

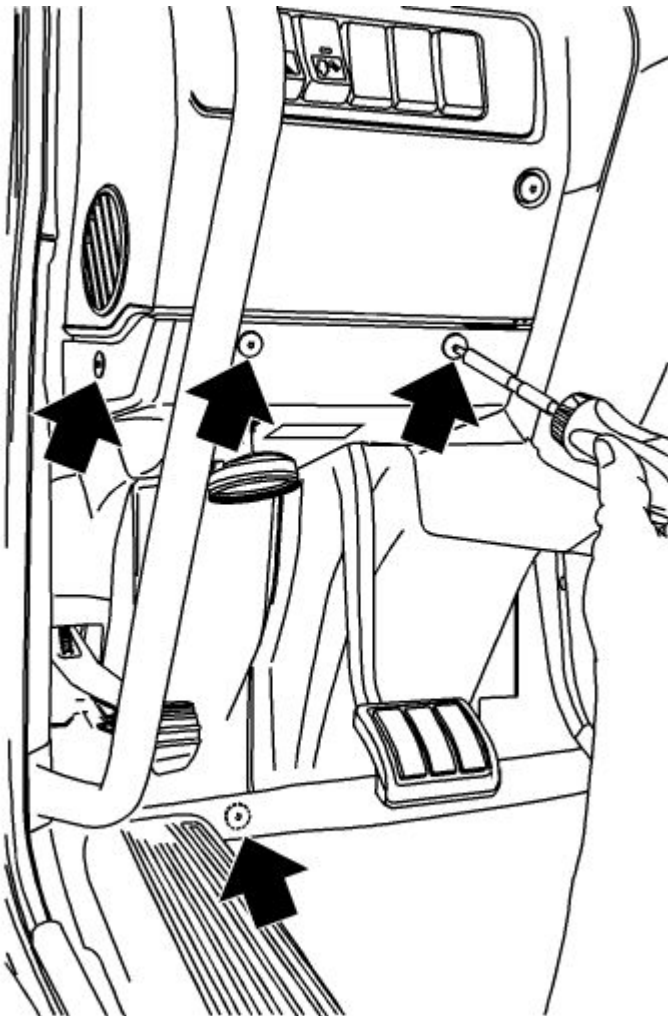
<b>Chassis ID</b> N 491116	<b>Path</b> 4136/Repair//Master Cylinder, Replacement
<b>Model</b> VN	<b>Identity</b> 61666987
<b>Publish date</b> 2/21/06	<b>ID/Operation</b> 4136-03-02-01

---

## 4136-03-02-01 Master Cylinder, Replacement

### Removal

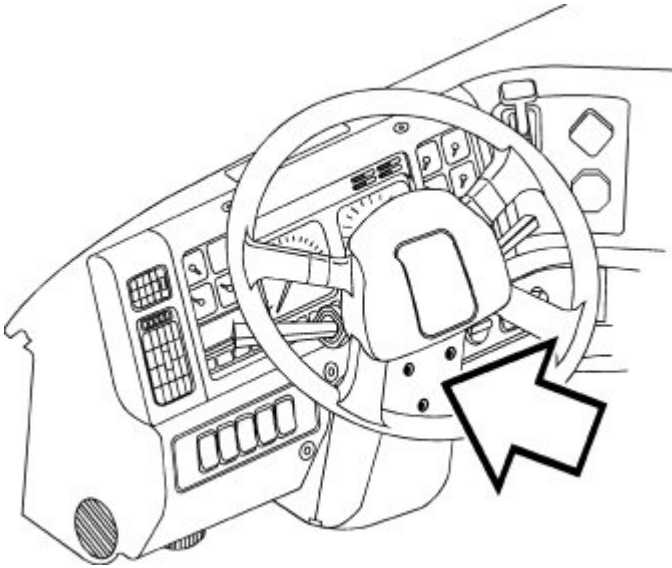
1



Pull the floor mat back and remove the plastic nuts fastening the left panel. Remove the three torx screws and the diagnostic connector. Pull the heater hose out of cover and remove the cover.

**Special tools:** 10 mm socket; 6" extension; 20 torx bit

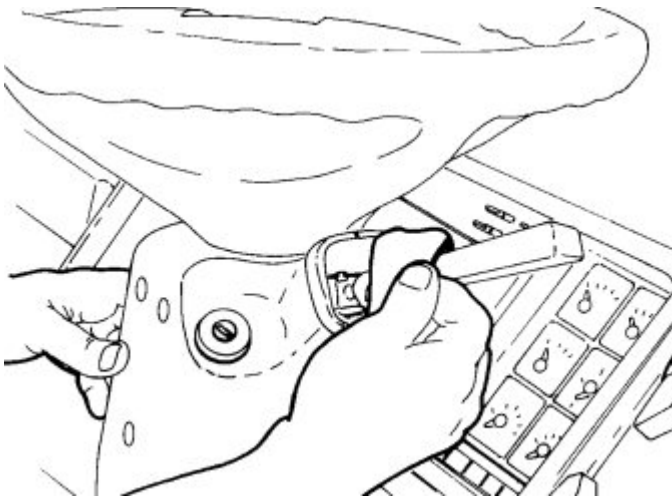
2



Remove the cover on the steering wheel column by removing the ignition key and the three torx screws.

