

Fig. 43-141. Fitting the attaching plate

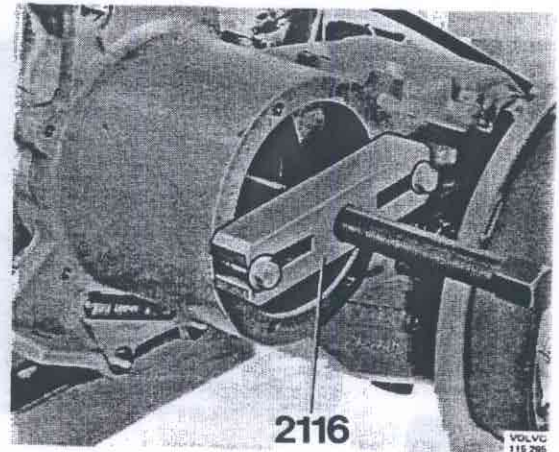


Fig. 43-144. Removing auxiliary gearbox

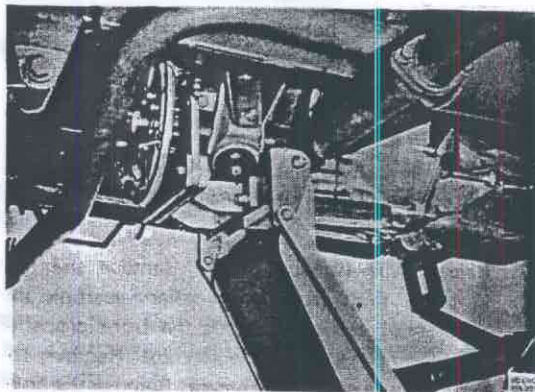


Fig. 43-142. Jack under auxiliary gearbox

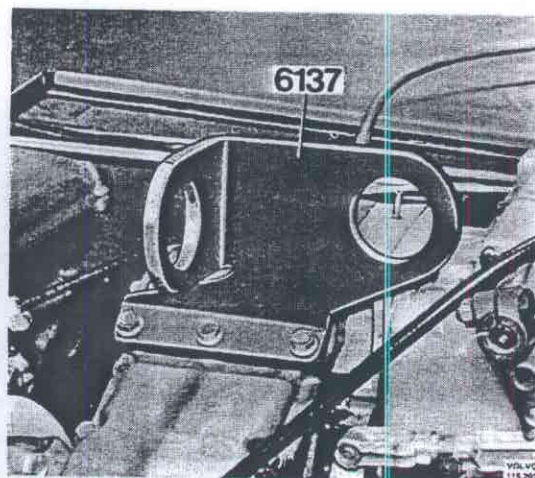


Fig. 43-143. Fitting the bracket

8. Place the gearbox jack under the auxiliary gearbox gear assembly, see Fig. 43-142. Lower the jack so that the engine rests on its mounts. Remove the bolts securing the rear engine mounts. Lower the auxiliary gearbox. Remove the lower bolts holding the gearbox and auxiliary gearbox together. Use bracket 6137 (see Fig. 43-143) when removing the auxiliary gearbox with the help of a block and tackle.

9. Remove the rear cover. Remove the nut on the gearbox output shaft. Fit the puller tool 2116, Fig. 43-144.

10. Remove the bolts and nuts holding the gearbox and auxiliary gearbox together.

11. Screw in the puller tool spindle. Remove the tool. Lower the auxiliary gearbox when it has released from the gearbox. Lower the gearbox.

#### Disassembling the auxiliary gearbox

Special tools: 1801, 2039, 2097, 2261, 2267, 2291, 2337, 2395, 2837, 6140

1. Place the auxiliary gearbox in fixture 6140 and secure the unit on an overhaul stand, see Fig. 43-145.

2. Use counterhold 2837 and remove the nuts on the front and rear output shafts. NOTE! Take a firm hold of the tool when slackening the nut (otherwise the control mechanism can get damaged).

