CLUTCH OPERATIONS

CLUTCH ASSEMBLY

–Remove and refit **33.10.01**

Service tool **605022 Clutch plate alignment gauge.**

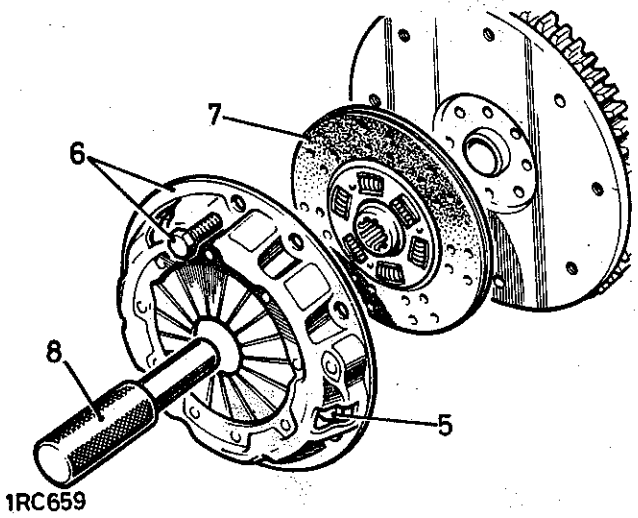
NOTE: If it is required to remove the clutch only, it is not necessary to remove the seat base nor completely remove the gearbox. Proceed with the gearbox removal 37.20.01, but only withdraw the gearbox rearward approximately 130 mm (5 in.), to give access to the clutch fixings.

Removing

1. Remove the front floor. 76.10.12.
2. Remove the front seat base. 76.70.06.
3. Remove the gearbox assembly. 37.20.01.
4. Mark the clutch cover fitted position relative to the flywheel.
5. Do not disturb the three bolts located in the apertures in the clutch cover.
6. Remove the clutch assembly.
7. Withdraw the clutch driven plate.

Refitting

8. Reverse 6 and 7 locating the driven plate with the side marked 'Flywheel side' towards the flywheel, and ensure that the clutch cover and flywheel assembly marks are aligned. Centralising tool 605022.
9. Secure the cover fixings evenly, using diagonal selection. Torque 3,0 to 3,5 kgf. m (22 to 25 lbf. ft.).
10. Reverse 1 to 3.



DATA

Clutch driven plate diameter	241,3 mm (9.500 in.).
Damper springs colour identification	Dark green.

CLUTCH ASSEMBLY

—Overhaul **33.10.08**

Clutch assembly

The clutch assembly is of the diaphragm spring type and no overhaul procedures are applicable. Repair is by replacement only.

Clutch driven plate

Examine clutch driven plate for wear and signs of oil contamination. Examine all rivets for pulling and distortion, rivets must be below the friction surface. If oil contamination is present on the friction linigns or if they are appreciably worn, replace the clutch driven plate assembly complete or alternatively, replace the friction linings following standard workshop practices.

DATA

Clutch driven plate diameter	241,3 mm (9.5 in.).
Damper springs colour identification	Dark green.

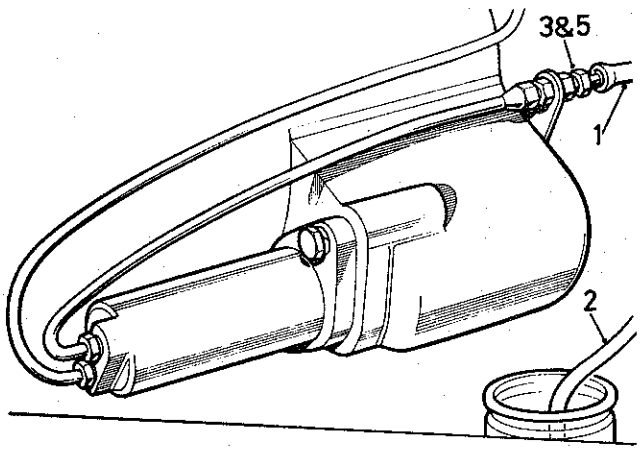
HYDRAULIC SYSTEM

–Bleed **33.15.01**

Procedure

NOTE: During the procedure, keep the fluid reservoir topped up to avoid introducing further air into the system. Use only the recommended type of hydraulic fluid. Division 09 refers.

1. Attach a length of suitable tubing to the slave cylinder bleed screw.
2. Place the free end of the tube in a glass jar containing clutch fluid.
3. Slacken the bleed screw.
4. Pump the clutch pedal, pausing at the end of each stroke, until the fluid issuing from the tubing is free of air with the tube free end below the surface of the fluid in the container.
5. Hold the tube free end immersed and tighten the bleed screw when commencing a pedal down stroke.



