Workshop Manual
OCTAVIA

Electrical System

Service Department. Technical Information

S00.5117.50.20 Edition 08.96

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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
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Battery

Warning!

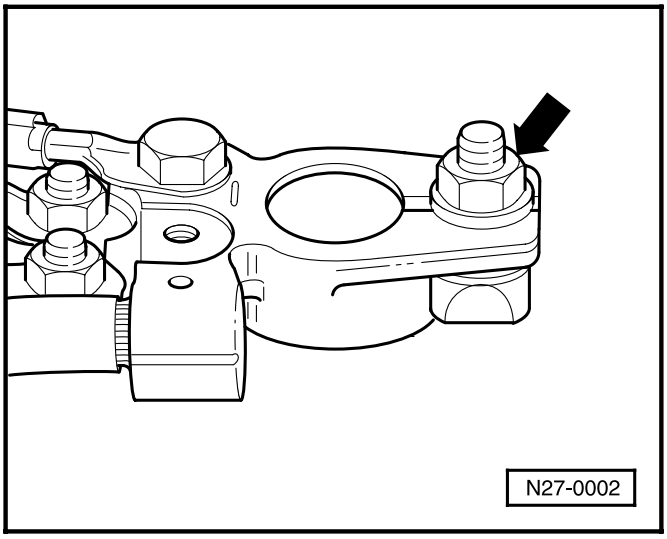
Disconnect earth strap of battery before commencing work on electrical system.

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



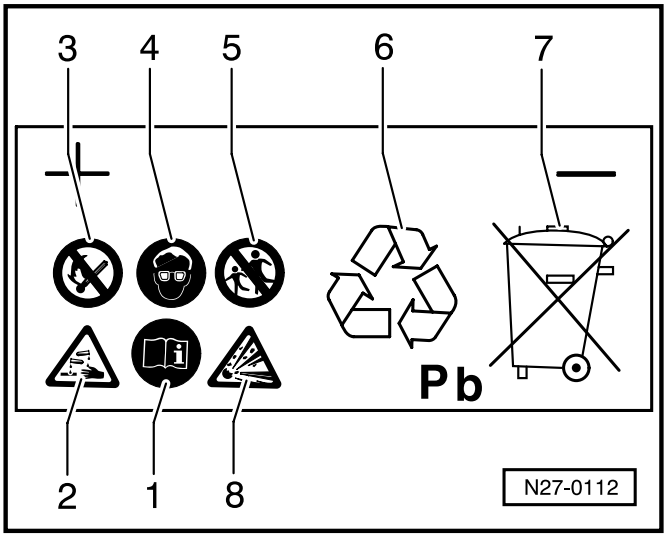
- The battery terminal studs must neither be greased nor oiled.
- The battery terminals must be fitted on by hand without the use of force to avoid damaging the battery housing.
- ◄ The tightening torque for the battery terminals is 6 Nm -arrow-.

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.

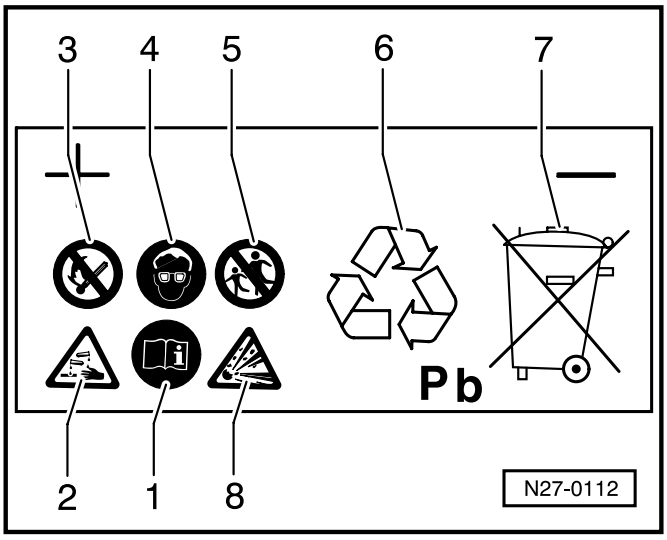
Note:

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:

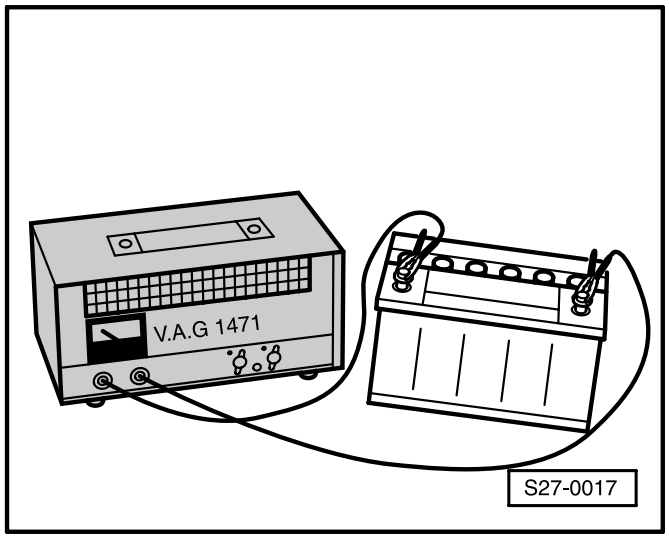
- A highly explosive gas mixture is produced when charging batteries.

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 [Ah]	Cold test current [A]	Load current [A]	Minimum voltage (limit) [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^3).

The following measurements must be achieved:

Charge state in moderate climatic zones	Specific density in (kg/dm^3)
discharged	1.15
half charged	1.22
well charged	1.28

Charge state in tropical climatic zones	Specific density in (kg/dm^3)
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:

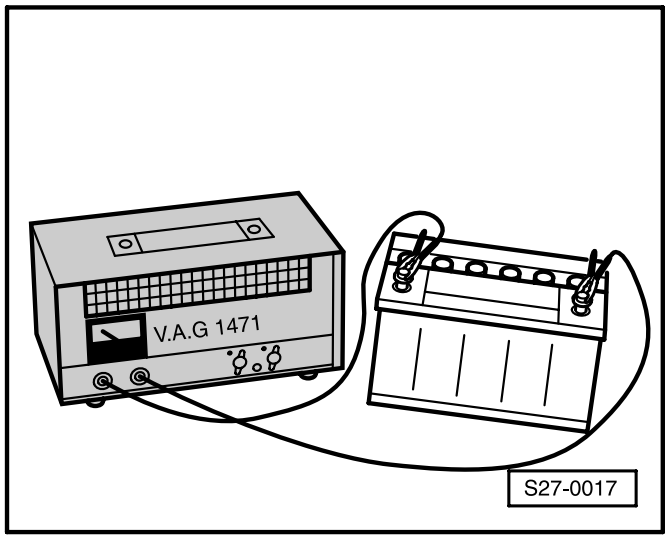
  - If the electrolyte density in all the cells does not differ by more than 0.04 kg/dm^3 (e.g. 1.15...1.11) from each other, the battery should be charged. After completing charging of the battery, test the battery by conducting a load test. The battery is faulty only if this test reveals that the test 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 °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 V.

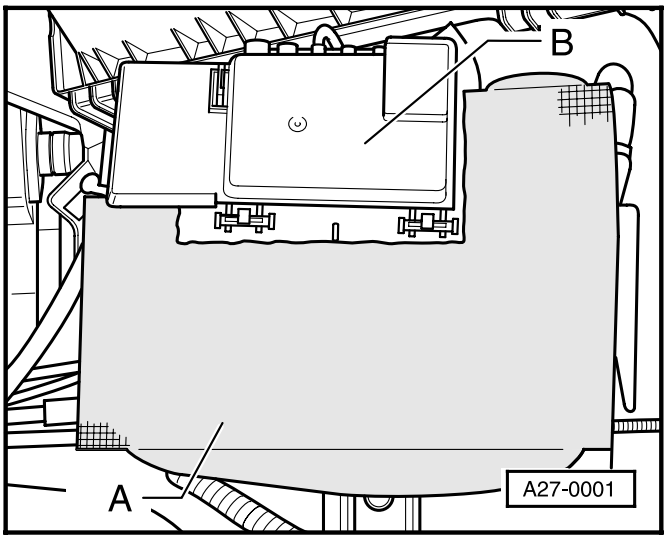
- If the battery voltage has dropped below 11.6 V, the charging time will be about 24 hours.

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.*

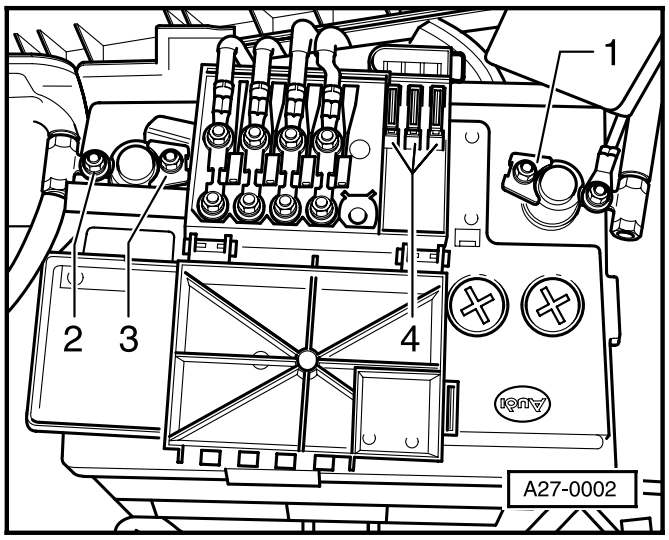


Removing and installing battery

Removing:

◄ - Remove battery protective cover -A- (Velcro fastener).

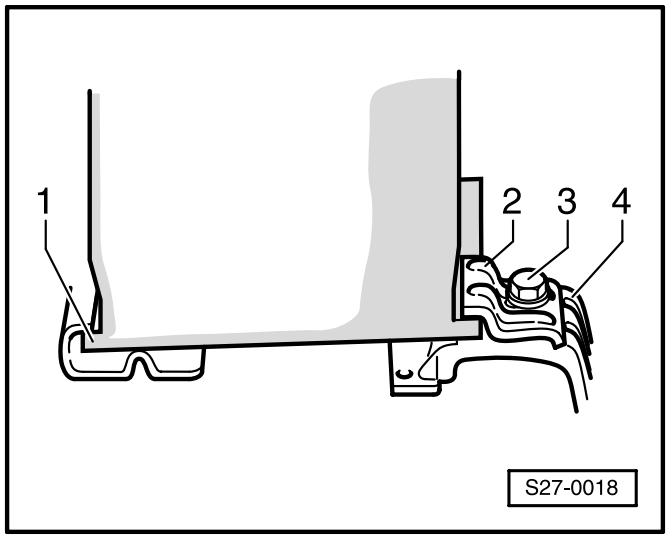
- Open main fuse box -B- to the front.



◄- 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.*

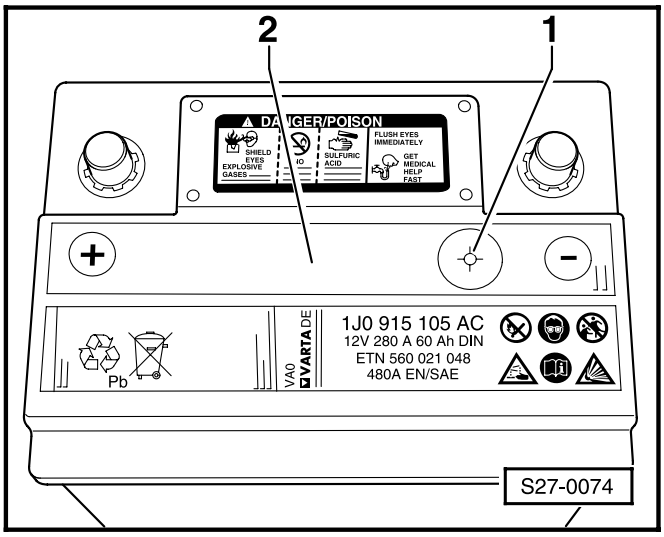
After installing the battery:

- 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

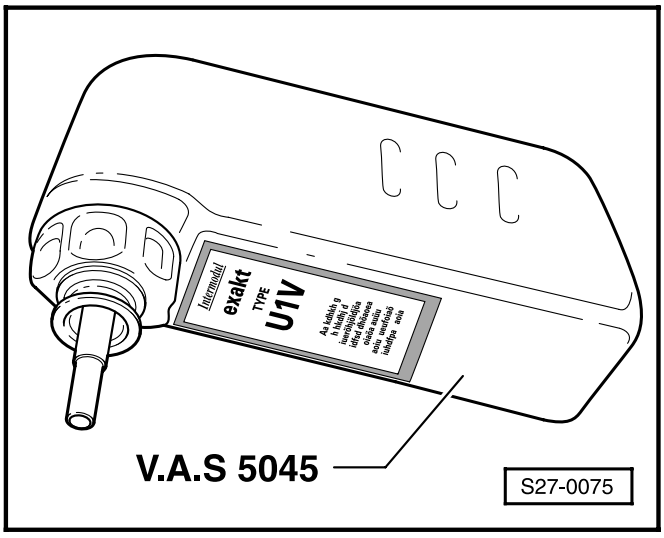
Identification characteristics

- 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:

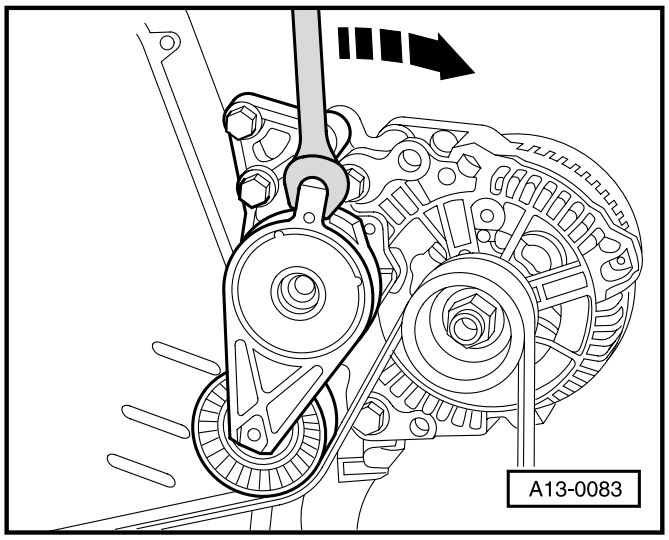
Note:

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.

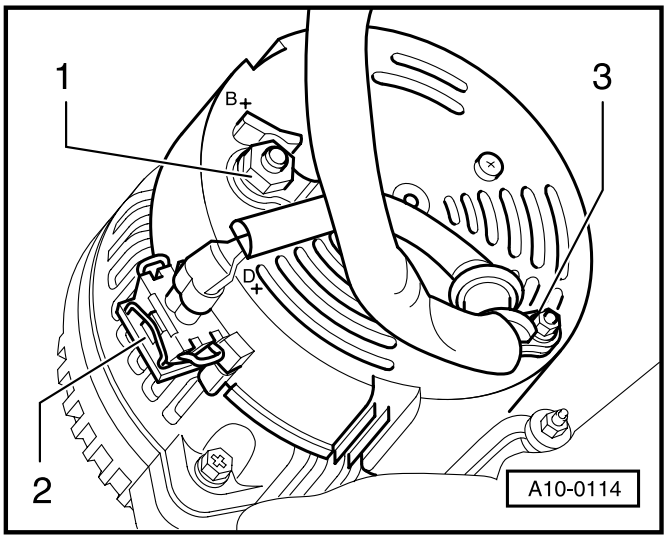
Note:

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

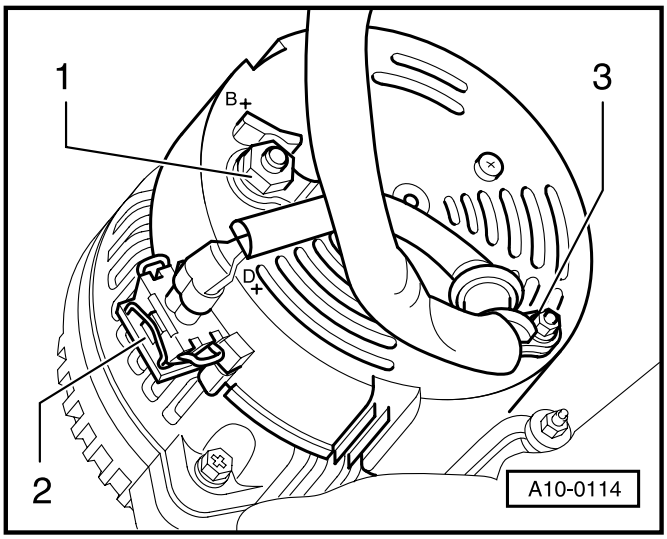
Models with diesel engine

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.



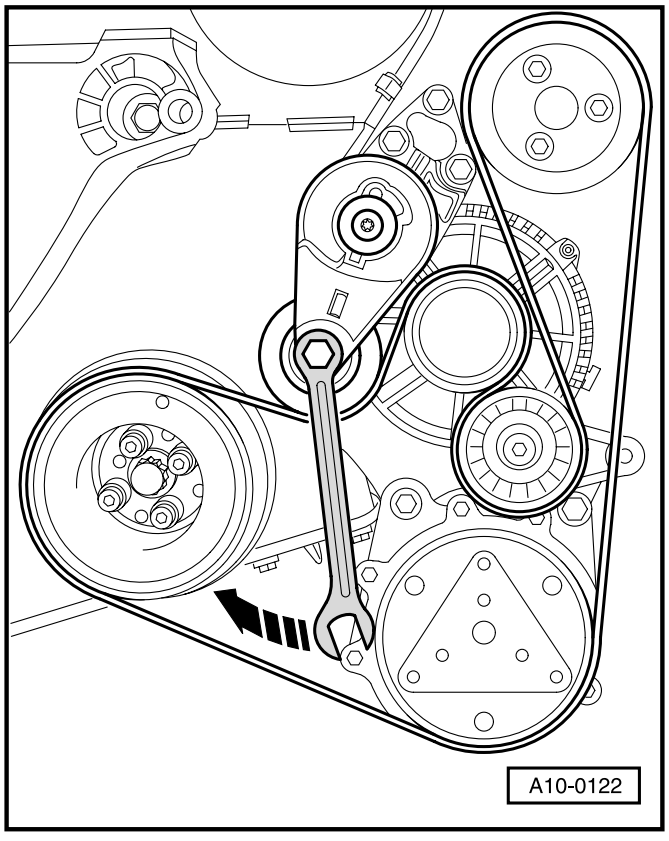
◄ - Unscrew cable clip -3-.

- 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.

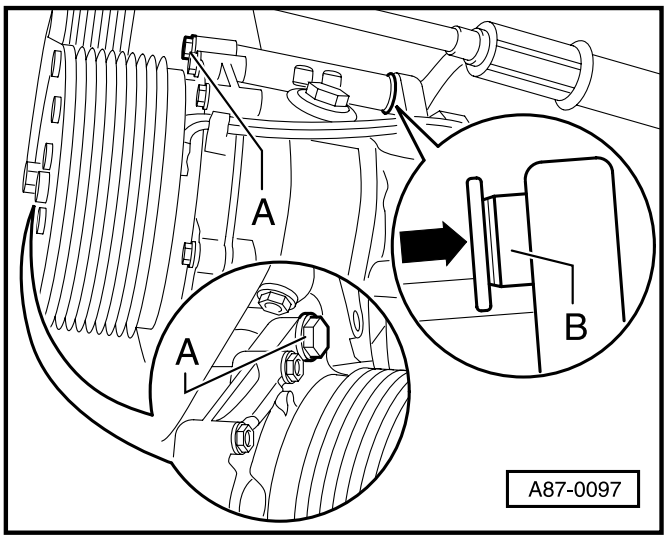


◄ - Swivel tensioning pulley in direction of arrow for slackening the ribbed V-belt.

- 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.

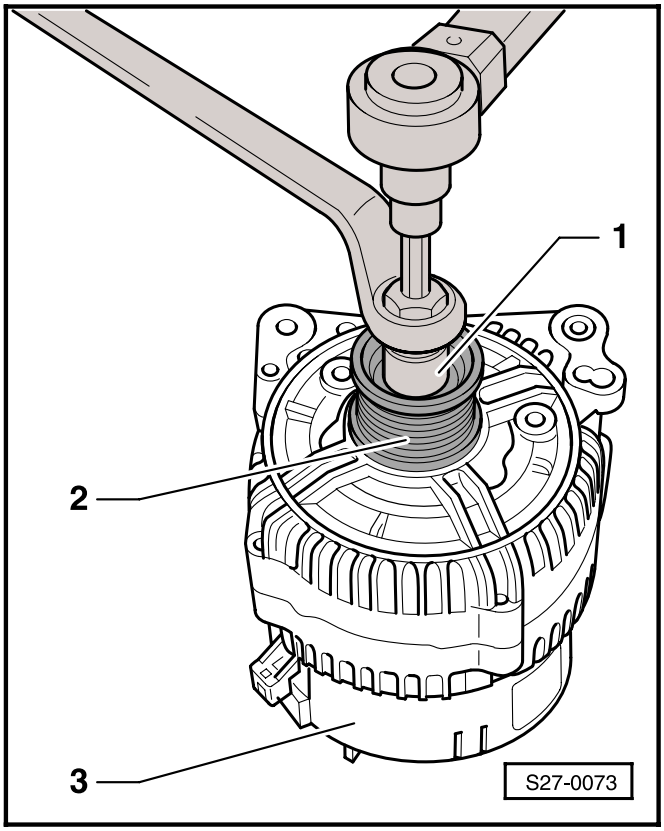
◄ - Use adapter -1- to remove belt pulley -2- of alternator -3-.

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:

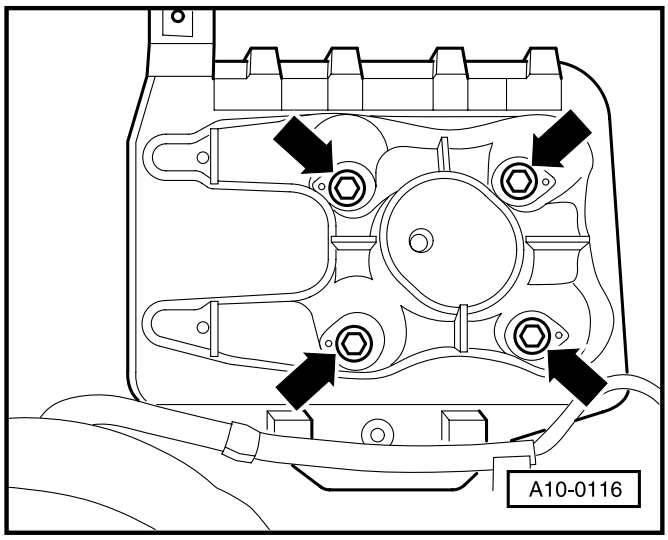
If the radio set is fitted with an anti-theft code, determine the code before disconnecting the battery.

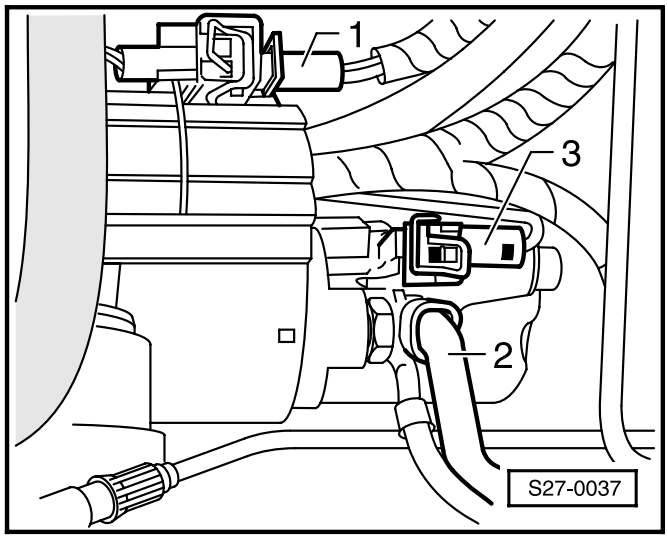
- First of all disconnect the battery earth strap and the negative terminal of the battery.

Models with diesel engine:

- Remove battery ⇒ page 27-4.

◄ - Remove battery mounting bracket -arrow-.





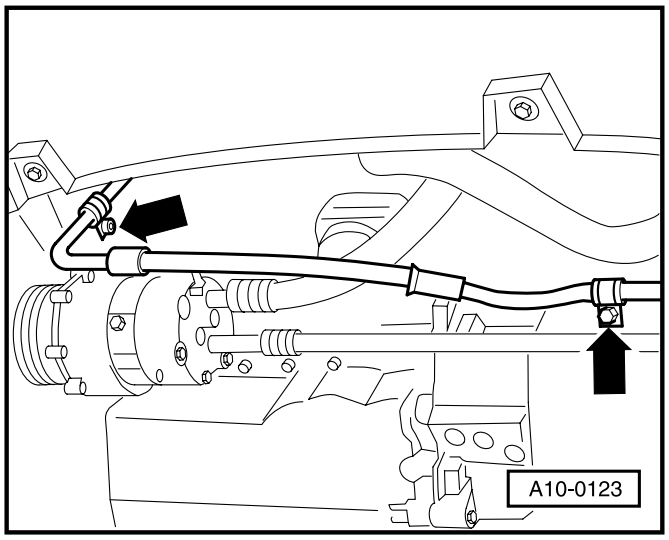
All models:

◄ - 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:

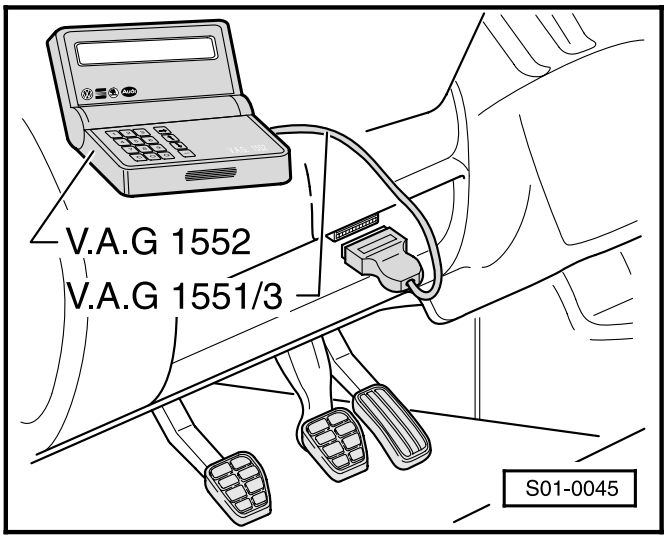
- Test if fuse according to current flow diagram o.k.
- Always test the coding of the dash panel insert according to the code table ⇒ page 90-11.

