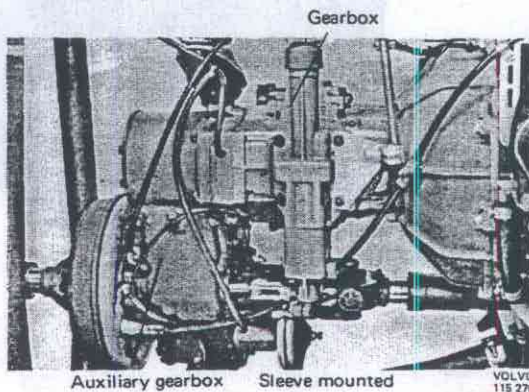


VOLVO
115 281

Fig. 43-37. Removing diaphragm

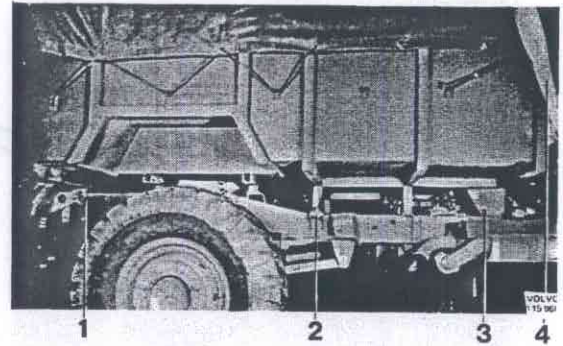
phragm and take care of the washer in the centre of the diaphragm, see Fig. 43-37.

4. Fit the new diaphragm. Place the washer in the centre of the diaphragm and also the thrust washer.
5. Tighten up the nut. Hold the thrust washer and diaphragm securely so that they do not twist when the nut is tightened up.
6. Fit the spring with the larger contact surface facing the thrust washer. Fit the cover. Space the bolts evenly round the cover and tighten up.
7. Place the floor plate in position and bolt it tight. Fit the engine casing.



VOLVO
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Fig. 43-38. Gearbox in vehicle



- | | |
|------------|-----------------|
| 1. Bolting | 3. U-bolts |
| 2. Bolting | 4. Hoist straps |

Fig. 43-39. Removing the platform

GEARBOX

Removing the gearbox

Special tool: 6128, 6129, 6136, 6137.

1. Drain the oil from the gearbox.
2. Release the parking brake.
3. If the gearbox is to be removed with a block and tackle and the vehicle has a platform superstructure, the platform must be removed. The platform can be removed after the bolts and the U-bolts, Fig. 43-39 have been removed. Lift off the platform with a hoist which is fixed to the lifting eyelets, see Fig.