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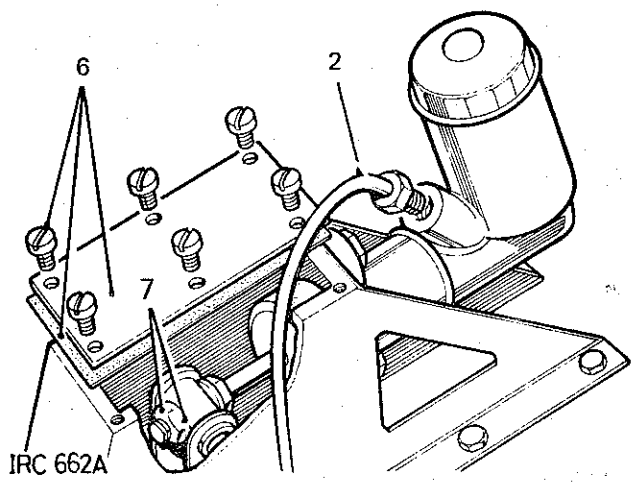
MASTER CYLINDER

—Remove and refit **33.20.01**

Removing

1. Remove the bonnet. 76.16.01.
2. Disconnect the fluid pipe from the clutch master cylinder.
3. Disconnect the return spring from the clutch pedal.
4. Remove the fixings securing the clutch pedal bracket from inside the vehicle cab.
5. Withdraw the bracket complete with pedal and master cylinder.



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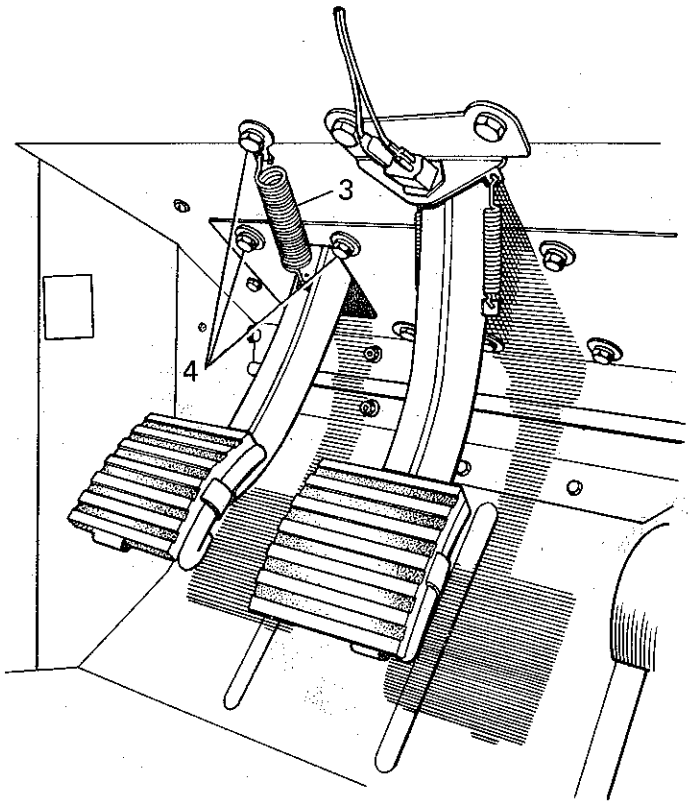
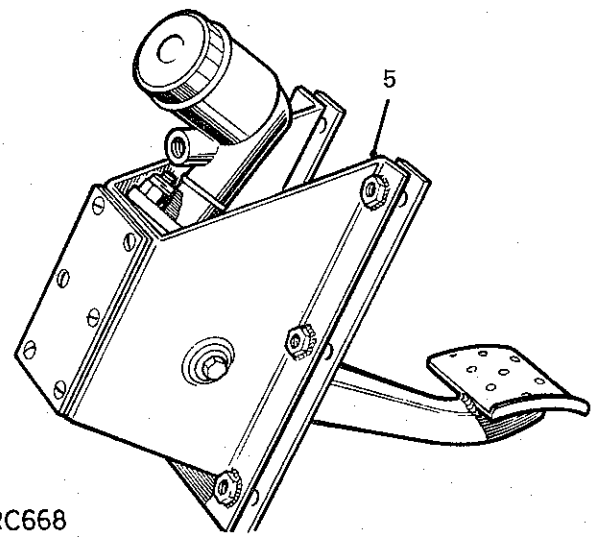




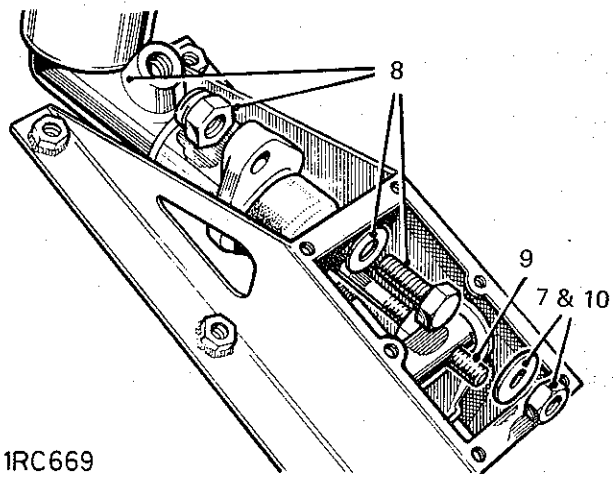
6. Remove the top cover and gasket from the clutch pedal bracket.
7. Remove the fixings from the end of the master cylinder push rod.
8. Remove the master cylinder from the pedal bracket.

