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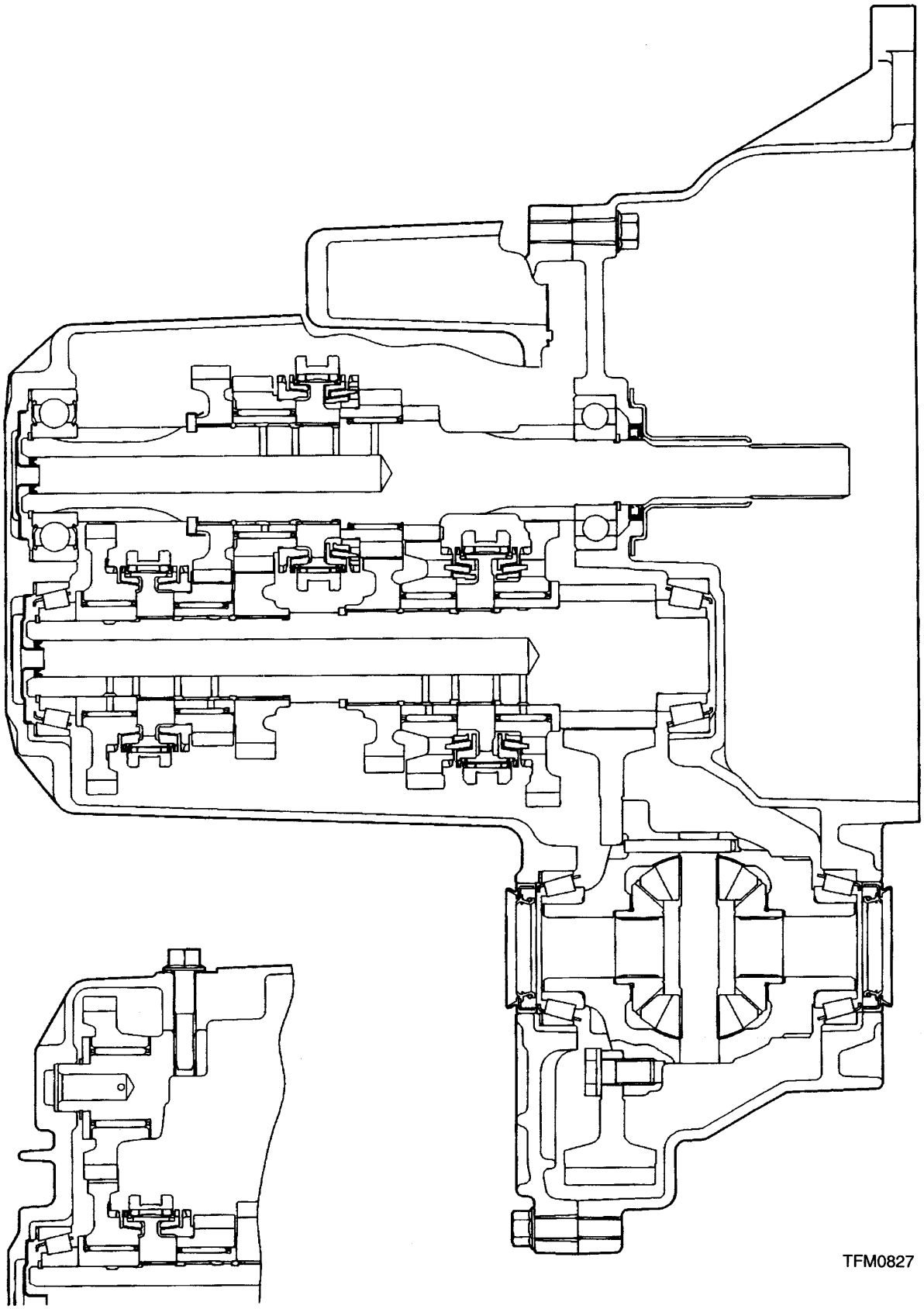
SECTIONAL VIEW



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GENERAL SPECIFICATIONS

Items	Specifications
Transmission model	F5M51–1–F5N
Gear Ratios	
1st gear	3.583
2nd gear	2.105
3rd gear	1.407
4th gear	1.031
5th gear	0.761
Reverse	3.416
Final drive	3.722

SERVICE SPECIFICATIONS

Items	Specifications
Input shaft front bearing end play	0.05–0.17 mm
Input shaft 5th gear end play	0.01–0.09 mm
Input shaft rear bearing end play	0.01–0.12 mm
Output shaft 3rd gear end play	0.01–0.09 mm
Differential case preload	0.05–0.11 mm
Differential case pinion backlash	0.025–0.15 mm
Clearance between synchroniser ring and gear	0.5 mm max.
Output shaft preload	0.13–0.18 mm
Output shaft bearing end play	0.01–0.09 mm

LUBRICANTS

Items	Specified lubricant	Quantity
Transmission oil	Hypoid gear oil SAE 75W–85W conforming to A.P.I. classification GL–4	2.8 litres
Input shaft oil seal lip	Mitsubishi genuine grease Part No. 0101011 or equivalent	as required
Selector lever shoe	Mitsubishi genuine grease Part No. 0101011 or equivalent	as required

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SEALANTS

Items	Specified sealant
Contact surface of clutch housing and transmission case	Mitsubishi genuine sealant Part No. MD997740 or equivalent.
Contact surface of control housing and transmission case	Mitsubishi genuine sealant Part No. MD997740 or equivalent.
Contact surface of under cover and transmission case	Mitsubishi genuine sealant Part No. MD997740 or equivalent.
Differential drive gear bolt	Loctite 262 or equivalent.

TORQUE SPECIFICATIONS

Items	Torque Nm
Under cover mounting bolt	6.9
Interlock plate bolt	30
Clutch housing and transmission case mounting bolt	44
Clutch release bearing retainer mounting bolt	9.8
Control housing mounting bolt	18
Shift cable bracket mounting bolt	18
Stopper bracket mounting bolt	22
Speedometer gear mounting bolt	3.9
Selector level mounting nut	11
Selector mounting bolt	18
Differential drive gear mounting bolt	132
Back–up lamp switch	32
Poppet spring	32
Roll stopper bracket mounting bolt	69
Reverse idler gear shaft mounting bolt	48

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FORM–IN–PLACE GASKET

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

DISASSEMBLY

The parts assembled with the FIPG can be easily disassembled without use of a special method. In some cases, however, the sealant between the joined surfaces may have to be broken by lightly striking with a mallet or similar tool. Special care must be taken to prevent damage to aluminium surfaces.

SURFACE PREPARATION

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

FORM–IN–PLACE GASKET APPLICATION (FIPG)

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

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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)	1.43	Green (2)	MD746708
	1.51	White (2)	MD746709
	1.59	Yellow (2)	MD746710
Snap ring (for adjustment of input shaft rear bearing end play)	1.44	–	MD746602
	1.51	Blue	MD746603
	1.58	Brown	MD746604
Spacer (for adjustment of input shaft end play)	1.34	34	MD723600
	1.43	43	MD723603
	1.52	52	MD723606
	1.61	61	MD723609
	1.70	70	MD756760
	1.79	79	MD756763
Thrust plate (for adjustment of input shaft 5th gear end play)	3.82	0	MD748465
	3.86	2	MD748466
	3.90	3	MD748467
	3.94	5	MD748468
	3.98	6	MD748469
	4.02	7	MD748470
	4.06	8	MD748471
	4.10	9	MD748472
Snap ring (for adjustment of output shaft bearing end play)	1.36	Yellow	MD748449
	1.40	Green	MD748450
	1.44	–	MD746602
	1.48	Black	MD748451
	1.51	Blue	MD746603
	1.55	White	MD748452
	1.58	Brown	MD746604
	1.63	Orange	MD748453
	1.68	Blue	MD748454

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Part name	Thickness mm	Identification symbol	Part No.
Snap ring (for adjustment of output shaft 3rd gear end play)	2.81	–	MD746594
	2.85	Blue	MD746595
	2.89	Brown	MD746596
	2.93	Yellow	MD746597
	2.97	Green	MD746598
	3.01	Black	MD746599
	3.05	White	MD746600
	3.09	Orange	MD746601
Spacer (for adjustment of output shaft preload)	0.86	86	MD720938
	0.89	89	MD720939
	0.92	92	MD720940
	0.95	95	MD720941
	0.98	98	MD720942
	1.01	01	MD720943
	1.04	04	MD720944
	1.07	07	MD720945
	1.10	J	MD710454
	1.13	D	MD700270
	1.16	K	MD710455
	1.19	L	MD710456
	1.22	G	MD700271
	1.25	M	MD710457
	1.28	N	MD710458
	1.31	E	MD706574
	1.34	O	MD710459
	1.37	P	MD710460
	1.40	–	MD706573
	1.43	Q	MD710461
	1.46	R	MD710462

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Part name	Thickness mm	Identification symbol	Part No.
Spacer (for adjustment of differential case preload)	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
Spacer<F5M51 with 3.0L engine only> (for adjustment of differential case pinion 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<F5M51 with 3.5L engine only> (for adjustment of differential case pinion backlash)	0.75–0.82	–	MD722986
	0.83–0.92	–	MD722985
	0.93–1.00	–	MD722984
	1.01–1.08	–	MD722983
	1.09–1.16	–	MD722982

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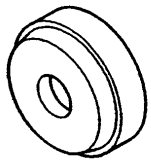
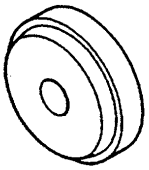
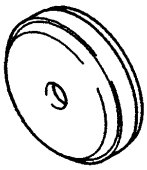
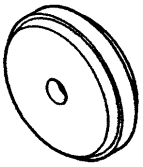
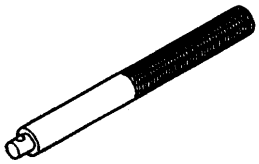
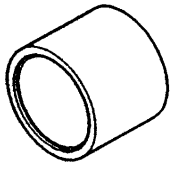
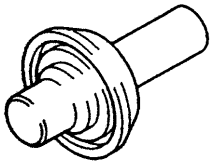
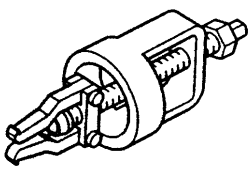
SPECIAL TOOLS

Tool	Tool number and name	Supersession	Application
	MB990926 Installer adaptor	–	To install an oil seal for the clutch housing input shaft portion
	MB990927 Installer adaptor	–	To install a sealing cap
	MB990928 Installer adaptor	–	To install the input shaft oil seal
	MB990934 Installer adaptor	–	To install a roller bearing outer race
	MB990935 Installer adaptor	–	To install a differential case taper roller bearing outer race
	MB990938 Handle	–	To be used as an installer adaptor
	MB991445 Bush remover and installer base	–	To install differential case taper roller bearing outer race
	MD998325 Differential oil seal installer	–	To install a differential oil seal
	MD998346 Bearing outer race remover	–	To remove a roller bearing outer race

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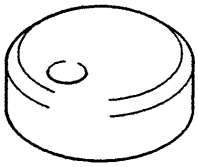
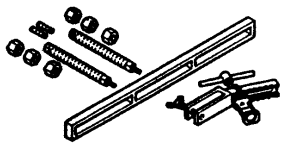
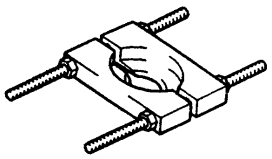
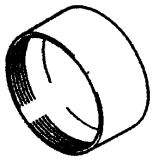
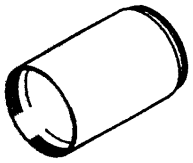
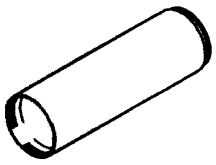
Tool	Tool number and name	Supersession	Application
	MD998364 Camshaft oil seal installer	–	To install each gear, bearing and sleeve
	MD998772 Roller bearing outer race remover	–	To remove a roller bearing outer race
	MD998801 Bearing remover	–	To install and remove each gear, bearing and sleeve
	MD998812 Installer cap	–	To be used as an installer and an installer adaptor
	MD998813 Installer 100	–	To be used as an installer cap and an installer adaptor
	MD998814 Installer 200	–	To be used as an installer cap and an installer adaptor
	MD998816 Installer adaptor (30)	–	To install input shaft front bearing
	MD998817 Installer adaptor (34)	–	Installation of the output shaft rear bearing
	MD998818 Installer adaptor (38)	–	To install input shaft rear bearing, output shaft rear bearing, reverse gear bearing and roller bearing inner race.

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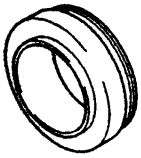
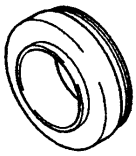
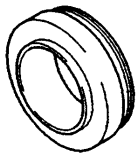
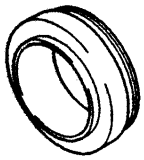
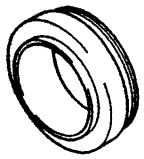
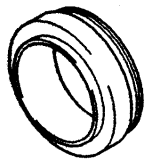
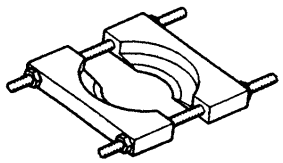
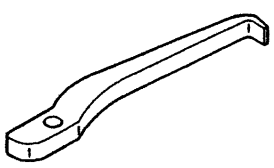
Tool	Tool number and name	Supersession	Application
	MD998819 Installer adaptor (40)	–	To install 4th gear, 5th gear and 5th/reverse synchroniser hub
	MD998820 Installer adaptor (42)	–	To install reverse gear bearing sleeve
	MD998821 Installer adaptor (44)	–	To install 4th and 5th gear sleeve and 5th/reverse synchroniser
	MD998822 Installer adaptor (46)	–	To install 2nd gear sleeve and 3rd gear
	MD998823 Installer adaptor (48)	–	To install differential case taper roller bearing inner race
	MD998824 Installer adaptor (50)	–	To install 4th gear sleeve and 5th gear
	MD998825 Installer adaptor (52)	–	To install differential oil seal
	MD998917 Bearing remover	–	To install and remove each gear, bearing and sleeve
	MD999566 Claw	–	To remove differential case taper roller bearing outer race

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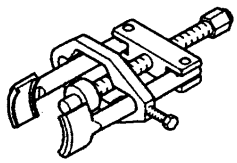
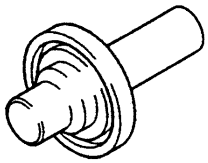
Tool	Tool number and name	Supersession	Application
	MD998020 Bearing outer race remover	E21M16	To remove roller bearing outer race
	MD998800 Oil seal installer	E21M14A	To install transfer cover oil seal

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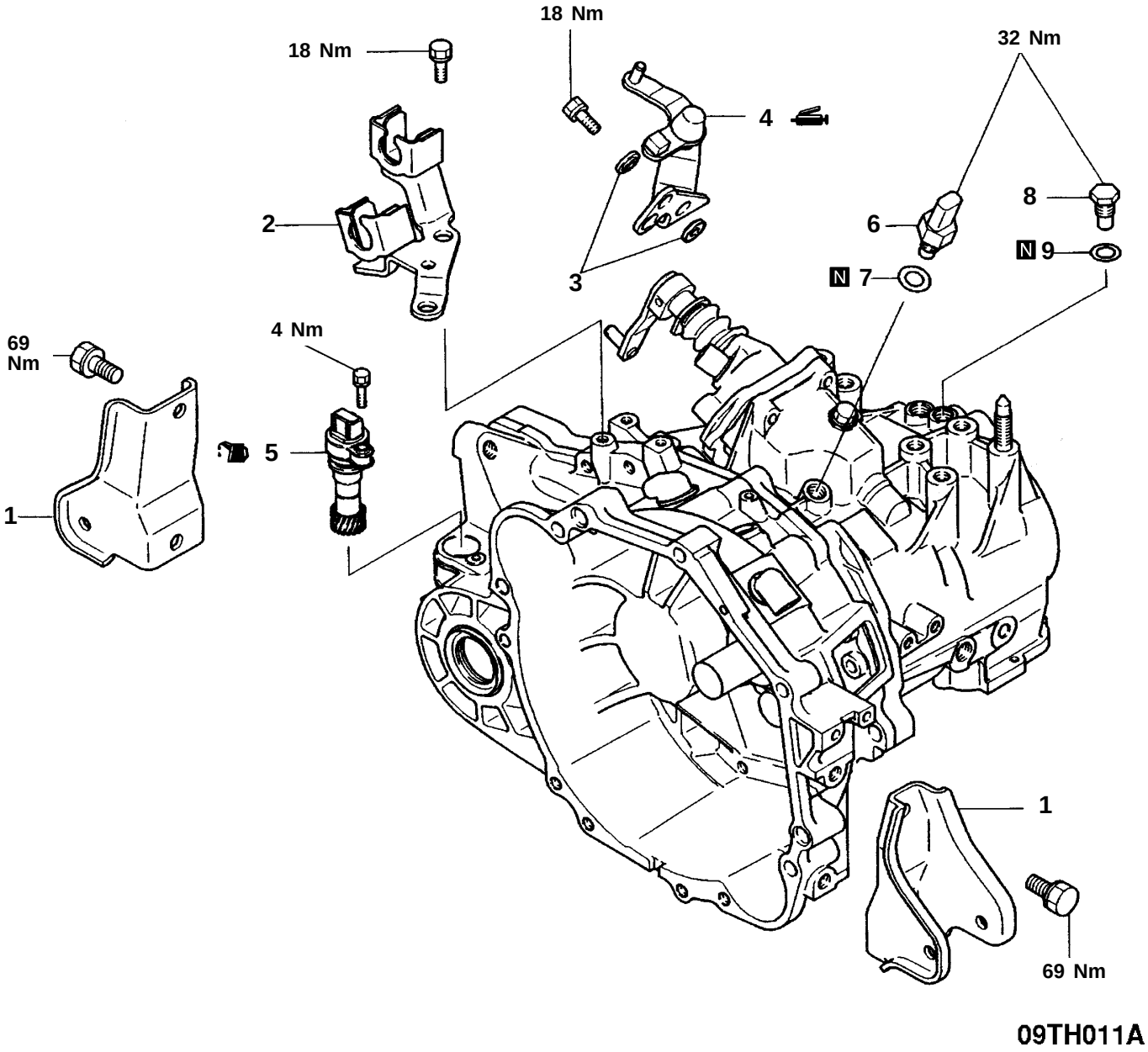
TRANSMISSION