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 HELP Control unit does not answer!	◄ *If one of the following messages appears in the display, carry out troubleshooting as specified in „Troubleshooting programme“ in the diagnostic wire:* ⇒ Current Flow Diagrams, Fault Finding, 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 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 HELP Select function XX

◄ 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 HELP Select function XX

◄ 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 Oil level/oil temperature sender -G266- ♦ Line interruption or short-circuit to positive ♦ Short circuit to earth ♦ Implausible signal	♦ Line interruption or short-circuit ♦ Sender -G266 defective	- Check wiring ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting locations - Check plug connections - Replace sender -G266
00667 Outside temperature signal ♦ Line interruption or short-circuit to positive ♦ Short circuit to earth	♦ Line interruption or short-circuit ♦ Sender -G17 defective	- Check wiring ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting locations - Check plug connections - Replace sender -G17
00769 Coolant temperature sender - engine output -G2 ♦ Line interruption or short-circuit to positive ♦ Short circuit to earth	♦ Line interruption or short-circuit between sender -G2 and dash panel insert ♦ Sender -G2 defective	- Check wiring ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting locations - Check plug connections - Replace sender -G2
00771 Fuel gauge sender -G ♦ Line interruption or short-circuit to positive ♦ Short circuit to earth	♦ Line interruption or short-circuit between fuel gauge sender -G and dash panel insert ♦ Fuel gauge sender -G- defective	- Reading measured value block 002 ⇒ page 90-47 - Check wiring ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting locations - Check plug connections - Replace fuel gauge sender -G

Read out on display of V.A.G 1552	Possible cause of fault	Rectifying fault
00779 Temperature sensor outside temperature -G17 ♦ Line interruption or short-circuit to positive ♦ Short circuit to earth	♦ Line interruption or short-circuit between temperature sensor for outside temperature -G17 and dash panel insert ♦ Temperature sensor for outside temperature -G17 defective	- Reading measured value block ⇒ page 90-47 - Check wiring ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting locations - Check plug connections - Replace temperature sensor for outside temperature -G17
01039 Coolant temperature display sender -G2 ♦ Line interruption or short-circuit to positive ♦ Short circuit to earth	♦ Line interruption or short-circuit between sender -G2 and dash panel insert ♦ Sender -G2 defective	- Reading measured value block 003 ⇒ page 90-47 - Check wiring ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting locations - Check plug connections - Replace sender -G2
01044 Control unit is wrongly coded	♦ Dash panel insert is wrongly coded ♦ Control unit defective	- Coding dash panel insert - Coding dash panel insert
01086 Speedometer sender -G22 ♦ Signal too great	♦ Speedometer sender -G22 defective	- Reading measured value block 001 ⇒ page 90-47 - Replace speedometer sender -G22
01312 Databus drive ♦ Defective	♦ Fault in databus cables	- Check databus cables ⇒ page 90-68 - Coding of the control units connected to the databus
01314 Engine control unit ♦ No communication	♦ Line interruption to control unit ♦ Control unit not fitted ♦ Engine control unit defective	- Check databus cables ⇒ page 90-68 - Replace engine control unit
01315 Gearbox control unit ♦ No communication	♦ Line interruption to control unit ♦ Control unit not fitted ♦ Gearbox control unit defective	- Check databus cables ⇒ page 90-68 - Replace gearbox control unit
01316 Brake control unit ♦ No communication	♦ Line interruption to control unit ♦ Control unit not fitted ♦ ABS control unit defective	- Check databus cables ⇒ page 90-68 - Replace ABS control unit
01317 Control unit in dash panel insert -J285- ♦ No communication	♦ Line interruption to control unit ♦ 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 Airbag control unit -J234 ♦ No communication	♦ Line interruption to control unit ♦ Control unit not fitted ♦ Airbag control unit defective	- Check databus cables ⇒ page 90-68 - Replace airbag control unit -J234
01324 4-wheel drive control unit -J492 ♦ No communication	♦ Line interruption to control unit ♦ Control unit not fitted ♦ Control unit -J492 defective	- Check databus cables ⇒ page 90-68 - Replace control unit -J492
01326 Multi-function steering control unit -J453 ♦ No communication	♦ Line interruption to control unit ♦ Control unit not fitted ♦ Control unit -J453 defective	- Check databus cables ⇒ page 90-68 - Replace control unit -J453
01330 Central control unit for convenience system -J393 ♦ No communication	♦ Line interruption to control unit ♦ Control unit not fitted ♦ Control unit -J393 defective	- Check databus cables ⇒ page 90-68 - Replace control unit -J393
01336 Group convenience data bus ♦ defective ♦ group convenience data bus	♦ Fault in databus cables	- Check databus cables ⇒ page 90-68
01402 Databus line of navigation ♦ implausible signal	♦ Fault in databus cables ♦ Radio-Navigation system defective	- Check databus cables ⇒ page 90-68 - Check Radio-Navigation system ⇒ page 91-30 - Check Radio-Navigation system ⇒ page 91-47
65535 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. ½
Rev counter:	approx. 3000 rpm
Speedometer:	approx. 100 km/h
Fuel gauge:	approx. ½

- 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 HELP Select function XX	◄ 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 HELP Select function XX	◄ 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 HELP Select function XX	◄ 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 1.9l/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 Enter code number 08042	Q (0-32000)

◄ Readout in display:

- Confirm entry with the key Q.

8L0919860A AB KOMBIINSTR UN4 D04 Coding 08042	→ WSC 06812

◄ Readout in display:

- Press → key.

IMMO IDENT NO: SKZ7Z062000222	→

◄ Readout in display:

- End coding by pressing the → key.

Test of vehicle systems 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 ➤ 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.

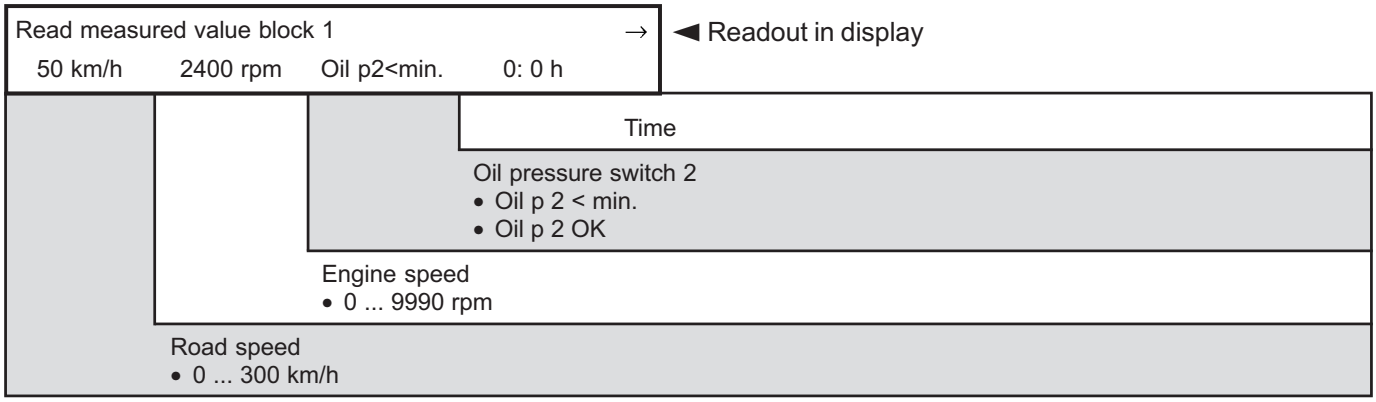
List of display groups:

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

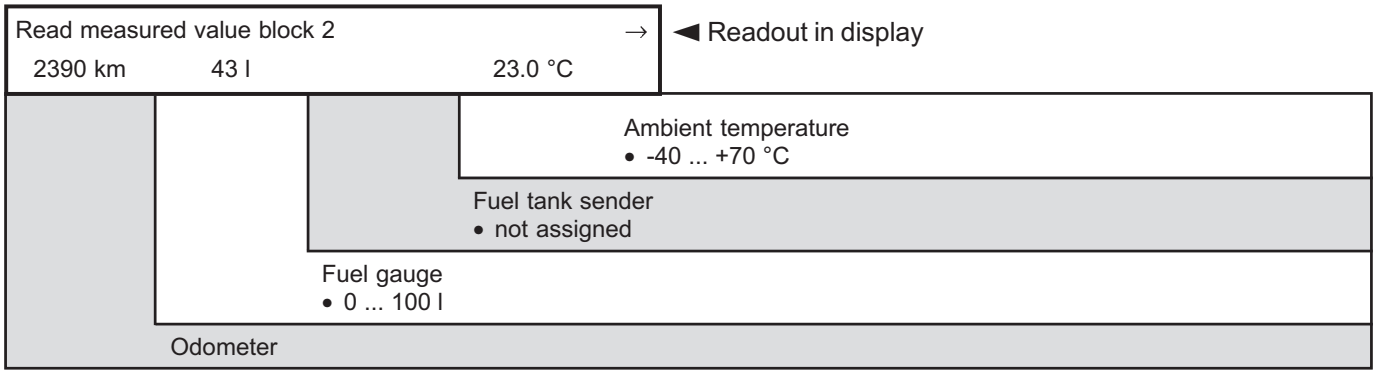
Notes:

- *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!*

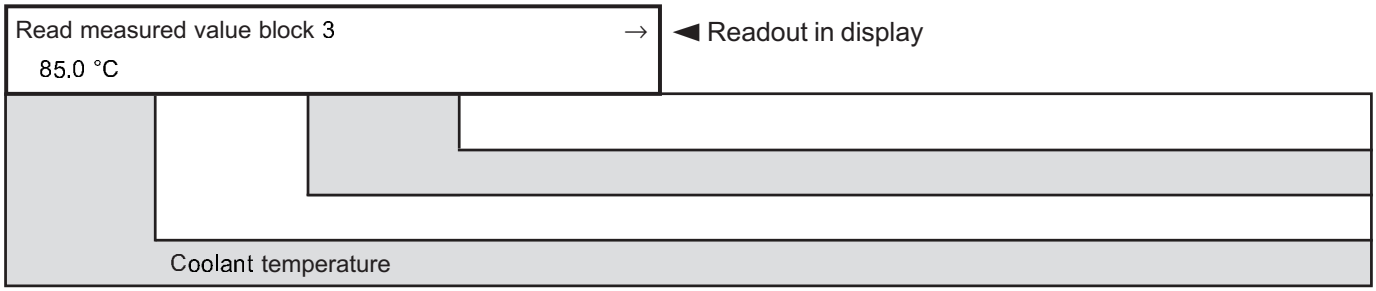
Measured value block 001



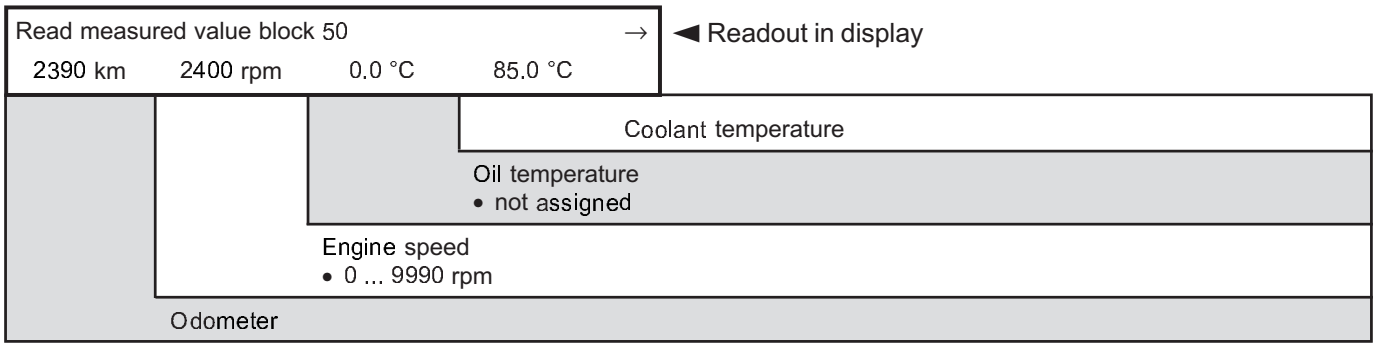
Measured value block 002



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 HELP Select function XX

◄ 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 HELP Select function XX	◄ Readout in display:
	- Press key 1 twice.
Test of vehicle systems Q 11 - Login procedure	◄ Readout in display:
	- Confirm entry with the key Q.
Login procedure Enter code number XXXXX	◄ Readout in display:
	- **Enter code number 13861 and confirm entry with the key Q.**
Test of vehicle systems HELP Select function XX	◄ Readout in display:
	- Press keys 1 and 0 and confirm entry with the key Q.
Adaptation 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 → ⟨- ↑ ↓-⟩	◄ 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: 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 ± 8 Ω 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.

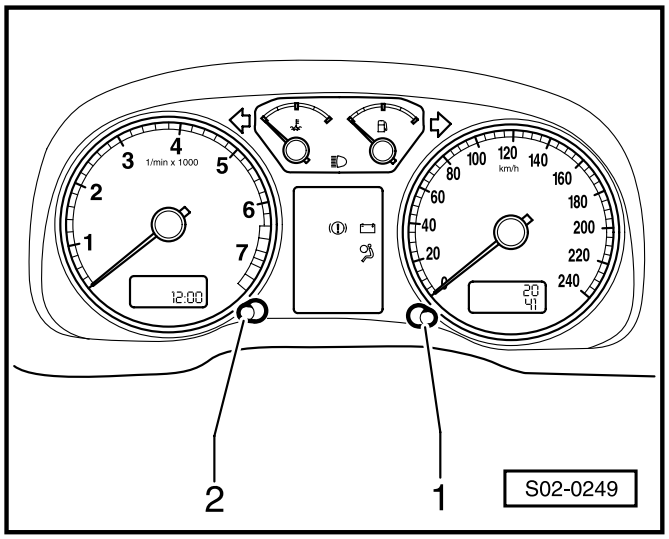
- Perform adaptation of the car keys ⇒ page 96-11.

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 → 〈– ↑ ↓–〉	◄ 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 → 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 Q Enter adaptation value 00015	◄ Readout in display after entering adaptation value 00015:
	- Confirm entry with the key Q.
Channel 10 Adaptation 15 Q Store changed value?	◄ Readout in display:
	- Confirm entry with the key Q.
Channel 10 Adaptation 15 → 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

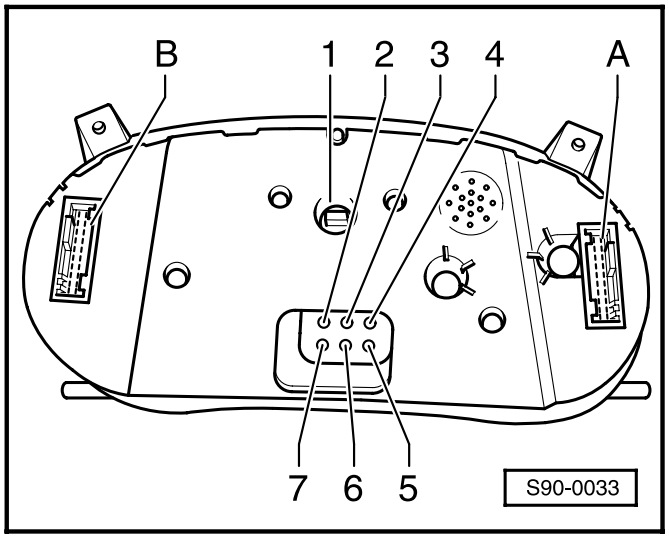
Installing

- 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

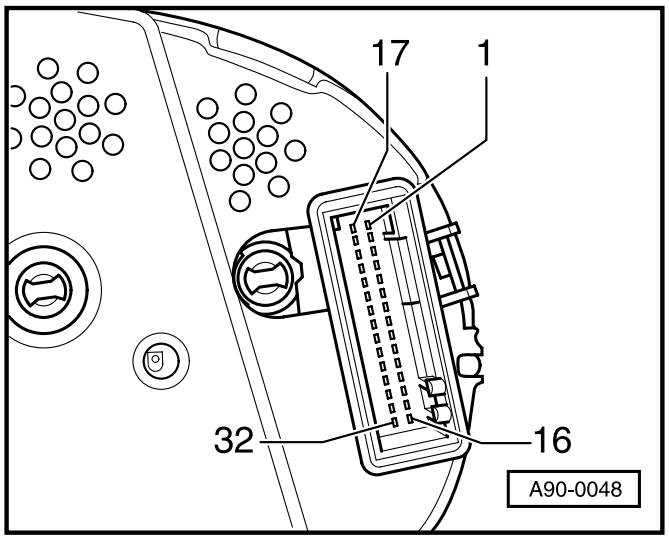
6 - Low beam warning light (not assigned)

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)

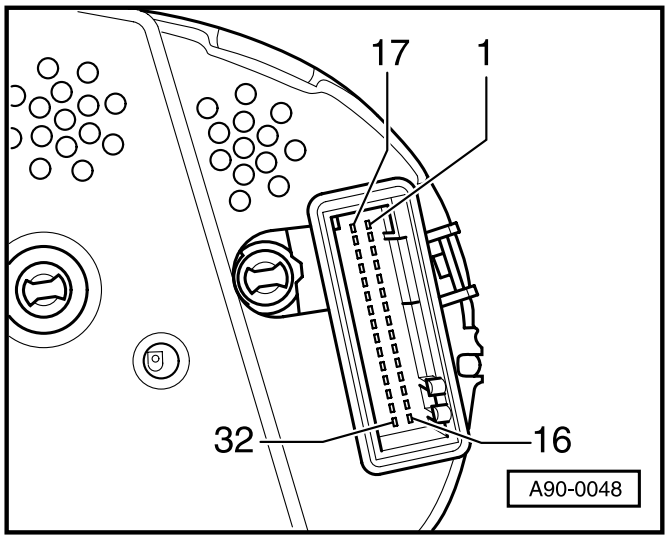
8 - Coolant temperature

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 - ow coolant level

23 - Terminal 30

24 - Terminal 31

25 - K-wire

26 - Right parking light, side light

27 - Left parking light, side light

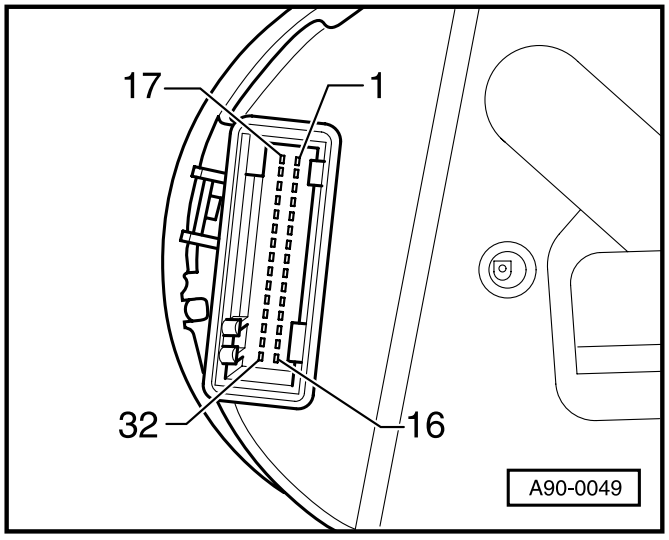
28 - Speedometer input

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

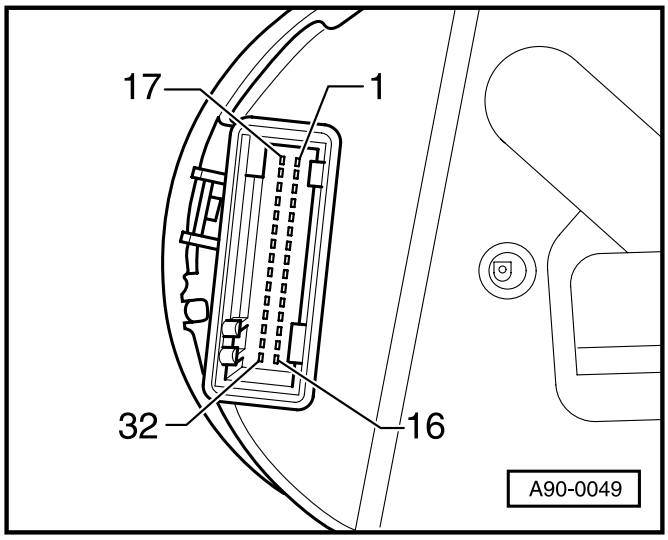
10 - not assigned

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[1)]

32 - MFD - signal of fuel consumption gauge

1) 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

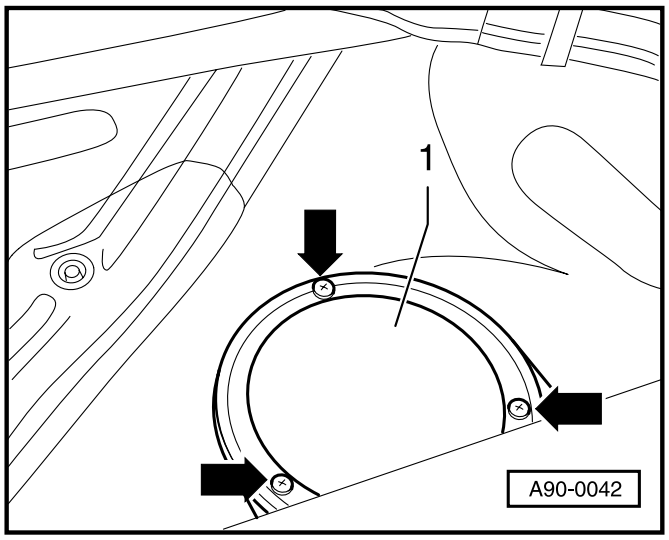
- Connect the test box V.A.G 1598 with the adapter V.A.G 1598/25 to the blue 32-pin connector.

- 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

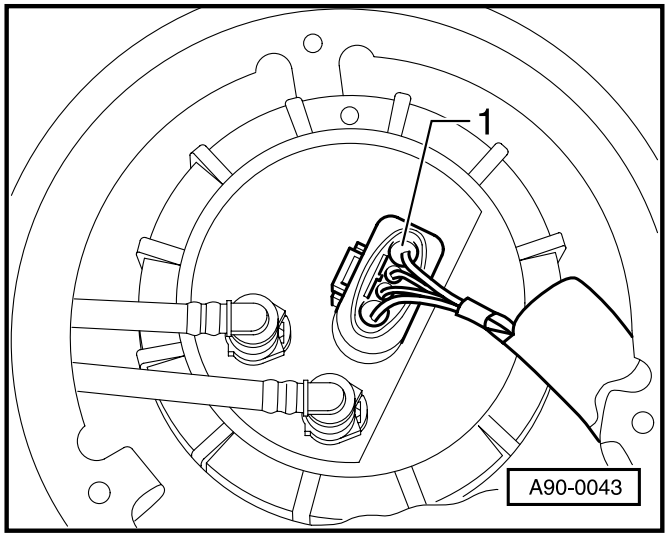


The fuel gauge sender is located below the rear seats.

- 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!

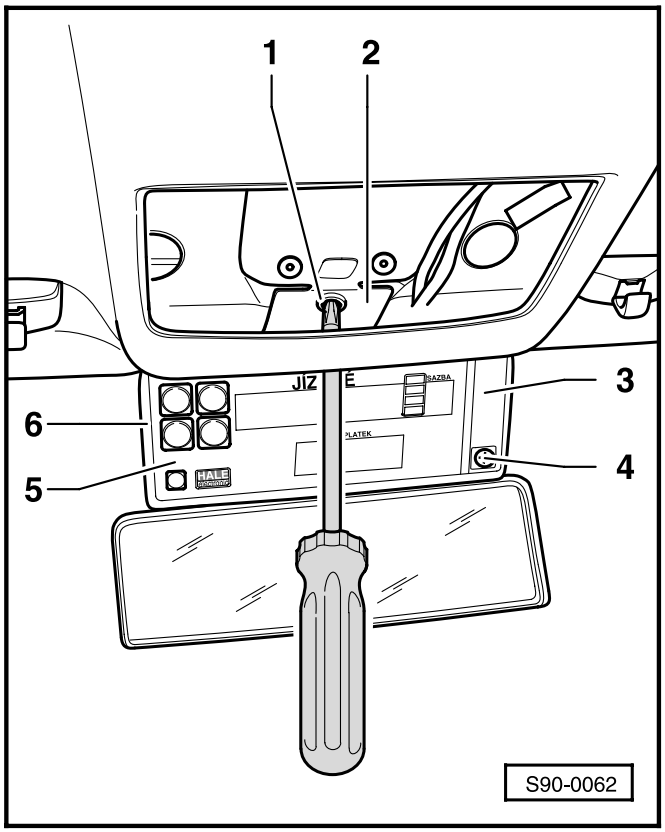
Disconnect the earth strap of the battery before commencing work on the electrical system.

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!

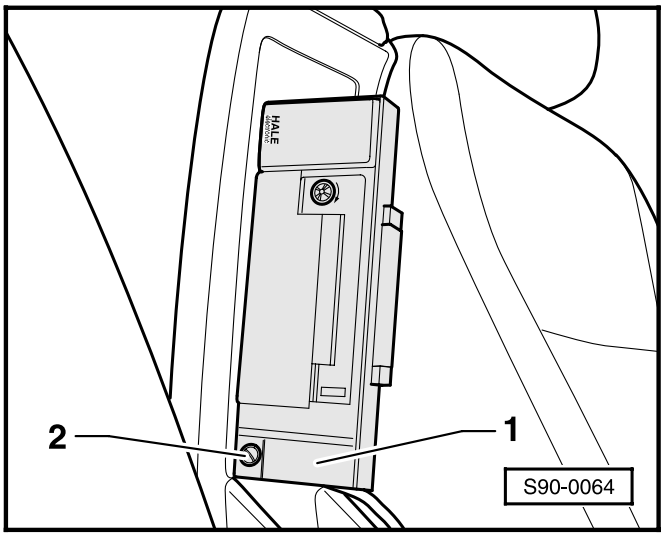
Disconnect the earth strap of the battery before commencing work on the electrical system.

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

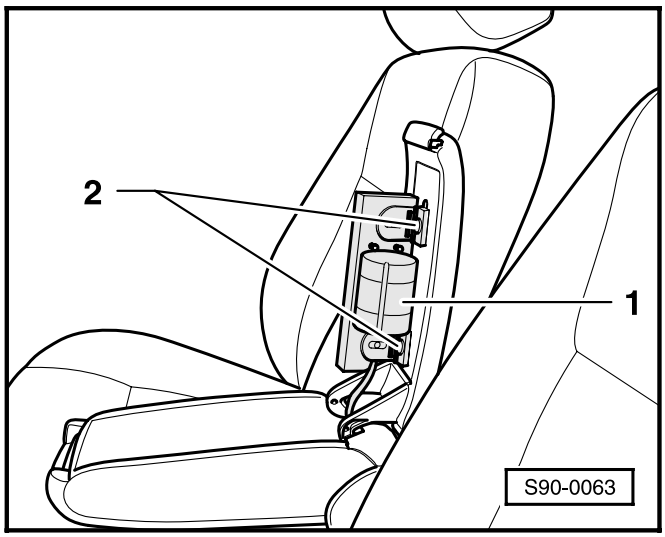
- *After installing the printer in the vehicle, a new genuine anti-temper seal must be fitted.*



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.

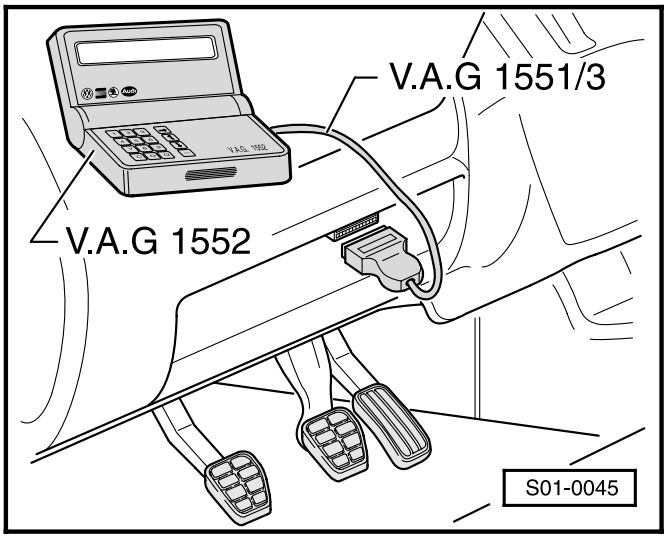
Initiating self-diagnosis of the dash panel insert

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.

Test of vehicle systems	HELP
Enter address word XX	

◄ Readout in display:

Note:

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

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

1U0920810A COMBI+IMMOB VDO X06 Coding 05112 WSC 00123

◄ 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 Fuel gauge →	◄ Readout in display: The pointer of the fuel gauge passes through the full indicating range and then indicates the half. - Press → key.
Final control diagnosis Speedometer →	◄ Readout in display: The pointer of the speedometer passes through the full indicating range and then indicates about 100. - Press → key.
Final control diagnosis Segment test →	◄ Readout in display: All the segments of the LCD in the speedometer and in the rev counter are actuated and become visible. - Press → key.
Final control diagnosis Glow period warning light -K29 →	◄ Readout in display: The glow period warning light -K29 comes on (only in the case of diesel engine). - Press → key.
Final control diagnosis Overheating light →	◄ Readout in display: The coolant temperature/coolant level warning light comes on. - Press → key.
Final control diagnosis Brake pad warning light -K32 →	◄ Readout in display: The brake pad warning light -K32 comes on. - Press → key.
Final control diagnosis Fuel reserve warning light -K105 →	◄ Readout in display: The fuel reserve warning light -K105 comes on. - Press → key.
Final control diagnosis Oil pressure warning light -K3 →	◄ Readout in display: The oil pressure warning light -K3 comes on. - Press → key.
Final control diagnosis 00501/Literature →	◄ Readout in display: The oil level warning light -K38- comes on. - Press → key.
Final control diagnosis Low washer fluid level warning light -K106 →	◄ Readout in display: The low washer fluid level warning light -K106 comes on (if fitted). - Press → key.