Special tools: 20 torx bit; 3" extension

3



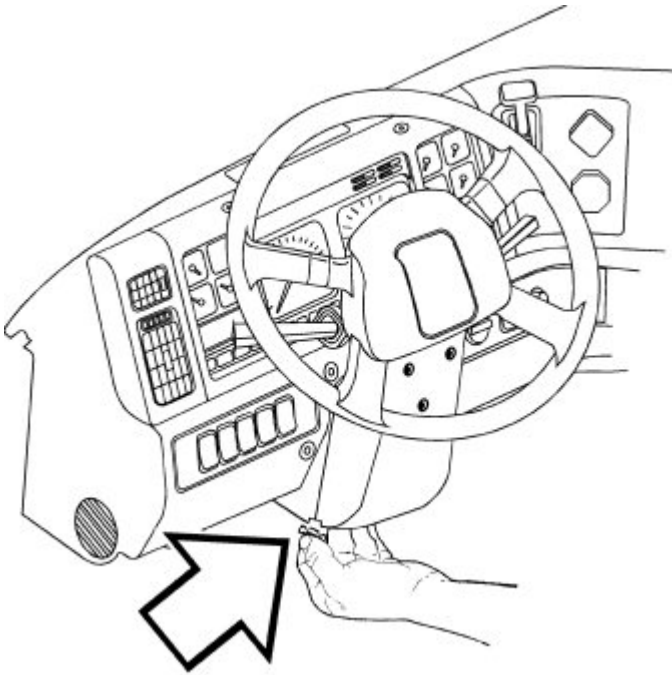
Pull the dust covers back on the turn signal and windshield wiper stalks.

4

Remove four torx screws from the center dash cover. Pull the floor mat back and remove the plastic nut.

Special tools: 10 mm socket; 6" extension; 20 torx bit

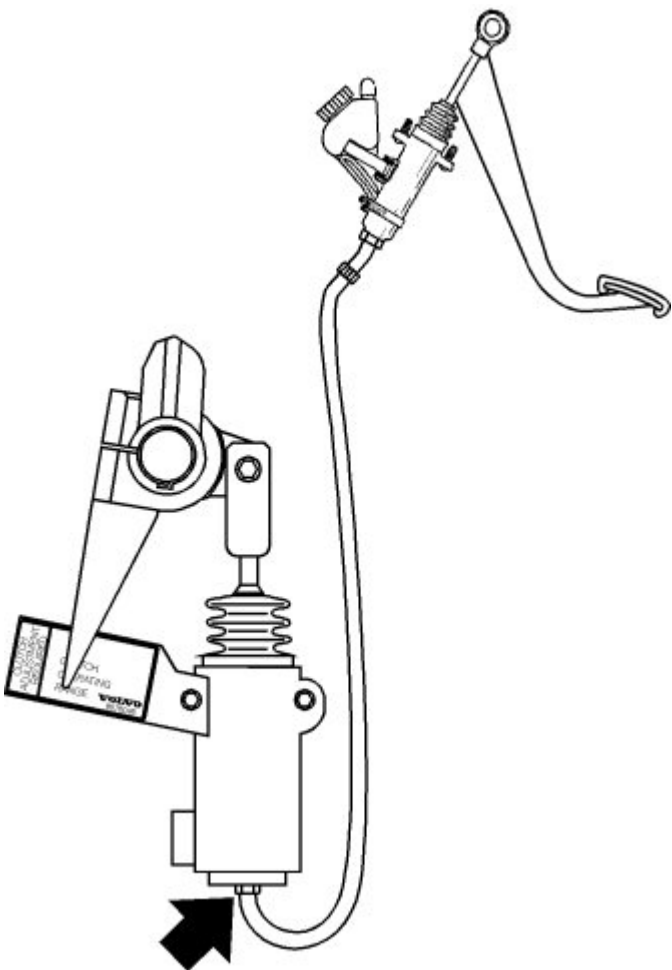
5



Remove the two clips at the bottom of the steering column. Remove the cover over the lower steering column by removing the plastic rivets.

Note: Be careful not to damage the lower cover when removing.

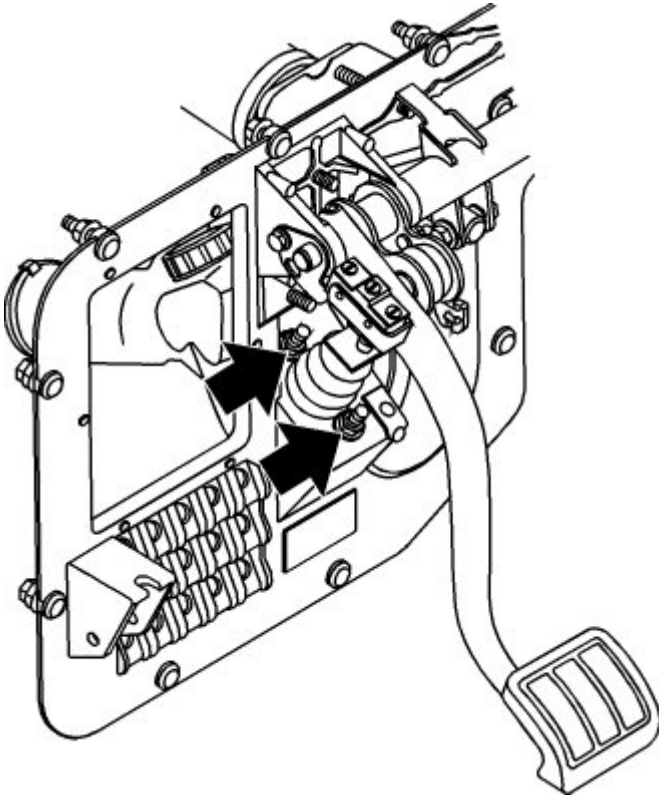
6



Loosen and remove the fluid line from the slave cylinder. Drain the brake fluid into a drain pan or suitable container. Install the fluid line back onto the slave cylinder to keep contaminants out of the system.