Refitting

9. Fit the master cylinder to the pedal bracket, engaging the cylinder push rod through the pedal trunnion.
10. Fit the plain washer and nut to the end of the push rod.
11. Reverse 2 to 5.
12. Bleed the clutch hydraulic system. 33.15.01.

Clutch pedal and master cylinder setting

13. Slacken both locknuts on the master cylinder push rod.
14. Check the distance from the lower edge of the clutch pedal to the floor. The correct distance is 140 mm (5.500 in.).
15. Adjust the pedal stop, as required, to obtain the correct distance.
16. Adjust the master cylinder push rod until there is approximately 1,5 mm (0.062 in.) free play between the push rod and the master cylinder piston.
17. Tighten both locknuts.
18. Check the operation of the clutch pedal and ensure that there is a minimum of 6 mm (0.250 in.) free movement of the pedal before pressure is felt. If necessary, readjust the master cylinder push rod.
19. Fit the gasket and top cover to the clutch pedal bracket.
20. Reverse 1



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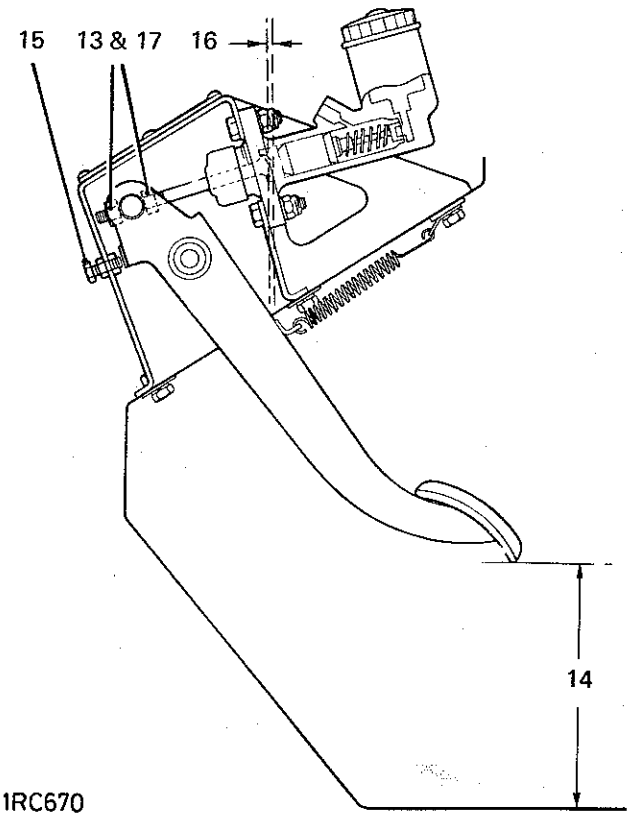

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MASTER CYLINDER

—Overhaul **33.20.07**

Dismantling

1. Remove the master cylinder. 33.20.01.
2. Remove the circlip.
3. Withdraw the push rod and retaining washer.
4. Withdraw the piston assembly. If necessary, apply a low air pressure to the outlet port to expel the piston.
5. Prise the locking prong of the spring retainer clear of the piston shoulder and withdraw the piston.
6. Withdraw the piston seal.

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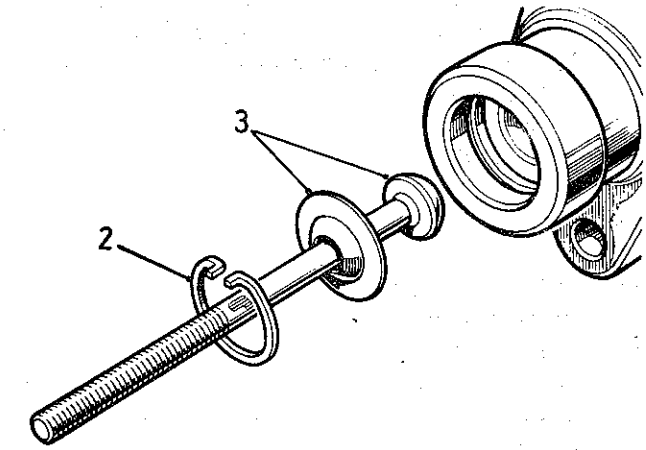