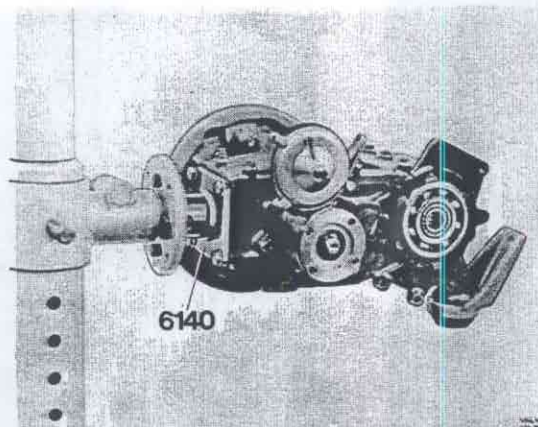


Fig. 43-145. Auxiliary gearbox in vice

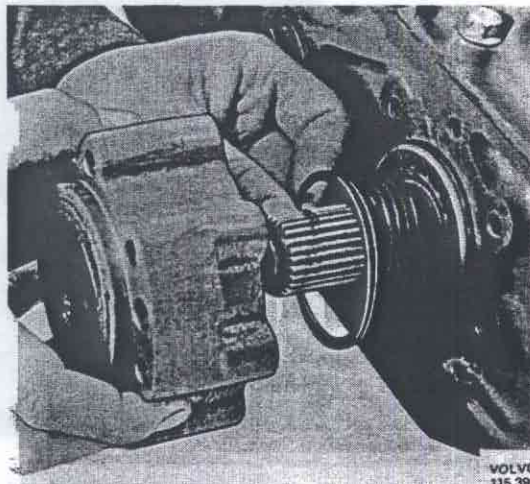


Fig. 43-147. Removing rear housing half

Remove the flanges with 2261, Fig. 43-146.

3. Remove the propeller shaft brake backing plate.
4. Remove the rear housing and the shims, Fig. 43-147. Remove the speedometer pinion.
5. Remove the control housing for the front wheel drive.
6. Remove the cover on the auxiliary gearbox, Fig. 43-148.
7. Remove the nut on the intermediate gear shaft, Fig. 43-149. (If necessary use a shift spanner as counterhold.)
8. Remove the circlip for the cluster gear bearing, Fig. 43-149. Place the auxiliary gearbox in a press with the rear part of the box resting on the press table. Check that the bearing for the output shaft runs freely. Use a drift with the same

