Workshop Manual
Sharan 2011 ➢
Electrical system

Edition 11.2018

List of Workshop Manual Repair Groups

Repair Group

27 - Starter, current supply, CCS

90 - Gauges, instruments

92 - Windscreen wash/wipe system

94 - Lights, bulbs, switches - exterior

96 - Lights, bulbs, switches - interior

97 - Wiring

Contents

27 – Starter, current supply, CCS

1 Battery - A-

(VRL012414; Edition 11.2018)

WARNING

Danger of injury! Observe warning notices and safety regulations ⇒ page 1 !

Caution

To prevent damage to the battery and vehicle, the following should be observed concerning types of battery ⇒ page 1 .

1.1 Fundamentals for batteries

⇒ Electrical system, General information; Rep. gr. 27 ; Battery

1.2 Types of battery

⇒ Electrical system, General information; Rep. gr. 27 ; Battery

1.3 Warning notices and safety regulations

⇒ Electrical system, General information; Rep. gr. 27 ; Battery

1.4 Battery terminal connection

⇒ Electrical system, General information; Rep. gr. 27 ; Battery

2 Checking battery

⇒ **Electrical system, General information; Rep. gr. 27 ; Checking battery**

3 Charging battery

⇒ **Electrical system, General information; Rep. gr. 27 ; Charging battery**

4 Disconnecting and connecting battery

WARNING

Danger of injury! Observe warning notices and safety regulations ⇒ page 1 !

Battery recharging or jump start on vehicles with Start/Stop system:

For recharging or jump start on vehicles with start/stop system, note the following: using charging cable, first connect battery positive terminals, then body earth. This ensures that battery monitoring control unit - J367- (battery sensor) is not shunted. The direct charging of the battery on the negative terminal clamp means that the battery sensor is shunted and the battery data are not registered by the sensor while charging. Then, the values concerning the battery state and saved in the data bus diagnostic interface do not correspond to the values of the charged battery.

4.1 Assembly overview

1 - Earth wire battery terminal clamp

- ❑ Comply with instructions regarding threaded connections of battery terminals ⇒ page 1 .
- ❑ Vehicles with a start/stop system have battery monitoring control unit - J367- (battery sensor) installed in addition. Observe notes ⇒ page 4 .

2 - Securing nut for earth wire battery terminal clamp

- ❑ M6
- ❑ 6 Nm

3 - Positive wire battery terminal clamp

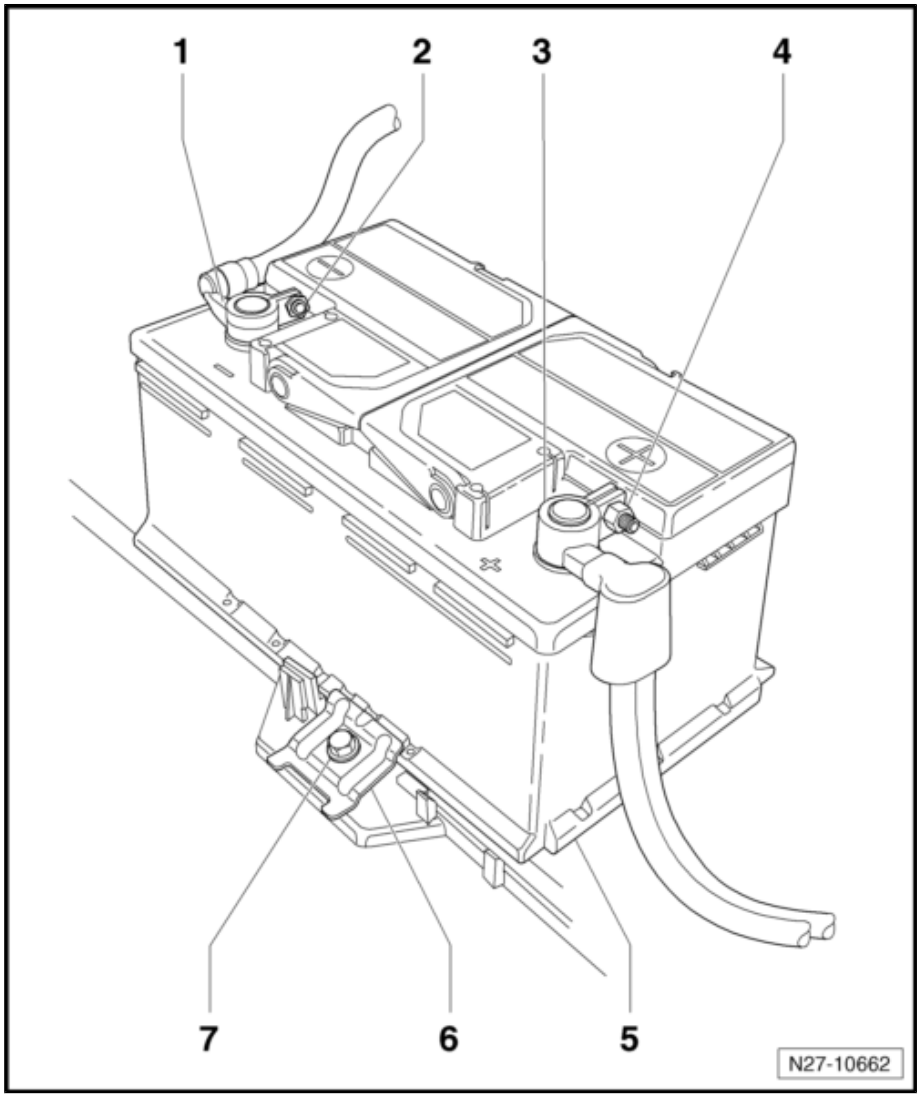
- ❑ Comply with instructions regarding threaded connections of battery terminals ⇒ page 1 .

4 - Securing nut for positive wire battery terminal clamp

- ❑ M6
- ❑ 6 Nm

5 - Battery

- ❑ Disconnecting ⇒ page 5
- ❑ Connecting



⇒ page 6

6 - Clamping plate

- ❑ Observe assembly notes

7 - Clamping plate securing nut

- ❑ M8x35
- ❑ 20 Nm

4.2 Disconnecting battery

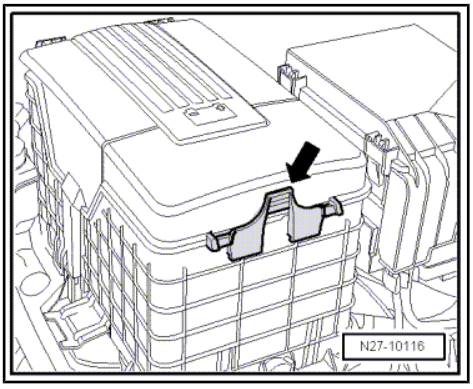
Note

- ♦ *By disconnecting the battery earth wire (open circuit), safety is ensured when carrying out work on the electrical system.*
- ♦ *The battery positive wire need only be disconnected for removal of the battery.*

– Switch off ignition and all electrical equipment and then remove ignition key.

Vehicles with battery box:

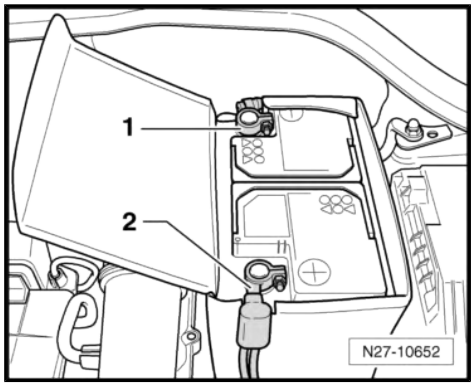
– Open locking device -arrow- and remove cover.



Vehicles with battery protective jacket:

– Open cover -1- of battery protective jacket.

– First unscrew the nut of earth cable -1- and pull off battery terminal clamp from battery negative terminal.
– Then unscrew the nut of positive cable -2- and pull off battery terminal clamp from battery positive terminal.



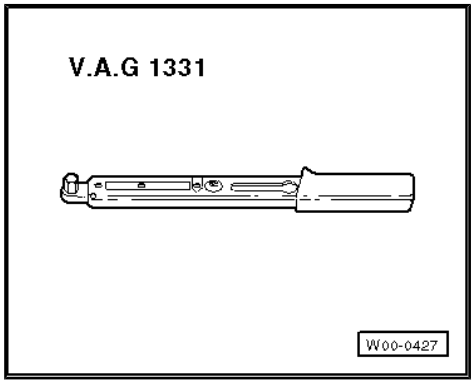
4.3 Connecting battery

Caution

Comply with instructions regarding threaded connections of battery terminals ⇒ page 1 .

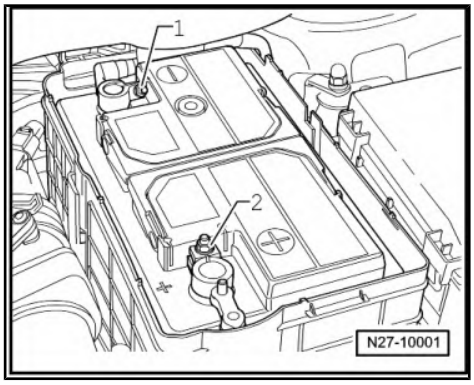
Special tools and workshop equipment required

♦ Torque wrench - V.A.G 1331-



Note

After the battery has been reconnected and the ignition is switched on, the ESP and TCS stabilisation programme warning lamp - K155- and the warning lamp for electromechanically assisted steering will light up permanently. The warning lamps will go out automatically when the vehicle is driven at 15 to 20 km/h in a straight line. This has the effect of reactivating the steering angle sender - G85- .



– Push positive cable terminal clamp -2- onto the positive terminal of battery and then tighten securing nut to prescribed torque ⇒ page 4 .
– Push earth cable terminal clamp -1- onto the negative terminal of battery and then tighten securing nut to prescribed torque ⇒ page 4 .
– Work through steps listed in table after connecting.

Work steps after connecting battery

Procedure	Performed
Switch ignition on with ignition key or start button and then switch off again.	
Read fault memory: ⇒ Vehicle diagnostic tester, `Guided fault finding`.	
Check time on clock and change as necessary.	
Electric window regulators: – Open and close all windows to limit stop in each case. – Finally when window is closed, pull the switch until the relay audibly switches. – Check convenience functions of window regulator. The window must close fully in the convenience mode, without holding the switch.	
Radio/radio navigation system: Check function, recode radio if necessary	
Clock: Check time setting and reset if necessary	
Functional check: check all electrical consumers.	

Table can be printed out if necessary.

– Fit battery box cover or cover tab of battery protective jacket.

5 Removing and installing battery

WARNING

Danger of injury! Observe warning notices and safety regulations ⇒ page 1 !

Replacing battery on vehicles with start/stop system:

Because of its higher deep-cycle resistance, only a special starter battery is used in vehicles with a start/stop system.

When renewing the starter battery, note correct part designation in ⇒ ETKA . Starter batteries for use in vehicles with a start/stop system are marked with “AGM” (Absorbent Glass Mat) or “EFB” (Enhanced Flooded Battery).

Note

- *The battery parametrisation must be performed after installing a new starter battery on vehicles with a battery sensor.*
- *The battery parametrisation sends the technical data of the new battery to the battery monitor.*
- *Performing battery parametrisation ⇒ page 10 .*

5.1 Assembly overview

1 - Earth wire battery clamp

- ❑ Comply with instructions regarding threaded connections of battery terminals ⇒ page 1
- ❑ Vehicles with a start/stop system have battery monitoring control unit - J367- (battery sensor) installed in addition. Observe notes ⇒ page 4 .

2 - Securing nut for earth wire battery clamp

- ❑ M6
- ❑ 6 Nm

3 - Positive wire battery clamp

- ❑ Comply with instructions regarding threaded connections of battery terminals ⇒ page 1

4 - Securing nut for positive wire battery clamp

- ❑ M6
- ❑ 6 Nm

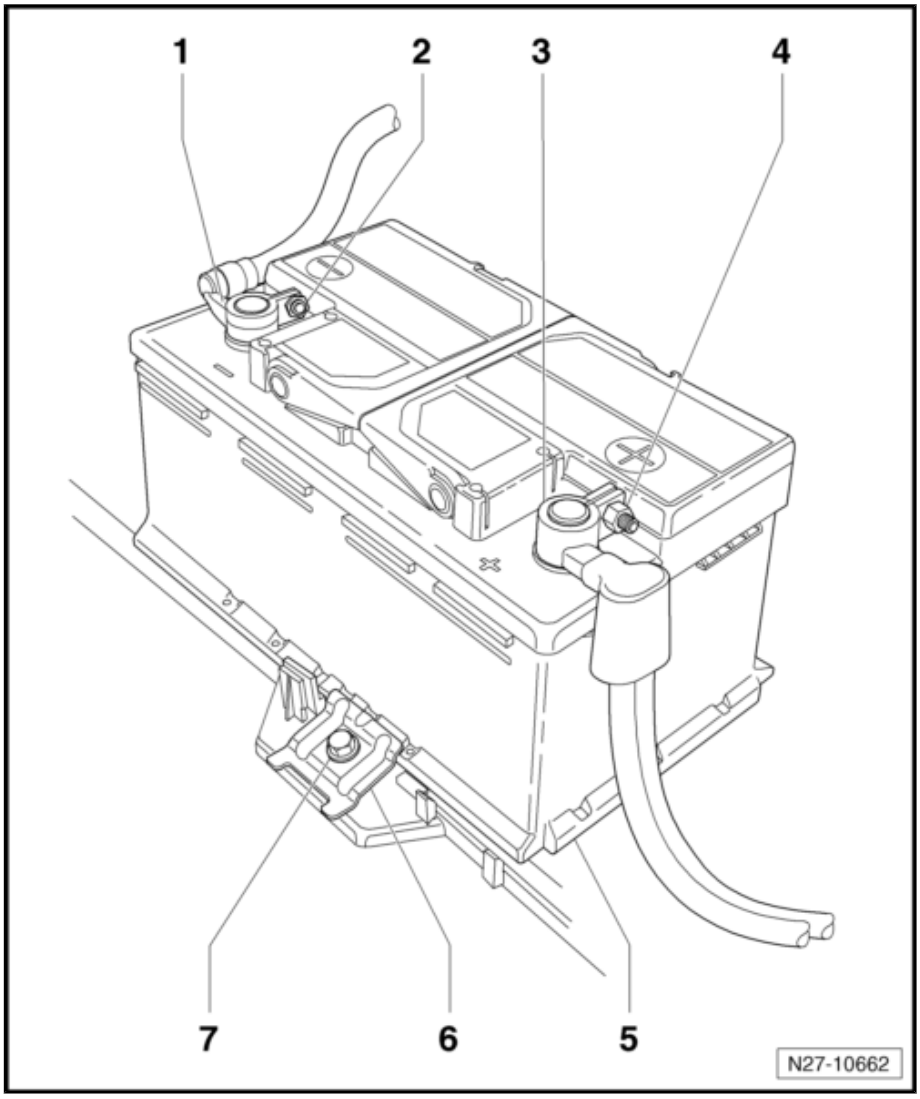
5 - Battery

- ❑ Removing and installing ⇒ page 9

6 - Clamping plate

7 - Clamping plate securing nut

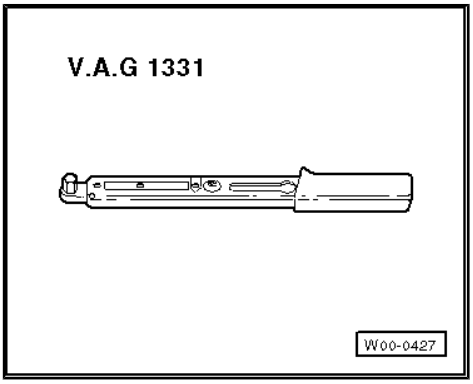
- ❑ M8 x 35
- ❑ 35 Nm



5.2 Removing and installing battery

Special tools and workshop equipment required

♦ Torque wrench - V.A.G 1331-

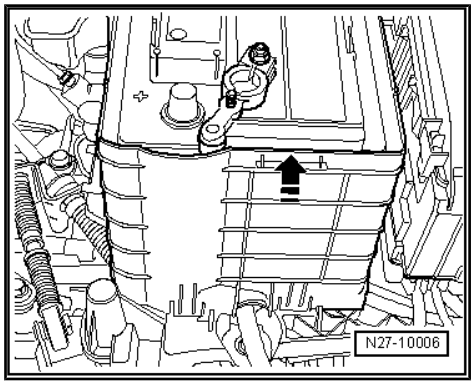


Removing:

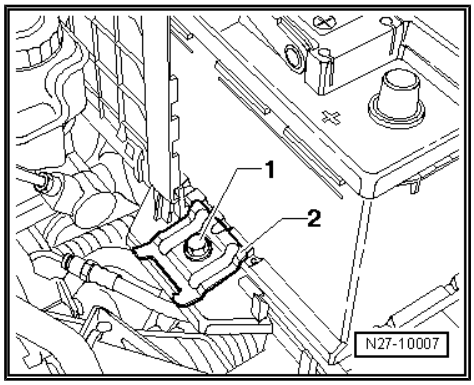
– Disconnect battery ⇒ page 4 .

– Remove air filter housing ⇒ Power unit; Rep. gr. 23 ; Repairing diesel direct injection system; Assembly overview - air filter

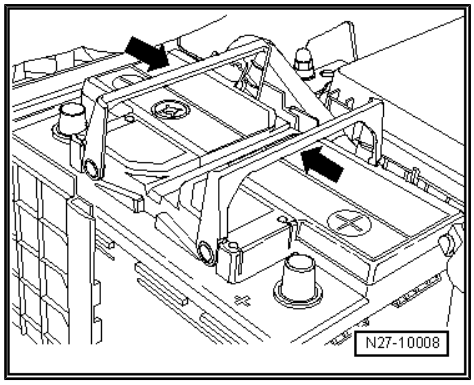
– Depending on equipment, pull either panel of battery box or fleece bag upwards in direction of -arrow- off battery.



– Unscrew securing bolt -1- and remove securing bar -2-.



– Fold up handles -arrows- (if fitted) and remove battery upwards out of vehicle.



Installing:

Caution

A loosely fitted battery creates the following dangers:

- *Shortened service life caused by vibration damage (danger of explosion).*
- *The plates in the battery cells will be damaged if the battery is not secured correctly.*
- *Damage to battery casing by clamping bracket (possible leakage of acid with high consequential costs).*
- *Poor crash safety.*

Installation is carried out in the reverse order. When installing observe the following:

– Tighten threaded connections to specified torque given in assembly overview ⇒ page 8 .

– After installing battery, check it is firmly seated.

– Connect battery ⇒ page 4 .

5.3 Battery parameterisation

When a new battery is installed the battery parameterisation sends the technical data of the new battery to the battery monitor.

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

6 Starter, vehicles with manual gearbox

Renewing starter on vehicles with start/stop system:

Due to the higher requirements on the starter when the start/stop system is activated, e.g. in urban traffic/driving, the deep-cycle resistance has been increased and the starter ring gear reinforced.

When renewing starter, note correct part number designation in ETKA. Components adapted to start/stop system are not identified separately and are not or barely different from normal components in their appearance.

6.1 Checking starter - B-

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

6.2 Starter, vehicles with 1.4l, 110 KW TSI engine and manual gearbox MQ200-6F

6.2.1 Assembly overview

1 - Starter motor

- ❑ Removing and installing ⇒ page 12
- ❑ Checking ⇒ page 11

2 - Battery positive wire connection to starter

3 - Battery positive wire securing nut to starter

- ❑ M8
- ❑ 15 Nm

4 - Starter securing bolts

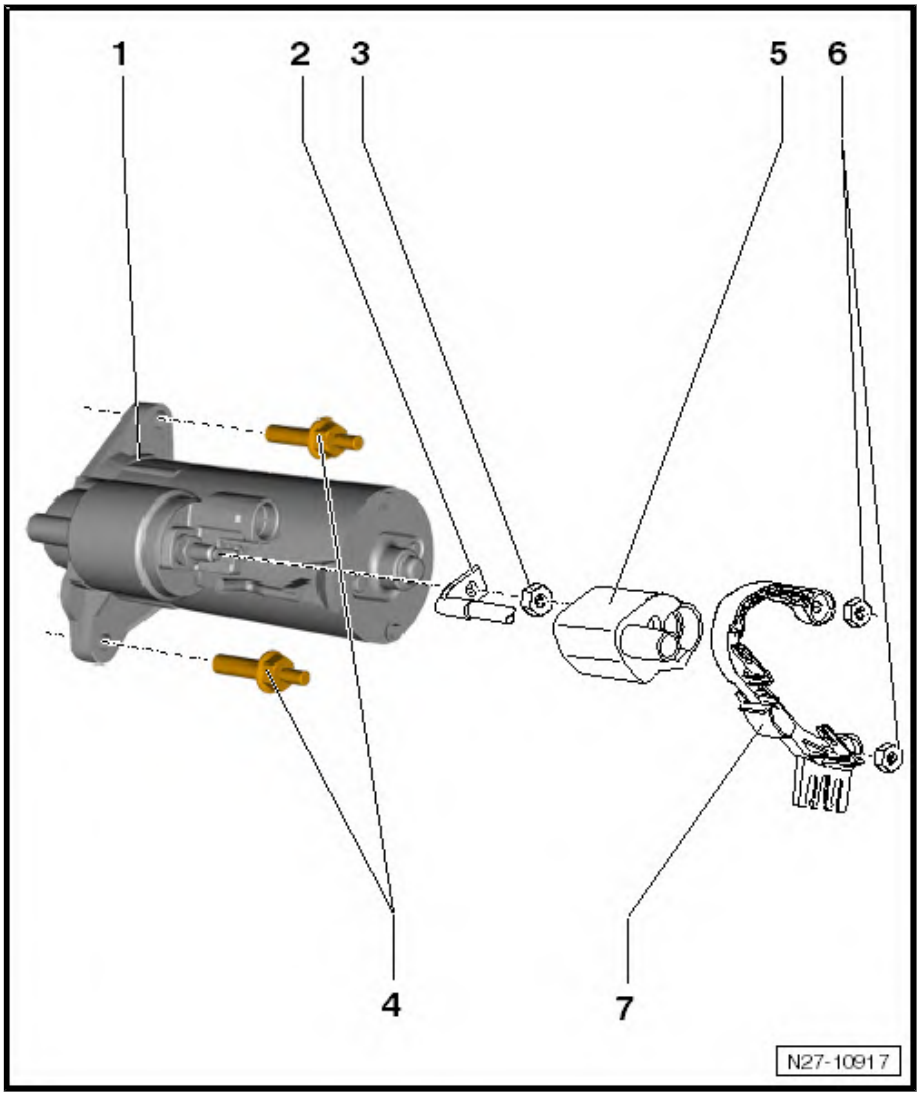
- ❑ M12
- ❑ 75 Nm

5 - Protective cap

6 - Wiring retainer securing bolts

- ❑ M8
- ❑ 23 Nm

7 - Wiring retainer



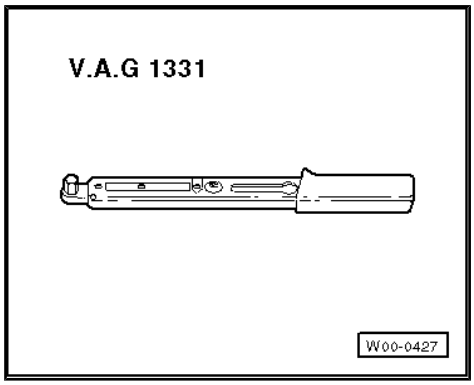
Not illustrated

- Bolt for securing air filter housing to body: 10 Nm

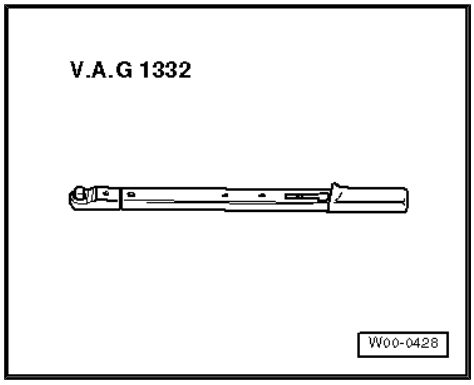
6.2.2 Removing and installing starter, 1.4 l, 90 KW TSI engine, manual gearbox MQ 200-6F

Special tools and workshop equipment required

- Torque wrench - V.A.G 1331-



- Torque wrench - V.A.G 1332-

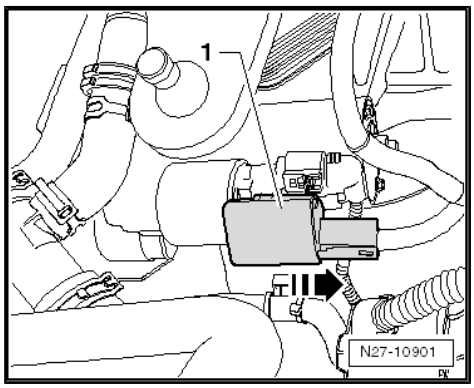


Removing:

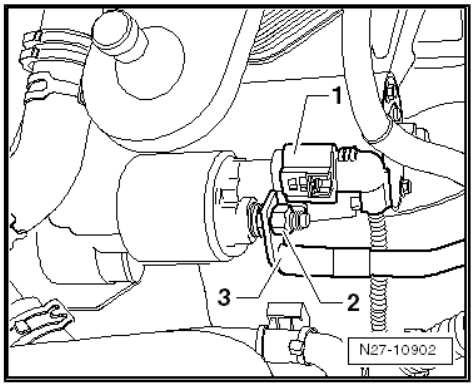
– Disconnect battery ⇒ page 4 .

– Remove air filter box ⇒ Engine mixture preparation; Rep. gr. 24 ; Repairing injection system; Removing and installing air filter .

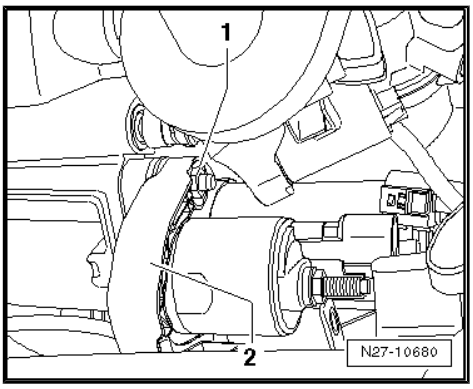
– Push protective cap -1- off solenoid switch downwards in direction of -arrow-.



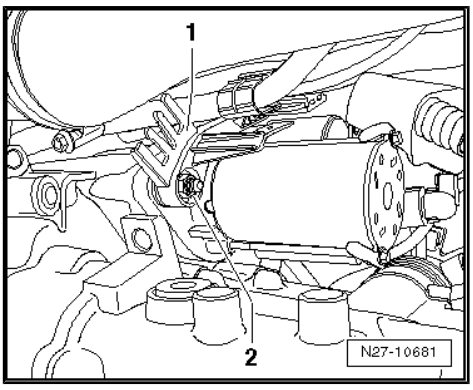
– Release connector -1- and disconnect.
– Unscrew securing nut -2- and remove positive cable -3- from mounting thread of solenoid switch.



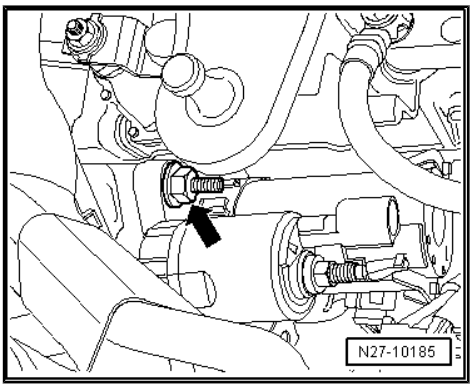
– Unscrew securing nut -1- of cable retainer -2-.
– Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 50 ; Body, front; Noise insulation .



– Unscrew securing nut -2- and remove cable retainer -1- from starter securing bolts.



– Undo upper starter bolt -arrow-.

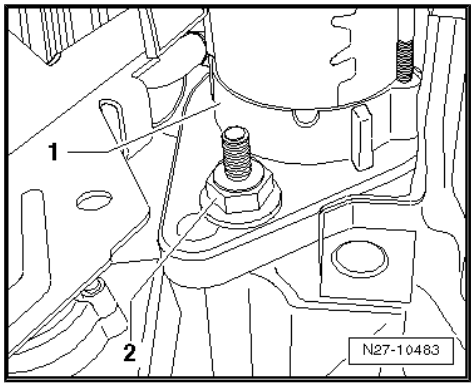


– Unscrew lower securing bolt of starter -2- and remove starter -1- downwards out of vehicle.

Installing:

Install in the reverse order of removal. When doing this, note the following:

– Tighten threaded connections to torque specified in assembly overview ⇒ page 11 .



6.3 Starter, vehicles with 2.0 l 103 KW TDI engine and manual gearbox MQ350-6F

6.3.1 Assembly overview

1 - Starter motor

- ❑ Removing and installing ⇒ page 15
- ❑ Checking ⇒ page 11

2 - Battery positive wire connection to starter

3 - Battery positive wire securing nut to starter

- ❑ M8
- ❑ 15 Nm

4 - Starter securing bolts

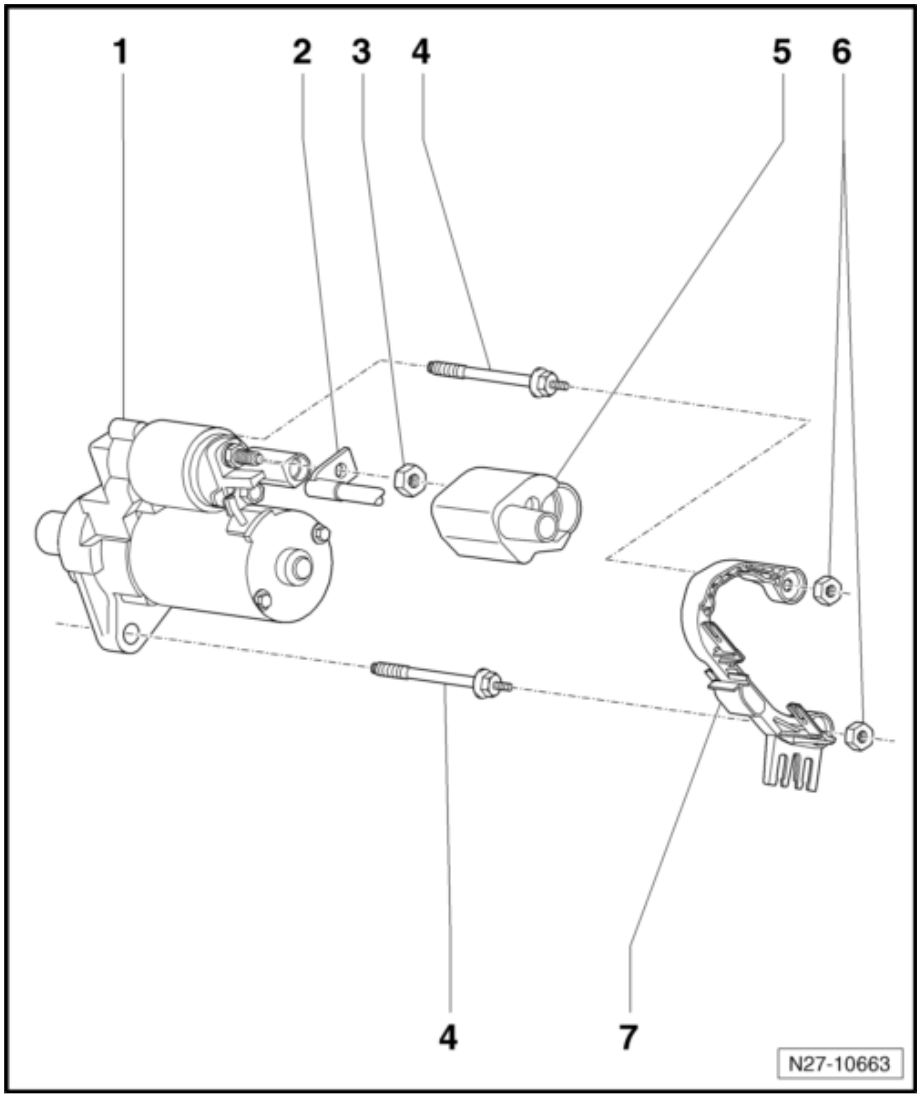
- ❑ M12
- ❑ 75 Nm

5 - Protective cap

6 - Wiring retainer securing bolts

- ❑ M8
- ❑ 23 Nm

7 - Wiring retainer

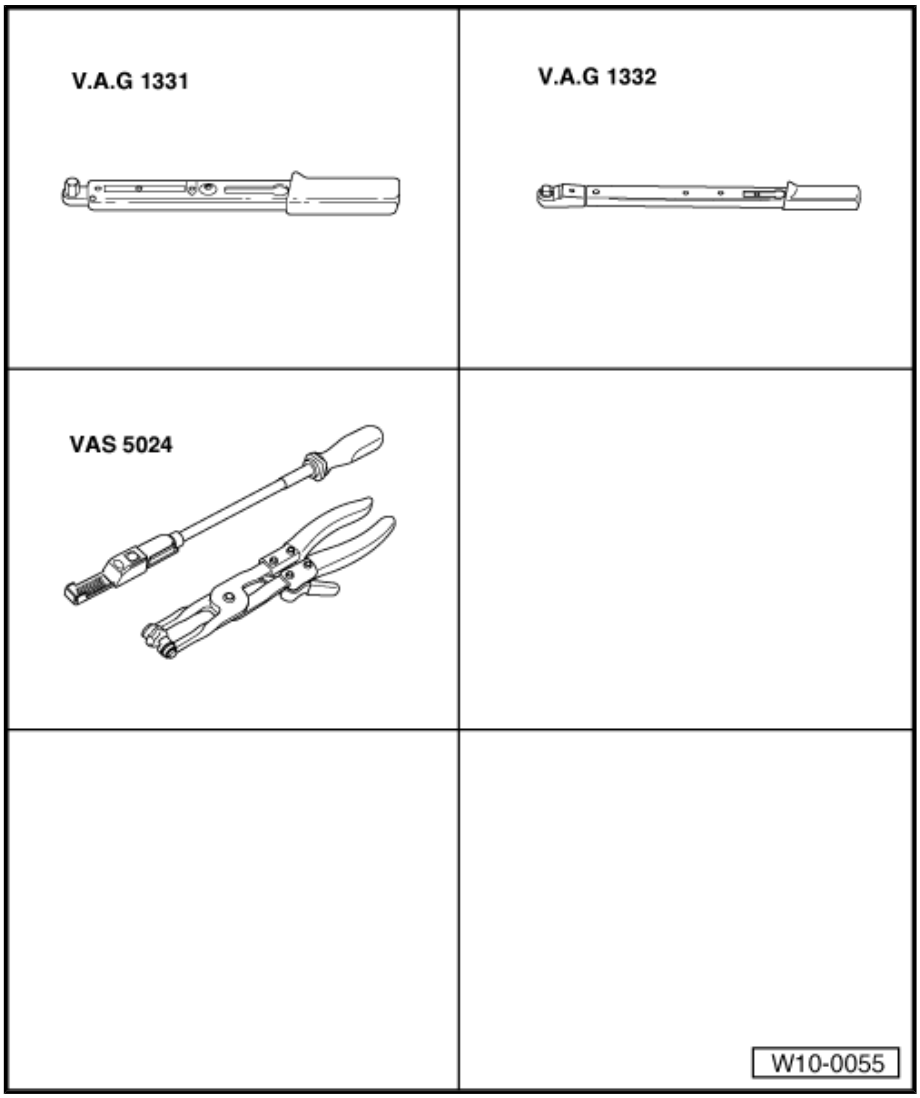


Not illustrated

- ◆ Bolt for securing air filter housing to body: 10 Nm

6.3.2 Removing and installing starter, 2.0 l, 103 KW TDI engine, manual gearbox MQ350-6F

Special tools and workshop equipment required

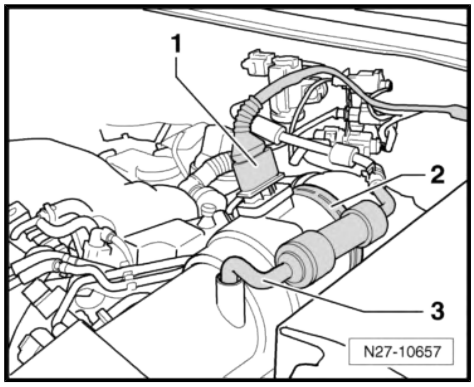


- Torque wrench - V.A.G 1331-
- Torque wrench - V.A.G 1332-
- Pliers for spring-type clips - VAS 5024-

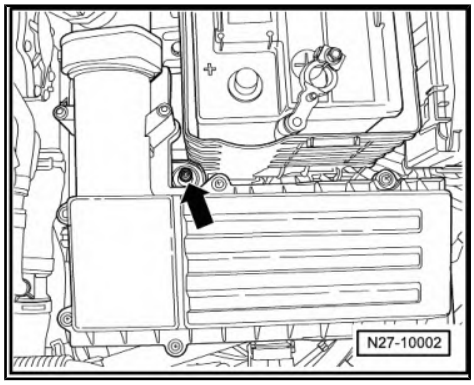
Removing:

– Disconnect battery ⇒ page 4 .

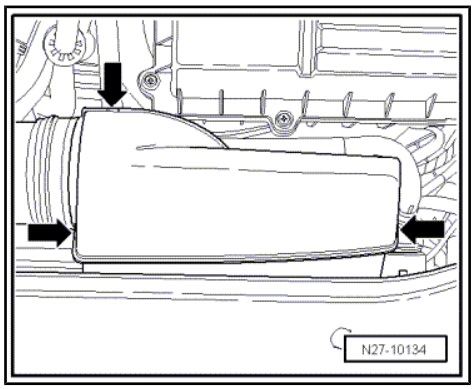
– Separate connector -1-, release spring-type clip -2- with spring-type clip pliers - VAS 5024- and pull off vacuum hose -3-.



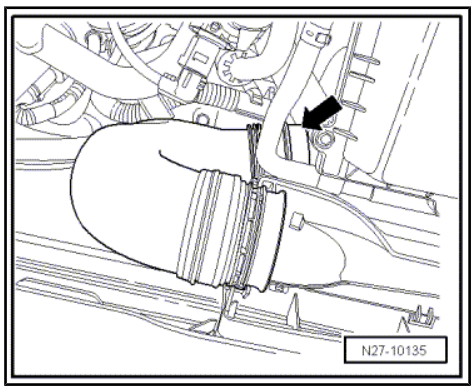
– Unscrew securing bolt -arrow- of air filter housing.



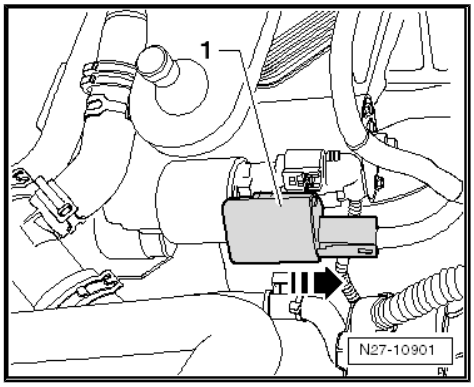
– Release locking lug -arrow- and remove cover.



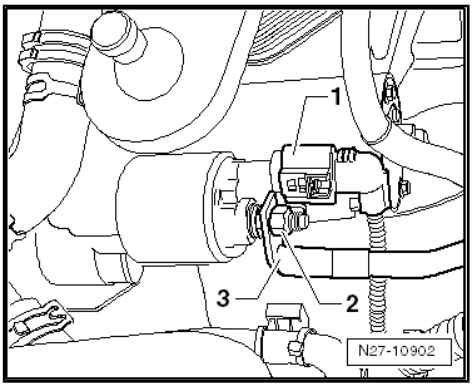
– Pull hose -arrow- off air filter housing and remove.
– Pull air filter housing upwards out of brackets and remove from engine compartment.



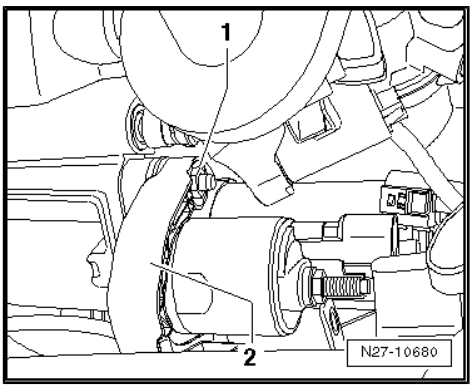
– Push protective cap -1- off solenoid switch downwards in direction of -arrow-.



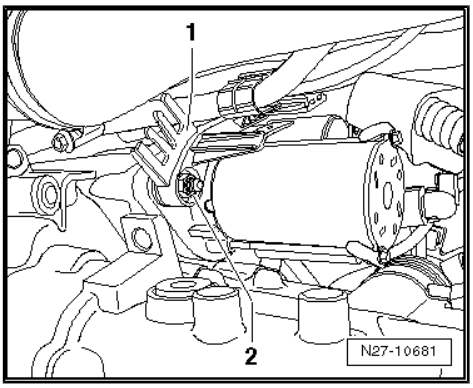
– Release connector of terminal 50 -1- and separate.
– Unscrew securing nut -2- and remove positive cable -3-.



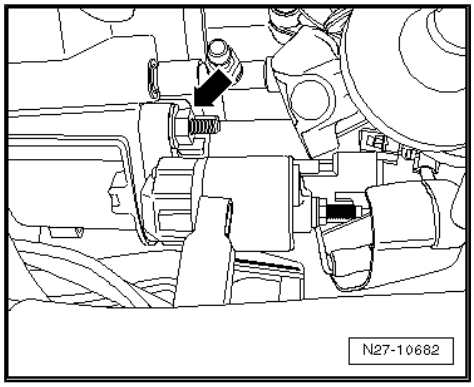
– Unscrew upper securing nut -1- of cable retainer -2-.
– Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 50 ; Body, front; Noise insulation .



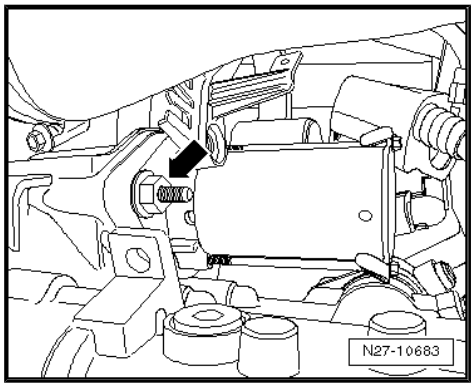
– Unscrew lower securing nut -2- and pull off cable retainer -1- from starter securing bolts.



– Undo upper starter bolt -arrow-.



– Undo lower starter bolt -arrow-.



– Remove starter by taking it downwards out of the vehicle.

Installing:

Install in the reverse order of removal. When doing this, note the following:

– Tighten threaded connections to specified torque given in assembly overview ⇒ page 14 .

7 Starter, vehicles with dual clutch gearbox (DSG)

Renewing starter on vehicles with start/stop system:

Due to the higher requirements on the starter when the start/stop system is activated, e.g. in urban traffic/driving, the deep-cycle resistance has been increased and the starter ring gear reinforced.

When renewing starter, note correct part number designation in ETKA. Components adapted to start/stop system are not identified separately and are not or barely different from normal components in their appearance.

7.1 Starter, vehicles with 2.0 l 103 kW TDI engine and dual clutch gearbox DQ250-6F

7.1.1 Assembly overview

1 - Battery positive wire connection to starter

2 - Battery positive wire securing nut to starter

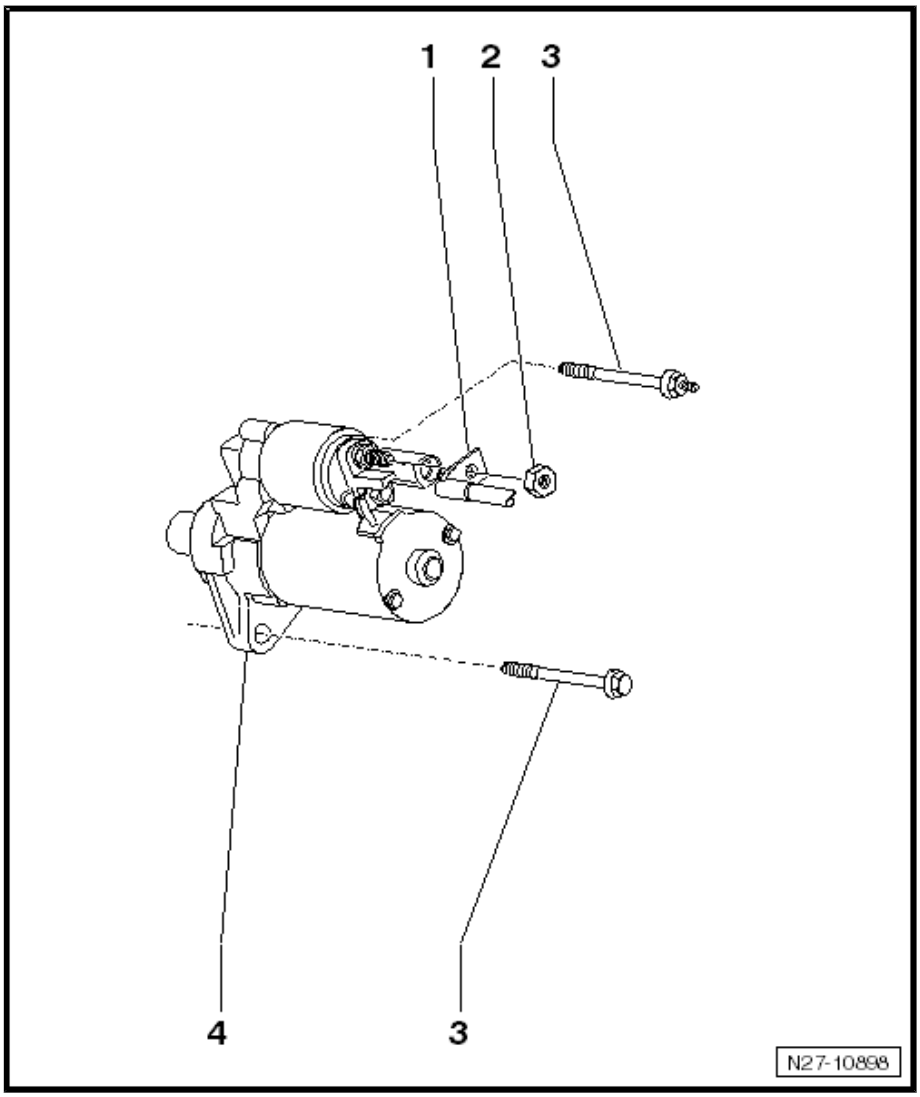
- ❑ M8
- ❑ 15 Nm

3 - Starter securing bolts

- ❑ M12
- ❑ 75 Nm

4 - Starter motor

- ❑ Removing and installing ⇒ page 20
- ❑ Checking ⇒ page 11

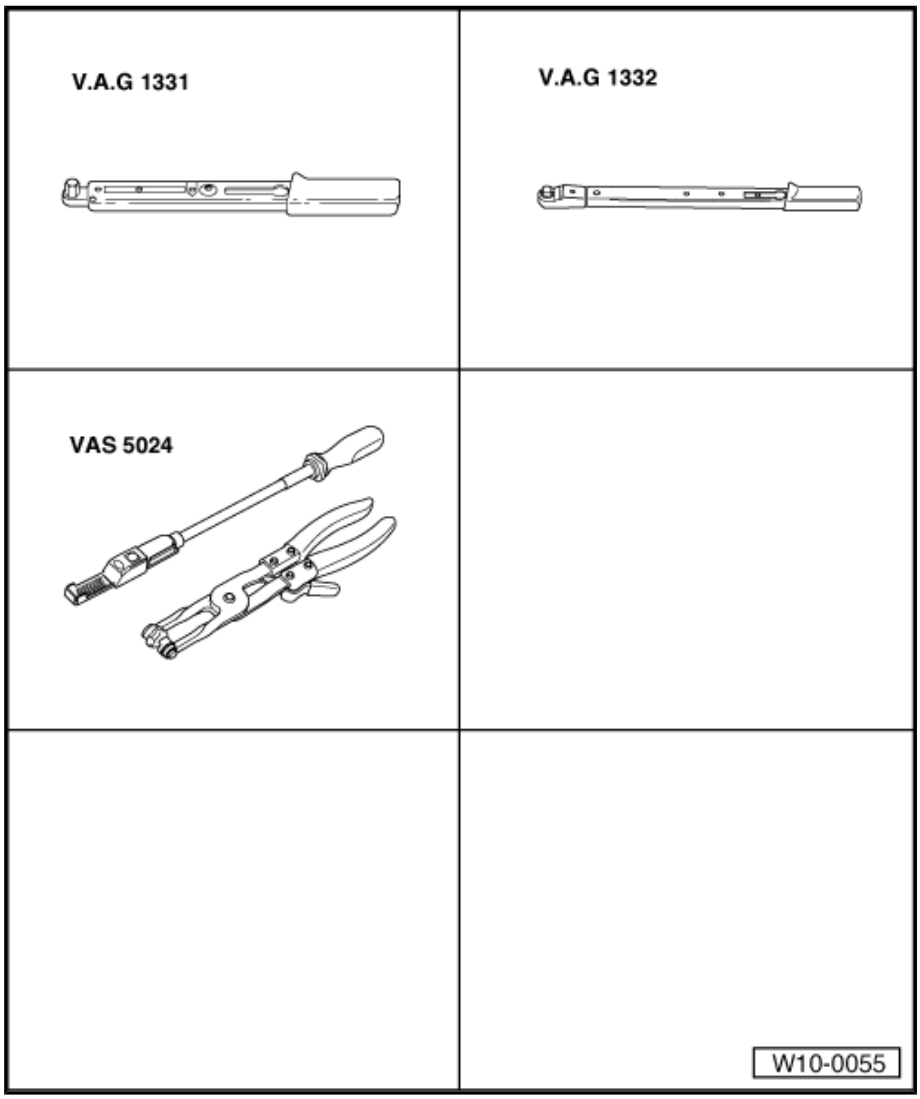


Not illustrated

- Bolt for securing air filter housing to body: 10 Nm

7.1.2 Removing and installing starter, 2.0 l, 103 KW TDI engine with dual clutch gearbox (DSG) DQ250-6F

Special tools and workshop equipment required

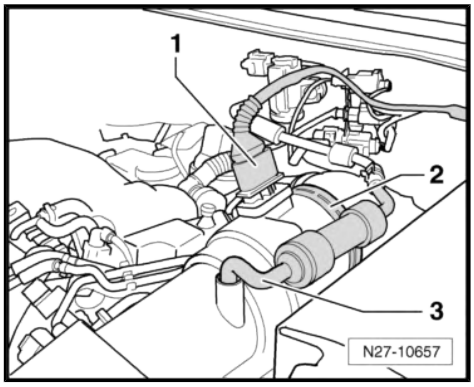


- Torque wrench - V.A.G 1331-
- Torque wrench - V.A.G 1332-
- Pliers for spring-type clips - VAS 5024-

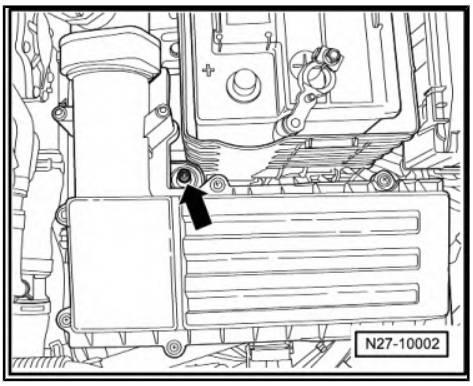
Removing:

– Disconnect battery ⇒ page 4 .

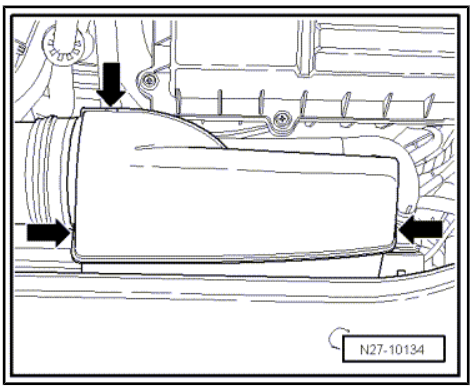
– Separate connector -1-, release spring-type clip -2- with spring-type clip pliers - VAS 5024- and pull off vacuum hose -3-.



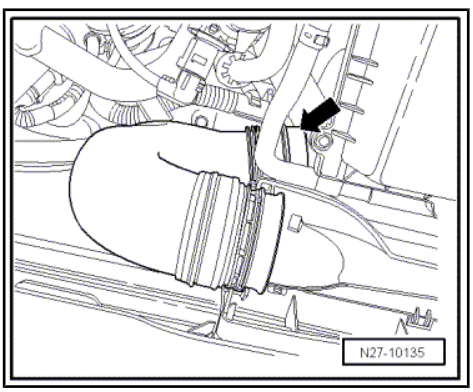
– Unscrew securing bolt -arrow- of air filter housing.



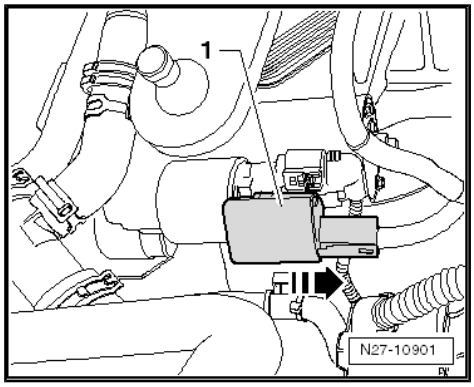
– Release locking lug -arrow- and remove cover.



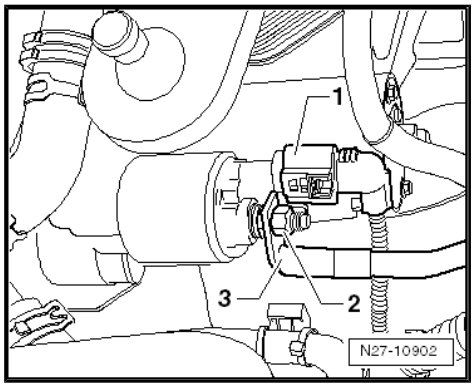
– Pull hose -arrow- off air filter housing and remove.
– Pull air filter housing upwards out of brackets and remove from engine compartment.



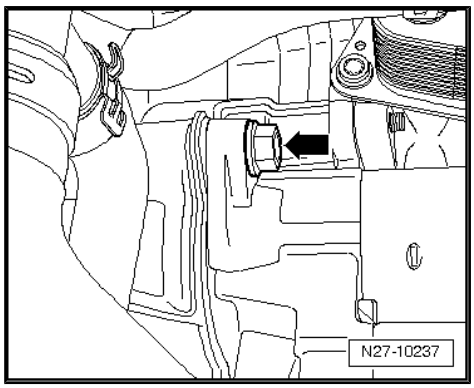
– Push protective cap -1- off solenoid switch downwards in direction of -arrow-.



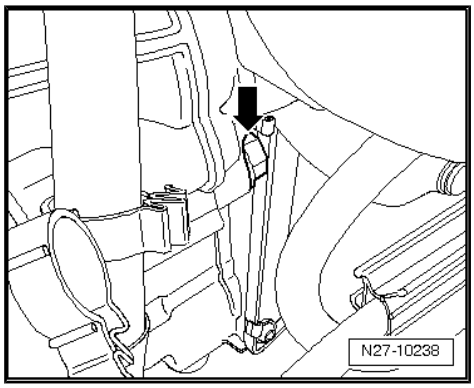
– Release connector of terminal 50 -1- and separate.
– Unscrew securing nut -2- and remove positive cable -3-.



– Undo upper starter bolt -arrow-.



– Undo lower starter bolt -arrow-.
– Remove starter by taking it upwards out of the vehicle.



Installing:

Install in the reverse order of removal. When doing this, note the following:

– Tighten threaded connections to specified torque given in assembly overview ⇒ page 19 .

8 Alternator

Caution

When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed ⇒ page 4 .

Note

Checking alternator ⇒ Current flow diagrams, Electrical fault finding and Fitting locations .

Renewing alternator on vehicles with start/stop system:

Until now the alternator and the voltage regulator were connected together via their own wires to the engine and onboard supply control unit. For vehicles with start/stop system, the information transmission occurs via a LIN data bus to the diagnostic interface for data bus. Via the CAN data bus, it supplies information to other control units such as the engine control unit.

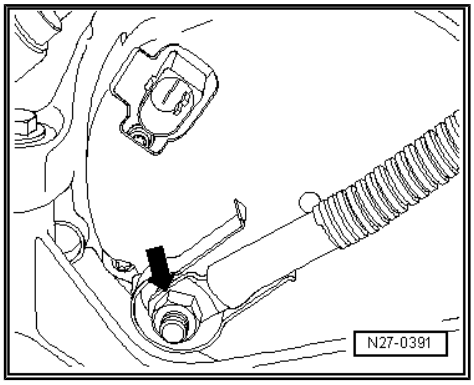
8.1 Securing B+ (battery positive) wire to alternator

Caution

If the battery positive wire is not tightened to the specified torque, there is a risk of the following:

- *The battery will not be charged fully.*
- *Vehicle electrics or electronics fail completely (breakdown).*
- *Danger of fires from sparks*
- *Damage to electronic components and control units due to excessive voltage*

– The torque setting for the battery positive wire -arrow- securing nut is 15 Nm.



8.2 Checking poly V-belt

– Crank engine at vibration damper/belt pulley using a socket.

– Check poly V-belt for:

- Sub-surface cracks (cracks, core ruptures, cross sectional breaks)

- Layer separation (top layer, cord strands)
- Eruptions on bottom cover
- Fraying of carcass
- Flank wear (material wear, frayed flanks, flank brittleness - glassy flanks-, surface cracks)
- Oil and grease marks

Caution

If faults are found, it is essential for the poly V-belt to be renewed. This will avoid possible breakdowns or operating problems.

8.3 Checking alternator - C-

⇒ Vehicle diagnostic tester, Guided Fault Finding.

8.4 Alternator, 1.4 l, 110 KW TSI engine

8.4.1 Assembly overview

1 - Multi-point socket head bolt
- ❑ M8 x 45
- ❑ 23 Nm

2 - Upper tensioning roller

3 - Valve timing housing

4 - Hexagon flange bolts
- ❑ M8 x 45
- ❑ 23 Nm

5 - Hexagon flange nut
- ❑ M8
- ❑ Securing nut for B+ wire on rear of alternator
- ❑ 15 Nm

6 - Cross-head screw
- ❑ M5 x 21
- ❑ 4.5 Nm

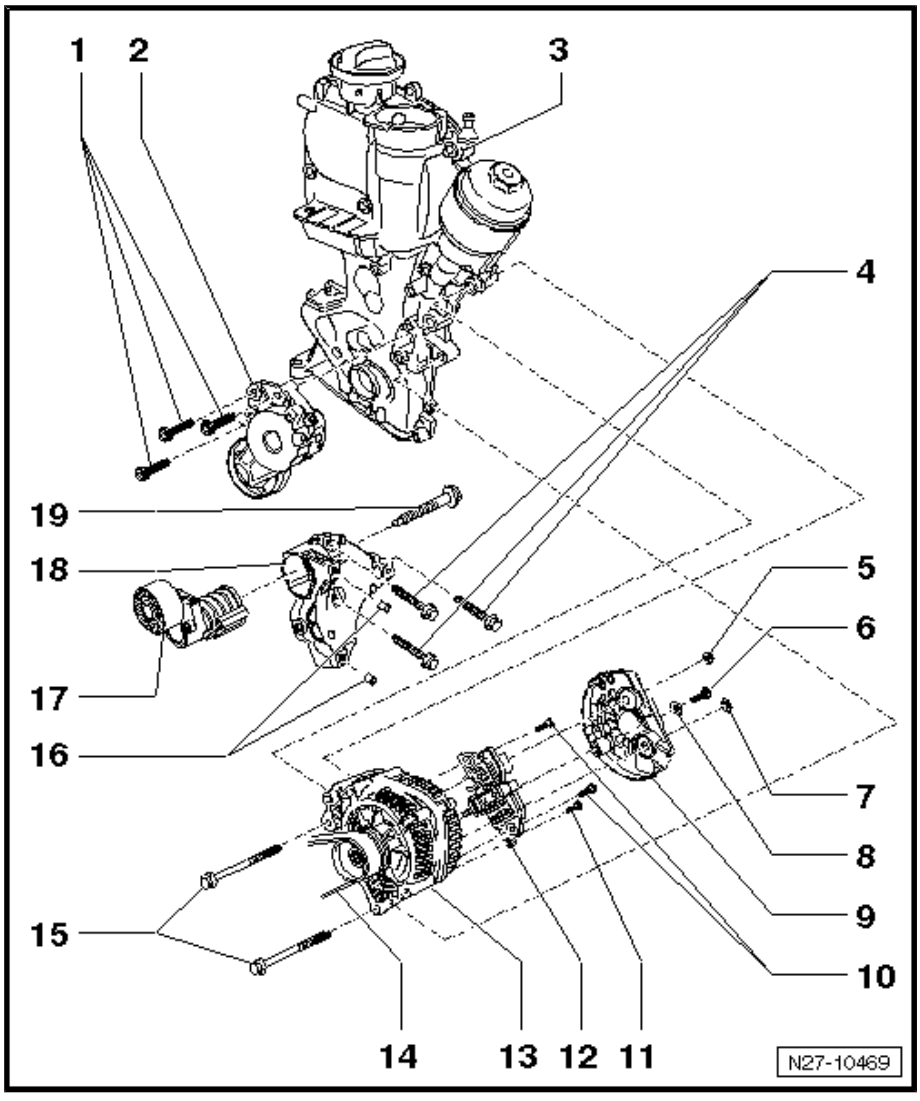
7 - Hexagon nut, flat
- ❑ M8

8 - Washer
- ❑ M5

9 - Protective cap

10 - Cross-head bolts
- ❑ M4 x 19
- ❑ 2 Nm

11 - Cross-head screw
- ❑ M4 x 13
- ❑ 2 Nm



12 - Voltage regulator

- ❑ Removing and installing voltage regulator ⇒ page 38

13 - Alternator

- ❑ Removing and installing alternator ⇒ page 25
- ❑ Checking alternator ⇒ page 24
- ❑ Securing B+ wire to alternator ⇒ page 23
- ❑ Removing and installing poly V-belt pulley on alternator ⇒ page 33

14 - Poly V-belt

- ❑ Poly V-belt routing ⇒ Power unit; Rep. gr. 13 ; Dismantling and assembling engine
- ❑ Checking poly V-belt ⇒ page 23

15 - Hexagon head flange bolts

- ❑ M8 x 90
- ❑ 23 Nm

16 - Centring sleeves

- ❑ Insert in bracket before installing air conditioner compressor
- ❑ Bolts for securing air conditioner compressor to bracket (M8 x 100) 23 Nm

17 - Lower tensioning roller

18 - Bracket

- ❑ For tensioning element and air conditioner compressor

19 - Hexagon head flange bolt

- ❑ M10 x 65
- ❑ 45 Nm

Not illustrated

- ♦ M5 securing nut on back of alternator for wiring clamp - 3.2 Nm

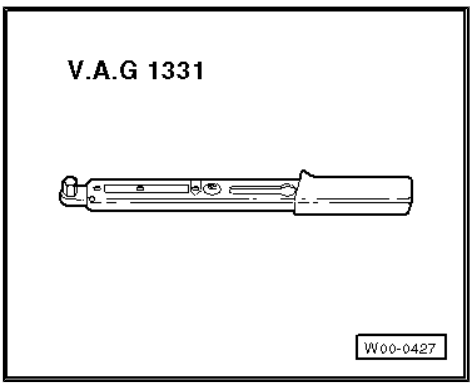
8.4.2 Removing and installing alternator, 1.4 l, 110 KW TSI engine

Caution

When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed ⇒ page 4 .

Special tools and workshop equipment required

- ♦ Torque wrench - V.A.G 1331-



Removing:

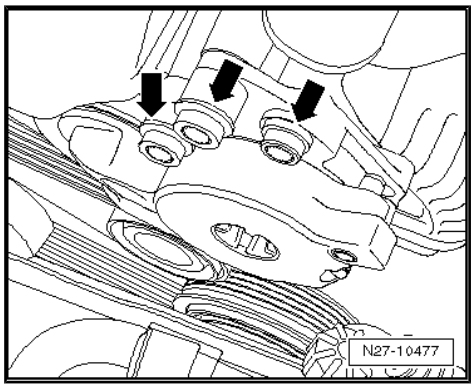
– Disconnect battery ⇒ page 4 .

– Removing engine cover ⇒ Power unit; Rep. gr. 15 ; Engine cover .

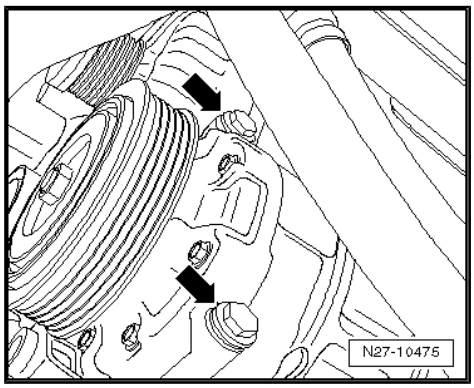
– Remove poly V-belt ⇒ Power unit; Rep. gr. 13 ; Dismantling and assembling engine; Removing and installing poly V-belt .

– Release tension in upper tensioning roller again.

– Unscrew securing bolts -arrows- and remove upper belt tensioner from vehicle.

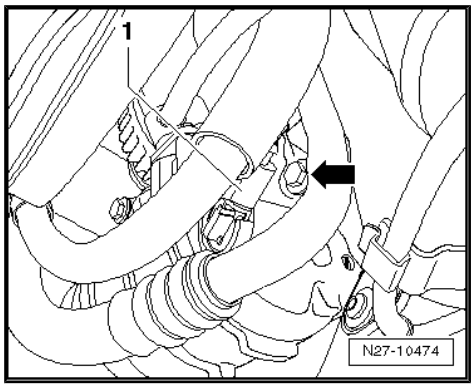


– Unscrew securing bolts of air conditioner compressor -arrows-.



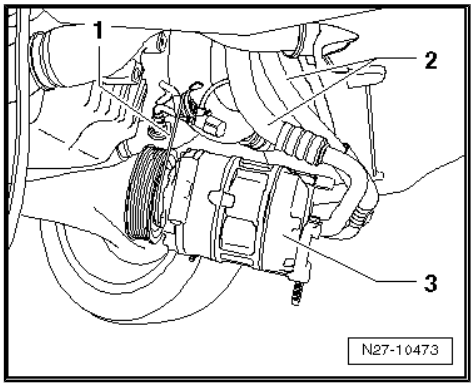
– Release connector -1- and disconnect.

– Undo the third bolt -arrow- and remove air conditioner compressor from bracket.

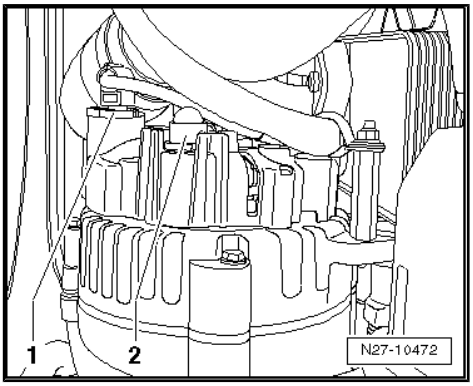


Note

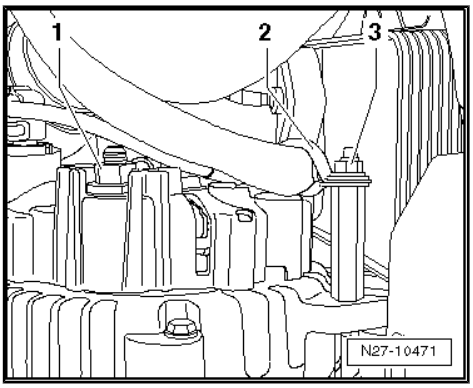
- *When removing the air conditioner compressor, ensure that both centring sleeves remain in the threaded holes (one on top of the other) of the bracket.*
- *The hoses of the air conditioner compressor can remain connected.*
- *Suspend the air conditioner compressor -3- using a piece of wire -1- at a suitable position beneath the vehicle until it is ready to be reinstalled.*
- *Ensure, when doing this, that the hoses -2- are not stretched or kinked.*



– Unlock and disconnect connector of DF cable -1-.
– Lever off protective cap -2-.



– Undo nut -1- and detach the B+ wire under it from the connecting thread of the alternator.
– Undo nuts -3- and remove cable retainer -2- from alternator.



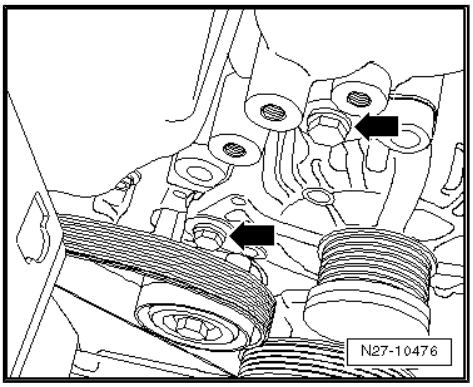
– Undo bolts securing alternator -arrows-.
– Remove alternator by taking it downwards out of the vehicle.

Installing:

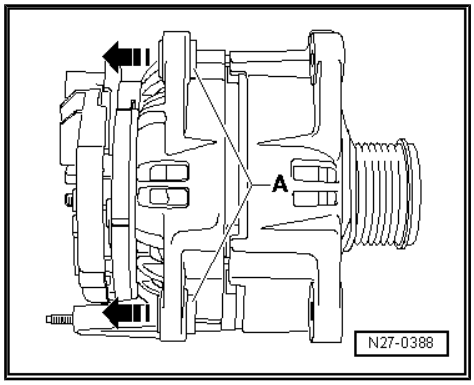
Install in the reverse order of removal. When doing this, note the following:

Caution

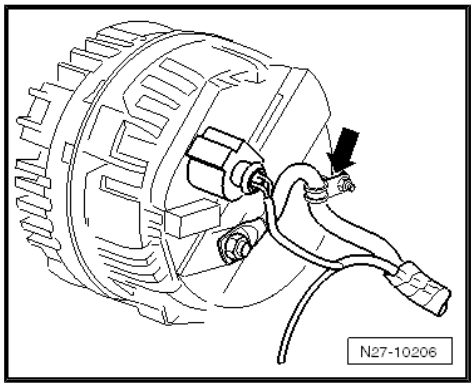
- *When fitting used poly V-belts observe the direction of rotation marked on removal!*
- *Before installing poly V-belt, make sure that all ancillaries (alternator, air conditioner compressor, power assisted steering vane pump) are secured tightly.*
- *When fitting belt, ensure that poly V-belt seats correctly in pulleys!*



– Drive threaded sleeves -A- approx. 4 mm in -direction of arrow- out of alternator housing.



– Secure cable retainer -arrow- on back of alternator in 9 o'clock position.



Note

Before installing the air conditioner compressor, ensure that both centring sleeves are inserted in the threaded holes (one above the other) of the bracket.

– Tighten threaded connections to specified torque given in assembly overview ⇒ page 24 .

Caution

Comply with instructions regarding threaded connections of battery terminals ⇒ page 1 .

– Connect battery ⇒ page 4 .
– Start engine and check belt running.

8.5 Alternator, 2.0 l, 103 KW TDI engine

8.5.1 Assembly overview

1 - Hexagon bolt with washer and threaded element

- ❑ M4 x 20, M4 x 15
- ❑ 2 Nm

2 - Protective cap for alternator

3 - Cross-head bolts

- ❑ M4 x 20
- ❑ 2 Nm

4 - Protective cap for carbon brushes

5 - Voltage regulator

- ❑ Removing and installing voltage regulator ⇒ page 38

6 - Alternator

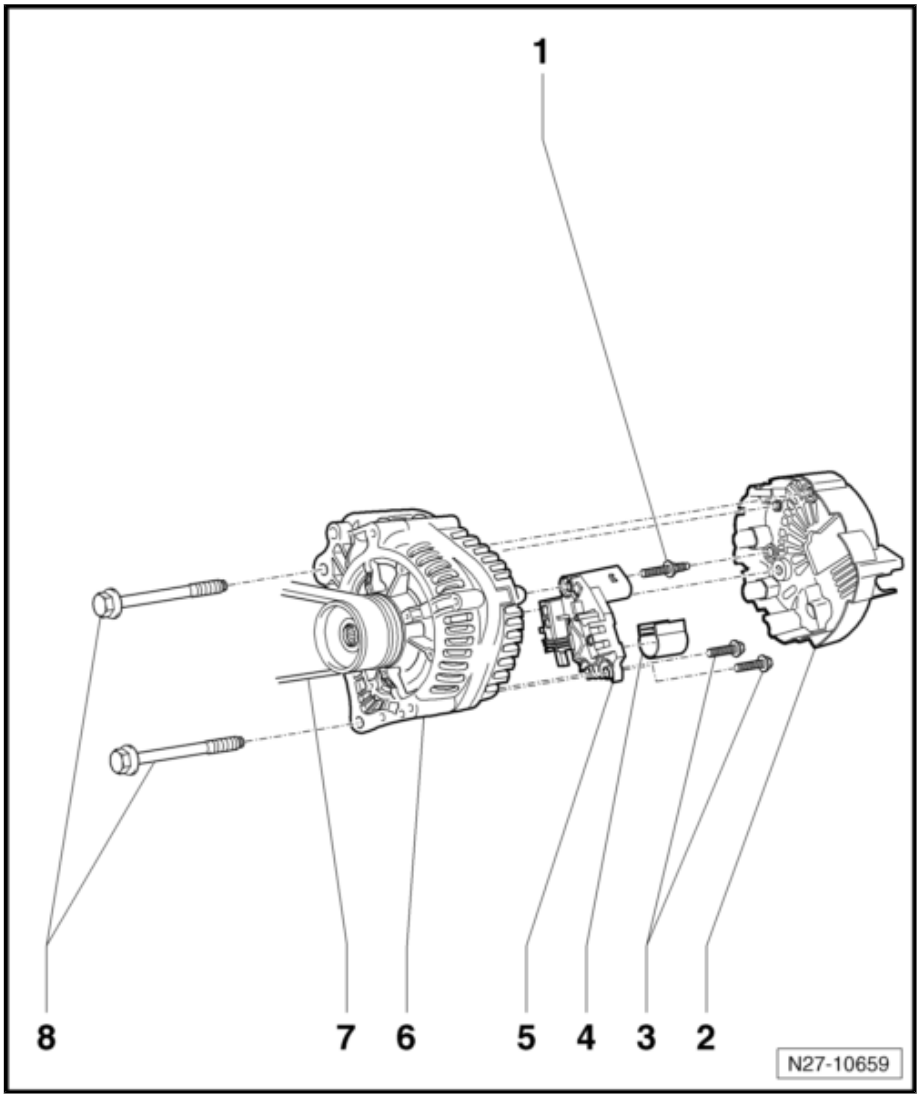
- ❑ Removing and installing alternator ⇒ page 29
- ❑ Checking alternator ⇒ page 24
- ❑ Securing B+ wire to alternator ⇒ page 23
- ❑ Removing and installing poly V-belt pulley on alternator ⇒ page 33

7 - Poly V-belt

- ❑ Poly V-belt routing ⇒ Power unit; Rep. gr. 13 ; Dismantling and assembling engine
- ❑ Checking poly V-belt ⇒ page 23

8 - Hexagon head flange bolts

- ❑ M8 x 90
- ❑ 20 Nm



Not illustrated

- ♦ M5 securing nut on back of alternator for wiring clamp - 3.2 Nm
- ♦ M8 securing bolts of air conditioner compressor on ancillary bracket - 23 Nm

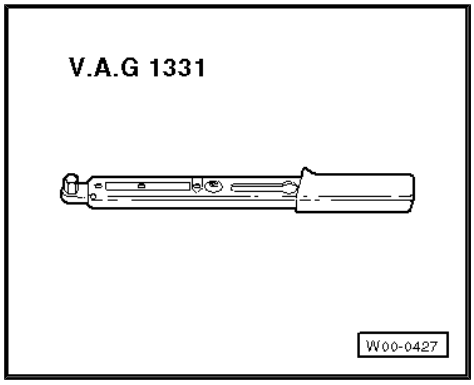
8.5.2 Removing and installing alternator, 2.0 l TDI engine, 103 KW

Caution

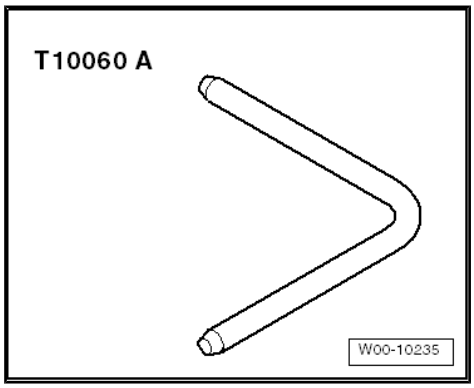
When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed ⇒ page 4 .

