

## Workshop Manual OCTAVIA

### Electrical System



## List of Supplements to OCTAVIA Workshop Manual

Edition: 04.04

### Electrical System

Replaces List of Supplements - Edition: 12.03

| Supplement | Edition | Subject   | Article Number |
|------------|---------|---|----------------|
|            | 08.96   | Basic Edition of Workshop Manual  | S00.5117.50.20 |
| 1          | 09.96   | Supplement to Basic Edition   | S00.5117.51.20 |
| 2          | 01.98   | Side Turn Signal Lights   | S00.5117.52.20 |
| 3          | 09.98   | Octavia Estate  | S00.5117.53.20 |
| 4          | 12.98   | Octavia Model Year 99   | S00.5117.54.20 |
| 5          | 03.99   | Car radio Gamma   | S00.5117.55.20 |
| 6          | 08.99   | Parking aid, Radio-Navigation system (RNS)                                      | S00.5117.56.20 |
| 7          | 03.00   | Telephone preinstallation 2 - Cullmann, Alarm system with its own power supply  | S00.5117.57.20 |
| 8          | 07.00   | TAXI  | S00.5117.58.20 |
| 9          | 12.00   | Octavia MY 01   | S00.5117.59.20 |
| 10         | 05.01   | Multi-function steering wheel, Test CAN databus, Coding Radio-Navigation system | S00.5117.60.20 |
| 11         | 07.01   | Switch-over of the headlight inner aperture, Mobile phone holder MY 02          | S00.5117.61.20 |
| 12         | 11.01   | Ungluing halogen headlight  | S00.5117.62.20 |
| 13         | 03.02   | Modifications to Repair Groups 94 and 96  | S00.5117.63.20 |
| 14         | 06.02   | Radio-Navigation system, Warning lamp for deactivated airbag                    | S00.5117.64.20 |
| 15         | 03.03   | Modifications to Repair Groups 90, 91 and 96                                    | S00.5117.65.20 |
| 16         | 12.03   | Modifications to Repair Groups 91, 94 and 96                                    | S00.5117.66.20 |
| 17         | 04.04   | Modifications to Repair Groups 96   | S00.5117.67.20 |
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## Battery

### Warning!

**Disconnect earth strap of battery before commencing work on electrical system.**

**Wear protective clothing and take appropriate safety measures when working on the battery.**

**Pay attention additionally to the following information when carrying out work on the airbag system or on the electrical belt tensioners:**

- ◆ Correct order before connecting battery.
- ◆ No persons must be present in the car when connecting the battery.

### Instructions for handling battery

- ◆ The battery terminal studs must neither be greased nor oiled.
- ◆ The battery terminals must be fitted on by hand without the use of force to avoid damaging the battery housing.
- ◆ The tightening torque for the battery terminals is 6 Nm -arrow-.

After connecting the battery terminals:

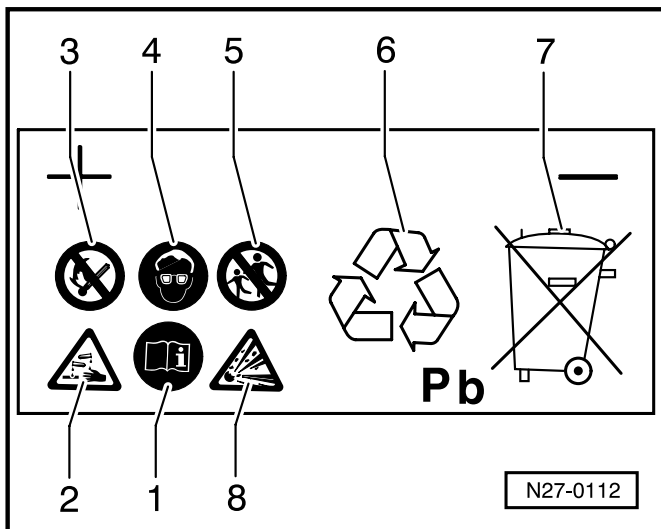
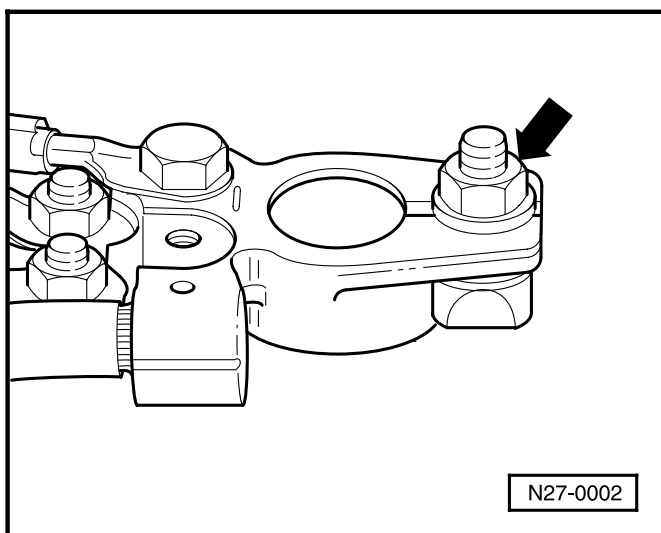
- Carry out coding on radio sets fitted with anti-theft coding ⇒ Operating instructions of car radio.
- Set clock ⇒ Inspection and Maintenance.
- Initialise power windows ⇒ Body Fitting Work, Repair Group 57.
- Carry out automatic test sequence ⇒ Inspection and Maintenance.

### Note:

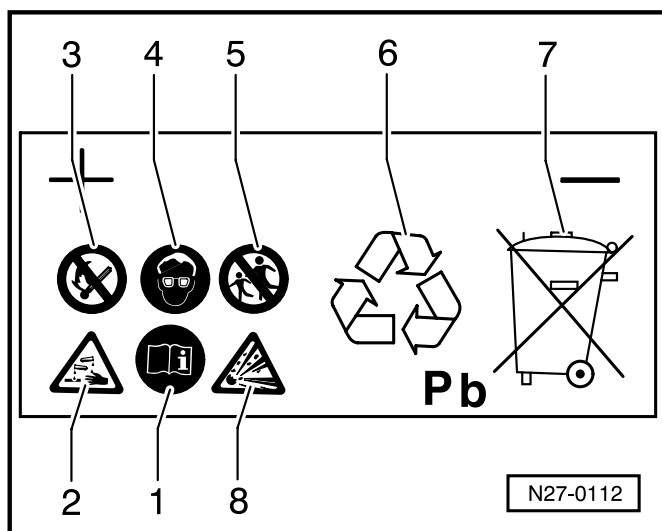
*If the fault memory of the engine control unit is erased, generate readiness code ⇒ Fuel Injection and Ignition System of appropriate engine.*

### Warning instructions and safety precautions relating to lead-acid batteries

- 1 - Follow instructions on battery, in Workshop Manual Electrical System and in the Owner's Manual.







#### 2 - Risk of caustic burns:

- Battery acid is extremely caustic. For this reason, wear protective gloves and eye protection.
- Do not tilt battery; battery acid may flow out of the vent openings.

#### 3 - Fire, sparks, naked flames and smoking prohibited:

- Avoid producing sparks when handling cables and electrical equipment.
- Avoid short circuits.

#### 4 - Wear eye protection.

#### 5 - Keep batteries and battery acid away from children.

#### 6 - Disposal:

- Dispose of old batteries in an official collection point.

#### 7 - Never dispose of old batteries in domestic waste!

#### 8 - Risk of explosion:

- A highly explosive gas mixture is produced when charging batteries.

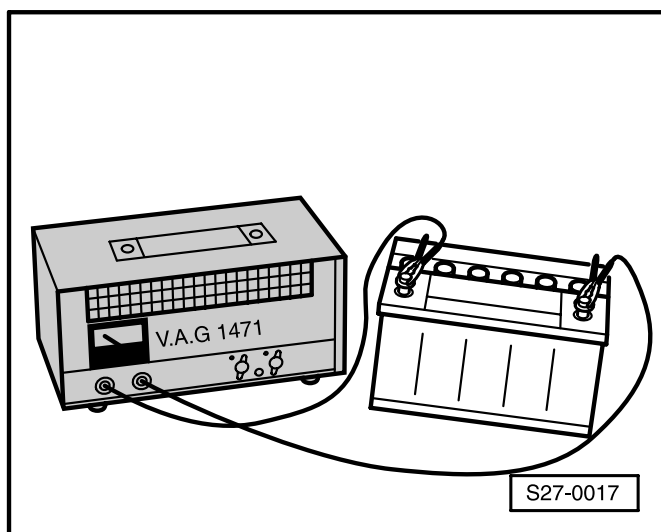
## Checking electrolyte level

- Pour in distilled water only if the electrolyte level is below the „MIN“ marking.

### Notes:

- ◆ If the electrolyte level is above the „MAX“ marking, electrolyte may flow out of the battery during operation (extract excess electrolyte). If the electrolyte level is too low (below the „MIN“ marking) this will shorten the life of the battery, top up distilled water.
- ◆ Battery plugs must always be screwed in when charging battery, measuring voltage and measuring battery under load.
- ◆ After checking the electrolyte density, always screw in plugs with O-rings.





## Measuring voltage under load

### Note:

Before disconnecting the battery, determine the code of a radio set fitted with anti-theft code.

- Disconnect earth strap of battery.
- ◀ - The voltage under load can be measured with a battery tester, e.g. V.A.G 1498.

The load current and the minimum voltage differs according to the capacity of the battery and is indicated on the sticker affixed to the tester or is shown in the table below.

| Battery capacity | Cold test current | Load current | Minimum voltage (limit) |
|------------------|-------------------|--------------|-------------------------|
| [Ah]             | [A]               | [A]          | [V]                     |
| 36               | 175               | 100          | 10.0                    |
| 40-49            | 220               | 200          | 9.2                     |
| 50-60            | 265-280           | 200          | 9.4                     |
| 61-80            | 300-380           | 300          | 9.0                     |
| 81-110           | 380-500           | 300          | 9.5                     |

- If the voltage is less than the specified minimum voltage, replace battery.

Explanations regarding battery load test:

As a result of the high battery load during this test (a current flows), the battery voltage drops.

If the battery is faulty or has only a slight charge, the battery voltage will drop very rapidly below the specified minimum voltage.

After completing the test, this low voltage level is retained for a lengthy period. The voltage rises again only slowly.

If the voltage measured is below the minimum specified voltage during 5...10 seconds of a load test, the battery is discharged or faulty. Check the electrolyte density.

### Testing electrolyte density

- ◆ The electrolyte density, in combination with the voltage measurement (under load), provides accurate information regarding the charge state of a battery. Use a hydrometer for the test.
- ◆ The greater the density of the electrolyte extracted from the battery, the more the float rises. The electrolyte density can be read off on the scale as a specific weight (in kg/dm<sup>3</sup>).

The following measurements must be achieved:

| Charge state in moderate climatic zones | Specific density in (kg/dm <sup>3</sup> ) |
|---|---|
| discharged                              | 1.15                                      |
| half charged                            | 1.22                                      |
| well charged                            | 1.28                                      |

| Charge state in tropical climatic zones | Specific density in (kg/dm <sup>3</sup> ) |
|---|---|
| discharged                              | 1.08                                      |
| half charged                            | 1.16                                      |
| well charged                            | 1.23                                      |

**Battery care:**

Batteries which have not been used for a considerable time (e.g. in stock vehicles), discharge and in addition a sulphate coating may form on the plates. If such batteries are quick-charged with traditional chargers, they do not accept any charge current or the charger indicates too soon that they are "fully charged" as a result of so-called surface charging. The batteries are apparently faulty.

- Before considering such batteries as faulty, carry out the following check:
  - ◆ If the electrolyte density in all the cells does not differ by more than  $0.04 \text{ kg/dm}^3$  (e.g.  $1.15 \dots 1.11$ ) from each other, the battery should be charged. After completing charging of the battery, test the battery by conducting a load test. The battery is faulty only if this test reveals that the test specifications are not met.
  - ◆ If the electrolyte density in one or two adjacent cells is significantly lower (e.g. five cells indicate  $1.16$  and one cell  $1.08$ ), the battery has a short circuit and is faulty.

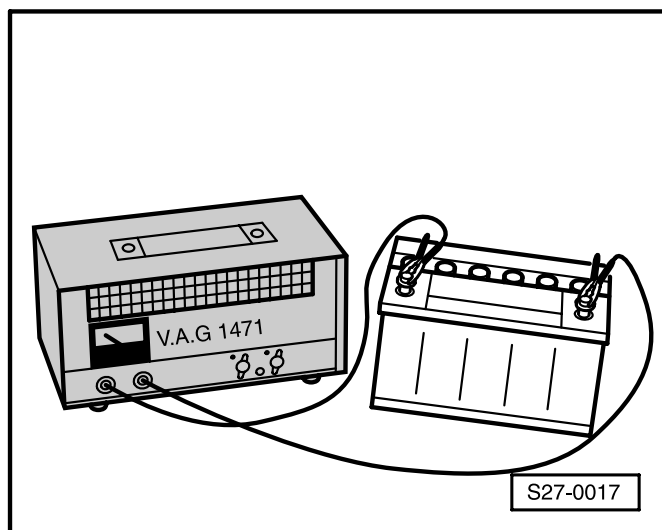
**Charging battery****Notes:**

- ◆ Do not enter areas in which batteries are being charged with a naked light or when smoking. Keep precision tools away from such areas.
- ◆ The battery should have a temperature of at least  $10^\circ \text{C}$  before being charged.

◀ The battery charger V.A.G 1471 can be used to standard-charge up to four 12V batteries and also batteries with different capacities (Ah = amperehours) and rated voltages. If the batteries being charged have different capacities and charge states, charging should be properly supervised.

**Note:**

It is essential to switch off the charger before connecting a battery.



- Always disconnect the battery earth strap/cable and the positive cable at the battery.
- Connect the positive terminal of the battery to the positive terminal of the charger, and the negative terminal of the battery to the negative terminal of the charger.
- Switch on charge current. The charge current varies according to the capacity of the battery. It should be about 10 % of the battery capacity, e.g. 45 Ah battery = 4.5 A with a max. charge voltage of  $U_{\max} = 14.4 \text{ V}$ .
- If the battery voltage has dropped below 11.6 V, the charging time will be about 24 hours.

### Quick-charging/jump-starting

- Quick-charging can be carried out with the battery tester and charger VW 1266 whereas the battery-starter charger V.A.G 1472 can also be used for jump-starting.

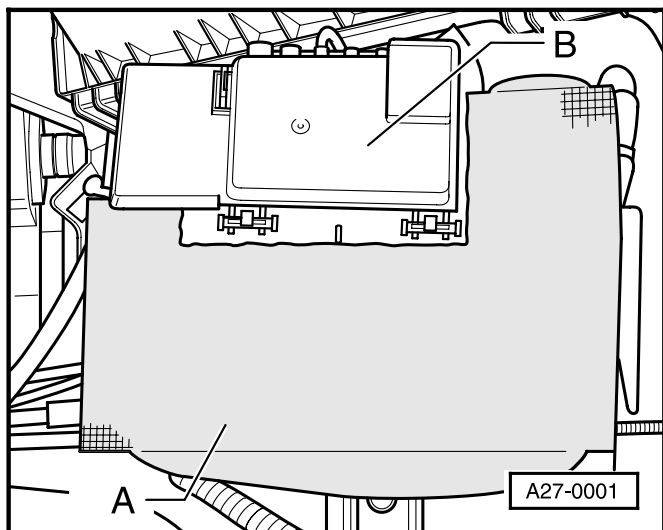
#### Note:

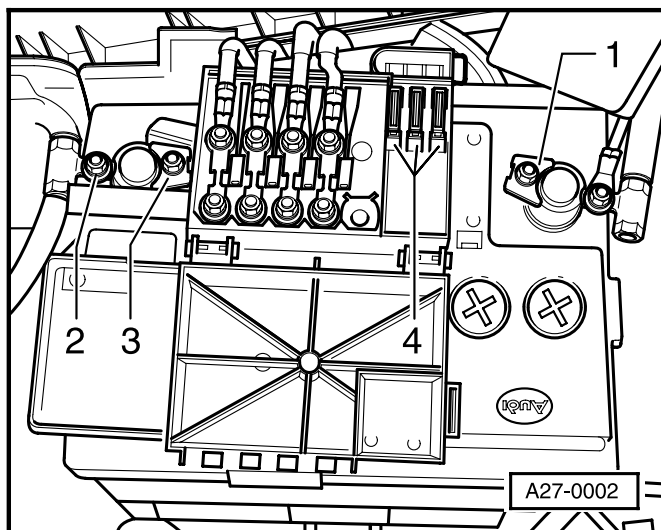
- ◆ Batteries should be quick-charged only in exceptional cases.
- ◆ Batteries are damaged as a result of quick-charging.

### Removing and installing battery

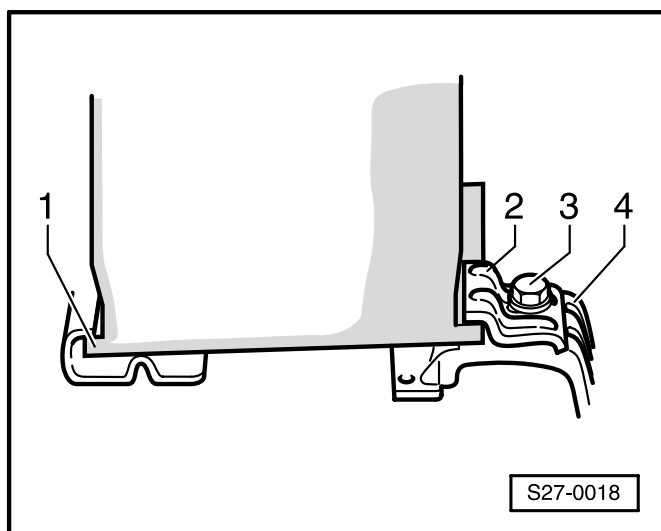
#### Removing:

- ◀ - Remove battery protective cover -A- (Velcro fastener).
- Open main fuse box -B- to the front.





- ◀ - Disconnect battery earth strap at the battery negative terminal by slackening the hexagon nut -1-.
- Unscrew hexagon nut -2- and take off the main fuse box.
- Disconnect battery positive cable by slackening the hexagon nut -3-.



- ◀ - Unscrew the hexagon bolt -3- and take off the securing plate -2-.
- Pull the battery out of the clamping strip -1- and lift it up and out of the engine compartment.

#### Installing:

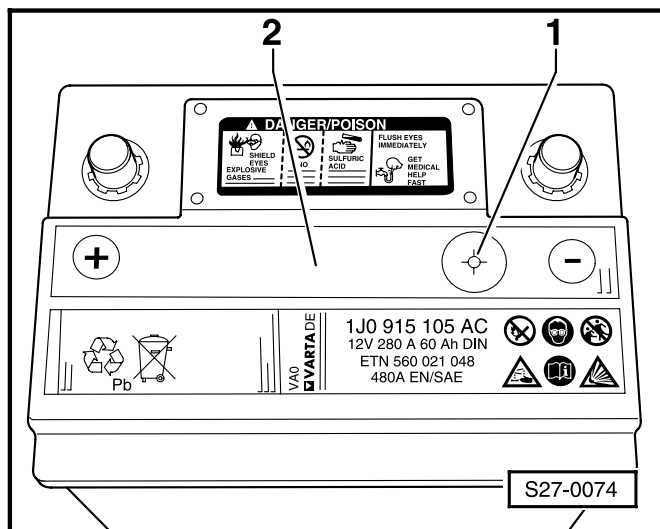
- Carry out installation in the same way in the reverse order.
- Tighten the hexagon bolt -3- to 20 Nm at the securing bracket -4-.

#### Notes:

- ◆ *The battery terminals must no longer be greased.*
- ◆ *The tightening torque for the battery terminals is 6 Nm.*
- ◆ *If the battery is not properly attached, this can result in damage to the grid plates of the battery.*

After installing the battery:

- On a car fitted with a coded radio, enter the anti-theft coding.
  - Adjust the clock to the correct time.
  - On models with power windows, perform initialising.
- ⇒ Inspection and Maintenance



## Battery with magic eye

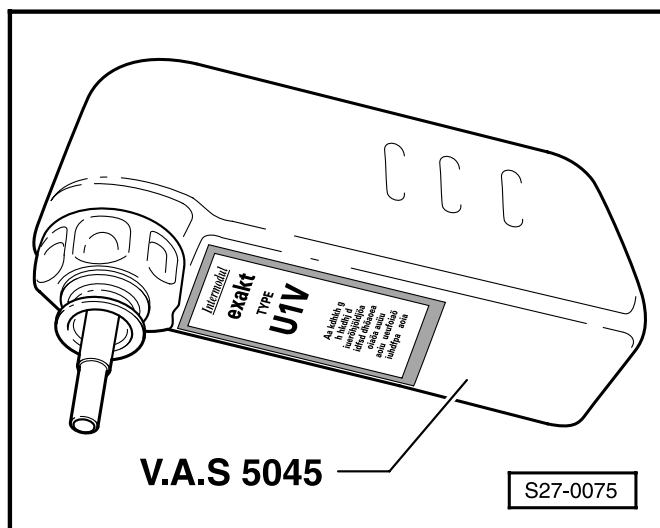
### Identification characteristics

- ◆ The magic eye -item 1- provides information on the electrolyte level and on the charge state of the battery.
- ◆ The magic eye may have three different colours:

green - battery inadequately charged

black - battery is discharged

colourless or yellow - critical electrolyte level, top up distilled water ⇒ page 27-5.1



## Replenishing electrolyte level

### Special tools, testers and aids required

- ◆ Filler bottle V.A.S 5045

### Notes:

- ◆ The neck of the filler bottle V.A.S 5045 prevents the battery being overfilled when topping up with distilled water.
- ◆ Observe safety precautions when working on the battery ⇒ page 27-1.
- Pull protective sheet -item 2- off the battery.
- Unscrew plug.
- Fill filler bottle V.A.S 5045 with distilled water.
- Top up battery using filler bottle V.A.S 5045.
- Screw in plug.
- Stick on protective sheet -item 2-.



## Removing and installing alternator

### **Important!**

**Disconnect battery earth strap before carrying work on the electrical system.**

### Models with petrol engine

#### Removing:

##### **Note:**

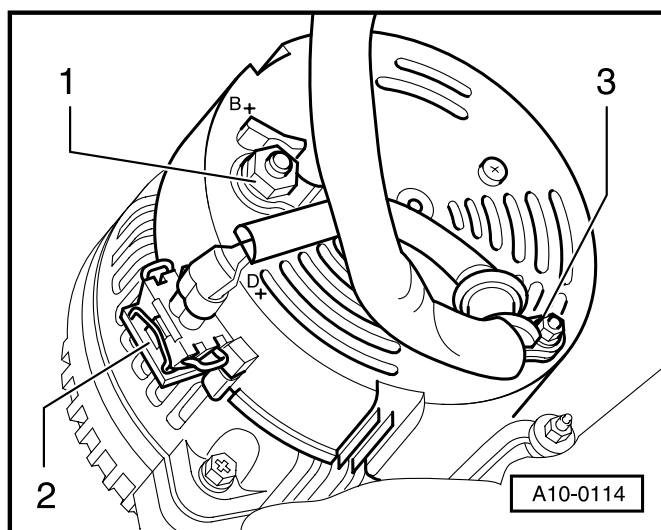
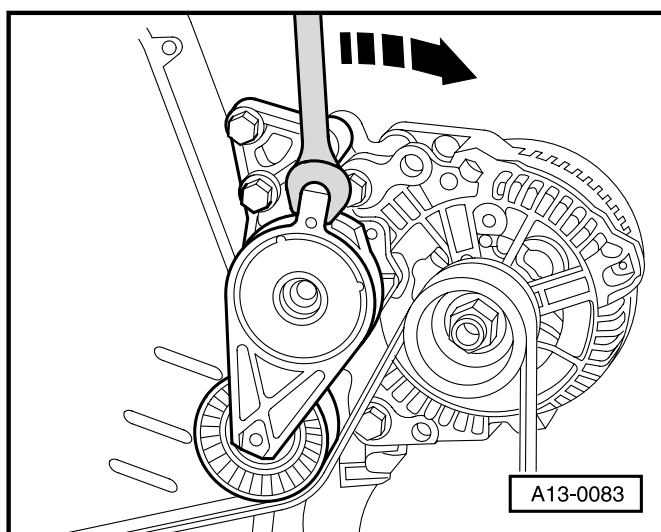
Before disconnecting the battery, check whether radio set is provided with anti-theft code and determine code.

- First of all disconnect battery earth strap at the negative terminal of the battery.

##### **Note:**

Before removing the ribbed V-belt, mark the direction of running for reinstalling.

- ◀ - Swivel tensioning pulley in direction of arrow for slackening the ribbed V-belt.
- Take off ribbed V-belt.



- ◀ - Unbolt the cable -1- (B+) and unplug the connector -2-.
- Unscrew cable clip -3- (is provided only for attaching the cable).
- Remove the bolts attaching the alternator.

#### Installing:

##### **Note:**

Knock back the threaded bushes for the bolts for attaching the generator about 1 mm before reinstalling.

- Please carry out installation in the reverse order.
- After installing, carry out the anti-theft coding as stated in the operating instructions for the radio.



**Tightening torques:**

| Component                          | Nm |
|------------------------------------|----|
| Alternator to bracket              | 25 |
| AC compressor to bracket           | 45 |
| Ribbed V-belt tensioner to bracket | 25 |

**Models with diesel engine****Removing:****Note:**

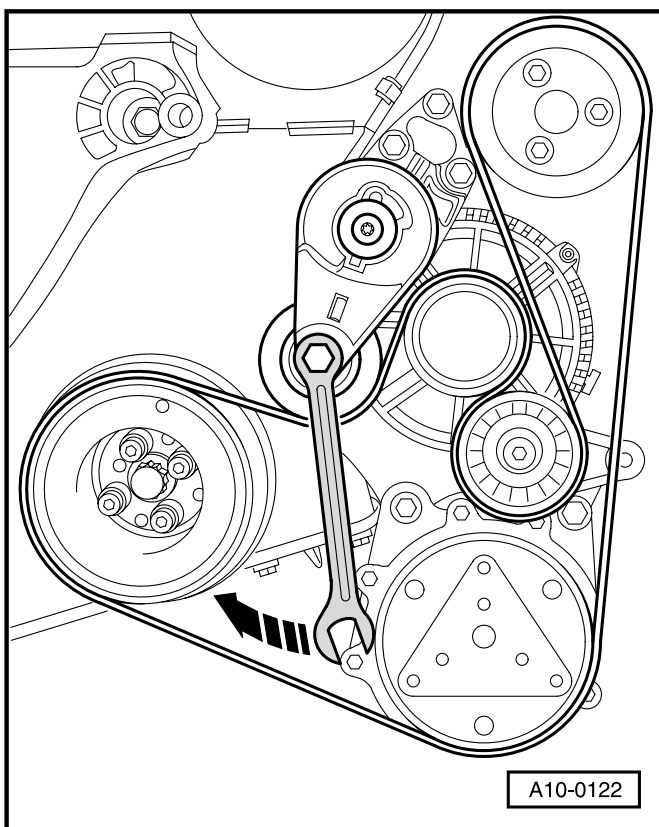
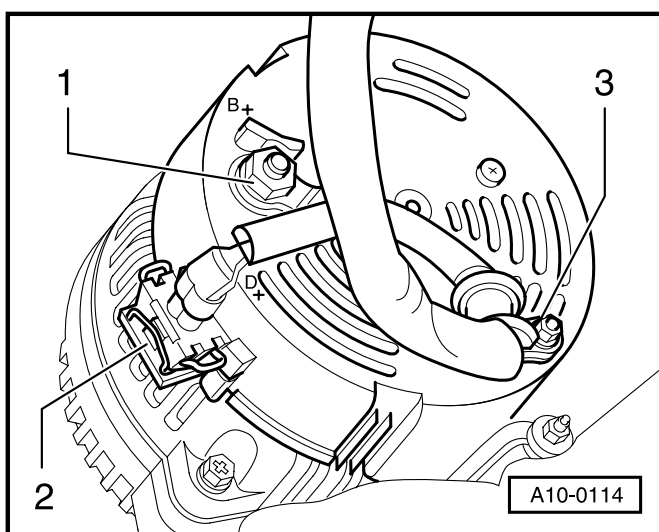
*Before disconnecting the battery, check whether radio set is provided with anti-theft code and determine code.*

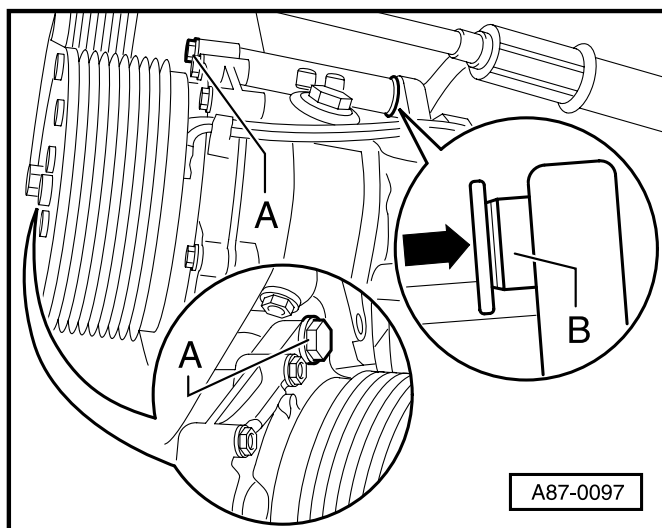
- First of all disconnect battery earth strap at the negative terminal of the battery.
- ◀ - Unscrew cable clip -3-.
- Unbolt the cable -1- (B+) and unplug the connector -2-.

**Note:**

*Before removing the ribbed V-belt, mark the direction of running for reinstalling.*

- Position a flat ring wrench at the hexagon of the tensioning pulley.
- ◀ - Swivel tensioning pulley in direction of arrow for slackening the ribbed V-belt.
- Take off ribbed V-belt.
- Remove tensioning element for ribbed V-belt.
- Remove the bolts attaching the alternator.



**Models with air conditioning:**

- ◀ - Unscrew bolts -A- for AC compressor.
- Suspend AC compressor at the body with the lines connected.

**Models with heavy-duty cooling system:**

- Remove auxiliary fan on right; protect radiator with cardboard to prevent any damage.

**All models:**

- Unbolt alternator and lift up and out.

**Installing:****Note:**

*The threaded bushes -B- for the securing bolts at the alternator should be knocked back about 1 mm before re-installing.*

- Carry out installation in the same way in the reverse order.
- After installing, enter the anti-theft coding as stated in the operating instructions for the radio.

**Tightening torques:**

| Component   | Nm |
|---|----|
| Alternator to bracket   | 25 |
| AC compressor to bracket  | 45 |
| Ribbed V-belt tensioner to bracket                                    | 25 |
| Connection of generator cable terminal B+ (terminal 30) at alternator | 15 |
| Connection of starter cable terminal B+ at starter                    | 15 |
| Connection of battery terminal B+                                     | 6  |
| Connection of battery terminal B-                                     | 6  |
| Connection of auxiliary cable of battery terminal B+                  | 4  |
| Connection of earth cable B- at transmission bolt                     | 23 |
| Connection of earth cable B- at longitudinal member                   | 10 |

## Removing and installing belt pulley of alternator

### Special tools, testers and aids required:

- ◆ Torque wrench, e.g. V.A.G 1332
- ◆ Adapter T30032
- ◆ Adapter MP 1-309

### Removing

- Remove ribbed V-belt and, if necessary, alternator from the vehicle ⇒ page 27-6.

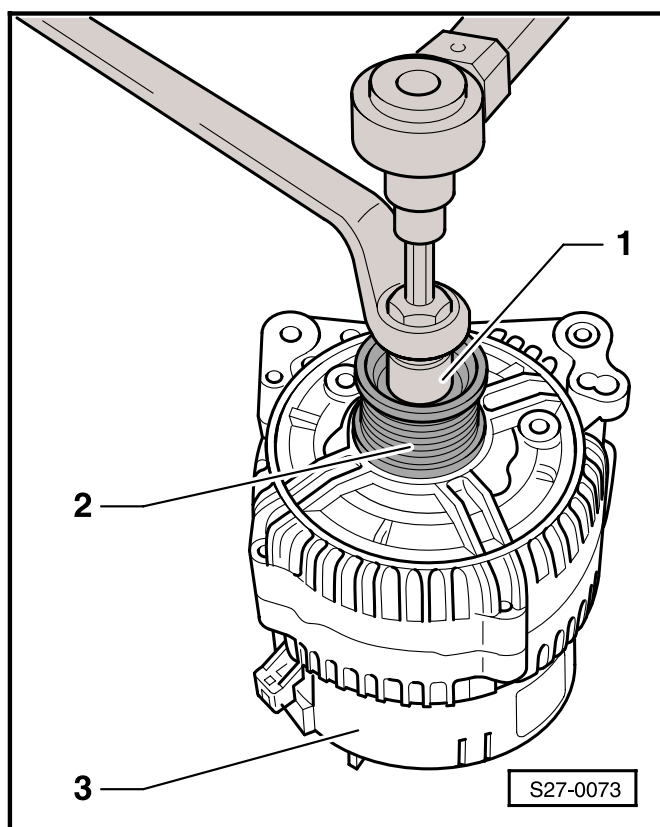
- ◀ - Use adapter -1- to remove belt pulley -2- of alternator -3-.

Tightening torque of belt pulley of alternator:  
65 Nm.

Use adapter T30032 or MP 1-309 depending on the type of alternator installed.

### Installing

- Installation is carried out in the reverse order adopting the same procedure.





## Removing and installing starter

### **Important!**

**Disconnect battery earth strap before carrying out any work on the electrical system.**

### Removing:

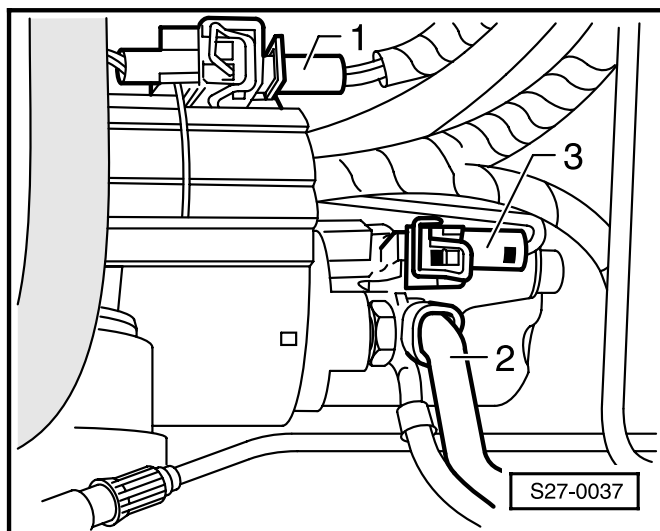
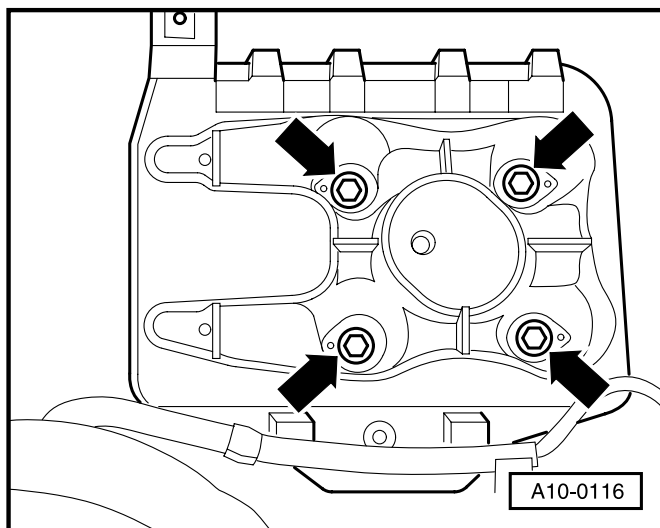
#### **Note:**

*If the radio set is fitted with an anti-theft code, determine the code before disconnecting the battery.*

- First of all disconnect the battery earth strap and the negative terminal of the battery.

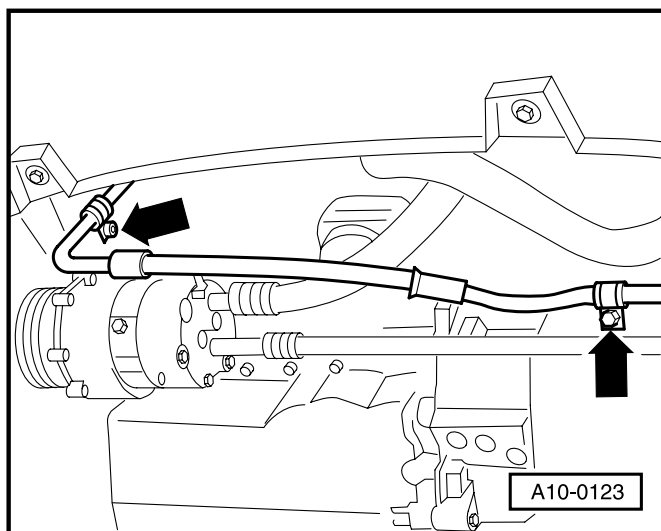
#### **Models with diesel engine:**

- Remove battery ⇒ page 27-4.
- ◀ - Remove battery mounting bracket -arrow-.



#### **All models:**

- ◀ - Unplug connector -1- and pull out of the holder.
- Unbolt cable -2- and unplug connector -3-.
- Take wiring out of the cable duct.
- Unscrew top bolt securing starter.



- ◀ - Unbolt pressure pipe for power-assisted steering from bracket -arrow on right-.
- Unscrew bottom bolt securing starter.
- Take out starter downward.

**Installing:**

- Carry out installation by adopting the same procedure in the reverse order.
- After installing, carry out anti-theft coding of the radio set according to the instructions.

**Tightening torques:**

| Component                | Nm |
|--------------------------|----|
| Starter to gearbox       | 65 |
| Pressure pipe to bracket | 20 |

## Dash panel insert (► MY 00)

### Self-diagnosis

#### General information:

This description also applies to the 1.4-ltr./44 kW and 1.6-ltr./55 kW engines, MY 01 ►.

#### Technology of the dash panel insert

The dash panel insert of the Škoda Octavia is available in two versions, the base version and the Midline version with multifunction display.

The multifunction display is integrated in the rev counter.

The following functions appear on the multifunction display:

- ◆ Digital clock
- ◆ Driving time and distance driven
- ◆ Average speed of vehicle
- ◆ Average fuel consumption
- ◆ Present fuel consumption
- ◆ Ambient temperature

The base version features only a digital clock in the rev counter.

The speedometer contains an LC (liquid crystal) display for the odometer, trip counter, and service interval display (SID).

The warning lights are integrated in the display panel.

The dash panel insert is controlled by a microprocessor and features a comprehensive self-diagnosis. If faults occur at system components, fault codes are stored in the fault memory of the dash panel insert. These faults can be determined using the vehicle system tester V.A.G 1552, V.A.G 1551 or V.A.S 5051.

#### Note:

*The description which follows relates only to vehicle system tester V.A.G 1552 with programme card 5.0. The use of vehicle system tester V.A.G 1551 with programme card 8.0 and integrated printer is similar. Minor variations in the readouts in the display are possible.*

In addition, the following adaptation functions can be performed:

- ◆ Correction of fuel tank sender characteristic curve
- ◆ Correction of fuel consumption display
- ◆ Adaptation of service interval display
- ◆ Adaptation of odometer if dash panel insert replaced

#### **Notes reference replacing the dash panel insert**

- ◆ The dash panel insert must not be dismantled.
- ◆ All the indicator/warning lights which are designed as bulbs, can be replaced individually ⇒ page 90-31.
- ◆ The kilometre reading and the service interval display can be adapted using the vehicle system tester V.A.G 1552 if the dash panel insert is replaced ⇒ page 90-14.

If the control unit in the dash panel insert detects a fault at the ROM, the display “dEF” appears in the trip counter.

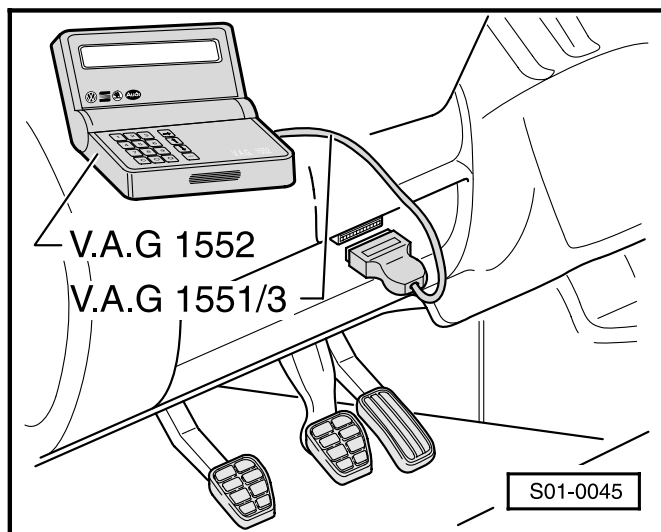
- If the display “dEF” appears, replace the dash panel insert ⇒ page 90-29.

#### **Initiating self-diagnosis of the dash panel insert**

##### **Test requirements:**

- ◆ Test if fuse according to current flow diagram o.k.
- ◆ Always test the coding of the dash panel insert according to the code table ⇒ page 90-11.





### Connecting vehicle system tester V.A.G 1552

#### Test conditions

- Battery voltage at least 11 V
- Earth connections at engine and gearbox o.k.
- Fuse o.k.

The connection for self-diagnosis is located in the storage area on the driver's side.

- ◀ - Connect the vehicle system tester V.A.G 1552 with cable V.A.G 1551/3.
- Switch on the ignition.

Test of vehicle systems  
Enter address word XX

HELP

◀ Readout in display:

#### Note:

*If no readout appears in the display:*  
⇒ Operating instructions of fault reader

Test of vehicle systems  
Enter address word XX

HELP

◀ Readout in display:

- Press keys 1 and 7 for the function „Dash panel insert“ and confirm the entry with the key Q.

1U1919033C A +- KOMBIINSTR. VDO X05 →  
Coding 02142 WSC xxxxx

◀ The display appears after about 5 seconds, e.g.:

- ◆ 1U1919033C: number of dash panel insert
- ◆ A+-KOMBIINSTR.: component designation

- ◆ VDO: identification manufacturer (UN4 = Nippon Seiki, VD0 = VDO)
- ◆ X05: software version of dash panel insert (readout V01 also possible)
- ◆ Coding 02142: coding of dash panel insert
- ◆ WSC XXXXX: workshop code

**Note:**

Check coding by referring to table of codes  
⇒ page 90-11.

- Press → key.

IMMO-IDENTNO: SKZ7Z062000222 →

◀ Readout in display:

- ◆ SKZ7Z062000222: 14-digit identification number of immobiliser control unit

- Press → key.

Test of vehicle systems  
Control unit does not answer!

HELP

◀ If one of the following messages appears in the display, carry out troubleshooting as specified in „Troubleshooting programme“ in the diagnostic wire:

Test of vehicle systems  
Fault in communication build-up

HELP

⇒ Current Flow Diagrams, Fault Finding, Fitting Locations binder

Test of vehicle systems  
K wire not switching to earth

HELP

Test of vehicle systems  
K wire not switching to positive

HELP

- A list of possible functions is displayed after pressing the HELP key.
- Move forward in the test programme by pressing the → key.

**List of available functions**

The following functions are possible:

02 - Interrogating fault memory ⇒ page 90-5.

03 - Final control diagnosis ⇒ page 90-7.

05 - Erasing fault memory ⇒ page 90-9.

06 - Ending output ⇒ page 90-10.

07 - Coding control unit ⇒ page 90-10.

08 - Reading measured value block  
⇒ page 90-12.

10 - Adaptation ⇒ page 90-14.

## Interrogating fault memory

### Note:

*The fault information displayed is not updated constantly but only when self-diagnosis is initiated or if the function 05 "Erase fault memory" is selected.*

- Switch on printer with Print key (indicator light in the key comes on).

Test of vehicle systems  
Select function XX

HELP

◀ Readout on display:

- Press keys 0 and 2 (the function "Interrogate fault memory" is selected with 02) and confirm entry with the key Q.

X faults recognised!

◀ The number of stored faults appears on the display.

The stored faults are displayed one after the other.

- Refer to the fault table for the fault displayed and rectify fault ⇒ page 90-6.

No fault recognised!

→

◀ If "No fault recognised" appears on the display, the programme is returned to the initial setting after pressing the → key.

Test of vehicle systems  
Select function XX

HELP

◀ Readout on display:

If a different readout appears on the display:  
⇒ Operating instructions of fault reader

- End output (function 06) ⇒ page 90-10.

## Fault table

### Notes:

- ◆ All the possible faults which can be detected by the V.A.G 1552, are listed below according to the 5-digit fault code.
- ◆ Before replacing components found to be defective first check the wiring and plug connections to these components according to the current flow diagram.
- ◆ After repair once again interrogate the fault memory using vehicle system tester V.A.G 1552 and erase the memory.
- ◆ All static and sporadic faults are stored in the fault memory:  
A fault is detected as static, if it exists for at least 2 seconds (outside temperature after 60 seconds, coolant temperature after 30 minutes of engine running). If the fault is then no longer present, it is stored as a sporadic (temporary) fault. "/SP" appears on the right of the display.
- ◆ After switching on the ignition, all the faults which exist are set to sporadic and are not stored as static faults unless they continue to exist after completing the check.
- ◆ If a sporadic fault no longer occurs during 50 driving cycles (ignition on for at least 5 minutes, road speed > 30 km/h), it is erased.

| Read out on display of V.A.G 1552  | Possible cause of fault  | Rectifying fault  |
|--|--|---|
| 00562<br>Oil level/oil temperature sender -G266-<br>◆ Line interruption or short-circuit to positive<br>◆ Short circuit to earth<br>◆ Implausible signal | ◆ Line interruption or short-circuit<br>◆ Sender -G266 defective   | - Check wiring ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting locations<br>- Check plug connections<br>- Replace sender -G266  |
| 00667<br>Outside temperature signal<br>◆ Line interruption or short-circuit to positive<br>◆ Short circuit to earth                                      | ◆ Line interruption or short-circuit<br>◆ Sender -G17 defective  | - Check wiring ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting locations<br>- Check plug connections<br>- Replace sender -G17   |
| 00769<br>Coolant temperature sender - engine output -G2<br>◆ Line interruption or short-circuit to positive<br>◆ Short circuit to earth                  | ◆ Line interruption or short-circuit between sender -G2 and dash panel insert<br>◆ Sender -G2 defective                      | - Check wiring ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting locations<br>- Check plug connections<br>- Replace sender -G2  |
| 00771<br>Fuel gauge sender -G<br>◆ Line interruption or short-circuit to positive<br>◆ Short circuit to earth  | ◆ Line interruption or short-circuit between fuel gauge sender -G and dash panel insert<br>◆ Fuel gauge sender -G- defective | - Reading measured value block 002 ⇒ page 90-47<br>- Check wiring ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting locations<br>- Check plug connections<br>- Replace fuel gauge sender -G |

| Read out on display of V.A.G 1552  | Possible cause of fault   | Rectifying fault   |
|--|---|--|
| 00779<br>Temperature sensor outside temperature -G17<br>♦ Line interruption or short-circuit to positive<br>♦ Short circuit to earth | ♦ Line interruption or short-circuit between temperature sensor for outside temperature -G17 and dash panel insert<br>♦ Temperature sensor for outside temperature -G17 defective | - Reading measured value block ⇒ page 90-47<br>- Check wiring ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting locations<br>- Check plug connections<br>- Replace temperature sensor for outside temperature -G17 |
| 01039<br>Coolant temperature display sender -G2<br>♦ Line interruption or short-circuit to positive<br>♦ Short circuit to earth      | ♦ Line interruption or short-circuit between sender -G2 and dash panel insert<br>♦ Sender -G2 defective   | - Reading measured value block 003 ⇒ page 90-47<br>- Check wiring ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting locations<br>- Check plug connections<br>- Replace sender -G2                                  |
| 01044<br>Control unit is wrongly coded   | ♦ Dash panel insert is wrongly coded<br>♦ Control unit defective  | - Coding dash panel insert<br>- Coding dash panel insert   |
| 01086<br>Speedometer sender -G22<br>♦ Signal too great   | ♦ Speedometer sender -G22 defective   | - Reading measured value block 001 ⇒ page 90-47<br>- Replace speedometer sender -G22   |
| 01312<br>Databus drive<br>♦ Defective  | ♦ Fault in databus cables   | - Check databus cables ⇒ page 90-68<br>- Coding of the control units connected to the databus  |
| 01314<br>Engine control unit<br>♦ No communication   | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ Engine control unit defective   | - Check databus cables ⇒ page 90-68<br>- Replace engine control unit   |
| 01315<br>Gearbox control unit<br>♦ No communication  | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ Gearbox control unit defective  | - Check databus cables ⇒ page 90-68<br>- Replace gearbox control unit  |
| 01316<br>Brake control unit<br>♦ No communication  | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ ABS control unit defective  | - Check databus cables ⇒ page 90-68<br>- Replace ABS control unit  |
| 01317<br>Control unit in dash panel insert -J285-<br>♦ No communication  | ♦ Line interruption to control unit<br>♦ Control unit not fitted  | - Check databus cables ⇒ page 90-68  |

| Read out on display of V.A.G 1552  | Possible cause of fault   | Rectifying fault  |
|--|---|---|
| 01321<br>Airbag control unit -J234<br>♦ No communication                           | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ Airbag control unit defective | - Check databus cables ⇒ page 90-68<br>- Replace airbag control unit -J234  |
| 01324<br>4-wheel drive control unit -J492<br>♦ No communication                    | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ Control unit -J492 defective  | - Check databus cables ⇒ page 90-68<br>- Replace control unit -J492   |
| 01326<br>Multi-function steering control unit -J453<br>♦ No communication          | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ Control unit -J453 defective  | - Check databus cables ⇒ page 90-68<br>- Replace control unit -J453   |
| 01330<br>Central control unit for convenience system -J393<br>♦ No communication   | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ Control unit -J393 defective  | - Check databus cables ⇒ page 90-68<br>- Replace control unit -J393   |
| 01336<br>Group convenience data bus<br>♦ defective<br>♦ group convenience data bus | ♦ Fault in databus cables   | - Check databus cables ⇒ page 90-68   |
| 01402<br>Databus line of navigation<br>♦ implausible signal                        | ♦ Fault in databus cables<br>♦ Radio-Navigation system defective                                    | - Check databus cables ⇒ page 90-68<br>- Check Radio-Navigation system ⇒ page 91-30<br>- Check Radio-Navigation system ⇒ page 91-47 |
| 65535<br>Control unit defective  | ♦ Dash panel insert defective   | - Replace dash panel insert ⇒ page 90-29  |

## Final control diagnosis

### Notes:

- ◆ *Final control diagnosis can only be performed when the vehicle is stationary and the engine is not running!*
- ◆ *If a fault is detected during final control diagnosis, replace dash panel insert.*

**In the function „Final control diagnosis“ all the control elements of the dash panel insert are actuated one after the other.**

- ◆ Simultaneous parallel sweep of indicating range of all analogue instruments (coolant temperature gauge, rev counter, speedometer, fuel tank gauge).
- ◆ Test of all warning lights for the particular equipment.
- ◆ Test of seat belt warning light.
- ◆ Operation of gong.
- ◆ Segment test of multifunction display and (or) of odometer (LCD).
- ◆ Excess temperature test:  
Switching off safety shut-off

### Note:

*The readout appears in the unit for the specific country depending on the national version.*

### Performing self-diagnosis:

- Enter function 03. Confirm the entry with the key Q.

Final diagnosis is started immediately for the analogue readouts!

Final control diagnosis  
Analogue readouts

◀ Readout in display:

The following checks are performed simultaneously:

- ◆ Sweep of coolant temperature needle over entire indicating range.
- ◆ Sweep of rev counter needle over the entire indicating range.
- ◆ Sweep of speedometer needle over the entire indicating range.
- ◆ Sweep of fuel tank gauge needle over the entire indicating range.

Following the sweep of the indication ranges, the following fixed values are displayed:

|                            |                       |
|----------------------------|-----------------------|
| Coolant temperature gauge: | approx. $\frac{1}{2}$ |
| Rev counter:               | approx. 3000 rpm      |
| Speedometer:               | approx. 100 km/h      |
| Fuel gauge:                | approx. $\frac{1}{2}$ |

- Press → key.

Final control diagnosis  
Warning light test instrument cluster →

◀ Readout in display:

Warning lights for

- ◆ coolant temperature/coolant level
- ◆ fuel level
- ◆ engine oil pressure
- ◆ brake fluid

are actuated and come on simultaneously.

- Press → key.

Final control diagnosis  
Seat belt warning light -K19 →

◀ Readout in display:

The seat belt warning light (K19) is actuated and should come on (USA only).

- Press → key.

Final control diagnosis  
Gong →

◀ Readout in display:

The gong is actuated and sounds continuously.

- Press → key.

Final control diagnosis  
Segment test →

◀ Readout in display:

All the display points of the multifunction display and/or of the LCD trip counter are actuated (all segments).

- Press → key.



Final control diagnosis  
Coolant excess temp. test →

◀ Readout in display:

The coolant temperature warning light begins to illuminate and a warning signal sounds (only with Climatronic).

- Press → key.

Function is unknown or cannot  
be carried out at the moment →

◀ Readout in display:

- Press → key.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

## Erasing fault memory

### Note:

*After the fault memory is erased, the contents are automatically output. If it is not possible to erase the fault memory, once again interrogate fault memory and rectify and faults.*

### Requirements:

- ♦ Fault memory interrogated ⇒ page 90-5.
- ♦ All faults rectified.

After completing interrogation of fault memory:

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Press keys 0 and 5 (the function „Erase fault memory“ is selected with 05) and confirm entry with the key Q.

Test of vehicle systems  
Fault memory is erased! →

◀ Readout in display:

The fault memory is thus erased.

- Press → key.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

### Notes:

Test of vehicle systems  
Fault memory was not interrogated →

- ◀ ♦ *If this readout appears in the display, the test procedure was not carried out correctly.*
- ♦ *Adhere strictly to test procedure: first of all interrogate fault memory, rectify any faults, and then erase fault memory.*

## Ending output

- Press keys 0 and 6. (The function „End output“ is selected with 06.)

Test of vehicle systems  
06 - End output

Q

◀ Readout in display:

- Confirm entry with the key Q.

Test of vehicle systems  
Enter address word XX

HELP

◀ Readout in display:

- Switch off ignition.
- Separate plug connections to vehicle system tester V.A.G 1552.

## Coding control unit

The dash panel insert can be coded as follows with this function:

- ◆ Additional equipment or gearbox versions
- ◆ National versions
- ◆ Number of cylinders
- ◆ Engine versions

### Notes:

- ◆ *By coding the dash panel insert, the various possible combinations of the dash panel insert are set depending on the equipment, national version, number of cylinders and type of engine.*
- ◆ *If the dash panel insert is replaced, the replacement dash panel inserts are already coded. It is only necessary to code the national version Saudi Arabia and vehicles with a 1.9/81 kW TDI engine.*

## Performing coding

- Press keys 0 and 7.
- Confirm entry with the key Q.

Code control unit  
Enter code number XXXXX

(0-32000)

◀ Readout in display:

- Enter code number by referring to the table of codes ⇒ page 90-11.  
Example: 00042

00

0 National version Germany

4 4 cylinders

2 Petrol engine

|  |                |
|--|----------------|
| Code control unit<br>Enter code number 08042 | Q<br>(0-32000) |
|--|----------------|

◀ Readout in display:

- Confirm entry with the key Q.

|  |                |
|--|----------------|
| 8L0919860A AB KOMBIINSTR UN4 D04<br>Coding 08042 | →<br>WSC 06812 |
|--|----------------|

◀ Readout in display:

- Press → key.

|                               |   |
|-------------------------------|---|
| IMMO IDENT NO: SKZ7Z062000222 | → |
|-------------------------------|---|

◀ Readout in display:

- End coding by pressing the → key.

|   |      |
|---|------|
| Test of vehicle systems<br>Select function XX | HELP |
|---|------|

◀ Readout in display:

- End output (function 06) ⇒ page 90-10.

**Table of codes:**

|    |  |   |
|----|--|---|
| 00 |  |   |
| X  |  | National version  |
| 0  |  | Germany   |
| 1  |  | Europe and Rest of World                                |
| 2  |  | USA   |
| 3  |  | Canada  |
| 4  |  | United Kingdom  |
| 5  |  | Japan   |
| 6  |  | Saudi Arabia  |
| 7  |  | Australia   |
| X  |  | No. of cylinders  |
| 4  |  | 4 cylinders   |
| X  |  | Engine versions   |
| 0  |  | Diesel engine (except 1.9 l/81 kW 99 ►)                 |
| 2  |  | Diesel engine 1.9 l/81 kW TDI 99 ►<br>or petrol engines |

### Reading measured value block

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Press keys 0 and 8 and confirm entry with the key Q.

Read measured value block  
Enter display group number XXX

HELP

◀ Readout in display:

- Enter channel number (⇒ page 90-12, Table) and confirm with the key Q.

What is displayed now is the selected measured value block in a standardised form.

#### List of display groups:

| Channel number | Readout in display:   |
|----------------|---|
| 001            | 1 = Vehicle speed km/h<br>2 = Engine speed rpm<br>3 = Oil pressure switch 2 < min<br>4 = Time h |
| 002            | 1 = Odometer km<br>2 = Fuel gauge l<br>3 = Not assigned<br>4 = Ambient temperature °C           |
| 003            | 1 = Coolant temperature °C  |
| 050            | 1 = Odometer km<br>2 = Engine speed rpm<br>3 = Not assigned<br>4 = Coolant temperature °C       |

**Notes:**

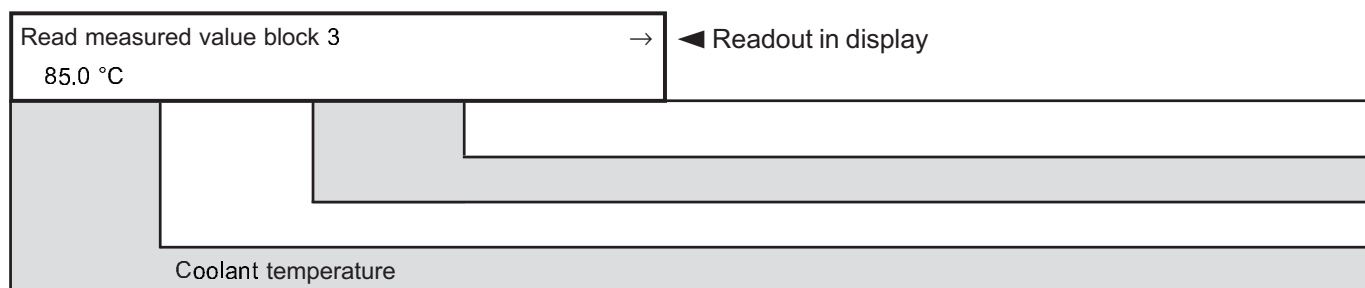
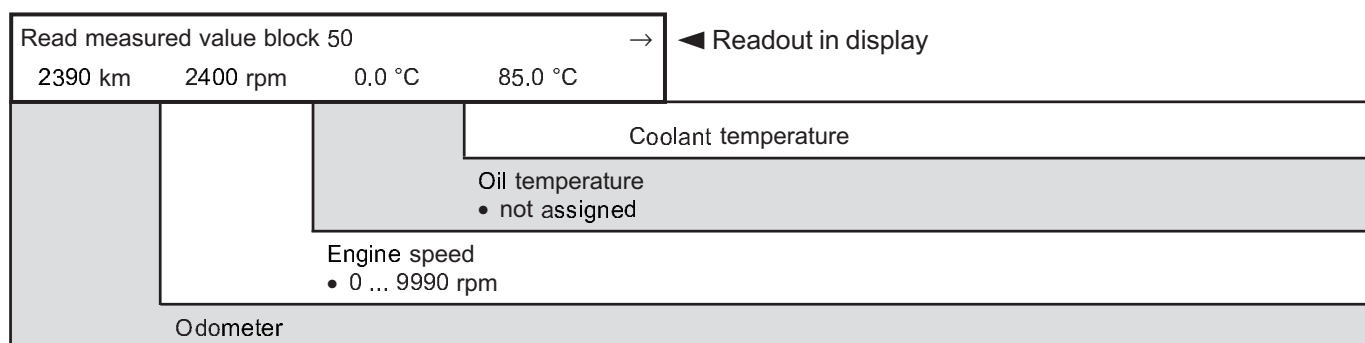
- ◆ *What appears in the display are always the actual values of the senders and sensors. As the values are displayed filtered at the dash panel insert, these may differ!*
- ◆ *If the actual coolant temperature is at a value between approx. 80 °C and 100 °C, what then always appears in the dash panel insert is 90 °C.*
- ◆ *Further display groups for the dash panel insert are not possible!*

**Measured value block 001**

|                             |          |             |        |                       |                      |
|-----------------------------|----------|-------------|--------|-----------------------|----------------------|
| Read measured value block 1 |          |             |        | →                     | ◀ Readout in display |
| 50 km/h                     | 2400 rpm | Oil p2<min. | 0: 0 h |                       |                      |
|                             |          |             |        | Time                  |                      |
|                             |          |             |        | Oil pressure switch 2 |                      |
|                             |          |             |        | • Oil p 2 < min.      |                      |
|                             |          |             |        | • Oil p 2 OK          |                      |
|                             |          |             |        | Engine speed          |                      |
|                             |          |             |        | • 0 ... 9990 rpm      |                      |
|                             |          |             |        | Road speed            |                      |
|                             |          |             |        | • 0 ... 300 km/h      |                      |

**Measured value block 002**

|                             |      |  |         |                     |                      |
|-----------------------------|------|--|---------|---------------------|----------------------|
| Read measured value block 2 |      |  |         | →                   | ◀ Readout in display |
| 2390 km                     | 43 l |  | 23.0 °C |                     |                      |
|                             |      |  |         | Ambient temperature |                      |
|                             |      |  |         | • -40 ... +70 °C    |                      |
|                             |      |  |         | Fuel tank sender    |                      |
|                             |      |  |         | • not assigned      |                      |
|                             |      |  |         | Fuel gauge          |                      |
|                             |      |  |         | • 0 ... 100 l       |                      |
|                             |      |  |         | Odometer            |                      |

**Measured value block 003****Measured value block 050****Adaptation**

The adaptation function can be used to perform and store the following changes:

- ◆ Correction of fuel consumption display
- ◆ Adaptation (resetting) of service interval display (SID)
- ◆ Adaptation of odometer if dash panel insert is replaced
- ◆ Correction of fuel tank sender characteristic curve

The individual functions are retrieved by using the respective number of the adaptation channel (adaptation table ⇒ page 90-15).

## Adaptation table:

| Adaptation channel | Meaning   |
|--------------------|---|
| 03                 | Adaptation of fuel consumption display ⇒ page 90-15   |
| 04                 | Language versions of multifunction display (not assigned)                                     |
| 09                 | Kilometer/mileage readout ⇒ page 90-16  |
| 10                 | SID remaining value for oil service after replacing dash panel ⇒ page 90-20                   |
| 11                 | SID remaining value for service inspection (distance) after replacing dash panel ⇒ page 90-21 |
| 12                 | SID remaining value for service inspection (time) after replacing dash panel ⇒ page 90-22     |
| 30                 | Adaptation of fuel tank sender characteristic curve ⇒ page 90-23                              |

## Performing function „10 - Adaptation“

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Press keys 1 and 0 and confirm entry with the key Q.

Adaptation  
Enter channel number XX

◀ Readout in display:

- Enter the desired adaptation channel (adaptation table ⇒ page 90-15).

**Note:**

*After changing an adaptation value or completing an adaptation channel, the **function „10 - Adaptation“** has to be performed once again in order to select another adaptation channel!*

## Adaptation of fuel consumption display

**Notes:**

- ◆ *Adaptation only on models with multifunction display.*
- ◆ *Only an entry from 85 % up to 115 % is possible.*
- ◆ *The entry has to be made in steps of 5 %.*
- Press keys 0 and 3 (channel number).
- Confirm entry with the key Q.

|                       |          |   |
|-----------------------|----------|---|
| Channel 03 Adaptation | 100      | → |
|                       | <- ↑ ↓-> |   |

◀ Readout in display:

- Press → key.

**Note:**

*Correction of the fuel consumption display is only possible by making a direct entry!*

|                              |     |
|------------------------------|-----|
| Channel 03 Adaptation        | 100 |
| Enter adaptation value XXXXX |     |

◀ Readout in display:

- Enter the desired correction value using the keypad of the vehicle system tester; fill the first places with „0“.

Example:

Desired entry: 90 %

Keypad entry: 00090

|                              |     |   |
|------------------------------|-----|---|
| Channel 03 Adaptation        | 100 | Q |
| Enter adaptation value 00090 |     |   |

◀ Readout in display:

- Confirm entry with the key Q.

|                       |    |   |
|-----------------------|----|---|
| Channel 03 Adaptation | 90 | Q |
| Store changed value?  |    |   |

◀ Readout in display:

- Confirm entry with the key Q.

|                         |    |   |
|-------------------------|----|---|
| Channel 03 Adaptation   | 90 | → |
| Changed value is stored |    |   |

◀ Readout in display:

- Conclude adaptation of the fuel consumption display by pressing the → key.

|                         |      |
|-------------------------|------|
| Test of vehicle systems | HELP |
| Select function XX      |      |

◀ Readout in display:

**Kilometer/mileage display**

This channel can be used to update the kilometer/mileage reading of the odometer if the dash panel insert is replaced.

**Notes:**

- ◆ *Adaptation is only possible on a dash panel insert up to a kilometer reading of max. 100 km.*
- ◆ *Adaptation is only possible once each time the dash panel insert is replaced.*
- ◆ *It is only possible to enter a larger adaptation value.*



**Warning!**

***If an incorrect entry is made and confirmed, it is not possible to correct it. In this case, the dash panel insert has to be replaced with a new one.***

- ◆ *The adaptation must also be carried out in kilometers even in countries with a miles speedometer. In this case, convert the adaptation value from miles to kilometers (1 mile = 1.609 km).*
- ◆ *If the dash panel insert is replaced, pay attention to page 90-24!*

|   |      |   |
|---|------|---|
| Test of vehicle systems<br>Select function XX   | HELP | ◀ Readout in display:   |
|   |      | - Press key 1 twice.  |
| Test of vehicle systems<br>11 - Login procedure | Q    | ◀ Readout in display:   |
|   |      | - Confirm entry with the key Q.   |
| Login procedure<br>Enter code number XXXXX      |      | ◀ Readout in display:   |
|   |      | - <b>Enter code number 13861 and confirm entry with the key Q.</b>      |
| Test of vehicle systems<br>Select function XX   | HELP | ◀ Readout in display:   |
|   |      | - Press keys 1 and 0 and confirm entry with the key Q.                  |
| Adaptation<br>Enter channel number XX           |      | ◀ Readout in display:   |
|   |      | - Press keys 0 and 9 (channel number) and confirm entry with the key Q. |
| Channel 09 Adaptation      0<br>(- ↑ ↓ -)       | →    | ◀ Readout in display:   |

**Note:**

*It is only possible to make a direct entry using the keypad of the vehicle system tester V.A.G 1552!*

- Move forward in the program by pressing the → key.

Channel 9 Adaptation 0 Q  
Enter adaptation value XXXXX

◀ Readout in display:

**Example:**

**Kilometer reading = 89627**

0 8 9 6 3

|   |   |   |   |   |  |
|---|---|---|---|---|--|
| X |   |   |   |   | Hundred thousands:<br>100000 ... 900000 km |
|   | X |   |   |   | Ten thousands: 10000 ... 90000 km          |
|   |   | X |   |   | Thousands: 1000 ... 9000 km                |
|   |   |   | X |   | Hundreds: 100 ... 900 km                   |
|   |   |   |   | X | Tens: 10 ... 90 km                         |
|   |   |   |   |   | Ones: round up to next ten                 |

- Enter adaptation values with keypad.

Channel 9 Adaptation 0 Q  
Enter adaptation value 08963

◀ Readout in display:

- Confirm entry with the key Q.

Channel 9 Adaptation 8963 Q  
< - ↑ ↓ - >

◀ Readout in display:

The km reading entered now appears in the display of the dash panel insert.

If the km reading which is displayed is not correct, e.g. because of an incorrect entry:

- Press key C and repeat entry with the correct adaptation value.

If the km reading which appears in the display of the dash panel insert is o.k.:

- Confirm entry with the key Q.

Channel 09 Adaptation 8963 Q  
Store changed value?

◀ Readout in display:

- Confirm entry with the key Q.

Channel 03 Adaptation 8963 →  
Changed value is stored

◀ Readout in display:

- End adaptation of kilometer reading by pressing the → key.

Test of vehicle systems HELP  
Select function XX

◀ Readout in display:

## Adapting service interval display

The service interval display has to be adapted if the dash panel insert is replaced.

### Adaptation table:

| Adaptation channel: | Counter contents:            |
|---------------------|------------------------------|
| 10                  | Distance in 1000 km          |
| 11                  | Distance in 1000 km          |
| 12                  | Time in days in steps of ten |

### Notes:

- ◆ *It is only possible to enter the respective adaptation value for the odometer in steps of 1000 km; consequently, the readout also appears in the display in 1000 km.*
- ◆ *The adaptation value has to be entered as a 5-digit number (e.g. 00015 for the adaptation value 15, equals a distance of 15000 km to the next service event).*
- ◆ *The value entered is counted back to 0 km.*
- ◆ *The time counter for „SERVICE INSP“ can be adapted with a maximum of 365 days.*
- ◆ *It is only possible to make direct entry using the keypad of the vehicle system tester.*
- ◆ *If an incorrect value is entered, the function „Adaptation“ is ended and it is then necessary to begin again!*

**SID remaining value for oil service**

This channel can be used to enter the remaining distance in km until the next oil change if the dash panel insert is replaced.

- Press keys 1 and 0 (channel number).
- Confirm entry with the key Q.

|                       |             |   |
|-----------------------|-------------|---|
| Channel 10 Adaptation | 1           | → |
|                       | < - ↑ ↓ - > |   |

◀ Readout in display:  
What is displayed are the remaining kilometers until the OIL service (in this case e.g. 1 equals a further 1000 km)

- Press → key.

|                              |   |  |
|------------------------------|---|--|
| Channel 10 Adaptation        | 0 |  |
| Enter adaptation value XXXXX |   |  |

◀ Readout in display:

- Enter remaining value using the keypad; fill the first places with „0“.

Example:

Remaining value: 1000 km

Entry: 00001

|                              |   |   |
|------------------------------|---|---|
| Channel 10 Adaptation        | 0 | Q |
| Enter adaptation value 00001 |   |   |

◀ Readout in display:

- Confirm entry with the key Q.

|                       |             |   |
|-----------------------|-------------|---|
| Channel 10 Adaptation | 1           | Q |
|                       | < - ↑ ↓ - > |   |

◀ Readout in display:

- Confirm entry with the key Q.

|                       |   |   |
|-----------------------|---|---|
| Channel 10 Adaptation | 1 | Q |
| Store changed value?  |   |   |

◀ Readout in display:

- Confirm entry with the key Q.

|                         |   |   |
|-------------------------|---|---|
| Channel 10 Adaptation   | 1 | → |
| Changed value is stored |   |   |

◀ Readout in display:

- End adaptation of the SID by pressing the → key.

|                         |      |
|-------------------------|------|
| Test of vehicle systems | HELP |
| Select function XX      |      |

◀ Readout in display:

**SID remaining value for service inspection (distance)**

This channel can be used to enter the remaining distance in km until the next service inspection if the dash panel insert is replaced.

- Press keys 1 and 1 (channel number).
- Confirm entry with the key Q.

|            |            |         |   |
|------------|------------|---------|---|
| Channel 11 | Adaptation | 5       | → |
|            |            | ← ↑ ↓ → |   |

◀ Readout in display:  
What is displayed are the remaining kilometers until the inspection (in this case e.g. 5 equals a further 5000 km)

- Press → key.

|                              |            |   |
|------------------------------|------------|---|
| Channel 11                   | Adaptation | 0 |
| Enter adaptation value XXXXX |            |   |

◀ Readout in display:

- Enter remaining value using the keypad; fill the first places with „0“.

Example:

Remaining value: 5000 km

Entry: 00005

|                              |            |   |   |
|------------------------------|------------|---|---|
| Channel 11                   | Adaptation | 0 | Q |
| Enter adaptation value 00005 |            |   |   |

◀ Readout in display:

- Confirm entry with the key Q.

|            |            |         |   |
|------------|------------|---------|---|
| Channel 11 | Adaptation | 5       | Q |
|            |            | ← ↑ ↓ → |   |

◀ Readout in display:

- Confirm entry with the key Q.

|                      |            |   |   |
|----------------------|------------|---|---|
| Channel 11           | Adaptation | 5 | Q |
| Store changed value? |            |   |   |

◀ Readout in display:

- Confirm entry with the key Q.

|                         |            |   |   |
|-------------------------|------------|---|---|
| Channel 11              | Adaptation | 5 | → |
| Changed value is stored |            |   |   |

◀ Readout in display:

- End adaptation of the SID by pressing the → key.

|                         |      |
|-------------------------|------|
| Test of vehicle systems | HELP |
| Select function XX      |      |

◀ Readout in display:

### SID remaining value for service inspection (time)

This channel can be used to enter the remaining time in days until the next service inspection if the dash panel insert is replaced.

- Press keys 1 and 2 (channel number).
- Confirm entry with the key Q.

|                       |             |   |
|-----------------------|-------------|---|
| Channel 12 Adaptation | 11          | → |
|                       | < - ↑ ↓ - > |   |

◀ Readout in display:  
What is displayed is the remaining time in days until the inspection (in this case e.g. 11 equals a further 110 days)

- Press → key.

|                              |   |
|------------------------------|---|
| Channel 12 Adaptation        | 0 |
| Enter adaptation value XXXXX |   |

◀ Readout in display:  
- Enter remaining value using the keypad; fill the first places with „0“.

Example:

Remaining value: 110 days

Entry: 00011

|                              |   |   |
|------------------------------|---|---|
| Channel 12 Adaptation        | 0 | Q |
| Enter adaptation value 00011 |   |   |

◀ Readout in display:  
- Confirm entry with the key Q.

|                       |             |   |
|-----------------------|-------------|---|
| Channel 12 Adaptation | 11          | Q |
|                       | < - ↑ ↓ - > |   |

◀ Readout in display:  
- Confirm entry with the key Q.

|                       |    |   |
|-----------------------|----|---|
| Channel 12 Adaptation | 11 | Q |
| Store changed value?  |    |   |

◀ Readout in display:  
- Confirm entry with the key Q.

|                         |    |   |
|-------------------------|----|---|
| Channel 12 Adaptation   | 11 | → |
| Changed value is stored |    |   |

◀ Readout in display:  
- End adaptation of the SID by pressing the → key.

|                         |      |
|-------------------------|------|
| Test of vehicle systems | HELP |
| Select function XX      |      |

◀ Readout in display:

### Adaptation of fuel tank sender characteristic curve

This channel can be used to shift the resistance characteristic curve of the fuel tank sender in order to correct a fuel tank sender which may be positioned at an angle.

- Press keys 3 and 0 (channel number).
- Confirm entry with the key Q.

|            |            |          |   |
|------------|------------|----------|---|
| Channel 30 | Adaptation | 128      | → |
|            |            | (← ↑ ↓→) |   |

◀ Readout in display:  
What is displayed is the adaptation value, in this case e.g. 128.

#### Notes:

- ♦ The adaptation value 128 is the factory-set average fuel tank sender characteristic curve.
- ♦ The resistance of the fuel tank sender characteristic curve can be altered by  $\pm 8 \Omega$  to the adaptation value of 120 ... 136.

