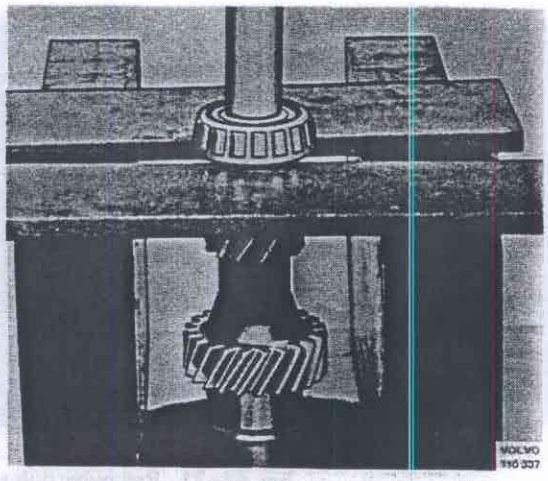
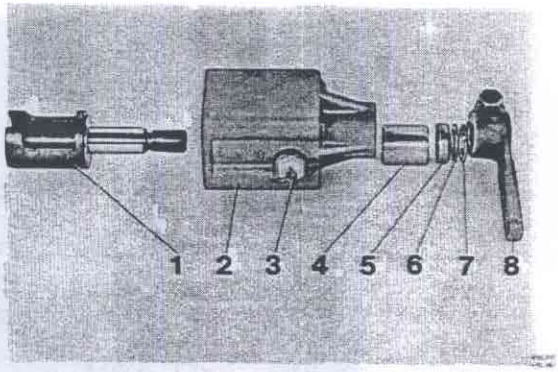
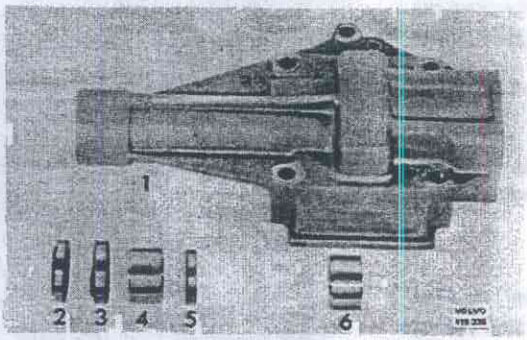


Fig. 43–74. Removing bearing



1. Selector fork
2. Housing
3. Contact
4. Bushing
5. Seal
6. Washer
7. Circlip
8. Lever

Fig. 43–77. Outer selector shaft housing



1. Housing
2. Seal
3. Seal
4. Bushing
5. Seal
6. Bushing

Fig. 43–75. Removing seal and bushing

Disassembling the selector shaft housing

1. Fit the housing in a vice. Pull out the seal, bushing and seals, Fig. 43–75 with 1817, Fig. 43–76.
2. Pull out the bushing with 1817.

Disassembling the outer selector shaft housing

1. Remove the screw on the lever. Remove the lever (8, Fig. 43–74).
   Remove the reverse light contact.
2. Remove the selector fork from the housing.
3. Knock out the bushing 4 and seal 5 with 4090, Fig. 43–78.