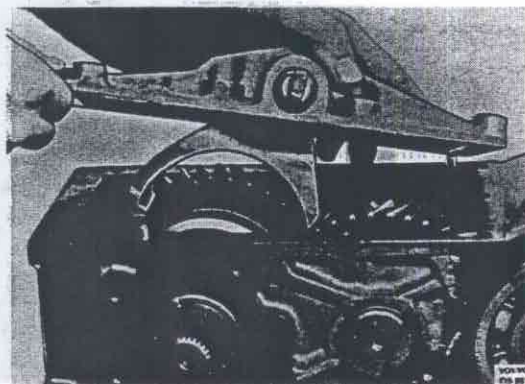


Fig. 43-148. Removing cover

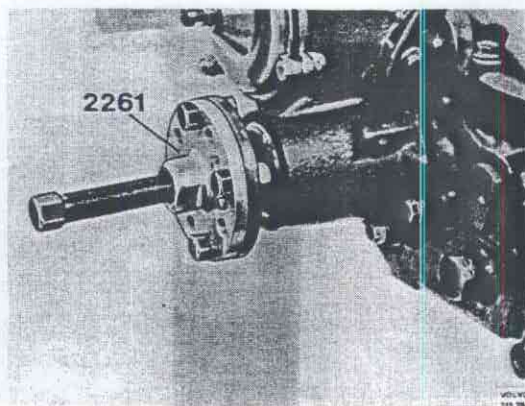


Fig. 43-146. Removing flange

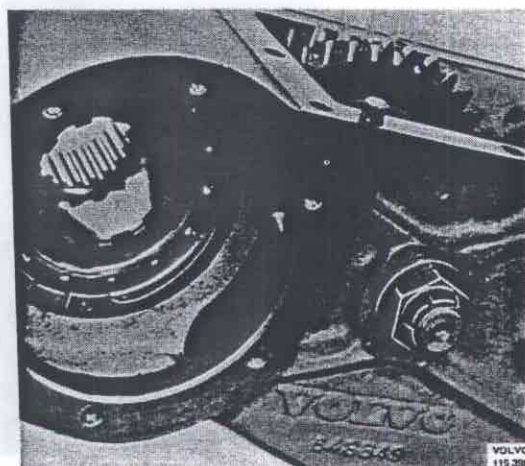


Fig. 43-149. Circlip cluster gear, nut, intermediate gear



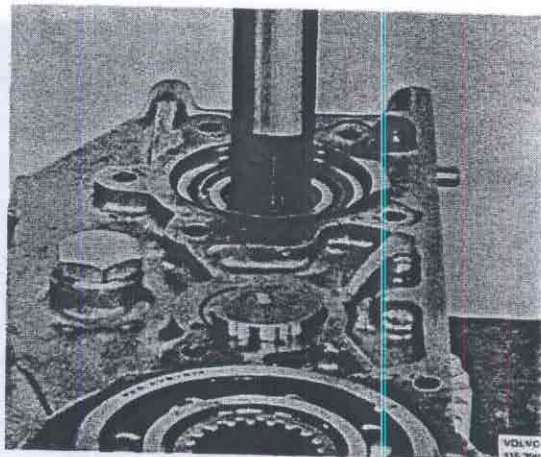


Fig. 43-150. Pressing out output shaft

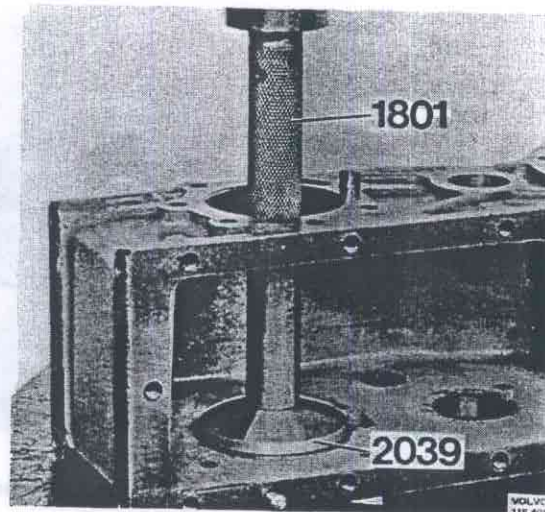


Fig. 43-153. Driving out outer races

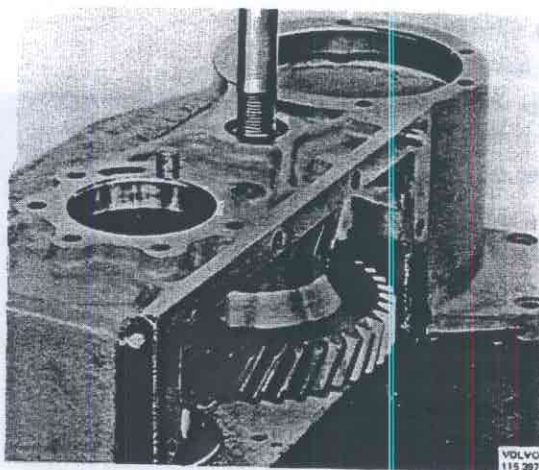


Fig. 43-151. Pressing out shaft, intermediate gear

diameter as that of the shaft, Fig. 43-150. Press out the shaft and take hold of it underneath. Take care of the outer race, output shaft and needle bearings. Lift out the synchronizing with the high and low speed gears, also the roller bearing.

9. Turn the auxiliary gearbox. Press out the intermediate gear shaft. Use a drift with the same diameter as that of the shaft, Fig. 43-151. Lift out the intermediate gear with bearing, spacer sleeve and shim.
10. Press out the cluster gear and bearing with 2291, Fig. 43-152.
11. Press out the outer race for the output shaft bearing with 1801 + 2039, Fig. 43-153.