Final control diagnosis → 00502/Literature	◄ Readout in display:
	The immobiliser warning light comes on.
	- Press → key.
Final control diagnosis → Brake system warning light -K7	◄ Readout in display:
	The brake system warning light -K7 comes on.
	- Press → key.
Final control diagnosis → Seat belt warning light -K19	◄ Readout in display:
	The seat belt warning light -K19 comes on.
	- Press → key.
Final control diagnosis → Gong	◄ Readout in display:
	The gong is operated; a gong signal sounds at intervals.
	- Press → key.
Final control diagnosis → Buzzer/gong H3	◄ Readout in display:
	A continuous warning signal sounds.
	- Press → key.
Final control diagnosis → End	◄ Readout in display:
	- Press → key.
	The actual values again appear in the display of the dash panel insert.
Test of vehicle systems HELP Select function XX	◄ Readout in display:
	- End output (function 06) ⇒ page 90-10.

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:

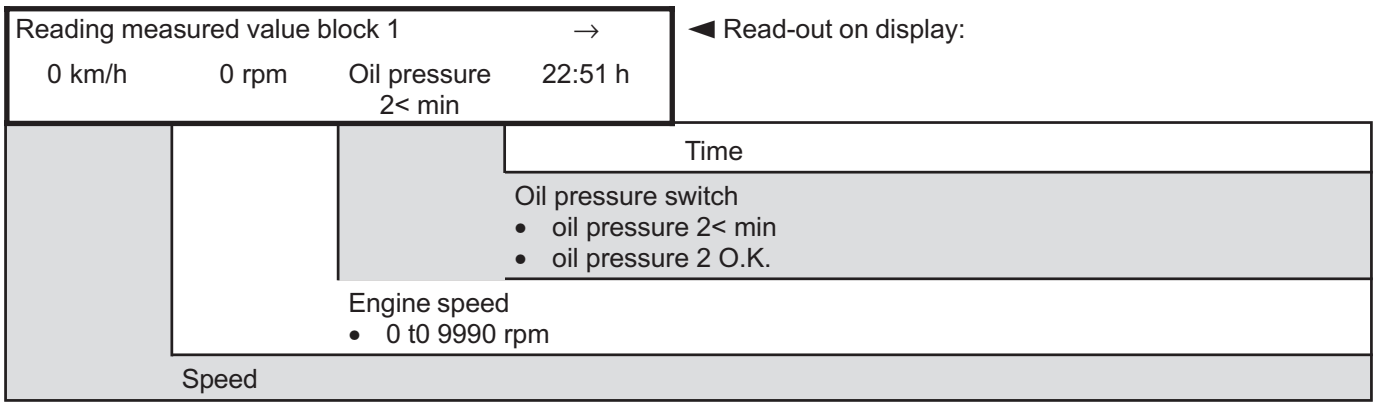
- Enter display group number and confirm the entry with the key Q.

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

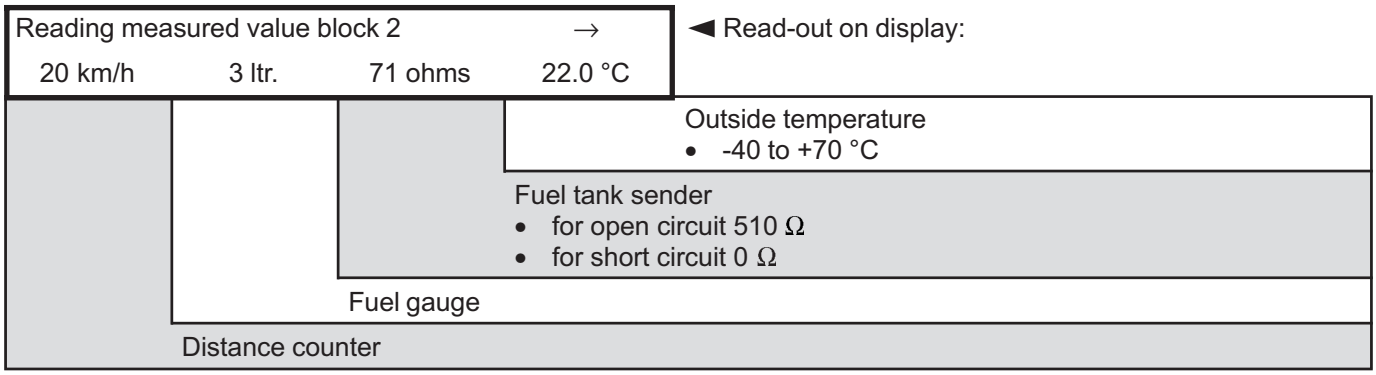
Notes:

- *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!*

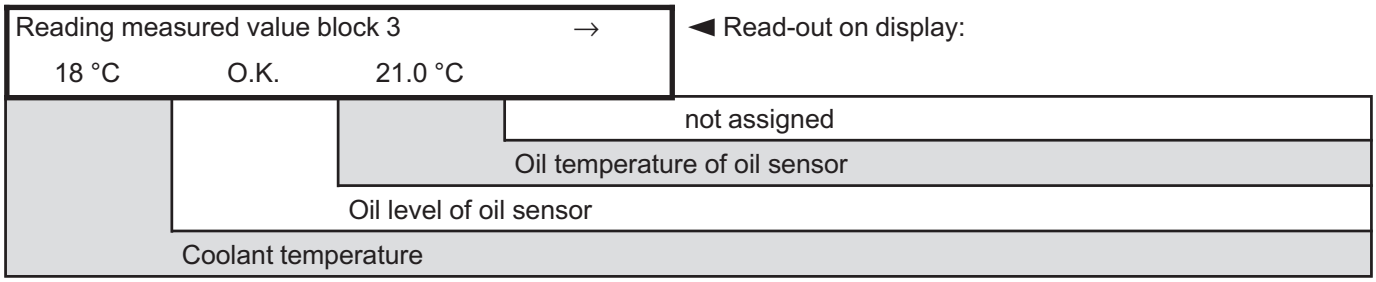
Measured value block 001



Measured value block 002

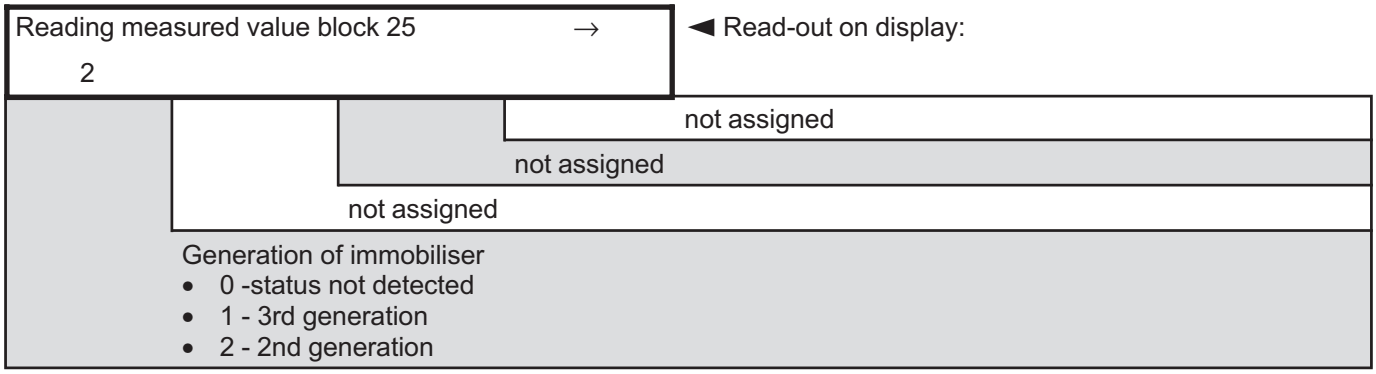


Measured value block 003

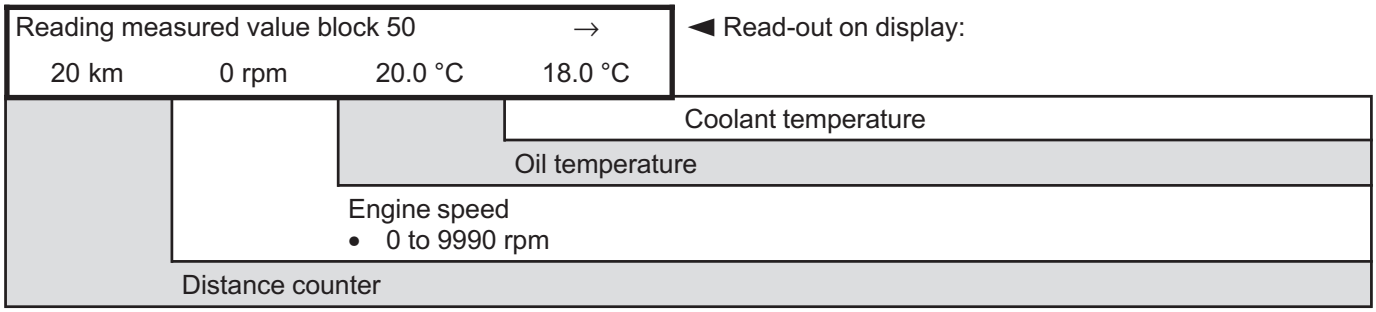


Measured value blocks 022, 023 and 024 ⇒ pages 96-40 and 96-41

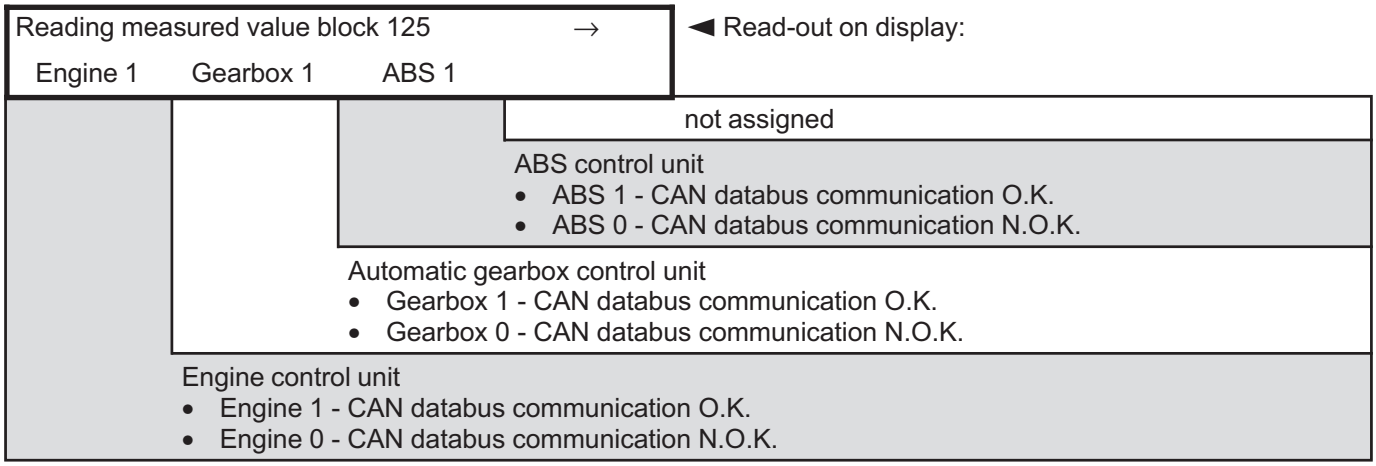
Measured value block 025



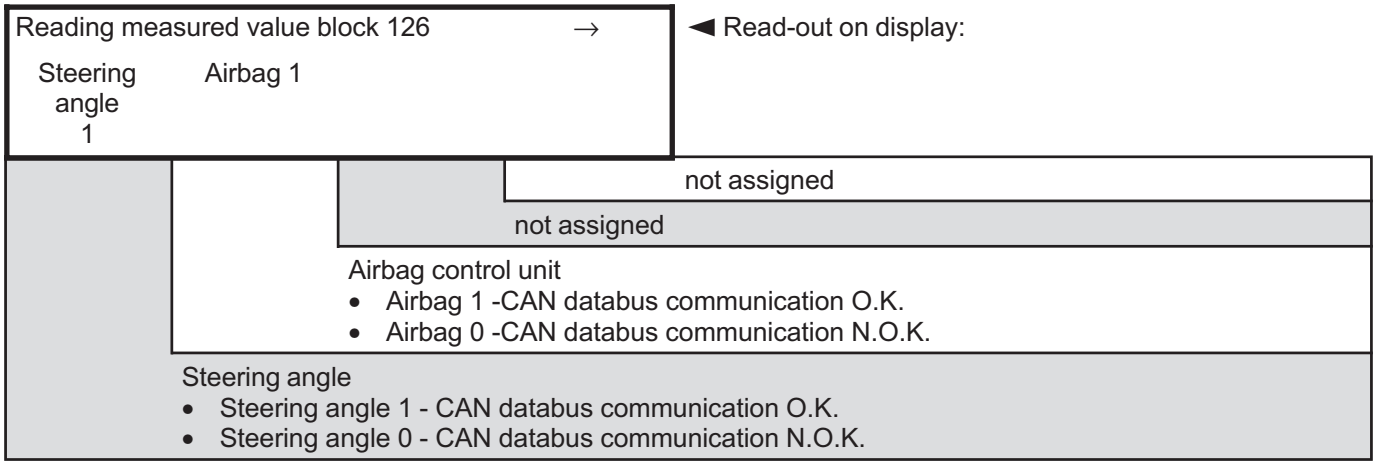
Measured value block 050



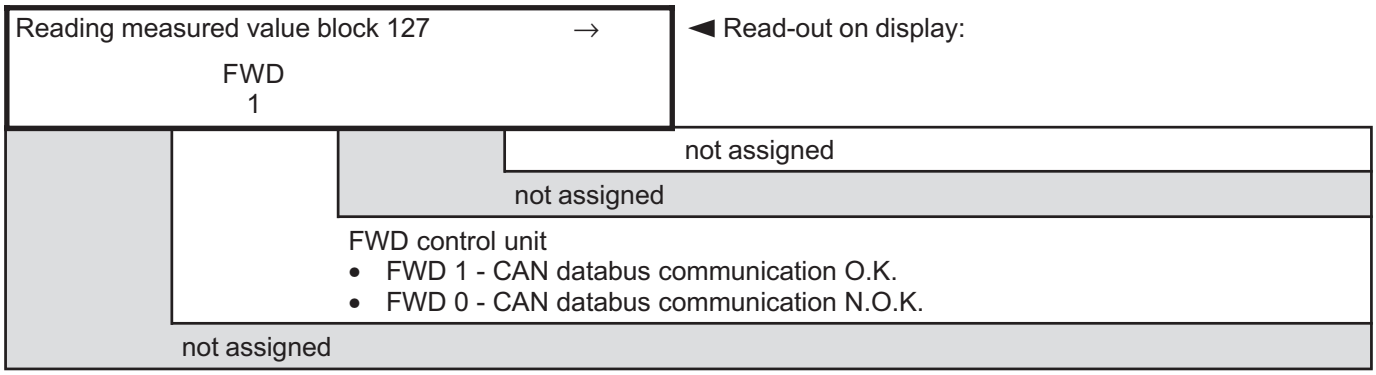
Measured value block 125



Measured value block 126

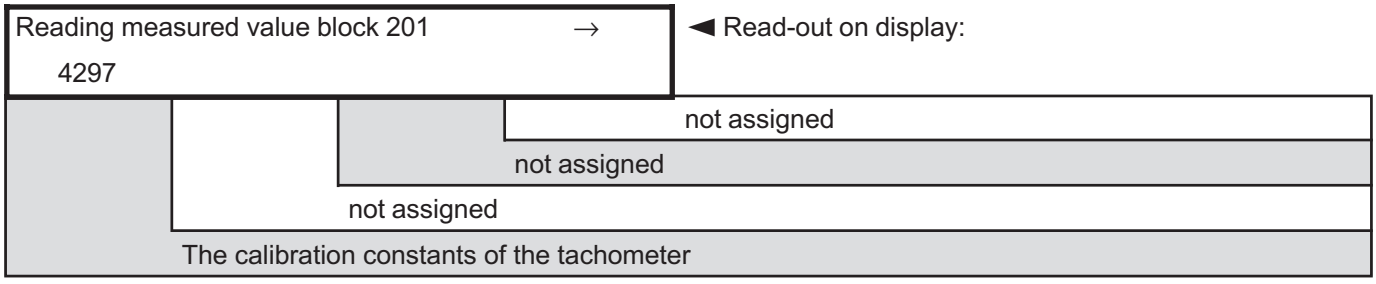


Measured value block 127

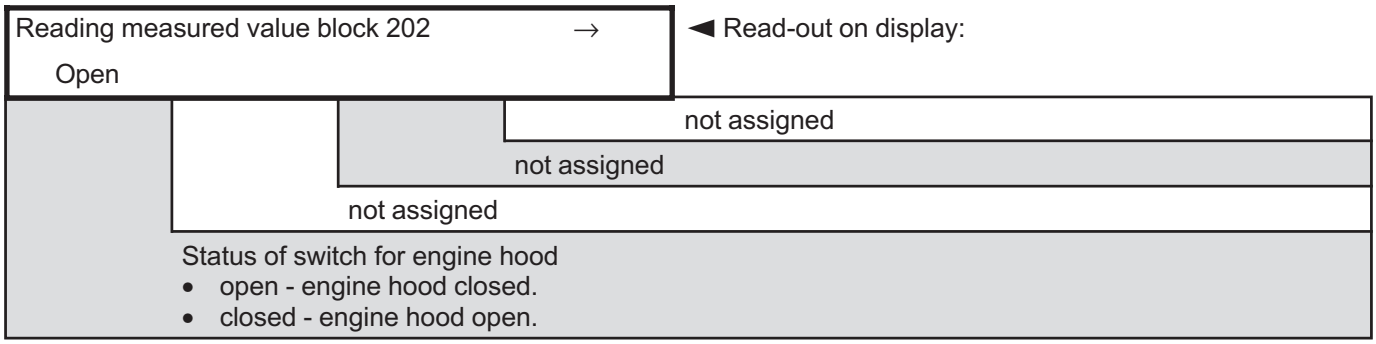


Measured value blocks 130, 131, 132, 140 and 143 ⇒ pages 90-63 and 90-63.2

Measured value block 201



Measured value block 202



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 HELP Select function XX	◄ Readout in display:

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

Adaptation Enter channel number XX	◄ Readout in display:

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

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

◄ 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 QG1 and QG2 diesel QG0	Distance driven since last Inspection Service (output value = 0)
41	QG1 and QG2 petrol QG1 and QG2 diesel QG0	Time elapsed since last Inspection Service (output value = 0)
42	QG1 and QG2 petrol QG1 and QG2 diesel	Minimum distance value which limits the service interval
43	QG1 and QG2 petrol QG1 and QG2 diesel QG0	Maximum distance value which limits the service interval
44	QG1 and QG2 petrol QG1 and QG2 diesel QG0	Maximum time value which limits the service interval
45	QG1 and QG2 petrol 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)

Performing function 10 „Adaptation“

Test of vehicle systems HELP Select function XX

◄ 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 HELP Select function XX	◄ 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 HELP Select function XX	◄ 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:

- Press → key.

Test of vehicle systems HELP Select function XX	◄ Readout in display:

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.

Adaptation Enter channel number XX	◄ 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 HELP Select function XX	◄ 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

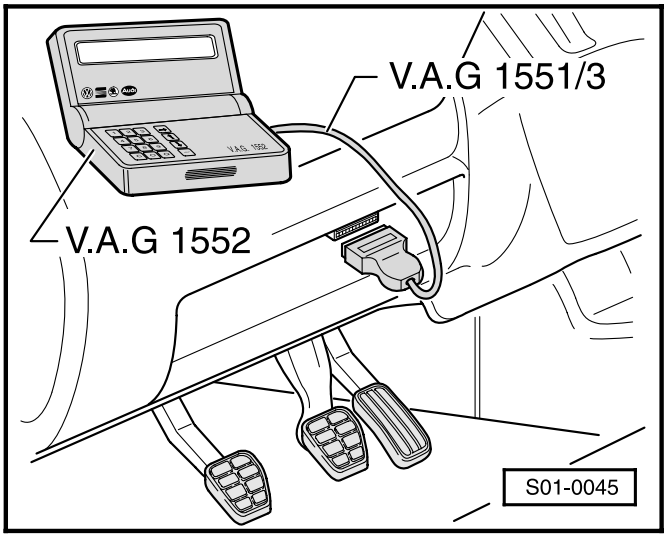
- Check coding of dash panel insert according to table of codes.

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.

Test of vehicle systems	HELP
Enter address word XX	

◄ 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.

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

◄ 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 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 line.
⇒ Current Flow Diagrams, Fault Finding and Fitting Locations.

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

Test of vehicle systems HELP Select function XX

◄ 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 HELP Select function XX

◄ 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 HELP Select function XX	◄ 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 Steering angle sender -G85 ♦ No communication	♦ Line interruption to steering angle sender ♦ Sender unit not fitted ♦ Sender defective	- Function for Data BUS N.O.K.	- Check databus cables ⇒ page 90-68 - Replace sender -G85
01044 Control unit is wrongly coded	♦ Dash panel insert is wrongly coded ♦ Dash panel insert defective	- Poor driveability - No vehicle dynamics control	- Coding dash panel insert ⇒ page 90-44 - Replacing dash panel insert ⇒ page 90-29
01300 Navigation system with CD drive control unit -J401 ♦ No communication	♦ Line interruption to RNS control unit ♦ RNS control unit not fitted ♦ RNS control unit defective	- Self diagnosis not possible	- Check databus cables ⇒ page 90-68 - Replace RNS control unit
01304 Radio ♦ No communication	♦ Line interruption to control unit ♦ Control unit not fitted ♦ Radio defective	- Self diagnosis not possible	- Check databus cables ⇒ page 90-68 - Replace radio

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

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

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

Erasing fault memory

Procedure ⇒ page 90-9

End ouput

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 HELP Select function XX

◄ Read-out on display:

- Enter function 07 “Coding control unit” and 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

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	

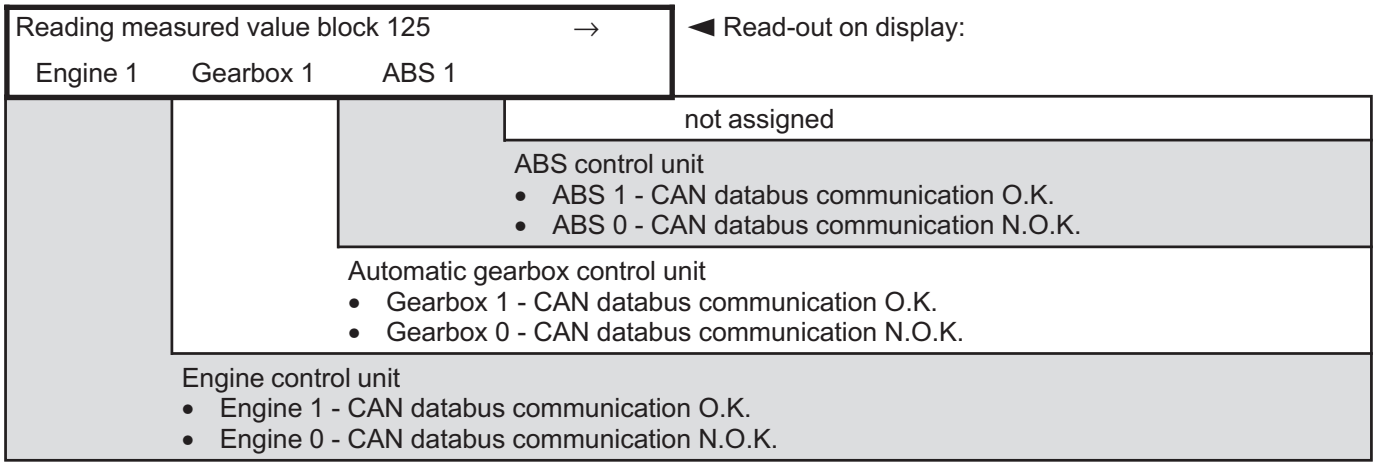
◄ Readout in display:

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

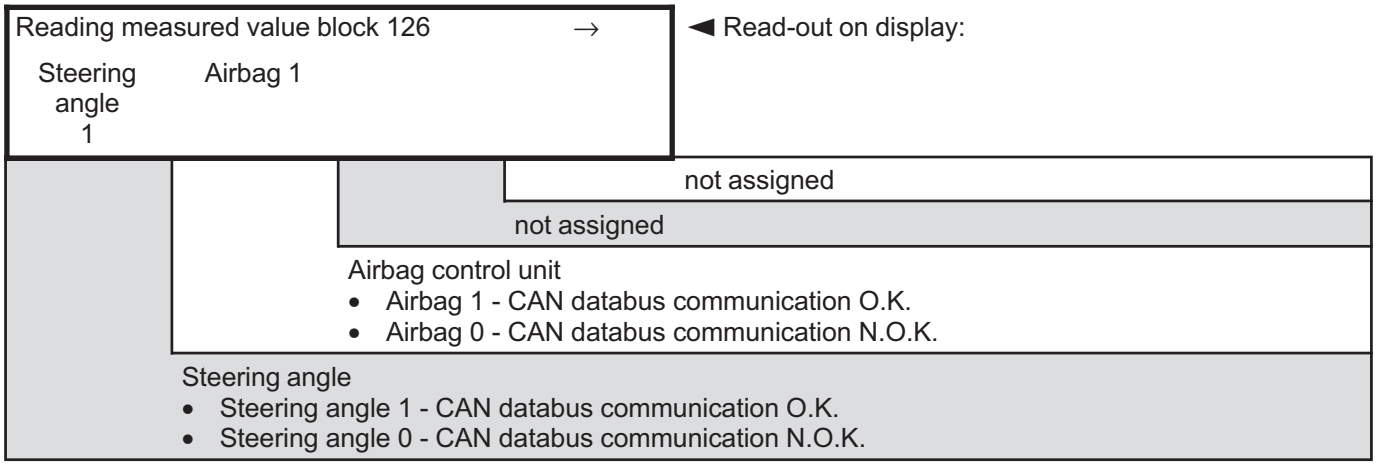
Note:

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

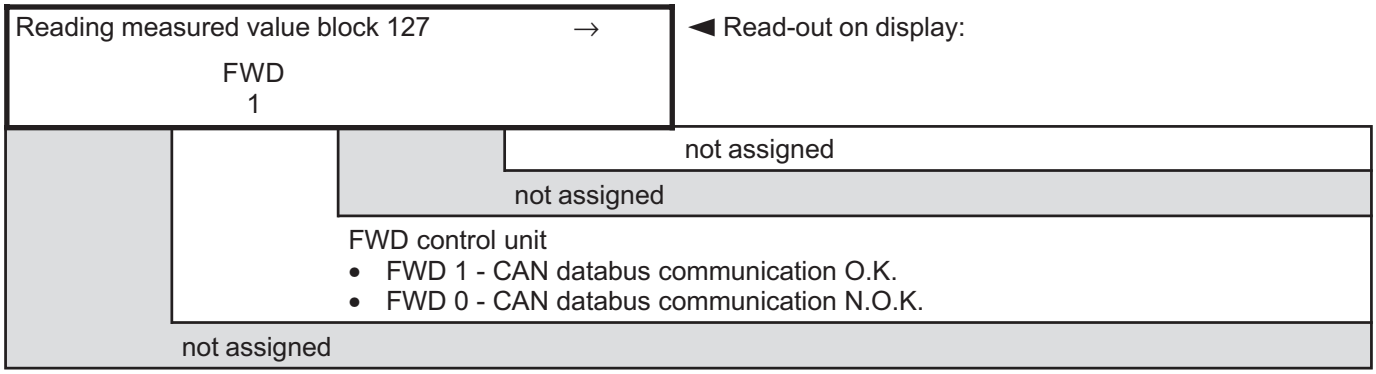
Measured value block 125



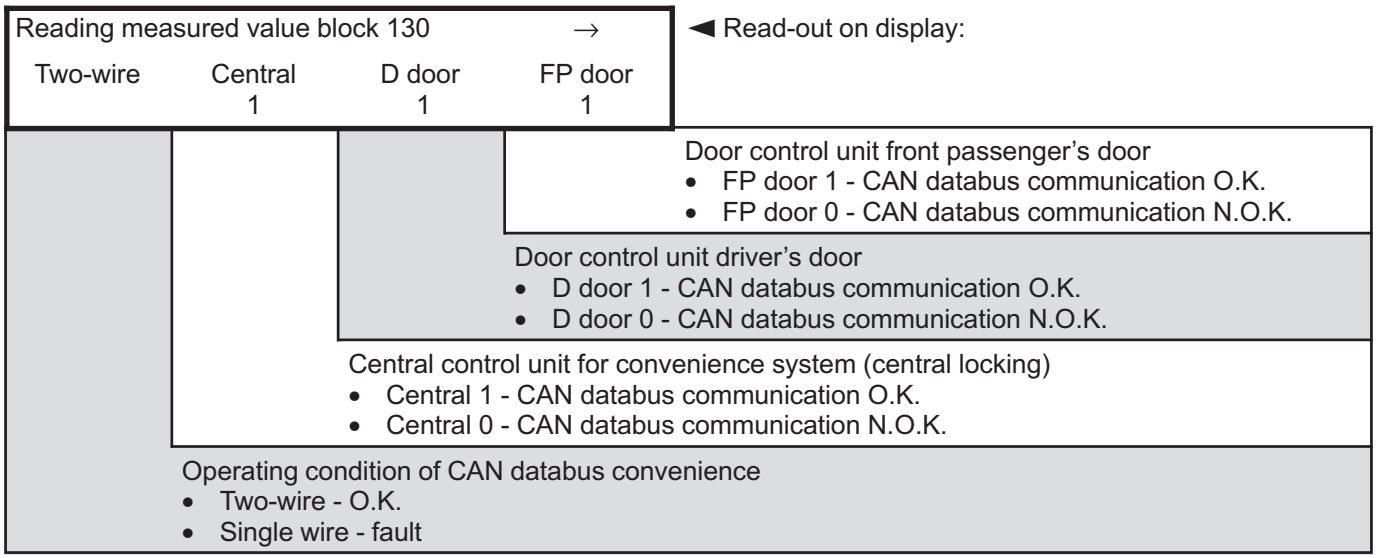
Measured value block 126



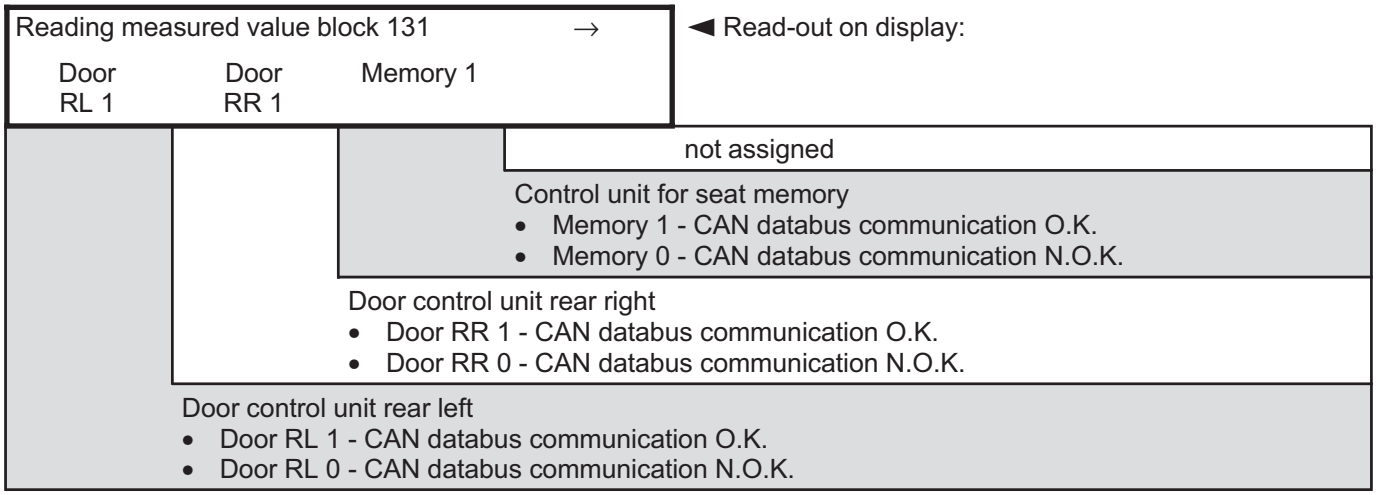
Measured value block 127



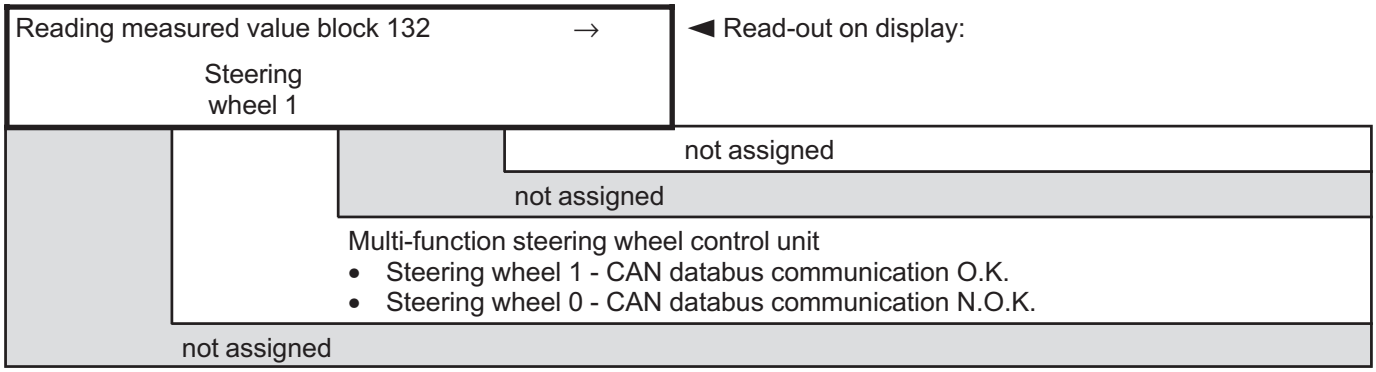
Measured value block 130



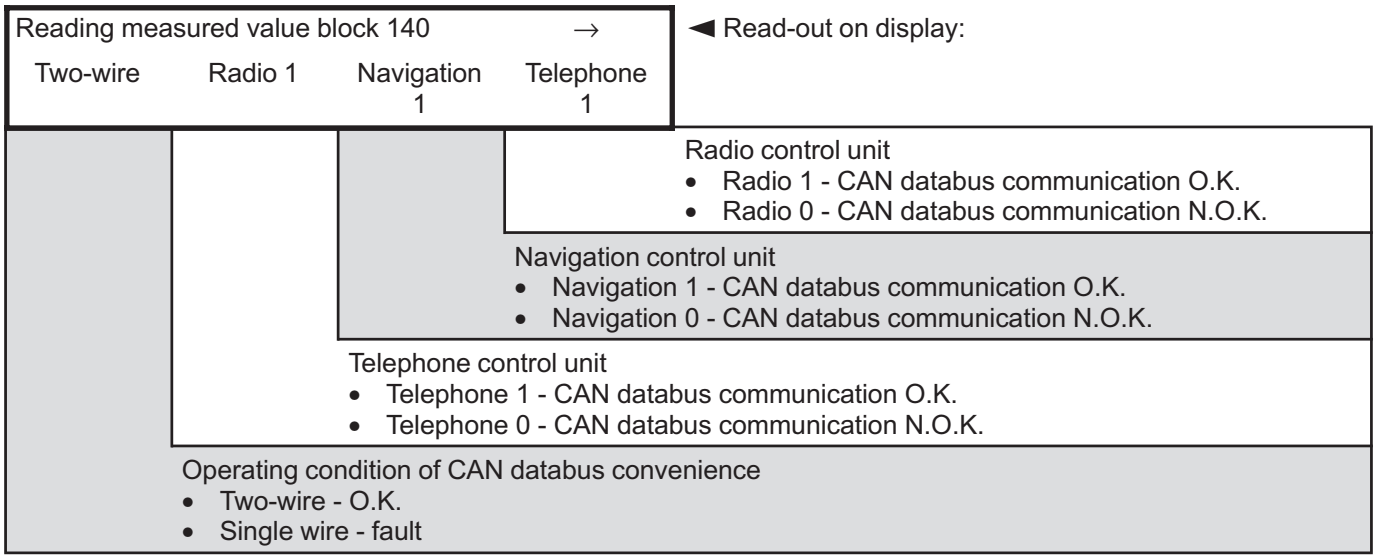
Measured value block 131



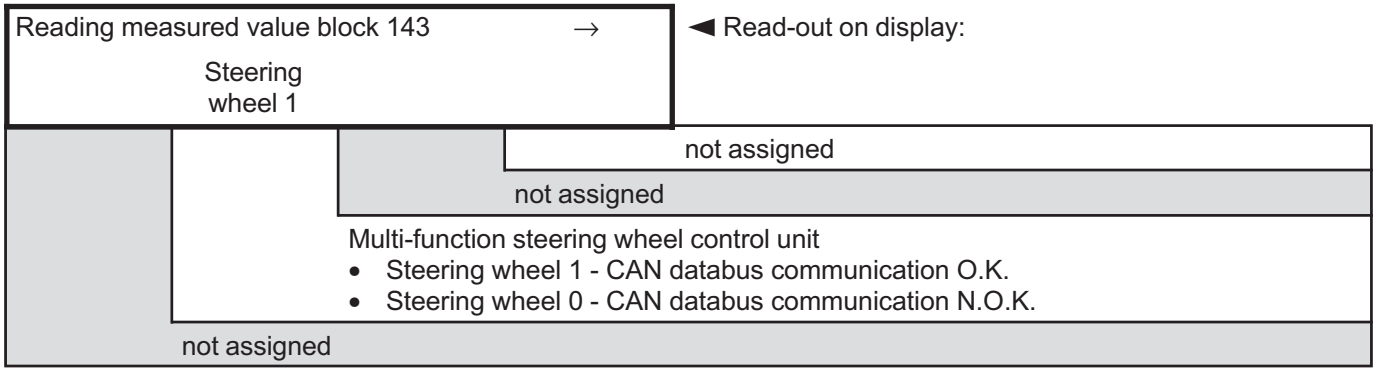
Measured value block 132

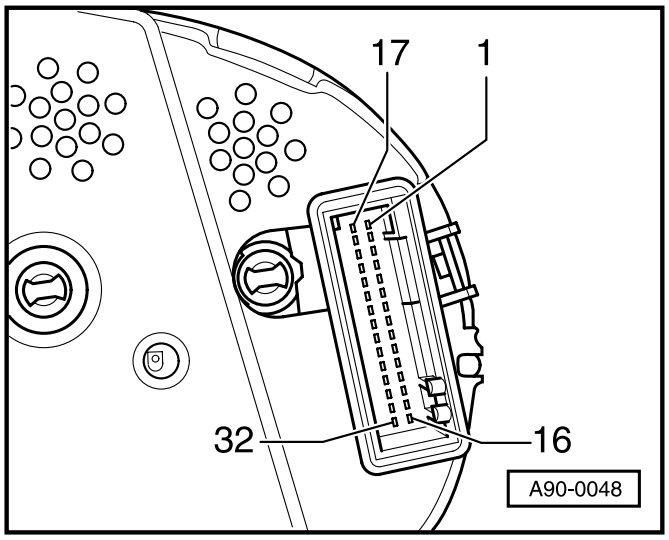


Measured value block 140



Measured value block 143





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

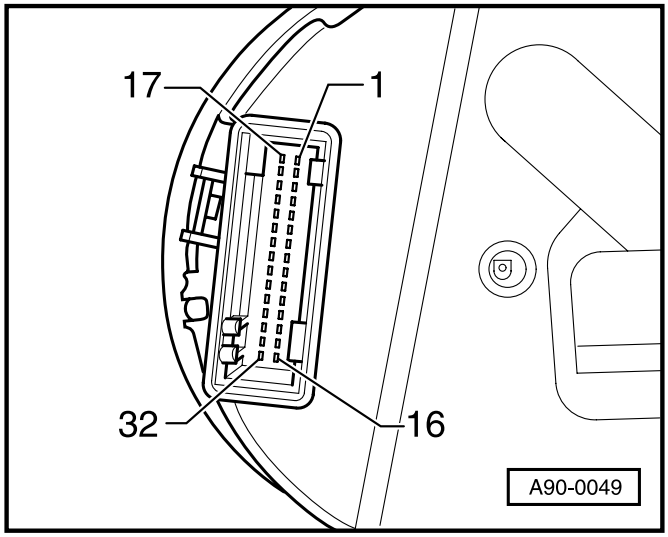
25 - K-wire

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

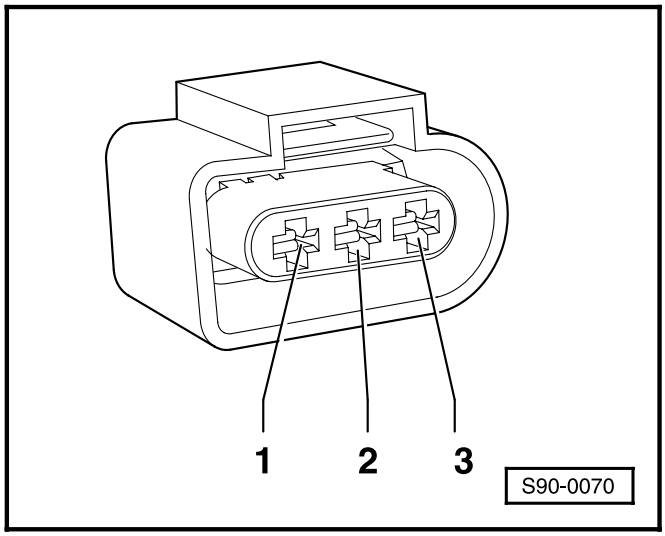
● Engine oil temperature at least 70 °C

● 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

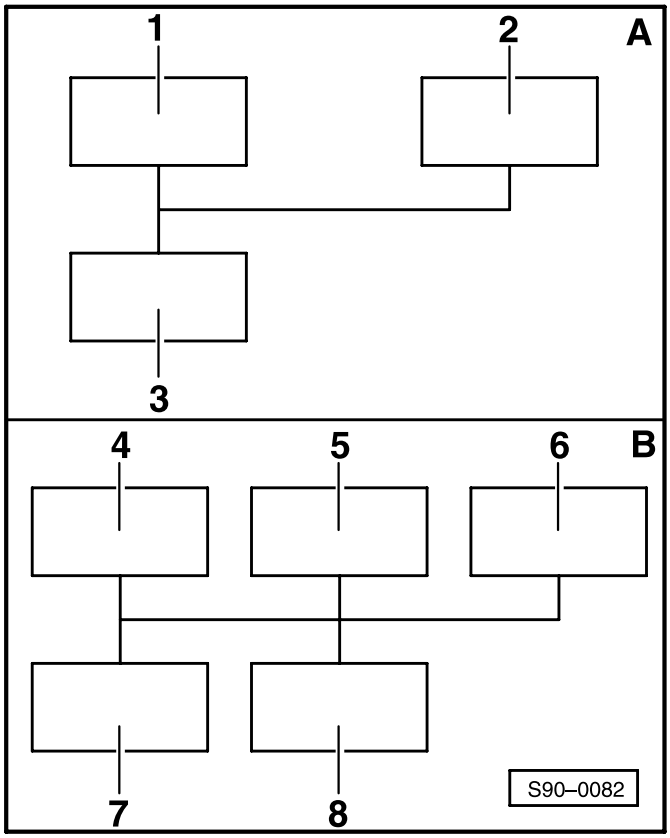
Test procedure

- 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.

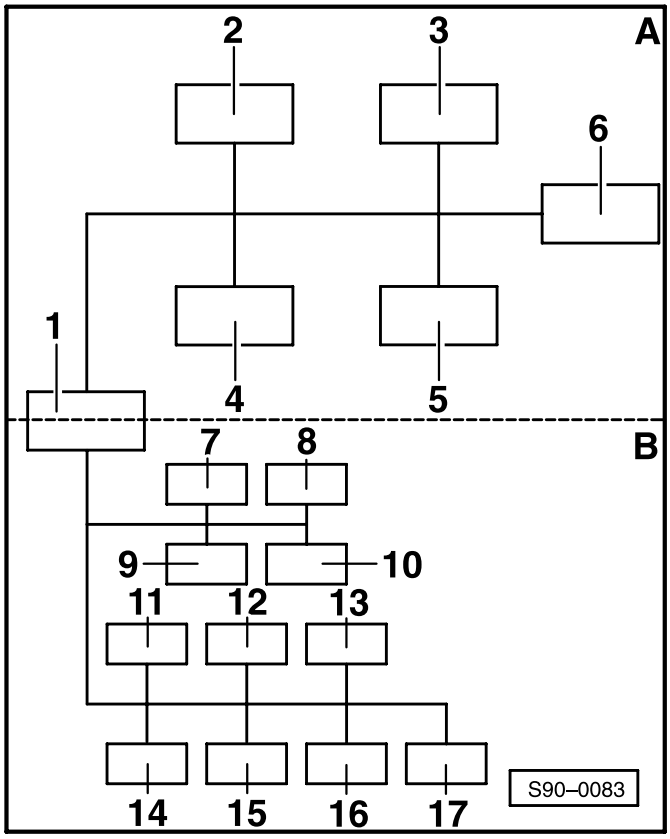
- End output (function 06) ⇒ page 90-10.

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 Ω	60 - 72 Ω
ABS/ESP ECU	110 - 130 Ω	2.35 - 2.85 kΩ
Dash panel insert ECU	2.35 - 2.85 kΩ	2.35 - 2.85 kΩ
Automatic gearbox ECU	2.35 - 2.85 kΩ	2.35 - 2.85 kΩ
4x4 ECU	2.35 - 2.85 kΩ	2.35 - 2.85 kΩ
Airbag ECU	2.35 - 2.85 kΩ	2.35 - 2.85 kΩ

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 Ω
MY 99 ➤	60...72 Ω

If the specification is not achieved:

- Replace engine control unit:

⇒ Fuel Injection and Ignition System, Petrol Engines, Repair Group 24.

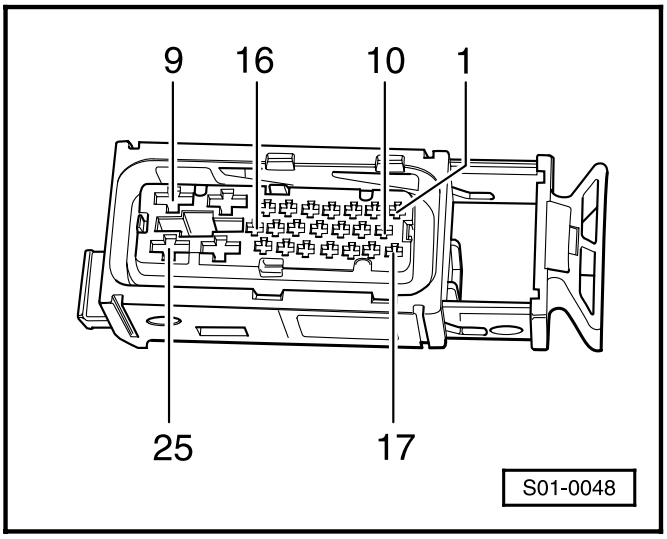
⇒ Fuel Injection and Glow Plug System, Diesel Engines, Repair Group 23.

If the specification is achieved:

- Disconnect test box from engine control unit, or from wiring loom of ABS control unit, respectively.

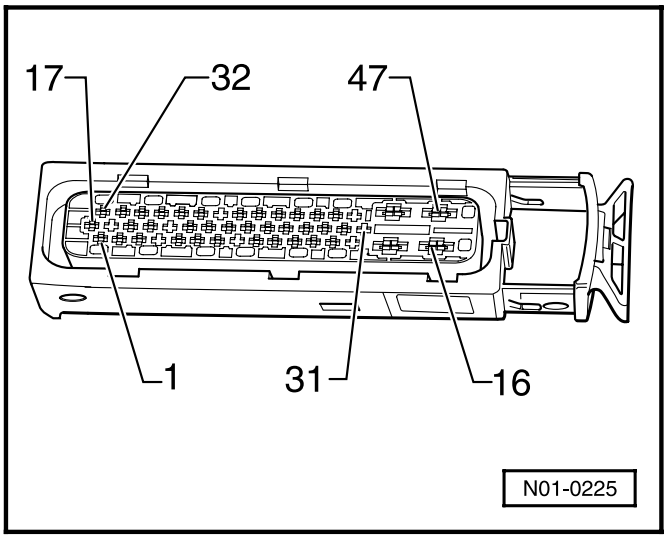
- Test databus lines for short circuit to each other, for short circuit to battery positive or earth, and also for open circuit ⇒ page 90-68.

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

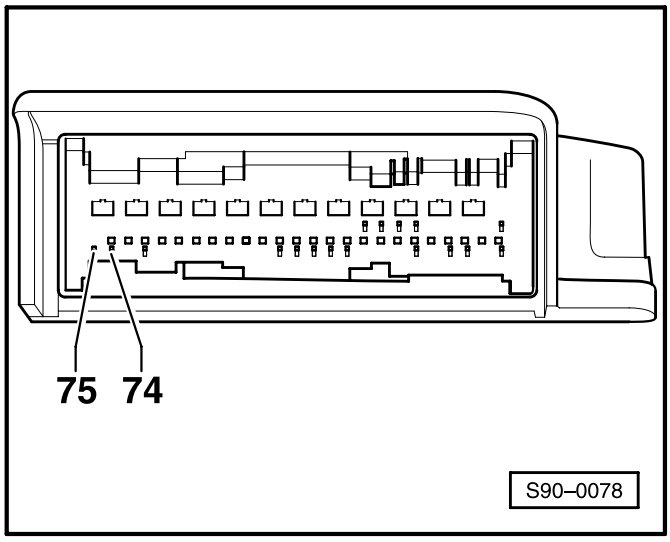
- Measure the resistance between terminals 19 and 20 at green 32-pin connector for dash panel insert ⇒ page 90-31.

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.

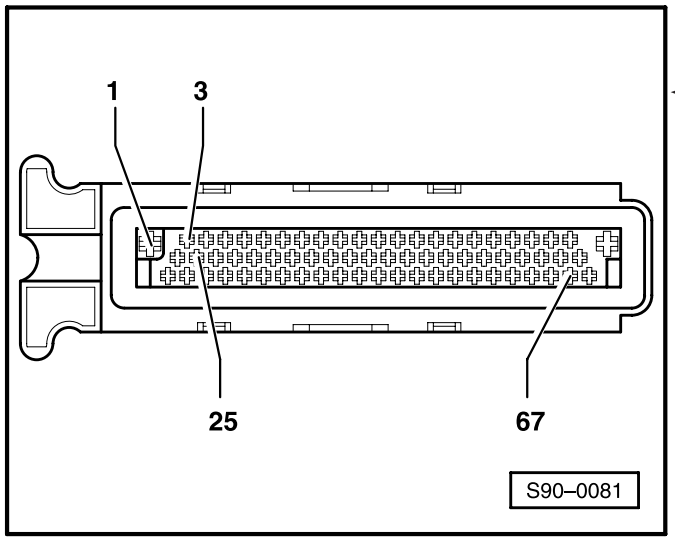
Specified resistance: 2.35 ... 2.85 kΩ



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 kΩ



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 kΩ

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: ∞ Ω

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: ∞ Ω

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*

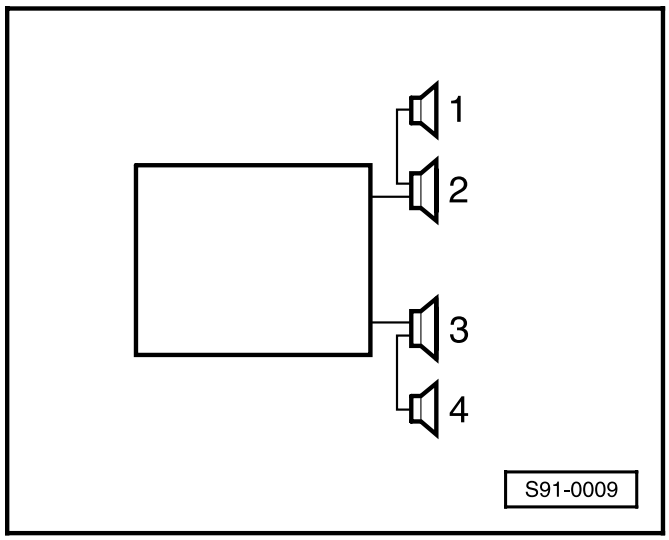
⇒ Operating instructions

- *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.*



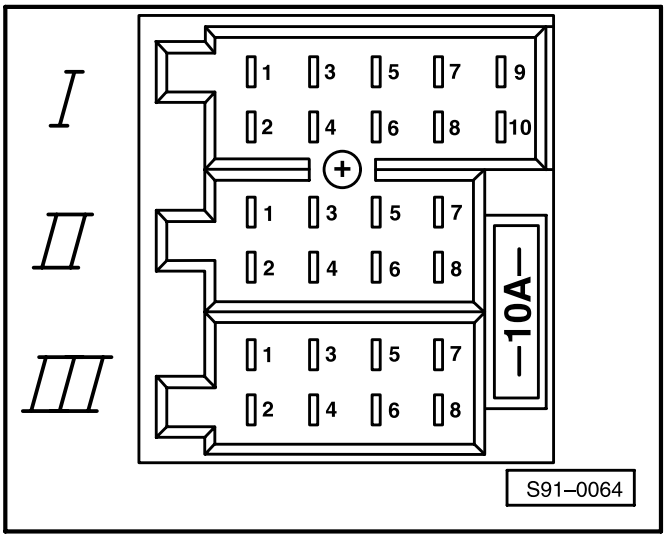
Radio system with 4 speakers

◄ **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)

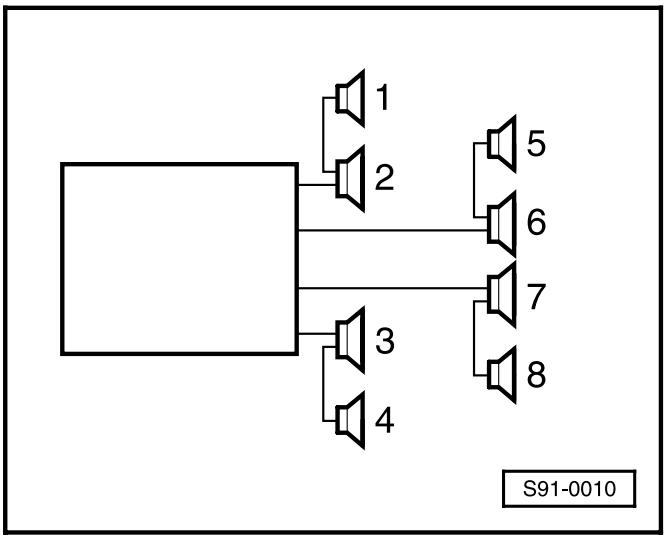
4 - Battery + (terminal 30)

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-**

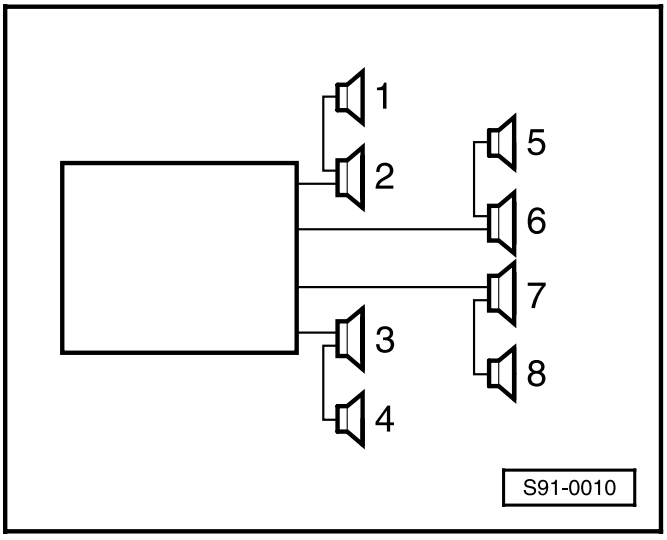
- Installed in the door tray
- Diameter 168 mm

◄ **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-

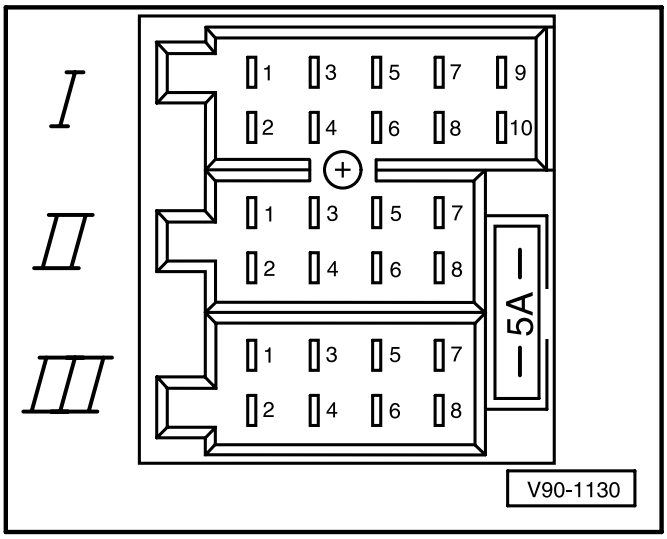
- Installed laterally on right and left in the support
- Diameter 130 mm



