30-1

Clutch mechanism, servicing

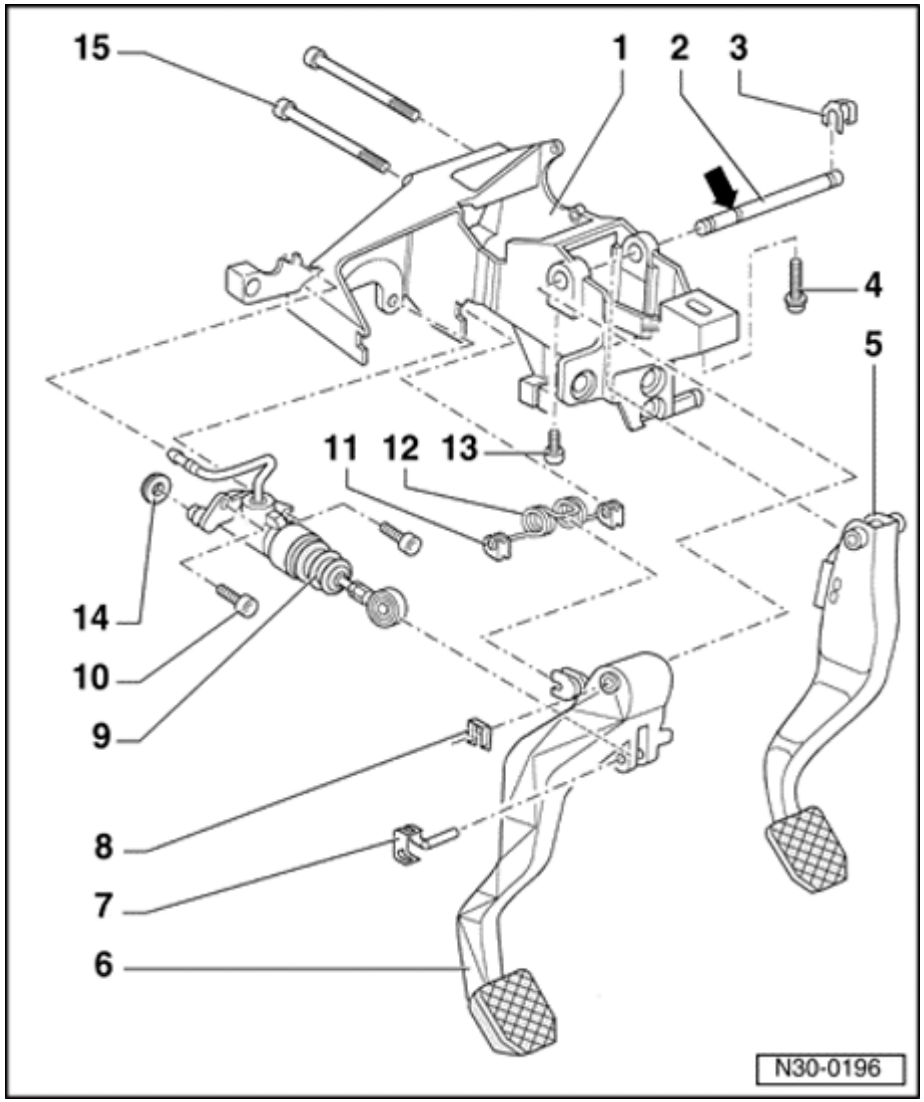
Note:

- *For vehicles with coded radio, obtain and note the radio code.*
- *Disconnect battery Ground strap with the ignition switched off.*
- *Lubricate all bearings and contact surfaces with G 052 142 A 2 polycarbamide grease.*
- *Before working on pedal cluster, remove cover below dash panel:*

⇒ *Repair Manual, Body Interior, Repair Group 68*

- *Make sure that no brake fluid escapes into the footwell, the plenum chamber or onto the transmission below. If this does happen, clean the affected areas thoroughly.*
- *When performing work in the footwell, put cloths on the carpet to protect it from possible brake fluid spills.*

30-2



Pedal cluster, assembly overview

1 - Mounting bracket

- Detach steering column from steering box before removing

⇒ *Repair Manual, Brake System, Repair Group 46*

2 - Pivot pin

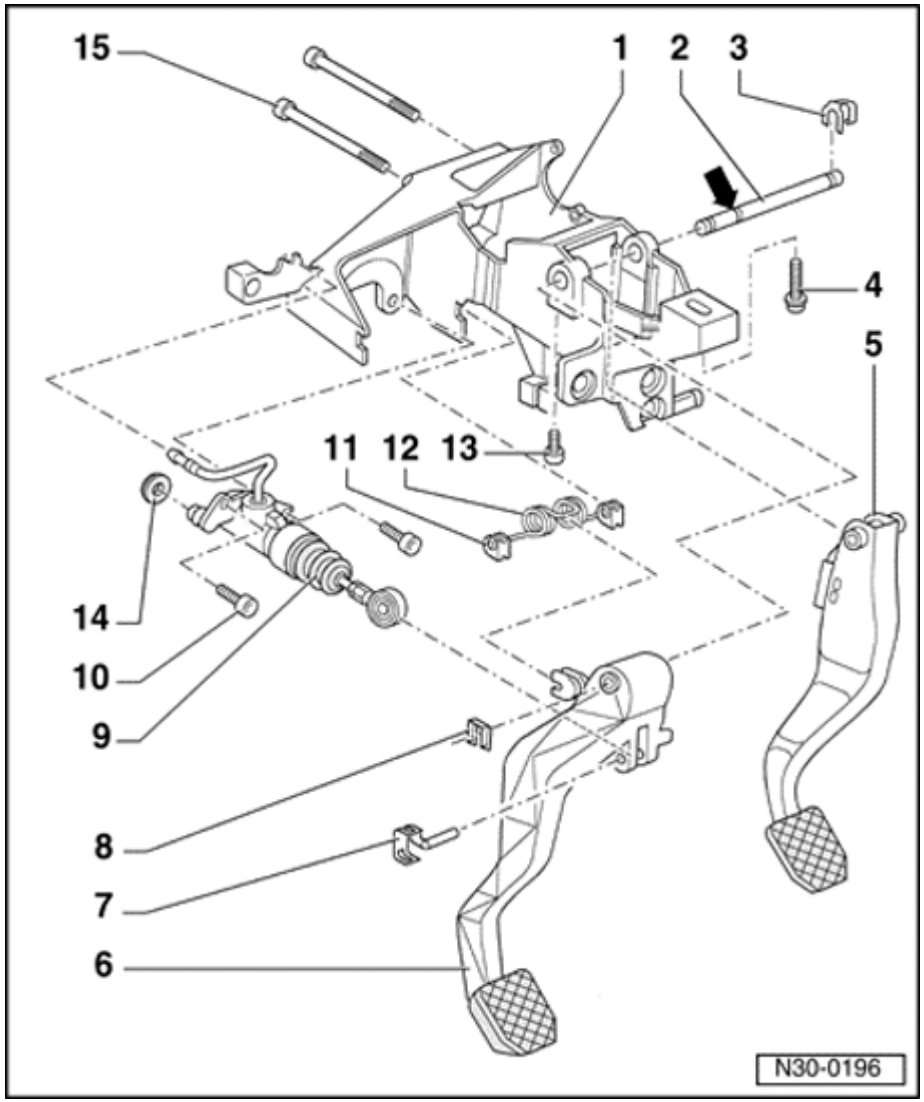
- For clutch pedal and brake pedal
- Installation position: groove (arrow) towards clutch pedal