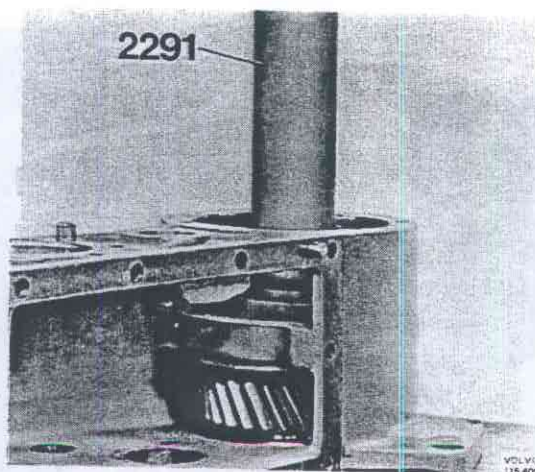


Fig. 43-152. Pressing out cluster gear

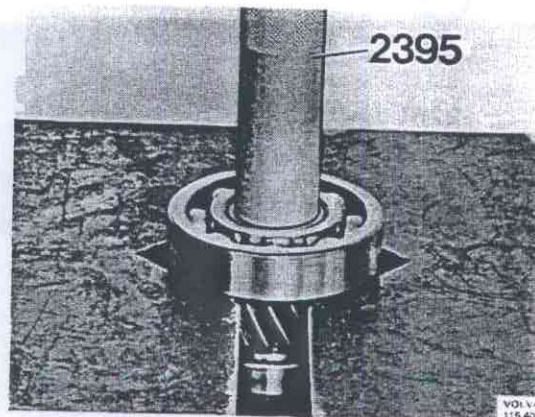


Fig. 43-154. Removing bearing



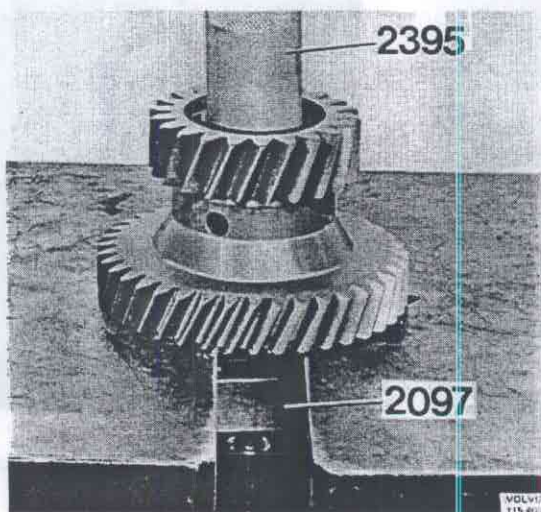


Fig. 43-155. Pressing out outer races

**Disassembling the cluster gear**

1. Place the cluster gear in a press, see Fig. 43-154, and press off the bearing with 2395.
2. Turn the gear and press off the other bearing with 2395.

**Disassembling the intermediate gear**

1. Remove the shims, spacer sleeve and inner race.
2. Press out the outer races from the intermediate gear with 2097 + 2395, Fig. 43-155.

**Disassembling the synchronizing and output shaft gear**

1. Remove the thrust washer, needle bearing and bearing race from the high speed gear wheel.

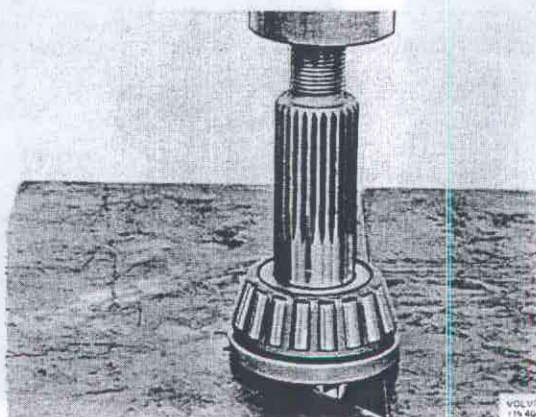


Fig. 43-156. Removing bearing

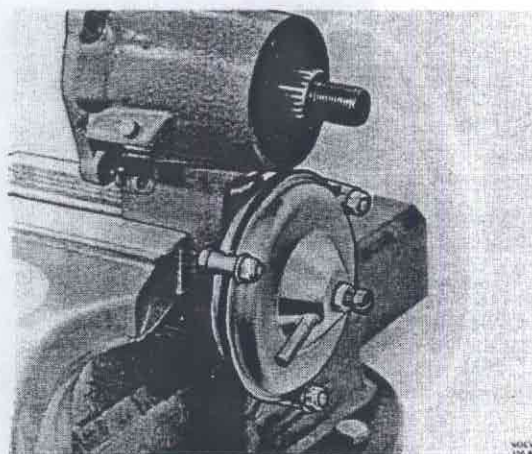


Fig. 43-157. Fitting control mechanism

2. Remove the gear wheel for the high speed and the synchronizing cone.
3. Remove the synchronizing from the low-speed gear wheel.
4. Disassemble the synchronizing.

**Disassembling the output shaft**

Place the shaft in a press with counterhold under the thrust washer, Fig. 43-156, and press off the bearing.

**Disassembling the control mechanism**

1. Fix the control mechanism securely in a vice, see Fig. 43-157.
2. Remove the bolts securing the cover to the control cylinder. Remove the cover and the thrust spring, Fig. 43-158.



