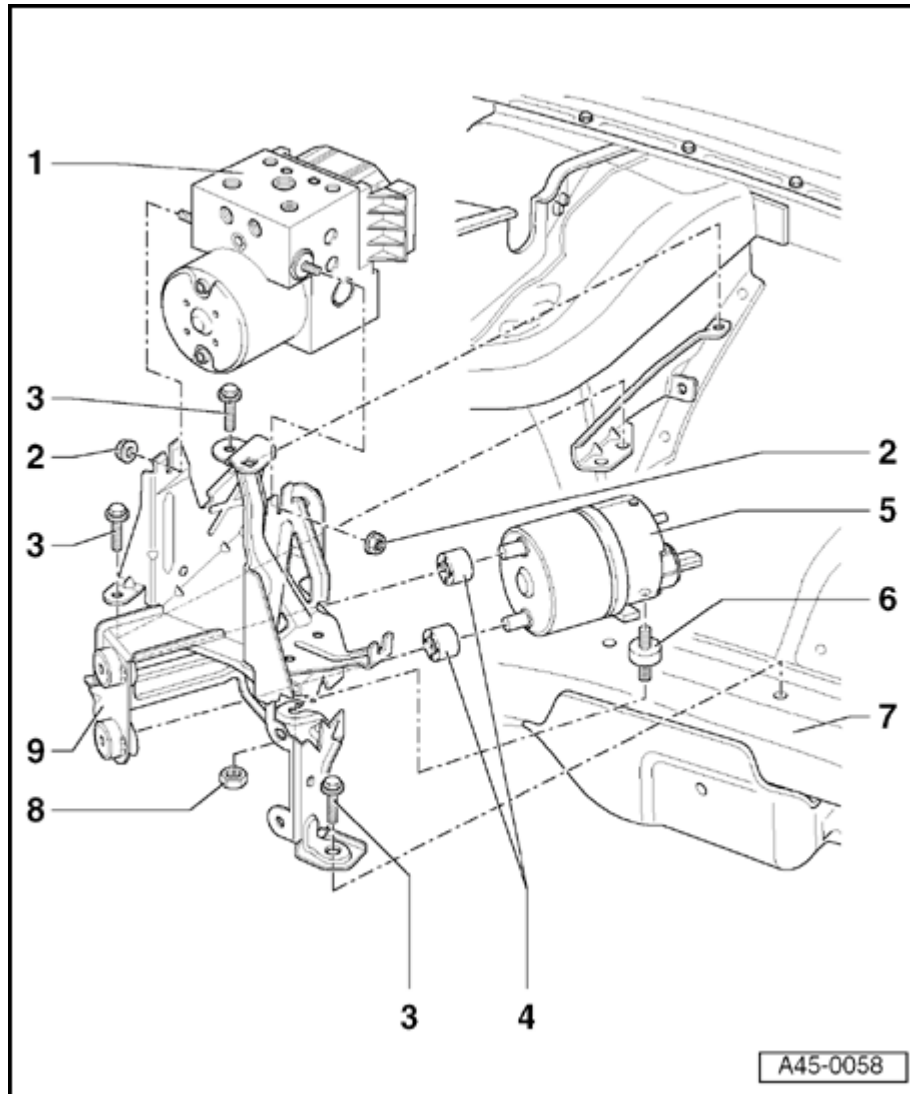


45-41



Electronic Stability Program (ESP) hydraulic unit, servicing

The tightening torque for all brake lines on the Audi A4 is 15 Nm (11 ft lb).

1 - ESP hydraulic unit

- ◆ Always replace complete unit

2 - Nut

- ◆ 12 Nm (9 ft lb)

3 - Bolt and washer assembly

- ◆ 9 Nm (80 in lb)