3 - Locking clip

4 - Hex socket head bolt, 25 Nm

5 - Brake pedal

30-3



6 - Clutch pedal

- Removing and installing ⇒ Page 30-5

7 - Pin

- Clip onto clutch pedal

8 - Locking clip

9 - Master cylinder

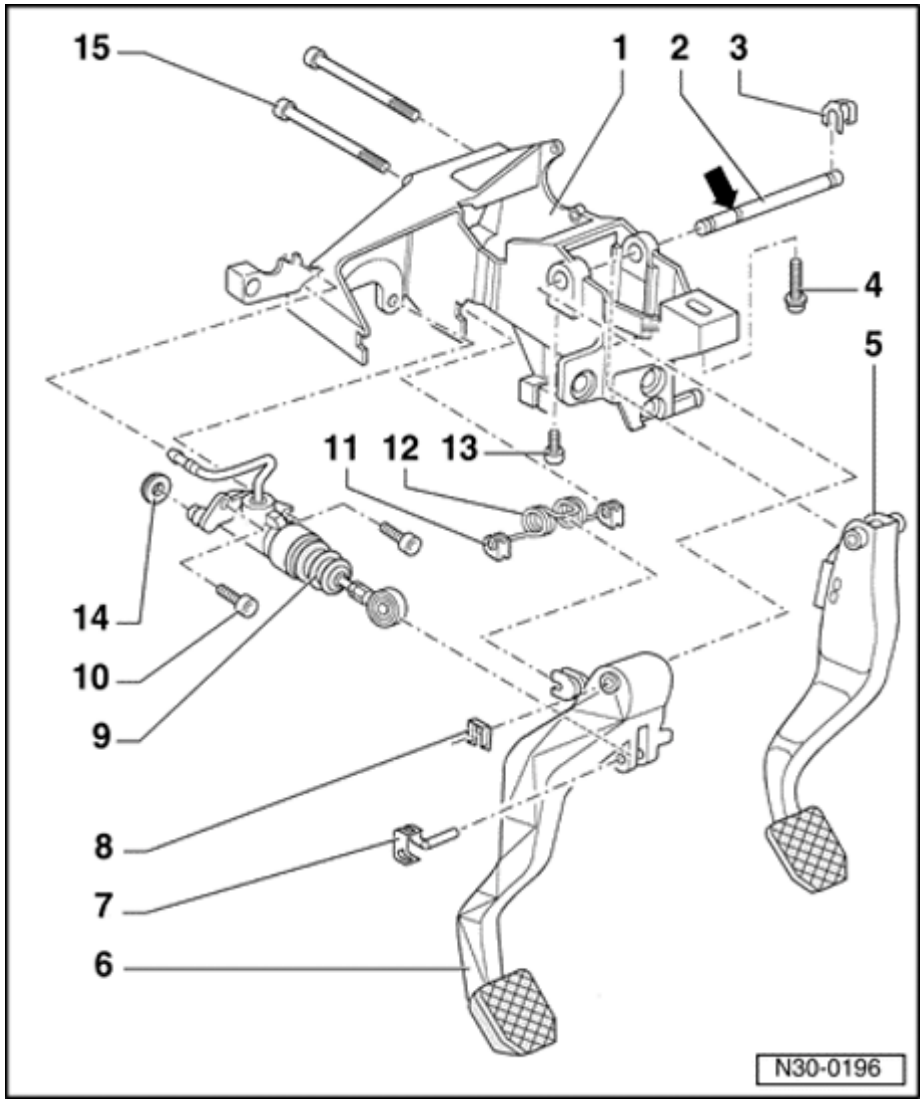
- Removing and installing ⇒ Page 30-17
- Do not operate clutch pedal after slave cylinder has been removed.

10 - Hex socket head bolt, 20 Nm

11 - Mounting

- Insert in mounting bracket with over-center spring

30-4



12 - Over-center spring

- Allocation

⇒ *Parts catalog*

- Remove and install with clutch pedal ⇒ Page 30-5

13 - Hex socket head bolt, 5 Nm

- Secures clutch and brake pedal pivot pin

14 - Seal

- Must not be removed

15 - Torx bolt - 25 Nm

- Also secures the brake master cylinder with brake servo

30-5

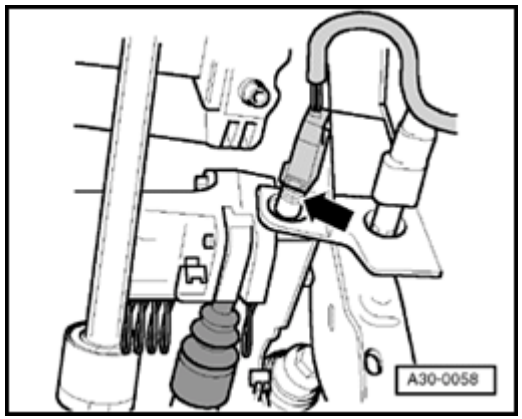
Clutch pedal and over-center spring, removing and installing

Removing

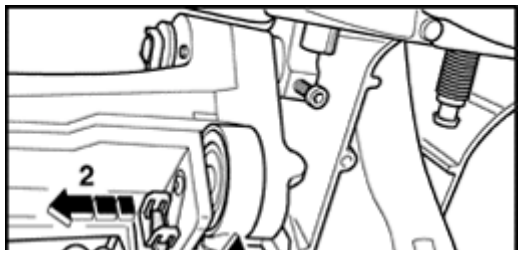
- Remove driver's side storage compartment:

⇒ *Repair Manual, Body Interior, Repair Group 68*

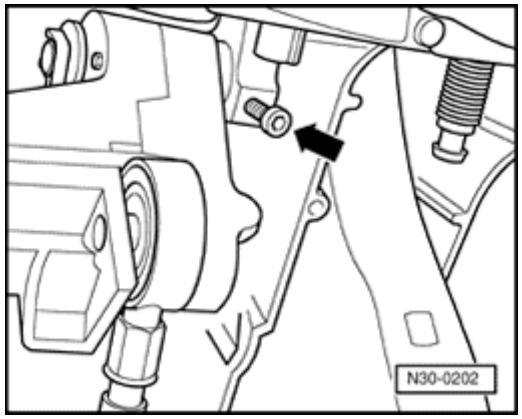
Note:



- *For the following procedures, make sure that the clutch pedal does not press out switch (arrow) from securing clip, since the thread of the switch would be damaged and the switch would have to be replaced.*
- *To ensure proper securing, the switch (arrow) may only be installed once.*



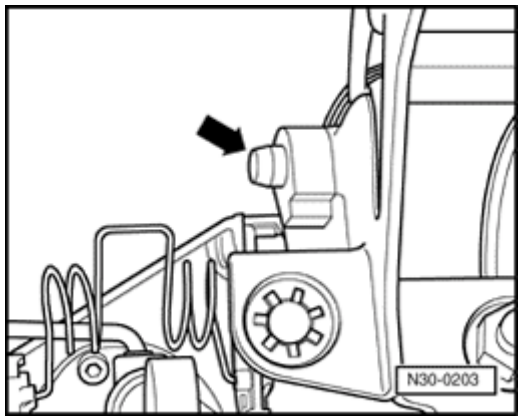
- Detach clutch pedal from master cylinder. To do this, unclip pin using a screwdriver (arrow -1-) and pull out pin (arrow -2-).
- Press clutch pedal securing clip off pivot pin with a screwdriver.



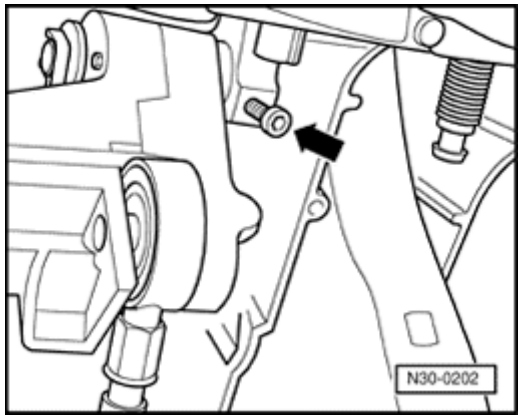
- Unscrew bolt (arrow).
- Press clutch and brake pedal pivot pin out to the right, until the clutch pedal can be removed.
- If necessary press brake pedal securing clip off pivot pin with a screwdriver.
- Take out clutch pedal and over-center spring.