Fig. 43-158. Removing cover and spring



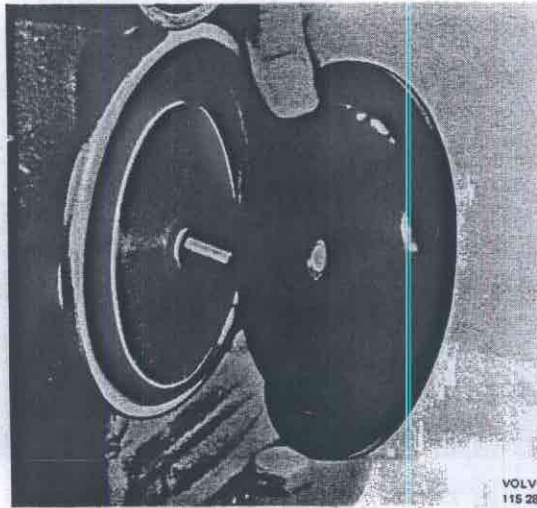


Fig. 43-159. Removing diaphragm

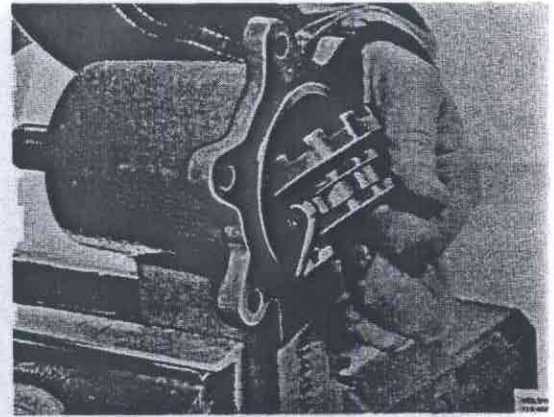


Fig. 43-162. Removing engaging sleeve

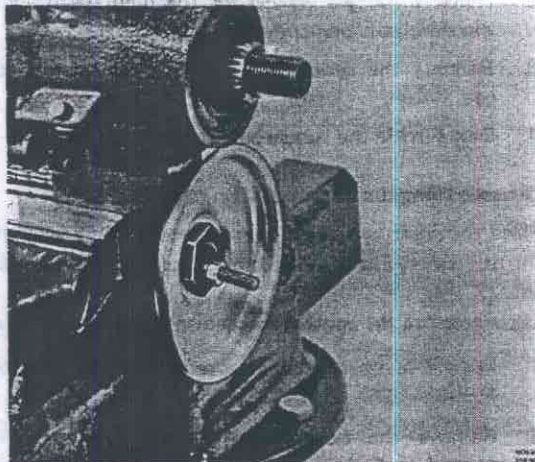


Fig. 43-160. Holed nut

3. Remove nut on the push rod. Remove the washer and the diaphragm, Fig. 43-159. Take care of the spacer washer on the push rod and remove the other washer.
4. Remove the holed nut securing the control cylinder, Fig. 43-160.
5. Drive out the shaft holding the selector fork, Fig. 43-161. Note that the shaft can only be driven out in one direction, see Fig.
6. Remove the engaging sleeve and the selector fork, Fig. 43-162.
7. Drive out the output shaft with a plastic mallet. Drive out the seal with 2337, Fig. 43-163.
8. Remove the circlips, Fig. 43-164. for the bearing and press out the bearing with 2267.