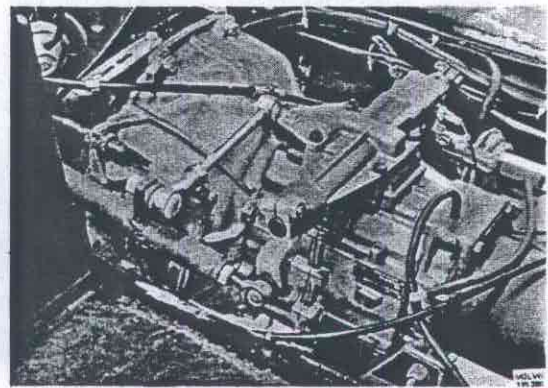


Fig. 43-40. Gear shift with cross stay

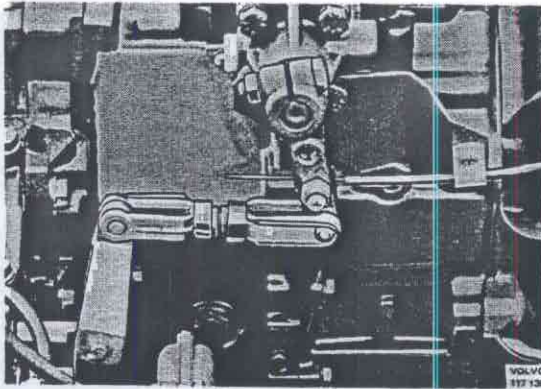


Fig. 43-41. Wire for shift indicator

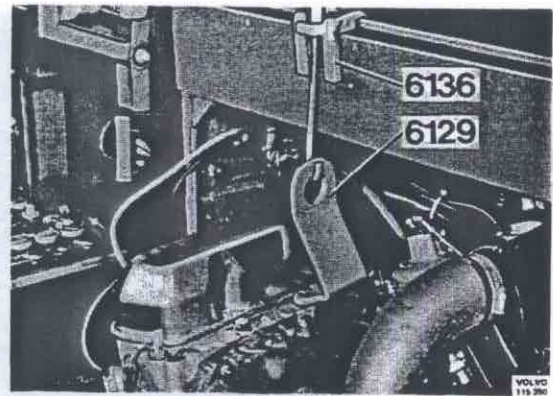


Fig. 43-43. Attaching hoist eyelet

4. Remove the cover over the battery. Disconnect the battery negative cable.
5. Remove the cross stay, Fig. 43-40, to the gear shift bar and remove the bar from the gearbox lever.
6. Remove the wire for the shift indicator, see Fig. 43-41, from the outer shift axle housing.
7. Remove the retainer which holds the fork to the disengaging lever. Remove the rear nut for the disengaging wire. Remove the wire.
8. Remove the exhaust manifold.
9. Remove the hose to the auxiliary gearbox control mechanism.
10. Remove the cables to the sender on the gearbox and auxiliary gearbox.
11. Remove the evacuation hoses to the clutch casing, gearbox and auxiliary gearbox control mechanism.
12. Unscrew the speedometer wire with 6128, Fig. 43-42. Fix the hoist hooks 6129 to the two rear cylinder head bolts, Fig. 43-43 and fit lifting tool 6136.
13. Remove the front and rear propeller shafts from the auxiliary gearbox. Remove the rear axle from the rear differential carrier.
14. Remove the rear exhaust pipe attachment to the body. Remove the bolts on the flange at the silencer. Remove the silencer from the body.
15. Remove the drum from the propeller shaft brake. Remove the brake shoes and disconnect the wire from the lever.

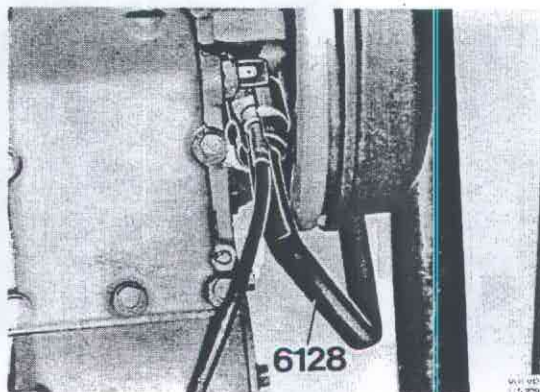


Fig. 43-42. Removing speedometer wire

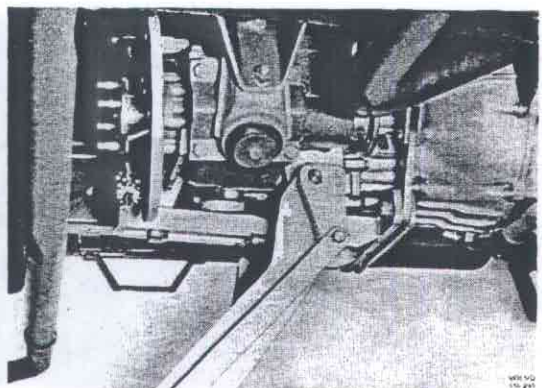


Fig. 43-44. Jack under gearbox

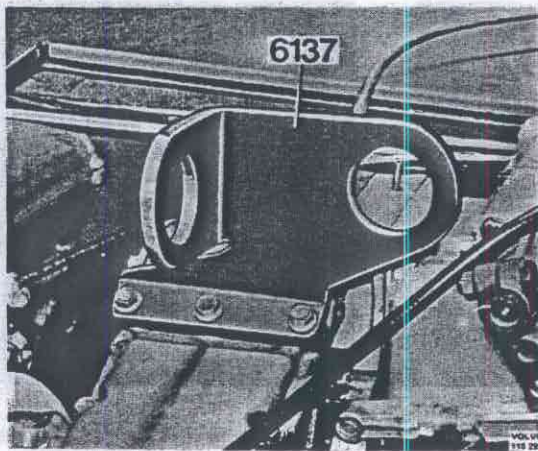


Fig. 43-45. Attaching haist

- 16 Place a jack under the gearbox, Fig. 43-44. Remove the bolts securing the rear engine mounts to the frame. When removing the gearbox with a block and tackle, use tool 6137, see Fig. 43-45.
- 17 Lower the gearbox so that the engine hangs by the bracket on the engine. Remove the lower bolts round the clutch casing. Remove the bolt for the starter motor. Remove the screw securing the earth terminal (pleat) to the casing.
- 18 Remove the remaining bolts round the clutch casing. Remove the bolt for the starter motor and lift off the starter motor.
- 19 Pull the gearbox backwards. Observe due care that the clutch casing surface against the engine is not damaged since the sealing between engine and clutch casing must be in very good condition. For this reason do not use an iron jemmy or similar for this purpose. Lower the jack and pull forward the gearbox.