Installing

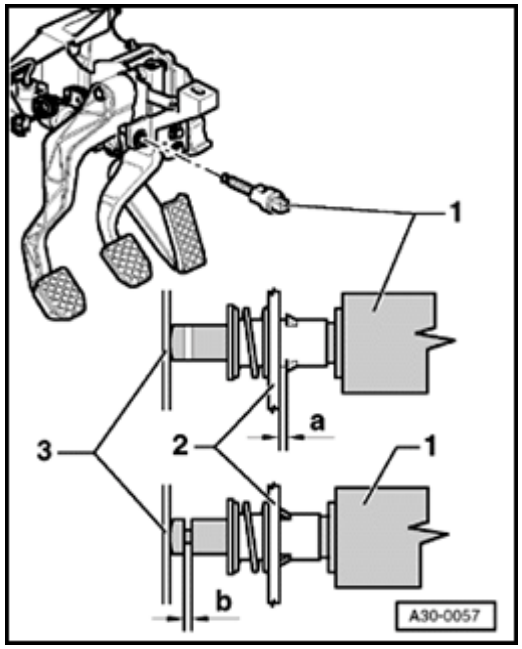
Installation is carried out in the reverse order,
when doing this note the following:



- Align clutch pedal/brake pedal pivot pin so that it protrudes out of mounting bracket at clutch pedal side (arrow).
- Hook clutch pedal into over-center spring, then fit onto pivot pin.
- Connect clutch pedal to master cylinder. Clip pin onto clutch pedal.



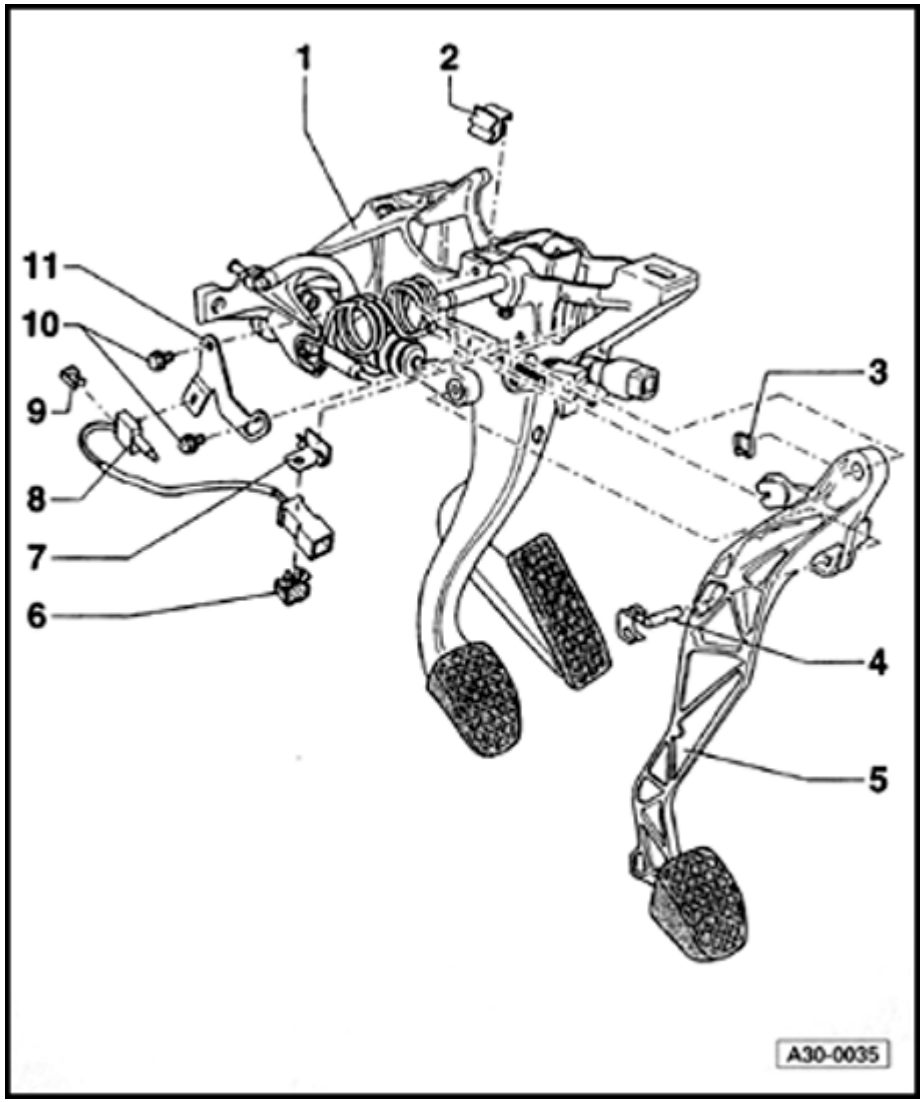
Do not tighten bolt (arrow) until both securing clips have been fitted on the clutch pedal/brake pedal pivot pin.



- Check adjustment of switch -1- via clutch pedal as follows:
  - Switch -1- must sit completely against clutch pedal -3- and must be completely activated.
  - Adjustment specification: The gap measurement -a- between securing clip and mounting bracket -2- or gap measurement -b- at switch -1- be no larger than 0.5 mm.
  - To adjust, clamp must be held and switch -1- must be turned.

Note:

To ensure proper securing, the switch may only be installed once.



Clutch Pedal Position (CPP) switch -F 194-, removing and installing

Note

The clutch pedal position (CPP) switch -F194- ensures that the engine can only be started with the clutch pedal depressed.