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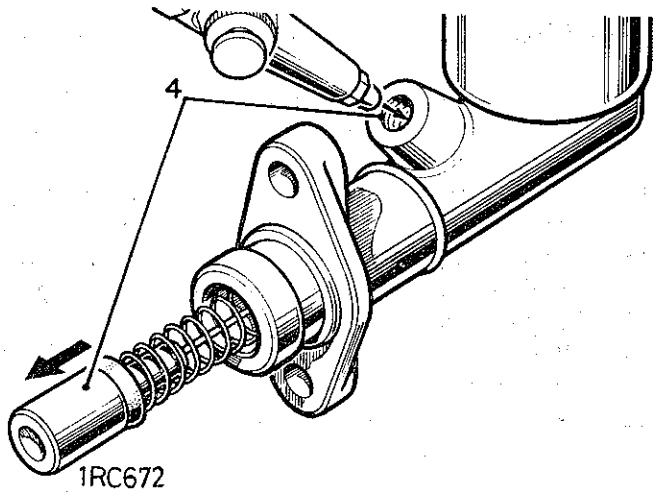

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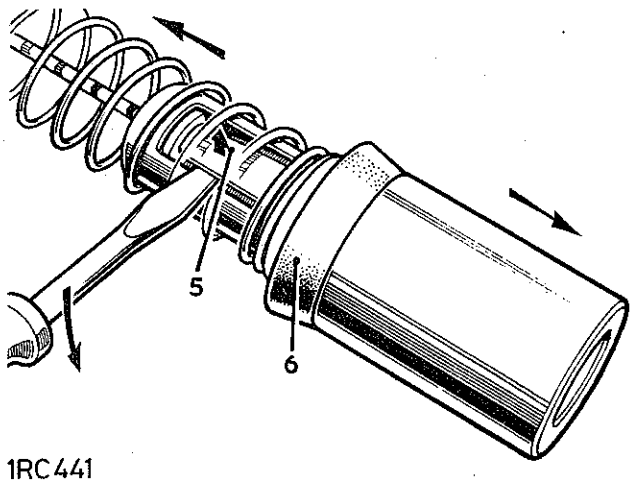

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7. Compress the spring and position the valve stem to align with the larger hole in the spring retainer.
8. Withdraw the spring and retainer.
9. Withdraw the valve spacer and spring washer from the valve stem.
10. Remove the valve seal.

Inspecting

11. Clean all components in Girling cleaning fluid or methylated spirits and allow to dry.
12. Examine the cylinder bore and piston, ensure that they are smooth to the touch with no corrosion, score marks or ridges. If there is any doubt, fit new replacements.
13. The seals should be replaced with new components.

Assembling

14. Smear the seals with Castrol-Girling rubber grease and the remaining internal items with Castrol-Girling Brake and Clutch Fluid.
15. Fit the valve seal, flat side first, on to the end of the valve stem.
16. Place the spring washer, domed side first, over the small end of the valve stem.
17. Fit the spacer, legs first.
18. Place the coil spring over the valve stem.
19. Insert the retainer into the spring.
20. Compress the spring and engage the valve stem in the keyhole slot in the retainer.

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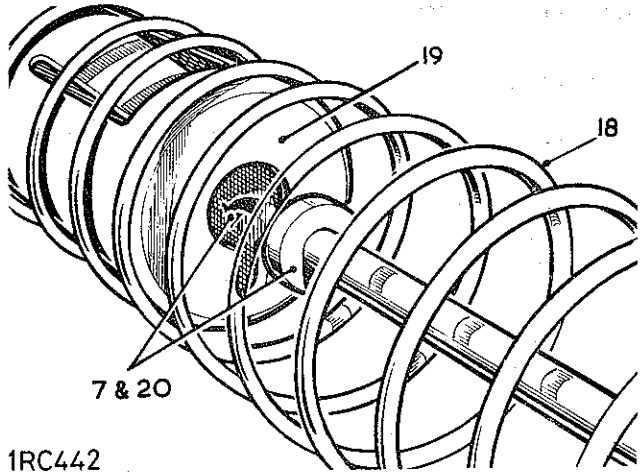

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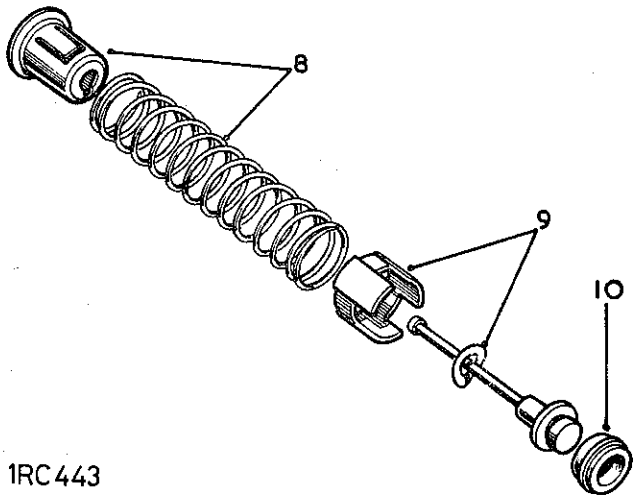

