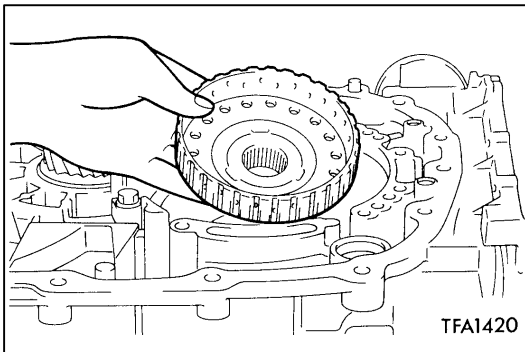
(46) Squeeze out the liquid gasket of 1.6 mm in diameter and apply it to the shown points of the rear cover.

### Liquid gasket:

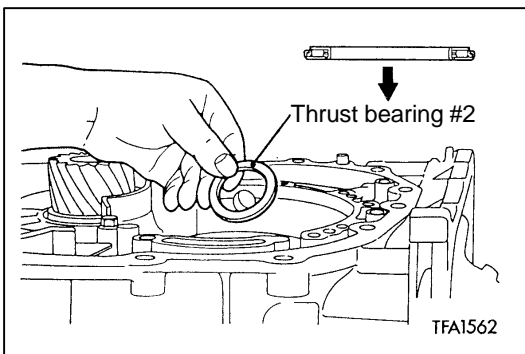
**mitsubishi genuine sealant Part No. MD974421 or equivalent**



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

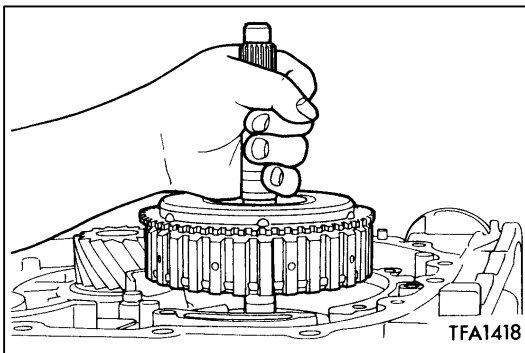


(48) Install the underdrive clutch hub.

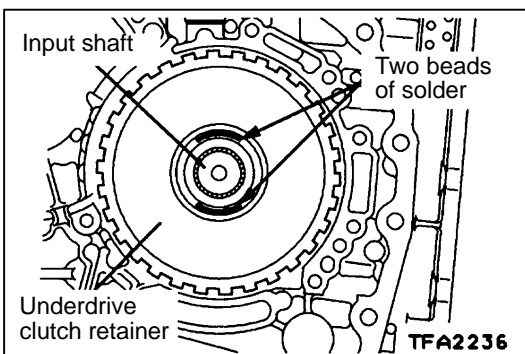


(49) Install the thrust bearing #2.

**Caution**  
Install the thrust bearing in correct direction.



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



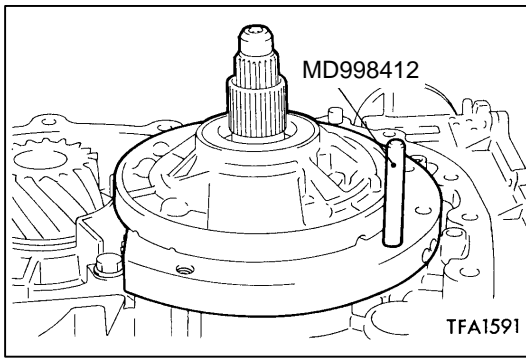
(50a) Place two beads of solder [each 10 mm in length, 3.5 mm in diameter] on the underdrive clutch retainer as shown in the illustration.

## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

MAIN

Group  
23

23B

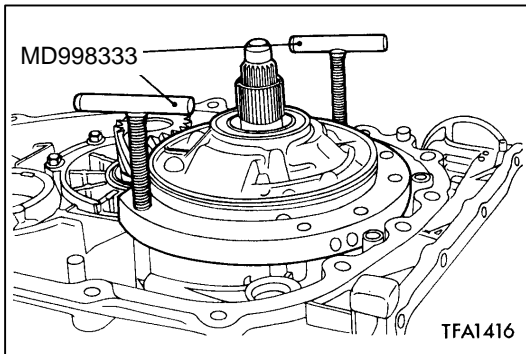


- (50b) Install special tool in the illustrated place.  
(50c) Install the oil pump to the transaxle case.

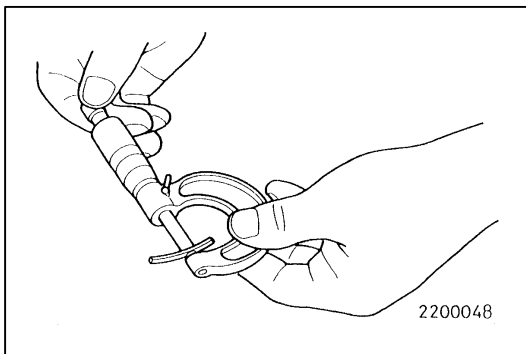
### NOTE

Do not install the oil pump gasket at this time.

- (50d) Tighten the oil pump mounting bolts (6 pieces) to the specified torque.

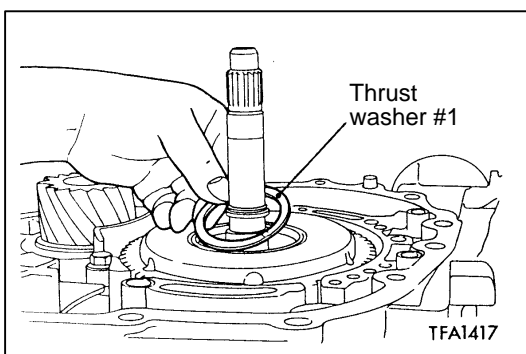


- (50e) Remove the oil pump mounting bolts.  
(50f) Using special tool, remove the oil pump, and then take out the crushed solder.



- (50g) Use a micrometer to measure the thickness of the crushed solder beads and record the measured value.  
(50h) Select a thrust washer #1 whose thickness corresponds to the measured value from table below.

Measurement value mm	Thickness mm	ID symbol	Part No.
2.25–2.45	1.8	18	MD754509
2.45–2.65	2.0	20	MD754508
2.65–2.85	2.2	22	MD754507
2.85–3.05	2.4	24	MD753793
3.05–3.25	2.6	26	MD753794
3.25–3.45	2.8	28	MD753795



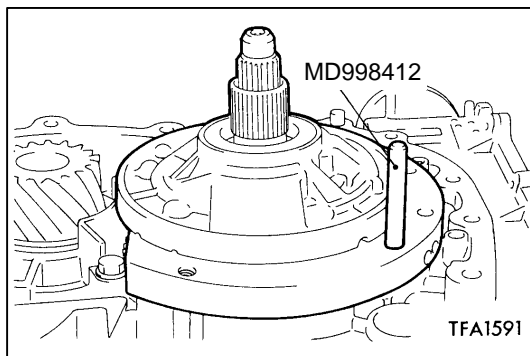
- (51) Install the used thrust washer #1 that was selected in step (50h) on the underdrive clutch retainer.

## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

MAIN

Group  
23

23B

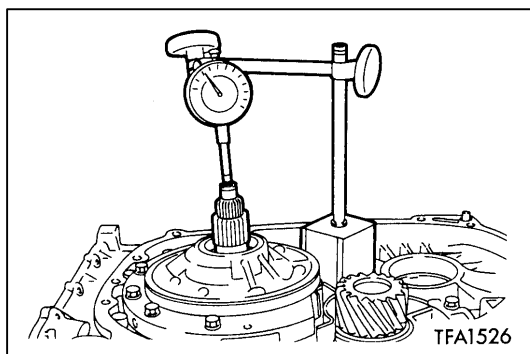


(52) Use the special tool to install a new oil pump gasket and oil pump.

### Caution

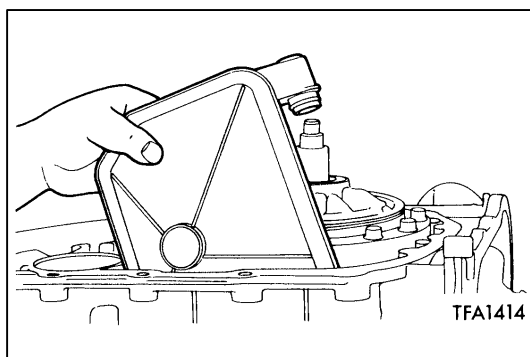
**Never reuse the old gasket.**

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

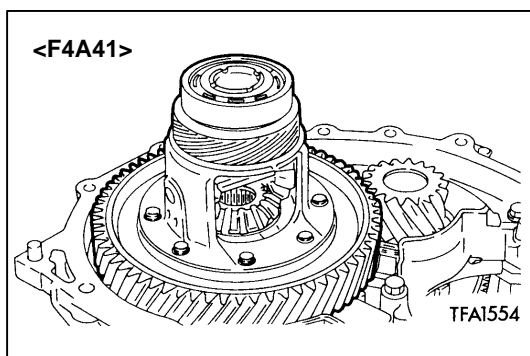


(54) Make sure that the input shaft end play meets the standard value.

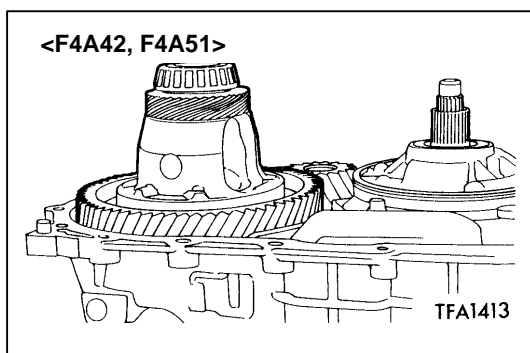
**Standard value: 0.70 – 1.45 mm**



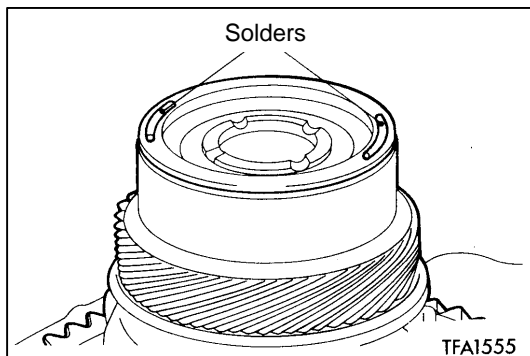
(55) Install the oil filter.



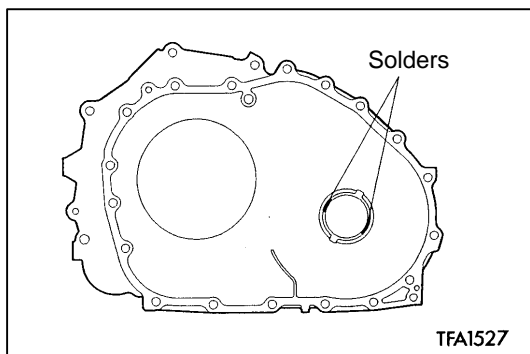
(56) Install the spacer (F4A41-1-MRA only), and then the differential. <F4A41>



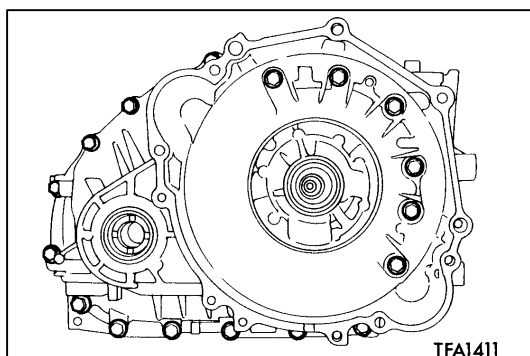
(57) Install the differential. <F4A42, F4A51>



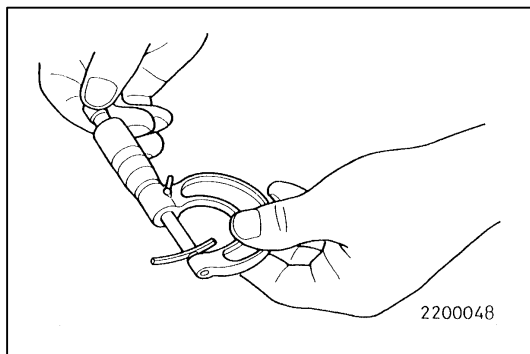
- (58) Install the 1.25-mm-thick spacer. <F4A41-1-MRA only>  
 (59) Place a solder (approx. 10 mm in length, 3 mm in diameter) on the differential as shown in the figure. <F4A41>



- (60) Place a solder (approx. 10 mm in length, 3 mm in diameter) on the torque converter housing as shown in the figure. <F4A42, F4A51>



- (61) Install the torque converter housing to the transmission case without applying sealant. Tighten its mounting bolts to the specified torque.  
 (62) Loosen the bolts, and remove the outer race <F4A42, F4A51> and solder.



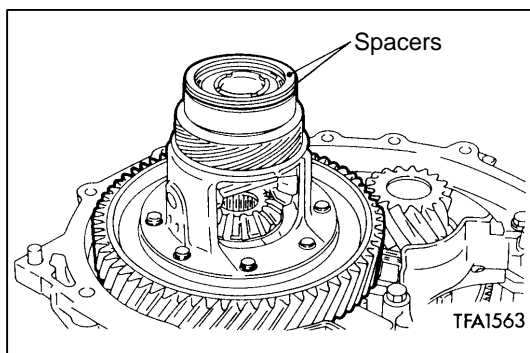
- (63) Use a micrometer to measure the thickness (T) of the pressed solder. Select a spacer which thickness is within the following value.