1 - Mounting bracket

2 - Cable bracket

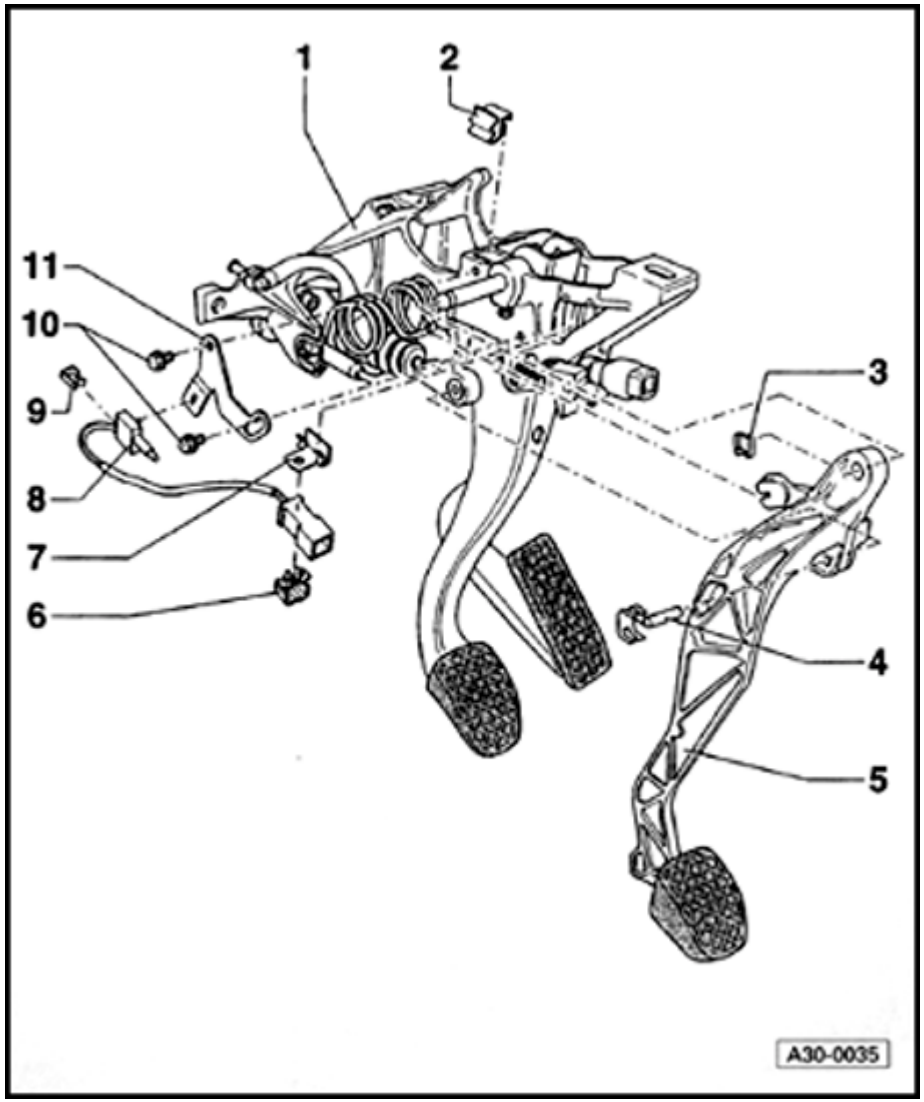
3 - Fuse

4 - Bolt

- Lock into clutch pedal

5 - Clutch pedal

- Removing and installing ⇒ Page 30-5



6 - Clip

7 - Harness connector bracket

8 - Clutch Pedal Position (CPP) Switch -F 194-

- Adjusting ⇒ Page 30-11

9 - Clip

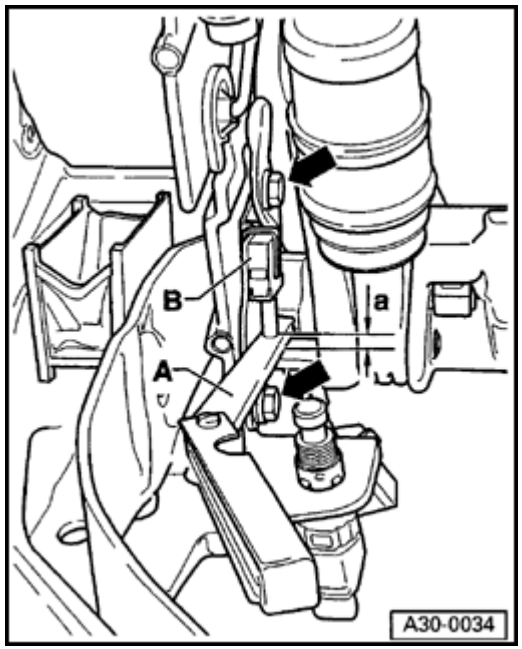
10 - Screw and washer assembly

- 8 Nm

11 - Securing plate

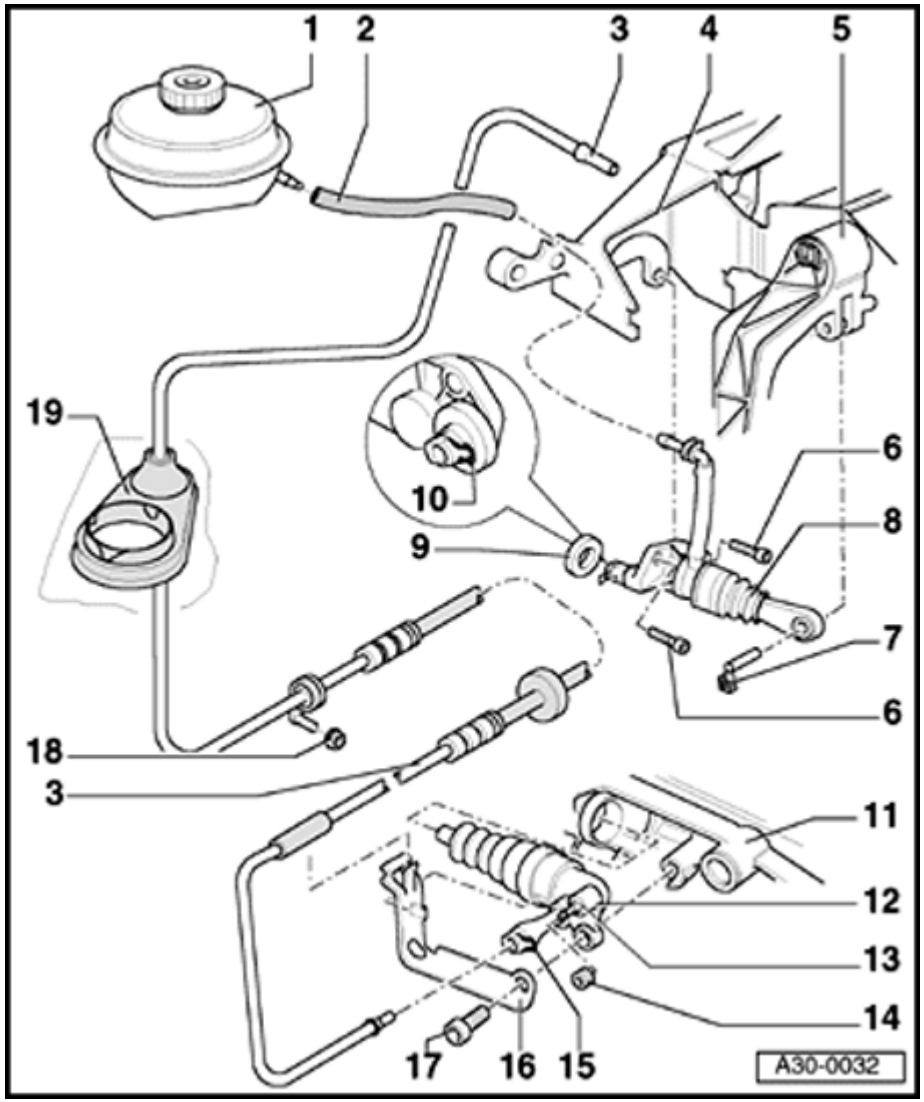
30-11

Clutch Pedal Position (CPP) switch - F194-, adjusting



- Loosen two bolts (arrow) slightly.
- Have second technician depress clutch pedal to stop.
- Insert feeler gauge -A-, with selected measurement -a- 3.2 ± 0.2 mm, between activation surface of clutch pedal and switch plunger.
- Tilt switch -B- toward feeler gauge -A- to stop and tighten both securing bolts (arrows) to 8 Nm.

