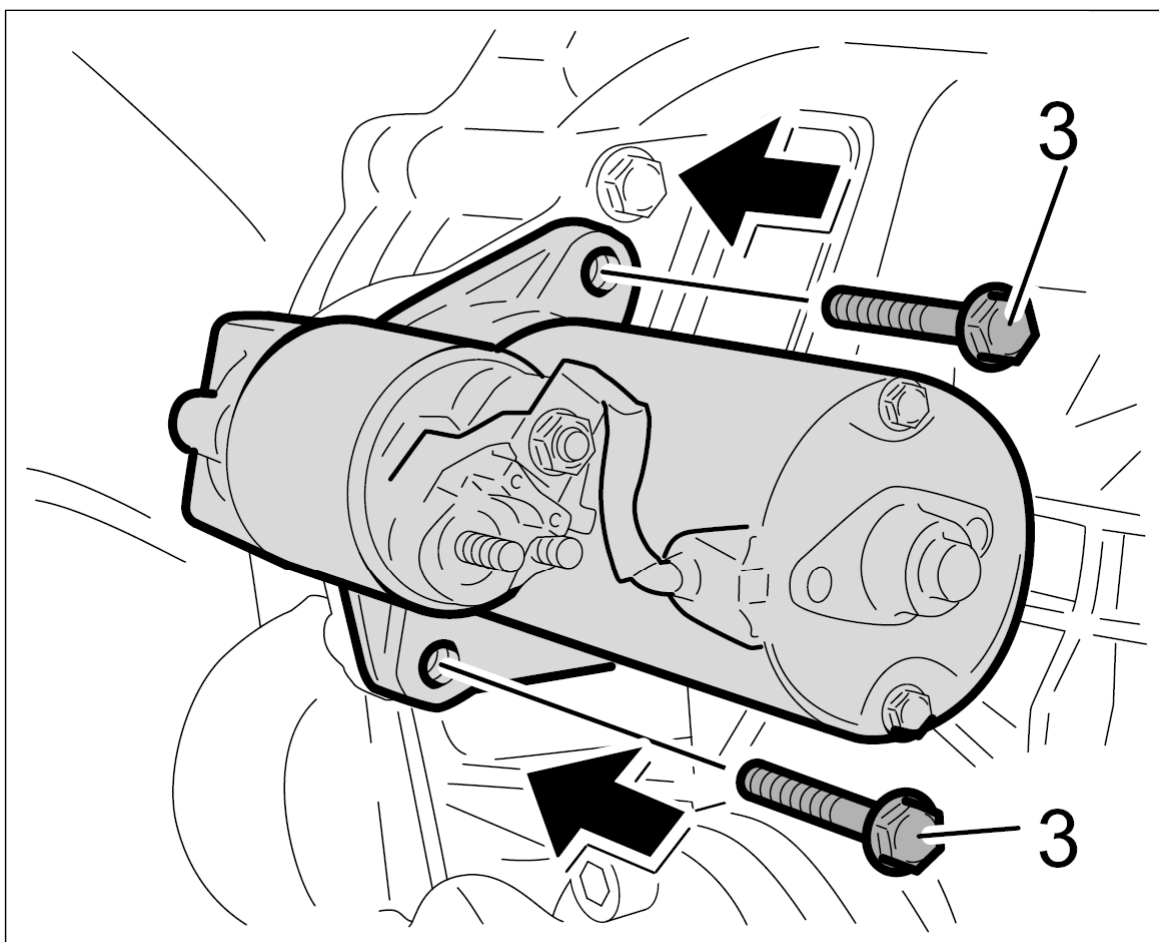


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WM 276019 Removing and installing starter

Technical values

Location	Description	Type	Basic value	Tolerance 1	Tolerance 2
Fastening screw securing starter to transmission	-3-	Tightening torque	46 Nm (34 ftlb.)		



