

## MASTER CYLINDER NON ABS

Service repair no - 70.30.08 - Remove

Service repair no - 70.30.09 - Repair

- Lucas Girling - Type 25.4mm AS/AS

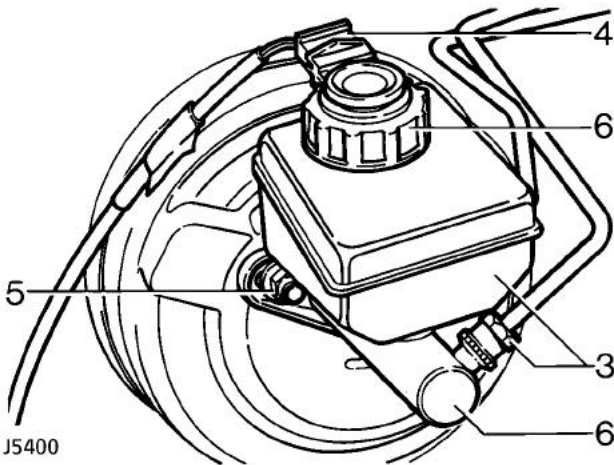


**WARNING:** This master cylinder is not suitable to be fitted on vehicles with antilock brake systems.

Before starting repair refer to general brake service practice. *See General Brake Service Practice*

### Remove

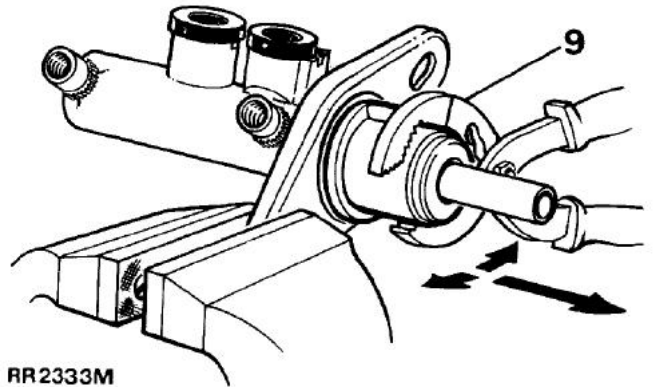
1. Disconnect battery negative lead.
2. Place a suitable container under master cylinder to catch brake fluid from cylinder when brake pipes are disconnected.
3. Thoroughly clean immediate area around all outlet ports. Remove each brake pipe, sealing each pipe and outlet port with suitable plugs to prevent ingress of foreign matter.
4. Disconnect electrical plug from low fluid switch on reservoir cap.
5. Remove two nuts securing master cylinder to servo unit remove also spring and plain washers.