30-12



Hydraulic system, general layout

1 - Brake fluid reservoir

2 - Supply hose

3 - Line/hose assembly

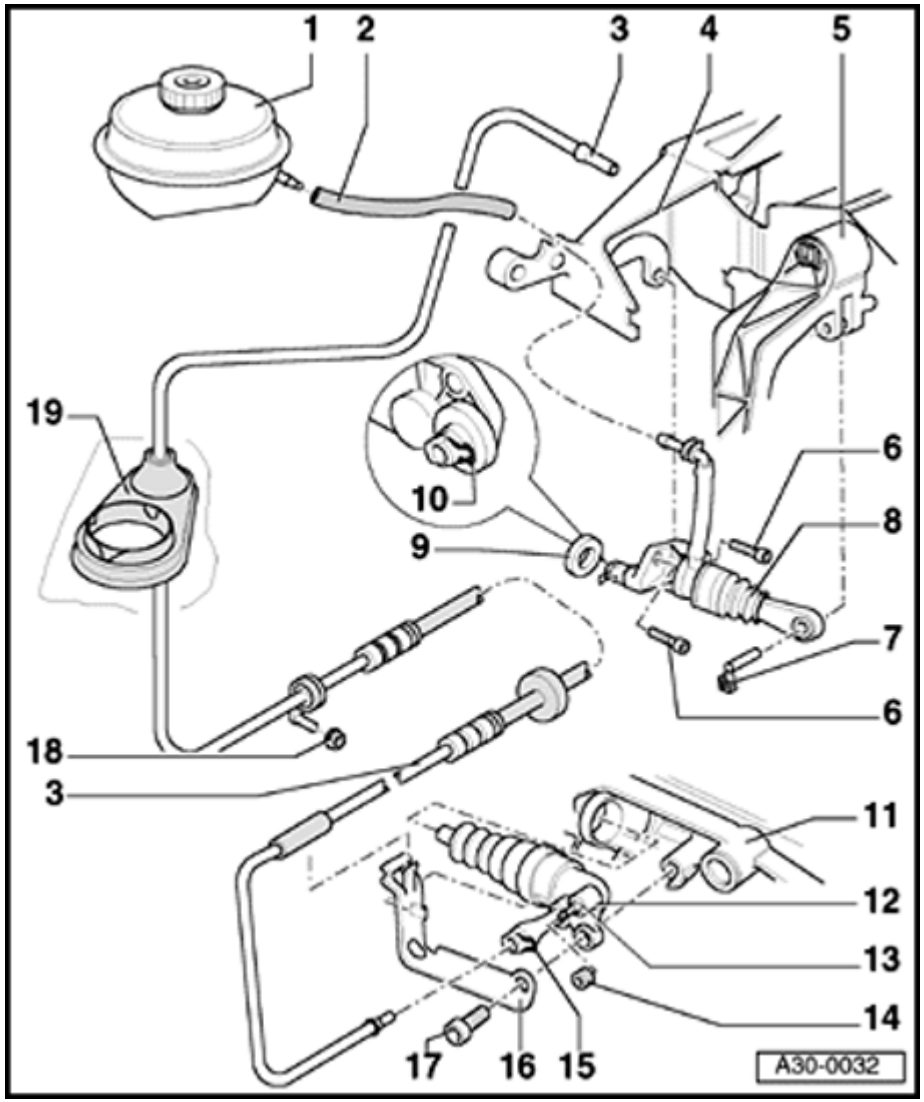
- For plug-in connections on master cylinder and slave cylinder
- Disconnecting from master cylinder and installing ⇒ Page 30-18
- Disconnecting from slave cylinder ⇒ Fig. 2
- Allocation

⇒ *Parts catalog*

4 - Mounting bracket

5 - Clutch pedal

- Removing and installing ⇒ Page 30-5



6 - Hex socket head bolt, 20 Nm

7 - Pin

8 - Master cylinder

- With plug-in connection for hose/line assembly
- Removing and installing ⇒ Page 30-17