- Press → key.

|                              |            |     |
|------------------------------|------------|-----|
| Channel 30                   | Adaptation | 128 |
| Enter adaptation value XXXXX |            |     |

◀ Readout in display:

- Enter adaptation value with the keypad; fill the first places with „0“, e.g. 132.

|                              |            |     |   |
|------------------------------|------------|-----|---|
| Channel 30                   | Adaptation | 128 | Q |
| Enter adaptation value 00132 |            |     |   |

◀ Readout in display:

- Confirm entry with the key Q.

|            |            |          |   |
|------------|------------|----------|---|
| Channel 30 | Adaptation | 132      | Q |
|            |            | (← ↑ ↓→) |   |

◀ Readout in display:

- Confirm entry with the key Q.

|                      |            |     |   |
|----------------------|------------|-----|---|
| Channel 30           | Adaptation | 132 | Q |
| Store changed value? |            |     |   |

◀ Readout in display:

- Confirm entry with the key Q.

|                         |            |     |   |
|-------------------------|------------|-----|---|
| Channel 30              | Adaptation | 132 | → |
| Changed value is stored |            |     |   |

◀ Readout in display:

- End adaptation of the fuel tank characteristic curve by pressing the → key.

|                         |      |
|-------------------------|------|
| Test of vehicle systems | HELP |
| Select function XX      |      |

◀ Readout in display:

## Entries when the dash panel insert is replaced

It is essential to pay attention to the following points when replacing the dash panel insert:

### Notes:

- ◆ *The dash panel insert only needs to be coded for the national version Saudi Arabia and for vehicles with a 1.9l/81 kW TDI engine.*
  - ◆ *Note the values of adaptation channels 10, 11, 12 of the SID displayed on vehicle system tester V.A.G 1552, before replacing the dash panel insert.*
  - ◆ *These remaining values have to be entered as the counter counts back to the service due.*
  - ◆ *Note the reading of the odometer before replacing dash panel insert and enter as stated in the instructions ⇒ page 90-16.*
  - ◆ *Adaptation of the service interval display (SID) of the odometer has to be carried out in kilometers even in countries with a miles speedometer. In this case, convert the adaptation values from miles to kilometers or enter the adaptation values noted beforehand (1 mile = 1,609 km).*
  - ◆ *The immobiliser control unit is integrated in the dash panel insert, in other words if the dash panel insert is replaced, the immobiliser control unit is also replaced, and has to be adapted.*
  - ◆ *After replacing dash panel insert, perform the following steps:*
    - Code dash panel insert ⇒ page 90-10 (only for national version Saudi Arabia and for vehicles with a 1.9l/81 kW TDI engine).
    - Reset the SID after the service ⇒ page 90-25.
- and, respectively
- Enter SID remaining values for oil service ⇒ page 90-20.
  - Enter SID remaining values for service inspection (distance) ⇒ page 90-21.
  - Enter SID remaining values for service inspection (time) ⇒ page 90-22.
- and
- Enter kilometer/mileage reading ⇒ page 90-16.



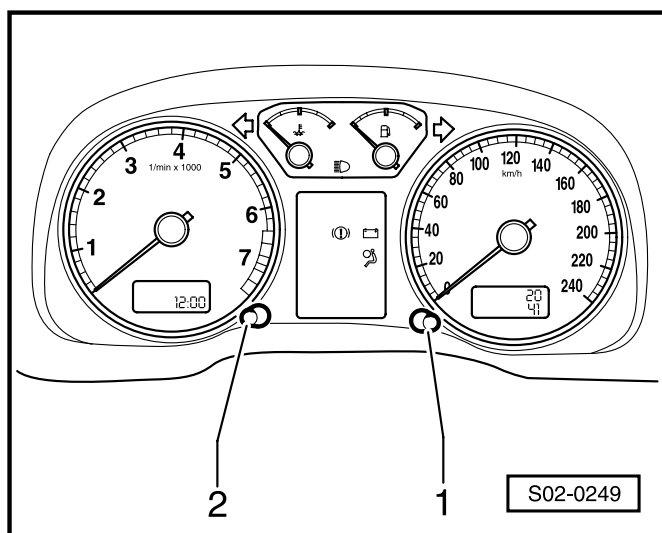
- Perform adaptation of the immobiliser control unit after replacing the engine control unit ⇒ page 96-16.
- Perform adaptation of the car keys ⇒ page 96-11.

### Resetting the SID after a service without V.A.G 1552/1551

After the service has been completed, the appropriate service message „OIL“ or „INSP“ has to be reset.

#### Notes:

- ◆ Always only reset the desired service interval otherwise an incorrect date of another service interval will be set.
- ◆ Switch over the individual service intervals with the Reset button.



- Switch off ignition.
- ◀ - Press and hold distance button -1- and at the same time switch on the ignition.
- As soon as the readout „OIL“ appears, release the distance button.
- Turn the clock setting button -2- to the right.
- „— —“ appears in the display.
- If the distance button is again pressed, you move forward to the next service message.
- „INSP“ appears in the display.
- As soon as the readout „INSP“ appears, release the distance button.
- Turn the clock setting button -2- to the right.
- „— —“ appears in the display.
- Switch off ignition.

### Resetting the SID after a service with V.A.G 1552/1551

- Connect V.A.G 1552/1551.
- Switch on ignition.
- Press keys 1 and 7 for the address word „Dash panel insert“ and confirm the entry with the key Q.
- Move forward in program with the → key.

1U1919033C A +- KOMBIINSTR. VDO X05 →  
Coding 012142 WSC XXXXX

◀ Readout in display (example):

- Move forward in the program with the → key.

IMMO-IDENTNR.: SKZ7Z062000222 →

◀ Readout in display (example):

- Move forward in the program with the → key.

Test of vehicle systems HELP  
Select function XX

◀ Readout in display:

- Press keys 1 and 0.
- Confirm entry with the key Q.

Adaptation  
Enter channel number XX

◀ Readout in display:

- Select the adaptation channel of the service event to be reset.

Channel 10 for the readout „SERVICE OIL“.

Channel 10, 11 and 12 for the readout „SERVICE INSP“.

#### Adaptation table:

| Service event: | Adaptation channel: | Counter contents:            | Adaptation value for resetting: |
|----------------|---------------------|------------------------------|---------------------------------|
| OIL            | 10                  | Distance in 1000 km          | 00015                           |
| INSP           | 11                  | Distance in 1000 km          | 00030                           |
| INSP           | 12                  | Time in days in steps of ten | 00037                           |

**Notes:**

- ◆ It is only possible to enter the respective adaptation value for the odometer in steps of 1000 km; consequently, the readout in the display is also in 1000 km.
- ◆ The adaptation value has to be entered as a 5-digit number (e.g. 00015 for the adaptation value 15, equals a distance of 15000 km until the next service event).
- ◆ The value entered is counted back to 0 km.
- ◆ The time counter for „SERVICE INSP“ can be adapted with a maximum of 365 days.
- ◆ It is only possible to make a direct entry with the keypad of the vehicle system tester!
- ◆ If an incorrect value is entered, the function „Adaptation“ is ended and it is then necessary to begin again!

**Example:**

Resetting SID for „SERVICE OIL“:

|   |   |
|---|---|
| Channel 10 Adaptation      1<br>(- ↑ ↓ -) | → |
|---|---|

◀ Readout in display:  
What is displayed is the current reading of the odometer for OIL service (in this case e.g. 1 equals a further 1000 km).

- Press → key.

|  |   |
|--|---|
| Channel 10 Adaptation      1<br>Enter adaptation value XXXXX | → |
|--|---|

◀ Readout in display:  
The odometer has to be reset to 15 (equals 15000 km) in order to reset the SID for OIL service.

- Enter adaptation value 00015.

|   |   |
|---|---|
| Channel 10 Adaptation      15<br>Enter adaptation value 00015 | Q |
|---|---|

◀ Readout in display after entering adaptation value 00015:

- Confirm entry with the key Q.

|   |   |
|---|---|
| Channel 10 Adaptation      15<br>Store changed value? | Q |
|---|---|

◀ Readout in display:

- Confirm entry with the key Q.

|  |   |
|--|---|
| Channel 10 Adaptation      15<br>Changed value is stored | → |
|--|---|

◀ Readout in display:

- Press → key.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Press keys 0 and 6. (The function „End output“ is selected with 06.)

Test of vehicle systems  
06 - End output

Q

◀ Readout in display:

- Confirm entry with the key Q.
- Observe the display of the odometer reading in the dash panel insert.
- Switch off ignition.

When the ignition is switched off, the logo for the service event displayed disappears.

- Switch on ignition.

When the ignition is switched on, no further service event appears in the display of the odometer reading in the dash panel insert.

The SID is now reset.

- Switch off ignition.
- Separate plug connection to vehicle system tester V.A.G 1552.

## Removing and installing dash panel insert

**Warning!**

***Disconnect earth strap from the battery before commencing work on the electrical system.***

**Notes:**

- ◆ *Before disconnecting the battery determine the code of radio units equipped with anti-theft coding.*
- ◆ *The dash panel insert must not be disassembled.*
- ◆ *It is not necessary to remove the steering wheel.  
For better clarity the steering wheel is not shown in the following illustrations.*
- ◆ *Before and after removing the dash panel insert, interrogate the fault memory ⇒ page 90-5, if necessary 90-42.*
- ◆ *Read out and note the values of the service interval display and the status of the distance counter via the vehicle system tester V.A.G 1552 ⇒ pages 90-16 to 90-22, if necessary pages 90-49 and 90-51.*
- ◆ *Carry out additional operations if the battery earth strap is disconnected and reconnected ⇒ page 27-1.*

**Removing**

- Adjust steering wheel with adjustment device fully down.
- Remove dash panel cover  
⇒ Body Work; Repair Group 70, Removing and Installing dash panel
- Remove dash panel insert and separate plug connections

**Installing**

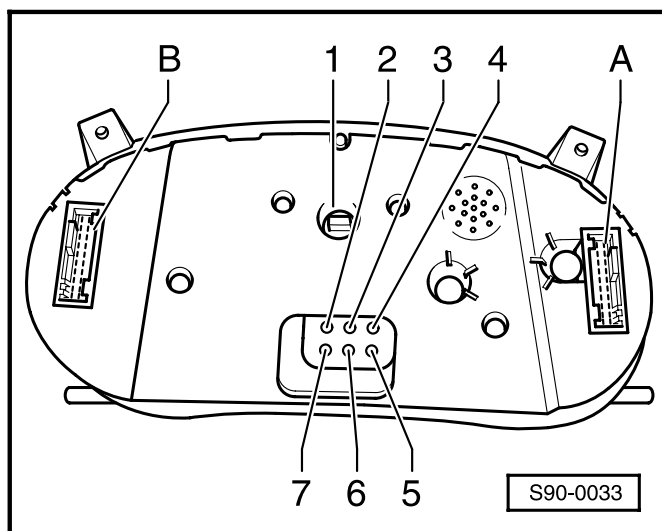
- Perform the installation in the reverse order.
- Perform functional test after installation.
- If no fault was detected during functional test  
⇒ page 90-24, if necessary 90-55.



## Bulb assignment at dash panel insert

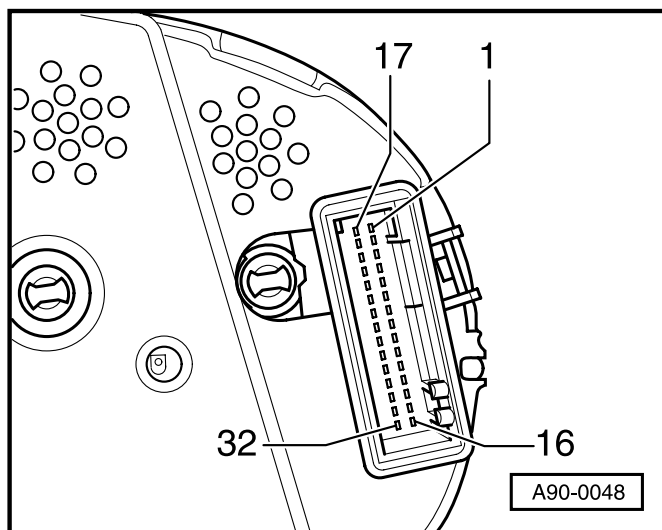
### Note:

The majority of warning lights are fitted with light-emitting diodes (LEDs), in other words the dash panel insert must be replaced if a warning light fails.



### ◀ Midline - dash panel insert

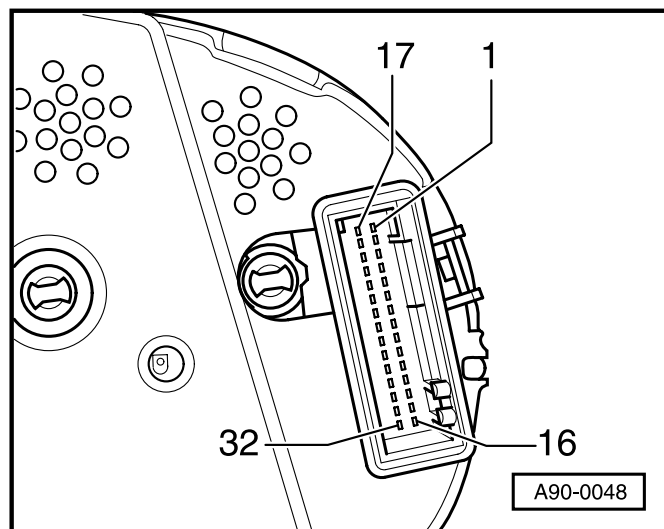
- 1 - Main beam warning light - 1.2 W
- 2 - Front fog warning light - 1.2 W
- 3 - Side light warning light - 1.2 W
- 4 - Rear fog light warning light - 1.2 W
- 5 - Seat belt warning light - 1.2 W
- 6 - Low beam warning light (not assigned)
- 7 - Trailer turn signal warning light - 1.2 W (only if trailer coupling fitted)
- A - Multipin connector for base functions, 32-pin, blue
- B - Multipin connector for extension functions, 32-pin, green



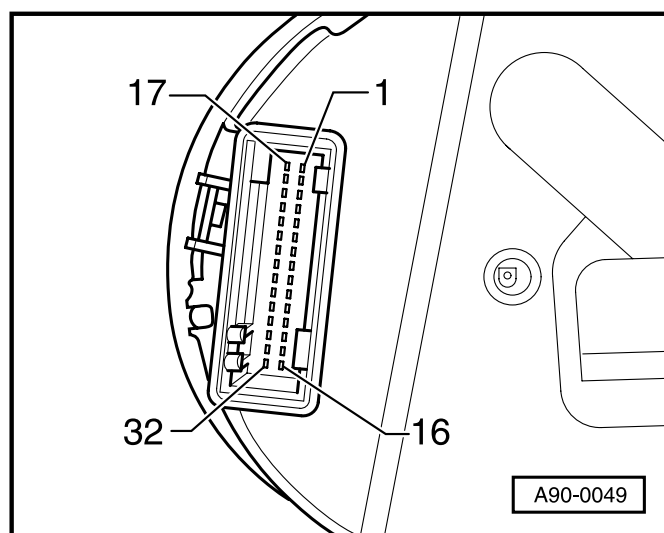
## Contact assignment of plug connections at dash panel insert

### ◀ Multipin connector for base functions, 32-pin, blue T32a

- 1 - Terminal 15
- 2 - Right turn signal light
- 3 - Speedometer, output 1
- 4 - Not assigned
- 5 - Fuel tank sender
- 6 - Airbag, on vehicles not fitted with airbag, earth connection
- 7 - Terminal 31 (sensor earth)
- 8 - Coolant temperature
- 9 - Terminal 31 (load earth)
- 10 - Oil pressure switch
- 11 - Engine speed signal
- 12 - Terminal 61



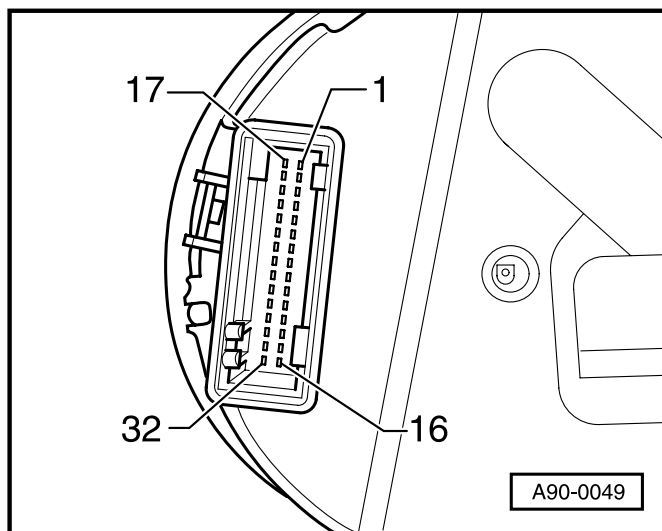
- 13 - Preglow indicator / EPC = Inspection of motor electronics (EPC as of MY 99)
- 14 - Rear fog light
- 15 - not assigned
- 16 - Trailer turn signal lights
- 17 - Main beam
- 18 - Left trailer turn signal light
- 19 - ABS, on vehicles fitted without ABS - earth connection
- 20 - Terminal 58b
- 21 - Door contact switch on driver side (vehicles with central locking)  
all door contact switches (vehicles without central locking)
- 22 - Low coolant level
- 23 - Terminal 30
- 24 - Terminal 31
- 25 - K-wire
- 26 - Right parking light, side light
- 27 - Left parking light, side light
- 28 - Speedometer input
- 29 - Brake fluid level
- 30 - S contact
- 31 - Seat belt lock
- 32 - Side light  
exhaust emissions warning lamp (for EU 4 as of MY 00)



◀ **32-pin multipin connector (T32b green) for enlargement functions**

- 1 - not assigned
- 2 - Transponder coil
- 3 - not assigned
- 4 - not assigned
- 5 - W-wire
- 6 - not assigned
- 7 - not assigned
- 8 - not assigned
- 9 - not assigned
- 10 - not assigned
- 11 - not assigned  
idle time output (as of MY 99 until MY 00 for climatronic)
- 12 - Air conditioning (deactivation) with engine code letters AEH, AKL (as of MY 00 for all engines)  
+ as of MY 00 also signal for alarm system
- 13 - Hand brake
- 14 - not assigned  
ESP/TCS (as of MY 99)





- 15 - Front fog light
- 16 - Low beam
- 17 - Transponder coil
- 18 - not assigned
- 19 - not assigned
- 20 - not assigned
- 21 - not assigned
- 22 - not assigned
- 23 - MFD - top function selection
- 24 - MFD - bottom function selection
- 25 - MFD - Reset/level 1/2
- 26 - MFD - outside temperature
- 27 - not assigned
- 28 - not assigned
- 29 - not assigned
- 30 - Speedometer output 2  
(not assigned as of MY 01)
- 31 - Selector lever range display - only on vehicles fitted with automatic gearbox<sup>1)</sup>
- 32 - MFD - signal of fuel consumption gauge

<sup>1)</sup> At the moment the dash panel insert is not preinstalled for the selector lever range display (extra display).  
The electrical connections are already wired into the dash panel insert.

### Testing signal of fuel gauge sender -G-

Test the signal on the multipin connector to the dash panel insert.

- Removing dash panel insert ⇒ page 90-29
- Connect the test box V.A.G 1598 with the adapter V.A.G 1598/25 to the blue 32-pin connector.
- Measure the resistance with the multimeter (e.g. V.A.G 1526 A) between the contacts 5 and 7 (signal mass)

Nominal values:

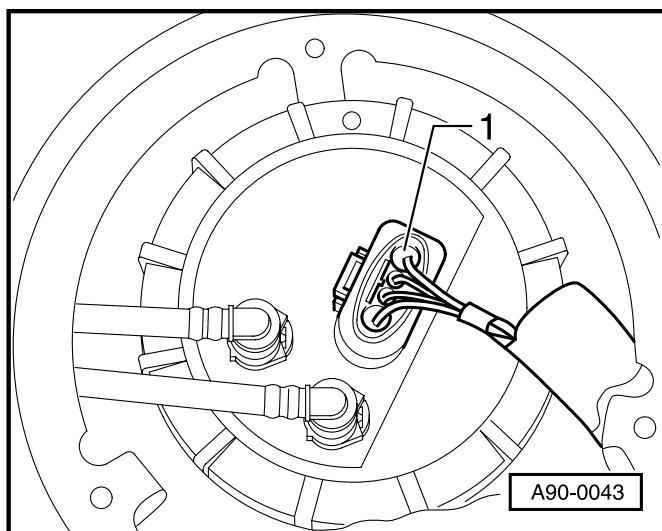
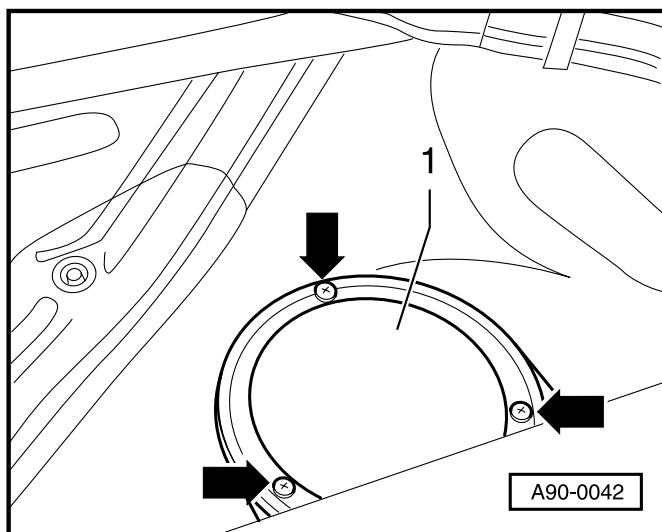
|                  |               |
|------------------|---------------|
| Tank full:       | approx. 270 Ω |
| Tank half full:  | approx. 170 Ω |
| Tank in reserve: | approx. 96 Ω  |

### Contact assignment at fuel gauge sender -G

The fuel gauge sender is located below the rear seats.

- Remove rear seat  
⇒ General Body Repairs; repair group 72; Rear seats; Removing seat bench and backrest (split)

- ◀ - Take out cross-head screws -arrows- and take off the cover -1-.



- ◀ - Unplug connector -1- from the fuel tank sender.

### Testing coolant temperature sender

Test the signal at the multi-pin connector of the dash panel insert.

- Remove dash panel insert ⇒ page 90-29.
- Connect test box V.A.G 1598 with adapter V.A.G 1598/25 to the blue 32-pin connector.
- Use multimeter V.A.G 1526 A to measure the resistance between contact 8 and contact 7 (signal earth).

Specifications:

Coolant temperature 90 °C: about 110 ohms

Coolant temperature 120 °C: about 50 ohms

### Testing road speed signal

If a fault exists in the cruise control system at the speedometer, it is necessary to test whether a signal exists at the speedometer.

- Connect vehicle system tester V.A.G 1552  
⇒ page 90-3.
- Read measured value block ⇒ page 90-12.
- Select display group number 001 and conduct a road test.

If the road speed appears in the display of the vehicle system tester V.A.G 1552, the dash panel insert is faulty and must be replaced.

If no road speed appears in the display of the vehicle system tester V.A.G 1552, it is then necessary to test the signal at the multi-pin plug connection at the dash panel insert.

- Remove dash panel insert ⇒ page 90-29.
- Connect test box V.A.G 1598 with adapter V.A.G 1598/25 to the blue 32-pin connector.
- Use multimeter V.A.G 1526 A to measure the voltage between contact 28 and vehicle earth.
- Move the vehicle back and forward slightly.

Specifications:

The vehicle must rise from 0 V to about 12 V and drop again to 0 V (pulsating direct voltage).

If the test is not o.k., test the cable connection to the road speed sender.

- Test cable connection according to current flow diagram.  
⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations binder.

If the cable connection is o.k., the road speed sender should be replaced.

## Taximeter and printer

### Removing and installing HALE taximeter

#### **Warning!**

**Disconnect the earth strap of the battery before commencing work on the electrical system.**

#### **Notes:**

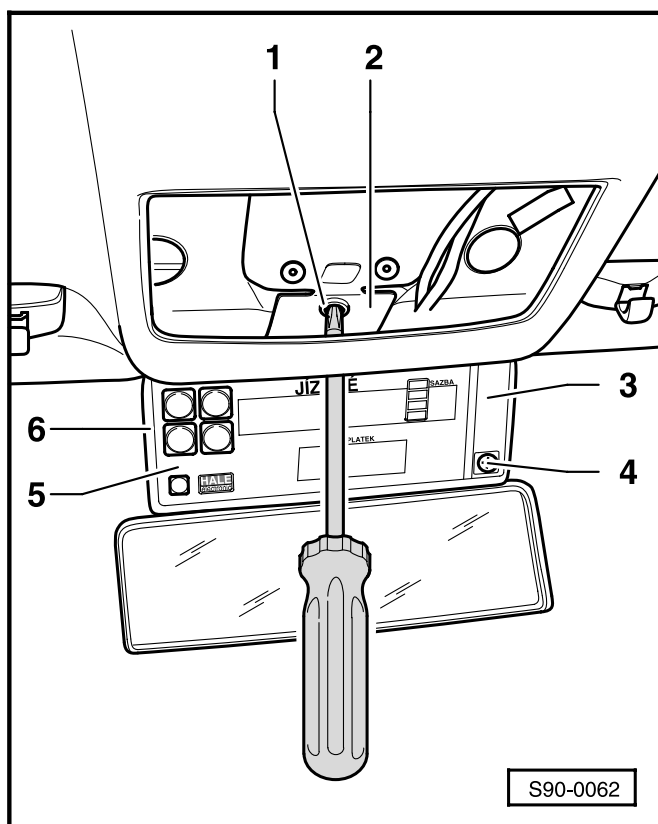
- ♦ Before disconnecting the battery, determine the code of radio sets fitted with anti-theft coding.
- ♦ When re-connecting the battery, carry out the following steps:
  - Encode the radio on vehicles fitted with radio security code,
  - set the clock,
  - initialise the power windows on vehicles fitted with power windows.
- ⇒ Inspection and Maintenance
- ♦ After installing the taximeter in the vehicle, a new genuine anti-temper seal must be fitted.

#### **Removing**

- Remove interior light ⇒ page 96-27.
- ◀ - Take out screw -1- and detach taximeter -5- together with fixture -2- and cover -6- at rear.
- Take out 2 screws at the rear cover -6-.
- Take taximeter -5- out of the fixture -2- and cover -6-.
- Remove the anti-temper seal and take out screw -4-.
- Pull firmly in order to take off cover -3-.
- Separate plug connections and take taximeter out of the vehicle.

#### **Installing**

- Installation is carried out in the reverse order by adopting the same procedure.



## Removing and installing HALE printer

### Warning!

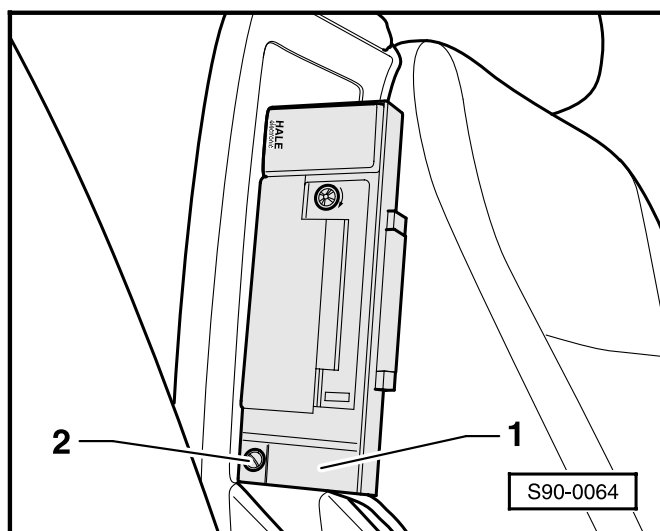
**Disconnect the earth strap of the battery before commencing work on the electrical system.**

### Notes:

- ◆ Before disconnecting the battery, determine the code of radio sets fitted with anti-theft coding.
  - ◆ When re-connecting the battery, carry out the following steps:
    - Encode the radio on vehicles fitted with radio security code,
    - set the clock,
    - initialise the power windows on vehicles fitted with power windows.
- ⇒ Inspection and Maintenance
- ◆ After installing the printer in the vehicle, a new genuine anti-temper seal must be fitted.

### Removing

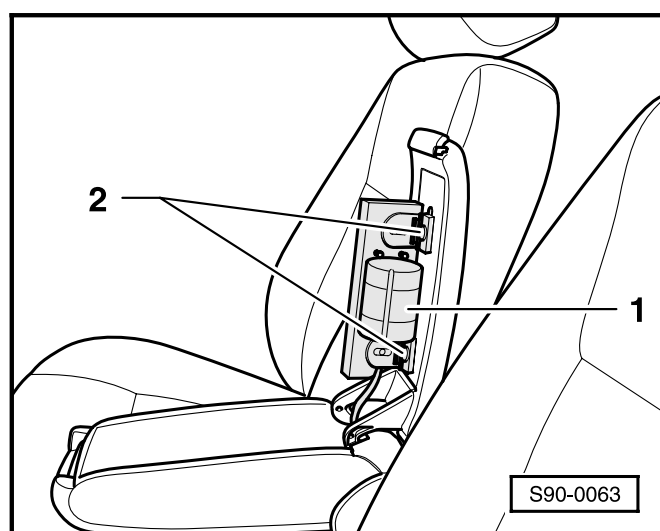
- ◀ - Remove the anti-temper seal and take out screw -2-.
- Take off cover -1- and separate plug connections.



- ◀ - Remove screw -2- and take printer -1- out of the vehicle.

### Installing

- Installation is carried out in the reverse order by adopting the same procedure.



## Dash panel insert (MY 01 ➤)

### Self-diagnosis

#### General information:

This description does not apply to the 1.4 l/44 kW and 1.6 l/55 kW engines. For the procedure applicable to these engines ⇒ page 90-1.

#### Classic version for engine databus

Rev counter, speedometer, coolant temperature gauge, fuel gauge, digital clock, LCD for odometer, warning lights, immobiliser 2nd and 3rd generation with variable code.

#### Ambiente, Elegance version for engine databus

Compared to Classic version on-board computer MFD installed in place of digital clock.

#### Version with small dot display for engine databus (equipment: automatic gearbox or L&K)

Compared to Ambiente version this version has further additional functions: small dot display, for function display of on-board computer and gears of automatic gearbox.

#### Version with large dot display for engine databus (equipment: Navigation)

Compared to Ambiente version this version has further additional functions: large dot display, for display of Navigation pictograms, radio data, on-board computer and gears of automatic gearbox.

The following functions appear in the multifunction display (on-board computer MFD):

- ◆ Digital clock
- ◆ Driving time, distance driven and average vehicle speed
- ◆ Average fuel consumption
- ◆ Present fuel consumption
- ◆ Ambient temperature
- ◆ Driving mode

The base version (LX) features only a digital clock in the rev counter.

A display for odometer, trip counter and service interval display (SID) are combined in the speedometer.

The warning lights are designed as LEDs and cannot be replaced.

The dash panel insert is controlled by a microprocessor and features a comprehensive self-diagnosis. If faults occur at system components, fault codes are stored in the fault memory of the dash panel insert. These faults can be read using the vehicle system tester V.A.G 1552, V.A.G 1551 or V.A.S 5051.

**Note:**

*The description which follows relates only to the vehicle system tester V.A.G 1552 with programme card 5.0. Use of the vehicle system tester V.A.G 1551 with programme card 8.0 or V.A.S 5051 is similar. Slight variations in the readouts in the display are possible.*

The following operations are performed using self-diagnosis:

- ◆ Adaptation of the service interval display
- ◆ Adaptation of the odometer if the dash panel insert is replaced

**Notes:**

- ◆ The dash panel insert must not be disassembled.
- ◆ The kilometer reading and the service interval display must be adapted with the vehicle system tester V.A.G 1552, V.A.G 1551 or V.A.S 5051 if the dash panel insert is replaced ⇒ page 90-49.
- ◆ After the dash panel insert is replaced, enter the relevant adaptation values ⇒ page 90-55.

If the control unit in the dash panel insert detects a fault at the permanent memory, the readout „dEF“ appears in the odometer display. In this case, the dash panel insert should be replaced ⇒ page 90-29.

### Initiating self-diagnosis of the dash panel insert

#### Special tools, testers and aids required

- ◆ Vehicle system tester V.A.G 1552
- ◆ Diagnostic cable V.A.G 1551/3, 3A, 3B or 3C

#### Test requirements:

- ◆ Check fuses according to current flow diagrams.
- ◆ Dash panel insert properly coded ⇒ page 90-44.

#### Connecting vehicle system tester V.A.G 1552

##### Test conditions

- Battery voltage at least 11.5 V
- Earth connections at engine and gearbox o.k.
- Fuses o.k.

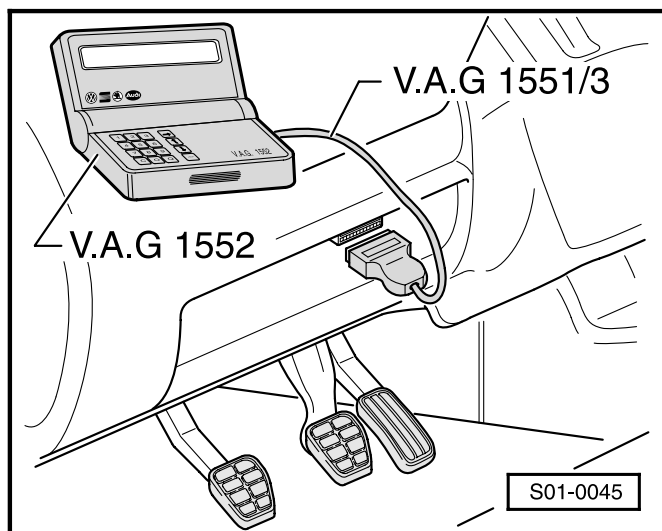
The diagnostic connection is located in the storage compartment on the driver side.

- ◀ - Connect vehicle system tester V.A.G 1552 with the appropriate cable.
- Switch ignition on.

◀ Readout in display:

**Note:**

If no readout appears in the display:  
⇒ Operating instructions of the vehicle system tester



Test of vehicle systems  
Enter address word XX

HELP



|                        |           |
|------------------------|-----------|
| 1U0920810A COMBI+IMMOB | VDO X06   |
| Coding 05112           | WSC 00123 |

- Enter address word 17 „Dash panel insert“ and confirm the entry with the key Q.

◀ The readout appears in the display after about 5 seconds (example):

- ♦ 1U0920810A: number of the dash panel insert
- ♦ COMBI+IMMOB: component designation
- ♦ VDO: identification of manufacturer
- ♦ X06: software version of the dash panel insert (other readouts are also possible)
- ♦ Coding 05112: coding of the dash panel insert
- ♦ WSC 00123: workshop code

**Note:**

Check the coding by referring to the table of codes

⇒ page 90-45.

- Press → key.

|                                  |   |
|----------------------------------|---|
| TMBCC11U012430077 SKZ720Y0531556 | → |
|----------------------------------|---|

◀ Readout in display (example):

- ♦ TMBCC11U012430077: vehicle number
- ♦ SKZ720Y0531556: 14-digit identification number of immobiliser control unit

- Press → key.

|                               |      |
|-------------------------------|------|
| Test of vehicle systems       | HELP |
| Control unit does not answer! |      |

◀ If one of the following messages appears in the display, continue fault finding as specified in „Fault Finding Programme“ in the diagnostic cable:

⇒ Current Flow Diagrams, Fault Finding and Fitting Locations binder.

|                                 |      |
|---------------------------------|------|
| Test of vehicle systems         | HELP |
| Fault in communication build-up |      |

|                               |      |
|-------------------------------|------|
| Test of vehicle systems       | HELP |
| K wire not switching to earth |      |

|                                  |      |
|----------------------------------|------|
| Test of vehicle systems          | HELP |
| K wire not switching to positive |      |

- A list of the possible functions is displayed after pressing the HELP key.
- Move forward in the test programme by pressing the → key.

### Overview of selectable functions

The following functions are possible:

02 - Interrogating fault memory ⇒ page 90-42

03 - Actuator diagnosis ⇒ page 90-42

05 - Erasing fault memory ⇒ page 90-44

06 - Ending output ⇒ page 90-44

07 - Coding of dash panel insert ⇒ page 90-44

08 - Reading measured value block ⇒ page 90-46

10 - Adaptation ⇒ page 90-49

### Interrogating fault memory

Description ⇒ page 90-5.

### Fault table

Description ⇒ page 90-6.

### Actuator diagnosis

#### Notes:

- ◆ The actuator diagnosis can only be performed when vehicle and engine is not running!
- ◆ If a fault is detected during the actuator diagnosis, the dash panel Insert must be replaced!

#### Note:

*The display is performed according to the country version in the country-specific unit.*

#### Performing self-diagnosis:

- Connect vehicle system tester V.A.G 1552 and select address word 17 "Dash panel insert"; ignition is switched on ⇒ page 90-40.

Vehicle system test  
Select function XX

HELP

◀ Read-out on display:

- Enter function 03 "Actuator diagnosis" and confirm entry with key Q.

Actuator diagnosis  
Rev counter

→

◀ Read-out on display:

The pointer of the rev counter moves across the full range and then indicates approx. 3000.

- → Press key.

|   |   |
|---|---|
| Final control diagnosis<br>Fuel gauge →                                 | <p>◀ Readout in display:</p> <p>The pointer of the fuel gauge passes through the full indicating range and then indicates the half.</p> <ul style="list-style-type: none"> <li>- Press → key.</li> </ul>    |
| Final control diagnosis<br>Speedometer →                                | <p>◀ Readout in display:</p> <p>The pointer of the speedometer passes through the full indicating range and then indicates about 100.</p> <ul style="list-style-type: none"> <li>- Press → key.</li> </ul>  |
| Final control diagnosis<br>Segment test →                               | <p>◀ Readout in display:</p> <p>All the segments of the LCD in the speedometer and in the rev counter are actuated and become visible.</p> <ul style="list-style-type: none"> <li>- Press → key.</li> </ul> |
| Final control diagnosis<br>Glow period warning light -K29 →             | <p>◀ Readout in display:</p> <p>The glow period warning light -K29 comes on (only in the case of diesel engine).</p> <ul style="list-style-type: none"> <li>- Press → key.</li> </ul>                       |
| Final control diagnosis<br>Overheating light →                          | <p>◀ Readout in display:</p> <p>The coolant temperature/coolant level warning light comes on.</p> <ul style="list-style-type: none"> <li>- Press → key.</li> </ul>  |
| Final control diagnosis<br>Brake pad warning light -K32 →               | <p>◀ Readout in display:</p> <p>The brake pad warning light -K32 comes on.</p> <ul style="list-style-type: none"> <li>- Press → key.</li> </ul>   |
| Final control diagnosis<br>Fuel reserve warning light -K105 →           | <p>◀ Readout in display:</p> <p>The fuel reserve warning light -K105 comes on.</p> <ul style="list-style-type: none"> <li>- Press → key.</li> </ul>   |
| Final control diagnosis<br>Oil pressure warning light -K3 →             | <p>◀ Readout in display:</p> <p>The oil pressure warning light -K3 comes on.</p> <ul style="list-style-type: none"> <li>- Press → key.</li> </ul>   |
| Final control diagnosis<br>00501/Literature →                           | <p>◀ Readout in display:</p> <p>The oil level warning light -K38- comes on.</p> <ul style="list-style-type: none"> <li>- Press → key.</li> </ul>  |
| Final control diagnosis<br>Low washer fluid level warning light -K106 → | <p>◀ Readout in display:</p> <p>The low washer fluid level warning light -K106 comes on (if fitted).</p> <ul style="list-style-type: none"> <li>- Press → key.</li> </ul>                                   |

|   |  |
|---|--|
| Final control diagnosis<br>00502/Literature →               | <p>◀ Readout in display:</p> <p>The immobiliser warning light comes on.</p> <ul style="list-style-type: none"> <li>- Press → key.</li> </ul>                                 |
| Final control diagnosis<br>Brake system warning light -K7 → | <p>◀ Readout in display:</p> <p>The brake system warning light -K7 comes on.</p> <ul style="list-style-type: none"> <li>- Press → key.</li> </ul>                            |
| Final control diagnosis<br>Seat belt warning light -K19 →   | <p>◀ Readout in display:</p> <p>The seat belt warning light -K19 comes on.</p> <ul style="list-style-type: none"> <li>- Press → key.</li> </ul>                              |
| Final control diagnosis<br>Gong →                           | <p>◀ Readout in display:</p> <p>The gong is operated; a gong signal sounds at intervals.</p> <ul style="list-style-type: none"> <li>- Press → key.</li> </ul>                |
| Final control diagnosis<br>Buzzer/gong H3 →                 | <p>◀ Readout in display:</p> <p>A continuous warning signal sounds.</p> <ul style="list-style-type: none"> <li>- Press → key.</li> </ul>                                     |
| Final control diagnosis<br>End →                            | <p>◀ Readout in display:</p> <ul style="list-style-type: none"> <li>- Press → key.</li> </ul> <p>The actual values again appear in the display of the dash panel insert.</p> |
| Test of vehicle systems<br>Select function XX HELP          | <p>◀ Readout in display:</p> <ul style="list-style-type: none"> <li>- End output (function 06) ⇒ page 90-10.</li> </ul>  |

### Erasing fault memory

Description ⇒ page 90-9

### Ending output

Description ⇒ page 90-10

### Coding the dash panel insert

The following points must be selected when coding the dash panel insert:

- Optional equipment
- National versions
- Service intervals
- Speedometer calibration

**Work sequence for the coding:**

- Enter function 07
- Confirm entry with key Q.

|                         |           |
|-------------------------|-----------|
| Coding control unit     | Q         |
| Enter code number XXXXX | (0-32000) |

◀ Read-out on display:

- Enter code number with the table of codes and confirm entry with key Q.

**Table of codes**

| XX | Additional equipment (is read)   |                                       |
|----|--|---------------------------------------|
| 01 | Brake pad warning light  |                                       |
| 02 | Seat belt warning light  |                                       |
| 04 | Warning light for fluid level in the windscreen washer fluid reservoir |                                       |
| 08 | Warning light for failure of a light bulb                              |                                       |
| 16 | Warning light indicating an open door                                  |                                       |
| X  | Country version  |                                       |
| 0  | Germany  |                                       |
| 1  | Europe and Rest of World   |                                       |
| 2  | USA  |                                       |
| 3  | Canada   |                                       |
| 4  | Great Britain  |                                       |
| 5  | Japan  |                                       |
| 6  | Saudi Arabia   |                                       |
| 7  | Australia  |                                       |
| X  | Service interval   |                                       |
| 0  | fixed interval (QG0)   |                                       |
| 1  | extended interval (QG1)  |                                       |
| 2  | extended interval with fixed limit (QG2)                               |                                       |
| 3  | no service intervals   |                                       |
| X  | Speedometer calibration  |                                       |
| 1  | = for Engine   | 1.4/55 kW                             |
| 2  | = for Engine   | 1.4/44 kW                             |
|    |  | 1.6/74 - 75 kW with Automatic Gearbox |
|    |  | 2.0/85 kW                             |
|    |  | 1.8/110 - 132 kW                      |
|    |  | 1.9/66 and 81 kW TDI                  |
| 3  | = for Engine   | 1.9/50 kW SDI                         |
|    |  | 1.6/74 -75 kW with Manual Gearbox     |
| 4  | = for Engine   | 1.9/74 kW PDi                         |
|    |  | 1.9/96 kW PDi                         |

|                        |           |
|------------------------|-----------|
| 1U0920810A COMBI+IMMOB | VDO X06 → |
| Coding 05112           | WSC 00123 |

◀ The control unit coding appears in the display, example 05112.

- Press → key.

|                   |                |   |
|-------------------|----------------|---|
| TMBCC11U012430077 | SKZ720Y0531556 | → |
|-------------------|----------------|---|

◀ Readout in display:

- End coding with the → key.

|                         |      |
|-------------------------|------|
| Test of vehicle systems | HELP |
| Select function XX      |      |

◀ Readout in display:

- End output (function 06).

#### Example:

To select the following: brake pad warning light, windshield washer reservoir fluid level warning light, Europe, extended service interval, 1.9 TDI engine

$01000+04000+00100+00010+00002 = 05112$ ;  
the number 05112 is coded.

### Reading measured value block

|                         |      |
|-------------------------|------|
| Test of vehicle systems | HELP |
| Select function XX      |      |

◀ Readout in display:

- Enter function 08 and confirm the entry with the key Q.

|                                |      |
|--------------------------------|------|
| Read measured value block      | HELP |
| Enter display group number XXX |      |

◀ Readout in display:

- Enter display group number and confirm the entry with the key Q.

What is now displayed is the measured value block you have selected.

#### Notes:

- ♦ *The actual values of the senders and sensors always appear in the display. These readouts may differ in view of the fact that the values are presented filtered at the dash panel insert.*
- ♦ *If the actual coolant temperature is at a value between approx. 75 °C and 115 °C, then 90 °C is always displayed in the dash panel insert!*

## Measured value block 001

|                                  |       |                        |         |                        |
|----------------------------------|-------|------------------------|---------|------------------------|
| Reading measured value block 1 → |       |                        |         | ◀ Read-out on display: |
| 0 km/h                           | 0 rpm | Oil pressure<br>2< min | 22:51 h |                        |
|                                  |       |                        |         | Time                   |
|                                  |       |                        |         | Oil pressure switch    |
|                                  |       |                        |         | • oil pressure 2< min  |
|                                  |       |                        |         | • oil pressure 2 O.K.  |
|                                  |       |                        |         | Engine speed           |
|                                  |       |                        |         | • 0 to 9990 rpm        |
| Speed                            |       |                        |         |                        |

## Measured value block 002

|                                  |        |         |         |                          |
|----------------------------------|--------|---------|---------|--------------------------|
| Reading measured value block 2 → |        |         |         | ◀ Read-out on display:   |
| 20 km/h                          | 3 ltr. | 71 ohms | 22.0 °C |                          |
|                                  |        |         |         | Outside temperature      |
|                                  |        |         |         | • -40 to +70 °C          |
|                                  |        |         |         | Fuel tank sender         |
|                                  |        |         |         | • for open circuit 510 Ω |
|                                  |        |         |         | • for short circuit 0 Ω  |
| Fuel gauge                       |        |         |         |                          |
| Distance counter                 |        |         |         |                          |

## Measured value block 003

|                                  |      |         |  |                               |
|----------------------------------|------|---------|--|-------------------------------|
| Reading measured value block 3 → |      |         |  | ◀ Read-out on display:        |
| 18 °C                            | O.K. | 21.0 °C |  |                               |
|                                  |      |         |  | not assigned                  |
|                                  |      |         |  | Oil temperature of oil sensor |
|                                  |      |         |  | Oil level of oil sensor       |
| Coolant temperature              |      |         |  |                               |

Measured value blocks 022, 023 and 024 ⇒ pages 96-40 and 96-41

## Measured value block 025

|  |  |   |                        |
|--|--|---|------------------------|
| Reading measured value block 25  |  | → | ◀ Read-out on display: |
| 2  |  |   |                        |
|  |  |   | not assigned           |
|  |  |   | not assigned           |
|  |  |   | not assigned           |
| Generation of immobiliser  |  |   |                        |
| <ul style="list-style-type: none"><li>• 0 -status not detected</li><li>• 1 - 3rd generation</li><li>• 2 - 2nd generation</li></ul> |  |   |                        |

## Measured value block 050

|                                 |       |         |         |                     |                        |
|---------------------------------|-------|---------|---------|---------------------|------------------------|
| Reading measured value block 50 |       |         |         | →                   | ◀ Read-out on display: |
| 20 km                           | 0 rpm | 20.0 °C | 18.0 °C |                     |                        |
|                                 |       |         |         | Coolant temperature |                        |
|                                 |       |         |         | Oil temperature     |                        |
|                                 |       |         |         | Engine speed        |                        |
|                                 |       |         |         | • 0 to 9990 rpm     |                        |
| Distance counter                |       |         |         |                     |                        |

## Measured value block 125

|                                    |           |       |   |  |  |
|------------------------------------|-----------|-------|---|--|--|
| Reading measured value block 125 → |           |       | ◀ Read-out on display:  |  |  |
| Engine 1                           | Gearbox 1 | ABS 1 |   |  |  |
|                                    |           |       | not assigned  |  |  |
|                                    |           |       | ABS control unit <ul style="list-style-type: none"> <li>• ABS 1 - CAN databus communication O.K.</li> <li>• ABS 0 - CAN databus communication N.O.K.</li> </ul>                       |  |  |
|                                    |           |       | Automatic gearbox control unit <ul style="list-style-type: none"> <li>• Gearbox 1 - CAN databus communication O.K.</li> <li>• Gearbox 0 - CAN databus communication N.O.K.</li> </ul> |  |  |
|                                    |           |       | Engine control unit <ul style="list-style-type: none"> <li>• Engine 1 - CAN databus communication O.K.</li> <li>• Engine 0 - CAN databus communication N.O.K.</li> </ul>              |  |  |



**Measured value block 126**

|                                    |  |                        |
|------------------------------------|--|------------------------|
| Reading measured value block 126 → |  | ◀ Read-out on display: |
| Steering angle 1                   | Airbag 1   |                        |
|                                    |  | not assigned           |
|                                    |  | not assigned           |
|                                    | Airbag control unit  |                        |
|                                    | <ul style="list-style-type: none"> <li>• Airbag 1 -CAN databus communication O.K.</li> <li>• Airbag 0 -CAN databus communication N.O.K.</li> </ul>                   |                        |
|                                    | Steering angle   |                        |
|                                    | <ul style="list-style-type: none"> <li>• Steering angle 1 - CAN databus communication O.K.</li> <li>• Steering angle 0 - CAN databus communication N.O.K.</li> </ul> |                        |

**Measured value block 127**

|                                    |  |                        |
|------------------------------------|--|------------------------|
| Reading measured value block 127 → |  | ◀ Read-out on display: |
| FWD 1                              |  |                        |
|                                    |  | not assigned           |
|                                    |  | not assigned           |
|                                    | FWD control unit   |                        |
|                                    | <ul style="list-style-type: none"> <li>• FWD 1 - CAN databus communication O.K.</li> <li>• FWD 0 - CAN databus communication N.O.K.</li> </ul> |                        |
|                                    | not assigned   |                        |

**Measured value blocks 130, 131, 132, 140 and 143 ⇒ pages 90-63 and 90-63.2**

**Measured value block 201**

|                                    |   |                        |
|------------------------------------|---|------------------------|
| Reading measured value block 201 → |   | ◀ Read-out on display: |
| 4297                               |   |                        |
|                                    |   | not assigned           |
|                                    |   | not assigned           |
|                                    |   | not assigned           |
|                                    | The calibration constants of the tachometer |                        |

Measured value block 202

Reading measured value block 202 →  
Open

◀ Read-out on display:

|  |              |              |              |
|--|--------------|--------------|--------------|
|  |              |              | not assigned |
|  |              | not assigned |              |
|  | not assigned |              |              |
| Status of switch for engine hood <ul style="list-style-type: none"><li>• open - engine hood closed.</li><li>• closed - engine hood open.</li></ul> |              |              |              |

## Adaptation

This function is used for setting a number of function parameters of the dash panel insert. The following channels are available for entering the adaptation values.

### Adaptation table

| Adaptation channel | Adaptation purpose   |
|--------------------|--|
| 02                 | Resetting service interval display ⇒ Inspection and Maintenance                  |
| 04                 | Language versions (only for units with dot display) ⇒ Inspection and Maintenance |
| 09                 | Kilometer/miles display ⇒ page 90-49   |
| 21                 | Adaptation of keys ⇒ page 96-11  |
| 40 to 48           | Service intervals ⇒ page 90-51   |
| 50                 | Adaptation of immobiliser ⇒ Repair Group 96                                      |

### Kilometer/miles display

This function can be used to update the kilometer/miles readout of the odometer if the dash panel insert is replaced.

#### Notes:

- ♦ *Adaptation is only possible in the case of a dash panel insert with a kilometer reading of not more than 100 km.*
- ♦ *Adaptation can only be carried out once in the case of each dash panel insert.*
- ♦ *It is only possible to enter a larger adaptation value.*

#### Warning!

***If an incorrect entry is made and confirmed, it is no longer possible to correct it. In such a case, the dash panel insert must be replaced by a new one.***

- ♦ *The adaptation must be made in kilometers also in countries with a speedometer calibrated in miles. Convert the adaptation value from miles to kilometers for this purpose (1 mile = 1.609 km).*
- ♦ *Entering the values in the dash panel insert ⇒ page 90-55.*

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Enter function 10 and confirm the entry with the key Q.

Adaptation  
Enter channel number XX

◀ Readout in display:

|                            |            |         |   |
|----------------------------|------------|---------|---|
| Channel 9                  | Adaptation | 0       | → |
| Kilometer reading in 10 km |            | (-↑ ↓-) |   |

- Enter channel number 09 and confirm the entry with the key Q.

◀ Readout in display:

**Note:**

*It is only possible to make a direct entry using the keypad of vehicle system tester V.A.G 1552!*

- Press → key.

|                              |            |   |   |
|------------------------------|------------|---|---|
| Channel 9                    | Adaptation | 0 | Q |
| Enter adaptation value XXXXX |            |   |   |

◀ Readout in display:

**Example:**

Kilometer reading = 89627

0 8 9 6 3 = Adaptation value entered

|   |   |   |   |   |   |
|---|---|---|---|---|---|
| X |   |   |   |   | Hundred thousands: 100000 up to 900000 km |
|   | X |   |   |   | Ten thousands: 10000 up to 90000 km       |
|   |   | X |   |   | Thousands: 1000 up to 9000 km             |
|   |   |   | X |   | Hundreds: 100 up to 900 km                |
|   |   |   |   | X | Tens: 10 to 90 km                         |
|   |   |   |   |   | Ones: round up to the next ten            |

- Enter the adaptation values using the keypad.

|                              |            |   |   |
|------------------------------|------------|---|---|
| Channel 9                    | Adaptation | 0 | Q |
| Enter adaptation value 08963 |            |   |   |

◀ Readout in display:

- Confirm entry with the key Q.

|                            |            |         |   |
|----------------------------|------------|---------|---|
| Channel 9                  | Adaptation | 8963    | → |
| Kilometer reading in 10 km |            | (-↑ ↓-) |   |

◀ Readout in display:

The km reading entered now appears in the display of the dash panel insert.

If the km reading displayed is not correct, e.g. because of an incorrect entry:

- Press key C and repeat the entry with the correct adaptation value.

If the km reading shown in the display of the dash panel insert is correct:

- Confirm entry with the key Q.

|                      |            |      |   |
|----------------------|------------|------|---|
| Channel 9            | Adaptation | 8963 | Q |
| Store changed value? |            |      |   |

◀ Readout in display:

- Confirm entry with the key Q.

|                         |            |      |   |
|-------------------------|------------|------|---|
| Channel 9               | Adaptation | 8963 | → |
| Changed value is stored |            |      |   |

◀ Readout in display:

- Press → key.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

### Adapting service interval data if dash panel insert is replaced

If the dash panel insert is replaced, it is then necessary to enter the current values of the service interval data in the new dash panel insert. If the current values are not known, enter the output values of the service intervals.

**Note:**

*Adaptation channels 42, 43, 44, 45 are adapted automatically after the dash panel insert is coded.*

#### Adaptation table of service interval

| Adaptation channel | Applies to models                               | Counter contents  |
|--------------------|---|---|
| 40                 | QG1 and QG2 petrol<br>QG1 and QG2 diesel<br>QG0 | Distance driven since last Inspection Service<br>(output value = 0) |
| 41                 | QG1 and QG2 petrol<br>QG1 and QG2 diesel<br>QG0 | Time elapsed since last Inspection Service<br>(output value = 0)    |
| 42                 | QG1 and QG2 petrol<br>QG1 and QG2 diesel        | Minimum distance value which limits the service interval            |
| 43                 | QG1 and QG2 petrol<br>QG1 and QG2 diesel<br>QG0 | Maximum distance value which limits the service interval            |
| 44                 | QG1 and QG2 petrol<br>QG1 and QG2 diesel<br>QG0 | Maximum time value which limits the service interval                |
| 45                 | QG1 and QG2 petrol<br>QG1 and QG2 diesel        | Oil quality   |
| 46                 | QG1 and QG2 petrol                              | Fuel consumed (output value = 0)                                    |
| 47                 | QG1 and QG2 diesel                              | Oil smoke counter (output value = 0)                                |
| 48                 | QG1 and QG2 diesel                              | Thermal oil load counter (output value = 0)                         |

Test of vehicle systems  
Select function XX

HELP

### Performing function 10 „Adaptation“

◀ Readout in display:

- Enter function 10 and confirm the entry with the key Q.

Adaptation  
Enter channel number XX

◀ Readout in display:

- Enter the desired adaptation channel (adaptation table ⇒ page 90-49).

#### Note:

*After altering an adaptation value or ending an adaptation channel, it is then necessary to once again enter function 10 „Adaptation“ in order to select another adaptation channel!*

### Distance since last Inspection Service (distance in km)

This channel can be used to enter the distance in km since the last Inspection Service if the dash panel insert is replaced.

Adaptation  
Enter channel number XX

◀ Readout in display:

- Enter channel number 40 and confirm the entry with the key Q.

|                            |            |         |   |
|----------------------------|------------|---------|---|
| Channel 40                 | Adaptation | 0       | → |
| Act. value INSP. in 100 km |            | (-↑ ↓-) |   |

◀ Readout in display:

- Press → key.

|                              |            |   |
|------------------------------|------------|---|
| Channel 40                   | Adaptation | 0 |
| Enter adaptation value XXXXX |            |   |

◀ Readout in display:

- Enter the distance covered using the keypad; fill the first places with zeros.

#### Example:

The total distance driven since the last Inspection Service which is determined for the vehicle from the faulty dash panel insert is 6000 km.

- Enter the adaptation value 00060.
- Confirm the entry with the key Q.

|                            |            |         |   |
|----------------------------|------------|---------|---|
| Channel 40                 | Adaptation | 60      | Q |
| Act. value INSP. in 100 km |            | (-↑ ↓-) |   |

◀ Readout in display:

- Confirm the entry with the key Q.

|                      |            |    |   |
|----------------------|------------|----|---|
| Channel 40           | Adaptation | 60 | Q |
| Store changed value? |            |    |   |

◀ Readout in display:

- Confirm the entry with the key Q.

|                         |            |    |   |
|-------------------------|------------|----|---|
| Channel 40              | Adaptation | 60 | → |
| Changed value is stored |            |    |   |

◀ Readout in display:

- Press → key.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

**Time elapsed since last Inspection Service**

This channel is used to enter the time in days since the last Inspection Service if the dash panel insert is replaced.

Adaptation  
Enter channel number XX

◀ Readout in display:

- Enter channel number 41 and confirm the entry with the key Q.

Channel 41      Adaptation      0      →  
Act. value INSP. in 1 days      (-↑ ↓-)

◀ Readout in display:

- Press → key.

Channel 41      Adaptation      0  
Enter adaptation value XXXXX

◀ Readout in display:

- Enter time elapsed using keypad; fill the first places with zeros.

**Example:**

The time elapsed since the last Inspection Service for the vehicle is determined from the faulty dash panel insert as being 87 days.

- Enter adaptation value 00087.
- Confirm entry with the key Q.

Channel 41      Adaptation      87      Q  
Act. value INSP. in 1 days      (-↑ ↓-)

◀ Readout in display:

- Confirm entry with the key Q.

Channel 41      Adaptation      87      Q  
Store changed value?

◀ Readout in display:

- Confirm entry with the key Q.

Channel 41      Adaptation      87      →  
Stored value is changed

◀ Readout in display:

- Press → key.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

**Adaptation of fuel consumed**

Only QG1 and QG2 - petrol.

This channel is used to enter the value for the fuel consumed if the dash panel insert is replaced.

Adaptation  
Enter channel number XX

◀ Readout in display:

- Enter channel number 46 and confirm the entry with the key Q.

|                          |            |         |   |
|--------------------------|------------|---------|---|
| Channel 46               | Adaptation | 17      | → |
| Qty. consumed in 1 litre |            | (-↑ ↓-) |   |

◀ Readout in display:

- Press → key.

|                              |            |    |  |
|------------------------------|------------|----|--|
| Channel 46                   | Adaptation | 17 |  |
| Enter adaptation value XXXXX |            |    |  |

◀ Readout in display:

- Enter adaptation value 00019.
- Confirm entry with the key Q.

|                          |            |         |   |
|--------------------------|------------|---------|---|
| Channel 46               | Adaptation | 19      | Q |
| Qty. consumed in 1 litre |            | (-↑ ↓-) |   |

◀ Readout in display:

- Confirm entry with the key Q.

|                      |            |    |   |
|----------------------|------------|----|---|
| Channel 46           | Adaptation | 19 | Q |
| Store changed value? |            |    |   |

◀ Readout in display:

- Confirm entry with the key Q.

|                         |            |    |   |
|-------------------------|------------|----|---|
| Channel 46              | Adaptation | 19 | → |
| Changed value is stored |            |    |   |

◀ Readout in display:

- Press → key.

|                         |  |      |  |
|-------------------------|--|------|--|
| Test of vehicle systems |  | HELP |  |
| Select function XX      |  |      |  |

◀ Readout in display:

### Adaptation of oil smoke

Only QG1 and QG2 - diesel.

This channel is used to enter the value of the oil smoke if the dash panel insert is replaced.

|                         |  |  |  |
|-------------------------|--|--|--|
| Adaptation              |  |  |  |
| Enter channel number XX |  |  |  |

◀ Readout in display:

- Enter channel number 47 and confirm the entry with the key Q.

|                     |            |         |   |
|---------------------|------------|---------|---|
| Channel 47          | Adaptation | 0       | → |
| Soot qty. in 100 km |            | (-↑ ↓-) |   |

◀ Readout in display:

- Press → key.

|                              |              |  |  |
|------------------------------|--------------|--|--|
| Channel 47                   | Adaptation 0 |  |  |
| Enter adaptation value XXXXX |              |  |  |

◀ Readout in display:

Value of old dash panel insert 5000 km.

- Enter adaptation value 00050.
- Confirm entry with the key Q.

|                     |            |         |   |
|---------------------|------------|---------|---|
| Channel 47          | Adaptation | 50      | Q |
| Soot qty. in 100 km |            | (-↑ ↓-) |   |

◀ Readout in display:

- Confirm entry with the key Q.

|                      |            |    |   |
|----------------------|------------|----|---|
| Channel 47           | Adaptation | 50 | Q |
| Store changed value? |            |    |   |

◀ Readout in display:

- Confirm entry with the key Q.

|                         |            |    |   |
|-------------------------|------------|----|---|
| Channel 47              | Adaptation | 50 | → |
| Changed value is stored |            |    |   |

◀ Readout in display:



Test of vehicle systems  
Select function XX

HELP

- Press → key.

◀ Readout in display:

Adaptation  
Enter channel number XX

### Adaptation of thermal oil load

Only QG1 and QG2 - diesel.

This channel is used to enter the value of the thermal oil load if the dash panel insert is replaced.

◀ Readout in display:

- Enter channel number 48 and confirm the entry with the key Q.

Channel 48      Adaptation      0      →  
Therm. load in 100 km      (-↑ ↓-)

◀ Readout in display:

- Press → key.

Channel 48      Adaptation      0  
Enter adaptation value XXXXX

◀ Readout in display:

Value of old dash panel insert 5000 km.

- Enter adaptation value 00050.
- Confirm entry with the key Q.

Channel 48      Adaptation      50      Q  
Therm. load in 100 km      (-↑ ↓-)

◀ Readout in display:

- Confirm entry with the key Q.

Channel 48      Adaptation      50      Q  
Store changed value?

◀ Readout in display:

- Confirm entry with the key Q.

Channel 48      Adaptation      50      →  
Changed value is stored

◀ Readout in display:

- Press → key.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

### Values entered if dash panel insert is replaced

It is essential to pay attention to the following points if the dash panel insert is replaced:

**Notes:**

- ◆ *The parameter setting of the replaced dash panel insert is calculated by the diagnosis (function 10 Adaptation, channels 40-41, diesel 47-48, petrol 46). In addition, the coding and km reading are also registered.*
- ◆ *The remaining values since the last Inspection Service should be entered!*
- ◆ *Adaptation of the service interval display (SID) must be carried out in kilometers also in countries with speedometer graduated in miles. Convert the adaptation values from miles into kilometers for this purpose, or enter the adaptation values noted beforehand (1 mile = 1.609 km).*
- ◆ *The immobiliser control unit is integrated in the dash panel insert, i. e. if the dash panel insert is replaced the immobiliser control unit is also replaced, and must be adapted!*
- ◆ *Carry out the following steps after replacing the dash panel insert:*
  - Adaptation of immobiliser control unit ⇒ page 96-44.
  - Adaptation of the vehicle ignition keys ⇒ page 96-42.
  - Adaptation of kilometer reading (miles reading) ⇒ page 90-49.
  - Coding of dash panel insert ⇒ page 90-44.
  - Adaptation of service interval display ⇒ page 90-51.
  - Setting the desired language version (only in the case of dash panel inserts with dot display) ⇒ Inspection and Maintenance.
  - Coding control unit gateway ⇒ page 90-60.
  - Coding radio ⇒ page 91-22 (for Gamma, Symphony and MS 303 radios).

## Self-diagnosis of gateway

### Initiating self-diagnosis

#### Special tools, testers and aids required

- ◆ Vehicle system tester V.A.G 1552
- ◆ Diagnostic cable V.A.G 1551/3, 3A, 3B or 3C

#### Test requirements

- ◆ Check coding of dash panel insert according to table of codes.

#### Test conditions

- Fuses according to current flow diagram o.k.
- Battery voltage at least 11.5 V
- All electrical consumers must be switched off

#### Connecting vehicle system tester V.A.G 1552

The diagnostic connection is located in the storage compartment on the driver side.

- ◀ Connect vehicle system tester V.A.G 1552 with the appropriate cable.
- Switch ignition on.

◀ Readout in display:

#### Note:

*If no readout appears in the display:*

⇒ Operating instructions of vehicle system tester.

- Enter address word 19 „Gateway databus“ and confirm the entry with the key Q.

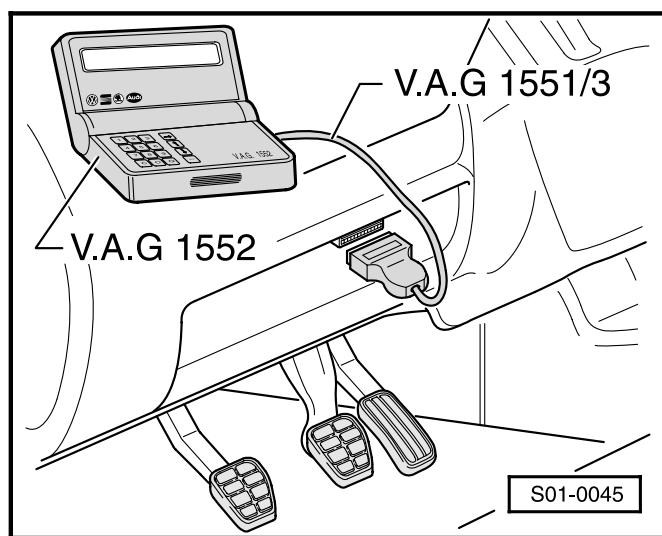
◀ The following readout appears after about 5 sec.:

- ◆ 6N0909601: gateway No.
- ◆ Gateway K <-> CAN: component designation
- ◆ 0001: software version of gateway
- ◆ Coding 00006: coding of gateway
- ◆ WSC 60081: workshop code

#### Note:

*Check coding by referring to table of codes ⇒ page 90-61.*

- Press → key.



Test of vehicle systems  
Enter address word XX

HELP

6N0909601 Gateway K <-> CAN 0001 →  
Coding 00006 WSC 60081

Test of vehicle systems  
Control unit does not answer!

HELP

◀ If one of the following messages appears in the display, carry out fault finding according to Fault Finding Programme in the diagnostic line.  
⇒ Current Flow Diagrams, Fault Finding and Fitting Locations.

Test of vehicle systems  
Fault in communication build-up

HELP

Test of vehicle systems  
K wire not switching to earth

HELP

Test of vehicle systems  
K wire not switching to positive

HELP

Test of vehicle systems  
Select function XX

HELP

◀ After rectifying the fault, press → key.

### List of available functions

The following functions are possible:

- 02 - Interrogating fault memory  
⇒ page 90-58
- 05 - Erasing fault memory ⇒ page 90-60
- 06 - Ending output ⇒ page 90-60
- 07 - Coding control unit ⇒ page 90-60
- 08 - Reading measured value block  
⇒ page 90-61

### Interrogating fault memory

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Select function 02 „Interrogate fault memory“ and confirm the entry with the key Q.

X faults recognised!

◀ The number of stored faults appears in the display.

The stored faults are displayed one after the other.

- Find the fault message displayed in the fault table and rectify fault ⇒ page 90-59.

No fault detected!



◀ If "No fault detected" the program returns to its initial position after key is pressed →.

Vehicle system test  
Select function XX

HELP

◀ Read-out on display:

If anything else appears in the display:

⇒ Operating instructions for vehicle system tester

- Ending output (function 06) ⇒ page 90-60.

## Fault table

### Notes:

- ♦ All the possible faults which can be detected by the V.A.G 1552, are listed below according to the 5-digit fault code.
- ♦ After repair once again interrogate the fault memory using vehicle system tester V.A.G 1552 and erase the memory.
- ♦ All static and sporadic faults are stored in the fault memory: A fault is detected as static, if it exists for at least 2 seconds). If the fault is then no longer present, it is stored as a sporadic (temporary) fault. "/SP" appears on the right of the display.
- ♦ After switching on the ignition, all the faults which exist are set to sporadic and are not stored as static faults unless they continue to exist after completing the check.
- ♦ If a sporadic fault no longer occurs during 50 driving cycles (ignition on for at least 5 minutes, road speed > 30 km/h), it is erased.

| Read out on display of V.A.G 1552   | Possible cause of fault  | Possible effects                                     | Rectifying fault  |
|---|--|--|---|
| 00778<br>Steering angle sender -G85<br>♦ No communication                         | ♦ Line interruption to steering angle sender<br>♦ Sender unit not fitted<br>♦ Sender defective           | - Function for Data BUS N.O.K.                       | - Check databus cables ⇒ page 90-68<br>- Replace sender -G85                          |
| 01044<br>Control unit is wrongly coded  | ♦ Dash panel insert is wrongly coded<br>♦ Dash panel insert defective                                    | - Poor driveability<br>- No vehicle dynamics control | - Coding dash panel insert ⇒ page 90-44<br>- Replacing dash panel insert ⇒ page 90-29 |
| 01300<br>Navigation system with CD drive control unit -J401<br>♦ No communication | ♦ Line interruption to RNS control unit<br>♦ RNS control unit not fitted<br>♦ RNS control unit defective | - Self diagnosis not possible                        | - Check databus cables ⇒ page 90-68<br>- Replace RNS control unit                     |
| 01304<br>Radio<br>♦ No communication  | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ Radio defective                    | - Self diagnosis not possible                        | - Check databus cables ⇒ page 90-68<br>- Replace radio                                |

| Read out on display of V.A.G 1552                                       | Possible cause of fault  | Possible effects                                     | Rectifying fault   |
|---|--|--|--|
| 01309<br>Power steering control unit -J500<br>♦ No communication        | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ Control unit -J500 defective       | - Poor driveability<br>- No vehicle dynamics control | - Check databus cables<br>⇒ page 90-68<br>- Replace control unit -J500   |
| 01312<br>Databus drive<br>♦ Defective                                   | ♦ Fault in databus cables  | - Poor driveability<br>- No vehicle dynamics control | - Check databus cables<br>⇒ page 90-68<br>- Coding of the control units connected to the databus<br>- Replace defective control unit |
| 01314<br>Engine control unit<br>♦ No communication                      | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ Engine control unit defective      | - Poor driveability<br>- No vehicle dynamics control | - Check databus cables<br>⇒ page 90-68<br>- Replace engine control unit  |
| 01315<br>Gearbox control unit<br>♦ No communication                     | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ Gearbox control unit defective     | - Poor driveability<br>- No vehicle dynamics control | - Check databus cables<br>⇒ page 90-68<br>- Replace gearbox control unit   |
| 01316<br>Brake control unit<br>♦ No communication                       | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ ABS control unit defective         | - Poor driveability<br>- No vehicle dynamics control | - Check databus cables<br>⇒ page 90-68<br>- Replace ABS control unit   |
| 01317<br>Control unit in dash panel insert -J285-<br>♦ No communication | ♦ Line interruption to control unit<br>♦ Control unit not fitted   | - Poor driveability<br>- No vehicle dynamics control | - Check databus cables<br>⇒ page 90-68   |
| 01320<br>Climatronic control unit -J255<br>♦ No communication           | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ Climatronic control unit defective | - Self diagnosis not possible                        | - Check databus cables<br>⇒ page 90-68<br>- Replace Climatronic control unit -J255   |

| Read out on display of V.A.G 1552  | Possible cause of fault   | Possible effects              | Rectifying fault  |
|--|---|-------------------------------|---|
| 01321<br>Airbag control unit -J234<br>♦ No communication                         | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ Airbag control unit defective | - Self diagnosis not possible | - Check databus cables<br>⇒ page 90-68<br>- Replace airbag control unit -J234 |
| 01324<br>4-wheel drive control unit -J492<br>♦ No communication                  | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ Control unit -J492 defective  | - Self diagnosis not possible | - Check databus cables<br>⇒ page 90-68<br>- Replace control unit -J492        |
| 01326<br>Multi-function steering control unit -J453<br>♦ No communication        | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ Control unit -J453 defective  | - Self diagnosis not possible | - Check databus cables<br>⇒ page 90-68<br>- Replace control unit -J453        |
| 01330<br>Central control unit for convenience system -J393<br>♦ No communication | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ Control unit -J393 defective  | - Self diagnosis not possible | - Check databus cables<br>⇒ page 90-68<br>- Replace control unit -J393        |
| 01331<br>Door control unit driver's side -J386<br>♦ No communication             | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ Control unit -J386 defective  | - Self diagnosis not possible | - Check databus cables<br>⇒ page 90-68<br>- Replace control unit -J386        |
| 01332<br>Door control unit front passenger's side -J387<br>♦ No communication    | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ Control unit -J387 defective  | - Self diagnosis not possible | - Check databus cables<br>⇒ page 90-68<br>- Replace control unit -J387        |
| 01333<br>Door control unit RL -J388<br>♦ No communication                        | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ Control unit -J388 defective  | - Self diagnosis not possible | - Check databus cables<br>⇒ page 90-68<br>- Replace control unit -J388        |

| Read out on display of V.A.G 1552  | Possible cause of fault  | Possible effects              | Rectifying fault   |
|--|--|-------------------------------|--|
| 01334<br>Door control unit RR -J389<br>♦ No communication                          | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ Control unit -J389 defective               | - Self diagnosis not possible | - Check databus cables<br>⇒ page 90-68<br>- Replace control unit -J389         |
| 01335<br>Driver seat/mirror position control unit<br>♦ No communication            | ♦ Line interruption to control unit<br>♦ Control unit not fitted<br>♦ Seat position control unit -J389 defective | - Self diagnosis not possible | - Check databus cables<br>⇒ page 90-68<br>- Replace seat position control unit |
| 01336<br>Group convenience data bus<br>♦ defective<br>♦ group convenience data bus | ♦ Fault in databus cables  | - Self diagnosis not possible | - Check databus cables<br>⇒ page 90-68   |

### Erasing fault memory

Procedure ⇒ page 90-9

### End output

Procedure ⇒ page 90-10.

### Coding control unit

- Connect vehicle system tester V.A.G 1552 and select "Gateway databus" (address word 19); ignition is switched on ⇒ page 90-57.

|   |      |
|---|------|
| Vehicle system test<br>Select function XX | HELP |
|---|------|

◀ Read-out on display:

- Enter function 07 "Coding control unit" and confirm entry with key Q.

|  |                |
|--|----------------|
| Coding control unit<br>Enter code number XXXXX | Q<br>(0-32000) |
|--|----------------|

◀ Read-out on display:

- Enter code number with the table of codes and confirm entry with key Q.