◄ **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

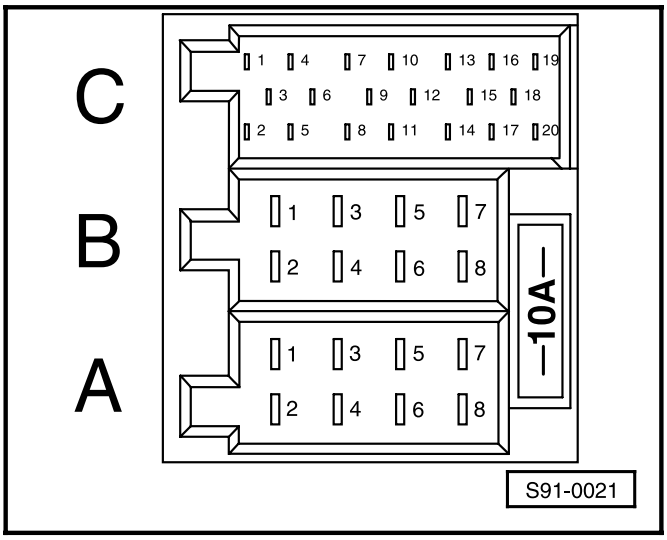
1 - Loudspeaker + rear right
2 - Loudspeaker - rear right
3 - Loudspeaker + front right
4 - Loudspeaker - front right
5 - Loudspeaker + front left
6 - Loudspeaker - front left
7 - Loudspeaker + rear left
8 - Loudspeaker - rear left

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

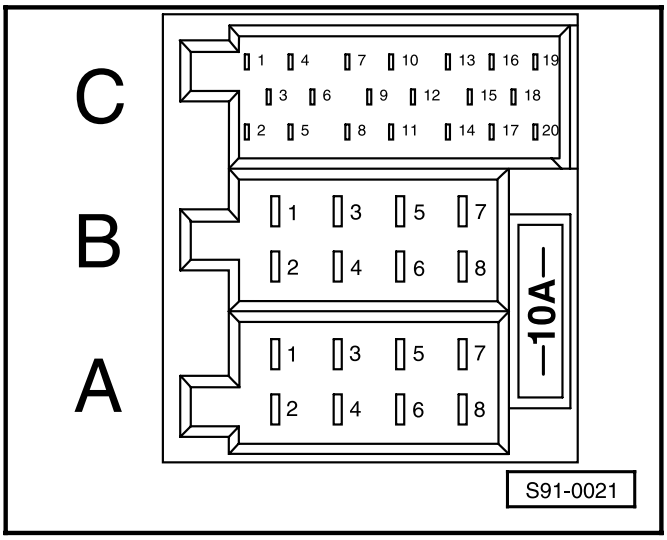
2 - Line Out right rear; RR

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)

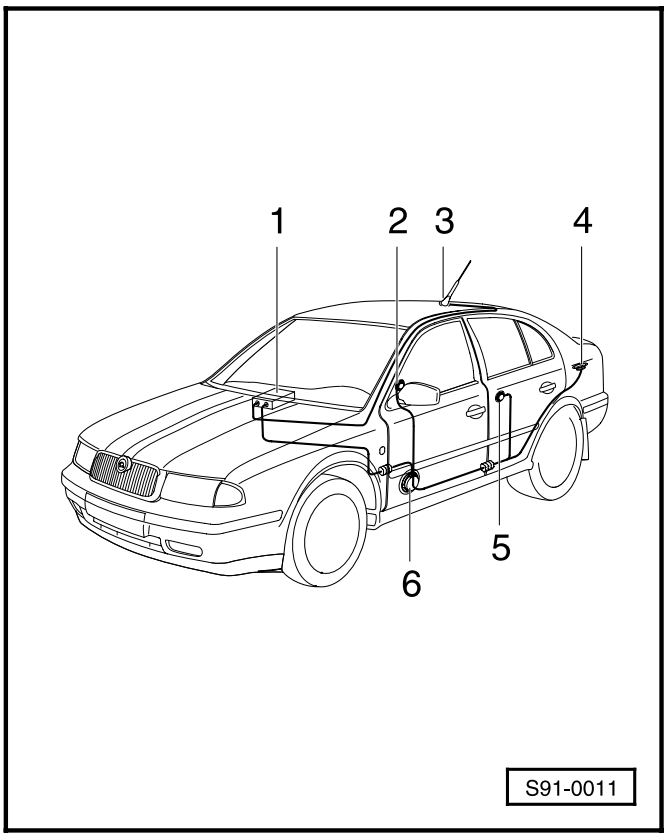
16 - CD changer, voltage supply (+), terminal 30

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

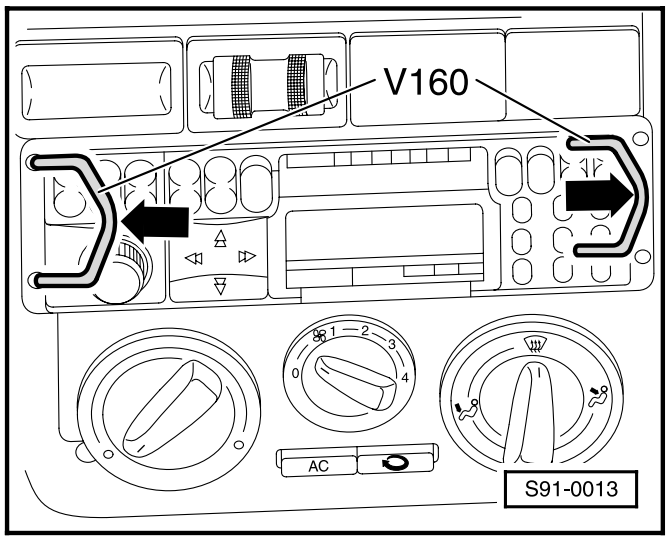
5 - Tweeter
- Technical data:
  Nominal resistance = 4 ohms
- Installed next to rear door handle
- Removing and installing
  ⇒ Removing and installing speakers

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.

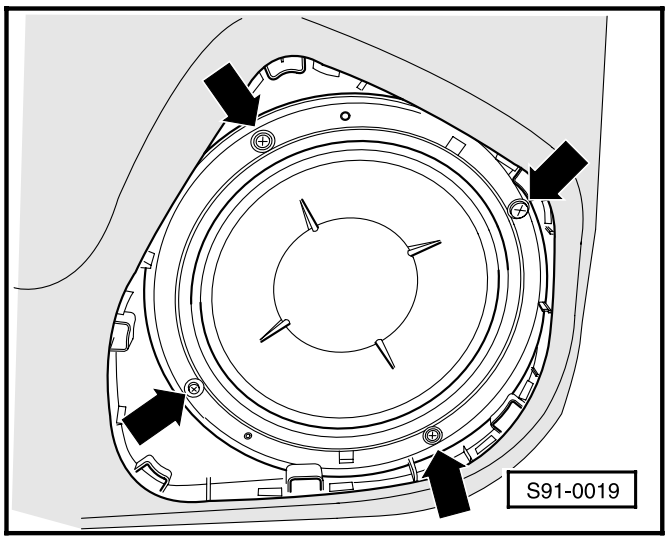
Installing:

- 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:



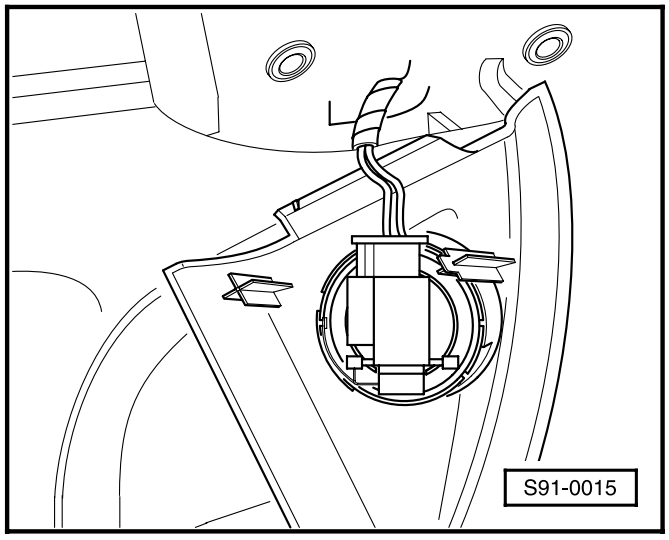
- Unclip the speaker cover panel.

◄ - 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.

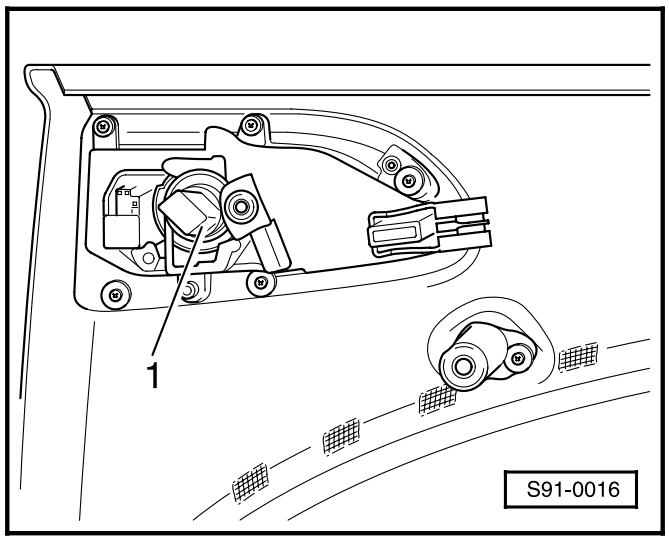
- Separate plug connections.

◄ - 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:

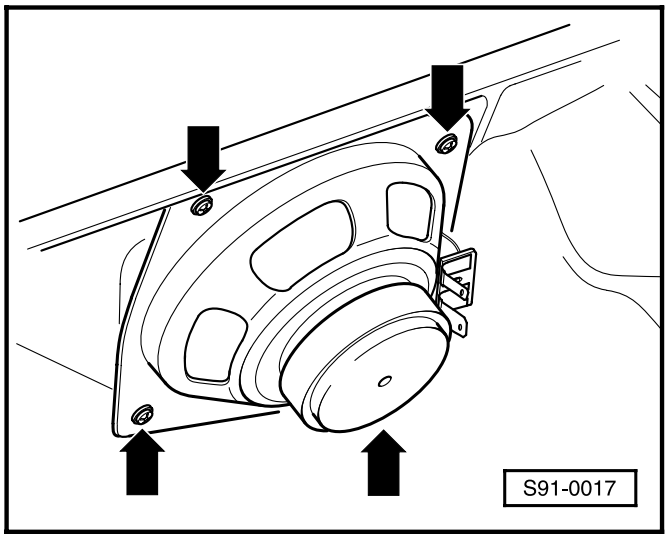
- Open boot lid.

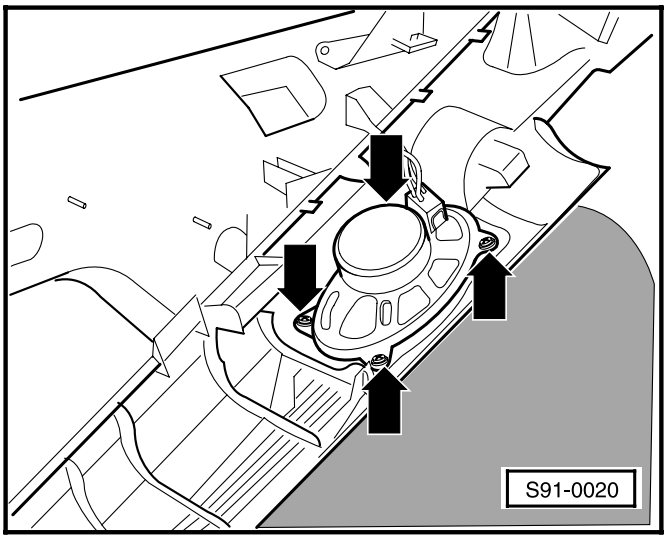
- Separate plug connections.

◄ - 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.

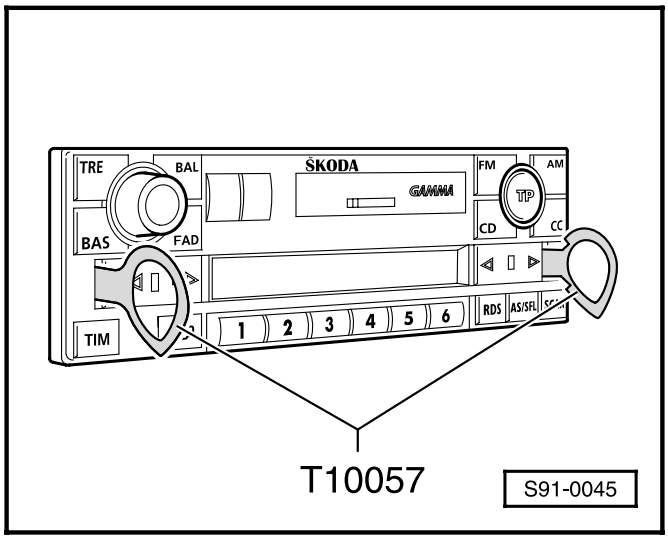
Installing

- 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:

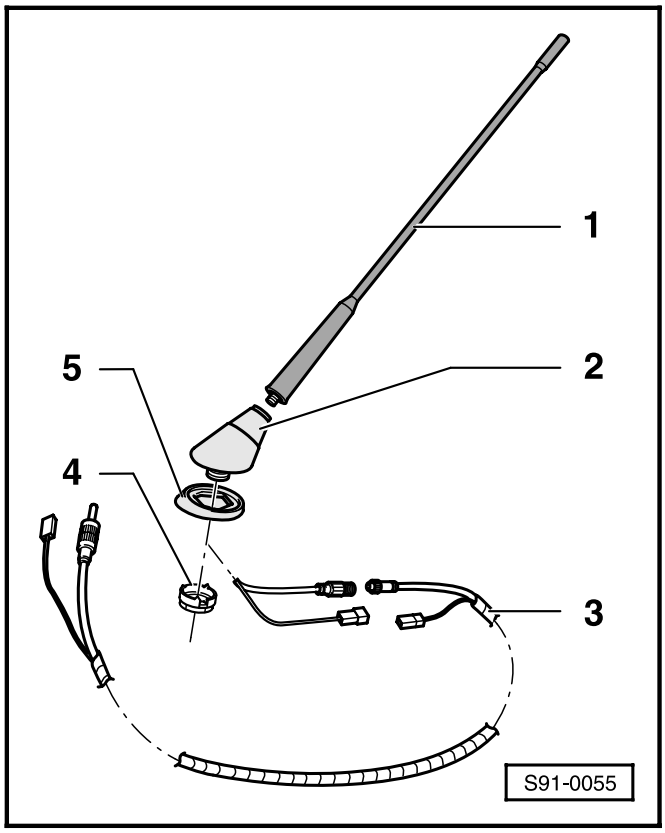
Do not press on the side of the special tools T10057 and T30005 and do not twist them when removing the radio.

- 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

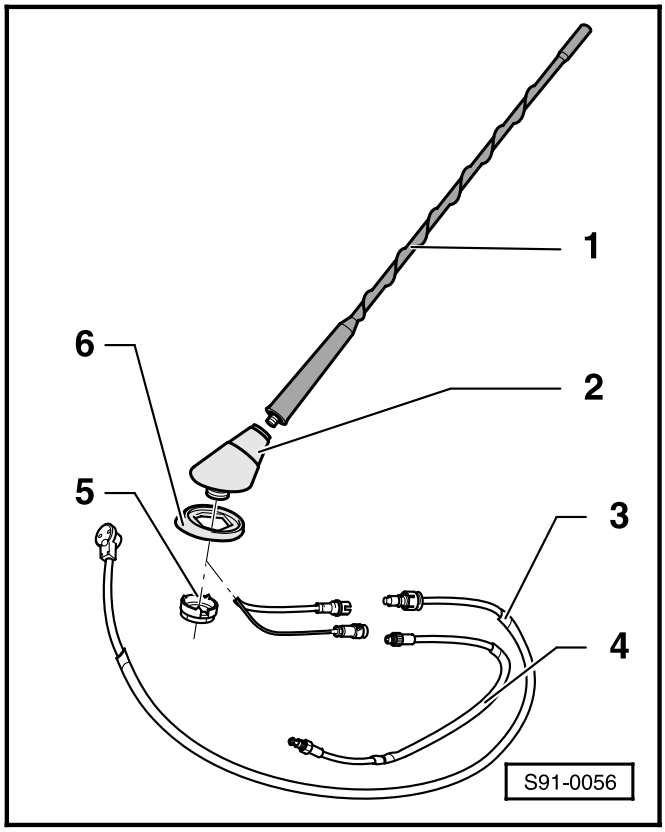
1 - Aerial rod

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:

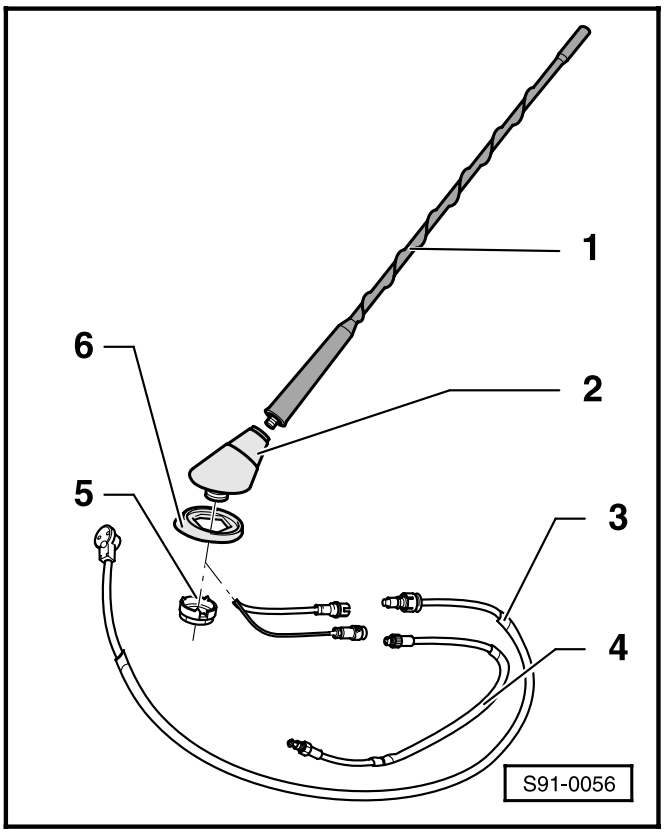
The illustration shows the roof aerial for radio and telephone. On vehicles fitted only with a radio, only the aerial cable for the telephone -item 4- is not included.

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

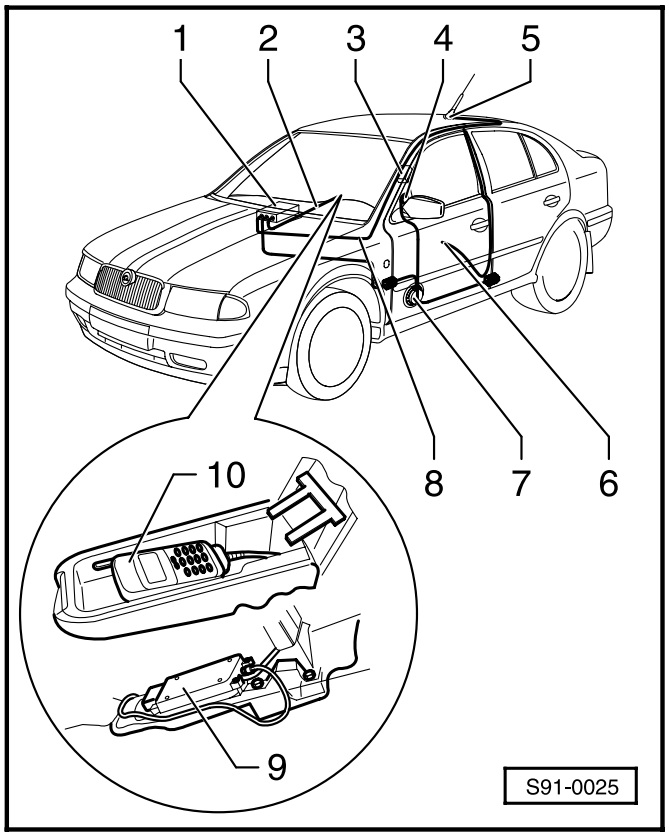
⇒ Inspection and Maintenance

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

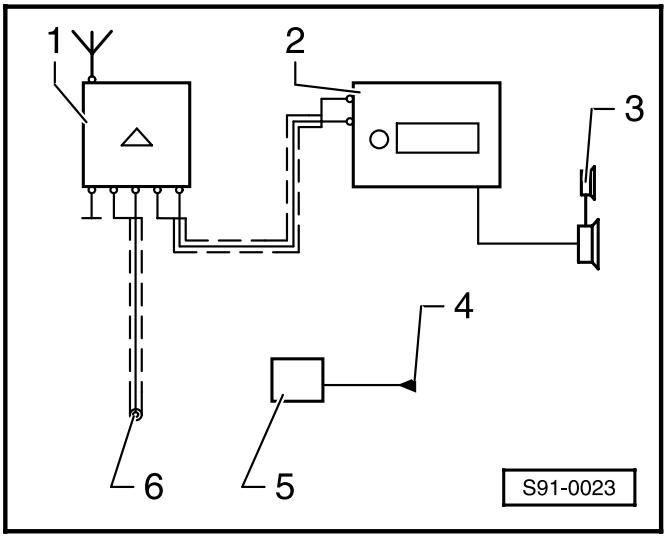
6 - Aerial cable for telephone
- Routed along left B pillar as far as centre console

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

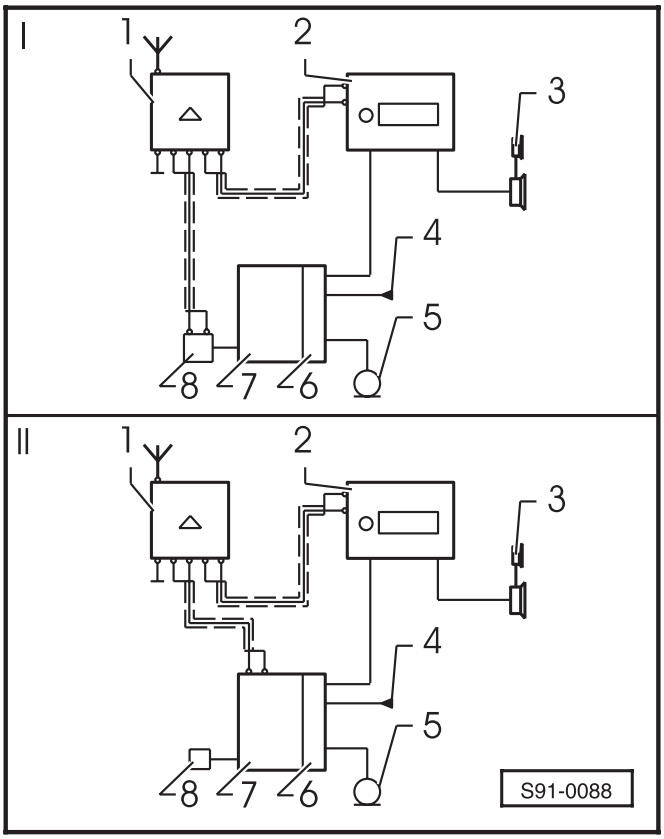
4 - Voltage supply (terminal 15a, 31 and 58b)

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

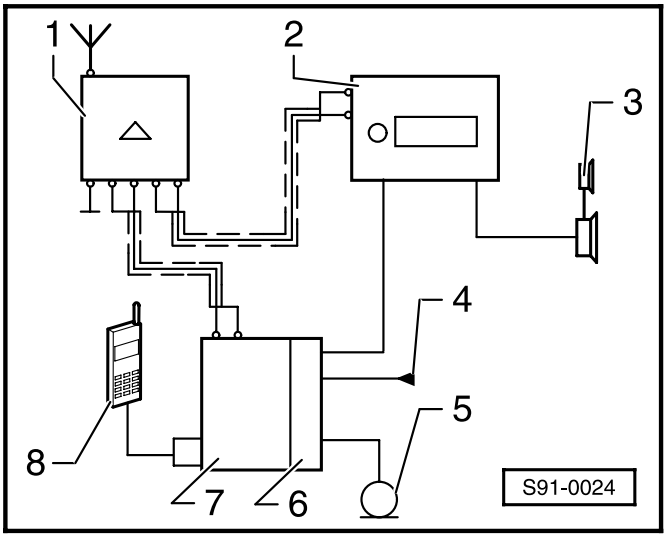
5 - Microphone for telephone -R38-
- ♦ in the left trim panel of pillar A

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 handbrake lever ⇒ page 91-12, connector assignment

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

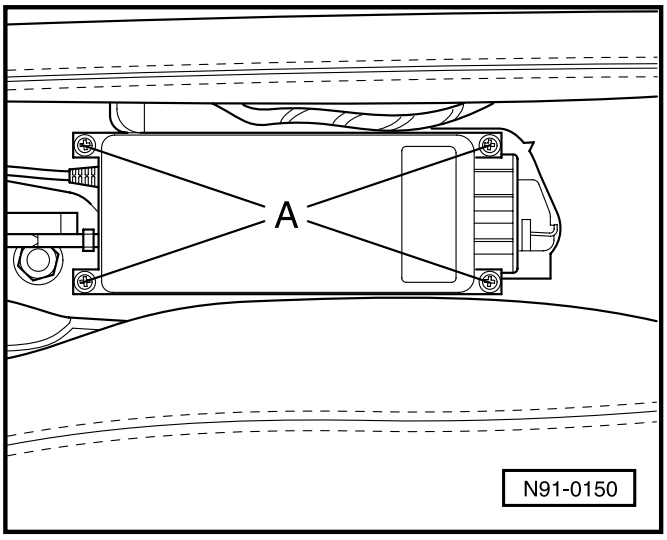
Removing and installing mobile phone operating electronics control unit -J412- (interface box)

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.*



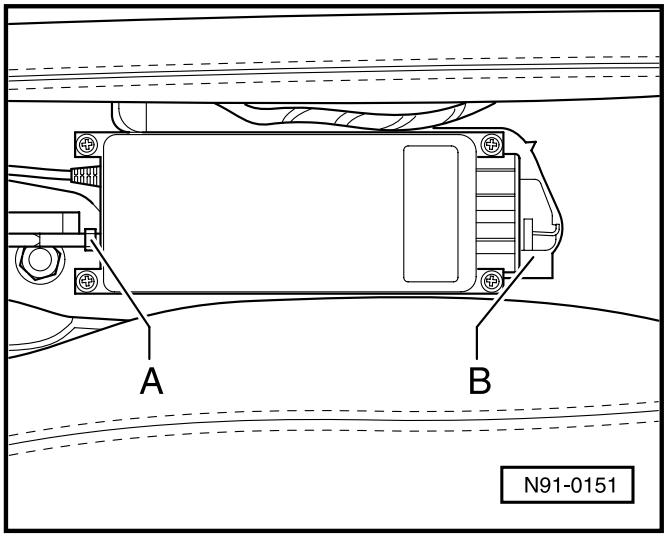
Models with interface box installed below centre console next to handbrake lever

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-.



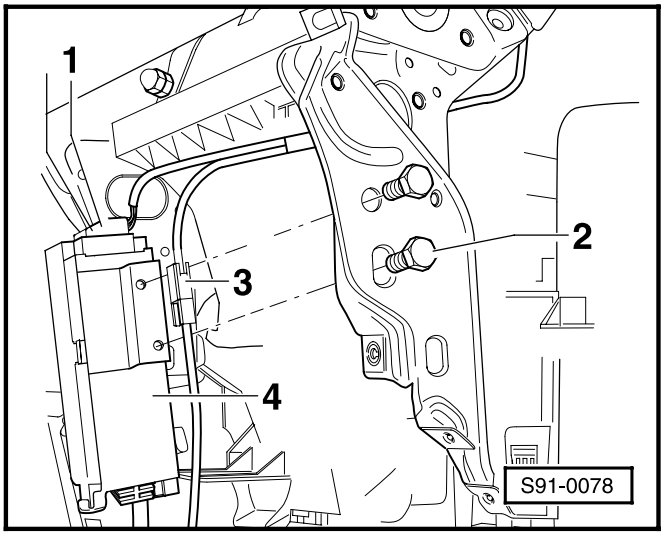
◄- Turn over the locking arm of the VDA plug connection -B- and separate the plug connection.

