



Repair Manual Jetta 2011 ➤

Electrical Equipment

Edition 01.2016





List of Workshop Manual Repair Groups

Repair Group

27 - Battery, Starter, Generator, Cruise Control

90 - Instruments

92 - Wiper/Washer Systems

94 - Exterior Lights, Switches

96 - Interior Lights, Switches

97 - Wiring



Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.



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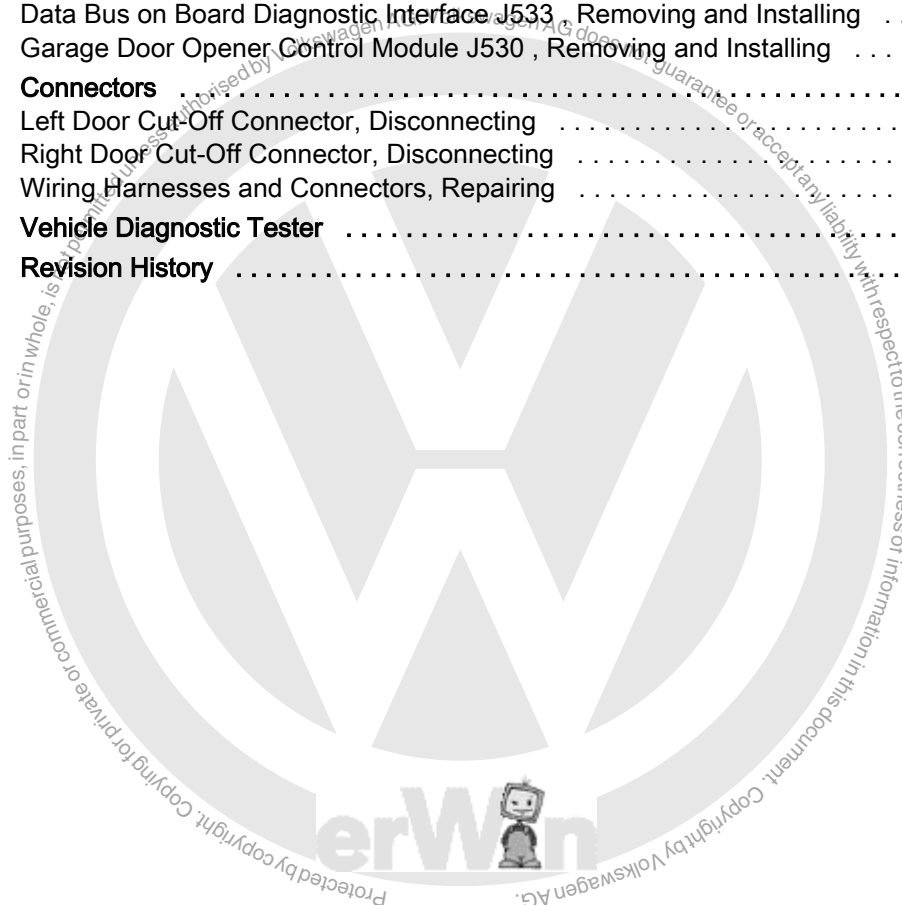
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27 – Battery, Starter, Generator, Cruise Control

1 Battery

(Edition 01.2016)

⇒ [“1.1 Battery Types”, page 1](#)

⇒ [“1.2 Battery, General Information”, page 1](#)

⇒ [“1.3 Overview - Battery”, page 2](#)

⇒ [“1.4 Battery, Removing and Installing”, page 4](#)

⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#)

⇒ [“1.6 Battery Tray, Removing and Installing”, page 11](#)

⇒ [“1.7 Battery, Checking”, page 13](#)

⇒ [“1.8 Battery, Charging”, page 13](#)

⇒ [“1.9 Ground Cable with Battery Monitoring Control Module J367, Removing and Installing”, page 13](#)

1.1 Battery Types

Refer to ⇒ Electrical Equipment General Information; Rep. Gr. 27 ; Battery, Checking; Different Types of Batteries, Checking .

1.2 Battery, General Information

⇒ [“1.2.1 Warnings and Safety Precautions”, page 1](#)

⇒ [“1.2.2 Battery Post/Terminal”, page 1](#)

⇒ [“1.2.3 Battery Recharging or Battery Jump Start Terminal, Vehicles with Start/Stop System”, page 1](#)

1.2.1 Warnings and Safety Precautions

Refer to ⇒ Electrical Equipment General Information; Rep. Gr. 27 ; Battery; Battery General Information.

1.2.2 Battery Post/Terminal

Refer to ⇒ Electrical Equipment General Information; Rep. Gr. 27 ; Battery; Battery General Information .

1.2.3 Battery Recharging or Battery Jump Start Terminal, Vehicles with Start/Stop System



WARNING

Risk of injury. Pay attention to all warnings and safety precautions.

Refer to

⇒ [“1.2.1 Warnings and Safety Precautions”, page 1](#) .

Information regarding Recharging the Battery or Using the Battery Jump Start Terminal on Vehicles with Start/Stop

Connect the positive terminal first and then the body ground using a charge cable. This ensures that the Battery Monitoring Control Module - J367- is not bridged. Charging the battery directly on the negative terminal bridges the Battery Monitoring Control Module - J367- and prevents the Battery Monitoring Control Module - J367- from recording the battery data during the charging proc-



ess. The values stored in the Data Bus On Board Diagnostic Interface - J533- regarding the battery condition no longer match the values for the charged Battery - A- .

1.3 Overview - Battery

⇒ ["1.3.1 Overview - Battery A Inside Engine Compartment", page 2](#)

⇒ ["1.3.2 Overview - Battery A in Luggage Compartment, High-Voltage Vehicle", page 3](#)

1.3.1 Overview - Battery - A- Inside Engine Compartment

1 - Battery - A-

- ❑ Removing and installing. Refer to ⇒ ["1.4.1 Battery A In Engine Compartment, Removing and Installing", page 4](#) .
- ❑ Disconnecting. Refer to ⇒ ["1.5.1 Battery A in Engine Compartment, Disconnecting", page 7](#) .
- ❑ Connecting. Refer to ⇒ ["1.5.2 Battery A in Engine Compartment, Connecting", page 8](#) .

2 - Battery Positive Cable Terminal Clamp

- ❑ Battery terminal threaded connection. Refer to ⇒ ["1.2.2 Battery Post/Terminal", page 1](#) .

3 - Nut

- ❑ 6 Nm

4 - Positive Cable

5 - Bolt

- ❑ 20 Nm

6 - Clamping Plate

7 - Connector

- ❑ On Battery Monitoring Control Module - J367-

8 - Ground Cable

9 - Battery Monitoring Control Module - J367-

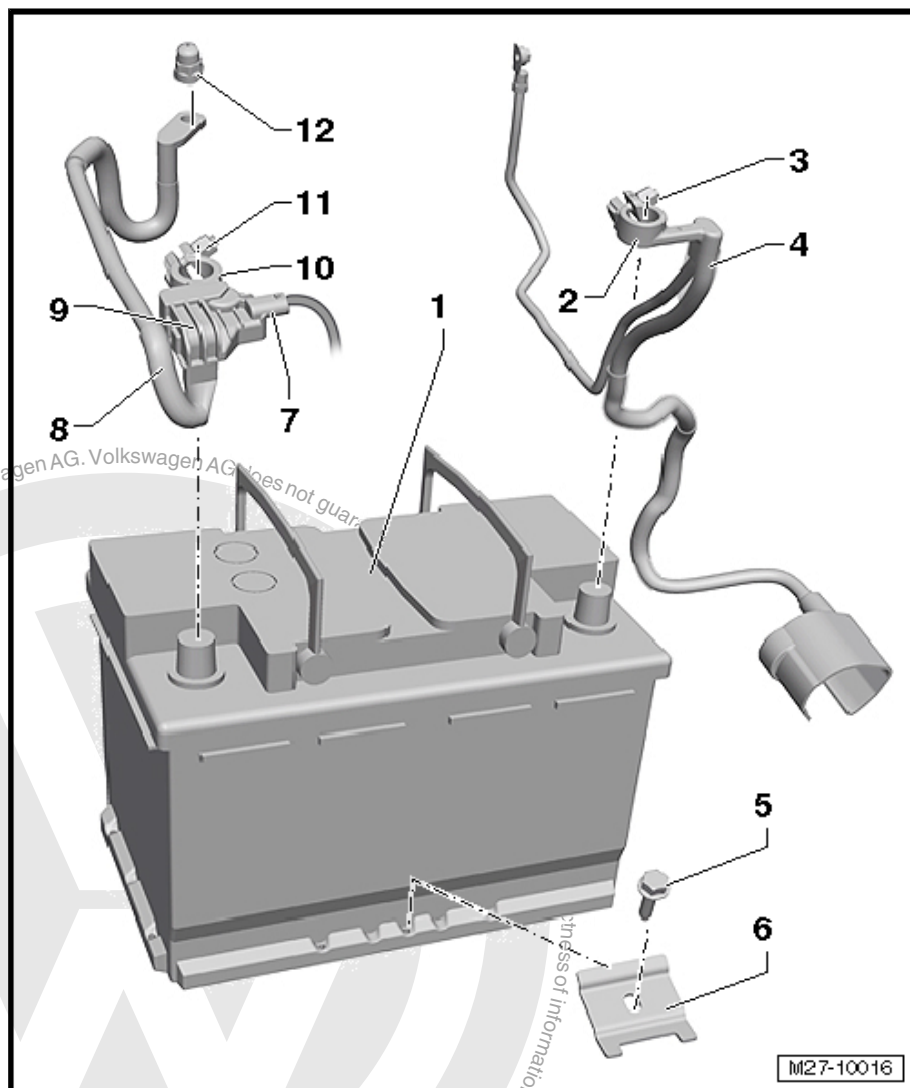
- ❑ Replacing and Starting. Refer to ⇒ ["1.9.2 Battery Monitoring Control Module J367, Replacing and Starting", page 13](#)
- ❑ Removing and installing. Refer to ⇒ ["1.9.3 Battery Monitoring Control Module J367 in Engine Compartment, Removing and Installing", page 14](#) .

10 - Battery Ground Cable Terminal Clamp

- ❑ Battery terminal threaded connection. Refer to ⇒ ["1.2.2 Battery Post/Terminal", page 1](#) .

11 - Nut

- ❑ 6 Nm





12 - Nut

- ☐ 20 Nm

No Illustration

- ◆ Battery tray bolts: 9 Nm

1.3.2 Overview - Battery - A- in Luggage Compartment, High-Voltage Vehicle

1 - Nut

- ☐ 6 Nm

2 - Nut

- ☐ 6 Nm

3 - Fuse Panel

- ☐ Removing and installing. Refer to ["1.5 Fuse Panel on Battery A, Removing and Installing, High-Voltage Vehicle", page 317](#).

4 - Battery Positive Cable Terminal Clamp

- ☐ Battery terminal threaded connection. Refer to ["1.2.2 Battery Post/Terminal", page 1](#).

5 - Battery - A-

- ☐ Removing and installing. Refer to ["1.4.2 Battery A in Luggage Compartment, Removing and Installing, High-Voltage Vehicle", page 5](#).
- ☐ Disconnecting. Refer to ["1.5.3 Battery A in Luggage Compartment, Disconnecting, High-Voltage Vehicle", page 9](#).
- ☐ Connecting. Refer to ["1.5.4 Battery A in Luggage Compartment, Connecting, High-Voltage Vehicle", page 10](#).

6 - Clamping Plate

7 - Bolt

- ☐ 20 Nm

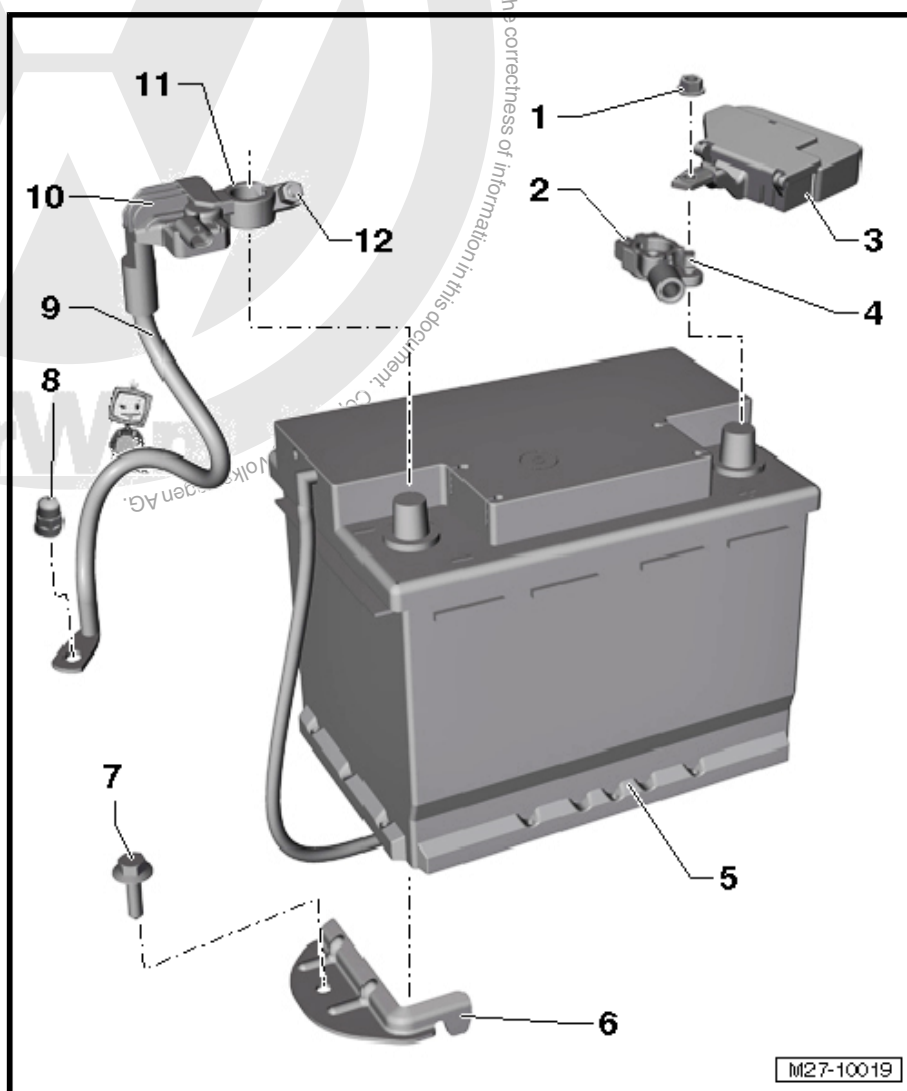
8 - Nut

- ☐ 20 Nm

9 - Ground Cable

10 - Battery Monitoring Control Module - J367-

- ☐ Replacing and Starting. Refer to ["1.9.2 Battery Monitoring Control Module J367, Replacing and Starting", page 13](#)





- ❑ Removing and installing. Refer to
⇒ [“1.9.4 Battery Monitoring Control Module J367 in Luggage Compartment, Removing and Installing, High-Voltage Vehicle”, page 15](#) .

11 - Battery Ground Cable Terminal Clamp

- ❑ Battery terminal threaded connection. Refer to ⇒ [“1.2.2 Battery Post/Terminal”, page 1](#) .

12 - Nut

- ❑ 6 Nm

No Illustration

- ◆ Battery tray bolts: 9 Nm

1.4 Battery, Removing and Installing

⇒ [“1.4.1 Battery A In Engine Compartment, Removing and Installing”, page 4](#)

⇒ [“1.4.2 Battery A in Luggage Compartment, Removing and Installing, High-Voltage Vehicle”, page 5](#)

⇒ [“1.4.3 Battery A, Adapting”, page 6](#)

1.4.1 Battery - A- In Engine Compartment, Removing and Installing

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-



Caution

*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .*

Removing

- Disconnect the Battery - A- . Refer to
⇒ [“1.5.1 Battery A in Engine Compartment, Disconnecting”, page 7](#) .

Vehicles with Diesel Engine

- Remove the air filter housing and the connecting pipe. Refer to ⇒ Rep. Gr. 23 ; Diesel Direct Injection System; Overview - Air Filter .

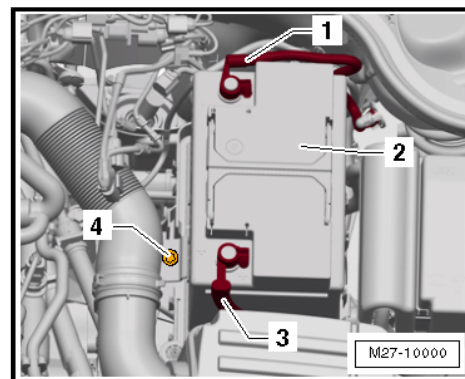
All Vehicles

- Remove the battery jacket -1-.





- Remove the bolt -4- and then remove the clamping plate.



- Remove the Battery - A- -2-.

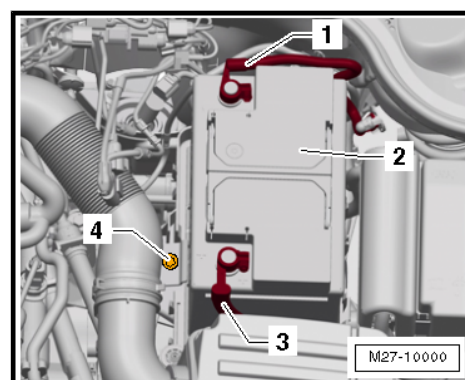
Installing



Caution

If Battery - A- is not secured properly, the following risks can occur:

- ◆ *Shortened service life due to vibration damage (explosion hazard).*
- ◆ *If the Battery - A- is not secured properly, the plates within the Battery - A- can be damaged.*
- ◆ *Damage to the battery housing caused by bracket (possible electrolyte leakage, high subsequent costs).*
- ◆ *Inadequate crash safety.*



Pay attention to the replacement part identification when replacing the Battery - A- , especially for vehicles with the Start/Stop System. Refer to the Parts Catalog.

Install in reverse order of removal. Note the following:

- Make sure the Battery - A- is secure after installing it.
- Connect the Battery - A- . Refer to
⇒ [“1.5.2 Battery A in Engine Compartment, Connecting”, page 8](#) .
- After replacing, the Battery - A- must be adapted. Refer to
⇒ [“1.4.3 Battery A , Adapting”, page 6](#) .

Tightening Specifications

- ◆ Refer to
⇒ [“1.3.1 Overview - Battery A Inside Engine Compartment”, page 2](#)

1.4.2 Battery - A- in Luggage Compartment, Removing and Installing, High-Voltage Vehicle

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-



Caution

*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to ➔ **"1.5 Battery, Disconnecting and Connecting", page 7** .*

Removing

- Disconnect the Battery - A- . Refer to ➔ **"1.5.3 Battery A in Luggage Compartment, Disconnecting, High-Voltage Vehicle", page 9** .
- Remove the bolt -arrow- and then remove the clamping plate -1-.
- Remove the Battery - A- -2-.

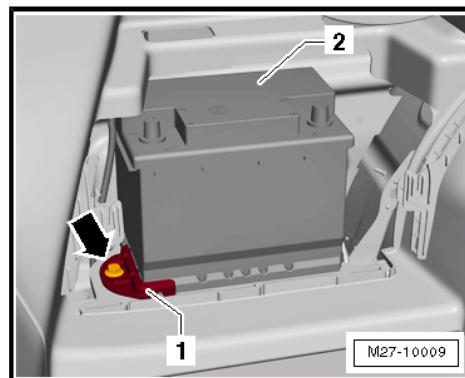
Installing



Caution

If Battery - A- is not secured properly, the following risks can occur:

- ◆ *Shortened service life due to vibration damage (explosion hazard).*
- ◆ *If the Battery - A- is not secured properly, the plates within the Battery - A- can be damaged.*
- ◆ *Damage to the battery housing caused by bracket (possible electrolyte leakage, high subsequent costs).*
- ◆ *Inadequate crash safety.*



Install in reverse order of removal. Note the following:

- Make sure the Battery - A- is secure after installing it.
- Connect the Battery - A- . Refer to ➔ **"1.5.4 Battery A in Luggage Compartment, Connecting, High-Voltage Vehicle", page 10** .
- After replacing, the Battery - A- must be adapted. Refer to ➔ **"1.4.3 Battery A, Adapting", page 6** .

Tightening Specifications

- ◆ Refer to ➔ **"1.3.2 Overview - Battery A in Luggage Compartment, High-Voltage Vehicle", page 3**

1.4.3 Battery - A- , Adapting

If the Battery - A- has been replaced, an adaption must be performed. Refer to Vehicle Diagnostic Tester.

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment



- ◆ 01 - OBD-capable systems
- ◆ 61 - battery monitoring
- ◆ Battery monitoring functions
- ◆ Battery parameterization adaptation

1.5 Battery, Disconnecting and Connecting

⇒ ["1.5.1 Battery A in Engine Compartment, Disconnecting", page 7](#)

⇒ ["1.5.2 Battery A in Engine Compartment, Connecting", page 8](#)

⇒ ["1.5.3 Battery A in Luggage Compartment, Disconnecting, High-Voltage Vehicle", page 9](#)

⇒ ["1.5.4 Battery A in Luggage Compartment, Connecting, High-Voltage Vehicle", page 10](#)

1.5.1 Battery - A- in Engine Compartment, Disconnecting



WARNING

Follow all safety precautions when working on pyrotechnic components:

- ◆ *When working on pyrotechnic components (airbag, belt tensioner), the Battery - A- must be disconnected with the ignition turned on, contrary to the following description. Refer to ⇒ Body Interior; Rep. Gr. 00; Safety Precautions; Safety Precautions for Pyrotechnic Components .*

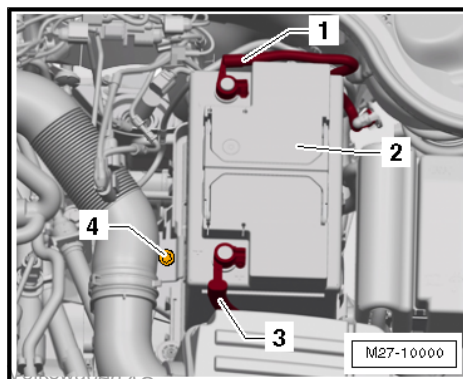
Disconnecting

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Open the battery jacket -1-.





- Disconnect the battery ground cable terminal clamp -1- from the battery negative terminal.



1.5.2 Battery - A- in Engine Compartment, Connecting



Caution

Pay attention to the information regarding the threaded connection for the battery terminals. Refer to ⇒ "1.2.2 Battery Post/Terminal", page 1 .

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-

After connecting the Battery - A- and switching the ignition on, the ASR/ESP Indicator Lamp - K155- lights up continuously. The ASR/ESP Indicator Lamp - K155- goes out automatically if a straight distance is driven at 15 to 20 km/h. This reactivates the Steering Angle Sensor - G85- .

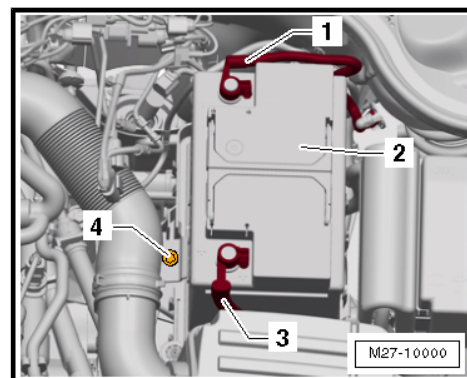


Connecting

- Attach the battery ground cable terminal clamp -1- to the negative terminal on the Battery - A- -2- and then tighten the nut to the tightening specification. Refer to [⇒ "1.3.1 Overview - Battery A Inside Engine Compartment", page 2](#).
- Close the battery jacket.
- Perform the work steps listed in the table.

Work Steps Required after Connecting the Battery - A- .

Steps	Performed
Switch the ignition on using the ignition key and switch it off again.	
Read the DTC memory. Refer to Vehicle Diagnostic Tester .	
Clock: Check and reset to local time.	
Power window regulator: Open and close all of the windows. Window regulator convenience closing: The window must close all the way without having to hold the switch.	
Perform function test of all electrical consumers.	



The table can be printed out.

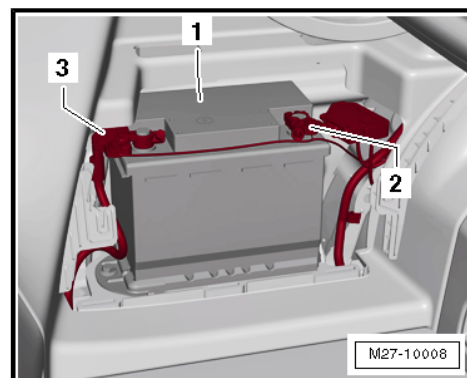
1.5.3 Battery - A- in Luggage Compartment, Disconnecting, High-Voltage Vehicle

Caution

- ◆ *Make sure the electrical system of the vehicle is always protected by disconnecting the Battery - A- before working on the electrical system.*
- ◆ *Follow all warning messages and Safety Precautions. Refer to [⇒ "1.2.1 Warnings and Safety Precautions", page 1](#).*

Disconnecting

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Disconnect the battery ground cable terminal clamp -3- on the battery negative terminal.





1.5.4 Battery - A- in Luggage Compartment, Connecting, High-Voltage Vehicle



Caution

Pay attention to the information regarding the threaded connection for the battery terminals. Refer to ⇒ "1.2.2 Battery Post/Terminal", page 1.

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-

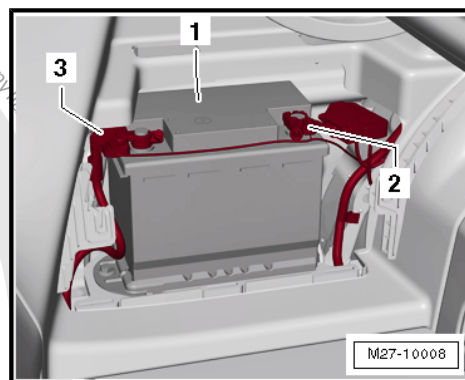
After connecting the Battery - A- and switching the ignition on, the ASR/ESP Indicator Lamp - K155- lights up continuously. The ASR/ESP Indicator Lamp - K155- goes out automatically if a straight distance is driven at 15 to 20 km/h. This reactivates the Steering Angle Sensor - G85-.

Connecting

- Attach the battery ground cable terminal clamp -3- to the negative terminal on the Battery - A- -1- and then tighten the nut to the tightening specification. Refer to ⇒ "1.3.2 Overview - Battery A in Luggage Compartment, High-Voltage Vehicle", page 3.
- Perform the work steps listed in the table.

Work Steps Required after Connecting the Battery - A- .

Steps	Performed
Switch the ignition on using the ignition key and switch it off again.	
Read the DTC memory using. Refer to Vehicle Diagnostic Tester .	
Clock: Check and reset to local time.	
Power window regulator: Open and close all of the windows. Window regulator convenience closing: The window must close all the way without having to hold the switch.	
Perform function test of all electrical consumers.	



The table can be printed out.



1.6 Battery Tray, Removing and Installing

⇒ ["1.6.1 Battery Tray in Engine Compartment, Removing and Installing", page 11](#)

⇒ ["1.6.2 Battery Tray in Luggage Compartment, Removing and Installing, High-Voltage Vehicle", page 12](#)

1.6.1 Battery Tray in Engine Compartment, Removing and Installing



WARNING

Risk of injury. Pay attention to all warnings and safety precautions.

Refer to ["1.2.1 Warnings and Safety Precautions", page 1](#).

Removing

- Remove the Battery -A-. Refer to ["1.4.1 Battery A In Engine Compartment, Removing and Installing", page 4](#).
- Remove the air filter housing. Refer to ⇒ Rep. Gr. 23 ; Diesel Direct Injection System; Overview - Air Filter or ⇒ Rep. Gr. 24 ; Air Filter; Overview - Air Filter Housing .
- Remove the bolts -2- from the battery tray -1- and then remove the battery tray -1-.

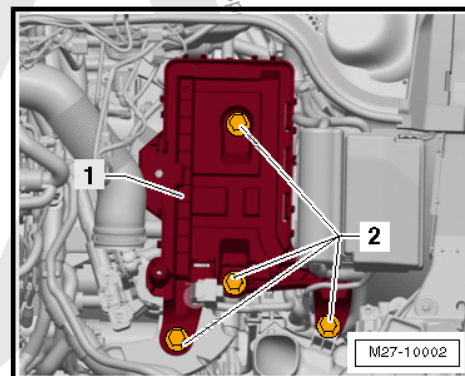
Installing



Caution

If Battery - A- is not secured properly, the following risks can occur:

- ◆ *Shortened service life due to vibration damage (explosion hazard).*
- ◆ *If the Battery -A- is not secured properly, the plates within the Battery - A- can be damaged.*
- ◆ *Damage to the battery housing caused by bracket (possible electrolyte leakage, high subsequent costs).*
- ◆ *Inadequate crash safety.*



Install in reverse order of removal. Note the following:

- Install the Battery - A- . Refer to ["1.4.1 Battery A In Engine Compartment, Removing and Installing", page 4](#) .

Tightening Specifications

- ◆ Refer to ["1.3.1 Overview - Battery A Inside Engine Compartment", page 2](#)



1.6.2 Battery Tray in Luggage Compartment, Removing and Installing, High-Voltage Vehicle



WARNING

Risk of injury. Pay attention to all warnings and safety precautions.
Refer to
⇒ "1.2.1 Warnings and Safety Precautions", page 1 .

Removing

- Remove the Battery - A- . Refer to
⇒ ["1.4.2 Battery A in Luggage Compartment, Removing and Installing, High-Voltage Vehicle", page 5 .](#)
- Remove the bolts -arrows- from the battery tray -1- and then remove the battery tray -1-.

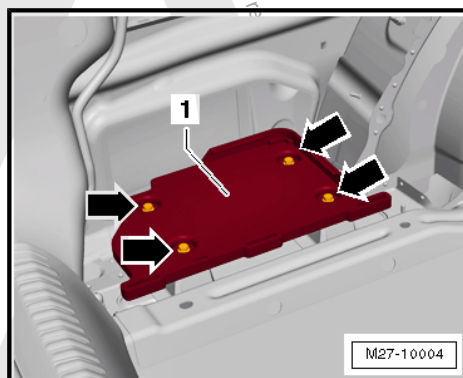
Installing



Caution

If Battery - A- is not secured properly, the following risks can occur:

- ◆ **Shortened service life due to vibration damage (explosion hazard).**
- ◆ **If the Battery - A- is not secured properly, the plates within the Battery - A- can be damaged.**
- ◆ **Damage to the battery housing caused by bracket (possible electrolyte leakage, high subsequent costs).**
- ◆ **Inadequate crash safety.**



Install in reverse order of removal. Note the following:

- Install the Battery - A- . Refer to
⇒ ["1.4.2 Battery A in Luggage Compartment, Removing and Installing, High-Voltage Vehicle", page 5 .](#)

Tightening Specifications

- ◆ Refer to
⇒ ["1.3.2 Overview - Battery A in Luggage Compartment, High-Voltage Vehicle", page 3](#)



1.7 Battery, Checking

Refer to ➔ Electrical Equipment General Information; Rep. Gr. 27 ; Battery; Battery, Checking .

1.8 Battery, Charging

Refer to ➔ Electrical Equipment General Information; Rep. Gr. 27 ; Battery; Battery, Charging .

1.9 Ground Cable with Battery Monitoring Control Module - J367- , Removing and Installing

⇒ ["1.9.1 Battery Monitoring Control Module J367 ", page 13](#)

⇒ ["1.9.2 Battery Monitoring Control Module J367 , Replacing and Starting", page 13](#)

⇒ ["1.9.3 Battery Monitoring Control Module J367 in Engine Compartment, Removing and Installing", page 14](#)

⇒ ["1.9.4 Battery Monitoring Control Module J367 in Luggage Compartment, Removing and Installing, High-Voltage Vehicle", page 15](#)

1.9.1 Battery Monitoring Control Module - J367-

The Battery Monitoring Control Module - J367- is installed for vehicles with the start/stop system.

The Battery Monitoring Control Module - J367- will be recognized during the battery charging process. The battery data for the battery charge is then compared with the values in the Data Bus on Board Diagnostic Interface - J533- .

Note the following When Charging or Using the Battery Jump Start Terminal on Vehicles with the Start/Stop System: Always First Connect the Charge Cable to the Positive Terminal and Then Connect the Body Ground.

Further information can be found in the Start/Stop System chapter. Refer to ⇒ ["5 Start/Stop System", page 92](#) .

1.9.2 Battery Monitoring Control Module - J367- , Replacing and Starting

The procedure for "replacing the battery monitoring control module" includes the following steps:

- ◆ If a new Battery Monitoring Control Module - J367- is installed in the vehicle, then the Battery Monitoring Control Module - J367- must be coded.
- ◆ Then the Battery Monitoring Control Module - J367- must be adapted.

The Procedure to "Replace the Battery Monitoring Control Module". Refer to Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
 - ◆ Body



- ◆ Electrical Equipment
- ◆ 01 - OBD-capable systems
- ◆ 61 - Battery regulation
- ◆ Battery regulation functions
- ◆ Replace control module

After the "Replace the Battery Monitoring Control Module" Procedure Occurs, the "Starting After Replacing" Procedure Must Be Performed.

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 61 - Battery regulation
 - ◆ Battery regulation functions
 - ◆ Starting after replacing

1.9.3 Battery Monitoring Control Module - J367- in Engine Compartment, Removing and Installing

The "replacing the battery monitoring control module" procedure must be performed each time before removing the Battery Monitoring Control Module - J367- to read the data stored in the Battery Monitoring Control Module - J367- . Refer to [⇒ "1.9.2 Battery Monitoring Control Module J367 , Replacing and Starting", page 13](#) .

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-



Caution

Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to [⇒ "1.5 Battery, Disconnecting and Connecting", page 7](#) .

Removing

- Disconnect the Battery - A- . Refer to [⇒ "1.5.1 Battery A in Engine Compartment, Disconnecting", page 7](#) .



- Loosen the nut -4- a few turns and remove the battery ground cable terminal clamp and the Battery Monitoring Control Module - J367- -3- from the battery negative terminal.
- Release and disconnect the connector -5-.
- Free up the ground wire -1-.
- Remove the nut -2- and remove the ground cable with the Battery Monitoring Control Module - J367- -1- from the Battery - A- -6-.

Installing

Install in reverse order of removal. Note the following:

- Connect the Battery - A- . Refer to
⇒ [“1.5.2 Battery A in Engine Compartment, Connecting”, page 8](#).

The “Start after replacing” procedure must be performed after installing the Battery Monitoring Control Module - J367- . Refer to
⇒ [“1.9.2 Battery Monitoring Control Module J367, Replacing and Starting”, page 13](#).

Tightening Specifications

- ◆ Refer to
⇒ [“1.3.1 Overview - Battery A Inside Engine Compartment”, page 2](#)

1.9.4 Battery Monitoring Control Module - J367- in Luggage Compartment, Removing and Installing, High-Voltage Vehicle

The “replacing the battery monitoring control module” procedure must be performed each time before removing the Battery Monitoring Control Module - J367- to read the data stored in the Battery Monitoring Control Module - J367- . Refer to
⇒ [“1.9.2 Battery Monitoring Control Module J367, Replacing and Starting”, page 13](#).

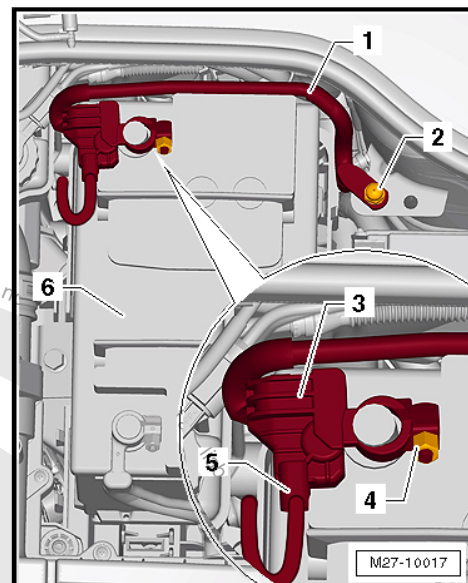
Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-



Caution

*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#).*



Removing

- Disconnect the Battery - A- . Refer to
⇒ [“1.5.3 Battery A in Luggage Compartment, Disconnecting, High-Voltage Vehicle”, page 9](#).



- Loosen the nut -2- a few turns and remove the battery ground cable terminal clamp with the Battery Monitoring Control Module - J367- -1- from the battery negative terminal.
- Release and disconnect the connector.
- Remove the nut -3- and remove the ground cable with the Battery Monitoring Control Module - J367- -1- from the Battery - A- -4-.

Installing

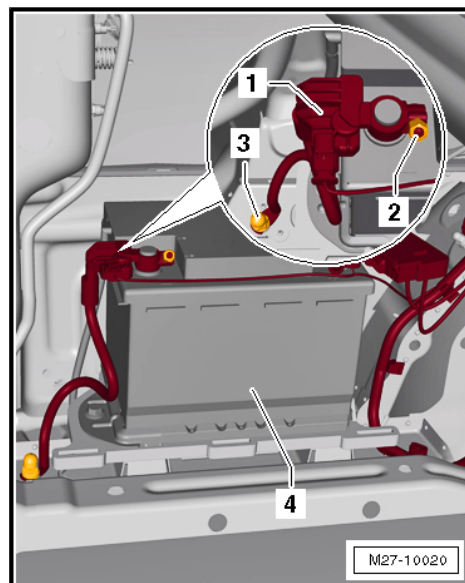
Install in reverse order of removal. Note the following:

- Connect the Battery - A- . Refer to
⇒ [“1.5.4 Battery A in Luggage Compartment, Connecting, High-Voltage Vehicle”, page 10](#) .

The “Start after replacing” procedure must be performed after installing the Battery Monitoring Control Module - J367- . Refer to
⇒ [“1.9.2 Battery Monitoring Control Module J367 , Replacing and Starting”, page 13](#) .

Tightening Specifications

- ◆ Refer to
⇒ [“1.3.2 Overview - Battery A in Luggage Compartment, High-Voltage Vehicle”, page 3](#)





2 Generator

⇒ [“2.1 Overview - Generator”, page 17](#)

⇒ [“2.2 Generator, Removing and Installing”, page 27](#)

⇒ [“2.3 Generator, Checking”, page 46](#)

⇒ [“2.4 Ribbed Belt, Checking”, page 46](#)

⇒ [“2.5 Ribbed Belt Pulley, Removing and Installing”, page 47](#)

⇒ [“2.6 Voltage Regulator, Removing and Installing”, page 50](#)

2.1 Overview - Generator

⇒ [“2.1.2 Overview - Generator, 1.4L Gasoline Engine 90/110/118 kW”, page 18](#)

⇒ [“2.1.4 Overview - Generator, 2.0L Gasoline Engine 85 kW”, page 21](#)

⇒ [“2.1.5 Overview - Generator, 2.0L Gasoline Engine 147 kW”, page 22](#)

⇒ [“2.1.6 Overview - Generator, 2.5L Gasoline Engine 125 kW”, page 23](#)

⇒ [“2.1.7 Overview - Generator, 1.8L Gasoline Engine 125 kW”, page 24](#)

⇒ [“2.1.9 Overview - Generator, 2.0L Diesel Engine 81/103 kW”, page 25](#)

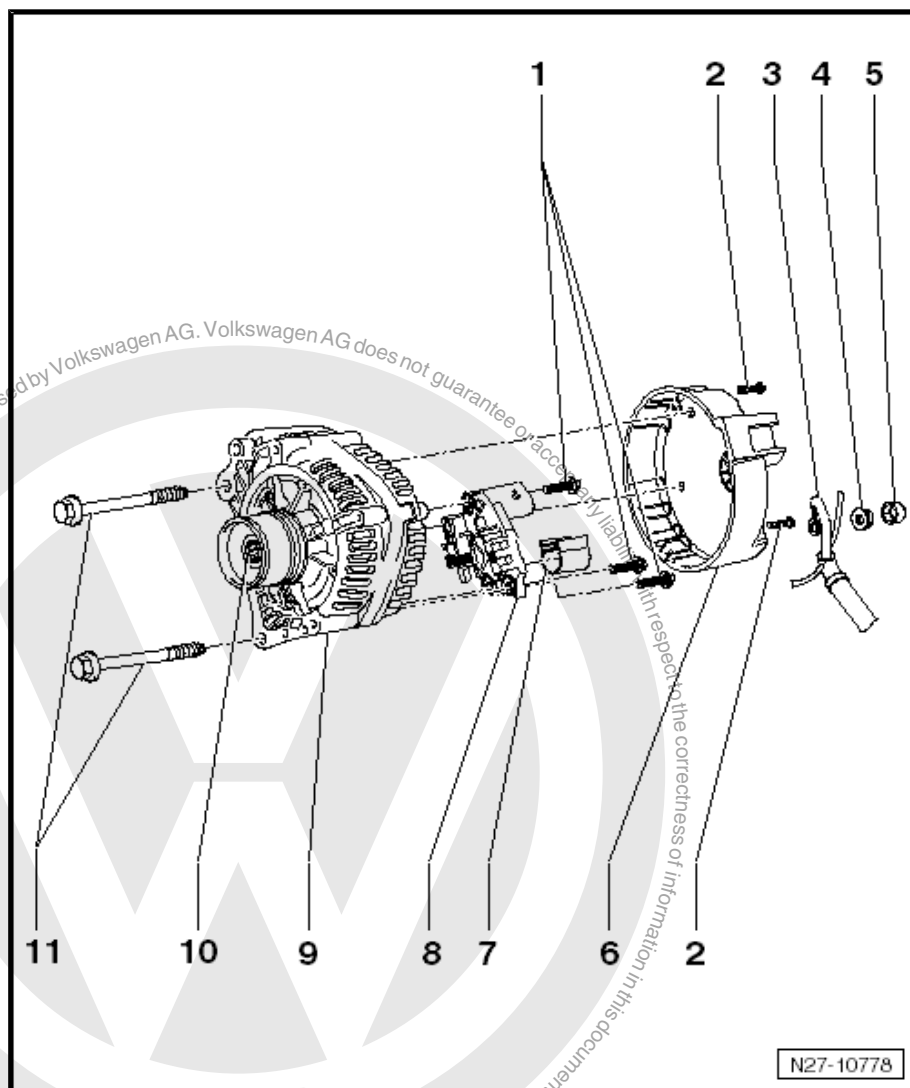
2.1.1 Overview - Generator, 1.2L Gasoline Engine 77 kW

Refer to the Parts Catalog for the correct bolts and nuts.





- 1 - Screw
 - 4 Nm
- 2 - Screw
 - 2 Nm
- 3 - Battery Positive Wire
- 4 - Nut
 - 20 Nm
 - Nut for the B+ wire
- 5 - Cap
- 6 - Generator - C- Cap
- 7 - Cap for Carbon Brushes
- 8 - Voltage Regulator - C1-
 - Removing and installing. Refer to
⇒ ["2.6 Voltage Regulator, Removing and Installing", page 50](#).
- 9 - Generator - C-
 - Removing and installing. Refer to
⇒ ["2.2.1 Generator C, Removing and Installing, 1.2L Gasoline Engine, 77 kW", page 27](#).
 - Checking. Refer to
⇒ ["2.3 Generator, Checking", page 46](#).
- 10 - Ribbed Belt Pulley
 - Nut: 80 Nm
 - Removing and installing. Refer to ⇒ ["2.5 Ribbed Belt Pulley, Removing and Installing", page 47](#).
- 11 - Bolt
 - 25 Nm



No Illustration

- ◆ Cable holder nut to the back of the generator: 3.2 Nm

2.1.2 Overview - Generator, 1.4L Gasoline Engine 90/110/118 kW

Refer to the Parts Catalog for the correct bolts and nuts.



1 - Bolts

- ☐ 23 Nm

2 - Ribbed Belt

- ☐ Checking. Refer to
⇒ ["2.4 Ribbed Belt, Checking", page 46](#).
- ☐ Removing and installing. Refer to ⇒ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing.

3 - Ribbed Belt Pulley

- ☐ Without free-running hub: 65 Nm
- ☐ With free-running hub: 80 Nm
- ☐ Removing and installing. Refer to
⇒ ["2.5 Ribbed Belt Pulley, Removing and Installing", page 47](#).

4 - Generator - C-

- ☐ Removing and installing. Refer to
⇒ ["2.2.2 Generator C-, Removing and Installing, 1.4L Gasoline Engine, 90/110/118 kW", page 29](#).
- ☐ Checking. Refer to
⇒ ["2.3 Generator, Checking", page 46](#)

5 - Voltage Regulator - C1-

- ☐ Removing and installing. Refer to ⇒ ["2.6 Voltage Regulator, Removing and Installing", page 50](#).

6 - Screw

- ☐ 2 Nm

7 - Screw

- ☐ 2 Nm

8 - Nut

- ☐ 3.2 Nm
- ☐ Cable Holder

9 - Screw

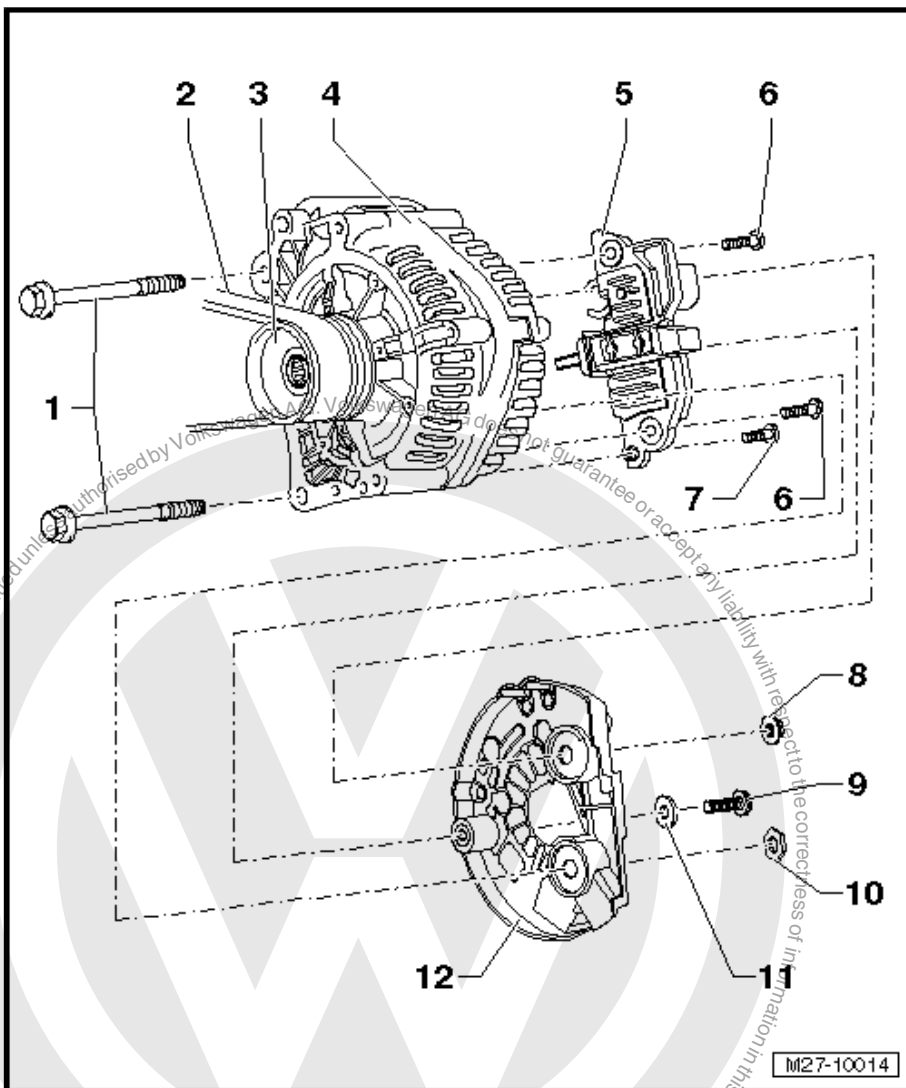
- ☐ 4.5 Nm

10 - Nut

- ☐ 20 Nm
- ☐ Nut for the B+ wire

11 - Washer

12 - Cap





2.1.3 Overview - Generator, 1.6L Gasoline Engine 77 kW

Refer to the Parts Catalog for the correct bolts and nuts.

1 - Bolt

- 23 Nm

2 - Ribbed Belt

- Checking. Refer to ➤ ["2.4 Ribbed Belt, Checking", page 46](#).
- Removing and installing. Refer to ➤ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing.

3 - Ribbed Belt Pulley

- Without free-running hub: 65 Nm
- With free-running hub: 80 Nm
- Removing and installing. Refer to ➤ ["2.5 Ribbed Belt Pulley, Removing and Installing", page 47](#).

4 - Generator - C-

- Removing and installing. Refer to ➤ ["2.2.3 Generator C-, Removing and Installing, 1.6L Gasoline Engine, 77 kW", page 31](#).
- Checking. Refer to ➤ ["2.3 Generator, Checking", page 46](#).

5 - Voltage Regulator - C1-

- Removing and installing. Refer to ➤ ["2.6 Voltage Regulator, Removing and Installing", page 50](#).

6 - Screw

- 2 Nm

7 - Screw

- 2 Nm

8 - Nut

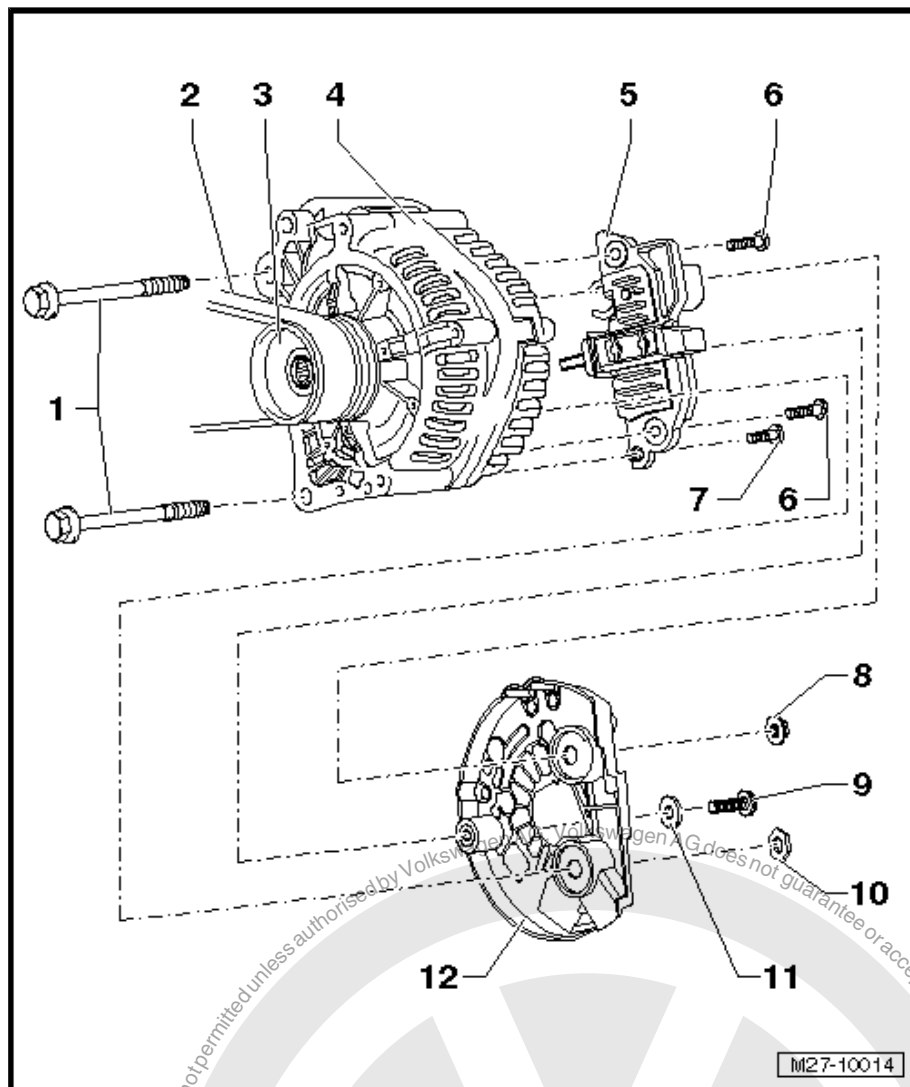
- 3.2 Nm
- Cable Holder

9 - Screw

- 4.5 Nm

10 - Nut

- 20 Nm
- Nut for the B+ wire





11 - Washer

12 - Cap

2.1.4 Overview - Generator, 2.0L Gasoline Engine 85 kW

Refer to the Parts Catalog for the correct bolts and nuts.

1 - Bolt

- ☐ 23 Nm

2 - Ribbed Belt

- ☐ Checking. Refer to [⇒ "2.4 Ribbed Belt, Checking", page 46](#).
- ☐ Removing and installing. Refer to [⇒ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing](#).

3 - Ribbed Belt Pulley

- ☐ Without free-running hub: 65 Nm
- ☐ With free-running hub: 80 Nm
- ☐ Removing and installing. Refer to [⇒ "2.5 Ribbed Belt Pulley, Removing and Installing", page 47](#).

4 - Generator - C-

- ☐ Removing and installing. Refer to [⇒ "2.2.4 Generator C-, Removing and Installing, 2.0L Gasoline Engine, 85 kW", page 33](#).
- ☐ Checking. Refer to [⇒ "2.3 Generator, Checking", page 46](#).

5 - Voltage Regulator - C1-

- ☐ Removing and installing. Refer to [⇒ "2.6 Voltage Regulator, Removing and Installing", page 50](#).

6 - Screw

- ☐ 2 Nm

7 - Screw

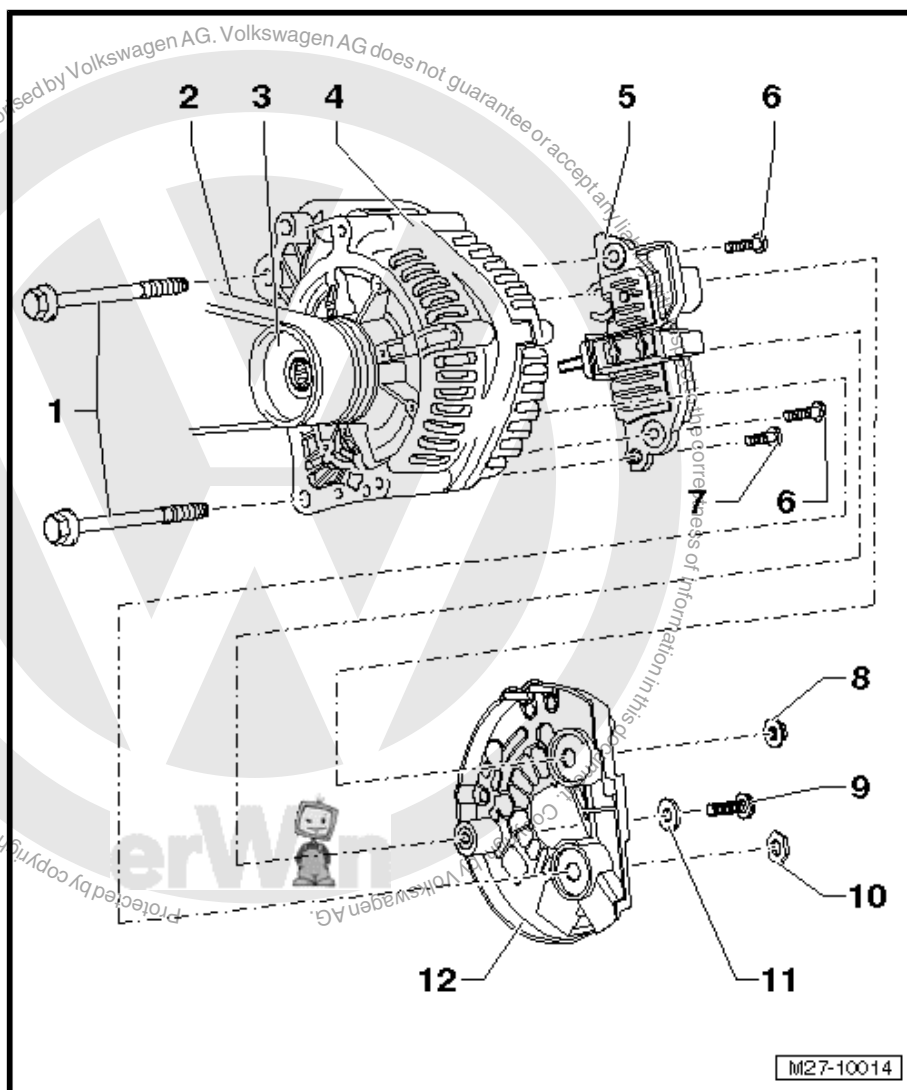
- ☐ 2 Nm

8 - Nut

- ☐ 3.2 Nm
- ☐ Cable Holder

9 - Screw

- ☐ 4.5 Nm





10 - Nut

- ☐ 20 Nm
- ☐ Nut for the B+ wire

11 - Washer

12 - Cap

2.1.5 Overview - Generator, 2.0L Gasoline Engine 147 kW

Refer to the Parts Catalog for the correct bolts and nuts.

1 - Bolt

- ☐ 20 Nm

2 - Screw

- ☐ 2 Nm

3 - Washer

4 - Screw

- ☐ 4.5 Nm

5 - Nut

- ☐ 3.2 Nm
- ☐ Cable Holder

6 - Nut

- ☐ 20 Nm
- ☐ Nut for the B+ wire

7 - Cap

8 - Screw

- ☐ 2 Nm

9 - Voltage Regulator - C1-

- ☐ Removing and installing. Refer to [⇒ "2.6 Voltage Regulator, Removing and Installing", page 50](#).

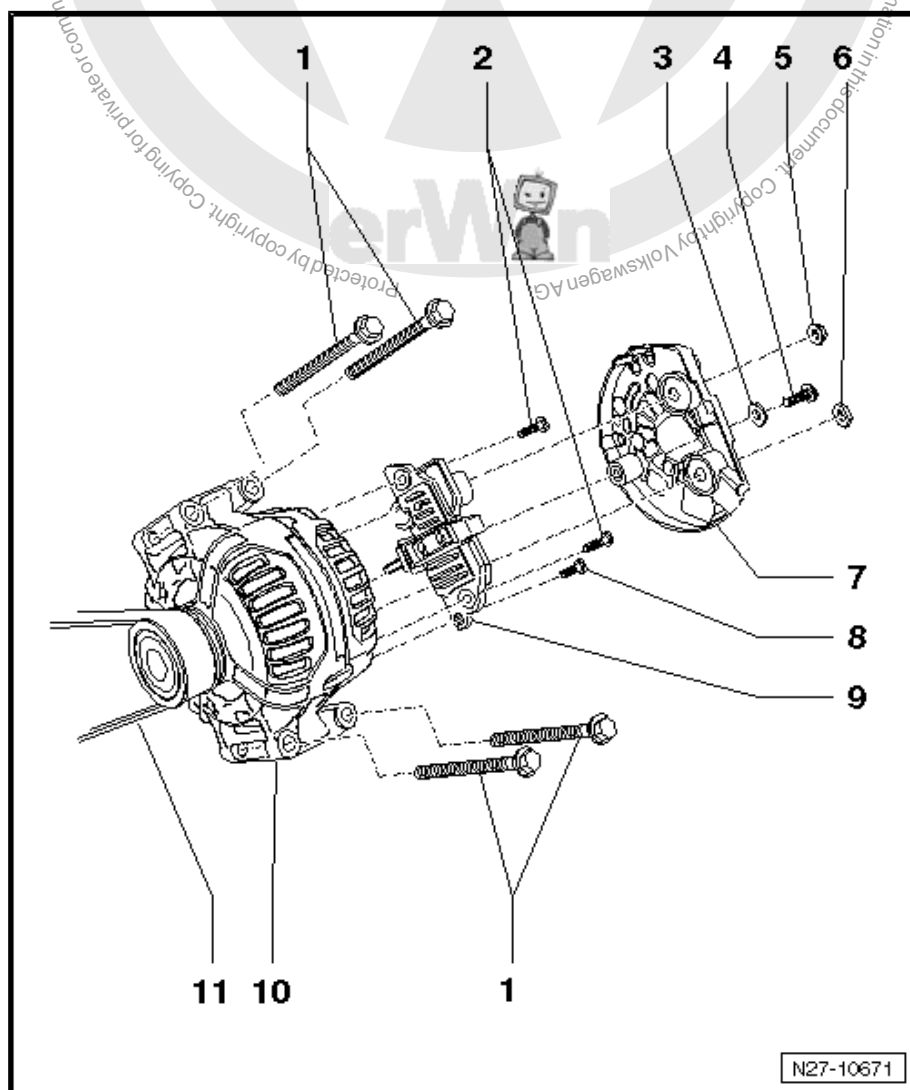
10 - Generator - C-

- ☐ Removing and installing. Refer to [⇒ "2.2.5 Generator C-, Removing and Installing, 2.0L Gasoline Engine, 147 kW", page 35](#).

- ☐ Checking. Refer to [⇒ "2.3 Generator, Checking", page 46](#).
- ☐ Ribbed Belt Pulley, Removing and installing. Refer to [⇒ "2.5 Ribbed Belt Pulley, Removing and Installing", page 47](#).

11 - Ribbed Belt

- ☐ Checking. Refer to [⇒ "2.4 Ribbed Belt, Checking", page 46](#).
- ☐ Removing and installing. Refer to [⇒ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing](#).





No Illustration

- ◆ Ribbed belt pulley without freewheel: 65 Nm.
- ◆ Ribbed belt pulley with freewheel: 80 Nm.

2.1.6 Overview - Generator, 2.5L Gasoline Engine 125 kW

Refer to the Parts Catalog for the correct bolts and nuts.

1 - Bolt

- ☐ 25 Nm

2 - Ribbed Belt

- ☐ Checking. Refer to ⇒ ["2.4 Ribbed Belt, Checking", page 46](#).
- ☐ Removing and installing. Refer to ⇒ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing.

3 - Ribbed Belt Pulley

- ☐ Without free-running hub: 65 Nm
- ☐ With free-running hub: 80 Nm
- ☐ Removing and installing. Refer to ⇒ ["2.5 Ribbed Belt Pulley, Removing and Installing", page 47](#).

4 - Generator - C-

- ☐ Removing and installing. Refer to ⇒ ["2.2.6 Generator C, Removing and Installing, 2.5L Gasoline Engine, 125 kW", page 37](#).
- ☐ Checking. Refer to ⇒ ["2.3 Generator, Checking", page 46](#).

5 - Voltage Regulator - C1-

- ☐ Removing and installing. Refer to ⇒ ["2.6 Voltage Regulator, Removing and Installing", page 50](#).

6 - Hex Bolt with Washer and Threaded Piece

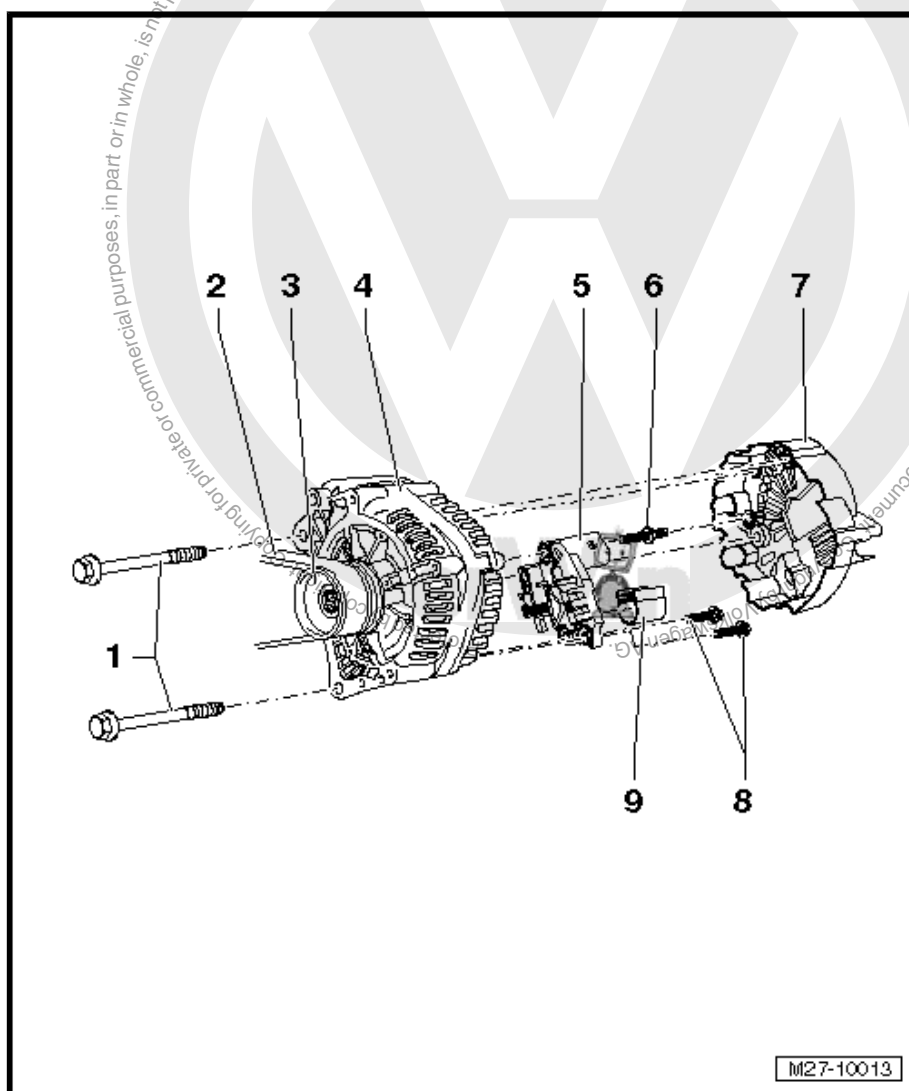
- ☐ 4 Nm

7 - Cap

8 - Screw

- ☐ 2 Nm

9 - Cap for the Carbon Brushes



No Illustration

- ◆ B+ wire nut to rear side of generator: 20 Nm



- ◆ Cable holder nut to the back of the generator: 3.2 Nm

2.1.7 Overview - Generator, 1.8L Gasoline Engine 125 kW

Refer to the Parts Catalog for the correct bolts and nuts.

1 - Generator - C-

- ☐ Removing and installing. Refer to
⇒ ["2.2.7 Generator C, Removing and Installing, 1.8L Gasoline Engine, 125 kW", page 40](#).
- ☐ Checking. Refer to
⇒ ["2.3 Generator, Checking", page 46](#).
- ☐ Voltage Regulator - C1-, Removing and installing. Refer to
⇒ ["2.6.1 Voltage Regulator C1, Removing and Installing, Bosch", page 50](#).
- ☐ Ribbed Belt Pulley, removing and installing. Refer to
⇒ ["2.5.2 Ribbed Belt Pulley with Freewheel, Removing and Installing, Bosch", page 47](#).

2 - Connector

3 - Terminal 30/B+

- ☐ B+ wire connection

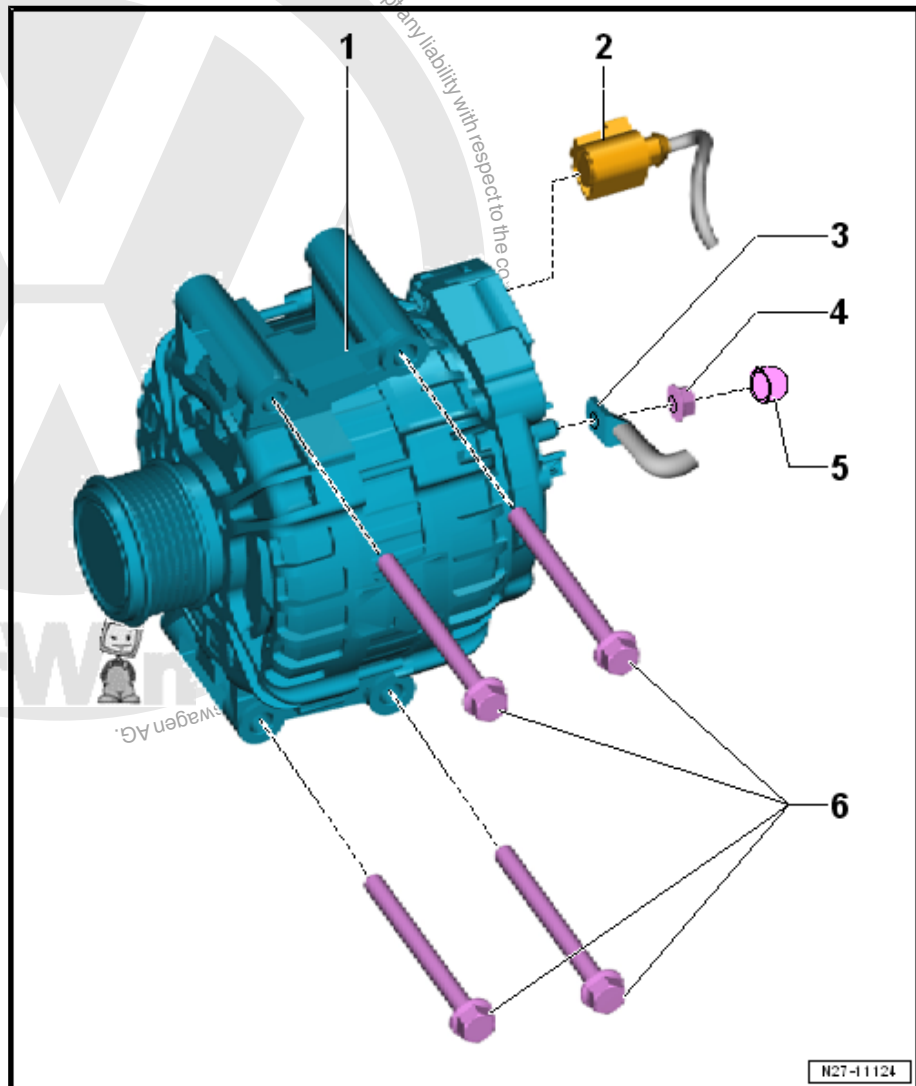
4 - Nut

- ☐ 20 Nm

5 - Cap

6 - Bolt

- ☐ 20 Nm
- ☐ Quantity: 4



2.1.8 Overview - Generator, 1.6L Diesel Engine 77 kW

Refer to the Parts Catalog for the correct bolts and nuts.



1 - Bolt

- ☐ 20 Nm

2 - Ribbed Belt

- ☐ Checking. Refer to
⇒ ["2.4 Ribbed Belt, Checking", page 46](#).
- ☐ Removing and installing. Refer to ⇒ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing.

3 - Ribbed Belt Pulley

- ☐ Without free-running hub: 65 Nm
- ☐ With free-running hub: 80 Nm
- ☐ Removing and installing. Refer to
⇒ ["2.5 Ribbed Belt Pulley, Removing and Installing", page 47](#).

4 - Generator - C-

- ☐ Removing and installing. Refer to
⇒ ["2.2.8 Generator C, Removing and Installing, 1.6L Diesel Engine, 77 kW", page 41](#).
- ☐ Checking. Refer to
⇒ ["2.3 Generator, Checking", page 46](#).

5 - Voltage Regulator - C1-

- ☐ Removing and installing. Refer to
⇒ ["2.6 Voltage Regulator, Removing and Installing", page 50](#).

6 - Hex bolt with washer and threaded piece

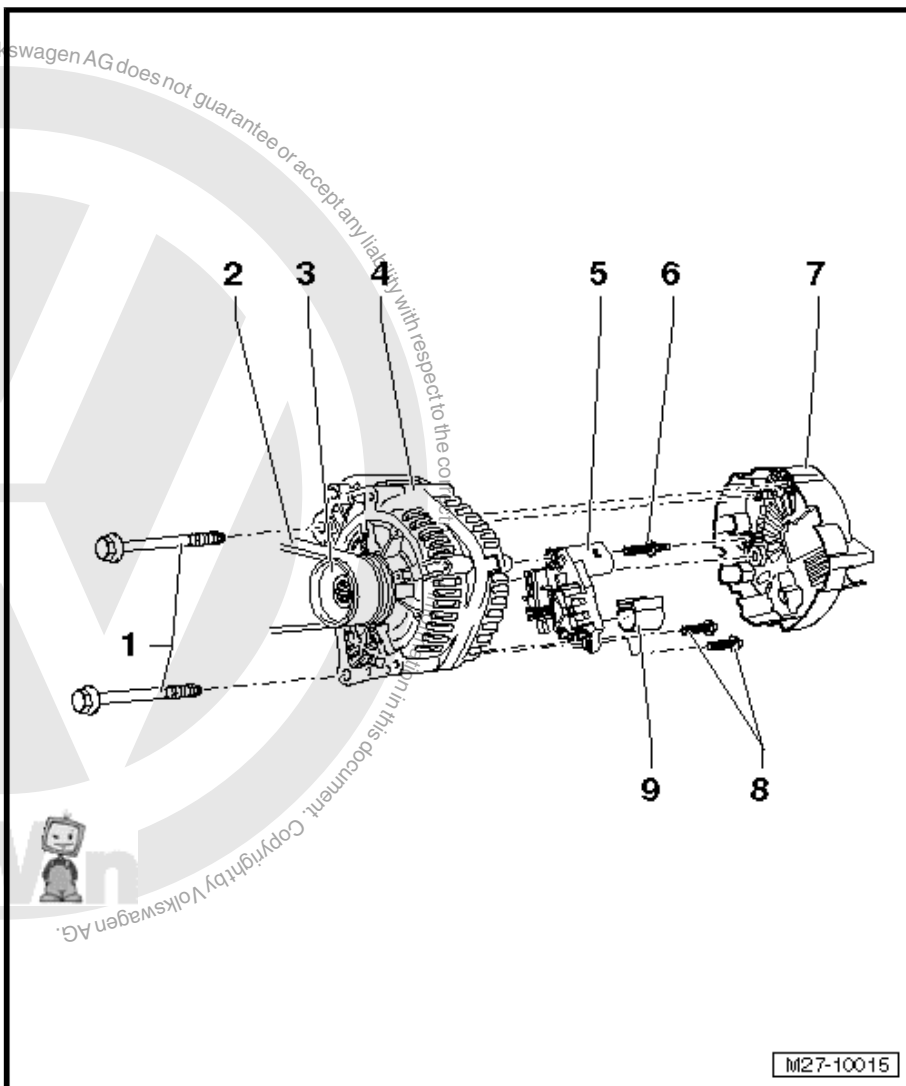
- ☐ 4 Nm

7 - Cap

8 - Screw

- ☐ 2 Nm

9 - Cap for the Carbon Brushes



No illustration

- ◆ B+ wire nut to rear side of generator: 20 Nm
- ◆ Cable holder nut to the back of the generator: 3.2 Nm

2.1.9 Overview - Generator, 2.0L Diesel Engine 81/103 kW

Refer to the Parts Catalog for the correct bolts and nuts.



1 - Bolt

- 20 Nm

2 - Ribbed Belt

- Checking. Refer to
⇒ ["2.4 Ribbed Belt, Checking", page 46](#) .
- Removing and installing. Refer to ⇒ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing .

3 - Ribbed Belt Pulley

- Without free-running hub: 65 Nm
- With free-running hub: 80 Nm
- Removing and installing. Refer to
⇒ ["2.5 Ribbed Belt Pulley, Removing and Installing", page 47](#) .

4 - Generator - C-

- Removing and installing. Refer to
⇒ ["2.2.9 Generator C, Removing and Installing, 2.0L Diesel Engine, 81/103 kW", page 44](#) .
- Checking. Refer to
⇒ ["2.3 Generator, Checking", page 46](#) .

5 - Voltage Regulator - C1-

- Removing and installing. Refer to
⇒ ["2.6 Voltage Regulator, Removing and Installing", page 50](#) .

6 - Hex Bolt with Washer and Threaded Piece

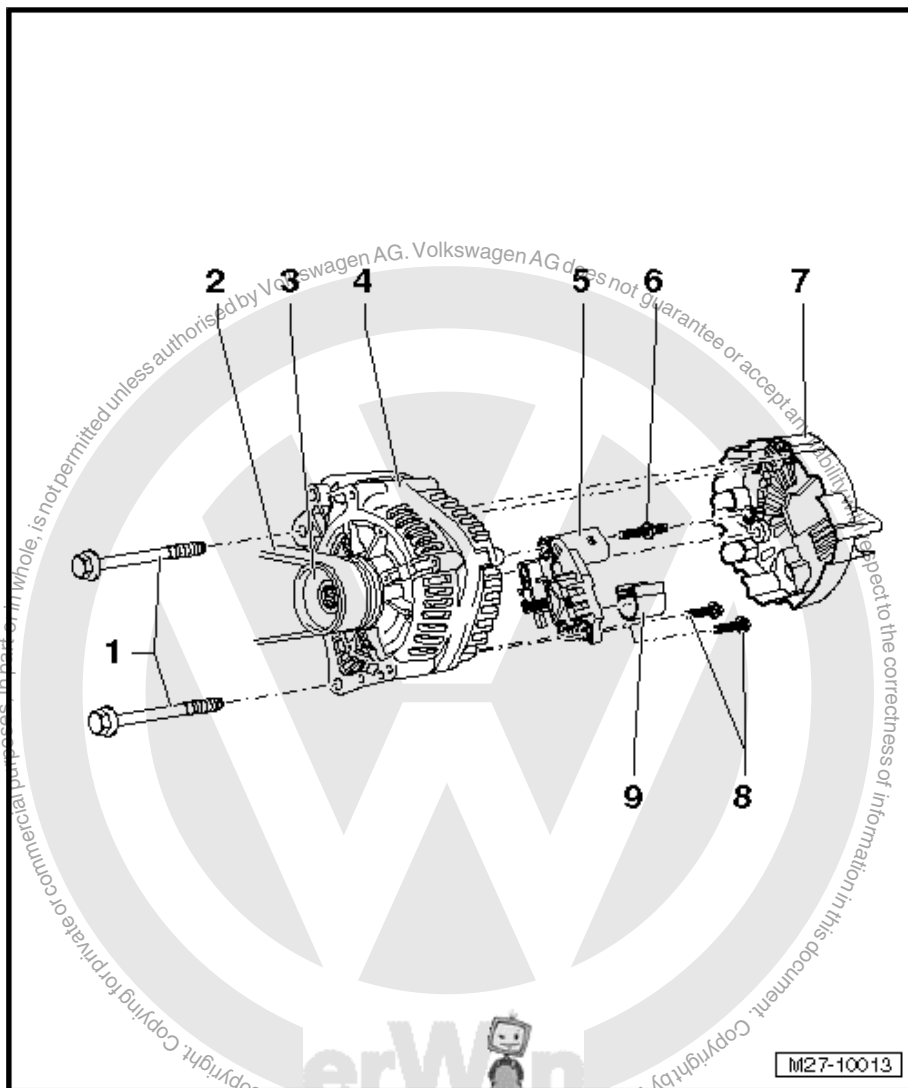
- 4 Nm

7 - Cap

8 - Bolts

- 2 Nm

9 - Cap for the Carbon Brushes



No Illustration

- ◆ B+ wire nut to rear side of generator: 20 Nm
- ◆ Cable holder nut to the back of the generator: 3.2 Nm



2.2 Generator, Removing and Installing

⇒ ["2.2.2 Generator C, Removing and Installing, 1.4L Gasoline Engine, 90/110/118 kW", page 29](#)

⇒ ["2.2.4 Generator C, Removing and Installing, 2.0L Gasoline Engine, 85 kW", page 33](#)

⇒ ["2.2.5 Generator C, Removing and Installing, 2.0L Gasoline Engine, 147 kW", page 35](#)

⇒ ["2.2.6 Generator C, Removing and Installing, 2.5L Gasoline Engine, 125 kW", page 37](#)

⇒ ["2.2.7 Generator C, Removing and Installing, 1.8L Gasoline Engine, 125 kW", page 40](#)

⇒ ["2.2.9 Generator C, Removing and Installing, 2.0L Diesel Engine, 81/103 kW", page 44](#)

2.2.1 Generator - C-, Removing and Installing, 1.2L Gasoline Engine, 77 kW

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-



Caution

Always follow the instructions regarding disconnecting and connecting the Battery - A-. Refer to ["1.5 Battery, Disconnecting and Connecting", page 7](#).

Removing

- Disconnect the Battery - A-. Refer to ["1.5.1 Battery A in Engine Compartment, Disconnecting", page 7](#).



Caution

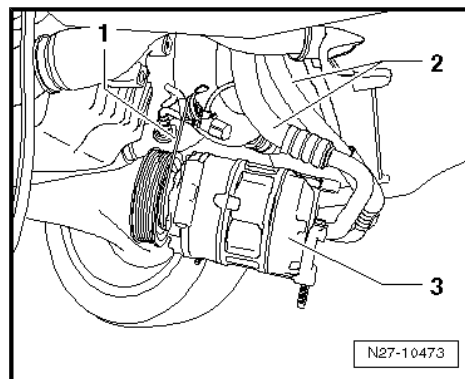
Mark the top of the ribbed belt and the running direction before removal. Make sure the belt is installed correctly and pay attention to the running direction. If the belt is installed opposite the running direction or is positioned incorrectly, the belt will be destroyed.

- Remove the ribbed belt. Refer to ⇒ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side, Ribbed Belt, Removing and Installing.
- Remove the A/C compressor. Refer to ⇒ Heating and Air Conditioning; Rep. Gr. 87 ; A/C Compressor Sub-Assembly Bracket.

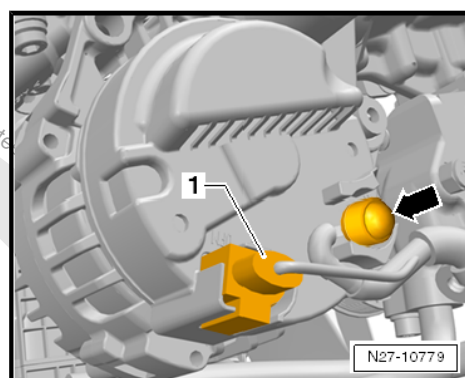


The hoses on the A/C compressor can remain connected.

Tie the A/C compressor -3- to a suitable place under the vehicle using a binding wire -1- until it is ready to be reinstalled. Make sure the hoses -2- are not pulled off or kinked.



- Release and disconnect the (DF lead) -1-.
- Remove the cap -arrow-.
- Remove the nut situated behind it, and disconnect the battery positive terminal from the Generator - C- .
- Remove the idler roller. Refer to ➔ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side; Overview - Ribbed Belt Drive .



- Remove the bolts -arrows- from the Generator - C- .
- Remove the Generator - C- .

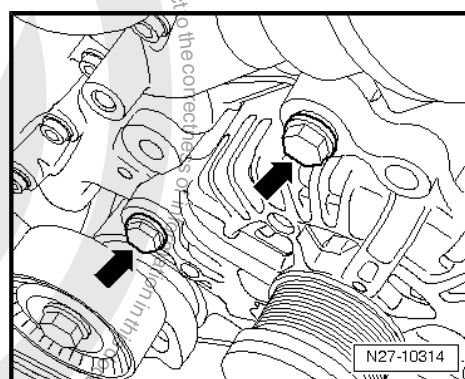
Installing

Install in reverse order of removal. Note the following:

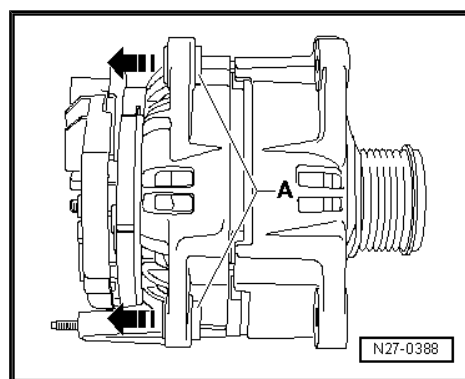


Caution

- ◆ **When installing a used ribbed belt, note direction of travel marked when it was removed!**
- ◆ **Before installing the ribbed belt, make sure all assemblies (Generator - C- , A/C compressor, vane pump) are securely fastened.**
- ◆ **When installing the ribbed belt, make sure it is properly seated in the belt pulley!**



- Remove the threaded bushings -A- from the Generator - C- housing approximately 4 mm in -direction of arrow-.
- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“2.1.1 Overview - Generator, 1.2L Gasoline Engine 77 kW”, page 17](#) .
- Connect the Battery - A- . Refer to
⇒ [“1.5.2 Battery A in Engine Compartment, Connecting”, page 8](#) .
- Start the engine and check the belt routing.
- Turn off the engine.





2.2.2 Generator - C- , Removing and Installing, 1.4L Gasoline Engine, 90/110/118 kW

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-



Caution

Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to ⇒ "1.5.Battery, Disconnecting and Connecting", page 7 .

Removing

- Disconnect the Battery - A- . Refer to ⇒ "1.5.1 Battery A in Engine Compartment, Disconnecting", page 7 .
- Remove the engine cover. Refer to ⇒ Rep. Gr. 10 ; Engine Cover; Engine Cover, Removing and Installing .



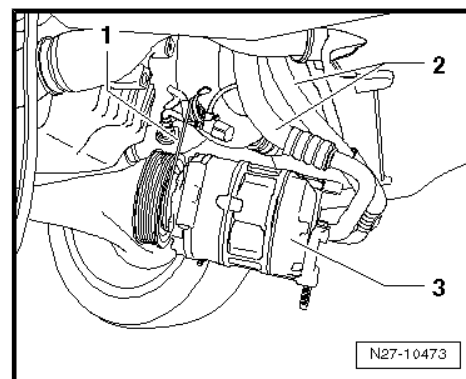
Caution

Mark the top of the ribbed belt and the running direction before removal. Make sure the belt is installed correctly and pay attention to the running direction. If the belt is installed opposite the running direction or is positioned incorrectly, the belt will be destroyed.

- Remove the ribbed belt. Refer to ⇒ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing .
- Remove the upper tensioning roller. Refer to ⇒ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side; Overview - Ribbed Belt Drive .
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .
- Remove the A/C compressor. Refer to ⇒ Heating and Air Conditioning; Rep. Gr. 87 ; A/C Compressor Sub-Assembly Bracket .

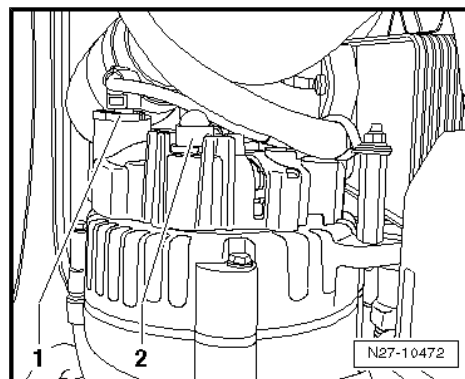
The hoses on the A/C compressor can remain connected.

Tie the A/C compressor -3- to a suitable place under the vehicle using a binding wire -1- until it is ready to be reinstalled. Make sure the hoses -2- are not pulled off or kinked.

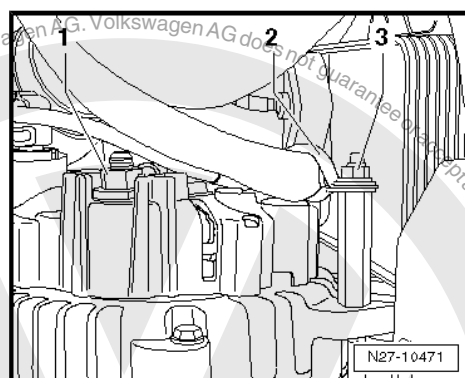




- Release and disconnect the (DF lead) -1-.
- Pry off the cap -2-.



- Remove the nut -1- and then remove the B+ wire from the threaded connector on the Generator - C- .
- Remove the nut -3- and remove the wire holder -2- from the Generator - C- .
- Remove the bolts -arrows- from the Generator - C- .



- Remove the Generator - C- .

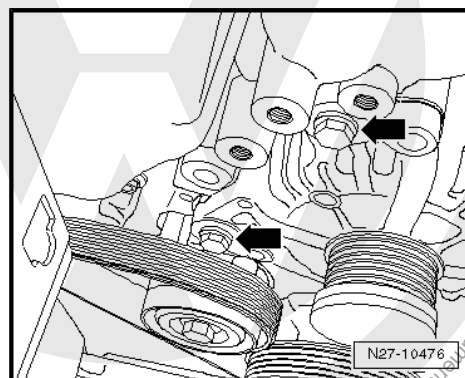
Installing

Install in reverse order of removal. Note the following:

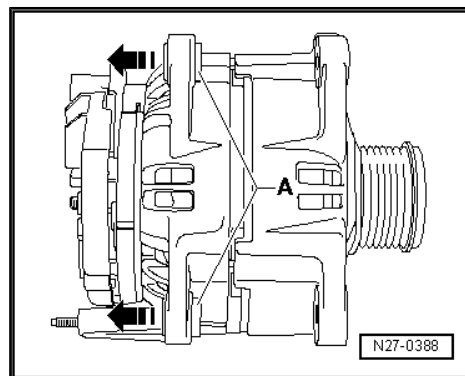


Caution

- ◆ *When installing a used ribbed belt, note direction of travel marked when it was removed!*
- ◆ *Before installing the ribbed belt, make sure all assemblies (Generator - C- , A/C compressor, vane pump) are securely fastened.*
- ◆ *When installing the ribbed belt, make sure it is properly seated in the belt pulley!*

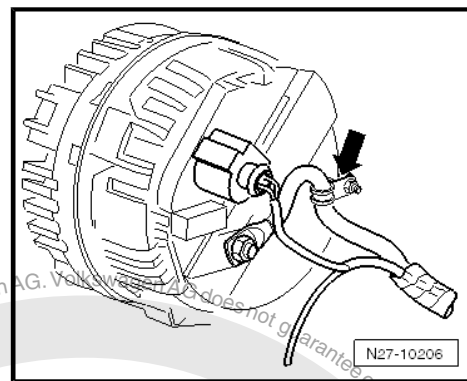


- Remove the threaded bushings -A- from the Generator - C- housing approximately 4 mm in direction of -arrow-.





- Attach the wire holder -arrow- on the back of the Generator - C- in the 9 o'clock position.
- Tighten the threaded connections to the tightening specification. Refer to
⇒ ["2.1.2 Overview - Generator, 1.4L Gasoline Engine 90/110/118 kW", page 18](#).
- Connect the Battery - A- . Refer to
⇒ ["1.5.2 Battery A in Engine Compartment, Connecting", page 8](#).
- Start the engine and check the belt routing.
- Turn off the engine.



2.2.3 Generator - C- , Removing and Installing, 1.6L Gasoline Engine, 77 kW

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-

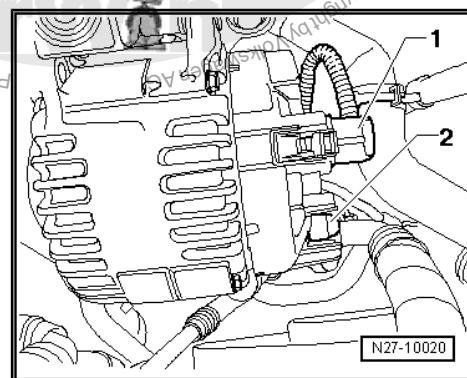


Caution

*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ ["1.5 Battery, Disconnecting and Connecting", page 7](#) .*

Removing

- Disconnect the Battery - A- . Refer to
⇒ ["1.5.1 Battery A in Engine Compartment, Disconnecting", page 7](#) .
- Remove the engine cover. Refer to ⇒ Rep. Gr. 10 ; Engine Cover; Engine Cover, Removing and Installing .
- Disconnect the connector from the DF lead -1- and remove the cap -2-.





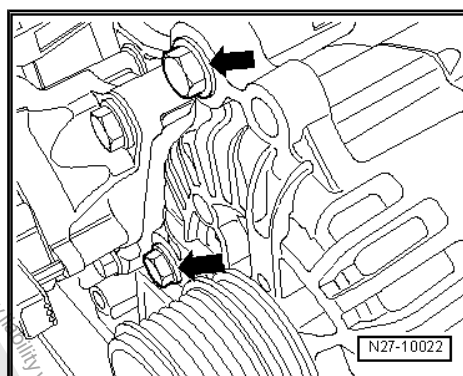
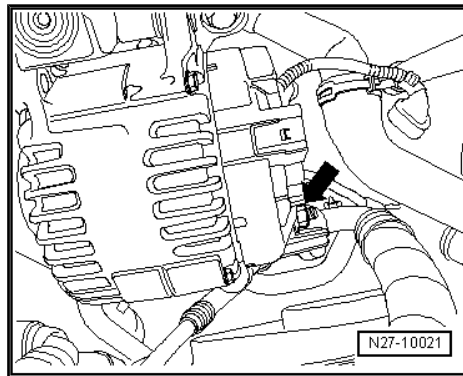
- Disconnect the B+ wire -arrow- from the Generator - C- .



Caution

Mark the top of the ribbed belt and the running direction before removal. Make sure the belt is installed correctly and pay attention to the running direction. If the belt is installed opposite the running direction or is positioned incorrectly, the belt will be destroyed.

- Remove the ribbed belt. Refer to ⇒ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing .
- Remove the bracket together with the tensioner. Refer to ⇒ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side; Overview - Ribbed Belt Drive .
- Remove the bolts -arrows- from the Generator - C- .



- Remove the wire holder -arrow- from the Generator - C- .
- Remove the Generator - C- .

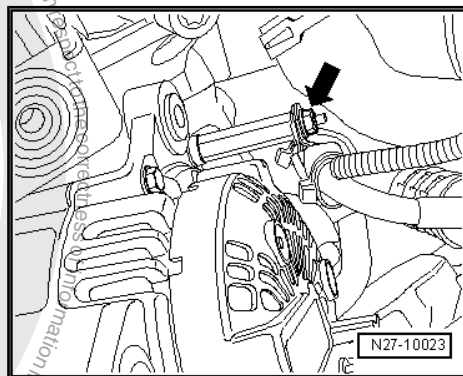
Installing

Install in reverse order of removal. Note the following:

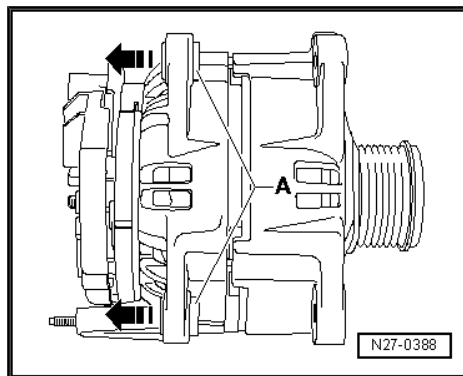


Caution

- ◆ **When installing a used ribbed belt, note direction of travel marked when it was removed!**
- ◆ **Before installing the ribbed belt, make sure all assemblies (Generator - C- , A/C compressor, vane pump) are securely fastened.**
- ◆ **When installing the ribbed belt, make sure it is properly seated in the belt pulley!**

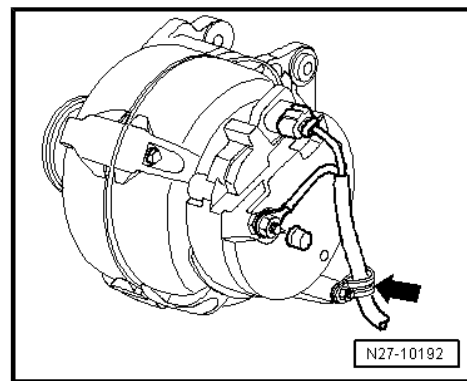


- Remove the threaded bushings -A- from the Generator - C- housing approximately 4 mm in -direction of arrow-.





- Attach the cable holder -arrow- to the back of the Generator - C- in the 3 o'clock position.
- Tighten the threaded connections to the tightening specification. Refer to
⇒ ["2.1.3 Overview - Generator, 1.6L Gasoline Engine 77 kW", page 20](#).
- Connect the Battery - A- . Refer to
⇒ ["1.5.2 Battery A in Engine Compartment, Connecting", page 8](#).
- Start the engine and check the belt routing.
- Turn off the engine.



2.2.4 Generator - C- , Removing and Installing, 2.0L Gasoline Engine, 85 kW

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-

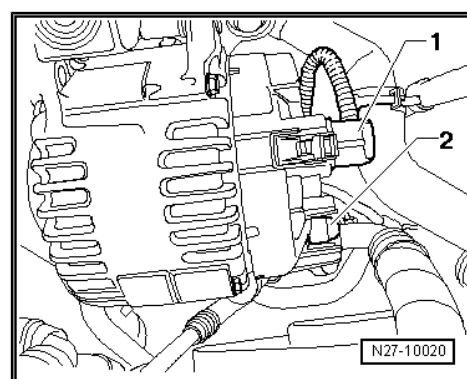


Caution

**Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ ["1.5 Battery, Disconnecting and Connecting", page 7](#) .**

Removing

- Disconnect the Battery - A- . Refer to
⇒ ["1.5.1 Battery A in Engine Compartment, Disconnecting", page 7](#) .
- Remove the engine cover. Refer to ⇒ Rep. Gr. 10 ; Engine Cover; Engine Cover, Removing and Installing .
- Remove the air filter housing. Refer to ⇒ Rep. Gr. 24 ; Air Filter; Overview - Air Filter Housing .
- Disconnect the connector (DF lead) -1- and remove the cap -2-.



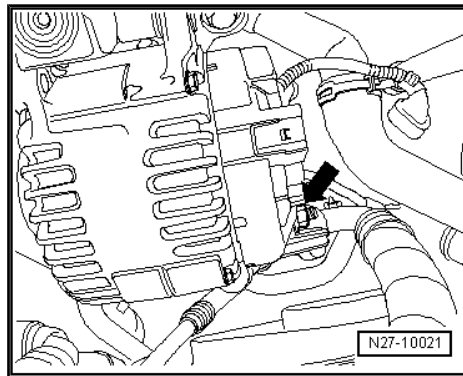


- Disconnect the B+ wire -arrow- from the Generator - C- .



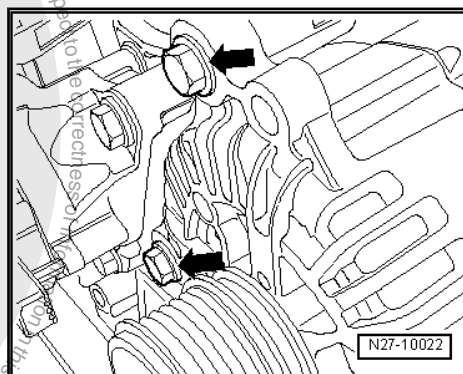
Caution

Mark the top of the ribbed belt and the running direction before removal. Make sure the belt is installed correctly and pay attention to the running direction. If the belt is installed opposite the running direction or is positioned incorrectly, the belt will be destroyed.



- Remove the ribbed belt. Refer to ⇒ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing .
- Remove the tensioner together with the lifting eye. Refer to ⇒ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side; Overview - Ribbed Belt Drive .

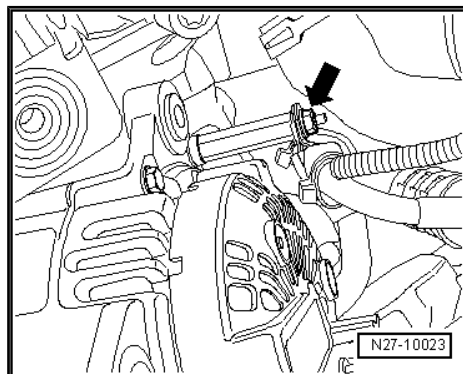
Remove the bolts -arrows- from the Generator - C- .



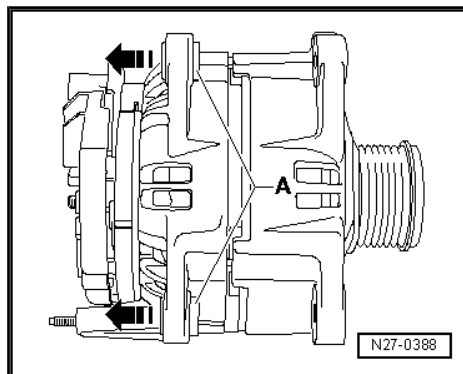
- Remove the wire holder -arrow- from the Generator - C- .
- Remove the Generator - C- .

Installing

Install in reverse order of removal. Note the following:



- Remove the threaded bushings -A- from the Generator - C- housing approximately 4 mm in direction of -arrow-.



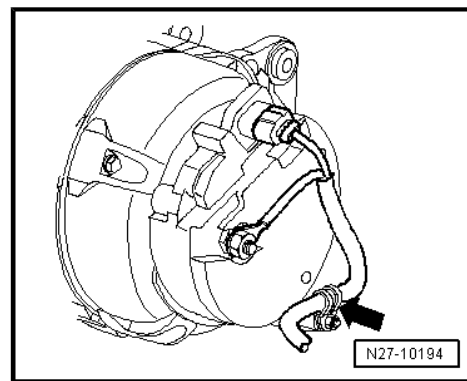


- Attach the wire holder -arrow- on the back of the Generator - C- in the 12 o'clock position.
- Tighten the threaded connections to the tightening specification. Refer to
⇒ ["2.1.4 Overview - Generator, 2.0L Gasoline Engine 85 kW", page 21](#).



Caution

- ◆ *When installing a used ribbed belt, note direction of travel marked when it was removed!*
- ◆ *Before installing the ribbed belt, make sure all assemblies (Generator - C- , A/C compressor, vane pump) are securely fastened.*
- ◆ *When installing the ribbed belt, make sure it is properly seated in the belt pulley!*



- Connect the Battery - A- . Refer to
⇒ ["1.5.2 Battery A in Engine Compartment, Connecting", page 8](#).
- Start the engine and check the belt routing.
- Turn off the engine.

2.2.5 Generator - C- , Removing and Installing, 2.0L Gasoline Engine, 147 kW

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-



Caution

*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ ["1.5 Battery, Disconnecting and Connecting", page 7](#).*

Removing

- Disconnect the Battery - A- . Refer to
⇒ ["1.5.1 Battery A in Engine Compartment, Disconnecting", page 7](#).



Caution

Mark the top of the ribbed belt and the running direction before removal. Make sure the belt is installed correctly and pay attention to the running direction. If the belt is installed in the opposite rotation direction, or is installed in the opposite installed location, then the belt will be ruined!

- Remove the ribbed belt. Refer to ⇒ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing.



- Remove the bolts -arrows- and move the coolant pipes and hose -1- upward. This will make space for removing the Generator - C- .



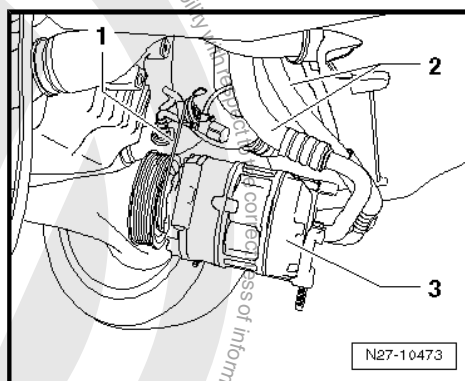
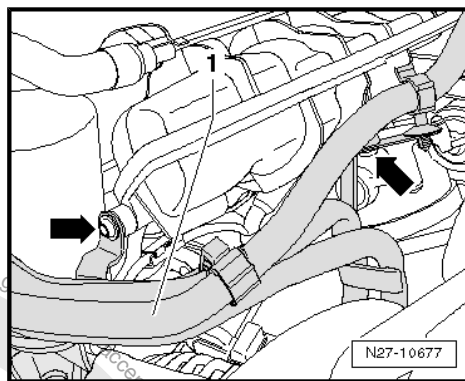
Note

The coolant pipes and the hose can remain connected.

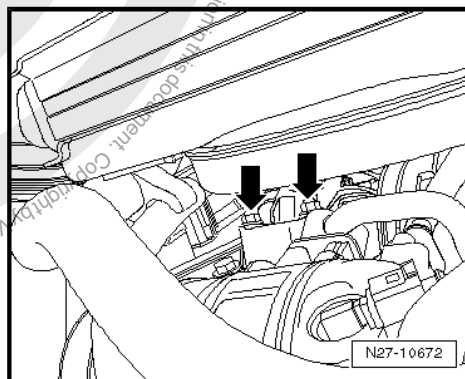
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .
- Remove the A/C compressor. Refer to ⇒ Heating and Air Conditioning; Rep. Gr. 87 ; A/C Compressor Sub-Assembly Bracket .

The hoses on the A/C compressor can remain connected.

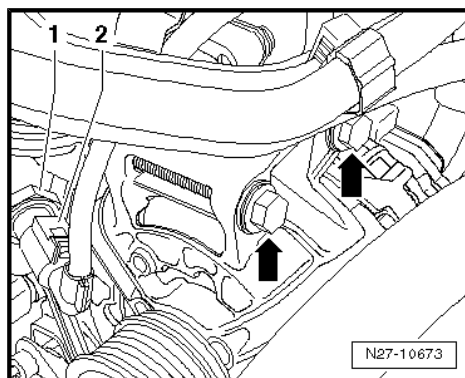
Tie the A/C compressor -3- to a suitable place under the vehicle using a binding wire -1- until it is ready to be reinstalled. Make sure the hoses -2- are not pulled off or kinked.



- Remove the bottom bolts -arrows- from the Generator - C- from underneath.

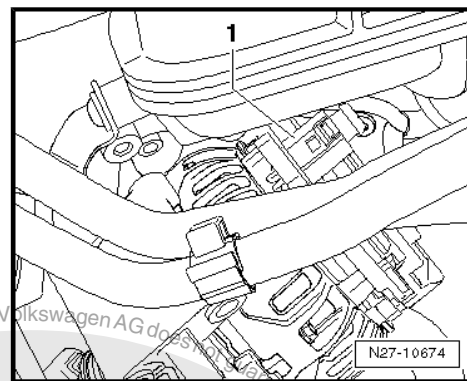


- Release and disconnect the connector -2-.
- Remove the upper bolts -arrows- from the Generator - C- .
- Pivot the Generator - C- slightly to the left in order to be able to access the connections on the back of the generator.

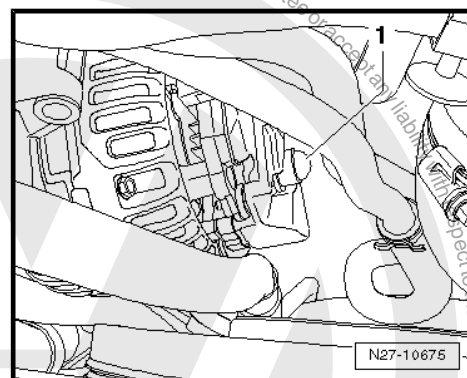




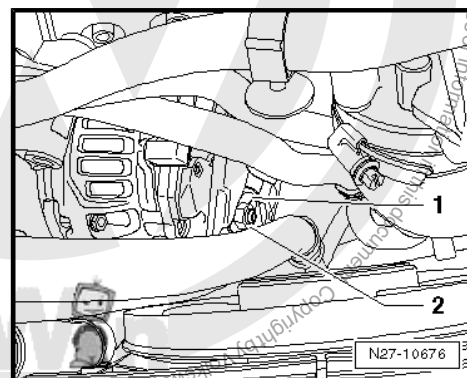
- Release and disconnect the (DF lead) -1-.



- Pry up the cap -1-.



- Remove the nut -2- and then remove the B+ wire -1- that is underneath from the threaded connector on the Generator - C- .
- Remove the Generator - C- .



