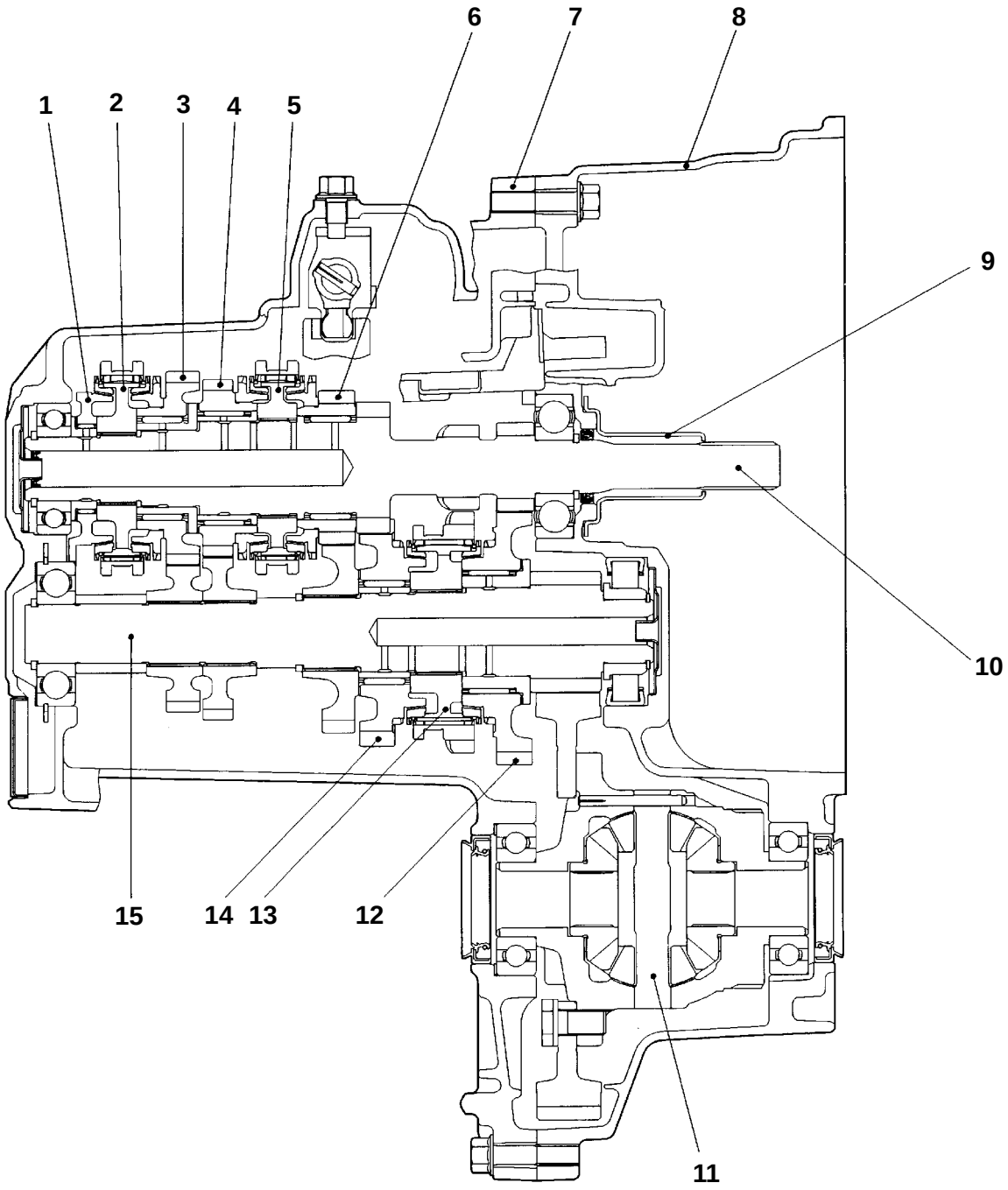
MANUAL TRANSMISSION F5M41, F5M42, W5M42

CONTENTS

NOTES

GENERAL INFORMATION

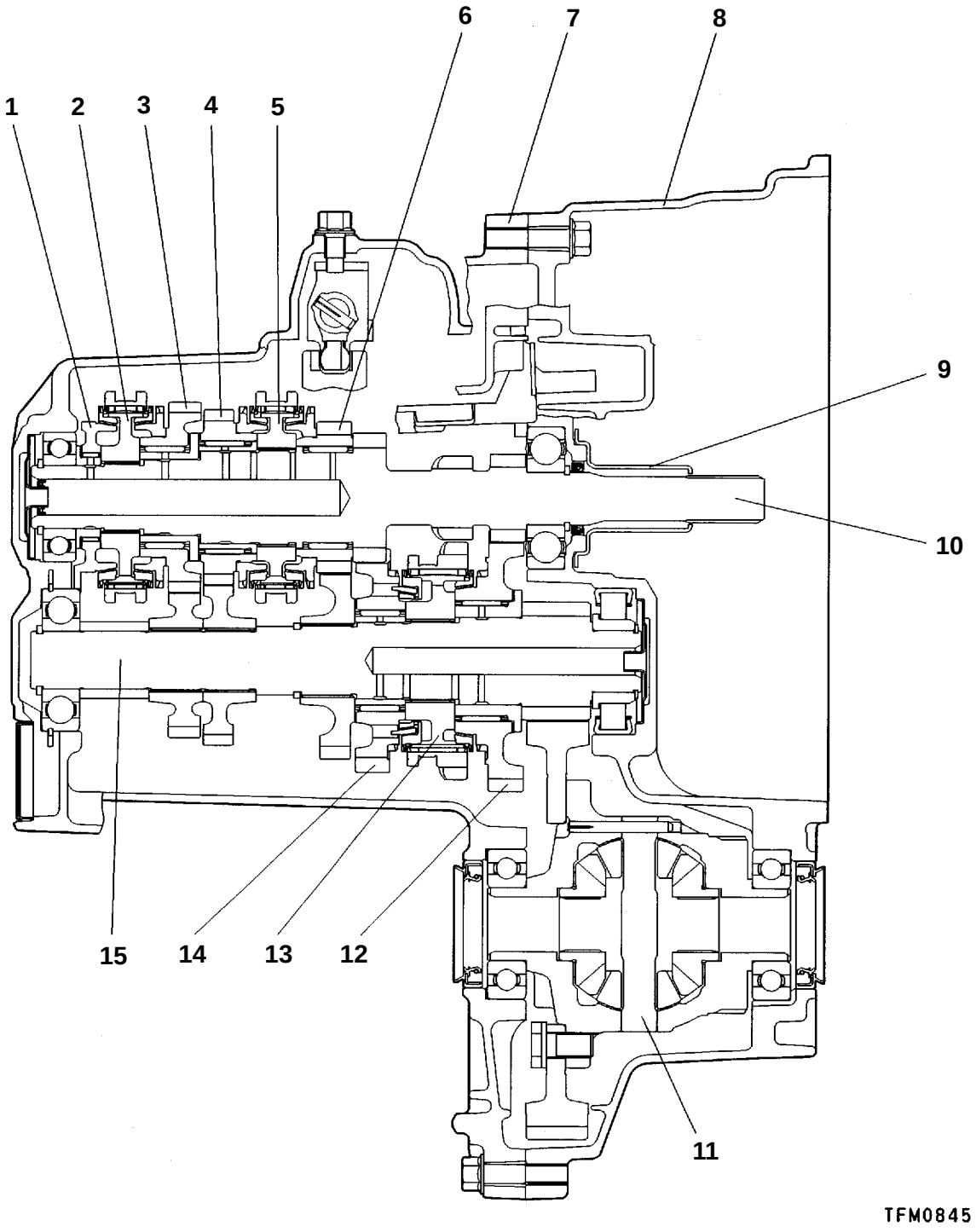
F5M41 <Types with single synchronizer ring for 2nd gear>



TFM0809

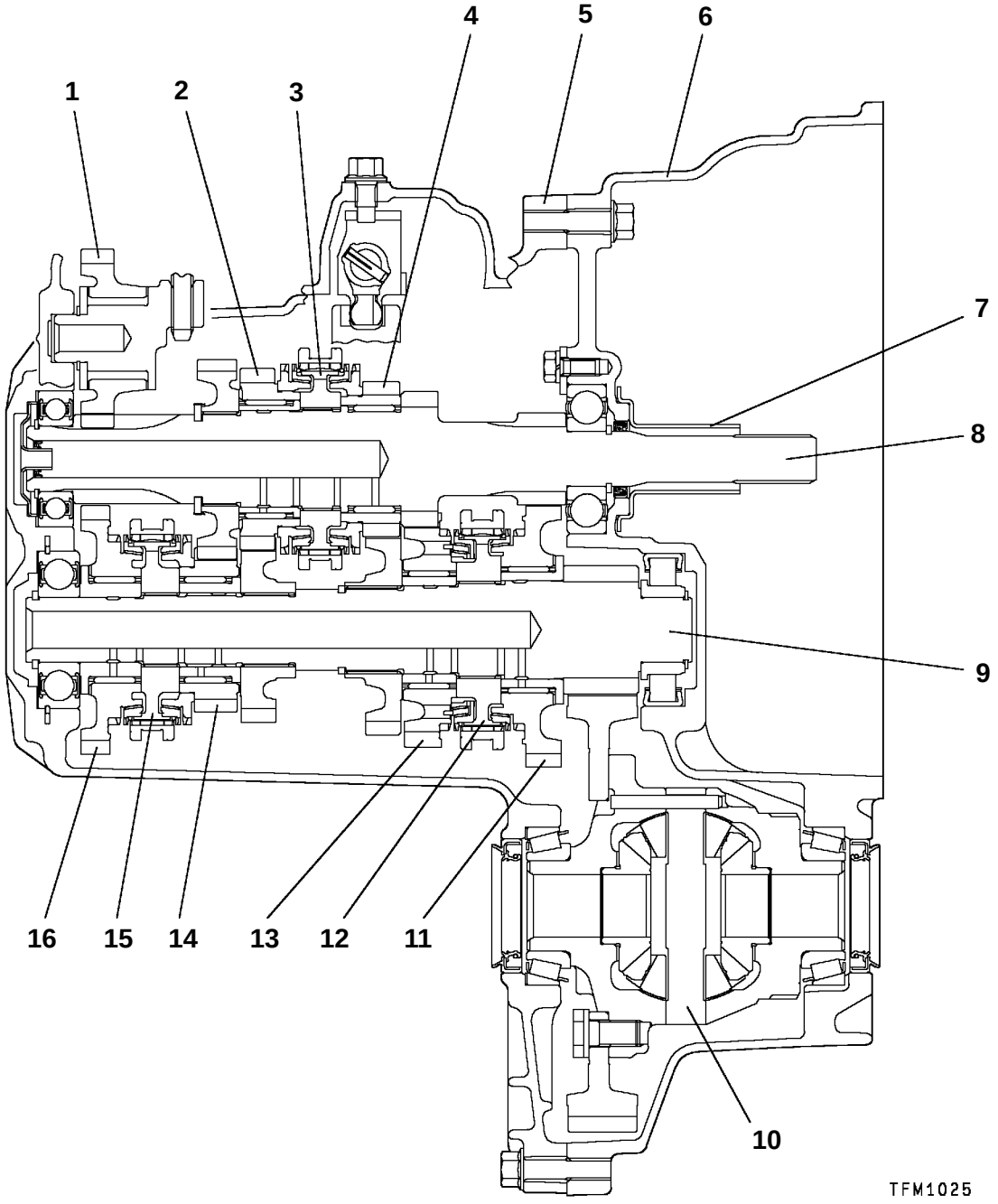
1. Reverse gear meshing noise prevention device <Models with reverse brake>
2. 5th-reverse speed synchronizer hub
3. 5th speed gear
4. 4th speed gear
5. 3rd-4th speed synchronizer hub
6. 3rd speed gear
7. Transmission case
8. Clutch housing
9. Release bearing retainer
10. Input shaft
11. Differential
12. 1st speed gear
13. 1st-2nd speed synchronizer hub
14. 2nd speed gear
15. Output shaft

F5M41 <Types with double synchronizer ring for 2nd gear>



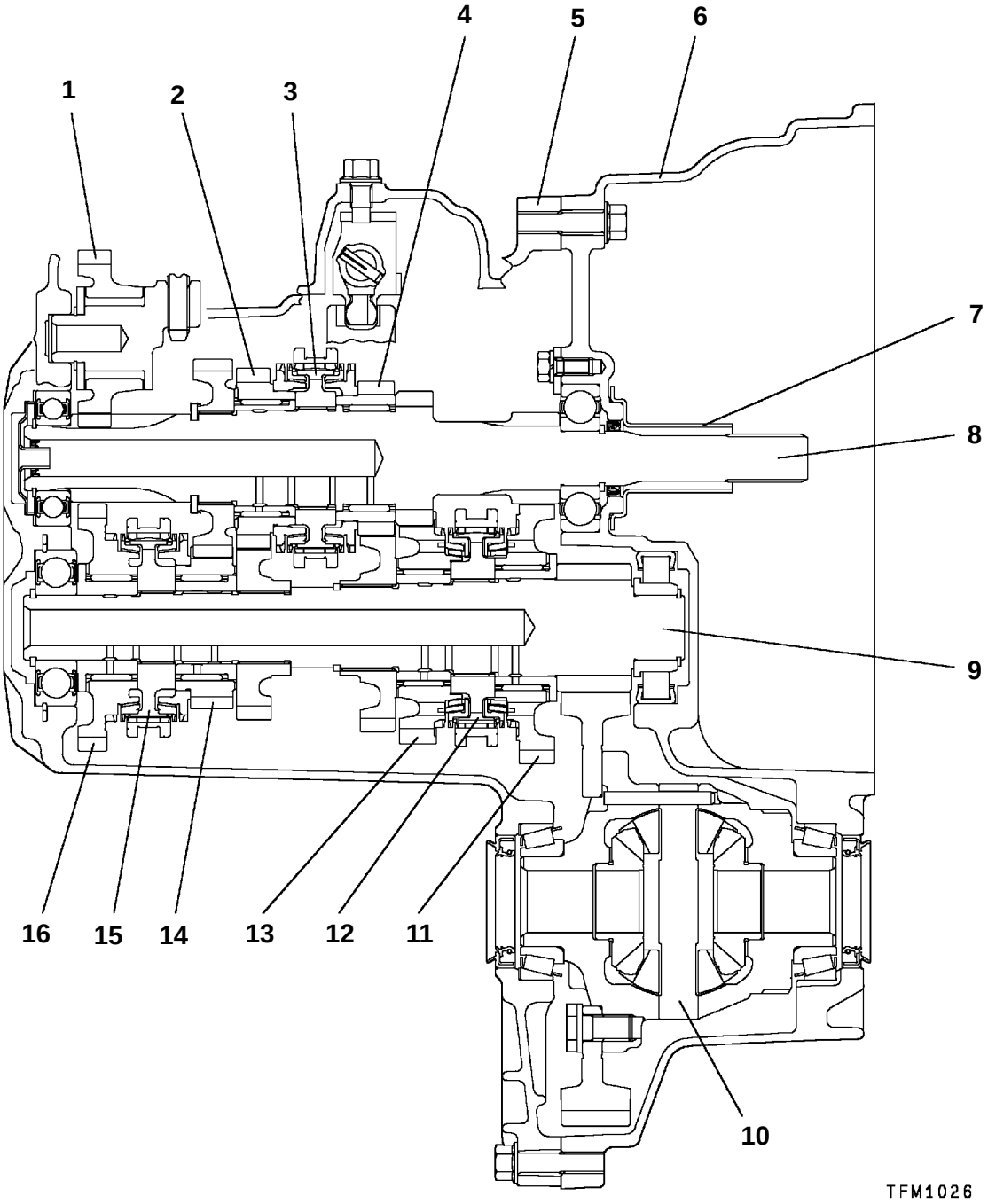
1. Reverse gear meshing noise prevention device
2. 5th-reverse speed synchronizer hub
3. 5th speed gear
4. 4th speed gear
5. 3rd-4th speed synchronizer hub
6. 3rd speed gear
7. Transmission case
8. Clutch housing
9. Release bearing retainer
10. Input shaft
11. Differential
12. 1st speed gear
13. 1st-2nd speed synchronizer hub
14. 2nd speed gear
15. Output shaft

F5M42
<Types with single synchronizer ring for 1st gear and double synchronizer ring for 2nd gear>



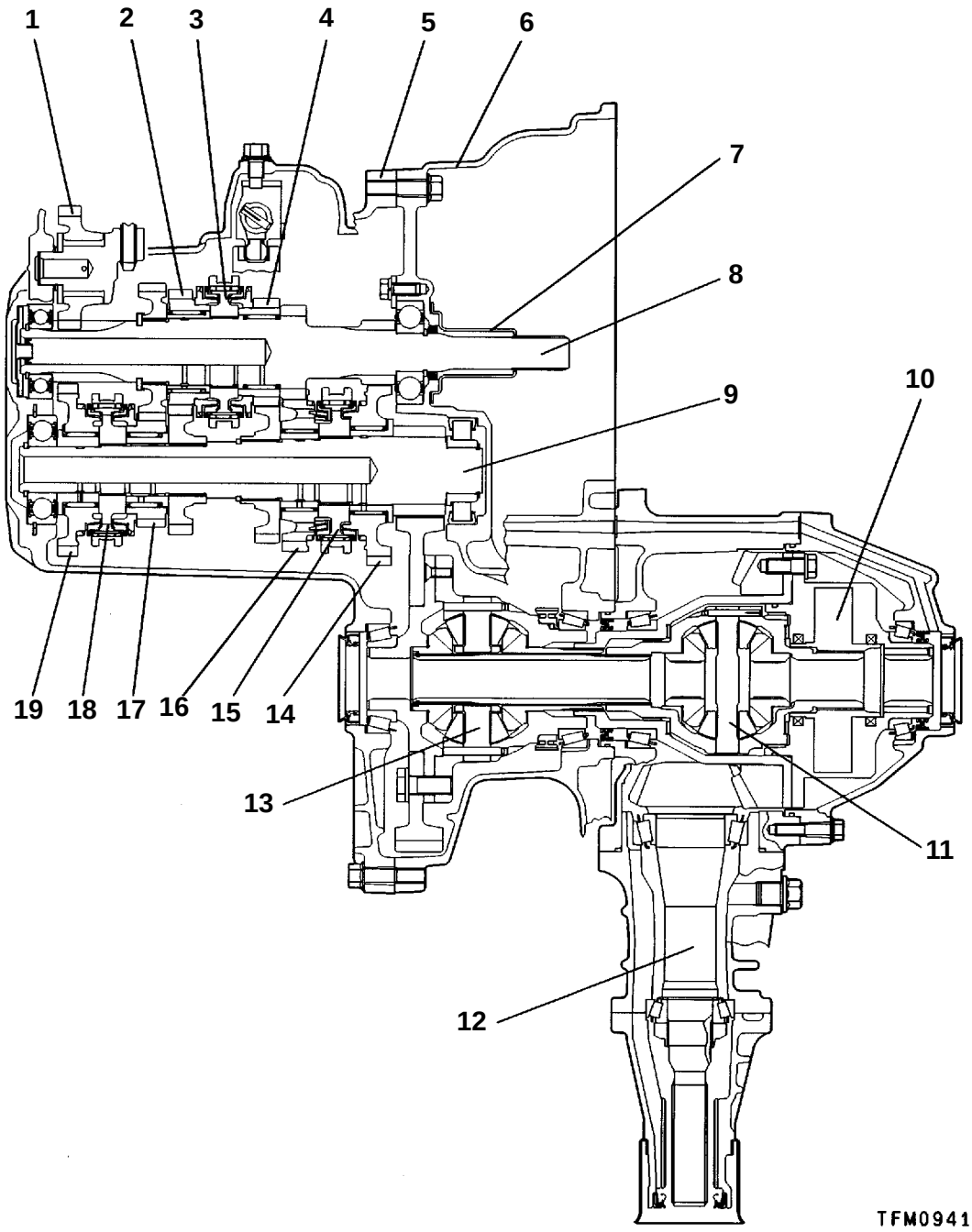
1. Reverse idler gear
2. 4th speed gear
3. 3rd-4th speed synchronizer hub
4. 3rd speed gear
5. Transmission case
6. Clutch housing
7. Release bearing retainer
8. Input shaft
9. Output shaft
10. Differential
11. 1st speed gear
12. 1st-2nd speed synchronizer hub
13. 2nd speed gear
14. 5th speed gear
15. 5th-reverse speed synchronizer hub
16. Reverse gear

F5M42
<Types with double synchronizer ring for both 1st and 2nd gears, types with double synchronizer ring for 1st gear and triple synchronizer ring for 2nd gear>



1. Reverse idler gear
2. 4th speed gear
3. 3rd-4th speed synchronizer hub
4. 3rd speed gear
5. Transmission case
6. Clutch housing
7. Release bearing retainer
8. Input shaft
9. Output shaft
10. Differential
11. 1st speed gear
12. 1st-2nd speed synchronizer hub
13. 2nd speed gear
14. 5th speed gear
15. 5th-reverse speed synchronizer hub
16. Reverse gear

W5M42



1. Reverse idler gear
2. 4th speed gear
3. 3rd-4th speed synchronizer hub
4. 3rd speed gear
5. Transmission case
6. Clutch housing
7. Release bearing retainer
8. Input shaft
9. Output shaft
10. Viscous coupling
11. Front differential
12. Transfer driven gear
13. Center differential
14. 1st speed gear
15. 1st-2nd speed synchronizer hub
16. 2nd speed gear
17. 5th speed gear
18. 5th-reverse speed synchronizer hub
19. Reverse gear

1. SPECIFICATIONS

TRANSMISSION MODEL TABLE - MODEL 1996

Transmission model		Gear ratio	Speedometer gear ratio	Final gear ratio	Vehicle model	Engine model
EUR	F5M41-1-B8A1	B	31/36	3.454	CJ4A	4G92-MVV
	F5M41-1-F8A1	A	31/36	3.714	CJ4A, CK4A	4G92-MPI
	F5M41-1-R8A	A	31/36	4.052	CJ1A, CK1A	4G13
EXP	F5M41-1-F8A1	A	31/36	3.714	CJ4A, CK4A	4G92-MPI
	F5M41-1-R8A	A	31/36	4.052	CJ1A, CK1A	4G13
	F5M41-1-R8A	A	31/36	4.052	CJ2A, CK2A	4G15
	F5M42-1-Y8A	C	31/36	4.058	CK4A	4G92-MIVEC

TRANSMISSION MODEL TABLE - MODEL 1997

Transmission model		Gear ratio	Speedometer gear ratio	Final gear ratio	Vehicle model	Engine model
EUR	F5M42-1-F7N	D	30/36	3.722	EA2A, EA2W	4G63
	F5M42-2-F6N2	D	29/36	3.722	EA5A, EA5W	6A13
	F5M42-2-F6N5	E	29/36	3.722	EA6A, EA6W	4D68
EXP	F5M42-1-F6N4	D	29/36	3.722	EA2A	4G63-MPI
	F5M42-1-F7N	D	30/36	3.722	EA2A	4G63-MPI
	F5M42-1-R6N2	D	29/36	4.058	EA1A	4G93
	F5M42-1-R6N3	D	29/36	4.058	EA2A	4G63-CARB
	F5M42-2-F6N2	D	29/36	3.722	EA5A	6A13
	F5M42-2-V6N	D	29/36	4.312	EA4A	6A12

TRANSMISSION MODEL TABLE - MODEL 1998

Transmission model		Gear ratio	Speedometer gear ratio	Final gear ratio	Vehicle model	Engine model
EUR	F5M41-1-B8A2	B	31/36	3.454	CJ4A	4G92
	F5M41-1-F8A5	A	31/36	3.714	CJ4A	4G92
	F5M41-1-R8A1	A	31/36	4.052	CK1A, CJ1A	4G13
	F5M42-1-F71	D	30/36	3.722	EA2A, EA2W	4G63
	F5M42-1-F8A4	D	31/36	3.722	DA2A	4G93-GDI
	F5M42-2-F6NA	E	29/36	3.722	EA6A, EA6W	4D68
	F5M42-2-F6N7	F	29/36	3.722	EA5A, EA5W	6A13
EXP	F5M41-1-F8A5	A	31/36	3.714	CJ4A, CK4A	4G92
	F5M41-1-R8A1	A	31/36	4.052	CJ1A, CK1A	4G13
	F5M41-1-R8A1	A	31/36	4.052	CJ2A, CK2A	4G15
	F5M42-1-R6N6	D	29/36	4.052	EA1A	4G93
	F5M42-2-R6N7	D	29/36	3.722	EA2A	4G63
	F5M42-2-R6N8	D	29/36	3.722	EA6A	4D68

TRANSMISSION MODEL TABLE - MODEL 1999

Transmission model		Gear ratio	Speedometer gear ratio	Final gear ratio	Vehicle model	Engine model
EUR	F5M42-1-V5A4	D	28/36	4.312	N61W	4G93-GDI
	F5M42-2-R5A3	G	28/36	4.058	N84W	4G64-GDI
	W5M42-1-V5A1	H	28/36	4.352	N94W	4G64-GDI
	F5M42-1-F8A	G	31/36	3.722	DA2A	4G93-GDI
	F5M42-2-F7N2	D	30/36	3.722	EA2A, EA2W	4G93
	F5M42-2-F6NC	G	29/36	3.722	EA3A, EA3W	4G64-GDI
	F5M42-2-F6N7	F	29/36	3.722	EA5A, EA5W	6A13
	F5M42-2-F6NA	E	29/36	3.722	EA6A, EA6W	4D65
EXP	F5M42-1-R6N6	D	29/36	4.058	EA1A	4G93
	F5M42-1-R6N7	D	29/36	4.058	EA2A	4G63
	F5M42-1-F6N9	D	29/36	3.722	EA2A	4G63
	F5M42-1-F7N1	D	30/36	3.722	EA2A	4G63
	F5M42-2-V6N1	D	29/36	4.352	EA4A	6A12-MIVEC
	F5M42-2-F6N7	F	29/36	3.722	EA5A	6A13
	F5M42-2-R6N8	E	29/36	4.058	EA6A	4D56
	F5M42-2-R5A2	D	28/36	4.058	N84W	4G64
MMAL	F5M41-1-F8A5	D	31/36	3.722	CJ2A, CK2A	4G15
	F5M42-1-F8A7	D	31/36	3.722	CJ5A, CK5A	4G93
	F5M42-2-R5A2	D	28/36	4.058	N84W	4G64

TRANSMISSION MODEL TABLE - MODEL 2000

Transmission model		Gear ratio	Speedometer gear ratio	Final gear ratio	Vehicle model	Engine model
EUR	F5M41-1-R8A1	A	31/36	4.052	CJ1A	4G13
	F5M41-1-F8A5	A	31/36	3.714	CJ4A	4G92
	F5M41-1-B8A2	B	31/36	3.454	CJ4A	4G92-MVV
	F5M42-1-R7A2	D	30/36	4.058	DA2A	4G93-GDI
	F5M42-1-V5A4	D	28/36	4.312	N61W	4G93-GDI
	F5M42-2-R5A3	G	28/36	4.058	N64W, N84W	4G64-GDI
	W5M42-1-V5A1	H	28/36	4.352	N94W	4G64-GDI
EXP	F5M41-1-R8A1	A	31/36	4.052	CJ1A, CK1A	4G13
	F5M41-1-F8A5	A	31/36	3.714	CJ4A, CK4A	4G92
	F5M42-1-R6N6	D	29/36	4.058	EA1A	4G93
	F5M42-1-R6N7	D	29/36	4.058	EA2A	4G63
	F5M42-1-F6N9	D	29/36	3.722	EA2A, EA2W	4G63
	F5M42-2-F6N7	F	29/36	3.722	EA5A	6A13
	F5M42-2-R5A2	D	28/36	4.058	N84W	4G64
MMAL	F5M42-2-R5A2	D	28/36	4.058	N84W	4G64

TRANSMISSION MODEL TABLE - MODEL 2001

Transmission model		Gear ratio	Speedometer gear ratio	Final gear ratio	Vehicle model	Engine model
EUR	F5M41-1-R8A1	A	31/36	4.052	CJ1A	4G13
	F5M41-1-F8A5	A	31/36	3.714	CJ4A	4G92
	F5M41-1-F8AC	B	31/36	3.454	DG5A	4G93
	F5M42-2-R7A2	D	30/36	4.058	DA2A	4G93
	F5M42-2-F7N2	D	30/36	3.722	EA2A, W	4G63
	F5M42-2-F6NC	G	29/36	3.722	EA3A, W	4G64
	F5M42-2-F6N7	F	29/36	3.722	EA5A, W	6A13
	F5M42-2-V5A	D	28/36	4.352	N63W	4G63
	F5M42-2-R5A3	G	28/36	4.058	N64W	4G64
EXP	F5M41-1-R8A1	A	31/36	4.052	CJ1A	4G13
	F5M41-1-F8A5	A	31/36	3.714	CJ4A	4G92
	F5M42-1-F6N9	D	29/36	3.722	EA2W	4G63
	F5M42-1-F7N1	D	30/36	3.722	EA2W	4G63
	F5M42-1-R6N6	D	29/36	4.058	EA1A	4G93
	F5M42-1-F6N7	F	29/36	3.722	EA1A	4G93
	F5M42-1-R6N7	D	29/36	4.058	EA2A	4G63
	F5M42-1-F6N9	D	29/36	3.722	EA2A	4G63
	F5M42-1-F6N7	F	29/36	3.722	EA5A	6A13
	F5M42-2-R6N8	E	29/36	4.058	EA6A	4D68
	F5M42-2-R5A2	D	28/36	4.058	N84W	4G64
MMAL	F5M41-1-F8A5	A	31/36	3.714	CJ2A	4G15
	F5M42-1-F8A7	F	31/36	3.722	CJ5A	4G93
	F5M42-2-R5A2	D	31/36	4.058	N84W	4G64

GEAR RATIO TABLE

	A	B	C	D	E	F	G
1st	3.583	3.727	3.071	3.583	3.583	3.583	3.583
2nd	1.947	1.947	1.947	1.947	1.947	1.947	1.947
3rd	1.343	1.343	1.379	1.379	1.379	1.379	1.266
4th	0.976	0.976	1.030	1.030	1.030	1.030	0.970
5th	0.804	0.804	0.820	0.820	0.733	0.767	0.767
Reverse	3.416	3.416	3.363	3.363	3.363	3.363	3.363

	H
1st	3.583
2nd	1.947
3rd	1.266
4th	0.970
5th	0.767
Reverse	3.363
Transfer	0.3018

SERVICE SPECIFICATIONS

Items	Allowable range	Limit
Input shaft front bearing end play mm	-0.01-0.12	-
Input shaft rear bearing end play <F5M41> mm	-0.01-0.09	-
Input shaft rear bearing end play <F5M42, W5M42> mm	-0.01-0.12	-
Input shaft 5th speed gear end play <F5M42, W5M42> mm	-0.01-0.09	-
Output shaft front bearing end play mm	-0.01-0.12	-
Output shaft rear bearing end play mm	-0.01-0.09	-
Output shaft 3rd speed gear end play mm	-0.01-0.09	-
Differential case end play <F5M41> mm	0.05-0.17	-
Differential case pinion backlash <F5M41, F5M42> mm	0.025-0.150	-
Front differential case backlash <W5M42> mm	0.025-0.150	-
Differential case preload <F5M42> mm	0.05-0.11	-

NOTE: Standard play = 0 mm

Items	Allowable range	Limit
Front differential case preload <W5M42> mm	0.05-0.11	-
Center differential case pinion backlash <W5M42> mm	0.025-0.150	-
Center differential case preload <W5M42> mm	0.05-0.11	-
Synchronizer ring back surface to gear clearance mm	-	0.5

NOTE: Standard play = 0 mm

SEALANTS AND ADHESIVES

TRANSMISSION

Items	Specified sealants and adhesives
Clutch housing-transmission case mating surface	MITSUBISHI genuine sealant part No. MD997740 or equivalent
Control housing-transmission case mating surface	
Under cover-transmission case mating surface <F5M42, W5M42>	
Air breather	3M SUPER WEATHERSTRIP No. 8001 or equivalent
Differential drive gear bolt <F5M41, F5M42>	3M STUD Locking No. 4170 or equivalent
Front differential drive gear bolt <W5M42>	
Center differential drive gear bolt <W5M42>	
Front bearing retainer bolt (countersink head bolt) <F5M41>	

TRANSFER

Item	Specified sealant
Air breather	3M SUPER WEATHERSTRIP No. 8001 or equivalent

FORM-IN-PLACE GASKET

The transmission has several areas where the form-in-place gasket (FIPG) is in use. To ensure that the gasket fully serves its purpose, it is necessary to observe some precautions when applying the gasket. Bead size, continuity and location are of paramount importance. Too thin a bead could cause leaks. Too thick a bead, on the other hand, could be squeezed out of location, causing blocking or narrowing of the fluid feed line. To eliminate the possibility of leaks from a joint, therefore, it is absolutely necessary to apply the gasket evenly without a break, while observing the correct bead size.
Since the RTV hardens as it reacts with the moisture in the atmospheric air, it is normally used in the metallic flange areas.