Special tools and workshop equipment required

♦ Torque wrench - V.A.G 1331-



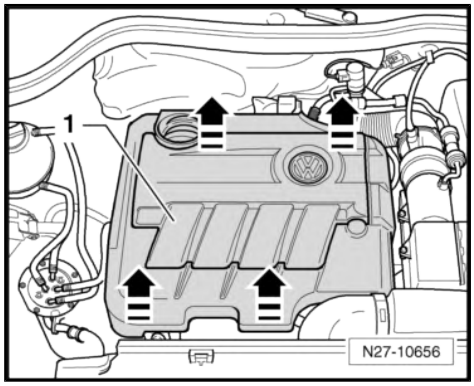
♦ Locking pin - T10060 A-



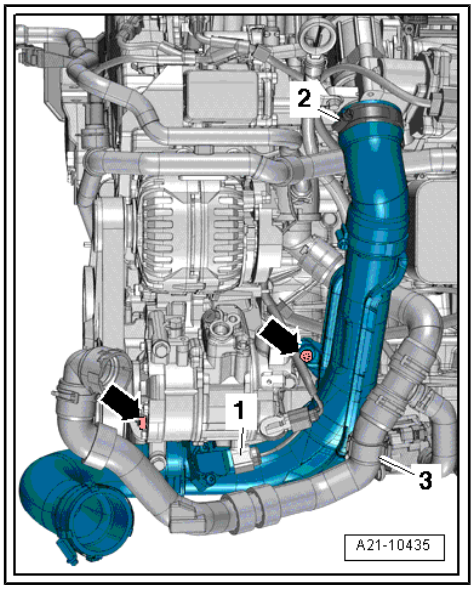
Removing:

– Disconnect battery ⇒ page 4 .

– Pull engine cover off upwards -arrows-.



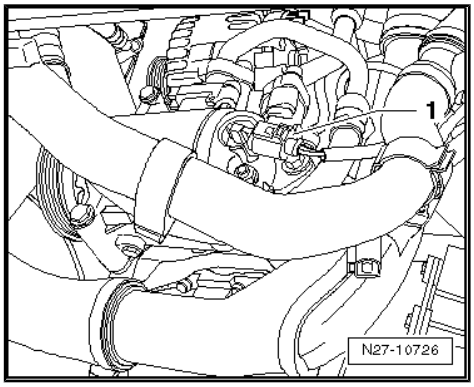
– Unscrew securing bolts -arrows- from charge air pipe.
– Disconnect connector from charge pressure sender - G31- -1-.
– Open clamp -2-.
– Move coolant hose -3- clear to one side, and remove charge air pipe.



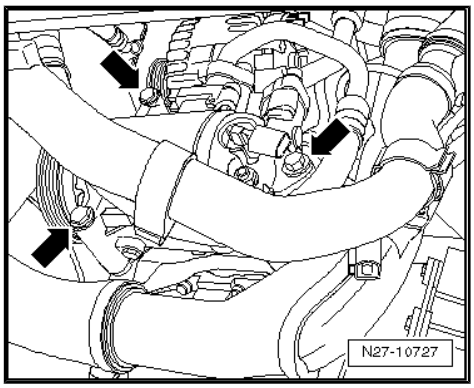
Caution

Before removing, mark the top side and direction of rotation of the poly V-belt. When installing, ensure correct fitting position and direction of rotation. If the belt is installed in the wrong position or against direction of rotation, the belt will be destroyed!

– Remove poly V-belt ⇒ Power unit; Rep. gr. 13 ; Dismantling and assembling engine .
– Removing and installing radiator cowl together with radiator fan - V7- and radiator fan on right of radiator - V35- ⇒ Rep. gr. 19 ; Repairing cooling system; Removing and installing radiator cowl together with radiator fan -V7- and radiator fan on right of radiator -V35- .
– Release connector -1- and disconnect.



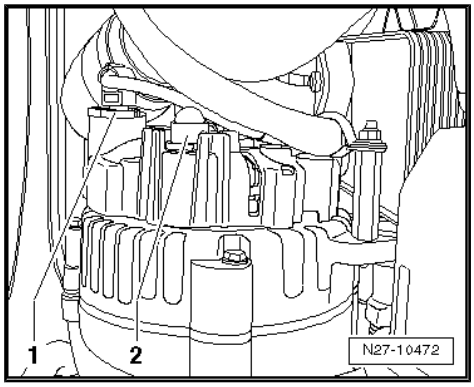
– Unscrew securing bolts of air conditioner compressor -arrows-.



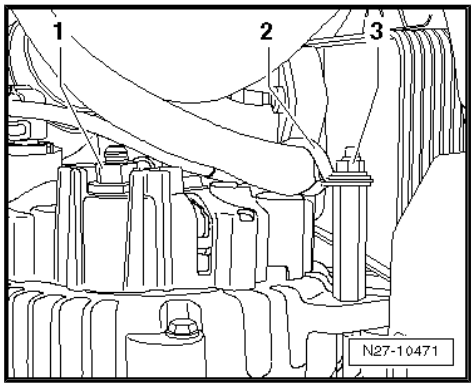
Note

- *The hoses of the air conditioner compressor can remain connected.*
- *Suspend the air conditioner compressor using a piece of wire at a suitable position until it is ready to be reinstalled.*
- *When doing this, the hoses must not be kinked or stretched.*

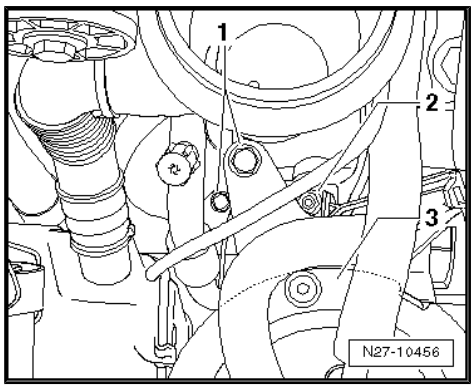
– Release and disconnect connector of DF cable -1-.
– Lever off protective cap -2-.
– Undo nut -1- and detach the B+ wire under it from the connecting thread of the alternator.



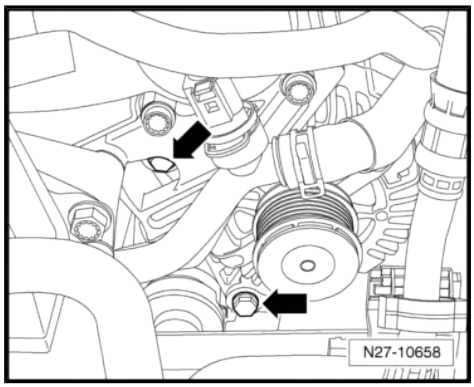
– Undo nuts -3- and remove cable retainer -2- from alternator.



– Unscrew both securing bolts -1- and securing nut -2- and place fuel filter -3- to one side. The fuel hoses can then remain connected.



– Undo and remove the two bolts -arrows- securing the alternator.
– Remove alternator by taking it downwards out of the vehicle.



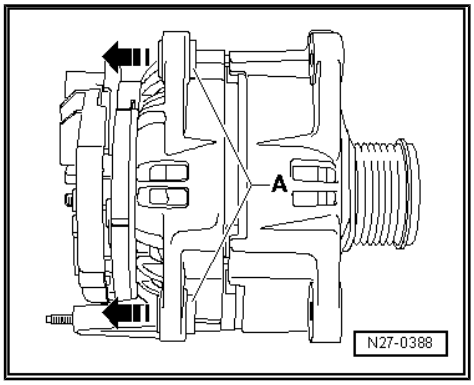
Installing:

Install in the reverse order of removal. When doing this, note the following:

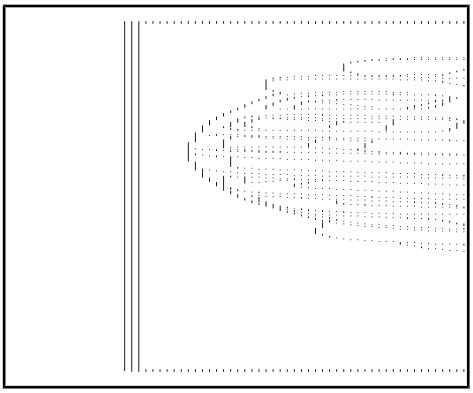
Caution

- *When installing used poly V-belts observe the direction of rotation marked on removal!*
- *Before installing poly V-belt, ensure that all ancillaries (alternator, air conditioning compressor) are secure.*
- *When fitting belt, ensure that poly V-belt seats correctly in pulleys!*

– Drive threaded sleeves -A- about 4 mm in direction of arrow out of alternator housing.



– Tighten wiring retainer -arrow- on back of alternator in 3 o'clock position.



– Tighten threaded connections to torque specified in assembly overview ⇒ page 28 .

Caution

When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed ⇒ page 4 .

– Connect battery ⇒ page 4 .

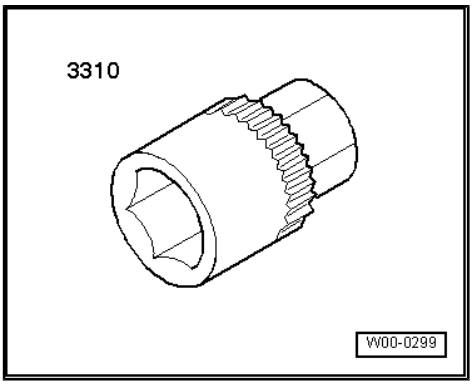
– Start engine and check belt running.

8.6 Removing and installing poly V-belt pulley on alternator

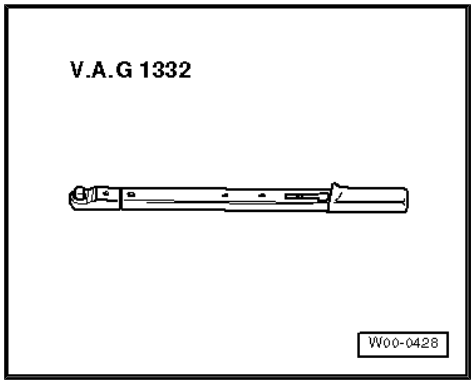
8.6.1 Removing and installing poly V-belt pulley without freewheel

Special tools and workshop equipment required

♦ Socket 24 mm - VAS 3310-



♦ Torque wrench - V.A.G 1332-

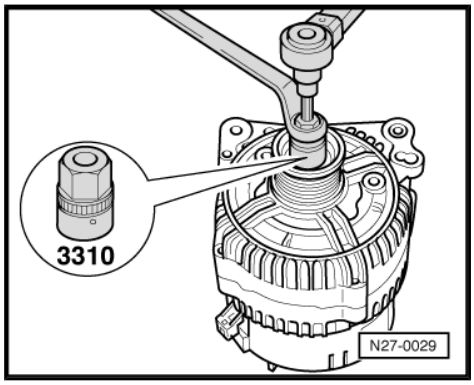


Removing:

– Remove alternator ⇒ page 23 .

– Clamp alternator in a vice at securing points.

– Use socket - VAS 3310- to unscrew poly V-belt pulley securing nut from alternator shaft.



Installing:

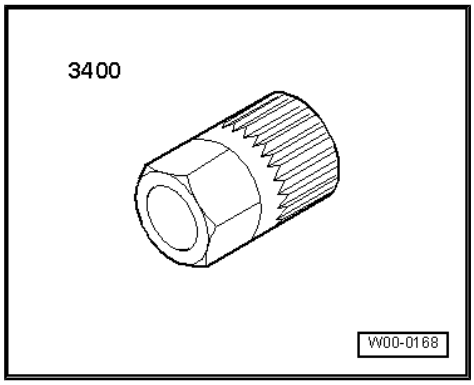
Installation is carried out in the reverse order. When installing observe the following:

– Tighten threaded connection to specified torque of 65 Nm.

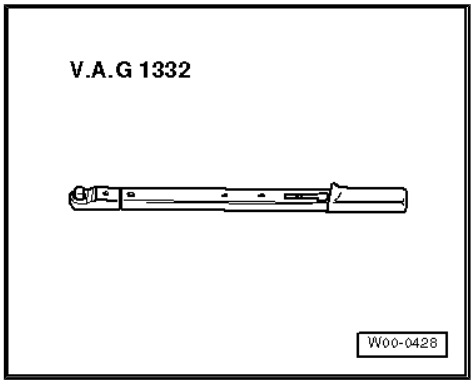
8.6.2 Removing and installing poly V-belt pulley with freewheel, manufacturer: Bosch

Special tools and workshop equipment required

♦ Multipoint adapter - VAS 3400-

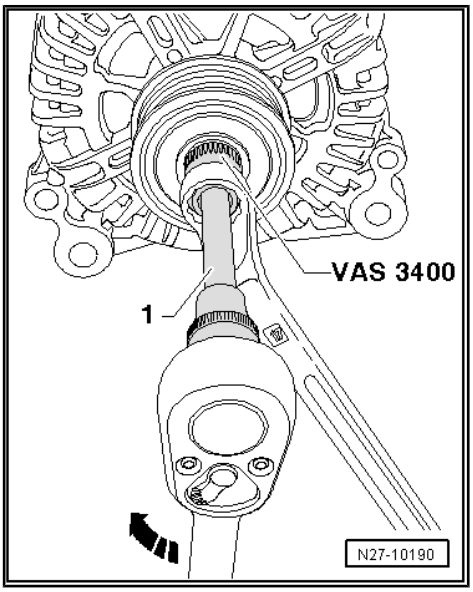


♦ Torque wrench - V.A.G 1332-



Removing:

– Remove alternator ⇒ page 23 .
– Clamp alternator in a vice at securing points.
– Remove protective cap from poly V-belt pulley with freewheel.
– Insert multi-point adapter - VAS 3400- with 17mm AF ring spanner in poly V-belt pulley with freewheel of alternator.
– Insert an M10 multi-point bit -1- into alternator shaft.
– Counterhold alternator shaft and loosen poly V-belt pulley with freewheel anti-clockwise.
– Hold poly V-belt pulley with freewheel by hand. Turn alternator drive shaft until poly V-belt pulley with freewheel can be removed.



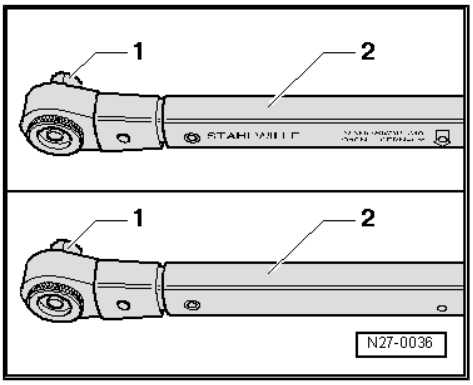
Installing:

Install in the reverse order of removal. When doing this, note the following:

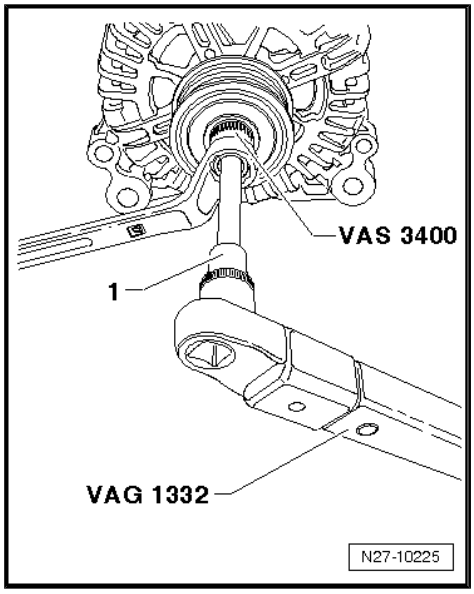
– First screw poly V-belt pulley with freewheel on drive shaft of alternator by hand as far as limit stop.

The torque wrench - V.A.G 1332- must be modified for assembly of poly V-belt with freewheel as follows:

– Release socket drive -1- and pull off grip -2-.
– Turn torque wrench grip -2- 180° and reinsert socket drive.
– Set turning direction of torque wrench to anti-clockwise at socket drive.

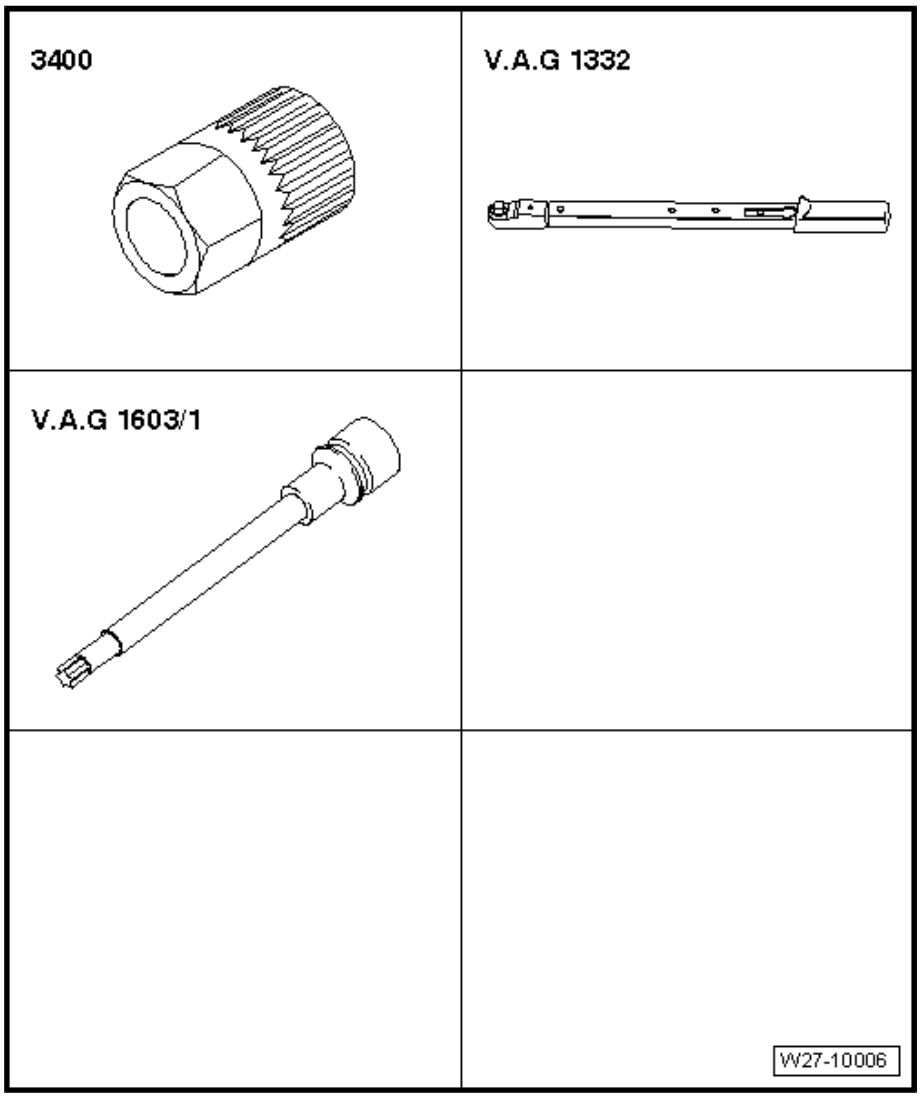


– Insert an M10 multi-point bit -1- into alternator shaft.
– Counterhold using multi-point adapter - VAS 3400- with ring spanner 17 mm AF.
– Tighten poly V-belt with freewheel by turning drive shaft of alternator anti-clockwise using torque wrench - V.A.G 1332- .
– Tighten threaded connection to specified torque of 80 Nm.



8.6.3 Removing and installing poly V-belt pulley with freewheel, manufacturer: Valeo

Special tools and workshop equipment required



- Multipoint adapter - VAS 3400-
- Torque wrench - V.A.G 1332-
- TORX driver bit - V.A.G 1603/1-

Removing:

– Remove alternator ⇒ page 23 .

– Clamp alternator in a vice at securing points.

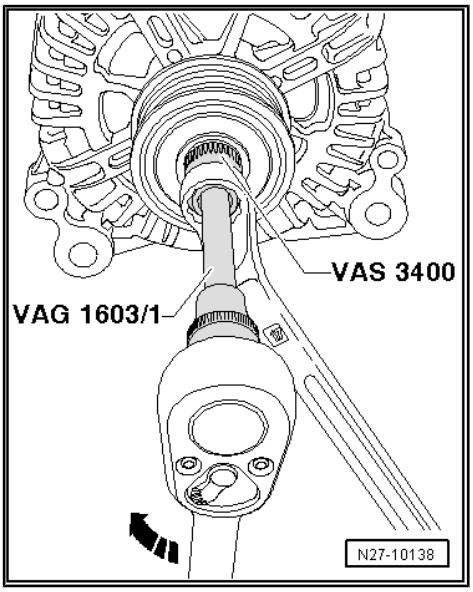
– Remove protective cap from poly V-belt pulley with freewheel.

– Insert multi-point adapter - VAS 3400- with 17mm AF ring spanner in poly V-belt pulley with freewheel of alternator.

– Insert TORX driver bit - V.A.G 1603/1- in alternator shaft.

– Hold alternator shaft in place and loosen poly V-belt pulley with freewheel using a ring spanner. Loosen in anti-clockwise direction.

– Hold poly V-belt pulley with freewheel by hand. Turn alternator drive shaft until poly V-belt pulley with freewheel can be removed.



Installing:

Install in the reverse order of removal. When doing this, note the following:

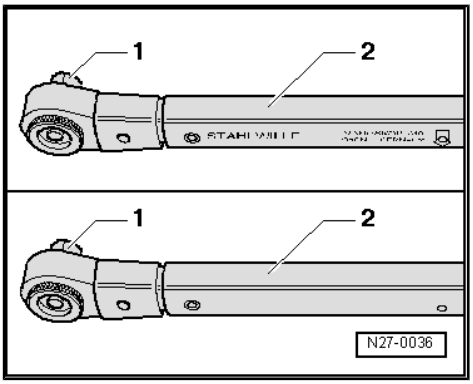
– First screw poly V-belt pulley with freewheel on drive shaft of alternator by hand as far as limit stop.

The torque wrench - V.A.G 1332- must be modified for assembly of poly V-belt with freewheel as follows:

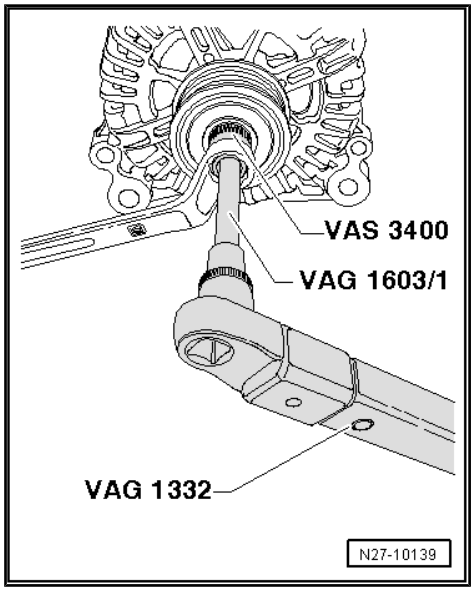
– Release socket drive -1- and pull off grip -2-.

– Turn torque wrench grip -2- 180° and reinsert socket drive.

– Set turning direction of torque wrench to anti-clockwise at socket drive.



– Insert TORX driver bit - V.A.G 1603/1- in alternator shaft.
– Counterhold using multi-point adapter - VAS 3400- with ring spanner 17 mm AF.
– Tighten poly V-belt with freewheel by turning drive shaft of alternator anti-clockwise using torque wrench - V.A.G 1332- .
– Tighten threaded connection to specified torque of 80 Nm.

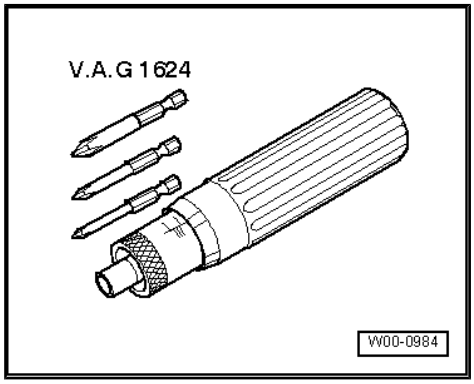


8.7 Voltage regulator for alternator

8.7.1 Removing and installing voltage regulator, manufacturer: Bosch

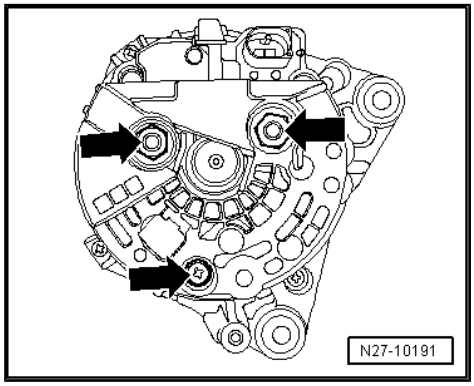
Special tools and workshop equipment required

♦ Torque screwdriver - V.A.G 1624-



Removing:

– Remove alternator ⇒ page 23 .
– Remove securing bolt and nuts -arrows- (4.5 Nm) and remove protective cap from alternator.

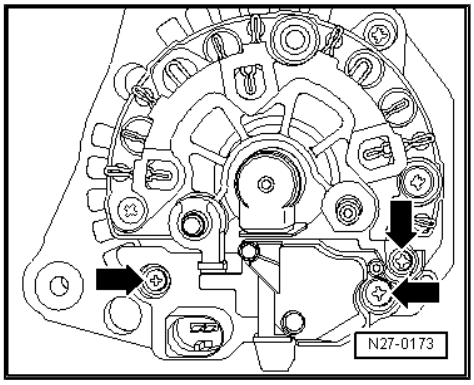


– Unscrew securing bolts of voltage regulator -arrows- (2 Nm).
– Remove voltage regulator from alternator.

Installing:

Installation is carried out in the reverse sequence of removal.

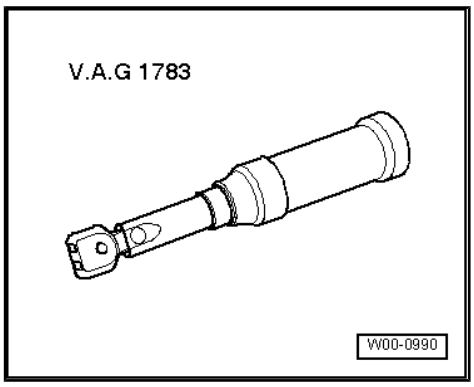
– Tighten threaded connections to specified torques.



8.7.2 Removing and installing voltage regulator, manufacturer: Valeo

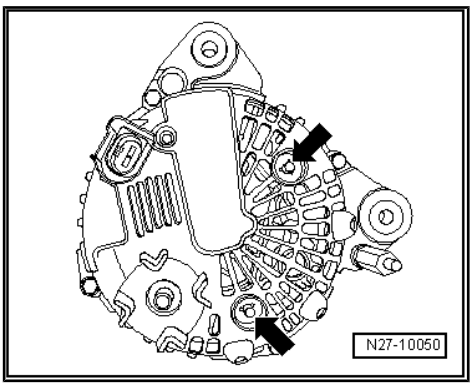
Special tools and workshop equipment required

♦ Torque wrench - V.A.G 1783/-



Removing:

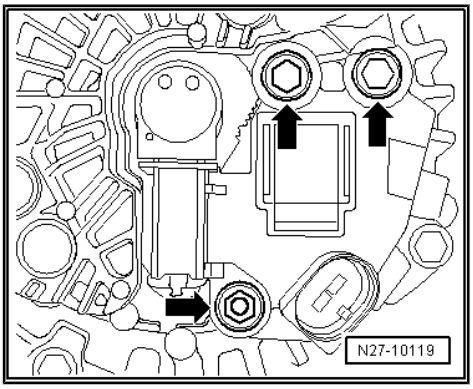
– Remove alternator ⇒ page 23 .
– Remove clamp rings -arrows- and remove protective cap from alternator.



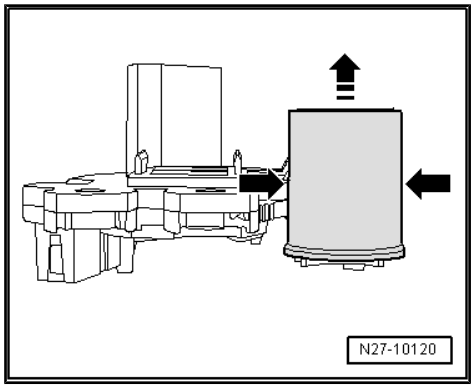
– Remove securing bolts of voltage regulator -arrows- (2 Nm).
– Remove voltage regulator from alternator.

Installing:

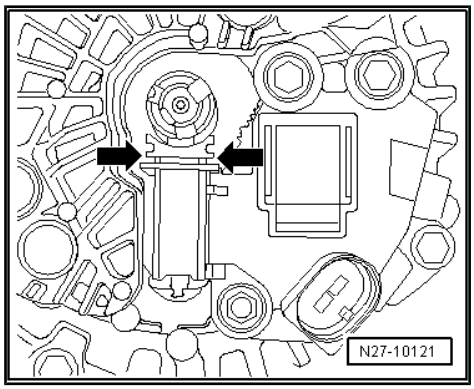
Install in the reverse order of removal. When doing this, note the following:



– Release locking lugs -arrows- and pull protective cap off voltage regulator.
– Push carbon brushes into housing of voltage regulator and insert voltage regulator into alternator.
– Tighten threaded connections to specified torques.



– Push protective cap into guide rails -arrows- until it can be heard to engage.



9 Cruise control system (CCS)

⇒ **Electrical System, General Information; Rep. gr. 27 ; Cruise control system (CCS) .**

10 Start/stop system

10.1 General description

Note

Additional information:

⇒ Operating manual of vehicle

⇒ Self-study programme No. 426 ; The start/stop system 2009

⇒ Current flow diagrams, Electrical fault finding and Fitting locations

General description:

The start/stop system is used for reducing fuel consumption by automatically switching off the engine when the vehicle is stationary and automatically starting it when the driver wants the vehicle to move on. The start/stop mode is automatically activated when, after moving on, the vehicle is driven for about four seconds at a minimal speed of 3 km/h.

Fault detection and fault display:

The start/stop system as a function is integrated in the engine control unit - J623- software.

The engine control unit - J623- features self-diagnosis to facilitate fault finding.

For fault finding, use the systems described in chapter “Vehicle diagnosis, testing and information system” in “Guided Fault Finding” mode ⇒ page 265 .

Battery recharging or jump start on vehicles with Start/Stop system:

For recharging or jump start on vehicles with start/stop system, note the following: using charging cable, first connect battery positive terminals, then body earth. This ensures that the battery sensor is not shunted. The direct charging of the battery on the negative terminal clamp means that the battery sensor is shunted and the battery data are not registered by the sensor while charging. Then, the values concerning the battery state and saved in the data bus diagnostic interface would not correspond to the values of the charged battery.

Renewing battery on vehicles with start/stop system:

Because of its higher deep-cycle resistance, only an absorbent glass mat battery is used as a starter battery instead of the normal lead battery in vehicles with start/stop system.

In case of repair, note correct part number designation in ETKA. Components adapted to start/stop system are not identified separately and are not or barely different from normal components in their appearance.

Note

- *The battery parametrisation must be performed after installing a new starter battery on vehicles with a battery sensor.*
- *The battery parametrisation sends the technical data of the new battery to the battery monitor.*
- *Performing battery parametrisation ⇒ page 10 .*

Following components are involved in the start/stop system:

- Battery - A- ⇒ page 1
- Alternator - C- ⇒ page 23
- Voltage regulator - C1-
- Starter - B- ⇒ page 11
- Brake light switch - F-
- Clutch pedal switch - F36-
- Start/stop operation switch - E693- ⇒ page 43
- Coolant temperature sender - G62-
- Accelerator pedal position sender - G79-
- Gearbox neutral position sender - G701-
- Control unit for ABS with EDL - J104-
- Climatronic control unit - J255-
- Control unit with display in dash panel insert - J285- ⇒ page 45
- Battery monitor control unit - J367- ⇒ page 1
- Convenience system central control unit - J393-
- Power steering control unit - J500-
- On-board supply control unit - J519- ⇒ page 273
- Voltage stabiliser - J532- ⇒ page 43
- Data bus diagnostic interface - J533- ⇒ page 45
- Engine control unit - J623-
- Park assist steering control unit - J791- ⇒ page 189

10.2 Start/stop operation switch - E693-

The start/stop operation switch - E693- is located in the centre console switch panel in front of the gear lever. It serves to switch off manually the start/stop system.

10.2.1 Removing and installing Start/Stop operation button - E693-

Removal and installation of the start/stop operation switch - E693- are carried out in the same way for all switches in the centre console switch panel ⇒ page 249 .

10.3 Voltage stabiliser - J532-

The voltage stabiliser - J532- is installed in the dash panel insert behind the glove compartment. It has the task of stabilizing to 12 volts the high voltage fluctuations generated in the onboard supply by the start/stop operation.

Effects in case of voltage stabiliser failure:

If the voltage stabiliser is defective, devices like radio, radio navigation or telephone will perform a reset if their own voltage supply is not sufficient when the starter is operated. If, in start/stop mode, the mentioned electrical consumers are identified as causing a reset for each engine start, this indicates a defective voltage stabiliser. A direct entry concerning a malfunction of the voltage regulator, e.g. in the fault memory of the diagnostic interface or the onboard supply control unit, does not occur at present. If radio, radio navigation and telephone units fail together, first check fuse of voltage regulator.

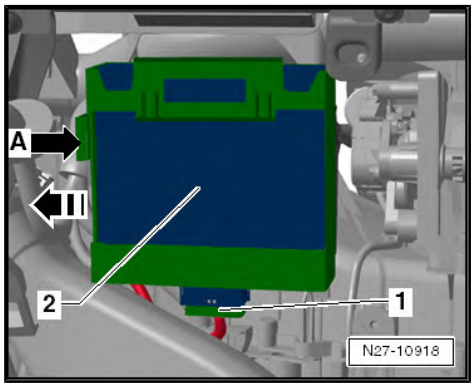
10.3.1 Removing and installing voltage stabiliser - J532- , ► week 22/11

Removing:

– Remove glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trims; Removing and installing glove compartment .

– Release connector -1- and disconnect.

– Press release button on plastic frame -arrow A-, push voltage regulator - J532- -2- together with plastic frame in -direction of arrow- off bracket and remove.



Installing:

Install in reverse order of removal.

10.3.2 Removing and installing voltage stabiliser - J532- , week 23/11 ►

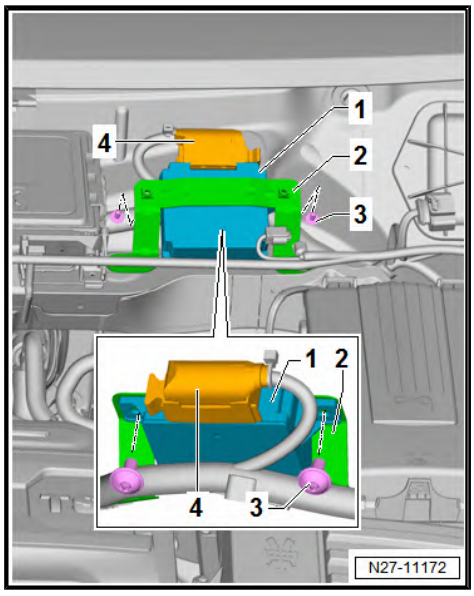
Removing:

– Remove plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Plenum chamber cover .

– Disconnect electrical connector -4-.

– Unscrew bolts -3-.

– Remove voltage stabiliser - J532- -1- from bracket -2-.



Installing:

Installation is carried out in the reverse order. When installing observe the following:

Specified torque

Component	Specified torque
Bolts on voltage stabiliser - J532-	6 Nm

90 – Gauges, instruments

1 Dash panel insert

1.1 General description

Note

Additional information:

⇒ Self-study programme No. 445 ; The Sharan 2011

General description:

The following components are integrated in the dash panel insert:

- Brake fluid level warning contact - F34-
- Vertical acceleration sender - G90-
- Fuel gauge - G1-
- Ambient temperature sensor - G17-
- Speedometer - G21-
- Speedometer sender - G22-
- Oil level and oil temperature sender - G266-
- Coolant temperature gauge - G3-
- Rev. counter - G5-
- Oil pressure warning buzzer - H11-
- Buzzer and gong - H3-
- Multifunction display - J119-
- Control unit in dash panel insert - J285-
- Display unit for navigation system - J414-
- Trip counter - Y4-
- Vehicle voltage display - Y11-
- Oil temperature gauge - Y12-
- Digital clock - Y2-
- Selector lever position display - Y6-
- Immobiliser control unit - J362-

To provide acoustic support to some of the visual displays, the dash panel features a warning buzzer, which is actuated by the control unit.

All warning lamps are fitted with light-emitting diodes (LEDs). No provision is made for dash panel insert repair. If necessary, the dash panel insert is renewed as a unit ⇒ page 46 .

The data bus diagnostic interface - J533- (gateway) is an individual control unit option and not part of the dash panel insert, unlike on several other vehicles.

Fault detection and fault display:

The dash panel insert is equipped with self-diagnosis, which makes fault finding easier.

Fault finding ⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

1.2 Renewing dash panel insert

The procedure “Renewing dash panel insert” covers the following additional tasks:

- If a new dash panel insert is installed in the vehicle, the control unit of the dash panel insert must be adjusted to the different equipment features and associated country settings.
- To adapt the integrated immobiliser to the engine control unit, the data from the engine control unit has to be stored in the replacement dash panel insert.
- Furthermore, if a new dash panel insert is installed, all ignition keys must be adapted.

Note

On vehicles with KESSY (keyless entry Start/Stop system), the terminal 15 voltage supply relay 2 - J681- must be bridged ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

Special tools and workshop equipment required

- Vehicle diagnostic tester

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

1.3 Removing and installing dash panel insert

Note

Before renewing the dash panel insert, the work procedure “Renewing dash panel insert” should always be carried out in order that the data stored in the control unit can be read *⇒ page 46* *.*

Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

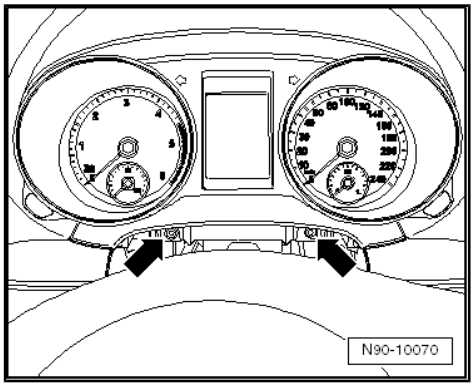
Note

There is no need to remove the steering wheel.

– Pull steering wheel fully out and lock it in lowest position.

– Remove upper part of steering column trim ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trim; Removing and installing steering column trim .

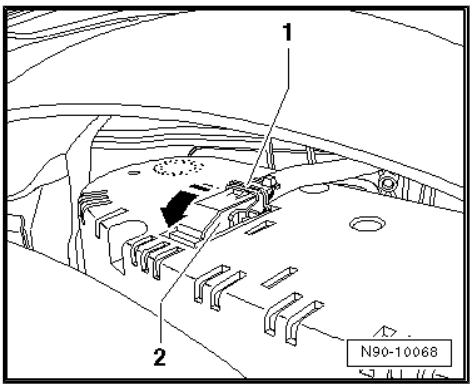
– Remove securing screws -arrows- of dash panel.
– Pull dash panel insert backwards straight out of dash panel, taking connected wiring length into consideration.



– Swing securing bar -1- in -direction of arrow- and pull off connector -2-.
– Remove dash panel insert from vehicle.

Installing:

Installation is carried out in the reverse sequence of removal.



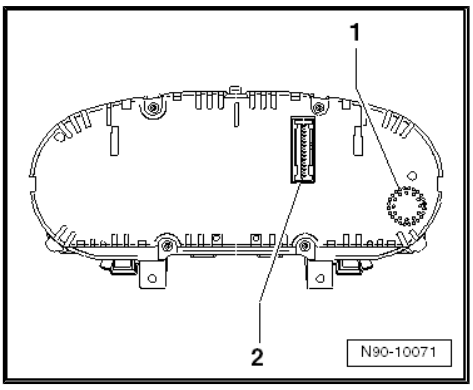
1.4 Description of back of dash panel insert

Note

The dash panel insert must not be dismantled. If necessary, the dash panel insert is renewed as a unit.

1 - Warning buzzer

2 - 32-pin connector



1.5 Pin assignment of connectors on dash panel insert

For pin assignment of connectors on dash panel insert, refer to ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

2 Service interval display

2.1 Resetting service interval display

– Resetting service interval display in “Maintenance Manual”:
⇒ Maintenance ; Booklet ; Descriptions of work .

92 – Windscreen wash/wipe system

1 windscreen wiper system.

1.1 General description

Caution

When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed ⇒ page 4 .

Note

Additional information:

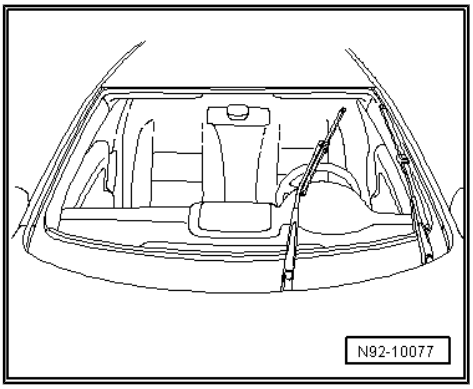
⇒ Operating manual

⇒ Self-study programme No. 445 ; The Sharan 2011

General description:

The wiper motor control unit - J400- and the wiper motor - - are combined to form one unit.

To remove wiper blades, move wiper arms to “service/winter position”. The “service/winter position” is activated within 10 seconds after ignition is switched off by pressing wiper lever in “flick wipe” position ⇒ Operating manual of vehicle .



Note

The following descriptions of the windscreen wiper system refer to a LHD vehicle. Unless the description states otherwise, the individual modules are removed and installed using the corresponding mirror-image procedure in RHD vehicles.

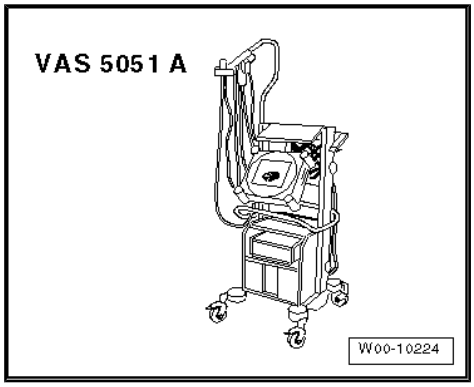
Fault detection and fault display:

Fault finding ⇒ Vehicle diagnostic tester, Guided Fault Finding.

1.2 Deactivating APP function of wiper motor

Special tools and workshop equipment required

- Vehicle diagnostic tester



The windscreen wiper system is equipped with an APP function (alternating park position system).

With the APS function, the wiper arm is moved up slightly once it has reached the lowest position. This occurs every second time the wiper system is switched off.

The wiper motor must be set to the bottom park position for attaching the crank to the motor. This is done by deactivating the APP function (coding wiper motor control unit - J400-).

Note

- *The APP function cannot be activated.*
- *After 100 cycles of wiper movement, the APP function is activated automatically. This applies to wiper motors on which the APP function has been deactivated and also to new wiper motors.*

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

1.3 Assembly overview - windscreen wiper system

1 - Wiper arm securing nut to linkage

- ❑ 32 Nm

2 - Joint-free wipers

- ❑ Removing and installing ⇒ page 57
- ❑ Adjusting park position ⇒ page 56

3 - Wiper arms

- ❑ Removing and installing ⇒ page 55

4 - Wiper frame securing bolts with linkage to body

- ❑ 8 Nm

5 - Securing bolts of wiper motor in wiper frame

- ❑ 9 Nm

6 - Wiper frame with linkage

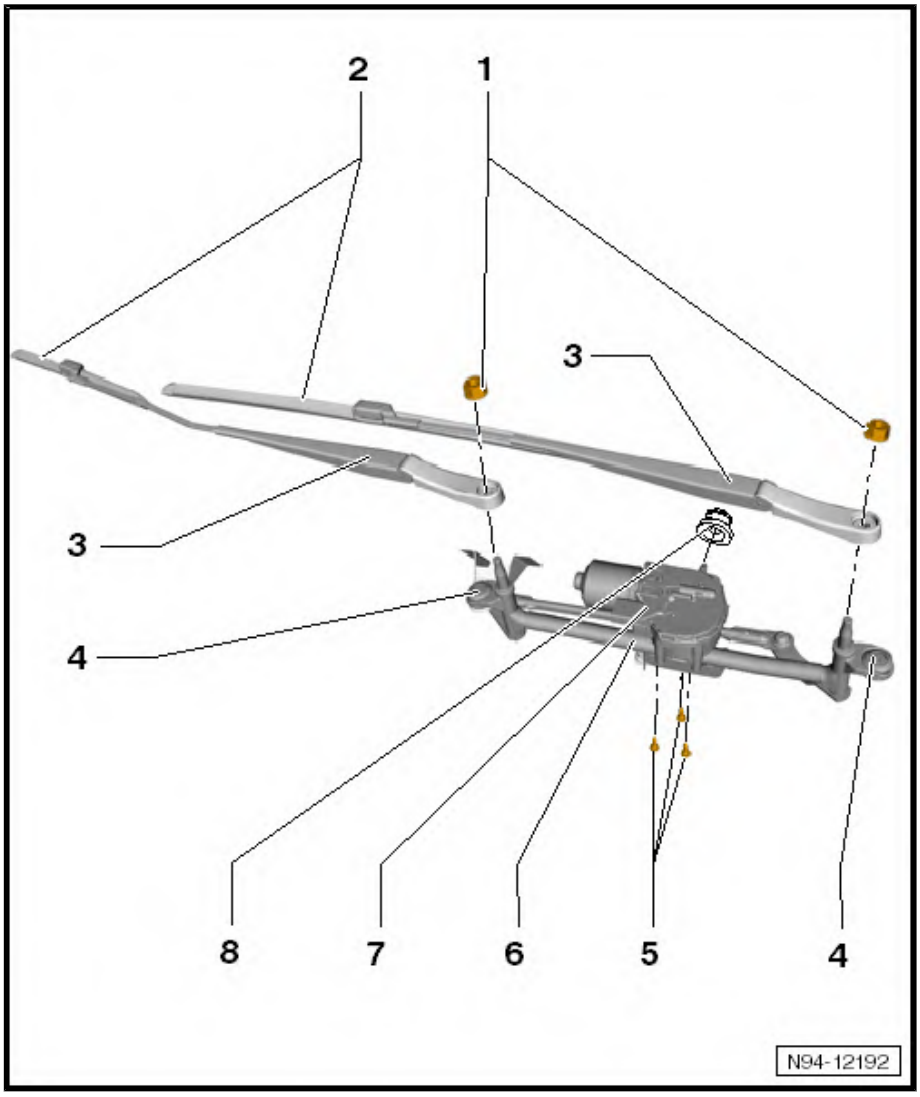
- ❑ Removing and installing ⇒ page 53

7 - Wiper motor - V- with control unit for wiper motor - J400-

- ❑ Removing from wiper frame and installing ⇒ page 54
- ❑ Coding wiper motor control unit and deactivating APP function ⇒ page 49

8 - Rubber grommet in bulkhead

- ❑ Observe installation notes ⇒ page 55



Not illustrated

- ♦ Nut for securing wiper motor crank to wiper motor shaft: 25 Nm

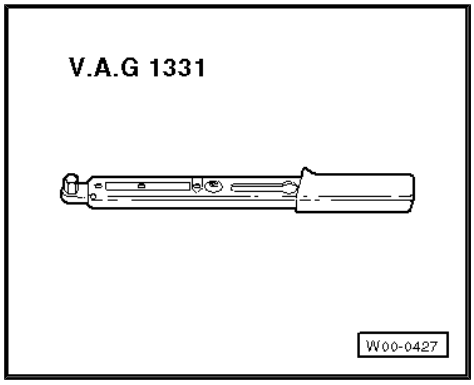
1.4 Removing and installing windscreen wiper system

Caution

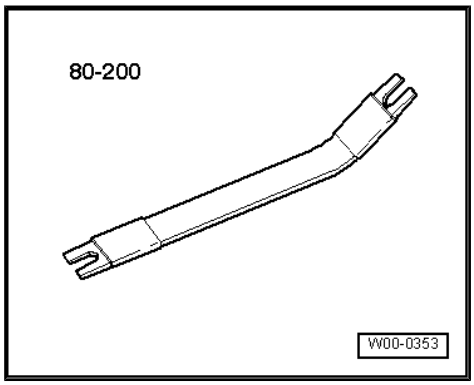
When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed ⇒ page 4 .

Special tools and workshop equipment required

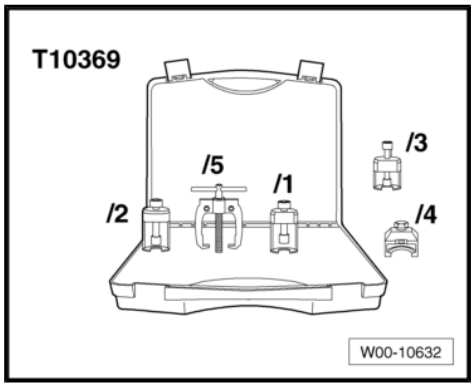
- Torque wrench - V.A.G 1331-



- Removal lever - 80-200-



- Puller - T10369-



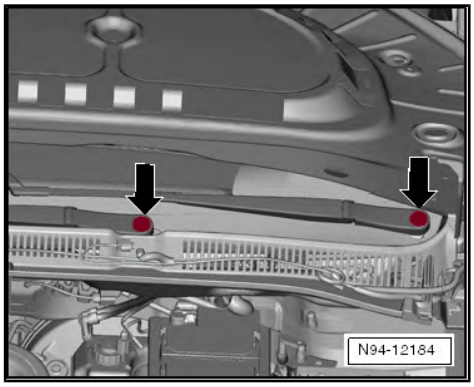
1.4.1 Removing windscreen wiper system

– Deactivate APP function ⇒ page 49 .
– Move wipers to park position and then switch off ignition.
– Disconnect battery ⇒ page 4 .

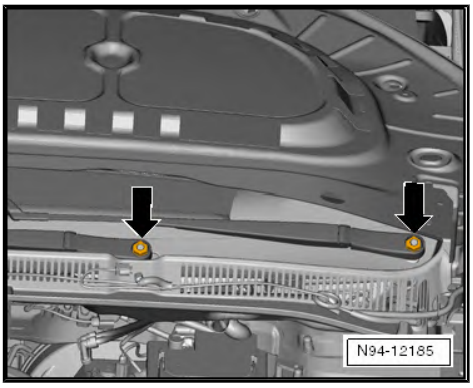
Note

In order for wiper frame to be removed with linkage and wiper motor, wiper arms and plenum chamber cover must first be removed.

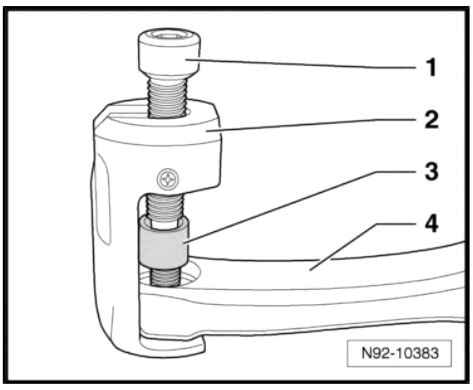
1.4.2 Removing wiper arms



– Lever off cover caps -arrows- using a screwdriver.
– Remove securing nuts -arrows-.



– Slide arms of puller - T10369/1- -2-, as shown in illustration, under wiper arm -4-.



Caution

The wiper shaft may be damaged.

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

– Turn thrust bolt -1- of puller clockwise until thrust piece -3- comes into contact with wiper shaft. Turn thrust bolt -1- of puller clockwise using an Allen key (6 mm AF) until wiper arm -4- is loosened off shaft.
– Remove puller and wiper arm.

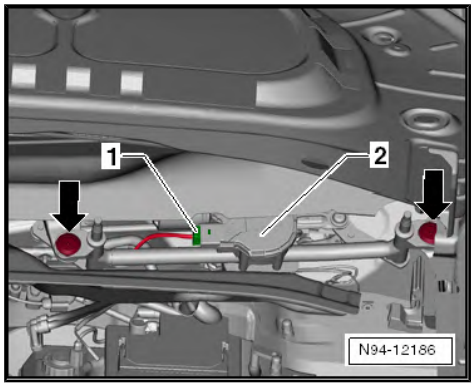
1.4.3 Removing plenum chamber cover

Removing and installing plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Plenum chamber cover .

1.4.4 Removing wiper frame with linkage and wiper motor

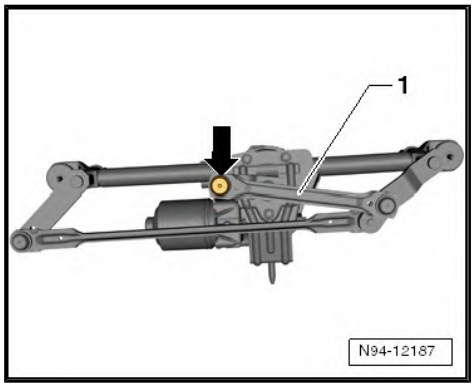
– Remove plenum chamber bulkhead ⇒ General body repairs, exterior; Rep. gr. 50 ; Plenum chamber bulkhead .

– Release connector -1- and disconnect.
– Unscrew both securing bolts -arrows- and remove wiper frame with linkage and wiper motor -2- upwards out of vehicle.

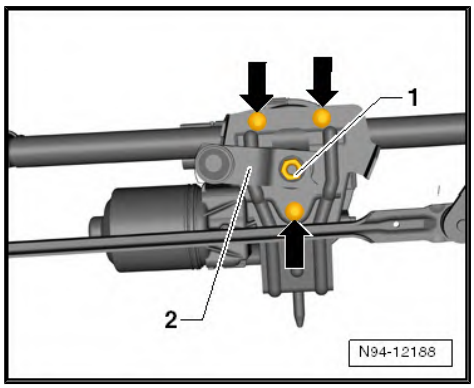


1.4.5 Removing wiper motor from wiper frame

– Lever off ball head -arrow- from motor crank using lever -80-200- and swing linkage -1- to one side.

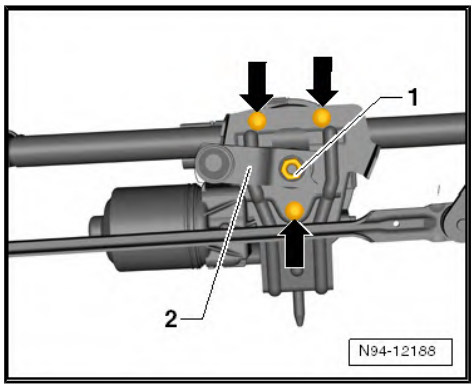


– Unscrew securing nut -1-, and pull motor crank -2- off wiper motor shaft.
– Unscrew three securing bolts -arrows- and remove wiper motor with control unit from wiper frame.

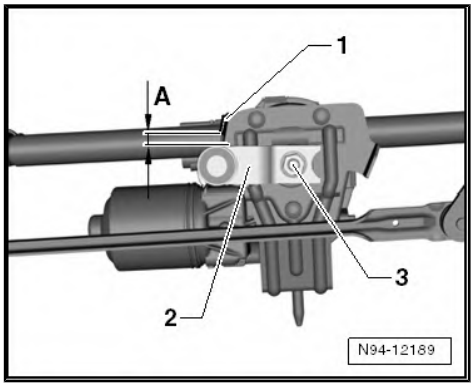


1.4.6 Installing wiper motor in wiper frame

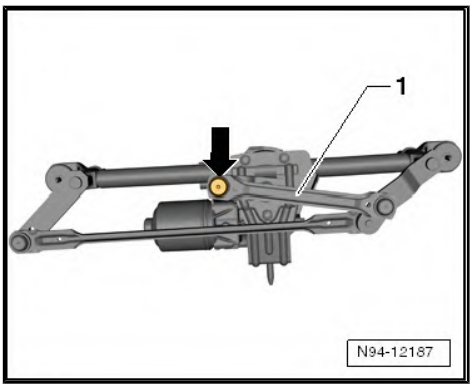
– Insert wiper motor with control unit in wiper frame and secure with three securing bolts -arrows-.
– Tighten securing bolts to torque specified in assembly overview ⇒ page 50 .



– Place motor crank -1- on shaft of wiper motor. Distance -A- to limit stop -2- should be 5 ± 1 mm.
– Connect motor crank to shaft of wiper motor with securing nut -3-.
– Tighten securing nut to torque specified in assembly overview ⇒ page 50 .



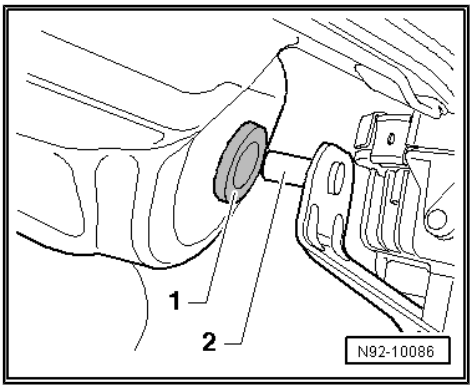
– Press ball head -arrow- of linkage -1- onto motor crank.



1.4.7 Installing windscreen wiper system

Install in the reverse order of removal. When doing this, note the following:

– Securing pin on wiper frame -2- must be inserted in rubber grommet on bulkhead when installing.
– Tighten threaded connections to specified torque given in assembly overview ⇒ page 50 .
– Fit connector to wiper motor connection and lock in position.
– Install plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 66 ; Plenum chamber cover .
– Install plenum chamber bulkhead ⇒ General body repairs, exterior; Rep. gr. 50 ; Plenum chamber bulkhead .
– Connect battery ⇒ page 4 .
– Installing wiper arms ⇒ page 55 .



1.5 Removing and installing wiper arms

Removing:

– Remove wiper arms ⇒ page 53 .

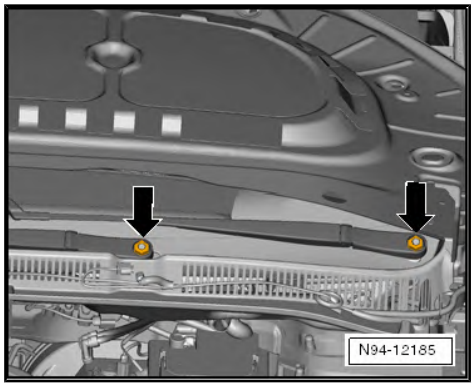
Installing:

Note

The securing nuts of the wiper arms are not tightened to the specified torques until the wiper blade park position has been adjusted.

– If not yet carried out, deactivate the APP function ⇒ page 49 .

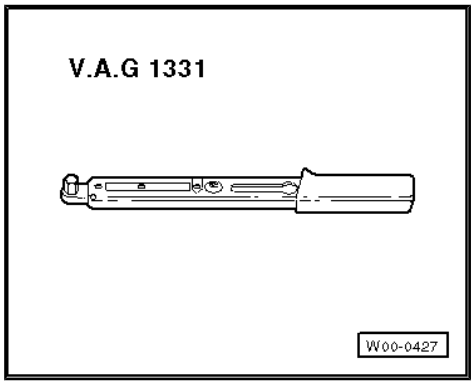
– To move wiper motor to park position, switch wipers on and off with ignition on.
– Fit the two wiper arms in approximate park position on wiper arm shafts and tighten securing nuts -arrows- by hand.
– Adjust wiper blade park position ⇒ page 56 .



1.6 Adjusting wiper blade park position

Special tools and workshop equipment required

♦ Torque wrench - V.A.G 1331-



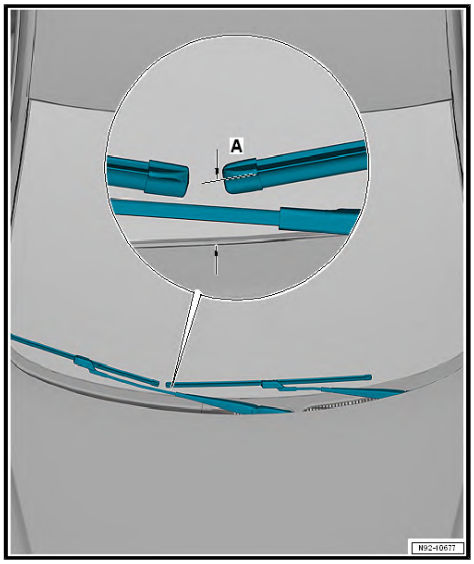
Note

On RHD vehicles, the wiper blades are a mirror image of those on LHD vehicles.

– If not yet carried out, deactivate the APP function ⇒ page 49 .
– Move wipers to park position and then switch off ignition.
– Now, adjust wiper blade park position.

Driver side:

The distance -A- between top of wiper lip and upper side of plenum chamber cover must be 18 ± 5 mm.

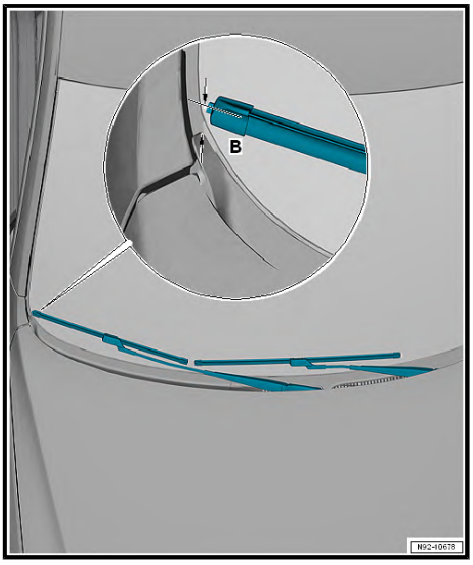


– Adjust wiper blade park position by moving wiper arm if necessary ⇒ page 53 .

– Tighten threaded connections to specified torque given in assembly overview ⇒ page 50 .

Front passenger side:

The distance -B- between top of wiper lip and upper side of plenum chamber cover must be 18 ± 5 mm.



– Adjust wiper blade park position by moving wiper arm if necessary ⇒ page 53 .

– Tighten threaded connections to specified torque given in assembly overview ⇒ page 50 .

1.7 Removing and installing joint-free wipers

Removing:

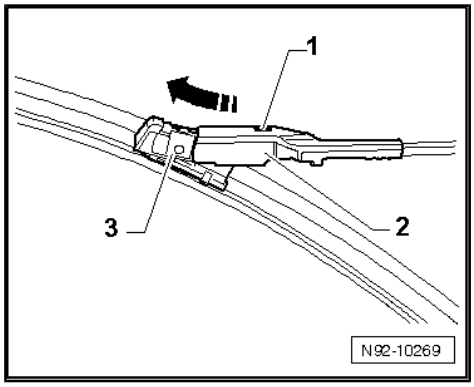
Note

- *Driver and front passenger wiper blades must not be interchanged when installing.*
- *Joint-free wipers are very flexible. Only touch wiper blades in area of wiper blade attachment to lift off windscreen.*
- *To remove wiper blades, move wiper arms to “service/winter position”. The “service/winter position” is activated within 10 seconds after ignition is switched off by pressing the windscreen wiper lever in position “tip wipe”.*

– Within 10 seconds of switching off ignition, press windscreen wiper lever to “flick wipe” position in order to move wiper arms to “service/winter position”.

– Lift up wiper arm.

– Press button -1- and pull wiper blade mounting -3- out of wiper arm -2- in -direction of arrow-.



Installing:

– Push wiper blade mounting into wiper arm until it locks in place audibly.

– Carefully fold wiper arm back onto front windscreen.

1.8 Removing and installing rain and light sensor

The rain and light sensor - G397- can be found in the base of the interior mirror and comprises the following components depending on the equipment level:

- Rain sensor - G213-
- Light sensor - G399-
- Humidity sender for air conditioning system - G260-

Removing and installing rain and light sensor - G397- ⇒ page 58 .

Code rain and light sensor - G397- ⇒ page 61 .

1.8.1 Removing and installing rain and light sensor - G397-

Note

- *The rain and light sensor - G397- has a silicon layer (coupling pad) which forms the contact surface to the windscreen.*
- *The rain and light sensors - G397- cannot be renewed arbitrarily.*
- *Determine the correct rain and light sensor - G397- using the part number ⇒ Electronic parts catalogue "ETKA".*
- *If the rain and light sensor - G397- is replaced by a rain and light sensor - G397- with a different part number, start the respective function ⇒ Vehicle diagnostic tester.*

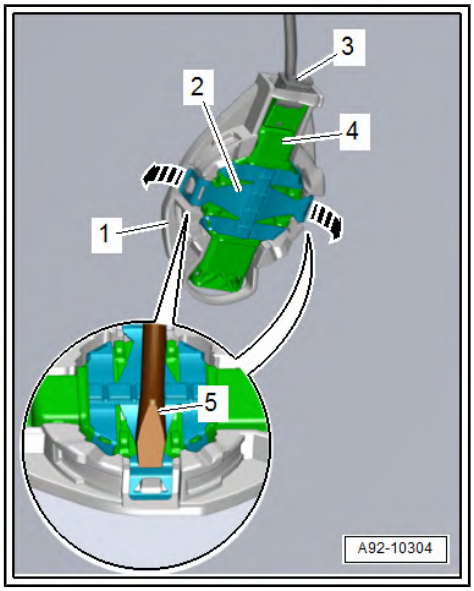
Removing

– Switch off ignition.

– Equipment version with ignition lock: withdraw ignition key.

– Remove interior mirror ⇒ General body repairs, interior; Rep. gr. 68 ; Interior mirror; Removing and installing interior mirror .

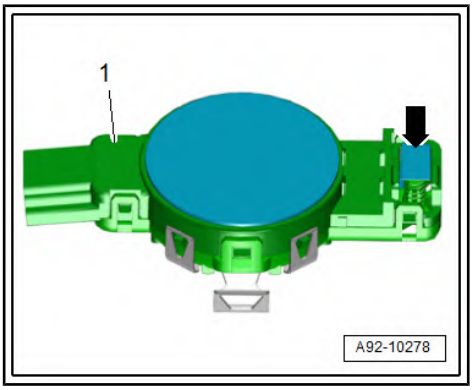
– Disconnect electrical connector -3-.
– Insert a narrow screwdriver -5- in the hole as shown in illustration, and release catches of retaining spring -2- -arrows-.
– Wait 1 minute until silicone pad has fully expanded so that it can be detached without leaving any residue.
– Detach rain and light sensor - G397- -item 4- by moving it back and forth, and remove it from mounting -1-.



Caution

Risk of damage to humidity sender.

- *The humidity sender -arrow- is very sensitive and must not be damaged.*



– If the humidity sender is damaged -arrow-, the rain and light sensor -1- must be renewed.
– Clean bonding surface on windscreen using lint-free cloth.
• Completely remove any remains of the silicone.

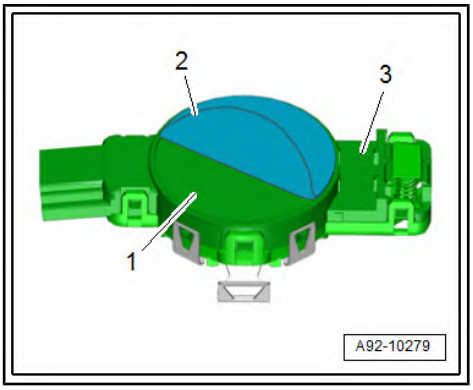
Installing

Install in the reverse order of removal, observing the following:

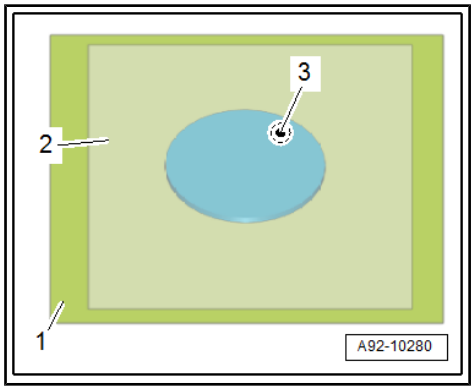
Note

Renew the silicone pad.

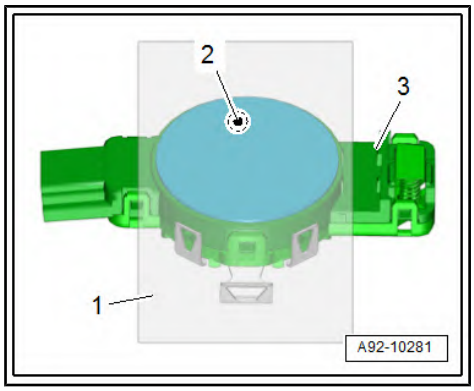
– Remove silicone pad -2- from sensor -3- without leaving any residue.
– Clean bonding surface -1- on sensor with compressed air.



– Pull silicone paper -1- off silicone pad -3-.
– The transparent protective film -2- remains on the silicone pad as an assembly aid.



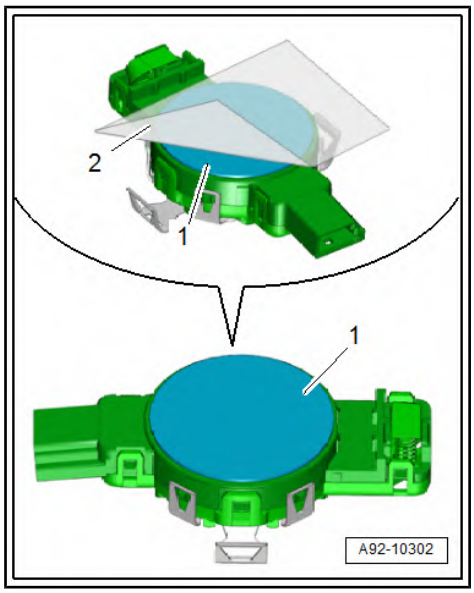
– Using transparent protective film -1- position silicone pad -2- in centre of sensor -3-.
– Press silicone pad through protective film onto sensor.



– Pull protective film -2- off silicone pad -1-.

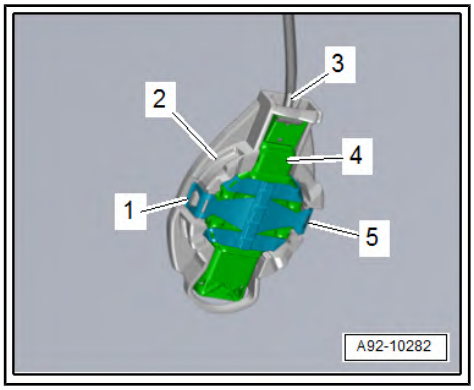
Note

To prevent the silicone pad from being soiled, only remove the protective film immediately before installing the sensor.



– Insert sensor -4- in mounting -2-.

– Press on retaining clips -1, 5- until they can be heard to engage.



Note

- *Even if the sensor is installed correctly, small air bubbles may initially appear between the windscreen and the coupling pad. After approx. 10 minutes, the contact surface must be free of bubbles.*
- *If the contact surface is not free of bubbles after 10 minutes, the rain and light sensor - G397- must be removed and installed anew.*
- *Air bubbles between the windscreen and the coupling pad will cause the rain and light sensor - G397- to malfunction.*

– Connect electrical connector -3-.

– If the rain and light sensor - G397- was renewed, perform coding.

Coding rain and light sensor - G397-

– Code rain and light sensor - G397- ⇒ Vehicle diagnostic tester.

1.8.2 Coding rain and light sensor - G397-

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

2 Windscreen washer system

Note

Additional information:

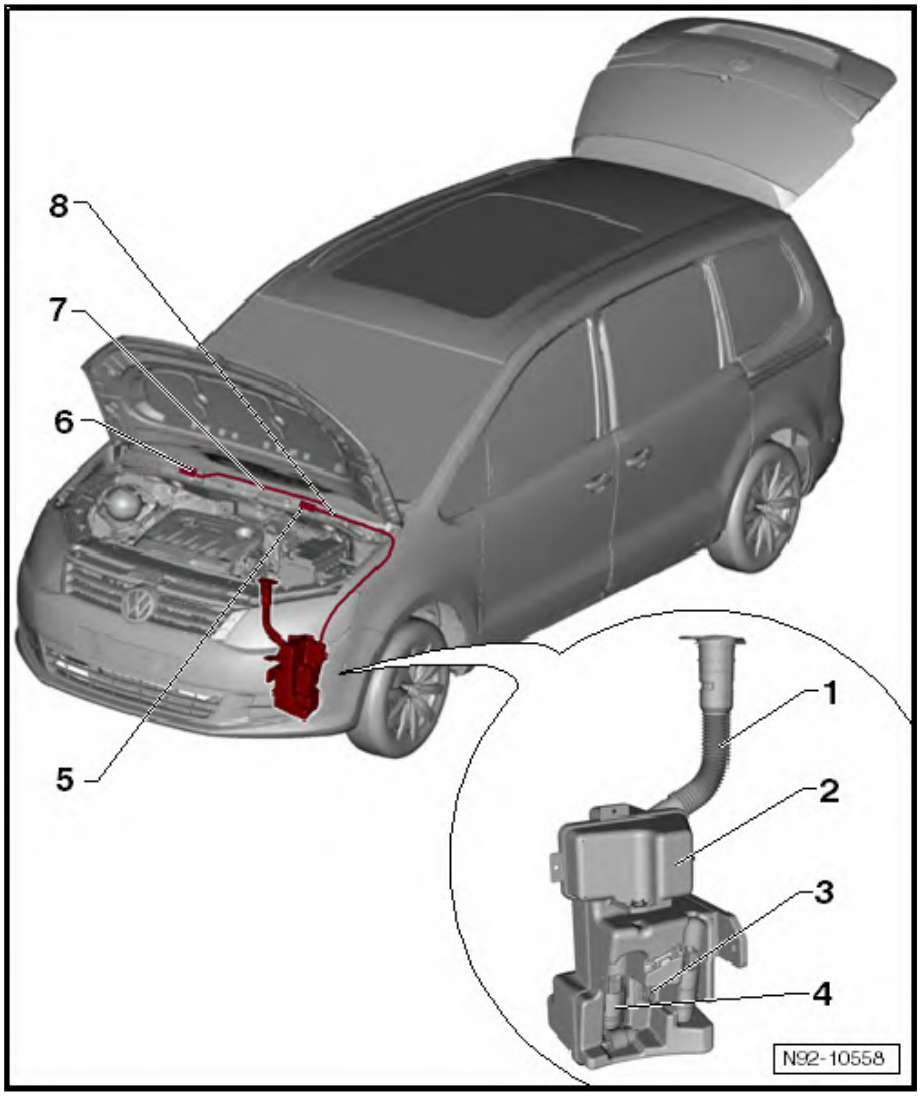
⇒ Operating manual

⇒ Self-study programme No. 445 ; The Sharan 2011

2.1 Assembly overview - windscreen washer system

Note

One of two different types of reservoir is installed for the windscreen and headlight washer system (either with or without headlight washer system), depending on the equipment installed in the vehicle. The illustration shows the version for vehicles with headlight washer system.