- ◆ 3x

4 - Resilient bushing

- ◆ 2x

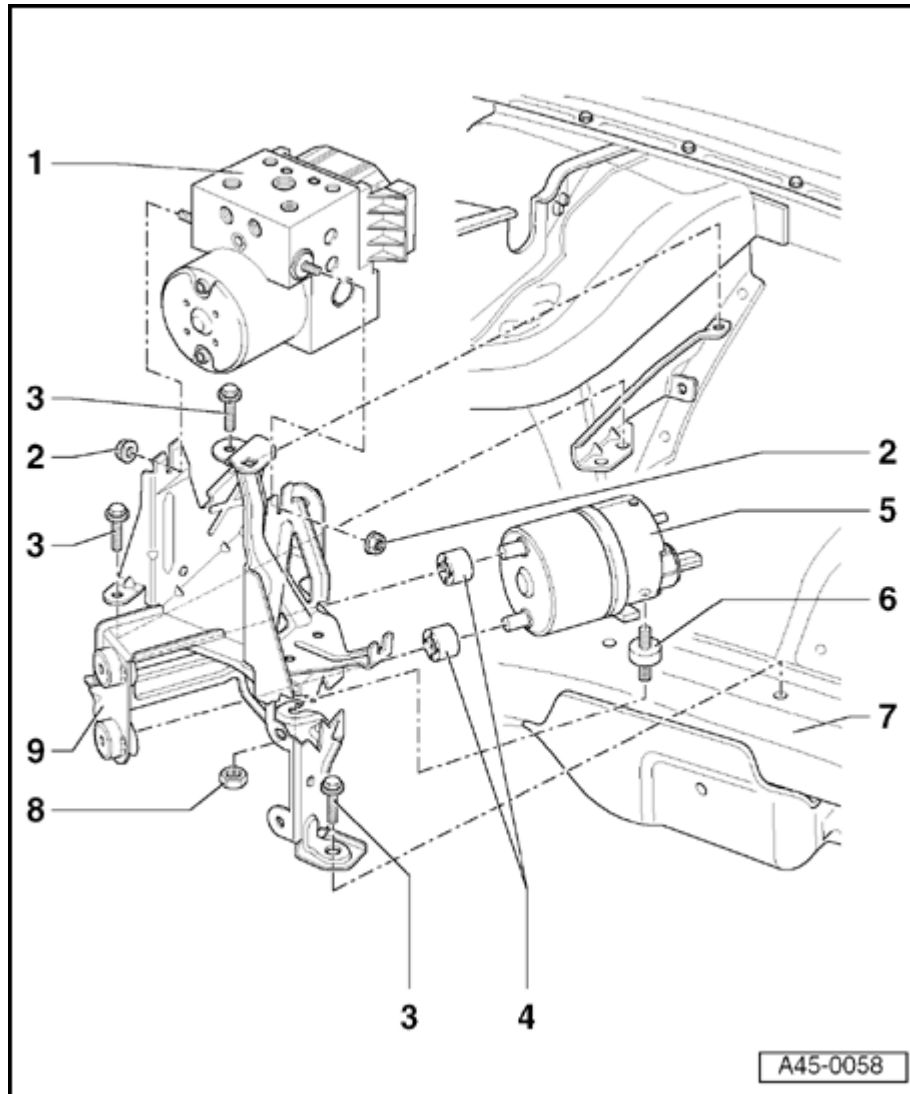
5 - ESP hydraulic pump -V156-

- ◆ Assembly includes brake pressure sensor

6 - Resilient pad

- ◆ Pad stud mount to hydraulic pump: 2 Nm (18 in lb)