Securing starter

Fastening nut securing B+ line from battery to starter	-1-	Tightening torque	18 Nm (13 ftlb.)		
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Connecting electric lines to starter

Fastening nut securing B+ line to engine	-2-	Tightening torque	6.5 Nm (5.0 ftlb.)		
Fastening screw securing starter to transmission	-1-	Tightening torque	46 Nm (34 ftlb.)		
Fastening nut securing B+ line from battery to starter	-1-	Tightening torque	18 Nm (13 ftlb.)		
Fastening nut securing B+ line to engine	-2-	Tightening torque	6.5 Nm (5.0 ftlb.)		
Cross member to body	-1-	Tightening torque	65 Nm (48 ftlb.)		

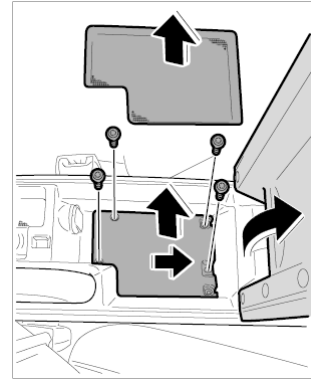
Preliminary work

Preliminary work for starter - manual transmission

1. Disconnect battery. → 27061N Work instructions after disconnecting the battery
2. Remove rear underbody cover. → 519419 Removing and installing cover for rear underbody - section on "Removing"

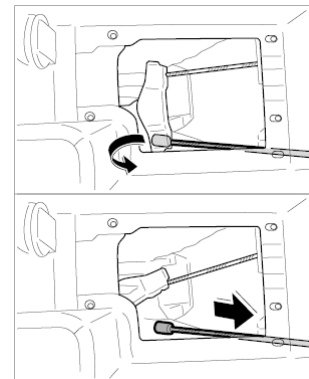
Preliminary work for starter - automatic transmission

1. Disconnect ground terminal of battery and cover the terminal or battery. → *2706IN Working instructions after disconnecting the battery*
2. Unhook the parking-brake cable from the left side behind the parking-brake lever and push it back into the parking-brake cable guide.
- 2.1. Open lid for rear tray on the centre console, remove the rubber mat and unscrew the four fastening screws for the plastic cover.



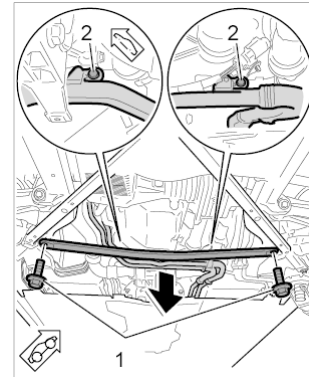
Removing cover for parking-brake cable

- 2.2. Slide the plastic cover back and remove it by pulling it upwards.
- 2.3. Unhook the left parking-brake cable and slide out through the guide.



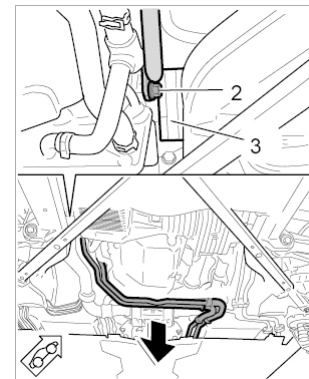
Unhooking parking-brake cable

3. Remove the rear cover for the transmission. → *519419 Removing and installing cover for rear underbody - section on "Removing"*
4. Unscrew the two fastening screws **-1-** for the cross member and remove the cross member.



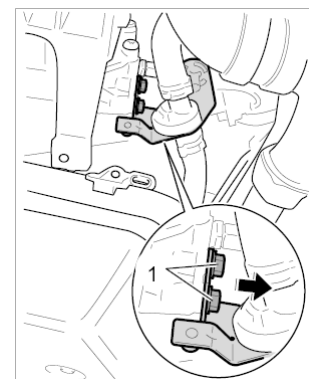
Releasing cross member and coolant lines

5. Unscrew the two fastening screws **-2-** for the coolant line brackets on the underside of the transmission.
6. Unscrew the third fastening screw **-2-** (behind the left drive shaft in direction of travel **-3-**), for the coolant line bracket.