Special tools: 19 mm open end wrench; 17 mm open end wrench

7

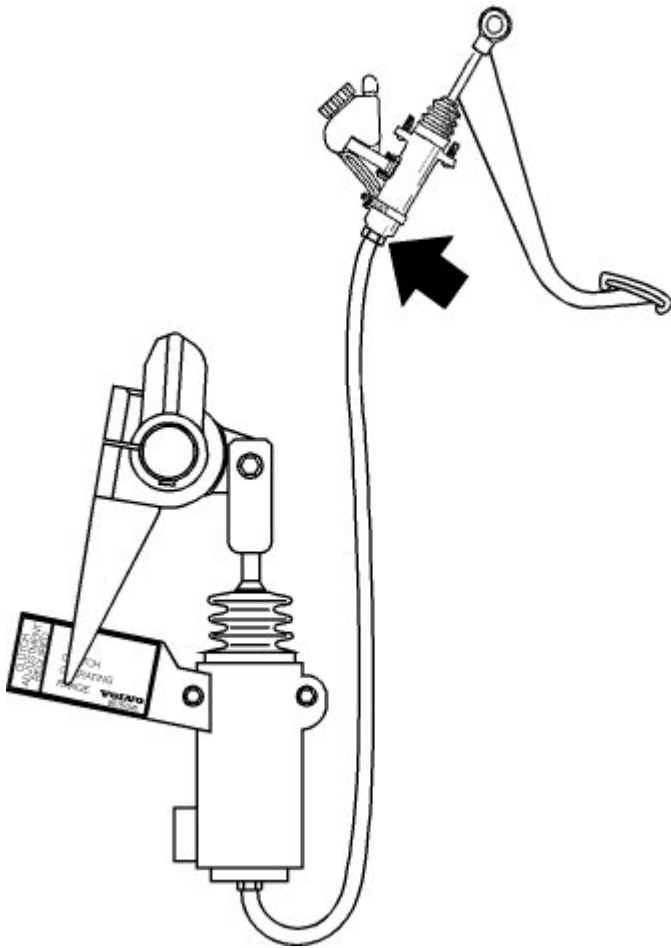


Remove the clutch pedal return spring to access the two master cylinder mounting bolts.

Note: Depress the clutch pedal for easier access to the mounting bolts.

Special tools: 13 mm deep swivel; ratchet; 6" extension

8



Remove the fluid line and remove the master cylinder from the pedal plate assembly.

Note: Remove O-ring between the master cylinder and the pedal plate assembly.

 **Caution**

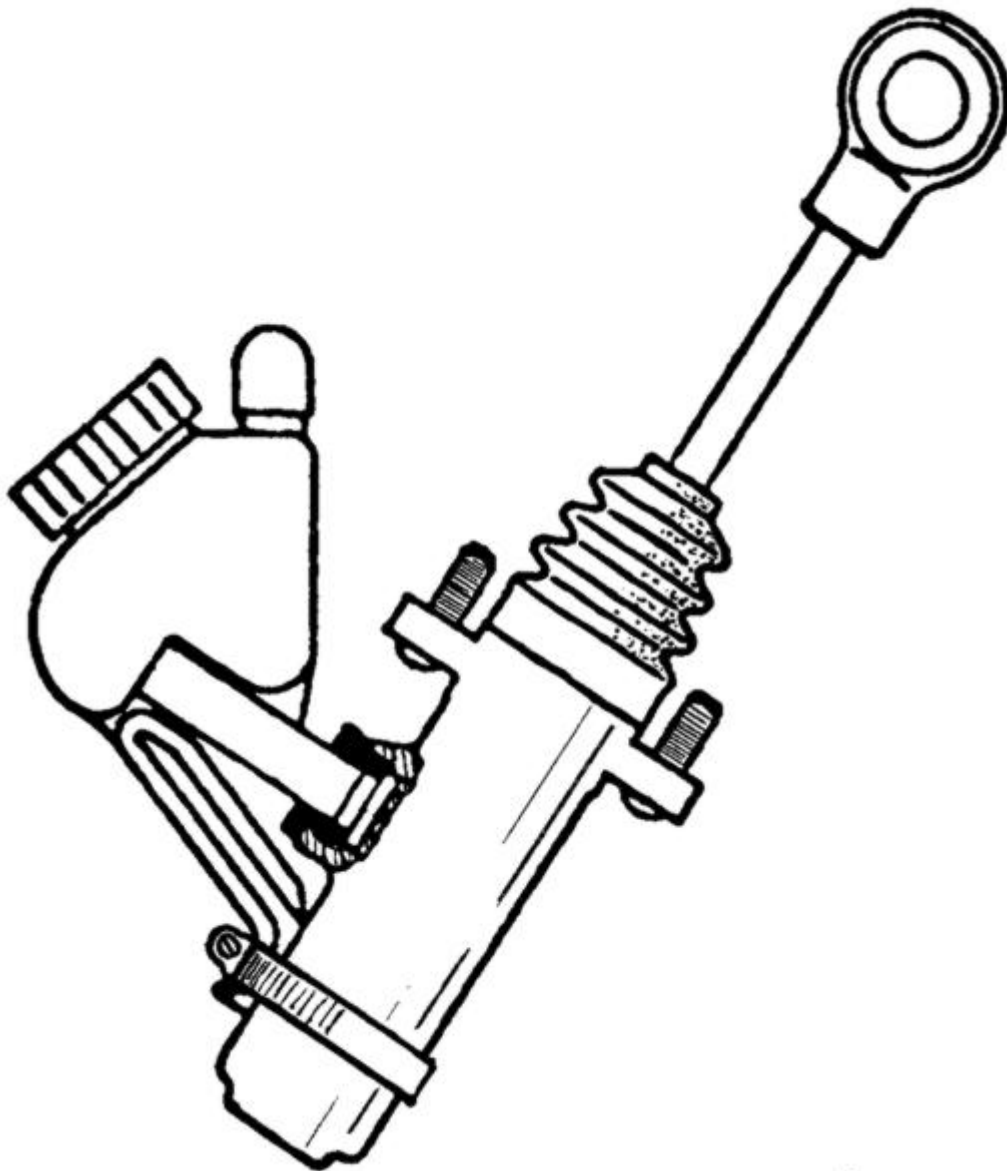
Brake fluid can cause damage to paint and painted surfaces.