Installing

Install in reverse order of removal. Note the following:



Caution

- ◆ **When installing a used ribbed belt, note direction of travel marked when it was removed!**
- ◆ **Before installing the ribbed belt, make sure all assemblies (Generator - C- , A/C compressor, vane pump) are securely fastened.**
- ◆ **When installing the ribbed belt, make sure it is properly seated in the belt pulley!**

- Tighten the threaded connections to the tightening specification. Refer to ["2.1.5 Overview - Generator, 2.0L Gasoline Engine 147 kW", page 22](#) .
- Connect the Battery - A- . Refer to ["1.5.2 Battery A in Engine Compartment, Connecting", page 8](#) .
- Start the engine and check the belt routing.
- Turn off the engine.

2.2.6 Generator - C- , Removing and Installing, 2.5L Gasoline Engine, 125 kW

Special tools and workshop equipment required



- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-



Caution

Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to ⇒ "1.5 Battery, Disconnecting and Connecting", page 7 .

Removing

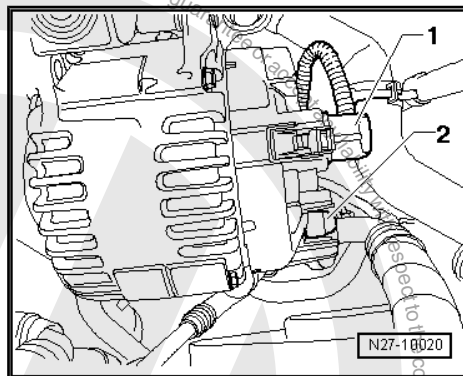
- Disconnect the Battery - A- . Refer to ⇒ "1.5.1 Battery A in Engine Compartment, Disconnecting", page 7 .
- Remove the engine cover. Refer to ⇒ Rep. Gr. 10 ; Engine Cover; Engine Cover, Removing and Installing .
- Bring the lock carrier into the service position. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Lock Carrier; Service Position .



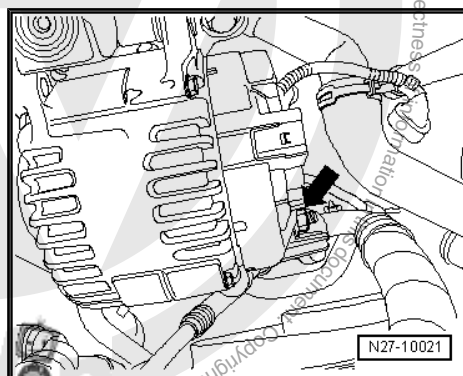
Caution

Mark the top of the ribbed belt and the running direction before removal. Make sure the belt is installed correctly and pay attention to the running direction. If the belt is installed opposite the running direction or is positioned incorrectly, the belt will be destroyed.

- Remove the ribbed belt. Refer to ⇒ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing .
- Release and disconnect the connector (DF lead) -1- and remove the cap -2-.

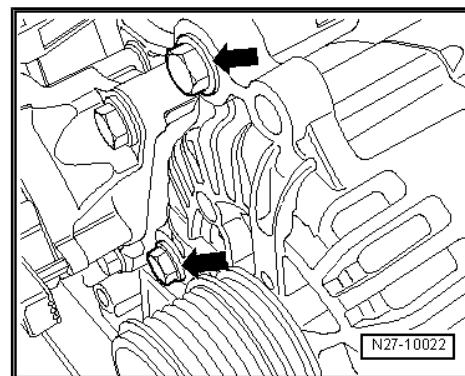


- Disconnect the B+ wire -arrow- from the Generator - C- .
- Remove the upper idler roller, the lower idler roller and the ribbed belt tensioning roller for the Generator - C- and the coolant pump. Refer to ⇒ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side; Overview - Ribbed Belt Drive .





- Remove the bolts -arrows- from the Generator - C- .



- Remove the wire holder -arrow- from the Generator - C- .
- Remove the Generator - C- .

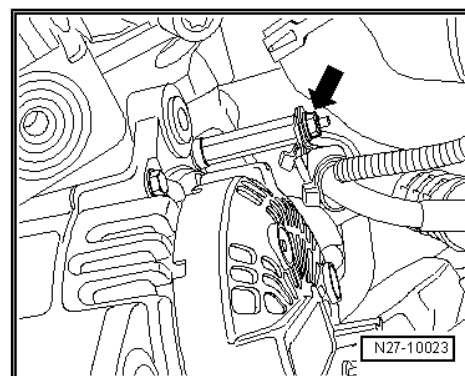
Installing

Install in reverse order of removal. Note the following:

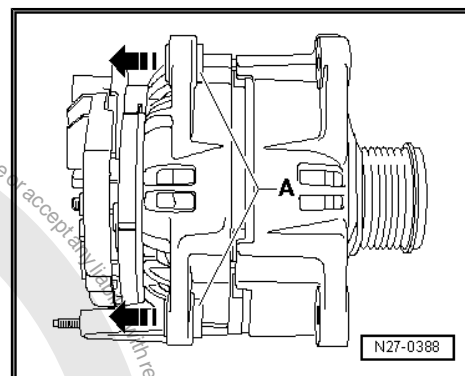


Caution

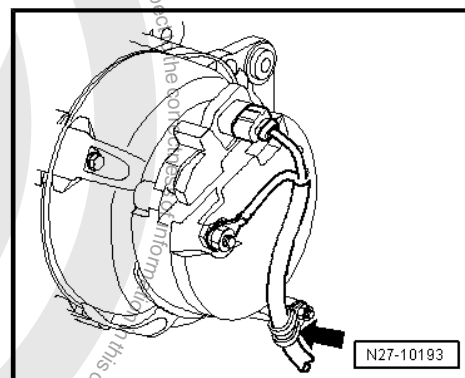
- ◆ *When installing a used ribbed belt, note direction of travel marked when it was removed!*
- ◆ *Before installing the ribbed belt, make sure all assemblies (Generator - C- , A/C compressor, vane pump) are securely fastened.*
- ◆ *When installing the ribbed belt, make sure it is properly seated in the belt pulley!*



- Remove the threaded bushings -A- from the Generator - C- housing approximately 4 mm in direction of -arrows-.



- Attach the cable holder -arrow- to the back of the Generator - C- in the 9 o'clock position.
- Tighten the threaded connections to the tightening specification. Refer to ["2.1.6 Overview - Generator, 2.5L Gasoline Engine 125 kW", page 23](#) .
- Connect the Battery - A- . Refer to ["1.5.2 Battery A in Engine Compartment, Connecting", page 8](#) .
- Start the engine and check the belt routing.
- Turn off the engine.





2.2.7 Generator - C- , Removing and Installing, 1.8L Gasoline Engine, 125 kW

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-

Removing



Caution

Always follow the instructions in the Repair Manual exactly when disconnecting and connecting the Battery - A- . Refer to ⇒ "1.5 Battery, Disconnecting and Connecting", page 7.

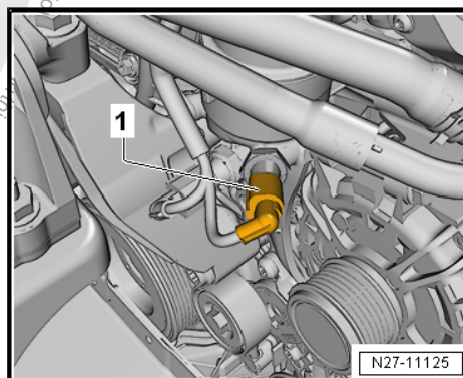
- Disconnect the Battery - A- . Refer to ⇒ "1.5.1 Battery A in Engine Compartment, Disconnecting", page 7 .



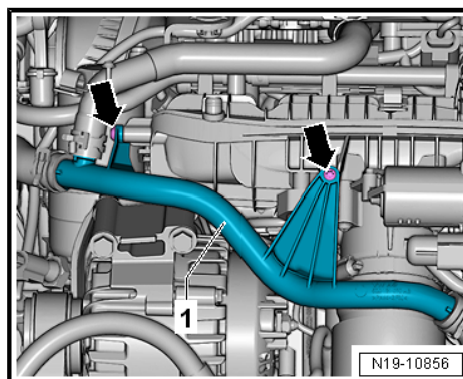
Caution

Mark the top of the ribbed belt and the running direction before removal. Make sure the belt is installed correctly and pay attention to the running direction. If the ribbed belt is installed opposite the running direction or is positioned incorrectly, the ribbed belt will be destroyed.

- Remove the ribbed belt. Refer to ⇒ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing .
- Release and disconnect the connector -1-.
- Remove the bolts -arrows-.

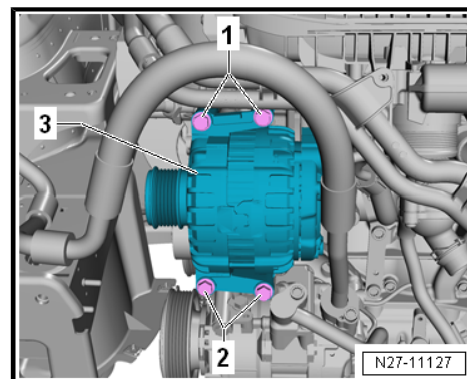


- Move the coolant pipe -1- to the side.





- Remove the bolts -1 and 2-.
- Pivot the Generator - C- -3- to the right in the direction of travel.
- Release and disconnect the connector -1-.
- Pry off the cap -2- and remove the underlying nut.
- Remove the 30/B+ terminal -3-.



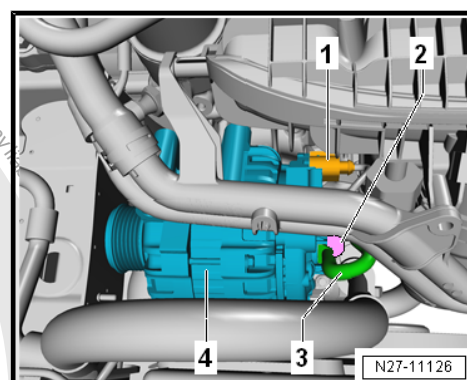
- Remove the Generator - C- -4- upward out of the vehicle.

Installing

Install in the reverse order of removal while noting the following:

Caution

- ◆ *When installing a used ribbed belt, note direction of travel marked when it was removed!*
- ◆ *Before installing the ribbed belt, make sure all assemblies (Generator - C- , A/C compressor, vane pump) are securely fastened.*
- ◆ *When installing the ribbed belt, make sure it is properly seated in the belt pulley!*



Tightening Specifications

- ◆ Refer to [2.1.7 Overview - Generator, 1.8L Gasoline Engine 125 kW", page 24](#)

2.2.8 Generator - C- , Removing and Installing, 1.6L Diesel Engine, 77 kW

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-

Caution

Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to [1.5 Battery, Disconnecting and Connecting", page 7](#) .

Removing

- Disconnect the Battery - A- . Refer to [1.5.1 Battery A in Engine Compartment, Disconnecting", page 7](#) .
- Remove the engine cover. Refer to ⇒ Rep. Gr. 10 ; Engine Cover; Engine Cover, Removing and Installing .
- Bring the lock carrier into the service position. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Lock Carrier; Service Position .



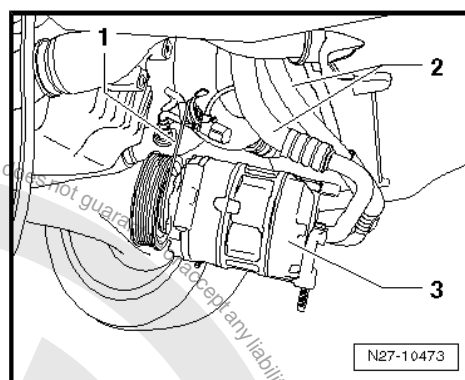
Caution

Mark the top of the ribbed belt and the running direction before removal. Make sure the belt is installed correctly and pay attention to the running direction. If the belt is installed opposite the running direction or is positioned incorrectly, the belt will be destroyed.

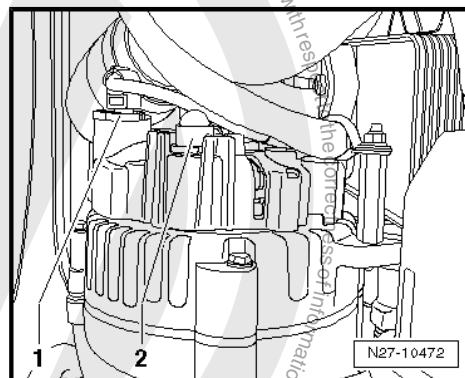
- Remove the ribbed belt. Refer to ⇒ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing .
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .
- Remove the A/C compressor. Refer to ⇒ Heating and Air Conditioning; Rep. Gr. 87 ; A/C Compressor Sub-Assembly Bracket .

The hoses on the A/C compressor can remain connected.

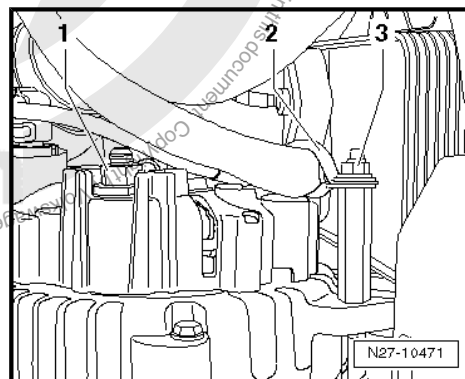
Tie the A/C compressor -3- to a suitable place under the vehicle using a binding wire -1- until it is ready to be reinstalled. Make sure the hoses -2- are not pulled off or kinked.



- Release and disconnect the (DF lead) -1-.
- Pry off the cap -2-.

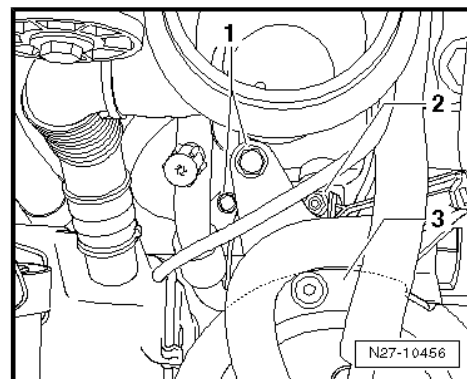


- Remove the nut -1- and then remove the B+ wire from the threaded connector on the Generator - C- .
- Remove the nut -3- and remove the cable holder -2- from the Generator - C- .





- Remove the bolts -1- and nut -2- for the fuel filter -3- and then move the fuel filter -3- to the side. The fuel hoses can remain connected.



- Remove the bolts -arrows- from the Generator - C- .
- Remove the Generator - C- .

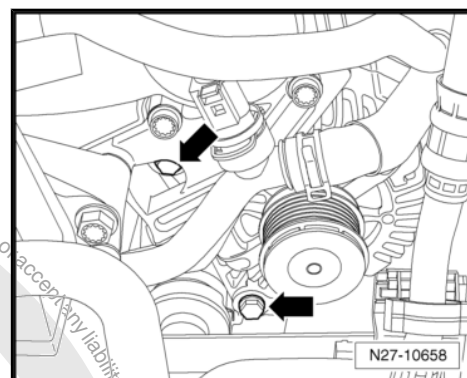
Installing

Install in reverse order of removal. Note the following:

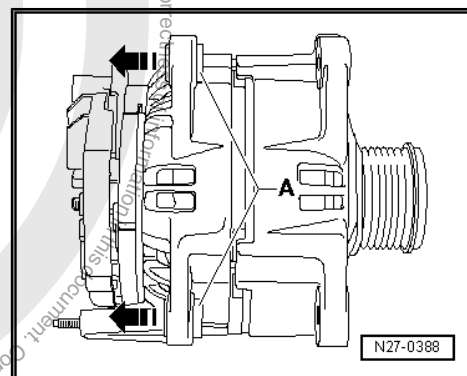


Caution

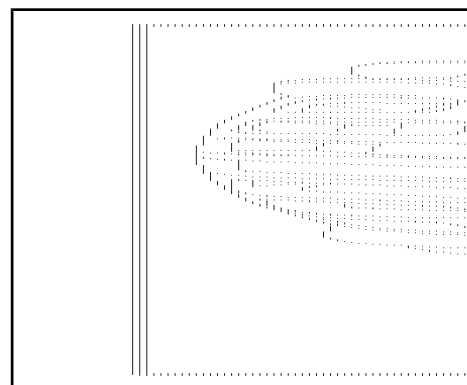
- ◆ *When installing a used ribbed belt, note direction of travel marked when it was removed!*
- ◆ *Before installing the ribbed belt, make sure all assemblies (Generator - C- , A/C compressor, vane pump) are securely fastened.*
- ◆ *When installing the ribbed belt, make sure it is properly seated in the belt pulley!*



- Remove the threaded bushings -A- from the Generator - C- housing approximately 4 mm in -direction of arrow-.



- Attach the cable holder -arrow- to the back of the Generator - C- in the 3 o'clock position.
- Tighten the threaded connections to the tightening specification. Refer to
⇒ ["2.1.8 Overview - Generator, 1.6L Diesel Engine 77 kW", page 24](#) .
- Connect the Battery - A- . Refer to
⇒ ["1.5.2 Battery A in Engine Compartment, Connecting", page 8](#) .
- Start the engine and check the belt routing.
- Turn off the engine.





2.2.9 Generator - C- , Removing and Installing, 2.0L Diesel Engine, 81/103 kW

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-



Caution

Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to ⇒ "1.5 Battery, Disconnecting and Connecting", page 7 .

Removing

- Disconnect the Battery - A- . Refer to ⇒ "1.5.1 Battery A in Engine Compartment, Disconnecting", page 7 .
- Remove the engine cover. Refer to ⇒ Rep. Gr. 10 ; Engine Cover; Engine Cover, Removing and Installing .
- Bring the lock carrier into the service position. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Lock Carrier; Service Position .



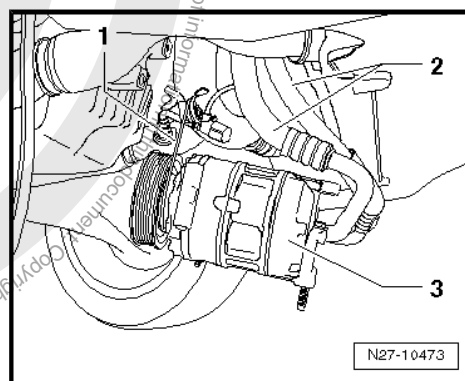
Caution

Mark the top of the ribbed belt and the running direction before removal. Make sure the belt is installed correctly and pay attention to the running direction. If the belt is installed opposite the running direction or is positioned incorrectly, the belt will be destroyed.

- Remove the ribbed belt. Refer to ⇒ Rep. Gr. 13 ; Cylinder Block, Belt Pulley Side; Ribbed Belt, Removing and Installing .
- Remove the A/C compressor. Refer to ⇒ Heating and Air Conditioning; Rep. Gr. 87 ; A/C Compressor Sub-Assembly Bracket.

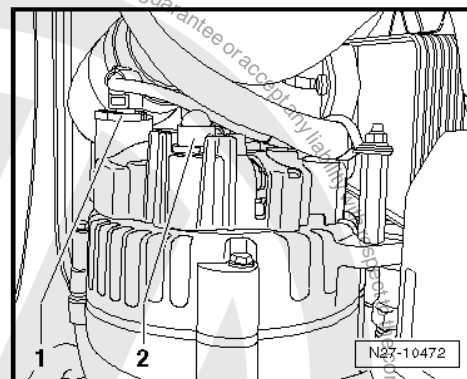
The hoses on the A/C compressor can remain connected.

Tie the A/C compressor -3- to a suitable place under the vehicle using a binding wire -1- until it is ready to be reinstalled. Make sure the hoses -2- are not pulled off or kinked.

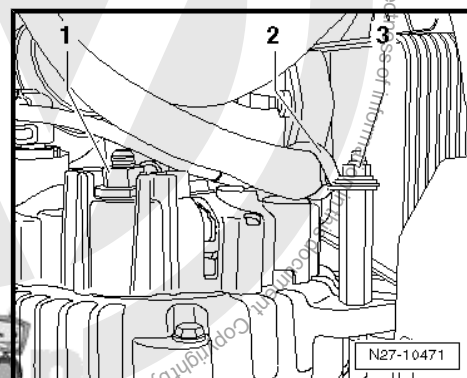




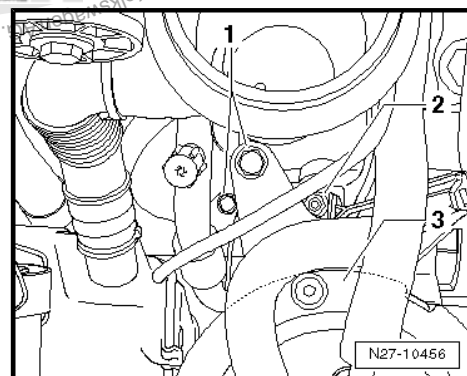
- Release and disconnect the (DF lead) -1-.
- Pry off the cap -2-.
- Remove the nut -1- and then remove the B+ wire from the threaded connector on the Generator - C- .



- Remove the nut -3- and remove the cable holder -2- from the Generator - C- .



- Remove the bolts -1- and nut -2- for the fuel filter -3- and then move the fuel filter -3- to the side. The fuel hoses can remain connected.
- Remove the bolts -arrows- from the Generator - C- .



- Remove the Generator - C- .

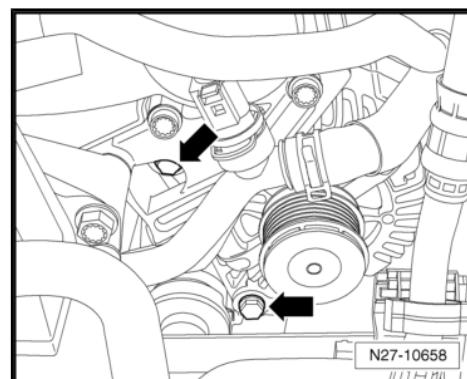
Installing

Install in reverse order of removal. Note the following:



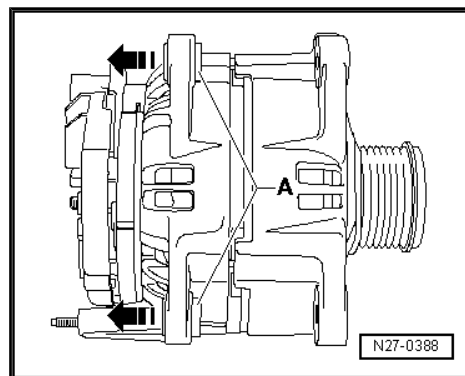
Caution

- ◆ *When installing a used ribbed belt, note direction of travel marked when it was removed!*
- ◆ *Before installing the ribbed belt, make sure all assemblies (Generator - C- , A/C compressor, vane pump) are securely fastened.*
- ◆ *When installing the ribbed belt, make sure it is properly seated in the belt pulley!*

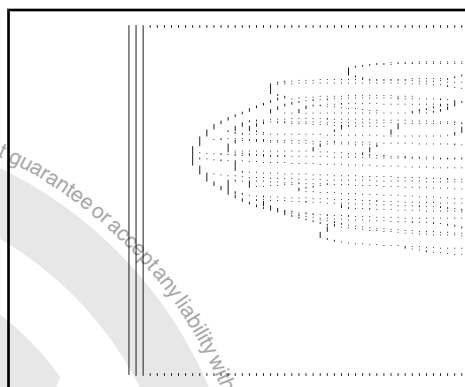




- Remove the threaded bushings -A- from the Generator - C- housing approximately 4 mm in direction of -arrows-.



- Attach the cable holder -arrow- to the back of the Generator - C- in the 3 o'clock position.
- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“2.1.9 Overview - Generator, 2.0L Diesel Engine 81/103 kW”, page 25](#).
- Connect the Battery - A-. Refer to
⇒ [“1.5.2 Battery A in Engine Compartment, Connecting”, page 8](#).
- Start the engine and check the belt routing.
- Turn off the engine.



2.3 Generator, Checking

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 27 - Starter, voltage supply
 - ◆ Electrical Components
 - ◆ C - generator

2.4 Ribbed Belt, Checking



Caution

If defects are identified, the ribbed belt must be replaced. This can help prevent failures and malfunctions.

Procedure

- Rotate the engine on the vibration damper/belt pulley using a wrench socket.
- Check the ribbed belt for:
 - ◆ Cracks in the underside (surface cracks, fragmenting, cross-section breaks)
 - ◆ Layer separation (outer layer, tension cords)



- ◆ Wear-through on the underside
- ◆ Fraying of tension cords
- ◆ Edge wear (material wear, frayed edges, hardened edges, glazed edges, surface cracks)
- ◆ Oil and grease traces

2.5 Ribbed Belt Pulley, Removing and Installing

⇒ [“2.5.1 Ribbed Belt Pulley without Freewheel, Removing and Installing”, page 47](#)

⇒ [“2.5.2 Ribbed Belt Pulley with Freewheel, Removing and Installing, Bosch”, page 47](#)

⇒ [“2.5.3 Ribbed Belt Pulley with Freewheel, Removing and Installing, Valeo”, page 49](#)

2.5.1 Ribbed Belt Pulley without Freewheel, Removing and Installing

Special tools and workshop equipment required

- ◆ Generator Belt Socket - 3310-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-

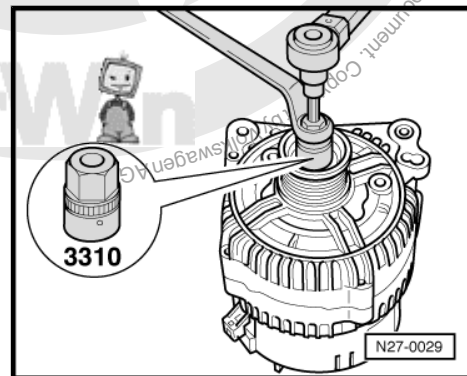
Removing

- Remove the Generator - C- . Refer to [⇒ “2 Generator”, page 17](#) .
- Secure the Generator - C- in a vise at the mounting points.
- Remove the ribbed belt pulley nut from the generator shaft using the Generator Belt Socket - 3310- .

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to [⇒ “2.1 Overview - Generator”, page 17](#) .



2.5.2 Ribbed Belt Pulley with Freewheel, Removing and Installing, Bosch

Special tools and workshop equipment required

- ◆ Multi-Tooth Adapter - 3400-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-

Removing

- Remove the Generator - C- . Refer to [⇒ “2 Generator”, page 17](#) .
- Secure the Generator - C- in a vise at the mounting points.
- Remove the cap from the ribbed belt pulley with freewheel.

The threads on the generator shaft are a left-handed thread, therefore, rotate it clockwise to loosen and counter-clockwise to tighten.



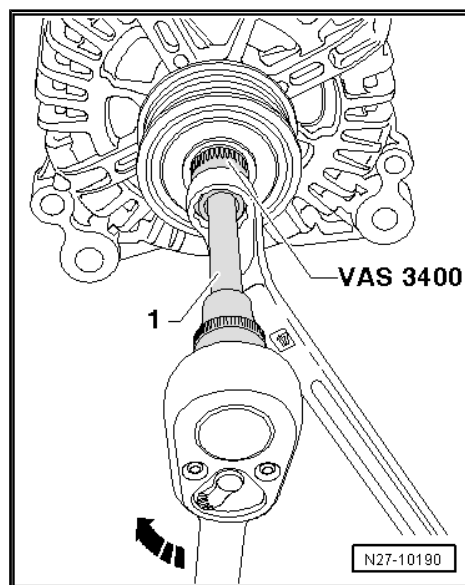
- Insert the Multi-Tooth Adapter - 3400- into the pulley with ribbed belt pulley with freewheel for the Generator - C- using and open-end wrench.
- Place an M10 multi-point socket -1- into the generator shaft.
- Turn the threaded connection to the right while counterholding it with the wrench.
- Hold the ribbed belt pulley with freewheel in place by hand and turn it at the Generator - C- input shaft until the ribbed belt pulley with freewheel can be removed.

Installing

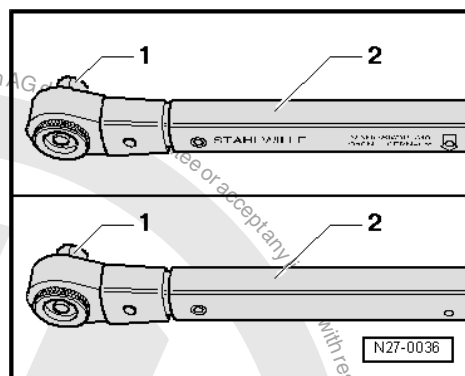
Install in reverse order of removal. Note the following:

- Next, install the ribbed belt pulley with freewheel by hand onto the Generator - C- input shaft until it stops.

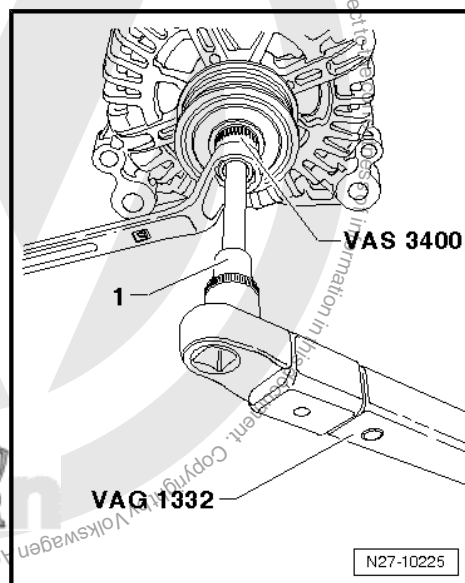
The Torque Wrench 1332 40-200Nm - VAG1332- must be rear-ranged for installing the ribbed belt pulley with freewheel as follows:



- Release the socket insert -1- and remove it from the handle -2-.
- Turn the handle -2- on the Torque Wrench 1332 40-200Nm - VAG1332- 180 degrees and install the socket insert -1-.
- Set the rotation direction of the torque wrench bit to left.



- Place an M10 multi-point socket -1- into the generator shaft.
- Counterhold the Multi-Tooth Adapter - 3400- with the wrench.
- Tighten the free-wheeling ribbed belt pulley by turning the Generator - C- input shaft to the left using the Torque Wrench 1332 40-200Nm - VAG1332- .
- Tighten the threaded connections to the tightening specification. Refer to ➔ ["2.1 Overview - Generator", page 17](#) .





2.5.3 Ribbed Belt Pulley with Freewheel, Removing and Installing, Valeo

Special tools and workshop equipment required

- ◆ Multi-Tooth Adapter - 3400-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-
- ◆ Torx Key Socket Set - VAG1603A/1-

Removing

- Remove the Generator - C- . Refer to ["2 Generator", page 17](#) .
- Secure the Generator - C- in a vise at the mounting points.
- Remove the cap from the ribbed belt pulley with freewheel.

The threads on the generator shaft are a left-handed thread, therefore, rotate it clockwise to loosen and counter-clockwise to tighten.

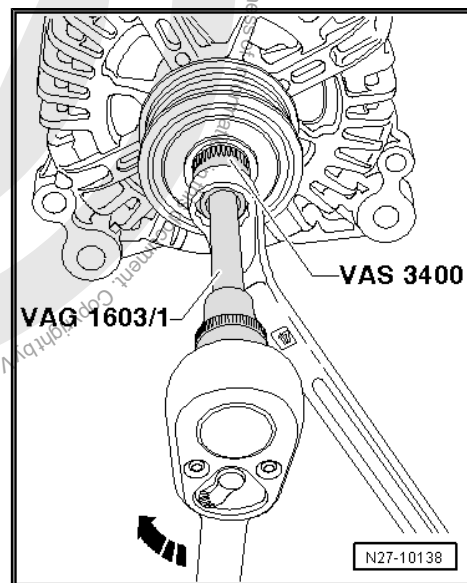
- Insert the Multi-Tooth Adapter - 3400- into the pulley with ribbed belt pulley with freewheel for the Generator - C- using an open-end wrench.
- Install the Torx Key Socket Set - VAG1603A/1- in the generator shaft.
- Turn the threaded connection to the right while counterholding it with the wrench.
- Hold the ribbed belt pulley with freewheel in place by hand and turn it at the Generator - C- input shaft until the ribbed belt pulley with freewheel can be removed.

Installing

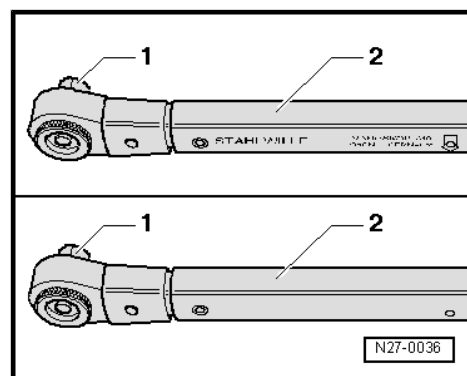
Install in reverse order of removal. Note the following:

- Next, install the ribbed belt pulley with freewheel by hand onto the Generator - C- input shaft until it stops.

The Torque Wrench 1332 40-200Nm - VAG1332- must be rearranged for installing the ribbed belt pulley with freewheel as follows:

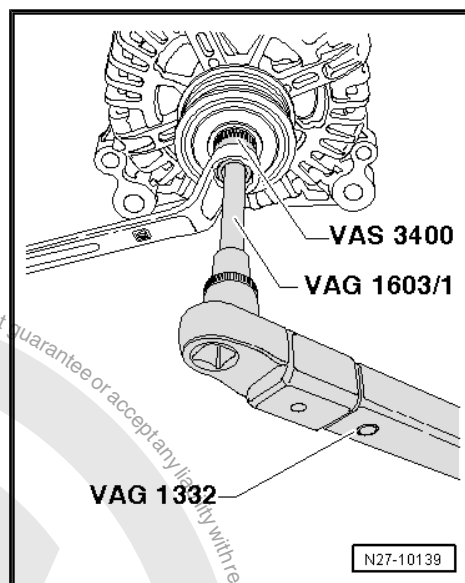


- Release the socket insert -1- and pull it out of the handle -2-.
- Turn the handle -2- on the Torque Wrench 1332 40-200Nm - VAG1332- 180 degrees and install the socket insert.
- Set the rotation direction of the Torque Wrench 1332 40-200Nm - VAG1332- bit to the left.





- Install the Torx Key Socket Set - VAG1603A/1- in the generator shaft.
- Counterhold the Multi-Tooth Adapter - 3400- with the wrench.
- Tighten the free-wheeling ribbed belt pulley by turning the Generator - C- input shaft to the left using the Torque Wrench 1332 40-200Nm - VAG1332- .
- Tighten the threaded connections to the tightening specification. Refer to ⇒ [“2.1 Overview - Generator”, page 17](#).



2.6 Voltage Regulator, Removing and Installing

⇒ [“2.6.1 Voltage Regulator C1, Removing and Installing, Bosch”, page 50](#)

⇒ [“2.6.2 Voltage Regulator C1, Removing and Installing, Valeo”, page 51](#)

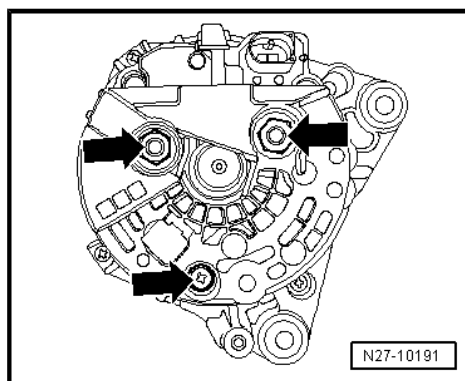
2.6.1 Voltage Regulator - C1- , Removing and Installing, Bosch

Special tools and workshop equipment required

- ◆ Torque Screwdriver - VAG1624-

Removing

- Remove the Generator - C- . Refer to ⇒ [“2 Generator”, page 17](#) .
- Remove the bolt and the nuts -arrows- and remove the cap from the Generator - C- .



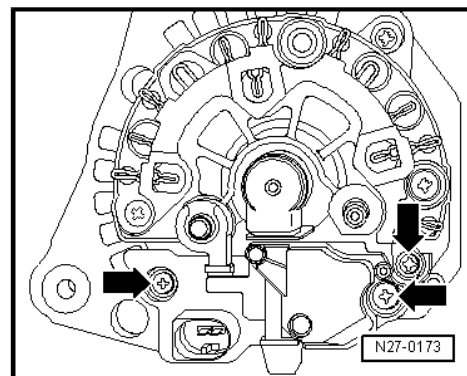


- Remove the bolts -arrows- from the Voltage Regulator - C1- .
- Remove the Voltage Regulator - C1- from the Generator - C- .

Installing

Install in reverse order of removal.

- Tighten the threaded connections to the tightening specification. Refer to ⇒ ["2.1 Overview - Generator", page 17](#) .



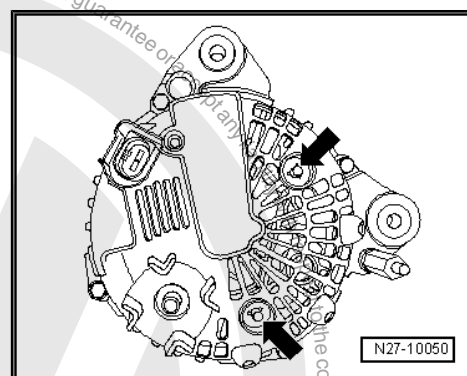
2.6.2 Voltage Regulator - C1- , Removing and Installing, Valeo

Special tools and workshop equipment required

- ◆ Torque Wrench 1783 - 2-10Nm - VAG1783-

Removing

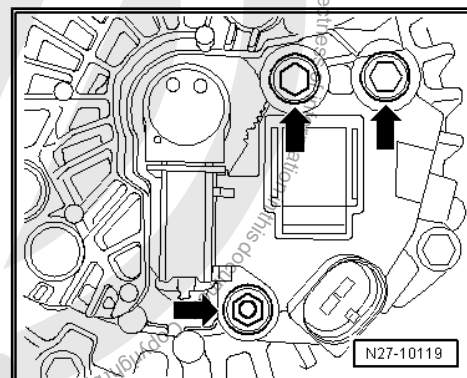
- Remove the Generator - C- . Refer to ⇒ ["2 Generator", page 17](#) .
- Remove the locking rings -arrows- and remove the cap from the Generator - C- .
- Remove the bolts -arrows- from the Voltage Regulator - C1- .



- Remove the Voltage Regulator - C1- from the Generator - C- .

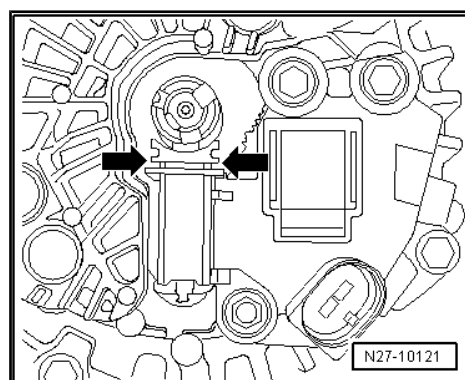
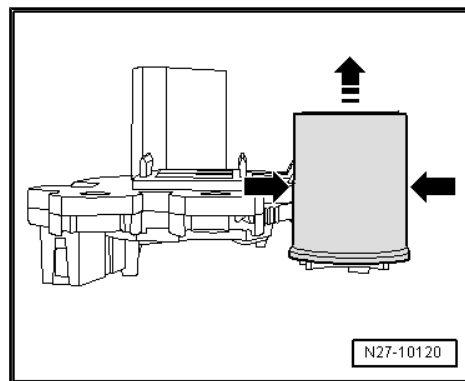
Installing

Install in reverse order of removal. Note the following:





- Open the tabs -arrows- and remove the cap from the Voltage Regulator - C1- .
- Push the carbon brushes in the Voltage Regulator - C1- housing and then insert the Voltage Regulator - C1- in the Generator - C- .
- Tighten the threaded connections to the tightening specification. Refer to ➔ ["2.1 Overview - Generator", page 17](#) .
- Push the cap into the guide rails -arrows- until it audibly engages.





3 Starter

⇒ [“3.1 Overview - Starter”, page 53](#)

⇒ [“3.2 Starter, Removing and Installing”, page 56](#)

⇒ [“3.3 Starter, Checking”, page 90](#)

3.1 Overview - Starter

⇒ [“3.1.1 Overview - Starter, Automatic Transmission/DSG Transmission”, page 53](#)

⇒ [“3.1.2 Overview - Starter, Manual Transmission”, page 54](#)

⇒ [“3.1.3 Overview - Starter, 1.8L Gasoline Engine and Automatic Transmission”, page 55](#)

3.1.1 Overview - Starter, Automatic Transmission/DSG Transmission

1 - Starter - B-

- ❑ Checking. Refer to
⇒ [“3.3 Starter, Checking”, page 90](#).

2 - B+ Wire Connection to Starter - B-

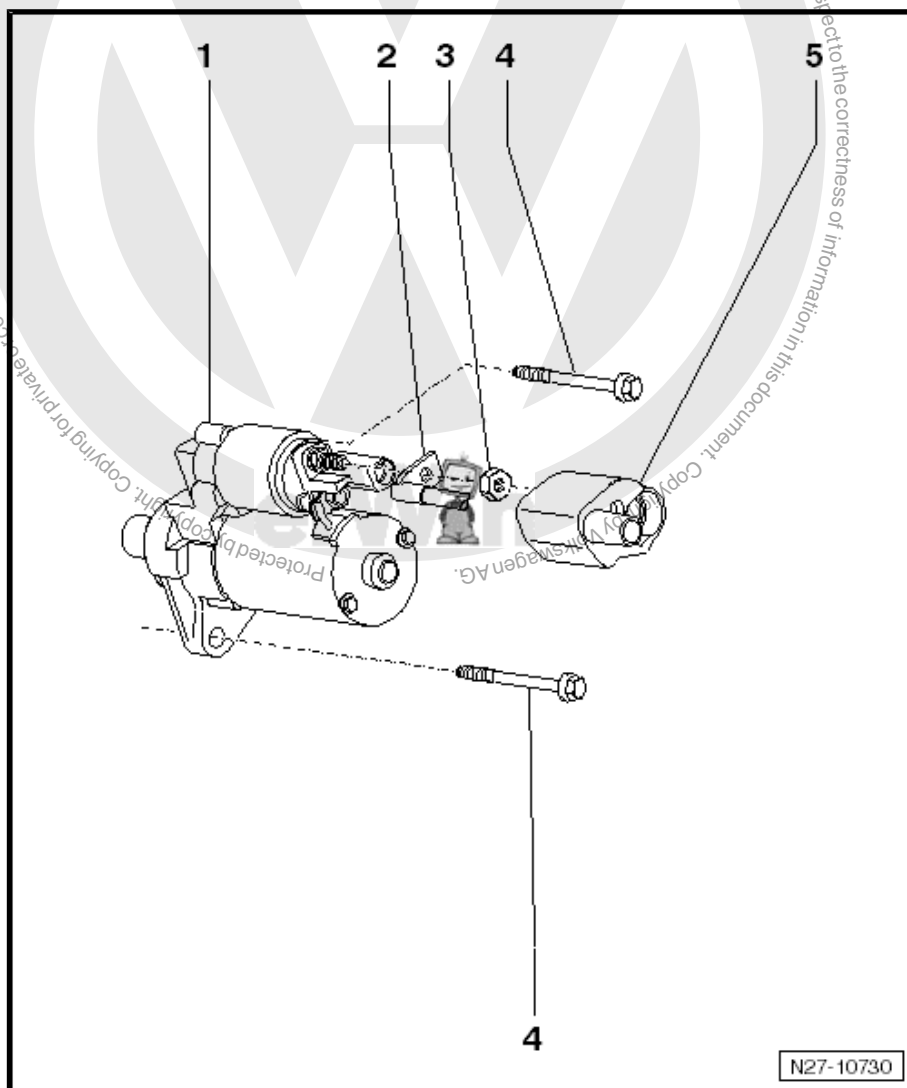
3 - Nut

- ❑ 20 Nm

4 - Bolt

- ❑ M12 = 75 Nm
- ❑ M10 = 40 Nm
- ❑ Quantity: 2

5 - Cap





3.1.2 Overview - Starter, Manual Transmission

1 - Starter - B-

- Checking. Refer to
⇒ ["3.3 Starter, Checking", page 90](#).

2 - B+ Wire Connection to Starter - B-

3 - Nut

- 20 Nm

4 - Bolt

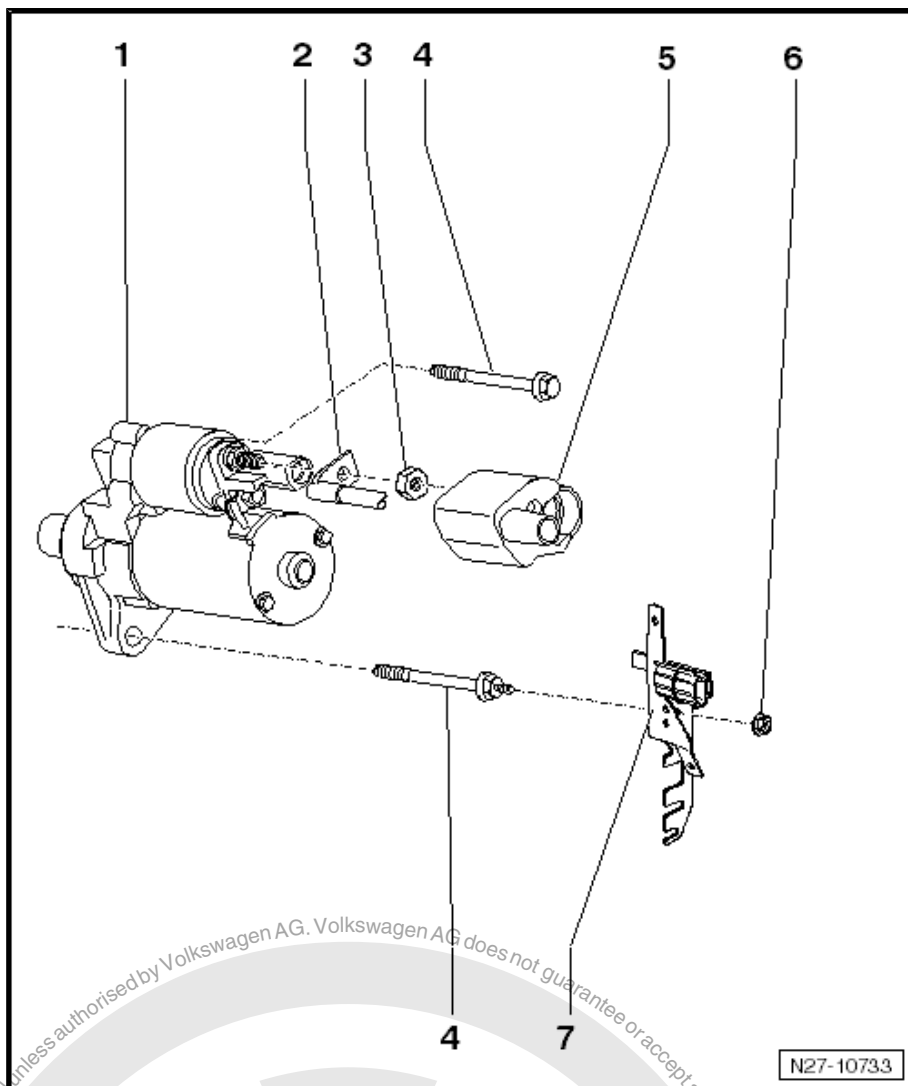
- Quantity: 2
- 75 Nm

5 - Cap

6 - Nut

- 20 Nm

7 - Cable Holder





3.1.3 Overview - Starter, 1.8L Gasoline Engine and Automatic Transmission

1 - Starter - B-

- ☐ Removing and installing. Refer to
⇒ ["3.2.4 Starter, Removing and Installing, 1.8L Gasoline Engine 125 kW, Automatic Transmission", page 62](#).
- ☐ Checking. Refer to
⇒ ["3.3 Starter, Checking", page 90](#).

2 - Bolt

- ☐ 80 Nm
- ☐ Quantity: 2

3 - Bracket

- ☐ For the wiring harness

4 - Connector

5 - Nut

- ☐ 20 Nm
- ☐ Quantity: 2

6 - Nut

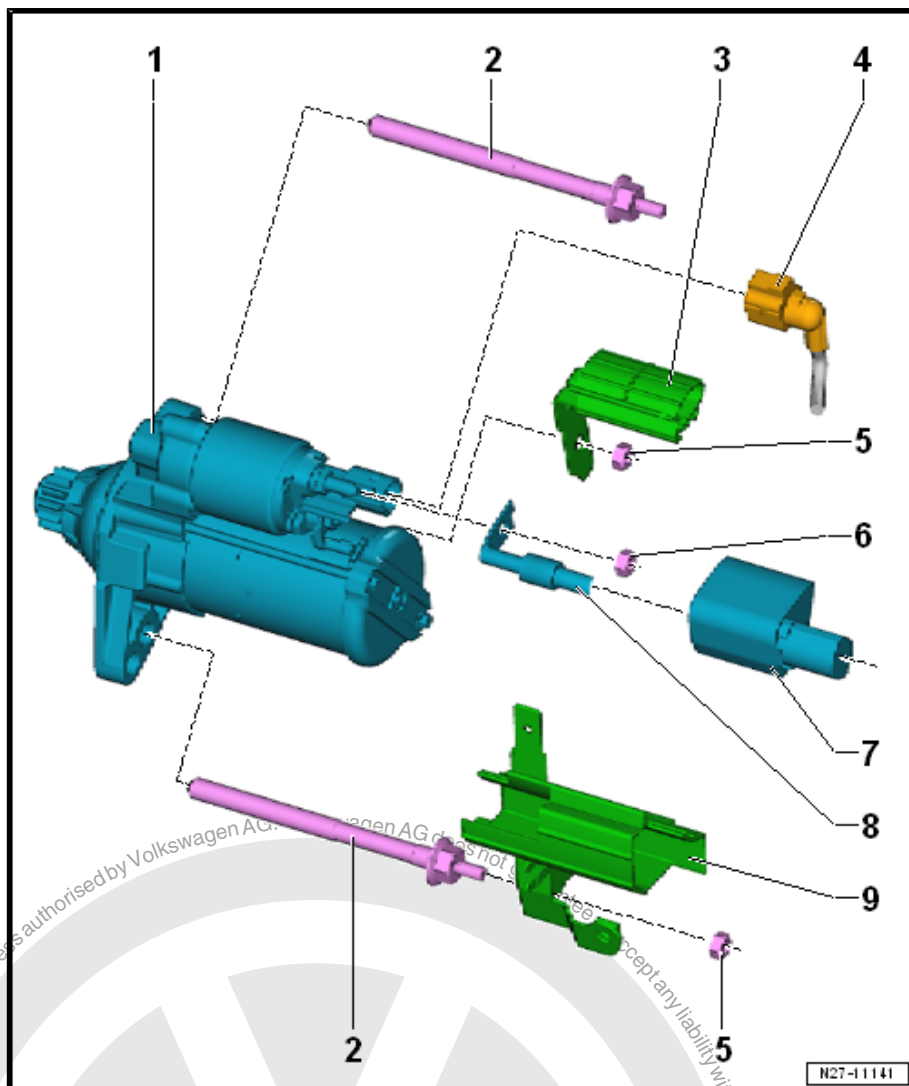
- ☐ 20 Nm

7 - Cap

8 - Terminal 30/B+

9 - Bracket

- ☐ For the wiring harness



N27-11141



3.2 Starter, Removing and Installing

⇒ [“3.2.2 Starter, Removing and Installing, 2.0L Gasoline Engine 85 kW, Automatic Transmission”, page 58](#)

⇒ [“3.2.3 Starter, Removing and Installing, 2.5L Gasoline Engine 125 kW, Automatic Transmission”, page 60](#)

⇒ [“3.2.4 Starter, Removing and Installing, 1.8L Gasoline Engine 125 kW, Automatic Transmission”, page 62](#)

⇒ [“3.2.6 Starter, Removing and Installing, 1.4L Gasoline Engine, 90/110/118 kW, DSG Transmission”, page 66](#)

⇒ [“3.2.7 Starter, Removing and Installing, 2.0L Gasoline Engine 85 kW, DSG Transmission”, page 68](#)

⇒ [“3.2.8 Starter, Removing and Installing, 2.0L Gasoline Engine 147 kW, DSG Transmission”, page 70](#)

⇒ [“3.2.10 Starter, Removing and Installing, 2.0L Diesel Engine, 81/103 kW, DSG Transmission”, page 73](#)

⇒ [“3.2.12 Starter, Removing and Installing, 1.4L Gasoline Engine, 90/110/118 kW, Manual Transmission”, page 77](#)

⇒ [“3.2.14 Starter, Removing and Installing, 2.0L Gasoline Engine 85 kW, Manual Transmission”, page 80](#)

⇒ [“3.2.15 Starter, Removing and Installing, 2.0L Gasoline Engine 147 kW, Manual Transmission”, page 82](#)

⇒ [“3.2.16 Starter, Removing and Installing, 2.5L Gasoline Engine 125 kW, Manual Transmission”, page 84](#)

⇒ [“3.2.18 Starter, Removing and Installing, 2.0L Diesel Engine, 81/103 kW, Manual Transmission”, page 88](#)

3.2.1 Starter, Removing and Installing, 1.6L Gasoline Engine 77 kW, Automatic Transmission

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-



Caution

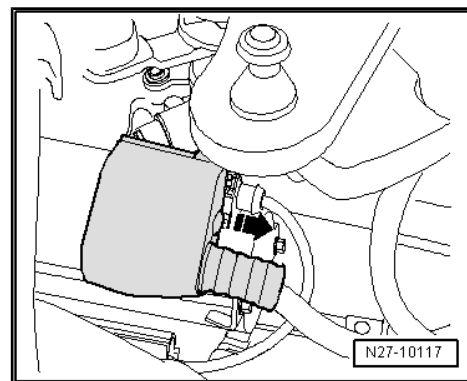
Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to ⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .

Removing

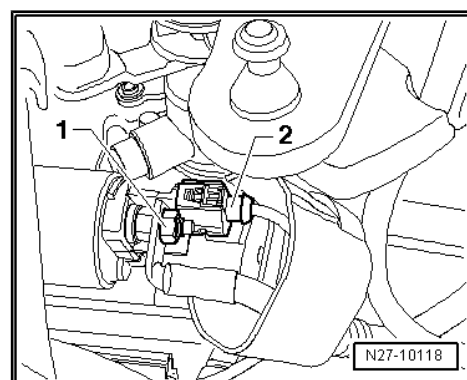
- Disconnect the Battery - A- . Refer to ⇒ [“1.5.1 Battery A in Engine Compartment, Disconnecting”, page 7](#) .
- Remove the air filter housing. Refer to ⇒ Rep. Gr. 24 ; Air Filter; Overview - Air Filter Housing .



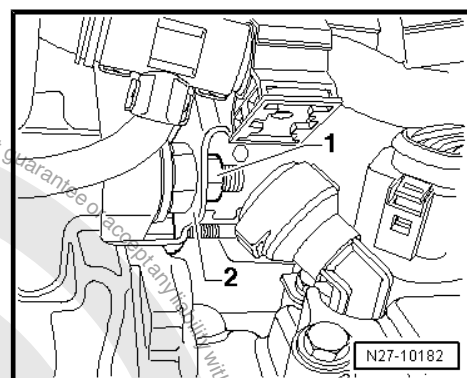
- Remove the cap from the solenoid switch in the -direction of the arrow-.



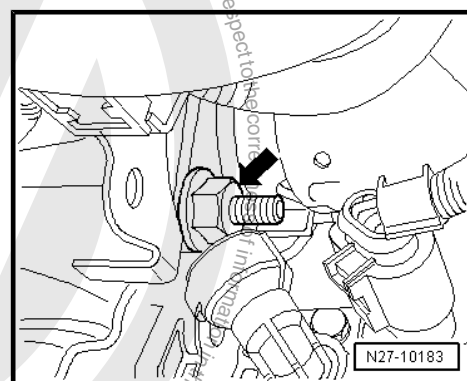
- Remove the positive cable -1- and then release and disconnect the terminal 50 connector -2-.
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .



- Remove the nut -1- from the lower starter bolt.
- Remove the cable holder -2-.

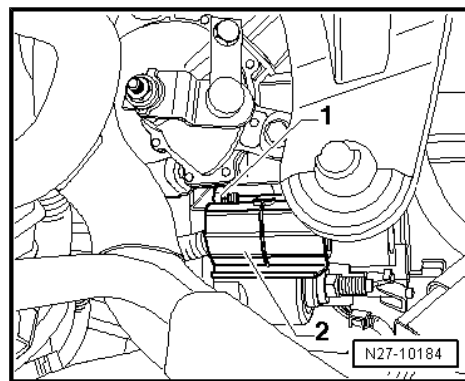


- Remove the lower starter bolt -arrow-.

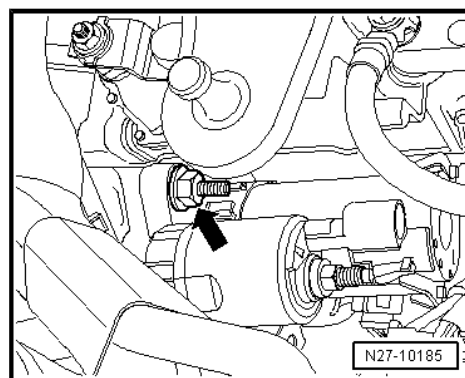




- Remove the nut -1- from the upper starter bolt.
- Remove the cable holder -2-.



- Remove the upper starter bolt -arrow-.

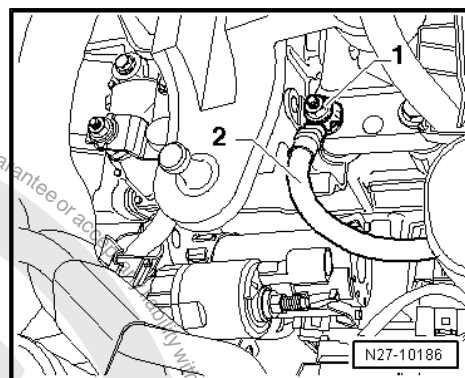


- Remove the nut from the ground cable -1- and then move the cable -2- to the side.
- Remove the Starter - B- .

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“3.1.1 Overview - Starter, Automatic Transmission/DSG Transmission” page 53](#) .
- Connect the Battery - A- . Refer to
⇒ [“1.5.2 Battery A in Engine Compartment, Connecting”, page 8](#) .



3.2.2 Starter, Removing and Installing, 2.0L Gasoline Engine 85 kW, Automatic Transmission

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-



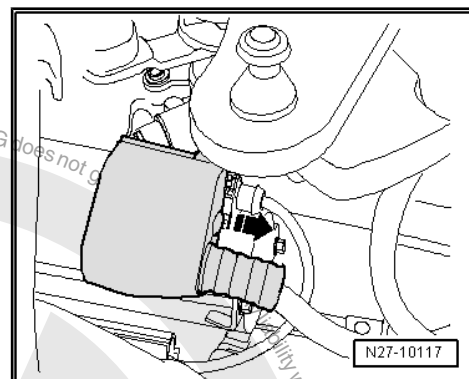
Caution

Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .

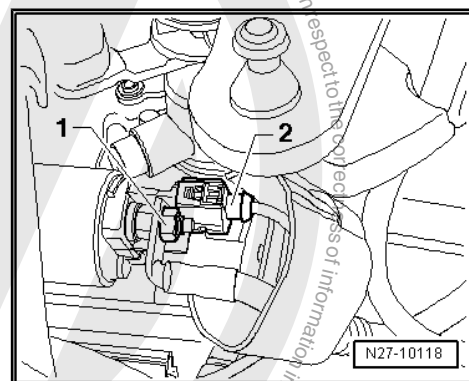


Removing

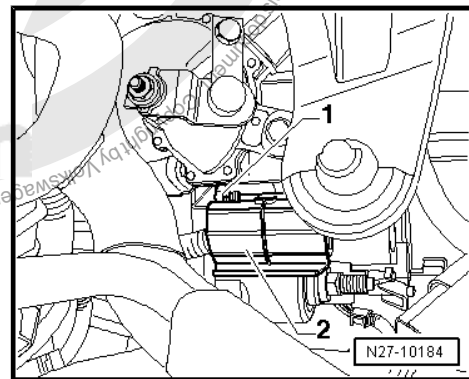
- Disconnect the Battery - A- . Refer to
⇒ ["1.5.1 Battery A in Engine Compartment, Disconnecting",
page 7](#) .
- Remove the air filter housing. Refer to ⇒ Rep. Gr. 24 ; Air
Filter; Overview - Air Filter Housing .
- Remove the cap from the solenoid switch in the direction of
-arrow-.



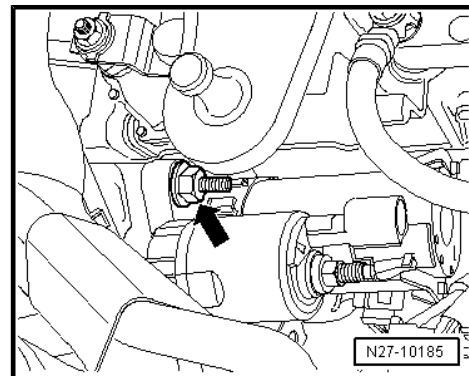
- Remove the positive cable -1-, and release and disconnect the
terminal 50 connector -2-.



- Remove the nut -1- from the upper starter bolt.
- Remove the cable holder -2-.

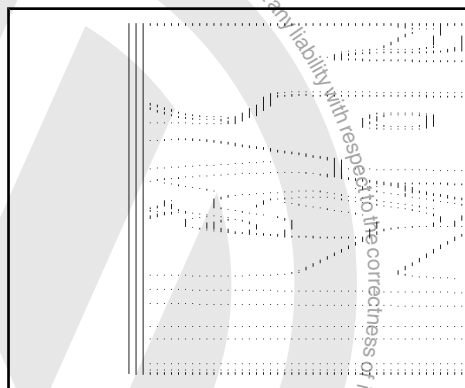


- Remove the upper starter bolt -arrow-.
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep.
Gr. 50 ; Noise Insulation .

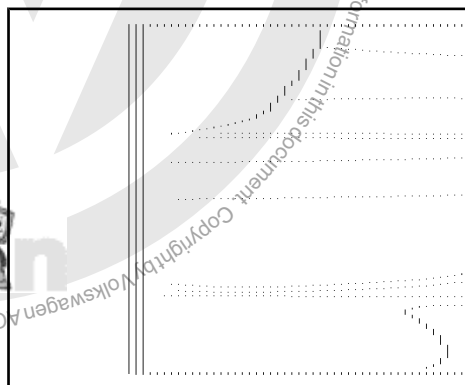




- Release and disconnect the connectors -arrows-.



- Remove the nut -1- from the lower starter bolt.
- Remove the cable holder -2-.
- Remove the lower starter bolt -arrow-.

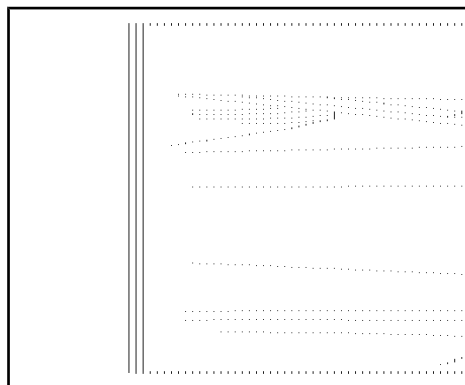


- Remove the Starter - B- downward and out of the vehicle.

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“3.1.1 Overview - Starter, Automatic Transmission/DSG Transmission”, page 53](#) .
- Connect the Battery - A- . Refer to
⇒ [“1.5.2 Battery A in Engine Compartment, Connecting”, page 8](#) .



3.2.3 Starter, Removing and Installing, 2.5L Gasoline Engine 125 kW, Automatic Transmission

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-



Caution

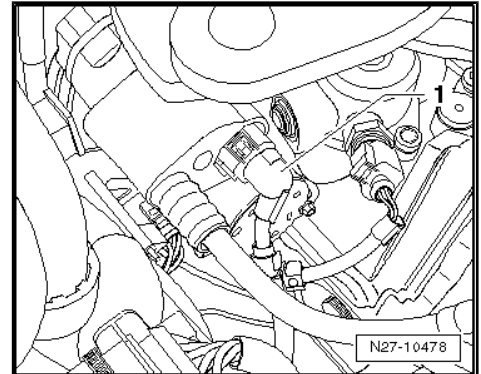
*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .*

Removing

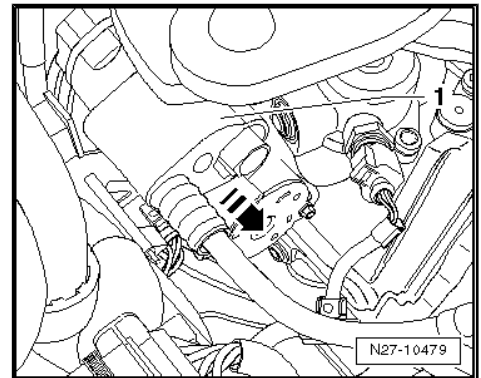
- Disconnect the Battery - A- . Refer to
⇒ [“1.5.1 Battery A in Engine Compartment, Disconnecting”, page 7](#) .



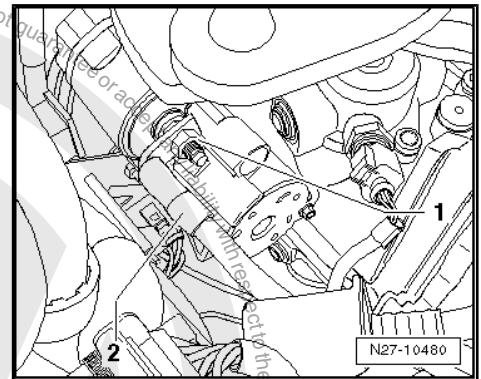
- Remove the engine cover. Refer to ⇒ Rep. Gr. 10 ; Engine Cover; Engine Cover, Removing and Installing .
- Remove the air filter housing and the connecting pipe. Refer to ⇒ Rep. Gr. 24 ; Air Filter; Overview - Air Filter Housing .
- Release and disconnect the connector (terminal 50) -1-.



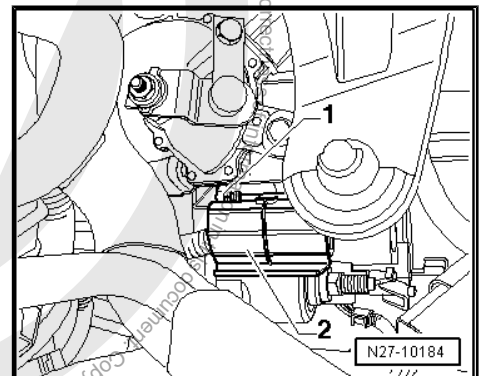
- Remove the cap -1- from the solenoid switch in the direction of -arrow-.



- Remove the nut -1- and remove the positive cable -2- from the solenoid switch.
- Remove the nut -1- from the upper starter bolt.

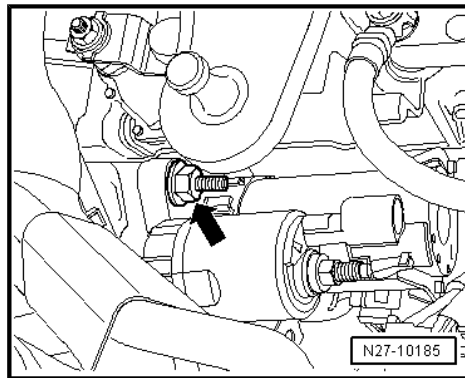


- Remove the cable holder -2-.

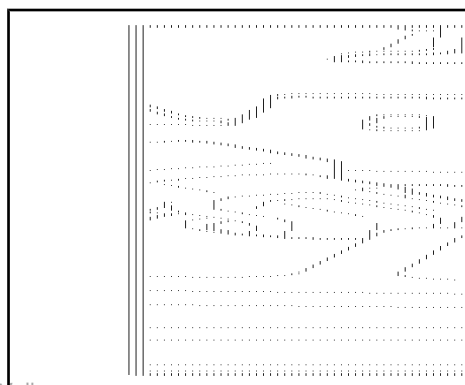




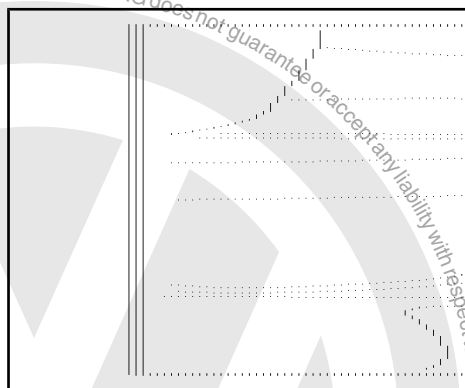
- Remove the upper starter bolt -arrow-.
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .



- Release and disconnect the connectors -arrows-.



- Remove the nut -1- from the lower starter bolt.
- Remove the cable holder -2-.
- Remove the lower starter bolt -arrow-.

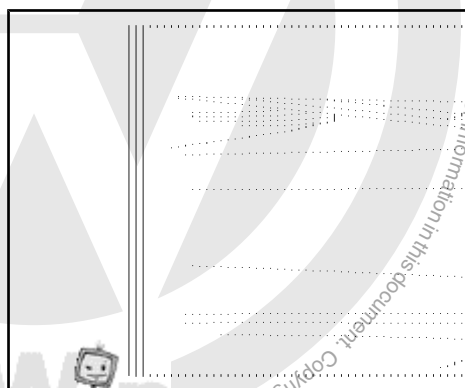


- Remove the Starter - B- downward and out of the vehicle.

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“3.1.1 Overview - Starter, Automatic Transmission/DSG Transmission”, page 53](#) .
- Connect the Battery - A- . Refer to
⇒ [“1.5.2 Battery A in Engine Compartment, Connecting”, page 8](#) .



3.2.4 Starter, Removing and Installing, 1.8L Gasoline Engine 125 kW, Automatic Transmission

Special tools and workshop equipment required

- ♦ Torque Wrench 1331 5-50Nm - VAG1331-



- ◆ Torque Wrench 1332 40-200Nm - VAG1332-

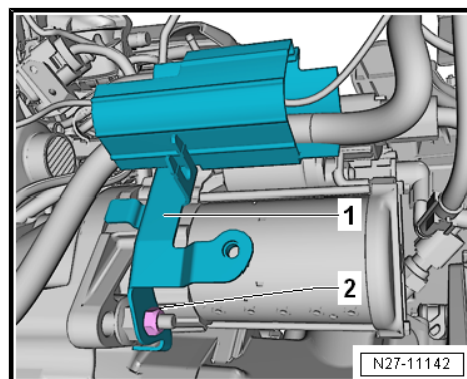
Removing



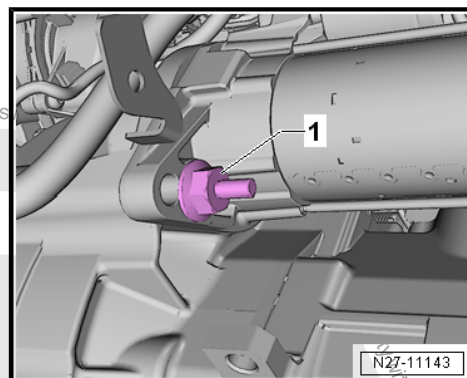
Caution

*Always follow the instructions in the Repair Manual exactly when disconnecting and connecting the Battery - A-. Refer to ⇒ **"1.5 Battery, Disconnecting and Connecting", page 7**.*

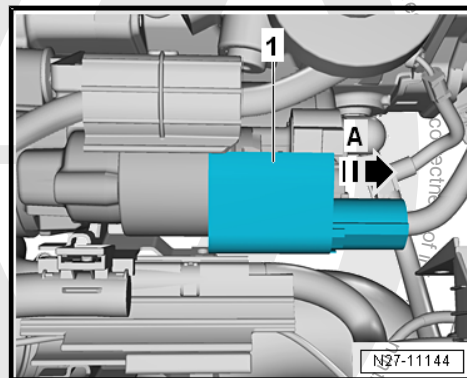
- Disconnect the Battery - A-. Refer to ⇒ **"1.5.1 Battery A in Engine Compartment, Disconnecting", page 7**.
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .
- Remove the nut -2-.
- Remove the bracket -1- for the wiring harness.



- Remove the bolt -1-.
- Remove the air filter housing. Refer to ⇒ Rep. Gr. 24 ; Air Filter; Overview - Air Filter Housing .

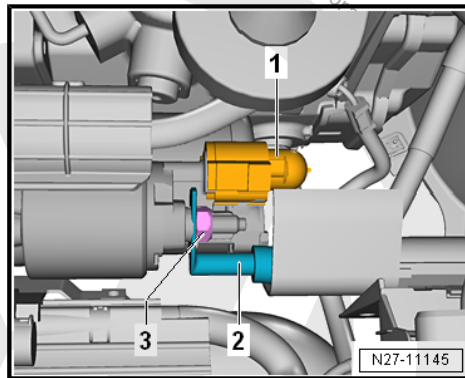


- Slide the cap -1- in the direction of the -arrow A-.
- Release and disconnect the connector -1-.

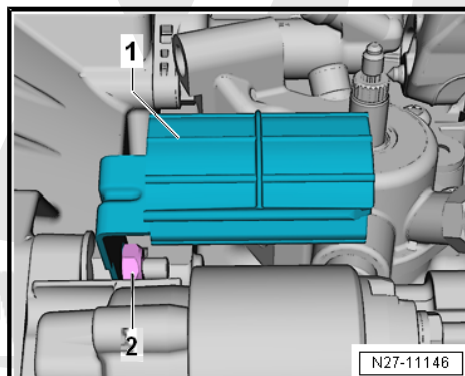




- Remove the nut -3- and remove terminal 30/B+ -2-.
- Remove the nut -2-.



- Remove the bracket -1- for the wiring harness.
- Remove the bolt -1-.



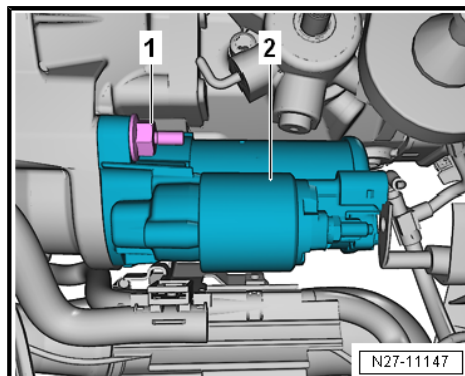
- Remove the Starter - B- -2- upward out of the vehicle.

Installing

Install in the reverse order of removal while noting the following:

Tightening Specifications

- ♦ Refer to
⇒ [“3.1.3 Overview - Starter, 1.8L Gasoline Engine and Automatic Transmission”, page 55](#)



3.2.5 Starter, Removing and Installing, 1.2L Gasoline Engine 77 kW, DSG Transmission

Special tools and workshop equipment required

- ♦ Torque Wrench 1331 5-50Nm - VAG1331-
- ♦ Torque Wrench 1332 40-200Nm - VAG1332-



Caution

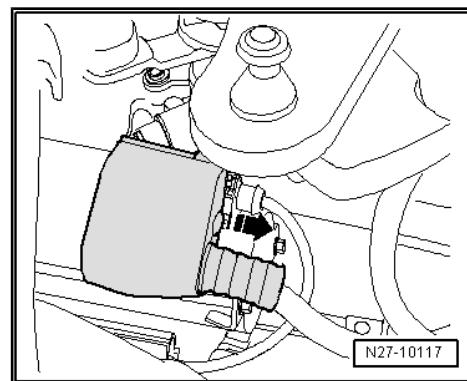
*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .*

Removing

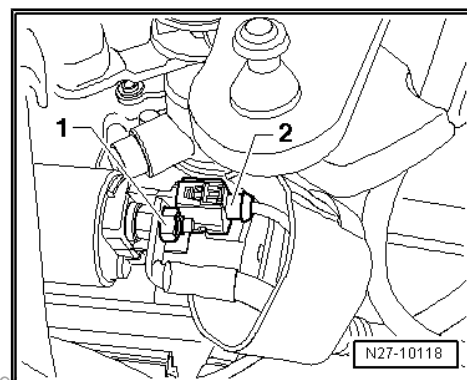
- Disconnect the Battery - A- . Refer to
⇒ [“1.5.1 Battery A in Engine Compartment, Disconnecting”, page 7](#) .



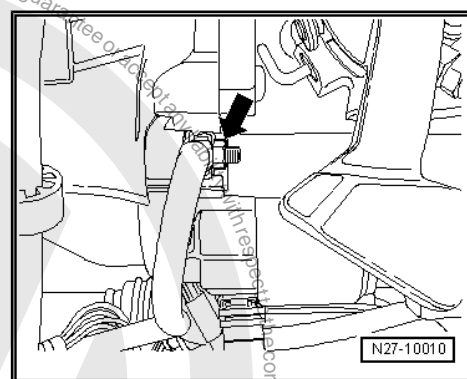
- Remove the air filter housing. Refer to ⇒ Rep. Gr. 24 ; Air Filter; Overview - Air Filter Housing .
- Remove the cap from the solenoid switch in the -direction of the arrow-.



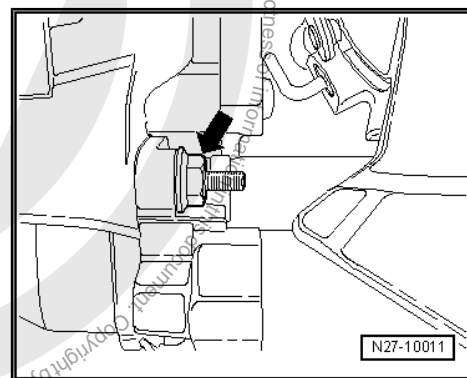
- Remove the positive cable -1-, and release and disconnect the terminal 50 connector -2-.



- Remove the ground wire from the upper starter bolt -arrow-.

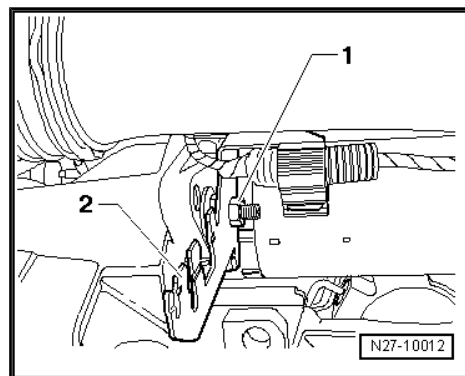


- Remove the upper starter bolt -arrow-.
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .





- Remove the nut -1- from the lower starter bolt.
- Remove the cable holder -2-.

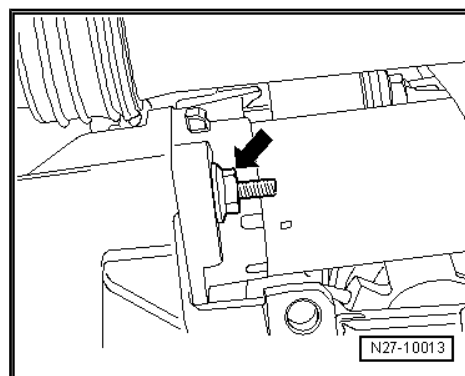


- Remove the lower starter bolt -arrow-.
- Remove the Starter - B- downward and out of the vehicle.

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“3.1.1 Overview - Starter, Automatic Transmission/DSG Transmission”, page 53](#).
- Connect the Battery - A- . Refer to
⇒ [“1.5.2 Battery A in Engine Compartment, Connecting”, page 8](#).



3.2.6 Starter, Removing and Installing, 1.4L Gasoline Engine, 90/110/118 kW, DSG Transmission

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-



Caution

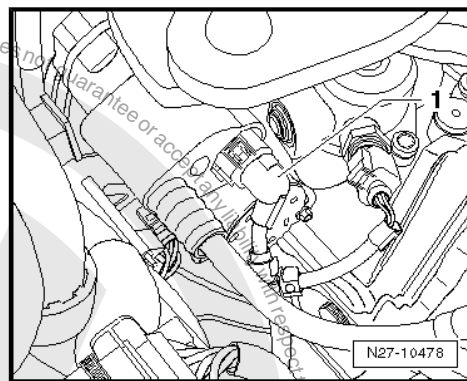
*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#).*

Removing

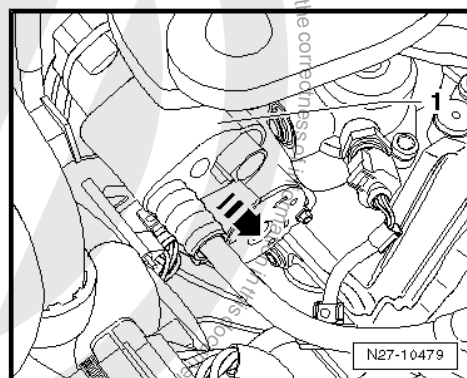
- Disconnect the Battery - A- . Refer to
⇒ [“1.5.1 Battery A in Engine Compartment, Disconnecting”, page 7](#).
- Remove the air filter housing. Refer to ⇒ Rep. Gr. 24 ; Air Filter; Overview - Air Filter Housing .



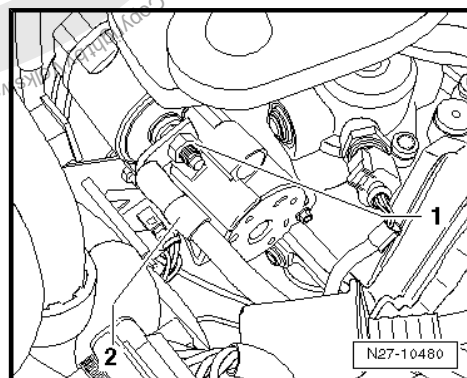
- Release and disconnect the connector (terminal 50) -1-



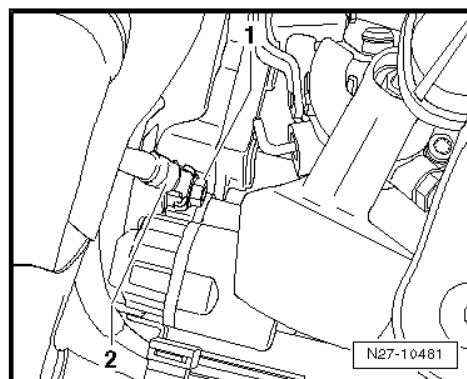
- Remove the cap -1- from the solenoid switch in the direction of -arrow-.



- Remove the nut -1- and remove the positive cable -2- from the solenoid switch.
- Remove the nut -1- from the upper starter bolt and disconnect the ground wire -2-.



- Remove the upper starter bolt.
- Remove the lower starter bolt -arrow-.



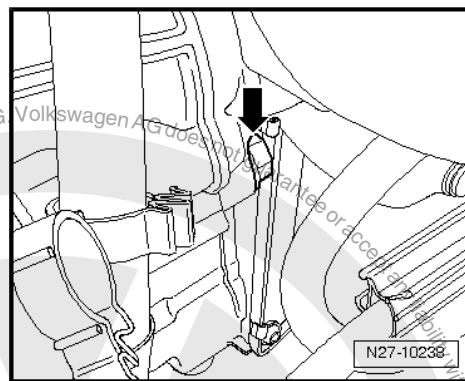


- Remove the Starter - B- from the vehicle.

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“3.1.1 Overview - Starter, Automatic Transmission/DSG Transmission”, page 53](#) .
- Connect the Battery - A- . Refer to
⇒ [“1.5.2 Battery A in Engine Compartment, Connecting”, page 8](#) .



3.2.7 Starter, Removing and Installing, 2.0L Gasoline Engine 85 kW, DSG Transmission

Special tools and workshop equipment required

- ♦ Torque Wrench 1331 5-50Nm - VAG1331-
- ♦ Torque Wrench 1332 40-200Nm - VAG1332-

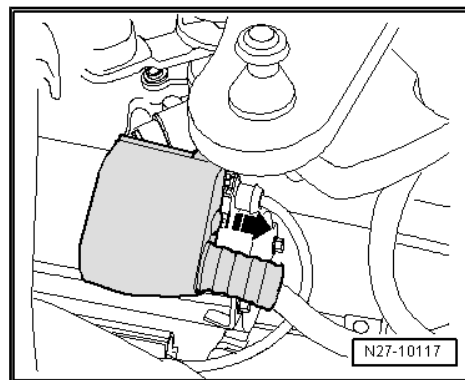


Caution

*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .*

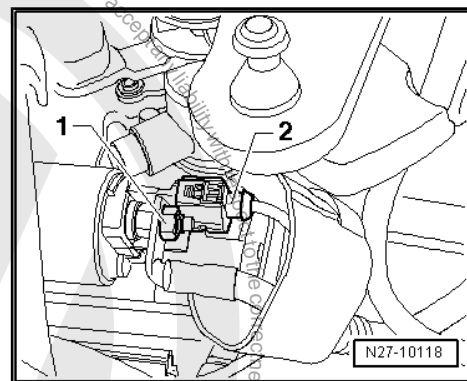
Removing

- Disconnect the Battery - A- . Refer to
⇒ [“1.5.1 Battery A in Engine Compartment, Disconnecting”, page 7](#) .
- Remove the air filter housing. Refer to ⇒ Rep. Gr. 24 ; Air Filter; Overview - Air Filter Housing .
- Remove the cap from the solenoid switch in the direction of -arrow-.

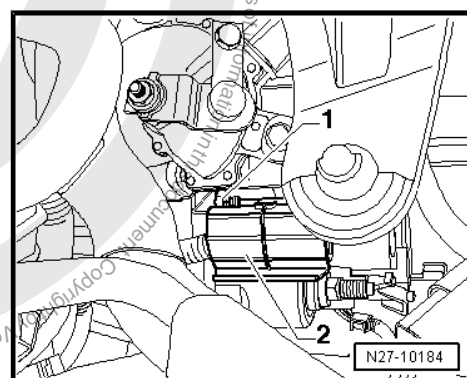




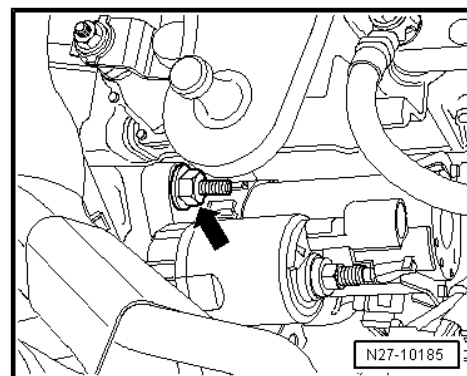
- Remove the positive cable -1-, and release and disconnect the terminal 50 connector -2-.



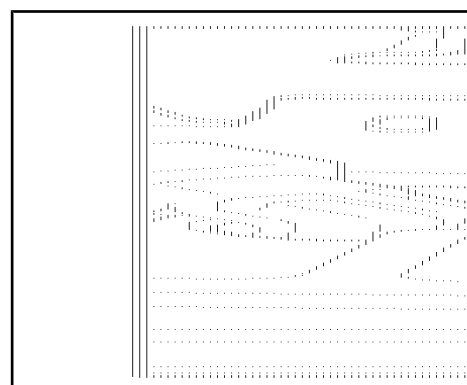
- Remove the nut -1- from the upper starter bolt.
- Remove the cable holder -2-.



- Remove the upper starter bolt -arrow-.
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .

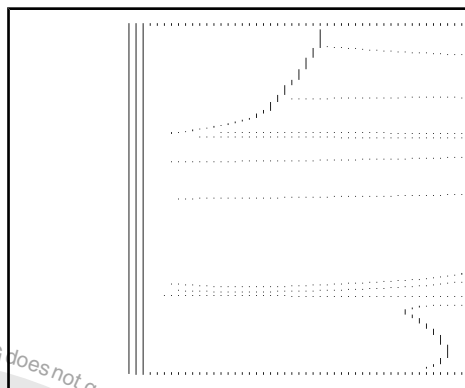


- Release and disconnect the connectors -arrows-.





- Remove the nut -1- from the lower starter bolt.
- Remove the cable holder -2-.
- Remove the lower starter bolt -arrow-.

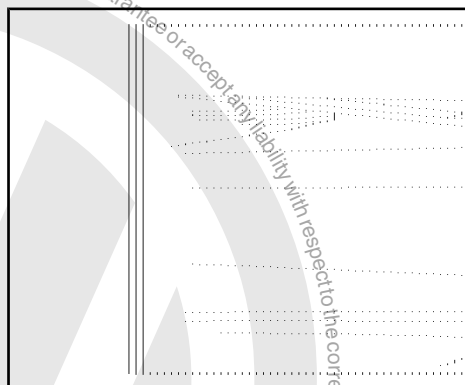


- Remove the Starter - B- downward and out of the vehicle.

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“3.1.1 Overview - Starter, Automatic Transmission/DSG Transmission”, page 53](#) .
- Connect the Battery - A- . Refer to
⇒ [“1.5.2 Battery A in Engine Compartment, Connecting”, page 8](#) .



3.2.8 Starter Removing and Installing, 2.0L Gasoline Engine 147 kW, DSG Transmission

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-



Caution

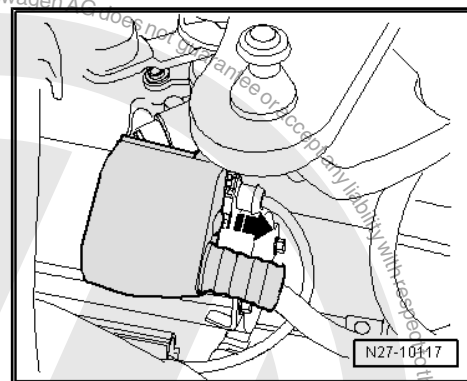
***Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .***

Removing

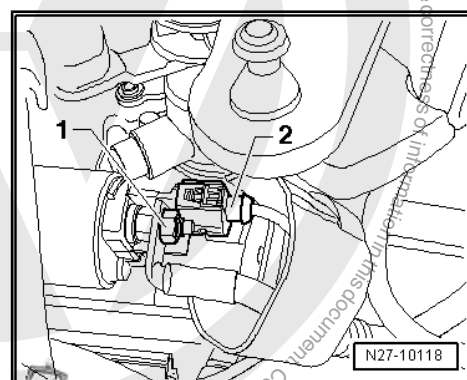
- Disconnect the Battery - A- . Refer to
⇒ [“1.5.1 Battery A in Engine Compartment, Disconnecting”, page 7](#) .
- Remove the air filter housing. Refer to ⇒ Rep. Gr. 24 ; Air Filter; Overview - Air Filter Housing .



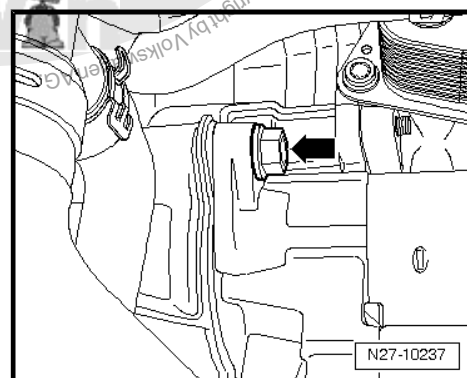
- Remove the cap from the solenoid switch in the direction of -arrow-.



- Remove the positive cable -1-, and release and disconnect the terminal 50 connector -2-.



- Remove the upper starter bolt -arrow-.
- Remove the lower starter bolt -arrow-.

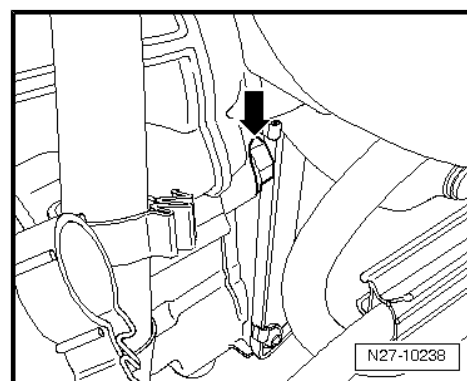


- Remove the Starter - B- from the vehicle.

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“3.1.1 Overview - Starter, Automatic Transmission/DSG Transmission”, page 53](#).
- Connect the Battery - A- . Refer to
⇒ [“1.5.2 Battery A in Engine Compartment, Connecting”, page 8](#).



3.2.9 Starter, Removing and Installing, 1.6L Diesel Engine 77 kW, DSG Transmission

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-

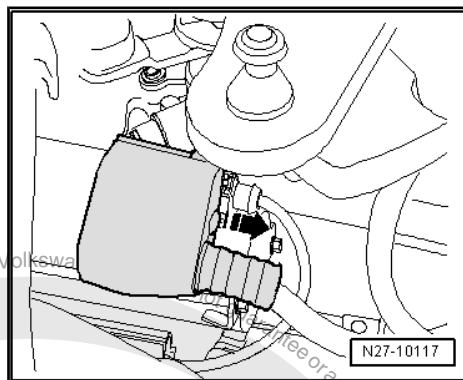


Caution

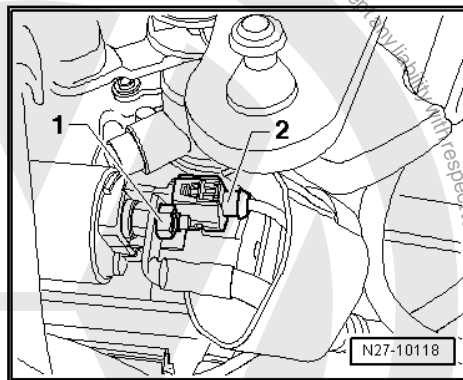
*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ "1.5 Battery, Disconnecting and Connecting", page 7 .*

Removing

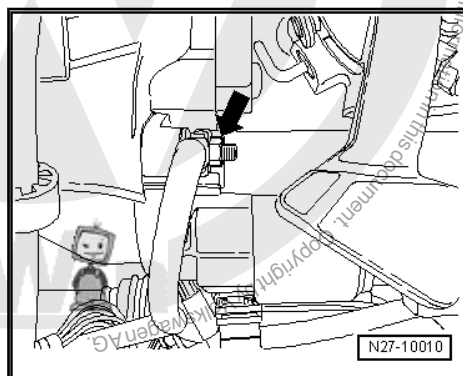
- Disconnect the Battery - A- . Refer to
⇒ "1.5.1 Battery A in Engine Compartment, Disconnecting",
page 7 .
- Remove the air filter housing. Refer to ⇒ Rep. Gr. 23 ; Diesel
Direct Injection System; Overview - Air Filter .
- Remove the cap from the solenoid switch in the
-direction of the arrow-.



- Remove the positive cable -1-, and release and disconnect the
terminal 50 connector -2-.

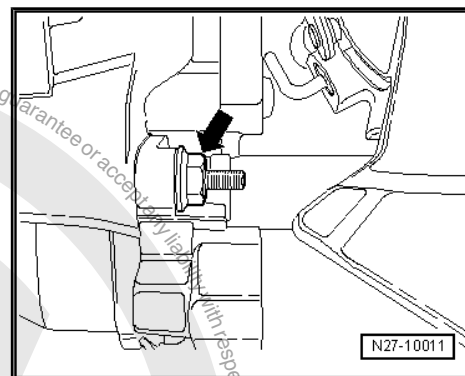


- Remove the nut -arrow- and disconnect the ground wire from
the upper starter bolt.

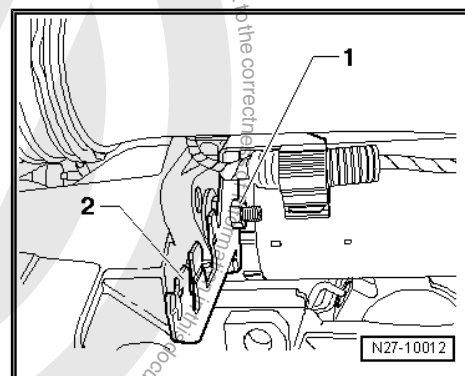




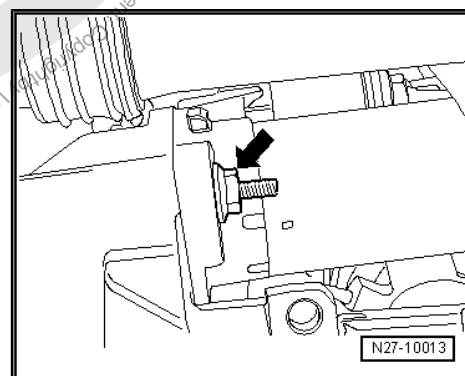
- Remove the upper starter bolt -arrow-.
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep Gr. 50 ; Noise Insulation .



- Remove the nut -1- from the lower starter bolt.
- Remove the cable holder -2-.



- Remove the lower starter bolt -arrow-.
- Remove the Starter - B- downward.



Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to
⇒ ["3.1.1 Overview - Starter, Automatic Transmission/DSG Transmission", page 53](#) .
- Connect the Battery - A- . Refer to
⇒ ["1.5.2 Battery A in Engine Compartment, Connecting", page 8](#) .

3.2.10 Starter, Removing and Installing, 2.0L Diesel Engine, 81/103 kW, DSG Transmission

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-



Caution

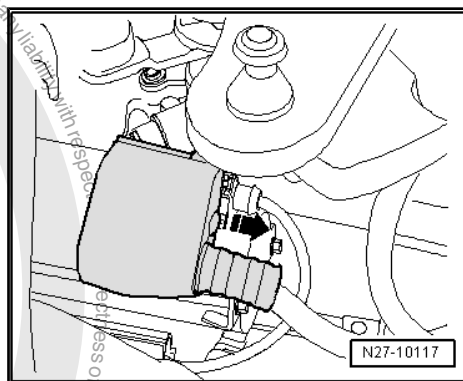
*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ ["1.5 Battery, Disconnecting and Connecting", page 7](#) .*

Removing

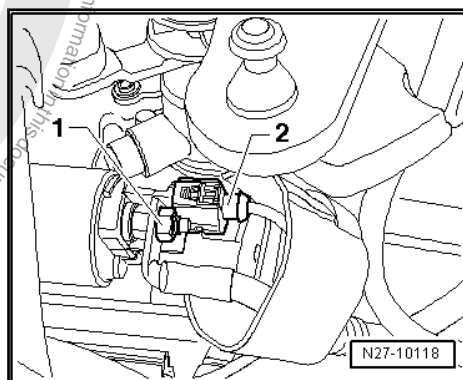
- Disconnect the Battery - A- . Refer to
⇒ ["1.5.1 Battery A in Engine Compartment, Disconnecting", page 7](#) .



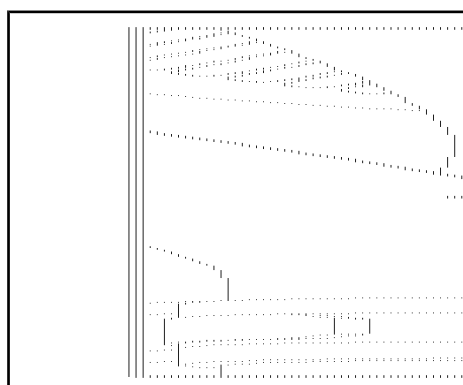
- Remove the air filter housing. Refer to ➤ Rep. Gr. 23 ; Diesel Direct Injection System; Overview - Air Filter .
- Remove the cap from the solenoid switch in the direction of -arrow-.



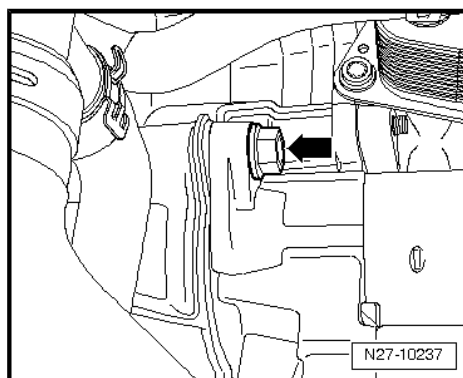
- Remove the positive cable -1-, and release and disconnect the terminal 50 connector -2-.



- Unclip the wire -1- from the wire holder -2-.



- Remove the upper starter bolt -arrow-.
- Remove the lower starter bolt -arrow-.



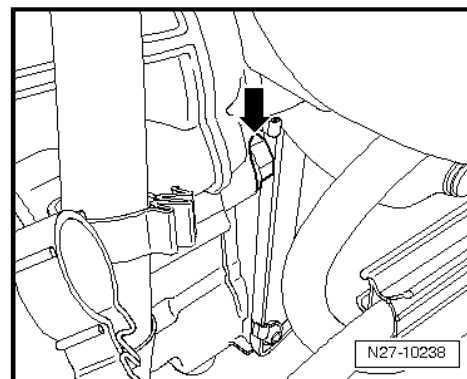


- Remove the Starter - B- upward from the vehicle.

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“3.1.1 Overview - Starter, Automatic Transmission/DSG Transmission”, page 53](#) .
- Connect the Battery - A- . Refer to
⇒ [“1.5.2 Battery A in Engine Compartment, Connecting”, page 8](#) .



3.2.11 Starter, Removing and Installing, 1.2L Gasoline Engine 77 kW, Manual Transmission

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-

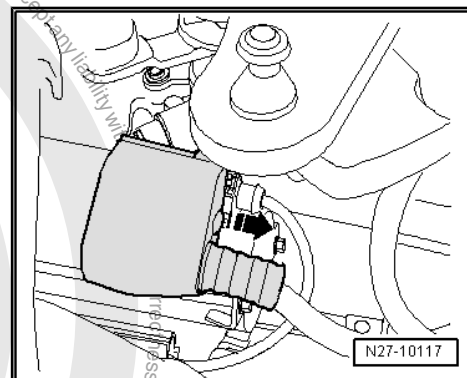


Caution

*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .*

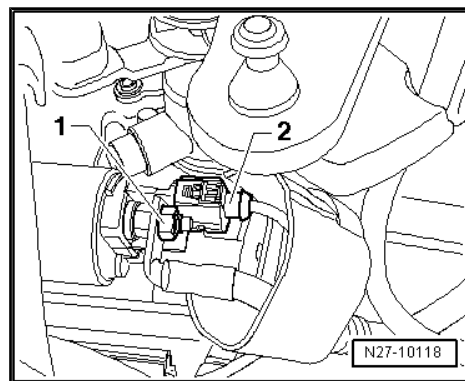
Removing

- Disconnect the Battery - A- . Refer to
⇒ [“1.5.1 Battery A in Engine Compartment, Disconnecting”, page 7](#) .
- Remove the air filter housing. Refer to ⇒ Rep. Gr. 24 ; Air Filter; Overview ⇒ Air Filter Housing .
- Remove the cap from the solenoid switch in the -direction of the arrow-.

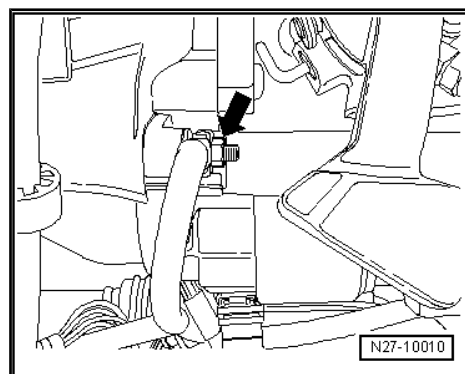




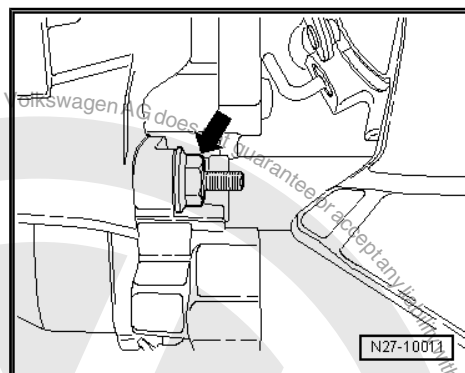
- Remove the positive cable -1-, and release and disconnect the terminal 50 connector -2-.



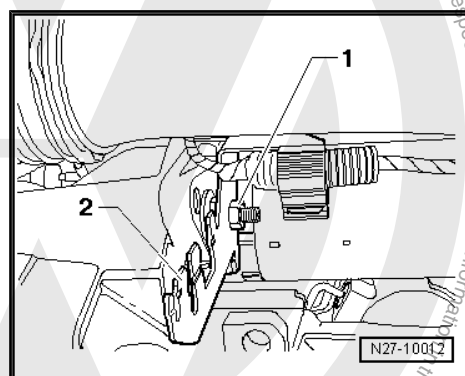
- Remove the ground wire from the upper starter bolt -arrow-.



- Remove the upper starter bolt -arrow-.
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .



- Remove the nut -1- from the lower starter bolt.
- Remove the cable holder -2-.



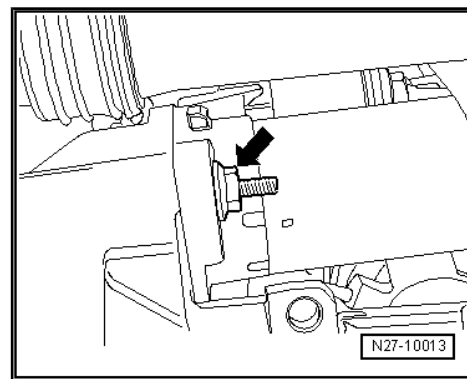


- Remove the lower starter bolt -arrow-.
- Remove the Starter - B- downward and out of the vehicle.

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“3.1.2 Overview - Starter, Manual Transmission”, page 54](#) .
- Connect the Battery - A- . Refer to
⇒ [“1.5.2 Battery A in Engine Compartment, Connecting”, page 8](#) .



3.2.12 Starter, Removing and Installing, 1.4L Gasoline Engine, 90/110/118 kW, Manual Transmission

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-

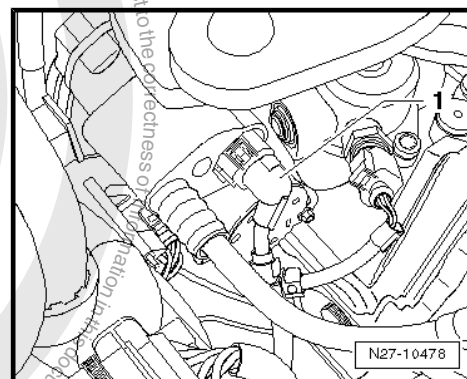


Caution

*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .*

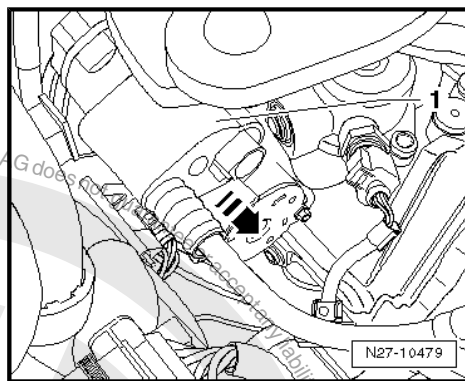
Removing

- Disconnect the Battery - A- . Refer to
⇒ [“1.5.1 Battery A in Engine Compartment, Disconnecting”, page 7](#) .
- Remove the air filter housing. Refer to ⇒ Rep. Gr. 24 ; Air Filter; Overview - Air Filter Housing .
- Release and disconnect the connector (terminal 50) -1-.

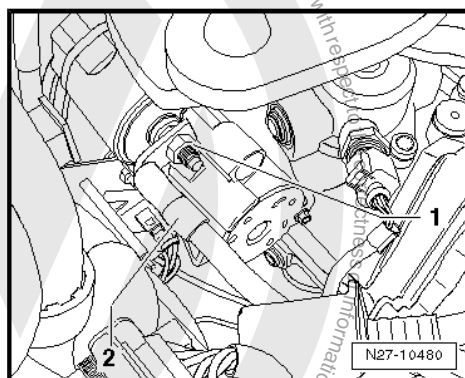




- Remove the cap -1- from the solenoid switch in the direction of -arrow-.