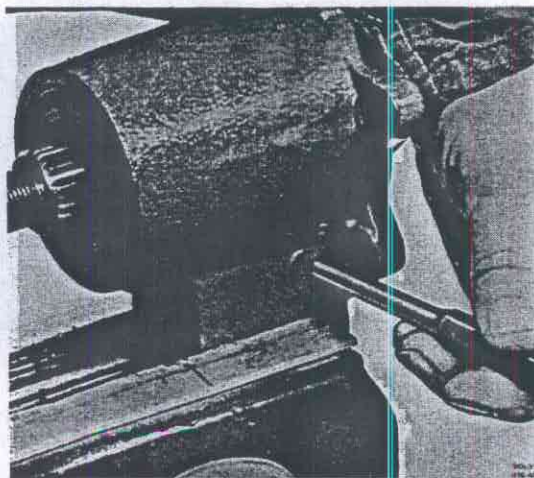


Fig. 43-161. Driving out shaft

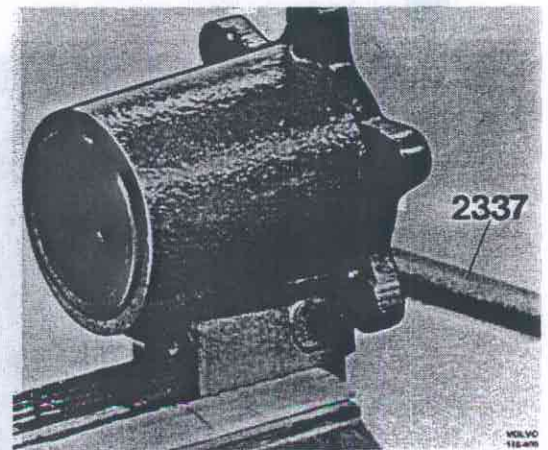


Fig. 43-163. Driving out seal

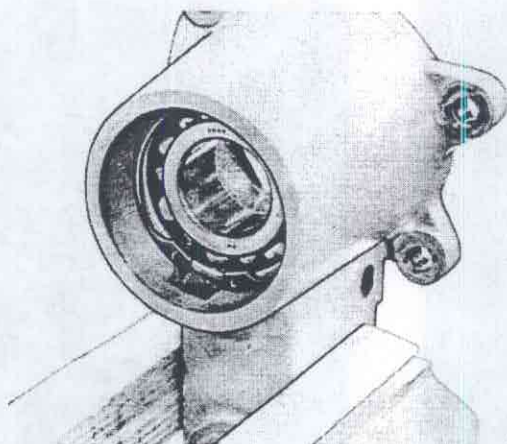


Fig. 43-164. Pressing out bearing

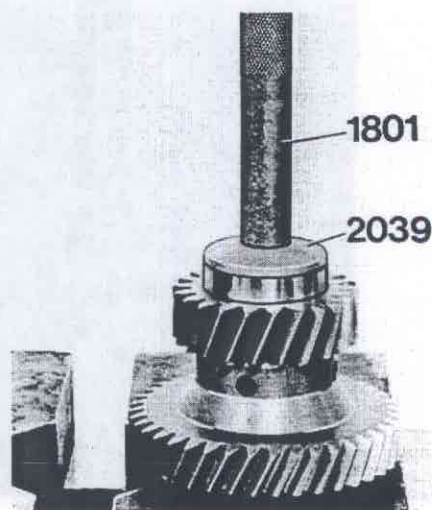


Fig. 43-166. Pressing in outer race

### Checking and replacing parts

Clean all parts and check for damage and wear. All damaged or worn parts should be replaced. Sealing rings, O-rings and gaskets, etc., should always be replaced. When replacing sealing rings, always make sure that the surfaces which perform the sealing are carefully checked. If these are scored or damaged, then the seal in question should be replaced.

### Assembling the auxiliary gearbox

Special tools: 1801, 1845, 2014, 2022, 2039, 2267, 2291, 2395, 2837, 6108, 6109, 6110, 6111, 6120, 6122.

In certain places the auxiliary gearbox has shims of alternative thicknesses as well as circlips in order to obtain correct clearance. Fig. 43-165 a shows where these places are.