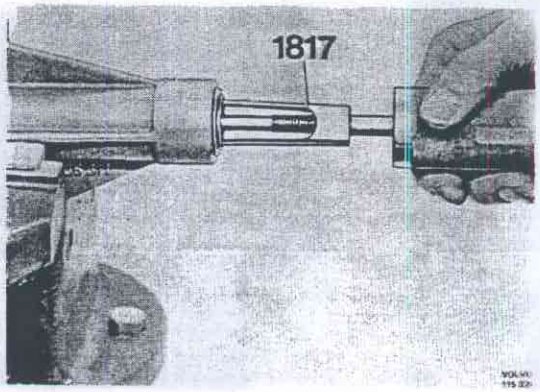


Fig. 43–76. Gear selector housing

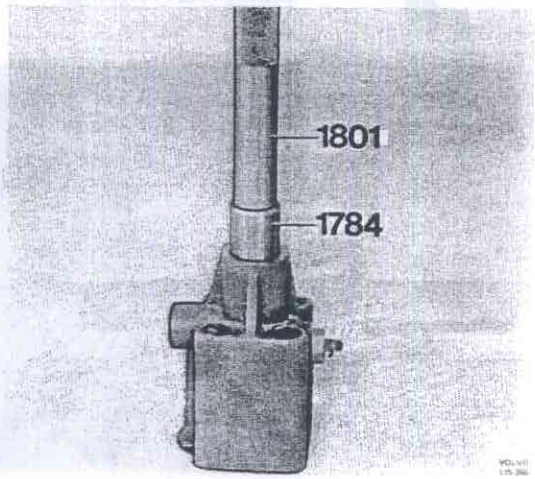


Fig. 43–78. Driving out bushing and seal

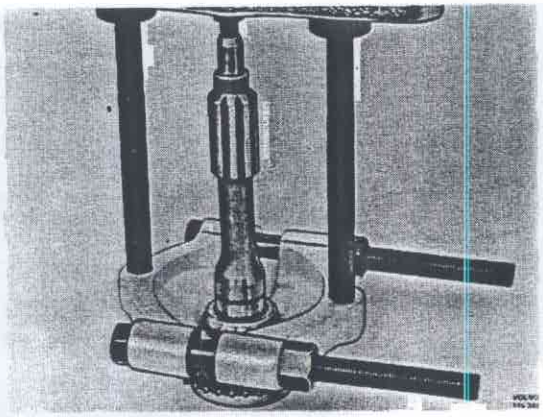


Fig. 43–79. Removing inner race

Checking and replacing parts

Clean all parts and check for wear and damage. All damaged or worn parts should be replaced. Sealing rings, O-rings and packings should always be replaced. When replacing sealing rings, make sure that the surfaces which provide the sealing are carefully checked. If the surfaces are scored or damaged in any other way, the sealing must be replaced.

In order to be able to adjust the clearance in the gearbox, the inner bearing race on the input shaft must be pulled off with a standard puller, see Fig. 43–79.

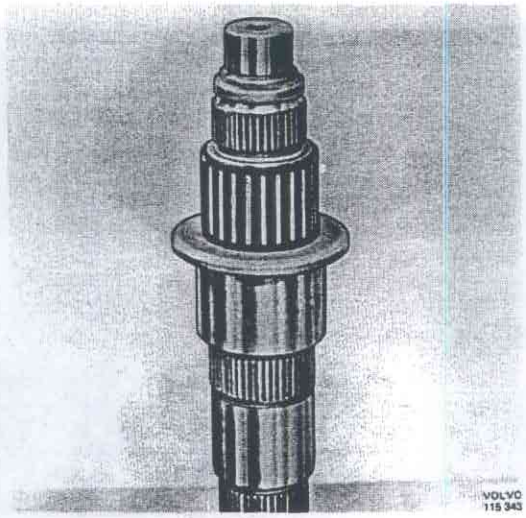


Fig. 43–80. Needle bearing for 3rd gear

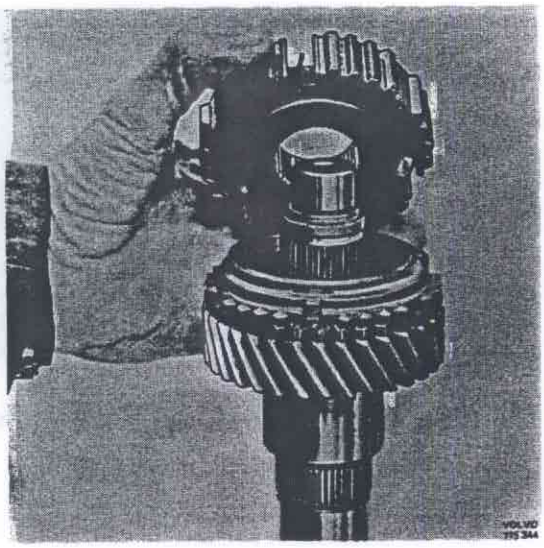


Fig. 43–81. Installing synchronizing hub

Assembling the gearbox

Special tools: 1784, 1801, 2022, 2395, 2564, 6011, 6012, 6024, 6101, 6102, 6103, 6104.

Output shaft

1. Oil the needle bearing for 3rd gear and place it on the shaft, Fig. 43–80.
2. Fit 3rd gear and the synchronizing cone. Place the spring on the interlock bodies in the synchronizing hub. Fit the hub, Fig. 43–81.
3. Press on the hub with 2022, Fig. 43–82. Check that the cone lugs enter the hub. Fit the lock ring which gives minimum clearance. Lock rings are available in sizes 1.8, 1.9 and 2.0 mm (0.072, 0.076 and 0.079").