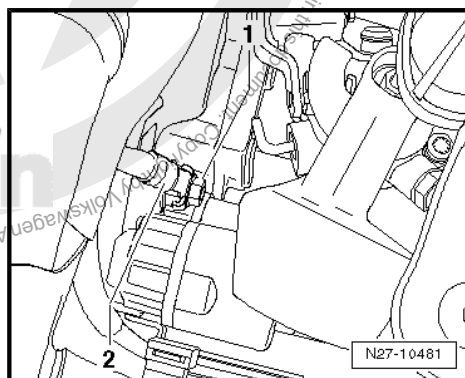
- Remove the nut -1- and disconnect the positive cable -2- from the solenoid switch threaded connector.



- Remove the nut -1- from the upper starter bolt and disconnect the ground wire -2-.

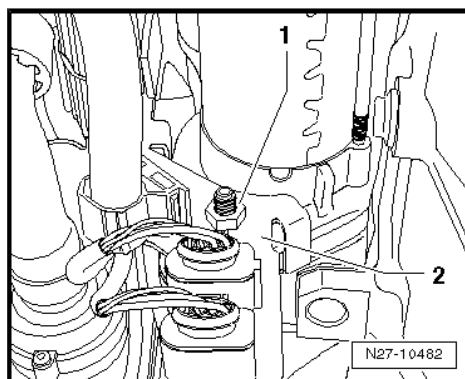
- Remove the upper starter bolt that is located behind.

- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .



- Remove the nut -1- and the wire holder -2- from the lower starter bolt.

- Remove the lower starter bolt -2-.



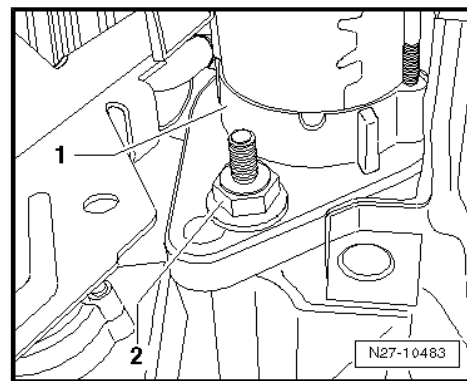


- Remove the Starter - B- downward and out of the vehicle.

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“3.1.2 Overview - Starter, Manual Transmission”, page 54](#) .
- Connect the Battery - A- . Refer to
⇒ [“1.5.2 Battery A in Engine Compartment, Connecting”, page 8](#) .



3.2.13 Starter, Removing and Installing, 1.6L Gasoline Engine 77 kW, Manual Transmission

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-

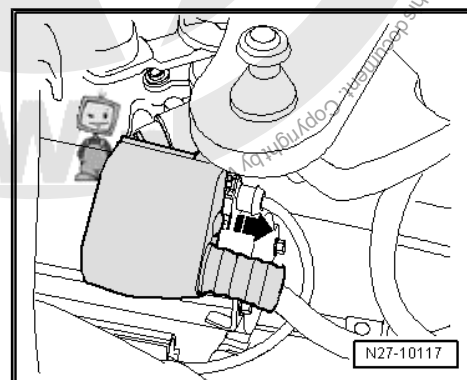


Caution

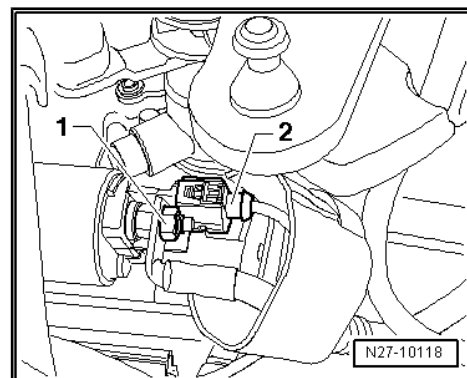
*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ [“1.5.1 Battery A in Engine Compartment, Disconnecting”, page 7](#) .*

Removing

- Disconnect the Battery - A- . Refer to
⇒ [“1.5.1 Battery A in Engine Compartment, Disconnecting”, page 7](#) .
- Remove the cap from the solenoid switch in the -direction of the arrow-.

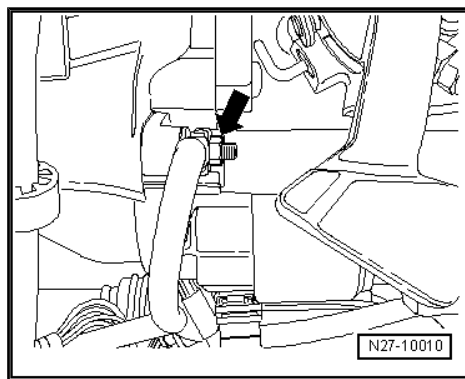


- Remove the positive cable -1-, and release and disconnect the terminal 50 connector -2-.

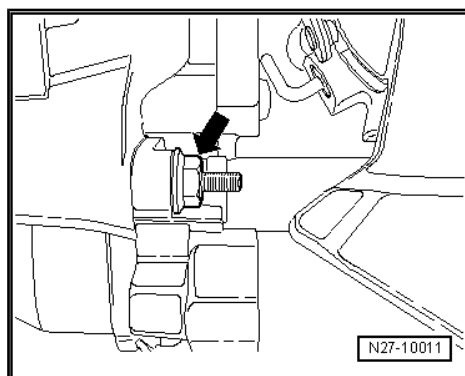




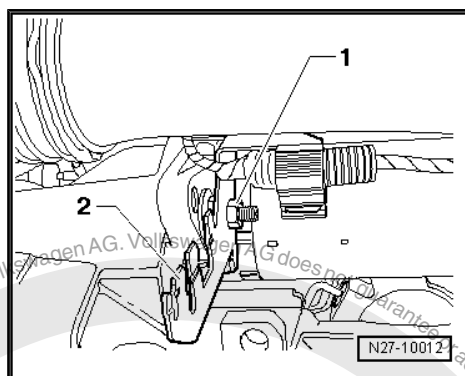
- Remove the ground cable from the starter bolt -arrow-.



- Remove the starter bolt -arrow-.
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .



- Remove the nut -1- from the lower starter bolt.
- Remove the cable holder -2-.

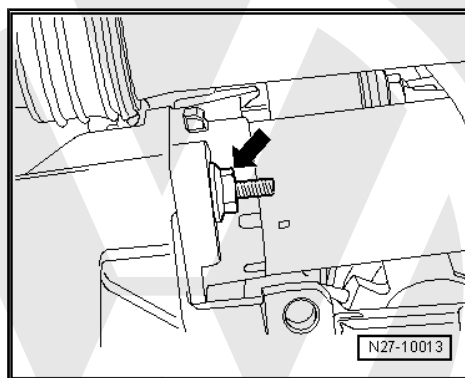


- Remove the starter bolt -arrow-.
- Remove the Starter - B- .

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“3.1.2 Overview - Starter, Manual Transmission”, page 54](#) .
- Connect the Battery - A- . Refer to
⇒ [“1.5.2 Battery A in Engine Compartment Connecting”, page 8](#) .



3.2.14 Starter, Removing and Installing, 2.0L Gasoline Engine 85 kW, Manual Transmission

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-

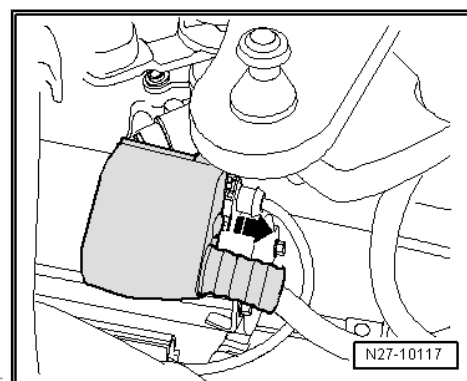


Caution

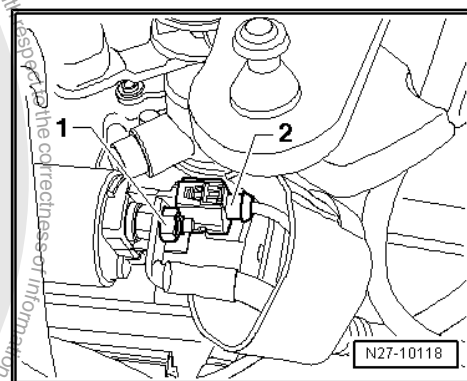
*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to ⇒ **"1.5 Battery, Disconnecting and Connecting", page 7** .*

Removing

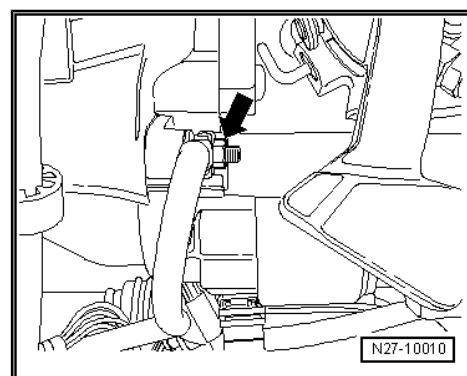
- Disconnect the Battery - A- . Refer to ⇒ **"1.5.1 Battery A in Engine Compartment, Disconnecting", page 7** .
- Remove the air filter housing. Refer to ⇒ Rep. Gr. 24 ; Air Filter; Overview - Air Filter Housing .
- Remove the cap from the solenoid switch in the direction of -arrow-.



Remove the positive cable -1-, and release and disconnect the terminal 50 connector -2-.

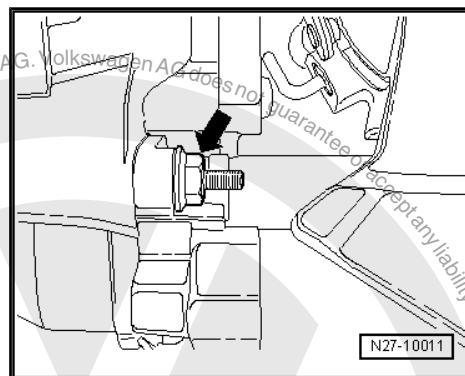


- Remove the ground cable from the starter bolt -arrow-.

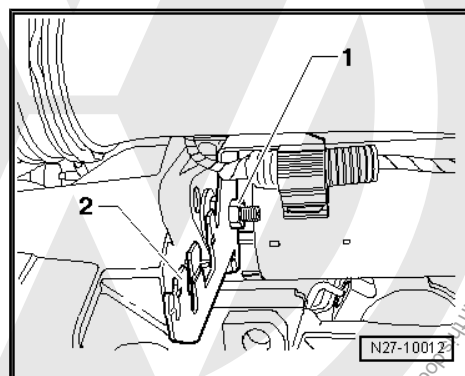




- Remove the starter bolt -arrow-.
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .
- Remove the nut -1- from the lower starter bolt.



- Remove the cable holder -2-.
- Remove the starter bolt -arrow-.

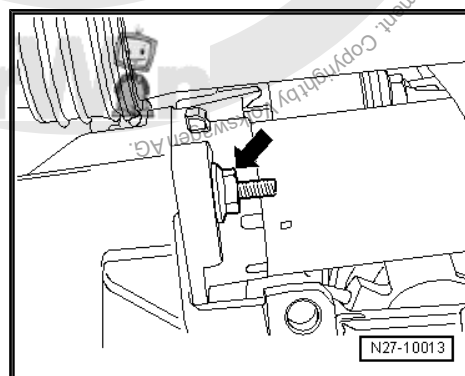


- Remove the Starter - B- downward and out of the vehicle.

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“3.1.2 Overview - Starter, Manual Transmission”, page 54](#) .
- Connect the Battery - A- . Refer to
⇒ [“1.5.2 Battery A in Engine Compartment, Connecting”, page 8](#) .



3.2.15 Starter, Removing and Installing, 2.0L Gasoline Engine 147 kW, Manual Transmission

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-



Caution

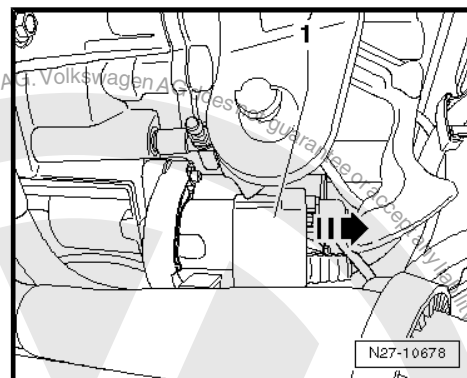
*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .*

Removing

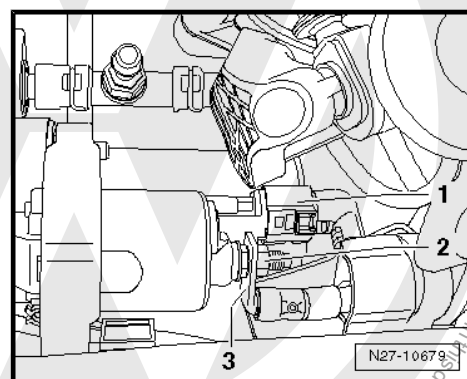
- Disconnect the Battery - A- . Refer to
⇒ [“1.5.1 Battery A in Engine Compartment, Disconnecting”, page 7](#) .



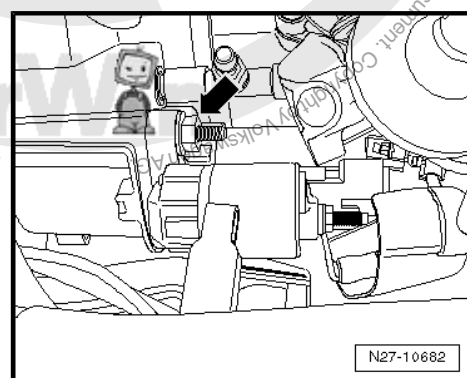
- Remove the air filter housing. Refer to ⇒ Rep. Gr. 24 ; Air Filter; Overview - Air Filter Housing .
- Remove the cap -1- from the solenoid switch in the direction of -arrow-.



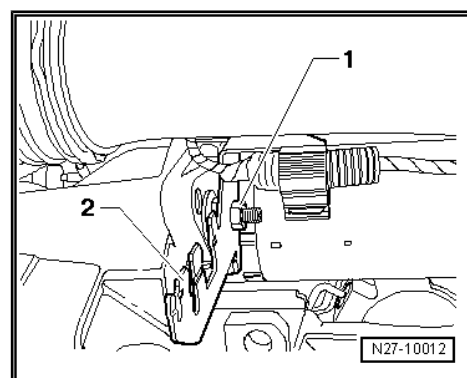
- Release and disconnect the connector (terminal 50) -1-.
- Remove the nut -2- and disconnect the positive wire -3- from the solenoid switch.



- Remove the upper starter bolt -arrow-.
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .



- Remove the nut -1- from the lower starter bolt.
- Remove the cable holder -2-.
- Remove the starter bolt -arrow-.



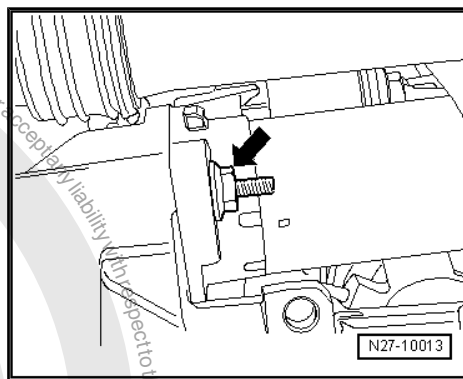


- Remove the Starter - B- downward.

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“3.1.2 Overview - Starter, Manual Transmission”, page 54](#) .
- Connect the Battery - A- . Refer to
⇒ [“1.5.2 Battery A in Engine Compartment, Connecting”, page 8](#) .



3.2.16 Starter, Removing and Installing, 2.5L Gasoline Engine 125 kW, Manual Transmission

Special tools and workshop equipment required

- ♦ Torque Wrench 1331 5-50Nm - VAG1331-
- ♦ Torque Wrench 1332 40-200Nm - VAG1332-

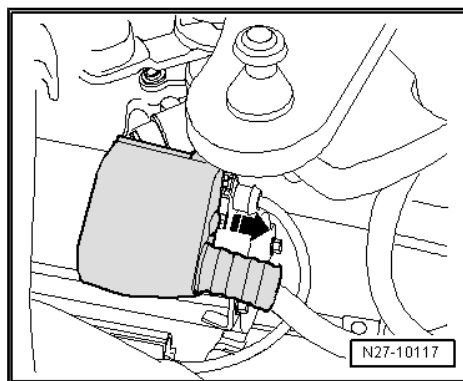


Caution

**Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .**

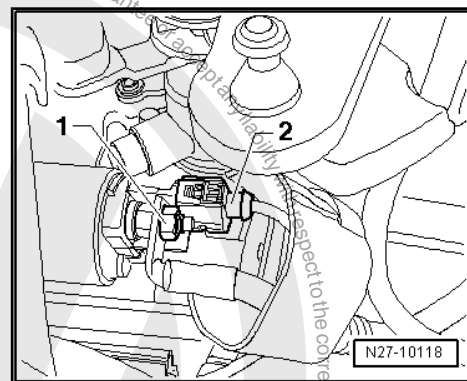
Removing

- Disconnect the Battery - A- . Refer to
⇒ [“1.5.1 Battery A in Engine Compartment, Disconnecting”, page 7](#) .
- Remove the engine cover. Refer to ⇒ Rep. Gr. 10 ; Engine Cover; Engine Cover, Removing and Installing .
- Remove the air filter housing. Refer to ⇒ Rep. Gr. 24 ; Air Filter; Overview - Air Filter Housing .
- Remove the cap from the solenoid switch in the direction of -arrow-.

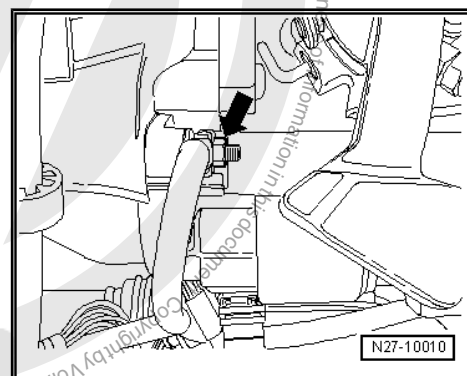




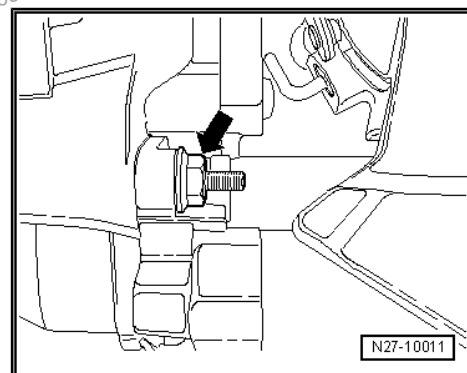
- Remove the positive cable -1-, and release and disconnect the terminal 50 connector -2-.



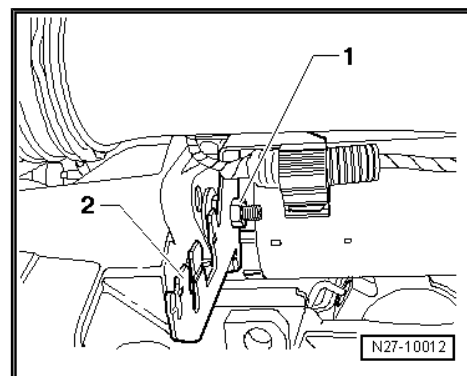
- Remove the ground cable from the starter bolt -arrow-.



- Remove the starter bolt -arrow-.
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .
- Remove the nut -1- from the lower starter bolt.



- Remove the cable holder -2-.
- Remove the starter bolt -arrow-.



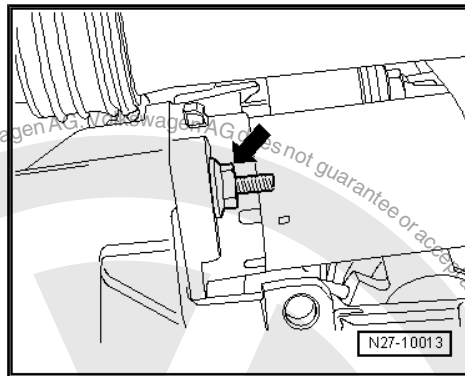


- Remove the Starter - B- .

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“3.1.2 Overview - Starter, Manual Transmission”, page 54](#) .
- Connect the Battery - A- . Refer to
⇒ [“1.5.2 Battery A in Engine Compartment, Connecting”, page 8](#) .



3.2.17 Starter, Removing and Installing, 1.6L Diesel Engine 77 kW, Manual Transmission

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-

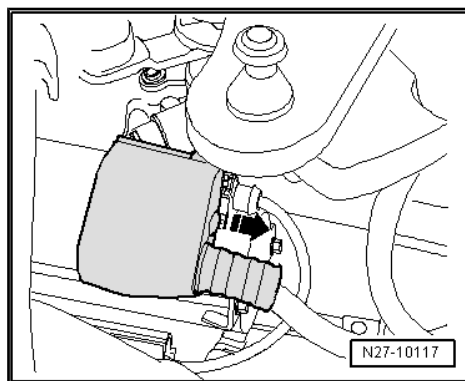


Caution

*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .*

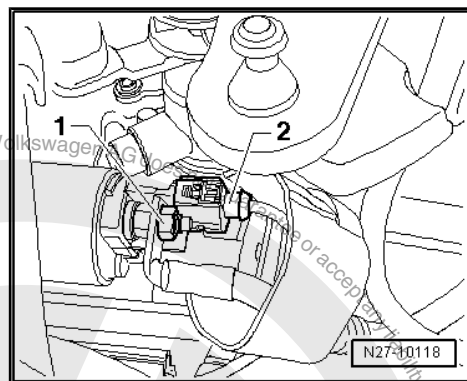
Removing

- Disconnect the Battery - A- . Refer to
⇒ [“1.5.1 Battery A in Engine Compartment, Disconnecting”, page 7](#) .
- Remove the engine cover. Refer to ⇒ Rep. Gr. 10 ; Engine Cover; Engine Cover, Removing and Installing .
- Remove the air filter housing. Refer to ⇒ Rep. Gr. 23 ; Diesel Direct Injection System; Overview - Air Filter .
- Remove the cap from the solenoid switch in the -direction of the arrow-.

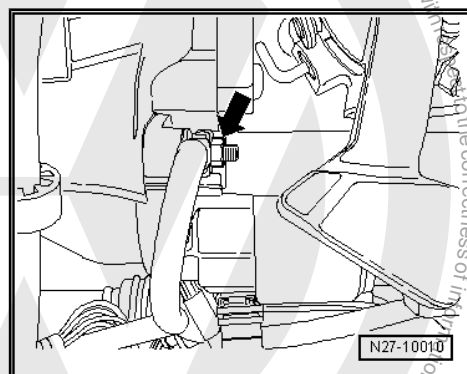




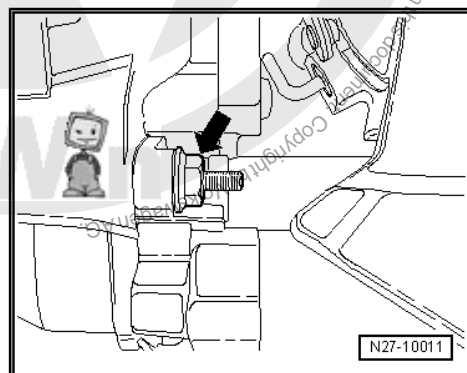
- Remove the positive cable -1-, and release and disconnect the terminal 50 connector -2-.



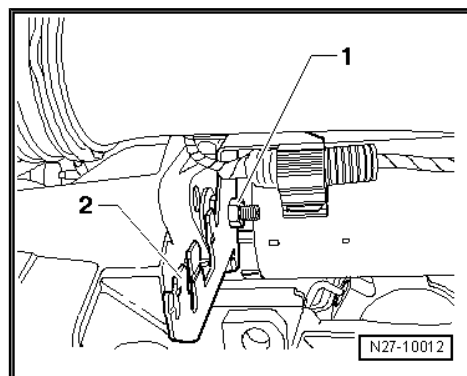
- Remove the nut -arrow- and disconnect the ground wire from the upper starter bolt.



- Remove the upper starter bolt -arrow-.
- Remove the noise insulation. Refer to Body Exterior; Rep. Gr. 50 ; Noise Insulation .



- Remove the nut -1- from the lower starter bolt.
- Remove the cable holder -2-.



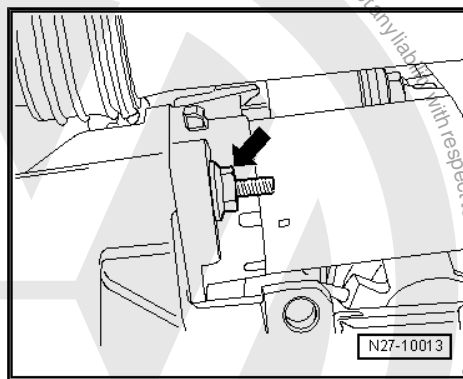


- Remove the lower starter bolt -arrow-.
- Remove the Starter - B- downward.

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“3.1.2 Overview - Starter, Manual Transmission”, page 54](#).
- Connect the Battery - A- . Refer to
⇒ [“1.5.2 Battery A in Engine Compartment, Connecting”, page 8](#).



3.2.18 Starter, Removing and Installing, 2.0L Diesel Engine, 81/103 kW, Manual Transmission

Special tools and workshop equipment required

- ♦ Torque Wrench 1331 5-50Nm - VAG1331
- ♦ Torque Wrench 1332 40-200Nm - VAG1332

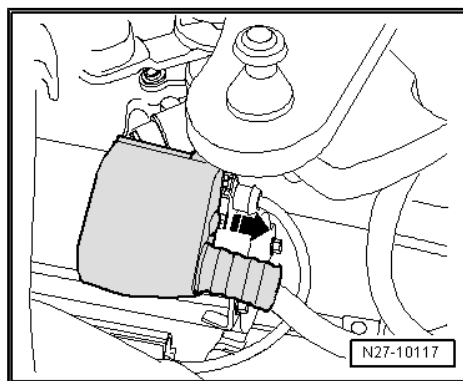


Caution

*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#).*

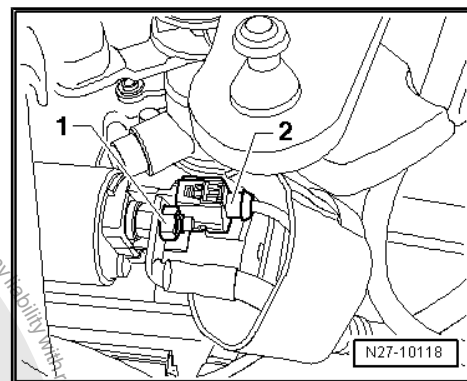
Removing

- Disconnect the Battery - A- . Refer to
⇒ [“1.5.1 Battery A in Engine Compartment, Disconnecting”, page 7](#).
- Remove the engine cover. Refer to ⇒ Rep. Gr. 10 ; Engine Cover; Engine Cover, Removing and Installing .
- Remove the air filter housing. Refer to ⇒ Rep. Gr. 23 ; Diesel Direct Injection System; Overview - Air Filter .
- Remove the cap from the solenoid switch in the direction of -arrow-.

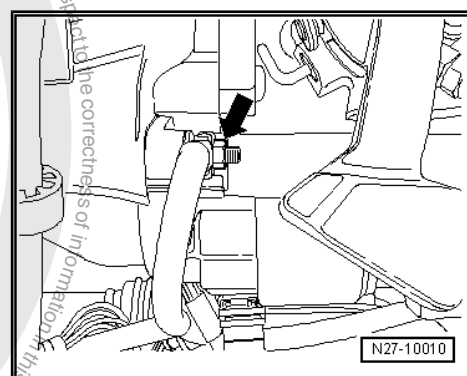




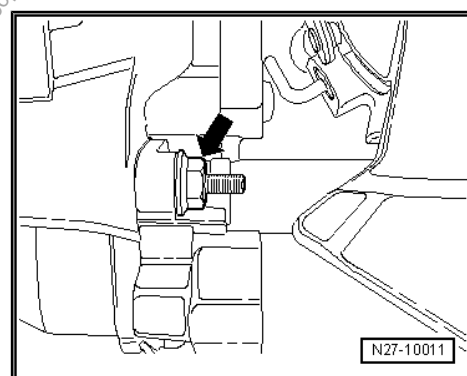
- Remove the positive cable -1-, and release and disconnect the terminal 50 connector -2-.



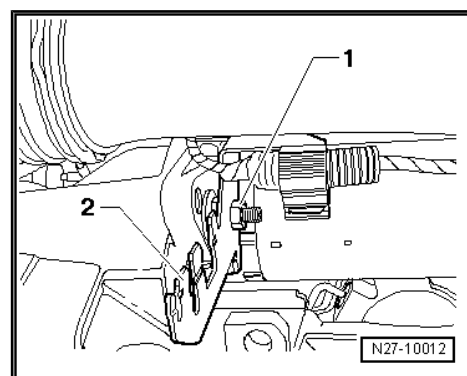
- Remove the ground cable from the starter bolt -arrow-.



- Remove the starter bolt -arrow-.
- Remove the noise insulation. Refer to → Body Exterior; Rep. Gr. 50 ; Noise Insulation .
- Remove the nut -1- from the lower starter bolt.



- Remove the cable holder -2-.
- Remove the starter bolt -arrow-.



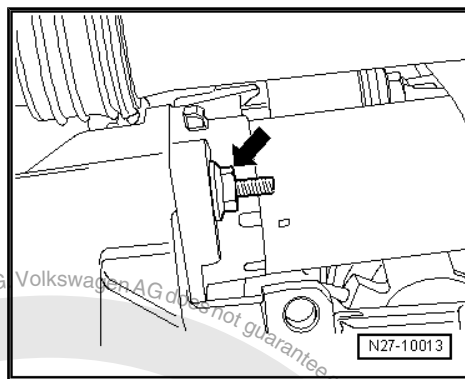


- Remove the Starter - B- .

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“3.1.2 Overview - Starter, Manual Transmission”, page 54](#) .
- Connect the Battery - A- . Refer to
⇒ [“1.5.2 Battery A in Engine Compartment, Connecting”, page 8](#) .



3.3 Starter, Checking

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 27 - Starter, voltage supply
 - ◆ Electrical Components
 - ◆ Starter -B-



4 Cruise Control System

Refer to ⇒ Electrical Equipment General Information; Rep. Gr.
27 ; Cruise Control System .





5 Start/Stop System

⇒ **"5.1 Safety Precautions when Working on Start/Stop System", page 92**

⇒ **"5.2 General Description for Start/Stop System", page 92**

⇒ **"5.3 Voltage Stabilizer, Removing and Installing", page 94**

5.1 Safety Precautions when Working on Start/Stop System

If Working on a Vehicle with Stop/Start, Note the Following:



WARNING

Risk of personal injury due to the engine starting automatically on vehicles with Stop/Start System.

- ◆ *The engine can start automatically on vehicles with Stop/Start (recognizable by a symbol in the instrument cluster).*
- ◆ *Make sure the system is deactivated when working on a vehicle with the Stop/Start system.*

5.2 General Description for Start/Stop System

General Information

The Start/Stop System reduces fuel consumption by turning off the engine when the vehicle is at a standstill and turning the engine back on when the driver starts to drive. The Stop/Start System works automatically when the vehicle is driven for approximately four seconds at a minimum of 3 km/h.

Malfunction Recognition and Malfunction Indicator

The Start/Stop System is integrated in the software for the Engine Control Module - J623- as a function.

The Engine Control Module - J623- is equipped with OBD.

For troubleshooting, refer to Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

Battery Recharging or Battery Jump Start Terminal, Vehicles with Start/Stop System

Connect the positive terminal first and then the body ground using a charge cable. This ensures that the Battery Monitoring Control Module - J367- is not bridged. Charging the battery directly on the negative terminal bridges the Battery Monitoring Control Module - J367- and prevents the Battery Monitoring Control Module - J367- from recording the battery data during the charging process. The values stored in the Data Bus On Board Diagnostic Interface - J533- regarding the battery condition no longer match the values for the charged Battery - A- .

Replacing the Battery - A- On a Vehicle with the Start/Stop System.

Vehicles with a start/stop system only have an AGM battery as the starter battery instead of the typical lead battery due to its higher cycle life.

Refer to the Parts Catalog when performing repairs for the correct part identification. The components of the Stop/Start System do



not have a special markings and look the same as the other components from the outside.

The following Components Make up the Start/Stop System:

- ◆ Battery - A- . Refer to ⇒ ["1 Battery", page 1](#) .
- ◆ Generator - C- . Refer to ⇒ ["2 Generator", page 17](#) .
- ◆ Voltage Regulator - C1- . Refer to ⇒ ["2.6 Voltage Regulator, Removing and Installing", page 50](#) .
- ◆ Starter - B- . Refer to ⇒ ["3 Starter", page 53](#) .
- ◆ Brake Lamp Switch - F- . Refer to ⇒ Brake System; Rep. Gr. 47 ; Brake Booster/Brake Master Cylinder; Brake Lamp Switch, Removing and Installing .
- ◆ Clutch Pedal Switch - F36- . Refer to ⇒ Rep. Gr. 30 ; Clutch Mechanism, Servicing; Clutch Position Sensor - G476- , Removing and Installing .
- ◆ Start/Stop Mode Button - E693- . Refer to ⇒ [page 94](#) .
- ◆ Engine Coolant Temperature Sensor - G62- . Refer to ⇒ Rep. Gr. 19 .
- ◆ Accelerator Pedal Position Sensor - G79- . Refer to ⇒ Rep. Gr. 20 ; Accelerator Mechanism; Overview - Accelerator Pedal Mechanism .
- ◆ Transmission Neutral Position Sensor - G701- . Refer to ⇒ Rep. Gr. 34 ; Mechatronic .
- ◆ ABS Control Module - J104- . Refer to ⇒ Brake System; Rep. Gr. 45 ; Control Module and Hydraulic Unit .
- ◆ Climatronic Control Module - J255- . Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 87 .
- ◆ Instrument Cluster Control Module - J285- . Refer to ⇒ ["1 Instrument Cluster", page 98](#) .
- ◆ Battery Monitoring Control Module - J367- . Refer to ⇒ ["1.9.1 Battery Monitoring Control Module J367", page 13](#) .
- ◆ Power Steering Control Module - J500- . Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48 ; Electromechanical Steering Gear .
- ◆ Vehicle Electrical System Control Module - J519- . Refer to ⇒ ["2.2 Vehicle Electrical System Control Module J519, Removing and Installing", page 319](#) .
- ◆ Voltage Stabilizer - J532- . Refer to ⇒ ["5.3 Voltage Stabilizer, Removing and Installing", page 94](#) .
- ◆ Data Bus on Board Diagnostic Interface - J533- . Refer to ⇒ ["2.3 Data Bus on Board Diagnostic Interface J533, Removing and Installing", page 326](#) .
- ◆ Engine Control Module - J623- . Refer to ⇒ Rep. Gr. 24 ; Engine Control Module or ⇒ Rep. Gr. 23 ; Engine Control Module .

Voltage Stabilizer - J532-

The Voltage Stabilizer - J532- is installed inside the instrument panel behind the glove compartment. It stabilizes the voltage fluctuations in the vehicle electrical system to 12 volts, which are caused by the stop/start system.



This is the Effect If the Voltage Stabilizer - J532- is Faulty

If the Voltage Stabilizer - J532- is faulty and the voltage supply is insufficient, devices like the Radio/RNS or telephone will be reset. If the above-mentioned electrical equipment is reset each time the engine starts in Start/Stop mode, then this indicates a defective Voltage Stabilizer - J532- . Currently, no malfunction entry is directly logged for the Voltage Stabilizer - J532- in the DTC memory for either the Data Bus On Board Diagnostic Interface - J533- or the Vehicle Electrical System Control Module - J519- . If the radio, the radio/RNS and the telephone all malfunction at the same time, first check the fuse for the Voltage Stabilizer - J532- . Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

Start/Stop Mode Button - E693-

The Start/Stop Mode Button - E693- is located with the switches inside the center console in front of the gearshift lever. The switch manually switches the Start/Stop System on and off.

Start/Stop Mode Button - E693- Removing and installing. Refer to

⇒ ["2.14 Start/Stop Mode Button E693 , Removing and Installing", page 281](#) .

5.3 Voltage Stabilizer, Removing and Installing

⇒ ["5.3.1 Voltage Stabilizer J532 , Removing and Installing", page 94](#)

5.3.1 Voltage Stabilizer - J532- , Removing and Installing

Removing

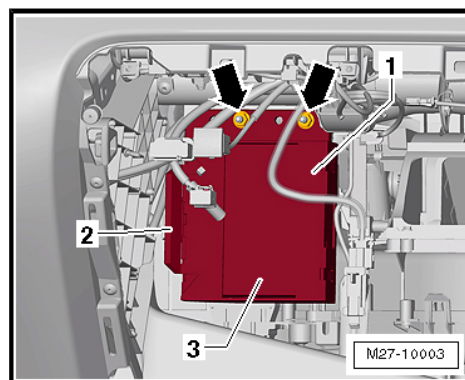
- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Glove Compartment, Removing and Installing .
- Remove the nuts -arrows-, the Voltage Stabilizer - J532- -3- and the bracket -1-, paying attention to the wires that are still connected.
- Release and disconnect the connector -2-.
- Remove the Voltage Stabilizer - J532- -3- from the bracket -1-.

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to ⇒ [page 94](#) .

Component	Tightening Specification
Voltage Stabilizer - J532- nuts	1.5 Nm





5.3.2 Voltage Stabilizer - J532- , Removing and Installing, RHD

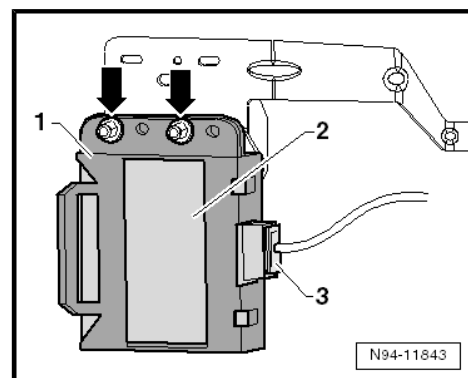
Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Glove Compartment, Removing and Installing .
- Disconnect the connector -3-.
- Remove the nuts -arrows- and remove the Voltage Stabilizer - J532- -2- together with the bracket -1-.
- Remove the Voltage Stabilizer - J532- -2- from the bracket -1-.

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to ⇒ [page 95](#) .



Component	Tightening Specification
Voltage Stabilizer - J532- nuts	1,5 Nm



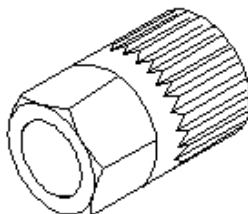


6 Special Tools

Special tools and workshop equipment required

- ◆ Multi-Tooth Adapter - 3400-
- ◆ Torque Wrench 1332 40-200Nm - VAG1332-
- ◆ Torx Key Socket Set - VAG1603A/1-

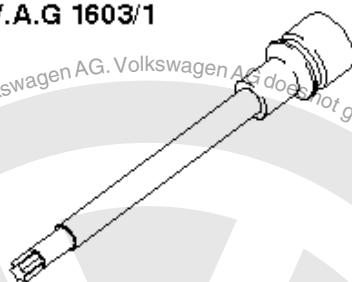
3400



V.A.G 1332



V.A.G 1603/1



WV27-10006

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-

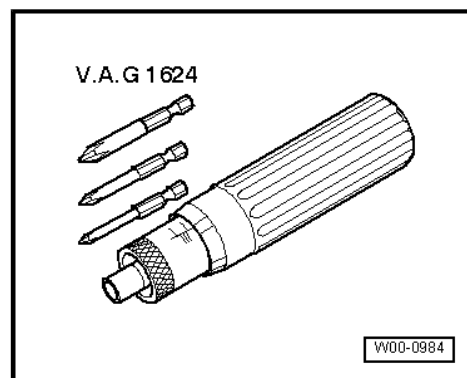
V.A.G 1331



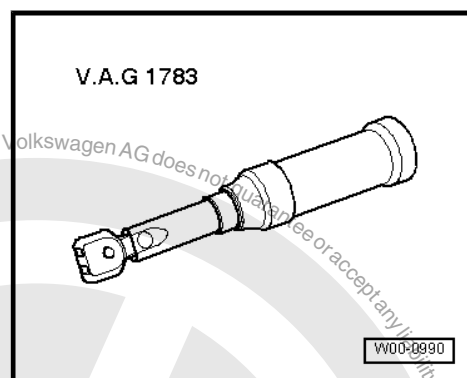
W00-0427



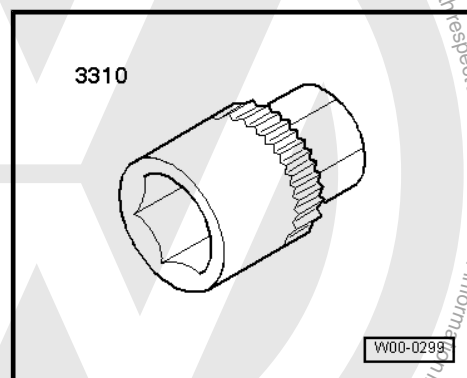
◆ Torque Screwdriver - VAG1624-



◆ Torque Wrench 1783 - 2-10Nm - VAG1783-



◆ Generator Belt Socket - VAS3310-





90 – Instruments

1 Instrument Cluster

- ⇒ [“1.1 Overview - Instrument Cluster”, page 98](#)
- ⇒ [“1.2 Instrument Cluster, Removing and Installing”, page 103](#)
- ⇒ [“1.3 Instrument Cluster Multi-Pin Connector Contact Assignment”, page 104](#)
- ⇒ [“1.4 Outside Air Temperature Sensor G17 , Removing and Installing”, page 104](#)

1.1 Overview - Instrument Cluster

- ⇒ [“1.1.1 Overview - Instrument Cluster”, page 98](#)
- ⇒ [“1.1.2 Overview - Instrument Cluster”, page 99](#)
- ⇒ [“1.1.3 Instrument Cluster Indicator Lamp Symbols, High Version”, page 99](#)
- ⇒ [“1.1.4 Instrument Cluster Indicator Lamp Symbols, Gasoline Engine, Low Version”, page 101](#)
- ⇒ [“1.1.5 Instrument Cluster Indicator Lamp Symbols, Diesel Engine, Low Version”, page 102](#)

1.1.1 Overview - Instrument Cluster

The following components are integrated in the instrument cluster:

- ◆ Instrument Cluster Control Module - J285-
- ◆ Anti-Theft Immobilizer Control Module - J362-
- ◆ Speedometer - G21-
- ◆ Tachometer - G5-
- ◆ Fuel Gauge - G1-
- ◆ Engine Coolant Temperature Gauge - G3-
- ◆ Multifunction indicator
- ◆ High Version indicator lamps. Refer to
⇒ [“1.1.3 Instrument Cluster Indicator Lamp Symbols, High Version”, page 99](#)
- ◆ Low Version indicator lamps, gasoline engine. Refer to
⇒ [“1.1.4 Instrument Cluster Indicator Lamp Symbols, Gasoline Engine, Low Version”, page 101](#)
- ◆ Low Version indicator lamps, diesel engine. Refer to
⇒ [“1.1.5 Instrument Cluster Indicator Lamp Symbols, Diesel Engine, Low Version”, page 102](#)

To audibly support the visual displays, the instrument panel has an integrated buzzer that is activated by the Instrument Cluster Control Module - J285-

All indicator lamps are equipped with Light-Emitting Diodes (LEDs). Servicing the instrument cluster is not planned. In the event of malfunctions, the entire instrument cluster must be replaced. Refer to
⇒ [“1.2 Instrument Cluster, Removing and Installing”, page 103](#).

The Data Bus On Board Diagnostic Interface - J533- is not a component of the instrument cluster. Refer to



⇒ [“2.3 Data Bus on Board Diagnostic Interface J533 , Removing and Installing”, page 326](#) .

Malfunction Recognition and Malfunction Indicator

The instrument cluster is equipped with OBD.

For troubleshooting. Refer to Vehicle Diagnostic Tester in the “Guided Fault Finding” function.

1.1.2 Overview - Instrument Cluster

1 - Instrument Cluster

- ☐ Screw: 1.5 Nm
- ☐ Removing and installing. Refer to
⇒ [“1.2.2 Instrument Cluster, Removing and Installing”, page 103](#) .
- ☐ Replacing. Refer to
⇒ [“1.2.1 Instrument Cluster, Replacing”, page 103](#) .
- ☐ With Instrument Cluster Control Module - J285-

2 - Brake Fluid Level Warning Switch - F34-

- ☐ Refer to ⇒ Brake System; Rep. Gr. 47 ; Brake Booster/Brake Master Cylinder; Overview - Brake Booster/Brake Master Cylinder .

3 - Oil Level Thermal Sensor - G266-

- ☐ Refer to ⇒ Rep. Gr. 17

4 - Outside Air Temperature Sensor - G17- Connector

5 - Outside Air Temperature Sensor - G17-

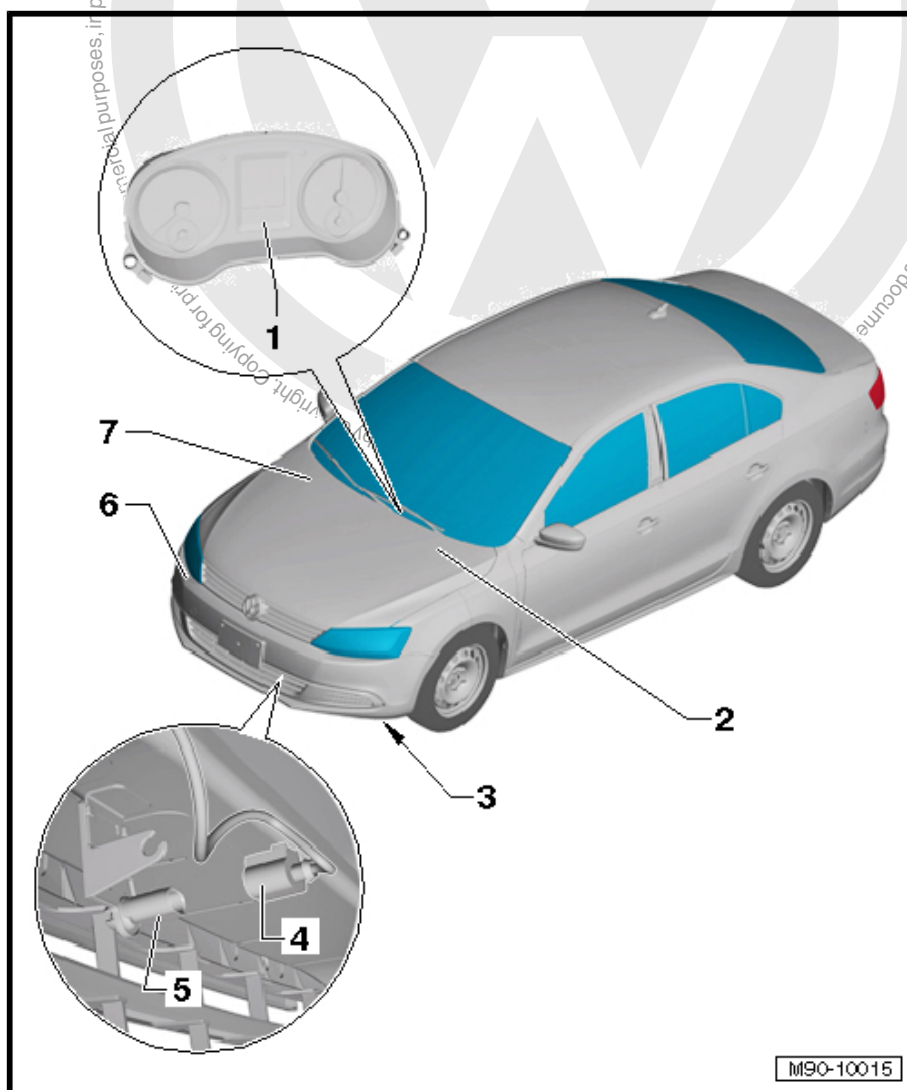
- ☐ Removing and installing. Refer to
⇒ [“1.4 Outside Air Temperature Sensor G17, Removing and Installing”, page 104](#) .

6 - Windshield Washer Fluid Level Sensor - G33-

- ☐ Removing and installing. Refer to
⇒ [“2.3 Windshield Washer Fluid Level Sensor G33 , Removing and Installing”, page 121](#) .

7 - Engine Coolant Level Sensor - G32-

- ☐ Refer to ⇒ Rep. Gr. 19



1.1.3 Instrument Cluster Indicator Lamp Symbols, High Version

Different instrument clusters are used, depending on vehicle equipment. Therefore, the arrangement of the indicator lamps may deviate from the illustration.



1 - Glow Plug Indicator Lamp - K29-

- ☐ Only on vehicles with a diesel engine

- Engine Electronics Indicator Lamp - K149-

2 - Electronic Power Control Malfunction Indicator Lamp - K132-

3 - Fuel Filler Door Lock Indicator Lamp - K201-

4 - Oil Pressure Indicator Lamp - K3-

5 - Lamp Failure Indicator Lamp - K170-

6 - Rear Fog Lamp Indicator Lamp - K13-

7 - Windshield Washer Fluid Level Indicator Lamp - K37-

8 - High Beam Indicator Lamp - K1-

9 - Seat Belt Indicator Lamp - K19-

10 - ABS Indicator Lamp - K47-

11 - ASR/ESP Indicator Lamp - K155-

12 - Brake System Indicator Lamp - K118-

13 - Cruise Control Indicator Lamp - K31-

14 - Tire Pressure Monitoring Display Indicator Lamp - K220-

15 - Brake Pad Wear Indicator Lamp - K32-

16 - Shift Lock Indicator Lamp - K169-

17 - Low Fuel Level Indicator Lamp - K105-

18 - Door Ajar Indicator Lamp - K166-

19 - Rear Lid -Open- Indicator Lamp - K127-

20 - Airbag Indicator Lamp - K75-

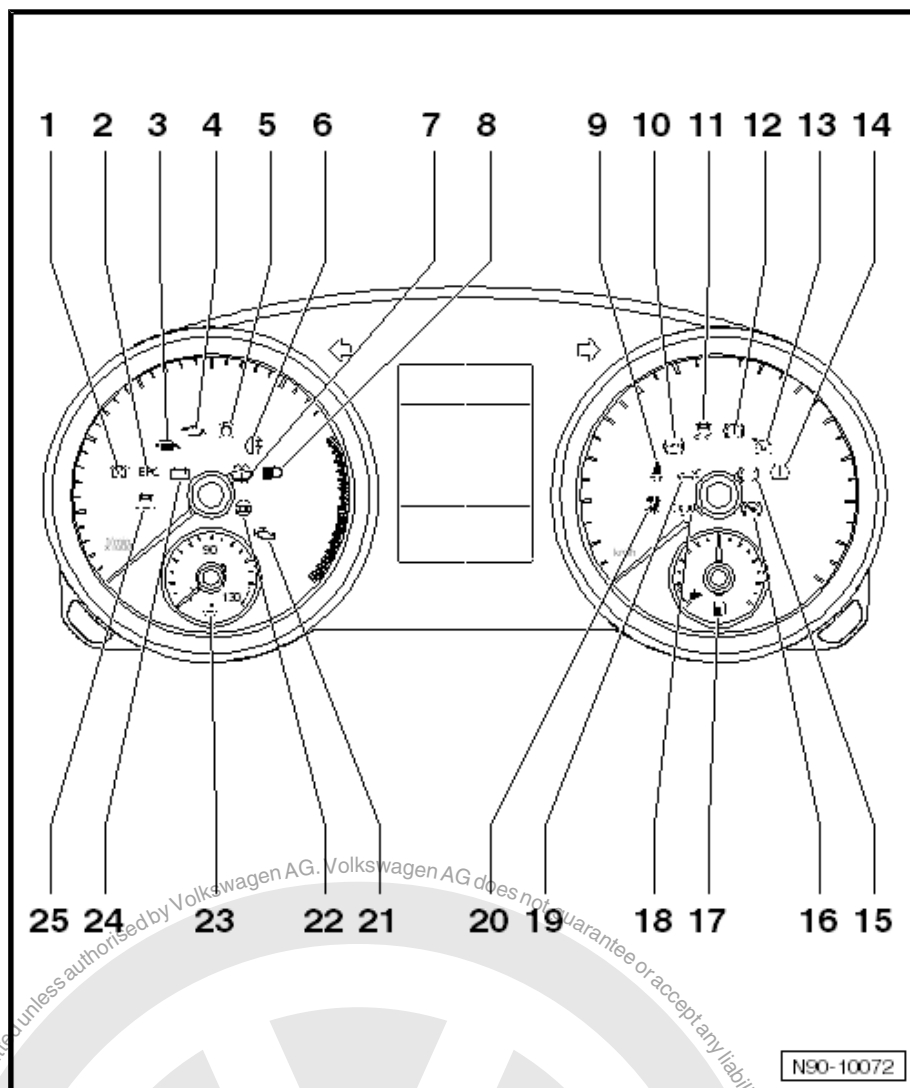
21 - Malfunction Indicator Lamp - K83-

22 - Electromechanical Power Steering Indicator Lamp - K161-

23 - Engine Coolant Level/Temperature Indicator Lamp - K28-

24 - Generator Indicator Lamp - K2-

25 - Not Assigned





1.1.4 Instrument Cluster Indicator Lamp Symbols, Gasoline Engine, Low Version

Different instrument clusters are used, depending on vehicle equipment. Therefore, the arrangement of the indicator lamps may deviate from the illustration.

1 - Electronic Power Control Malfunction Indicator Lamp - K132-

2 - Generator Indicator Lamp - K2-

3 - Fuel Filler Door Lock Indicator Lamp - K201-

4 - Oil Pressure Indicator Lamp - K3-

5 - Lamp Failure Indicator Lamp - K170-

6 - Rear Fog Lamp Indicator Lamp - K13-

7 - High Beam Indicator Lamp - K1-

8 - Airbag Indicator Lamp - K75-

9 - Seat Belt Indicator Lamp - K19-

10 - ABS Indicator Lamp - K47-

11 - ASR/ESP Indicator Lamp - K155-

12 - Brake System Indicator Lamp - K118-

13 - Cruise Control Indicator Lamp - K31-

14 - Not Assigned

15 - Not Assigned

16 - Low Engine Coolant Level Indicator Lamp - K36-

17 - Not Assigned

18 - Malfunction Indicator Lamp - K83-

19 - Electromechanical Power Steering Indicator Lamp - K161-

20 - Windshield Washer Fluid Level Indicator Lamp - K37-

21 - Rear Lid -Open- Indicator Lamp - K127-

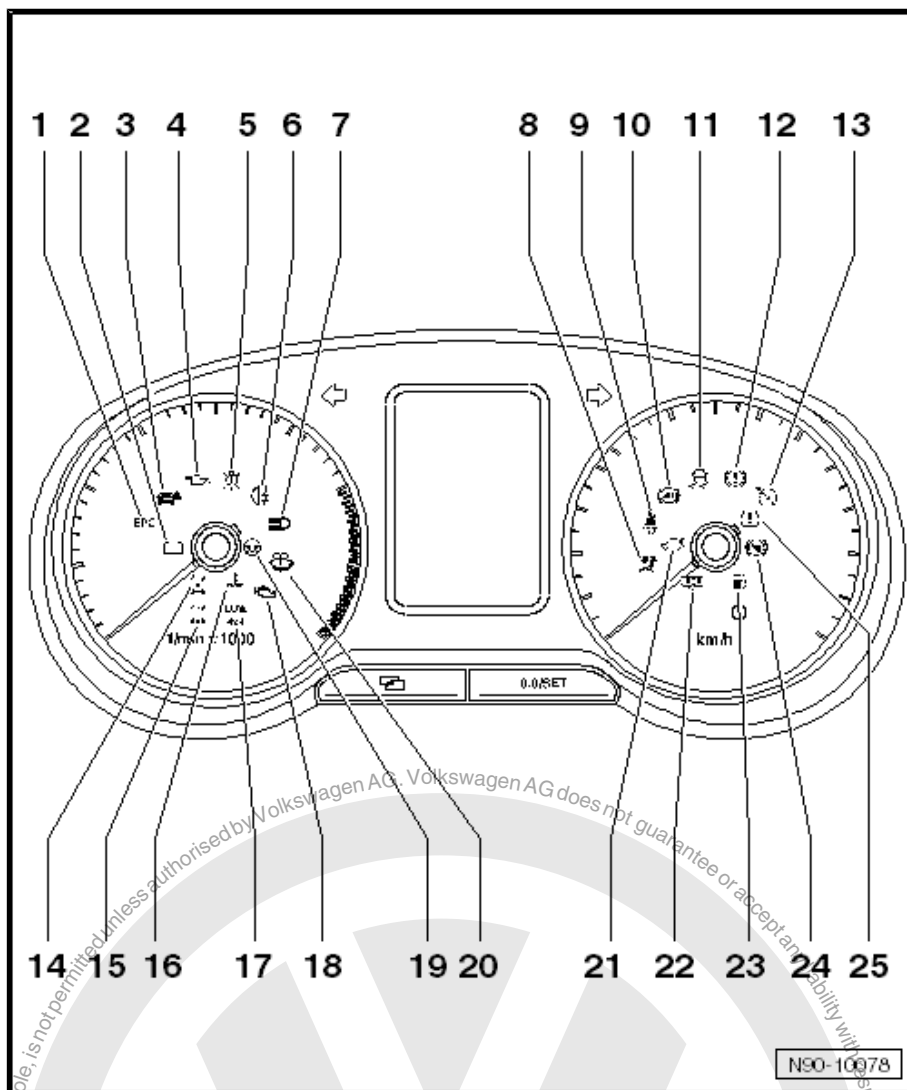
22 - Door Ajar Indicator Lamp - K166-

23 - Low Fuel Level Indicator Lamp - K16-

24 - Shift Lock Indicator Lamp - K169-

□ Only on vehicles with an automatic transmission

25 - Tire Pressure Monitoring Display Indicator Lamp - K220-



N90-10078



1.1.5 Instrument Cluster Indicator Lamp Symbols, Diesel Engine, Low Version

Different instrument clusters are used, depending on vehicle equipment. Therefore, the arrangement of the indicator lamps may deviate from the illustration.

1 - Glow Plug Indicator Lamp - K29-

2 - Generator Indicator Lamp - K2-

3 - Diesel Particulate Filter Indicator Lamp - K231-

4 - Oil Pressure Indicator Lamp - K3-

5 - Lamp Failure Indicator Lamp - K170-

6 - Rear Fog Lamp Indicator Lamp - K13-

7 - High Beam Indicator Lamp - K1-

8 - Airbag Indicator Lamp - K75-

9 - Seat Belt Indicator Lamp - K19-

10 - ABS Indicator Lamp - K47-

11 - ASR/ESP Indicator Lamp - K155-

12 - Brake System Indicator Lamp - K118-

13 - Cruise Control Indicator Lamp - K31-

14 - Not Assigned

15 - Not Assigned

16 - Low Engine Coolant Level Indicator Lamp - K36-

17 - Not Assigned

18 - Malfunction Indicator Lamp - K83-

19 - Electromechanical Power Steering Indicator Lamp - K161-

20 - Windshield Washer Fluid Level Indicator Lamp - K37-

21 - Rear Lid -Open- Indicator Lamp - K127-

22 - Not Assigned

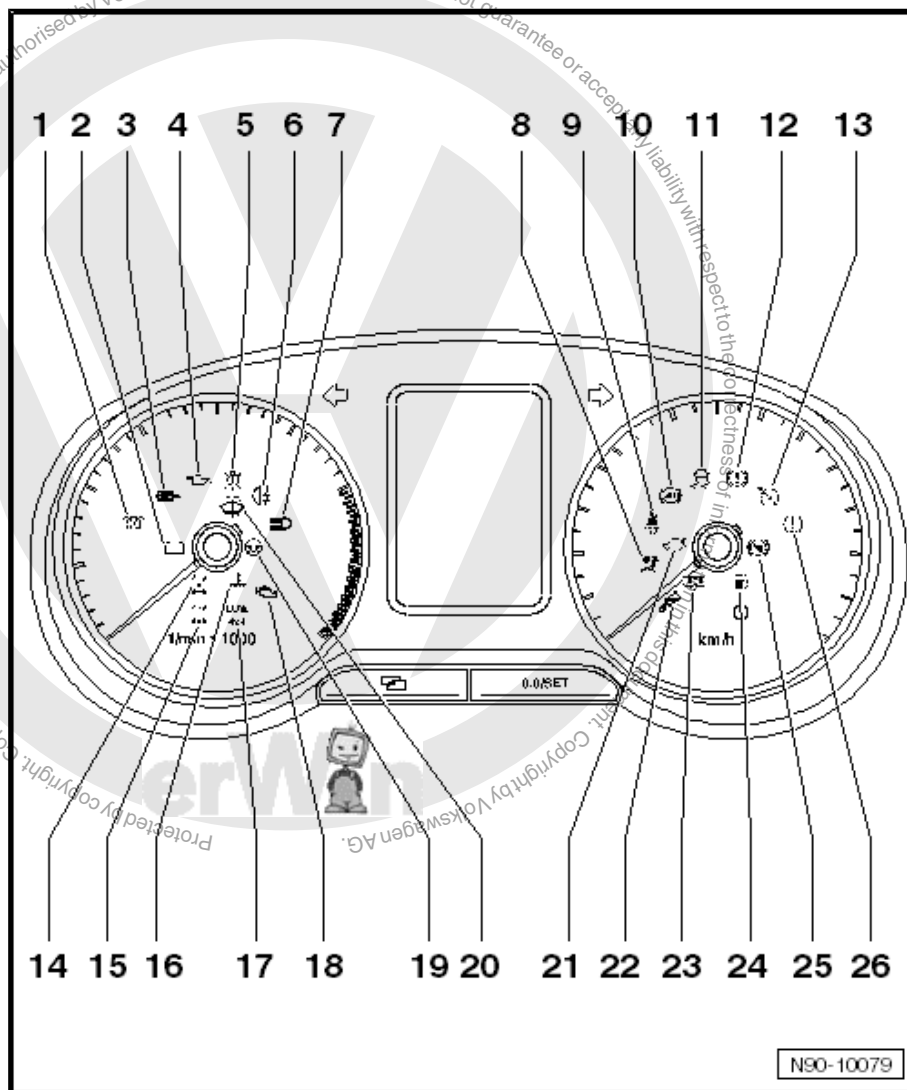
23 - Door Ajar Indicator Lamp - K166-

24 - Low Fuel Level Indicator Lamp - K16-

25 - Shift Lock Indicator Lamp - K169-

☐ Only on vehicles with an automatic transmission

26 - Tire Pressure Monitoring Display Indicator Lamp - K220-





1.2 Instrument Cluster, Removing and Installing

⇒ [“1.2.1 Instrument Cluster, Replacing”, page 103](#)

⇒ [“1.2.2 Instrument Cluster, Removing and Installing”, page 103](#)

1.2.1 Instrument Cluster, Replacing

The “instrument cluster replacement” procedure includes the following work to be completed:

- ◆ If a new Instrument Cluster is installed, the Instrument Cluster Control Module - J285- must be adjusted to the different equipment characteristics, codes and service data.
- ◆ To adapt the integrated Anti-Theft Immobilizer Control Module - J362- to the Engine Control Module - J623- , the data from the Engine Control Module - J623- must be stored in the new instrument cluster.
- ◆ Also, all ignition keys must be adapted after installing a new instrument cluster.

The Procedure to “Replace the Instrument Cluster”. Refer to Vehicle Diagnostic Tester in the “Guided Fault Finding” Function.

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01- OBD-capable systems
 - ◆ 17 -Instrument Cluster
 - ◆ Instrument cluster functions
 - ◆ Instrument Cluster, Replacing

1.2.2 Instrument Cluster, Removing and Installing

Before removing the instrument cluster, perform the “Replace instrument cluster” procedure to read out the data saved in the Instrument Cluster Control Module - J285- . Refer to [⇒ “1.2.1 Instrument Cluster, Replacing”, page 103](#) .

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.

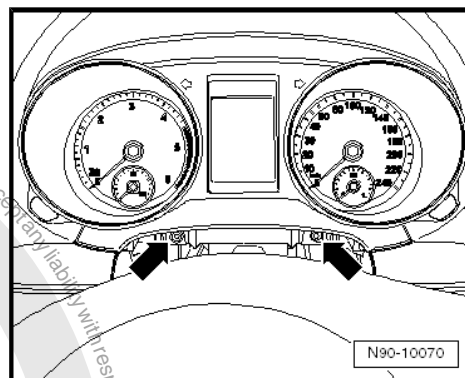
It is not necessary to remove the steering wheel.

- Pull the steering wheel all the way out and then lower as far down as it will go.
- Remove the instrument cluster trim with the left and center instrument panel vents. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Instrument Panel; Instrument Cluster Trim, Left and Center Instrument Panel Vents, Removing and Installing .
- Remove the upper section of the steering column trim panel. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments



and Covers; Steering Column Trim Panel, Removing and Installing .

- Remove the bolts -arrows-.
- Pull the instrument cluster straight to the rear out of the instrument panel while paying attention to the connected wires.
- Pivot the locking bracket -1- in the direction of -arrow- and disconnect the connector -2-.



- Remove the instrument cluster from the vehicle.

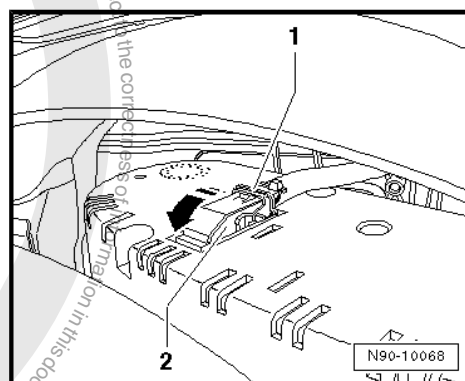
Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specifications.

Tightening Specifications

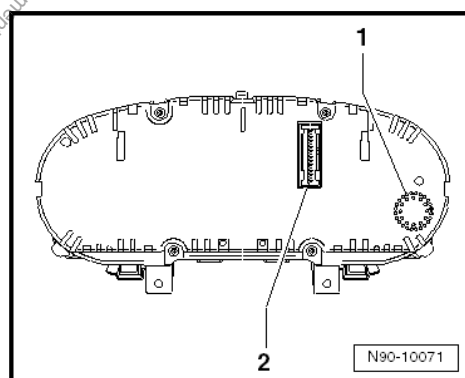
- ◆ Refer to ⇒ [“1.1.2 Overview - Instrument Cluster”, page 99](#)



1.3 Instrument Cluster Multi-Pin Connector Contact Assignment

High Version

- 1 - Buzzer
- 2 - 32-Pin Connector

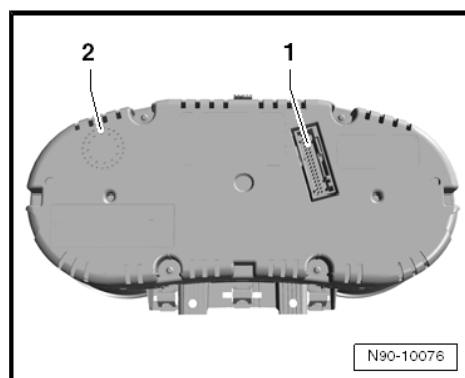


Low Version

- 1 - 32-Pin Connector
- 2 - Buzzer

Do not disassemble instrument cluster. In the event of malfunctions, replace complete instrument cluster.

Connector Assignment, Instrument Cluster. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.



1.4 Outside Air Temperature Sensor - G17- , Removing and Installing

The Outside Air Temperature Sensor - G17- is clipped into the front bumper trim panel.

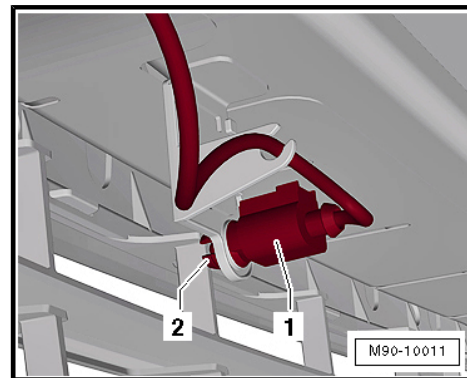


Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .
- Release and disconnect the connector -1-.
- Remove the Outside Air Temperature Sensor - G17- -2- from the holder on the bumper trim panel.

Installing

Install in reverse order of removal.





2 Horn

⇒ [“2.1 Overview - Horn”, page 106](#)

⇒ [“2.2 Horn, Removing and Installing”, page 106](#)

2.1 Overview - Horn

1 - Nut

- ☐ 10 Nm
- ☐ Tightening specification for the bracket bolt to longitudinal member: 20 Nm

2 - Low Tone Horn - H7-

- ☐ Removing and Installing. Refer to ⇒ [“2.2 Horn, Removing and Installing”, page 106](#).



Note

In “Guided Fault Finding”, the Low Tone Horn - H7- can be found under the name Signal Horn and Dual Tone Horn - H1-.

3 - Nut

- ☐ 10 Nm
- ☐ Tightening specification for the bracket bolt to longitudinal member: 20 Nm

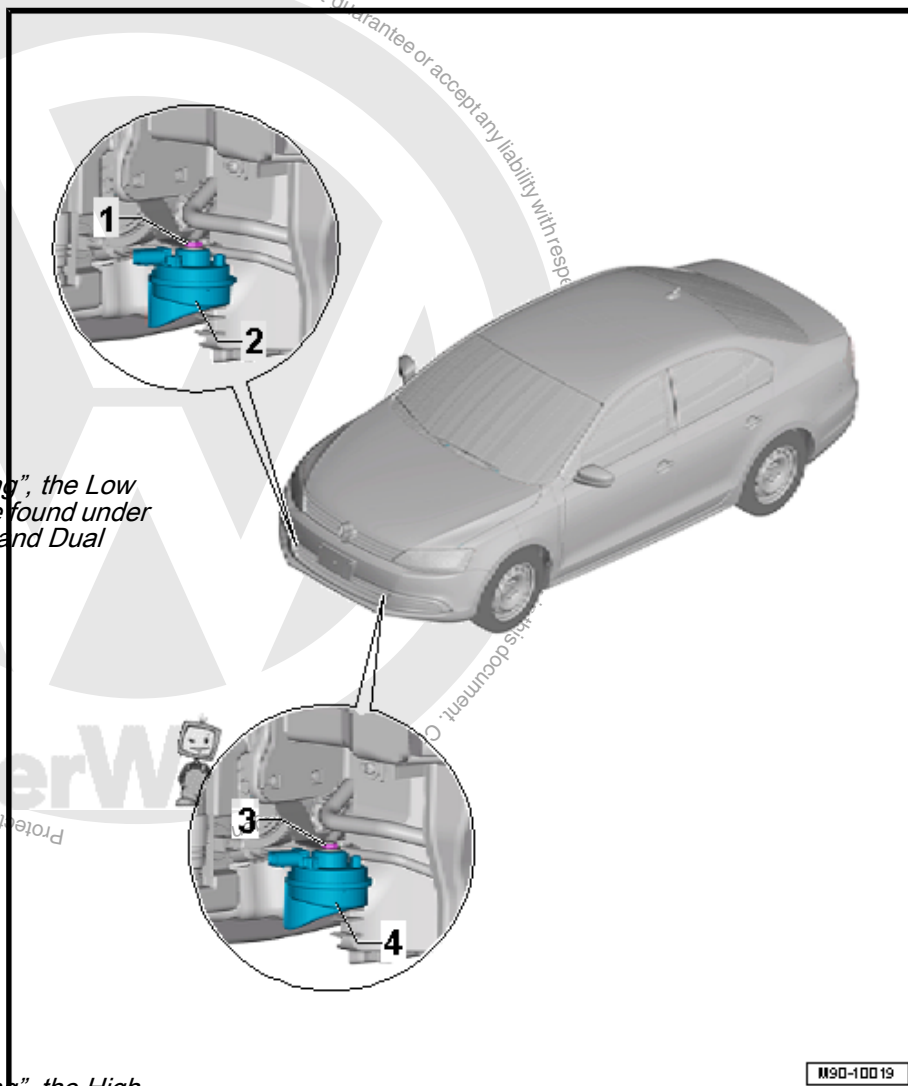
4 - High Tone Horn - H2-

- ☐ Removing and Installing. Refer to ⇒ [“2.2 Horn, Removing and Installing”, page 106](#).



Note

In “Guided Fault Finding”, the High Tone Horn - H2- can be found under the name Signal Horn and Dual Tone Horn - H1-.



M90-10019

2.2 Horn, Removing and Installing

The High Tone Horn - H2- / Low Tone Horn - H7- are activated by the Vehicle Electrical System Control Module - J519-.

The High Tone Horn - H2- is installed under the longitudinal member on the right and the Low Tone Horn - H7- is installed under the longitudinal member on the left.



Note

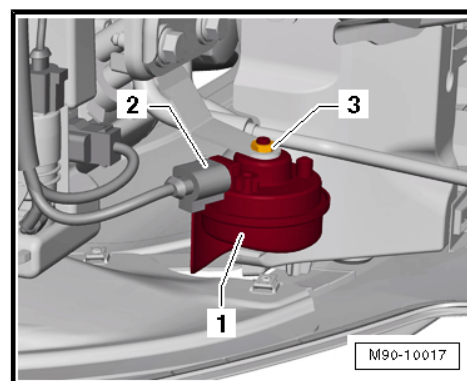
In "Guided Fault Finding", the High Tone Horn - H2- / Low Tone Horn - H7- can be found under the name Signal Horn and Dual Tone Horn - H1-.

Remove the High Tone Horn - H2- .

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .
- Release and disconnect the connector -2-.
- Remove the nut -3- and remove the High Tone Horn - H2- -1-.

Low Tone Horn - H7- , Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the noise insulation. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Noise Insulation .
- Disconnect the connector -3-.



- Remove the nut -2- and remove the Low Tone Horn - H7- -1-.

Installing

Install in reverse order of removal. Note the following:

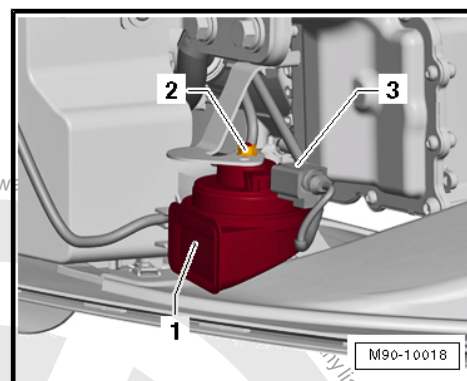
When installing, position the horns so that they are not touching any surrounding components.

- Tighten the threaded connections to the tightening specification.

Check the horns. Refer to Vehicle Diagnostic Tester .

Tightening Specifications

- ◆ Refer to ⇒ ["2.1 Overview - Horn", page 106](#)



92 – Wiper/Washer Systems

1 Windshield Wiper System

⇒ [“1.1 Overview - Windshield Wiper System”, page 108](#)

⇒ [“1.2 Windshield Wiper, Bringing into Service Position”, page 109](#)

⇒ [“1.3 Wiper Blade, Removing and Installing”, page 110](#)

⇒ [“1.4 Windshield Wiper Arms, Removing and Installing”, page 110](#)

⇒ [“1.5 Windshield Wiper Arms, Adjusting”, page 111](#)

⇒ [“1.6 Windshield Wiper Motor V, Removing and Installing”, page 112](#)

1.1 Overview - Windshield Wiper System

1 - Joint-Free Windshield Wiper

- ☐ Removing and installing. Refer to
⇒ [“1.3 Wiper Blade, Removing and Installing”, page 110](#).
- ☐ Park Position, Adjusting. Refer to
⇒ [“1.5 Windshield Wiper Arms, Adjusting”, page 111](#).

2 - Windshield Wiper Arm

- ☐ Removing and installing. Refer to
⇒ [“1.4 Windshield Wiper Arms, Removing and Installing”, page 110](#)

3 - Nut

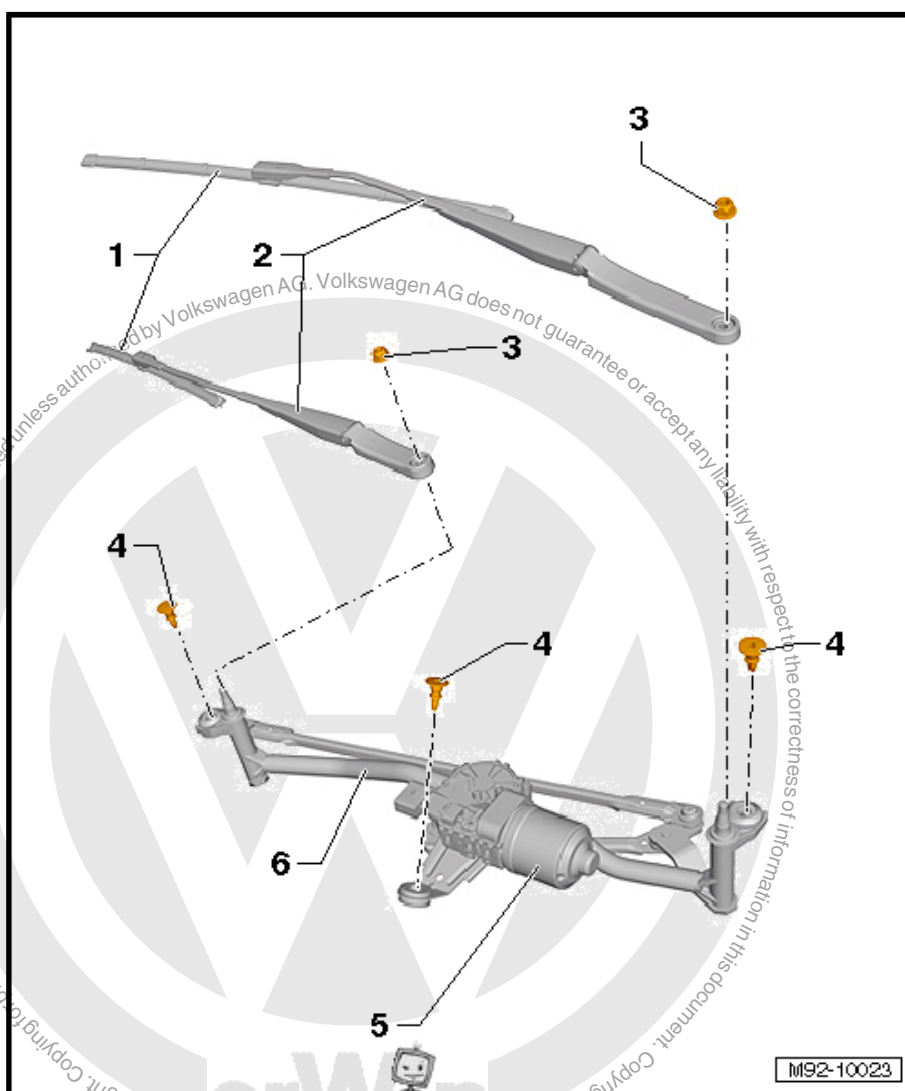
- ☐ 20 Nm
- ☐ Quantity: 2

4 - Bolt

- ☐ 5 Nm
- ☐ Quantity: 3

5 - Windshield Wiper Motor - V- with Wiper Motor Control Module - J400-

- ☐ Removing and installing. Refer to
⇒ [“1.6.2 Windshield Wiper Motor V, Removing and Installing”, page 113](#).
- ☐ Wiper Motor Control Module - J400-, coding/APP function, deactivating. Refer to
⇒ [“1.2.2 Wiper Motor Control Module J400, Deactivating APP Function”, page 109](#).





6 - Wiper Frame with Linkage

- ❑ Removing and installing. Refer to
⇒ [“1.6.1 Wiper Frame with Linkage and Windshield Wiper Motor V , Removing”, page 112](#) .

No Illustration

- ◆ Windshield Wiper Motor - V- bolts to the wiper frame with linkage: 8 Nm
- ◆ Windshield wiper motor crank to windshield wiper motor shaft: 18 Nm

1.2 Windshield Wiper, Bringing into Service Position

⇒ [“1.2.1 Windshield Wiper, Bringing into Service Position”, page 109](#)

⇒ [“1.2.2 Wiper Motor Control Module J400 , Deactivating APP Function”, page 109](#)

1.2.1 Windshield Wiper, Bringing into Service Position

The windshield wiper arms must be in the “service/winter position” in order to remove the wiper blades. The “service/winter position” is activated by operating the windshield wiper lever in the “one-touch wiping” position within 10 seconds after switching off the ignition. Refer to the Owner's Manual.

1.2.2 Wiper Motor Control Module - J400- , Deactivating APP Function

The windshield wiper system is equipped with the APP function (alternating park position).

The APP function causes the wiper, after every second time it is switched off, to move up one level after reaching the lowest position.

To install the motor crank on the Windshield Wiper Motor - V- , it is necessary to shut off the Windshield Wiper Motor - V- in the lower park position. This is attained by deactivating the APP function.

Note the following:

- ◆ An activation of APP function is not possible.
- ◆ APP function is automatically activated after 100 wiping cycles. This applies to Windshield Wiper Motors - V- in which the APP function was deactivated as well as new Windshield Wiper Motors - V- .

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 09 - vehicle electrical system control module



- ◆ Vehicle electrical system control module functions
- ◆ Coding the wiper motor control module/deactivating the APP function

1.3 Wiper Blade, Removing and Installing

Right and left wiper blades may not be interchanged during installation.

Joint-free wiper blades are very flexible. Grasp the wiper blades in the area for the wiper blade mount only and lift them away from the windshield.

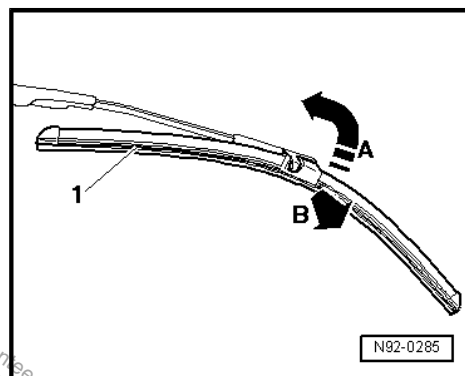
To remove wiper blades, wiper arms must be put into "service/winter position". The "service/winter position" is activated by operating windshield wiper lever in "one-touch wiping" setting within 10 seconds after switching off the ignition.

Removing

- Move the wiper arms into "service/winter position" by moving windshield wiper lever into "one-touch wiping" position within 10 seconds after switching off the ignition.
- Fold the wiper arm up.
- Tilt the wiper blade -1- on wiper arm all the way in direction of -arrow A-.
- Remove the wiper blade -1- from the wiper arm axle -arrow B-.

Installing

- Push the wiper blade onto the wiper arm axle.
- Turn the wiper blade all the way on the wiper arm axle.
- Carefully fold the wiper arm back onto the windshield.



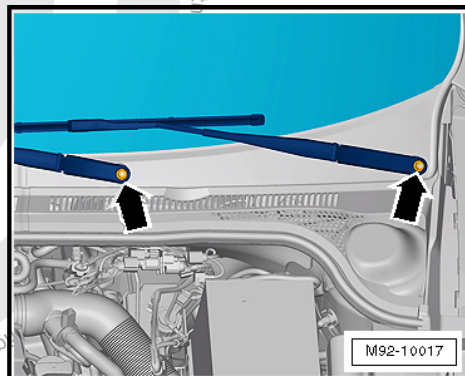
1.4 Windshield Wiper Arms, Removing and Installing

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-
- ◆ Puller - Wiper Arm Kit - T10369-

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Pry out the caps -arrows- using a screwdriver.
- Remove the nuts -arrows-.





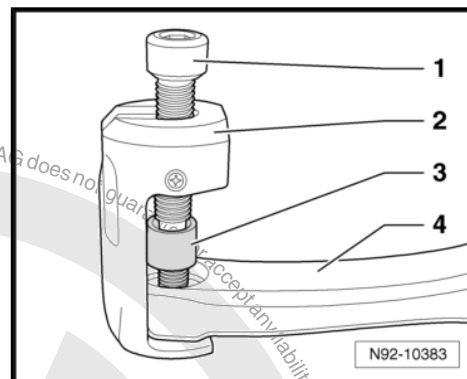
- Slide the arms of the Puller - Wiper Arm Kit - Puller 1 - T10369/1- -2- under the windshield wiper arm -4- as shown in the illustration.



Caution

The windshield wiper shaft can be damaged.

Always use the thrust piece -3- to loosen the windshield wiper arm.

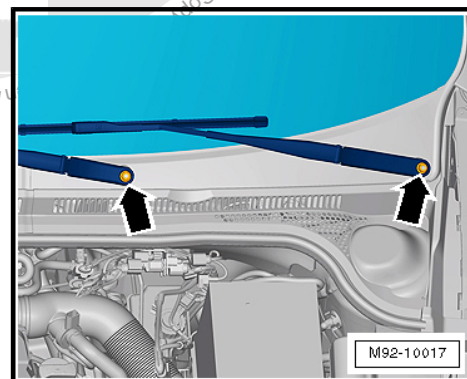


- Turn the pressure bolt -1- for the Puller - Wiper Arm Kit - Puller 1 - T10369/1- clockwise until the thrust piece -3- makes contact with the wiper arm shaft. Turn the pressure bolt -1- for the Puller - Wiper Arm Kit - Puller 1 - T10369/1- clockwise with a hex socket wrench until the windshield wiper arm -4- comes loose off the shaft.
- Remove the Puller - Wiper Arm Kit - Puller 1 - T10369/1- and the wiper arm.

Installing

Tighten the nuts on the wiper arms only after the wiper arms have been adjusted.

- Deactivate the APP function. Refer to ["1.2.2 Wiper Motor Control Module J400, Deactivating APP Function", page 109](#).
- Switch the windshield wipers on and off when the ignition is switched on so that the Windshield Wiper Motor - V- goes into its park position.
- Mount both windshield wiper arms in the approximate park positions on the wiper arm shafts and tighten the nuts -arrows- hand-tight.
- Adjust the windshield wiper arms. Refer to ["1.5 Windshield Wiper Arms, Adjusting", page 111](#).
- Install the cover and trim panel.



1.5 Windshield Wiper Arms, Adjusting

Special tools and workshop equipment required

- ♦ Torque Wrench 1331 5-50Nm - VAG1331-

Procedure

- Deactivate the APP function. Refer to ["1.2.2 Wiper Motor Control Module J400, Deactivating APP Function", page 109](#).
- Let the wiper return to its park position and then switch off the ignition.
- Adjust the windshield wiper arms at this time.

Driver Side

Distance -a- between tips of wiper lips and upper edge of plenum chamber cover must be 10 mm.

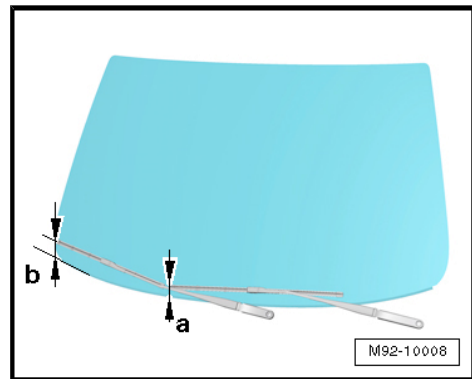


- If necessary, adjust the windshield wiper blade park position by repositioning the windshield wiper arm.
- Tighten the threaded connections to the tightening specification.

Front Passenger Side

Distance -b- between tips of wiper lips and upper edge of plenum chamber cover must be 10 mm.

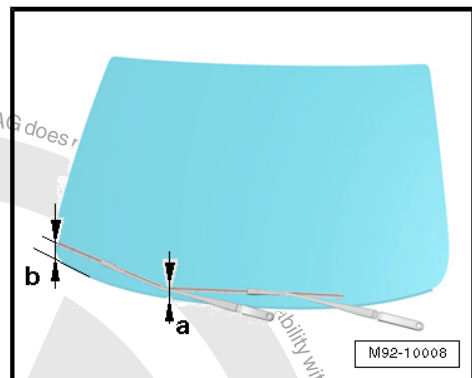
- If necessary, adjust the windshield wiper blade park position by repositioning the windshield wiper arm.



- Tighten the threaded connections to the tightening specification.

Tightening Specifications

- ♦ Refer to
⇒ ["1.1 Overview - Windshield Wiper System", page 108](#)



1.6 Windshield Wiper Motor - V- , Removing and Installing

⇒ ["1.6.1 Wiper Frame with Linkage and Windshield Wiper Motor V , Removing", page 112](#)

⇒ ["1.6.2 Windshield Wiper Motor V , Removing and Installing", page 113](#)

1.6.1 Wiper Frame with Linkage and Windshield Wiper Motor - V- , Removing

Procedure

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the windshield wiper arms. Refer to
⇒ ["1.4 Windshield Wiper Arms, Removing and Installing", page 110](#).
- Remove the plenum chamber cover. Refer to ➤ Body Exterior; Rep. Gr. 50 ; Plenum Chamber Cover; Plenum Chamber Cover, Removing and Installing .
- Release and disconnect the connector -1-.



- Remove the bolts -arrows- and remove the wiper frame -2- upward from the vehicle.

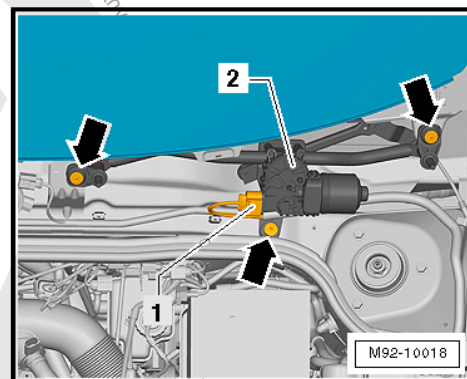
Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification.

Tightening Specifications

- ◆ Refer to
⇒ [“1.1 Overview - Windshield Wiper System”, page 108](#)



1.6.2 Windshield Wiper Motor - V- , Removing and Installing

General Information

The Wiper Motor Control Module - J400- is integrated with the Windshield Wiper Motor - V- .

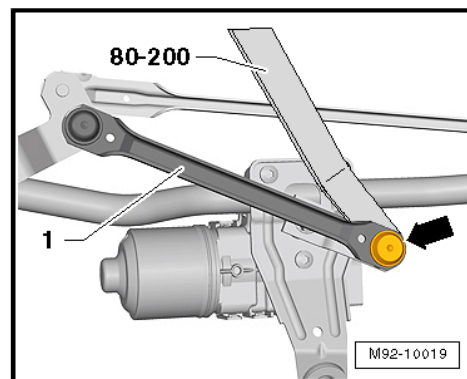
Malfunction Recognition and Malfunction Indicator

The Vehicle Electrical System Control Module - J519- is equipped with OBD.

For troubleshooting. Refer to Vehicle Diagnostic Tester in the “Guided Fault Finding” function.

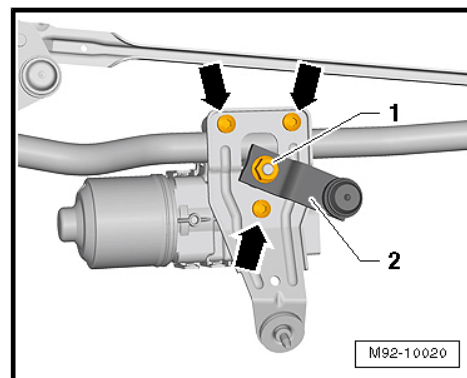
Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the wiper frame together with the linkage. Refer to ⇒ [“1.6.1 Wiper Frame with Linkage and Windshield Wiper Motor V , Removing”, page 112](#) .
- Pry off the ball head -arrow- of linkage -1- from motor crank using Pry Lever - 80-200- .
- Remove the nut -1-.
- Remove the motor crank -2- from the windshield wiper motor shaft.



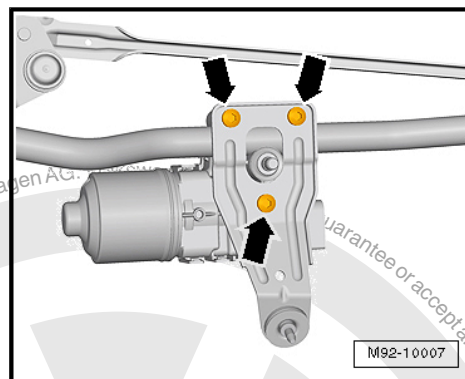
- Remove the mounting bolts -arrows- and remove the Windshield Wiper Motor - V- with the Wiper Motor Control Module - J400- from the wiper frame.

Installing

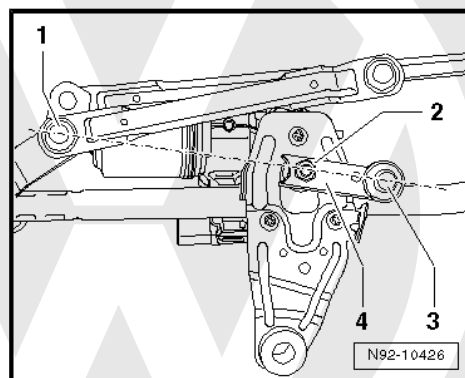




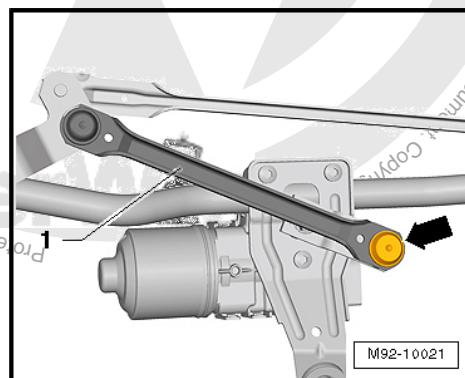
- Insert the Windshield Wiper Motor - V- with the Windshield Wiper Motor Control Module - J400- into the wiper frame and tighten the bolts -arrows-.



- Attach the motor crank -4- to the Windshield Wiper Motor - V- shaft -2- so that the three points shown in the illustration -1-, -2- and -3- line up.
- Tighten the motor crank and the Windshield Wiper Motor - V- shaft with the nut -2-.



- Push the ball head -arrow- from the linkage -1- onto the motor crank.



Tightening Specifications

- ♦ Refer to
⇒ ["1.1 Overview - Windshield Wiper System", page 108](#)

1.7 Rain/Light Recognition Sensor - G397- , Removing and Installing

The Rain/Light Recognition Sensor - G397- can be installed again if it is not damaged when removing it from the retaining plate on the windshield (for example when replacing the windshield). If the windshield is cracked in the area near the Rain/Light Recognition Sensor - G397- , then the Rain/Light Recognition Sensor - G397- cannot be used again.

Store the removed Rain/Light Recognition Sensor - G397- in a dust-free area and keep the silicone connecting pads from getting dirty.

If a Rain/Light Recognition Sensor - G397- is replaced with a Rain/Light Recognition Sensor - G397- with a different part number, the new Rain/Light Recognition Sensor - G397- must be coded. Refer to

⇒ ["2.2.10 Rain/Light Recognition Sensor G397 , Coding", page 325](#) .

The Rain/Light Recognition Sensor - G397- cannot be optionally installed. Refer to the Parts Catalog for the correct Rain/Light Recognition Sensor - G397- .



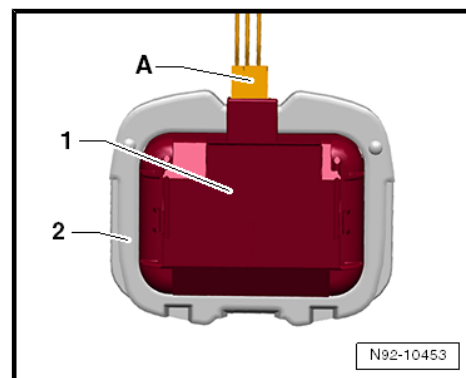
Rain/Light Recognition Sensor - G397- , Servicing, Manufacturer TRW. Refer to

➔ **"1.7.1 Rain/Light Recognition Sensor G397 , Servicing, Manufacturer TRW", page 116 .**

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the interior rearview mirror. Refer to ➔ Body Interior; Rep. Gr. 68 ; Interior Rearview Mirror; Interior Rearview Mirror, Removing and Installing .
- Disconnect the connector -A- from the Rain/Light Recognition Sensor - G397- -1-.

Not every Rain/Light Recognition Sensor - G397- has the third opening. If this opening is not there, pry it out at another suitable location.



Pry the Rain/Light Recognition Sensor - G397- -1- out of the retaining plate -2- at the opening -3- using a suitable flat-head screwdriver.

While removing, the complete Rain/Light Recognition Sensor - G397- and not just the upper shell of the Rain/Light Recognition Sensor - G397- must be pried off.

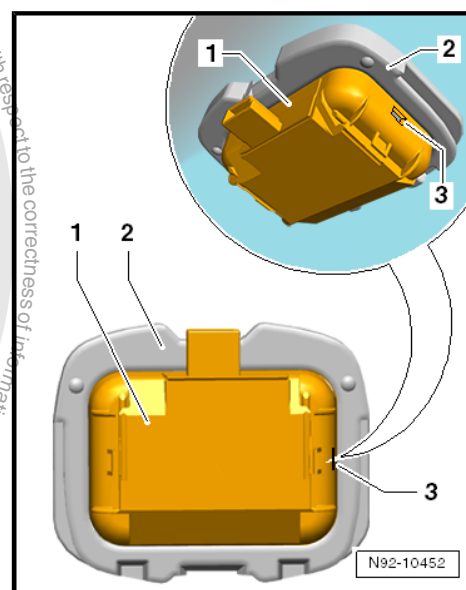
Installing

Install in reverse order of removal. Note the following:



Caution

- ◆ ***Always clean the windshield surface inside the Rain/Light Recognition Sensor - G397- holder before installing. Remove any traces of the connecting pad still remaining on the windshield.***
- ◆ ***Surface (connecting pads) of Rain/Light Recognition Sensor - G397- must not be contaminated or damaged when installing. Replace the Rain/Light Recognition Sensor - G397- if the connecting pad is damaged.***



Surface (connecting pads) of the Rain/Light Recognition Sensor - G397- must not be contaminated when installing.

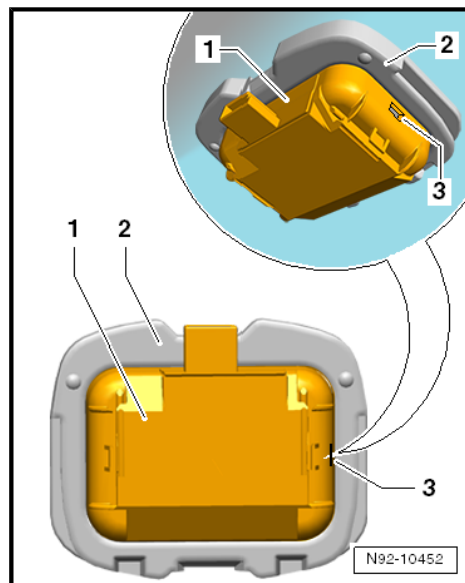
If the surface (connecting pads) of the Rain/Light Recognition Sensor - G397- is contaminated, it can be potentially cleaned by "applying" and then "pulling off" one or more adhesive strips.

- Clean the windshield around the base plate thoroughly with isopropyl alcohol. Refer to ➔ Body Interior; Rep. Gr. 68 ; Interior Rearview Mirror; Interior Rearview Mirror Baseplate, Servicing .
- Remove the cap from the new Rain/Light Recognition Sensor - G397- .

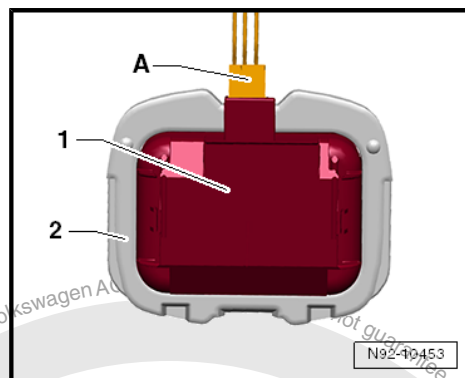


- Insert the Rain/Light Recognition Sensor - G397- -1- into the retaining plate on the windshield -2- and then press it in securely.

Approximately 10 minutes after installing, there must be no air bubbles between the windshield and connecting pads for the Rain/Light Recognition Sensor - G397- .



- Connect the connector -A- and install the wire cover to secure the Rain/Light Recognition Sensor - G397- -1-.
- Install the interior rearview mirror. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Interior Rearview Mirror; Interior Rearview Mirror, Removing and Installing .
- Code the Rain/Light Recognition Sensor - G397- using the Vehicle Diagnostic Tester. Refer to ⇒ [“2.2.10 Rain/Light Recognition Sensor G397 , Coding”, page 325](#) .



1.7.1 Rain/Light Recognition Sensor - G397- , Servicing, Manufacturer TRW

Only TRW can replace the housing and optical unit if the optical unit (coupling cushion) is damaged.

The housing and optical unit are always delivered with mounting clips. Remove these clips if they are not needed.

Procedure

- Remove the Rain/Light Recognition Sensor - G397- . Refer to ⇒ [“1.7 Rain/Light Recognition Sensor G397 , Removing and Installing”, page 114](#) .



Caution

The rain sensor electronics may be damaged.

Be careful not to insert the screwdriver all the way through the housing up to the rain sensor electronics.

Do not touch the rain sensor electronics.



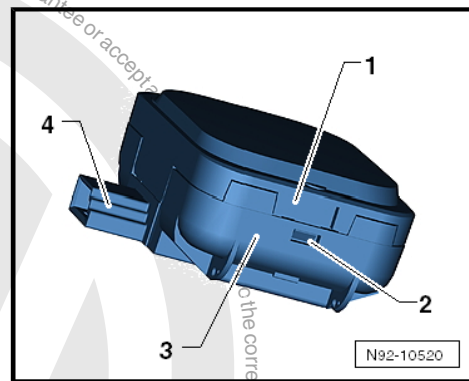
- Press the tab -2- on both sides and separate the upper section -1- with optical unit from the lower section -3-.
- Remove the rain sensor electronics at the connector -4- from the old lower section and install the new electronics the exact same way.



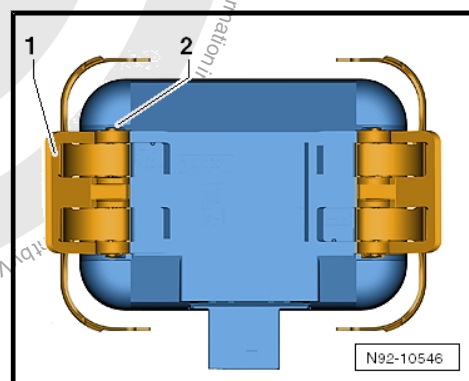
Caution

Do not touch the optical unit.

Remove the protective cover just before installing the Rain/Light Recognition Sensor - G397- .



- Assemble the new housing upper section with optical unit and protective cover with the housing lower section.
- Pry the clip and bracket -1- out of the rain sensor housing -2- with a screwdriver.
- Install the Rain/Light Recognition Sensor - G397- . Refer to [⇒ "1.7 Rain/Light Recognition Sensor G397 , Removing and Installing", page 114](#).
- Code the Rain/Light Recognition Sensor - G397- using the Vehicle Diagnostic Tester. Refer to [⇒ "2.2.10 Rain/Light Recognition Sensor G397 , Coding", page 325](#) .





2 Windshield Washer System

⇒ [“2.1 Overview - Windshield Washer System”, page 118](#)

⇒ [“2.2 Washer Fluid Reservoir, Removing and Installing”, page 119](#)

⇒ [“2.3 Windshield Washer Fluid Level Sensor G33 , Removing and Installing”, page 121](#)

⇒ [“2.4 Windshield Washer Pump V5 , Removing and Installing”, page 121](#)

⇒ [“2.5 Spray Nozzles, Removing and Installing”, page 122](#)

⇒ [“2.6 Spray Nozzles, Adjusting”, page 122](#)

2.1 Overview - Windshield Washer System

1 - Right Windshield Washer Spray Nozzle

- ☐ Removing and installing. Refer to
⇒ [“2.5 Spray Nozzles, Removing and Installing”, page 122](#) .
- ☐ Adjusting. Refer to
⇒ [“2.6 Spray Nozzles, Adjusting”, page 122](#) .

2 - Left Windshield Washer Spray Nozzle

- ☐ Removing and installing. Refer to
⇒ [“2.5 Spray Nozzles, Removing and Installing”, page 122](#) .
- ☐ Adjusting. Refer to
⇒ [“2.6 Spray Nozzles, Adjusting”, page 122](#) .

3 - Hose

- ☐ Hose repair. Refer to
⇒ [“4 Washer Fluid Hoses”, page 128](#) .

4 - Washer Fluid Reservoir Filler Neck

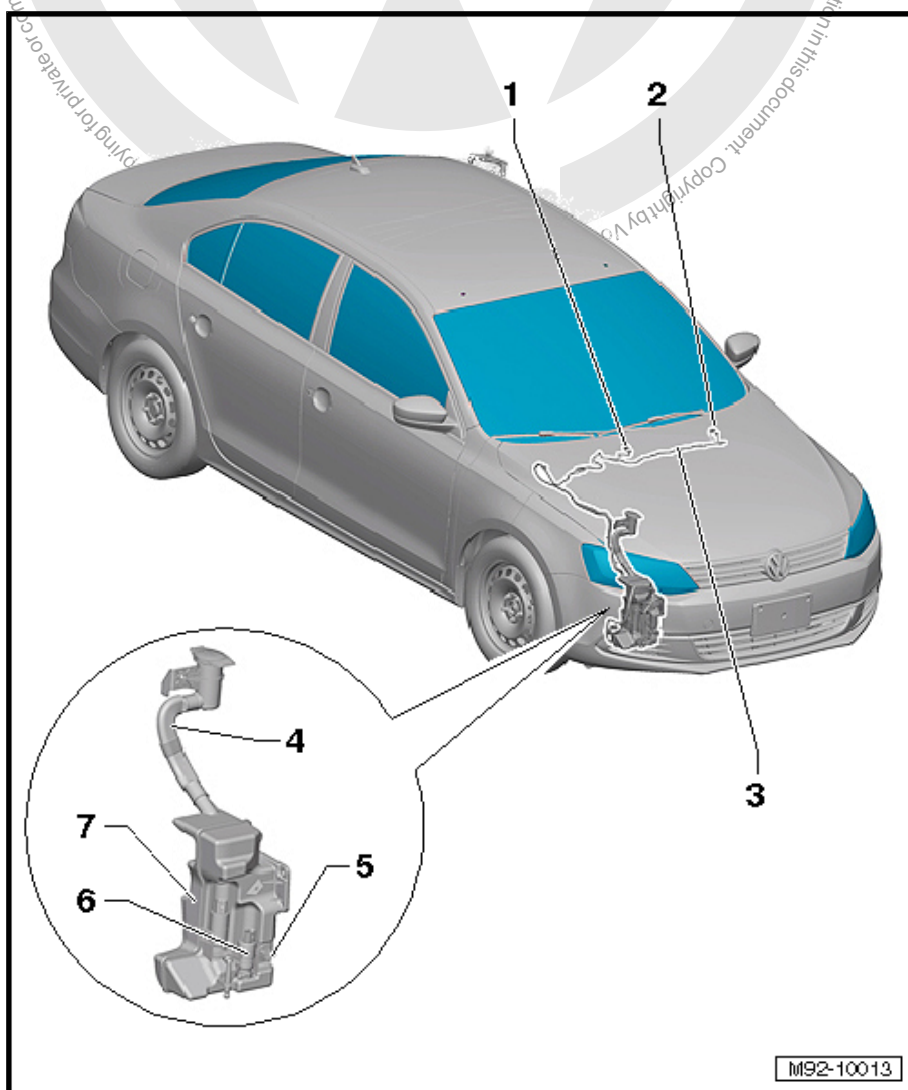
- ☐ Removing and installing. Refer to
⇒ [“2.2.1 Filler Neck, Removing and Installing”, page 119](#) .