1 - Filler neck with connecting pipe on reservoir for windscreen and headlight washer system

- ❑ Removing and installing ⇒ page 63

2 - Washer fluid reservoir

- ❑ Removing and installing (vehicles with no headlight washer system) ⇒ page 63
- ❑ Removing and installing (vehicles with headlight washer system) ⇒ page 65
- ❑ Securing nuts and bolts of windscreen and headlight washer fluid reservoir to body - 8 Nm

3 - Windscreen washer fluid level sender - G33-

- ❑ Removing and installing ⇒ page 68

4 - Windscreen and rear window washer pump - V59-

- ❑ Removing and installing ⇒ page 67

5 - Left windscreen washer system spray jet

- ❑ Removing and installing ⇒ page 68
- ❑ Adjusting ⇒ page 69

6 - Right windscreen washer system spray jet

- ❑ Removing and installing ⇒ page 68

- ❑ Adjusting ⇒ page 69
- ❑ Overview of hose couplings for washer fluid lines ⇒ page 81

7 - Hose

- ❑ Hose repair ⇒ page 82

8 - Y-piece

- ❑ Distribution of wash water line to windscreen washer system spray jets

2.2 Removing and installing washer fluid reservoir

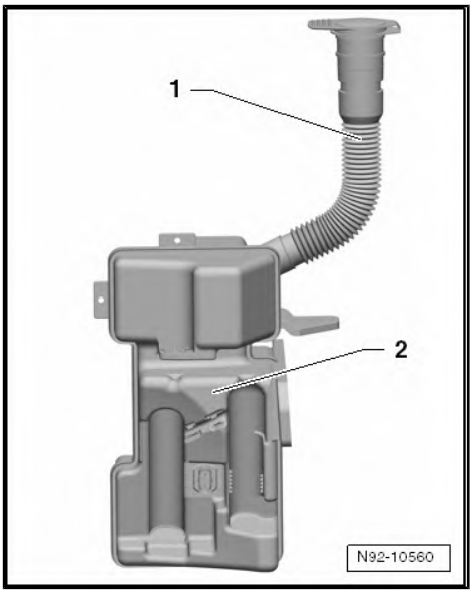
The reservoir for windscreen and headlight washer system has two parts and can be dismantled. In order to ensure the parts are placed together correctly, check when assembling that the guides of the individual parts engage in each other.

1 - Filler pipe with filler neck on reservoir for windscreen and headlight washer system

2 - Washer fluid reservoir

One of two different types of reservoir is installed for the windscreen and headlight washer system, depending on the equipment installed in the vehicle:

- ♦ Removing and installing reservoir for windscreen and headlight washer system (vehicles with headlight washer system) ⇒ page 63 .
- ♦ Removing and installing reservoir for windscreen and headlight washer system (vehicles without headlight washer system) ⇒ page 65 .



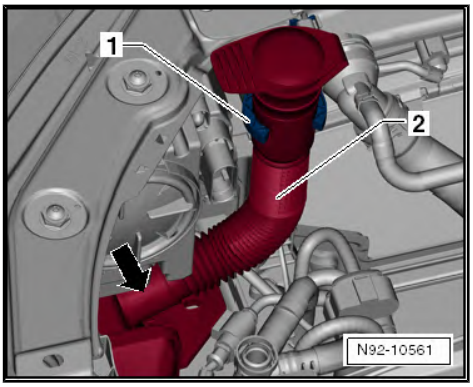
2.2.1 Removing and installing connecting pipe with filler neck on windscreen and headlight washer fluid reservoir

Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Unclip connecting pipe -2- from bracket -1- and pull off from support -arrow- on windscreen and headlight washer system reservoir.

– Remove connecting pipe and filler neck from vehicle.



Installing:

Install in the reverse order of removal. When doing this, note the following:

Note

The guide on the underside of the connecting pipe must align with the lug on the reservoir support when fitting.

2.2.2 Removing and installing reservoir for windscreen and headlight washer sys-

tem (vehicles without headlight washer system)

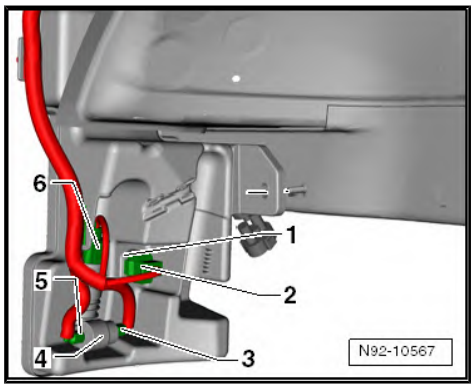
Removing:

- Switch off ignition and all electrical equipment and then remove ignition key.
- Remove filler pipe with filler neck on reservoir for windscreen and headlight washer system ⇒ page 63 .
- Remove front bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper .
- Remove left headlight: ⇒ page 83
- Remove front left wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner .

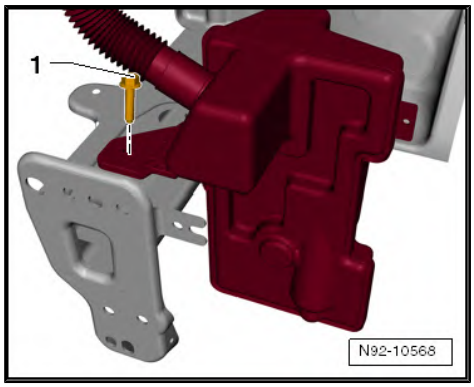
Note

The connections to the pump and hose lines are colour-coded in order to prevent the washer fluid lines being incorrectly connected to the front and rear washer fluid pump - V59- . The hose fittings must be connected to the correct colour-coded pump connections during installation.

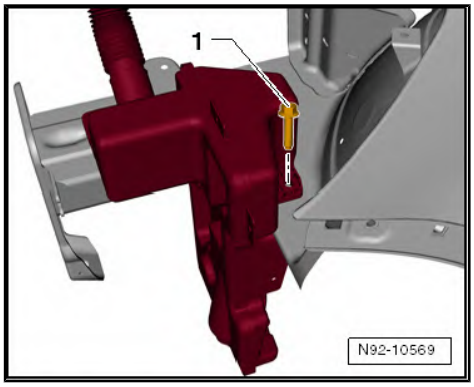
- To release, twist securing clips on hose connections -3- and -5- and pull off elbow connectors from windscreen and rear window washer pump - V59- -4-.
- Collect any escaping washer fluid in a suitable container.
- Pull windscreen and rear window washer pump - V59- -4- upwards out of rubber seal in reservoir and release and separate connector -6-.
- Release and separate connector -2- of windscreen washer fluid level sender - G33- -1-.
- Follow route of wiring harness and unclip from retainers on reservoir.



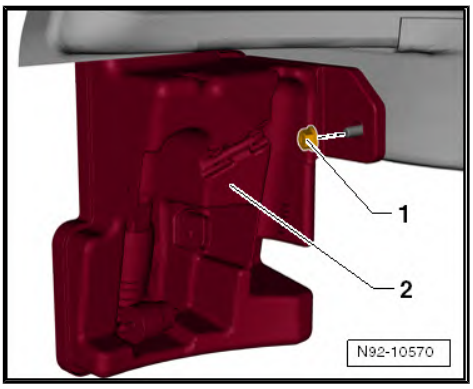
- Remove securing bolt -1-.



– Remove securing bolt -1-.



– Unscrew securing nut -1- and remove reservoir -2-.



Installing:

Install in the reverse order of removal. When doing this, note the following:

– Tighten all threaded connections to torque specified in assembly overview ⇒ page 62 .

– On completion of installation work, bleed headlight washer system ⇒ page 80 .

2.2.3 Removing and installing reservoir for windscreen and headlight washer system (vehicles with headlight washer system)

Note

Depending on the equipment level, the positions of the individual components could be slightly different to those shown in the illustrations. Removal procedure is analogue.

Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove filler pipe with filler neck on reservoir for windscreen and headlight washer system ⇒ page 63 .

– Remove front bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper .

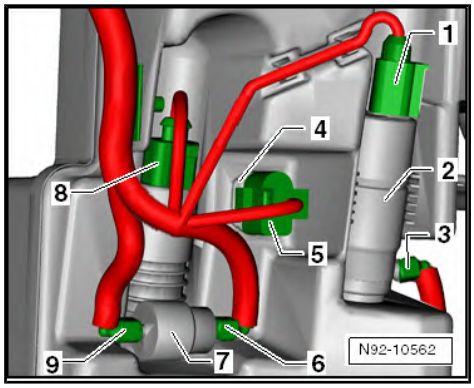
– Remove left headlight: ⇒ page 83

– Remove front left wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner .

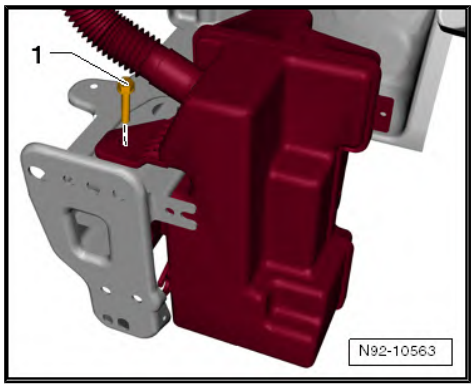
Note

The connections to the pump and hose lines are colour-coded in order to prevent the washer fluid lines being incorrectly connected to the front and rear washer fluid pump - V59- . The hose fittings must be connected to the correct colour-coded pump connections during installation.

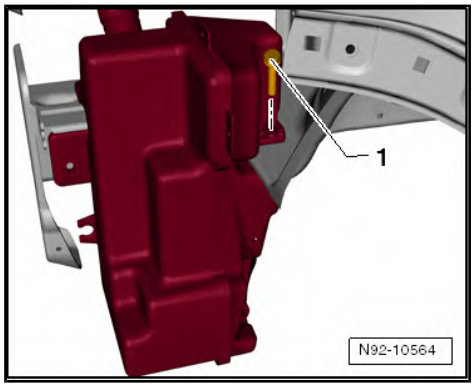
– To release, twist securing clips on hose connections -3-, -6- and -9- and pull off elbow connectors from windscreen and rear window washer pump - V59- -7- and headlight washer pump - V11- -2-.
– If necessary, collect any escaping washer fluid in a suitable container.
– Pull windscreen and rear window washer pump - V59- -7- upwards out of rubber seal in reservoir, and release and disconnect connector -8-.
– Release and disconnect connector -5- of windscreen washer fluid level sender - G33- -4-.
– Follow route of wiring connector -1- and unclip from reservoir.
– Pull headlight washer system pump - V11- -2- upwards out of rubber seal in reservoir and release and separate connector -1-.
– Follow route of wiring harness and unclip from retainers on reservoir.



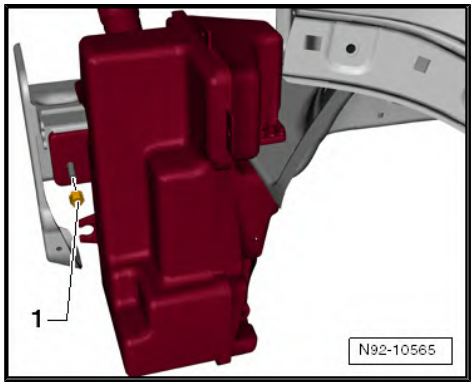
– Remove securing bolt -1-.



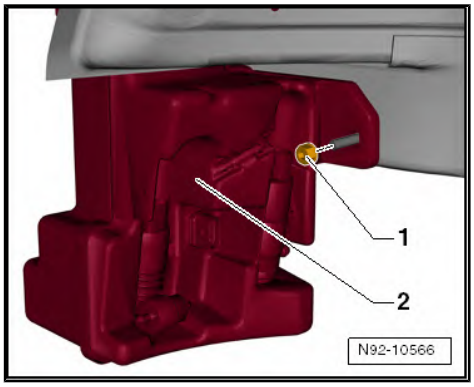
– Remove securing bolt -1-.



– Unscrew securing nut -1-.



– Unscrew securing nut -1- and remove reservoir -2-.



Installing:

Install in the reverse order of removal. When doing this, note the following:

– Tighten all threaded connections to torque specified in assembly overview ⇒ page 62 .

– On completion of installation work, bleed headlight washer system ⇒ page 80 .

2.3 Removing and installing windscreen and rear window washer pump - V59-

Note

One of two different types of reservoir is installed for the windscreen and headlight washer system (either with or without headlight washer system), depending on the equipment installed in the vehicle. The illustration shows the version for vehicles with headlight washer system.

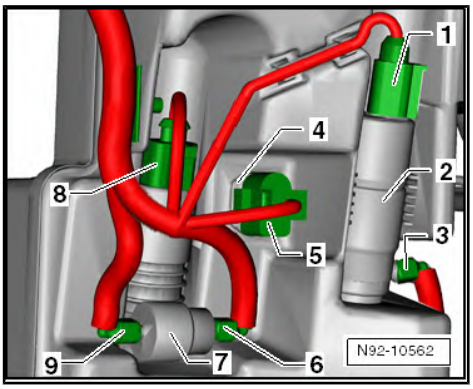
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove front left wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner .

Note

The connections to the pump and hose lines are colour-coded in order to prevent the washer fluid lines being incorrectly connected to the front and rear washer fluid pump - V59- . The hose fittings must be connected to the correct colour-coded pump connections during installation.



– To release, twist securing clips on hose connections -6- and -9-, and pull elbow connectors off windscreen and rear window washer pump - V59- -7-.

– Pull windscreen and rear window washer pump - V59- -7- upwards out of rubber seal in reservoir, and release and disconnect connector -8-.

– Collect escaping fluid in a suitable container.

Installing:

Install in the reverse order of removal. When doing this, note the following:

– On completion of installation work, bleed headlight washer system ⇒ page 80 .

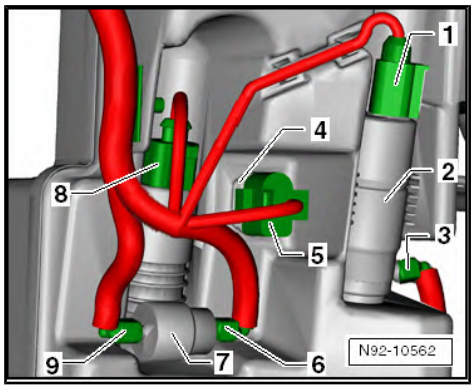
2.4 Removing and installing windscreen washer fluid level sender - G33-

Note

One of two different types of reservoir is installed for the windscreen and headlight washer system (either with or without headlight washer system), depending on the equipment installed in the vehicle. The illustration shows the version for vehicles with headlight washer system.

Removing:

- Switch off ignition and all electrical equipment and then remove ignition key.
- Remove front left wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner .
- Release and separate connector -5- on windscreen washer fluid level sender - G33- -4-.
- Pull windscreen washer fluid level sender - G33- -4- out of its rubber seal.
- Collect escaping fluid in a suitable container.



Installing:

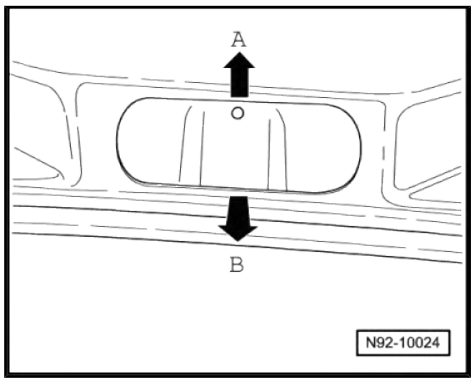
Install in the reverse order of removal. When doing this, note the following:

- On completion of installation work, bleed headlight washer system ⇒ page 80 .

2.5 Removing and installing windscreen washer system spray jets

Removing:

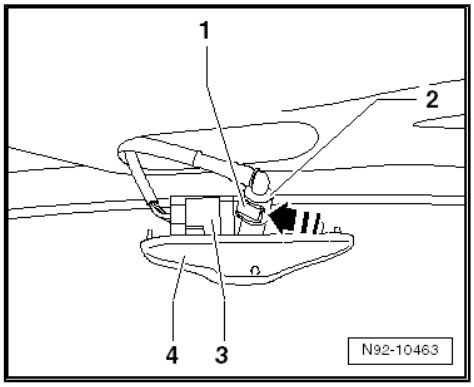
- Push spray jet upwards -arrow A- and swing out of flap downwards -arrow B-.



– Release hose clip -1- in -direction of arrow- and pull hose connection -2- off spray jet.
– Release and separate connector -3- and remove spray jet -4-.

Installing:

– Fit connector -2- and hose -1- onto spray jet.
– Starting from top, insert spray jet in mounting hole until it locks in place audibly.
– Adjusting spray jets ⇒ page 69 .



2.6 Adjusting windscreen washer system spray jets

Note

If impurities in the spray jet cause an uneven spray field, remove the spray jet and flush through with water against the spraying direction. Subsequent blowing through with compressed air against the spraying direction is permitted. Never use solid objects to clean the washer jets!

Adjusting windscreen washer system spray jets in “Maintenance Manual”: ⇒ Maintenance ; Booklet ; Descriptions of work

3 Rear window wiper system

Note

Additional information:

⇒ Operating manual

⇒ Self-study programme No. 445 ; The Sharan 2011

Caution

When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed ⇒ page 4 .

3.1 Assembly overview - rear window wiper system

1 - Cover

2 - Securing nut

- ❑ 12 Nm

3 - Wiper arm

- ❑ Removing and installing ⇒ page 71
- ❑ Adjusting park position ⇒ page 72

4 - Seal

- ❑ In rear window

5 - Rear window wiper motor - V12-

- ❑ Removing and installing ⇒ page 71

6 - M6 securing nut with washer

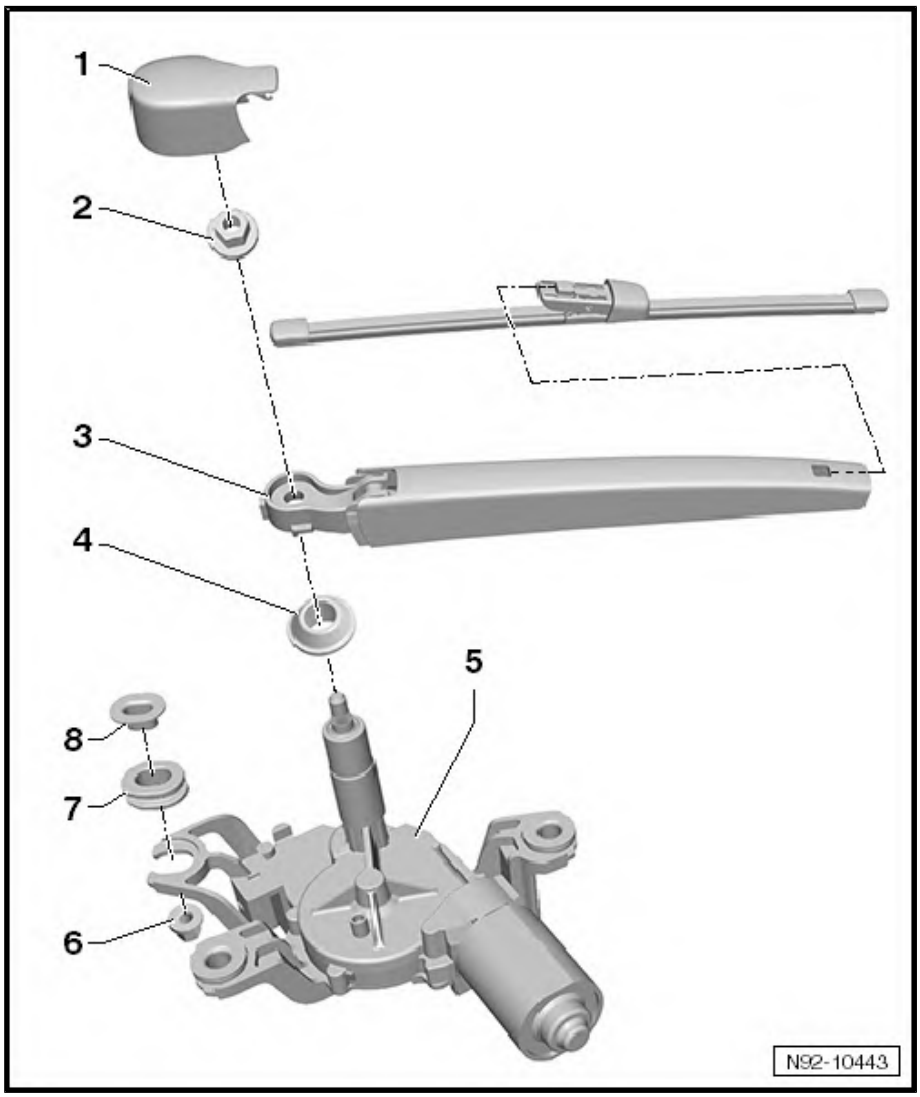
- ❑ 8 Nm

7 - Rubber ring

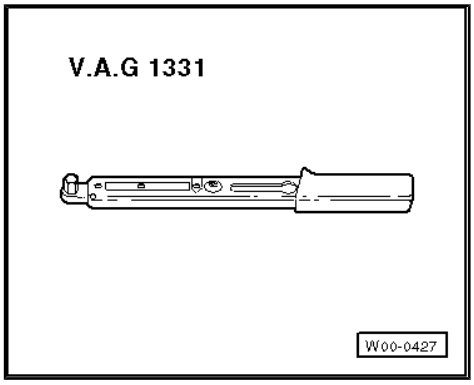
8 - Distance piece

9 - Joint-free wiper

- ❑ Removing and installing ⇒ page 73



3.2 Removing and installing wiper arm



Special tools and workshop equipment required

- Torque wrench - V.A.G 1331-

Removing:

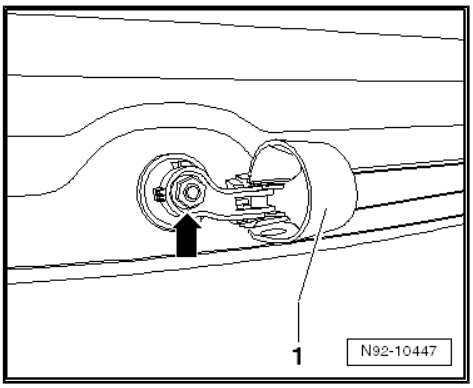
– Allow rear window wiper to adopt park position.

– Fold cover cap -1- of rear window wiper up and unclip it.

– Loosen but do not completely remove securing nut -arrow-.

– Fold wiper arm up and release from taper by rocking arm back and forth sideways.

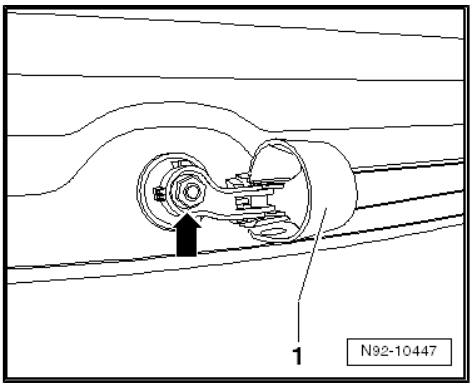
– Unscrew securing nut -arrow- completely and remove wiper arm.



Installing:

– To move wiper motor to its rest position, switch windscreen wipers on and off with ignition on.

– Fit wiper arm in approximate park position on wiper arm shaft and tighten securing nut -arrow- by hand .

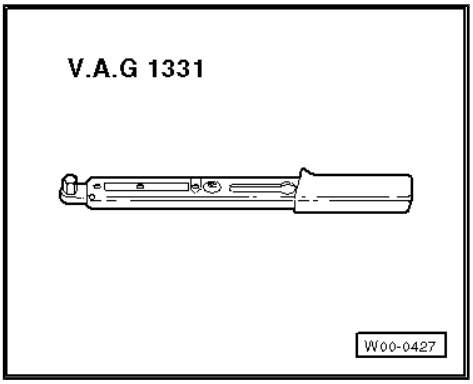


Note

Wiper arm securing nut -arrow- is not tightened to specified torque until wiper blade park position has been adjusted.

– Adjust rear window wiper park position ⇒ page 72 .

3.3 Removing and installing rear window wiper motor - V12-



Special tools and workshop equipment required

- Torque wrench - V.A.G 1331-

Removing:

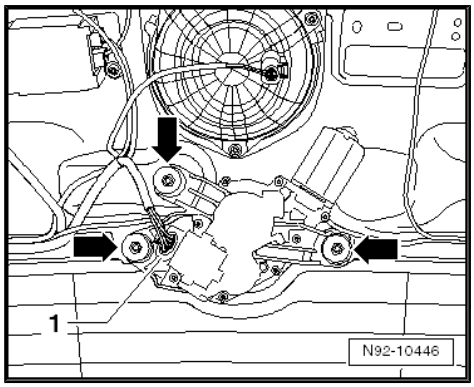
– Disconnect battery ⇒ page 4 .

– Remove lower trim on rear lid ⇒ General body repairs, interior; Rep. gr. 70 ; Rear lid trim .

– Release connector -1- and disconnect.

– Remove securing nuts -arrows-.

– Carefully pull rear window wiper motor inwards off rear lid.



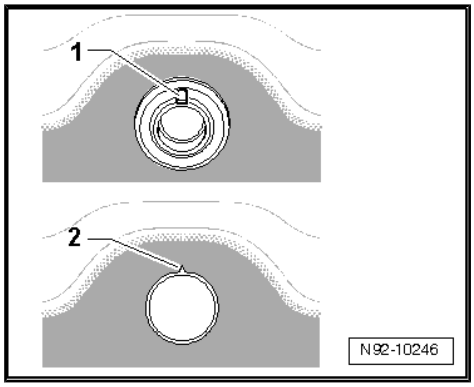
Installing:

Install in the reverse order of removal. When doing this, note the following:

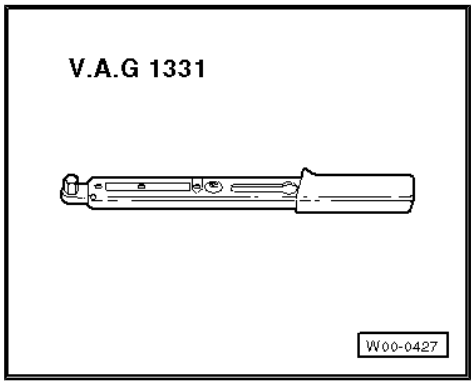
– Before installing rear wiper motor, moisten inner side of rear window rubber seal with a rubber and plastic compatible lubricant (e.g. polyethylene glycol).

– Check seal is seated correctly in opening of rear window. Mark -1- on seal must align with mark -2- on rear window.

– Connect battery ⇒ page 4 .



3.4 Adjusting rear window wiper park position



Special tools and workshop equipment required

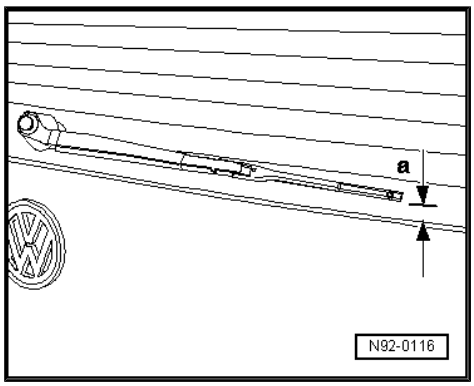
♦ Torque wrench - V.A.G 1331-

Distance -a- between wiper rubber and lower edge of window must be 25 mm.

– Adjust rear wiper park position by moving wiper arm on wiper motor shaft if necessary.

Removing and installing wiper arm ⇒ page 71

– Tighten threaded connection to torque specified in assembly overview ⇒ page 70 .



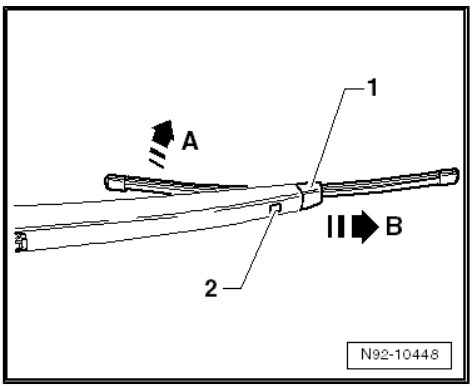
3.5 Removing and installing joint-free wiper

Removing:

Note

Joint-free wipers are very flexible. To lift the wiper blade off the rear window, grasp it only in the area in which the wiper blade is attached to the wiper.

– Lift up wiper arm.
– Swivel wiper blade in -direction of arrow A-.
– Press release button -2- and pull out wiper blade on wiper blade mounting -1- in -direction of arrow B- from wiper arm.



Installing:

Installation is carried out in the reverse sequence of removal.

4 Rear window washer system

Note

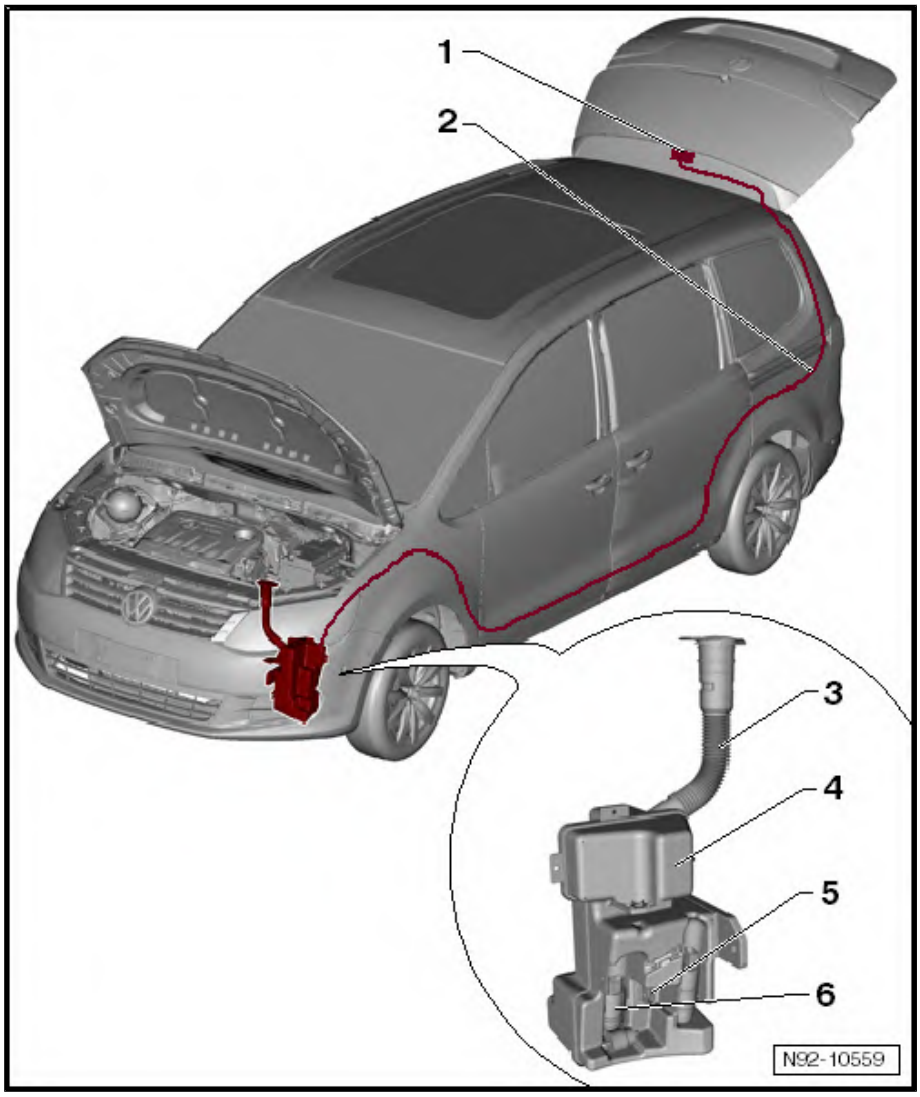
Additional information:

⇒ Operating manual

⇒ Self-study programme No. 445 ; The Sharan 2011

⇒ Current flow diagrams, Electrical fault finding and Fitting locations

4.1 Assembly overview - rear window washer system



1 - Spray jet for rear window washer system

- ❑ In high-level brake light
- ❑ Renewing spray jet ⇒ page 75
- ❑ Adjusting spray jet ⇒ page 75

2 - Hose

- ❑ Hose repair ⇒ page 82

3 - Filler pipe with filler neck on reservoir for windscreen and headlight washer system

- ❑ Removing and installing ⇒ page 63

4 - Washer fluid reservoir

- ❑ Removing and installing (vehicles with no headlight washer system) ⇒ page 63
- ❑ Removing and installing (vehicles with headlight washer system) ⇒ page 65

5 - Windscreen washer fluid level sender - G33-

- ❑ Removing and installing ⇒ page 68

6 - Windscreen and rear window washer pump - V59-

- ❑ Removing and installing ⇒ page 67
- ❑ Overview of hose couplings for washer fluid lines ⇒ page 81

4.2 Renewing and setting spray jet

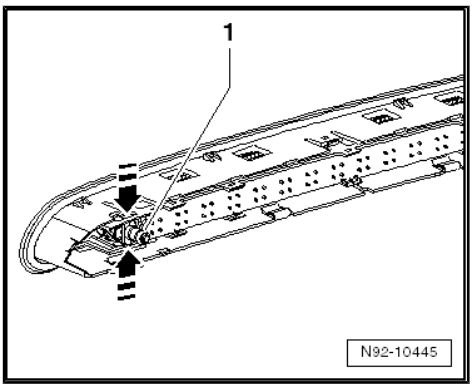
4.2.1 Renewing spray jet

Spray jet is installed in high-level brake light - M25- .

Removing:

– Remove high-level brake light - M25- ⇒ page 135 .

– Release both catches -arrows- and pull spray jet -1- to rear out of high-level brake light - M25- .



Installing:

– Install in reverse order of removal.

– Adjusting spray jet ⇒ page 75 .

4.2.2 Adjusting spray jet

Adjusting spray jet in “Maintenance Manual”: ⇒ Maintenance ; Booklet ; Description of work .

5 Headlight washer system

5.1 General description

Note

Additional information:

⇒ Self-study programme No. 445 ; The Sharan 2011

⇒ Current flow diagrams, Electrical fault finding and Fitting locations

⇒ Operating manual

General description:

Every first and then fifth time the windscreen washer system is activated the headlights are also washed if the windscreen wiper lever on the steering wheel is pulled for at least 1.5 seconds and dipped beam or main beam are switched on.

The “active time” of the headlight washer system can be adjusted.

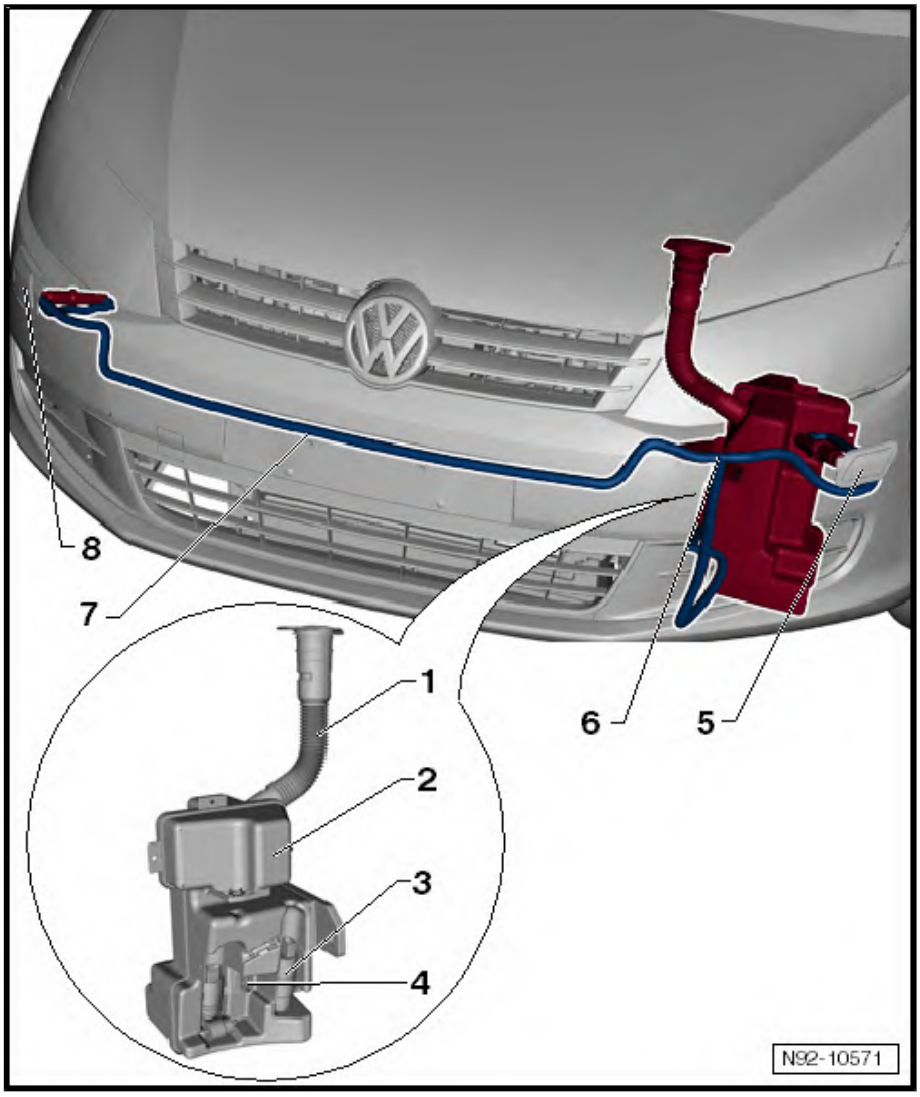
Following installation work or on initial start-up of the headlight washer system, the system must be bled to ensure proper operation of the pop-up cylinders and spray jets ⇒ page 80 .

Fault detection and fault display:

The onboard supply control unit - J519- is equipped with self-diagnosis, which makes fault finding easier.

For fault finding, use vehicle diagnosis, testing and information system - VAS 5051A- in “Guided Fault Finding” mode.

5.2 Assembly overview - headlight washer system



1 - Filler pipe with filler neck on reservoir for windscreen and headlight washer system

- ❑ Removing and installing ⇒ page 63

2 - Washer fluid reservoir

- ❑ Removing and installing (vehicles with no headlight washer system) ⇒ page 63
- ❑ Removing and installing (vehicles with headlight washer system) ⇒ page 65

3 - Headlight washer system pump - V11-

- ❑ Removing and installing ⇒ page 77

4 - Windscreen washer fluid level sender - G33-

- ❑ Removing and installing ⇒ page 68

5 - Spray jet assembly with left spray jets

- ❑ Removing and installing spray jet assembly ⇒ page 79
- ❑ Adjusting spray jets ⇒ page 80
- ❑ Removing and installing spray jet pop-up cylinder ⇒ page 78

6 - T-piece

- ❑ Distribution of wash water line to headlight washer system spray jets

7 - Hose

- ❑ Hose repair ⇒ page 82

8 - Spray jet assembly with right spray jets

- ❑ Removing and installing spray jet assembly ⇒ page 79
- ❑ Adjusting spray jets ⇒ page 80
- ❑ Removing and installing spray jet pop-up cylinder ⇒ page 78

5.3 Removing and installing headlight washer system pump - V11-

The headlight washer system pump - V11- is mounted on the washer fluid reservoir in the right-hand wheel housing.

Note

Depending on equipment, the location of the headlight washer system pump - V11- may deviate slightly from the illustration. Removal procedure is analogue.

Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

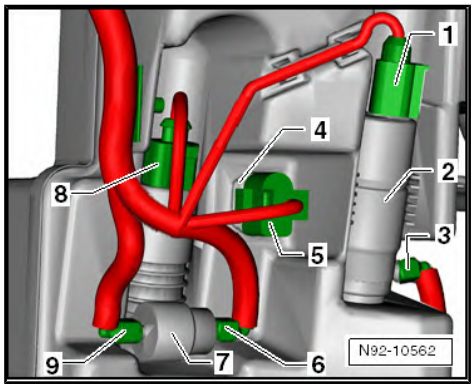
– Remove front left wheel housing liner ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner .

– Follow route of wiring connector -1- and unclip from reservoir.

– To release, twist securing clip on hose connection -3- and pull off elbow connector from headlight washer system pump - V11- -2-.

– Collect escaping fluid in a suitable container.

– Pull headlight washer system pump - V11- -2- upwards out of rubber seal in reservoir and release and separate connector -1-.



Installing:

Install in the reverse order of removal. When doing this, note the following:

– On completion of installation work, bleed headlight washer system ⇒ page 80 .

5.4 Removing and installing spray jet pop-up cylinders

Note

- *Following illustrations show removal and installation of left spray jet pop-up cylinder.*
- *Removal and installation of right spray jet pop-up cylinder are carried out in the same way.*

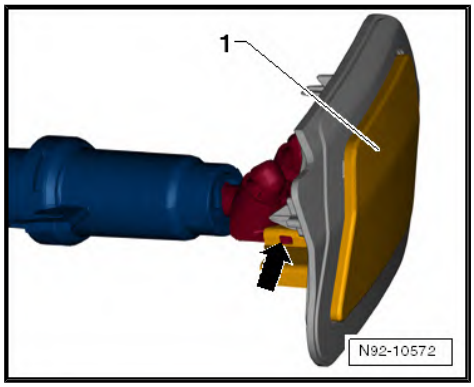
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Pull spray jets together with cover cap -1- out of bumper cover to stop.

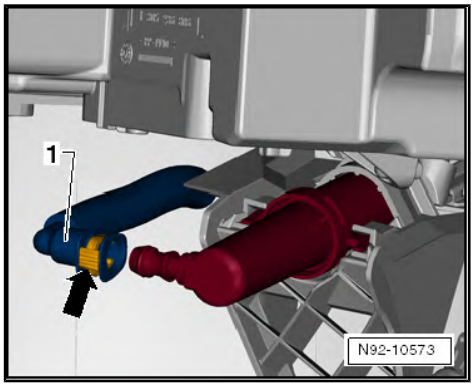
– Unclip cover cap -1- at both sides on mounting points -arrow- of spray jet holder.

– Remove front bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper .

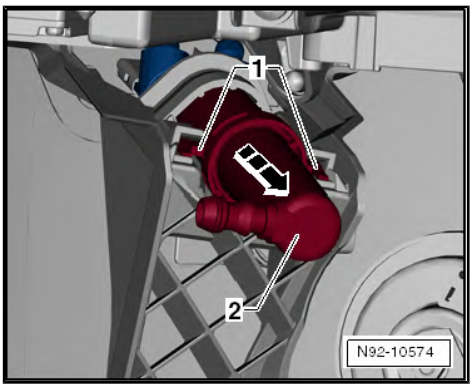


– Press securing clip -arrow- and pull off hose connection -1- from pop-up cylinder.

– Collect escaping fluid in a suitable container.



– Push together locking mechanisms -1- at same time and pull out pop-up cylinder -2- from mounting in bumper cover in -direction of arrow-.



Installing:

Install in the reverse order of removal. When doing this, note the following:

– On completion of installation work, bleed headlight washer system ⇒ page 80 .

5.5 Removing and installing spray jet retainer

Note

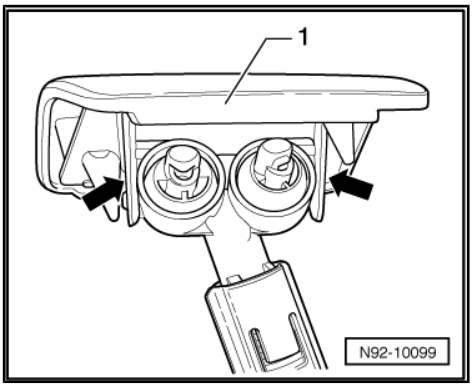
- *Following illustrations show removal and installation of left spray jet assembly.*
- *Removal and installation of right spray jet assembly are carried out in the same way.*

Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Pull spray jet together with cover cap -1- out of bumper cover to stop.

– Unclip cover cap -1- from mounting points -arrows- on spray jet retainer.



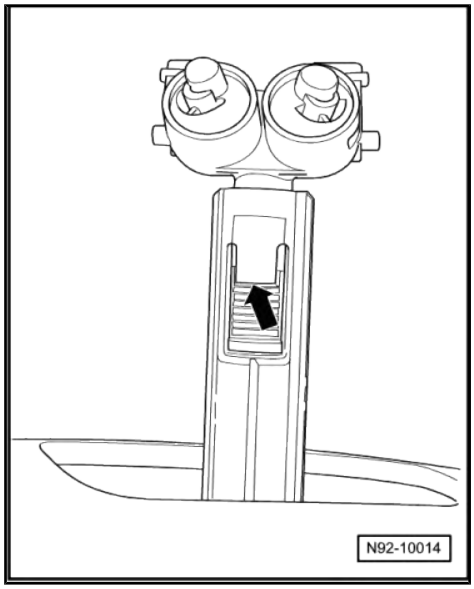
– Lift up retaining hook -arrow- slightly and pull out washer jet bracket.

Installing:

Install in the reverse order of removal. When doing this, note the following:

Note

The degree to which the cover cap of the spray jet is pulled down onto the bumper cover can be adjusted using the clips on the spray jet assembly. If the spray jet assembly is not pulled in far enough, the cover cap will not seat correctly. If the spray jet assembly is pulled in too far, the cover cap and the bumper cover could be pushed out of shape.



– Insert spray jet holder in pop-up cylinder until it engages.
– Fit cover cap on spray jet holder and allow to engage in pop-up cylinder.
– Check that cover cap is correctly seated on bumper cover.
– If necessary, adjust seat of cover cap by pushing spray jet assembly in higher or lower position on pop-up cylinder.
– On completion of installation work, bleed headlight washer system ⇒ page 80 .
– Check headlight washer system spray jets and adjust if necessary ⇒ page 80 .

5.6 Adjusting headlight washer system spray jets

Adjusting spray jets for headlight washer system in “Maintenance Manual”: ⇒ Maintenance ; Booklet ; Descriptions of work .

5.7 Bleeding headlight washer system

To guarantee sound functioning of pop-up cylinders and spray jets, the headlight washer system must be bled following assembly work or when operated for the first time.

– Replenish washer fluid reservoir.
– Start engine.
– Switch headlights “ON”.
– Operate headlight washer system several times (3-5 times, 3 seconds each time).
– Repeat this bleeding procedure until the pop-up cylinders and spray jets are functioning soundly.

6 Washer fluid line hose couplings

⇒ **Electrical system, General information; Rep. gr. 92 ; Washer fluid line hose couplings**

7 Hose repair

⇒ **Electrical system, General information; Rep. gr. 92 ; Hose repair**

94 – Lights, bulbs, switches - exterior

1 Operation and safety notes for gas discharge lamps

WARNING

- *Never change bulbs if you are not familiar with the appropriate procedures, safety precautions and tools.*

– If repairs are to be made to the headlights with gas discharge bulbs, observe the following:

- Notes on dangerous high voltage/currents ⇒ page 83
- Notes on pressure, temperature, radiation/arcs ⇒ page 84
- Assembly notes for gas discharge bulbs ⇒ page 85
- Disposal regulations for gas discharge bulbs ⇒ page 85

Special tools and workshop equipment required

- Safety goggles
- Gloves

Notes on dangerous high voltage and current

WARNING

Control units for light systems, connectors and components pertaining to bulb holders conduct lethally high voltage.

Operating the control unit and the starter unit is permitted only with the bulb fitted.

WARNING

- *Switch off ignition and all electrical consumers and remove ignition key.*
- *When working on headlight system, ensure that there is no voltage in any components, including the dissipation of residual voltage after the headlights are switched off.*
- *Residual voltage can be dissipated by turning the dipped beams on and then off again after withdrawing the ignition key.*
- *When working on the headlight system, ensure that the lights cannot be switched on.*

Notes on pressure, temperature, radiation/arcs

WARNING

- *Within the glass bulb of a gas discharge bulb, pressure can range from between 7 bar (cold) and 100 bar (hot). Temperatures can reach up to 700 degrees Celsius on the glass bulb.*
- *Should the glass bulb explode, there is a risk of injury from burning.*
- *Always wear eye protection and gloves when removing and installing gas discharge lamps!*

WARNING

- *The bulbs may be operated in the headlight housing only (protection against contact due to very hot bulbs, absorption of UV radiation, avoidance of dazzling light, protection against explosion).*
- *The glass of the bulbs can become very hot - danger of burns!*
- *Avoid looking directly into the beam, as the UV rays from the gas discharge bulb are about 2.5 times greater than normal halogen bulbs.*
- *Avoid looking into the light beam (danger of glare); vision may be impaired for a substantial time.*

WARNING

- *Avoid contact with burst glass part of the bulbs.*
- *H7 bulbs and gas discharge bulbs (xenon and bi-xenon) are under pressure and can explode while being changed - danger of injury.*
- *Always wear eye protection and gloves when removing and installing gas discharge lamps!*

Assembly notes for gas discharge bulbs

Caution

- *Always switch off the affected consumers before exchanging a bulb.*
- *Switch off ignition and all electrical consumers and remove ignition key.*
- *Do not touch the glass part of the bulb with bare fingers; use clean cloth gloves. When the light bulb is switched on, the heat would vaporise the oil of the finger prints which would then settle on the reflector, impairing the brightness of the headlight.*
- *A light bulb must always be renewed with a bulb of the same sort. The designation appears on the base of the bulb or on the bulb glass.*
- *Properly engage connectors during installation and the connection is seated tightly.*

Disposal regulations for gas discharge bulbs

WARNING

- *Gas discharge bulbs must be disposed of as hazardous waste; never dispose of gas discharge bulbs as consumer waste.*
- *Gas discharge bulbs contain metallic mercury (Hg) and traces of thallium; never destroy these bulbs.*
- *These components must be recycled in the correct manner according to national law.*
- *Only dispose of in containers intended for this purpose at an authorised collection point.*

2 Headlights with gas discharge bulbs and cornering lights

2.1 General description

WARNING

Observe operating and safety notes for gas discharge bulbs *⇒ page 83* *.*

Note

- *Before working on headlight with gas discharge lights and corning lights, always switch off the headlights and move the ignition key to position 0 (locked).*
- *The automatic headlight range control and cornering lights on headlights with gas discharge bulbs is equipped with self-diagnosis.*
- *When dealing with complaints, it is absolutely essential that the function and operation of the lighting system are first understood.*
- *Additional information:*

⇒ Operating manual

Self-study programme ⇒ Self-study programme No. 335 ; The Cornering Light System

⇒ Current flow diagrams, Electrical fault finding and Fitting locations

General description:

The headlights with gas discharge bulbs and cornering lights (AFS = Adaptive Front Lighting System) have a “bi-xenon” function.

With conventional “xenon” headlights, the gas discharge bulb only generates the dipped beam. The “bi-xenon” features makes it possible to generate both the dipped beam and the main beam with “one” gas discharge bulb. To achieve this, an electromechanical adjuster (left dip beam screen motor - V294- or right dip beam screen motor - V295-) uncovers the screened area of the dipped beam on actuation of the main beam function, thus producing main beam light distribution.

This means that with “bi-xenon” headlights the main beam is always automatically adjusted together with the dipped beam.

The headlights with gas discharge bulbs and cornering lights do not have an “additional main beam”.

Fault detection and fault display:

The automatic headlight range control, the cornering lights and onboard supply control systems feature self-diagnosis to facilitate fault finding for headlights with gas discharge bulbs.

Fault finding ⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

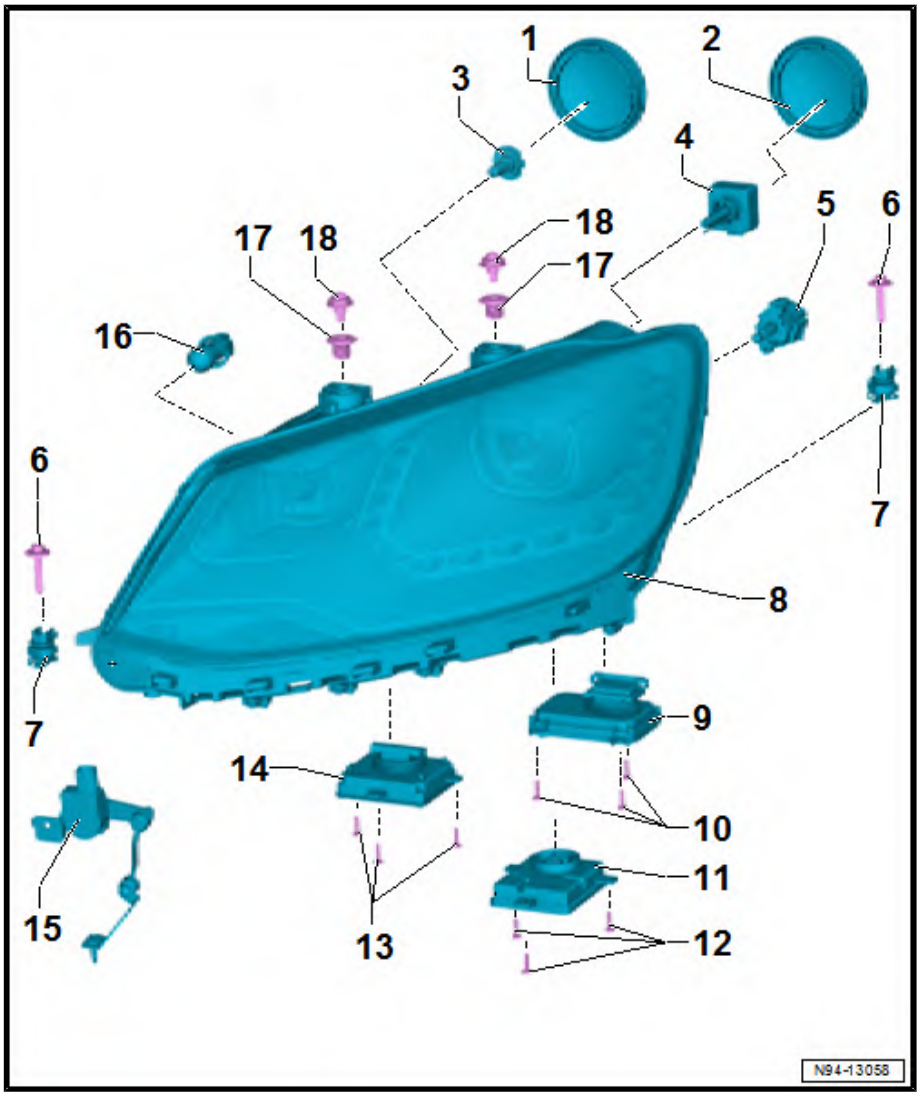
Note

The “bulb failure” warning lamp in the dash panel lights up when the headlight range control or the VARILIS headlight (adaptive front lighting system) malfunctions.

2.2 Assembly overview - headlights with gas discharge bulbs and cornering lights

Note

After measures that could influence the headlight setting, check the headlight setting and correct it, if necessary ⇒ Maintenance ; Booklet ; Work descriptions .



1 - Cover

2 - Cover

3 - Left static cornering light - M51- or right static cornering light - M52-

- ❑ Renewing ⇒ page 91

4 - Left gas discharge bulb - L13- or right gas discharge bulb - L14- (“bi-xenon”)

- ❑ Type D3S, 35W
- ❑ Renewing ⇒ page 89

5 - Left headlight range control motor - V48- or right headlight range control motor - V49-

- ❑ Removing and installing ⇒ page 93

6 - Bolt

- ❑ 4.5 Nm

7 - Spacer

8 - Headlights

- ❑ Removing and installing ⇒ page 102
- ❑ Correcting installation position of headlight ⇒ page 103
- ❑ Converting headlights to drive on the left or the right ⇒ page 98
- ❑ Perform basic setting ⇒ Maintenance ; Booklet ; Work descriptions .

9 - Cornering light and headlight range control unit - J745-

- ❑ Removing and installing ⇒ page 97
- ❑ Coding ⇒ page 98

Note

If the control unit for cornering light and headlight range control - J745- has to be coded, basic setting of the headlights must be performed after coding ⇒ Maintenance ; Booklet ; Descriptions of work .

10 - Securing bolts

- ❑ 2 Nm

11 - Control unit for left gas discharge bulb - J343- or control unit for right gas discharge bulb - J344-

- ❑ Removing and installing ⇒ page 96

12 - Securing bolts

- ❑ 2 Nm

13 - Securing bolts

- ❑ 2 Nm

14 - Output module for left headlight - J667- or output module for right headlight - J668-

- ❑ Removing and installing ⇒ page 95

Note

After a new output module for headlights has been installed, the cornering light and headlight range control unit - J745- must be coded ⇒ page 98 . Subsequently, basic setting of the headlights needs to be performed ⇒ Maintenance ; Booklet ; Descriptions of work .

15 - Vehicle level sender

- ❑ Removing and installing ⇒ page 98

16 - Front left turn signal bulb - M5- or front right turn signal bulb - M7-

- ❑ Renewing ⇒ page 91

17 - Adapter

18 - Securing bolts

- ❑ M6 x 22
- ❑ 5 Nm

2.3 Removing and installing headlight

Headlights with gas discharge bulbs and cornering light are removed and installed in the same way as halogen headlights.

– Removing and installing headlights ⇒ page 102 .

2.4 Adjusting headlight installation position

The installation position of headlights with gas discharge bulbs and cornering light is corrected in the same way as that of halogen headlights.

– Adjusting headlight installation position ⇒ page 103

2.5 Renewing gas discharge bulbs and cornering light bulbs in headlights

2.5.1 Renewing gas discharge bulb

WARNING

Observe operation and safety notes for gas discharge bulbs *⇒ page 83* *.*

Note

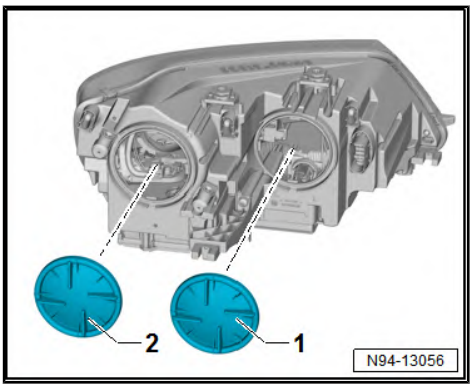
- *The left gas discharge bulb - L13- and the right gas discharge bulb - L14- can be checked by the final control diagnosis for the onboard supply control unit - J519- .*
- *The illustrations show how to replace the right gas discharge bulb - L14- .*
- *The left gas discharge bulb - L13- is replaced in the same way.*

Removing:

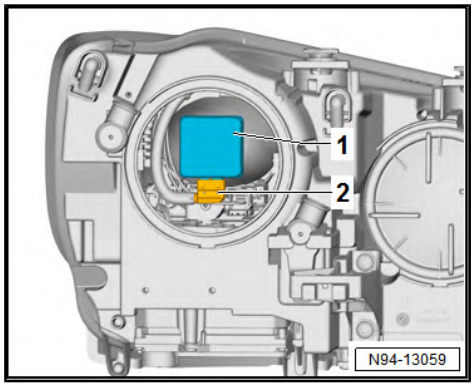
– Switch off ignition and all electrical consumers and move ignition key to position 0 (locked).

– Remove headlight ⇒ page 102

– Remove cap -2-.



– Unfasten connector -2- and disconnect.



WARNING

- ***Within the glass bulb of a gas discharge bulb, pressure can range from between 7 bar (cold) and 100 bar (hot). Temperatures can reach up to 700 degrees Celsius on the glass bulb.***
- ***Should the glass bulb explode, there is a risk of injury from burning.***
- ***Always wear eye protection and gloves when removing and installing gas discharge lamps!***

– Turn gas discharge bulb -1- towards left to stop.

– Pull gas discharge bulb in a straight line towards rear out of reflector.

Gas discharge bulb : type D3S, 35W.

Installing:

Installation is carried out in the reverse order. When installing observe the following:

Note

- *Do not touch bulb glass when installing a bulb. Fingers leave traces of grease on the glass, which evaporate when the gas discharge bulb is switched on and cause the glass to cloud over.*
- *Do not expose glass of gas discharge bulb to mechanical stress of any kind. The glass part of the bulb is extremely sensitive and is also under a high internal pressure.*
- *Avoid looking directly into the collimated beam as the UV radiation from the gas discharge bulb is about 2.5 times higher than from normal halogen bulbs.*
- *Make sure cover seal is correctly seated when installing the cap. The ingress of water will cause permanent damage to the headlight.*
- *If a headlight with automatic range control is removed, the basic setting of the headlights is always to be performed after installation ⇒ Maintenance ; Booklet ; Descriptions of work .*

Note

When inserting gas discharge bulb, make sure that the mounting clasps on the reflector do not become bent.

– Insert the new gas discharge bulb and lock it in place.

– Attach connector.

– Fit covering cap and secure with the two wire clips.

– Check functions of headlight.

– Check headlight adjustment, and adjust headlight if necessary ⇒ Maintenance ; Booklet ; Descriptions of work .

2.5.2 Renewing static cornering lights -M51- / -M52-

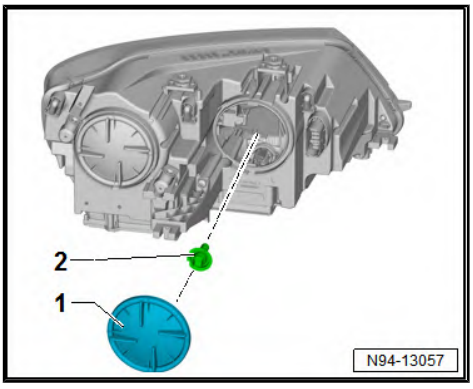
– Switch off ignition and all electrical consumers.

– Disengage ignition key in position 0 (locked).

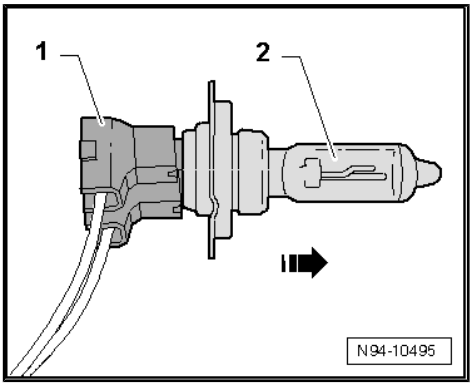
– Detach cap -1-.

– Starting at top, swing static cornering light -M51- / -M52- -2- out of reflector.

– Remove static cornering light -M51- / -M52- from headlight.



– Pull bulb for static cornering light -M51- / -M52- -2- in a straight line in -direction of arrow- out of bulb holder -1-.



2.5.3 Renewing side light bulb

In headlights with gas discharge bulbs, the LEDs for the daytime driving lights perform the function of the side light. The LEDs for daytime running lights cannot be removed.

2.5.4 Renewing turn signal bulb

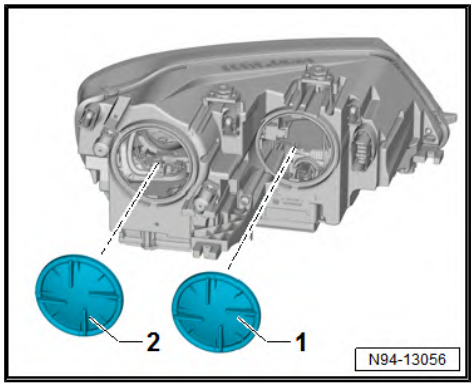
Note

- *Front left turn signal bulb - M5- and front right turn signal bulb - M7- can be checked by the final control diagnosis for the onboard power supply control unit - J519- .*
- *The diagrams show renewal of the front right turn signal bulb - M7- .*
- *The renewal of the front left turn signal bulb - M5- is carried out in the same way.*

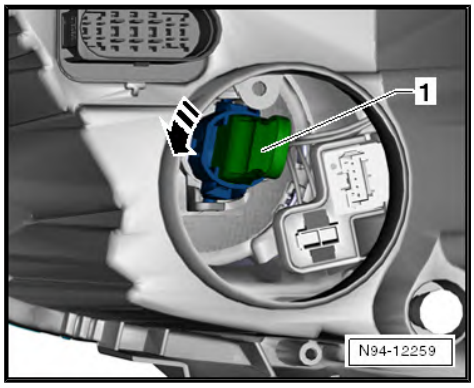
Removing:

– Switch off ignition and all electrical consumers and move ignition key to position 0 (locked).

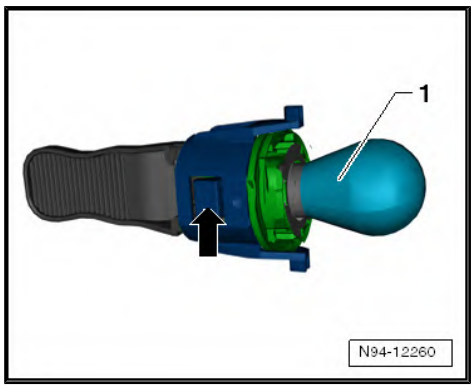
– Pull cap -1- off headlight housing.



– Turn grip anti-clockwise -1- in -direction of arrow- and remove it together with the turn signal bulb from the headlight.



– Press button -arrow- on grip and pull turn signal bulb -1- straight out at the front.



Front turn signal bulb : 12 V, PSY24W SV

Installing:

Installation is carried out in the reverse order. When installing observe the following:

Note

Make sure cover seal is correctly seated when installing the cap. The ingress of water will cause permanent damage to the headlight.

2.6 Headlight range control motor

Note

Left headlight range control motor - V48- and right headlight range control motor - V49- can be checked by final control diagnosis for cornering light and headlight range control unit - J745- .

2.6.1 Removing and installing headlight range control motor

Note

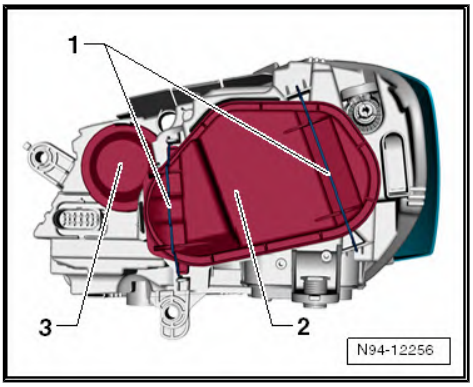
- *The following illustrations show how to replace the right headlight range control motor - V49- .*
- *The left headlight range control motor - V48- is replaced in the same way.*

Removing:

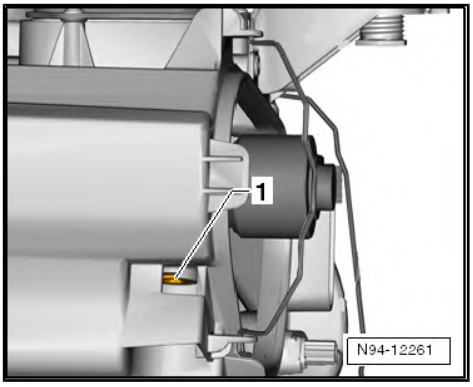
– Switch off ignition and all electrical consumers and move ignition key to position 0 (locked).

– Remove headlight ⇒ page 102 .

– Press wire clip -1- outwards and remove covering cap -2-.

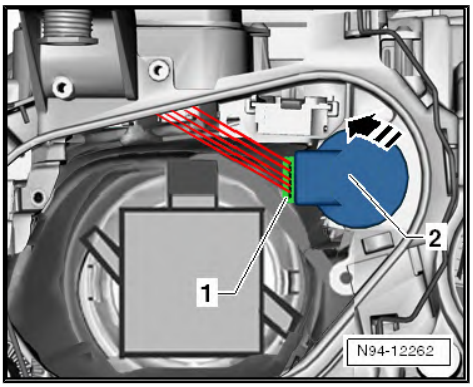


– Pull regulator -1- downwards out of headlight housing.

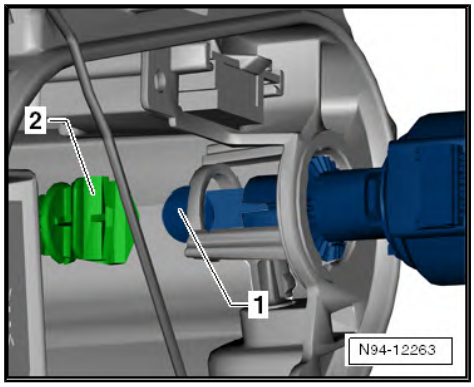


– Pull off connector -1-.

– Turn headlight range control motor -2- anti-clockwise in -direction of arrow- as far as it will go.



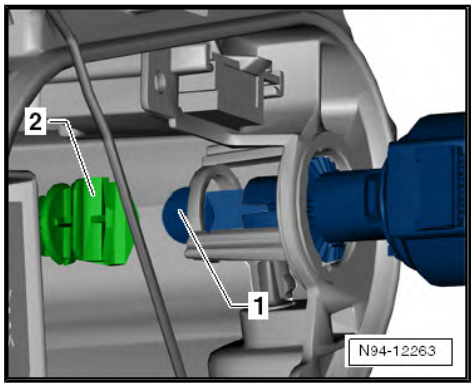
– Swing ball head of actuator -1- downwards out of the mounting on the reflector -2-.
– Remove headlight range control motor.



Installing:

Installation is carried out in the reverse order. When installing observe the following:

– Insert headlight range control motor into the headlight housing and swing ball head of headlight range control motor -1- into mounting on reflector -2- from below, while pulling the reflector towards the rear.
– Insert the actuator into its mounting and lock it in place by turning it clockwise as far as it will go.



Note

- *Make sure cover seal is correctly seated when installing the cap. The ingress of water will cause permanent damage to the headlight.*
- *If a headlight with automatic range control is removed, the basic setting of the headlights is always to be performed after installation ⇒ Maintenance ; Booklet ; Descriptions of work .*

2.7 Headlight holder

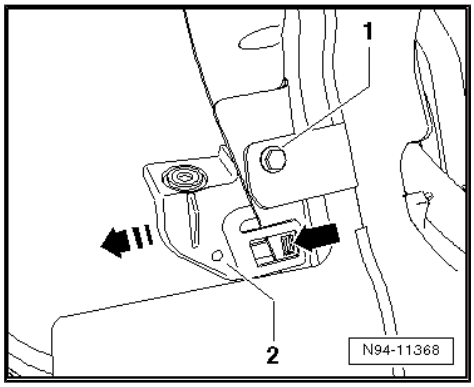
2.7.1 Removing and installing headlight holder

Note

- *The following illustrations show how to remove the right headlight.*
- *Removal and installation of the left headlight are carried out in the same way.*

Removing:

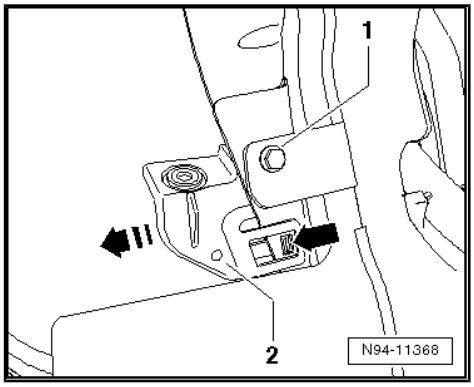
– Remove headlight ⇒ page 102 .
– Undo bolt -1- of washing fluid reservoir.
– Detach headlight holder -2- from its locking mechanism -arrow- pull it laterally off support plate in -direction of arrow-.



Installing:

Installation is carried out in the reverse order. When installing observe the following:

– When tightening bolt, make sure that the threaded sleeve for fastening the headlight is horizontal.
– Tighten securing bolt -1- to 8 Nm.



2.8 Dynamic cornering light control motor

Note

The left dynamic bend lighting actuator - V318- and the right dynamic bend lighting actuator - V319- can be checked by the final control diagnosis for the control unit for bend lighting and headlight range control - J745- .

The left dynamic cornering light actuator - V318- or right dynamic cornering light actuator - V319- are located inside the respective headlight and must not be dismantled.

In the event of damage, the headlight must be renewed ⇒ page 102 .

2.9 Swivel module position sensor

The left swivel module position sensor - G474- or right swivel module position sensor - G475- are located inside the respective headlight and can neither be individually renewed nor adjusted.

In the event of damage, the headlight must be renewed ⇒ page 102 .

2.10 Power output module for headlight

2.10.1 Removing and installing output module for headlights

Note

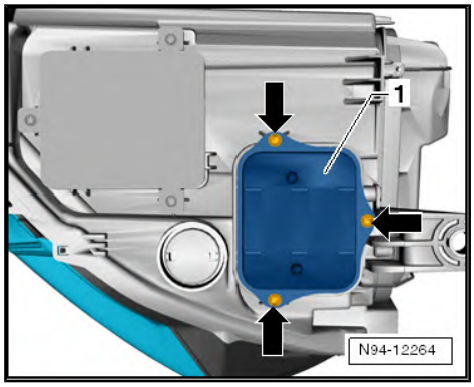
- *The illustrations show how to replace the right power module for the headlight - J668- .*
- *Replacement of the power module for left headlight - J667- is analogous.*

Removing:

– Switch off ignition and all electrical consumers and move ignition key to position 0 (locked).
– Remove headlight ⇒ page 102 .

– Remove securing bolts -arrows-.

– Pull the power module -1- straight upwards off the headlight housing.



Note

The electrical connector for the headlight power module is detached at the same time when the power module is pulled off the headlight housing.

Installing:

Installation is carried out in the reverse order. When installing observe the following:

Caution

Make sure cover seal is correctly seated when installing the headlight power module. The ingress of water will cause permanent damage to the headlight.

Note

After a new output module for headlights has been installed, the cornering light and headlight range control unit - J745- must be coded ⇒ page 98 . Subsequently, basic setting of the headlights needs to be performed ⇒ Maintenance ; Booklet ; Descriptions of work .

– Check functions of headlight.

– Check headlight adjustment, and adjust headlight if necessary ⇒ Maintenance ; Booklet ; Descriptions of work .

2.11 Gas discharge bulb control unit

Note

The left gas discharge bulb control unit - J343- or right gas discharge bulb control unit - J344- is not capable of self-diagnosis.

2.11.1 Removing and installing gas discharge bulb control unit

Note

- *The illustrations show how to replace the right gas discharge bulb control unit - J344- .*
- *Replacement of the left gas discharge bulb control unit - J343- is analogous.*

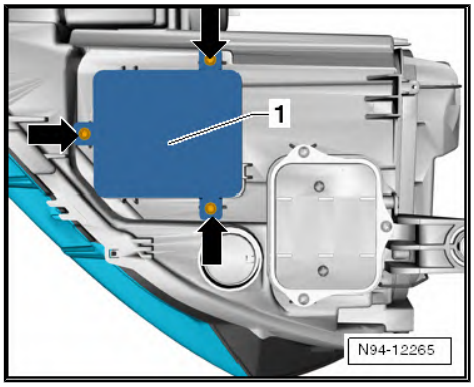
Removing:

– Switch off ignition and all electrical consumers and move ignition key to position 0 (locked).

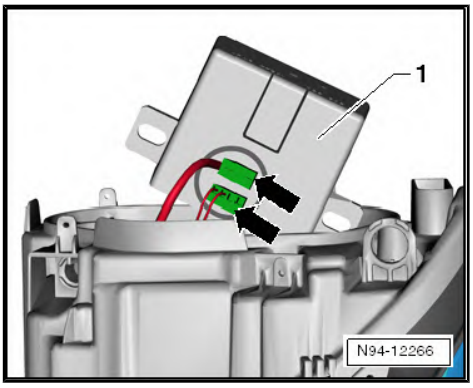
– Remove headlight ⇒ page 102 .

– Remove securing bolts -arrows-.

– Pull gas discharge bulb control unit -1- straight upwards off the headlight housing, taking connected wiring lengths into consideration.



– Release and detach connector -arrows- and remove gas discharge bulb control unit -1-.



Installing:

Installation is carried out in the reverse order. When installing observe the following:

Caution

Make sure cover seal is correctly seated when installing the gas discharge bulb control unit. The ingress of water will cause permanent damage to the headlight.

– Check functions of headlight.

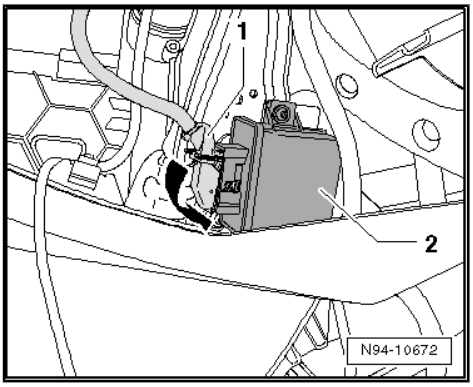
– Check headlight adjustment, and adjust headlight if necessary ⇒ Maintenance ; Booklet ; Descriptions of work .

2.12 Cornering light and headlight range control unit - J745-

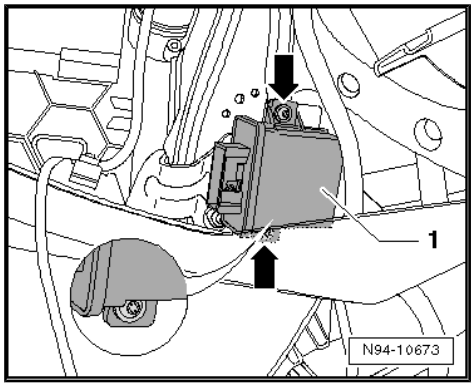
2.12.1 Removing and installing cornering light and headlight range control unit - J745-

– Remove glove compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trims; Removing and installing glove compartment .

– Swing locking mechanism in direction of -arrow- and detach connector -1- from cornering light and headlight range control unit - J745- -2-.