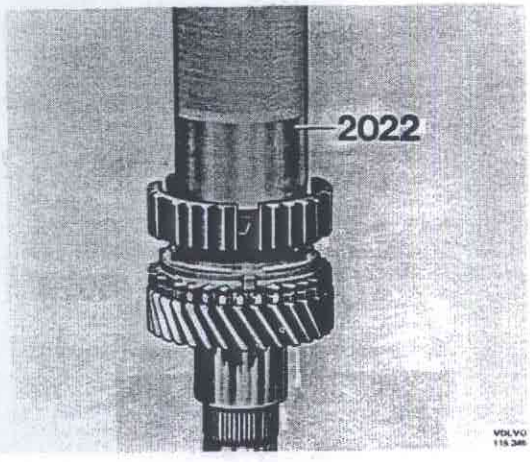


Fig. 43–82. Pressing on hub

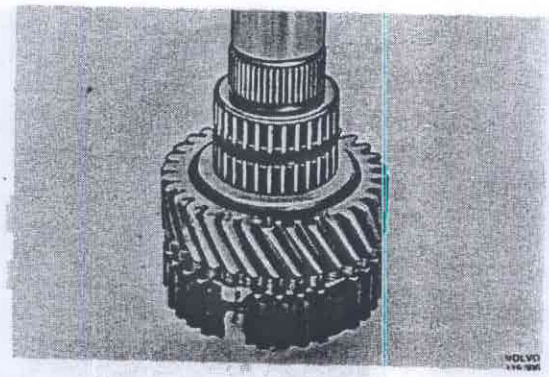


Fig. 43–83. Needle bearing

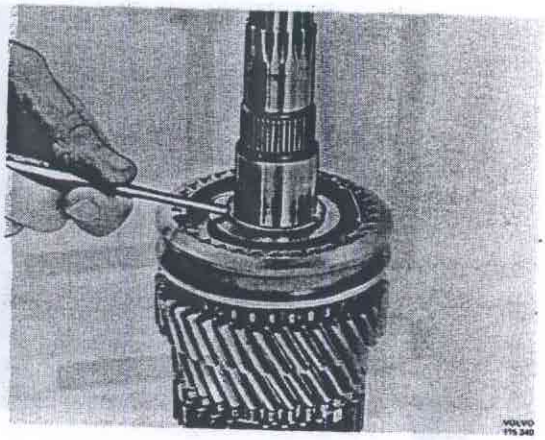


Fig. 43–86. Driving on lockring

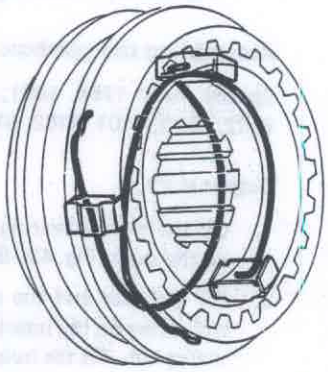


Fig. 43–84. Placing spring

4. Fit the needle bearings for 2nd gear, Fig. 43–83. Fit 2nd gear and the synchronizing cone.
5. Assemble the synchro unit for 1st–2nd gears. The springs for the interlock units are placed as shown in Fig. 43–84, starting off with different interlock units.
6. Fit the hub. Place the shaft on 6024, Fig. 43–85, and press on the hub.
7. Fit the lock ring which gives minimum clearance. Lock rings are available in sizes 1.8, 1.9 and 1.0 mm (0.072, 0.076 and 0.079"). Check that the lock ring has bottomed properly by driving it down with a drift, Fig. 43–86.

