

Adjustment before assembly

Select washer of different thickness to adjust the preload on differential

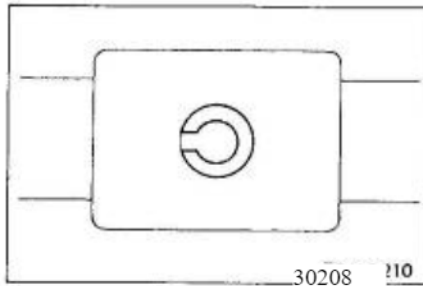
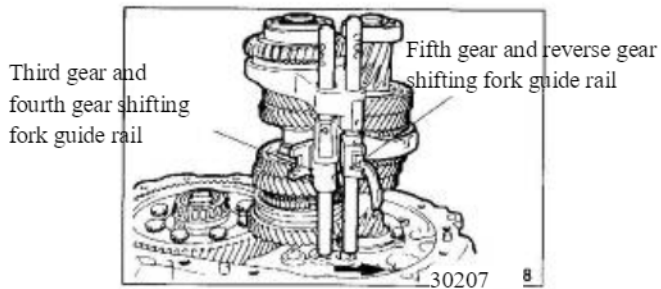
- (1) Place the soldering tin (10mm in length and 1.6mm in diameter) on the gearbox cover as where the figure shows and then fix the bearing outer ring and differential.
- (2) Fix clutch cover and screw the bolt with the required torque.
- (3) If the soldering tin is not flattened, replace it with thicker soldering tin and repeat Step (1) and (2).
- (4) Use a pair of micrometer calipers to measure the thickness (T) of flattened soldering tin and select the washer thickness as per the following equation:
 $(T+0.005\text{mm}) \sim (T+0.1\text{mm})$

Notice for assembling

Fixing of input shaft/output shaft
 Fix input shaft and output shaft simultaneously

Fixing of fifth-gear and reverse-gear shifting fork/fifth-gear and reverse-gear shifting fork guide rail/ third-gear and fourth-gear shifting fork/third-gear and fourth-gear shifting fork guide rail
 (1) Move the third-gear and fourth-gear synchronizer shaft housing and fifth-gear and reverse-gear synchronizer shaft housing in the direction as the figure shows.

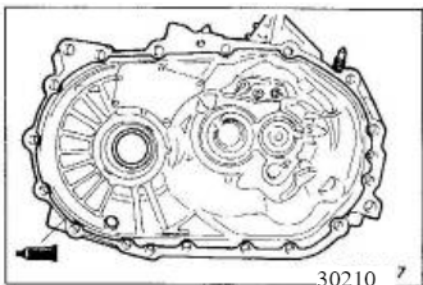
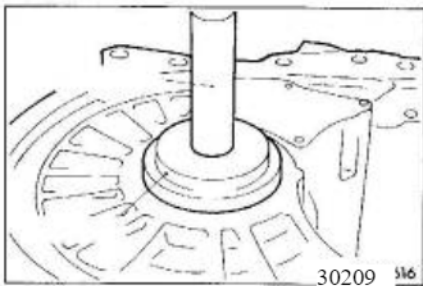
- (2) Fix third-gear and fourth-gear shifting fork and guide rail as well as fifth-gear and reverse-gear shifting fork and guide rail.



(3). Fix the shifting forks in the sleeve and move the shifting fork guide rails in the direction as the figure shows.

Fixing the spring pin

Fixing the washer
Fix the washer selected in the section of "Adjustment before Assembly".



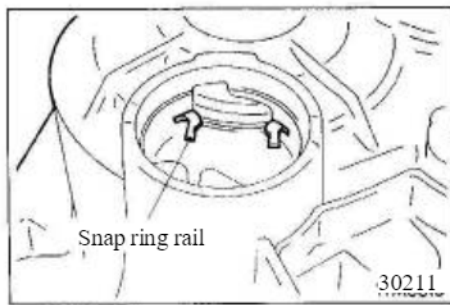
Fixing the outer ring

Fixing the gearbox cover
(1) Squeeze out the sealant, which is 1.5mm in diameter onto the gearbox cover as the figure shows.