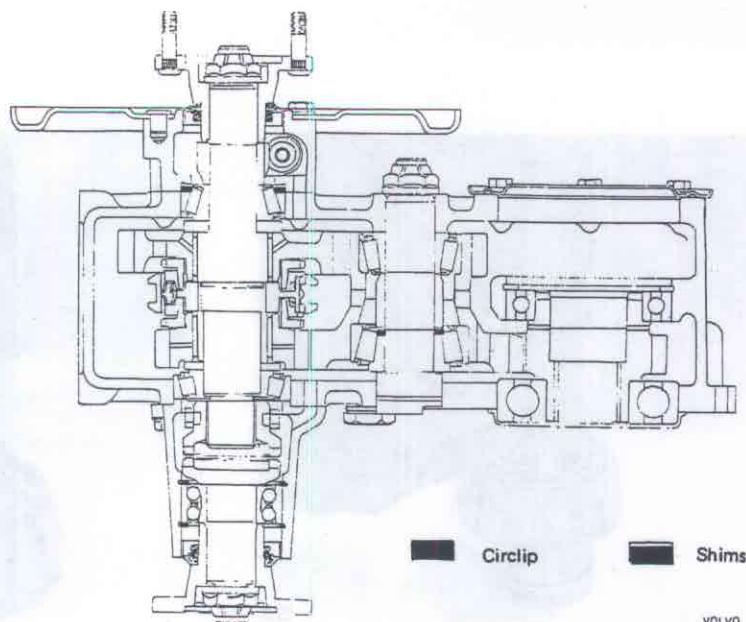


Fig. 43-165. Alternative shims and circlips in auxiliary gearbox



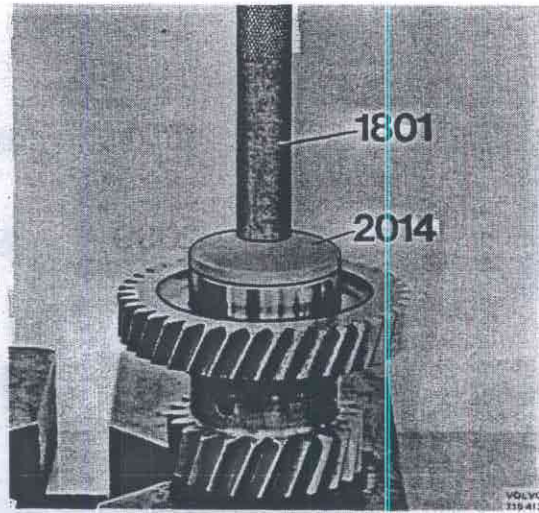


Fig. 43-167. Pressing in outer race

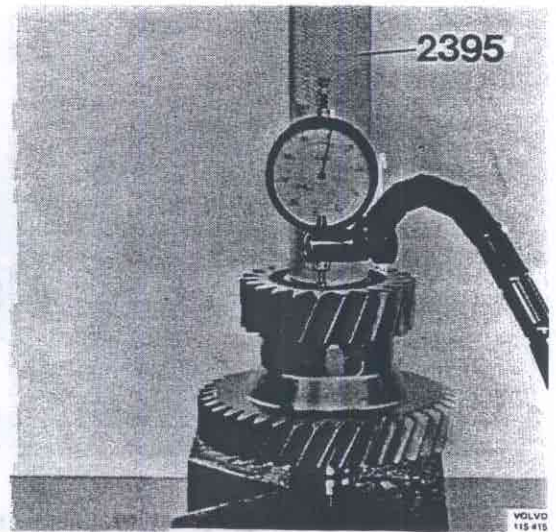


Fig. 43-169. Checking clearance

#### Assembling the intermediate gear

1. Press in the new outer races with 2014 or 2039 + 1801, Figs. 43-166 and 43-167.
2. Place the large bearing on the shaft for the intermediate gear.
3. Place the same number of shims that were removed plus a shim of about 0.2 mm (0.008") on the shaft. Fit spacer sleeve as shown in Fig. 43-168 with the bevelled end upwards.

4. Oil the bearing and fit the intermediate gear and the small bearing (oiled).
5. Place the intermediate gear complete in a press and fit 2395 on the small bearing inner race, Fig. 43-169. Press on the bearing using a force of about 1 ton. Check the axial clearance of the gear with a dial indicator. The clearance should be  $+0.01 \text{ mm } (+0.0004")$  to  $+0.06 \text{ mm } (+0.0024")$ . Remove the requisite number of shims in order to get the proper clearance.