5 - Windshield Washer Fluid Level Sensor - G33-

- ☐ Removing and installing. Refer to
⇒ [“2.3 Windshield Washer Fluid Level Sensor G33 , Removing and Installing”, page 121](#) .

6 - Windshield Washer Pump - V5-

- ☐ Removing and installing. Refer to
⇒ [“2.4 Windshield Washer Pump V5 , Removing and Installing”, page 121](#) .





7 - Washer Fluid Reservoir

- ❑ Removing and installing. Refer to ⇒ [“2.2 Washer Fluid Reservoir, Removing and Installing”, page 119](#).

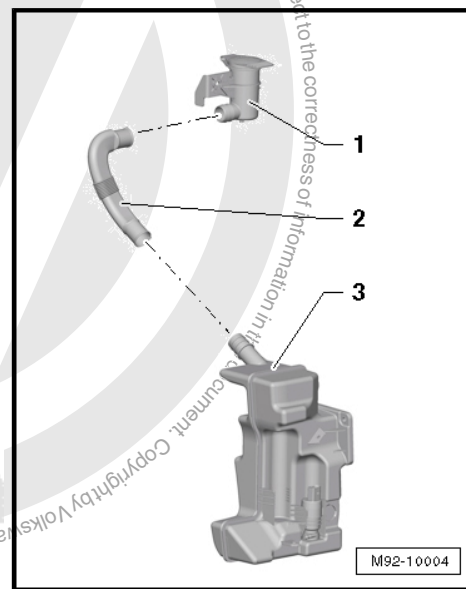
No Illustration

- ◆ Windshield washer fluid reservoir to body: 8 Nm

2.2 Washer Fluid Reservoir, Removing and Installing

The windshield washer fluid reservoir has three parts. The individual components are connected. In order to guarantee the correct position of the parts with respect to each other, make sure that the guides present on the individual components interlock in each other during assembly.

- 1 - Filler tube, removing and installing. Refer to ⇒ [“2.2.1 Filler Neck, Removing and Installing”, page 119](#).
- 2 - Filler Tube Connecting Pipe to Windshield Washer Fluid Reservoir The connecting pipe and the windshield washer fluid reservoir are removed together. Refer to ⇒ [“2.2.2 Washer Fluid Reservoir, Removing and Installing”, page 120](#).
- 3 - Washer Fluid Reservoir, Removing and installing. Refer to ⇒ [“2.2.2 Washer Fluid Reservoir, Removing and Installing”, page 120](#).



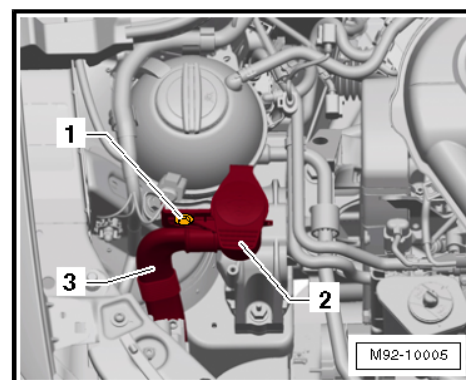
2.2.1 Filler Neck, Removing and Installing

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the connecting pipe -3- from the filler neck -2- for the washer fluid reservoir.
- Remove the bolt -1-.
- Unclip the hose bracket from the filler neck -2- and remove it from the vehicle.

Installing

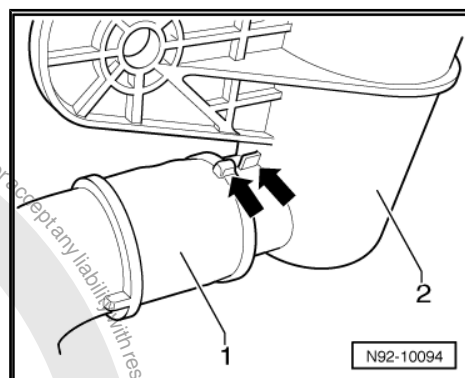
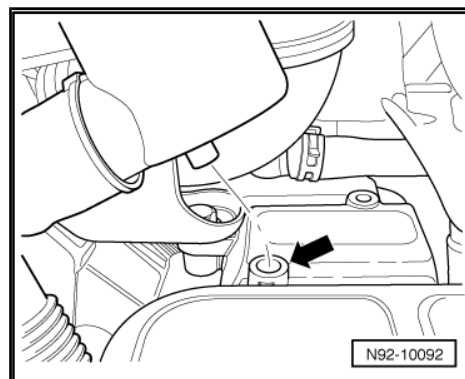
Install in reverse order of removal. Note the following:





The casting mark on the bottom side of the filler neck must be inserted into the hole -arrow-.

The connecting pipe -1- and filler neck -2- must be joined so that the guides -arrows- interlock in each other.



- Tighten the threaded connections to the tightening specification.

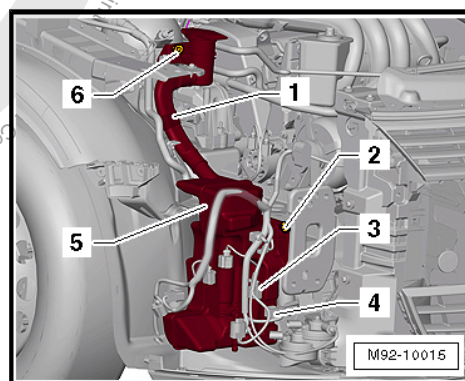
Tightening Specifications

- ◆ Refer to
⇒ ["2.1 Overview - Windshield Washer System", page 118](#)

2.2.2 Washer Fluid Reservoir, Removing and Installing

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63; Front Bumper Cover; Front Bumper Cover, Removing and Installing.
- Turn the clip to unlock the hose connection and then remove it from the Windshield Washer Pump - V5- -3-.
- Catch any draining washer fluid in a suitable container.
- Release and disconnect the connector from the Windshield Washer Pump - V5- -3-.
- Release and disconnect the Windshield Washer Fluid Level Sensor - G33- connector -4-.





- Remove the screws -2,5, and 6- then remove the washer fluid reservoir -1- from the vehicle.

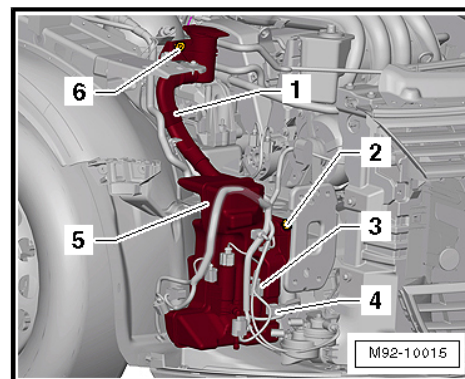
Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification.

Tightening Specifications

- ◆ Refer to
⇒ ["2.1 Overview - Windshield Washer System", page 118](#)



2.3 Windshield Washer Fluid Level Sensor - G33- , Removing and Installing

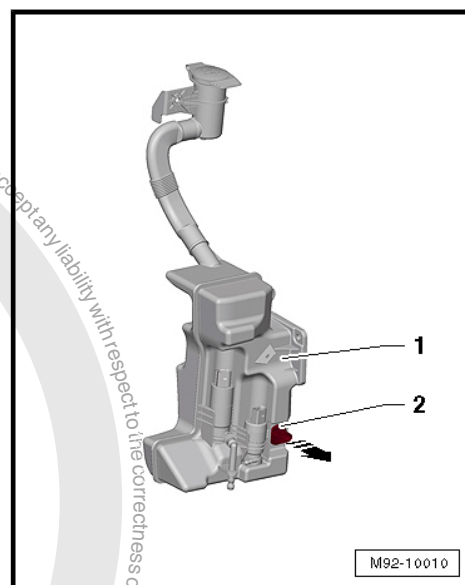
Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the right air grille from the front bumper. Refer to ⇒ Body Exterior; Rep. Gr. 63 ; Front Bumper Cover; Front Bumper Cover Attachments .
- Release and disconnect the Windshield Washer Fluid Level Sensor - G33- connector -2-.
- Pull the Windshield Washer Fluid Level Sensor - G33- -2- out of the rubber seal on the washer fluid reservoir -1-.
- Catch any draining washer fluid in a suitable container.

Installing

Install in reverse order of removal. Note the following:

- Bleed the headlamp washer system after finishing assembly work. Refer to ⇒ [page 125](#) .



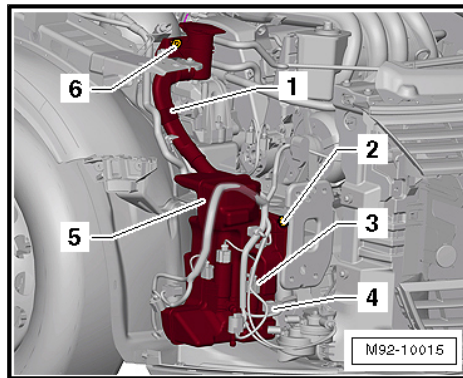
2.4 Windshield Washer Pump - V5- , Removing and Installing

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the right air grille from the front bumper. Refer to ⇒ Body Exterior; Rep. Gr. 63 ; Front Bumper Cover; Front Bumper Cover Attachments .



- Turn the clip to unlock the hose connection and then remove it from the Windshield Washer Pump - V5- -3-.
- Catch any draining washer fluid in a suitable container.

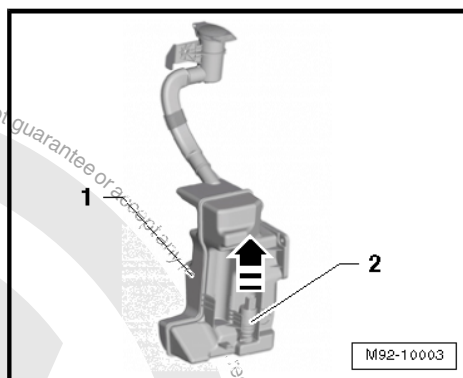


- Pull the Windshield Washer Pump - V5- -2- upward and out of the washer fluid reservoir -1- and release and disconnect the connector.

Installing

Install in reverse order of removal. Note the following:

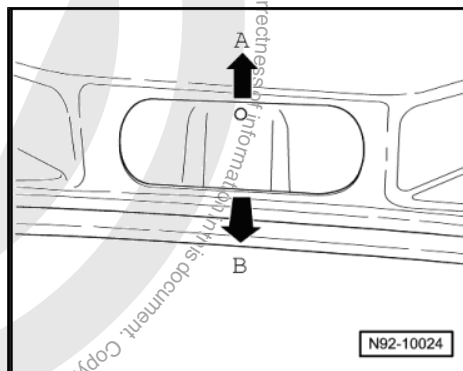
- Bleed the headlamp washer system after finishing assembly work. Refer to [⇒ page 125](#).



2.5 Spray Nozzles, Removing and Installing

Removing

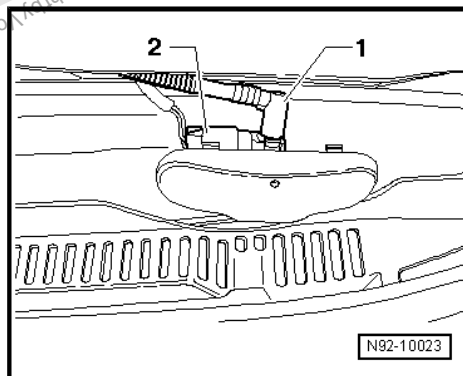
- Push the spray nozzle upward -arrow A- and remove it from the door -arrow B-.



- Pull the hose -1- off the spray nozzle and disconnect the connector -2-.

Installing

- Connect the connector -2- and attach the hose -1-.
- Slide spray nozzle into installation opening until it engages audibly.
- Adjust the spray nozzles. Refer to [⇒ "2.6 Spray Nozzles, Adjusting", page 122](#).



2.6 Spray Nozzles, Adjusting

If the spraying field is uneven due to dirt in the nozzle, remove the spray nozzles and flush the nozzle out in the opposite direction of the spray. It is then permitted to blow compressed air opposite



the spray direction. Do not clean the spray nozzles using any objects.





3 Headlamp Washer System

- ⇒ [“3.1 Overview - Headlamp Washer System”, page 124](#)
- ⇒ [“3.2 Headlamp Washer Pump V11 , Removing and Installing”, page 125](#)
- ⇒ [“3.3 Spray Nozzles, Removing and Installing”, page 125](#)
- ⇒ [“3.4 Spray Nozzles, Adjusting”, page 126](#)
- ⇒ [“3.5 Lift Cylinder, Removing and Installing”, page 126](#)

3.1 Overview - Headlamp Washer System

1 - Washer Fluid Reservoir Filler Neck

- ❑ Removing and installing. Refer to
⇒ [“2.2.1 Filler Neck, Removing and Installing”, page 119](#).

2 - Washer Fluid Reservoir

- ❑ Removing and installing. Refer to
⇒ [“2.2 Washer Fluid Reservoir, Removing and Installing”, page 119](#).

3 - Headlamp Washer Pump - V11-

- ❑ Removing and installing. Refer to
⇒ [“3.2 Headlamp Washer Pump V11 , Removing and Installing”, page 125](#).

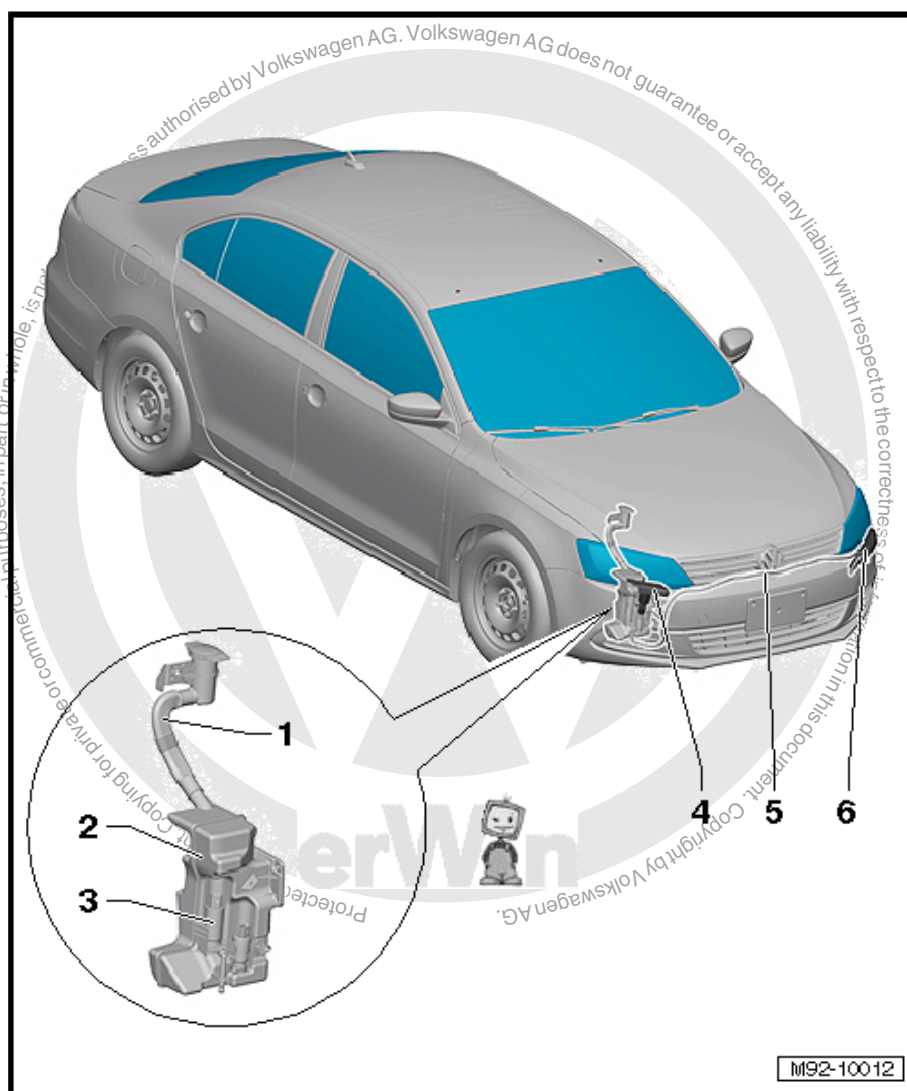
4 - Right Spray Nozzle Holder with Spray Nozzles

- ❑ Spray Nozzles, Removing and installing. Refer to
⇒ [“3.3 Spray Nozzles, Removing and Installing”, page 125](#).
- ❑ Spray Nozzles, Adjusting. Refer to
⇒ [“3.4 Spray Nozzles, Adjusting”, page 126](#).
- ❑ Lift cylinder for spray nozzles, removing and installing. Refer to
⇒ [“3.5 Lift Cylinder, Removing and Installing”, page 126](#).

5 - Hose

6 - Left Spray Nozzle Holder with Spray Nozzles

- ❑ Spray Nozzles, Removing and installing. Refer to
⇒ [“3.3 Spray Nozzles, Removing and Installing”, page 125](#).
- ❑ Spray Nozzles, Adjusting. Refer to ⇒ [“3.4 Spray Nozzles, Adjusting”, page 126](#).
- ❑ Lift cylinder for spray nozzles, removing and installing. Refer to
⇒ [“3.5 Lift Cylinder, Removing and Installing”, page 126](#).





No Illustration

- ◆ Lift cylinder for spray nozzles to the front bumper cover: 4.5 Nm

3.2 Headlamp Washer Pump - V11- , Removing and Installing

The Headlamp Washer Pump - V11- is attached to the washer fluid reservoir in the right wheel housing.

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63 ; Front Bumper Cover; Front Bumper Cover, Removing and Installing .
- Remove the Headlamp Washer Pump - V11- -2- upward out of the washer fluid reservoir -1-.
- Release and disconnect the connector.
- Pull the clip on the connection to remove the connecting pipe, and remove the connecting pipe from the Headlamp Washer Pump - V11- -2-.

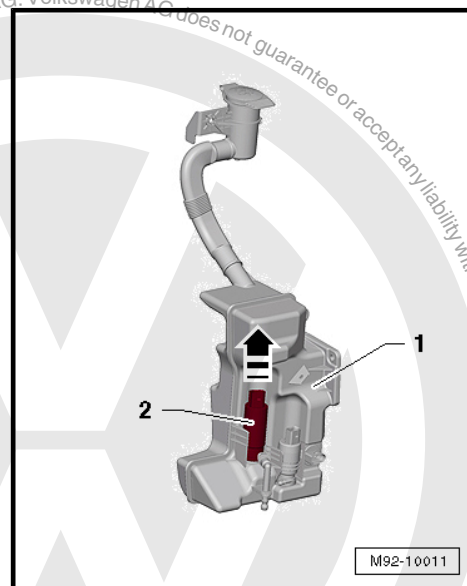
Installing

Install in reverse order of removal. Note the following:

- Bleed the headlamp washer system after finishing assembly work. Refer to ⇒ [page 125](#) .

Headlamp Washer System, Bleeding

- Fill the washer fluid reservoir.
- Start the engine.
- Switch the headlamps on.
- Operate the headlamp washer system several times (3 to 5 impulses for every 3-second period).
- Repeat the bleeding procedure until the lift cylinders and spray nozzles function correctly.



3.3 Spray Nozzles, Removing and Installing

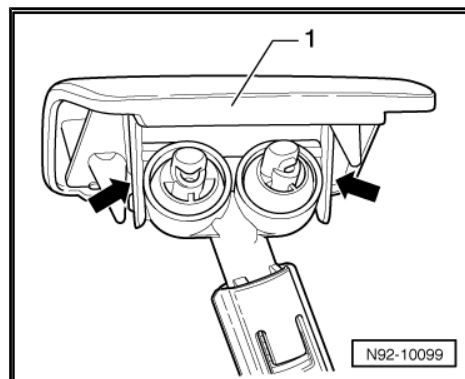
Removing and installing the left spray nozzle holder is shown in the following illustrations. Removing and installing the right spray nozzle holder is identical.

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.



- Pull the spray nozzles and the cap -1- off the bumper cover until it stops.
- Remove the cap -1- from the mountings -arrows- on the spray nozzle holder.

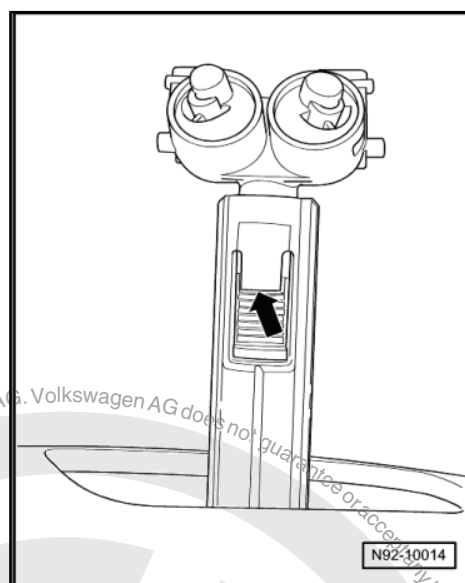


- Lift the retaining hook -arrow- slightly and remove the spray nozzle holder.

Installing

Use the catches on the spray nozzle holder to adjust how far the cap of the spray nozzle is pulled onto the bumper cover. The cap will not close if the spray nozzle bracket is not pushed back far enough. If the spray nozzle bracket moves with too much force, the cap and the bumper cover will get deformed.

- Push the spray nozzle holder into the lift cylinder until it locks in place.
- Place the cap on the spray nozzle bracket and let the lift cylinder draw inward.
- Check the cap for proper seating on the bumper cover.
- Bleed the headlamp washer system after finishing assembly work. Refer to ➔ [page 125](#) .



3.4 Spray Nozzles, Adjusting

If the spraying field is uneven due to dirt in the nozzle, remove the spray nozzles and flush the nozzle out in the opposite direction of the spray. It is then permitted to blow compressed air opposite the spray direction. Do not clean the spray nozzles using any objects.

3.5 Lift Cylinder, Removing and Installing

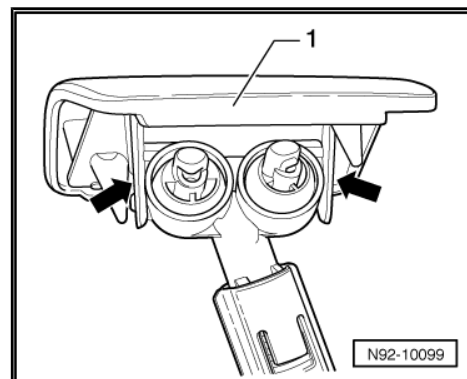
Removing and installing the left spray nozzle lift cylinder is shown in the following illustrations. Removing and installing the right spray nozzle is identical.

Removing

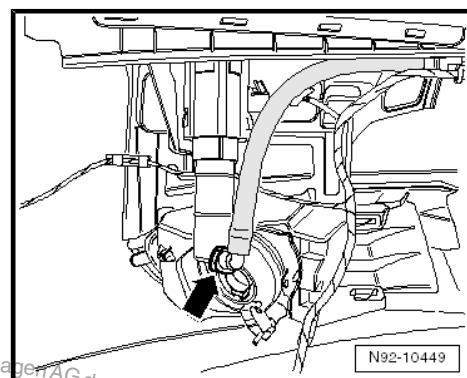
- Turn off the ignition and all electrical equipment and remove the ignition key.



- Pull the spray nozzles and the cap -1- off the bumper cover until it stops.
- Remove the cap -1- from the mountings -arrows- on the spray nozzle holder.
- Remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63 ; Front Bumper Cover; Front Bumper Cover, Removing and Installing .



- Press on the clip -arrow- and pull the hose connection off of the lift cylinder.

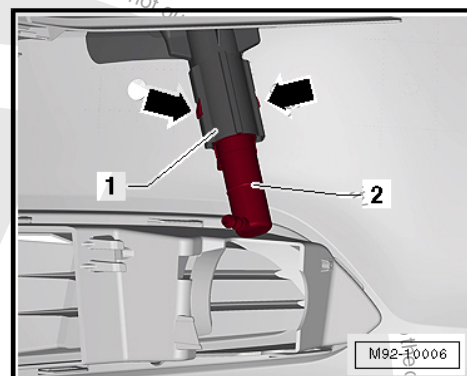


- Press both locking mechanisms in direction of -arrow- together at the same time and pull the lift cylinder -2- out and downward out from the bracket in the bumper cover -1-.

Installing

Install in reverse order of removal. Note the following:

- Bleed the headlamp washer system after finishing assembly work. Refer to ⇒ [page 125](#)





4 Washer Fluid Hoses

⇒ **"4.1 Washer Fluid Hoses, Servicing", page 128**

4.1 Washer Fluid Hoses, Servicing

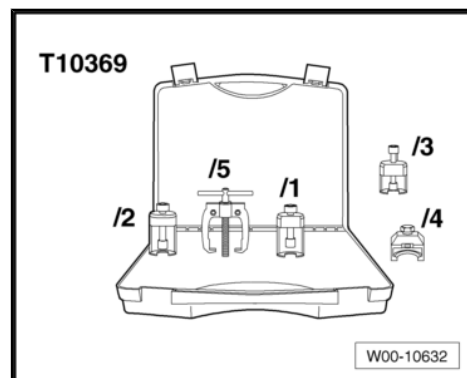
Refer to ⇒ Electrical Equipment General Information; Rep. Gr. 92 ; Washer Fluid Hoses .



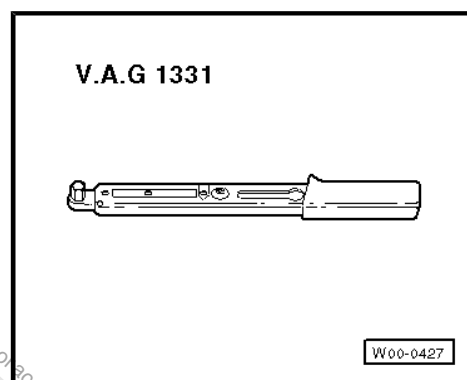
5 Special Tools

Special tools and workshop equipment required

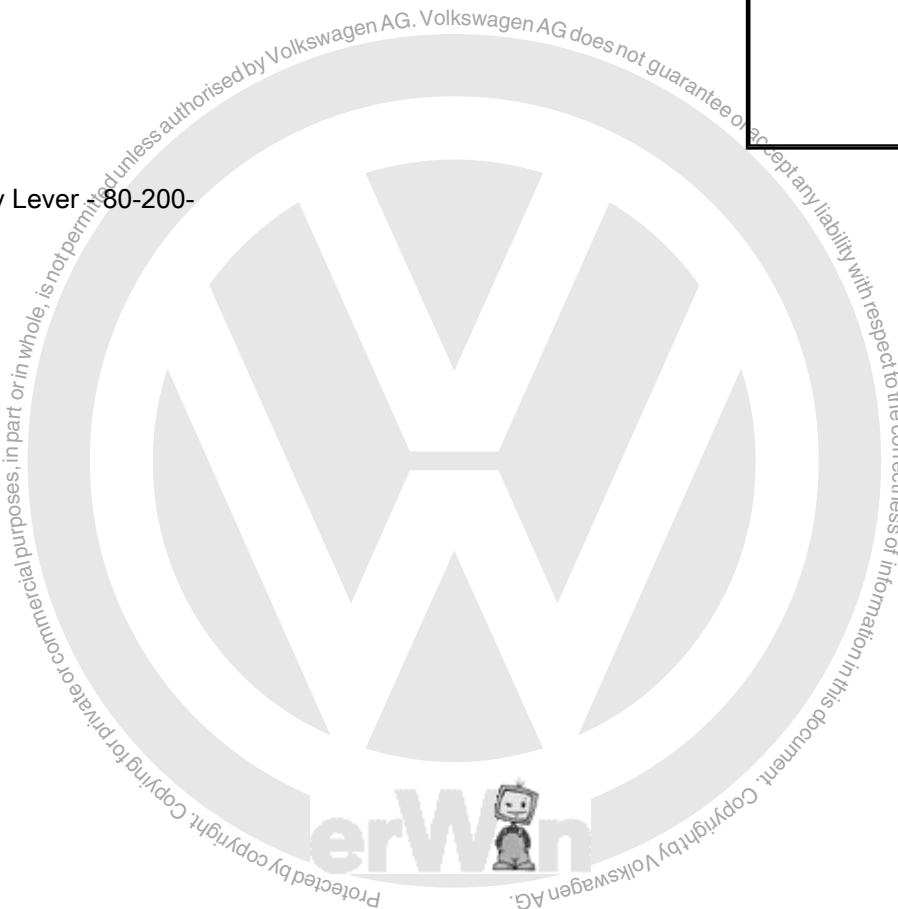
- ◆ Puller - Wiper Arm Kit - T10369-



- ◆ Torque Wrench 1331 5-50Nm - VAG1331-



- ◆ Pry Lever - 80-200-





94 – Exterior Lights, Switches

1 Headlamps

- ⇒ [“1.1 HID Headlamps Usage and Safety Precautions”, page 130](#)
- ⇒ [“1.2 Overview - Headlamps”, page 133](#)
- ⇒ [“1.3 Headlamp, Removing and Installing”, page 136](#)
- ⇒ [“1.4 Headlamp, Adjusting”, page 137](#)
- ⇒ [“1.5 Headlamp Installation Position, Correcting”, page 138](#)
- ⇒ [“1.6 Front Turn Signal Bulb, Removing and Installing”, page 140](#)
- ⇒ [“1.7 Headlamp Housing Repair Kit, Installing”, page 142](#)
- ⇒ [“1.10 Headlamp Range Control Positioning Motor, Removing and Installing”, page 147](#)
- ⇒ [“1.11 Low Beam Headlamp Bulb, Replacing”, page 148](#)
- ⇒ [“1.12 High Beam Headlamp Bulb, Replacing”, page 149](#)
- ⇒ [“1.13 HID Headlamp Bulb, Removing and Installing”, page 150](#)
- ⇒ [“1.14 Daytime Running Lamp/Parking Lamp Bulb, Removing and Installing”, page 153](#)
- ⇒ [“1.15 Daytime Running Lamps, Removing and Installing”, page 155](#)
- ⇒ [“1.16 Headlamp Reflector Adjustment Solenoid, Removing and Installing”, page 155](#)
- ⇒ [“1.17 Swivel Module Position Sensor, Removing and Installing”, page 156](#)
- ⇒ [“1.18 Static Cornering Lamp Bulb, Removing and Installing”, page 156](#)
- ⇒ [“1.19 HID Headlamp Control Module, Removing and Installing”, page 157](#)
- ⇒ [“1.20 Headlamp Power Output Module, Removing and Installing”, page 158](#)

1.1 HID Headlamps Usage and Safety Precautions



WARNING

- ◆ *Never change bulbs if not familiar with the corresponding steps, safety precautions and the tool.*

If Working on HID Headlamps, Note the Following:

- ◆ Information on Dangerous High Voltage/Currents. Refer to [⇒ page 131](#).
- ◆ Notes on Pressure/Temperature/Radiation/Electric Arc. Refer to [⇒ page 131](#).
- ◆ Assembly Instructions for HID Headlamp Bulbs. Refer to [⇒ page 132](#).



- ◆ Disposal Regulations for HID Headlamp Bulbs. Refer to [page 132](#).

Special tools and workshop equipment required

- ◆ Protective eyewear
- ◆ Gloves

Information on Dangerous High Voltage/Currents



WARNING

- ◆ *Light system control modules, connectors or components in the bulb socket area conduct dangerous high-voltage.*
- ◆ *Control module and igniter operation is only permitted with lamp.*



WARNING

- *Switch off the ignition and all electrical consumers and remove the ignition key.*
- *When working on headlamp system, ensure all components are without voltage, including relieving residual voltage after switching headlamps off.*
- *Residual voltages are discharged by switching low beam on and off again after ignition key was removed.*
- *Make sure lamps cannot be switched on when working on headlamp system.*

Notes on Pressure/Temperature/Radiation/Electric Arc



WARNING

- ◆ *There are pressures from 7 bar (101.52 psi) (cold) to 100 bar (1450.3 psi) (hot) in the bulb glass of the HID bulb. Temperatures up to 700 °C (1292 °F) are reached on the hot bulb glass.*
- ◆ *The bulb glass can explode and there is a danger of burning.*
- ◆ *Always wear protective eyewear and gloves when removing and installing HID headlamp bulbs.*



WARNING

- *Lamp must only be operated in headlamp housing (protection against contact because of hot lamp, absorption of ultraviolet radiation, avoiding danger of glare, explosion protection).*
- *Bulb glass of bulbs can become very hot – danger of burns!*
- *Avoid looking directly into the light beam, since the UV rays given off by the HID lamp are approximately 2.5 times stronger than those of a halogen bulb.*
- *Do not look into the beam of light (danger of glare). It may interfere with the ability to see for a significant period of time.*



WARNING

- *Avoid contact with burst bulb glass.*
- *H7 bulbs and HID bulbs (Xenon / Bi-Xenon) are under pressure and can burst when replaced - danger of injury!*
- *Always wear protective eyewear and gloves when removing and installing HID headlamp bulbs.*

Assembly Instructions on HID Headlamp Bulbs



Caution

- ◆ *Switch off the ignition and all electrical consumers and remove the ignition key.*
- ◆ *Do not touch the bulb glass with bare hands, use clean gloves. The remaining fingerprint would evaporate due to the heat of the operated bulb and condense on the reflector which would impair headlamp luminosity.*
- ◆ *A bulb must only be replaced with one of the same version. Bulb identification can be found on the bulb socket or on the bulb glass.*
- ◆ *Connectors must engage correctly during installation and make sure there is a secure fit.*

Disposal Regulations for HID Headlamp Bulbs



WARNING

- *HID headlamp bulbs must go into hazardous waste. Never dispose of HID headlamp bulbs in the regular household waste.*
- *HID lamps contain metallic mercury (Hg) and traces of thallium, they must not be destroyed.*
- *These components must be returned for proper recycling in accordance with national legislation.*
- *Dispose of only in the designated containers at the responsible collection point.*



1.2 Overview - Headlamps

⇒ ["1.2.1 Overview - Headlamp, Halogen Bulbs, Halogen Headlamps", page 133](#)

⇒ ["1.2.2 Overview - Headlamp, HID Headlamp Bulbs, Cornering Lamp, Xenon Headlamp", page 133](#)

⇒ ["1.2.3 Overview - Headlamp, Halogen Bulbs, Halogen Headlamps", page 134](#)

⇒ ["1.2.4 Overview - Headlamp, HID Headlamp Bulbs, Cornering Lamp, Xenon Headlamp", page 135](#)

1.2.1 Overview - Headlamp, Halogen Bulbs, Halogen Headlamps

Always switch off headlamps and remove ignition key before working on headlamps.

Familiarity with the function and operation of the lighting system is required if there are customer concerns.

Malfunction Recognition and Malfunction Indicator

The Vehicle Electrical System Control Module - J519- is equipped with OBD.

For troubleshooting. Refer to Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

1.2.2 Overview - Headlamp, HID Headlamp Bulbs, Cornering Lamp, Xenon Headlamp

Familiarity with the function and operation of the lighting system is required if there are customer concerns.



Caution

Observe the safety precautions for the HID headlamps. Refer to
⇒ ["1.1 HID Headlamps Usage and Safety Precautions", page 130](#).

General Information

HID headlamps and cornering lamps have "Bi-Xenon" function.

HID headlamps generate only the low beam headlamp in standard Xenon headlamps. "Bi-Xenon" allows "one" HID headlamp to generate the low beam and high beam headlamp. For this purpose, an electro-mechanical adjuster (Left Headlamp Reflector Adjustment Solenoid - N395- / Right Headlamp Reflector Adjustment Solenoid - N396-) opens the dimmed region of low beam headlamp when high beam function is operated and a high beam light emission results.

For this reason, the high beam is also adjusted automatically with the low beam on "Bi-Xenon" headlamps.

HID headlamps and cornering lamps do not have "auxiliary high beams".

Cornering lamps system performs the following functions:

- ◆ Swiveling low beams and high beams (dynamic cornering lamp) at vehicle speeds above 10 km/h (6.21 mph) and steering angle.



- ◆ Cornering lamp bulb (stationary cornering lamp) at sharp curves (curve radius smaller than 500 m) or on turning-off and vehicles speeds below 40 km/h (24.8 mph)

Malfunction Recognition and Malfunction Indicator

The automatic headlamp range control, cornering lamps and Vehicle Electrical System Control Module - J519- are equipped with OBD.

For troubleshooting, refer to Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

Malfunctions in the headlamp range control or in the variable front lighting will be displayed in the instrument cluster via the Lamp Failure Indicator Lamp - K170- .

1.2.3 Overview - Headlamp, Halogen Bulbs, Halogen Headlamps

1 - Cap

2 - Cap

3 - Left Low Beam Headlamp Bulb - M29- / Right Low Beam Headlamp Bulb - M31-

- ❑ Bulb: H7 12 V/55 W
- ❑ Replacing. Refer to ⇒ ["1.11 Low Beam Headlamp Bulb, Replacing", page 148](#) .

4 - Left Front Side Marker Lamp Bulb - M33- / Right Front Side Marker Lamp Bulb - M34-

- ❑ Bulb: 12 V/3 W
- ❑ Replacing. Refer to ⇒ ["3.1 Front Side Marker Lamp Bulb, Removing and Installing", page 165](#) .

5 - Left Daytime Running Lamp Bulb - L174- / Right Daytime Running Lamp Bulb - L175-

- ❑ Bulb: 12 V/P21 W
- ❑ Replacing. Refer to ⇒ ["1.14.1 Daytime Running Lamp Bulb, Removing and Installing", page 153](#) .

6 - Bolt

- ❑ 8 Nm
- ❑ Quantity: 3

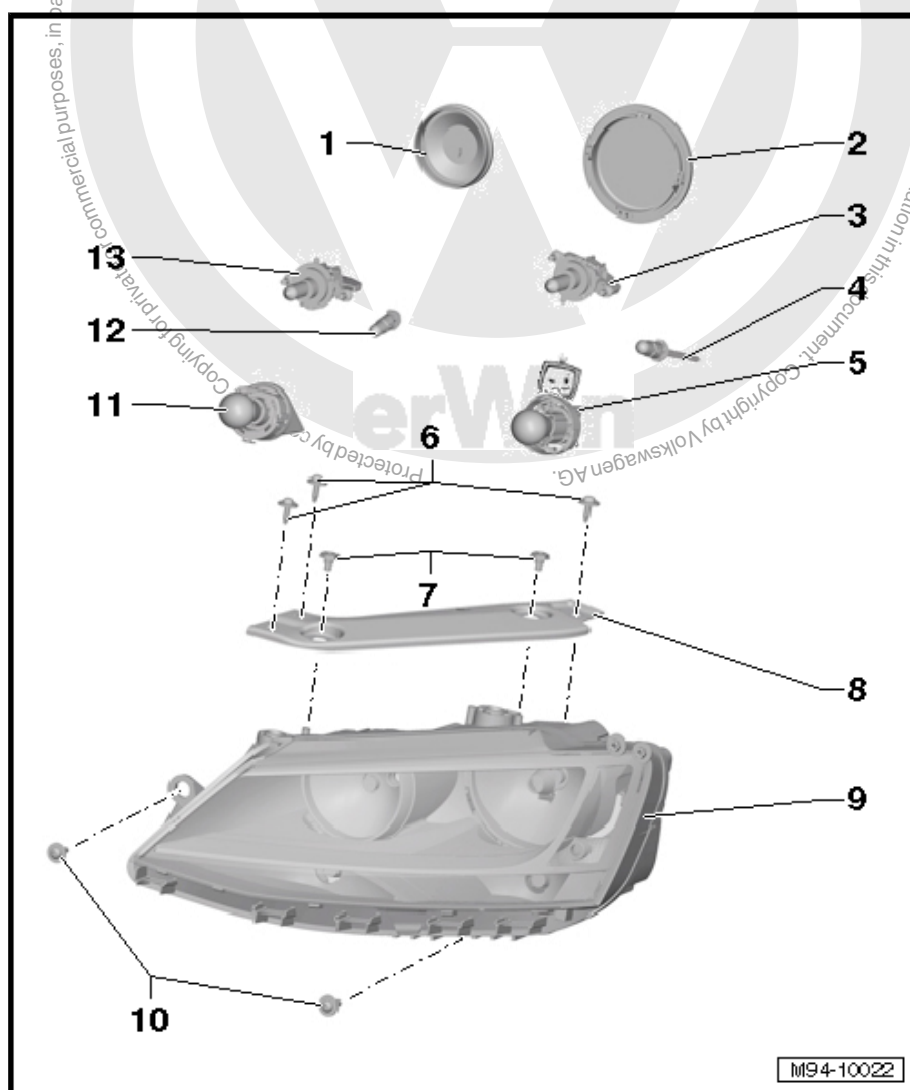
7 - Bolt

- ❑ 5 Nm
- ❑ Quantity: 2

8 - Front End Support

9 - Headlamps

- ❑ Removing and installing. Refer to ⇒ ["1.3 Headlamp, Removing and Installing", page 136](#) .
- ❑ Installation position, correcting. Refer to ⇒ ["1.5 Headlamp Installation Position, Correcting", page 138](#) .
- ❑ Headlamp housing repair kit, installing. Refer to ⇒ ["1.7 Headlamp Housing Repair Kit, Installing", page 142](#) .





- ☐ Adjusting. Refer to ⇒ [“1.4.1 Headlamp, Adjusting, Halogen Headlamp”, page 137](#) .

10 - Bolt

- ☐ 5 Nm
- ☐ Quantity: 2

11 - Left Front Turn Signal Bulb - M5- / Right Front Turn Signal Bulb - M7-

- ☐ Bulb: 12 V/PY21 W
- ☐ Replacing. Refer to ⇒ [“1.6.1 Front Turn Signal Bulb, Removing and Installing, Halogen Headlamp”, page 140](#) .

12 - Left Position Lamp Bulb - M1- / Right Position Lamp Bulb - M3-

- ☐ Bulb: 12 V/W5 W
- ☐ Replacing. Refer to ⇒ [“1.14.2 Position Lamp Bulb, Removing and Installing”, page 154](#) .

13 - Left High Beam Headlamp Bulb - M30- / Right High Beam Headlamp Bulb - M32-

- ☐ Bulb: H7 12 V/55 W
- ☐ Replacing. Refer to ⇒ [“1.12 High Beam Headlamp Bulb, Replacing”, page 149](#) .

1.2.4 Overview - Headlamp, HID Headlamp Bulbs, Cornering Lamp, Xenon Headlamp

1 - Cap

2 - Cap

3 - Left Cornering Lamp Bulb - L148- / Right Cornering Lamp Bulb - L149-

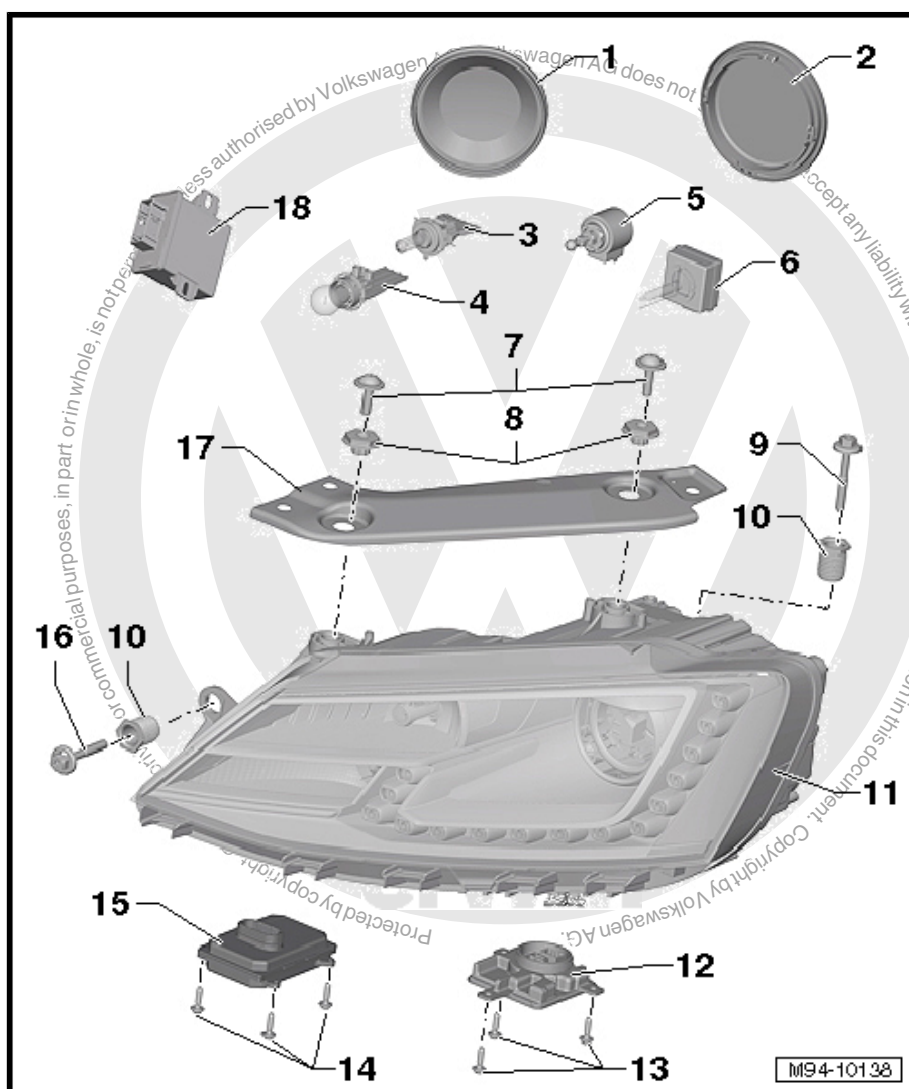
- ☐ Bulb: H7 12 V/55 W
- ☐ Replacing. Refer to ⇒ [“1.18 Static Cornering Lamp Bulb, Removing and Installing”, page 156](#) .

4 - Left Front Turn Signal Bulb - M5- / Right Front Turn Signal Bulb - M7-

- ☐ Bulb: 12 V PY 21 W
- ☐ Replacing. Refer to ⇒ [“1.6.2 Front Turn Signal Bulb, Removing and Installing, Xenon Headlamp”, page 140](#) .

5 - Left Headlamp Beam Adjustment Motor - V48- / Right Headlamp Beam Adjustment Motor - V49-

- ☐ Removing and installing. Refer to ⇒ [“1.10 Headlamp Range Control Positioning Motor, Removing and Installing”, page 147](#) .
- ☐ Checking. Refer to ⇒ [“1.10.2 Headlamp Beam Adjustment Motor, Checking”, page 148](#) .





6 - Left HID Headlamp Bulb - L13- / Right HID Headlamp Bulb - L14-

- ☐ Bulb: D3S 12 V/35 W
- ☐ Safety precautions. Refer to ⇒ [“1.1 HID Headlamps Usage and Safety Precautions”, page 130](#) .
- ☐ Replacing. Refer to ⇒ [“1.13 HID Headlamp Bulb, Removing and Installing”, page 150](#) .

7 - Bolt

- ☐ 5 Nm
- ☐ Quantity: 2

8 - Guide Bushings

9 - Bolt

- ☐ 5 Nm

10 - Adjusting Bushings

- ☐ Headlamp Installation Position, Correcting. Refer to ⇒ [“1.5 Headlamp Installation Position, Correcting”, page 138](#) .

11 - Headlamps

- ☐ Removing and installing. Refer to ⇒ [“1.3 Headlamp, Removing and Installing”, page 136](#) .
- ☐ Headlamp installation position, correcting. Refer to ⇒ [“1.5 Headlamp Installation Position, Correcting”, page 138](#) .
- ☐ Headlamp housing repair kit, installing. Refer to ⇒ [“1.7 Headlamp Housing Repair Kit, Installing”, page 142](#) .

12 - Left HID Headlamp Control Module - J343- / Right HID Headlamp Control Module - J344-

- ☐ Removing and installing. Refer to ⇒ [“1.19 HID Headlamp Control Module, Removing and Installing”, page 157](#) .

13 - Screw

- ☐ 1.4 Nm

14 - Screw

- ☐ 1.4 Nm

15 - Left Headlamp Power Output Module - J667- / Right Headlamp Power Output Module - J668-

- ☐ Removing and installing. Refer to ⇒ [“1.20 Headlamp Power Output Module, Removing and Installing”, page 158](#) .

16 - Bolt

- ☐ 5 Nm

17 - Front End Support

18 - Cornering Lamp and Headlamp Range Control Module - J745-

- ☐ Removing and installing. Refer to ⇒ [“12.2.1 Cornering Lamp and Headlamp Range Control Module J745, Removing and Installing”, page 249](#) .

No Illustration

- ◆ Rear level control system sensor, removing and installing. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 42 ; Sub-frame, Transverse Link and Tie Rod (Multi-Link Suspension) .

1.3 Headlamp, Removing and Installing

Special tools and workshop equipment required

- ◆ Torque Wrench 1331 5-50Nm - VAG1331-

The following illustrations depict removal and installation of the left headlamp. Removing and installing the right headlamp is identical.



Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63 ; Front Bumper Cover; Front Bumper Cover, Removing and Installing .
- Release and disconnect the connector from the headlamp.
- Remove the rear bolt -3- from the headlamp.
- Remove the front bolt -1- from the headlamp.
- Remove the top bolt -2- from the headlamp.
- Remove the headlamp forward from the opening in the body.

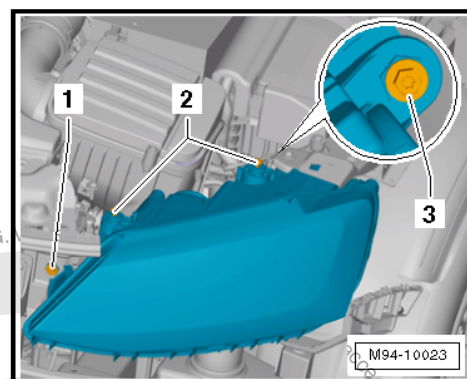
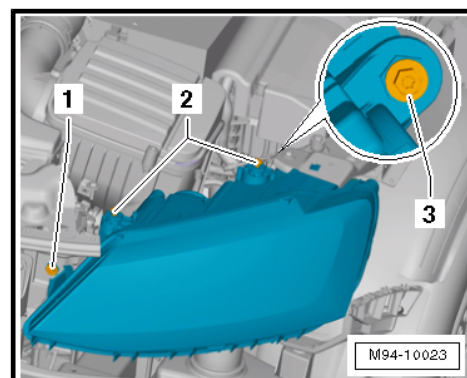
Installing

Install in reverse order of removal. Note the following:

- First install the upper bolt -2-.
- Then install the bolt -1- on the front of the headlamp.
- Then install the bolt -3- to the back of the headlamp.
- Connect and lock the connector to the headlamp.
- Tighten the threaded connections to the tightening specification. Refer to ⇒ ["1.2 Overview - Headlamps", page 133](#) .
- Make sure the gap dimensions are even in the headlamp installation position.

If the gap dimensions are uneven, then adjust the headlamp installation position. Refer to ⇒ ["1.5 Headlamp Installation Position, Correcting", page 138](#) .

- Check the headlamp functions.
- Check the headlamp position and adjust the headlamp. Refer to ⇒ ["1.4 Headlamp, Adjusting", page 137](#) .



1.4 Headlamp, Adjusting

⇒ ["1.4.1 Headlamp, Adjusting, Halogen Headlamp", page 137](#)

⇒ ["1.4.2 Headlamp, Adjusting, Xenon Headlamp", page 138](#)

⇒ ["1.4.3 Perform Basic Setting, Xenon Headlamp", page 138](#)

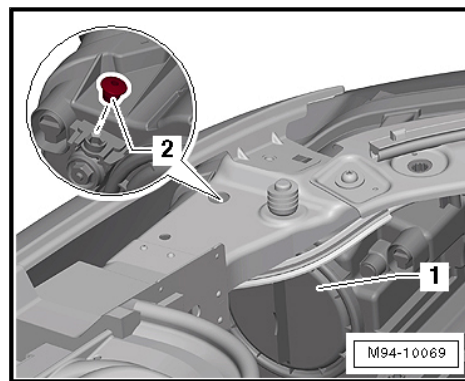
1.4.1 Headlamp, Adjusting, Halogen Headlamp

Halogen headlamp, adjusting. Refer to ⇒ Maintenance ; Booklet 20.1 .

Make sure that the adjusting element for horizontal adjustment is sealed off with a plug in the US version.



- Remove the plug -2- from the headlamp -1- before adjusting it. Replace the plug -2- after completing the adjustment.



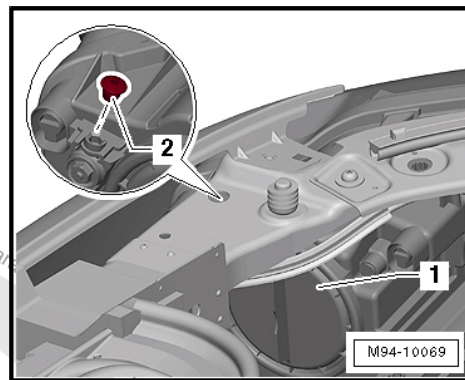
1.4.2 Headlamp, Adjusting, Xenon Headlamp

It is necessary to perform a “basic setting” in order to aim the headlamp. Refer to

⇒ [“1.4.3 Perform Basic Setting, Xenon Headlamp”, page 138](#) .

Make sure that the adjusting element for horizontal adjustment is sealed off with a plug in the US version.

- Remove the plug -2- from the headlamp -1- before adjusting it. Replace the plug -2- after completing the adjustment.



1.4.3 Perform Basic Setting, Xenon Headlamp

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ Automatic Headlamp Range Control
 - ◆ Functions
 - ◆ Performing the basic setting

1.5 Headlamp Installation Position, Correcting

When determining the installation position of the headlamp, if the gaps between the headlamp and body are uneven, the installation position must be corrected.

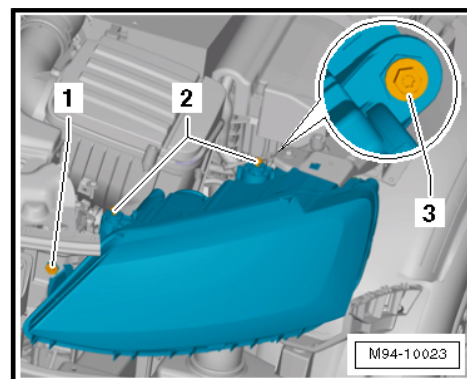
It is not necessary to remove the front bumper to adjust the headlamps.



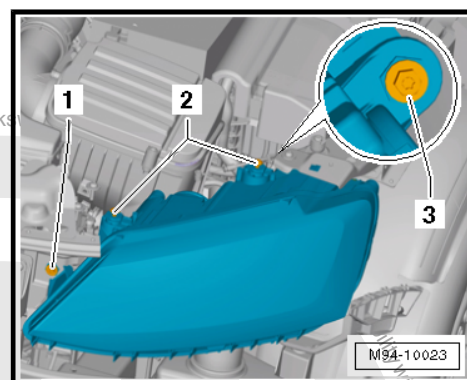
Illustrations depict the left headlamp.

Procedure

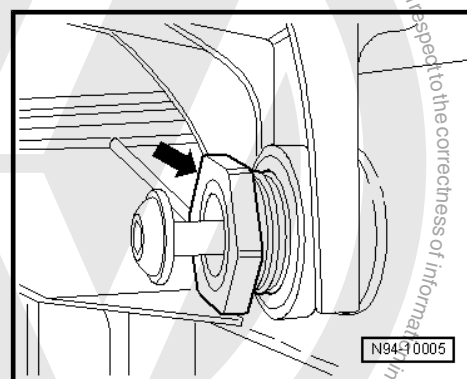
- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the radiator grille. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Radiator Grille; Radiator Grille, Removing and Installing .
- Loosen the rear bolt -3- from the headlamp.



- Loosen the bolts -2- at the top.
- Loosen the front screw -1- from the headlamp.



- Turn the adjusting bushing -arrow- in and out on the front of the headlamp to adjust the headlamp so that it is flush with the vehicle body.
- Tighten the threaded connections to the tightening specification. Refer to ⇒ ["1.2 Overview - Headlamps", page 133](#) .
- Check and correct the headlamp position and make sure the gap dimensions are even.
- Install the radiator grille. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Radiator Grille; Radiator Grille, Removing and Installing .
- Check the headlamp functions.
- Check the headlamp position and adjust the headlamp. Refer to ⇒ ["1.4 Headlamp, Adjusting", page 137](#) .





1.6 Front Turn Signal Bulb, Removing and Installing

⇒ "1.6.1 Front Turn Signal Bulb, Removing and Installing, Halogen Headlamp", page 140

⇒ "1.6.2 Front Turn Signal Bulb, Removing and Installing, Xenon Headlamp", page 140

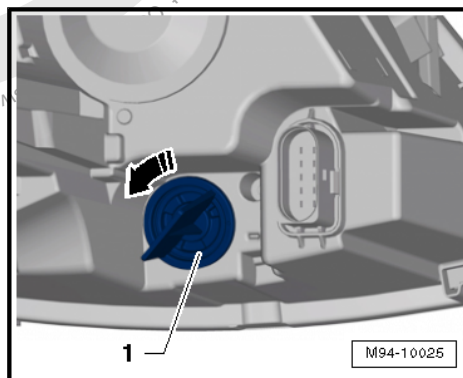
1.6.1 Front Turn Signal Bulb, Removing and Installing, Halogen Headlamp

It is not necessary to remove the headlamp when replacing the headlamp bulb.

The following illustrations show changing a bulb in the left headlamp.

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Turn the bulb socket -1- in the direction of -arrow- and remove the Left Front Turn Signal Bulb - M5- from the headlamp toward the rear.



- Pull the Left Front Turn Signal Bulb - M5- -2- in the direction of -arrow- out of the bulb socket -1-.

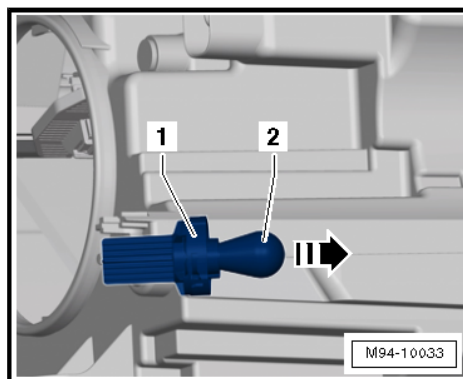
Bulb: 12 V/PY21 W

Installing



Caution

- ◆ *Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.*
- ◆ *During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.*



Install in reverse order of removal. Note the following:

- Check the headlamp functions.

1.6.2 Front Turn Signal Bulb, Removing and Installing, Xenon Headlamp

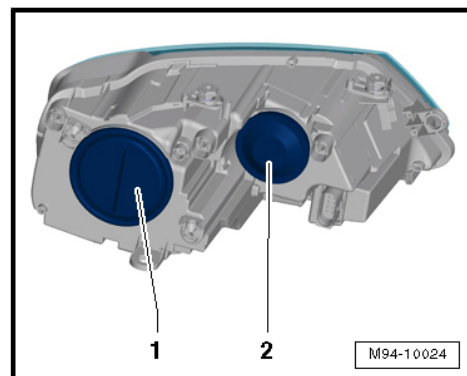
It is not necessary to remove the headlamp when replacing the headlamp bulb.

The following illustrations show changing a bulb in the left headlamp.

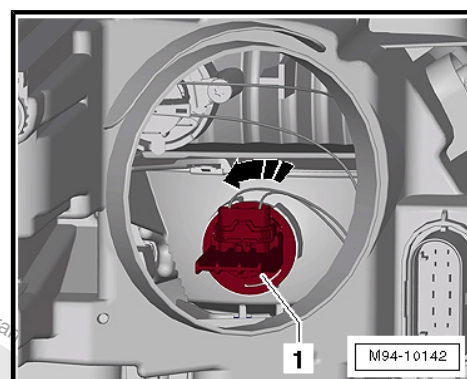


Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the cap -2-.



- Turn the bulb socket -1- in the direction of -arrow- and remove the Left Front Turn Signal Bulb - M5- from the headlamp toward the rear.



- Pull the Left Front Turn Signal Bulb - M5- -2- in the direction of -arrow- out of the bulb socket with the connector -1-.

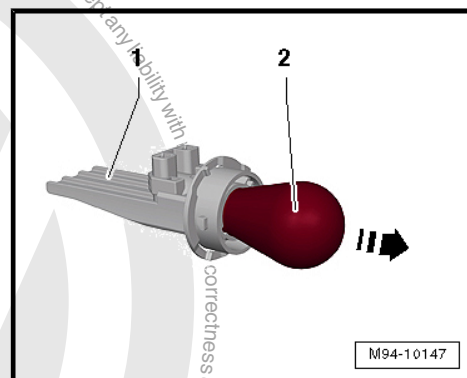
Bulb: 12 V/PY5V21 W

Installing



Caution

- ◆ *Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.*
- ◆ *During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.*



Install in reverse order of removal. Note the following:

- Check the headlamp functions.



1.7 Headlamp Housing Repair Kit, Installing

If one or more headlamp mounting tabs are damaged or broken off, they can be replaced by installing the repair set. It is not necessary to replace the entire headlamp.

Component Location Overview of Repair Tabs

- 1 - Inner Repair Tab
- 2 - Center Repair Tab
- 3 - Outer Repair Tab
- 4 - Lower Repair Tab

Check whether there is no further damage on the headlamp that makes installation of the repair set superfluous.

There are two different repair kits, one for left headlamp and one for the right headlamp. Refer to the Parts Catalog.

The repair kit contains an outer, a center and an inner headlamp mounting tab and the necessary screws.

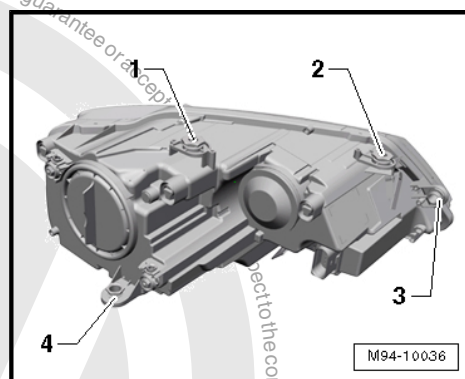
The following illustrations show the repair of the mounting tabs on the left headlamp. Repairing a right headlamp is identical.

⇒ ["1.7.1 Outer Mounting Tab, Repairing", page 142](#)

⇒ ["1.7.2 Center Mounting Tab, Repairing", page 143](#)

⇒ ["1.7.3 Inner Mounting Tab, Repairing", page 143](#)

⇒ ["1.7.4 Lower Mounting Tab, Repairing", page 144](#)



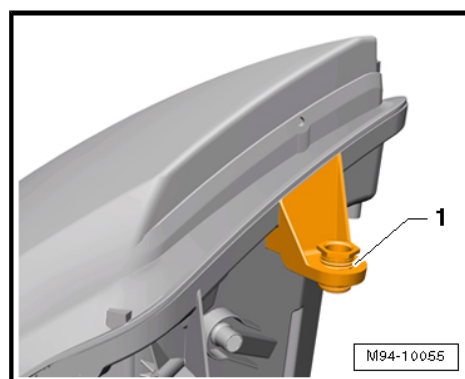
1.7.1 Outer Mounting Tab, Repairing

Special tools and workshop equipment required

- ◆ Torque Screwdriver - VAG1624-

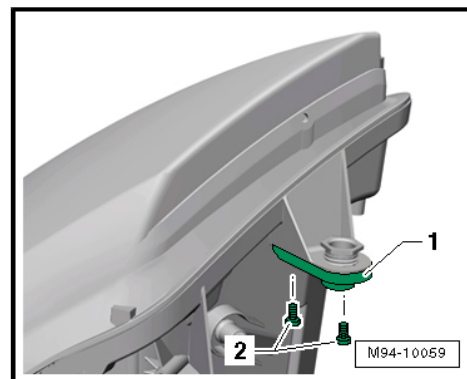
Procedure

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the headlamp. Refer to
⇒ ["1.3 Headlamp, Removing and Installing", page 136](#).
- Remove the rest of the old headlamp mounting tab -1-.





- Mount the new mounting tab -1- on the bulb socket on the headlamp and tighten the screws -2- with 1.0 Nm.
- Install the headlamp. Refer to [⇒ "1.3 Headlamp, Removing and Installing", page 136](#).
- Check the headlamp position and adjust the headlamp. Refer to [⇒ "1.4 Headlamp, Adjusting", page 137](#).



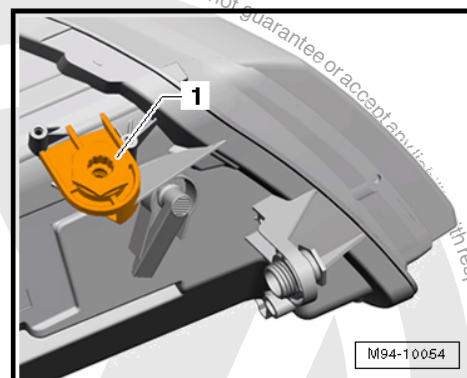
1.7.2 Center Mounting Tab, Repairing

Special tools and workshop equipment required

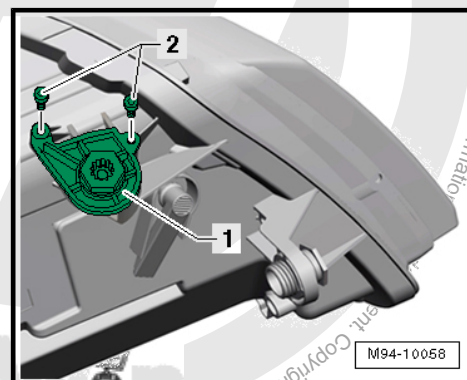
- ◆ Torque Screwdriver - VAG1624-

Procedure

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the headlamp. Refer to [⇒ "1.3 Headlamp, Removing and Installing", page 136](#).
- Remove the rest of the old headlamp mounting tab -1-.



- Mount the new mounting tab -1- on the bulb socket on the headlamp and tighten the screws -2- with 1.0 Nm.
- Install the headlamp. Refer to [⇒ "1.3 Headlamp, Removing and Installing", page 136](#).
- Check the headlamp position and adjust the headlamp. Refer to [⇒ "1.4 Headlamp, Adjusting", page 137](#).



1.7.3 Inner Mounting Tab, Repairing

Special tools and workshop equipment required

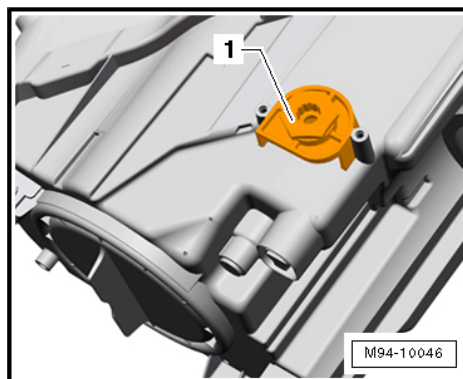
- ◆ Torque Screwdriver - VAG1624-

Procedure

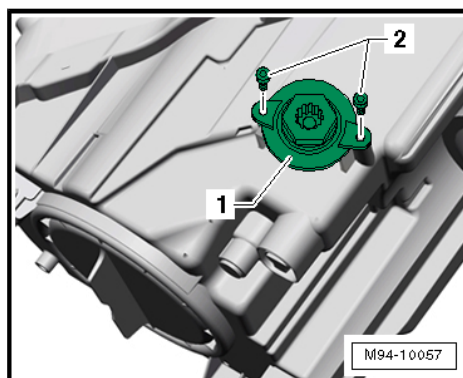
- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the headlamp. Refer to [⇒ "1.3 Headlamp, Removing and Installing", page 136](#).



- Remove the rest of the old headlamp mounting tab -1-.



- Mount the new mounting tab -1- on the bulb socket on the headlamp and tighten the screws -2- with 1.0 Nm.
- Install the headlamp. Refer to
⇒ [“1.3 Headlamp, Removing and Installing”, page 136](#) .
- Check the headlamp position and adjust the headlamp. Refer to
⇒ [“1.4 Headlamp, Adjusting”, page 137](#) .



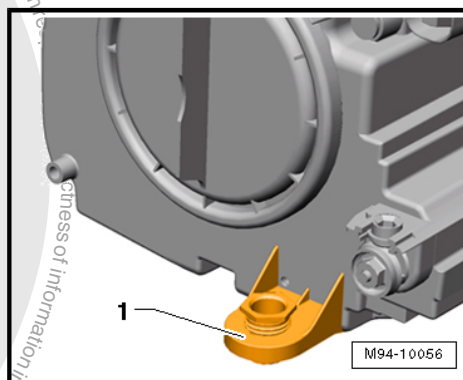
1.7.4 Lower Mounting Tab, Repairing

Special tools and workshop equipment required

- ◆ Torque Screwdriver - VAG1624-

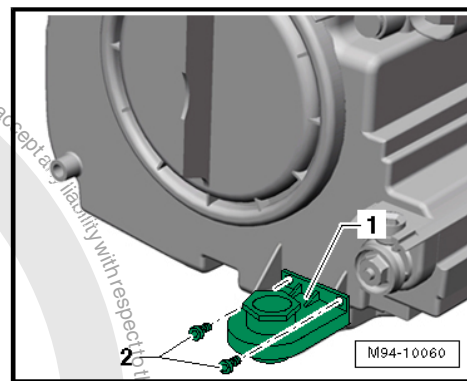
Procedure

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the headlamp. Refer to
⇒ [“1.3 Headlamp, Removing and Installing”, page 136](#) .
- Remove the rest of the old headlamp mounting tab -1-.





- Mount the new mounting tab -1- on the bulb socket on the headlamp and tighten the screws -2- with 1.0 Nm.
- Install the headlamp. Refer to
⇒ [“1.3 Headlamp, Removing and Installing”, page 136](#).
- Check the headlamp position and adjust the headlamp. Refer to
⇒ [“1.4 Headlamp, Adjusting”, page 137](#).



1.8 Headlamps, Changing from RHD to LHD

The instrument cluster menu is used to convert HID headlamps with cornering lamps Owner's Manual.

The headlamp retrofit set consists of two foils.

The headlamp conversion kits for converting from RHD to LHD or from LHD to RHD have different part numbers.

Clean the headlamp glass.

Remove any adhesive still on the headlamp glass after removing the adhesive foil.

Procedure

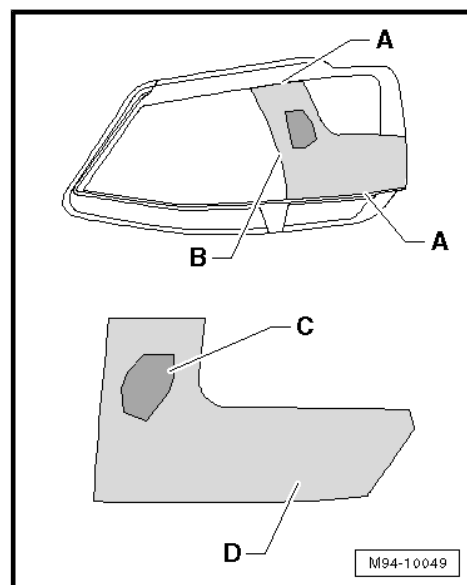
- Turn the Light Switch - E1- to “0”.
- Clean the headlamp glass.

Left headlamp

- Peel off the protective film on the back of the assembly foil -D- only in area -C-.
- Align the top and bottom of the assembly foil -D- with the upper and lower edge -A- of the headlamp glass.
- At the same time align the assembly foil -D- with the line -B- on the line on the headlamp glass.
- Press firmly in area -C- on the headlamp glass.
- Carefully remove the assembly foil -D- from the headlamp glass.

The cover foil -C- remains on the headlamp glass.

Right Headlamp



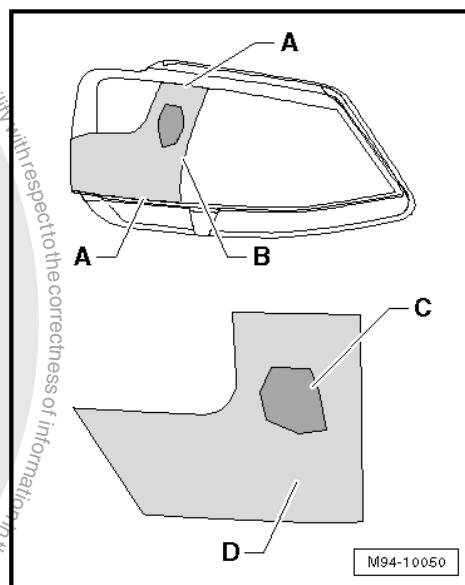


- Peel off the protective film on the back of the assembly foil -D- only in area -C-.
- Align the top and bottom of the assembly foil -D- with the upper and lower edge -A- of the headlamp glass.
- At the same time align the assembly foil -D- with the line -B- on the line on the headlamp glass.
- Press firmly in area -C- on the headlamp glass.
- Carefully remove the assembly foil -D- from the headlamp glass.

The cover foil -C- remains on the headlamp glass.

Any remaining residue should be removed with an alcohol- or alcohol-water-based cleaning solution. For example, a cloth moistened with isopropyl alcohol.

Inform the customer how to remove any remaining glue after removing the cover.



1.9 Headlamp, Changing from LHD to RHD

The instrument cluster menu is used to convert HID headlamps with cornering lamps. Owner's Manual.

The headlamp retrofit set consists of two foils.

The headlamp conversion kits for converting from RHD to LHD or from LHD to RHD have different part numbers.

Clean the headlamp glass.

Remove any adhesive still on the headlamp glass after removing the adhesive foil.

Procedure

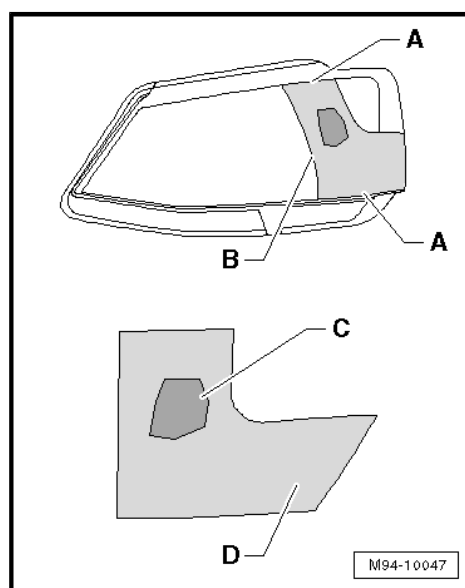
- Turn the Light Switch - E1- to "0".
- Clean the headlamp glass.

Left headlamp

- Peel off the protective film on the back of the assembly foil -D- only in area -C-.
- Align the top and bottom of the assembly foil -D- with the upper and lower edge -A- of the headlamp glass.
- At the same time align the assembly foil -D- with the line -B- on the line on the headlamp glass.
- Press firmly in area -C- on the headlamp glass.
- Carefully remove the assembly foil -D- from the headlamp glass.

The cover foil -C- remains on the headlamp glass.

Right Headlamp



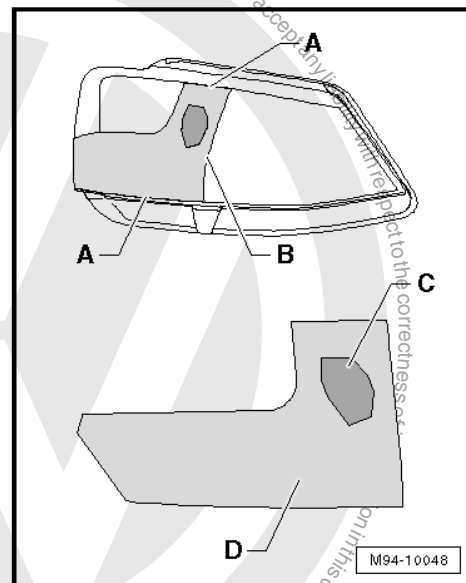


- Peel off the protective film on the back of the assembly foil -D- only in area -C-.
- Align the top and bottom of the assembly foil -D- with the upper and lower edge -A- of the headlamp glass.
- At the same time align the assembly foil -D- with the line -B- on the line on the headlamp glass.
- Press firmly in area -C- on the headlamp glass.
- Carefully remove the assembly foil -D- from the headlamp glass.

The cover foil -C- remains on the headlamp glass.

Any remaining residue should be removed with an alcohol- or alcohol-water-based cleaning solution. For example, a cloth moistened with isopropyl alcohol.

Inform the customer how to remove any remaining glue after removing the cover.



1.10 Headlamp Range Control Positioning Motor, Removing and Installing

⇒ ["1.10.1 Headlamp Range Control Positioning Motor, Removing and Installing", page 147](#)

⇒ ["1.10.2 Headlamp Beam Adjustment Motor, Checking", page 148](#)

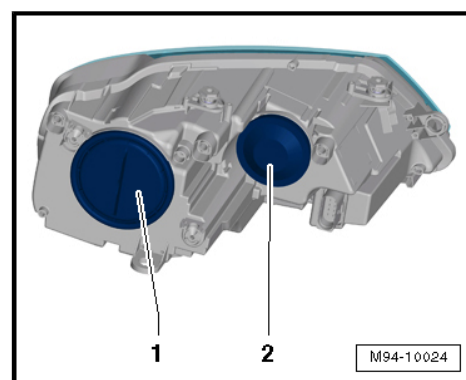
1.10.1 Headlamp Range Control Positioning Motor, Removing and Installing

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.

The headlamp range control positioning motor may be checked. Refer to Vehicle Diagnostic Tester before removing. Refer to ⇒ ["1.10.2 Headlamp Beam Adjustment Motor, Checking", page 148](#).

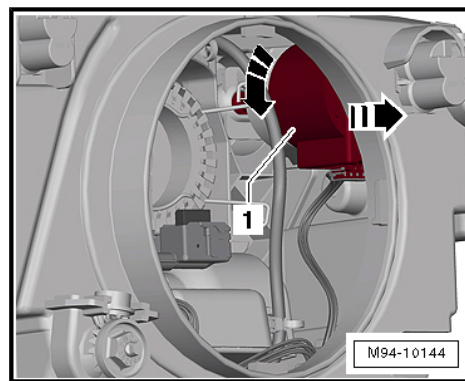
- Remove the headlamp. Refer to ⇒ ["1.3 Headlamp, Removing and Installing", page 136](#).
- Remove the cap -1-.
- Remove the HID headlamp bulb. Refer to ⇒ ["1.13 HID Headlamp Bulb, Removing and Installing", page 150](#).
- Turn the adjustment motor -1- in the direction of -arrow- with a small screwdriver.





Move the adjustment motor toward the rear in direction of -arrow- when the end position is reached.

- Push the ball head of the adjustment axle out of the joint -1- and remove the adjustment motor from the bayonet -2-.

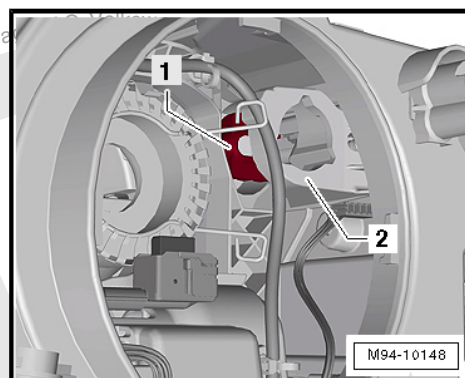


- Release and disconnect the connector on the adjustment motor.

Installing

Install in reverse order of removal. Note the following:

- Check the headlamp functions.
- Perform the basic setting on the headlamps. Refer to ➔ [“1.4.3 Perform Basic Setting, Xenon Headlamp”, page 138](#).



1.10.2 Headlamp Beam Adjustment Motor, Checking

Procedure

- Connect the Vehicle Diagnostic Tester
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 55 - Headlamp Range Control
 - ◆ Electrical Components
 - ◆ Headlamp Beam Adjustment Motor

1.11 Low Beam Headlamp Bulb, Replacing

It is not necessary to remove the headlamp when replacing the headlamp bulb.

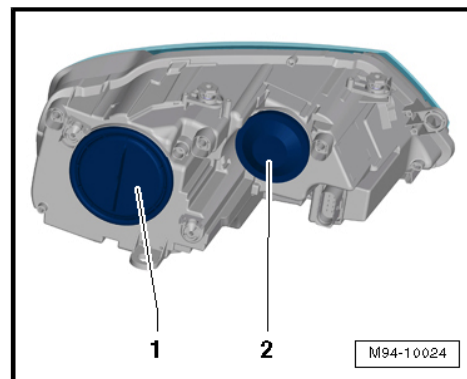
The following illustrations show changing a bulb in the left headlamp.

Removing

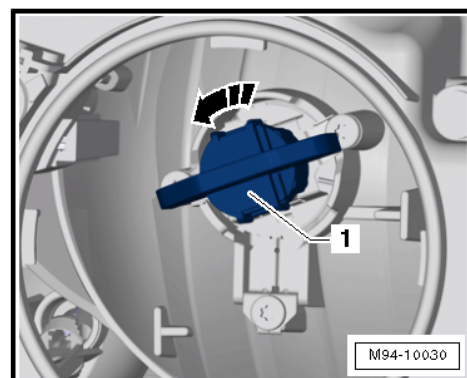
- Turn off the ignition and all electrical equipment and remove the ignition key.



- Remove the cap -1-.



- Turn the bulb socket -1- with the Left Low Beam Headlamp Bulb - M29- in the direction of -arrow- and remove it from the headlamp.
- Remove the Left Low Beam Headlamp Bulb - M29- -2- in the direction of -arrow- from the bulb socket -1-.



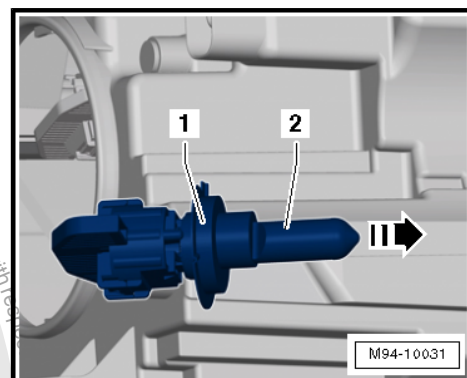
Bulb: H7 12 V/55 W

Installing



Caution

- ◆ **Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.**
- ◆ **During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.**



- Check the headlamp functions.
- Check the headlamp position and adjust the headlamp. Refer to ["1.4.1 Headlamp, Adjusting, Halogen Headlamp", page 137](#).

1.12 High Beam Headlamp Bulb, Replacing

It is not necessary to remove the headlamp when replacing the headlamp bulb.

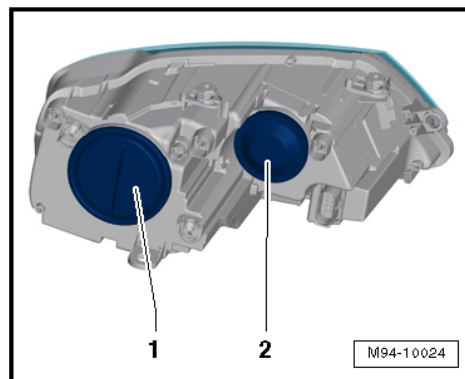
The following illustrations show changing a bulb in the left headlamp.

Removing

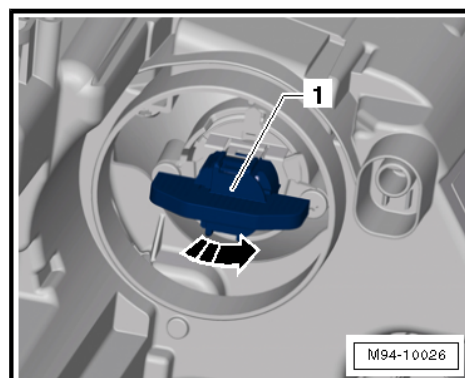
- Turn off the ignition and all electrical equipment and remove the ignition key.



- Remove the cap -2-.



- Turn the bulb socket -1- in the direction of -arrow- and remove it together with the Left High Beam Headlamp Bulb - M30- from the headlamp.
- Remove the Left High Beam Headlamp Bulb - M30- -1- in the direction of -arrow- from the bulb socket -2-.



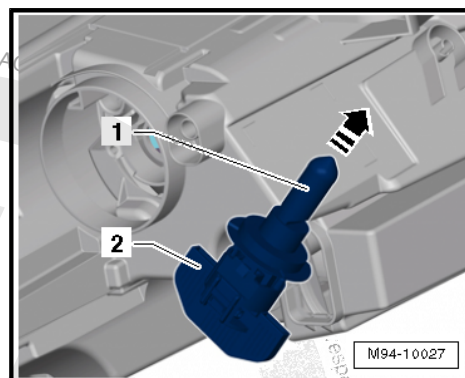
Bulb: H7 12 V/55 W

Installing



Caution

- ◆ *Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.*
- ◆ *During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.*



Install in reverse order of removal. Note the following:

- Check the headlamp functions.
- Check the headlamp position and adjust the headlamp. Refer to ["1.4.1 Headlamp, Adjusting, Halogen Headlamp", page 137](#).

1.13 HID Headlamp Bulb, Removing and Installing

The following illustrations show changing a bulb in the left headlamp.

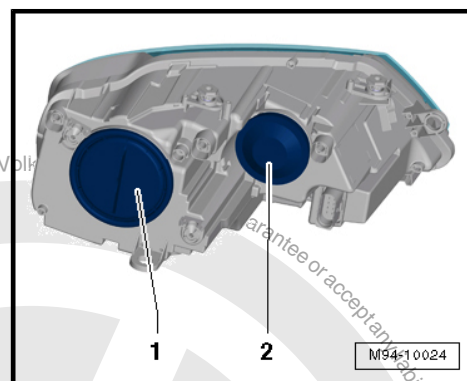


WARNING

- ◆ *There are pressures from 7 bar (101.52 psi) (cold) to 100 bar (1450.3 psi) (hot) in the bulb glass of the HID bulb. Temperatures up to 700 °C (1,292 °F) are reached on the hot bulb glass.*
- ◆ *The bulb glass can explode and there is a danger of burning.*
- ◆ *Always wear protective eyewear and gloves when removing and installing HID headlamp bulbs.*
- ◆ *Observe the safety precautions for the HID headlamp bulb. Refer to
⇒ ["1.1 HID Headlamps Usage and Safety Precautions", page 130](#).*

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the headlamp. Refer to
⇒ ["1.3 Headlamp, Removing and Installing", page 136](#).
- Remove the cap -1-.



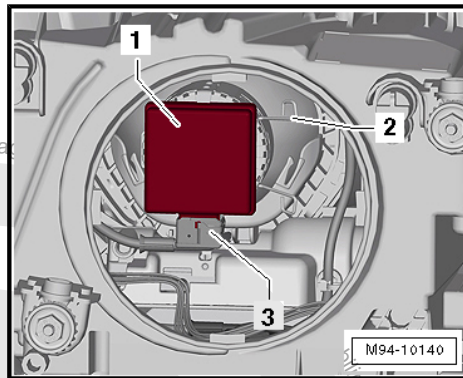


- Release the connector -3- and disconnect it downward.
- Release the spring clip -2- on both sides.



WARNING

- ◆ *There are pressures from 7 bar (101.52 psi) (cold) to 100 bar (1450.3 psi) (hot) in the bulb glass of the HID bulb. The hot bulb glass can reach temperatures of up to 700 °C (1,292 °F).*
- ◆ *The bulb glass can explode and there is a danger of burning.*
- ◆ *Always wear protective eyewear and gloves when removing and installing HID headlamp bulbs.*



- Carefully remove the Left HID Headlamp Bulb - L13- -1- out of the reflector toward the rear.

Bulb: D3S 12 V/35 W

Installing



Caution

- ◆ *Do not touch the bulb glass of the HID headlamp bulb during installation. Fingers leave traces of grease on the bulb glass which can evaporate when the HID headlamp bulb is switched on causing the bulb glass to cloud.*
- ◆ *The bulb glass of the HID headlamp must not be exposed to any mechanical strain. The bulb glass is extremely sensitive and is also under high pressure.*
- ◆ *Avoid looking directly into the light beam, since the UV rays given off by the HID lamp are approximately 2.5 times stronger than those of a halogen bulb.*
- ◆ *During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.*

Install in reverse order of removal. Note the following:

- Check the headlamp functions.
- Check the headlamp position and adjust the headlamp. Refer to
⇒ [“1.4.2 Headlamp, Adjusting, Xenon Headlamp”, page 138](#) .



1.14 Daytime Running Lamp/Parking Lamp Bulb, Removing and Installing

⇒ ["1.14.1 Daytime Running Lamp Bulb, Removing and Installing", page 153](#)

⇒ ["1.14.2 Position Lamp Bulb, Removing and Installing", page 154](#)

1.14.1 Daytime Running Lamp Bulb, Removing and Installing

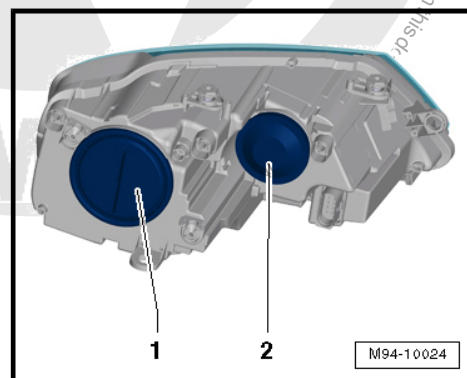


Note

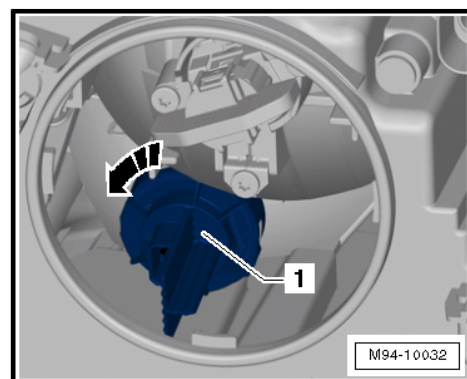
- ◆ *It is not necessary to remove the headlamp when replacing the headlamp bulb.*
- ◆ *The following illustrations show changing a bulb in the left headlamp.*
- ◆ *If the day time running lamp bulb cannot be removed as described, then the headlamp must be removed. Refer to ⇒ ["1.3 Headlamp, Removing and Installing", page 136](#).*

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the cap -1-.



- Turn the bulb socket -1- in the direction of -the arrow- and remove it together with the Left Daytime Running Lamp Bulb - L174- from the headlamp.
- Remove the Left Daytime Running Lamp Bulb - L174- -2- in the direction of -the arrow- from the bulb socket -1-.





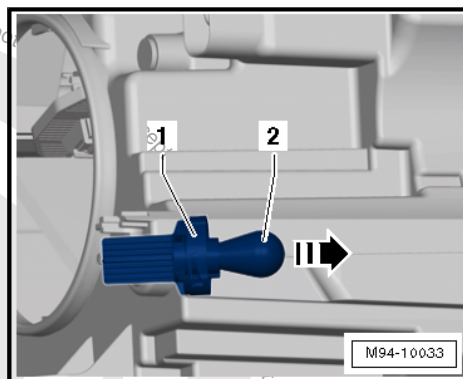
Bulb: 12 V/P21 W

Installing



Caution

- ◆ *Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.*
- ◆ *During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.*



Install in reverse order of removal. Note the following:

- Check the headlamp functions.
- Check the headlamp position and adjust the headlamp. Refer to ➔ ["1.4 Headlamp, Adjusting", page 137](#).

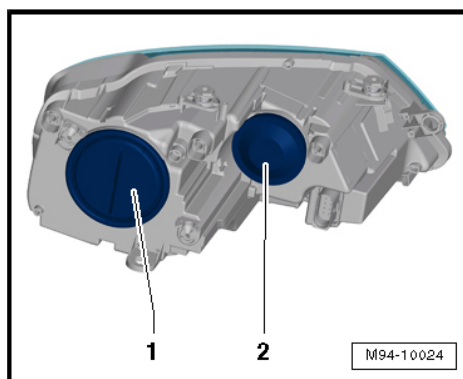
1.14.2 Position Lamp Bulb, Removing and Installing

It is not necessary to remove the headlamp when replacing the headlamp bulb.

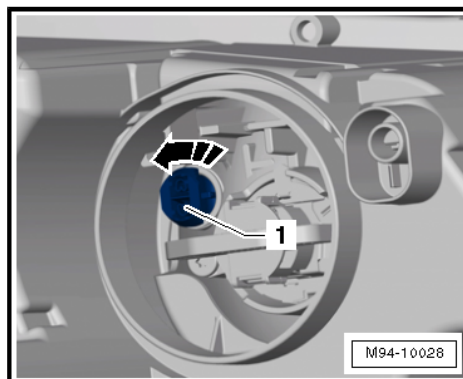
The following illustrations show changing a bulb in the left headlamp.

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the cap -2-.



- Remove the bulb socket -1- with the Left Position Lamp Bulb - M1- in the direction of -arrow- from the reflector toward the rear.
- Pull the Left Position Lamp Bulb - M1- -2- in the direction of -arrow- straight out of the bulb socket -1-.





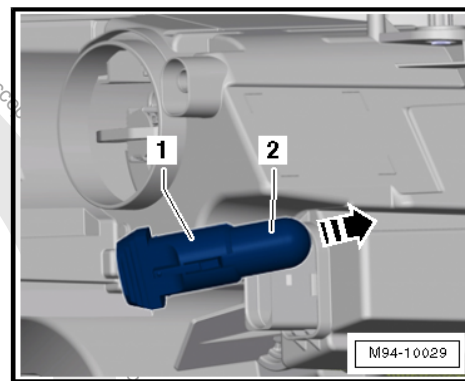
Glass base bulb: 12 V/W5 W

Installing



Caution

- ◆ *Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.*
- ◆ *During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.*



Install in reverse order of removal. Note the following:

- Check the headlamp functions.

1.15 Daytime Running Lamps, Removing and Installing

⇒ [“1.15.1 Daytime Running Lamp and Position Lamp LED Module, Removing and Installing”, page 155](#)

1.15.1 Daytime Running Lamp and Position Lamp LED Module, Removing and Installing

The Left Daytime Running Lamp and Position Lamp LED Module - L176- and the Right Daytime Running Lamp and Position Lamp LED Module - L177- are located inside the headlamp and cannot be replaced individually.

If a failure occurs, the entire headlamp must be replaced. Refer to ⇒ [“1.3 Headlamp, Removing and Installing”, page 136](#) .

1.16 Headlamp Reflector Adjustment Solenoid, Removing and Installing

⇒ [“1.16.1 Headlamp Reflector Adjustment Solenoid, Removing and Installing”, page 155](#)

⇒ [“1.16.2 Headlamp Reflector Adjustment Solenoid, Checking”, page 156](#)

1.16.1 Headlamp Reflector Adjustment Solenoid, Removing and Installing

HID headlamps generate only the low beam headlamp in standard Xenon headlamps. “Bi-Xenon” allows “one” HID headlamp to generate the low beam and high beam headlamp. For this purpose, an electro-mechanical adjuster (the Left Headlamp Reflector Adjustment Solenoid - N395- / Right Headlamp Reflector Adjustment Solenoid - N396-) opens the dimmed region of low beam headlamp when high beam function is operated and a high beam light emission results.

The Left Headlamp Reflector Adjustment Solenoid - N395- / Right Headlamp Reflector Adjustment Solenoid - N396- is located inside the headlamp and cannot be replaced or adjusted separately.

If a failure occurs, the entire headlamp must be replaced. Refer to ⇒ [“1.3 Headlamp, Removing and Installing”, page 136](#) .



1.16.2 Headlamp Reflector Adjustment Solenoid, Checking

Use the Vehicle Electrical System Control Module - J519- output diagnostic test mode to check the Left Headlamp Reflector Adjustment Solenoid - N395- / Left Headlamp Reflector Adjustment Solenoid - N395- . Refer to

⇒ [“2.2.5 Vehicle Electrical System Control Module J519 , Output Diagnostic Test Mode”, page 323](#) .

1.17 Swivel Module Position Sensor, Removing and Installing

⇒ [“1.17.1 Swivel Module Position Sensor, Removing and Installing”, page 156](#)

⇒ [“1.17.2 Swivel Module Position Sensor, Checking”, page 156](#)

1.17.1 Swivel Module Position Sensor, Removing and Installing

The Left Swivel Module Position Sensor - G474- / Right Swivel Module Position Sensor - G475- is located inside the headlamp and cannot be replaced or adjusted separately.

If a failure occurs, the entire headlamp must be replaced. Refer to ⇒ [“1.3 Headlamp, Removing and Installing”, page 136](#) .

1.17.2 Swivel Module Position Sensor, Checking

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - OBD-capable systems
- ◆ 55 - Headlamp Range Control
- ◆ Electrical Components
- ◆ Swivel module position sensor

1.18 Static Cornering Lamp Bulb, Removing and Installing

It is not necessary to remove the headlamp when replacing the headlamp bulb.

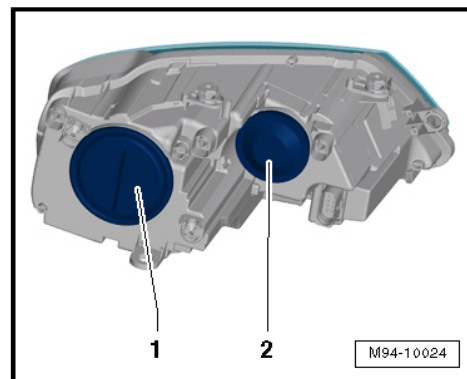
The following illustrations show changing a bulb in the left headlamp.

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.

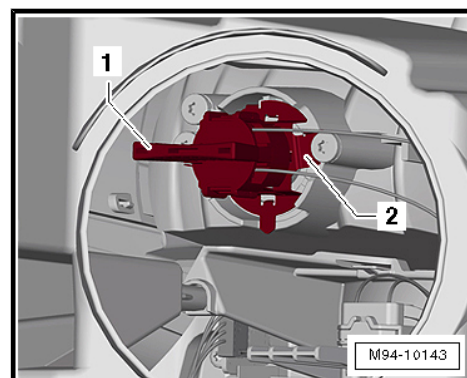


- Remove the cap -2-.



The Left Cornering Lamp Bulb - L148- -1- is held in the reflector with a wire retainer -2-.

- Press the bulb socket -1- together with the Left Cornering Lamp Bulb - L148- upward (until the bulb feels looser) and remove them from the reflector, while paying attention to the wires that are still connected.



- Remove the Left Cornering Lamp Bulb - L148- -2- from the bulb socket with the connector -1-.

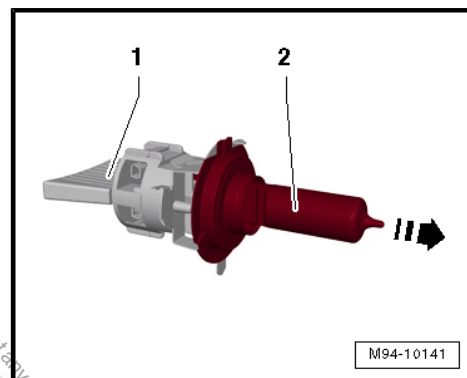
Bulb: H7 12 V/55 W

Installing



Caution

- ◆ **During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.**
- ◆ **Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.**



Install in reverse order of removal. Note the following:

- Guide the Left Cornering Lamp Bulb - L148- into the headlamp housing.
- Press the Left Cornering Lamp Bulb - L148- into the reflector in the illustrated installation position.
- Check the headlamp functions.

1.19 HID Headlamp Control Module, Removing and Installing

The Left Hid Headlamp Control Module - J343- / Right Hid Headlamp Control Module - J344- is installed on the lower headlamp.

The following illustrations show removing and installing a left headlamp.



Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the headlamp. Refer to
⇒ [“1.3 Headlamp, Removing and Installing”, page 136](#) .
- Remove the bolts -arrows-.
- Remove the HID lamp control module -1- straight downward from the headlamp housing.

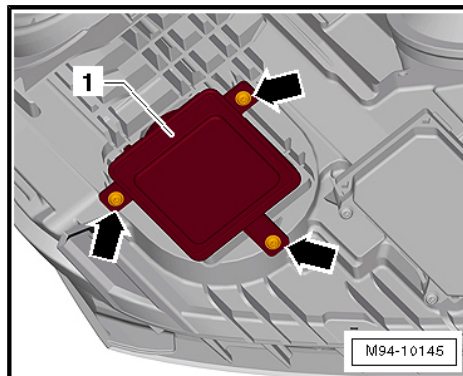
Installing

Install in reverse order of removal. Note the following:



Caution

Make sure the seal fits correctly when installing the HID headlamp control module. Water getting in the headlamp will cause damage.



- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“1.2.4 Overview - Headlamp, HID Headlamp Bulbs, Cornering Lamp, Xenon Headlamp”, page 135](#) .
- Check the headlamp functions.

1.20 Headlamp Power Output Module, Removing and Installing

⇒ [“1.20.1 Headlamp Power Output Module, Removing and Installing”, page 158](#)

⇒ [“1.20.2 Headlamp Power Output Module, Checking”, page 159](#)

1.20.1 Headlamp Power Output Module, Removing and Installing

The Left Headlamp Power Output Module - J667- / Right Headlamp Power Output Module - J668- is located at the bottom of the respective headlamp housing.

The following illustrations show removing and installing a left headlamp.

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.

The headlamp power output module may be checked before removing. Refer to

⇒ [“1.20.2 Headlamp Power Output Module, Checking”, page 159](#) .

- Remove the headlamp. Refer to
⇒ [“1.3 Headlamp, Removing and Installing”, page 136](#) .
- Remove the bolts -arrows-.

When removing the Right Headlamp Power Output Module - J668- from the headlamp housing, the connector is also disconnected at the same time.



- Remove the Right Headlamp Power Output Module - J668-1- straight downward from the headlamp housing.

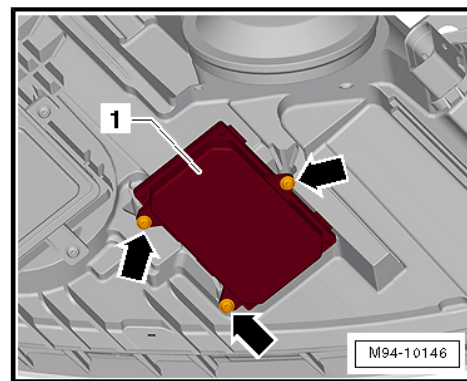
Installing

Install in reverse order of removal. Note the following:



Caution

Make sure the seal fits correctly when installing the Right Headlamp Power Output Module - J668-. Water getting in the headlamp will cause damage.



- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“1.2.4 Overview - Headlamp, HID Headlamp Bulbs, Cornering Lamp, Xenon Headlamp”, page 135](#).

The Cornering Lamp and Headlamp Range Control Module - J745- must be coded after installing a new Right Headlamp Power Output Module - J668- and then the basic setting for the headlamps must be performed. Refer to

⇒ [“12.2 Cornering Lamp and Headlamp Range Control Module J745, Removing and Installing”, page 249](#).

- Check the headlamp functions.

1.20.2 Headlamp Power Output Module, Checking

Procedure

- Connect the Vehicle Diagnostic Tester.
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 55 - Headlamp Range Control
 - ◆ Electrical Components
 - ◆ Headlamp Power Output Module



2 Fog Lamp

⇒ ["2.1 Overview - Fog Lamps", page 160](#)

⇒ ["2.2 Fog Lamp, Removing and Installing", page 161](#)

⇒ ["2.3 Fog Lamp Bulb, Removing and Installing", page 163](#)

2.1 Overview - Fog Lamps

⇒ ["2.1.1 Overview - Fog Lamps, Jetta", page 160](#)

⇒ ["2.1.2 Overview - Fog Lamps, Jetta GLI", page 161](#)

2.1.1 Overview - Fog Lamps, Jetta

1 - Front Bumper Cover

2 - Fog Lamp Housing

- ❑ Removing and installing. Refer to
⇒ ["2.2.1 Fog Lamp, Removing and Installing, Jetta", page 161](#).

3 - Screw

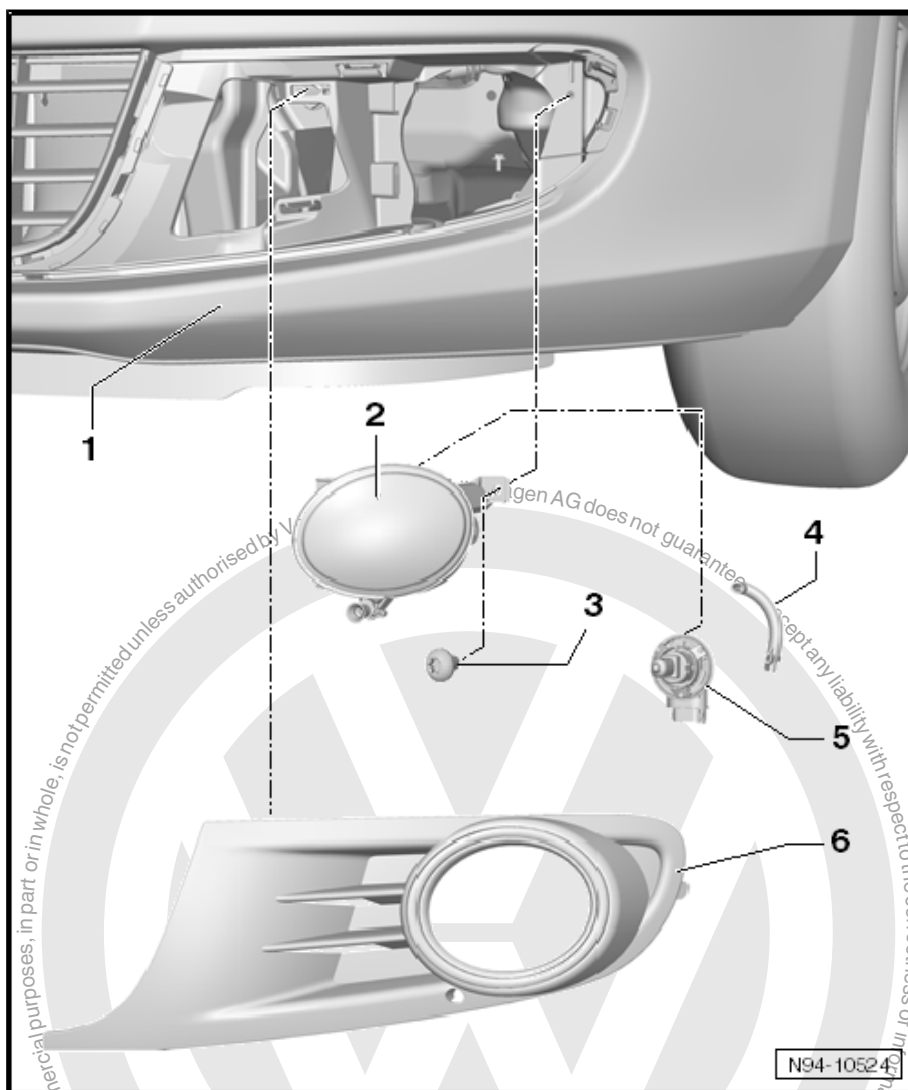
- ❑ 2 Nm

4 - Breather Hose

5 - Left Front Fog Lamp Bulb - L22- / Right Front Fog Lamp Bulb - L23-

- ❑ Bulb: H11 12 V/51 W
- ❑ Removing and installing. Refer to
⇒ ["2.3.1 Fog Lamp Bulb, Removing and Installing, Jetta", page 163](#).