**F4A41**

(T – 0.045 mm) to (T – 0.165 mm)

**F4A42, F4A51**

(T + 0.045 mm) to (T + 0.105 mm)



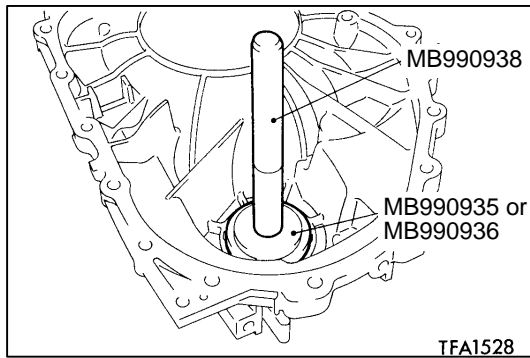
- (64) Install the spacer selected in the above step. <F4A41>

## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

MAIN

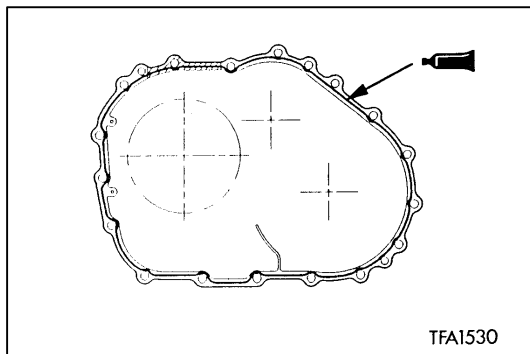
Group  
23

23B



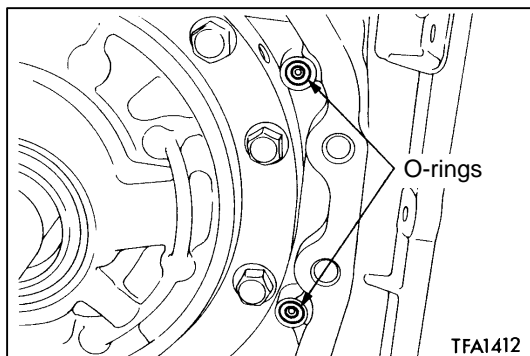
(65) Set the spacer selected in step (63) and install the outer race to the torque converter housing. Use the special tools to press in the outer race. <F4A42, F4A51>

Model	Special tools No.
F4A41, F4A42	MB990935, MB990938
F4A51	MB990936, MB990938

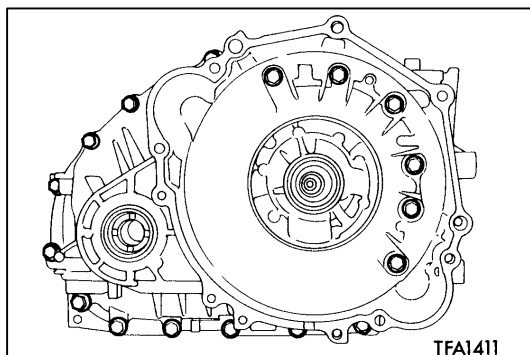


(66) Squeeze out the liquid gasket of 1.6 mm in diameter and apply it to the shown points of torque converter.

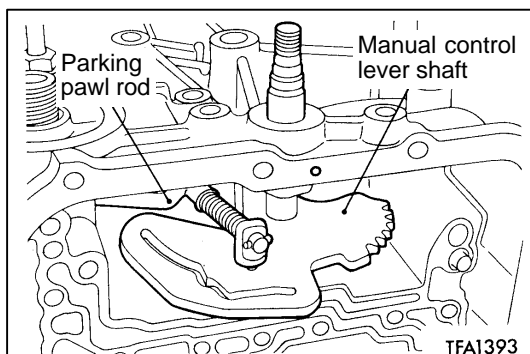
**Liquid gasket:**  
**mitsubishi genuine sealant Part No. MD974421**  
**or equivalent**



(67) Install the two O-rings.



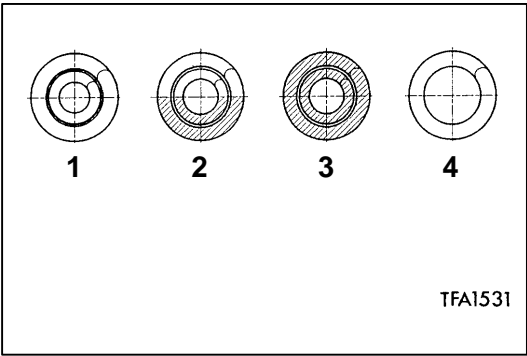
(68) Install the torque converter, and then tighten its 18 mounting bolts to the specified torque.



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

(70) Install the manual control lever shaft roller.

23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

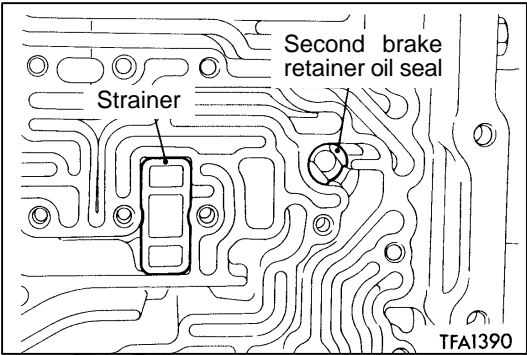
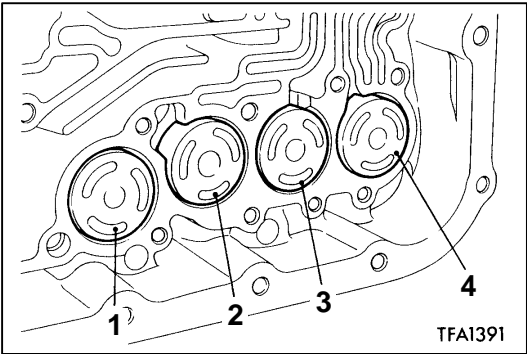


(71)Install the accumulator pistons, new seal rings, and springs.

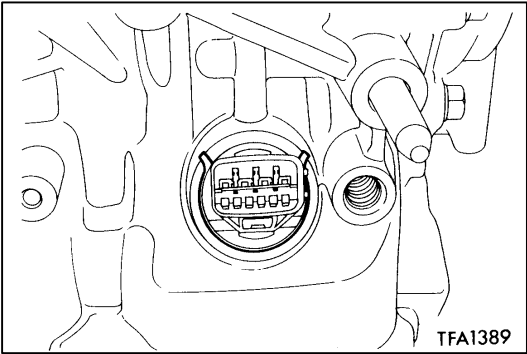
NOTE

The accumulator springs are identified as shown in the figure.

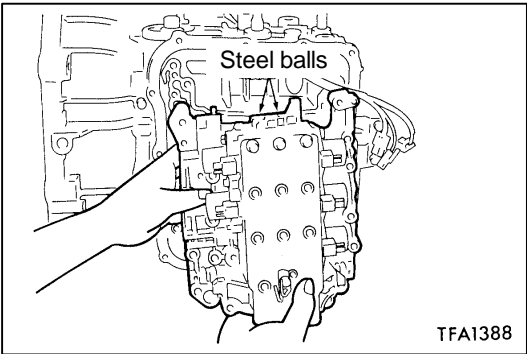
No.	Name
1	For low-reverse brake
2	For underdrive clutch
3	For second brake
4	For overdrive clutch



(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.



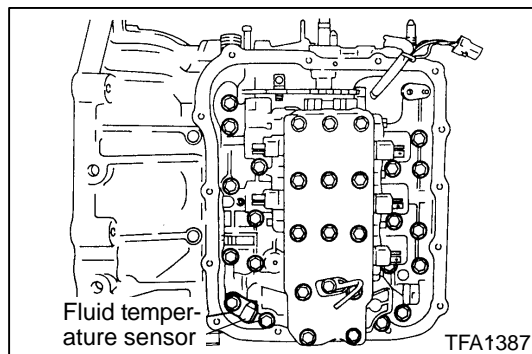
(74)Install the valve body, gasket, and two steel balls.

## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

MAIN

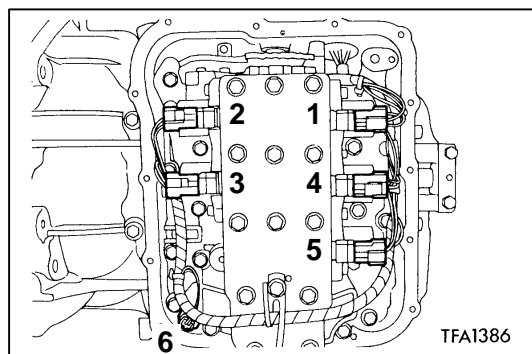
Group  
23

23B



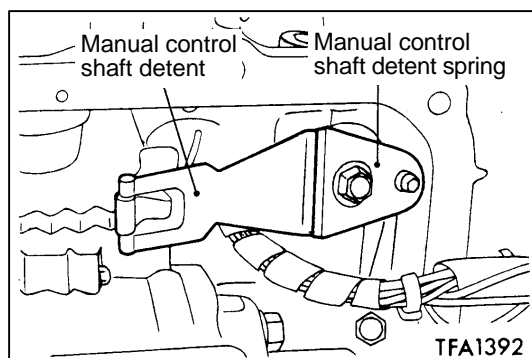
(75) Install the fluid temperature sensor. (This step is unnecessary if the sensor is incorporated in the solenoid valve harness).

(76) Install the 28 mounting bolts of the valve body.

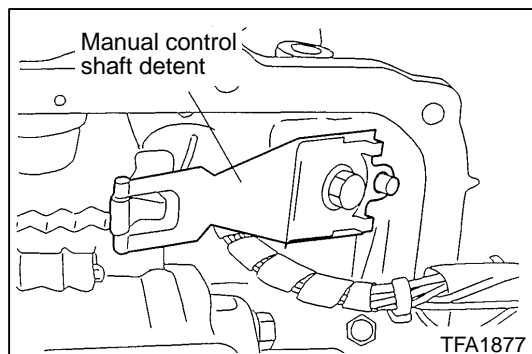


(77) Connect the connectors of the valve body.

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 spring and detent. <Model 1996>



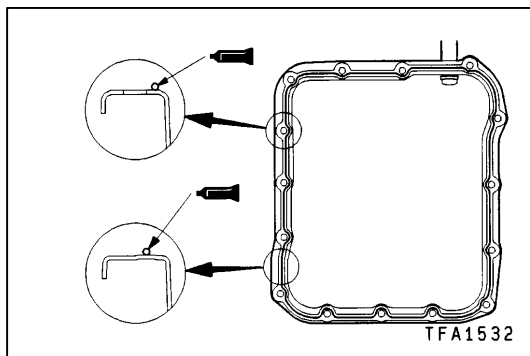
Install the manual control shaft detent. <Model 1997>

## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission

MAIN

Group  
23

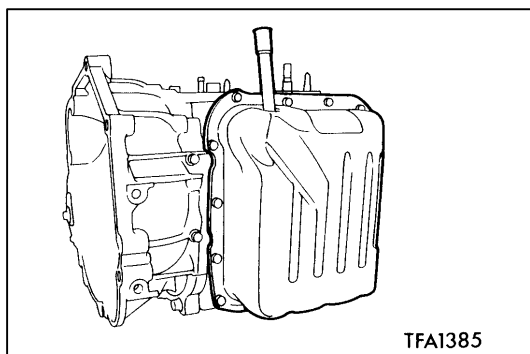
23B



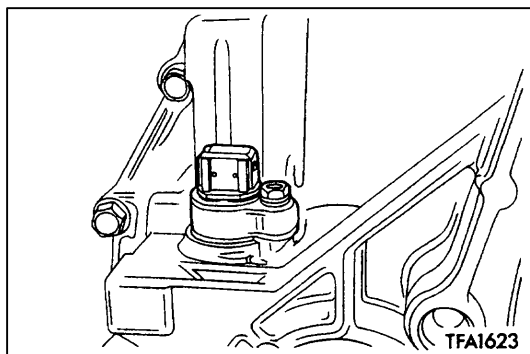
(79) Apply the liquid gasket to the valve body cover.

**Liquid gasket:**

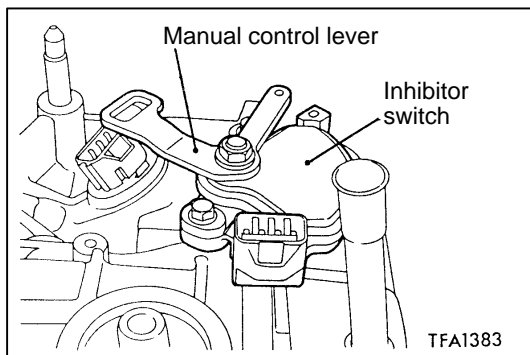
**MITSUBISHI genuine sealant Part No. MD974421 or equivalent**



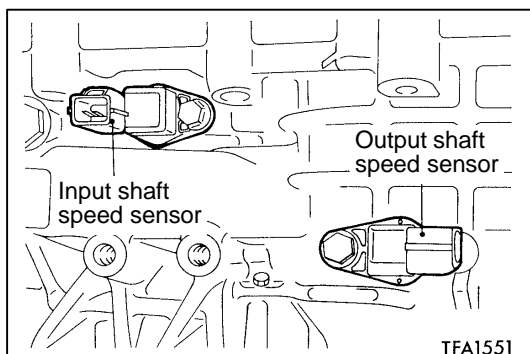
(80) Install the valve body cover, and then tighten its mounting bolts to the specified torque.



(81) Install the speedometer gear or sealing cap.

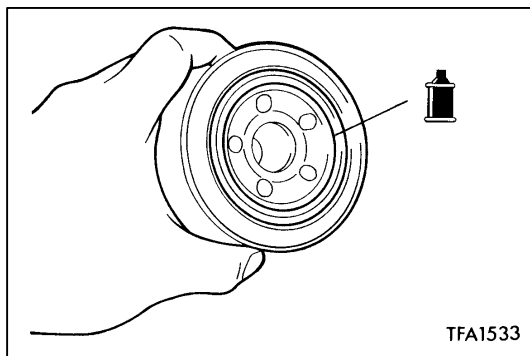


(82) Install the inhibitor switch and manual control lever.