6. Detach master cylinder from servo, remove reservoir cap and drain brake fluid into a suitable container.

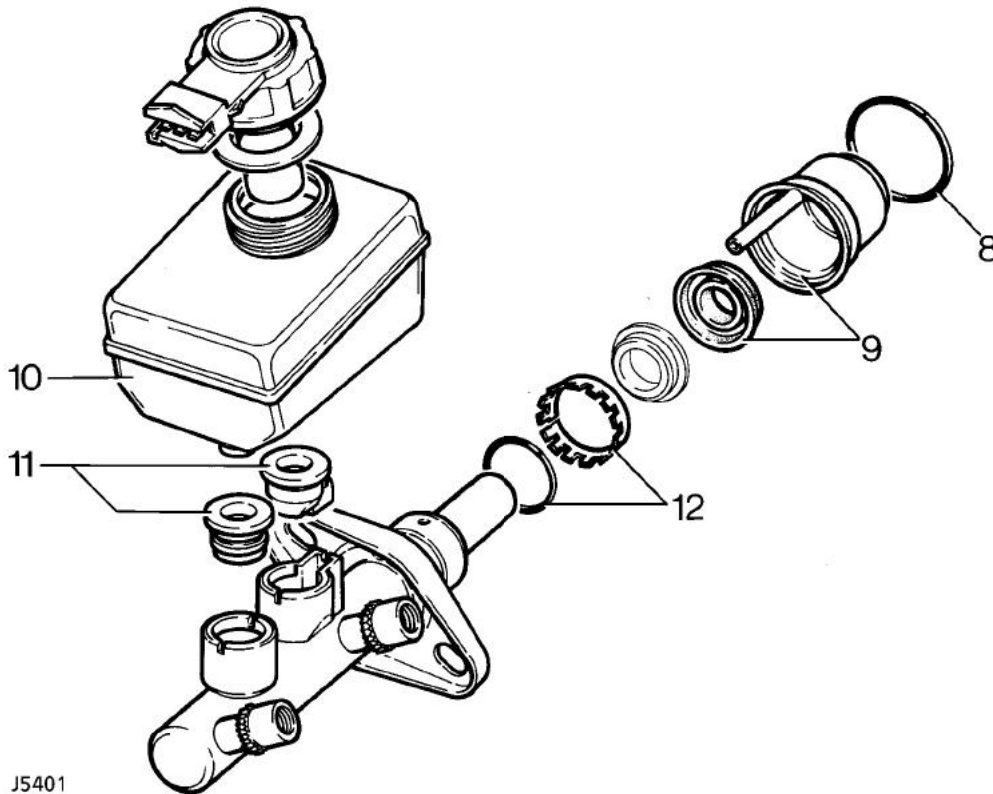
### Repair

7. Thoroughly clean master cylinder and inspect outer surfaces for damage and condition, renew complete assembly if necessary.
8. Using two soft jaws, clamp master cylinder flange in a suitable vice. Remove water ingress 'O' ring seal from master cylinder to servo flange and discard.

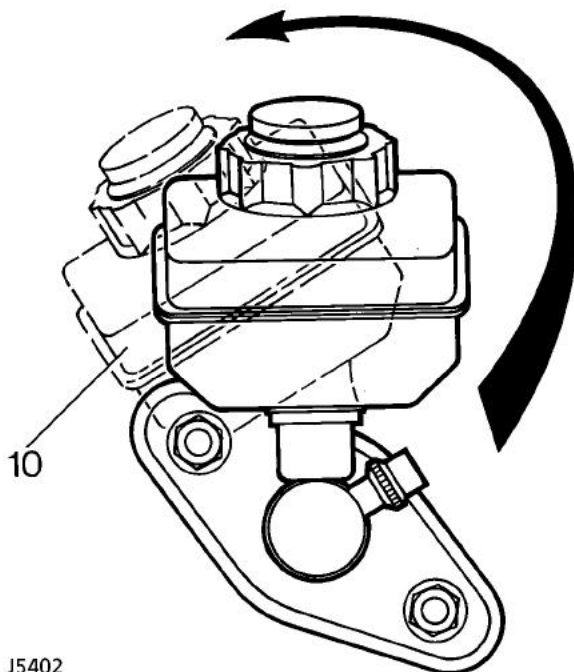


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9. Grip outside of transfer housing with a suitable pair of pliers, carefully pull, working pliers in a backwards and forwards rocking motion to ease housing off master cylinder. Discard housing and vacuum seal.



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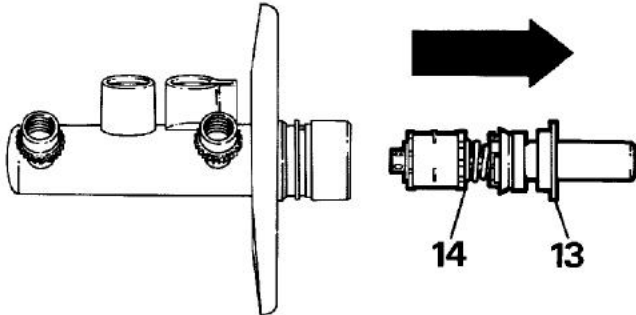


J5402

10. Ease reservoir out of master cylinder taking care to ensure that two outlet ports on bottom of reservoir do not become damaged during this process.
11. Withdraw two reservoir seals from master cylinder inlet ports. Note for reassembly these seals are different. Discard seals.
12. Remove retaining ring and 'O' ring seal from machined outer surface of master cylinder. Discard both seal and retaining ring.
13. Remove guide ring, which supports primary plunger assembly, from mouth of master cylinder. Place to one side for reassembly, note this component is not part of service kit.
14. Pull primary plunger assembly out of master cylinder.