DISASSEMBLY AND REASSEMBLY



Disassembly steps

1. Roll stopper bracket
2. Shift cable bracket
3. Insulator washer
4. ▶J◀ Selector lever
5. ▶I◀ Speedometer gear
6. Reverse light switch
7. Gasket
8. ▶H◀ Poppet spring
9. Gasket

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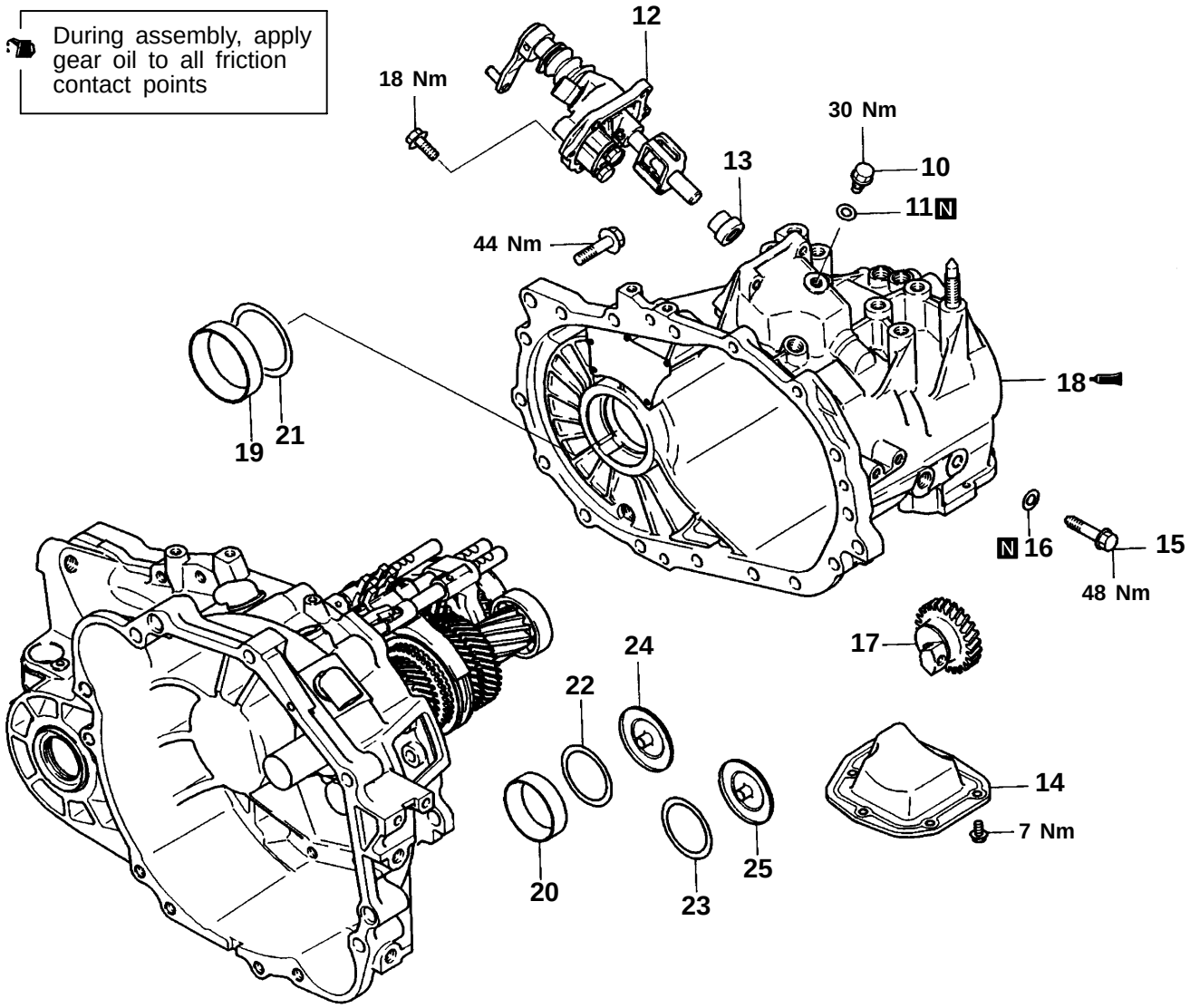
DISASSEMBLY AND REASSEMBLY CONTINUED



Disassembly steps

10. Interlock plate bolt
11. Gasket
▶G◀ 12. Control housing
13. Neutral return spring
▶F◀ 14. Undercover
15. Reverse idler shaft bolt
16. Gasket
17. Reverse idler gear
▶E◀ 18. Transmission case
19. Outer race
20. Outer race
▶D◀ 21. Spacer
▶D◀ 22. Spacer
▶D◀ 23. Spacer
24. Oil guide
25. Oil guide

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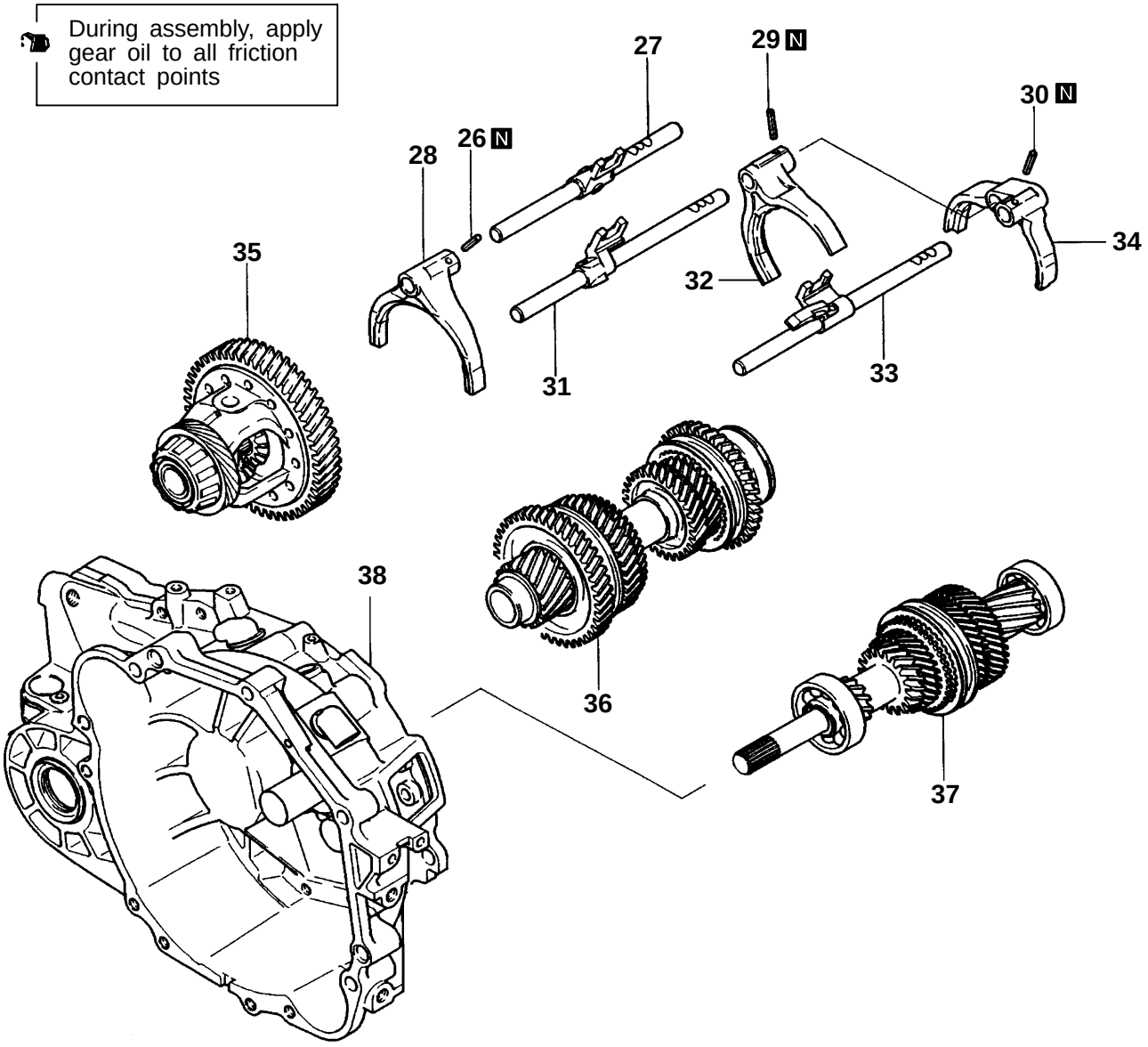
DISASSEMBLY AND REASSEMBLY CONTINUED

During assembly, apply gear oil to all friction contact points



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Disassembly steps

- ▶C◀ 26. Spring pin
- 27. 1st–2nd shift rail
- 28. 1st–2nd shift fork
- ▶C◀ 29. Spring pin
- ◀A▶ ▶C◀ 30. Spring pin
- ◀B▶ ▶B◀ 31. 3rd–4th shift rail
- ◀B▶ ▶B◀ 32. 3rd–4th shift fork
- ◀B▶ ▶B◀ 33. 5th–reverse shift rail
- ◀B▶ ▶B◀ 34. 5th–reverse shift fork
- ◀C▶ ▶A◀ 35. Differential
- ◀C▶ ▶A◀ 36. Output shaft
- ◀C▶ ▶A◀ 37. Input shaft
- 38. Clutch housing

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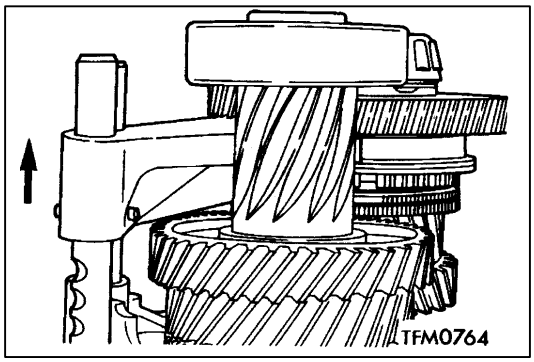
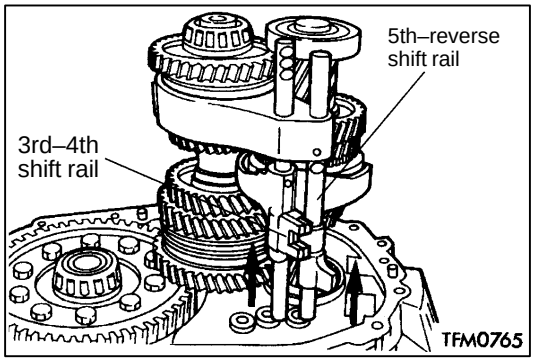


REMOVAL SERVICE POINTS

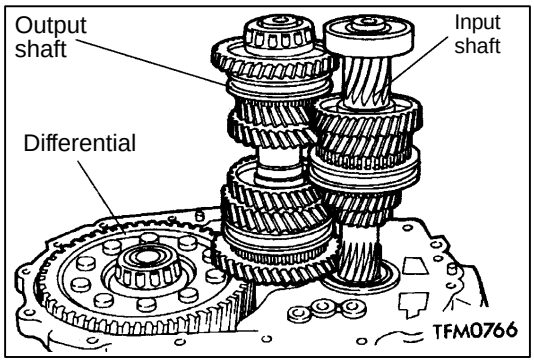
◀A▶ SPRING PIN

1. Shift the 5th–reverse shift fork in the direction shown before removing the spring pin.



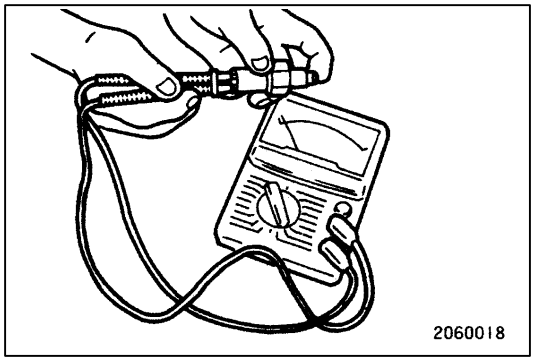
◀B▶ 3RD–4TH SHIFT RAIL/3RD–4TH SHIFT FORK/5TH–REVERSE SHIFT RAIL/5TH–REVERSE SHIFT FORK

1. Remove each shift rail from the rail hole in the clutch housing.



◀C▶ INPUT SHAFT/OUTPUT SHAFT/DIFFERENTIAL

1. Remove the output shaft and input shaft simultaneously.
2. Remove the differential.



INSPECTION

REVERSE LIGHT SWITCH

1. Check for continuity between terminals.

Item	Continuity
Press switch	Yes
Release switch	No

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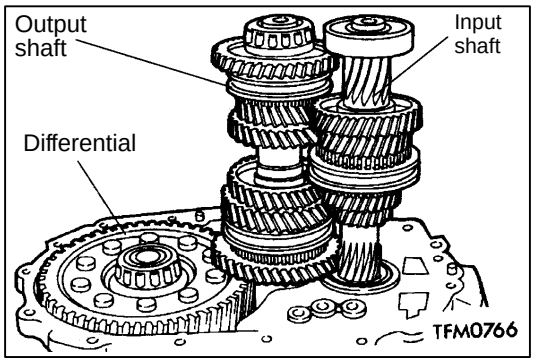
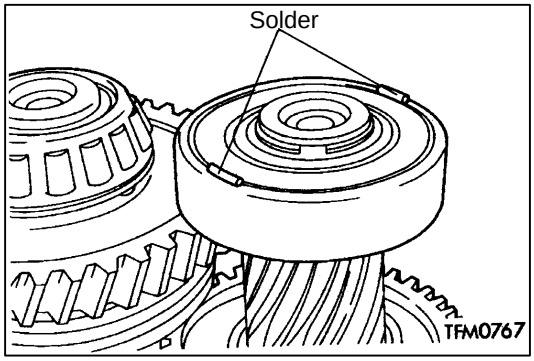


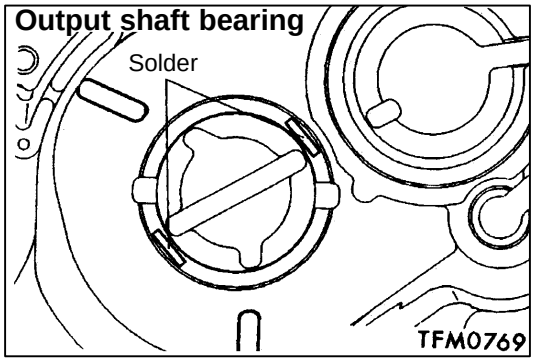
PRE–ASSEMBLY ADJUSTMENTS

SELECTION OF SPACERS FOR INPUT SHAFT END PLAY, OUTPUT SHAFT PRELOAD AND DIFFERENTIAL PRELOAD

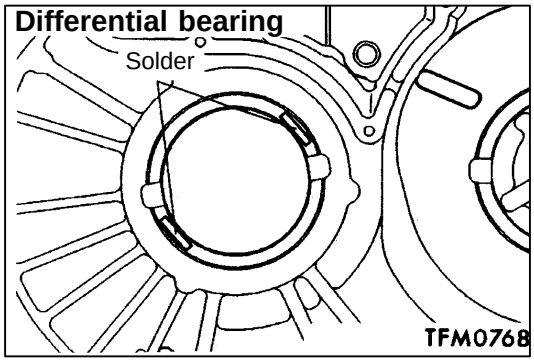
1. Attach the differential, then the input shaft and output shaft to the clutch housing simultaneously.



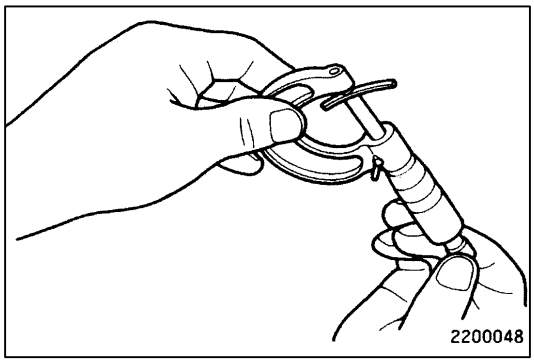
2. Place solder (approx. 10mm length, 1.6mm diameter) on the input shaft bearing at the point shown.



3. Place solder (approx. 10mm length, 1.6mm diameter) on the transmission case at the point shown for the output shaft and differential bearings.
4. Install the outer race.
5. Install the transmission case and tighten the bolts to the specified torque.



6. If the solder is not crushed, carry out procedures (2–5) using lager diameter solder.



7. Measure the thickness of the crushed solder with a micrometer. Select a spacer of the thickness to attain a standard end play and preload.