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

## 23B AUTOMATIC TRANS OVERHAUL BASE – Transmission



(84) Apply a small amount of ATF to the oil filter gasket. Tighten the filter to the specified torque. <Externally mounted type>

MAIN

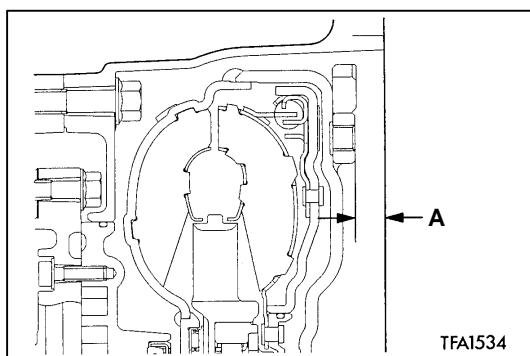
Group  
23

23B

(85) Install the eye bolt, a new gasket, and the oil cooler feed tube.

(86) Install the oil dipstick.

(87) Install the brackets.



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

**Reference value:** approx.12.2 mm <F4A41, F4A42>  
approx. 9.4 mm <F4A51>

### Caution

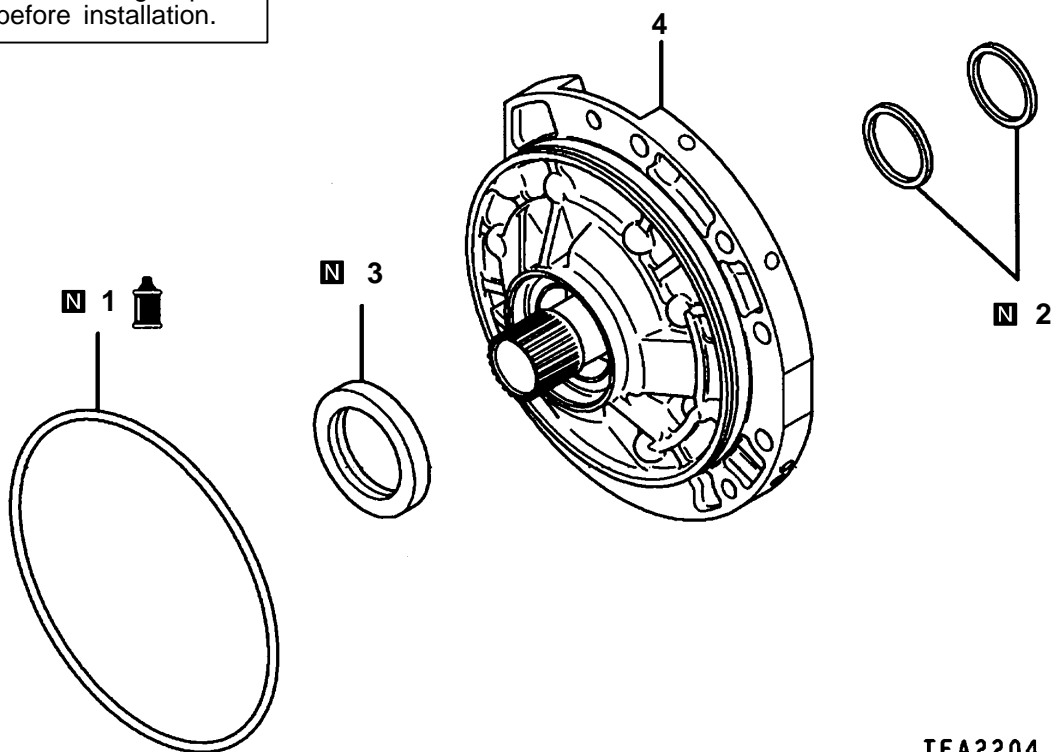
**Apply ATF to the oil pump drive hub before installing the torque converter. Be careful not to damage the oil seal lip when installing the torque converter.**

## OIL PUMP

## DISASSEMBLY AND REASSEMBLY



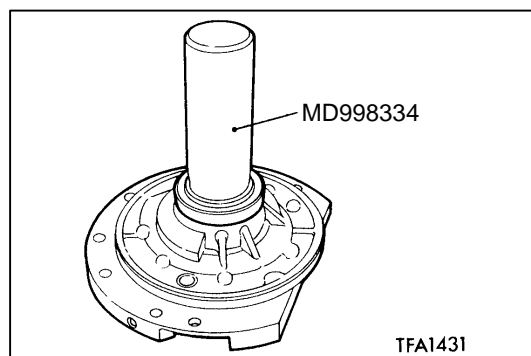
Apply automatic transmission fluid to all moving parts before installation.



TFA2204

## Disassembly steps

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



TFA1431

## 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 to the o-ring.

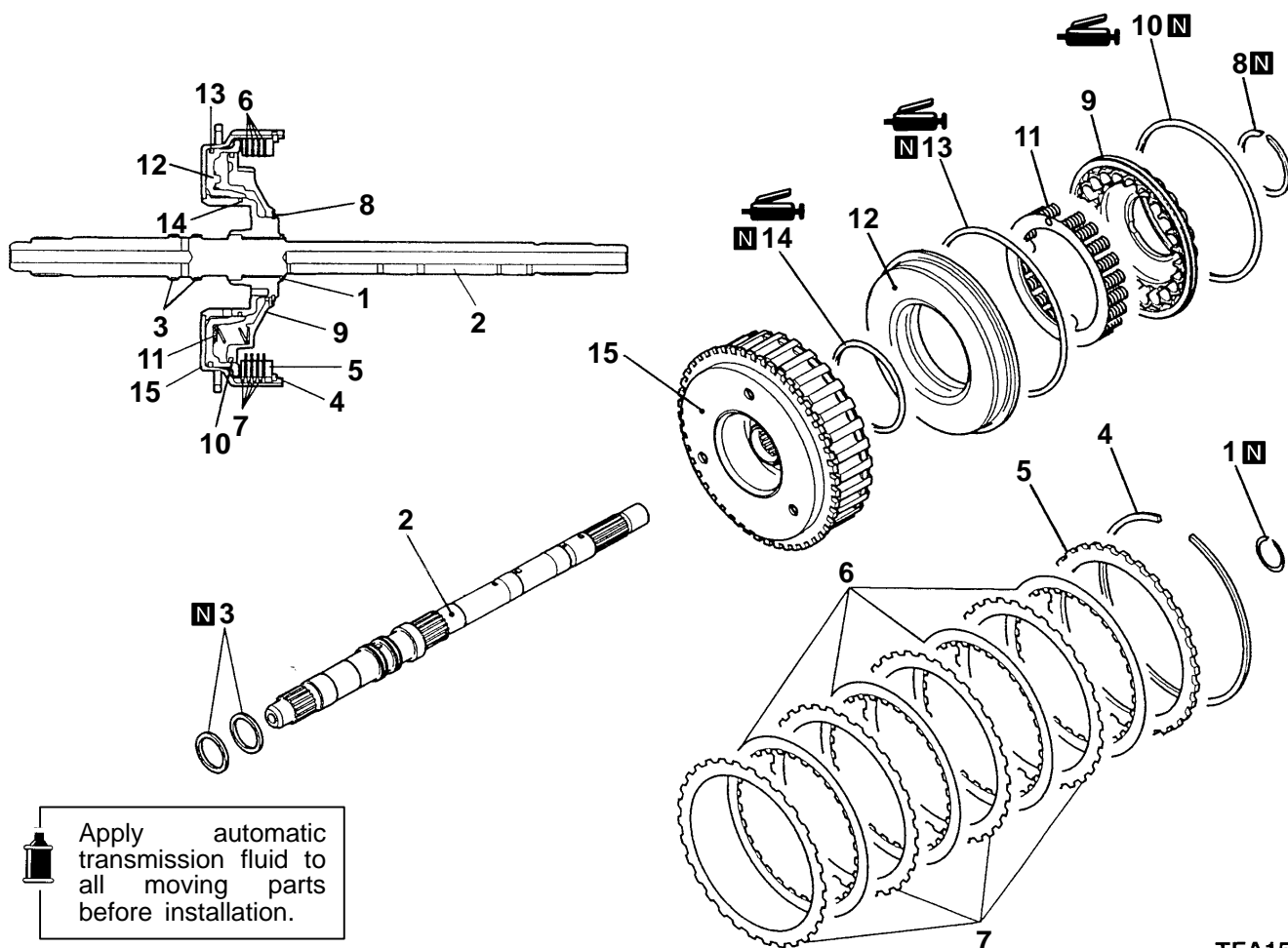
# UNDERDRIVE CLUTCH AND INPUT SHAFT

## DISASSEMBLY AND REASSEMBLY

MAIN

Group  
23

23B



TFA1564

### Number of clutch discs and plates

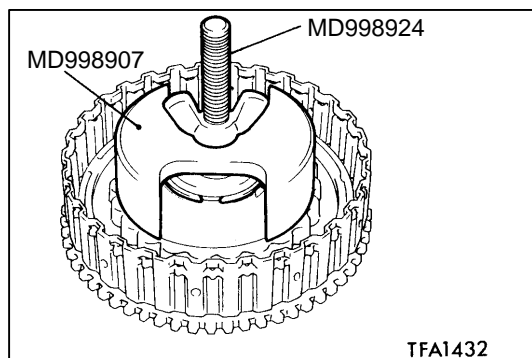
Model	Clutch disc	Clutch plate	Clutch reaction plate
F4A41	3	3	1
F4A42, F4A51	4	4	1

### 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



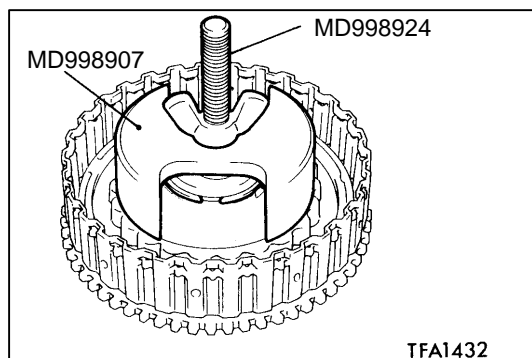
## DISASSEMBLY SERVICE POINTS

### ◀A▶ SNAP RING REMOVAL

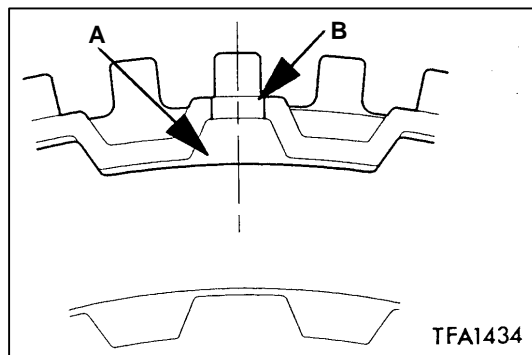
## REASSEMBLY SERVICE POINTS

### ▶A◀ D-RING INSTALLATION

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



### ▶B◀ SNAP RING INSTALLATION



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

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

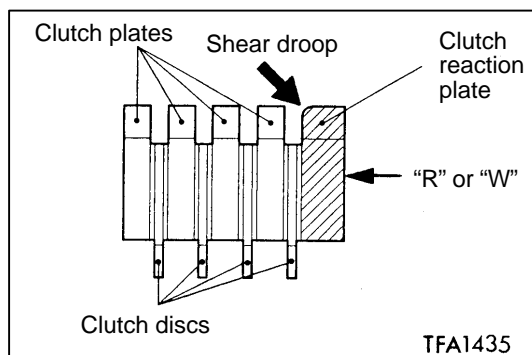
#### Caution

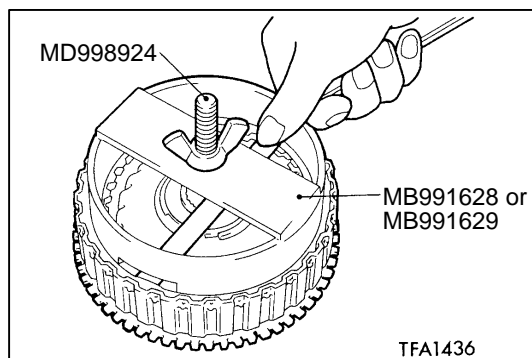
Immerse the clutch disc in ATF before assembling it.