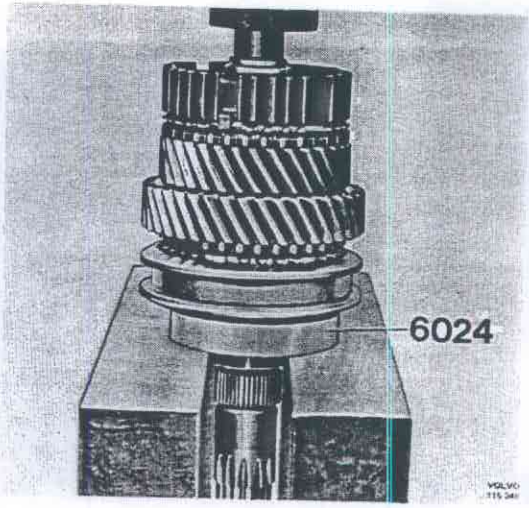


Fig. 43–85. Pressing on hub

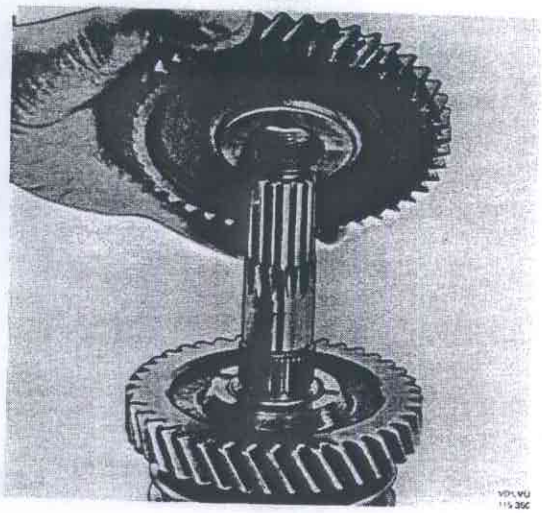


Fig. 43–87. Installing reverse gear

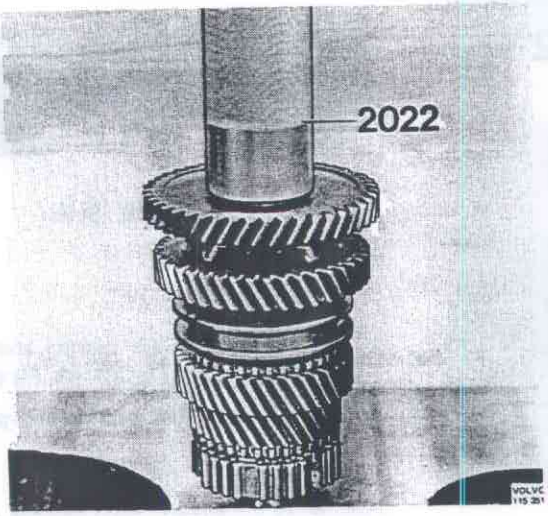


Fig. 43–88. Pressing on gear

8. Oil the needle bearing for 1st gear and fit it. Fit the synchronizing cone and 1st gear. Place the gear for reverse in position, but turn it as shown in Fig. 43–87 with the larger hub section facing 1 st gear. Press it on with 2022, Fig. 43–88.
9. Fit the inner race for the rear ball bearing. Press it on with 2395, Fig. 43–89.

Countershaft

1. Place 3rd gear on the shaft with the bevelled edge of the gear facing downwards, see Fig. 42–90. Press on the gear with 2022, Fig. 43–91. Fit the lock ring.
2. Fit the cluster gear with the larger part of the hub facing downwards, Fig. 43–92. Press on the gear with 2022.