   Standard values:
   Input shaft end play (0.05 – 0.17mm)
   Output shaft preload (0.13 – 0.18mm)
   Differential preload (0.05 – 0.11mm)

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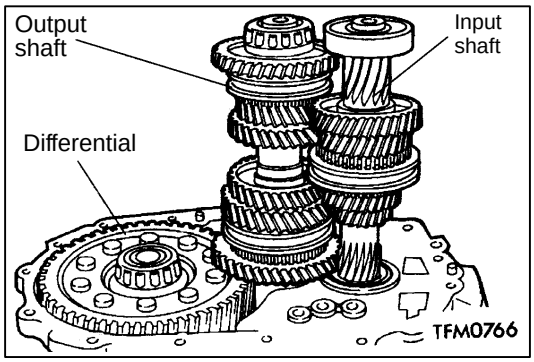
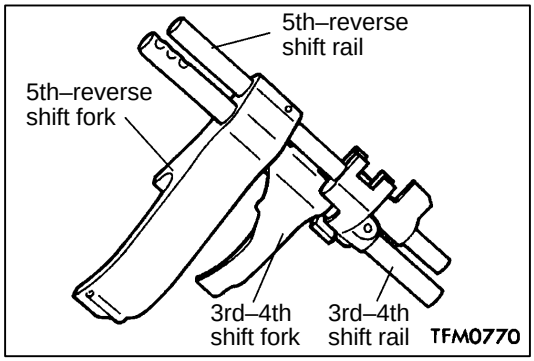


INSTALLATION SERVICE POINTS

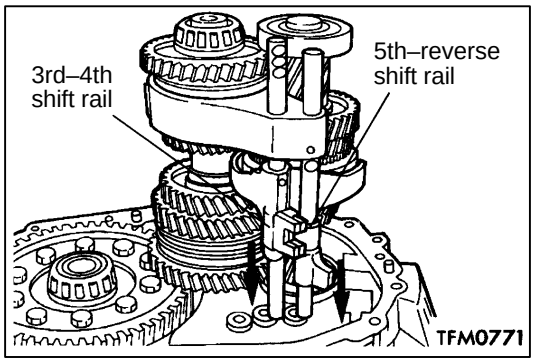
▶A◀ INPUT SHAFT/OUTPUT SHAFT/DIFFERENTIAL

1. Install the differential and then install the input and output shafts simultaneously.

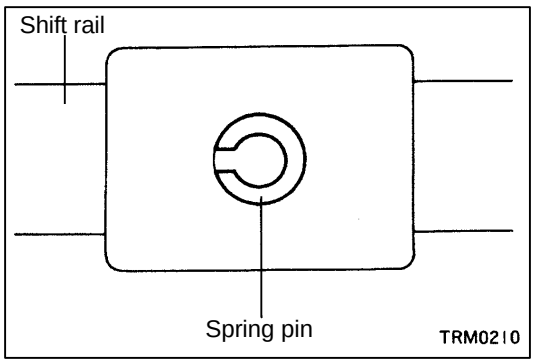


▶B◀ 5TH–REVERSE SHIFT RAIL/5TH–REVERSE SHIFT FORK/5TH–REVERSE SHIFT RAIL/3RD–4TH SHIFT RAIL

1. Install the 3rd–4th shift rail and fork, as well as the 5th–reverse shift rail and fork



2. Slide each shift rail in the direction shown and then install them in the shift rail hole in the clutch housing.



▶C◀ SPRING PIN

1. Install the spring pin so that the slit faces in the direction shown.

▶D◀ SPACER

1. Install the spacer selected in “PRE–ASSEMBLY ADJUSTMENTS”.

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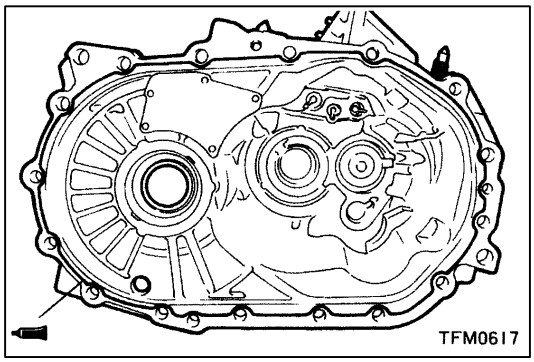
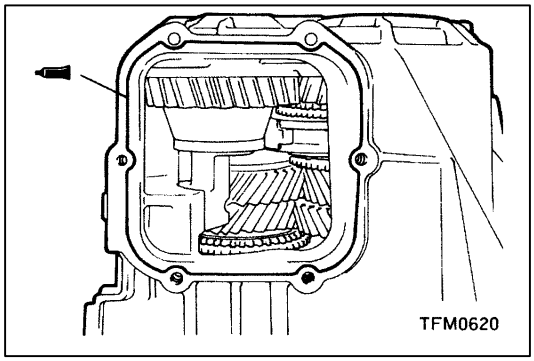


▶E◀ TRANSMISSION CASE

1. Apply sealant to the transmission case at the point shown by squeezing it out to a thickness of 1.5mm.

Specified sealant:
Mitsubishi genuine sealant Part No. MD997740 or equivalent.

Caution
Sealant must be squeezed out evenly, so that there are no parts where it is insufficient or excessive.

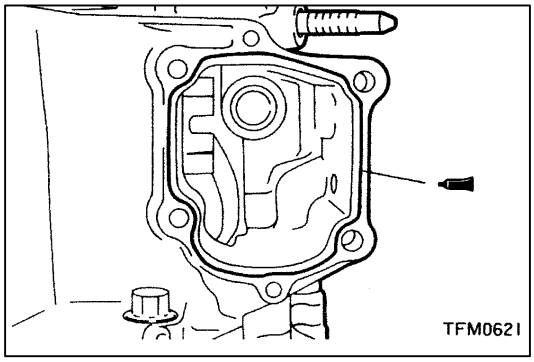


▶F◀ UNDER COVER

1. Apply sealant to the transmission case at the point shown by squeezing it out to a thickness of 1.5mm.

Specified sealant:
Mitsubishi genuine sealant Part No. MD997740 or equivalent.

Caution
Sealant must be squeezed out evenly, so that there are no parts where it is insufficient or excessive.

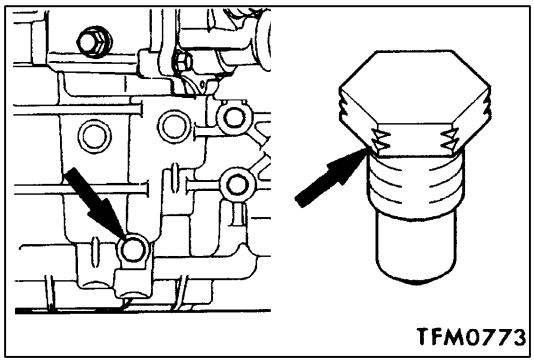


▶G◀ CONTROL HOUSING

1. Apply sealant to the transmission case at the point shown by squeezing it out to a thickness of 1.5mm.

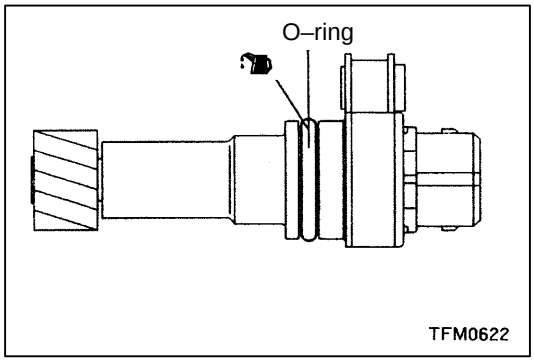
Specified sealant:
Mitsubishi genuine sealant Part No. MD997740 or equivalent.

Caution
Sealant must be squeezed out evenly, so that there are no parts where it is insufficient or excessive.



▶H◀ POPPET SPRING

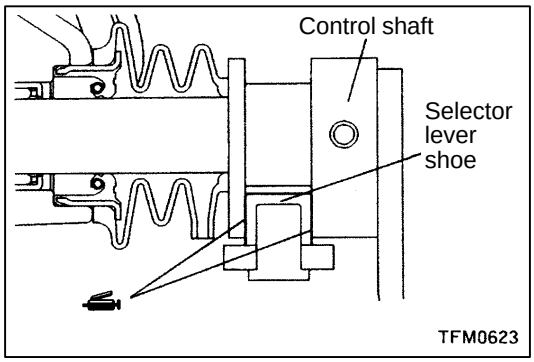
1. Install the poppet spring, placing the identification notch at the location shown.



▶I◀ SPEEDOMETER GEAR

1. Apply transmission oil to the O–ring of the speedometer gear.

Specified oil:
Hypoid gear oil SAE 75W/85W, conforming to API GL–4



▶J◀ SELECTOR LEVER

1. Apply grease to the area of the selector lever shoe that generates friction with the control shaft.

   Specified grease:
   Mitsubishi genuine grease Part No. 0101011 or equivalent.

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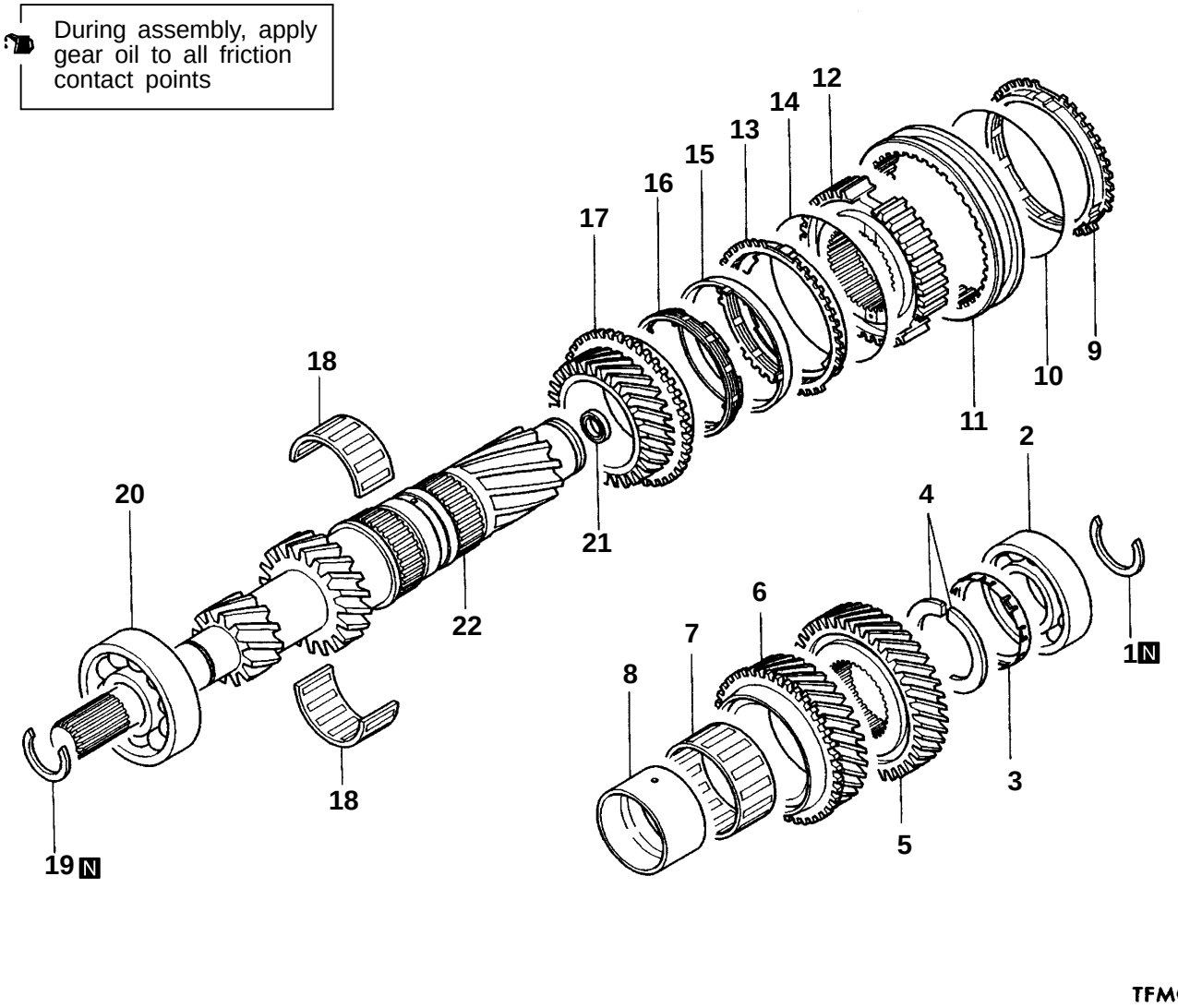
INPUT SHAFT

DISASSEMBLY AND REASSEMBLY



Disassembly steps

- ▶M◀ 1. Snap ring
- ◀A▶ ▶L◀ 2. Ball bearing
- ◀B▶ ▶K◀ 3. Thrust plate stopper
- ▶J◀ 4. Thrust plate
- ◀C▶ ▶I◀ 5. 5th gear
- 6. 4th gear
- 7. Needle roller bearing
- ◀D▶ ▶H◀ 8. 4th gear sleeve
- 9. Synchroniser ring
- ▶G◀ 10. Synchroniser spring
- ▶F◀ 11. Synchroniser sleeve
- ▶E◀ 12. 3rd–4th synchroniser hub
- 13. Outer synchroniser ring
- ▶D◀ 14. Synchroniser spring
- 15. Synchroniser cone
- 16. Inner synchroniser ring
- 17. 3rd gear
- 18. Needle roller bearing
- ▶C◀ 19. Snap ring
- ◀E▶ ▶B◀ 20. Ball bearing
- ▶A◀ 21. Oil seal
- 22. Input shaft

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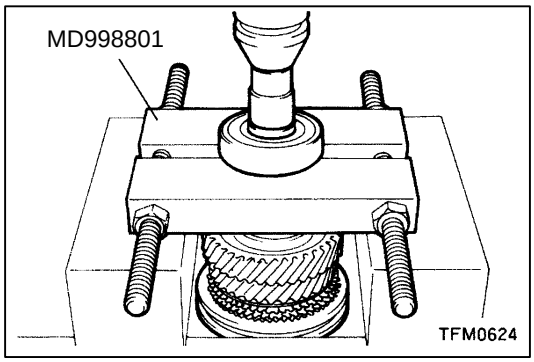
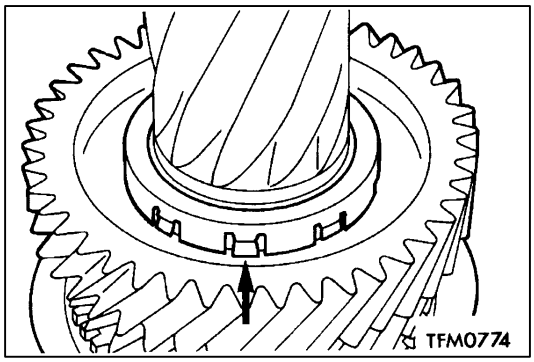


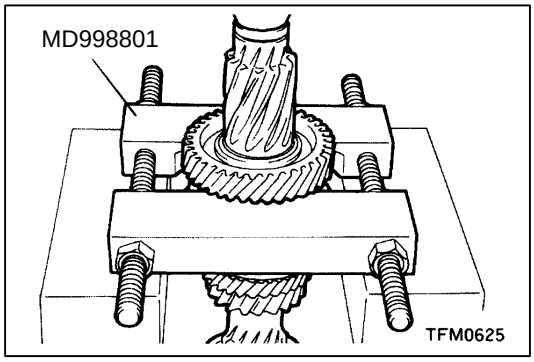
REMOVAL SERVICE POINTS

◀A▶ BALL BEARING

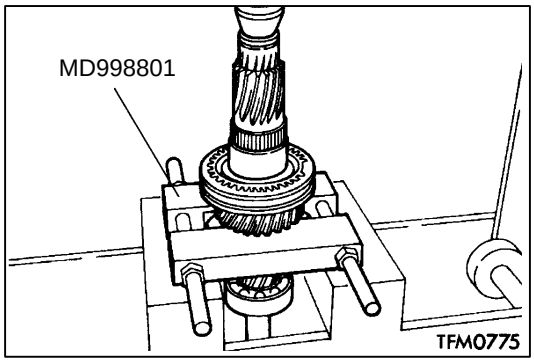


◀B▶ THRUST PLATE STOPPER

1. Remove the thrust plate stopper by using a screwdriver to raise the part of the stopper shown.

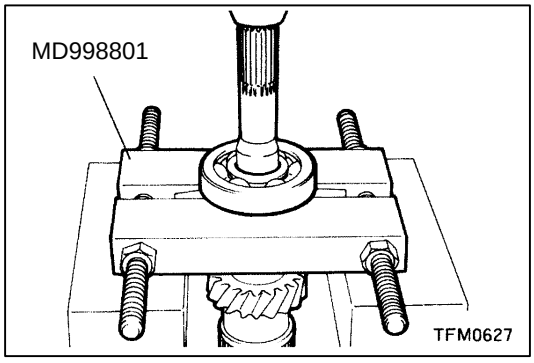


◀C▶ 5TH GEAR



◀D▶ 4TH GEAR

1. Attach the special tool to the 3rd gear and remove the 4th gear sleeve.



◀E▶ BALL BEARING

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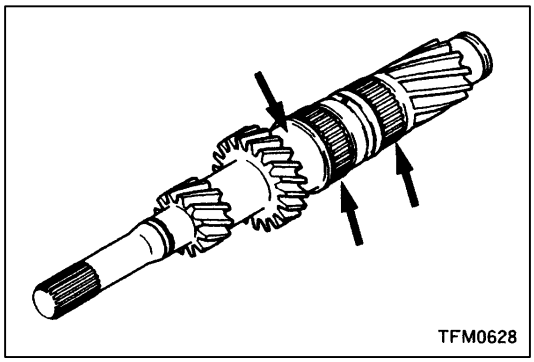


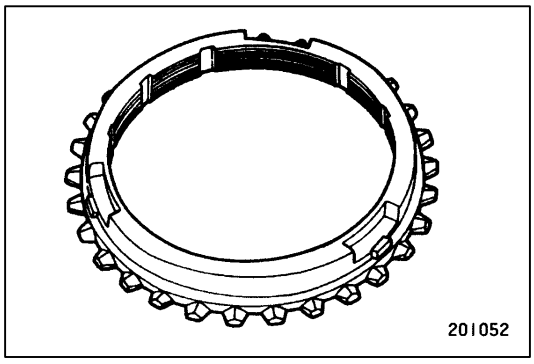
INSPECTION

INPUT SHAFT

1. The outside diameter of the input shaft at the needle bearing installation location must be free of damage, excessive wear and seizure.
2. Check for damage to and wear of the spline.

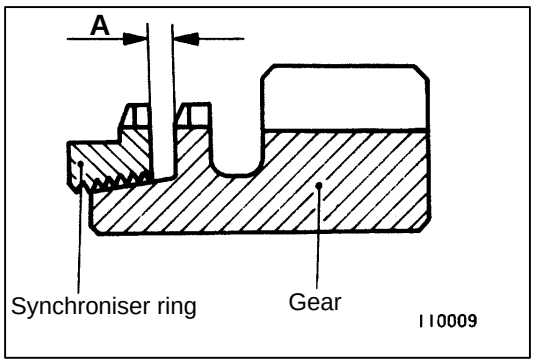
NEEDLE BEARING

1. When turned in conjunction with the input shaft and the gear, the needle bearing must rotate smoothly and there must be no looseness or noise.
2. The cage must not be deformed.



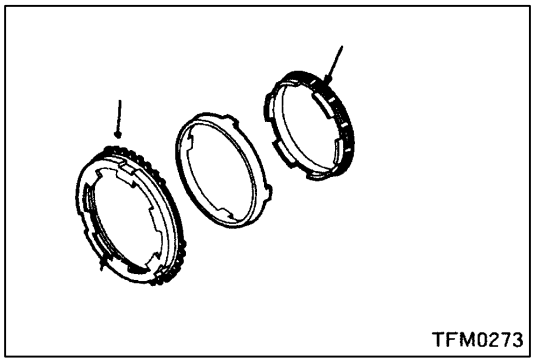
SYNCHRONISER RING

1. The clutch gear tooth surface must not be damaged or broken.
2. The cone inside diameter must be free of damage and wear. The cone inside thread crests must not be crushed.