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

### Number of clutch discs and plates

Model	Clutch disc	Clutch plate	Clutch reaction plate
F4A41	3	3	1
F4A42, F4A51	4	4	1





## ▶D◀ 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 – 1.4 mm <F4A41>

1.6 – 1.8 mm <F4A42, F4A51>

Model	Special tools No.
F4A41, F4A42	MB991628, MD998924
F4A51	MB991629, MD998924

## REVERSE AND OVERDRIVE CLUTCH

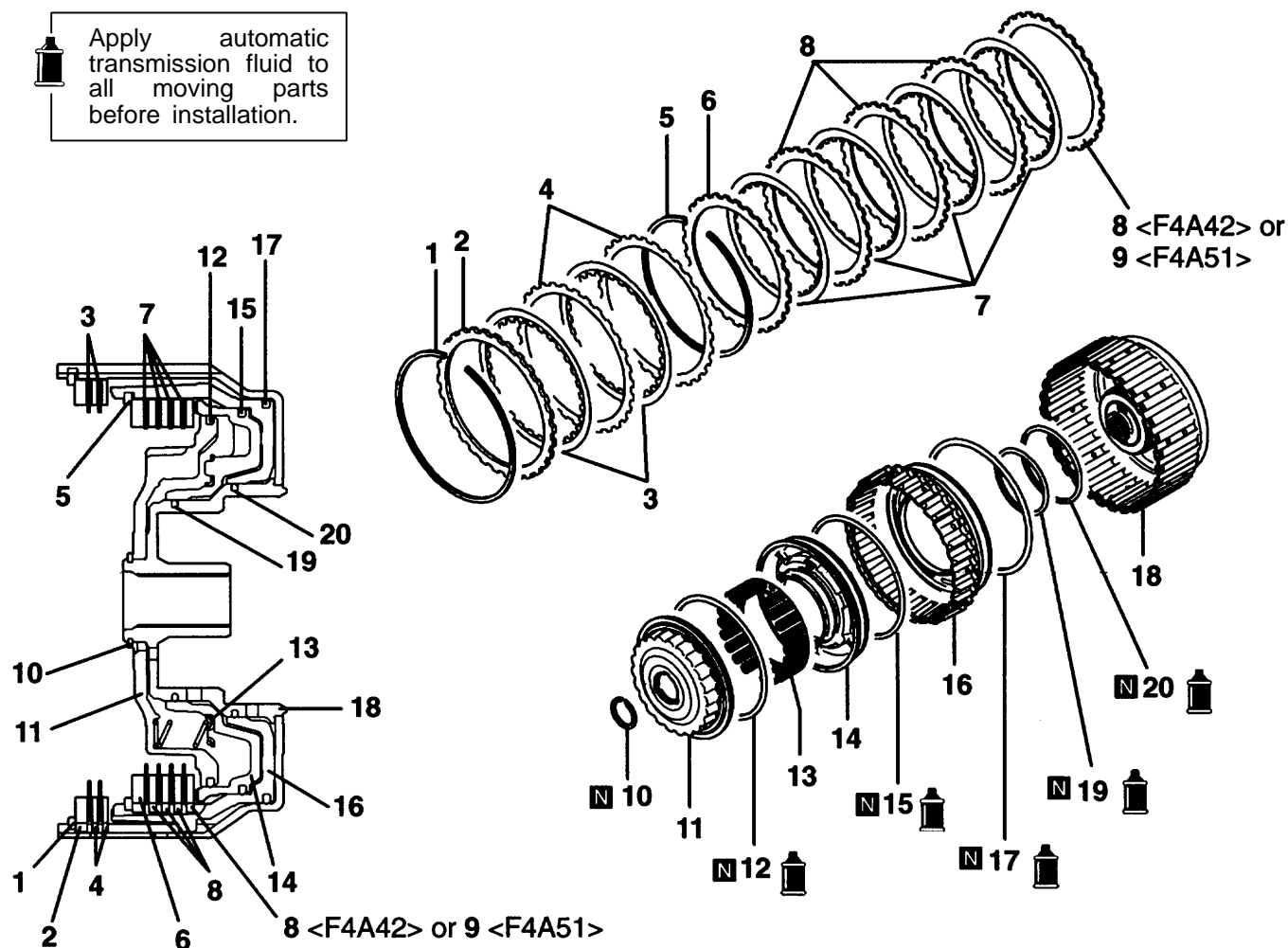
## DISASSEMBLY AND REASSEMBLY

MAIN

Group  
23

23B

Apply automatic transmission fluid to all moving parts before installation.



TFA2208

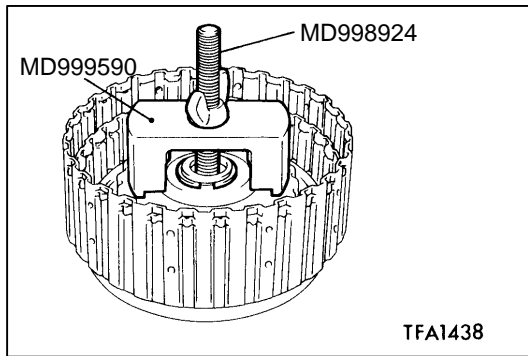
## Number of clutch discs and plates

	Model	Pressure plate	Clutch disc	Clutch plate	Clutch reaction plate
Over drive clutch	F4A41	—	3	3	1
	F4A42	—	4	4	1
	F4A51	1	4	3	1
Reverse clutch		—	2	2	1

## Disassembly steps

1. Snap ring  
 2. Clutch reaction plate  
 3. Clutch disc  
 4. Clutch plate  
 5. Snap ring  
 6. Clutch reaction plate  
 7. Clutch disc  
 8. Clutch plate  
 9. Pressure plate <F4A51>  
 10. Snap ring  
 11. Spring retainer

12. D-ring  
 13. Return spring  
 14. Overdrive clutch piston  
 15. D-ring  
 16. Reverse clutch piston  
 17. D-ring  
 18. Reverse clutch retainer  
 19. D-ring  
 20. D-ring



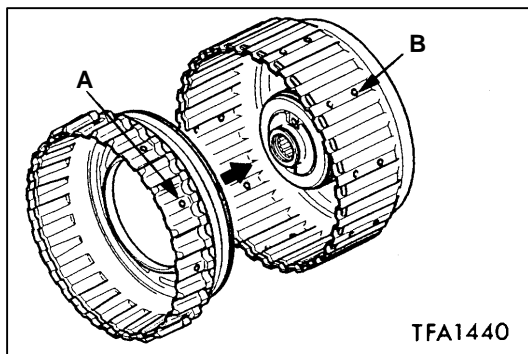
## DISASSEMBLY SERVICE POINT

### ◀A▶ SNAP RING REMOVAL

## REASSEMBLY SERVICE POINTS

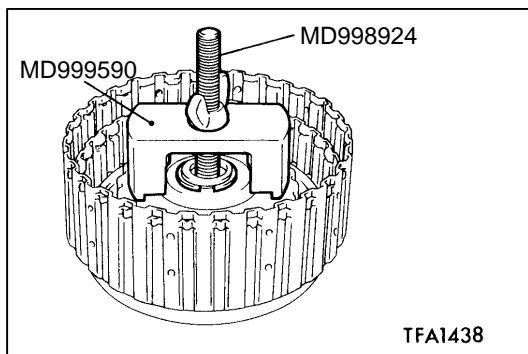
### ▶A◀ D-RING INSTALLATION

Apply ATF, blue petrolatum 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) Set special tools as shown in the illustration.
- (2) Tighten the nut on the special tool to press down on the spring retainer and reverse clutch retainer, and then install the snap ring.
- (3) Check that the clearance between the snap ring and the return spring retainer is within the standard value. If not within the standard value, select a snap ring to adjust.

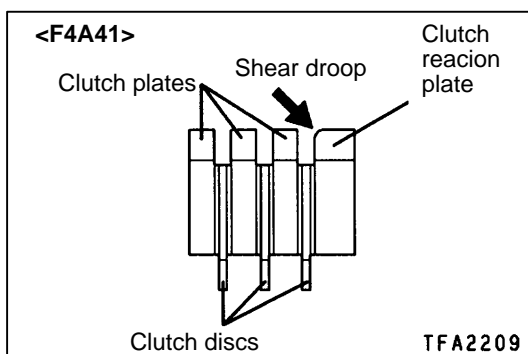
Standard value: 0–0.09 mm

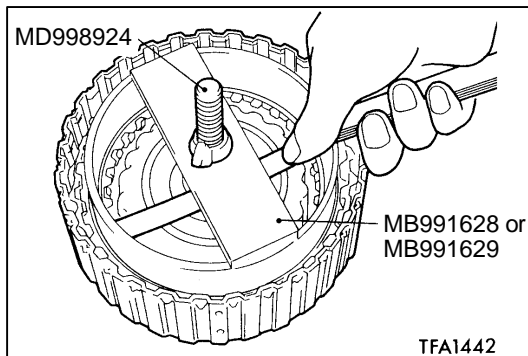
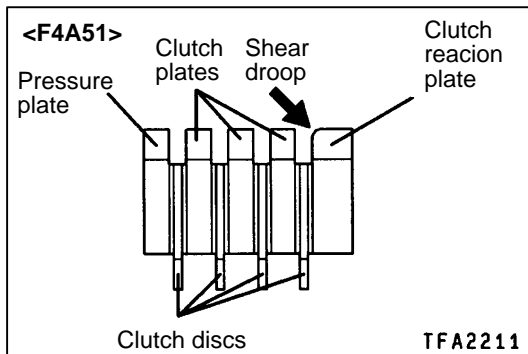
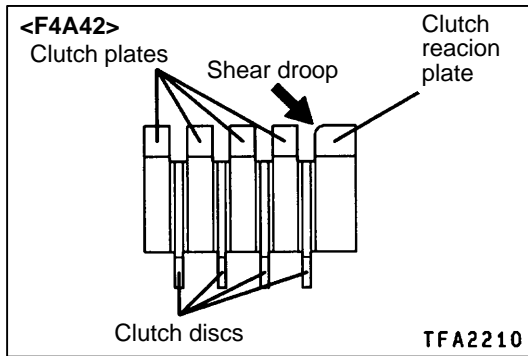
### ▶D◀ PRESSURE PLATE / CLUTCH PLATE / CLUTCH DISC / CLUTCH REACTION PLATE INSTALLATION

Install the clutch reaction plate in the shown direction.

#### Caution

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





## ►E◄ SNAP RING INSTALLATION

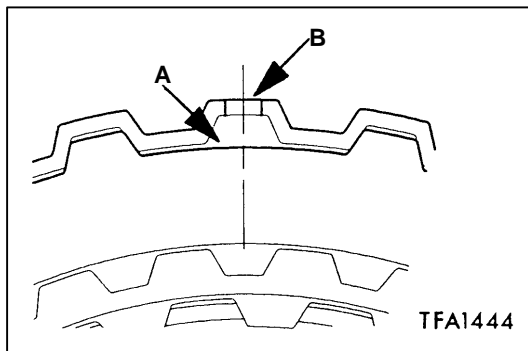
Check that the clearance between the snap ring and the clutch reaction plate is within the standard value. When measuring the clearance, use the special tool to press the clutch reaction plate evenly. If not within the standard value, select a snap ring to adjust.

### Standard value:

1.2–1.4 mm <F4A41>

1.6–1.8 mm <F4A42, F4A51>

Model	Special tools No.
F4A41, F4A42	MB991628, MD998924
F4A51	MB991629, MD998924



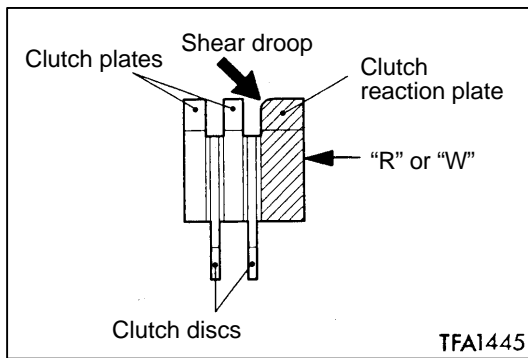
## ►F◄ CLUTCH PLATE/CLUTCH DISC/CLUTCH REACTION PLATE INSTALLATION

- (1) Align each teeth missing part (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.

## 23B AUTOMATIC TRANS OVERHAUL BASE – Reverse & Overdrive Clutch

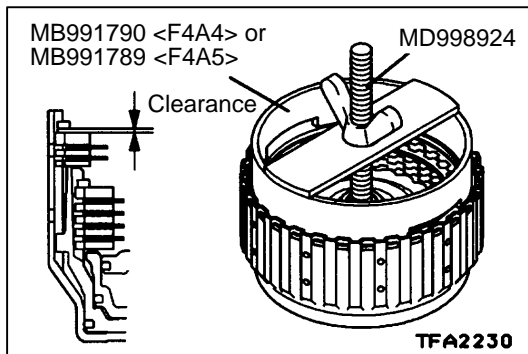


(2) Install the clutch reaction plate in the shown direction.

MAIN

Group  
23

23B



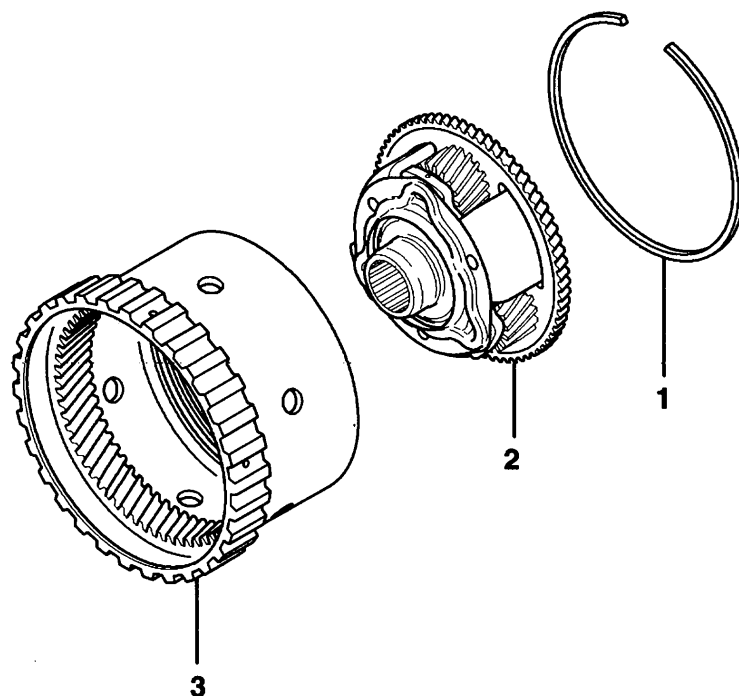
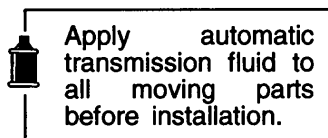
### ▶G◀SNAP RING INSTALLATION

- (1) Install the snap ring into the groove of reverse clutch retainer.
- (2) Set special tools MB991790 <F4A4> or MB991789 <F4A5> and MD998924 as shown in the illustration, and compress the clutch element.
- (3) Check that the clearance between the snap ring and the clutch reaction plate is within the standard value. If not within the standard value, select a snap ring to adjust.