7 - Vehicle body

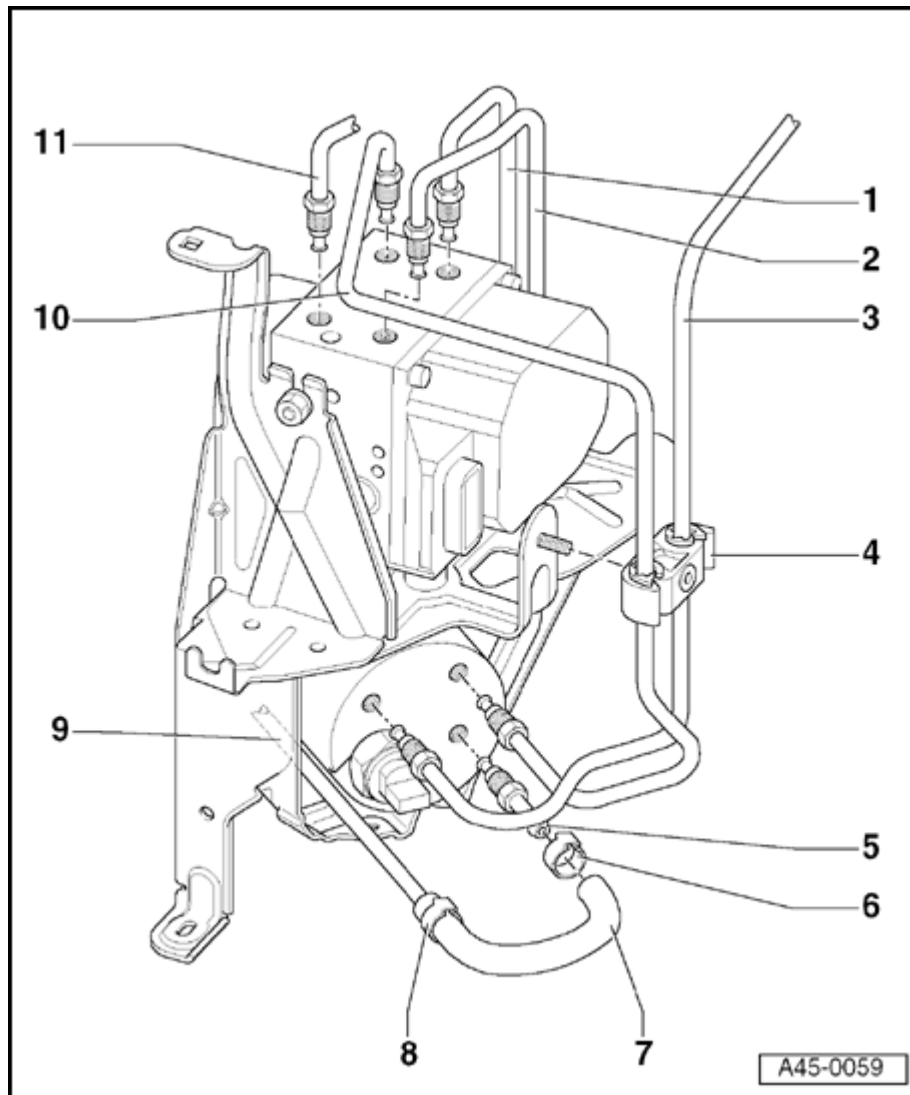


8 - Nut

◆ 9 Nm (80 in lb)

9 - Bracket

45-43



1 - Left-front brake line

2 - Right-front brake line

3 - Brake line

◆ ESP hydraulic pump to brake master cylinder primary piston circuit

4 - Fixture

5 - Connection fitting

6 - Hose clamp

7 - Hose

8 - Hose clamp

9 - Suction line

10 - Brake line

◆ To ESP hydraulic pump

11 - Brake line

◆ To brake master cylinder secondary piston circuit

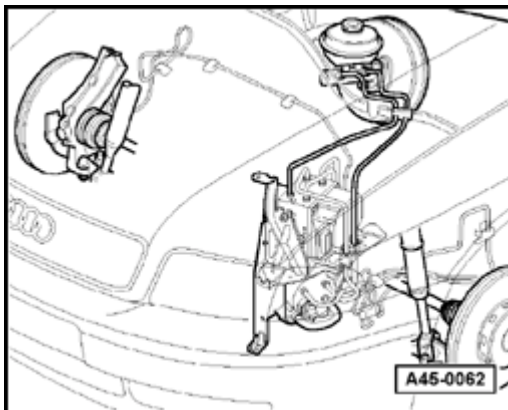
Electronic Stability Program (ESP) hydraulic pump, removing and installing

Special tools and equipment

- ◆ Sealing plugs from repair kit Part No. 1H0 698 311A
- ◆ VAG1551 or VAG1552 scan tool
- ◆ US1116 brake bleeder

CAUTION!

Part numbers are listed here for reference only. Always check with your Parts department for the latest information.



Component location

The ESP hydraulic pump is located on the left side of the engine compartment below the hydraulic control unit.

Removing

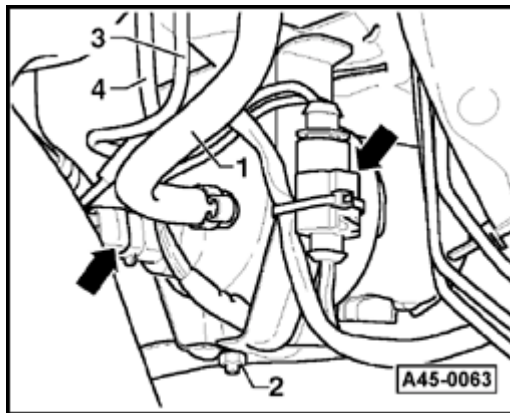
- Place vehicle on lift.