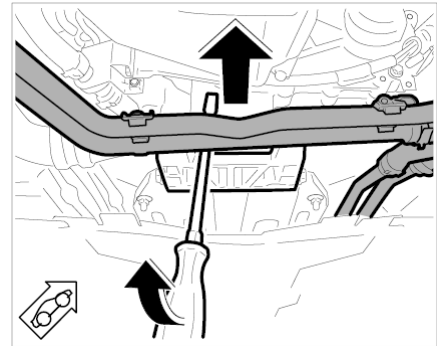
Unscrewing fastening screw for coolant lines

7. Pull coolant lines downwards and in doing so check for sufficient clearance.
8. Unscrew the two fastening screws for the shutoff valve bracket **-1-** .



Fastening screws for shutoff valve bracket

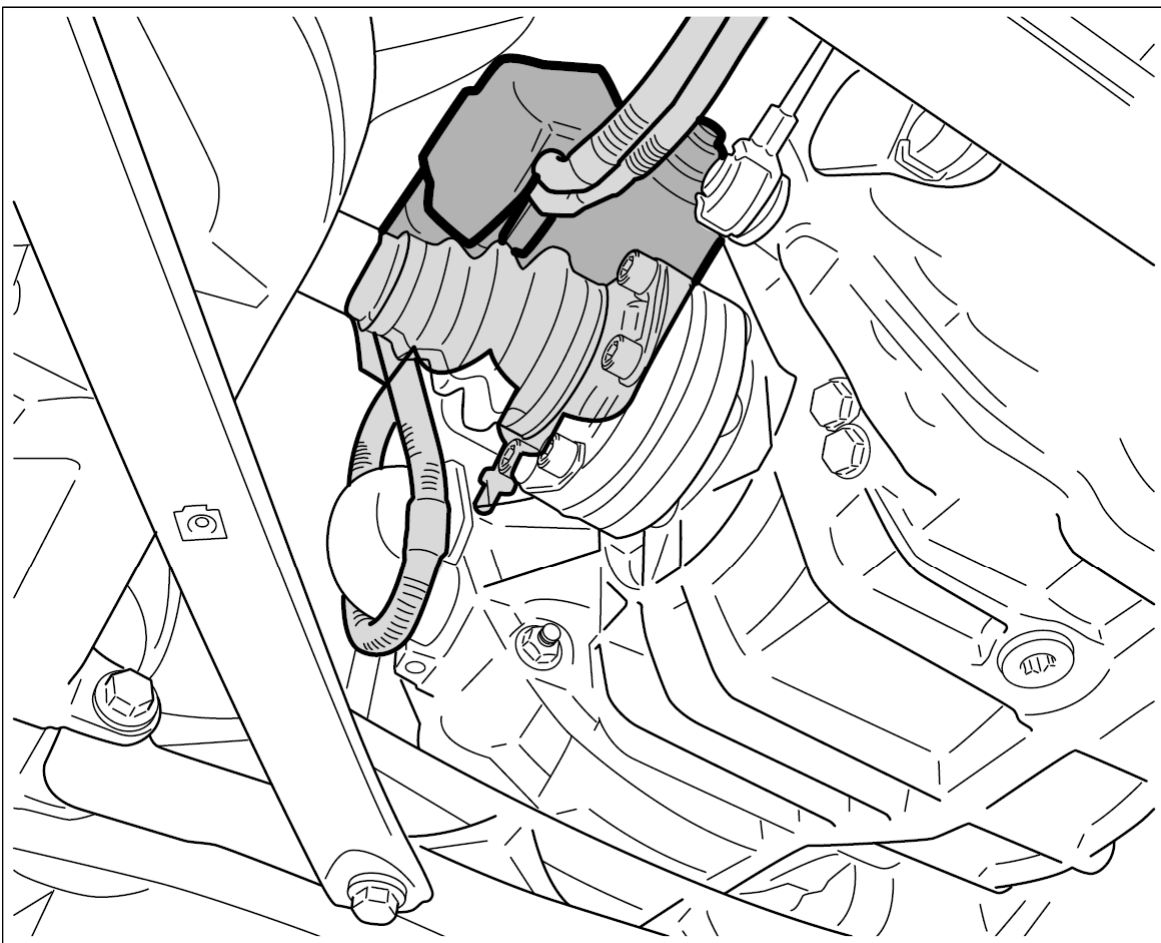
9. Using a screwdriver, prise the coolant lines out of the transmission bracket (in direction of travel to rear).
>> The lines can now be easily pulled downwards and to the side.