**Standard value: 1.5 – 1.7 mm**

## OVERDRIVE PLANETARY CARRIER <F4A41, F4A42 without ONE-WAY CLUTCH>

### DISASSEMBLY AND REASSEMBLY



TFA2258

#### Disassembly steps

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

## PLANETARY CARRIER ASSEMBLY

&lt;F4A42 with ONE-WAY CLUTCH, F4A51&gt;

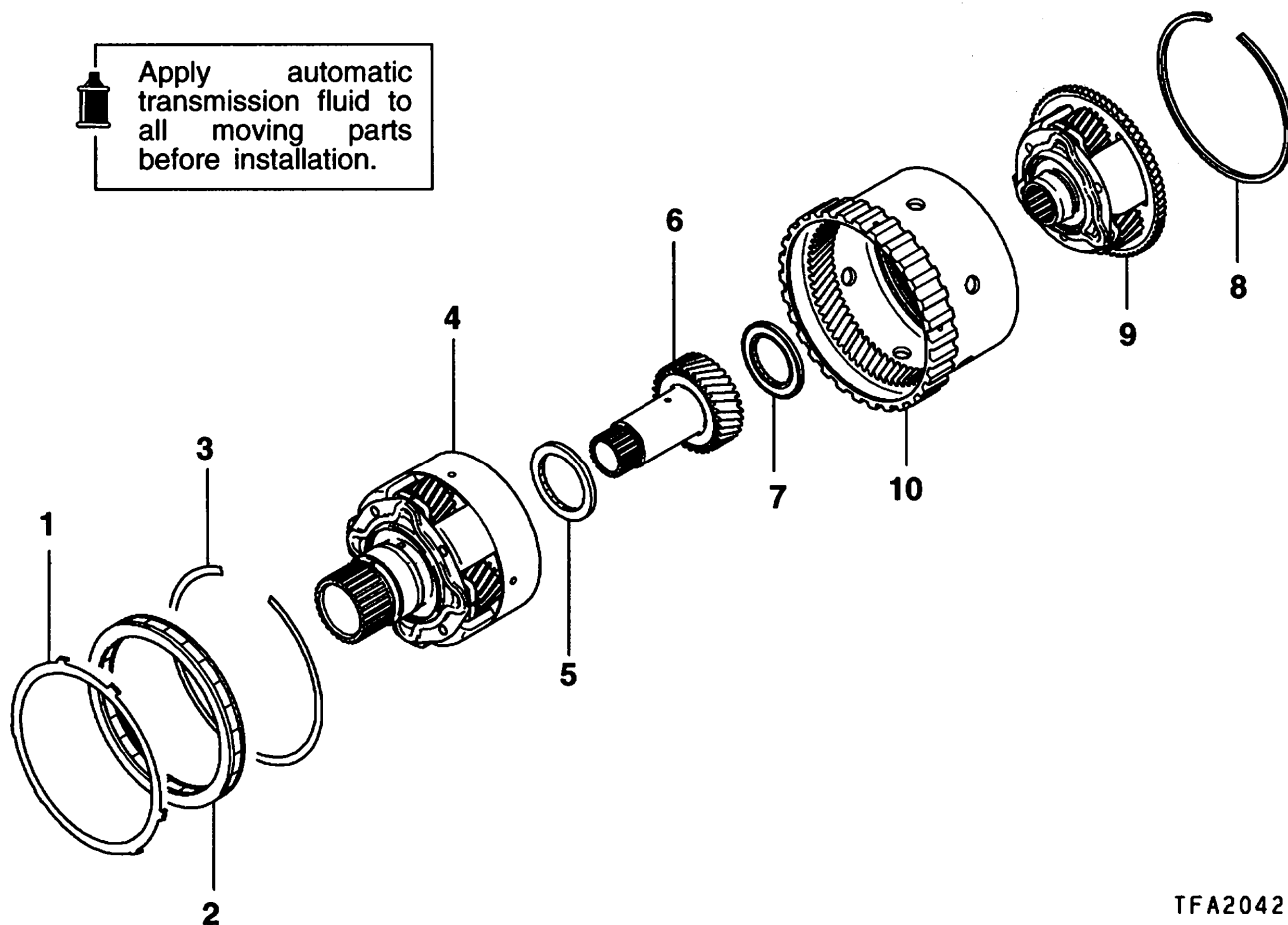
## DISASSEMBLY AND REASSEMBLY

MAIN

Group  
23

23B

Apply automatic transmission fluid to all moving parts before installation.

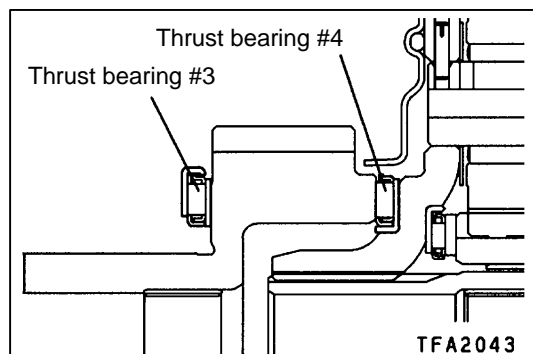


TFA2042

## Disassembly steps

- ▶B◀ 1. Stopper plate
- ▶B◀ 2. One-way clutch
- ▶B◀ 3. Snap ring
- ▶A◀ 4. Output planetary carrier
- ▶A◀ 5. Thrust bearing #3

- ▶A◀ 6. Underdrive sun gear
- ▶A◀ 7. Thrust bearing #4
- ▶A◀ 8. Snap ring
- ▶A◀ 9. Overdrive planetary carrier
- ▶A◀ 10. Overdrive annulus gear



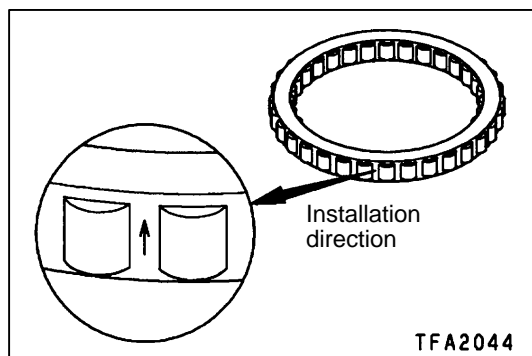
## REASSEMBLY SERVICE POINT

## ▶A◀ THRUST BEARING #3 / THRUST BEARING #4 INSTALLATION

Check the installation direction of thrust bearings number 3 and 4, and install them as shown.

**Caution**

Be careful about the installation direction of the thrust bearings.



### ►B◄ ONE-WAY CLUTCH INSTALLATION

Insert the one-way clutch into the overdrive annulus gear so that the arrow points to the output planetary carrier side.

MAIN

Group  
23

23B

**LOW-REVERSE BRAKE****DISASSEMBLY AND REASSEMBLY**

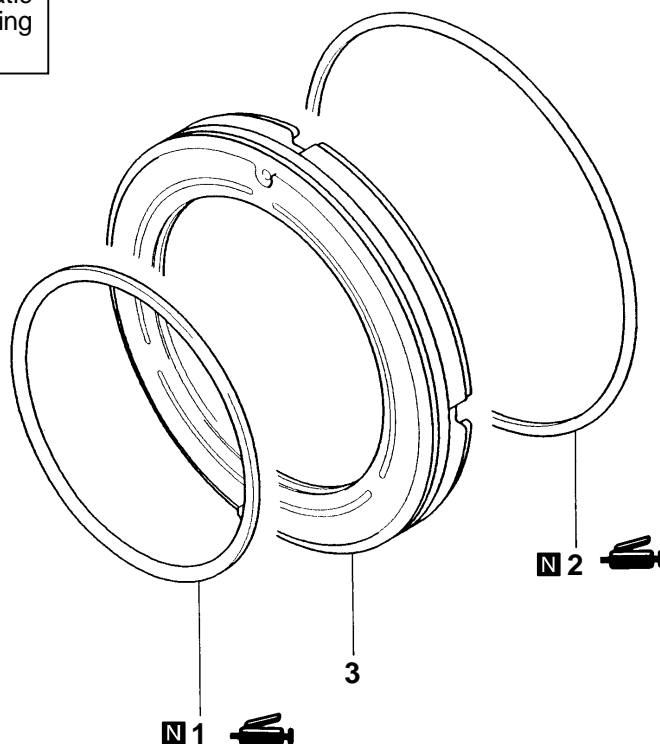
MAIN

Group  
23

23B



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****►A◄ D-RING INSTALLATION**

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

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

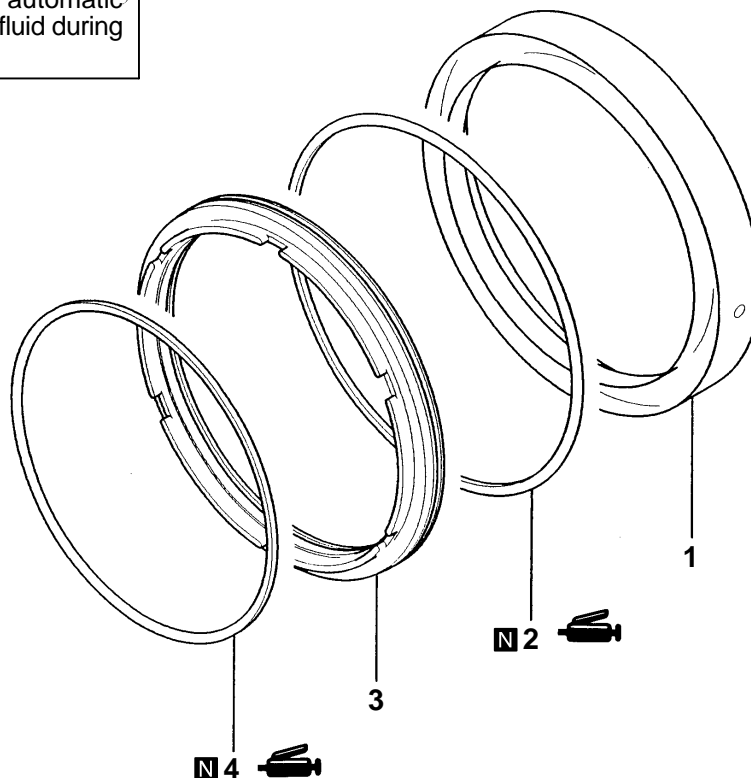
MAIN

Group  
23

23B



Lubricate all internal parts with automatic transmission fluid during reassembly.



TFA1374

**Disassembly steps**


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

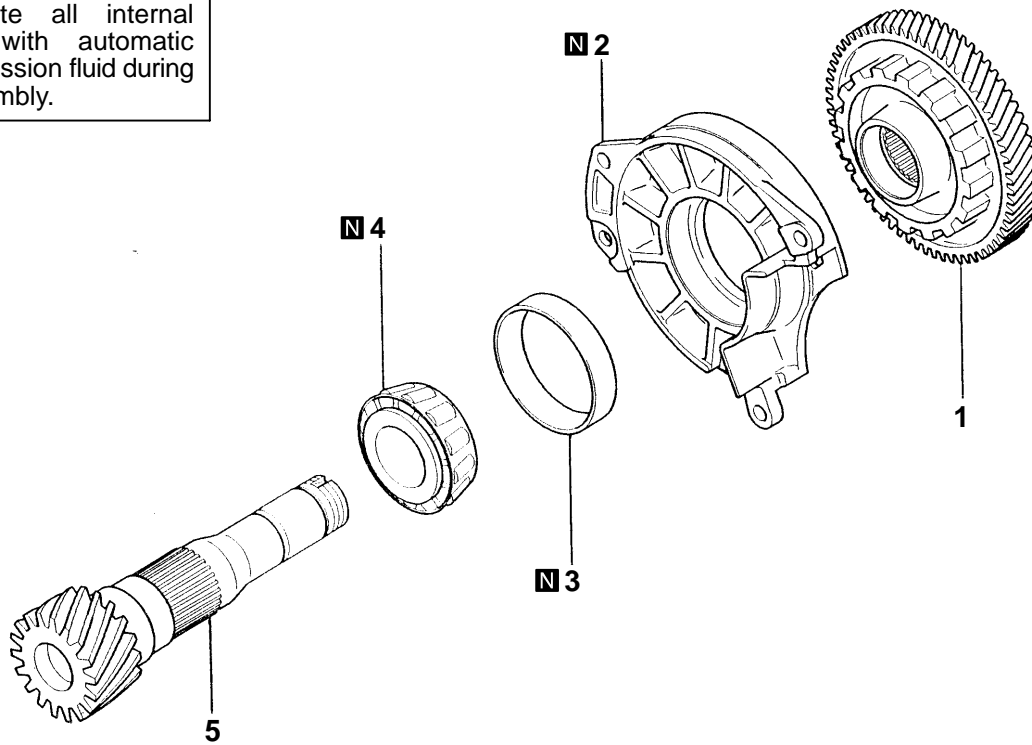
**REASSEMBLY SERVICE POINT****▶A◀ D-RING INSTALLATION**

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

# OUTPUT SHAFT

## DISASSEMBLY AND REASSEMBLY

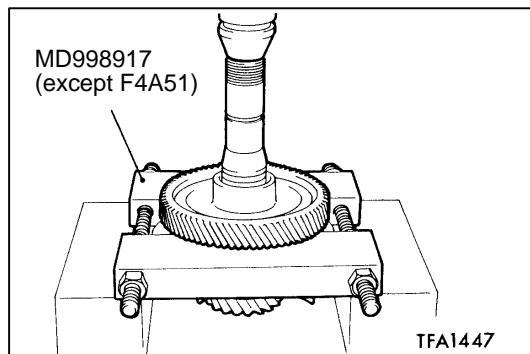
 Lubricate all internal parts with automatic transmission fluid during reassembly.