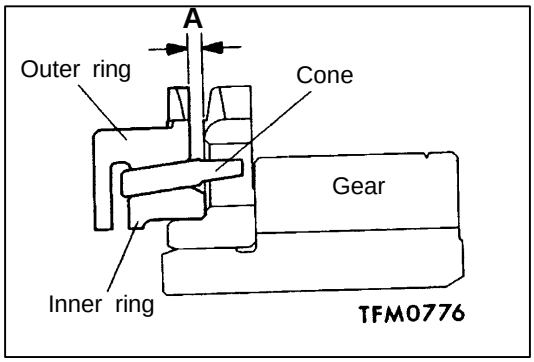
3. Push the synchroniser ring against the gear and check for clearance “A”. If “A” is at or below the limit value replace the synchroniser ring.

   Limit value: 0.5 mm



OUTER AND INNER SYNCHRONISER RING AND SYNCHRONISER CONE

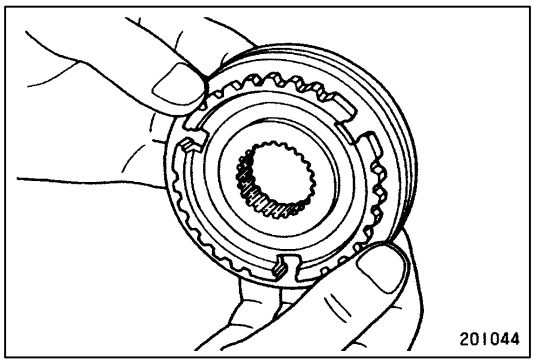
1. The tooth flank of the clutch gear and cone surface must not be damaged or broken.



2. Assemble the outer ring, the inner ring and the cone. Press the assembly against the gear and the clearance “A”. When “A” exceeds the limit value, replace it.

   Limit value: 0.5 mm

   Caution
   The outer ring, inner ring and cone must be replaced as a set.



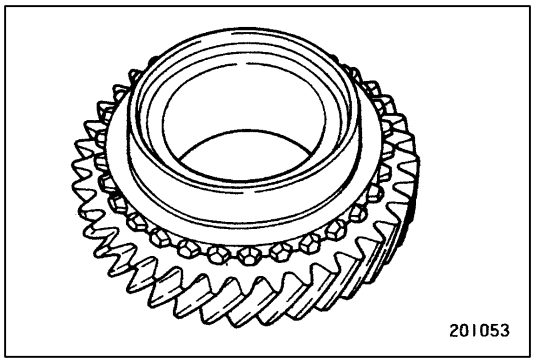
SYNCHRONISER SLEEVE AND HUB

1. When the synchroniser sleeve and the synchroniser hub are combined and moved, there shall be no binding and the sliding movement must be smooth.
2. The synchroniser sleeve inner surface must not be damaged at the front and rear ends.

   Caution
   The synchroniser sleeve and synchroniser hub must be replaced as a set.

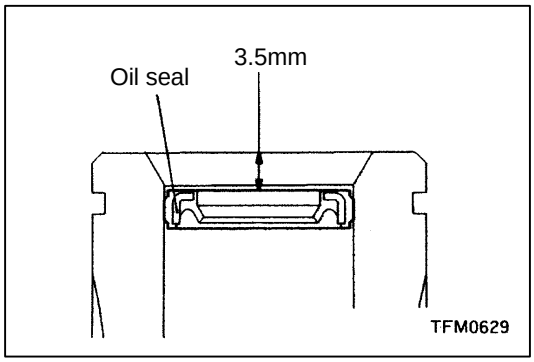
SYNCHRONISER SPRING

1. There must be no wear and tear, deformation, or breakage of the spring.



GEARS

1. The tooth surfaces of each helical gear and clutch gear must be free from damage and wear.
2. The synchroniser cone surface must not be rough, damaged or worn.
3. The gear inside diameter and front and rear surfaces must not be damaged or worn.



INSTALLATION SERVICE POINTS

▶A◀ OIL SEAL

1. Drive in the oil seal up to the dimension shown.

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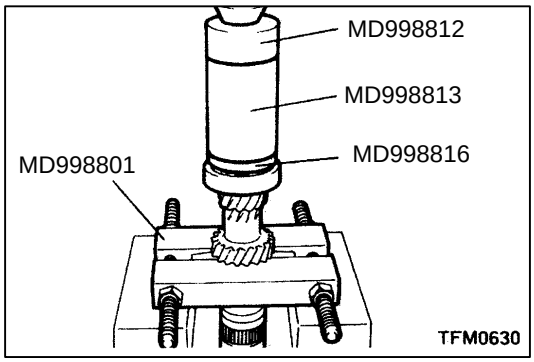
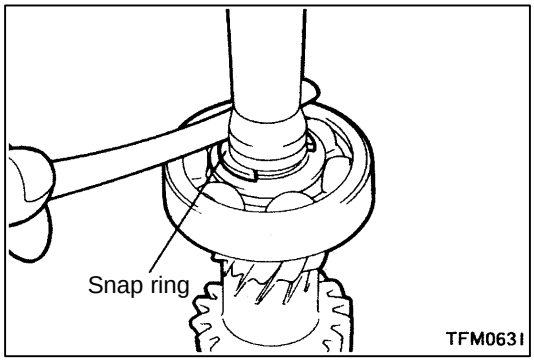


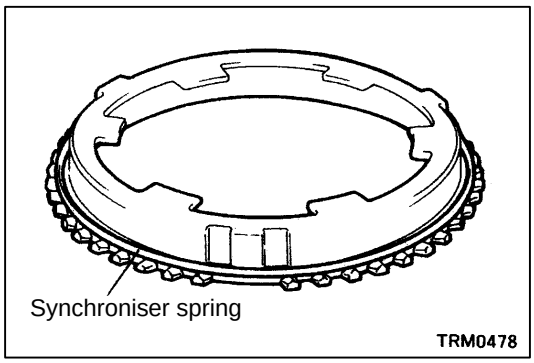
▶B◀ BALL BEARING



▶C◀ SNAP RING

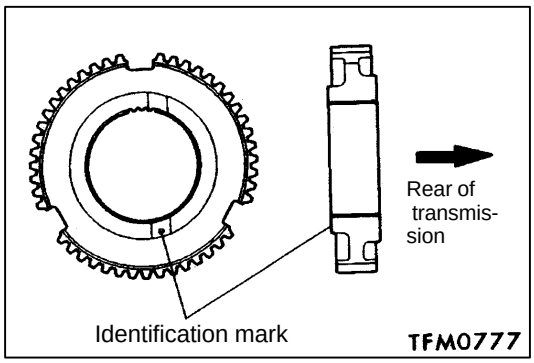
1. Select a snap ring that causes the input shaft front bearing end play to fall within the specified range and install it.

   Standard value: 0.01 – 0.12 mm



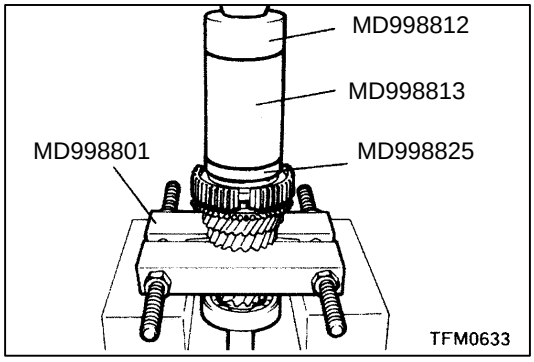
▶D◀ SYNCHRONISER SPRING

1. Install the synchroniser spring on the synchroniser ring at the location shown.



▶E◀ 3RD–4TH SYNCHRONISER HUB

1. Install the 3rd–4th synchroniser hub in the direction shown.



Caution
Press fit 3rd–4th synchroniser hub, making sure the synchroniser ring does not interfere with the hub.

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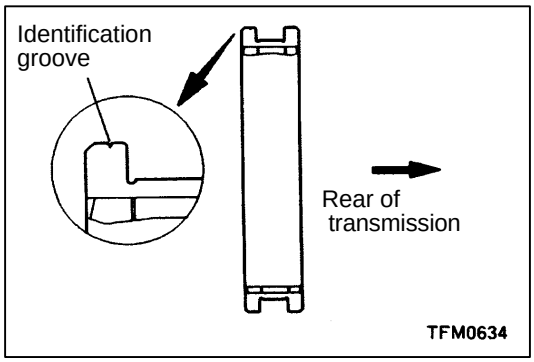
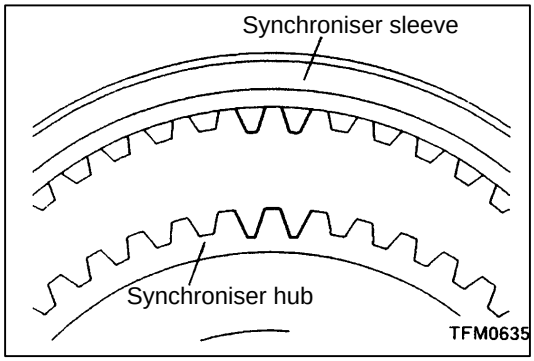
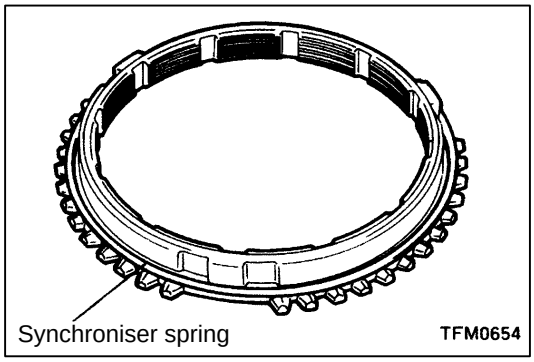


▶F◀ SYNCHRONISER SLEEVE

1. Install the synchroniser sleeve in the direction shown.

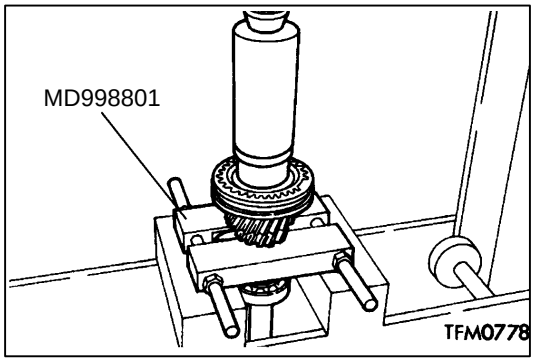


2. To install the sleeve, match the larger depression portion of the synchroniser hub and the larger projection portion of the synchroniser sleeve as shown.

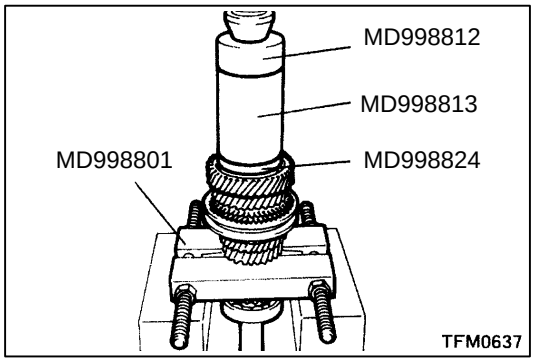


▶G◀ SYNCHRONISER SPRING

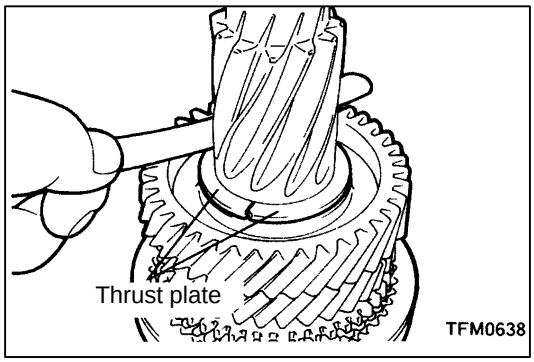
1. Install the synchroniser spring on the synchroniser ring at the location shown.



▶H◀ 4TH GEAR SLEEVE



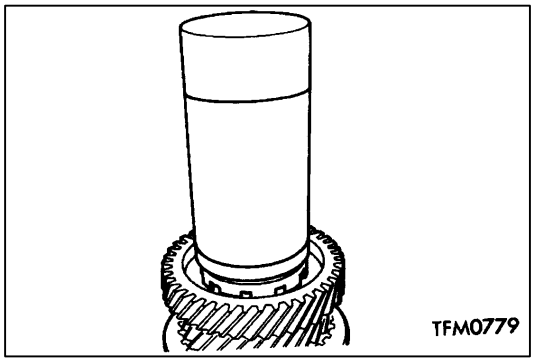
▶I◀ 5TH GEAR



▶J◀ THRUST PLATE

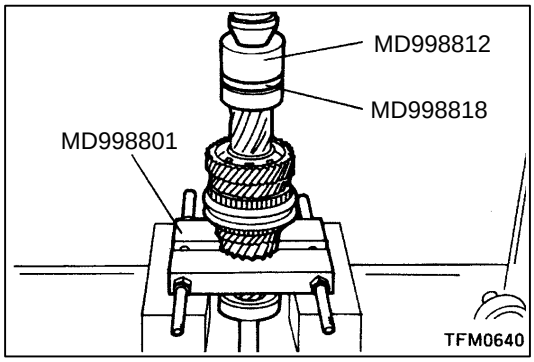
1. Select a thrust plate that causes the input shaft 5th gear end play to fall within the specified range and install it.

   Standard value: 0.01 – 0.09 mm

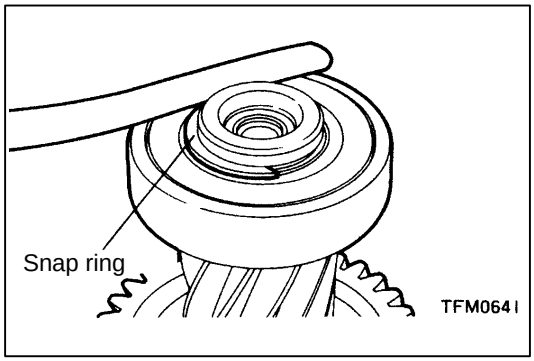


▶K◀ THRUST PLATE STOPPER

1. Press in the special tool by hand so that the thrust plate stopper fits in securely and is not tilted.



▶L◀ BALL BEARING



▶M◀SNAP RING

1. Select a snap ring that causes the input shaft rear bearing end play to fall within the specified range and install it.

   Standard value: 0.01 – 0.12 mm

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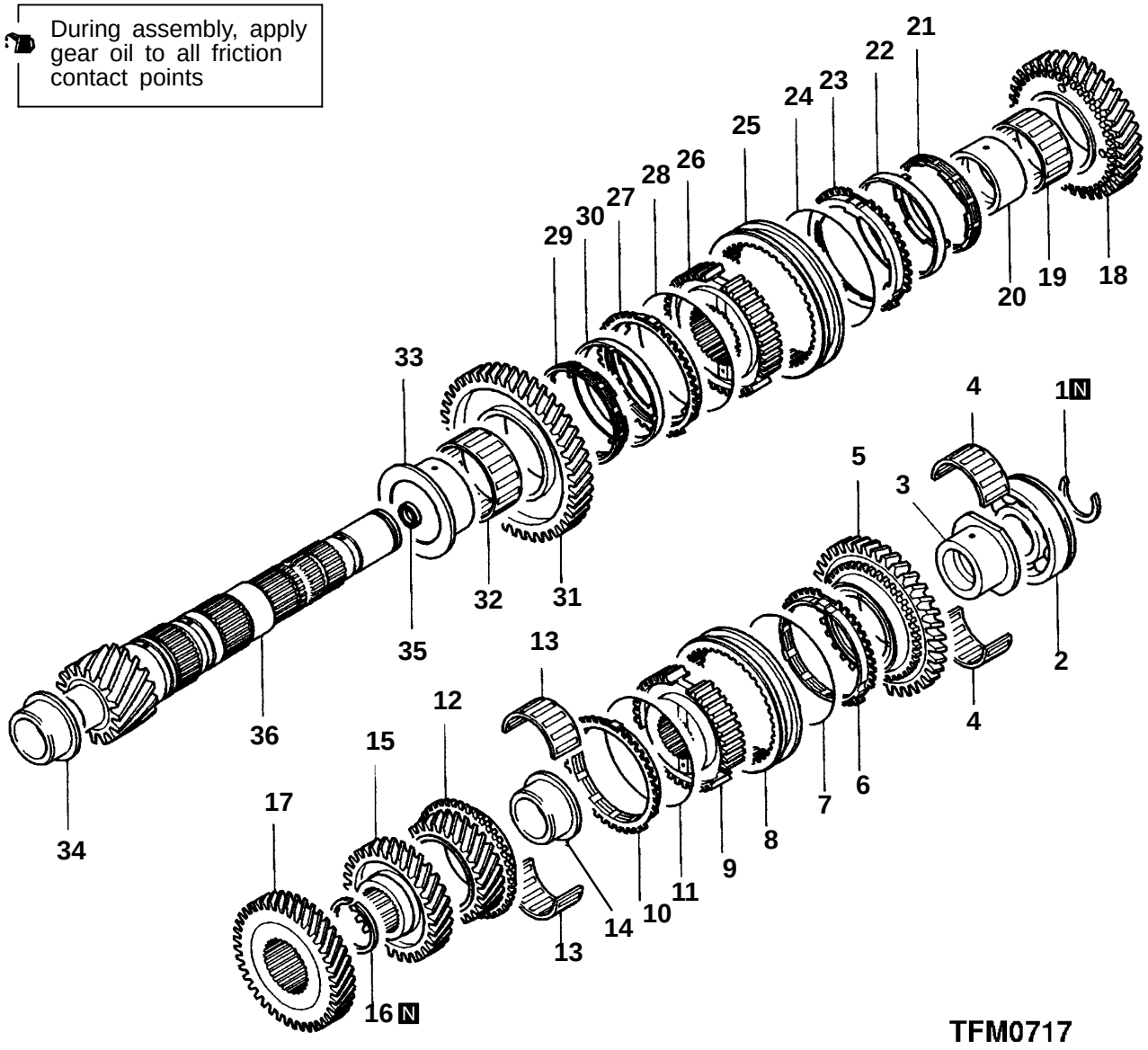
OUTPUT SHAFT