Prising off coolant lines

Removing starter

Removing starter - manual transmission



Installation position



Danger of fatal injury, burns and fire damage.

- Although the operating voltage of the vehicle electrical system is only 12 volts, there is a danger of burns and risk of fire damage because of the battery's high energy content. A short circuit can result in extremely high currents!

→ Remove ignition key, disconnect ground terminal on battery before starting any assembly work and insulate ground lead from battery terminal.

1. Remove the protection cap on the solenoid switch and unscrew and remove the fastening nuts for line terminal 30 -1- , terminal 50 -2- on the starter.



Pulling off protection cap on solenoid switch

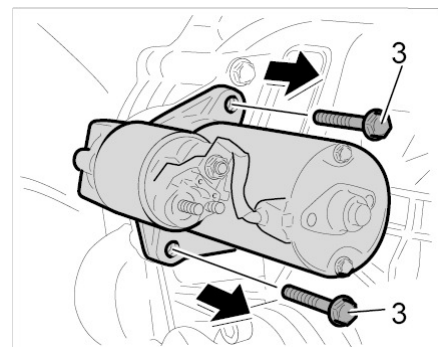
**Information**

Use the following 3/8-inch tool to remove the upper fastening screw on the starter: two short extensions, universal joint, hexagon socket-wrench insert a/f 15 or Torx, cross handle or ratchet.

**Information**

Use the following 3/8-inch tool to remove the upper fastening screw on the starter: two short extensions, universal joint, hexagon socket-wrench insert a/f 15 or Torx, cross handle or ratchet.

2. Unscrew upper fastening screw on the starter -3- .



Unscrewing fastening screw

3. Unscrew lower fastening screw **-3-** .
4. Remove the starter from the transmission and turn it so that the solenoid switch is facing towards the halfshaft. Remove starter in a downward direction.

Removing starter - automatic transmission

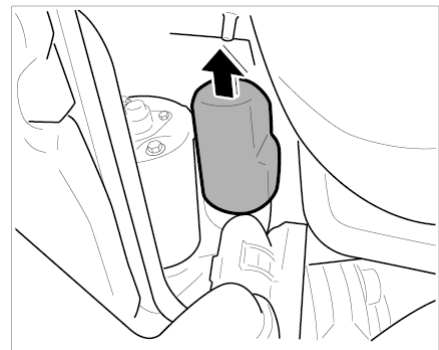


Danger of fatal injury, burns and fire damage.

- **Although the operating voltage of the vehicle electrical system is only 12 volts, there is a danger of burns and risk of fire damage because of the battery's high energy content. A short circuit can result in extremely high currents!**

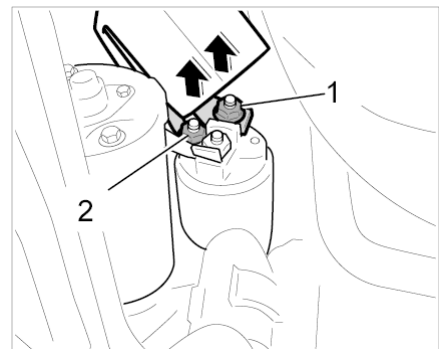
→ Remove ignition key, disconnect ground terminal on battery before starting any assembly work and insulate ground lead from battery terminal.

1. Pull off the cap on the starter.



Pulling off cap on starter

2. Undo the two fastening nuts **-1, 2-** on the starter and remove both electric lines on the starter.

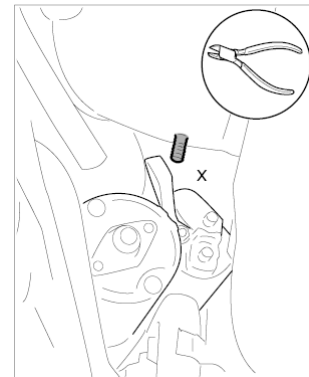


Removing lines on the starter

Use a 3/8-inch tool to loosen the fastening screws.