Required sealant:
Mitsubishi Sealant Part No MD 997740 or equivalent

Note:

The sealant shall be applied in a continuous and even manner.

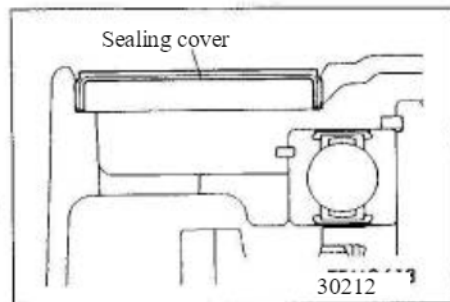


(2) Fix gearbox cover and then expand the spring snap ring.

(3) Tighten the bolt on gearbox cover with the required torque.

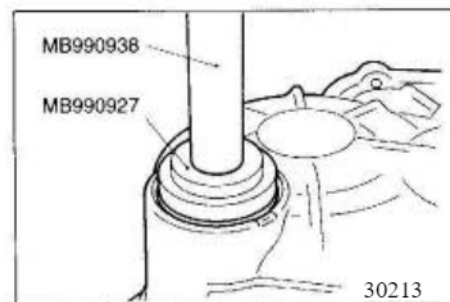
Remarks:

Turn over the gearbox so that the spring snap ring will be automatically wedged into the groove subject to the dead load of the output shaft.



Fixing the sealing cover

Press the sealing cover to the bottom as the figure shows.



Fixing the bottom cover

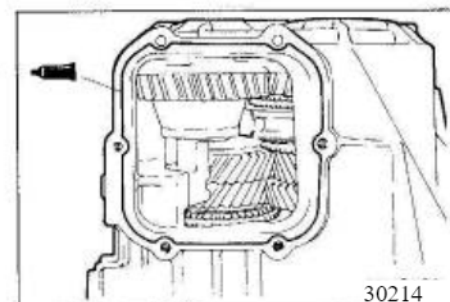
Squeeze out the sealant which is 1.5mm in diameter onto the gearbox cover as the figure shows.

Required sealant:

Mitsubishi Sealant Part No MD 997740 or equivalent

Note:

The sealant shall be applied in a continuous and even manner.



Fixing the controller cover

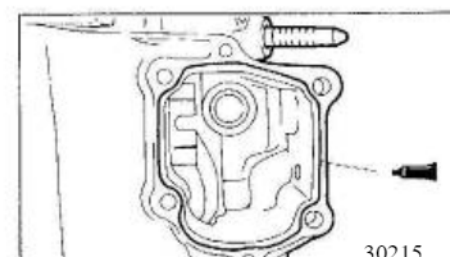
Squeeze out the sealant, which is 1.5mm in diameter onto the gearbox cover as the figure shows.

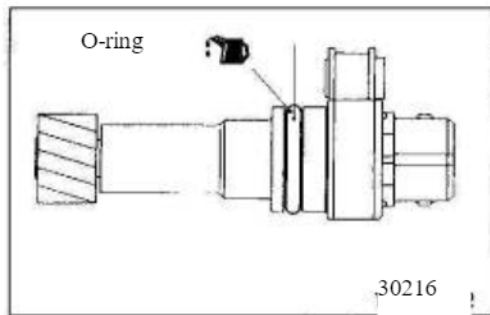
Required sealant:

Mitsubishi Sealant Part No MD 997740 or equivalent

Note:

The sealant shall be applied in a continuous and even manner





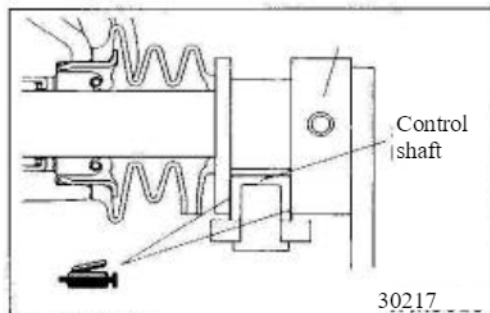
Fixing the speedometer gear

Apply gearbox oil onto the O-ring of the speedometer gear.