6 - Cap





2.1.2 Overview - Fog Lamps, Jetta GLI

1 - Fog Lamp Housing

- ❑ Removing and installing. Refer to
⇒ ["2.2.2 Fog Lamp, Removing and Installing, Jetta GLI", page 162](#).

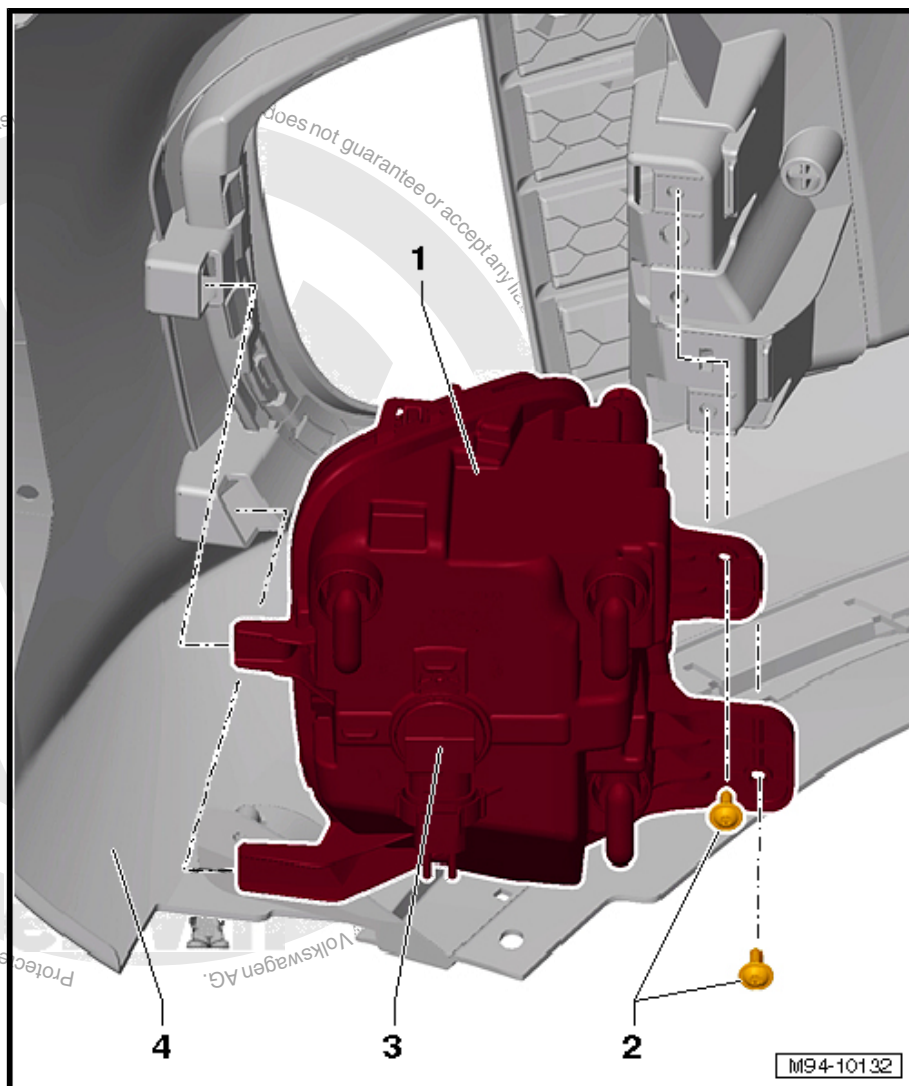
2 - Screw

- ❑ 2 Nm
- ❑ Quantity: 2

3 - Left Front Fog Lamp Bulb - L22- / Right Front Fog Lamp Bulb - L23-

- ❑ Bulb: H11 12 V/51 W
- ❑ Removing and installing. Refer to
⇒ ["2.3.2 Fog Lamp Bulb, Removing and Installing, Jetta GLI", page 163](#).

4 - Front Bumper Cover



2.2 Fog Lamp, Removing and Installing

⇒ ["2.2.1 Fog Lamp, Removing and Installing, Jetta", page 161](#)

⇒ ["2.2.2 Fog Lamp, Removing and Installing, Jetta GLI", page 162](#)

2.2.1 Fog Lamp, Removing and Installing, Jetta

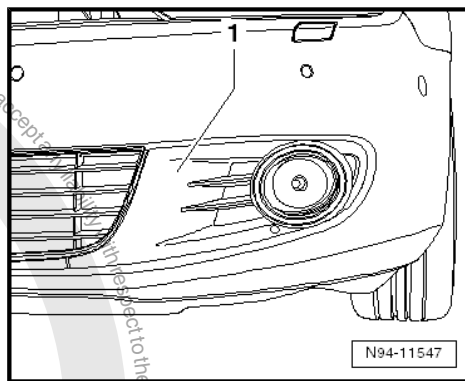
The following illustrations depict removal and installation of left fog lamp.

Removing

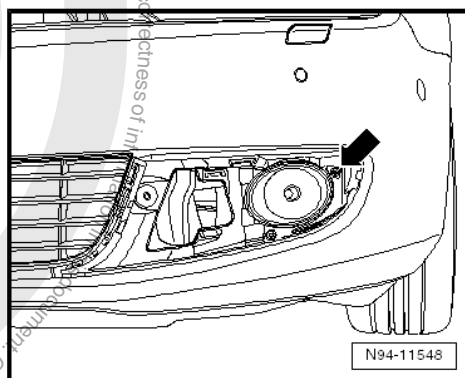
- Turn off the ignition and all electrical equipment and remove the ignition key.



- Remove the cap -1-.



- Remove the bolt -arrow-.
- Remove the fog lamp housing from the bumper cover.
- Release and disconnect the connector -arrow-.

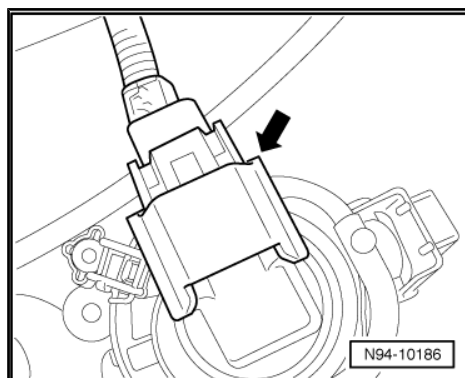


- Remove the fog lamp housing.

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“2.1.1 Overview - Fog Lamps, Jetta”, page 160](#) .
- Check and adjust the fog lamp setting. Refer to ⇒ Maintenance ; Booklet 20.1 .



2.2.2 Fog Lamp, Removing and Installing, Jetta GLI

The following illustrations depict removal and installation of left fog lamp.

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the front spoiler. Refer to ⇒ Body Exterior; Rep. Gr. 63 ; Front Bumper Cover; Front Bumper Cover Attachments .
- Release and disconnect the connector.
- Remove the bolts -2-.

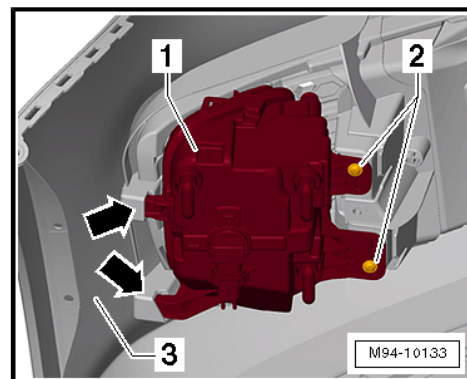


- Move the fog lamp -1- slightly and pull it out of the mounts -arrows- in the bumper cover -3-.

Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“2.1.2 Overview - Fog Lamps, Jetta GLI”, page 161](#) .
- Check and adjust the fog lamp setting. Refer to ⇒ Maintenance ; Booklet 20.1 .



2.3 Fog Lamp Bulb, Removing and Installing

⇒ [“2.3.1 Fog Lamp Bulb, Removing and Installing, Jetta”, page 163](#)

⇒ [“2.3.2 Fog Lamp Bulb, Removing and Installing, Jetta GLI”, page 163](#)

2.3.1 Fog Lamp Bulb, Removing and Installing, Jetta

The following illustrations depict removal and installation on the left fog lamp.

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.

Remove the fog lamp. Refer to

⇒ [“2.2.1 Fog Lamp, Removing and Installing, Jetta”, page 161](#) .

Turn the bulb socket -1- in the direction of -arrow- and remove it.

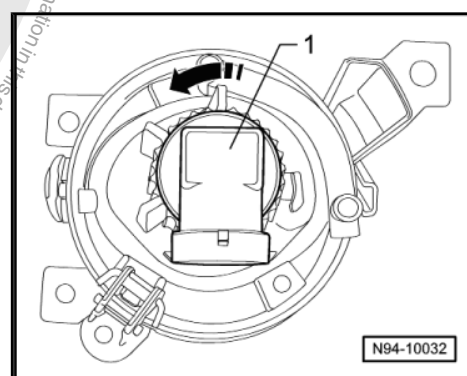
The bulb is permanently attached to the bulb socket and cannot be replaced separately.

Bulbs: H11 12 V/55 W

Installing

Install in reverse order of removal. Note the following:

- Check and adjust the fog lamp setting. Refer to ⇒ Maintenance ; Booklet 20.1 .



2.3.2 Fog Lamp Bulb, Removing and Installing, Jetta GLI

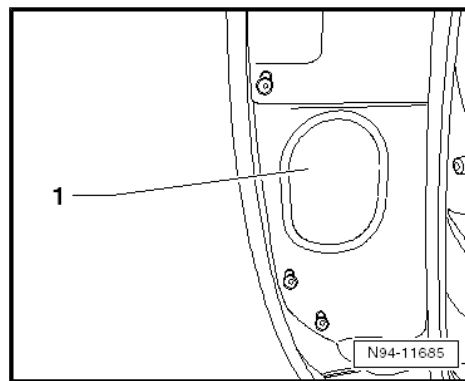
The following illustrations depict removal and installation on the left fog lamp.

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.

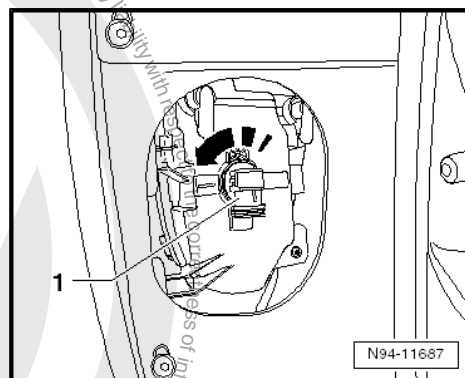
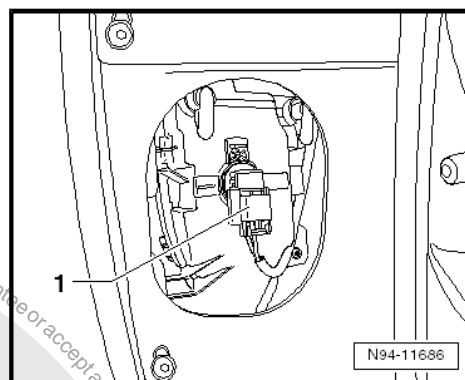


- Remove the maintenance cover -1- from the front wheel housing liner.



- Release and disconnect the connector -1-.
- Turn the bulb socket -1- in the direction of -arrow- and remove it.

The bulb is permanently attached to the bulb socket and cannot be replaced separately.



Bulb: H11 12 V/51 W

Installing

Install in reverse order of removal. Note the following:

- Check and adjust the fog lamp setting. Refer to ⇒ Maintenance Booklet 20.1 .

2.4 Fog Lamp, Adjusting

Fog Lamps, Adjusting. Refer to ⇒ Maintenance ; Booklet 20.1 .



3 Side Marker Lamp

⇒ **"3.1 Front Side Marker Lamp Bulb, Removing and Installing",
page 165**

3.1 Front Side Marker Lamp Bulb, Removing and Installing

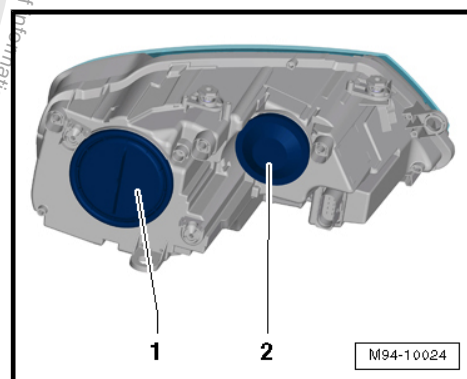
The front side marker lamp bulb is located inside the front headlamp.

It is not necessary to remove the headlamp when replacing the headlamp bulb.

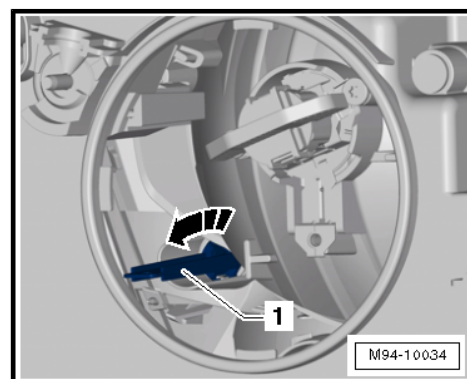
The following illustrations show changing a bulb in the left headlamp.

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the cap -1-.



- Turn the bulb socket -1- in the direction of -arrow- and remove it together with the Left Front Side Marker Lamp Bulb - M33- from the headlamp.
- Remove the Left Front Side Marker Lamp Bulb - M33- -2- in the direction of -arrow- from the bulb socket -1-.





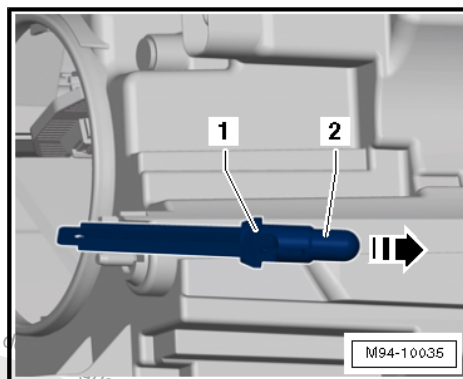
Bulb: 12 V/3 W

Installing



Caution

- ◆ *Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.*
- ◆ *During installation, ensure proper seating of the cap. Water getting in the headlamp will cause damage.*



Install in reverse order of removal. Note the following:

- Check the headlamp functions.



4 Lamps in Exterior Rearview Mirror

⇒ [“4.1 Overview - Lamps in Exterior Rearview Mirror”, page 167](#)

⇒ [“4.2 Exterior Rearview Mirror Turn Signal Bulb, Removing and Installing”, page 167](#)

⇒ [“4.3 Exterior Rearview Mirror Entry Lamp, Removing and Installing”, page 168](#)

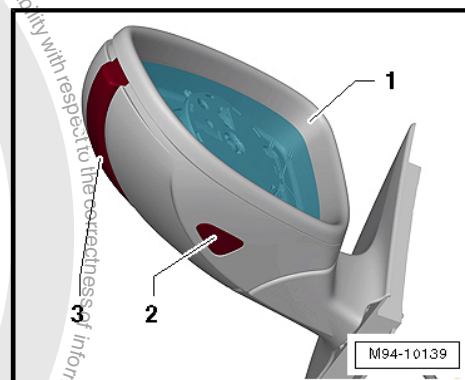
4.1 Overview - Lamps in Exterior Rearview Mirror

General Information

The Driver Exterior Rearview Mirror Turn Signal Bulb - L131- / Front Passenger Exterior Rearview Mirror Turn Signal Bulb - L132- (turn signal) are inside the exterior mirror housing.

In addition, there is a Driver Entry Lamp (in outside mirror) - W52- / Front Passenger Entry Lamp in Exterior Rearview Mirror - W53- , located in each of the exterior rearview mirror housings that lights the dark entry area around the driver and passenger door.

- 1- Exterior Rearview Mirror
- 2- Driver Entry Lamp in Exterior Rearview Mirror - W52- / Front Passenger Entry Lamp in Exterior Rearview Mirror - W53-
- 3- Driver Exterior Rearview Mirror Turn Signal Bulb - L131- / Front Passenger Exterior Rearview Mirror Turn Signal Bulb - L132-



Malfunction Recognition and Malfunction Indicator

The Driver Door Control Module - J386- / Front Passenger Door Control Module - J387- is equipped with OBD.

For troubleshooting. Refer to Vehicle Diagnostic Tester in the “Guided Fault Finding” function.

4.2 Exterior Rearview Mirror Turn Signal Bulb, Removing and Installing

The Driver Exterior Rearview Mirror Turn Signal Bulb - L131- / Front Passenger Exterior Rearview Mirror Turn Signal Bulb - L132- are installed in the left and right exterior rearview mirror housing.

Both the Driver Exterior Rearview Mirror Turn Signal Bulb - L131- / Front Passenger Exterior Rearview Mirror Turn Signal Bulb - L132- must be replaced if faulty.

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the Driver Exterior Rearview Mirror Turn Signal Bulb - L131- / Front Passenger Exterior Rearview Mirror Turn Signal Bulb - L132- . Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Exterior Rearview Mirror .

Installing

- Install the Driver Exterior Rearview Mirror Turn Signal Bulb - L131- / Front Passenger Exterior Rearview Mirror Turn Signal Bulb - L132- . Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Exterior Rearview Mirror .



4.3 Exterior Rearview Mirror Entry Lamp, Removing and Installing

Driver Entry Lamp in Exterior Rearview Mirror - W52- / Front Passenger Entry Lamp in Exterior Rearview Mirror - W53- are integrated in the mirror housing.

It is not necessary to remove the exterior mirror in order to remove and install the Driver Entry Lamp in Exterior Rearview Mirror - W52- / Front Passenger Entry Lamp in Exterior Rearview Mirror - W53- .

The Driver Entry Lamp in Exterior Rearview Mirror - W52- and Front Passenger Entry Lamp in Exterior Rearview Mirror - W53- are removed and installed the same way, so the description is only given for one side.

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the mirror housing. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Exterior Rearview Mirror .
- Lift the Driver Entry Lamp in Exterior Rearview Mirror - W52- -1- out of the lower section of the mirror housing.
- Remove the Driver Entry Lamp in Exterior Rearview Mirror - W52- -1- in direction of -arrow- out of the bulb socket 2-.

Replacing the Bulb

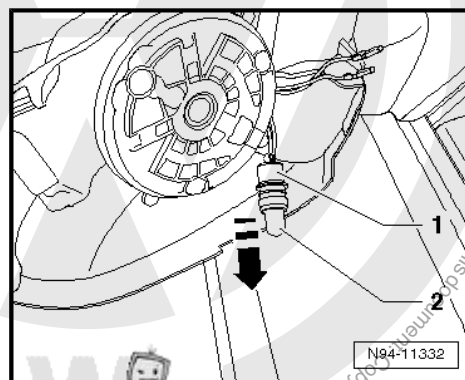
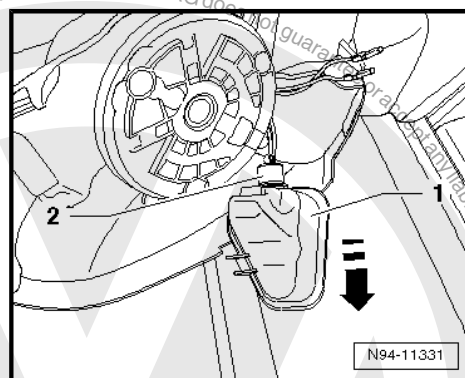
- Remove the plug-in bulb -2- in the direction of -arrow- from the bulb socket -1-.

Bulbs: 12 V/6 W plug-in bulb

Installing

Install in reverse order of removal. Note the following:

- Perform a functionality test on the exterior mirror.





5 Tail Lamps

- ⇒ [“5.1 Overview - Body Tail Lamps”, page 169](#)
- ⇒ [“5.2 Overview - Rear Lid Tail Lamps”, page 172](#)
- ⇒ [“5.3 Bulb Holder, Removing and Installing”, page 173](#)
- ⇒ [“5.4 Rear Lid Tail Lamp, Removing and Installing”, page 174](#)
- ⇒ [“5.5 Tail Lamps in Body, Removing and Installing”, page 175](#)
- ⇒ [“5.6 Tail Lamp Bulb, Removing and Installing”, page 175](#)
- ⇒ [“5.7 Fog Lamp Bulb, Removing and Installing”, page 176](#)
- ⇒ [“5.8 Brake and Tail Lamp Bulb, Removing and Installing”, page 176](#)
- ⇒ [“5.9 Back-Up Lamp, Removing and Installing”, page 177](#)
- ⇒ [“5.10 Turn Signal Bulb, Removing and Installing”, page 178](#)

5.1 Overview - Body Tail Lamps

- ⇒ [“5.1.1 Overview - Body Tail Lamps, Bulbs”, page 169](#)
- ⇒ [“5.1.2 Overview - Body Tail Lamps, LED”, page 171](#)

5.1.1 Overview - Body Tail Lamps, Bulbs



1 - Side Panel Tail Lamp Housing

- ❑ Removing and installing. Refer to
⇒ ["5.5 Tail Lamps in Body, Removing and Installing", page 175](#).

2 - Left Rear Turn Signal Bulb - M6- / Right Rear Turn Signal Bulb - M8-

- ❑ 12 V P 21 W
- ❑ Removing and installing. Refer to
⇒ ["5.10 Turn Signal Bulb, Removing and Installing", page 178](#).

3 - Left Brake/Tail Lamp Bulb - M21- / Right Brake/Tail Lamp Bulb - M22-

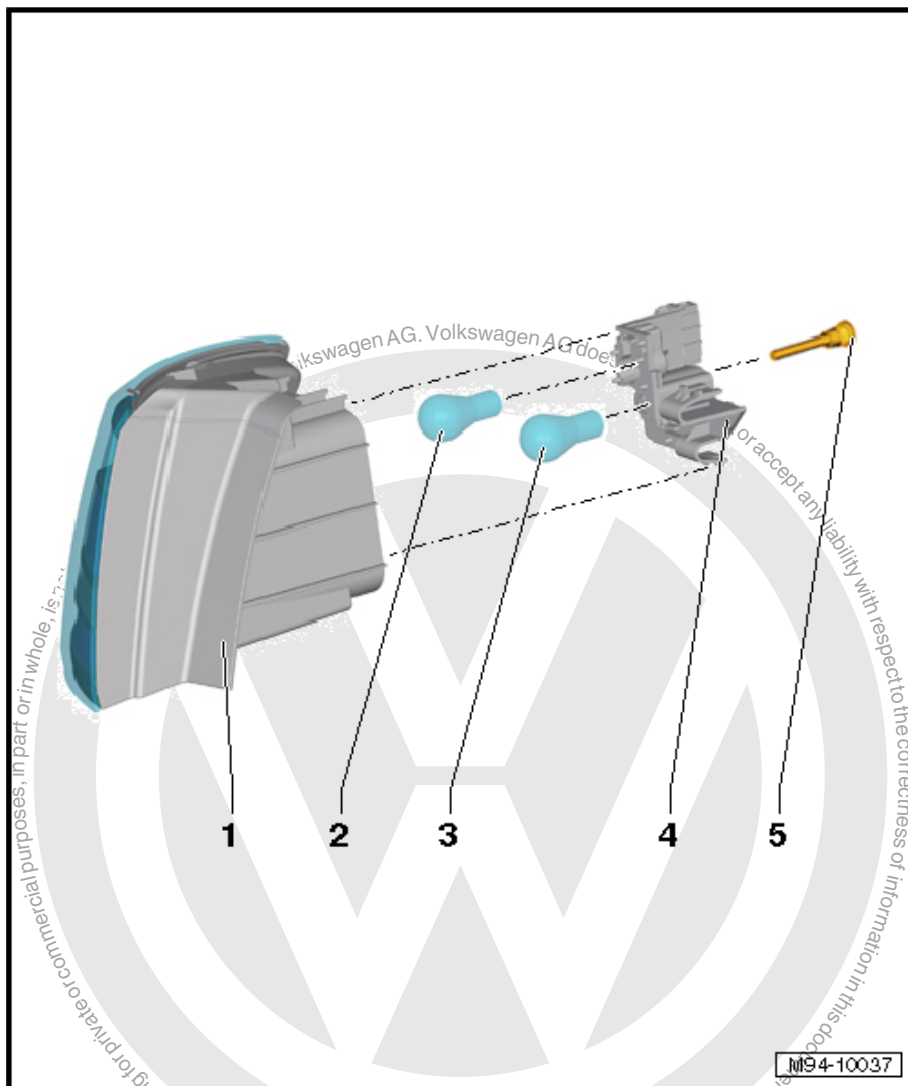
- ❑ 12 V P 21/5 W
- ❑ Removing and installing. Refer to
⇒ ["5.8 Brake and Tail Lamp Bulb, Removing and Installing", page 176](#).

4 - Bulb Holder

- ❑ Removing and installing. Refer to
⇒ ["5.3.1 Bulb Holder, Removing and Installing, Body Tail Lamp", page 173](#).

5 - Screw

- ❑ By hand to a maximum of 3 Nm





5.1.2 Overview - Body Tail Lamps, LED

The side panel tail lamps contain:

1 - Side Panel Tail Lamp Housing

- ☐ Removing and installing. Refer to
⇒ ["5.5 Tail Lamps in Body, Removing and Installing", page 175](#).

2 - Left Rear Turn Signal Bulb - M6- / Right Rear Turn Signal Bulb - M8-

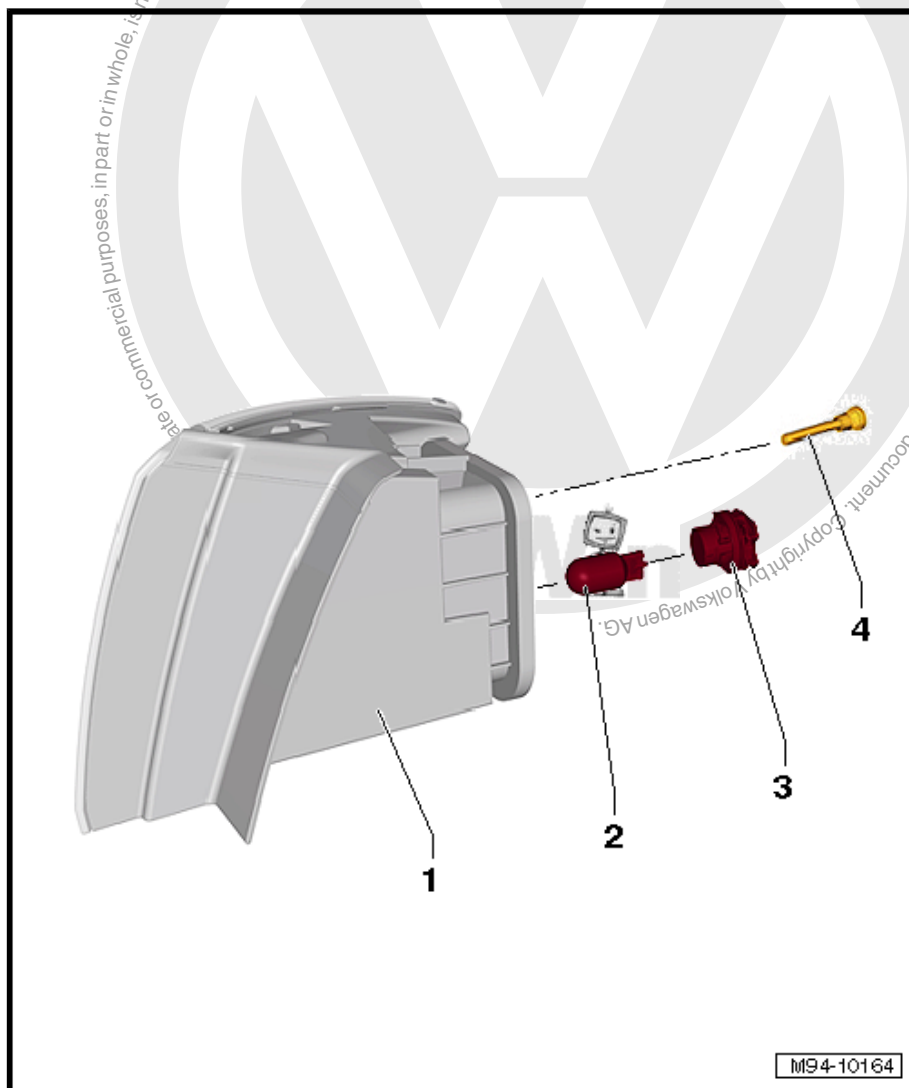
- ☐ Not for USA and Canada
- ☐ 12 V WY 21 W
- ☐ Removing and installing. Refer to
⇒ ["5.10 Turn Signal Bulb, Removing and Installing", page 178](#).

3 - Bulb Holder

- ☐ Not for USA and Canada
- ☐ Removing and installing. Refer to
⇒ ["5.10 Turn Signal Bulb, Removing and Installing", page 178](#).

4 - Screw

- ☐ By hand to a maximum of 3 Nm





5.2 Overview - Rear Lid Tail Lamps

⇒ ["5.2.1 Overview - Rear Lid Tail Lamps, Bulbs", page 172](#)

⇒ ["5.2.2 Overview - Rear Lid Tail Lamps, LED", page 172](#)

5.2.1 Overview - Rear Lid Tail Lamps, Bulbs

1 - Tail Lamp Housing in Rear Lid

- ❑ Removing and installing. Refer to
⇒ ["5.4 Rear Lid Tail Lamp, Removing and Installing", page 174](#).

2 - Left Tail Lamp Bulb - M4- / Right Tail Lamp Bulb - M2-

- ❑ 12 V R 5 W
- ❑ Removing and installing. Refer to
⇒ ["5.6 Tail Lamp Bulb, Removing and Installing", page 175](#).

3 - Left Back-Up Lamp Bulb - M16- / Right Back-Up Lamp Bulb - M17-

- ❑ 12 V P 21 W
- ❑ Removing and installing. Refer to
⇒ ["5.9 Back-Up Lamp, Removing and Installing", page 177](#).

4 - Bulb Holder

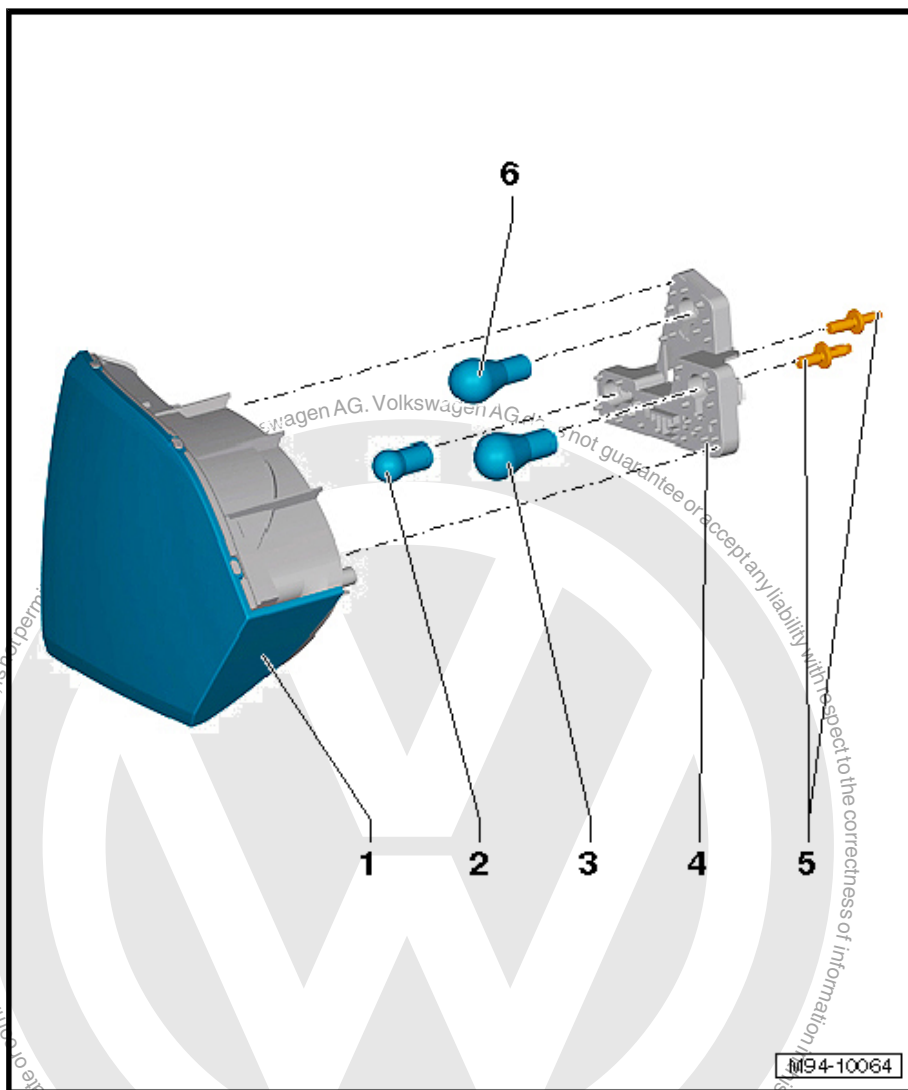
- ❑ Removing and installing. Refer to
⇒ ["5.3.2 Bulb Holder, Removing and Installing, Rear Lid Tail Lamp", page 174](#).

5 - Screw

- ❑ 3 Nm
- ❑ Quantity: 2

6 - Left Rear Fog Lamp Bulb - L46-

- ❑ Left only
- ❑ Removing and installing. Refer to ⇒ ["5.7 Fog Lamp Bulb, Removing and Installing", page 176](#).
- ❑ 12 V P 21 W



5.2.2 Overview - Rear Lid Tail Lamps, LED

The rear lid tail lamp contains:



The LED module for the fog lamp is located only in the left tail lamp assembly on RHD vehicles and only in the right tail lamp assembly on LHD vehicles.

1 - Tail Lamp Housing in Rear Lid

- ☐ Removing and installing. Refer to
⇒ ["5.4 Rear Lid Tail Lamp, Removing and Installing", page 174](#).

2 - Left Back-Up Lamp Bulb - M16- / Right Back-Up Lamp Bulb - M17-

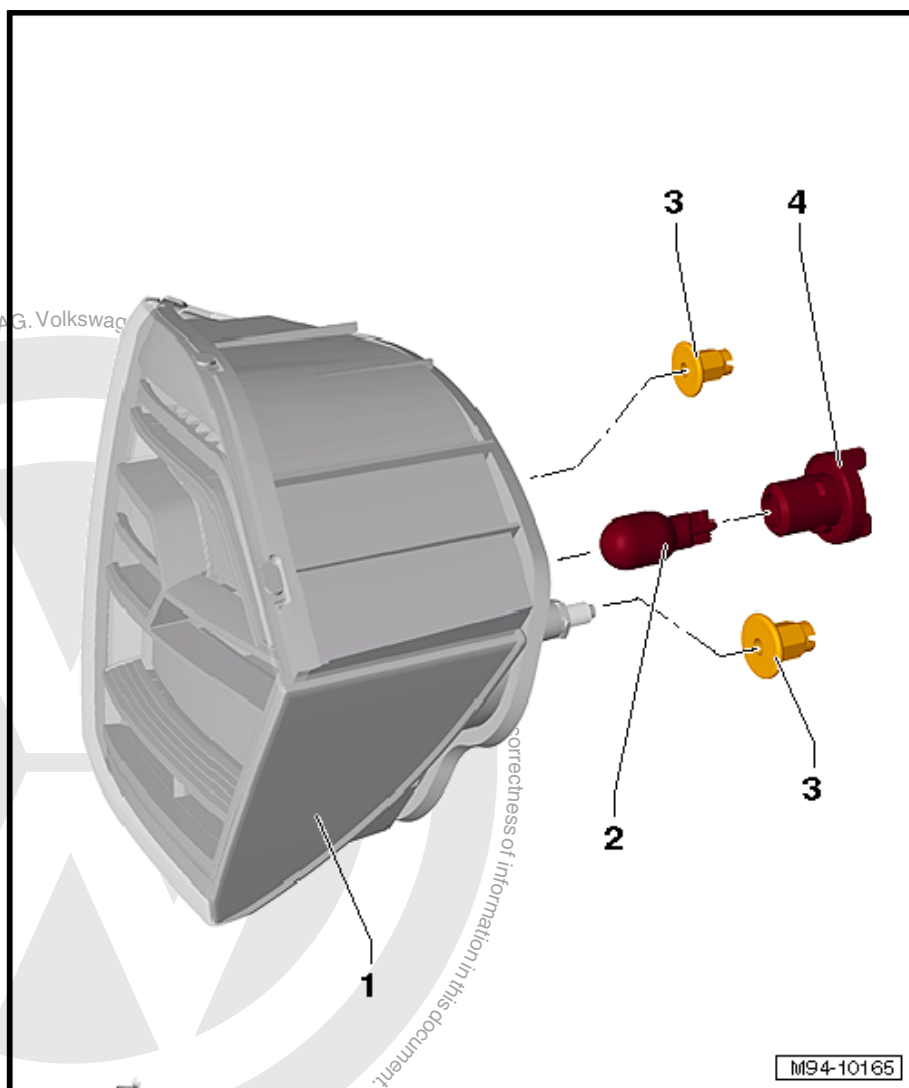
- ☐ 12 V W 16 W
- ☐ Removing and installing. Refer to
⇒ ["5.9 Back-Up Lamp, Removing and Installing", page 177](#).

3 - Nut

- ☐ 3 Nm
- ☐ Quantity: 2

4 - Bulb Holder

- ☐ Removing and installing. Refer to
⇒ ["5.9 Back-Up Lamp, Removing and Installing", page 177](#).



5.3 Bulb Holder, Removing and Installing

⇒ ["5.3.1 Bulb Holder, Removing and Installing, Body Tail Lamp", page 173](#)

⇒ ["5.3.2 Bulb Holder, Removing and Installing, Rear Lid Tail Lamp", page 174](#)

5.3.1 Bulb Holder, Removing and Installing, Body Tail Lamp

Removing

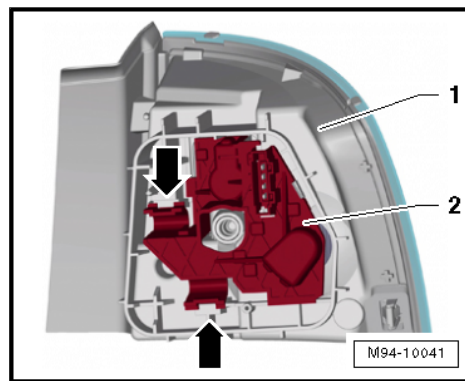
- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the tail lamp from the body. Refer to
⇒ ["5.5 Tail Lamps in Body, Removing and Installing", page 175](#).



- Unlock the tab in the direction of -arrow- and remove the bulb holder -2- from the tail lamp housing -1-.

Installing

Install in reverse order of removal.



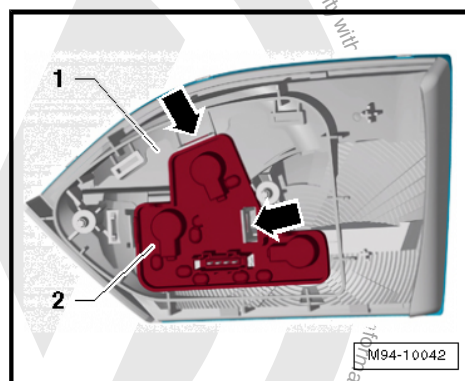
5.3.2 Bulb Holder, Removing and Installing, Rear Lid Tail Lamp

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the tail lamp from the rear lid. Refer to ➔ ["5.4 Rear Lid Tail Lamp, Removing and Installing", page 174](#).
- Release the tabs in the direction of -arrow- and remove the bulb holder -2- from the tail lamp -1-.

Installing

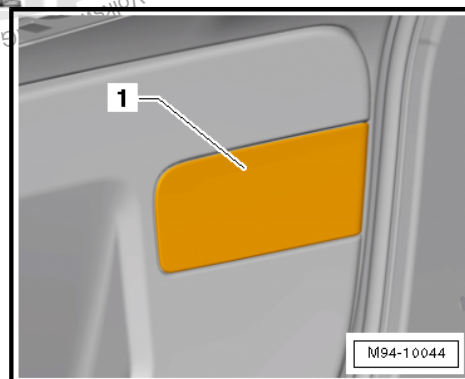
Install in reverse order of removal.



5.4 Rear Lid Tail Lamp, Removing and Installing

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the service cover -1- from the trim panel in the rear lid.
- Release and disconnect the connector -1-.



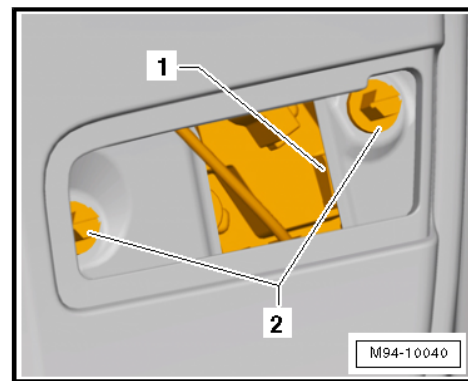


- Remove the bolts -2- and remove the tail lamp.

Installing

Install in reverse order of removal. Note the following:

- Check the gap dimensions to the body.
- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“5.2 Overview - Rear Lid Tail Lamps”, page 172](#) .



5.5 Tail Lamps in Body, Removing and Installing

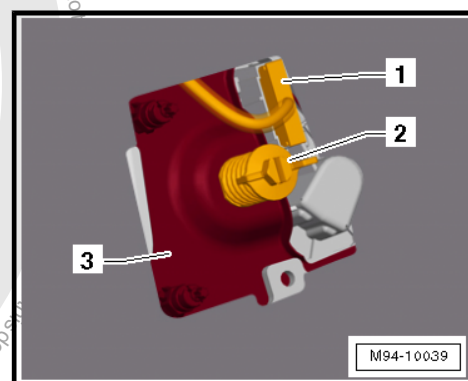
Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the cover inside the side trim panel.
- Release and disconnect the connector -1-.
- Remove the screw -2- from the tail lamp -3- and then remove the tail lamp -3- outward.

Installing

Install in reverse order of removal. Note the following:

- The connector for the side panel tail lamps must engage “audibly” when connecting.
- Check the gap dimensions to the body.
- Tighten the threaded connections to the tightening specification. Refer to ⇒ [“5.1 Overview - Body Tail Lamps”, page 169](#) .



5.6 Tail Lamp Bulb, Removing and Installing

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the tail lamp bulb holder in the rear lid. Refer to
⇒ [“5.3.2 Bulb Holder, Removing and Installing, Rear Lid Tail Lamp”, page 174](#) .
- Push the tail lamp bulb -3- into the bulb socket, turn it to the left and remove it from the bulb holder -1-.



Bulb: 12 V R 5 W

Installing

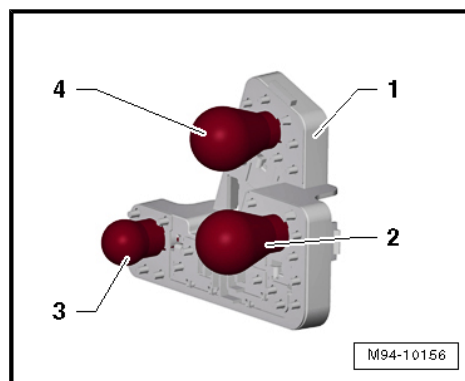


Caution

- ◆ *Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.*

Install in reverse order of removal. Note the following:

- Perform a function test for the tail lamp.



5.7 Fog Lamp Bulb, Removing and Installing

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the tail lamp bulb holder in the rear lid. Refer to ⇒ [“5.3.2 Bulb Holder, Removing and Installing, Rear Lid Tail Lamp”, page 174](#).
- Press the Left Rear Fog Lamp Bulb -L46- -4- into the bulb socket, turn it to the left and then pull it out of the bulb holder -1-.

Bulb: 12 V P 21 W

Installing

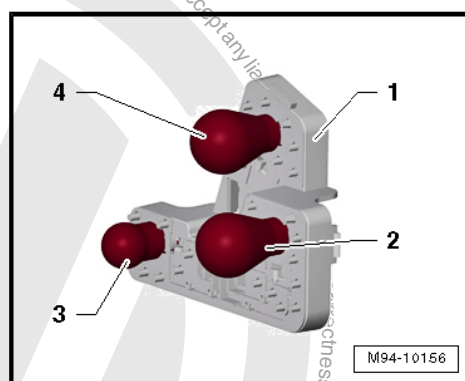


Caution

- ◆ *Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.*

Install in reverse order of removal. Note the following:

- Perform a function test for the tail lamp.



5.8 Brake and Tail Lamp Bulb, Removing and Installing

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the body tail lamp bulb holder. Refer to ⇒ [“5.3.1 Bulb Holder, Removing and Installing, Body Tail Lamp”, page 173](#).



- Push the brake and tail lamp bulb -2- into the bulb socket, turn it to the left and remove it from the bulb holder -1-.

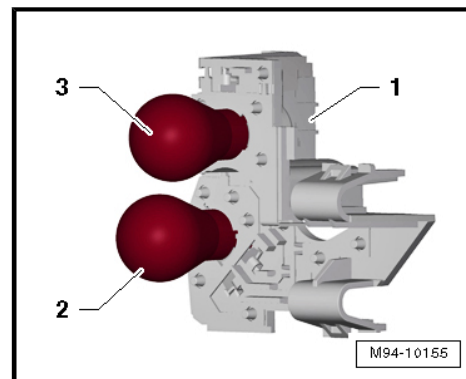
Bulb: 12 V P 21/5 W

Installing



Caution

- ◆ *Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.*



Install in reverse order of removal. Note the following:

- Perform a function test for the tail lamp.

5.9 Back-Up Lamp, Removing and Installing

⇒ [“5.9.1 Back-Up Lamp Bulb, Removing and Installing”](#),
page 177

⇒ [“5.9.2 Back-Up Lamp Bulb, Removing and Installing, LED”](#),
page 177

5.9.1 Back-Up Lamp Bulb, Removing and Installing

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the tail lamp bulb holder in the rear lid. Refer to [⇒ “5.3.2 Bulb Holder, Removing and Installing, Rear Lid Tail Lamp”](#), page 174 .
- Push the back-up lamp bulb -2- into the bulb socket, turn it to the left and remove it from the bulb holder -1-.

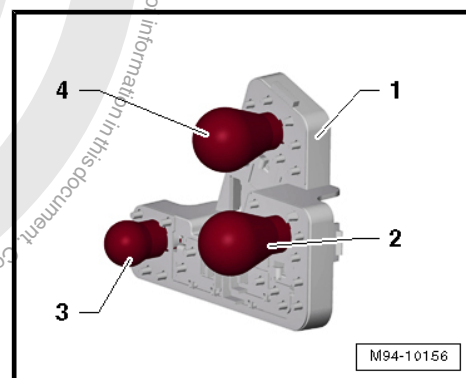
Bulb: 12 V P 21 W

Installing



Caution

- ◆ *Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.*



Install in reverse order of removal. Note the following:

- Perform a function test for the tail lamp.

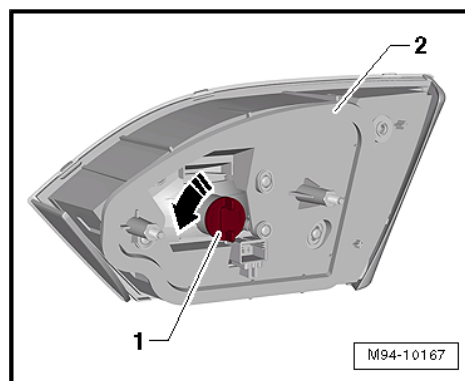
5.9.2 Back-Up Lamp Bulb, Removing and Installing, LED

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the tail lamp assembly from the rear lid. Refer to [⇒ “5.4 Rear Lid Tail Lamp, Removing and Installing”](#), page 174 .



- Turn the bulb socket -1- in direction of -arrow-.
- Remove the bulb socket -1- with the back-up lamp bulb from the tail lamp -2-.
- Pull the back-up lamp bulb -2- out of the bulb socket -1- -arrow-.



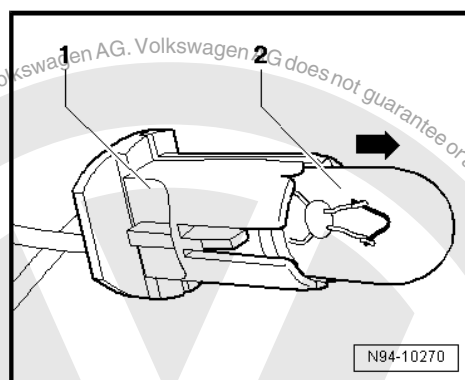
12 V W 16 W Bulb

Installing



Caution

- ◆ *Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.*



Install in reverse order of removal. Note the following:

- Perform a function test for the tail lamp.

5.10 Turn Signal Bulb, Removing and Installing

⇒ [“5.10.1 Turn Signal Bulb, Removing and Installing, Bulb”, page 178](#)

⇒ [“5.10.2 Turn Signal Bulb, Removing and Installing, LED”, page 179](#)

5.10.1 Turn Signal Bulb, Removing and Installing, Bulb

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the body tail lamp bulb holder. Refer to ⇒ [“5.3.1 Bulb Holder, Removing and Installing, Body Tail Lamp”, page 173](#).
- Push the turn signal bulb -3- into the bulb socket, turn it to the left and remove it from the bulb holder -1-.



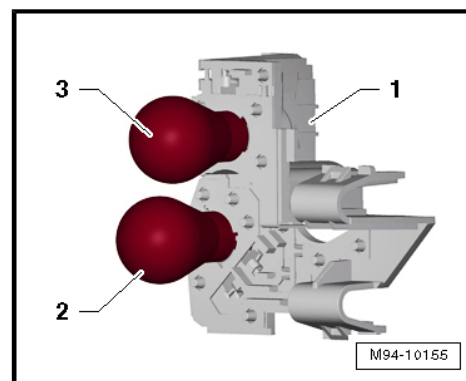
Bulb: 12 V P 21 W

Installing



Caution

- ◆ *Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.*



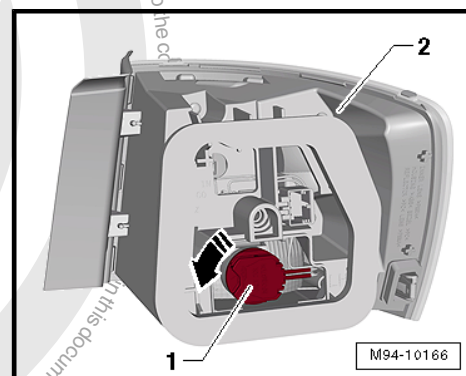
Install in reverse order of removal. Note the following:

- Perform a function test for the tail lamp.

5.10.2 Turn Signal Bulb, Removing and Installing LED

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the tail lamp assembly from the body. Refer to ⇒ ["5.5 Tail Lamps in Body, Removing and Installing", page 175](#).
- Turn the bulb socket -1- in direction of -arrow-.
- Remove the bulb socket -1- with the turn signal bulb from the tail lamp -2-.



- Remove the turn signal bulb -2- from the bulb socket -1- -arrow-.

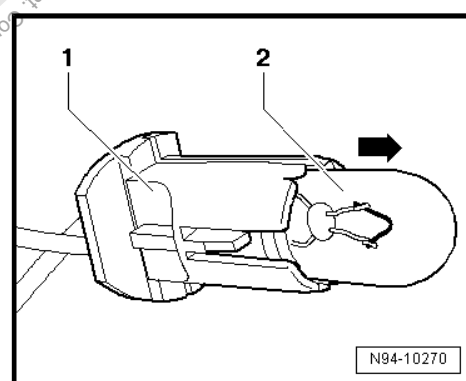
Bulb: 12 V WY 21 W

Installing



Caution

- ◆ *Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.*



Install in reverse order of removal. Note the following:

- Perform a function test for the tail lamp.



6 High-Mounted Brake Lamp

⇒ "6.1 Overview - High-Mounted Brake Lamp", page 180

⇒ "6.2 High-Mounted Brake Lamp, Removing and Installing", page 180

⇒ "6.3 High-Mounted Brake Lamp Bulb M25, Removing and Installing", page 181

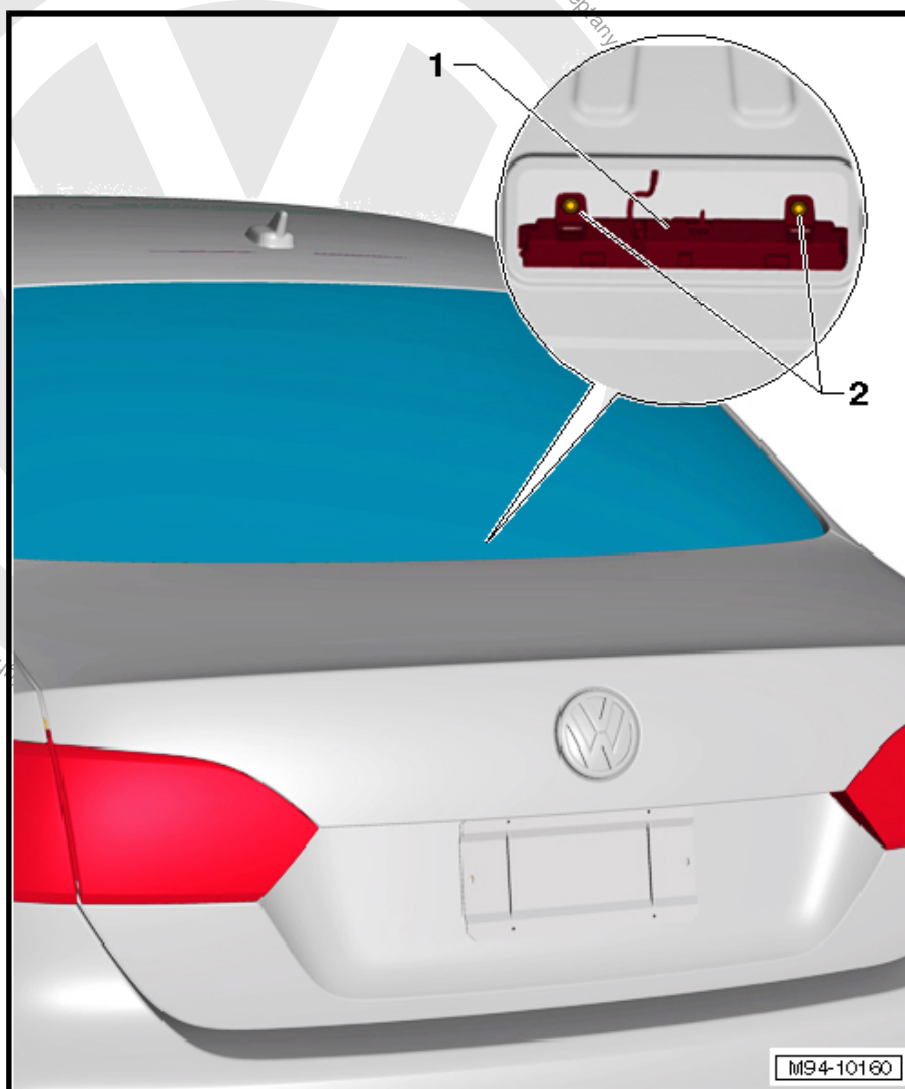
6.1 Overview - High-Mounted Brake Lamp

1 - High-Mounted Brake Lamp

- ❑ Removing and installing. Refer to
⇒ "6.2 High-Mounted Brake Lamp, Removing and Installing", page 180.
- ❑ Bulb, Removing and installing. Refer to
⇒ "6.3 High-Mounted Brake Lamp Bulb M25, Removing and Installing", page 181

2 - Screw

- ❑ 2 Nm
- ❑ Quantity: 2



6.2 High-Mounted Brake Lamp, Removing and Installing

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the lower cover on the rear shelf.
- Release and disconnect the connector -1-.



- Remove the bolts -3- and remove the high-mounted brake lamp -2- downward.

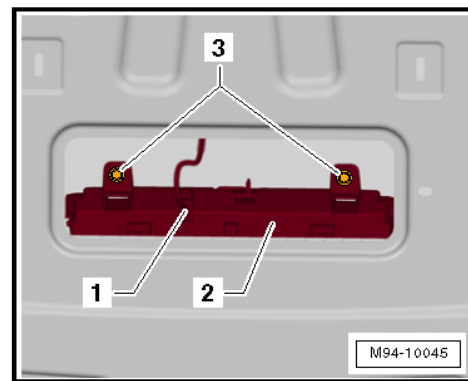
Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification.

Tightening Specifications

- ◆ Refer to
⇒ ["6.1 Overview - High-Mounted Brake Lamp", page 180](#)



6.3 High-Mounted Brake Lamp Bulb - M25- , Removing and Installing

The High-Mounted Brake Lamp Bulb - M25- contains individual LEDs.

If One of the LEDs in the High-Mounted Brake Lamp Bulb - M25- is Faulty:

- ◆ The individual LEDs in the High-Mounted Brake Lamp Bulb - M25- are in groups of four and are supplied with electricity as a group.
- ◆ The High-Mounted Brake Lamp Bulb - M25- is designed in such a way that it still meets legal requirements when one LED group fails.
- ◆ If another LED group fails, these legal requirements are no longer met.
- ◆ When one LED group fails, the intact LEDs are given a higher load, by which failure of other LED groups can be assumed in the near future.

Replace the high-mounted brake lamp if more than four individual LEDs in the High-Mounted Brake Lamp Bulb - M25- have burned out. Refer to

⇒ ["6.2 High-Mounted Brake Lamp, Removing and Installing", page 180](#).



7 License Plate Lamp

⇒ "7.1 License Plate Lamp, Removing and Installing", page 182

7.1 License Plate Lamp, Removing and Installing

⇒ "7.1.1 License Plate Lamp, Removing and Installing, Bolted", page 182

⇒ "7.1.2 License Plate Lamp, Removing and Installing, Clipped On", page 182

7.1.1 License Plate Lamp, Removing and Installing, Bolted

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the bolts -arrows-.
- Remove the license plate lamp.

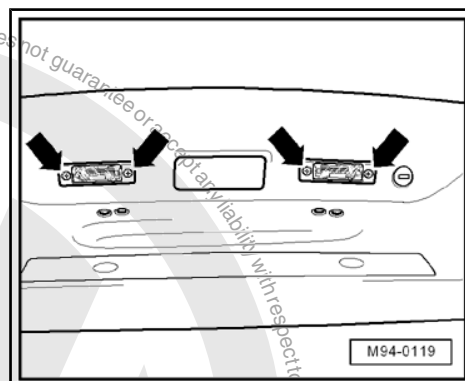
The LEDs cannot be replaced for license plate lamps with LEDs. The entire license plate lamp must be replaced if it becomes damaged.

Bulbs: 12 V W5W

Installing

Install in reverse order of removal. Note the following:

- Tighten the bolts to 2 Nm.
- Check the function of the license plate lamp.



7.1.2 License Plate Lamp, Removing and Installing, Clipped On

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Press the tab -1- in direction of -arrow- and remove the license plate lamp.

The LEDs cannot be replaced for license plate lamps with LEDs. The entire license plate lamp must be replaced if it becomes damaged.

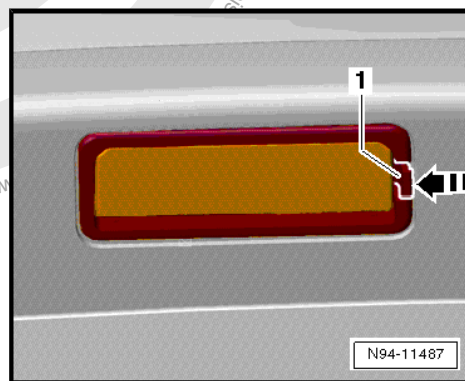
Bulbs: 12 V W5W

Installing

Install in reverse order of removal. Note the following:

Insert the license plate lamp into the bumper cover so that the connector is facing toward the left side of the vehicle.

- Check the function of the license plate lamp.





8 Access/Start Authorization

⇒ [“8.1 Overview - Access/Start Authorization System”, page 183](#)

⇒ [“8.2 Access/Start Authorization Control Module J518, Removing and Installing”, page 185](#)

⇒ [“8.3 Passenger Compartment Antenna for Access/Start Authorization, Removing and Installing”, page 188](#)

⇒ [“8.4 Front Passenger Access/Start Authorization Antenna, Removing and Installing”, page 189](#)

⇒ [“8.5 Driver Access/Start Authorization Antenna, Removing and Installing”, page 189](#)

⇒ [“8.6 Access/Start System Antenna in Luggage Compartment R137, Removing and Installing”, page 190](#)

⇒ [“8.7 Access/Start System Antenna in Rear Bumper R136, Removing and Installing”, page 190](#)

⇒ [“8.8 Access/Start Authorization Antennas and Sensors, Checking”, page 191](#)

⇒ [“8.9 Access/Start Authorization Switch, Removing and Installing”, page 194](#)

8.1 Overview - Access/Start Authorization System

⇒ [“8.1.1 Overview - Access/Start Authorization System”, page 183](#)

⇒ [“8.1.2 Overview - Access/Start Authorization System”, page 184](#)

8.1.1 Overview - Access/Start Authorization System

Malfunction Recognition and Malfunction Indicator

The access/start authorization system is equipped with OBD.

For troubleshooting. Refer to Vehicle Diagnostic Tester in the “Guided Fault Finding” function.

General Information

The KESSY Access system regulates keyless opening, locking and starting of the vehicle.

Opening

The ID sensor in ignition key must be located within reception range of lock location (approximately 1.5 meters). The proximity sensor located on the inside of the door handle is activated whenever the door handle is touched. This then speaks to the ID sensor inside the key and the door unlocks immediately if the identification is valid. Pulling the door handle opens the vehicle.

Starting

The ID sensor in ignition key must be located in the vehicle interior. The clutch pedal must be pressed on manual transmission vehicles. On vehicles with an automatic transmission and DSG, the selector lever must be in “P” and the brake pedal must be pressed. Press the Start System Button - E378- briefly. This speaks to the ID sensor in the key and if the identification is valid, the steering is unlocked and start authorization is achieved.



It is only possible to start the engine with the Start System Button - E378- when a valid ID sensor is located in the vehicle interior.

Locking

The ID sensor in ignition key must be located within reception range of lock location (approximately 1.5 meters). Touching the locking sensor on the outside of the door handle activates the sensor. This then speaks to the ID sensor inside the key and the vehicle unlocks if the identification is valid.

The Access/Start Authorization Control Module - J518- controls all access/start authorization functions. Refer to [⇒ "8.2 Access/Start Authorization Control Module J518, Removing and Installing", page 185](#).

8.1.2 Overview - Access/Start Authorization System

1 - Antenna Contact Point Coverage Area

2 - Access/Start System Antenna 1 in Vehicle Interior - R138-

- ❑ Under the center console in front of the selector lever.
- ❑ Removing and installing. Refer to [⇒ "8.3.1 Access/Start System Antenna 1 in Vehicle Interior R138, Removing and Installing", page 188](#).
- ❑ Checking. Refer to [⇒ "8.8.5 Access/Start System Antenna 1 in Vehicle Interior R138, Checking", page 193](#).

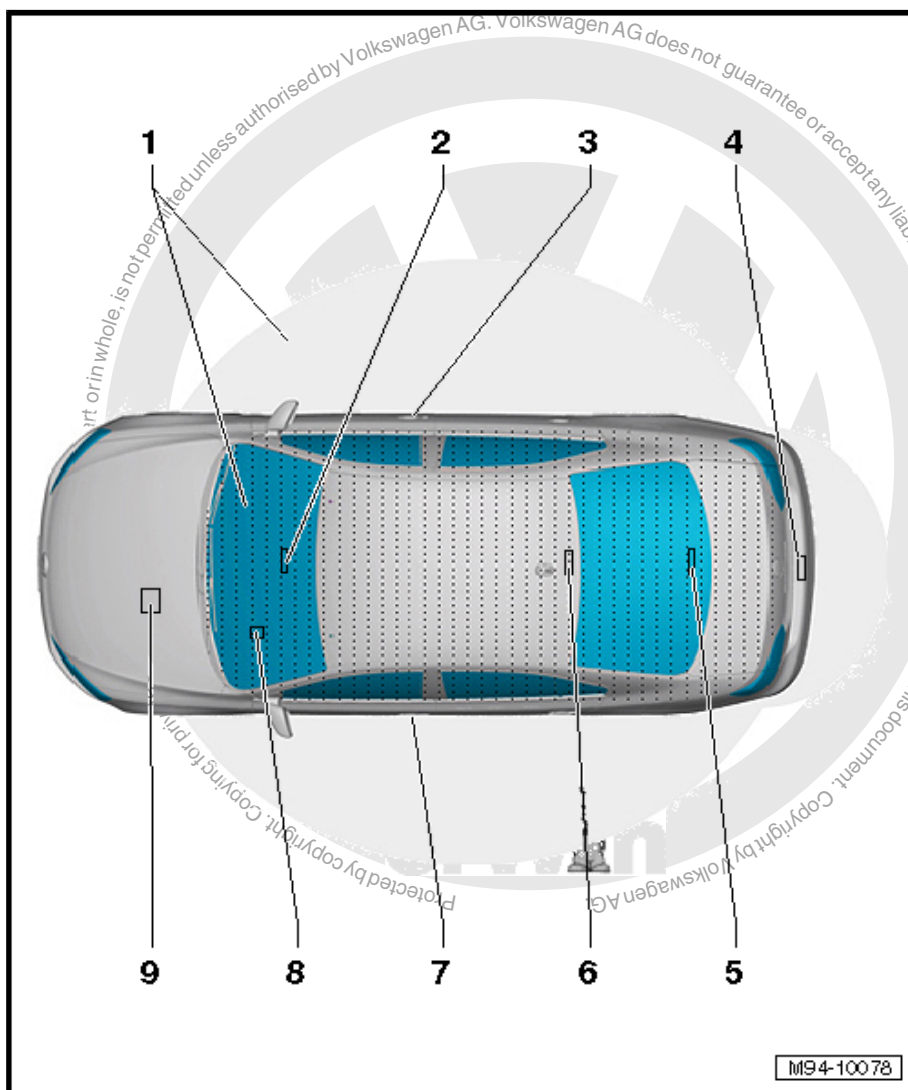
3 - Front Passenger Side Exterior Door Handle

The following components are integrated in the front passenger exterior door handle:

- ◆ Front Passenger Exterior Door Handle Touch Sensor - G416-
- ◆ Front Passenger Access/Start System Antenna - R135-

Front Passenger Side Exterior Door Handle, Removing and installing. Refer to

[⇒ "8.4.1 Front Passenger Exterior Door Handle, Removing and Installing", page 189](#).



- ❑ Front Passenger Access/Start System Antenna - R135-, Checking. Refer to [⇒ "8.8.2 Front Passenger Access/Start System Antenna R135, Checking", page 192](#).
- ❑ Front Passenger Exterior Door Handle Touch Sensor - G416-, Checking. Refer to [⇒ "8.8.8 Front Passenger Exterior Door Handle Touch Sensor G416, Checking", page 194](#).

4 - Access/Start System Antenna in Rear Bumper - R136-

- ❑ Behind the bumper cover in the rear



- ☐ Removing and installing. Refer to
⇒ [“8.7 Access/Start System Antenna in Rear Bumper R136 , Removing and Installing”, page 190](#) .
- ☐ Checking. Refer to
⇒ [“8.8.3 Access/Start System Antenna in Rear Bumper R136 , Checking”, page 192](#) .

5 - Access/Start System Antenna in Luggage Compartment - R137-

- ☐ Inside the luggage compartment, in the center and in front of the spare wheel well
- ☐ Removing and installing. Refer to
⇒ [“8.6 Access/Start System Antenna in Luggage Compartment R137 , Removing and Installing”, page 190](#) .
- ☐ Checking. Refer to
⇒ [“8.8.4 Access/Start System Antenna in Luggage Compartment R137 , Checking”, page 192](#) .

6 - Access/Start System Antenna 2 in Vehicle Interior - R139-

- ☐ Underneath the rear bench seat
- ☐ Removing and installing. Refer to
⇒ [“8.3.2 Access/Start System Antenna 2 in Vehicle Interior R139 , Removing and Installing”, page 188](#) .
- ☐ Checking. Refer to
⇒ [“8.8.6 Access/Start Authorization Antenna 2 in Vehicle Interior R139 , Checking”, page 193](#) .

7 - Driver Side Exterior Door Handle

The following components are integrated in driver side exterior door handle:

- ◆ Driver Exterior Door Handle Touch Sensor - G415-
- ◆ Driver Access/Start System Antenna - R134-
 - ☐ Driver Side Exterior Door Handle, Removing and installing. Refer to
⇒ [“8.5.1 Driver Side Exterior Door Handle, Removing and Installing”, page 189](#) .
 - ☐ Driver Exterior Door Handle Touch Sensor - G415- , checking. Refer to
⇒ [“8.8.7 Driver Exterior Door Handle Touch Sensor G415 , Checking”, page 193](#) .
 - ☐ Driver Access/Start System Antenna - R134- , checking. Refer to
⇒ [“8.8.1 Driver Access/Start System Antenna R134 , Checking”, page 191](#) .

8 - Start System Button - E378-

- ☐ Inside the center console storage compartment
- ☐ Removing and installing. Refer to
⇒ [“2.17 Start System Button E378 , Removing and Installing”, page 285](#) .

9 - Access/Start Authorization Control Module - J518-

- ☐ Inside the driver footwell above the brake pedal.
- ☐ Removing and installing. Refer to
⇒ [“8.2 Access/Start Authorization Control Module J518 , Removing and Installing”, page 185](#) .
- ☐ Coding. Refer to ⇒ [“8.2.3 Access/Start Authorization Control Module J518 , Coding”, page 187](#)

8.2 Access/Start Authorization Control Module - J518- , Removing and Installing

⇒ [“8.2.1 Access/Start Authorization Control Module J518 , Removing and Installing”, page 185](#)

⇒ [“8.2.3 Access/Start Authorization Control Module J518 , Coding”, page 187](#)

8.2.1 Access/Start Authorization Control Module - J518- , Removing and Installing

The “access/start authorization” system must be coded after the Access/Start Authorization Control Module - J518- has been replaced. Refer to



⇒ ["8.2.3 Access/Start Authorization Control Module J518 , Coding", page 187](#) .

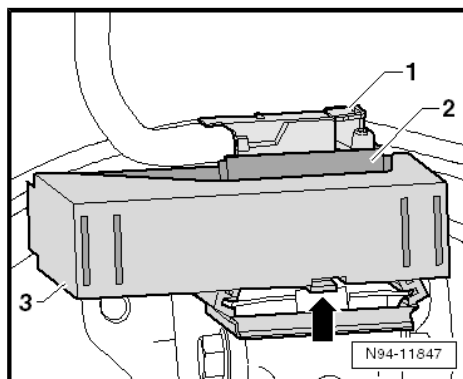
Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the footwell vent on the driver side. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 80 ; Heating, Servicing; Vents, Removing, Jetta from MY 2011 .
- Release the retainer -arrow- and remove the Access/Start Authorization Control Module - J518- -2- together with the bracket -3- from the brake pedal bracket toward the rear. Pay attention to the wires still connected.
- Disconnect the connector -1- and remove the Access/Start Authorization Control Module - J518- -2- from its bracket -3-.

Installing

Install in reverse order of removal. Note the following:

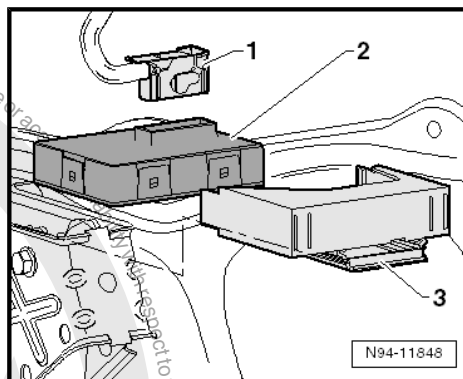
- Slide the Access/Start Authorization Control Module - J518- -2- into the bracket -3-.
- Slide the bracket -3- together with the Access/Start Authorization Control Module - J518- onto the guides on the brake pedal bracket until it latches secure.



- Connect and lock the connector -1-.

The "access/start authorization" system must be coded after the Access/Start Authorization Control Module - J518- has been replaced. Refer to

⇒ ["8.2.3 Access/Start Authorization Control Module J518 , Coding", page 187](#) .



8.2.2 Access/Start Authorization Control Module - J518- , Removing and Installing, RHD

The "access/start authorization" system must be coded after the Access/Start Authorization Control Module - J518- has been replaced. Refer to

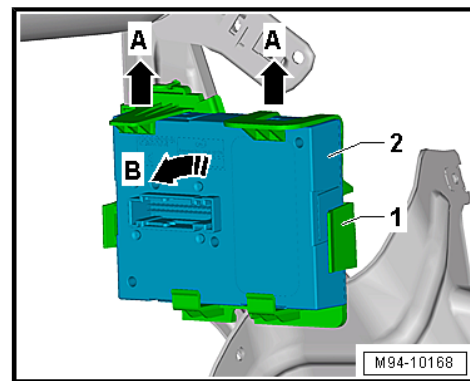
⇒ ["8.2.3 Access/Start Authorization Control Module J518 , Coding", page 187](#) .

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Glove Compartment, Removing and Installing .
- Release and disconnect the connector on the Access/Start Authorization Control Module - J518- .



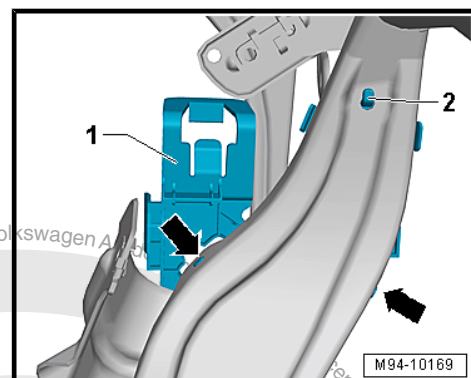
- Press the locking tabs on the bracket -1- upward -arrow A-.
- Pivot out and remove the Access/Start Authorization Control Module - J518- -2- in the -direction of the arrow B- from the bracket -1-.



- To remove the bracket -1- for the Access/Start Authorization Control Module - J518- and release the retainer -arrows-.
- Guide the retaining tab -2- on the bracket -1- out the hole on the central tube and remove the bracket.

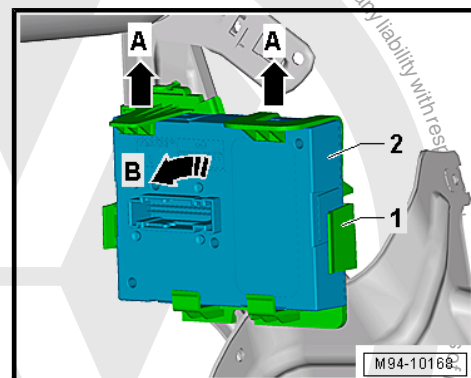
Installing

Installation is performed in the reverse order of removal, noting the following:



- Install the Access/Start Authorization Control Module - J518- -2- into the bracket -1- starting at the bottom.

The “access/start authorization” system must be coded after the Access/Start Authorization Control Module - J518- has been replaced. Refer to
 ⇒ [“8.2.3 Access/Start Authorization Control Module J518 , Coding”](#), page 187 .



8.2.3 Access/Start Authorization Control Module - J518- , Coding

The “access/start authorization” system must be coded after the Access/Start Authorization Control Module - J518- has been replaced.

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **[Guided Fault Finding]** mode.
- Use the **[GO TO]** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Body repair procedures
 - ◆ 01 - OBD-capable systems
 - ◆ 05 - Access and start authorization
 - ◆ Access/start authorization functions
 - ◆ Control module, coding



8.3 Passenger Compartment Antenna for Access/Start Authorization, Removing and Installing

⇒ ["8.3.1 Access/Start System Antenna 1 in Vehicle Interior R138, Removing and Installing", page 188](#)

⇒ ["8.3.2 Access/Start System Antenna 2 in Vehicle Interior R139, Removing and Installing", page 188](#)

8.3.1 Access/Start System Antenna 1 in Vehicle Interior - R138- , Removing and Installing

The Access/Start System Antenna 1 in Vehicle Interior - R138- is located under the front center console in front of the gearshift lever.

No coding, basic setting or adaptation is necessary if the Access/Start System Antenna 1 in Vehicle Interior - R138- is replaced. Erase the existing entry in the DTC memory. Refer to Vehicle Diagnostic Tester .

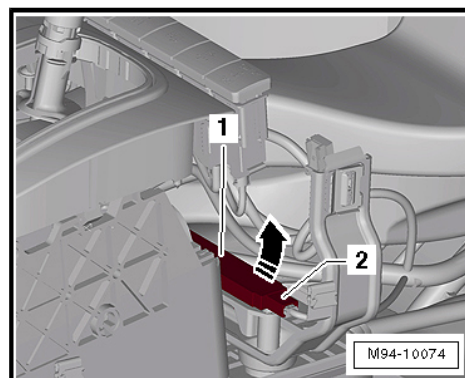
Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the button trim inside the center console. Refer to ⇒ ["2.17 Start System Button E378 , Removing and Installing", page 285](#) .
- Remove the Access/Start System Antenna 1 in Vehicle Interior - R138- -1- upward out of the retainer in direction of -arrow-. Pay attention to the wires still connected.
- Release and disconnect the connector -2- and remove the Access/Start System Antenna 1 in Vehicle Interior - R138- -1- from the vehicle.

Installing

Install in reverse order of removal.

It is not possible to remove the bracket for the Access/Start System Antenna 1 in Vehicle Interior - R138- in the center console without breaking it. If the antenna bracket must be removed, then install a new bracket to prevent rattling noises and any malfunctions.



8.3.2 Access/Start System Antenna 2 in Vehicle Interior - R139- , Removing and Installing

The Access/Start System Antenna 2 in Vehicle Interior - R139- is located underneath the center rear bench seat.

No coding, basic setting or adaptation is necessary if the Access/Start System Antenna 2 in Vehicle Interior - R139- is replaced. Erase the existing entry in the DTC memory. Refer to Vehicle Diagnostic Tester .

Removing

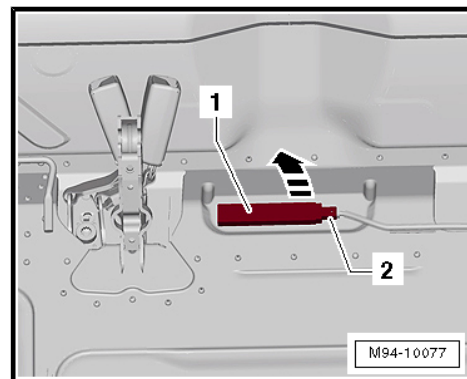
- Turn off the ignition and all electrical equipment and remove the ignition key.



- Remove the rear bench seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Rear Bench Seat, Removing and Installing .
- Pull the Access/Start System Antenna 2 in Vehicle Interior - R139- -1- vertically upward from the retainer in direction of -arrow-, while paying attention to the wires still connected.
- Release and disconnect the connector -2- and remove the Access/Start System Antenna 2 in Vehicle Interior - R139- -1- from the vehicle.

Installing

Install in reverse order of removal.



8.4 Front Passenger Access/Start Authorization Antenna, Removing and Installing

⇒ ["8.4.1 Front Passenger Exterior Door Handle, Removing and Installing", page 189](#)

8.4.1 Front Passenger Exterior Door Handle, Removing and Installing

The Front Passenger Exterior Door Handle Consists Of:

- ◆ Front Passenger Exterior Door Handle Touch Sensor - G416-
- ◆ Front Passenger Access/Start System Antenna - R135-

The entire exterior door handle must always be replaced if malfunctioning.

No coding, basic setting or adaptation is necessary when the exterior door handle is replaced. Erase the existing entry in the DTC memory. Refer to Vehicle Diagnostic Tester .

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the right front exterior door handle. Refer to ⇒ Body Exterior; Rep. Gr. 57 ; Door Components; Door Handle, Removing and Installing .

Installing

Install in reverse order of removal.

8.5 Driver Access/Start Authorization Antenna, Removing and Installing

⇒ ["8.5.1 Driver Side Exterior Door Handle, Removing and Installing", page 189](#)

8.5.1 Driver Side Exterior Door Handle, Removing and Installing

The Driver Exterior Door Handle Consists Of:

- ◆ Driver Exterior Door Handle Touch Sensor - G415-



◆ Driver Access/Start System Antenna - R134-

The entire exterior door handle must always be replaced if malfunctioning.

No coding, basic setting or adaptation is necessary when the exterior door handle is replaced. Erase the existing entry in the DTC memory. Refer to Vehicle Diagnostic Tester .

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the left front exterior door handle. Refer to ➤ Body Exterior; Rep. Gr. 57 ; Door Components; Door Handle, Removing and Installing .

Installing

Install in reverse order of removal.

8.6 Access/Start System Antenna in Luggage Compartment - R137- , Removing and Installing

The Access/Start System Antenna in Luggage Compartment - R137- is located in the luggage compartment, in the center under the rear shelf.

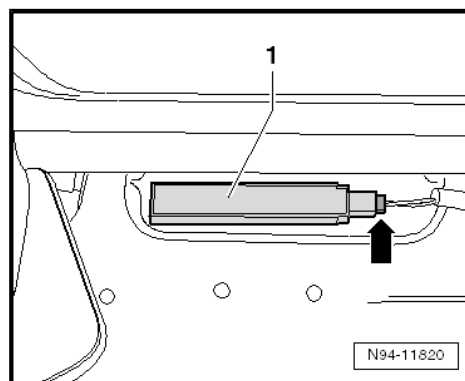
No coding, basic setting or adaptation is necessary if the Access/Start System Antenna in Luggage Compartment - R137- is replaced. Erase the existing entry in the DTC memory. Refer to Vehicle Diagnostic Tester .

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- If equipped, remove the Subwoofer in Rear Shelf - R157- . Refer to ➤ Communication; Rep. Gr. 91 ; Sound System; Subwoofer - R211- , Removing and Installing .
- Pull the Access/Start System Antenna in Luggage Compartment - R137- -1- vertically downward out of the retainer, while paying attention to the length of the connected wires.
- Release and disconnect the connector -arrow- and remove the Access/Start System Antenna in Luggage Compartment - R137- -1- from the vehicle.

Installing

Install in reverse order of removal.



8.7 Access/Start System Antenna in Rear Bumper - R136- , Removing and Installing

The Access/Start System Antenna in Rear Bumper - R136- is located behind the bumper cover in the rear.

No coding, basic setting or adaptation is necessary if the Access/Start System Antenna in Rear Bumper - R136- is replaced. Erase



the existing entry in the DTC memory. Refer to Vehicle Diagnostic Tester .

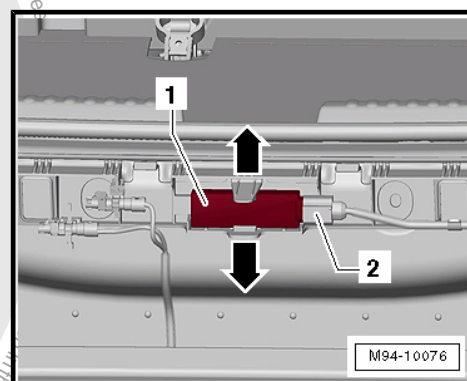
Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the rear bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63 ; Rear Bumper Cover; Rear Bumper Cover, Removing and Installing .
- Press the tabs outward -arrows- and pull the Access/Start Authorization Antenna in Rear Bumper - R136- -1- out of the holder, while paying attention to the wires that are still connected.

Release and disconnect the connector -2- and remove the Access/Start System Antenna in Rear Bumper - R136- -1-.

Installing

Install in reverse order of removal.



8.8 Access/Start Authorization Antennas and Sensors, Checking

⇒ ["8.8.1 Driver Access/Start System Antenna R134 , Checking", page 191](#)

⇒ ["8.8.2 Front Passenger Access/Start System Antenna R135 , Checking", page 192](#)

⇒ ["8.8.3 Access/Start System Antenna in Rear Bumper R136 , Checking", page 192](#)

⇒ ["8.8.4 Access/Start System Antenna in Luggage Compartment R137 , Checking", page 192](#)

⇒ ["8.8.5 Access/Start System Antenna 1 in Vehicle Interior R138 , Checking", page 193](#)

⇒ ["8.8.6 Access/Start Authorization Antenna 2 in Vehicle Interior R139 , Checking", page 193](#)

⇒ ["8.8.7 Driver Exterior Door Handle Touch Sensor G415 , Checking", page 193](#)

⇒ ["8.8.8 Front Passenger Exterior Door Handle Touch Sensor G416 , Checking", page 194](#)

8.8.1 Driver Access/Start System Antenna - R134- , Checking

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
 - ◆ Body



- ◆ Body repair procedures
- ◆ 01 - OBD-capable systems
- ◆ 05 - Access and start authorization
- ◆ Electrical Components
- ◆ R134 - driver access/start authorization antenna

8.8.2 Front Passenger Access/Start System Antenna - R135- , Checking

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the Guided Fault Finding mode.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Body repair procedures
 - ◆ 01 - OBD-capable systems
 - ◆ 05 - Access and start authorization
 - ◆ Electrical Components
 - ◆ R135 - Front passenger access/start authorization antenna

8.8.3 Access/Start System Antenna in Rear Bumper - R136- , Checking

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the Guided Fault Finding mode.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Body repair procedures
 - ◆ 01 - OBD-capable systems
 - ◆ 05 - Access and start authorization
 - ◆ Electrical Components
 - ◆ R136 - Access/Start Authorization Antenna (in rear bumper)

8.8.4 Access/Start System Antenna in Luggage Compartment - R137- , Checking

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the Guided Fault Finding mode.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Body repair procedures
 - ◆ 01 - OBD-capable systems



- ◆ 05 - Access and start authorization
- ◆ Electrical Components
- ◆ R137 - Luggage Compartment Access/Start Authorization Antenna

8.8.5 Access/Start System Antenna 1 in Vehicle Interior - R138- , Checking

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Body repair procedures
 - ◆ 01 - OBD-capable systems
 - ◆ 05 - Access and start authorization
 - ◆ Electrical Components
 - ◆ R138 - Interior Access/Start Authorization Antenna 1

8.8.6 Access/Start Authorization Antenna 2 in Vehicle Interior - R139- , Checking

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Body repair procedures
 - ◆ 01 - OBD-capable systems
 - ◆ 05 - Access and start authorization
 - ◆ Electrical Components
 - ◆ R139 -access/start authorization antenna 2 in vehicle interior

8.8.7 Driver Exterior Door Handle Touch Sensor - G415- , Checking

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Body repair procedures
 - ◆ 01 - OBD-capable systems
 - ◆ 05 - Access and start authorization
 - ◆ Electrical Components



- ◆ G415 - driver exterior door handle touch sensor

8.8.8 Front Passenger Exterior Door Handle Touch Sensor - G416- , Checking

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the Guided Fault Finding mode.
- Use the G0 T0 button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Body repair procedures
 - ◆ 01 - OBD-capable systems
 - ◆ 05 - Access and start authorization
 - ◆ Electrical Components
 - ◆ G416 - Front passenger exterior door handle touch sensor

8.9 Access/Start Authorization Switch, Removing and Installing

Vehicles with KESSY have a Start System Button - E378- (access/start authorization switch) in place of the Ignition/Starter Switch - D- that controls the functions of the ignition lock without using a key.

The Start System Button - E378- is located inside the center console.

Start System Button - E378- , Removing and installing. Refer to [⇒ “2.17 Start System Button E378 , Removing and Installing”, page 285](#) .





9 Steering Column Switch Module

⇒ [“9.1 Overview - Steering Column Switch Module”, page 195](#)

⇒ [“9.2 Steering Column Electronics Control Module J527 , Removing and Installing”, page 199](#)

⇒ [“9.3 Steering Column Combination Switch E595 , Removing and Installing”, page 202](#)

⇒ [“9.4 Steering Column Switch Mount, Removing and Installing”, page 211](#)

⇒ [“9.5 Electronic Steering Column Lock Control Module J764 , Removing and Installing”, page 219](#)

⇒ [“9.6 Ignition/Starter Switch D , Removing and Installing”, page 221](#)

⇒ [“9.7 Ignition Switch Key Lock Solenoid N376 , Removing and Installing”, page 224](#)

9.1 Overview - Steering Column Switch Module

⇒ [“9.1.1 Overview - Steering Column Switch Module, Valeo”, page 195](#)

⇒ [“9.1.2 Overview - Steering Column Switch Module, Kostal”, page 197](#)

⇒ [“9.1.3 Overview - Steering Column Switch Module, KESSY”, page 197](#)

9.1.1 Overview - Steering Column Switch Module, Valeo





1 - Steering Column Electronics Control Module - J527-

- ❑ Removing and installing. Refer to
⇒ ["9.2.1 Steering Column Electronics Control Module J527, Removing and Installing, Valeo", page 199](#).
- ❑ Coding. Refer to
⇒ ["9.2.3 Steering Column Electronics Control Module J527, Coding", page 201](#).

2 - Steering Column Combination Switch - E595-

- ❑ Removing and installing. Refer to
⇒ ["9.3.1 Steering Column Combination Switch E595, Removing and Installing, Valeo", page 202](#).

3 - Steering Column Switch Mount

- ❑ Removing and installing. Refer to
⇒ ["9.4.1 Steering Column Switch Mount, Removing and Installing, Valeo", page 211](#).

4 - Shear Bolts

- ❑ Quantity: 2
- ❑ Break-off torque: approximately 15 Nm

5 - Steering Lock Housing

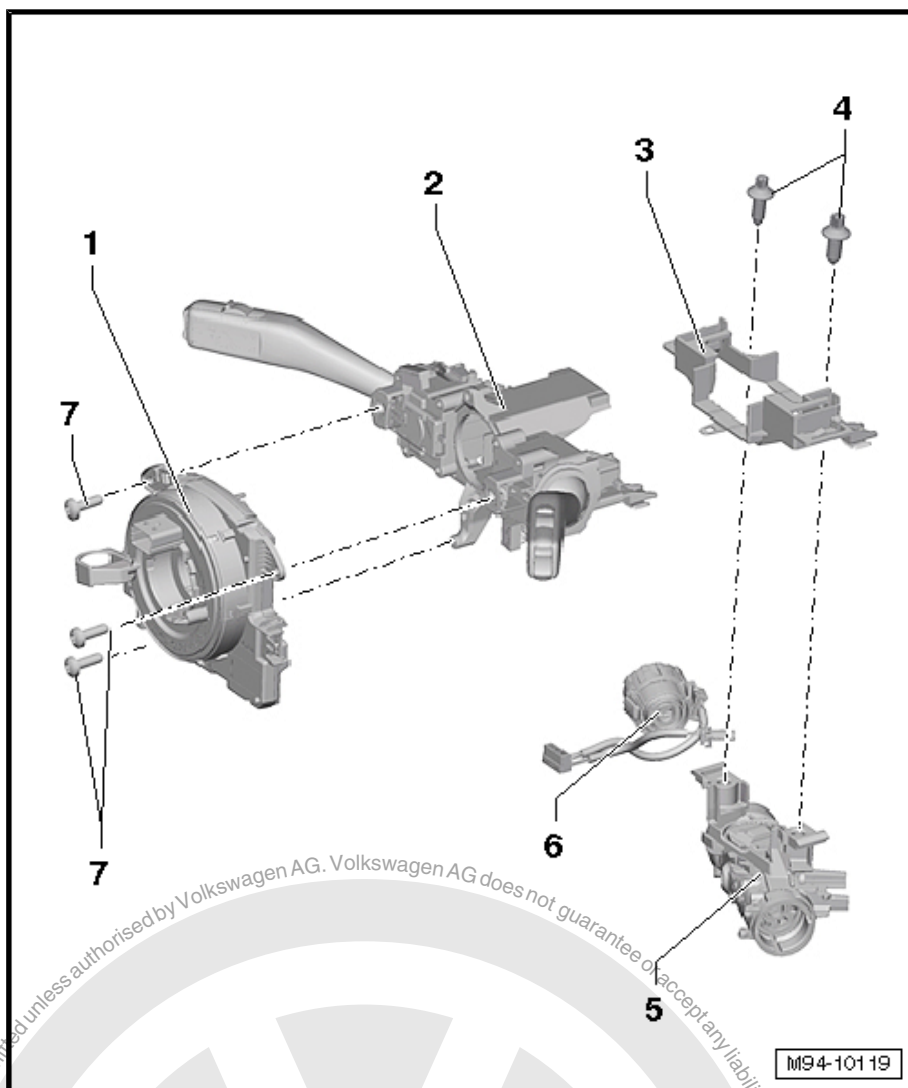
- ❑ Removing and installing. Refer to
⇒ ["9.6.3 Steering Lock Housing, Removing and Installing", page 222](#).

6 - Ignition/Starter Switch and Lock Cylinder

- ❑ Removing and installing. Refer to
⇒ ["9.6 Ignition/Starter Switch D, Removing and Installing", page 221](#).

7 - Screw

- ❑ 1.5 Nm
- ❑ Quantity: 3





9.1.2 Overview - Steering Column Switch Module, Kostal

1 - Steering Column Electronics Control Module - J527-

- ❑ Removing and installing. Refer to
⇒ ["9.2.2 Steering Column Electronics Control Module J527, Removing and Installing, Kostal", page 200](#).
- ❑ Coding. Refer to
⇒ ["9.2.3 Steering Column Electronics Control Module J527, Coding", page 201](#).

2 - Steering Column Combination Switch - E595-

- ❑ Removing and installing. Refer to
⇒ ["9.3.3 Steering Column Combination Switch E595, Removing and Installing, Kostal", page 206](#).

3 - Steering Column Switch Mount

- ❑ Removing and installing. Refer to
⇒ ["9.4.3 Steering Column Switch Mount, Removing and Installing, Kostal", page 215](#).

4 - Shear Bolts

- ❑ Quantity: 2
- ❑ Break-off torque: approximately 15 Nm

5 - Screw

- ❑ 2.5 Nm

6 - Steering Lock Housing

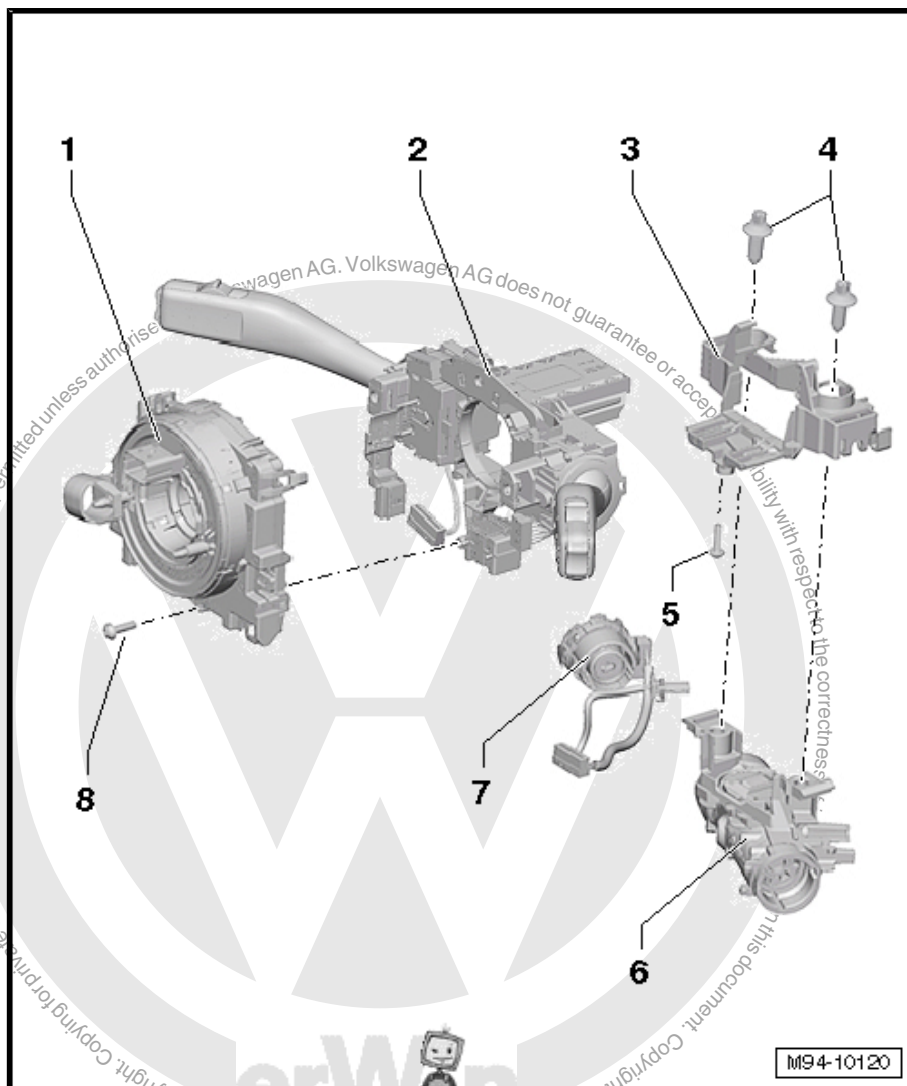
- ❑ Removing and installing. Refer to
⇒ ["9.6.3 Steering Lock Housing, Removing and Installing", page 222](#).

7 - Ignition/Starter Switch and Lock Cylinder

- ❑ Removing and installing. Refer to
⇒ ["9.6 Ignition/Starter Switch D, Removing and Installing", page 221](#).

8 - Screw

- ❑ 1.5 Nm



9.1.3 Overview - Steering Column Switch Module, KESSY

There are different versions of the Steering Column Electronics Control Module - J527- / Steering Column Combination Switch - E595- and the steering column switch mount depending on the manufacturer (Valeo or Kostal). The Valeo version is shown in the illustration.



1 - Steering Column Electronics Control Module - J527-

- ❑ Bolts: 1.5 Nm
- ❑ Removing and installing. Refer to
⇒ ["9.2 Steering Column Electronics Control Module J527 , Removing and Installing", page 199](#) .
- ❑ Coding. Refer to
⇒ ["9.2.3 Steering Column Electronics Control Module J527 , Coding", page 201](#) .

2 - Steering Column Combination Switch - E595-

- ❑ Removing and installing

3 - Steering Column Switch Mount

- ❑ Removing and installing. Refer to
⇒ ["9.4 Steering Column Switch Mount, Removing and Installing", page 211](#) .

4 - Shear Bolts

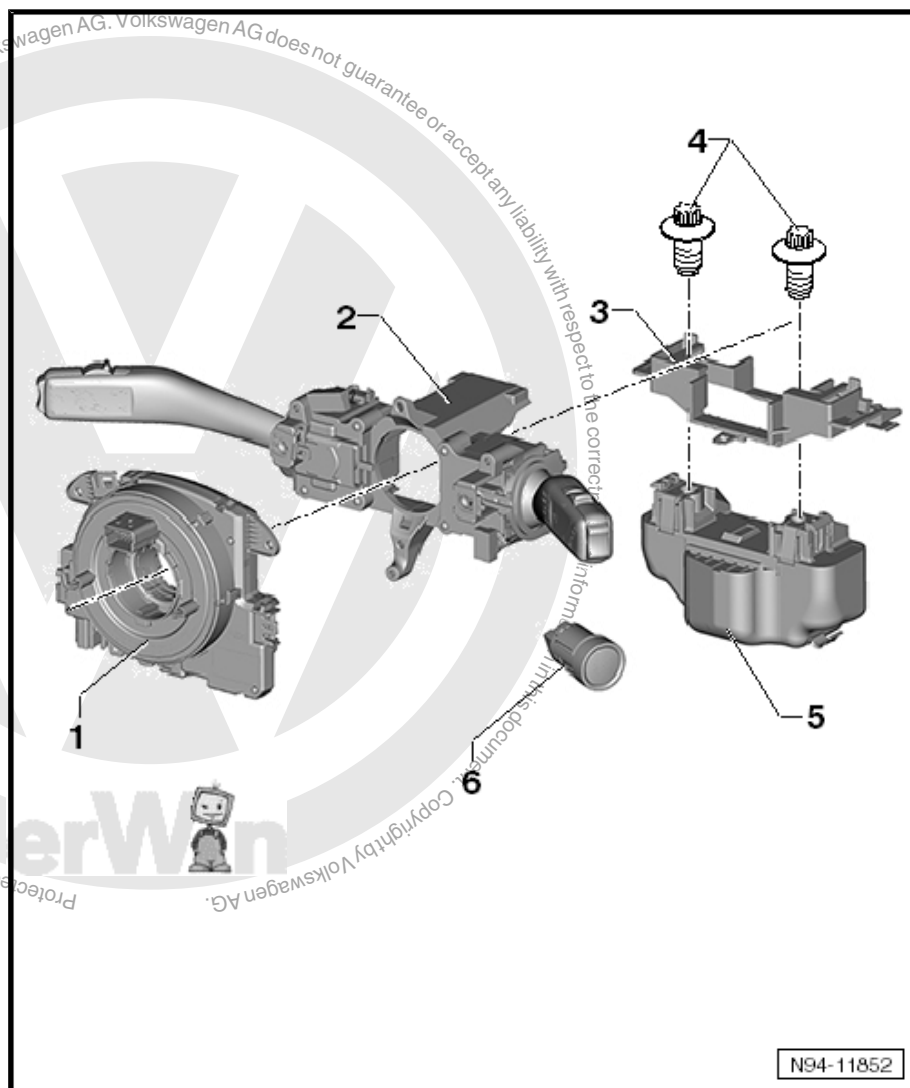
- ❑ Quantity: 2
- ❑ Break-off torque: approximately 15 Nm

5 - Electronic Steering Column Lock Control Module - J764-

- ❑ Removing and installing. Refer to
⇒ ["9.5.1 Electronic Steering Column Lock Control Module J764 , Removing and Installing", page 220](#) .
- ❑ Replacing. Refer to
⇒ ["9.5.2 Electronic Steering Column Lock Control Module J764 , Replacing", page 220](#) .

6 - Start System Button - E378-

- ❑ Inside the center console storage compartment
- ❑ Removing and installing. Refer to
⇒ ["2.17 Start System Button E378 , Removing and Installing", page 285](#) .





9.2 Steering Column Electronics Control Module - J527- , Removing and Installing

⇒ [“9.2.1 Steering Column Electronics Control Module J527 , Removing and Installing, Valeo”, page 199](#)

⇒ [“9.2.2 Steering Column Electronics Control Module J527 , Removing and Installing, Kostal”, page 200](#)

⇒ [“9.2.3 Steering Column Electronics Control Module J527 , Coding”, page 201](#)

9.2.1 Steering Column Electronics Control Module - J527- , Removing and Installing, Valeo



WARNING

- ◆ *Risk of airbag deployment.*
- ◆ *The airbag unit could deploy if mishandled.*
- ◆ *Follow all safety precautions when working on airbags. Refer to ⇒ Body Interior; Rep. Gr. 00 ; Safety Precautions; Safety Precautions for Pyrotechnic Components .*



Caution

Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to ⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .

Removing

- Disconnect the Battery - A- . Refer to ⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .
- Remove the steering wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48 ; Steering Wheel Airbag; Overview - Steering Wheel Airbag .
- Remove the steering column trim panel. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Steering Column Trim Panel, Removing and Installing .
- Release and disconnect the connectors (depending on vehicle equipment) -1 through 4-.

Do not twist the Airbag Spiral Spring/Return Spring with Slip Ring - F138- on the Steering Column Electronics Control Module - J527- out of its center position when removing it. The front wheels must be in the “straight-ahead position”.



- Remove the screws -arrows- and remove the Steering Column Electronics Control Module - J527- from the steering column switch.

Installing

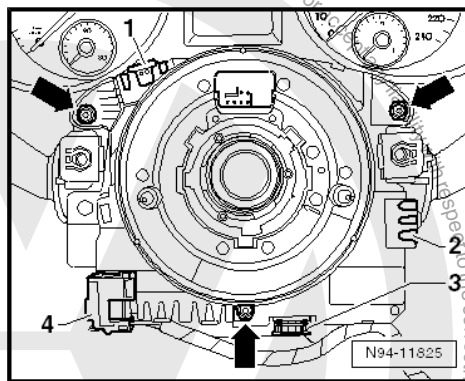
Install in reverse order of removal. Note the following:



Caution

The return lever on the Turn Signal Switch - E2- could break off when installing the Steering Column Electronics Control Module - J527- .

The Turn Signal Switch - J527- must be in the 0 position when installing the Steering Column Electronics Control Module - E2- .



- Slide the Steering Column Electronics Control Module - J527- straight onto the steering column switch.
- Tighten the threaded connections to the tightening specification. Refer to
⇒ ["9.1.1 Overview - Steering Column Switch Module, Valeo", page 195](#) .
- Connect the Battery - A- . Refer to
⇒ ["1.5 Battery, Disconnecting and Connecting", page 7](#) .

9.2.2 Steering Column Electronics Control Module - J527- , Removing and Installing, Kostal



WARNING

- ◆ *Risk of airbag deployment.*
- ◆ *The airbag unit could deploy if mishandled.*
- ◆ *Follow all safety precautions when working on airbags. Refer to ⇒ Body Interior; Rep. Gr. 00 ; Safety Precautions; Safety Precautions for Pyrotechnic Components .*



Caution

*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ ["1.5 Battery, Disconnecting and Connecting", page 7](#) .*

Removing

- Disconnect the Battery - A- . Refer to
⇒ ["1.5 Battery, Disconnecting and Connecting", page 7](#) .

Remove the following components in the correct order:

- Remove the steering wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48 ; Steering Wheel Airbag; Overview - Steering Wheel Airbag .
- Remove the steering column trim panel. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Steering Column Trim Panel, Removing and Installing .



- Release and disconnect the connectors (depending on vehicle equipment) -1 through 5-.
- Remove the screw -arrow B-.

Do not twist the Airbag Spiral Spring/Return Spring with Slip Ring - F138- on the Steering Column Electronics Control Module - J527- out of its center position when removing it. The front wheels must be in the "straight-ahead position".

- Open the tabs -arrows A- and remove the Steering Column Electronics Control Module - J527- from the steering column switch.

Installing

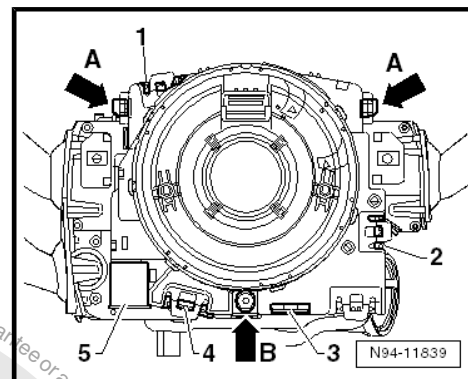
Install in reverse order of removal. Note the following:



Caution

The return lever on the Turn Signal Switch - E2- could break off when installing the Steering Column Electronics Control Module - J527- .

The Turn Signal Switch - J527- must be off when installing the Steering Column Electronics Control Module - E2- .



- Slide the Steering Column Electronics Control Module - J527- straight onto the steering column switch until it locks in place.
- Tighten the threaded connections to the tightening specification. Refer to
⇒ ["9.1.2 Overview - Steering Column Switch Module, Kostal", page 197](#) .
- Connect the Battery - A- . Refer to
⇒ ["1.5 Battery, Disconnecting and Connecting", page 7](#) .