## Table of codes

| Control units at databus | Code number |
|--------------------------|-------------|
| ABS                      | 00002       |
| Airbag                   | 00004       |

The code numbers of the installed control units should be added together (example):

ABS + Airbag

00002 + 00004 = 00006

6N0900601 Gateway K <-> CAN 0001 →  
Coding 00000 WSC 60081

◀ The control unit coding appears in the display (example 00006):

- Press → key.

Test of vehicle systems HELP  
Select function XX

◀ Readout in display:

- Enter function 06 „End output“ and confirm the entry with the key Q.

## Reading measured value block

Test of vehicle systems HELP  
Select function XX

◀ Readout in display:

- Enter function 08 „Read measured value block“ and confirm the entry with the key Q.

Read measured value block HELP  
Enter display group number XXX

◀ Readout in display:

- Enter the desired display group number and confirm the entry with the key Q.

**Note:**

*If a control unit is not fitted because of the equipment in the vehicle, the relevant display readout remains blank.*

Measured value block 125

|                                    |           |  |                        |
|------------------------------------|-----------|--|------------------------|
| Reading measured value block 125 → |           |  | ◀ Read-out on display: |
| Engine 1                           | Gearbox 1 | ABS 1  |                        |
|                                    |           |  | not assigned           |
|                                    |           | ABS control unit <ul style="list-style-type: none"><li>• ABS 1 - CAN databus communication O.K.</li><li>• ABS 0 - CAN databus communication N.O.K.</li></ul>                       |                        |
|                                    |           | Automatic gearbox control unit <ul style="list-style-type: none"><li>• Gearbox 1 - CAN databus communication O.K.</li><li>• Gearbox 0 - CAN databus communication N.O.K.</li></ul> |                        |
|                                    |           | Engine control unit <ul style="list-style-type: none"><li>• Engine 1 - CAN databus communication O.K.</li><li>• Engine 0 - CAN databus communication N.O.K.</li></ul>              |                        |

Measured value block 126

|                                    |          |  |                        |
|------------------------------------|----------|--|------------------------|
| Reading measured value block 126 → |          |  | ◀ Read-out on display: |
| Steering angle 1                   | Airbag 1 |  |                        |
|                                    |          |  | not assigned           |
|                                    |          |  | not assigned           |
|                                    |          | Airbag control unit <ul style="list-style-type: none"><li>• Airbag 1 - CAN databus communication O.K.</li><li>• Airbag 0 - CAN databus communication N.O.K.</li></ul>            |                        |
|                                    |          | Steering angle <ul style="list-style-type: none"><li>• Steering angle 1 - CAN databus communication O.K.</li><li>• Steering angle 0 - CAN databus communication N.O.K.</li></ul> |                        |

## Measured value block 127

|                                    |  |  |  |
|------------------------------------|--|--|--|
| Reading measured value block 127 → |  | ◀ Read-out on display:   |  |
| FWD<br>1                           |  | not assigned   |  |
|                                    |  | not assigned   |  |
|                                    |  | FWD control unit   |  |
|                                    |  | <ul style="list-style-type: none"> <li>FWD 1 - CAN databus communication O.K.</li> <li>FWD 0 - CAN databus communication N.O.K.</li> </ul> |  |
|                                    |  | not assigned   |  |

## Measured value block 130

|                                    |              |             |              |  |  |
|------------------------------------|--------------|-------------|--------------|--|--|
| Reading measured value block 130 → |              |             |              | ◀ Read-out on display:   |  |
| Two-wire                           | Central<br>1 | D door<br>1 | FP door<br>1 |  |  |
|                                    |              |             |              | Door control unit front passenger's door   |  |
|                                    |              |             |              | <ul style="list-style-type: none"> <li>FP door 1 - CAN databus communication O.K.</li> <li>FP door 0 - CAN databus communication N.O.K.</li> </ul> |  |
|                                    |              |             |              | Door control unit driver's door  |  |
|                                    |              |             |              | <ul style="list-style-type: none"> <li>D door 1 - CAN databus communication O.K.</li> <li>D door 0 - CAN databus communication N.O.K.</li> </ul>   |  |
|                                    |              |             |              | Central control unit for convenience system (central locking)  |  |
|                                    |              |             |              | <ul style="list-style-type: none"> <li>Central 1 - CAN databus communication O.K.</li> <li>Central 0 - CAN databus communication N.O.K.</li> </ul> |  |
|                                    |              |             |              | Operating condition of CAN databus convenience   |  |
|                                    |              |             |              | <ul style="list-style-type: none"> <li>Two-wire - O.K.</li> <li>Single wire - fault</li> </ul>   |  |

Measured value block 131

|                                    |              |          |  |
|------------------------------------|--------------|----------|--|
| Reading measured value block 131 → |              |          | ◀ Read-out on display:   |
| Door<br>RL 1                       | Door<br>RR 1 | Memory 1 |  |
|                                    |              |          | not assigned   |
|                                    |              |          | Control unit for seat memory <ul style="list-style-type: none"><li>• Memory 1 - CAN databus communication O.K.</li><li>• Memory 0 - CAN databus communication N.O.K.</li></ul>   |
|                                    |              |          | Door control unit rear right <ul style="list-style-type: none"><li>• Door RR 1 - CAN databus communication O.K.</li><li>• Door RR 0 - CAN databus communication N.O.K.</li></ul> |
|                                    |              |          | Door control unit rear left <ul style="list-style-type: none"><li>• Door RL 1 - CAN databus communication O.K.</li><li>• Door RL 0 - CAN databus communication N.O.K.</li></ul>  |

Measured value block 132

|                                    |                     |  |  |
|------------------------------------|---------------------|--|--|
| Reading measured value block 132 → |                     |  | ◀ Read-out on display:   |
|                                    | Steering<br>wheel 1 |  |  |
|                                    |                     |  | not assigned   |
|                                    |                     |  | not assigned   |
|                                    |                     |  | Multi-function steering wheel control unit <ul style="list-style-type: none"><li>• Steering wheel 1 - CAN databus communication O.K.</li><li>• Steering wheel 0 - CAN databus communication N.O.K.</li></ul> |
|                                    |                     |  | not assigned   |

**Measured value block 140**

|                                    |         |                 |                |  |
|------------------------------------|---------|-----------------|----------------|--|
| Reading measured value block 140 → |         |                 |                | ◀ Read-out on display:   |
| Two-wire                           | Radio 1 | Navigation<br>1 | Telephone<br>1 |  |
|                                    |         |                 |                | Radio control unit   |
|                                    |         |                 |                | <ul style="list-style-type: none"> <li>• Radio 1 - CAN databus communication O.K.</li> <li>• Radio 0 - CAN databus communication N.O.K.</li> </ul>           |
|                                    |         |                 |                | Navigation control unit  |
|                                    |         |                 |                | <ul style="list-style-type: none"> <li>• Navigation 1 - CAN databus communication O.K.</li> <li>• Navigation 0 - CAN databus communication N.O.K.</li> </ul> |
|                                    |         |                 |                | Telephone control unit   |
|                                    |         |                 |                | <ul style="list-style-type: none"> <li>• Telephone 1 - CAN databus communication O.K.</li> <li>• Telephone 0 - CAN databus communication N.O.K.</li> </ul>   |
|                                    |         |                 |                | Operating condition of CAN databus convenience   |
|                                    |         |                 |                | <ul style="list-style-type: none"> <li>• Two-wire - O.K.</li> <li>• Single wire - fault</li> </ul>   |

**Measured value block 143**

|                                    |                     |  |  |  |
|------------------------------------|---------------------|--|--|--|
| Reading measured value block 143 → |                     |  |  | ◀ Read-out on display:   |
|                                    | Steering<br>wheel 1 |  |  |  |
|                                    |                     |  |  | not assigned   |
|                                    |                     |  |  | not assigned   |
|                                    |                     |  |  | Multi-function steering wheel control unit   |
|                                    |                     |  |  | <ul style="list-style-type: none"> <li>• Steering wheel 1 - CAN databus communication O.K.</li> <li>• Steering wheel 0 - CAN databus communication N.O.K.</li> </ul> |
|                                    |                     |  |  | not assigned   |

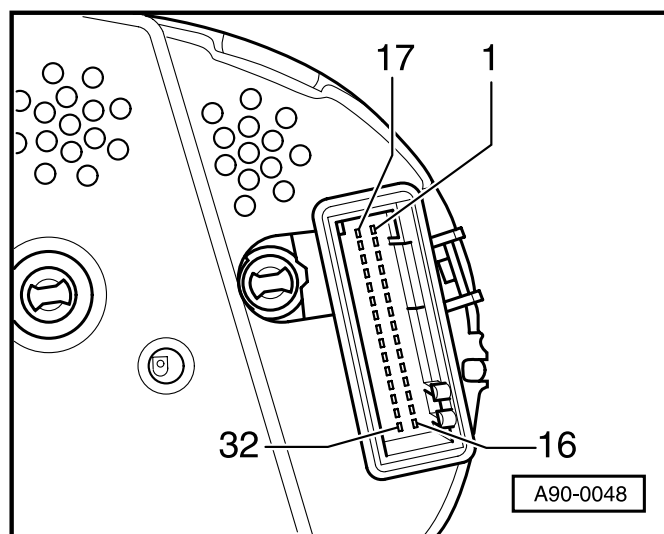
## Removing and installing dash panel insert

Procedure ⇒ page 90-29

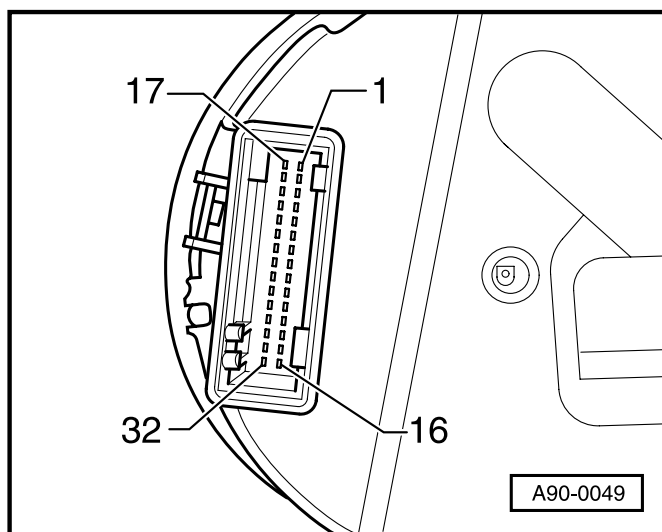
- If no fault was detected during functional test  
⇒ page 90-55.

## Contact assignment of plug connect. on the dash panel insert

### ◀ 32-pin multipin connector (T32a blue) for basic functions



- 1 - Terminal 15
- 2 - Right turn signal
- 3 - Speedometer output 1
- 4 - Trailer turn signal lights
- 5 - Fuel tank sender
- 6 - Light failure
- 7 - Terminal 31 (sensor mass)
- 8 - Coolant temperature
- 9 - Terminal 31 (load mass)
- 10 - Oil pressure switch
- 11 - Door contact switch front right  
(not assigned as of MY 02)
- 12 - Terminal 61
- 13 - Low beam
- 14 - Rear fog lights
- 15 - Front fog lights
- 16 - Tailgate (not assigned as of MY 02)
- 17 - Main beam
- 18 - Left turn signal light
- 19 - Brake light failure
- 20 - Terminal 58b
- 21 - Door contact switch on driver side (vehicles with central locking)  
all door contact switches (vehicles without central locking)
- 22 - Low coolant level
- 23 - Terminal 30
- 24 - Terminal 31
- 25 - K-wire
- 26 - Right parking light, side light
- 27 - Left parking light, side light
- 28 - Speedometer input
- 29 - Brake fluid level



30 - S contact

31 - Seat belt lock

32 - Side light  
exhaust emissions warning lamp  
(for EU 4 as of MY 02)

◀ **32-pin multipin connector (T32b green) for enlargement functions**

1 - not assigned

2 - Transponder coil

3 - not assigned

4 - not assigned

5 - W-wire

6 - Washer fluid level sensor

7 - Brake pads

8 - not assigned (as of MY 02 CAN High)

9 - not assigned (as of MY 02 CAN Low)

10 - not assigned

11 - not assigned

12 - Air conditioning (deactivation) with engine  
code letters AEH, AKL

13 - Hand brake

14 - not assigned

15 - not assigned

16 - not assigned

17 - Transponder coil

18 - Oil sensor

19 - CAN-drive High

20 - CAN-drive Low

21 - Discharge lamp failure or step motor  
failure

22 - Engine hood contact switch

23 - MFD - top function selection

24 - MFD - bottom function selection

25 - MFD - Reset/level 1/2

26 - MFD - outside temperature

27 - CAN-drive High - output for diagnostic  
plug connection.

28 - CAN-drive Low - output for diagnostic  
plug connection.

29 - CAN-drive screening - output for  
diagnostic plug connection. not assigned

30 - Clock (only dash panel insert with large dot display)

31 - Data (only dash panel insert with large dot display)

32 - Input data from Navigation system

### Testing signal from fuel gauge sensor -G-

Procedure ⇒ page 90-33

### Contact assignment at fuel gauge sensor -G-

Procedure ⇒ page 90-34

### Testing coolant temperature sensor

Procedure ⇒ page 90-34

### Testing vehicle speed signal

Procedure ⇒ page 90-35

### Testing ambient temperature sensor -G17-

#### Special tools, testers and aids required

- ◆ Hand-held multimeter, e.g. V.A.G 1526 A
- Remove left ventilation grille.  
⇒ Body Fitting Work; Repair Group 50.
- Take out ambient temperature sensor.
- Separate connector of ambient temperature sensor.
- Connect hand-held multimeter to the contacts of the ambient temperature sensor for resistance measurement.

Specifications:

| Temperature | Specification   |
|-------------|-----------------|
| -30 °C      | approx. 18265 Ω |
| 0 °C        | approx. 3300 Ω  |
| 20 °C       | approx. 1184 Ω  |
| 50 °C       | approx. 359 Ω   |



- If the specification is not achieved, replace the ambient temperature sensor.
- If the specification is achieved, then test the cable to the ambient temperature sensor.
- ⇒ Current Flow Diagrams, Fault Finding and Fitting Locations binder.
- If the specification for the resistance and the cable to the sensor are correct, then replace the dash panel insert.

### Testing oil level/oil temperature sensor -G266

#### Special tools, testers and aids required

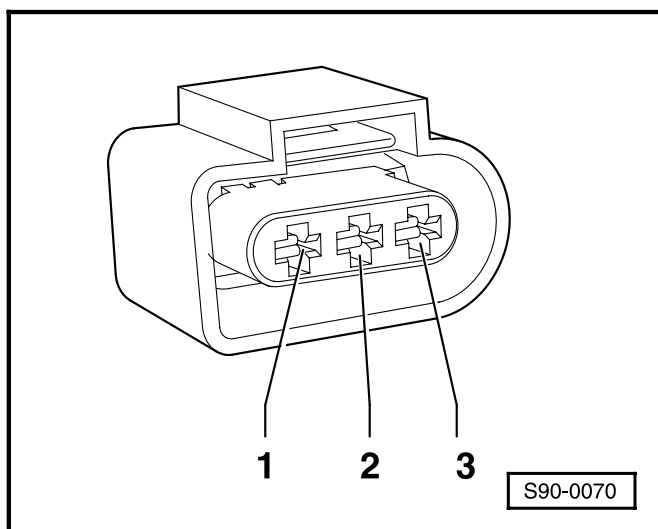
- ◆ Hand-held multimeter, e.g. V.A.G 1526 A

#### Test conditions

- Engine oil temperature at least 70 °C
- Oil at correct level
- Raise vehicle.
- Remove noise insulation panel.
- Unplug connector of oil level/oil temperature sensor.
- ◀ - Connect hand-held multimeter to contacts 1 and 3 of the oil level/oil temperature sensor for resistance measurement.

Specification: approx. 15.5 MΩ

- If the specification is not achieved, replace oil level/oil temperature sensor.
- Connect hand-held multimeter to contacts 1 and 2 of the oil level/oil temperature sensor for resistance measurement.



| Oil temperature | Specification   |
|-----------------|-----------------|
| 20 °C           | approx. 8.67 MΩ |
| 70 °C           | approx. 1.87 MΩ |

- If the specification is not achieved, replace oil level/oil temperature sensor.
- If the specification is achieved, then test the cable to the oil level/oil temperature sensor.
- ⇒ Current Flow Diagrams, Fault Finding and Fitting Locations binder.
- If the cable to the sensor is in proper order, then replace the dash panel insert.

## CAN databus

Part of the electrical system of the vehicle are two CAN databus lines of differing priority:

- ◆ Drive CAN databus - priority 1
- ◆ Convenience CAN databus - priority 2

### Notes:

- ◆ *Both databuses are linked from MY 01 in the gateway which is part of the control unit in the dash panel insert.*
- ◆ *It is possible to check in the gateway measured value blocks whether a link through the CAN databus exists ⇒ page 90-57.*

## Testing drive CAN databus

### Special tools, testers and aids required

- ◆ Vehicle system tester V.A.G 1552
- ◆ Diagnostic cable V.A.G 1551/3, 3A, 3B or 3C
- ◆ Hand-held multimeter, (e.g. 1526 A)
- ◆ Test box V.A.G 1598/22
- ◆ Test box V.A.G 1598/21
- ◆ Test box V.A.G 1598/33
- ◆ Test box V.A.G 1598/31
- ◆ Current flow diagram

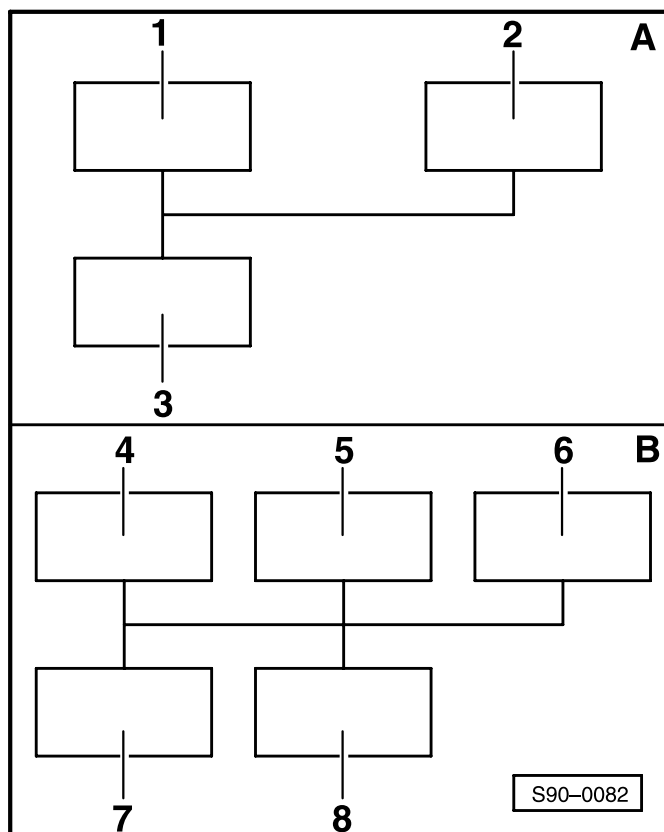
### Test procedure

- Connect vehicle system tester V.A.G 1552 with the corresponding cable.
- Select function 00 „Automatic test sequence“ and confirm entry with the key Q.

After this, all the control unit identifications with any entries in the fault memories, appear in the display.

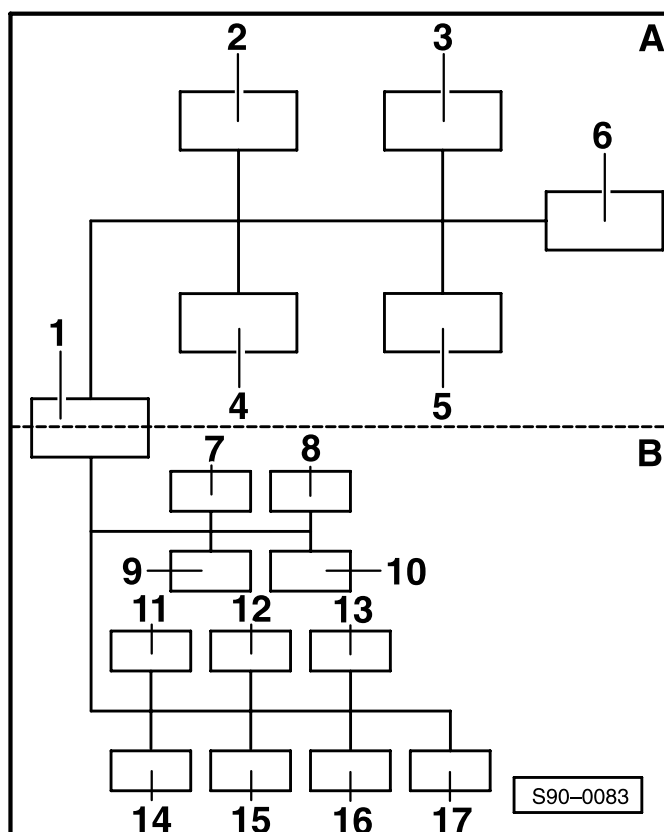
- End output (function 06) ⇒ page 90-10.

On the basis of the automatic test sequence, test the appropriate control unit or control units, and also data lines if necessary.



◀ CAN databus line without gateway

- A - Drive CAN databus
- B - Convenience CAN databus
- 1 - Engine control unit
- 2 - Automatic gearbox control unit
- 3 - ABS control unit
- 4 - Convenience system central control unit
- 5 - Door control unit driver door
- 6 - Door control unit front passenger door
- 7 - Door control unit rear right
- 8 - Door control unit rear left



◀ CAN databus line with gateway MY 01 ▶

- A - Drive CAN databus
- B - Convenience CAN databus
- 1 - Dash panel insert (with integrated gateway line)
- 2 - Engine control unit
- 3 - Automatic gearbox control unit
- 4 - ABS control unit
- 5 - Airbag control unit
- 6 - 4x4 control unit
- 7 - Mobile phone
- 8 - Radio
- 9 - Multifunction steering wheel control unit
- 10 - Navigation system control unit
- 11 - Convenience system central control unit
- 12 - Climatronic engine control unit
- 13 - Power seats control unit
- 14 - Door control unit driver door
- 15 - Door control unit front passenger door
- 16 - Door control unit rear right
- 17 - Door control unit rear left

## Testing terminating resistances of control unit

Test terminating resistance of control units to the datalines.

### Procedure

- Connect test box V.A.G 1598/33 to wiring loom of ABS/ESP control unit, or test box V.A.G 1598/21 to wiring loom of ABS control unit, respectively.
- Disconnect all the control units from the datalines, except those to be tested.

### Note:

*For testing the terminating resistance of the 121-pin engine control unit, it is not necessary to disconnect the other ECUs from the datalines; the resistance should be tested after connecting test box V.A.G 1598/31 to the engine control unit.*

- Measure resistance between sockets 10 and 11 at test box V.A.G 1598/21, or at sockets 19 and 20 of test box 1598/33, respectively.

### Specified resistances:

| Control unit          | ► MY 99                | MY 00 ►                |
|-----------------------|------------------------|------------------------|
| Engine control unit   | 110 - 130 $\Omega$     | 60 - 72 $\Omega$       |
| ABS/ESP ECU           | 110 - 130 $\Omega$     | 2.35 - 2.85 k $\Omega$ |
| Dash panel insert ECU | 2.35 - 2.85 k $\Omega$ | 2.35 - 2.85 k $\Omega$ |
| Automatic gearbox ECU | 2.35 - 2.85 k $\Omega$ | 2.35 - 2.85 k $\Omega$ |
| 4x4 ECU               | 2.35 - 2.85 k $\Omega$ | 2.35 - 2.85 k $\Omega$ |
| Airbag ECU            | 2.35 - 2.85 k $\Omega$ | 2.35 - 2.85 k $\Omega$ |

If the specifications are not achieved:

- Replace the appropriate control unit.

### Note:

*If damage to the data lines is suspected, test terminating resistance at each ECU directly at it.*

**Testing terminating resistance of engine control unit**

- Unlock and unplug connector at control unit.

**Engines with 121-pin engine control unit**

- Connect test box V.A.G 1598/31 to 121-pin engine control unit. Wiring loom to engine control unit is not connected.
- Test terminating resistance in engine control unit.

**Petrol engines with 121-pin engine control unit**

- Measure resistance between sockets 58 and 60 of test box.

**Diesel engines with 121-pin engine control unit**

- Measure resistance between sockets 6 and 7 of test box.

**Engines with 80-pin engine control unit****Models fitted with ABS**

- Connect test box V.A.G 1598/21 to wiring loom for ABS ECU.
- Measure resistance between sockets 10 and 11 of test box.

**Models fitted with ESP**

- Connect test box V.A.G 1598/33 to wiring loom for ABS/ESP ECU.
- Measure resistance between sockets 19 and 20 of test box.

**Continued for all models****Specified resistances:**

|         |                    |
|---------|--------------------|
| ► MY 98 | 110...130 $\Omega$ |
| MY 99 ► | 60...72 $\Omega$   |

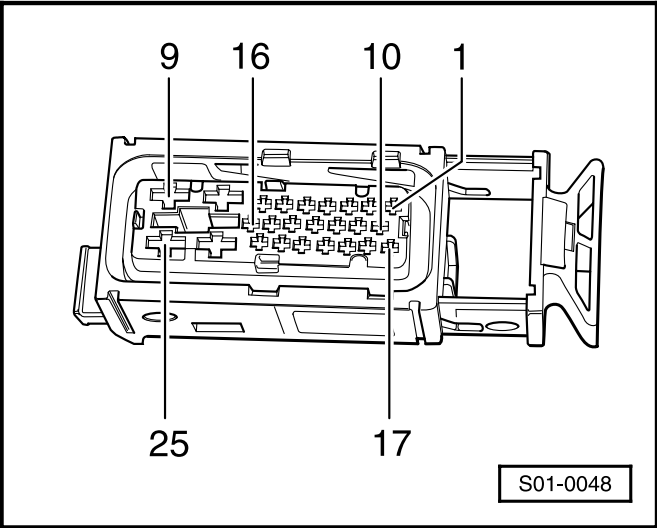
If the specification is not achieved:

- Replace engine control unit:
  - ⇒ Fuel Injection and Ignition System, Petrol Engines, Repair Group 24.
  - ⇒ Fuel Injection and Glow Plug System, Diesel Engines, Repair Group 23.

If the specification is achieved:

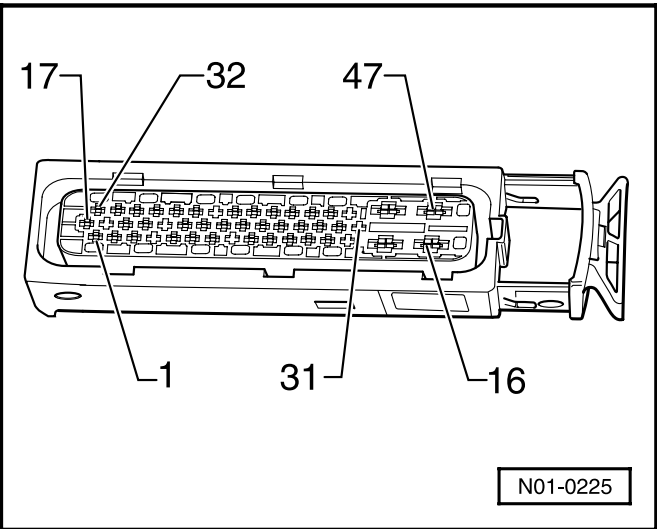
- Disconnect test box from engine control unit, or from wiring loom of ABS control unit, respectively.
- Test databus lines for short circuit to each other, for short circuit to battery positive or earth, and also for open circuit ⇒ page 90-68.

Testing terminating resistance of ABS ECU J104



- ◀ - Measure resistance between terminals 10 and 11 at connector of ABS ECU J104.

Models fitted with ESP



- ◀ - Measure resistance between terminals 19 and 20 at connector of ESP ECU J104.

Continued for both systems

Specified resistance:

|         |                |
|---------|----------------|
| ► MY 98 | 110...130 Ω    |
| MY 99 ► | 2.35...2.85 kΩ |

Testing terminating resistance of dash panel insert ECU J218

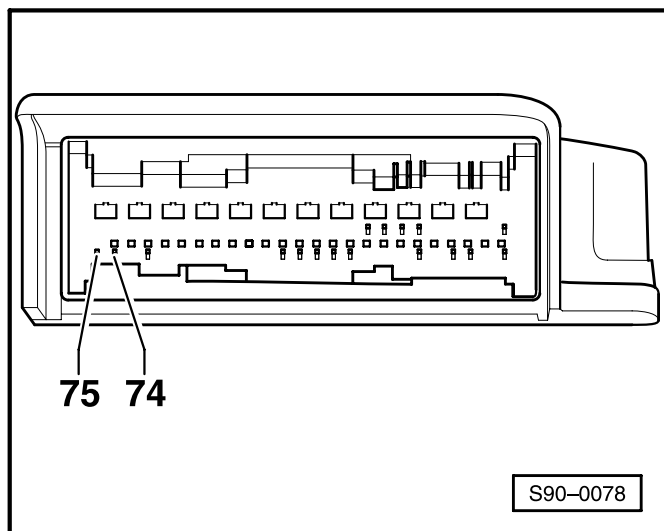
- Measure the resistance between terminals 19 and 20 at green 32-pin connector for dash panel insert ⇒ page 90-31.

Specified resistance: 2.35 ... 2.85 kΩ

### Testing terminating resistance of 4x4 ECU J492

- Measure the resistance between terminals 7 and 8 at green 8-pin connector for 4x4 ECU J492.

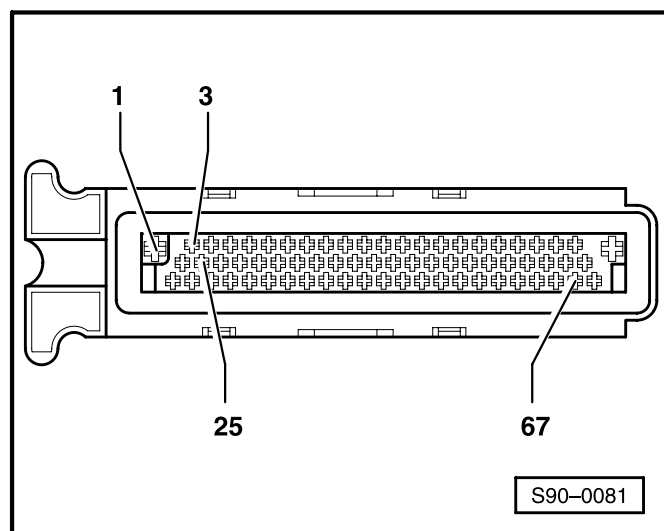
Specified resistance: 2.35 ... 2.85 k $\Omega$



### Testing terminating resistance of airbag ECU J234

- ◀ - Measure the resistance between terminals 74 and 75 at connector for airbag ECU J234.

Specified resistance: 2.35 ... 2.85 k $\Omega$



### Testing terminating resistance of automatic gearbox ECU J217

- ◀ - Measure the resistance between terminals 3 and 25 at connector for ECU J217.

Specified resistance: 2.35 ... 2.85 k $\Omega$

### Continued for all control units

If the specification is not achieved:

- Replace the appropriate control unit.

## Testing CAN databus for short circuit

In order to be able to test the drive CAN databus for short circuit to each other, for short circuit to earth, and also to positive, it is first of all necessary to separate the plug connections from all of the control units connected to the CAN databus. Only then is it possible to test the CAN databus cables for short circuit to each other, for short circuit to earth and to positive.

Use up-to-date current flow diagrams for the test operations

⇒ Current Flow Diagrams, Fault Finding and Fitting Locations binder

### Test conditions

- Ignition switched off.
- All control units separated from databus lines.

### Procedure

Test databus lines for short circuit to each other:

#### Engines with 121-pin engine control unit

- Connect test box V.A.G 1598/31 to the 121-pin connector at the wiring loom to the engine control unit.
- Measure resistance between sockets 58 and 60 of test box (petrol engine).
- Measure resistance between sockets 6 and 7 of test box (diesel engine).

#### Engines with 80-pin engine control unit

- Connect test box V.A.G 1598/22 to the 80-pin connector at the wiring loom to the engine control unit.
- Measure resistance between sockets 29 and 41 of test box (petrol engine).
- Measure resistance between sockets 68 and 75 of test box (diesel engine).

### Continued for all models

Specification:  $\infty \Omega$

If the specification is achieved (cables do not have short circuit to each other):

- Test databus lines for short circuit to positive, for short circuit to earth, and also for open circuit ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations binder.



## Testing convenience CAN databus

### Procedure

- Switch ignition on.
- Connect vehicle system tester V.A.G 1552 with the appropriate cable.
- Select function 00 „Automatic test sequence“ and confirm with the key Q.

After this, all the control unit identifications with any entries in the fault memories, appear in the display.

On the basis of the results of interrogating the fault memory, replace the corresponding control unit (or control units).

If the fault is also not rectified after replacing the control unit, test the databus cables for short circuit to each other, for short circuit to earth, to positive, and also for open circuit.

In order to be able to test the convenience CAN databus for short circuit to each other, for short circuit to earth, to positive, and also for open circuit, it is first of all necessary to separate the plug connections of all the control units connected to the convenience CAN databus.

Use up-to-date current flow diagrams for the test operations ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations binder.

### Test conditions

- Ignition switched off.
- All control units separated from data cables.

### Procedure

- Connect hand-held multimeter to terminals 6 and 9 of connector at wiring loom to convenience central control unit.
- Test databus cables for short circuit to each other.

Specification:  $\infty \Omega$

If the specification is achieved (cables do not have short circuit to each other):

- Test databus cables for short circuit to positive, to earth, and also for open circuit ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations binder.



## Radio systems

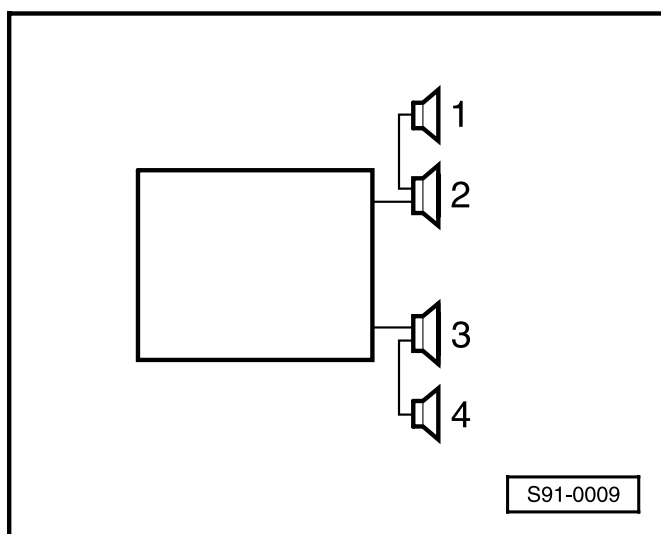
### General information

**Important!**

**Disconnect the battery earth strap before carrying out any work on the electrical system.**

**Notes:**

- ◆ *Additional information*
  - ⇒ Operating instructions
- ◆ *If retrofitting radio systems, carrying out repairwork or fault finding*
  - ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations
  - ⇒ Installation Instructions
- ◆ *Detailed removal and installation instructions, e.g. removing and installing trim panels, are contained in the Workshop Manual General Body Repairs.*
- ◆ *All radio systems are equipped with an anti-theft code, "Key Card" or quick-out fixture.*



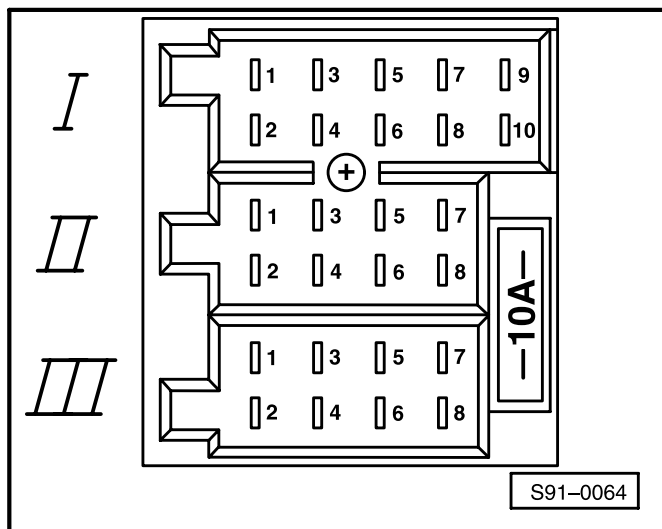
### Radio system with 4 speakers

◀ **Front right woofer -3- and front left woofer -2-**

- ◆ Integrated in door pocket
- ◆ Diameter 168 mm

**Front right tweeter -4- and front left tweeter -1-**

- ◆ Installed in top of door in exterior mirror trim panel
- ◆ Diameter 36 mm



◀ **Contact assignment of multipin plug connections I, II, III on rear of radio**

**Multipin plug connection I, 10-pin**

4 - Mute (telephone mode)

**Multipin plug connection II, 8-pin**

3 - Speaker + front right

4 - Speaker - front right

5 - Speaker + front left

6 - Speaker - front left

**Multipin plug connection III, 8-pin**

1 - Function "Gala" (volume adaptation)

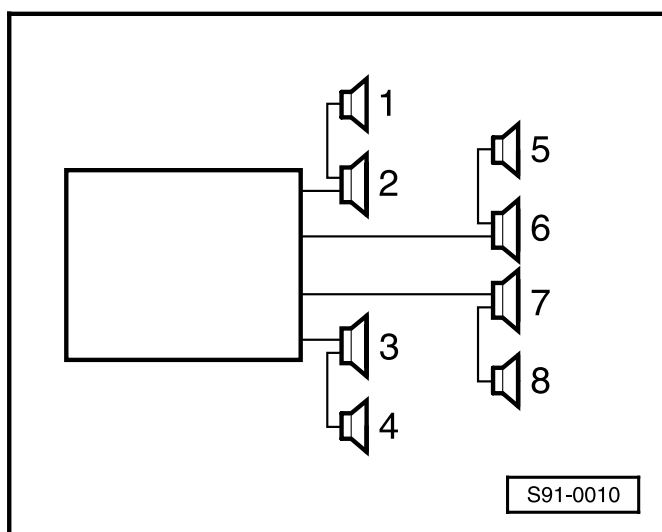
4 - Battery + (terminal 30)

5 - Switched positive for electronic reinforced roof antenna

6 - Lighting (terminal 58b)

7 - Connection for ignition key-controlled on and off (S-contact)

8 - Battery + (terminal 31)



**Radio system with 8 loudspeakers**

◀ **Front bass speaker right -3- and left -2-**

♦ Installed in the door tray

♦ Diameter 168 mm

◀ **Front treble speaker right -4- and left -1-**

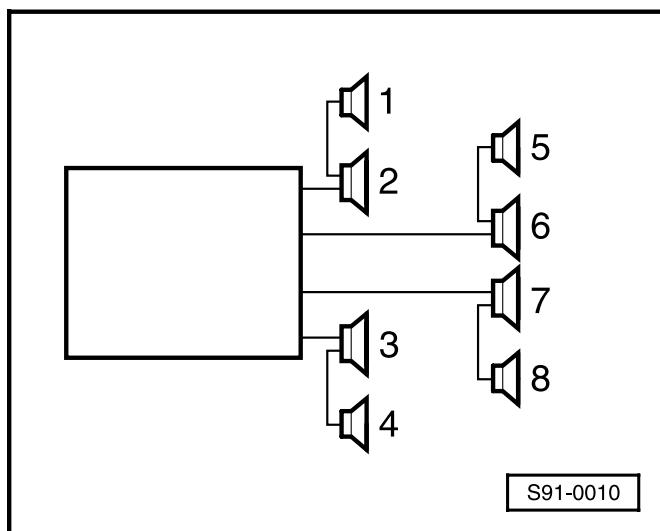
♦ Installed in the door at top of outside mirror trim panel

♦ Diameter 36 mm

**Rear bass speaker right -7- and left -6-**

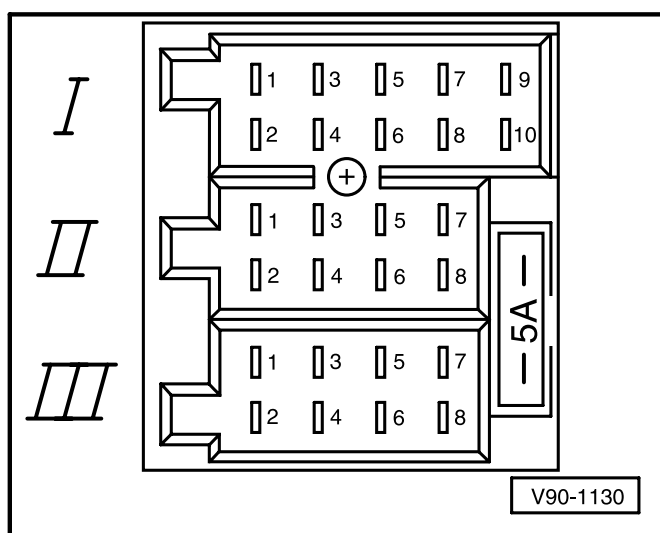
♦ Installed laterally on right and left in the support

♦ Diameter 130 mm



◀ **Tweeter rear right -8- and left -5-**

- ◆ Installed next to the door handle
- ◆ Diameter 36 mm



**Chamber assignment of multiple-plug connections I, II, III at the back of the radio - up to MY 98**

◀ **Multiple-plug connection I, 10**

- 4 - Muting (phone operation)

**Multiple-plug connection II, 8**

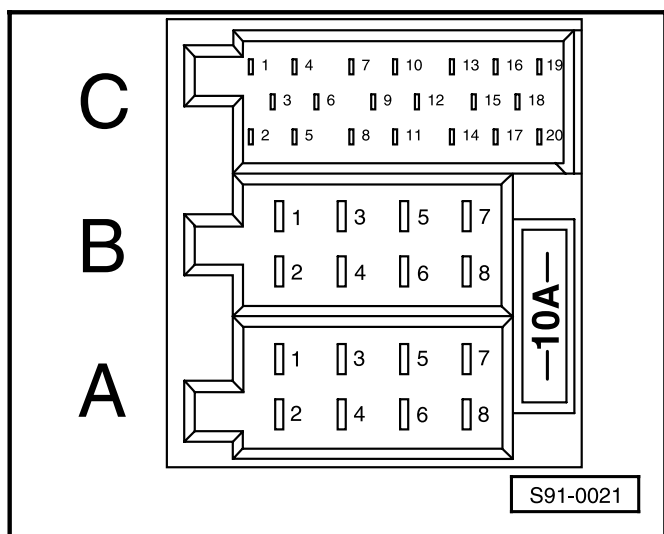
- 1 - Loudspeaker + rear right
- 2 - Loudspeaker - rear right
- 3 - Loudspeaker + front right
- 4 - Loudspeaker - front right
- 5 - Loudspeaker + front left
- 6 - Loudspeaker - front left
- 7 - Loudspeaker + rear left
- 8 - Loudspeaker - rear left

**Multiple-plug connection III, 8**

- 4 - Battery + (Term. 30)
- 5 - Positive connection for electronically amplified roof aerial
- 6 - Lighting (Term. 58b)
- 7 - Connection for ignition-key controlled activation and de-activation (S contact)
- 8 - Battery - (Term. 31)

Contact assignment of multipin plug connections A, B, C on rear of radio - as of MY 99

Radio "Gamma", Grundig MS 201, 401, 411, MS 303 "Symphony"



#### ◀ Multipin plug connection A, 8-pin

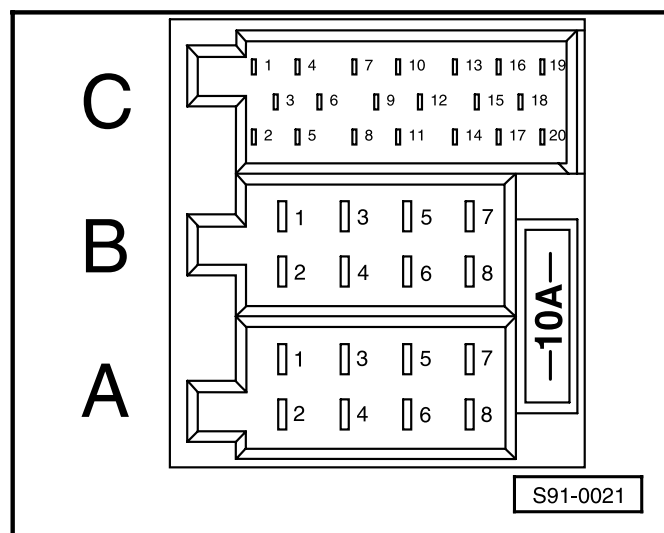
- 1 - Function "Gala"  
(volume adaptation not valid for MS 201)
- 2 - Mute (telephone mode)
- 3 - Self-diagnosis/K-wire  
(not assigned for Grundig radio sets)
- 4 - Connection for ignition key-controlled on and off (S-contact)
- 5 - Battery + (terminal 30) - only for Gamma radio sets (not assigned for Grundig radio sets, MS 303 and Symphony)
- 6 - Lighting (terminal 58b)
- 7 - Battery + (terminal 30)
- 8 - Battery + (terminal 31)

#### Multipin plug connection B, 8-pin

- 1 - Speaker + rear right
- 2 - Speaker - rear right
- 3 - Speaker + front right
- 4 - Speaker - front right
- 5 - Speaker + front left
- 6 - Speaker - front left
- 7 - Speaker + rear left
- 8 - Speaker - rear left

#### Multipin plug connection C, part 1 (yellow)

- 1 - Line Out left rear; LR
- 2 - Line Out right rear; RR
- 3 - Line Out; earth
- 4 - Line Out left front; LF
- 5 - Line Out right front; RF
- 6 - Switched POSITIVE for the sound amplifier

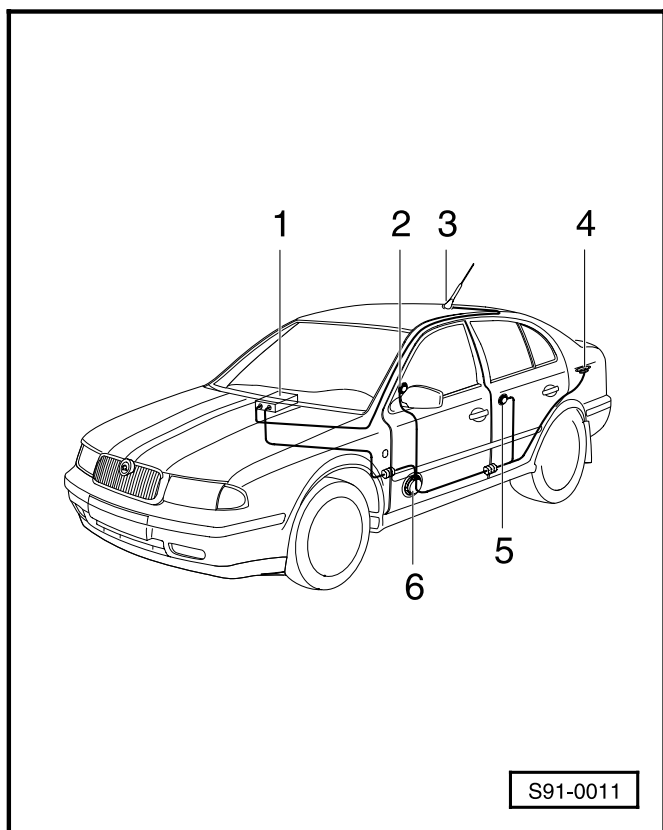


◀ **Multipin plug connection C, part 2 (green)**

- 7 - Telephone input signal, TEL+  
(not for MS 201)
- 8 - Second display, CLOCK  
(not assigned for Grundig radio sets and for radio sets with CAN databus communication)
- 9 - Second display, DATA  
(not assigned for Grundig radio sets and for radio sets with CAN databus communication)
- 10 - Second display, ENA  
(not assigned for Grundig radio sets and for radio sets with CAN databus communication)
- 11 - Remote control, REM  
(not assigned for Grundig radio sets)
- 12 - Telephone input signal, TEL-  
(not for MS 201)

**Multipin plug connection C, part 3 (blue)**

- 13 - CD changer, DATA IN  
(for Grundig radio sets DATA)
- 14 - CD changer, DATA OUT  
(not assigned for Grundig radio sets)
- 15 - CD changer, CLOCK  
(for Grundig radio sets earth)
- 16 - CD changer, voltage supply (+),  
terminal 30
- 17 - CD changer, control signal
- 18 - CD changer, left and right channel, earth
- 19 - CD changer, left channel, CD/L
- 20 - CD changer, right channel, CD/R



## General summary of radio systems

### 1 - Radio

- ◆ Installed in centre console
- ◆ Removing and installing ⇒ page 91-5

### 2 - Tweeter

- ◆ Technical data:  
Nominal resistance = 4 ohms
- ◆ Installed in inside of exterior mirror cover
- ◆ Removing and installing  
⇒ Removing and installing speakers

### 3 - Roof aerial

- ◆ with aerial amplifier
- ◆ Removing and installing  
⇒ Removing and installing roof aerial

### 4 - Woofer

- ◆ Technical data:  
Nominal resistance = 4 ohms
- ◆ Installed in left of rear shelf
- ◆ Removing and installing  
⇒ Removing and installing speakers

### 5 - Tweeter

- ◆ Technical data:  
Nominal resistance = 4 ohms
- ◆ Installed next to rear door handle
- ◆ Removing and installing  
⇒ Removing and installing speakers

### 6 - Woofer

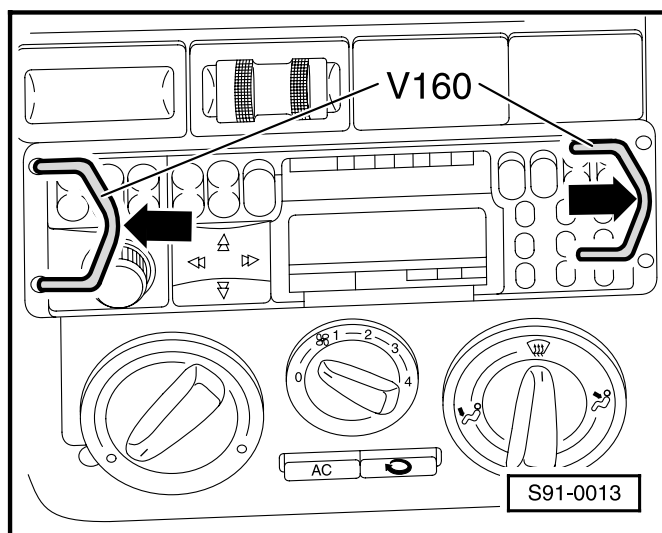
- ◆ Technical data:  
Nominal resistance = 4 ohms
- ◆ Installed in door pocket
- ◆ Removing and installing  
⇒ Removing and installing speakers



## Removing and installing radio set

### Note:

Determine the code number of the radio set, before removing radio.



### Removing:

- ◀ - Insert both release tools, e.g. special tool -V160, as illustrated, into the front of the radio.
- Press release tools in direction of arrow and pull radio out of dash panel.
- Disconnect aerial cable.
- Unplug connectors.

### Installing:

- Remove both release tools from the radio.
- Attach aerial cable to radio set.
- Plug in connectors.
- Carefully insert radio into dash panel.

## Removing and installing speakers

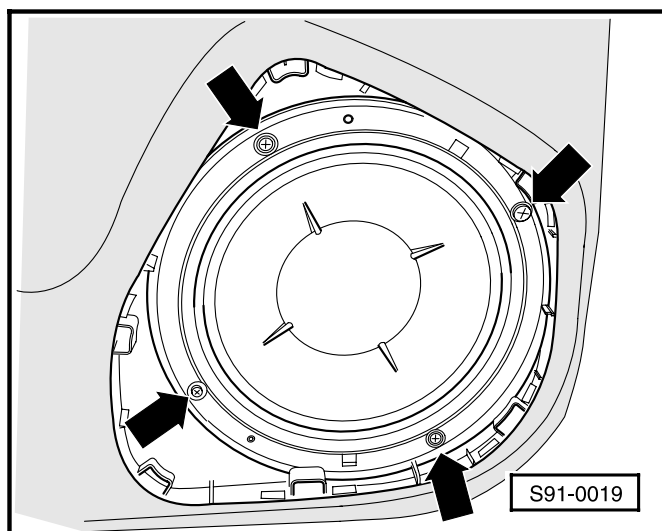
### Removing and installing front woofer

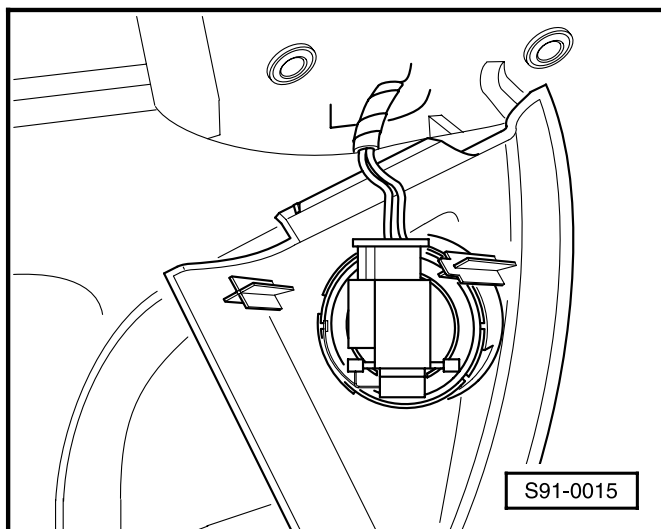
#### Removing:

- Unclip the speaker cover panel.
- ◀ - Remove the Torx screws (4 x T20) -arrows- at the woofer and take the speaker out of the fixture.
- Separate the electrical connectors at the speaker.

#### Installing:

- Carry out installation in the reverse order.





### Removing and installing front tweeters

#### Removing:

- Unclip cover of exterior mirror.
- ◀ - Separate plug connections.
- Unclip speaker from trim.

#### Installing:

- Installation is carried out in the reverse order.

### Removing and installing rear tweeters

#### Removing:

- Remove rear door trim panel.  
⇒ Body Fitting Work; Repair Group 70; Door Trim Panels; Removing and installing trim panel for rear door.

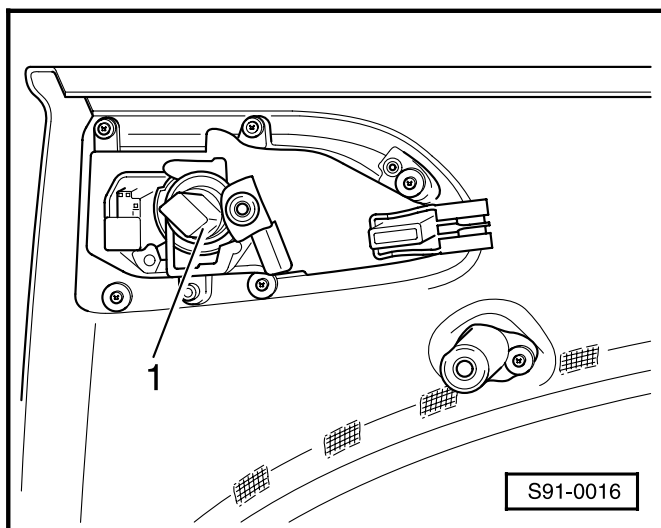
- Separate plug connections.

- ◀ - Carefully unclip tweeters -1- from the fixture.

- Take the speaker out of the door trim panel.

#### Installing:

- Installation is carried out in the reverse order.



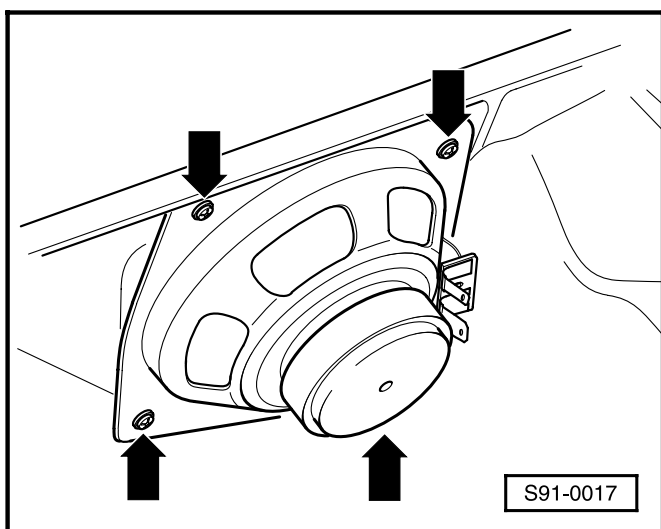
### Removing and installing rear woofers

#### Removing:

- Open boot lid.
- Separate plug connections.
- ◀ - Remove the screws -arrows- at the woofer and take speaker out of side trim panel.

#### Installing:

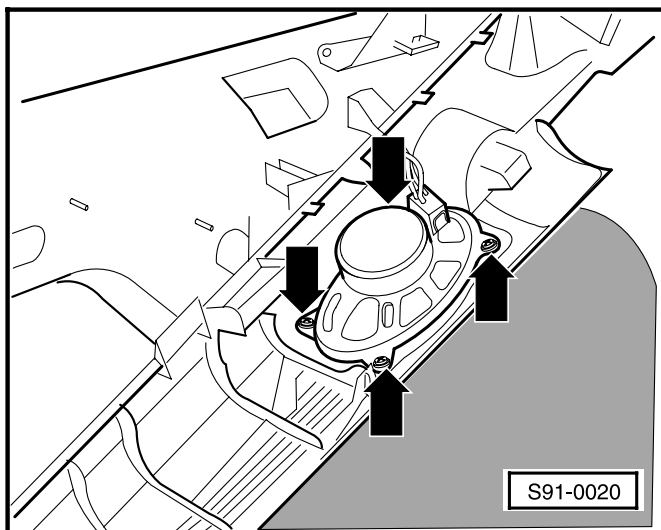
- Installation is carried out in the reverse order.



### Removing and installing rear woofer in OCTAVIA Estate

#### Removing

- Open tailgate.
- Remove luggage compartment shelf.  
⇒ Body Fitting Work; Repair Group 70; Trim panels of cargo area/luggage compartment
- Separate the electrical plug connections.
- ◀ - Remove the screws -arrows- at the woofer and take the woofer out of the shelf.



#### Installing

- Carry out installation in the same way in the reverse order.

## Removing and installing „gamma (MS 501), MS 303, Symphony“ radio sets

### Special tools, testers and aids required

- ◆ Removal tool T10057
- ◆ Removal tool T30005

### Removing

#### Notes:

- ◆ Before removing the radio set, determine the code number from the customer. If the radio is replaced, advise the customer of the new code number.
- ◆ Use special tool T10057 for removing the Gamma radio and special tool T30005 for removing the MS 303 and Symphony radios.

- ◀ - Insert the removal tools into the holes in such a way that they lock in position, as shown in illustration.

- Hold the eyes of the tools and pull radio out of the slot.

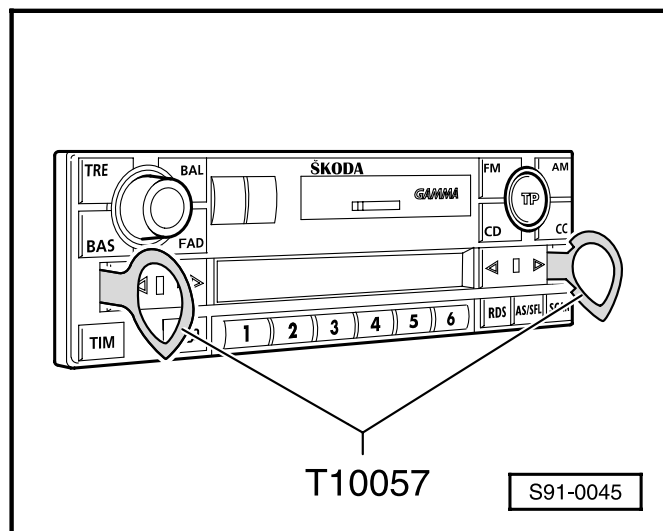
#### Note:

Do not press on the side of the special tools T10057 and T30005 and do not twist them when removing the radio.

- Release the removal tools by pressing in the catches on the radio.
- Disconnect aerial cable.
- Separate plug connections.

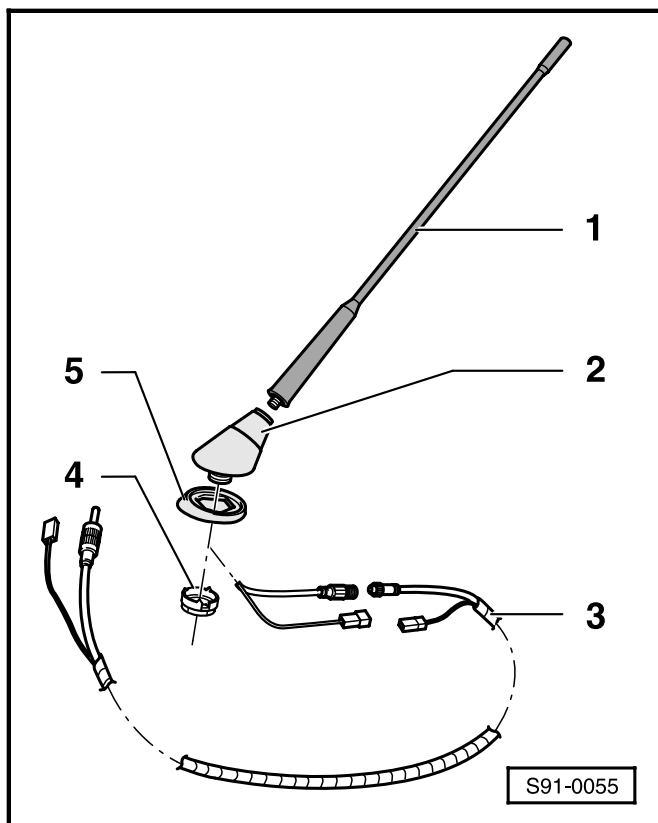
### Installing

- Attach aerial cable.
- Fit together plug connections.
- Push radio straight into the slot until it locks in place.



## Removing and installing roof aerial

Up to model year 98



**1 - Aerial rod**

**2 - Aerial base**

- ◆ Amplifier for roof aerial is integrated in aerial base

**3 - Aerial cable**

- ◆ From roof aerial up to radio set (centre console)

**4 - M14 nut with serrated washer**

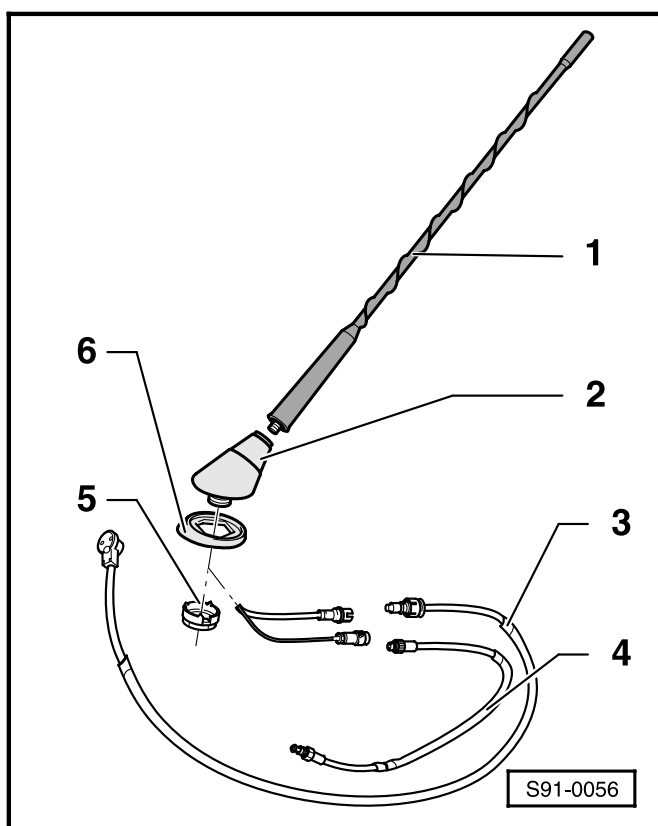
- ◆ 7 Nm
- ◆ Nut is connected to serrated washer
- ◆ Apply contact grease to inside of roof in area of serrated washer

**5 - Seal**

From model year 99

### Note:

*The illustration shows the roof aerial for radio and telephone. On vehicles fitted only with a radio, only the aerial cable for the telephone -item 4- is not included.*



**1 - Aerial rod**

**2 - Aerial base**

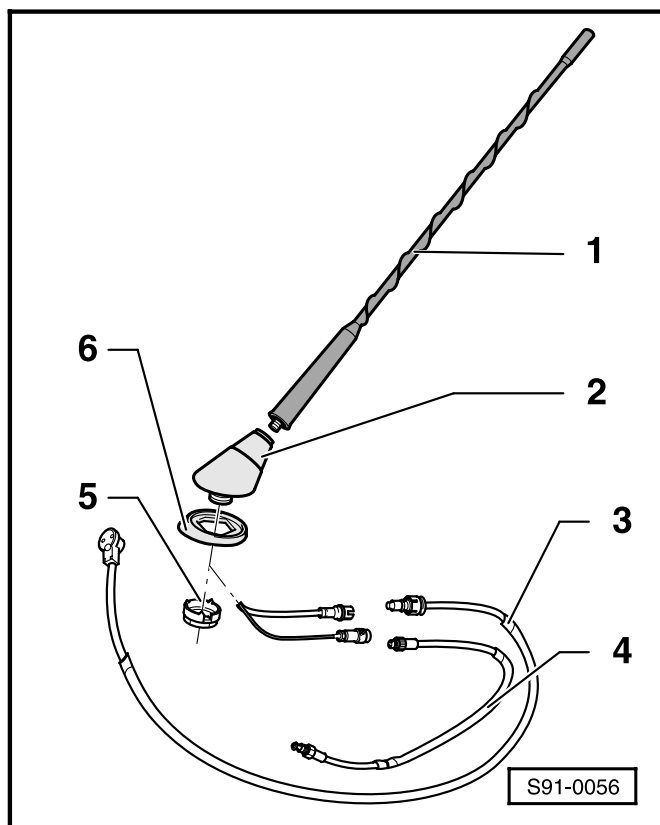
- ◆ Amplifier for roof aerial is integrated in aerial base

**3 - Aerial cable**

- ◆ From roof aerial up to radio set (centre console)

**4 - Aerial cable for telephone**

- ◆ From roof aerial up to telephone operating electronics control unit, (interface box)

**5 - M14 nut with serrated washer**

- ◆ 7 Nm
- ◆ Nut is connected to serrated washer
- ◆ Apply contact grease to inside of roof in area of serrated washer

**6 - Seal**

## Mobile phone systems

**Warning!**

**Disconnect battery earth strap before performing any work on the electrical system.**

**Notes:**

- ◆ *Before disconnecting the battery, determine the code number of radio sets with anti-theft coding.*
- ◆ *When the battery is re-connected, check the vehicle equipment:*
  - *Carry out coding of radio*
  - *Reset clock time*
  - *Initialise power windows*

⇒ Inspection and Maintenance

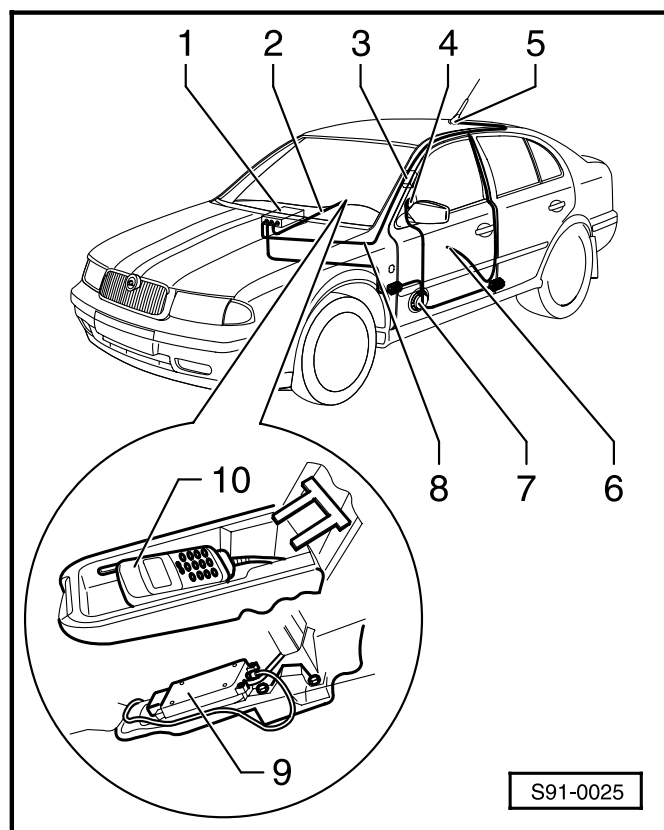
Mobile phone systems come in two versions. As a complete phone system and as mobile phone pre-wiring.

Subsequent mounting of mobile phones is possible in vehicles with mobile phone pre-wiring. To operate in Škoda vehicles mobile phones require their own control electronics, the so-called interface box. This interface box ensures the connection between mobile phone and the vehicle components via a standard VDA plug connection.

The Škoda series phone is connected to this VDA plug connection via a special interface box. Contact the relevant mobile phone manufacturer to determine which interface box is required for other mobile phone makes. Interface boxes without VDA plug require an adapter (e.g. of the firm Votex).

The following pages give an overview of the possible versions.

## General overview of telephone system



### 1 - Radio

- ◆ Removing and installing ⇒ page 91-5

### 2 - Cable from interface box to radio

- ◆ Mute
- ◆ Signal for door speaker

### 3 - Telephone microphone -R38-

- ◆ In trim panel of left A pillar
- ◆ Removing and installing ⇒ page 91-15

### 4 - Tweeter

- ◆ In exterior mirror trim cover on inside
- ◆ Removing and installing ⇒ page 91-5

### 5 - Roof aerial for radio and telephone

- ◆ With aerial amplifier for radio
- ◆ Removing and installing ⇒ page 91-7

### 6 - Aerial cable for telephone

- ◆ Routed along left B pillar as far as centre console

### 7 - Woofer

- ◆ Installed in trim panel
- ◆ Removing and installing ⇒ page 91-5

### 8 - Aerial cable for radio

- ◆ Routed along left A pillar as far as middle of dash panel

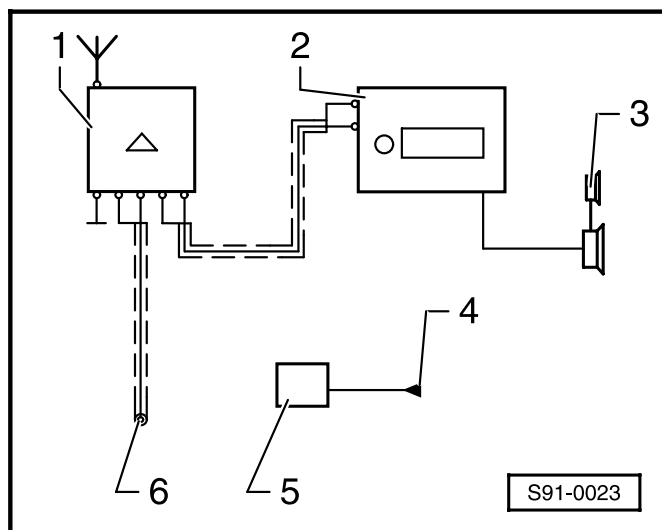
### 9 - Control unit for telephone operating electronics -J412- (interface box)

- ◆ Below centre console, next to hand-brake lever
- ◆ Removing and installing ⇒ page 91-13

### 10 - Portable telephone mount with portable

- ◆ In compartment of front armrest
- ◆ With fixture
- ◆ Removing and installing ⇒ page 91-14





### Telephone preinstallation 1

1 - Roof aerial for radio and mobile phone  
-R51-

2 - Radio

3 - Door speakers

4 - Voltage supply (terminal 15a, 31 and 58b)

5 - Connector for the telephone preinstallation

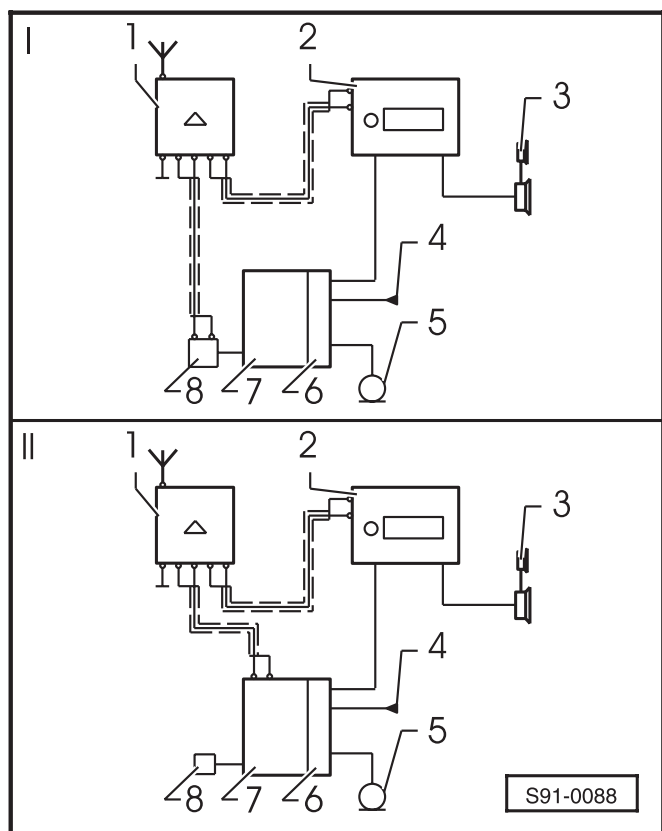
◆ behind the radio ⇒ plug assignment according to the following table

6 - Aerial cable for mobile phone

◆ behind the radio

### Plug assignment (position 5)

| Contact | Assignment   |
|---------|--------------|
| 1       | Terminal 15a |
| 2       | Terminal 58b |
| 3       | Terminal 31  |
| 4       | not assigned |



### Telephone preinstallation 2 - Cullmann

1 - Roof aerial for radio and mobile phone  
-R51-

2 - Radio

3 - Door speakers

4 - Voltage supply for telephone system

5 - Microphone for telephone -R38-

◆ in the left trim panel of pillar A

6 - VDA plug connection for control unit of telephone operating electronics (interface box)

◆ under the middle console, next to hand-brake lever ⇒ Plug assignment page 91-12

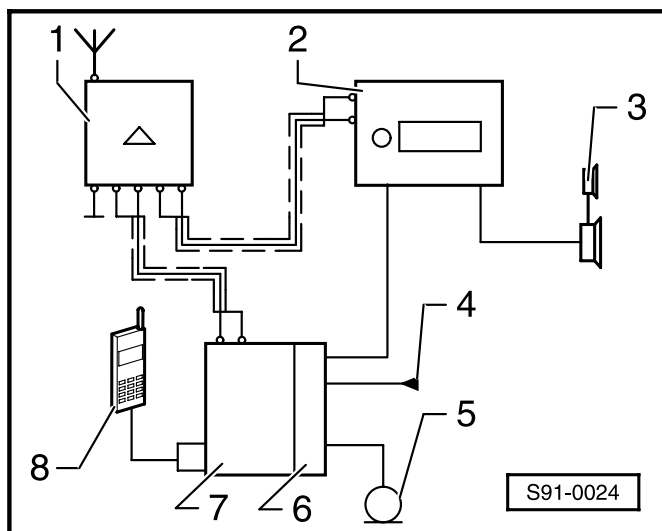
7 - Control unit of telephone operating electronics -J412- (interface box)

◆ under the middle console, next to hand-brake lever

8 - Plug connection for linking to interface box

◆ in the pocket next to hand-brake in the hand-brake lever console

### Mobile phone system



**1 - Roof aerial for radio/mobile phone -R51-**

**2 - Radio**

**3 - Door speaker**

**4 - Voltage supply for mobile phone system**

**5 - Mobile phone microphone -R38-**  
 ♦ in trim panel of left A-pillar, or in interior light

**6 - VDA plug connection for operating electronics control unit (interface box)**  
 ♦ below centre console, next to hand-brake lever ⇒ page 91-12, connector assignment

**7 - Operating electronics, mobile phone control unit -J412- (interface box)**  
 ♦ below centre console, next to hand-brake lever

**8 - Portable mobile phone cradle, with portable phone**  
 ♦ in mount, in armrest between front seats, or on centre part of dash panel

### Connector assignment (item 6)

| Contact | Assignment  | Contact | Assignment   |
|---------|---|---------|--|
| 1       | Terminal 31   | 10      | Terminal 15a   |
| 2       | Not assigned  | 11      | Terminal 30a   |
| 3       | Vehicle speed signal  | 12      | Terminal 58b   |
| 4       | To radio connector A (mute)   | 13      | Not assigned   |
| 5       | Not assigned  | 14      | Not assigned   |
| 6       | Not assigned  | 15      | Not assigned   |
| 7       | To radio connector C, part 2, contact 12 (telephone input signal, TEL-) | 16      | To radio connector C, part 2, contact 7 (telephone input signal, TEL+) |
| 8       | Not assigned  | 17      | Not assigned   |
| 9       | Mobile phone microphone -R38  | 18      | Mobile phone microphone -R38   |

## Removing and installing mobile phone operating electronics control unit -J412- (interface box)

### Warning!

**Disconnect earth strap of battery before commencing work on electrical system.**

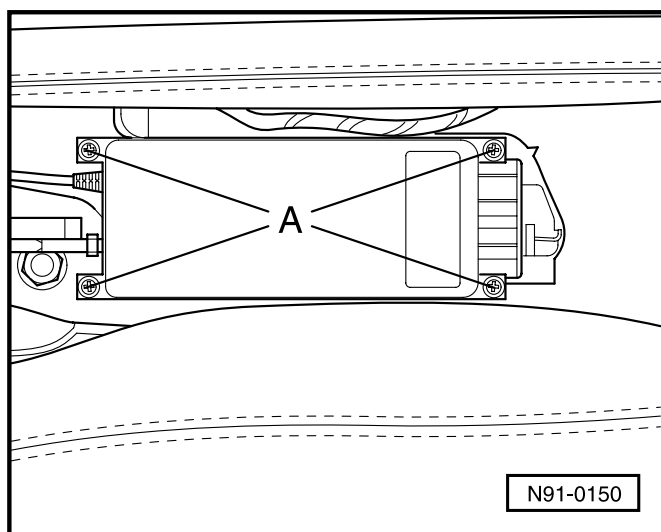
### Note:

- ◆ Before disconnecting the battery, determine the code of radio sets fitted with anti-theft coding.
- ◆ When the earth strap of the battery is disconnected and reconnected, it is essential to carry out additional operations ⇒ page 27-1.
- ◆ If the plug connection is run out from the interface box into the storage compartment next to the handbrake, the interface box is located below the centre console next to the handbrake lever ⇒ page 91-13. If it is run out at another point, the interface box is located in the middle of the dash panel ⇒ page 91-13.1.
- ◆ Two different versions of the interface box are installed, with non-detachable spiral cable and with detachable spiral cable.