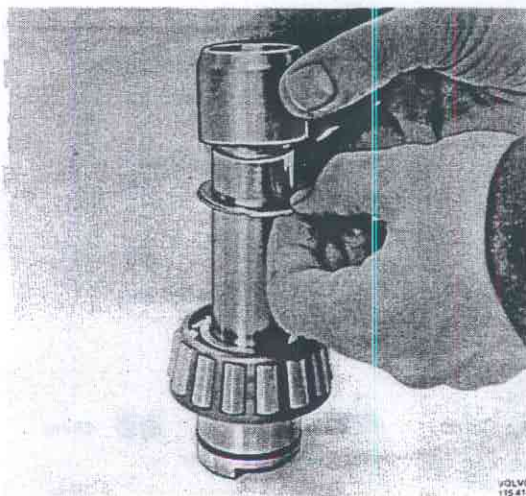


Fig. 43-168. Fitting spacer sleeve

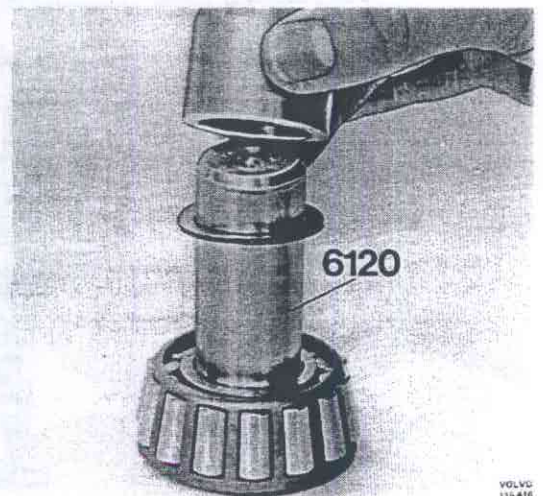


Fig. 43-170. Fitting spacer sleeve

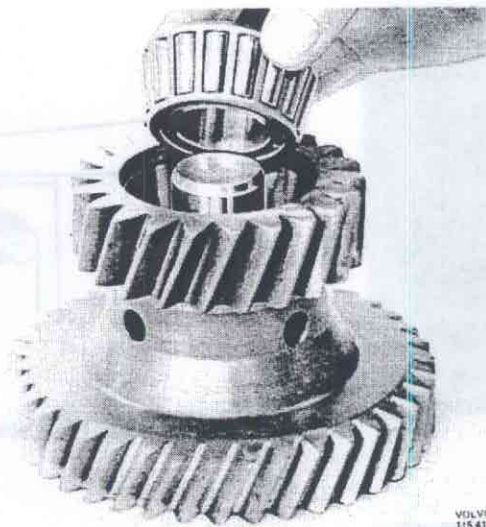


Fig. 43-171. Fitting bearing

6. Place 6120 on a flat base and fit on the large bearing, Fig. 43-170. Fit the requisite number of shims according to point 5 and the spacer sleeve.
7. Fit the intermediate gear and the small bearing, Fig. 43-171.

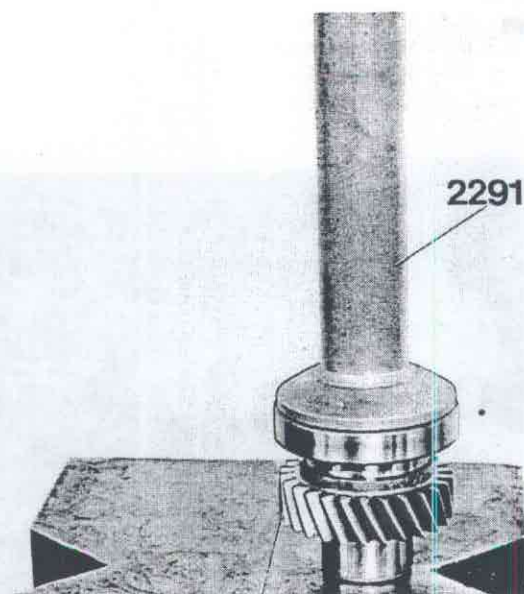


Fig. 43-172. Pressing on bearing

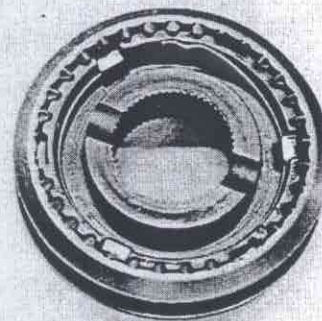


Fig. 43-173. Assembling synchronizing

#### Assembling the cluster gear

1. Press the small ball bearing first on the shaft (on the side where the shaft has lands) with 2291, Fig. 43-172.
2. Press on the large ball bearing with 2291.

#### Assembling the synchronizing

1. Place the synchronizing hub on a flat base. Fit the engaging sleeve.
2. Fit the interlock units in position and fit the spring, Fig. 43-173.
3. Fit the other spring so that it does not come on the same interlock body, Fig. 43-174.

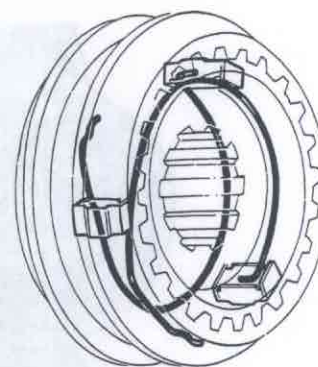


Fig. 43-174. Placing springs