9.2.3 Steering Column Electronics Control Module - J527- , Coding

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 16 - Steering wheel electronics
 - ◆ Functions of steering wheel electronics
 - ◆ Code Control Module for steering wheel electronics



9.3 Steering Column Combination Switch - E595- , Removing and Installing

⇒ [“9.3.1 Steering Column Combination Switch E595 , Removing and Installing, Valeo”, page 202](#)

⇒ [“9.3.2 Steering Column Combination Switch E595 , Removing and Installing, Valeo KESSY”, page 204](#)

⇒ [“9.3.3 Steering Column Combination Switch E595 , Removing and Installing, Kostal”, page 206](#)

⇒ [“9.3.4 Steering Column Combination Switch E595 , Removing and Installing, Kostal, KESSY”, page 208](#)

9.3.1 Steering Column Combination Switch - E595- , Removing and Installing, Valeo

Special tools and workshop equipment required

- ◆ Angled hand drill
- ◆ Torque Wrench 1410 - VAG1410-



WARNING

- ◆ *Risk of airbag deployment.*
- ◆ *The airbag unit could deploy if mishandled.*
- ◆ *Follow all safety precautions when working on airbags. Refer to ⇒ [Body Interior; Rep. Gr. 00](#) ; [Safety Precautions](#); [Safety Precautions for Pyrotechnic Components](#) .*



Caution

Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to ⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .

Removing

- Disconnect the Battery - A- . Refer to ⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .
- Remove the steering wheel. Refer to ⇒ [Suspension, Wheels, Steering; Rep. Gr. 48](#) ; [Steering Wheel Airbag](#); [Overview - Steering Wheel Airbag](#) .
- Remove the steering column trim panel. Refer to ⇒ [Body Interior; Rep. Gr. 68](#) ; [Storage Compartments and Covers](#); [Steering Column Trim Panel, Removing and Installing](#) .
- Remove the Steering Column Electronics Control Module - J527- . Refer to ⇒ [“9.2 Steering Column Electronics Control Module J527 , Removing and Installing”, page 199](#) .



- Release the catches -1- (on top) and -3- (on the bottom), and remove the Steering Column Combination Switch - E595- -2- straight toward the back from the steering column switch base carrier.

i Note

The Steering Column Combination Switch - E595- may be secured with an additional screw (1.5 Nm) from underneath.

For a New Steering Column Combination Switch - E595- .

i Note

Because a new Steering Column Combination Switch - E595- is always delivered with a steering column switch mount as a complete replacement part, the steering column switch mount must also be removed.

The shear bolts -1- of the steering lock housing -3- must be drilled out in order to remove the steering column switch mount -2-. New shear bolts will be needed for installation later. Refer to the Parts Catalog.

- Drill out the shear bolts -1- on the steering lock housing -3-.

i Note

M8 bolts -1-: hole diameter 6.8 mm.

- Remove the steering lock housing -3- and the steering column switch base carrier -2- from the steering column.
- Remove the steering lock housing from the steering column switch mount.

Installing

For a Steering Column Combination Switch - E595- That is Being Reused

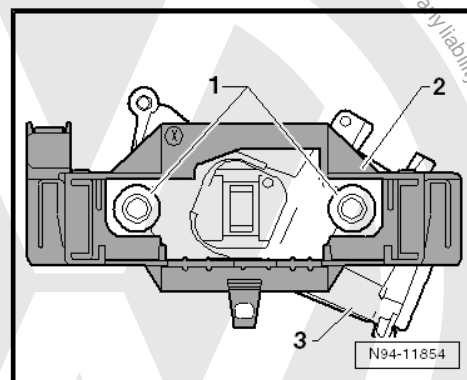
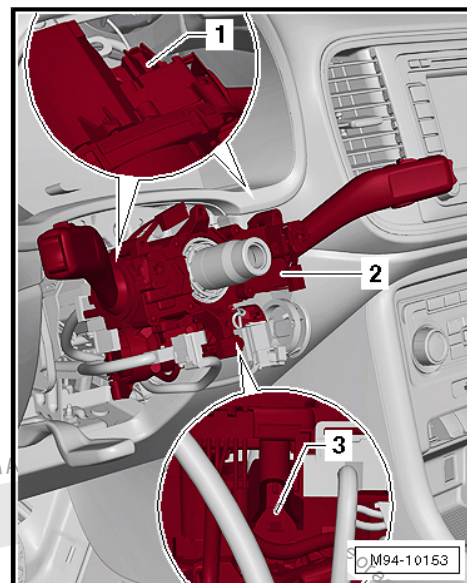
- Slide the Steering Column Combination Switch - E595- straight into the guides on the steering column switch mount until it latches securely.

i Note

The Steering Column Combination Switch - E595- may be secured with an additional screw (1.5 Nm) from underneath.

For a New Steering Column Combination Switch - E595- .

- Install the steering lock housing -3- in the steering column switch mount -2-.
- Slide the pre-assembled unit from the steering lock housing, the steering column switch mount and the Steering Column Combination Switch - E595- all the way onto the steering column and line them up with the threaded holes.
- Attach the steering lock housing -3- to the steering column with new shear bolts -1-.



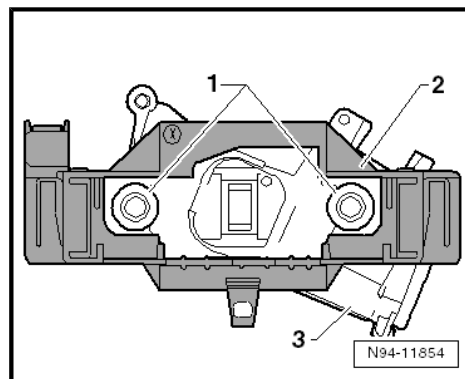


- Tighten the new shear bolts -1- until the bolt heads shear off. Refer to
⇒ ["9.1.1 Overview - Steering Column Switch Module, Valeo", page 195](#).

Continuation for New and Reused Steering Column Combination Switches - E595-

Install in reverse order of removal, noting the following:

- Connect the Battery - A- . Refer to
⇒ ["1.5 Battery, Disconnecting and Connecting", page 7](#).



9.3.2 Steering Column Combination Switch - E595- , Removing and Installing, Valeo KESSY

Special tools and workshop equipment required

- ◆ Angled hand drill
- ◆ Torque Wrench 1410 - VAG1410-



WARNING

- ◆ *Risk of airbag deployment.*
- ◆ *The airbag unit could deploy if mishandled.*
- ◆ *Follow all safety precautions when working on airbags. Refer to ⇒ Body Interior; Rep. Gr. 00; Safety Precautions; Safety Precautions for Pyrotechnic Components .*



Caution

*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ ["1.5 Battery, Disconnecting and Connecting", page 7](#).*

Removing

- Disconnect the Battery - A- . Refer to
⇒ ["1.5 Battery, Disconnecting and Connecting", page 7](#).
- Remove the steering wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48 ; Steering Wheel Airbag; Overview - Steering Wheel Airbag .
- Remove the steering column trim panel. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Steering Column Trim Panel, Removing and Installing .
- Remove the Steering Column Electronics Control Module - J527- -2-. Refer to
⇒ ["9.2.1 Steering Column Electronics Control Module J527 , Removing and Installing, Valeo", page 199](#).



- Release the catches -1- (on top) and -3- (on the bottom), and remove the Steering Column Combination Switch - E595- -2- straight toward the back from the steering column switch base carrier.

i Note

The Steering Column Combination Switch - E595- may be secured with an additional screw (1.5 Nm) from underneath.

For a new Steering Column Combination Switch - E595- .

i Note

Because a new Steering Column Combination Switch - E595- is always delivered with a steering column switch mount as a complete replacement part, the steering column switch mount must also be removed.

The shear bolts -1- on the Electronic Steering Column Lock Control Module - J764- -3- must be drilled out for the removal of the steering column switch mount -2-. New shear bolts will be needed for installation later. Refer to the Parts Catalog.

- Drill out the shear bolts -1- on the Electronic Steering Column Lock Control Module - J764- -3-.

i Note

M8 bolts -1-: hole diameter 6.8 mm.

- Disengage and remove the connector on the rear side of the ABS Control Module - J764- -3-.

Remove the Electronic Steering Column Lock Control Module - J764- -3- together with the steering column switch mount -2- toward the rear from the steering column.

- Release the retainers -arrows- on the steering column switch mount -1- from the Electronic Steering Column Lock Control Module - J764- -2-.

Installing

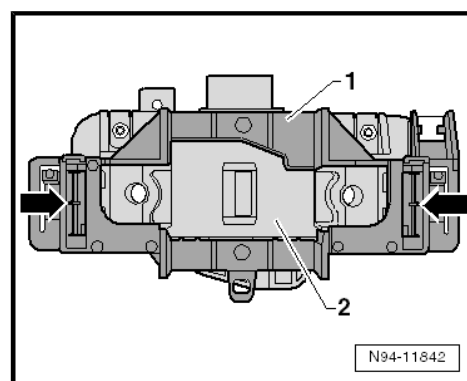
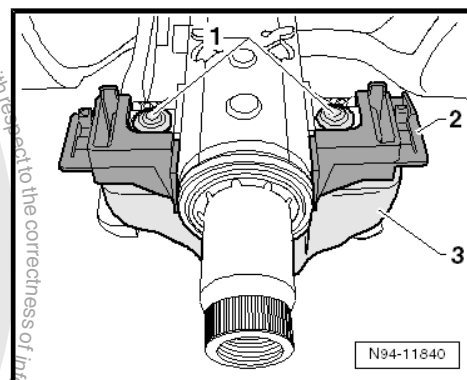
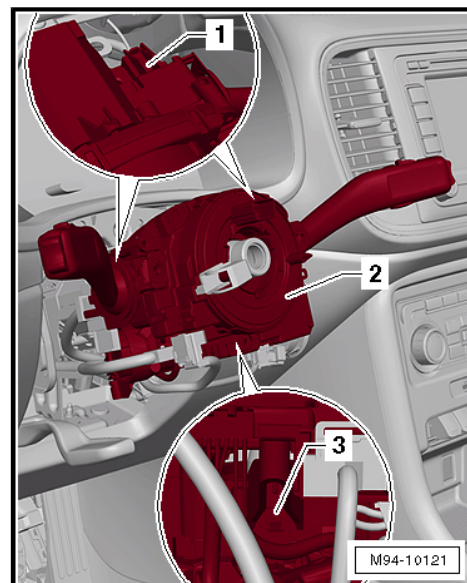
For a Steering Column Combination Switch - E595- That is Being Reused

- Slide the Steering Column Combination Switch - E595- straight onto the guides on the steering column switch mount until it locks in place.

i Note

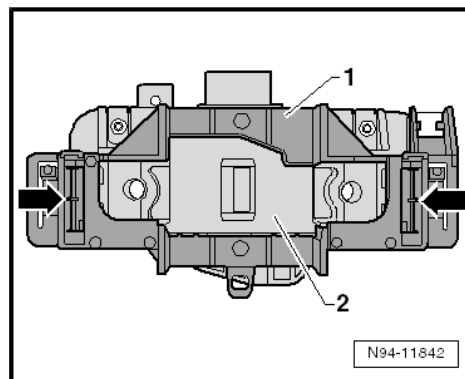
The Steering Column Combination Switch - E595- may be secured with an additional screw (1.5 Nm) from underneath.

For a New Steering Column Combination Switch - E595- .

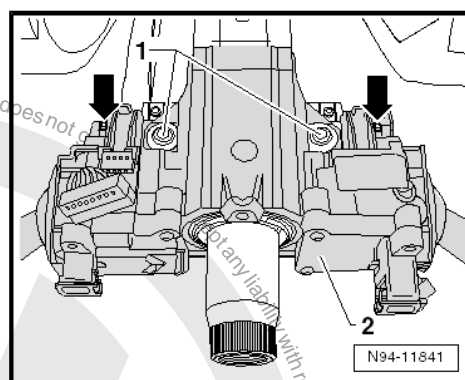




- Position the steering column switch mount -1- with the Steering Column Combination Switch - E595- onto the Electronic Steering Column Lock Control Module - J764- -2-, until it locks in place.
- Slide the pre-assembled unit from the Electronic Steering Column Lock Control Module - J764- , the steering column switch mount and the Steering Column Combination Switch - E595- all the way onto the steering column and line them up with the threaded holes.



- Attach the Electronic Steering Column Lock Control Module - J764- to the steering column with new shear bolts -1-.
- Tighten the shear bolts -1- until the bolt heads shear off. Refer to
⇒ [“9.1.3 Overview - Steering Column Switch Module, KESSY”, page 197](#) .



Continuation for New and Reused Steering Column Combination Switches - E595-

Install in reverse order of removal, noting the following:

- Connect the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .

9.3.3 Steering Column Combination Switch - E595-, Removing and Installing, Kostal

Special tools and workshop equipment required

- ◆ Angled hand drill
- ◆ Torque Wrench 1410 - VAG1410-



WARNING

- ◆ *Risk of airbag deployment.*
- ◆ *The airbag unit could deploy if mishandled.*
- ◆ *Follow all safety precautions when working on airbags. Refer to ⇒ Body Interior; Rep. Gr. 00 ; Safety Precautions; Safety Precautions for Pyrotechnic Components .*



Caution

*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .*

Removing

- Disconnect the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .
- Remove the steering wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48 ; Steering Wheel Airbag; Overview - Steering Wheel Airbag .



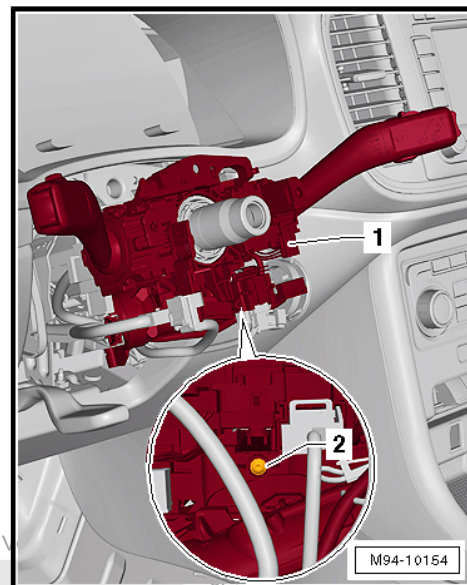
- Remove the steering column trim panel. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Steering Column Trim Panel, Removing and Installing .
- Remove the Steering Column Electronics Control Module - J527- . Refer to ⇒ [“9.2 Steering Column Electronics Control Module J527, Removing and Installing”, page 199](#) .
- Remove the bolt -2- and remove the entire Steering Column Combination Switch - E595- -1- straight back from the steering column switch mount.

For a New Steering Column Combination Switch - E595- .



Note

Because a new Steering Column Combination Switch - E595- is always delivered with a steering column switch mount as a complete replacement part, the steering column switch mount must also be removed.





The shear bolts -1- of the steering lock housing -3- must be drilled out in order to remove the steering column switch mount -2-. New shear bolts will be needed for installation later. Refer to the Parts Catalog.

- Drill out the shear bolts -1- on the steering lock housing -3-.



Note

M8 bolts -1-: hole diameter 6.8 mm.

- Remove the steering lock housing -3- and the steering column switch base carrier -2- from the steering column.
- Remove the steering lock housing from the steering column switch mount.

Installing

For a Steering Column Combination Switch - E595- That is Being Reused

- Slide the Steering Column Combination Switch - E595- straight onto the guides on the steering column switch mount.
- Tighten the threaded connections to the tightening specification. Refer to
⇒ ["9.1.2 Overview - Steering Column Switch Module, Kostal", page 197](#).

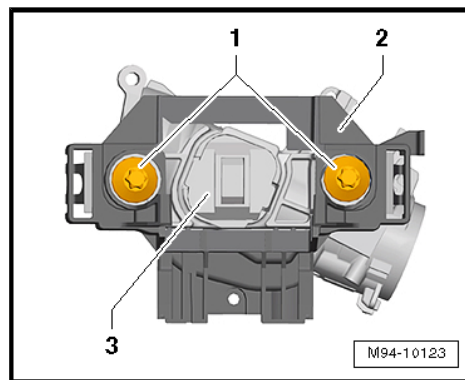
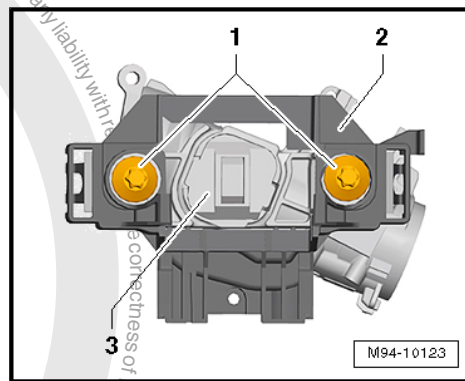
For a New Steering Column Combination Switch - E595- .

- Install the steering lock housing -3- in the steering column switch mount -2-.
- Slide the pre-assembled unit from the steering lock housing, the steering column switch mount and the Steering Column Combination Switch - E595- all the way onto the steering column and line them up with the threaded holes.
- Attach the steering lock housing -3- to the steering column with new shear bolts -1-.
- Tighten the new shear bolts -1- until the bolt heads shear off. Refer to
⇒ ["9.1.1 Overview - Steering Column Switch Module, Valeo", page 195](#).

Continuation for New and Reused Steering Column Combination Switches - E595-

Install in reverse order of removal, noting the following:

- Connect the Battery - A- . Refer to
⇒ ["1.5 Battery, Disconnecting and Connecting", page 7](#).



9.3.4 Steering Column Combination Switch - E595- , Removing and Installing, Kostal, KESSY

Special tools and workshop equipment required

- ♦ Angled hand drill
- ♦ Torque Wrench 1410 - VAG1410-



WARNING

- ◆ **Risk of airbag deployment.**
- ◆ **The airbag unit could deploy if mishandled.**
- ◆ **Follow all safety precautions when working on airbags.**
Refer to ⇒ *Body Interior; Rep. Gr. 00 ; Safety Precautions; Safety Precautions for Pyrotechnic Components .*



Caution

Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to ⇒ "1.5 Battery, Disconnecting and Connecting", page 7 .

Removing

Disconnect the Battery - A- . Refer to ⇒ **"1.5 Battery, Disconnecting and Connecting", page 7 .**

Remove the steering wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48 ; Steering Wheel Airbag; Overview - Steering Wheel Airbag .

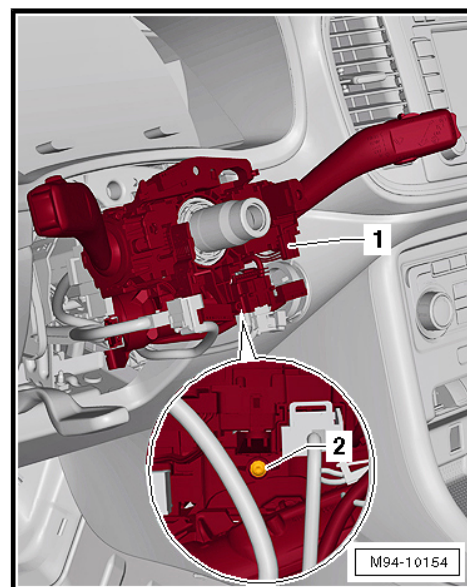
- Remove the steering column trim panel. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Steering Column Trim Panel, Removing and Installing .
- Remove the Steering Column Electronics Control Module - J527- . Refer to ⇒ **"9.2.2 Steering Column Electronics Control Module J527 , Removing and Installing, Kostal", page 200 .**
- Remove the bolt -2- and remove the entire Steering Column Combination Switch - E595- -1- straight back from the steering column switch mount.

For a New Steering Column Combination Switch - E595- .



Note

Because a new Steering Column Combination Switch - E595- is always delivered with a steering column switch mount as a complete replacement part, the steering column switch mount must also be removed.





The shear bolts -1- on the Electronic Steering Column Lock Control Module - J764- -4- must be drilled out in order to remove the steering column switch mount -3-. New shear bolts will be needed later for installing. Refer to the Parts Catalog.

- Drill out the shear bolts -1- on the Electronic Steering Column Lock Control Module - J764- -4-.



Note

M8 bolts -1-: hole diameter 6.8 mm.

- Disengage and remove the connector -2- on the rear side of the ABS Control Module - J103- -4-.
- Remove the Electronic Steering Column Lock Control Module - J764- -4- together with the steering column switch mount -3- toward the rear from the steering column.
- Release the retainers -arrows- on the steering column switch mount and remove the steering column switch mount -1- from the Electronic Steering Column Lock Control Module - J764- -2-.

Installing

For a Steering Column Combination Switch - E595- That is Being Reused

- Slide the Steering Column Combination Switch - E595- straight onto the guides on the steering column switch mount.
- Tighten the threaded connections to the tightening specification. Refer to
⇒ ["9.1.3 Overview - Steering Column Switch Module, KESSY", page 197](#).

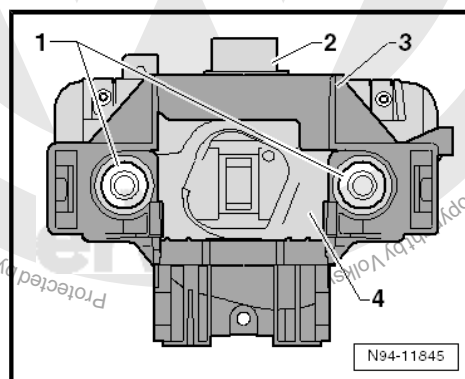
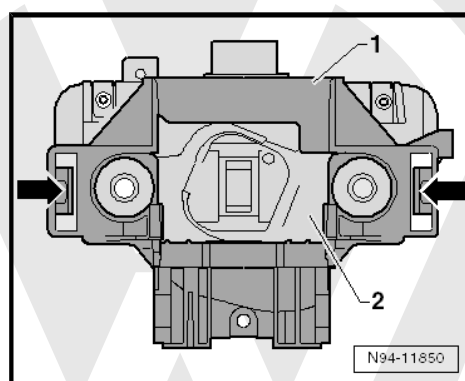
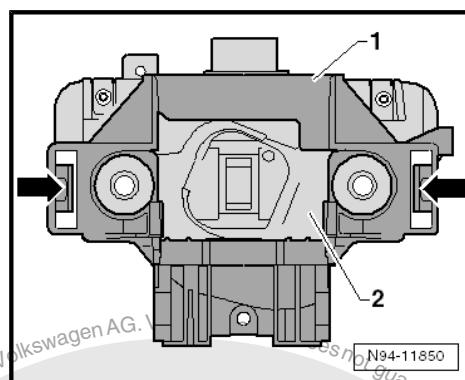
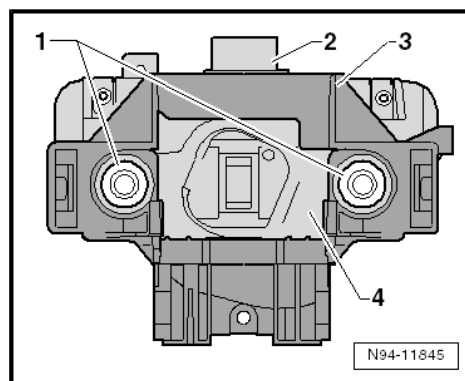
For a New Steering Column Combination Switch - E595-

- Position the steering column switch mount -1- with the Steering Column Combination Switch - E595- onto the Electronic Steering Column Lock Control Module - J764- -2-, until it locks in place.
- Slide the pre-assembled unit from the Electronic Steering Column Lock Control Module - J764- , the steering column switch mount and the Steering Column Combination Switch - E595- all the way onto the steering column and line them up with the threaded holes.
- Attach the Electronic Steering Column Lock Control Module - J764- -4- to the steering column with new shear bolts -1-.
- Tighten the shear bolts -1- until the bolt heads shear off. Refer to
⇒ ["9.1.3 Overview - Steering Column Switch Module, KESSY", page 197](#).

Continuation for New and Reused Steering Column Combination Switches - E595-

Install in reverse order of removal, noting the following:

- Connect the Battery - A- . Refer to
⇒ ["1.5 Battery, Disconnecting and Connecting", page 7](#).





9.4 Steering Column Switch Mount, Removing and Installing

⇒ [“9.4.1 Steering Column Switch Mount, Removing and Installing, Valeo”, page 211](#)

⇒ [“9.4.2 Steering Column Switch Base Carrier, Removing and Installing, Valeo, KESSY”, page 213](#)

⇒ [“9.4.1 Steering Column Switch Mount, Removing and Installing, Valeo”, page 211](#)

⇒ [“9.4.4 Steering Column Switch Base Carrier, Removing and Installing, Kostal, KESSY”, page 217](#)

9.4.1 Steering Column Switch Mount, Removing and Installing, Valeo

Special tools and workshop equipment required

- ◆ Angled hand drill
- ◆ Torque Wrench 1410 - VAG1410-





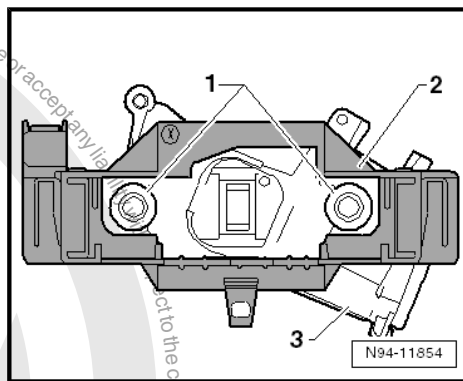
The shear bolts -1- of the steering lock housing must be drilled out in order to remove the steering column switch mount -2-. New shear bolts will be needed for installation later. Refer to the Parts Catalog.

**Caution**

- ◆ *Before drilling out shear bolts, always make sure all components secured to steering column switch mount are removed beforehand.*
- ◆ *By drilling out, drill shavings can reach the neighboring components, which can lead to damage and malfunctions!*

**Caution**

Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to ⇒ "1.5 Battery, Disconnecting and Connecting", page 7 .

**Removing**

- Disconnect the Battery - A- . Refer to ⇒ "1.5 Battery, Disconnecting and Connecting", page 7 .
- Remove the steering wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48 ; Steering Wheel Airbag; Overview - Steering Wheel Airbag .
- Remove the steering column trim panel. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Steering Column Trim Panel, Removing and Installing .
- Remove the Steering Column Electronics Control Module - J527- . Refer to ⇒ "9.2.1 Steering Column Electronics Control Module J527 , Removing and Installing, Valeo", page 199 .
- Remove the Steering Column Combination Switch - E595- . Refer to ⇒ "9.3.1 Steering Column Combination Switch E595 , Removing and Installing, Valeo", page 202 .

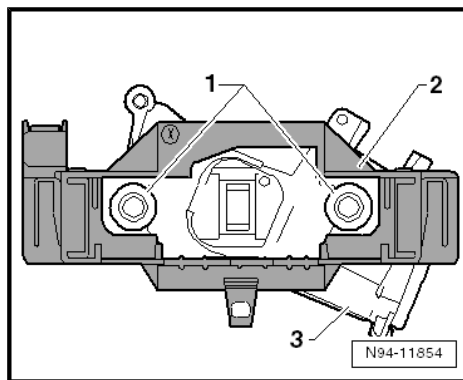
The steering column switch mount can be removed once all the components attached to it are removed.

- Drill out the shear bolts -1- on the steering lock housing -3-.

**Note**

M8 bolts -1-: hole diameter 6.8 mm.

- Remove the steering lock housing -3- and the steering column switch base carrier -2- from the steering column.
- Remove the steering lock housing from the steering column switch mount.

Installing



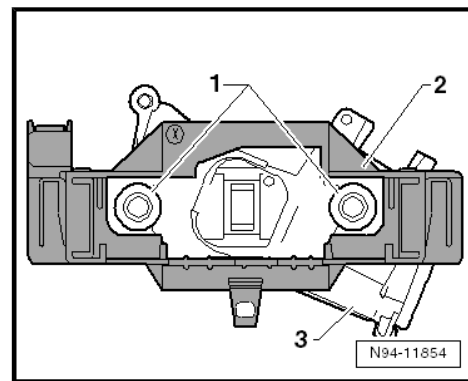
- Install the steering lock housing -3- into the steering column switch mount -2-.

For a Steering Column Combination Switch - E595- that is Being Reused

- Slide the Steering Column Combination Switch - E595- onto the steering column switch mount until it locks in place.

Continuation for New and Reused Steering Column Combination Switches - E595-

- Slide the pre-assembled unit from the steering lock housing, the steering column switch mount and the Steering Column Combination Switch - E595- all the way onto the steering column and line them up with the threaded holes.
- Attach the steering lock housing -3- to the steering column with new shear bolts -1-.
- Tighten the new shear bolts -1- until the bolt heads shear off. Refer to
⇒ [“9.1.1 Overview - Steering Column Switch Module, Valeo”, page 195](#).



Install in reverse order of removal, noting the following:

- Connect the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#).

9.4.2 Steering Column Switch Base Carrier, Removing and Installing, Valeo, KESSY

Special tools and workshop equipment required

- ◆ Angled hand drill
- ◆ Torque Wrench 1410 - VAG1410-



The shear bolts -1- on the Electronic Steering Column Lock Control Module - J764- must be drilled out in order to remove the steering column switch mount -2-. New shear bolts will be needed for installation later. Refer to the Parts Catalog.



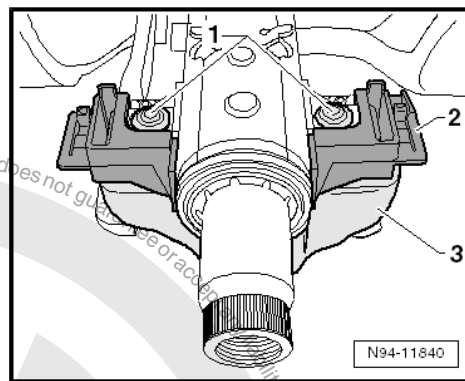
Caution

- ◆ **Before drilling out shear bolts, always make sure all components secured to steering column switch mount are removed beforehand.**
- ◆ **By drilling out, drill shavings can reach the neighboring components, which can lead to damage and malfunctions!**



Caution

Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to ⇒ "1.5 Battery, Disconnecting and Connecting", page 7 .



Removing

- Disconnect the Battery - A- . Refer to ⇒ ["1.5 Battery, Disconnecting and Connecting", page 7 .](#)
- Remove the steering wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48 Steering Wheel Airbag; Overview - Steering Wheel Airbag .
- Remove the steering column trim panel. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Steering Column Trim Panel, Removing and Installing .
- Remove the Steering Column Electronics Control Module - J527- . Refer to ⇒ ["9.2.1 Steering Column Electronics Control Module J527 , Removing and Installing, Valeo", page 199 .](#)
- Remove the Steering Column Combination Switch - E595- . Refer to ⇒ ["9.3.2 Steering Column Combination Switch E595 , Removing and Installing, Valeo KESSY", page 204 .](#)

The steering column switch mount can be removed once all the components attached to it are removed.

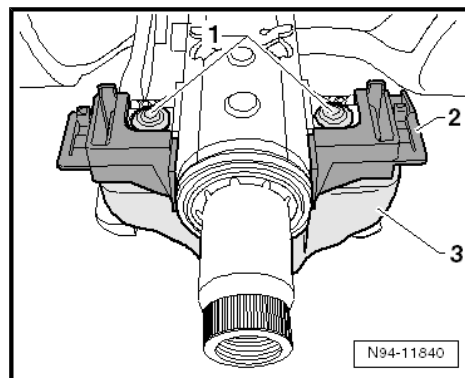
- Drill out the shear bolts -1- on the Electronic Steering Column Lock Control Module - J764- -3-.



Note

M8 bolts -1-: hole diameter 6.8 mm.

- Disconnect the connector on the back of the Electronic Steering Column Lock Control Module - J764- -3- and then remove the control module together with the steering column switch base carrier -2- from the steering column.





- Release the retainers -arrows- on the steering column switch mount and remove the steering column switch mount -1- from the Electronic Steering Column Lock Control Module - J764- -2-.

Installing

- Install the steering column switch mount -1- on the Electronic Steering Column Lock Control Module - J764- -2-.

For a Steering Column Combination Switch - E595- That is Being Reused

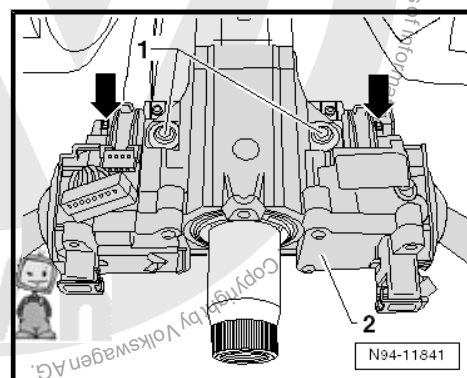
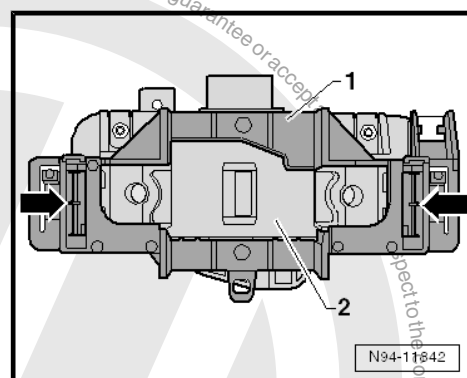
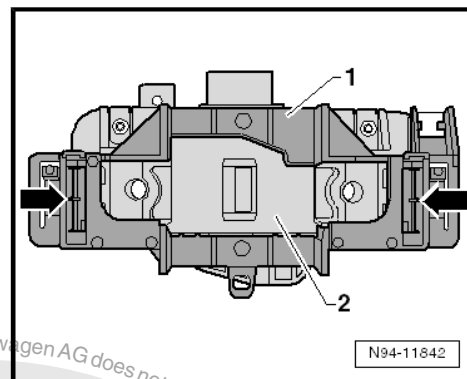
- Slide the Steering Column Combination Switch - E595- onto the steering column switch base carrier until it latches.

Continuation for New and Reused Steering Column Combination Switches - E595-

- Slide the pre-assembled unit from the Electronic Steering Column Lock Control Module - J764- , the steering column switch mount and the Steering Column Combination Switch - E595- all the way onto the steering column and line them up with the threaded holes.
- Secure the Electronic Steering Column Lock Control Module - J764- to the steering column with new shear bolts -1-.
- Tighten the shear bolts -1- until the bolt heads shear off. Refer to ["9.1.3 Overview - Steering Column Switch Module, KESSY", page 197](#).
- Connect the Battery - A- . Refer to ["1.5 Battery, Disconnecting and Connecting", page 7](#).

Install in reverse order of removal.

Replace the Electronic Steering Column Lock Control Module - J764- . Refer to ["9.5 Electronic Steering Column Lock Control Module J764, Removing and Installing", page 219](#).



9.4.3 Steering Column Switch Mount, Removing and Installing, Kostal

Special tools and workshop equipment required

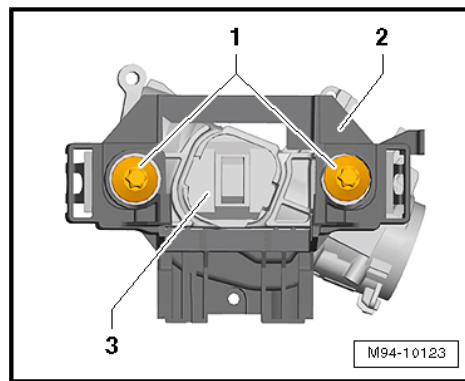
- ◆ Angled hand drill
- ◆ Torque Wrench 1410 - VAG1410-



The shear bolts -1- of the steering lock housing must be drilled out in order to remove the steering column switch mount -2-. New shear bolts will be needed for installation later. Refer to the Parts Catalog.

**Caution**

- ◆ *Before drilling out shear bolts, always make sure all components secured to steering column switch mount are removed beforehand.*
- ◆ *By drilling out, drill shavings can reach the neighboring components, which can lead to damage and malfunctions!*

**Caution**

Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to ⇒ "1.5 Battery, Disconnecting and Connecting", page 7 .

Removing

- Disconnect the Battery - A- . Refer to ⇒ ["1.5 Battery, Disconnecting and Connecting", page 7 .](#)
- Remove the steering wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48 ; Steering Wheel Airbag; Overview - Steering Wheel Airbag
- Remove the steering column trim panel. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Steering Column Trim Panel, Removing and Installing .
- Remove the Steering Column Electronics Control Module - J527- . Refer to ⇒ ["9.2.2 Steering Column Electronics Control Module J527 , Removing and Installing, Kostal", page 200 .](#)
- Remove the Steering Column Combination Switch - E595- . Refer to ⇒ ["9.3.3 Steering Column Combination Switch E595 , Removing and Installing, Kostal", page 206 .](#)

The steering column switch mount can be removed once all the components attached to it are removed.

- Drill out the shear bolts -1- on the steering lock housing -3-.

**Note**

M8 bolts -1-: hole diameter 6.8 mm

- Remove the steering lock housing -3- and the steering column switch base carrier -2- from the steering column.



- Remove the steering lock housing from the steering column switch mount.

Installing

- Install the steering lock housing -3- into the steering column switch mount -2-.

For a Steering Column Combination Switch - E595- That is Being Reused

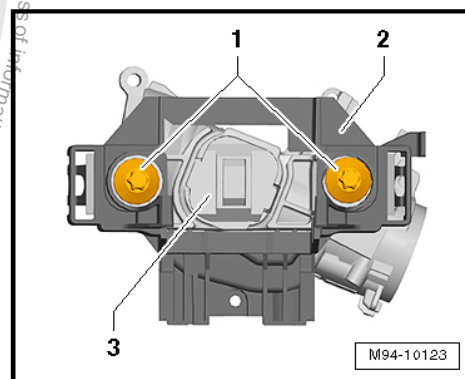
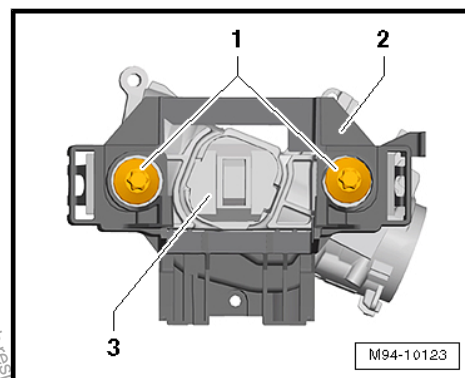
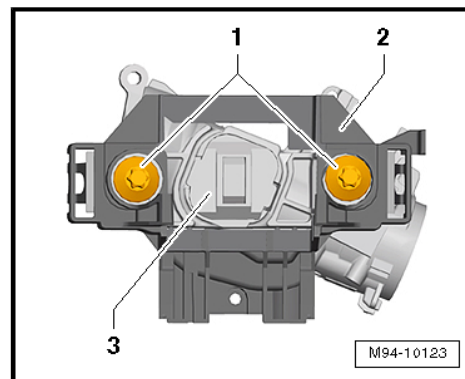
- Slide the Steering Column Combination Switch - E595- straight onto the guides on the steering column switch mount.
- Install the lower bolts and tighten to the specified tightening specification. Refer to ["9.1.2 Overview - Steering Column Switch Module, Kostal", page 197](#).

Continuation for New and Reused Steering Column Combination Switches - E595-

- Slide the pre-assembled unit from the steering lock housing, the steering column switch mount and the Steering Column Combination Switch - E595- all the way onto the steering column and line them up with the threaded holes.
- Attach the steering lock housing -3- to the steering column with new shear bolts -1-.
- Tighten the new shear bolts -1- until the bolt heads shear off. Refer to ["9.1.2 Overview - Steering Column Switch Module, Kostal", page 197](#).

Install in reverse order of removal, noting the following:

- Connect the Battery - A- . Refer to ["1.5 Battery, Disconnecting and Connecting", page 7](#).



9.4.4 Steering Column Switch Base Carrier, Removing and Installing, Kostal, KES-SY

Special tools and workshop equipment required

- ◆ Angled hand drill
- ◆ Torque Wrench 1410 - VAG1410-



The shear bolts -1- on the Electronic Steering Column Lock Control Module - J764- -4- must be drilled out in order to remove the steering column switch mount -3-. New shear bolts will be needed later for installing. Refer to the Parts Catalog.



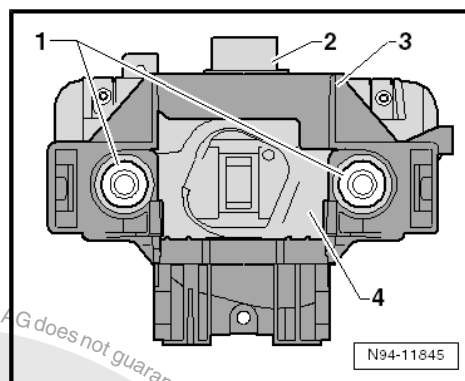
Caution

- ◆ **Before drilling out shear bolts, always make sure all components secured to steering column switch mount are removed beforehand.**
- ◆ **By drilling out, drill shavings can reach the neighboring components, which can lead to damage and malfunctions!**



Caution

Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to ⇒ "1.5 Battery, Disconnecting and Connecting", page 7 .



Removing

- Disconnect the Battery - A- . Refer to ⇒ ["1.5 Battery, Disconnecting and Connecting", page 7](#) .
- Remove the steering wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48 ; Steering Wheel Airbag; Overview - Steering Wheel Airbag .
- Remove the steering column trim panel. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Steering Column Trim Panel, Removing and Installing .
- Remove the Steering Column Electronics Control Module - J527- . Refer to ⇒ ["9.2.2 Steering Column Electronics Control Module J527, Removing and Installing, Kostal", page 200](#) .
- Remove the Steering Column Combination Switch - E595- . Refer to ⇒ ["9.3.4 Steering Column Combination Switch E595, Removing and Installing, Kostal, KESSY", page 208](#) .

The steering column switch mount can be removed once all the components attached to it are removed.

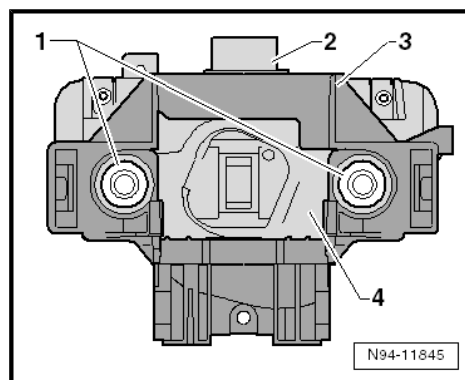
- Drill out the shear bolts -1- on the Electronic Steering Column Lock Control Module - J764- -4-.



Note

M8 bolts -1-: hole diameter 6.8 mm.

- Release and disconnect the connector -2- on the back of the Electronic Steering Column Lock Control Module - J764- -4- and then remove it together with the steering column switch mount -3- from the steering column.





- Release the retainers -arrows- on the steering column switch mount and remove the steering column switch mount -1- from the Electronic Steering Column Lock Control Module - J764- -2-.

Installing

- Install the steering column switch mount -1- on the Electronic Steering Column Lock Control Module - J764- -2-.

For a Steering Column Combination Switch - E595- That is Being Reused

- Slide the Steering Column Combination Switch - E595- straight onto the guides on the steering column switch mount.
- Install the lower bolts and tighten to the specified tightening specification. Refer to [⇒ "9.1.3 Overview - Steering Column Switch Module, KESSY", page 197](#).

Continuation for New and Reused Steering Column Combination Switches - E595-

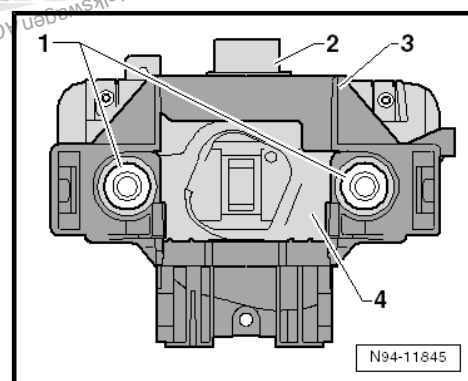
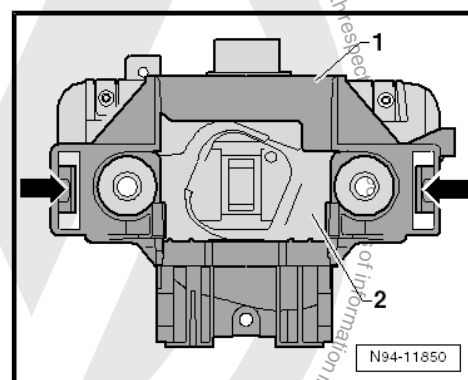
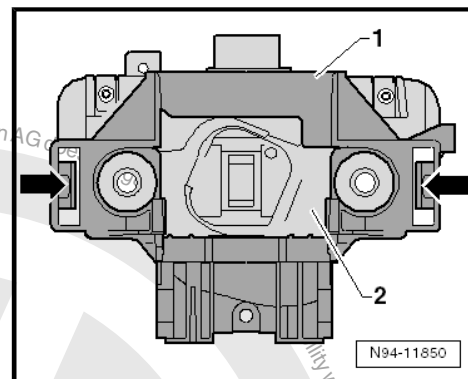
- Slide the pre-assembled unit from the Electronic Steering Column Lock Control Module - J764- , the steering column switch mount and the Steering Column Combination Switch - E595- all the way onto the steering column and line them up with the threaded holes.
- Secure the Electronic Steering Column Lock Control Module - J764- -4- to the steering column with new shear bolts -1-.
- Tighten the shear bolts -1- until the bolt heads shear off. Refer to [⇒ "9.1.3 Overview - Steering Column Switch Module, KESSY", page 197](#).
- Connect the Battery - A- . Refer to [⇒ "1.5 Battery, Disconnecting and Connecting", page 7](#).

Install in reverse order of removal.

Replace the Electronic Steering Column Lock Control Module - J764- . Refer to [⇒ "9.5 Electronic Steering Column Lock Control Module J764, Removing and Installing", page 219](#).

9.5 Electronic Steering Column Lock Control Module - J764- , Removing and Installing

If the vehicle has KESSY, the steering column does not lock mechanically via the lock cylinder, but rather it locks electrically via the electronic steering column lock (Electronic Steering Column Lock Control Module - J764-).





⇒ [“9.5.1 Electronic Steering Column Lock Control Module J764 , Removing and Installing”, page 220](#)

⇒ [“9.5.2 Electronic Steering Column Lock Control Module J764 , Replacing”, page 220](#)

9.5.1 Electronic Steering Column Lock Control Module - J764- , Removing and Installing

The “replace electronic steering column lock control module” procedure must be performed each time before removing the Electronic Steering Column Lock Control Module - J764- to read the data stored in the Electronic Steering Column Lock Control Module - J764- . Refer to

⇒ [“9.5.2 Electronic Steering Column Lock Control Module J764 , Replacing”, page 220](#) .

The Electronic Steering Column Lock Control Module - J764- and the steering column switch mount are removed and installed together.



Caution

Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .

Removing

- Disconnect the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .
- Remove the steering column switch mount. Refer to
⇒ [“9.4 Steering Column Switch Mount, Removing and Installing”, page 211](#) .

9.5.2 Electronic Steering Column Lock Control Module - J764- , Replacing

The procedure for “replacing the electronic steering column lock control module” includes the following work to be completed:

- ◆ If a new Electronic Steering Column Lock Control Module - J764- is being installed in the vehicle, then the Electronic Steering Column Lock Control Module - J764- must be coded.
- ◆ Then the Electronic Steering Column Lock Control Module - J764- must be adapted.

The Procedure to “Replace the Electronic Steering Column Lock Control Module” Can Only Be Performed. Refer to Vehicle Diagnostic Tester in the “Guided Fault Finding” Function.

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 2B - Electronic Steering Column Lock



- ◆ Functions
- ◆ Replace the electronic steering column lock control module

9.6 Ignition/Starter Switch - D- , Removing and Installing

⇒ ["9.6.1 Ignition/Starter Switch D , Removing and Installing", page 221](#)

⇒ ["9.6.2 Ignition/Starter Switch D , Checking", page 222](#)

⇒ ["9.6.3 Steering Lock Housing, Removing and Installing", page 222](#)

⇒ ["9.6.4 Lock Cylinder, Removing and Installing", page 223](#)

9.6.1 Ignition/Starter Switch - D- , Removing and Installing



Caution

Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to ⇒ ["1.5 Battery, Disconnecting and Connecting", page 7](#) .



WARNING

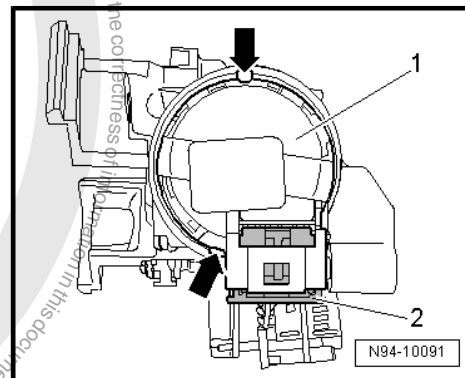
- ◆ *Risk of airbag deployment.*
- ◆ *The airbag unit could deploy if mishandled.*
- ◆ *Follow all safety precautions when working on airbags. Refer to ⇒ Body Interior; Rep. Gr. 00 ; Safety Precautions; Safety Precautions for Pyrotechnic Components .*

Removing

- Disconnect the Battery - A- . Refer to ⇒ ["1.5 Battery, Disconnecting and Connecting", page 7](#) .
- Remove the steering wheel. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 48 ; Steering Wheel Airbag; Overview - Steering Wheel Airbag .
- Remove the steering column trim panel. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Steering Column Trim Panel, Removing and Installing .
- Disconnect the connector -2- from the Ignition/Starter Switch D- -1-.
- Release the Ignition/Starter Switch - D- with a small screwdriver -arrows-.
- Remove the Ignition/Starter Switch - D- -1- from the steering lock housing.

Installing

- Install the Ignition/Starter Switch - D- in the steering lock housing until it clicks into place.
- Insert the ignition key into the lock cylinder and turn the key to the "Run" position.



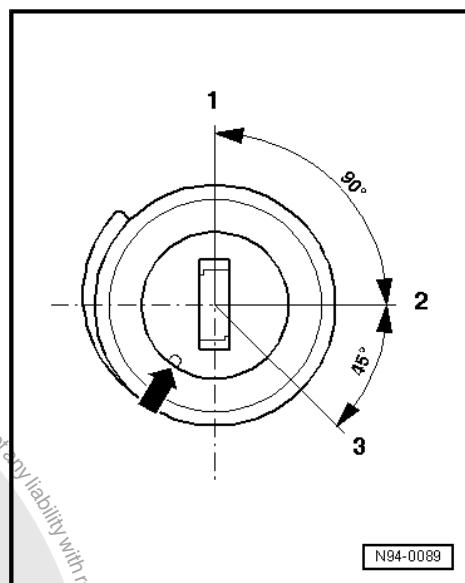


Lock Cylinder Key Positions

- 1 - "Off" Position
- 2 - "Run" Position
- 3 - "Start" Position
- Connect the Battery - A- . Refer to
⇒ **"1.5 Battery, Disconnecting and Connecting", page 7 .**

Further installation is done in reverse order of removal.

Ignition/Starter Switch - D- , Checking. Refer to
⇒ **"9.6.2 Ignition/Starter Switch D , Checking", page 222 .**



9.6.2 Ignition/Starter Switch - D- , Checking

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 09 - vehicle electrical system control module
 - ◆ Electrical Components
 - ◆ Ignition/Starter Switch

9.6.3 Steering Lock Housing, Removing and Installing



Caution

***Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ "1.5 Battery, Disconnecting and Connecting", page 7 .***

The steering column switch mount must be removed first in order to remove the steering lock housing.



Caution

- ◆ ***The steering lock could get damaged.***
- ◆ ***If the steering lock is operated without the lock cylinder, it will lock up and then it will have to be replaced.***
- ◆ ***Steering lock must not be operated without a lock cylinder.***



Removing

- Disconnect the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .
- Remove the steering column switch mount. Refer to
⇒ [“9.4 Steering Column Switch Mount, Removing and Installing”, page 211](#) .

9.6.4 Lock Cylinder, Removing and Installing



Caution

- ◆ *Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .*
- ◆ *The steering lock could get damaged.*
- ◆ *If the steering lock is operated without the lock cylinder, it will lock up and then it will have to be replaced.*
- ◆ *Steering lock must not be operated without a lock cylinder.*

Removing

- Disconnect the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .
- Remove the steering column trim panel. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Steering Column Trim Panel, Removing and Installing .

The Anti-Theft Immobilizer Reader Coil - D2- is attached to the lock cylinder and cannot be replaced separately.

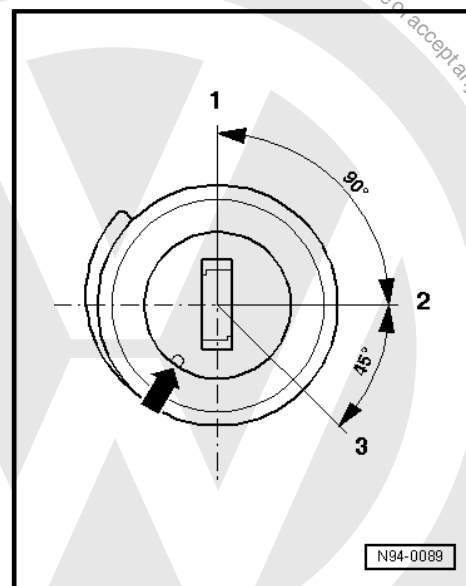
To improve clarity, the ignition key is not shown in the following illustrations.

The hole can be located opposite 180° as shown in the illustration. This does not affect removing and installing.

- Insert the ignition key into the lock cylinder and turn the key to the “Run” position.

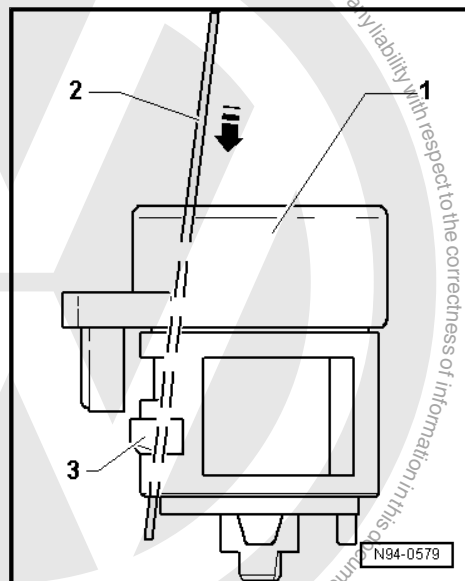
Lock Cylinder Key Positions

- 1 - “Off” Position
- 2 - “Run” Position
- 3 - “Start” Position

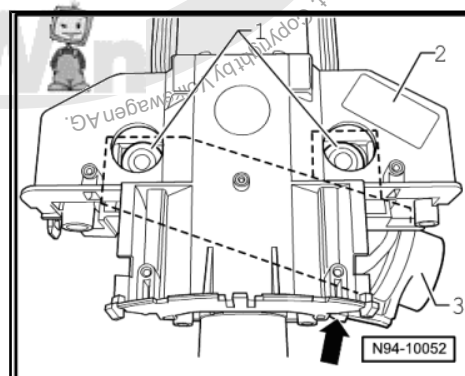




- Insert steel wire (1.2 mm diameter) into hole in direction of -arrow- next to the ignition key.
- Release the lever -3- on the lock cylinder -1- with a steel wire -2- -arrow-.
- Remove the lock cylinder -1- from the steering lock housing.



- Disconnect the connector -arrow- from the Anti-Theft Immobilizer Reader Coil - D2- .



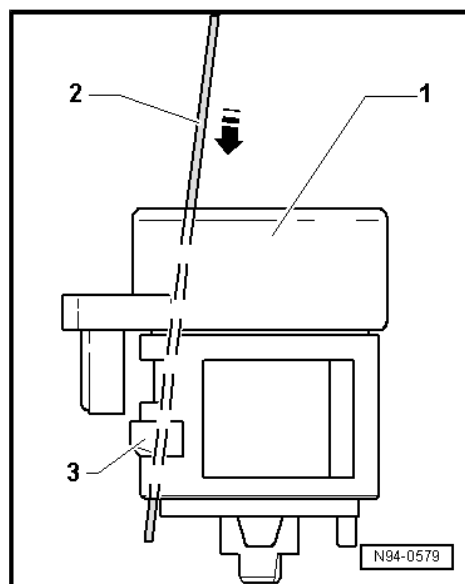
Installing

- Insert the ignition key into the lock cylinder -1- and turn the key to the "Run" position.
- Unlock the lever -3- with steel wire -2- in direction of -arrow-.
- Insert the lock cylinder -1- into the steering lock housing.

The Anti-Theft Immobilizer Reading Coil - D2- connection must be inserted into the guide on the steering lock housing.

- Remove the steel wire -2- from the lock cylinder -1- and then make sure the lock cylinder fit securely in the steering lock housing.
- Connect the connector to the Anti-Theft Immobilizer Reader Coil - D2- .
- Connect the Battery - A- . Refer to [⇒ "1.5 Battery, Disconnecting and Connecting", page 7](#) .

Further installation is done in reverse order of removal.



9.7 Ignition Switch Key Lock Solenoid - N376- , Removing and Installing

The Ignition Switch Key Lock Solenoid - N376- must be mounted next to the Ignition/Starter Switch - D- .

To remove ignition key in vehicles with automatic transmission and DSG, always shift selector lever into position "P" and then



switch off the ignition. Otherwise, the Ignition Switch Key Lock Solenoid - N376- prevents the key from being removed.



Caution

Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to ⇒ "1.5 Battery, Disconnecting and Connecting", page 7 .

Removing

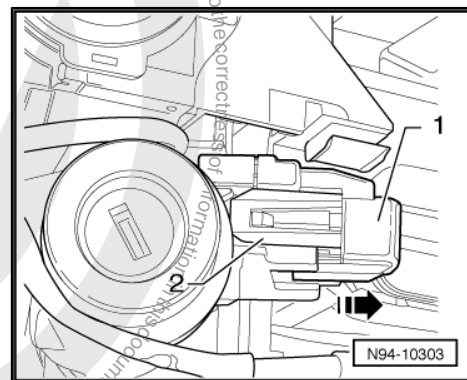
- Disconnect the Battery - A- . Refer to ⇒ "1.5 Battery, Disconnecting and Connecting", page 7 .
- Remove the steering column trim panel. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Steering Column Trim Panel, Removing and Installing .
- Open the tab -2- with a screwdriver.
- Pull Ignition Switch Key Lock Solenoid - N376- -1- in the direction of -arrow- out of its mount.

The connector will disconnect at the same time.

Installing

Install in reverse order of removal. Note the following:

- Connect the Battery - A- . Refer to ⇒ "1.5 Battery, Disconnecting and Connecting", page 7 .
- After attaching the Battery - A- , perform the output diagnostic test mode for the Steering Column Electronics Control Module - J527- to activate the Ignition Switch Key Lock Solenoid - N376- . Use the Vehicle Diagnostic Tester .





10 Parking Aid

⇒ ["10.1 Overview - Parking Aid", page 226](#)

⇒ ["10.2 Parking Aid Control Module J446 , Removing and Installing", page 229](#)

⇒ ["10.3 Front Parking Aid Warning Buzzer H22 , Removing and Installing", page 232](#)

⇒ ["10.4 Rear Parking Aid Warning Buzzer H15 , Removing and Installing", page 233](#)

⇒ ["10.5 Front Parking Aid Sensor, Removing and Installing", page 235](#)

⇒ ["10.6 Rear Parking Aid Sensor, Removing and Installing", page 239](#)

10.1 Overview - Parking Aid

⇒ ["10.1.1 General Information", page 226](#)

⇒ ["10.1.2 Overview - Parking Aid", page 227](#)

10.1.1 General Information

Familiarity with the function and operation of the parking system is essential in the event of customer concerns. Refer to the Owner's Manual.

It has an eight-channel parking aid with four ultrasonic sensors (parking aid sensor) installed in the rear bumper, and four ultrasonic sensors in the front bumper.

The parking aid system uses ultrasonic sensors to monitor the areas near the front and rear bumpers. An acoustic distance warning is given by two warning buzzers located in the vehicle interior.

Should a trailer be used and the trailer socket is connected, the rear sensors are disabled. However the front sensors stay activated.

The eight-channel parking aid consists of:

- ◆ Parking Aid Control Module - J446-
- ◆ Left Front Parking Aid Sensor - G255-
- ◆ Left Front Center Parking Aid Sensor - G254-
- ◆ Right Front Center Parking Aid Sensor - G253-
- ◆ Right Front Parking Aid Sensor - G252-
- ◆ Left Rear Parking Aid Sensor - G203-
- ◆ Left Rear Center Parking Aid Sensor - G204-
- ◆ Right Rear Center Parking Aid Sensor - G205-
- ◆ Right Rear Parking Aid Sensor - G206-
- ◆ Front Parking Aid Warning Buzzer - H22-
- ◆ Rear Parking Aid Warning Buzzer - H15-
- ◆ Parking Aid Button - E266-
- ◆ Parking Aid Indicator Lamp - K136-
- ◆ Push Button Illumination Bulb - L76-



Function

To turn on when the ignition is on, press the Parking Aid Button - E266- or engage reverse gear. Press the Parking Aid Button - E266- again to turn it off, or drive forward faster than 15 km/h.

A short signal tone will sound and the Parking Aid Indicator Lamp - K136- will come on when the parking aid is ready. If a malfunction in the system is detected, a five second long tone will sound and the Parking Aid Indicator Lamp - K136- (in the Parking Aid Button - E266-) will flash.

During the distance measurement, the pauses between chime impulses get shorter as the gap between vehicles gets smaller. At distances less than 30 cm, a continuous tone is heard.

Exception:

- ◆ Driving along a wall: no warning

Malfunction Recognition and Malfunction Indicator

The Parking Aid Control Module - J446- takes over control of the parking aid functions.

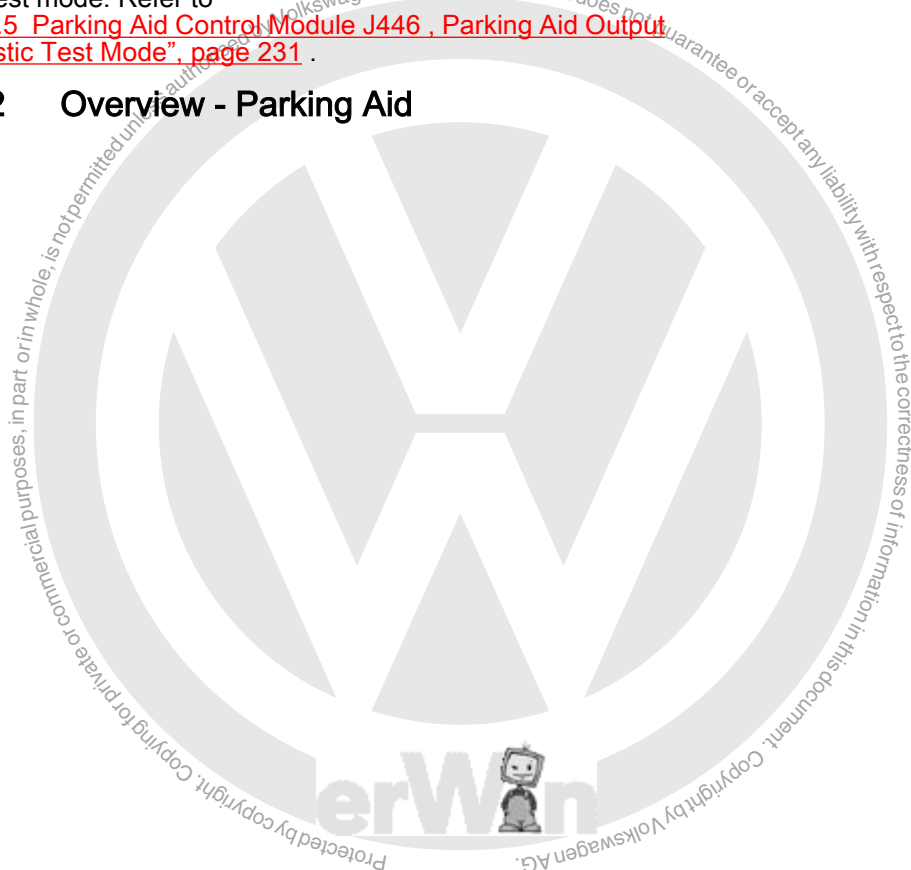
The Parking Aid Control Module - J446- is equipped with OBD.

For troubleshooting. Refer to Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

To check the entire parking aid system, perform the output diagnostic test mode. Refer to

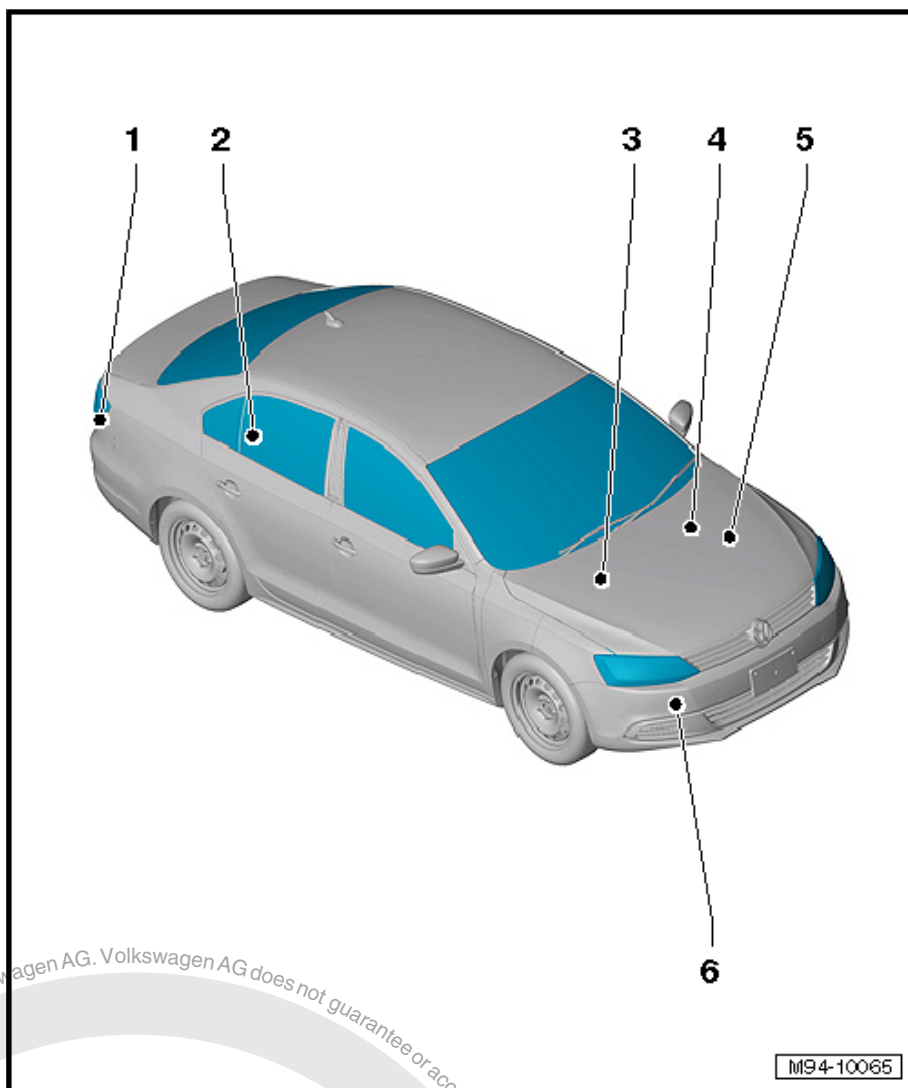
⇒ ["10.2.5 Parking Aid Control Module J446 , Parking Aid Output Diagnostic Test Mode", page 231](#) .

10.1.2 Overview - Parking Aid



**1 - Parking Aid Sensor in Rear Bumper Cover**

- ☐ Left Rear Parking Aid Sensor - G203-
- ☐ Left Rear Center Parking Aid Sensor - G204-
- ☐ Right Rear Center Parking Aid Sensor - G205-
- ☐ Right Rear Parking Aid Sensor - G206-
- ☐ Removing and installing. Refer to
⇒ ["10.6 Rear Parking Aid Sensor, Removing and Installing", page 239](#).
- ☐ Checking. Refer to
⇒ ["10.6.5 Parking Aid Sensor, Checking", page 242](#).
- ☐ Replacing. Refer to
⇒ ["10.6.3 Parking Aid Sensor, Replacing", page 241](#).
- ☐ Sensor mount, repairing. Refer to
⇒ ["10.6.4 Rear Bumper Cover Sensor Mount, Repairing", page 242](#).
- ☐ Sensor mount adhesive. Refer to
⇒ ["10.6.2 Sensor Mount Bonding in Rear Bumper Cover", page 241](#).

**2 - Rear Parking Aid Warning Buzzer - H15-**

- ☐ In the rear shelf
- ☐ Removing and installing. Refer to
⇒ ["10.4 Rear Parking Aid Warning Buzzer H15, Removing and Installing", page 233](#).
- ☐ Volume, Adjusting. Refer to
⇒ ["10.4.2 Rear Parking Aid Warning Buzzer H15, Adapting Volume", page 234](#).
- ☐ Tone, Adjusting. Refer to
⇒ ["10.4.3 Rear Parking Aid Warning Buzzer H15, Adapting Tone", page 234](#).
- ☐ Check via the output diagnostic test mode. Refer to
⇒ ["10.2.5 Parking Aid Control Module J446, Parking Aid Output Diagnostic Test Mode", page 231](#).

3 - Parking Aid Button - E266-

- ☐ Inside the center console in front of the gearshift lever
- ☐ Removing and installing. Refer to
⇒ ["2.16 Parking Aid Button E266, Removing and Installing", page 283](#).

4 - Parking Aid Control Module - J446-

- ☐ Via the relay panel underneath the driver side instrument panel
- ☐ Removing and installing. Refer to
⇒ ["10.2 Parking Aid Control Module J446, Removing and Installing", page 229](#).
- ☐ Coding. Refer to ⇒ ["10.2.3 Parking Aid Control Module J446, Coding", page 230](#).
- ☐ Adapting the optical illustration. Refer to
⇒ ["10.2.4 Parking Aid Control Module J446, Adapting Optical Display", page 231](#).
- ☐ Output diagnostic test mode. Refer to
⇒ ["10.2.5 Parking Aid Control Module J446, Parking Aid Output Diagnostic Test Mode", page 231](#).



5 - Front Parking Aid Warning Buzzer - H22-

- ☐ On the relay panel under the driver side instrument panel
- ☐ Removing and installing. Refer to
⇒ ["10.3 Front Parking Aid Warning Buzzer H22 , Removing and Installing", page 232](#) .
- ☐ Volume, Adjusting. Refer to
⇒ ["10.3.2 Front Parking Aid Warning Buzzer H22 , Adapting Volume", page 232](#) .
- ☐ Tone, Adjusting. Refer to
⇒ ["10.3.3 Front Parking Aid Warning Buzzer H22 , Adapting Tone", page 233](#) .
- ☐ Check via the output diagnostic test mode. Refer to
⇒ ["10.2.5 Parking Aid Control Module J446 , Parking Aid Output Diagnostic Test Mode", page 231](#)

6 - Parking Aid Sensor Inside the Front Bumper Cover

- ☐ Left Front Parking Aid Sensor - G255-
- ☐ Left Front Center Parking Aid Sensor - G254-
- ☐ Right Front Center Parking Aid Sensor - G253-
- ☐ Right Front Parking Aid Sensor - G252-
- ☐ Removing and installing. Refer to
⇒ ["10.5 Front Parking Aid Sensor, Removing and Installing", page 235](#) .
- ☐ Checking. Refer to ⇒ ["10.5.5 Front Parking Aid Sensor, Checking", page 238](#) .
- ☐ Replacing. Refer to ⇒ ["10.5.3 Front Parking Aid Sensor, Replacing", page 237](#) .
- ☐ Sensor mount, repairing. Refer to
⇒ ["10.5.4 Sensor Mount in Front Bumper Cover, Repairing", page 238](#) .
- ☐ Sensor mount adhesive. Refer to
⇒ ["10.5.2 Sensor Mount Bonding in Front Bumper Cover", page 237](#) .

10.2 Parking Aid Control Module - J446- , Removing and Installing

⇒ ["10.2.1 Parking Aid Control Module J446 Removing and Installing", page 229](#)

⇒ ["10.2.3 Parking Aid Control Module J446 , Coding", page 230](#)

⇒ ["10.2.4 Parking Aid Control Module J446 , Adapting Optical Display", page 231](#)

⇒ ["10.2.5 Parking Aid Control Module J446 , Parking Aid Output Diagnostic Test Mode", page 231](#)

10.2.1 Parking Aid Control Module - J446- Removing and Installing

The Parking Aid Control Module - J446- is located under the instrument panel on the driver side above the relay panel.

Removing

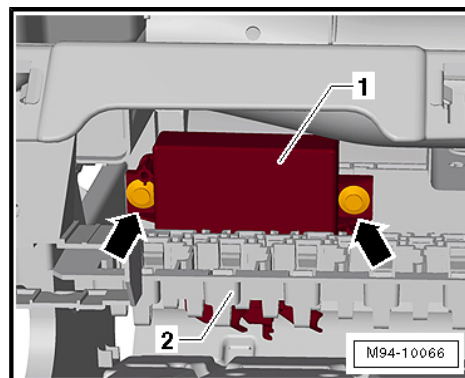
- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the left instrument panel cover. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Instrument Panel; Side Instrument Panel Covers, Removing and Installing .
- Remove the driver side instrument panel cover. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Driver Side Instrument Panel Cover, Removing and Installing .
- Remove the instrument cluster. Refer to
⇒ ["1.2 Instrument Cluster, Removing and Installing", page 103](#) .



- Remove the footwell vent on the driver side. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 80 ; Heating, Servicing; Vents, Removing, Jetta from MY 2011 .
- Remove the expanding rivets -arrows- on the Parking Aid Control Module - J446- -1-.
- Remove the Parking Aid Control Module - J446- -1- toward the rear and downward out of the bracket -2-.
- Release and disconnect the connectors.

Installing

Install in reverse order of removal.



10.2.2 Parking Aid Control Module - J446- Removing and Installing, RHD

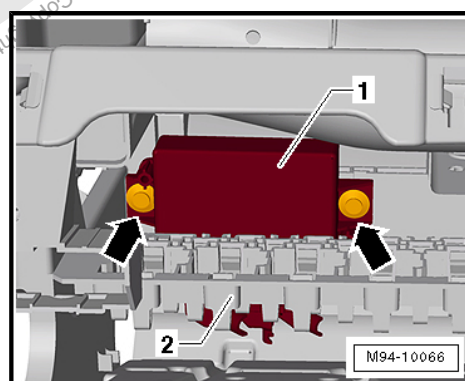
The Parking Aid Control Module - J446- is located under the instrument panel on the driver side above the relay panel.

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the right instrument panel cover on the side. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Instrument Panel; Side Instrument Panel Covers, Removing and Installing .
- Remove the driver side instrument panel cover. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Driver Side Instrument Panel Cover, Removing and Installing .
- Remove the instrument cluster. Refer to ⇒ ["1.2 Instrument Cluster, Removing and Installing", page 103](#) .
- Remove the footwell vent on the driver side. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 80 ; Heating, Servicing; Vents, Removing, Jetta from MY 2011
- Remove the expanding rivets -arrows- on the Parking Aid Control Module - J446- -1-.
- Remove the Parking Aid Control Module - J446- -1- toward the rear and downward out of the bracket -2-.
- Release and disconnect the connectors.

Installing

Install in reverse order of removal.



10.2.3 Parking Aid Control Module - J446- , Coding

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the Guided Fault Finding mode.



- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:

- ◆ Body
- ◆ Body repair procedures
- ◆ 01 - OBD-capable systems
- ◆ 10 - Parking Aid Control Module 2 J446
- ◆ Parking Aid 2 Function
- ◆ Control module, coding

10.2.4 Parking Aid Control Module - J446- , Adapting Optical Display

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
- ◆ Body
- ◆ Body repair procedures
- ◆ 01 - OBD-capable systems
- ◆ 10 - Parking Aid Control Module 2 J446
- ◆ Parking Aid 2 Function
- ◆ Adapting the optical illustration

10.2.5 Parking Aid Control Module - J446- , Parking Aid Output Diagnostic Test Mode

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
- ◆ Body
- ◆ Body repair procedures
- ◆ 01 - OBD-capable systems
- ◆ 10 - Parking Aid Control Module 2 J446
- ◆ Parking Aid 2 Function
- ◆ Output Diagnostic Test Mode



10.3 Front Parking Aid Warning Buzzer - H22- , Removing and Installing

⇒ "10.3.1 Front Parking Aid Warning Buzzer H22 , Removing and Installing", page 232

⇒ "10.3.2 Front Parking Aid Warning Buzzer H22 , Adapting Volume", page 232

⇒ "10.3.3 Front Parking Aid Warning Buzzer H22 , Adapting Tone", page 233

10.3.1 Front Parking Aid Warning Buzzer - H22- , Removing and Installing

The Front Parking Aid Warning Buzzer - H22- is located under the driver side instrument panel and is secure to the relay panel bracket.



WARNING

- ◆ *Risk of airbag deployment.*
- ◆ *The airbag unit could deploy if mishandled.*
- ◆ *Follow all safety precautions when working on airbags. Refer to ⇒ Body Interior; Rep. Gr. 00 ; Safety Precautions; Safety Precautions for Pyrotechnic Components .*

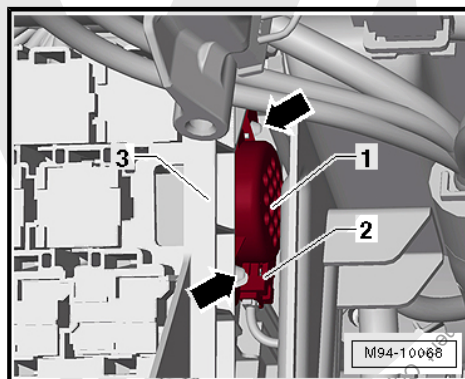
Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the knee airbag and bracket in the driver footwell. Refer to ⇒ Body Interior; Rep. Gr. 69 .
- Remove the driver side instrument panel cover. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Driver Side Instrument Panel Cover, Removing and Installing .
- Loosen the expanding rivets -arrows-.
- Release and disconnect the connector -2-.
- Remove the Front Parking Aid Warning Buzzer - H22- -1- from the bracket -3-.

Installing

Install in reverse order of removal.

If a new Front Parking Aid Warning Buzzer - H22- is installed, it is not necessary to perform coding, basic setting or adaptation.



10.3.2 Front Parking Aid Warning Buzzer - H22- , Adapting Volume

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the Guided Fault Finding mode.



- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:

- ◆ Body
- ◆ Body repair procedures
- ◆ 01 - OBD-capable systems
- ◆ 10 - Parking Aid Control Module 2 J446
- ◆ Parking Aid 2 Function
- ◆ Front Parking Aid Warning Buzzer, Adjusting Volume

10.3.3 Front Parking Aid Warning Buzzer - H22- , Adapting Tone

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
- ◆ Body
- ◆ Body repair procedures
- ◆ 01 - OBD-capable systems
- ◆ 10 - Parking Aid Control Module 2 J446
- ◆ Parking Aid 2 Function
- ◆ Front Parking Aid Warning Buzzer , Adjusting Tone

10.4 Rear Parking Aid Warning Buzzer - H15- , Removing and Installing

⇒ [“10.4.1. Rear Parking Aid Warning Buzzer H15 , Removing and Installing”, page 233](#)

⇒ [“10.4.2 Rear Parking Aid Warning Buzzer H15 , Adapting Volume”, page 234](#)

⇒ [“10.4.3 Rear Parking Aid Warning Buzzer H15 , Adapting Tone”, page 234](#)

10.4.1 Rear Parking Aid Warning Buzzer - H15- , Removing and Installing

The Rear Parking Aid Warning Buzzer - H15- is secured to the rear shelf plate. It is accessible from the luggage compartment.

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Release and disconnect the connector -1-.

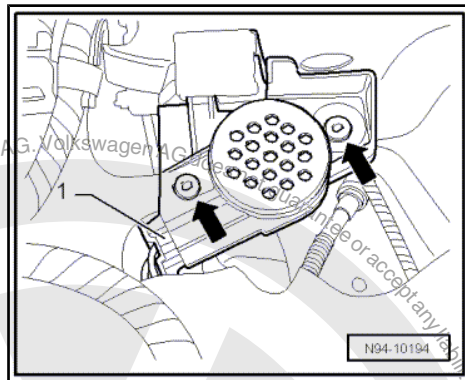


- Loosen the expanding rivets -arrows- and remove the Rear Parking Aid Warning Buzzer - H15- from the bracket.

Installing

Install in reverse order of removal.

If a new Rear Parking Aid Warning Buzzer - H15- is installed, it is not necessary to perform coding, basic setting or adaptation.



10.4.2 Rear Parking Aid Warning Buzzer - H15- , Adapting Volume

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the Guided Fault Finding mode.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Body repair procedures
 - ◆ 01 - OBD-capable systems
 - ◆ 10 - Parking Aid Control Module 2 J446
 - ◆ Parking Aid 2 Function
 - ◆ Rear Parking Aid Warning Buzzer, Adjusting Volume

10.4.3 Rear Parking Aid Warning Buzzer - H15- , Adapting Tone

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the Guided Fault Finding mode.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Body repair procedures
 - ◆ 01 - OBD-capable systems
 - ◆ 10 - Parking Aid Control Module 2 J446
 - ◆ Parking Aid 2 Function
 - ◆ Rear Parking Aid Warning Buzzer Tone, Adjusting



10.5 Front Parking Aid Sensor, Removing and Installing

⇒ ["10.5.1 Front Parking Aid Sensor, Removing and Installing", page 235](#)

⇒ ["10.5.2 Sensor Mount Bonding in Front Bumper Cover", page 237](#)

⇒ ["10.5.3 Front Parking Aid Sensor, Replacing", page 237](#)

⇒ ["10.5.4 Sensor Mount in Front Bumper Cover, Repairing", page 238](#)

⇒ ["10.5.5 Front Parking Aid Sensor, Checking", page 238](#)

10.5.1 Front Parking Aid Sensor, Removing and Installing

Parking aid sensor in front bumper cover:

- ◆ Left Front Parking Aid Sensor - G255-
- ◆ Left Front Center Parking Aid Sensor - G254-
- ◆ Right Front Center Parking Aid Sensor - G253-
- ◆ Right Front Parking Aid Sensor - G252-

The following illustrations show how to remove and install the Left Front Parking Aid Sensor - G255-.

Removing and installing the other parking aid sensors is identical.

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the front bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63 ; Front Bumper Cover; Front Bumper Cover, Removing and Installing .



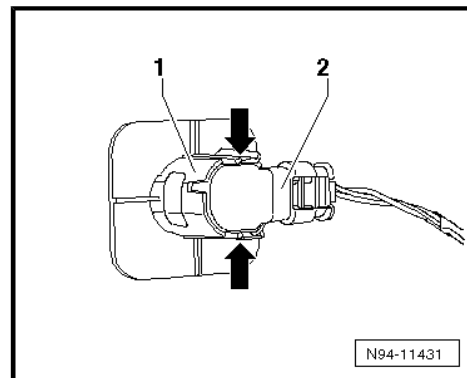
Caution

- ◆ *Always follow the sequence for removing the sensor.*
- ◆ *Otherwise, the sensor may be damaged. Hairline cracks which lead to sensor failure can develop if too much force is used on the sensor.*
- ◆ *Remove the sensor from the bracket first and then disconnect the connector from the sensor.*

- Push the locking mechanisms -arrows- on the sensor mount -1- toward the outside.
- Pull the sensor -2- backward out of the sensor bracket with the wires connected.

When removing the sensor, make sure that the decoupling ring (black silicone ring) remains on the sensor head and does not remain in the bracket or get lost. Do not bend the decoupling ring.

- Release and disconnect the connector -2-.





- Disconnect the sensor -1-.

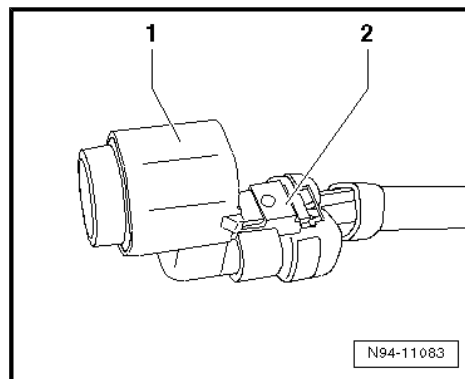
Installing

Install in reverse order of removal. Note the following:



Caution

- ◆ *Do not bend the decoupling ring.*
- ◆ *An incorrect or damaged decoupling ring can lead to malfunctions.*
- ◆ *Replace any damaged decoupling rings and be sure install the correct decoupling ring.*



Since the lengths of the front parking aid sensor heads are different, the height decoupling rings installed are also different.

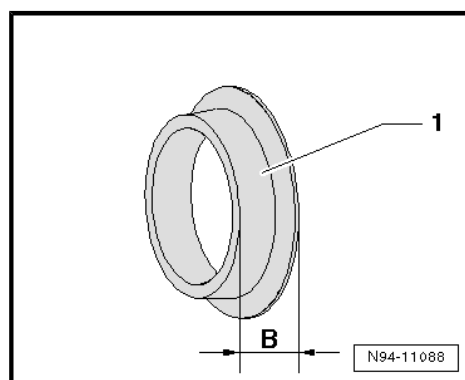
- Make sure the correct decoupling ring is installed on the sensor head.

Type of Sensor	Height of Decoupling Ring -B-
Front parking aid sensor	5.7 mm

- Replace the sensor decoupling ring -1-.
- Install the sensor in the correct location in the bumper cover.

Sensor brackets are designed in different shapes and must be matched to the respective component location in the bumper cover.

Be sure to align the electric connection on the sensor when installing it.



Parking Aid Sensors Allocation inside the Front Bumper Cover:

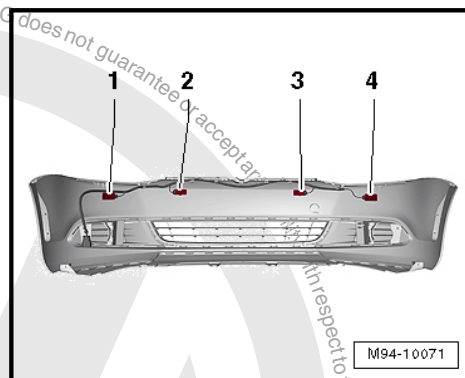
- 1 - LF - Outer Left
- 2 - FLC - Front Left Center
- 3 - FRC - Front Right Center
- 4 - RF - Outer Right

Make sure that the sensors -1 through 4- are matched up with the connectors.

When installing the sensor, make sure the decoupling ring is correctly mounted on the sensor head and that it does not fall off or roll up when being inserted into the sensor mount.

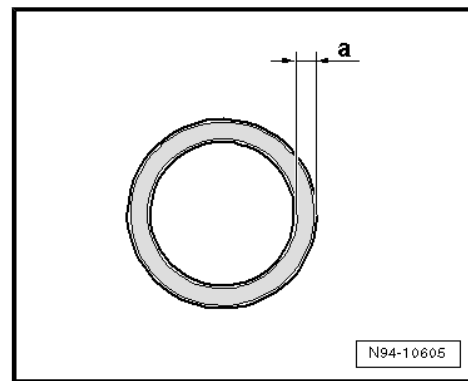
Both retaining clips on the sensor mount must engage audibly when installing the sensor.

- Make sure the sensor is seated correctly in the bracket after installation.





Dimension -a- for the circular gap between the sensor head and bumper cover must be visibly even all around on the outer side of the bumper cover.



10.5.2 Sensor Mount Bonding in Front Bumper Cover

The sensor mount bonding in the front bumper cover is performed in the same way. To assist in aligning the sensor retainers in their proper positions when bonding, sensor location punched holes with corresponding retainer bonding adhesive surfaces are marked on the inside of the bumper cover. Before proceeding with bonding procedure, ensure that the sensor mount and bumper cover materials are between 15 and 25 °C (59 and 77 °F).

Special tools and workshop equipment required

- ◆ PDC Holder Tool Set - Centering Drift - VAS6614/3-

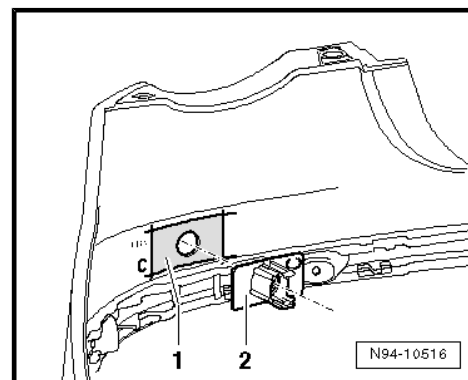
Procedure

- Remove any remaining adhesive still on the inside of the bumper cover.
- Clean the marked adhesive surface -1- on the inside of the bumper thoroughly with isopropyl alcohol.
- Apply the bonding agent “Scotchmount 4298” evenly in the marked adhesion surface -1-.
- Let the bonding agent air dry for approximately five minutes.
- Allocate the sensor brackets to be bonded to their proper component location. Refer to ⇒ [page 236](#).
- Remove both protection foils from sensor mount bonding area -2- so that a gray surface becomes visible.
- Align the sensor bracket -2- with respect to marked adhesive surface -1- so that there is a uniform edge of approximately 3 mm. Use PDC Holder Tool Set - Centering Drift - VAS6614/3- for aligning with the punched hole.

Make sure that openings for sensor connection in the sensor bracket face in the correct direction as depicted in the assignment. If the sensor mount is glued in incorrectly, the connecting wires for the sensors are too short.

- Press the sensor bracket -2- with significant pressure into the bumper cover for approximately 10 seconds.

The contact pressure and pressing time is crucial for the bonding durability.



10.5.3 Front Parking Aid Sensor, Replacing

If a new parking aid sensor is installed, the sensor head must first be painted to match the color of the bumper cover. The following requirements must be observed when painting the sensors to ensure the parking aid system will not be impaired.



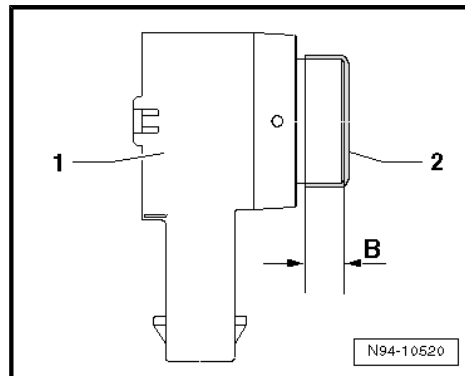
Sensor, Painting

Procedure

- Remove the decoupling ring (black silicone ring) from the new sensor head.
- Use isopropyl alcohol to remove the grease from the black sensor head -1- in the area to be painted -2-.
- Paint the sensor in the area to be painted -2- the same color as the bumper cover.

Paint application dimension -B- is 3 mm (+ maximum 2 mm).

- When the paint has dried, reinstall the decoupling ring (black silicone ring) on the sensor head.



Caution

- ◆ *Do not bend the decoupling ring.*
- ◆ *Using a damaged decoupling ring can cause malfunctions.*
- ◆ *Replace any damaged decoupling rings.*

10.5.4 Sensor Mount in Front Bumper Cover, Repairing

New Front Bumper Cover with Sensor Mount Glued On

If a new front bumper cover is installed, the front parking aid sensor brackets are already installed and the new bumper cover can be painted. Follow the requirements for painting.

New Front Bumper Cover without Attached Sensor Mount

- ◆ Procedure. Refer to ⇒ Body Exterior; Rep. Gr. 63 ; Front Bumper Cover; Parking Aid Bracket, Installing .

Sensor Mount Allocation. Refer to ⇒ [page 236](#) .

Bonding the Sensor Bracket in the Bumper Cover. Refer to ⇒ ["10.5.2 Sensor Mount Bonding in Front Bumper Cover", page 237](#) .

10.5.5 Front Parking Aid Sensor, Checking

This function can be used to check the following components via the Parking Aid Control Module - J446- :

- ◆ Left Front Parking Aid Sensor - G255
- ◆ Left Front Center Parking Aid Sensor - G254-
- ◆ Right Front Center Parking Aid Sensor - G253-
- ◆ Right Front Parking Aid Sensor - G252-

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the Guided Fault Finding mode.
- Use the GO TO button to select the "function/component selection" and the following menu options one after the other:
 - ◆ Body
 - ◆ Body repair procedures



- ◆ 01 - OBD-capable systems
- ◆ 10 - Parking Aid Control Module 2 J446
- ◆ Electrical Components
- ◆ Parking Aid Sensor

10.6 Rear Parking Aid Sensor, Removing and Installing

⇒ ["10.6.1 Rear Parking Aid Sensor, Removing and Installing", page 239](#)

⇒ ["10.6.2 Sensor Mount Bonding in Rear Bumper Cover", page 241](#)

⇒ ["10.6.3 Parking Aid Sensor, Replacing", page 241](#)

⇒ ["10.6.4 Rear Bumper Cover Sensor Mount, Repairing", page 242](#)

⇒ ["10.6.5 Parking Aid Sensor, Checking", page 242](#)

10.6.1 Rear Parking Aid Sensor, Removing and Installing

Special tools and workshop equipment required

- ◆ Parking Aid Sender Release Tool - T10345-

Parking aid sensor in rear bumper cover:

- ◆ Left Rear Parking Aid Sensor - G203-
- ◆ Left Rear Center Parking Aid Sensor - G204-
- ◆ Right Rear Center Parking Aid Sensor - G205-
- ◆ Right Rear Parking Aid Sensor - G206-

Removal and installation is the same for all sensors so the following information describes only one of them.

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the rear bumper cover. Refer to ⇒ Body Exterior; Rep. Gr. 63 ; Rear Bumper Cover; Rear Bumper Cover, Removing and Installing .



Caution

- ◆ *Always follow the sequence for removing the sensor.*
- ◆ *Otherwise, the sensor may be damaged. Hairline cracks which lead to sensor failure can develop if too much force is used on the sensor.*
- ◆ *Remove the sensor from the bracket first and then disconnect the connector from the sensor.*

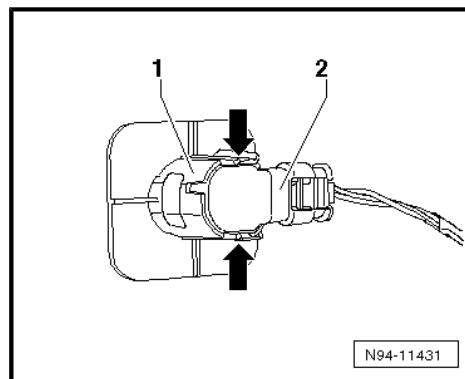


- Release the tabs -arrows- using the Parking Aid Sender Release Tool - T10345- and remove the sensor -2- with the connector still connected from the bumper cover.

When removing the sensor, make sure that the decoupling ring (black silicone ring) remains on the sensor head and does not remain in the bracket or get lost.

Do not bend the decoupling ring.

- Release and disconnect the connector -2-.



- Disconnect the sensor -1-.

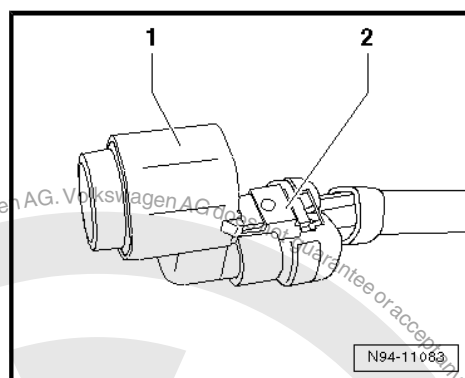
Installing

Install in reverse order of removal. Note the following:



Caution

- ◆ *Do not bend the decoupling ring.*
- ◆ *Using a damaged decoupling ring can cause malfunctions.*
- ◆ *Replace any damaged decoupling rings.*



Sensor brackets are designed in different shapes and must be matched to the respective component location in the bumper cover.

Be sure to align the electric connection on the sensor when installing it.

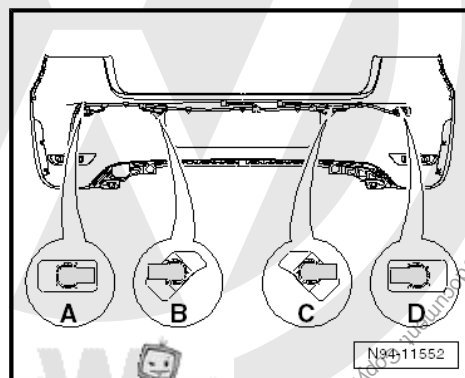
Parking Aid Sensor Allocation inside the Rear Bumper Cover:

- A - OR - Outer Right
- B - RRC - Rear Right Center
- C - LRC - Left Rear Center
- D - LR - Outer Rear

When removing the sensor, make sure that the decoupling ring (black silicone ring) remains on the sensor head and does not remain in the bracket or get lost.

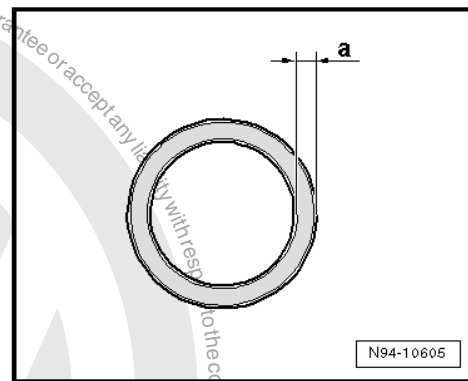
Both retainers on the sensor must engage audibly in the sensor mount when installing.

- Make sure that the sensor is seated correctly in the bracket after installation.





Dimension -a- for the circular gap between the sensor head and sensor mount must be even all around on the outer side of the bumper cover.



10.6.2 Sensor Mount Bonding in Rear Bumper Cover

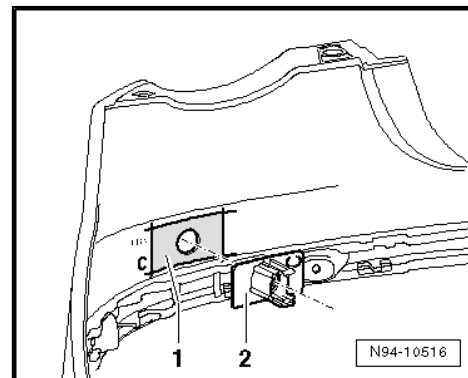
The sensor mount bonding in the rear bumper cover is performed in the same way. To assist in aligning the sensor retainers in their proper positions when bonding, sensor location punched holes with corresponding retainer bonding adhesive surfaces are marked on the inside of the bumper cover. Before proceeding with bonding procedure, ensure that the sensor mount and bumper cover materials are between 15 and 25 °C (59 and 77 °F).

Special tools and workshop equipment required

- ◆ PDC Holder Tool Set - Centering Drift - VAS6614/3-

Procedure

- Remove any remaining adhesive still on the inside of the bumper cover.
- Clean the marked adhesive surface -1- on the inside of the bumper thoroughly with isopropyl alcohol.
- Apply the bonding agent "Scotchmount 4298" evenly in the marked adhesion surface -1-.
- Let the bonding agent air dry for approximately five minutes.
- Allocate the sensor brackets to be bonded to their proper component location. Refer to ⇒ [page 240](#) .
- Remove both protection foils from sensor mount bonding area -2- so that a gray surface becomes visible.
- Align the sensor bracket -2- with respect to marked adhesive surface -1- so that there is a uniform edge of approximately 3 mm. Use PDC Holder Tool Set - Centering Drift - VAS6614/3- for aligning with the punched hole.



Make sure that openings for sensor connection in the sensor bracket face in the correct direction as depicted in the assignment. If the sensor mount is glued in incorrectly, the connecting wires for the sensors are too short.

- Press the sensor bracket -2- with significant pressure into the bumper cover for approximately 10 seconds.

The contact pressure and pressing time is crucial for the bonding durability.

10.6.3 Parking Aid Sensor, Replacing

If a new parking aid sensor is installed, the sensor head must first be painted to match the color of the bumper cover. The following requirements must be observed when painting the sensors to ensure the parking aid system will not be impaired.



Sensor, Painting

Procedure

- Remove the decoupling ring (black silicone ring) from the new sensor head.
- Use isopropyl alcohol to remove the grease from the black sensor head -1- in the area to be painted -2-.
- Paint the sensor in the area to be painted -2- the same color as the bumper cover.

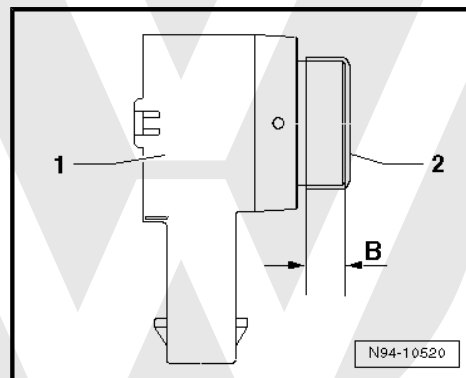
Paint application dimension -B- is 3 mm (+ maximum 2 mm).

- When the paint has dried, reinstall the decoupling ring (black silicone ring) on the sensor head.



Caution

- ◆ *Do not bend the decoupling ring.*
- ◆ *Using a damaged decoupling ring can cause malfunctions.*
- ◆ *Replace any damaged decoupling rings.*



10.6.4 Rear Bumper Cover Sensor Mount, Repairing

New Rear Bumper Cover with Attached Sensor Mount

If a new front bumper cover is installed, the front parking aid sensor brackets are already installed and the new bumper cover can be painted. Follow the requirements for painting.

New Rear Bumper Cover without the Sensor Mount Glued On

- ◆ Procedure. Refer to ⇒ Body Exterior; Rep. Gr. 63 ; Rear Bumper Cover; Parking Aid Bracket, Installing .

Sensor Mount Allocation. Refer to ⇒ [page 240](#) .

Bonding the Sensor Bracket in the Bumper Cover. Refer to ⇒ ["10.6.2 Sensor Mount Bonding in Rear Bumper Cover", page 241](#) .

10.6.5 Parking Aid Sensor, Checking

This function can be used to check the following components via the Parking Aid Control Module - J446- :

- ◆ Left Front Parking Aid Sensor - G255-
- ◆ Left Front Center Parking Aid Sensor - G254-
- ◆ Right Front Center Parking Aid Sensor - G253-
- ◆ Right Front Parking Aid Sensor - G252-
- ◆ Left Rear Parking Aid Sensor - G203-
- ◆ Left Rear Center Parking Aid Sensor - G204-
- ◆ Right Rear Center Parking Aid Sensor - G205-
- ◆ Right Rear Parking Aid Sensor - G206-

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the Guided Fault Finding mode.



- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Body repair procedures
 - ◆ 01 - OBD-capable systems
 - ◆ 10 - Parking Aid Control Module 2 J446
 - ◆ Electrical Components
 - ◆ Parking Aid Sensor





11 High Beam Assist

⇒ ["11.1 Overview - High Beam Assist", page 244](#)

⇒ ["11.2 Component Location Overview - High Beam Assist", page 244](#)

⇒ ["11.3 Automatic High Beam Assist Control Module J844 , Removing and Installing", page 245](#)

⇒ ["11.4 Automatic High Beam Assist Control Module J844 , Replacing", page 246](#)

⇒ ["11.5 Automatic High Beam Assist Control Module J844 , Coding", page 246](#)

⇒ ["11.6 Light Recognition Sensor G399 , Removing and Installing", page 247](#)

11.1 Overview - High Beam Assist

The high beam assist turns the high beams on and off automatically depending on the surrounding traffic conditions and the vehicle speed. The Light Recognition Sensor - G399- inside the rearview mirror base and the Automatic High Beam Assist Control Module - J844- inside the interior rearview mirror control it.

Turn on the high beam assistant:

- ◆ Ignition switched on
- ◆ Turn the Light Switch - E1- to the **AUTO** position
- ◆ Tilt the turn signal lever into the high beam position

The high beam assist will switch off when the ignition is turned off.

The high beam assist may not switch off at the right time or not at all under the following conditions:

- ◆ On poorly lit streets with street signs that are highly reflective
- ◆ For other motorists that are not easily seen (pedestrians, and bicyclists).
- ◆ Narrow curves, oncoming traffic partially covered, steep hills.
- ◆ For oncoming vehicles on streets with a center barrier, when the driver can see clearly over the barrier, for example, truck drivers.
- ◆ For faulty high beam assists.
- ◆ Fog, snow and heavy rain
- ◆ Dust and sand
- ◆ Stone impact in the field of vision for the Light Recognition Sensor - G399- .
- ◆ The field of vision of the Light Recognition Sensor - G399- is fogged up, dirty or covered by a sticker, snow or ice.

Malfunction Recognition and Malfunction Indicator

The high beam assist is equipped with OBD.

For troubleshooting. Refer to Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

11.2 Component Location Overview - High Beam Assist



1 - Automatic High Beam Assist Control Module - J844-

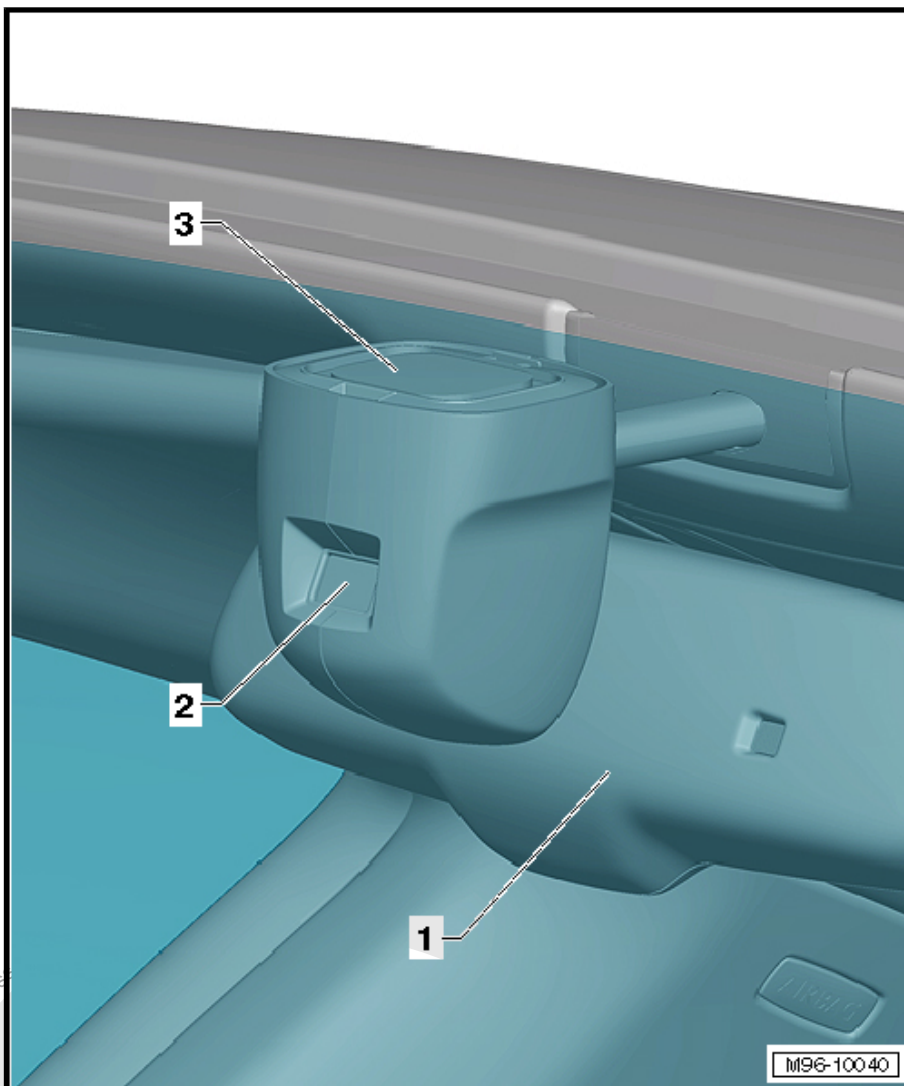
- ❑ Removing and installing. Refer to
⇒ ["11.3 Automatic High Beam Assist Control Module J844, Removing and Installing", page 245](#).
- ❑ Replacing. Refer to
⇒ ["11.4 Automatic High Beam Assist Control Module J844, Replacing", page 246](#).
- ❑ Coding. Refer to
⇒ ["11.5 Automatic High Beam Assist Control Module J844, Coding", page 246](#).