Note:

Switch off ignition before removal or installation work. If the vehicle is

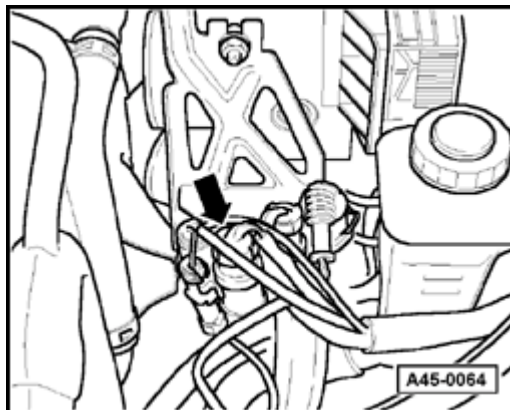
equipped with a coded radio determine the correct coding before disconnecting the battery.

- Raise vehicle.
- Remove left-front wheel.
- Remove left-front wheelhouse liner.
- Disconnect electrical harness connectors (arrows).
- Remove cover on hydraulic reservoir.



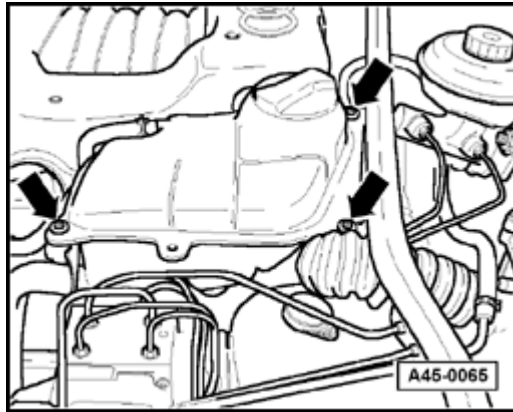
A

- Unclip attachment strip at bracket.

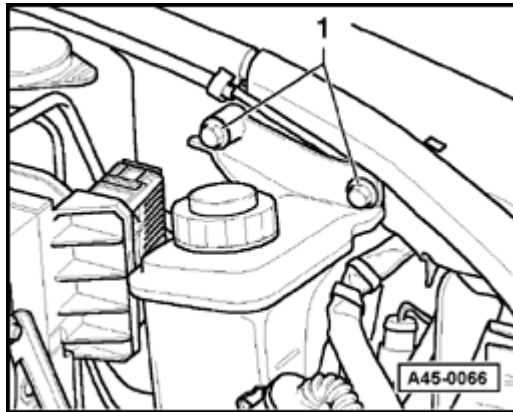


A

45-46



- A**
- Remove mounting screws (arrows) and swing coolant expansion tank to side.
- Tightening torque: 6 Nm (53 in lb)



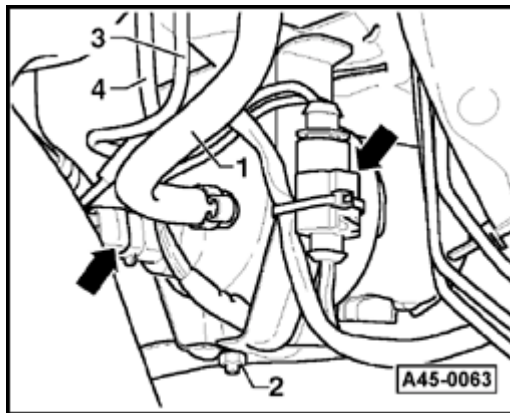
- A**
- Remove bolts -1- for hydraulic fluid reservoir and swing to side.
- Tightening torque: 10 Nm (7 ft lb)
- Pay attention to bottom mounting (rubber grommet) when installing.

Note:

Protect the engine compartment from brake fluid which flows out.

CAUTION!

Brake fluid must not be allowed to come into contact with paintwork because of its caustic effect.

**A**

- Loosen hose clamp on suction hose -1- and detach.
- Disconnect brake lines -3- and -4-.
- Seal brake lines and threaded holes with plugs from repair kit Part No. 1H0 698 311A.
- Unclip brake lines from fixture.
- Remove nut -2-.
- Remove bolts for mounting bracket ⇒ [page 45-41](#) , item 3 .
- Working from engine compartment, lift bracket together with hydraulic pump approx. 30 mm (1 3/16 in) and remove.

Installing

Note:

When installing, pay particular attention to the following points.

- ◆ *Only remove the sealing plugs on the new hydraulic control unit when the corresponding brake line is about to be installed.*
- ◆ *If the sealing plugs are removed too early the brake fluid can escape.*

- Bleed brake system ⇒ [page 47-23](#) .

Bleeding brake system using US1116 brake bleeder

- Connect US1116 brake bleeder.
- Open bleeder screws in the following sequence and bleed brake calipers (assist with pedal pressure, if necessary).