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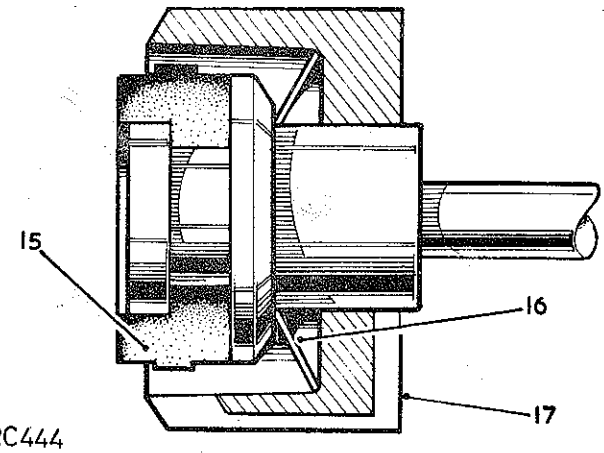

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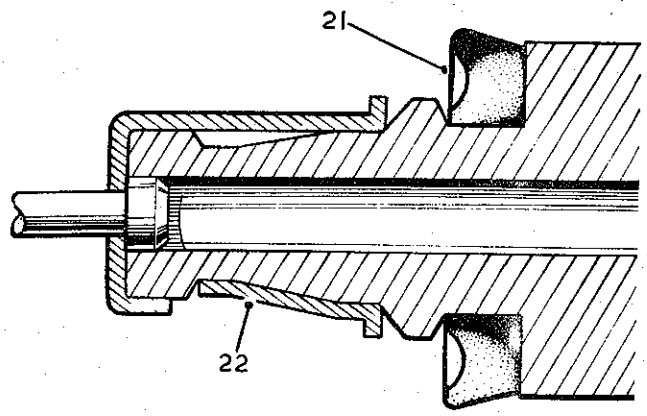
21. Fit the seal, large diameter last, to the piston.
22. Insert the piston into the spring retainer and engage the locking prong.
23. Smear the piston with Castrol-Girling rubber grease and insert the assembly, valve end first, into the cylinder.
24. Fit the push rod, retaining washer and circilp.
25. Refit the master cylinder. 33.20.01.



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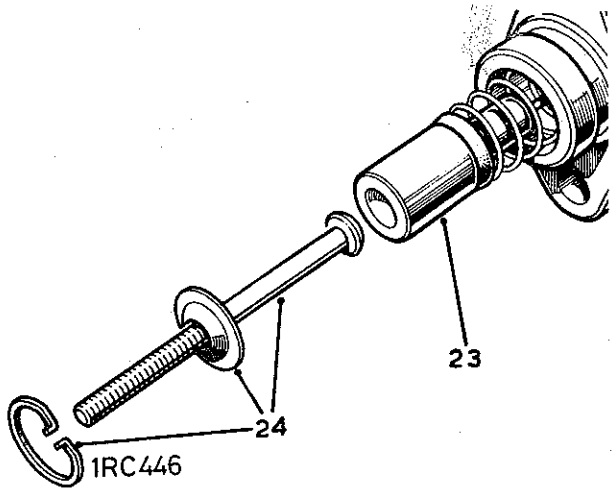

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CLUTCH RELEASE ASSEMBLY

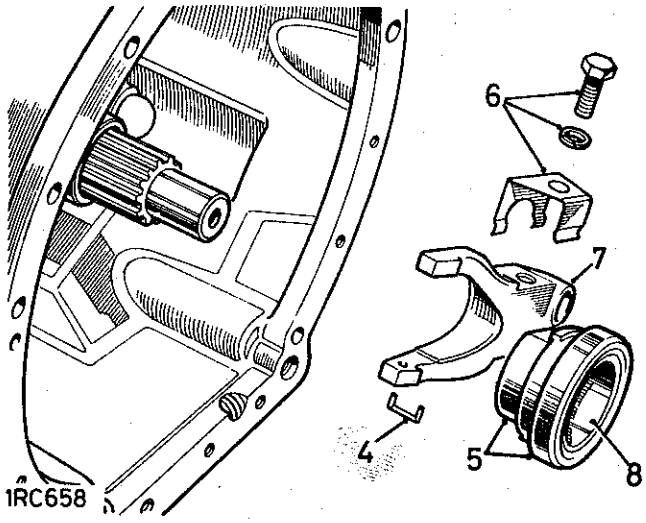
–Remove and refit 33.25.12

Removing

1. Remove the front floor. 76.10.12.
2. Remove the front seat base. 76.70.06
3 Remove the gearbox. 37.20.01.
4. Withdraw the retainer staple.
5. Withdraw the bearing and sleeve. If required, press the bearing off the sleeve. Fit the replacement bearing with the domed face outwards from sleeve.
6. Remove the spring clip and fixings.
7. Withdraw the release lever assembly.