2 - Light Recognition Sensor - G399-

- ❑ Removing and installing. Refer to
⇒ ["11.6 Light Recognition Sensor G399, Removing and Installing", page 247](#).

3 - Rain/Light Recognition Sensor - G397-

- ❑ Removing and installing. Refer to
⇒ ["1.7 Rain/Light Recognition Sensor G397, Removing and Installing", page 114](#).



11.3 Automatic High Beam Assist Control Module - J844-, Removing and Installing

Always perform the "Replace automatic high beam assist control module" procedure to read the data stored in the Automatic High Beam Assist Control Module - J844- before removing the interior rearview mirror. Refer to
⇒ ["11.4 Automatic High Beam Assist Control Module J844, Replacing", page 246](#).

The Automatic High Beam Assist Control Module - J844- is installed inside the interior rearview mirror and cannot be replaced separately. If a failure occurs, the entire interior rearview mirror must be replaced.

Removing

- Remove the interior rearview mirror. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Interior Rearview Mirror; Interior Rearview Mirror, Removing and Installing.

Installing

- Install the interior rearview mirror. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Interior Rearview Mirror; Interior Rearview Mirror, Removing and Installing.



- Code the new Automatic High Beam Assist Control Module - J844- after installing it. Refer to ["11.5 Automatic High Beam Assist Control Module J844, Coding", page 246](#).

It is not necessary to calibrate the new Automatic High Beam Assist Control Module - J844- after installing it. The system automatically calibrates the control module.

11.4 Automatic High Beam Assist Control Module - J844- , Replacing

The procedure for "replacing the automatic high beam control module" includes the following steps:

- ◆ If a new Automatic High Beam Assist Control Module - J844- (new interior rearview mirror) is installed in the vehicle, then the Automatic High Beam Assist Control Module - J844- must be coded.
- ◆ Then the Automatic High Beam Assist Control Module - J844- must be adapted.

The Procedure to "Replace the Automatic High Beam Control Module" Can Only Be Performed. Refer to Vehicle Diagnostic Tester in the "Guided Fault Finding" Function.

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 20 - Automatic High Beam Assist Control Module -J844
 - ◆ High beam assistant, functions
 - ◆ Replace control module

11.5 Automatic High Beam Assist Control Module - J844- , Coding

Code the new automatic high beam assist control module after installing it.

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 20 - Automatic High Beam Assist Control Module-J844
 - ◆ High beam assistant, functions
 - ◆ Control module, coding



11.6 Light Recognition Sensor - G399- , Removing and Installing

Always perform the "Replace automatic high beam assist control module" procedure to read the data stored in the Automatic High Beam Assist Control Module - J844- before removing the interior rearview mirror. Refer to

⇒ ["11.4 Automatic High Beam Assist Control Module J844 , Replacing", page 246](#) .

The Light Recognition Sensor - G399- for the high beam assist is installed in the mirror base for the interior rearview mirror and cannot be replaced separately. If a failure occurs, the entire interior rearview mirror must be replaced.

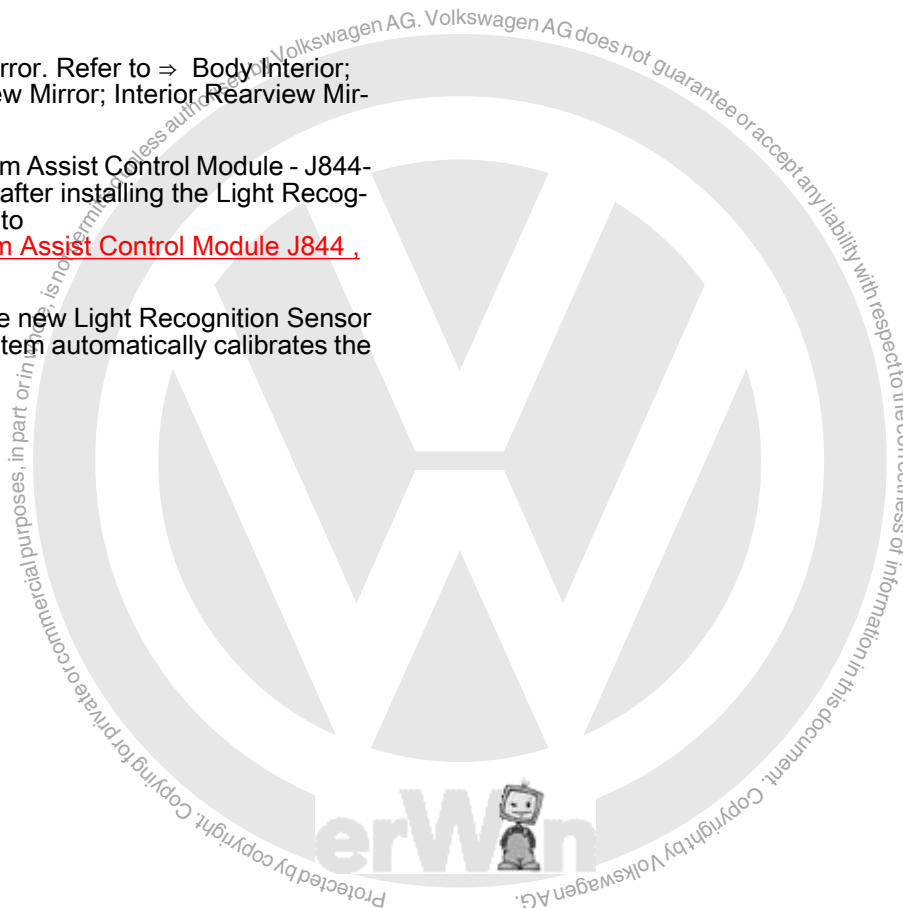
Removing

- Remove the interior rearview mirror. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Interior Rearview Mirror; Interior Rearview Mirror, Removing and Installing .

Installing

- Install the interior rearview mirror. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Interior Rearview Mirror; Interior Rearview Mirror, Removing and Installing .
- Code the Automatic High Beam Assist Control Module - J844- in the interior rearview mirror after installing the Light Recognition Sensor - G399- . Refer to
⇒ ["11.5 Automatic High Beam Assist Control Module J844 , Coding", page 246](#) .

It is not necessary to calibrate the new Light Recognition Sensor - G399- after installing it. The system automatically calibrates the control module.





12 Automatic Headlamp Range Control

⇒ ["12.1 Overview - Automatic Headlamp Range Control", page 248](#)

⇒ ["12.2 Cornering Lamp and Headlamp Range Control Module J745, Removing and Installing", page 249](#)

12.1 Overview - Automatic Headlamp Range Control

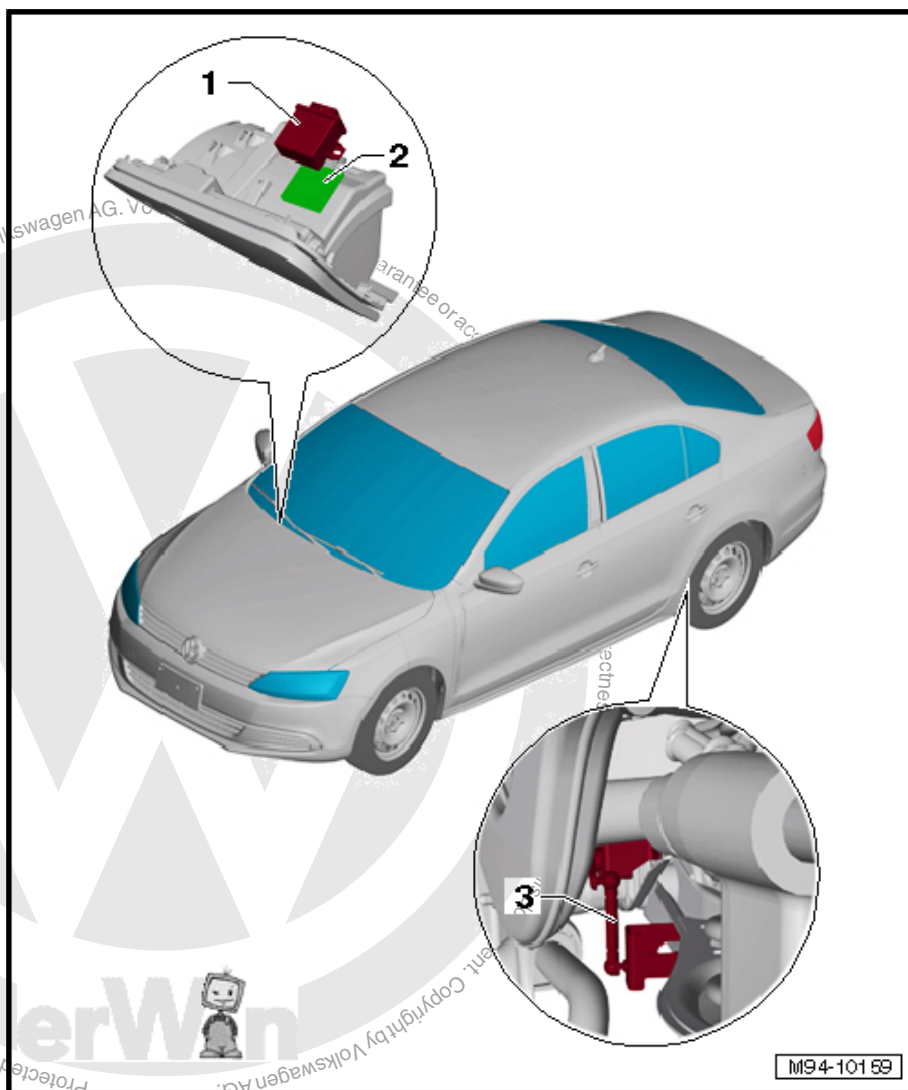
1 - Cornering Lamp and Headlamp Range Control Module - J745-

- ❑ Removing and installing. Refer to ⇒ ["12.2 Cornering Lamp and Headlamp Range Control Module J745, Removing and Installing", page 249](#).
- ❑ Replacing. Refer to ⇒ ["12.2.3 Cornering Lamp and Headlamp Range Control Module J745 Replacing", page 250](#).

2 - Adhesive Pad

3 - Left Rear Level Control System Sensor - G76-

- ❑ Removing and installing. Refer to ⇒ Suspension, Wheels, Steering; Rep. Gr. 42; Subframe, Transverse Link and Tie Rod (Multi-Link Suspension).





12.2 Cornering Lamp and Headlamp Range Control Module - J745- , Removing and Installing

⇒ [“12.2.1 Cornering Lamp and Headlamp Range Control Module J745 , Removing and Installing”, page 249](#)

⇒ [“12.2.3 Cornering Lamp and Headlamp Range Control Module J745 , Replacing”, page 250](#)

⇒ [“12.2.2 Cornering Lamp and Headlamp Range Control Module J745 , Coding”, page 250](#)

⇒ [“12.2.4 Headlamp, Performing Basic Setting”, page 250](#)

12.2.1 Cornering Lamp and Headlamp Range Control Module - J745- , Removing and Installing

The “Replace headlamp range control module” procedure must be performed each time before removing the Headlamp Range Control Module - J431- to read the data stored in the Headlamp Range Control Module - J431- . Refer to

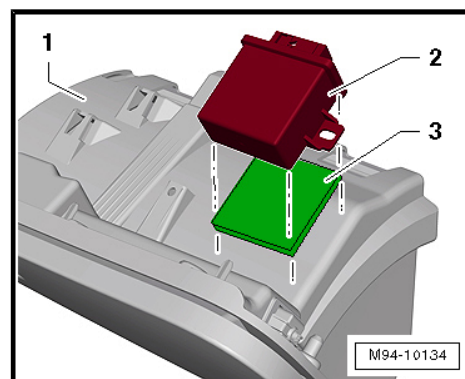
⇒ [“12.2.3 Cornering Lamp and Headlamp Range Control Module J745 , Replacing”, page 250](#) .

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.

The Cornering Lamp and Headlamp Range Control Module - J745- -2- is attached with two Velcro pads -3- onto the glove compartment -1-.

- Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Glove Compartment, Removing and Installing .
- Release and disconnect the connector from the Cornering Lamp and Headlamp Range Control Module - J745- -2-.



Pull the Cornering Lamp and Headlamp Range Control Module - J745- -2- off of the Velcro pad -3- and remove it.

Installing

Install in reverse order of removal. Note the following:

A Velcro pad is already attached to the new Cornering Lamp and Headlamp Range Control Module - J745- .

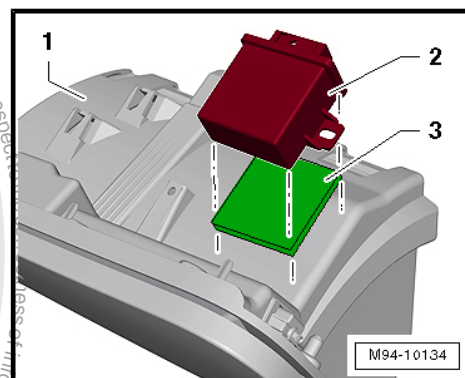
- Using gentle turning motions, press the Cornering Lamp and Headlamp Range Control Module - J745- onto the Velcro pad on the glove compartment.

After installing a new Cornering Lamp and Headlamp Range Control Module - J745- , the Cornering Lamp and Headlamp Range Control Module - J745- must be coded (refer to

⇒ [“12.2.2 Cornering Lamp and Headlamp Range Control Module J745 , Coding”, page 250](#)) and then the basic setting for the headlamps must be performed. Refer to

⇒ [“12.2.4 Headlamp, Performing Basic Setting”, page 250](#) .

- Check the headlamp functions.





12.2.2 Cornering Lamp and Headlamp Range Control Module - J745- , Coding

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the Guided Fault Finding mode.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 55 - Headlamp Range Control
 - ◆ Headlamp range control functions
 - ◆ Control module, coding

12.2.3 Cornering Lamp and Headlamp Range Control Module - J745- , Replacing

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the Guided Fault Finding mode.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 55 - Headlamp Range Control
 - ◆ Headlamp range control functions
 - ◆ Replace control module

12.2.4 Headlamp, Performing Basic Setting

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the Guided Fault Finding mode.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ Automatic Headlamp Range Control
 - ◆ Functions
 - ◆ Performing the basic setting



13 Trailer Hitch

⇒ ["13.1 Overview - Trailer Hitch Socket", page 251](#)

⇒ ["13.2 Towing Recognition Control Module J345 , Removing and Installing", page 251](#)

⇒ ["13.3 Trailer Socket U10 , Removing and Installing", page 252](#)

13.1 Overview - Trailer Hitch Socket

1 - Trailer Socket - U10-

- ❑ Removing and installing. Refer to
⇒ ["13.3 Trailer Socket U10 , Removing and Installing", page 252](#) .

2 - Screw

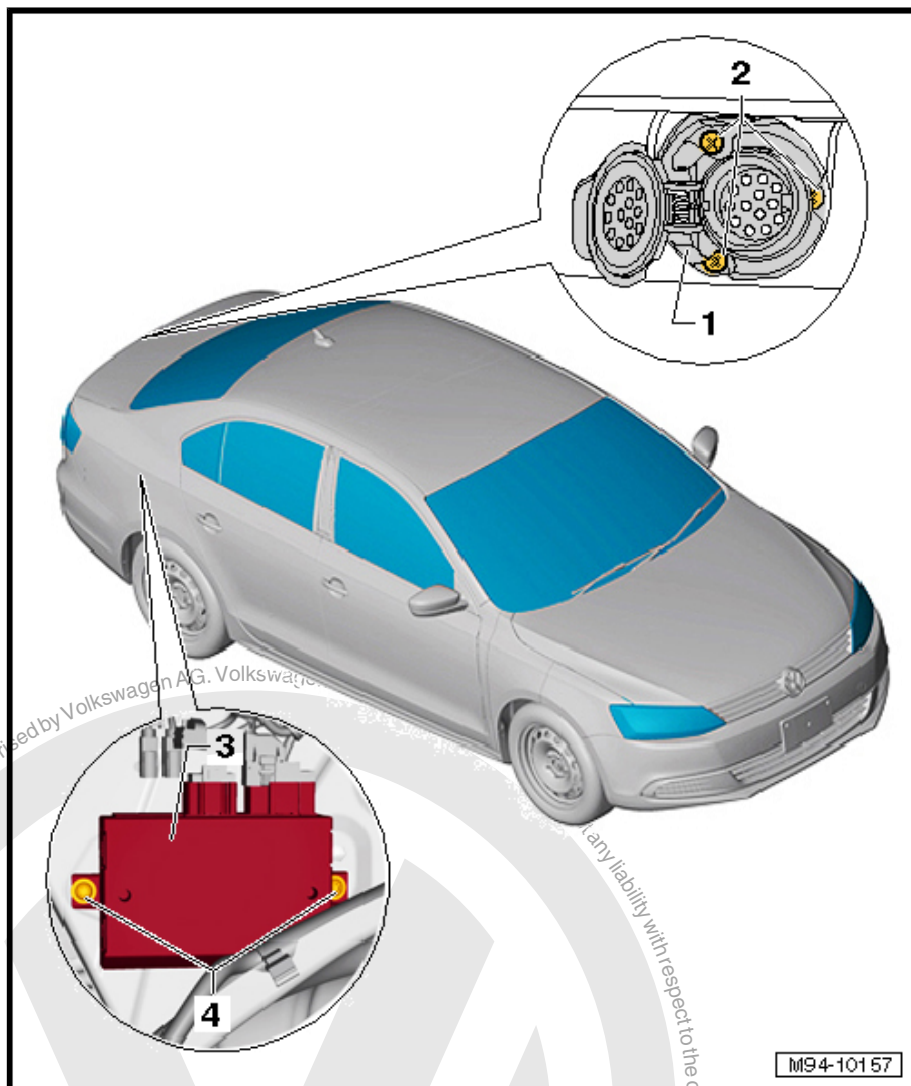
- ❑ 2 Nm
- ❑ Quantity: 3

3 - Towing Recognition Control Module - J345-

- ❑ Removing and installing. Refer to
⇒ ["13.2 Towing Recognition Control Module J345 , Removing and Installing", page 251](#) .

4 - Screw

- ❑ 1.2 Nm
- ❑ Quantity: 2



13.2 Towing Recognition Control Module - J345- , Removing and Installing

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the right luggage compartment side trim panel. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Luggage Compartment Trim Panels; Luggage Compartment Side Trim Panel, Removing and Installing .

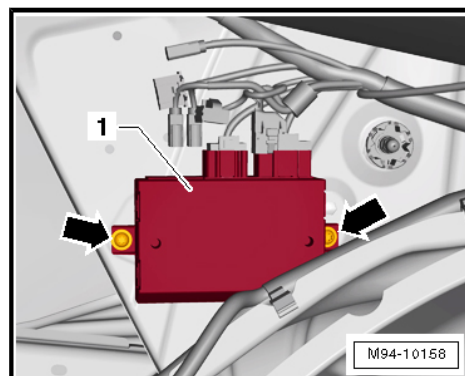


- Remove the bolts -arrows-.
- Remove the Towing Recognition Control Module - J345- -1- from the side panel.
- Release and disconnect the connectors.

Installing

Install in reverse order of removal. Note the following:

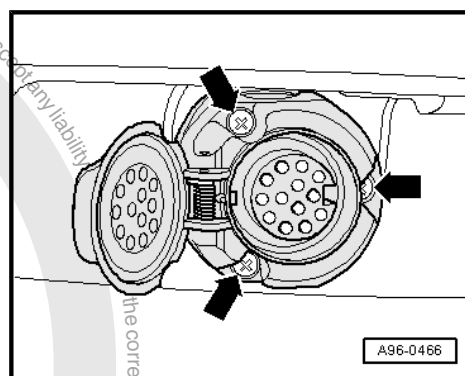
- Tighten the threaded connections to the tightening specification. Refer to
⇒ ["13.1 Overview - Trailer Hitch Socket", page 251](#) .



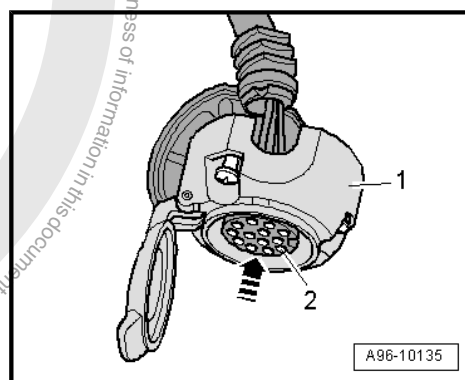
13.3 Trailer Socket - U10- , Removing and Installing

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the bolts -arrows-.
- Remove the Trailer Socket - U10- from the retaining plate.



- Remove the connector -2- in the direction of -arrow- from the Trailer Socket - U10- -1-.
- Release the securing tabs -arrows- and then release the clips -1, 3 through 5-.



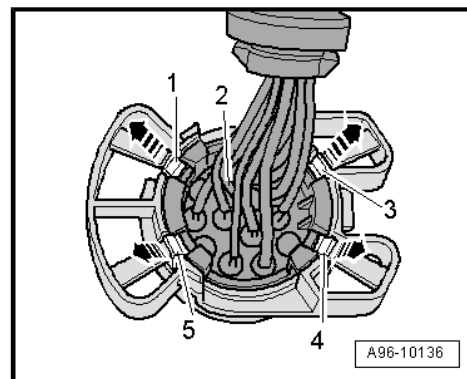


- Remove the retainer from the connectors -2-.

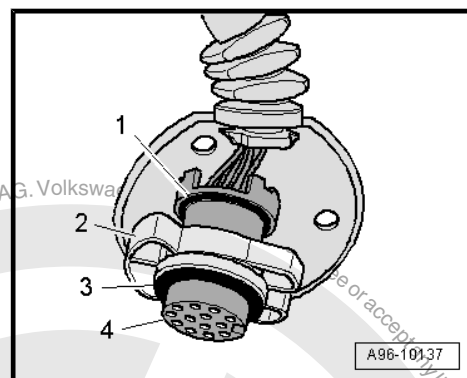
Installing

Install in reverse order of removal. Note the following:

Make sure that the gaskets -1- and -3- are not damaged.

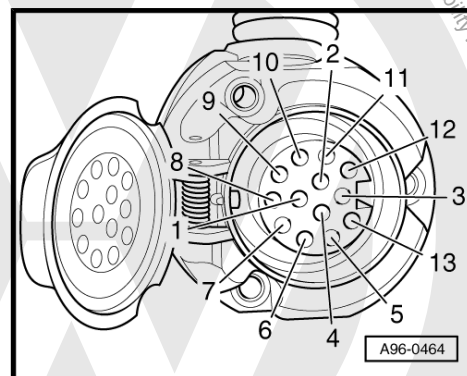


- Push the connectors -4- into the retainer -2- until they audibly latch.
- Tighten the threaded connections to the tightening specification. Refer to
⇒ [“13.1 Overview - Trailer Hitch Socket”, page 251](#) .



Trailer Socket - U10- connector assignment

- 1 - Terminal BL (Left Turn Signal)
- 2 - Terminal NSL (Rear Fog Lamp)
- 3 - Terminal 31
- 4 - Terminal BR (Right Turn Signal)
- 5 - Terminal 58R (Right Tail Lamp)
- 6 - Terminal 54 (Brake Lamp)
- 7 - Terminal 58L (Left Tail Lamp)
- 8 - Terminal RF (Back-Up Lamp)
- 9 - Terminal 30
- 10 - Reserved for Terminal 30
- 11 - Reserved for Terminal 31
- 12 - Not Assigned
- 13 - Terminal 31

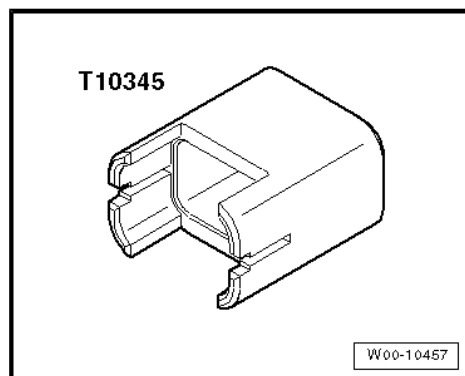




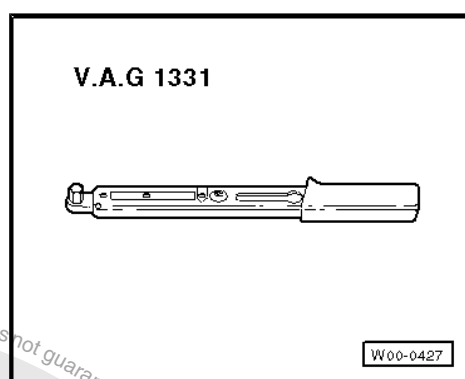
14 Special Tools

Special tools and workshop equipment required

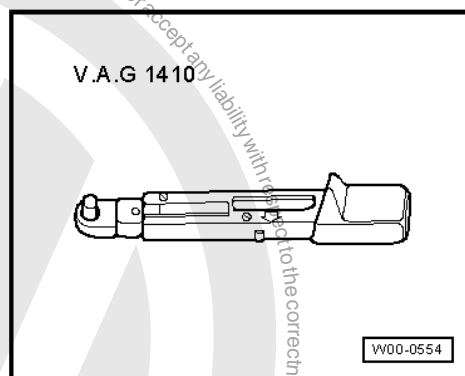
- ◆ Parking Aid Sender Release Tool - T10345-



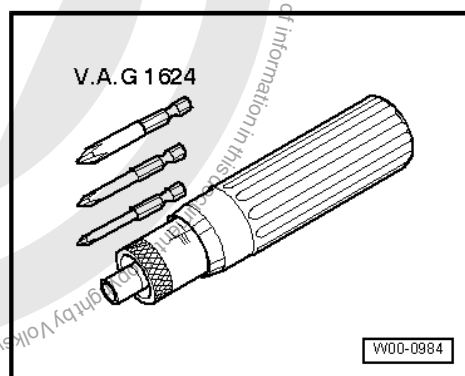
- ◆ Torque Wrench 1331 5-50Nm - VAG1331-



- ◆ Torque Wrench 1410 - VAG1410-



- ◆ Torque Screwdriver - VAG1624-



- ◆ PDC Holder Tool Set - Centering Drift - VAS6614/3-



96 – Interior Lights, Switches

1 Lamps

⇒ [“1.1 Component Location Overview - Instrument Panel Lamps”, page 255](#)

⇒ [“1.2 Component Location Overview - Luggage Compartment Lamps”, page 257](#)

⇒ [“1.3 Component Location Overview - Roof Trim Panel Lamps”, page 258](#)

⇒ [“1.4 Glove Compartment Lamp W6 , Removing and Installing”, page 258](#)

⇒ [“1.5 Central Locking -Safe- Indicator Lamp K133 , Removing and Installing”, page 260](#)

⇒ [“1.6 Luggage Compartment Lamp W3 , Removing and Installing”, page 260](#)

⇒ [“1.7 Illuminated Vanity Mirror, Removing and Installing”, page 262](#)

⇒ [“1.8 Front Interior Lamp W1 Bulb, Replacing”, page 263](#)

⇒ [“1.9 Center Reading Lamps, Removing and Installing”, page 264](#)

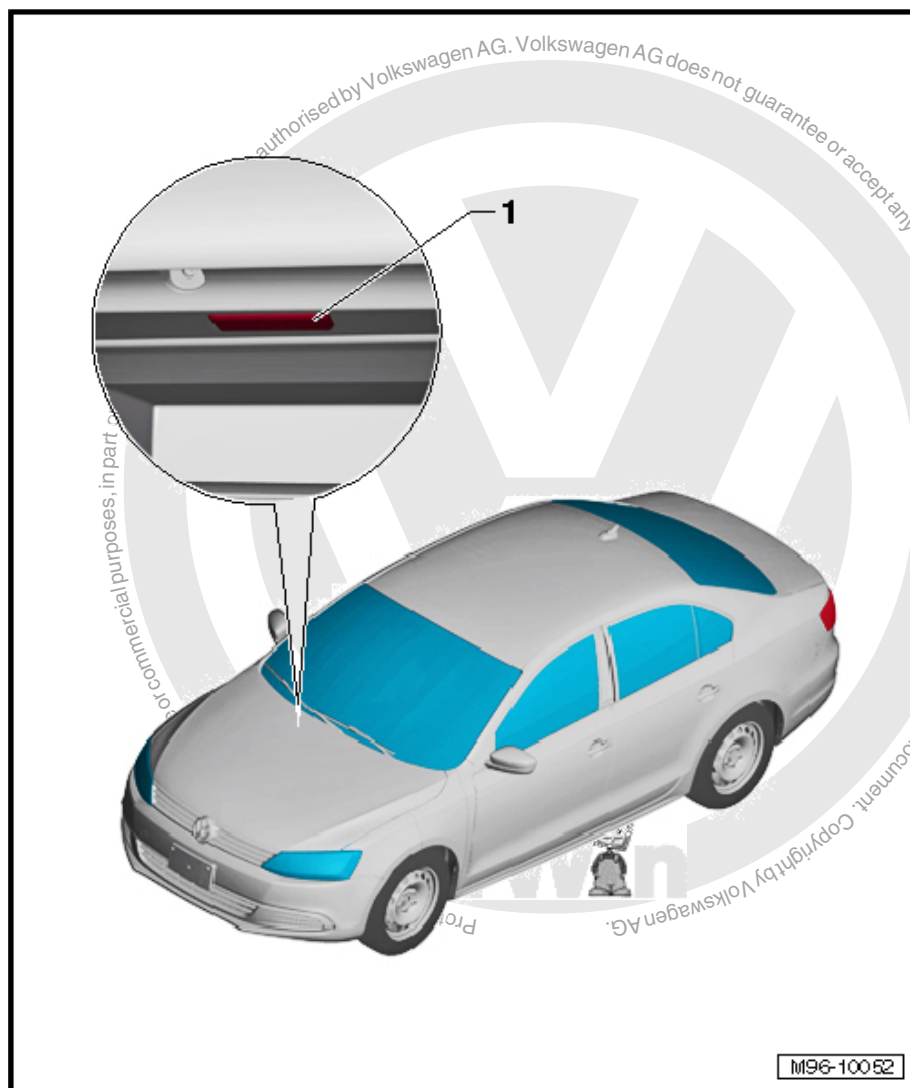
⇒ [“1.10 Rear Interior Lamp W43 Bulb, Replacing”, page 265](#)

1.1 Component Location Overview - Instrument Panel Lamps



1 - Glove Compartment Lamp - W6-

- ❑ Removing and installing. Refer to
⇒ ["1.4 Glove Compartment Lamp W6, Removing and Installing", page 258](#).

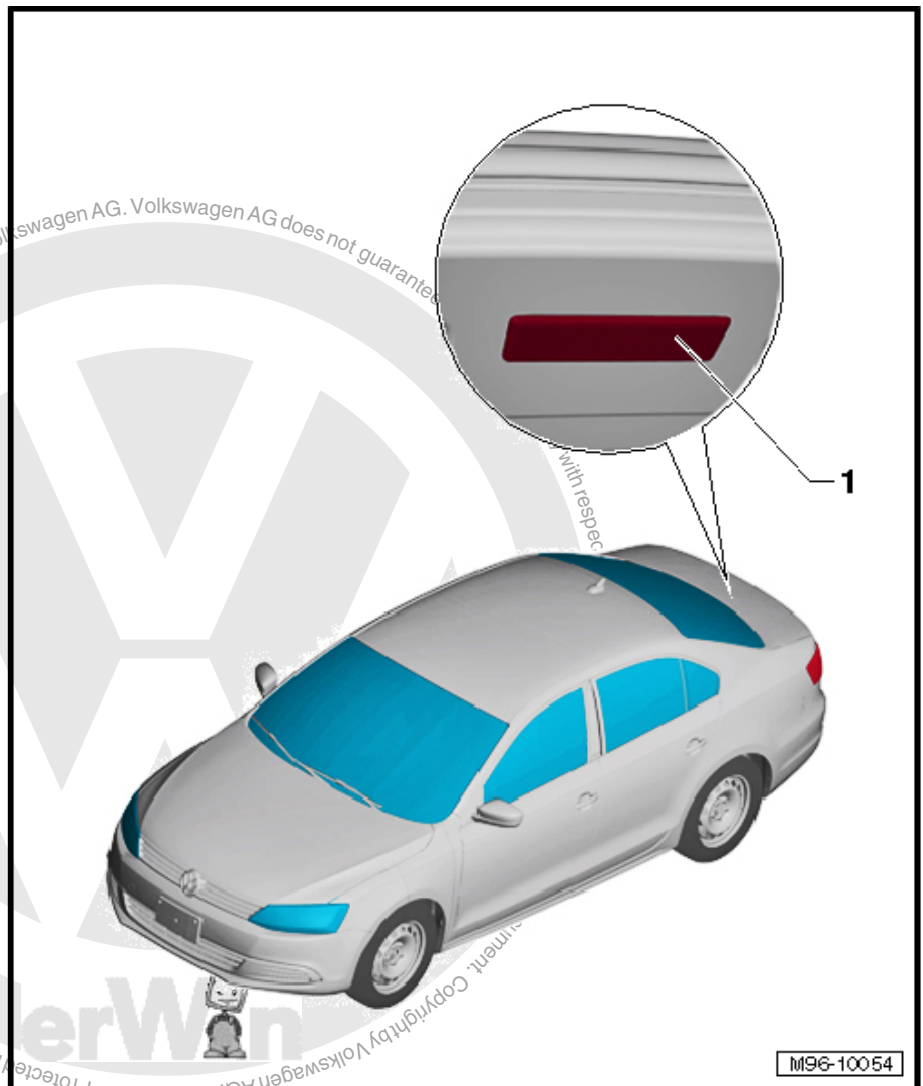




1.2 Component Location Overview - Luggage Compartment Lamps

1 - Luggage Compartment Lamp - W3-

- Removing and installing. Refer to
⇒ ["1.6 Luggage Compartment Lamp W3, Removing and Installing", page 260](#).





1.3 Component Location Overview - Roof Trim Panel Lamps

1 - Front Interior Lamp - W1-

- ❑ Bulb, Replacing. Refer to
⇒ “1.8 Front Interior Lamp W1 Bulb, Replacing”, page 263

Center Reading Lamps

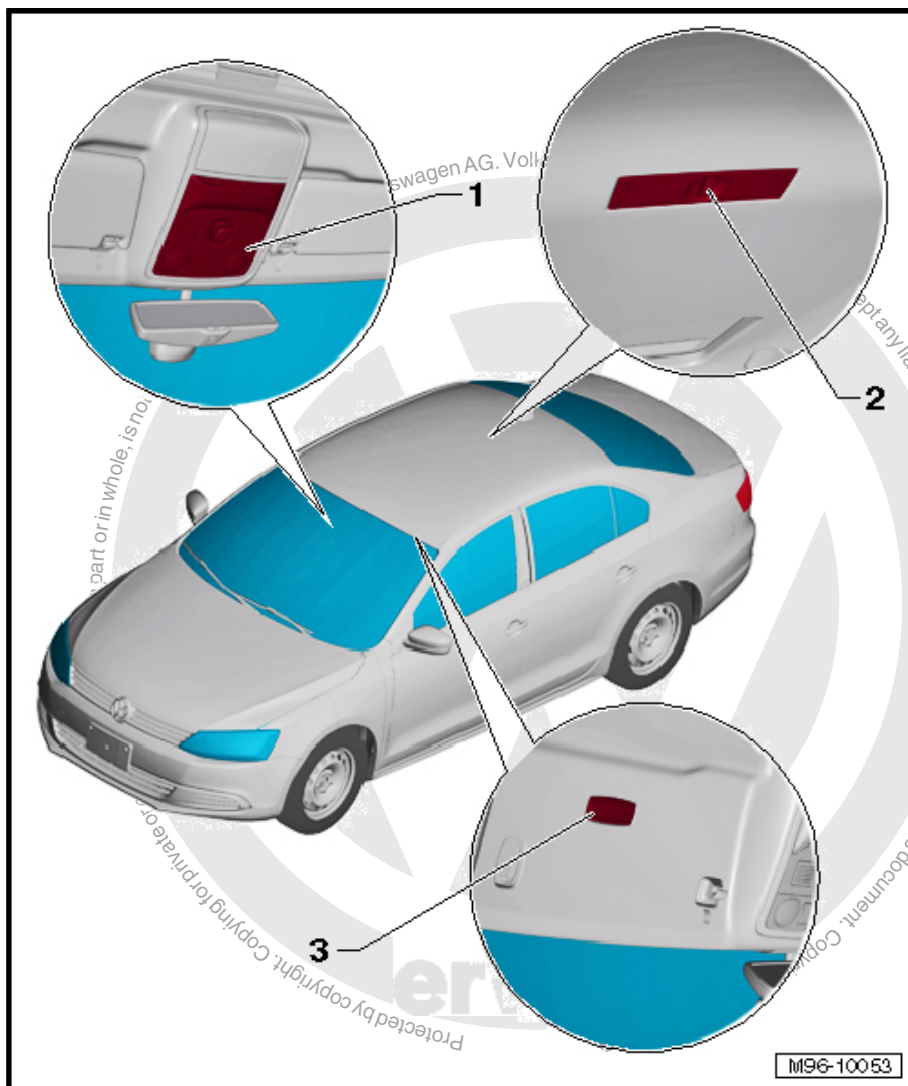
- ❑ Removing and installing. Refer to ⇒ “1.9 Center Reading Lamps, Removing and Installing”, page 264 .

2 - Rear Interior Lamp - W43-

- ❑ Bulb, Replacing. Refer to
⇒ “1.10 Rear Interior
Lamp W43 Bulb, Re-
placing”, page 265

3 - Front Passenger Vanity Mirror Lamp - W14- / Driver Vanity Mirror Lamp - W20-

- ❑ Removing and installing. Refer to ⇒ “1.7 Illuminated Vanity Mirror, Removing and Installing”, page 262.



1.4 Glove Compartment Lamp - W6- , Removing and Installing

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-



Caution

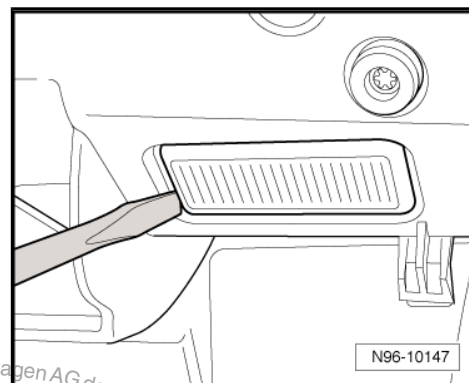
- ◆ ***When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.***

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Open the glove compartment.

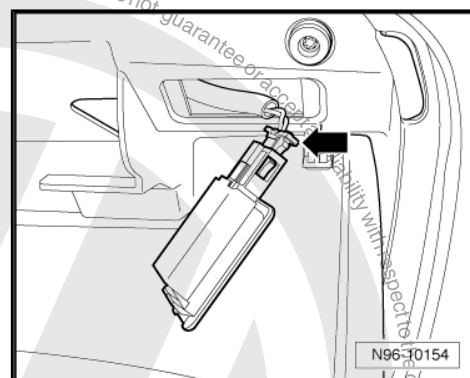


- Carefully pry out the Glove Compartment Lamp - W6- with the Trim Removal Wedge - 3409- .

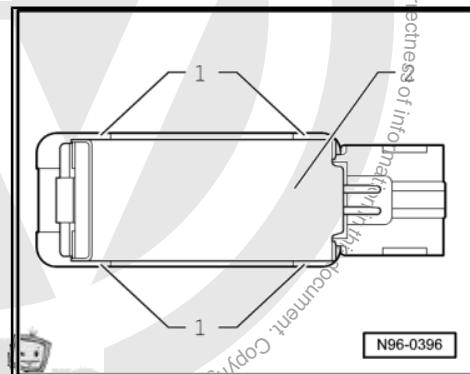


- Release and disconnect the connector -arrow-.

Replacing the Bulb



- Release the tabs -1- and remove the heat shield -2- from the diffusion lens on the Glove Compartment Lamp - W6- .



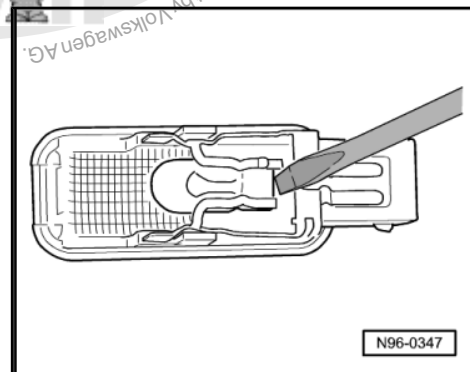
- Carefully pry the bulb out of the socket.

Bulb: 12 V/5 W glass base bulb



Caution

- ◆ **Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.**



Installing

Install in reverse order of removal. Note the following:

- Make sure the Glove Compartment Lamp Switch - E26- works correctly. The Glove Compartment Lamp - W6- must not come on when the glove compartment is closed.



1.5 Central Locking -Safe- Indicator Lamp - K133- , Removing and Installing

The Central Locking -SAFE- Indicator Lamp - K133- is installed near the exterior rearview mirror in the driver door trim panel.



Caution

- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge 3409- , screwdriver) with commercially available adhesive tape.*

Removing

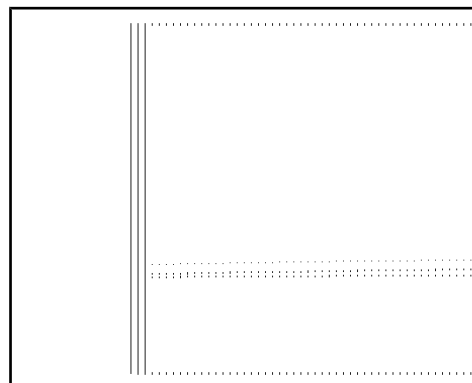
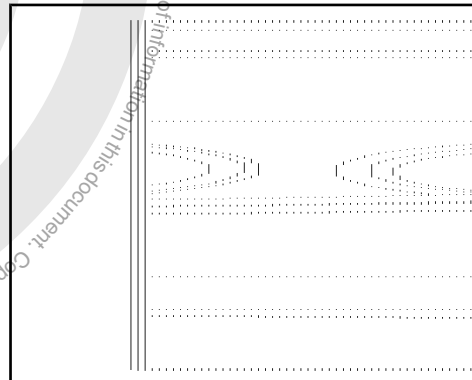
- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the driver side door trim panel. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Door Trim Panels; Driver Side Front Door Trim Panel, Removing and Installing .
- Press the tabs -arrows- and remove the Central Locking -Safe- Indicator Lamp - K133- -1- from the door trim panel.

- Release and disconnect the connector -1- from the Central Locking -Safe- Indicator Lamp - K133- -2-.

Installing

Install in reverse order of removal. Note the following:

- Make sure the Central Locking -Safe- Indicator Lamp - K133- engages in the door trim securely.



1.6 Luggage Compartment Lamp - W3- , Removing and Installing

The Luggage Compartment Light - W3- is located in the luggage compartment trim panel on the right side.

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-

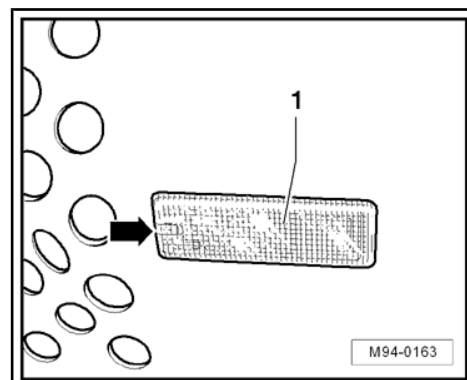


Caution

- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*

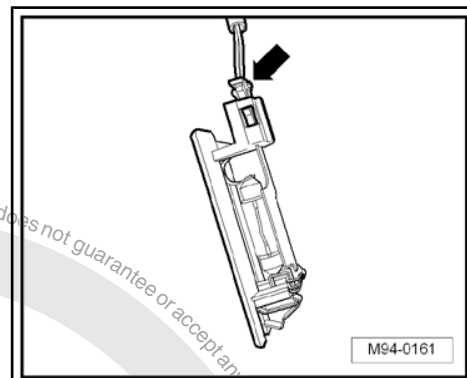
Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Using the Trim Removal Wedge - 3409- , pry the Luggage Compartment Lamp - W3- -1- out of the luggage compartment trim panel -arrow-.



- Release and disconnect the connector -arrow-.

Replacing the Bulb





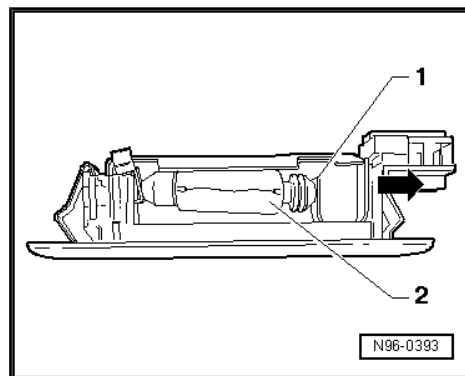
- Press the contact plate -1- on the Luggage Compartment Lamp - W3- toward the outside and remove the bulb -2- from the socket.

Bulbs: 12 V, 10 W tubular bulb



Caution

- ◆ *Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.*



Installing

Install in reverse order of removal. Note the following:

- Check the functionality of the Luggage Compartment Lamp - W3- .

There may be Luggage Compartment Lamps - W3- with LEDs installed. The Luggage Compartment Lamp - W3- will not function if it is not connected according to the correct polarity.

- Note the polarity.
- ◆ PIN 1 - negative
- ◆ PIN 2 - positive

1.7 Illuminated Vanity Mirror, Removing and Installing

The Front Passenger Vanity Mirror Lamp - W14- / Driver Vanity Mirror Lamp - W20- are removed and installed the same way so the procedure is only described for one of them.

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-



Caution

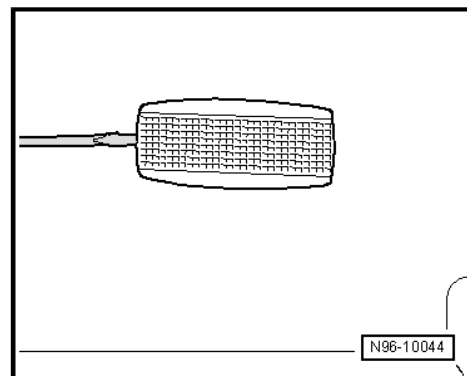
- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.

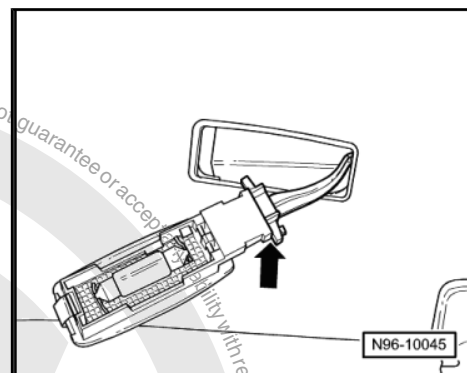


- Carefully pry the Front Passenger Vanity Mirror Lamp - W14- out of the roof trim panel using the Trim Removal Wedge - 3409- .



- Release and disconnect the connector -arrow-.

Replacing the bulb

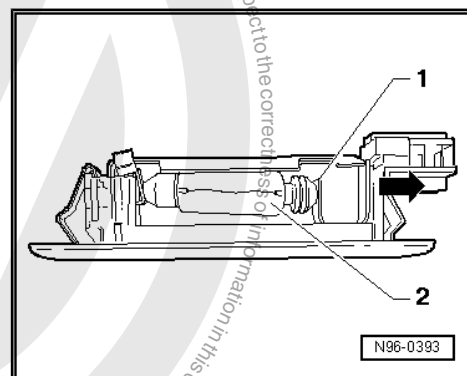


- Press the contact plate -1- in the direction of -arrow- and remove the tubular bulb -2-.

Bulbs: 12 V/5 W tubular bulb

Caution

◆ *Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.*



Installing

Install in reverse order of removal.

1.8 Front Interior Lamp - W1- Bulb, Replacing

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-

Caution

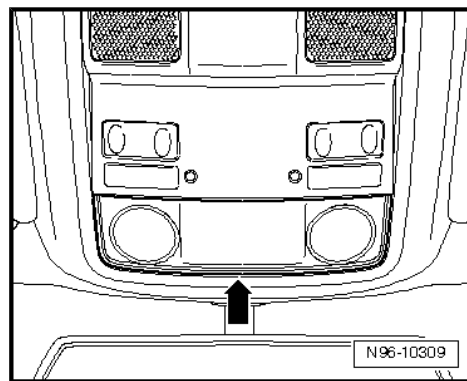
◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*

Removing

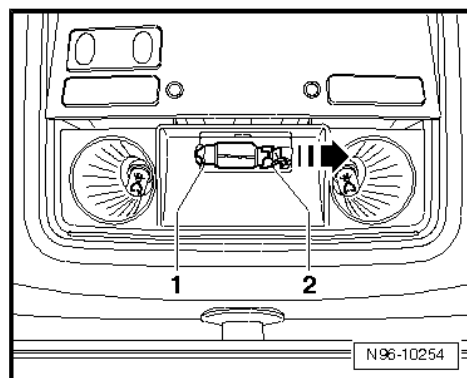
- Turn off the ignition and all electrical equipment and remove the ignition key.



- Carefully pry the diffusion lens out of the Front Interior Lamp - W1- -arrow- using the Trim Removal Wedge - 3409- .



- Push the contact plate -1- of the Front Interior Lamp - W1- to the side -arrow- and remove the bulb -2- with the contact plate from the Front Interior Lamp - W1- .



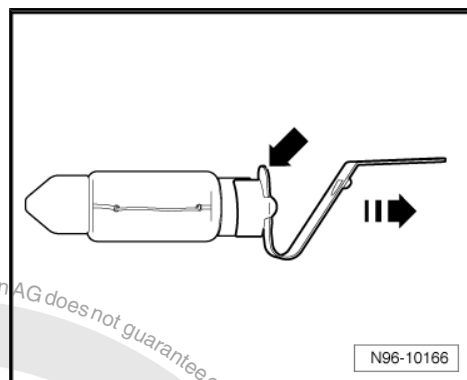
- Remove the contact plate in direction of -arrow- from the faulty bulb.

Bulbs: 12 V, 10 W tubular bulb



Caution

- ◆ **Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.**



Installing

Install in reverse order of removal.

1.9 Center Reading Lamps, Removing and Installing

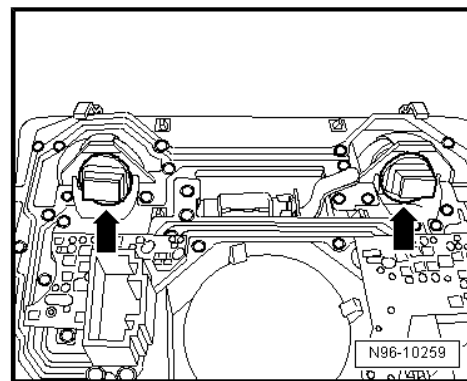
The Left Center Reading Light - W39- / Right Center Reading Light - W40- are removed and installed the same way so the procedure is only described for one of them.

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Removing the Front Interior Lamp - W1- . Refer to [⇒ "2.29 Front Interior Lamp/Reading Lamp, Removing and Installing", page 295](#) .



- Turn the Left Center Reading Lamp - W39- bulb socket -arrows- 90 degrees to the left.
- Remove the bulb socket and bulb from the Left Center Reading Lamp - W39- .

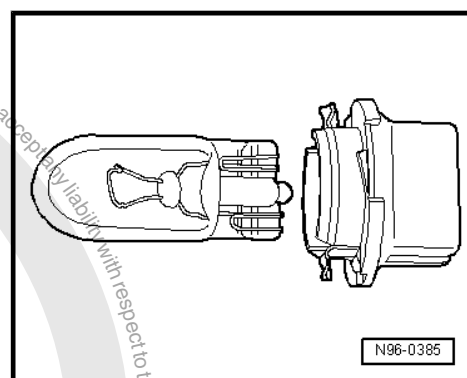


- Carefully pull the bulb out of the socket.

Bulbs: 12 V/5 W glass base bulb

Caution

◆ *Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.*



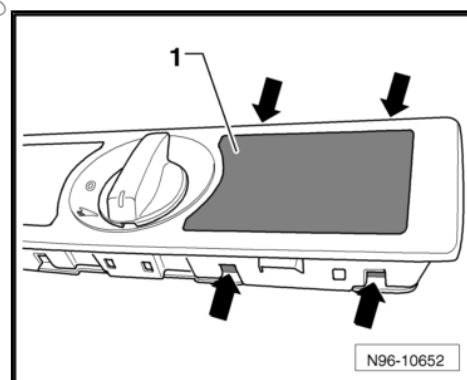
Installing

Install in reverse order of removal.

1.10 Rear Interior Lamp - W43- Bulb, Replacing

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the Rear Interior Lamp - W43- . Refer to ["2.30.1 Rear Interior Lamp W43 , Removing and Installing", page 297](#) .
- Release the tabs -arrows- on the diffusion lens -1- and remove it straight upward from the Rear Interior Lamp - W43- .





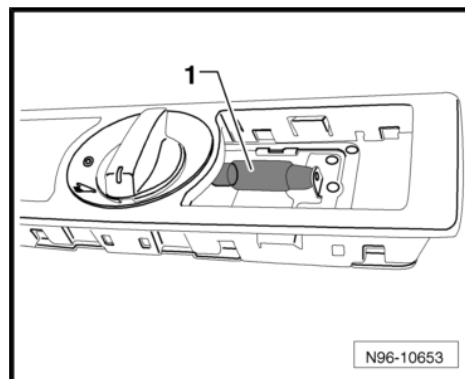
- Remove the bulb -1- from the bulb socket -arrows-.

Bulbs: 12 V/5 W tubular bulb



Caution

- ◆ *Do not touch the bulb glass when installing a bulb. Fingers will leave traces of grease on the glass which, when the light is switched on, will evaporate and cloud the bulb glass.*



Installing

Install in reverse order of removal.







2 Controls

- ⇒ "2.1 Component Location Overview - Instrument Panel Controls", page 269
- ⇒ "2.2 Component Location Overview - Controls in Front Doors", page 270
- ⇒ "2.3 Component Location Overview - Controls in Rear Doors", page 271
- ⇒ "2.4 Component Location Overview - Controls in Center Console", page 272
- ⇒ "2.5 Component Location Overview - Controls in Roof Trim Panel", page 273
- ⇒ "2.6 Light Switch E1 , Removing and Installing", page 273
- ⇒ "2.7 Instrument Panel and Switch Illumination Dimmer Switch E20 , Removing and Installing", page 275
- ⇒ "2.9 Tire Pressure Monitoring Display Button E492 , Removing and Installing", page 277
- ⇒ "2.10 Rear Center Interior Locking Switch E286 , Removing and Installing", page 277
- ⇒ "2.11 Driver Interior Locking Button E308 , Removing and Installing", page 278
- ⇒ "2.12 Front Passenger Interior Locking Button E309 , Removing and Installing", page 279
- ⇒ "2.13 Fuel Filler Door/Rear Lid Remote Release Button E463 , Removing and Installing", page 280
- ⇒ "2.14 Start/Stop Mode Button E693 , Removing and Installing", page 281
- ⇒ "2.15 ASR/ESP Button E256 , Removing and Installing", page 282
- ⇒ "2.16 Parking Aid Button E266 , Removing and Installing", page 283
- ⇒ "2.17 Start System Button E378 , Removing and Installing", page 285
- ⇒ "2.18 Electrical Drive Button E656 , Removing and Installing, High-Voltage Vehicle", page 286
- ⇒ "2.19 Front Passenger Airbag -Disabled- Indicator Lamp K145 , Removing and Installing", page 287
- ⇒ "2.20 Emergency Flasher Button E229 , Removing and Installing", page 288
- ⇒ "2.21 Glove Compartment Lamp Switch E26 , Removing and Installing", page 289
- ⇒ "2.22 Mirror Adjustment Switch E43 , Removing and Installing", page 289
- ⇒ "2.23 Power Window Control Head in Driver Door E512 , Removing and Installing", page 290
- ⇒ "2.24 Front Passenger Door Window Regulator Switch E107 , Removing and Installing", page 291
- ⇒ "2.25 Interior Monitoring Deactivation Switch E267 , Removing and Installing", page 292
- ⇒ "2.27 Rear Lid Contact Switch, Removing and Installing", page 294



⇒ ["2.28 Sunroof Tilt Button 1 E582 , Removing and Installing", page 294](#)

⇒ ["2.29 Front Interior Lamp/Reading Lamp, Removing and Installing", page 295](#)

⇒ ["2.30 Rear Interior Lamp/Reading Lamp, Removing and Installing", page 297](#)

⇒ ["2.31 Garage Door Opener Control Head E284 , Removing and Installing", page 298](#)

2.1 Component Location Overview - Instrument Panel Controls

1 - Tire Pressure Monitoring Display Button - E492-

- ❑ Removing and installing. Refer to
⇒ ["2.9 Tire Pressure Monitoring Display Button E492 , Removing and Installing", page 277](#) .

2 - Front Passenger Airbag Deactivation Key Switch - E224-

- ❑ Removing and installing. Refer to
⇒ ["2.8 Front Passenger Airbag Deactivation Key Switch E224 , Removing and Installing", page 276](#) .

3 - Light Switch - E1-

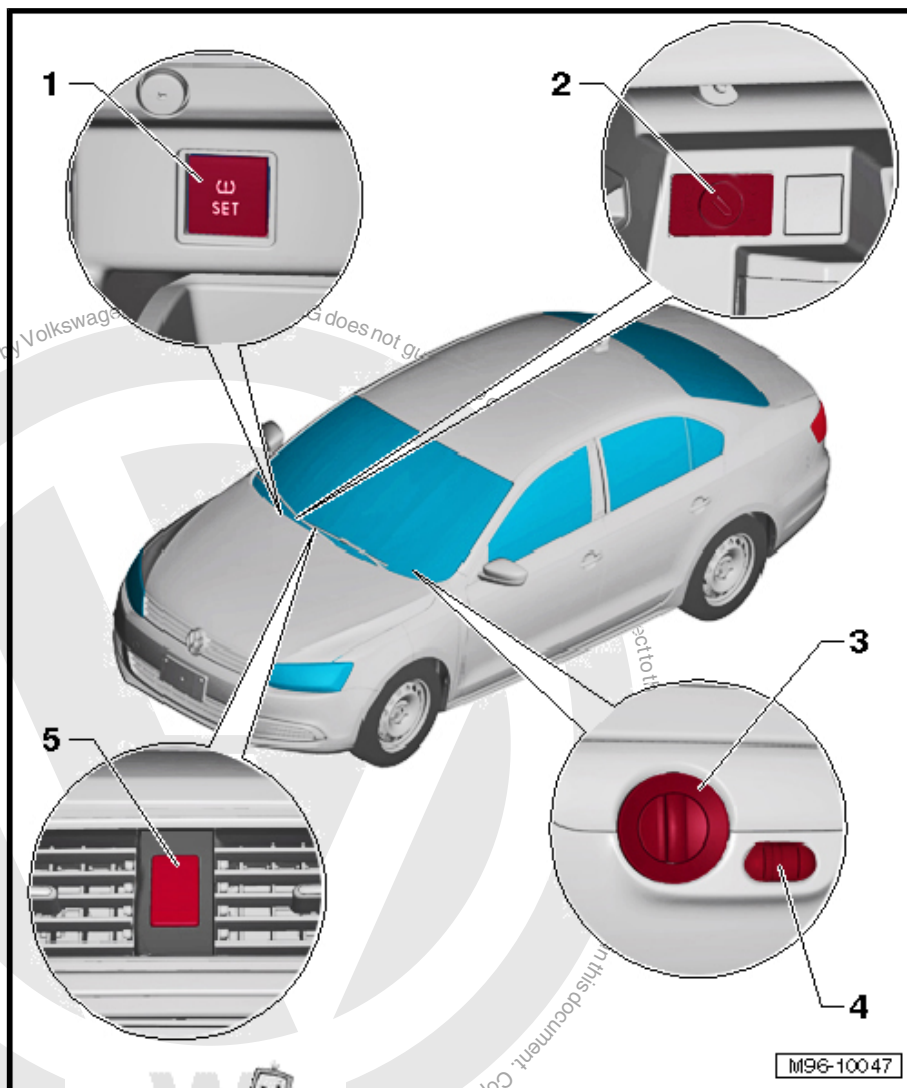
- ❑ Removing and installing. Refer to
⇒ ["2.6 Light Switch E1 , Removing and Installing", page 273](#) .

4 - Instrument Panel and Switch Illumination Dimmer Switch - E20-

- ❑ Removing and installing. Refer to
⇒ ["2.7 Instrument Panel and Switch Illumination Dimmer Switch E20 , Removing and Installing", page 275](#) .

5 - Emergency Flasher Button - E229-

- ❑ Removing and installing. Refer to ⇒ ["2.20 Emergency Flasher Button E229 , Removing and Installing", page 288](#) .





2.2 Component Location Overview - Controls in Front Doors

1 - Front Passenger Interior Locking Button - E309-

- ❑ Cover screws: 2 Nm
- ❑ Removing and installing. Refer to
⇒ ["2.12 Front Passenger Interior Locking Button E309 , Removing and Installing"](#), page 279 .

2 - Front Passenger Door Window Regulator Switch - E107-

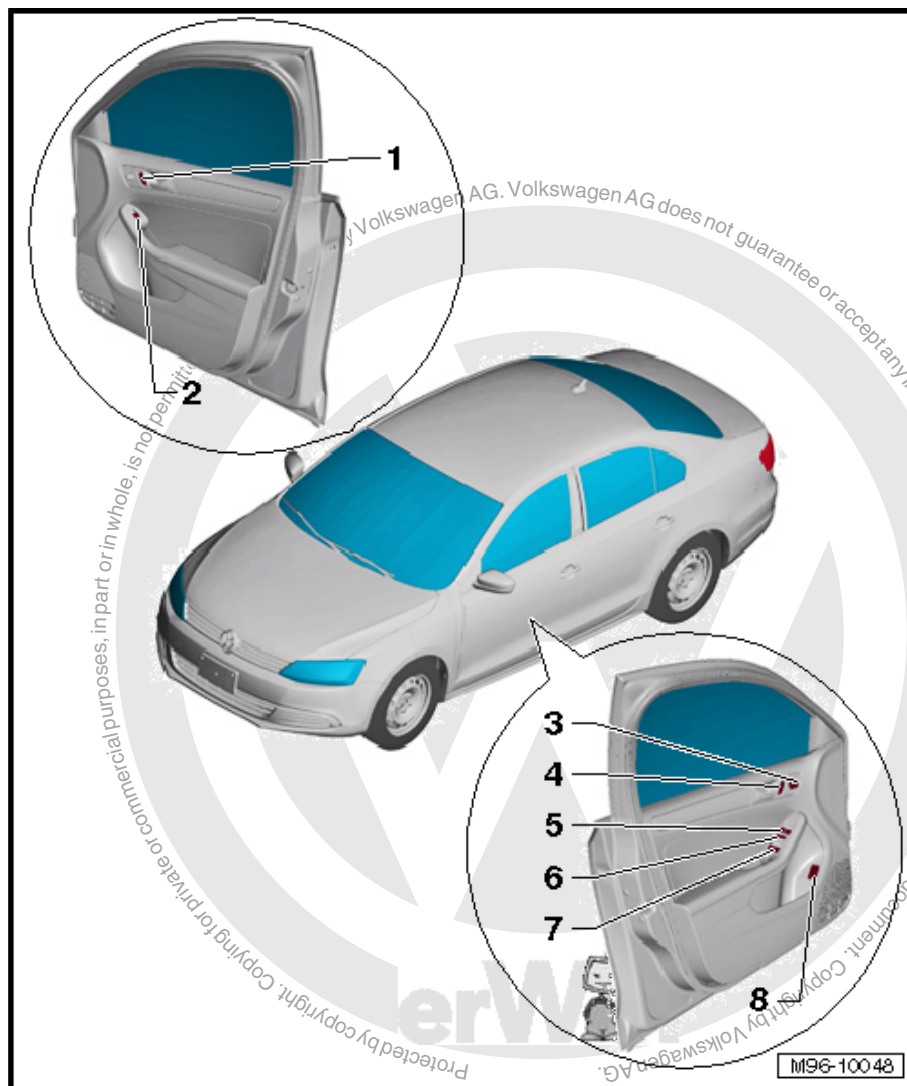
- ❑ Removing and installing. Refer to
⇒ ["2.24 Front Passenger Door Window Regulator Switch E107 , Removing and Installing"](#), page 291 .

3 - Mirror Adjusting Switch - E43-

- ❑ Removing and installing. Refer to
⇒ ["2.22 Mirror Adjustment Switch E43 , Removing and Installing"](#), page 289 .

4 - Driver Interior Locking Button - E308-

- ❑ Cover screws: 2 Nm
- ❑ Removing and installing. Refer to
⇒ ["2.11 Driver Interior Locking Button E308 , Removing and Installing"](#), page 278 .



5 - Left Front Window Regulator Switch - E40- / Right Front Power Window Switch in Driver Door - E81-

- ❑ Removing and installing. Refer to
⇒ ["2.23 Power Window Control Head in Driver Door E512 , Removing and Installing"](#), page 290 .

6 - Child Safety Lock Button - E318-

- ❑ Removing and installing. Refer to
⇒ ["2.23 Power Window Control Head in Driver Door E512 , Removing and Installing"](#), page 290 .

7 - Left Rear Window Regulator Switch in Driver Door - E53- / Right Rear Window Regulator Switch in Driver Door - E55-

- ❑ Removing and installing. Refer to
⇒ ["2.23 Power Window Control Head in Driver Door E512 , Removing and Installing"](#), page 290 .

8 - Fuel Filler Door/Rear Lid Remote Release Button - E463-

- ❑ Removing and installing. Refer to
⇒ ["2.13 Fuel Filler Door/Rear Lid Remote Release Button E463 , Removing and Installing"](#), page 280 .



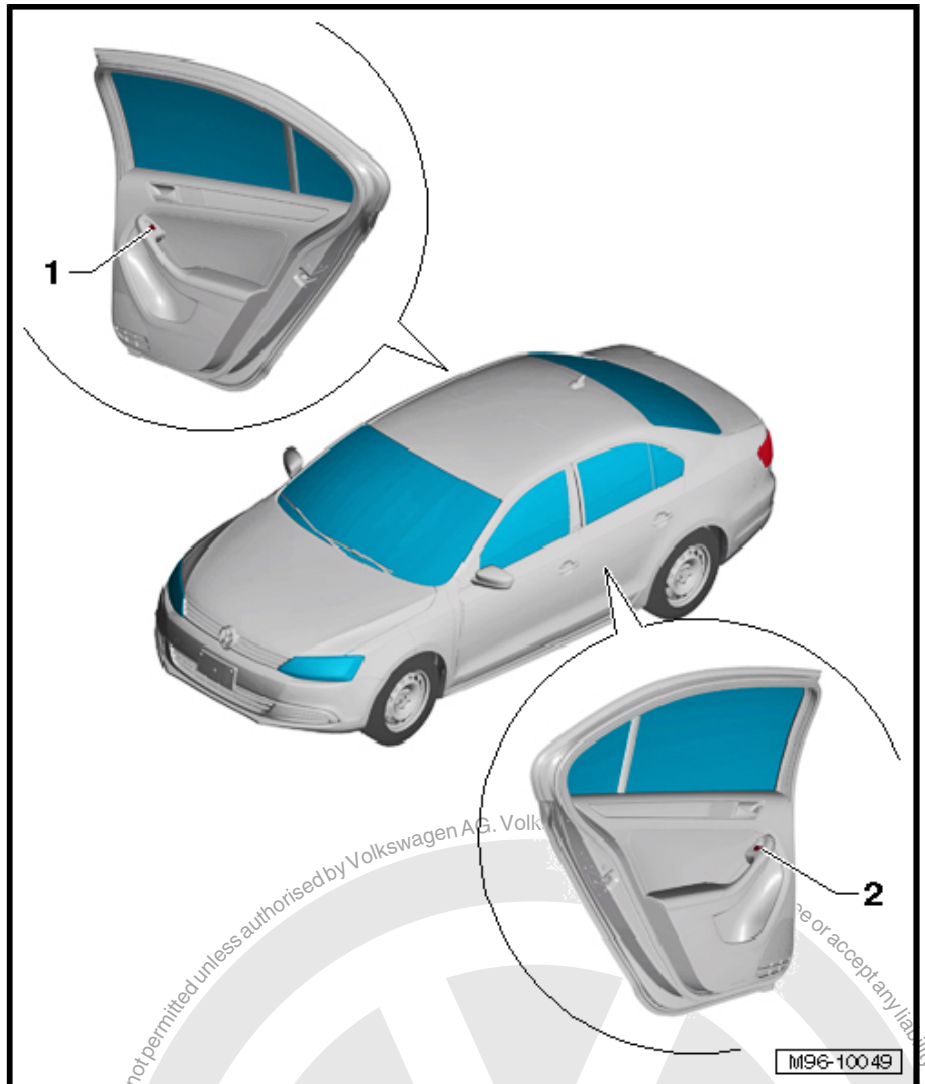
2.3 Component Location Overview - Controls in Rear Doors

1 - Right Rear Window Switch in Right Rear Door - E54-

- ❑ Removing and installing. Refer to
⇒ ["2.26 Rear Door Window Regulator Switch, Removing and Installing", page 293](#).

2 - Left Rear Power Window Switch in Left Rear Door - E52-

- ❑ Removing and installing. Refer to
⇒ ["2.26 Rear Door Window Regulator Switch, Removing and Installing", page 293](#).



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2.4 Component Location Overview - Controls in Center Console

1 - Electrical Drive Button - E656- / Start/Stop Mode Button - E693-

- ❑ Electrical Drive Button - E656-, removing and installing. Refer to ⇒ [“2.18 Electrical Drive Button E656, Removing and Installing, High-Voltage Vehicle”, page 286](#).
- ❑ Start/Stop Mode Button - E693-, removing and installing. Refer to ⇒ [“2.14 Start/Stop Mode Button E693, Removing and Installing”, page 281](#).

2 - Parking Aid Button - E266-

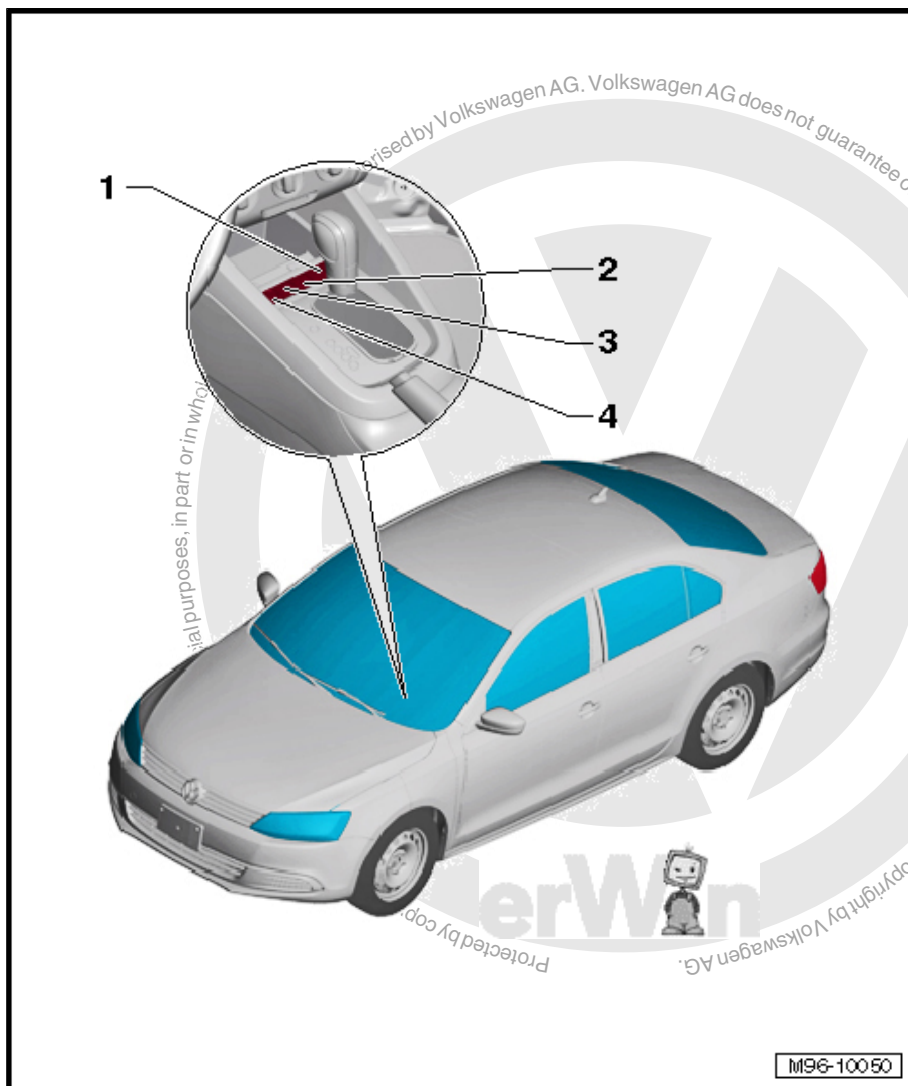
- ❑ Removing and installing. Refer to ⇒ [“2.16 Parking Aid Button E266, Removing and Installing”, page 283](#).

3 - ASR/ESP Button - E256-

- ❑ Removing and installing. Refer to ⇒ [“2.15 ASR/ESP Button E256, Removing and Installing”, page 282](#).

4 - Start System Button - E378-

- ❑ Removing and installing. Refer to ⇒ [“2.17 Start System Button E378, Removing and Installing”, page 285](#).



No Illustration

- ◆ Frame screws: 2 Nm



2.5 Component Location Overview - Controls in Roof Trim Panel

1 - Front Interior Lamp - W1-

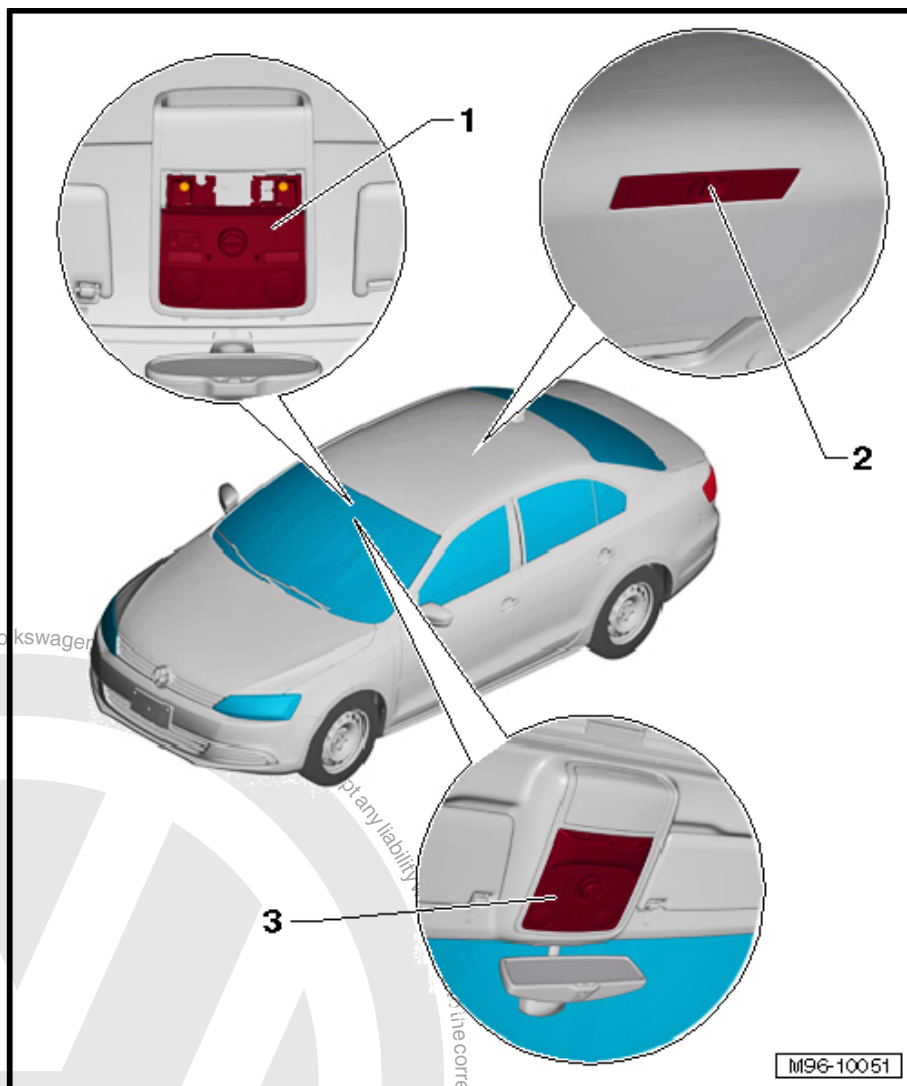
- ❑ Screws: 2 Nm
- ❑ Removing and installing. Refer to
⇒ ["2.29 Front Interior Lamp/Reading Lamp, Removing and Installing", page 295](#).

2 - Rear Interior Lamp - W43-

- ❑ Removing and installing. Refer to
⇒ ["2.30.1 Rear Interior Lamp W43, Removing and Installing", page 297](#).

3 - Sunroof Tilt Button 1 - E582-

- ❑ Removing and installing. Refer to
⇒ ["2.28 Sunroof Tilt Button 1 E582, Removing and Installing", page 294](#).



2.6 Light Switch - E1- , Removing and Installing

The Light Switch - E1- Has the Following Components:

- ◆ Light Switch - E1-
- ◆ Fog Lamp Switch - E7-
- ◆ Rear Fog Lamp Switch - E18-
- ◆ Headlamp Switch Illumination Bulb - L9-



Caution

- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409-, screwdriver) with commercially available adhesive tape.*

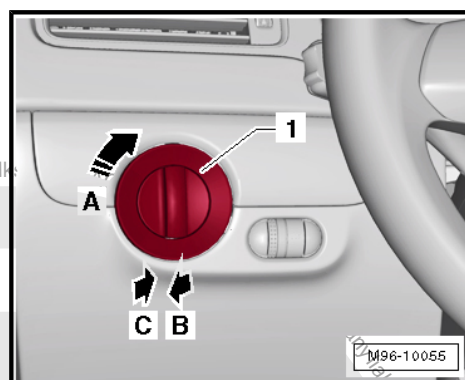


Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.

The Light Switch - E1- may be checked using the before removing. Refer to ➔ [“2.6.1 Light Switch E1 , Checking”, page 274](#) .

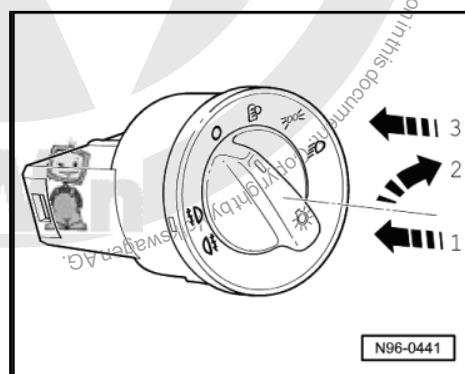
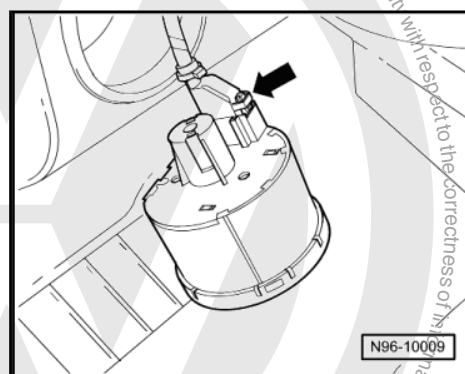
- Turn the Light Switch - E1- to “0”.
- Push the handle on the Light Switch - E1- -1- in -arrow C- and then turn it slightly to the right in direction of -arrow A-.
- Hold the rotary handle in this position and remove the Light Switch - E1--1- at the rotary handle from the instrument panel -arrow B-.



- Release and disconnect the connector -arrow-.

Installing

- Connect the connector.
- Hold Light Switch - E1- firmly and press in rotary handle of Light Switch - E1- in direction of -arrow 1- and turn slightly toward right in direction of -arrow 2-.
- Hold the rotary handle in this position and insert the Light Switch - E1- into the instrument panel in direction of -arrow 3-.
- Turn the rotary switch to the “0” position, release it and engage the Light Switch - E1- .



2.6.1 Light Switch - E1- , Checking

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the Guided Fault Finding mode.
- Use the GO TO button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment



- ◆ 01 - OBD-capable systems
- ◆ 09 - Vehicle Electrical System Control Module J519
- ◆ Electrical Components
- ◆ E1 Headlamp switch

2.7 Instrument Panel and Switch Illumination Dimmer Switch - E20- , Removing and Installing



Caution

- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*

Removing

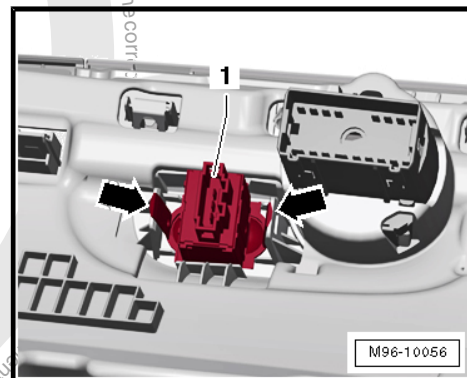
- Turn off the ignition and all electrical equipment and remove the ignition key.

The Instrument Panel and Switch Illumination Dimmer Switch - E20- may be checked before removing. Refer to
⇒ [“2.7.1 Instrument Panel and Switch Illumination Dimmer Switch E20 , Checking”, page 275](#) .

- Remove the instrument panel cover on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Driver Side Instrument Panel Cover, Removing and Installing .
- Release and disconnect the connector.
- Open the tabs -arrows- and remove the Instrument Panel and Switch Illumination Dimmer Switch - E20- -1-.

Installing

Install in reverse order of removal.



2.7.1 Instrument Panel and Switch Illumination Dimmer Switch - E20- , Checking

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems



- ◆ 09 - Vehicle Electrical System Control Module J519
- ◆ Electrical Components
- ◆ E20 Instrument panel illumination dimmer switch

2.8 Front Passenger Airbag Deactivation Key Switch - E224- , Removing and Installing

The Front Passenger Airbag Deactivation Key Switch - E224- -1- is inside the glove compartment.

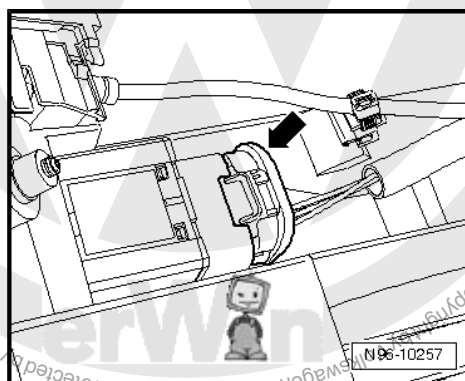
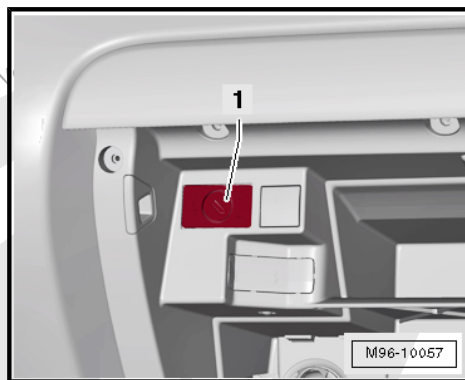


WARNING

Follow all safety precautions when working on airbags. Refer to ⇒ Body Interior; Rep. Gr. 00 ; Safety Precautions; Safety Precautions for Pyrotechnic Components .

Removing

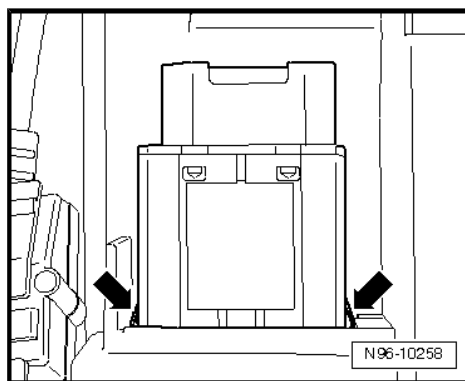
- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Glove Compartment, Removing and Installing .
- Release and disconnect the connector -arrow-.



- Open the tabs -arrows- and remove the Front Passenger Airbag Deactivation Key Switch - E224- .

Installing

Install in reverse order of removal.





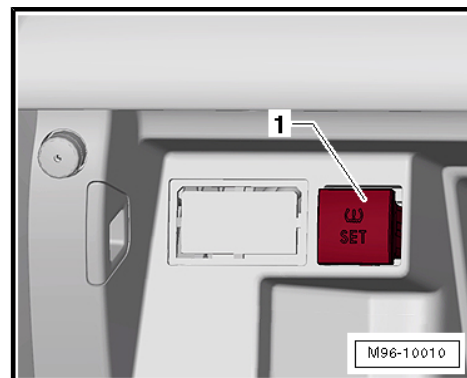
2.9 Tire Pressure Monitoring Display Button - E492- , Removing and Installing

The Tire Pressure Monitoring Display Button - E492- -1- is located in the glove compartment.



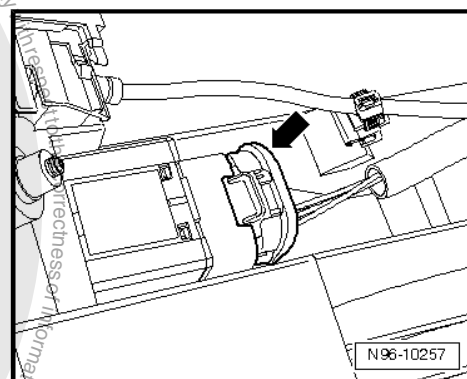
Caution

- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*



Removing

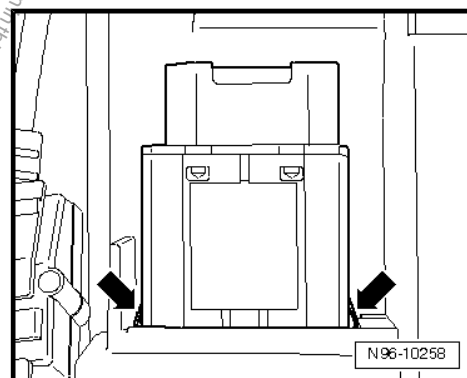
- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Glove Compartment, Removing and Installing .
- Release and disconnect the connector -arrow-.



- Release the tabs -arrows- and remove the Tire Pressure Monitoring Display Button - E492- .

Installing

Install in reverse order of removal.



2.10 Rear Center Interior Locking Switch - E286- , Removing and Installing



Caution

- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*

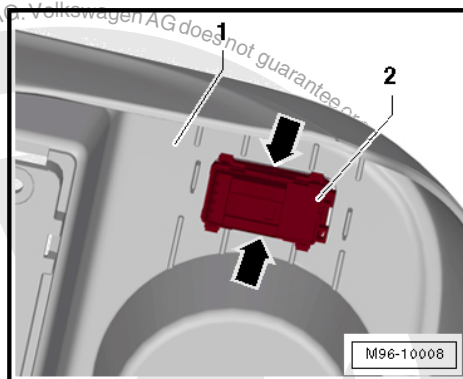


Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the center console. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Center Console .
- Release and disconnect the connector.
- Release the retaining tabs -arrows- and remove the Rear Center Interior Locking Switch - E286- -2- from the center console -1-.

Installing

Install in reverse order of removal.



2.11 Driver Interior Locking Button - E308- , Removing and Installing

The Push Button Illumination Bulb - L76- is integrated in the Driver Interior Locking Button - E308- and cannot be replaced separately.

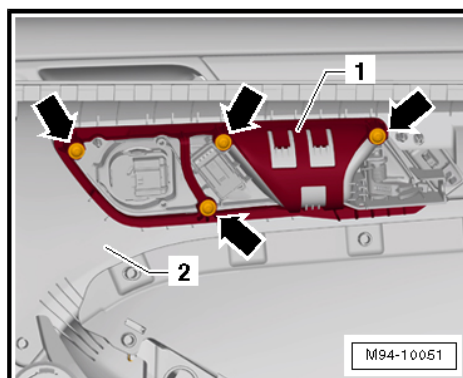


Caution

- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the driver side door trim panel. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Door Trim Panels; Driver Side Front Door Trim Panel, Removing and Installing .
- Release and disconnect the connectors.
- Remove the screws -arrows- and remove the cover -1- from the door trim panel -2-.





- Release the tabs -arrows- and remove the Driver Interior Locking Button - E308- -1- from the door trim panel -2-.

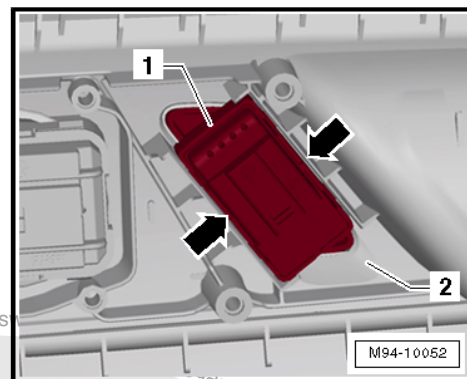
Installing

Install in reverse order of removal.

- Tighten the threaded connections to the tightening specification.

Tightening Specifications

- ◆ Refer to
⇒ ["2.2 Component Location Overview - Controls in Front Doors", page 270](#)



2.12 Front Passenger Interior Locking Button - E309- , Removing and Installing

The Push Button Illumination Bulb - L76- is integrated in the Front Passenger Interior Locking Button - E309- and cannot be replaced separately.

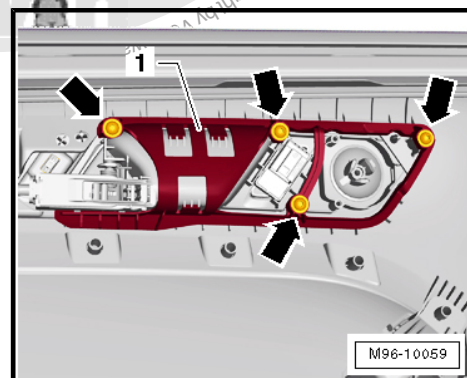


Caution

- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the passenger side door trim panel. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Door Trim Panels; Passenger Side Front Door Trim, Removing and Installing .
- Release and disconnect the connectors.
- Remove the screws -arrows- and remove the cover -1- from the door trim panel -2-.





- Release the tabs -arrows- and remove the Front Passenger Interior Locking Button - E309- -1- from the door trim panel.

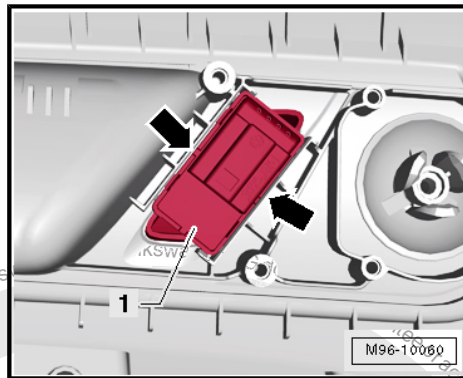
Installing

Install in reverse order of removal.

- Tighten the threaded connections to the tightening specification.

Tightening Specifications

- ◆ Refer to
⇒ [“2.2 Component Location Overview - Controls in Front Doors”, page 270](#)



2.13 Fuel Filler Door/Rear Lid Remote Release Button - E463- , Removing and Installing

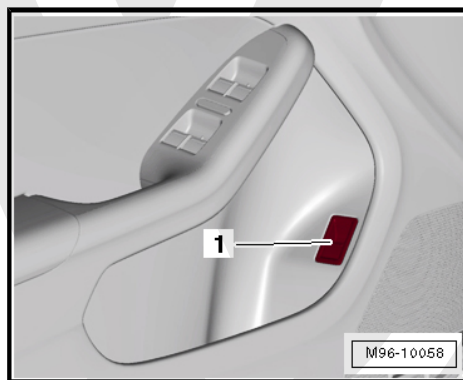
The Fuel Filler Door/Rear Lid Remote Release Button - E463- -1- is located inside the driver side door trim panel at the bottom.

The Push Button Illumination Bulb - L76- is integrated in the Fuel Filler Door/Rear Lid Remote Release Button - E463- and cannot be replaced separately.



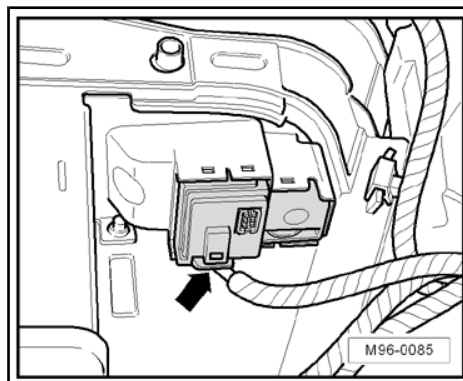
Caution

- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*



Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the driver side door trim panel. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Door Trim Panels; Driver Side Front Door Trim Panel, Removing and Installing .
- Release and disconnect the connector -arrow-.

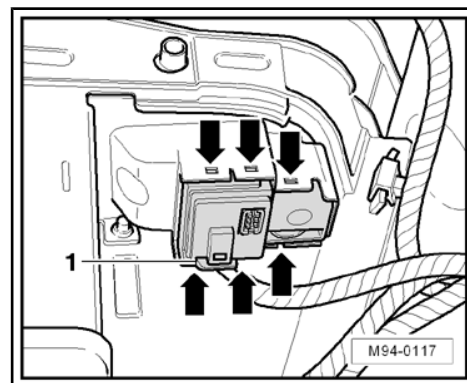




- Release the tabs -arrows- and remove the Fuel Filler Door/ Rear Lid Remote Release Button - E463- from the door trim panel.

Installing

Install in reverse order of removal.



2.14 Start/Stop Mode Button - E693- , Removing and Installing

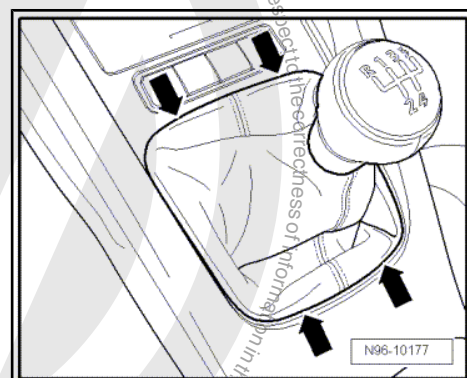


Caution

- ◆ **When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.**

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Carefully pry the selector lever boot out of the center console -arrows-.

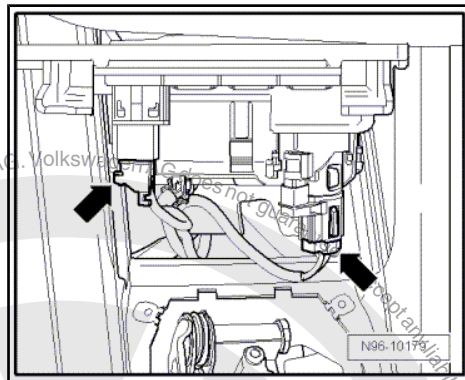


- Remove the bolts -arrows-.
- Remove the ashtray from the center console.





- Release and disconnect the connectors -arrows-.



- Release the tabs -arrows- and remove the Start/Stop Mode Button - E693- from the frame.

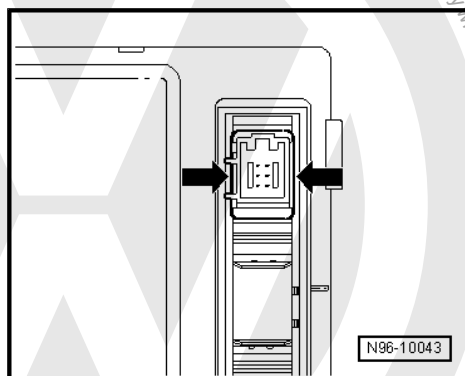
Installing

Install in reverse order of removal.

- Tighten the threaded connections to the tightening specification.

Tightening Specifications

- ◆ Refer to
⇒ [“2.4 Component Location Overview - Controls in Center Console”, page 272](#)



2.15 ASR/ESP Button - E256- , Removing and Installing

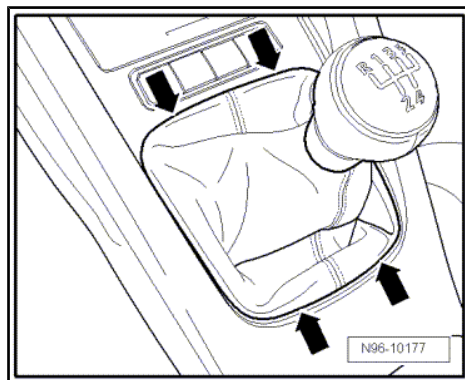


Caution

- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*

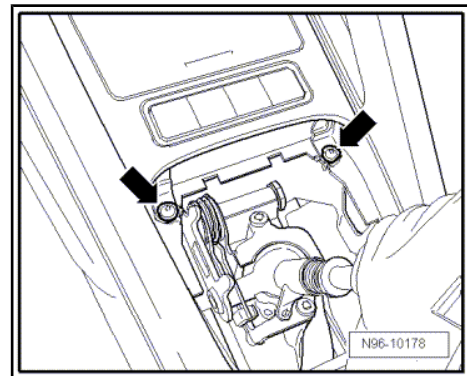
Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Carefully pry the selector lever boot out of the center console -arrows-.

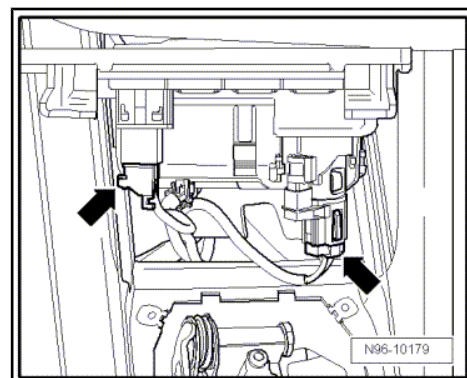




- Remove the bolts -arrows-.
- Remove the ashtray from the center console.



- Release and disconnect the connectors -arrows-.



- Release the tabs -arrows- and remove the ASR/ESP Button - E256- from the frame.

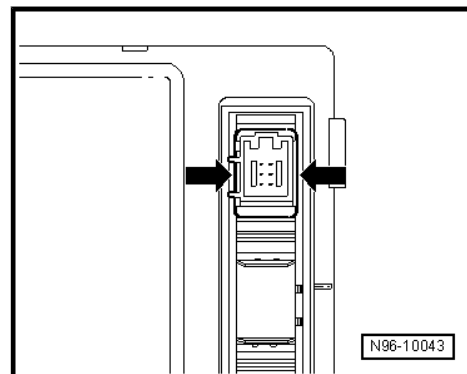
Installing

Install in reverse order of removal.

- Tighten the threaded connections to the tightening specification.

Tightening Specifications

- ◆ Refer to ["2.4 Component Location Overview - Controls in Center Console", page 272](#)



2.16 Parking Aid Button - E266- , Removing and Installing



Caution

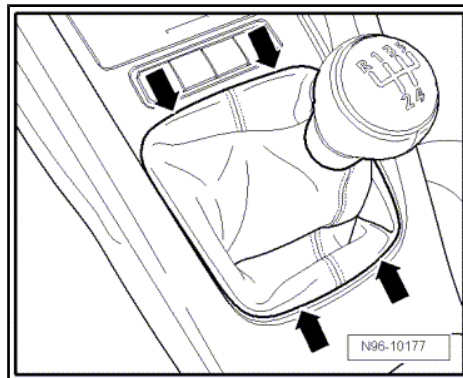
- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*

Removing

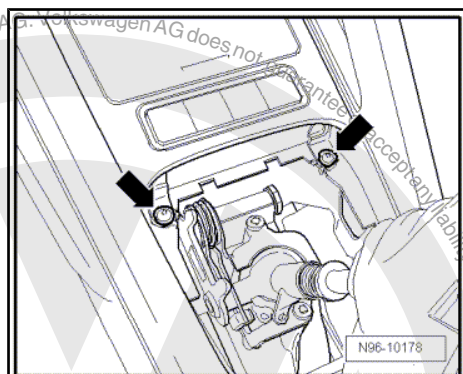
Turn off the ignition and all electrical equipment and remove the ignition key.



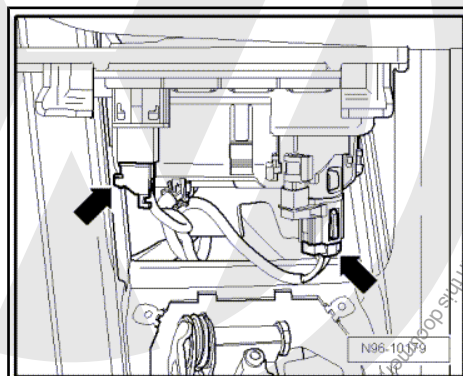
- Carefully pry the selector lever boot out of the center console -arrows-.



- Remove the bolts -arrows-.
- Remove the ashtray from the center console.



- Release and disconnect the connectors -arrows-.



- Release the tabs -arrows- and remove the Parking Aid Button - E266- from the frame.

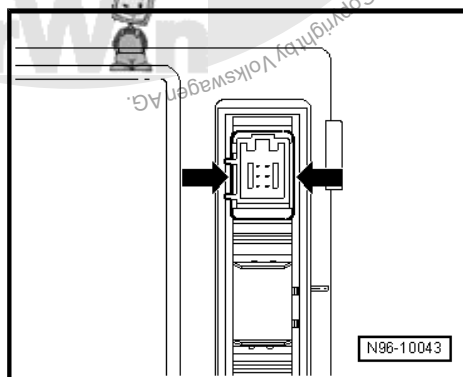
Installing

Install in reverse order of removal.

- Tighten the threaded connections to the tightening specification.

Tightening Specifications

- ◆ Refer to
⇒ ["2.4 Component Location Overview - Controls in Center Console", page 272](#)





2.17 Start System Button - E378- , Removing and Installing

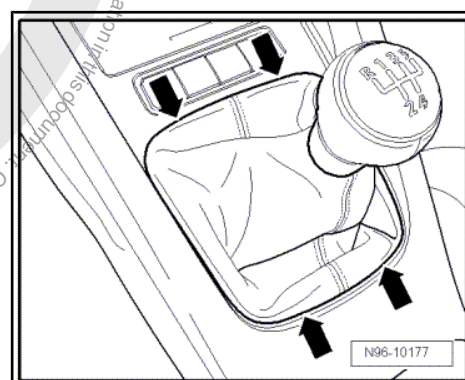


Caution

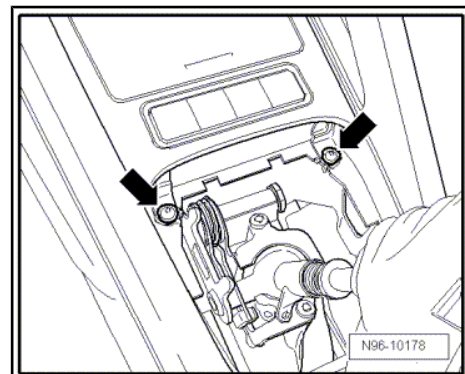
- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*

Removing

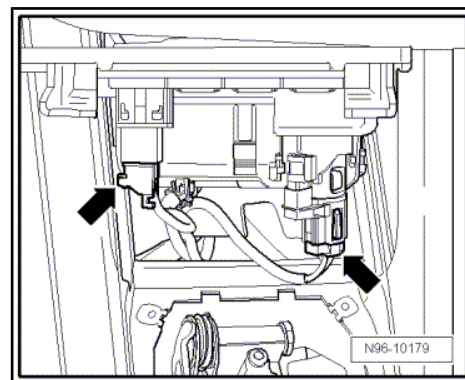
- Turn off the ignition and all electrical equipment and remove the ignition key.
- Carefully pry the selector lever boot out of the center console -arrows-.



- Remove the bolts -arrows-.
- Remove the ashtray from the center console.



- Release and disconnect the connectors -arrows-.





- Release the tabs -arrows- and remove the Start System Button - E378- from the frame.

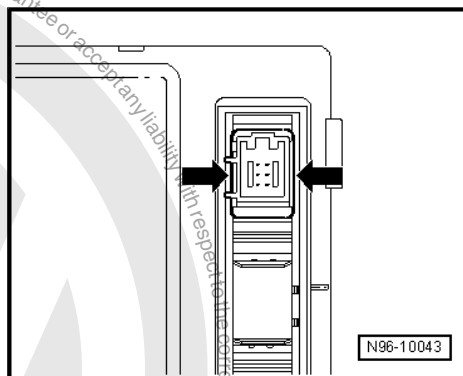
Installing

Install in reverse order of removal.

- Tighten the threaded connections to the tightening specification.

Tightening Specifications

- ◆ Refer to
⇒ [“2.4 Component Location Overview - Controls in Center Console” page 272](#)



2.18 Electrical Drive Button - E656- , Removing and Installing, High-Voltage Vehicle

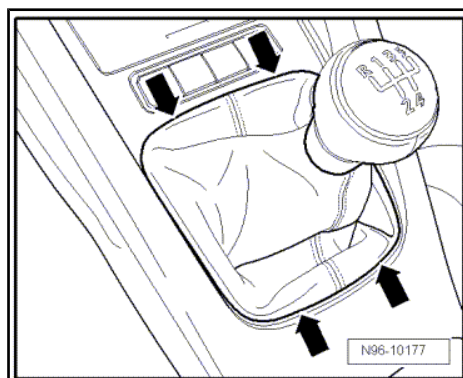


Caution

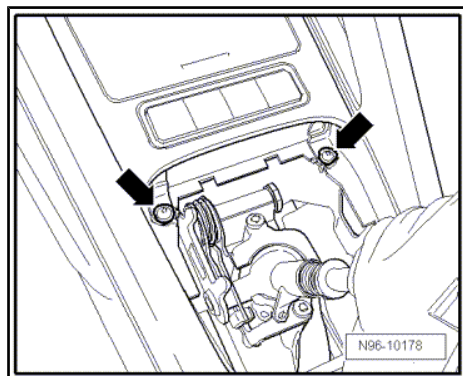
- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Carefully pry the selector lever boot out of the center console -arrows-.