Bleeding sequence

2 - Left-rear brake caliper

3 - Right-front brake caliper

1 - Right-rear brake caliper

4 - Left-front brake caliper

Basic Setting

Display group 2 (002): Actuation of Electronic Stability Program (ESP) hydraulic pump - V156-

Actuation of the ESP hydraulic pump -V156- is used to bleed the hydraulic system.

- Connect VAG1551 or VAG1552 Scan Tool (ST).

V.A.G - ON BOARD DIAGNOSTIC HELP

1 - Rapid data transfer

2 - Blink code output



Indicated on display 1)

1) Operating modes 1 and 2 are displayed alternately

- Switch ignition on.
- Press "PRINT" button to switch printer on; indicator lamp in button comes on.
- Press button -1- to select "Rapid data transfer" operating mode 1.
- Press buttons -0- and -3- to insert "Brake Electronics" address word 03.
- Press → button.

Rapid data transfer

HELP

Select function XX



Indicated on display

Login procedure HELP
Enter code number XXXXX

- Press button -1- twice to select "Login procedure" function 11.

◀ Indicated on display

- Enter code number 40168 and press -Q- button to confirm input.

Rapid data transfer HELP
Select function XX

◀ Indicated on display

- Press buttons -0- and -4- to select "Basic Setting" function 04.

Rapid data transfer Q
04 - Basic Setting

◀ Indicated on display

- Press -Q- button to confirm input.

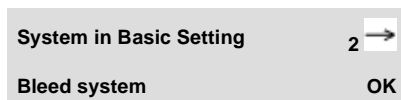
Basic Setting Q
Input display group number XXX

◀ Indicated on display

The left-front bleeder screw should be open when actuating the hydraulic pump.

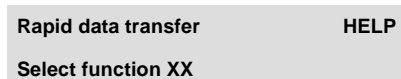
- Press buttons -0-, -0- and -2- to input display group number 2 (002) and press -Q- button to confirm input.

The Electronic Stability Program (ESP) hydraulic pump -V156- is actuated for 10 seconds.



⏪ Indicated on display

- Close bleeder screw.
- Press → button to advance through program sequence.



⏪ Indicated on display

⇒ Repair Manual ABS/EDL/ASR On Board Diagnostic (OBD), Repair Group 01

- The remaining installation procedures are the reverse of removal.

Steering angle sensor, removing and installing

WARNING!

- ◆ ***Before working on any airbag, steering wheel or steering column components, first always disconnect the battery.***
- ◆ ***The wheels should be in a straight ahead position before removing the steering wheel.***
- ◆ ***Failing to observe these safety precautions may result in failure of the airbag system when the vehicle is driven.***

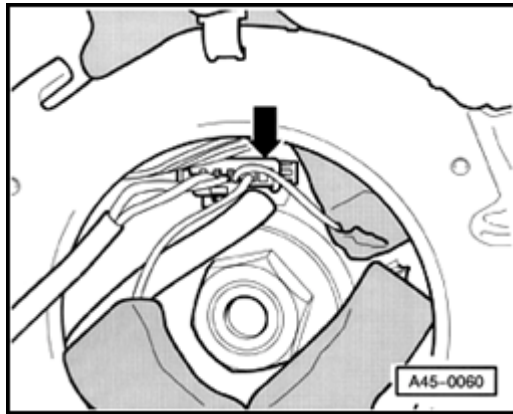
CAUTION!

Before disconnecting the battery, determine the correct coding for the anti-theft radio.

- Remove drivers side airbag from steering wheel.

⇒ [Repair Manual, Suspension, Wheels, Steering, Repair Group 48](#)

- Disconnect airbag harness connector.



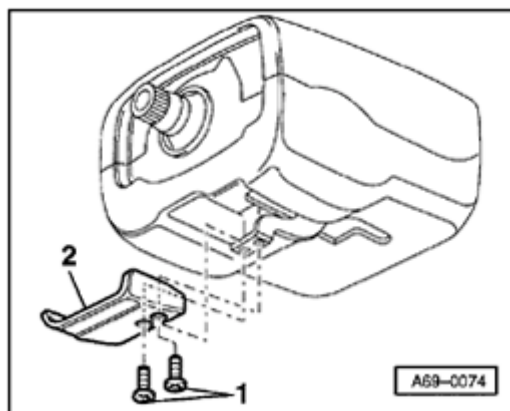
A

- Disconnect harness connector for steering angle sensor (arrow).
- Remove steering wheel.