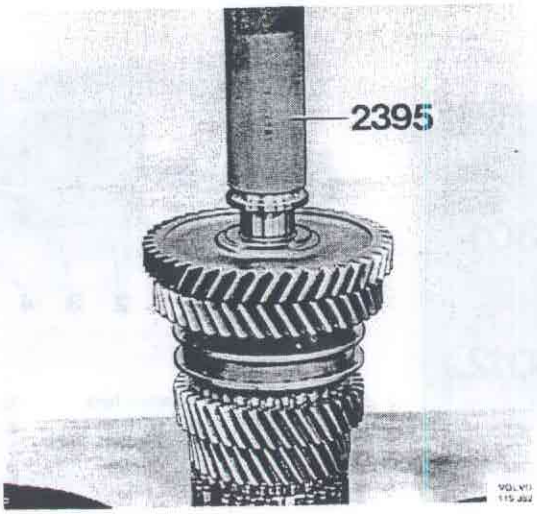


Fig. 43–89. Pressing on inner race

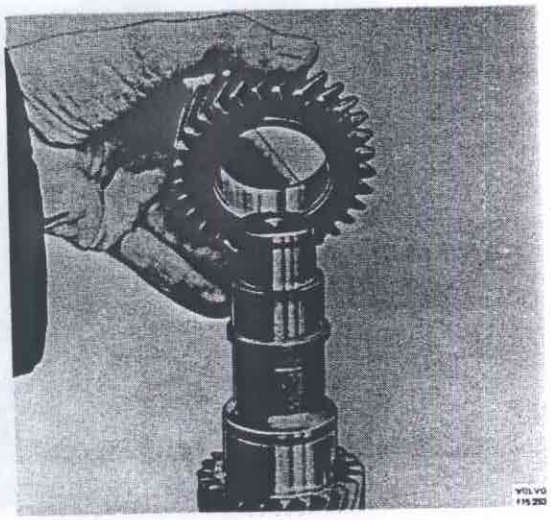


Fig. 43–90. Placing 3rd gear

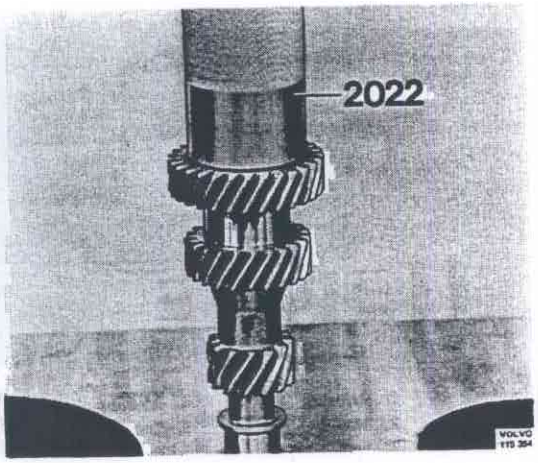


Fig. 43–91. Pressing on gear

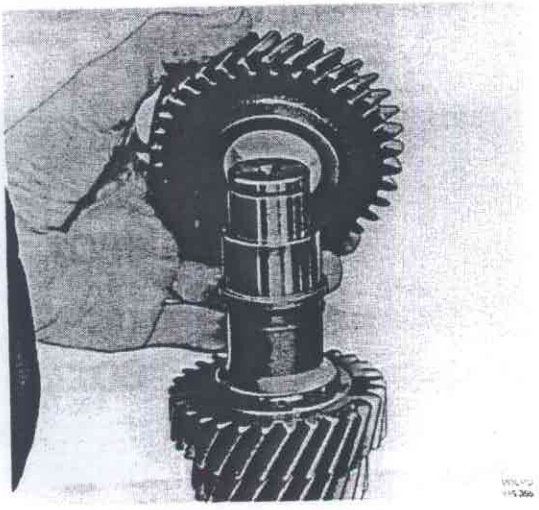


Fig. 43–92. Placing gear

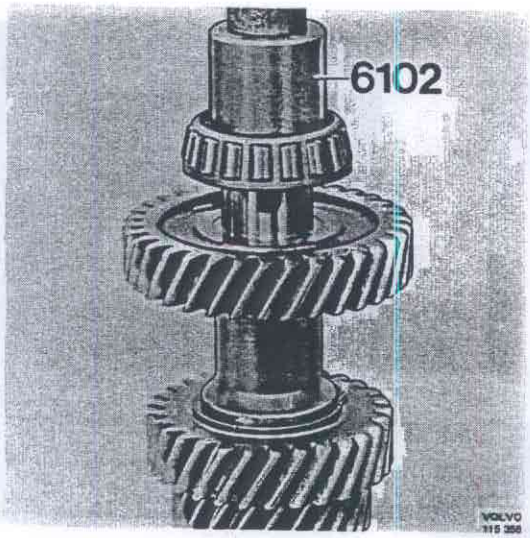
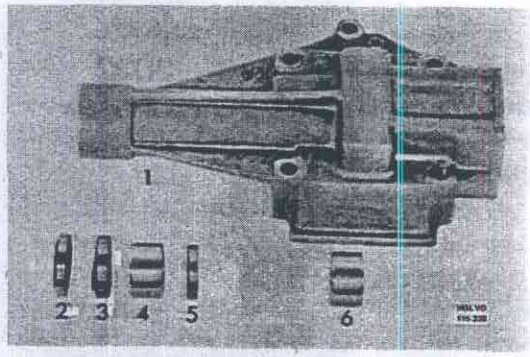


Fig. 43–93. Pressing on bearing



1. Housing
2. Seal
3. Seal
4. Bushing
5. Seal
6. Bushing

Fig. 43–94. Gear selector housing

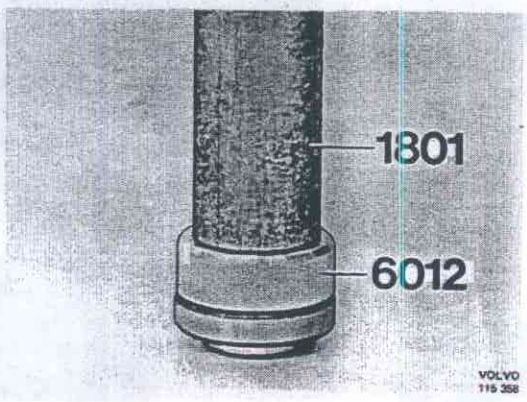


Fig. 43–95. Drift with seal

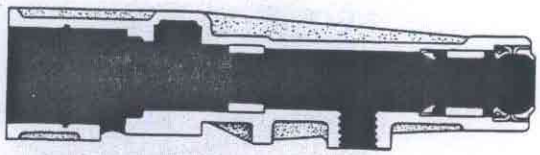


Fig. 43–96. Seals

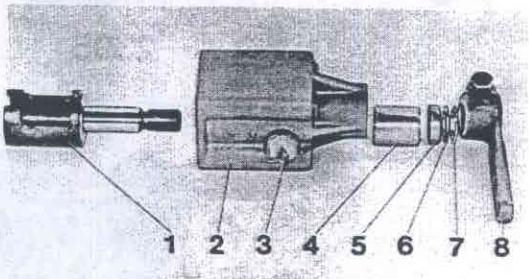
3. Fit the front roller bearing and press it down with drift 6102, Fig. 43–93. Fit the circlip.
4. Fit the rear roller bearing and press it on with 6102.

Assembling the selector shaft housing

1. Oil the new bushings and seals before fitting them.
2. Drive in the bushing (6 Fig 43–94) with 6011 + 1801, Fig. 43–95. Note its location.
3. Place the seal (5) on drift 6012 + 1801 and drive it into the housing. Note Fig. 43–96 to make sure that the sealing is located properly.
4. Oil the bushing (4) and drive it in.
5. Oil the seals and place them on the drift. Drive them into the housing.

Assembling the outer selector shaft housing

1. Oil the bushing (4 Fig 43–97) and press it into the housing with 1801 + 1784, Fig. 43–98.
2. Press in the sealing with 1801 + 1784.
3. Grease the selector shaft and place it in the housing.