Refitting

8. Reverse 1 to 7. Lubricate the bearing sleeve inner diameter with PBC (Poly Butyl Cuprysil) grease.



CLUTCH PEDAL

—Remove and refit **33.30.02**

Removing

1. Remove the bonnet. 76.16.01.
2. Disconnect the fluid pipe from the clutch master cylinder.
3. Disconnect the return spring from the clutch pedal.
4. Remove the fixings securing the clutch pedal bracket from inside the vehicle cab.
5. Withdraw the bracket complete with pedal and master cylinder.
6. Remove the top cover and gasket from the clutch pedal bracket.
7. Remove the fixings from the end of the master cylinder push rod and push the rod into the master cylinder to clear the pedal trunnion.

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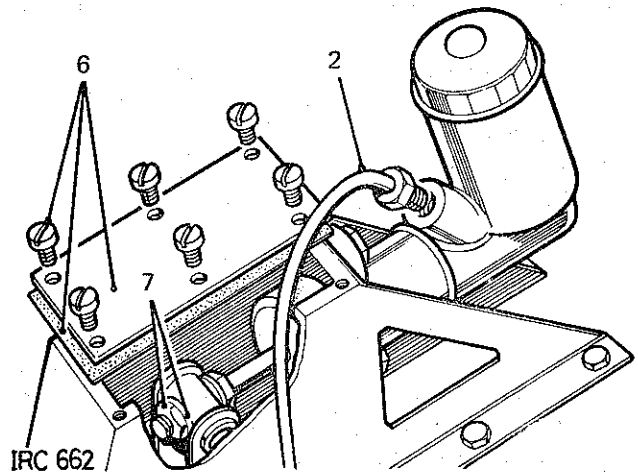
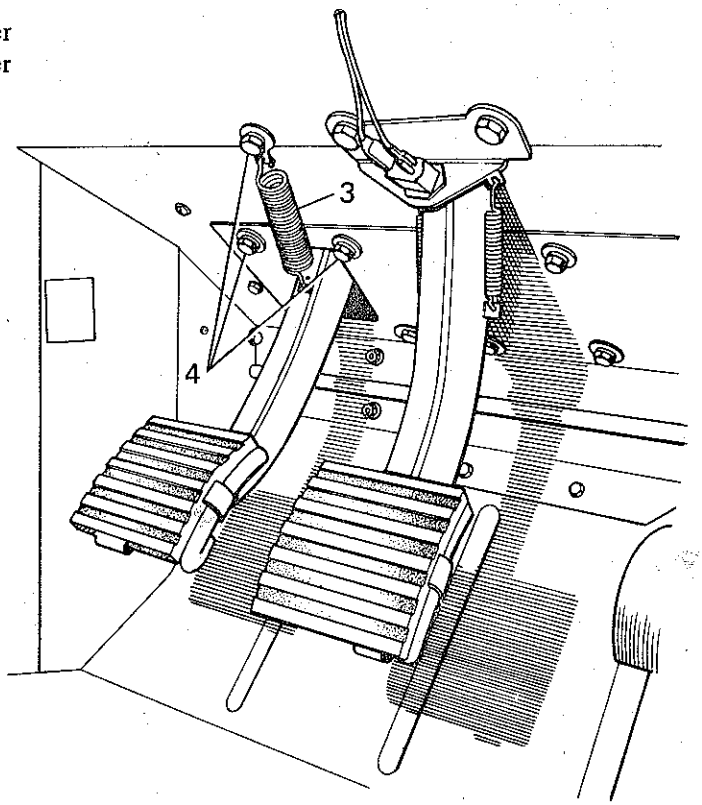
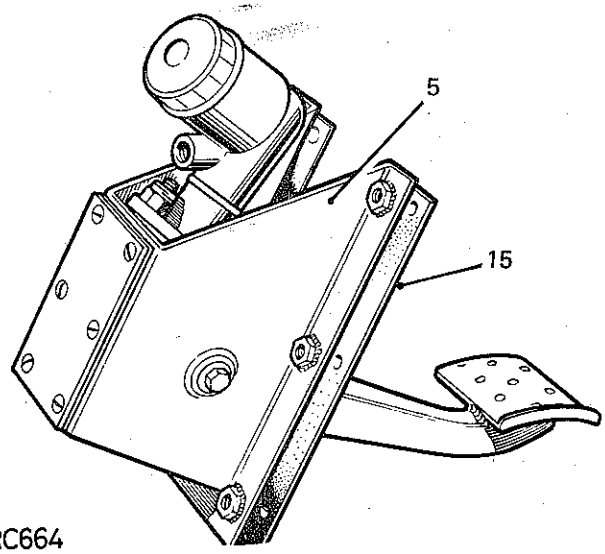