- 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-.

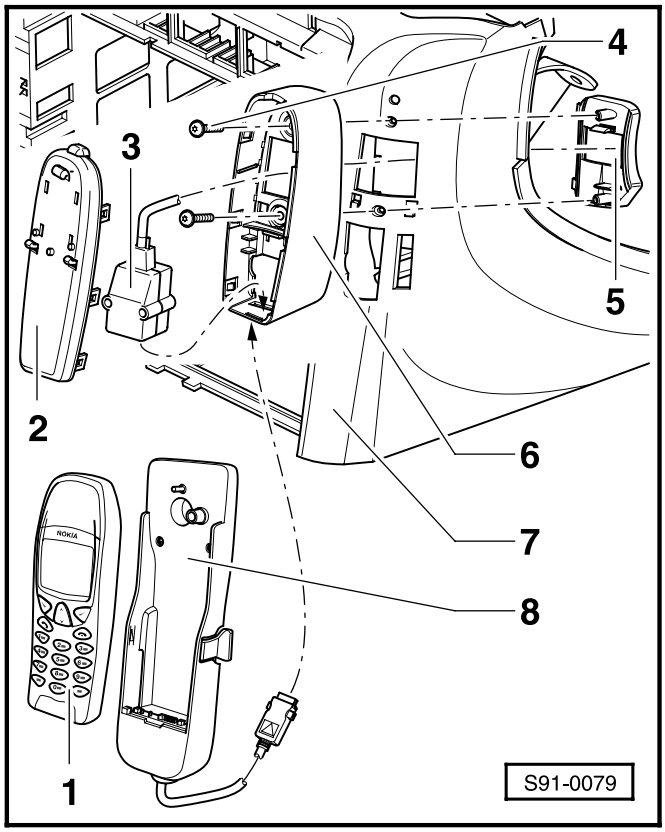
- Take out interface box -4- together with spiral cable and separate spiral cable.

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

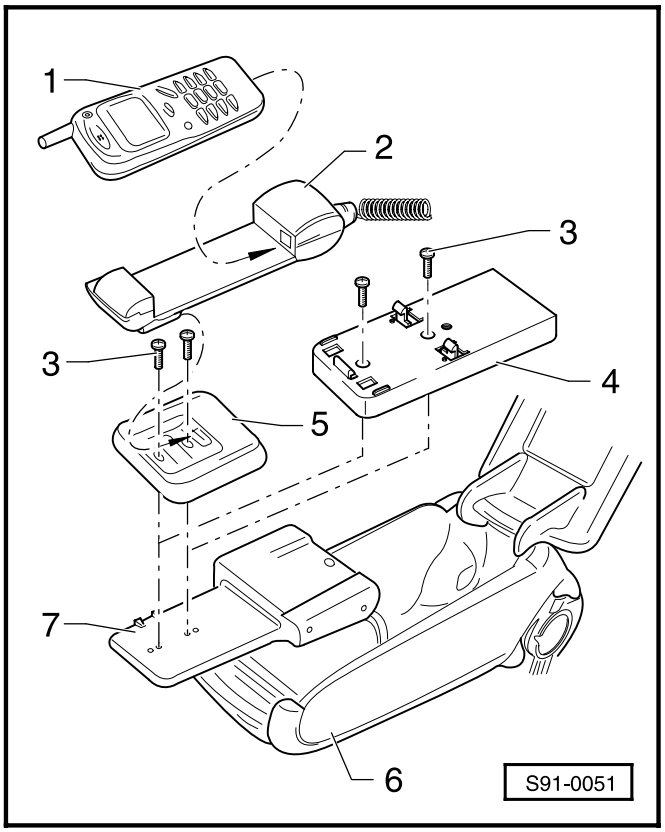
6 - Retaining plate

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.

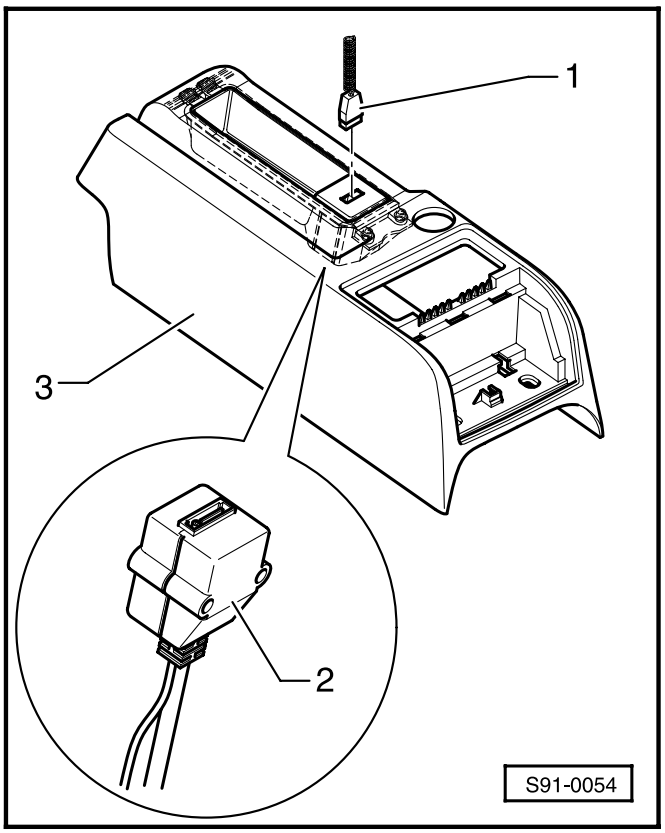
- Release portable mobile phone mount -item 2- and separate plug connection to interface box.

- 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.



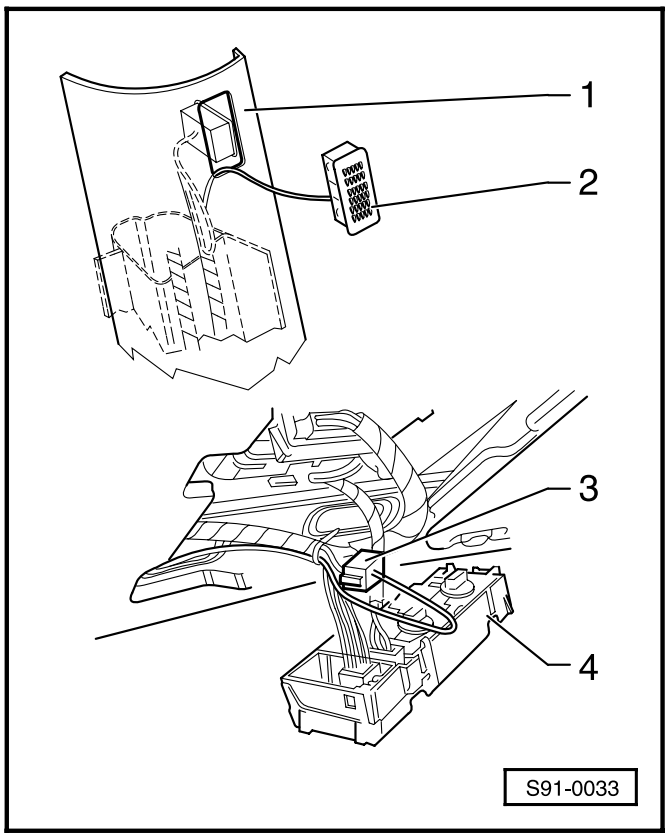
◄ **Fig. 1 Plug connection to interface box for CULLMANN mobile phone preinstallation 2**

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.

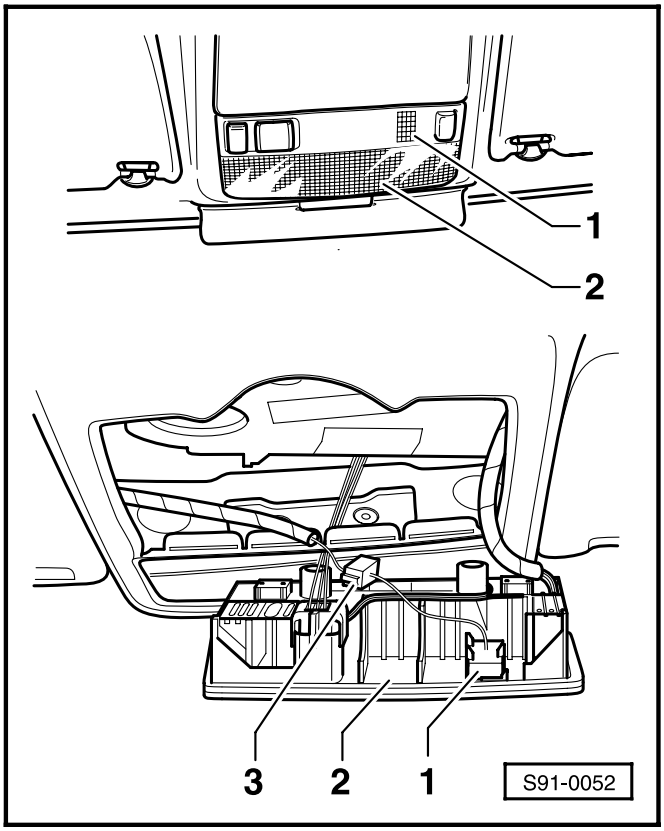
⇒ Body Fitting Work; Repair Group 68; Covers, Storage Compartment, Trim Panels; Removing sun visor

- 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.

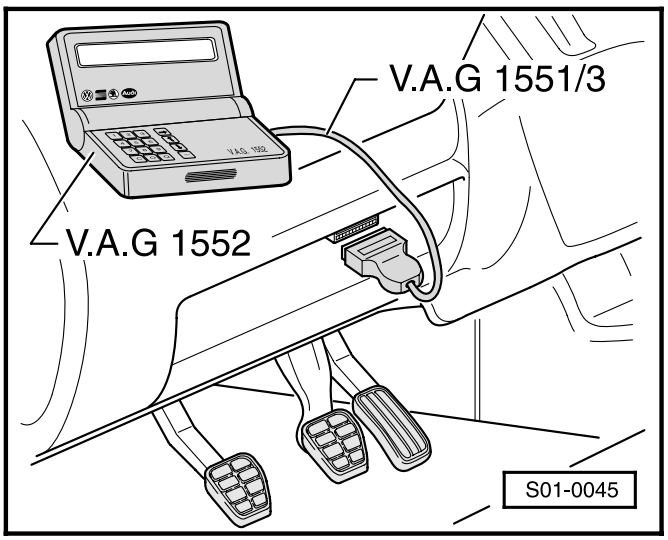
Installing

- 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.

Test of vehicle systems	HELP
Enter address word XX	

◄ 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.

1U0035186C	Radio	0002 →
Coding 01403		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	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 diagnostic cable.*

Test of vehicle systems	HELP
Fault in communication build-up	

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

Test of vehicle systems	HELP
K wire not switching to earth	

Test of vehicle systems	HELP
K wire not switching to positive	

- 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 HELP Select function XX	◄ 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 HELP Select function XX	◄ 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
00668 **System voltage tml. 30** Signal too small* * 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 ♦ Battery faulty ♦ Alternator faulty	Radio set not operating at all or poorly	- Read measured value block ⇒ page 91-24 - Test battery, charge if necessary ⇒ page 27-1 - Test alternator ⇒ page 27-1
00849 **S contact at ignition/starter switch - D** Open circuit	♦ Ignition/starter switch not o.k. ♦ Wiring not o.k. ♦ 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. When radio is operating, it switches off automatically 1 h after ignition is switched on.	- Read measured value block ⇒ page 91-24 - Test wiring according to current flow diagram - Test ignition/starter switch, replace if necessary ⇒ page 94-14

Readout on V.A.G 1552	Possible cause of fault	Possible effects	Rectifying fault
00852 **Speaker f** Short circuit Open circuit	♦ Short circuit in cables to each other or to earth of a front speaker ♦ Open circuit in cable to a front woofer	♦ A front speaker not operating ♦ A front woofer not operating	- Carry out final control diagnosis ⇒ page 91-21 - Read measured value block ⇒ page 91-24 - Test wiring according to CFD
00853 **Speaker r** Short circuit Open circuit	♦ Short circuit in cables to each other or to earth of a rear speaker ♦ Open circuit in cable to a rear speaker	A rear speaker not operating	- Carry out final control diagnosis ⇒ page 91-21 - Read measured value block ⇒ page 91-24 - Test wiring according to CFD
00855 **Connection to CD changer or CD player** No communication	♦ Wiring to CD changer faulty ♦ CD changer faulty ♦ Radio faulty	CD changer function not o.k.	- Read measured value block ⇒ page 91-24 - Test wiring according to CFD - Replace CD changer - Replace radio
00856 **Aerial (radio)** Short circuit Open circuit	♦ Aerial cable faulty ♦ Aerial cable not connected ♦ Aerial faulty	No or poor radio reception	- Read measured value block ⇒ page 91-24 - Test aerial cable - Test wiring according to CFD - Test aerial
01044 **Control unit incorrectly coded**	Radio functions not coded	♦ Radio functions or sound not o.k. ♦ Incorrect fault entries in fault memory	- This fault message cannot be erased - Code radio functions ⇒ page 91-22, „gamma“ radio
65535 **Control unit defective**	Radio faulty	Function of radio set not o.k.	- Replace radio

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 HELP Select function XX	◄ Readout in display:

- Press keys 0 and 3 for the function „Final control diagnosis“.

Test of vehicle systems Q 03 - Final control diagnosis	◄ Readout in display:

- Confirm the entry with the key Q.

Final control diagnosis → 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 → Output radio display dash panel insert	◄ Read-out on display:

- → Press key.

Actuator diagnosis → END	◄ Read-out on display:

- → Press key.

Vehicle system test HELP Select function XX	◄ 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[1)]
		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

[1)] 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 HELP Select function XX	◄ Read-out on display:
	- Enter 07 for the function “Coding control unit”
Vehicle system test Q 07 Ccoding control unit	◄ Read-out on display:
	- Confirm entry with key Q.
Coding control unit 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 Q Enter code number 00403 (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 HELP Select function XX	◄ Read-out on display:
	- Enter 06 for the function 03 “End output”
Vehicle system test Q 06 End output	◄ Read-out on display:
	- Confirm entry with key Q.
Vehicle system test HELP Select function XX	◄ 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 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 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
- can be checked during continuous output of measured values
- off - ignition key withdrawn
- on - ignition key inserted in ignition lock

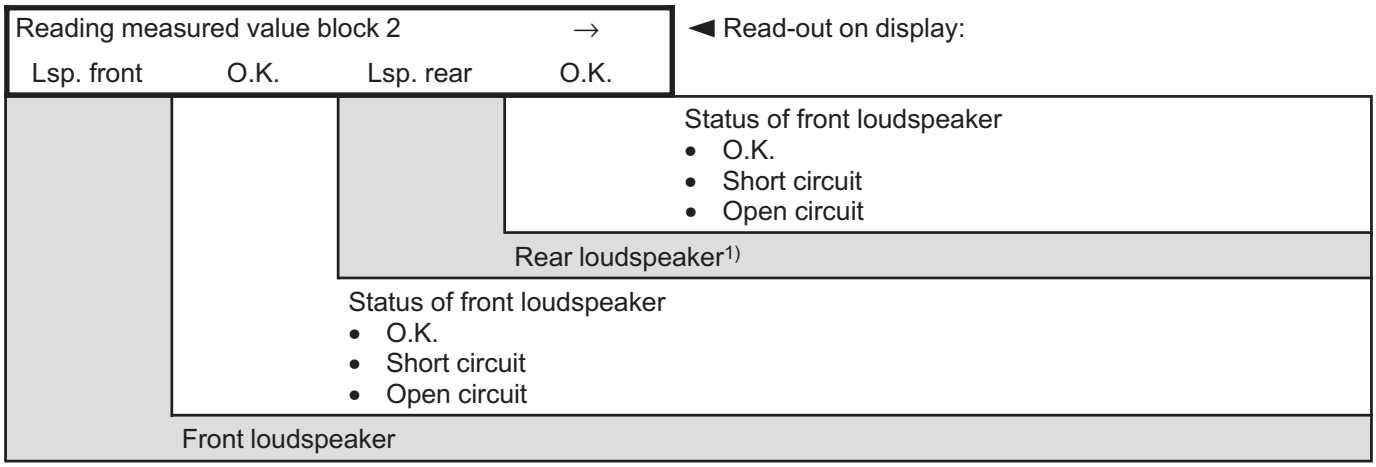
Dimming of radio lighting in percent (only with headlights „on“)
- 0 to 100 %

Voltage of terminal 30
- measured behind the filter

Vehicle speed signal from speedometer[1)]
- 0 or 1 (4 pulses for each revolution of tyre)

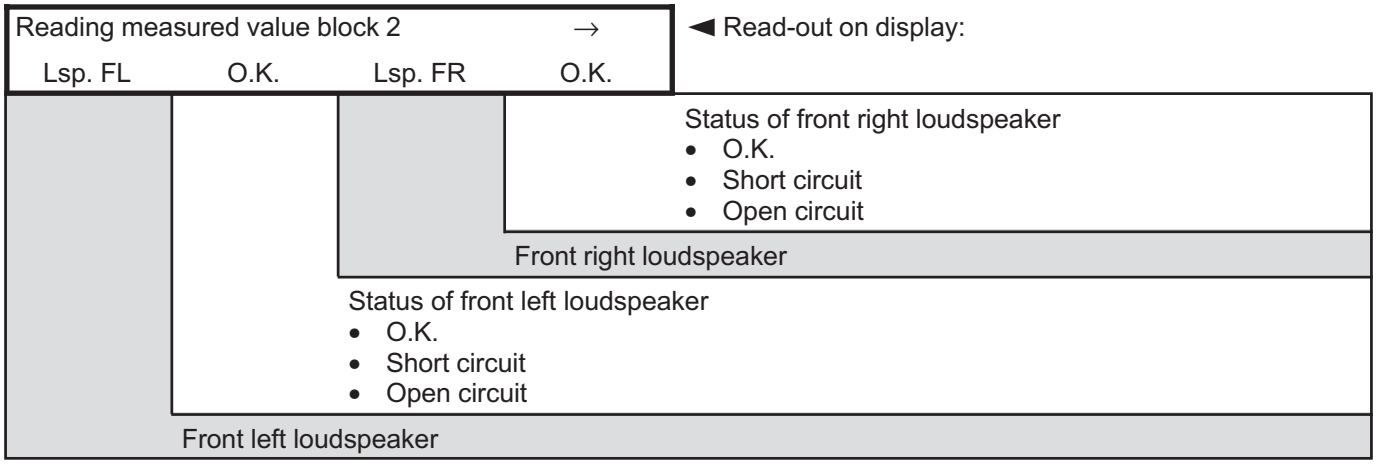
[1)] For radio Symphony without CD player the communication via CAN databus is not displayed.

Measured value block 002 (for Radio Symphony without CD player)

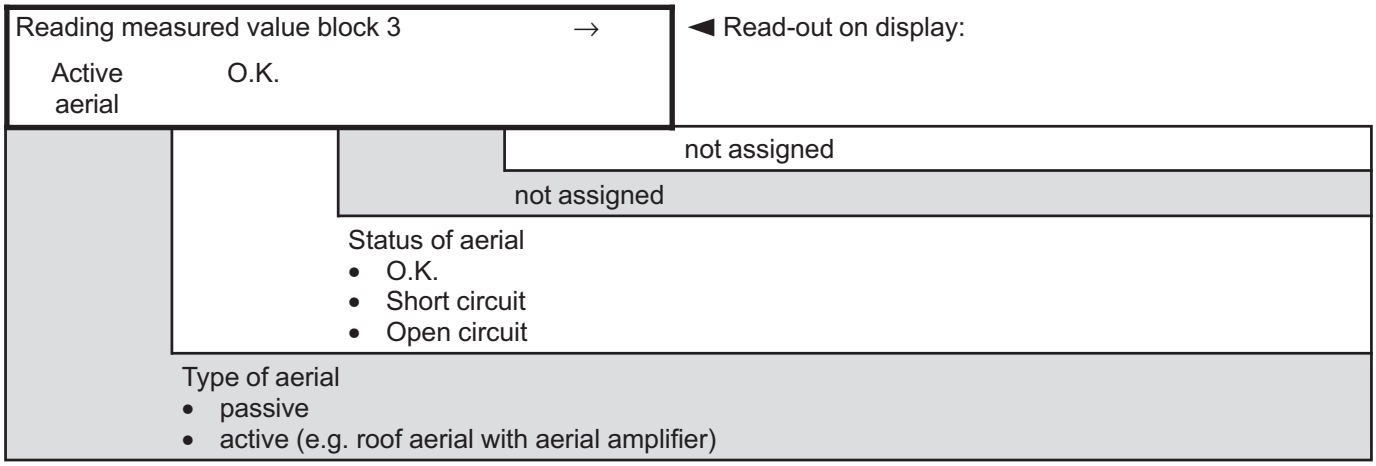


1) Display only in the case of passive rear loudspeakers.

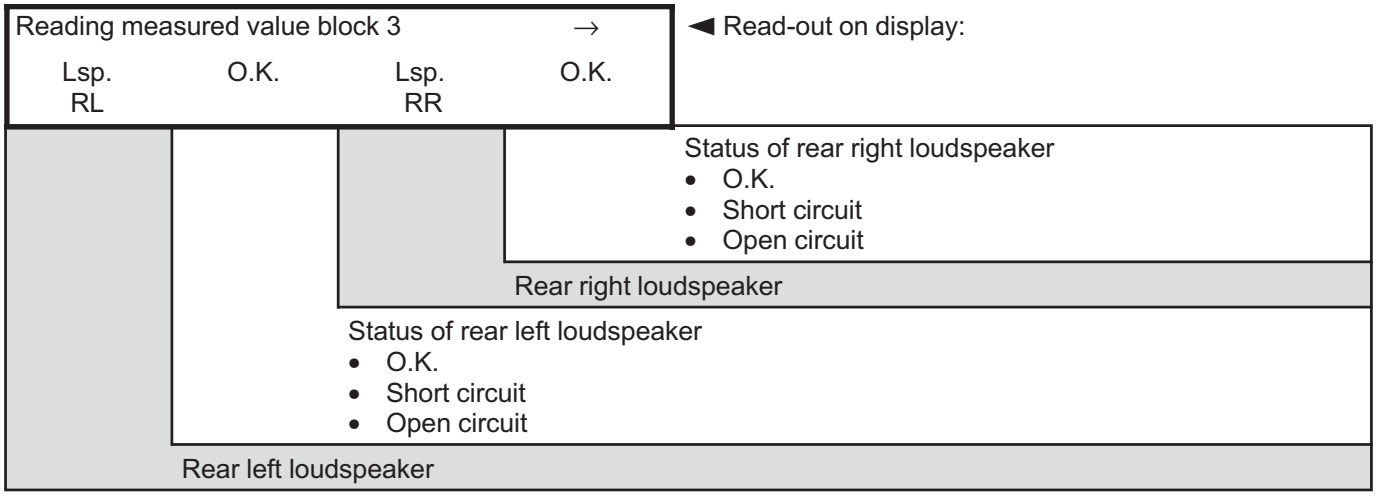
Measured value block 002 (for Radios MS 303 and Symphony with CD player)



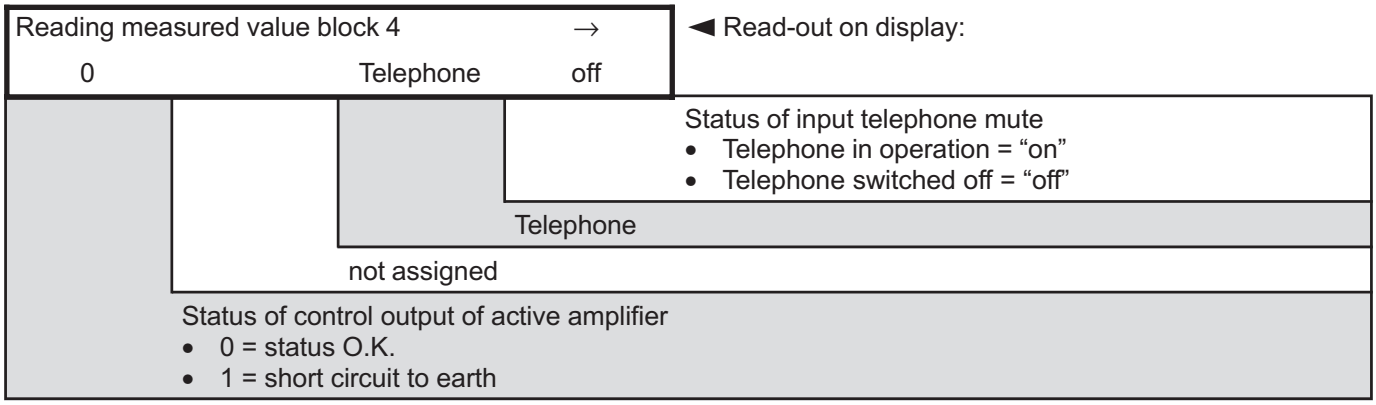
Measured value block 003 (for Radio Symphony without CD player)



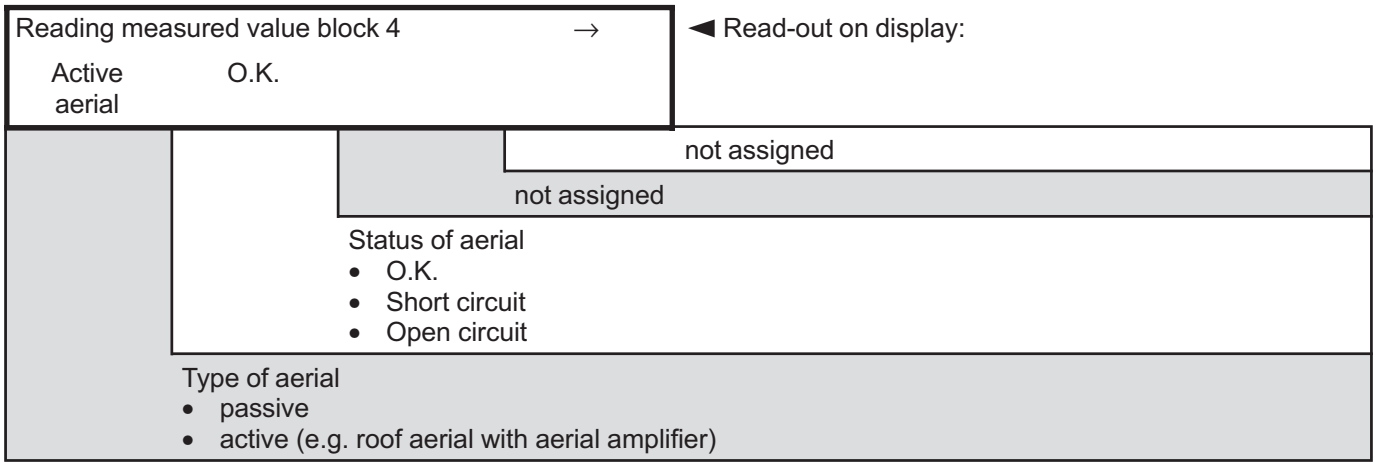
Measured value block 003 (for Radios MS 303 and Symphony with CD player)



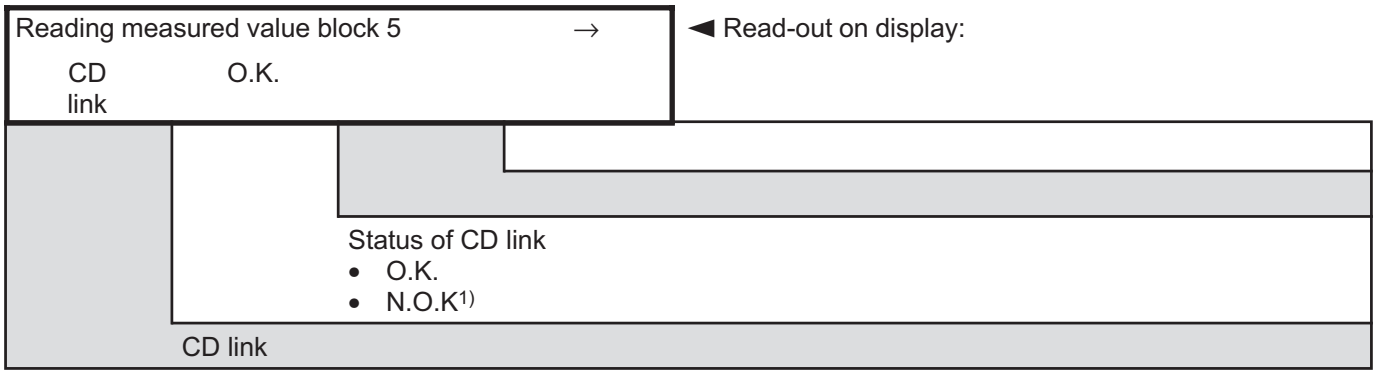
Measured value block 004 (for Radio Symphony without CD player)



Measured value block 004 (for Radios MS 303 and Symphony with CD player)

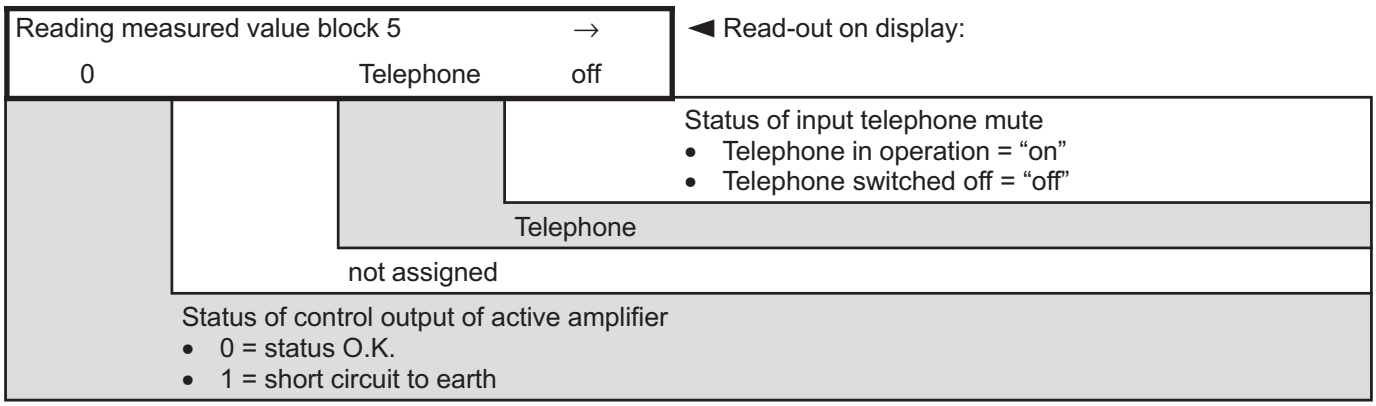


Measured value block 005 (for Radio Symphony without CD player)

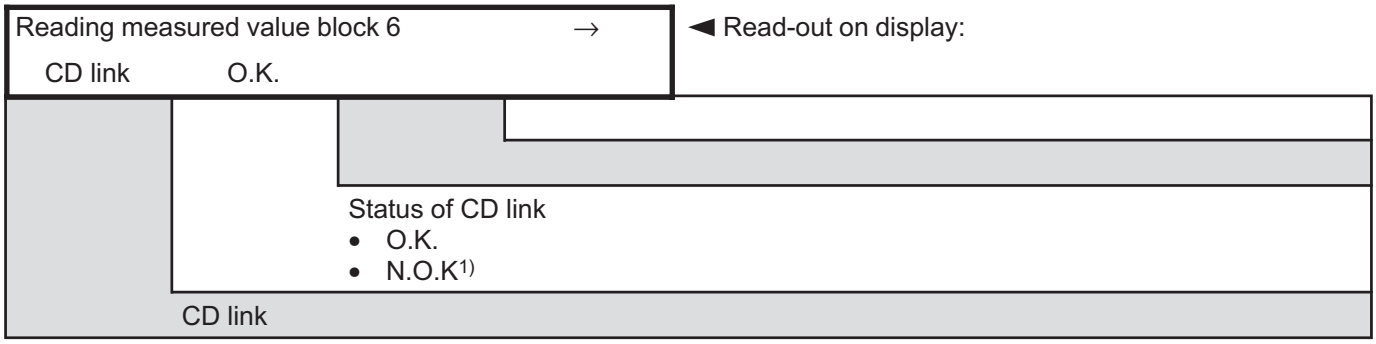


1) Display also if no CD changer is fitted.