Special tools: 17 mm open end wrench; 12 mm open end wrench

9  
Remove 45 degree angle fitting from master cylinder.

Special tools: 12 mm open end wrench

10

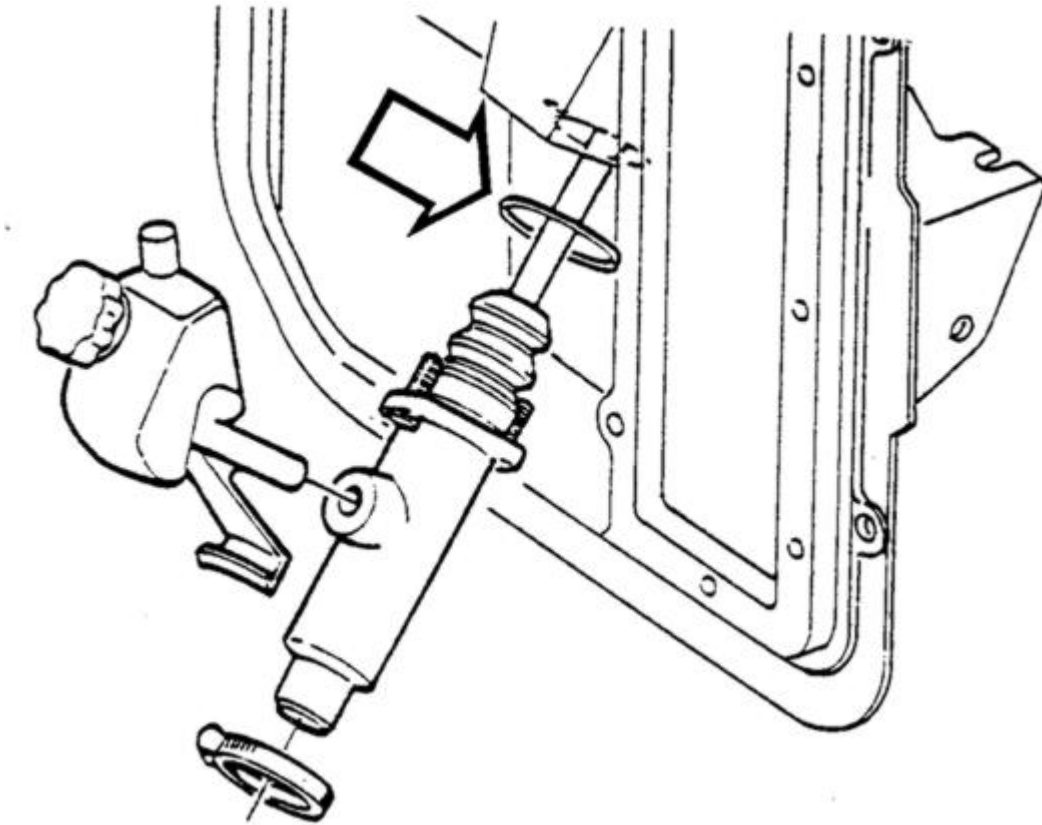


Remove the band clamp holding the reservoir. Remove the reservoir by pulling the reservoir out of the rubber seal.

Special tools: 7mm socket

## Installation

11



Install reservoir on the master cylinder and secure with band clamp. Torque band clamp to 3 Nm (26 in-lb).

Note: Lubricate the mount tube on the fluid reservoir (which connects to the master cylinder's rubber seal) before the reservoir is fitted to the master cylinder. Use grease p/n 8775046 or 8708640.