TFA1375

### Disassembly steps

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



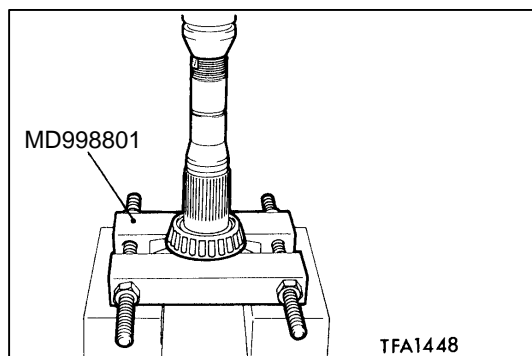
### DISASSEMBLY SERVICE POINTS

◀A▶ TRANSFER DRIVEN GEAR REMOVAL

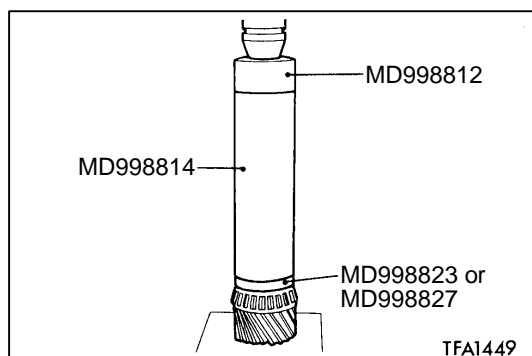
MAIN

Group  
23

23B



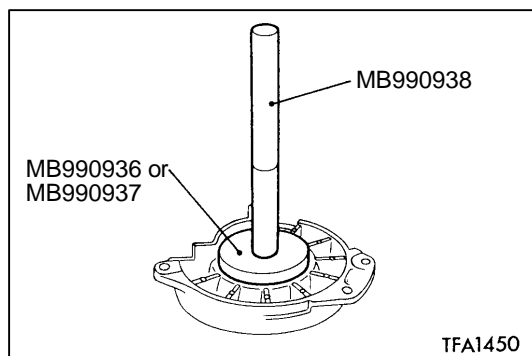
## ◀B▶ TAPER ROLLER BEARING REMOVAL



## REASSEMBLY SERVICE POINTS

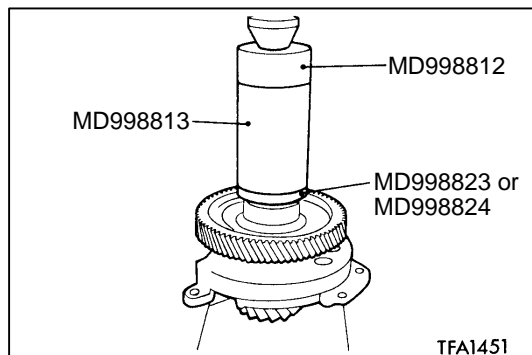
### ▶A▶ TAPER ROLLER BEARING INSTALLATION

Model	Special tools No.
F4A41, F4A42	MD998812, MD998814, MD998823
F4A51	MD998812, MD998814, MD998827



### ▶B▶ OUTER RACE INSTALLATION

Model	Special tools No.
F4A41, F4A42	MB990936, MB990938
F4A51	MB990937, MB990938



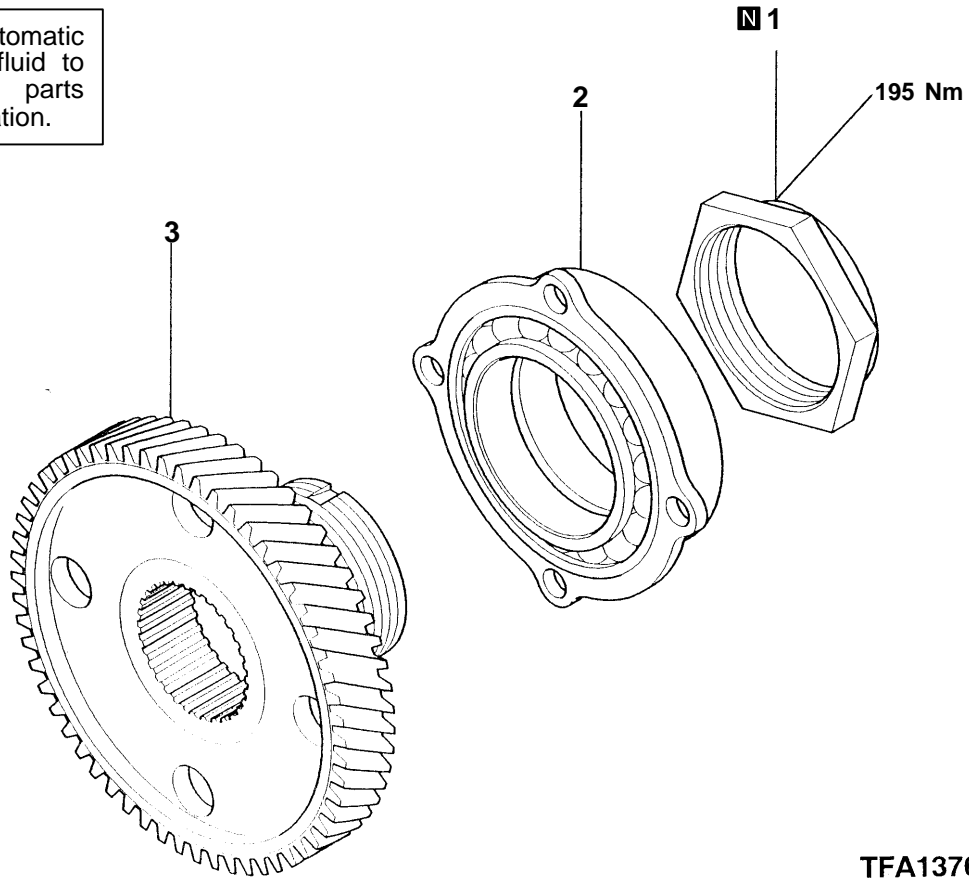
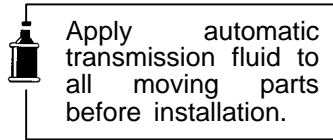
### ▶C▶ TRANSFER DRIVEN GEAR INSTALLATION

Model	Special tools No.
F4A41, F4A42	MD998812, MD998813, MB998823
F4A51	MD998812, MD998813, MB998824

## TRANSFER DRIVE GEAR

<F4A41 up to Dec 1997, F4A42 up to Dec 1997>

### DISASSEMBLY AND REASSEMBLY

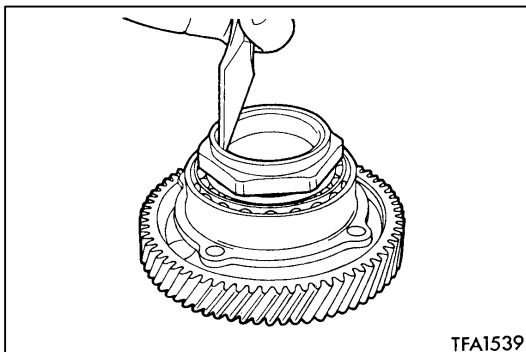


TFA1376

#### Disassembly steps



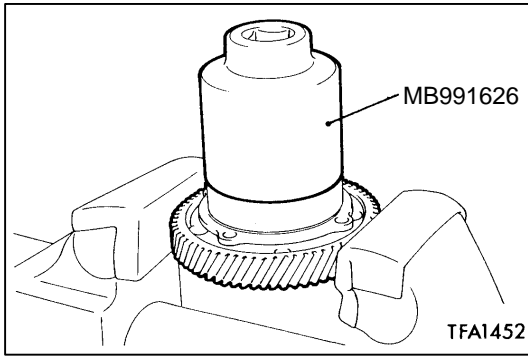
1. Lock nut
2. Transfer drive gear bearing
3. Transfer drive gear



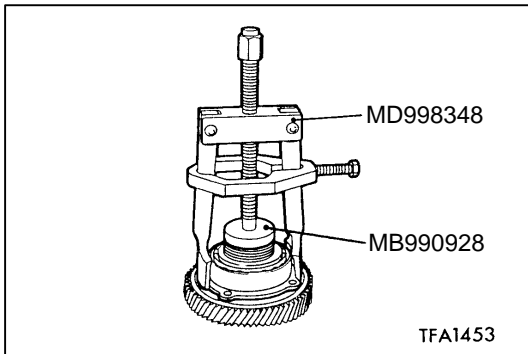
#### DISASSEMBLY SERVICE POINTS

##### ◀A▶ LOCK NUT REMOVAL

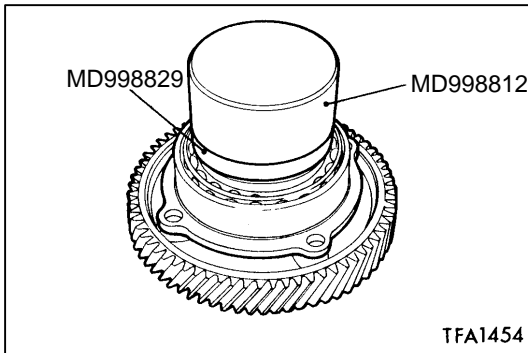
- (1) Pull up the turning stopper of the lock nut.



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

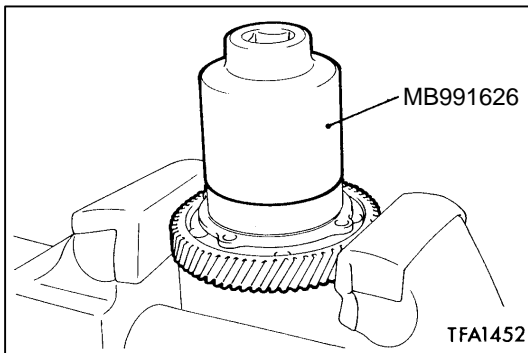


### ◀B▶ TRANSFER DRIVE GEAR BEARING REMOVAL



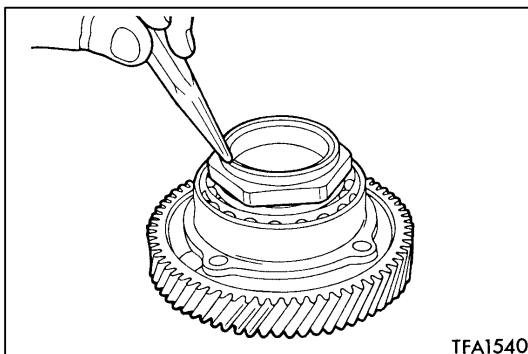
### REASSEMBLY SERVICE POINTS

#### ▶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.

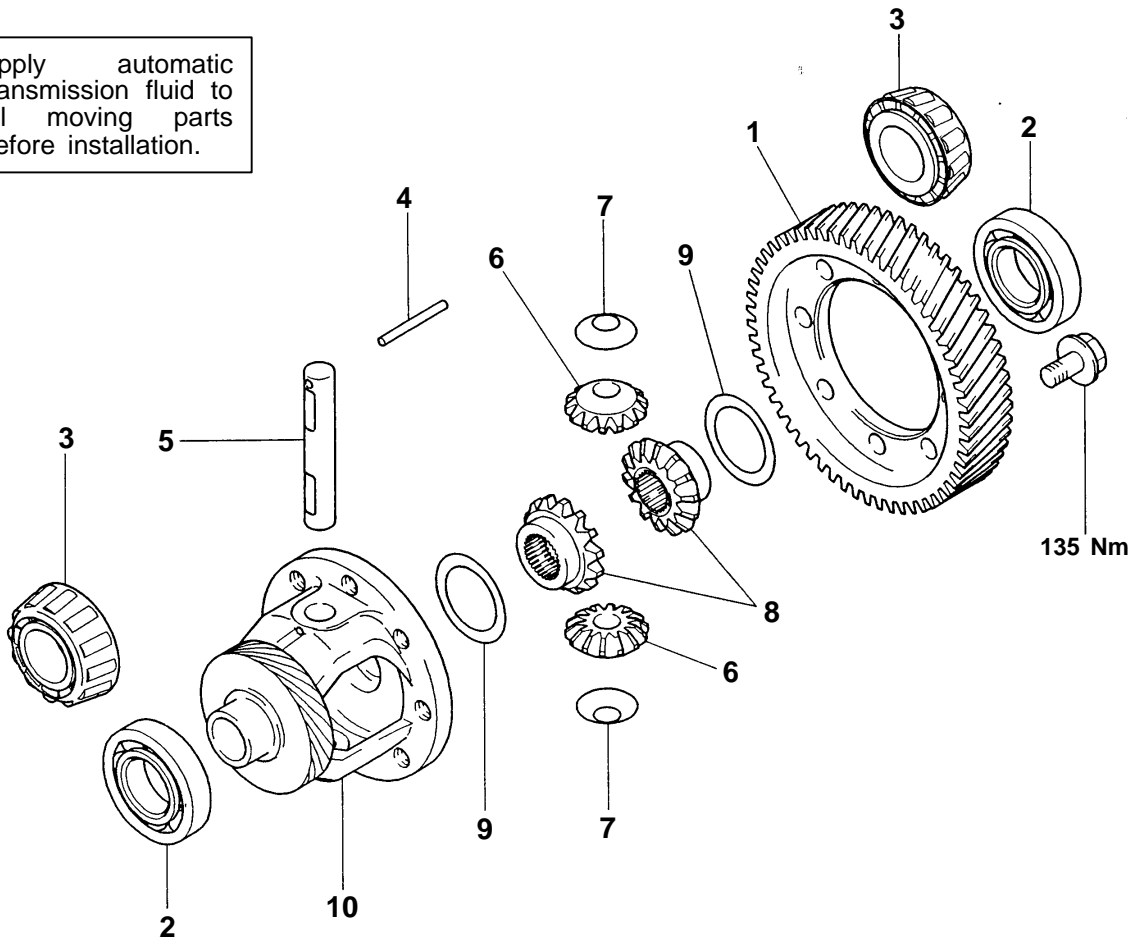


- (2) Use a punch or other to prevent the nut from turning (two points).

# DIFFERENTIAL

## DISASSEMBLY AND REASSEMBLY

Apply automatic transmission fluid to all moving parts before installation.