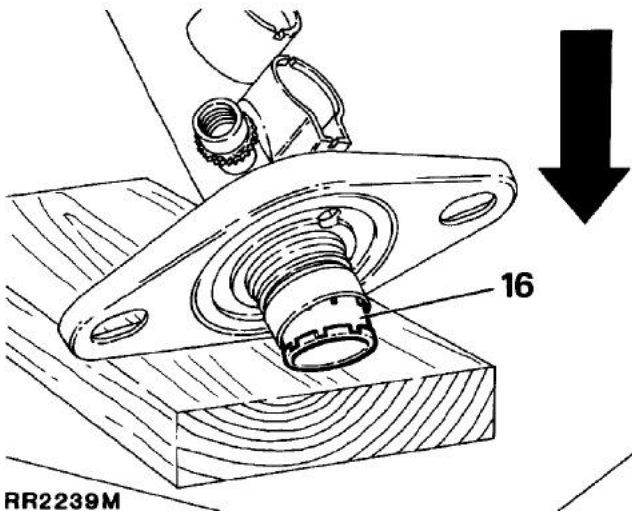


**NOTE:** The primary plunger assembly cannot be broken down any further and is serviced as a complete unit. Discard assembly.



RR2238M

15. The secondary plunger assembly will remain at bottom of master cylinder bore. Remove tapping assembly on a piece of wood until plunger appears at cylinder mouth, carefully pull plunger out of master cylinder.



RR2239M

16. If swirl tube was not expelled at same time as secondary plunger, repeat above operation to remove it from bottom of master cylinder bore and discard.
17. Clean all parts with unused brake fluid. Place cleaned parts onto a clean sheet of paper. Inspect cylinder bore and plungers for signs of corrosion, ridges and score marks. Provided working surfaces are in perfect condition, new seals from a Girling Service repair kit may be used.

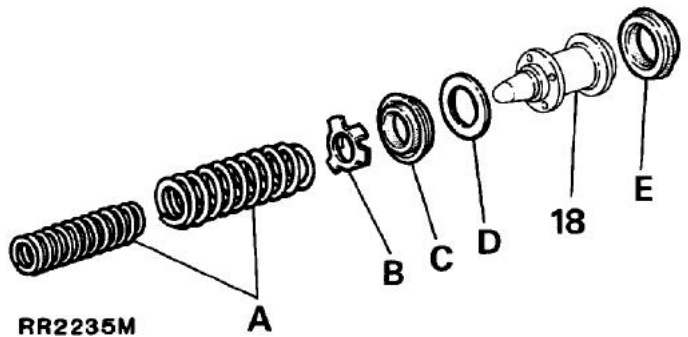
### Renewing secondary plunger seals

18. Remove following components from secondary plunger and discard:



**NOTE:** A small screwdriver with end rounded off and polished is required to remove 'L' seal. DO NOT damage secondary plunger.

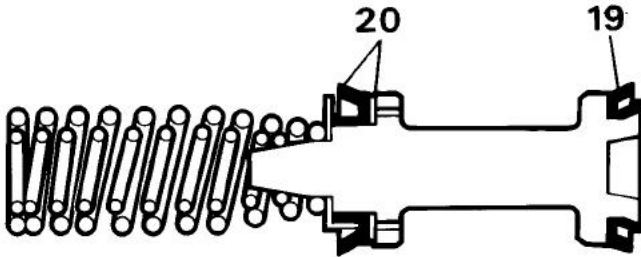
- (A) Springs
- (B) Seal retainer
- (C) Recuperating seal (primary cup)
- (D) Washer
- (E) 'L' seal



RR2235M



19. Coat new seals in unused brake fluid. Fit 'L' seal to plunger.
20. Fit washer followed by recuperating seal. Fit seal retainer and springs, ensure springs are correctly seated.