Special tools: 7mm socket; ratchet

Specifications:

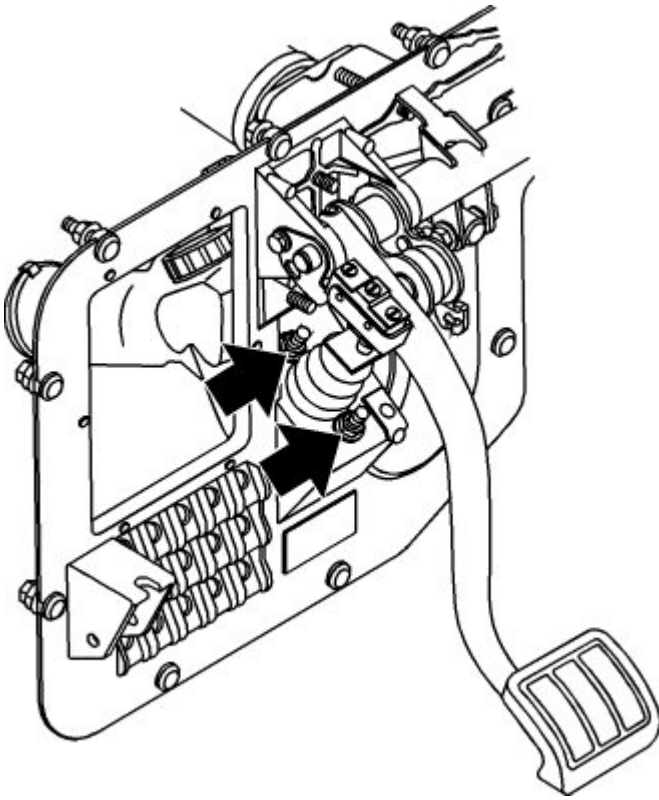
3 Nm (26 in-lb)

12

Clean the 45 degree angle fitting and install it hand tight on the master cylinder. Use pipe sealant on the fitting.

Special tools: 12 mm open end wrench

13



Install master cylinder. Make sure the O-ring is fitted around the neck of the master cylinder before the cylinder is inserted into the pedal plate assembly. Press the clutch pedal down to access the two mounting bolts. Torque mounting bolts to  $24 \pm 4$  Nm ( $18 \pm 3$  ft-lb).

Special tools: 13 mm deep swivel; 6" extension; torque wrench

Specifications:

$24 \pm 4$  Nm ( $18 \pm 3$  ft-lb)

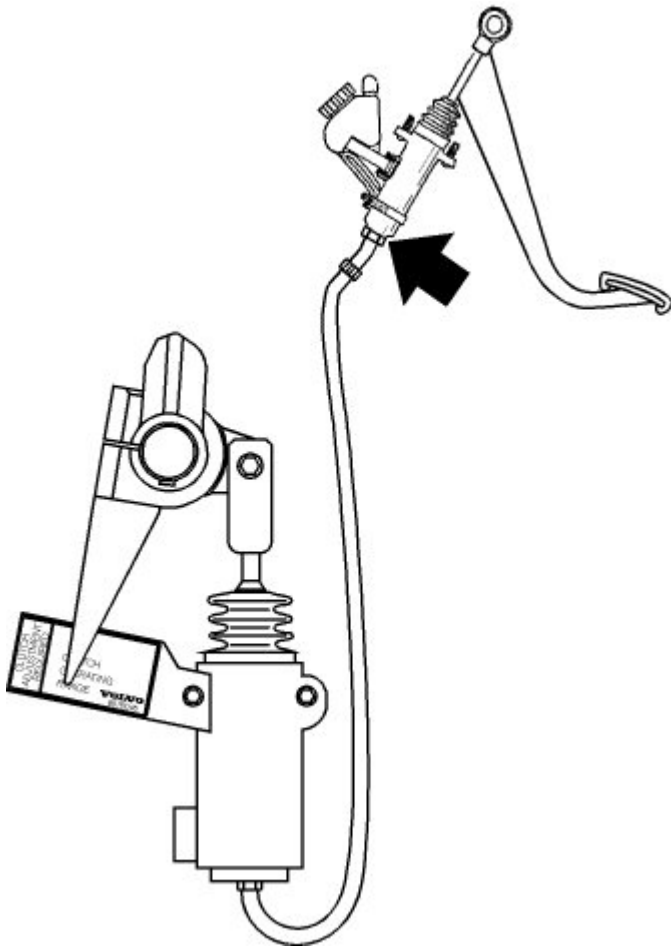
14

Install the clutch pedal return spring.

Note: Lubricate the spring end with grease p/n 8708166.

15





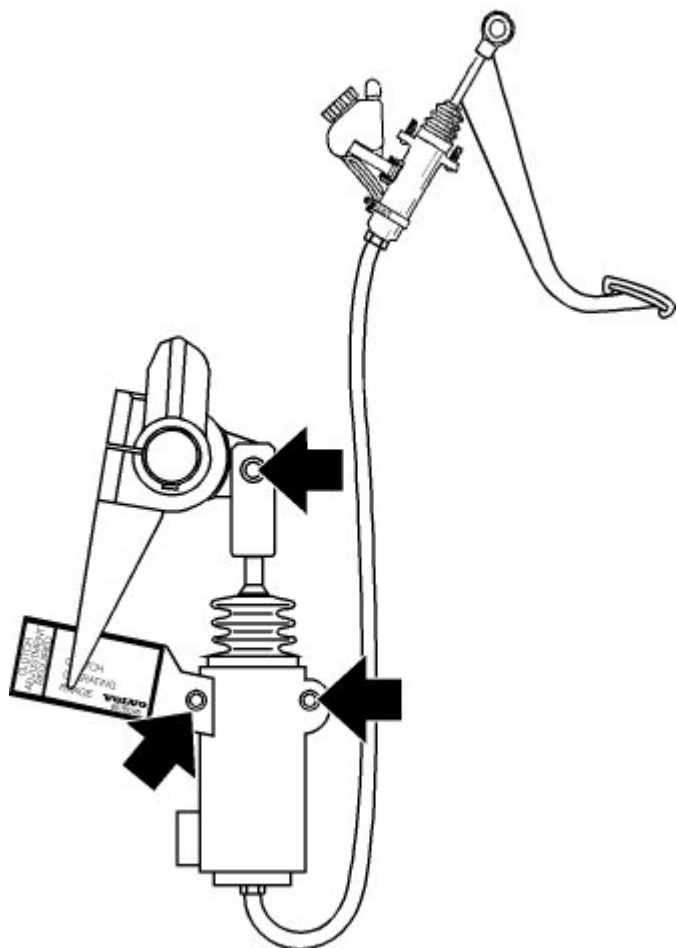
Tighten 45 degree fitting to proper angle and install the fluid line with a new O-ring. Torque fluid line to  $40 \pm 5$  Nm ( $30 \pm 4$  ft-lb).