– Undo bolts -arrows- and remove cornering light and headlight range control unit - J745- -1-.



Installing:

Installation is carried out in the reverse order. When installing observe the following:

Note

The new cornering light and headlight range control unit must be coded after installation ⇒ page 98 . Subsequently, basic setting of the headlights needs to be performed ⇒ Maintenance ; Booklet ; Descriptions of work .

– Check headlight functions.

– Check headlight setting and adjust headlight if necessary ⇒ Maintenance ; Booklet ; Descriptions of work .

2.12.2 Coding cornering light and headlight range control unit - J745-

⇒ Vehicle diagnostic tester, Guided Fault Finding.

Note

If the cornering light and headlight range control unit - J745- has to be coded, basic setting of the headlights must be performed after coding ⇒ Maintenance ; Booklet ; Descriptions of work .

2.13 Vehicle level sender

Removing and installing vehicle level senders :

Removing and installing vehicle level sender: ⇒ Running gear, axles, steering; Rep. gr. 40 or ⇒ Running gear, axles, steering; Rep. gr. 42

Note

If the vehicle level senders are renewed, basic setting of the headlights must be performed ⇒ Maintenance ; Booklet ; Description of work .

2.14 Repairing headlight retaining tabs

If one or more headlight retaining tabs are damaged or broken off, they can be renewed by installing the repair kit. There is no need to renew the entire headlight.

Repairing headlight retaining tabs for headlights with gas discharge bulbs and cornering lights is carried out in the same manner as for conventional headlights ⇒ page 114 .

2.15 Converting headlights for use when driving on the left or right

Note

Additional information:

⇒ Operating manual

The headlights have to be modified for driving in countries where cars must be driven on the other side of the road. Retrofitting headlights with gas discharge bulbs and cornering lighting is carried out by means of the combi-instrument menu:

– Select “Settings” menu option in dash panel insert
– Activate the checkmark in the “Travel mode” checkbox.

If the checkmark has been activated, the headlights of a left-hand drive vehicle change over for driving on the left and the headlights of a right-hand drive vehicle change over for driving on the right. It is only permissible to use the Travel mode for a short time.

2.16 Adjusting headlights

– Adjusting headlights with gas discharge bulbs ⇒ Maintenance ; Booklet ; Descriptions of work .

3 Headlight with halogen bulbs

3.1 General description

Note

- *Before working on headlights, always switch off the headlights and remove the ignition key.*
- *When dealing with complaints, it is absolutely essential that the function and operation of the lighting system are first understood.*
- *Additional information:*

⇒ Operating manual

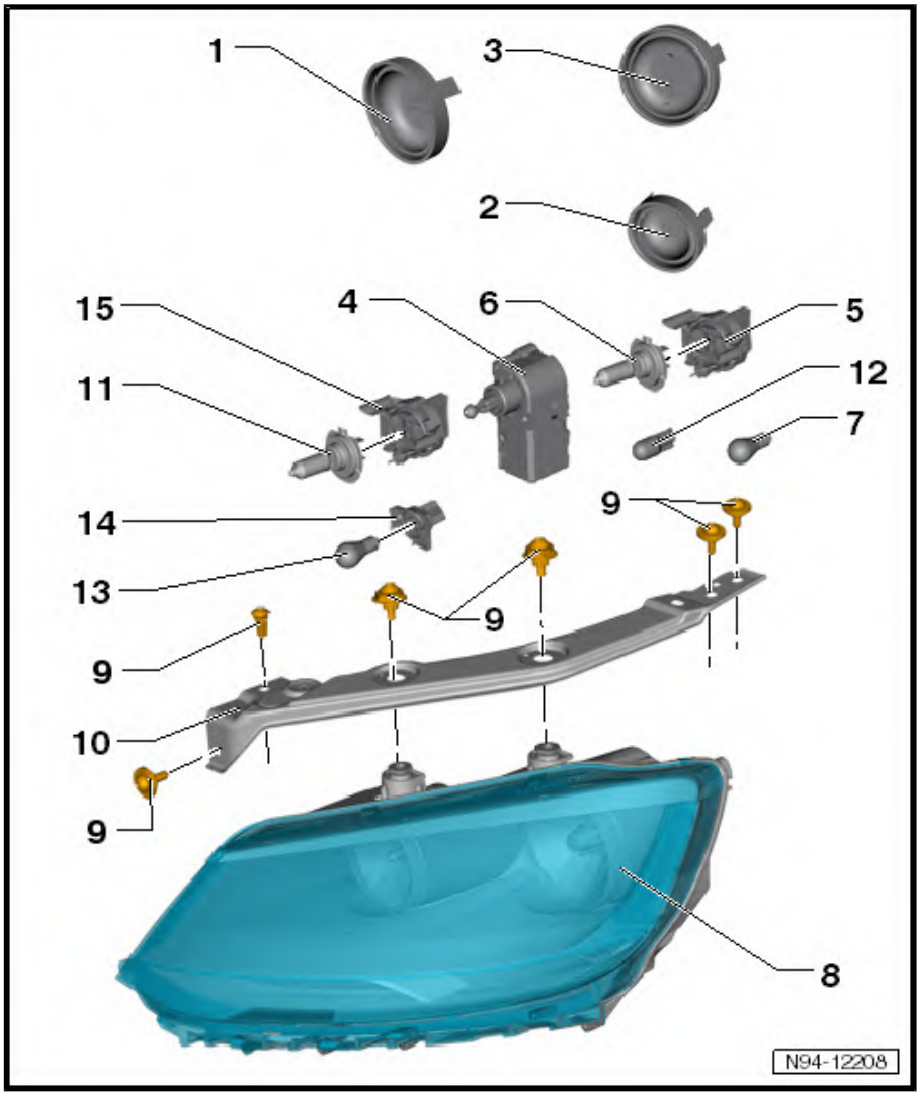
⇒ Self-study programme No. 445 ; The Sharan 2011

Fault detection and fault display:

The onboard supply control unit has a self-diagnostic function, which makes fault finding on headlights easier.

For fault finding, use vehicle diagnosis, testing and information system - VAS 5051A- in “Guided fault finding” mode.

3.2 Assembly overview - headlights with halogen bulbs



1 - Cover

2 - Cover

3 - Cover

4 - Left headlight range control motor - V48- or right headlight range control motor - V49-

- Removing and installing ⇒ page 112

5 - Bulb holder with grip element

- For left headlight dipped beam bulb - M29- or right headlight dipped beam bulb - M31-

6 - Left headlight dipped beam bulb - M29- or right headlight dipped beam bulb - M31-

- Bulb H7 12V, 55W
- Renewing ⇒ page 105

7 - Left daytime running light bulb - L174- or right daytime running light bulb - L175-

- Bulb 12V, P21W
- Renewing ⇒ page 110

8 - Headlights

- Removing and installing ⇒ page 102
- Correcting installation position of headlight ⇒ page 103
- Repairing headlight retaining tabs ⇒ page 114
- Converting headlights to drive on the left or the right ⇒ page 116

9 - Securing bolts

- M6 x 20
- 5 Nm

10 - Front-end support element (sheet metal cross member)

11 - Left headlight main beam bulb - M30- or right headlight main beam bulb - M32-

- Bulb: 12V, 55W
- Renewing ⇒ page 106

12 - Left side-light bulb - M1- or right side-light bulb - M3-

- Bulb 12-V, W5W
- Renewing ⇒ page 108

13 - Front left turn signal bulb - M5- or front right turn signal bulb - M7-

- Bulb 12 V PSY 24 W SV
- Renewing ⇒ page 109

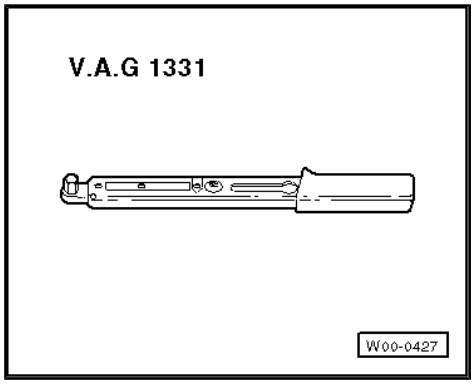
14 - Bulb holder with grip element

- For front left turn signal bulb - M5- or front right turn signal bulb - M7-

15 - Bulb holder with grip element

- For left main beam headlight bulb - M30- or right main beam headlight bulb - M32-

3.3 Removing and installing headlights with halogen bulbs



Special tools and workshop equipment required

- Torque wrench - V.A.G 1331-

Removing:

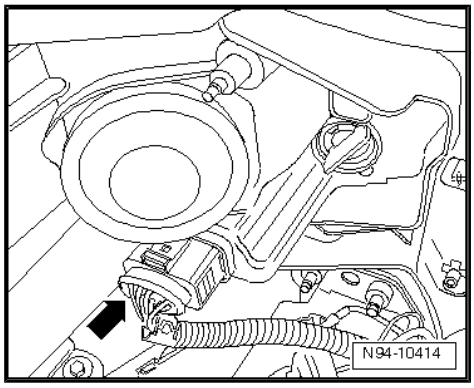
Note

- *There is no requirement to disconnect the battery earth strap.*
- *Illustrations show removal and installation of the left headlight. Removal and installation of the right headlight are carried out in the same way.*
- *If a headlight is removed, it should always be adjusted following reinstallation: "Maintenance Manual": ⇒ Maintenance ; Booklet ; Descriptions of work .*

– Switch off ignition and all electrical equipment and then remove ignition key.

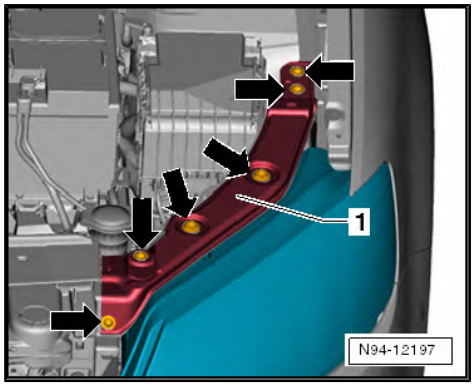
– Remove radiator grille ⇒ General body repairs, exterior; Rep. gr. 66 ; Front bumper .

– Release connector -arrow- on rear of headlight and disconnect.



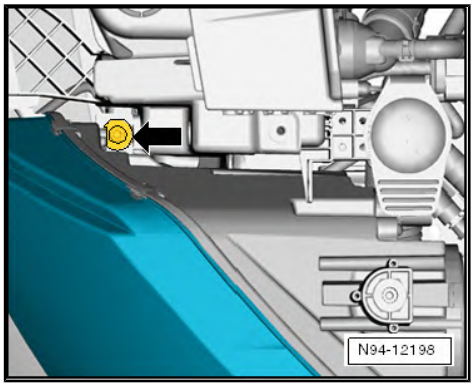
– Unscrew total of six securing bolts -arrows-.

– Detach cable (secured with clips) for bonnet release and remove sheet metal cross member -1-.

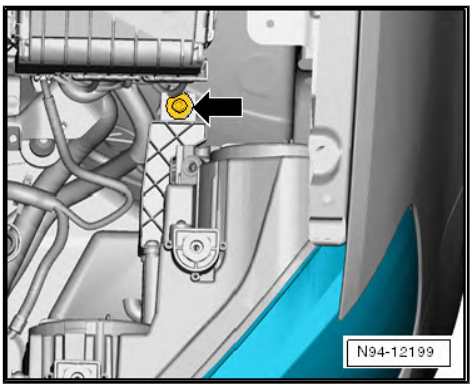


– Loosen front setting screw -arrow-.

s



– Loosen rear setting screw -arrow- and remove headlight forwards out of body aperture.



Installing:

Installation is carried out in the reverse order. When installing observe the following:

– Tighten securing screws on headlight to torque specified in assembly overview ⇒ page 100 .

– Check installation position so that shut lines/gaps around headlight are even.

If the shut lines/gaps around the headlight are uneven, the installation position must be adjusted ⇒ page 103 .

– Check functions of headlight.

– Check headlight adjustment, and adjust headlights if necessary: ⇒ Maintenance ; Booklet ; Descriptions of work .

3.4 Adjusting headlight installation position

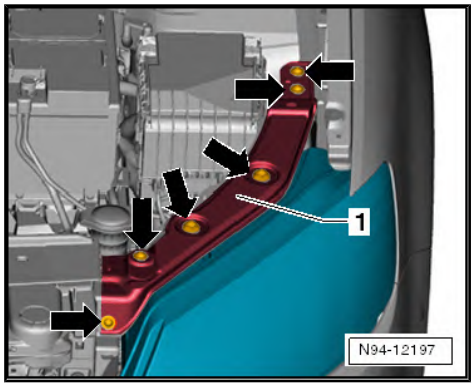
Note

- *If uneven gaps between body and headlight are encountered when checking the installation position of the headlight, the installation position must be corrected.*
- *To adjust the installation position of the headlight, the front bumper does not have to be removed.*
- *The illustrations show the left headlight. Correcting the installation position on the right-hand side is basically the same.*

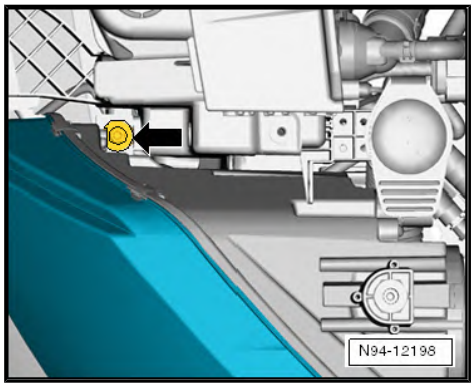
– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove radiator grille ⇒ General body repairs, exterior; Rep. gr. 66 ; Radiator grille .

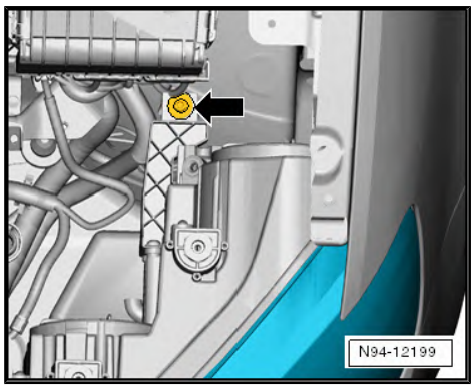
– Unscrew total of six securing bolts -arrows-.
– Detach cable (secured with clips) for bonnet release and remove sheet metal cross member -1-.



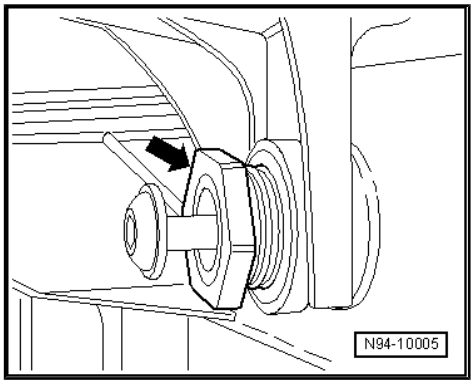
– Loosen front setting screw -arrow-.



– Loosen rear setting screw -arrow-.



– Adjust shut lines/gaps to body by pushing in or pulling out alignment bushes -arrow- on headlight mounting.
– Reinstall sheet metal cross member and clip in bonnet release cable.
– Tighten threaded connections to torque specified in assembly overview ⇒ page 100 .
– Check headlight installation position again to ensure gaps are even; correct if necessary.
– Removing and installing radiator grille ⇒ General body repairs, exterior; Rep. gr. 66 ; Mouldings and trims; Removing and installing radiator grille
– Check functions of headlight.



Note

If a headlight is removed or adjusted to fit more accurately to the vehicle body, it must be aligned following such measures.

– Check headlight adjustment and correct if necessary in “Maintenance Manual”: ⇒ Maintenance ; Booklet ; Descriptions of work .

3.5 Renewing headlight bulbs

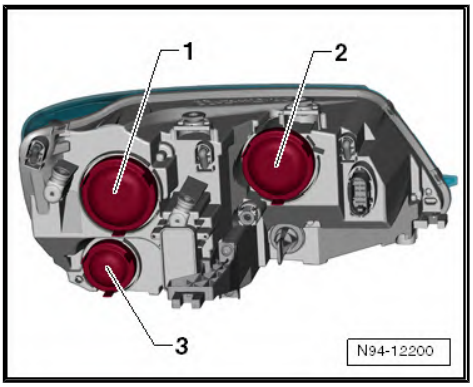
3.5.1 Renewing headlight dipped beam bulb

Note

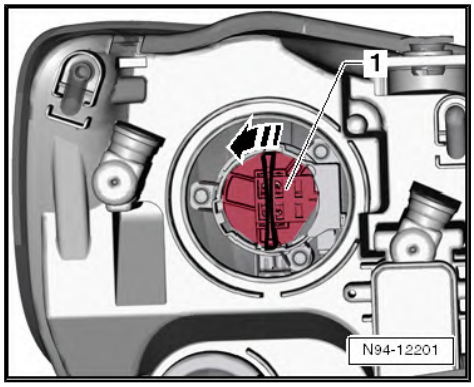
- *For reasons of clarity, the headlights are shown removed in the following illustrations.*
- *To renew left dipped beam headlight bulb - M29- or right dipped beam headlight bulb - M31- the headlight need not be removed.*
- *The illustrations show the renewal of the left headlight dipped beam bulb .*
- *The renewal of the headlight dipped beam bulb for the right headlight is carried out in the same way.*

Removing:

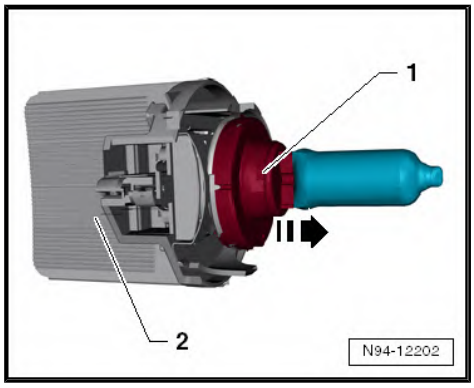
– Switch off ignition and all electrical equipment and then remove ignition key.
– Pull cap -1- off headlight housing.



– Turn holder -1- together with dipped beam headlight bulb in -direction of arrow- and remove from headlight.



– Pull dipped beam headlight bulb -1- straight in -direction of arrow- out of holder -1-.



Headlight dipped beam bulb : 12 V, 55 W

Installing:

Caution

When installing cover cap, ensure cap is seated correctly. The ingress of water will cause permanent damage to the headlight.

Note

Do not touch bulb glass when installing a bulb. Fingers leave traces of grease on the glass, which evaporate when the bulb is switched on and cause the glass to cloud over.

– Check functions of headlight.

– Check headlight adjustment and correct if necessary in “Maintenance Manual”: ⇒ Maintenance ; Booklet ; Descriptions of work .

3.5.2 Renewing headlight main beam bulb

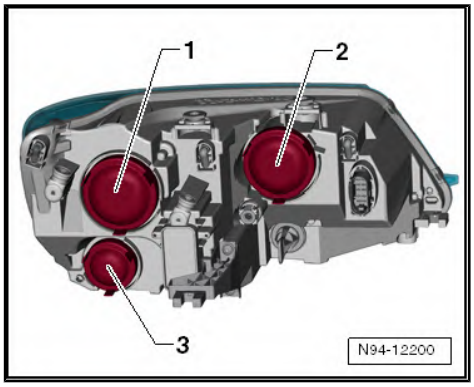
Note

- *For reasons of clarity, the headlights are shown removed in the following illustrations.*
- *To renew left main beam headlight bulb - M30- or right main beam headlight bulb - M32- the headlight need not be removed.*
- *The diagrams show the renewal of the left headlight main beam bulb .*
- *Renewal of the main beam headlight bulb in the right headlight is carried out in basically the same way.*

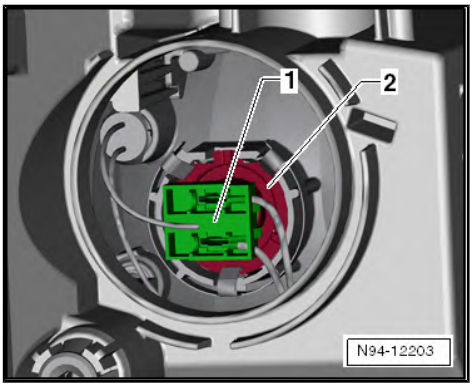
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

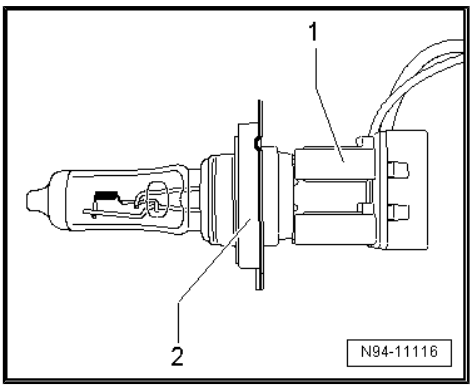
– Pull cap -2- off headlight housing.



– Hold connector -1- and together with main beam headlight bulb carefully pull out backwards from reflector by canting slightly.



– Pull out main beam headlight bulb -2- straight from connector -1-



Main beam headlight bulb : 12V, 55W

Installing:

Caution

When installing cover cap, ensure cap is seated correctly. The ingress of water will cause permanent damage to the headlight.

Note

Do not touch bulb glass when installing a bulb. Fingers leave traces of grease on the glass, which evaporate when the bulb is switched on and cause the glass to cloud over.

Installation is carried out in the reverse order. When installing observe the following:

– Check functions of headlight.

– Check headlight adjustment, and adjust headlight if necessary ⇒ Maintenance ; Booklet 38 .

3.5.3 Renewing side light bulb

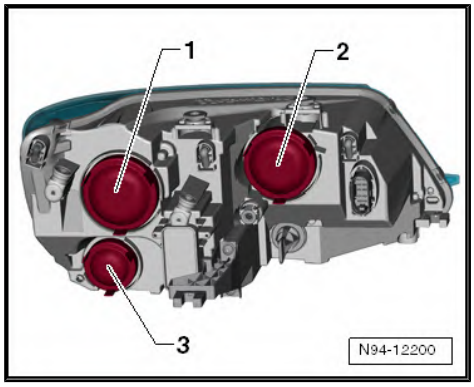
Note

- *For reasons of clarity, the headlights are shown removed in the following illustrations.*
- *To renew left side light bulb - M1- or right side light bulb - M3- the headlight need not be removed.*
- *The illustrations show the renewal of the side light bulb for the left headlight.*
- *The renewal of the side light bulb for the right headlight is carried out in the same way.*

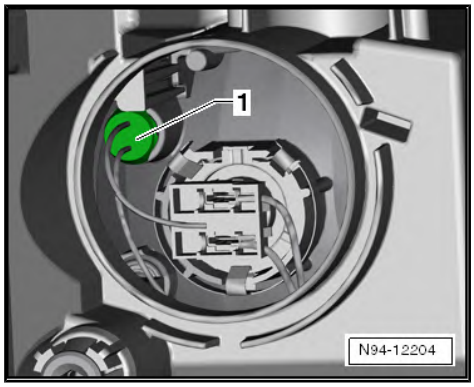
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

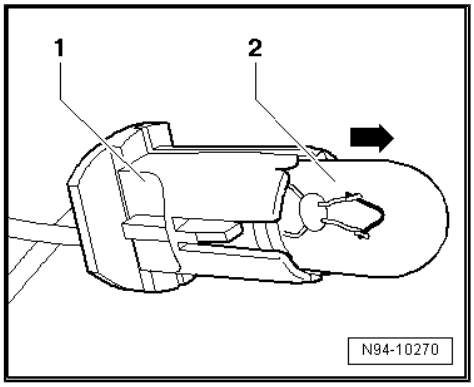
– Pull cap -2- off headlight housing.



– Pull out bulb holder -1- together with side light bulb backwards from reflector, taking connected wiring length into account.



– Pull out side light bulb -2- in -direction of arrow- straight from bulb holder -1-.



Side light bulb : glass-base bulb 12 V, 5 W

Installing:

Caution

When installing cover cap, ensure cap is seated correctly. The ingress of water will cause permanent damage to the headlight.

Note

Do not touch bulb glass when installing a bulb. Fingers leave traces of grease on the glass, which evaporate when the bulb is switched on and cause the glass to cloud over.

Installation is carried out in the reverse order. When installing observe the following:

– Check functions of headlight.

3.5.4 Renewing front turn signal bulb

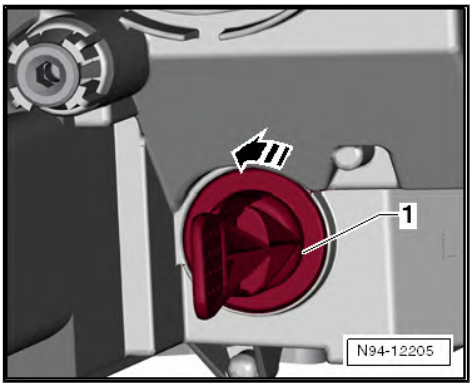
Note

- *For reasons of clarity, the headlights are shown removed in the following illustrations.*
- *To renew front left turn signal bulb - M5- or front right turn signal bulb - M7- the headlight need not be removed.*
- *The illustrations show the renewal of the front turn signal bulb for the left headlight.*
- *The renewal of the front turn signal bulb for the right headlight is carried out in the same way.*

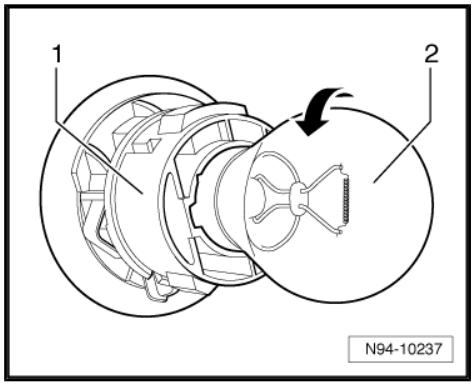
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Turn holder -1- in -direction of arrow- and pull out backwards from headlight housing.



– Push front turn signal bulb -2- lightly into holder and, at the same time, turn onto stop in -direction of arrow-. Then pull out of holder -1-.



Front turn signal bulb : 12V, PY 21W

Installing:

Caution

When installing cover cap, ensure cap is seated correctly. The ingress of water will cause permanent damage to the headlight.

Note

Do not touch bulb glass when installing a bulb. Fingers leave traces of grease on the glass, which evaporate when the bulb is switched on and cause the glass to cloud over.

Installation is carried out in the reverse order. When installing observe the following:

– Check functions of headlight.

3.5.5 Renewing day driving light bulb

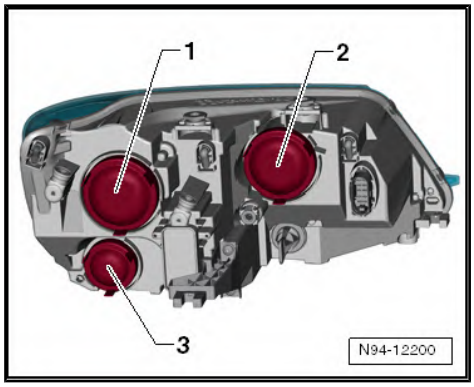
Note

- *For reasons of clarity, the headlights are shown removed in the following illustrations.*
- *To renew left day driving light bulb - L174- or right day driving light bulb - L175- the headlight need not be removed.*
- *The illustrations show renewal of the day driving light bulb on the left headlight.*
- *Renewal of the day driving light bulb in the right headlight is carried out in basically the same way.*

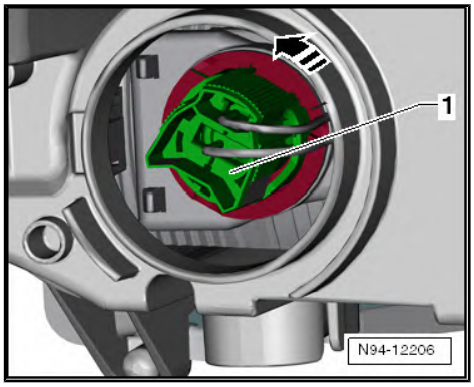
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

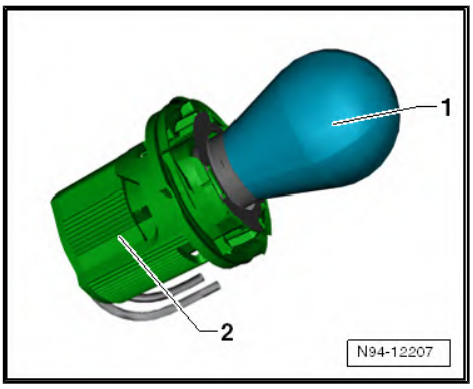
– Pull cap -3- off headlight housing.



– Turn bulb holder -1- in -direction of arrow- and remove it together with the left day driving light bulb from the headlight housing.



– Push day driving light bulb -1- lightly into holder and, at the same time, turn onto stop anti-clockwise. Then pull out of holder -2-.



Daytime running light bulb : 12V, P21W

Installing:

Caution

When installing cover cap, ensure cap is seated correctly. The ingress of water will cause permanent damage to the headlight.

Note

Do not touch bulb glass when installing a bulb. Fingers leave traces of grease on the glass, which evaporate when the bulb is switched on and cause the glass to cloud over.

Installation is carried out in the reverse order. When installing observe the following:

– Check functions of headlight.

– Check headlight adjustment, and adjust headlight if necessary ⇒ Maintenance ; Booklet 38 .

3.6 Headlight range control motor

3.6.1 Removing and installing headlight range control motor

Removing:

Note

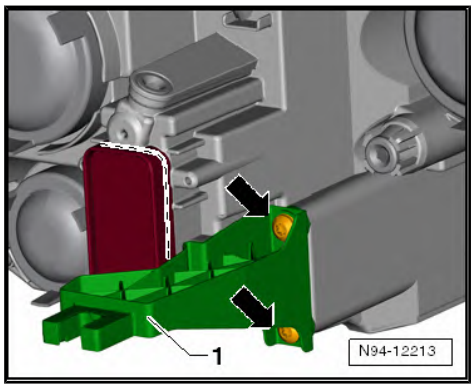
- *If control motors are removed and reinstalled or renewed, headlight adjustment must be checked and readjusted as necessary ⇒ Maintenance ; Booklet ; Descriptions of work .*
- *The illustrations show the renewal of the headlight range control motor for the left headlight.*
- *The renewal of the headlight range control motor for the right headlight is carried out in the same way.*
- *To renew the servomotor, the headlight housing has to be cut open and then sealed again with a screw-fitted cover cap from the repair set ⇒ ETKA (Electronic parts catalogue) .*

– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove headlight ⇒ page 102 .

– Unscrew both securing bolts -arrows- and remove rear securing tab -1- from headlight housing.

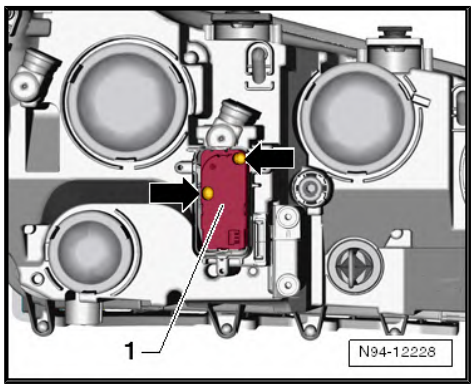
– Cut open headlight housing along dashed line (illustrated).



– Remove bolts -arrows-.

– Swing actuator -1- downwards and inwards out of mounting in reflector.

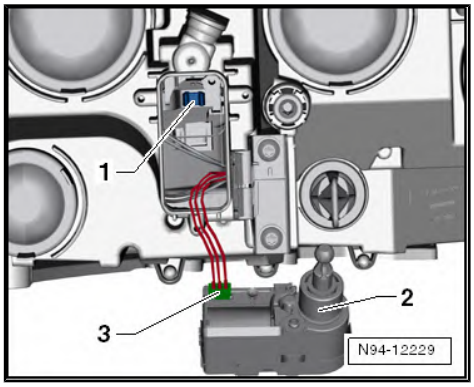
– Pull actuator -1- to rear out of headlight housing, taking connected wiring lengths into consideration.



Note

We recommend pulling the rubber cap for the dip beam bulb off the headlight housing to enable observation of the ball head when disconnecting it from the mounting in the reflector.

– Disconnect connector -3- and actuator -2-.

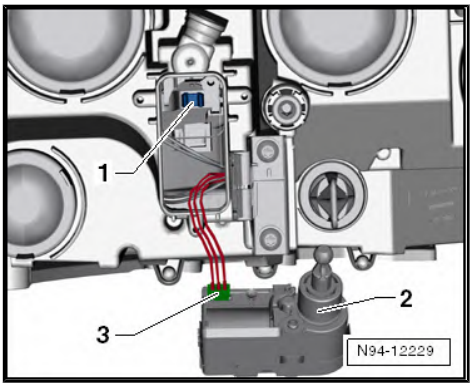


Installing:

Installation is carried out in the reverse order. When installing observe the following:

– Attach connector -3- and actuator -2- in headlight housing.

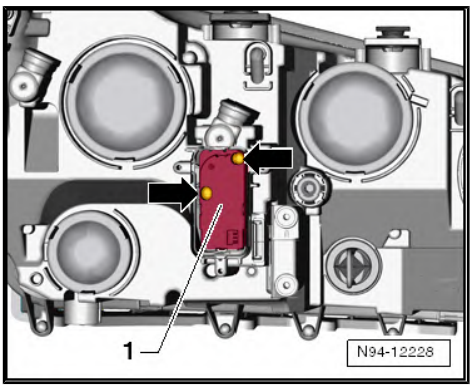
– Pull dip beam reflector towards ball head by hand and guide ball head of actuator into mounting on reflector -1- from above.



– Secure actuator -1- using both securing screws -arrows-.

Caution

When installing, ensure that the screw-fitted cover cap from the repair set is seated properly on the seal. The ingress of water will cause permanent damage to the headlight.



– Seal headlight housing again using cover cap from repair kit.

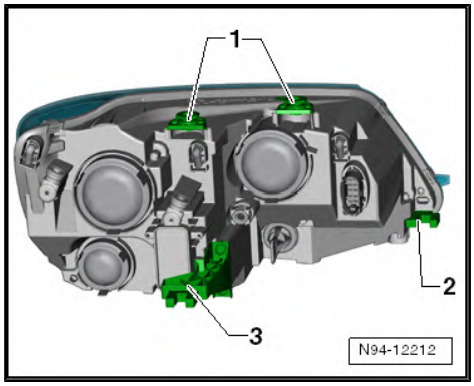
– Check functions of headlight.

– Adjust headlights.

– Check headlight adjustment and correct if necessary in “Maintenance Manual”: ⇒ Maintenance ; Booklet ; Descriptions of work .

3.7 Repairing headlight retaining tabs

If one or more headlight retaining tabs are damaged or broken off, they can be renewed by installing the repair kit. There is no need to renew the entire headlight.



Fitting locations overview of repair tabs

1 - Repair tab at top (2x) ⇒ page 114 .

2 - Repair tab on side ⇒ page 115 .

3 - Repair tab at rear ⇒ page 115 .

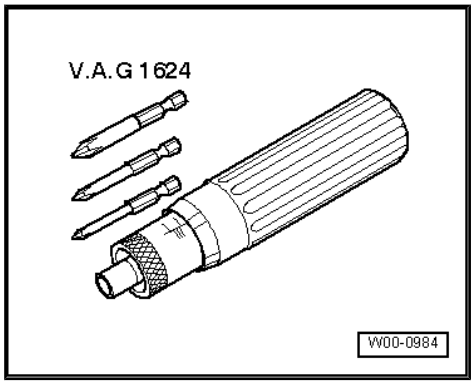
Note

- *Check that there is no further damage to the headlight that would make installation of the repair kit unnecessary.*
- *Two different repair kits are available for the left and right headlights ⇒ ETKA (electronic parts catalogue) .*
- *Each repair set contains one side tab, two top tabs and one rear tab for securing the headlight, as well as the associated securing screws.*
- *The following illustrations show the repair of the retaining tabs on the left headlight. Repairs on the right headlight are carried out in the same way.*

3.7.1 Repairing upper retaining tab

Special tools and workshop equipment required

- Torque screwdriver - V.A.G 1624-



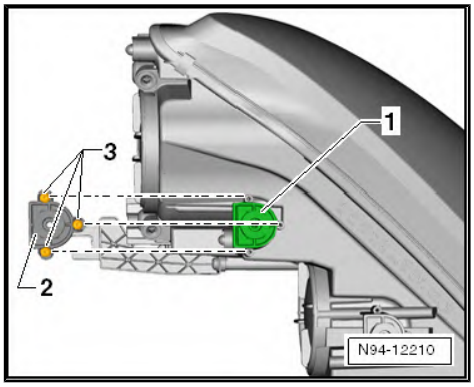
Note

- *On the top of the headlight are two securing tabs.*
- *The following description is for one retaining tab.*
- *The repair of both retaining tabs follows the same sequence.*

– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove headlight ⇒ page 102 .

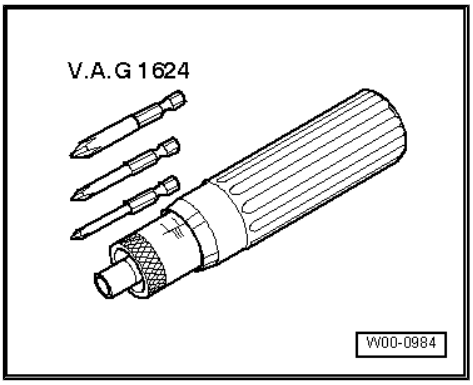
– Remove residue of old headlight retaining tab -1- as shown in illustration.
– Fit new retaining tab -2- onto base of headlight, ensuring a positive fit, and tighten screws -3- to 1.0 Nm.
– Install headlight ⇒ page 102 .
– Checking headlight adjustment and readjusting if necessary in “Maintenance Manual”: ⇒ Maintenance ; Booklet ; Description of work .



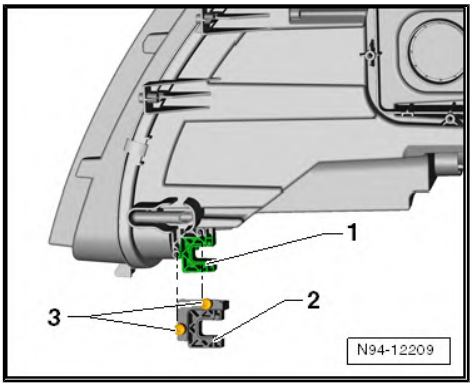
3.7.2 Repairing side retaining tab

Special tools and workshop equipment required

♦ Torque screwdriver - V.A.G 1624-



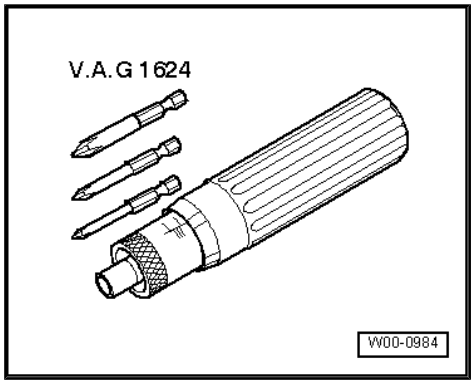
– Switch off ignition and all electrical equipment and then remove ignition key.
– Remove headlight ⇒ page 102 .
– Remove residue of old headlight retaining tab -1- as shown in illustration.
– Fit new retaining tab -2- onto base of headlight, ensuring a positive fit, and tighten screws -3- to 1.0 Nm.
– Install headlight ⇒ page 102 .
– Checking headlight adjustment and readjusting if necessary in “Maintenance Manual”: ⇒ Maintenance ; Booklet ; Description of work .



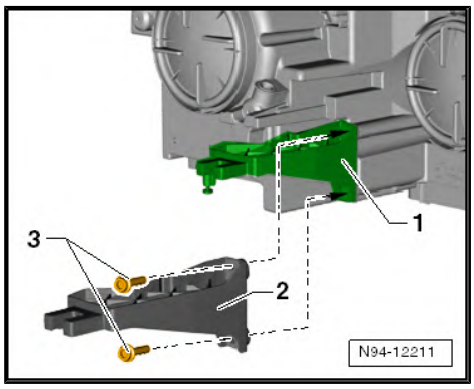
3.7.3 Repairing rear retaining tab

Special tools and workshop equipment required

- Torque screwdriver - V.A.G 1624-



– Switch off ignition and all electrical equipment and then remove ignition key.
– Remove headlight ⇒ page 102 .
– Unscrew both securing bolts -arrows- and remove rear securing tab -1- from headlight housing.
– Position new rear securing tab -2- on headlight housing and tighten securing screws -3- to 1.0 Nm.
– Install headlight ⇒ page 102 .
– Checking headlight adjustment and readjusting if necessary in “Maintenance Manual”: ⇒ Maintenance ; Booklet ; Description of work .



3.8 Converting headlights for use when driving on the left or right

Note

- *To avoid dazzling oncoming traffic with the asymmetrical lights, both headlights should be converted relevant to the country (driving on the left or right) in which the vehicle is being driven.*
- *Each headlight conversion set comprises 2 pieces of film.*
- *Conversion of the headlights is not designed as a permanent conversion for other countries. It is only suitable as a “tourist solution” for a short stay abroad.*
- *Both headlights of a vehicle must always be converted.*
- *The details “right” and “left” on the masking film always refer to the direction of travel when looking forwards from inside the vehicle.*

3.8.1 Converting headlights designed for driving on the right to driving on the left

Note

- *The headlight conversion set comprises 2 pieces of film.*
- *Please note the different part numbers for the headlight conversion sets from right to left-hand traffic and from left to right-hand traffic.*
- *Before converting the lenses, clean the headlights.*

– Turn light switch to “0” position.

– Clean headlight lens.

Left headlight:

– Remove backing of application film -B- only in area marked -C-.

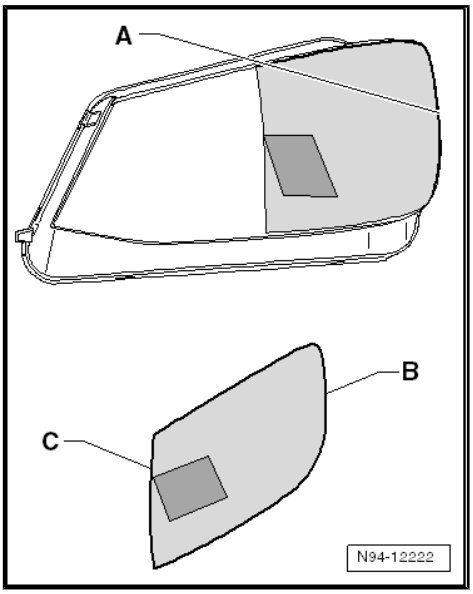
– Align application film -B- with the outer edge to line -A- on the headlight lens.

– Press area -C- firmly against headlight lens.

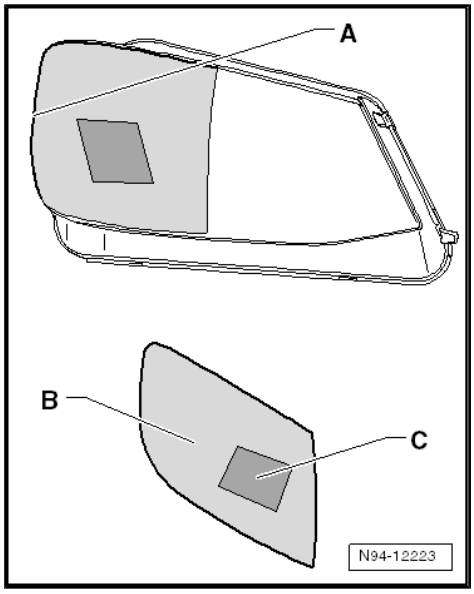
– Carefully pull application film -B- off headlight lens again.

– Masking film -C- remains on headlight lens.

Right headlight:



– Remove backing of application film -B- only in area marked -C-.
– Align application film -B- with the outer edge to line -A- on the headlight lens.
– Press area -C- firmly against headlight lens.
– Carefully pull application film -B- off headlight lens again.
– Masking film -C- remains on headlight lens.



Caution

Risk of plastic erosion.

If using solvent-based cleaners, the plastic lens of the headlight could become damaged.

To remove any adhesive residue on the plastic headlight lenses, use only alcohol-based cleaning agents or those with a diluted alcohol mix (isopropanol).

Note

- *Remove any adhesive residue using alcohol-based or diluted alcohol-based cleaning fluids. For example a cloth soaked with isopropyl alcohol.*
- *Inform customers how to remove adhesive that may be left after the backing paper has been pulled off.*

3.8.2 Converting headlights designed for driving on the left to driving on the right

Note

- *The headlight conversion set comprises 2 pieces of film.*
- *Please note the different part numbers for the headlight conversion sets from right to left-hand traffic and from left to right-hand traffic.*
- *Before converting the lenses, clean the headlights.*

– Turn light switch to “0” position.
– Clean headlight lens.

Left headlight:

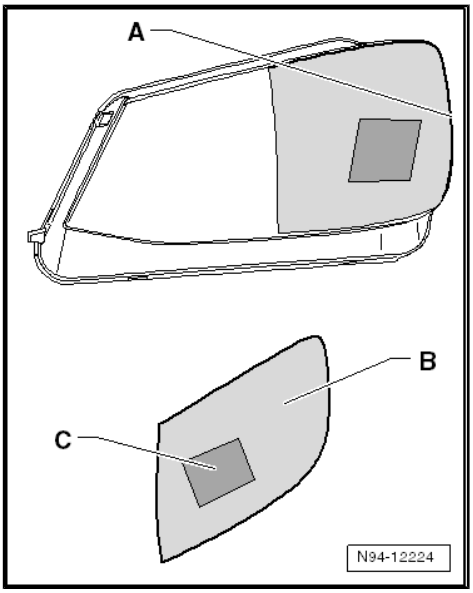
– Remove backing of application film -B- only in area marked -C-.

– Align application film -B- with the outer edge to line -A- on the headlight lens.

– Press area -C- firmly against headlight lens.

– Carefully pull application film -B- off headlight lens again.

– Masking film -C- remains on headlight lens.



Right headlight:

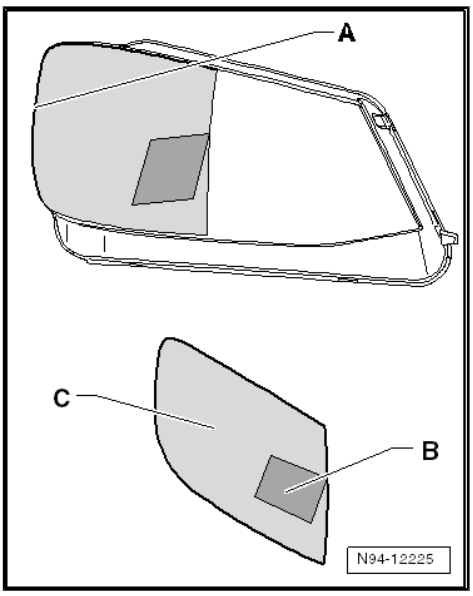
– Remove backing of application film -B- only in area marked -C-.

– Align application film -B- with the outer edge to line -A- on the headlight lens.

– Press area -C- firmly against headlight lens.

– Carefully pull application film -B- off headlight lens again.

– Masking film -C- remains on headlight lens.



Caution

Risk of plastic erosion.

If using solvent-based cleaners, the plastic lens of the headlight could become damaged.

To remove any adhesive residue on the plastic headlight lenses, use only alcohol-based cleaning agents or those with a diluted alcohol mix (isopropanol).

Note

- *Remove any adhesive residue using alcohol-based or diluted alcohol-based cleaning fluids. For example a cloth soaked with isopropyl alcohol.*
- *Inform customers how to remove adhesive that may be left after the backing paper has been pulled off.*

3.9 Adjusting headlights

Adjust headlight with halogen bulbs ⇒ Maintenance ; Booklet ; Descriptions of work .

4 Fog lights

Fault detection and fault display:

The onboard supply control unit has a self-diagnostic function, which makes fault finding on front fog lights easier.

For fault finding, use vehicle diagnosis, testing and information system - VAS 5051A- in “Guided fault finding” mode.

4.1 Assembly overview - fog lights

1 - Front bumper cover

2 - Fog light housing

- ❑ Removing and installing ⇒ page 120

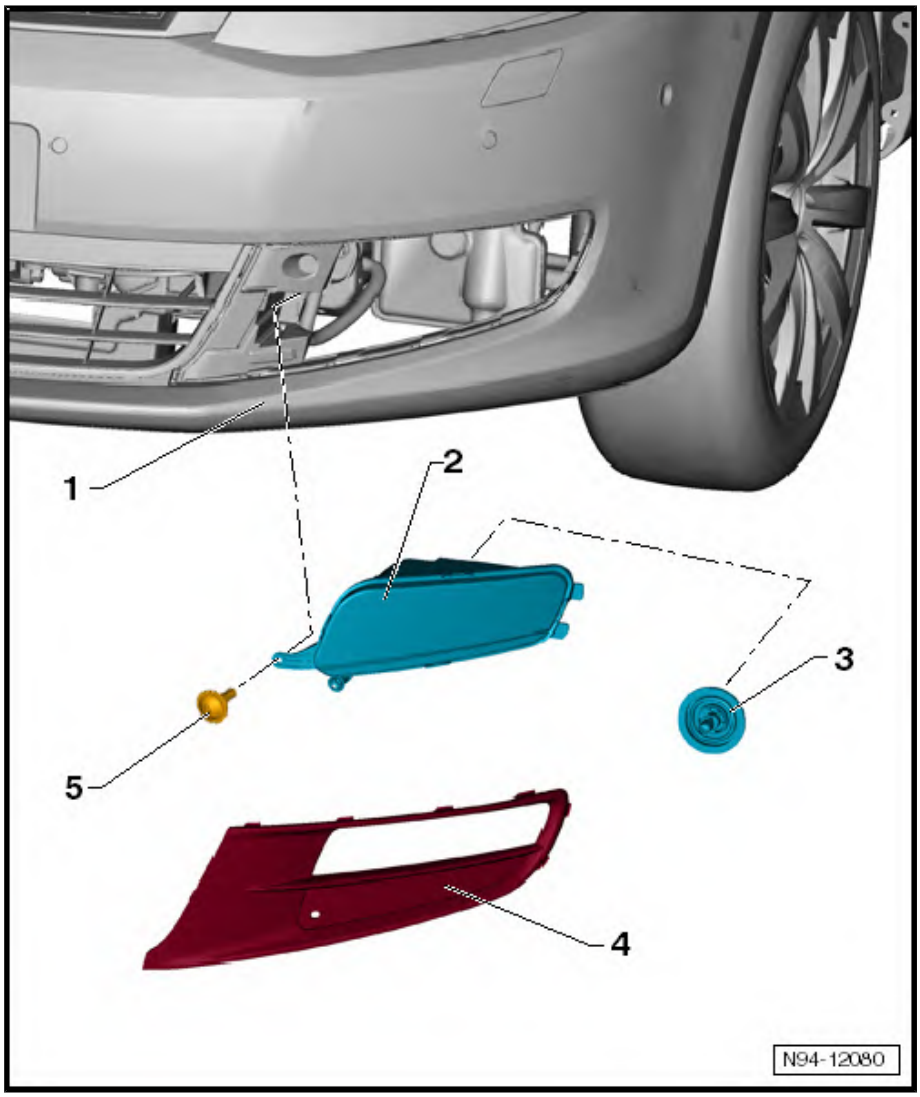
3 - Left fog light bulb - L22- or right fog light bulb - L23- and left static cornering light - M51- or right static cornering light - M52-

- ❑ Bulb H8 12V, 35W
- ❑ Removing and installing ⇒ page 122

4 - Cover

5 - Securing bolt

- ❑ 2 Nm



4.2 Removing and installing fog light

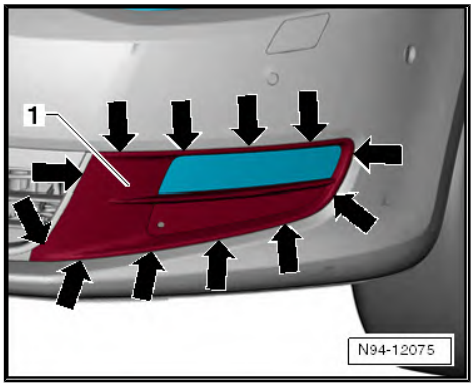
Note

The illustrations show removal and installation of the front left fog light.

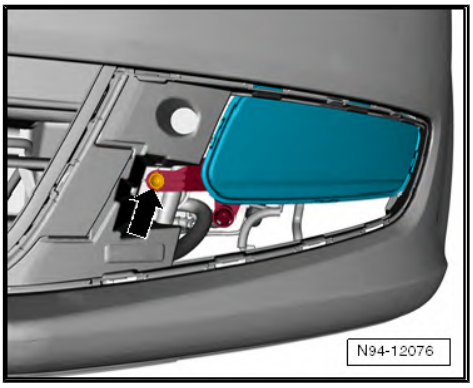
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

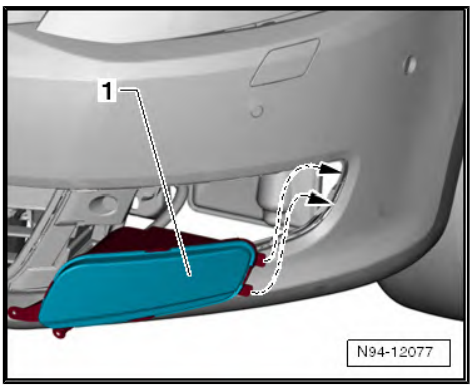
– Unclip cover cap -1- at detents -arrows-.



– Remove securing bolt -arrow-.



– Swing out fog light housing -1- from bumper cover, taking connected wiring lengths into consideration.



– Release and separate connector -1- and remove fog light housing -2-.

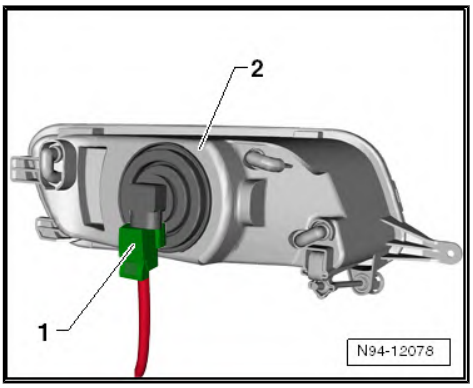
Installing:

Installation is carried out in the reverse order. When installing observe the following:

– Tighten all threaded connections to torques specified in assembly overview ⇒ page 120 .

– Check function of headlight.

– Checking fog light settings and adjusting if necessary in “Maintenance Manual”: ⇒ Maintenance ; Booklet ; Description of work .



4.3 Removing and installing fog light / static cornering light bulb

Note

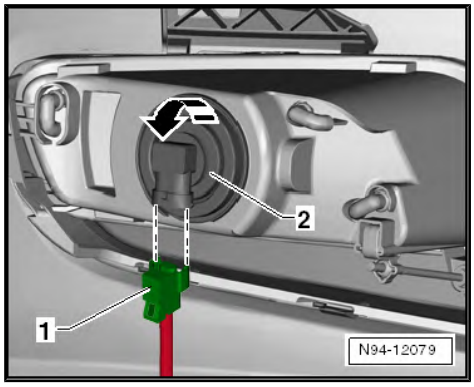
- *Depending on activation, the bulb in the headlight housing controls the function of the static cornering light or of the fog light.*
- *Illustration shows removal and installation on left fog light.*
- *Removal and installation of the right fog light is carried out in basically the same way.*

Removing:

– Detach front wheel housing liner in front area to gain access to back of fog light ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner .

– Release connector -1- and disconnect.

– Turn bulb holder together with fog light / static cornering light bulb -2- in -direction of arrow- and remove it from the fog light.



The fog light / static cornering light bulb is permanently attached to the bulb holder and cannot be renewed separately.

Fog light bulb : H8 12 V, 35W

Installing:

Installation is carried out in the reverse order. When installing observe the following:

– Check function of headlight.

– Adjusting fog lights ⇒ page 122 .

4.4 Adjusting fog lights

Adjusting spray jet in “Maintenance Manual” ⇒ Maintenance ; Booklet ; Description of work .

5 Turn signal repeater and entry light in exterior mirror

5.1 General description

Note

Additional information:

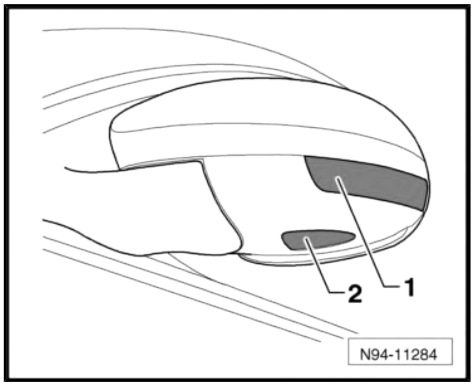
⇒ Self-study programme No. 445 ; The Sharan 2011

⇒ Current flow diagrams, Electrical fault finding and Fitting locations

General description:

The turn signals (side repeaters) are integrated in the exterior mirror housings.

In addition, there is an entry light in each exterior mirror housing which illuminates the entry area around the open driver or front passenger door in the dark.



1 - Driver side turn signal repeater bulb - L131- or front passenger side turn signal repeater bulb - L132-

2 - Driver side entry light in exterior mirror - W52- or front passenger side entry light in exterior mirror - W53-

Fault detection and fault display:

The onboard supply control unit has a self-diagnostic function, which makes fault finding easier.

For fault finding, use vehicle diagnosis, testing and information system - VAS 5051A- in “Guided fault finding” mode.

5.2 Turn signal repeater bulb

The driver side turn signal repeater bulb - L131- and the front passenger side turn signal repeater bulb - L132- are installed in the left/right exterior mirror housing respectively. Renewal of DEL light source is not possible.

5.2.1 Removing and installing turn signal repeater bulb

Note

In the event of damage, the complete driver side turn signal lamp in exterior mirror - L131- or the complete front passenger side turn signal lamp in exterior mirror - L132- must be renewed.

Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove driver side turn signal repeater bulb - L131- unit or front passenger side turn signal repeater bulb - L132- unit ⇒ General body repairs, exterior; Rep. gr. 66 ; Rear view mirror; Removing and installing turn signal repeater .

Installing:

– Remove driver side turn signal repeater bulb - L131- unit or front passenger side turn signal repeater bulb - L132- unit ⇒ General body repairs, exterior; Rep. gr. 66 ; Rear view mirror; Removing and installing turn signal repeater .

Note

After installing, check operation of exterior mirrors.

5.3 Entry light in exterior mirror

5.3.1 Removing and installing drive side entry light in exterior mirror - W52-

The driver side entry light in exterior mirror - W52- and the front passenger side entry light in exterior mirror - W53- are installed in the lower part of respective left or right exterior mirror housing. Renewal of entry light bulb is described below.

Note

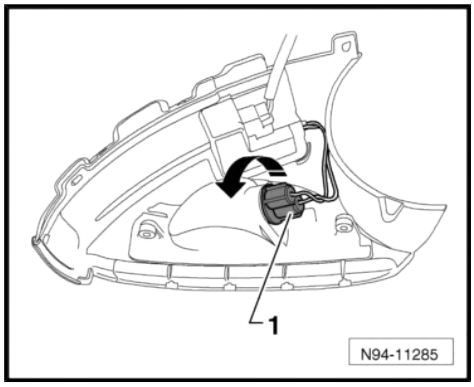
- *In the event of damage to the lens, entry light in exterior mirror must be renewed together with lower part of exterior mirror housing.*
- *The procedure for renewal of the bulb on the driver and front passenger side is the same and is therefore described for one side only.*

Renewing bulb:

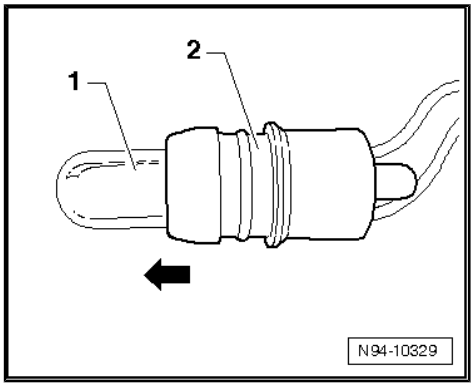
– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove bottom of exterior mirror housing ⇒ General body repairs, exterior; Rep. gr. 66 ; Exterior mirrors .

– To release, twist holder -1- in -direction of arrow- and pull out together with bulb.



– Pull out wedge-base bulb -1- in -direction of arrow- straight from bulb holder -2-.



Glass-base bulb: 12 V, 5 W

Installing:

Installation is carried out in the reverse order. When installing observe the following:

Note

After installing, check operation of exterior mirrors.

6 Tail light clusters

6.1 Assembly overview - tail light cluster in side panel

Note

The tail light cluster in the side panel includes, besides the yellow turn signal bulb -4-, a single-filament bulb -3- which, depending on activation, functions as brake and tail light cluster.

1 - Securing bolt

- ❑ Specified torque: tighten by hand to stop (max. 2 Nm)

2 - Bulb carrier

- ❑ Removing and installing ⇒ page 128

3 - Left brake and tail light bulb - M21- or right brake and tail light bulb - M22-

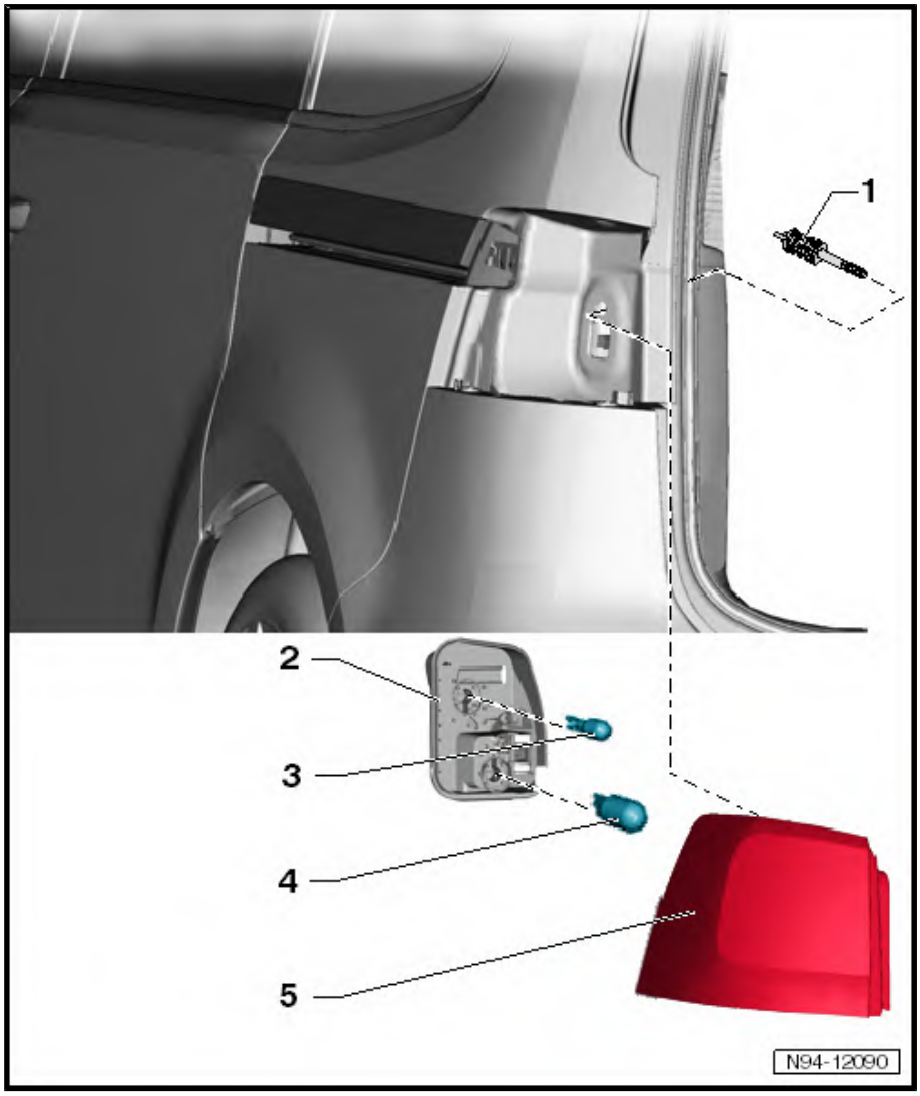
- ❑ Bulb 12V, P21W

4 - Rear left turn signal bulb - M6- or rear right turn signal bulb - M8-

- ❑ Bulb 12V, PY21W

5 - Tail light housing in side panel

- ❑ Removing and installing ⇒ page 127



6.2 Removing and installing tail light cluster in side panel

Note

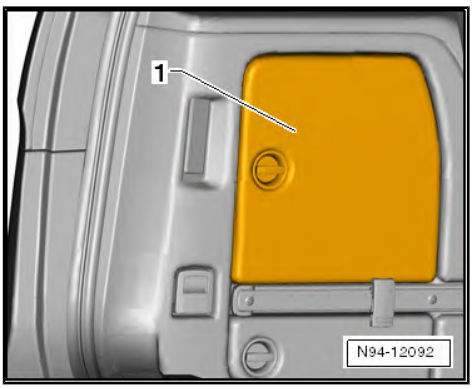
The illustrations show removal and installation for the left side.
The removal of the right side is basically a mirror image.

Removing:

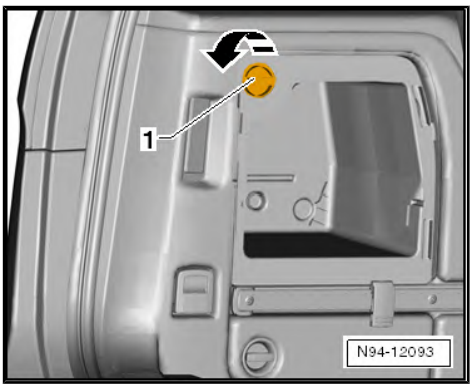
– Switch off ignition and all electrical equipment and then remove ignition key.

Left-hand side of vehicle:

– Open stowage compartment and remove cover -1-.

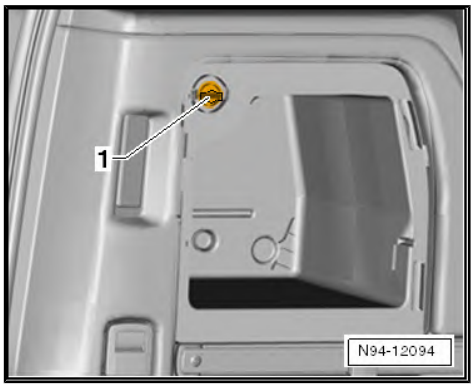


– Twist plug -1- in -direction of arrow- and remove.

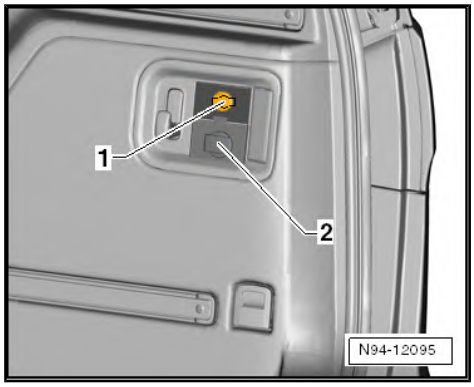


– Unscrew securing bolt -1-.

Right-hand side of vehicle:



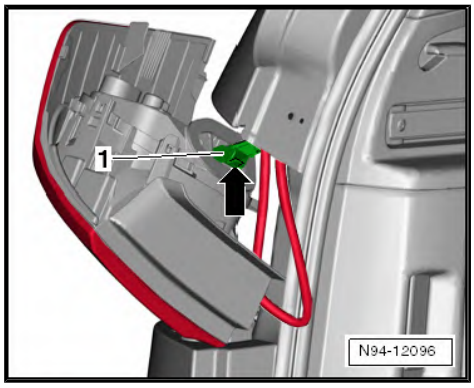
– Push down decorative strip -2- in right luggage compartment trim and unscrew securing bolt -1-.



Continued for both sides of vehicle:

– Take tail light housing out of body aperture in side panel. Observe connected wiring lengths when doing this.

– Pull primary locking mechanism -arrow- and release and separate connector -1-.



– Remove tail light housing.

Installing:

Installation is carried out in the reverse order. When installing observe the following:

Caution

Risk of wiring damage.

The wiring harness for the tail lights could become trapped when installing.

Once the electrical connector has been fitted, the wiring harness must be fed through the aperture to the inside without it getting trapped.

– Screw in securing bolt onto stop by hand (max. 2 Nm), and fit and lock connector.

– When installation is complete, check gap/shut lines to body, and check function of tail light cluster.

6.3 Removing and installing tail light bulb cluster carrier in side panel

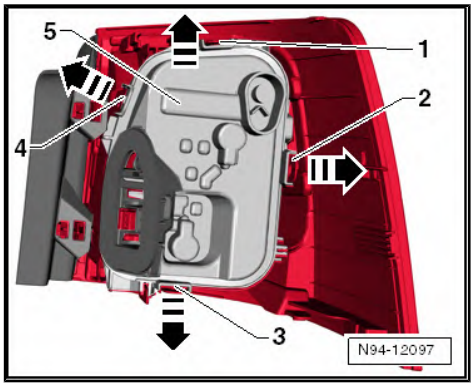
Note

The illustrations show removal and installation for the left side. The removal of the right side is basically a mirror image.

Removing:

– Remove tail light cluster in side panel ⇒ page 127 .

– Release retaining tabs -1-, -2-, -3- and -4- each in -direction of arrow-, and remove bulb carrier -5- from tail light housing.



Installing:

Install in the reverse order of removal. When doing this, note the following:

– After inserting bulb carrier, check that all retaining tabs are surely locked.

6.4 Renewing brake and tail light cluster and turn signal bulbs in tail light cluster in side panel

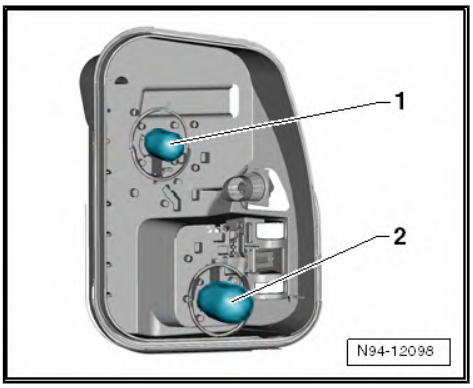
Note

- *The illustrations show removal and installation for the left side. The removal of the right side is basically a mirror image.*
- *The tail light cluster in the side panel includes, besides the yellow turn signal bulb, a single-filament bulb which, depending on activation, functions as brake and tail light cluster.*

Removing:

– Remove tail light bulb carrier in side panel ⇒ page 128 .

– Push brake and tail light bulb -1- or turn signal bulb -2- into holder, turn anti-clockwise and pull out upwards from bulb carrier.



Bulb for brake and tail light: 12V, P21W

Turn signal bulb: 12V, PY21W

Installing:

Install in reverse order of removal.

6.5 Assembly overview - tail light cluster in rear lid

Note

Besides the tail light bulb, the tail light cluster in the rear lid also includes the rear fog light bulb. For left-hand drive vehicles, the rear fog light bulb is only located in the left tail light cluster, and for right-hand drive vehicles, only in the right tail light cluster. It is not fitted in vehicles for USA and Canada.

1 - Securing nuts

- ❑ Specified torque: 3 Nm

2 - Bulb carrier

- ❑ Removing and installing ⇒ page 131

3 - Left tail light bulb - M4- or right tail light bulb - M2-

- ❑ Glass-base bulb 12V, W5W

4 - Left tail light bulb - M4- or right tail light bulb - M2-

- ❑ Glass-base bulb 12V, W5W

5 - Left rear fog light bulb - L46- or right rear fog light bulb - L47- or

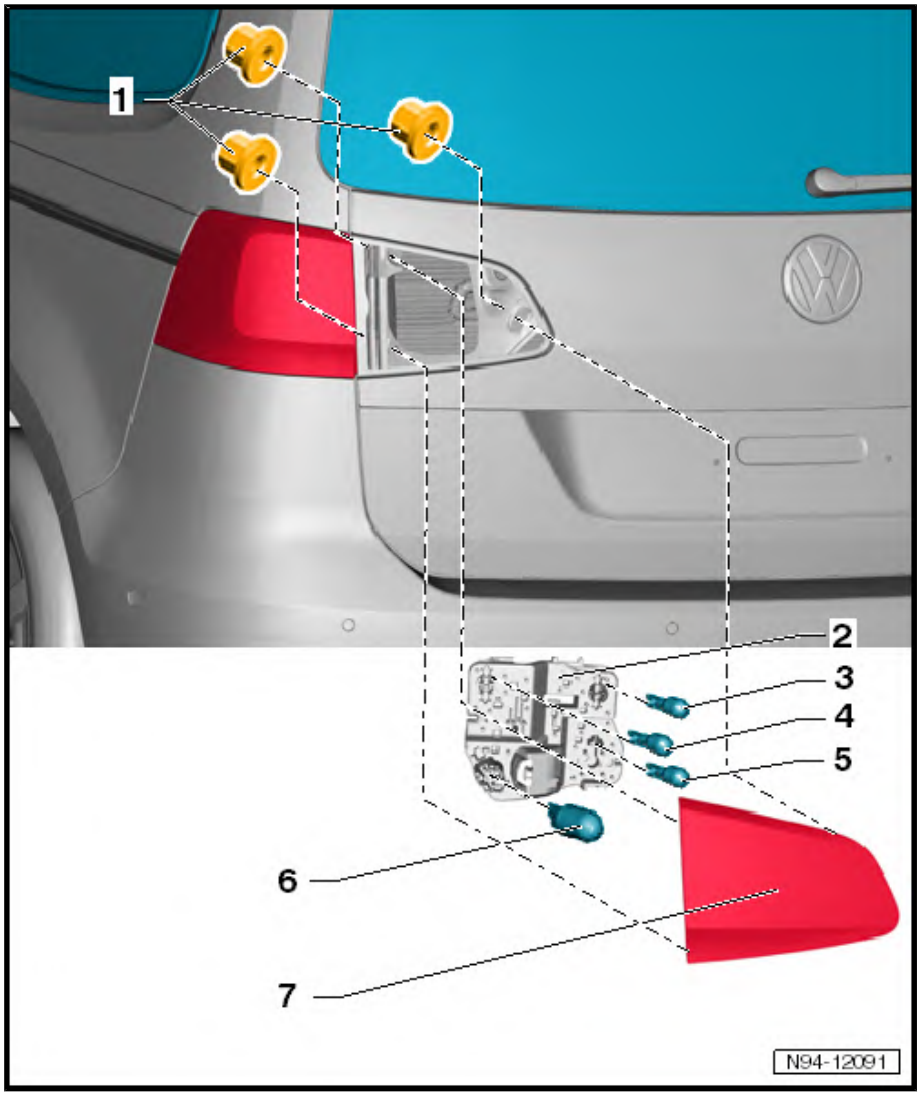
- ❑ Glass-base bulb 12V, H21W

6 - Left reverse light bulb - M16- or right reverse light bulb - M17-

- ❑ Bulb 12 V, W16W

7 - Tail light housing in rear lid

- ❑ Removing and installing ⇒ page 130



6.6 Removing and installing tail light cluster in rear lid

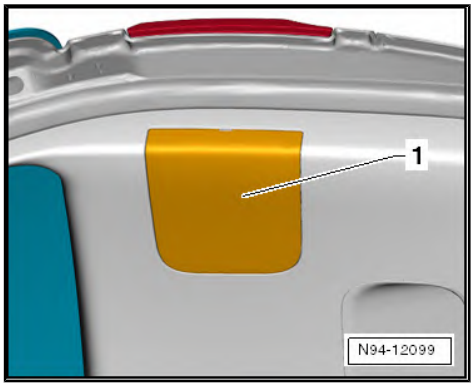
Note

The illustrations show removal and installation for the left side.
The removal of the right side is basically a mirror image.

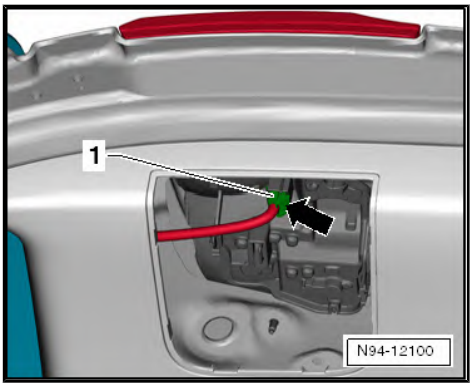
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Unclip service cover -1- from trim in rear lid.



– Pull primary locking mechanism -arrow- and release and separate connector -1-.



– Unscrew three securing nuts -1-, and remove tail light housing upwards out of body aperture in rear lid.

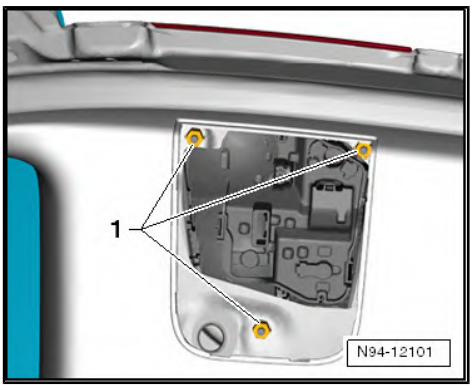
Installing:

Installation is carried out in the reverse order. When installing observe the following:

– Tighten securing nuts to torque specified in assembly overview ⇒ page 129 .

– Fit connector and engage securely.

– When installation is complete, check gap/shut lines to body, and check function of tail light cluster.

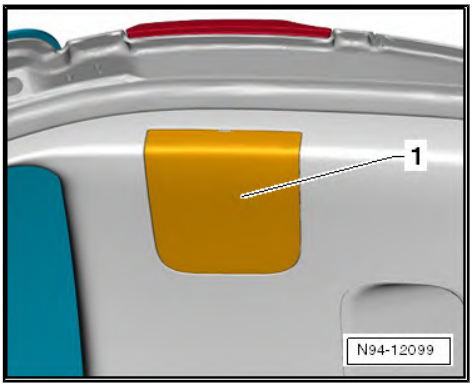


6.7 Removing and installing tail light cluster bulb carrier in rear lid

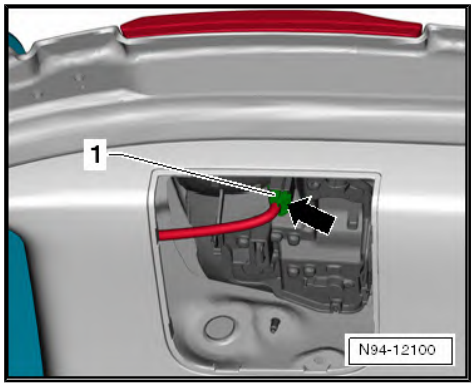
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

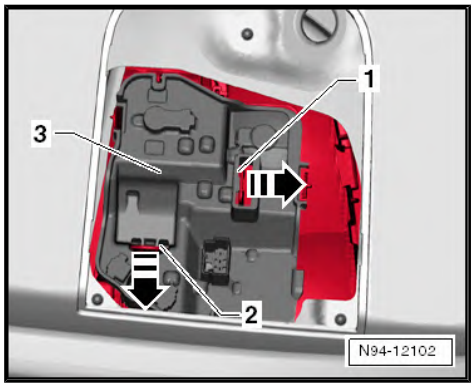
– Unclip service cover -1- from trim in rear lid.



– Pull primary locking mechanism -arrow- and release and separate connector -1-.



– Release retaining tabs -1- and -2- in -direction of arrow-, and detach bulb carrier -3- downwards from tail light housing.



Installing:

Install in the reverse order of removal. When doing this, note the following:

Note

When inserting bulb carrier, ensure that both retaining tabs engage audibly.

6.8 Renewing brake and tail light bulbs in rear lid

Note

- *The illustrations show removal and installation for the left side. The removal of the right side is basically a mirror image.*
- *Aside from the bulbs for tail light cluster and reversing light, the tail light cluster in the rear lid also includes the bulb for the rear fog light. On left-hand drive vehicles, the rear fog light bulb is only located in the left tail light cluster. On right-hand drive vehicles, it is only located in the right tail light cluster.*

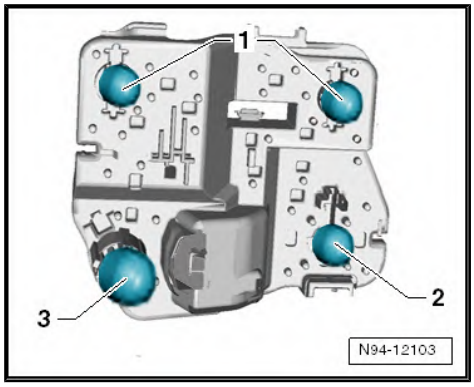
Removing:

– Remove tail light bulb carrier in side panel ⇒ page 131 .

– Pull out respective tail light bulb -1- straight upwards from bulb carrier.

– Push rear fog lamp bulb -2- into holder, turn anti-clockwise and pull out of bulb carrier.

– Pull reversing light bulb -3- in a straight line upwards out of bulb carrier.



Tail light bulbs -1-: glass-base bulb 12V, W5W

Rear fog lamp bulb -2-: bulb 12V, H21W

Reversing light bulb: glass-base bulb 12V, W16W

Installing:

Install in reverse order of removal.

7 Number plate light

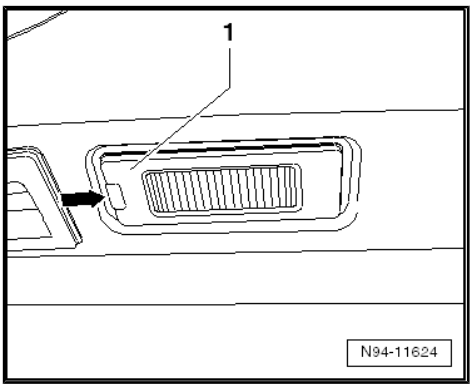
7.1 Clipped number plate light - X-

7.1.1 Removing and installing clipped number plate light

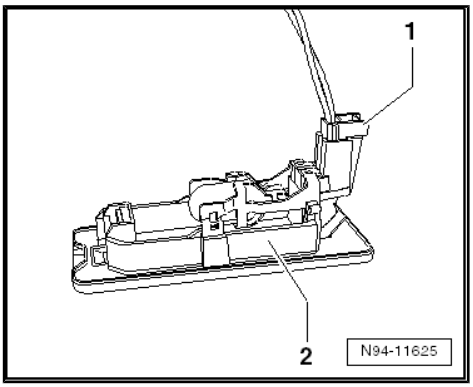
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Carefully lever out number plate light -1- from rear lid using a suitable screwdriver -arrow-.



– Release and separate connector -1- and remove number plate light -2-.



Installing:

Install in the reverse order of removal. When doing this, note the following:

Note

- *Insert number plate light into bumper cover so that connector points to right-hand side of vehicle.*
- *Engage number plate light securely in body aperture.*

– Check function of number plate light.

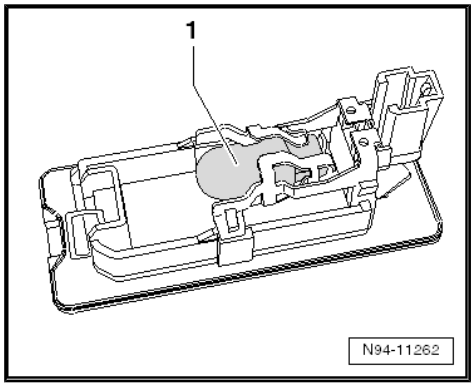
7.1.2 Removing and installing clipped number plate light bulb

Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove number plate light ⇒ page 133 .

– Carefully pull glass-base bulb -1- out of bulb holder.



Bulb for clipped number plate light: glass-base bulb 12 V, W 5 W

Installing:

Installation is carried out in the reverse sequence of removal.

8 High-level brake lights

8.1 High-level brake light bulb - M25-

8.1.1 Removing and installing high-level brake light bulb - M25-

Note

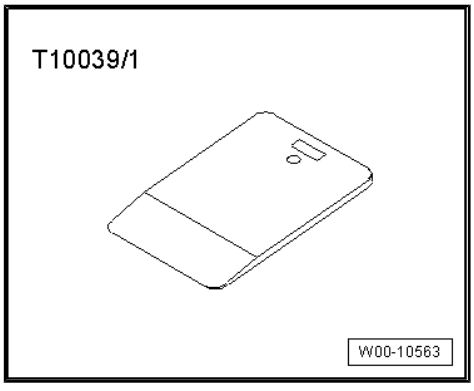
- *Failure of LEDs in high-level brake lights:*
- *The individual LEDs (light-emitting diodes) in the high-level brake lights are in groups of four, which are supplied with current independently.*
- *The high-level brake light is designed in such a way that the legal requirements are still met in the event that one LED group fails.*
- *If a further LED group fails, these requirements are no longer met according to the legislator.*
- *Due to the failure of one LED group, the intact LEDs are placed under increased strain; it must be anticipated that further LED groups will soon fail.*
- *If more than four individual LEDs in the high-level brake light have failed, the high-level brake light must be renewed (repair measure).*

The spray jet of the rear window washer system is integrated in the high-level brake light .

Renewing and adjusting spray jet of rear window washer system ⇒ page 75

Special tools and workshop equipment required

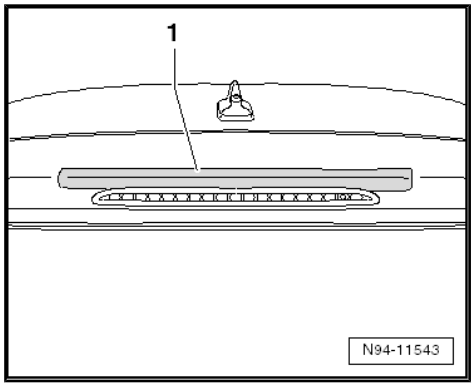
- Plastic wedge - T10039/1-



Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

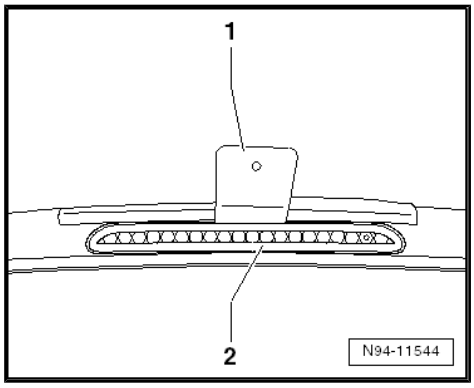
– Attach a strip of adhesive tape -1- to the area of the rear lid above the brake light.



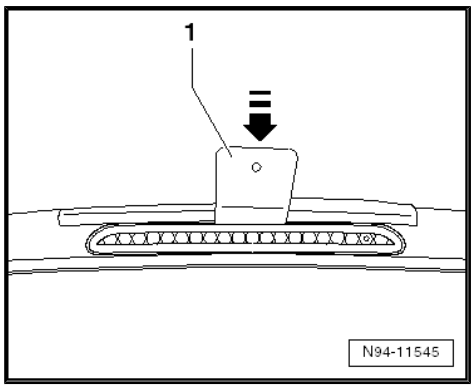
Caution

Make sure the seal is not damaged when removing the high-level brake light.

– Insert plastic wedge - T10039/1- -1- at top between high-level brake light bulb - M25- -2- and rear lid.

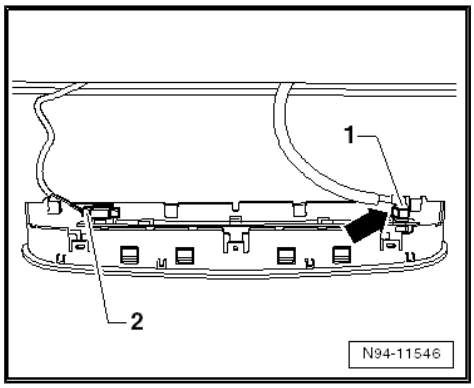


– Release high-level brake light bulb - M25- by pushing wedge in -direction of arrow- and remove it from rear lid, taking connected wiring length into consideration.



– Pull out hose lock -arrow- and pull off hose connection -1- from high-level brake light bulb - M25- .

– Release and detach connector -2- and remove high-level brake light - M25- .



Installing:

Note

When installing high-level brake light bulb - M25- , ensure seal is seated correctly. Seal must not be kinked or damaged.

– Connect and engage hose connection and connectors.

– Clip brake light back into rear lid, starting at bottom.

– Check high-level brake light bulb - M25- and rear window washer system for fault-free function.

8.1.2 Checking high-level brake light - M25-

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

9 Steering column switch

9.1 General description

Caution

The removal and installation of individual components of the steering column switch must be performed in a specified sequence *⇒ page 139* *.*

The components of the steering column combination switch, steering column electronics control unit and steering column switch base are installed as 2 different versions depending on equipment level (manufacturers: Valeo or Kostal). The visible fastening of the steering column electronics control unit to the steering column combination switch can be used to identify which version is installed.

- Manufacturer: Valeo, 3 bolts
- Manufacturer: 1 bolt at bottom and 2 fasteners at top

Note

- *When a new steering column electronics control unit - J527- is installed, it must be coded* *⇒ page 142* *.*
- *Additional information:*

⇒ Operating manual

Fault detection and fault display:

The steering column electronics control unit - J527- is equipped with self-diagnosis, which is designed to simplify fault finding.

For fault finding, use vehicle diagnosis, testing and information system - VAS 5051A- in “Guided fault finding” mode.

9.2 Assembly overview - steering column switch

Note

The components steering column electronics control unit - J527- , steering column combination switch - E595- and the steering column switch base are available as different versions depending on manufacturer (Valeo or Kostal). Illustration of assembly overview shows Valeo version.

1 - Steering column electronics control unit - J527-

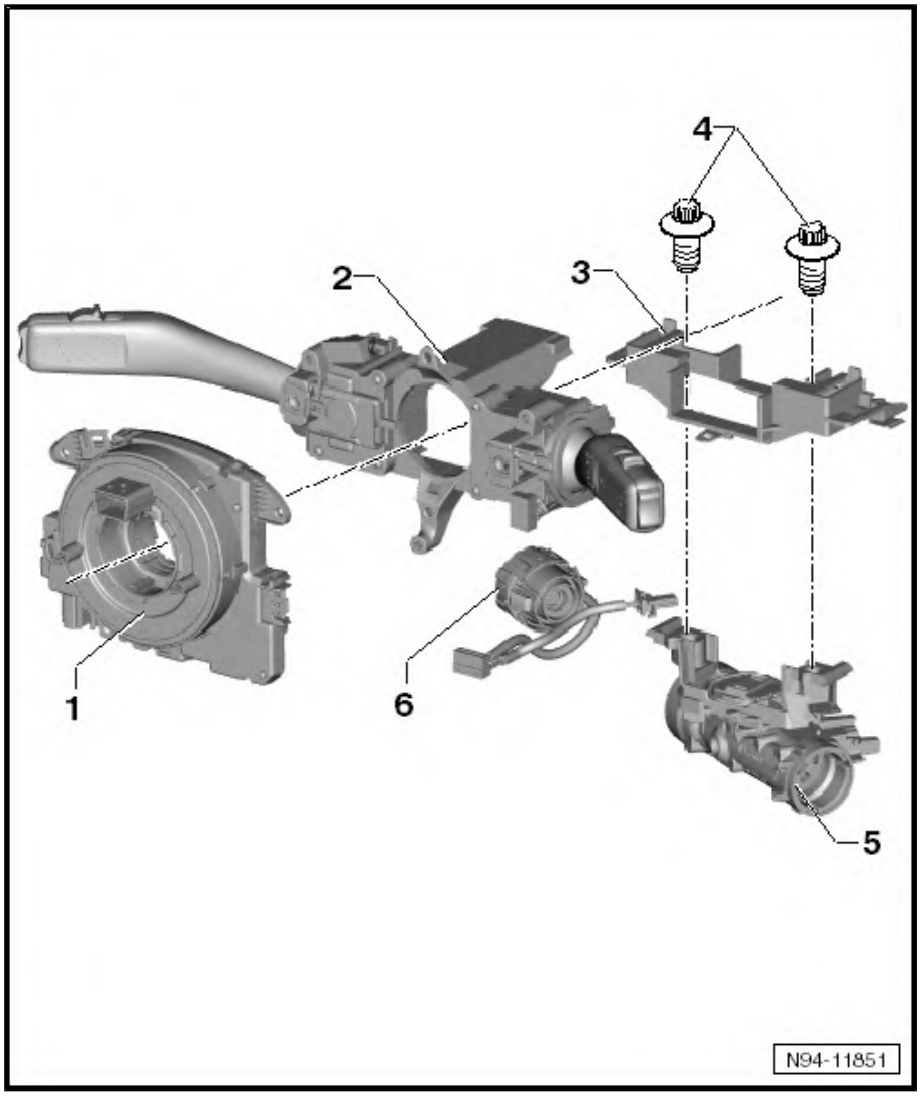
- ❑ Note removal and installation sequence ⇒ page 139 .
- ❑ Removing and installing (manufacturer: Valeo) ⇒ page 140
- ❑ Removing and installing (manufacturer: Kostal) ⇒ page 141
- ❑ Coding ⇒ page 142
- ❑ Securing bolt specified torque (M8): 1.5 Nm

2 - Steering column combination switch - E595-

- ❑ Note removal and installation sequence ⇒ page 139 .
- ❑ Removing and installing (manufacturer: Valeo) ⇒ page 143
- ❑ Removing and installing (manufacturer: Kostal) ⇒ page 143

3 - Steering column switch carrier

- ❑ Note removal and installation sequence ⇒ page 139 .
- ❑ Removing and installing (manufacturer: Valeo) ⇒ page 144
- ❑ Removing and installing (manufacturer: Kostal) ⇒ page 146



4 - Shear bolts

- ❑ M8x20
- ❑ Shear torque: approx. 15 Nm

5 - Steering lock housing

Steering lock housing is removed and installed together with steering column switch base.

- ❑ Note removal and installation sequence ⇒ page 139 .
- ❑ Removing and installing (manufacturer: Valeo) ⇒ page 144
- ❑ Removing and installing (manufacturer: Kostal) ⇒ page 146

6 - Ignition/starter switch and lock cylinder.

- ❑ Removing and installing ⇒ page 162 .

9.3 Removal and installation sequence of components of steering column switch

Caution

When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed ⇒ page 4 .

For removal of the complete steering column switch, including base, the switch is dismantled and the steering lock housing is also removed. For assembly of the steering lock housing, new shear bolts are required.

Even if just one component of the steering column switch is removed or renewed, the sequence described as follows must be adhered to.

Removing:

– Disconnect battery ⇒ page 4 .

WARNING

- *Danger of triggering of the airbag!*
- *Improper action on airbag unit may result in the triggering of the airbag!*
- *Observe safety precautions when working on airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag; Safety precautions when working on airbag .*

– Remove steering wheel ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag .

– Remove steering column trim ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trim; Removing and installing steering column trim .

The components of the steering column switch are to be removed in the following sequence:

- Steering column electronics control unit - J527- ⇒ page 139 .
- Steering column combination switch - E595- ⇒ page 142 .
- Steering column switch base ⇒ page 144

Installing:

Installation is carried out in the reverse sequence of removal.

9.4 Steering column electronics control unit - J527-

The steering column electronics control unit - J527- comprises the following components and cannot be dismantled:

- Airbag coil connector and return ring with slip ring - F138-
- Steering angle sender - G85-

Note

- *If a new steering column electronics control unit - J527- is installed, the inserted transport protection must be removed before installation.*
- *When a new steering column electronics control unit - J527- is installed, it must be coded ⇒ page 142 .*
- *In the event of faults in the steering column switch, the coding of the steering column electronics control unit - J527- must be checked ⇒ page 142 .*

Removal and installation of steering column electronics control unit - J527- are different, depending on manufacturer.

- Removing and installing steering column electronics control unit - J527- (manufacturer: Valeo) ⇒ page 140
- Removing and installing steering column electronics control unit - J527- (manufacturer: Kostal) ⇒ page 141

9.4.1 Removing and installing steering column electronics control unit - J527- (manufacturer: Valeo)

Removing:

Caution

The removal and installation of individual components of the steering column switch must be performed in a specified sequence ⇒ page 139 .

WARNING

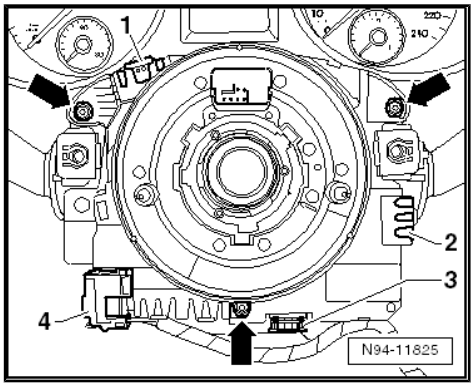
- ***Danger of triggering of the airbag!***
- ***Improper action on airbag unit may result in the triggering of the airbag!***
- ***Observe safety precautions when working on airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag; Safety precautions when working on airbag .***

– Disconnect battery ⇒ page 4 .

Remove the following components in sequence (one after the other):

– Remove steering wheel ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag .

– Remove steering column trim ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trim; Removing and installing steering column trim .
– Depending on equipment level, release and detach connectors -1-, -2-, -3- and -4-.



Note

Coil connector on steering column electronics control unit - J527- must not be twisted from its centre position. The front wheels must be in "straight-ahead" position.

– Unscrew securing bolts -arrows- and pull off steering column electronics control unit - J527- backwards from steering column switch.

Installing:

Installation is carried out in the reverse order. When installing observe the following:

Caution

Turn signal switch reset lever can break when control unit is being installed.

Turn signal lever must be in 0 position when control unit is installed so that reset lever is not extended.

– Push steering column electronics control unit - J527- straight onto steering column switch until it securely engages.
– Screw three securing bolts of steering column electronics control unit - J527- into steering column switch module and tighten to 1.5 Nm.
– Install all components in reverse order of removal.

9.4.2 Removing and installing steering column electronics control unit - J527- (manufacturer: Kostal)

Removing:

Caution

The removal and installation of individual components of the steering column switch must be performed in a specified sequence *⇒ page 139* *.*

WARNING

- *Danger of triggering of the airbag!*
- *Improper action on airbag unit may result in the triggering of the airbag!*
- *Observe safety precautions when working on airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag; Safety precautions when working on airbag .*

– Disconnect battery ⇒ page 4 .

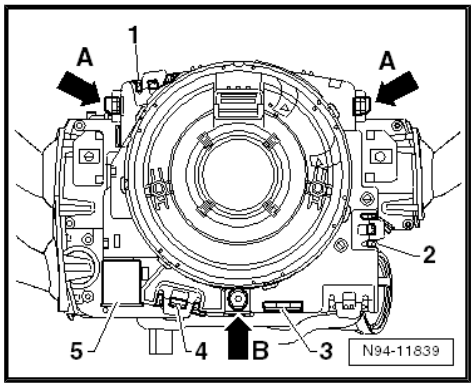
Remove the following components in sequence (one after the other):

– Remove steering wheel ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag .

– Remove steering column trim ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trim; Removing and installing steering column trim .

– Depending on equipment level, release and detach connectors -1-, -2-, -3-, -4- and -5-.

– Unscrew securing bolt -arrow B-.



Note

Coil connector for steering column electronics on steering column electronics control unit - J527- must not be twisted from its centre position. The front wheels must be in "straight-ahead" position.

– Release both latches -arrows A- and pull off steering column electronics control unit - J527- backwards from steering column switch.

Installing:

Installation is carried out in the reverse order. When installing observe the following:

Caution

Turn signal switch reset lever can break when control unit is being installed.

Turn signal lever must be in 0 position when control unit is installed so that reset lever is not extended.

– Push steering column electronics control unit - J527- onto the steering column switch.

– Screw in securing bolt of steering column electronics control unit - J527- into steering column switch module and tighten to 1.5 Nm.

– Install all components in reverse order of removal.

9.4.3 Coding steering column electronics control unit - J527-

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

9.5 Steering column combination switch - E595-

Depending on equipment, the steering column combination switch - E595- comprises the following components and cannot be dismantled:

- Turn signal switch - E2-
- Windscreen wiper switch - E-
- Cruise control system switch - E45-

Removal and installation of steering column combination switch are different, depending on manufacturer.

- Removing and installing steering column combination switch - E595- (manufacturer: Valeo) ⇒ page 143 .
- Removing and installing steering column combination switch - E595- (manufacturer: Kostal) ⇒ page 143 .

9.5.1 Removing and installing steering column combination switch - E595- (manufacturer: Valeo)

Caution

The removal and installation of individual components of the steering column switch must be performed in a specified sequence ⇒ page 139 .

Removing:

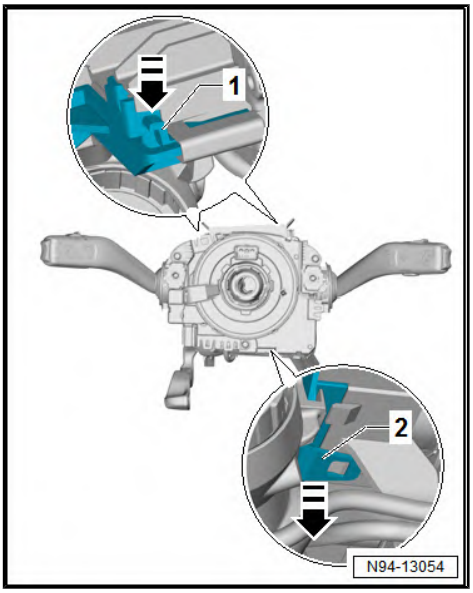
– Remove steering wheel ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag .

– Remove steering column trim ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trim; Removing and installing steering column trim .

– Remove steering column electronics control unit - J527- ⇒ page 139 .

– Release fasteners -1-.

– Using a suitable tool, release catches -2-, and pull complete steering column combination switch - E595- in a straight line toward rear off steering column switch carrier.



Installing:

– Push steering column combination switch - E595- straight into guides on base of steering column switch until it securely engages.

– Install all components in reverse order of removal.

9.5.2 Removing and installing steering column combination switch - E595- (manufacturer: Kostal)

Caution

The removal and installation of individual components of the steering column switch must be performed in a specified sequence ⇒ page 139 .

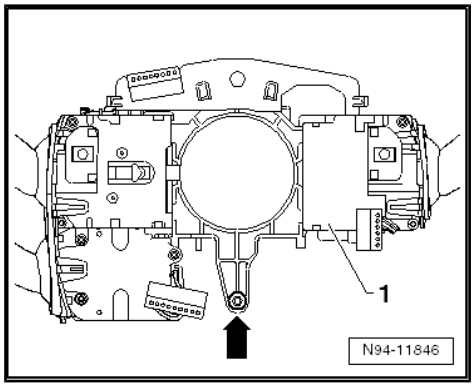
Removing:

– Remove steering wheel ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag .

– Remove steering column trim ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trim; Removing and installing steering column trim .

– Remove steering column electronics control unit - J527- ⇒ page 139 .

– Unscrew securing bolt -arrow- and pull off complete steering column combination switch - E595- -1- in a straight line backwards from base of steering column switch.



Installing:

– Push steering column combination switch - E595- straight into guides on steering column switch carrier.

– Screw in securing bolt -arrow- and tighten to 1.5 Nm.

– Install all components in reverse order of removal.

9.6 Steering column switch carrier

Removal and installation of steering column switch carrier is different, depending on manufacturer.

♦ Removing and installing steering column switch carrier (manufacturer: Valeo) ⇒ page 144

♦ Removing and installing steering column switch carrier (manufacturer: Kostal) ⇒ page 146

9.6.1 Removing and installing steering column switch carrier (manufacturer: Valeo)

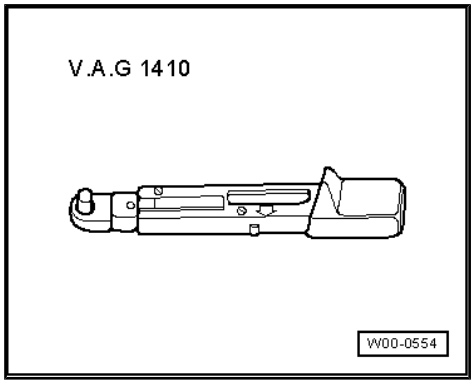
Caution

The removal and installation of individual components of the steering column switch must be performed in a specified sequence ⇒ page 139 .

Special tools and workshop equipment required

♦ Angle hand drill

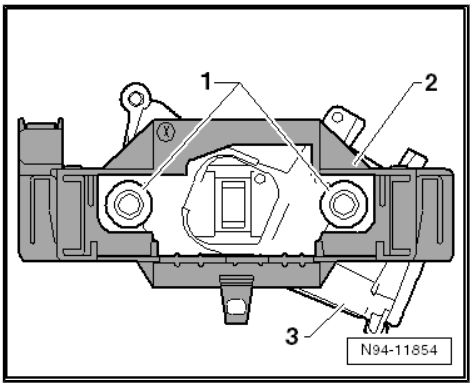
♦ Torque wrench - V.A.G 1410-



Removing:

Note

To remove steering column switch carrier -2-, shear-head bolts -1- of steering lock housing must be drilled out. New shear bolts are required for subsequent installation ⇒ Electronics parts catalogue (ETKA) .



Caution

- *Ensure that all the components mounted on the base have been removed before drilling out the shear-head bolts.*
- *The drilling operation can cause swarf to penetrate the adjacent components resulting in damage and/or malfunction!*
- *Adhere to the specified sequence when removing components of the steering column switch ⇒ page 151 .*

Caution

When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed ⇒ page 4 .

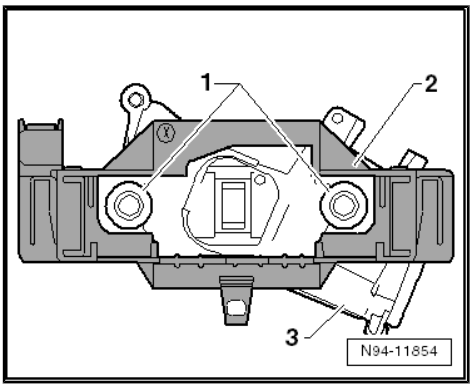
Removing:

– Disconnect battery ⇒ page 4 .

– Remove all components attached to base in prescribed sequence ⇒ page 151 .

The carrier can be removed once all the components mounted to it have been removed:

– Drill out shear bolts -1- of steering lock housing -3-.



Note

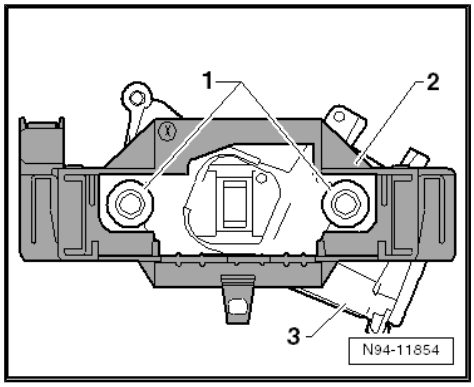
Bolts M8 -1-, core diameter 6.8 mm

– Pull off steering lock housing -3- and base of steering column switch -2- backwards from steering column.

– Remove steering lock housing -3- from base of steering column switch.

Installing:

– Insert steering lock housing -3- into steering column switch carrier -2-.
– Push steering column combination switch - E595- straight into steering column switch carrier until it securely engages.
– Push preassembled unit consisting of steering lock housing, steering column switch base and steering column combination switch - E595- as far as it will go onto the steering column, and align it with threaded holes.
– Secure steering lock housing -3- to steering column using new shear bolts -1-.
– Tighten new shear-head bolts -1- until bolt heads shear off.
– Install all components in reverse order of removal.



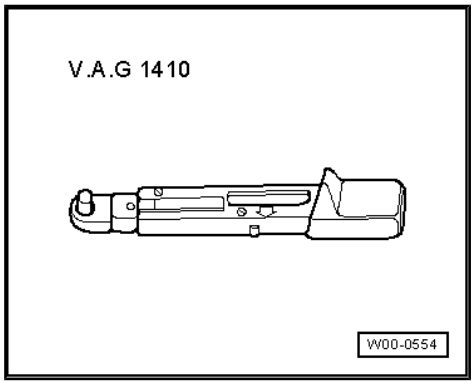
9.6.2 Removing and installing steering column switch carrier (manufacturer: Kostal)

Caution

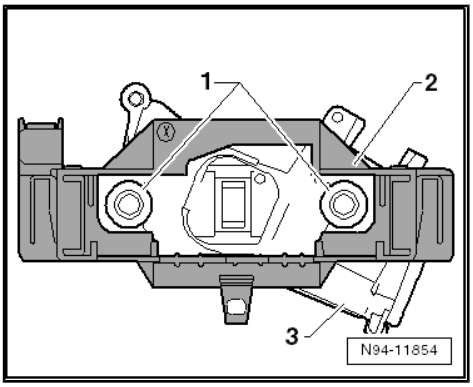
The removal and installation of individual components of the steering column switch must be performed in a specified sequence *⇒ page 139* *.*

Special tools and workshop equipment required

- Angle hand drill
- Torque wrench - V.A.G 1410-



Removing:



Note

To remove steering column switch carrier -2-, shear-head bolts -1- of steering lock housing must be drilled out. New shear bolts are required for subsequent installation ⇒ Electronics parts catalogue (ETKA) .

Caution

- ***Ensure that all the components mounted on the base have been removed before drilling out the shear-head bolts.***
- ***The drilling operation can cause swarf to penetrate the adjacent components resulting in damage and/or malfunction!***
- ***Adhere to the specified sequence when removing components of the steering column switch ⇒ page 151 .***

Caution

When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed ⇒ page 4 .

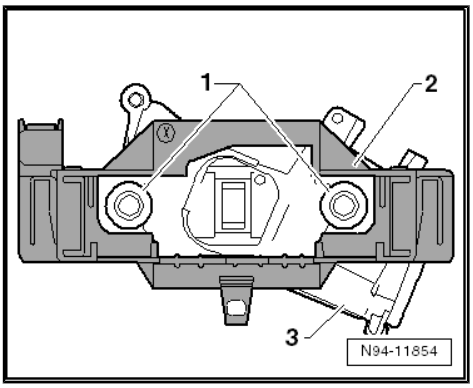
Removing:

– Disconnect battery ⇒ page 4 .

– Remove all components attached to base in prescribed sequence ⇒ page 151 .

The carrier can be removed once all the components mounted to it have been removed:

– Drill out shear bolts -1- of steering lock housing -3-.



Note

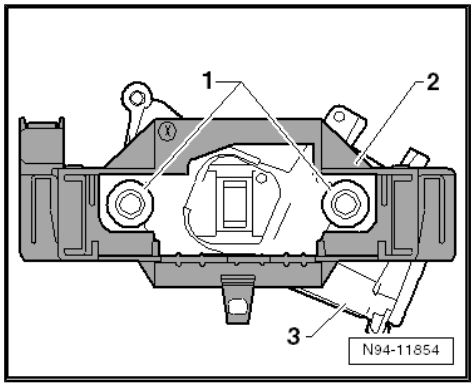
Bolts M8 -1-, core diameter 6.8 mm

– Pull off steering lock housing -3- and base of steering column switch -2- backwards from steering column.

– Remove steering lock housing from steering base of column switch.

Installing:

– Insert steering lock housing -3- into base of steering column switch -2-.
– Push steering column combination switch - E595- onto base of steering column switch and screw in bottom bolt.
– Push preassembled unit consisting of steering lock housing, steering column switch base and steering column combination switch - E595- as far as it will go onto the steering column, and align it with threaded holes.
– Secure steering lock housing -3- to steering column using new shear bolts -1-.
– Tighten new shear-head bolts -1- until bolt heads shear off.
– Install all components in reverse order of removal.



10 Steering column switch, vehicles with KESSY

10.1 General description

Caution

The removal and installation of individual components of the steering column switch must be performed in a specified sequence *⇒ page 151* *.*

The components of the steering column combination switch, steering column electronics control unit and steering column switch base are installed as 2 different versions depending on equipment level (manufacturers: Valeo or Kostal). The visible fastening of the steering column electronics control unit to the steering column combination switch can be used to identify which version is installed.

- Manufacturer: Valeo, 3 bolts
- Manufacturer: 1 bolt at bottom and 2 fasteners at top

Note

- *When a new electronics steering column lock control unit - J764- is installed, it must be coded* *⇒ page 161* *.*
- *When a new steering column electronics control unit - J527- is installed, it must be coded* *⇒ page 154* *.*
- *Additional information:*

⇒ Operating manual

Fault detection and fault display:

The electronic steering column lock control unit - J764- is equipped with self-diagnosis, which makes fault finding easier.

For fault finding, use vehicle diagnosis, testing and information system - VAS 5051A- in “Guided fault finding” mode.

10.2 Assembly overview - steering column switch

Note

The components steering column electronics control unit - J527- , steering column combination switch - E595- and the steering column switch base are available as different versions depending on manufacturer (Valeo or Kostal). Illustration of assembly overview shows Valeo version.

1 - Steering column electronics control unit - J527-

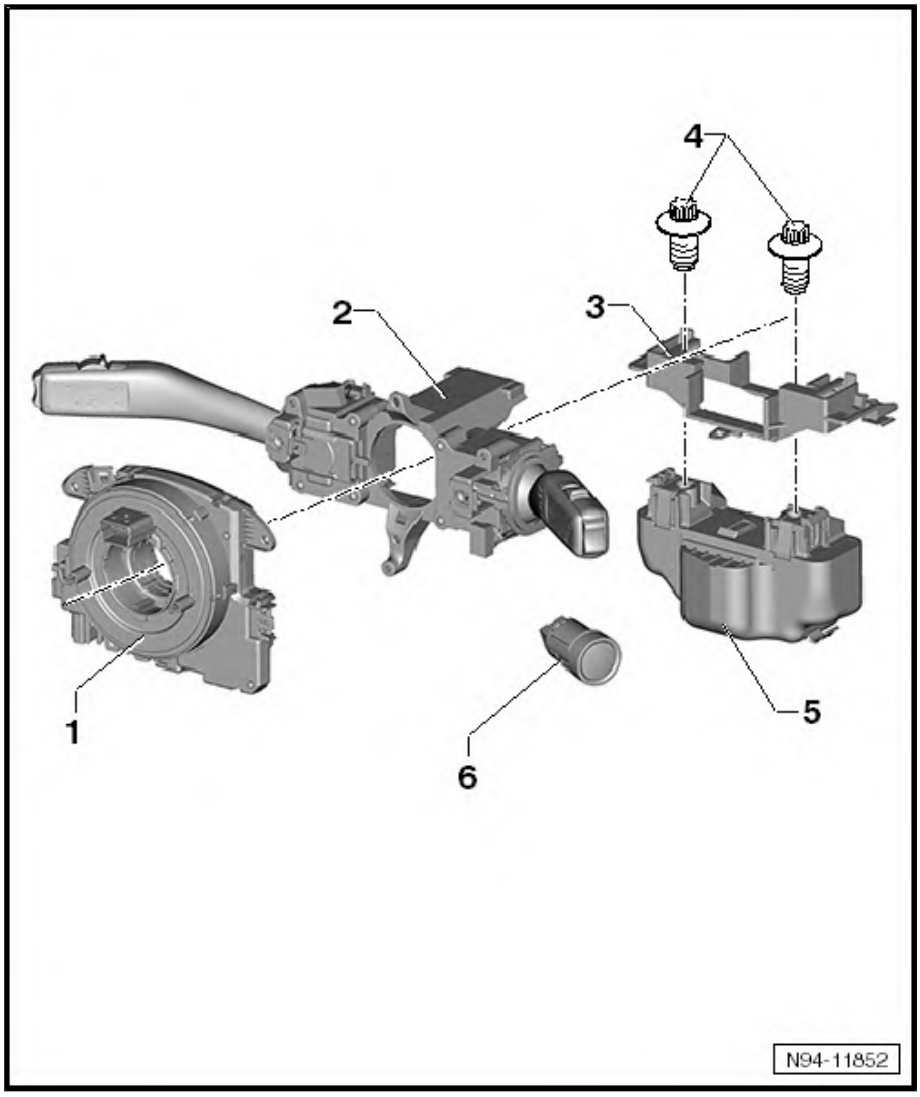
- ❑ Note removal and installation sequence ⇒ page 151 .
- ❑ Removing and installing (manufacturer: Valeo) ⇒ page 152
- ❑ Removing and installing (manufacturer: Kostal) ⇒ page 153
- ❑ Coding ⇒ page 154
- ❑ Securing bolt specified torque (M8): 1.5 Nm

2 - Steering column combination switch - E595-

- ❑ Note removal and installation sequence ⇒ page 151 .
- ❑ Removing and installing (manufacturer: Valeo) ⇒ page 155
- ❑ Removing and installing (manufacturer: Kostal) ⇒ page 155

3 - Steering column switch carrier

- ❑ Note removal and installation sequence ⇒ page 151 .
- ❑ Removing and installing (manufacturer: Valeo) ⇒ page 156
- ❑ Removing and installing (manufacturer: Kostal) ⇒ page 158



4 - Shear bolts

- ❑ M8x20
- ❑ Shear torque: approx. 15 Nm

5 - Electronic steering column lock control unit - J764-

The electronic steering column lock control unit - J764- is removed and installed together with the steering column switch base.

- ❑ Note removal and installation sequence ⇒ page 151 .
- ❑ Removing and installing ⇒ page 161 .
- ❑ Coding ⇒ page 161

6 - Starter button - E378-

- ❑ Removing and installing ⇒ page 176 .

10.3 Removal and installation sequence of components of steering column switch

Caution

When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed ⇒ page 4 .

For removal of the complete steering column switch, inc. base, and of the electronic steering column lock control unit - J764- , the switch is dismantled and the steering lock housing is also removed. For assembly of the electronic steering column lock control unit - J764- , new shear bolts are required.

Even if just one component of the steering column switch is removed or renewed, the sequence described as follows must be adhered to.

Removing:

– Disconnect battery ⇒ page 4 .

WARNING

- *Danger of triggering of the airbag!*
- *Improper action on airbag unit may result in the triggering of the airbag!*
- *Observe safety precautions when working on airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag; Safety precautions when working on airbag .*

– Remove steering wheel ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag .

– Remove steering column trim ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trim; Removing and installing steering column trim .

The components of the steering column switch are to be removed in the following sequence:

- Steering column electronics control unit - J527- ⇒ page 151
- Steering column combination switch - E595- ⇒ page 154
- Control unit for electronic steering column lock - J764- ⇒ page 160
- Steering column switch base ⇒ page 156

Installing:

Installation is carried out in the reverse sequence of removal.

10.4 Steering column electronics control unit - J527-

The steering column electronics control unit - J527- comprises the following components and cannot be dismantled:

- Airbag coil connector and return ring with slip ring - F138-
- Steering angle sender - G85-

Note

- *If a new steering column electronics control unit - J527- is installed, the inserted transport protection must be removed before installation.*
- *When a new steering column electronics control unit - J527- is installed, it must be coded ⇒ page 154 .*
- *In the event of faults in the steering column switch, the coding of the steering column electronics control unit - J527- must be checked ⇒ page 154 .*

Removal and installation of steering column electronics control unit - J527- are different, depending on manufacturer.

- Removing and installing steering column electronics control unit - J527- (manufacturer: Valeo) ⇒ page 152
- Removing and installing steering column electronics control unit - J527- (manufacturer: Kostal) ⇒ page 153

10.4.1 Removing and installing steering column electronics control unit - J527- (manufacturer: Valeo)

Removing:

Caution

The removal and installation of individual components of the steering column switch must be performed in a specified sequence ⇒ page 151 .

WARNING

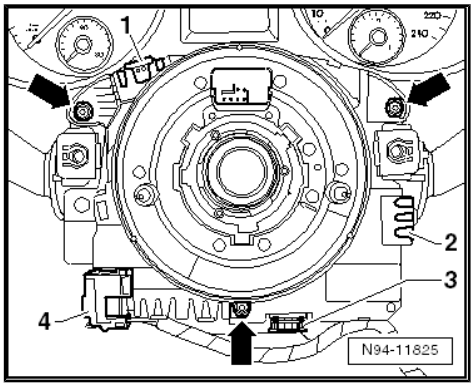
- ***Danger of triggering of the airbag!***
- ***Improper action on airbag unit may result in the triggering of the airbag!***
- ***Observe safety precautions when working on airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag; Safety precautions when working on airbag .***

– Disconnect battery ⇒ page 4 .

Remove the following components in sequence (one after the other):

– Remove steering wheel ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag .

– Remove steering column trim ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trim; Removing and installing steering column trim .
– Depending on equipment level, release and detach connectors -1-, -2-, -3- and -4-.



Note

Coil connector on steering column electronics control unit - J527- must not be twisted from its centre position. The front wheels must be in "straight-ahead" position.

– Unscrew securing bolts -arrows- and pull off steering column electronics control unit - J527- backwards from steering column switch.

Installing:

Installation is carried out in the reverse order. When installing observe the following:

Caution

Turn signal switch reset lever can break when control unit is being installed.

Turn signal lever must be in 0 position when control unit is installed so that reset lever is not extended.

– Push steering column electronics control unit - J527- in a straight line onto steering column switch.
– Screw three securing bolts of steering column electronics control unit - J527- into steering column switch module and tighten to 1.5 Nm.
– Install all components in reverse order of removal.

10.4.2 Removing and installing steering column electronics control unit - J527- (manufacturer: Kostal)

Removing:

Caution

The removal and installation of individual components of the steering column switch must be performed in a specified sequence *⇒ page 151* *.*

WARNING

- *Danger of triggering of the airbag!*
- *Improper action on airbag unit may result in the triggering of the airbag!*
- *Observe safety precautions when working on airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag; Safety precautions when working on airbag .*

– Disconnect battery ⇒ page 4 .

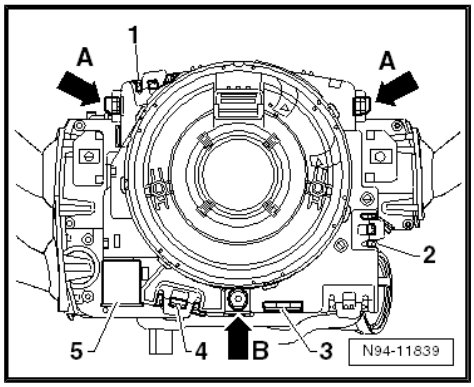
Remove the following components in sequence (one after the other):

– Remove steering wheel ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag .

– Remove steering column trim ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trim; Removing and installing steering column trim .

– Depending on equipment level, release and detach connectors -1-, -2-, -3-, -4- and -5-.

– Unscrew securing bolt -arrow B-.



Note

Coil connector on steering column electronics control unit - J527- must not be twisted from its centre position. The front wheels must be in "straight-ahead" position.

– Release both latches -arrows A- and pull off steering column electronics control unit - J527- in a straight line backwards from steering column switch.

Installing:

Installation is carried out in the reverse order. When installing observe the following:

Caution

Turn signal switch reset lever can break when control unit is being installed.

Turn signal lever must be in 0 position when control unit is installed so that reset lever is not extended.

– Push steering column electronics control unit - J527- in a straight line onto steering column switch until it engages securely.

– Screw in securing bolt of steering column electronics control unit - J527- into steering column switch module and tighten to 1.5 Nm.

– Install all components in reverse order of removal.

10.4.3 Coding steering column electronics control unit - J527-

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

10.5 Steering column combination switch - E595-

Depending on equipment, the steering column combination switch - E595- comprises the following components and cannot be dismantled:

- Turn signal switch - E2-
- Windscreen wiper switch - E-
- Cruise control system switch - E45-

Removal and installation of steering column combination switch are different, depending on manufacturer.

- Removing and installing steering column combination switch - E595- (manufacturer: Valeo) ⇒ page 155 .
- Removing and installing steering column combination switch - E595- (manufacturer: Kostal) ⇒ page 155 .

10.5.1 Removing and installing steering column combination switch - E595- (manufacturer: Valeo)

Caution

The removal and installation of individual components of the steering column switch must be performed in a specified sequence ⇒ page 151 .

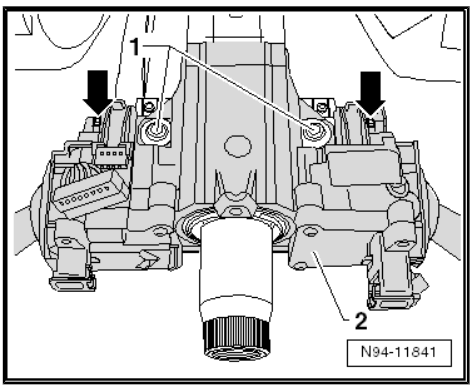
Removing:

– Remove steering wheel ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag .

– Remove steering column trim ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trim; Removing and installing steering column trim .

– Remove steering column electronics control unit - J527- ⇒ page 151 .

– Release both latches -arrows- and pull off complete steering column combination switch - E595- in a straight line backwards off base of steering column switch.



Installing:

– Push steering column combination switch - E595- straight into guides on base of steering column switch until it securely engages.

– Install all components in reverse order of removal.

10.5.2 Removing and installing steering column combination switch - E595- (manufacturer: Kostal)

Caution

The removal and installation of individual components of the steering column switch must be performed in a specified sequence ⇒ page 151 .

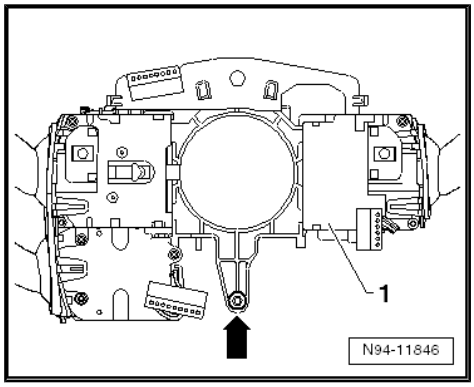
Removing:

– Remove steering wheel ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag .

– Remove steering column trim ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trim; Removing and installing steering column trim .

– Remove steering column electronics control unit - J527- ⇒ page 151 .

– Unscrew securing bolt -arrow- and pull off complete steering column combination switch - E595- -1- in a straight line backwards from base of steering column switch.



Installing:

– Push steering column combination switch - E595- in straight line into guides on base of steering column switch.

– Screw in securing bolt -arrow- and tighten to 1.5 Nm.

– Install all components in reverse order of removal.

10.6 Steering column switch carrier

Removal and installation of steering column switch carrier is different, depending on manufacturer.

- Removing and installing steering column switch carrier (manufacturer: Valeo) ⇒ page 156
- Removing and installing steering column switch carrier (manufacturer: Kostal) ⇒ page 158

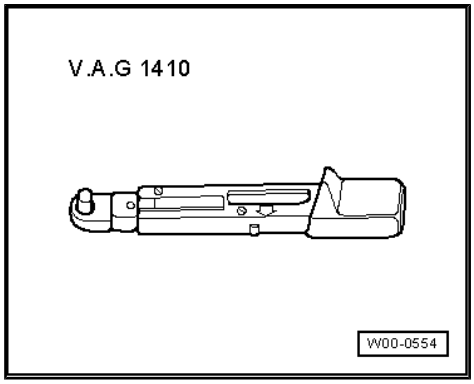
10.6.1 Removing and installing steering column switch carrier (manufacturer: Valeo)

Caution

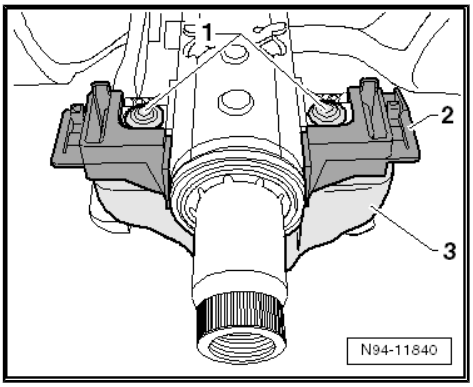
The removal and installation of individual components of the steering column switch must be performed in a specified sequence ⇒ page 151 .

Special tools and workshop equipment required

- Angle hand drill
- Torque wrench - V.A.G 1410-



Removing:



Note

To remove steering column switch base -2-, shear-head bolts -1- of electronic steering column lock control unit - J764- must be drilled out. New shear bolts are required for subsequent installation ⇒ Electronics parts catalogue (ETKA) .

Caution

- ***Ensure that all the components mounted on the base have been removed before drilling out the shear-head bolts.***
- ***The drilling operation can cause swarf to penetrate the adjacent components resulting in damage and/or malfunction!***
- ***Adhere to the specified sequence when removing components of the steering column switch ⇒ page 151 .***

Caution

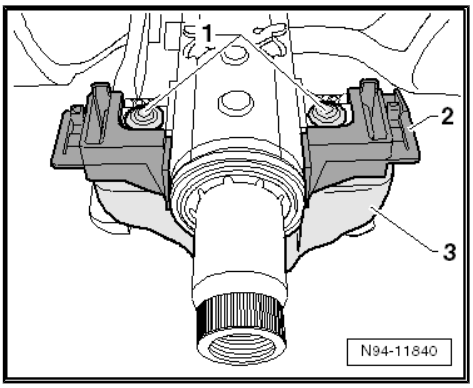
When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed ⇒ page 4 .

Removing:

– Disconnect battery ⇒ page 4 .

– Remove all components attached to base in prescribed sequence ⇒ page 151 .

The carrier can be removed once all the components mounted to it have been removed:



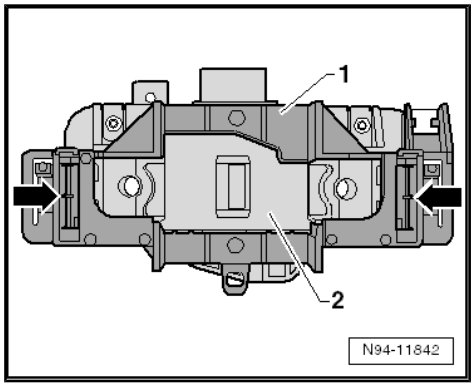
– Drill out shear-head bolts -1- of electronic steering column lock control unit - J764- -3-.

Note

Bolts M8 -1-, core diameter 6.8 mm

– Release and separate connector on rear of electronic steering column lock control unit - J764- -3- and remove electronic steering column lock control unit - J764- together with base of steering column switch -2-.

– Release latches -arrows- on base of steering column switch and remove base -1- from electronic steering column lock control unit - J764- -2-.

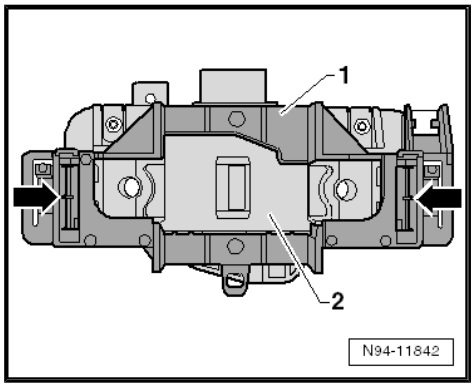


Installing:

– Fit base of steering column switch -1- onto electronic steering column lock control unit - J764- -2- until it engages securely.

– Push steering column combination switch - E595- onto base of steering column switch until it engages securely.

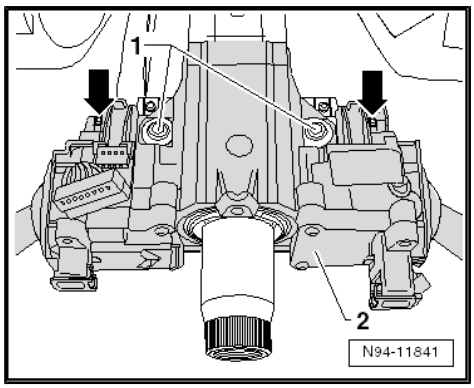
– Push preassembled unit consisting of electronic steering column lock control unit - J764- , steering column switch base and steering column combination switch - E595- onto steering column as far as it will go and align with threaded holes.



– Secure electronic steering column lock control unit - J764- to steering column using new shear bolts -1-.

– Tighten new shear-head bolts -1- until bolt heads shear off.

– Install all components in reverse order of removal.



Note

When a new electronics steering column lock control unit - J764- is installed, it must be coded ⇒ page 161 .

10.6.2 Removing and installing steering column switch carrier (manufacturer: Kostal)

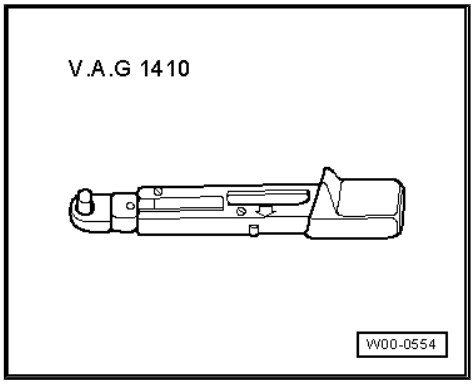
Caution

The removal and installation of individual components of the steering column switch must be performed in a specified sequence ⇒ page 151 .

Special tools and workshop equipment required

♦ Angle hand drill

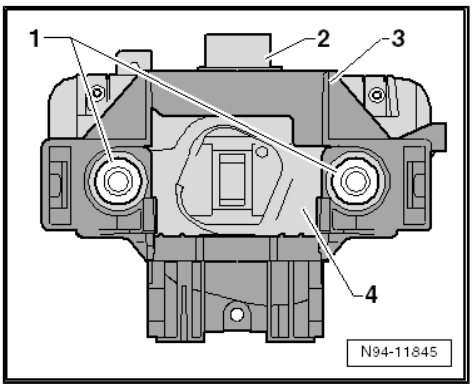
- Torque wrench - V.A.G 1410-



Removing:

Note

To remove steering column switch base -3-, shear-head bolts -1- of electronic steering column lock control unit - J764- -4- must be drilled out. New shear bolts are required for subsequent installation ⇒ Electronics parts catalogue (ETKA) .



Caution

- *Ensure that all the components mounted on the base have been removed before drilling out the shear-head bolts.*
- *The drilling operation can cause swarf to penetrate the adjacent components resulting in damage and/or malfunction!*
- *Adhere to the specified sequence when removing components of the steering column switch ⇒ page 151 .*

Caution

When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed ⇒ page 4 .

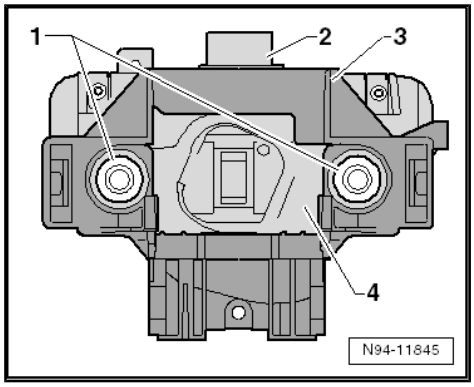
Removing:

– Disconnect battery ⇒ page 4 .

– Remove all components attached to base in prescribed sequence ⇒ page 151 .

The carrier can be removed once all the components mounted to it have been removed:

– Remove shear bolts -1- of electronic steering column lock control unit - J764- -4-.

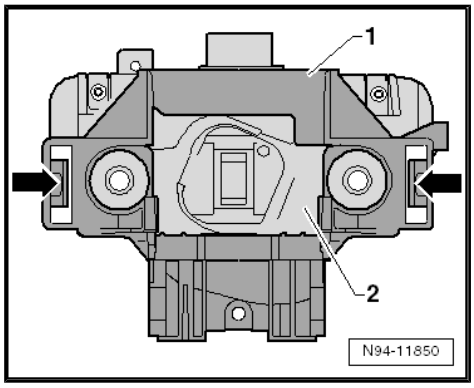


Note

Bolts M8 -1-, core diameter 6.8 mm

– Release and separate connector -2- on rear of electronic steering column lock control unit - J764- -4- and remove electronic steering column lock control unit - J764- together with base of steering column switch -3-.

– Release both latches -arrows- on base of steering column switch and remove base -1- from electronic steering column lock control unit - J764- -2-.

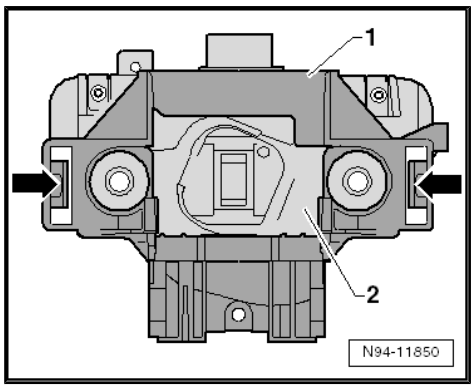


Installing:

– Fit base of steering column switch -1- onto electronic steering column lock control unit - J764- -2- until it engages securely.

– Push steering column combination switch - E595- onto base of steering column switch and screw in bottom bolt to 1.5 Nm.

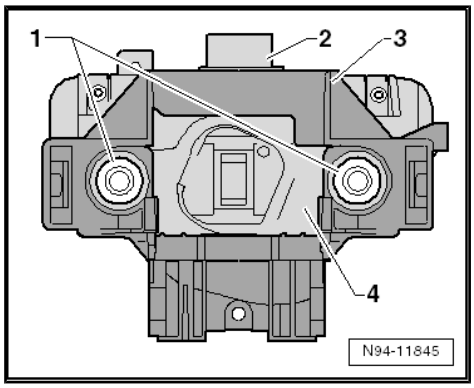
– Push preassembled unit consisting of electronic steering column lock control unit - J764- , steering column switch base and steering column combination switch - E595- onto steering column as far as it will go and align with threaded holes.



– Secure electronic steering column lock control unit - J764- -4- to steering column using new shear bolts -1-.

– Tighten new shear-head bolts -1- until bolt heads shear off.

– Install all components in reverse order of removal.



Note

When a new electronics steering column lock control unit - J764- is installed, it must be coded *⇒ page 161* *.*

10.7 Control unit for electronic steering column lock - J764-

On vehicles with KESSY, the steering column lock is not performed mechanically through the lock cylinder but electrically through the electronic steering column lock (electronic steering column lock control unit - J764-).

10.7.1 Removing and installing electronic steering column lock control unit - J764-

Caution

When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed ⇒ page 4 .

Note

- *When a new electronics steering column lock control unit - J764- is installed, it must be coded ⇒ page 161 .*
- *The electronic steering column lock control unit - J764- is removed and installed together with the steering column switch base.*

Removing:

– Disconnect battery ⇒ page 4 .

– Remove base of steering column switch ⇒ page 156 .

10.7.2 Coding electronic steering column lock control unit - J764-

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

11 Ignition/starter switch and lock cylinder.

11.1 Removing and installing steering lock housing

Caution

When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed ⇒ page 4 .

Note

The steering column switch carrier must be dismantled before the steering lock housing can be removed.

Caution

- *The steering lock could be destroyed.*
- *If the steering lock is actuated without lock cylinder, it will block and must be renewed.*
- *The steering lock must not be actuated without lock cylinder.*

Removing:

– Disconnect battery ⇒ page 4 .

– Remove base of steering column switch:

- Vehicles with KESSY ⇒ page 156
- Vehicles with ignition/starter switch and lock cylinder ⇒ page 142

11.2 Removing and installing lock cylinder

Caution

- *When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed ⇒ page 4 .*
- *The steering lock could be destroyed.*
- *If the steering lock is actuated without lock cylinder, it will block and must be renewed.*
- *The steering lock must not be actuated without lock cylinder.*

Removing:

– Disconnect battery ⇒ page 4 .

– Remove steering column trim ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trim; Removing and installing steering column trim .

Note

- *For reasons of clarity, the illustration is shown without steering column lever, coil connector or steering wheel. There is no need to remove the components in order to remove the lock cylinder.*
- *The immobiliser reading coil is secured to the lock cylinder and cannot be renewed individually.*
- *For reasons of clarity, the ignition key is not shown in the following illustrations.*
- *The hole may be 180° further than shown in the illustration. This does however not affect the procedure for removing and installing.*

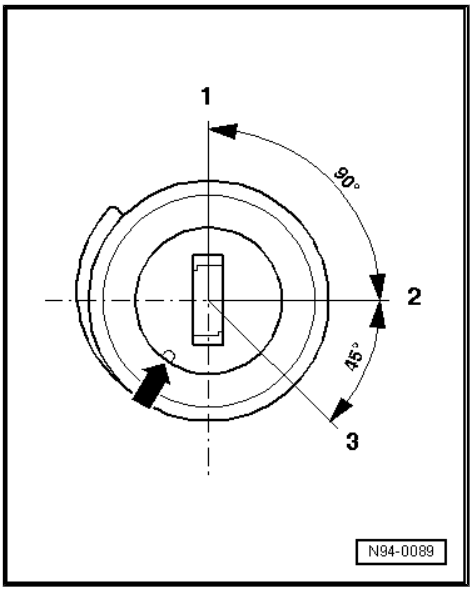
– Insert ignition key in lock cylinder and turn to position “Drive”.

Positions for key in lock cylinder:

1 - Position “Stop”

2 - Position “Drive”

3 - Position “Start”



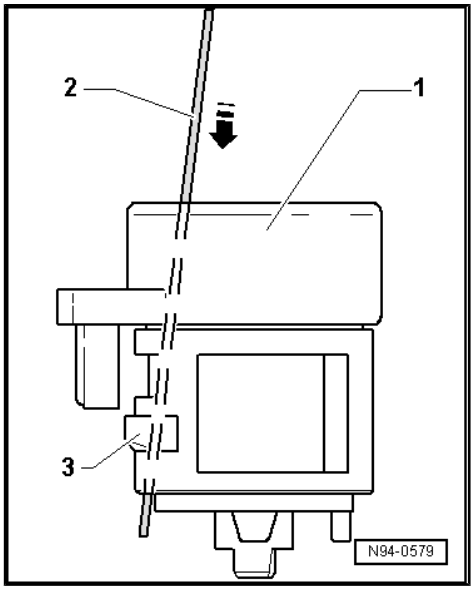
Note

For reasons of clarity, the lock cylinder is shown in the following illustration without ignition key.

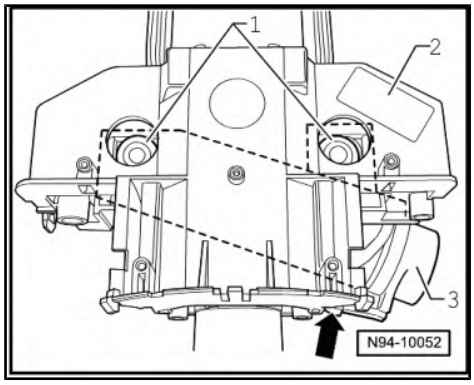
– Insert a piece of steel wire (approx. diameter: 1.2 mm) in hole -arrow- next to ignition key.

– Using steel wire -2- release locking lever -3- of lock cylinder -1- -arrow-.

– Pull lock cylinder -1- out of steering lock housing.



– Pull off connector -arrow- on immobiliser reader coil.

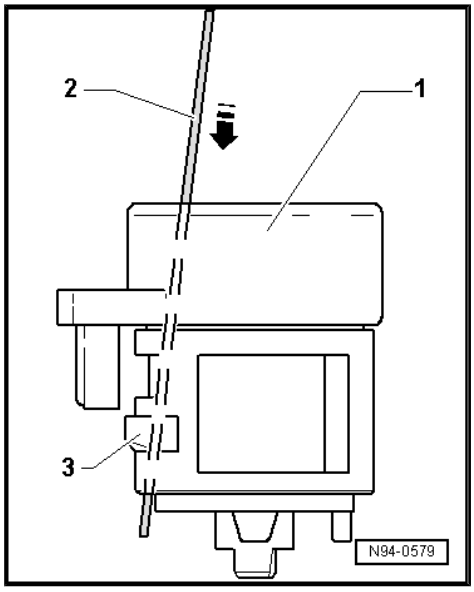


Installing:

Note

For reasons of clarity, the ignition key is not shown in the following illustration.

– Insert ignition key in lock cylinder -1- and turn to position “Drive”.
– Using steel wire -2- release locking lever -3- of lock cylinder -1- -arrow-.
– Attach connector to immobiliser reader coil.
– Insert lock cylinder -1- in steering lock housing.



Note

The connection for the reader coil of the immobiliser must be inserted in the steering lock housing guide.

– Pull steel wire -2- out of lock cylinder -1- and check lock cylinder is seated correctly in the steering lock housing.
– Install all components in reverse order of removal.

11.3 Removing and installing ignition/starter switch

Caution

When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed ⇒ page 4 .

Removing:

– Disconnect battery ⇒ page 4 .

WARNING

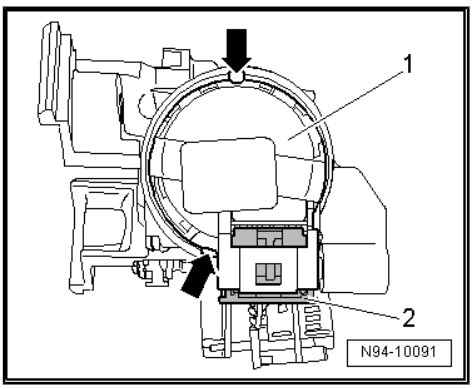
- *Danger of triggering of the airbag!*
- *Improper action on airbag unit may result in the triggering of the airbag!*
- *Observe safety precautions when working on airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag; Safety precautions when working on airbag .*

– Remove steering column trim ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trim; Removing and installing steering column trim .

– Pull off connector -2- from ignition/starter switch -1-.

– Release ignition/starter switch with small screwdriver -arrows-.

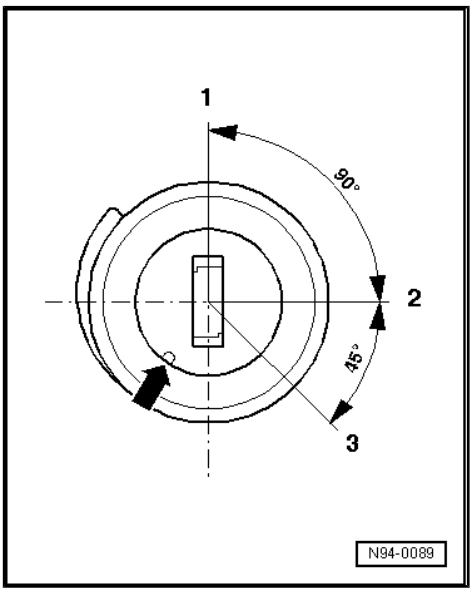
– Pull out ignition/starter switch -1- from steering lock housing.



Installing:

– Push ignition/starter switch into steering lock housing until it engages audibly.

– Insert ignition key in lock cylinder and turn to position “Drive”.



Note

The key must be in the “Drive” position.

Positions for key in lock cylinder:

1 - Position “Stop”

2 - Position “Drive”

3 - Position “Start”

– Install all components in reverse order of removal.

11.3.1 Checking ignition/starter switch

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

11.4 Removing and installing ignition/starter switch, vehicles with KESSY

For vehicles with KESSY, the starter button - E378- is installed instead of the conventional ignition/starter switch.

Removing and installing starter button - E378- ⇒ page 176

11.5 Removing and installing ignition key withdrawal lock solenoid - N376-

The ignition key withdrawal lock solenoid - N376- is located very close to the ignition starter key.

Note

To remove ignition key on vehicles with dual clutch gearbox (DSG), always move selector lever to position "P" first, then switch off ignition. Otherwise the ignition key withdrawal lock solenoid - N376- will inhibit the removal of the ignition key.

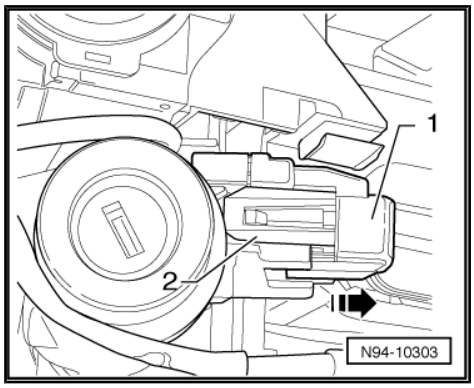
Removing:

– Remove steering column trim ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trim; Removing and installing steering column trim .

– Release catch -2- with suitable screwdriver.

– Pull ignition key withdrawal lock solenoid - N376- -1- in direction of arrow out of its mounting.

– The electrical connection will be disconnected automatically.



Installing:

– Installation is carried out in the reverse order. When installing observe the following:

Note

After connecting the battery, carry out final control diagnosis to reactivate the ignition key withdrawal lock solenoid - N376- .

12 Entry and start authorisation (KESSY)

12.1 General description

Caution

When disconnecting or reconnecting the battery, adhere strictly to the procedure described in the workshop manual *⇒ page 4* *.*

Note

Additional information:

⇒ Operating manual

⇒ Current flow diagrams, Electrical fault finding and Fitting locations

Fault detection and fault display:

The access and start authorisation system (KESSY) is equipped with self-diagnosis, which makes fault finding easier ⇒ Vehicle diagnostic tester, , `Guided fault finding`.

General description:

KESSY (Keyless Entry Start Stop System) controls keyless unlocking, locking and starting of the vehicle.

Opening:

The ID sender in the ignition key must be within the detection range of a locking point (approx. 1.5 metres). When the door handle is touched, the proximity sensor on the inside of the door handle is activated. The ID sender in the ignition key is read and the door can be immediately unlocked on valid identification. Pulling the door handle will open the door.

Starting:

The ID sender in the ignition key must be located in the interior of the vehicle. On vehicles with manual gearbox, the clutch pedal must be depressed. On vehicles with dual clutch gearbox, the selector lever must be in position P and brakes must be applied. Briefly press ignition and starter button; the ID sender in the ignition key is read, and the steering unlock and start release are authorised on valid identification.

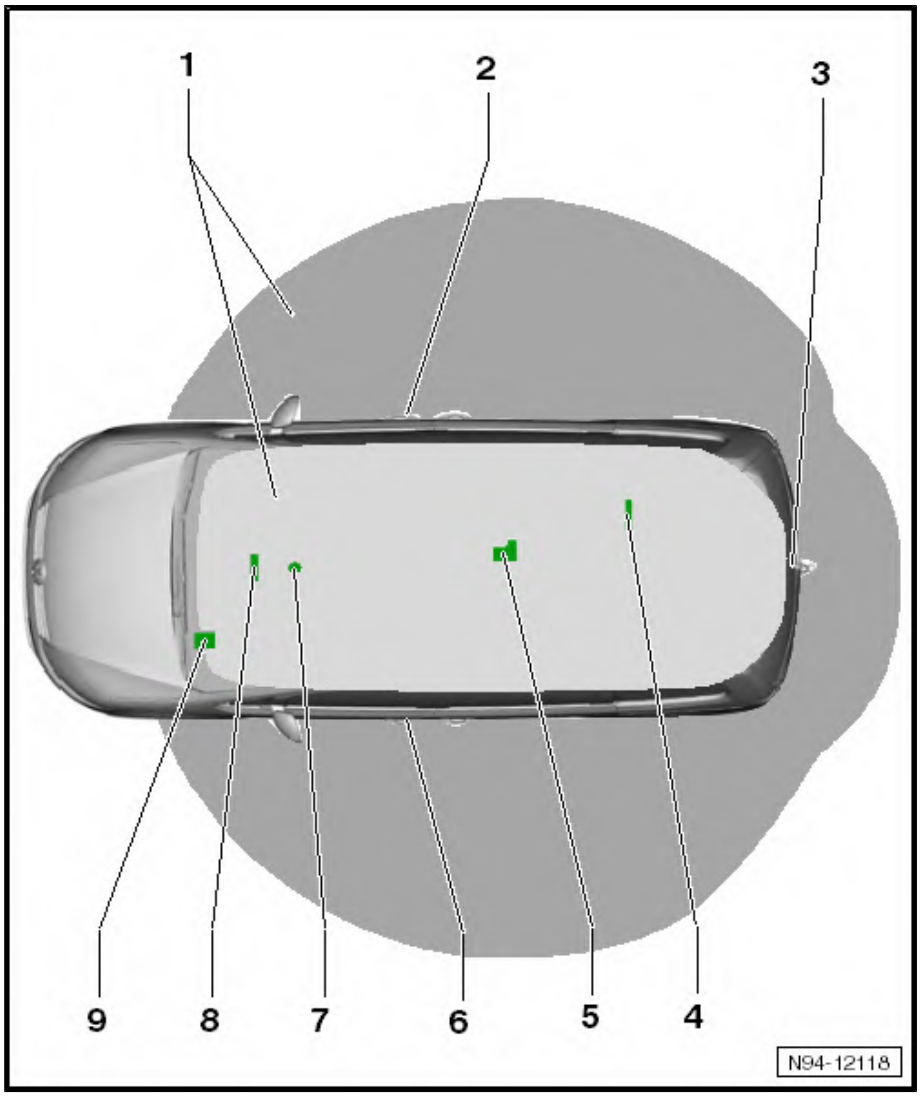
Starting the engine with the ignition and starter button is possible only when a valid ID sender is somewhere in the vehicle interior.

Locking:

The ID sender in the ignition key must be within the detection range of a locking point (approx. 1.5 metres). The locking sensor is activated when the locking sensor on the outside of the door handle is touched. The ID sender in the ignition key is read and the vehicle is locked on valid identification.

All functions concerning the entry and start authorisation are controlled via the entry and start authorisation control unit - J518- ⇒ page 169 .

12.2 Assembly overview - entry and start authorisation



1 - Detection range of aerials

2 - Front passenger side door exterior handle

The following components are integrated into the front passenger side door exterior handle:

- Front passenger door exterior handle contact sensor - G416-
- Front passenger side aerial for entry and start authorisation - R135-

Removing and installing front passenger side door exterior handle ⇒ page 171 .

- ❑ Checking front passenger side aerial for entry and start authorisation - R135- ⇒ Vehicle diagnostic tester, Guided fault finding
- ❑ Checking front passenger door exterior handle contact sensor - G416- ⇒ Vehicle diagnostic tester, Guided fault finding

3 - Rear bumper aerial for entry and start system - R136-

- ❑ Fitting location: behind rear bumper cover
- ❑ Removing and installing ⇒ page 172
- ❑ Checking rear bumper aerial for entry and start authorisation - R136- ⇒ Vehicle diagnostic tester, Guided fault finding

4 - Luggage compartment aerial for entry and start authorisation - R137-

- ❑ Fitting location: central in luggage compartment before the spare wheel recess
- ❑ Removing and installing ⇒ page 172
- ❑ Checking luggage compartment aerial for entry and start authorisation - R137- ⇒ Vehicle diagnostic tester, Guided fault finding

5 - Interior aerial 2 for entry and start authorisation - R139-

- ❑ Location: inside vehicle in centre beneath second seat row
- ❑ Removing and installing ⇒ page 173
- ❑ Checking aerial 3 in interior for access and start authorisation - R154- ⇒ Vehicle diagnostic tester, Guided fault finding

6 - Driver side door exterior handle

The following components are integrated into the driver side door exterior handle:

- Driver door exterior handle contact sensor - G415-

♦ Driver side aerial for entry and start authorisation - R134-
- ❑ Removing and installing driver side door exterior handle ⇒ page 171
- ❑ Checking driver door exterior handle contact sensor - G415- ⇒ Vehicle diagnostic tester, Guided fault finding
- ❑ Checking driver side aerial for entry and start authorisation - R134- ⇒ Vehicle diagnostic tester, Guided fault finding

7 - Starter button - E378-
- ❑ Removing and installing ⇒ page 176

8 - Interior aerial 1 for entry and start authorisation - R138-
- ❑ Fitting location: in centre console in front of gear lever
- ❑ Removing and installing ⇒ page 174
- ❑ Checking interior aerial 1 for entry and start authorisation - R138- ⇒ Vehicle diagnostic tester, Guided fault finding

9 - Entry and start authorisation control unit - J518-
- ❑ Fitting location: in driver's footwell, above brake pedal
- ❑ Removing and installing ⇒ page 169
- ❑ Coding entry and start authorisation control unit - J518- ⇒ page 171

12.3 Entry and start authorisation control unit - J518-

All functions concerning the entry and start authorisation are controlled via the entry and start authorisation control unit - J518- .

The data bus diagnostic interface - J518- is located in the driver's footwell, above the brake pedal.

After renewing the electronic steering column lock control unit - J518- , the “entry and start authorisation” system must be coded ⇒ page 171 .

12.3.1 Removing and installing entry and start authorisation control unit - J518-

After renewing the electronic steering column lock control unit - J518- , the “entry and start authorisation” system must be coded ⇒ page 171 .

Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove driver side footwell vent ⇒ Heating, ventilation, air conditioning system; Rep. gr. 80 ; Heating; Repairing heating; Passenger compartment; Removing vents .

– Remove trim in driver's footwell ⇒ General body repairs, interior; Rep. gr. 68 ; Trim; Removing and installing left trim on driver side .

– Remove steering column trim ⇒ General body repairs, interior; Rep. gr. 68 .

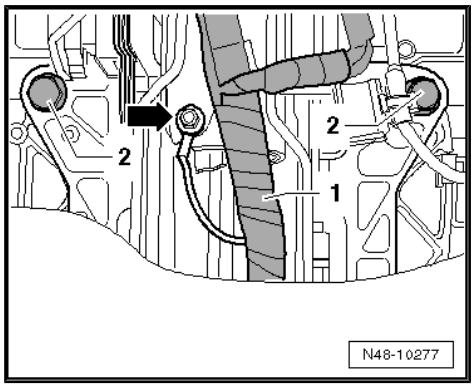
Note

In order to be able to pull the entry and start authorisation control unit - J518- together with its holder off the pedal block, the steering column must be lowered.

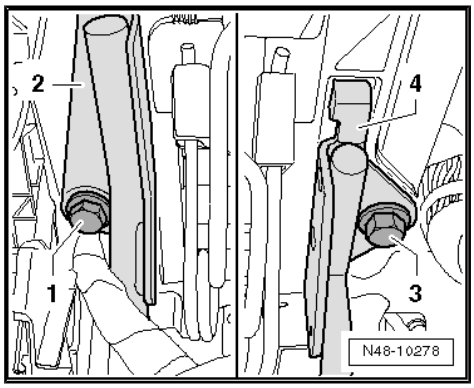
Caution

Observe the instructions regarding handling and transport of the steering column ⇒ Running gear, axles, steering; Rep. gr. 48 ; Steering column and steering wheel; Handling and transport of steering column .

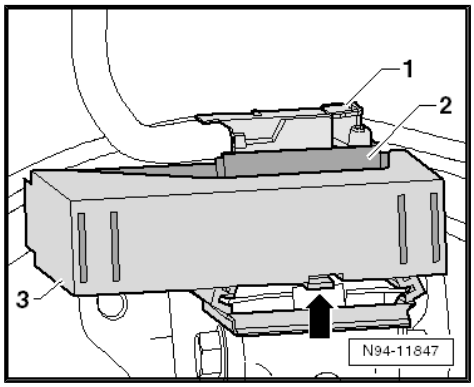
– Remove both securing bolts -2-.



– Unscrew bolt -1- and remove crash strut of clutch pedal -2-.
– Unscrew bolt -3- and remove crash strut of brake pedal -4-.



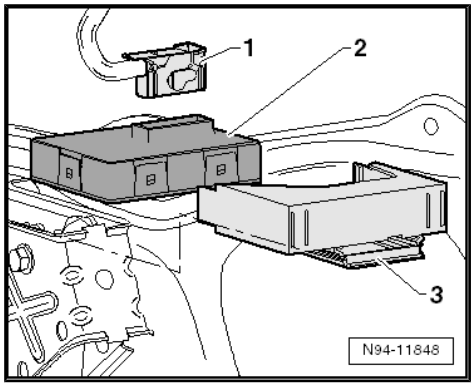
– Lower steering column only as far as necessary to allow removal of entry and start authorisation control unit - J518- from pedal block.
– Release catch -arrow- and pull entry and start authorisation control unit - J518- -2- together with holder -3- backwards out of pedal bracket of brake pedal, taking lengths of connected wires into consideration.
– Release and detach connector -1- and then remove entry and start authorisation control unit - J518- -2- from holder -3-.



Installing:

Install in the reverse order of removal. When doing this, note the following:

– Insert entry and start authorisation control unit - J518- -2- into holder -3-.
– Insert bracket together with control unit into guides on pedal bracket of brake pedal until it engages securely.
– Re-attach and secure connector -1-.



After renewing the electronic steering column lock control unit - J518- , the “entry and start authorisation” system must be coded ⇒ page 171 .

12.3.2 Coding entry and start authorisation control unit - J518-

After renewing the electronic steering column lock control unit - J518- , the “entry and start authorisation” system must be coded.

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

12.4 Entry and start authorisation aerials and sensors

12.4.1 Removing and installing front passenger side door exterior handle

The following components are integrated into the front passenger side door exterior handle:

- Front passenger door exterior handle contact sensor - G416-
- Front passenger side aerial for entry and start authorisation - R135-

Note

- *In the event of a fault, the complete door exterior handle must always be replaced.*
- *Coding, basic setting and adaption are not necessary if the door exterior handle is replaced. Erase the fault entry created in the fault memory via “Guided fault finding” with vehicle diagnostic tester .*

Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove front right door exterior handle ⇒ General body repairs, exterior; Rep. gr. 57 ; Door components; Removing and installing door handle .

Installing:

Installation is carried out in the reverse sequence of removal.

12.4.2 Removing and installing driver side door exterior handle

The following components are integrated into the driver side door exterior handle:

- Driver door exterior handle contact sensor - G415-
- Driver side aerial for entry and start authorisation - R134-

Note

- *In the event of a fault, the complete door exterior handle must always be replaced.*
- *Coding, basic setting and adaption are not necessary if the door exterior handle is replaced. Erase the fault entry created in the fault memory via “Guided fault finding” with vehicle diagnostic tester .*

Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove front left door exterior handle ⇒ General body repairs, exterior; Rep. gr. 57 ; Door components; Removing and installing door handle .

Installing:

Installation is carried out in the reverse sequence of removal.

12.4.3 Removing and installing rear bumper aerial for entry and start system - R136-

The rear bumper aerial for entry and start authorisation - R136- is located behind the rear bumper cover.

Note

Coding, basic setting and adaption are not necessary if the rear bumper aerial for entry and start authorisation - R136- is renewed. Erase the fault entry created in the fault memory via "Guided fault finding" with vehicle diagnostic tester .

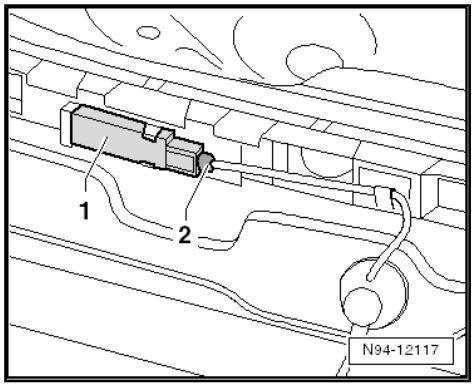
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove rear bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Rear bumper cover .

– Disengage rear bumper aerial for entry and start authorisation - R136- -1- and pull it out of lower section of bumper cover, taking lengths of connected wires into consideration.

– Release and separate connector -2- and remove rear bumper aerial for entry and start authorisation - R136- -1-.



Installing:

Installation is carried out in the reverse sequence of removal.

12.4.4 Removing and installing luggage compartment aerial for entry and start authorisation - R137-

The access and start authorisation aerial in the luggage compartment - R137- is located inside the vehicle on the kick plate of the right seat in the third seat row.

Note

Coding, basic setting and adaption are not necessary if the luggage compartment aerial for entry and start authorisation - R137- is renewed. Erase the fault entry created in the fault memory via "Guided fault finding" with vehicle diagnostic tester .

Removing:

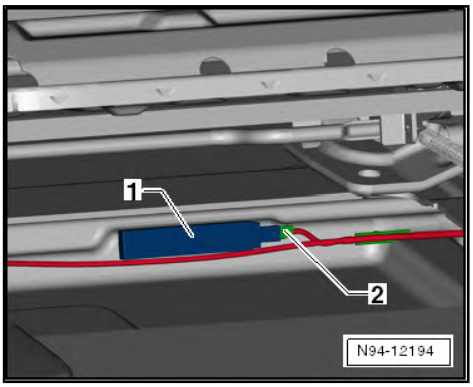
– Switch off ignition and all electrical equipment and then remove ignition key.

– Fold right seat of third seat row forwards.

– Lift up floor covering at separation point to gain access to kick plate.

– Lever out access and start authorisation aerial in the luggage compartment - R137- -1- from fastener in kick plate, taking lengths of connected wires into consideration.

– Release and separate connector -2- and remove aerial from vehicle.



Installing:

Installation is carried out in the reverse sequence of removal.

12.4.5 Removing and installing interior aerial 2 for entry and start authorisation - R139-

The interior aerial 2 for access and start authorisation - R139- is located inside the vehicle on the centre tunnel beneath the middle rear seat.

Note

Further coding, basic setting and adaption are not necessary if the interior aerial 2 for entry and start authorisation - R139- is renewed. Erase the fault entry created in the fault memory via "Guided fault finding" with vehicle diagnostic tester .

Removing:

Note

The alignment and exact positioning of the aerials is essential for their function. Mark the exact position and alignment of the aerial to the interior before removing the interior access and start authorisation aerial 2 - R139- . Align and secure in original position when installing. The thickness of the adhesive pad on the aerial is part of its functionality. Do not use a commercial type adhesive to restick if the adhesive bonding of an aerial is insecure. Install a new aerial with new adhesive pad in this case. Non observance will cause the KESSY system to malfunction.

– Switch off ignition and all electrical equipment and then remove ignition key.

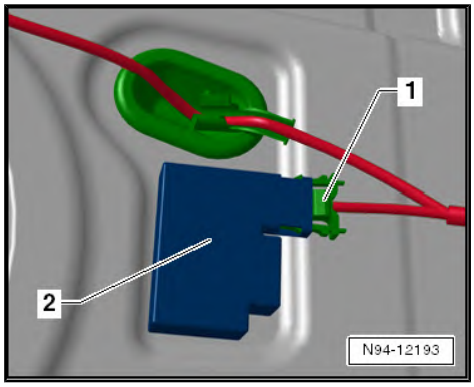
– Remove seats of second seat row ⇒ General body repairs, interior; Rep. gr. 72 ; Removing and installing rear seats

– Unclip both air outlet vents on kick plate of third seat row ⇒ Heating, ventilation, air conditioning; Rep. gr. 80 .

– Lift up floor covering.

– Release connector -1- and disconnect.

– Detach adhesive on interior aerial 2 for access and start authorisation - R139- -2- and remove aerial from vehicle.



Installing:

Install in the reverse order of removal. When doing this, note the following:

– Bond new aerial using new adhesive pad exactly in same position and with same alignment to old aerial.

12.4.6 Removing and installing interior aerial 1 for entry and start authorisation - R138-

The interior aerial 1 for entry and start authorisation - R138- is located in front of the gear lever, under the front section of the centre console.

Note

Further coding, basic setting and adaption are not necessary if the interior aerial 1 for entry and start authorisation - R138- is renewed. Erase the fault entry created in the fault memory via "Guided fault finding" with vehicle diagnostic tester .

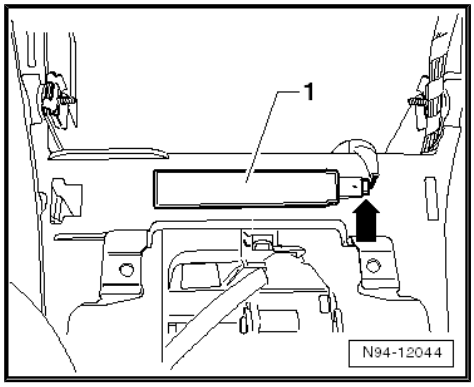
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove centre console cover ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trims; Removing and installing centre console cover .

– Pull interior aerial 1 for access and start authorisation - R138- -1- vertically upwards out of its attachment, taking lengths of connected wires into consideration.

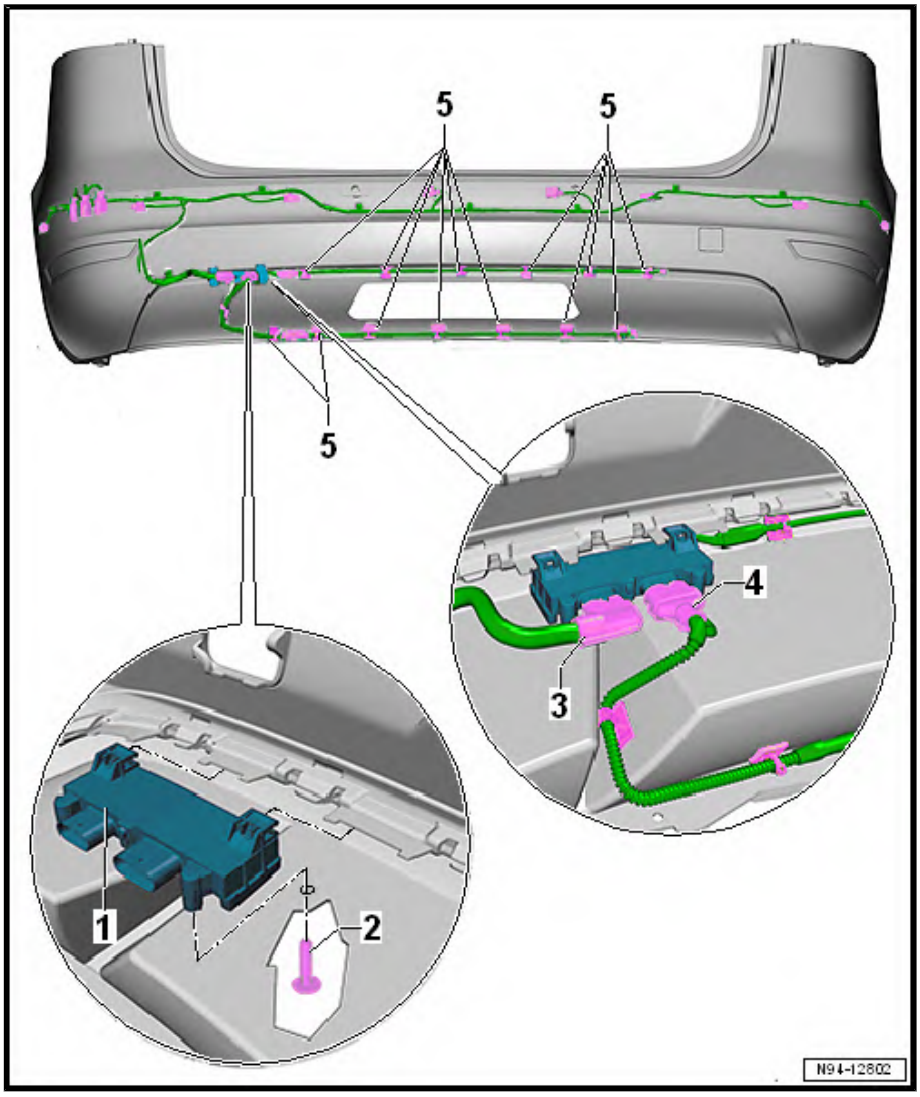
– Separate connector -arrow- and remove interior aerial 1 for access and start authorisation - R138- -1- from vehicle.



Installing:

Installation is carried out in the reverse sequence of removal.

12.5 Removing and installing rear lid power opening sender -G750- / -G760-



Removing:

– Switch off ignition and all electrical consumers.

– Disengage ignition key in position 0 (locked).

– Remove rear bumper ⇒ General body repairs, exterior; Rep. gr. 63 ; Rear bumper; Removing and installing rear bumper .

– Release and disconnect connectors -3- and -4-.

– Unscrew bolt -2-.

– Pull control unit for rear lid power opening sender -1- off spoiler.

– Release cable ties -5-, and remove sensor wires for rear lid power opening sender.

Installing:

Installation is carried out in the reverse order. When installing observe the following:

– If necessary, renew cable ties.

– Tighten bolt -2- to 2.2 Nm ± 0.4 Nm.

– Ensure that connectors are securely engaged.

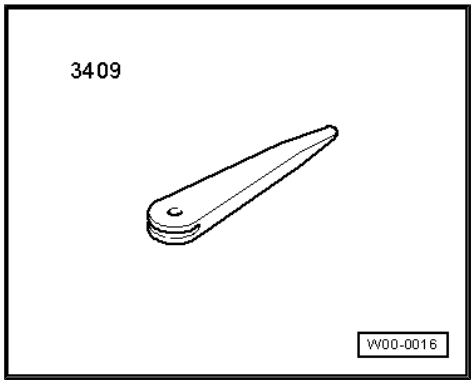
12.6 Starter button - E378-

On vehicles with KESSY, the starter button - E378- is installed instead of the ignition/starter switch and controls without a key the functions of the lock. The starter button - E378- is installed in centre console in front of gear lever.

12.6.1 Removing and installing the starter button - E378-

Special tools and workshop equipment required

- Removal wedge - VAS 3409-



Note

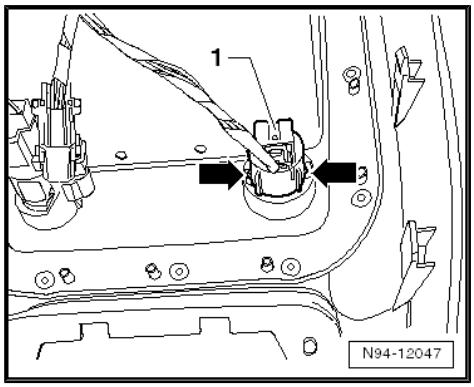
When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - VAS 3409- , screwdriver) are used to lever out those components using commercially available tape.

Removing:

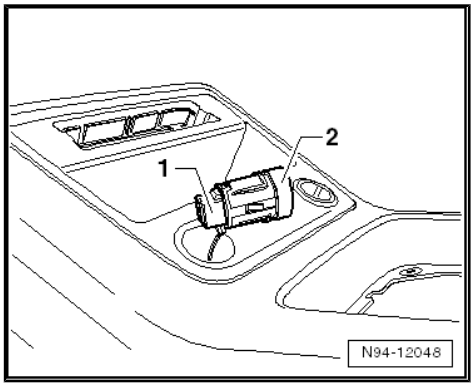
– Switch off ignition and all electrical consumers.

– Remove centre console upper part ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trims; Removing and installing centre console cover .

– Release both locking lugs -arrows- and push out starter button - E378- through the cover.



– Release and separate connector -1- and remove starter button - E378- -2-.



Installing:

Install in the reverse order of removal. When doing this, note the following:

Note

When installing start button - E378- , ensure that it engages securely in the centre console.

13 Parking aid (PDC)

13.1 General description

Note

Additional information:

⇒ Operating manual

⇒ Self-study programme No. 445 ; The Sharan 2011

The Sharan has an 8 channel parking aid with 4 ultrasonic sensors (parking aid senders) in the rear bumper and 4 ultrasonic sensors in the front bumper.

The parking aid system monitors the surrounding area via the ultrasonic sensors in the front and rear bumpers. The acoustic distance warning is provided by two warning buzzers in the vehicle interior.

The rear sensors are switched off automatically when a trailer is hitched to the vehicle and the connector is plugged into the trailer socket. The front sensors remain active.

The 8 channel parking aid comprises the following components:

- Park assist steering control unit - J791-
- Front left parking aid sender - G255-
- Front inner left parking aid sender - G254-
- Front inner right parking aid sender - G253-
- Front right parking aid sender - G252-
- Rear left parking aid sender - G203-
- Rear centre left parking aid sender - G204-
- Rear centre right parking aid sender - G205-
- Rear right parking aid sender - G206-
- Parking aid loudspeaker - R169-
- Rear parking aid loudspeaker - R194-
- Parking aid button - E266-
- Parking aid warning lamp - K136-
- Button illumination bulb - L76-

Function:

To switch on, press, with ignition on, parking aid button - E266- or engage reverse gear. To switch off, press parking aid button - E266- again (warning lamp in button goes out) or drive forwards with a speed over about 15 km/h.

A brief audible signal is given and the warning lamp lights up when the parking aid system is ready. If a fault is detected, a continuous audible signal is given for 5 seconds and the parking aid warning lamp flashes.

The intervals between the warning signals become proportionally shorter as the distance decreases. At distances of less than 30 cm the warning signals merge into a continuous tone. Special situation: reversing parallel to a wall = no signal.

Fault detection and fault display:

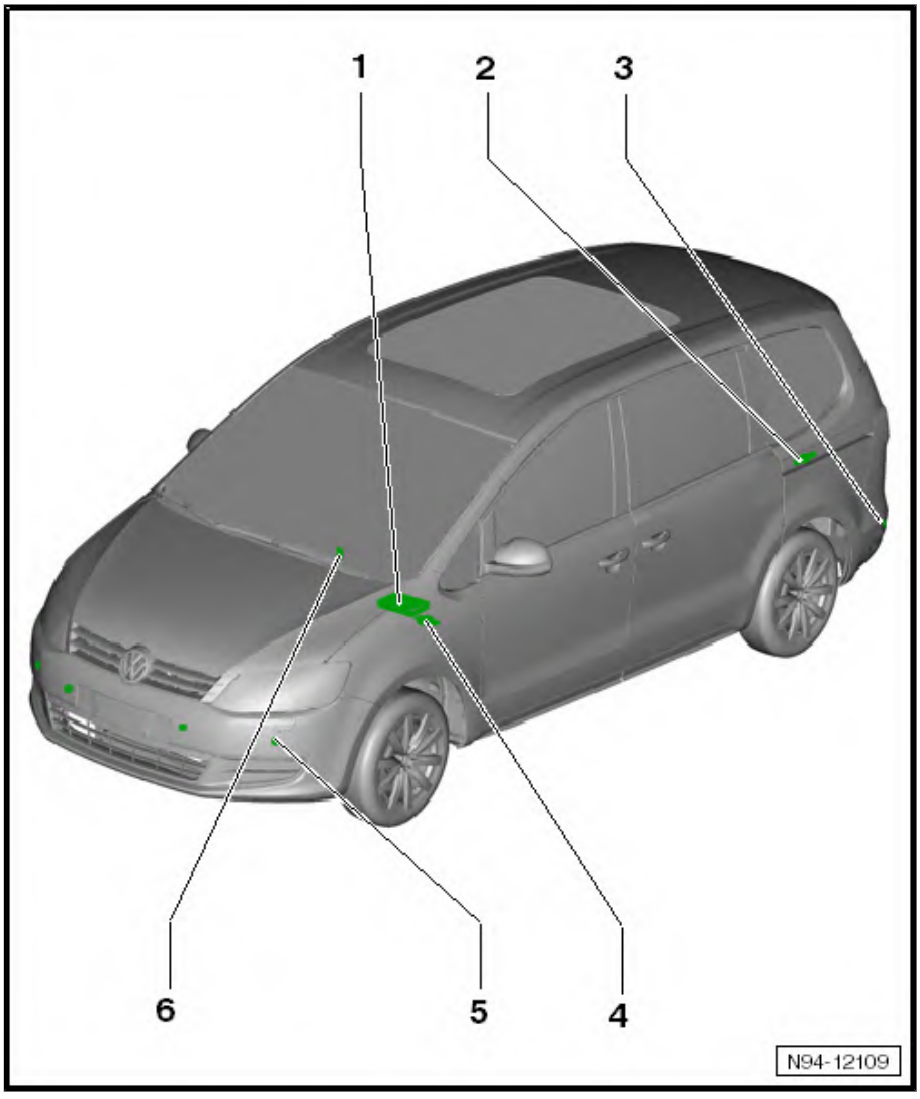
The park assist steering control unit - J791- controls the functions of the parking aid.

The park assist steering control unit - J791- is equipped with self-diagnosis, which makes fault finding easier.

For fault finding, use the systems described in chapter “Vehicle diagnosis, testing and information system” in “Guided Fault Finding” mode ⇒ page 265 .

Perform final control diagnosis to check parking aid.

13.2 Assembly overview - parking aid



1 - Park assist steering control unit - J791-

- ❑ Located above relay carrier in driver's footwell
- ❑ Removing and installing ⇒ page 191
- ❑ Adapting lower volume request ⇒ page 180
- ❑ Adapting parking aid display ⇒ page 180
- ❑ Adapting parking aid activation sound ⇒ page 180
- ❑ Can be checked via final control diagnosis
- ❑ Tightening torque: 1.5 Nm

2 - Rear parking aid loudspeaker - R194-

- ❑ Located on rear left wheel housing
- ❑ Removing and installing ⇒ page 187
- ❑ Adapting rear parking aid warning speaker volume ⇒ page 188
- ❑ Can be checked via final control diagnosis

3 - Parking aid senders in rear bumper cover

- ❑ Rear left parking aid sender - G203-
- ❑ Rear centre left parking aid sender - G204-
- ❑ Rear centre right parking aid sender - G205-
- ❑ Rear right parking aid sender - G206-
- ❑ Removing and installing ⇒ page 184
- ❑ Checking ⇒ page 185
- ❑ Renewing ⇒ page 186

4 - Parking aid loudspeaker - R169-

- ❑ Located on relay carrier in driver's footwell
- ❑ Removing and installing ⇒ page 186

- ❑ Adapting front parking aid loudspeaker ⇒ page 188
- ❑ Can be checked via final control diagnosis

5 - Parking aid senders in front bumper cover

- ❑ Front left parking aid sender - G255-
- ❑ Front inner left parking aid sender - G254-
- ❑ Front inner right parking aid sender - G253-
- ❑ Front right parking aid sender - G252-
- ❑ Removing and installing front parking aid senders ⇒ page 181
- ❑ Checking ⇒ page 183
- ❑ Renewing ⇒ page 186

6 - Parking aid button - E266-

- ❑ Located in centre console in front of gear lever
- ❑ Removing and installing ⇒ page 188

13.3 Park assist steering control unit - J791-

The park assist steering control unit - J791- controls the parking aid functions and is installed above the relay carrier in the driver footwell.

13.3.1 Removing and installing park assist steering control unit - J791-

Removing and installing park assist steering control unit - J791- ⇒ page 191 .

13.3.2 Coding park assist steering control unit - J791-

⇒ Vehicle diagnostic tester, Guided Fault Finding.

13.3.3 Pin assignment of park assist steering control unit - J791-

Pin assignment ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.

13.3.4 Adapting lower volume request

⇒ Vehicle diagnostic tester, Guided Fault Finding.

13.3.5 Adapting parking aid display

⇒ Vehicle diagnostic tester, Guided Fault Finding.

13.3.6 Adapting parking aid activation sound

⇒ Vehicle diagnostic tester, Guided Fault Finding.

13.4 Front parking aid senders

The following parking aid senders are located in the front bumper cover:

- ♦ Front left parking aid sender - G255-
- ♦ Front inner left parking aid sender - G254-
- ♦ Front inner right parking aid sender - G253-
- ♦ Front right parking aid sender - G252-

Removing and installing front parking aid senders ⇒ page 181

13.4.1 Removing and installing front parking aid senders

Note

Removal of the four front parking aid senders is carried out in the same way and is only described as follows for one sender.

Removing:

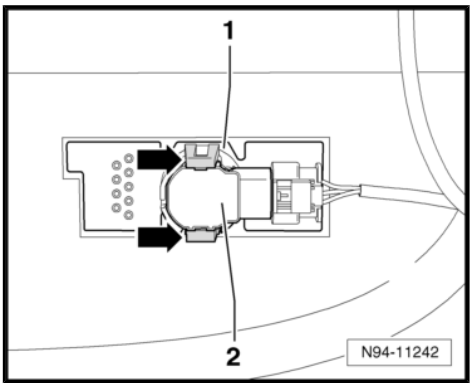
– Switch off ignition and all electrical equipment and then remove ignition key.

Caution

- ***The order for removing the senders must be adhered to under all circumstances.***
- ***The sender may otherwise be damaged. Fractures may occur if too much pressure is applied to the sender, and this may cause the sender to fail.***
- ***First remove sender from bracket and then disconnect sender connector.***

– Push fasteners -arrows- on sender bracket -1- outwards.

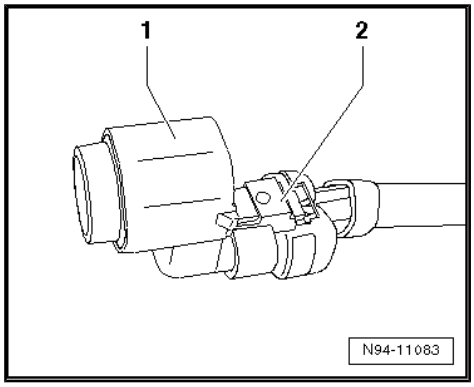
– Pull out sender -2- with wiring connected backwards from sender retainer -1-.



Note

- *When removing the sender, ensure the isolation ring (black silicone ring) remains on the sender head and does not remain stuck in the bracket or become lost.*
- *Expanding the isolation ring must be avoided under all circumstances.*

– Release and separate connector -2- and remove sender -1-.



Installing:

Install in the reverse order of removal. When doing this, note the following:

Caution

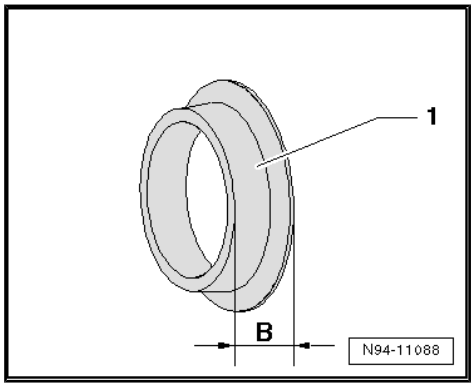
- *Expanding the isolation ring must be avoided under all circumstances.*
- *Function problems could occur if an incorrect or damaged isolation ring is used.*
- *Renew damaged isolation rings and always ensure that the correct isolation ring is fitted.*

Note

As the front parking aid sender and the park assist steering senders have sender heads of different lengths, isolation rings of different heights are also installed.

– Check whether the correct isolation ring is installed on the respective sender head.

Type of sender	Isolation ring height dimension -B-
Front parking aid senders	5.7 mm
Park assist steering senders	9.05 mm



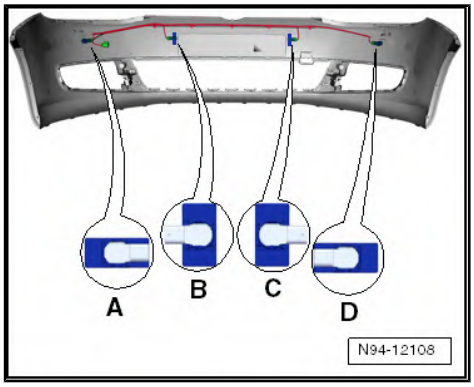
– Renew isolation ring -1- of sender if necessary.

– Assign sender to correct installation position in bumper cover.

Note

- *Senders are available in different forms and must be assigned to respective fitting location in bumper cover.*
- *When installing senders, note position of electrical connections of senders.*

Assignment of parking aid sender on inside of rear bumper cover:



A - Left outer

B - left centre

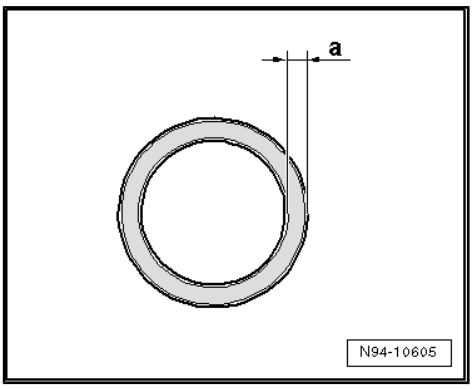
C - right centre

D - Right outer

Note

- *When installing the sender, ensure that the isolation ring is correctly mounted on the sender head and does not ride or roll up on insertion into the sender retainer.*
- *Both locking lugs of sender retainer must audibly engage when installing the sender.*

– After installing the sender, check that the sender is correctly seated in the bracket. Visible on the outer side of the bumper, dimension -a- of the ring gap between the sender head and bumper cover must be even all around.



13.4.2 Checking front parking aid sender

This function can be used to check the following components via the parking aid control unit :

- Front left parking aid sender - G255-
- Front inner left parking aid sender - G254-
- Front inner right parking aid sender - G253-
- Front right parking aid sender - G252-

– Connect vehicle diagnostic tester ⇒ page 265 .

– Select “Guided fault finding” mode in vehicle diagnostic tester .

– Using the “GoTo” button, select “Function/component selection” and the following menu items in succession:

- Body
- General body repairs
- Diagnostic capable systems
- Parking aid II
- Electrical components of parking aid II
- Parking aid sender, park assist steering sender

13.5 Rear parking aid senders

The following parking aid senders are located in the rear bumper cover:

- Rear left parking aid sender - G203-

- Rear centre left parking aid sender - G204-
- Rear centre right parking aid sender - G205-
- Rear right parking aid sender - G206-

Removing and installing rear parking aid senders ⇒ page 184

13.5.1 Removing and installing rear parking aid senders

Removing:

Note

The removal of the four rear parking aid senders is carried out in the same way and is only described for one sender in the following.

– Switch off ignition and all electrical equipment and then remove ignition key.

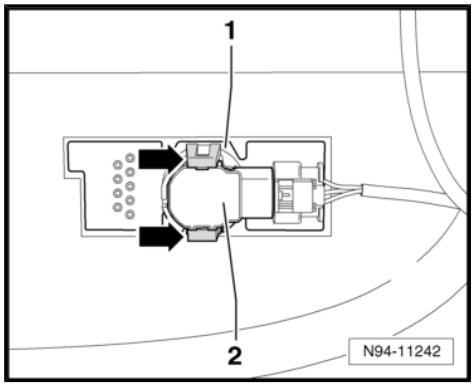
– Remove rear bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Rear bumper .

Caution

- *The order for removing the senders must be adhered to under all circumstances.*
- *The sender may otherwise be damaged. Fractures may occur if too much pressure is applied to the sender, and this may cause the sender to fail.*
- *First remove sender from bracket and then disconnect sender connector.*

– Push fasteners -arrows- on sender bracket -1- outwards.

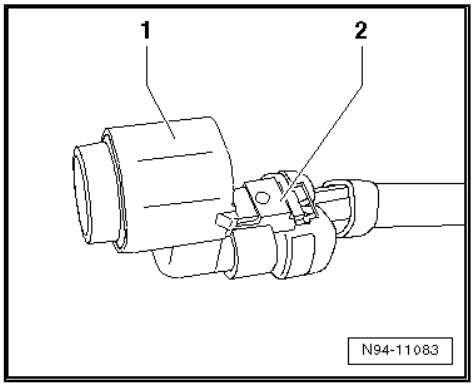
– Pull out sender -2- with wiring connected backwards from sender retainer -1-.



Note

- *When removing the sender, ensure the isolation ring (black silicone ring) remains on the sender head and does not remain stuck in the bracket or become lost.*
- *Expanding the isolation ring must be avoided under all circumstances.*

– Release and separate connector -2- and remove sender -1-.



Installing:

Install in the reverse order of removal. When doing this, note the following:

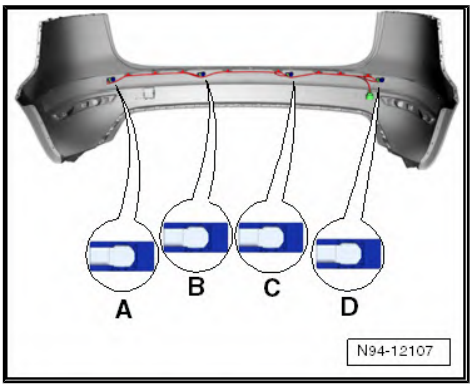
Caution

- *Expanding the isolation ring must be avoided under all circumstances.*
- *Function problems may occur if a damaged isolation ring is used.*
- *Renew damaged isolation rings.*

Note

- *Senders are available in different forms and must be assigned to respective fitting location in bumper cover.*
- *When installing senders, note position of electrical connections of senders.*

Assignment of parking aid senders on inside of rear bumper cover:



A - Right outer

B - right centre

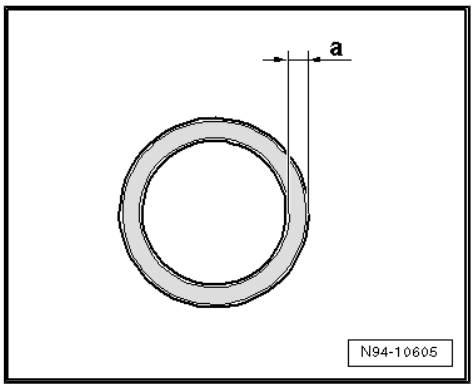
C - left centre

D - Left outer

Note

- *When installing the sender, ensure that the isolation ring is correctly mounted on the sender head and does not ride or roll up on insertion into the sender retainer.*
- *Both locking lugs of sender retainer must audibly engage when installing the sender.*

– After installing the sender, check that the sender is correctly seated in the bracket. Visible on the outer side of the bumper, dimension -a- of the ring gap between the sender head and bumper cover must be even all around.



13.5.2 Checking rear parking aid senders

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

13.6 Renewing parking aid senders

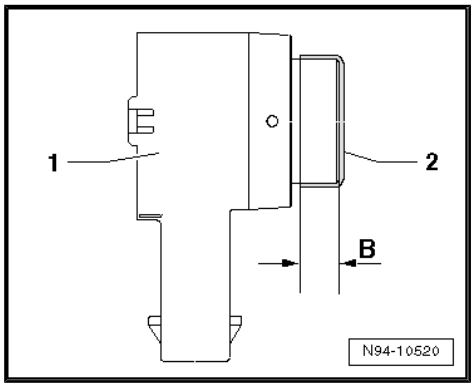
If a new parking aid sender is installed, the sender head must be first painted in the colour of the bumper cover. The following prerequisites must be adhered to when painting the senders to ensure the function of the parking aid system is not adversely affected.

13.6.1 Painting senders

– Remove isolation ring (black silicon ring) from new sender head.

– Degrease black sender head -1- in area to be painted -2- with isopropanol (isopropyl alcohol).

– Paint sender in area to be painted -2- in colour of bumper cover.



Note

Dimension -B- for the painted area must not exceed 3 mm (+ maximum 2 mm).

– Fit isolation ring (black silicone ring) on sender head again once paint has dried.

Caution

- *Expanding the isolation ring must be avoided under all circumstances.*
- *Function problems may occur if a damaged isolation ring is used.*
- *Renew damaged isolation rings.*

13.7 Parking aid loudspeaker

13.7.1 Removing and installing parking aid loudspeaker - R169-

The parking aid loudspeaker - R169- is located under the dash panel in the driver's footwell and is secured on the console for relay carrier above the onboard supply control unit.

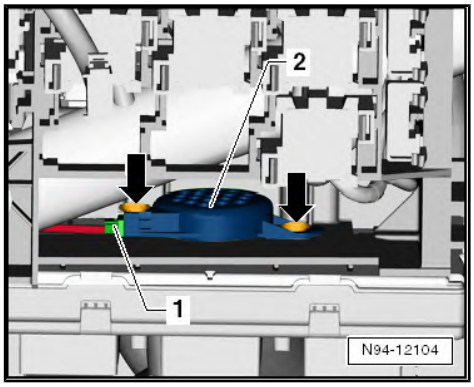
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Open and remove cover of fuse box in driver's footwell by pushing locking mechanism to side ⇒ General body repair, interior; Rep. gr. 68 ; Stowage compartments, covers and trims .

– Detach both spreader rivets -arrows-.

– Release and separate connector -1- and remove parking aid loudspeaker - R169- -2- from console of relay carrier.



Installing:

Installation is carried out in the reverse sequence of removal.

Note

Coding, basic setting and adaption are not necessary if the parking aid loudspeaker - R169- is renewed.

13.7.2 Removing and installing rear parking aid loudspeaker - R194-

The rear parking aid loudspeaker - R194- is located on the rear left wheel housing. Depending on the equipment level, the rear parking aid loudspeaker - R194- is either secured with spreader rivets or on vehicles with reversing camera system on the bracket for the reversing camera system control unit.

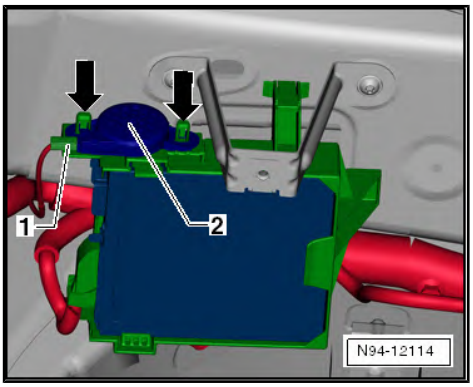
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove left side panel trim in luggage compartment ⇒ General body repairs, interior; Rep. gr. 70 ; Pillars and side panel trim; Removing and installing side panel trim .

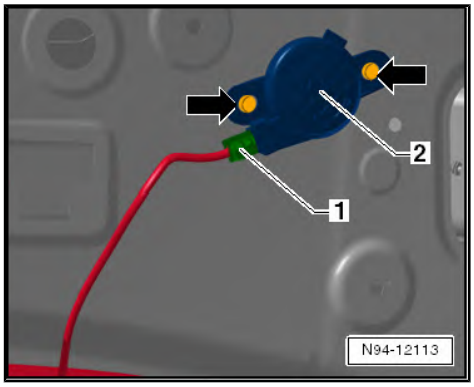
Vehicles equipped with reversing camera system:

– Push together retainers -arrows- and remove rear parking aid loudspeaker - R194- -2- upwards from bracket.



Vehicles not equipped with reversing camera system:

– Detach spreader rivets -arrows- and remove rear parking aid loudspeaker - R194- -2-.



Continued for all vehicles:

– Release and separate connector -1- and remove rear parking aid loudspeaker - R194- -2-.

Installing:

Installation is carried out in the reverse sequence of removal.

Note

Coding, basic setting and adaption are not necessary if the rear parking aid loudspeaker - R194- is renewed.

13.7.3 Adapting loudspeaker for parking aid - R169-

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

13.8 Parking aid button - E266-

The parking aid button - E266- is located in the centre console in front of the gear lever.

13.8.1 Removing and installing parking aid button - E266-

Removal and installation of the parking aid button - E266- is carried out in the same way for all other buttons in the centre console stowage compartment.

– Removing and installing parking aid button - E266-
⇒ page 249

14 Park assist steering (PAS)

14.1 General description

Note

- *When handling complaints, it is essential to understand the function and operation of the park assist steering.*
- *Additional information ⇒ Owner's manual*

The park assist steering supports the driver when reversing into a parallel parking space on the driver or passenger side. When the park assist steering is activated and the vehicle drives by at a speed of less than 35 km/h, the side of the road is measured by ultrasonic sensors searching for a suitable parking space. Once a parking space has been reliably detected, the park assist steering requests the driver to continue passing by the parking space until the vehicle is in a position from which rapid parking is possible. When reverse gear is engaged, the park assist steering undertakes lateral guidance of the vehicle by actuating the EPS (electronic power steering) and steers the vehicle into the parking space in one movement along a calculated, nominal path. The driver maintains operation of the pedals (accelerator, clutch, brake) and longitudinal vehicle guidance, and therefore determines the parking speed. During the parking process, the park assist steering sensors are used together with the parking aid senders to monitor proximity.

The following conditions lead to abortion of the parking process with the park assist steering:

- The park assist steering is switched off via the park assist steering button - E581- .
- Ignition is switched off
- Parking speed too high (>7 km/h)
- Steering intervention by driver during parking process
- Disengagement of reverse gear
- Vehicle standstill time limit exceeded (approx. 30 s)
- ESP switched off or ESP intervention
- TCS intervention
- Trailer attached to vehicle coupling
- Parking aid (PDC) is switched on
- Sensors detect a status which endangers secure determination of the vehicle position.
- System malfunction

WARNING

- *Responsibility during parking is borne by the driver.*
- *The park assist steering cannot replace the driver's attentiveness.*
- *The sensors have blind spots, in which persons and objects can not be registered.*
- *Pay particular attention to small children and animals, as these are not always detected by the sensors.*

The park assist steering consists of:

- Park assist steering control unit - J791-
- Front left sender for park assist steering on left side of vehicle - G568-
- Front right sender for park assist steering on right side of vehicle - G569-
- Rear left park assist steering sender - G716-
- Rear right park assist steering sender - G717-
- Front left parking aid sender - G255-
- Front inner left parking aid sender - G254-
- Front inner right parking aid sender - G253-
- Front right parking aid sender - G252-
- Front parking aid warning buzzer - H22-
- Park assist steering button - E581-
- Warning light for park assist steering - K241-
- Button illumination bulb - L76-

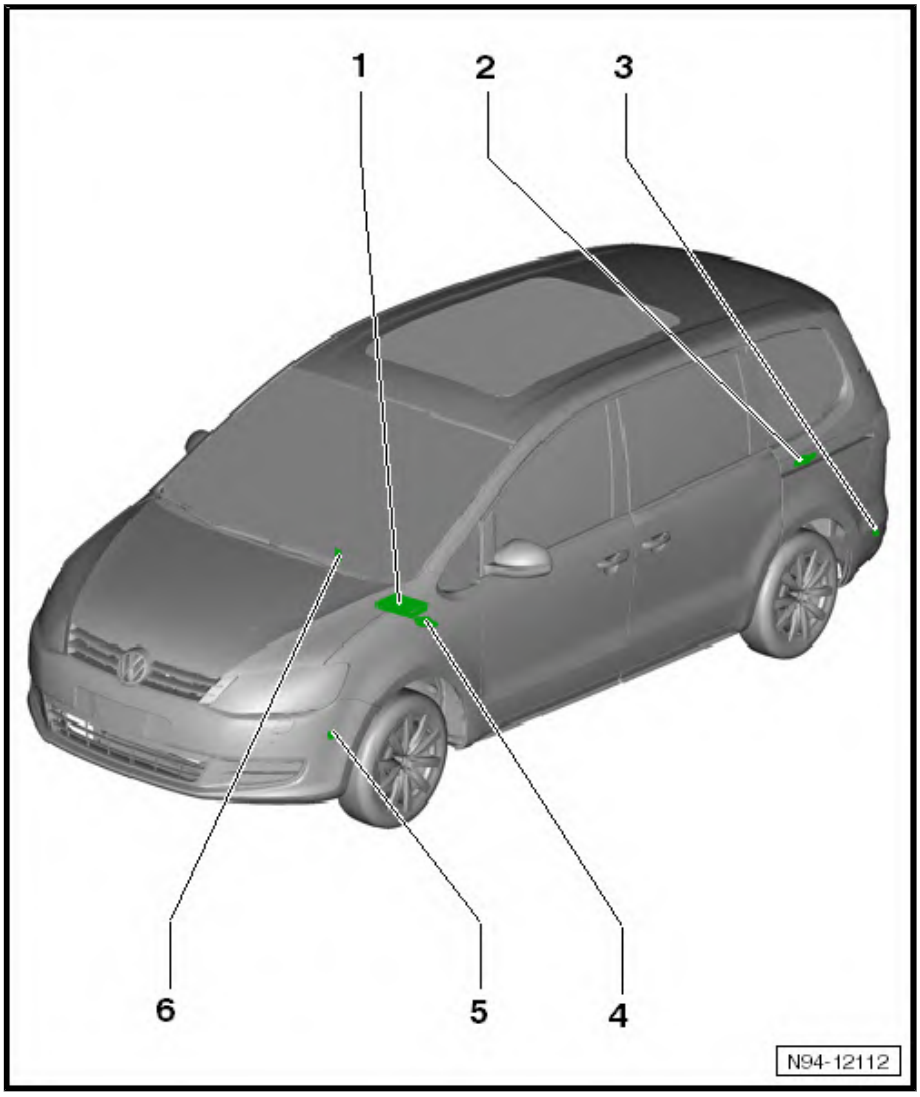
Fault detection and fault display:

The park assist steering features self-diagnosis to facilitate fault finding.

For fault finding, use vehicle diagnosis, testing and information system in “Guided fault finding” mode.

To check the park assist steering as a whole, perform final control diagnosis.

14.2 Assembly overview of park assist steering



1 - Park assist steering control unit - J791-

- Located above relay carrier in driver's footwell
- Removing and installing ⇒ page 191
- Coding ⇒ page 192
- Specified torque: 1.5 Nm

2 - Rear parking aid loudspeaker - R194-

- Located on rear left wheel housing
- Removing and installing ⇒ page 197
- Can be checked via final control diagnosis

3 - Rear park assist steering senders

- Located in rear bumper cover
- Removing and installing ⇒ page 194
- Checking ⇒ page 196
- Renewing ⇒ page 196

4 - Parking aid loudspeaker - R169-

- In driver's footwell, on relay carrier of dash panel ⇒ page 197

5 - Front park assist steering senders

- Located in front bumper cover
- Removing and installing ⇒ page 193
- Checking ⇒ page 196
- Renewing ⇒ page 196

6 - Parking aid button - E266-

- Located in centre console stowage compartment, in front of gear lever
- Removing and installing ⇒ page 197
- Checking ⇒ page 197

14.3 Park assist steering control unit - J791-

The park assist steering control unit - J791- is located in the driver footwell, above the relay carrier. In vehicles with parking aid, the parking aid functions are simultaneously controlled by the park assist steering control unit .

14.3.1 Removing and installing park assist steering control unit - J791-

The park assist steering control unit - J791- is located in the driver footwell, above the relay carrier.

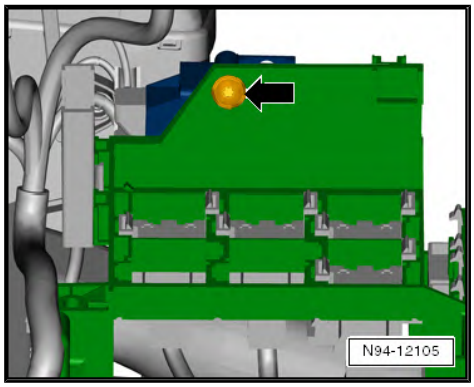
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

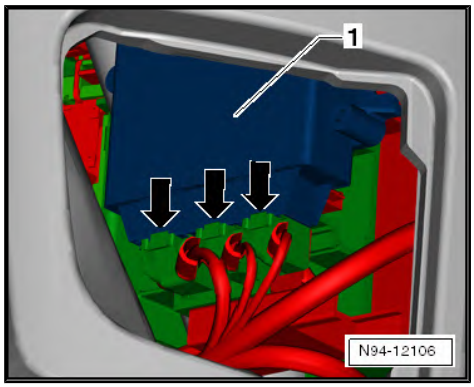
– Remove footwell trim on driver side ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trims .

– Remove left air vent from dash panel ⇒ General body repairs, interior; Rep. gr. 70 ; Removing and installing dash panel .

– Unscrew securing bolt from underneath -arrow- on park assist steering control unit above relay carrier.



– Release and separate three connectors -arrows- and remove park assist steering control unit - J791- -1- from relay carrier.



Installing:

Install in the reverse order of removal. When doing this, note the following:

– Tighten securing bolt of park assist steering control unit - J791- to 1.5 Nm.

14.3.2 Coding park assist steering control unit - J791-

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

14.3.3 Adaptation

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

14.4 Park assist steering senders

Park assist steering senders are installed in front and rear bumper cover. The park assist steering senders are each mounted at the outermost, lateral positions of the bumper cover, and are used to measure proximity during the parking process, together with the parking aid senders.

The following park assist steering senders are located in the front bumper cover:

- Front left sender for park assist steering on left side of vehicle - G568-
- Front right sender for park assist steering on right side of vehicle - G569-

The following park assist steering senders are located in the rear bumper cover:

- Rear left park assist steering sender - G716-

- Rear right park assist steering sender - G717-

14.4.1 Removing and installing front park assist steering senders

Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

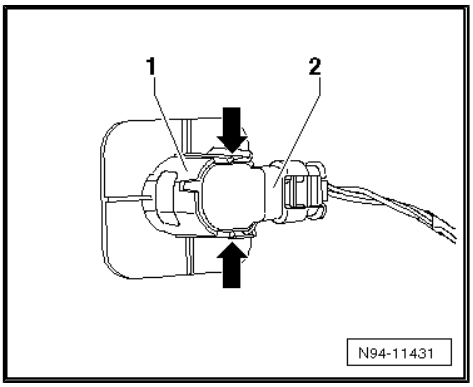
– Remove front bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper .

Caution

- *The order for removing the senders must be adhered to under all circumstances.*
- *The sender may otherwise be damaged. Fractures may occur if too much pressure is applied to the sender, and this may cause the sender to fail.*
- *First remove sender from bracket and then disconnect sender connector.*

– Push fasteners -arrows- on sender bracket -1- outwards.

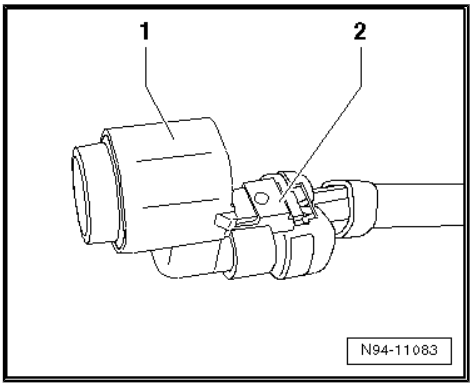
– Pull out sender -2- with wiring connected backwards from sender holder.



Note

- *When removing the sender, make sure that the isolation ring (black silicone ring) on the sender head does not remain in the bracket or become lost.*
- *Expanding the isolation ring must be avoided under all circumstances.*

– Release and separate connector -2- and remove sender -1-.



Installing:

Install in the reverse order of removal. When doing this, note the following:

Caution

Function problems could occur if an incorrect or damaged isolation ring is used.

Expanding the isolation ring must be avoided under all circumstances.

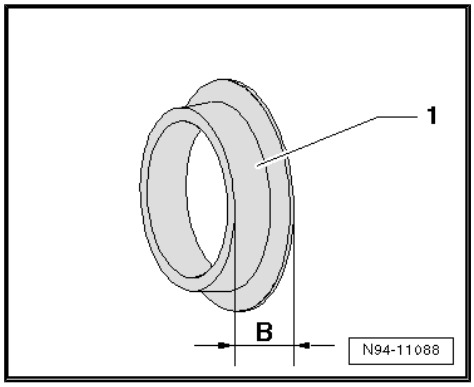
Renew damaged isolation rings and always ensure that the correct isolation ring is fitted.

Note

As the parking aid senders and the park assist steering senders have sender heads of different lengths, isolation rings of different heights are also installed.

– Check whether the correct isolation ring is installed on the sender head.

Type of sender	Isolation ring height dimension -B-
Front parking aid senders	5.7 mm
Park assist steering senders	9.05 mm



– Renew isolation ring -1- of sender if necessary.

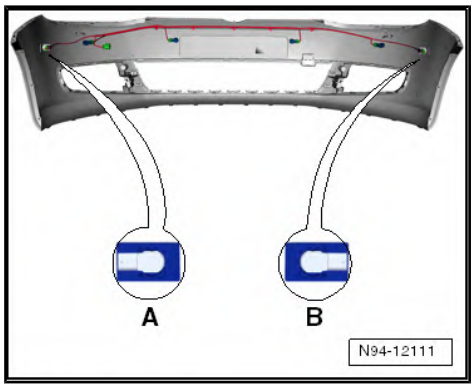
Note

When installing senders, note position of electrical connections of senders.

Assignment of senders on inside of front bumper cover:

A - Bracket for front left sender for Park Assist on left side of vehicle - G568-

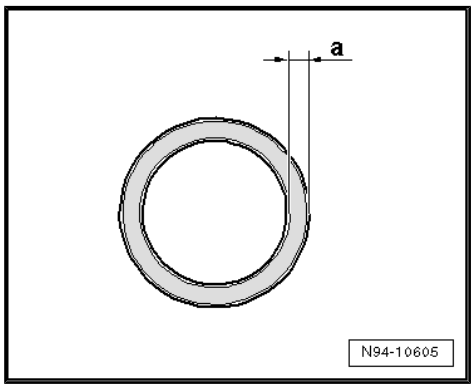
B - Bracket for front right sender for Park Assist on right side of vehicle - G569-



Note

- *When installing the sender, ensure that the isolation ring is correctly mounted on the sender head and does not ride or roll up on insertion into the sender retainer.*
- *Both locking lugs of sender bracket must audibly engage when installing the sender.*

– After installing the sender, check that the sender is correctly seated in the bracket. Visible on the outer side of the bumper, dimension -a- of the ring gap between the sender head and bumper cover must be even all around.



14.4.2 Removing and installing rear park assist steering sender

Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

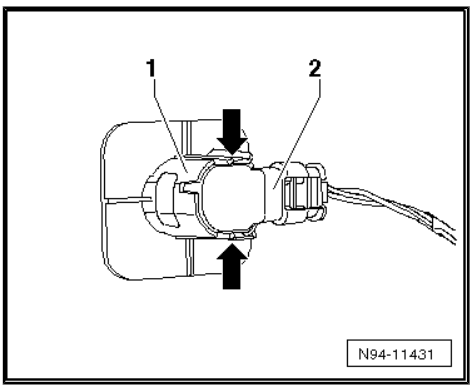
– Remove rear bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Rear bumper .

Caution

- *The order for removing the senders must be adhered to under all circumstances.*
- *The sender may otherwise be damaged. Fractures may occur if too much pressure is applied to the sender, and this may cause the sender to fail.*
- *First remove sender from bracket and then disconnect sender connector.*

– Push fasteners -arrows- on sender bracket -1- outwards.

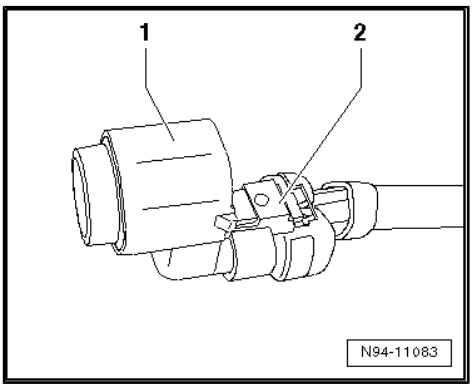
– Pull out sender -2- with wiring connected backwards from sender holder.



Note

- *When removing the sender, make sure that the isolation ring (black silicone ring) on the sender head does not remain in the bracket or become lost.*
- *Expanding the isolation ring must be avoided under all circumstances.*

– Release and separate connector -2- and remove sender -1-.



Installing:

Install in the reverse order of removal. When doing this, note the following:

Caution

Function problems could occur if an incorrect or damaged isolation ring is used.

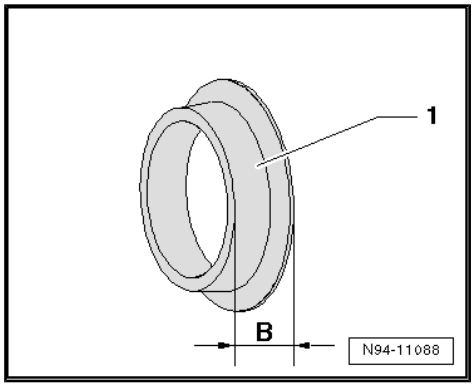
Expanding the isolation ring must be avoided under all circumstances.

Renew damaged isolation rings and always ensure that the correct isolation ring is fitted.

Note

As the parking aid senders and the park assist steering senders have sender heads of different lengths, isolation rings of different heights are also installed.

– Check whether the correct isolation ring is installed on the sender head.



Type of sender	Isolation ring height dimension -B-
Front parking aid senders	5.7 mm
Park assist steering senders	9.05 mm

– Renew isolation ring -1- of sender if necessary.

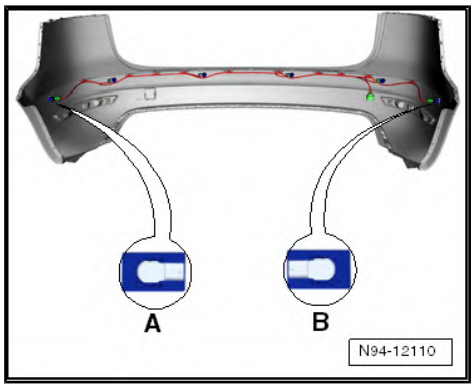
Note

When installing senders, note position of electrical connections of senders.

Assignment of senders on inside of rear bumper cover:

A - Bracket for rear right park assist steering sender - G717-

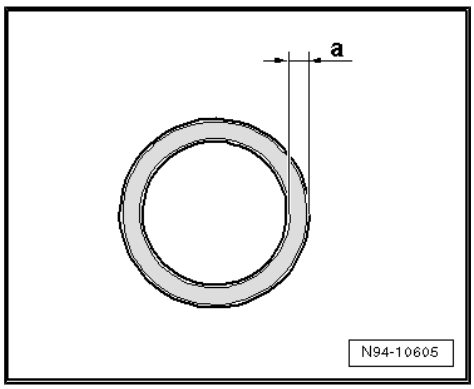
B - Bracket for rear left park assist steering sender - G716-



Note

- *When installing the sender, ensure that the isolation ring is correctly mounted on the sender head and does not ride or roll up on insertion into the sender retainer.*
- *Both locking lugs of sender bracket must audibly engage when installing the sender.*

– After installing the sender, check that the sender is correctly seated in the bracket. Visible on the outer side of the bumper, dimension -a- of the ring gap between the sender head and bumper cover must be even all around.



14.4.3 Checking parking aid sender and park assist steering sender

⇒ Vehicle diagnostic tester, Guided Fault Finding.

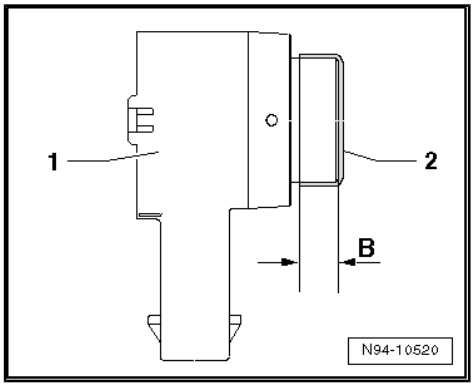
14.5 Renewing park assist steering senders

If a new park assist steering sender is installed, the sender head must be first painted in the colour of the bumper cover. The following prerequisites must be adhered to when painting the senders to ensure the function of the park assist steering system is not adversely affected.

14.5.1 Painting senders

– Remove isolation ring (black silicon ring) from new sender head.

– Degrease black sender head -1- in area to be painted -2- with isopropanol (isopropyl alcohol).
– Paint sender in area to be painted -2- in colour of bumper cover.



Note

Dimension -B- for the painted area must not exceed 3 mm (+ maximum 2 mm).

– Fit isolation ring (black silicone ring) on sender head again once paint has dried.

Caution

- *Expanding the isolation ring must be avoided under all circumstances.*
- *Function problems may occur if a damaged isolation ring is used.*
- *Renew damaged isolation rings.*

14.6 Park assist steering loudspeaker

The park assist steering control unit - J791- controls the functions of the parking aid and park assist steering system. The acoustic warning messages of the park assist steering system are given via the parking aid warning buzzer (parking aid loudspeaker - R169- and rear parking aid loudspeaker - R194-).

Removal and installation and adaption options for the parking aid loudspeaker are described in the chapter entitled parking aid
⇒ “13.7 Parking aid loudspeaker”, page 186 .

14.7 Park assist steering button - E581-

The park assist steering button - E581- is located in the centre console storage compartment in front of the gear lever. The park assist steering button - E581- cannot be dismantled again.

14.7.1 Removing and installing park assist steering button - E581-

Removal and installation of the park assist steering button - E581- is carried out in the same way for all other buttons in the centre console stowage compartment
⇒ “8.1 Buttons in centre console storage compartment”, page 249 .

14.7.2 Checking park assist steering button - E581-

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

15 Reversing camera system

15.1 General description

Note

- *When handling complaints, it is essential to understand the function and operation of the reversing camera system.*
- *Additional information ⇒ Operating manual*
- *In the event of repair work or fault finding, use "Guided fault finding" mode, ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- *When the battery is reconnected, check operation of electrical equipment (radio, clock, convenience electronics and so on) according to the workshop manual and/or the operating manual.*

The reversing camera system supports the driver during reversing by providing the driver with an image of the traffic situation behind the vehicle via the radio or radio navigation system display.

The system is activated when reverse gear is engaged, even if the radio or radio navigation system is switched off.

The reversing camera system consists of the following components:

- Reversing camera - R189-
- Reversing camera system control unit - J772-
- Control unit with display for radio and navigation - J503-

Note

Installation of an additional number plate carrier is not permissible on vehicles with reversing camera system as this would impair the function of the reversing camera. The light of the number plate could also be impaired.

Fault detection and fault display:

The reversing camera system is equipped with self-diagnosis.

For fault finding, use vehicle diagnosis, testing and information system - VAS 5051A- or vehicle diagnosis and service information system - VAS 5052- in "Guided fault finding" mode.

15.2 Assembly overview - reversing camera system

1 - Control unit with display unit for radio and navigation - J503-

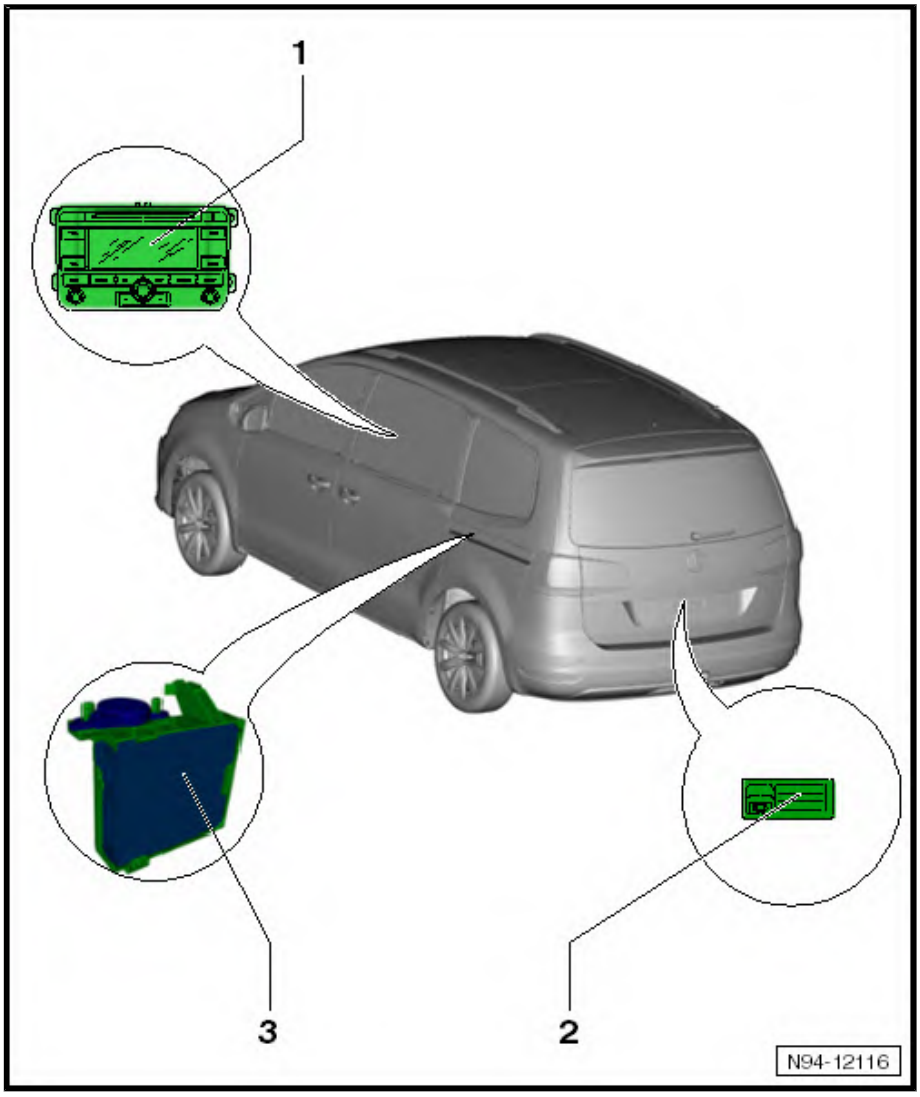
- ❑ Location: at front in centre console
- ❑ Removing and installing ⇒ Communication; Rep. gr. 91

2 - Reversing camera - R189-

- ❑ Location: in handle button of rear lid
- ❑ Removing and installing ⇒ page 199
- ❑ Specified torque for securing nuts: 6 Nm
- ❑ Calibrating reversing camera system ⇒ page 200

3 - Reversing camera system control unit - J772-

- ❑ Located behind side panel trim on left in luggage compartment
- ❑ Removing and installing ⇒ page 200
- ❑ Calibrating reversing camera system ⇒ page 200



15.3 Removing and installing reversing camera

The reversing camera is installed in the handle button of the rear lid. The handle button must not be dismantled. In the event of damage, the complete handle button with reversing camera must be renewed. The reversing camera system must be recalibrated after reinstallation of the camera ⇒ page 200 .

15.3.1 Removing handle button with reversing camera from rear lid

Remove handle button ⇒ General body repairs, exterior; Rep. gr. 55 ; Rear lid; Removing and installing handle with button for release .

15.4 Reversing camera system control unit - J772-

15.4.1 Removing and installing reversing camera system control unit - J772-

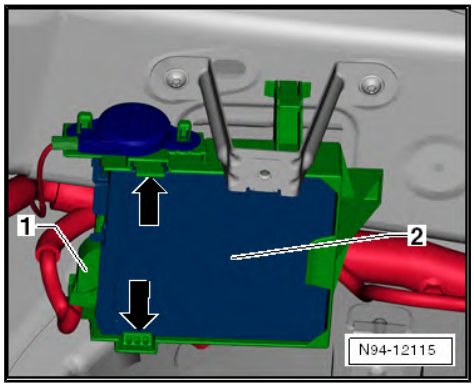
Control unit is installed in luggage compartment behind left side panel trim.

Removing:

Note

If the reversing camera system control unit - J772- is to be replaced, the procedure to "renew control unit for reversing camera system" must always be performed to read out the codes stored in the unit ⇒ page 200 .

- Switch off ignition and all electrical equipment and then remove ignition key.
- Remove storage compartment in left side panel trim in luggage compartment ⇒ General body repairs, interior; Rep. gr. 70 ; Pillars and side panel trim; Removing and installing side panel trim .
- Release connector -1- and disconnect.
- Push retainers -arrows- outwards and swing out control unit for reversing camera system - J772- -2- from bracket.



Installing:

Installation is carried out in the reverse sequence of removal.

Only if reversing camera system control unit - J772- has been renewed:

- Recalibrate reversing camera system ⇒ page 200 .

15.4.2 Renewing reversing camera system control unit - J772-

⇒ Vehicle diagnostic tester, Guided Fault Finding.

15.4.3 Coding reversing camera system control unit - J772-

⇒ Vehicle diagnostic tester, Guided Fault Finding.

15.5 Calibrating reversing camera system

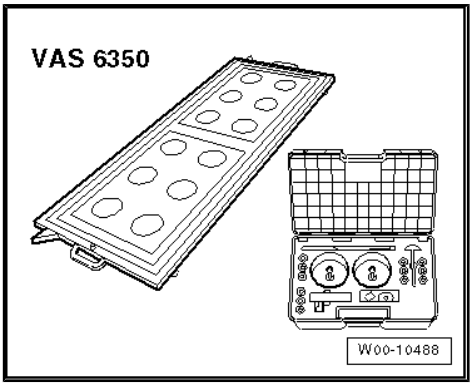
Reversing camera system may have to be recalibrated following repair work on the vehicle. More specifically, this is necessary after:

- Removing and installing reversing camera
- Renewing reversing camera system control unit
- Accident repairs on rear lid
- After vehicle alignment
- Repairs to front or rear axle

Extensive preliminary work is required before actual calibration can be carried out using vehicle diagnosis, testing and information system - VAS 5051A- or vehicle diagnosis and service information system - VAS 5052- . This is described in the following.

Special tools and workshop equipment required

- Calibration unit - VAS 6350-



15.5.1 Preparatory work for calibration:

To carry out calibration, vehicle must be positioned on a firm, level surface. Nobody may be inside vehicle during measurement. Vehicle must not be moved during measurement, and opening and closing vehicle doors is prohibited.

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

– Set steering wheel sender - G85- to 0 position (wheels straight ahead).

Overview of assembled measuring facility:

1 - Wheel centre mounting - VAS 6350/1-

2 - Wheel centre mounting - VAS 6350/1-

3 - Right angle for mounting measuring unit for distance measurement

4 - Plastic foot

- ❑ Total of 3 on bottom of measuring equipment
- ❑ Adjustable to adjust horizontal position of measuring facility

5 - Linear laser - VAS 6350/3-

- ❑ Switching on and off ⇒ Owner's manual

6 - Spacing laser - VAS 6350/2-

- ❑ Notes on operation ⇒ Owner's manual

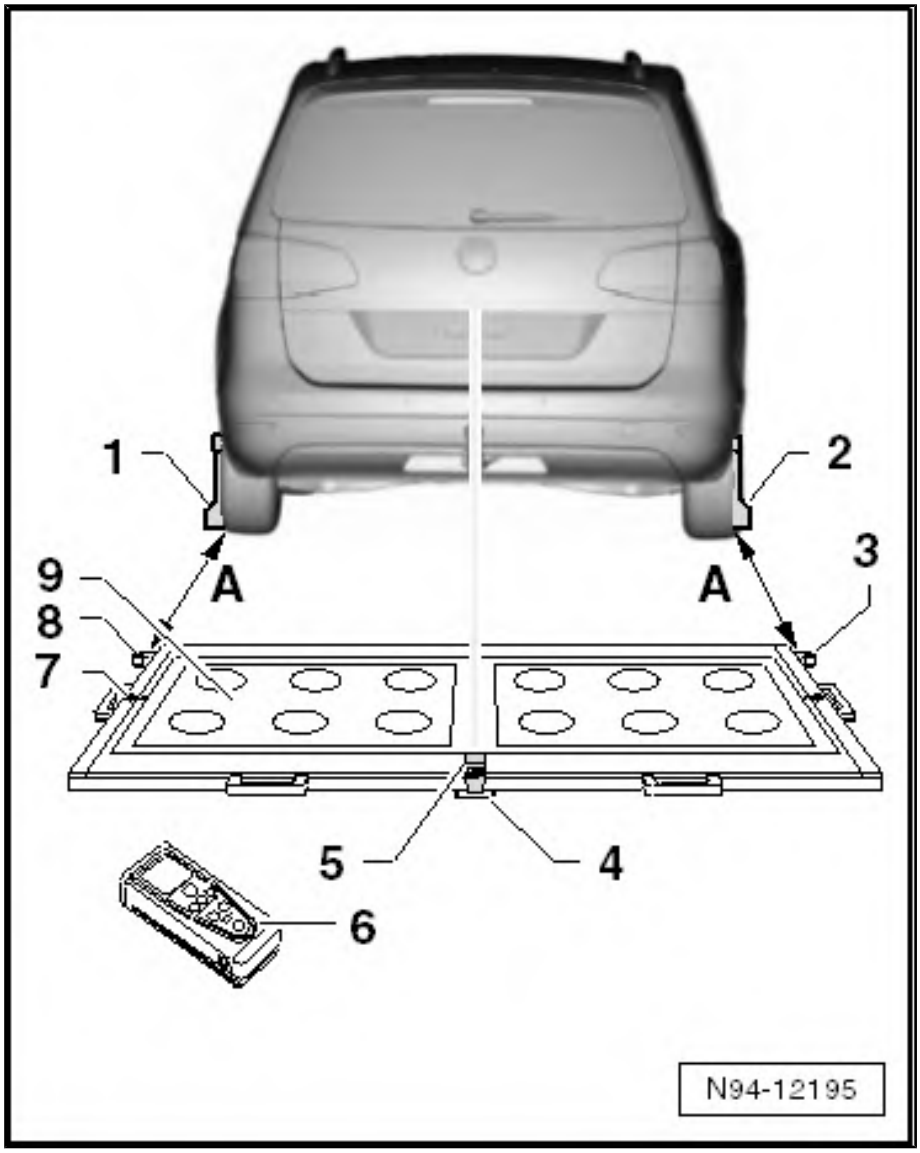
7 - Spirit level on measuring facility

- ❑ To check horizontal position of measuring facility

8 - Left angle for mounting measuring unit for distance measurement

9 - Calibration unit - VAS 6350-

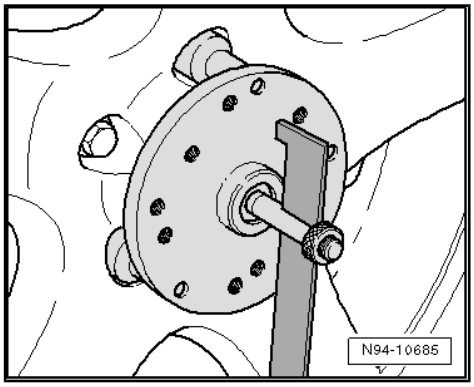
- ❑ Distance between angle brackets of calibration device (⇒ Item 3 (page 202) or ⇒ Item 8 (page 202)) and paddles on wheel centre mountings of rear wheels: 1.40 m -dimension A-.



– Secure a wheel bolt adapter (17 mm AF) in each of the 3 holes in hole circle “112” of wheel centre mounting.

– Place the paddles on the two wheel centre mountings and secure with the clamping nuts.

– Fit the wheel centre mountings onto the wheel bolts on the rear wheels. Wheel centre mountings are positioned and secured in the adapters through »O-rings«.



Note

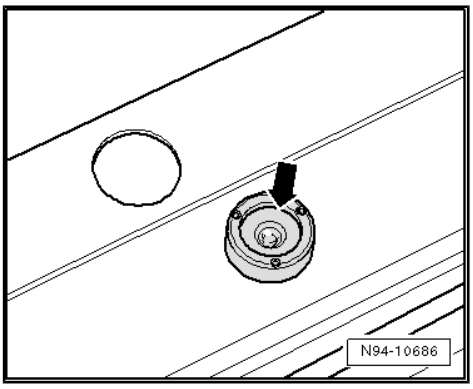
Place wheel centre mountings on wheels in such a way that no »anti-theft wheel bolts«, if any, are connected to wheel bolt adapters.

– Set paddles with the help of the clamping nuts in such a way that they can move freely just above the floor.

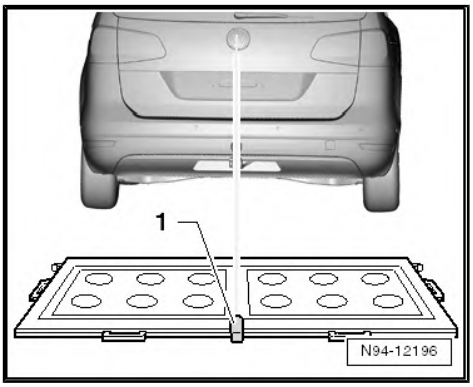
Make sure the paddles can move freely.

– Position the calibration device - VAS 6350/4- behind the vehicle at a distance of approx. 1.40 m - 1.90 m between the angle brackets of the calibration device and the paddles on the wheel centre mountings, as shown in the overview diagram -dimension A- ⇒ Item 9 (page 202) .

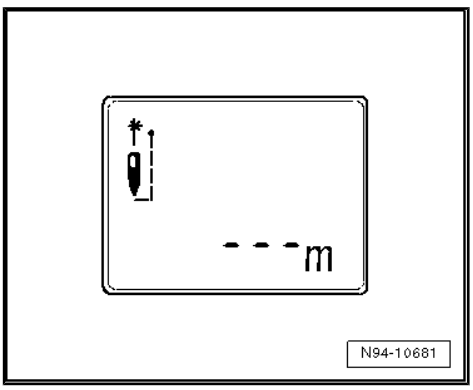
– Bring calibration device - VAS 6350/4- into the horizontal position. Do this by turning the plastic feet under the calibration unit until the air bubble in the spirit level is precisely in the centre of the indicator -arrow-.



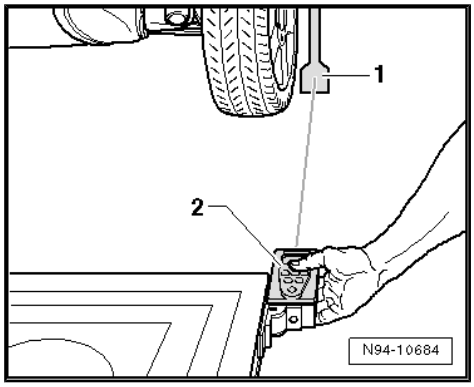
– Switch on laser on calibration unit -1- and align the entire calibration unit so that the laser beam hits the rear end of the vehicle centrally above the VW emblem.



– Switch on the linear laser - VAS 6350/2- for distance measurement by pressing the ON button. The following display appears and the laser is activated:

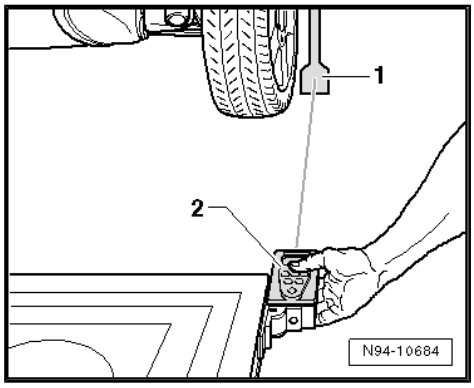


– Hold spacing laser for distance measurement -2- as shown in illustration flush against bracket on one side of calibration unit so that spacing laser lies firmly against bracket.

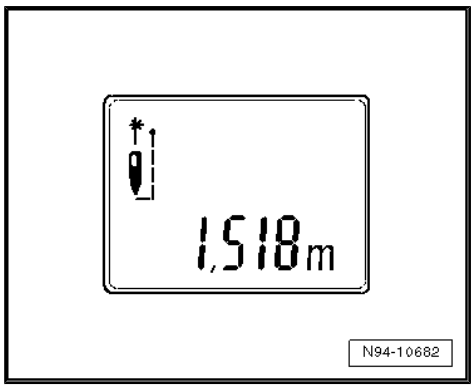


– Ensure that laser beam from spacing laser for distance measurement hits lower, enlarged part of paddle -1-.

If this is not the case, adjust paddles accordingly on wheel mounting using clamping bolts.



– Hold distance spacing laser for distance measurement in bracket on measuring device whilst laser beam is visible on paddle. Now, briefly press ON button to measure distance. The following appears in the display:



The distance is shown on the display in “metres”.

– Make a note of the distance.

– Repeat measuring process in same manner for other rear wheel on other side of calibration unit.

Measured distance value must be identical on both sides. If value is not identical, adjust calibration unit until values on both sides are identical.

When adjusting the calibration unit, ensure that the laser beam of the spacing laser continues to hit the vehicle centrally above the VW logo and that the spirit level indicator remains in the centre. If necessary, readjust accordingly.

The measured distance must be entered during calibration in vehicle diagnosis, testing and information system - VAS 5051A- or vehicle diagnosis and service information system - VAS 5052- in “millimetres”.

Calibrating reversing camera system ⇒ page 204

15.5.2 Calibrating reversing camera system

Note

Note the points regarding preparatory work for calibration *⇒ page 201* *.*

⇒ Vehicle diagnostic tester, Guided Fault Finding.

15.6 Renewing video cable

15.6.1 Preparation

Note

It is not permitted to repair the video cable. The cable may be renewed only.

The replacement cable can be found in ⇒ ETKA under part number “7N1971327”.

– Remove radio ⇒ Rep. gr. 91 ; Radio; Removing and installing radio .
– Remove glove compartment ⇒ Rep. gr. 68 ; Compartments and covers; Removing and installing glove compartment .
– Remove lower A-pillar trim ⇒ Rep. gr. 70 ; Trim; Assembly overview - A-pillar trim .
– Remove front and rear sill panel mouldings ⇒ Rep. gr. 70 ; Trim; Removing and installing sill panel moulding .
– Remove lower B-pillar trim ⇒ Rep. gr. 70 ; Trim; Assembly overview - B-pillar trim .
– Remove left luggage compartment side trim ⇒ Rep. gr. 70 ; Luggage compartment trims; Removing and installing luggage compartment side trim .

15.6.2 Routing repair cable

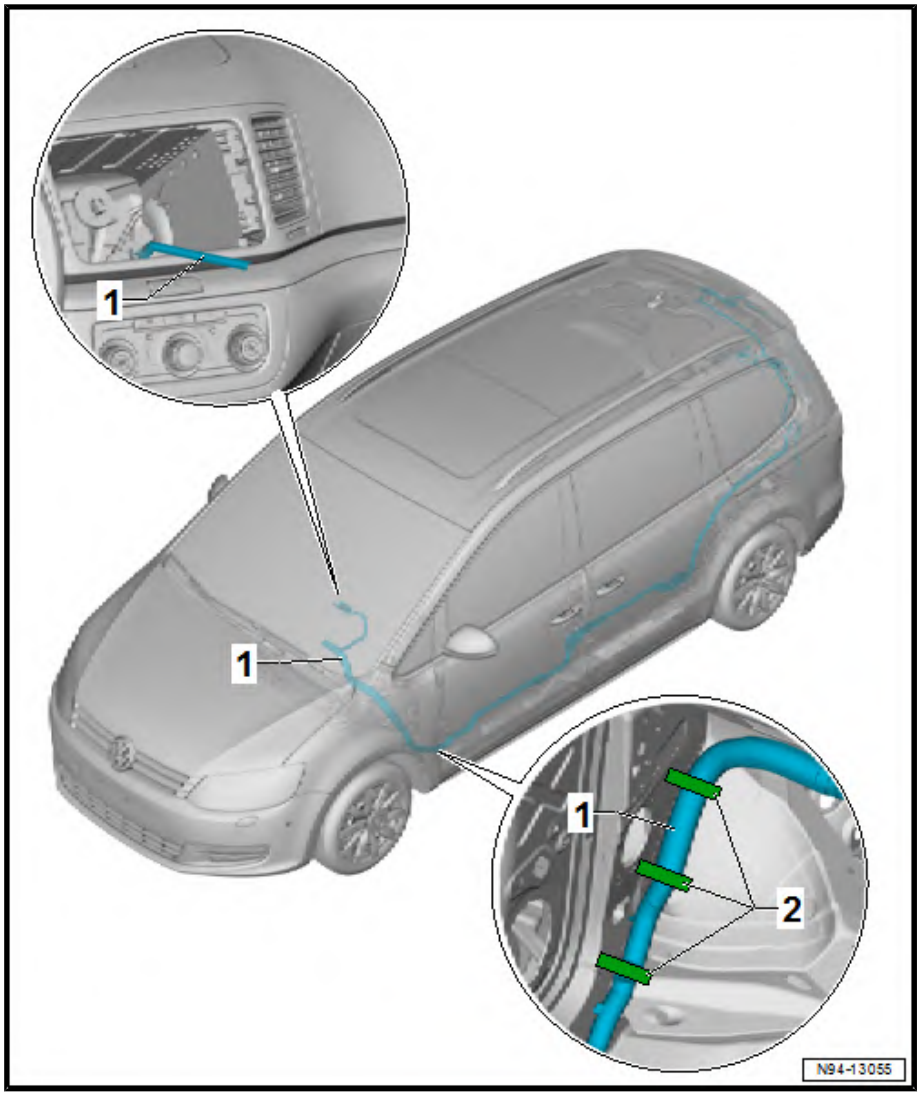
Note

It is not permitted to repair the video cable. The cable may be renewed only.

Caution

When routing the cable, ensure that it is not kinked and that it does not rub anywhere.

– Switch off ignition.
– Position 26-pin connector of repair cable near radio.



Note

Ensure that the cable is sufficiently long to permit later installation and removal of the radio.

- Route repair cable -1- directly from radio slot towards left A-pillar.
- Secure cable to dash panel cross member using cable ties.
- Secure cable at top of A-pillar -2- using cable ties.
- Guide through lower section of A-pillar.
- Route cable parallel to main wiring harness and fix it in place.

Caution

When routing the cable, ensure that it is not kinked and that it does not rub anywhere.

15.6.3 Renewing video cable connector strip

– Separate old 54-pin connector from reversing camera system control unit - J772- .
– Open old 54-pin connector and remove video cable.
– Open new 54-pin connector and remove video cable connector strip.
– Insert new video cable connector strip in old connector and assemble connector housing.
– Connect connector to reversing camera system control unit - J772- .
– Coil excess length of cable and secure to main wiring harness.
– Shorten defective video cable and wrap it in main wiring harness.
– Perform functional check.
– Read fault memory and clear it.

16 Lane departure warning

16.1 Assembly overview - lane departure warning

1 - Front camera for driver assist systems - R242-

- ❑ Fitting location: in interior mirror bracket
- ❑ Removing and installing ⇒ page 209
- ❑ Replacing front camera for driver assist systems ⇒ page 211
- ❑ Coding front camera for driver assist systems ⇒ page 211
- ❑ Calibrating front camera for driver assist systems ⇒ page 209

2 - Windscreen heater for front sensors - Z113-

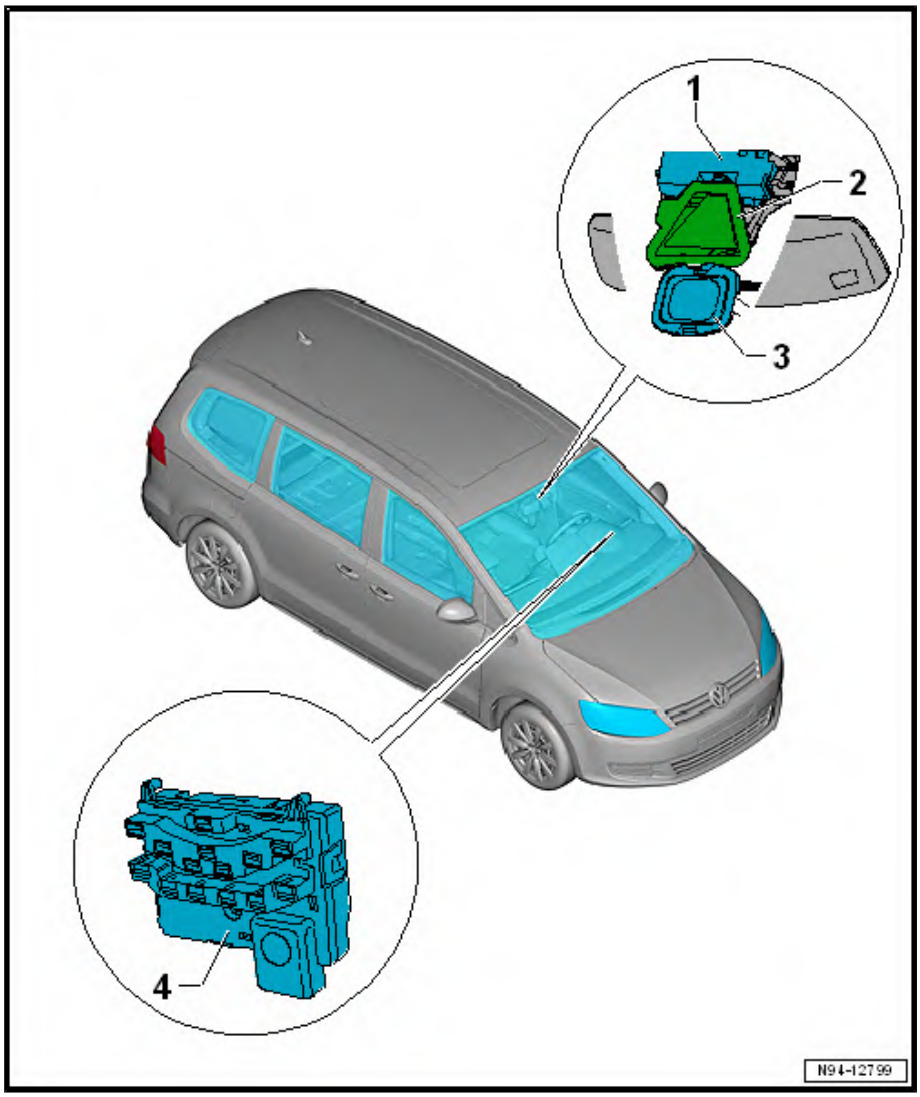
- ❑ Fitting location: in interior mirror bracket
- ❑ Removing and installing ⇒ page 211

3 - Rain and light sensor - G397-

- ❑ Fitting location: in interior mirror bracket
- ❑ Removing and installing ⇒ page 58

4 - Steering angle sender - G85-

- ❑ Fitting location: in steering column trim behind steering wheel
- ❑ Removing and installing ⇒ page 137



16.2 General description

Note

- *When handling complaints, it is essential to understand the function and operation of the lane departure warning.*
- *Additional information:*

⇒ Operating manual

⇒ Current flow diagrams, Electrical fault finding and Fitting locations

Use ⇒ Vehicle diagnostic tester, `Guided fault finding` for repairs and troubleshooting.

Lane marking lines are recognised by a camera in the interior mirror. If the vehicle approaches an recognised lane marking line, the driver is informed that he is unintentionally leaving the lane. This is done with a corrective steering intervention by the system that helps to stay in lane.

The system is designed for driving on motorways and well developed A roads. Therefore, the system only starts operation at speeds above 65 km/h. If the lane departure warning system detects lane marking lines on both sides of the own driving lane, the system is operational. This is indicated by the green warning lamp in the dash panel insert. If, when the system is operational, you switch the turn signal on before crossing a lane marking line, the warning is suppressed as the system presumes that the lane change is intentional.

Note

- *The corrective steering intervention can, if necessary, be overridden by the driver.*
- *In driving situations that require a high level of attention from the driver, we recommend switching the system off, e.g. during:*
- *Very sporty driving*
- *Poor weather conditions*
- *Poor road conditions or road works*

16.3 Removing and installing front camera for driver assist systems - R242-

Removing: ⇒ page 209

Installing: ⇒ page 210

Renewing front camera for driver assist systems: ⇒ page 211

Coding front camera for driver assist systems: ⇒ page 211

Calibrating front camera for driver assist systems: ⇒ page 211

Starter button - R242- is located in holder of interior mirror.

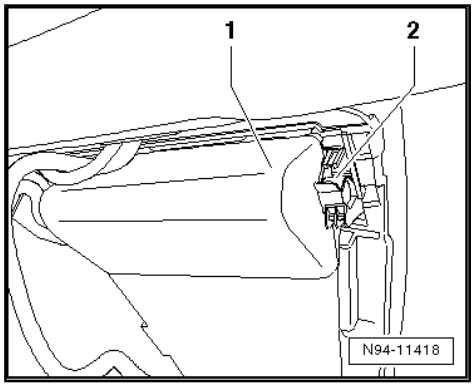
Note

If the front camera for driver assist systems - R242- is to be replaced, the procedure for "replacing the front camera for driver assist systems" must always be performed in order to read out the codes stored in the unit *⇒ page 211* *.*

Removing:

– Remove interior mirror ⇒ General body repairs, interior; Rep. gr. 68 ; Interior mirror; Removing and installing interior mirror .

– Push retaining clip -2- upwards.
– Carefully pull front camera for driver assist systems - R242- towards rear out of mounting.
– Then pull front camera for driver assist systems - R242- out of its left mounting towards the right, taking into account the lengths of connected cables and wires.

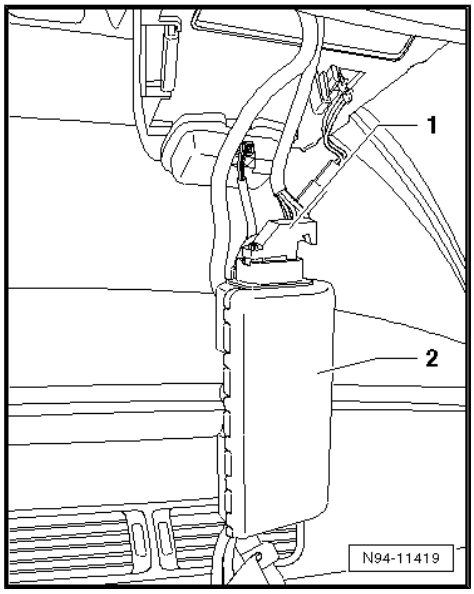


– Release and detach connector -1- and remove front camera for driver assist systems - R242- -2-.

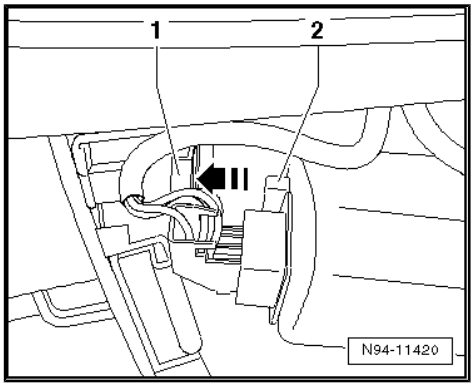
Installing:

Installation is carried out in the reverse order. When installing observe the following:

– Push connector onto front camera for driver assist systems - R242- until it locks into place.



– Insert protrusion -2- on left side on front camera for driver assist systems - R242- into mounting -1- on carrier plate.
– Then, push front camera for driver assist systems - R242- on the right-hand side into the retaining clip.
– Install interior mirror ⇒ General body repairs, interior; Rep. gr. 68 ; Interior mirror; Removing and installing interior mirror .
– Calibrate front camera for driver assist systems ⇒ page 211 .



Renewing front camera for driver assist systems

– Connect vehicle diagnostic tester ⇒ page 265 .
– Select operating mode “Guided Fault Finding” in vehicle diagnosis tester .
– Using “GoTo” button, select “Function/component selection” and follow the instructions on the vehicle diagnostic tester .

Coding front camera for driver assist systems

– Connect vehicle diagnostic tester ⇒ page 265 .
– Select operating mode “Guided Fault Finding” in vehicle diagnosis tester .
– Using “GoTo” button, select “Function/component selection” and follow the instructions on the vehicle diagnostic tester .

Calibrating front camera for driver assist systems

Calibration of the front camera is necessary for the following reasons:

- “No or incorrect basic setting/adaption” entry stored in the event memory.
- Lane departure warning control unit - J759- with camera has been renewed.
- Windscreen has been renewed or removed.
- Rear axle toe has been adjusted.
- Modifications, which may affect vehicle height, have been performed on vehicle running gear.
- On vehicles with electronic damping control or air suspension vehicle level senders have been renewed.

Calibrating front camera for driver assist systems - R242- : ⇒ Running gear, axles, steering; Rep. gr. 44 ; Front camera for driver assist systems; Calibrating front camera for driver assist systems .

16.4 Removing and installing windscreen heater for front sensors - Z113-

The windscreen heater for front sensors - Z113- is integrated in the carrier plate stuck on the windscreen and cannot be renewed individually. In the event of damage, the windscreen must be renewed ⇒ General body repairs, exterior; Rep. gr. 64 ; Windscreen; Removing and installing windscreen .

96 – Lights, bulbs, switches - interior

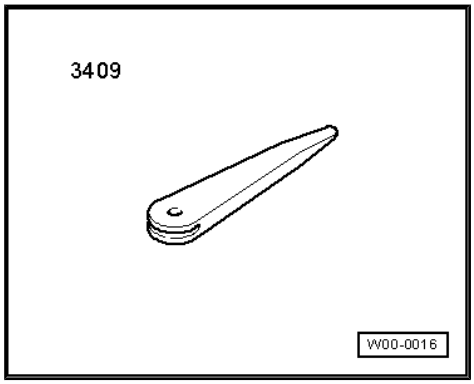
1 Interior lights and switches

1.1 Interior monitoring deactivation switch - E267- and deactivation button for vehicle inclination sender - E360-

1.1.1 Removing and installing interior monitoring deactivation switch - E267- and deactivation button for vehicle inclination sender - E360-

Special tools and workshop equipment required

- Removal wedge - VAS 3409-



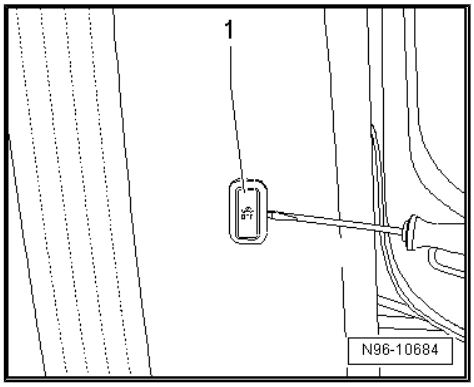
Note

- *The interior monitoring deactivation switch - E267- and the deactivation button for vehicle inclination sender - E360- form one component.*
- *The anti-theft alarm system must be deactivated before the interior monitoring deactivation switch - E267- and the deactivation button for vehicle inclination sender - E360- can be removed ⇒ page 260 .*
- *When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - VAS 3409- , screwdriver) are used to lever out those components using commercially available tape.*
- *The interior monitoring deactivation switch - E267- and the deactivation button for vehicle inclination sender - E360- are located in the B-pillar trim on the driver side.*

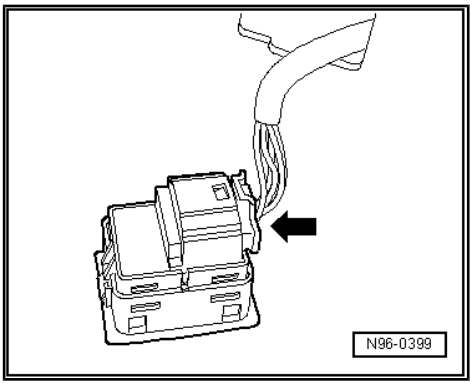
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Carefully lever out the interior monitoring deactivation switch - E267- and the deactivation button for vehicle inclination sender - E360- -1- using the wedge - VAS 3409- or a suitable screwdriver.



– Release and disconnect connector -arrow-.



Installing:

Installation is carried out in the reverse sequence of removal.

2 Lights and switches in engine compartment

Note

There is no engine compartment lighting on the Sharan.

2.1 Removing and installing bonnet contact switch - F266-

Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

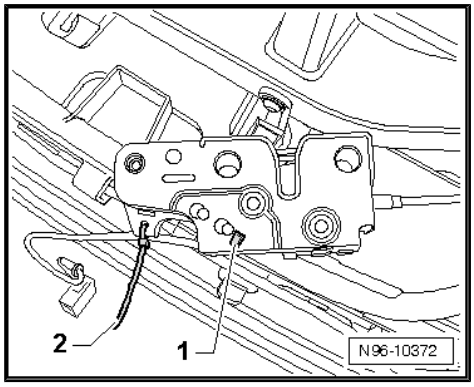
– Remove bonnet catch ⇒ General body repairs, exterior; Rep. gr. 55 ; Bonnet; Removing and installing lid lock .

Note

The Bowden cable can remain connected to the lid lock.

– Cut off cable tie -2-.

– Release locking lug -1- and move bonnet contact switch - F266- in elongated holes until it can be removed.



Installing:

Installation is carried out in the reverse sequence of removal.

3 Lights and switches in dash panel

3.1 Light switch - E1-

The following components are integrated into the light switch - E1- :

- Fog light switch - E7-
- Rear fog light switch - E18-
- Bulb for illumination of light switch - L9-

3.1.1 Removing and installing light switch - E1-

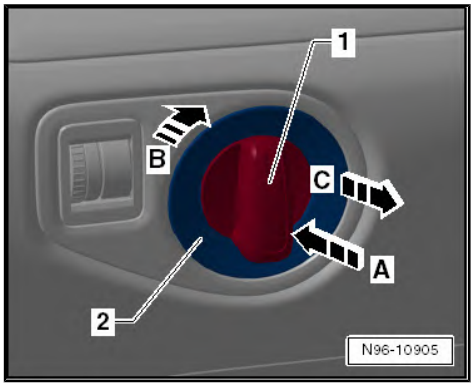
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

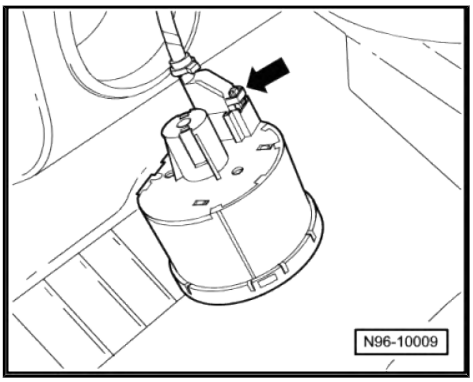
– Turn rotary knob part of light switch to “0”.

– Push in rotary light switch -1- -arrow A- and turn clockwise slightly -arrow B-.

– Hold rotary switch in this position and pull out light unit -2- from dash panel -arrow C-.



– Release and disconnect connector -arrow-.



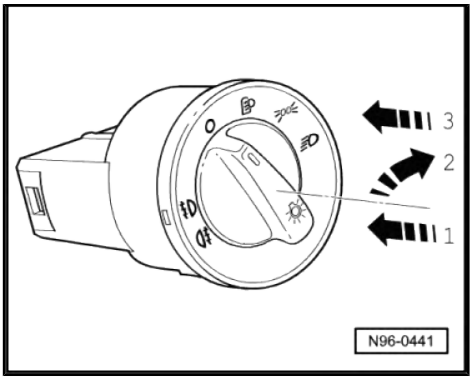
Installing:

– Fit connector on light switch and engage.

– Hold light switch firmly in place, push in rotary grip of light switch -1- and turn it slightly to the right -2-

– Hold rotary grip in this position and insert light switch in dash panel -3-.

– Turn rotary grip to “0” position, release and engage switch.



3.2 Headlight range control regulator - E102- and switch and instrument illumination regulator - E20-

Note

The headlight range control regulator - E102- and the lighting, switch and instrument regulator - E20- are a single component.

3.2.1 Removing and installing headlight range control adjuster - E102- and switch and instrument illumination regulator - E20-

Note

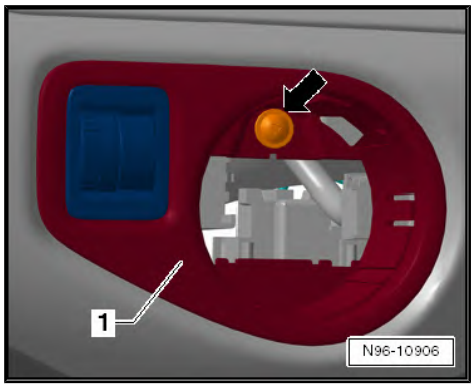
When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - VAS 3409- , screwdriver) are used to lever out those components using commercially available tape.

Removing:

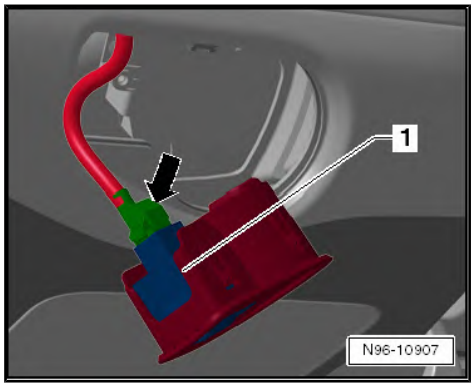
– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove light switch ⇒ page 215

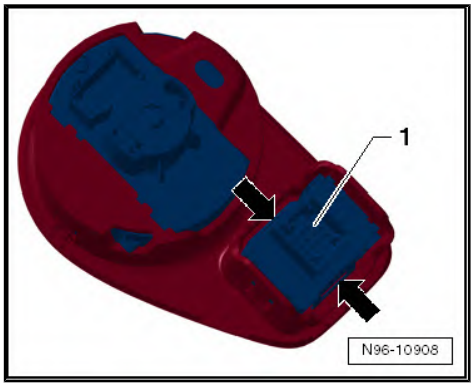
– Unscrew securing bolt -arrow- and unclip switch trim -1- from dash panel.



– Release and separate connector -arrow- and remove switch trim -1-.



– Release retainers -arrows- on both sides and push headlight range adjuster - E102- and dimmer switch for switches and instruments - E20- forwards out of switch trim.



Installing:

Installation is carried out in the reverse sequence of removal.

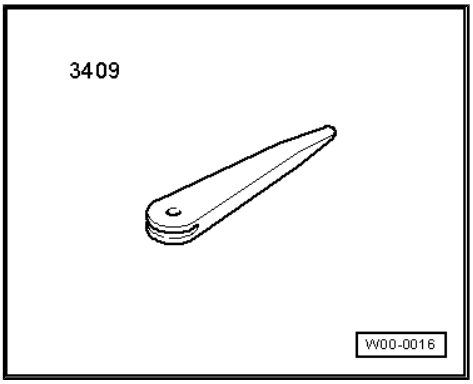
3.3 Glove compartment light - W6-

The glove compartment light - W6- is located in the front passenger's footwell, in the glove compartment.

3.3.1 Removing and installing glove compartment light - W6-

Special tools and workshop equipment required

- Removal wedge - VAS 3409-



Note

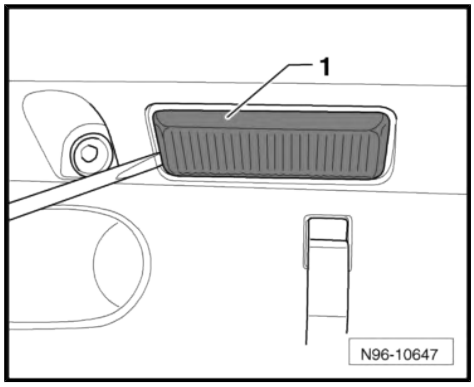
When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - VAS 3409- , screwdriver) are used to lever out those components using commercially available tape.

Removing:

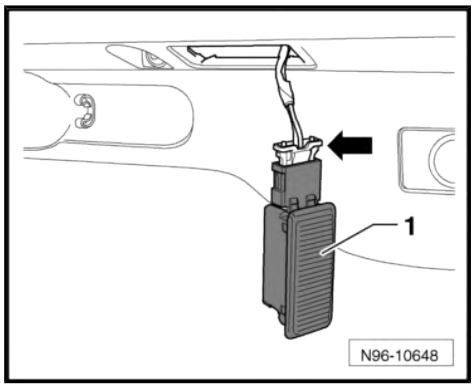
– Switch off ignition and all electrical equipment and then remove ignition key.

– Open glove compartment.

– Carefully lever out glove compartment light - W6- -1- using wedge - VAS 3409- or a suitable screwdriver.



– Release and detach connector -arrow- and remove glove compartment light - W6- .



Installing:

Install in the reverse order of removal. When doing this, note the following:

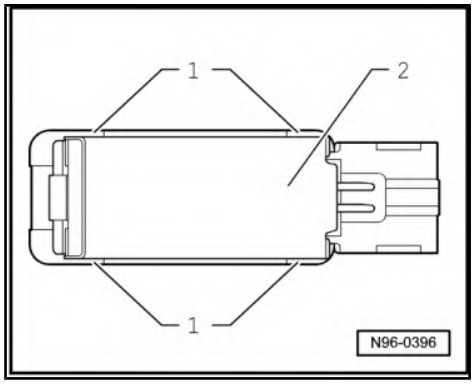
– Finally, check function of glove compartment switch. When the lid is closed, the glove compartment light should not be on.

3.3.2 Renewing glove compartment light - W6- bulb

Removing:

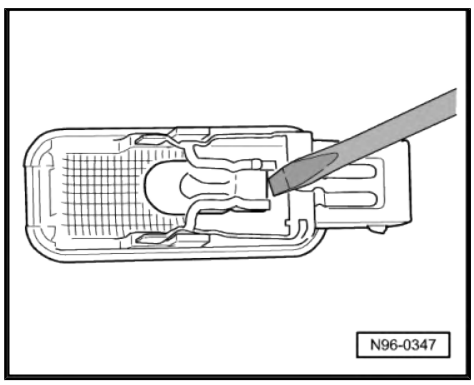
– Remove glove compartment light - W6- ⇒ page 217 .

– Release locking lugs -1- and remove heat shield -2- from light lens.



– Carefully pry bulb out of bulb holder.

– Glass-base bulb: 12 V, 5 W



Installing:

Installation is carried out in the reverse sequence of removal.

3.4 Hazard warning light switch - E3-

The hazard warning light switch - E3- is located in the centre of the dash panel, below the radio unit or the radio navigation unit.

3.4.1 Removing and installing hazard warning light switch - E3-

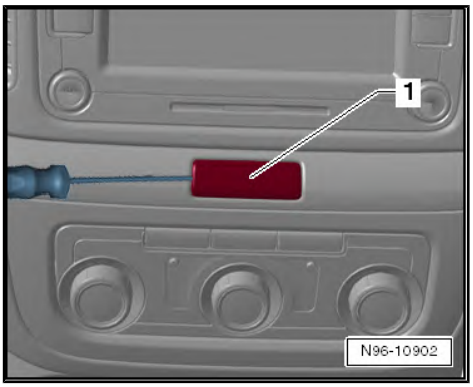
Note

When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - VAS 3409- , screwdriver) are used to lever out those components using commercially available tape.

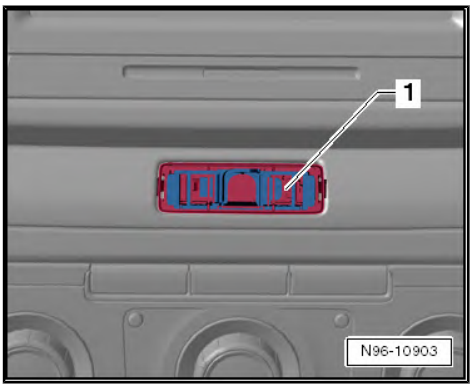
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

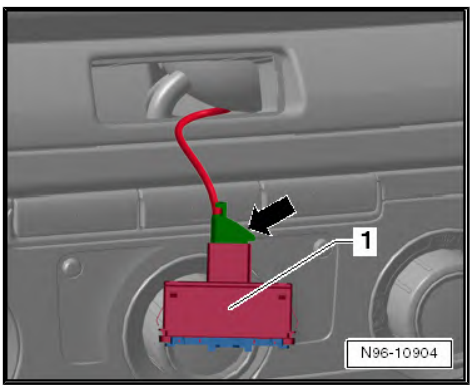
– Carefully lever off cap -1- of hazard warning light switch on both sides using a suitable flat tip screwdriver.



– Pull out hazard warning light switch - E3- -1- in a straight line backwards from dash panel.



– Release and separate connector -arrow- and remove hazard warning light switch - E3- -1-.



Installing:

Installation is carried out in the reverse sequence of removal.

3.4.2 Checking hazard warning light switch - E3-

⇒ Vehicle diagnostic tester, Guided Fault Finding.

3.5 Left footwell light - W9- and right footwell light - W10-

The left footwell light - W9- can be found beneath the dash panel in the driver's footwell. The right footwell light - W10- can be found beneath the glove compartment.

Note

The illustrations show removal and installation of right footwell light. The removal and installation of the left footwell light is carried out in the same way.

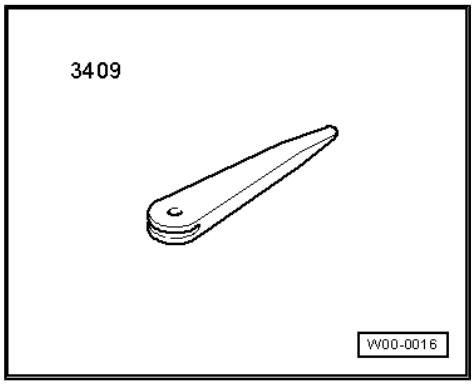
3.5.1 Removing and installing footwell light

Note

- *When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - VAS 3409- , screwdriver) are used to lever out those components using commercially available tape.*
- *Removal and installation of both footwell lights is performed in the same way and is described as follows for just one light.*

Special tools and workshop equipment required

- Removal wedge - VAS 3409-



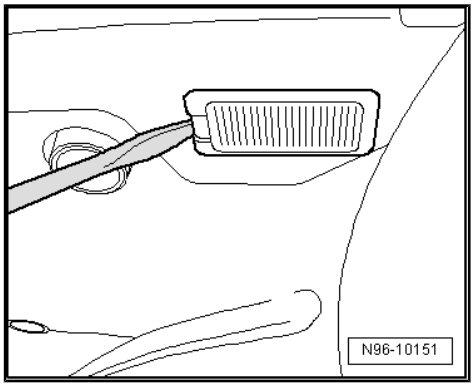
Note

- *When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - VAS 3409- , screwdriver) are used to lever out those components using commercially available tape.*
- *Removal and installation of both footwell lights is performed in the same way and is described as follows for just one light.*

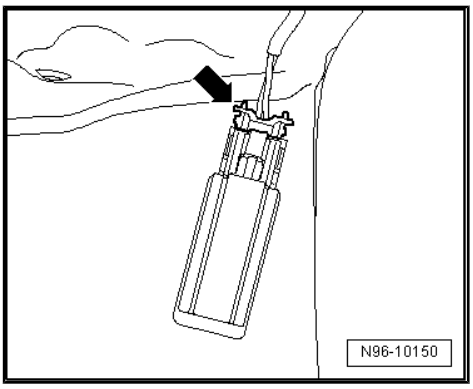
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Use removal wedge - VAS 3409- or suitable screwdriver to prise footwell light out of trim beneath glove compartment.



– Release and detach connector -arrow- and remove right footwell light - W10- .



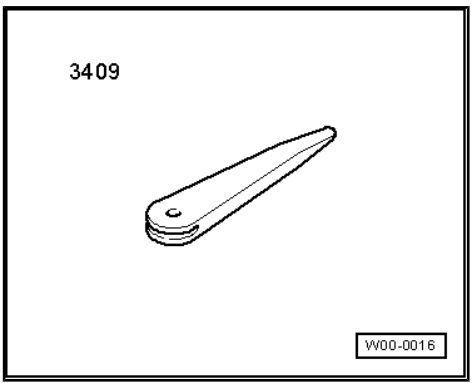
Installing:

Installation is carried out in the reverse sequence of removal.

3.5.2 Renewing bulb of footwell light

Special tools and workshop equipment required

♦ Removal wedge - VAS 3409-



Note

♦ *When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - VAS 3409- , screwdriver) are used to lever out those components using commercially available tape.*

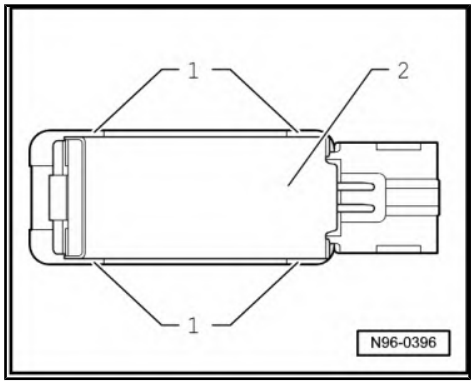
♦ *Removal and installation of both footwell lights is performed in the same way and is described as follows for just one light.*

Removing:

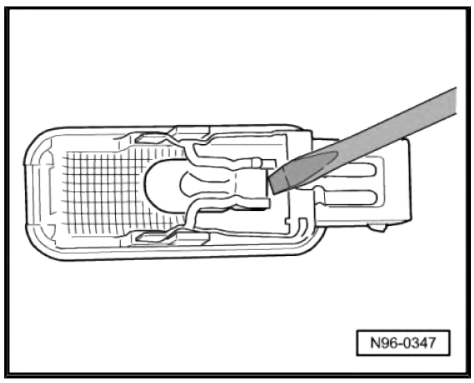
– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove footwell light ⇒ page 220 .

– Release locking lugs -1- and remove heat shield -2- from light lens.



– Carefully pry bulb out of bulb holder.
– Glass-base bulb: 12 V, 5 W



Installing:

Installation is carried out in the reverse sequence of removal.

3.6 Key operated switch to deactivate front passenger side airbag - E224-

WARNING

Observe safety precautions when working on airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag; Safety precautions when working on airbag .

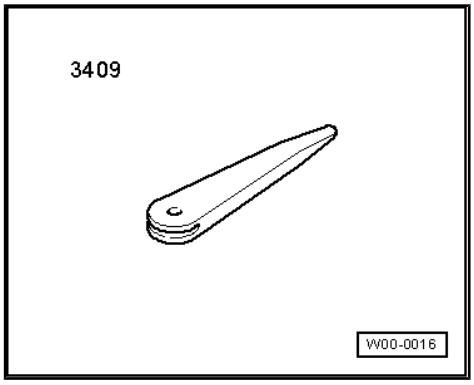
3.6.1 Removing and installing key-operated switch to deactivate front passenger side airbag - E224-

WARNING

- *Danger of triggering of the airbag!*
- *Improper action on airbag unit may result in the triggering of the airbag!*
- *Observe safety precautions when working on airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag; Safety precautions when working on airbag .*

Special tools and workshop equipment required

♦ Removal wedge - VAS 3409-

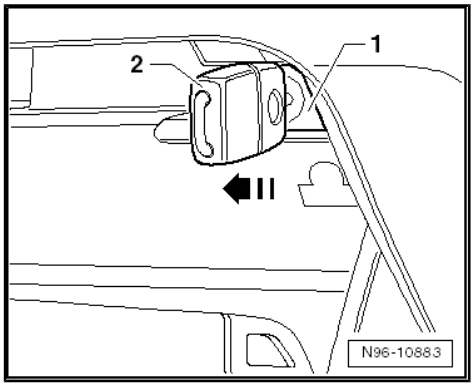


Removing:

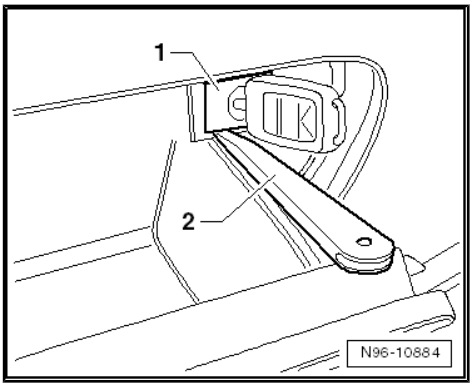
– Switch off ignition and all electrical equipment and then remove ignition key.

– Open glove compartment.

– Insert ignition key -2- in front passenger side airbag deactivation key switch - E224- -1- and carefully unlock the switch with the ignition key in a vertical position on the right-hand side in -direction of arrow-.



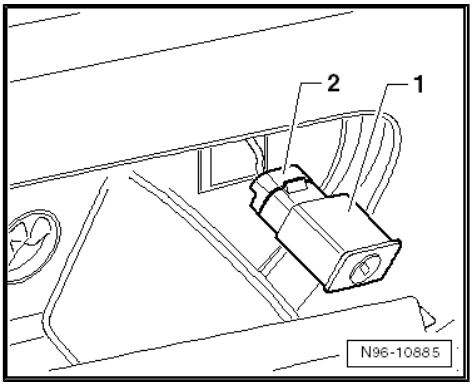
– Detach key switch for deactivating front passenger side airbag - E224- -1- on left-hand side using removal wedge - VAS 3409- -2-.



– Release and separate connector -2- and remove key switch for deactivating front passenger airbag - E224- -1-.

Installing:

Installation is carried out in the reverse sequence of removal.



4 Lights and switches in front doors

4.1 Driver side window regulator switch module

The following components are integrated in the driver's window regulator switch module:

- Front left window regulator switch - E40-
- Rear left window regulator switch in driver door - E53-
- Rear right window regulator switch in driver door - E55-
- Front right window regulator switch in driver door - E81-
- Childproof lock button - E318-
- Button illumination bulb - L76-

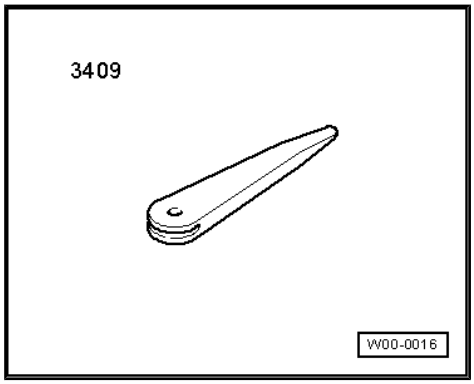
Note

The above mentioned components cannot be renewed individually.

4.1.1 Removing and installing switch module for driver side window regulator

Special tools and workshop equipment required

- Removal wedge - VAS 3409-



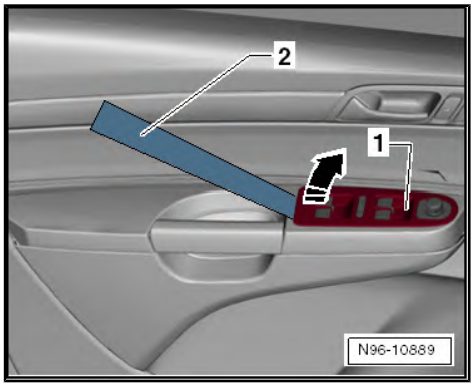
Note

When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - VAS 3409- , screwdriver) are used to lever out those components using commercially available tape.

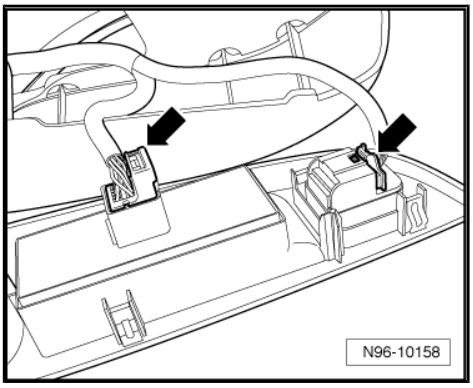
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

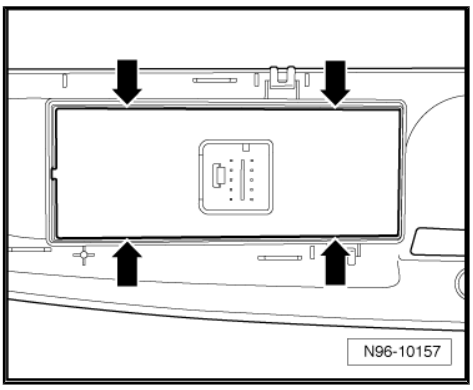
– Carefully lever out mounting frame -1- backwards from door panel trim using removal wedge - VAS 3409- -2- or suitable screwdriver.



– Release and detach connectors -arrows- and remove mounting frame.



– Release locking lugs -arrows- and remove switch module for window regulator from mounting frame.



Installing:

Installation is carried out in the reverse sequence of removal.

4.2 Mirror adjustment switch on passenger side

The following components (depending on equipment) are integrated into the switch module for the mirror adjustment on the driver side:

- Mirror adjustment switch - E43-
- Mirror adjustment changeover switch - E48-
- Exterior mirror heater button - E231-
- Fold-in mirror switch - E263-
- Mirror adjustment switch illumination bulb - L78-

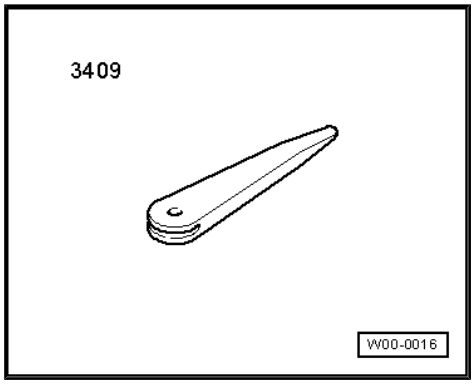
Note

The above mentioned components cannot be renewed individually.

4.2.1 Removing and installing switch module for mirror adjustment on driver side

Special tools and workshop equipment required

- Removal wedge - VAS 3409-



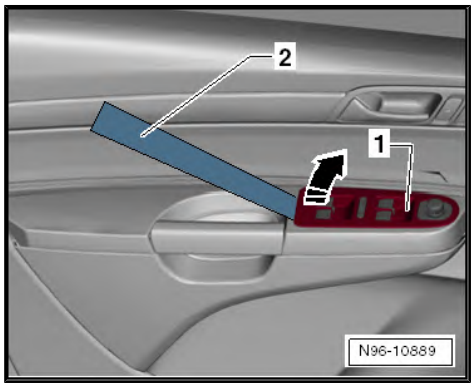
Note

When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - VAS 3409- , screwdriver) are used to lever out those components using commercially available tape.

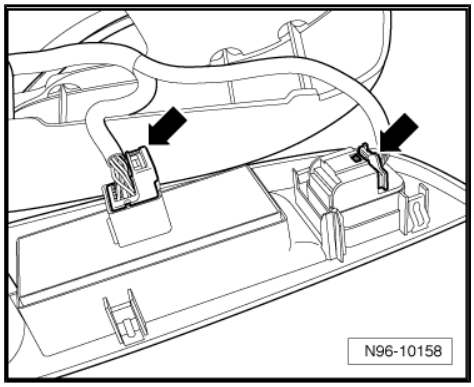
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

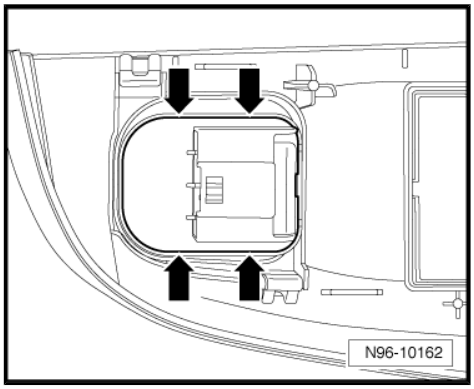
– Carefully lever out mounting frame -1- backwards from door panel trim using removal wedge - VAS 3409- -2- or suitable screwdriver.



– Release and detach connectors -arrows- and remove mounting frame.



– Release locking lugs -arrows- and remove switch module for mirror adjustment upwards from mounting frame.



Installing:

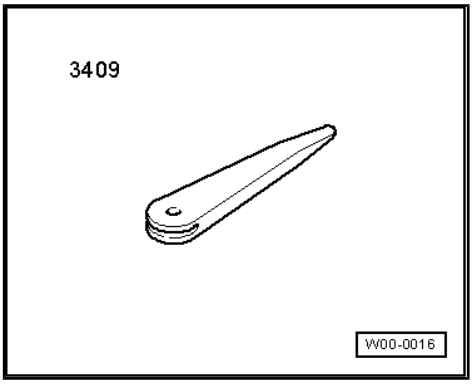
Installation is carried out in the reverse sequence of removal.

4.3 Window regulator switch in front passenger door - E107-

4.3.1 Removing and installing window regulator switch in front passenger door - E107-

Special tools and workshop equipment required

- Removal wedge - VAS 3409-



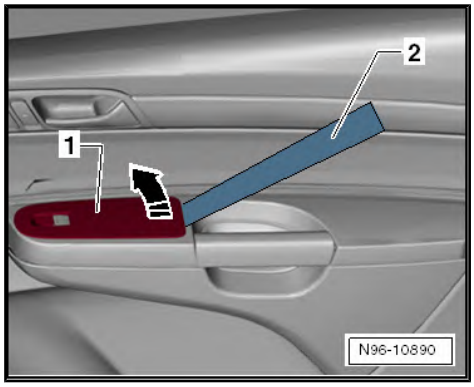
Note

When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - VAS 3409- , screwdriver) are used to lever out those components using commercially available tape.

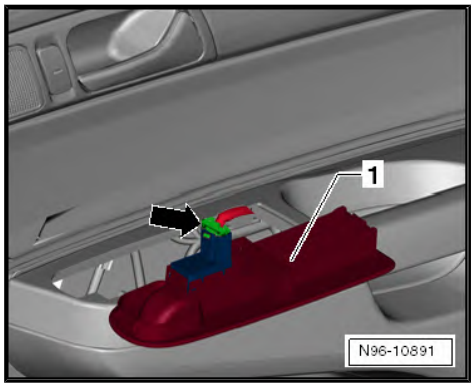
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

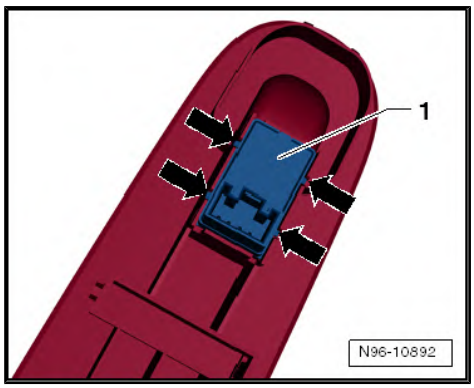
– Carefully lever out mounting frame -1- backwards from door panel trim using removal wedge - VAS 3409- -2- or suitable screwdriver.



– Release and detach connector and remove mounting frame -1-.



– Release locking lugs -arrows- and remove window regulator switch in front passenger door - E107- -1- upwards from mounting frame.



Installing:

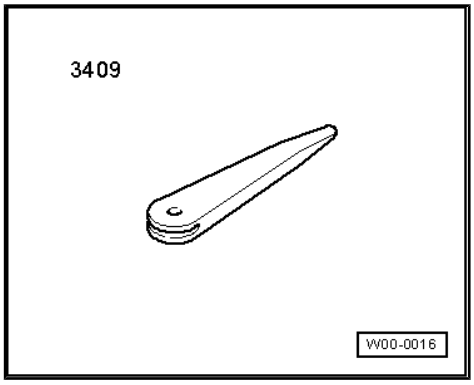
Installation is carried out in the reverse sequence of removal.

4.4 Driver side interior locking button for central locking system - E308-

4.4.1 Removing and installing driver side interior locking button for central locking system - E308-

Special tools and workshop equipment required

♦ Removal wedge - VAS 3409-



Note

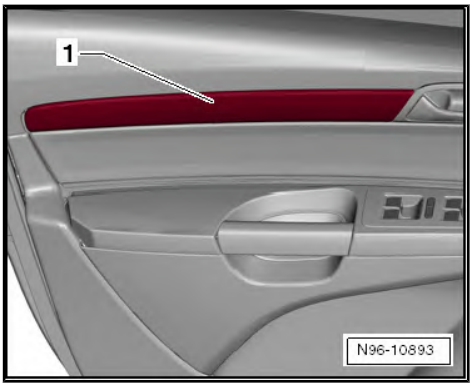
When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - VAS 3409- , screwdriver) are used to lever out those components using commercially available tape.

Removing:

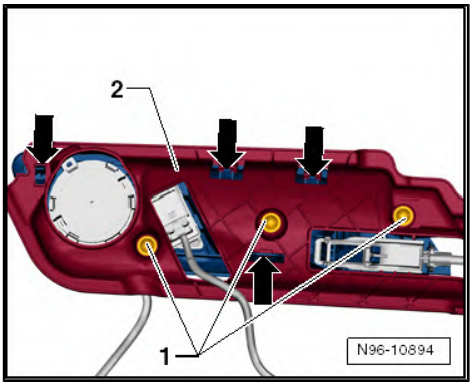
– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove front door trim on driver side ⇒ General body repairs, interior; Rep. gr. 70 ; Removing and installing front door trim on driver side .

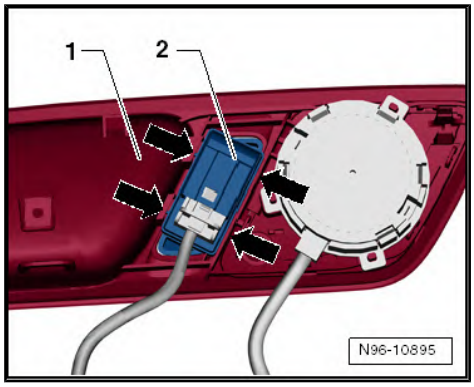
– Carefully unclip decorative strip in door trim -1- using removal wedge - VAS 3409- .



– Remove three securing bolts -1-, detach locking lugs -arrows- and remove cover -2-.



– Push out trim of inner door handle -1- from door panel, release 4 locking lugs -arrows- and push out inner door handle on driver side - E308- -2- from door handle trim.



Installing:

Installation is carried out in the reverse sequence of removal.

4.5 Central locking SAFELOCK function warning lamp - K133-

The central locking SAFELOCK function warning lamp - K133- is located near the B-pillar in the driver's door trim.

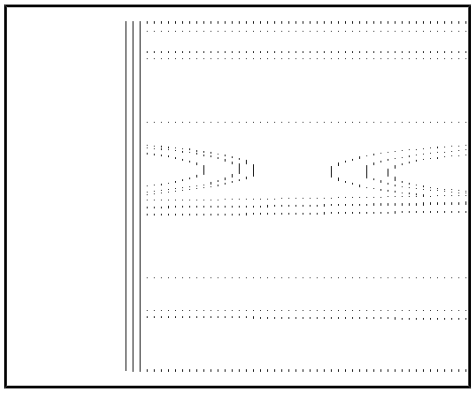
4.5.1 Removing and installing Central locking SAFELOCK function warning lamp - K133-

Removing:

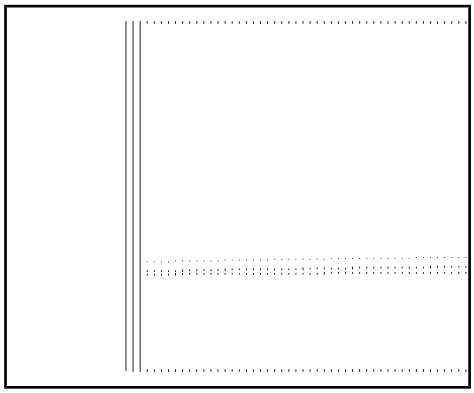
– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove front door panel trim on driver side ⇒ General body repairs, interior; Rep. gr. 70 ; Door trims .

– Unclip central locking deadlock function warning lamp -SAFE- - K133- -1- by pressing locking lugs together -arrows- and remove from door trim panel.



– Pull off connector -1- and remove central locking SAFELOCK function warning lamp - K133- -2-.



Installing:

Install in the reverse order of removal. When doing this, note the following:

Note

Ensure, when installing, that the central locking SAFELOCK function warning lamp - K133- engages properly in the door panel.

4.6 Door warning lamps

4.6.1 Removing and installing door warning lamps

Note

Removal and installation of all door warning lights are performed in the same manner and are described only for one light.

Door warning lamps:

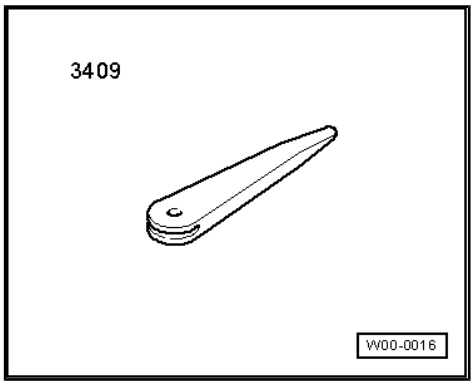
- Driver side door warning lamp - W30 -
- Front passenger side door warning lamp - W36-

Caution

When removing and installing components in areas on view (switches, covers, trim and so on), mask off areas in which leverage tools (plastic wedge, screwdriver) are used to lever out those components using commercially available adhesive tape.

Special tools and workshop equipment required

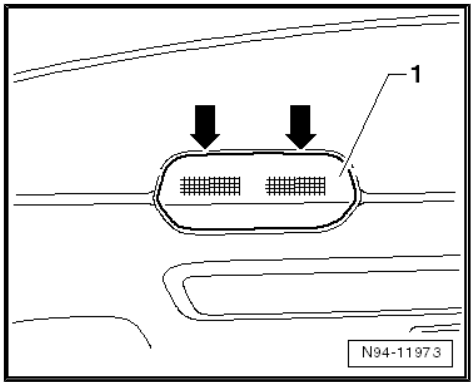
- Removal wedge - VAS 3409-



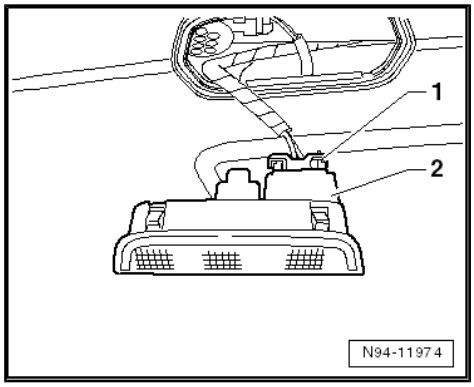
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Carefully lever out door warning light -1- from trim on red side of lens in area of retainers -arrows- using a screwdriver or removal wedge - VAS 3409- .



– Release and separate connector -1- and remove door warning light -1-.



Installing:

Installation is carried out in the reverse sequence of removal.

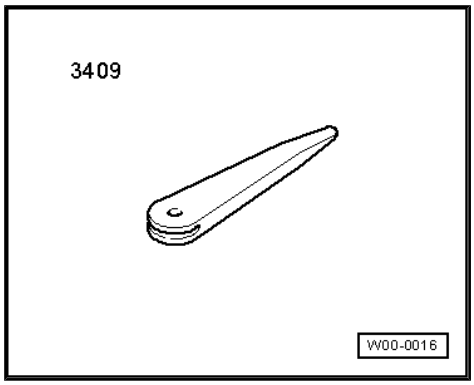
4.6.2 Replace door warning lamp bulbs

Caution

When removing and installing components in areas on view (switches, covers, trim and so on), mask off areas in which leverage tools (plastic wedge, screwdriver) are used to lever out those components using commercially available adhesive tape.

Special tools and workshop equipment required

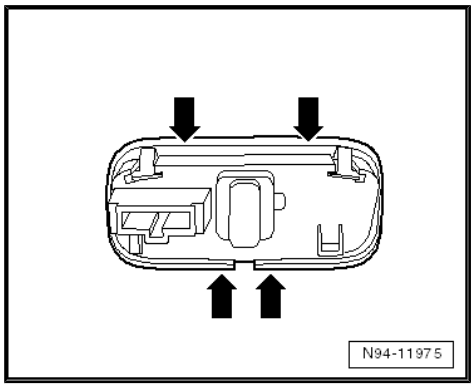
- Removal wedge - VAS 3409-



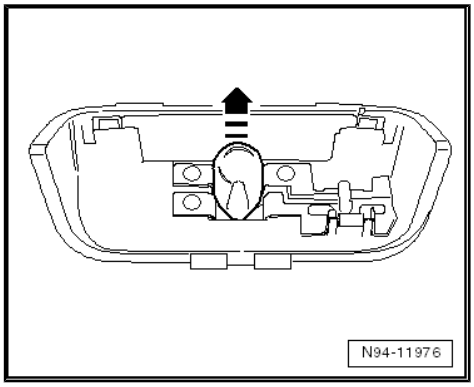
Removing:

– Remove door warning light ⇒ page 231 .

– Carefully unclip lens from bulb housing in area of catches -arrows-.



– Pull out wedge-base bulb in -direction of arrow- in straight line upwards from holder.



Glass-base bulb: 12 V, W 5 W

Installing:

Install in the reverse order of removal. When doing this, note the following:

Note

When fitting the lens to the light housing, make sure that all catches engage securely.

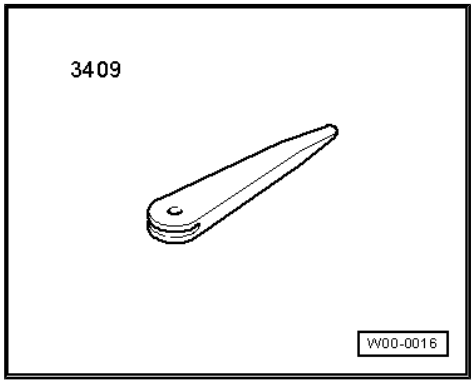
5 Lights and switches in rear doors

5.1 Rear right window regulator button in rear right door - E705- and rear left window regulator button in rear left door - E700-

5.1.1 Removing and installing rear right window regulator button in rear right door - E705- and rear left window regulator button in rear left door - E700-

Special tools and workshop equipment required

- Removal wedge - VAS 3409-



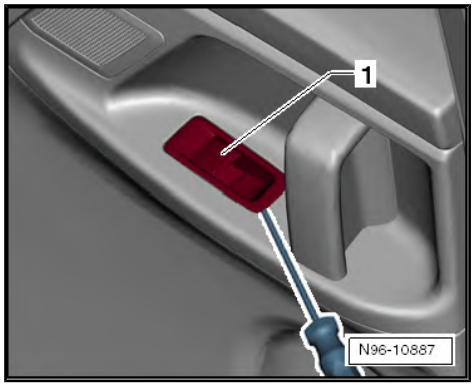
Removing:

Note

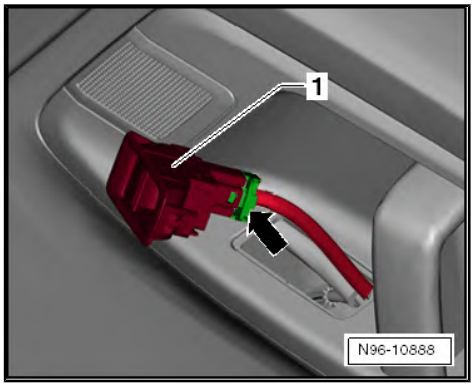
- *When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - VAS 3409- , screwdriver) are used to lever out those components using commercially available tape.*
- *Removal and installation of both footwell lights is performed in the same way and is described as follows for just one light.*

– Switch off ignition and all electrical equipment and then remove ignition key.

– Carefully lever out window regulator button -1- from door panel on front using removal wedge - VAS 3409- or a suitable screwdriver.



– Release and separate connector -arrow- and remove button -1-.



Installing:

Installation is carried out in the reverse sequence of removal.

6 Lights and switches in luggage compartment

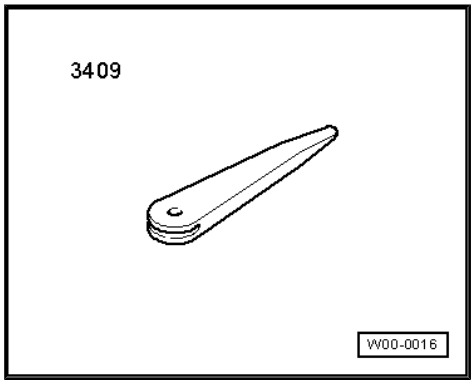
6.1 Luggage compartment light - W3-

A luggage compartment light - W3- can be found in the left and right side panel trim respectively in the luggage compartment.

6.1.1 Removing and installing luggage compartment light - W3-

Special tools and workshop equipment required

- Removal wedge - VAS 3409-



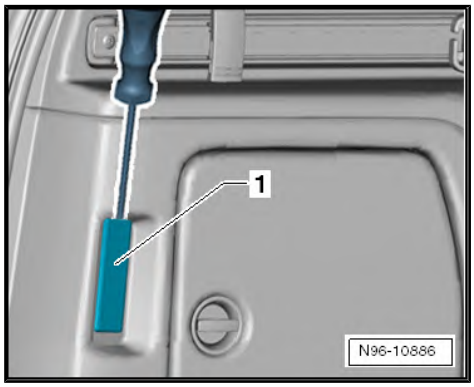
Note

- *When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - VAS 3409- , screwdriver) are used to lever out those components using commercially available tape.*
- *Removal and installation of the luggage compartment light is described for the left-hand side only.*
- *Removal and installation of the luggage compartment light on the right-hand side is basically the same.*

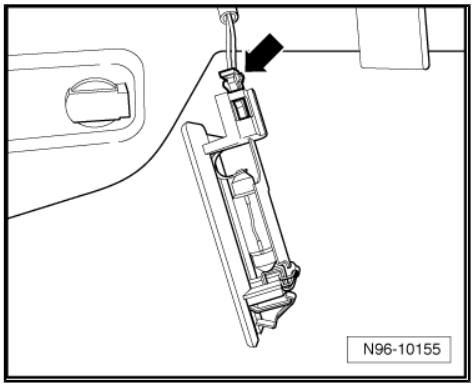
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Lever out light -1- from luggage compartment trim using removal wedge - VAS 3409- or screwdriver.



– Release and separate connector -arrow- and remove luggage compartment light - W3- .



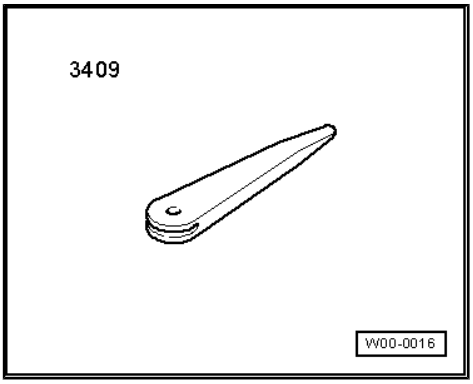
Installing:

Installation is carried out in the reverse sequence of removal.

6.1.2 Renewing luggage compartment light - W3- bulb

Special tools and workshop equipment required

♦ Removal wedge - VAS 3409-



Note

When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - VAS 3409- , screwdriver) are used to lever out those components using commercially available tape.

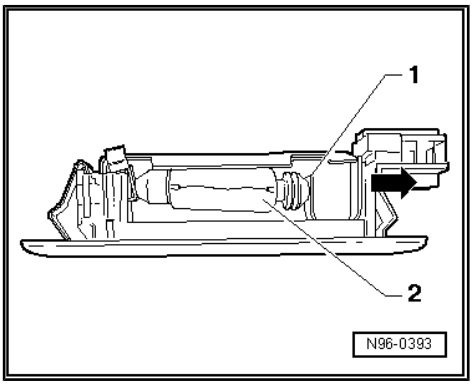
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove luggage compartment light - W3- ⇒ page 236 .

– Remove contact plate -1- of light by pressing outwards and remove festoon bulb -2- from bulb holder.

– Festoon bulb: 12 V, 10W



Installing:

Installation is carried out in the reverse sequence of removal.

6.2 Rear lid lock unit - F256-

The rear lid locking unit - F256- is integrated into the rear lid lock and cannot be renewed individually.

6.2.1 Removing and installing rear lid locking unit - F256-

If the rear lid locking unit - F256- is found to be defective, the entire rear lid lock must always be renewed.