DISASSEMBLY

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

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

FORM-IN-PLACE GASKET APPLICATION

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

LUBRICANTS

TRANSMISSION

Items	Specified lubricants
Drive shaft oil seal lip area	Hypoid gear oil SAE 75W-85W conforming to API classification GL-4 or higher
Control shaft oil seal lip area	
Input shaft oil seal lip area	MITSUBISHI genuine grease part No. 0101011 or equivalent
Select lever shoe	

TRANSFER

Items	Specified lubricants
Drive shaft oil seal lip area	Hypoid gear oil SAE 75W-85W conforming to API classification GL-4 or higher
Front differential oil seal lip area	
Each O-ring	

SNAP RINGS, SPACERS AND THRUST PLATE ADJUSTMENT

Part name	Thickness mm	Identification symbol	Part No.
Snap ring (For adjustment of input shaft front bearing end play)	2.24	None	MD706537
	2.31	Blue	MD706538
	2.38	Brown	MD706539
Snap ring (For adjustment of input shaft rear bearing end play ....F5M41) (For adjustment of output shaft rear bearing end play F5M42, W5M42)	2.31	Black (2)	MD747149
	2.35	None	MD746561
	2.39	Blue	MD746562
	2.43	Brown	MD746563
	2.47	Green	MD746564
	2.51	White	MD746565
	2.55	Yellow	MD746566
	2.59	Black	MD746567
	2.63	Orange	MD746568
	2.67	Blue	MD746569
	2.71	Brown	MD746570
Thrust plate: F5M42, W5M42 (For adjustment of input shaft 5th speed gear end play)	2.82	-	MD748015
	2.86	-	MD748016
	2.90	-	MD748017
	2.94	-	MD748018
	2.98	-	MD748019
	3.02	-	MD748020
	3.06	-	MD748021
	3.10	-	MD748022
Snap ring (For adjustment of output shaft front bearing end play) (For adjustment of input shaft rear bearing end play F5M42, W5M42)	1.43	Green (2)	MD746708
	1.51	White (2)	MD746709
	1.59	Yellow (2)	MD746710

Part name	Thickness mm	Identification symbol	Part No.
Snap ring: F5M41 (For adjustment of output shaft rear bearing end play)	2.31	Black (2)	MD748800
	2.35	None	MD748801
	2.39	Blue	MD748802
	2.43	Brown	MD748803
	2.47	Green	MD748804
	2.51	White	MD748805
	2.55	Yellow	MD748806
	2.59	Black	MD748807
	2.63	Orange	MD748808
	2.67	Blue	MD748809
	2.71	Brown	MD748810
Snap ring: F5M41 (For adjustment of output shaft 3rd speed gear end play)	2.81	Green	MD748782
	2.85	White	MD748783
	2.89	Yellow	MD748784
	2.93	Black	MD748785
	2.97	Orange	MD748786
	3.01	Red	MD748787
	3.05	Pink	MD748788
	3.09	Blue	MD748789
Snap ring: F5M42, W5M42 (For adjustment of output shaft 3rd speed gear end play)	2.81	Green	MD745799
	2.85	White	MD745800
	2.89	Yellow	MD745801
	2.93	Black	MD745802
	2.97	Orange	MD745803
	3.01	Red	MD745804
	3.05	Pink	MD745805
	3.09	Blue	MD745806

Part name	Thickness mm	Identification symbol	Part No.
Spacer: F5M41 (For adjustment of differential case end play)	0.77	77	MD754476
	0.86	86	MD720938
	0.95	95	MD720941
	1.04	04	MD720944
	1.13	D	MD700270
	1.22	G	MD700271
	1.31	E	MD706574
	1.40	None	MD706573
	1.49	C	MD706572
	1.58	B	MD706571
	1.67	A	MD706570
	1.76	F	MD706575

Part name	Thickness mm	Identification symbol	Part No.
Spacer: F5M42 (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

Part name	Thickness mm	Identification symbol	Part No.
Spacer: W5M42 (For adjustment of center differential case preload)	0.74	74	MD727660
	0.77	77	MD745476
	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
Spacer: F5M41, F5M42 (For adjustment of differential case backlash)	0.75 - 0.82	-	MA180862
	0.83 - 0.92	-	MA180861
	0.93 - 1.00	-	MA180860
	1.01 - 1.08	-	MA180875
	1.09 - 1.16	-	MA180876
Spacer: W5M42 (For adjustment of center differential case pinion backlash)	0.75 - 0.82	-	MD744236
	0.83 - 0.92	-	MD744235
	0.93 - 1.00	-	MD744234
	1.01 - 1.08	-	MD744233
	1.09 - 1.16	-	MD744232

TORQUE SPECIFICATIONS

TRANSMISSION

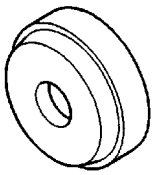
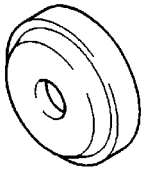
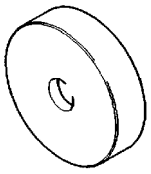
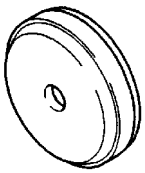
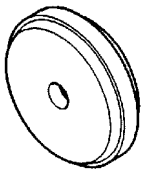
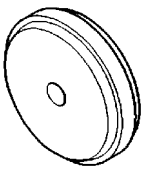
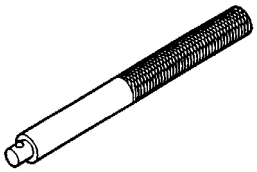
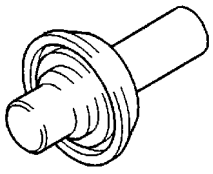
Items	Nm
Under cover mounting bolt <F5M42, W5M42>	6.9
Interlock plate bolt	30
Clutch housing-transmission case mounting bolt	44
Clutch release bearing retainer mounting bolt	9.8
Control housing mounting bolt	18
Shift cable bracket mounting bolt	18
Speedometer gear mounting bolt	3.9
Stopper bracket mounting bolt	22
Select lever mounting bolt	18
Select lever mounting nut	11
Front differential drive gear mounting bolt <W5M42>	132
Center differential flange mounting screw <W5M42>	3.9
Center differential drive gear mounting bolt <W5M42>	132
Differential drive gear mounting bolt <F5M41, F5M42>	132
Back-up lamp switch	32
Front bearing retainer mounting bolt	18
Poppet spring	32
Restrict ball <F5M41>	32
Reverse idler gear shaft mounting bolt	48
Reverse shift lever mounting bolt <F5M41>	18
Roll stopper bracket mounting bolt	69
Oil temperature sensor <For GDI engine only>	32
Connector bracket mounting bolt <For GDI engine except DA2A>	19
Clutch fluid line bracket mounting bolt <DA2A only>	19

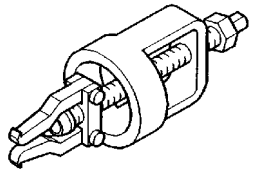
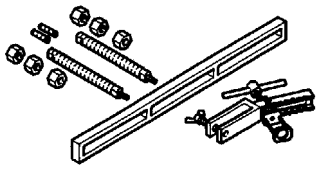
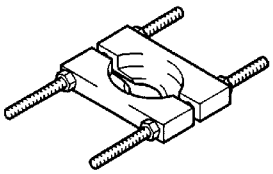
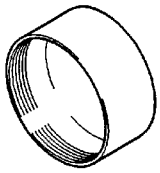
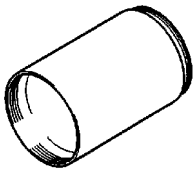
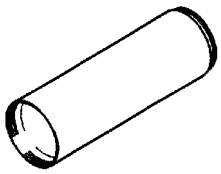
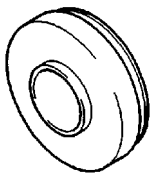
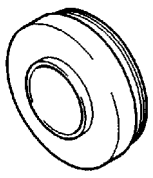
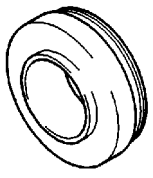
TRANSFER

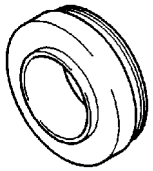
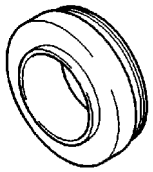
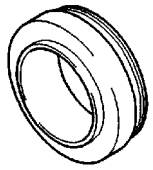
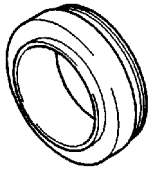
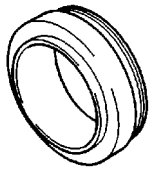
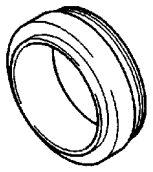
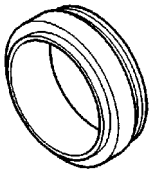
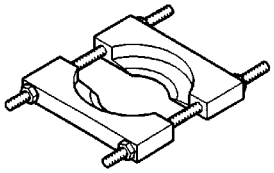
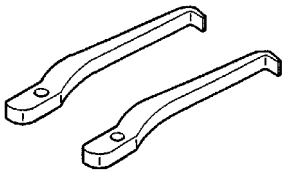
Items	Nm
Transfer cover mounting bolt	23
Transmission - transfer mounting bolt	69

2. SPECIAL TOOLS

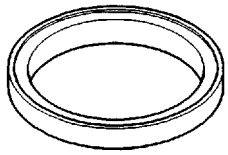
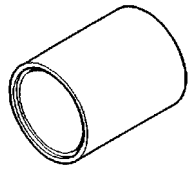
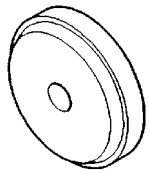
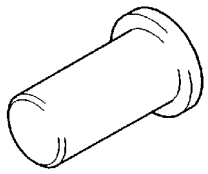
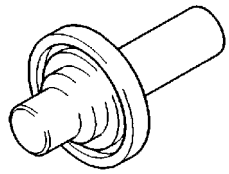
TRANSMISSION

Tool	Number	Name	Use
	MB990926	Installer adapter	Installation of clutch housing input shaft oil seal
	MB990927	Installer adapter	Installation of sealing cap
	MB990930	Installer adapter	Removal of center differential taper roller bearing <W5M42>
	MB990934	Installer adapter	Installation of roller bearing outer race
	MB990935	Installer adapter	Installation of differential case taper roller bearing outer race
	MB990937	Installer adapter	Installation of center differential taper roller bearing <W5M42>
	MB990938	Handle	Use with Installer adapter
	MD998325	Differential oil seal installer	Installation of differential oil seal <F5M41, F5M42>

Tool	Number	Name	Use
	MD998346	Bearing outer race remover	Removal of roller bearing outer race
	MD998772	Valve spring compressor	Removal of roller bearing outer race
	MD998801	Bearing remover	Installation and removal of gears, bearings and sleeves
	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
	MD998816	Installer adapter (30)	Installation of input shaft front bearing <F5M42, W5M42>
	MD998817	Installer adapter (34)	Installation of input shaft front bearing <F5M41>, output shaft rear bearing <F5M42, W5M42>
	MD998818	Installer adapter (38)	Installation of input shaft rear bearing, roller bearing inner race, reverse gear, needle roller bearing, reverse gear bearing sleeve <F5M42, W5M42> and reverse bearing sleeve <F5M41>

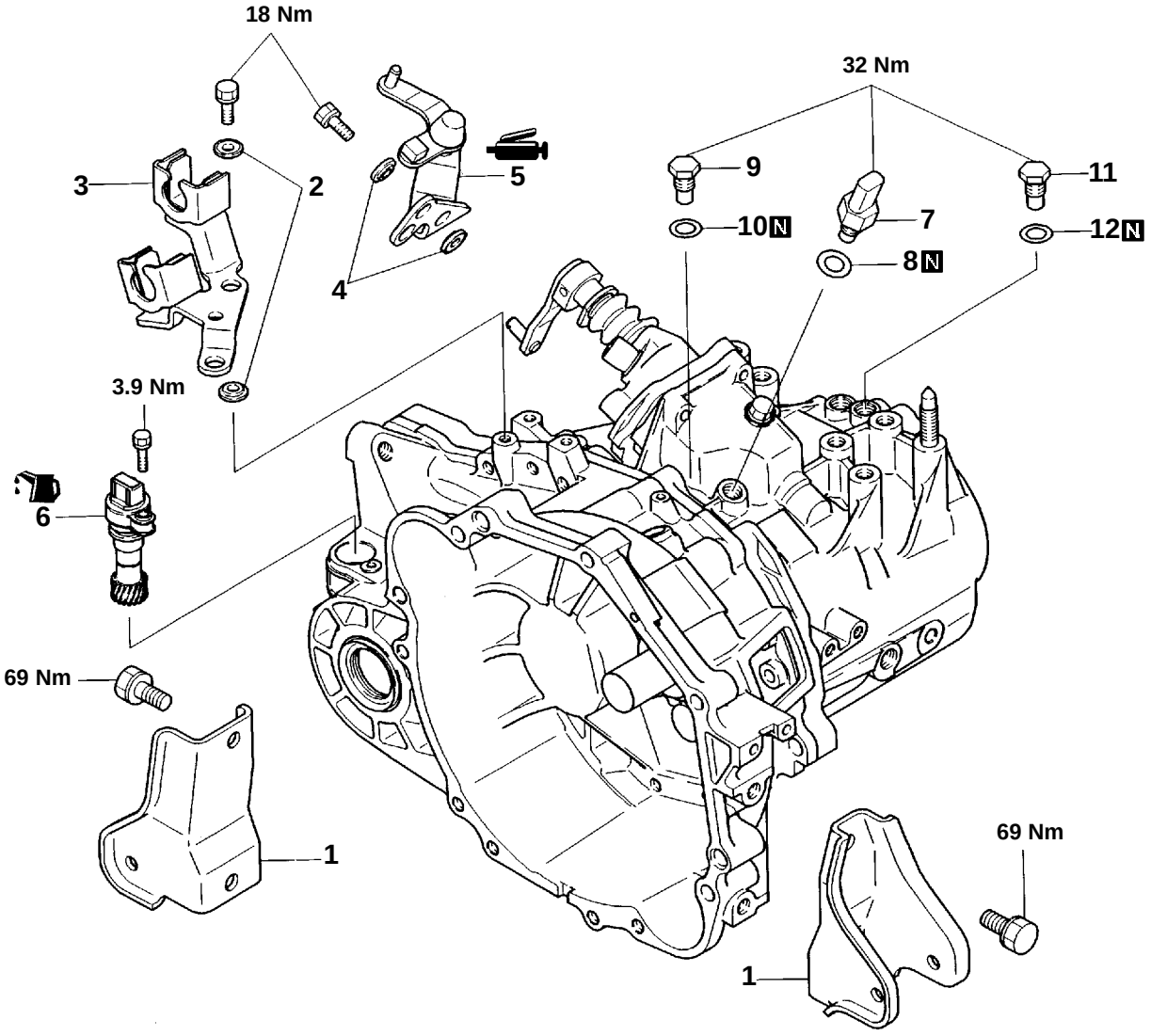
Tool	Number	Name	Use
	MD998819	Installer adapter (40)	Installation of 5th-reverse speed synchronizer hub, differential case bearing, 4th speed gear and 5th speed gear sleeve <F5M42, W5M42>
	MD998820	Installer adapter (42)	Installation of 5th speed gear sleeve, 2nd speed gear sleeve <F5M41>
	MD998822	Installer adapter (46)	Installation of 1st speed gear sleeve,1st-2nd speed synchronizer hub <F5M41>, 2nd speed gear sleeve and 3rd speed gear <F5M42, W5M42>
	MD998823	Installer adapter (48)	Installation of differential case taper roller bearing inner race <F5M42, W5M42>
	MD998824	Installer adapter (50)	Installation of 4th speed gear sleeve and 5th speed gear <F5M42, W5M42>
	MD998825	Installer adapter (52)	Installation of 1st-2nd speed synchronizer hub, 3rd-4th speed synchronizer hub and 1st speed gear sleeve <F5M42, W5M42>
	MD998826	Installer adapter (54)	Installation of 3rd-4th speed synchronizer hub <F5M41>
	MD998917	Bearing remover	Installation and removal of gears, bearings and sleeves
	MD999566	Claw	Removal of differential case taper roller bearing outer race <F5M42, W5M42>

TRANSFER

Tool	Number	Name	Use
	MB990887	Arm bush remover and installer ring	Installation of transfer oil seal
	MB990891	Arm bush remover and installer base	Installation of transfer oil seal
	MB990933	Installer adapter	Installation of transfer cover oil seal
	MD998304	Oil seal installer	Installation of transfer extension housing oil seal
	MD998800	Oil seal installer	Installation of transfer cover oil seal

3. TRANSMISSION <F5M41>

DISASSEMBLY AND REASSEMBLY

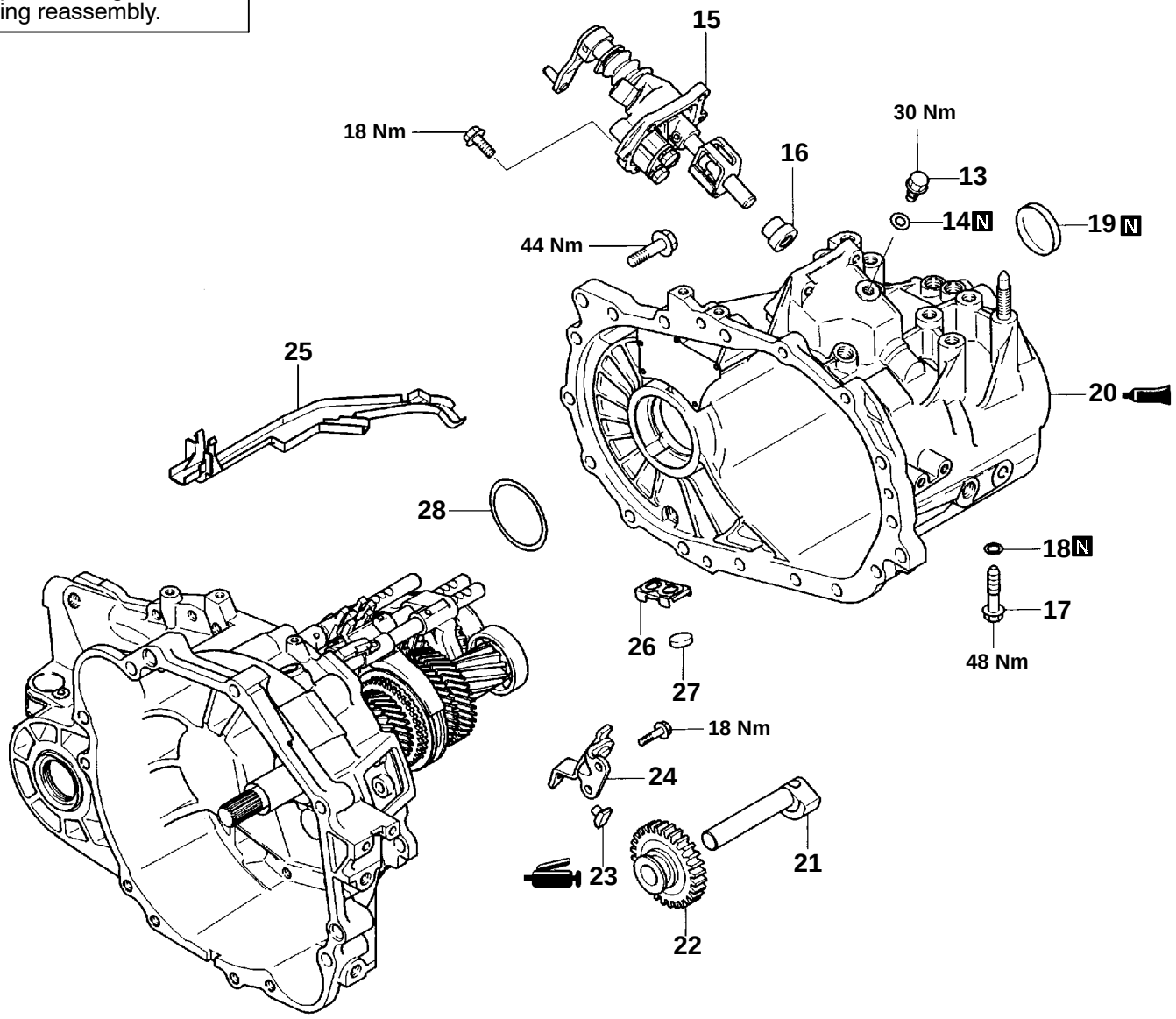


TFM0718

Disassembly steps

1. Roll stopper bracket
2. Insulator washer
3. Shift cable bracket
4. Insulator washer
- ▶M◀ 5. Select lever
- ▶L◀ 6. Speedometer gear
7. Back-up lamp switch
8. Gasket
9. Restrict ball
10. Gasket
11. Poppet spring
12. Gasket

Lubricate all internal parts with gear oil during reassembly.

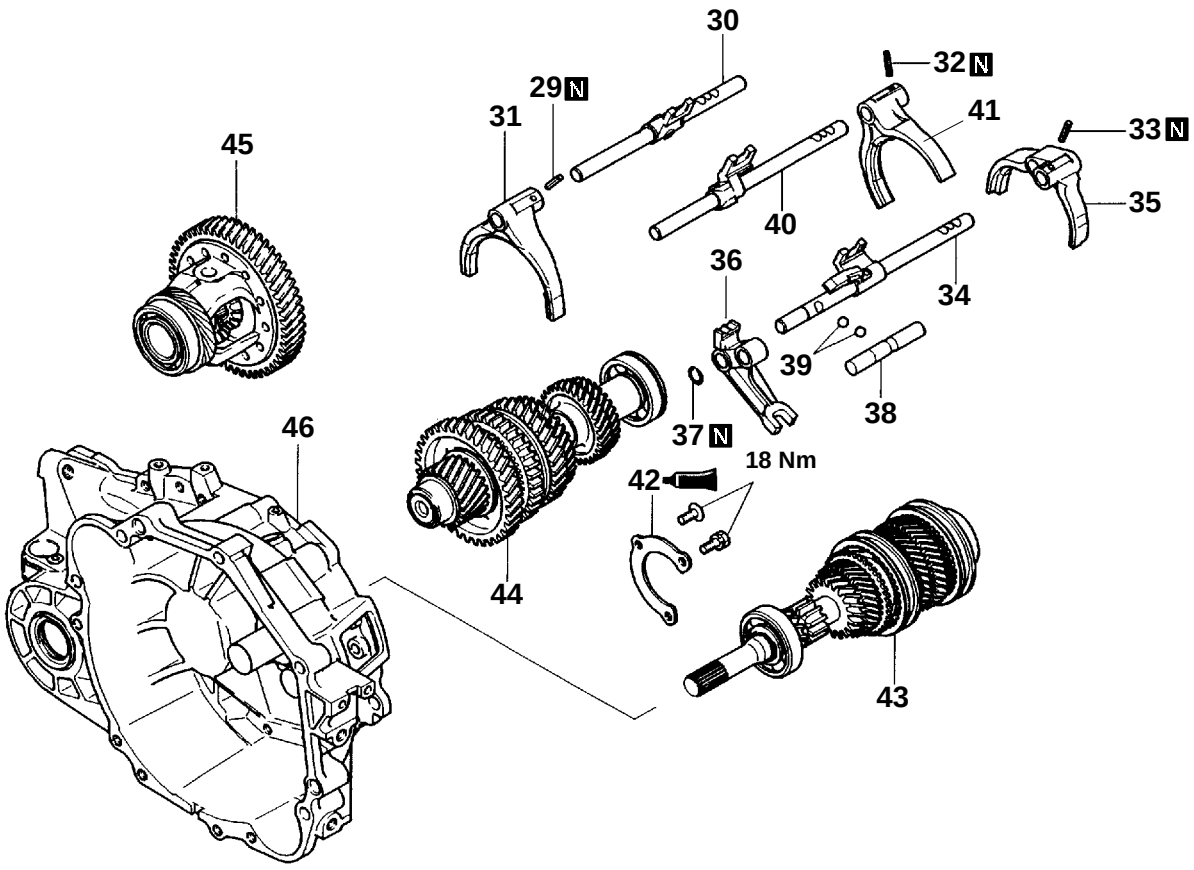


TFM0719

Disassembly steps

13. Interlock plate bolt
14. Gasket
▶K◀ 15. Control housing
16. Neutral return spring
▶J◀ 17. Reverse idler gear shaft bolt
18. Gasket
◀A▶ ▶I◀ 19. Sealing cap
◀B▶ ▶H◀ 20. Transmission case
◀C▶ ▶G◀ 21. Reverse idler gear shaft
22. Reverse idler gear
23. Reverse shift lever shoe
24. Reverse shift lever
▶F◀ 25. Oil guide
26. Magnet holder
27. Magnet
▶E◀ 28. Spacer

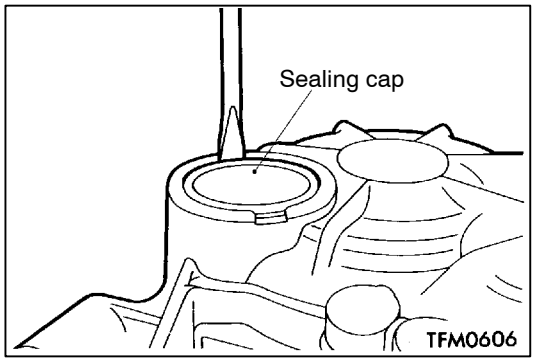
Lubricate all internal parts with gear oil during reassembly.



TFM0720

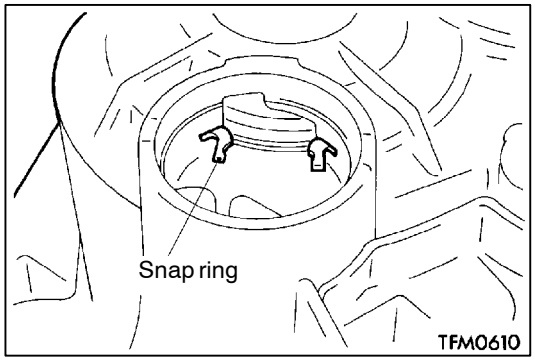
Disassembly steps

- ▶D◀ 29. Spring pin
- 30. 1st-2nd speed shift rail
- 31. 1st-2nd speed shift fork
- ▶D◀ 32. Spring pin
- ▶D◀ 33. Spring pin
- ◀D▶ ▶C◀ 34. 5th speed shift rail
- ◀D▶ ▶C◀ 35. 5th speed shift fork
- ◀D▶ ▶C◀ 36. Reverse shift lug
- ◀D▶ ▶C◀ 37. Snap ring
- ◀D▶ ▶C◀ 38. Reverse interlock rail
- ◀D▶ ▶C◀ 39. Steel ball
- ◀D▶ ▶C◀ 40. 3rd-4th speed shift rail
- ◀D▶ ▶C◀ 41. 3rd-4th speed shift fork
- ▶B◀ 42. Front bearing retainer
- ◀E▶ ▶A◀ 43. Input shaft
- ◀E▶ ▶A◀ 44. Output shaft
- 45. Differential
- 46. Clutch housing



DISASSEMBLY SERVICE POINTS

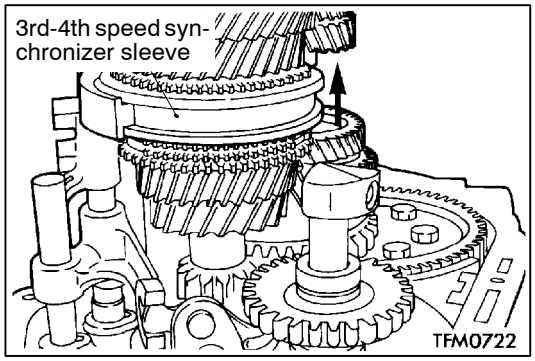
◀A▶ SEALING CAP REMOVAL



◀B▶ TRANSMISSION CASE REMOVAL

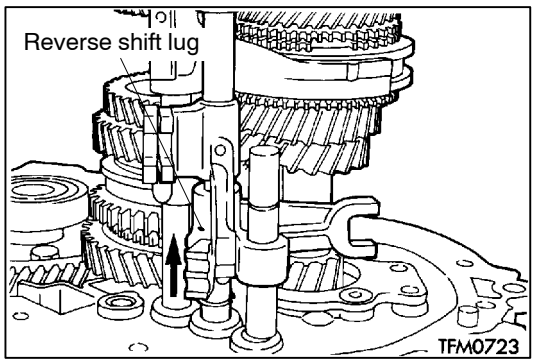
Expand the snap ring to remove it from the snap ring groove of the ball bearing.

NOTE
Expansion of the snap ring causes the snap ring groove to get out of position because of the output shaft's own weight.



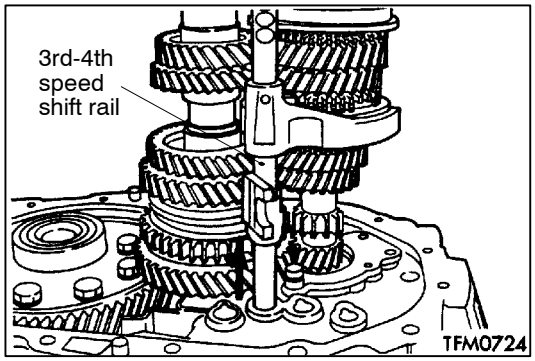
◀C▶ REVERSE IDLER GEAR SHAFT REMOVAL

Shift the 3rd-4th speed synchronizer sleeve toward the 4th speed side.

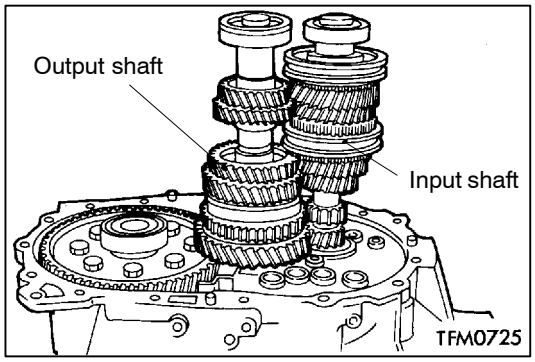


◀D▶ 3RD-4TH SPEED SHIFT RAIL / 3RD-4TH SPEED SHIFT FORK / 5TH SPEED SHIFT FORK / SNAP RING / REVERSE SHIFT LUG / 5TH SPEED SHIFT RAIL / STEEL BALL / REVERSE INTERLOCK RAIL REMOVAL

(1) While sliding the reverse shift lug in the direction shown, remove the 5th speed shift fork, 5th speed shift rail, reverse shift lug, snap ring, steel ball and reverse interlock rail.

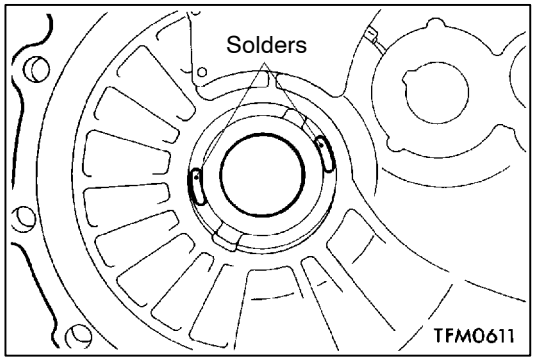


(2) While sliding the 3rd-4th speed shift rail in the direction shown, remove it together with the shift fork.



◀E▶ INPUT SHAFT / OUTPUT SHAFT REMOVAL

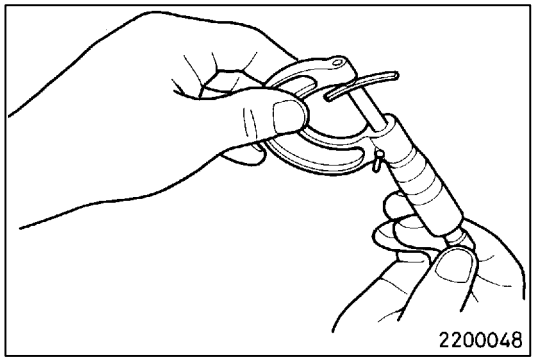
Remove the input and output shafts together.



ADJUSTMENT BEFORE REASSEMBLY

SPACER SELECTION FOR DIFFERENTIAL CASE END PLAY ADJUSTMENT

(1) Put solders (about 10 mm long, 1.6 mm in diameter) in the illustrated positions of the transmission case and install the differential.
(2) Install the clutch housing and tighten the bolts to the specified torque.
(3) If the solders are not crushed, put larger diameter solders and repeat Steps (1) and (2).

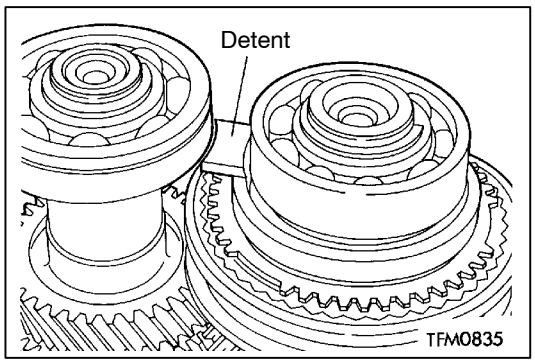


(4) Measure the thickness (T) of the crushed solder with a micrometer and select a spacer according to the following equation.

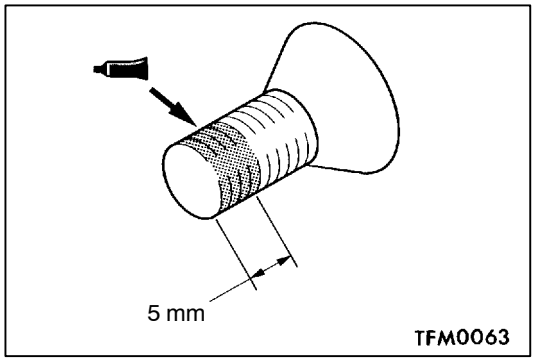
Spacer thickness:
(T - 0.05 mm) to (T - 0.17 mm)

REASSEMBLY SERVICE POINTS

▶A◀ OUTPUT SHAFT / INPUT SHAFT INSTALLATION <F5M41 with reverse brake>



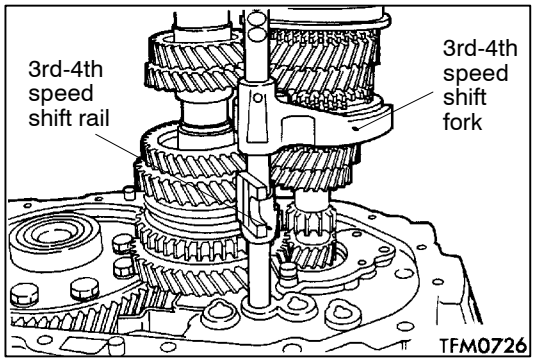
While placing the reverse brake cone detent in the illustrated position, install the input and output shafts together.



▶B◀ FRONT BEARING RETAINER INSTALLATION

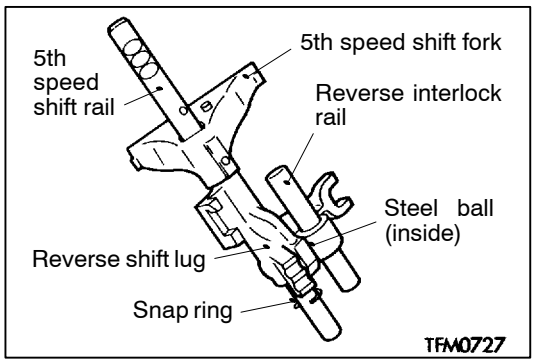
Apply a sealant to the front bearing retainer mounting bolts (countersunk bolts only).

Specified sealant:
3M STUD Locking No. 4170 or equivalent

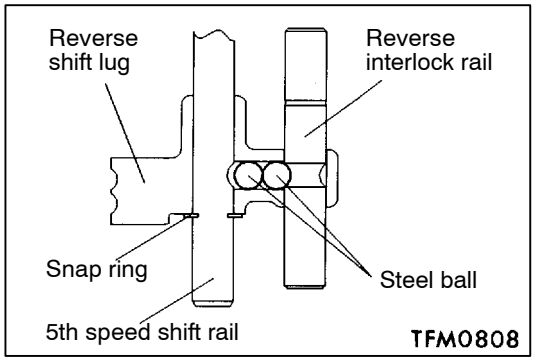


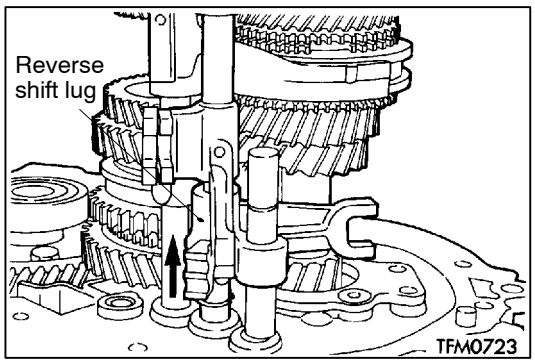
▶C◀ REVERSE INTERLOCK RAIL / STEEL BALL / 5TH SPEED SHIFT RAIL / REVERSE SHIFT LUG / SNAP RING / 5TH SPEED SHIFT FORK / 3RD-4TH SPEED SHIFT FORK / 3RD-4TH SPEED SHIFT RAIL INSTALLATION

(1) Install the 3rd-4th shift rail and fork.

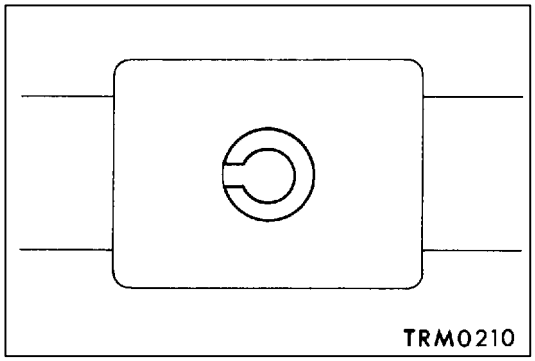


(2) Install the reverse interlock rail, steel ball, 5th speed shift rail, 5th speed shift fork, reverse shift lug and snap ring in the illustrated positions.





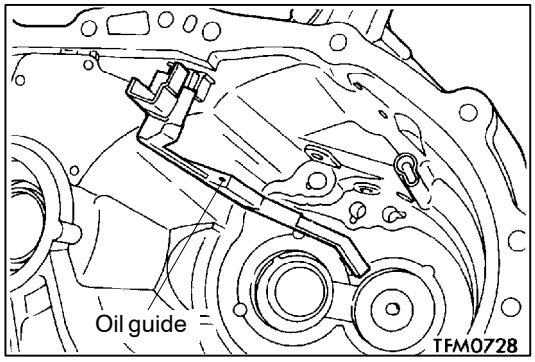
(3) While sliding the reverse shift lug in the direction shown, install the 5th speed shift fork, 5th speed shift rail, reverse shift lug, snap ring, steel ball and reverse interlock rail.



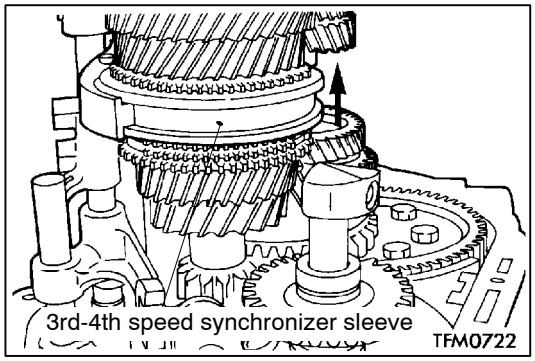
▶D◀ SPRING PIN INSTALLATION

▶E◀ SPACER INSTALLATION

Install the spacer selected in the section “ADJUSTMENT BEFORE REASSEMBLY”.

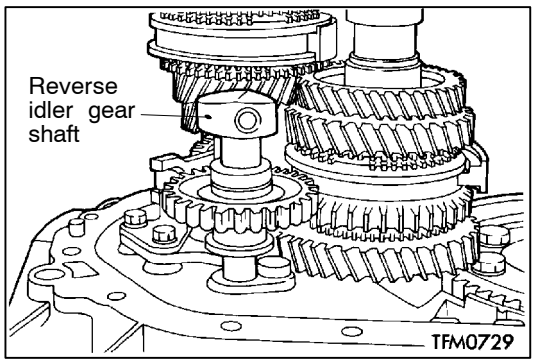


▶F◀ OIL GUIDE INSTALLATION

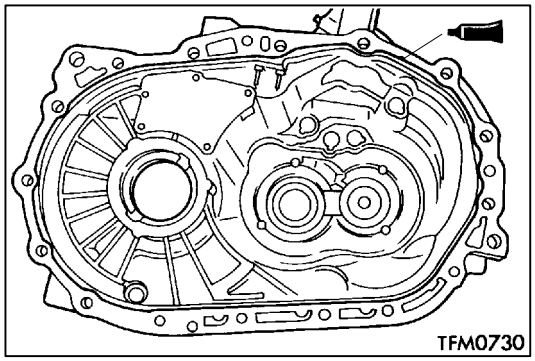


▶G◀REVERSE IDLER GEAR SHAFT INSTALLATION

(1) Shift the 3rd-4th speed synchronizer sleeve toward the 4th speed side.



(2) Face the threaded hole of the reverse idler gear shaft toward the direction shown.

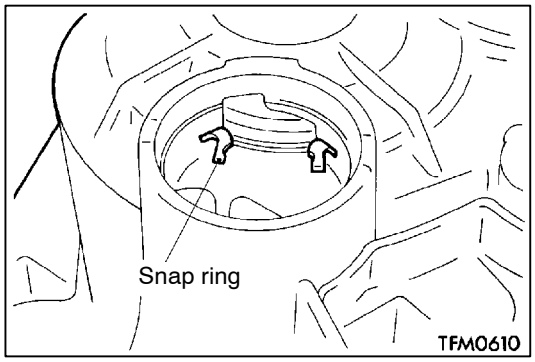


▶H◀ TRANSMISSION CASE INSTALLATION

(1) Apply a 1.5 mm bead of sealant to the illustrated positions of the transmission case.

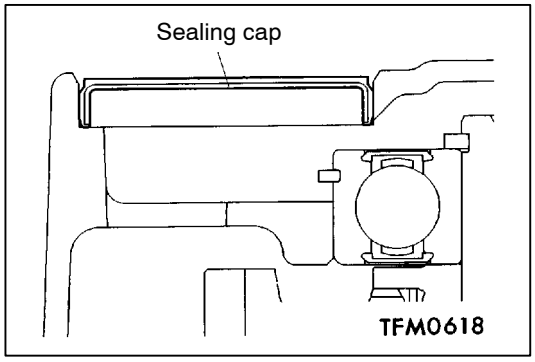
Specified sealant:
MITSUBISHI genuine sealant part No. MD997740 or equivalent

Caution
Squeeze out the sealant uniformly, while making sure that it is not broken or excessively applied.



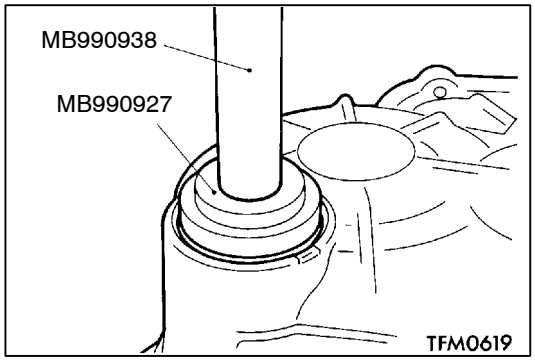
(2) Install the transmission case and expand the snap ring.
(3) Tighten the transmission case mounting bolts to the specified torque.

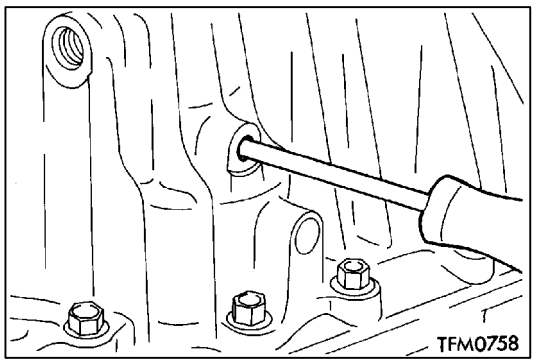
NOTE
Place the transmission upside down and let the snap ring fit in the groove by taking advantage of the output shaft's own weight.