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



Measured value block 006 (for Radio Symphony without CD player)



1) 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.

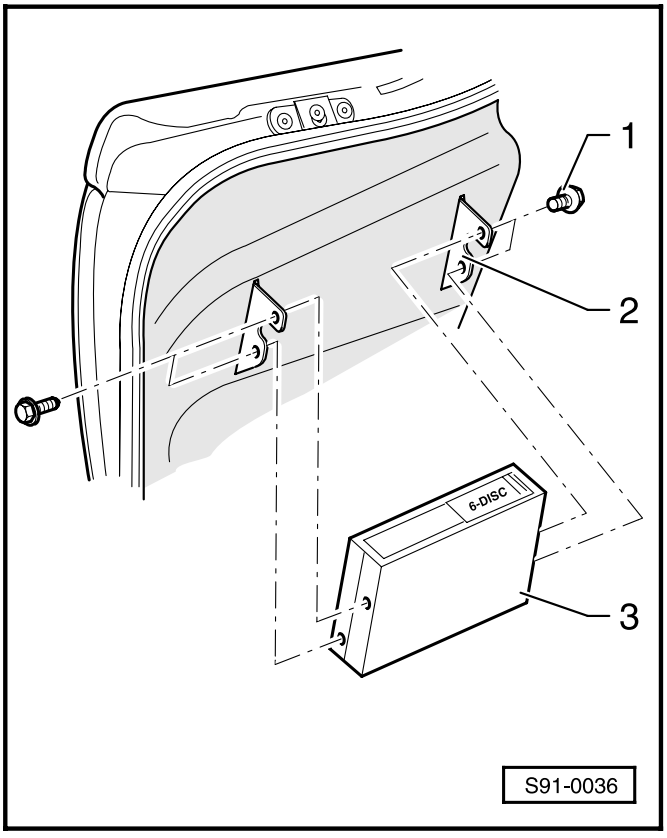
Warning!

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.

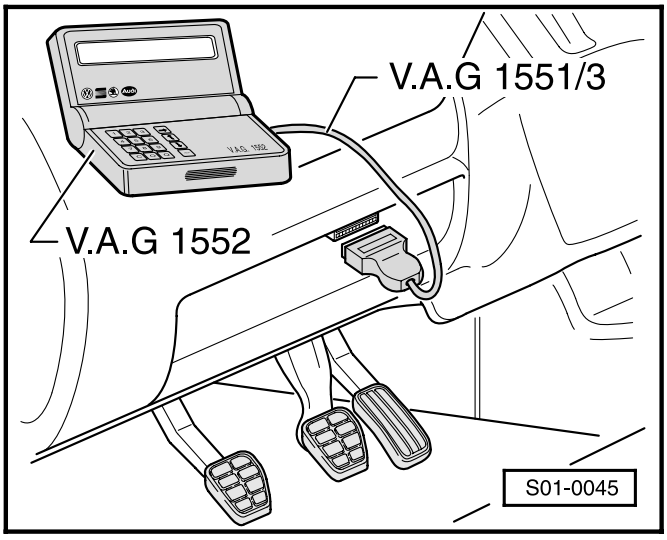
Self-diagnosis of the radio unit is identical to the self-diagnosis of the ”gamma (MS 501)” radio system ⇒ page 91-16.

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.



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.

Test of vehicle systems	HELP
Enter address word XX	

◄ 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

3B0919887 A	navigation	0002 →
Coding 00000		WSC 00000

◄ 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 HELP
Select function XX

◄ 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 HELP Select function XX

◄ 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 HELP Select function XX

◄ 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
00481 **Open circuit in wiring between TMC and Nav.**	♦ Fault in connection or in TMC box	Navigation system does not accept any traffic messages	- Test wiring ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations. - Replace TMC box.
00668 **El. system voltage tml. 30**			
Signal too small[1)]	♦ Battery voltage less than 9.5 V	Navigation unit operating poorly or not at all	- Read measured value block ⇒ page 19-36. - Test battery, charge if necessary ⇒ page 27-1. - Test alternator ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations.
	♦ Battery insufficiently charged		
	♦ Battery faulty		
	♦ Alternator faulty		
	♦ Too many electrical components switched on	Navigation system not operating properly	- Switch off all unnecessary components.

[1)] 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
00854 **Output radio display dash panel insert** [1] No communication	♦ Wiring faulty ♦ Radio-navigation system faulty ♦ Dash panel insert faulty	No data transfer between radio-navigation system and dash panel insert Readout in display of dash panel insert not o.k.	- Read measured value block ⇒ page 91-36 - Test wiring according to CFD - Perform self-diagnosis of dash panel insert, replace dash panel insert if necessary ⇒ page 90-29 - Replace radio-navigation system
00862 **Navigation aerial (GPS) - R50/R52** Open/short circuit to positive Short circuit to earth	♦ Wiring faulty ♦ Navigation system aerial (GPS) faulty	Navigation system not operating properly (positioning)	- Read measured value block ⇒ page 91-36 - Test wiring according to CFD - Test navigation system aerial (GPS), replace if necessary
00867 **Connection to ABS control unit** No signal	♦ Wiring faulty ♦ ABS wheel sensors faulty ♦ ABS control unit faulty	Navigation system not o.k.	- Perform adaptation of wheel pulses or tyre circumference ⇒ page 91-39 - Read measured value block ⇒ page 91-36 - Perform self-diagnosis of ABS - Test wiring according to CFD
01311 **Data BUS information** No signal	♦ Wiring faulty ♦ Radio-navigation system faulty ♦ Sound system (DSP) faulty	Sound system (DSP) not operating properly	- Read measured value block ⇒ page 91-36 - Test wiring according to CFD
65535 **Control unit defective**	Radio-navigation system faulty	Radio-navigation system not operating properly	- Replace radio-navigation system

[1] 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 HELP Select function XX	◄ 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 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.

Measured value block 001

Read measured value block 1 → 0 12.3 V 60 % on	◄ Readout in display:

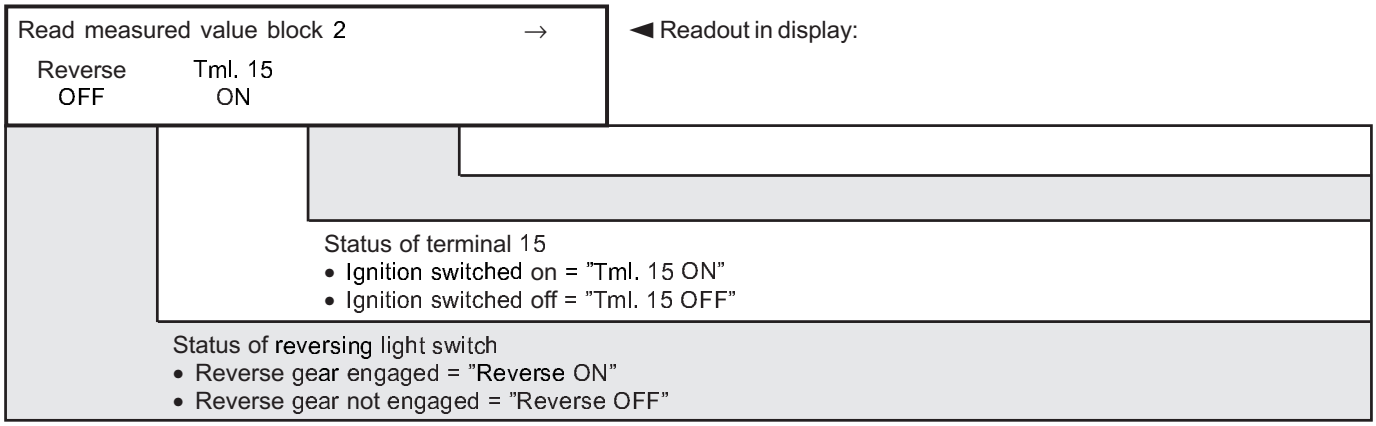
Status of S contact
- Can be tested with continuous output of measured values
- Withdraw ignition key = readout ”off”
- Switch on S contact again = readout ”on”

Dimming of radio lighting in percent (only if light ”on”)
- 0 ... 99 %

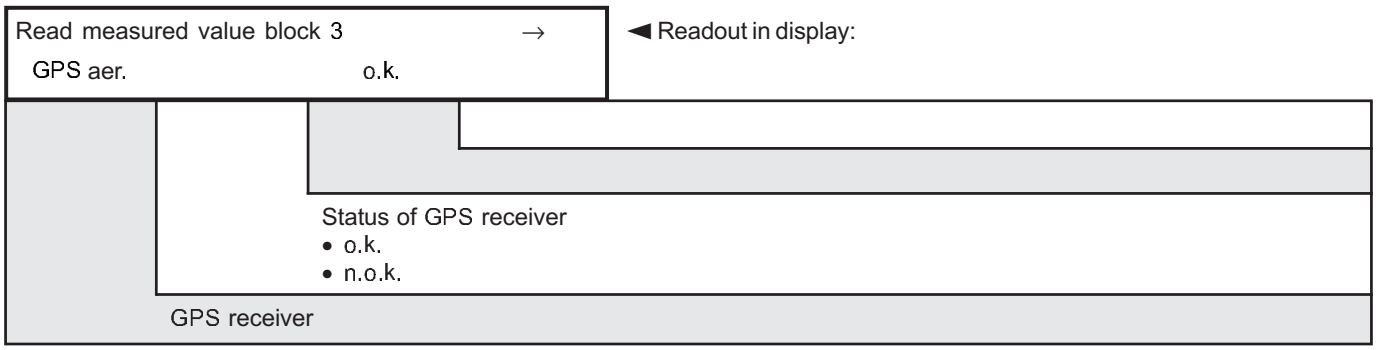
Voltage tml. 30
- Measured downstream of filter

Vehicle speed signal from speedometer
- 0 or 1 (4 pulses for each tyre revolution)

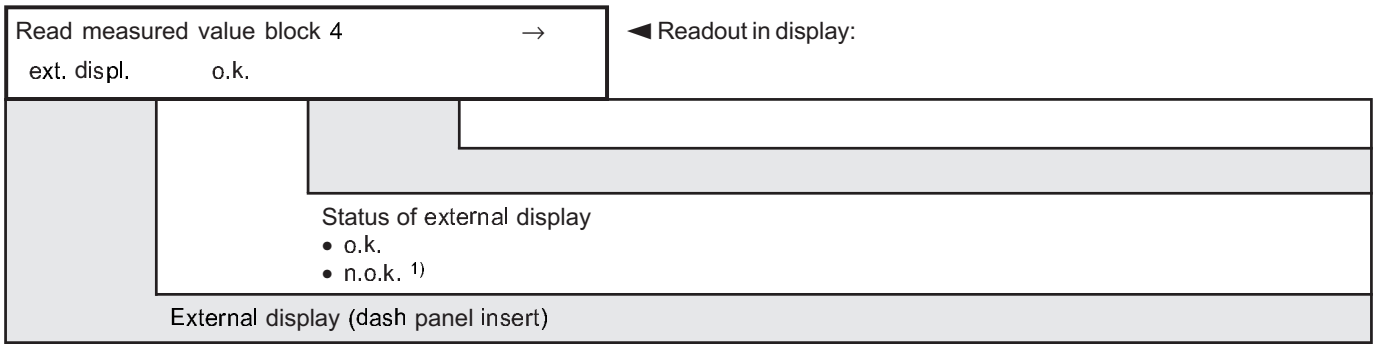
Measured value block 002



Measured value block 003

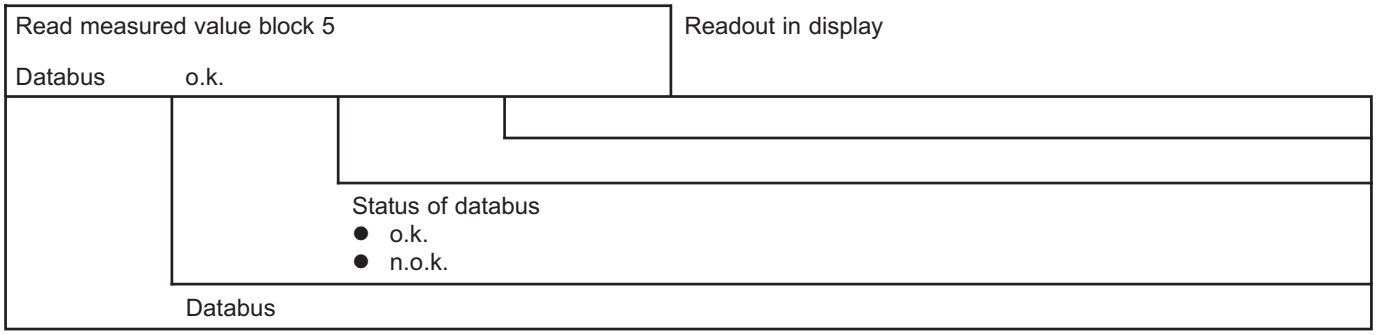


Measured value block 004

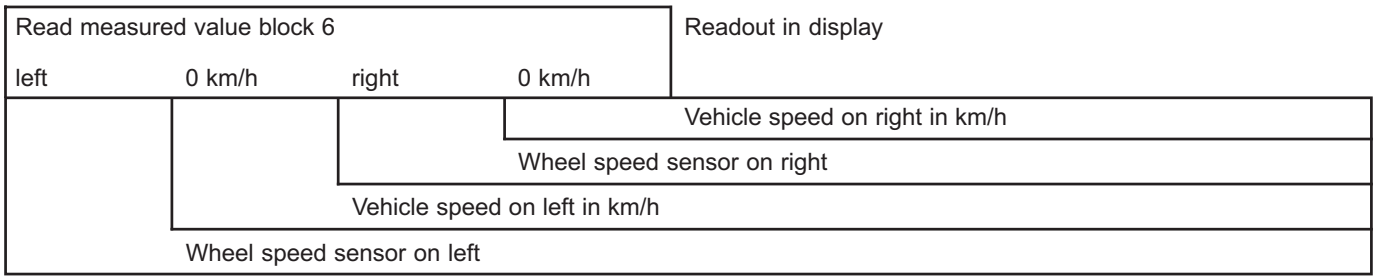


1) Readout also if dash panel insert without second display fitted.

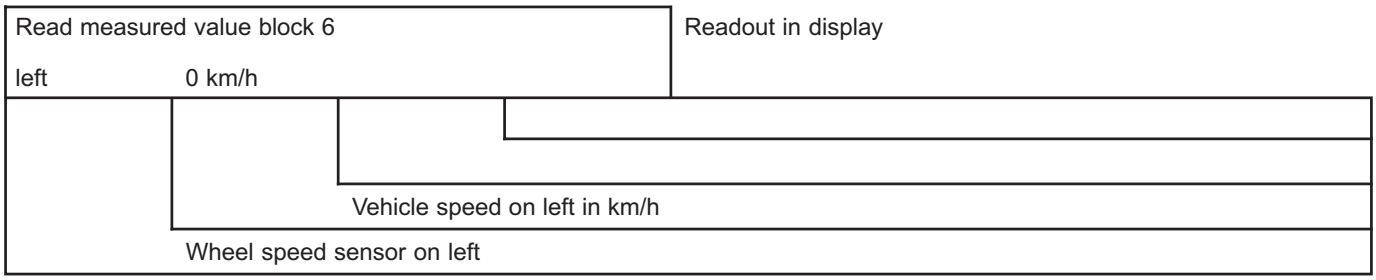
Measured value block 005



Measured value block 006 (up to ECU 3B0919887 A)



Measured value block 006 (from ECU 3B0919887 D)



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 ⟨– ↑ ↓–⟩	→

◄ 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 ⟨– ↑ ↓–⟩	→

◄ 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 HELP Select function XX

◄ 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.

Test of vehicle systems HELP Select function XX

◄ Readout in display:

- Enter 10 for the function „Adaptation“ and confirm the entry with the key Q.

Adaptation Enter channel number XX

◄ Readout in display:

- Enter 03 for „Channel 3“.
- Confirm entry with the key Q.

Channel 3 Adaptation 0 → -↑ ↓-

◄ Readout in display:

- Press → key.

Channel 3 Adaptation 0 Enter adaptation value XXXXX

◄ 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.

Channel 3 Adaptation 0 Q -↑ ↓-

◄ Readout in display:

- Confirm entry with the key Q.

Channel 3 Adaptation 0 Q Store changed value?

◄ Readout in display:

- Confirm entry with the key Q.

Channel 3 Adaptation 0 → Changed value is stored

◄ Readout in display:

- Press → key.
- Select 06 for the function „End output“.

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[1)]
00004	with TMC box, with telephone[1)]

[1)] 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.

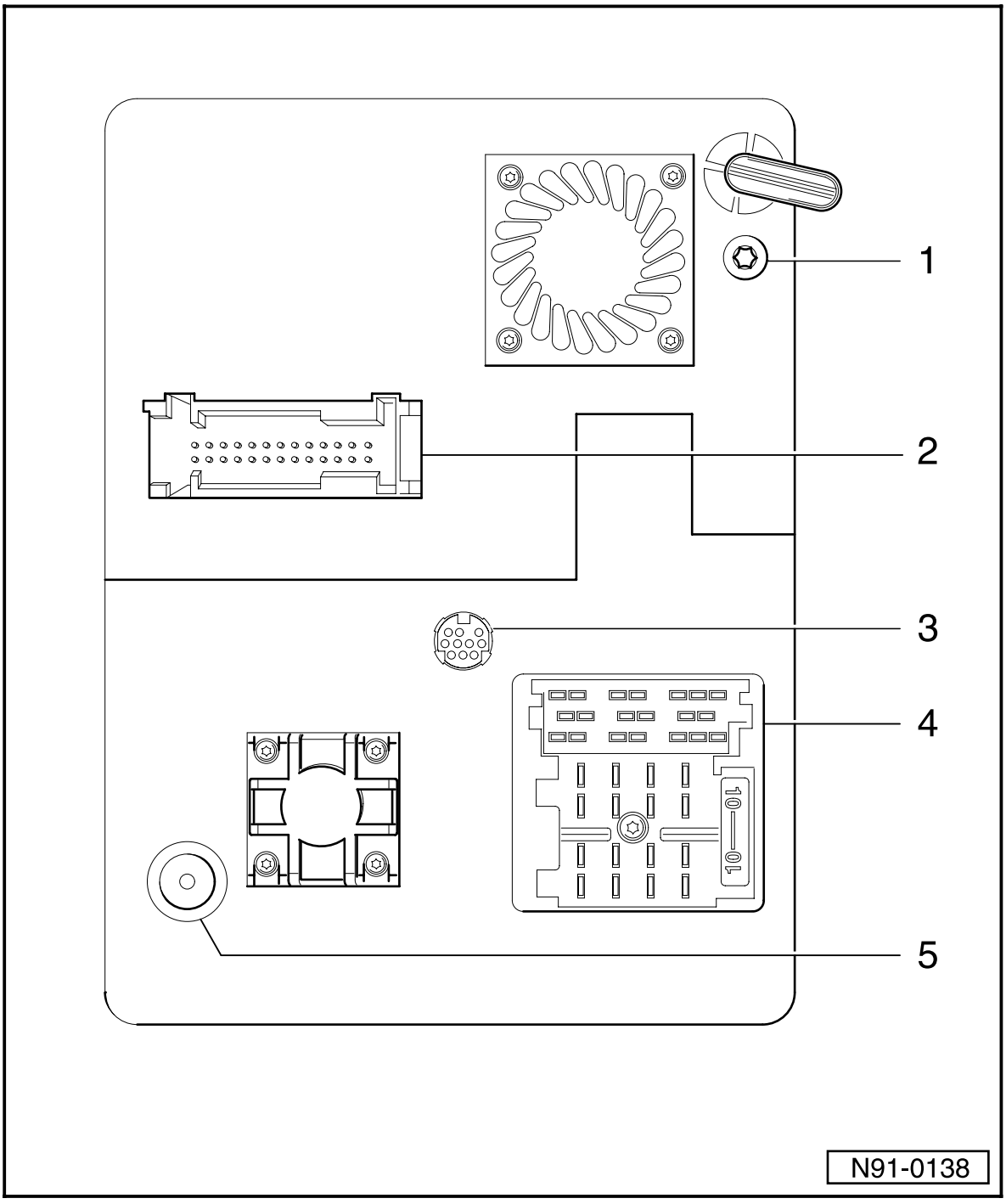
If an incorrect code number is again entered, the unit is blocked for 60 minutes.

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



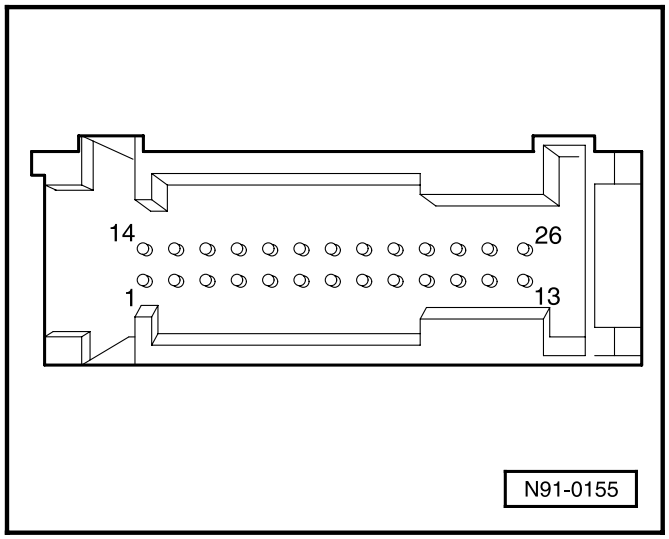
1 - Connection for navigation system aerial

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

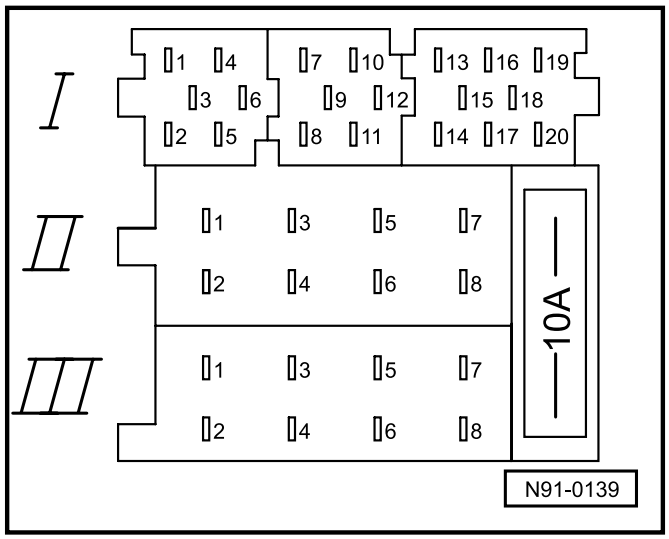


Contact assignment of 26-pin plug connection for navigation sensor

◄ 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



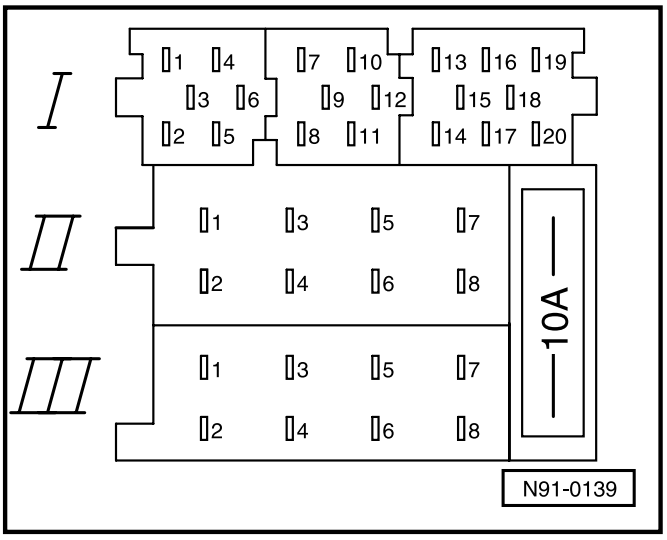
The multipin plug connection I, -T20-, consists of 3 parts which are colour-coded:

◄ 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.*

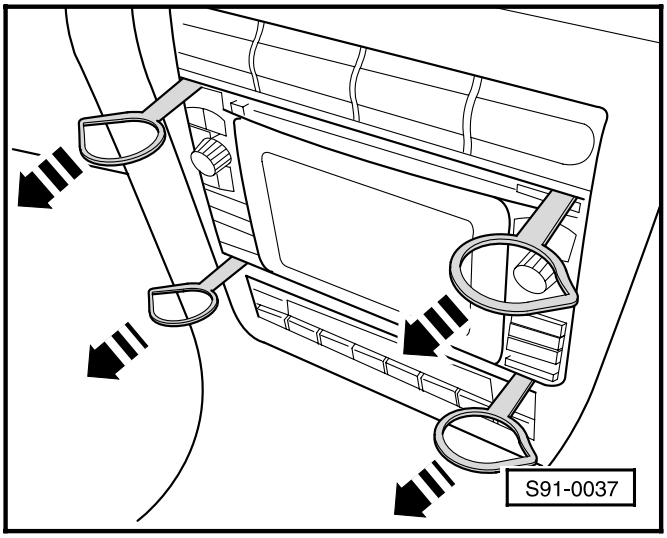
Special tools, testers and aids required

- 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.