– Renew rear lid lock ⇒ General body repairs, exterior; Rep. gr. 55 ; Lids, flaps; Removing and installing rear lid lock

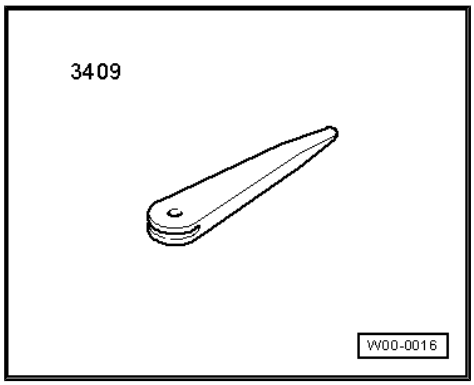
6.3 Button to close rear lid in luggage compartment - E406-

Rear lid closing button in luggage compartment - E406- is installed in bottom edge of rear lid.

6.3.1 Removing and installing button to close rear lid in luggage compartment - E406-

Special tools and workshop equipment required

♦ Removal wedge - VAS 3409-



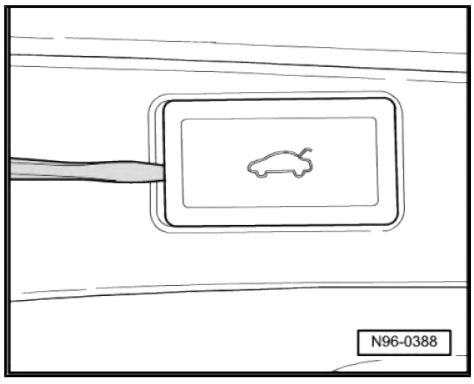
Note

When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - VAS 3409- , screwdriver) are used to lever out those components using commercially available tape.

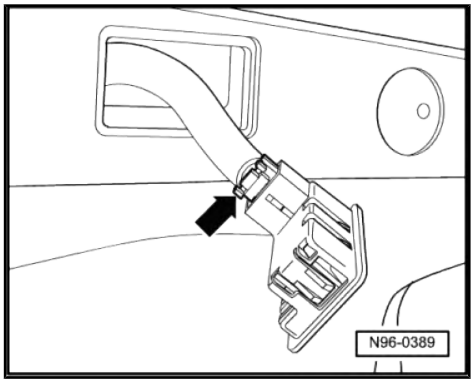
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Carefully lever out button from rear lid trim using removal wedge - VAS 3409- or a suitable screwdriver.



– Release and disconnect connector -arrow-.
– Remove button.



Installing:

Installation is carried out in the reverse sequence of removal.

7 Lights and switches in roof trim

7.1 Front interior light - W1-

The following components are integrated into the front interior light - W1- :

- Driver side reading light - W19- ⇒ page 241
- Front passenger reading light - W13- ⇒ page 241
- Anti-theft alarm sensor - G578- ⇒ page 261
- Depending on equipment: sunroof button - E325- ⇒ page 242

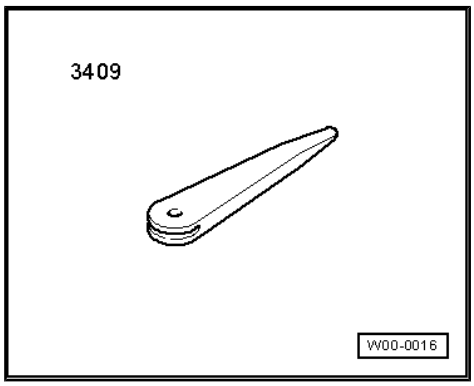
7.1.1 Removing and installing front interior light - W1-

Note

The following illustrations show removal and installation of the front interior light - W1- on a vehicle with sliding/tilting sunroof. Removal and installation of front interior light - W1- on vehicles without sliding/tilting sunroof are carried out in the same way.

Special tools and workshop equipment required

- Removal wedge - VAS 3409-



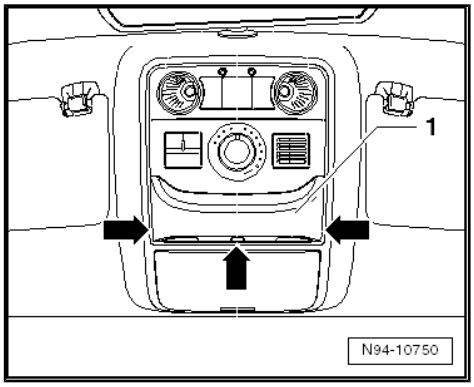
Note

When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - VAS 3409- , screwdriver) are used to lever out those components using commercially available tape.

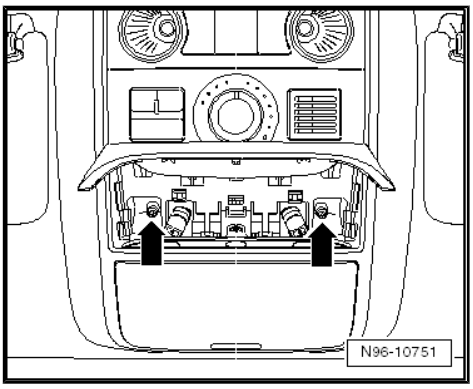
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Lever off trim -1- at fasteners -arrows- using removal wedge - VAS 3409- or suitable screwdriver.



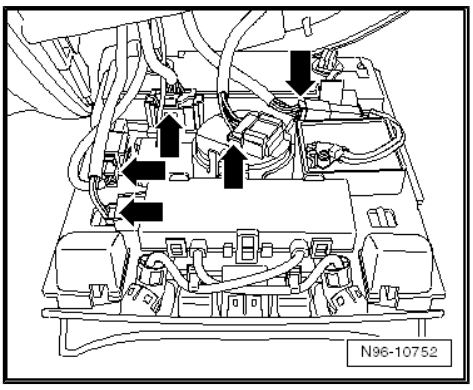
– Remove both bolts -arrows- and swivel interior light out of roof console.



– Dependant on equipment, release connectors -arrows-, disconnect and remove interior light.

Installing:

Installation is carried out in the reverse sequence of removal.



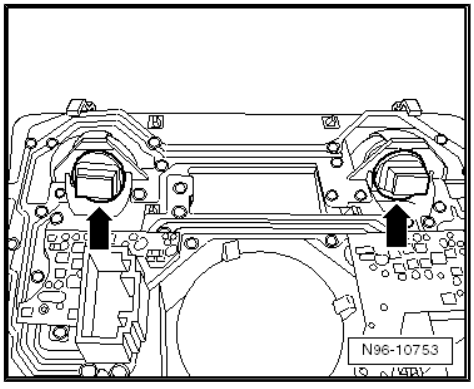
7.1.2 Replacing front reading lights -W13- and -W19-

Removing:

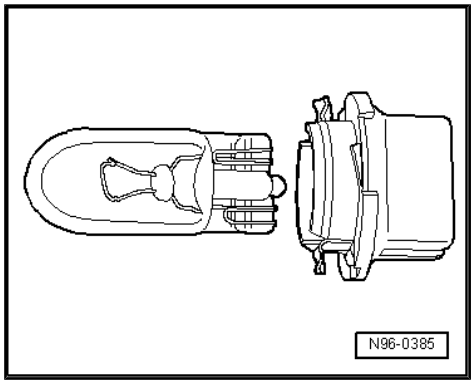
– Remove interior light ⇒ page 240 .

– Turn bulb holder -arrows- of defective reading lamp by 90° to the left.

– Remove bulb holder together with bulb from reading light.



– Carefully pull glass-base bulb out of bulb holder.
– Glass-base bulb: 12 V, 5 W



Installing:

Installation is carried out in the reverse sequence of removal.

7.1.3 Removing and installing front reading lights button -E457- and -E458-

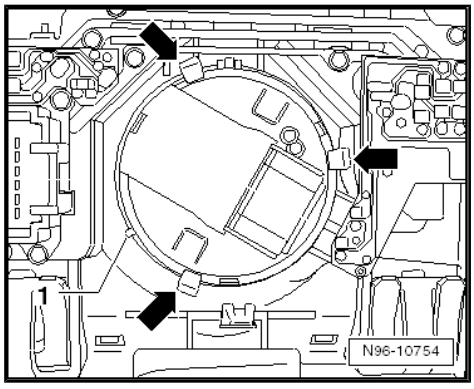
Note

- *The driver side reading light button - E457- and the front passenger side reading light button - E458- cannot be renewed individually.*
- *The complete component must be renewed in the event of repair.*

7.1.4 Removing and installing sunroof button - E325-

Removing:

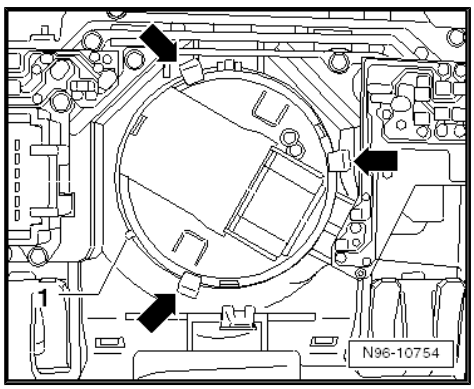
– Remove interior light ⇒ page 240 .
– Release locking lugs -arrows- and remove button from mounting frame.



Installing:

Install in the reverse order of removal. When doing this, note the following:

– When inserting into trim, align sunroof button - E325- with lug -1-.



7.2 Rear interior light - W43-

7.2.1 Removing and installing rear interior light - W43-

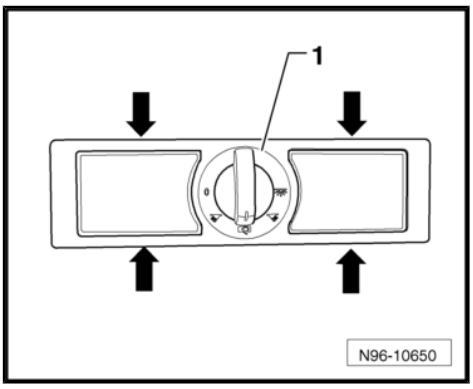
Note

On vehicles with panoramic sunroof, the rear interior light - W43- is located further back in the roof trim.

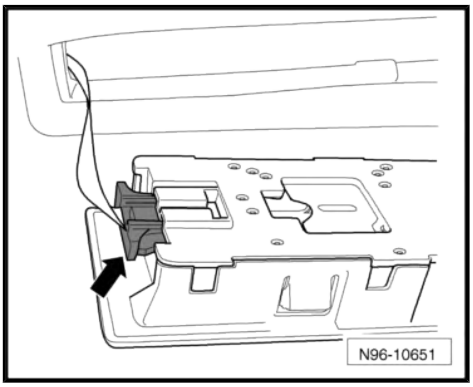
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Release locking lugs -arrows- with removal wedge or appropriate screwdriver and remove rear interior light - W43- from headliner, taking connected wiring length into account.



– Release and detach connector -arrow- and remove rear interior light - W43- .



Installing:

Installation is carried out in the reverse sequence of removal.

7.2.2 Renewing bulb in rear interior light - W43-

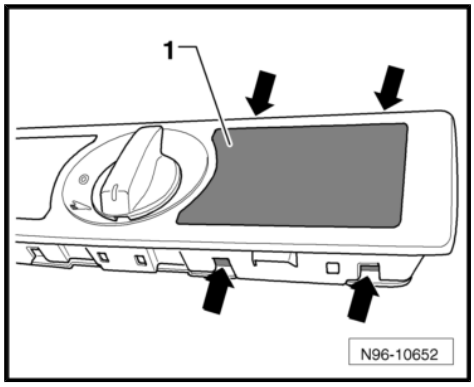
Note

The procedure for renewal of the bulbs in rear interior light is the same for both bulbs and is therefore described for one side only.

Removing:

– Remove rear interior light - W43- ⇒ page 243 .

– Release the four locking lugs -arrows- of light lens -1- and remove lens from rear interior light by lifting it straight upwards.

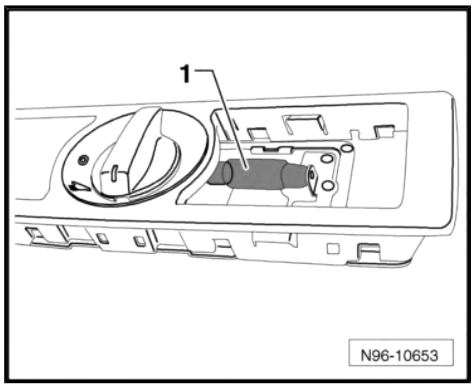


– Remove bulb -1- from holder.

Rear interior light bulb: festoon bulb 12V, C5W

Installing:

Installation is carried out in the reverse sequence of removal.



7.3 Left and right interior lights

- Right interior light - W17-
- Left interior light - W16-

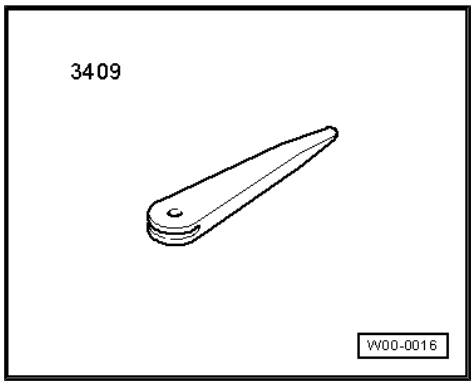
7.3.1 Removing and installing left and right interior lights

Note

Removal and installation of the left and right interior lights is performed in the same manner and is therefore described for one side only.

Special tools and workshop equipment required

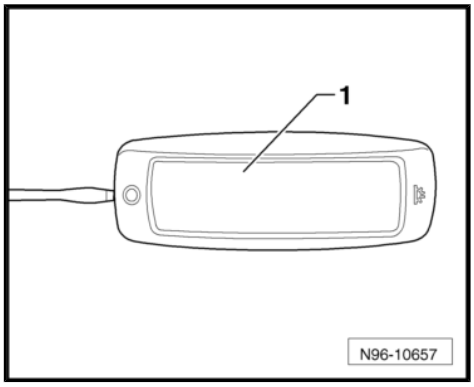
- Removal wedge - VAS 3409-



Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

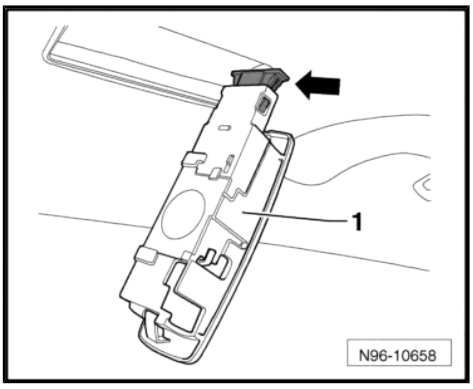
– Release retainer on front of interior light -1- using removal wedge - VAS 3409- or a suitable screwdriver and remove interior light from roof trim, taking different lengths of connected wiring into consideration.



– Release and separate connector -arrow- and remove interior light -1-.

Installing:

Installation is carried out in the reverse sequence of removal.



7.3.2 Renewing bulbs of left and right interior lights

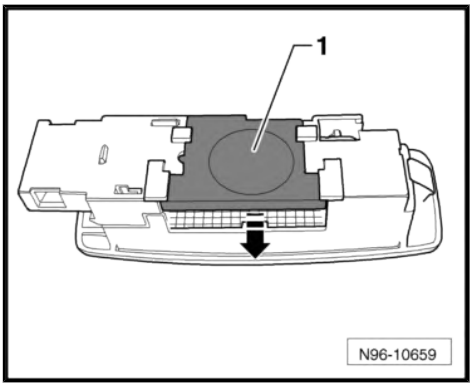
Note

The procedure for renewing the bulbs in the left and right interior lights is the same and is therefore described for one side only.

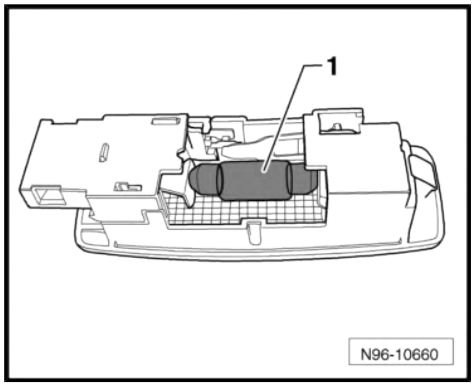
Removing:

– Remove interior light ⇒ page 244 .

– Slide out cover -1- in -direction of arrow- from interior light .



– Remove festoon bulb -1- from interior light .



Bulb for interior light : festoon 12V, C5W

Installing:

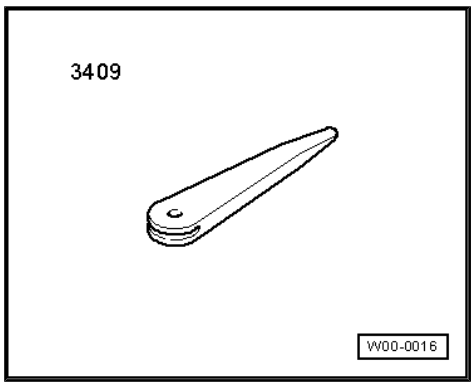
Installation is carried out in the reverse sequence of removal.

7.4 Removing and installing front passenger side illuminated vanity mirror - W14- and driver side illuminated vanity mirror - W20-

7.4.1 Removing and installing front passenger side illuminated vanity mirror - W14- and driver side illuminated vanity mirror - W20-

Special tools and workshop equipment required

- Removal wedge - VAS 3409-



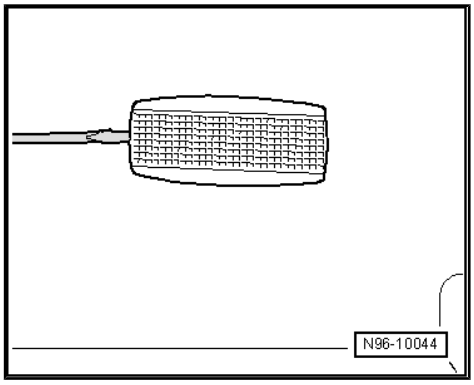
Note

- *When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - VAS 3409- , screwdriver) are used to lever out those components using commercially available tape.*
- *The procedure for removal and installation of both lights is the same and is therefore described for just one light.*

Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

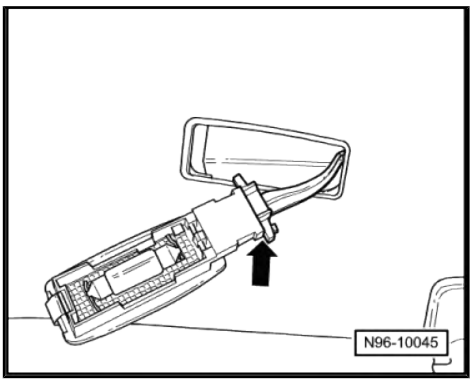
– Carefully lever light out of headliner using removal wedge - VAS 3409- or suitable screwdriver.



– Release and detach connector -arrow- and remove light.

Installing:

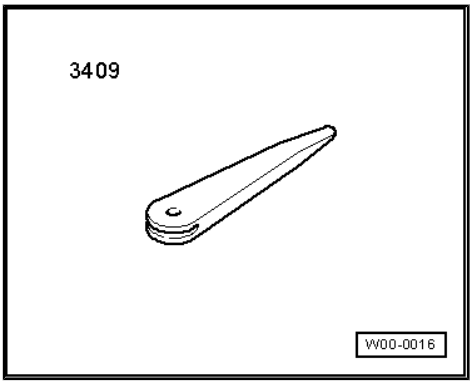
Installation is carried out in the reverse sequence of removal.



7.4.2 Renewing bulb for illuminated vanity mirror

Special tools and workshop equipment required

♦ Removal wedge - VAS 3409-



Note

♦ *When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - VAS 3409- , screwdriver) are used to lever out those components using commercially available tape.*

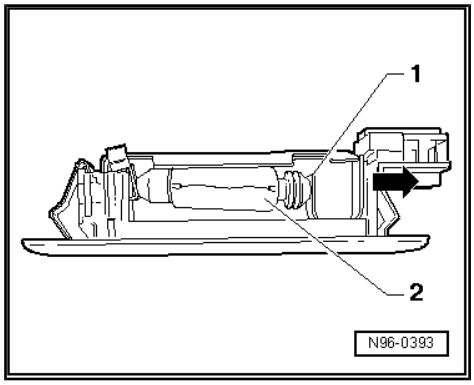
♦ *The procedure for removal and installation of both lights is the same and is therefore described for just one light.*

Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove illuminated vanity mirror bulb ⇒ page 246 .

– Press contact plate -1- of light in direction of arrow and remove festoon bulb -2- from bulb holder.
– Festoon bulb: 12V, C5W



Installing:

Installation is carried out in the reverse sequence of removal.

8 Lights and switches in centre console

8.1 Buttons in centre console storage compartment

Depending on the equipment level, the following buttons may be found in the centre console stowage compartment:

- Operating unit in front centre console - E461- (sliding doors)
- Electric rear lid button
- TCS and ESP button - E256-
- Start/stop operation switch - E693-
- Park assist steering button - E581-
- Parking aid button - E266-
- Tyre pressure monitor display button - E492-

Note

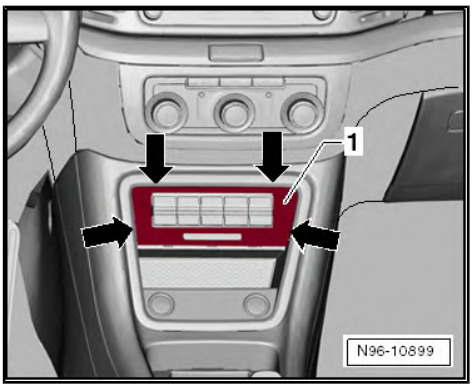
The various buttons (depending on equipment level) are installed as a cluster in a button module and cannot be renewed individually.

8.1.1 Removing and installing button module in centre console stowage compartment

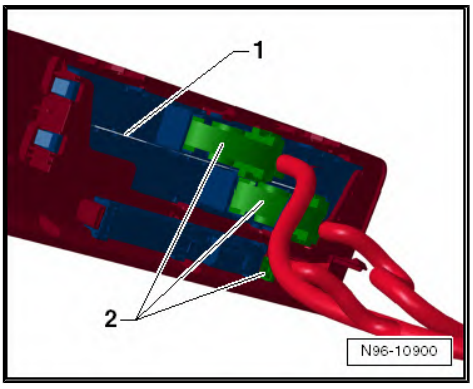
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Detach button module -1- at retainers -arrows- in straight line upwards from centre console, taking different lengths of connected wiring into consideration.



– Release and separate all connectors -2- (number will vary depending on equipment level) and remove button module -1-.



Installing:

Installation is carried out in the reverse sequence of removal.

8.2 Front passenger side airbag deactivated warning lamp - K145-

The front passenger side airbag deactivated warning lamp - K145- is located in the centre console trim.

8.2.1 Removing and installing front passenger side airbag deactivated warning lamp - K145-

WARNING

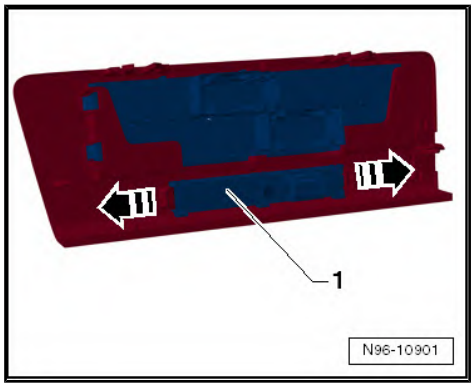
- *Danger of triggering of the airbag!*
- *Improper action on airbag unit may result in the triggering of the airbag!*
- *Observe safety precautions when working on airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag; Safety precautions when working on airbag .*

Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove button module in centre console stowage compartment ⇒ page 249 .

– Press catches apart in -direction of arrow- and remove front passenger side airbag deactivated warning lamp - K145- -1- from trim.



Installing:

Installation is carried out in the reverse sequence of removal.

8.3 Electromechanical parking brake button and auto-hold button

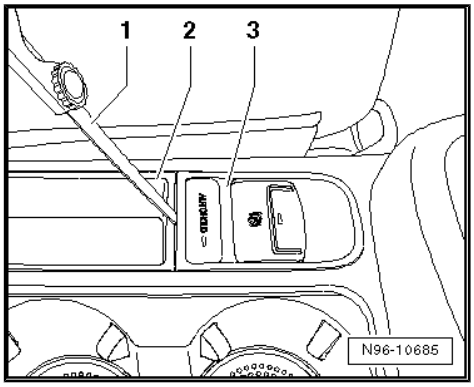
8.3.1 Removing and installing electromechanical parking brake button and auto-hold button

The electromechanical parking brake button - E538- and the auto-hold button - E540- are integrated in a button module fitted in the centre console between the front seats.

Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

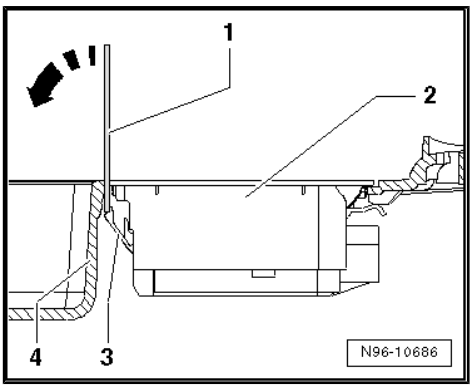
– Carefully insert feeler gauge (0.6 mm thick) -1-, as shown in illustration, into gap between centre console -2- and button module -3-.
– Hold feeler gauge vertically and slide down 10 mm between button module and centre console.



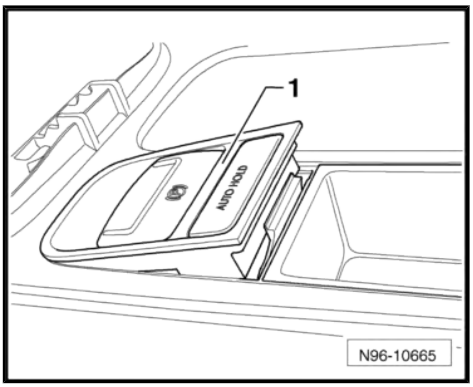
Note

Vertical insertion of feeler gauge ensures that lock button can be reached on the outside. At 10 mm insertion depth, the tip of the feeler gauge can be felt to rest on shoulder of locking button.

– Tilt feeler gauge -1- in -direction of arrow- to operate locking button -3-. At the same time, lift up rear of button module -2- from centre console -4-.



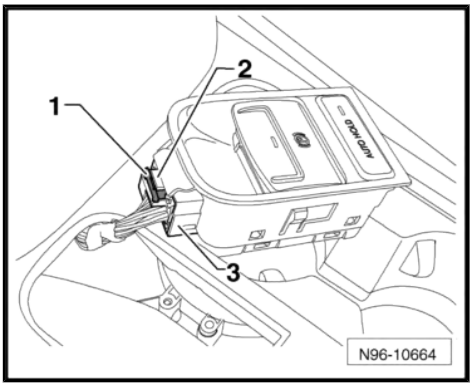
– Remove button module -1- upwards from centre console, taking different lengths of connected wiring into consideration.



– Pull out primary locking mechanism -1-, push locking button -2- and pull off connector -3-.
– Remove button module from vehicle.

Installing:

Installation is carried out in the reverse sequence of removal.



8.4 AC/DC converter with socket, 12 V-230 V - U13-

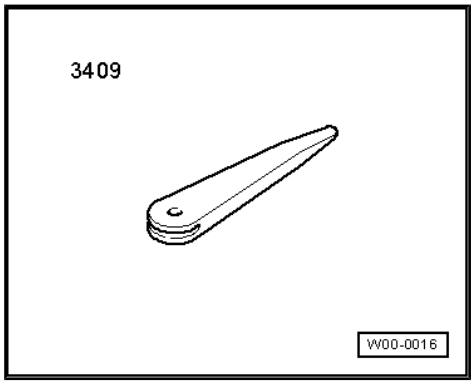
WARNING

- *Capacitors are also located in the housing of the DC/AC converter with socket, 12 V - 230 V - U13- and these are charged with a residual voltage.*
- *There is a danger of an electric shock.*
- *The housing of the DC/AC converter with socket, 12 V - 230 V - U13- must never be opened.*

8.4.1 Removing and installing DC/AC converter with socket, 12 V-230 V - U13-

Special tools and workshop equipment required

- Removal wedge - 3409-



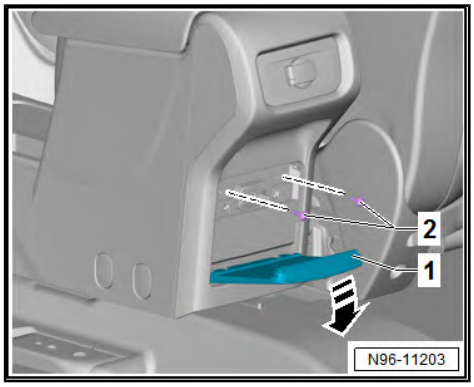
Note

- *When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - 3409- , screwdriver) are used to lever out those components using commercially available masking tape.*
- *The connector, wiring and 230 V socket must never be repaired.*
- *If the connector, wiring, 230 V socket or the AC/DC converter is defective, the complete unit must be renewed.*

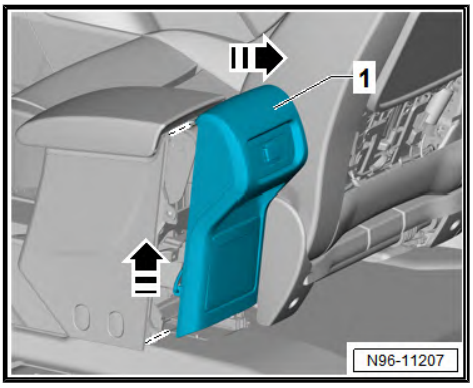
Removing:

– Switch off ignition and all electrical consumers and move ignition key to position 0 (locked).

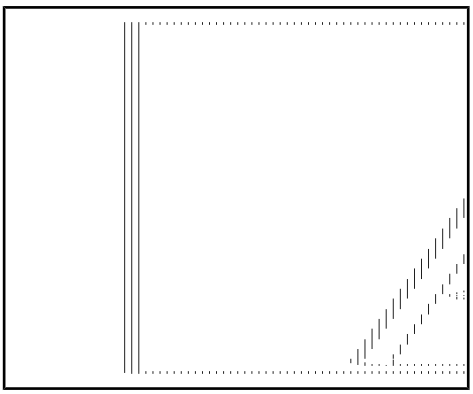
– Fold down trim -1-.
– Unscrew bolts -2-.



– First, pull trim -1- at bottom towards rear in -direction of arrow-, and then remove it upwards in -direction of arrow-.
– Release and disconnect connector.
– Unclip heated rear seat switch with regulator from trim in vehicles with heated rear seats.



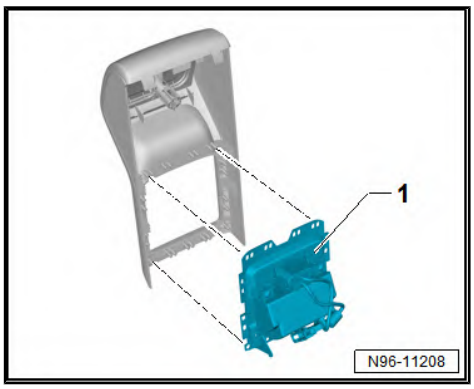
– Release socket at locking lugs -arrows- and remove socket from trim.



– Detach DC/AC converter with socket, 12 V - 230 V - U13- -1- from trim, and remove it.

Installing:

Install in reverse order of removal.



9 Horn

9.1 Treble horn - H2- and bass horn - H7-

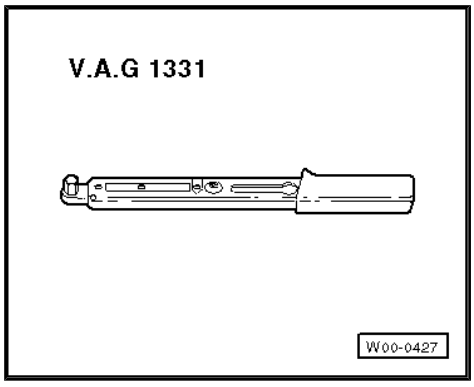
Note

- *The treble horn - H2- and the bass horn - H7- are actuated in parallel by the onboard supply control unit - J519- .*
- *The procedure for removal and installation of the treble horn - H2- and the bass horn - H7- is the same and is therefore described for just one horn.*
- *The horns can be found on the left and right next to the longitudinal members.*

9.1.1 Removing and installing treble horn - H2- and bass horn - H7-

Special tools and workshop equipment required

- Torque wrench - V.A.G 1331-



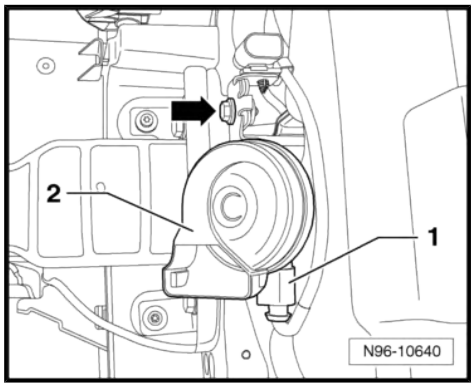
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove front bumper cover ⇒ General body repairs, exterior; Rep. gr. 63 ; Front bumper .

– Release connector -1- and disconnect.

– Unscrew securing bolt -arrow- and remove signal horn -2- together with bracket.



Installing:

Install in the reverse order of removal. When doing this, note the following:

Note

When installing, position the signal horn so it is not in contact with adjacent components.

– Tighten securing bolt for bracket on side member to 20 Nm.

9.1.2 Checking treble horn - H2- and bass horn - H7-

The horns (treble horn - H2- and bass horn - H7-) can be checked in final control diagnosis by the onboard supply control unit - J519- .

10 Immobiliser

10.1 General description

Note

Additional information:

⇒ Self-study programme No. 445 ; The Sharan 2011

General description:

The Sharan is equipped with a fourth-generation immobiliser with online link and download. The main component of the fourth generation immobiliser is a central database, in which all of the theft-relevant data from the participating control units is stored. Adapting the control units associated with the immobiliser is not possible without an online link to this database.

Online system test ⇒ page 257 .

- A PIN request for the immobiliser components via fax or temporary access authorisation to the components is not available.
- All components associated with the immobiliser must be adapted online.
- All – including re-ordered – vehicle keys are pre-coded to a specific vehicle in the factory and can only be adapted to this vehicle.
- The relevant chassis number must be specified when re-ordering vehicle keys.
- It is no longer possible to adapt components of other brands for use in Volkswagen vehicles.

Immobiliser components:

- Immobiliser control unit - J362- ⇒ page 257
- Engine control unit - J623- ⇒ Rep. gr. 23 ; Engine control unit
- Ignition key ⇒ page 257

New identity on renewing all components of immobiliser system ⇒ page 257 .

Immobiliser control unit - J362- functions:

- Communication between all components associated with the immobiliser.
- Encryption of data between associated control units.

Fault detection and fault display:

The immobiliser is equipped with self-diagnosis, which makes fault finding easier.

To localise faults, refer to chapter entitled “Vehicle diagnosis, testing and information system” and use “Guided fault finding” function.

10.2 Immobiliser control unit - J362-

10.2.1 Removing and installing immobiliser control unit - J362-

The immobiliser control unit - J362- is integrated in the dash panel insert. In the event of control unit failure, the complete dash panel insert must be renewed ⇒ page 46 .

10.2.2 Adapting immobiliser control unit - J362-

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

10.3 Ignition key

10.3.1 Loss of the ignition key

All – including re-ordered – vehicle keys are pre-coded to a specific vehicle in the factory and can only be adapted to this vehicle. The relevant chassis number must be specified when re-ordering vehicle keys. The new keys must subsequently be adapted to the immobiliser control unit - J362- .

Note

Before the lock set or control units can be renewed, the function "New identity on renewing all components" must be called up ⇒ page 257 .

Adapting ignition key ⇒ page 257

10.3.2 Adapting ignition key

Note

If new or additional ignition keys are required they must be adapted to the immobiliser control unit.

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

10.4 New identity on renewing all components

This program performs all the processes required for a reconstruction/reinitialisation of all immobiliser components.

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

10.5 Online system test

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

11 Anti-theft alarm (ATA)

11.1 General description

Note

Additional information:

⇒ Operating manual

⇒ Self-study programme No. 445 ; The Sharan 2011

General description:

The functions of the anti-theft alarm are integrated into the on-board supply control unit - J519- .

After renewal of the onboard supply control unit - J519- , the anti-theft alarm must be adapted ⇒ page 273 .

Fault detection and fault display:

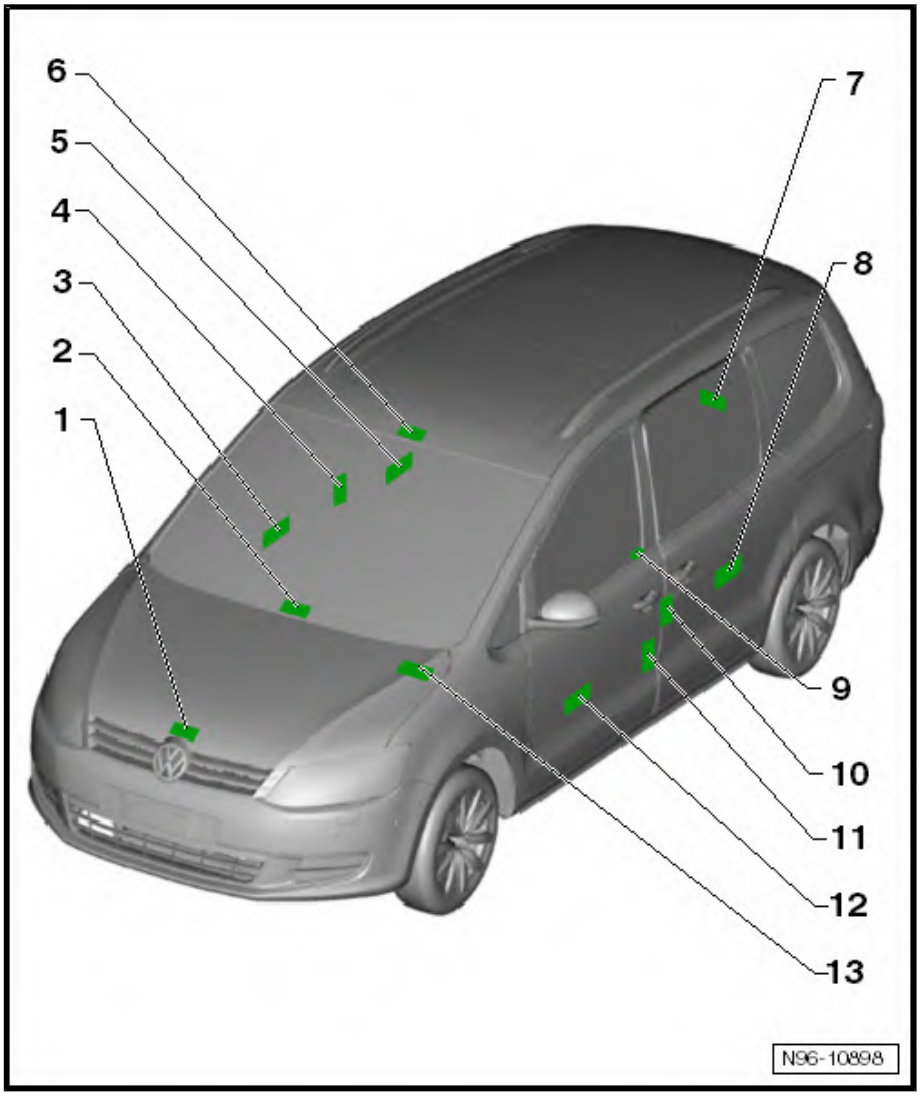
The anti-theft alarm has a self-diagnosis function, which makes fault finding easier.

For fault finding, use the systems described in chapter “Vehicle diagnosis, testing and information system” in “Guided Fault Finding” mode ⇒ page 265 .

11.2 Assembly overview - anti-theft alarm (ATA)

Note

The components of the anti-theft alarm (ATA) is dependent on the vehicle equipment.



1 - Bonnet contact switch - F266-

- ❑ In lid lock
- ❑ Removing and installing ⇒ page 214

2 - Alarm horn - H12-

- ❑ In plenum chamber
- ❑ Removing and installing ⇒ page 263

3 - Front passenger door control unit - J387-

- ❑ In front passenger door
- ❑ Removing and installing ⇒ Glazing, window regulator; Rep. gr. 64 ; Removing and installing window regulator motor

4 - Front passenger door contact switch - F3-

- ❑ In front passenger side central locking lock unit - F221-
- ❑ Removing and installing ⇒ General body repairs, exterior; Rep. gr. 57 ; Front door, door components, central locking; Removing and installing front door lock

5 - Anti-theft alarm system sensor - G578-

- ❑ The anti-theft alarm sensor - G578- includes the vehicle inclination sender - G384- and the interior monitoring sensor - G273- (two sensors).
- ❑ in roof console
- ❑ Removing and installing ⇒ page 261

6 - Rear right door control unit - J389-

- ❑ In rear right door
- ❑ Removing and installing ⇒ Glazing, window regulator; Rep. gr. 64 ; Removing and installing window regulator motor

7 - Rear lid lock unit - F256-

- ❑ Removing and installing ⇒ General body repairs, exterior; Rep. gr. 55 ; Covers, flaps, rear lid; Assembly overview - locking and unlocking components

8 - Rear left door control unit - J388-

- ❑ In rear left door
- ❑ Removing and installing ⇒ Glazing, window regulator; Rep. gr. 64 ; Removing and installing window regulator motor

9 - Central locking SAFELOCK function warning lamp - K133-

- ❑ In front door trim
- ❑ Removing and installing ⇒ page 230

10 - Interior monitoring deactivation switch - E267-

- ❑ In trim of B-pillar on driver side
- ❑ Removing and installing ⇒ page 260

11 - Door contact switch, driver side - F2-

- ❑ In driver side central locking lock unit - F220-
- ❑ Removing and installing ⇒ General body repairs, exterior; Rep. gr. 57 ; Front door, door components, central locking; Removing and installing front door lock

12 - Driver door control unit - J386-

- ❑ In driver door
- ❑ Removing and installing ⇒ Glazing, window regulator; Rep. gr. 64 ; Removing and installing window regulator motor

13 - Onboard supply control unit - J519-

- ❑ In driver footwell under dash panel
- ❑ Includes central locking and anti-theft alarm system aerial - R47- ⇒ page 263
- ❑ Removing and installing ⇒ page 273

11.3 Activating and deactivating anti-theft alarm

Activating anti-theft alarm:

The anti-theft alarm is switched on automatically when the vehicle is locked. The anti-theft alarm is then immediately primed.

Note

To stop the anti-theft alarm system triggering an alarm unnecessarily, close all windows and doors before locking vehicle.

Deactivating anti-theft alarm:

- ♦ The anti-theft alarm is deactivated on unlocking the vehicle with the remote control unlocking button or
- ♦ when the ignition is switched on.

Unlock the vehicle mechanically (emergency open)

– Unlock the driver door.

The anti-theft alarm system remains active, although no alarm is triggered.

– Switch on ignition within 15 seconds.

Note

If you do not switch on the ignition, the alarm will trigger after 15 seconds.

When the ignition is switched on, the electronic immobiliser detects a valid vehicle key and deactivates the anti-theft alarm.

11.4 Interior monitoring deactivation switch - E267- and deactivation button for vehicle inclination sender - E360-

The interior monitoring deactivation switch - E267- and the deactivation button for vehicle inclination sender - E360- are assembled as one component and located in the B-pillar on the driver side.

11.4.1 Removing and installing interior monitoring deactivation switch - E267- and deactivation button for vehicle inclination sender - E360-

Removing and installing interior monitoring deactivation switch - E267- and deactivation button for vehicle inclination sender - E360- ⇒ page 212

11.5 Anti-theft alarm sensor - G578-

Note

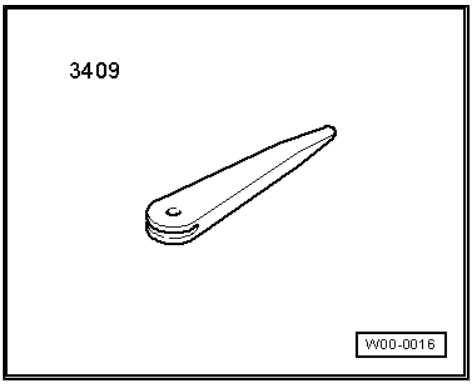
- *The anti-theft alarm sensor - G578- includes the vehicle inclination sender - G384- and the interior monitoring sensor - G273- (3 sensors).*
- *The anti-theft alarm sensor - G578- cannot be dismantled and must be replaced as one component.*

Removing and installing anti-theft alarm sensor - G578- ⇒ page 261

11.5.1 Removing and installing anti-theft alarm sensor - G578-

Special tools and workshop equipment required

- Removal wedge - 3409-



Note

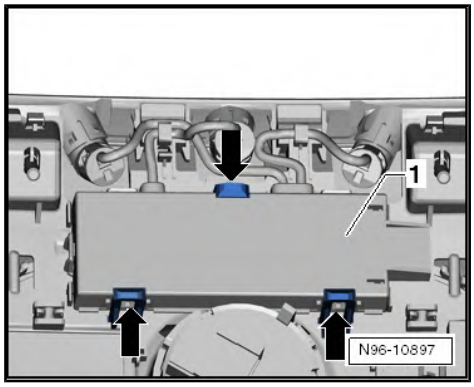
- *When removing and installing components that are in view (switches, covers, trim and so on), mask off areas in which tools (removal wedge - 3409- , screwdriver) are used to lever out those components using commercially available tape.*
- *The following illustrations show removal and installation of the anti-theft alarm sensor - G578- on a vehicle with sliding/tilting sunroof. Removal and installation of anti-theft alarm sensor - G578- on vehicles without sliding/tilting sunroof are carried out in the same way.*

Removing:

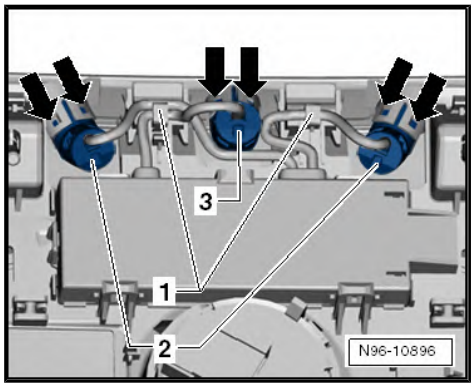
– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove front interior light ⇒ page 240

– Release the three locking lugs -arrows- and remove anti-theft alarm sensor - G578- -1- from interior light, taking connected wiring length into consideration.



– Unclip wires from brackets -1-.
– Release fasteners -arrows- and pull out both receivers -2- and interior monitoring sender -3- from interior light.
– Take anti-theft alarm sensor - G578- out of vehicle.



Installing:

Install in the reverse order of removal. When doing this, note the following:

Note

- *To prevent malfunction of the anti-theft alarm sensor, both sensors and the interior monitor receiver must be installed in their correct location in the interior light.*
- *The sensors which are wired to the control unit as a pair, are the senders and these must be engaged into the outer mountings of the interior light.*
- *The single sensor is the receiver, and it must be installed into the middle mounting of the interior light.*

11.6 Vehicle inclination sender - G384-

Note

- *The anti-theft alarm sensor - G578- includes the vehicle inclination sender - G384- and the interior monitoring sensor - G273- (3 sensors).*
- *The anti-theft alarm sensor - G578- cannot be dismantled and must be replaced as one component.*

Removing and installing anti-theft alarm sensor - G578-
⇒ page 261

11.7 Interior monitoring sensor - G273-

Note

- *The anti-theft alarm sensor - G578- includes the vehicle inclination sender - G384- and the interior monitoring sensor - G273- (3 sensors).*
- *The anti-theft alarm sensor - G578- cannot be dismantled and must be replaced as one component.*

Removing and installing anti-theft alarm sensor - G578-
⇒ page 261

11.8 Central locking and anti-theft alarm system aerial - R47-

Note

Additional information:

⇒ Operating manual

The central locking and anti-theft alarm system aerial - R47- receives the signals from the remote control and passes them to the onboard supply control unit - J519- .

The central locking and anti-theft alarm system aerial - R47- is integrated into the onboard supply control unit - J519- and cannot be renewed individually.

11.9 Alarm horn - H12-

The alarm horn - H12- is located centrally in the plenum chamber.

11.9.1 Removing and installing alarm horn - H12-

Note

The anti-theft alarm must be deactivated ⇒ page 260 before removing the alarm horn.

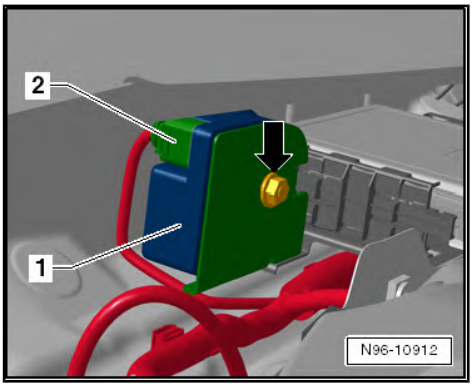
Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 66 ; Plenum chamber cover .

– Unscrew securing nut -arrow- and remove alarm horn - H12- -1- from bracket, taking account of different lengths of connected wiring.

– Release and separate connector -2- and remove alarm horn - H12- -1- from vehicle.



Installing:

Install in the reverse order of removal. When doing this, note the following:

– Tighten M8 nut that secures alarm horn to bracket to 20 Nm.

11.9.2 Checking alarm horn - H12-

The alarm horn - H12- can be checked using final control diagnosis for onboard supply control unit - J519- .

11.10 Adaptations of anti-theft alarm

The following functions of the anti-theft alarm system can be adapted:

♦ Adapting sensitivity of interior monitoring system

- Adapting sensitivity of inclination sensor
- Adapting alarm delay on opening driver door
- Adapting country setting for intelligent alarm horn

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

97 – Wiring

1 Vehicle diagnosis, testing and information systems

⇒ Electrical System, General Information; Rep. gr. 27 ; Vehicle diagnostic, testing and information systems .

2 Fuse holder

Caution

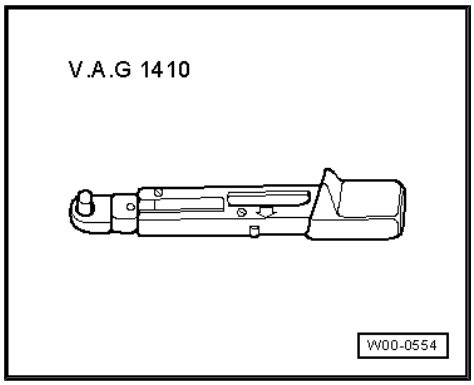
When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed *⇒ page 4* *.*

2.1 Fuse holder in dash panel

2.1.1 Removing and installing fuse holder in dash panel

Special tools and workshop equipment required

- Torque wrench - V.A.G 1410-



Caution

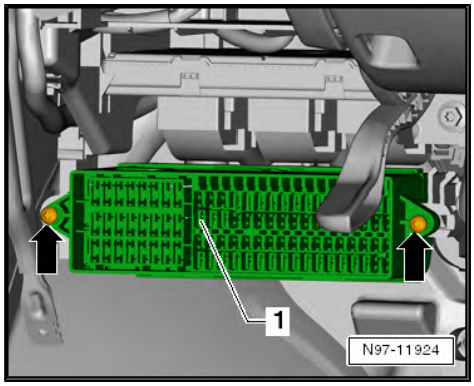
When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed *⇒ page 4* *.*

Removing:

– Disconnect battery ⇒ page 4 .

– Remove trim in driver's footwell ⇒ General body repairs, interior; Rep. gr. 68 ; Trim; Removing and installing left trim on driver side .

– Undo bolts -arrows- and pull fuse holder -1- downwards off retainer.



Installing:

Installation is carried out in the reverse order. When installing observe the following:

– Tighten securing bolts to specified torque of 4 Nm.

2.2 Fuse holder in electronics box

2.2.1 Removing and installing electronics box in dash panel

Removing and installing fuse box in electronics box is explained in the course of the description “Removing and installing electronics box on the left in engine compartment” ⇒ page 269 .

3 Relay carriers

3.1 Relay carrier on left of dash panel

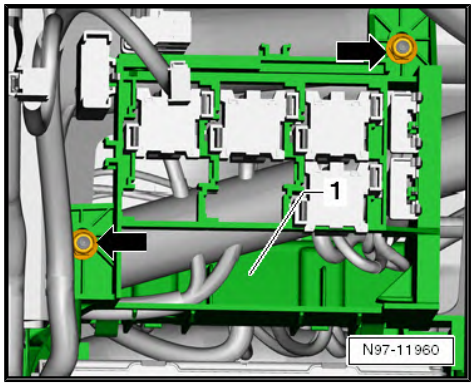
Caution

When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed ⇒ page 4 .

3.1.1 Removing and installing relay carrier on left of dash panel

Removing:

– Disconnect battery ⇒ page 4 .
– Remove knee airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag
– Remove fuse holder ⇒ page 266 .
– Remove onboard supply control unit ⇒ page 273 .
– Remove dash panel insert ⇒ page 45 .
– Remove park assist steering control unit - J791- ⇒ page 191 .
– Remove loudspeaker for parking aid - R169- ⇒ page 186 .
– Unscrew both securing nuts -arrows- and lower relay carrier -1- downwards.
– Pull off relays and fuses (number will vary depending on equipment level) and remove relay carrier downwards.



Installing:

Installation is carried out in the reverse order. When installing observe the following:

– Tighten securing nuts to 4.5 Nm.

4 Electronics boxes

4.1 Electronics box on left side of engine compartment (engine compartment electronics box)

4.1.1 Removing and installing electronics box on left side of engine compartment (engine compartment electronics box)

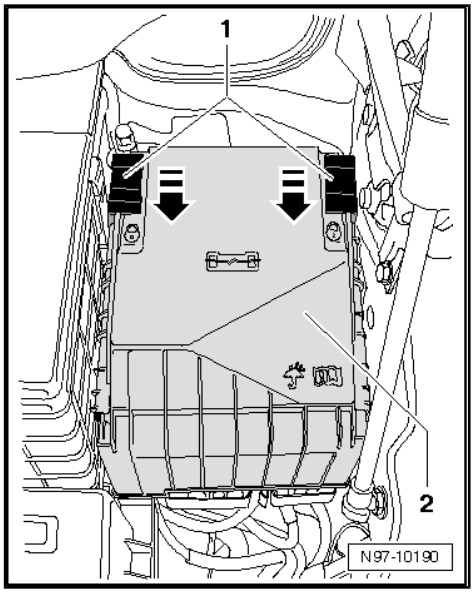
> **Caution**
>
> *When batteries are disconnected and reconnected, the procedure described in the workshop manual must be strictly observed ⇒ page 4 .*

Removing:

– Disconnect battery ⇒ page 4 .

– Push safety clip -1- in -direction of arrow- and remove cover from electronics box -2- upwards.

> **Caution**
>
> - *Electrical components that are protected by the multiple fuse may fail, e.g. the electromechanical power steering!*
> - *The multiple fuse will be damaged when the hexagon nuts of wire connections are loosened!*
> - *Renew the multiple fuse after loosening any connection!*



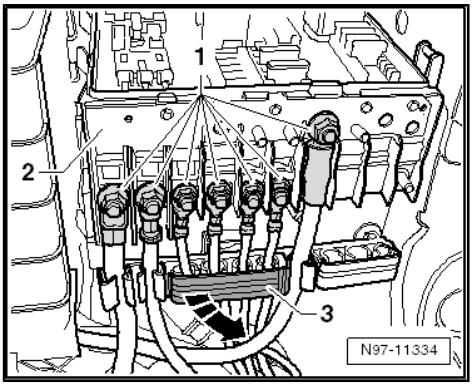
– Unscrew hexagon nuts -1-.

– Open cable guide covers of electronics box -3- in -direction of arrow-.

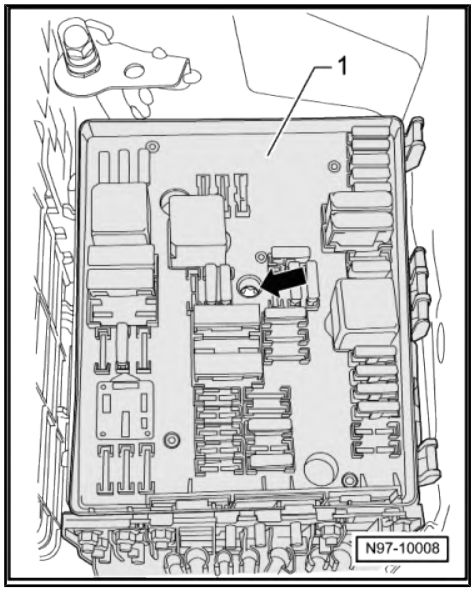
– Remove wires from connecting bolts.

– Unclip wiring from wiring guides.

– Renew multiple fuse -2- after loosening hexagon nuts -1-.



– Unscrew central bolt -arrow- of electronics box -1-.



Note

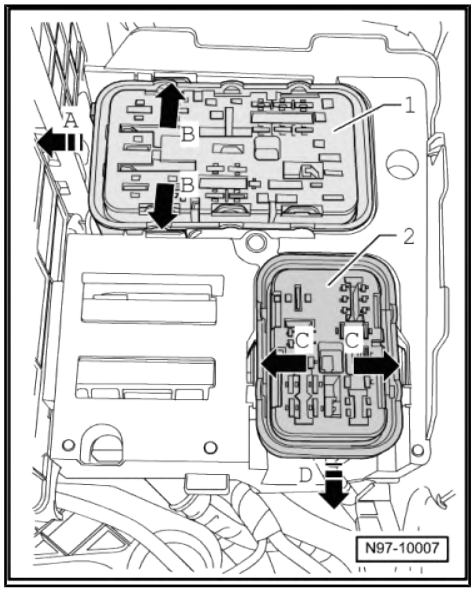
When the central bolt -arrow- is removed, the electronics box -1- is pushed upwards off the electronics box bracket.

– Pull electronics box -1- upwards off bracket of electronics box.

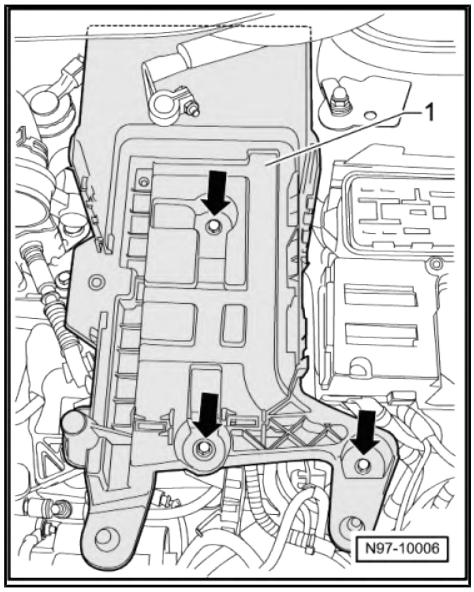
Note

To remove the flat contact housing -1-, the air filter housing (on vehicles with diesel engine only), the battery and the battery console must first be removed.

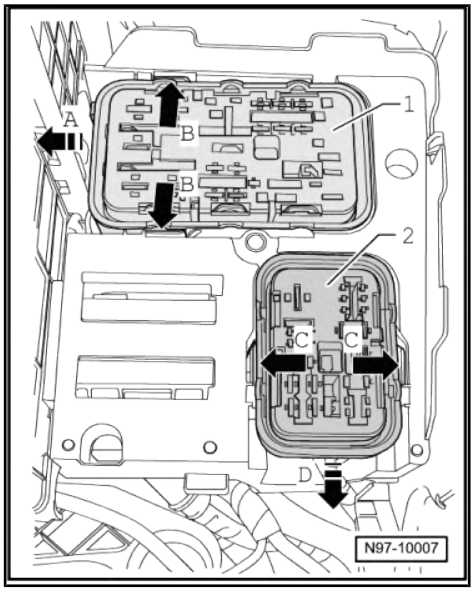
– If necessary, remove air filter housing.
– Remove battery ⇒ page 4 .



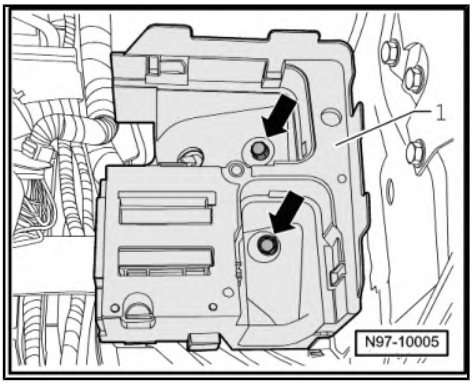
– Undo and remove bolts -arrows- of battery console -1-.
– Remove battery console -1- from vehicle.



– Push apart tabs on bracket of electronics box -arrows B- and slide out flat contact housing -1- sideways -arrow A- from bracket of electronics box.
– Push apart tabs on bracket of electronics box -arrows C- and slide out flat contact housing -2- forwards -arrow D- from bracket of electronics box.



– Remove securing nuts -arrows- from bracket of electronics box -1-.

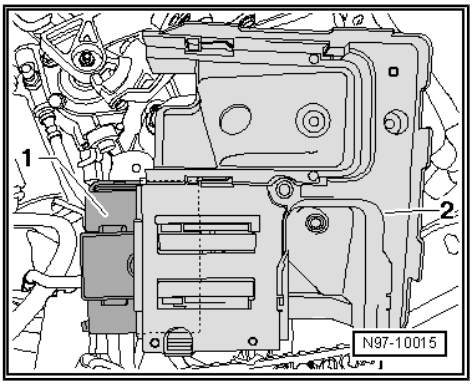


Note

The installation of an additional relay carrier depends entirely on the vehicle equipment.

– Pull bracket of electronics box -1- upwards off studs, taking connected wiring length into consideration.

– Unclip additional relay carrier -1- sideways out of bracket of electronics box -2-.
– Remove electronics box -2-retainer from vehicle.



Installing:

Installation is carried out in the reverse order. When installing observe the following:

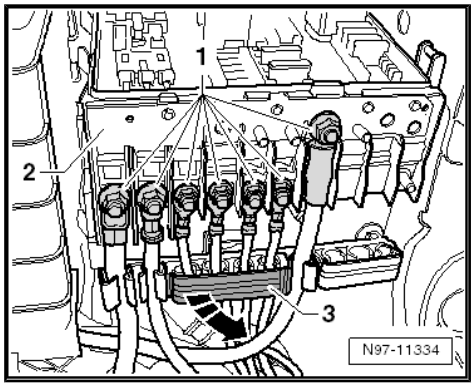
– Tighten securing bolts or securing nuts to specified torque settings.

Caution

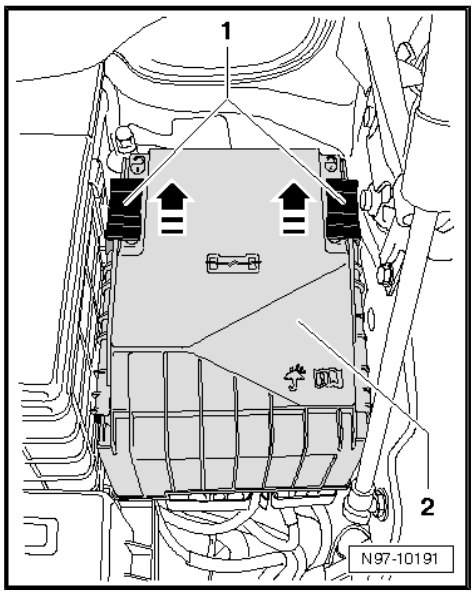
- *Electrical components that are protected by the multiple fuse may fail, e.g. the electromechanical power steering!*
- *The multiple fuse will be damaged when the hexagon nuts of wire connections are loosened!*
- *Renew the multiple fuse after loosening any connection!*

Specified torques: electronics box on left side of engine compartment

Threaded connections		Torque settings
Securing nuts -1-	M5 (8 mm)	4 Nm
Securing nuts -1-	M6 (10 mm)	6 Nm
Electronics box central bolt		9 Nm



– Slide cover -2- on electronics box and push safety clip -1- in -direction of arrow- until cover -2- engages.



Note

Then check whether the cover -2- of the electronics box is engaged correctly.

5 Select Control units

5.1 On-board supply control unit - J519-

5.1.1 General description

Note

- *If the onboard supply control unit - J519- is to be renewed, the procedure "coding onboard supply control unit" ⇒ page 275 must always be carried out for reading the codes stored in the control unit.*
- *After renewing the onboard supply control unit - J519- and depending on equipment, the other functions of the onboard supply control unit, such as "immobiliser", "anti-theft alarm", "entry and start authorisation", "tyre pressure monitor" and the central locking system keys must also be adapted.*
- *Start by adapting the immobiliser (⇒ page 256) and continue, in any sequence, with the further functions of the onboard supply control unit - J519- .*
- *Additional information:*

⇒ Self-study programme No. 445 ; The Sharan 2011

⇒ Current flow diagrams, Electrical fault finding and Fitting locations

⇒ Operating manual

General description:

The onboard supply control unit - J519- controls the following functions in the vehicle:

- Electrical load management
- Exterior light control
- Turn signal control
- Wipe/wash, windscreen and rear window
- Headlight washer system
- Rain and light sensor
- Heated windscreen and rear window
- Interior light control
- Terminal control
- Dimmers, instrument lighting
- Footwell light
- Fuel pump supply
- Alternator stand-by
- Horn
- Hazard warning light
- Release control
- Control of the central locking system

- Actuation of the front and rear door control units
- Activation of the rear lid unlocking function
- Activation of the fuel filler flap unlocking function
- Activation of the anti-theft alarm (ATA)
- Activation of the immobiliser

The following functions can be adapted via ⇒ Vehicle diagnostic tester, `Guided fault finding`:

- Adapting acoustic feedback when unlocking
- Adapting acoustic feedback when locking
- Adapting turn signal cycles for lane change flash
- Adapting automatic unlocking on removing ignition key
- Adapting automatic locking at 15 km/h
- Adapting battery monitoring system sounder
- Adapting confirmation of convenience closing
- Adapting coming home time
- Adapting leaving home time
- Adapting ATA delay on opening driver door
- Adapting unlocking of individual doors
- Adapting sensitivity of interior monitoring system
- Adapting sensitivity of inclination sensor
- Deactivating factory mode
- Adapting footwell lighting dimmer value
- Adapting convenience operation via remote control
- Adapting country setting for intelligent alarm horn
- Adapting visual feedback when locking
- Adapting remote control unit key
- Onboard supply control unit final control diagnosis

Note

It depends on the fitted equipment options as to whether the above mentioned adaptions can be carried out.

Fault detection and fault display:

The onboard supply control unit - J519- is equipped with self-diagnosis, which makes fault finding easier.

For fault finding, use the systems described in chapter “Vehicle diagnosis, testing and information system” in “Guided Fault Finding” mode ⇒ page 265 .

5.1.2 Removing and installing onboard supply control unit - J519-

The onboard supply control unit - J519- is located beneath the relay carrier, in the driver's side footwell.

Note

- *If the onboard supply control unit - J519- is to be renewed, the procedure "coding onboard supply control unit" ⇒ page 275 must always be carried out for reading the codes stored in the control unit.*
- *The following illustrations show removal on a LHD vehicle. Removal and installation of onboard supply control unit on an RHD vehicle are performed using the corresponding mirror-image procedure.*

Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove steering column trim ⇒ General body repairs, interior; Rep. gr. 68 ; Compartments, covers and trims; Removing and installing steering column trim .

– Remove trim in driver's footwell ⇒ General body repairs, interior; Rep. gr. 68 ; Trim; Removing and installing left trim on driver side .

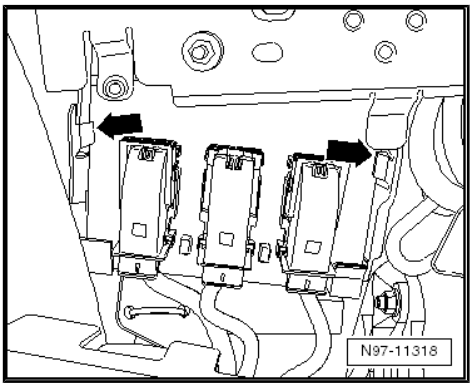
– Remove knee airbag ⇒ General body repairs, interior; Rep. gr. 69 ; Airbag

– Remove fuse holder ⇒ page 266 .

– Release and separate three connectors.

– Press both catches -arrows- and swing onboard supply control unit downwards slightly.

– Pull onboard supply control unit downwards and remove from holder against direction of normal travel.



Installing:

Installation is carried out in the reverse order. When installing observe the following:

– When installing, insert onboard supply control unit - J519- into bracket on rear side first and then push upwards until it engages audibly in the bracket.

5.1.3 Coding onboard supply control unit - J519-

⇒ Vehicle diagnostic tester, Guided Fault Finding.

5.1.4 Onboard supply control unit - J519- final control diagnosis

⇒ Vehicle diagnostic tester, Guided Fault Finding.

5.2 Driver door control unit - J386-

Note

- *The driver door control unit - J386- and the driver side window regulator motor - V147- are contained in one unit and cannot be replaced individually.*
- *If the driver door control unit - J386- or the driver side window regulator motor - V147- are replaced, then the work procedure "Coding driver door control unit" must be subsequently performed* *⇒ page 276* *.*
- *Additional information:*

⇒ Self-study programme No. 445 ; The Sharan 2011

⇒ Current flow diagrams, Electrical fault finding and Fitting locations

⇒ Operating manual

5.2.1 Removing and installing driver door control unit - J386-

Removing and installing driver door control unit - J386- ⇒ General body repairs, exterior; Rep. gr. 64 ; Front door window; Removing and installing window regulator motor .

Note

If the driver door control unit - J386- or the driver side window regulator motor - V147- are replaced, then the work procedure "Coding driver door control unit" must be subsequently performed *⇒ page 276* *.*

5.2.2 Coding driver door control unit - J386-

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

5.3 Front passenger door control unit - J387-

Note

- *The front passenger door control unit - J387- and the front passenger side window regulator motor - V148- are contained in one unit and cannot be replaced individually.*
- *If the front passenger door control unit - J387- or the front passenger side window regulator motor - V148- are replaced, then the work procedure "Coding front passenger door control unit" must be subsequently performed* *⇒ page 277* *.*
- *Additional information:*

⇒ Self-study programme No. 445 ; The Sharan 2011

⇒ Current flow diagrams, Electrical fault finding and Fitting locations

⇒ Operating manual

5.3.1 Removing and installing front passenger door control unit - J387-

Removing and installing front passenger door control unit - J387- ⇒ General body repairs, exterior; Rep. gr. 64 ; Front door window; Removing and installing window regulator motor .

Note

If the front passenger door control unit - J387- or the front passenger side window regulator motor - V148- are replaced, then the work procedure "Coding front passenger door control unit" must be subsequently performed *⇒ page 277* *.*

5.3.2 Coding front passenger door control unit - J387-

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

5.4 Rear left door control unit - J388-

Note

- *The rear left door control unit - J388- and the rear left window regulator motor - V26- are contained in one unit and cannot be replaced individually.*
- *If the rear left door control unit - J388- or the rear left window regulator motor - V26- are replaced, then the work procedure "Coding rear left door control unit" must be subsequently performed* *⇒ page 277* *.*
- *Additional information:*

⇒ Self-study programme No. 445 ; The Sharan 2011

⇒ Current flow diagrams, Electrical fault finding and Fitting locations

⇒ Operating manual

5.4.1 Removing and installing rear left door control unit - J388-

Removing and installing rear left door control unit - J388- ⇒ General body repairs, exterior; Rep. gr. 64 ; Rear door window; Removing and installing window regulator motor .

Note

If the rear left door control unit - J388- or the rear left window regulator motor - V26- are replaced, then the work procedure "Coding rear left door control unit" must be subsequently performed *⇒ page 277* *.*

5.4.2 Coding rear left door control unit - J388-

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

5.5 Rear right door control unit - J389-

Note

- *The rear right door control unit - J389- and the rear right window regulator motor - V27- are contained in one unit and cannot be replaced individually.*
- *If the rear right door control unit - J389- or the rear right window regulator motor - V27- are replaced, then the work procedure "Coding rear right door control unit" must be subsequently performed* ⇒ page 278 .
- *Additional information:*

⇒ Self-study programme No. 445 ; The Sharan 2011

⇒ Current flow diagrams, Electrical fault finding and Fitting locations

⇒ Operating manual

5.5.1 Removing and installing rear right door control unit - J389-

Removing and installing rear right door control unit - J389- ⇒ General body repairs, exterior; Rep. gr. 64 ; Rear door window; Removing and installing window regulator motor .

Note

If the rear right door control unit - J389- or the rear right window regulator motor - V27- are replaced, then the work procedure "Coding rear right door control unit" must be subsequently performed ⇒ page 278 .

5.5.2 Coding rear right door control unit - J389-

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

5.6 Trailer detector control unit - J345-

The trailer detector control unit - J345- is located behind the left side panel trim in the luggage compartment.

Note

Additional information:

⇒ Current flow diagrams, Electrical fault finding and Fitting locations

⇒ Operating manual

General description:

The trailer detector control unit - J345- detects from a power draw of minimum 5 W[1)] the "trailer operation" and transmits this information to various control units via the CAN data bus.

The trailer detector control unit - J345- is supplied with information (light control) from the onboard supply control unit - J519- via the CAN data bus.

1) "Trailer operation" can only be detected if at least turn signal indicators or side marker lights are switched on.

Fault detection and fault display:

The trailer detector control unit - J345- features self-diagnosis to facilitate fault finding.

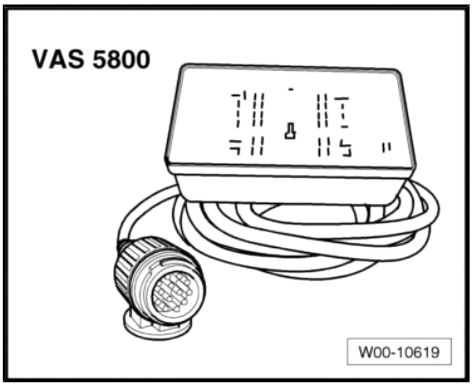
For fault finding, use the systems described in chapter "Vehicle diagnosis, testing and information system" in "Guided Fault Finding" mode ⇒ page 265 .

Note

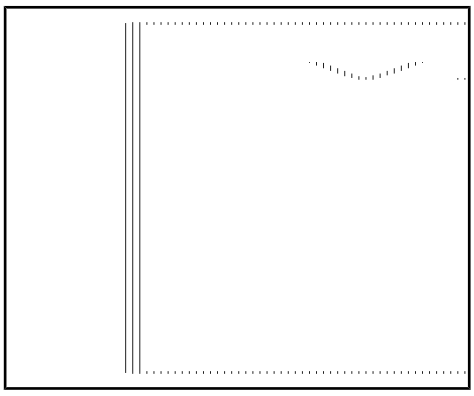
For checking control unit, use socket tester - V.A.G 1537/A- or trailer socket tester - VAS 5800- .

Special tools and workshop equipment required

- Trailer socket tester - VAS 5800-



- Socket tester - V.A.G 1537/A-



5.6.1 Removing and installing trailer detector control unit - J345-

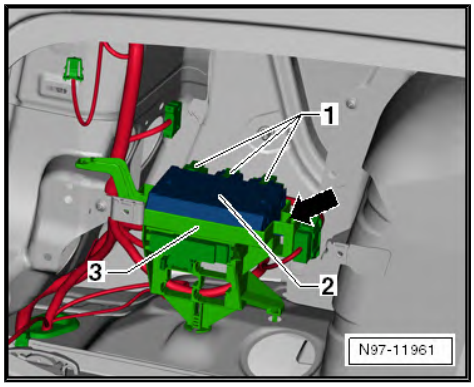
The trailer detector control unit - J345- is located behind the left side panel trim in the luggage compartment.

Removing:

– Switch off ignition and all electrical equipment and then remove ignition key.

– Remove left luggage compartment trim ⇒ General body repairs, interior; Rep. gr. 70 ; Luggage/load compartment trims .

– Release lock button -arrow- and remove trailer detector control unit - J345- -2- downwards out of bracket -3-, taking lengths of connected wires into consideration.
– Release and separate connectors -1- and remove trailer detector control unit - J345- -2-.



Installing:

Installation is carried out in the reverse order. When installing observe the following:

Note

Following installation, a new trailer detector control unit - J345- must be encoded ⇒ page 280 .

5.6.2 Coding trailer detector control unit - J345-

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

5.6.3 Actuator diagnosis for bulbs

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

5.6.4 Actuator diagnosis for folding tow hitch

⇒ Vehicle diagnostic tester, `Guided Fault Finding`.

6 Wiring harness and connector repairs

⇒ **Electrical system, General information; Rep. gr. 97 ; Wiring harness and connector repairs**