1. Selector fork
2. Housing
3. Contact
4. Bushing
5. Seal
6. Washer
7. Circlip
8. Lever

Fig. 43–97. Outer selector shaft housing

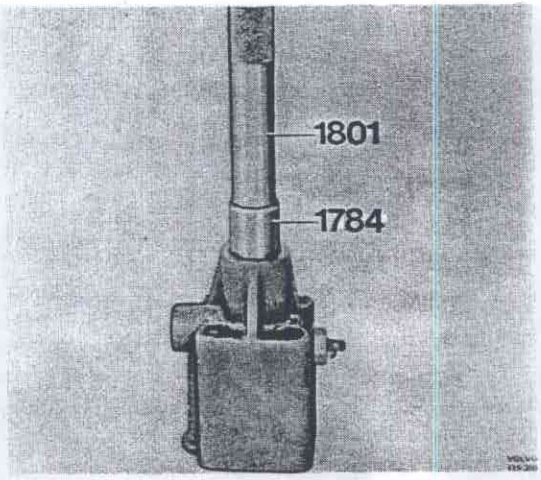


Fig. 43–98. Pressing in bushing

4. Turn the shaft so that it comes into the locked position. Place the lever so that it points straight down.
5. Fit the reverse light contact.

Other assembly work on the gearbox

In certain places, the gearbox has shims and lock rings of alternative thicknesses in order to provide a choice to obtain the correct clearance. Fig. 43–99 shows where these places are.

1. Fix the rear half of the gearbox housing in fixture 6101.
2. Place the circlip on the bearing for the output shaft. Drive the bearing into the housing with 2564 + 1801, Fig. 43–100.