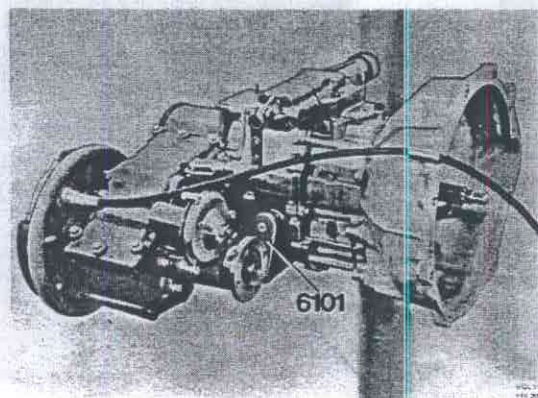


Fig. 43-46. Fixing gearbox on stand

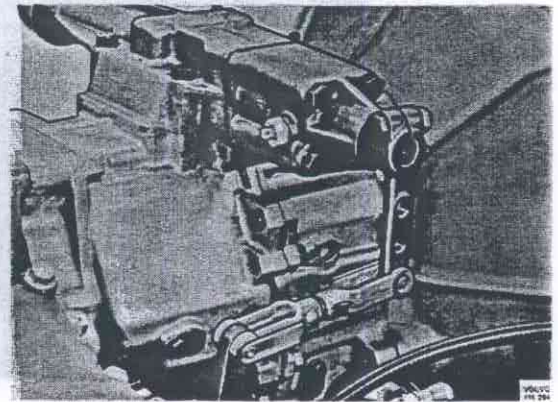


Fig. 43-47. Link between gearbox and aux. gearbox

Disassembling the gearbox

Special tools: 1784, 1801, 1817, 2014, 2116, 4090, 6100, 6101.

1. Clean the outside of the gearbox and auxiliary gearbox.
2. Remove the cover on the left-hand side of the gearbox and the gearbox filler plug. Fit fixture 6101 on the gearbox, see Fig. 43-49. Secure the gearbox on a reconditioning stand, see Fig. 43-46.
3. Remove the link arm between the gearbox and auxiliary gearbox, Fig. 43-47.
4. Remove the rear cover on the auxiliary gearbox and the nuts securing the box. Fit puller 2116, Fig. 43-48, and pull the auxiliary gearbox from the gearbox.
5. Remove the lever on the shift axle and remove the cover. Remove the outer part of the selector shaft housing.