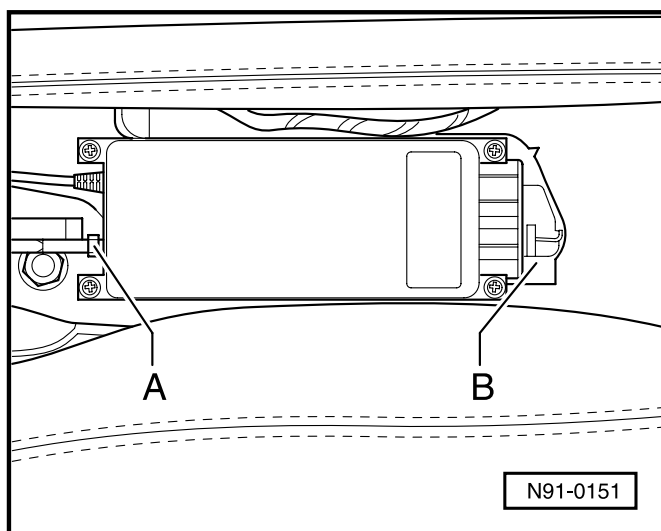
### Models with interface box installed below centre console next to handbrake lever

#### Removing

- Remove armrest and centre console.  
⇒ Body Fitting Work; Repair Group 68; Storage Compartments, Covers and Trim Panels; Removing and installing centre console
- ◀ - Take out the screws attaching the interface box -A-.



- ◀ - Turn over the locking arm of the VDA plug connection -B- and separate the plug connection.
- Unscrew aerial cable -A- and carefully pull off.
- Carefully remove interface box with spiral cable, and separate spiral cable.

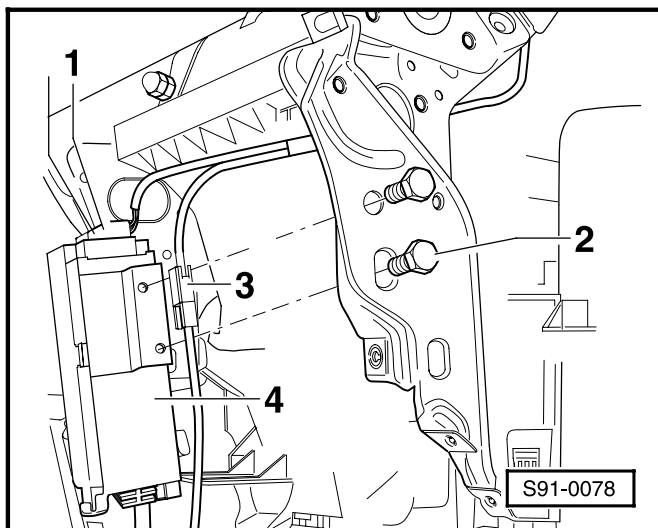


#### Installing

- Installation is carried out in the reverse order.

**Models with interface box installed in centre part of dash panel****Removing**

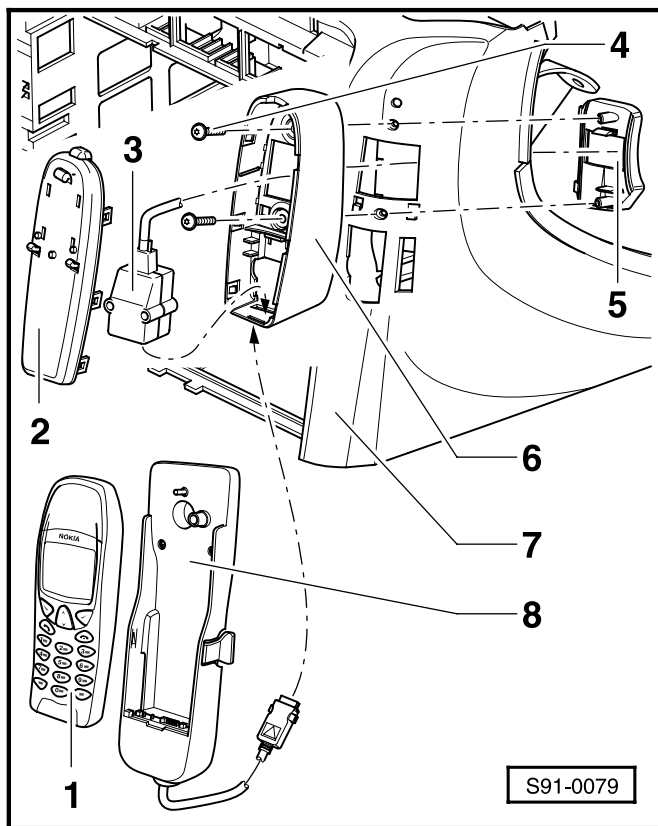
- Remove glove box.  
⇒ Body Fitting Work; Repair Group 70.
- Remove console ⇒ page 91-13.2, item 6.
- Take out plug connection ⇒ page 91-13.2, item 5 from retaining plate ⇒ page 91-13.2, item 4.
- ◀ - Remove screws attaching interface box -2- (4.5 Nm).
- Separate plug connection of electrical installation -1-.
- Separate aerial cable -3-.
- Take out interface box -4- together with spiral cable and separate spiral cable.

**Installing**

- Installation is carried out in the reverse order.

## Overview of mount for portable mobile phone 1

The mount for the portable mobile phone is located in the centre part of the dash panel.



1 - Portable mobile phone

2 - Console

3 - Connector

◆ to interface box with spiral cable

4 - 2 Nm

5 - Mounting bracket

6 - Retaining plate

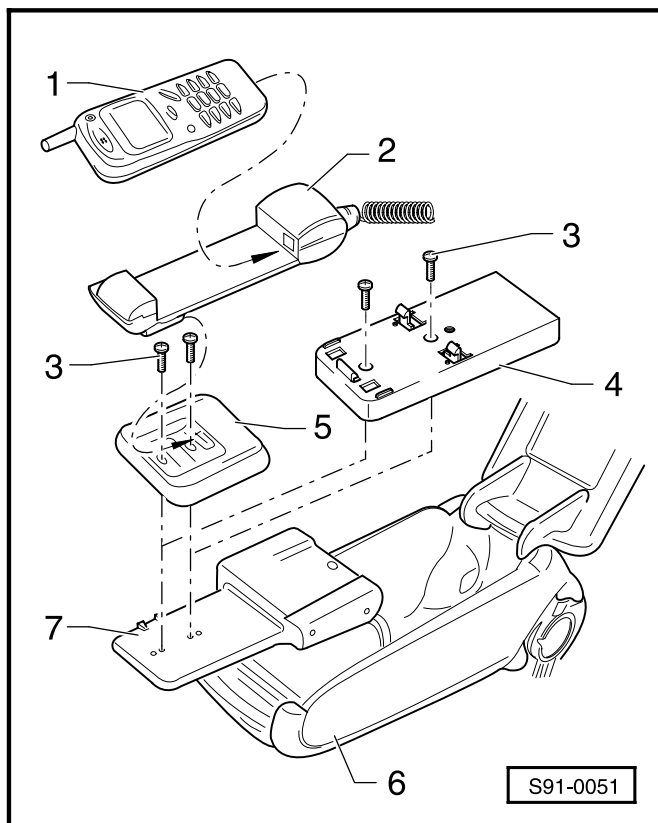
7 - Centre part of dash panel

8 - Portable mobile phone mount

◆ with connector to interface box

## Overview of mount for portable mobile phone 2

This portable mobile phone mount is located in the armrest between the front seats.



**1 - Portable mobile phone**

**2 - Portable mobile phone mount**  
♦ with connector to interface box

**3 - 8 Nm**

**4 - Base for CULLMANN mobile phone preinstallation 2**

**5 - Base for portable mount NOKIA 3110 and NOKIA 6210**

**6 - Armrest**

**7 - Base for portable mobile phone**  
♦ in armrest  
♦ swings forward

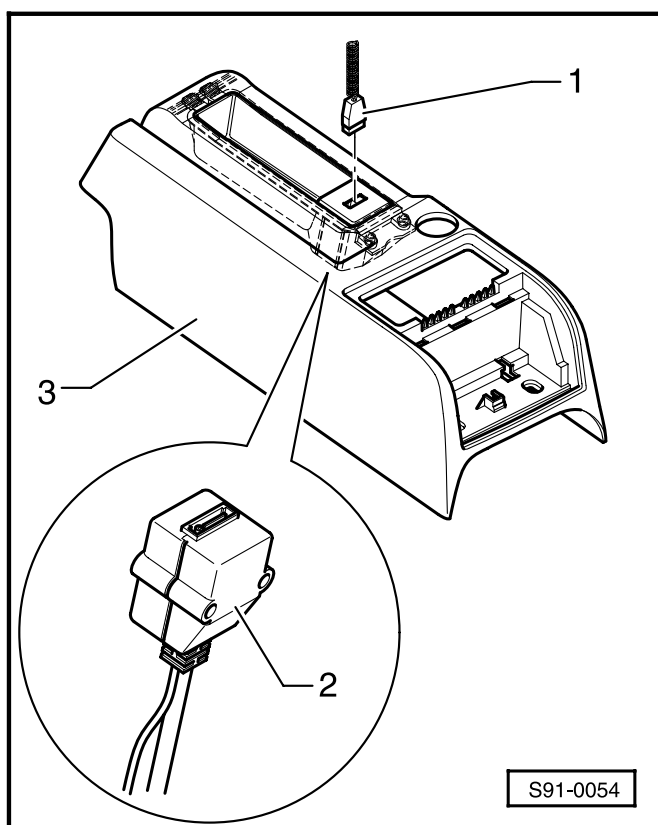
### Removing

- In order to be able to remove the portable mobile phone mount and the base, the mobile phone must be taken out of its mount  
⇒ Operating Instructions.
- Release portable mobile phone mount -item 2- and separate plug connection to interface box.
- Take out mount -item 2-.
- Unscrew base for portable mobile phone -item 4 or 5- depending on type of mobile phone preinstallation.

### Installing

- Installation is carried out in the reverse order.

◀ **Fig. 1 Plug connection to interface box for CULLMANN mobile phone pre-installation 2**



**1 - Connection cable**  
♦ from portable mobile phone mount

**2 - Plug connection**  
♦ from interface box

**3 - Trim panel for handbrake lever**

## Removing and installing mobile phone microphone -R38-

### ► 08.00

The mobile phone microphone -R38- is integrated in the trim panel of the left A pillar.

#### Overview

##### 1 - Trim panel of left A pillar

- ◆ Removing and installing

⇒ Body Fitting Work; Repair Group 70; Pillars and Trim Panels, Removing and installing trim panel of pillar A

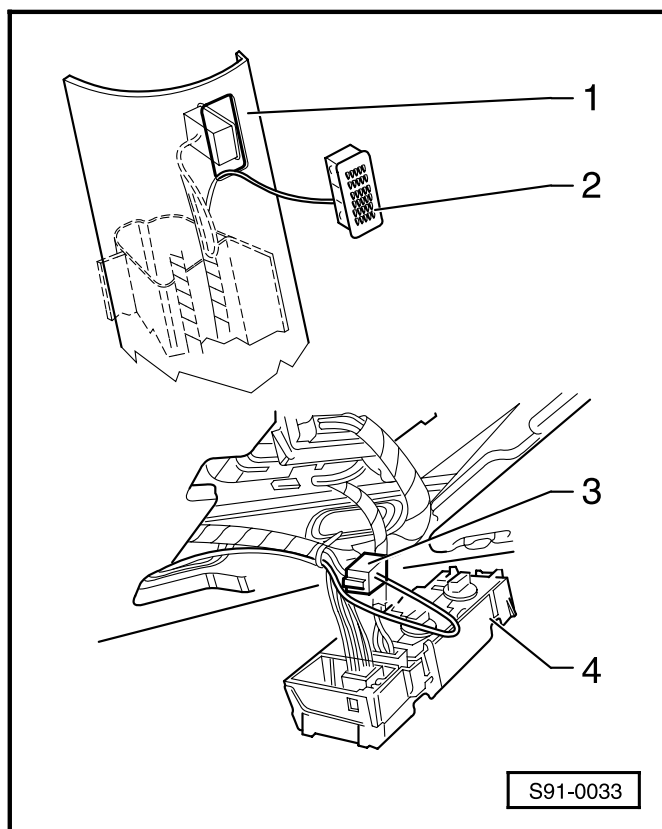
##### 2 - Mobile phone microphone -R38-

- ◆ Integrated into trim panel of A pillar
- ◆ Microphone cable runs to interior light of vehicle
- ◆ Plug connection to wiring loom behind interior light

##### 3 - Plug connection of microphone

##### 4 - Interior light of vehicle

- ◆ Removing and installing  
⇒ page 96-27



#### Removing

- First of all, remove the trim panel of pillar A on left item -1-.
- Carefully lever the microphone out of trim panel of pillar A to the front and push it to the rear through the opening in the trim panel.
- Remove interior light of vehicle -item 4- and separate the plug connection of the microphone -item 3-.
- Remove the sun visor on the driver side.  
⇒ Body Fitting Work; Repair Group 68; Covers, Storage Compartment, Trim Panels; Removing sun visor
- Carefully lift off moulded headliner in area of A pillar up to the interior light and pull out the microphone cable.

#### Installing

- Installation is carried out in the reverse order.

## Removing and installing mobile phone microphone -R38- 09.00 ➤

The mobile phone microphone -R38- is integrated in the interior light of the vehicle.

### Overview

#### 1 - Mobile phone microphone -R38-

- ◆ Attach with catches in interior light
- ◆ Plug connection to wiring loom behind interior light

#### 2 - Interior light of vehicle

- ◆ Removing and installing  
⇒ page 96-27

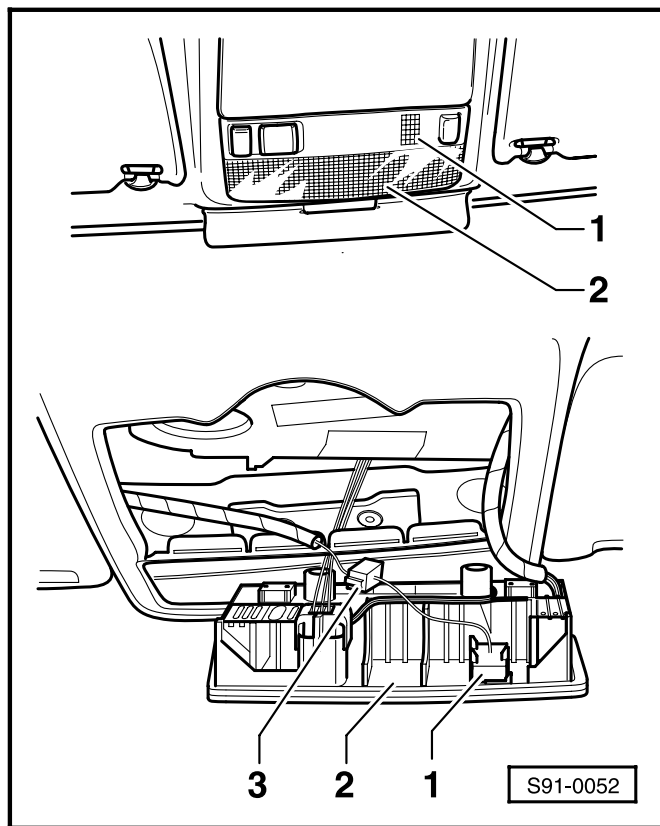
#### 3 - Plug connection of microphone

### Removing

- Remove interior light of vehicle -item 2-  
⇒ page 96-27.
- Separate plug connection of microphone -item 3-.
- Carefully lever microphone out of the catches.

### Installing

- Installation is carried out in the reverse order.







## Self-diagnosis of „Gamma (MS 501), MS 303 and Symphony“ radio systems

At present only the „Gamma, MS 303 and Symphony“ radio sets are equipped with self-diagnosis.

### Connecting vehicle system tester V.A.G 1552 and selecting radio set control unit

#### Special tools, testers and aids required

- ◆ Vehicle system tester V.A.G 1552 with cable V.A.G 1551/3, 3A, 3B or 3C

#### Test conditions

- All fuses according to CFD o.k.
- Battery voltage at least 11.5 V

The connection for self-diagnosis is located in the storage compartment on the driver side.

- ◀ - Connect vehicle system tester V.A.G 1552 with the appropriate cable.

- Switch ignition on.

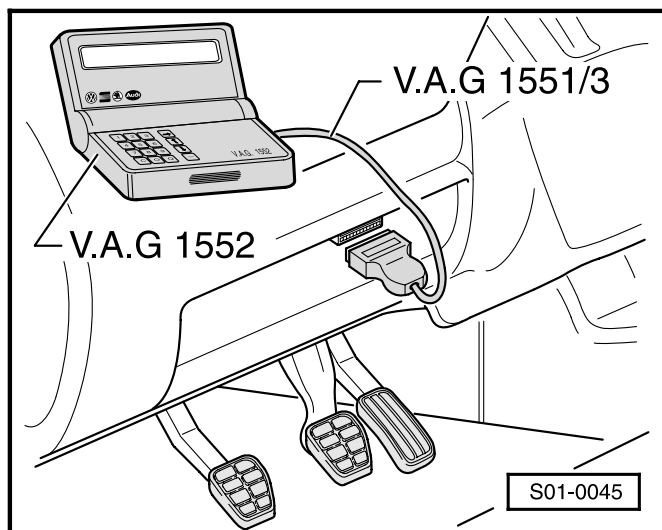
- ◀ Readout in display:

#### Note:

*If no readout appears in the display:*

⇒ Operating instructions of fault reader

- Enter address word 56 „Radio“ and confirm the entry with the key Q.



Test of vehicle systems  
Enter address word XX

HELP

|                            |       |                     |
|----------------------------|-------|---------------------|
| 1U0035186C<br>Coding 01403 | Radio | 0002 →<br>WSC XXXXX |
|----------------------------|-------|---------------------|

◀ The display appears after about 5 seconds, e.g.:

- ◆ 1U0035186C: set version number of radio set
- ◆ Radio: component designation
- ◆ 0002: software version
- ◆ Coding 01403: coding of radio set
- ◆ WSC XXXXX: workshop code

Readout in display of radio during self-diagnosis: „DIAG“.

- Press the → key.

|  |      |
|--|------|
| Test of vehicle systems<br>Control unit does not answer! | HELP |
|--|------|

◀ If one of the following messages appears in the display, carry out fault finding according to fault finding programme diagnostic cable.

|  |      |
|--|------|
| Test of vehicle systems<br>Fault in communication build-up | HELP |
|--|------|

⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations binder

|  |      |
|--|------|
| Test of vehicle systems<br>K wire not switching to earth | HELP |
|--|------|

|   |      |
|---|------|
| Test of vehicle systems<br>K wire not switching to positive | HELP |
|---|------|

- After pressing the HELP key, a list of the possible functions is displayed.
- Continue in the test programme by pressing the → key.

### Self-diagnosis functions

The following functions are possible:

- 02 - Interrogating fault memory ⇒ page 91-18.
- 03 - Final control diagnosis ⇒ page 91-21.
- 05 - Erasing fault memory ⇒ page 91-18.
- 06 - Ending output ⇒ page 90-10.
- 07 - Coding control unit („gamma“ radio) ⇒ page 91-22.
- 08 - Reading measured value block ⇒ page 91-24.

## Interrogating and erasing fault memory

### Special tools, testers and aids required

- ◆ Vehicle system tester V.A.G 1552 with cable V.A.G 1551/3
- Switch on the ignition.
- Connect vehicle system tester V.A.G 1552 and select radio set (address word 56)  
⇒ page 91-16.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Press the keys 0 and 2 for the function „Interrogate fault memory“ and confirm the entry with the key Q.

X faults recognized!

◀ The number of stored faults or „no fault recognized!“ appears in the display.

### If one or several faults are stored:

The stored faults are displayed one after the other.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Press keys 0 and 5 for the function „Erase fault memory“ and confirm the entry with the key Q.

### Note:

*If you have switched off the ignition between „Interrogating fault memory“ and „Erasing fault memory“, the fault memory is not erased.*

Test of vehicle systems  
Fault memory is erased!

→

◀ Readout in display:

- Press the → key.
- Press keys 0 and 6 for the function „End output“ and confirm the entry with the key Q.
- Rectify the faults displayed by referring to the fault table ⇒ page 91-19.

**If no fault is stored:**

- Press the → key.

Test of vehicle systems  
Select function XX

HELP

## ◀ Readout in display:

- Press keys 0 and 6 for the function „End output“ and confirm the entry with the key Q.

**Fault table****Notes:**

- ♦ The fault table is arranged according to the 5-digit fault code shown on the left.
- ♦ Explanations to types of faults (e.g. „open/short circuit to earth“):  
⇒ Operating Instructions of fault reader
- ♦ If components are shown as faulty:  
First of all test the wiring and plug connections to these components and also the earth cables of the system according to the current flow diagram. Replace the component only if no fault is found here. This applies in particular if faults are displayed as „sporadically occurring“ (SP).

| Readout on V.A.G 1552  | Possible cause of fault  | Possible effects   | Rectifying fault   |
|--|--|--|--|
| <b>00668</b><br><br><b>System voltage tml. 30</b><br><br>Signal too small*<br><br>* This fault may also be stored if the starter has been operated for more than 10 seconds! | ♦ Battery voltage below 9.5 V, battery insufficiently charged<br>♦ Battery faulty<br>♦ Alternator faulty | Radio set not operating at all or poorly   | - Read measured value block ⇒ page 91-24<br>- Test battery, charge if necessary ⇒ page 27-1<br>- Test alternator ⇒ page 27-1                                     |
| <b>00849</b><br><br><b>S contact at ignition/starter switch - D</b><br><br>Open circuit  | ♦ Ignition/starter switch not o.k.<br>♦ Wiring not o.k.<br>♦ Radio not o.k.                              | Radio set does not switch on again automatically when ignition switched on if ignition was previously was switched off when radio on.<br>When radio is operating, it switches off automatically 1 h after ignition is switched on. | - Read measured value block ⇒ page 91-24<br>- Test wiring according to current flow diagram<br>- Test ignition/starter switch, replace if necessary ⇒ page 94-14 |

| Readout on V.A.G 1552  | Possible cause of fault   | Possible effects   | Rectifying fault   |
|--|---|--|--|
| <b>00852</b><br><br><b>Speaker f</b><br><br>Short circuit<br><br>Open circuit            | <ul style="list-style-type: none"> <li>◆ Short circuit in cables to each other or to earth of a front speaker</li> <li>◆ Open circuit in cable to a front woofer</li> </ul> | <ul style="list-style-type: none"> <li>◆ A front speaker not operating</li> <li>◆ A front woofer not operating</li> </ul>                | <ul style="list-style-type: none"> <li>- Carry out final control diagnosis ⇒ page 91-21</li> <li>- Read measured value block ⇒ page 91-24</li> <li>- Test wiring according to CFD</li> </ul> |
| <b>00853</b><br><br><b>Speaker r</b><br><br>Short circuit<br><br>Open circuit            | <ul style="list-style-type: none"> <li>◆ Short circuit in cables to each other or to earth of a rear speaker</li> <li>◆ Open circuit in cable to a rear speaker</li> </ul>  | A rear speaker not operating   | <ul style="list-style-type: none"> <li>- Carry out final control diagnosis ⇒ page 91-21</li> <li>- Read measured value block ⇒ page 91-24</li> <li>- Test wiring according to CFD</li> </ul> |
| <b>00855</b><br><br><b>Connection to CD changer or CD player</b><br><br>No communication | <ul style="list-style-type: none"> <li>◆ Wiring to CD changer faulty</li> <li>◆ CD changer faulty</li> <li>◆ Radio faulty</li> </ul>  | CD changer function not o.k.   | <ul style="list-style-type: none"> <li>- Read measured value block ⇒ page 91-24</li> <li>- Test wiring according to CFD</li> <li>- Replace CD changer</li> <li>- Replace radio</li> </ul>    |
| <b>00856</b><br><br><b>Aerial (radio)</b><br><br>Short circuit<br><br>Open circuit       | <ul style="list-style-type: none"> <li>◆ Aerial cable faulty</li> <li>◆ Aerial cable not connected</li> <li>◆ Aerial faulty</li> </ul>                                      | No or poor radio reception   | <ul style="list-style-type: none"> <li>- Read measured value block ⇒ page 91-24</li> <li>- Test aerial cable</li> <li>- Test wiring according to CFD</li> <li>- Test aerial</li> </ul>       |
| <b>01044</b><br><br><b>Control unit incorrectly coded</b>                                | Radio functions not coded   | <ul style="list-style-type: none"> <li>◆ Radio functions or sound not o.k.</li> <li>◆ Incorrect fault entries in fault memory</li> </ul> | <ul style="list-style-type: none"> <li>- This fault message cannot be erased</li> <li>- Code radio functions ⇒ page 91-22, „gamma“ radio</li> </ul>  |
| <b>65535</b><br><br><b>Control unit defective</b>  | Radio faulty  | Function of radio set not o.k.   | <ul style="list-style-type: none"> <li>- Replace radio</li> </ul>  |

## Final control diagnosis

The following components are actuated in the order stated with the final control diagnosis:

1. Speakers
2. Output of radio display in dash panel insert

### Note:

*Item 2 is also performed if dash panel inserts are fitted which do not have a radio display.*

### Special tools, testers and aids required

- ◆ Vehicle system tester V.A.G 1552 with cable V.A.G 1551/3

### Test condition

- Fuses o.k.

### Test procedure

- Connect vehicle system tester V.A.G 1552 and select radio set (address word 56); ignition is switched on for this step ⇒ page 91-16.

|   |      |  |
|---|------|--|
| Test of vehicle systems<br>Select function XX           | HELP | ◀ Readout in display:  |
|   |      | - Press keys 0 and 3 for the function „Final control diagnosis“.   |
| Test of vehicle systems<br>03 - Final control diagnosis | Q    | ◀ Readout in display:  |
|   |      | - Confirm the entry with the key Q.  |
| Final control diagnosis<br>Loudspeaker                  | →    | ◀ Readout in display:  |
|   |      | The loudspeakers are tested with a test current.   |
|   |      | If a loudspeaker circuit of the system is detected as faulty during the test, it is stored as a fault message in the fault memory. |
|   |      | - Interrogate fault memory.  |
|   |      | - Repair wiring or speaker, as appropriate, erase fault memory and repeat final control diagnosis.                                 |

If actuator diagnosis test is O.K.:

- → Press key.

|  |   |
|--|---|
| Actuator diagnosis<br>Output radio display dash panel insert | → |
|--|---|

◀ Read-out on display:

- → Press key.

|                           |   |
|---------------------------|---|
| Actuator diagnosis<br>END | → |
|---------------------------|---|

◀ Read-out on display:

- → Press key.

|   |      |
|---|------|
| Vehicle system test<br>Select function XX | HELP |
|---|------|

◀ Read-out on display:

- Erasing fault memory ⇒ page 91-18
- End output ⇒ page 90-10

## Coding the radio

The following radio functions can be coded on the radio:

- ◆ Country (State)
- ◆ Sound adaptation (music adjustment)
- ◆ Number of passive loudspeakers
- ◆ Sound system correction
- ◆ Radio configuration (antenna, CD changer, CAN databus and second display)

Set up of code number (e.g. 00403)

|   |   |
|---|---|
| 0 | Coding number for the country (Europe)                                    |
| 0 | Coding number for sound tuning (basic setting)                            |
| 4 | Coding number for number of passive loudspeakers 4 loudspeakers)          |
| 0 | Coding number for sound system correction (without correction)            |
| 3 | Coding number for radio configuration (CD changer and active roof aerial) |



**Table of codes** (up to MY 01)

|   |   |
|---|---|
| X | Coding number for the country   |
| 0 | Europe and other countries  |
| X | Coding number for sound tuning  |
| 0 | Basic setting   |
| X | Coding number for number of passive loudspeakers                                      |
| 2 | 2 passive front loudspeakers  |
| 4 | 4 passive loudspeakers  |
| X | Coding number for sound system correction   |
| 0 | without correction  |
| 2 | with correction   |
| X | Coding number for radio configuration   |
| 1 | Radio with active roof aerial   |
| 3 | Radio with CD changer and active roof aerial  |
| 5 | Radio with second display in the dash panel insert and active roof aerial             |
| 7 | Radio with second display in the dash panel insert, active roof aerial and CD changer |

**Table of codes** (as of MY 02)

|   |  |
|---|--|
| X | Coding number for the country  |
| 0 | Europe   |
| 1 | other countries  |
| X | Coding number for sound tuning   |
| 0 | Basic setting  |
| X | Coding number for number of passive loudspeakers <sup>1)</sup>                   |
| 0 | No loudspeaker   |
| 1 | 1 passive front left loudspeaker   |
| 2 | 2 passive front loudspeakers   |
| 3 | 2 passive rear loudspeakers  |
| 4 | 4 passive loudspeakers   |
| X | Coding number for sound system correction  |
| 0 | without correction   |
| X | Coding number for radio configuration  |
| 0 | Radio without active roof aerial, CD changer and CAN databus communication       |
| 1 | Radio with active roof aerial (without CD changer and CAN databus communication) |
| 2 | Radio with CD changer (without active roof aerial and CAN databus communication) |
| 3 | Radio with CD changer and active roof aerial (without CAN databus communication) |
| 4 | Radio with CAN databus communication (without active roof aerial and CD changer) |
| 5 | Radio with active roof aerial and CAN databus communication (without CD changer) |
| 6 | Radio with CD changer and CAN databus communication (without active roof aerial) |
| 7 | Radio with active roof aerial, CD changer and CAN databus communication          |

<sup>1)</sup> At present only coding numbers 2 and 4 are valid

**Coding radio**

- Connect vehicle system tester V.A.G 1552 and select radio set (address word 56); ignition is switched on ⇒ page 91-16).

|   |      |
|---|------|
| Vehicle system test<br>Select function XX | HELP |
|---|------|

◀ Read-out on display:

- Enter 07 for the function "Coding control unit"

|   |   |
|---|---|
| Vehicle system test<br>07 Coding control unit | Q |
|---|---|

◀ Read-out on display:

- Confirm entry with key Q.

|  |           |
|--|-----------|
| Coding control unit<br>Enter code number XXXXX | (0-32000) |
|--|-----------|

◀ Read-out on display:

- List code number with the table of codes ⇒ page 91-23 and enter the number.

|  |                |
|--|----------------|
| Coding control unit<br>Enter code number 00403 | Q<br>(0-32000) |
|--|----------------|

◀ Read-out on display:

- Confirm entry with key Q.

**Note:**

*For vehicles as of MJ 2002, with activation of CAN databus communication (coding number for radio configuration - coding number 4 to 7 ⇒ page 91-23) the speed signals, signals about intensity of display illumination, status of S contact, status of terminal 15, multifunction steering wheel and external display are only transmitted via CAN databus.*

|   |      |
|---|------|
| Vehicle system test<br>Select function XX | HELP |
|---|------|

◀ Read-out on display:

- Enter 06 for the function 03 "End output"

|                                      |   |
|--------------------------------------|---|
| Vehicle system test<br>06 End output | Q |
|--------------------------------------|---|

◀ Read-out on display:

- Confirm entry with key Q.

|   |      |
|---|------|
| Vehicle system test<br>Select function XX | HELP |
|---|------|

◀ Read-out on display:

- Switch off ignition.
- Disconnect vehicle system tester.

### Convenience coding

The function for convenience coding (not valid for vehicles with 1.4/44 kW and 1.6/55 kW engines) can be used on radio systems as of MY 01. It is the function for the radio system and dash panel insert, whereby the dash panel insert and the radio system communicate with each other and exchange information via their internal codes.

The radio only has to be coded when installing for the first time (or replacing) ⇒ page 91-23.1.

#### **Note:**

*Entry of code number must be confirmed with active dash panel insert (terminal 15 - on)*

When the radio - voltage supply is disconnected again, (if battery is disconnected, if radio is disconnected etc.) the radio must no longer be coded.

#### **Note:**

*The dash panel insert must be active (terminal 15 - on) for the mutual communication.*

### CAN Bus

Communication via CAN databus can be activated and used on Symphony radio sets (with cassette as of 05/01, with CD changer as of 11/02).

CAN Bus for radio sets (also called CAN Information) is used for transmission of information from the vehicle (mostly from the dash panel insert) into the radio and vice versa.

For the radio the following information is transmitted:

- ◆ Information about multi-function steering wheel
- ◆ Information on data display of radio display at external display of dash panel insert
- ◆ Information about vehicle speed
- ◆ Information about intensity of display illumination
- ◆ Information about status of terminal 15
- ◆ Information about status of S contact
- ◆ Information about status of radio (On/Off)

## Reading measured value block

### Test procedure:

- Connect vehicle system tester V.A.G 1552 and select radio set (address word 56); ignition is switched on ⇒ page 91-16).

|   |      |
|---|------|
| Vehicle system test<br>Select function XX | HELP |
|---|------|

◀ Read-out on display:

- Enter 08 for the function "Reading measured value block" and confirm entry with key Q.

|  |   |
|--|---|
| Reading measured value block<br>Display group number XXX | Q |
|--|---|

◀ Read-out on display:

- Enter the desired three digit display group number and confirm entry with key Q.

### Measured value block 001

(for Radios MS 303, Symphony without CD player and Symphony with CD player)

|                                |        |
|--------------------------------|--------|
| Reading measured value block 1 | →      |
| 0                              | 12.3 V |
| 60 %                           | on     |

◀ Read-out on display:

|   |  |  |   |  |  |
|---|--|--|---|--|--|
|   |  |  | Status of S contact   |  |  |
|   |  |  | <ul style="list-style-type: none"><li>• can be checked during continuous output of measured values</li><li>• off - ignition key withdrawn</li><li>• on - ignition key inserted in ignition lock</li></ul> |  |  |
|   |  |  | Dimming of radio lighting in percent (only with headlights „on“)  |  |  |
|   |  |  | <ul style="list-style-type: none"><li>• 0 to 100 %</li></ul>  |  |  |
|   |  |  | Voltage of terminal 30  |  |  |
|   |  |  | <ul style="list-style-type: none"><li>• measured behind the filter</li></ul>  |  |  |
| Vehicle speed signal from speedometer <sup>1)</sup>   |  |  |   |  |  |
| <ul style="list-style-type: none"><li>• 0 or 1 (4 pulses for each revolution of tyre)</li></ul> |  |  |   |  |  |

<sup>1)</sup> For radio Symphony without CD player the communication via CAN databus is not displayed.

**Measured value block 002**

(for Radio Symphony without CD player)

|                                |      |           |      |   |
|--------------------------------|------|-----------|------|---|
| Reading measured value block 2 |      | →         |      | ◀ Read-out on display:  |
| Lsp. front                     | O.K. | Lsp. rear | O.K. |   |
|                                |      |           |      | Status of front loudspeaker   |
|                                |      |           |      | <ul style="list-style-type: none"> <li>• O.K.</li> <li>• Short circuit</li> <li>• Open circuit</li> </ul> |
|                                |      |           |      | Rear loudspeaker <sup>1)</sup>  |
|                                |      |           |      | Status of front loudspeaker   |
|                                |      |           |      | <ul style="list-style-type: none"> <li>• O.K.</li> <li>• Short circuit</li> <li>• Open circuit</li> </ul> |
|                                |      |           |      | Front loudspeaker   |

<sup>1)</sup> Display only in the case of passive rear loudspeakers.

**Measured value block 002**

(for Radios MS 303 and Symphony with CD player)

|                                |      |         |      |   |
|--------------------------------|------|---------|------|---|
| Reading measured value block 2 |      | →       |      | ◀ Read-out on display:  |
| Lsp. FL                        | O.K. | Lsp. FR | O.K. |   |
|                                |      |         |      | Status of front right loudspeaker   |
|                                |      |         |      | <ul style="list-style-type: none"> <li>• O.K.</li> <li>• Short circuit</li> <li>• Open circuit</li> </ul> |
|                                |      |         |      | Front right loudspeaker   |
|                                |      |         |      | Status of front left loudspeaker  |
|                                |      |         |      | <ul style="list-style-type: none"> <li>• O.K.</li> <li>• Short circuit</li> <li>• Open circuit</li> </ul> |
|                                |      |         |      | Front left loudspeaker  |

**Measured value block 003**

(for Radio Symphony without CD player)

|   |      |                        |
|---|------|------------------------|
| Reading measured value block 3 →  |      | ◀ Read-out on display: |
| Active<br>aerial  | O.K. |                        |
|   |      | not assigned           |
|   |      | not assigned           |
| Status of aerial <ul style="list-style-type: none"> <li>• O.K.</li> <li>• Short circuit</li> <li>• Open circuit</li> </ul>            |      |                        |
| Type of aerial <ul style="list-style-type: none"> <li>• passive</li> <li>• active (e.g. roof aerial with aerial amplifier)</li> </ul> |      |                        |

**Measured value block 003**

(for Radios MS 303 and Symphony with CD player)

|                                  |      |            |      |  |
|----------------------------------|------|------------|------|--|
| Reading measured value block 3 → |      |            |      | ◀ Read-out on display:   |
| Lsp.<br>RL                       | O.K. | Lsp.<br>RR | O.K. |  |
|                                  |      |            |      | Status of rear right loudspeaker <ul style="list-style-type: none"> <li>• O.K.</li> <li>• Short circuit</li> <li>• Open circuit</li> </ul> |
|                                  |      |            |      | Rear right loudspeaker   |
|                                  |      |            |      | Status of rear left loudspeaker <ul style="list-style-type: none"> <li>• O.K.</li> <li>• Short circuit</li> <li>• Open circuit</li> </ul>  |
|                                  |      |            |      | Rear left loudspeaker  |

**Measured value block 004**

(for Radio Symphony without CD player)

|                                  |           |   |  |
|----------------------------------|-----------|---|--|
| Reading measured value block 4 → |           | ◀ Read-out on display:  |  |
| 0                                | Telephone | off   |  |
|                                  |           | Status of input telephone mute  |  |
|                                  |           | <ul style="list-style-type: none"> <li>• Telephone in operation = "on"</li> <li>• Telephone switched off = "off"</li> </ul> |  |
|                                  |           | Telephone   |  |
|                                  |           | not assigned  |  |
|                                  |           | Status of control output of active amplifier  |  |
|                                  |           | <ul style="list-style-type: none"> <li>• 0 = status O.K.</li> <li>• 1 = short circuit to earth</li> </ul>                   |  |

**Measured value block 004**

(for Radios MS 303 and Symphony with CD player)

|                                  |      |  |  |
|----------------------------------|------|--|--|
| Reading measured value block 4 → |      | ◀ Read-out on display:   |  |
| Active<br>aerial                 | O.K. |  |  |
|                                  |      | not assigned   |  |
|                                  |      | not assigned   |  |
|                                  |      | Status of aerial   |  |
|                                  |      | <ul style="list-style-type: none"> <li>• O.K.</li> <li>• Short circuit</li> <li>• Open circuit</li> </ul>              |  |
|                                  |      | Type of aerial   |  |
|                                  |      | <ul style="list-style-type: none"> <li>• passive</li> <li>• active (e.g. roof aerial with aerial amplifier)</li> </ul> |  |

Measured value block 005 (for Radio Symphony without CD player)

|                                  |      |                        |  |
|----------------------------------|------|------------------------|--|
| Reading measured value block 5 → |      | ◀ Read-out on display: |  |
| CD link                          | O.K. |                        |  |
|                                  |      |                        |  |
|                                  |      |                        |  |
|                                  |      | Status of CD link      |  |
|                                  |      | • O.K.                 |  |
|                                  |      | • N.O.K <sup>1)</sup>  |  |
|                                  |      | CD link                |  |

1) Display also if no CD changer is fitted.

Measured value block 005 (for Radios MS 303 and Symphony with CD player)

|                                  |           |  |  |
|----------------------------------|-----------|--|--|
| Reading measured value block 5 → |           | ◀ Read-out on display:                       |  |
| 0                                | Telephone | off  |  |
|                                  |           | Status of input telephone mute               |  |
|                                  |           | • Telephone in operation = “on”              |  |
|                                  |           | • Telephone switched off = “off”             |  |
|                                  |           | Telephone                                    |  |
|                                  |           | not assigned                                 |  |
|                                  |           | Status of control output of active amplifier |  |
|                                  |           | • 0 = status O.K.                            |  |
|                                  |           | • 1 = short circuit to earth                 |  |



**Measured value block 006**

(for Radio Symphony without CD player)

|   |      |                        |
|---|------|------------------------|
| Reading measured value block 6 →  |      | ◀ Read-out on display: |
| CD link   | O.K. |                        |
|   |      |                        |
| Status of CD link   |      |                        |
| <ul style="list-style-type: none"><li>• O.K.</li><li>• N.O.K<sup>1)</sup></li></ul> |      |                        |
| CD link   |      |                        |

<sup>1)</sup> Display also if no CD changer is fitted.

## Removing and installing CD changer

The CD changer is located in the left trim of the luggage compartment.

**Warning!**

**Disconnect battery earth strap before working on electrical system.**

**Notes:**

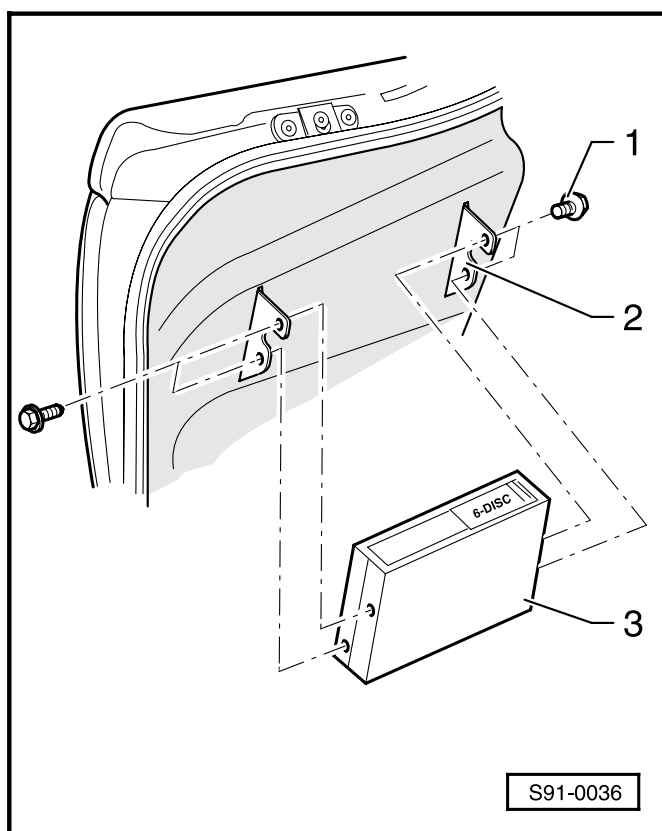
- ◆ Before disconnecting the battery, determine the coding of radio sets fitted with anti-theft coding.
  - ◆ When the battery is connected again, check the vehicle equipment:
    - Carry out coding of radio
    - Re-set clock
    - Initialise power windows.
- ⇒ Inspection and Maintenance

**Removing**

- Take off the trim panel at the CD changer.
- ◀ - Remove the 4 screws -1- (4 Nm) from the mount -2- and take out the CD changer -3-.
- Separate the plug connection.

**Installing**

- Installation is carried out in the same way in the reverse order.



## Radio-navigation system (RNS)

**Warning!**

**Disconnect earth strap of battery before commencing work on the electrical system.**

**Notes:**

- ◆ *Before disconnecting the battery, determine the code of a radio set fitted with anti-theft coding.*
- ◆ *When re-connecting the battery, check the vehicle equipment:*
  - *Encode radio,*
  - *re-set clock,*
  - *initialise power windows.*

⇒ Inspection and Maintenance

### General description

The radio-navigation system (RNS) combines the functions of a navigation system with those of a high-grade RDS car radio.

The double DIN housing of the system includes

- ◆ an RDS radio receiver
- ◆ a 5" coloured liquid crystal display (LCD)
- ◆ a navigation system with GPS satellite receiver
- ◆ a CD-ROM drive for the navigation system.

The aerial for radio, mobile phone and navigation modes is connected to the navigation system by a plug connection at the housing.

Connection facilities are provided for a 6-CD changer for enlarging the radio functions.

A TV input on the rear of the housing makes it possible to use optional TV and video functions.

**Fault finding**

The radio-navigation system is equipped with self-diagnosis.

For fault finding, initiate self-diagnosis and interrogate the information stored using the vehicle system tester V.A.G 1552.

**Self-diagnosis of radio unit in the RNS**

Radio unit and navigation unit have different address words for self-diagnosis.

Self-diagnosis of the radio unit is identical to the self-diagnosis of the "gamma (MS 501)" radio system ⇒ page 91-16.

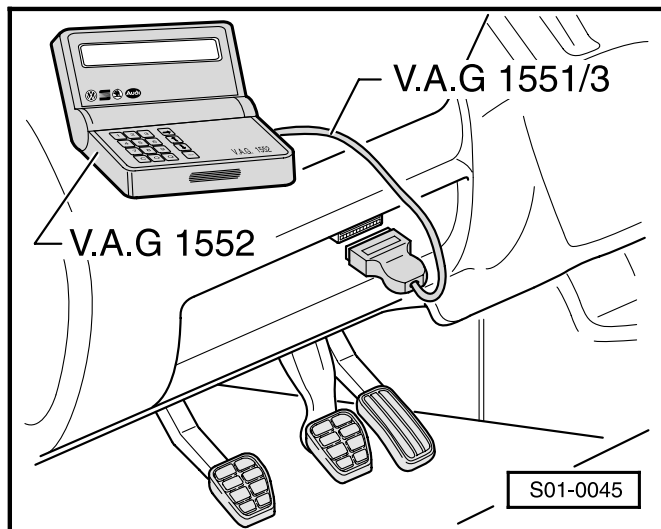
**Self-diagnosis of navigation unit in the RNS**

Measures for rectifying current faults for specific models

⇒ Operating instructions of set

**Note:**

*The description which follows relates only to use of the vehicle system tester V.A.G 1552 with programme card 5.0 or higher.*



Test of vehicle systems  
Enter address word XX

HELP

|              |            |           |
|--------------|------------|-----------|
| 3B0919887 A  | navigation | 0002 →    |
| Coding 00000 |            | WSC 00000 |

### Connecting vehicle system tester V.A.G 1552

#### Special tools, testers and aids required

- ◆ Vehicle system tester V.A.G 1552 with cable V.A.G 1551/3, 3A, 3B or 3C

#### Test conditions

- All fuses according to CFD o.k.
- Battery voltage at least 11 V

The connection for self-diagnosis is located in the storage compartment on the driver side.

- ◀ - Connect vehicle system tester V.A.G 1552 with the appropriate cable.
- Switch ignition on.

◀ Readout in display:

#### Note:

*If no readout appears in the display:*

⇒ Operating instructions of fault reader

- Enter address word 37 „Navigation“ and confirm the entry with the key Q.

#### Interrogating control unit version

◀ Readout in display:

- ◆ 3B0919887 A: version number of control unit for navigation system RNS-C
- ◆ 3B0919887 D: version number of control unit for navigation system RNS-D
- ◆ Navigation: system designation
- ◆ 0002: version number of software
- ◆ 00000: control unit coding
- ◆ WSC 00000: workshop code

Navigation system readout in display during self-diagnosis „DIAG“.

**Notes:**

- ◆ Radio unit and navigation unit have different control unit version numbers.
- ◆ The control unit version number displayed is not the part number for the complete Radio Navigation System.
- ◆ The part number for the complete Radio Navigation System is indicated on a sticker on the housing of the Radio Navigation System.

Control unit does not answer!

HELP

◀ The following readout appears in the display:

- After pressing the HELP key, a list of possible causes of the fault is shown.
- After rectifying the fault, once again enter address word 37 for Navigation and confirm entry with the key Q.

 3B0919887 A    Navigation    0002 →  
 Coding    00000    WSC 00000

◀ Readout in display:

- Press → key.

 Test of vehicle systems  
 Select function XX

HELP

◀ Readout in display:

- After pressing the HELP key, a list of available functions is displayed.
- Move forward within the test programme by pressing the → key.

**Available functions of self-diagnosis**

The following functions can be selected for self-diagnosis:

|      |                                  |         |
|------|----------------------------------|---------|
| 01 - | Interrogate control unit version | 91-31   |
| 02 - | Interrogate fault memory         | 91-33   |
| 03 - | Final control diagnosis          | 91-36   |
| 05 - | Erase fault memory               | 91-33   |
| 06 - | End output                       | 90-10   |
| 07 - | Code control unit                | 91-42.1 |
| 08 - | Read measured value block        | 91-36   |
| 10 - | Adaptation                       | 91-39   |

## Interrogating and erasing fault memory

### Special tools, testers and aids required

- ◆ Vehicle system tester V.A.G 1552 with cable V.A.G 1551/3
- Switch on the ignition.
- Connect vehicle system tester V.A.G 1552 and enter address word 37 "Navigation" ⇒ page 91-31.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Press the keys 0 and 2 for the function "Interrogate fault memory" and confirm the entry with the key Q.

X faults recognized!

◀ The number of stored faults or "no fault recognized!" appears in the display.

### If one or several faults are stored:

The stored faults are displayed one after the other.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Press keys 0 and 5 for the function "Erase fault memory" and confirm the entry with the key Q.

### Note:

*If you have switched off the ignition between "Interrogating fault memory" and "Erasing fault memory", the fault memory is not erased.*

Test of vehicle systems  
Fault memory is erased!

→

◀ Readout in display:

- Press the → key.
- Press keys 0 and 6 for the function "End output" and confirm the entry with the key Q.
- Rectify the faults displayed by referring to the fault table ⇒ page 91-34.

**If no fault is stored:**

- Press → key.

Test of vehicle systems  
Select function XX

HELP

## ◀ Readout in display:

- Enter function 06 for „End output“ and confirm entry with the key Q.

**Fault table****Notes:**

- ♦ *All the possible faults which can be detected by the Radio Navigation System and displayed on the vehicle system tester V.A.G 1552, are listed below according to the 5-digit fault code.*
- ♦ *Before deciding whether to replace a component, first of all test the cables and plug connections to these components and also the earth connections according to the current flow diagram.*
- ♦ *After completing repairs, always once again interrogate the fault memory and erase it.*

| Readout on V.A.G 1552   | Possible cause of fault  | Possible effects   | Rectifying fault  |
|---|--|--|---|
| <b>00481</b><br><b>Open circuit in wiring between TMC and Nav.</b>                  | <ul style="list-style-type: none"> <li>♦ Fault in connection or in TMC box</li> </ul>  | Navigation system does not accept any traffic messages   | <ul style="list-style-type: none"> <li>- Test wiring ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations.</li> <li>- Replace TMC box.</li> </ul>  |
| <b>00668</b><br><b>El. system voltage tml. 30</b><br>Signal too small <sup>1)</sup> | <ul style="list-style-type: none"> <li>♦ Battery voltage less than 9.5 V</li> <li>♦ Battery insufficiently charged</li> <li>♦ Battery faulty</li> <li>♦ Alternator faulty</li> <li>♦ Too many electrical components switched on</li> </ul> | Navigation unit operating poorly or not at all<br><br>Navigation system not operating properly | <ul style="list-style-type: none"> <li>- Read measured value block ⇒ page 19-36.</li> <li>- Test battery, charge if necessary ⇒ page 27-1.</li> <li>- Test alternator ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations.</li> <li>- Switch off all unnecessary components.</li> </ul> |

<sup>1)</sup> This fault may also be stored if the starter is operated for more than 10 seconds!



| Readout on V.A.G 1552  | Possible cause of fault  | Possible effects   | Rectifying fault  |
|--|--|--|---|
| <b>00854</b><br><br><b>Output radio display dash panel insert <sup>1)</sup></b><br><br>No communication                      | <ul style="list-style-type: none"> <li>◆ Wiring faulty</li> <li>◆ Radio-navigation system faulty</li> <li>◆ Dash panel insert faulty</li> </ul>  | No data transfer between radio-navigation system and dash panel insert<br>Readout in display of dash panel insert not o.k. | <ul style="list-style-type: none"> <li>- Read measured value block ⇒ page 91-36</li> <li>- Test wiring according to CFD</li> <li>- Perform self-diagnosis of dash panel insert, replace dash panel insert if necessary ⇒ page 90-29</li> <li>- Replace radio-navigation system</li> </ul> |
| <b>00862</b><br><br><b>Navigation aerial (GPS) - R50/R52</b><br><br>Open/short circuit to positive<br>Short circuit to earth | <ul style="list-style-type: none"> <li>◆ Wiring faulty</li> <li>◆ Navigation system aerial (GPS) faulty</li> </ul>                               | Navigation system not operating properly (positioning)   | <ul style="list-style-type: none"> <li>- Read measured value block ⇒ page 91-36</li> <li>- Test wiring according to CFD</li> <li>- Test navigation system aerial (GPS), replace if necessary</li> </ul>   |
| <b>00867</b><br><br><b>Connection to ABS control unit</b><br><br>No signal   | <ul style="list-style-type: none"> <li>◆ Wiring faulty</li> <li>◆ ABS wheel sensors faulty</li> <li>◆ ABS control unit faulty</li> </ul>         | Navigation system not o.k.   | <ul style="list-style-type: none"> <li>- Perform adaptation of wheel pulses or tyre circumference ⇒ page 91-39</li> <li>- Read measured value block ⇒ page 91-36</li> <li>- Perform self-diagnosis of ABS</li> <li>- Test wiring according to CFD</li> </ul>                              |
| <b>01311</b><br><br><b>Data BUS information</b><br><br>No signal   | <ul style="list-style-type: none"> <li>◆ Wiring faulty</li> <li>◆ Radio-navigation system faulty</li> <li>◆ Sound system (DSP) faulty</li> </ul> | Sound system (DSP) not operating properly  | <ul style="list-style-type: none"> <li>- Read measured value block ⇒ page 91-36</li> <li>- Test wiring according to CFD</li> </ul>  |
| <b>65535</b><br><br><b>Control unit defective</b>  | Radio-navigation system faulty   | Radio-navigation system not operating properly   | <ul style="list-style-type: none"> <li>- Replace radio-navigation system</li> </ul>   |

<sup>1)</sup> Each time after rectifying a fault and erasing the fault memory, it is necessary to carry out an operational check of the second display and to then once again interrogate the fault memory!

## Final control diagnosis

### Note:

Final control diagnosis can be ignored for repair measures.

## Reading measured value block

The input signals and voltages required for operation of the radio-navigation unit are constantly monitored by the self-diagnosis.

For fault finding, it is possible to display the status of the input signals in the measured value block.

### Procedure

- Connect vehicle system tester V.A.G 1552 and enter address word 37 "Navigation" ⇒ page 91-31.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Press keys 0 and 8 for the function "Read measured value block" and confirm the entry with the key Q.

Read measured value block  
Enter display group number XXX

Q

◀ Readout in display:

- Enter the desired three-digit display group number and confirm the entry with the key Q.

## Measured value block 001

|                             |        |      |  |   |                       |
|-----------------------------|--------|------|--|---|-----------------------|
| Read measured value block 1 |        |      |  | →   | ◀ Readout in display: |
| 0                           | 12.3 V | 60 % |  | on  |                       |
|                             |        |      |  | Status of S contact                                       |                       |
|                             |        |      |  | • Can be tested with continuous output of measured values |                       |
|                             |        |      |  | • Withdraw ignition key = readout "off"                   |                       |
|                             |        |      |  | • Switch on S contact again = readout "on"                |                       |
|                             |        |      |  | Dimming of radio lighting in percent (only if light "on") |                       |
|                             |        |      |  | • 0 ... 99 %  |                       |
|                             |        |      |  | Voltage tml. 30   |                       |
|                             |        |      |  | • Measured downstream of filter                           |                       |
|                             |        |      |  | Vehicle speed signal from speedometer                     |                       |
|                             |        |      |  | • 0 or 1 (4 pulses for each tyre revolution)              |                       |

**Measured value block 002**

|   |               |                       |
|---|---------------|-----------------------|
| Read measured value block 2 →   |               | ◀ Readout in display: |
| Reverse<br>OFF  | Tml. 15<br>ON |                       |
|   |               |                       |
| Status of terminal 15   |               |                       |
| <ul style="list-style-type: none"> <li>• Ignition switched on = "Tml. 15 ON"</li> <li>• Ignition switched off = "Tml. 15 OFF"</li> </ul>    |               |                       |
| Status of reversing light switch  |               |                       |
| <ul style="list-style-type: none"> <li>• Reverse gear engaged = "Reverse ON"</li> <li>• Reverse gear not engaged = "Reverse OFF"</li> </ul> |               |                       |

**Measured value block 003**

|  |      |                       |
|--|------|-----------------------|
| Read measured value block 3 →  |      | ◀ Readout in display: |
| GPS aer.   | o.k. |                       |
|  |      |                       |
| Status of GPS receiver   |      |                       |
| <ul style="list-style-type: none"> <li>• o.k.</li> <li>• n.o.k.</li> </ul> |      |                       |
| GPS receiver   |      |                       |

**Measured value block 004**

|  |      |                       |
|--|------|-----------------------|
| Read measured value block 4 →  |      | ◀ Readout in display: |
| ext. displ.  | o.k. |                       |
|  |      |                       |
| Status of external display   |      |                       |
| <ul style="list-style-type: none"> <li>• o.k.</li> <li>• n.o.k. <sup>1)</sup></li> </ul> |      |                       |
| External display (dash panel insert)   |      |                       |

<sup>1)</sup> Readout also if dash panel insert without second display fitted.

Measured value block 005

|                             |      |   |  |
|-----------------------------|------|---|--|
| Read measured value block 5 |      | Readout in display  |  |
| Databus                     | o.k. |   |  |
|                             |      |   |  |
|                             |      |   |  |
|                             |      | Status of databus   |  |
|                             |      | <ul style="list-style-type: none"><li>● o.k.</li><li>● n.o.k.</li></ul> |  |
| Databus                     |      |   |  |

Measured value block 006 (up to ECU 3B0919887 A)

|                             |        |       |                                |                    |  |
|-----------------------------|--------|-------|--------------------------------|--------------------|--|
| Read measured value block 6 |        |       |                                | Readout in display |  |
| left                        | 0 km/h | right | 0 km/h                         |                    |  |
|                             |        |       | Vehicle speed on right in km/h |                    |  |
|                             |        |       | Wheel speed sensor on right    |                    |  |
|                             |        |       | Vehicle speed on left in km/h  |                    |  |
|                             |        |       | Wheel speed sensor on left     |                    |  |

Measured value block 006 (from ECU 3B0919887 D)

|                             |        |  |                               |  |  |
|-----------------------------|--------|--|-------------------------------|--|--|
| Read measured value block 6 |        |  | Readout in display            |  |  |
| left                        | 0 km/h |  |                               |  |  |
|                             |        |  |                               |  |  |
|                             |        |  |                               |  |  |
|                             |        |  | Vehicle speed on left in km/h |  |  |
|                             |        |  | Wheel speed sensor on left    |  |  |

## Adaptation

The navigation system makes use also of the tyre circumference and the pulses of the wheel speed sensors for calculating the distance.

The following changes can be stored using the Adaptation function:

- ◆ Tyre size
- ◆ Number of pulses of wheel speed sensors
- ◆ Restoring factory settings

The individual functions are retrieved by entering the particular number of the adaptation channel (refer to adaptation table).

### Adaptation table:

| Adaptation channel | Adaptation function                               |
|--------------------|---|
| 01                 | Tyre circumference in mm ⇒ page 91-39             |
| 02                 | No. of pulses of wheel speed sensors ⇒ page 91-41 |
| 03                 | Restoring factory settings ⇒ page 91-41.1         |

### Note:

*After changing an adaptation value or ending an adaptation channel, it is then necessary to once again select function 10 „Adaptation“ to select another adaptation channel!*

### Adapting tyre circumference

### Note:

*It is only necessary to adapt the tyre circumference if the navigation system is replaced.*

- Enter 10 for the function „Adaptation“ and confirm the entry with the key Q.

Adaptation  
Enter channel number XX

◀ Readout in display:

- Enter 01 for „Channel 1“.
- Confirm entry with the key Q.

|            |            |                   |   |
|------------|------------|-------------------|---|
| Channel 01 | Adaptation | 1930<br><− ↑ ↓ −> | → |
|------------|------------|-------------------|---|

◀ Readout in display:

The channel selected and the tyre circumference in mm which is currently stored, are indicated in the top line.

- Press → key.

|                              |            |      |   |
|------------------------------|------------|------|---|
| Channel 01                   | Adaptation | 1930 | → |
| Enter adaptation value XXXXX |            |      |   |

◀ Readout in display:

- Enter new tyre circumference; place a 0 in front of the 4-digit number (e.g. 01915).

⇒ Table of tyre circumference, page 91-40.

- Confirm the entry with the key Q.

|            |            |                   |   |
|------------|------------|-------------------|---|
| Channel 01 | Adaptation | 1915<br><− ↑ ↓ −> | → |
|------------|------------|-------------------|---|

◀ Readout in display:

- Confirm the entry with the key Q.

|                      |            |      |   |
|----------------------|------------|------|---|
| Channel 01           | Adaptation | 1915 | Q |
| Store changed value? |            |      |   |

◀ Readout in display:

- Confirm the entry with the key Q.

|                         |            |      |   |
|-------------------------|------------|------|---|
| Channel 01              | Adaptation | 1915 | → |
| Changed value is stored |            |      |   |

◀ Readout in display:

- Press → key.
- Press keys 0 and 6 for the function "End output".

### Table of tyre circumference

#### Notes:

- ◆ Refer to the table below in order to determine the relevant tyre circumference for the size of tyre. You can then use this information when adapting the tyre circumference to the radio-navigation system.
- ◆ This is only necessary if the RNS unit has been replaced.
- ◆ After fitting on wheels of a different size, it is not necessary to carry out adaptation to the RNS. The RNS system calibrates this automatically.

| Tyre designation | Tyre circumference in mm |
|------------------|--------------------------|
| 175/80 R14       | 1940                     |
| 195/65 R15       | 1935                     |
| 205/60 R15       | 1910                     |
| 205/55 R16       | 1930                     |

### Adapting number of pulses of wheel speed sensors

#### Note:

*It is only necessary to adapt the wheel speed sensors if the RNS unit has been replaced.*

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Press keys 1 and 0 for the function "Adaptation" and confirm the entry with the key Q.

Adaptation  
Enter channel number XX

◀ Readout in display:

- Press keys 0 and 2 to select "Channel 2".
- Confirm entry with the key Q.

Channel 2    Adaptation    45  
                                  <- ↑ ↓->    →

◀ Readout in display:

The channel selected and the number of pulses of the wheel speed sensors which is currently stored are indicated in the top line.

- Press → key.

Channel 2    Adaptation    45    →  
Enter adaptation value 00043

◀ Readout in display:

- Enter new number of pulses; place three 0 ahead of the 2-digit number (e.g. 00043).

| Tyre designation | Number of pulses |
|------------------|------------------|
| 175/80 R14       | 43               |
| 195/65 R15       | 43               |
| 205/60 R15       | 45               |
| 205/55 R16       | 43               |

- Confirm the entry with the key Q.

Channel 2    Adaptation    43    Q  
                                  <- ↑ ↓->

◀ Readout in display:

- Confirm the entry with the key Q.

Channel 2    Adaptation    43    Q  
Store changed value?

◀ Readout in display:

- Confirm the entry with the key Q.

Channel 2    Adaptation    43    →  
Changed value is stored

◀ Readout in display:

- Press → key.
- Press keys 0 and 6 for the function "End output".

**Adapting factory settings**

Channel 03 makes it possible to restore the factory settings.

◀ Readout in display:

- Enter 10 for the function „Adaptation“ and confirm the entry with the key Q.

◀ Readout in display:

- Enter 03 for „Channel 3“.
- Confirm entry with the key Q.

◀ Readout in display:

- Press → key.

◀ Readout in display:

- Enter 0 or 1. Before a single-digit number, enter four times 0 (zero), e.g. 00000.

Restoring the factory settings.

0 - no

1 - yes

- Confirm entry with the key Q.

◀ Readout in display:

- Confirm entry with the key Q.

◀ Readout in display:

- Confirm entry with the key Q.

◀ Readout in display:

- Press → key.
- Select 06 for the function „End output“.

|   |      |
|---|------|
| Test of vehicle systems<br>Select function XX | HELP |
|---|------|

|                                       |
|---------------------------------------|
| Adaptation<br>Enter channel number XX |
|---------------------------------------|

|           |            |            |   |
|-----------|------------|------------|---|
| Channel 3 | Adaptation | 0<br>-↑ ↓- | → |
|-----------|------------|------------|---|

|                              |            |   |
|------------------------------|------------|---|
| Channel 3                    | Adaptation | 0 |
| Enter adaptation value XXXXX |            |   |

|           |            |            |   |
|-----------|------------|------------|---|
| Channel 3 | Adaptation | 0<br>-↑ ↓- | Q |
|-----------|------------|------------|---|

|                      |            |   |   |
|----------------------|------------|---|---|
| Channel 3            | Adaptation | 0 | Q |
| Store changed value? |            |   |   |

|                         |            |   |   |
|-------------------------|------------|---|---|
| Channel 3               | Adaptation | 0 | → |
| Changed value is stored |            |   |   |



## Coding RNS control unit

### Note:

*Not valid for Navigation system which features connection for dynamic unit (TMC box).*

### Performing coding

- Connect vehicle system tester V.A.G 1552 with the appropriate cable.
- Switch ignition on.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Enter address word 37 „Navigation“ and confirm entry with the key Q.

3B0919887 A  
Coding 00003

Navigation 0002 →  
WSC 00000

◀ Readout in display:

- Press → key.
- Select function 07 and confirm entry with the key Q.

Code control unit  
Enter code number XXXXX

Q  
(0-32000)

◀ Readout in display:

- Enter code number by referring to the table of codes and confirm entry with the key Q.

### Table of codes

| Coding | Vehicle equipment                          |
|--------|--|
| 00001  | no TMC box and no telephone                |
| 00002  | with TMC box, no telephone                 |
| 00003  | no TMC box, with telephone <sup>1)</sup>   |
| 00004  | with TMC box, with telephone <sup>1)</sup> |

<sup>1)</sup> Only applies to telephone with CAN databus link

3B0919887 A  
Coding 00003

Navigation 0002 →  
WSC 00000

◀ The control unit coding appears in the display (example 00003)

- Press → key.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- End output (function 06) ⇒ page 90-10.

## The electronic anti-theft lock

The Radio Navigation System is fitted out with an electronic anti-theft lock.

Once the electronic anti-theft lock is activated the red LED on the front panel above at the front will blink when the device and the ignition are switched off.

This LED will go out when the Radio Navigation System is switched on and the system is then ready to operate.

The electronic anti-theft lock is effective and locks the system just as soon as

- ◆ the voltage supply (terminal 30) falls below a specified voltage value
- ◆ the fuse for the Radio Navigation System has blown

and naturally also,

- ◆ when the battery is unclamped (terminal 30) (in order to undertake work on the vehicle)

Locking of the system by the electronic anti-theft lock when the device is switched on is indicated by the readout „SAFE“ on the display.

## Removing the locking effect

Re-commissioning of the system is only achievable by entering the correct code number for the electronic anti-theft lock.

- obtain the correct code number for the device

### **Comments:**

*The code number is pasted onto the radio card along with the device number ⇒ Operating Manual*

*The radio card should not be kept in the vehicle for security reasons. The code number should be obtained from the customer as required.*

*Each unit has its own code number. If the device is replaced then the code number of the new device should be used. The customer must be informed about the new code number.*

- Switch on radio-navigation system.

The readout "SAFE" appears in the display. Above this is the text "Please enter a numerical code" and the numerical readout "0000".

- Enter the code number stated on the radio card by marking and confirming one after the other the digits on the selection pad for letters and numbers.

**Note:**

*The readout "0000" is overwritten when the first digit is entered.*

- Confirm the code by pressing on the right-hand rotary knob/pushbutton.

The unit is activated and is now operational.

If the code number has been correctly entered in the RNS unit, the LED at the top right of the unit must flash when the ignition key is withdrawn. If the LED flashes, the radio-navigation system is operational and the electronic anti-theft lock is activated.

If an incorrect code number is entered mistakenly for overriding the lock, "SAFE" appears in the display, first of all as a flashing readout and then as a continuous readout.

It is now possible to repeat the procedure for overriding the electronic lock twice.

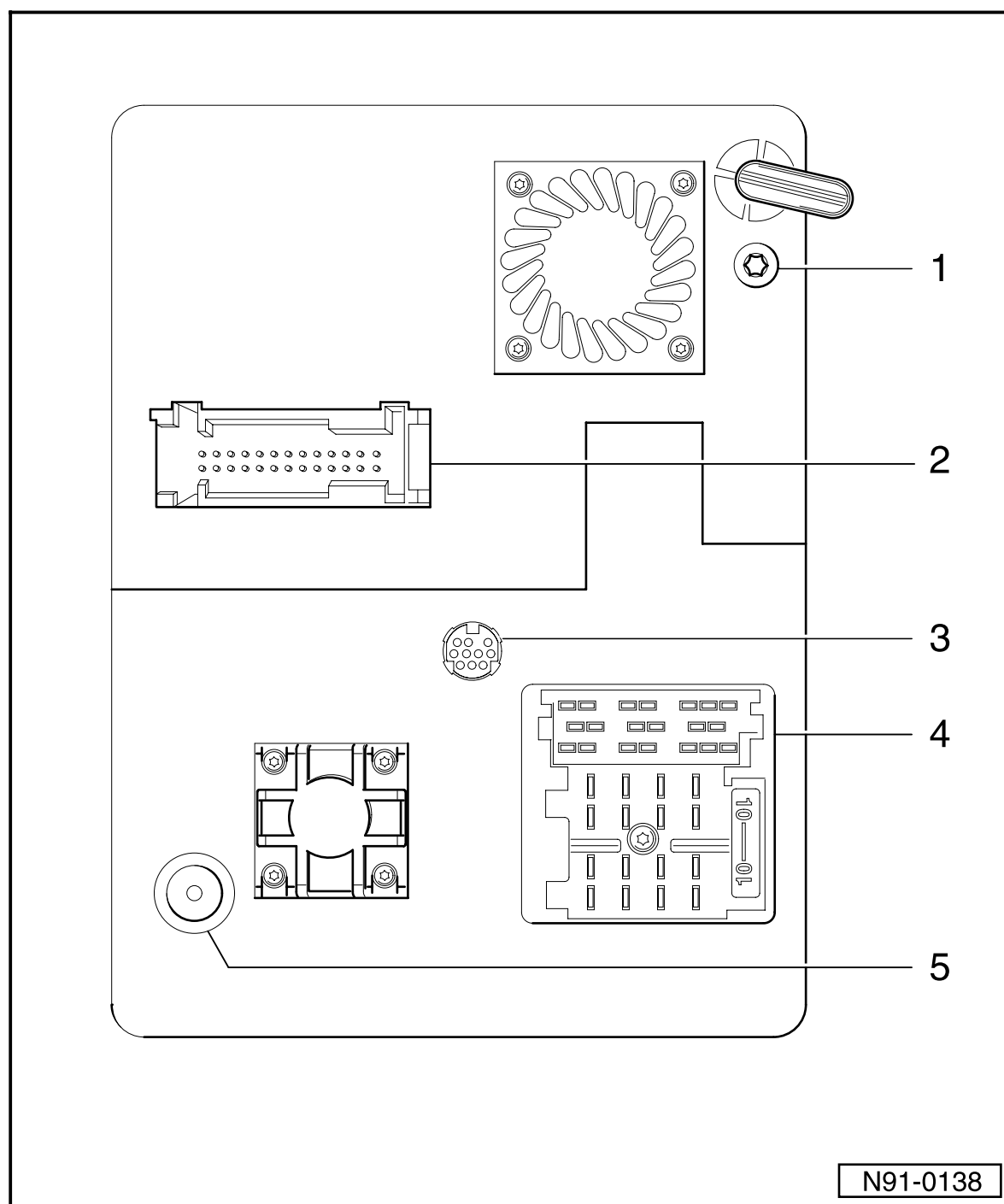
If an incorrect code number is again entered, the unit is blocked for 60 minutes.

It is only possible to make a further attempt to override the electronic lock of the unit, after this blocking time has elapsed.

The unit must remain switched on and the ignition key must remain inserted in the ignition lock during the blocking time.

After the blocking time has elapsed, the readout of the number of attempts in the display goes out and the electronic lock can be cancelled again, as described.