Special tools: 12 mm open end wrench; 17 mm open end wrench; 17 mm crow foot

Specifications:

$40 \pm 5$  Nm ( $30 \pm 4$  ft-lb)

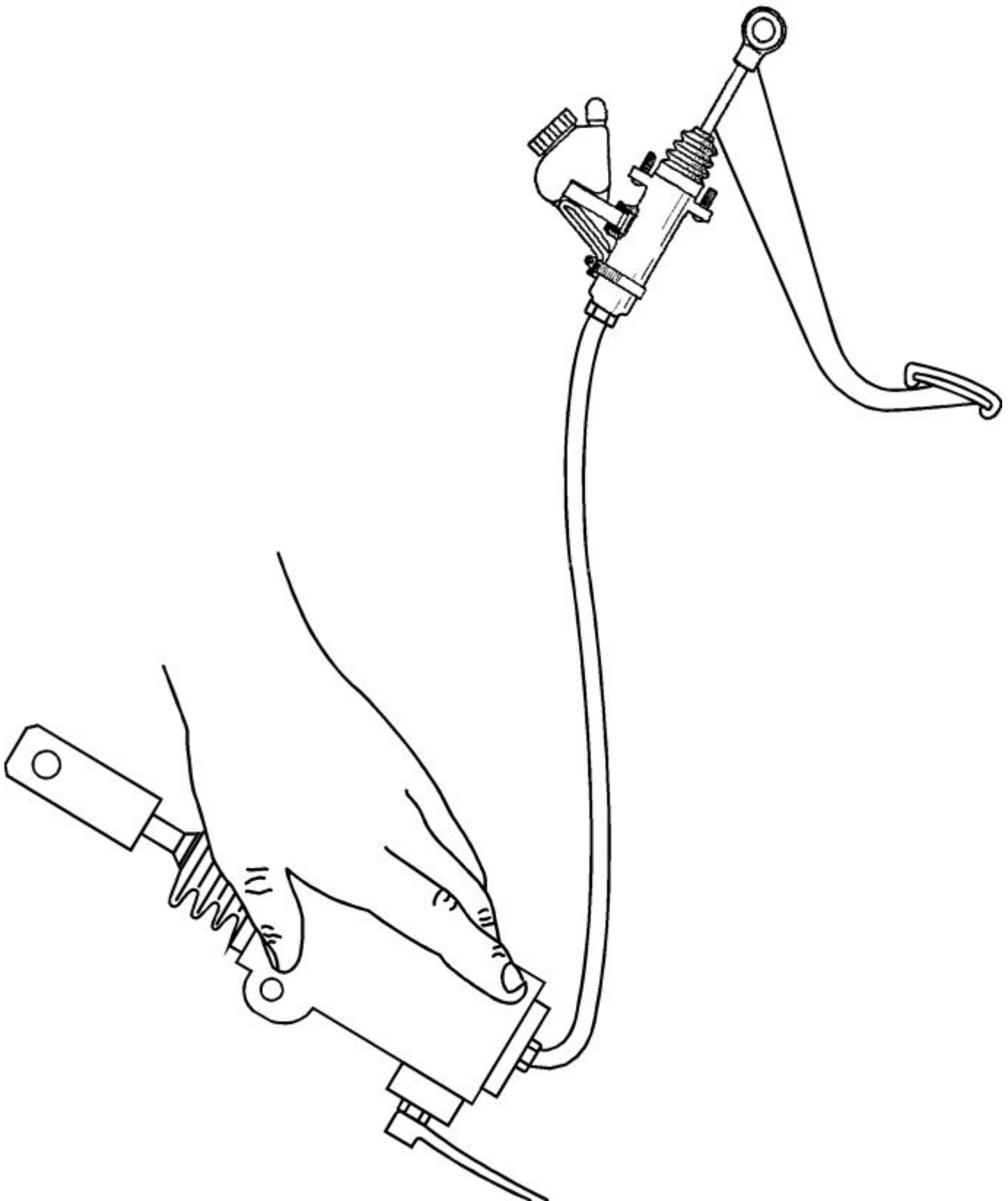
16



Remove the two slave cylinder mounting bolts and the clevis pin.