▶I◀ SEALING CAP INSTALLATION

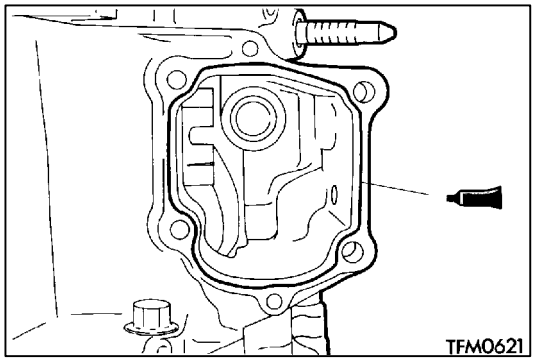
Press-fit the sealing cap all the way up to the illustrated position.





▶J◀ REVERSE IDLER GEAR SHAFT BOLT INSTALLATION

Using a screwdriver (8 mm in shaft diameter), center the bolt hole.

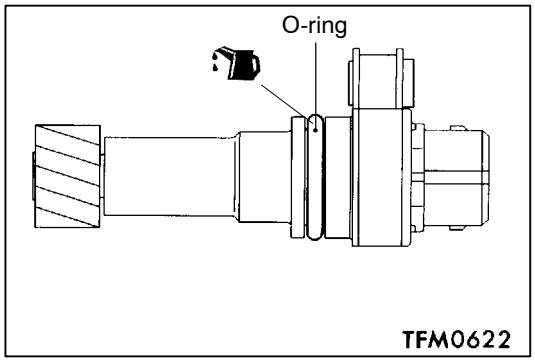


▶K◀ CONTROL HOUSING INSTALLATION

Apply a 1.5 mm bead of sealant to the illustrated position of the transmission case.

Specified sealant:
MITSUBISHI genuine sealant part No. MD997740 or equivalent

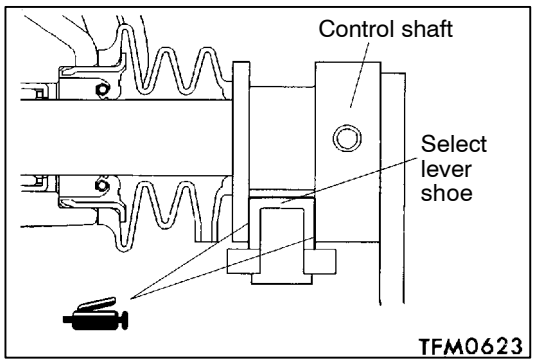
Caution
Squeeze out the sealant uniformly, while making sure that it is not broken or excessively applied.



▶L◀ SPEEDOMETER GEAR INSTALLATION

Apply transmission oil to the O-ring of the speedometer gear.

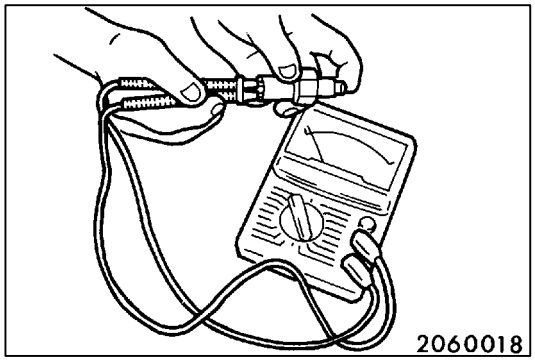
Transmission oil:
Hypoid gear oil SAE 75W-85W conforming to API classification GL-4 or higher



▶M◀SELECT LEVER INSTALLATION

Apply grease to the control shaft sliding portion of the select lever shoe.

Specified grease:
MITSUBISHI genuine grease part No. 0101011 or equivalent



INSPECTION

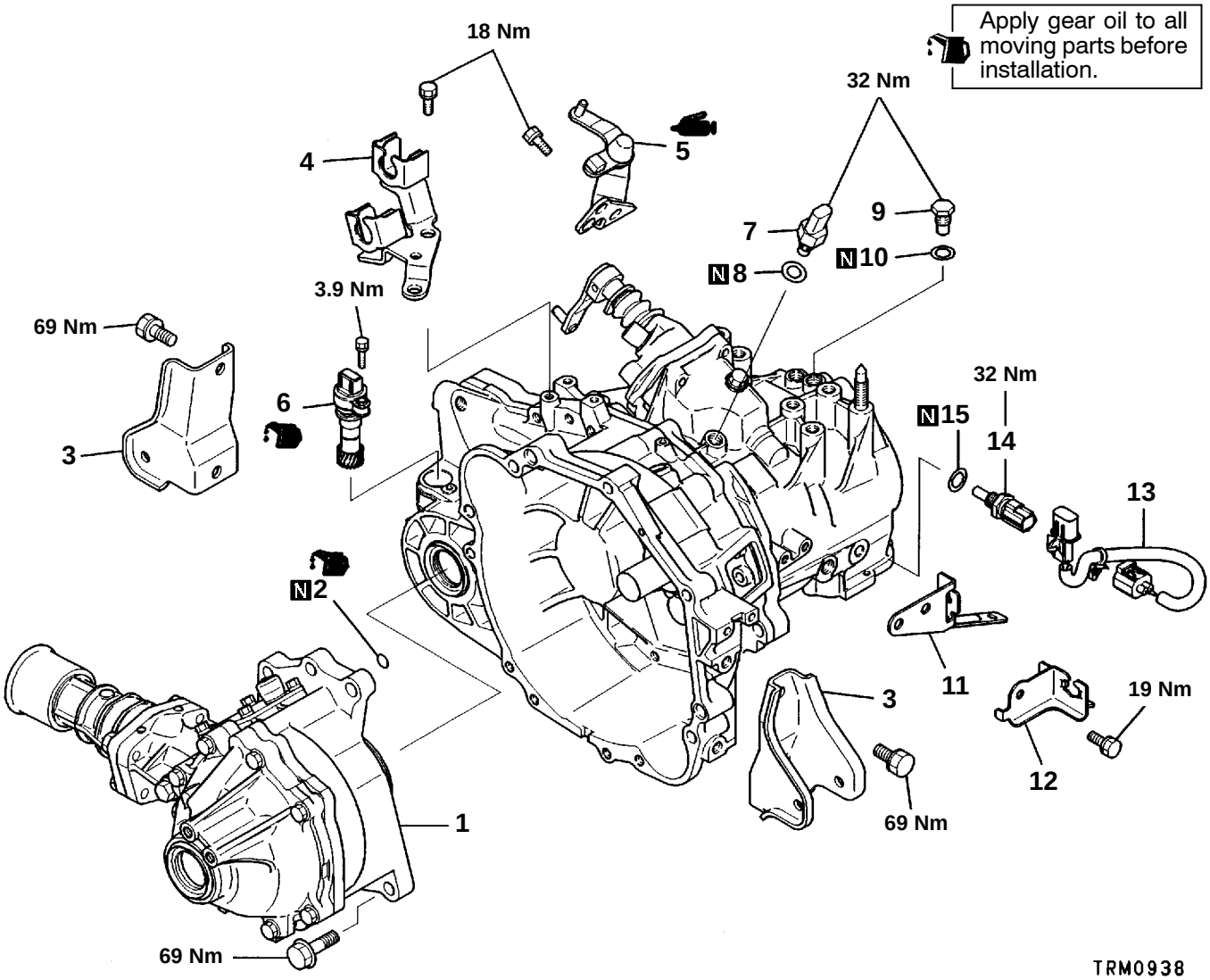
BACK-UP LAMP SWITCH

Check for continuity between terminals.

Switch condition	Continuity
Pressed	Not exist
Released	Exists

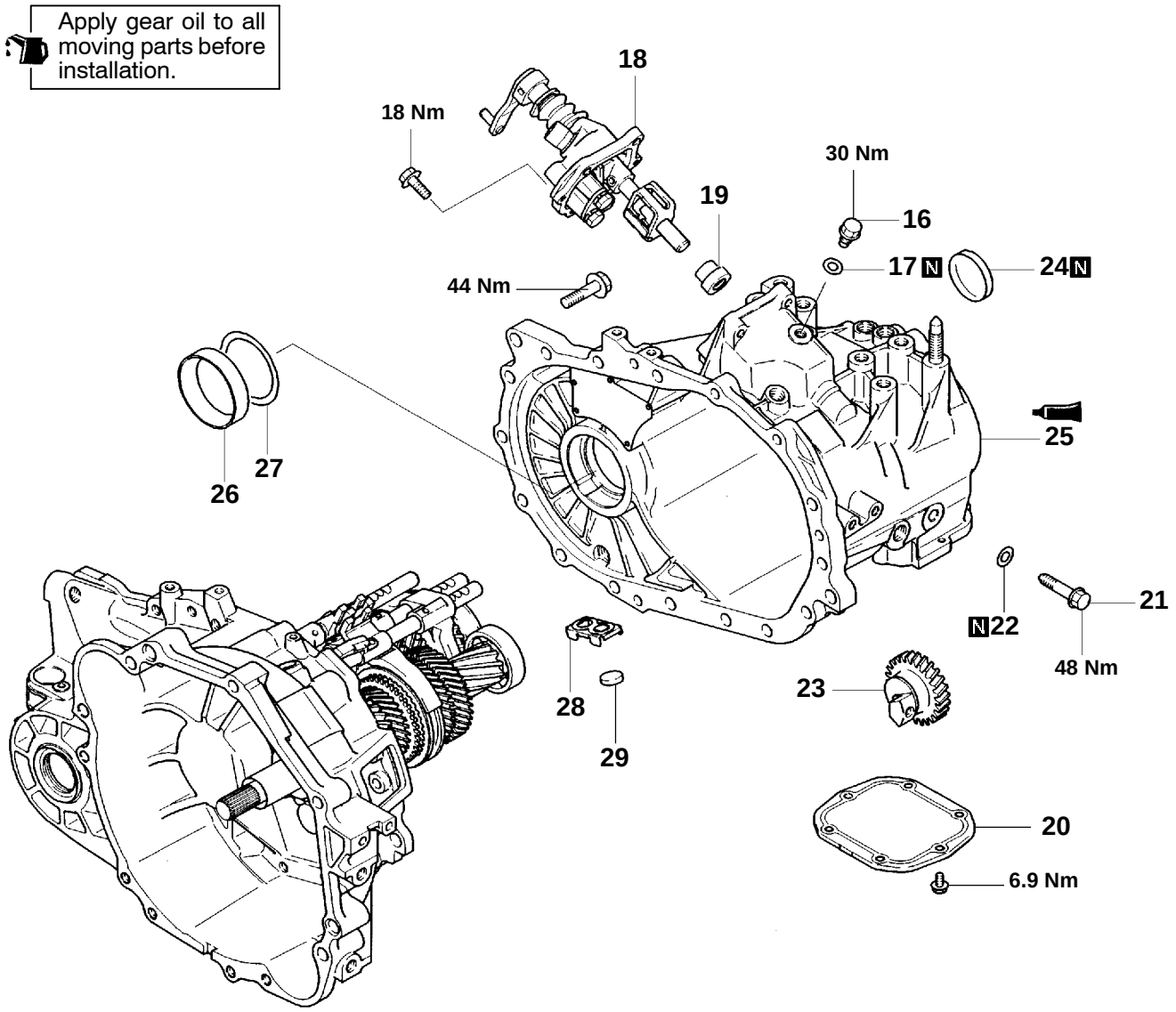
4. TRANSMISSION <F5M42, W5M42>

DISASSEMBLY AND REASSEMBLY



Disassembly steps

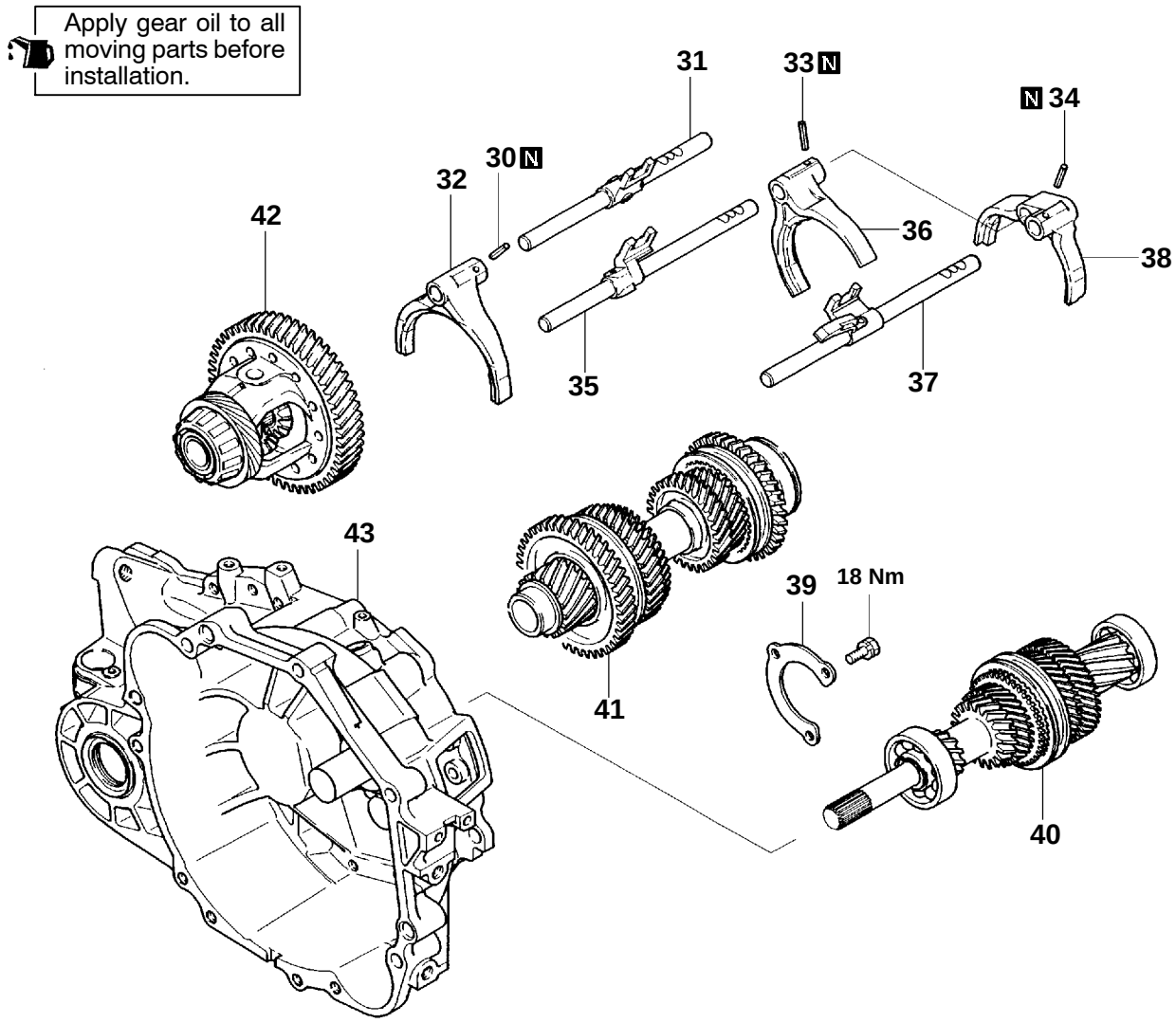
1. Transfer <W5M42>
2. O-ring <W5M42>
3. Roll stopper bracket
4. Shift cable bracket
▶K◀ 5. Select lever
▶J◀ 6. Speedometer gear
7. Back-up lamp switch
8. Gasket
9. Poppet spring
10. Gasket
11. Connector bracket <For GDI engine except DA2A>
12. Clutch fluid line blacket <DA2A only>
13. Oil temperature sensor harness <For GDI engine only>
14. Oil temperature sensor <For GDI engine only>
15. Gasket <For GDI engine only>



TFM0597

Disassembly steps

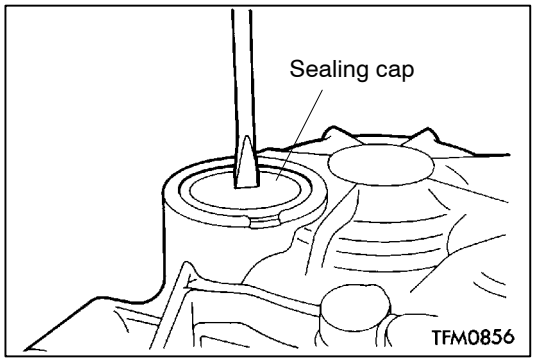
16. Interlock plate bolt
17. Gasket
▶I◀ 18. Control housing
19. Neutral return spring
▶H◀ 20. Under cover
21. Reverse idler gear shaft bolt
22. Gasket
23. Reverse idler gear
◀A▶ ▶G◀ 24. Sealing cap
◀B▶ ▶F◀ 25. Transmission case
▶E◀ 26. Outer race
▶D◀ 27. Spacer
28. Magnet holder
29. Magnet



TFM0598

Disassembly steps

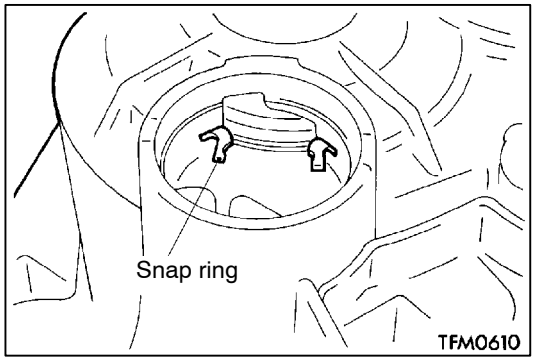
	▶C◀	30. Spring pin
		31. 1st-2nd speed shift rail
		32. 1st-2nd speed shift fork
	▶C◀	33. Spring pin
	▶C◀	34. Spring pin
◀C▶	▶B◀	35. 3rd-4th speed shift rail
◀C▶	▶B◀	36. 3rd-4th speed shift fork
◀C▶	▶B◀	37. 5th-reverse speed shift rail
◀C▶	▶B◀	38. 5th-reverse speed shift fork
		39. Front bearing retainer
◀D▶	▶A◀	40. Input shaft
◀D▶	▶A◀	41. Output shaft
		42. Differential
		43. Clutch housing



DISASSEMBLY SERVICE POINTS

◀A▶ SEALING CAP REMOVAL

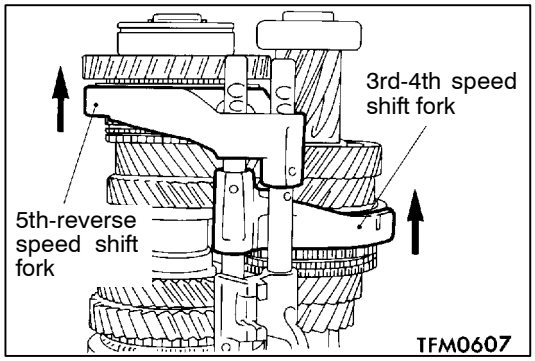
Drive a screwdriver into the sealing cap at the center, then pry off the sealing cap with the screwdriver.



◀B▶ TRANSMISSION CASE REMOVAL

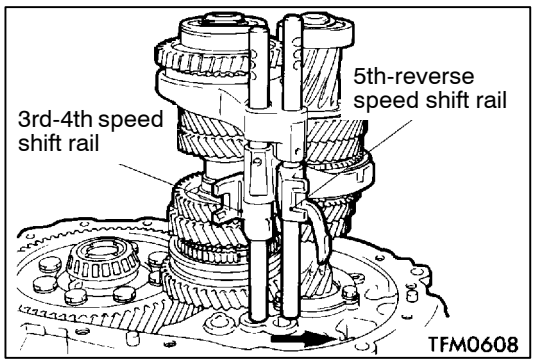
Expand the snap ring to remove it from the snap ring groove of the ball bearing.

NOTE
Expansion of the snap ring causes the snap ring groove to get out of position because of the output shaft's own weight.

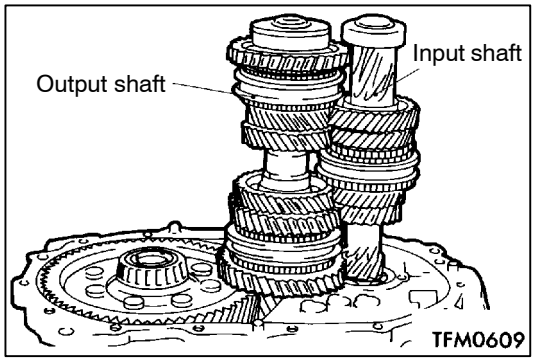


◀C▶ 3RD-4TH SPEED SHIFT RAIL / 3RD-4TH SPEED SHIFT FORK / 5TH-REVERSE SPEED SHIFT RAIL / 5TH-REVERSE SPEED SHIFT FORK REMOVAL

(1) Shift the 3rd-4th speed shift fork and 5th-reverse speed shift fork in the direction shown.

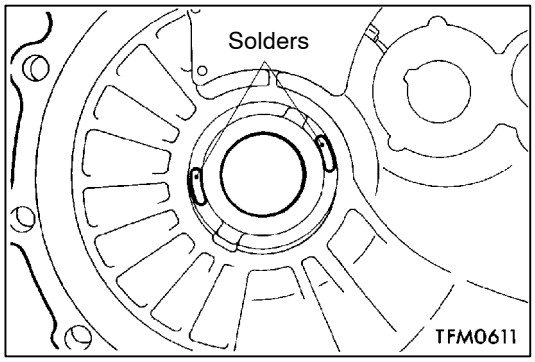


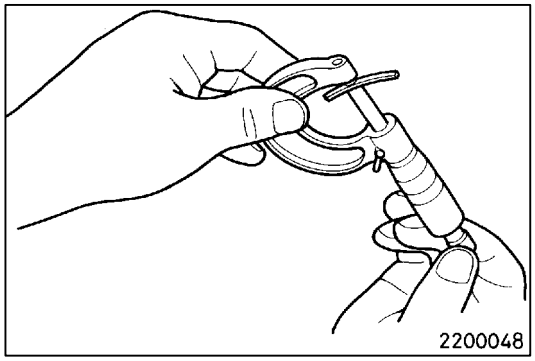
(2) Slide the 3rd-4th speed shift rail and 5th-reverse speed shift rail in the direction shown and remove them together with the shift fork.



◀D▶ INPUT SHAFT / OUTPUT SHAFT REMOVAL

Remove the input and output shafts together.



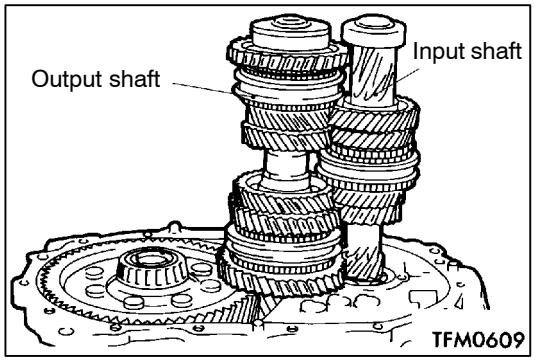


ADJUSTMENT BEFORE REASSEMBLY

SPACER SELECTION FOR DIFFERENTIAL CASE PRELOAD ADJUSTMENT

(1) Put solders (about 10 mm long, 1.6 mm in diameter) in the illustrated positions of the transmission case and install the bearing outer race and differential.
(2) Install the clutch housing and tighten the bolts to the specified torque.
(3) If the solders are not crushed, put larger diameter solders and repeat Steps (1) and (2).
(4) Measure the thickness (T) of the crushed solder with a micrometer and select a spacer according to the following equation.

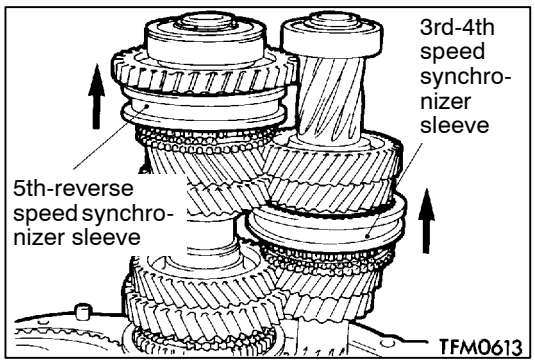
Spacer thickness:
(T + 0.05 mm) to (T + 0.11 mm)



REASSEMBLY SERVICE POINTS

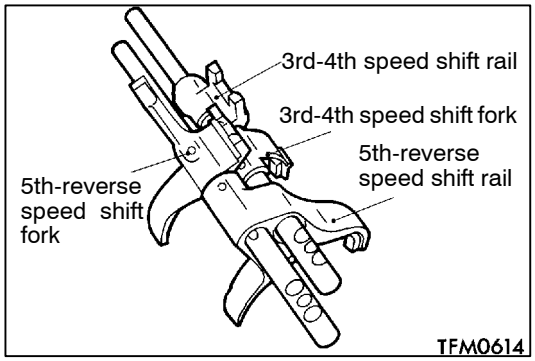
▶A◀ OUTPUT SHAFT / INPUT SHAFT INSTALLATION

Install the input and output shafts together.

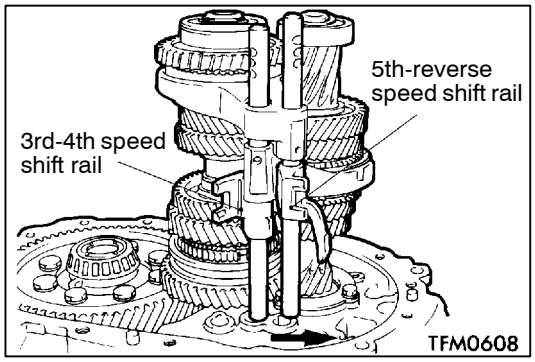


▶B◀ 5TH-REVERSE SPEED SHIFT FORK / 5TH-REVERSE SPEED SHIFT RAIL / 3RD-4TH SPEED SHIFT FORK / 3RD-4TH SPEED SHIFT RAIL INSTALLATION

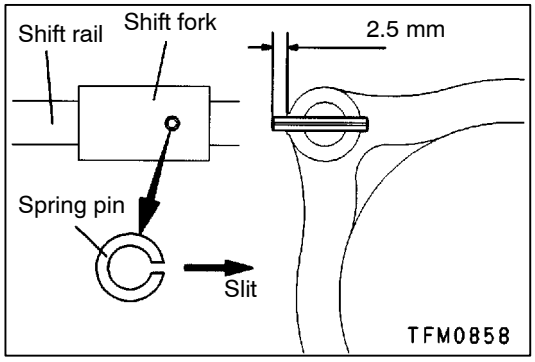
(1) Shift the 3rd-4th speed synchronizer sleeve and 5th-reverse speed synchronizer sleeve in the direction shown.



(2) Install the 3rd-4th speed shift rail and fork and the 5th-reverse speed shift rail and fork.



(3) While fitting each shift fork in the sleeve, slide the shift rails in the direction shown and install.

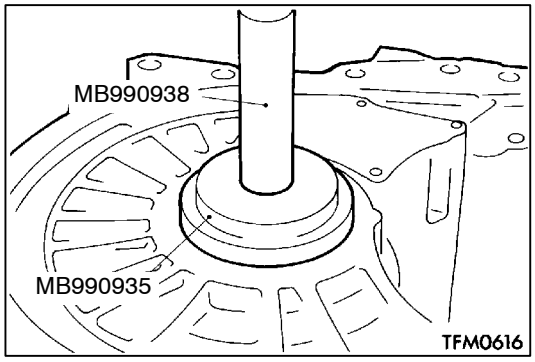


▶C◀ SPRING PIN INSTALLATION

Install the spring pin such that its slit may face in the axial direction of the shift rail.

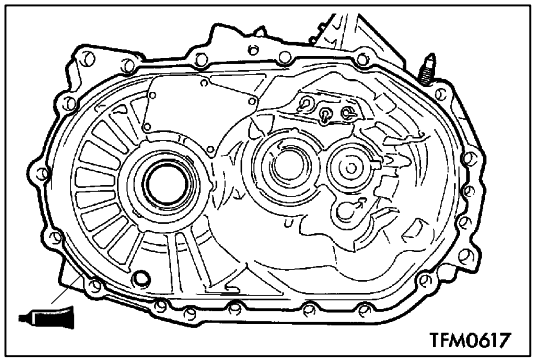
▶D◀ SPACER INSTALLATION

Install the spacer selected in the section “ADJUSTMENT BEFORE REASSEMBLY”.



▶E◀ OUTER RACE INSTALLATION

Use the special tools to install the outer race.

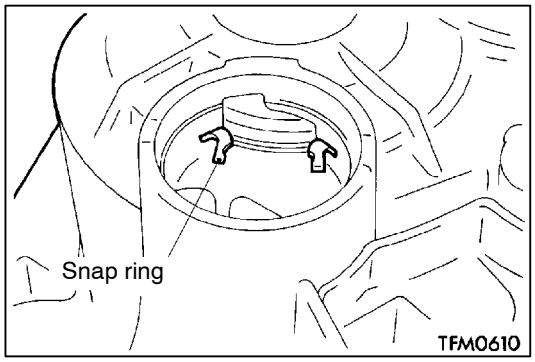


▶F◀ TRANSMISSION CASE INSTALLATION

(1) Apply a 1.5 mm bead of sealant to the illustrated position of the transmission case.

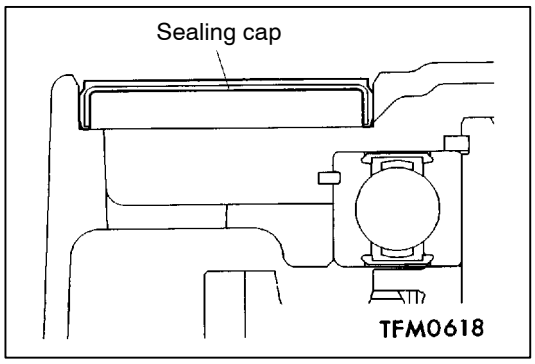
Specified sealant:
MITSUBISHI genuine sealant part No. MD997740 or equivalent

Caution
Squeeze out the sealant uniformly, while making sure that it is not broken or excessively applied.



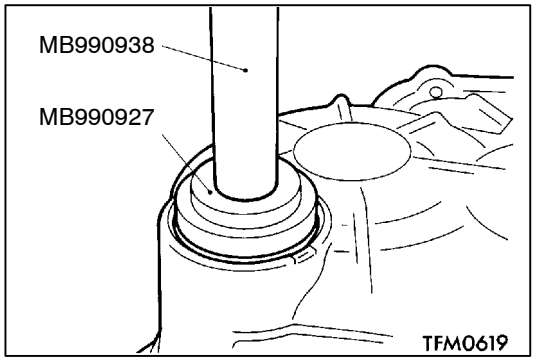
(2) Install the transmission case and expand the snap ring.
(3) Tighten the transmission case to the specified torque.

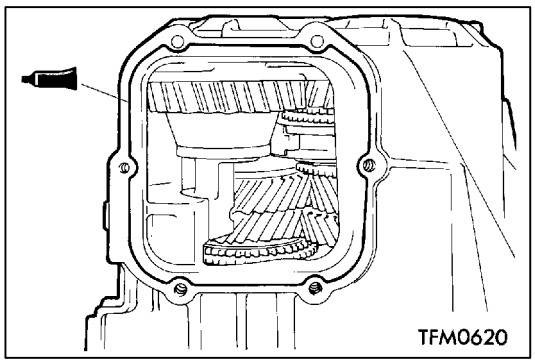
NOTE
Place the transmission upside down and let the snap ring fit in the groove by taking advantage of the output shaft's own weight.



▶G◀ SEALING CAP INSTALLATION

Press-fit the sealing cap all the way up to the illustrated position.



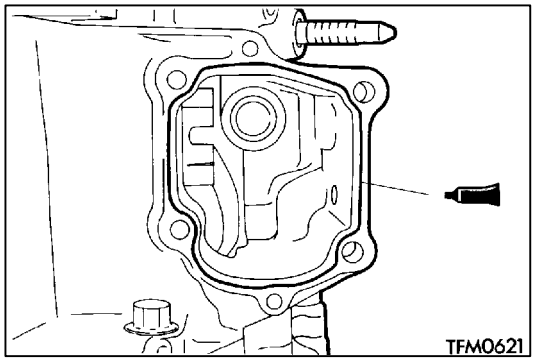


▶H◀ UNDER COVER INSTALLATION

Apply a 1.5 mm bead of sealant to the illustrated position of the transmission case.

Specified sealant:
MITSUBISHI genuine sealant part No. MD997740 or equivalent

Caution
Squeeze out the sealant uniformly, while making sure that it is not broken or excessively applied.

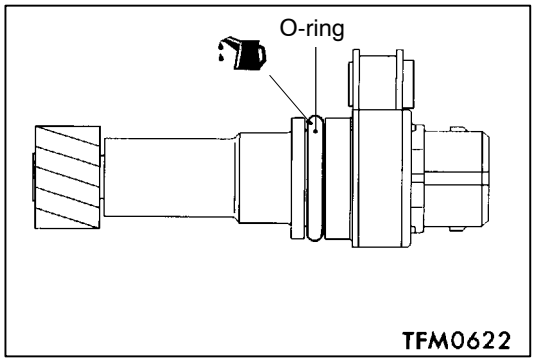


▶I◀ CONTROL HOUSING INSTALLATION

Apply a 1.5 mm bead of sealant to the illustrated position of the transmission case.

Specified sealant:
MITSUBISHI genuine sealant part No. MD997740 or equivalent

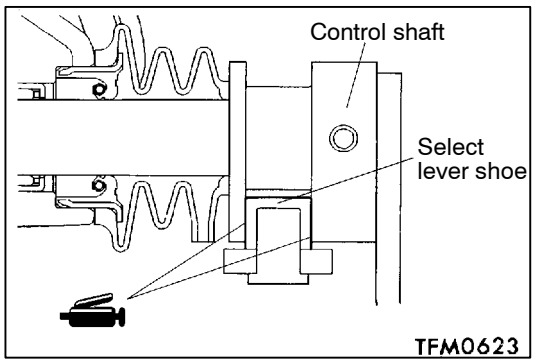
Caution
Squeeze out the sealant uniformly, while making sure that it is not broken or excessively applied.



▶J◀ SPEEDOMETER GEAR INSTALLATION

Apply transmission oil to the O-ring of the speedometer gear.

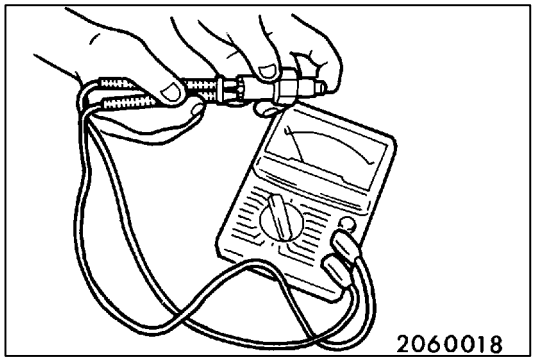
Transmission oil:
Hypoid gear oil SAE 75W-85W conforming to API classification GL-4 or higher



▶K◀ SELECT LEVER INSTALLATION

Apply grease to the control shaft sliding portion of the select lever shoe.

Specified grease:
MITSUBISHI genuine grease part No. 0101011 or equivalent



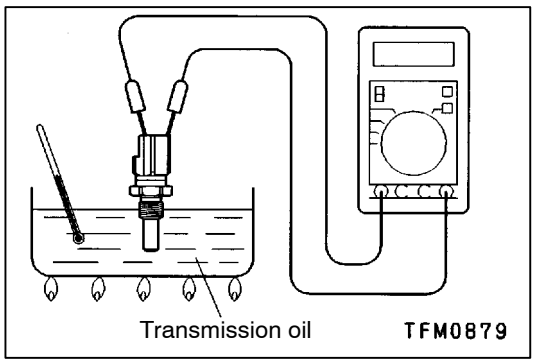
INSPECTION

BACK-UP LAMP SWITCH

(1) Check for continuity between terminals.

Switch condition	Continuity
Pressed	Not exist
Released	Exists

(2) If the above requirements are not met, replace the back-up lamp switch with a new one.



OIL TEMPERATURE SENSOR <For GDI engine only>

(1) Check for continuity between terminals.

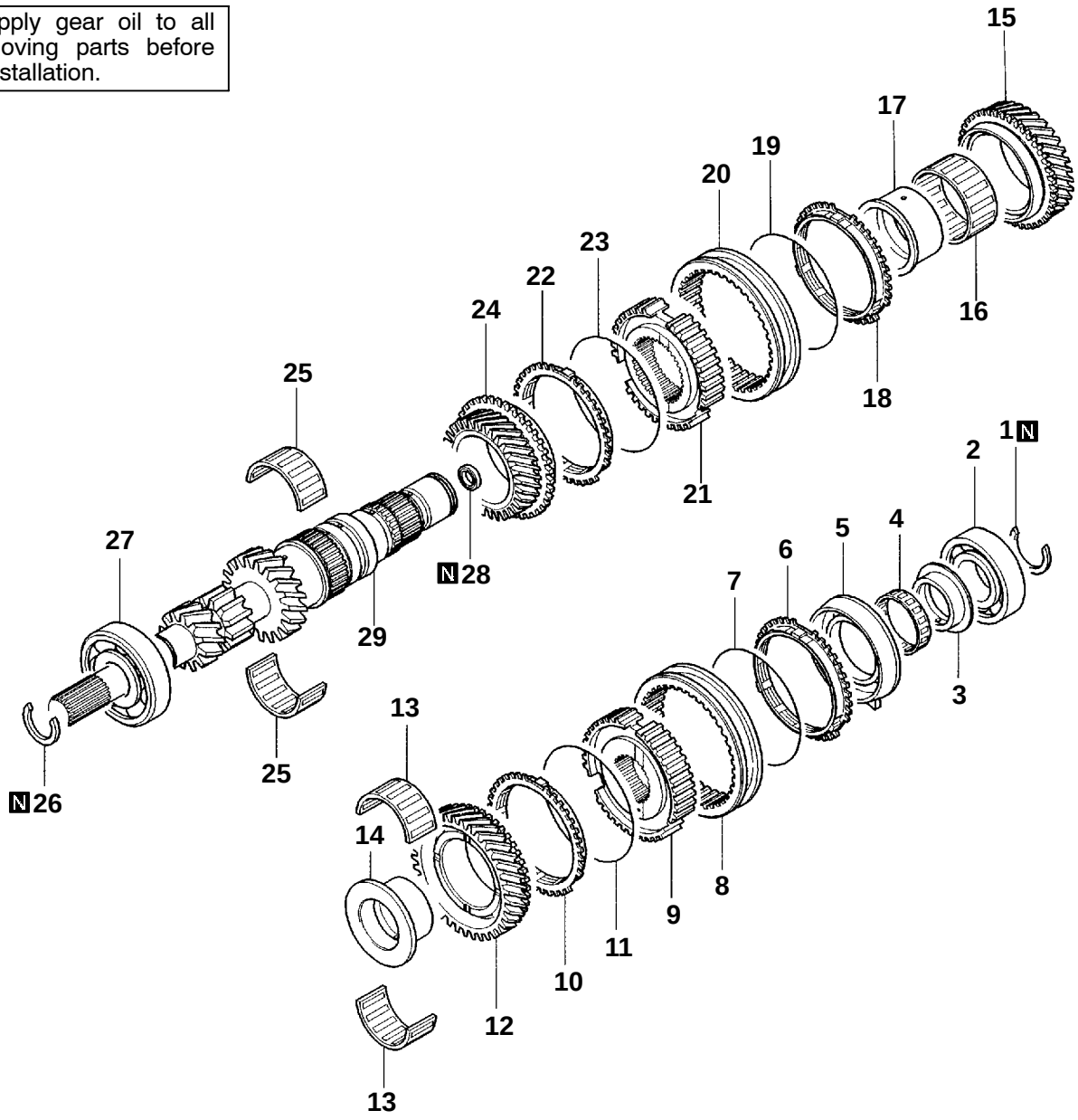
Temperature (°C)	Standard value (kΩ)
20	2.31 - 2.59
110	0.1451 - 0.1491

(2) If the standard value is not met, replace the oil temperature sensor with a new one.