Gearbox oil

Hypoid gearbox lubricating oil that complies with API categorization GL-4 or above

SAE 75W-85W

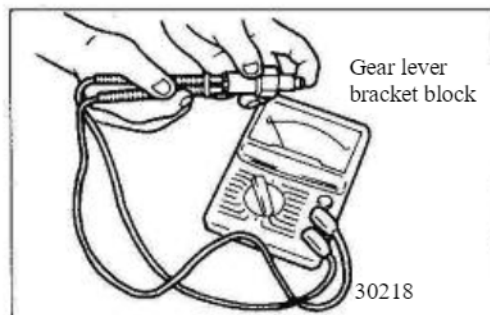


Fixing the gear lever

Apply lubricating grease onto the sliding surface of control shaft of gear lever bracket block.

Required lubricating grease:

Mitsubishi lubricating grease Part No. 0101011 or equivalent



Checking

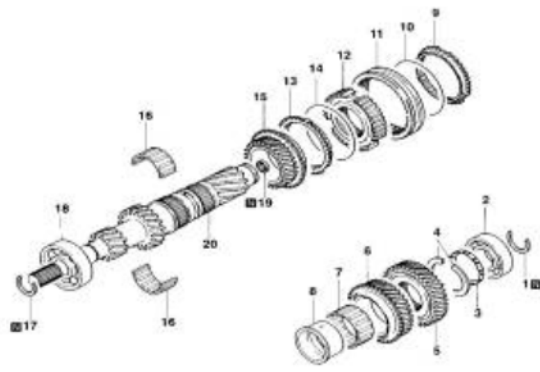
Backup light switch

Check if there is any open circuit between terminals

Switch status	Circuit
Pressed	Open
Released	Closed

Assembly and Disassembly

Input shaft

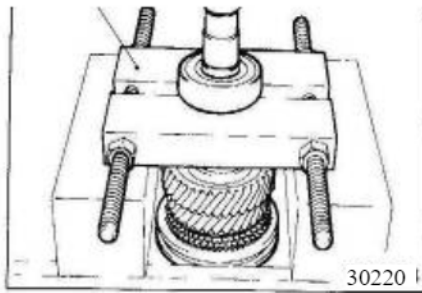


30219

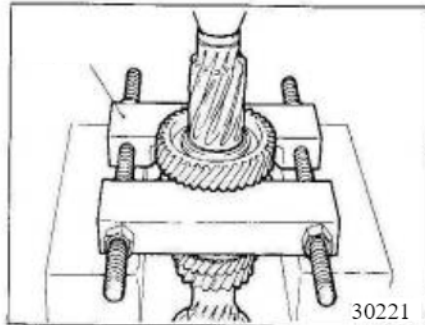
17W0591

Disassembly steps:

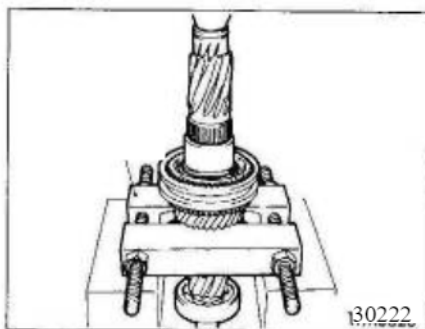
1. Spring snap ring
2. Ball bearing
3. Thrust plate limiter
4. Thrust plate
5. Fifth-speed gear
6. Fourth-speed gear
7. Needle bearing
8. Fourth-speed gear sleeve
9. Synchronizer ring
10. Synchronizer spring
11. Synchronizer sleeve
12. Third-gear and fourth-gear synchronizer hub
13. Synchronizer ring
14. Synchronizer spring
15. Third-gear tooth transmission line
16. Needle bearing
17. Spring snap ring
18. Ball bearing
19. Oil seal
20. Input shaft