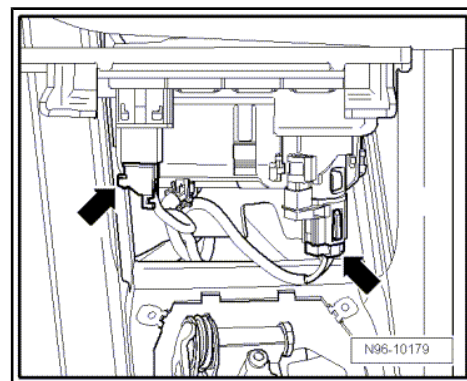


- Remove the bolts -arrows-.
- Remove the ashtray from the center console.





- Release and disconnect the connectors -arrows-.



- Release the tabs -arrows- and remove the Electrical Drive Button - E656- from the frame.

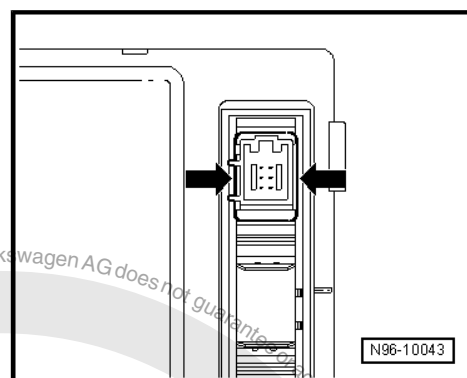
Installing

Install in reverse order of removal.

- Tighten the threaded connections to the tightening specification.

Tightening Specifications

- ◆ Refer to
⇒ ["2.4 Component Location Overview - Controls in Center Console", page 272](#)



2.19 Front Passenger Airbag -Disabled- Indicator Lamp - K145- , Removing and Installing



WARNING

Follow all safety precautions when working on airbags. Refer to ⇒ Body Interior; Rep. Gr. 00 ; Safety Precautions; Safety Precautions for Pyrotechnic Components .



Caution

- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*

Removing

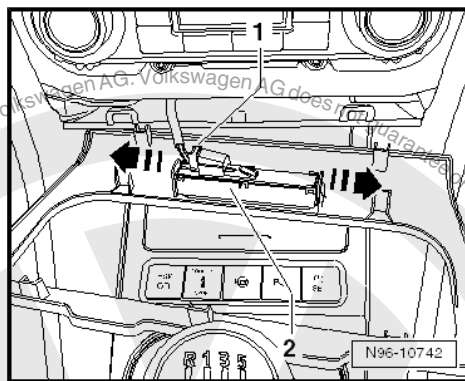
- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the instrument panel center trim. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Instrument Panel .
- Release and disconnect the connector -1-.



- Press the locking mechanisms away from each other in direction of -arrow- and remove the Front Passenger Airbag - Disabled- Indicator Lamp - K145- -2- from the trim frame.

Installing

Install in reverse order of removal.



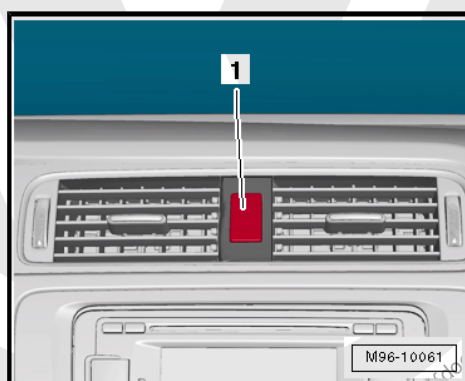
2.20 Emergency Flasher Button - E229- , Removing and Installing

The Emergency Flasher Button - E229- -1- is located in the center of the instrument panel between the vents.



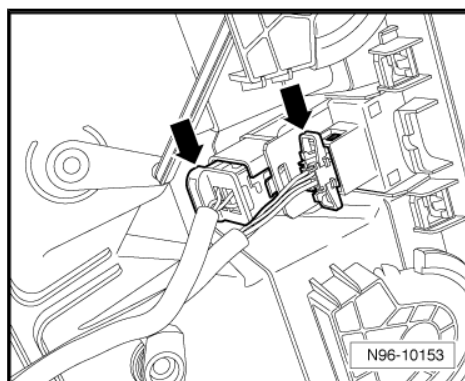
Caution

- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*



Removing

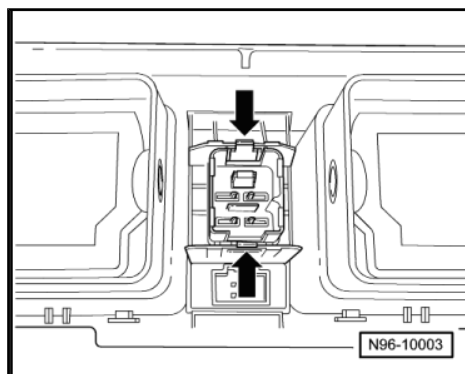
- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the center vent. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 80 ; Heating, Servicing; Vents, Removing, Jetta from MY 2011 .
- Release and disconnect the connectors -arrows-.



- Release the tabs -arrows- and remove the Emergency Flasher Button - E229- .

Installing

Install in reverse order of removal.





2.21 Glove Compartment Lamp Switch - E26- , Removing and Installing

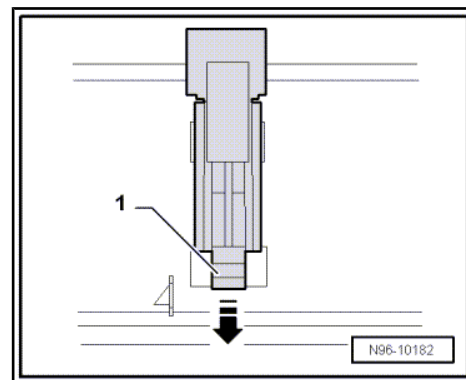
The Glove Compartment Lamp Switch - E26- is located on the rear side of the glove compartment.

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the glove compartment. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Glove Compartment, Removing and Installing .
- Release the tab -1- and slide the Glove Compartment Lamp Switch - E26- out of the guide rail in direction of -arrow-.

Installing

Install in reverse order of removal.



2.22 Mirror Adjustment Switch - E43- , Removing and Installing

Mirror Adjusting Switch - E43- (Depending on the Vehicle Equipment):

- ◆ Mirror Adjusting Switch - E43-
- ◆ Mirror Selector Switch - E48-
- ◆ Exterior Rearview Mirror Heating Switch - E231-
- ◆ Mirror Folding Switch - E263-
- ◆ Mirror Adjustment Switch Illumination Bulb - L78-

The components listed above cannot be replaced separately.

- Replace the Mirror Adjusting Switch - E43- if it is faulty.



Caution

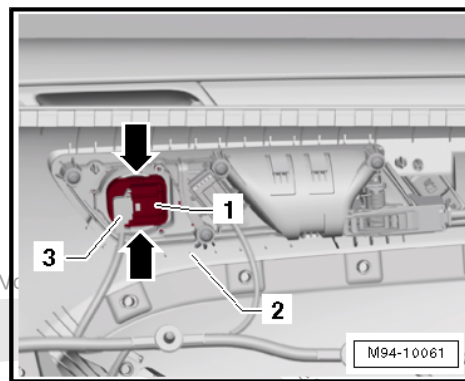
- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409-, screwdriver) with commercially available adhesive tape.*

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the driver side door trim panel. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Door Trim Panels; Driver Side Front Door Trim Panel, Removing and Installing



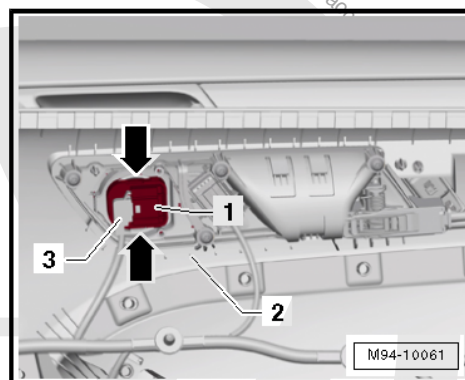
- Disconnect the connector -3-.



- Release the tabs -arrows- and remove the Mirror Adjusting Switch - E43- -1- from the door trim panel -2-.

Installing

Install in reverse order of removal.



2.23 Power Window Control Head in Driver Door - E512- , Removing and Installing

Power Window Control Head in Driver Door - E512- Components

- ◆ Left Front Window Regulator Switch - E40-
- ◆ Left Rear Window Regulator Switch in Driver Door - E53-
- ◆ Right Rear Window Regulator Switch in Driver Door - E55-
- ◆ Right Front Power Window Switch in Driver Door - E81-
- ◆ Child Safety Lock Button - E318-
- ◆ Push Button Illumination Bulb - L76-

The components listed above cannot be replaced separately. Replace the Power Window Control Head in Driver Door - E512- if it is faulty.

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-



Caution

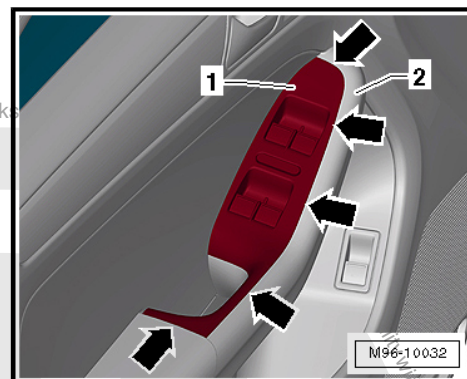
- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*

Removing

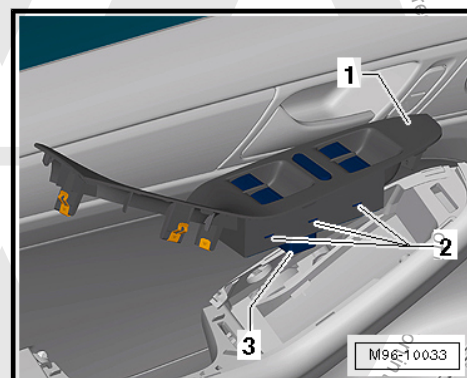
- Turn off the ignition and all electrical equipment and remove the ignition key.



- Carefully pry the handle trim -1- out of the pull handle -2- at the tabs -arrows- using the Trim Removal Wedge - 3409- .



- Disconnect the connector -3-

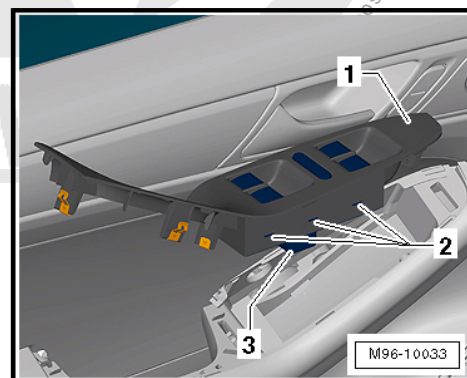


- Release the six tabs -2- (three on both the right and left side) and remove the Power Window Control Head in Driver Door - E512- -3- from the handle trim -1-.

Installing

Install in reverse order of removal. Note the following:

- Make sure the tabs click into place when installing.



2.24 Front Passenger Door Window Regulator Switch - E107- , Removing and Installing

The Push Button Illumination Bulb - L76- is integrated in the Front Passenger Door Window Regulator Switch - E107- and cannot be replaced separately.

Special tools and workshop equipment required

- Trim Removal Wedge - 3409-



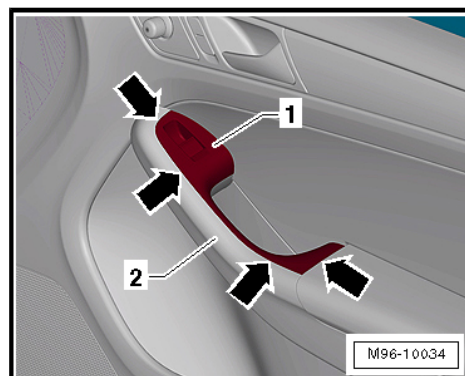
Caution

- When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.

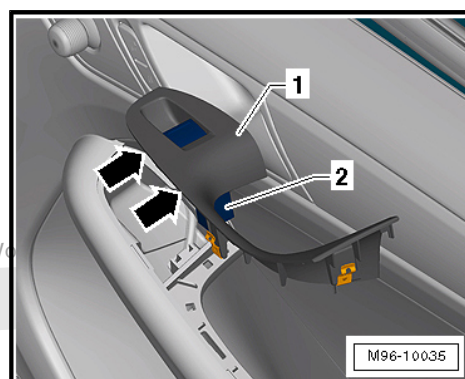


Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Carefully pry the handle trim -1- out of the pull handle -2- at the tabs -arrows- using the Trim Removal Wedge - 3409- .



- Release and disconnect the connector -2-.

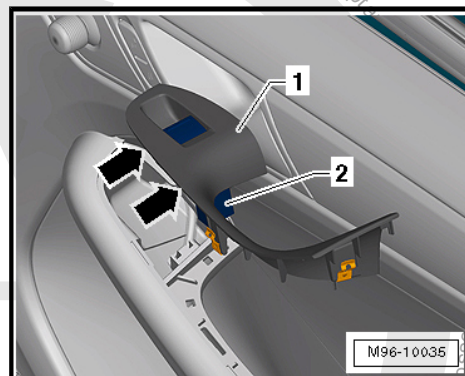


- Release the four tabs -arrows- (two on both the right and left side) and remove the Front Passenger Door Window Regulator Switch - E107- -2- from the handle trim -1-.

Installing

Install in reverse order of removal. Note the following:

- Make sure the tabs click into place when installing.



2.25 Interior Monitoring Deactivation Switch - E267- , Removing and Installing

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-



Caution

- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*

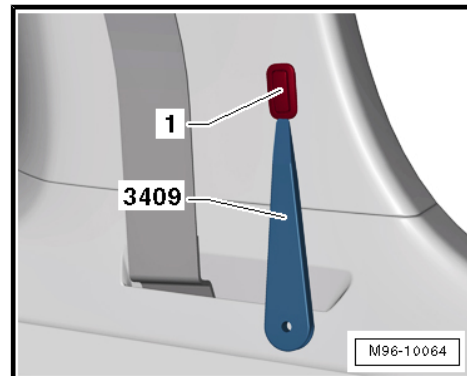


Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Unclip the switch -1- from the trim panel using the Trim Removal Wedge - 3409- .
- Release and disconnect the connector.

Installing

Install in reverse order of removal.



2.26 Rear Door Window Regulator Switch, Removing and Installing

The Left Rear Power Window Switch in Left Rear Door - E52- / Right Rear Window Switch in Right Rear Door - E54- are both removed and installed the same way, so therefore the procedure is only described for one of them.

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-

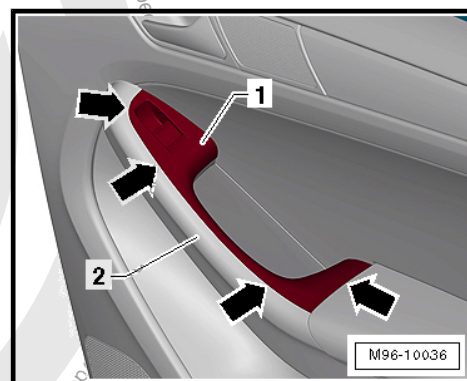


Caution

- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*

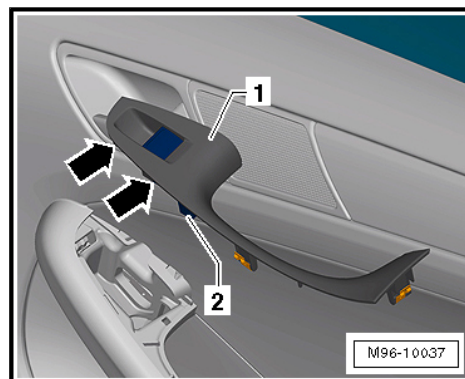
Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Carefully pry the handle trim -1- out of the pull handle -2- at the tabs -arrows- using the Trim Removal Wedge - 3409- .





- Release and disconnect the connector -2-.

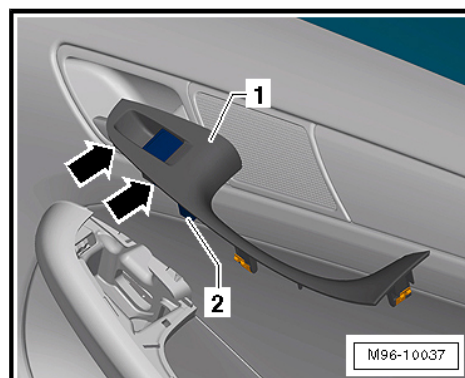


- Release the four tabs -arrows- (two on both the right and left side) and remove the Front Passenger Door Window Regulator Switch - E107- -2- from the handle trim -1-.

Installing

Install in reverse order of removal. Note the following:

- Make sure the tabs click into place when installing.



2.27 Rear Lid Contact Switch, Removing and Installing

⇒ ["2.27.1 Rear Lid Lock Unit F256 , Removing and Installing", page 294](#)

2.27.1 Rear Lid Lock Unit - F256- , Removing and Installing

The Rear Lid Lock Unit - F256- is integrated in the rear lid latch and cannot be replaced separately.

- Replace the rear lid lock if it is faulty. Refer to ⇒ Body Exterior; Rep. Gr. 55 ; Rear Lid; Rear Lid; Removing and Installing .

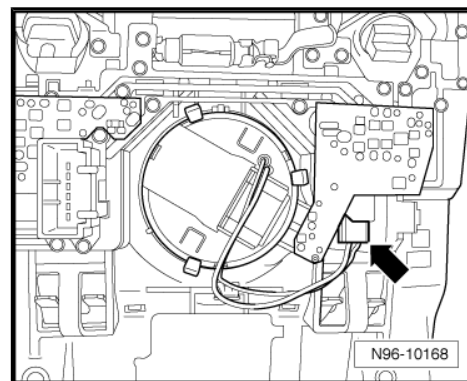
2.28 Sunroof Tilt Button 1 - E582- , Removing and Installing

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Removing the Front Interior Lamp - W1- . Refer to ⇒ ["2.29.2 Front Interior Lamp W1 , Removing and Installing, with Sliding Sunroof", page 296](#)



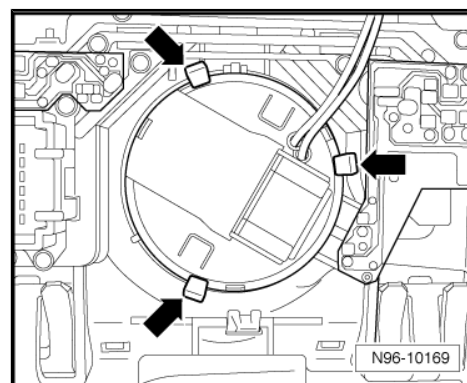
- Release and disconnect the connector -arrow-.



- Release the tabs -arrows- and remove the Sunroof Tilt Button 1 - E582- from the frame.

Installing

Install in reverse order of removal.



2.29 Front Interior Lamp/Reading Lamp, Removing and Installing

⇒ [“2.29.1 Front Interior Lamp W1 , Removing and Installing, without Sliding Sunroof”, page 295](#)

⇒ [“2.29.2 Front Interior Lamp W1 , Removing and Installing, with Sliding Sunroof”, page 296](#)

2.29.1 Front Interior Lamp - W1- , Removing and Installing, without Sliding Sunroof

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-



Caution

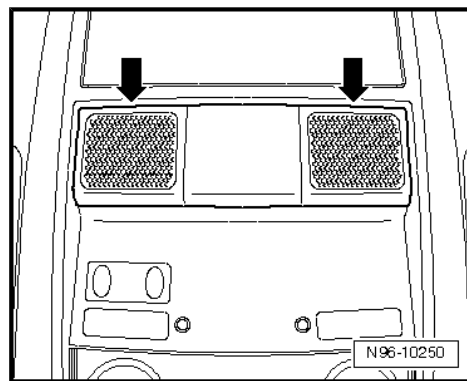
- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*

Removing

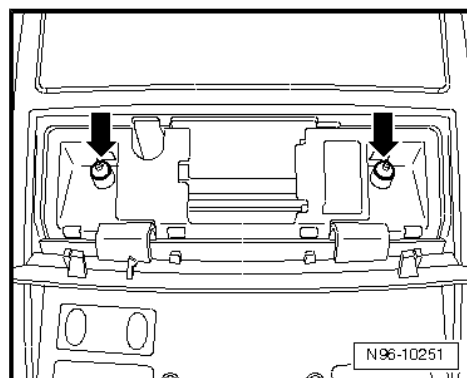
- Turn off the ignition and all electrical equipment and remove the ignition key.



- Carefully pry the trim out of the Front Interior Lamp - W1- using the Trim Removal Wedge - 3409- -arrows-.



- Remove the bolts -arrows-.
- Remove the Front Interior Lamp - W1- from the bracket in the headliner.



- Release and disconnect the connectors -arrows-.

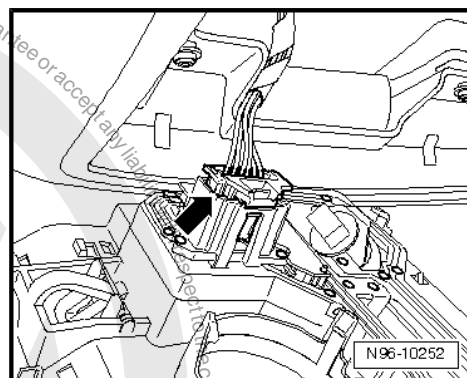
Installing

Install in reverse order of removal.

- Tighten the threaded connections to the tightening specification.

Tightening Specifications

- ◆ Refer to
⇒ [“2.5 Component Location Overview - Controls in Roof Trim Panel”, page 273](#)



2.29.2 Front Interior Lamp - W1- , Removing and Installing, with Sliding Sunroof

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-



Caution

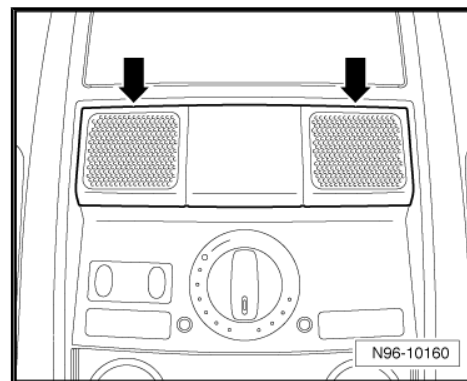
- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*

Removing

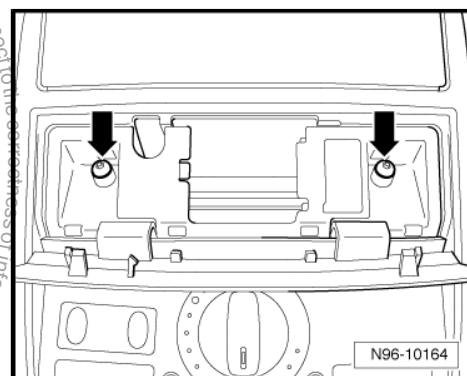
- Turn off the ignition and all electrical equipment and remove the ignition key.



- Carefully pry the trim out of the Front Interior Lamp - W1- using the Trim Removal Wedge - 3409- -arrows-.



- Remove the bolts -arrows-.
- Remove the Front Interior Lamp - W1- from the bracket in the headliner.

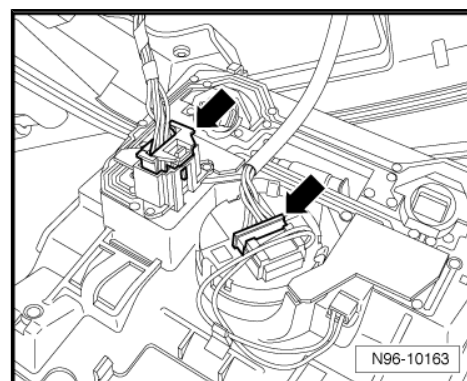


- Release and disconnect the connectors -arrows-.

Installing

Install in reverse order of removal.

- Tighten the threaded connections to the tightening specification.



Tightening Specifications

- ◆ Refer to
⇒ ["2.5 Component Location Overview - Controls in Roof Trim Panel", page 273](#)

2.30 Rear Interior Lamp/Reading Lamp, Removing and Installing

⇒ ["2.30.1 Rear Interior Lamp W43 , Removing and Installing", page 297](#)

2.30.1 Rear Interior Lamp - W43- , Removing and Installing

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-



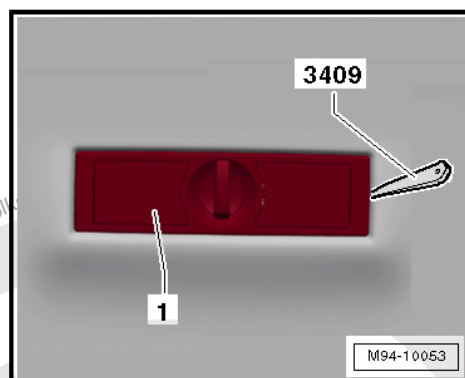
Caution

- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*



Removing

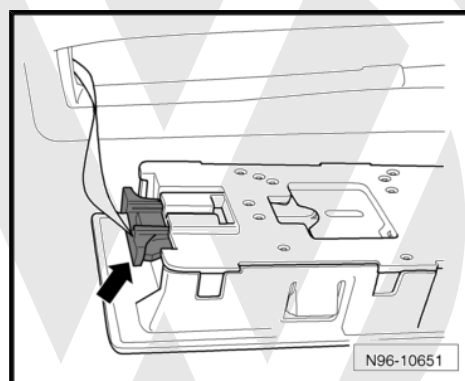
- Turn off the ignition and all electrical equipment and remove the ignition key.
- Unclip the Rear Interior Lamp - W43- -1- from the roof trim panel using the Trim Removal Wedge - 3409- .
- Release and disconnect the connector -arrow-.



- Remove the Rear Interior Lamp - W43- .

Installing

Install in reverse order of removal.



2.31 Garage Door Opener Control Head - E284- , Removing and Installing

Garage Door Opener Control Head - E284- is installed in sun visor on driver side.

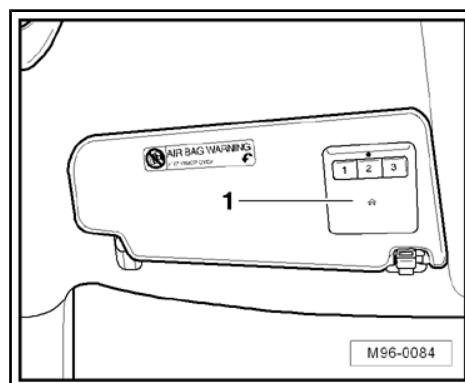
The sun visor and Garage Door Opener Control Head - E284- can only be replaced together.

Removing

- Remove the driver side sun visor and the Garage Door Opener Control Head - E284- -1-. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Equipment; Sun Visor, Removing and Installing .

Installing

Install in reverse order of removal.





3 Immobilizer

⇒ [“3.1 Overview - Immobilizer”, page 299](#)

⇒ [“3.2 Anti-Theft Immobilizer Control Module J362”, page 300](#)

⇒ [“3.3 Anti-Theft Immobilizer Reader Coil D2”, page 301](#)

⇒ [“3.4 Ignition Key”, page 301](#)

3.1 Overview - Immobilizer

General Information

The fourth generation anti-theft immobilizer on the vehicle has an online connection and download capability. The chief integral component of the fourth generation immobilizer is a central database, in which all anti-theft relevant data of participating control modules is stored. It is not possible to adapt the participating control modules to the immobilizer without an online connection to this data bank.

Online system test. Refer to

⇒ [“3.2.4 Online System Test”, page 301](#).

- ◆ The immobilizer PIN cannot be requested by fax and the immobilizer cannot be enabled in advance.
- ◆ All components participating on the immobilizer must be adapted online.
- ◆ All vehicle keys (subsequently ordered keys as well) are already pre-coded to a specific vehicle from the factory and can only be adapted to this vehicle.
- ◆ It is necessary to have the VIN to be able to order replacement keys.
- ◆ It is not possible to perform adaptation on components originating from other Volkswagen group brands.

Anti-Theft Immobilizer Components:

- ◆ Anti-Theft Immobilizer Control Module - J362- . Refer to ⇒ [“3.2 Anti-Theft Immobilizer Control Module J362”, page 300](#).
- ◆ Engine Control Module - J623- . Refer to ⇒ Rep. Gr. 23 ; Engine Control Module or ⇒ Rep. Gr. 24 ; Engine Control Module .
- ◆ Ignition key. Refer to ⇒ [“3.4 Ignition Key”, page 301](#).

New Identity When Changing All Immobilizer Components. Refer to

⇒ [“3.2.3 New Identity when Replacing all Components”, page 300](#).

Anti-Theft Immobilizer Control Module - J362- Function

- ◆ Communication of all components participating on immobilizer with each other.
- ◆ Data encryption between participating control modules.

Malfunction Recognition and Malfunction Indicator

The anti-theft immobilizer is equipped with OBD.

For troubleshooting, use the Vehicle Diagnostic Tester in the “Guided Fault Finding” function.



3.2 Anti-Theft Immobilizer Control Module - J362-

⇒ [“3.2.1 Anti-Theft Immobilizer Control Module J362 , Removing and Installing”, page 300](#)

⇒ [“3.2.2 Anti-Theft Immobilizer Control Module J362 , Adapting”, page 300](#)

⇒ [“3.2.3 New Identity when Replacing all Components”, page 300](#)

⇒ [“3.2.4 Online System Test”, page 301](#)

3.2.1 Anti-Theft Immobilizer Control Module - J362- , Removing and Installing

The Anti-theft Immobilizer Control Module - J362- is integrated into the instrument cluster. If the Anti-Theft Immobilizer Control Module - J362- is faulty, the instrument cluster must be replaced.

Replace instrument cluster. Refer to

⇒ [“1.2 Instrument Cluster, Removing and Installing”, page 103](#) .

3.2.2 Anti-Theft Immobilizer Control Module - J362- , Adapting

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 25 - Anti-theft immobilizer
 - ◆ Anti-theft immobilizer functions
 - ◆ Anti-Theft Immobilizer, Adapting

3.2.3 New Identity when Replacing all Components

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 25 - Anti-theft immobilizer
 - ◆ Anti-theft immobilizer functions
 - ◆ New identity



3.2.4 Online System Test

The following steps will be performed by this test program:

- ◆ System test for the online connection
- ◆ Test of user authorization
- ◆ Test of correct wire online connection to Volkswagen data-base

Prerequisite for this is the ⇒ Vehicle diagnostic tester online connection.

Procedure

- Connect the Vehicle Diagnostic Tester Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 25 - Anti-theft immobilizer
 - ◆ Anti-theft immobilizer functions
 - ◆ Online System Test

3.3 Anti-Theft Immobilizer Reader Coil - D2-

The Anti-Theft Immobilizer Reading Coil - D2- is connected to the Ignition Switch - D- and cannot be replaced separately.

Ignition/Starter Switch - D- , Removing and installing. Refer to ⇒ [“9.6 Ignition/Starter Switch D , Removing and Installing”](#), page 221 .

3.4 Ignition Key

Battery for ignition key with radio remote control, removing and installing. Refer to ⇒ Body Exterior; Rep. Gr. 57 ; Central Locking .

Ignition key radio frequency unit (transmitter for radio-operated central locking), removing and installing. Refer to ⇒ Body Exterior; Rep. Gr. 57 Central Locking .

Refer to

⇒ [“3.4.1 Ignition Key, Variable Code Transponder”](#), page 301

Refer to ⇒ [“3.4.2 Lost Ignition Key”](#), page 302

Refer to

⇒ [“3.4.3 Ignition Key, Adapting to Immobilizer”](#), page 302

Refer to ⇒ [“3.4.4 Remote Key, Checking”](#), page 302

3.4.1 Ignition Key, Variable Code Transponder

It is not possible to replace variable code transponder in ignition key.

Ignition key must always be replaced if variable code transponder is malfunctioning.

If an Ignition Key Is Replaced or Another Ignition Key Is Required, the New Ignition Key Must Always Be Adapted to the Immobilizer.



Refer to

⇒ ["3.4.3 Ignition Key, Adapting to Immobilizer", page 302](#)

3.4.2 Lost Ignition Key

All vehicle keys (subsequently ordered keys as well) are already pre-coded to a specific vehicle from the factory and can only be adapted to this vehicle. The subsequent ordering of a vehicle key must be performed via entry of the respective Vehicle Identification Number (VIN) and then the new key must be adapted to the Anti-Theft Immobilizer Control Module - J362- .

The Function »New Identity when Replacing all Components« Must Be Performed Before Replacing the Lock Set or the Control Modules. Refer to

⇒ ["3.2.3 New Identity when Replacing all Components", page 300](#) .

Adapting the Key to the Immobilizer. Refer to

⇒ ["3.4.3 Ignition Key, Adapting to Immobilizer", page 302](#) .

Checking the Remote Key. Refer to

⇒ ["3.4.4 Remote Key, Checking", page 302](#) .

3.4.3 Ignition Key, Adapting to Immobilizer

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - OBD-capable systems
- ◆ 25 - Anti-theft immobilizer
- ◆ Anti-theft immobilizer functions
- ◆ Adapting a key

3.4.4 Remote Key, Checking

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:

- ◆ Body
- ◆ Electrical Equipment
- ◆ 01 - OBD-capable systems
- ◆ 09 - vehicle electrical system control module
- ◆ Vehicle electrical system control module functions
- ◆ Remote Control Key, Checking



4 Anti-Theft Alarm System

⇒ ["4.1 Overview - Interior Monitoring", page 303](#)

⇒ ["4.2 Anti-Theft Alarm System, Activating/Deactivating", page 304](#)

⇒ ["4.3 Central Locking and Anti-Theft Alarm System Antenna R47", page 305](#)

⇒ ["4.5 Interior Monitoring Sensor G273, Removing and Installing", page 306](#)

⇒ ["4.6 Engine Hood Contact Switch F266, Removing and Installing", page 306](#)

⇒ ["4.7 Anti-Theft Alarm System Adaptations", page 307](#)

4.1 Overview - Interior Monitoring

Components of anti-theft alarm system and interior monitoring are dependent on vehicle equipment.

1 - Alarm Horn - H12-

- ☐ Not for USA and Canada market
- ☐ Nut: 10 Nm
- ☐ In the center of the plenum chamber
- ☐ Removing and installing. Refer to
⇒ ["4.4 Alarm Horn H12, Removing and Installing", page 305](#).

2 - Front Passenger Door Control Module - J387-

- ☐ In the front passenger door
- ☐ Removing and installing. Refer to ⇒ Body Exterior; Rep. Gr. 64 ; Front Door Window; Window Regulator, Removing and Installing .

3 - Front Passenger Door Contact Switch - F3-

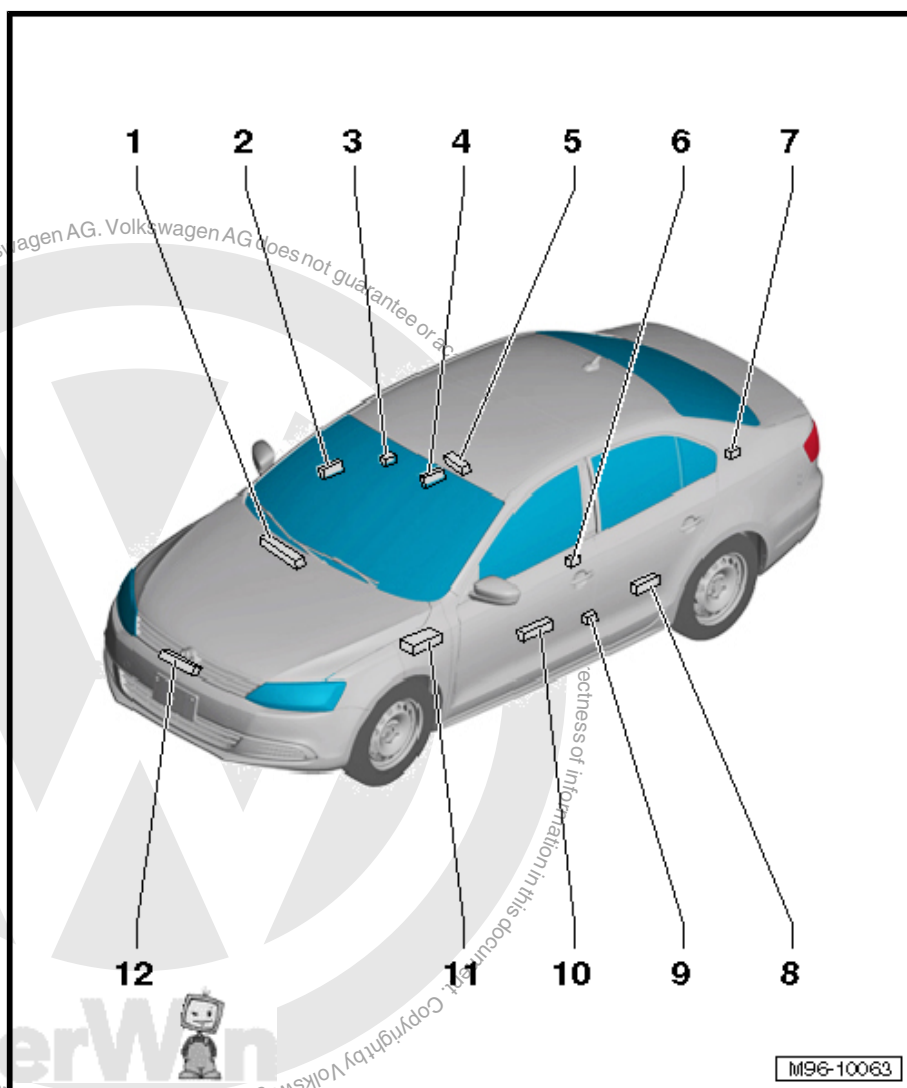
- ☐ Inside the Front Passenger Central Locking Lock Unit - F221-
- ☐ Removing and installing. Refer to ⇒ Body Exterior; Rep. Gr. 57 ; Door Components; Door Lock, Removing and Installing .

4 - Right Rear Door Control Module - J389-

- ☐ Inside the right rear door
- ☐ Removing and installing. Refer to ⇒ Body Exterior; Rep. Gr. 64 ; Rear Door Window; Window Regulator, Removing and Installing .

5 - Interior Monitoring Sensor - G273-

- ☐ In the Front Interior Lamp - W1-



M96-10063



- ❑ Removing and installing. Refer to
⇒ [“4.5 Interior Monitoring Sensor G273 , Removing and Installing” , page 306](#) .
- 6 - Driver Door Contact Switch - F2-**
 - ❑ Inside the Driver Central Locking Lock Unit - F220-
 - ❑ Removing and installing. Refer to ⇒ Body Exterior; Rep. Gr. 57 ; Door Components; Door Lock; Removing and Installing .
- 7 - Rear Lid Lock Unit - F256-**
 - ❑ Removing and installing. Refer to
⇒ [“2.27.1 Rear Lid Lock Unit F256 , Removing and Installing” , page 294](#) .
- 8 - Left Rear Door Control Module - J388-**
 - ❑ Inside the left rear door
 - ❑ Removing and installing. Refer to ⇒ Body Exterior; Rep. Gr. 64 ; Rear Door Window; Window Regulator, Removing and Installing .
- 9 - Interior Monitoring Deactivation Switch - E267-**
 - ❑ Inside the B-pillar trim on the driver side
 - ❑ Removing and installing. Refer to
⇒ [“2.25 Interior Monitoring Deactivation Switch E267 , Removing and Installing” , page 292](#) .
- 10 - Driver Door Control Module - J386-**
 - ❑ In the driver door
 - ❑ Removing and installing. Refer to ⇒ Body Exterior; Rep. Gr. 64 ; Front Door Window; Window Regulator, Removing and Installing .
- 11 - Vehicle Electrical System Control Module - J519-**
 - ❑ Inside the footwell on the driver side under the instrument panel
 - ❑ Includes the Central Locking and Anti-Theft Alarm System Antenna - R47-
 - ❑ Removing and installing. Refer to
⇒ [“2.2.2 Vehicle Electrical System Control Module J519 , Removing and Installing, High Version” , page 321](#) .
- 12 - Engine Hood Contact Switch - F266-**
 - ❑ Inside the latch
 - ❑ Removing and installing. Refer to
⇒ [“4.6 Engine Hood Contact Switch F266 , Removing and Installing” , page 306](#) .

4.2 Anti-Theft Alarm System, Activating/Deactivating

Anti-Theft Alarm System, Activating.

Anti-theft alarm system is automatically switched on by locking the vehicle. Anti-theft alarm system is then activated immediately.

So that anti-theft alarm system does not trigger unnecessary alarms, close all windows and doors before locking the vehicle.

Deactivate the Anti-Theft Alarm System.

The anti-theft alarm system is deactivated if

- ◆ The vehicle is unlocked using the unlock button on the remote control key
- ◆ The ignition is switched on.

Unlocking Vehicle Mechanically (Emergency Opening).

- Lock the vehicle on the driver door.

Anti-theft alarm system remains activated, however no alarm is triggered.

- Turn on the ignition within 15 seconds.



The alarm will go off after 15 seconds if the ignition is not turned on.

By switching on the ignition, the electronic immobilizer recognizes a valid vehicle key and deactivates the anti-theft alarm system.

4.3 Central Locking and Anti-Theft Alarm System Antenna - R47-

The Central Locking and Anti-Theft Alarm System Antenna - R47- receives radio signals from the remote control key and relays them to the Vehicle Electrical System Control Module - J519- .

The Central Locking and Anti-Theft Alarm System Antenna - R47- is integrated inside the Vehicle Electrical System Control Module - J519- and cannot be replaced separately. Replace the Vehicle Electrical System Control Module - J519- if it is faulty. Refer to [⇒ "2.2 Vehicle Electrical System Control Module J519, Removing and Installing", page 319](#) .

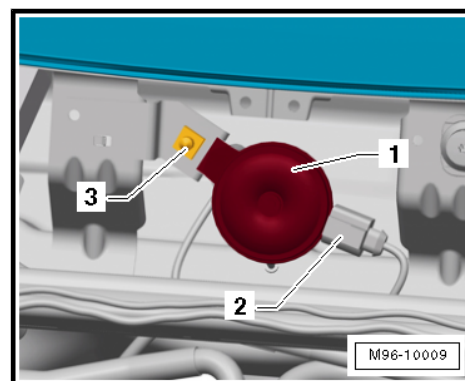
4.4 Alarm Horn - H12- , Removing and Installing

The Alarm Horn - H12- is located inside the plenum chamber on the right side next to the wiper unit.

The anti-theft alarm system must be deactivated in order to remove the Alarm Horn - H12- . Refer to [⇒ "4.2 Anti-Theft Alarm System, Activating/Deactivating", page 304](#) .

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the plenum chamber cover. Refer to ⇒ Body Exterior; Rep. Gr. 50 ; Plenum Chamber Cover; Plenum Chamber Cover, Removing and Installing .
- Release and disconnect the connector -2-.





- Remove the nut -3- and remove the Alarm Horn - H12- -1- from the plenum chamber.

Installing

Install in reverse order of removal. Note the following:

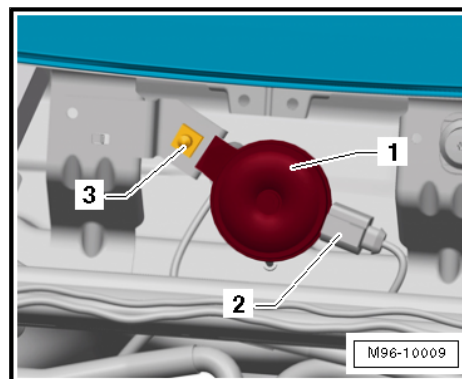
- Tighten the threaded connections to the tightening specification.

Alarm Horn - H12- , Checking.

The Alarm Horn - H12- can be checked using the Vehicle Electrical System Control Module - J519- output diagnostic test. Refer to
⇒ [“2.2.5 Vehicle Electrical System Control Module J519 , Output Diagnostic Test Mode”](#), page 323 .

Tightening Specifications

- ♦ Refer to ⇒ [“4.1 Overview - Interior Monitoring”](#), page 303



4.5 Interior Monitoring Sensor - G273- , Removing and Installing



Caution

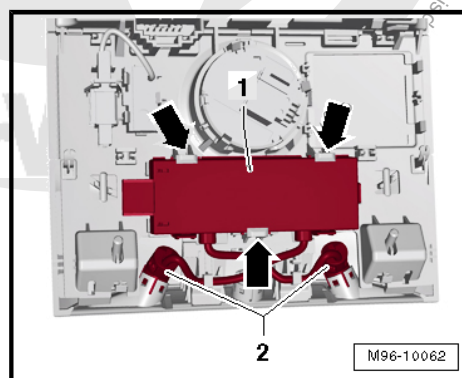
- ♦ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Removing the Front Interior Lamp - W1- . Refer to ⇒ [“2.29 Front Interior Lamp/Reading Lamp, Removing and Installing”](#), page 295 .
- Unclip the sensors -2-.
- Remove the cable from the cable guide.
- Release the tabs -arrows- and remove the Interior Monitoring Sensor - G273- -1- with the sensors -2- from the Front Interior Lamp - W1- .

Installing

Install in reverse order of removal.



4.6 Engine Hood Contact Switch - F266- , Removing and Installing

Engine Hood Contact Switch - F266- is integrated in lid lock and cannot be replaced separately.



If there is a malfunction, the entire latch must be replaced. Refer to ⇒ Body Exterior; Rep. Gr. 55 ; Hood; Latch, Removing and Installing .

4.7 Anti-Theft Alarm System Adaptations

⇒ [“4.7.1 Alarm Delay when Opening the Driver Door, Adapting”, page 307](#)

⇒ [“4.7.2 Alarm Horn H12 , Adapting Market Version”, page 307](#)

4.7.1 Alarm Delay when Opening the Driver Door, Adapting

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 09 - vehicle electrical system control module
 - ◆ Vehicle electrical system control module functions
 - ◆ Anti-theft alarm delay when opening driver door

4.7.2 Alarm Horn - H12- , Adapting Market Version

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 09 - vehicle electrical system control module
 - ◆ Vehicle electrical system control module functions
 - ◆ Market version for the intelligent alarm horn, adapting



5 Cigarette Lighter and Socket

⇒ "5.1 Converter with Socket, Removing and Installing",
page 308

5.1 Converter with Socket, Removing and Installing



WARNING

- ◆ *In the housing for the Converter with Socket, 12 V-230 V - U13- / Converter with Socket, 12 V-115 V - U27- there are condensers that can be charged with residual voltage.*
- ◆ *There is a danger of electric shock.*
- ◆ *The housing for the Converter with Socket, 12 V-230 V - U13- / Converter with Socket, 12 V-115 V - U27- must not be opened at any time.*

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-

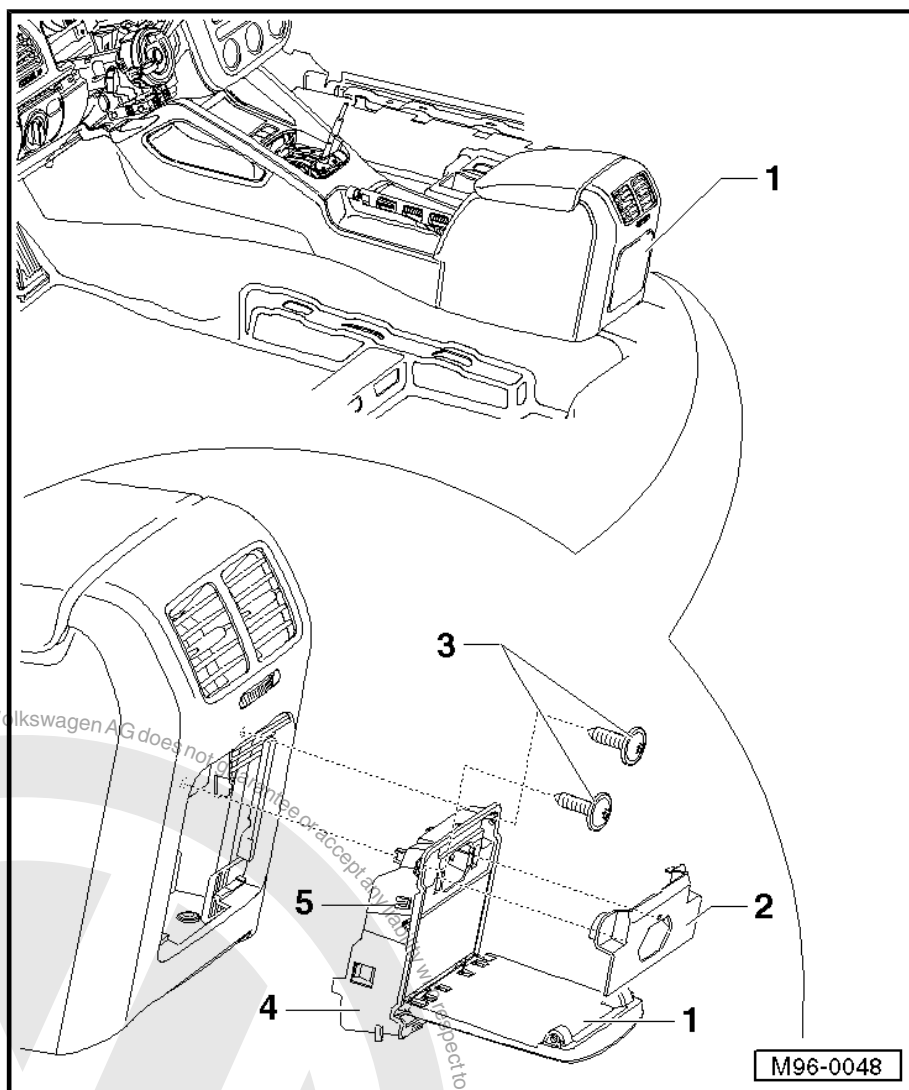


Caution

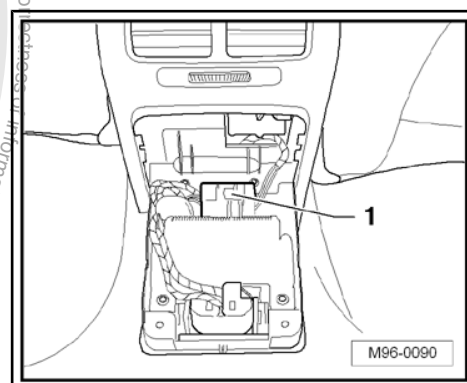
- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409- , screwdriver) with commercially available adhesive tape.*
- ◆ *The connections, wires or 230 V socket/115 V socket must not be repaired under any circumstances.*
- ◆ *If there is a connection, wire or 230 V socket/115 V socket malfunction, replace the entire unit.*

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Open the cover -1-
- Using a Trim Removal Wedge - 3409- , remove the socket cover -2- (clipped into both sides of the socket).
- Remove the two bolts -3-.
- Remove the inner socket unit -4-. Both side brackets -5- must be loosened to do this.



- Release and disconnect the connector -1-.
- Release the socket -4- at the tabs -arrows- and remove it from the trim.
- Remove the bolts -2 and 3-.





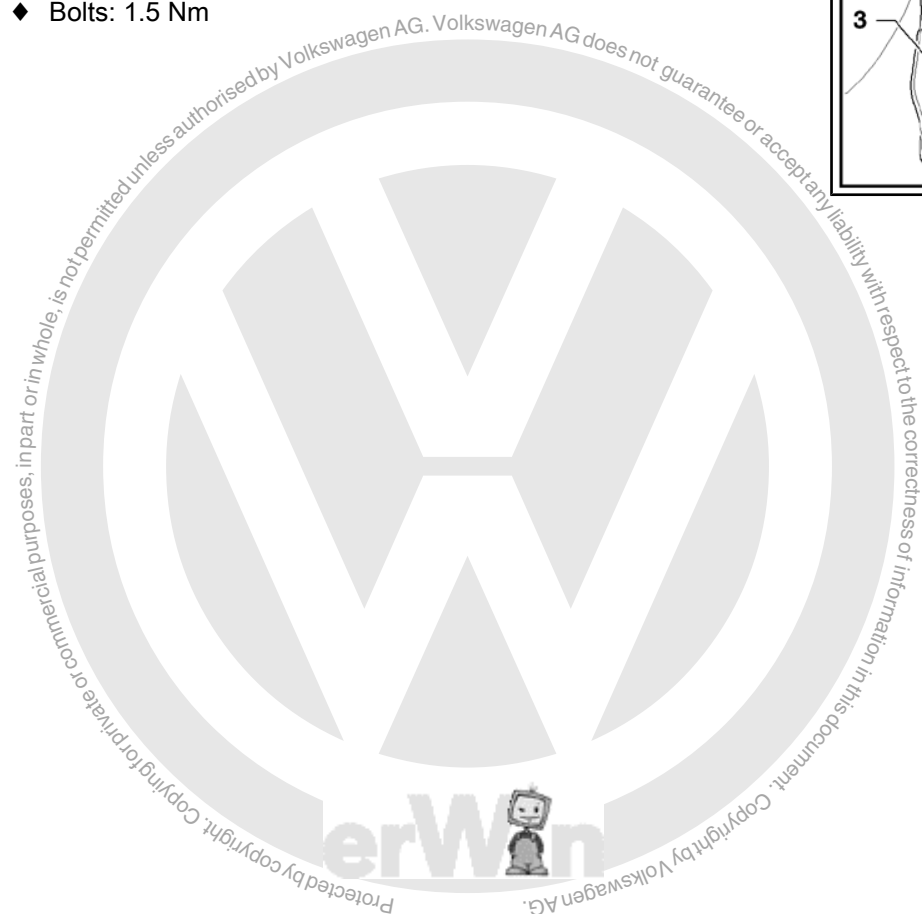
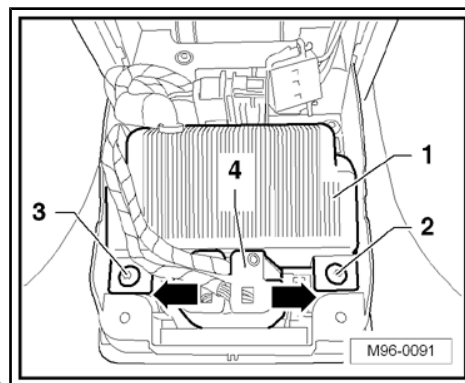
- Remove the converter -1-.

Installing

Install in reverse order of removal.

Tightening Specifications

- ◆ Bolts: 1.5 Nm

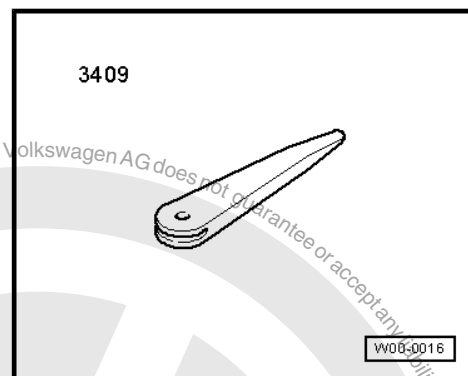




6 Special Tools

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-





97 – Wiring

1 Relay Panels, Fuse Panels and E-Boxes

⇒ [“1.1 Component Location Overview - Relay Panels, Fuse Panels and E-Boxes”, page 312](#)

⇒ [“1.2 E-Box, Removing and Installing”, page 313](#)

⇒ [“1.3 E-Box Relay and Fuse Panels, Removing and Installing”, page 314](#)

⇒ [“1.4 Relay and Fuse Panel Behind Instrument Panel on Driver Side, Removing and Installing”, page 315](#)

⇒ [“1.5 Fuse Panel on Battery A, Removing and Installing, High-Voltage Vehicle”, page 317](#)

1.1 Component Location Overview - Relay Panels, Fuse Panels and E-Boxes

1 - Relay Panel on Vehicle Electrical System Control Module - J519-

- ❑ Removing and installing. Refer to
⇒ [“1.4.2 Relay Panel on Vehicle Electrical System Control Module J519, Removing and Installing”, page 316](#).

2 - Fuse Panel Behind the Instrument Panel on the Driver Side

- ❑ Removing and installing. Refer to
⇒ [“1.4.1 Fuse Panel behind Driver Side Instrument Panel, Removing and Installing”, page 315](#).

3 - Screw

- ❑ 2.5 Nm
- ❑ Quantity: 2

4 - Nut

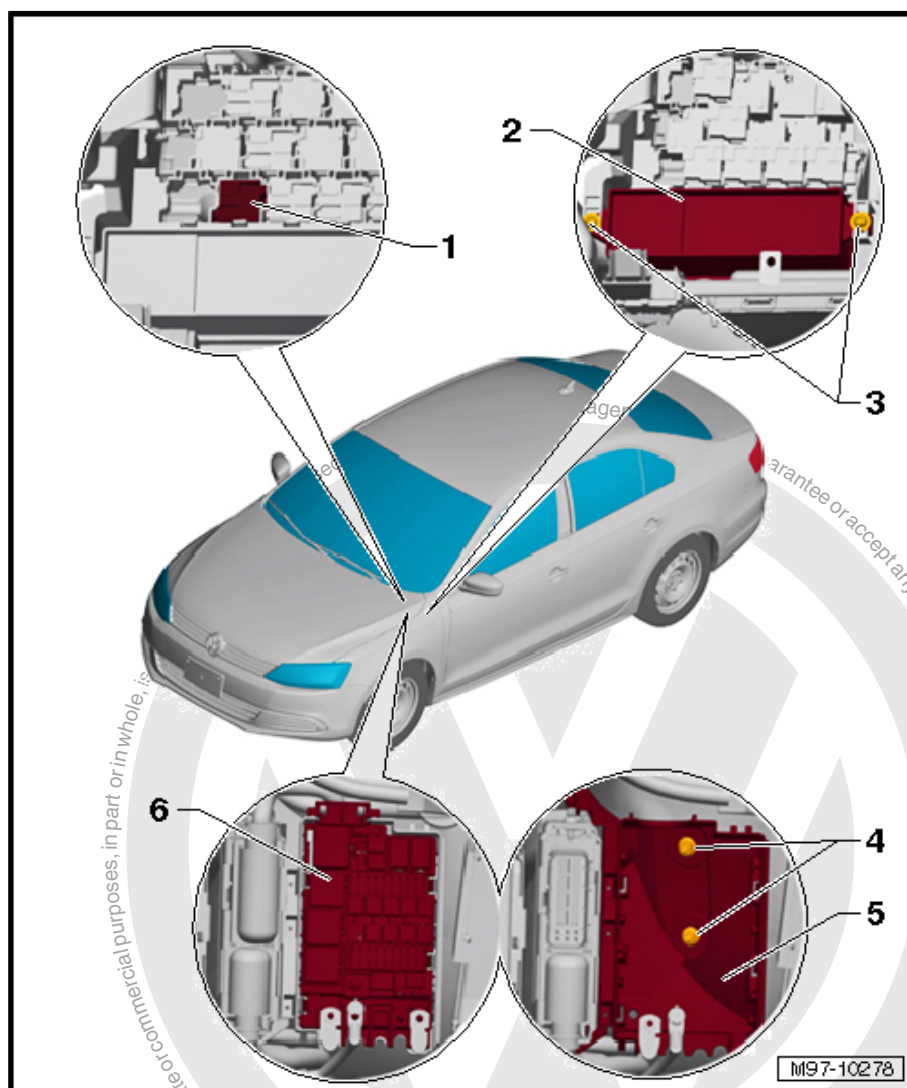
- ❑ 6 Nm
- ❑ Quantity: 2

5 - E-Box

- ❑ Removing and installing. Refer to
⇒ [“1.2 E-Box, Removing and Installing”, page 313](#).

6 - Relay and Fuse Panel in the E-box

- ❑ Removing and installing. Refer to ⇒ [“1.3 E-Box Relay and Fuse Panels, Removing and Installing”, page 314](#).





No Illustration

- ◆ Nuts (wire connections to the E-box): 9 Nm

1.2 E-Box, Removing and Installing

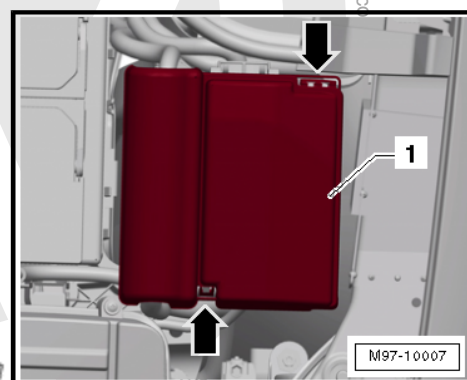


Caution

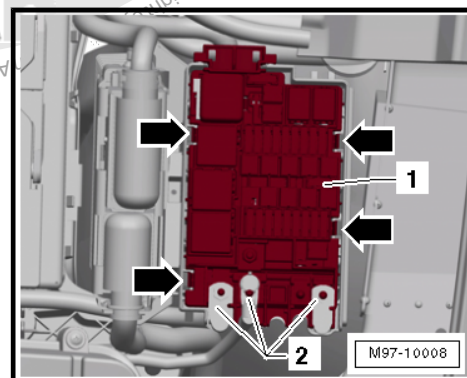
Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to ⇒ "1.5 Battery, Disconnecting and Connecting", page 7 .

Removing

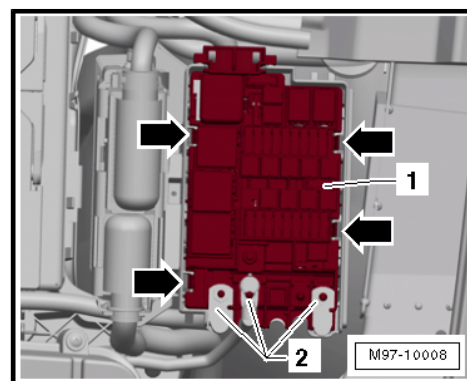
- Disconnect the Battery - A- . Refer to ⇒ "1.5 Battery, Disconnecting and Connecting", page 7 .
- Press the catches in the direction of -arrow- and remove the cover from the E-box -1-.



- Disconnect the wires -2-.
- Remove the wires from the connecting pins.



- Press the tabs -arrows- on the relay and fuse panel -1-.
- Remove the relay and fuse panel -1- from the E-box.
- Pull the Engine Control Module - J623- -4- with the bracket from the E-box -1-.
- Remove the nuts -2- for the E-box -1-.



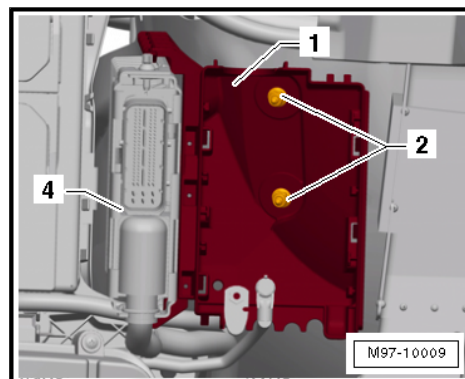


- Remove the E-box -1- from the vehicle.

Installing

Install in reverse order of removal. Note the following:

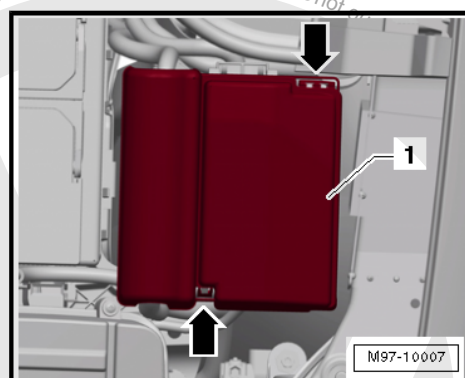
- Tighten the threaded connections to the tightening specification.
- Connect the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .



- Then check whether the cover -1- of the E-box is correctly engaged.

Tightening Specifications

- ♦ Refer to
⇒ [“1.1 Component Location Overview - Relay Panels, Fuse Panels and E-Boxes”, page 312](#)



1.3 E-Box Relay and Fuse Panels, Removing and Installing

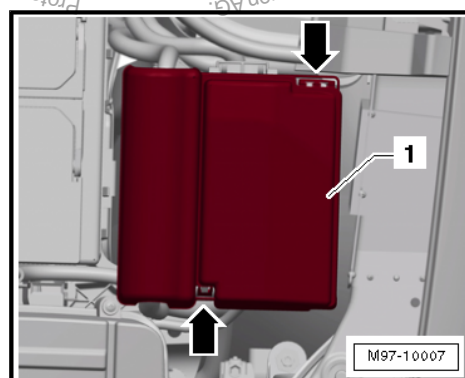


Caution

*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .*

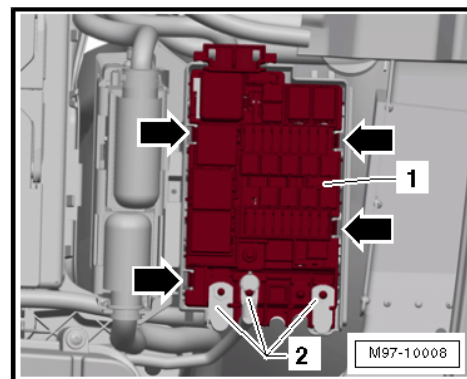
Removing

- Disconnect the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .
- Press the catches in the direction of -arrow- and remove the cover from the E-box -1-.
- Disconnect the wires -2-.





- Remove the wires from the connecting pins.
- Press the tabs -arrows- on the relay and fuse panel -1-.

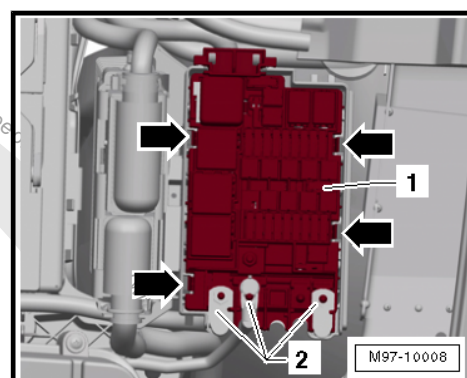


- Remove the relay and fuse panel -1- from the E-box.

Installing

Install in reverse order of removal. Note the following:

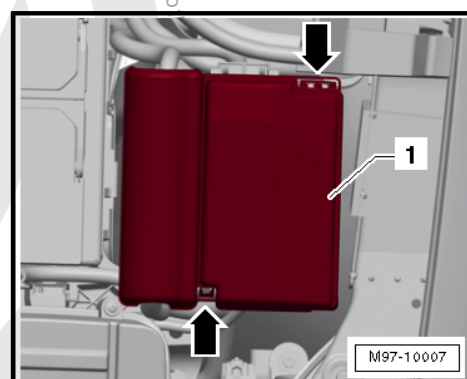
- Tighten the threaded connections to the tightening specification.
- Connect the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .



- Then check whether the cover -1- of the E-box is correctly engaged.

Tightening Specifications

- ◆ Refer to
⇒ [“1.1 Component Location Overview - Relay Panels, Fuse Panels and E-Boxes”, page 312](#)



1.4 Relay and Fuse Panel Behind Instrument Panel on Driver Side, Removing and Installing

⇒ [“1.4.1 Fuse Panel behind Driver Side Instrument Panel, Removing and Installing”, page 315](#)

⇒ [“1.4.2 Relay Panel on Vehicle Electrical System Control Module J519, Removing and Installing”, page 316](#)

1.4.1 Fuse Panel behind Driver Side Instrument Panel, Removing and Installing



Caution

*Always follow the instructions regarding disconnecting and connecting the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .*



Caution

- ◆ *When removing and installing components in visible area (switches, covers, trim, etc.), cover the areas that will come in contact with a prying tool (Trim Removal Wedge - 3409-, screwdriver) with commercially available adhesive tape.*

Removing

- Disconnect the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .
- Remove the instrument panel cover on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Driver Side Instrument Panel Cover, Removing and Installing .
- Remove the bolts -1- and guide the fuse panel -2- downward.

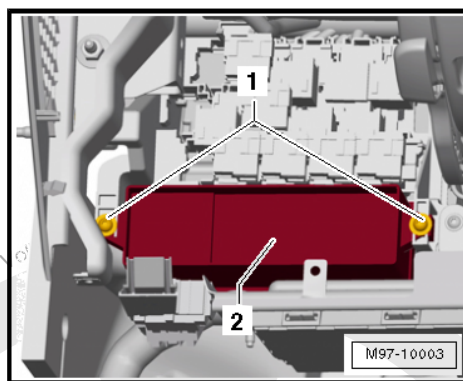
Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification.
- Connect the Battery - A- . Refer to
⇒ [“1.5 Battery, Disconnecting and Connecting”, page 7](#) .

Tightening Specifications

- ◆ Refer to
⇒ [“1.1 Component Location Overview - Relay Panels, Fuse Panels and E-Boxes”, page 312](#)



1.4.2 Relay Panel on Vehicle Electrical System Control Module - J519-, Removing and Installing

The relay panel on the Vehicle Electrical System Control Module - J519- is attached to the instrument panel central tube and cannot be removed without removing the instrument panel.

The individual relay sockets can be removed without having to remove the relay panel.

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the instrument panel cover on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Driver Side Instrument Panel Cover, Removing and Installing .
- Remove the relay from the relay panel.

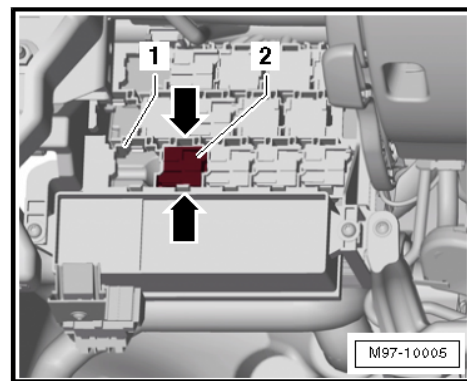
The number of relays is dependent on vehicle equipment.



- Clip the tabs -arrows- toward the outside and push the connector -2- through the relay panel -1-.

Installing

Install in reverse order of removal.



1.5 Fuse Panel on Battery - A- Removing and Installing, High-Voltage Vehicle

The Battery - A- inside the luggage compartment (high-voltage vehicle) has a fuse panel for the 12 V on the positive terminal.

Removing

- Disconnect the Battery - A- . Refer to ["1.5.3 Battery A in Luggage Compartment, Disconnecting, High-Voltage Vehicle", page 9](#) .
- Remove the nut -arrow- from the positive terminal.
- Remove the fuse panel -1- from the Battery - A- -2-.

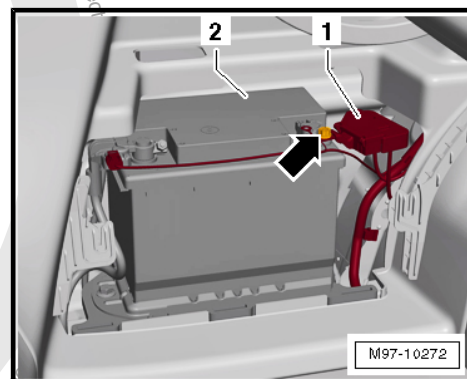
Installing

Install in reverse order of removal. Note the following:

- Tighten the threaded connections to the tightening specification.
- Connect the Battery - A- . Refer to ["1.5.4 Battery A in Luggage Compartment, Connecting, High-Voltage Vehicle", page 10](#) .

Tightening Specifications

- ◆ Refer to ["1.3.2 Overview - Battery A in Luggage Compartment, High-Voltage Vehicle", page 3](#)





2 Control Modules

⇒ ["2.1 Component Location Overview - Control Modules", page 318](#)

⇒ ["2.2 Vehicle Electrical System Control Module J519, Removing and Installing", page 319](#)

⇒ ["2.3 Data Bus on Board Diagnostic Interface J533, Removing and Installing", page 326](#)

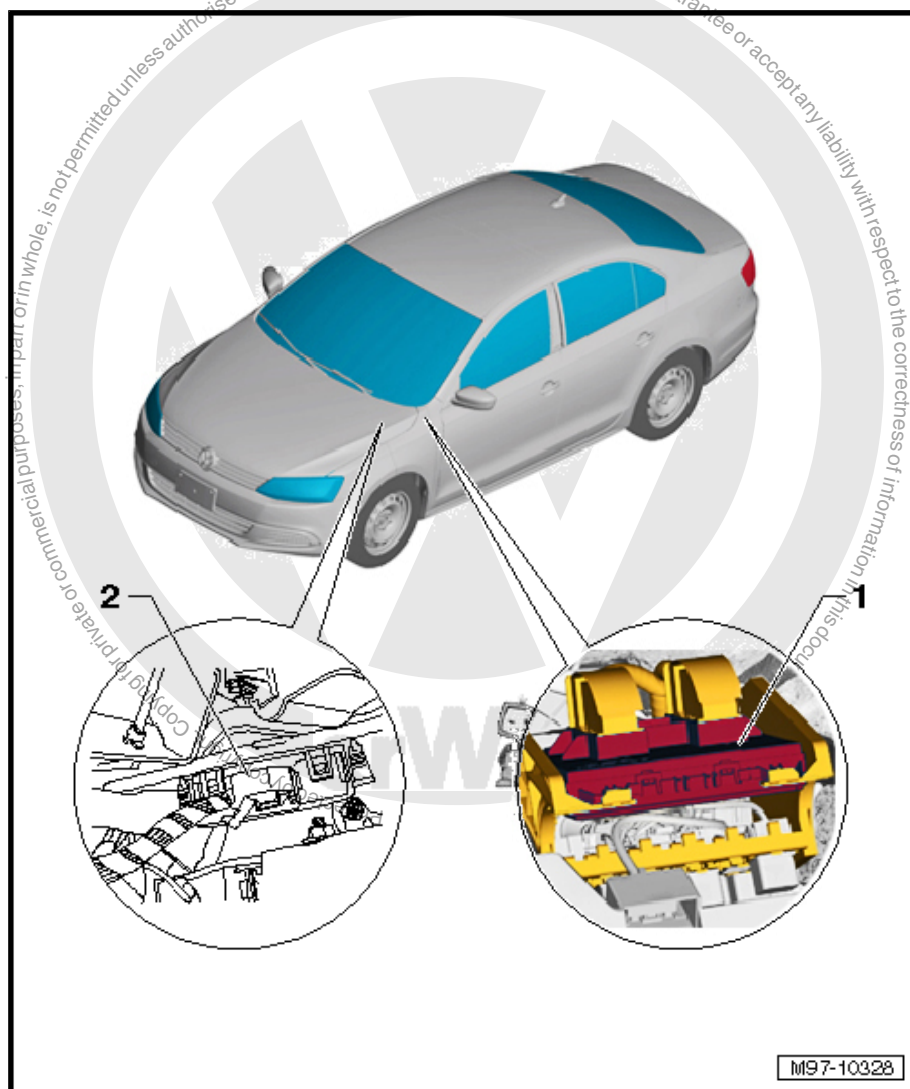
2.1 Component Location Overview - Control Modules

1 - Vehicle Electrical System Control Module - J519-

- ❑ Removing and installing. Refer to
⇒ ["2.2 Vehicle Electrical System Control Module J519, Removing and Installing", page 319](#).

2 - Data Bus on Board Diagnostic Interface - J533-

- ❑ Removing and installing. Refer to
⇒ ["2.3 Data Bus on Board Diagnostic Interface J533, Removing and Installing", page 326](#).





2.2 Vehicle Electrical System Control Module - J519- , Removing and Installing

⇒ [“2.2.1 Vehicle Electrical System Control Module J519 Description”, page 319](#)

⇒ [“2.2.2 Vehicle Electrical System Control Module J519 , Removing and Installing, High Version”, page 321](#)

⇒ [“2.2.3 Vehicle Electrical System Control Module J519 , Removing and Installing, Low Version”, page 322](#)

⇒ [“2.2.4 Vehicle Electrical System Control Module J519 , Replacing”, page 323](#)

⇒ [“2.2.5 Vehicle Electrical System Control Module J519 , Output Diagnostic Test Mode”, page 323](#)

⇒ [“2.2.6 Vehicle Electrical System Control Module J519 , Coding”, page 324](#)

⇒ [“2.2.7 Vehicle Electrical System Control Module J519 , Deactivating Factory Mode”, page 325](#)

⇒ [“2.2.8 Remote Control Key, Adapting”, page 325](#)

⇒ [“2.2.9 Remote Control Key, Checking”, page 325](#)

⇒ [“2.2.10 Rain/Light Recognition Sensor G397 , Coding”, page 325](#)

2.2.1 Vehicle Electrical System Control Module - J519- Description

General Information

The Vehicle Electrical System Control Module - J519- is clipped to the bottom of the relay panel and can be removed.

In the Low version, the Data Bus On Board Diagnostic Interface - J533- is integrated in the Vehicle Electrical System Control Module - J519- .

The Vehicle Electrical System Control Module - J519- Has the following Functions in the Vehicle:

Low Version

- ◆ Audible confirmation when locking and unlocking
- ◆ Expressway blinking, activating/deactivating
- ◆ Adapting automatic unlocking when key is removed
- ◆ Adapts automatic locking at 15 km/h
- ◆ Adapting the automatic locking mechanism of the rear lid at 5 km/h
- ◆ Activates and deactivates parking lamp on both sides
- ◆ Adapts the blink cycles for convenience turn signals
- ◆ Vehicle Electrical System Control Module - J519- , Coding
- ◆ Adapts single door opening
- ◆ Deactivates factory mode
- ◆ Confirms convenience closing with turn signals
- ◆ Market version for the intelligent alarm horn, adapting
- ◆ Reads the measured value for the Vehicle Electrical System Control Module - J519- Convenience



- ◆ Reads the measured value for the Vehicle Electrical System Control Module - J519- central electric
- ◆ Interior light control
- ◆ Activates/deactivates emergency braking blinking
- ◆ Activates/deactivates emergency blinking
- ◆ Optical confirmation when locking and unlocking
- ◆ Activates/deactivates parking lamps
- ◆ Coding the Rain/Light Recognition Sensor - G397-
- ◆ Adapts the switch-on time for the exterior mirror heating
- ◆ Adapts the switch-on time for the rear window defogger
- ◆ Adapts the remote control key
- ◆ Remote Control Key, Checking
- ◆ Activates/deactivates the windshield wiper service position
- ◆ Adapts horn at terminal 15
- ◆ Activates/deactivates position lamp at terminal 15
- ◆ Vehicle Electrical System Control Module - J519- output diagnostic test mode
- ◆ Activates/deactivates intermediate wiping

High Version

- ◆ Electric load management/exterior lighting control
- ◆ Turn signal control
- ◆ Windshield wiper and washer system
- ◆ Coding the Rain/Light Recognition Sensor - G397-
- ◆ Rear window defogger
- ◆ Interior light control
- ◆ Terminal control
- ◆ Dimming, instrument illumination
- ◆ Footwell lamps
- ◆ Fuel pump supply
- ◆ Pre-energizing of the generator
- ◆ Horn
- ◆ Warning lamp
- ◆ Release control
- ◆ Control central locking
- ◆ Activates front and rear door control modules
- ◆ Activates the rear lid remote unlock
- ◆ Activates the fuel filler door unlock
- ◆ Activates the anti-theft alarm system
- ◆ Immobilizer activation
- ◆ Activates the start authorization
- ◆ Adapts acoustic acknowledgement when unlocking
- ◆ Adapts acoustic acknowledgement when locking



- ◆ Adapts the blinking cycle during one-touch lane change signaling
- ◆ Adapting automatic unlocking when key is removed
- ◆ Adapts automatic locking at 15 km/h
- ◆ Adapts convenience locking confirmation
- ◆ Adapts coming home time
- ◆ Adapts leaving home time
- ◆ Adapts anti-theft alarm delay when opening driver door
- ◆ Adapts single door opening
- ◆ Deactivates factory mode
- ◆ Adapts footwell illumination intensity
- ◆ Adapts Convenience operation via remote control
- ◆ Market version for the intelligent alarm horn, adapting
- ◆ Adapts the visual acknowledgment when locking
- ◆ Adapts the remote control key
- ◆ Remote Control Key, Checking
- ◆ Vehicle Electrical System Control Module - J519- output diagnostic test mode
- ◆ Deactivates the Wiper Motor Control Module - J400- APP function
- ◆ Vehicle Electrical System Control Module - J519- , Coding

It depends on the vehicle equipment whether the adaptations listed above can be performed.

If the Vehicle Electrical System Control Module - J519- is to be replaced, the "Replace the vehicle electrical system control module" procedure must always be performed to read out the codes stored in the Vehicle Electrical System Control Module - J519- .

Malfunction Recognition and Malfunction Indicator

The Vehicle Electrical System Control Module - J519- is equipped with OBD.

For troubleshooting: Refer to Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

2.2.2 Vehicle Electrical System Control Module - J519- , Removing and Installing, High Version

If the Vehicle Electrical System Control Module - J519- is to be replaced, the "Replace the vehicle electrical system control module" procedure must always be performed to read out the data stored in the Vehicle Electrical System Control Module - J519- . Refer to

⇒ ["2.2.4 Vehicle Electrical System Control Module J519 , Replacing", page 323](#) .

It is permissible for the number of connectors to deviate from the illustration, depending on the vehicle variants.

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the instrument panel cover on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68; Storage Compartments and



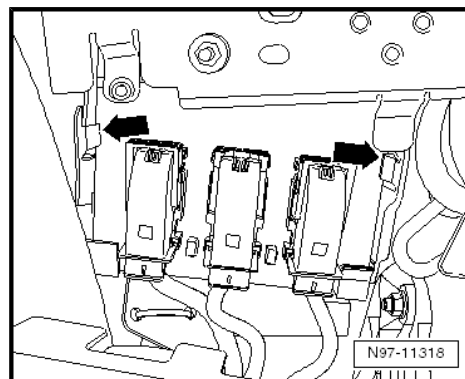
Covers; Driver Side Instrument Panel Cover, Removing and Installing .

- Press the catches -arrows- and swivel the Vehicle Electrical System Control Module - J519- downward.
- Pull the Vehicle Electrical System Control Module - J519- downward and opposite the drive direction and remove it from the bracket.
- Release and disconnect the connectors.

Installing

Install in reverse order of removal. Note the following:

- Insert the Vehicle Electrical System Control Module - J519- first with the back of the module into the bracket and push it up until it audibly latches.



2.2.3 Vehicle Electrical System Control Module - J519- , Removing and Installing, Low Version

If the Vehicle Electrical System Control Module - J519- is to be replaced, the "Replace the vehicle electrical system control module" procedure must always be performed to read out the data stored in the Vehicle Electrical System Control Module - J519- . Refer to

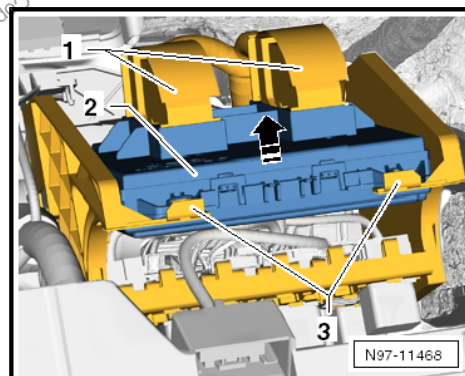
⇒ ["2.2.4 Vehicle Electrical System Control Module J519 , Replacing" page 323](#) .

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the instrument panel cover on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Driver Side Instrument Panel Cover, Removing and Installing
- Loosen the locking mechanisms -3- and push the Vehicle Electrical System Control Module - J519- -2- downward in the direction of -arrow-.
- Release and disconnect the connectors -1-.

Installing

Install in reverse order of removal.





2.2.4 Vehicle Electrical System Control Module - J519- , Replacing

The work procedure "replace the vehicle electrical system control module" contains the following scope of work:

- ◆ If a new Vehicle Electrical System Control Module - J519- is installed, it must be coded online.
- ◆ The factory mode in the Vehicle Electrical System Control Module - J519- is deactivated.
- ◆ All of the remote keys are programmed again.

The Procedure to "Replace the Vehicle Electrical System Control Module" Can Only Be Performed. Refer to Vehicle Diagnostic Tester in the "Guided Fault Finding" Function.

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the Guided Fault Finding mode.
- Use the GO TO button to select the "function/component selection" and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 09 - vehicle electrical system control module
 - ◆ Vehicle electrical system control module functions
 - ◆ Replace the vehicle electrical system control module

2.2.5 Vehicle Electrical System Control Module - J519- , Output Diagnostic Test Mode

It depends on the vehicle equipment whether the components listed below can be checked.

Check the following components and functions via the output diagnostic test mode of the Vehicle Electrical System Control Module - J519- :

- ◆ Left Position Lamp Bulb - M1- / Right Position Lamp Bulb - M3- / Left Tail Lamp Bulb - M4- / Right Tail Lamp Bulb - M2-
- ◆ Left Low Beam Headlamp Bulb - M29- / Right Low Beam Headlamp Bulb - M31-
- ◆ Left Daytime Running Lamp Bulb - L174- / Right Daytime Running Lamp Bulb - L175-
- ◆ Left High Beam Headlamp Bulb - M30- / Right High Beam Headlamp Bulb - M32-
- ◆ Left Front Fog Lamp Bulb - L22- / Right Front Fog Lamp Bulb - L23-
- ◆ Right Back-Up Lamp Bulb - M17- / Left Back-Up Lamp Bulb - M16-
- ◆ Left Brake Lamp Bulb - M9- / Right Brake Lamp Bulb - M10- / High-Mounted Brake Lamp Bulb - M25-
- ◆ Left Front Turn Signal Bulb - M5- / Left Rear Turn Signal Bulb - M6-



- ◆ Right Front Turn Signal Bulb - M7- / Right Rear Turn Signal Bulb - M8-
- ◆ License Plate Lamp - X-
- ◆ Interior light dimmed
- ◆ Instrument illumination of all buttons and switches and of instrument cluster
- ◆ Terminal 30 Power Supply Relay - J317-
- ◆ Heated rear window
- ◆ Heated exterior rearview mirror
- ◆ Enabling - Sliding/Tilting Sunroof
- ◆ Enabling of seat heater
- ◆ Fuel Pump Relay - J17-
- ◆ Windshield wiper
- ◆ Wiper module reversing point
- ◆ Windshield Washer Pump - V5-
- ◆ Dual Tone Horn Relay - J4- / Signal Horn and Dual Tone Horn - H1-
- ◆ Luggage compartment lock

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the Guided Fault Finding mode.
- Use the GO TO button to select the "function/component selection" and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 09 - vehicle electrical system control module
 - ◆ Vehicle electrical system control module functions
 - ◆ Vehicle electrical system control module output diagnostic test

2.2.6 Vehicle Electrical System Control Module - J519- , Coding

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the Guided Fault Finding mode.
- Use the GO TO button to select the "function/component selection" and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 09 - vehicle electrical system control module
 - ◆ Vehicle electrical system control module functions
 - ◆ Coding the vehicle electrical system control module online



2.2.7 Vehicle Electrical System Control Module - J519- , Deactivating Factory Mode

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 09 - vehicle electrical system control module
 - ◆ Vehicle electrical system control module functions
 - ◆ Deactivates factory mode

2.2.8 Remote Control Key, Adapting

Procedure

- Connect the Vehicle Diagnostic Tester
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 09 - vehicle electrical system control module
 - ◆ Vehicle electrical system control module functions
 - ◆ Adapts the remote control key

2.2.9 Remote Control Key, Checking

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 09 - vehicle electrical system control module
 - ◆ Vehicle electrical system control module functions
 - ◆ Remote Control Key, Checking

2.2.10 Rain/Light Recognition Sensor - G397- , Coding

Procedure

- Connect the Vehicle Diagnostic Tester .



- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 09 - vehicle electrical system control module
 - ◆ Vehicle electrical system control module functions
 - ◆ Rain/light recognition sensor, coding

2.3 Data Bus on Board Diagnostic Interface - J533- , Removing and Installing

⇒ ["2.3.1 Data Bus On Board Diagnostic Interface J533 Description", page 326](#)

⇒ ["2.3.2 Data Bus On Board Diagnostic Interface J533 , Replacing", page 327](#)

⇒ ["2.3.3 Data Bus On Board Diagnostic Interface J533 , Removing and Installing, High Version", page 327](#)

⇒ ["2.3.5 Data Bus On Board Diagnostic Interface J533 , Coding", page 328](#)

⇒ ["2.3.6 Data Bus on Board Diagnostic Interface J533 , Checking Bus Activity", page 329](#)

⇒ ["2.3.7 Data Bus on Board Diagnostic Interface J533 , Adapting Bus Participants", page 329](#)

2.3.1 Data Bus On Board Diagnostic Interface - J533- Description

There is a Low and High version of the Data Bus On Board Diagnostic Interface - J533- .

High Version General Description

The Data Bus On Board Diagnostic Interface - J533- is designed as a separate control module. It has the following tasks in the vehicle:

- ◆ Exchanges the data between the powertrain CAN bus, Convenience CAN bus and Infotainment CAN bus.

Vehicle Electrical System Control Module - J519- , removing and installing. Refer to

⇒ ["2.2 Vehicle Electrical System Control Module J519 , Removing and Installing", page 319](#) .

If the Data Bus On Board Diagnostic Interface - J533- is to be replaced, the work procedure to read out the codes stored in the device must always be performed.

Low Version General Description

The Data Bus On Board Diagnostic Interface - J533- is integrated in the Vehicle Electrical System Control Module - J519- .

Vehicle Electrical System Control Module - J519- , removing and installing. Refer to

⇒ ["2.2 Vehicle Electrical System Control Module J519 , Removing and Installing", page 319](#) .



Malfunction Recognition and Malfunction Indicator

The Data Bus On Board Diagnostic Interface - J533- is equipped with OBD.

For troubleshooting. Refer to Vehicle Diagnostic Tester in the "Guided Fault Finding" function.

2.3.2 Data Bus On Board Diagnostic Interface - J533- , Replacing

The procedure "replace the Data bus OBED interface" contains the following work to be completed:

- ◆ If a new Data Bus On Board Diagnostic Interface - J533- is installed, it must be coded online.

The Procedure to "Replace the Data Bus on Board Diagnostic Interface" Can Only Be Performed. Refer to Vehicle Diagnostic Tester in the "Guided Fault Finding" Function.

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the "function/component selection" and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 19 - Data bus on board diagnostic interface J533
 - ◆ Functions of the Data Bus On Board Diagnostic Interface
 - ◆ Replace control module

2.3.3 Data Bus On Board Diagnostic Interface - J533- , Removing and Installing, High Version

The Data Bus On Board Diagnostic Interface - J533- is located in the driver footwell at the right next to the steering column.

Always perform the "Replace data bus on board diagnostic interface" procedure before removing the Data Bus On Board Diagnostic Interface - J533- in order to read out the data stored in the device. Refer to

⇒ ["2.3.2 Data Bus On Board Diagnostic Interface J533 , Replacing", page 327](#) .

Removing

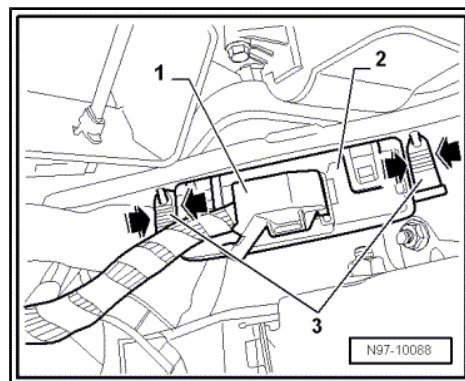
- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the instrument panel cover on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Driver Side Instrument Panel Cover, Removing and Installing .
- Release the connector -1- and remove them from the Data Bus On Board Diagnostic Interface - J533- -2-.
- Press the tabs -3- together -arrows- and pull them out of the holes.



- Remove the Data Bus On Board Diagnostic Interface - J533-2-.

Installing

Install in reverse order of removal.



2.3.4 Data Bus On Board Diagnostic Interface - J533- , Removing and Installing, RHD, High Version

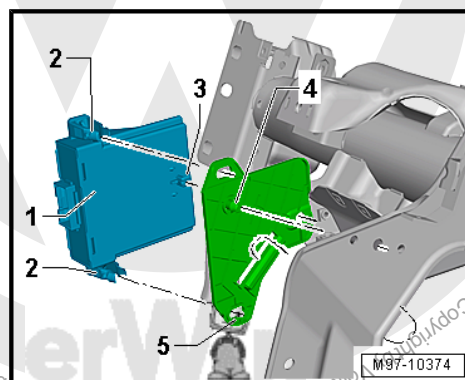
The Data Bus On Board Diagnostic Interface - J533- is located in the driver side footwell to the left on the bracket for the A/C unit.

Always perform the "Replace data bus on board diagnostic interface" procedure before removing the Data Bus On Board Diagnostic Interface - J533- in order to read out the data stored in the device. Refer to

⇒ ["2.3.2 Data Bus On Board Diagnostic Interface J533 , Replacing", page 327](#) .

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Removing and installing the instrument panel cover on the driver side. Refer to ⇒ Body Interior; Rep. Gr. 68 ; Storage Compartments and Covers; Driver Side Instrument Panel Cover, Removing and Installing .
- Remove the footwell vent on the driver side. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 80 ; Heating, Servicing; Vents, Removing, Jetta from MY 2011 .
- Release and disconnect the connector on the Data Bus On Board Diagnostic Interface - J533- .
- Press the mounting pins -2- on the Data Bus On Board Diagnostic Interface - J533- -1- together and remove it from the holes on the bracket -5-.
- Guide the retaining tab -3- on the Data Bus On Board Diagnostic Interface - J533- -1- out of the hole on the bracket -5- and remove the Data Bus On Board Diagnostic Interface - J533- .
- To remove the bracket -5- for the Data Bus On Board Diagnostic Interface - J533- and release the retainer -4-.
- Remove the bracket -5- from the A/C unit bracket.



Installing

Install in reverse order of removal.

2.3.5 Data Bus On Board Diagnostic Interface - J533- , Coding

Procedure

- Connect the Vehicle Diagnostic Tester .



- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 19 - Data bus on board diagnostic interface J533
 - ◆ Functions of the Data Bus On Board Diagnostic Interface
 - ◆ Control module, coding

2.3.6 Data Bus on Board Diagnostic Interface - J533- , Checking Bus Activity

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 19 - Data bus on board diagnostic interface J533
 - ◆ Functions of the Data Bus On Board Diagnostic Interface
 - ◆ Bus Activity, Checking

2.3.7 Data Bus on Board Diagnostic Interface - J533- , Adapting Bus Participants

This test checks the status of the connection from the Data Bus On Board Diagnostic Interface - J533- to another bus participant.

Procedure

- Connect the Vehicle Diagnostic Tester .
- Select the **Guided Fault Finding** mode.
- Use the **GO TO** button to select the “function/component selection” and the following menu options one after the other:
 - ◆ Body
 - ◆ Electrical Equipment
 - ◆ 01 - OBD-capable systems
 - ◆ 19 - Data bus on board diagnostic interface J533
 - ◆ Functions of the Data Bus On Board Diagnostic Interface
 - ◆ Adapt the intended installation list control module

2.4 Garage Door Opener Control Module - J530- , Removing and Installing

The Garage Door Opener Control Module - J530- is found in the Garage Door Opener Control Head - E284- in the sun visor.

- Garage Door Opener Control Module - J530- , removing and installing. Refer to



⇒ ["2.31 Garage Door Opener Control Head E284 , Removing and Installing", page 298](#) .





3 Connectors

⇒ ["3.1 Left Door Cut-Off Connector, Disconnecting", page 331](#)

⇒ ["3.2 Right Door Cut-Off Connector, Disconnecting", page 332](#)

⇒ ["3.3 Wiring Harnesses and Connectors, Repairing", page 333](#)

3.1 Left Door Cut-Off Connector, Disconnecting

⇒ ["3.1.1 Door Cut-Off Connector, Disconnecting, A-Pillar", page 331](#)

⇒ ["3.1.2 Door Cut-Off Connector, Disconnecting, B-Pillar", page 331](#)

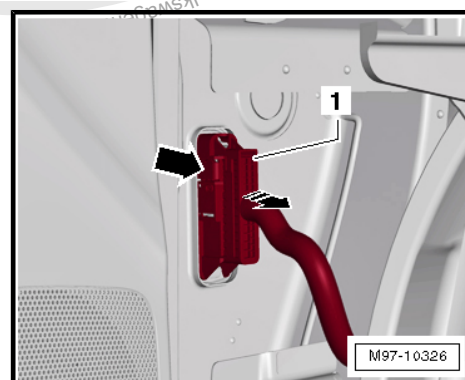
3.1.1 Door Cut-Off Connector, Disconnecting, A-Pillar

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the A-pillar lower trim panel. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Vehicle Interior Trim Panels .
- Unlock the connector -arrow- and remove the door cut-off connector -1- toward the inside in direction of -arrow-.

Installing

Install in reverse order of removal.



3.1.2 Door Cut-Off Connector, Disconnecting, B-Pillar

Removing

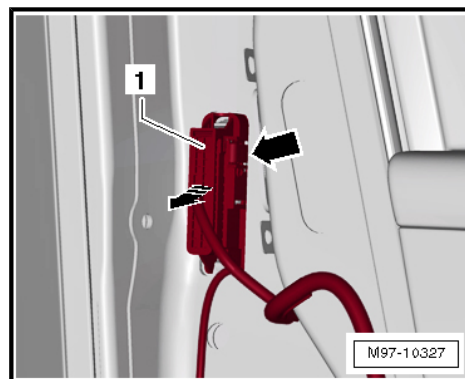
- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the B-pillar trim. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Vehicle Interior Trim Panels; B-Pillar Lower Trim Panel, Removing and Installing .



- Unlock the connector -arrow- and remove the door cut-off connector -1- toward the inside in direction of -arrow-.

Installing

Install in reverse order of removal.



3.2 Right Door Cut-Off Connector, Disconnecting

⇒ [“3.2.1 Door Cut-Off Connector, Disconnecting, A-Pillar”, page 332](#)

⇒ [“3.2.2 Door Cut-Off Connector, Disconnecting, B-Pillar”, page 332](#)

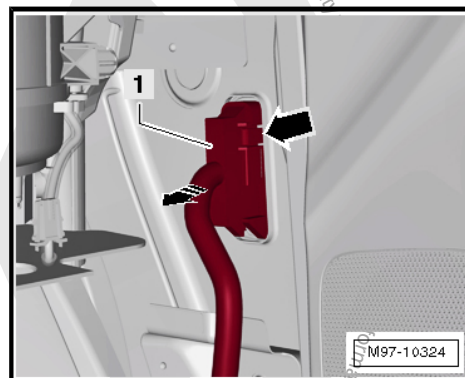
3.2.1 Door Cut-Off Connector, Disconnecting, A-Pillar

Removing

- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the A-pillar lower trim panel. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Vehicle Interior Trim Panels .
- Unlock the connector -arrow- and remove the door cut-off connector -1- toward the inside in direction of -arrow-.

Installing

Install in reverse order of removal.



3.2.2 Door Cut-Off Connector, Disconnecting, B-Pillar

Removing

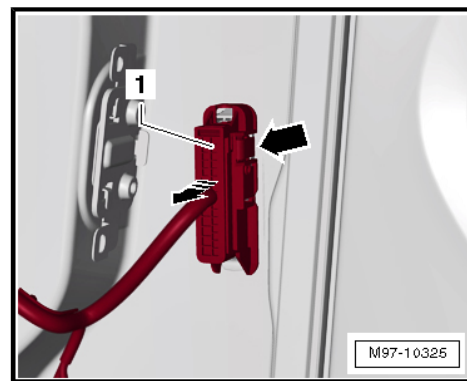
- Turn off the ignition and all electrical equipment and remove the ignition key.
- Remove the B-pillar trim. Refer to ⇒ Body Interior; Rep. Gr. 70 ; Vehicle Interior Trim Panels; B-Pillar Lower Trim Panel, Removing and Installing .



- Unlock the connector -arrow- and remove the door cut-off connector -1- toward the inside in direction of -arrow-.

Installing

Install in reverse order of removal.



3.3 Wiring Harnesses and Connectors, Repairing

Refer to ⇒ Electrical Equipment General Information; Rep. Gr. 97.



4 Vehicle Diagnostic Tester

Refer to ➔ Electrical Equipment General Information; Rep. Gr. 97 ; Vehicle Diagnostic Tester .





5 Revision History

DRUCK NUMBER: K0059071521

Fac- tory Edi- tion	Edit Edi- tion	Job Type	Fee dba ck	Notes	Quality Checke d By
01.2 016	02/1 6/20 16	Fac- tory Up- date		Update only includes changes to Overview - Horn	Joe Y
05.2 014	01/2 0/20 16	Lo- cal Fac- tory Feed back	N/A - Pro vi- ded by fac- tory	Overview - Horn ~ Changed items 1 and 2 per factory feedback	Tom P
05.2 014	10/1 2/20 15	Lo- cal Fac- tory Feed back	112 644 5	Daytime running lamp change	Tom P
05.2 014	06/1 8/20 15	Re- for- mat / Lo- cal Feed back	110 198 3	Reformat to current stand- ards, link checking. Hide references to alarm horn in plenum chamber.	Eric P.
05.2 014	01/1 4/20 15	Lo- cal Fac- tory Feed back	107 027 2	Factory update provided via email	Tom P.
05.2 014	09/1 6/20 14	Fac- tory Up- date			Tom P.
	03/1 0/20 14	Lo- cal Up- date	N/A	Factory approved V5 pump procedure update per change in SRT from Rainer.	Tom P.

Cautions & Warnings

Please read these WARNINGS and CAUTIONS before proceeding with maintenance and repair work. You must answer that you have read and you understand these WARNINGS and CAUTIONS before you will be allowed to view this information.

- If you lack the skills, tools and equipment, or a suitable workshop for any procedure described in this manual, we suggest you leave such repairs to an authorized Volkswagen retailer or other qualified shop. We especially urge you to consult an authorized Volkswagen retailer before beginning repairs on any vehicle that may still be covered wholly or in part by any of the extensive warranties issued by Volkswagen.
- Disconnect the battery negative terminal (ground strap) whenever you work on the fuel system or the electrical system. Do not smoke or work near heaters or other fire hazards. Keep an approved fire extinguisher handy.
- Volkswagen is constantly improving its vehicles and sometimes these changes, both in parts and specifications, are made applicable to earlier models. Therefore, part numbers listed in this manual are for reference only. Always check with your authorized Volkswagen retailer parts department for the latest information.
- Any time the battery has been disconnected on an automatic transmission vehicle, it will be necessary to reestablish Transmission Control Module (TCM) basic settings using the VAG 1551 Scan Tool (ST).
- Never work under a lifted vehicle unless it is solidly supported on stands designed for the purpose. Do not support a vehicle on cinder blocks, hollow tiles or other props that may crumble under continuous load. Never work under a vehicle that is supported solely by a jack. Never work under the vehicle while the engine is running.
- For vehicles equipped with an anti-theft radio, be sure of the correct radio activation code before disconnecting the battery or removing the radio. If the wrong code is entered when the power is restored, the radio may lock up and become inoperable, even if the correct code is used in a later attempt.
- If you are going to work under a vehicle on the ground, make sure that the ground is level. Block the wheels to keep the vehicle from rolling. Disconnect the battery negative terminal (ground strap) to prevent others from starting the vehicle while you are under it.
- Do not attempt to work on your vehicle if you do not feel well. You increase the danger of injury to yourself and others if you are tired, upset or have taken medicine or any other substances that may impair you or keep you from being fully alert.
- Never run the engine unless the work area is well ventilated. Carbon monoxide (CO) kills.
- Always observe good workshop practices. Wear goggles when you operate machine tools or work with acid. Wear goggles, gloves and other protective clothing whenever the job requires working with harmful substances.
- Tie long hair behind your head. Do not wear a necktie, a scarf, loose clothing, or a necklace when you work near machine tools or running engines. If your hair, clothing, or jewelry were to get caught in the machinery, severe injury could result.
- Do not re-use any fasteners that are worn or deformed in normal use. Some fasteners are designed to be used only once and are unreliable and may fail if used a second time. This includes, but is not limited to, nuts, bolts, washers, circlips and cotter pins. Always follow the recommendations in this manual - replace these fasteners with new parts where indicated, and any other time it is deemed necessary by inspection.

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Cautions & Warnings

- Illuminate the work area adequately but safely. Use a portable safety light for working inside or under the vehicle. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.
- Friction materials such as brake pads and clutch discs may contain asbestos fibers. Do not create dust by grinding, sanding, or by cleaning with compressed air. Avoid breathing asbestos fibers and asbestos dust. Breathing asbestos can cause serious diseases such as asbestosis or cancer, and may result in death.
- Finger rings should be removed so that they cannot cause electrical shorts, get caught in running machinery, or be crushed by heavy parts.
- Before starting a job, make certain that you have all the necessary tools and parts on hand. Read all the instructions thoroughly; do not attempt shortcuts. Use tools that are appropriate to the work and use only replacement parts meeting Volkswagen specifications. Makeshift tools, parts and procedures will not make good repairs.
- Catch draining fuel, oil or brake fluid in suitable containers. Do not use empty food or beverage containers that might mislead someone into drinking from them. Store flammable fluids away from fire hazards. Wipe up spills at once, but do not store the oily rags, which can ignite and burn spontaneously.
- Use pneumatic and electric tools only to loosen threaded parts and fasteners. Never use these tools to tighten fasteners, especially on light alloy parts. Always use a torque wrench to tighten fasteners to the tightening torque listed.
- Keep sparks, lighted matches, and open flame away from the top of the battery. If escaping hydrogen gas is ignited, it will ignite gas trapped in the cells and cause the battery to explode.
- Be mindful of the environment and ecology. Before you drain the crankcase, find out the proper way to dispose of the oil. Do not pour oil onto the ground, down a drain, or into a stream, pond, or lake. Consult local ordinances that govern the disposal of wastes.
- The air-conditioning (A/C) system is filled with a chemical refrigerant that is hazardous. The A/C system should be serviced only by trained automotive service technicians using approved refrigerant recovery/recycling equipment, trained in related safety precautions, and familiar with regulations governing the discharging and disposal of automotive chemical refrigerants.
- Before doing any electrical welding on vehicles equipped with anti-lock brakes (ABS), disconnect the battery negative terminal (ground strap) and the ABS control module connector.
- Do not expose any part of the A/C system to high temperatures such as open flame. Excessive heat will increase system pressure and may cause the system to burst.
- When boost-charging the battery, first remove the fuses for the Engine Control Module (ECM), the Transmission Control Module (TCM), the ABS control module, and the trip computer. In cases where one or more of these components is not separately fused, disconnect the control module connector(s).
- Some of the vehicles covered by this manual are equipped with a supplemental restraint system (SRS), that automatically deploys an airbag in the event of a frontal impact. The airbag is operated by an explosive device. Handled improperly or without adequate safeguards, it can be accidentally activated and cause serious personal injury. To guard against personal injury or airbag system failure, only trained Volkswagen Service technicians should test, disassemble or service the airbag system.

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Cautions & Warnings

- Do not quick-charge the battery (for boost starting) for longer than one minute, and do not exceed 16.5 volts at the battery with the boosting cables attached. Wait at least one minute before boosting the battery a second time.
- Never use a test light to conduct electrical tests of the airbag system. The system must only be tested by trained Volkswagen Service technicians using the VAG 1551 Scan Tool (ST) or an approved equivalent. The airbag unit must never be electrically tested while it is not installed in the vehicle.
- Some aerosol tire inflators are highly flammable. Be extremely cautious when repairing a tire that may have been inflated using an aerosol tire inflator. Keep sparks, open flame or other sources of ignition away from the tire repair area. Inflate and deflate the tire at least four times before breaking the bead from the rim. Completely remove the tire from the rim before attempting any repair.
- When driving or riding in an airbag-equipped vehicle, never hold test equipment in your hands or lap while the vehicle is in motion. Objects between you and the airbag can increase the risk of injury in an accident.

I have read and I understand these Cautions and Warnings.

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OK