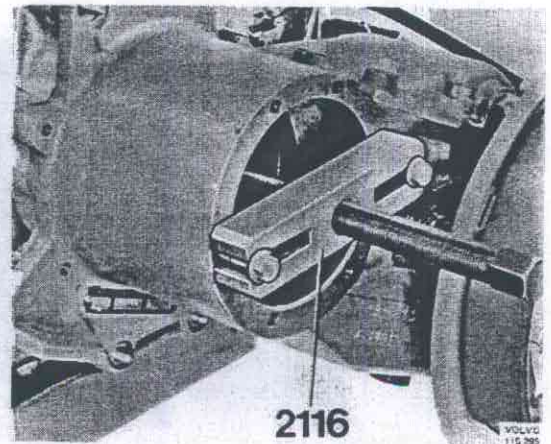


Fig. 43-48. Attaching puller

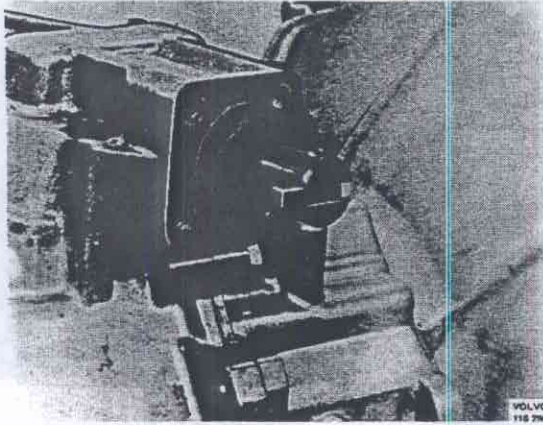


Fig. 43-49. Tube pin in selector shaft

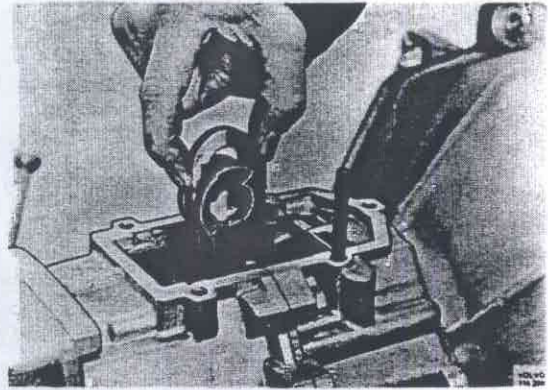


Fig. 43-51. Removing gear shift bar

6. Remove the tubular pin from the selector shaft, Fig. 43-49 and remove the lug. Remove the circlip holding the selector fork.
7. Remove the circlip, washer, spring, spacer tube, washer, spring and spacer tube.
8. Pull out the selector shaft and remove the lock shaft, Fig. 43-50.
9. Remove the bolts and nuts securing the selector shaft housing. Remove the housing.
10. Remove the intermediate gear shift bar, Fig. 43-51. Remove the packing.
11. Engage two gears. Remove the nut on the output shaft, Fig. 43-52, and pull off the sleeve. Remove the nuts for the rear cover and take care of the washers.
12. Remove the cover, shims and packing, Fig. 43-53.