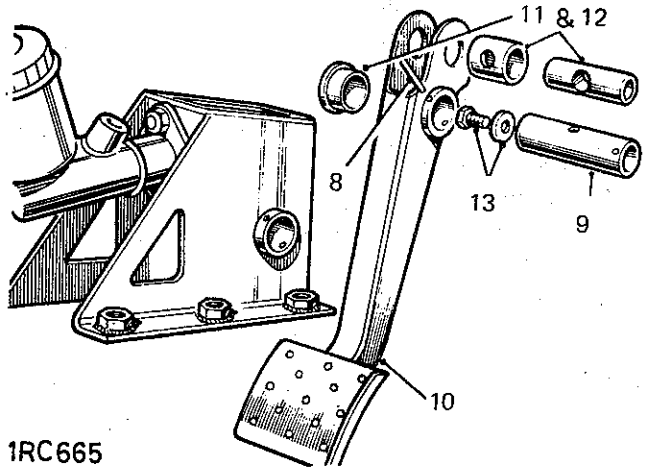




8. Using a suitable punch, drift out the pin from the pedal shaft.
9. Withdraw the pedal shaft.
10. Withdraw the clutch pedal complete with trunnion and bushes.
11. If required, remove the bushes, trunnion and distance piece from the clutch pedal.

Refitting

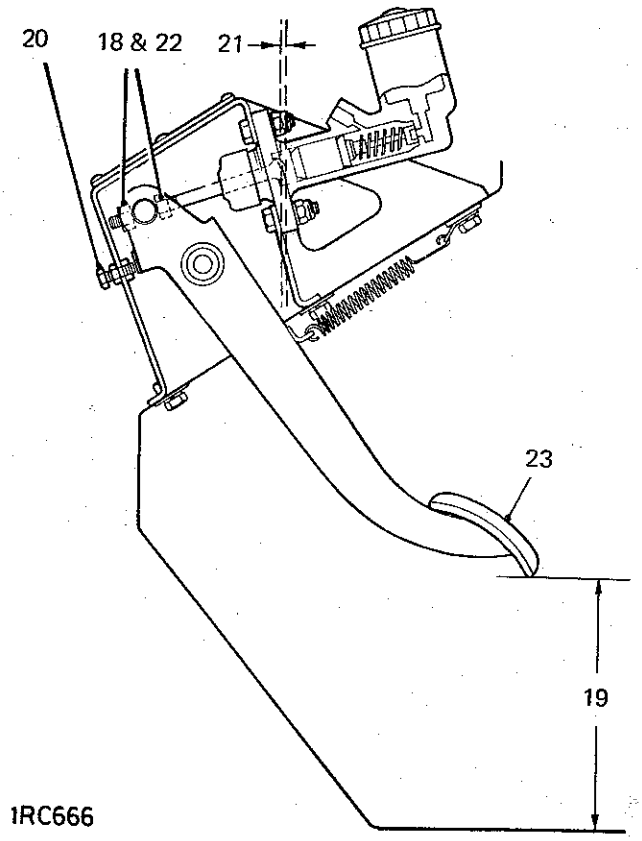
12. If removed, fit the distance piece, trunnion and bushes to the clutch pedal. Lubricate the trunnion and distance piece with general purpose grease on assembly. New pedal bushes must be reamered to 15,87 mm + 0,02 mm (0.750 in. + 0.001 in.).
13. Remove the oil plug and washer from the pedal shaft. Fill the shaft bore with clean engine oil and refit the plug and washer.
14. Reverse 7 to 10.
15. Place the gasket in position on the securing flange of the brake pedal bracket. If necessary, use Bostik adhesive to retain the gasket.
16. Reverse 2 to 5.
17. Bleed the clutch hydraulic system. 33.15.01.



continued

Clutch pedal and master cylinder setting

18. Slacken both locknuts on the master cylinder push rod.
19. Check the distance from the lower edge of the clutch pedal to the floor. The correct distance is 140 mm (5.500 in.).
20. Adjust the pedal stop, as required, to obtain the correct distance.
21. Adjust the master cylinder push rod until there is approximately 1,5 mm (0.062 in.) free play between the push rod and the master cylinder piston.
22. Tighten both locknuts.
23. Check the clutch pedal and ensure that there is a minimum of 6 mm (0.250 in.) free movement of the pedal before pressure is felt. If necessary, readjust the master cylinder push rod.
24. Fit the gasket and top cover to the clutch pedal bracket.
25. Reverse 1 and 2.



DATA

Clutch pedal pivot bushes, reamered diameter.	15,87 mm + 0,02 mm (0.750 in. + 0.001 in.).
Clutch pedal height setting	140 mm (5.500 in.).
Master cylinder push rod free play.	1,5 mm (0.062 in.).
Clutch pedal free play (minimum).	6,0 mm (0.250 in.).

SLAVE CYLINDER

–Remove and refit **33.35.01**

Removing

1. Evacuate the clutch system fluid at the slave cylinder bleed valve.
2. Disconnect the bleed pipe.
3. Disconnect the fluid pipe.
4. **Release the plastic clip from the clutch release lever and slide the clip along the push rod.
5. Remove the slave cylinder.

Refitting

6. Partially extend the push rod by applying low pressure air to the fluid connector.
7. Position the push rod central to the body.
8. Locate the push rod end into the seating in the release lever, and retain with the plastic clip.
9. Fit the slave cylinder, bleed valve uppermost.
10. Fit the fluid pipe.
11. Fit the bleed pipe.
12. Bleed and replenish the hydraulic system, refer 33.15.01
13. Check for fluid leaks with the pedal depressed and also with the system at rest.**

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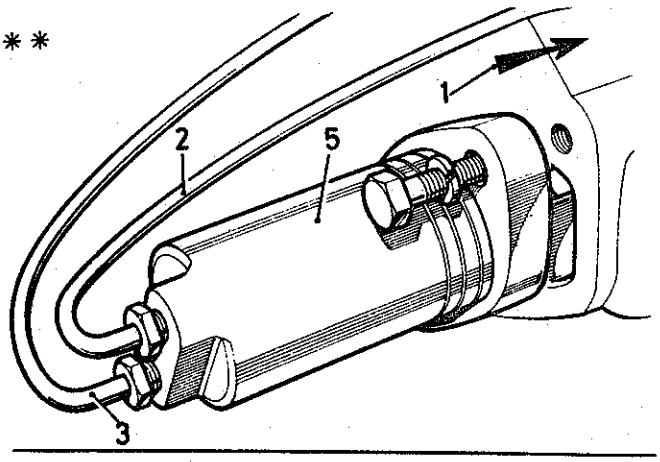

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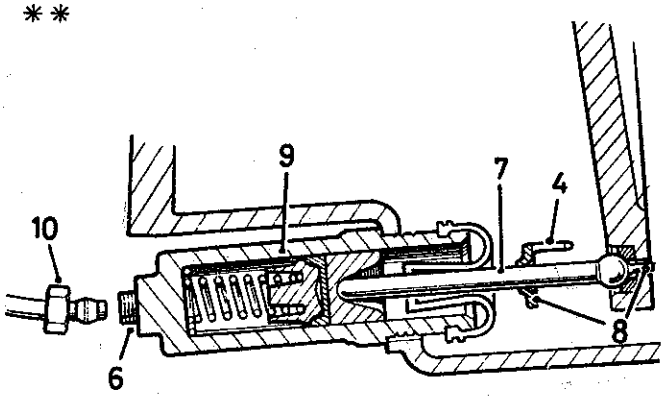

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SLAVE CYLINDER

—Overhaul 33.35.07

Dismantling

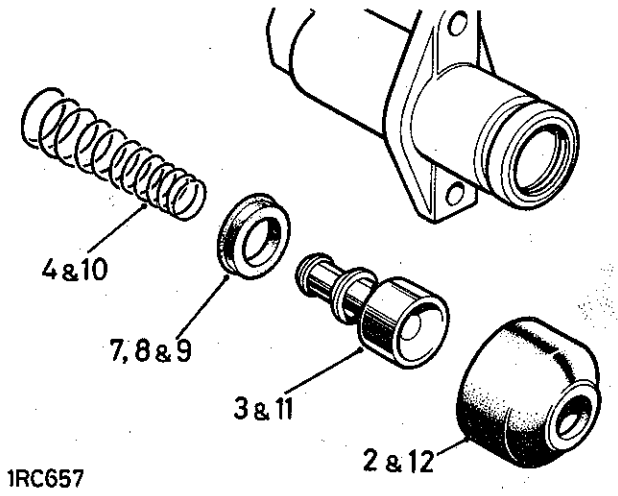
1. Remove the slave cylinder. 33.35.01.
2. Withdraw the dust cover.
3. Expel the piston assembly, applying low pressure air to the fluid inlet.
4. Withdraw the spring.

Inspecting

5. Clean all components in Girling cleaning fluid or methylated spirits and allow to dry.
6. Examine the cylinder bore and piston, ensure that they are smooth to the touch with no corrosion, score marks or ridges. If there is any doubt, fit new replacement.
7. The seal should be replaced with a new component.

Assembling

8. Smear the seal with Castrol-Girling rubber grease and the remaining internal items with Castrol-Girling brake and clutch fluid.
9. Fit the seal, large diameter last, to the piston.
10. Locate the conical spring, small diameter first, over the front end of the piston.
11. Smear the piston with Castrol-Girling rubber grease and insert the assembly, spring end first, into the cylinder.
12. Fill the dust cover with Castrol-Girling rubber grease and fit the cover to the cylinder.
13. Refit the slave cylinder. 33.35.01, and bleed system 33.15.01.



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