



SERVICE MANUAL

VOLVO 164 1971

GROUP 41

CLUTCH

TOOLS

The following tools are used for repairs on the clutch

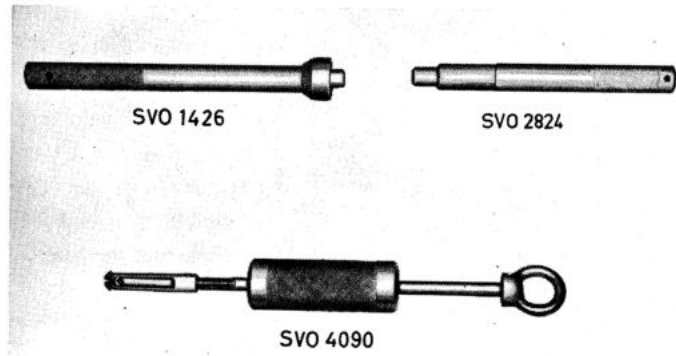


Fig. 4-1. Special tools

SVO 1426 Drift for pilot bearing in flywheel
SVO 2824 Mandrel for centering clutch plate
SVO 4090 Puller for ball bearing in flywheel

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DESCRIPTION

The clutch is of the diaphragm spring type. It consists mainly of a pressure plate, diaphragm spring and a sheet-metal casing. The diaphragm spring has a double function, that of a clutch lever when declutching and a pressure spring when engaging.

The clutch operation takes place by means of the clutch pedal, and on left-hand steered vehicles its movements are transferred to the clutch via a wire, a lever and a release bearing. On right-hand steered vehicles, the movements are transmitted with the help of a hydraulic control.

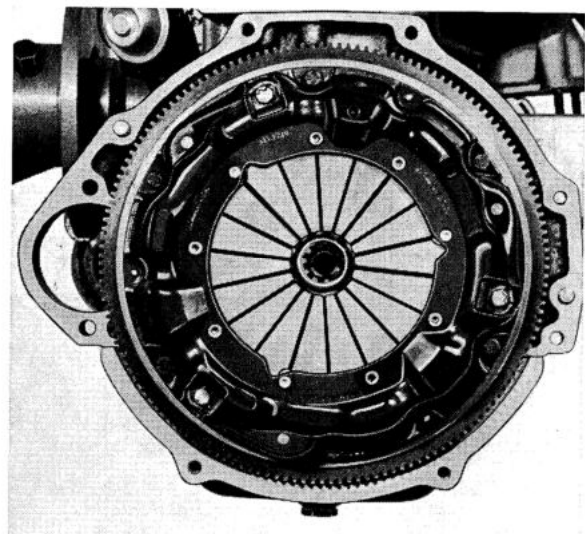


Fig. 4-2. Clutch

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REPAIR INSTRUCTIONS

WORK WHICH CAN BE CARRIED OUT WITH THE CLUTCH INSTALLED

ADJUSTING THE CLUTCH PEDAL PLAY

Correct clutch pedal play is obtained by adjusting the release lever so that on left-hand steered vehicles a play of 4–5 mm (0.16–0.20"), A in Fig. 4-3, is obtained. Play is adjusted by unscrewing or screwing in the fork (3) on the clutch wire. If this adjustment is insufficient,

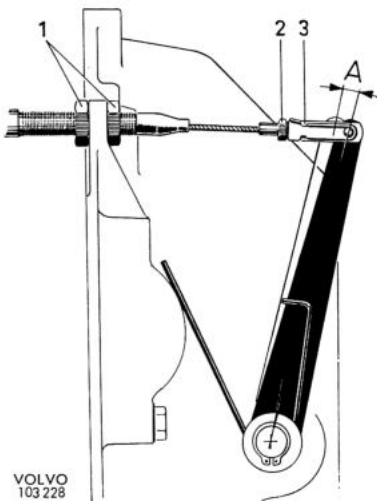


Fig. 4-3. Release lever play
A = 4–5 mm (0.16–0.20")