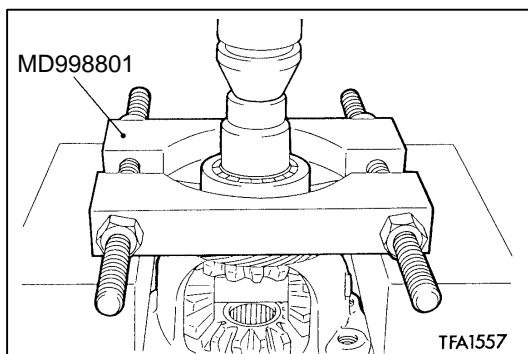


TFA1556

### Disassembly steps

- 1. Differential drive gear
- 2. Ball bearings <F4A41>
- 3. Taper roller bearings <F4A42, F4A51>
- 4. Lock pin
- 5. Pinion shaft

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



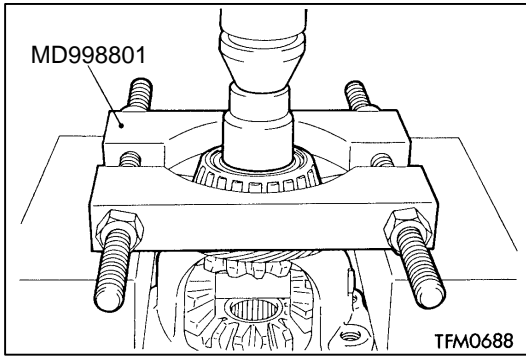
### DISASSEMBLY SERVICE POINTS

#### ◀A▶ BALL BEARING REMOVAL

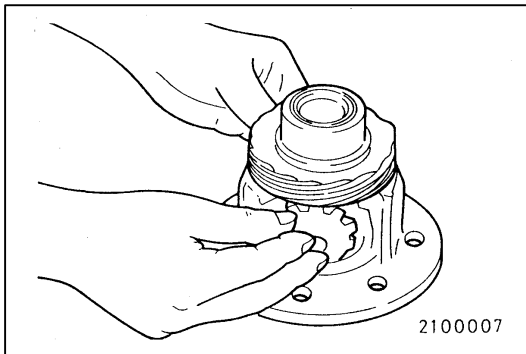
MAIN

Group  
23

23B



## ◀B▶ TAPER ROLLER BEARING REMOVAL



## REASSEMBLY SERVICE POINTS

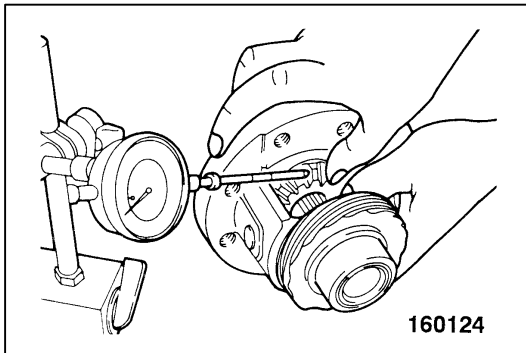
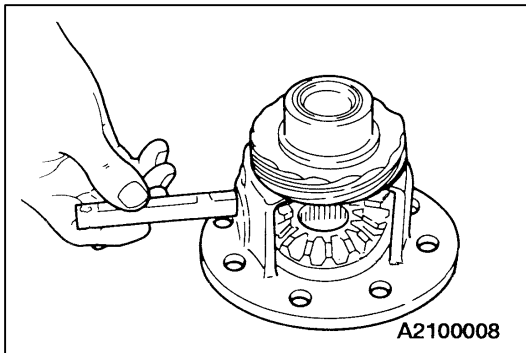
### ▶A◀ SPACER, SIDE GEAR, WASHER, PINION, PINION SHAFT INSTALLATION

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

#### NOTE

Select the medium size spacer (0.93 – 1.00 mm) when assembling a new side gear.

- (2) Attach the washers to the back side of the pinions, engage the pinions simultaneously to the side gears, and settle the gears by turning.
- (3) Insert the pinion shaft.



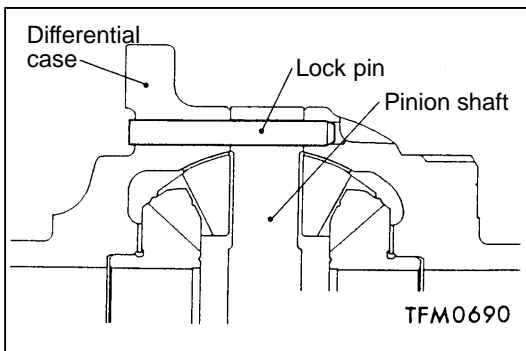
- (4) Measure the backlash between the side gears and pinions.

**Standard value: 0.025 – 0.150 mm**

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

#### NOTE

Adjust so that both backlashes are equal.



### ▶B◀ LOCK PIN INSTALLATION

Install the lock pin in the shown direction.

## 23B AUTOMATIC TRANS OVERHAUL BASE – Differential

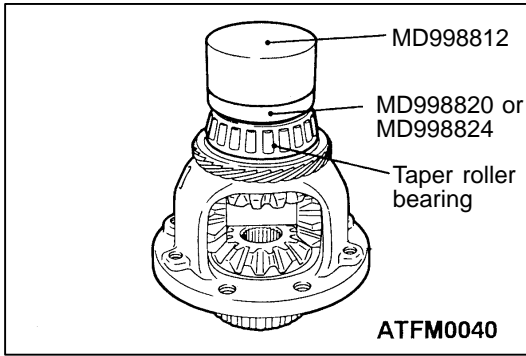
MAIN

Group  
23

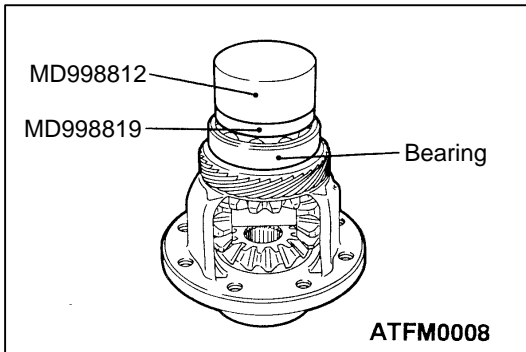
23B

### ►C◄ TAPER ROLLER BEARING INSTALLATION

Model	Special tools No.
F4A42	MD998812, MD998820
F4A51	MD998812, MD998824

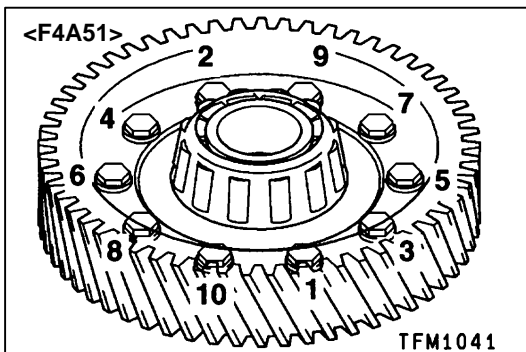
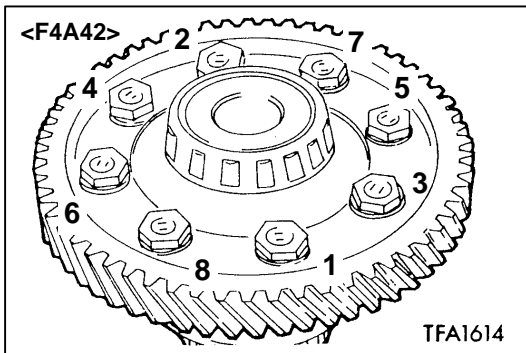
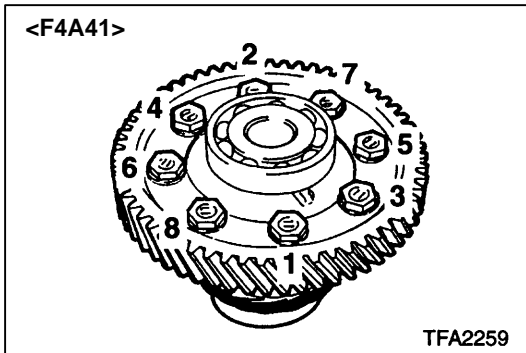


### ►D◄ BALL BEARING INSTALLATION



### ►E◄ DIFFERENTIAL DRIVE GEAR INSTALLATION

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



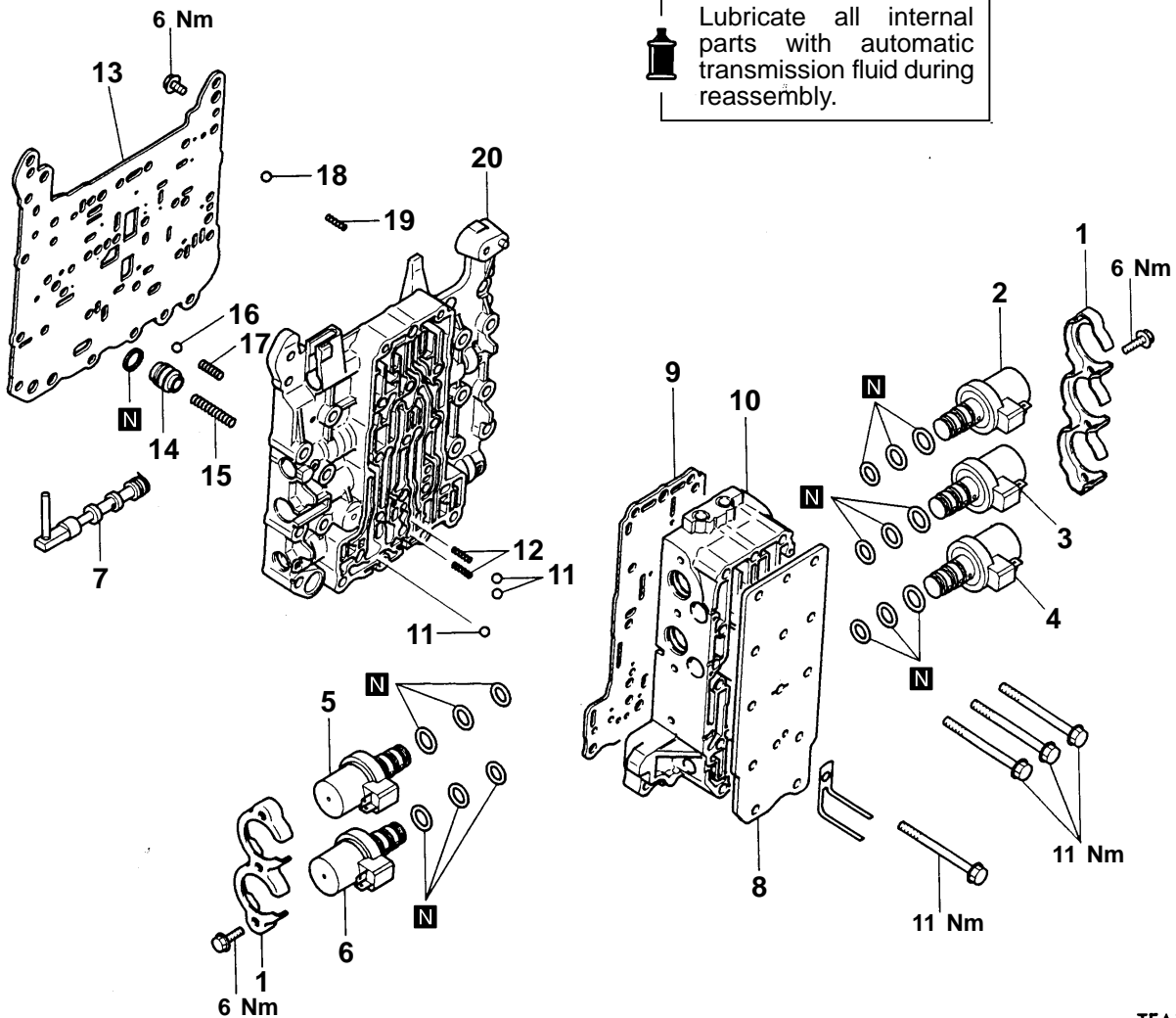
## VALVE BODY

## DISASSEMBLY AND REASSEMBLY

MAIN

Group  
23

23B




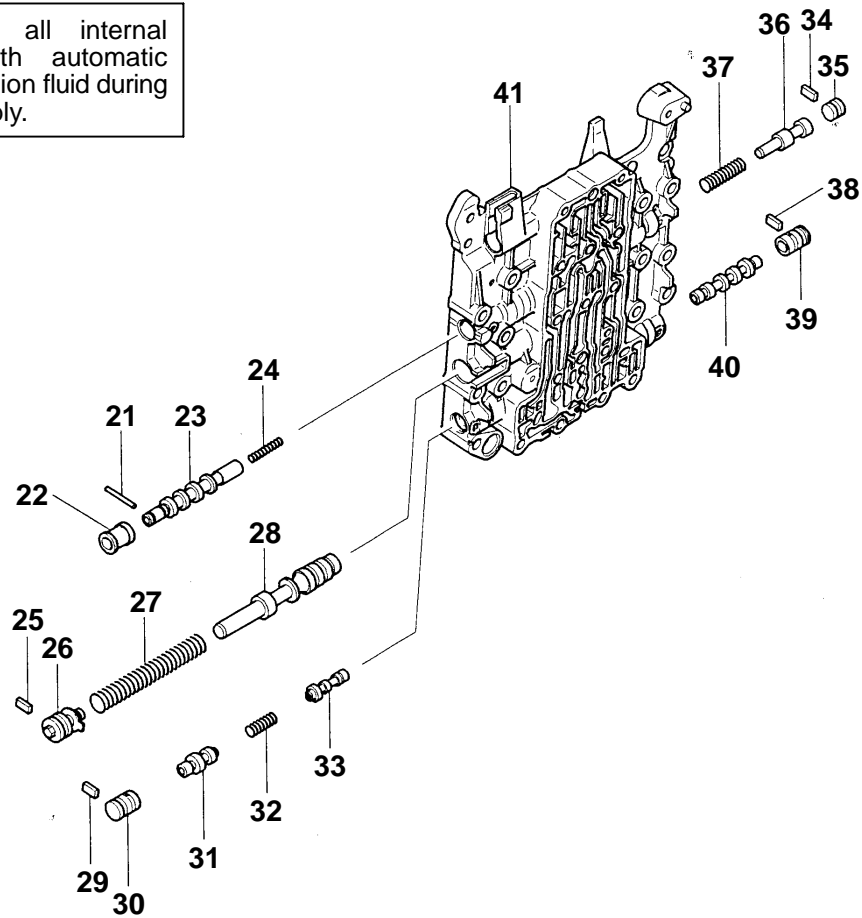
TFA1378

## Disassembly steps

- |     |     |   |
|-----|-----|---|
| ▶A▶ | ▶C▶ | 1. Solenoid valve support               |
| ▶A▶ | ▶C▶ | 2. Underdrive solenoid valve            |
| ▶A▶ | ▶C▶ | 3. Second solenoid valve                |
| ▶A▶ | ▶C▶ | 4. Damper clutch control solenoid valve |
| ▶A▶ | ▶C▶ | 5. Overdrive solenoid valve             |
| ▶A▶ | ▶C▶ | 6. Low-reverse solenoid valve           |
| ▶A▶ | ▶C▶ | 7. Manual valve                         |
| ▶A▶ | ▶C▶ | 8. Cover                                |
| ▶A▶ | ▶C▶ | 9. Plate                                |
| ▶A▶ | ▶C▶ | 10. Outside valve body assembly         |