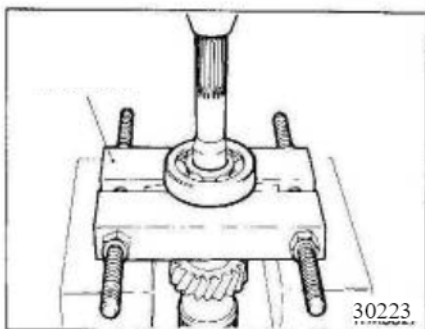
Notice for disassembly
Unfixing the ball bearing



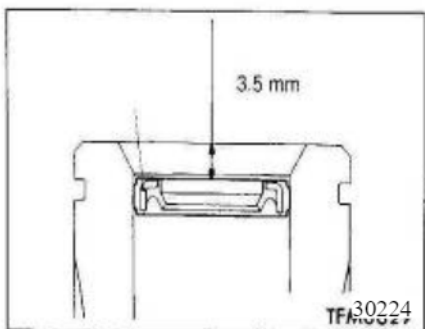
Unfixing the fifth-speed gear



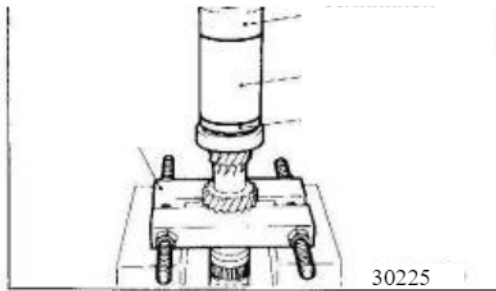
Unfixing the fourth-speed gear sleeve
Fix special tools onto the third-speed gear to unfix fourth-speed gear sleeve.



Unfixing the ball bearing



Notice for assembly
Fixing the oil seal
Press the oil seal in until the dimension shown in the figure is acquired.

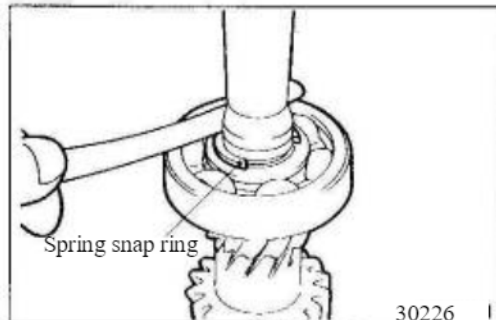


Fixing the ball bearing

Fixing the spring snap ring

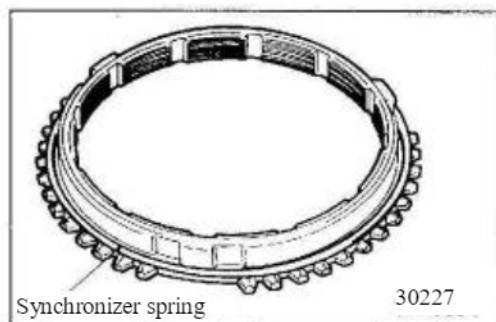
Select the appropriate thickness of spring snap ring so that the axial clearance of the front bearing of input shaft complies with standard.

Standard value: -0.01~0.12mm



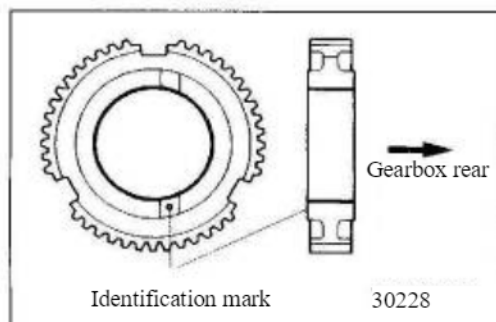
Fixing the synchronizer spring

Fix the synchronizer spring onto the synchronizer ring as the figure shows.