## Plug connections at radio-navigation system



**1 - Connection for navigation system aerial**

**2 - 26-pin plug connection for navigation sensor**

Contact assignment ⇒ page 91-45

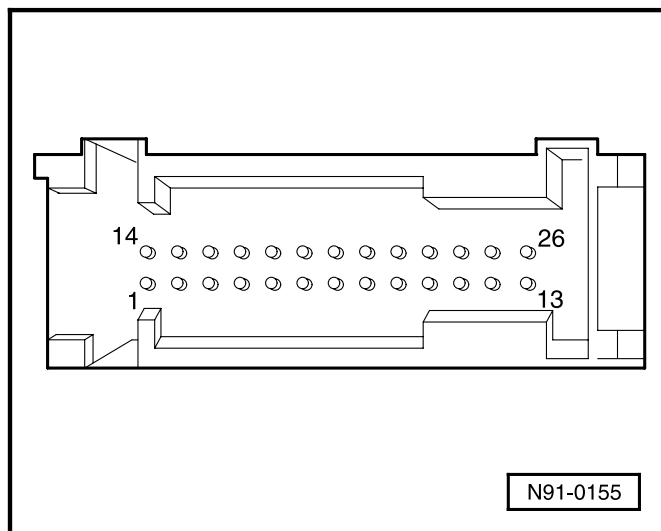
**3 - RGB connection (video)**

This connection is not assigned.

**4 - Multipin connectors I, II, III**

Contact assignment ⇒ from page 91-45

**5 - Connection for radio aerial**



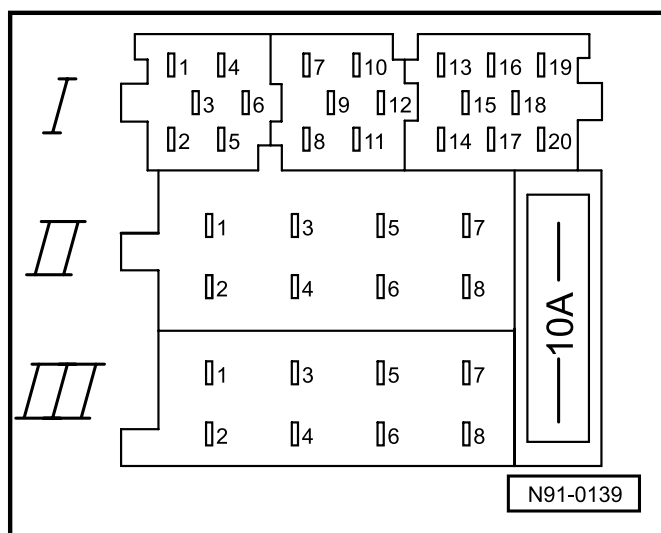
**Contact assignment of 26-pin plug connection for navigation sensor**

◀ **26-pin plug connection**

- 4 - Terminal 15 (ignition)
- 5 - Left wheel speed sensor output
- 6 - Drive instruction Nf + (not used)
- 13 - CAN Bus HIGH (not used)
- 17 - Reversing light switch
- 18 - Right wheel speed sensor output
- 19 - Drive instruction Nf - (not used)
- 20 - Drive instruction Nf-screening (not used)
- 26 - CAN Bus LOW (not used)

**Contact assignment of multipin plug connections I, II, III on rear of radio-navigation system**

The multipin plug connection I, -T20-, consists of 3 parts which are colour-coded:

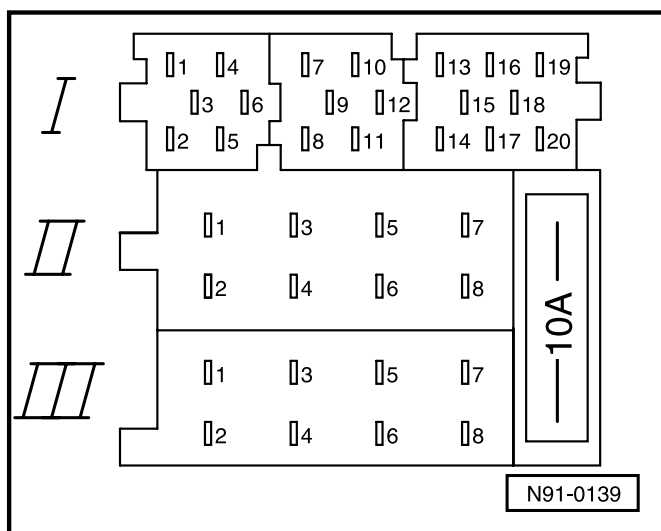


◀ **Multipin plug connection I, part 1 (yellow)**

- 1 - Line Out left rear; LR
- 2 - Line Out right rear; RR
- 3 - Line Out; earth
- 4 - Line Out left front; LF
- 5 - Line Out right front; RF
- 6 - Switched positive for the sound amplifier

◀ **Multipin plug connection I, part 2 (green)**

- 7 - Telephone - input signal, TEL+
- 8 - Second display, CLOCK
- 9 - Second display, DATA
- 10 - Second display, ENA
- 11 - Remote control, REM
- 12 - Telephone - input signal, TEL-



#### ◀ Multipin connector I, part 3, blue

- 13 - CD changer, DATA IN
- 14 - CD changer, DATA OUT
- 15 - CD changer, CLOCK
- 16 - CD changer, voltage supply (+), terminal 30
- 17 - CD changer, control signal
- 18 - CD changer, left and right channel, earth
- 19 - CD changer, left channel, CD/L
- 20 - CD changer, right channel, CD/R

#### Multipin connector II, -T8a-, 8-pin, brown

- 1 - Speaker + rear right
- 2 - Speaker - rear right
- 3 - Speaker + front right
- 4 - Speaker - front right
- 5 - Speaker + front left
- 6 - Speaker - front left
- 7 - Speaker + rear left
- 8 - Speaker - rear left

#### Multipin connector III, -T8-, 8-pin, black

- 1 - Gala (volume control)
- 2 - Mute (telephone mode)
- 3 - Self-diagnosis/K wire
- 4 - Connection for ignition key-controlled on and off (S contact)
- 5 - Control signal for anti-theft lock, SAFE
- 6 - Lighting (tml. 58b)
- 7 - Battery + (tml. 30)
- 8 - Battery - (tml. 31)

## Removing and installing radio-navigation unit

### Note:

- ♦ The part number for the complete radio-navigation system is indicated on a sticker on the housing of the radio-navigation system.

### Special tools, testers and aids required

- ♦ Release tool T10057, 2 sets

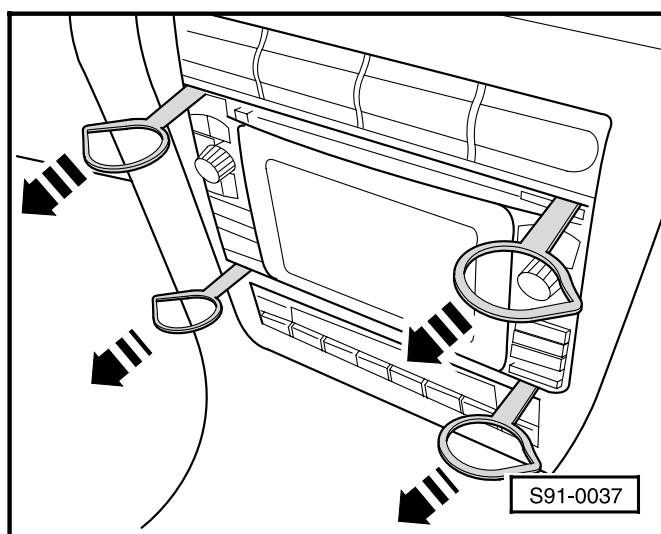
### Removing:

#### Note:

Determine the code number of the radio-navigation system from the customer before removing unit. If the radio-navigation system is replaced, it is essential to activate the electronic anti-theft lock (⇒ operating instructions). The new code No. must be advised to the customer.

Carry out the following procedure:

- ◀ Insert release tools into the release slots, as shown, until they lock in place.
- Hold the grab eyes of the release tools and pull RNS unit out of the dash panel.
- Unlock plug connections and separate.



#### Withdraw release tools:

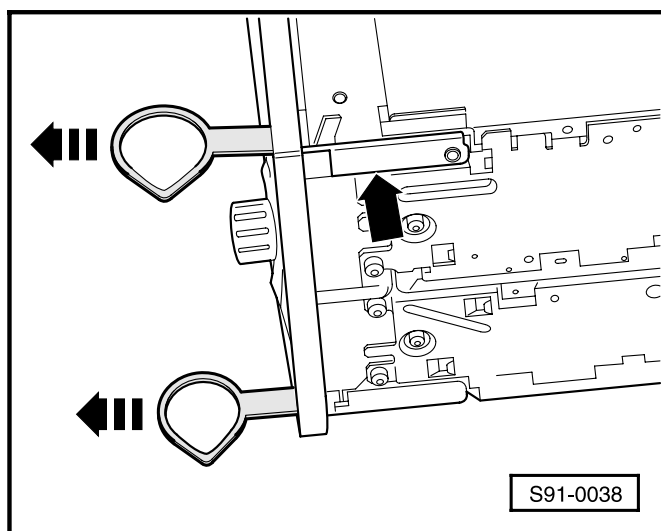
- ◀ Press locking catch -arrow- and pull release tool out to the front.

### Installing:

- Plug in connectors at the radio-navigation system.
- Insert radio-navigation system straight into the dash panel until it locks in place in the installation slot.

#### Note:

When inserting the RNS unit, on no account press on the display or on the control buttons as the RNS unit might then suffer damage.



## Multifunction steering wheel

**Warning!**

**Disconnect earth strap from battery before commencing any work on the electrical system.**

**Notes:**

- ◆ *Before disconnecting the battery, determine the coding of radio sets fitted with anti-theft code.*
- ◆ *If the earth strap of the battery is disconnected and reconnected, additional operations have to be performed ⇒ page 27-1.*

### General description

The radio, CCS and telephone functions are operated by pressure units integrated on the multifunction steering wheel.

Two versions exist:

- ◆ Radio and cruise control system
- ◆ Radio, cruise control system and telephone

### Fault finding

Multifunction steering wheel is equipped with self-diagnosis.

For fault finding, initiate self-diagnosis and interrogate the information stored with vehicle system tester V.A.G 1552.

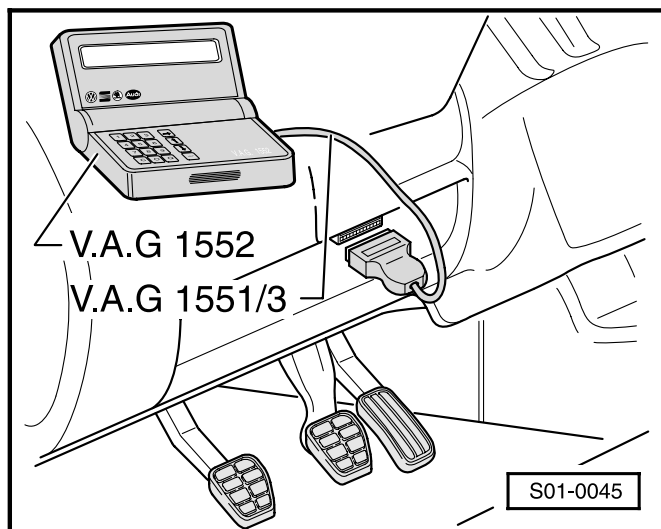
**Notes:**

- ◆ *The description which follows relates only to vehicle system tester V.A.G 1552 using programme card 6.0 or higher.*
- ◆ *Use of the vehicle system tester V.A.G 1551 or V.A.S 5051 is similar, although slight variations are possible in the readouts in the display.*

### Special tools, testers and aids required

- ◆ Vehicle system tester V.A.G 1552 with cable V.A.G 1551/3, 3A, 3B or 3C





1J0907487 A St. wheel electronics 0002 →  
Coding 00119 WSC 00000

Control unit does not answer HELP

1J0907487 A St. wheel electronics 0002 →  
Coding 00119 WSC 00000

Test of vehicle systems HELP  
Select function XX

## Connecting vehicle system tester V.A.G 1552

### Test conditions

- ◆ All fuses according to CFD o.k.
- ◆ Battery voltage at least 11 V.

The diagnostic connection is located in the storage area on the driver's side.

- ◀ - Connect vehicle system tester V.A.G 1552 with the appropriate cable.
- Switch ignition on.
- Enter address word 16 „Steering wheel electronics“ and confirm entry with the key Q.

### ◀ Readout in display:

- ◆ 1J0907487 A: control unit version number for multifunction steering wheel, version with CAN databus
- ◆ 1J0907487 B: control unit version number for multifunction steering wheel, version without CAN databus
- ◆ Steering wheel electronics: system designation
- ◆ 0002: version number of software
- ◆ 00119: control unit coding
- ◆ WSC 00000: workshop code

### ◀ If the following readout appears in the display:

- Press HELP key, a list of possible causes of the fault is displayed.
- After rectifying the fault, once again enter address word 16 for Steering wheel electronics and confirm entry with the key Q.

### ◀ Readout in display:

- Press → key.

### ◀ Readout in display:

### Available functions of self-diagnosis

The following functions can be selected for self-diagnosis:

|      |                           |       |
|------|---------------------------|-------|
| 02 - | Interrogate fault memory  | 91-50 |
| 03 - | Final control diagnosis   | 91-53 |
| 05 - | Erase fault memory        | 91-50 |
| 06 - | End output                | 90-10 |
| 07 - | Code control unit         | 91-52 |
| 08 - | Read measured value block | 91-54 |

### Interrogating and erasing fault memory

#### Special tools, testers and aids required

- ♦ Vehicle system tester V.A.G 1552 with cable V.A.G 1551/3, 3A, 3B or 3C
- Switch ignition on.
- Connect vehicle system tester V.A.G 1552 and enter address word 16 „Steering wheel electronics“ and confirm entry with the key Q.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Enter function 02 „Interrogate fault memory“ and confirm entry with the key Q.

X faults recognized!

◀ The number of stored faults or „No fault recognized“ appears in the display.

#### If one or several faults are stored:

Faults are displayed one after the other.

- Rectify the faults displayed by referring to the fault table ⇒ page 91-51.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Enter function 05 „Erase fault memory“ and confirm entry with the key Q.

#### Note:

*The fault memory is not erased if the ignition was switched off between the function „Interrogate fault memory“ and „Erase fault memory“.*

Test of vehicle systems  
Fault memory is erased!

→

◀ Readout in display:

- Press → key.

- Enter function 06 for „End output“ and confirm entry with the key Q.

#### If no fault is stored:

- Press → key.

Test of vehicle systems  
Select function XX

HELP

#### ◀ Readout in display:

- Enter function 06 for „End output“ and confirm entry with the key Q.

### Fault table

#### Notes:

- ♦ *All the possible faults which can be detected by the multifunction steering wheel and displayed on the vehicle system tester V.A.G 1552, are listed below according to the 5-digit fault code.*
- ♦ *Before deciding whether to replace a component, first of all test the cables and plug connections to these components and also the earth connections according to the current flow diagram.*
- ♦ *After completing repairs, always once again interrogate the fault memory and erase it.*

| Readout on V.A.G 1552  | Possible cause of fault   | Rectifying fault   |
|--|---|--|
| <b>00926</b><br><b>Terminal 30</b><br><ul style="list-style-type: none"> <li>♦ Signal too large</li> <li>♦ Signal too small</li> </ul> | <ul style="list-style-type: none"> <li>♦ Voltage regulator at alternator faulty</li> <li>♦ Cables or plug connections to steering wheel control unit faulty</li> <li>♦ Battery discharged</li> <li>♦ Alternator faulty</li> <li>♦ Cables or plug connections to steering wheel control unit faulty</li> </ul> | <ul style="list-style-type: none"> <li>- Test alternator ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations binder.</li> <li>- Test cables and plug connections to steering wheel control unit according to current flow diagram.</li> <li>- Test battery ⇒ page 27-1.</li> </ul> |
| <b>01042</b><br><b>Control unit not coded</b>  | <ul style="list-style-type: none"> <li>♦ Incorrect or no coding of multifunction steering wheel control unit -J453-</li> </ul>  | <ul style="list-style-type: none"> <li>- Code control unit ⇒ page 91-52.</li> </ul>  |

| Readout on V.A.G 1552   | Possible cause of fault  | Rectifying fault  |
|---|--|---|
| <b>01336</b><br><b>Group convenience databus</b><br><ul style="list-style-type: none"> <li>♦ Open circuit or short to earth</li> </ul>  | <ul style="list-style-type: none"> <li>♦ Open circuit or short circuit</li> </ul>  | <ul style="list-style-type: none"> <li>- Test convenience CAN databus ⇒ page 90-68.</li> </ul>  |
| <b>01341</b><br><b>ECU in dash panel insert at conv. CAN -J285</b><br><ul style="list-style-type: none"> <li>♦ Open circuit or short to positive</li> <li>♦ Implausible signal</li> </ul> | <ul style="list-style-type: none"> <li>♦ Cables or plug connections faulty</li> <li>♦ Dash panel insert control unit -J218- faulty</li> </ul>                  | <ul style="list-style-type: none"> <li>- Test cables and plug connections according to current flow diagram ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations binder.</li> <li>- Test CAN databus ⇒ page 90-68, replace dash panel insert control unit if necessary.</li> </ul> |
| <b>01426</b><br><b>Operating unit in steering wheel -E221-</b><br><ul style="list-style-type: none"> <li>♦ Open circuit or short to earth</li> </ul>                                      | <ul style="list-style-type: none"> <li>♦ Open circuit or short circuit between -E221- and multifunction steering wheel control unit -J453-</li> </ul>          | <ul style="list-style-type: none"> <li>- Test cables and plug connections to multifunction steering wheel control unit according to current flow diagram ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations binder.</li> </ul>   |
| <b>65535</b><br><b>Control unit defective</b>   | <ul style="list-style-type: none"> <li>♦ Multifunction steering wheel control unit -J453- defective</li> <li>♦ Cables or plug connections defective</li> </ul> | <ul style="list-style-type: none"> <li>- Replace multifunction steering wheel control unit.</li> <li>- Test cables and plug connections according to current flow diagram ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations binder.</li> </ul>                                  |

### Coding multifunction steering wheel control unit -J453-

#### Performing coding

- Connect vehicle system tester V.A.G 1552 with the appropriate cables and switch ignition on.
- Enter address word 16 „Steering wheel electronics“ and confirm entry with the key Q.

1J0907487 A St. wheel electronics      0002 →  
Coding 00119      WSC 00000

◀ Readout in display:

- Enter function 07.
- Confirm entry with the key Q.

Code control unit      Q  
Enter code number XXXXX      (0-32000)

◀ Readout in display:

- Enter code number by referring to the table of codes and confirm entry with the key Q.

## Table of codes

| Code  | Vehicle equipment                                      |
|-------|--|
| 00008 | Radio/Cruise control system without CAN databus        |
| 00118 | Radio/Cruise control system with CAN databus           |
| 00119 | Radio/Cruise control system/Telephone with CAN databus |

1J0907487 A St. wheel electronics 0002 →  
Coding 00119 WSC 00000

◀ The control unit coding is shown in the display (example 00119).

- Press → key.

Test of vehicle systems HELP  
Select function XX

◀ Readout in display:

- End output (function 06) ⇒ page 90-10.

## Final control diagnosis

With final control diagnosis the following components are actuated in the order stated:

1. Increasing radio volume
2. Reducing radio volume
3. Searching for next station
4. Searching for preceding station
5. Operating horn (only for 1 J0907487 A)

**Note:**

*If a fault is found during final control diagnosis, replace the multifunction steering wheel control unit.*

## Special tools, testers and aids required

- ♦ Vehicle system tester V.A.G 1552
- ♦ Diagnostic cable V.A.G 1551/3, 3A, 3B or 3C

## Performing self-diagnosis:

- Switch ignition on.
- Connect vehicle system tester V.A.G 1552 with corresponding cables, select address word 16 „Steering wheel electronics“ and confirm entry with the key Q.
- Enter function 03 and confirm entry with the key Q.

Final control diagnosis →  
Radio louder

◀ Readout in display:

Volume is increased for 3 seconds.

- Press → key.

|  |  |
|--|--|
| Final control diagnosis<br>Radio quieter →   | ◀ Readout in display:<br><br>Volume is reduced for 3 seconds.<br><br>- Press → key.  |
| Final control diagnosis<br>Station search forward →  | ◀ Readout in display:<br><br>A search is made for the next station.<br><br>- Press → key.                                  |
| Final control diagnosis<br>Station search back →   | ◀ Readout in display:<br><br>A search is made for the preceding station.<br><br>- Press → key.                             |
| Final control diagnosis<br>Horn control -H →   | ◀ Readout in display:<br><br>Horn is switched on for 0.5 sec.<br><br>- Press → key.  |
| Final control diagnosis<br>End →   | ◀ Readout in display:<br><br>- Press → key.  |
| Test of vehicle systems<br>Select function XX HELP   | ◀ Readout in display:<br><br>- End output (function 06) ⇒ page 90-10.  |
| <b>Reading measured value block</b><br><br>For fault finding, the state of the input signals is displayed in the measured value blocks.<br><br><b>Procedure</b><br><br>- Connect vehicle system tester V.A.G 1552 and select address word 16 „Steering wheel electronics“ ⇒ page 91-49.<br><br>- Enter 08 for the function „Read measured value block“ and confirm entry with the key Q. |  |
| Read measured value block<br>Enter display group number XXX Q  | ◀ Readout in display:<br><br>- Enter the three-digit number of the desired display group and confirm entry with the key Q. |

**Measured value block 001**

|                               |         |         |         |  |
|-------------------------------|---------|---------|---------|--|
| Read measured value block 1 → |         |         |         | ◀ Readout in display   |
| not op.                       | not op. | not op. | not op. |  |
|                               |         |         |         | Status search button up  |
|                               |         |         |         | <ul style="list-style-type: none"> <li>• not op.</li> <li>• Mem. down</li> </ul> |
|                               |         |         |         | Status search button down  |
|                               |         |         |         | <ul style="list-style-type: none"> <li>• not op.</li> <li>• Mem. up</li> </ul>   |
|                               |         |         |         | Status volume button louder  |
|                               |         |         |         | <ul style="list-style-type: none"> <li>• not. op.</li> <li>• louder</li> </ul>   |
|                               |         |         |         | Status volume button quieter   |
|                               |         |         |         | <ul style="list-style-type: none"> <li>• not. op.</li> <li>• quieter</li> </ul>  |

**Measured value block 002 (for control unit with coding 00119 ⇒ page 91-53)**

|                               |         |         |         |   |
|-------------------------------|---------|---------|---------|---|
| Read measured value block 2 → |         |         |         | ◀ Readout in display  |
| not op.                       | not op. | not op. | not op. |   |
|                               |         |         |         | Status MODE button  |
|                               |         |         |         | <ul style="list-style-type: none"> <li>• not op.</li> <li>• operated</li> </ul>   |
|                               |         |         |         | Status TEL button   |
|                               |         |         |         | <ul style="list-style-type: none"> <li>• not op.</li> <li>• operated</li> </ul>   |
|                               |         |         |         | Status SET button   |
|                               |         |         |         | <ul style="list-style-type: none"> <li>• not. op.</li> <li>• Mem. up</li> </ul>   |
|                               |         |         |         | Status RES + button   |
|                               |         |         |         | <ul style="list-style-type: none"> <li>• not. op.</li> <li>• Mem. down</li> </ul> |

Measured value block 002 (for control unit with coding 00008 and 00118 ⇒ page 91-53)

|                               |         |         |         |  |
|-------------------------------|---------|---------|---------|--|
| Read measured value block 2 → |         |         |         | ◀ Readout in display   |
| not op.                       | not op. | not op. | not op. |  |
|                               |         |         |         | Status CANCEL button   |
|                               |         |         |         | <ul style="list-style-type: none"><li>not op.</li><li>operated</li></ul>   |
|                               |         |         |         | ignore   |
|                               |         |         |         | Status SET button  |
|                               |         |         |         | <ul style="list-style-type: none"><li>not. op.</li><li>Mem. up</li></ul>   |
|                               |         |         |         | Status RES + button  |
|                               |         |         |         | <ul style="list-style-type: none"><li>not. op.</li><li>Mem. down</li></ul> |

Measured value block 003 (for ECU 1J0907487 A)

|                               |        |  |
|-------------------------------|--------|--|
| Read measured value block 3 → |        | ◀ Readout in display   |
| not op.                       | 12.3 V |  |
|                               |        |  |
|                               |        |  |
|                               |        | Vehicle electrical system voltage  |
|                               |        | Horn status  |
|                               |        | <ul style="list-style-type: none"><li>operated</li><li>not op.</li></ul> |

Measured value block 003 (for ECU 1J0907487 B)

|                               |         |                      |
|-------------------------------|---------|----------------------|
| Read measured value block 3 → |         | ◀ Readout in display |
| not op.                       | not op. |                      |
|                               |         |                      |
|                               |         |                      |
|                               |         | ignore               |
|                               |         | ignore               |



## Removing and installing pressure units for multifunction steering wheel

### Note:

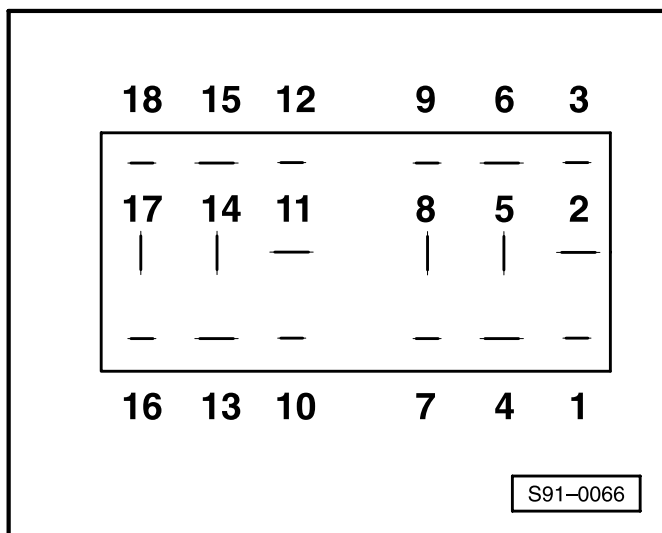
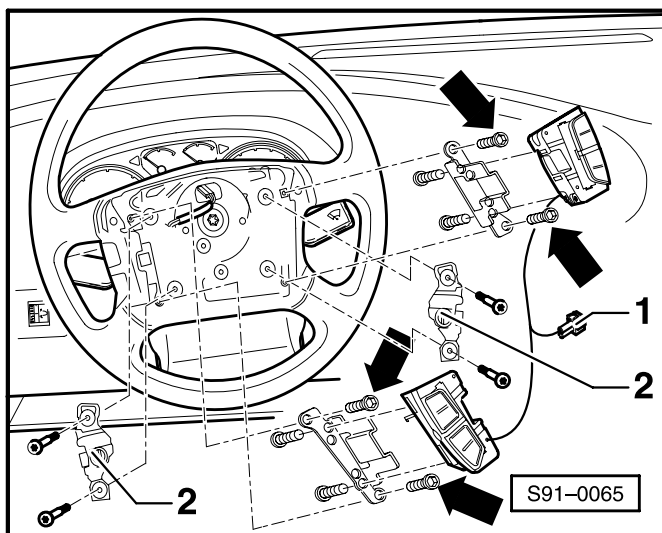
Always remove both pressure units together with the wiring loom and replace as a complete part.

### Removing

- Remove airbag unit ⇒ Body Fitting Work; Repair Group 69.
- Separate plug connection -1-.
- Remove both metal contacts for horn -2-.
- Take out screws -arrows-.
- Take out both pressure units together with cables.

### Installing

- Installation is carried out in the reverse order.



## Contact assignment of 18-pin plug connection for multifunction steering wheel control unit -J453-

| Contact      | Function                       |
|--------------|--------------------------------|
| 1            | Convenience CAN low            |
| 3            | Convenience CAN high           |
| 4            | Cruise control system OFF      |
| 5            | Radio, serial data cables      |
| 6            | K wire, diagnosis              |
| 8            | Cruise control system - SET    |
| 9            | Horn relay                     |
| 10           | Earth, terminal 31             |
| 12           | Terminal 15                    |
| 13           | Battery positive, terminal 30  |
| 14           | Cruise control system - CANCEL |
| 15           | Lighting                       |
| 16           | Cruise control system - RES    |
| 18           | Single-wire CAN                |
| 2, 7, 11, 17 | Not assigned                   |



## Windscreen wiper system

**Warning!**

*Disconnect earth strap of battery before performing any work on the electrical system.*

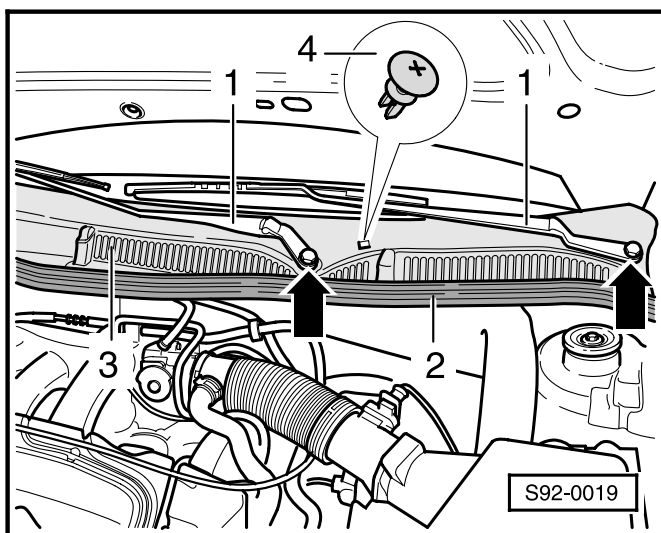
### Removing and installing windscreen wiper system

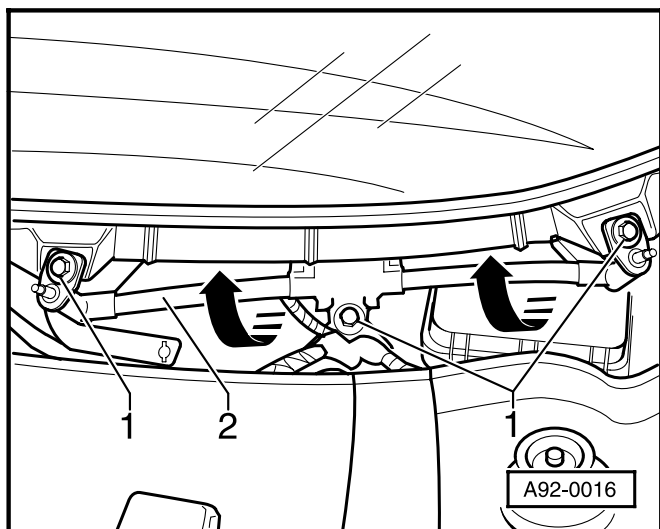
**Note:**

*Before removing the wiper arms make sure the wiper motor is in park position.*

**Removing the wiper arms:**

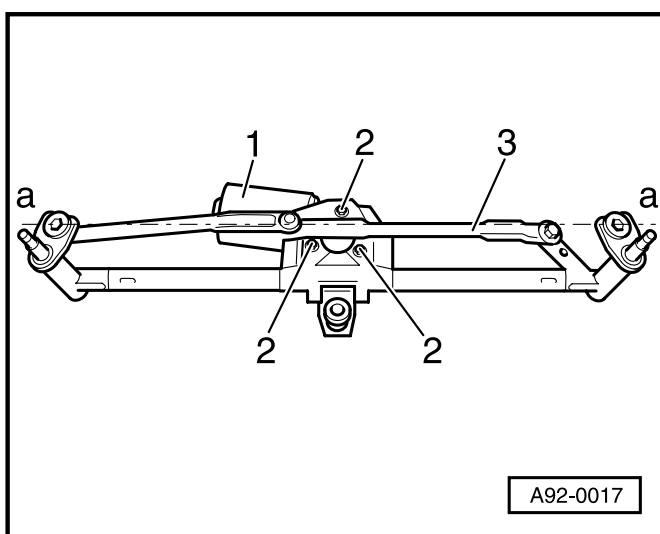
- Remove wiper blades
  - Release both cover caps on the wiper blades with a screwdriver.
  - ◀ - Loosen hexagon nuts -arrows- but do not unscrew fully.
  - Release the wiper arms with a gentle motion.
  - Fully unscrew hexagon nuts and remove wiper arms.
  - Remove the water tank cover.
- ⇒ Body Fitting Work; Repair Group 66; Screens





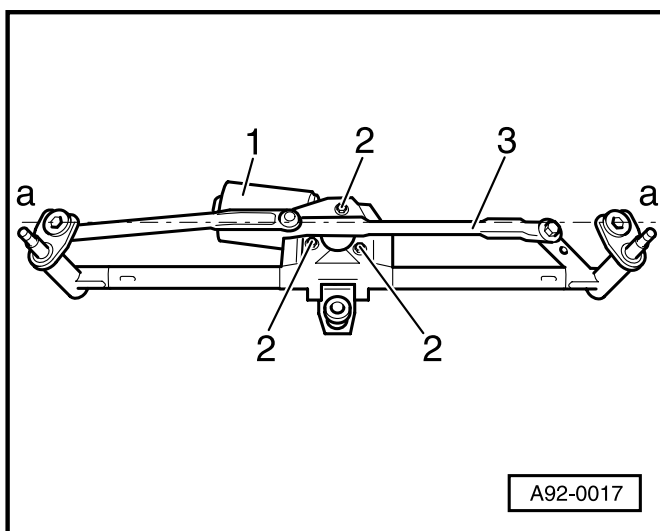
#### ◀ Removing wiper frame together with linkage and wiper motor

- Unplug connector at the wiper motor.
- Remove the three hexagon bolts -1-.
- Carefully tilt the wiper frame -2- forward -arrows- and then take it complete out of the plenum chamber by moving to the left.



#### Disconnecting wiper motor from the linkage

- ◀ - Unscrew the three hexagon nuts -2- at the fixture of the wiper motor.
- Take off the crank at the wiper motor by unscrewing the hexagon nut and then take the wiper motor off the linkage.



#### Installing:

- ◀ - Attach the wiper motor -1- to the crank at the linkage -3- (8 Nm) and set the park position of the linkage -a-.
- Bolt the wiper motor to the bracket with the hexagon bolts -2-.
- When installing wiper frame, insert the wiper frame into the plenum chamber with the wiper motor ahead.
- Tilt wiper frame back and bolt on -8 Nm.
- Carry out all the remaining installation steps by adopting the same procedure in the reverse order to removing.
- Set windscreen wiper blades to the park position ⇒ page 92-3.

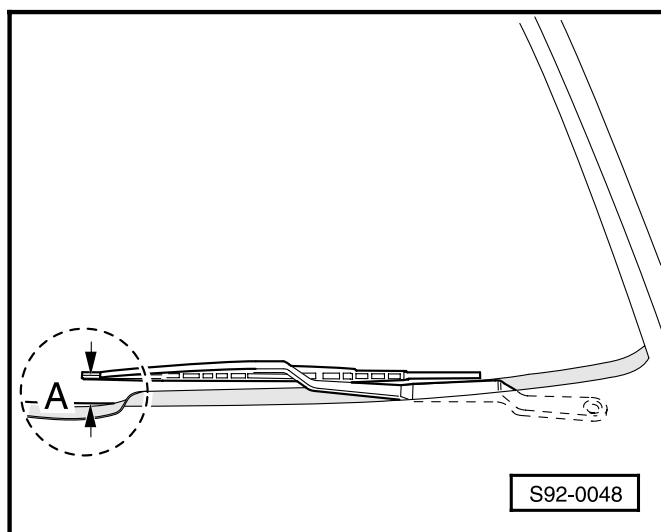
### Setting park position of windscreen wiper blades

- Run wiper motor until it is in park position.

#### ◀ Driver side:

A - 25 mm, measured at end of metal insert of windscreen/wiper blade (rubber surround and wiper blade raised).

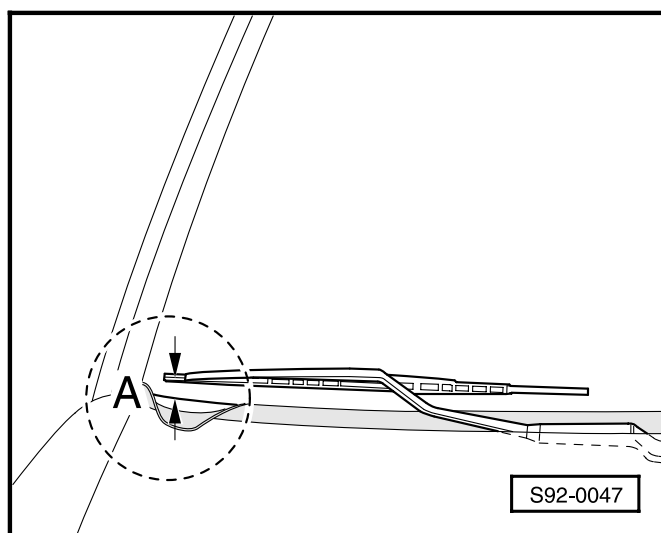
Tightening torque of wiper arm: 20 Nm



#### ◀ Passenger side:

A - 40 mm, measured at end of windscreen (rubber surround and wiper blade raised).

Tightening torque of wiper arm: 20 Nm



## Servicing windscreen washer system

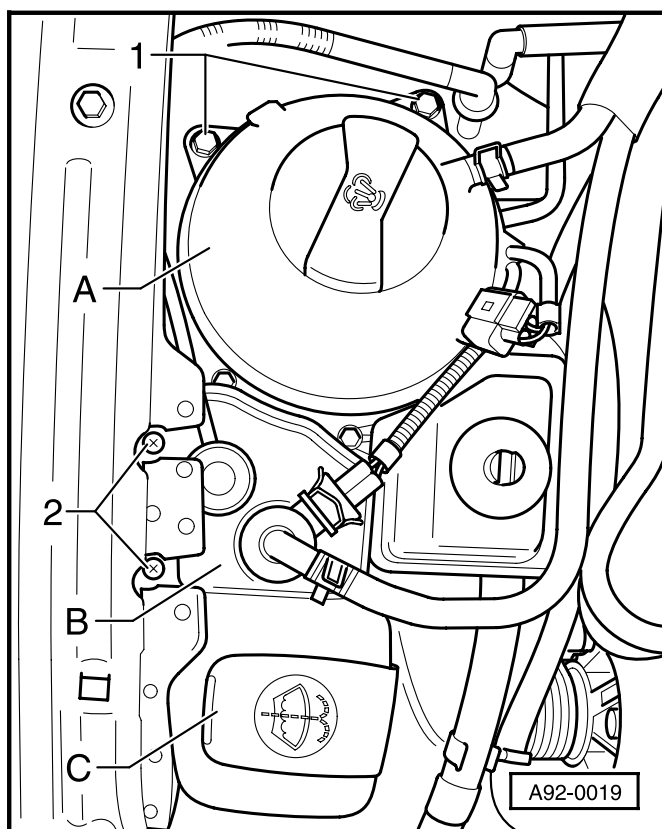
### Important!

*Disconnect battery earth strap before carrying out any work on the electrical system.*

### Removing and installing washer fluid reservoir

#### Removing:

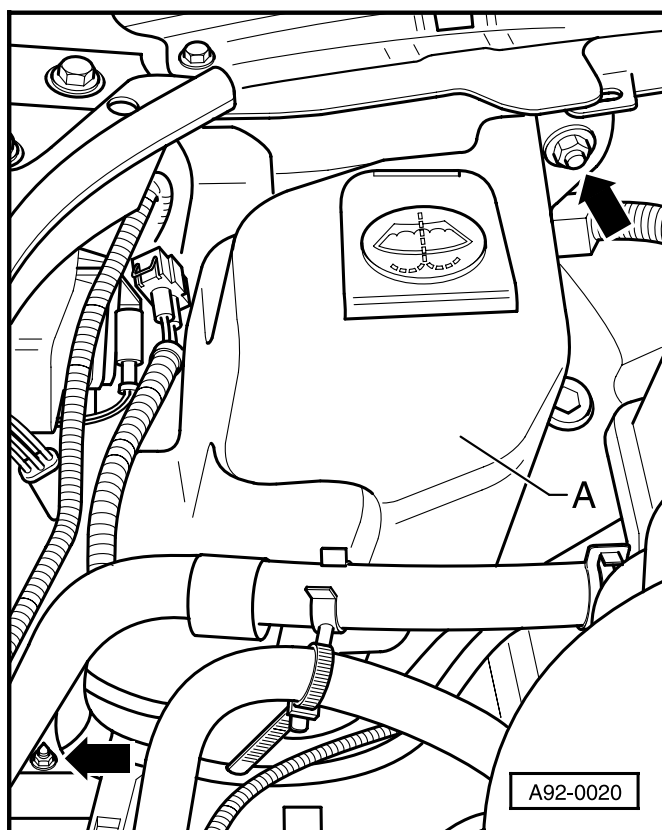
- ◀ - Unscrew the hexagon bolts -1- and lift the coolant expansion tank -A- up and out.
- Remove the two cross-head screws -2- and take the activated charcoal filter or diesel filter out of the engine compartment.



- ◀ - Unscrew the hexagon nuts -arrows-.
- Lift the washer fluid reservoir -A- up and out of the engine compartment.
- Unplug the connectors at the windscreen washer pump.
- Pull the windscreen washer pump out of the washer fluid reservoir and then take off the reservoir.

#### Installing:

- Carry out installation by adopting the same procedure in the reverse order.



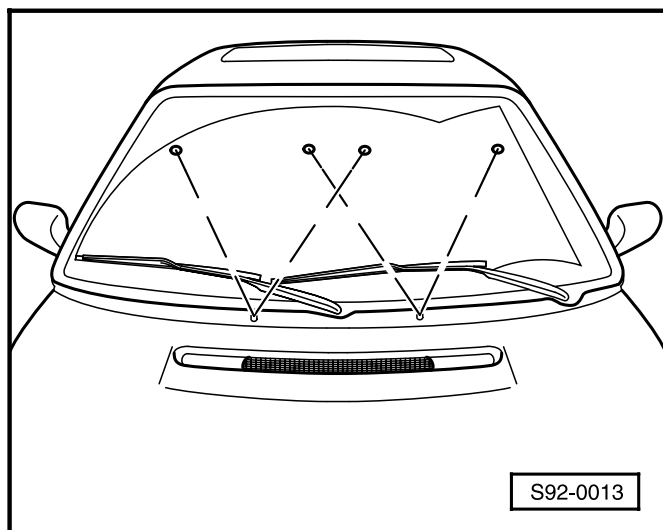
## Removing and installing spray nozzles

### Removing

- Remove wiper arms ⇒ Page 92-1.
- Remove the water tank cover.  
⇒ Body Fitting Work, Repair Group 66; Screens
- Push the spray nozzle upward out of the water tank cover.

### Installing

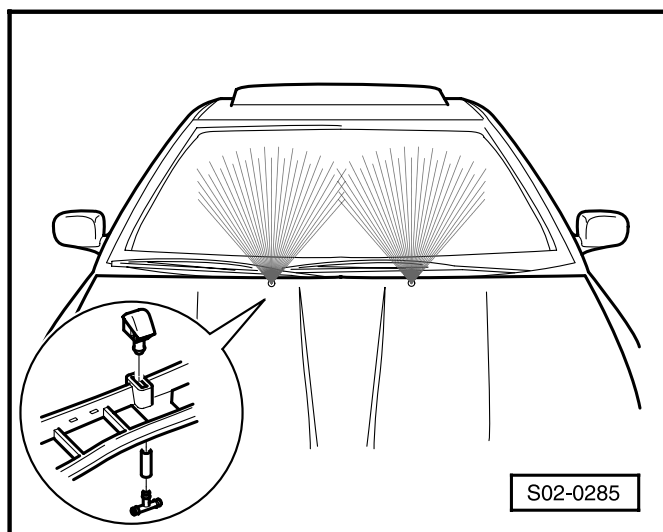
- Carry out installation in the same way in reverse order.



## Setting the spray nozzles

### Until 05.98

- ◀ - Use a suitable needle to set the spray nozzles as shown in figure.



### As from 06.98

The windscreen washer system is set by the manufacturer and cannot be adjusted later.

- ◀ - The windscreen is sprayed with two tapered spray jets.

### Note:

*If the spray jet is irregular, replace the spray nozzle.*

## Servicing headlight cleaning system

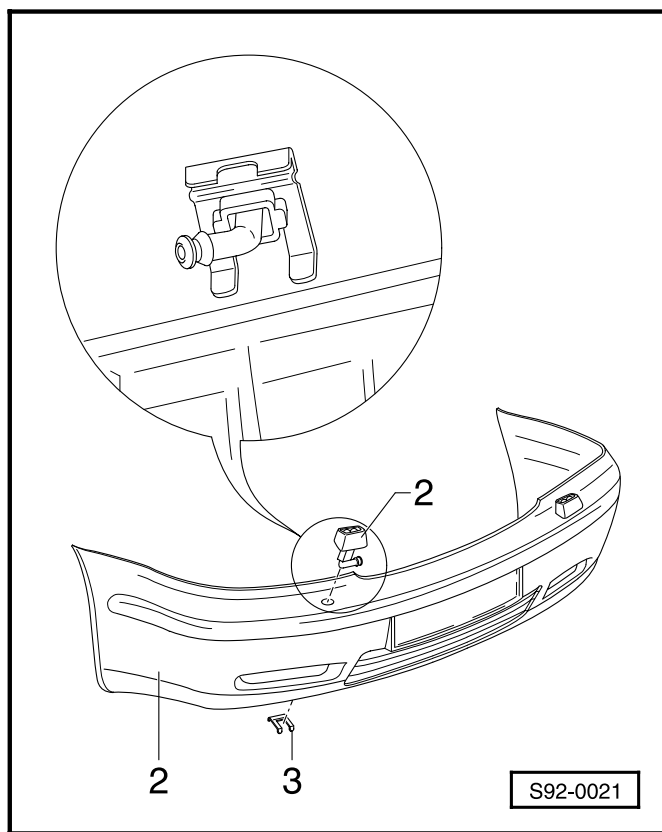
### Removing and installing spray nozzles of headlight cleaning system

#### Removing

- Remove bumper -1-  
⇒ General Body Repairs; Repair Group 63; Front Bumper; Removing and installing front bumper
- Separate the washer fluid connection of the headlight cleaning system.
- Pull off each of the retaining bracket -3- in order to remove the spray nozzles -2-.
- Separate connection of the spray nozzles to the washer fluid pipe.
- Lift the spray nozzles up and out.

#### Installing

- Installation is carried out to the reverse order.
- Install the bumper  
⇒ General Body Repairs; Repair Group 63; Front Bumper; Removing and installing front bumper



### Setting spray nozzles

#### Note:

*The spray nozzles are pre-set by the manufacturer when supplied and the position must not be altered after installing.*

### Removing and installing washer fluid reservoir

#### Note:

*The common washer fluid reservoir for the windscreen washer and headlight cleaning system is located in the front right of the engine compartment. Removing and installing ⇒ page 92-4.*

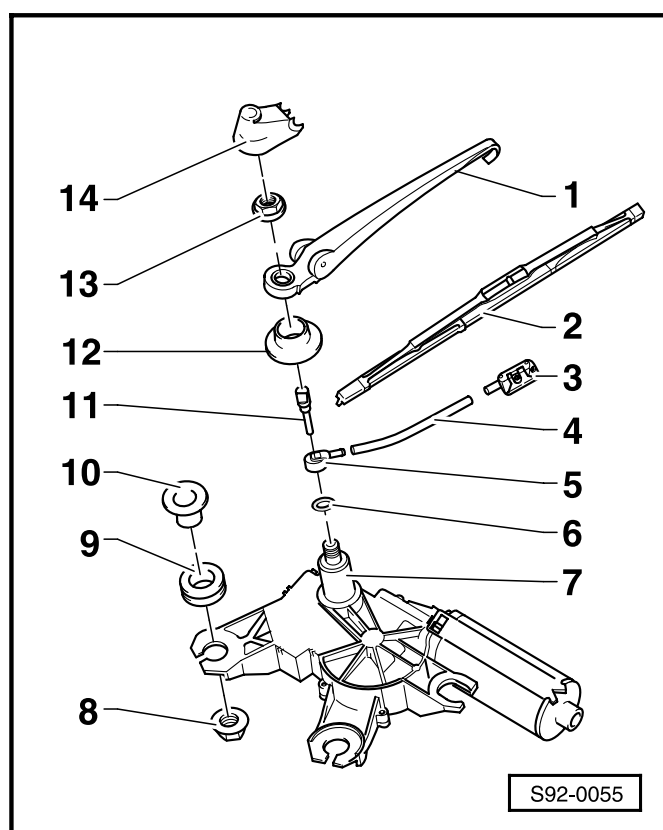


## Rear window wiper and washer system

### **Warning!**

*Disconnect earth strap on battery before commencing work on the electrical system.*

### Rear window wiper system - Assembly overview



#### 1 - Wiper arm

- ♦ Setting park position ⇒ page 92-9
- ♦ Removing and installing ⇒ page 92-8

#### 2 - Wiper blade

- ♦ Removing and installing wiper rubber ⇒ page 92-210

#### 3 - Spray nozzle

- ♦ Only on Octavia models
- ♦ Adjusting ⇒ page 92-9
- ♦ Replacing ⇒ page 92-9.1

#### 4 - Rubber hose

- ♦ Only on Octavia models

#### 5 - Shaft drive

- ♦ Only on Octavia models

#### 6 - Seal

#### 7 - Wiper motor

- ♦ Removing and installing ⇒ page 92-8

#### 8 - 8 Nm

#### 9 - Rubber ring

#### 10 - Spacer

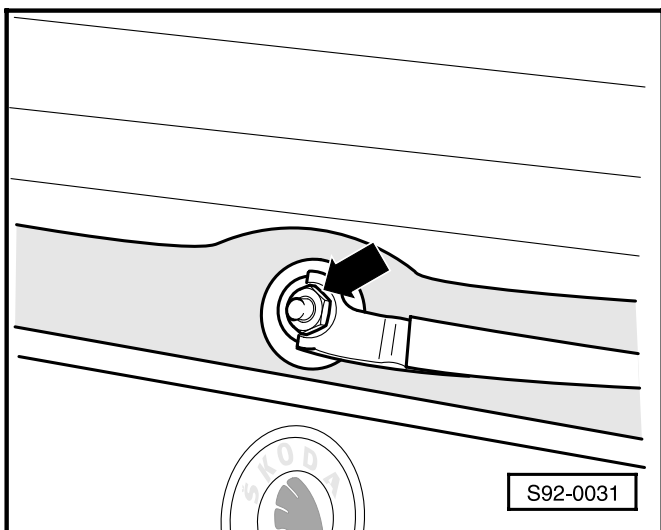
#### 11 - Spray nozzle

- ♦ Only on Octavia Estate models ► MY 00
- ♦ Adjusting ⇒ page 92-9
- ♦ Replacing ⇒ page 92-9

#### 12 - Cup seal

#### 13 - 15 Nm

#### 14 - Cap

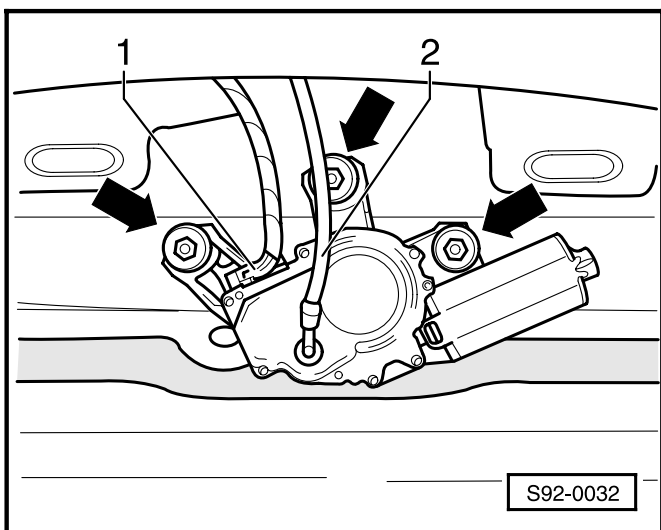


## Removing and installing rear window wiper

### ◀ Detaching and attaching wiper arm

- Raise cap.
- Slacken hexagon nut waf 13 -arrow-.
- Raise wiper arm and slacken in the tapered fit by moving to the side.
- Unscrew hexagon nut and take off wiper arm.

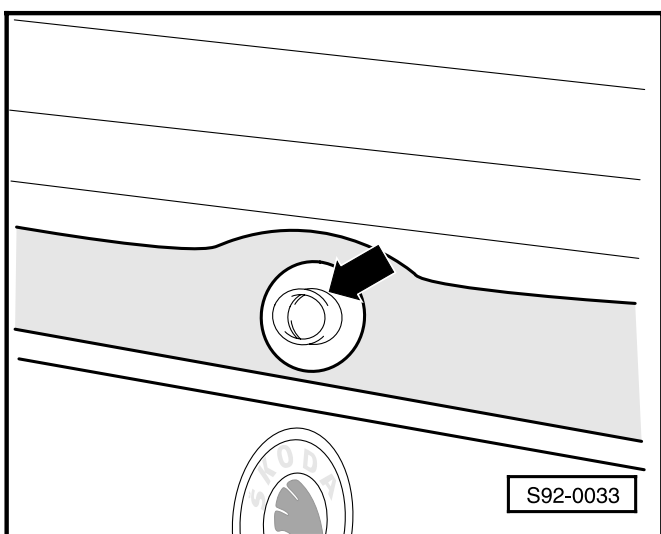
The wiper arm is fitted on in the reverse order.



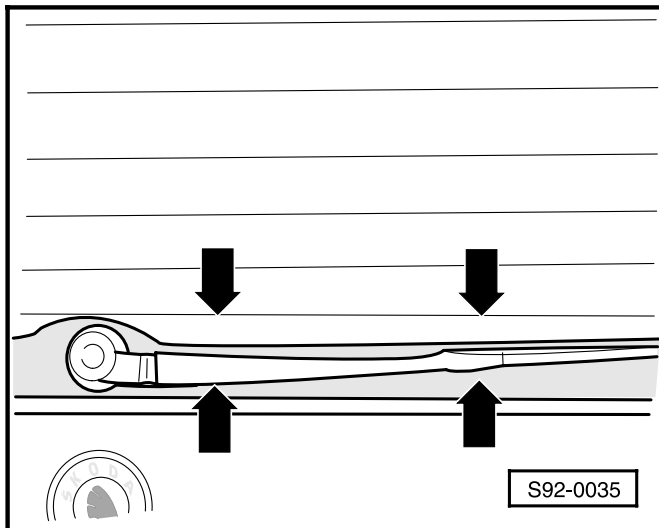
### ◀ Removing and installing motor for rear window wiper

- Take off bottom trim panel of tailgate.  
⇒ Body Fitting Work; Repair Group 70; Trim panels of cargo area/luggage compartment
- Unplug the connector -1- at the wiper motor.
- Detach hose -2- to the washer nozzle.
- Unscrew hexagon nuts waf 10 -arrows- and remove wiper motor.

Installation is carried out in the reverse order.



- ◀ When installing the wiper motor, ensure that the seal in the rear window is positioned as shown in the illustration.



### Setting park position of rear wiper

- ◀ The wiper blade must be positioned parallel to the bottom heating element -arrows- on the right of the rear window.

### Adjusting spray nozzle

To middle of swept area.

### Replacing spray nozzle (Octavia Estate)

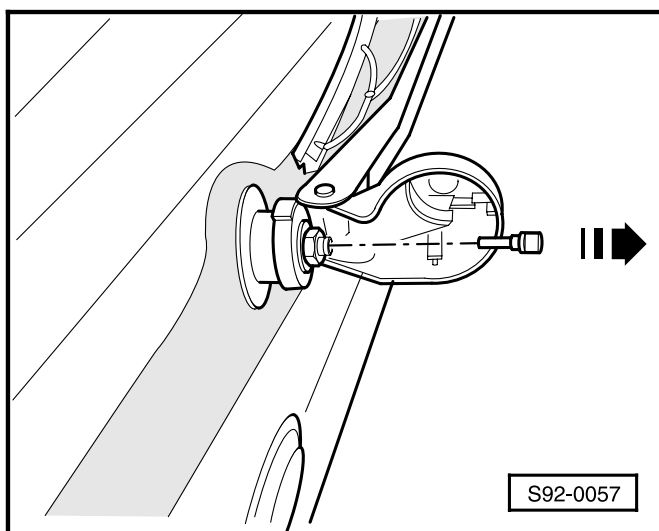
► MY 00

#### Removing

- Run wiper into park position.
- Open cap of rear window wiper.
- ◀ - Use suitable pliers to carefully pull out spray nozzle in direction of arrow.

#### Installing

- Push spray nozzle fully into the wiper shaft so that the opening of the spray nozzle is pointing vertically up.



MY 01 ►

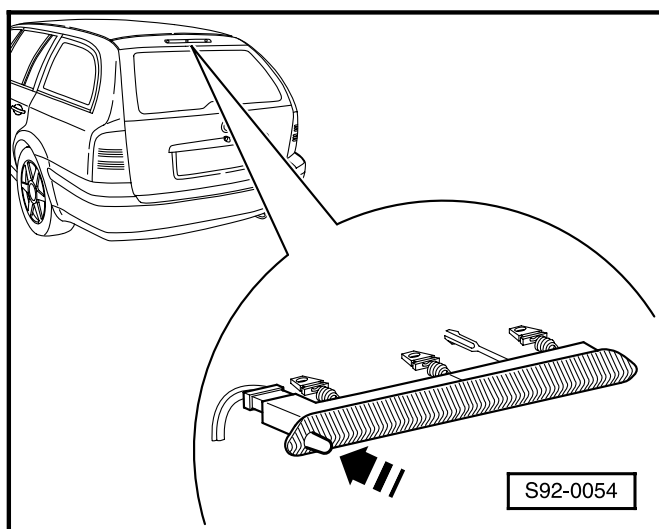
Spray nozzle incorporated in centre high-mounted brake light.

#### Removing

- Remove centre high-mounted brake light ⇒ page 94-18.
- Detach hose to washer nozzle.
- ◀ - Pull out spray nozzle -arrow-.

#### Installing

- Push in spray nozzle so that the opening is pointing vertically down.



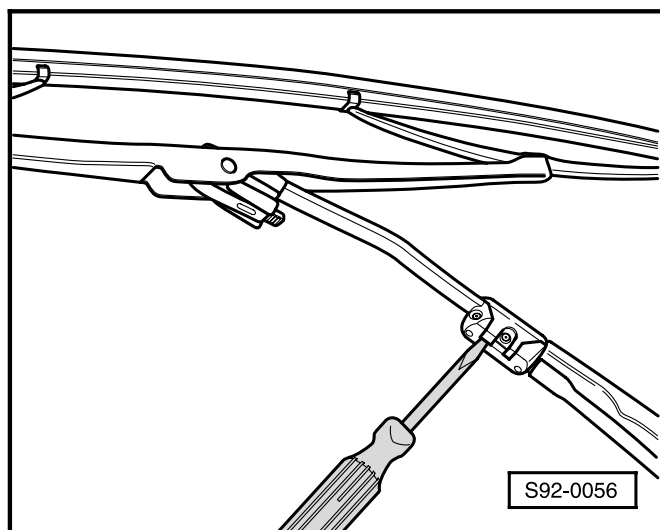
## Replacing spray nozzle (Octavia)

### Removing

- Detach hose to washer nozzle.
- ◀ - Use a small screwdriver to separate clip of spray nozzle.
- Pull off spray nozzle.

### Installing

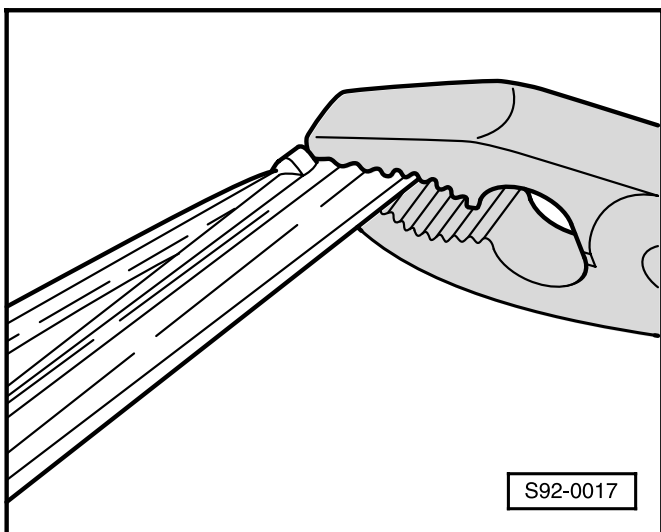
- Installation is carried out in the reverse order.





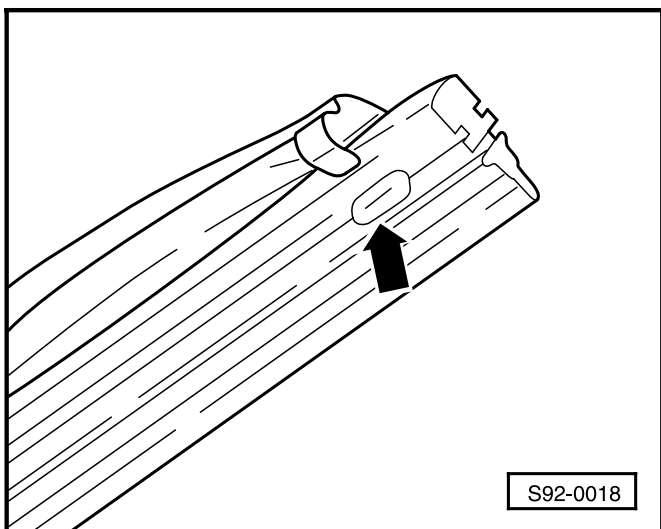
## Removing and installing wiper rubber

### Removing



- Use combination pliers to press together both steel rails at the closed side of the wiper rubber, pull it out of the top clip to the side and pull rubber complete with rails out of the remaining clips of the wiper blade.

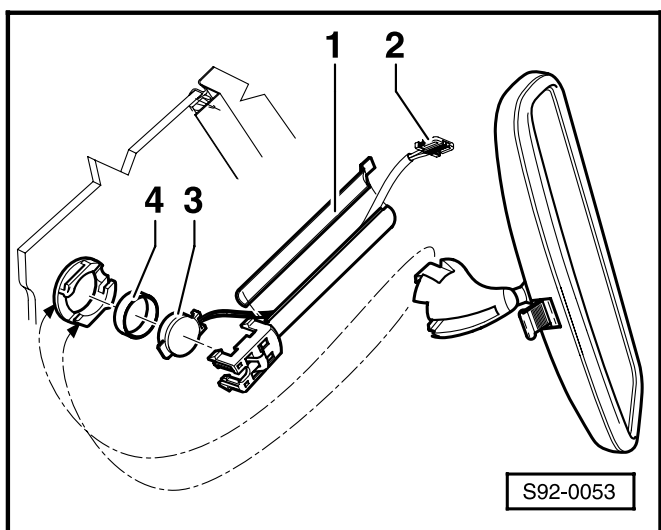
### Installing



- Fit new wiper rubber into the bottom clips of the wiper blade.
- Insert both steel rails into the first groove of the wiper rubber so that the recesses of the rails point toward the rubber and engage in the rubber studs of the groove.
- Use combination pliers to again press together both steel rails and rubber and insert into the top clip so that the lugs of the clip engage into the retaining slots -arrow- on both sides of the wiper rubber.

## Removing and installing rain sensor

### Removing



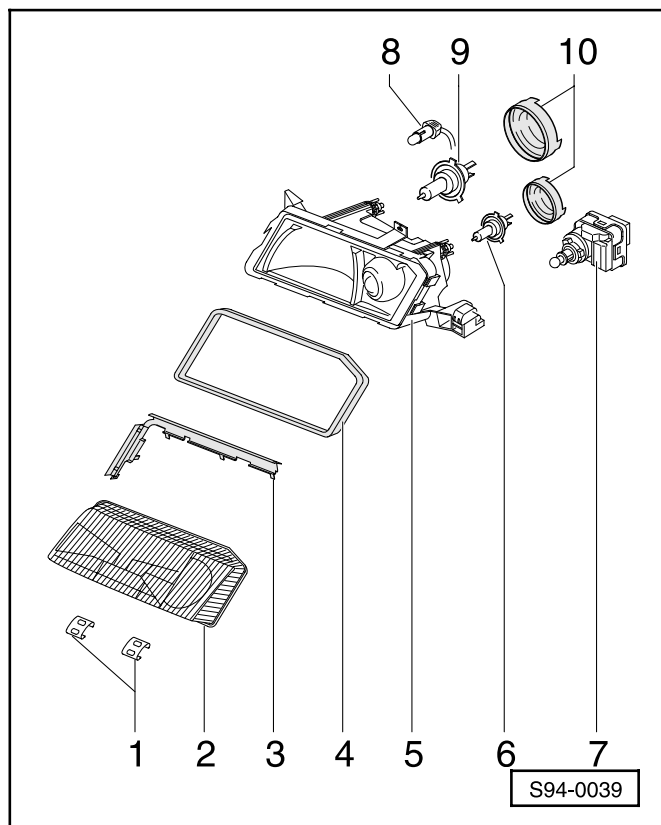
- Remove interior rear-view mirror.  
⇒ Body Fitting Work; Repair Group 68
- Remove interior light ⇒ page 96-27.
- Separate plug connection -2-.
- Take off rain sensor -3-.

### Installing

- Remove cover -4- just before installing (applies only to new part).
- Press sensor against windscreen. Do not touch sensor surface when carrying out this step!
- Fit together plug connection -2-.
- Install interior light ⇒ page 96-27.
- Install interior rear-view mirror.  
⇒ Body Fitting Work; Repair Group 68

## Servicing headlights

### General overview ► 07.00



1 - Retaining clip (7x)

2 - Lens

3 - Headlight seal

4 - Lens seal

5 - Headlight housing

6 - Bulb for low beam

- ◆ H3 - 12 V, 55 W
- ◆ changing bulb ⇒ page 94-4

7 - Headlamp range adjustment motor

- ◆ removing and installing ⇒ page 94-5

8 - Bulb for side light

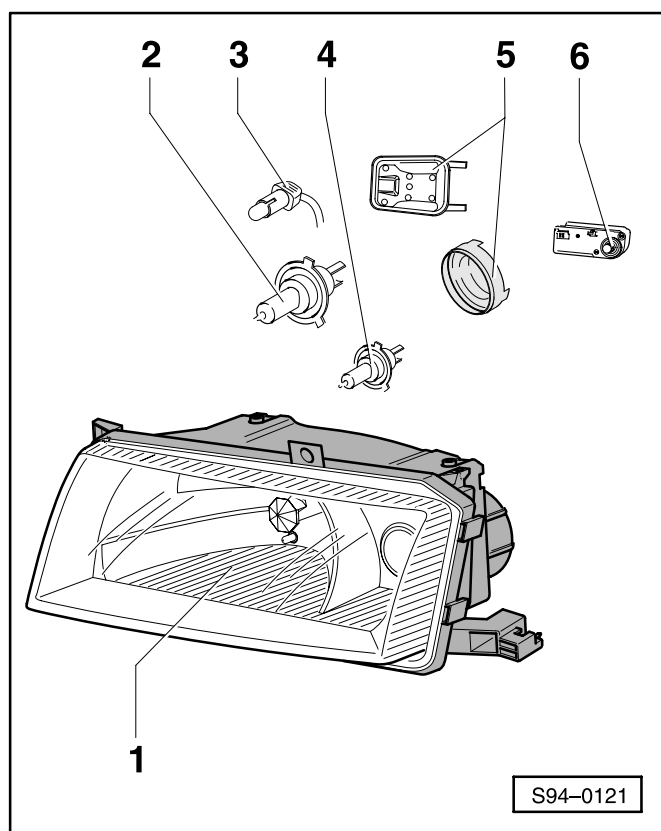
- ◆ W5W - 12 V, 5 W
- ◆ changing bulb ⇒ page 94-4

9 - Bulb for low and main beam

- ◆ H4 - 12 V, 60/55 W
- ◆ changing bulb ⇒ page 94-4

10 - Cover

### General overview 08.00 ►



1 - Headlight housing

2 - Bulb for low and main beam

- ◆ H4 - 12 V, 60/55 W
- ◆ changing bulb ⇒ page 94-4

3 - Bulb for side light

- ◆ W5W - 12 V, 5 W
- ◆ changing bulb ⇒ page 94-4

4 - Bulb for low beam

- ◆ H3 - 12 V, 55 W
- ◆ changing bulb ⇒ page 94-4

5 - Cover

6 - Headlamp range adjustment motor

- ◆ removing and installing ⇒ page 94-5

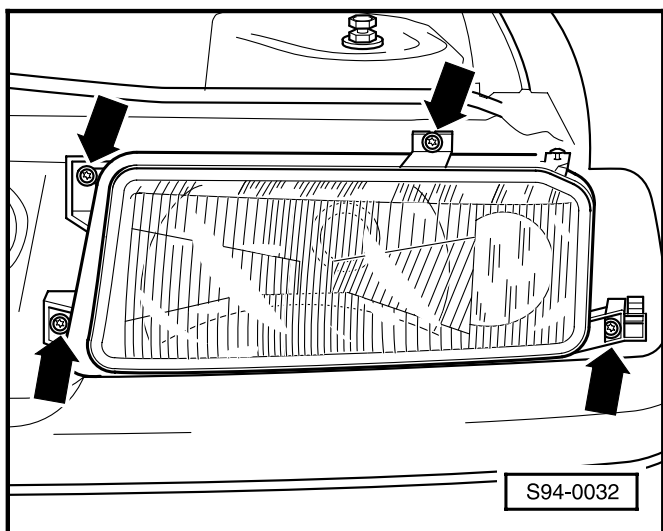
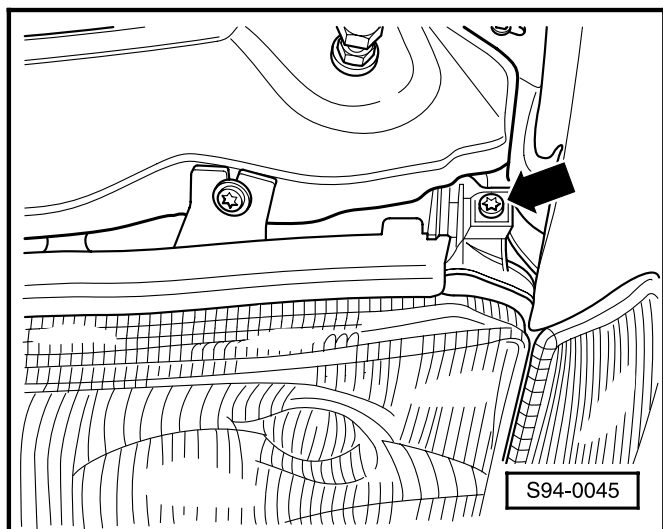
## Removing and installing headlights

### Removing:

#### Notes:

- ◆ Disconnect earth strap of battery before commencing work on electrical system.
- ◆ After carrying out work which may affect the setting of the headlights, re-adjust headlights.
- ◆ Mask over bumper in area of headlight with adhesive tape to avoid damage to paintwork.

- ◀ - Remove screws -arrows- (2 Nm).
- Remove turn signal light ⇒ page 94-6.



- ◀ - Take out the four screws -arrows- (2 Nm).
- Separate multipin connections for headlights.
- Take headlight out to the front.

#### Models ► 07.00

- Separate plug connection at headlight range adjustment motor.

### Installing:

#### Continued for all models

- Installation is carried out in the reverse order.
- Always align headlight to the shape of the body (panel gaps) and attach.
- After installing, adjust headlights ⇒ page 94-3.



## Adjusting headlights

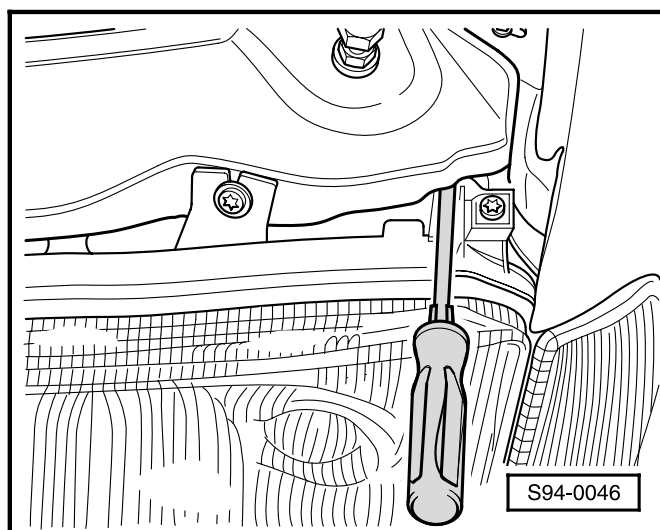
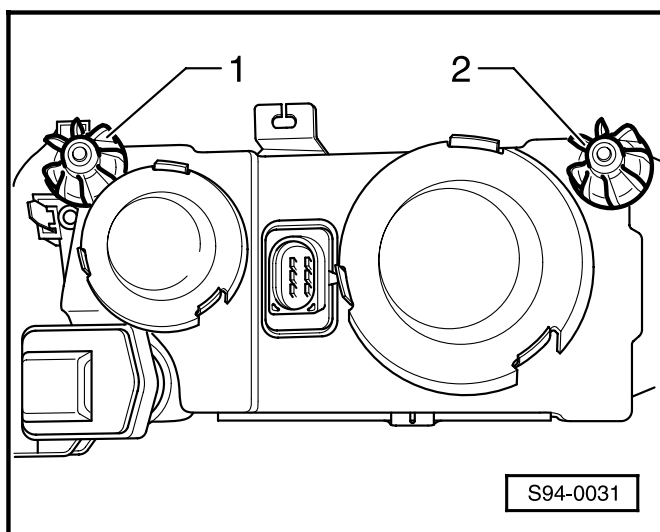
**Note:**

For the applicable specifications and settings for adjusting headlights  
⇒ Inspection and Maintenance.

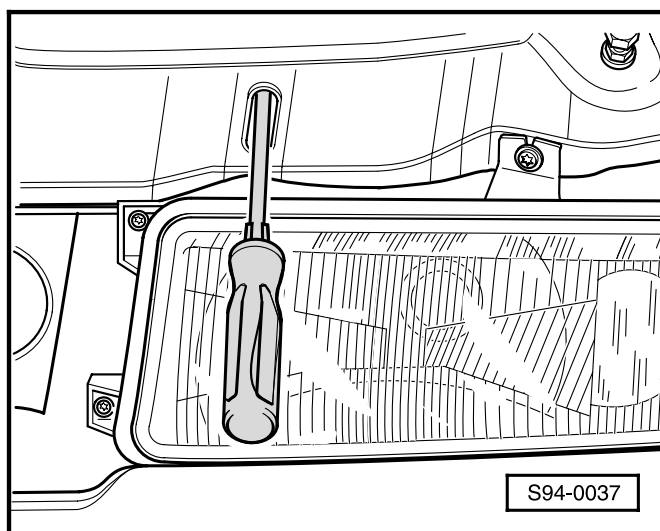
**Models ► 07.00****◀ Adjusting screws at left-hand headlight.**

The position of the screws at the right-hand headlight is a mirror image.

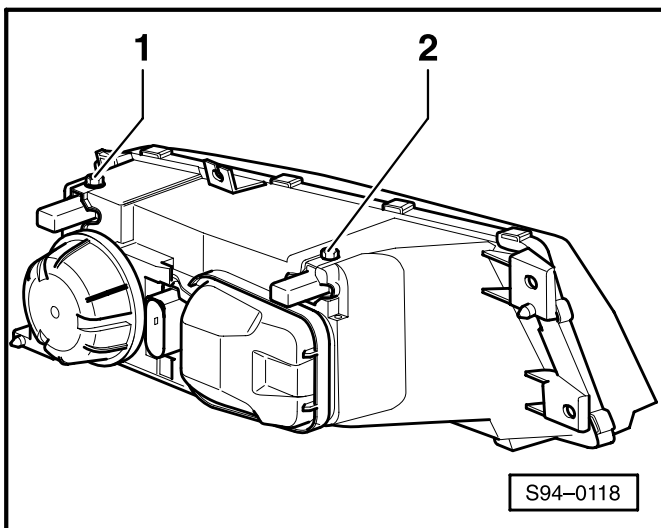
- 1 - Screw for adjusting height
- 2 - Screw for lateral adjustment



- ◀ - To adjust the height of the headlight, insert a screwdriver through the slot above the headlight and alter the position of the knurled wheel.