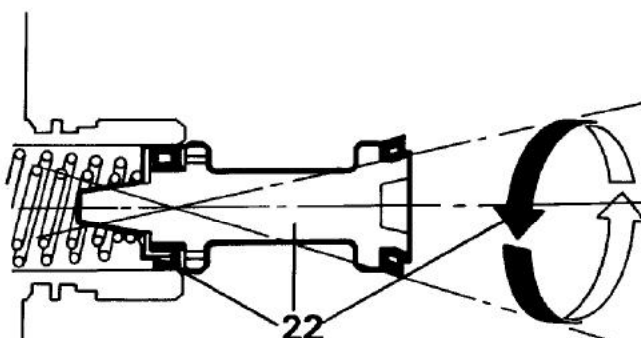
RR2236M

### Assembling master cylinder



**CAUTION:** It is important that following instructions are carried out precisely, otherwise damage could be caused to new seals when inserting plungers into cylinder bore. Generous amounts of new brake fluid should be used to lubricate parts during assembly.

21. Fit new swirl tube to bottom of cylinder bore.
22. Lubricate secondary plunger and cylinder bore. Offer plunger assembly to cylinder until recuperation seal is resting centrally in mouth of bore. Gently introduce plunger with a circular rocking motion, as illustrated. Ensuring that seal does not become trapped, ease seal into bore and slowly push plunger down bore in one continuous movement.



RR2240M

23. Fit new primary plunger assembly using same method as for secondary plunger.
24. Fit original guide ring to support primary plunger.
25. Coat a new 'O' ring with brake fluid and fit to its respective groove on outer location surface of master cylinder.



**CAUTION:** Do not roll 'O' ring down outer location surface of master cylinder. It should be slightly stretched and eased down cylinder and into its groove. Do not over stretch seal.

26. Fit new retaining ring on outer surface of master cylinder ensuring that serrations of ring are facing mounting flange.
27. Fit two new reservoir seals in respective ports.
28. Fit a new vacuum seal to either primary plunger or to bottom of transfer housing bore, open face of seal towards primary plunger.
29. Lubricate vacuum seal with brake fluid. Fit transfer housing to master cylinder, push housing fully up to cylinder mounting flange, Do not adjust transfer housing after fitting.
30. Lubricate new water ingress seal with brake fluid, Slightly stretch seal and ease down housing until it is in position between housing and flange.
31. Roll reservoir into top of master cylinder, reversing procedure described in instruction 10.