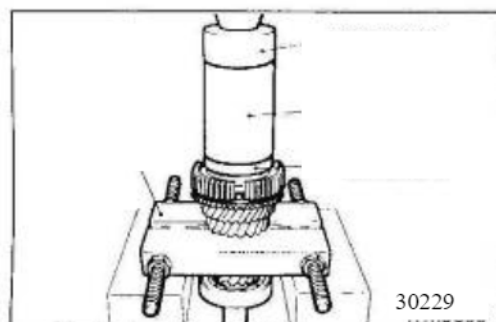
Fixing the third-gear and fourth-gear synchronizer hub

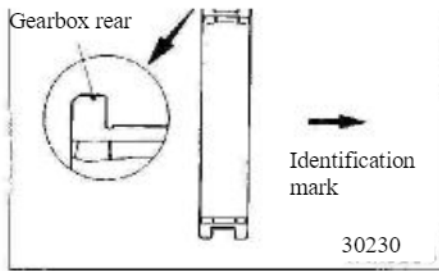
Fix the third-gear and fourth-gear synchronizer hub as the figure shows.



Note:

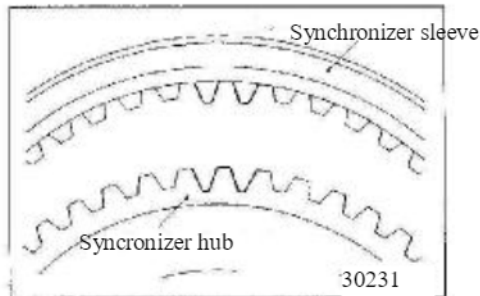
Please make sure that the synchronizer ring is not stuck during fixing of synchronizer hub.





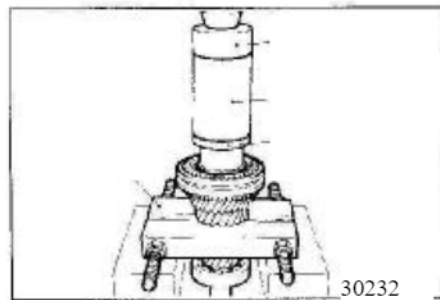
Fixing the synchronizer sleeve

(1) Fix the synchronizer sleeve in the direction as the figure shows.

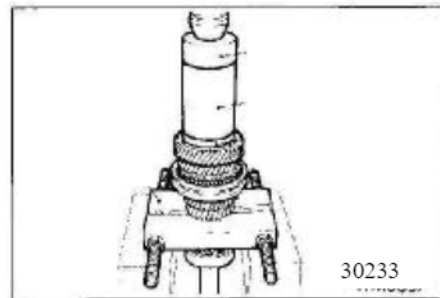


(2) Please ensure that the two teeth grooves of the synchronizer hub matches with the two high racks of the sleeve during fixing of the synchronizer sleeve.

Fixing the fourth-speed gear sleeve



Fixing the fifth-speed gear

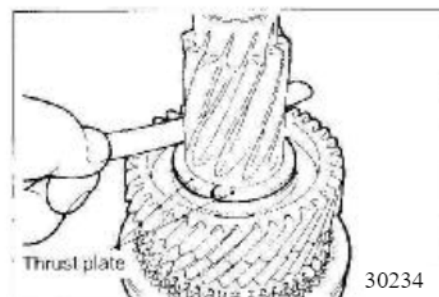


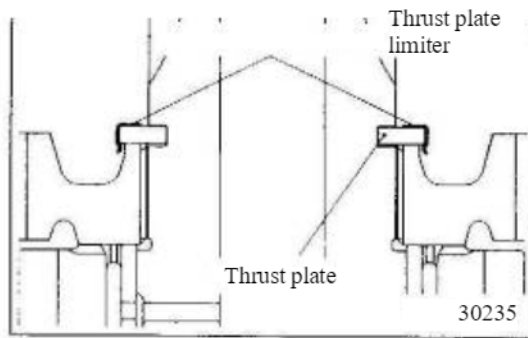
Fixing the gearbox cover

Select the thrust plate of proper thickness so that the axial clearance of the fifth-speed gear complies with the standard.