5. INPUT SHAFT <F5M41>

DISASSEMBLY AND REASSEMBLY <Models with reverse brake>

Apply gear oil to all moving parts before installation.

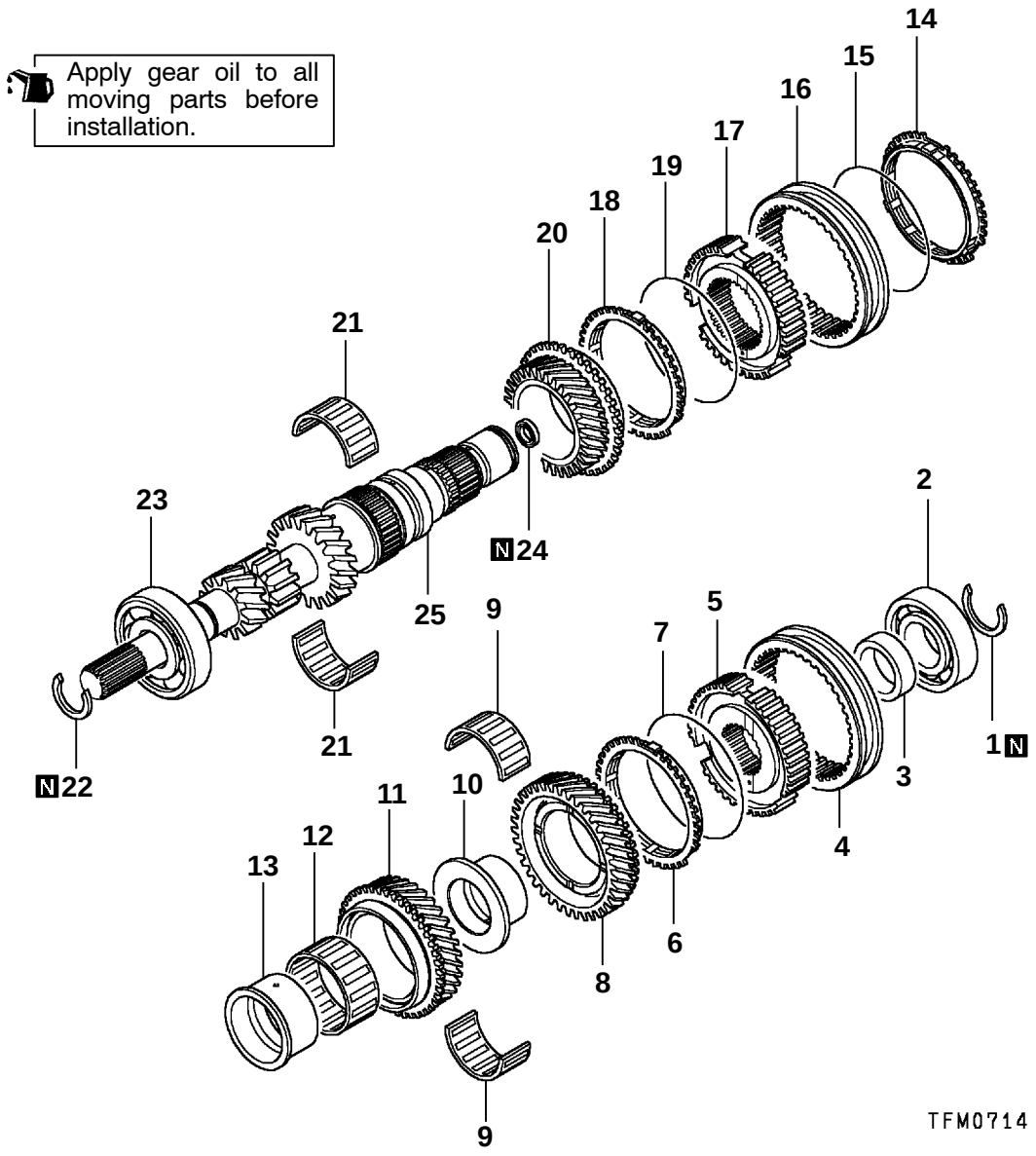


TFM0834

Disassembly steps

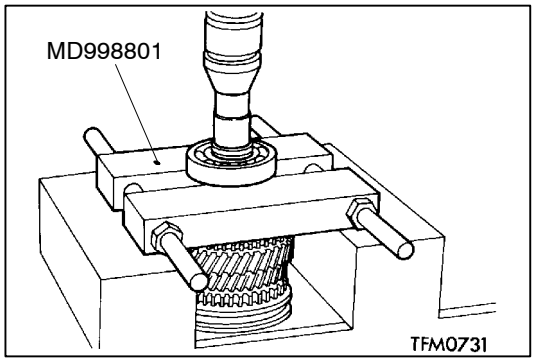
- ▶M◀ 1. Snap ring
- ◀A▶ ▶L◀ 2. Ball bearing
- ◀B▶ ▶K◀ 3. Reverse brake sleeve
- 4. Needle roller bearing
- 5. Reverse brake cone
- 6. Reverse brake ring
- ▶D◀ 7. Synchronizer spring
- ▶J◀ 8. Synchronizer sleeve
- ◀C▶ ▶I◀ 9. 5th-reverse speed synchronizer hub
- 10. Synchronizer ring
- ▶D◀ 11. Synchronizer spring
- 12. 5th speed gear
- 13. Needle roller bearing
- ◀D▶ ▶H◀ 14. 5th speed gear sleeve
- 15. 4th speed gear
- 16. Needle roller bearing
- ◀E▶ ▶G◀ 17. 4th speed gear sleeve
- 18. Synchronizer ring
- ▶D◀ 19. Synchronizer spring
- ▶F◀ 20. Synchronizer sleeve
- ▶E◀ 21. 3rd-4th speed synchronizer hub
- 22. Synchronizer ring
- ▶D◀ 23. Synchronizer spring
- 24. 3rd speed gear
- 25. Needle roller bearing
- ▶C◀ 26. Snap ring
- ◀F▶ ▶B◀ 27. Ball bearing
- ▶A◀ 28. Oil seal
- 29. Input shaft

DISASSEMBLY AND REASSEMBLY <Except models with reverse brake>



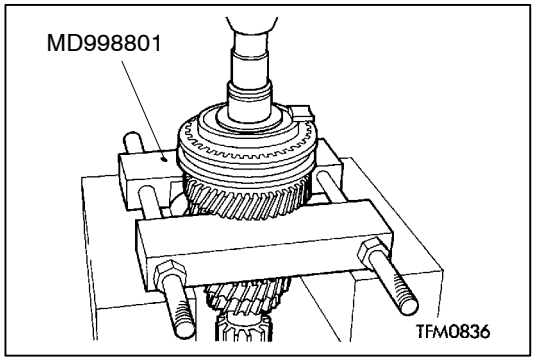
Disassembly steps

- ▶M◀ 1. Snap ring
- ◀A▶ ▶L◀ 2. Ball bearing
- 3. Collar
- ▶J◀ 4. Synchronizer sleeve
- ◀C▶ ▶I◀ 5. 5th-reverse speed synchronizer hub
- 6. Synchronizer ring
- ▶D◀ 7. Synchronizer spring
- 8. 5th speed gear
- 9. Needle roller bearing
- ◀D▶ ▶H◀ 10. 5th speed gear sleeve
- 11. 4th speed gear
- 12. Needle roller bearing
- ◀E▶ ▶G◀ 13. 4th speed gear sleeve
- 14. Synchronizer ring
- ▶D◀ 15. Synchronizer spring
- ▶F◀ 16. Synchronizer sleeve
- ▶E◀ 17. 3rd-4th speed synchronizer hub
- 18. Synchronizer ring
- ▶D◀ 19. Synchronizer spring
- 20. 3rd speed gear
- 21. Needle roller bearing
- ▶C◀ 22. Snap ring
- ◀F▶ ▶B◀ 23. Ball bearing
- ▶A◀ 24. Oil seal
- 25. Input shaft



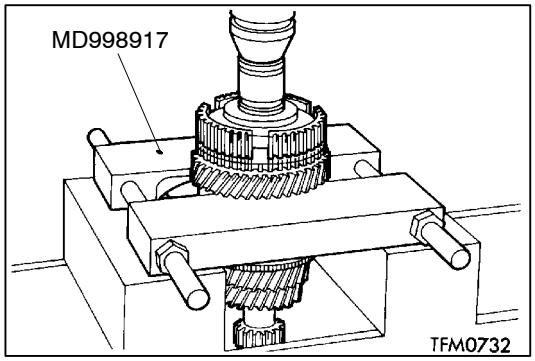
DISASSEMBLY SERVICE POINTS

◀A▶ BALL BEARING REMOVAL



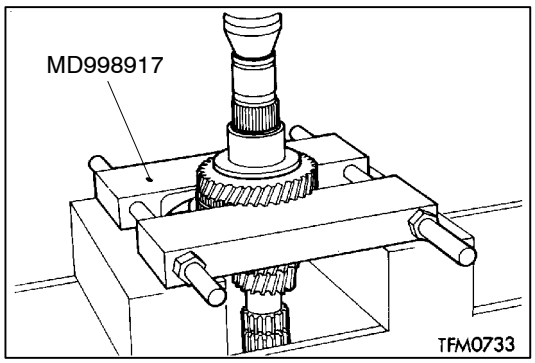
◀B▶ REVERSE BRAKE SLEEVE REMOVAL

Mount a special tool on the 5th speed gear and remove the reverse brake sleeve.



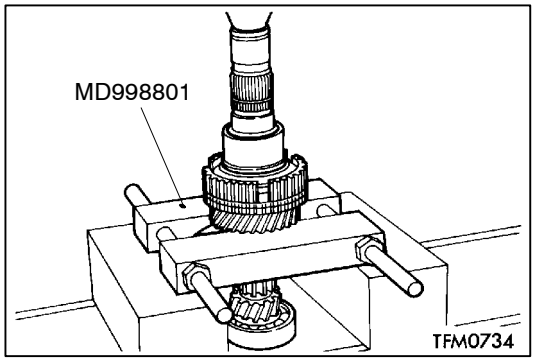
◀C▶ 5TH-REVERSE SPEED SYNCHRONIZER HUB REMOVAL

Mount a special tool on the 5th speed gear and remove the 5th-reverse synchronizer hub.



◀D▶ 5TH SPEED GEAR SLEEVE REMOVAL

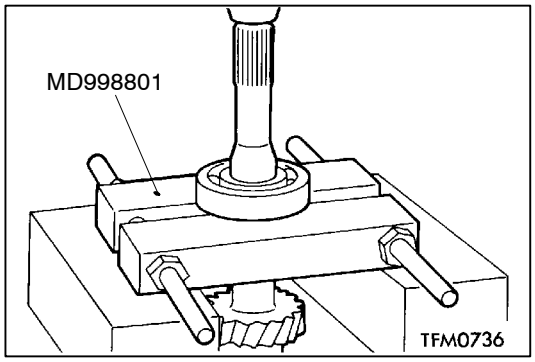
Mount a special tool on the 4th speed gear and remove the 5th speed gear sleeve.



◀E▶ 4TH SPEED GEAR SLEEVE REMOVAL

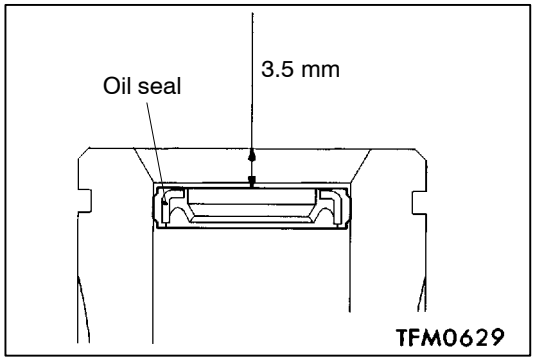
Mount a special tool on the 3rd speed gear and remove the 4th speed gear sleeve.

Intentionally blank



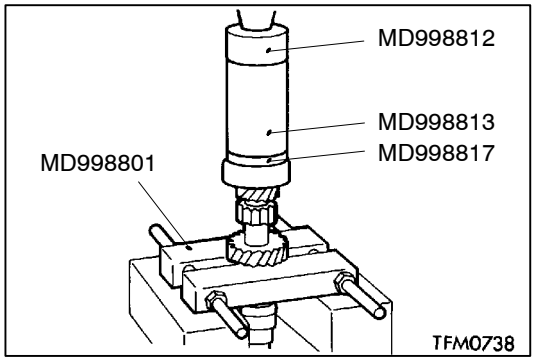
◀F▶ BALL BEARING REMOVAL

REASSEMBLY SERVICE POINTS

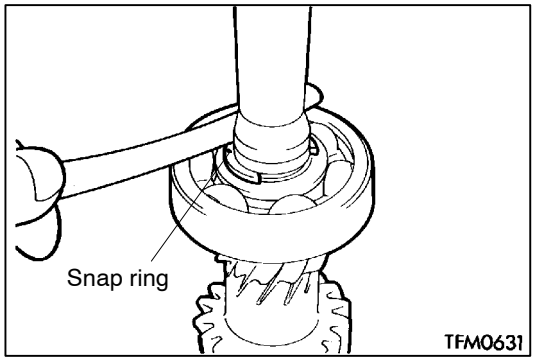


▶A◀ OIL SEAL INSTALLATION

Drive in the oil seal all the way up to the illustrated dimension.



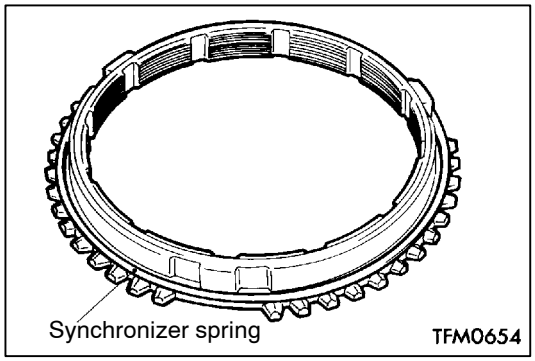
▶B◀ BALL BEARING INSTALLATION



▶C◀ SNAP RING INSTALLATION

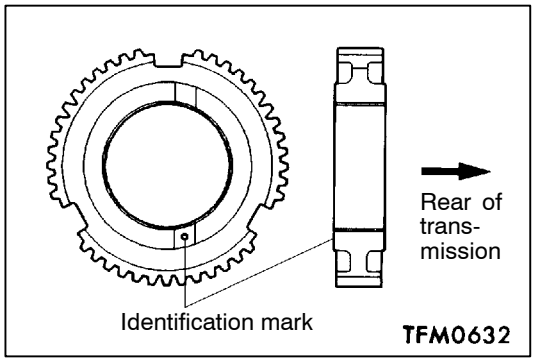
Select and install a snap ring so that the input shaft front bearing end play will have the standard value.

Standard value:
-0.01-0.12 mm



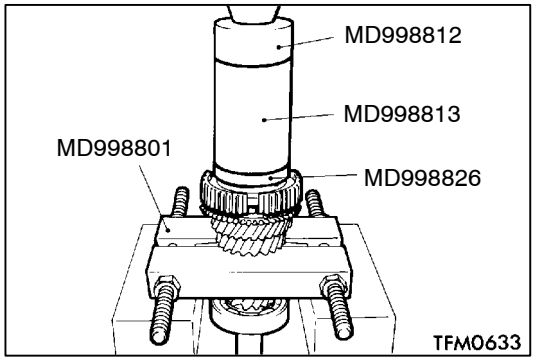
▶D◀ SYNCHRONIZER SPRING INSTALLATION

Install the synchronizer spring securely up to the illustrated position of the synchronizer ring.

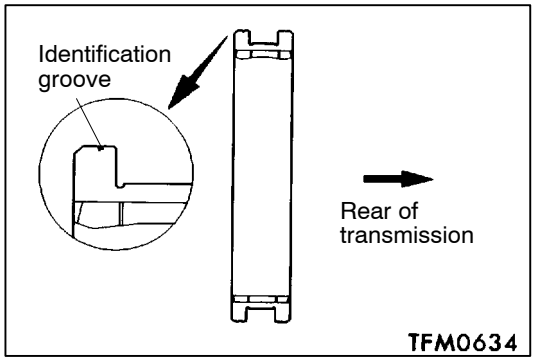


▶E◀ 3RD-4TH SPEED SYNCHRONIZER HUB INSTALLATION

Install the 3rd-4th speed synchronizer hub in such a way that it will be oriented in the direction shown.

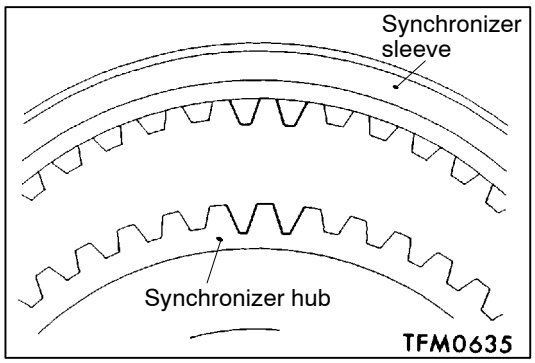


Caution
When the hub is installed, make sure that the synchronizer ring is not caught.

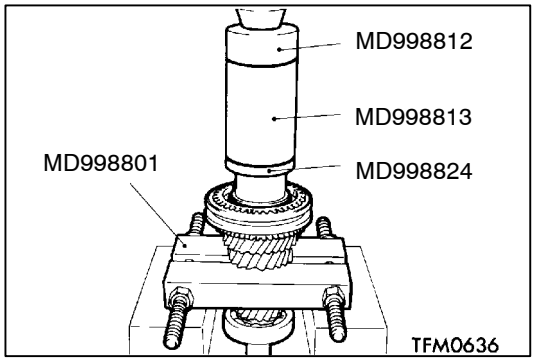


▶F◀ SYNCHRONIZER SLEEVE INSTALLATION

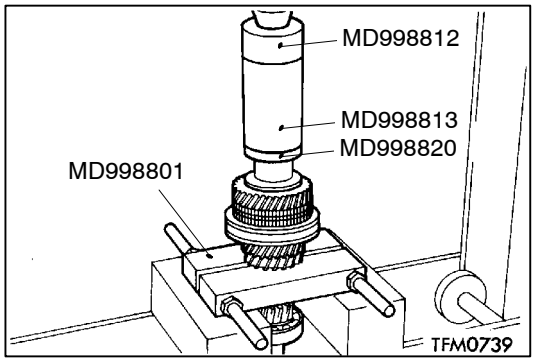
(1) Install the synchronizer sleeve in such a way that it will be oriented in the direction shown.



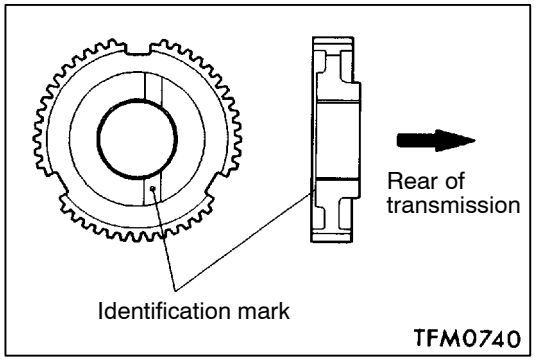
(2) When the synchronizer sleeve is installed, make sure that the deep groove portion of the synchronizer hub is aligned with the projecting portion of the sleeve.



▶G◀ 4TH SPEED GEAR SLEEVE INSTALLATION

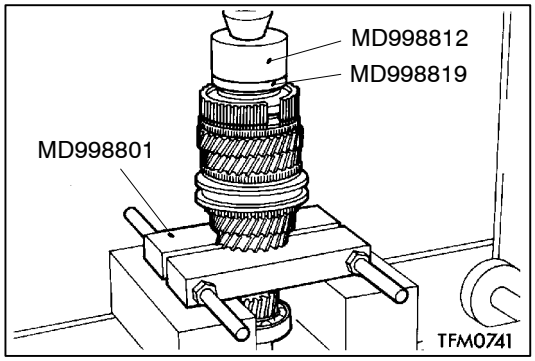


▶H◀ 5TH SPEED GEAR SLEEVE INSTALLATION

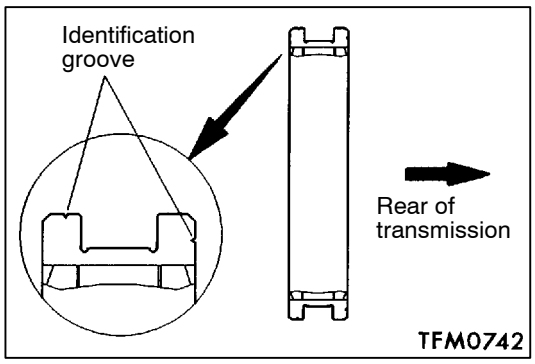


▶I◀ 5TH-REVERSE SPEED SYNCHRONIZER HUB INSTALLATION

Install the 5th-reverse speed synchronizer hub in such a way that it will be oriented in the direction shown.

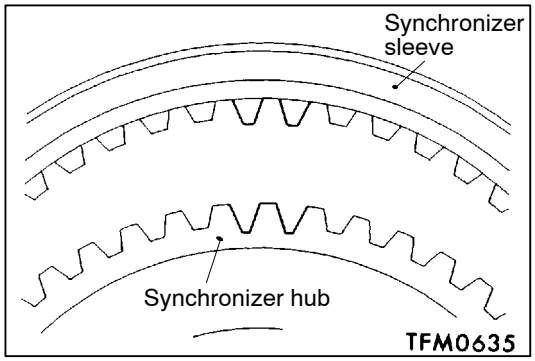


Caution
When the 5th-reverse speed synchronizer hub is installed, make sure that the synchronizer ring is not caught.

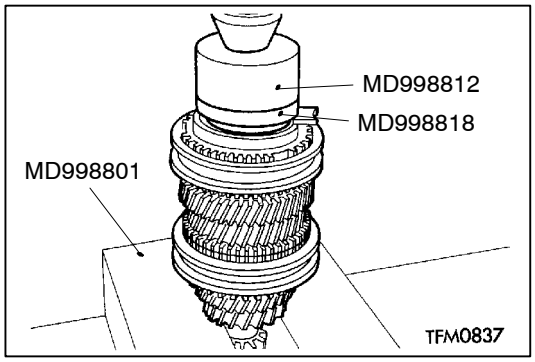


▶J◀ SYNCHRONIZER SLEEVE INSTALLATION

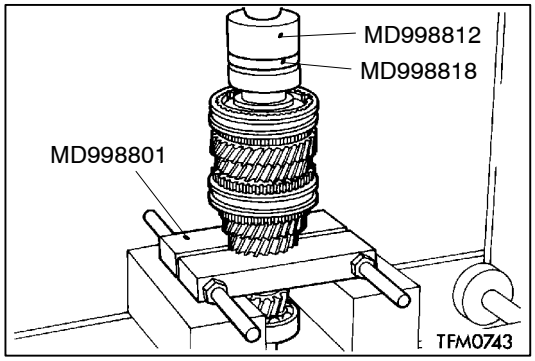
(1) Install the synchronizer sleeve in such a way that it will be oriented in the direction shown.



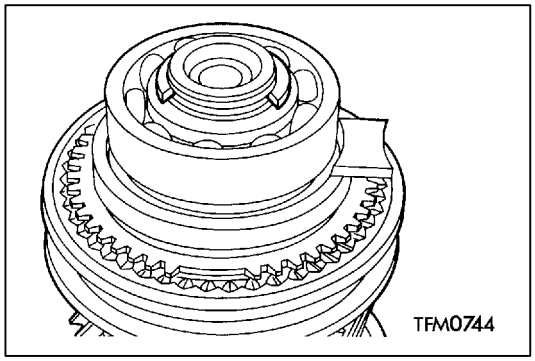
(2) When the synchronizer sleeve is installed, make sure that the deep groove portion of the synchronizer hub is aligned with the projecting portion of the sleeve.



▶K◀ REVERSE BRAKE SLEEVE INSTALLATION



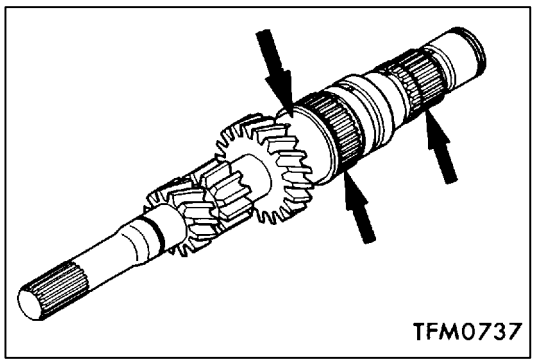
▶L◀ BALL BEARING INSTALLATION



▶M◀SNAP RING INSTALLATION

Select and install a snap ring so that the input shaft rear bearing end play will have the standard value.

Standard value:
-0.01-0.09 mm



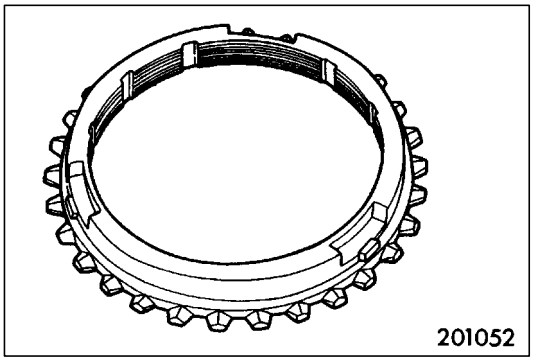
INSPECTION

INPUT SHAFT

(1) Check the outside diameter of the needle bearing mounting portion for damage, abnormal wear and seizure.
(2) Check the splines for damage and wear.

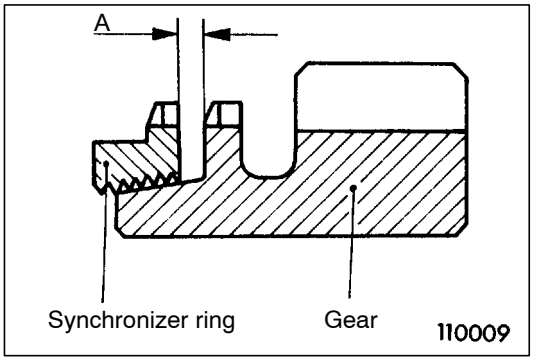
NEEDLE ROLLER BEARING

(1) Check to ensure that when the input shaft, sleeve and gear are combined and made to rotate, they rotate smoothly without noise.
(2) Check to ensure that the cage is not deformed.



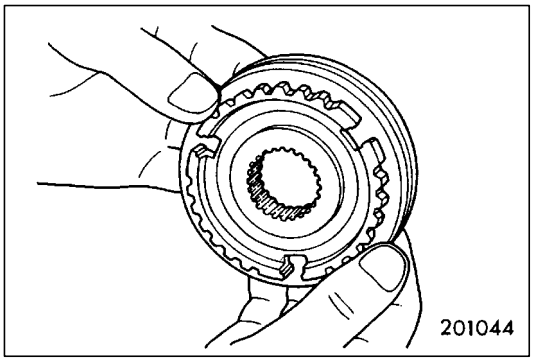
SYNCHRONIZER RING

(1) Check to ensure that the clutch gear tooth surfaces are not damaged and broken.
(2) Check to ensure that the cone inside diameter is not damaged or worn and that the threads are not crushed.



(3) Press the synchronizer ring against the gear and check clearance “A”. If “A” is less than the limit, replace.

Limit: 0.5 mm

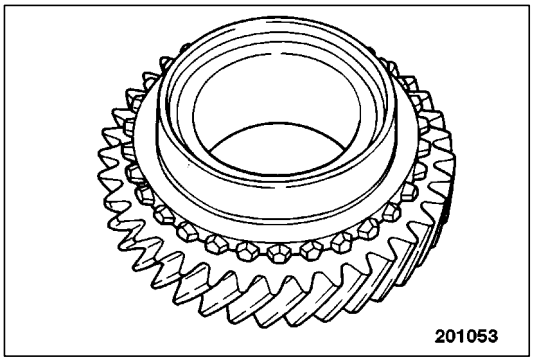


SYNCHRONIZER SLEEVE AND HUB

(1) Check to ensure that when the synchronizer sleeve and hub are combined and made to slide, they slide smoothly without binding.
(2) Check to ensure that the front and rear ends of the sleeve inside surface are not damaged.

SYNCHRONIZER SPRING

Check to ensure that the spring is not sagging, deformed or broken.

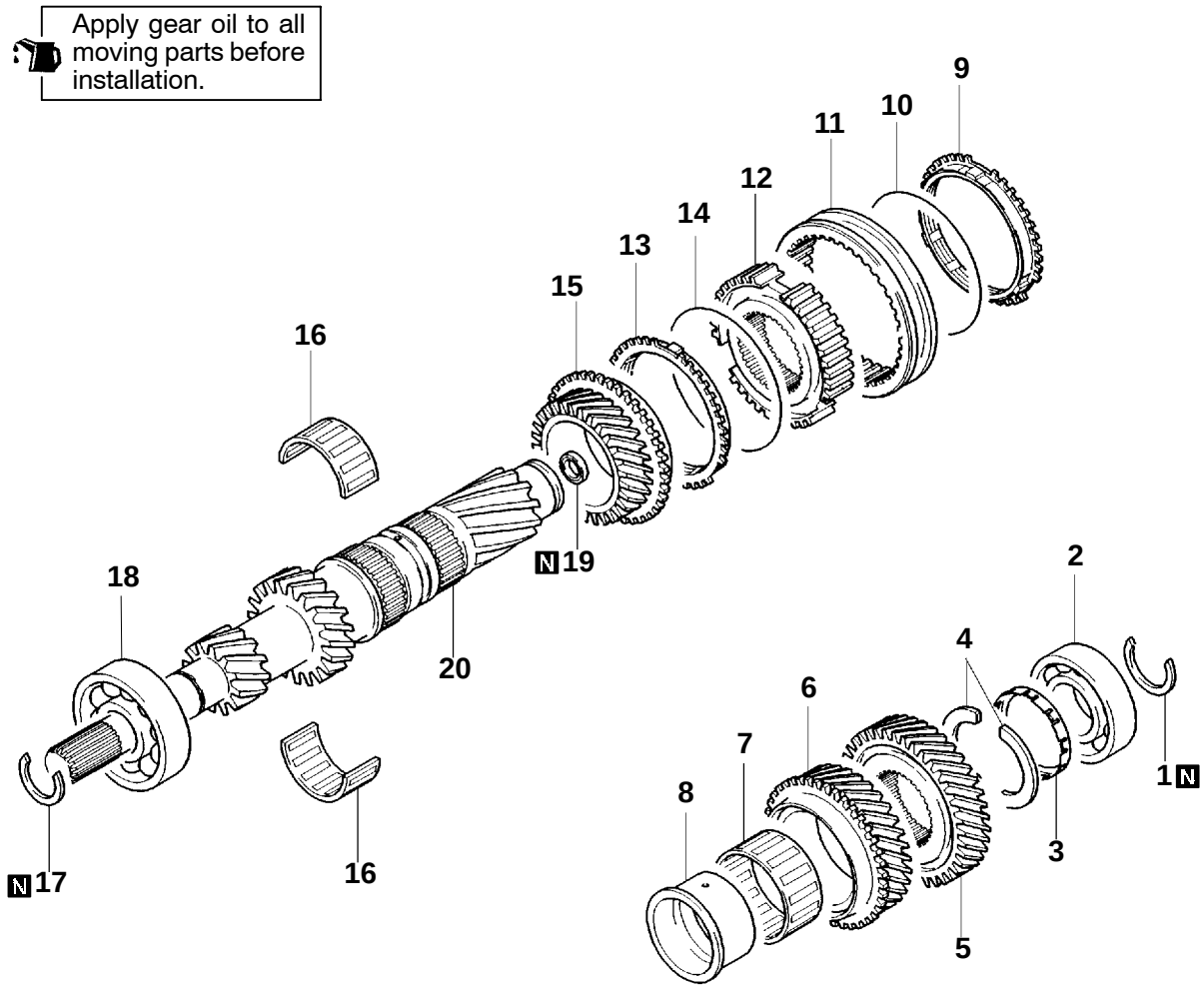


SPEED GEARS

(1) Check to ensure that the helical and clutch gear tooth surfaces are not damaged or worn.
(2) Check to ensure that the synchronizer cone surfaces are not roughened, damaged or worn.
(3) Check to ensure that the gear inside diameter and front and rear surfaces are not damaged and worn.

6. INPUT SHAFT <F5M42, W5M42>

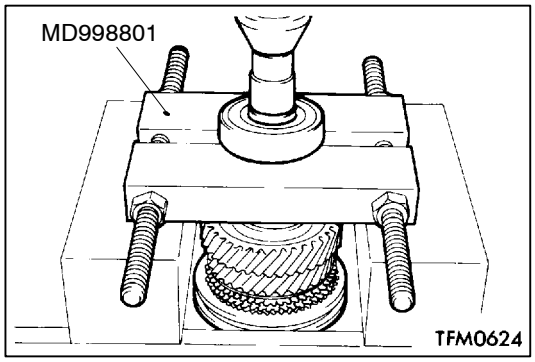
DISASSEMBLY AND REASSEMBLY



TFM0591

Disassembly steps

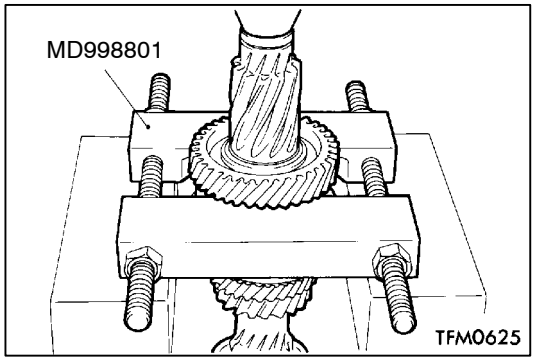
- ▶L◀ 1. Snap ring
- ◀A▶ ▶K◀ 2. Ball bearing
- ▶J◀ 3. Thrust plate stopper
- ▶I◀ 4. Thrust plate
- ◀B▶ ▶H◀ 5. 5th speed gear
- 6. 4th speed gear
- 7. Needle roller bearing
- ◀C▶ ▶G◀ 8. 4th speed gear sleeve
- 9. Synchronizer ring
- ▶D◀ 10. Synchronizer spring
- ▶F◀ 11. Synchronizer sleeve
- ▶E◀ 12. 3rd-4th speed synchronizer hub
- 13. Synchronizer ring
- ▶D◀ 14. Synchronizer spring
- 15. 3rd speed gear
- 16. Needle roller bearing
- ▶C◀ 17. Snap ring
- ◀D▶ ▶B◀ 18. Ball bearing
- ▶A◀ 19. Oil seal
- 20. Input shaft



DISASSEMBLY SERVICE POINTS

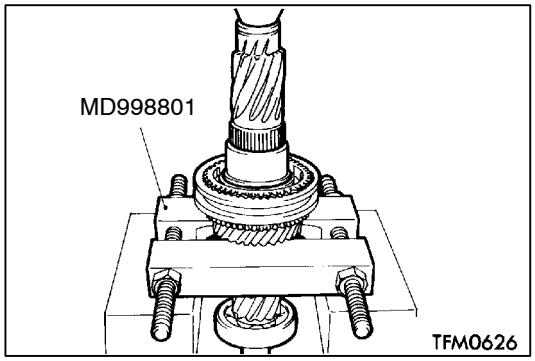
◀A▶ BALL BEARING REMOVAL

Use the special tool to remove the ball bearing.



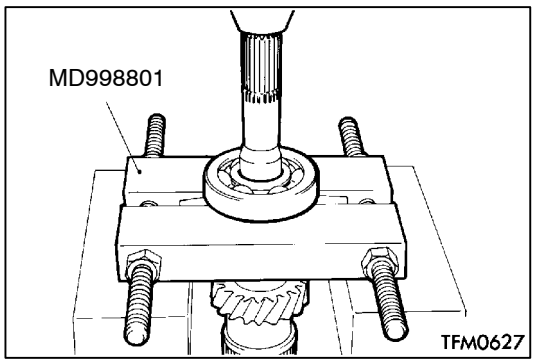
◀B▶ 5TH SPEED GEAR REMOVAL

Use the special tool to remove the 5th speed gear.



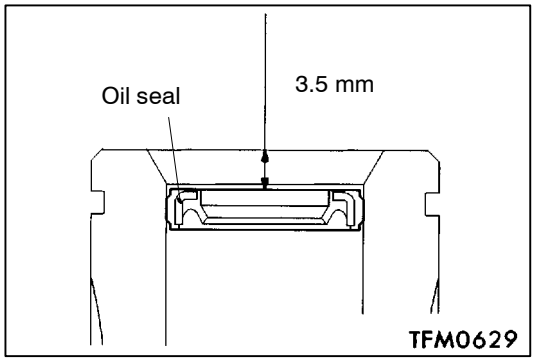
◀C▶ 4TH SPEED GEAR SLEEVE REMOVAL

Mount a special tool on the 3rd gear and remove the 4th speed gear sleeve.