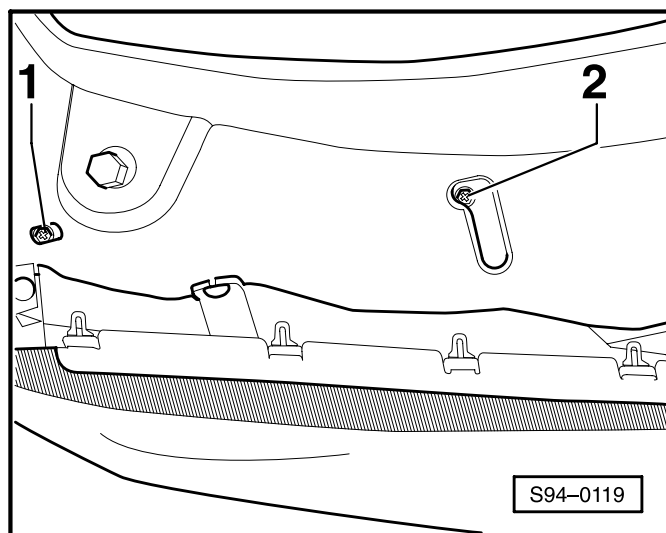
- ◀ - To adjust the headlight laterally, insert the screwdriver through the slot at the top left of the headlight and adjust the position of the left knurled wheel.

**Models 08.00 ►**

◀ Adjusting screws at left-hand headlight.

The position of the screws at the right-hand headlight is a mirror image.

- 1 - Screw for lateral adjustment
- 2 - Screw for adjusting height



- Adjust height of headlight by turning the screw -1-.
- Adjust headlight laterally by turning the screw -2-.



## Changing bulbs of headlight

### Changing bulb for fog light and/or main beam/dipped beam

#### Removing:

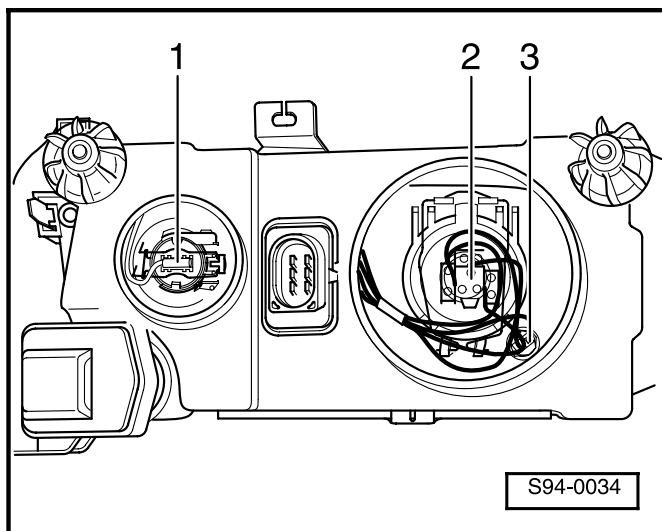
- Take end cover off headlight housing.
- ◀ - Separate plug connection at the fog light bulb -1- or at the main beam and dipped beam bulb -2-, respectively.
- Release the relevant spring wire clamp and take the bulb out of the housing.

#### Installing:

- Plug in the connector again. Close the housing cover.
- Insert new bulb into the bulb holder; do not touch the glass of the bulb with your bare hands.
- Secure the bulb holder with the spring wire clamp.

#### Removing and installing bulb for side light

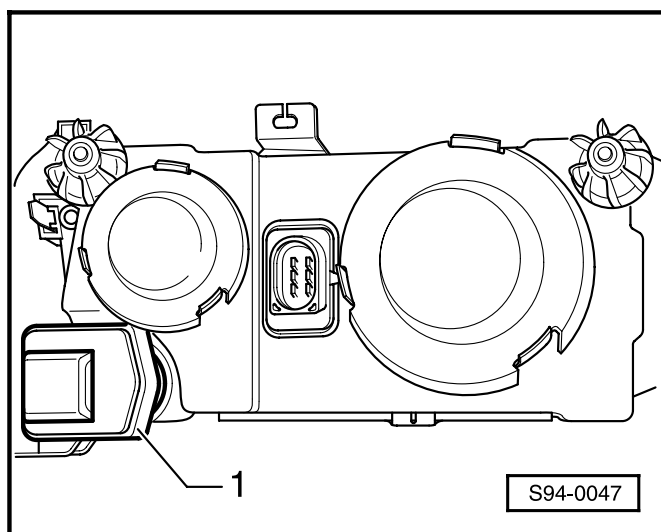
- Pull off cap.
- Pull bulb together with holder -3- at the connector out of the reflector.
- After changing bulb, press holder with bulb fully into the reflector.



## Removing and installing headlight range adjustment motor

### Notes:

- ◆ The headlight range adjustment motor can only be removed and installed with the headlight housing removed.
- ◆ If the adjusting motors are removed and installed or replaced, always carry out a setting of the headlights ⇒ page 94-3.



### Removing:

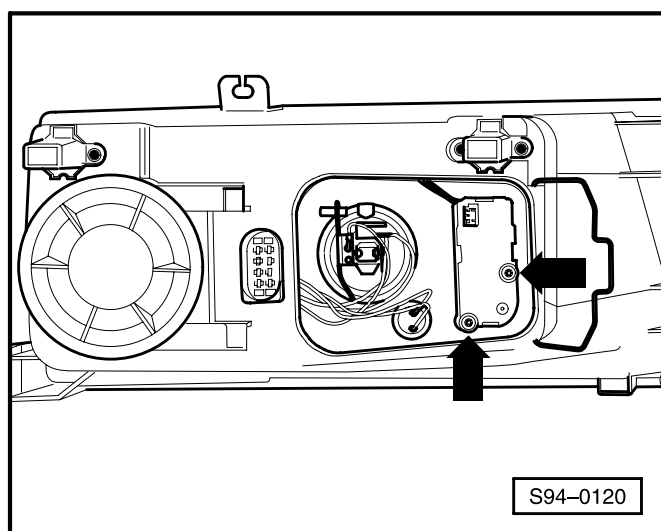
- Remove headlight ⇒ page 94-2.

### Models ► 07.00

- ◀ - Release motor -1- by turning motor of left-hand headlight to the left and motor of right-hand headlight to the right.
- Detach ball head of adjusting shaft by pulling it firmly out of the catch at the reflector and taking it down and out.

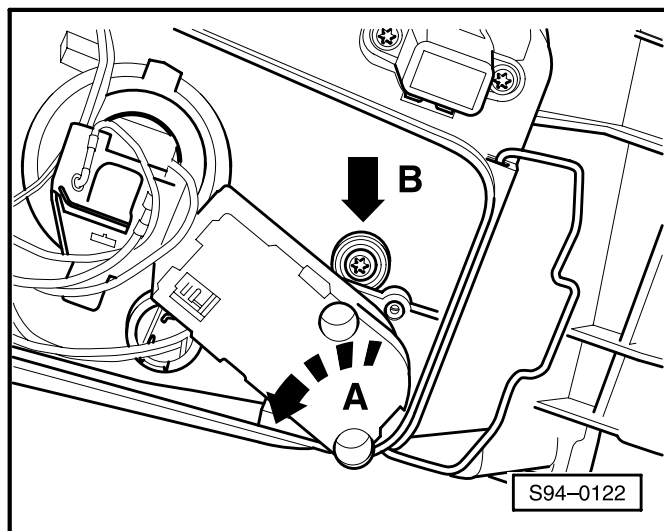
### Installing:

- Remove cover of bulbs.
- Pull reflector toward you through opening in headlight housing and hold.
- Push ball head of adjusting shaft into ball head mount at reflector from below.
- Release reflector and turn adjusting motor to the right in the case of left-hand headlight and to the left in the case of the right-hand headlight.



### Models 08.00 ►

- Remove cover of bulb.
- ◀ - Take out screws -arrows- (2 Nm).
- Separate plug connection at adjusting motor.



- ◀ - Pull adjusting motor out slightly and turn in direction of arrow -A-.
- Remove screw -arrow B- (2 Nm).
- Take out adjusting motor.

**Installing:**

- Installation is carried out in the reverse order.



## Servicing turn signal lights

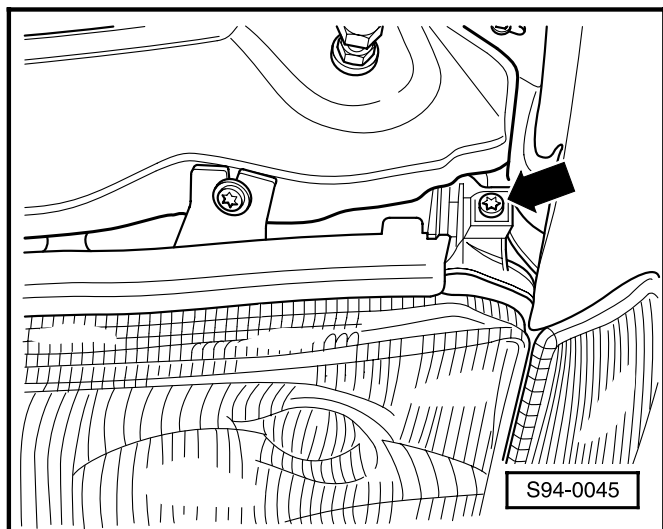
### Removing and installing turn signal lights

**Warning!**

*Disconnect earth strap of battery before commencing work on the electrical system.*

**Note:**

*It is possible to remove the turn signal light without taking off the headlight.*



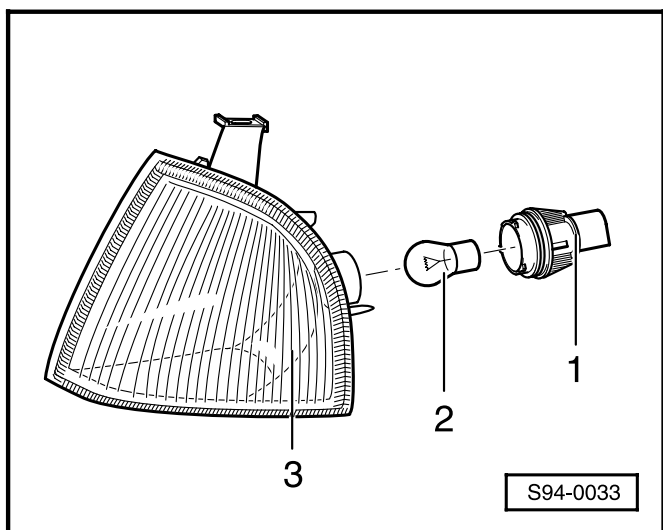
**Removing:**

- Remove screw -arrow- (2 Nm).
- Pull turn signal light forward. Carefully lever off with a screwdriver.

**Installing:**

- Installation is carried out in the reverse order.

### Removing and installing bulb for turn signal light



**Removing:**

- ◀ - Turn bulb socket -1- to the left and pull out of housing -3-.
- Remove bulb -2- from the socket.

Bulb for turn signal light: 12 V, 21 W (orange)

**Installing:**

- Installation is carried out in the reverse order.

When installing, turn socket until it locks in place.



## Removing and installing side turn signal lights

### Removing:

- ◀ - Use a suitable tool to unclip the side turn signal light -arrow-.

### Notes:

- ◆ Use a suitable product (e.g. textile adhesive tape) to mask over the surface of the paintwork.
- ◆ The catch -arrow- is located on the right-hand and left-hand side of the car, at the front in each case.
- Pull the turn signal light out of the wing.
- Pull the housing -1- out of the rubber grommet -2-.
- The bulb -3- can also be removed for replacing.

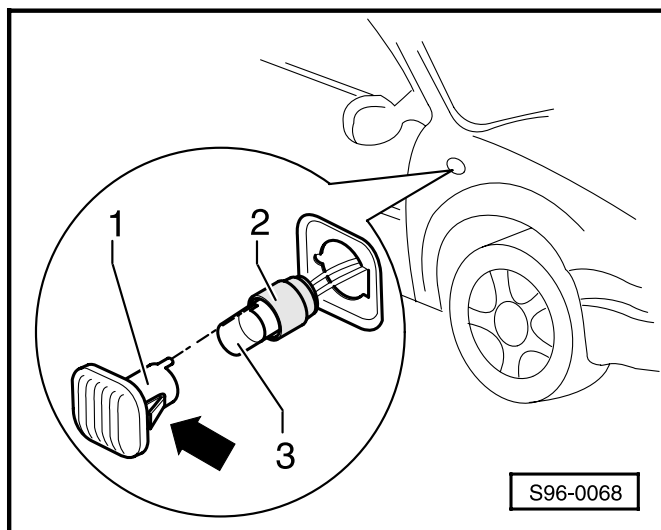
### Installing:

- Carry out installation in the reverse order.

### Note:

*When installing the housing -1-, ensure that the guide lugs engage in the recesses of the socket -2-.*

- Press the turn signal light housing -1- into the wing so that it locks in place properly.

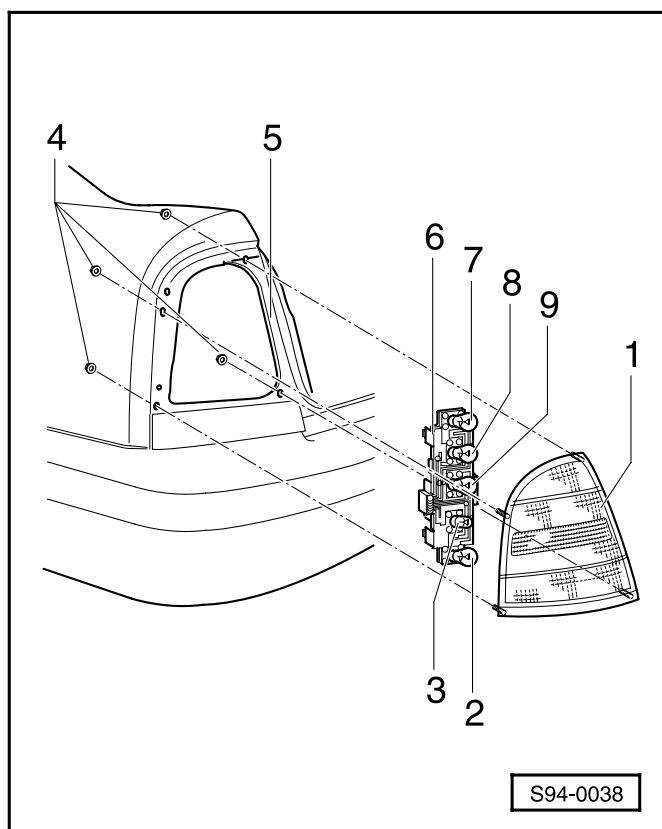




## Servicing rear lights

### **Important!**

*Before carrying out any work on the electrical system, disconnect earth strap of the battery.*



### General survey

1 - Rear light housing

2 - Bulb for rear fog light

♦ 12 V, P21 W

3 - Bulb for tail light

♦ 12 V, R5 W

4 - Securing nut, M 5

♦ 3 Nm

5 - Body

6 - Bulb holder

7 - Bulb for turn signal light

♦ 12 V, P21 W

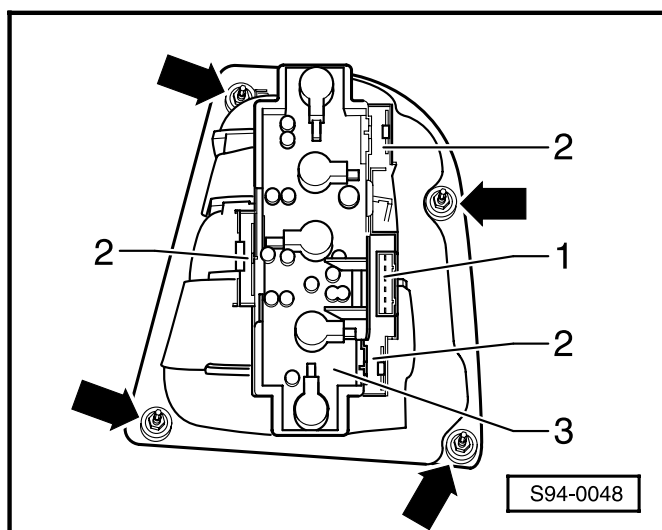
8 - Bulb for brake light

♦ 12 V, P21 W

9 - Bulb for reversing light

♦ 12 V, P21 W

### Removing and installing bulbs from the bulb holder



- ◀ - Compress locking clamp -2- and take bulb holder -3- out of the rear light assembly.
- Unscrew bulbs from the holders.
- Installation is carried out in the reverse order.

## Removing and installing tail light

### Removing:

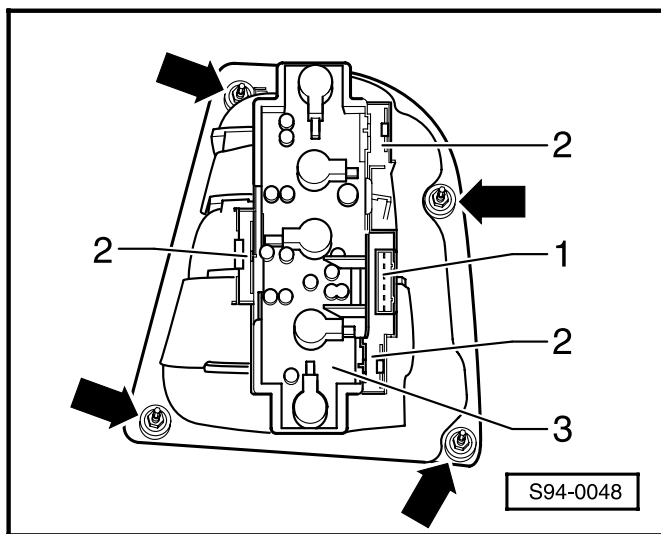
- Open tailgate.
- Take off side trim panel.
- ◀ - Separate electrical plug connection -1-.
- Unscrew the M5 securing nuts -arrows- (3 Nm).
- Take the complete tail light assembly out of the rear of the car.

### Installing:

#### **Note:**

*When installing, ensure that the seal between the body and the tail light housing provides a proper seal.*

- Installation is carried out in the reverse order.
- Before tightening the securing nuts, align the tail light assembly to match the shape of the body (even sizes of gaps).



## Removing and installing licence plate lights

**Important!**

*Before carrying out any work on the electrical system, disconnect earth strap of the battery.*

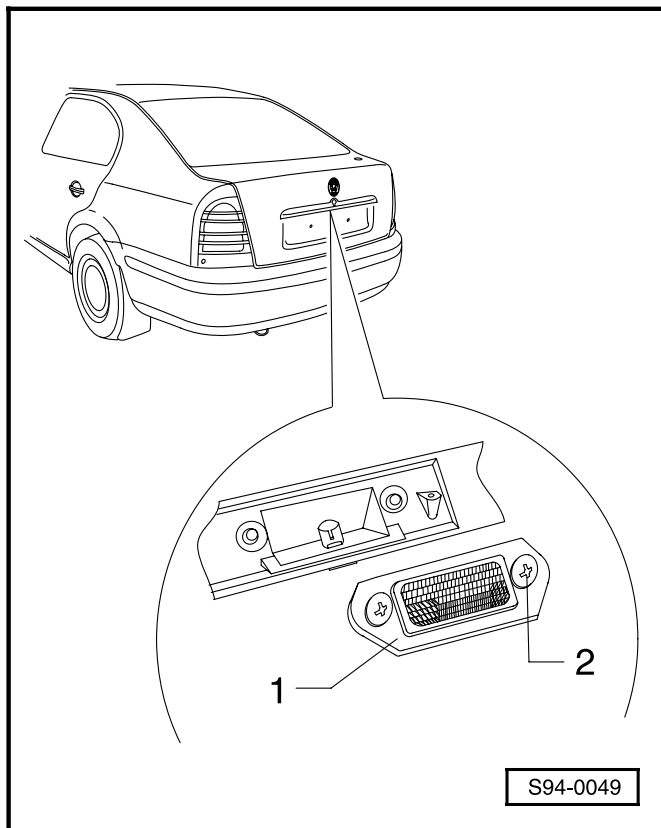
**Removing:****Note:**

*Only the right-hand licence plate lights are shown in the illustration.*

- ◀ - Slacken the 2 cross-head screws -2- at the lens of the light -1-.
- Take off the lens of the light.
- Remove bulb (12V, 5W) from the bulb holder.

**Installing:**

- Installation is carried out in the reverse order.



## Servicing steering column switch

### **Important!**

**Before carrying out any work on the electrical system, disconnect earth strap of the battery.**

## Removing and installing steering column switch

### Removing:

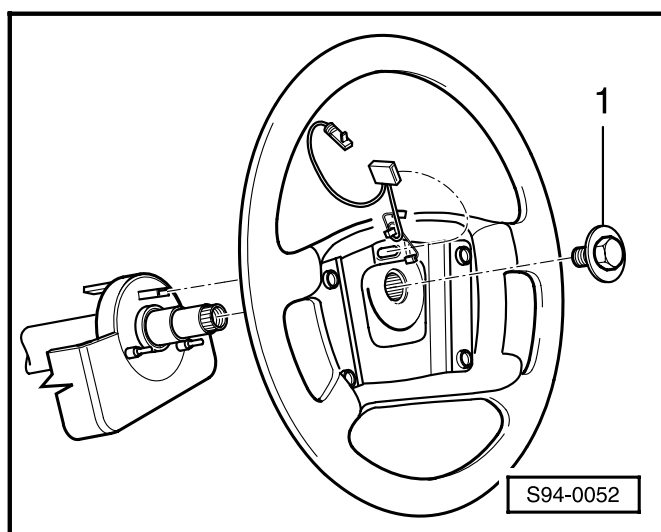
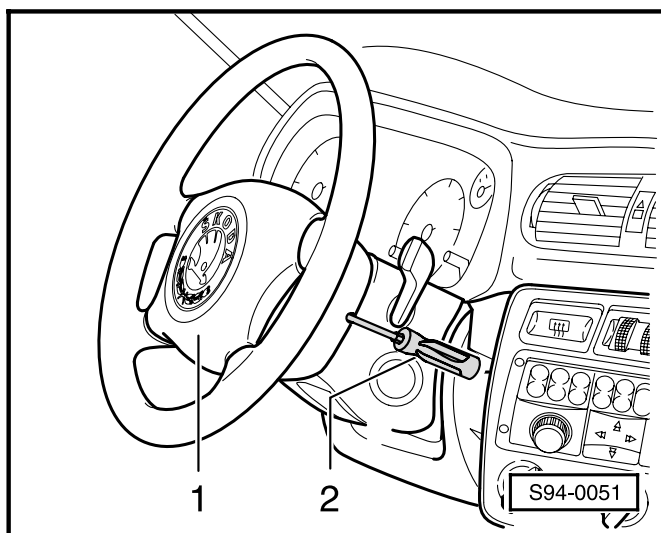
- Disconnect battery earth strap/cable.
- Move steering wheel into centre position, in other words the wheels are positioned straight ahead.
- Move adjustable steering column fully down and pull out.

### **Note:**

*Always pay attention to the safety precautions for airbag systems when carrying out work on the components of the airbag system*

⇒ Body Fitting Work; Repair Group 69; Airbag; Removing and installing driver airbag

- ◀ - Use a screwdriver -2- to release the springs of the airbag unit -1- at the left and right of the steering wheel from the rear.
- Carefully take off airbag unit.
- Unplug electrical connector of the airbag unit and place airbag unit down with the padded boss facing up.



- ◀ - Remove hexagon bolt -1- and take steering wheel off the steering column.

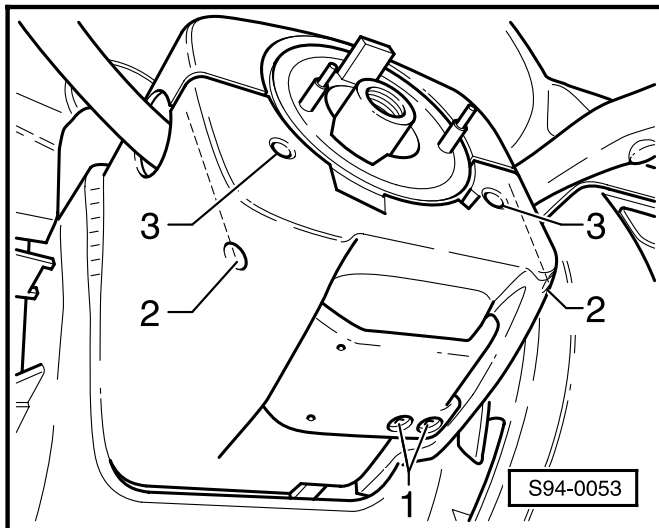
### **Important!**

**Always insert a new hexagon bolt.**

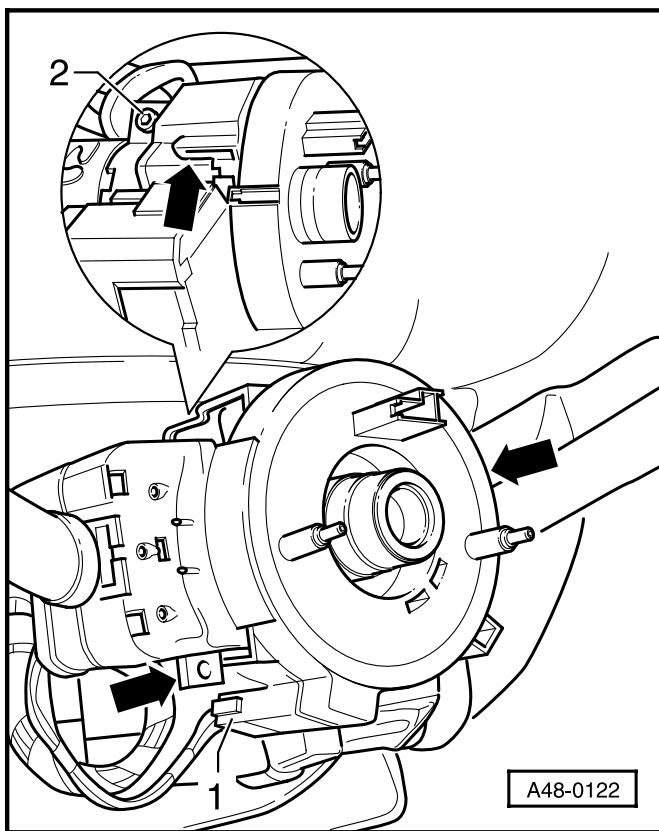
Tightening torque: 75 Nm

### **Important!**

**When taking off the steering wheel, do not turn the contact coil spring out of the centre position.**



- ◀ - Slacken the two cross-head screws -1- and take off the handle for adjusting the steering wheel.
- Then, remove the two cross-head screws -3-.
- Use a thin, long cross-head screwdriver to remove the two securing screws -2-.
- Take off the top and bottom parts of the steering column switch trim.

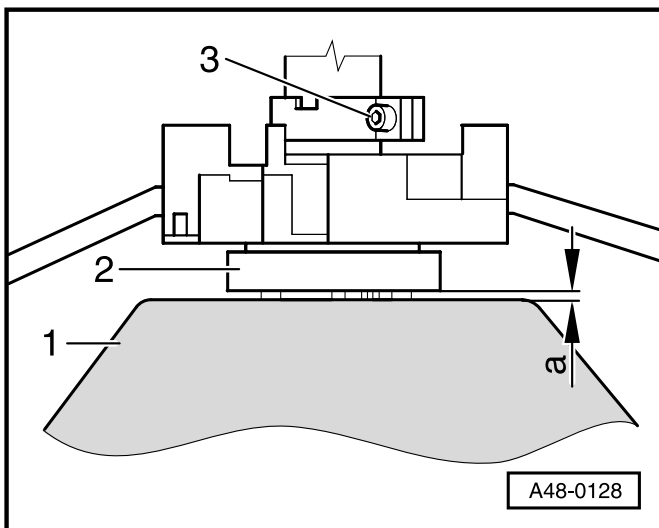


- ◀ - Separate electrical plug connection -1-.
- Slacken hexagon socket screw (5 mm) -2- at the clamp until the steering column switch can be moved easily.
- Carefully unplug the electrical connectors from the steering column switch.

**Important!**

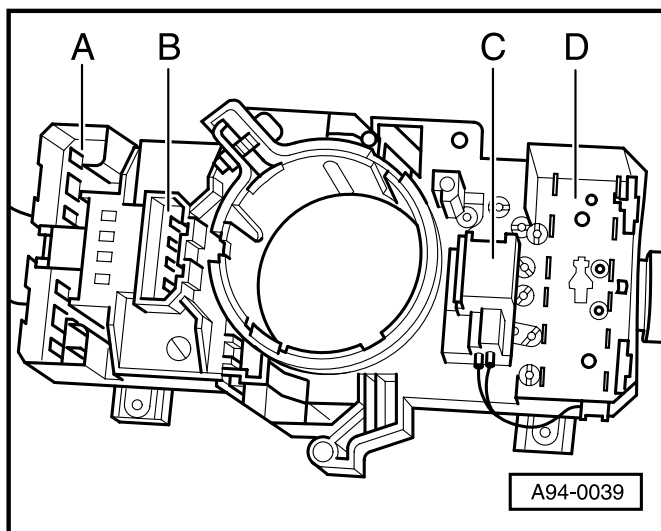
**The coil spring remains on the steering column switch. Ensure that the coil spring is not turned out of the centre position.**

- Take steering column switch off the steering column and place down.



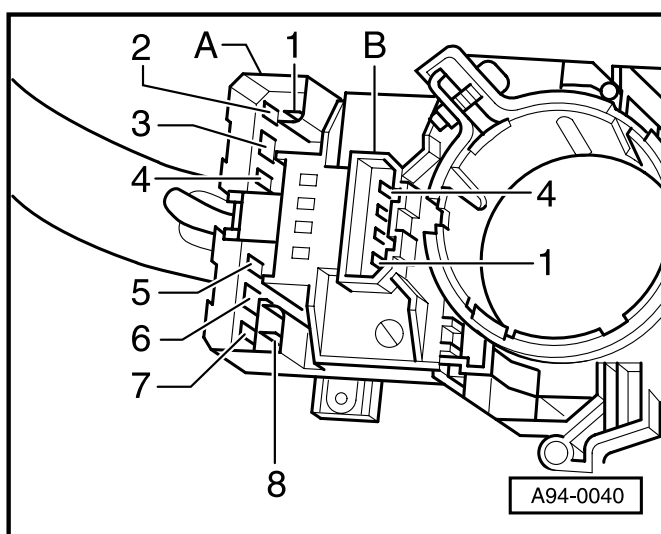
**Installing:**

- ◀ - First of all fix the steering column switch -2- in place on the steering column with the hexagon socket screw -3- so that a clearance of -a = 3 mm- is maintained to the steering wheel -1-.
- Take off steering wheel again and carry out remaining installation in the reverse order to removal.



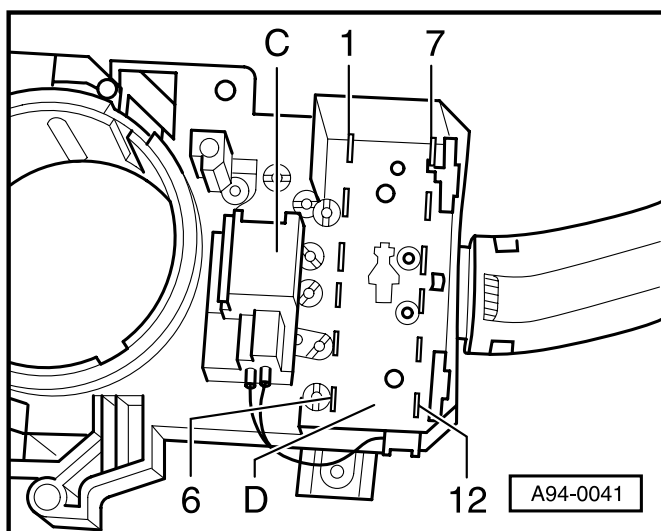
### Contact assignment at steering column switch - up to MY 98

- ◀ A - Contact for windscreen wiper switch
- B - Contact for on-board computer (special equipment)
- C - Contact for speed control system (special equipment)
- D - Contact for turn-signal switch



### Contact assignment for windscreen wiper switch -A-

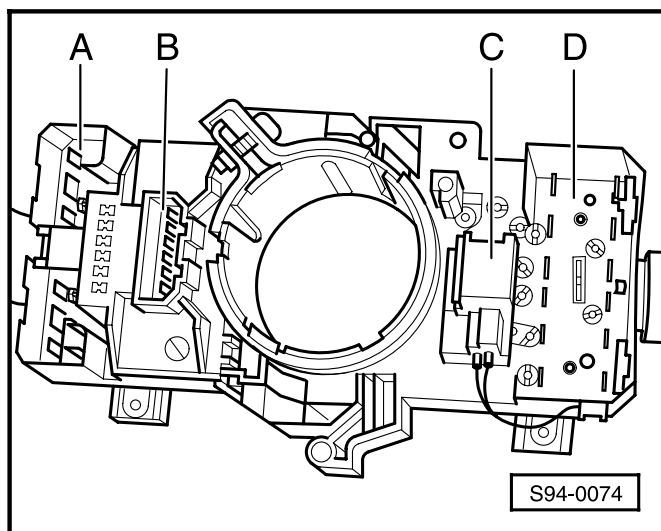
- 1 - Terminal 53a
- 2 - Interval wiping
- 3 - Terminal 53b
- 4 - Rear-window wiper
- 5 - Terminal 53c
- 6 - Terminal 53e
- 7 - Terminal 31
- 8 - Terminal 53



### Contact assignment for turn-signal switch -D-

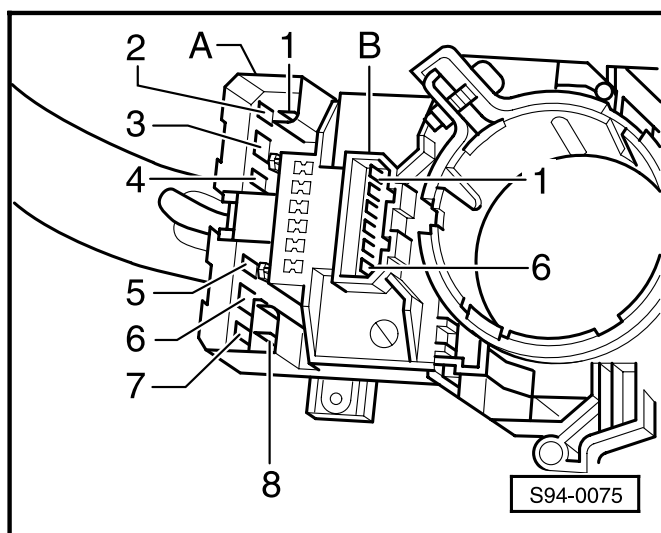
- 1 - Terminal 56
- 2 - Terminal 56b
- 3 - Terminal PL
- 4 - Terminal PR
- 5 - Terminal R
- 6 - Terminal 56a
- 7 - Terminal 30
- 8 - Terminal 30
- 9 - Terminal L
- 10 - Terminal P
- 11 - Terminal 49a
- 12 - Terminal 71





### Contact assignment at steering column switch - as from MY 99

- ◀ A - Contact for windscreen wiper switch
- B - Contact for multi-function indicator (special equipment) and windscreen wiper interval switch
- C - Contact for speed control system (special equipment)
- D - Contact for turn-signal switch

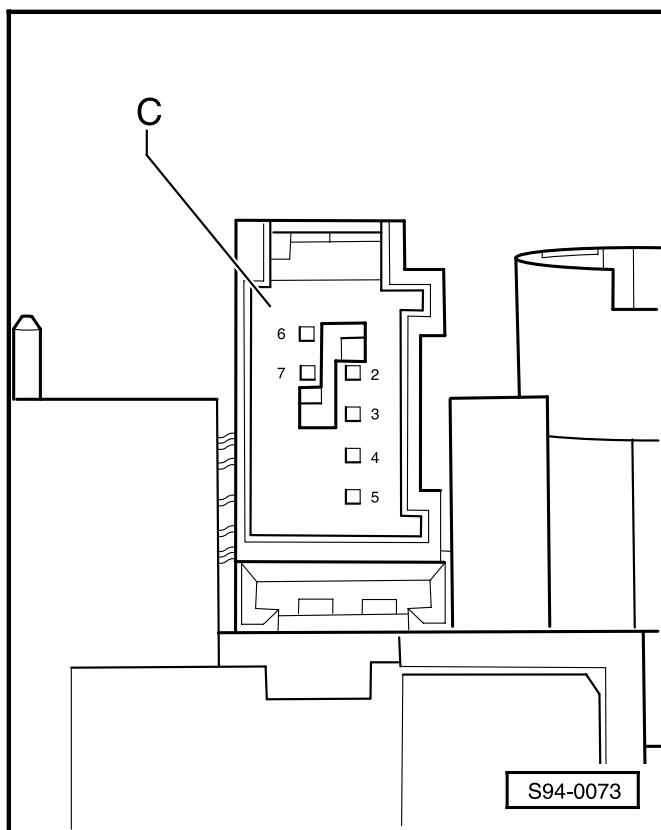


### Contact assignment for windscreen wiper switch -A-

- 1 - Terminal 53a
- 2 - Interval wiping
- 3 - Terminal 53b
- 4 - Rear-window wiper
- 5 - Terminal 53c
- 6 - Terminal 53e
- 7 - Terminal 31
- 8 - Terminal 53

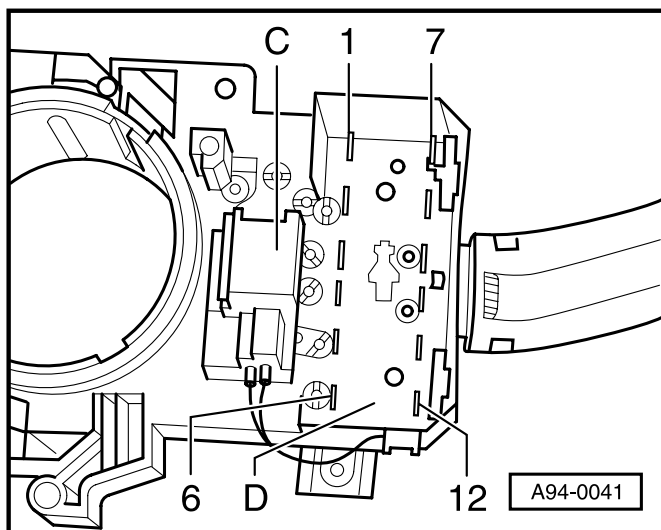
### Contact for multi-function indicator (special equipment) and windscreen wiper interval switch -B-

- 1 - MFI - top function selection
- 2 - MFI - bottom function selection
- 3 - MFI - Terminal 31
- 4 - MFI - Reset/change-over switch level ½
- 5 - Control unit for windscreen wiper interval control (POT)
- 6 - Terminal 31



◀ **Contact assignment for speed control system switch -C-**

- 2 - SCS - Return to stored speed
- 3 - SCS - Set/Accelerate
- 4 - SCS - On/Off with stored speed delete
- 5 - SCS - Reset without stored speed delete
- 6 - Terminal 15
- 7 - SCS - On/Off with stored speed delete



◀ **Contact assignment for turn-signal switch -D-**

- 1 - Terminal 56
- 2 - Terminal 56b
- 3 - Terminal PL
- 4 - Terminal PR
- 5 - Terminal R
- 6 - Terminal 56a
- 7 - Terminal 30
- 8 - Terminal 30
- 9 - Terminal L
- 10 - Terminal P
- 11 - Terminal 49a
- 12 - Terminal 71

## Servicing lock cylinder and ignition/starter switch

**Important!**

***Before carrying out any work on the electrical system, disconnect earth strap of the battery.***

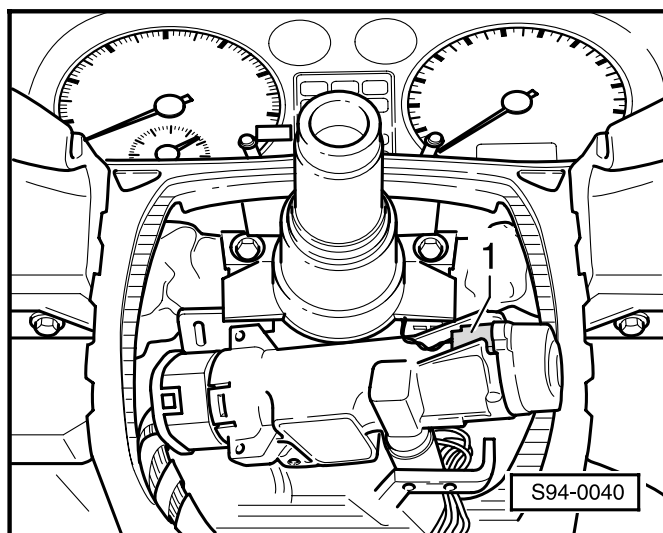
**Notes:**

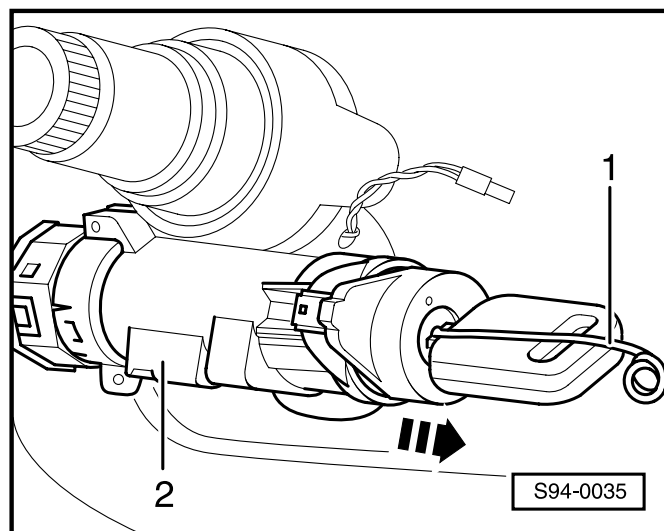
- ◆ *The reader coil for the immobiliser is attached to the lock cylinder and cannot be replaced separately.*
- ◆ *If the reader coil is faulty, it is then necessary to replace the lock cylinder.*
- ◆ *Steering wheel and steering column switch do not need to be removed. The illustrations show the parts without steering wheel and steering column switch to simplify the picture.*

### Removing and installing lock cylinder

**Removing:**

- Move the adjustable steering column fully down.
- Remove the cover panels.
- ◀ - Separate plug connection of the reader coil -1-.





- Insert key into ignition lock and turn into position „Ignition ON“. When this is done, hole (opening) on face end next to ignition key insert becomes visible.

- ◀ - Insert steel wire or pin (about Ø 1.5 mm) -1- into the lock cylinder, as shown, as far as the stop and pull lock cylinder together with reader coil out of steering lock housing -2- in direction of arrow.

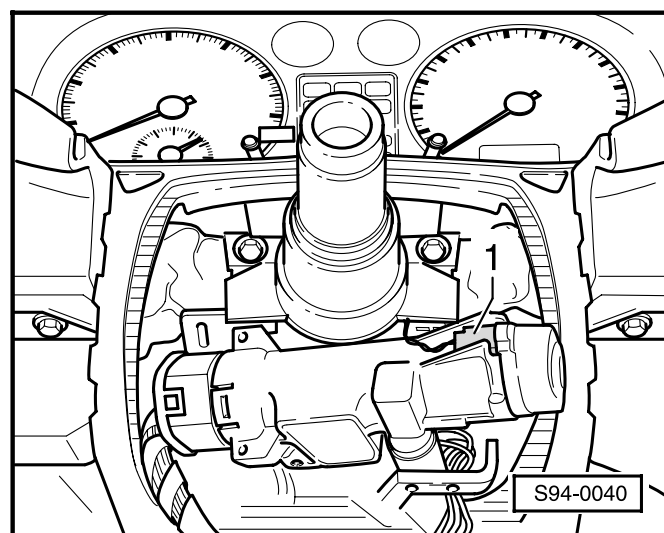
**Note:**

- ♦ If it is necessary to replace the lock cylinder, it is essential to follow the instructions for replacing the immobiliser reader coil ⇒ page 96-22.

**Installing:**

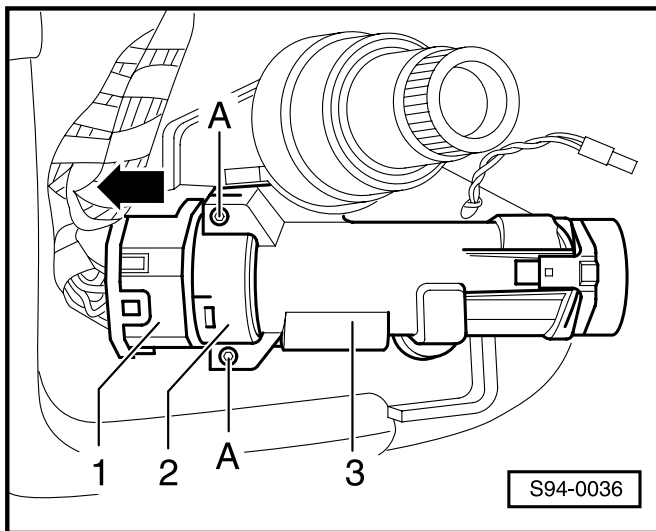
- Insert ignition key into ignition lock and turn into position „Ignition ON“.
- Push lock cylinder together with ignition key fully into steering lock housing.
- Fit together the electrical plug connection at the immobiliser reader coil.

**Removing and installing ignition/ starter switch**



**Removing:**

- ◀ - Separate plug connection of reader coil -1-.

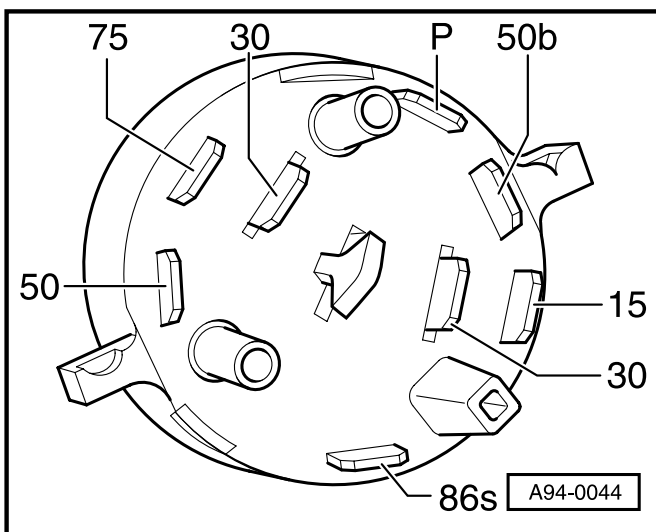


- ◀ - Separate plug connection -1- at ignition/starter switch -2-.
- Remove the locking varnish from the two securing screws -A-.
- Slacken the securing screws -A- slightly and pull the ignition/starter switch -2- out of the steering lock housing -3- in direction of arrow.

#### Installing:

#### Notes:

- ◆ When installing, the ignition/starter switch and the lock cylinder must both be in the same position, e.g. "Ignition ON".
- ◆ After tightening the two screws attaching the steering lock housing, secure them again with locking varnish.
- Carry out installation in the reverse order of removal.



#### Contact assignment at ignition/starter switch

- ◀ 15 - Terminal 15
- 30 - Terminal 30
- 50 - Terminal 50
- 50b - Terminal 50b
- 75 - Terminal 75
- 86s - Terminal 86s
- P - Park position

## Removing and installing rear lights of Octavia Estate

**Warning!**

**Disconnect earth strap of battery before performing any work on the electrical system.**

**Notes:**

- ◆ Before disconnecting the battery, determine the code number of a radio set fitted with anti-theft coding.
  - ◆ When the battery is re-connected, check the vehicle equipment:
    - Carry out coding of radio
    - Reset time of clock
    - Initialise power windows.
- ⇒ Inspection and Maintenance

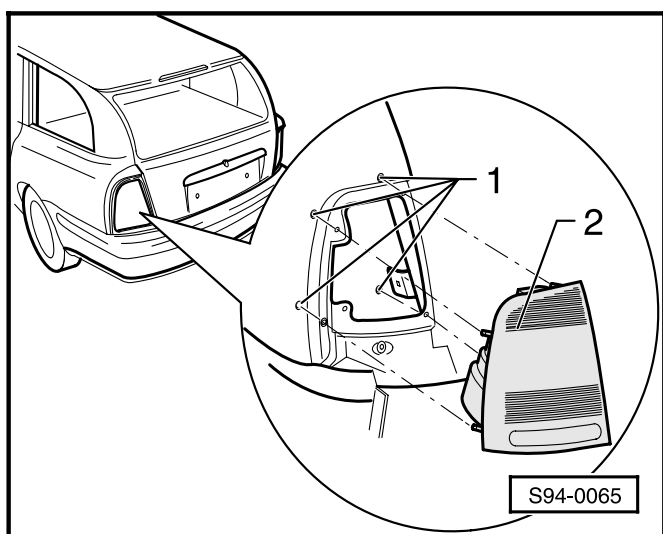
**Removing**

- Open tailgate.
- Open side compartment.
- Separate electric connector.
- ◀ - Unscrew the fixing nuts (M5) -1- (3 Nm).
- Take the complete rear light -2- off the rear of the vehicle.

**Installing****Note:**

*When installing, ensure that the gasket between the body and the rear light housing provides a proper seal.*

- Carry out installation in the same way in reverse order.
- Before tightening the fixing nuts, align the rear light to the body panels (even gaps).



## Centre high-mounted brake light

### **Warning!**

**Disconnect earth strap of battery before performing any work on the electrical system.**

### **Notes:**

- ◆ Before disconnecting the battery, determine the code number of a radio set fitted with anti-theft coding.
- ◆ When the battery is re-connected, check the vehicle equipment:
  - Carry out coding of radio,
  - Reset time of clock,
  - Initialise power windows.

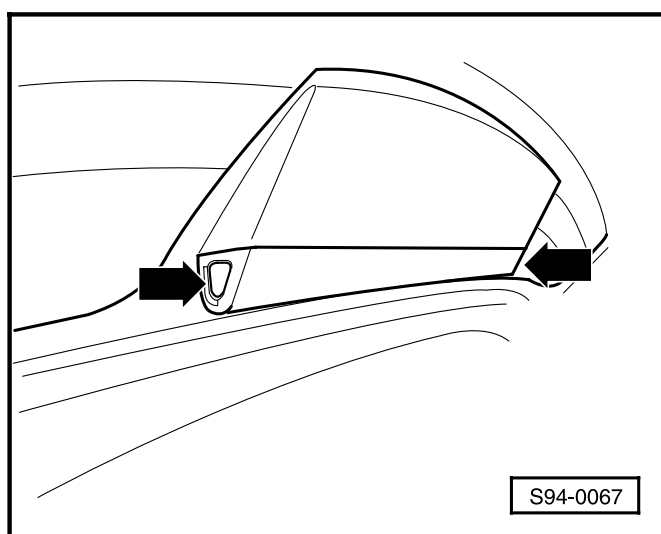
⇒ Inspection and Maintenance

## Centre high-mounted brake light for OCTAVIA

The centre high-mounted brake light is installed in the top part of the boot lid, directly at the rear window.

### **Removing**

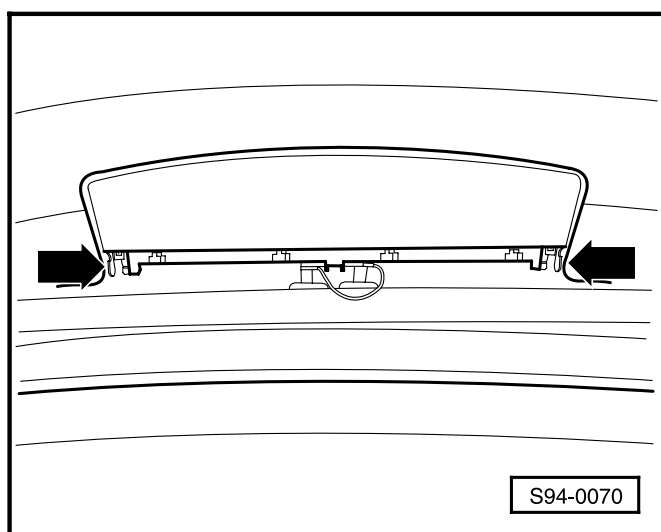
- Open the boot lid.
- ◀ - Press in the catches on the right and left -arrows- and pull the bulb holder down.
- Detach the plug connection.

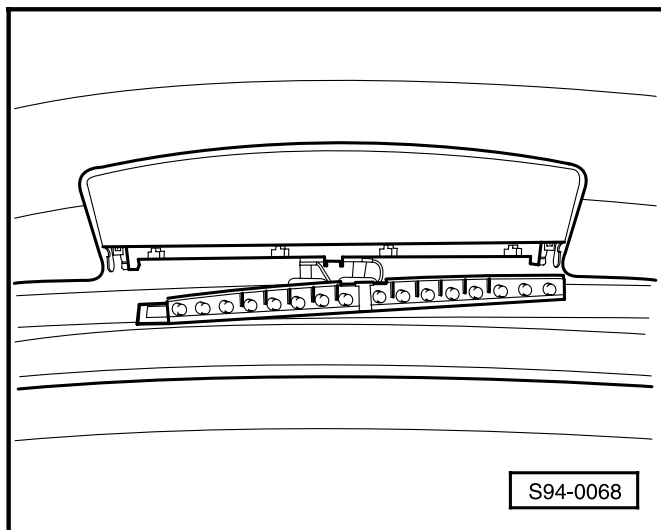


- ◀ - Release the two retaining springs -arrows- and push the light up and off the rear window.

### **Installing**

- Carry out installation in the same way in the reverse order.





### Replacing bulbs:

- ◀ - Take off the bulb holder.
- Carefully pull the bulb out of the bulb holder.

### Note:

*The bulbs do not have a base and can be replaced by hand.*

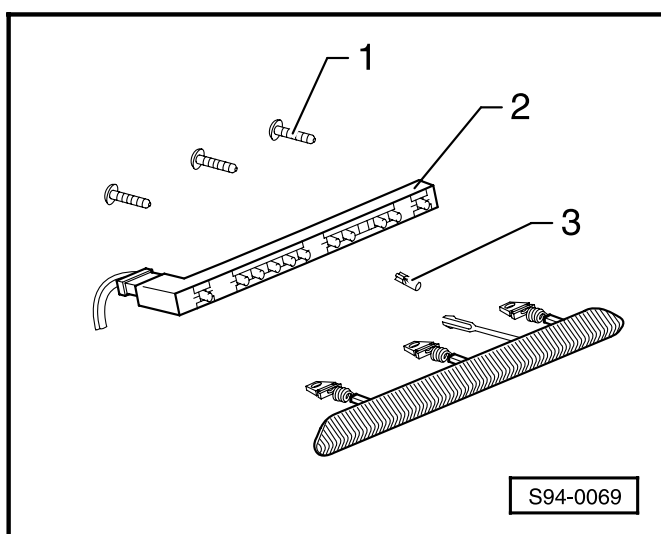
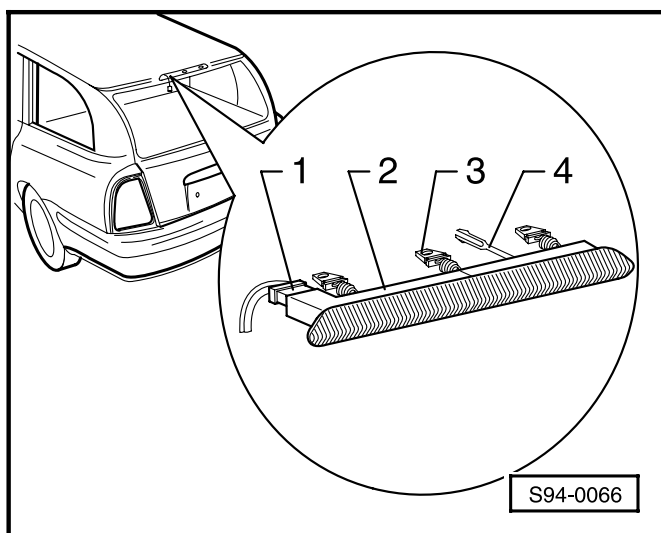
## Centre high-mounted brake light for OCTAVIA Estate

### Removing

- Open the tailgate.
- Remove the top trim panel of the tailgate.  
⇒ Body Fitting Work; Repair Group 70; Trim panels of cargo area/luggage compartment
- ◀ - Lever the 3 retaining springs -3- and the catch -4- out of the slots in the tailgate.
- Close the tailgate.
- Pull the complete centre high-mounted brake light -2- off the tailgate.
- Separate the plug connection -1-.

### Installing

- Carry out installation in the same way in the reverse order.



### Replacing bulbs:

- ◀ - Remove the cross-head screws (3x) -1- from the bulb holder -2-.
- The bulbs -3- are pushed in. They can be pulled out of the bulb holder -1- and pushed in.

### Note:

*The bulbs do not have a base and can be replaced by hand.*



## Anti-theft alarm system

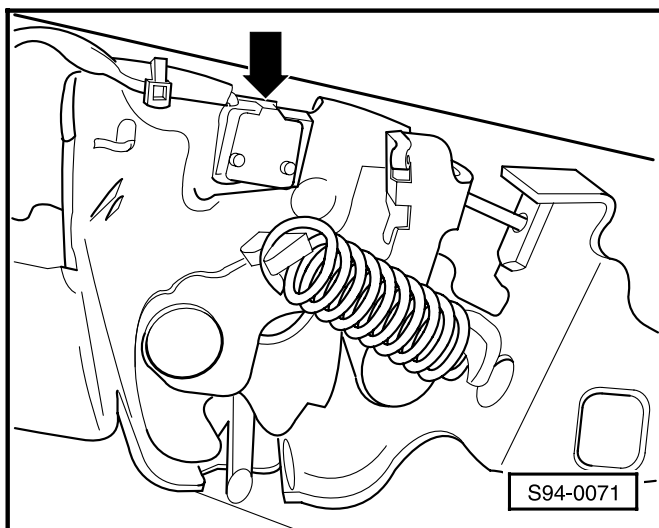
### Contact switch for engine hood F120 (F266)

#### Removing

- Removing engine hood lock  
⇒ Body Work; Repair Group 55, Engine hood.
- Disconnect plug connection at contact switch.
- ◀ - Use a flat screwdriver to carefully lever out the contact switch from the feather spring -arrow-.

#### Installing

- Perform the installation in the reverse order.



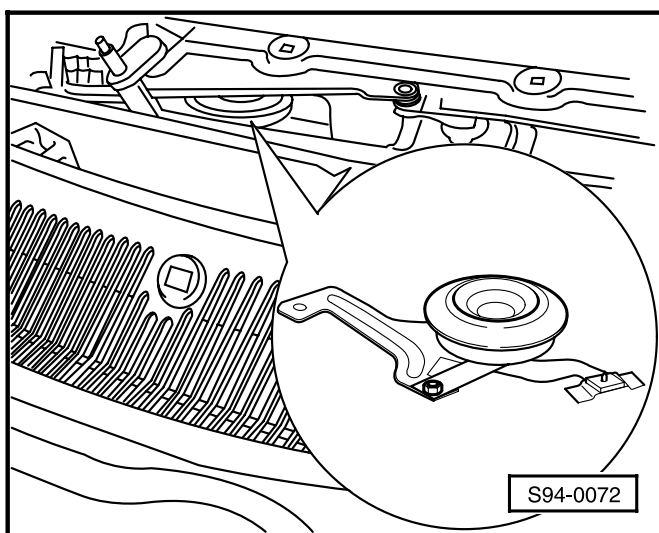
### Horn for anti-theft alarm system H8

#### Removing

- Removing windscreen wiper and washer system ⇒ page 92-1.
- ◀ - Remove the horn with the holder from the plenum chamber and disconnect the plug connection.
- Remove horn from holder.

#### Installing

- Perform the installation in the reverse order.



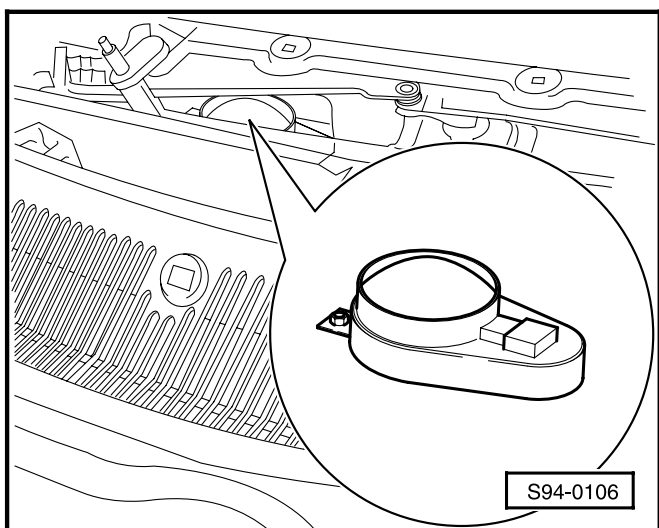
### Alarm system with its own power supply H12

#### Removing

- Removing windscreen wiper and washer system ⇒ page 92-1.
- ◀ - Remove the horn with the holder from the plenum chamber and disconnect the plug connection.

#### Installing

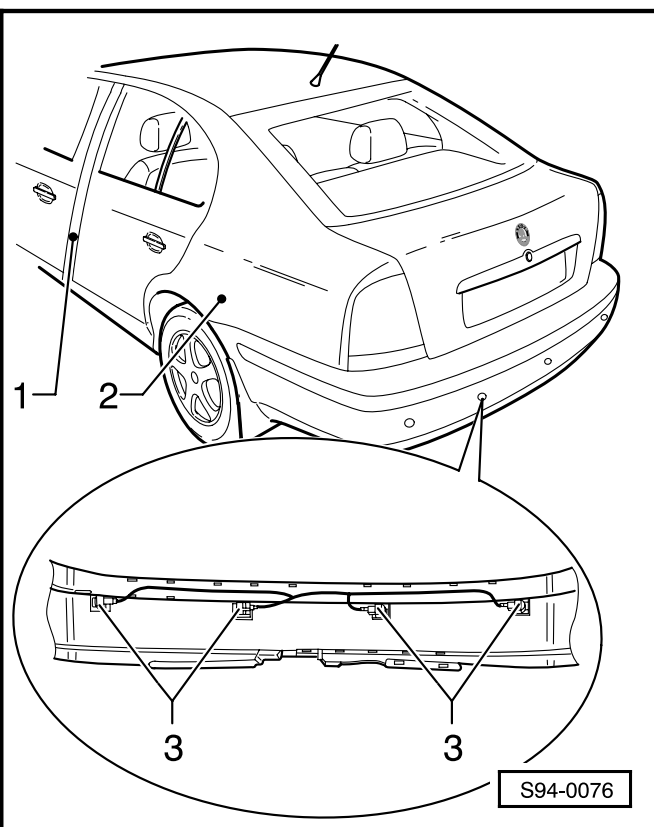
- Perform the installation in the reverse order.



### Replacing emergency battery for alarm system

The emergency battery is part of the alarm system H12 and therefore cannot be replaced separately, it must be replaced together with the complete alarm system.

## General overview of parking aid



### Warning!

**Disconnect earth strap of battery before commencing work on the electrical system.**

### Notes:

- ◆ Before disconnecting the battery, determine the code of a radio set fitted with anti-theft coding.
  - ◆ When re-connecting the battery, check the vehicle equipment:
    - Encode radio,
    - re-set clock,
    - initialise power windows.
- ⇒ Inspection and Maintenance

### 1 - Parking aid warning buzzer -H15-

- ◆ Rear part of left B pillar
- ◆ Removing and installing  
⇒ page 94-21

### 2 - Parking aid control unit -J446-

- ◆ Behind luggage compartment trim on left wheelhouse
- ◆ Removing and installing  
⇒ page 94-20

### 3 - Parking aid sensors

- ◆ In bottom part of rear bumper
- ◆ Removing and installing  
⇒ page 94-21

## Removing and installing parking aid control unit -J446-

### Removing:

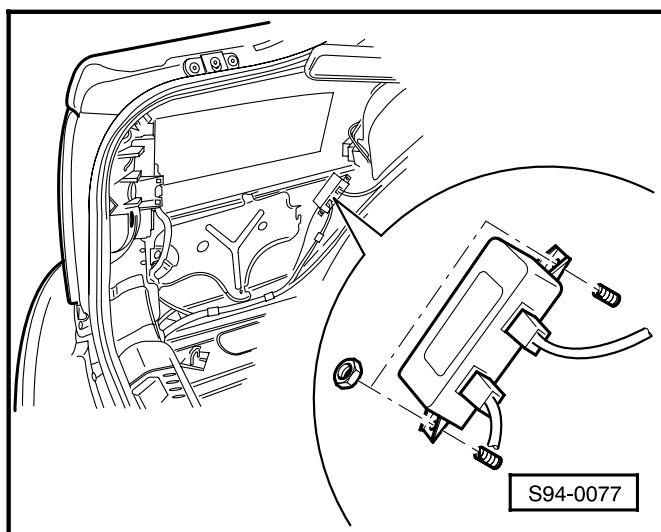
- Remove the luggage compartment side trim on the left.
- ⇒ Body Fitting Work; Repair Group 70; Trim panels of cargo area and luggage compartment; Removing and installing side luggage compartment trim panel

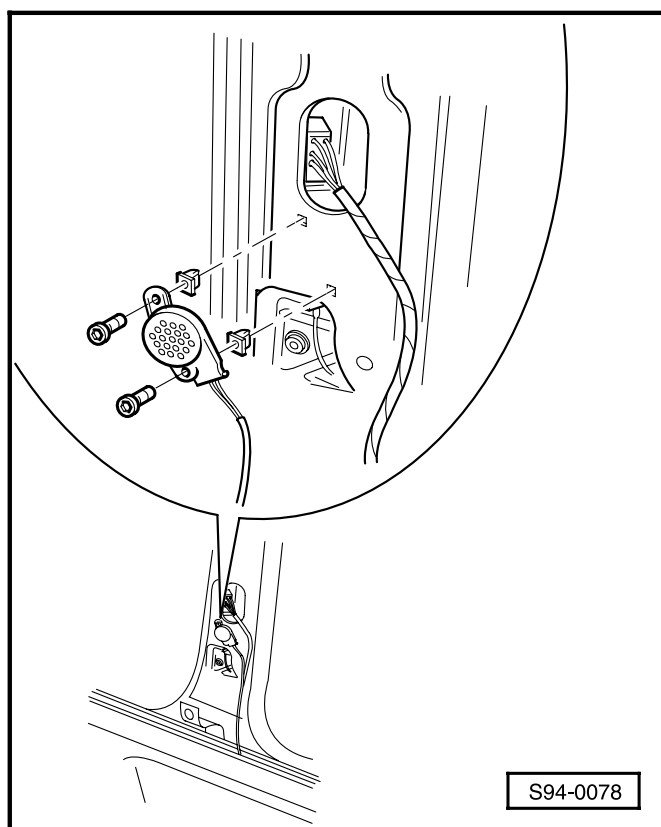
◀ The parking aid control unit is located behind the left side luggage compartment trim panel on the wheelhouse.

- Separate the plug connection.
- Unscrew the two nuts and take out the control unit.

### Installing:

- Installation is carried out in the reverse order.





### Removing and installing parking aid warning buzzer -H15-

#### Removing:

- ◀ The parking aid warning buzzer is located behind the trim panel at the bottom left of the B pillar.
- Remove the trim panel of the B pillar.  
⇒ Body Fitting Work; Repair Group 70; Pillar and side trim panel; Removing and installing trim panel of B pillar
- Separate the plug connection.
- Remove the two screws + washers.
- It is then possible to take off the warning buzzer.

#### Installing:

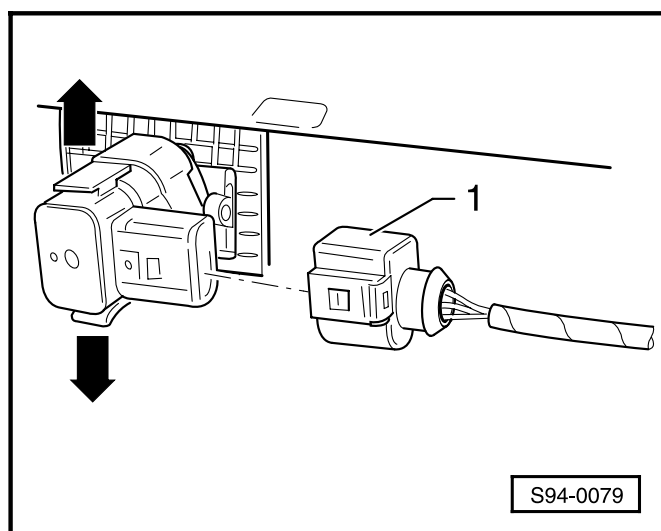
- Installation is carried out in the reverse order.

### Removing and installing parking aid sensors

#### Removing:

##### Notes:

- ♦ The rear bumper must be taken off in order to remove the two middle parking aid sensors.  
⇒ Body Fitting Work; Repair Group 63; Rear Bumper
- ♦ It is not necessary to take off the rear bumper in order to remove the two outer parking aid sensors. The ultrasonic sensors are accessible from below.



- ◀ Separate the plug connection -1- at the sensor.
- Press the two catches to the side -arrows-.
- Take out the ultrasonic sensor from the inside.

#### Installing:

- Installation is carried out in the reverse order.

## Self-diagnosis of parking aid (parking system)

### General information

The parking aid system measures the distance from the rear of the vehicle to an obstacle when reversing on the basis of the echo sounding principle.

Four ultrasonic sensors are integrated in the rear bumper for this purpose.

The sensors are actuated both in the combined transmission and reception mode, or in the pure reception mode.

The sensors are switched off if a trailer is hitched up and the trailer socket is plugged in.

### Function:

The parking aid consists of:

- ◆ Parking aid control unit -J446-
- ◆ Rear left parking aid sensor -G203-
- ◆ Middle, rear left parking aid sensor -G204-
- ◆ Middle, rear right parking aid sensor -G205-
- ◆ Rear right parking aid sensor -G206-
- ◆ Parking aid warning buzzer -H15-

When the ignition is switched on, a self-check is carried out, which is completed in less than one second.

The control unit is now permanently operational although the distance detection is not activated until reverse gear is engaged.

Once the parking aid is ready, a short signal sounds. (Delay of one second on models fitted with automatic gearbox.)

If the control unit has detected a fault in the system during the self-check, a continuous signal sounds for 3 seconds.

### Note:

*The fault is displayed on V.A.G 1552 only after about 2 minutes.*

The distance warning begins when reversing from a distance of about 1.50 m to the obstacle. The warning consists of sound pulses with a duration of about 75 ms.

The intervals between the sound pulses become proportionally shorter the narrower the distance is to the obstacle. At a distance of less than 25 cm to the obstacle, the sound pulses change into a continuous signal (adapting volume with V.A.G 1552 ⇒ page 94-30).

**Special case: reversing along a wall**

### Initiating self-diagnosis of parking aid

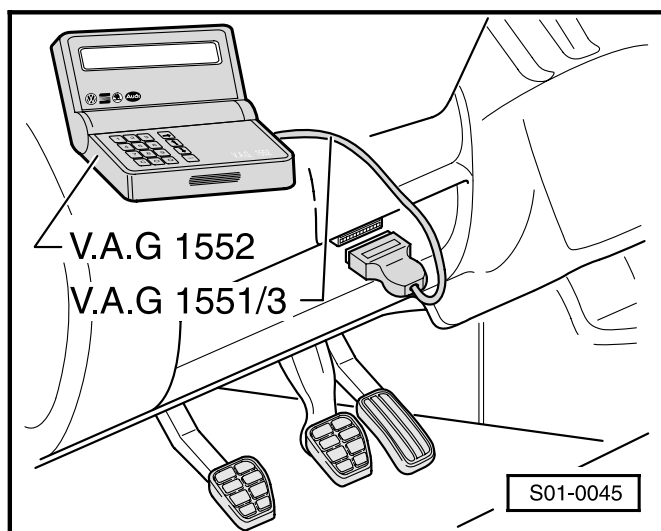
**Connecting vehicle system tester V.A.G 1552 and selecting parking aid control unit**

#### Test conditions

- All fuses according to CFD o.k.
- Battery voltage at least 11 V

The connection for self-diagnosis is located in the storage compartment on the driver side.

- ◀ - Connect vehicle system tester V.A.G 1552 with cable V.A.G 1551/3.
- Switch on the ignition.



Test of vehicle systems  
Enter address word XX

HELP

◀ Readout in display:

#### Note:

*If no readout appears in the display:*

- ⇒ Operating instructions of vehicle system tester
- Press keys 7 and 6 for the address word "Parking aid" and confirm the entry with the key Q.

1U0919283 Parking aid  
Coding 00103

0001 →  
WSC xxxxx

◀ The following readout appears after about 5 seconds:

- ◆ 1U0919283: part number of parking aid control unit
- ◆ Parking aid: component designation
- ◆ 0001: software version of parking aid control unit
- ◆ Coding 00103: coding of parking aid control unit
- ◆ WSC xxxxx: workshop code

- Press → key.

Test of vehicle systems  
Control unit does not answer!

HELP

◀ If one of the following readouts appears in the display, carry out fault finding according to the fault finding programme diagnostic cable.

Test of vehicle systems  
Fault in communication build-up

HELP

⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations binder

Test of vehicle systems  
K wire not switching to earth

HELP

Test of vehicle systems  
K wire not switching to positive

HELP

- After pressing the HELP key, a list of possible functions is displayed.
- Move forward in the test programme by pressing the → key.

### Self-diagnosis functions

The following functions are possible:

02 - Interrogating fault memory ⇒ page 94-25.

05 - Erasing fault memory ⇒ page 94-25.

06 - Ending output ⇒ page 90-10.

07 - Coding control unit ⇒ page 94-27.

08 - Reading measured value block  
⇒ page 94-28.

10 - Adaptation ⇒ page 94-30.

## Interrogating and erasing fault memory

### Special tools, testers and aids required

- ◆ Vehicle system tester V.A.G 1552 with cable V.A.G 1551/3
- Switch on the ignition.
- Connect vehicle system tester V.A.G 1552 and select parking aid control unit (address word 76) ⇒ page 94-23.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Press the keys 0 and 2 for the function "Interrogate fault memory" and confirm the entry with the key Q.

X faults recognized!

◀ The number of stored faults or "no fault recognized!" appears in the display.

### If one or several faults are stored:

The stored faults are displayed one after the other.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Press keys 0 and 5 for the function "Erase fault memory" and confirm the entry with the key Q.

### Note:

*If you have switched off the ignition between "Interrogating fault memory" and "Erasing fault memory", the fault memory is not erased.*

Test of vehicle systems  
Fault memory is erased!

→

◀ Readout in display:

- Press the → key.
- Press keys 0 and 6 for the function "End output" and confirm the entry with the key Q.
- Rectify the faults displayed by referring to the fault table ⇒ page 94-26.

**If no fault is stored:**

- Press the → key.

Test of vehicle systems  
Select function XX

HELP

## ◀ Readout in display:

- Press keys 0 and 6 for the function "End output" and confirm the entry with the key Q.