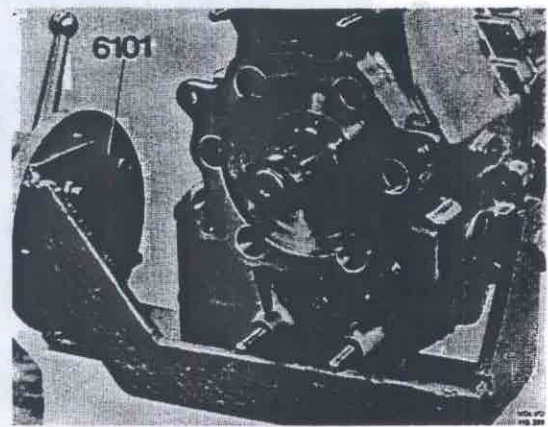


Fig. 43-52. Output shaft nut

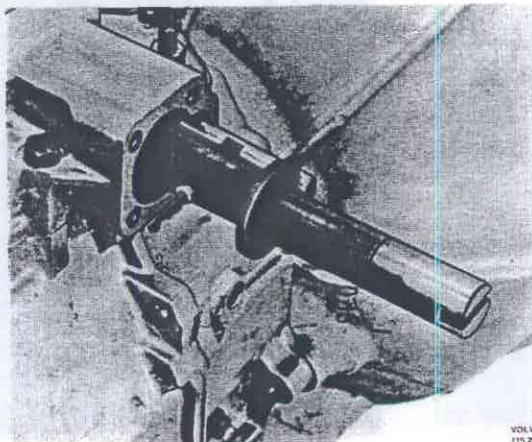


Fig. 43-50. Selector shaft with lock shaft

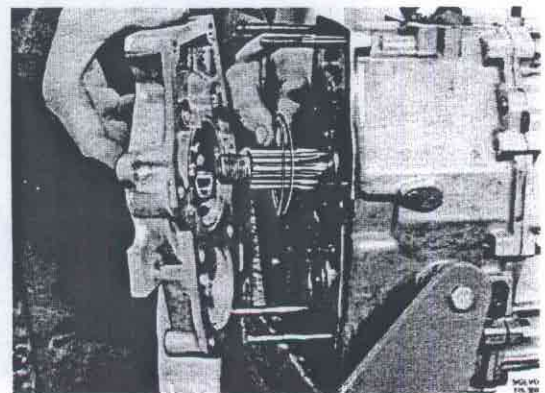


Fig. 43-53. Removing rear cover and shim

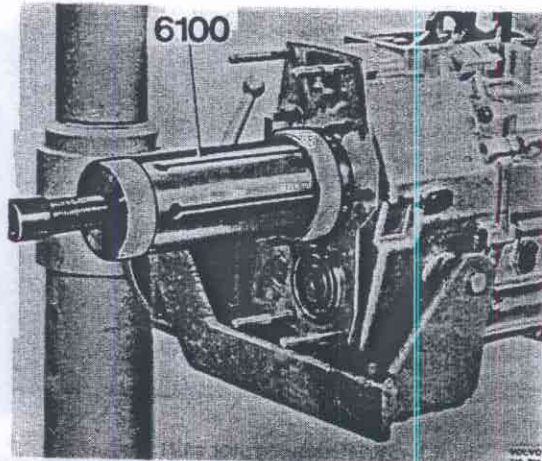


Fig. 43-54. Removing rear bearing

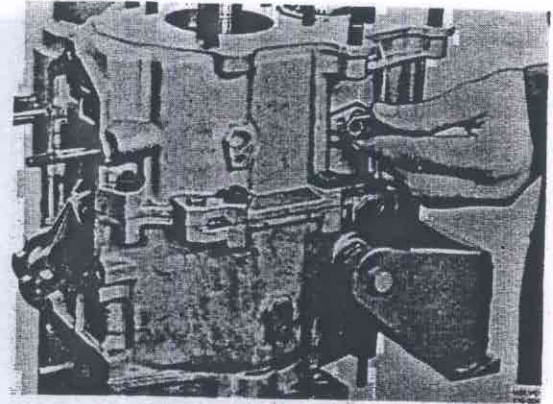
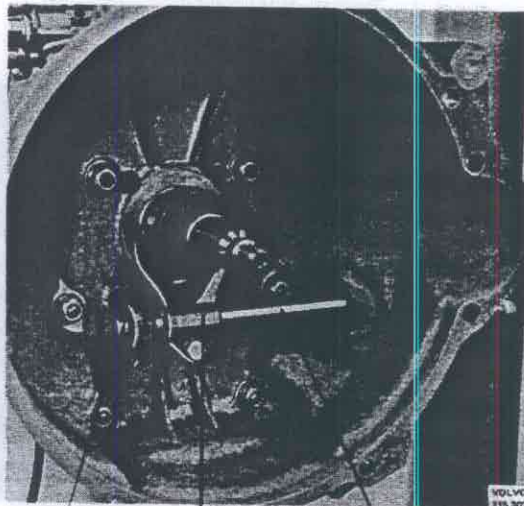


Fig. 43-57. Removing bearing pins



Release bearing Release fork Release shaft

Fig. 43-55. Throw-out shaft and bearing

13. Remove the circlip for the output shaft bearing. Remove the shims behind the circlip. Remove the bearing with 6100, Fig. 43-54. Turn the gearbox.
14. Remove the disengaging bearing, lever and disengaging shaft, Fig. 43-55. Remove the nuts securing the clutch casing. Remove the casing.
15. Remove the front cover, Fig. 43-56. Remove the shims for the input shaft and intermediate shaft.
16. Remove the packing. Remove the circlip on the input shaft. Remove the shims behind the circlip. Remove the circlip on the input shaft bearing. Remove the bearing with 6100.