3. Upper fastening screw:

- 3.1. Torx socket wrench
- 3.2. Short extension, approx. 130 mm long
- 3.3. Universal joint
- 3.4. 2 long extensions
- 3.5. Ratchet spanner, ratchet or cross handle
- 4. Lower fastening screw:
 - 4.1. Torx socket wrench
 - 4.2. Universal joint
 - 4.3. 2 long extensions
 - 4.4. Ratchet spanner, ratchet or cross handle
- 5. Cut off the tucker stud -x- (if one is used) in front of the starter using large side cutters.



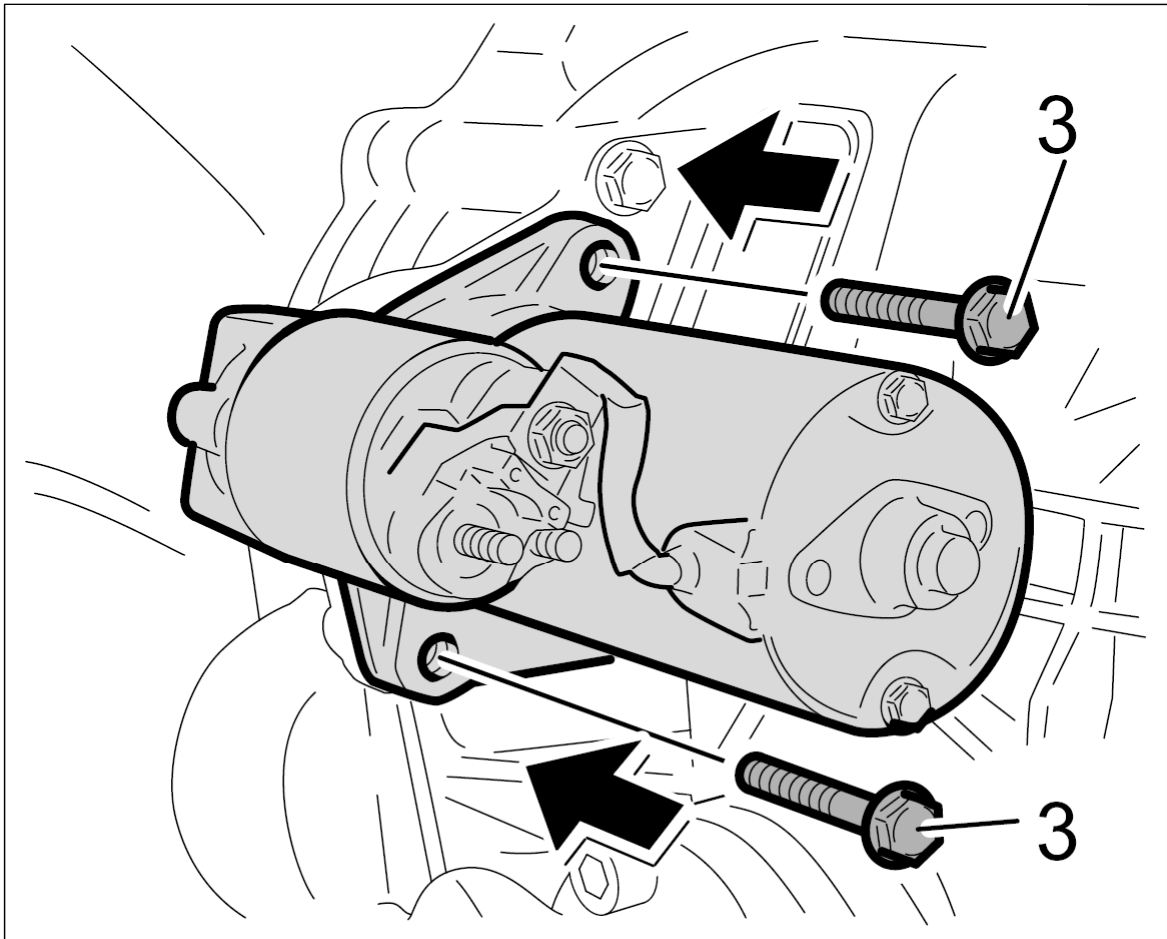
Removing tucker stud

- 6. Press coolant hoses to one side, rotate the starter and remove it carefully by pulling it downwards between the transmission and body.