**Fault table****Notes:**

- ♦ The fault table is arranged according to the 5-digit fault code shown on the left.
- ♦ Explanations of fault types (e.g. "open/short circuit to earth"):  
⇒ Operating Instructions of vehicle system tester
- ♦ If components are shown as faulty:  
First of all test the cables and plug connections to these components as well as the earth cables of the system according to the current flow diagram. Replace the component only if no fault is found in this case. This applies in particular if faults are displayed as "sporadically occurring" (SP).

| Readout on V.A.G 1552   | Possible cause of fault   | Possible effects                   | Rectifying fault  |
|---|---|------------------------------------|---|
| <b>01543</b><br><br><b>Parking aid warning buzzer -H15</b><br><br>Short circuit to earth  | ♦ Short circuit between -H15 and earth<br>♦ Warning buzzer faulty         | No warning provided when reversing | - Fault finding according to current flow diagram<br>- Replace H15  |
| <b>01545</b><br><br><b>Rear left parking aid sensor -G203</b><br><br>Short circuit to positive<br>Short circuit to earth          | ♦ Short circuit between -G203 and control unit and earth<br>♦ G203 faulty | No warning provided when reversing | - Fault finding according to current flow diagram<br>- Replace G203 |
| <b>01546</b><br><br><b>Rear left, middle parking aid sensor -G204</b><br><br>Short circuit to positive<br>Short circuit to earth  | ♦ Short circuit between -G204 and control unit and earth<br>♦ G204 faulty | No warning provided when reversing | - Fault finding according to current flow diagram<br>- Replace G204 |
| <b>01547</b><br><br><b>Rear right, middle parking aid sensor -G205</b><br><br>Short circuit to positive<br>Short circuit to earth | ♦ Short circuit between -G205 and control unit and earth<br>♦ G205 faulty | No warning provided when reversing | - Fault finding according to current flow diagram<br>- Replace G205 |



| Readout on V.A.G 1552   | Possible cause of fault   | Possible effects                   | Rectifying fault  |
|---|---|------------------------------------|---|
| <b>01548</b><br><br><b>Rear right parking aid sensor -G206</b><br><br>Short circuit to positive<br>Short circuit to earth | ♦ Short circuit between -G206 and control unit and earth<br>♦ G206 faulty | No warning provided when reversing | - Fault finding according to current flow diagram<br>- Replace G206 |
| <b>01549</b><br><br><b>Supply voltage for parking aid sensors</b><br><br>Short circuit to earth                           | ♦ Short circuit to earth between parking aid sensor and control unit      | Parking aid does not operate       | - Fault finding according to current flow diagram                   |
| <b>65535</b><br><br><b>Control unit defective</b>   | ♦ Parking aid control unit -J446 faulty                                   | Parking aid does not operate       | - Replace control unit  |

### Coding control unit

This function is used to code the parking aid control unit as follows:

- ♦ Gearbox fitted: manual shift or automatic shift
- ♦ Signal for reverse gear engaged: with or without function acknowledgement
- ♦ Vehicle model: e.g. Octavia

#### Note:

- ♦ *The control unit is coded in order to adapt the universal parking aid control unit -J446 specifically to the requirements of the particular model.*

### Performing coding

- Press keys 0 and 7 for the function "Code control unit" and confirm the entry with the key Q.

Code control unit  
Enter code number XXXXX (0-32000)

◀ Readout in display:

- Enter the code number by referring to the table of codes. Example: 00103

**Table of codes:**

| x | x | x | x | x | Code number                                    |
|---|---|---|---|---|--|
| 0 |   |   |   |   | without trailer coupling                       |
| 1 |   |   |   |   | with trailer coupling                          |
|   | 0 |   |   |   | manual shift                                   |
|   | 1 |   |   |   | automatic shift                                |
|   |   | 0 |   |   | without function acknowledgement <sup>1)</sup> |
|   |   | 1 |   |   | with function acknowledgement <sup>1)</sup>    |
|   |   |   | 0 |   | Octavia and Octavia Estate                     |
|   |   |   |   | 3 | Škoda  |

<sup>1)</sup> when reverse gear engaged

Code control unit Q  
Enter code number 00103 (0-32000)

◀ Readout in display:

- Confirm the entry with the key Q.

1J0919283 Parking aid 0001 →  
Coding 00103 WSC xxxxx

◀ Readout in display:

- End coding by pressing the → key.

Test of vehicle systems HELP  
Select function XX

◀ Readout in display:

## Reading measured value block

### Test procedure:

- Connect vehicle system tester V.A.G 1552 and select parking aid control unit (address word 76) ⇒ page 94-23.

Test of vehicle systems HELP  
Select function XX

◀ Readout in display:

- Press keys 0 and 8 and confirm the entry with the key Q.

Read measured value block Q  
Enter display group number XXX

◀ Readout in display:

- Enter the desired three-digit display group number and confirm the entry with the key Q.

What is now displayed is the measured value block selected in a standardised form.

## Measured value block 001

|   |        |       |       |   |                       |
|---|--------|-------|-------|---|-----------------------|
| Read measured value block 1             |        |       |       | → | ◀ Readout in display: |
| 50 cm                                   | 110 cm | 90 cm | 50 cm |   |                       |
|   |        |       |       |   |                       |
| Distance from rear right sensor         |        |       |       |   |                       |
| • 0 ... 200 cm                          |        |       |       |   |                       |
| Distance from rear right, middle sensor |        |       |       |   |                       |
| • 0 ... 200 cm                          |        |       |       |   |                       |
| Distance from rear left, middle sensor  |        |       |       |   |                       |
| • 0 ... 200 cm                          |        |       |       |   |                       |
| Distance from rear left sensor          |        |       |       |   |                       |
| • 0 ... 200 cm                          |        |       |       |   |                       |

## Measured value block 002

|                             |         |            |          |  |                       |
|-----------------------------|---------|------------|----------|--|-----------------------|
| Read measured value block 2 |         |            |          | →  | ◀ Readout in display: |
| 50 cm                       | 20 km/h | Signal off | Lamp off |  |                       |
|                             |         |            |          | Indicator lamp                                 |                       |
|                             |         |            |          | • Lamp on                                      |                       |
|                             |         |            |          | • Lamp off <sup>1)</sup>                       |                       |
|                             |         |            |          | Warning buzzer                                 |                       |
|                             |         |            |          | • Signal on                                    |                       |
|                             |         |            |          | • Signal off                                   |                       |
|                             |         |            |          | Vehicle speed                                  |                       |
|                             |         |            |          | • 0 ... 300 km/h                               |                       |
|                             |         |            |          | Minimum distance                               |                       |
|                             |         |            |          | • Minimum value of the four measured distances |                       |

<sup>1)</sup> Readout also if indicator lamp is not fitted.

## Measured value block 003

|                               |                |               |          |                            |
|-------------------------------|----------------|---------------|----------|----------------------------|
| Read measured value block 3 → |                |               |          | ◀ Readout in display:      |
| 12.0 V                        | Reverse<br>yes | Trailer<br>no | operated |                            |
|                               |                |               |          | Function pushbutton        |
|                               |                |               |          | • operated <sup>1)</sup>   |
|                               |                |               |          | • not operated             |
|                               |                |               |          | Indication of trailer      |
|                               |                |               |          | • Trailer yes              |
|                               |                |               |          | • Trailer no               |
|                               |                |               |          | Indication of reverse gear |
|                               |                |               |          | • Reverse gear yes         |
|                               |                |               |          | • Reverse gear no          |
|                               |                |               |          | Sensor supply voltage      |
|                               |                |               |          | • 0 ... 15 V               |

<sup>1)</sup> Readout also if function pushbutton not fitted.

## Adaptation

The adaptation function is used to alter the volume of the warning signal (channel 01):

## Performing function "10 - Adaptation"

|   |      |
|---|------|
| Test of vehicle systems<br>Select function XX | HELP |
|---|------|

◀ Readout in display:

- Press keys 1 and 0 and confirm the entry with the key Q.

|                                       |
|---------------------------------------|
| Adaptation<br>Enter channel number XX |
|---------------------------------------|

◀ Readout in display:

- Press keys 0 and 1(channel number).
- Confirm the entry with the key Q.

|  |   |
|--|---|
| Channel 01   Adaptation   6<br>(← ↑ ↓ →) | → |
|--|---|

◀ Readout in display:

- Press → key.

|   |
|---|
| Channel 01   Adaptation   6<br>Enter adaptation value XXXXX |
|---|

◀ Readout in display:

- Now, enter the adaptation value manually (e.g. 00005).

The volume can be altered in stages from 1 to 10.

|   |   |      |   |
|---|---|------|---|
| Channel 01   Adaptation<br>Enter adaptation value 00005 | 6 | Q    | ◀ Readout in display:<br><br>- Confirm the entry with the key Q.                  |
| Channel 01   Adaptation<br>5<br>< - ↑ ↓ - >             | 5 | Q    | ◀ Readout in display:<br><br>- Confirm the entry with the key Q.                  |
| Channel 01   Adaptation<br>Store changed value?         | 5 | Q    | ◀ Readout in display:<br><br>- Confirm the entry with the key Q.                  |
| Channel 01   Adaptation<br>Changed value is stored      | 5 | →    | ◀ Readout in display:<br><br>- End adaptation of volume by pressing the<br>→ key. |
| Test of vehicle systems<br>Select function XX           |   | HELP | ◀ Readout in display:   |

## „TAXI“ roof sign

### **Warning!**

**Disconnect the earth strap of the battery before commencing work on the electrical system.**

### **Notes:**

- ◆ Before disconnecting the battery, determine the code of radio sets fitted with anti-theft coding.
  - ◆ When re-connecting the battery, carry out the following steps:
    - Encode the radio on vehicles fitted with radio security code,
    - set the clock,
    - initialise the power windows on vehicles fitted with power windows.
- ⇒ Inspection and Maintenance

## Removing and installing fixture for „TAXI“ roof sign

### **Removing**

- Remove roof sign  
⇒ Owner's Manual.
- Remove headliner  
⇒ Body Fitting Work; Repair Group 70.

Applies to vehicles with roof rack

- Remove roof rack  
⇒ Body Fitting Work; Repair Group 66.

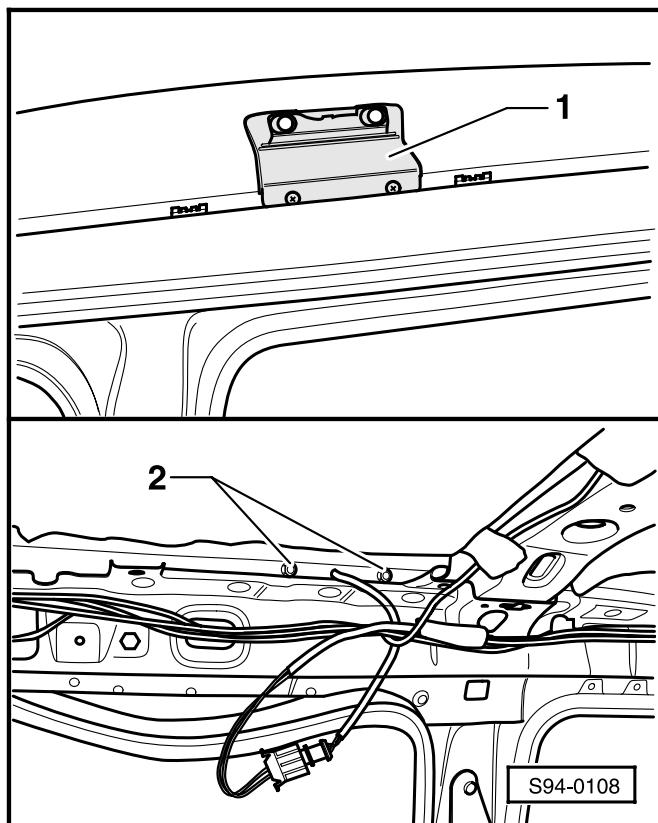
Applies to all vehicles

- Remove roof trim strips  
⇒ Body Fitting Work; Repair Group 66.

- ◀ - Unscrew nuts -2-.
- Separate plug connection, take out contacts and take off fixture -1-.

### **Installing**

- Installation is carried out in the reverse order by adopting the same procedure.



## Self-diagnosis of xenon head-lights with automatic control (Litronic 4.1 system)

### General information

The system comprises a D2S gas discharge bulb with automatic control of the headlight level, depending on the inclination of the vehicle relative to the road surface.

The headlight level control operates on the basis of the data supplied by two sensors which are positioned at the front axle and rear axle. All the calculations necessary for operating the stepping motors are carried out in the left headlight (master) and, in accordance with the connection of the electrical installation, the information is transmitted to the right headlight (slave).

If faults occur in the Litronic 4.1 system (failure of gas discharge bulb, ignition unit not operating, open circuit in wiring of sensor, front or rear sensor faulty), this fault is indicated by the orange-coloured warning light with the illuminated bulb symbol in the dash panel insert (only L&K version).

### Special tools, testers and aids required

- ◆ Vehicle system tester V.A.G 1552 with cable V.A.G 1551/3, 3A, 3B or 3C

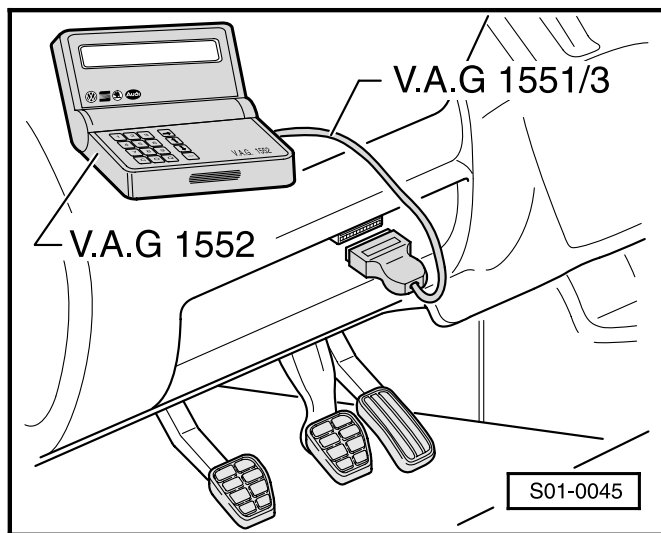
### Connecting vehicle system tester V.A.G 1552

#### Test conditions

- Battery voltage at least 11.5 V
- Earth connections at engine and gearbox o.k.
- Fuses according to current flow diagram o.k.

The diagnostic connection is located in the storage compartment on the driver side.

- ◀ - Connect vehicle system tester V.A.G 1552 with the appropriate cable.
- Switch ignition on.
- ◀ Readout in display:



Test of vehicle systems  
Enter address word XX

HELP

**Note:**

*If no readout appears in the display:*

⇒ Operating instructions of vehicle system tester.

Communication can be established after entering the address word 29 for the master (left-headlight), on 39 for the slave (right headlight).

- Enter address word 29 or 39 „Xenon headlights“ and confirm the entry with the key Q.

|              |                    |           |   |
|--------------|--------------------|-----------|---|
| 1U041651     | EVG GDL + Auto HBC | 0001      | → |
| Coding 00005 |                    | WSC 00123 |   |

◀ The display appears after about 5 seconds (example):

- ◆ 1U041651: Part No. of control unit
- ◆ EVG GDL+ Auto HBC: designation
- ◆ 0001: software version
- ◆ Coding 00005: coding
- ◆ 00123: workshop code

**Note:**

*Check the coding by referring to the table of codes ⇒ page 94-41.*

- Press → key.

|                               |      |
|-------------------------------|------|
| Test of vehicle systems       | HELP |
| Control unit does not answer! |      |

◀ *If one of the following messages appears in the display, carry out fault finding according to „Fault Finding Programme“ in the diagnostic cable:*

⇒ Current Flow Diagrams, Fault Finding and Fitting Locations binder

|                                 |      |
|---------------------------------|------|
| Test of vehicle systems         | HELP |
| Fault in communication build-up |      |

|                               |      |
|-------------------------------|------|
| Test of vehicle systems       | HELP |
| K wire not switching to earth |      |

|                                  |      |
|----------------------------------|------|
| Test of vehicle systems          | HELP |
| K wire not switching to positive |      |

- A list of the possible functions is displayed after pressing the HELP key.
- Move forward in the test programme by pressing the → key.

**List of available functions**

The following functions are possible:

- 02 - Interrogating fault memory  
⇒ page 94-35
- 03 - Final control diagnosis ⇒ page 94-38
- 04 - Initiating basic setting ⇒ page 94-39
- 05 - Erasing fault memory ⇒ page 94-39
- 06 - Ending output ⇒ page 94-40
- 07 - Coding control unit ⇒ page 94-40



08 - Reading measured value block ⇒ page 94-41

## Interrogating fault memory

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Select function 02 „Interrogate fault memory“ and confirm the entry with the key Q.

X faults recognised!

◀ The number of stored faults appears in the display.

The stored faults are displayed one after the other.

- Look in the fault table for the fault message displayed and rectify fault ⇒ page 94-35.

No fault recognised!

→

◀ If „No fault recognised“ is displayed, the programme returns to its initial setting after the → key is pressed.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

If a different readout appears in the display:  
⇒ Operating instructions of the vehicle system tester.

- End output (function 06) ⇒ page 94-40.

## Fault table

### Notes:

- ♦ All the possible faults which can be recognised on V.A.G 1552, are listed below according to the 5-digit fault code.
- ♦ Before replacing components which are recognised as faulty, first of all test the cables and plug connections to these components as well as the earth connections according to the current flow diagram.
- ♦ After completing repairs, always once again interrogate the fault memory with the vehicle system tester V.A.G 1552, and erase it.
- ♦ All static and sporadic faults are stored in the fault memory:  
A fault is recognised as static if it exists for at least 2 seconds. If the fault then no longer exists after this time, it is stored as a sporadic fault. In this case „/SP“ also appears in the right of the display.
- ♦ After the ignition is switched on, all the faults present are set to sporadic and are stored as static faults only if the subsequent check reveals that they still exist.
- ♦ If a sporadic fault no longer occurs during 50 driving cycles (ignition on for at least 5 minutes, vehicle speed > 30 km/h), it is erased.

| Readout on V.A.G 1552  | Possible cause of fault  | Rectifying fault   |
|--|--|--|
| 65535 136 <sup>1)</sup><br>♦ no fault recognised   | If „No fault recognised“ is displayed after completing repairs, self-diagnosis is ended.   |  |
| 65535 000 <sup>1)</sup><br>♦ control unit defective                                      | ♦ Internal failure of control unit<br>♦ Internal failure of ECU on ignition of gas discharge bulb  | - Replace control unit   |
| 00496<br>Front vehicle level sensor<br>♦ signal too small<br>♦ signal too large          | ♦ Sensor main wiring loom faulty<br>♦ Sensor faulty  | - Test main wiring loom and sensor cable<br>⇒ Current Flow Diagrams, Fault Finding and Fitting Locations<br>- Replace front sensor |
| 00497<br>Rear vehicle level sensor<br>♦ signal too small<br>♦ signal too large           | ♦ Sensor main wiring loom faulty<br>♦ Sensor faulty  | - Test main wiring loom and sensor cable<br>⇒ Current Flow Diagrams, Fault Finding and Fitting Locations<br>- Replace rear sensor  |
| 00546<br>Dataline defective<br>♦ implausible signal                                      | ♦ Slave receiving incorrect communication signal   | - Test main wiring loom between master ECU and slave sensor cable<br>- Test master<br>- Replace slave ECU                          |
| 01344<br>Gas discharge bulb<br>♦ signal not to tolerance                                 | ♦ Static voltage on ignition of discharge bulb not within permissible range (after 3 minutes ignition time)<br>♦ Gas discharge bulb faulty<br>♦ Gas discharge bulb is at end of life                                     | - Replace gas discharge bulb   |
| 01345<br>Gas discharge bulb ignition module -N195<br>♦ implausible signal<br>♦ defective | ♦ Ignition of gas discharge bulb not successful  | - If fault 01344 is stored, replace gas discharge bulb<br>- Otherwise, replace ignition/high voltage unit                          |
|  | ♦ Electrical fault at high voltage unit when preparing ignition/artificial light source<br>♦ Ignition/high voltage unit is faulty<br>♦ Ignition/high voltage unit missing or plug connection is not correctly plugged in | - Test main wiring loom between ECU and ignition/high voltage unit<br>- Replace ignition/high voltage unit                         |
| 01344<br>Gas discharge bulb<br>♦ defective   | ♦ Ignition of gas discharge bulb is not possible   | - Replace gas discharge bulb   |

| Readout on V.A.G 1552  | Possible cause of fault  | Rectifying fault   |
|--|--|--|
| 01346<br>Cable to ignition module<br>♦ signal out of tolerance                       | ♦ Electrical fault at ECU output when preparing ignition of gas discharge bulb       | <ul style="list-style-type: none"> <li>- Test main wiring loom between ECU and ignition/high voltage unit</li> <li>- Replace ignition/high voltage unit</li> <li>- Replace control unit</li> </ul>   |
| 01533<br>Tml. 56 (headlight)<br>♦ voltage supply too large<br>♦ resistance too large | ♦ Undervoltage switch-off of gas discharge bulb                                      | <ul style="list-style-type: none"> <li>- If fault 01344 is stored, replace gas discharge bulb</li> <li>- Otherwise, replace ignition/high voltage unit</li> </ul>  |
|  | ♦ Undervoltage switch-off of headlight because resistance of lead excessive          | <ul style="list-style-type: none"> <li>- Test main wiring loom and contacts</li> </ul>   |
| 01537<br>Vehicle level sensor supply volt.<br>♦ signal out of tolerance              | ♦ Sensor main wiring loom faulty   | <ul style="list-style-type: none"> <li>- Test main wiring loom and sensor cable<br/>⇒ Current Flow Diagrams, Fault Finding and Fitting Locations</li> <li>- Replace control unit</li> </ul>  |
| 01538<br>Headlight beam control motors -V48/V49<br>♦ electr. fault in circuit        | ♦ Electrical fault detected when operating stepping motor (e.g. motor not connected) | <ul style="list-style-type: none"> <li>- Test stepping motor cable</li> <li>- Replace stepping motor</li> <li>- Replace ECU</li> </ul>   |
| 01539<br>Headlights not adjusted   | ♦ As-delivered condition<br>♦ Headlight setting - interrupted, or not successful     | <ul style="list-style-type: none"> <li>- Carry out headlight setting (initiate basic setting) ⇒ page 94-39</li> </ul>  |
| 01771<br>AHBC control unit<br>♦ incorrectly connected                                | ♦ Master control unit is recognised as slave, or vice versa (e.g. if interchanged)   | If master recognised: <ul style="list-style-type: none"> <li>- Test main wiring harness of sensors, and sensors<br/>⇒ Current Flow Diagrams, Fault Finding and Fitting Locations</li> <li>- Replace control unit</li> </ul> If slave recognised: <ul style="list-style-type: none"> <li>- Test main wiring harness<br/>⇒ Current Flow Diagrams, Fault Finding and Fitting Locations</li> <li>- Replace control unit</li> </ul> |

<sup>1)</sup> Index indicating type of fault.

## Final control diagnosis

### Conditions

- Vehicle stationary
- Ignition switched on

### Note:

*If the engine is run or the vehicle moved, the final control diagnosis cannot be initiated, or it is interrupted.*

### Conducting self-diagnosis:

In this operating mode test both headlight parabolas only with the address word Master 29.

- Connect vehicle system tester V.A.G 1552 and select address word 29 „Xenon headlights“; ignition is switched on for this step ⇒ page 94-33.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Enter function 03. Confirm the entry with the key Q.

Final control diagnosis  
Headlights are lowered

→

◀ Readout in display:

Both headlight parabolas are moved down as far as the stop.

- Press → key.

Final control diagnosis  
Headlights are raised

→

◀ Readout in display:

Both headlight parabolas are raised as far as the stop.

- Press → key.

Headlights are tilted into the set position „0“.

Final control diagnosis  
END

→

◀ Readout in display:

- Press → key.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

## Initiating basic setting

Basic setting is carried out only at the master; address word 29.

### Conditions

- Vehicle after mechanically setting the parts (after driving off the lift platform or straightening bench)
- Pay attention to zero positions (vehicle without driver, only unladen weight)
- Ignition switched on
- Low beam switched on

|   |      |
|---|------|
| Test of vehicle systems<br>Select function XX | HELP |
|---|------|

◀ Readout in display:

- Enter function 04. Confirm the entry with the key Q.

|   |   |
|---|---|
| Basic setting<br>Enter display group number XXX | Q |
|---|---|

◀ Readout in display:

- Enter 001 and confirm the entry with the key Q.

|   |     |
|---|-----|
| System in basic setting<br>Set headlights | 1 → |
|---|-----|

◀ Readout in display:

- Set headlights mechanically.  
⇒ Inspection and Maintenance
- Press → key.

|   |      |
|---|------|
| Test of vehicle systems<br>Select function XX | HELP |
|---|------|

◀ Readout in display:

- Enter function 04 and confirm the entry with the key Q.

|   |   |
|---|---|
| Basic setting<br>Enter display group number XXX | Q |
|---|---|

◀ Readout in display:

- Enter 002 and confirm the entry with the key Q.

|   |     |
|---|-----|
| System in basic setting<br>Control pos. learned | 2 → |
|---|-----|

◀ Readout in display:

- Press → key.

|   |      |
|---|------|
| Test of vehicle systems<br>Select function XX | HELP |
|---|------|

◀ Readout in display:

## Erasing fault memory

### Note:

*If it is not possible to erase the fault memory, interrogate fault memory once again and rectify any faults.*

### Requirements:

- Fault memory has been interrogated ⇒ page 94-35.
- All faults have been rectified.

After interrogating fault memory:

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Enter function 05 and confirm the entry with the key Q.

Test of vehicle systems  
Fault memory is erased

→

◀ Readout in display:

The fault memory is now erased.

- Press → key.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

#### Note:

◀ ♦ *If this message appears in the display, the test sequence is then faulty.*

- ♦ *Follow the test sequence exactly, first of all interrogate fault memory, rectify any faults, and then erase fault memory.*

- End output (function 06) ⇒ page 94-40.

### Ending output

- Enter 06 for „End output“.

Test of vehicle systems  
06 - End output

Q

◀ Readout in display:

- Confirm entry with the key Q.

Test of vehicle systems  
Enter address word XX

HELP

◀ Readout in display:

- Switch ignition off.
- Separate vehicle system tester.

### Coding control unit

The parameter coding must be carried out individually for master (left headlight - address word 29) and for slave (right headlight - address word 39).

#### Coding

- Connect vehicle system tester V.A.G 1552 with cable V.A.G 1551/3.
- Switch ignition on.

Test of vehicle systems  
Enter address word XX

HELP

◀ Readout in display:

- Enter address word 29 for left headlight and confirm the entry with the key Q.

1U041651 EVG GDL + Auto HBC 0001 →  
Coding 00005 WSC 00123

◀ Readout in display:

- Press → key.
- Select function 07.

Code control unit Q  
Enter code number XXXXX (0-32000)

- Confirm the entry with the key Q.

◀ Readout in display:

- Enter code number on the basis of the table of codes and confirm the entry with the key Q.

#### Table of codes:

|       |                   |
|-------|-------------------|
| 00005 | Front-wheel drive |
| 00006 | 4x4               |

1U041651 EVG GDL + Auto HBC 0001 →  
Coding 00005 WSC 00123

◀ The control unit coding appears in the display (example 00005).

- Press → key.

Test of vehicle systems HELP  
Select function XX

◀ Readout in display:

- End output (function 06) ⇒ page 94-40.

After this, enter address word 39 and code right headlight - coding is identical as for address word 29.

#### Reading measured value block

Test of vehicle systems HELP  
Select function XX

◀ Readout in display:

- Enter function 08 and confirm the entry with the key Q.

Read measured value block HELP  
Enter display group number XXX

◀ Readout in display:

- Enter display group number of the desired display group and confirm the entry with the key Q.

What is now displayed is the selected measured value block.

## Measured value block 001

|                               |        |        |   |  |
|-------------------------------|--------|--------|---|--|
| Read measured value block 1 → |        |        |   | ◀ Readout in display   |
| 12.3 V                        | 11.2 V | 0 km/h | 0 |  |
|                               |        |        |   | Status of vehicle  |
|                               |        |        |   | <ul style="list-style-type: none"> <li>• 0 - vehicle stationary (up to 5 km/h)</li> <li>• 85 - vehicle moving at uniform speed</li> <li>• 255 - vehicle not moving at uniform speed</li> </ul> |
|                               |        |        |   | Vehicle speed  |
|                               |        |        |   | Voltage terminal 56b   |
|                               |        |        |   | <ul style="list-style-type: none"> <li>• less than 10.5 V, correct light function is not assured</li> </ul>  |
|                               |        |        |   | Voltage terminal 15  |
|                               |        |        |   | <ul style="list-style-type: none"> <li>• less than 10.5 V, correct light function is not assured</li> </ul>  |

## Measured value block 002

|                               |        |        |     |  |
|-------------------------------|--------|--------|-----|--|
| Read measured value block 2 → |        |        |     | ◀ Readout in display   |
| 2.4 V                         | 2.10 V | -0.5 % | 216 |  |
|                               |        |        |     | Actuation of stepping motor  |
|                               |        |        |     | Setting signal transmitted from master to slave  |
|                               |        |        |     | Voltage at rear sensor (master - left headlight)   |
|                               |        |        |     | not assigned (slave - right headlight)   |
|                               |        |        |     | <ul style="list-style-type: none"> <li>• 1.9 to 2.3 V - FWD models</li> <li>• 3.5 to 3.9 V - 4x4 models</li> </ul> |
|                               |        |        |     | Voltage at front sensor (master - left headlight)  |
|                               |        |        |     | not assigned (slave - right headlight)   |
|                               |        |        |     | <ul style="list-style-type: none"> <li>• 2.3 to 2.8 V - vehicle stationary with no load</li> </ul>                 |

## Measured value block 003

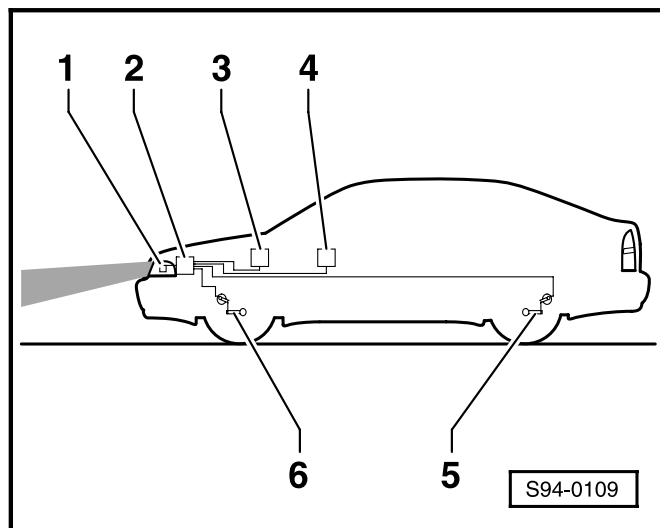
|                               |    |  |  |   |
|-------------------------------|----|--|--|---|
| Read measured value block 3 → |    |  |  | ◀ Readout in display  |
| 42                            | 54 |  |  |   |
|                               |    |  |  |   |
|                               |    |  |  | Voltage at gas discharge bulb   |
|                               |    |  |  | <ul style="list-style-type: none"> <li>• 45 to 95 V, after bulb has heated through</li> </ul> |
|                               |    |  |  | Output at gas discharge bulb  |
|                               |    |  |  | <ul style="list-style-type: none"> <li>• 32 to 65 W, after bulb has heated through</li> </ul> |



## Xenon headlights with automatic control (Litronic 4.1 system) - complete overview

**Warning!**

*Disconnect earth strap of the battery before commencing work on the electrical system.*

**1 - Headlight with stepping motor and ignition of gas discharge bulb**

- ◆ Removing and installing  
⇒ page 94-44

**2 - Xenon headlight control unit**

- ◆ Removing and installing  
⇒ page 94-47

**3 - ABS control unit**

- ◆ Removing and installing ⇒ Running Gear; Repair Group 45

**4 - Dash panel insert - fault indication**

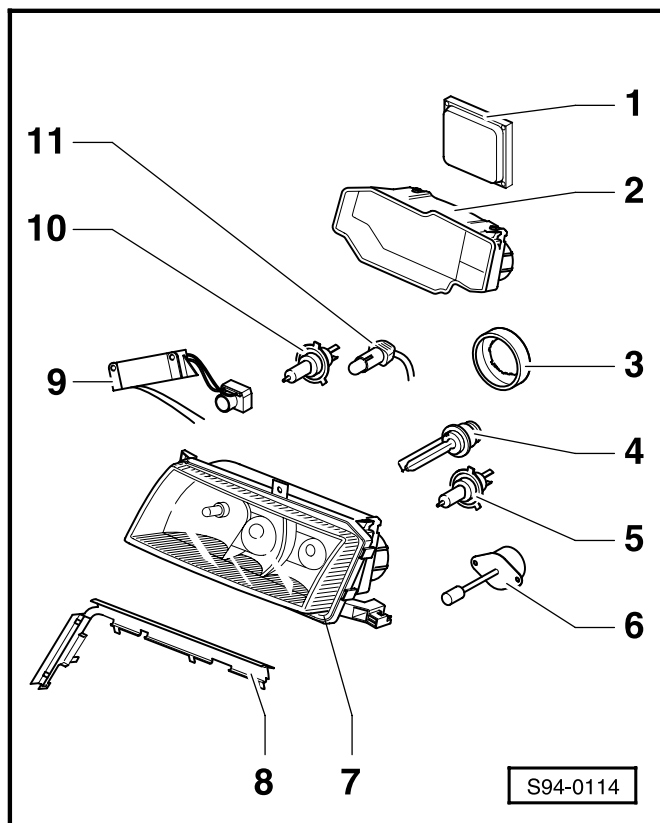
- ◆ Orange warning light with illuminated bulb symbol

**5 - Rear sensor**

- ◆ At rear axle
- ◆ Removing and installing  
⇒ page 94-47
- ◆ Setting ⇒ page 94-48

**6 - Front sensor**

- ◆ At front axle
- ◆ Removing and installing  
⇒ page 94-47
- ◆ Setting ⇒ page 94-48



## Headlight with control unit

### Note:

After carrying out work which may affect the setting of the headlights (e.g. Removing headlight), it is then necessary to re-set the headlights.

#### 1 - Bosch Litronic 4.1 control unit

- ♦ Removing and installing  
⇒ page 94-47

#### 2 - Scuttle panel

#### 3 - Holder of gas discharge bulb (locking plate of gas discharge bulb)

#### 4 - D2S gas discharge bulb

- ♦ Removing and installing  
⇒ page 94-46

#### 5 - H1 fog light bulb

- ♦ Replacing bulb ⇒ page 94-45

#### 6 - Stepping motor

- ♦ Removing and installing  
⇒ page 94-46

#### 7 - Headlight housing

#### 8 - Optical seal

#### 9 - BOSCH 2.3 ignition/high voltage unit

- ♦ Removing and installing  
⇒ page 94-46

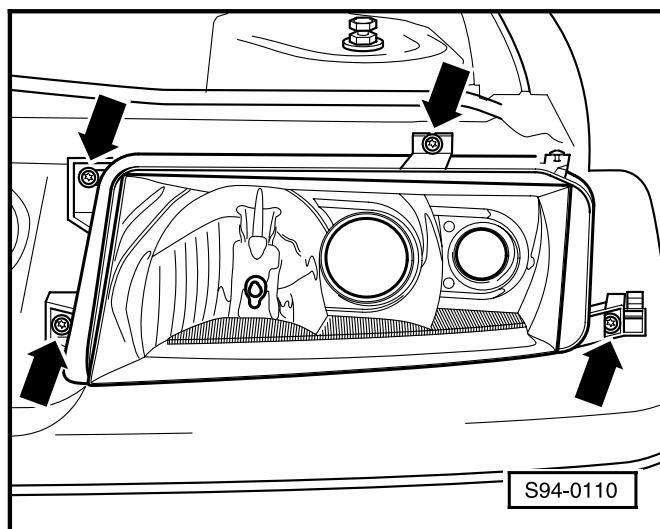
#### 10 - H3 main beam bulb

- ♦ Replacing bulb ⇒ page 94-45

#### 11 - H-W5W side light bulb

- ♦ Replacing bulb ⇒ page 94-45

## Removing and installing xenon headlight



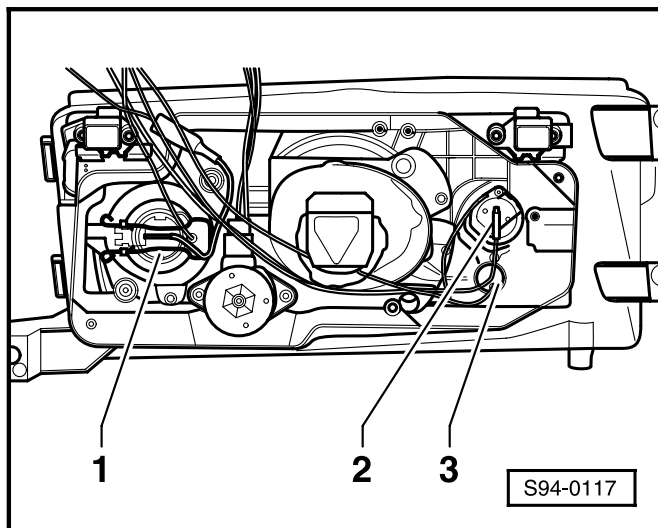
### Warning!

Disconnect earth strap of the battery before commencing work on the electrical system.

### Note:

Mask over bumper in the area of the headlight with adhesive tape in order to avoid damaging the paintwork.

- Remove turn signal lights ⇒ page 94-6.
- ◀ - Take out screws -arrows- (2 Nm).
- Pull headlight forward out of the body.
- Separate headlight plug connections.



### Installing

- Installation is carried out in the reverse order.
- Match up headlight to the contours of the body and attach.
- After installing, carry out basic setting  
⇒ page 94-39.

### Replacing bulbs in headlight

#### Replacing bulbs for fog light and main beam

#### Removing

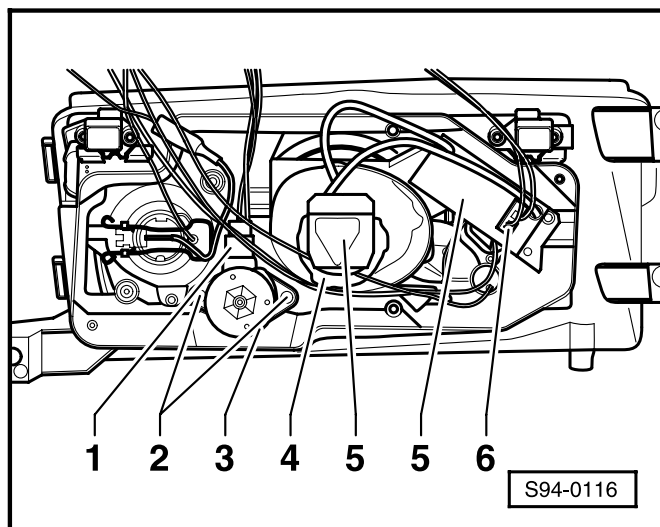
- Remove headlight ⇒ page 94-44.
- Remove scuttle panel.
- Remove Bosch 2.3 ignition unit (only for replacing main beam bulb) ⇒ page 94-46.
- ◀ - Separate plug connection at bulb for fog light -1- or at bulb for main beam -2-, respectively.
- Release the relevant spring and take the bulb out of the headlight housing.

#### Installing

- Fit together the plug connection.
- Insert bulb into the bulb base. Do not touch the glass surface of the bulb with your bare hand!
- Secure bulb with the spring.
- Install the scuttle panel.
- Install headlight ⇒ page 94-44.

#### Removing and installing bulb for side light

- Remove headlight ⇒ page 94-44.
- Remove scuttle panel.
- Pull bulb together with base -3- out of reflector.
- Take bulb out of its base.
- Replace bulb and push bulb with base in fully.



## Removing and installing D2S gas discharge bulb

### Removing

- Remove headlight ⇒ page 94-44.
- Remove scuttle panel.
- ◀ Detach ignition unit from gas discharge bulb -5-.
- Remove holder for gas discharge bulb -4- and take out bulb. Do not touch the glass surface of the bulb with your bare hand!

### Installing

- Installation is carried out in the reverse order.

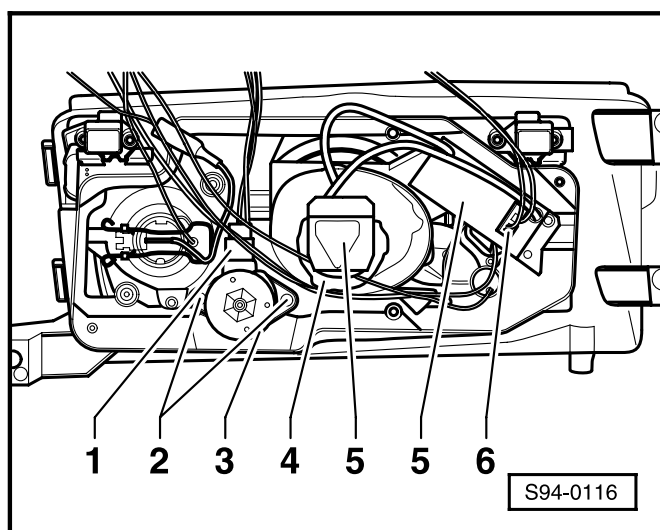
## Removing and installing Bosch 2.3 ignition/high voltage unit

### Removing

- Remove headlight ⇒ page 94-44.
- Remove scuttle panel.
- ◀ Separate plug connection from unit -6-.
- Detach ignition unit -5- from the gas discharge bulb.
- Remove the screws attaching the unit.
- Take out ignition unit -5-.

### Installing

- Installation is carried out in the reverse order.



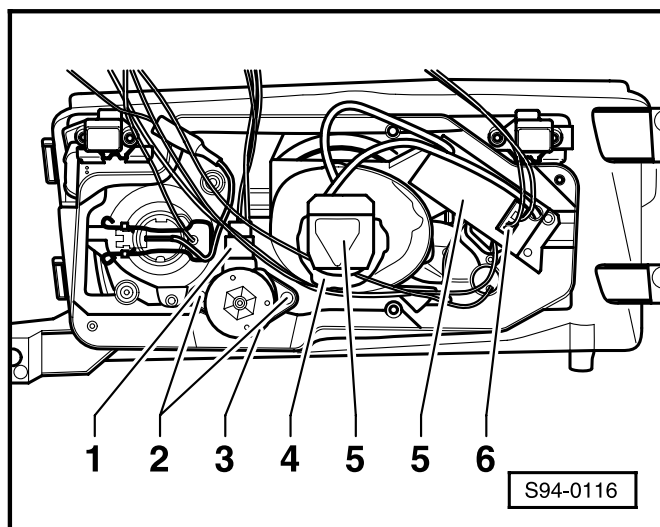
## Removing and installing stepping motor

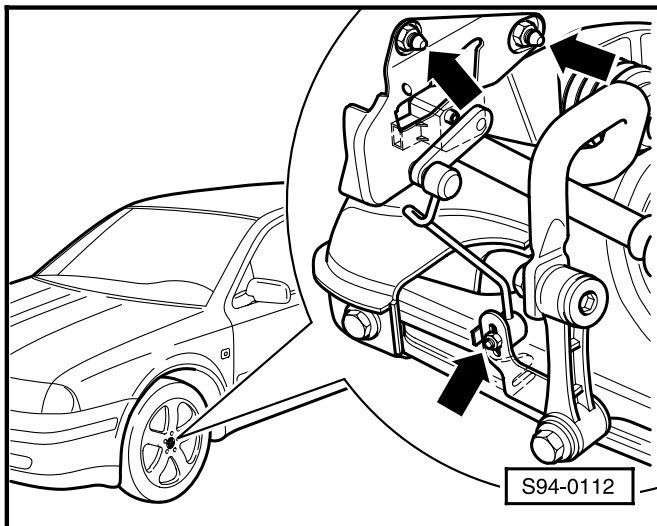
### Removing

- Remove headlight ⇒ page 94-44.
- Remove scuttle panel.
- ◀ Separate plug connection for stepping motor -1-.
- Take out the screws attaching the motor -2-.
- Take out stepping motor -3-.

### Installing

- Installation is carried out in the reverse order.





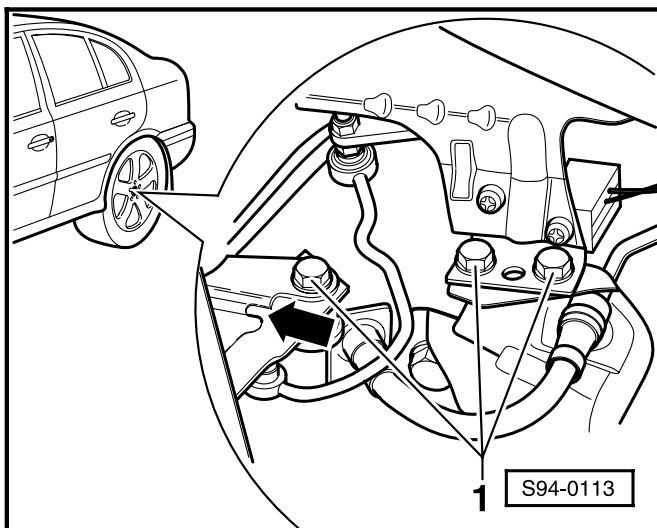
### Removing and installing front sensor

#### Removing

- Raise vehicle.
- Separate the plug connection of the sensor.
- Mark the installation position of the sensor pull rod (only in the case of old sensor).
- ◀ - Remove the bolts attaching the sensor and pull rod -arrows-.

#### Installing

- Installation is carried out in the reverse order.
- Adjust pull rod ⇒ page 94-48 (only in the case of new sensor).



### Removing and installing rear sensor

#### Removing

- Raise vehicle.
- Separate the plug connection of the sensor.
- ◀ - Remove the bolts attaching the sensor and pull rod -1-.

#### Installing

#### Note:

*When installing, align sensor against the stop of the opening -arrows-.*

- Installation is carried out in the reverse order.
- Align pull rod ⇒ page 94-48.

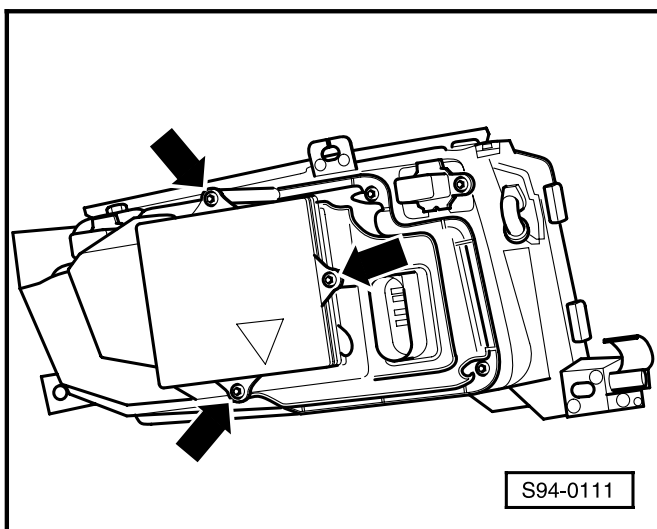
### Removing and installing control unit

#### Removing

- Remove headlight ⇒ page 94-44.
- ◀ - Remove the bolts attaching the control unit -arrows-.
- Take off control unit and separate plug connection at the same time.

#### Installing

- Installation is carried out in the reverse order.



## **Adjusting facilities for sensors**

### **Adjusting front sensor:**

**Models 08.01 ►  
(only with 1.8-ltr/110 and 132 kW, 1.9-ltr/74  
and 81 kW engines)**

- No adjustment.

### **Other models**

This involves adjusting a pull rod which is part of the sensor.

- Raise vehicle.

### **FWD models**

Front-wheel drive with anti-roll bar attached to steering link.

- Adjust pull rod to plastic device which is a part of the new sensor.
- After installing, remove the device.

Front-wheel drive with anti-roll bar attached to suspension strut.

- Adjust pull rod to middle of recess.

### **4x4 models**

4x4 drive with anti-roll bar attached to suspension strut.

- Adjust pull rod up to stop of top recess.

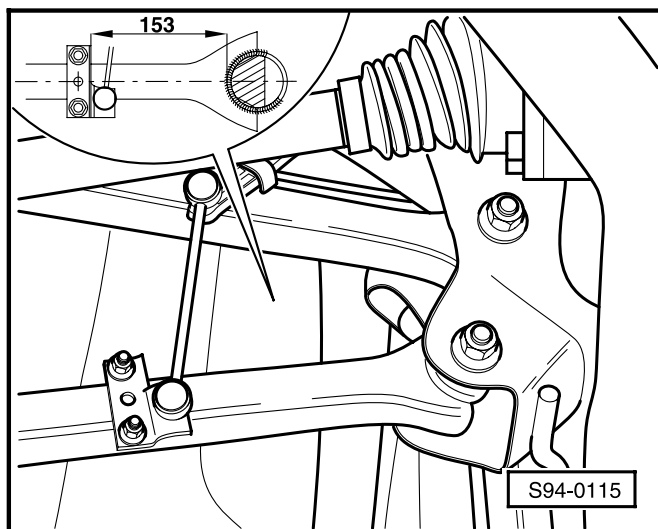
4x4 drive with anti-roll bar attached to steering link.

- Adjust pull rod to plastic device which is part of the new sensor.
- After installing, remove the device.

### **Adjusting rear sensor:**

### **FWD models**

- No adjustment.

**4x4 models**

- ◀ - Adjust to a distance of 153 mm between pull rod bar of sensor and steering link eye.

**Specifications for sensors**

Voltage at front sensor when vehicle stationary with no load: 2.3 - 2.8 V.

Voltage at rear sensor when vehicle stationary with no load for FWD models: 1.9 - 2.3 V.

Voltage at rear sensor when vehicle stationary with no load for 4x4 models: 3.5 - 3.9 V.

**Contact assignment on xenon headlights****Contact assignment of 20-pin control unit**

- 1 - Igniter - H
- 2 - Igniter - negative
- 3 - Igniter - positive
- 4 - Terminal 56b
- 5 - Terminal 31
- 6 - Rear sensor signal
- 7 - Sensor GND
- 8 - Front sensor signal
- 9 - Connection to SLAVE
- 10 - Warning light
- 11 - Sensor voltage supply
- 12 - Terminal 15
- 13 - Diagnosis
- 14 - not assigned
- 15 - not assigned
- 16 - Vehicle speed signal
- 17 - Stepping motor
- 18 - Stepping motor
- 19 - Stepping motor
- 20 - Stepping motor

**Contact assignment of left headlight**

12-pin plug connection for connecting to main wiring loom of electrical system.

- 1 - Terminal 15 from fuse 2 of inner fuse holder
- 2 - Diagnosis
- 3 - Terminal 58L, side light
- 4 - Fog light
- 5 - Terminal 56A main beam
- 6 - Terminal 56B dipped beam
- 7 - Terminal 31 GND for side light, main beam, fog light
- 8 - Terminal 31 GND for dipped beam, control unit and stepping motor
- 9 - Vehicle speed signal of ABS
- 10 - not assigned
- 11 - From dash panel insert pin 21 green connector
- 12 - Left - right headlight bridge

4-pin plug connection for sensor connection of vehicle (only for master - left headlight)

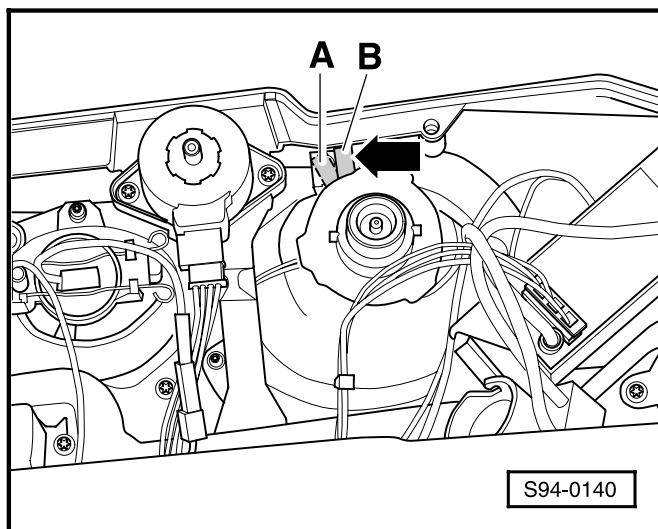
- 1 - Sensor voltage supply
- 2 - Rear sensor signal
- 3 - Front sensor signal
- 4 - Sensor GND

**Contact assignment of right headlight**

12-pin plug connection for connecting to main wiring loom of electrical system.

- 1 - Terminal 15 from fuse 2 of inner fuse holder
- 2 - Diagnosis
- 3 - Terminal 58L, side light
- 4 - Fog light
- 5 - Terminal 56A main beam
- 6 - Terminal 56B dipped beam
- 7 - Terminal 31 GND for side light, main beam, fog light
- 8 - Terminal 31 GND for dipped beam, control unit and stepping motor
- 9 - not assigned
- 10 - not assigned
- 11 - From dash panel insert pin 21 green connector
- 12 - Left - right headlight bridge

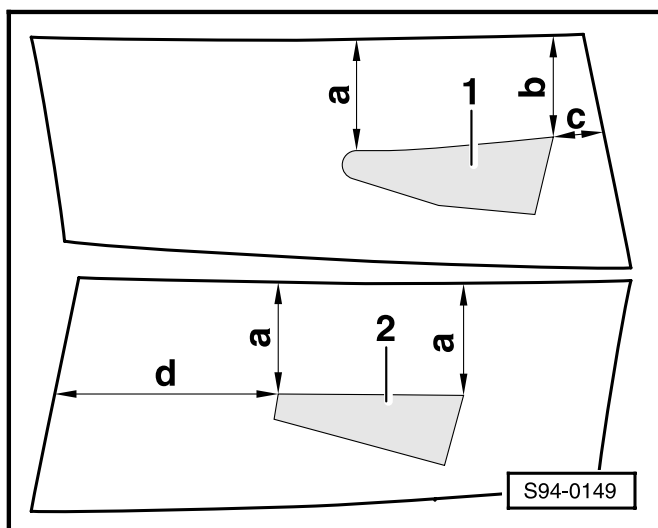




### Switching over xenon headlight interior screen

The xenon headlight interior screen should be switched over appropriately when driving in countries in which the traffic drives on the right, or left, in order to avoid dazzling oncoming road users.

- Remove headlight ⇒ page 94-44.
- Remove plastic cover ⇒ page 94-44.
- ◀ - Use a blunt object to switch over the lever -arrow- into position A (for countries in which the traffic drives on the right), or into position B (for countries in which the traffic drives on the left).



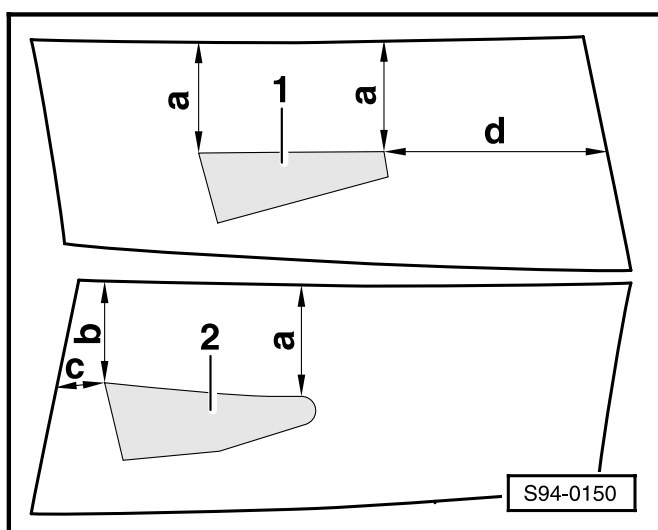
The situation of the left-hand headlight is a mirror image.

### Masking over halogen headlights

When driving in countries in which the traffic drives on the right or left, respectively, the halogen headlights should be masked over with self-adhesive strips in order to avoid dazzling oncoming road users.

#### LHD models when motoring in countries which drive on the left

- ◀ - Stick the self-adhesive masking tape -1- onto the right headlight lens, as shown in the illustration.
- Stick the self-adhesive masking tape -2- onto the left headlight lens, as shown in the illustration.



#### RHD models when motoring in countries which drive on the right

- ◀ - Stick the self-adhesive masking tape -1- onto the right headlight lens, as shown in the illustration.
- Stick the self-adhesive masking tape -2- onto the left headlight lens, as shown in the illustration.

#### Continued for all models

- Pay attention to the dimensions:
  - a- = 69 mm
  - b- = 63 mm
  - c- = 31 mm
  - d- = 138 mm



## Diagnosis of electronic immobiliser

### Self-diagnosis of immobiliser 1st generation

#### General information:

#### Function

The electronic immobiliser consists of

- ◆ an immobiliser control unit
- ◆ an adapted engine control unit
- ◆ a warning light in the dash panel insert
- ◆ a reader coil at the ignition lock
- ◆ adapted ignition keys with electronics (transponder)

The control unit for the electronic immobiliser is integrated in the dash panel insert, i. e. if the control unit is faulty it is also necessary to replace the dash panel insert.

The immobiliser intervenes in the engine management system through an adapted engine control unit.

The reader coil of the immobiliser reads the response code of the transponder each time the ignition is switched on.

If an authorised car key is used, the warning light comes on for a short time.

If a non-authorised car key is used, or if there is a fault in the system, the warning light flashes constantly when ignition „On“.

The electronic immobiliser features a comprehensive self-diagnosis. If faults occur in system components, fault codes are stored in the fault memory of the control unit. It is possible to read these faults using the vehicle system tester V.A.G 1552, V.A.G 1551 or V.A.S 5051.

**Note:**

*The description which follows relates only to the vehicle system tester V.A.G 1552. Use of the fault reader V.A.G 1551 with integrated printer is similar. There may, however, be slight differences in the readouts on the display.*

**Notes regarding use and adaptation of the car keys**

The engine will start only if an authorised car key is used, in other words a key which has been adapted to the immobiliser control unit.

When adapting the car keys ⇒ page 96-11, it is always necessary to adapt all the keys of the car, in other words also the replacement keys to the immobiliser control unit.

If new or additional car keys are required, carry out adaptation of the car keys.

If it is not possible to carry out adaptation of all the car keys for particular reasons, e.g. if a key is lost during a trip, the customer should be advised that adaptation has to be carried out subsequently for all the keys of the car.

**Initiating self-diagnosis of the immobiliser****Test requirements:**

- ◆ Test fuse on the basis of the current flow diagram to ensure o.k.
- ◆ Connect vehicle system tester V.A.G 1552 ⇒ page 90-3.
- ◆ Switch off ignition for about 30 seconds and then switch on again.

**Notes:**

- ◆ *If no readout appears on the display, test voltage supply for V.A.G 1552 on the basis of the current flow diagram.*
- ◆ *Additional operator information can be displayed by pressing the HELP key of the fault reader.*

- ◆ Move forward in the programme by pressing the → key.
- ◆ An incorrect entry can be ended by pressing the key C.

Test of vehicle systems  
Enter address word XX

HELP

◀ Readout in display:

**Note:**

*As the immobiliser control unit is integrated in the dash panel insert, it is necessary to use the common address word for the dash panel insert.*

- Press keys 1 and 7 and confirm entry with the key Q.

**Note:**

*If the address word "25" (immobiliser) is entered, reference is made in the display to the common address word "17" for dash panel insert and immobiliser.*

Please enter address 17

→

◀ Readout in display:

- Wait about 5 seconds.

1U1919033C A+-KOMBIINSTR VDO V06  
Coding 02142

→

WSC xxxxx

◀ The following readout appears after about 5 seconds:

- ◆ 1U1919033C: number of dash panel insert
- ◆ A+-KOMBIINSTR: component designation
- ◆ VDO: manufacturer's identification (UN4 = Nippon Seiki, VD0 = VDO)
- ◆ V06: software version of dash panel insert (readout V07 also possible)
- ◆ Coding 02142: coding of dash panel insert
- ◆ WSC xxxxx: workshop code

- Press → key.

IMMO-IDENTNO: SKZ7Z062000222

→

◀ Readout in display:

- ◆ SKZ7Z062000222: 14-position identification number of immobiliser control unit
- Press → key.

|  |      |
|--|------|
| Test of vehicle systems<br>Control unit does not answer! | HELP |
|--|------|

◀ If one of the following messages appears in the display, carry out fault finding according to *Fault Finding Programme Diagnostic Wiring*.

|  |      |
|--|------|
| Test of vehicle systems<br>Fault in communication build-up | HELP |
|--|------|

⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations binder

|  |      |
|--|------|
| Test of vehicle systems<br>K wire not switching to earth | HELP |
|--|------|

|   |      |
|---|------|
| Test of vehicle systems<br>K wire not switching to positive | HELP |
|---|------|

|   |      |
|---|------|
| Test of vehicle systems<br>Select function XX | HELP |
|---|------|

◀ Readout in display:

- A list of the possible functions is displayed after pressing the HELP key.

The following functions are possible:

01 - Interrogating control unit version  
⇒ page 96-4.

02 - Interrogating fault memory ⇒ page 96-5.

05 - Erasing fault memory ⇒ page 96-7.

06 - Ending output ⇒ page 96-8.

08 - Reading measured value block  
⇒ page 96-8.

10 - Adaptation ⇒ page 96-10.

### Interrogating control unit version

|   |      |
|---|------|
| Test of vehicle systems<br>Select function XX | HELP |
|---|------|

◀ Readout in display:

- Press keys 0 and 1 (the function "Interrogate control unit version" is selected with 01) and confirm entry with the key Q.

|  |                   |
|--|-------------------|
| 1U1919033C A+-KOMBIINSTR VDO V06<br>Coding 02142 | →<br>WSC    xxxxx |
|--|-------------------|

◀ The following readout appears after about 5 seconds:

- ◆ 1U1919033C: number of dash panel insert
- ◆ A+-KOMBIINSTR: component designation
- ◆ VDO: manufacturer's identification (UN4 = Nippon Seiki, VD0 = VDO)

- ♦ V06: software version of dash panel insert (readout V01 also possible)

- ♦ Coding 02142: coding of dash panel insert

- ♦ WSC xxxxx: workshop code

- Press → key.

IMMO-IDENTNO: SKZ7Z062000222

→

◀ Readout in display:

- ♦ SKZ7Z062000222: 14-position identification number of immobiliser control unit

## Interrogating fault memory

### Note:

*The fault information displayed is not updated constantly but only with initiating self-diagnosis or with the function 05 "Erase fault memory".*

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Press keys 0 and 2 (the function "Interrogate fault memory" is selected with 02) and confirm entry with the key Q.

X faults recognized!

◀ The number of stored faults appears in the display.

The stored faults are displayed one after the other.

- Take the fault printed out and refer to the fault table and rectify fault ⇒ page 96-6.

No fault recognized!

→

◀ If "No fault recognized" is displayed, the programme returns to the initial position after the → key is pressed.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

If a different readout appears in the display:  
⇒ Operating instructions of fault reader

- End output (function 06) ⇒ page 96-8

## Fault table for immobiliser

### Notes:

- ◆ All the possible faults which can be recognised by the immobiliser control unit and displayed on V.A.G 1552, are listed below according to the 5-digit fault code.
- ◆ Before replacing components which are indicated as faulty, first of all test the wiring and plug connections to these components and also the earth connections on the basis of the current flow diagram.
- ◆ After carrying out repairs, always once again interrogate the fault memory with the vehicle system tester V.A.G 1552 and erase the memory.
- ◆ All the static and sporadic faults are stored in the fault memory:  
A fault is recognised as static if it exists for at least 2 seconds. If the fault no longer occurs after this, it is stored as a sporadic fault. In this case "/SP" appears in the right of the display.
- ◆ After switching on the ignition, all the faults which are stored are set to sporadic faults and they are only stored as static faults if they continue to exist after the check.
- ◆ If a sporadic fault no longer occurs during the next 50 drive cycles (ignition on for at least 5 minutes, vehicle speed >30 km/h), the fault is erased.

| Readout on V.A.G 1552                    | Possible cause of fault  | Rectifying faults   |
|--|--|---|
| 01128<br>Reader coil for immobiliser -D2 | Connector not plugged in at control unit or reader coil and cable faulty.<br><br>Immobiliser control unit faulty.                          | <ul style="list-style-type: none"> <li>- Inspect plug connection and reader coil and cable (visual inspection); replace reader coil if necessary<br/>⇒ Replacing reader coil.</li> <li>- Erase fault memory and interrogate once again ⇒ page 96-5 and page 96-7; replace dash panel insert if necessary ⇒ page 90-29.</li> </ul> |
| 01176<br>Key<br><br>Signal too small     | Reader coil or cable faulty (contact resistance/loose contact).<br><br>Electronics in ignition key (transponder) missing or not operating. | <ul style="list-style-type: none"> <li>- Inspect reader coil and cable and plug connection (visual inspection); replace reader coil if necessary<br/>⇒ Replacing reader coil.</li> <li>- Replace ignition key and re-adapt all ignition keys and check operation ⇒ page 96-11.</li> </ul>   |
| 01176<br>Key<br><br>not authorised       | Mechanically matched ignition key not adapted.   | <ul style="list-style-type: none"> <li>- Re-adapt all ignition keys and check operation ⇒ page 96-11.</li> </ul>  |



| Readout on V.A.G 1552                              | Possible cause of fault   | Rectifying fault   |
|--|---|--|
| 01177<br>Engine control unit<br><br>not authorised | Engine control unit or fuel shut-off valve control unit not adapted. W wire between the control units is o.k.<br><br>Open circuit or short circuit at W wire. | - Adapt engine control unit<br>⇒ page 96-16.<br><br>- Test W wire according to current flow diagram. |
| 01179<br>Key programming incorrect                 | Adaptation of the ignition keys is faulty.  | - Re-adapt all ignition keys by entering the PIN code and check operation<br>⇒ page 96-11.           |
| 01312<br>Drive databus<br><br>defective            | Fault in the datalines.   | - Test databus lines ⇒ page 90-68.<br>- Replace control unit.<br>- Check coding of control unit.     |
| 65535<br>Control unit<br><br>defective             | Immobiliser control unit faulty.  | - Replace dash panel insert<br>⇒ page 90-29.   |

## Erasing fault memory

### Note:

*After the fault memory is erased, the contents of the memory are automatically output. If it is not possible to erase the fault memory, once again interrogate the fault memory and rectify any fault.*

### Requirements:

- ◆ Fault memory interrogated ⇒ page 96-5
- ◆ All the faults rectified.

After interrogating the fault memory:

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Enter function 05 and confirm entry with the key Q.

Test of vehicle systems  
Fault memory is erased!

→

◀ Readout in display:

The fault memory is now erased.

- Press → key.

Test of vehicle systems  
Select function XX

HELP

◀ Readout on display:

**Notes:**

Attention!  
Fault memory was not interrogated

◀ ♦ *If this message appears on the display, the test sequence was not carried out properly.*

Test of vehicle systems  
Fault memory was not interrogated →

◀ ♦ *If this message appears on the display, the test sequence was not carried out properly.*

♦ *Adhere exactly to the test sequence: first of all interrogate fault memory, rectify any faults which are stored, and then erase memory.*

## Ending output

- Press keys 0 and 6. (The function "End output" is selected with 06.)

Test of vehicle systems  
06 End output

Q

◀ Readout on display:

- Confirm entry with the key Q.

Test of vehicle systems  
Enter address word XX

HELP

◀ Readout on display:

- Switch off ignition.
- Unplug connectors to the vehicle system tester V.A.G 1552.

## Reading measured value block

Test of vehicle systems  
Select function XX

HELP

◀ Readout on display:

- Press keys 0 and 8 and confirm entry with the key Q.

Read measured value block  
Enter display group number XXX

HELP

◀ Readout on display:

- Enter display group number (from table ⇒ page 96-9) and confirm entry with the key Q.

What is now displayed is the measured value block selected in a standardised form.

## List of display groups

| Display group number | Readout on display   |
|----------------------|--|
| 020                  | 1 = Ident number 1st and 2nd place<br>2 = Ident number 3rd and 4th place<br>3 = Ident number 5th and 6th place<br>4 = Ident number 7th and 8th place   |
| 021                  | 1 = Ident number 9th and 10th place<br>2 = Ident number 11th and 12th place<br>3 = Ident number 13th and 14th place<br>4 = vacant measured value block |
| 022                  | 1 = Starting authorised<br>2 = Engine control unit answers<br>3 = Key status o.k.<br>4 = vacant measured value block                                   |

## Measured value block 020

|                                |                                |                                |                                |   |                      |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|---|----------------------|
| Read measured value block 20   |                                |                                |                                | → | ◀ Readout on display |
| AU                             | Z7                             | Z0                             | T1                             |   |                      |
|                                |                                |                                | Ident number 7th and 8th place |   |                      |
|                                |                                | Ident number 5th and 6th place |                                |   |                      |
|                                | Ident number 3rd and 4th place |                                |                                |   |                      |
| Ident number 1st and 2nd place |                                |                                |                                |   |                      |

## Measured value block 021

|                              |    |    |                                  |                      |
|------------------------------|----|----|----------------------------------|----------------------|
| Read measured value block 21 |    |    | →                                | ◀ Readout on display |
| 00                           | 00 | 71 |                                  |                      |
|                              |    |    | vacant measured value block      |                      |
|                              |    |    | Ident number 13th and 14th place |                      |
|                              |    |    | Ident number 11th and 12th place |                      |
|                              |    |    | Ident number 9th and 10th place  |                      |

## Measured value block 022

|  |   |   |                      |
|--|---|---|----------------------|
| Read measured value block 22 →   |   |   | ◀ Readout on display |
| 1  | 1 | 1 |                      |
| vacant measured value block  |   |   |                      |
| Key status o.k.<br>• 1 = yes<br>• 0 = no, i.e. the car key is not/incorrectly adapted or the transponder is faulty                               |   |   |                      |
| Engine control unit answers*<br>• 1 = yes<br>• 0 = no, i.e. there is a fault in the engine control unit or in the cable connection               |   |   |                      |
| Start authorised<br>• 1 = yes<br>• 0 = no, i.e. the car key is not/incorrectly adapted or the engine control unit is incorrectly coded or faulty |   |   |                      |

\* Depending on the engine control unit, the measured value block is in the position "0 = Engine control unit answers no" for 10 ... 30 seconds after engine and ignition off, in other words the engine control unit is not activated and no fault exists. As a security measure, once again start self-diagnosis ⇒ page 96-2.

## Adaptation

The function adaptation makes it possible to carry out and store the following changes:

- ◆ Adaptation of car keys ⇒ page 96-11.
- ◆ Adaptation after replacing the engine control unit ⇒ page 96-16.
- ◆ Adaptation after replacing the immobiliser control unit ⇒ page 96-18.

## Adaptation of car keys

### Notes:

- ◆ *If new or additional ignition keys are required, these have to be adapted to the immobiliser control unit.*
- ◆ *Pay attention to the procedure when replacing the lock set, the reader coil and the immobiliser control unit ⇒ Procedure when replacing lock set or immobiliser control unit.*
- ◆ *It is always necessary to re-adapt all the ignition keys, in other words including the existing ones.*
- ◆ *If it is not possible to adapt all the keys, e.g. during a holiday trip, the customer has to be advised to have this done subsequently at his ŠKODA dealer in his home country.*
- ◆ *The number of already adapted keys is displayed after selecting the function Adaptation.*
- ◆ *Adaptation can be interrupted by pressing the key "C" on V.A.G 1552.*

### Requirements

- ◆ All ignition keys are available. If no old ignition key is available ⇒ "Procedure in the event of loss of a key" page 96-16
- ◆ Key fob with concealed secret number is available; if not, ⇒ "Determining secret number", page 96-16
- Insert old (authorised) ignition key into the ignition lock.
- Connect vehicle system tester V.A.G 1552 and initiate self-diagnosis of immobiliser by selecting the address word "17" ⇒ page 96-2.

After the control unit identification is displayed:

- Press the → key.
- ◀ - Readout on display:
- Press key 1 twice (the function "Login procedure" is selected with 11) and confirm entry with the key Q.

Test of vehicle systems  
Select function XX

HELP

Login - Procedure  
Enter code number XXXXX

◀ Readout in display:

- Enter the code and insert a 0 before the 4 digit number (e.g. 01915).

The code can be found on the keyring pendant and can be made visible after carefully scratching the protective coating (e.g. with a coin).

**Note:**

*If the keyring pendant only has a 2 or 3 digit code complete the entry with noughts, e.g. 344 = 00344.*

- Confirm entry with key Q.

Test of vehicle systems                      HELP  
Select function XX

◀ Readout in display:

**Note:**

◀ Briefly appears on display:

- ◆ Code is not accepted. Repeat entry.
- ◆ 2 attempts at correct entry of code are immediately possible, for the 3<sup>rd</sup> attempt you must wait 35 minutes, if the ignition remains on and you quit self-diagnosis via function 06 'End Output'.

Tester sends address word 17

**Warning!**

Function unknown or unable  
to execute function                      →

◀ Readout in display:

If this is displayed during the login procedure the code was repeatedly entered erroneously (e.g. incorrect code).

**Note:**

- ◆ After three incorrect entries the control unit is locked. The readout on the odometer in the dash panel insert is 'FAIL'.
- ◆ The next attempt can only be made after at least 10 minutes, if the ignition remains on and you quit self-diagnosis via function 06 'End Output'. This delay is doubled for three further false attempts.

|  |  |
|--|--|
| Adaptation<br>Enter channel number XX                        | <ul style="list-style-type: none"> <li>- Press keys 1 and 0 (the function "Adaptation" is selected with 10) and confirm entry with the key Q.</li> </ul>   |
| Function is unknown or cannot be carried out at the moment → | <p>◀ Readout on display:</p> <ul style="list-style-type: none"> <li>- Press keys 2 and 1. ("Channel 21" is selected with 21.)</li> <li>- Confirm entry with the key Q.</li> </ul>  |
| Channel 21 Adaptation 2<br>← ↑ ↓ →                           | <p>◀ If the following readout appears on the display:</p> <ul style="list-style-type: none"> <li>- Repeat adaptation by entering the secret number.</li> </ul> <p>◀ Readout on display:</p> <p>The readout in the top line indicates that 2 ignition keys have been adapted to the system.</p> <ul style="list-style-type: none"> <li>- Press the → key.</li> </ul>                |
| Channel 21 Adaptation 2<br>Enter adaptation value XXXXX →    | <p>◀ Readout on display:</p> <ul style="list-style-type: none"> <li>- Press key 0 four times and then enter the number of all ignition keys to be adapted, including the existing keys (e.g. 00003); max. 8 keys are possible.</li> <li>- Confirm entry with the key Q.</li> </ul>   |
| Channel 21 Adaptation 3<br>← ↑ ↓ → Q                         | <p>◀ Readout on display if 3 ignition keys to be adapted:</p> <ul style="list-style-type: none"> <li>- Confirm entry with the key Q.</li> </ul>  |
| Channel 21 Adaptation 3<br>Store changed value? Q            | <p>◀ Readout on display:</p> <ul style="list-style-type: none"> <li>- Confirm entry with the key Q.</li> </ul>   |
| Channel 21 Adaptation 3<br>Changed value is stored →         | <p>◀ Readout on display:</p> <ul style="list-style-type: none"> <li>- Press the → key.</li> <li>- Press keys 0 and 6. (The function "End output" is selected with 06.)</li> </ul> <p>The key in the ignition lock is now adapted.</p> <ul style="list-style-type: none"> <li>- Insert the next key into the ignition lock and switch on ignition for at least 1 second.</li> </ul> |

- Repeat the procedure until all the keys have been adapted.

**Note:**

- ◆ *Do not exceed a time of 30 seconds for adapting all the keys; the time is not registered when ignition is switched off.*

- Select function 02 "Interrogate fault memory". If no fault is stored, the function "Key adaptation" has been successfully completed.

After each successful login function, the immobiliser is not activated for 10 minutes, in other words it is not practical to carry out a system or operational check during this time.

**Note:**

*It is also possible to enter the number of keys to be adapted by using the ↑ key (to reduce number of keys) and the ↓ key (to increase number of keys).*

|                       |          |   |
|-----------------------|----------|---|
| Channel 21 Adaptation | 2        | → |
|                       | ⟨- ↑ ↓-⟩ |   |

◀ Readout on display:

The readout in the top line indicates that 2 ignition keys have been adapted to the system.