DISASSEMBLY AND REASSEMBLY

During assembly, apply gear oil to all friction contact points



Disassembly steps

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

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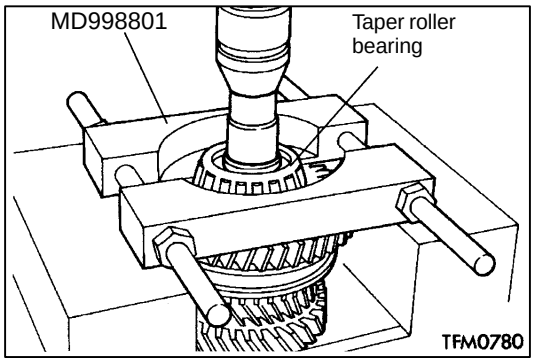
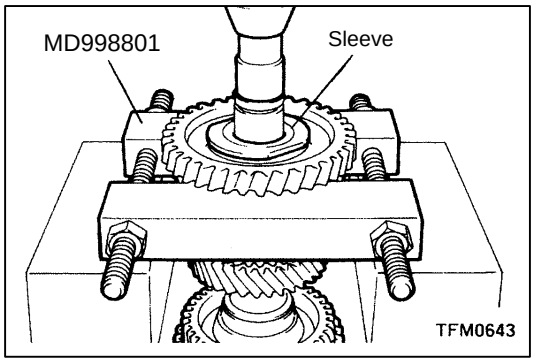


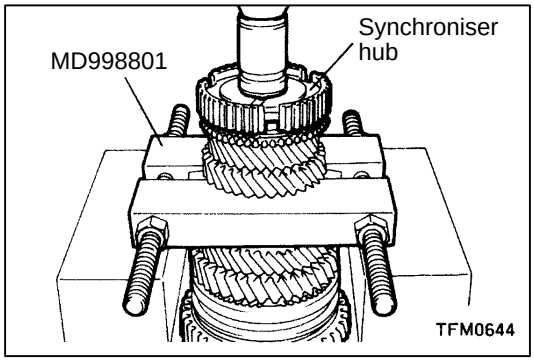
REMOVAL SERVICE POINTS

◀A▶ TAPER ROLLER BEARING



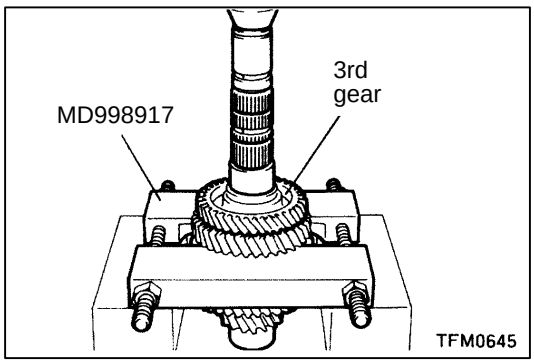
◀B▶ REVERSE GEAR BEARING SLEEVE

1. Attach the special tool to the reverse gear and remove the reverse gear bearing sleeve.



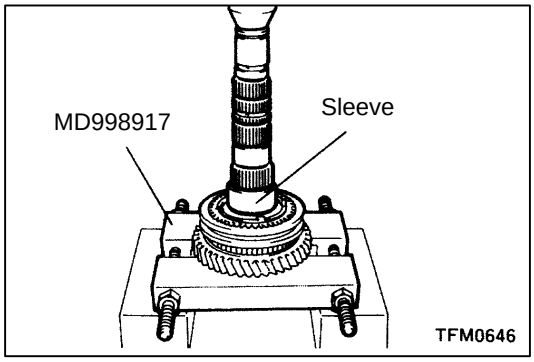
◀C▶ 5TH–REVERSE SYNCHRONISER HUB

1. Attach the special tool to the 4th gear and remove the 5th–reverse synchroniser hub.



◀D▶ 3RD GEAR

1. Attach the special tool to 2nd gear and remove 3rd gear.



◀E▶ 2ND GEAR SLEEVE

1. Attach the special tool to 1st gear and remove 2nd gear sleeve.

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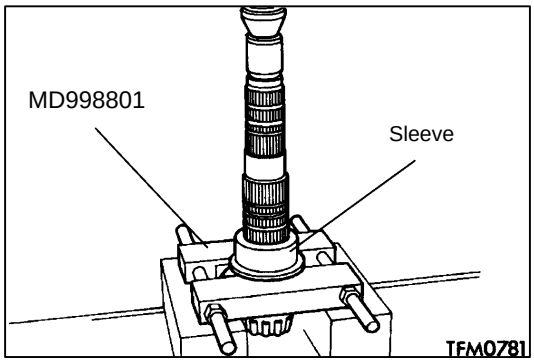
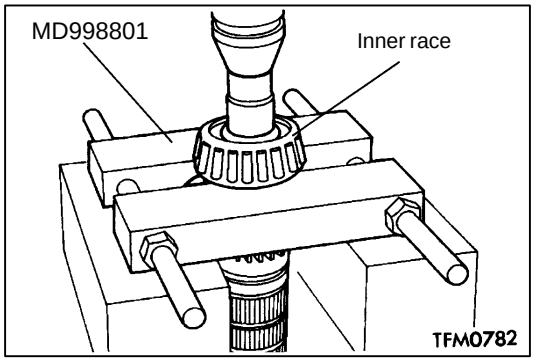
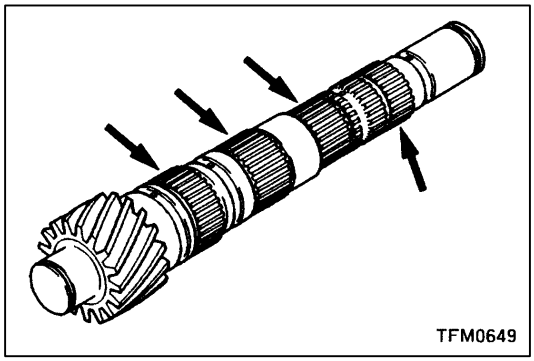


◀F▶ 1ST GEAR SLEEVE



◀G▶ TAPER ROLLER BEARING

1. Attach the special tool to the reverse gear and remove the reverse gear bearing sleeve.



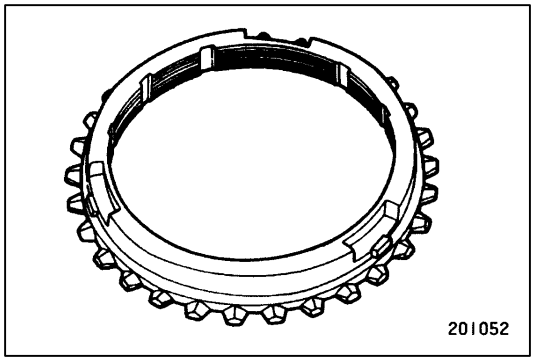
INSPECTION

OUTPUT SHAFT

1. Check for damage and wear of the spline.

NEEDLE BEARING

1. When turned in conjunction with the bearing sleeve and the gear, the needle bearing must rotate smoothly and there must be no looseness or noise.
2. The cage must not be deformed.



NEEDLE BEARING

1. The clutch gear tooth surface must not be damaged or broken.
2. The cone inside diameter must be free from damage and wear. The cone inside thread crests must not be crushed.

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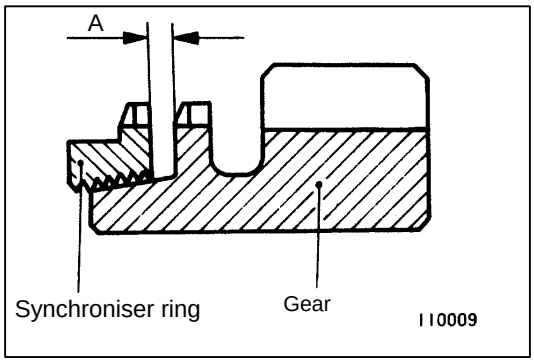
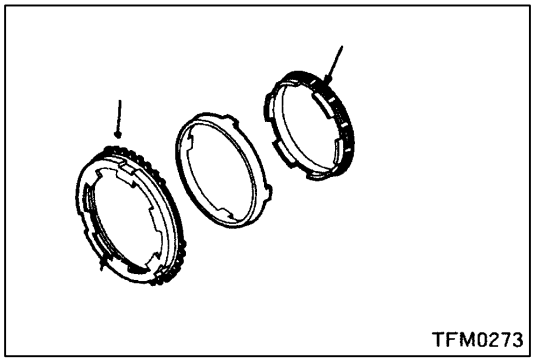


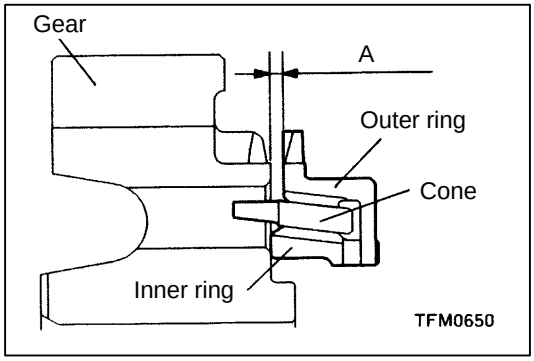
3. Push the synchroniser ring against the gear and check for clearance “A”. If “A” is at or below the limit, replace the synchroniser.

   Limit value: 0.5 mm



OUTER SYNCHRONISER RING, INNER SYNCHRONISER RING AND SYNCHRONISER CONE

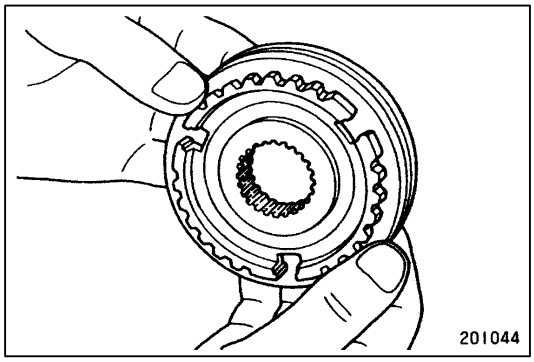
1. The clutch gear tooth surface and cone surface must not be damaged or broken.



2. Assemble the outer synchroniser ring, the inner synchroniser ring and the synchroniser cone, push them against the gear, and check for clearance “A”. Replace the outer ring, the inner ring and the cone when “A” is the limit value or below.

   Limit value: 0.5 mm

   Caution
   The outer synchroniser ring, the inner synchroniser ring and the synchroniser cone must be replaced as a set.



SYNCHRONISER SLEEVE HUB

1. When the synchroniser sleeve and synchroniser hub are combined and moved, there must be no binding and the sliding movement must be smooth.
2. The synchroniser sleeve inner surface must not be damaged at the front and rear ends.

   Caution
   The synchroniser sleeve and the synchroniser hub must be replaced as a set.

SYNCHRONISER SPRING

1. There must be no wear and tear, deformation or breakage of the spring.

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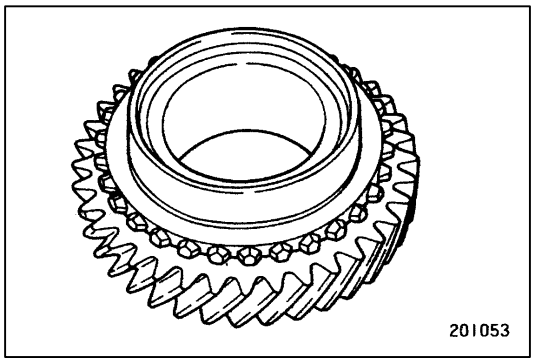
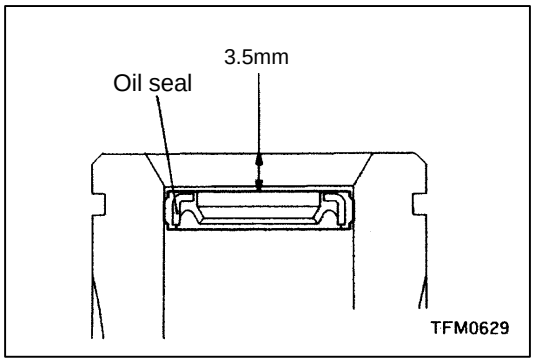


GEARS

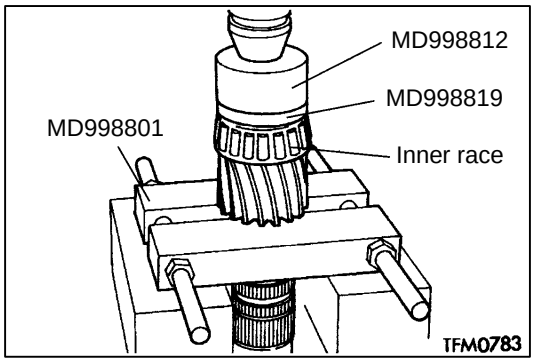
1. The tooth surfaces of each helical gear and clutch gear must be free from damage and wear.
2. The synchroniser cone surface must not be rough, damaged or worn.
3. The gear inside diameter and front and rear surfaces must not be damaged or worn.

INSTALLATION SERVICE POINTS

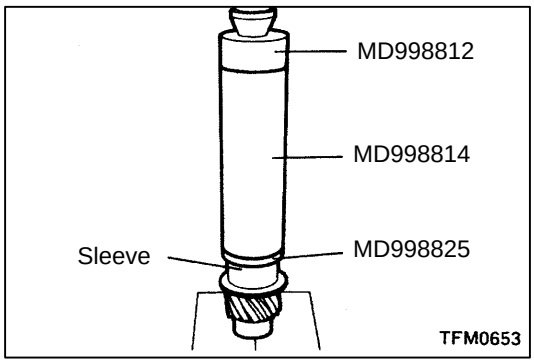


▶A◀ OIL SEAL

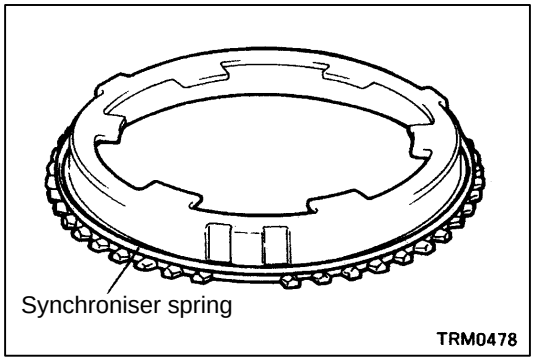
1. Drive in the oil seal securely to the dimensions shown.



▶B◀ TAPER ROLLER BEARING



▶C◀ 1ST GEAR SLEEVE



▶D◀ SYNCHRONISER SPRING

1. Install the synchroniser spring on the synchroniser ring at the location shown.

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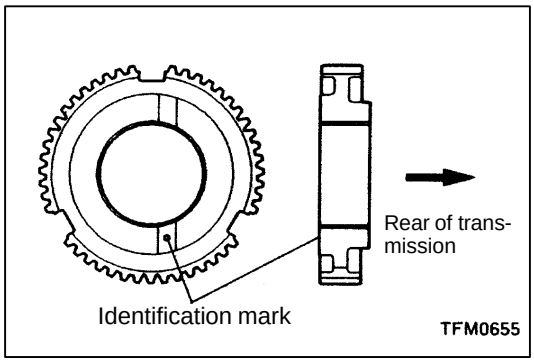
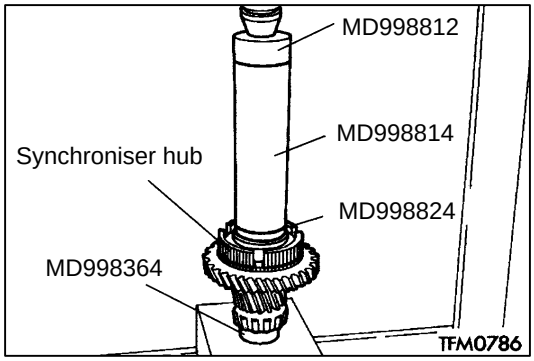
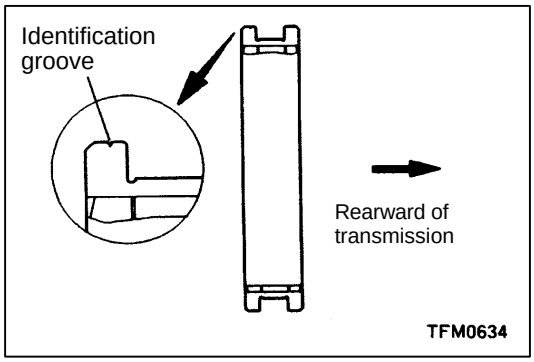


▶E◀ 1ST–2ND SYNCHRONISER HUB

1. Install the 1st–2nd synchroniser hub in the direction shown.

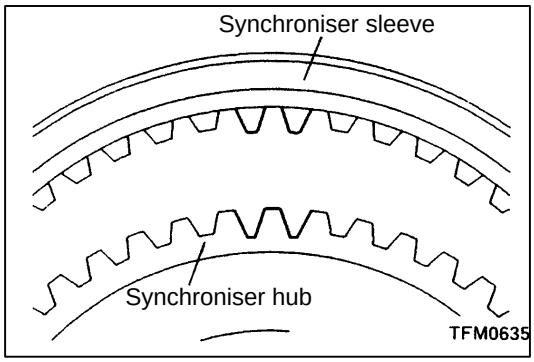


Caution
Press fit the 1st–2nd synchroniser hub so that the synchroniser ring does not interfere with the hub.

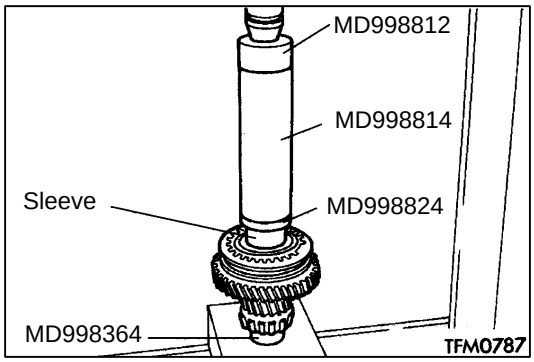


▶F◀ SYNCHRONISER SLEEVE

1. Install the synchroniser sleeve in the direction shown.



2. To install the sleeve, match the larger depression portion of the synchroniser hub and the larger projection portion of the synchroniser sleeve as shown.



▶G◀ 2ND GEAR SLEEVE

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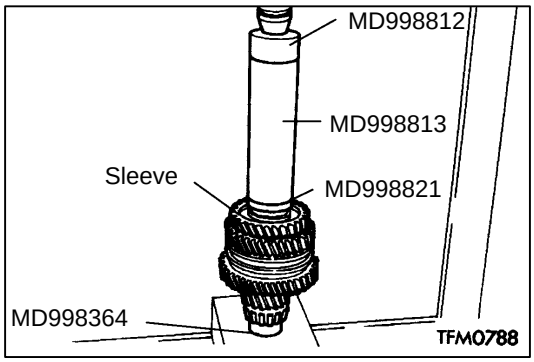
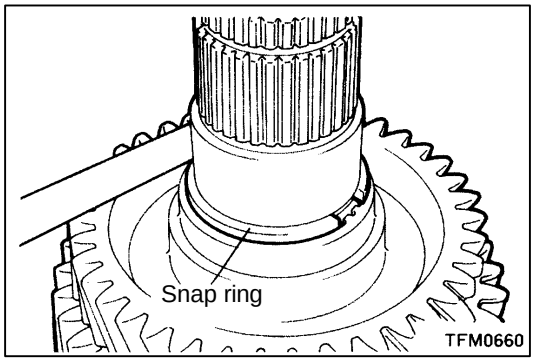


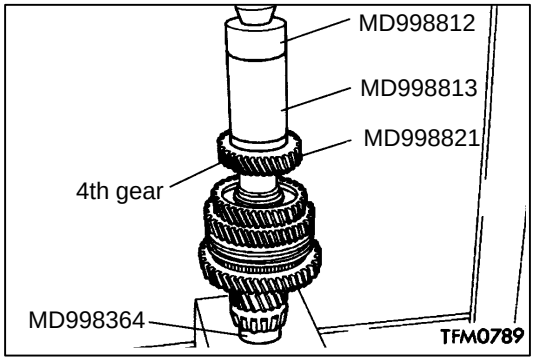
▶H◀ 3RD GEAR



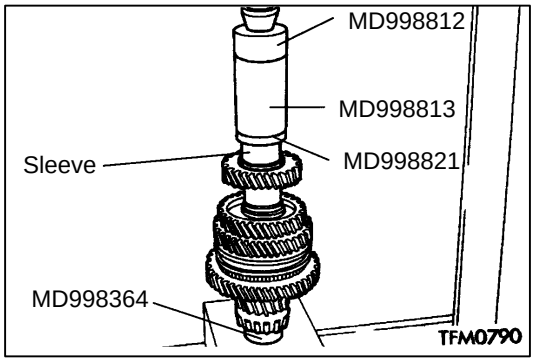
▶I◀ SNAP RING

1. Select a snap ring that causes the output shaft 3rd gear end play to fall within the specified range and install it.

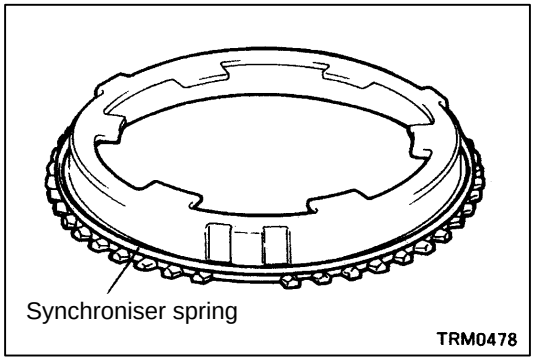
   Standard value: 0.01 – 0.09 mm



▶J◀ 4TH GEAR



▶K◀ 5TH GEAR SLEEVE



▶L◀ SYNCHRONISER SPRING

1. Install the synchroniser spring on to the synchroniser ring at the location shown.

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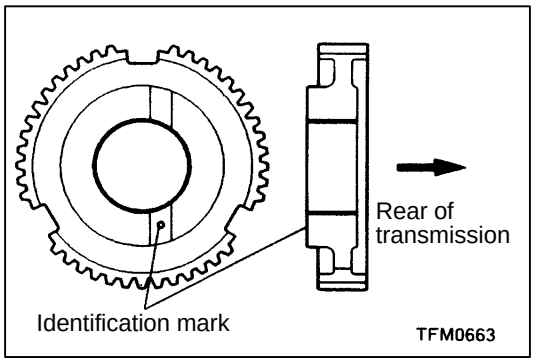
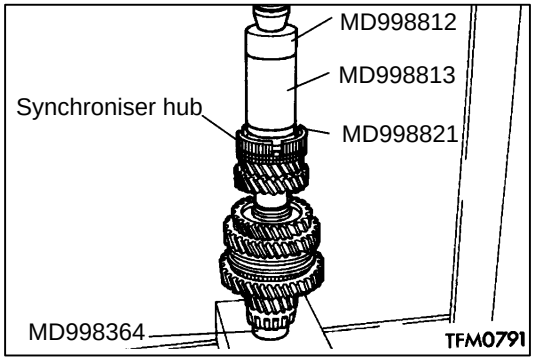
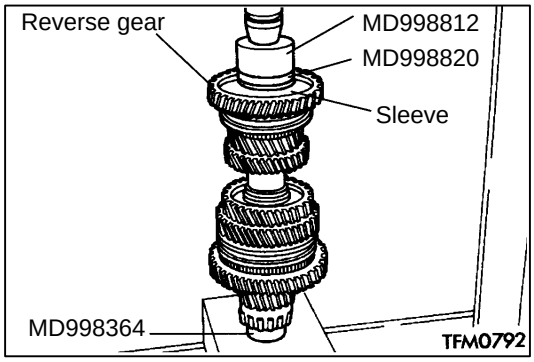


▶M◀ 5TH–REVERSE SYNCHRONISER HUB

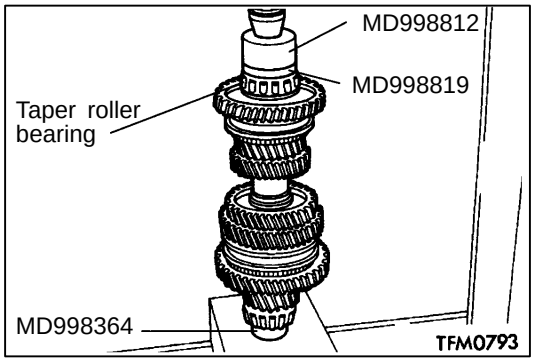
1. Install the 5th–reverse synchroniser hub in the direction shown.



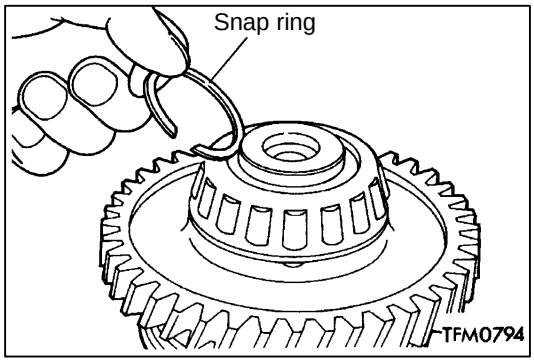
Caution
Press fit the 1st–2nd speed synchroniser hub so that the synchroniser ring does not interfere with the hub.



▶N◀ REVERSE GEAR, NEEDLE ROLLER BEARING AND REVERSE GEAR BEARING SLEEVE



▶O◀ TAPER ROLLER BEARING



▶P◀ SNAP RING

1. Select a snap ring that causes the output shaft rear bearing end play to fall within the specified range and install it.

   Standard value: 0.01 – 0.09 mm

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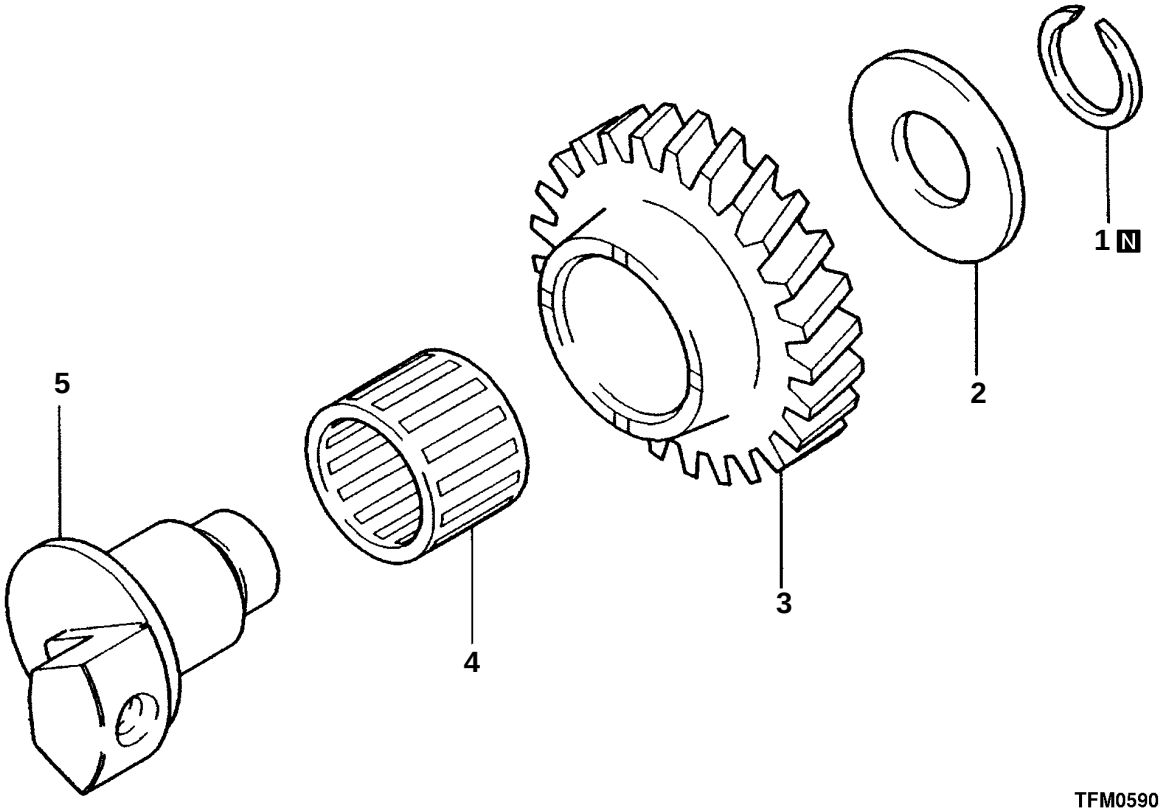
REVERSE IDLER GEAR

DISASSEMBLY AND REASSEMBLY

During assembly, apply gear oil to all friction contact points



Removal steps

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

INSPECTION

1. When turned in conjunction with the shaft and the gear, the needle bearing must rotate smoothly and there must be no looseness or noise.
2. The cage must not be deformed

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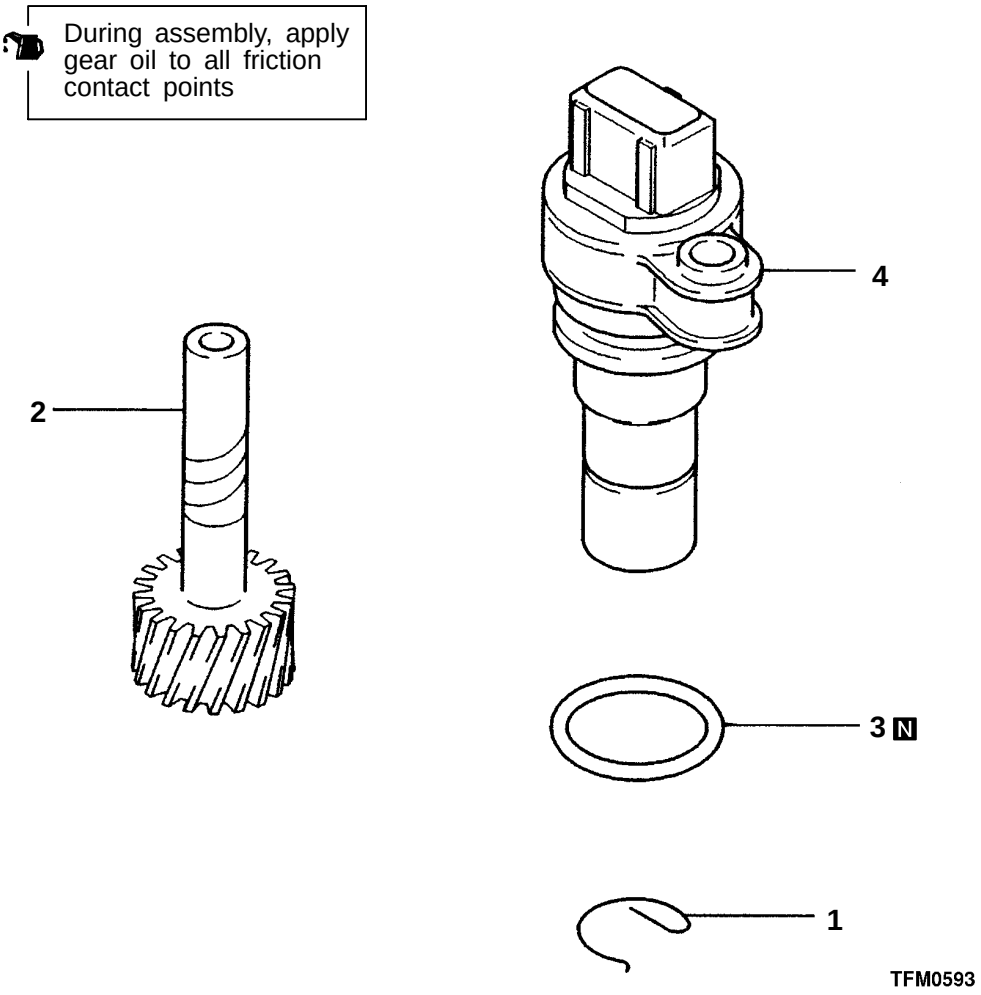
SPEEDOMETER GEAR

DISASSEMBLY AND REASSEMBLY



Removal steps

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

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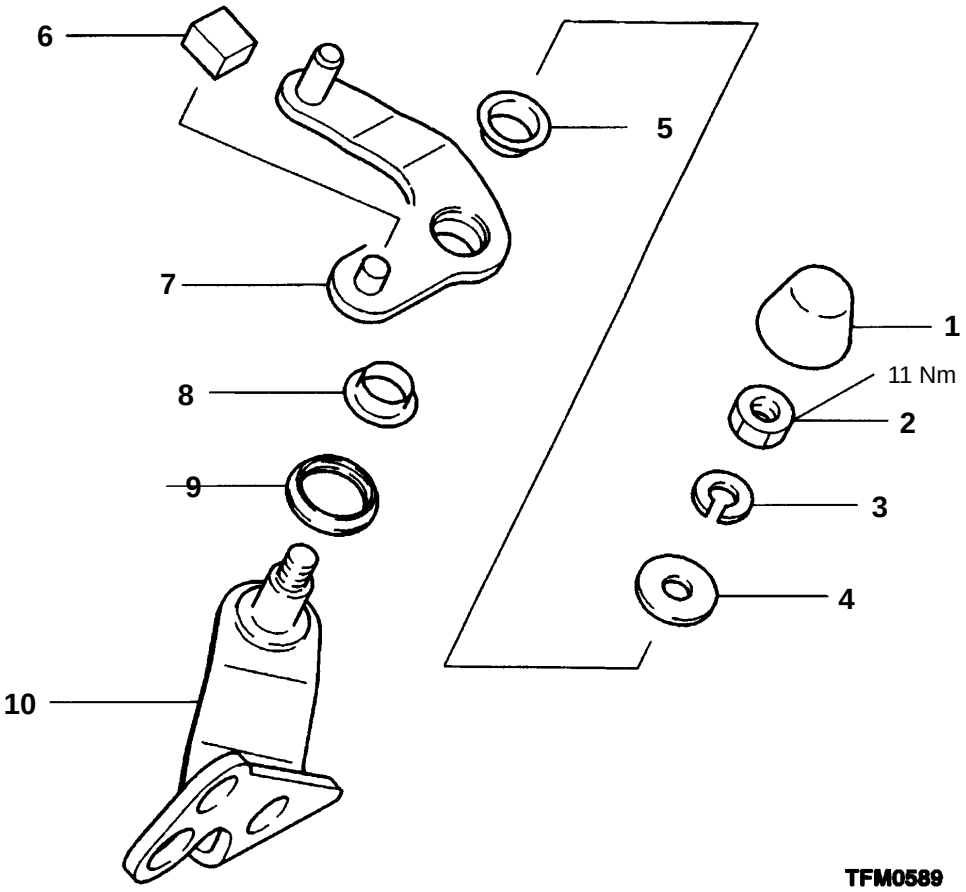
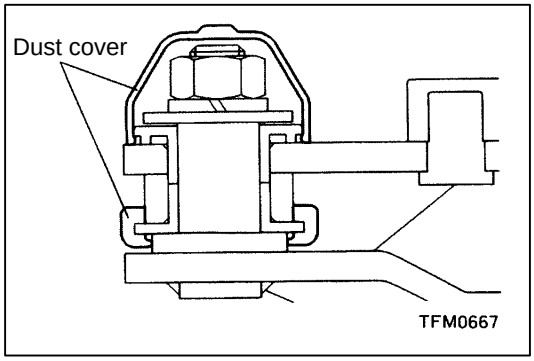
SELECTOR LEVER

DISASSEMBLY AND REASSEMBLY



Disassembly steps

▶A◀ 1. Dust cover
2. Nut
3. Spring washer
4. Plain washer
5. Selector lever bush
6. Selector lever shoe
7. Selector lever
8. Selector lever bush
▶A◀ 9. Dust cover
10. Selector lever shaft