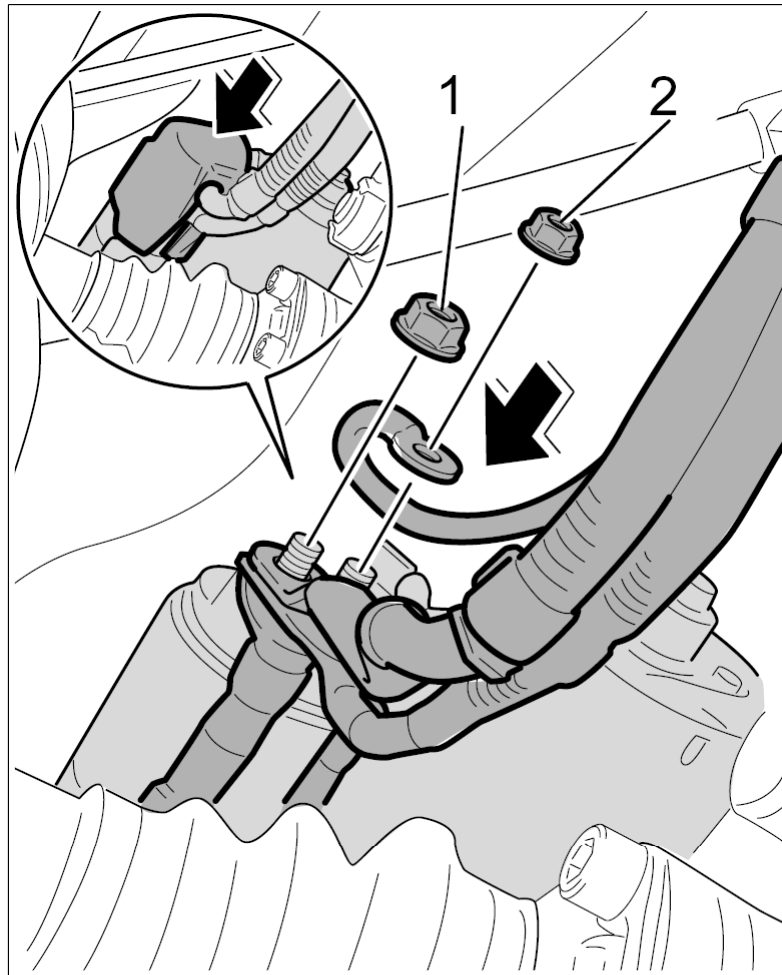


*Removing starter***Installing starter****Installing starter - manual transmission**

1. Position starter on the transmission and secure in place with the two fastening screws **-3-** . → **Tightening torque: 46 Nm (34 ftlb.)**

***Securing starter***

2. Fit B+ line from battery and B+ line from engine B+ connection point to terminal 30 (M8 nut) **-1-** on the solenoid switch and secure it. Secure line for terminal 50 (M6 nut) **-2-** to solenoid switch. → **Tightening torque: 18 Nm (13 ftlb.)**