⇒ [Repair Manual, Suspension, Wheels, Steering, Repair Group 48](#)

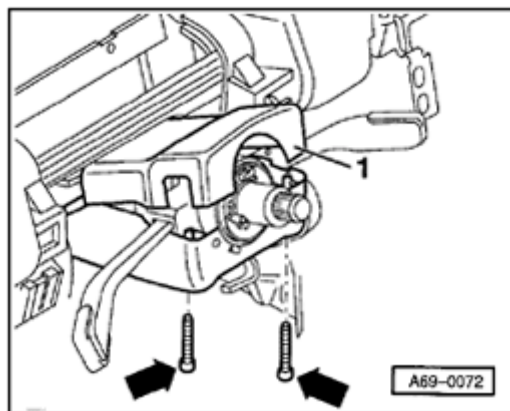
Removing steering column switch

- Unlock steering column adjustment.
- Pull steering column out to stop.



A

- Remove screw -1- (2x).
Tightening torque: 3 Nm (27 in lb)
- Remove handle -2-.



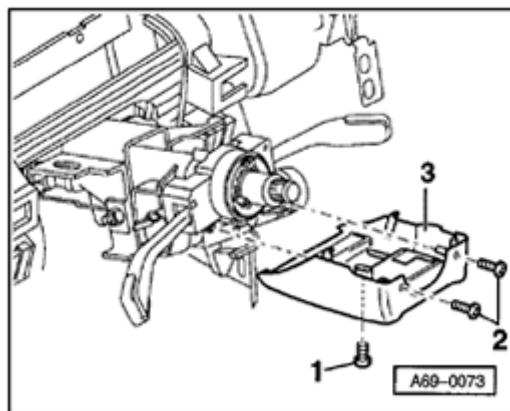
A

- Remove two Phillips head screws (arrows).
Tightening torque: 0.6 Nm (5.4 in lb)
- Remove upper trim panel -1- for steering column switches.

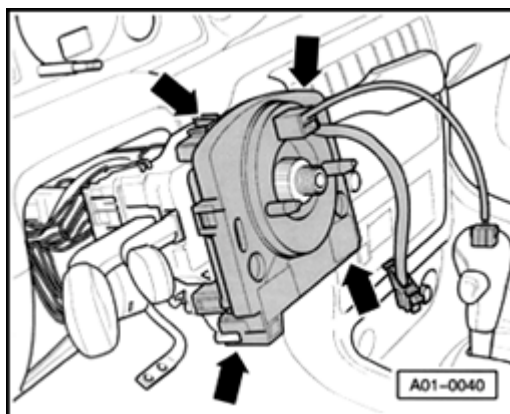
Note:

When installing, the upper trim panel has to be inserted into the hooks of the lower trim panel, swiveled down and then screwed tight.

45-54

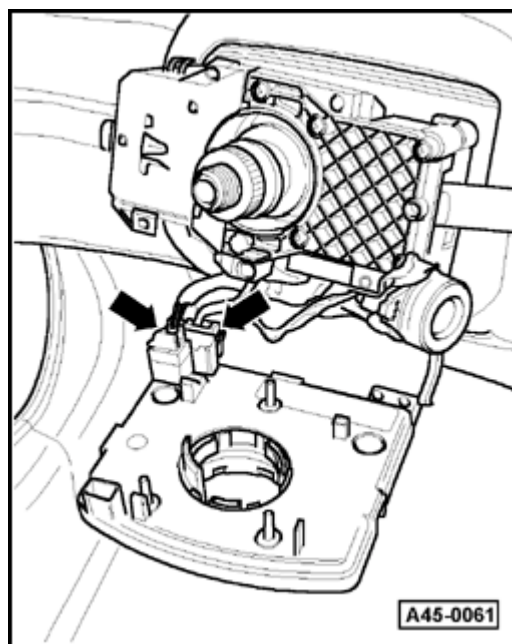


- A**
- Remove screws -2- (2x).
Tightening torque: 0.6 Nm (5.4 in lb)
 - Remove hex socket head screw -1-.
Tightening torque: 0.6 Nm (5.4 in lb)
 - Remove lower steering column trim panel -3-.



- A**
- Release steering angle sensor at catches (arrows).

45-55



- A**
- Disconnect harness connectors (arrows).

Installing

Installation is the reverse of removal.

- Carry out zero adjustment of steering angle sensor.

⇒ Repair Manual ABS/EDL/ASR On Board Diagnostic (OBD), Repair Group 01