INSTALLATION SERVICE POINTS

▶A◀ DUST COVER

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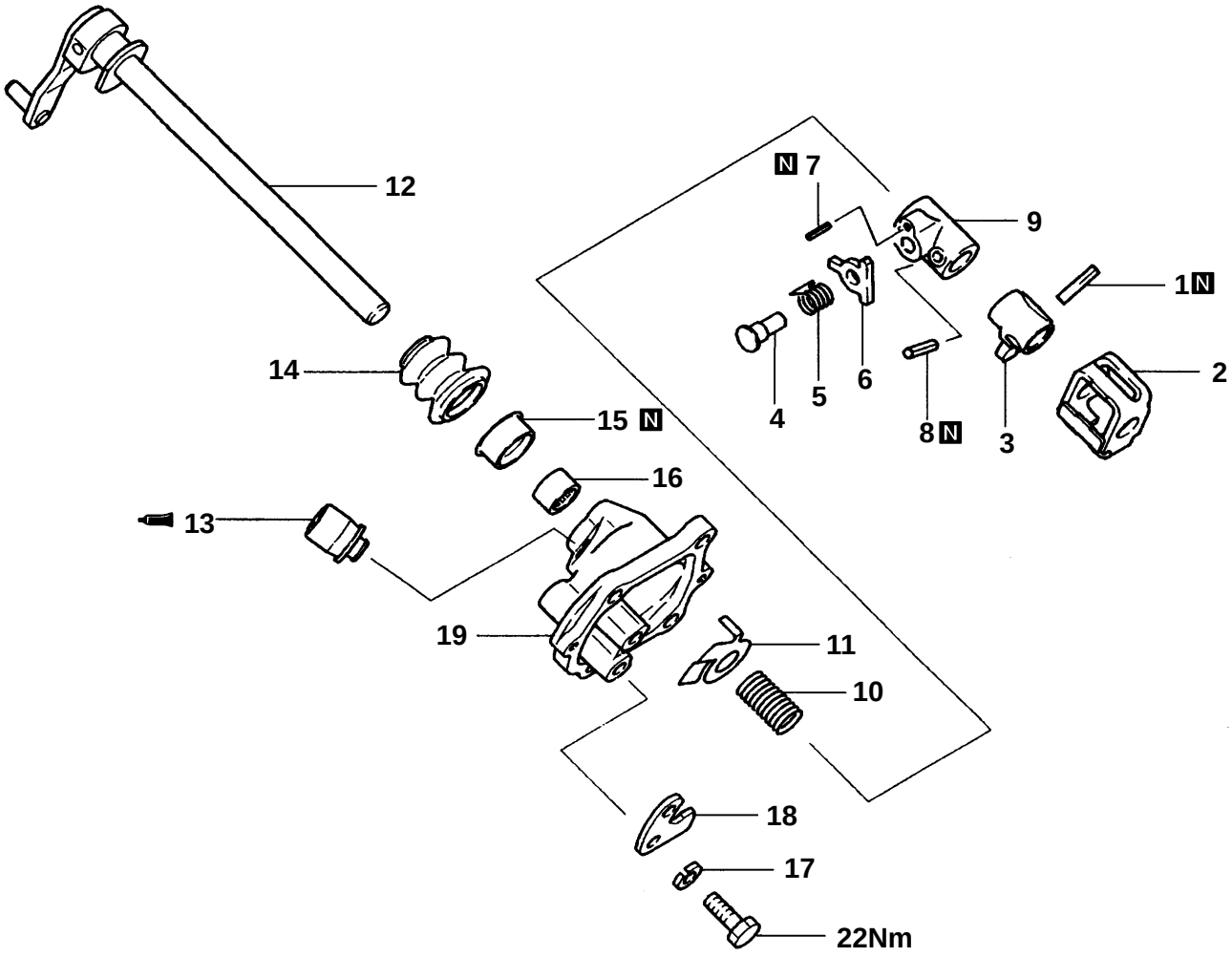
CONTROL HOUSING

DISASSEMBLY AND REASSEMBLY



TFM0588

Disassembly steps

◀A▶ ▶C◀ 1. Lock pin
2. Interlock plate
3. Control finger
4. Pin
5. Return spring
6. Stopper plate
7. Spring pin
8. Spring pin
9. Stopper body
10. Neutral return spring
11. Spacer
12. Control shaft
▶B◀ 13. Breather
14. Control shaft boot
15. Oil seal
▶A◀ 16. Needle bearing
17. Spring washer
18. Stopper bracket
19. Control housing

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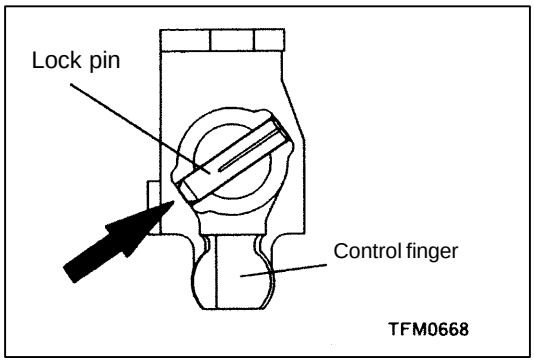
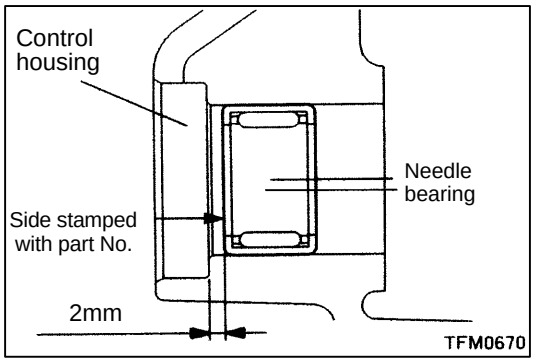


REMOVAL SERVICE POINTS

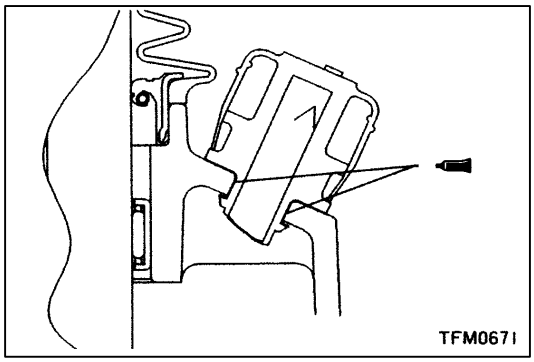
◀A▶ LOCK PIN



INSTALLATION SERVICE POINTS

▶A◀ NEEDLE BEARING

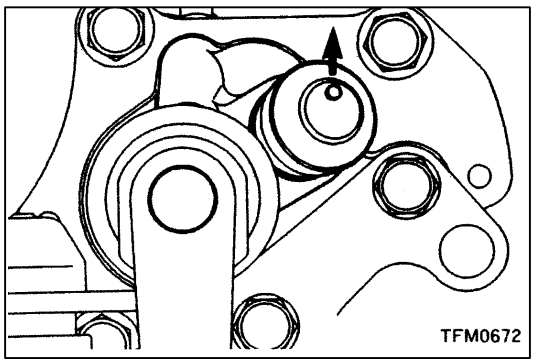
1. Press fit the needle bearing up to the dimension shown, placing the side stamped with the part No. in the direction indicated.



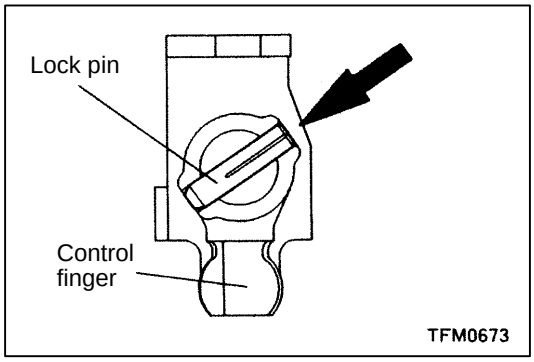
▶B◀ BREATHER

1. Apply sealer to the outer periphery of the insertion portion.

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



2. Install the breather, placing the projecting portion in the direction shown.



▶C◀ LOCK PIN

1. Install the lock pin by striking it in the direction shown.

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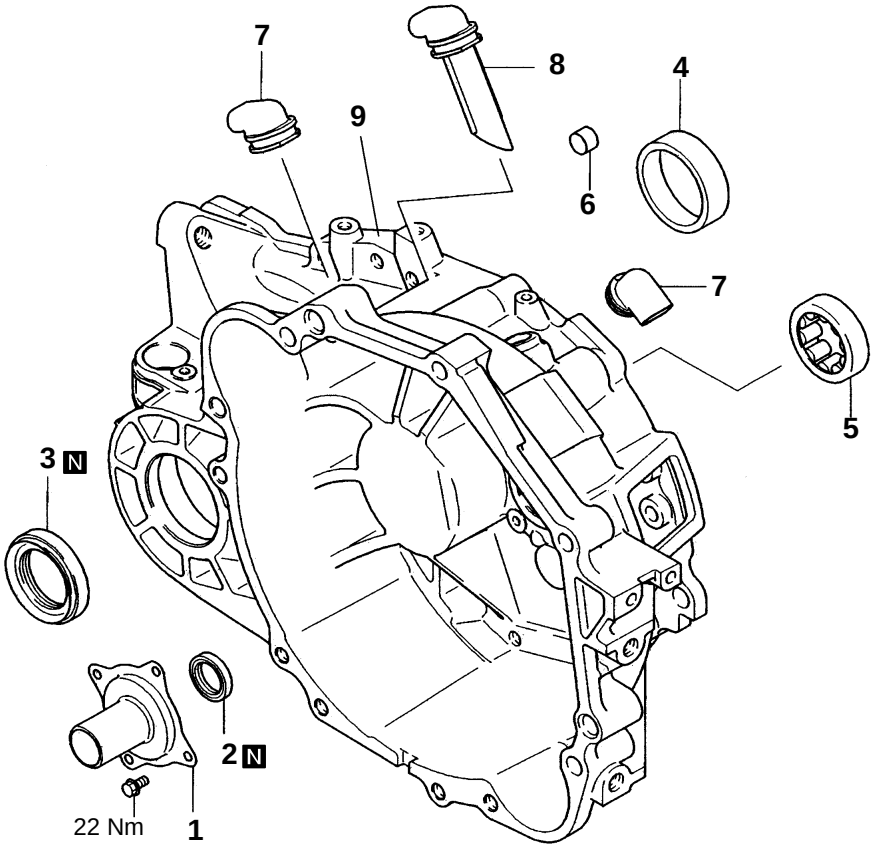
CLUTCH HOUSING

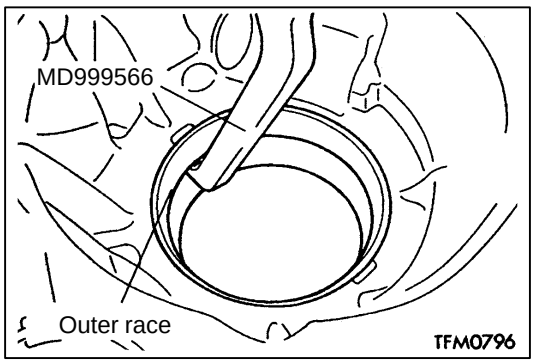
DISASSEMBLY AND REASSEMBLY



TFM0831

Disassembly steps

1. Clutch release bearing retainer
2. ▶F◀ Oil seal
3. ▶E◀ Oil seal
4. ◀A▶ ▶D◀ Outer race
5. ◀B▶ ▶C◀ Outer race
6. ▶B◀ Bush
7. ▶A◀ Cover A
8. ▶A◀ Cover B
9. Clutch housing



REMOVAL SERVICE POINTS

◀A▶ OUTER RACE

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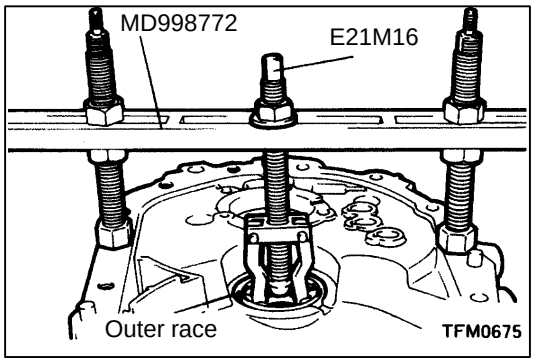
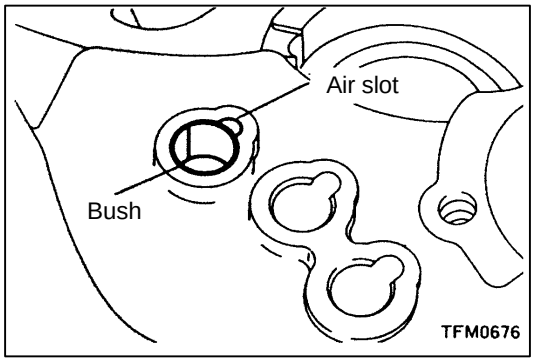


◀B▶ OUTER RACE

INSTALLATION SERVICE POINTS

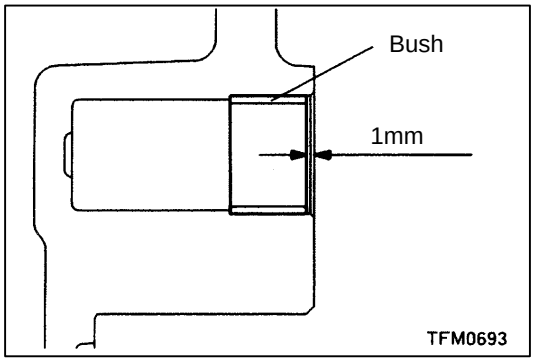
▶A◀ COVER A AND COVER B

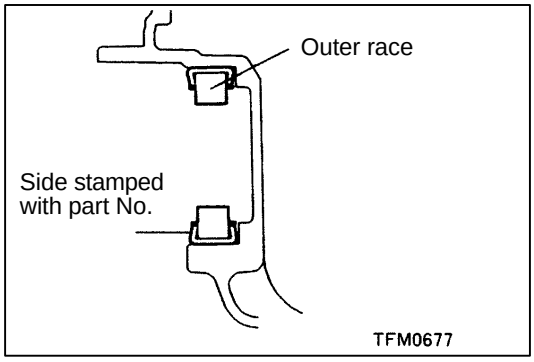
1. Ensure the covers are placed in their correct locations to avoid the cover B contacting the clutch cover. Refer to the previous page clutch housing disassembly and reassembly to establish the covers correct locations.



▶B◀ BUSH

1. Press fit the bush up to the location shown, taking care not to place the split portion of the bush over the air slot in the clutch housing.





▶C◀ OUTER RACE

1. Press fit the outer race, placing the side stamped with the part No. in the direction shown.

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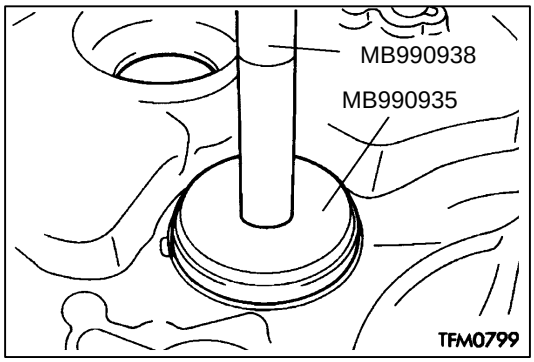
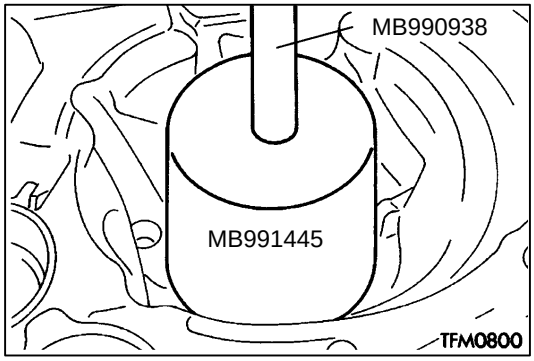
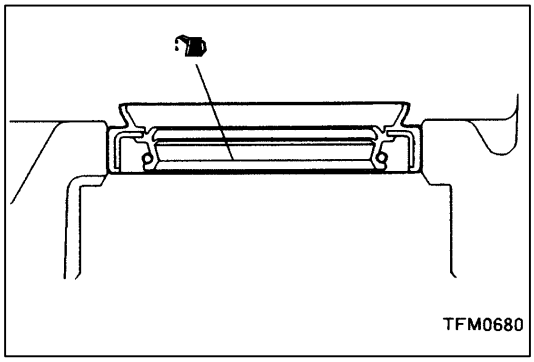




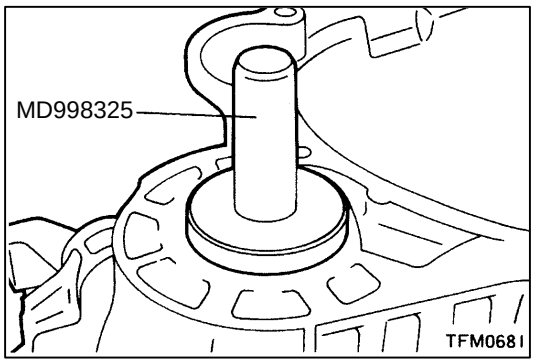
▶D◀ OUTER RACE

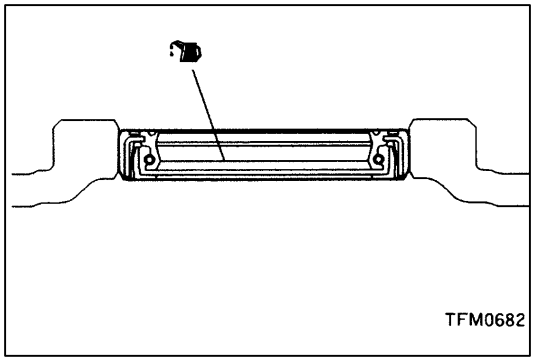


▶E◀ OIL SEAL

1. Apply transmission oil to the lip of the oil seal.

   Specified oil:
   Hypoid gear oil SAE 75W/85W conforming to API classification GL–4





▶F◀ OIL SEAL

1. Fill the lip portion of the oil seal with grease.

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

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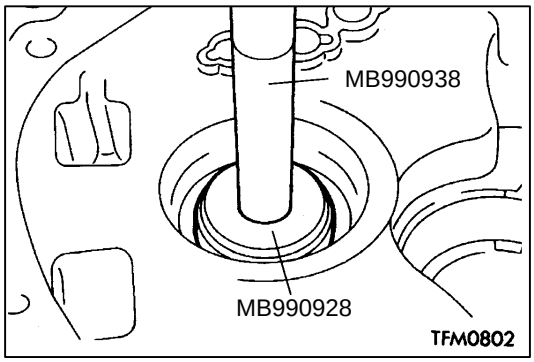