1. Adjusting nuts 2. Locknut 3. Fork

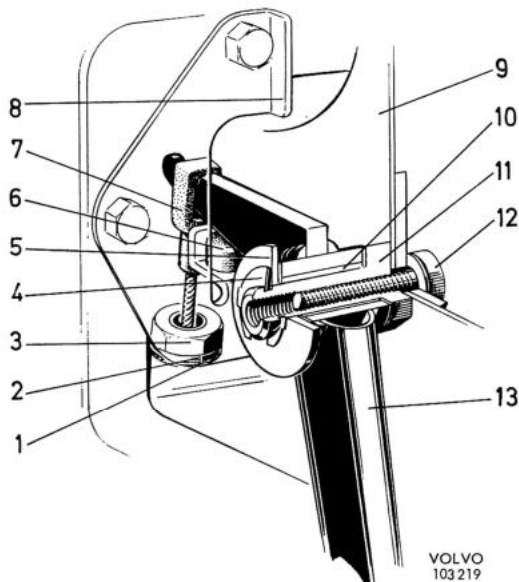


Fig. 4-4. Pedal carrier

1. Rubber bushing	6. Rubber stop	11. Pedal shaft
2. Washer	7. Clutch wire	12. Bolt
3. Nut	8. Stop bracket	13. Clutch pedal
4. Lock washer	9. Bracket	
5. Washer	10. Bush	

for example, because of replacement of the clutch wire, the sleeve attachment to the clutch casing is moved by means of the nuts (1).

For right-hand steered vehicles, the corresponding play should be 2–3 mm (0.08–0.12") and adjustment is made by altering the length of the thrust rod.

REPLACING THE CLUTCH WIRE

1. Unhook the return spring for the release lever. Disconnect the wire from the lever.
2. Unscrew the rear nut and remove the wire sleeve from the clutch casing.
3. Disconnect the wire from the clutch pedal. Unscrew the nut for the wire sleeve and remove the wire.
4. Fit the new wire in reverse order to removal. Adjust the pedal play.

REPLACING THE CLUTCH PEDAL OR BUSHES

The description given below is applicable if it concerns either the replacement of the pedal or of the bushes.

1. Release the bolts and remove the stop bracket for the pedal.
2. Unhook the wire from the pedal. Remove the circlip and lift off the pedal.
3. Drive out the old bushes with a suitable drift. Press in the new bushes. Lubricate them with grease.
4. If the pedal shaft is worn, replace it. It is fixed by means of a bolt.
5. Place the pedal on the shaft and fit the circlip.
6. Hook on the wire to the pedal. Fit the stop bracket. Adjust the pedal play.

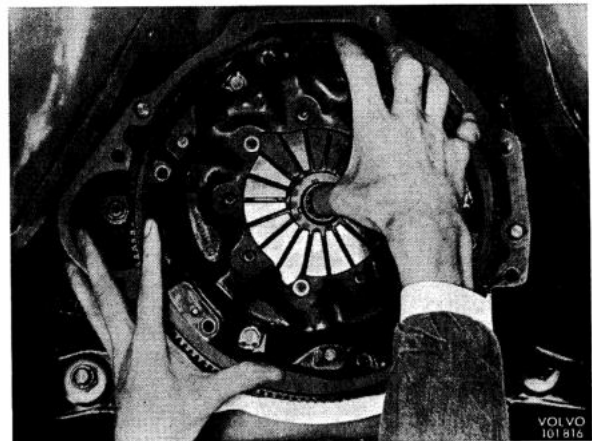


Fig. 4-5. Removing the clutch

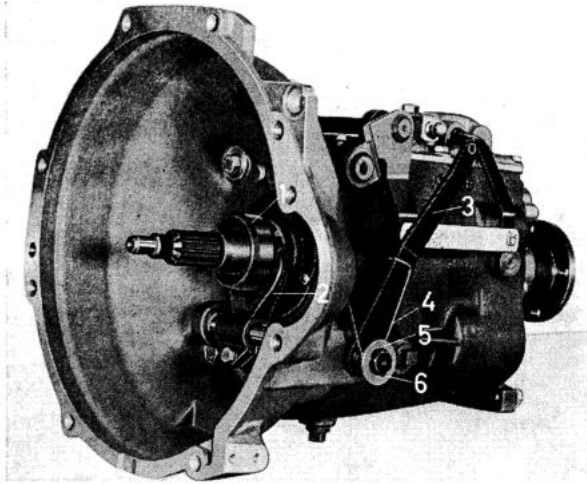


Fig. 4-6. Release components

- | | |
|----------------------------|------------------|
| 1. Release bearing | 4. Return spring |
| 2. Release fork | 5. Washer |
| 3. Release shaft and lever | 6. Circlip |