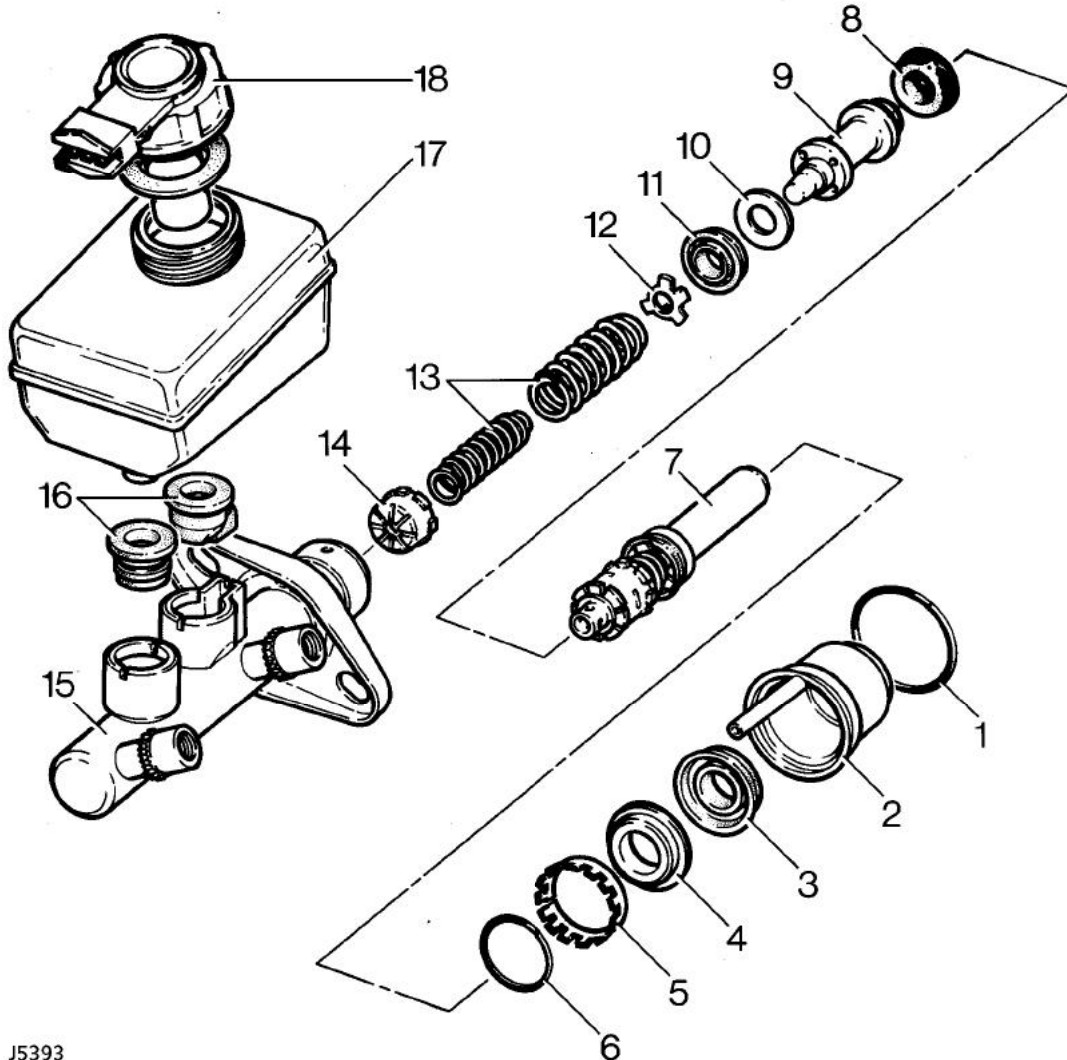
### Refit



**NOTE:** Ensure O ring seal between master cylinder and servo unit is fitted correctly.

32. Fit master cylinder to servo. Secure in position with two nuts, plain and spring washers. Tighten to **26 Nm**.
33. Fit brake pipes to master cylinder. Tighten to **15Nm**.
34. Top-up master cylinder with correct grade of brake fluid. **See LUBRICANTS, FLUIDS AND CAPACITIES, Information, Recommended Lubricants and Fluids**
35. Bleed system. **See Brake System Bleed**
36. Fit cap, reconnect electrical lead to fluid level switch. Reconnect battery negative lead.

## MASTER CYLINDER ASSEMBLY NON ABS



J5393

### Key to master cylinder

- |                       |                                     |                                    |
|-----------------------|-------------------------------------|------------------------------------|
| 1. Water ingress seal | 7. Primary plunger assembly         | 13. Springs (2 off)                |
| 2. Transfer housing   | 8. 'L' seal                         | 14. Swirl tube                     |
| 3. Vacuum seal        | 9. Secondary plunger                | 15. Master cylinder body           |
| 4. Guide ring         | 10. Washer                          | 16. Reservoir seals                |
| 5. Retaining ring     | 11. Recuperating seal (primary cup) | 17. Reservoir                      |
| 6. 'O' ring seal      | 12. Seal retainer                   | 18. Low fluid level switch and cap |



**NOTE:** Thoroughly check that no debris is lodged in fluid passageways and drillings. If debris is found, carefully remove, re-clean cylinder and re-check.