Special tools: 12 mm socket; ratchet; pliers

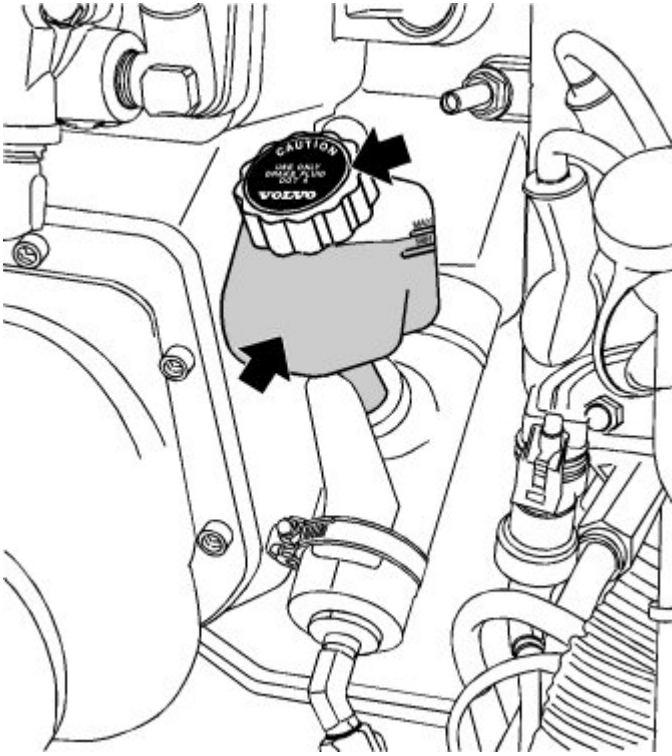
17



Open the bleed screw and connect the bleed tool. Clean the reservoir filler cap area and remove the cap. Hold the slave cylinder with the bleeder screw at the lowest point and turn the bleed pump on.

**Special tools:** 10 mm wrench; bleed tool 6928

18



Stop bleeding when the fluid is at the minimum level indicated on the side of the reservoir. Close the bleeder screw. Torque bleed screw to 10 Nm (7 ft-lb).

Note: Use clean DOT 4 fluid only.

Special tools: 10 mm wrench

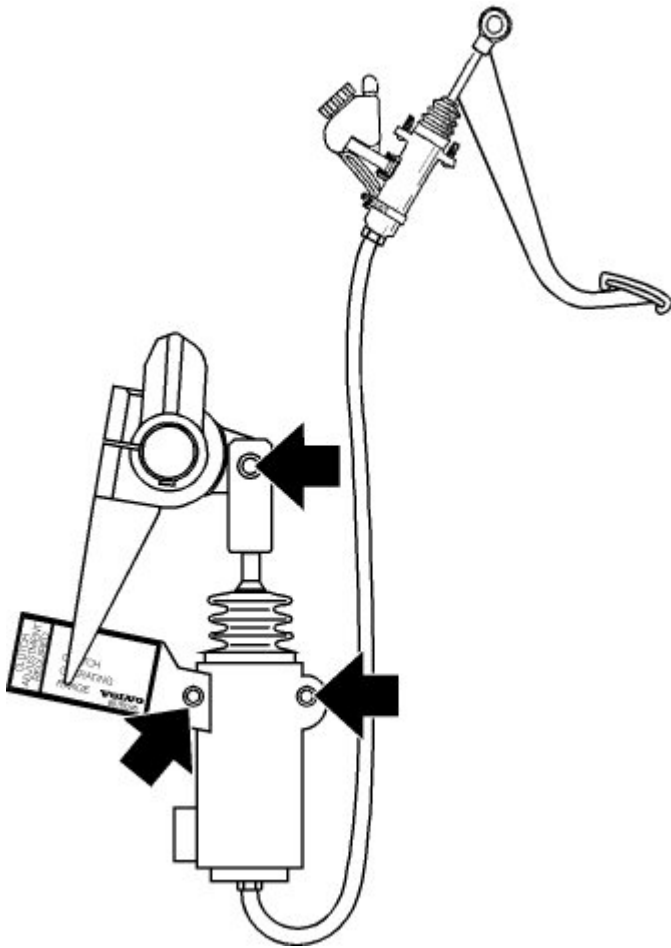
Specifications:

10 Nm (7 ft-lb)

19

Disconnect the bleeder tool and remove.

20



Install the clevis pin and the slave cylinder mounting bolts with the operating range tag. Torque the mounting bolts to 35 Nm (26 ft-lb).

Special tools: 12 mm socket; pliers

Specifications:  
35 Nm (26 ft-lb)

21

Check for the correct operation of the clutch. Re-check fluid level.

22

Install the lower steering column cover with plastic rivets (pull floor mat back to position the cover over the studs).

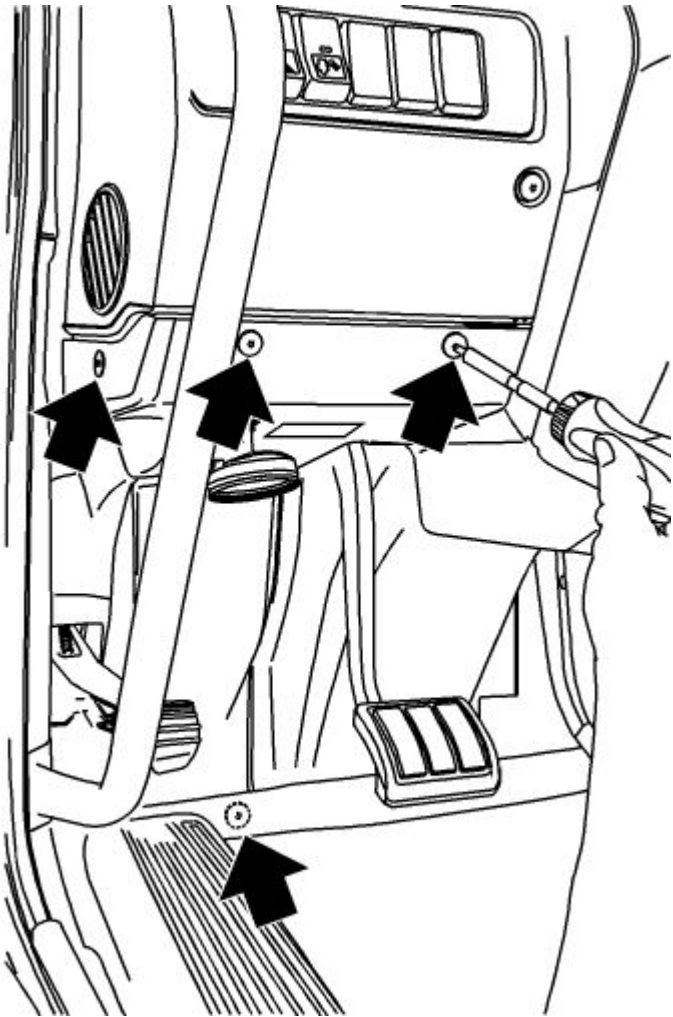
Note: Be careful not to damage the cover when installing.