◀D▶ BALL BEARING REMOVAL

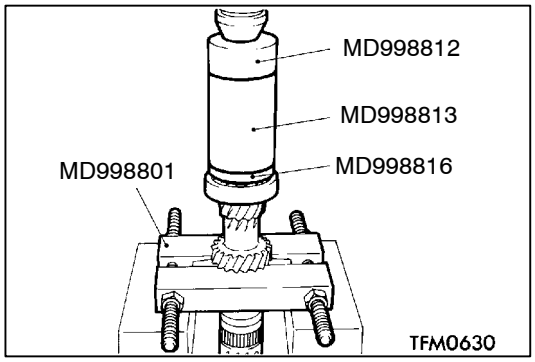
Use the special tool to remove the ball bearing.



REASSEMBLY SERVICE POINTS

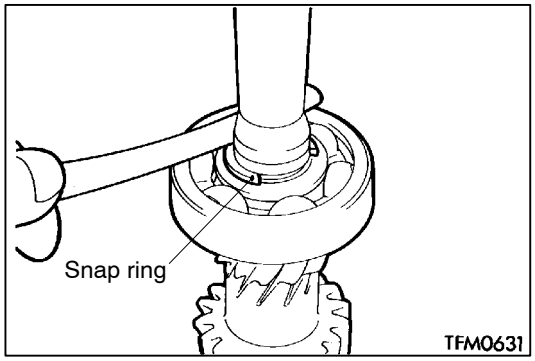
▶A◀ OIL SEAL INSTALLATION

Drive in the oil seal all the way up to the illustrated dimension.



▶B◀ BALL BEARING INSTALLATION

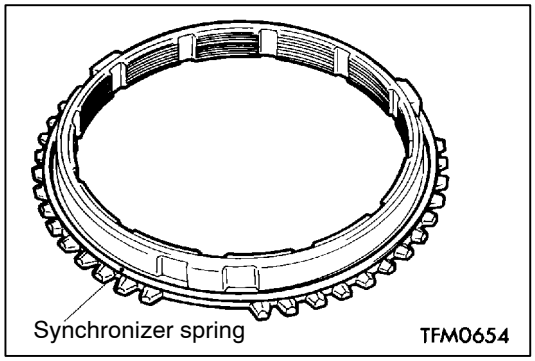
Use the special tools to install the ball bearing.



▶C◀ SNAP RING INSTALLATION

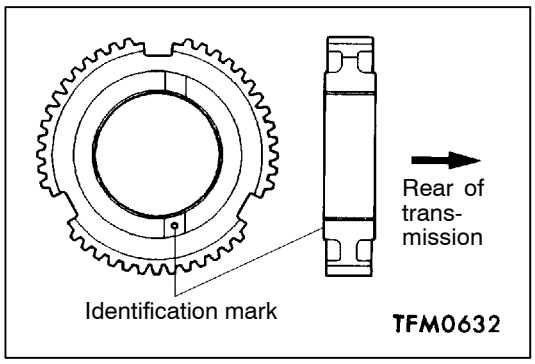
Select and install a snap ring so that the input shaft front bearing end play will have the standard value.

Standard value:
-0.01-0.12 mm



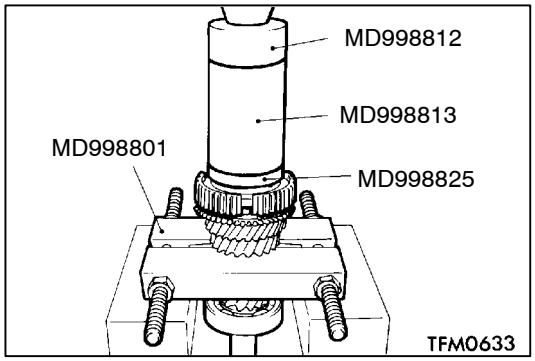
▶D◀ SYNCHRONIZER SPRING INSTALLATION

Install the synchronizer spring securely up to the illustrated position of the synchronizer ring.

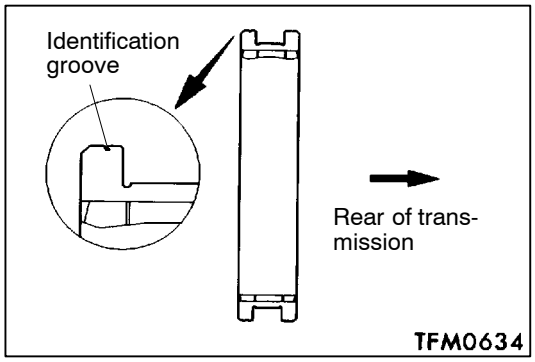


▶E◀ 3RD-4TH SPEED SYNCHRONIZER HUB INSTALLATION

Install the 3rd-4th speed synchronizer hub in such a way that it will be oriented in the direction shown.

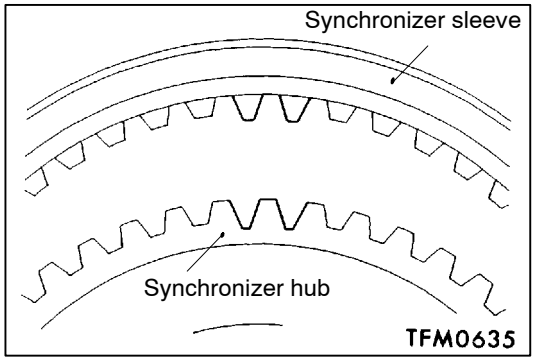


Caution
When the hub is installed, make sure that the synchronizer ring is not caught.

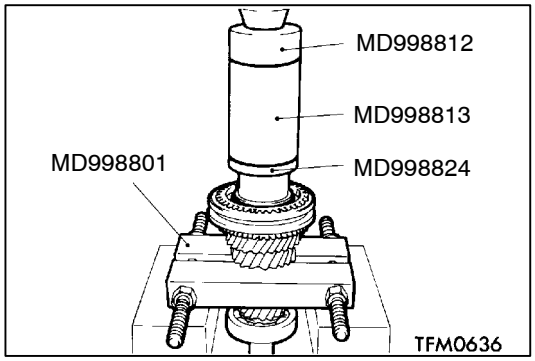


▶F◀ SYNCHRONIZER SLEEVE INSTALLATION

(1) Install the synchronizer sleeve in such a way that it will be oriented in the direction shown.

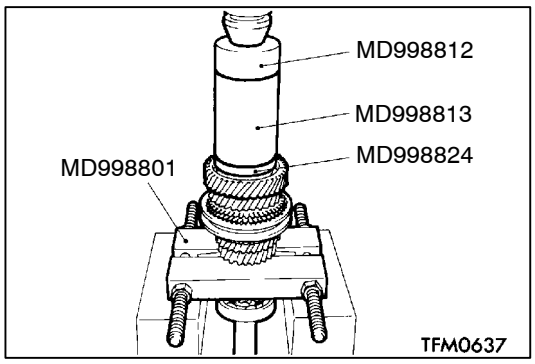


(2) When the synchronizer sleeve is installed, make sure that the deep groove portion of the synchronizer hub is aligned with the projecting portion of the sleeve.



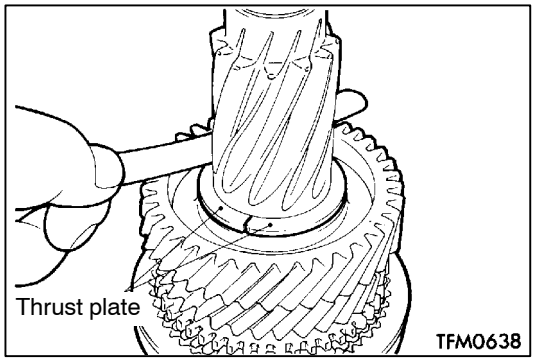
▶G◀ 4TH SPEED GEAR SLEEVE INSTALLATION

Use the special tools to install the 4th speed gear sleeve.



▶H◀ 5TH SPEED GEAR INSTALLATION

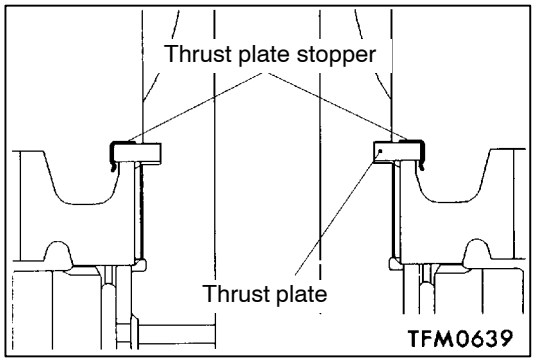
Use the special tools to install the 5th speed gear.



▶I◀ THRUST PLATE INSTALLATION

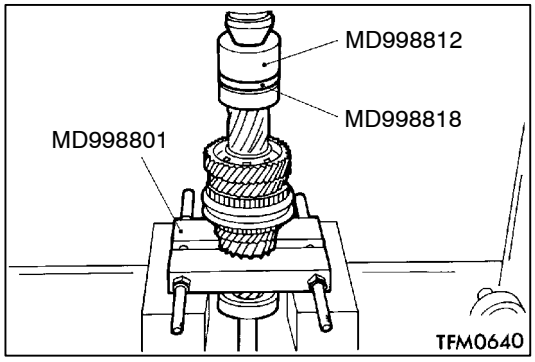
Select and install a thrust plate so that the input shaft 5th speed gear end play will have the standard value.

Standard value:
-0.01-0.09 mm



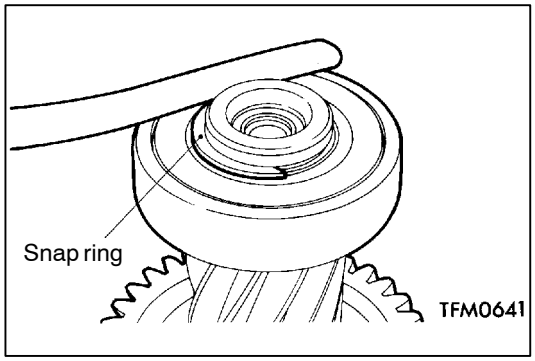
▶J◀ THRUST PLATE STOPPER INSTALLATION

When the thrust plate is installed, make sure that it is not tilted.



▶K◀ BALL BEARING INSTALLATION

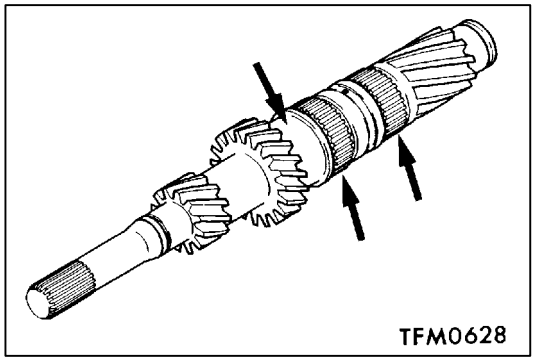
Use the special tools to install the ball bearing.



▶L◀ SNAP RING INSTALLATION

Select and install a snap ring so that the input shaft rear bearing end play will have the standard value.

Standard value:
-0.01 - 0.12 mm



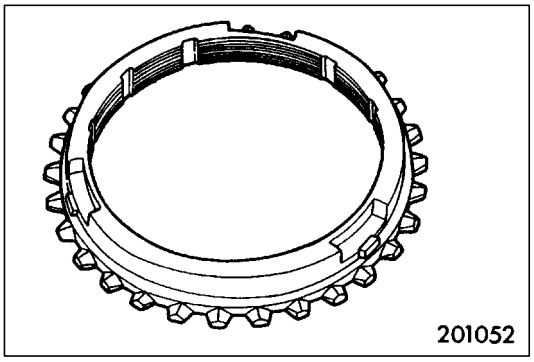
INSPECTION

INPUT SHAFT

(1) Check the outside diameter of the needle bearing mounting portion for damage, abnormal wear and seizure.
(2) Check the splines for damage and wear.

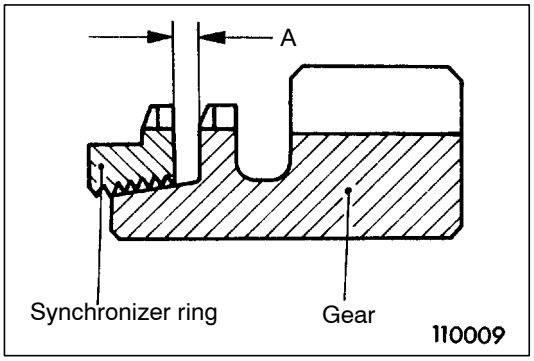
NEEDLE ROLLER BEARING

(1) Check to ensure that when the input shaft and gear are combined and made to rotate, they rotate smoothly without looseness and noise.



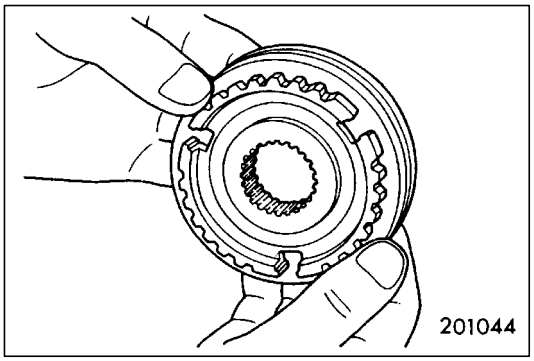
SYNCHRONIZER RING

(1) Check to ensure that the clutch gear tooth surfaces are not damaged and broken.
(2) Check to ensure that the cone inside diameter is not damaged or worn and that the threads are not crushed.



(3) Press the synchronizer ring against the gear and check clearance “A”. If “A” is less than the limit, replace.

Limit: 0.5 mm

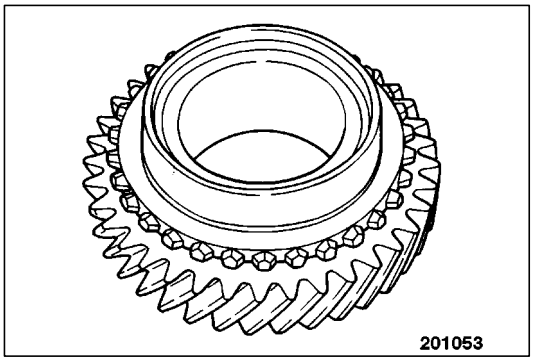


SYNCHRONIZER SLEEVE AND HUB

(1) Check to ensure that when the synchronizer sleeve and hub are combined and made to slide, they slide smoothly without binding.
(2) Check to ensure that the front and rear ends of the sleeve inside surface are not damaged.

SYNCHRONIZER SPRING

Check to ensure that the spring is not sagging, deformed or broken.



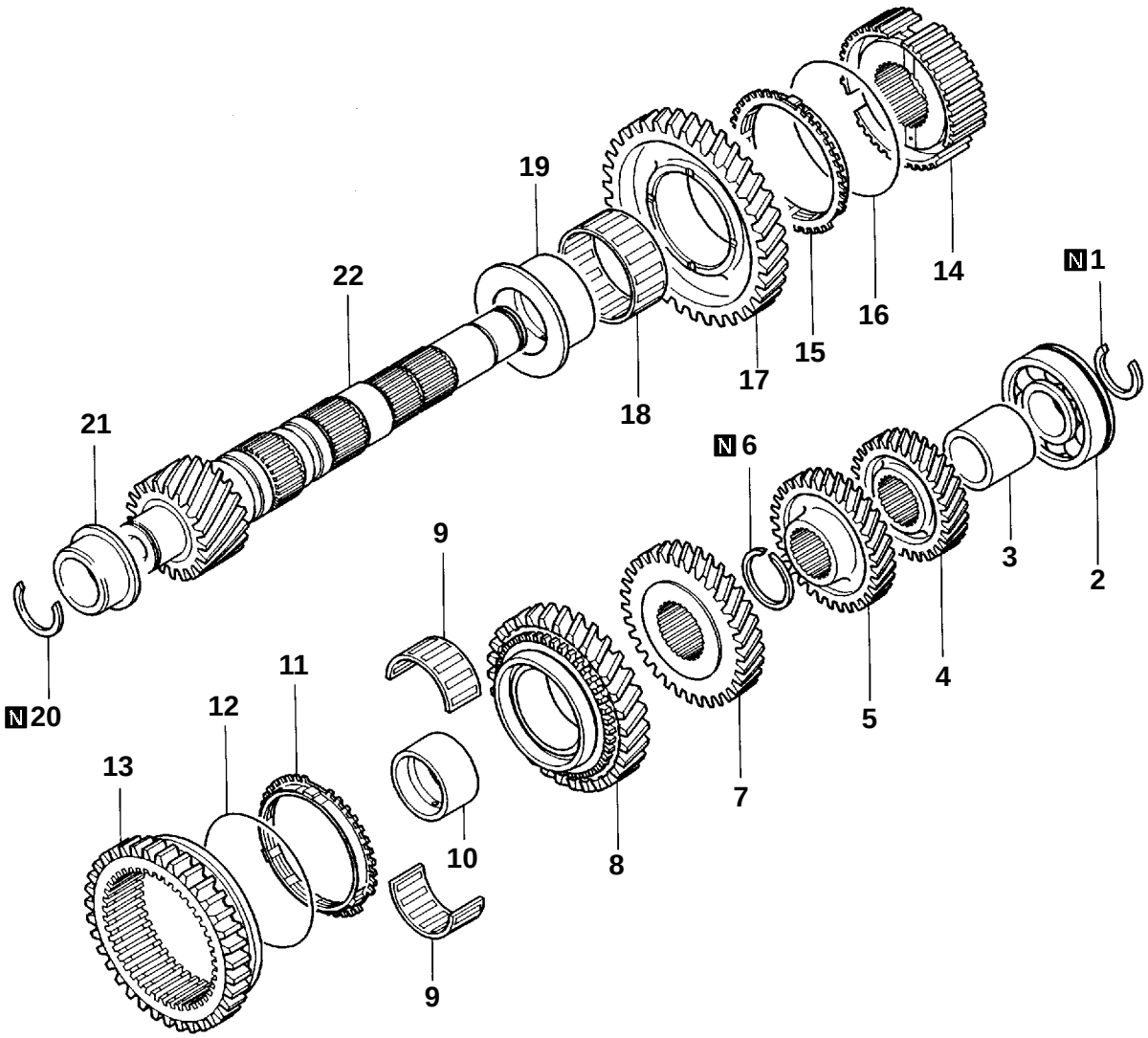
SPEED GEARS

(1) Check to ensure that the helical and clutch gear tooth surfaces are not damaged or worn.
(2) Check to ensure that the synchronizer cone surfaces are not roughened, damaged or worn.
(3) Check to ensure that the gear inside diameter and front and rear surfaces are not damaged and worn.

7. OUTPUT SHAFT <F5M41>

DISASSEMBLY AND REASSEMBLY
<Types with single synchronizer ring for 2nd gear>

Apply gear oil to all moving parts before installation.

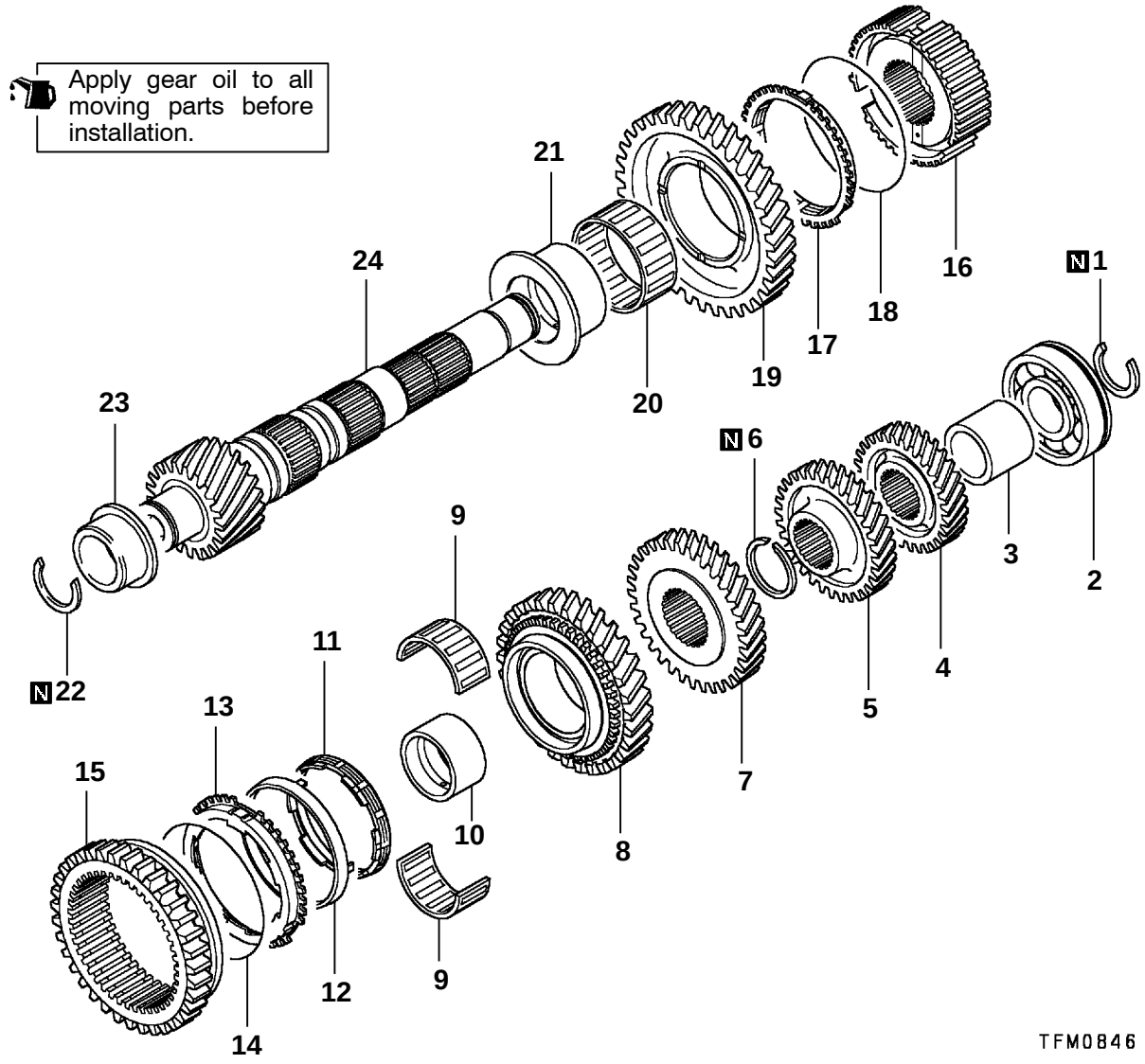


TFM0715

Disassembly steps

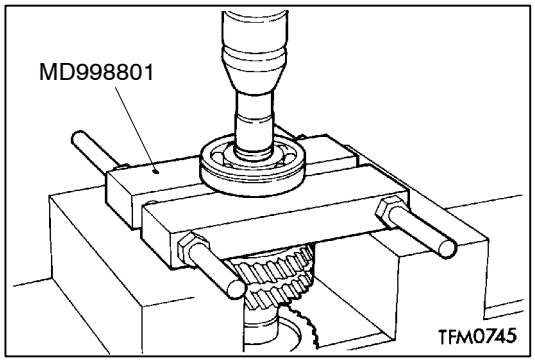
- ▶J◀ 1. Snap ring
- ◀A▶ ▶I◀ 2. Ball bearing
- 3. Collar
- 4. 5th speed gear
- 5. 4th speed gear
- ▶H◀ 6. Snap ring
- 7. 3rd speed gear
- 8. 2nd speed gear
- 9. Needle roller bearing
- ◀B▶ ▶G◀ 10. 2nd speed gear sleeve
- 11. Synchronizer ring
- ▶D◀ 12. Synchronizer spring
- ▶F◀ 13. Synchronizer sleeve
- ▶E◀ 14. 1st-2nd speed synchronizer hub
- 15. Synchronizer ring
- ▶D◀ 16. Synchronizer spring
- 17. 1st speed gear
- 18. Needle roller bearing
- ◀C▶ ▶C◀ 19. 1st speed gear sleeve
- ▶B◀ 20. Snap ring
- ◀D▶ ▶A◀ 21. Roller bearing inner race
- 22. Output shaft

DISASSEMBLY AND REASSEMBLY
<Types with double synchronizer ring for 2nd gear>



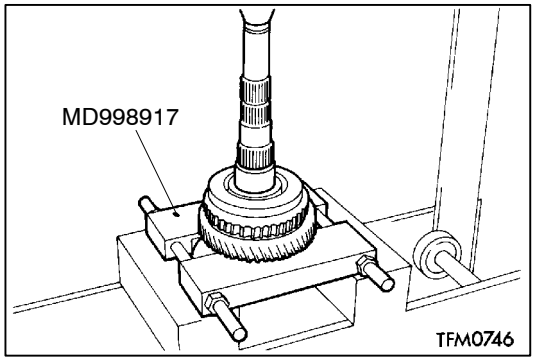
Disassembly steps

- ▶J◀ 1. Snap ring
- ◀A▶ ▶I◀ 2. Ball bearing
- 3. Collar
- 4. 5th speed gear
- 5. 4th speed gear
- ▶H◀ 6. Snap ring
- 7. 3rd speed gear
- 8. 2nd speed gear
- 9. Needle roller bearing
- ◀B▶ ▶G◀ 10. 2nd speed gear sleeve
- 11. Inner synchronizer ring
- 12. Synchronizer cone
- 13. Outer synchronizer ring
- ▶K◀ 14. Synchronizer spring
- ▶F◀ 15. Synchronizer sleeve
- ▶E◀ 16. 1st-2nd speed synchronizer hub
- 17. Synchronizer ring
- ▶D◀ 18. Synchronizer spring
- 19. 1st speed gear
- 20. Needle roller bearing
- ◀C▶ ▶C◀ 21. 1st speed gear sleeve
- ▶B◀ 22. Snap ring
- ◀D▶ ▶A◀ 23. Roller bearing inner race
- 24. Output shaft



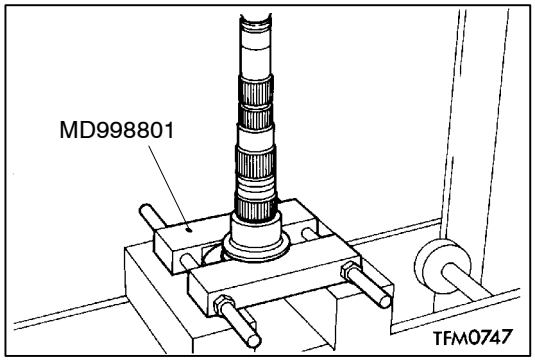
DISASSEMBLY SERVICE POINTS

◀A▶ BALL BEARING REMOVAL

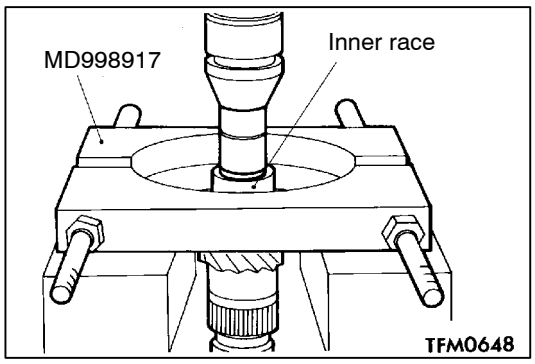


◀B▶ 2ND SPEED GEAR SLEEVE REMOVAL

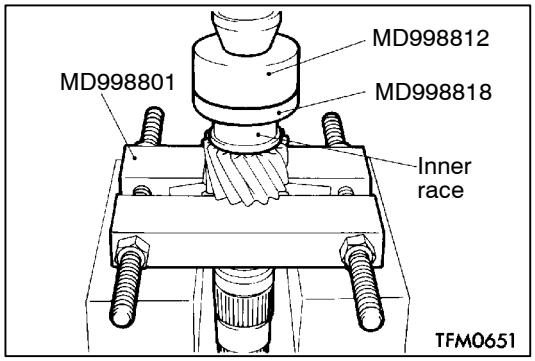
Mount a special tool on the synchronizer sleeve and remove the 2nd speed gear sleeve.



◀C▶ 1ST SPEED GEAR SLEEVE REMOVAL



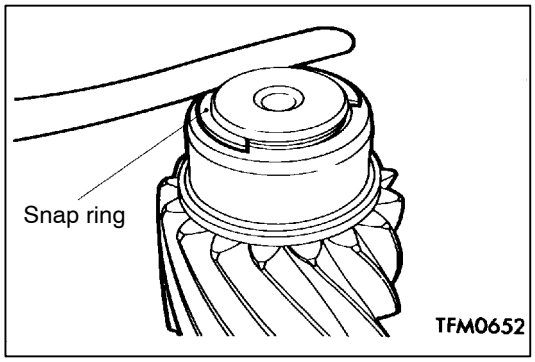
◀D▶ ROLLER BEARING INNER RACE REMOVAL



REASSEMBLY SERVICE POINTS

▶A◀ ROLLER BEARING INNER RACE INSTALLATION

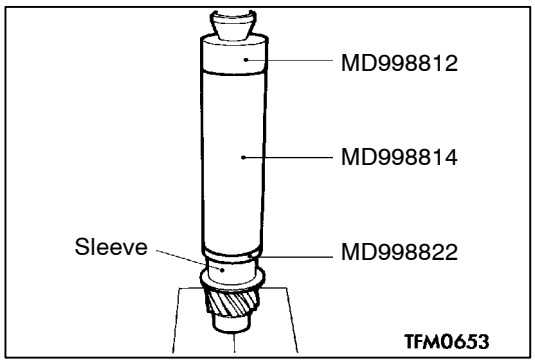
Intentionally blank



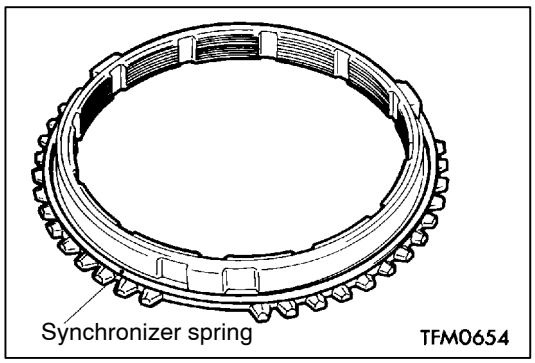
▶B◀ SNAP RING INSTALLATION

Select and install a snap ring so that the output shaft front bearing end play will have the standard value.

Standard value:
-0.01-0.12 mm

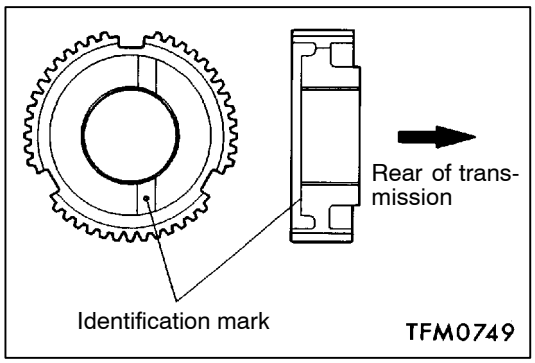


▶C◀ 1ST SPEED GEAR SLEEVE INSTALLATION



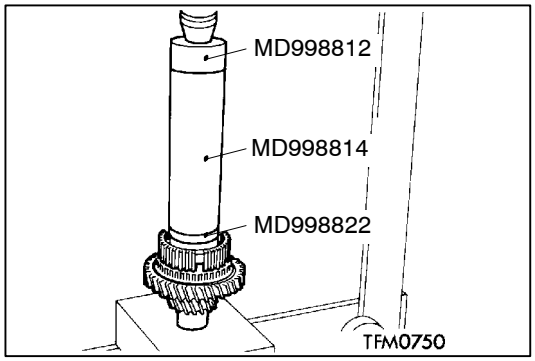
▶D◀ SYNCHRONIZER SPRING INSTALLATION

Install the synchronizer spring securely up to the illustrated position of the synchronizer ring.

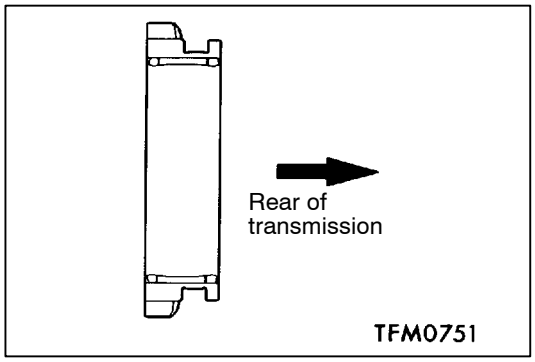


▶E◀ 1ST-2ND SPEED SYNCHRONIZER HUB INSTALLATION

Install the 1st-2nd speed synchronizer hub in such a way that it will be oriented in the direction shown.

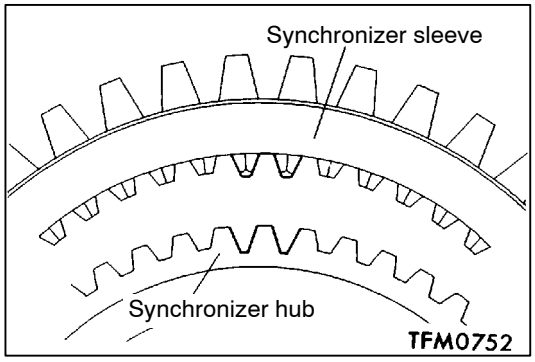


Caution
When the hub is installed, make sure that the synchronizer ring is not caught.

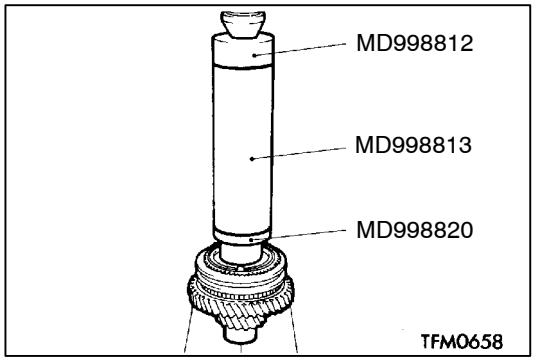


▶F◀ SYNCHRONIZER SLEEVE INSTALLATION

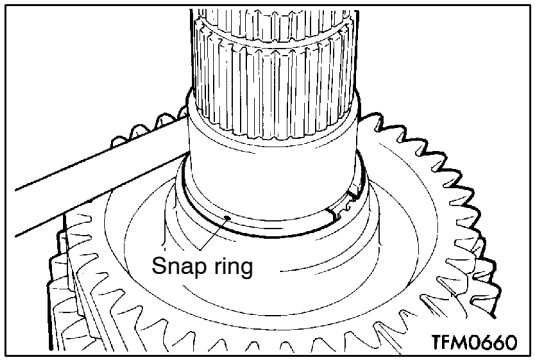
(1) Install the synchronizer sleeve in such a way that it will be oriented in the direction shown.



(2) When the synchronizer sleeve is installed, make sure that the deep groove portion of the synchronizer hub is aligned with the projecting portion of the sleeve.



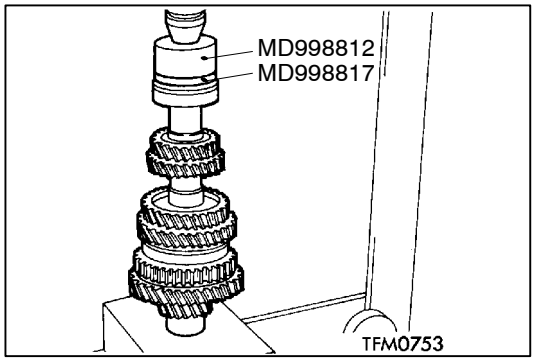
▶G◀ 2ND SPEED GEAR SLEEVE INSTALLATION



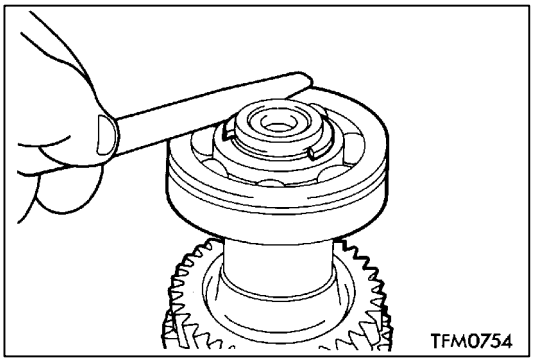
▶H◀ SNAP RING INSTALLATION

Select and install a snap ring so that the output shaft 3rd speed gear end play will have the standard value.

Standard value:
-0.01-0.09 mm



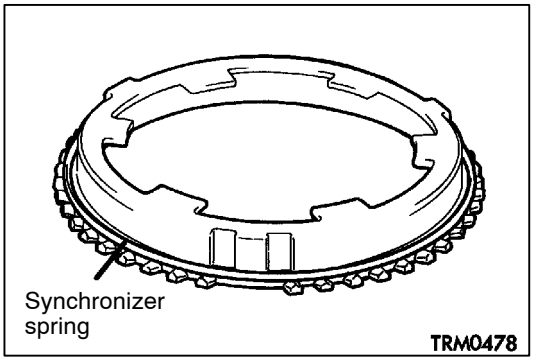
▶I◀ BALL BEARING INSTALLATION



▶J◀ SNAP RING INSTALLATION

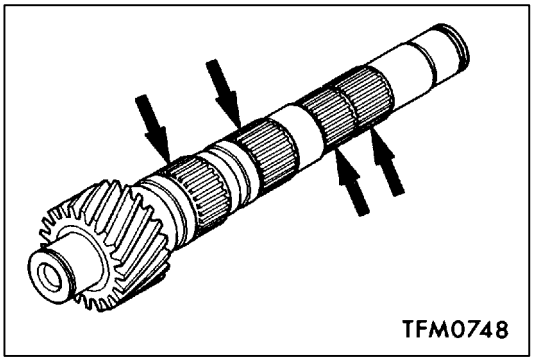
Select and install a snap ring so that the output shaft rear bearing end play will have the standard value.

Standard value:
-0.01-0.09 mm



▶K◀ SYNCHRONIZER SPRING INSTALLATION

Install the synchronizer spring securely in the illustrated position of the outer synchronizer ring.



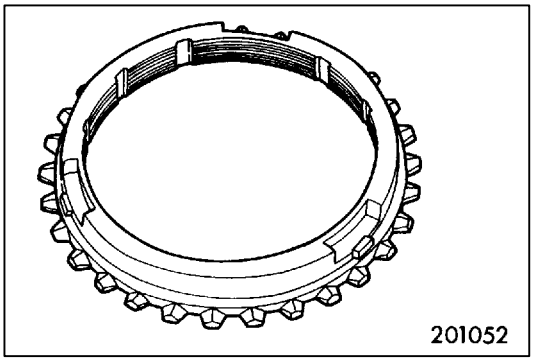
INSPECTION

OUTPUT SHAFT

Check the splines for damage and wear.