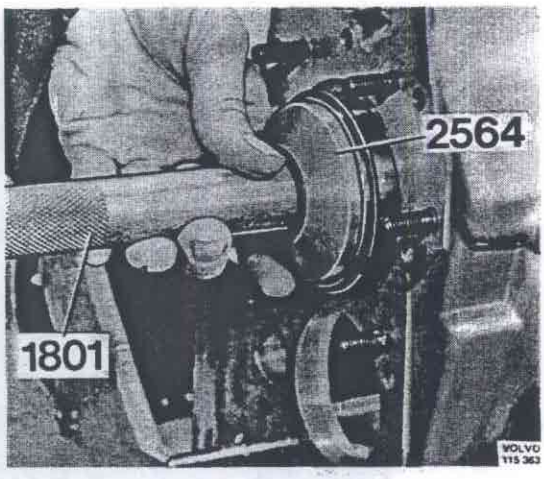


Fig. 43–100. Driving in outer race

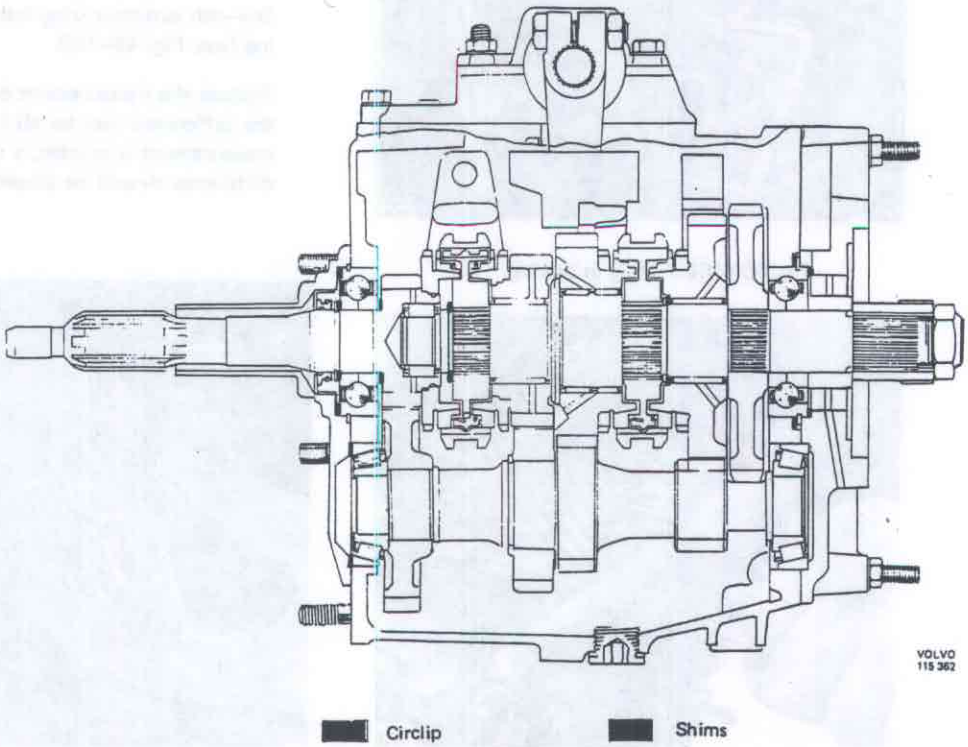


Fig. 43–99. Alternative shims and circlips in gearbox

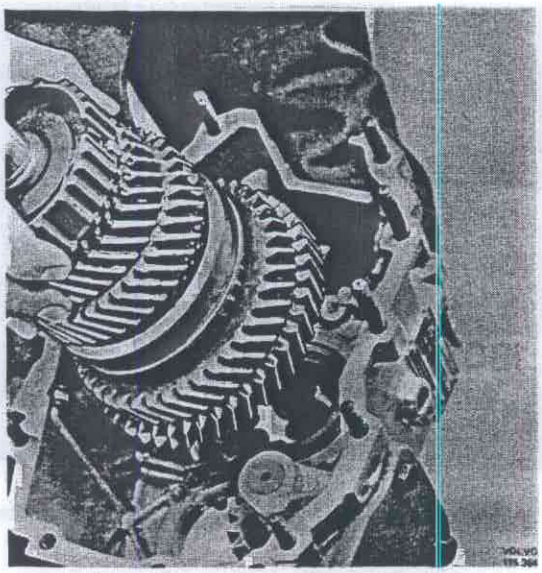


Fig. 43—101. Fitting output shaft

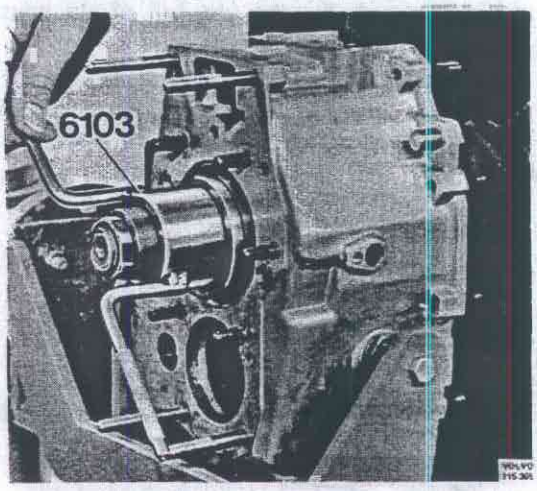


Fig. 43—102. Pulling in bearing

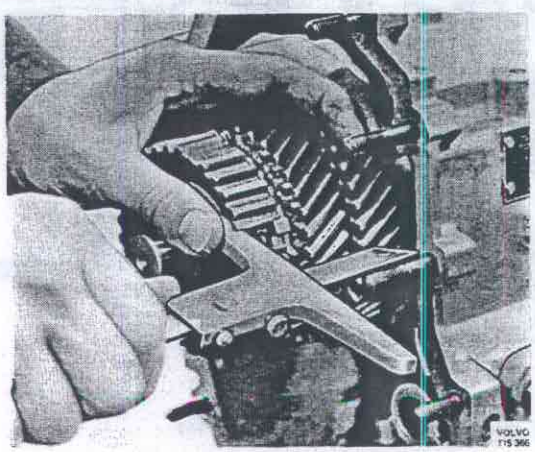


Fig. 43—103. Checking distance

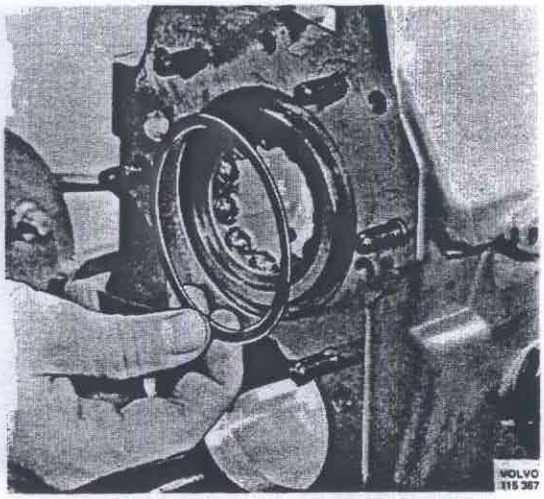


Fig. 43—104. Placing circlip

3. Place the output shaft in the housing, Fig. 43—101. Centre the shaft properly in the bearing. Fix on press tool 6103 and drive in the sprindle so that the shaft is held in position, Fig. 43—102. Check that the inner race on the output shaft is correctly centered in the bearing when the tool is pulled in.
4. With a depth gauge measure the distance from 3rd—4th synchronizing hub to the gearbox housing face, Fig. 43—103.

   Reduce the measurement by 53.5 mm (2.1") and the difference may be ±0.1 mm (0.0039"). If the measurement is greater, a shim of corresponding difference should be placed between the housing

