Published: Apr 14, 2006

Brake Master Cylinder (70.30.08)

Removal

1 . Disconnect battery negative lead.

2 . **CAUTION: Do not allow brake fluid to contact paint finished surfaces as paint may be damaged. If spilled, remove fluid and clean are with clean warm water.**

Place a container under the master cylinder to collect any brake fluid spillage.

3 . Clean area around master cylinder ports.

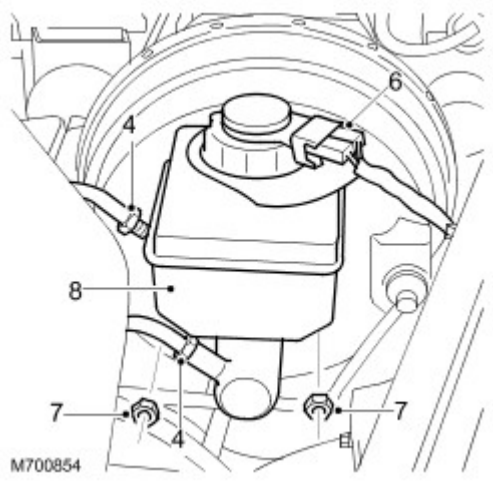
4 . Loosen 2 unions securing brake pipes to master cylinder ports.

5 . Disconnect both brake pipes from master cylinder. Cover, not plug, pipe ends to prevent entry of dirt.

6 . Release 2 connectors from reservoir cap.

7 . Remove 2 nuts securing master cylinder to brake booster.

8 . Withdraw master cylinder from booster and remove.



9 . Carefully ease reservoir from master cylinder by rolling it from seals.

10 . **NOTE:**
Master cylinder to reservoir seals are different sizes.

Remove seals from master cylinder.

Installation

1 . Instal NEW seals to master cylinder, ensuring seals are fitted to correct ports.

2 . Instal reservoir to master cylinder.

3 . Ensuring that water ingress seal is in position, instal master cylinder to booster.

4 . Instal nuts securing master cylinder to booster and tighten to 26 Nm (19 lbf.ft).

5 . Connect brake pipes to master cylinder and tighten unions to 15 Nm (11 lbf.ft).

6 . Instal connectors to reservoir cap.

7 . Fill reservoir with recommended brake fluid.
For additional information, refer to Specifications

8 . Bleed the brake system.
For additional information, refer to Brake System Bleeding (70.25.02)

Published: Jan 26, 2007

Brake Pedal and Bracket (70.35.03)

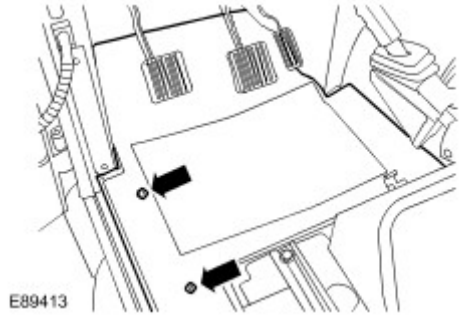
Removal

1 . Disconnect the battery ground cable.
For additional information, refer to Battery Disconnect and Connect

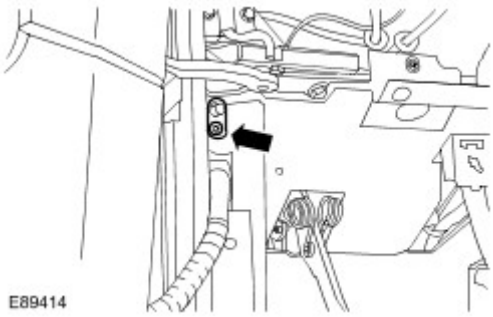
2 . Remove the brake booster.
For additional information, refer to Brake Booster (70.50.01)

3 . Remove the stoplamp switches.
For additional information, refer to Stoplamp Switch (70.35.42)

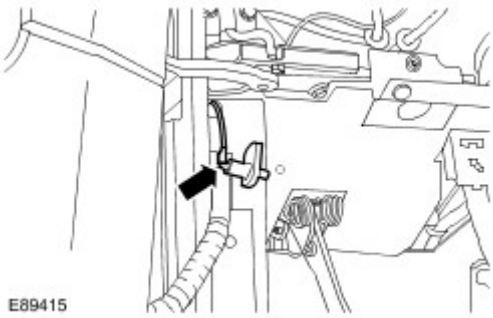
4 . Remove the floor covering.
- Remove the 2 clips.



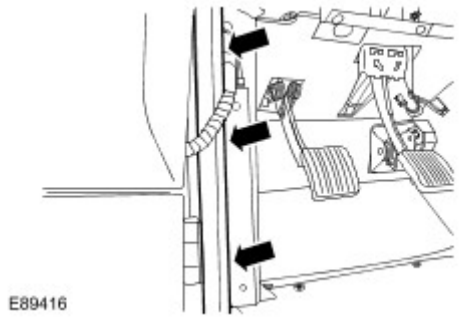
5 . Release the interior lamp switch.
- Remove the screw.