## SERVO ASSEMBLY

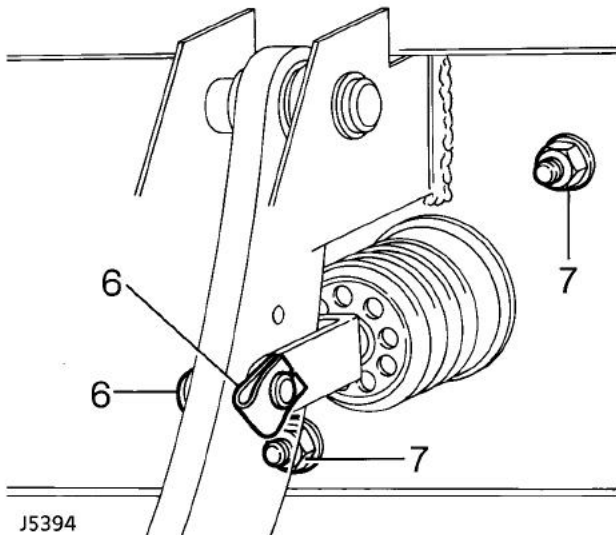
Service repair no - 70.50.01

### Remove

Before starting repair refer to general brake service practice. *See General Brake Service Practice*

 **NOTE:** The filter, non-return valve and grommet, are the only serviceable components, in event of failure or damage fit a new unit.

1. Disconnect battery negative lead.
2. Disconnect electrical plug to low fluid level switch.
3. Thoroughly clean immediate area around all master cylinder outlet ports. Remove each brake pipe, sealing each pipe and outlet port to prevent ingress of foreign matter.
4. Disconnect vacuum supply hose to servo.
5. Remove lower dash panel to gain access to servo push rod to brake pedal.
6. Remove clevis pin securing servo push rod to brake pedal.
7. Remove two nuts and plain washers securing servo.

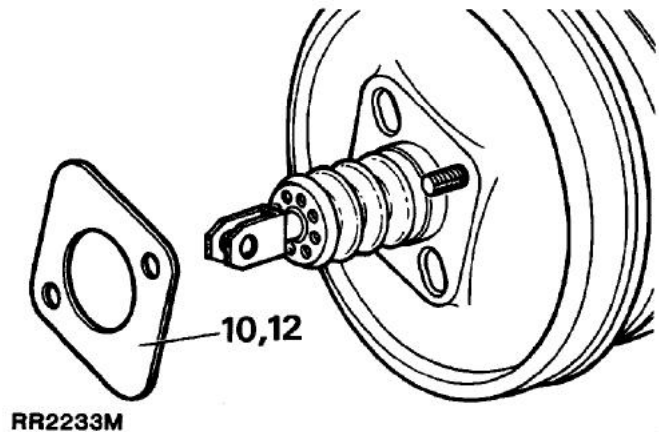


8. Remove servo and master cylinder assembly.
9. Drain brake fluid into a suitable container. (If master cylinder is kept horizontal it is not necessary to drain fluid).

10. Detach spacer from pedal box mounting face of servo.



**NOTE:** Retain spacer for reassembly. The spacer ensures stringent pedal to servo operating dimensions are maintained.



11. Remove master cylinder from existing servo and refit to new servo, if fitting new unit.

### Refit

12. Fit spacer to servo.
13. Fit servo to pedal box.
14. Lightly grease brake pedal around area servo push rod pivots.
15. Fit push rod to lower hole of brake pedal. Fit clevis pin and clip.
16. Secure servo with two nuts and plain washers. Tighten nuts to **26 Nm**.
17. Refit lower dash panel.
18. Fit master cylinder to servo, refit nuts, plain and spring washers. Tighten nuts to **26 Nm**.
19. Remove all sealing plugs. Refit brake pipes to respective ports. Tighten brake pipes to **15 Nm**.
20. Refit vacuum supply hose.
21. Fill master cylinder to correct level using correct grade of brake fluid. *See LUBRICANTS, FLUIDS AND CAPACITIES, Information, Recommended Lubricants and Fluids*
22. Bleed brake system. *See Brake System Bleed*