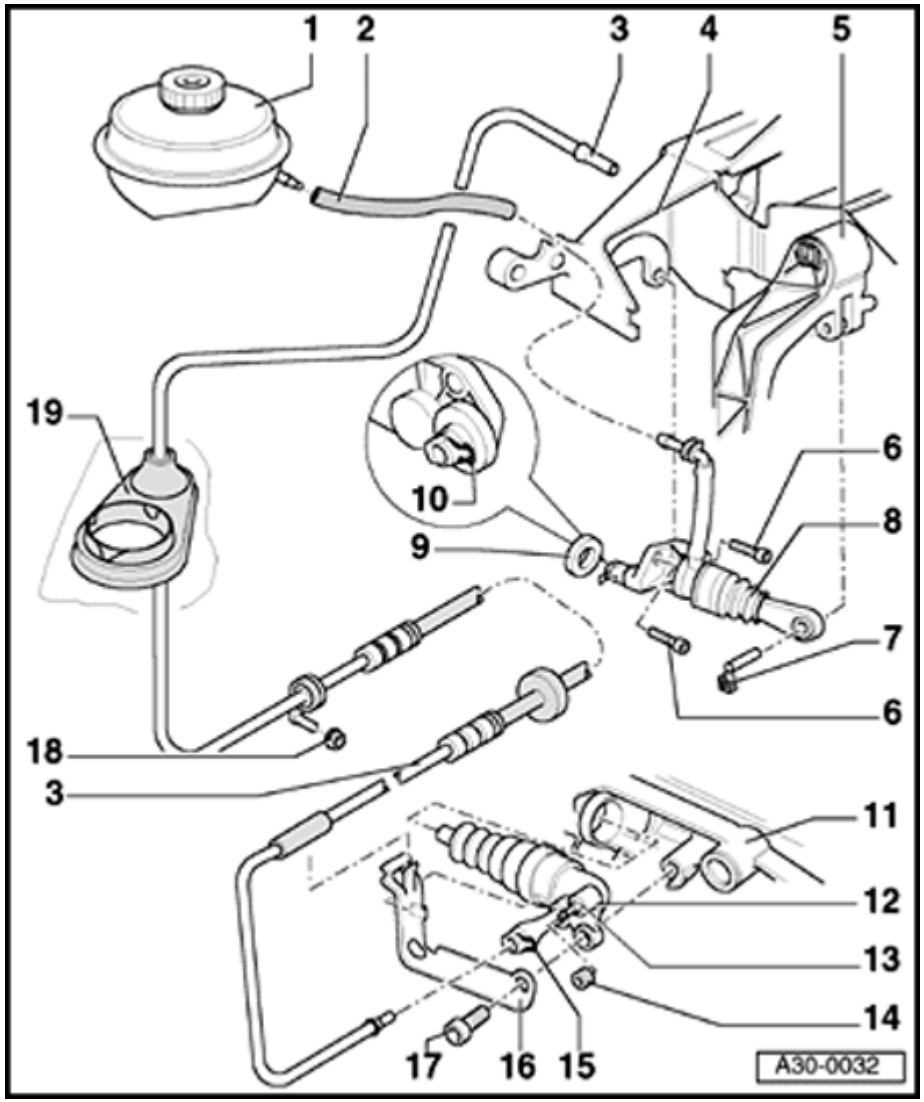
9 - Seal

- Must not be removed

10 - Retaining clip

- Pull out retaining clip to disconnect line ⇒ Page 30-18

11 - Transmission



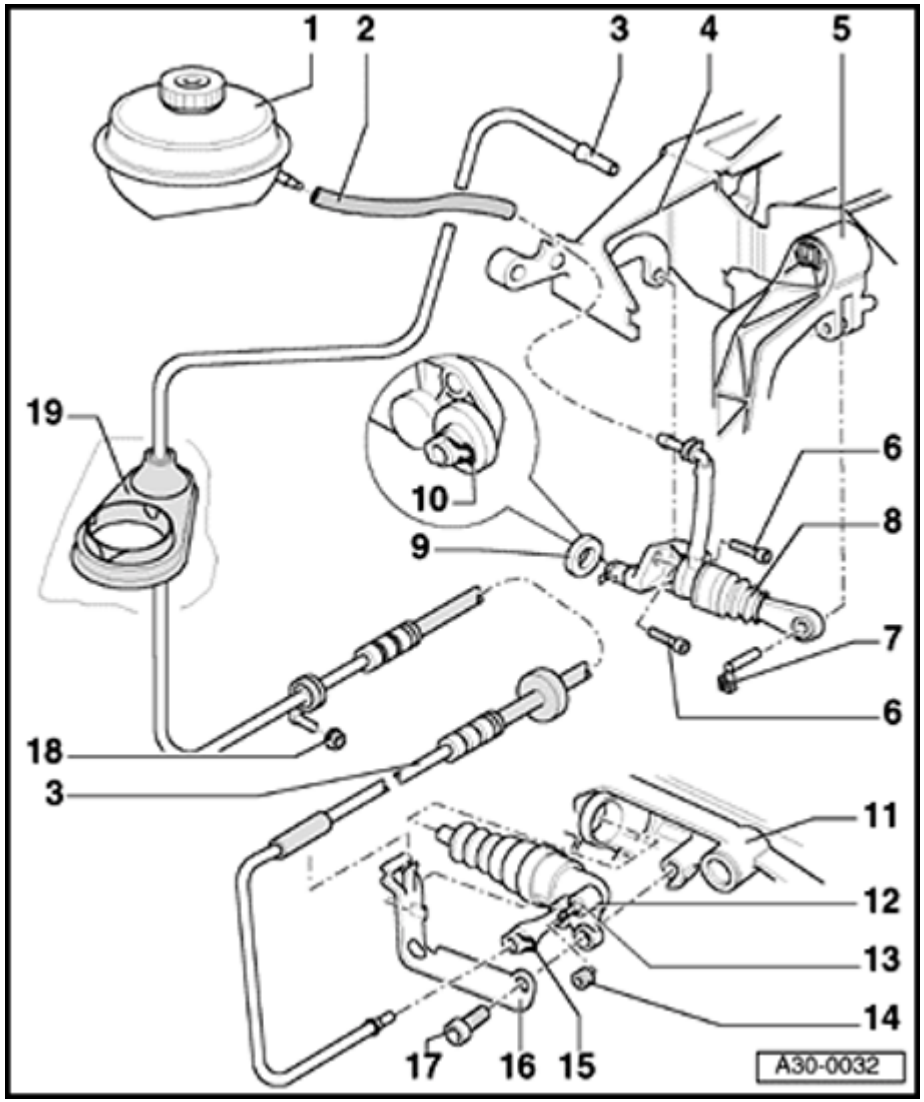
12 - Plastic slave cylinder

- Do not operate clutch pedal after slave cylinder has been removed
- Brake fluid must not be allowed to get onto the transmission
- Lightly grease to install ⇒ Fig. 1
- When installing push in until the securing bolt can be fitted.
- With plug-in connection for hose/line assembly
- Disconnecting hose/line assembly ⇒ Fig. 2
- Follow correct sequence of work when bleeding ⇒ Page 30-25 .

13 - Bleeder valve

- Tighten to 4.5 Nm
- Follow correct sequence of work when bleeding ⇒ Page 30-25
- A broken off bleeder valve can be removed using a 3mm hex socket wrench

30-15



14 - Dust cap

15 - Retaining clip

- Pull out retaining clip to disconnect line ⇒ Fig. 2

16 - Bracket

- Secured to transmission

17 - Hex socket head bolt

- 20 Nm

18 - Nut

- 2 Nm

19 - Seal

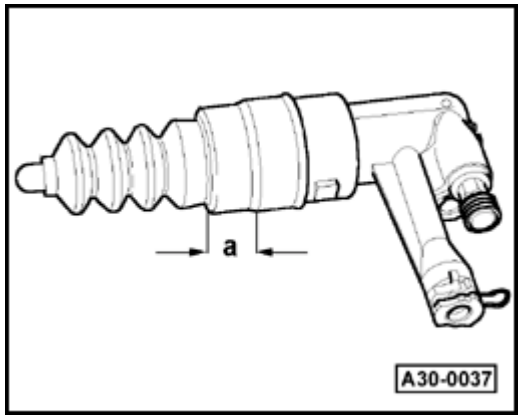


Fig. 1 Installing clutch slave cylinder

- Coat area -a- of collar with lithium grease G 052 150 A2 before installing slave cylinder into transmission housing.
- Lightly coat contact surface for plunger to clutch release lever with copper grease, e.g. Z 381 351 TE.

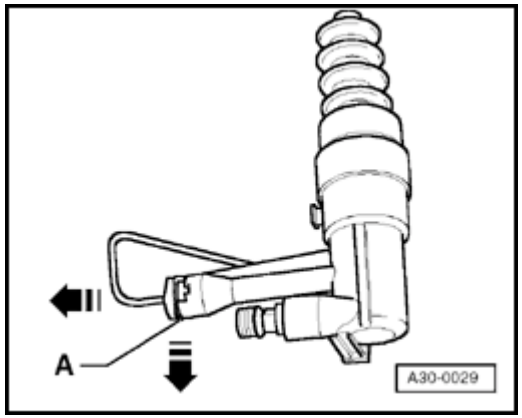


Fig. 2 Disconnecting line and clutch slave cylinder

Removing

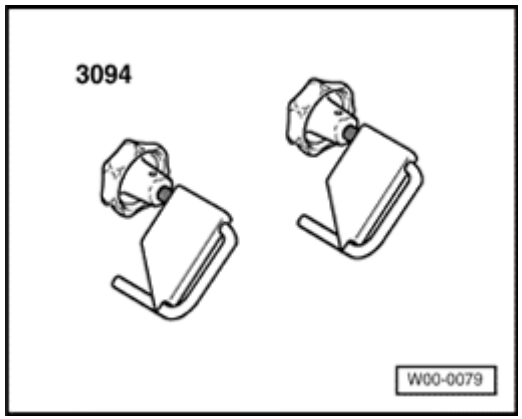
- To disconnect line, use a screwdriver to pry out retaining clip -A- so that it clicks. Line can then be pulled out.

Installing

- Press in retaining clip -A- as far as it will go.
- Push line into slave cylinder until it engages audibly.

Master cylinder, removing and installing

Special tools, testers and auxiliary items

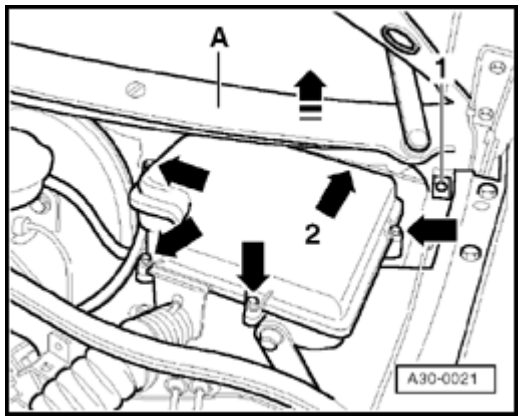


- Hose clamp 3094

Removing

- If installed, remove cover above plenum chamber.
- Disconnect battery Ground (GND) strap with the ignition switched off.