6 . Remove the interior lamp switch.
- Disconnect the electrical connector.

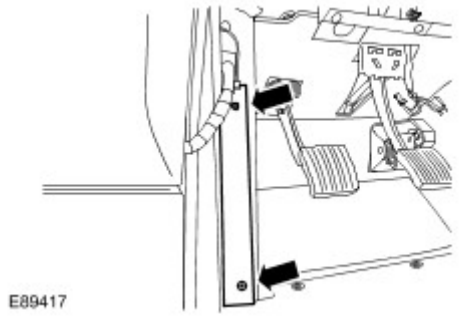


7 . Release the front door aperture seal.

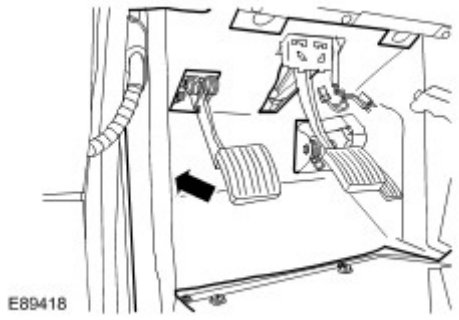


8 . Remove the A-pillar trim panel.

- Remove the 2 screws.

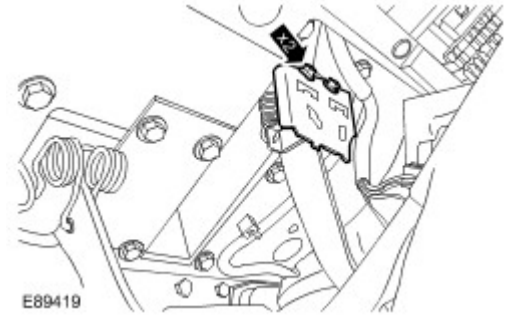


9 . Release the floor covering away from the bulkhead.

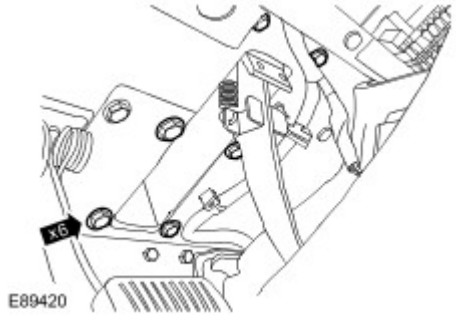


10 . Remove the stoplamp switch support bracket.

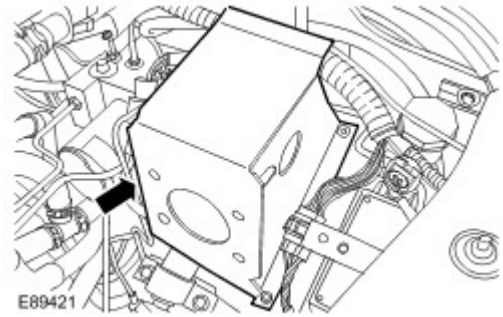
- Remove the 2 bolts.



11 . Release the brake pedal and bracket.
- Remove the 6 bolts.

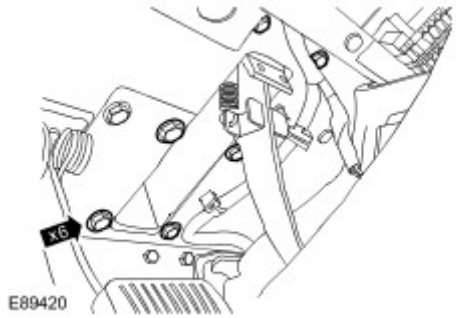


12 . Remove the brake pedal and bracket.

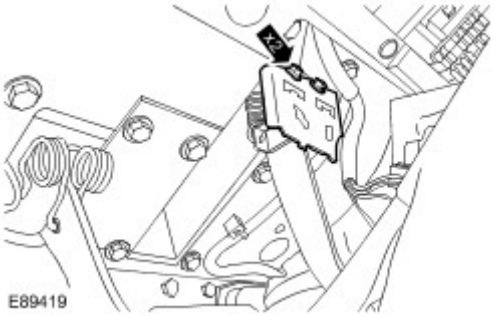


Installation

1 . To install, reverse the removal procedure.
- Tighten to 25 Nm (18 lb.ft).



2 . Tighten to 9 Nm (7 lb.ft).



3 . Connect the battery ground cable.
For additional information, refer to Battery Connect

Published: Feb 13, 2006

Brake Pressure Control Valve

Removal

1 . Disconnect battery.