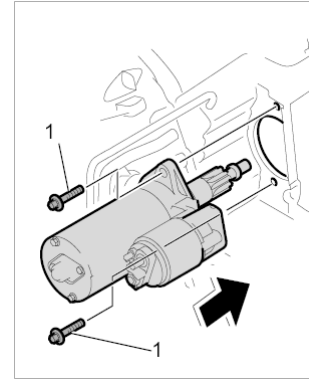
Connecting electric lines to starter

→ **Tightening torque: 6.5 Nm (5.0 ftlb.)**

3. Push protective cap over the solenoid switch and engage on the B+ line.

Installing starter - automatic transmission

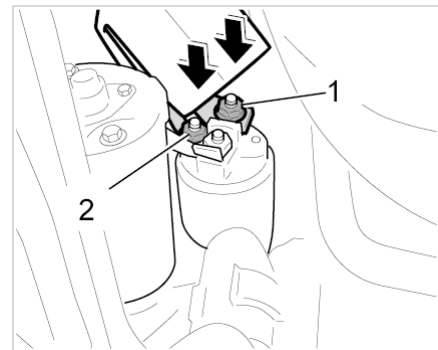
1. Press coolant hoses to one side and slide the starter carefully between the transmission and body, rotate it and insert it into the opening in the transmission.
2. Secure the starter using the fastening screws **-1-**.



Securing starter on automatic transmission

Location	Description	Type	Basic value	Tolerance 1	Tolerance 2
Fastening screw securing starter to transmission	-1-	Tightening torque	46 Nm (34 ftlb.)		

- Slide the B+ line through the cover, plug electric contacts into the starter and secure using the fastening nuts -1, 2- .



Securing electric lines to starter

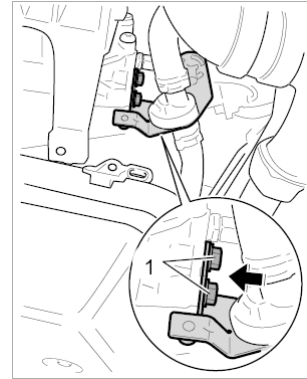
Location	Description	Type	Basic value	Tolerance 1	Tolerance 2
Fastening nut securing B+ line from battery to starter	-1-	Tightening torque	18 Nm (13 ftlb.)		
Fastening nut securing B+ line to engine	-2-	Tightening torque	6.5 Nm (5.0 ftlb.)		

- Slide the cap fully onto the starter.

Subsequent work

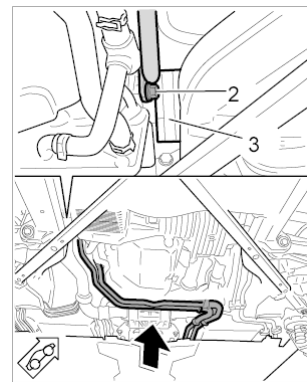
Subsequent work for starter - automatic transmission

- Place the shutoff valve bracket -1- onto the automatic transmission and secure with the fastening screws.



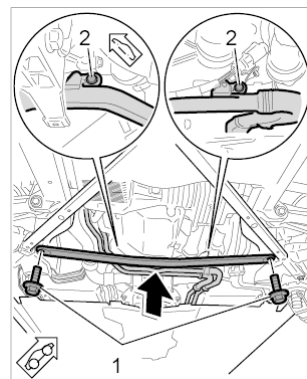
Securing shutoff valve bracket

2. Lift the coolant lines over the bracket on the transmission and secure the coolant lines using the fastening screw **-2-** at the side of the transmission (next to the drive shaft **-3-**).



Positioning coolant lines on transmission

3. Slide the coolant lines in the transmission bracket area back and secure with the two fastening screws **-2-**.



Routing and securing coolant lines

4. Position the cross member and secure with the two fastening screws **-1-** . → **Tightening torque: 65 Nm (48 ftlb.)**
5. Slide the parking-brake cable into the guide and hook it onto the parking-brake lever.

6. Slide in the cover in the centre console and secure using the four fastening screws.
7. Place rubber mat into the tray and close the oddments tray.
8. Install rear underbody cover for the transmission. → *519419 Removing and installing cover for rear underbody - section on "Installing"*
9. Connect ground terminal on the battery and perform work instructions after disconnecting the battery. → *2706IN Working instructions after disconnecting the battery*

Subsequent work for starter - manual transmission

1. Remove rear underbody cover. → *519419 Removing and installing cover for rear underbody - section on "Installing"*
 2. Connect the battery. → *2706IN Working instructions after disconnecting the battery*
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997420, 997421, 997630, 997631, 997840, 997841

Model year as of 2007, Model year up to 2009

C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99