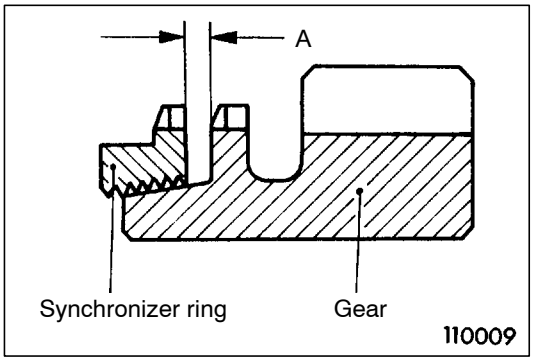
NEEDLE ROLLER BEARING

(1) Check to ensure that when the bearing sleeve and gear are combined and made to rotate, they rotate smoothly without looseness and noise.
(2) Check to ensure that the cage is not deformed.



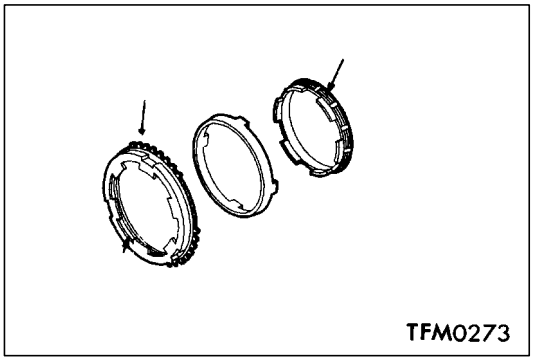
SYNCHRONIZER RING

(1) Check to ensure that the clutch gear tooth surfaces are not damaged and broken.
(2) Check to ensure that the cone inside diameter is not damaged or worn and that the threads are not crushed.



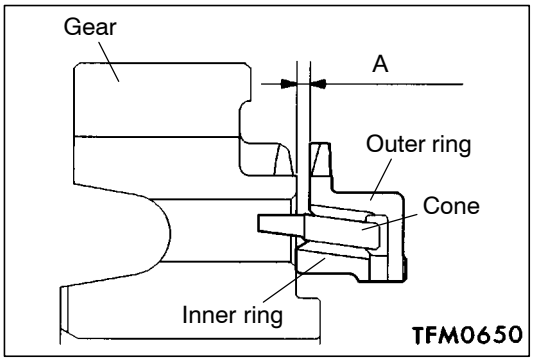
(3) Press the synchronizer ring against the gear and check clearance “A”. If “A” is less than the limit, replace.

Limit: 0.5 mm



OUTER SYNCHRONIZER RING / INNER SYNCHRONIZER RING / SYNCHRONIZER CONE

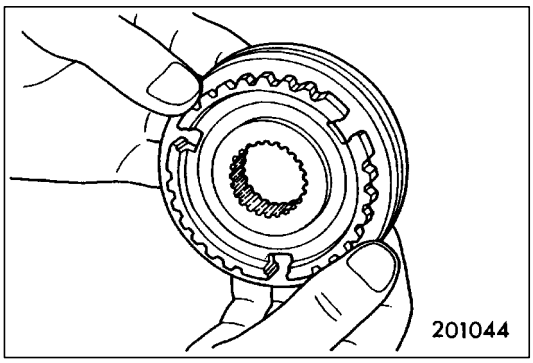
(1) Check to ensure that the clutch gear tooth surfaces and cone surfaces are not damaged and broken.



(2) Install the outer ring, inner ring and cone, press them against the gear, and check clearance “A”. If “A” is less than the limit, replace.

Limit: 0.5 mm

Caution
When the outer ring, inner ring or cone has to be replaced, make sure that the outer ring, inner ring and cone are replaced as a set.

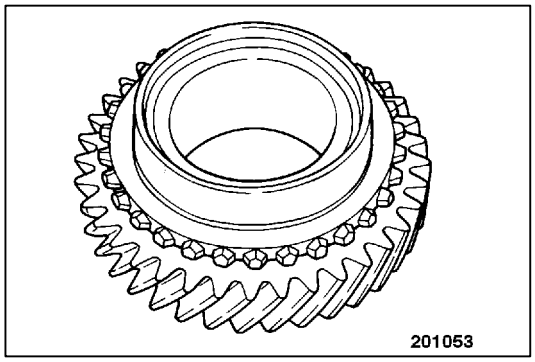


SYNCHRONIZER SLEEVE AND HUB

(1) Check to ensure that when the synchronizer sleeve and hub are combined and made to slide, they slide smoothly without binding.
(2) Check to ensure that the front and rear ends of the sleeve inside surface are not damaged.

SYNCHRONIZER SPRING

Check to ensure that the spring is not sagging, deformed or broken.

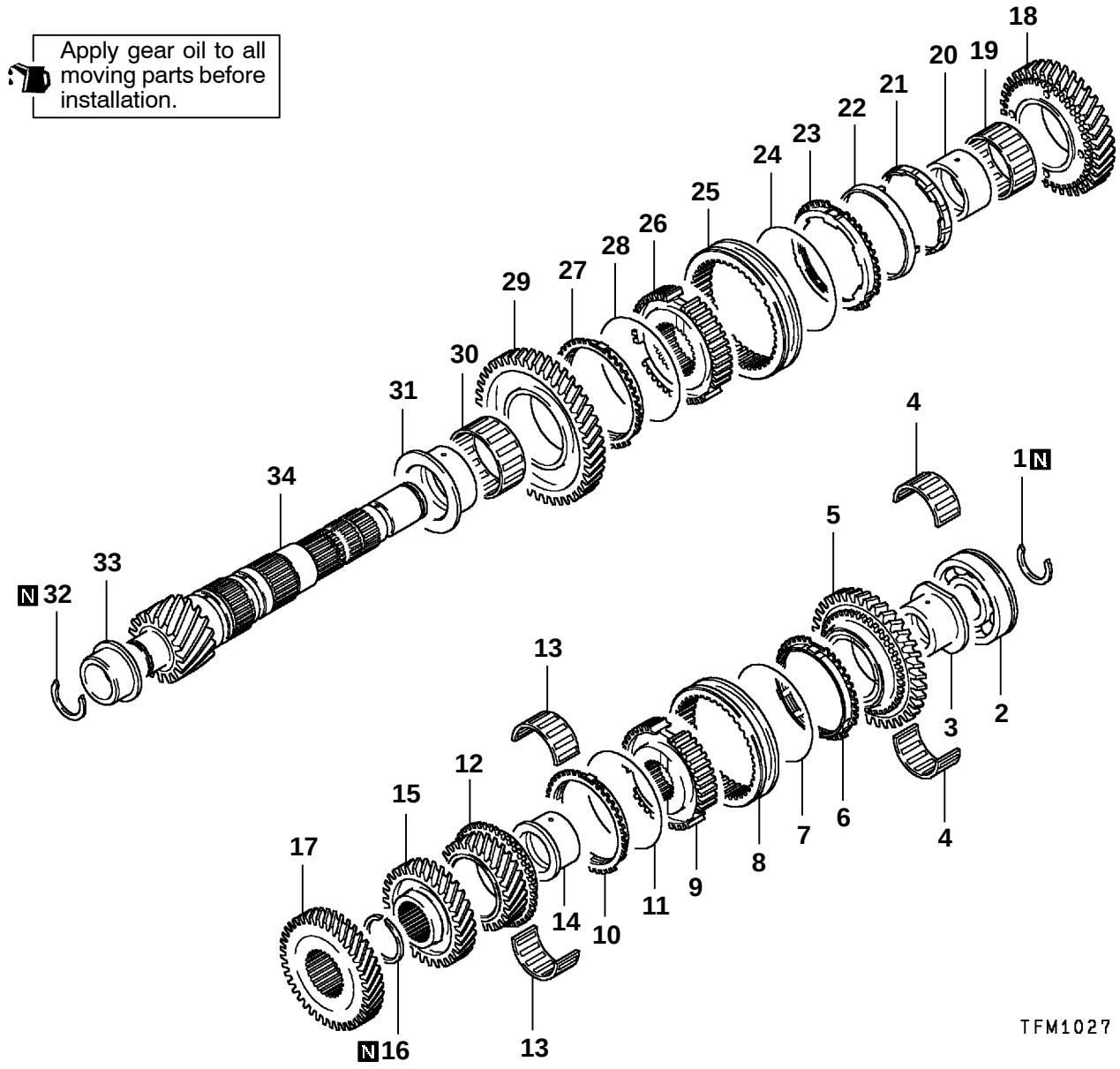


SPEED GEARS

(1) Check to ensure that the helical and clutch gear tooth surfaces are not damaged or worn.
(2) Check to ensure that the synchronizer cone surfaces are not roughened, damaged or worn.
(3) Check to ensure that the gear inside diameter and front and rear surfaces are not damaged and worn.

8. OUTPUT SHAFT <F5M42, W5M42>

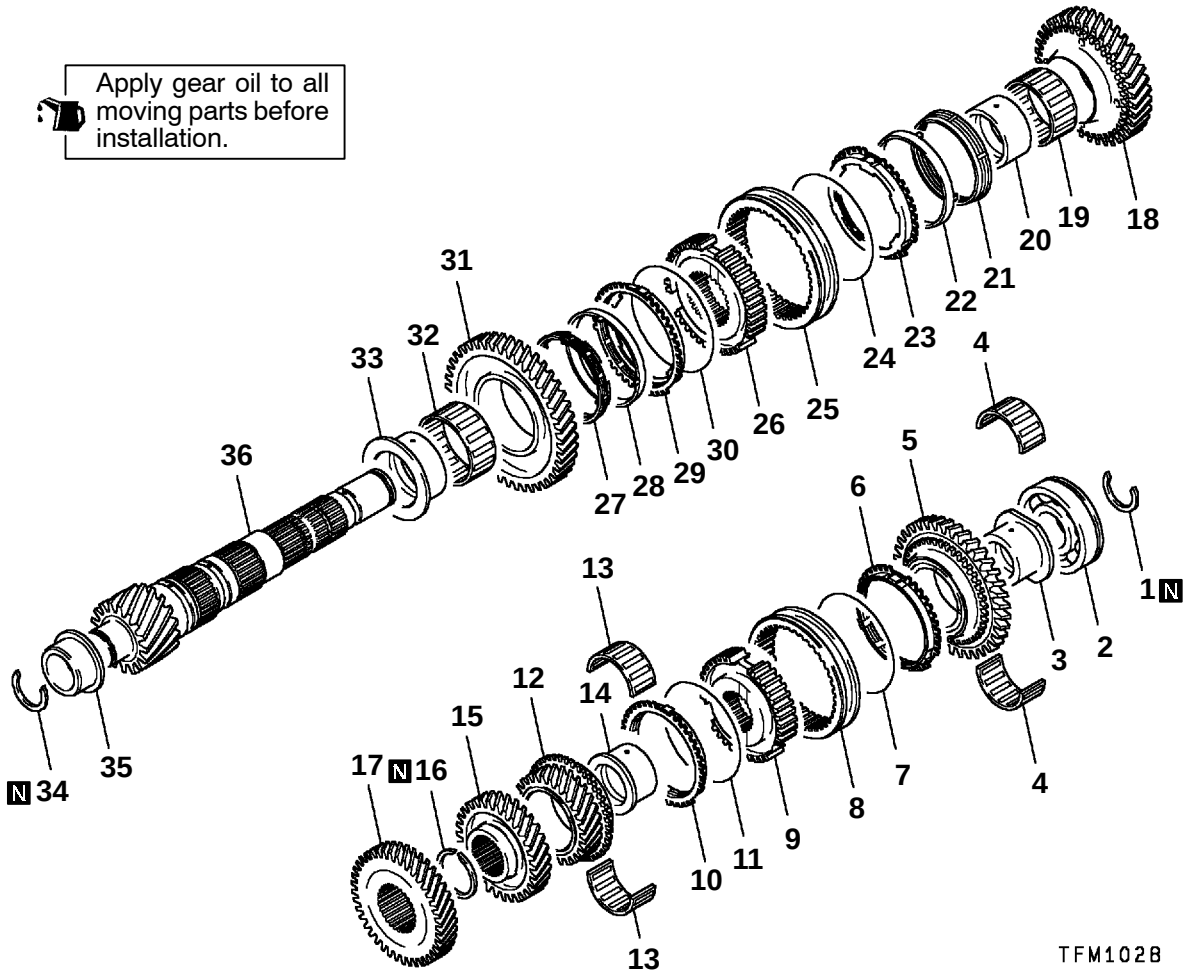
DISASSEMBLY AND REASSEMBLY <Types with single synchronizer ring for 1st gear and double synchronizer ring for 2nd gear>



Disassembly steps

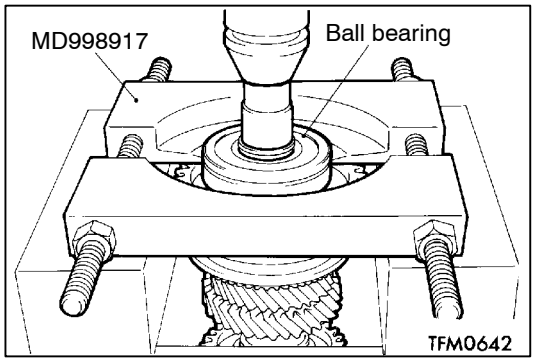
- ▶P◀ 1. Snap ring
- ◀A▶ ▶O◀ 2. Ball bearing
- ◀B▶ ▶N◀ 3. Reverse gear bearing sleeve
- ▶N◀ 4. Needle roller bearing
- ▶N◀ 5. Reverse gear
- 6. Synchronizer ring
- ▶D◀ 7. Synchronizer spring
- ▶F◀ 8. Synchronizer sleeve
- ◀C▶ ▶M◀ 9. 5th-reverse speed synchronizer hub
- 10. Synchronizer ring
- ▶D◀ 11. Synchronizer spring
- 12. 5th speed gear
- 13. Needle roller bearing
- ▶L◀ 14. 5th speed gear sleeve
- ▶K◀ 15. 4th speed gear
- ▶J◀ 16. Snap ring
- ◀D▶ ▶I◀ 17. 3rd speed gear
- 18. 2nd speed gear
- 19. Needle roller bearing
- ◀E▶ ▶H◀ 20. 2nd speed gear sleeve
- 21. Inner synchronizer ring
- 22. Synchronizer cone
- 23. Outer synchronizer ring
- ▶G◀ 24. Synchronizer spring
- ▶F◀ 25. Synchronizer sleeve
- ▶E◀ 26. 1st-2nd speed synchronizer hub
- 27. Synchronizer ring
- ▶D◀ 28. Synchronizer spring
- 29. 1st speed gear
- 30. Needle roller bearing
- ◀F▶ ▶C◀ 31. 1st speed gear sleeve
- ▶B◀ 32. Snap ring
- ◀G▶ ▶A◀ 33. Roller bearing inner race
- 34. Output shaft

DISASSEMBLY AND REASSEMBLY
<Types with double synchronizer ring for both 1st and 2nd gears, types with double synchronizer ring for 1st gear and triple synchronizer ring for 2nd gear>



Disassembly steps

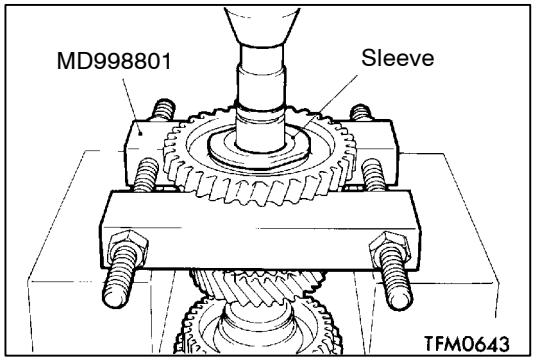
- ▶P◀ 1. Snap ring
- ◀A▶ ▶O◀ 2. Ball bearing
- ◀B▶ ▶N◀ 3. Reverse gear bearing sleeve
- ▶N◀ 4. Needle roller bearing
- ▶N◀ 5. Reverse gear
- 6. Synchronizer ring
- ▶D◀ 7. Synchronizer spring
- ▶F◀ 8. Synchronizer sleeve
- ◀C▶ ▶M◀ 9. 5th-reverse speed synchronizer hub
- 10. Synchronizer ring
- ▶D◀ 11. Synchronizer spring
- 12. 5th speed gear
- 13. Needle roller bearing
- ▶L◀ 14. 5th speed gear sleeve
- ▶K◀ 15. 4th speed gear
- ▶J◀ 16. Snap ring
- ◀D▶ ▶I◀ 17. 3rd speed gear
- 18. 2nd speed gear
- 19. Needle roller bearing
- ◀E▶ ▶H◀ 20. 2nd speed gear sleeve
- 21. Inner synchronizer ring
- 22. Synchronizer cone
- 23. Outer synchronizer ring
- ▶G◀ 24. Synchronizer spring
- ▶F◀ 25. Synchronizer sleeve
- ▶E◀ 26. 1st-2nd speed synchronizer hub
- 27. Inner synchronizer ring
- 28. Synchronizer cone
- 29. Outer synchronizer ring
- ▶G◀ 30. Synchronizer spring
- 31. 1st speed gear
- 32. Needle roller bearing
- ◀F▶ ▶C◀ 33. 1st speed gear sleeve
- ▶B◀ 34. Snap ring
- ◀G▶ ▶A◀ 35. Roller bearing inner race
- 36. Output shaft



DISASSEMBLY SERVICE POINTS

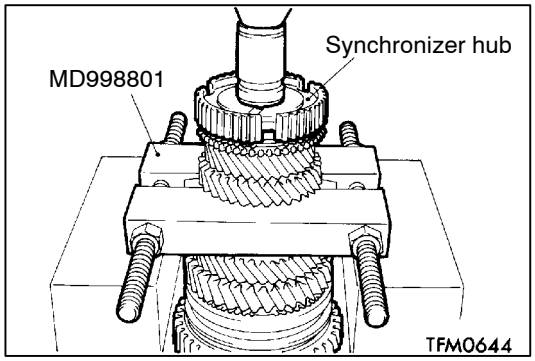
◀A▶ BALL BEARING REMOVAL

Use the special tool to remove the ball bearing.



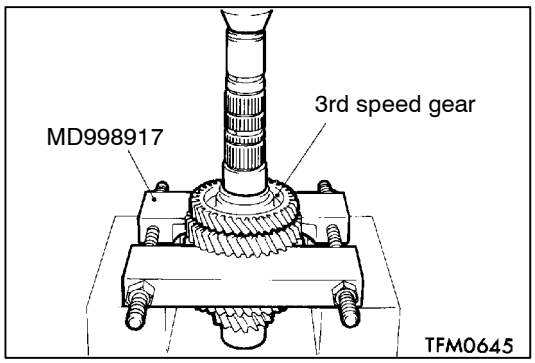
◀B▶ REVERSE GEAR BEARING SLEEVE REMOVAL

Mount a special tool on the reverse gear and remove the reverse gear bearing sleeve.



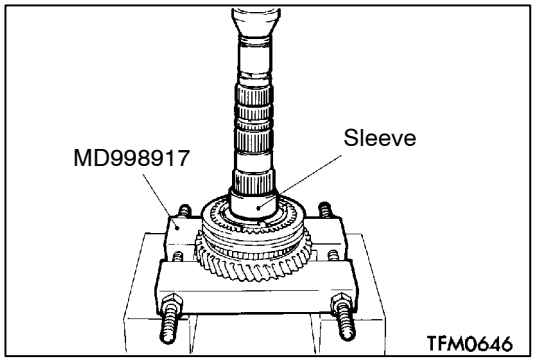
◀C▶ 5TH-REVERSE SPEED SYNCHRONIZER HUB REMOVAL

Mount a special tool on the 4th speed gear and remove the 5th-reverse speed synchronizer hub.



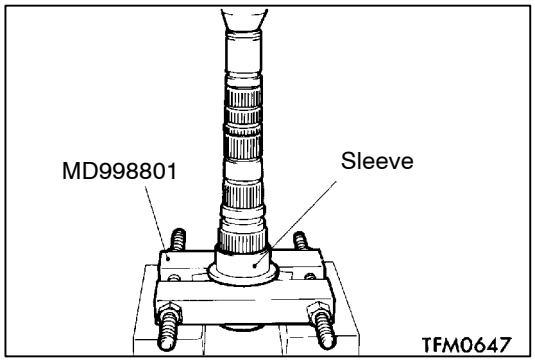
◀D▶ 3RD SPEED GEAR REMOVAL

Mount a special tool on the 2nd speed gear and remove the 3rd speed gear.



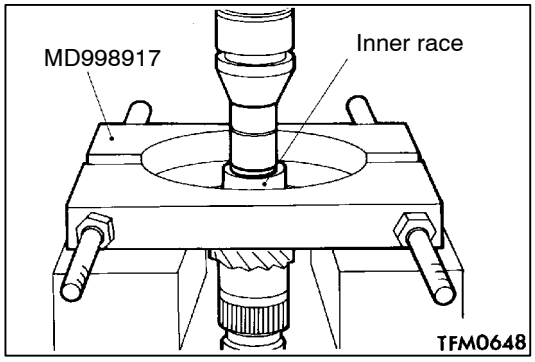
◀E▶ 2ND SPEED GEAR SLEEVE REMOVAL

Mount a special tool on the 1st speed gear and remove the 2nd speed gear sleeve.



◀F▶ 1ST SPEED GEAR SLEEVE REMOVAL

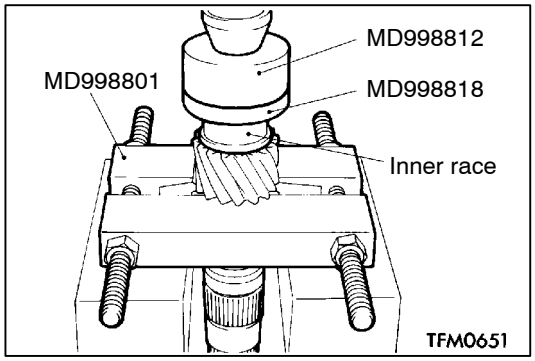
Use the special tool to remove the 1st speed gear sleeve.



◀G▶ ROLLER BEARING INNER RACE REMOVAL

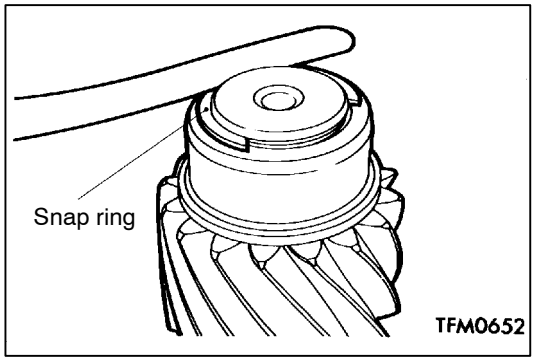
Use the special tool to remove the roller bearing inner race.

REASSEMBLY SERVICE POINTS



▶A◀ ROLLER BEARING INNER RACE INSTALLATION

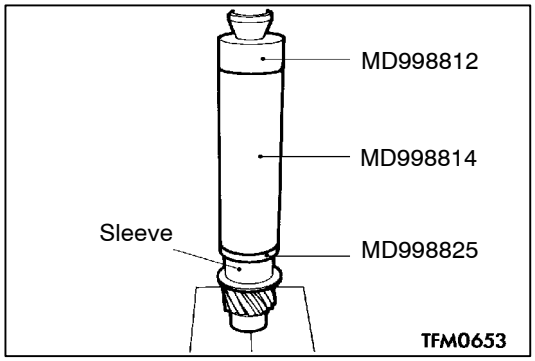
Use the special tools to install the roller bearing inner race.



▶B◀ SNAP RING INSTALLATION

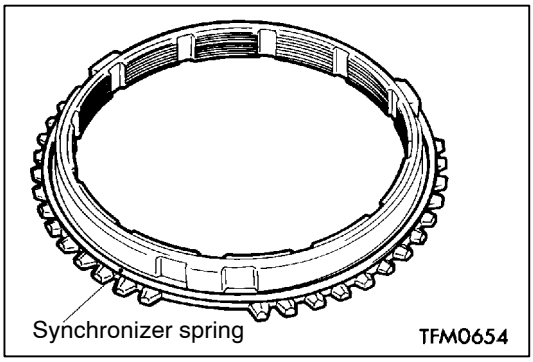
Select and install a snap ring so that the output shaft front bearing end play will have the standard value.

Standard value:
-0.01-0.12 mm



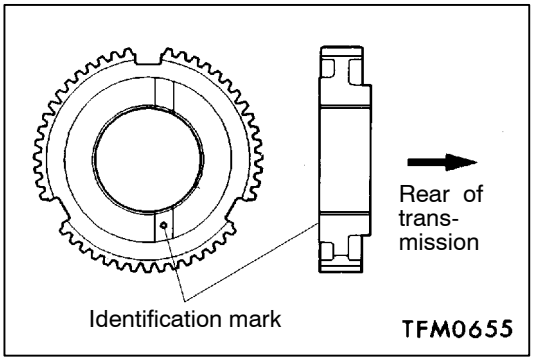
▶C◀ 1ST SPEED GEAR SLEEVE INSTALLATION

Use the special tools to install the 1st speed gear sleeve.



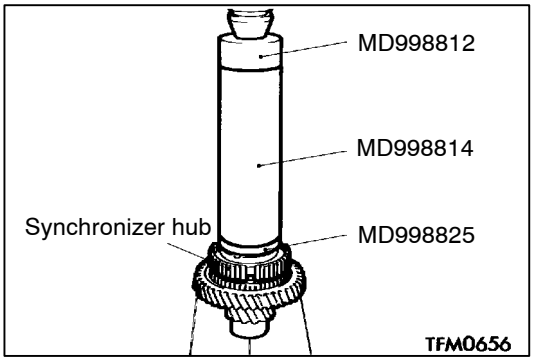
▶D◀ SYNCHRONIZER SPRING INSTALLATION

Install the synchronizer spring securely up to the illustrated position of the synchronizer ring.

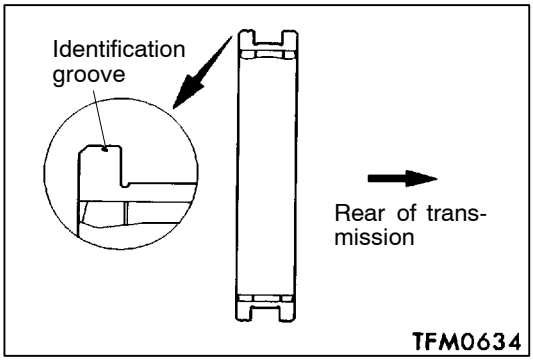


▶E◀ 1ST-2ND SPEED SYNCHRONIZER HUB INSTALLATION

Install the 1st-2nd speed synchronizer hub in such a way that it will be oriented in the direction shown.

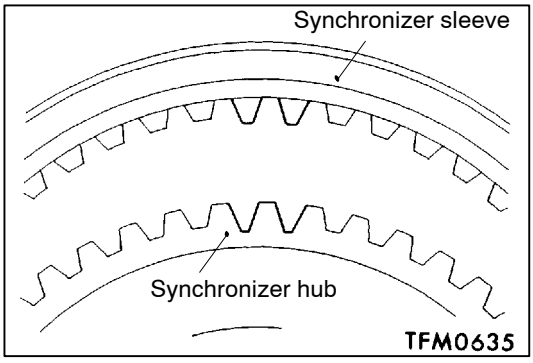


Caution
When the hub is installed, make sure that the synchronizer ring is not caught.

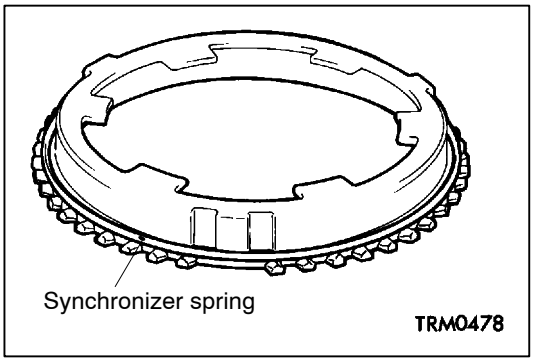


▶F◀ SYNCHRONIZER SLEEVE INSTALLATION

(1) Install the synchronizer sleeve in such a way that it will be oriented in the direction shown.

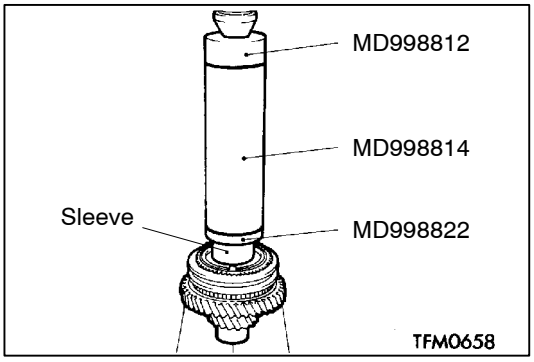


(2) When the synchronizer sleeve is installed, make sure that the deep groove portion of the synchronizer hub is aligned with the projecting portion of the sleeve.



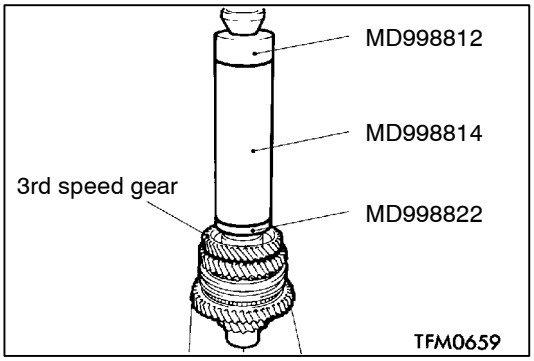
▶G◀ SYNCHRONIZER SPRING INSTALLATION

Install the synchronizer spring securely up to the illustrated position of the synchronizer ring.



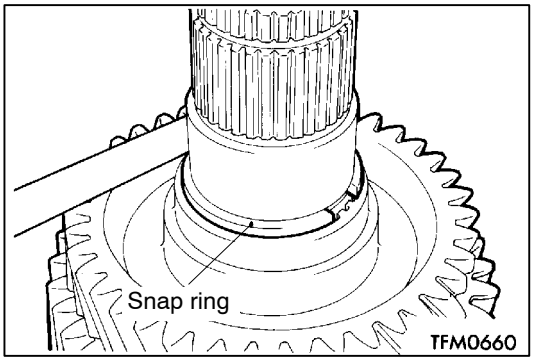
▶H◀ 2ND SPEED GEAR SLEEVE INSTALLATION

Use the special tools to install the 2nd speed gear sleeve.



▶I◀ 3RD SPEED GEAR INSTALLATION

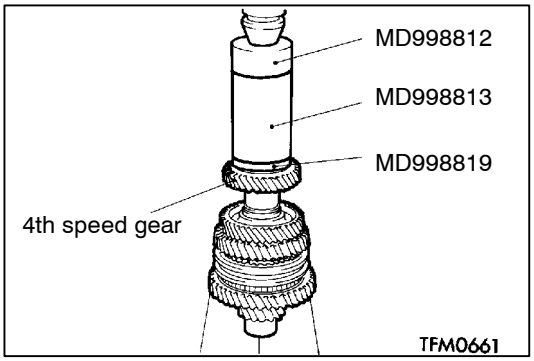
Use the special tools to install the 3rd speed gear.



▶J◀ SNAP RING INSTALLATION

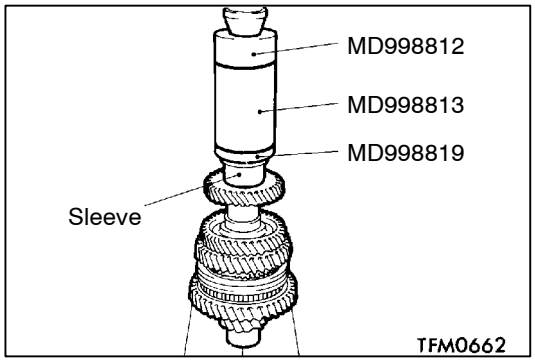
Select and install a snap ring so that the output shaft 3rd speed gear end play will have the standard value.

Standard value:
-0.01-0.09 mm



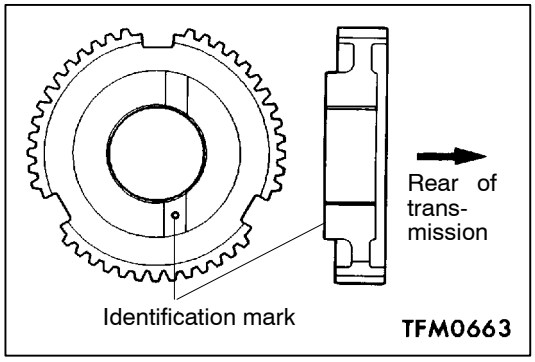
▶K◀ 4TH SPEED GEAR INSTALLATION

Use the special tools to install the 4th speed gear.



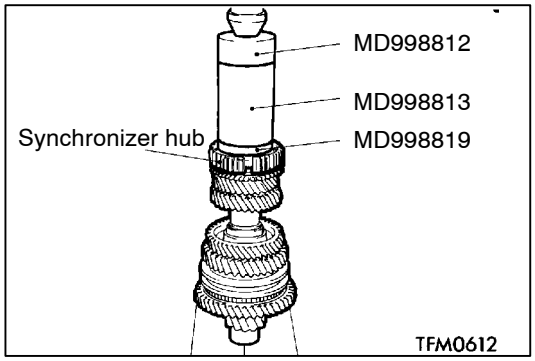
▶L◀ 5TH SPEED GEAR SLEEVE INSTALLATION

Use the special tools to install the 5th speed gear sleeve.

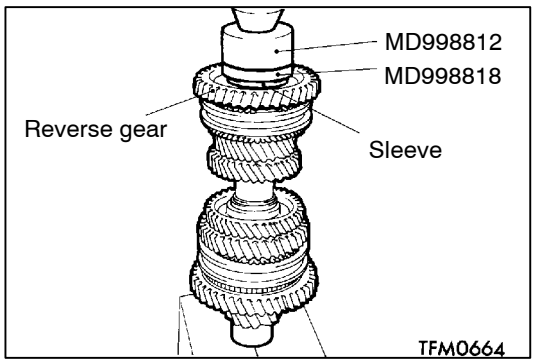


▶M◀5TH-REVERSE SPEED SYNCHRONIZER HUB INSTALLATION

Install the 5th-reverse speed synchronizer hub in such a way that it will be oriented in the direction shown.

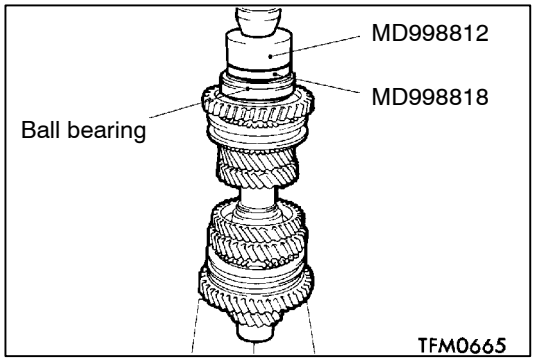


Caution
When the 5th-reverse speed synchronizer hub is installed, make sure that the synchronizer ring is not caught.



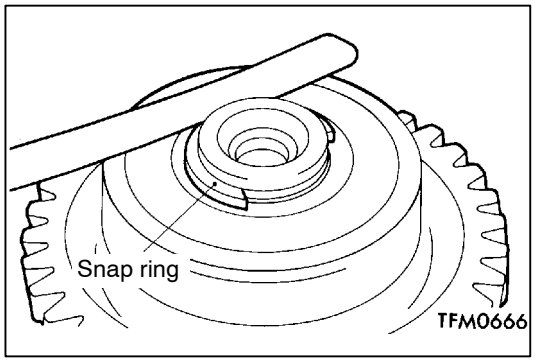
▶N◀ REVERSE GEAR / NEEDLE ROLLER BEARING / REVERSE GEAR BEARING SLEEVE INSTALLATION

Use the special tools to install the reverse gear, needle roller bearing and reverse gear bearing sleeve.



▶O◀BALL BEARING INSTALLATION

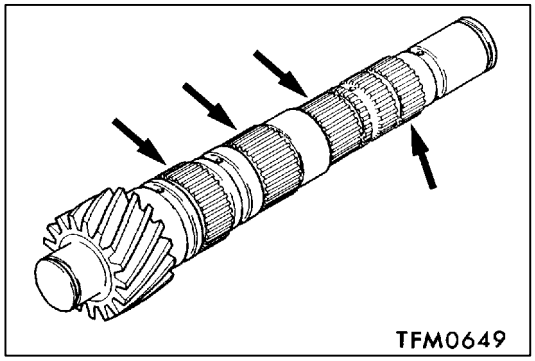
Use the special tools to install the ball bearing.



▶P◀ SNAP RING INSTALLATION

Select and install a snap ring so that the output shaft rear bearing end play will have the standard value.

Standard value:
-0.01-0.09 mm



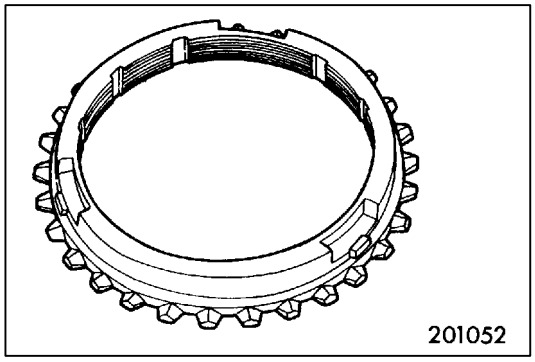
INSPECTION

OUTPUT SHAFT

Check the splines for damage and wear.

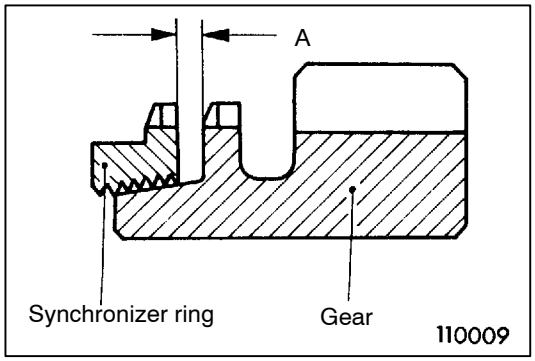
NEEDLE ROLLER BEARING

(1) Check to ensure that when the bearing sleeve and gear are combined and made to rotate, they rotate smoothly without looseness and noise.
(2) Check to ensure that the cage is not deformed.