Standard value:

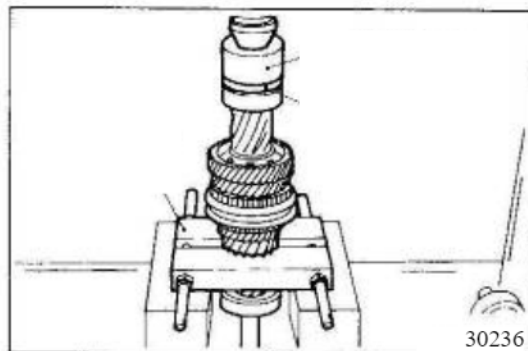
-0.01 – 0.09mm



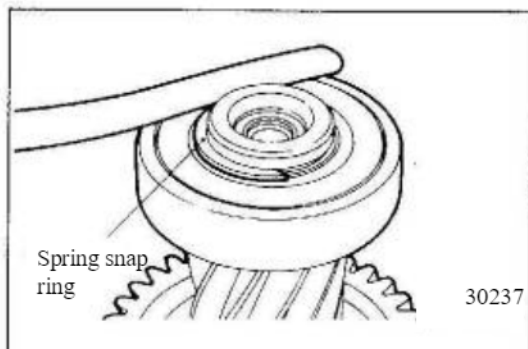


Fixing the thrust plate limiter

Please ensure that the thrust plate is not tilted during fixing.



Fixing the ball bearing

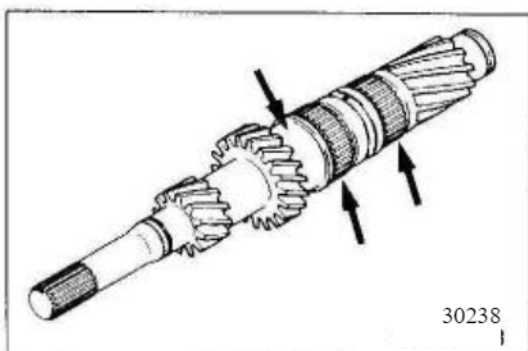


Fixing the spring snap ring

Select the thrust plate of proper thickness so that the axial clearance of the rear gear of the input shaft complies with the standard.

Standard value:

-0.01 – 0.12mm



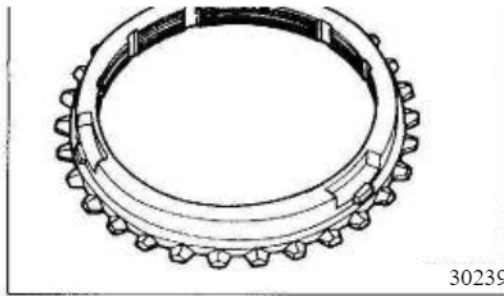
Checking

Input shaft

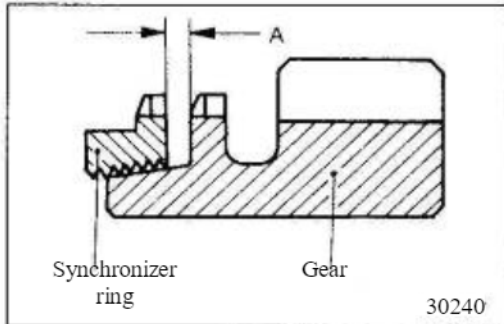
- (1) Check if the needle bearing outer ring suffers any damage, abnormal wear or being locked, etc.
- (2) Check if the spline suffers any damage or wear.