2 . Clean area around brake pressure control valve ports.

3 . Place a container under valve to catch escaping brake fluid.

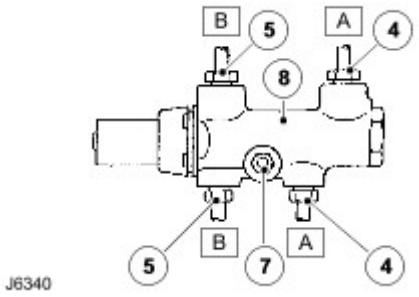
4 . Disconnect primary circuit pipe unions 'A' from brake pressure control valve.

5 . Disconnect secondary circuit pipe unions 'B' from brake pressure control valve.

6 . Cover pipes to prevent ingress of dirt.

7 . Remove single retaining nut and bolt securing brake pressure control valve to engine bulkhead.

8 . Remove brake pressure control valve.



Installation

1 . Fit brake pressure control valve to engine bulkhead. Tighten bolt to 15 Nm (11 lbf/ft).

2 . Connect primary and secondary circuit pipes to brake pressure control valve. Tighten unions to 16 Nm (12 lbf/ft).

3 . Fill brake reservoir with recommended brake fluid.

For additional information, refer to Specifications

4 . Bleed the brake system.
For additional information, refer to Brake System Bleeding (70.25.02)

5 . Reconnect battery and road test vehicle.

Published: Feb 6, 2007

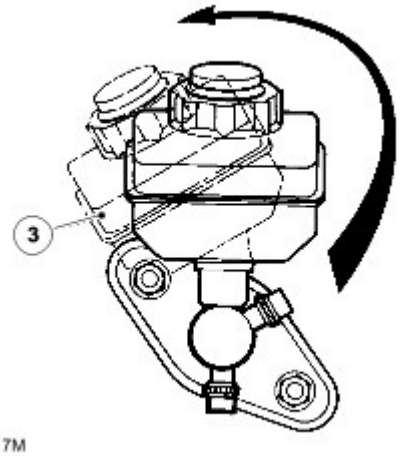
Brake Master Cylinder

Disassembly

1 . Disconnect battery and remove master cylinder from booster.
For additional information, refer to Battery Disconnect and Connect

2 . Before commencing overhaul procedure thoroughly clean master cylinder and inspect outer surfaces for damage and condition, renew complete assembly if necessary.

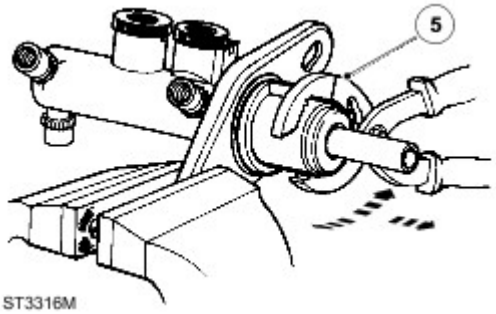
3 . The reservoir is a push fit in master cylinder and secured by seals. Carefully ease reservoir from master cylinder by rolling it from seals as illustrated.



ST3317M

4 . Using soft jaws, one either side of master cylinder flange and clamp flange in a suitable vice. Remove water ingress O-ring seal from master cylinder to booster flange and discard.

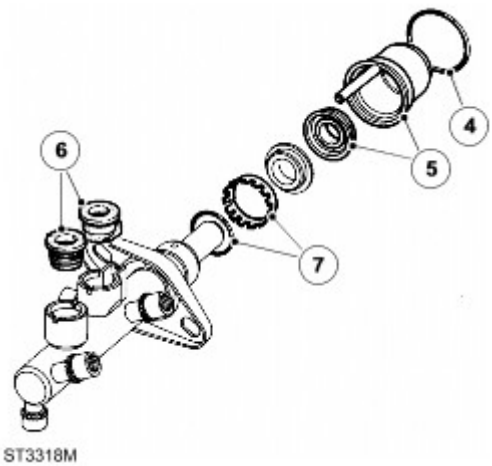
5 . Hold outside of transfer housing with a suitable pair of grips, carefully pull, while working pliers in a backwards and forwards rocking motion to ease housing off master cylinder, discard housing and vacuum seal.



ST3316M

6 . Withdraw 2 reservoir seals from master cylinder and note their positions in inlet ports for reassembly. Discard both seals.

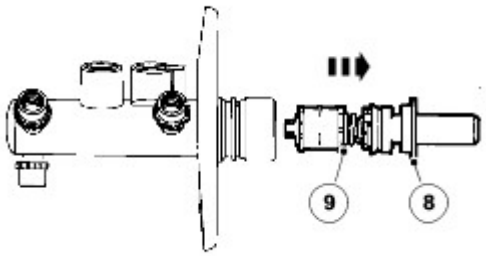
7 . Remove retaining ring and O-ring seal from machined outer surface of master cylinder, discard both seal and retaining ring.