17. Turn the gearbox. Remove the bearing journals for the selector forks, Fig. 42-47.
18. Knock out both the guide pins holding together the gearbox housing halves, Fig. 43-58. Remove the nuts and the Allen bolts (6 mm = 1/4").

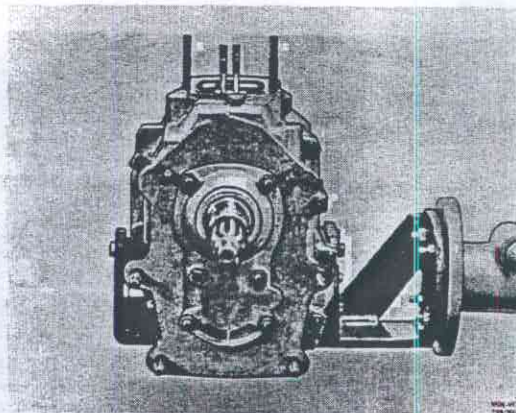


Fig. 43-56. Front cover

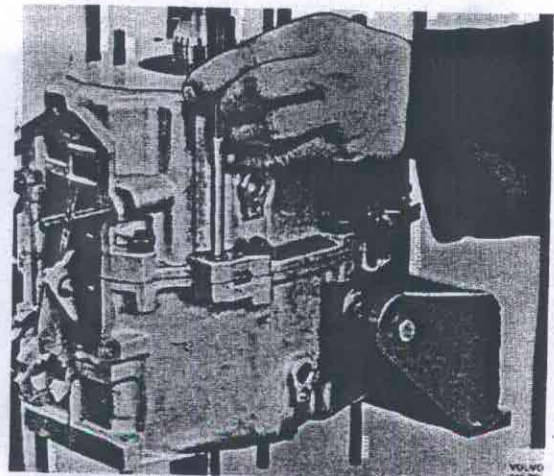


Fig. 43-58. Driving out guide pin

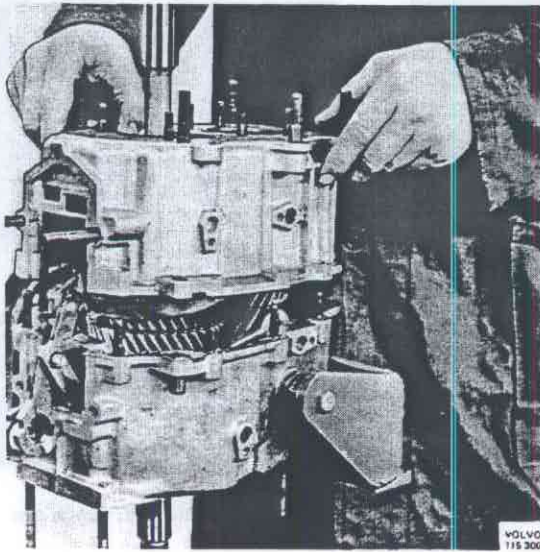


Fig. 43-59. Removing housing half

19. Remove the front housing half, Fig. 43-59. Remove the lock pin and spring for 3rd-4th synchronizing.
20. Remove the input shaft, the synchronizing cone and roller bearing, Fig. 43-60.
21. Remove the engaging sleeve and selector fork for 3rd-4th synchronizing, Fig. 43-61. Remove the interlock units.
22. Lift up the output shaft and remove the selector fork for 1st-2nd synchronizing, Fig. 43-62.
23. Lift the output shaft to the one side and remove the intermediate shaft, Fig. 43-63.