Needle bearing

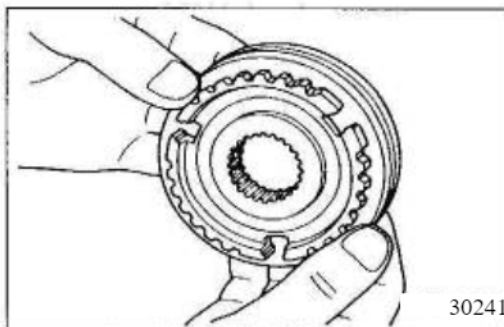
- (1) Check if the input shaft and the gear are correctly assembled and running smoothly and if there is any loosening or noise, etc.



30239



30240



30241

Synchronizer ring

- (1) Check if there is any damage on the tooth surface of the clutch gear.
- (2) Check if there is any damage, wear, and thread damage in the inner diameter of the conical part.

- (3) Check clearance "A" when the synchronizer ring is pressed against the bearing.

In case "A" is smaller than the limit, the ring shall be replaced.

Limit: 0.5mm

Synchronizer sleeve and hub

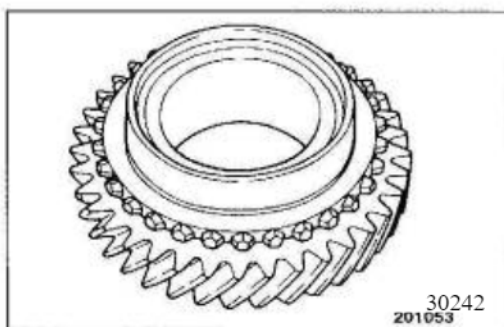
- (1) Assemble the synchronizer sleeve and hub together and check if they are running smoothly together or locked.
- (2) Check if the front and rear ends of the sleeve's inner surface are damaged.

Note:

Replace the whole set instead of the synchronizer sleeve or the synchronizer hub when either of them needs replacement.

Synchronizer spring

Check if the spring is relaxed, deformed or damaged.


30242
201053

Speed gear

- (1) Check if the tooth surface of the helical gear and clutch gear is damaged or worn out.
- (2) Check if the synchronizer's tapering surface is abraded, damaged or worn out.
- (3) Check if the inner diameter and front and rear ends of the gear are damaged or worn out.

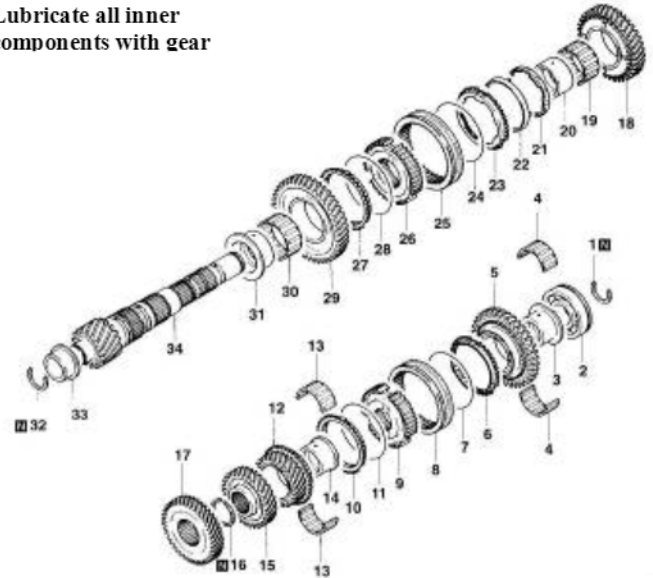
Output shaft

Assembly and Disassembly

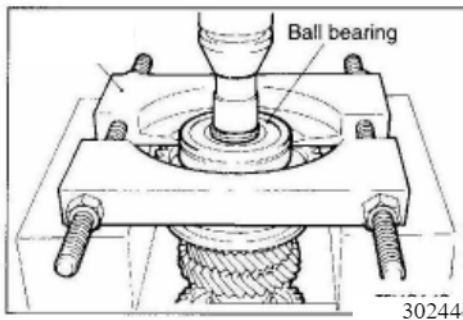
Disassembly steps:

1. Spring snap ring
2. Ball bearing
3. Reverse gear bearing sleeve
4. Roller bearing
5. Reverse gear
6. Synchronizer ring
7. Synchronizer spring
8. Synchronizer sleeve
9. Fifth-gear and reverse-gear synchronizer hub
10. Synchronizer ring
11. Synchronizer spring
12. Fifth-speed gear
13. Roller bearing
14. Fifth-speed gear sleeve
15. Fourth-speed gear
16. Spring snap ring
17. Third-speed gear
18. Second-speed gear
19. Roller bearing
20. Second-speed gear sleeve
21. Inner synchronizer ring
22. Synchronizer spring
23. Outer synchronizer ring
24. Synchronizer spring
25. Synchronizer sleeve
26. First-gear and second-gear synchronizer hub
27. Synchronizer ring
28. Synchronizer spring
29. First-speed gear
30. Roller bearing
31. First-speed gear sleeve
32. Spring snap ring
33. Roller bearing inner ring
34. Output shaft

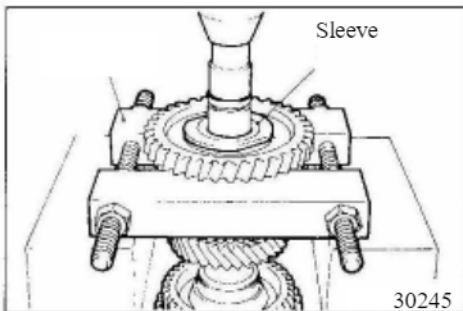
Lubricate all inner components with gear



30243⁹

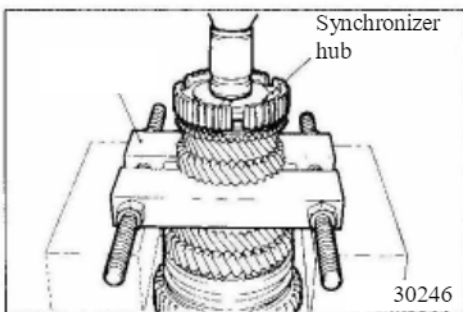


Notice for disassembly Unfixing the ball bearing



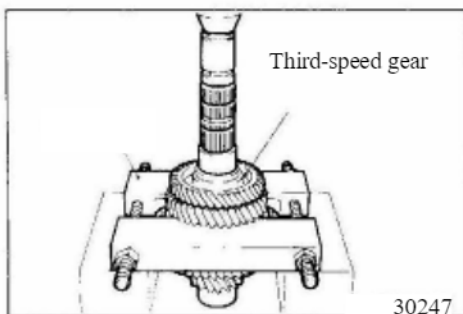
Unfixing the reverse gear bearing sleeve

Fix the special tool onto the reverse gear and then unfix the reverse gear bearing sleeve.



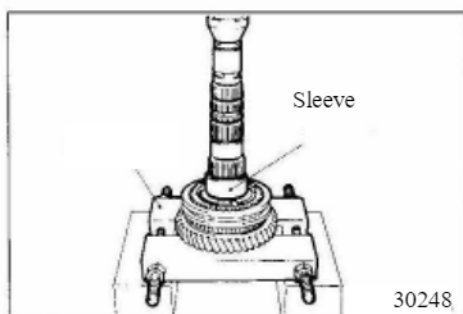
Unfixing the fifth gear and reverse gear synchronizer hub

Fix the special tool onto the second-speed gear and then unfix the third-speed gear.



Unfixing the third-speed gear

Fix the special tool onto the second-speed gear and then unfix the third-speed gear.



Unfixing the second-speed gear sleeve

Fix the special tool onto the third-speed gear and then unfix the fourth-speed gear sleeve.