REMOVING THE CLUTCH

1. Remove the gearbox in accordance with the instructions given in Group 43.
2. Slacken the bolts holding the clutch to the flywheel by loosening them crosswise a couple of turns at a time to prevent warping. Remove the clutch and clutch plate.

RECONDITIONING THE RELEASE COMPONENTS

1. Remove the bolt in the release fork. Take out the release bearing. Pull out the release shaft.
2. Drive out the old bushes with a suitable drift. Press in the new bushes.
3. Coat a thin layer of grease on the sleeve of the release bearing and then install the bearing in position.
4. Hold the release fork in its place and insert the release shaft.

REPLACING THE INPUT SHAFT PILOT BEARING

1. Remove the circlip for the bearing. Pull out the bearing with puller SVO 4090.
2. Pack the bearing with heat-resistant grease. Then fit it with the help of drift SVO 1426. Fit the circlip.

INSPECTING

Check the clutch thoroughly. The pressure plate should be checked for heat damage, cracks, scoring or other damage to the friction surface. Check the curvature of the pressure plate with a 240 mm (9.45") long steel

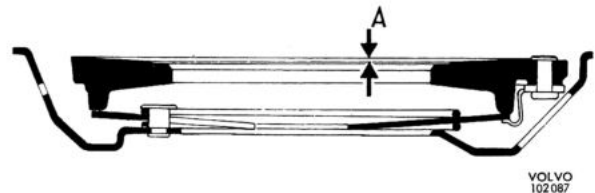


Fig. 4-7. Checking the curvature of the pressure plate

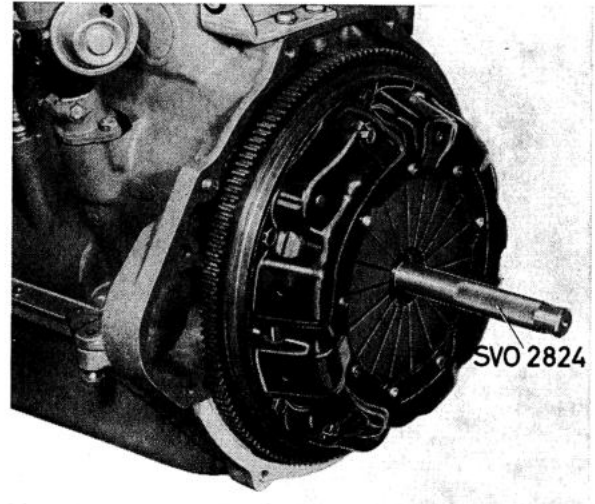


Fig. 4-8. Fitting the clutch

ruler, which is placed diagonally over the friction surface of the pressure plate. Then measure the distance between the straight edge of the ruler and the inner diameter of the pressure plate. This measurement must not exceed a maximum of 0.03 mm (0.0012"), see A Fig. 4-7. There must be no "crowning", that is, clearance between the straight edge of the ruler and the outer diameter of the pressure plate. The check should be carried out at several points.

FITTING

Before fitting, check that the clutch facings, the flywheel and the pressure plate are completely free from oil. Wash them with clean petrol (gasoline) and wipe off well with a clean piece of cloth.

1. Set up the clutch plate (the longest side of the hub facing backwards) together with the clutch against the flywheel and insert the centering mandrel SVO 2824 so that the guide journal on this centers the pilot bearing in the flywheel, see Fig. 4-8.
2. Place in the six bolts which hold the clutch and tighten them crosswise a couple of turns at a time. Remove the centering mandrel.
3. Fit the gearbox according to the instructions given in Group 43. Adjust the clutch pedal play.