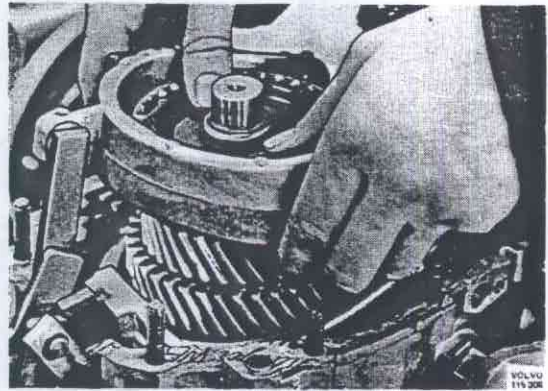


Fig. 43-61. Removing engaging sleeve

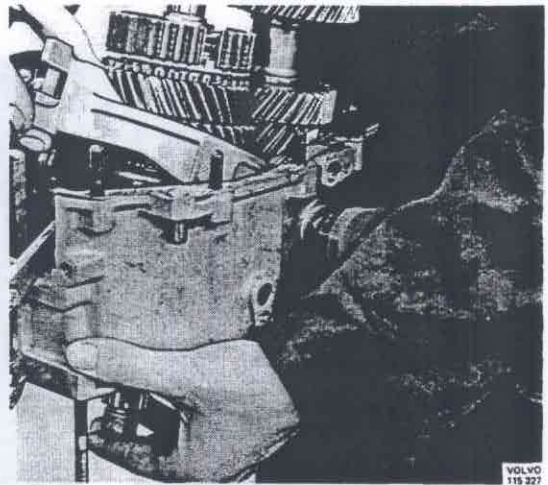


Fig. 43-62. Removing selector fork

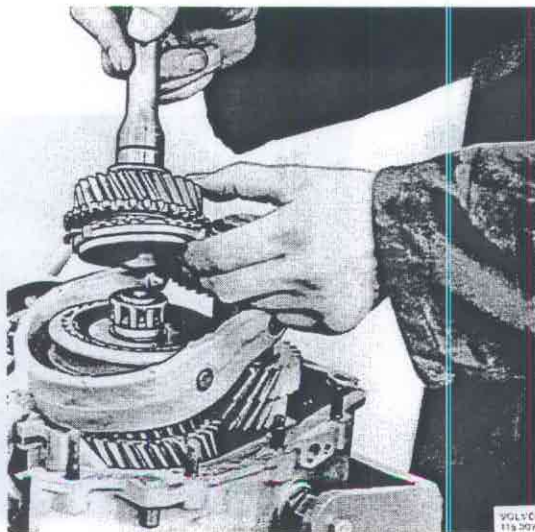


Fig. 43-60. Removing input shaft

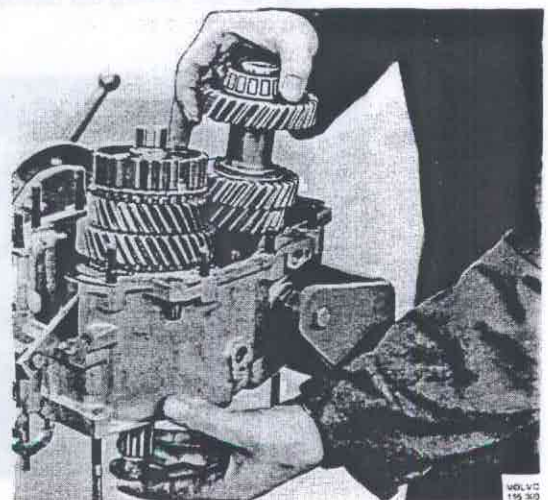


Fig. 43-63. Removing intermediate shaft

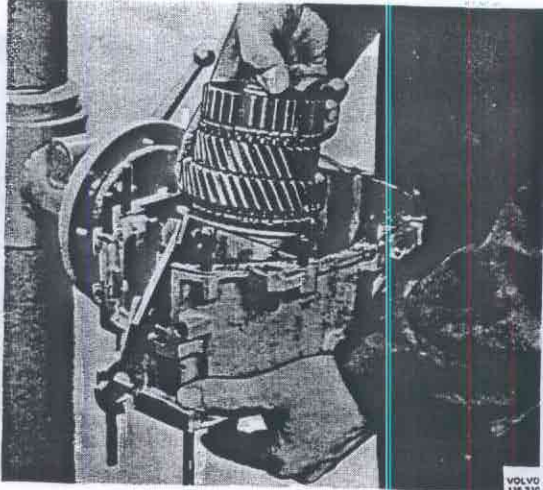


Fig. 43-64. Removing output shaft

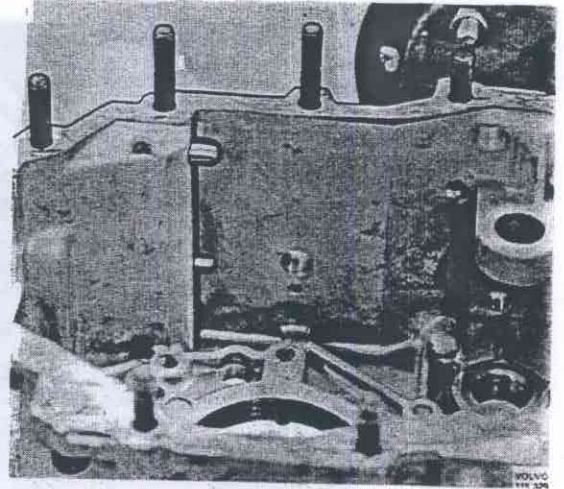


Fig. 43-67. Lock pin

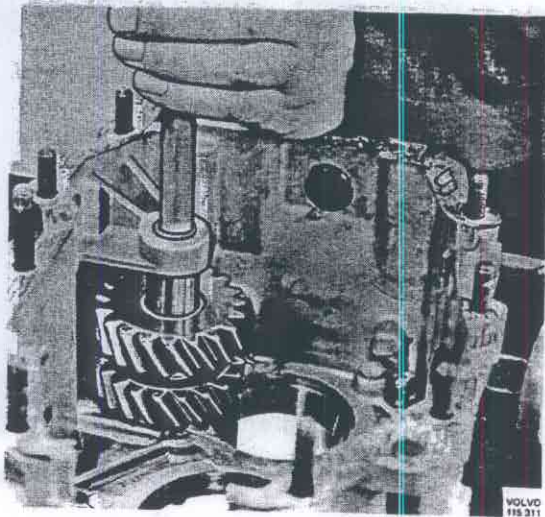


Fig. 43-65. Driving out reverse gear shaft

24. Remove the output shaft and the selector fork for the reverse shaft, Fig. 43-64.
25. Drive out backwards the shaft for the reverse gear, Fig. 43-65, and remove the gear.
26. Drive out the outer races for the intermediate shaft bearing with 2014 + 1801, Fig. 43-66.
27. Remove the lock pins and the springs, Fig. 43-67, for the selector forks. Remove the housing half from the fixture.

Disassembling the output shaft

1. Place the shaft in a press with a counterhold under 1st gear, Fig. 43-68. Press off the inner race, the reverse gear and 1st gear. Remove the needle bearing.