ST3318M

8 . Remove guide ring from mouth of master cylinder which supports primary plunger assembly and place to one side, this component is not part of master cylinder service kit and is to be refitted on assembly of unit.

9 . Pull primary plunger assembly out of master cylinder.



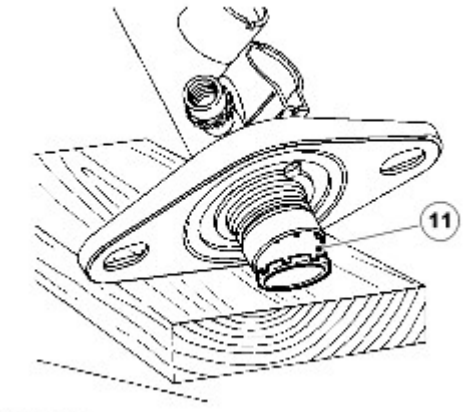
ST3319M

NOTE:

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

10 . The secondary plunger assembly will remain at bottom of master cylinder bore, plunger can be easily expelled by tapping assembly on a piece of timber until plunger appears at cylinder mouth, carefully pull plunger from master cylinder.

11 . If swirl tube was not expelled at same time as secondary plunger, repeat above operation to expel it from bottom of master cylinder bore and discard.

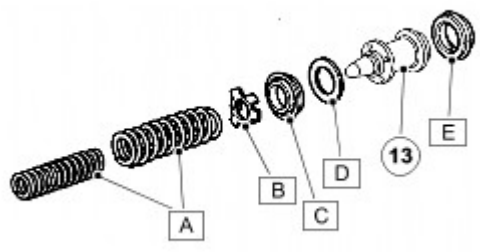


ST3320M

12 . Clean all parts with Gilling cleaning fluid or unused brake fluid and place cleaned parts on to 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 Gilling Service repair kit may be used.

13 . Remove components above from secondary plunger and discard:

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



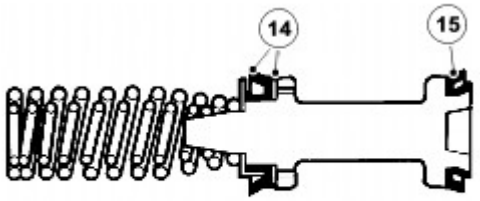
ST3321M

NOTE:

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

14 . Coat new seals in unused brake fluid and firstly install 'L' seal to plunger.

15 . Install washer followed by recuperating seal. Install seal retainer and springs, ensure springs are correctly seated.



ST3322M

Assembly

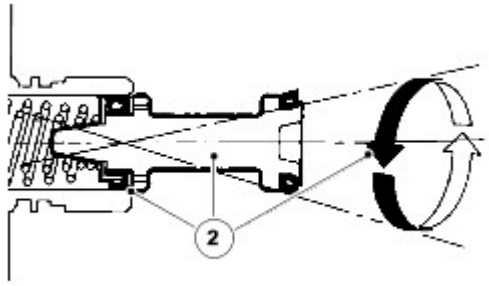
CAUTION: It is important that the following instructions are carried out precisely, otherwise damage could be caused to new seals when inserting plungers into cylinder bore. Generous amounts of new brake fluid should be used to lubricate parts during assembly.

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.

1 . Install new swirl tube to bottom of cylinder bore.

2 . 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.



ST3323M

3 . Install primary plunger assembly using same method as for secondary plunger, push plunger down bore.

4 . Install original guide ring to support primary plunger.

5 . Coat a new O-ring with brake fluid and install to its respective groove on outer location surface of master cylinder.

CAUTION: O-ring should not be rolled down outer location surface of master cylinder but should be slightly stretched and eased down cylinder and into its groove. Do not over stretch seal.

6 . Install a new retaining ring on outer surface of master cylinder ensuring that serrations of ring are facing mounting flange.

7 . Install two new reservoir seals in their respective ports.

8 . Install a new vacuum seal to either primary plunger or to bottom of transfer housing bore, open face of seal towards primary plunger guide ring.

9 . Lubricate vacuum seal with brake fluid, install transfer housing to master cylinder, push housing fully up to cylinder mounting flange. Do not adjust transfer housing after fitting.

10 . Lubricate a new water ingress seal with brake fluid, slightly stretch seal and ease it down housing until seal is in correct position between housing and flange.

11 . Roll reservoir into top of master cylinder, reversing procedure described in instruction 3.

12 . Install master cylinder to booster.
For additional information, refer to Brake Master Cylinder (70.30.08)

13 . Reconnect battery, and road test vehicle.