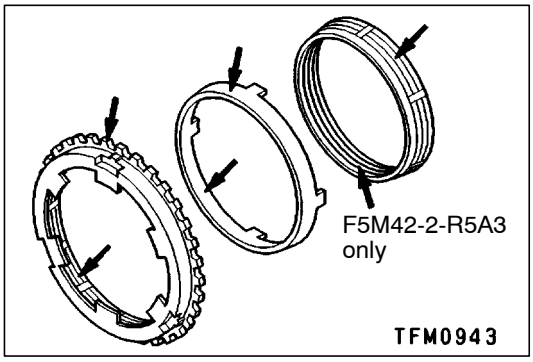
SYNCHRONIZER RING

(1) Check to ensure that the clutch gear tooth surfaces are not damaged and broken.
(2) Check to ensure that the cone inside diameter is not damaged or worn and that the threads are not crushed.



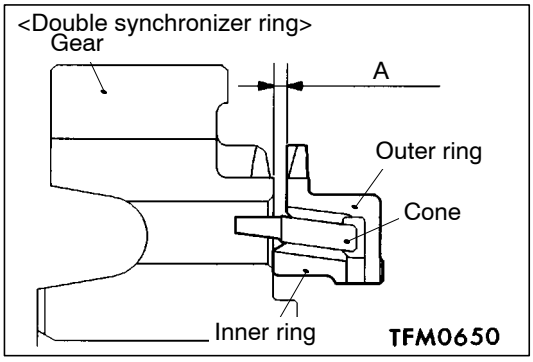
(3) Press the synchronizer ring against the gear and check clearance “A”. If “A” is less than the limit, replace.

Limit: 0.5 mm



OUTER SYNCHRONIZER RING / INNER SYNCHRONIZER RING / SYNCHRONIZER CONE

(1) Check to ensure that the clutch gear tooth surfaces and cone surfaces are not damaged and broken.

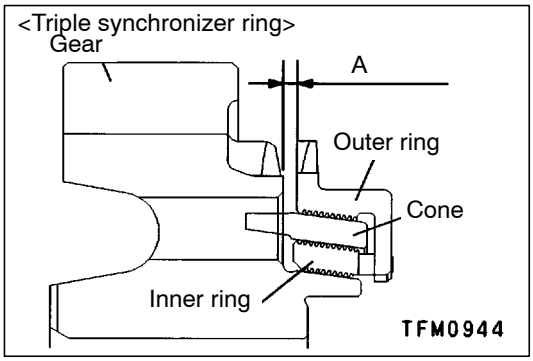


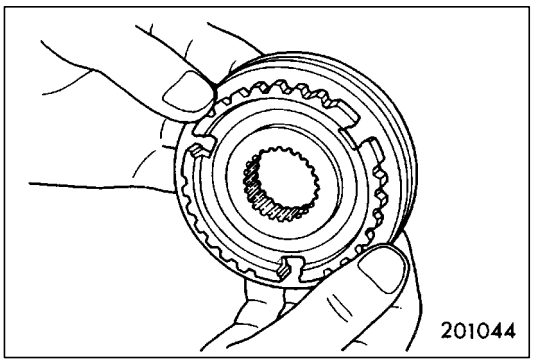
(2) Install the outer ring, inner ring and cone, press them against the gear, and check clearance “A”. If “A” is less than the limit, replace.

Limit: 0.5 mm <Double synchronizer ring>

0.3 mm <Triple synchronizer ring>

Caution
When the outer ring, inner ring or cone has to be replaced, make sure that the outer ring, inner ring and cone are replaced as a set.



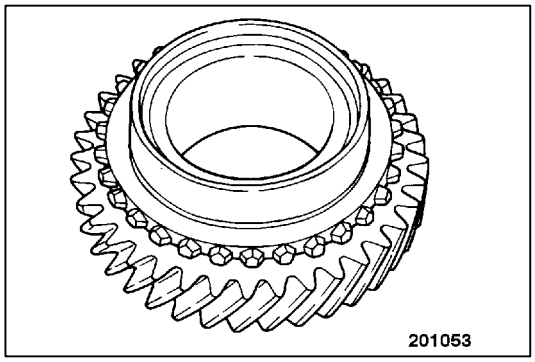


SYNCHRONIZER SLEEVE AND HUB

(1) Check to ensure that when the synchronizer sleeve and hub are combined and made to slide, they slide smoothly without binding.
(2) Check to ensure that the front and rear ends of the sleeve inside surface are not damaged.

SYNCHRONIZER SPRING

Check to ensure that the spring is not sagging, deformed or broken.

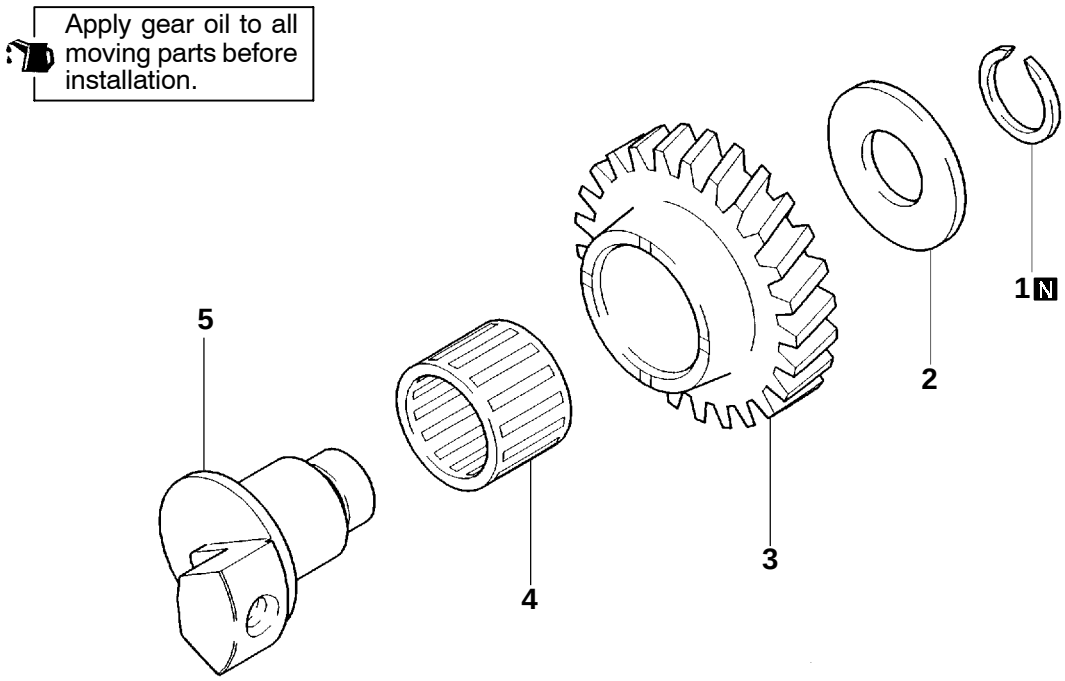


SPEED GEARS

(1) Check to ensure that the helical and clutch gear tooth surfaces are not damaged or worn.
(2) Check to ensure that the synchronizer cone surfaces are not roughened, damaged or worn.
(3) Check to ensure that the gear inside diameter and front and rear surfaces are not damaged and worn.

9. REVERSE IDLER GEAR <F5M42, W5M42>

DISASSEMBLY AND REASSEMBLY



TFM0590

Disassembly steps

1. Snap ring
2. Thrust washer
3. Reverse idler gear
4. Needle roller bearing
5. Reverse idler gear shaft

INSPECTION

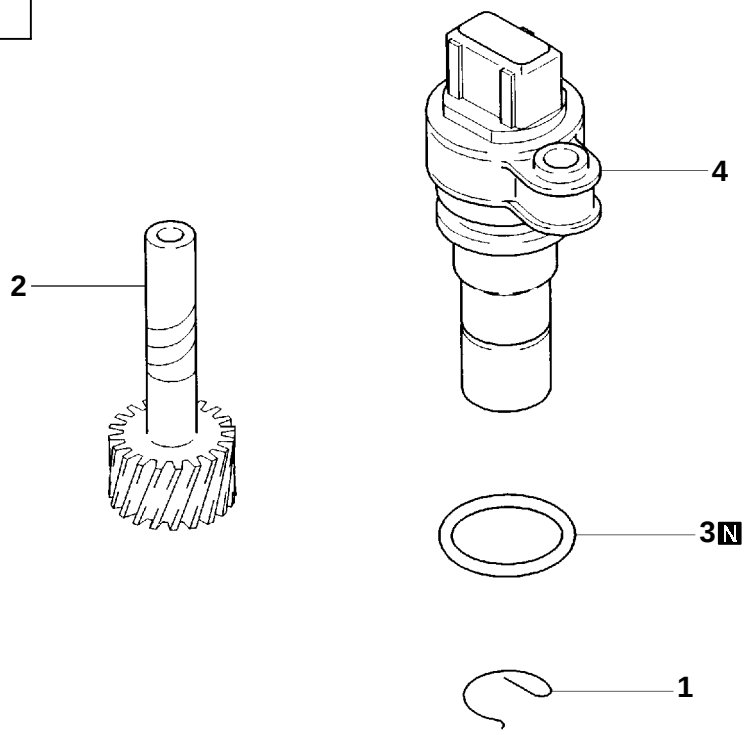
NEEDLE ROLLER BEARING

(1) Check to ensure that when the shaft and gear are combined and made to rotate, they rotate smoothly without looseness and noise.
(2) Check to ensure that the cage is not deformed.

10. SPEEDOMETER GEAR

DISASSEMBLY AND REASSEMBLY

Lubricate all internal parts with gear oil during reassembly.



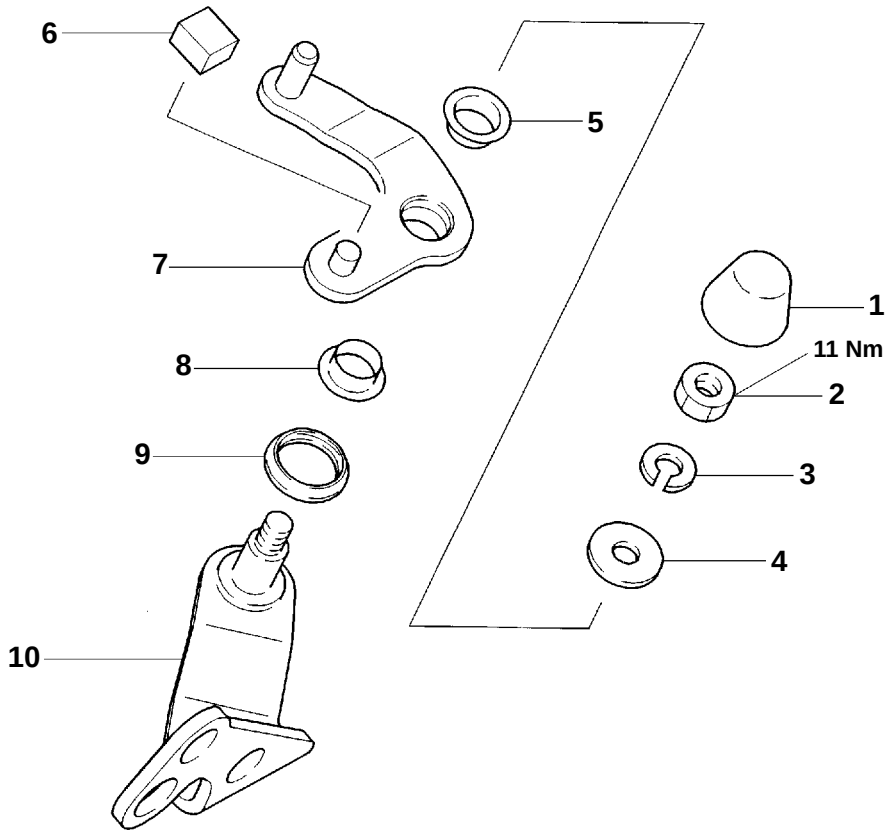
TFM0593

Disassembly steps

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

11. SELECT LEVER

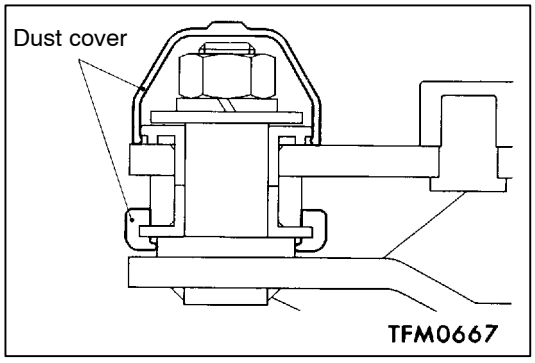
DISASSEMBLY AND REASSEMBLY



TFM0589

Disassembly steps

▶A◀ 1. Dust cover
2. Nut
3. Spring washer
4. Washer
5. Select lever bushing
6. Select lever shoe
7. Select lever
8. Select lever bushing
▶A◀ 9. Dust cover
10. Select lever shaft

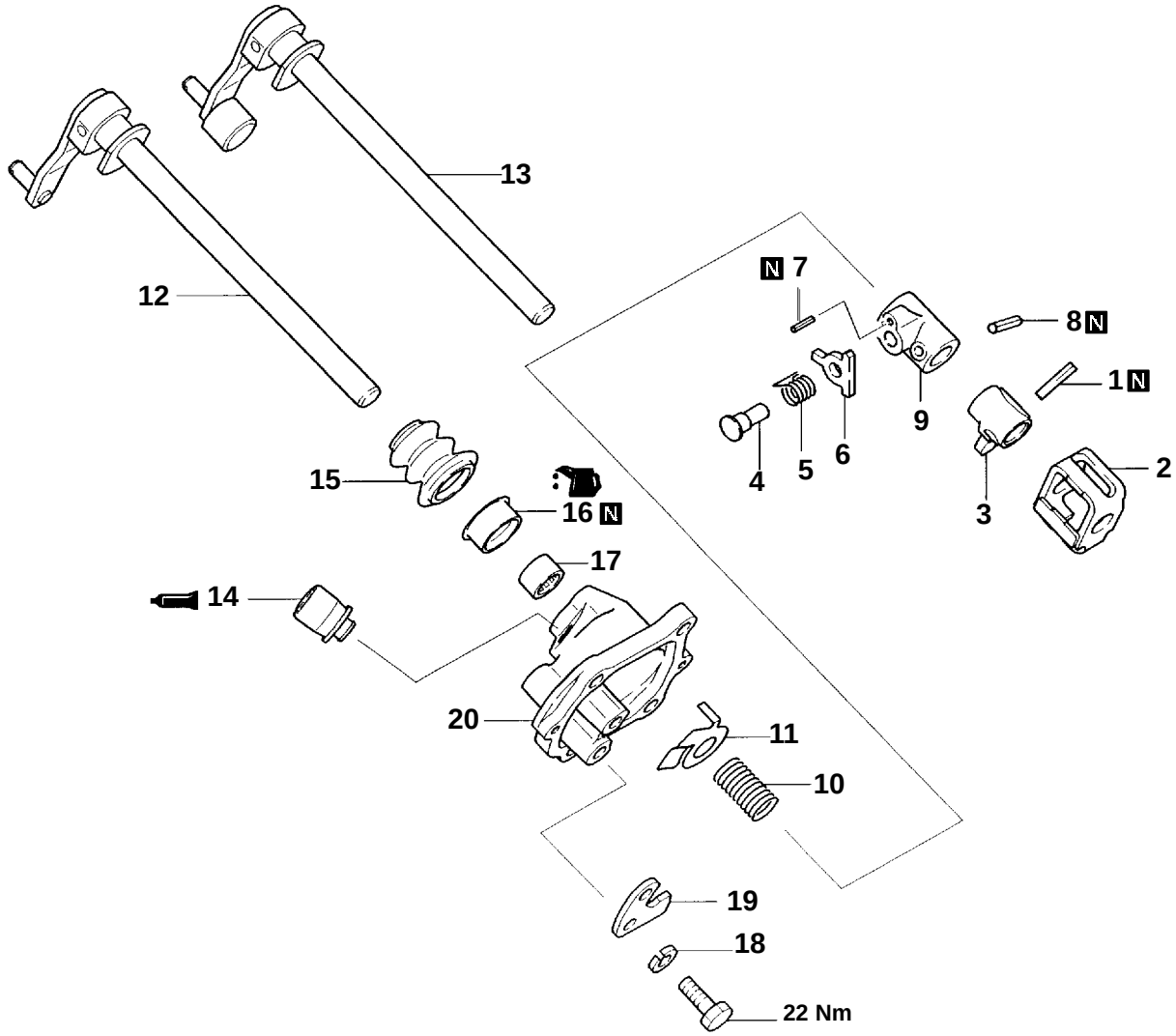


REASSEMBLY SERVICE POINT

▶A◀ DUST COVER INSTALLATION

12. CONTROL HOUSING

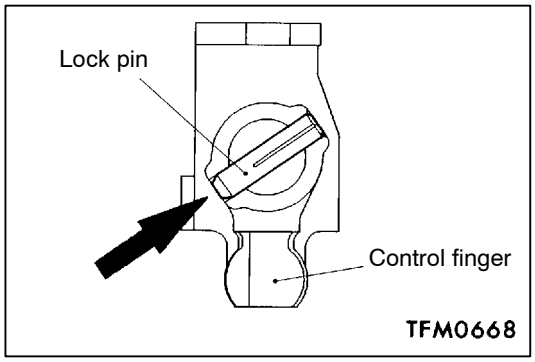
DISASSEMBLY AND REASSEMBLY



TFM0916

Disassembly steps

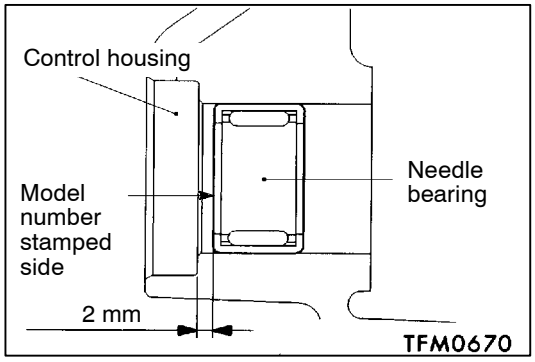
◀A▶ ▶F◀ 1. Lock pin
2. Interlock plate
3. Control finger
4. Pin
5. Return spring
6. Stopper plate
▶E◀ 7. Spring pin
▶D◀ 8. Spring pin
9. Stopper body
10. Neutral return spring
11. Spacer
12. Control shaft (Except up to MODEL 1998 of F5M42-1-F6N4, F7N, R6N3, F5M42-2-F6N2, F6N5 and MODEL 1999)
13. Control shaft (Up to MODEL 1998 of F5M42-1-F6N4, F7N, R6N3, F5M42-2-F6N2, F6N5 and MODEL 1999)
▶C◀ 14. Air breather
15. Control shaft boot
▶B◀ 16. Oil seal
▶A◀ 17. Needle bearing
18. Spring washer
19. Stopper bracket
20. Control housing



DISASSEMBLY SERVICE POINT

◀A▶ LOCK PIN REMOVAL

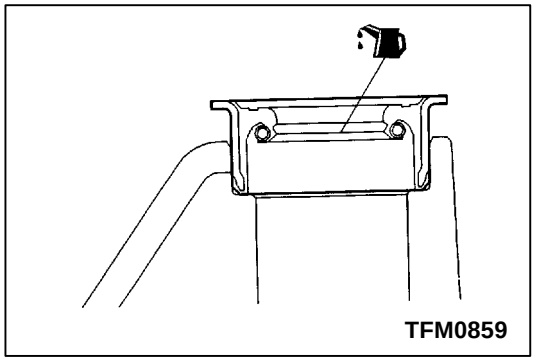
Drive the lock pin out of position from the direction shown.



REASSEMBLY SERVICE POINTS

▶A◀ NEEDLE BEARING INSTALLATION

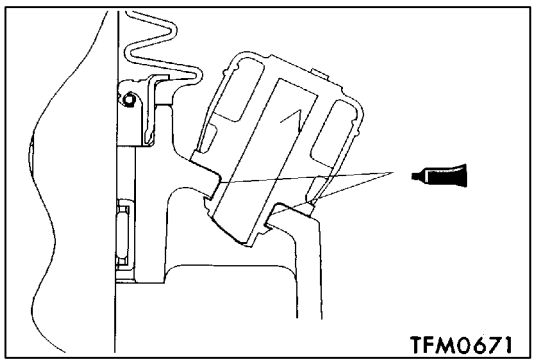
Press fit the needle bearing up the illustrated dimension, while making sure that the model number stamped side is oriented in the direction shown.



▶B◀ OIL SEAL INSTALLATION

Apply transmission oil to the oil seal lip area.

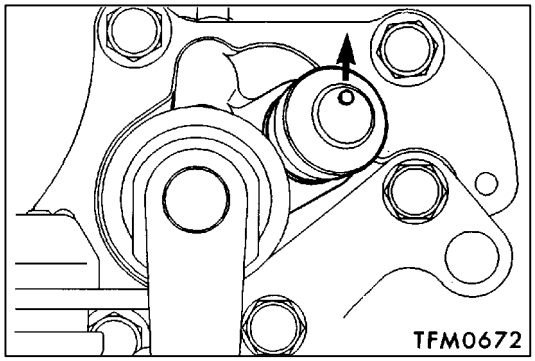
Transmission oil:
Hypoid gear oil SAE 75W-85W conforming to API classification GL-4 or higher



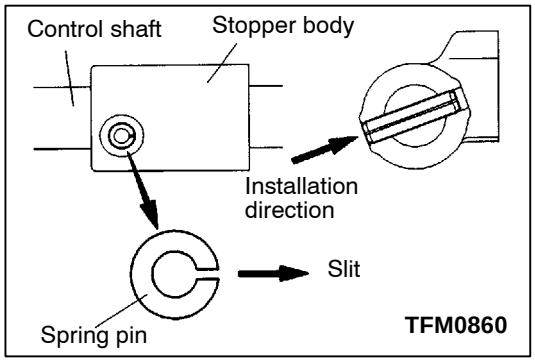
▶C◀ AIR BREATHER INSTALLATION

(1) Apply a sealant to the outside circumference of the inserting portion.

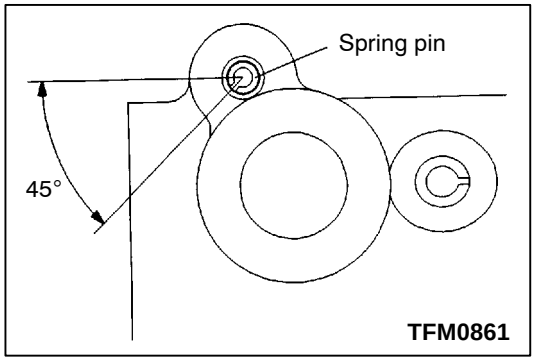
Specified sealant:
3M SUPER WEATHERSTRIP No. 8001 or equivalent



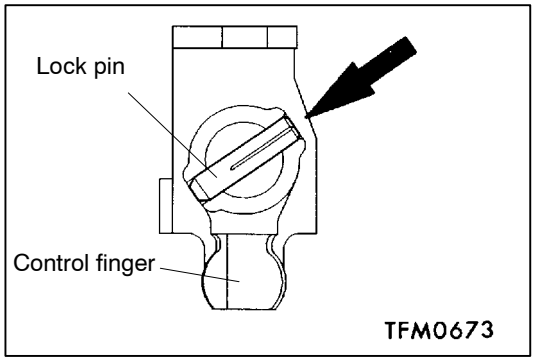
(2) Make sure that the projecting portion is oriented in the direction shown.



▶D◀ SPRING PIN INSTALLATION



▶E◀ SPRING PIN INSTALLATION

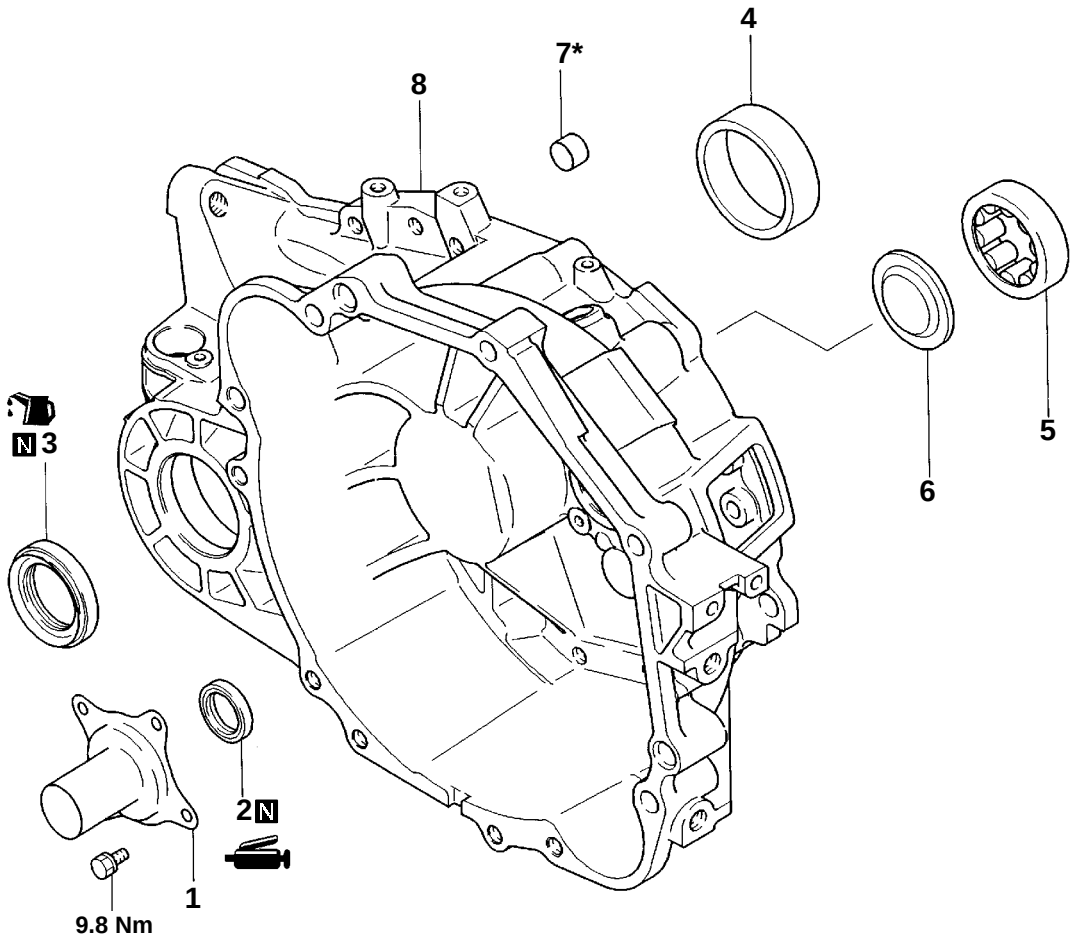


▶F◀ LOCK PIN INSTALLATION

Drive in the lock pin in the direction shown in the illustration.

13. CLUTCH HOUSING

DISASSEMBLY AND REASSEMBLY



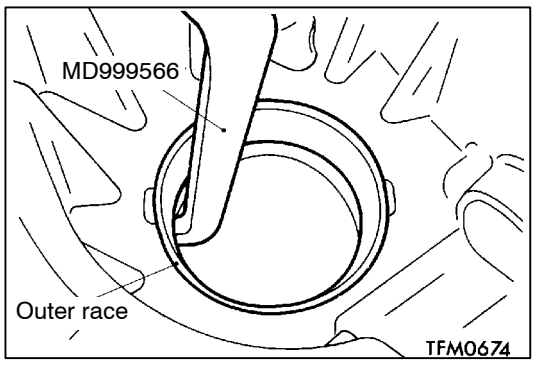
TFM0759

Disassembly steps

1. Clutch release bearing retainer
2. ▶E◀ Oil seal
3. ▶D◀ Oil seal <F5M41, F5M42>
4. ◀A▶ ▶C◀ Outer race <F5M42, W5M42>
5. ◀B▶ ▶B◀ Outer race
6. Oil guide <F5M41>
7. ▶A◀ Bushing*
8. Clutch housing

NOTE:

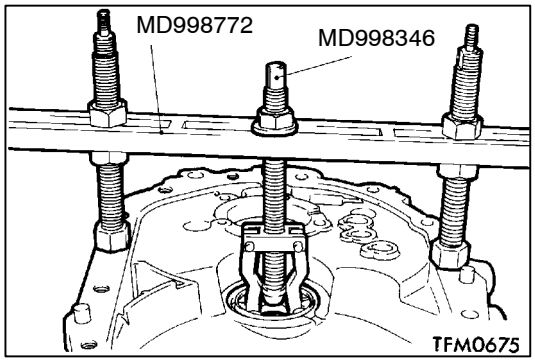
Referring to INSTALLATION SERVICE POINTS is required only when the clutch housing is replaced.



DISASSEMBLY SERVICE POINTS

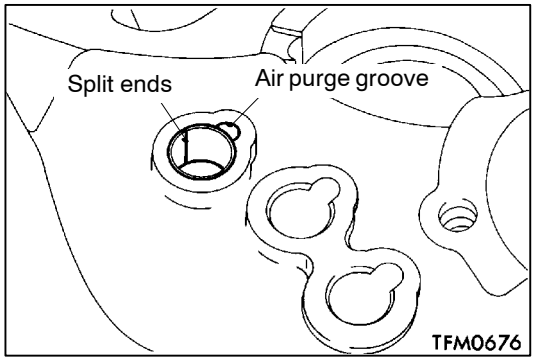
◀A▶ OUTER RACE REMOVAL <F5M42, W5M42>

Use the special tool to remove the outer race.



◀B▶ OUTER RACE REMOVAL

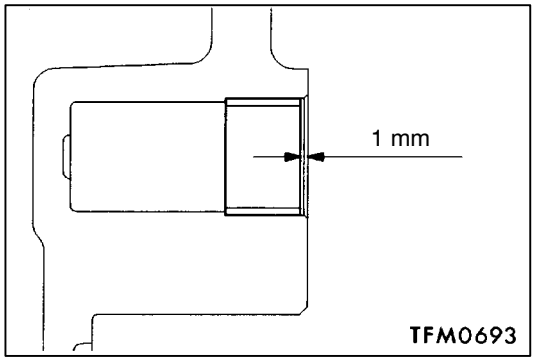
Use the special tools to remove the outer race.



REASSEMBLY SERVICE POINTS

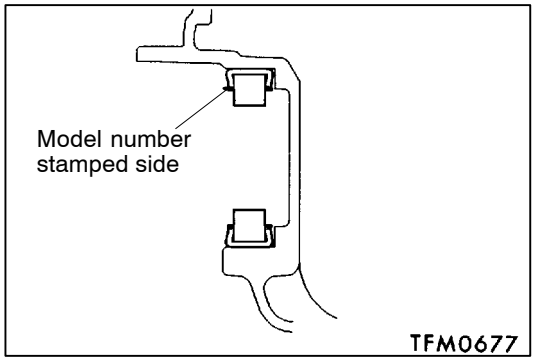
▶A◀ BUSHING INSTALLATION

Press fit the bushing up to the illustrated position, while making sure that the split ends of the bushing do not coincide with the air purge groove.

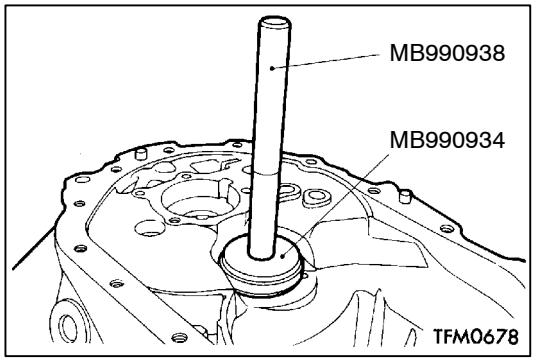


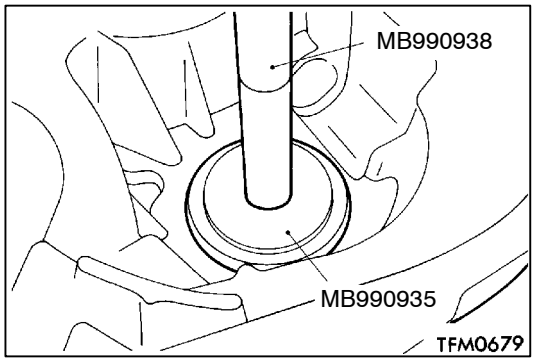
▶B◀ OUTER RACE INSTALLATION

(1) Install the outer race so that the model number stamped side will be oriented in the direction shown.

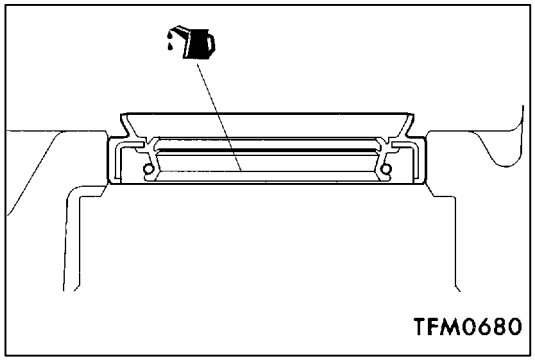


(2) Use the special tools to install the outer race.





▶C◀ OUTER RACE INSTALLATION

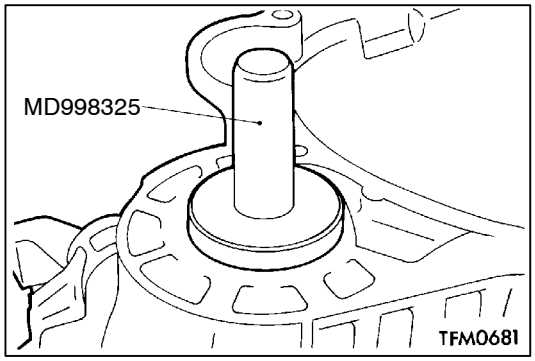


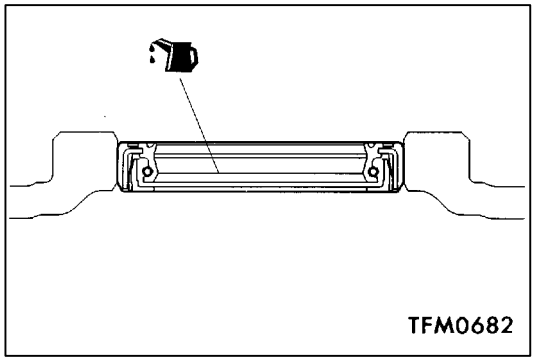
▶D◀ OIL SEAL INSTALLATION

Apply transmission oil to the oil seal lip area.

Specified oil:

Hypoid gear oil SAE 75W-85W conforming to API classification GL-4 or higher



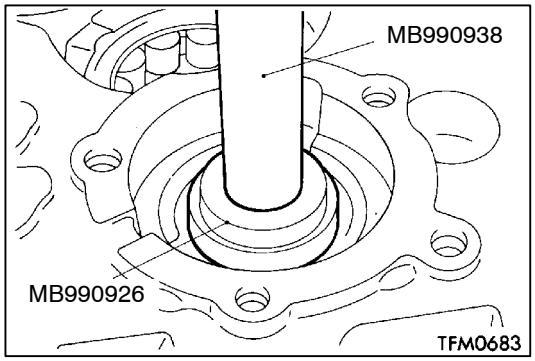


▶E◀ OIL SEAL INSTALLATION

Pack grease in the oil seal lip area.