- |     |     |                                     |
|-----|-----|-------------------------------------|
| ▶B▶ | ▶B▶ | 11. Steel ball (orifice check ball) |
| ▶B▶ | ▶B▶ | 12. Spring                          |
| ▶B▶ | ▶B▶ | 13. Plate                           |
| ▶A▶ | ▶A▶ | 14. Damping valve                   |
| ▶A▶ | ▶A▶ | 15. Damping valve spring            |
| ▶A▶ | ▶A▶ | 16. Steel ball (line relief)        |
| ▶A▶ | ▶A▶ | 17. Spring                          |
| ▶A▶ | ▶A▶ | 18. Steel ball (orifice check ball) |
| ▶A▶ | ▶A▶ | 19. Spring                          |
| ▶A▶ | ▶A▶ | 20. Inside valve body assembly      |

 Lubricate all internal parts with automatic transmission fluid during reassembly.



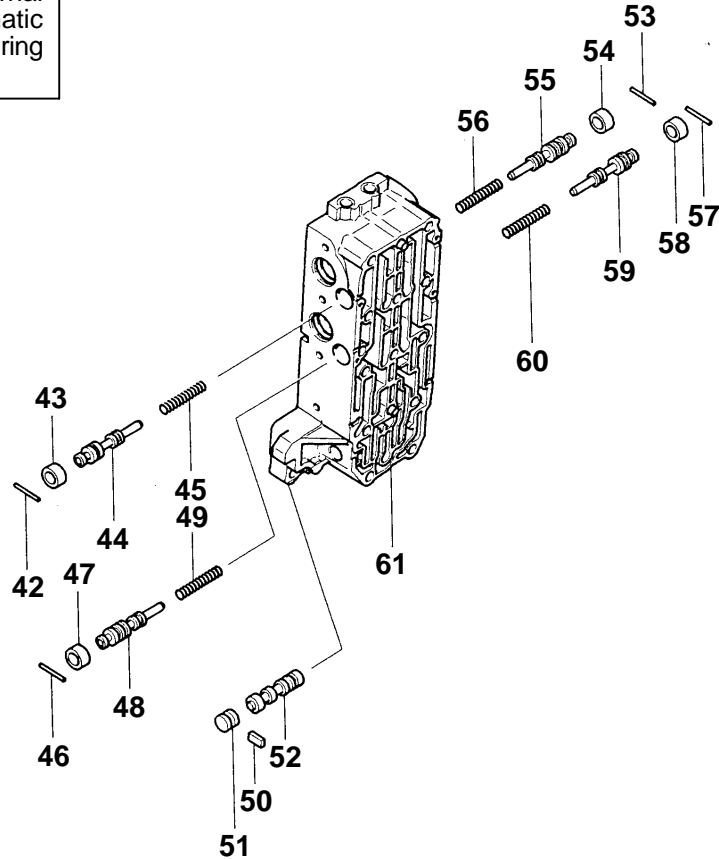
TFA1589

- 21. Roller
- 22. Damper clutch control valve sleeve
- 23. Damper clutch control valve
- 24. Damper 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

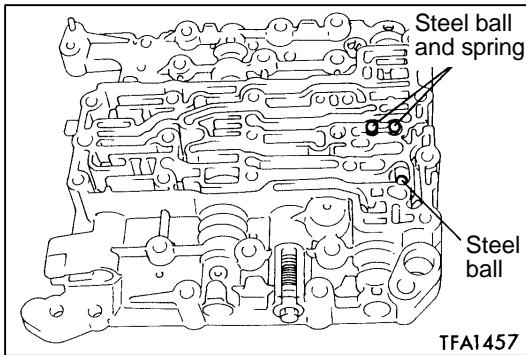
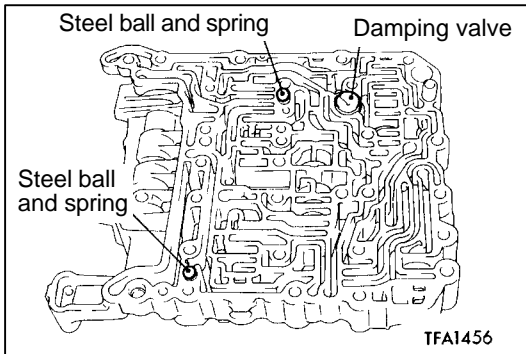
## DISASSEMBLY SERVICE POINT

### ◀A▶ SOLENOID VALVES REMOVAL

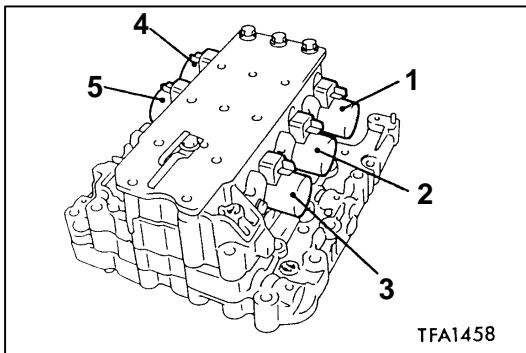
Mark solenoid valves by white paint to make reassembly easier.

## REASSEMBLY SERVICE POINTS

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



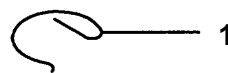
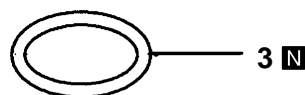
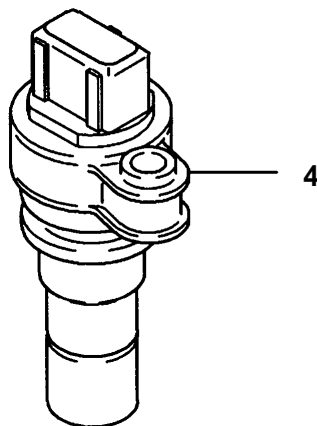
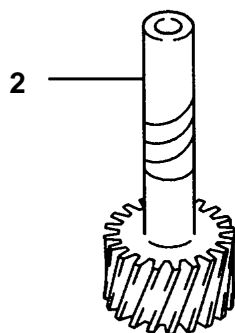
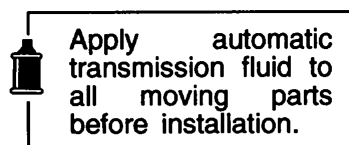
### ▶B◀ SPRING/STEEL BALL INSTALLATION



### ▶C◀ SOLENOID VALVES INSTALLATION

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

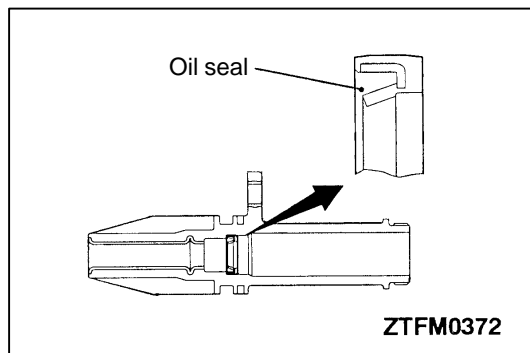
No.	Name
1	Underdrive solenoid valve
2	Second solenoid valve
3	Damper clutch control solenoid valve
4	Overdrive solenoid valve
5	Low–reverse solenoid valve

**SPEEDOMETER GEAR****DISASSEMBLY AND REASSEMBLY**

TFM0593

**Disassembly steps**

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

**REASSEMBLY SERVICE POINT****►A◄ OIL SEAL INSTALLATION**

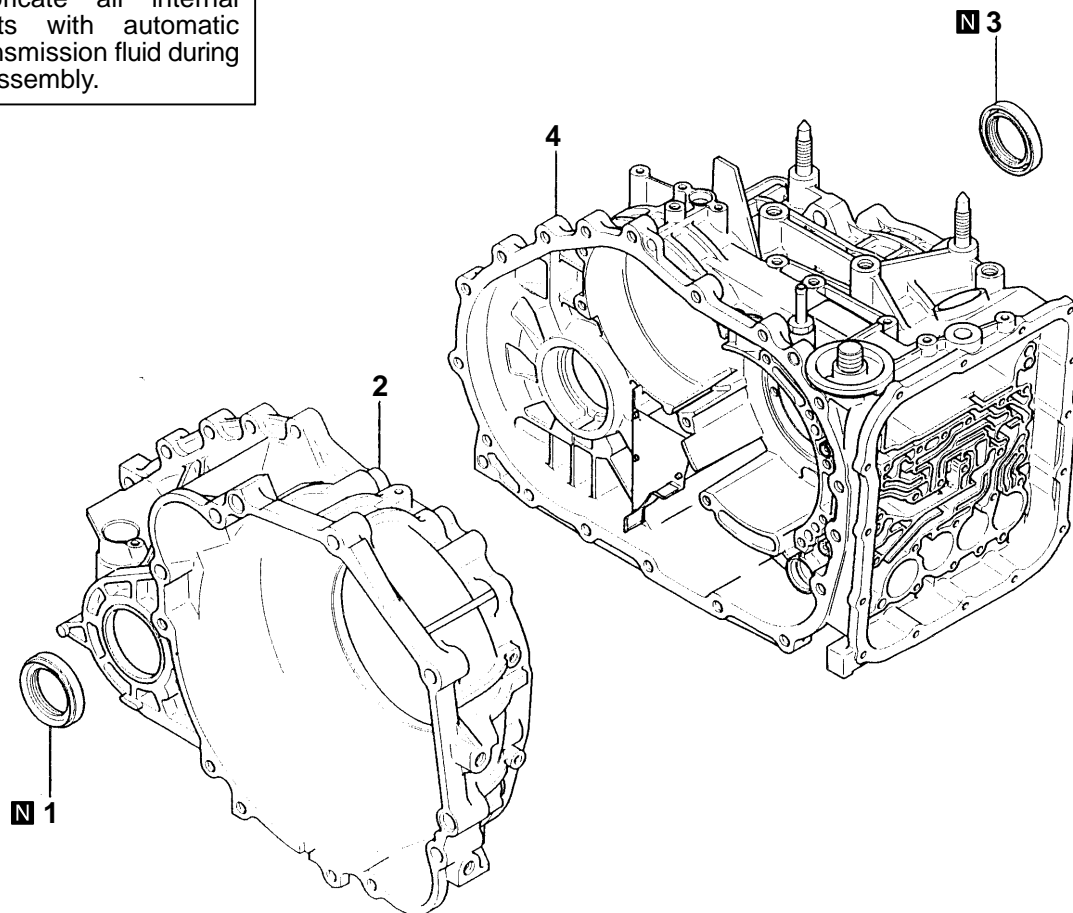
Insert the oil seal in the position and direction shown in the figure.

# DRIVE SHAFT OIL SEAL

## DISASSEMBLY AND REASSEMBLY



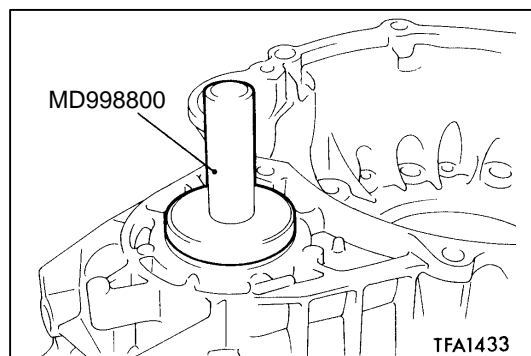
Lubricate all internal parts with automatic transmission fluid during reassembly.



TFA1380

### Disassembly steps

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



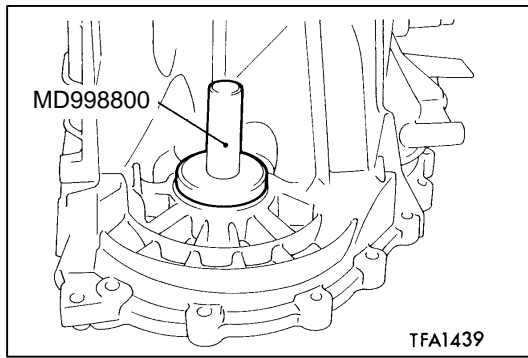
### REASSEMBLY SERVICE POINT

#### ▶ **A** OIL SEAL INSTALLATION

MAIN

Group  
23

23B



### ►B◄ OIL SEAL INSTALLATION

MAIN

Group  
23

23B