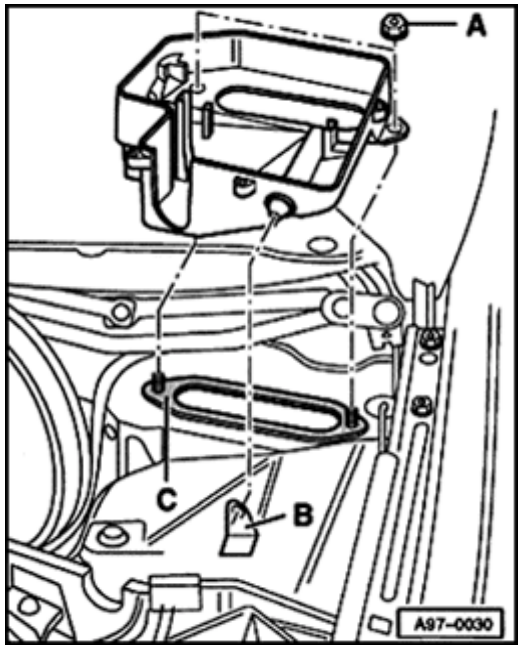
Remove E-Box from plenum chamber as follows:



- Pull off clip -1- and lift wind grill -A- slightly. Now remove screw (arrow -2-).
- Remove remaining screws (arrows) and remove cover.
- Remove engine control unit and 8-point relay carrier (if fitted)

⇒ *Repair Manual, Electrical Equipment, Repair Group 97*

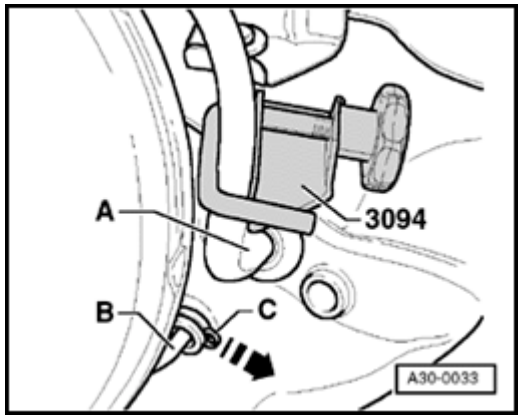
- Unplug connector in connector station.
- Pull engine wiring harness together with rubber grommet out through opening in electronics box.



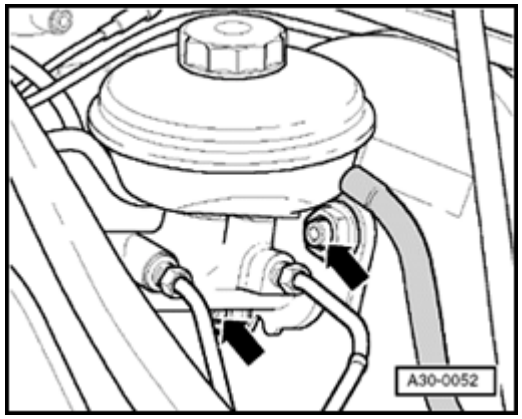
- Unscrew both nuts -A-.
- Lift E-box off studs at the rear and then pull it out of securing point -B-.

Note:

- *In the following procedures, make sure that no brake fluid escapes into the plenum chamber or onto the transmission below. If this does happen, clean the affected areas thoroughly.*
- *When performing work in the footwell, put cloths on the carpet to protect it from possible brake fluid spills.*

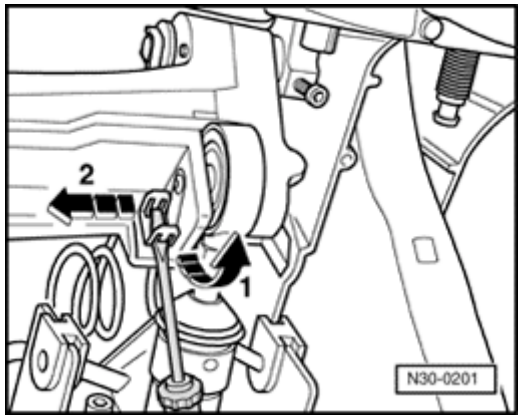


- Clamp supply hose -A- from brake fluid reservoir using special tool 3094. Pull hose off master cylinder and plug hose.
- Remove rubber grommet for compensation hose above connecting line from transverse wall.
- Pry out retaining clip -C- using a screwdriver and pull line -B- out slightly.

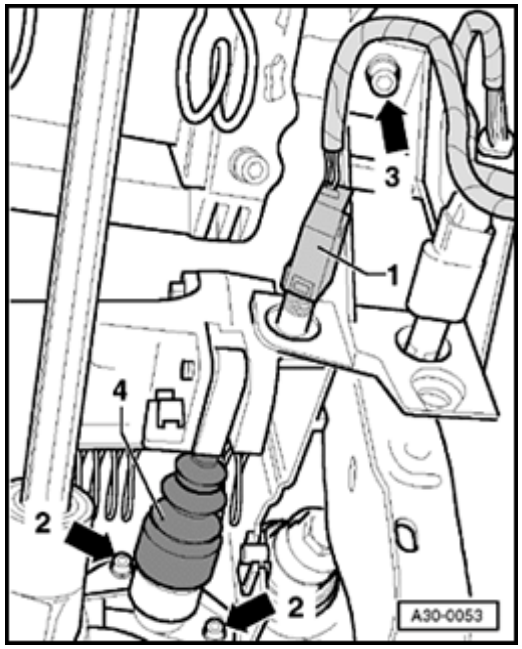


- Remove both socket head bolts (arrows).
- Remove driver's side storage compartment:

⇒ *Repair Manual, Body Interior, Repair Group 68*



- Remove clutch pedal from master cylinder. To do this, pry out bolt lock using screwdriver (arrow -1-), remove bolt (arrow -2-) and depress clutch pedal.



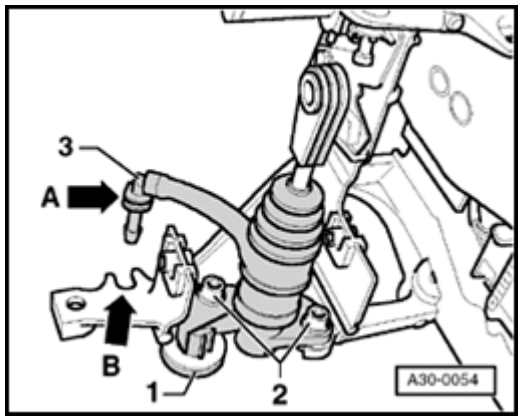
Note:

- *For the following procedures, make sure that the clutch pedal does not press out switch -1- from securing clip, since the thread of the switch would be damaged and the switch would have to be replaced.*
- *To ensure proper securing, the switch may only be installed once.*

- Remove bolts for master cylinder (arrow -2-) and for mounting bracket (arrow -3-).
- Pull complete pedal assembly somewhat toward seating compartment and remove clutch master cylinder -4-.

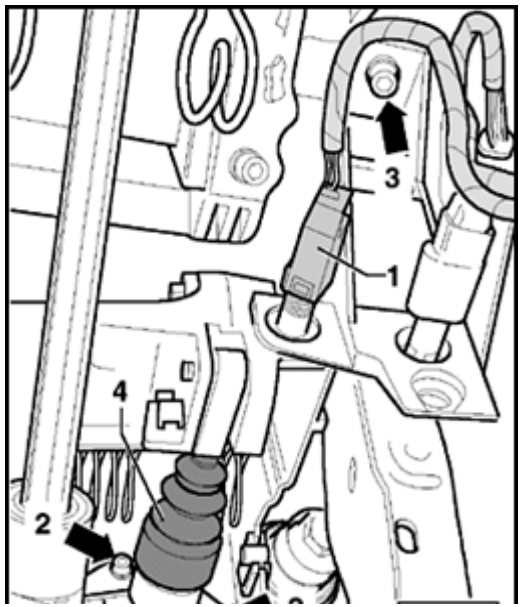
Installing

Installation is the reverse order of removal, while noting the following:

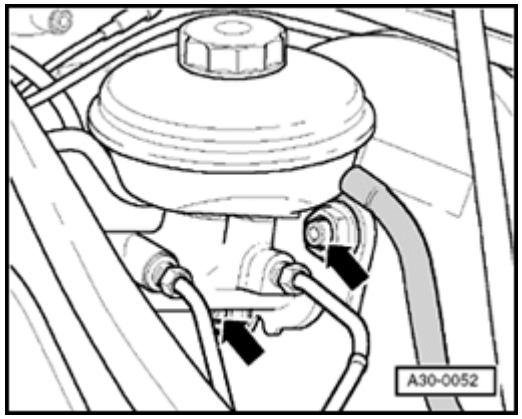


- Insert master cylinder so that the so that seal -1- with washer sits behind bearing mount and tighten bolts -2- to 20 Nm.
- Press connecting line -3- with guide -arrow A- into groove -arrow B- at mounting bracket.