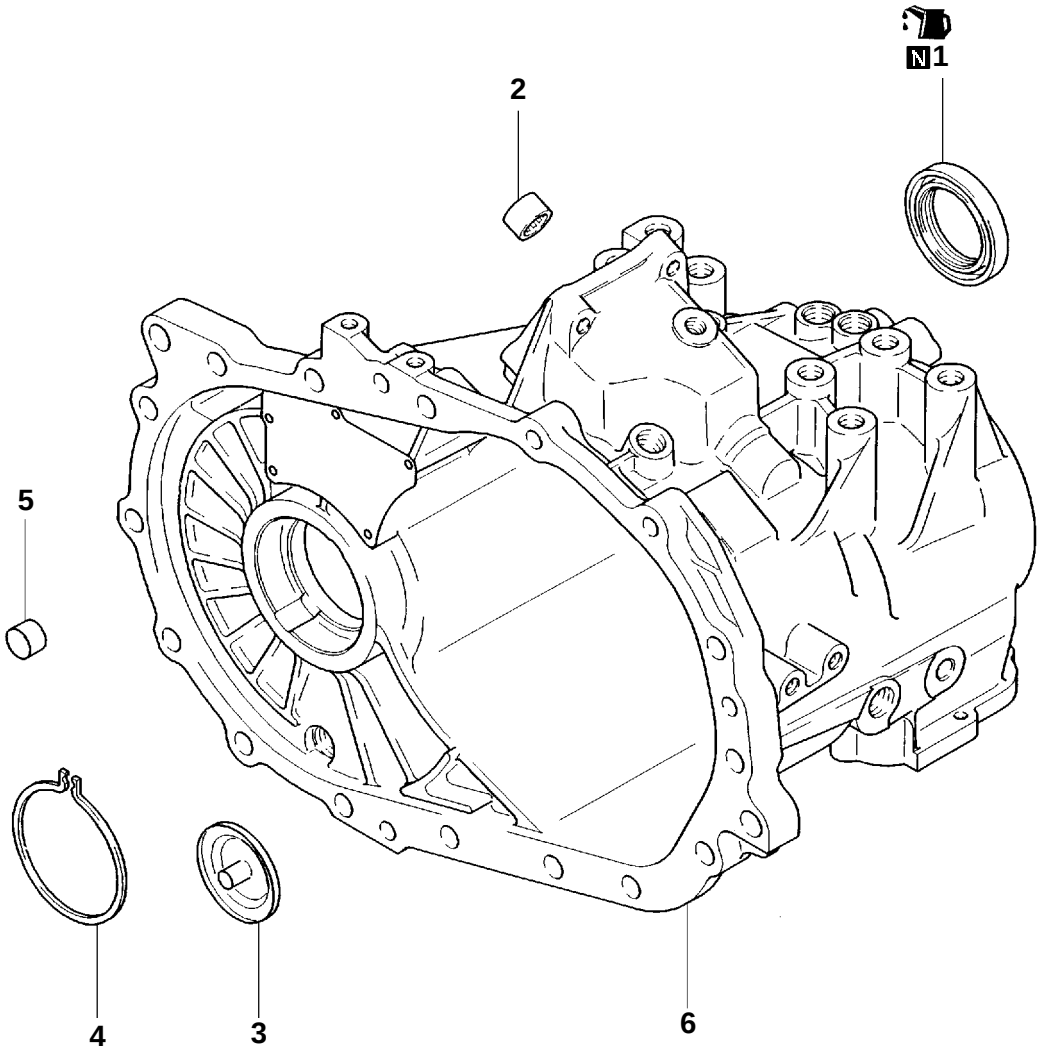
Specified grease:

MITSUBISHI genuine grease part No. 0101011 or equivalent



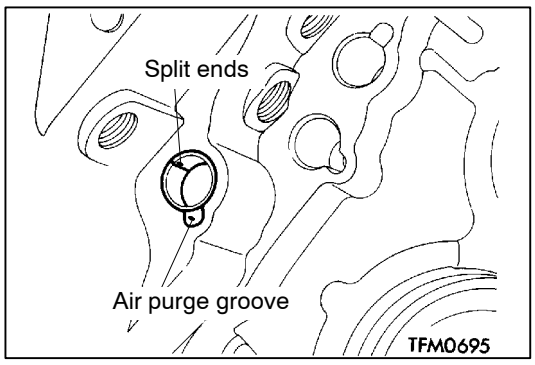
14. TRANSMISSION CASE

DISASSEMBLY AND REASSEMBLY



Disassembly steps

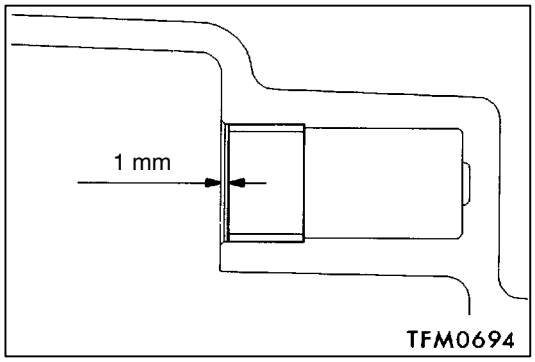
- ▶C◀ 1. Oil seal
- ▶B◀ 2. Needle bearing
- 3. Oil guide
- 4. Snap ring
- ▶A◀ 5. Bushing
- 6. Transmission case

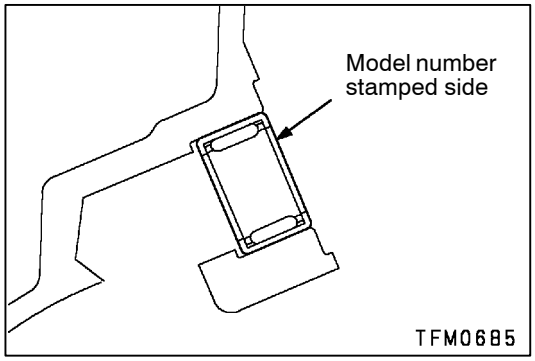


REASSEMBLY SERVICE POINTS

▶A◀ BUSHING INSTALLATION

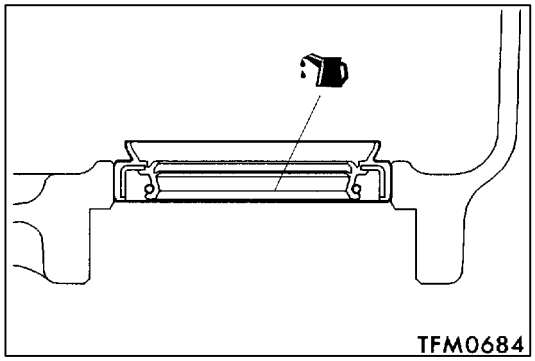
Press fit the bushing up to the illustrated position, while making sure that the split ends of the bushing do not coincide with the air purge groove.





▶B◀ NEEDLE BEARING INSTALLATION

Press fit the needle bearing until it is flush with the case, while making sure that the model number stamped side is oriented in the direction shown.

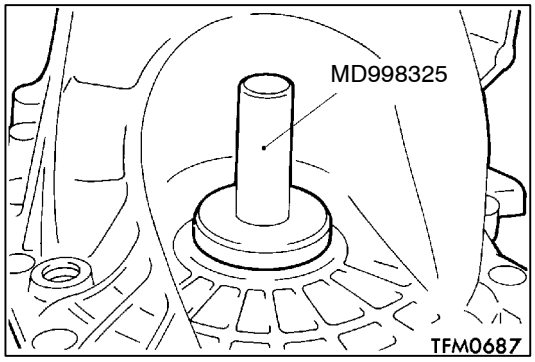


▶C◀ OIL SEAL INSTALLATION

Apply transmission oil to the oil seal lip area.

Specified oil:

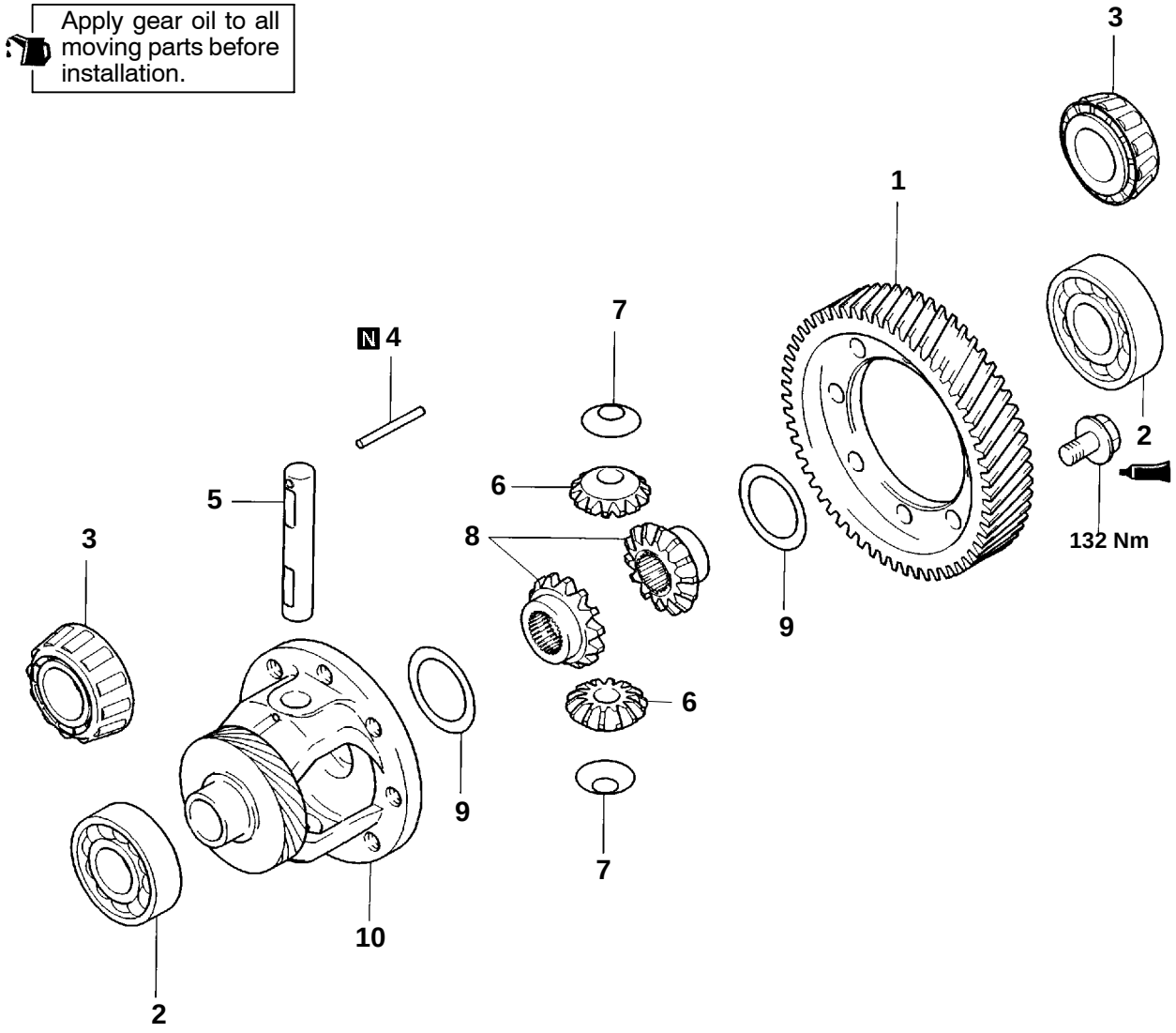
Hypoid gear oil SAE 75W-85W conforming to API classification GL-4 or higher



15. DIFFERENTIAL <F5M41, F5M42>, FRONT DIFFERENTIAL <W5M42>

DISASSEMBLY AND REASSEMBLY

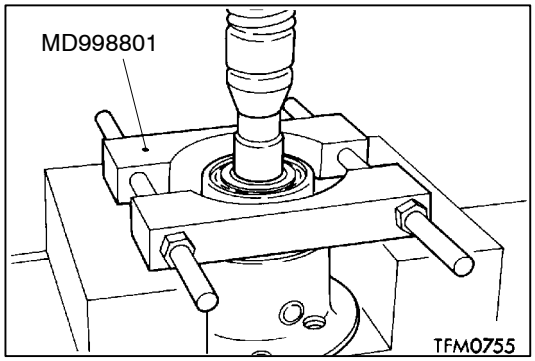
Apply gear oil to all moving parts before installation.



TFM0760

Disassembly steps

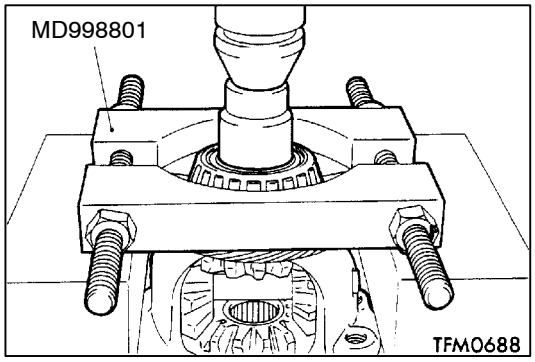
	▶E◀	1. Differential drive gear
◀A▶	▶D◀	2. Ball bearing <F5M41>
◀B▶	▶C◀	3. Taper roller bearing <F5M42, W5M42>
	▶B◀	4. Lock pin
	▶A◀	5. Pinion shaft
	▶A◀	6. Pinion
	▶A◀	7. Washer
	▶A◀	8. Side gear
	▶A◀	9. Spacer
		10. Differential case



DISASSEMBLY SERVICE POINTS

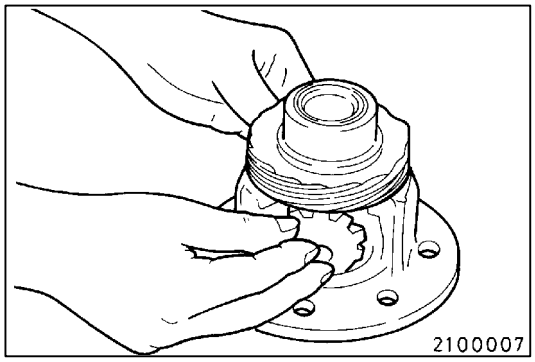
◀A▶ BALL BEARING REMOVAL <F5M41>

Use the special tool to remove the ball bearing.



◀B▶ TAPER ROLLER BEARING REMOVAL <F5M42>

Use the special tool to remove the taper roller bearing.



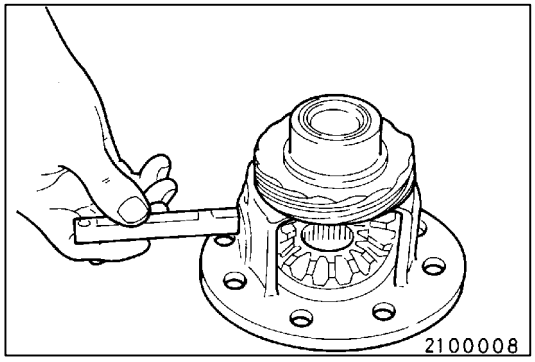
REASSEMBLY SERVICE POINTS

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

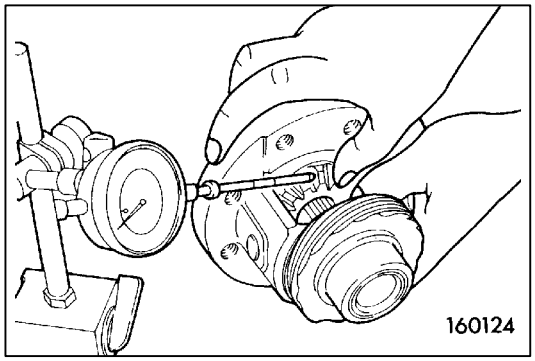
(1) After a spacer has been mounted on the back surface of the side gear, install the side gear in the differential case.

NOTE
When a new side gear is to be installed, mount a medium thickness spacer (0.93 - 1.00 mm).

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



(3) Insert the pinion shaft.

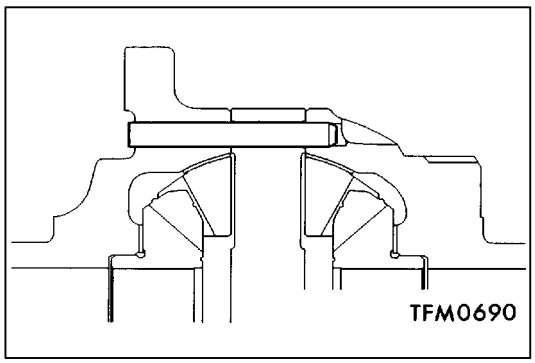


(4) Measure the backlash between the side gear and pinion.

Standard value:
0.025 - 0.150 mm

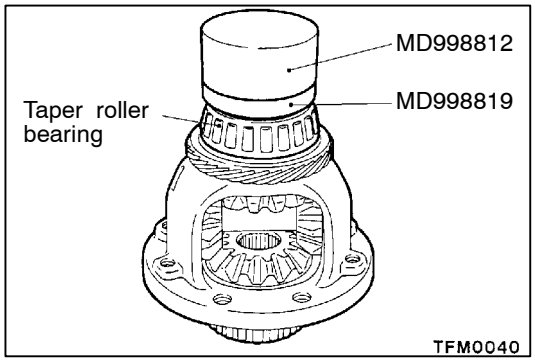
(5) If the backlash is out of specification, select a spacer and re-measure the backlash.

NOTE
Adjust until the backlashes on both sides are equal.



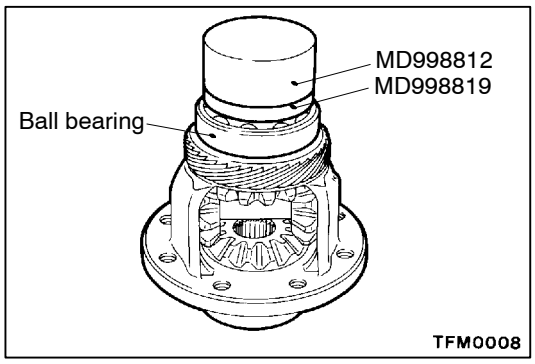
▶B◀ LOCK PIN INSTALLATION

Install the lock pin in such a way that it will be oriented in the direction shown.



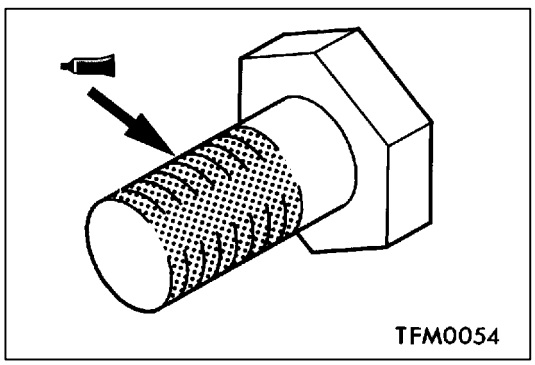
▶C◀ TAPER ROLLER BEARING INSTALLATION <F5M42>

Use the special tools to install the taper roller bearing.



▶D◀ BALL BEARING INSTALLATION <F5M41>

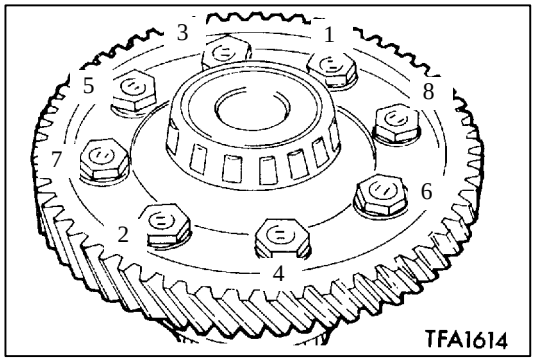
Use the special tools to install the ball bearing.



▶E◀ DIFFERENTIAL DRIVE GEAR INSTALLATION

(1) Apply a sealant to the entire threaded portion of the bolt.

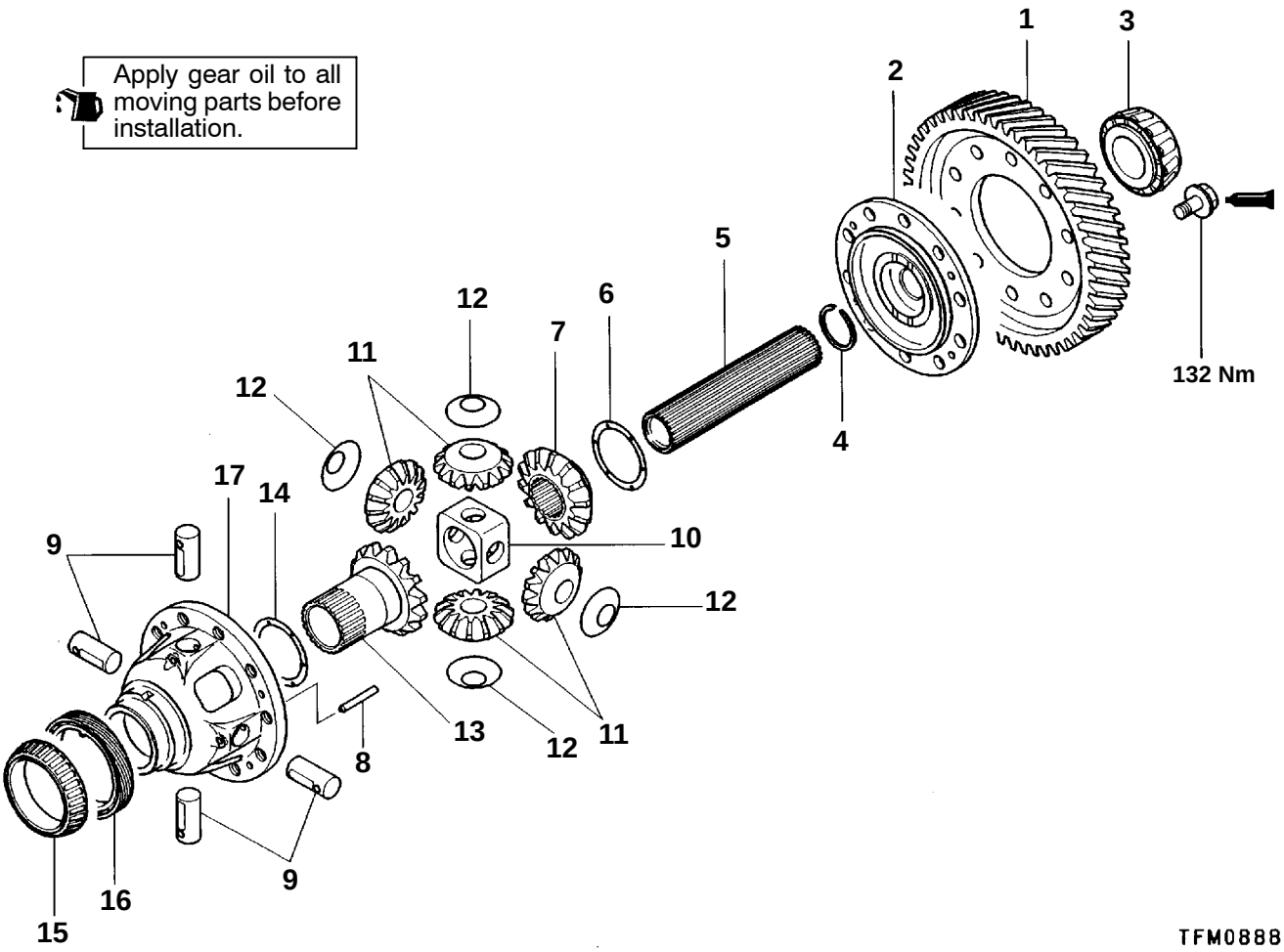
Specified sealant:
3M STUD Locking No. 4170 or equivalent



(2) Tighten to the specified torque in the illustrated sequence.

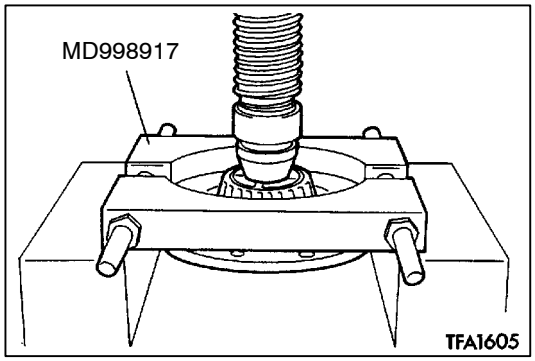
16. CENTER DIFFERENTIAL <W5M42>

DISASSEMBLY AND REASSEMBLY



Disassembly steps

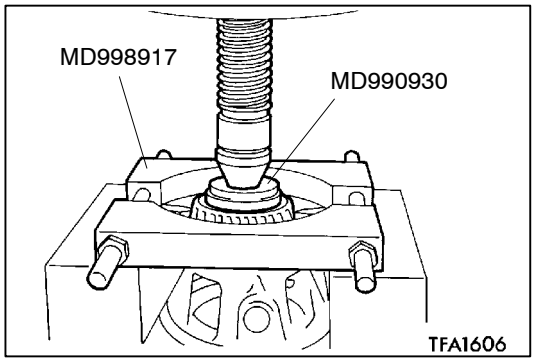
- ▶D◀ 1. Center differential drive gear
- ▶C◀ 2. Center differential flange
- ◀A▶ ▶B◀ 3. Taper roller bearing
- ▶C◀ 4. Snap ring
- ▶C◀ 5. Front output shaft
- ▶C◀ 6. Spacer
- ▶C◀ 7. Side gear
- ▶C◀ 8. Lock pin
- ▶C◀ 9. Pinion shaft
- ▶C◀ 10. Pinion shaft holder
- ▶C◀ 11. Pinion
- ▶C◀ 12. Washer
- ▶C◀ 13. Side gear
- ▶C◀ 14. Spacer
- ◀B▶ ▶A◀ 15. Taper roller bearing
- 16. Speedometer drive gear
- 17. Differential case



DISASSEMBLY SERVICE POINTS

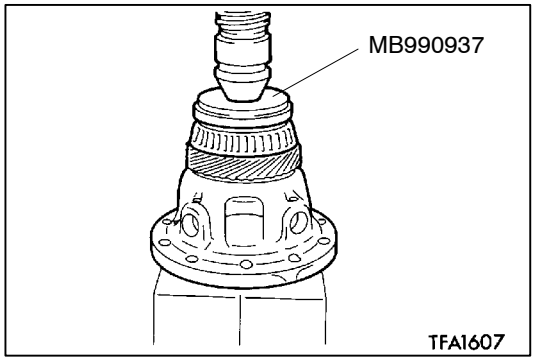
◀A▶ TAPER ROLLER BEARING REMOVAL

Use the special tool to remove the taper roller bearing.



◀B▶ TAPER ROLLER BEARING REMOVAL

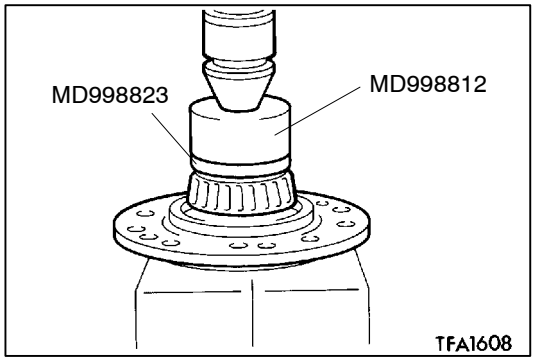
Use the special tools to remove the taper roller bearing.



REASSEMBLY SERVICE POINTS

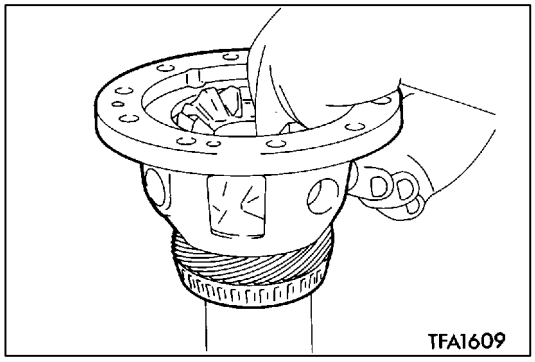
▶A◀ TAPER ROLLER BEARING INSTALLATION

Use the special tool to install the taper roller bearing.



▶B◀ TAPER ROLLER BEARING INSTALLATION

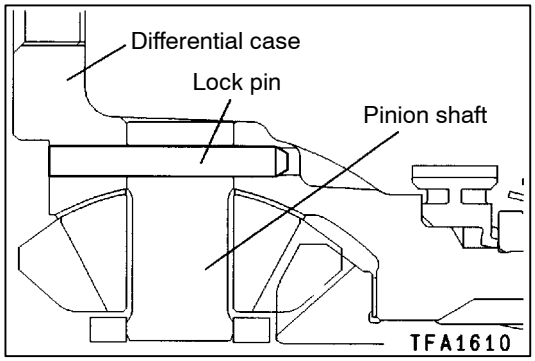
Use the special tools to install the taper roller bearing.



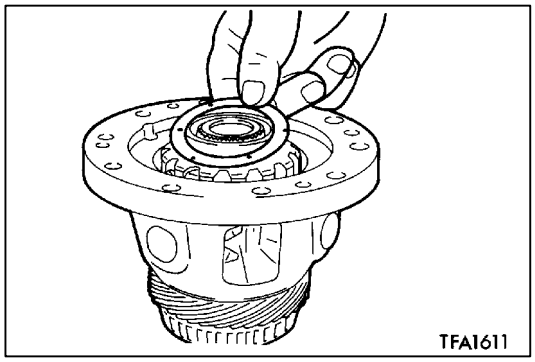
▶C◀ SPACER/SIDE GEAR/WASHER/PINION/PINION HOLDER/PINION SHAFT/LOCK PIN/FRONT OUTPUT SHAFT/SNAP RING/CENTER DIFFERENTIAL FLANGE INSTALLATION

(1) Install the side gear in the center differential case with the spacer attached.

NOTE:
If a new side gear is to be installed, select a spacer with medium thickness (0.93 - 1.00 mm).

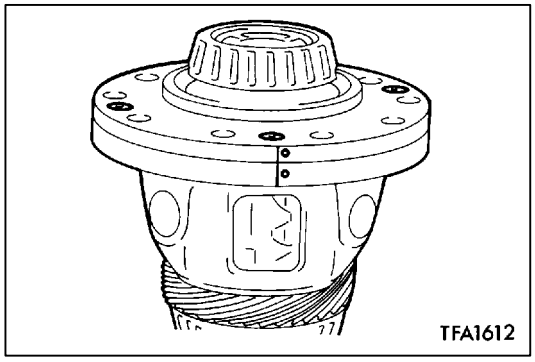


(2) Fit the washer on the back of each pinion. Engage the 4 pinions simultaneously in the side gear.
Rotate the gears to place them in position, then install the pinion shaft holder.
(3) Insert the pinion shafts.
(4) Install the lock pins in the illustrated direction.

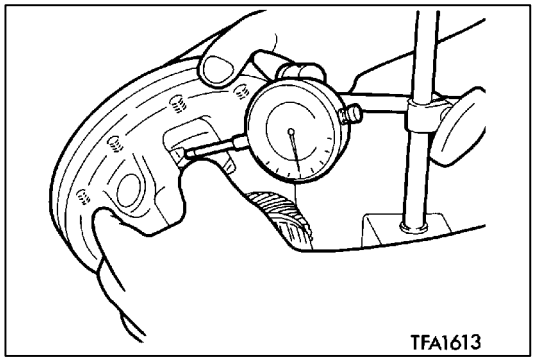


(5) Install the front output shaft to the side gear and fit the snap ring.
(6) Attach the spacer on the other side gear, then install the side gear in the center differential case.

NOTE:
If a new side gear is to be installed, select a spacer with medium thickness (0.93 - 1.00 mm).



(7) Install the center differential flange on the case while aligning the mating marks, then secure it temporarily with machine screw.

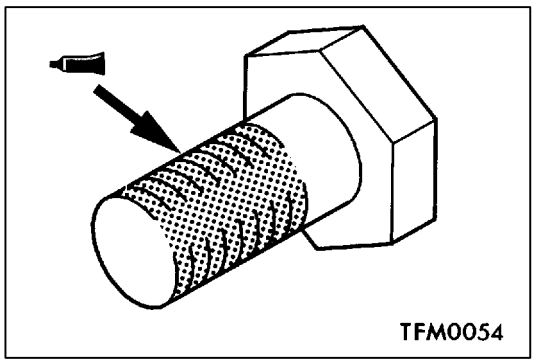


(8) Measure the backlash between the side gear and the pinion.

Standard value: 0.025 - 0.150 mm

(9) If the measurement deviates from the standard value, correct the backlash using a spacer of different thickness and check it again.

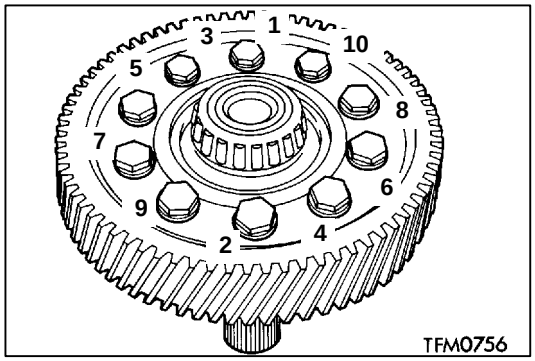
NOTE:
The backlash must be the same on both sides.



▶D◀ CENTER DIFFERENTIAL DRIVE GEAR INSTALLATION

(1) Apply sealant to the entire threaded portion of the bolt.

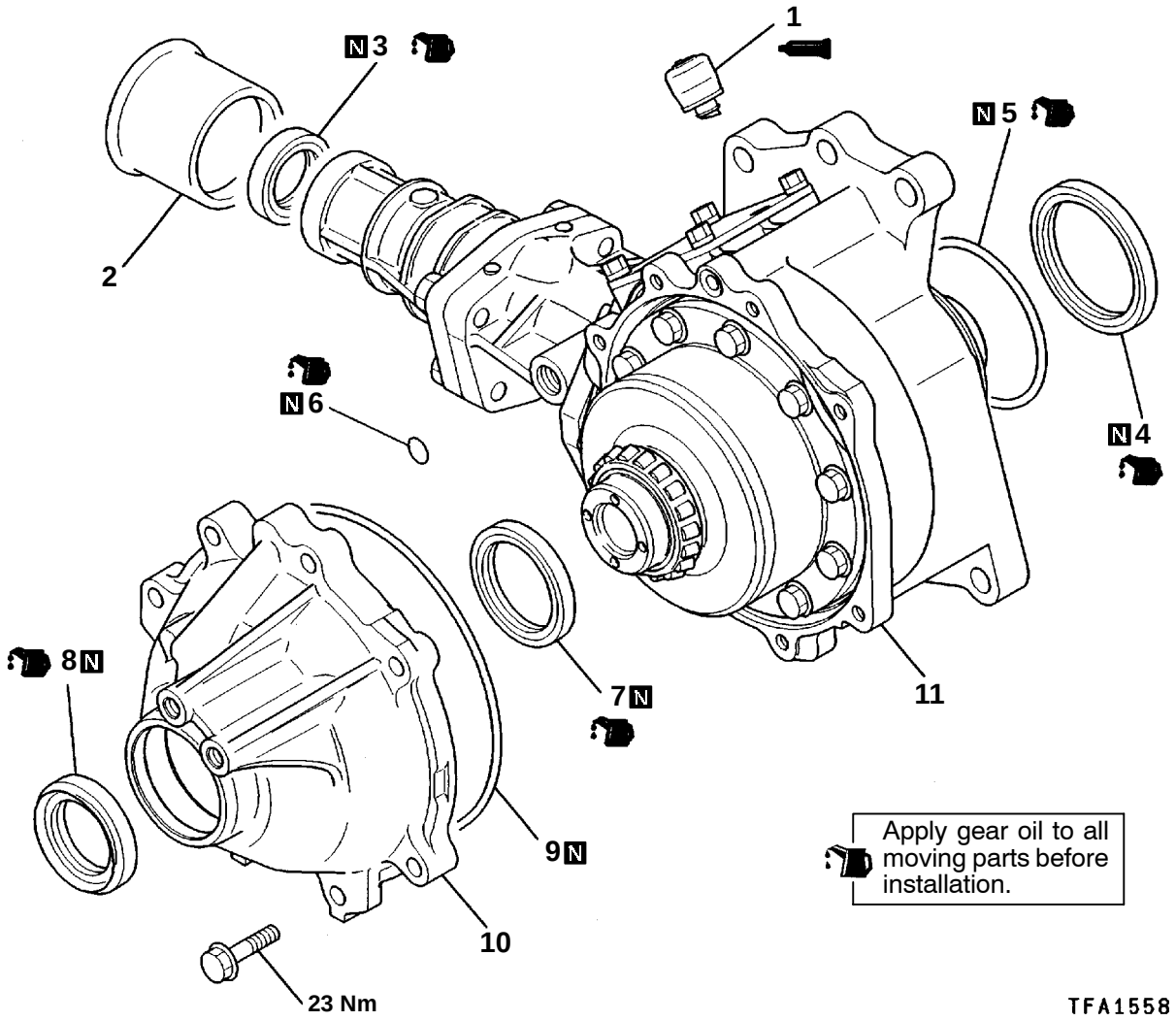
Specified sealant:
3M STUD Locking No. 4170 or equivalent



(2) Tighten the bolts to the specified torque in the illustrated sequence.

17. TRANSFER <W5M42>

DISASSEMBLY AND REASSEMBLY



Disassembly steps

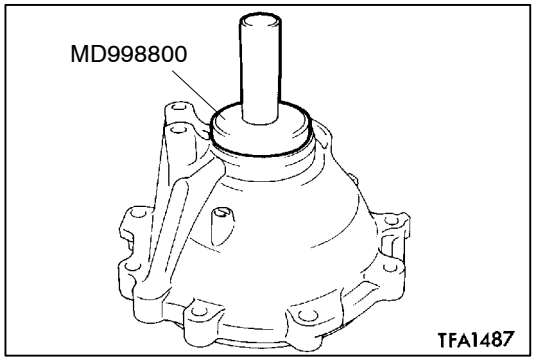
- ▶F◀ 1. Air breather
- 2. Dust seal guard
- ▶E◀ 3. Oil seal
- ▶D◀ 4. Oil seal
- ▶A◀ 5. O-ring
- ▶A◀ 6. O-ring
- ▶C◀ 7. Oil seal
- ▶B◀ 8. Oil seal
- ▶A◀ 9. O-ring
- 10. Transfer cover
- 11. Transfer

REASSEMBLY SERVICE POINTS

▶A◀ O-RING INSTALLATION

Apply transmission oil to the O-ring.

Transmission oil:
Hypoid gear oil SAE 75W-85W conforming to API classification GL-4 or higher.

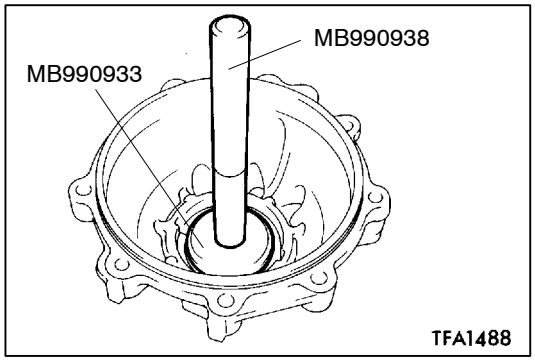


▶B◀ OIL SEAL INSTALLATION

(1) Apply transmission oil to the oil seal lip area.

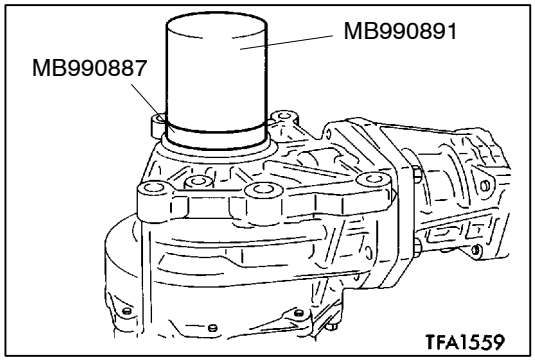
Transmission oil:
Hypoid gear oil SAE 75W-85W conforming to API classification GL-4 or higher.

(2) By using the special tool, install the oil seal.



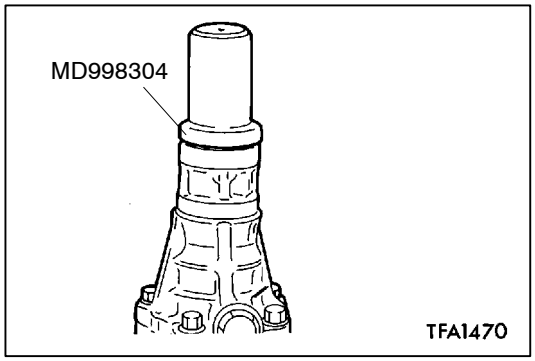
▶C◀ OIL SEAL INSTALLATION

Use the special tools to install the oil seal.



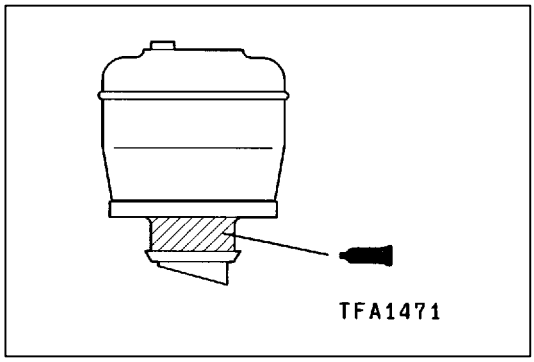
▶D◀ OIL SEAL INSTALLATION

Use the special tools to install the oil seal.



▶E◀ OIL SEAL INSTALLATION

Use the special tool to install the oil seal.



▶F◀ AIR BREATHER INSTALLATION

Apply sealant to the air breather.

Specified sealant:
3M SUPER WEATHERSTRIP No. 8001 or equivalent.

NOTES