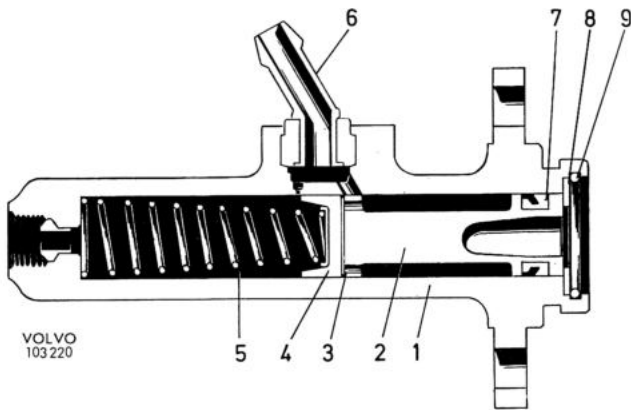


Fig. 4-9. Master cylinder

- | | |
|----------------|---|
| 1. Cylinder | 6. Connection pipe
for fluid container |
| 2. Piston | 7. Piston seal |
| 3. Washer | 8. Washer |
| 4. Piston seal | 9. Circlip |
| 5. Spring | |

CLUTCH CONTROL, RIGHT-HAND DRIVE

MASTER CYLINDER

Removing

1. Remove the hose from the clutch fluid container and allow the fluid to run out into a clean vessel. Disconnect the pipe from the master cylinder.
2. Remove the bolt in the clutch pedal. Release the bolts and remove the master cylinder.

Dismantling

1. Remove the rubber cover and the thrust rod.
2. Remove the circlip and take out the washer, piston, piston seal and return spring.
3. Remove the outer piston seal from the piston.

Inspecting

Clean all the parts in white spirit and check them for wear or other damage.

Assembling

1. Dip the piston seals and the piston in brake fluid. Fit the outer seal on the piston.
2. Fit the return spring, piston seal, piston and washer in the cylinder. Fit on the circlip.
3. Fit the thrust rod and the rubber cover. Make sure that the venting hole in the rubber cover faces downwards.

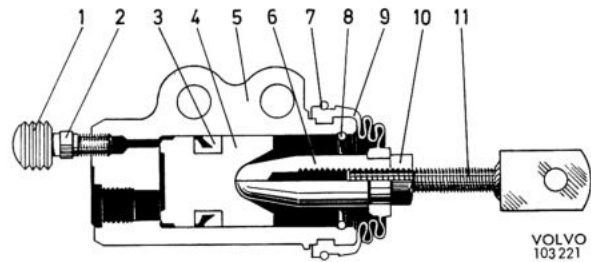


Fig. 4-10. Master cylinder

- | | | |
|-------------------|------------------|-----------------|
| 1. Rubber cover | 5. Cylinder | 9. Rubber cover |
| 2. Venting nipple | 6. Thrust sleeve | 10. Locknut |
| 3. Piston seal | 7. Circlip | 11. Thrust rod |
| 4. Piston | 8. Stop ring | |

Fitting

Fitting is in reverse order to removal. Fill with brake fluid and bleed the system.

MASTER CYLINDER

Removing

Disconnect the pipe from the hose. Release the hose from the container. Unhook the return spring. Slacken the bolts and lift off the master cylinder.

Dismantling

Remove the rubber cover and the thrust rod. Take off the circlip and also the piston.

Inspecting

See under the heading "Inspecting the master cylinder", which applies where relevant.

Assembling

Dip the piston and seal in brake fluid and place the seal on the piston. Fit the piston in the cylinder. Fit the circlip, the thrust rod and the dust cover.

Fitting

Fitting is in reverse order to removal. Bleed the system and adjust the free travel of the clutch lever.

BLEEDING THE HYDRAULIC SYSTEM

Check to make sure that the fluid container is filled with brake fluid. Remove the rubber cap on the bleeder valve on the master cylinder. Fit a bleeder hose to the valve and insert the hose down into a container with brake fluid. Open the bleeder valve and depress the clutch pedal. Shut off the bleeder valve while the pedal is fully depressed. Then release the pedal. Repeat this procedure until fluid free from air bubbles flows out. Fill the container with brake fluid.