- Reduce the number of keys by pressing the ↑ key or increase the number by pressing the ↓ key, e.g. to 3.

|                       |          |   |
|-----------------------|----------|---|
| Channel 21 Adaptation | 3        | Q |
|                       | ⟨- ↑ ↓-⟩ |   |

◀ Readout on display if 3 ignition keys to be adapted:

- Confirm entry with the key Q.

|                       |   |   |
|-----------------------|---|---|
| Channel 21 Adaptation | 3 | Q |
| Store changed value?  |   |   |

◀ Readout on display:

- Confirm entry with the key Q.

|                         |   |   |
|-------------------------|---|---|
| Channel 21 Adaptation   | 3 | → |
| Changed value is stored |   |   |

◀ Readout on display:

- Press the → key.
- Press keys 0 and 6. (The function "End output" is selected with 06.)

The key in the ignition lock is now adapted.

- Insert the next key into the ignition lock and switch on ignition for at least 1 second.



- Repeat procedure until all the keys have been adapted.

**Note:**

- ◆ *Do not exceed a time of 30 seconds when adapting all the keys; the time is not registered when the ignition is switched off.*
- Select function 02 "Interrogate fault memory". If not fault is stored, the function "Key adaptation" has then been successfully completed.

The following fault messages are the result of the adaptation procedure and should be ignored:

Data transfer error

◀ Readout on display (ignore readout).

Rapid data transfer  
Tester sends address word 25

Q

◀ Readout on display (ignore readout).

Key not authorised

◀ Readout on display (ignore readout).

The fault "Key not authorised" is displayed during the entire adaptation operation as starting of the engine is not authorised during adaptation.

Adaptation of the ignition keys is automatically ended if:

- ◆ the number of adapted keys is reached,
- ◆ the ignition is again switched on with a key already adapted and remains switched on for longer than 1 second (fault is stored),
- ◆ the permissible adaptation time of 30 seconds, counting from the moment the ignition is switched on with the 2nd key, is exceeded (fault is stored),
- ◆ a fault is stored during adaptation of the ignition keys.

**Procedure to follow when losing the ignition key**

- Order a replacement ignition key on the basis of the closing number.
- Adapt all vehicle keys ⇒ page 96-11.
- For vehicles with radio control, adapt all the keys for the radio control unit  
⇒ Body Work; Repair Group 01, Self-diagnosis.

**Determine PIN code**

If the 4-digit PIN code is not known or the key fob with the PIN code is not available, the PIN code must be obtained via the responsible sales department (domestic) or via the importer (export countries) using the 14-digit identification number of the immobilizer control unit.

The identification number of the immobilizer control unit is available:

- ◆ as a sticker on the customer's key fob
- ◆ readable via the self-diagnosis, refer to "Interrogate control unit version" ⇒ page 96-4
- ◆ as a sticker on the dash panel insert

**Adaptation after replacing the engine control unit****Notes:**

- ◆ *The engine control unit or the control unit for fuel shut-off valve has to be adapted to the immobilizer control unit. When replacing the components, an adaptation must be performed again.*
- ◆ *If no authorised ignition key is present, however the PIN code is available, new ignition keys must be manufactured and adapted.*
- ◆ *The adaptation can be interrupted with the key "C" of the V.A.G 1552 or V.A.G 1551.*

- Insert old (authorised) ignition key into the ignition lock.
- Connect vehicle system tester V.A.G 1552 and initiate self-diagnosis of immobiliser by selecting the address word "17"  
⇒ page 96-2.

After the control unit identification is displayed:

- Press the → key.

Test of vehicle systems  
Select function XX

HELP

◀ Readout on display:

- Press keys 1 and 0 (the function "Adaptation" is selected with 10) and confirm entry with the key Q.

Adaptation  
Enter channel number XX

◀ Readout on display:

- Press key 0 twice. ("Channel 0" is selected with 00.)
- Confirm entry with the key Q.

Adaptation  
Erase learned value?

Q

◀ Readout on display:

- Confirm entry with the key Q.

Adaptation  
Learned values are erased

→

◀ Readout on display:

- Press the → key.

Test of vehicle systems  
Select function XX

HELP

◀ Readout on display:

- End output (function 06) ⇒ page 96-8.

**Note:**

*The identifier of the engine control unit is stored in the immobiliser control unit and the engine can be started.*

## Adaptation after replacing immobiliser control unit

### Notes:

- ◆ *The immobiliser control unit is integrated in the dash panel insert, in other words when replacing the dash panel insert the immobiliser control unit is also replaced.*
- ◆ *After replacing the dash panel insert, carry out the following steps:*
  - Carry out adaptation after replacing engine control unit ⇒ page 96-16.
  - Carry out adaptation of car keys ⇒ page 96-11.

## Emergency start function with V.A.G 1552

The emergency start function makes it possible to disconnect the locked immobiliser of a car which has broken down and to drive the car to the nearest Škoda dealer under its own power.

### Note:

*This emergency start function can be used to immediately cancel any lockout time which may have been activated as a result of faulty or incorrect use of the emergency start function without V.A.G 1552.*

### Requirements

- ◆ The customer should provide proof of ownership or use of the vehicle by presenting the vehicle registration papers and an ID.
- ◆ Vehicle system tester V.A.G 1552.
- ◆ Key fob with concealed secret number is available; if not, refer to „Determining the secret number“ ⇒ page 96-16.
- Connect vehicle system tester V.A.G 1552 and initiate self-diagnosis of immobiliser with the address word „17“ ⇒ page 96-2.

After display of the control unit identification.

- → Press key.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Press key 1 twice ('Login - Procedure' function is selected with 11) and confirm entry with key Q.

Login - Procedure  
Enter code number XXXXX

◀ Readout in display:

- Enter the code and insert a 0 before the 4 digit number (e.g. 01915).

The code can be found on the keyring pendant and can be made visible after carefully scratching the protective coating (e.g. with a coin).

**Note:**

*If the keyring pendant only has a 2 or 3 digit code complete the entry with noughts, e.g. 344 = 00344.*

- Confirm entry with key Q.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

**Note:**

◀ Briefly appears on display:

- ◆ *Code is not accepted. Repeat entry.*
- ◆ *2 attempts at correct entry of code are immediately possible, for the 3<sup>rd</sup> attempt you must wait 10 minutes, if the ignition remains on and you quit self-diagnosis via function 06 'End Output'.*

- End output (Function 06) ⇒ Page 90-10
- Start engine again.

**Notes:**

- ◆ *If the emergency start attempt is successful it is possible to restart the engine at all times during a period of 45 minutes given a closed S contact.*
- ◆ *If the S contact is opened, i.e. when the ignition key is removed, it is only possible to start the engine after 10 minutes.*

## Emergency start function without V.A.G 1552

The emergency start function enables a car which cannot be started because the immobiliser is blocked, to be deactivated and to drive the car under its own power to its nearest ŠKODA dealer.

### **Note:**

*This emergency start function makes it possible to immediately cancel any possible blocking time which has been activated as a result of faulty or incorrect use of the emergency start function with V.A.G 1552.*

### **Requirements**

- ◆ The customer has to present the vehicle registration papers or ID to show that he is the authorised user or owner of the vehicle.
- ◆ Key fob with concealed secret number is available; if not ⇒ "Determining secret number", page 96-16.
- Switch on ignition.
- At the same time turn the knob for setting the time on the dash panel insert and press the reset button of the trip counter.

The following readout appears on the display of the trip counter:  
"0 0 0 0" and the first digit flashes.

It is now possible to change the first digit from 0 to 9 using the reset button of the trip counter.

- Press the reset button of the trip counter as often as necessary until the valid first digit of the secret number is displayed, e.g. 5.

The following readout appears on the display of the trip counter:  
"5 0 0 0"

- Turn the knob for setting the time.

The following readout appears on the display of the trip counter:  
"5 0 0 0" and the second digit flashes.

- Press the reset button of the trip counter as often as necessary until the valid second digit of the secret number is displayed, e.g. 3.

The following readout appears on the display of the trip counter:

“5 3 0 0”

- Turn the knob for setting the time.

The following readout appears on the display of the trip counter:

“5 3 0 0” and the third digit flashes.

- Press the reset button of the trip counter as often as necessary until the valid third digit of the secret number is displayed, e.g. 4.

The following readout appears on the display of the trip counter:

“5 3 4 0”

- Turn the knob for setting the time.

The following readout appears on the display of the trip counter:

“5 3 4 0” and the forth digit flashes.

- Press the reset button of the trip counter as often as necessary until the valid forth digit of the secret number is displayed, e.g. 9.

The following readout appears on the display of the trip counter:

“5 3 4 9”

- Turn the knob for setting the time on the dash panel insert and at the same time press the reset button of the trip counter.

The trip counter readout again appears on the display of the trip counter.

The immobiliser warning light goes out once the valid secret number has been entered.

- Switch off the ignition and then start the engine.

#### **Notes:**

- ◆ *If the secret number is incorrectly entered three times, the control unit is blocked. “FAIL” appears on the display of the trip counter in the dash panel insert.*
- ◆ *It is then necessary to wait at least 10 minutes before the next attempt if the ignition remains switched on constantly during this time. This time is doubled for each additional three incorrect attempts.*

- ◆ *If no button/knob is operated for longer than 30 seconds during the entry procedure, the emergency start attempt is aborted.*
- ◆ *If the emergency start attempt has been successfully carried out, the engine can always be started again during 45 minutes with the S contact closed.*
- ◆ *If the S contact is opened, i.e. the ignition key is withdrawn, the engine can only be started within 10 minutes.*

### **Faulty transponder and/or loss of key**

- ◆ The transponder is integrated in the car key.
- ◆ If the transponder is faulty or if a key has been lost, it is then necessary to replace the complete set of car keys.
- Make or order replacement key with integrated transponder on the basis of the lock number.
- Carry out adaptation of all the car keys  
⇒ page 96-11.

### **Replacing reader coil**

- ◆ The reader coil is an integral part of the lock cylinder and cannot be replaced separately.
- ◆ The reader coil should be replaced together with the lock cylinder.
- ◆ In order to restore mobility as rapidly as possible, carry out the following procedure:
- Remove lock cylinder for steering/starter lock  
⇒ page 94-13.
- Install replacement lock cylinder with any lock number and do not adapt door locks.

#### **Note:**

*The customer has to operate the car with two car keys during the delivery period.*

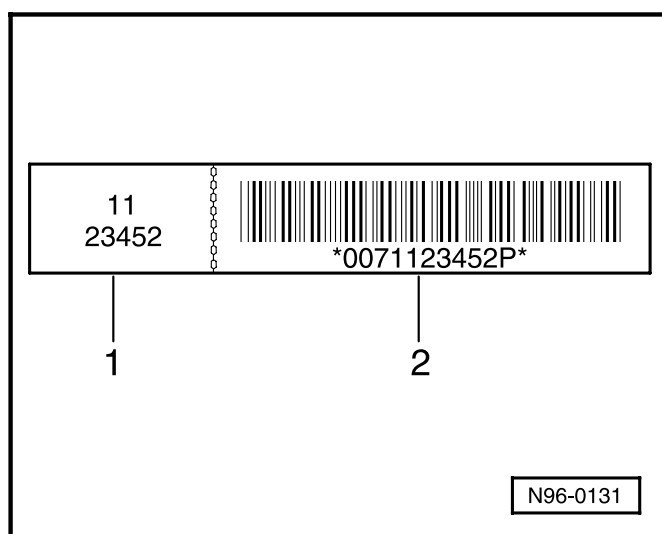


- After the lock cylinder has been received, replace the substitute lock cylinder with the ordered lock cylinder for the specific car model.

### Procedure if replacing set of locks or immobiliser control unit

#### Note:

*To ensure subsequent identification of the immobiliser, it is essential to carry out the following steps when replacing the set of locks or the immobiliser control unit.*

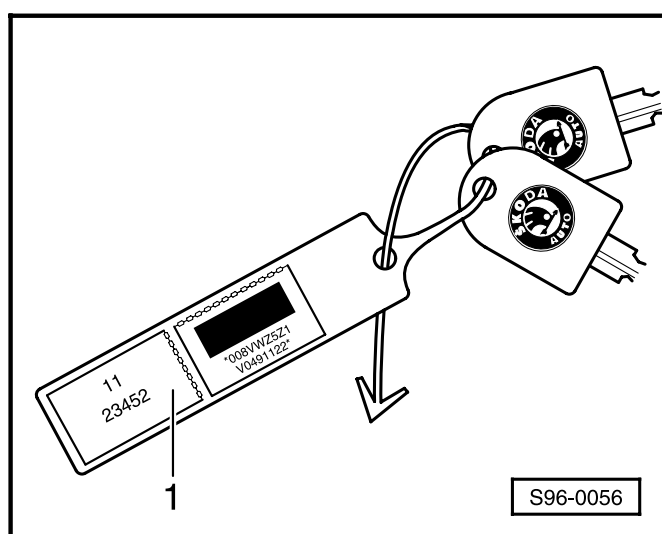


#### 1. 2-part sticker of lock set

#### Note:

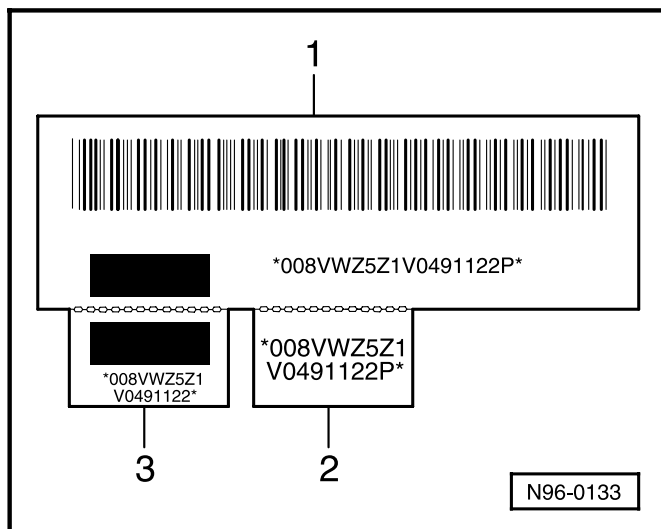
*The stickers on the key fob of the new lock set are used for identifying the mechanical locking system.*

- Separate right-hand sticker -2- (with bar code), detach from key fob of the new lock set and destroy.
- Pull the remaining left-hand sticker -1- (without bar code) of the new key fob and stick it onto the customer's key fob in place of the previous left-hand sticker.



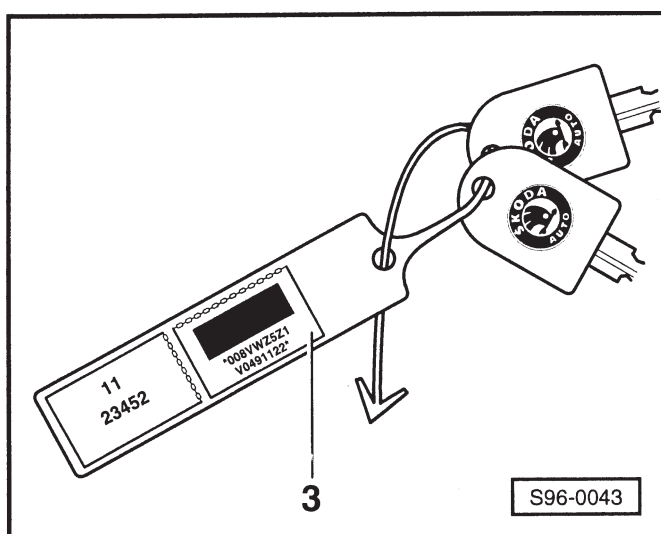
◀ The identification on the customer's key fob is therefore updated:

- ◆ Left-hand sticker -1- (new) - mechanical lock system
- ◆ Right-hand sticker - immobiliser control unit



## ◀ 2. 3-part sticker of immobiliser control unit in dash panel insert

- Pull off large sticker -1- (with bar code) and small sticker at bottom left -3- (black concealed panel) off the new dash panel insert and separate. Destroy large sticker -1- (with bar code).
- Affix small sticker -3- (black concealed panel) onto the customer's key fob and place on the previous right-hand sticker.



## ◀ The identification on the customer's key fob is thus updated:

- ◆ Left sticker - mechanical lock system
- ◆ Right sticker -3- (new) - immobiliser control unit

## System test

### Note:

*After each successful login function, the immobiliser is disabled for 10 minutes, i.e. it is not sensible to carry out a system of operational test during this time.*

- Ignition should be "Off" for at least 30 seconds.
- Cover over reader coil with a metal plate with slot, e.g. place a suitable washer onto the ignition lock and insert ignition key through the hole into the ignition lock.

or

Separate electric cable of reader coil at connector between ignition/starter switch and immobiliser control unit.

- Start engine.

The engine must not run and the indicator lamp should flash.

- Initiate self-diagnosis of immobiliser ⇒ page 96-2.
- Interrogate fault memory ⇒ page 96-5:

One of the two following fault messages appears in the display:

Key  
Signal too small

◀ Readout in display:

or

Immobiliser reader coil -D2

◀ Readout i-n display:

- Erase fault memory ⇒ page 96-7.

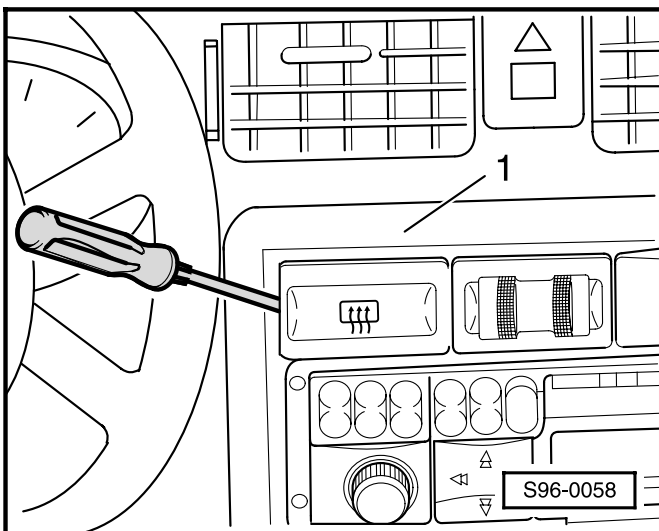
## Servicing switches

### **Important!**

**Before carrying out any work on the electrical system, disconnect earth strap of the battery.**

### Removing and installing switches in centre console

#### Removing:



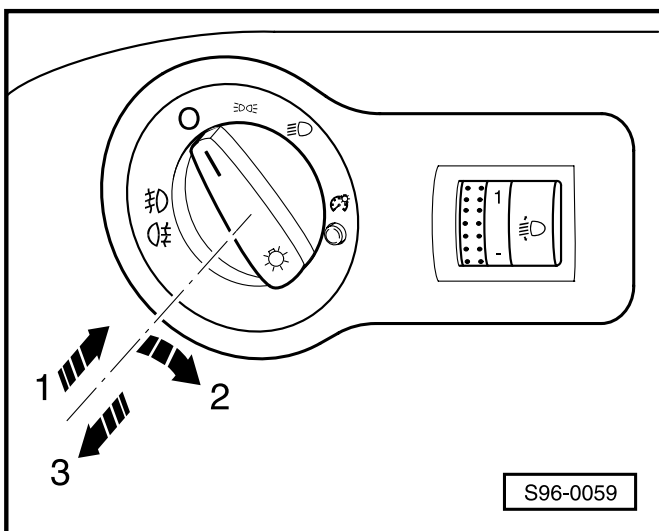
- Unclip trim panel -1- around the centre console.
- ◀ - Use a small screwdriver to carefully lever the relevant switch from the left out of the centre console.
- Then, pull the switch out fully and unplug the connector.

#### Installing:

- Plug in connector.
- Press switch into mount in the centre console and lock in position.
- Clip trim panel in place.

### Removing and installing light switch

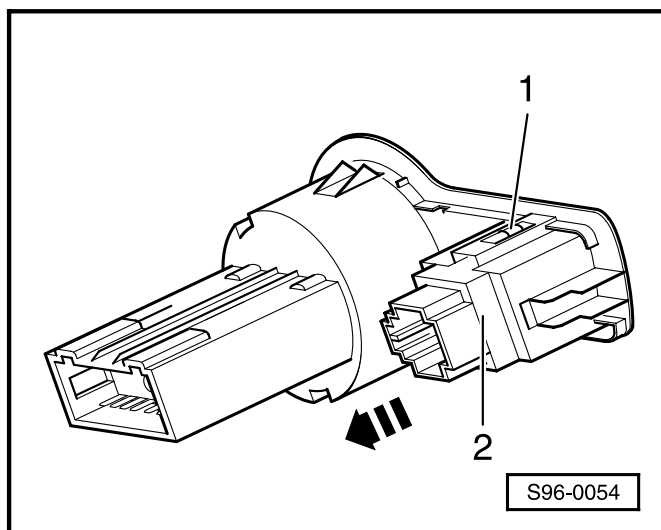
#### Removing:



- ◀ - Press the light switch -1- and turn at the same time to the right -2-.
- Hold the switch in this position and pull the light switch housing out to the front -3-.
- Separate the electric connector at the switch.

#### Installing:

- Plug in connector.
- Carefully push light switch into the opening until the switch is heard to lock in place.



### Removing and installing adjuster for headlamp range control

#### Removing:

- Remove light switch from the cover.
- Unclip cover with adjuster for headlamp range control.
- Separate plug connection.
- ◀ - Press together the two metal clips -1- and pull adjuster -2- out in direction of arrow.

#### Installing:

- Fit together plug connection.
- Insert adjuster for headlamp range control into guide ridges in cover and press in as far as the stop.
- Press in light switch with cover and lock in place.

### Removing and installing door contact switch

The door contact switch is located in the door lock and cannot be replaced separately if faulty.

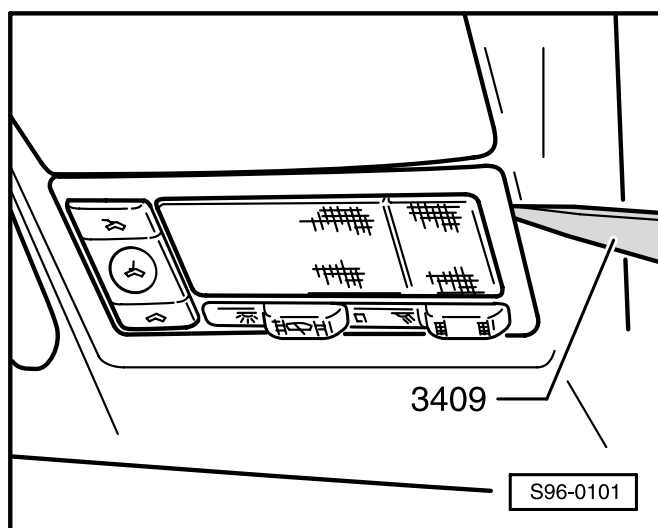
- Removing door lock and replacing  
⇒ Body Fitting Work; Repair Group 57; Front Door; Repair Group 58; Rear Door.

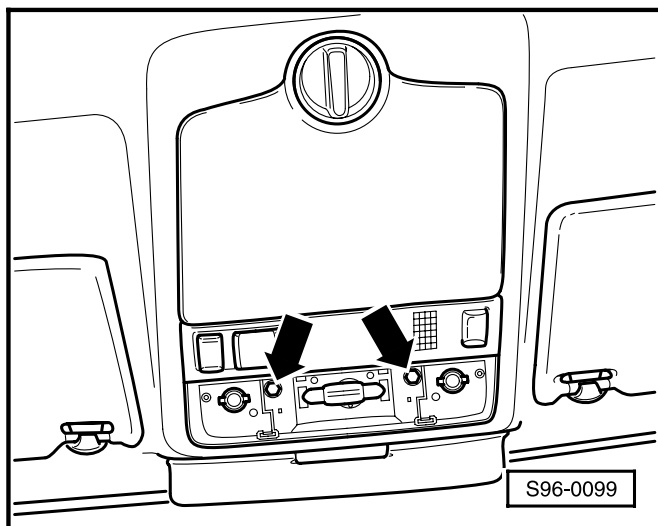
### Removing and installing sliding roof switch and interior light

Models up to 7.99

#### Removing

- ◀ - Use special tool 3409 to lever off interior light.
- Separate the two electrical plug connections.

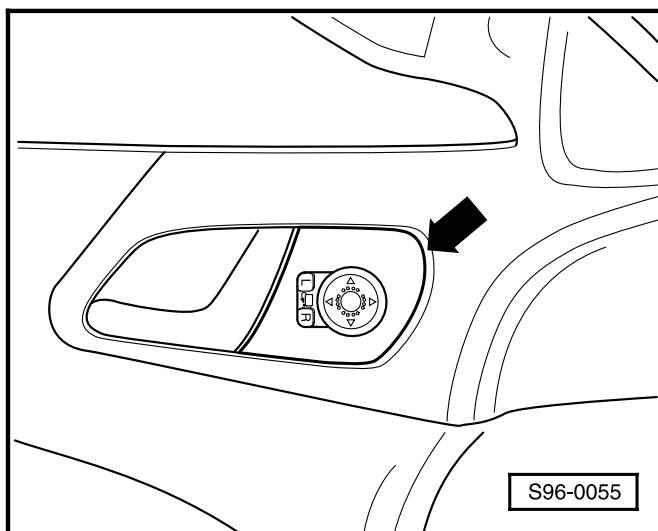


**Installing**

- Fit together plug connections.
- Press in interior light together with switch for sliding roof and lock in place.

**Models from 8.99****Removing**

- Remove lens of light.
- ◀ - Take out the two securing screws -arrows-.
- Take out the interior light and sliding roof switch.
- Separate the two electrical plug connections.

**Installing**

- Installation is carried out in the reverse order.

**Removing and installing mirror adjustment switch****◀ Up to MY 98****Removing**

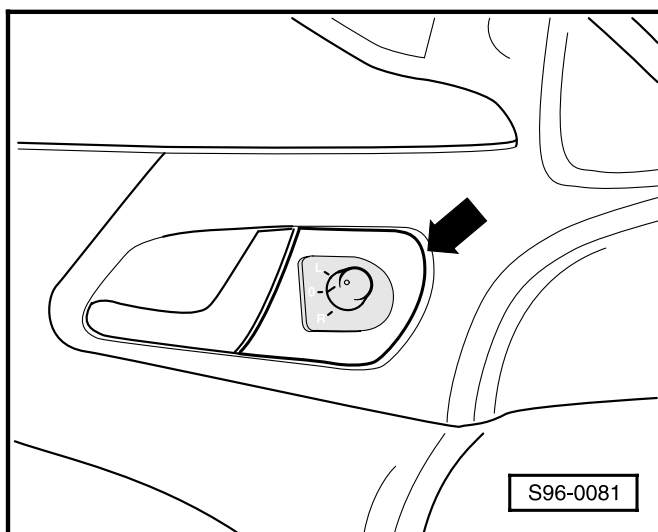
- Carefully unclip mirror adjustment switch together with trim cover -arrow-.
- Separate electrical plug connection at the mirror adjustment switch.
- Unclip mirror adjustment switch from the trim cover.

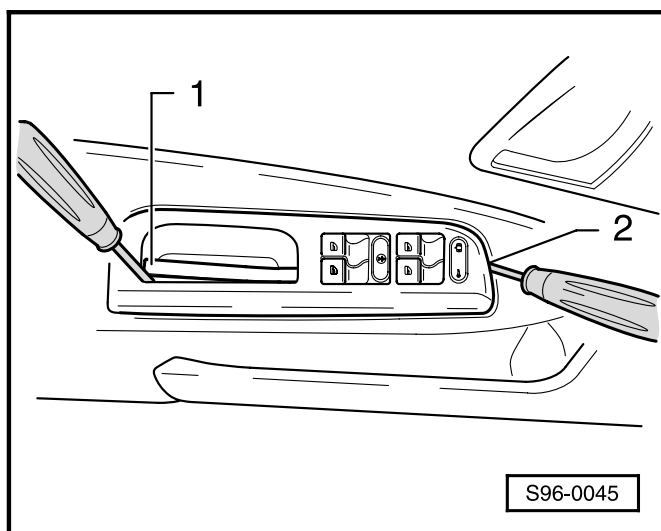
**Installing**

- Installation is carried out in the reverse order.

**◀ From MY 99**

Removal and installation is the same as described for model year 98.

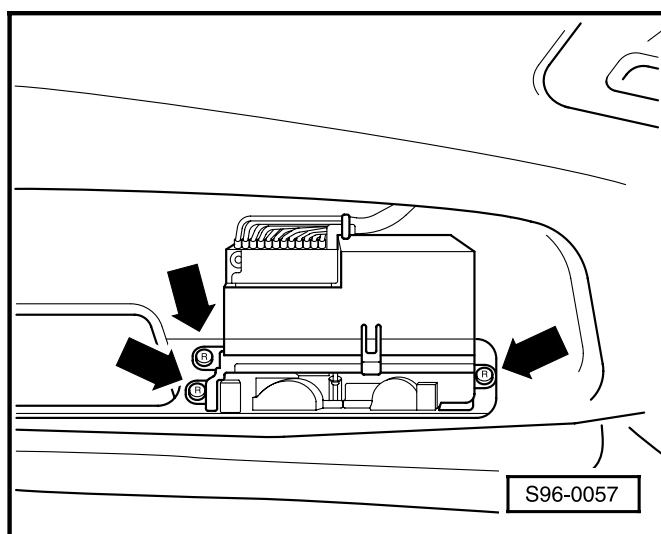




## Removing and installing switches for power windows

### Removing

- ◀ - Unclip the plastic cover (handle) -1- and switch cover -2-.



- ◀ - Unscrew the 3 cross-recessed screws -arrow-.
- Carefully lift out the switch combination with cover and at the rear unlock the plug and remove.
- Remove the switch combination.

### Installing

- Carry our installation in the same way in reverse order.

## Servicing interior lights

### Removing and installing glove box light

#### Removing

- With a slotted-head screwdriver reach behind the scattering glass and carefully lift the light out.
- Draw out the scattering glass with bulb holder.
- Replace the 12 V, 5 W bulb.

#### Installing

- Insert the scattering glass with bulb holder in the glove box and lock into place.

### Removing and installing the rear reading lights

#### Removing

- With a slotted-head screwdriver reach behind the light and carefully lift the light out.

◀ - Unplug the connector.

- Replace the 12 V, 5 W bulb.

#### Installing

- Carry out installation in the same way in reverse order.

### Removing and installing front ash-tray light

#### Removing

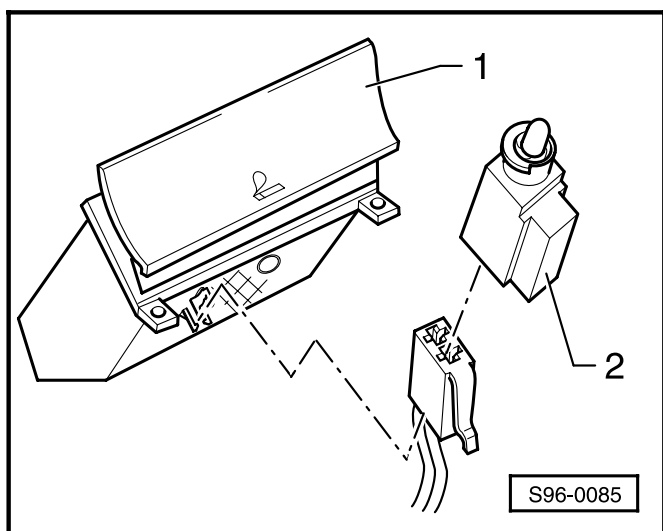
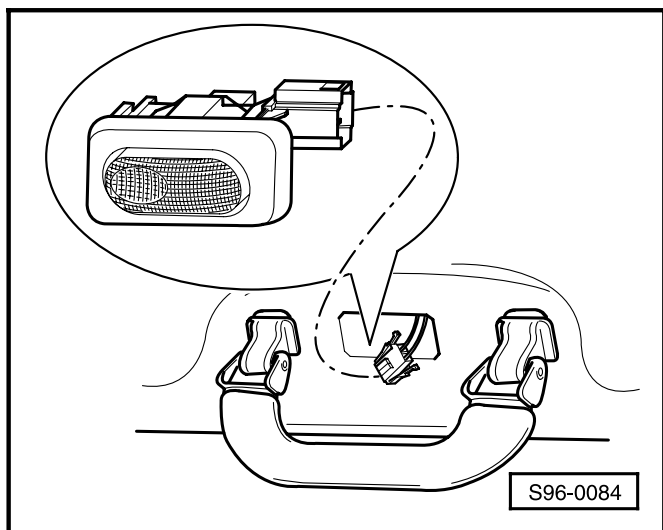
- Remove the ashtray and its housing.  
⇒ Body Fitting Work; Repair Group 68; Trays, trim panels and screens.

◀ - Carefully unclip bulb holder -2- from the ash-tray housing -1-.

- Unplug the connector.

#### Installing

- Carry out installation in the same way in reverse order.





## Removing and installing lighting for the make-up mirror

### Removing

- Lever off the cover of the mirror carefully using a flat screwdriver (the cover is fitted with tabs on the side).
- Replace the 12 volt, 3 watt light bulb

### Installing

- Push on the cover until it clicks into place.
- Check the function of the make-up mirror after installing a new light bulb.

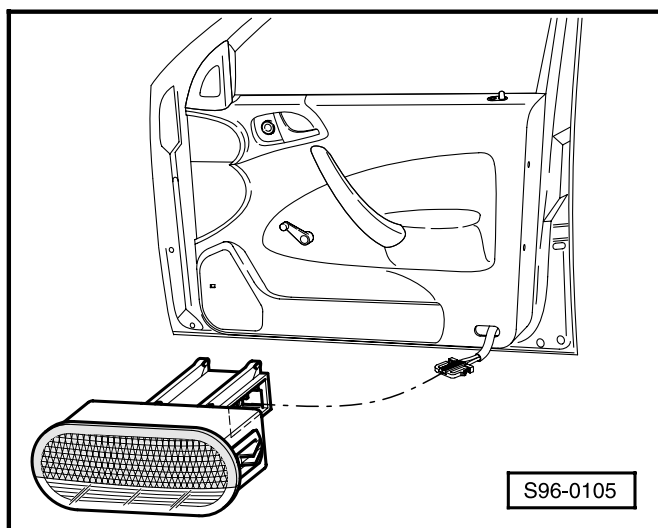
## Removing and installing the door warning light

### Removing

- Lever off the cover carefully together with the lamp using a flat screwdriver.
- ◀ - Disconnect the plug connector.
- Remove the cover of the lamp.
- Replace the 12 volt, 5 watt light bulb

### Installing

- Installation is carried out in the same way in reverse order.
- Check the function of the door warning light after installing a new light bulb.



## Removing and installing the warning light for a switched-off airbag

### Comment:

*On vehicles from MJ 03 the interior lighting has been supplemented by addition of the warning light for a switched-off airbag. This warning light is an integral part of the body of the light and must therefore be replaced completely.*

### Removing

- Remove the interior lighting ⇒ Page 96-27.
- Pull out the plug.

**Installing**

- Installation is carried out in the same way in reverse order.

**Comment:**

*After installing the light body for the interior lighting check the function of the warning light for a switched off airbag.*

## Repairing the horn

**Warning!**

**Disconnect earth strap from the battery before commencing work on the electrical system.**

**Notes:**

- ◆ Before disconnecting the battery determine the code of radio units equipped with anti-theft coding.
- ◆ If the battery earth strap is disconnected and re-connected, carry out additional operations ⇒ page 27-1.

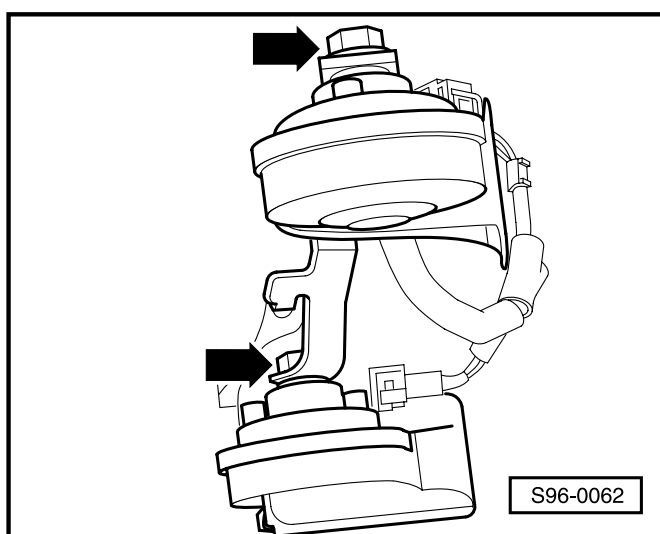
### Removing and installing horn

**Removing:**

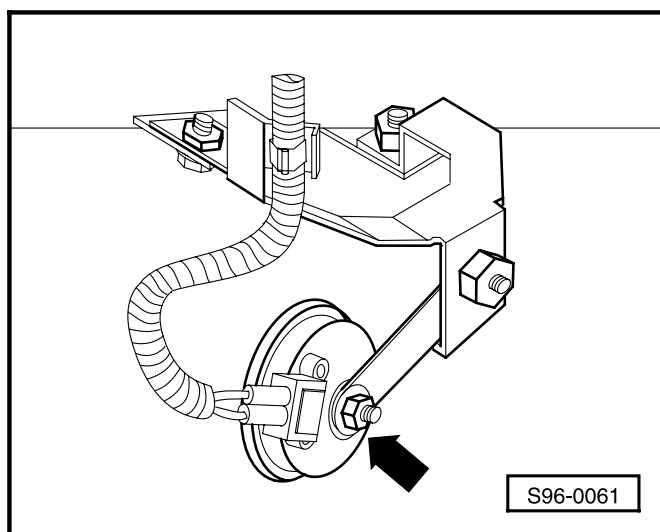
- Remove the plastic cover on the left front underbody of the vehicle.

**Vehicles with dual tone horn:**

- ◀ - Unscrew the two fixing nuts -arrows- and take off the horns from the holder.
- Disconnect plug connections.

**Vehicles with single horn:**

- ◀ - Release the fixing screw -arrow- and take off the horn.
- Disconnect plug connection.

**Installing:**

- Perform the installation in the reverse order.

## Removing and installing luggage compartment lights

### **Warning!**

**Disconnect earth strap of battery before performing any work on the electrical system.**

### **Notes:**

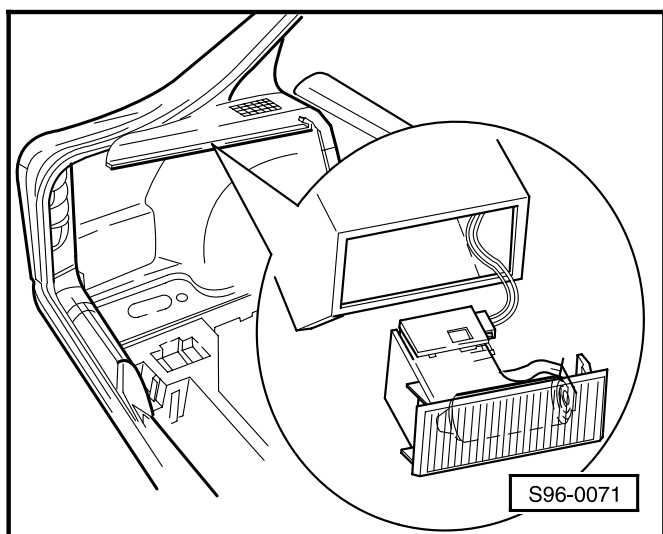
- ♦ Before disconnecting the battery, determine the code number of a radio set fitted with anti-theft coding.
  - ♦ When the battery is re-connected, check the vehicle equipment:
    - Carry out coding of radio,
    - Reset time of clock,
    - Initialise power windows.
- ⇒ Inspection and Maintenance

### **Removing**

- Open boot lid/tailgate.

### **Only OCTAVIA:**

- ◀ - Carefully unclip luggage compartment light from the side trim panel.
- Separate electrical plug connection.
- Take off luggage compartment light.



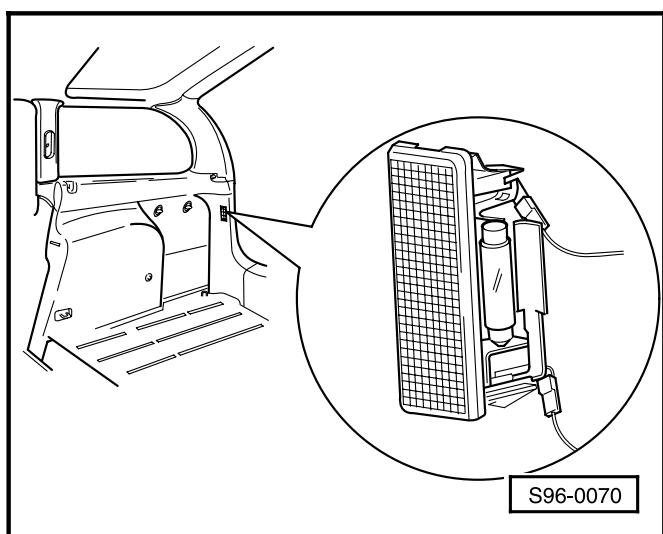
### **Only OCTAVIA Estate:**

- ◀ - Carefully unclip luggage compartment light from the bottom D pillar trim panel.
- Separate electrical plug connection.

### **All models:**

### **Installing**

- Carry out installation in the same way in the reverse order.



## Removing and installing switch for remote release of fuel filler flap

### **Warning!**

**Disconnect earth strap of battery before performing any work on the electrical system.**

### **Notes:**

- ◆ Before disconnecting the battery, determine the code number of a radio set fitted with anti-theft coding.
- ◆ When the battery is re-connected, check the vehicle equipment:
  - Carry out coding of radio
  - Reset time of clock
  - Initialise power windows.

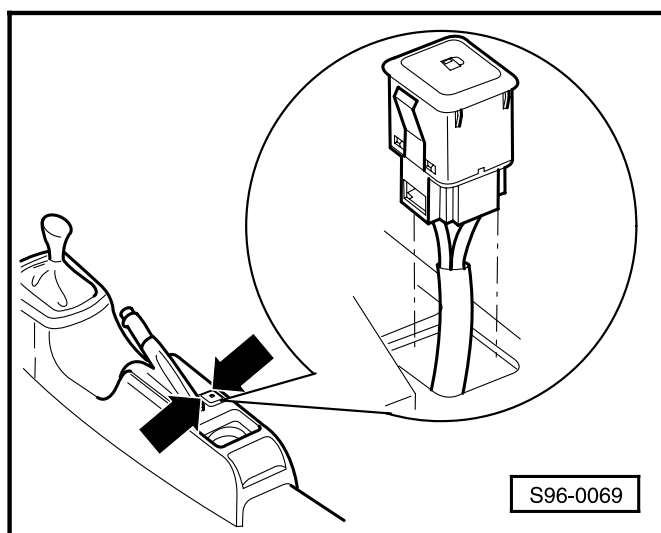
⇒ Inspection and Maintenance

### **Removing Version 1:**

- ◀ - Carefully unclip switch for remote release of fuel filler flap -arrows- and lift up.
- Separate electrical plug connection at the switch.

### **Installing**

- Carry out installation in the same way in reverse order.

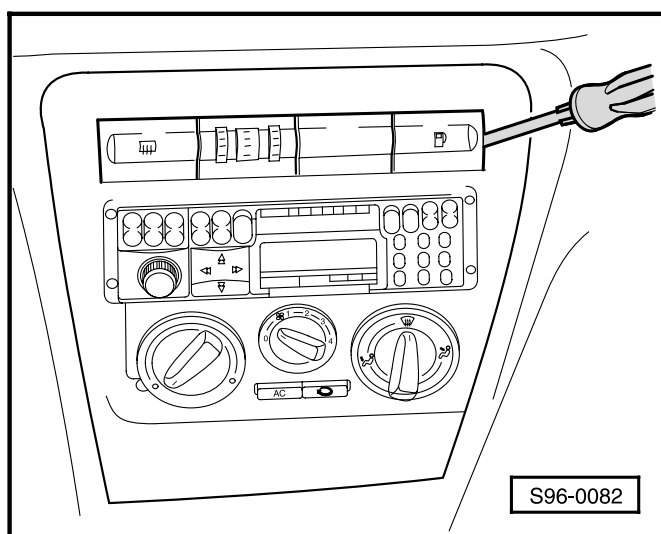


### **Removing Version 2:**

- ◀ - Carefully lift the switch for remote release of fuel filler flap with a small screwdriver from the dash panel centre part.
- Separate electrical plug connection at the switch.

### **Installing**

- Carry out installation in the same way in reverse order.



## Removing and installing luggage compartment socket

### Warning!

**Disconnect earth strap of battery before performing any work on the electrical system.**

### Notes:

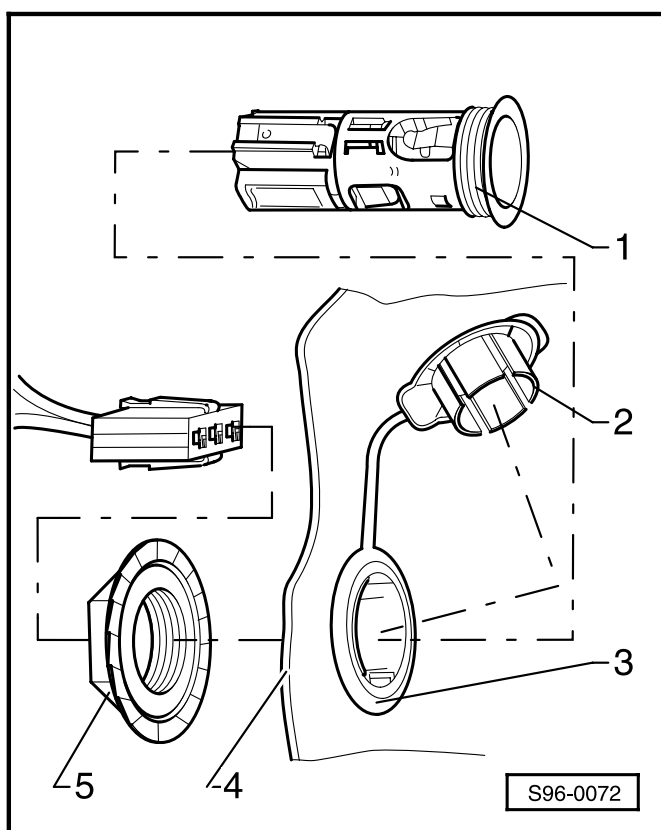
- ◆ Before disconnecting the battery, determine the code number of a radio set fitted with anti-theft coding.
  - ◆ When the battery is re-connected, check the vehicle equipment:
    - Carry out coding of radio,
    - Reset time of clock,
    - Initialise power windows.
- ⇒ Inspection and Maintenance

### Removing

- Open boot lid/tailgate.
- Remove the left D pillar trim panel at the bottom.  
⇒ Body Fitting Work; Repair Group 70; Trim panels cargo area/luggage compartment
- Separate electrical plug connection.
- ◀ - Unscrew the nut -5- from the socket sleeve -3- together with cover -2-.
- Pull the socket -1- together with sleeve -3- out of the D pillar trim panel.

### Installing

- Carry out installation in the same way in the reverse order.



## Sensor for interior monitoring -G273-

### Removing and installing

**Warning!**

**Disconnect earth strap of battery before performing any work on the electrical system.**

**Notes:**

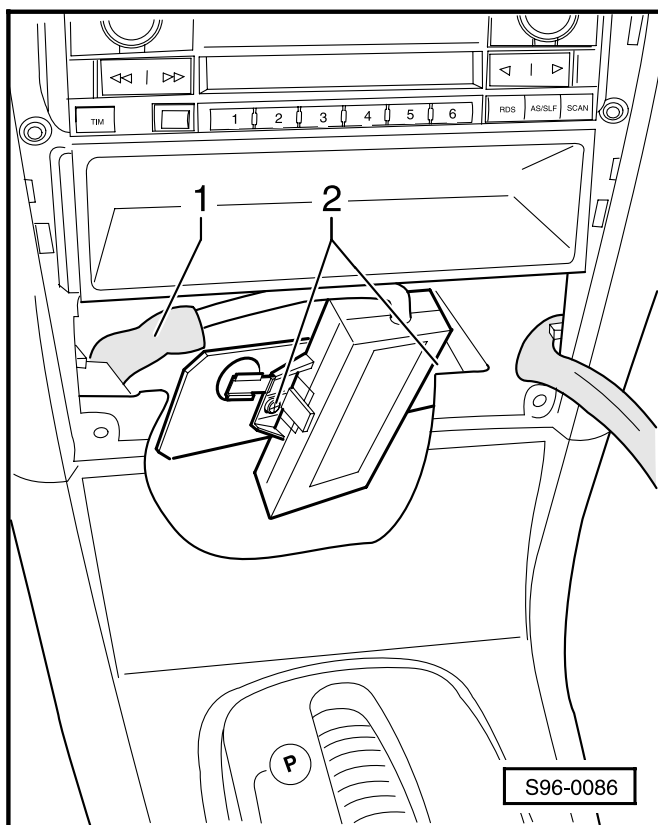
- ◆ Before disconnecting the battery, determine the code number of a radio set fitted with anti-theft coding.
  - ◆ When the battery is re-connected, check the vehicle equipment:
    - Carry out coding of radio
    - Reset time of clock
    - Initialise power windows.
- ⇒ Inspection and Maintenance

**Removing**

- Remove the trim panel of the dash panel insert.
- Remove the front ashtray.
- Remove the Climatronic control unit -E87- and separate the plug connections.
- ◀ - Separate the plug connection of the sensor -1-.
- Take out the two screws -2- and remove the sensor.

**Installing**

- Installation is carried out in the same way in the reverse order.



## Testing

The operation of the sensor for interior monitoring can be tested by the service sector and by the customer.

- Open the window of the driver's door slightly to enable you to insert your arm.
- Lock the vehicle with the key or remote control.
- Wait about 2 minutes until the alarm system has been armed (recognizable from the slow flashing of the red warning light in the driver's door).
- Now insert your arm through the opened window of the driver's door into the interior. The alarm system must be activated immediately (hazard warning lights and alarm horn).
- Switch off the alarm by unlocking the vehicle.

## Regulating the sensitivity

The sensor for interior monitoring is equipped with a regulator for altering the response sensitivity.

The sensor is factory-set to an average sensitivity. The sensitivity can be altered by the service sector at the customer's request:

- Carry out the first 3 steps of removing the sensor ⇒ page 96-35.
- Use a suitable screwdriver to now alter the setting of the trimming potentiometer „sens.“ in the direction + (increases sensitivity) or in the direction - (delays sensitivity).
- Carry out an operational check.



## Alarm system

### **Warning!**

**Disconnect the earth strap of the battery before commencing work on the electrical system.**

### **Notes:**

- ◆ Before disconnecting the battery, determine the code of radio sets fitted with anti-theft coding.
  - ◆ When re-connecting the battery, carry out the following steps:
    - Encode the radio on vehicles fitted with radio security code,
    - set the clock,
    - initialise the power windows on vehicles fitted with power windows.
- ⇒ Inspection and Maintenance

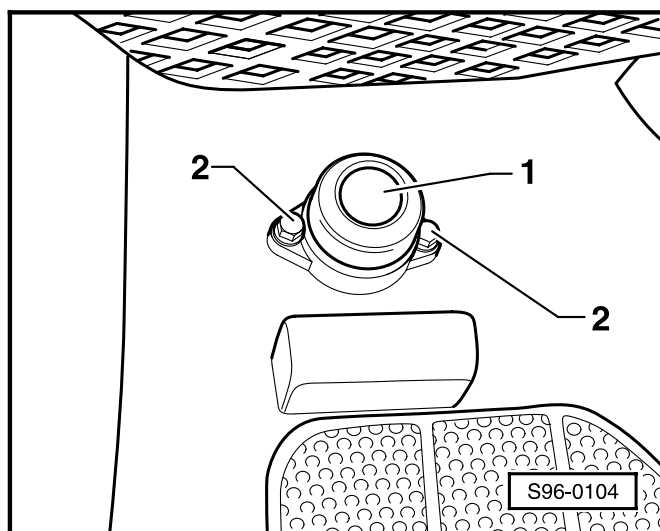
## Removing and installing foot switch for alarm system

### Removing

- Remove entry plate  
⇒ Body Fitting Work; Repair Group 68.
- Remove bottom part of dash panel  
⇒ Body Fitting Work; Repair Group 68.
- Remove trim panel at bottom of A pillar  
⇒ Body Fitting Work; Repair Group 70.
- Take off carpeting in area of bottom of A pillar.
- ◀ - Remove bolts -2-.
- Separate sender -1- from electrical installation and take off.

### Installing

- Installation is carried out in the reverse order by adopting the same procedure.



## Self-diagnosis of immobiliser generation 2 MY 01 ►

Applies to 1.6-ltr./74 kW; 2.0-ltr./85 kW (APK, AEG, AQY); 1.8-ltr./110 kW EU3D (AGU) engines.

Procedure for self-diagnosis identical for generation 1 ⇒ page 96-1 - except function 08.

Function 08 „Read measured value block“ is identical to that of generation 3 ⇒ page 96-40.

## Self-diagnosis of immobiliser generation 3 MY 01 ►

Applies to 1.4-ltr./55 kW; 1.6-ltr./75 kW; 2.0-ltr./85 kW (AZH, AZJ); 1.8-ltr./110 kW EU3 and EU4 (ARX, AUM); 1.8-ltr./132 kW engines.

The electronic immobiliser consists of:

- ◆ a control unit integrated in the dash panel insert
- ◆ an adapted engine control unit
- ◆ a reader coil at the ignition lock
- ◆ adapted ignition keys with electronics
- ◆ a warning light in the dash panel insert

## Conducting self-diagnosis of immobiliser

### Special tools, testers and aids required

- ◆ Vehicle system tester V.A.G 1552
- ◆ Diagnostic cable V.A.G 1551/3, 3A, 3B or 3C

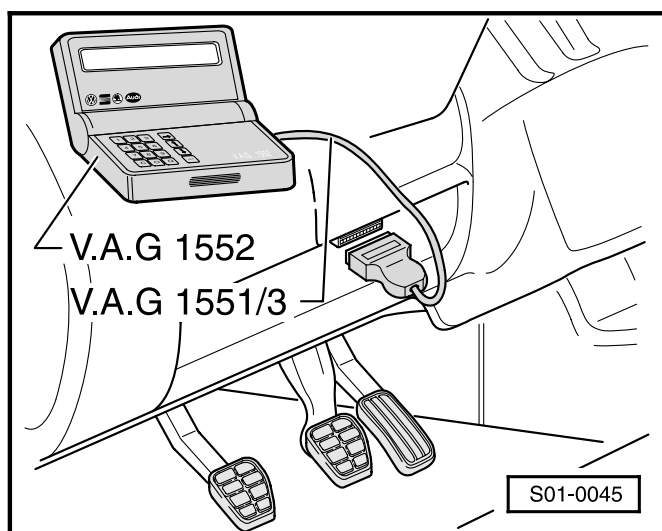
### Test requirements

- Fuses o.k. according to CFD
- Battery voltage at least 11.5 V
- All electrical components switched off

### Connecting vehicle system tester V.A.G 1552

The diagnostic connection is located in the stowage compartment on the driver side.

- ◄ - Connect vehicle system tester V.A.G 1552 with the appropriate cable.
- Switch ignition on.



Test of vehicle systems  
Enter address word XX

HELP

◀ Readout in display:

**Note:**

*If no readout appears in the display:*

⇒ Operating instructions of fault reader

- Enter address word 17 „Dash panel insert“ and confirm entry with the key Q.

1U0920810A COMBI+IMMOB VDO V03 →  
Coding 05112 WSC 00123

◀ A readout appears after about 5 seconds (example):

- ♦ 1U0920810A: Part No.
- ♦ COMBI+IMMOB: component designation
- ♦ VDO: identification of manufacturer
- ♦ V03: software version of dash panel insert (other readouts are also possible)
- ♦ Coding 05112: coding of dash panel insert
- ♦ WSC 00123: workshop code

- Press → key.

TMBCC11U012430077 SKZ720Y0531556 →

◀ Readout in display:

- ♦ TMBCC11U012430077: vehicle number
- ♦ SKZ720Y0531556: 14-digit identification number of immobiliser control unit

- Press → key.

Test of vehicle systems  
Control unit does not answer!

HELP

◀ *If one of the following messages appears in the display, carry out fault finding according to „Fault Finding Programme“ in the diagnostic cable:*

⇒ Current Flow Diagrams, Fault Finding and Fitting Locations binder.

Test of vehicle systems  
Fault in communication build-up

HELP

Test of vehicle systems  
K wire not switching to earth

HELP

Test of vehicle systems  
K wire not switching to positive

HELP

- A list of the possible functions is displayed after pressing the HELP key.

- Press → key.

**List of available functions**

The following functions are possible:

- 02 - Interrogating fault memory ⇒ page 96-40.
- 05 - Erasing fault memory ⇒ page 96-40.

06 - Ending output ⇒ page 96-40

08 - Reading measured value block ⇒ page 96-40

10 - Adaptation ⇒ page 96-42

11 - Log-in procedure ⇒ page 96-42.

## Interrogating fault memory

Description ⇒ page 96-5.

## Fault table

Description ⇒ page 96-6.

## Erasing fault memory

Description ⇒ page 96-7.

## End output

Description ⇒ page 96-8.

|   |      |
|---|------|
| Vehicle system test<br>Select function XX | HELP |
|---|------|

◀ Read-out on display:

- Enter 08 and confirm entry with key Q.

|  |      |
|--|------|
| Reading measured value block<br>Display group number XXX | HELP |
|--|------|

◀ Read-out on display:

- Enter code number of desired display group number and confirm entry with key Q.

## Measured value block 022

|                                 |   |
|---------------------------------|---|
| Reading measured value block 22 | → |
| 1                               | 1 |
| 1                               | 2 |

◀ Read-out on display:

|                             |  |                       |
|-----------------------------|--|-----------------------|
| Number of initialised keys  |  | • 1 to 8 keys         |
| Key code read               |  | • 1 = yes<br>• 0 = no |
| Engine control communicates |  | • 1 = yes<br>• 0 = no |
| Start authorised            |  | • 1 = yes<br>• 0 = no |

## Measured value block 023

|                                   |   |   |   |  |
|-----------------------------------|---|---|---|--|
| Reading measured value block 23 → |   |   |   | ◀ Read-out on display:   |
| 1                                 | 1 | 1 | 2 |  |
|                                   |   |   |   | Status of immobiliser <ul style="list-style-type: none"> <li>• 1 = Basic setting as of factory</li> <li>• 2 = Control unit ready for adaptation</li> <li>• 3 = Control unit is adapted<br/>Keys are initialised</li> <li>• 4 = Basic setting of replacement control unit</li> <li>• 5 = The codes are read by the contr. unit; if they corresp. with the engine control unit code, proceed to status 6</li> <li>• 6 = Keys can be adapted</li> <li>• 7 = Key adaptation</li> </ul> |
|                                   |   |   |   | programmed key code (key is learned) <ul style="list-style-type: none"> <li>• 1 = yes</li> <li>• 0 = no</li> </ul>   |
|                                   |   |   |   | Key locking (2nd generation - no, 3rd generation - yes) <ul style="list-style-type: none"> <li>• 1 = yes</li> <li>• 0 = no</li> </ul>  |
|                                   |   |   |   | Drive code of key <ul style="list-style-type: none"> <li>• 1 = yes</li> <li>• 0 = no</li> </ul>  |

## Measured value block 024

|                                   |   |   |   |   |
|-----------------------------------|---|---|---|---|
| Reading measured value block 24 → |   |   |   | ◀ Read-out on display:  |
| 0                                 | 0 | 0 | 0 |   |
|                                   |   |   |   | Blocking period for reading key code after 20x terminal 15 on with unauthorised key <ul style="list-style-type: none"> <li>• 0 to 10 min</li> </ul>     |
|                                   |   |   |   | Blocking period of emergency release <ul style="list-style-type: none"> <li>• 0 to 255 min (FAIL lights up on the dash panel insert)</li> </ul>         |
|                                   |   |   |   | Blocking period of adaptation via channel 50 <ul style="list-style-type: none"> <li>• 0 to 255 min (FAIL lights up on the dash panel insert)</li> </ul> |
|                                   |   |   |   | Blocking period of PIN entry <ul style="list-style-type: none"> <li>• 0 to 255 min (FAIL lights up on the dash panel insert)</li> </ul>                 |

## Performing Login procedure

The Login function is performed in the following possible cases:

- ◆ when installing an already used dash panel insert ⇒ page 96-45
- ◆ prior to the function of adaptation of new ignition keys ⇒ page 96-42
- ◆ when adapting the engine control unit ⇒ page 96-42
- ◆ for emergency unlocking of the vehicle ⇒ page 96-18

## Adaptation

The function „Adaptation“ can be used to perform and store the following changes:

- ◆ Adapting vehicle ignition keys ⇒ page 96-42.
- ◆ Adaptation after replacing engine control unit ⇒ page 96-42.
- ◆ Adaptation after replacing immobiliser control unit ⇒ page 96-44.

### Adaptation table:

| Adaptation channel | Adaptation purpose            |
|--------------------|-------------------------------|
| 21                 | Programming keys              |
| 50                 | Adaptation of the immobiliser |

## Adaptation of the ignition keys

Adaptation process ⇒ page 96-11.

## Adaptation after replacing engine control unit

### Requirement:

- PIN code of the immobiliser control unit is available.

Test of vehicle systems  
Enter address word XX

HELP

◀ Readout in display:

- Enter address word 01 „Engine electronics“ and confirm entry with the key Q.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Enter function 11 and confirm entry with the key Q.

Login procedure  
Enter code number XXXXX

◀ Readout in display:

- Enter code number as specified in the table and confirm entry with the key Q.

**Table of code numbers:**

| Fuel injection system | Code number |
|-----------------------|-------------|
| SIMOS 3               | 00000       |
| Bosch, Diesel         | 12233       |

Test of vehicle systems  
Select function XX

HFI P

◀ Readout in display:

- Enter function 10 and confirm entry with the key Q.

Adaptation  
Enter channel number XX

◀ Readout in display:

- Enter channel number 50 and confirm entry with the key Q.

|            |            |         |   |
|------------|------------|---------|---|
| Channel 50 | Adaptation | 32000   | → |
| PIN?       |            | (-↑ ↓-) |   |

◀ Readout in display:

- Press → key.

|                              |            |       |   |
|------------------------------|------------|-------|---|
| Channel 50                   | Adaptation | 32000 | Q |
| Enter adaptation value XXXXX |            |       |   |

◀ Readout in display:

- Enter the PIN code of the immobiliser control unit (e.g. 04038) and confirm entry with the key Q.

|            |            |         |   |
|------------|------------|---------|---|
| Channel 50 | Adaptation | 32000   | → |
| Wait       |            | (-↑ ↓-) |   |

◀ Readout in display:

The vehicle number appears after about 4 to 5 seconds.

|                   |            |        |   |
|-------------------|------------|--------|---|
| Channel 50        | Adaptation | 32000  | Q |
| TMBMC46Y0Y7000001 |            | (-↑↓-) |   |

◀ Readout in display:

- Confirm entry with the key Q.

|                      |            |       |   |
|----------------------|------------|-------|---|
| Channel 50           | Adaptation | 32000 | Q |
| Store changed value? |            |       |   |

◀ Readout in display:

- Confirm entry with the key Q.

|                         |            |       |   |
|-------------------------|------------|-------|---|
| Channel 50              | Adaptation | 32000 | → |
| Changed value is stored |            |       |   |

◀ Readout in display:

- Press → key.

TMBMC46Y0Y7000001 SKZ7Z0W0204038 →

◀ Readout in display:

- Press → key.

The immobiliser warning light goes out.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- End output (function 06) ⇒ page 90-10.
- Switch ignition off.

### Adaptation after installing a used engine control unit

#### Requirements

- PIN code of immobiliser control unit of the vehicle for which the engine control unit was removed, is available.
- PIN code of immobiliser control unit of the vehicle in which the engine control unit is installed, is available.

#### Note:

*The adaptation process for a used engine control unit is identical to the adaptation process for a new engine control unit. In function 11 enter the PIN code of the immobiliser control unit from the original vehicle as the code number.*

Adaptation process ⇒ page 96-42

### Adaptation after replacing the new immobiliser control unit

#### Notes:

- ◆ *The immobiliser control unit is installed in the dash panel insert, i.e. the immobiliser control unit is replaced at the same time as the dash panel insert.*
- ◆ *After replacing the dash panel insert, perform the following steps:*
  - Insert authorised ignition key into the ignition lock.
  - Switch ignition on.
  - Connect vehicle system tester -V.A.G 1552- and select address word 17 „Dash panel insert“ ⇒ page 96-38.

After the control unit identification is displayed:

- Press → key.

Test of vehicle systems  
Select function XX

HELP

◀ Readout in display:

- Enter function 10 and confirm entry with the key Q.

Adaptation  
Enter channel number XX

◀ Readout in display:

- Enter channel number 50 and confirm entry with the key Q.



|  |                |                  |   |  |
|--|----------------|------------------|---|--|
| Channel 50<br>PIN?                         | Adaptation     | 32000<br>(-↑ ↓-) | → | ◀ Read-out on display:<br><br>- → Press key.   |
| Channel 50<br>Enter adaptation value XXXXX | Adaptation     | 32000            | Q | ◀ Read-out on display:<br><br>- Enter the PIN code of the corresponding vehicle (immobilizer control unit) and confirm entry with key Q.   |
| Channel 50<br>Wait                         | Adaptation     | 32000<br>(-↑ ↓-) | → | ◀ Read-out on display:<br><br>After approx. 4 to 5 seconds the vehicle number is displayed and the immobilizer warning lamp lights up.   |
| Channel 50<br>TMBMC46Y0Y7000001            | Adaptation     | 32000<br>(-↑ ↓-) | Q | ◀ Read-out on display:<br><br>- Confirm entry with key Q.  |
| Channel 50<br>Store changed value          | Adaptation     | 32000            | Q | ◀ Read-out on display:<br><br>- Confirm entry with key Q.<br><br>The immobilizer warning lamp goes out.  |
| Channel 50<br>Changed value stored         | Adaptation     | 32000            | → | ◀ Read-out on display:<br><br>- → Press key.<br><br>The dash panel insert has taken over the original vehicle secret number.<br><br>The dash panel insert is now set in the address word 17 and displays the vehicle number and the immobilizer identification number after about 2 seconds.   |
| TMBMC46Y0Y7000001                          | SKZ7Z0W0202038 |                  | → | ◀ Read-out on display:<br><br>- → Press key.   |
| Vehicle system test<br>Select function XX  |                | HELP             |   | ◀ Read-out on display:<br><br>- Ending output (function 06) ⇒ page 90-10<br><br>- Switching off ignition.<br><br>- Adapting ignition key ⇒ page 96-42<br><br>- Coding Gateway control unit ⇒ page 90-60.<br><br>- Enter 00 for the address word "Automatic test sequence" and confirm entry with key Q.<br><br>- Erasing fault memory ⇒ page 90-9. |

### Adaptation after insertion of a used dash panel insert

#### Prerequisites

The original code number of the immobilizer control unit is available.



|                     |            |       |   |
|---------------------|------------|-------|---|
| Channel 50          | Adaptation | 32000 | Q |
| Store changed value |            |       |   |

◀ Read-out on display:

- Confirm entry with key Q.

The immobilizer warning lamp goes out.

|                      |            |       |   |
|----------------------|------------|-------|---|
| Channel 50           | Adaptation | 32000 | → |
| Changed value stored |            |       |   |

◀ Read-out on display:

- → Press key.

The dash panel insert has taken over the original vehicle secret number.

The dash panel insert is now set in the address word 17 and displays the vehicle number and the immobilizer identification number after about 2 seconds.

|                   |                |   |
|-------------------|----------------|---|
| TMBMC46Y0Y7000001 | SKZ7Z0W0204038 | → |
|-------------------|----------------|---|

◀ Read-out on display:

- → Press key.

|                     |      |
|---------------------|------|
| Vehicle system test | HELP |
| Select function XX  |      |

◀ Read-out on display:

- Adapting ignition key ⇒ page 96-42
- Coding Gateway control unit ⇒ page 90-60.
- Enter 00 for the address word "Automatic test sequence" and confirm entry with key Q.
- Erasing fault memory ⇒ page 90-9.



## Relay holder, fuse holder

### **Important!**

**Disconnect battery earth strap before carrying out any work on the electrical system.**

## Removing and installing relay holder and auxiliary relay holder

### Removing:

#### **Note:**

*The auxiliary relay holder -A- is not fitted as general equipment, but only if the corresponding optional equipment is installed.*

- Remove cover at bottom left  
⇒ General Body Repairs, repair group 70
- ◀ - Slacken both securing screws -C- (2 Nm) and, as appropriate, slacken all screw connections -D-.
- Pull out relays and control units and then unclip the appropriate relay carrier.
- Take off relay holder -B- and auxiliary relay holder -A- downward.

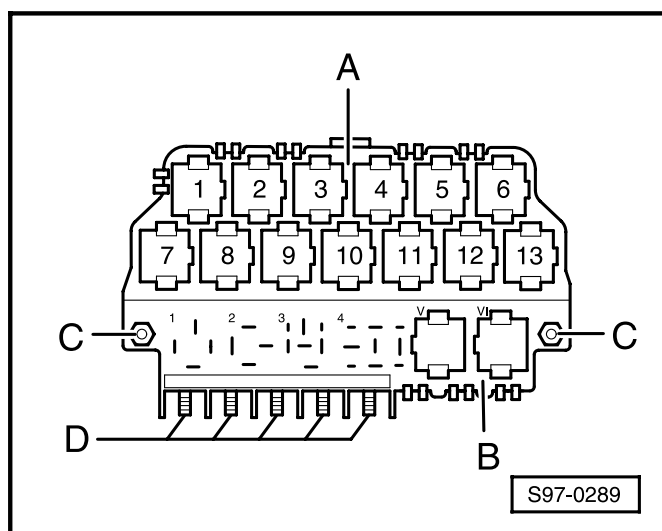
### Installing:

- Carry out installation by adopting the same procedure in the reverse order.

#### **Note:**

*Always refer to the valid current flow diagram for the assignment of the relay holder and of the auxiliary relay holder.*

- ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations



## Removing and installing fuse holder

### Removing:

- Carefully lever off the side cover on the left-hand side of the dash panel.
- ◀ - Unscrew both securing bolts -B- (2 Nm) and then press catch -C- and pull out fuse holder -A- to the rear.

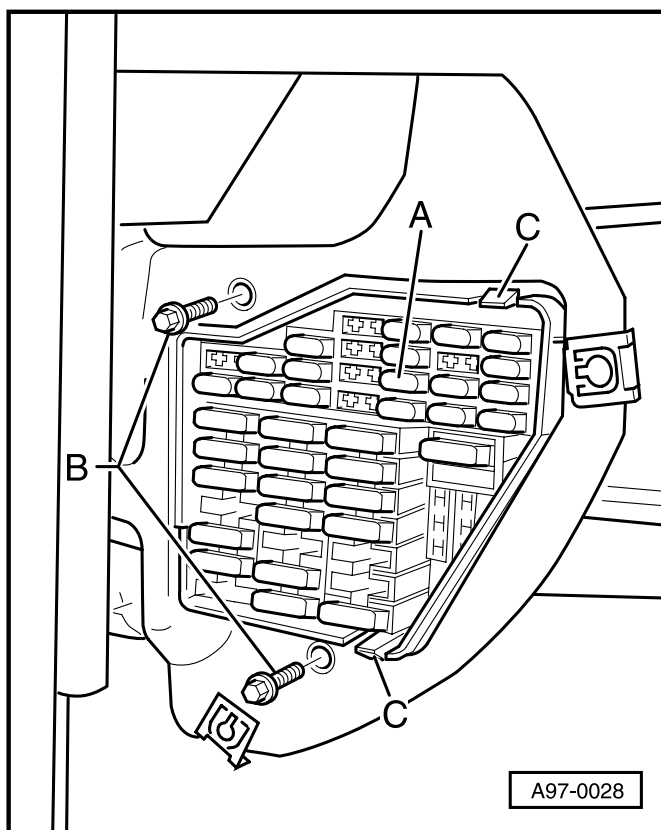
### Installing:

- Carry out installation by adopting the same procedure in the reverse order.

### Note:

*Always refer to the valid current flow diagram for the assignment of the fuse holder.*

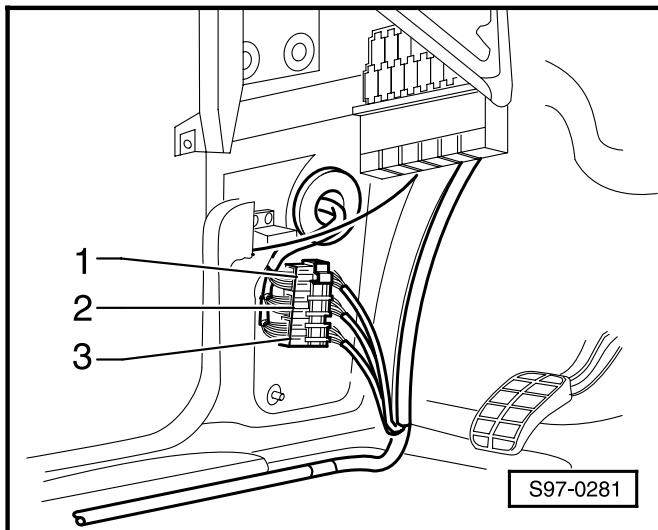
⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations.



## Important electrical contact assignments and plug connections

### **Important!**

**Before carrying out any work on the electrical system, disconnect earth strap of the battery.**

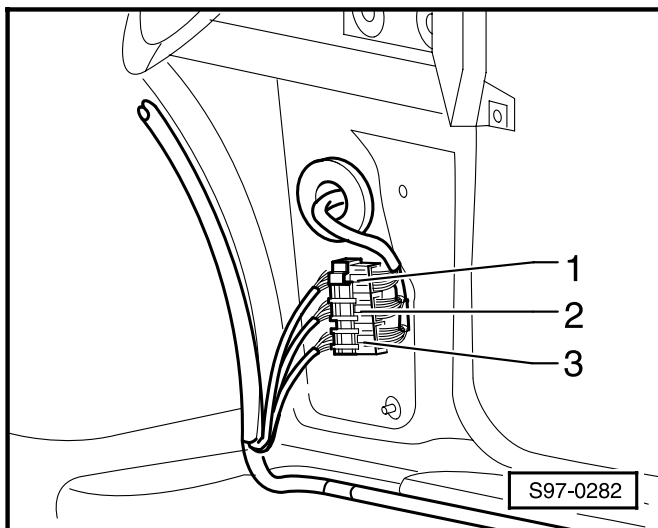


### Connector station A pillar

#### Connector station A pillar - driver side

◀ The connector station is located in the left footwell below the footwell trim panel.

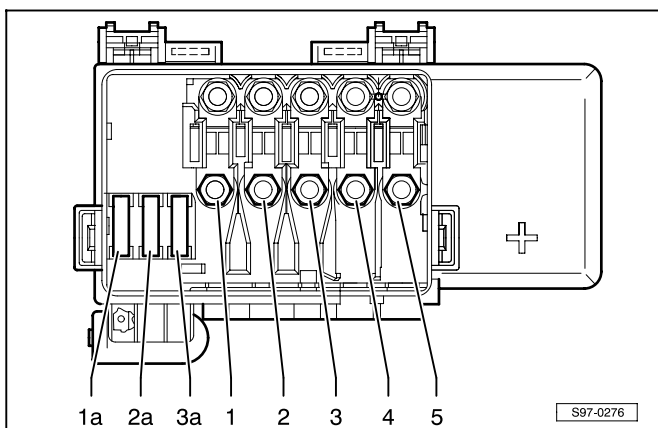
- 1 - Central locking, brown
- 2 - Electric mirror adjustment, blue
- 3 - Radio and power windows, central locking, black



#### Connector station A pillar - passenger side

◀ The connector station is located in the right footwell below the footwell trim panel.

- 1 - Central locking, brown
- 2 - Electric mirror adjustment, blue
- 3 - Radio and power windows, central locking, black



### Main fuse box

◀ The main fuse box is positioned on the battery in the engine compartment.

- Removing and installing ⇒ page 27-4.

### **Note:**

*Refer to the relevant current flow diagram for the contact assignment*

⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations