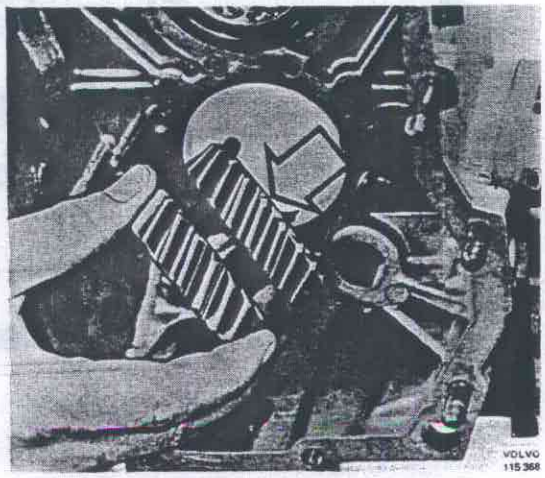


Fig. 43—105. Placing reverse gear

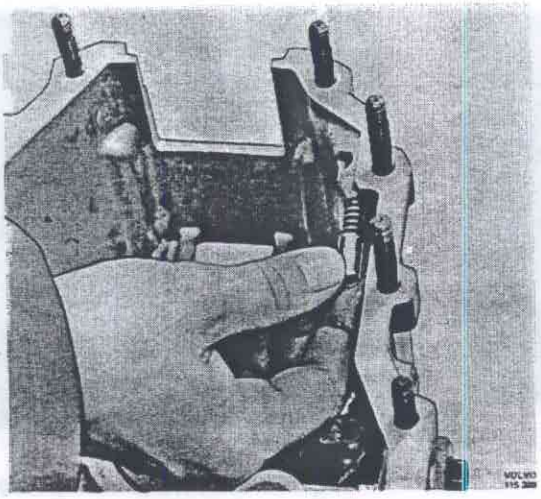


Fig. 43–106. Placing lock pin

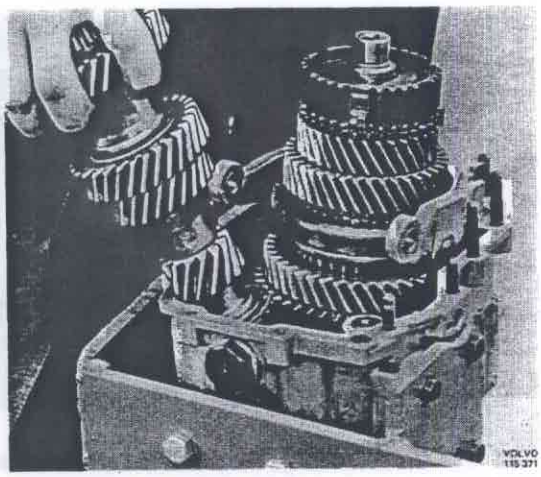


Fig. 43–108. Fitting countershaft

and the circlip on the output shaft bearing. Shims are available in sizes 0.6, 0.8, 1.0, 1.2 and 1.4 mm (0.024, 0.032, 0.039, 0.048 and 0.056").

5. Remove the tool and lift off the output shaft. Drive out the output shaft bearing approx. 2 mm (0.08") with 1801 + 2564. Remove the circlip and place the requisite shims in position, Fig. 43–104. Fit the circlip and drive in the bearing.
6. Fit the reverse drive in the gearbox. Note that the gear with the bevelled teeth must face the rear end of the gearbox, see Fig. 43–105.
7. Turn the gearbox. Grease the lock pins for 1st–2nd and reverse gears and place them and the springs in the housing, Fig. 43–106.
8. Fit the output shaft and selector fork for reverse gear, Fig. 43–107, and the selector fork for 1st–2nd engaging sleeve.
9. Lift up the output shaft and reverse gear and fit the countershaft, Fig. 43–108.
10. Centre the output shaft in the rear bearing. Fix press tool 6103 on the shaft.
11. Place in position the spring for 3rd–4th synchronizing. Note that it should be placed with the resilient part anti-clockwise, Fig. 43–109. Grease the interlock units and fit them, Fig. 43–110. Fit the selector fork on 3rd–4th engaging sleeve and fit the sleeve on the hub.

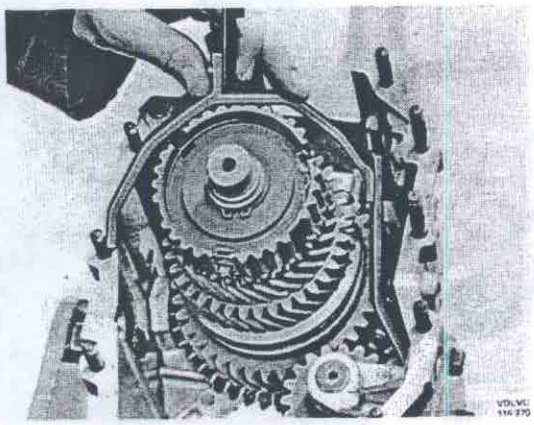


Fig. 43–107. Fitting selector fork

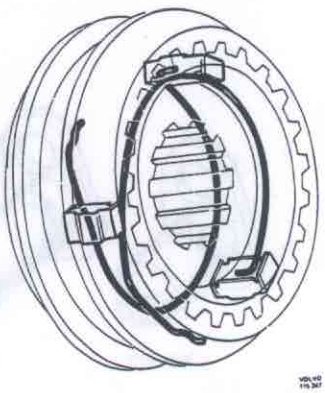


Fig. 43–109. Placing springs