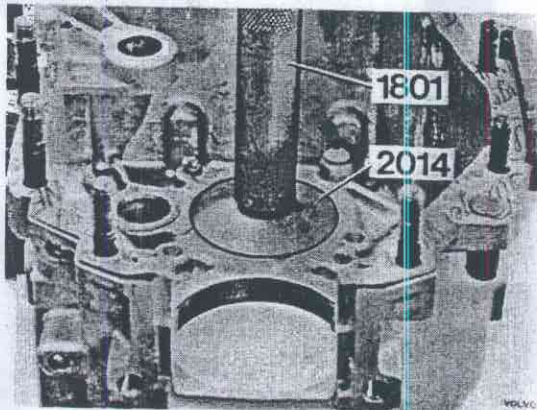


Fig. 43-66. Driving out outer race

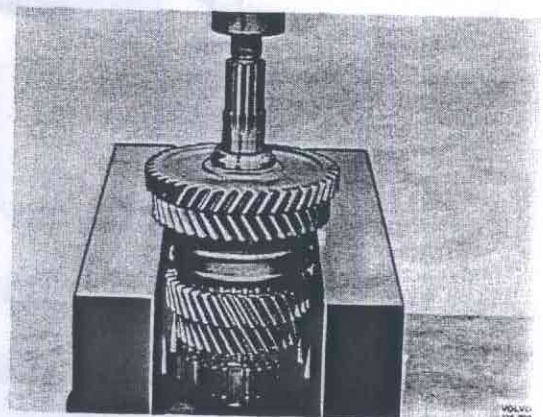


Fig. 43-68. Removing 1st gear

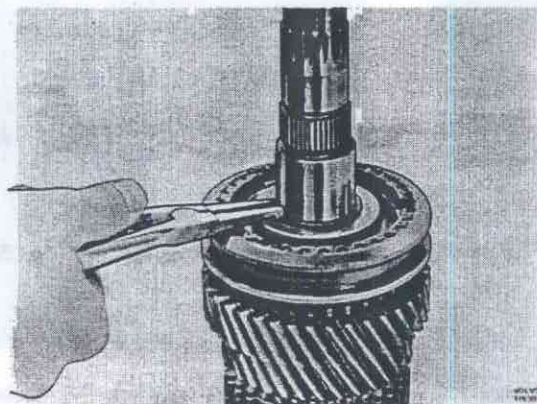


Fig. 43-69. Removing circlip

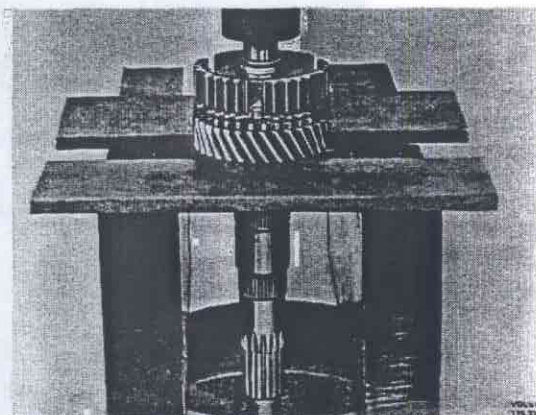


Fig. 43-71. Removing hub and gear

2. Remove the lock ring for 1st-2nd synchronizing hub, Fig. 43-69. Place the shaft in a press with a counterhold under 2nd gear, Fig. 43-70. Press off the synchronizing hub and gear. Remove the engaging sleeve and the interlock units. Remove the needle bearing.
3. Remove the lock ring for 3rd-4th synchronizing hub. Place the shaft in a press with a counterhold under 4th gear, Fig. 42-71. Press of the synchronizing hub and gear. Remove the needle bearing.

Disassembling the countershaft

1. Remove the circlip for the front bearing. Press off the cluster gear and the front roller bearing, Fig. 43-72.
 2. Remove the circlip for 3rd gear and press of the gear, Fig. 43-73.
 3. Press off the rear roller bearing, Fig. 43-74.
- Make sure that the counterhold lies against the bearing when removing.

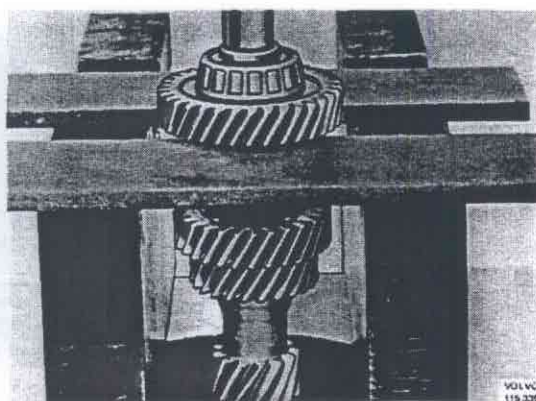


Fig. 43-72. Removing cluster gear

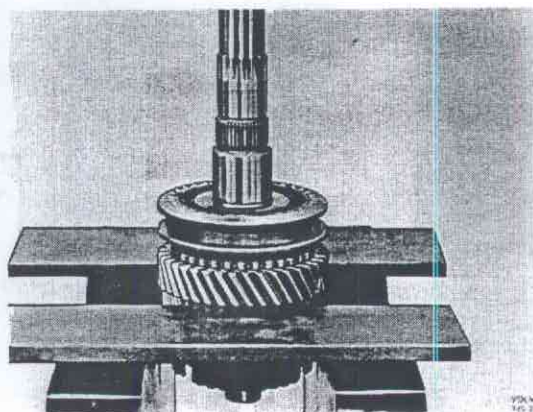


Fig. 43-70. Removing hub and gear

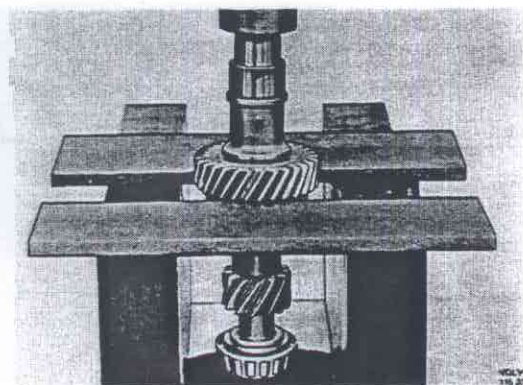


Fig. 43-73. Removing 3rd gear