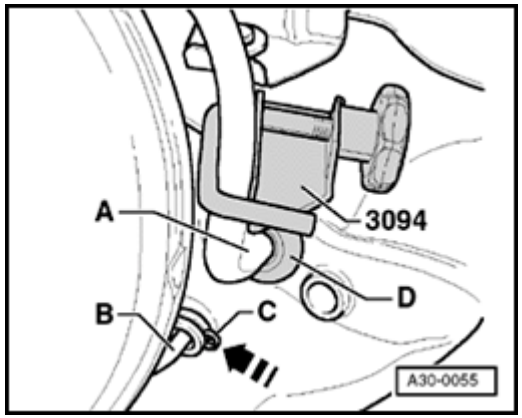
A second technician is necessary for the next work step.



- Slide complete pedal assembly forward, toward transverse wall, insert bolt (arrow -3-) and tighten by hand. At the same time, second technician must insert tube from plenum chamber into master cylinder.

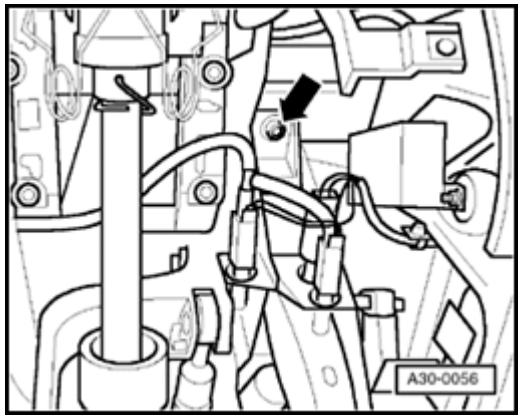


- Tighten bolts for brake booster (arrows) to 25 Nm.

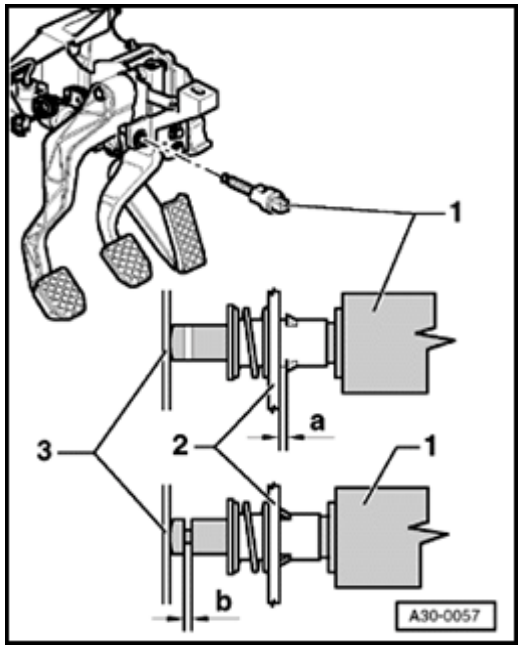


- Press securing clip -C- in to stop.
- Insert tube -B- into master cylinder until the tube engages audibly.
- Insert rubber grommet -D- into transverse wall above connecting tube/after-run hose -A-.
- Slide on after-run hose -A- to brake fluid reservoir to stop.
- Remove special tool 3094.

30-23



- Tighten socket head bolt (arrow) for pedal assembly to 25 Nm.
- Connect master cylinder to clutch pedal. Engage bolt lock into clutch pedal.
- Bleed clutch system after installing master cylinder ⇒ Page 30-25 .



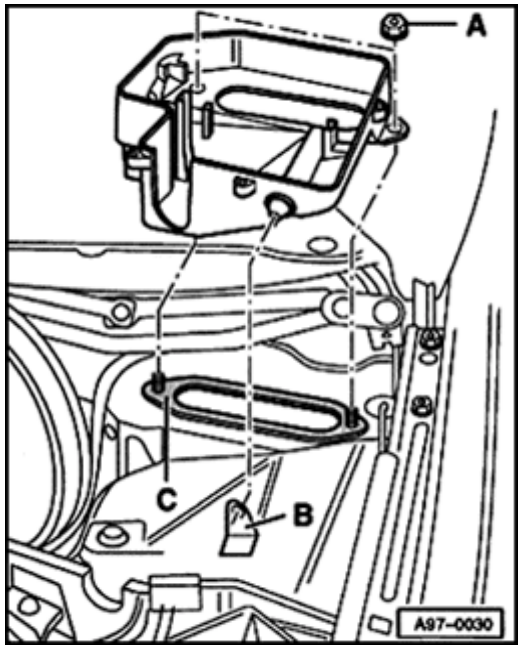
- Check adjustment of switch -1- above clutch pedal as follows:
  - Switch -1- must lie against clutch pedal -3- completely and must be completely activated.
  - Adjustment tolerance: gap measurement -a- between retaining clip and mounting bracket -2- or gap measurement -b- at switch -1- may be a maximum of 0.5 mm.
  - To adjust, hold clip and rotate switch -1-.

Note:

Connect clutch master cylinder with clutch pedal. Engage bolt lock in clutch pedal.

- Remove driver's side storage compartment:

⇒ *Repair Manual, Body Interior, Repair Group 68*



- Always replace seal -C-.
- Make sure seal does not cover chassis opening and elevated edge of sheet metal.
- Insert E-Box in securing point -B- and tighten nuts -A- to 4 Nm.
- Press cover on by hand and tighten bolts -A- diagonally to 4 Nm (also see inscription on cover).
- Install engine wiring harness and connect harness connector in connector station.
- Install engine control module and if necessary, auxiliary relay carrier and auxiliary fuse holder.

⇒ *Repair Manual, Electrical Equipment, Repair Group 97*

Clutch system, bleeding

Special tools, testers and auxiliary items

- Brake filling and bleeding appliance V.A.G 1238 B

or

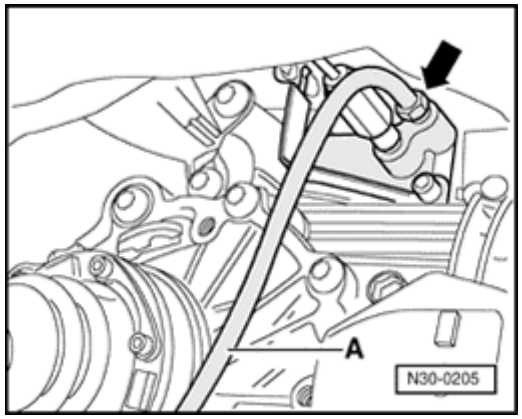
- Brake filling and bleeding appliance V.A.G 1869

Note:

- *First open bleeder valve before switching on bleeding appliance.*
- *When performing the following steps, make sure that no brake fluid escapes onto the transmission.*
- *The clutch system must be bled after performing work on hydraulic clutch mechanism.*
- *Top-up brake fluid reservoir to "max." marking with brake fluid before bleeding clutch system.*

- Pull clutch pedal back to its normal position.

- Connect brake filling and bleeding appliance V.A.G 1238 B or V.A.G 1869, but do not switch on at this stage.



- Connect bleed hose -A- to slave cylinder (arrow) and open bleed valve.
- Connect bleeder hose to pressure hose of fluid collector bottle.
- Switch on bleeder appliance and allow about 100 cm3 of brake fluid to drain out.

  Working pressure: 2.5 bar

Note:

Ensure bleeder hose is correctly fitted during bleeding operation.

- Close bleeder valve and tighten to 4.5 Nm.
- Depress clutch pedal several times after completion of bleeding process.
- Bleed system again if necessary.