23

Install three torx screws and the plastic nut on the center of the lower dash cover.

Special tools: 10 mm socket; 6" extension; 25 torx driver

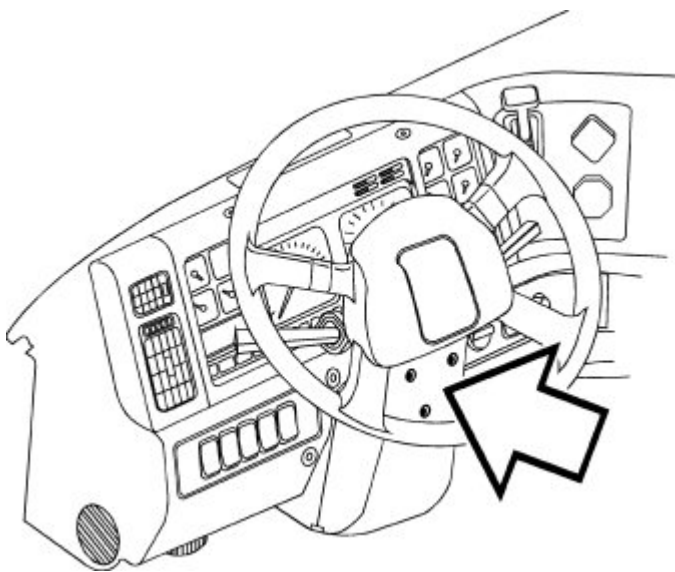
24



Install the left panel. Install the diagnostic connector. Install the heater hose, three torx screws and the plastic nut.

Special tools: 20 torx driver; 10 mm socket; 6" extension; ratchet

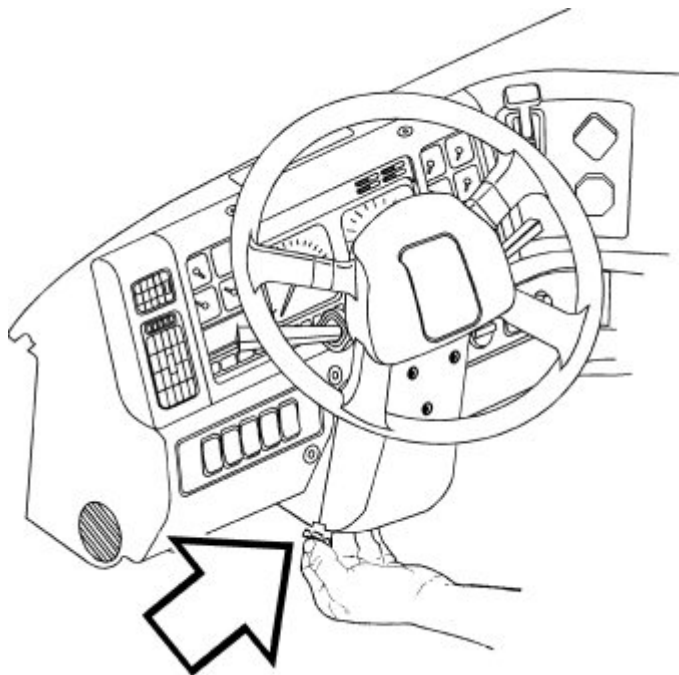
25



Install the upper cover on the steering column with three torx screws.

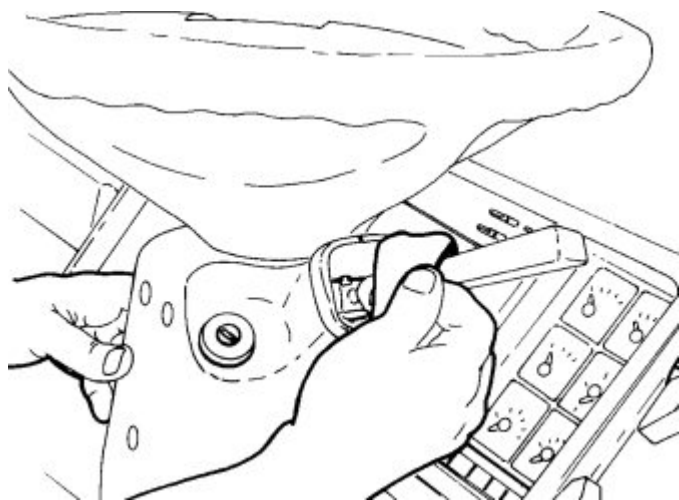
Special tools: 20 torx driver

26



Install the two clips at the bottom of the steering column cover.

27



Put the dust covers in place on the turn signal and windshield wiper switches.