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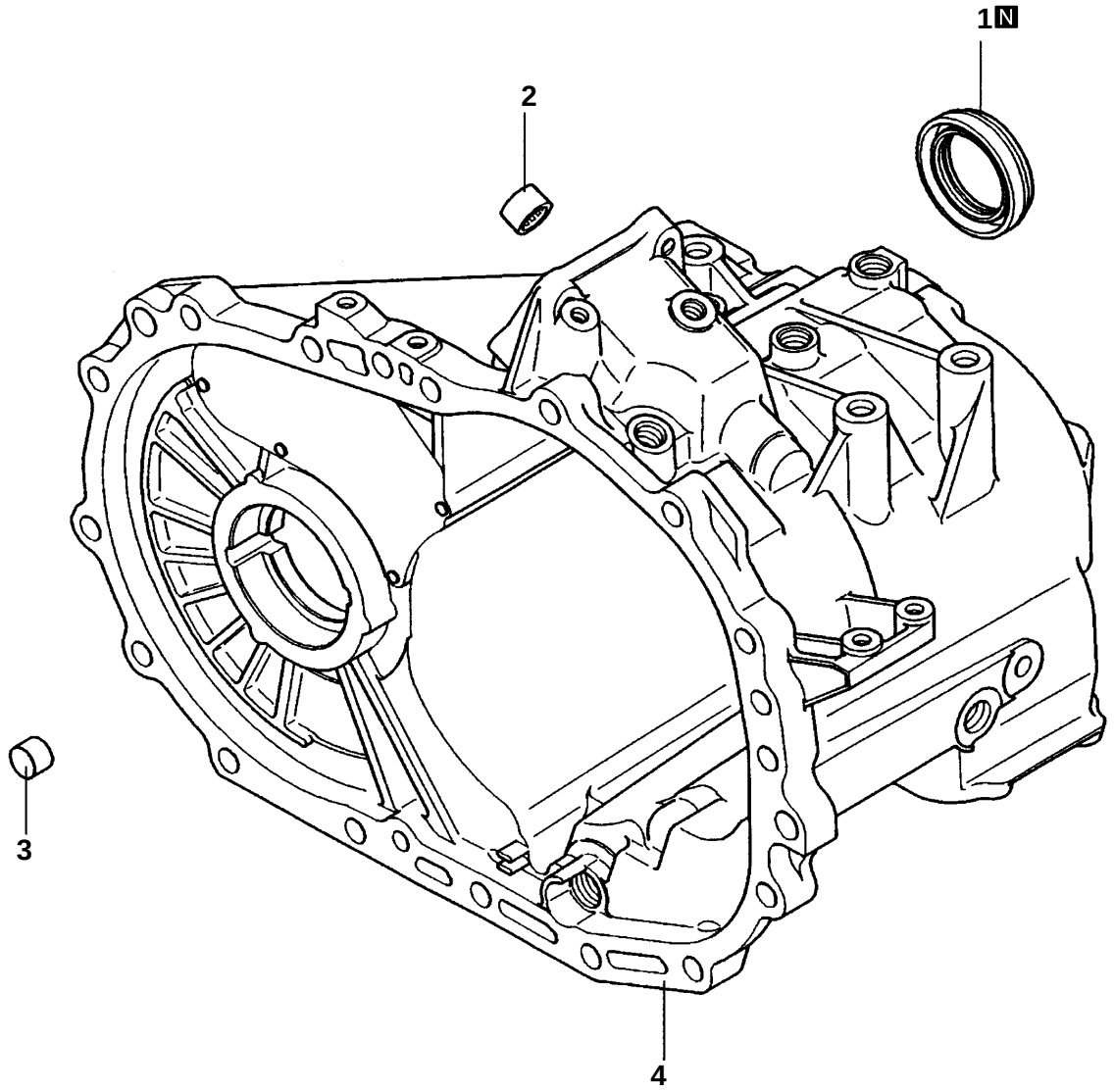
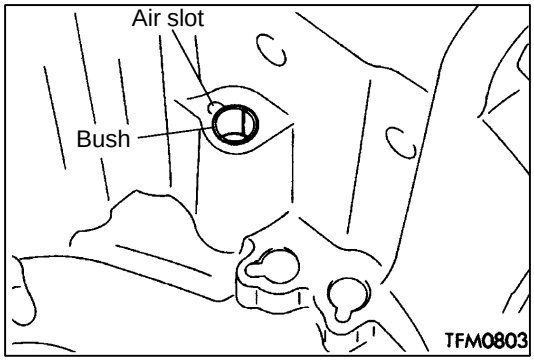
TRANSMISSION CASE

DISASSEMBLY AND REASSEMBLY



Disassembly steps

- ▶C◀ 1. Oil seal
- ▶B◀ 2. Needle bearing
- ▶A◀ 3. Bush
- 4. Transmission case



INSTALLATION SERVICE POINTS

▶A◀ BUSH

1. Press fit the bush up to the location shown, taking care not to place the split potion of the bush over the air slot in the transmission case.

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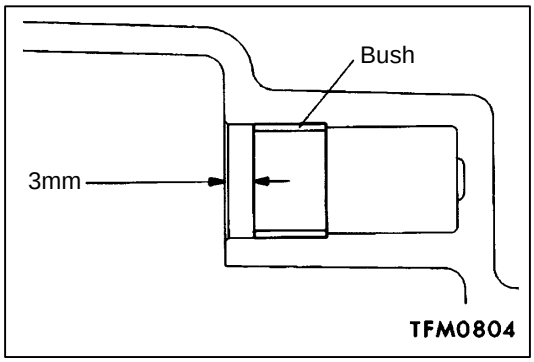
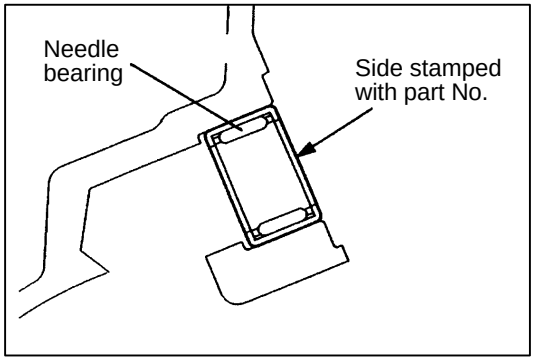
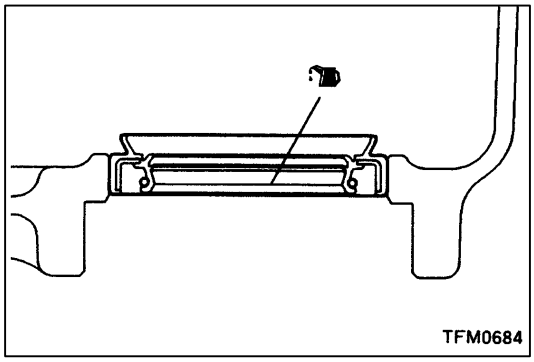




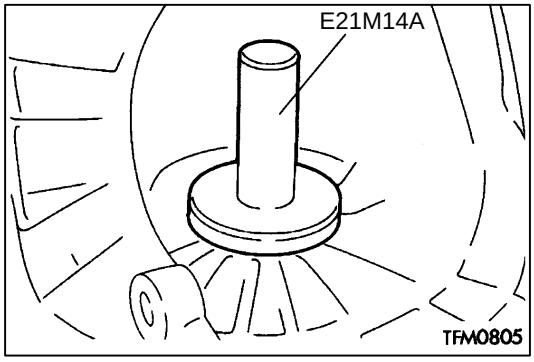
▶B◀ NEEDLE BEARING



▶C◀ OIL SEAL

1. Apply transmission oil to the lip of the oil seal.

   Specified oil:
   Hypoid gear oil SAE 75W/85W conforming to API classification GL-4



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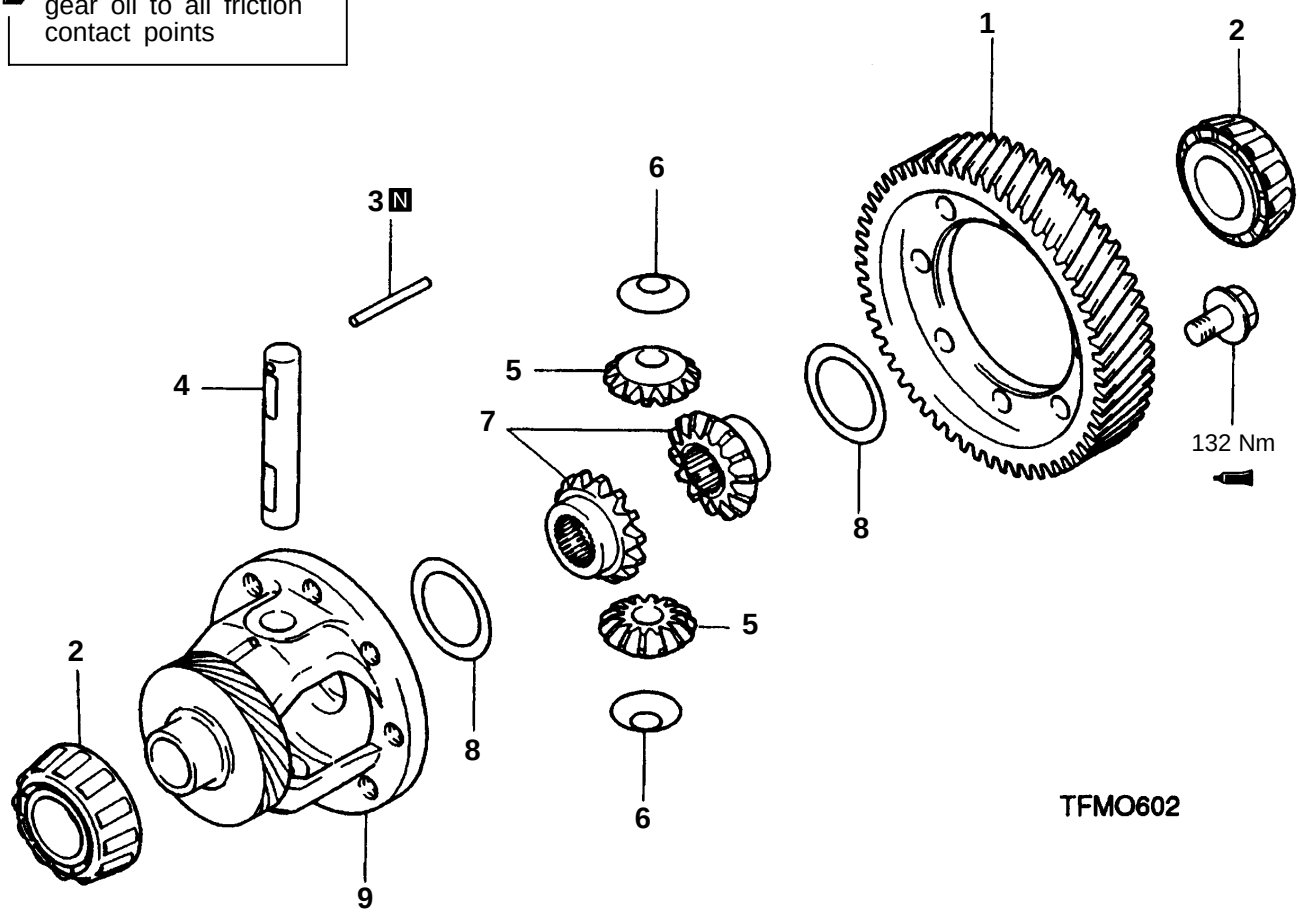
DIFFERENTIAL

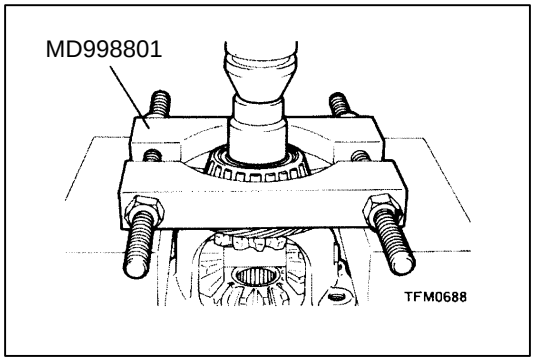
DISASSEMBLY AND REASSEMBLY

During assembly, apply gear oil to all friction contact points



Disassembly steps

◀A▶ ▶C◀ 1. Differential drive gear
◀A▶ ▶B◀ 2. Taper roller bearing
◀B▶ ▶A◀ 3. Lock pin
4. Pinion shaft
5. Pinion
6. Washer
7. Side gear
8. Spacer
9. Differential case



REMOVAL SERVICE POINTS

◀A▶ TAPER ROLLER BEARING

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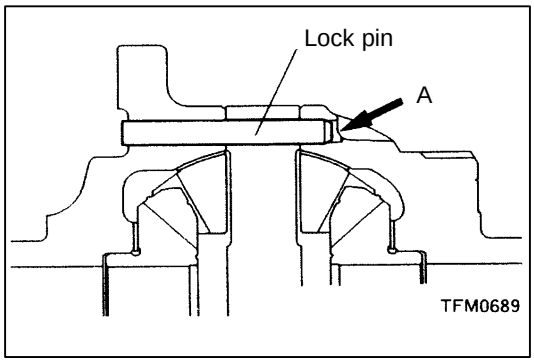
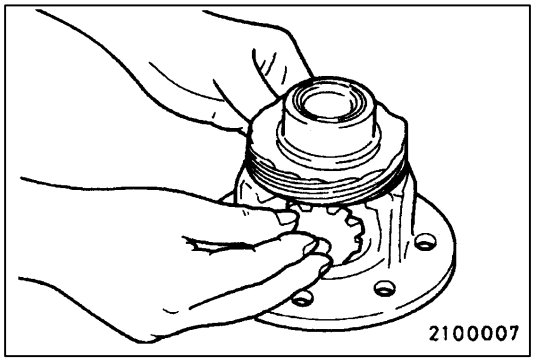


◀B▶ LOCK PIN

1. Strike the lock pin to remove it from hole A.

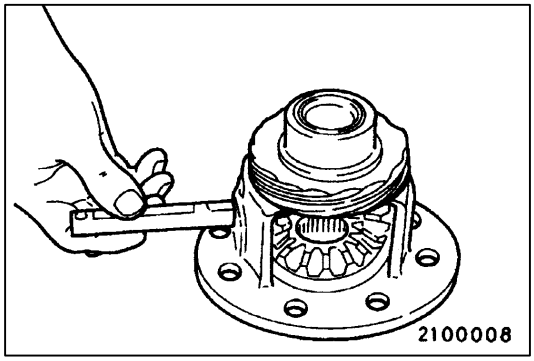


PRE–ASSEMBLY ADJUSTMENTS

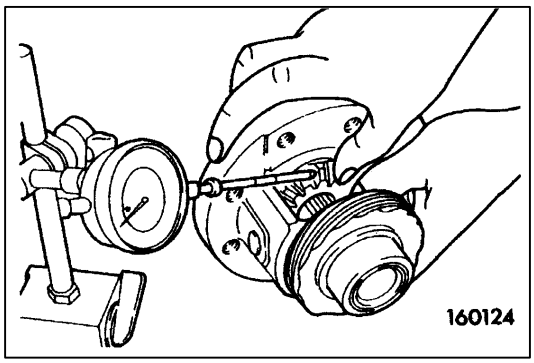
ADJUSTMENT OF PINION BACKLASH

1. After attaching the spacer to the back of the side gear, fit the side gear into the differential case.

   Caution
   When using a new slide gear, use a spacer of medium thickness (0.93 – 1.00 mm)



2. With the washer attached to the back of the pinion, engage both the side gears simultaneously and turn them into position.
3. Insert the pinion shaft.

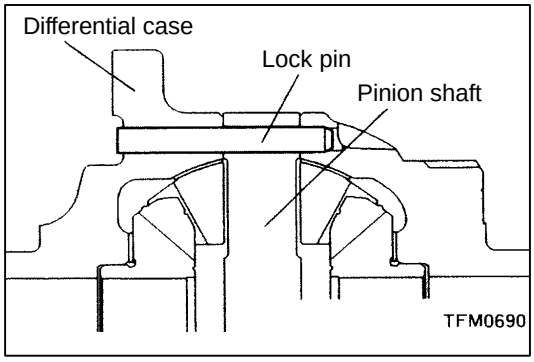


4. Measure the backlash between the side gear and the pinion.

   Standard value: 0.025 – 0.150 mm

5. If the backlash is outside the standard range, select a spacer and re–measure the backlash.

   Caution
   Adjust so that the backlash is the same on both sides.



INSTALLATION SERVICE POINTS

▶A◀ LOCK PIN

1. Align the lock pin holes in the pinion shaft and in the differential case.
2. After confirming that the lock pin press fitting load is 1,960 N or over, press fit the lock pin from the side of the larger chamber at a load of 4,900 N or over.

   Caution
   The lock pin must be lower than the flange surface of the differential case.

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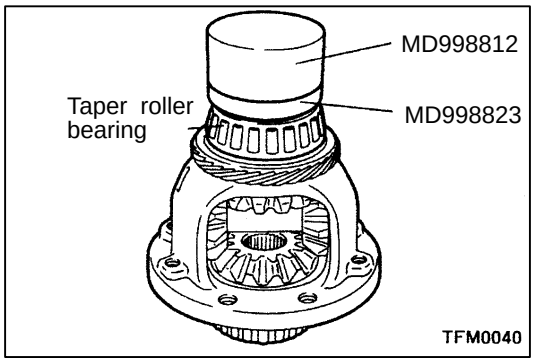
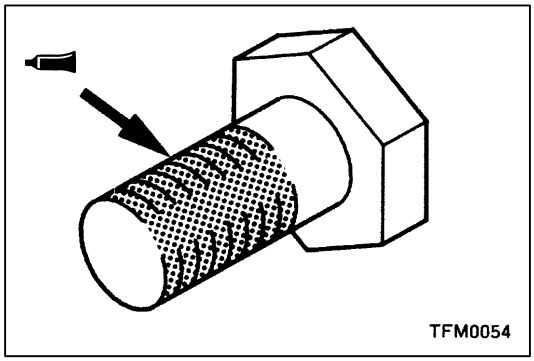
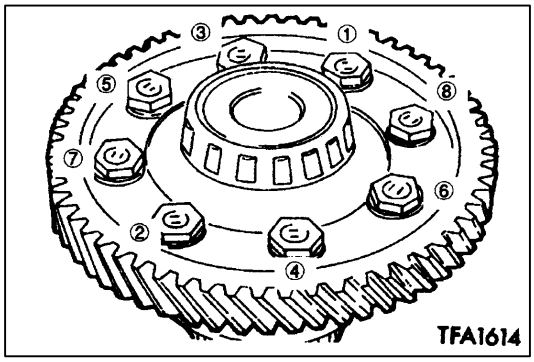


▶B◀ TAPER ROLLER BEARING



▶C◀ DIFFERENTIAL DRIVE GEAR

1. Apply sealer to the entire threaded portion.
   Specified sealant: Loctite 262 or equivalent



2. Tighten to the specified torque in the order shown.