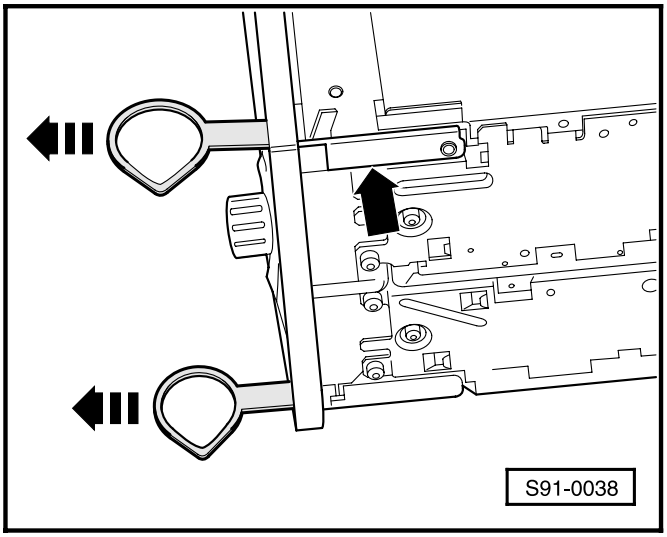


Carry out the following procedure:

◄ - 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.

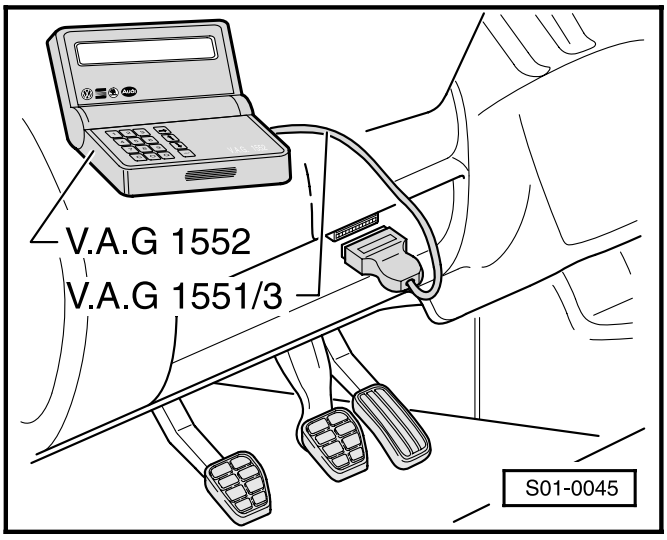
For fault finding, initiate self-diagnosis and interrogate the information stored with vehicle system tester V.A.G 1552.

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



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.

1J0907487 A	St. wheel electronics	0002 →
Coding 00119		WSC 00000

◄ 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

Control unit does not answer	HELP

◄ 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.

1J0907487 A	St. wheel electronics	0002 →
Coding 00119		WSC 00000

◄ Readout in display:

- Press → key.

Test of vehicle systems	HELP
Select function XX	

◄ 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 HELP Select function XX

◄ 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 HELP Select function XX

◄ 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
00926 **Terminal 30**		
♦ Signal too large	♦ Voltage regulator at alternator faulty	- Test alternator ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations binder.
♦ Signal too small	♦ Cables or plug connections to steering wheel control unit faulty	- Test cables and plug connections to steering wheel control unit according to current flow diagram.
	♦ Battery discharged	- Test battery ⇒ page 27-1.
	♦ Alternator faulty	
	♦ Cables or plug connections to steering wheel control unit faulty	
01042 **Control unit not coded**		
	♦ Incorrect or no coding of multifunction steering wheel control unit -J453-	- Code control unit ⇒ page 91-52.

Readout on V.A.G 1552	Possible cause of fault	Rectifying fault
01336 **Group convenience databus**		
♦ Open circuit or short to earth	♦ Open circuit or short circuit	- Test convenience CAN databus ⇒ page 90-68.
01341 **ECU in dash panel insert at conv. CAN -J285**		
♦ Open circuit or short to positive	♦ Cables or plug connections faulty	- Test cables and plug connections according to current flow diagram ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations binder.
♦ Implausible signal	♦ Dash panel insert control unit -J218- faulty	- Test CAN databus ⇒ page 90-68, replace dash panel insert control unit if necessary.
01426 **Operating unit in steering wheel -E221-**		
♦ Open circuit or short to earth	♦ Open circuit or short circuit between -E221- and multifunction steering wheel control unit -J453-	- 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.
65535 **Control unit defective**		
	♦ Multifunction steering wheel control unit -J453- defective	- Replace multifunction steering wheel control unit.
	♦ Cables or plug connections defective	- Test cables and plug connections according to current flow diagram ⇒ Current Flow Diagrams, Electrical Fault Finding and Fitting Locations binder.

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 → Radio quieter	◄ Readout in display: Volume is reduced for 3 seconds. - Press → key.
Final control diagnosis → Station search forward	◄ Readout in display: A search is made for the next station. - Press → key.
Final control diagnosis → Station search back	◄ Readout in display: A search is made for the preceding station. - Press → key.
Final control diagnosis → Horn control -H	◄ Readout in display: Horn is switched on for 0.5 sec. - Press → key.
Final control diagnosis → End	◄ Readout in display: - Press → key.
Test of vehicle systems HELP Select function XX	◄ Readout in display: - End output (function 06) ⇒ page 90-10.

Reading measured value block

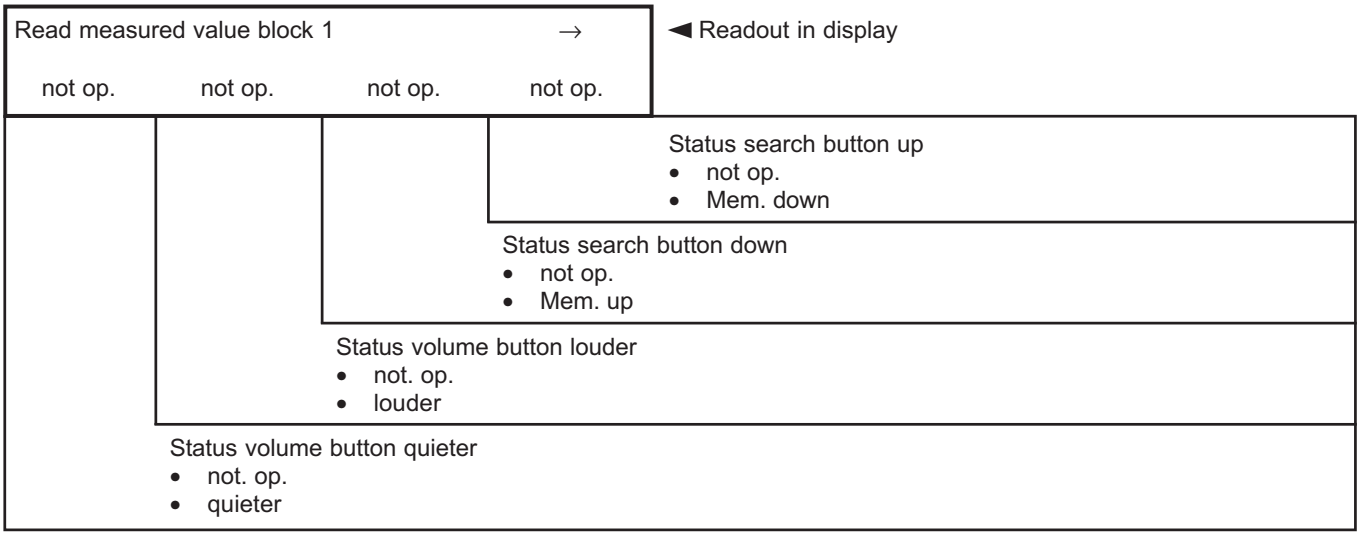
For fault finding, the state of the input signals is displayed in the measured value blocks.

Procedure

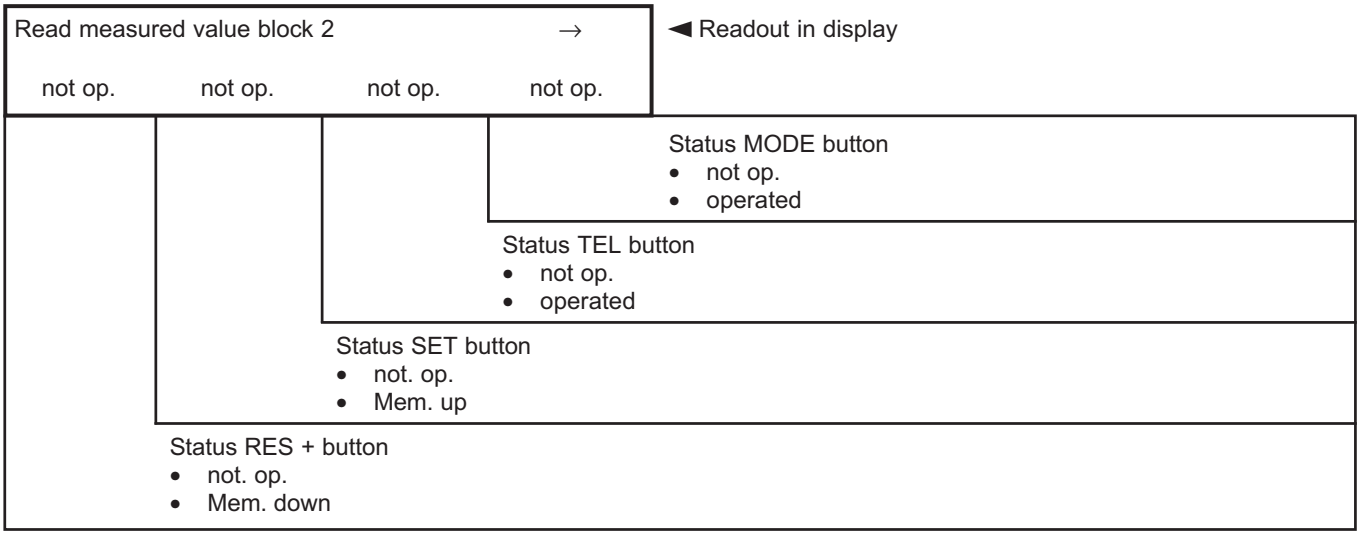
- Connect vehicle system tester V.A.G 1552 and select address word 16 „Steering wheel electronics“ ⇒ page 91-49.
- Enter 08 for the function „Read measured value block“ and confirm entry with the key Q.

Read measured value block Q Enter display group number XXX	◄ Readout in display: - Enter the three-digit number of the desired display group and confirm entry with the key Q.

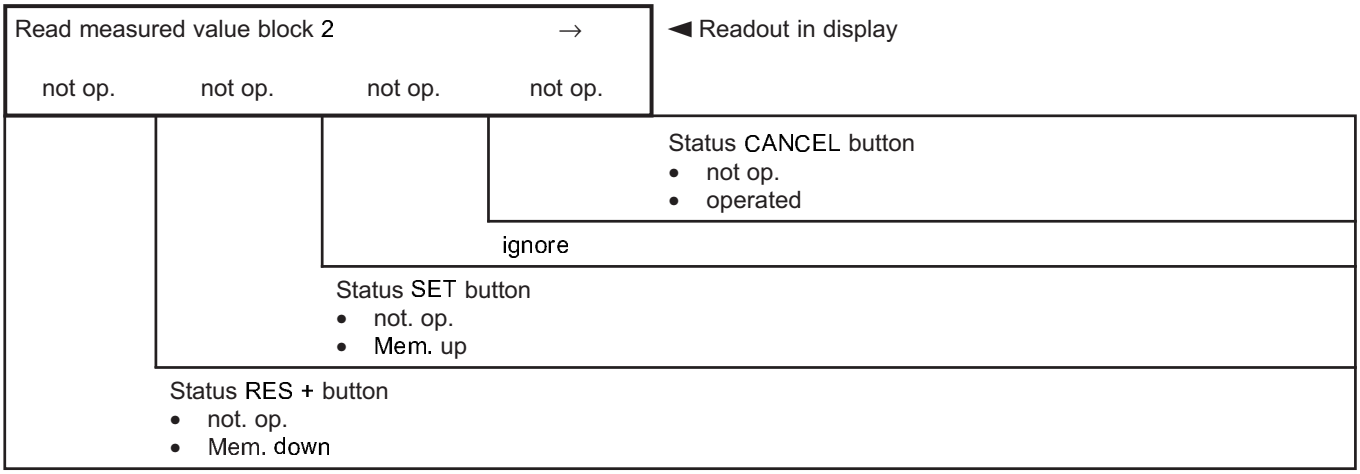
Measured value block 001



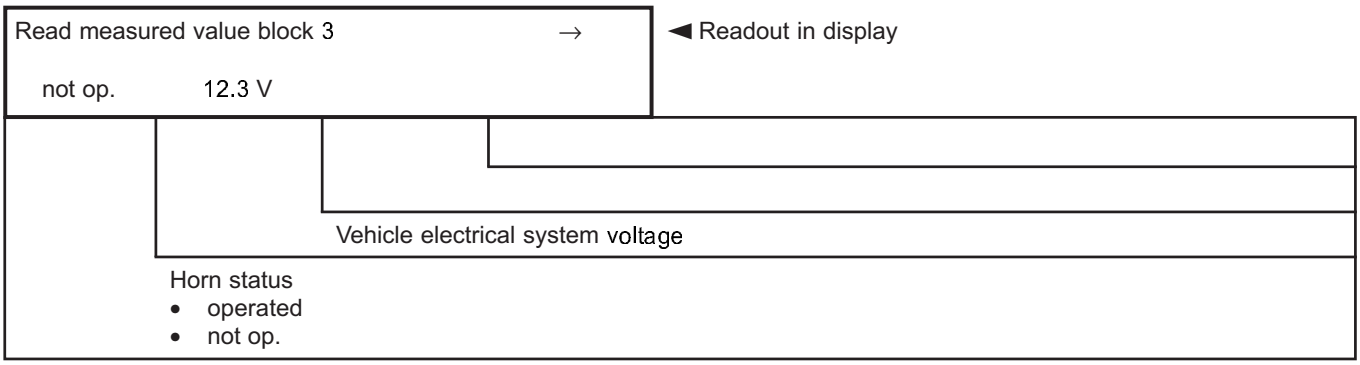
Measured value block 002 (for control unit with coding 00119 ⇒ page 91-53)



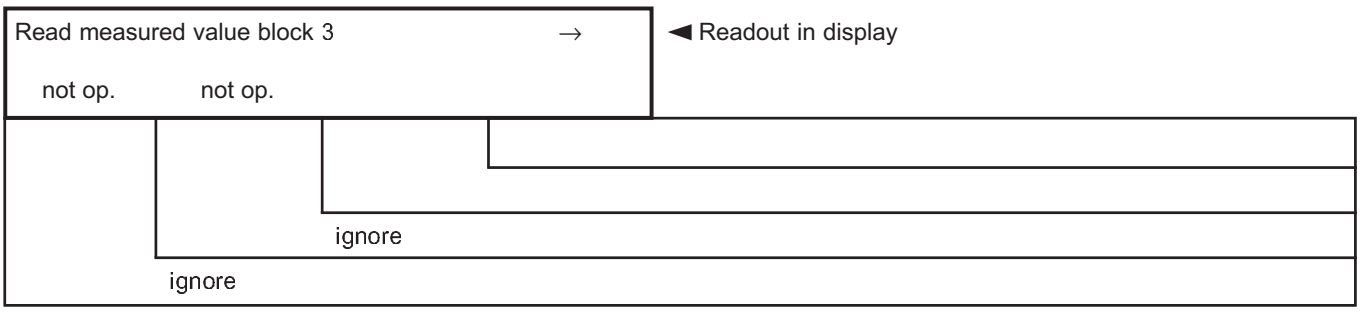
Measured value block 002 (for control unit with coding 00008 and 00118 ⇒ page 91-53)



Measured value block 003 (for ECU 1J0907487 A)



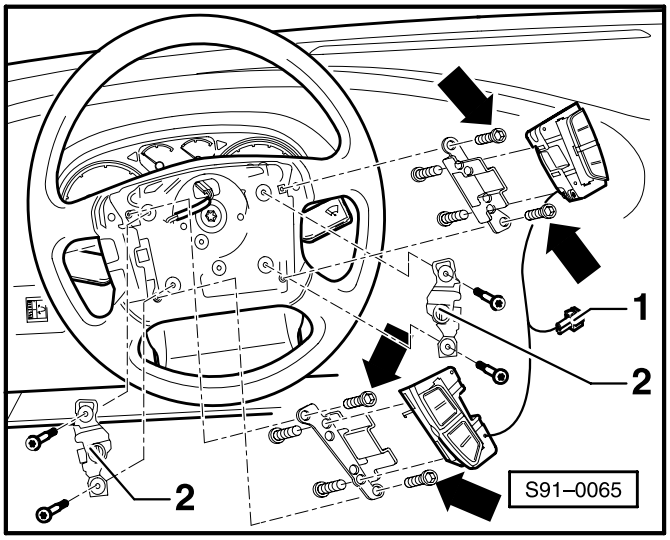
Measured value block 003 (for ECU 1J0907487 B)



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.



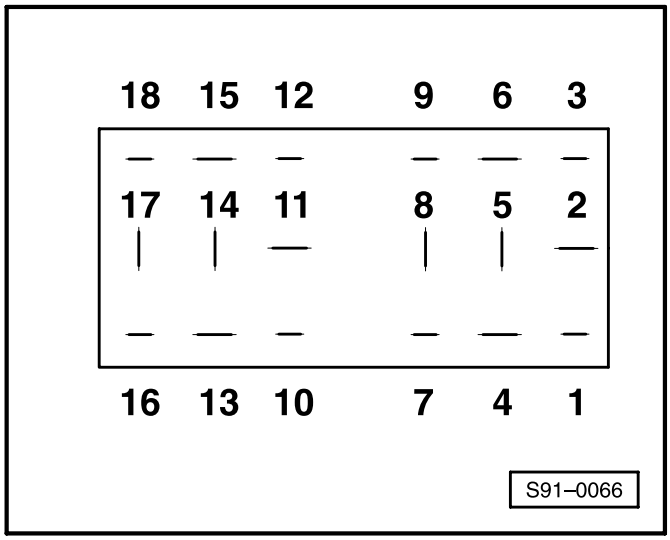
Removing

- 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.

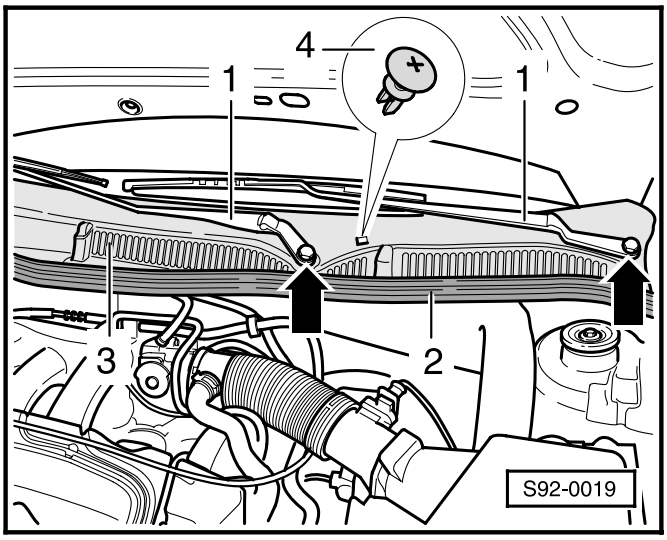
Removing and installing windscreen wiper system

Note:

Before removing the wiper arms make sure the wiper motor is in park position.

Removing the wiper arms:

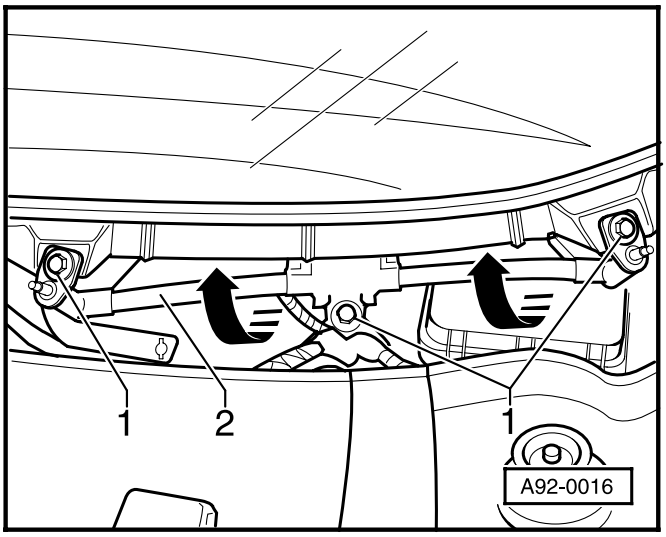
- Remove wiper blades
- Release both cover caps on the wiper blades with a screwdriver.



◄- Loosen hexagon nuts -arrows- but do not unscrew fully.

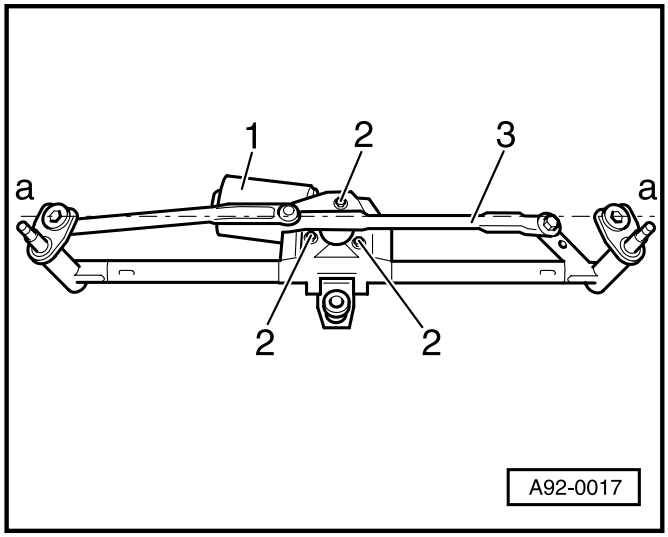
- Release the wiper arms with a gentle motion.
- Fully unscrew hexagon nuts and remove wiper arms.
- Remove the water tank cover.

⇒ Body Fitting Work; Repair Group 66; Screens



◄ **Removing wiper frame together with linkage and wiper motor**

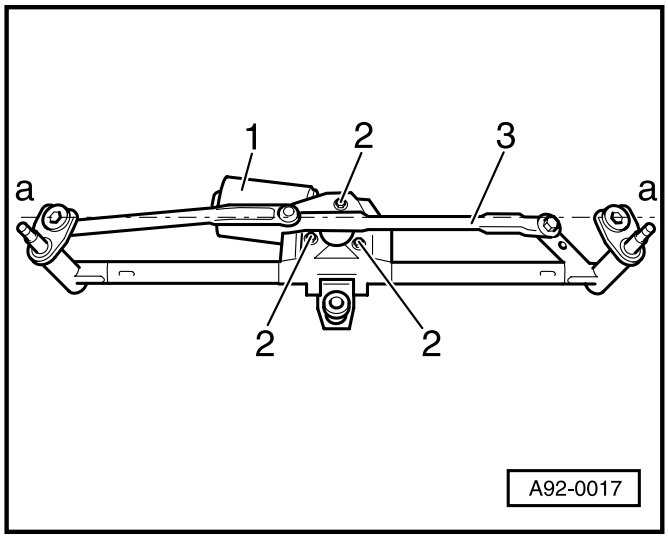
- Unplug connector at the wiper motor.
- Remove the three hexagon bolts -1-.
- Carefully tilt the wiper frame -2- forward -arrows- and then take it complete out of the plenum chamber by moving to the left.



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.

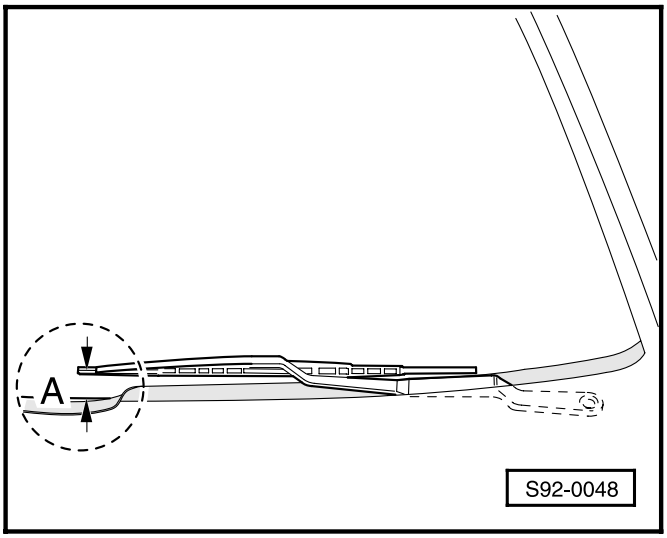


Installing:

◄ - 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

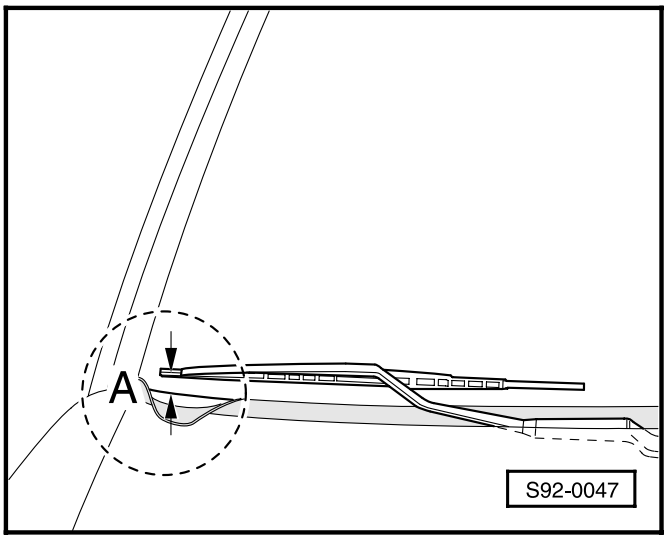


- Run wiper motor until it is in park position.

◄ Driver side:

A - 25 mm, measured at end of metal insert of windscreen/wiper blade (rubber surround and wiper blade raised).

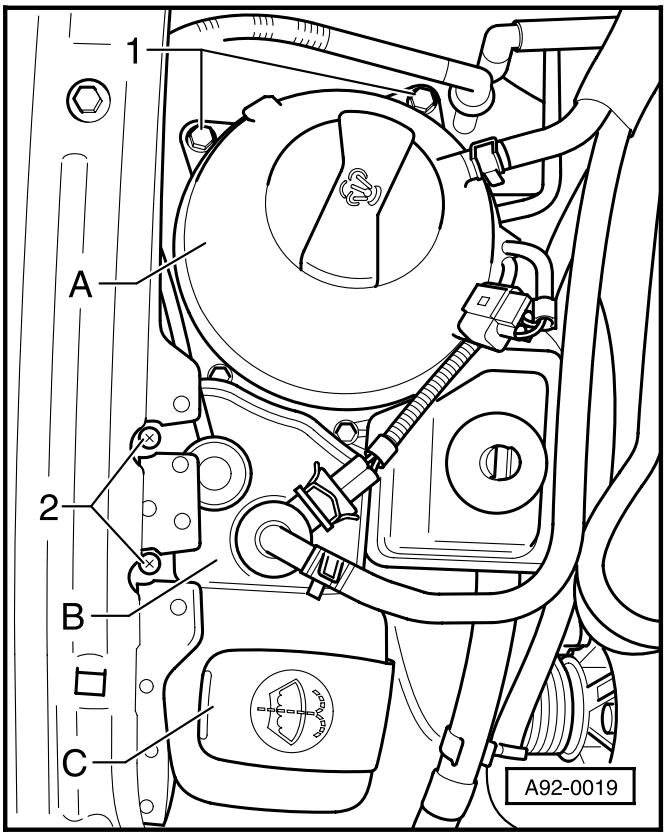
Tightening torque of wiper arm: 20 Nm



◄ 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!

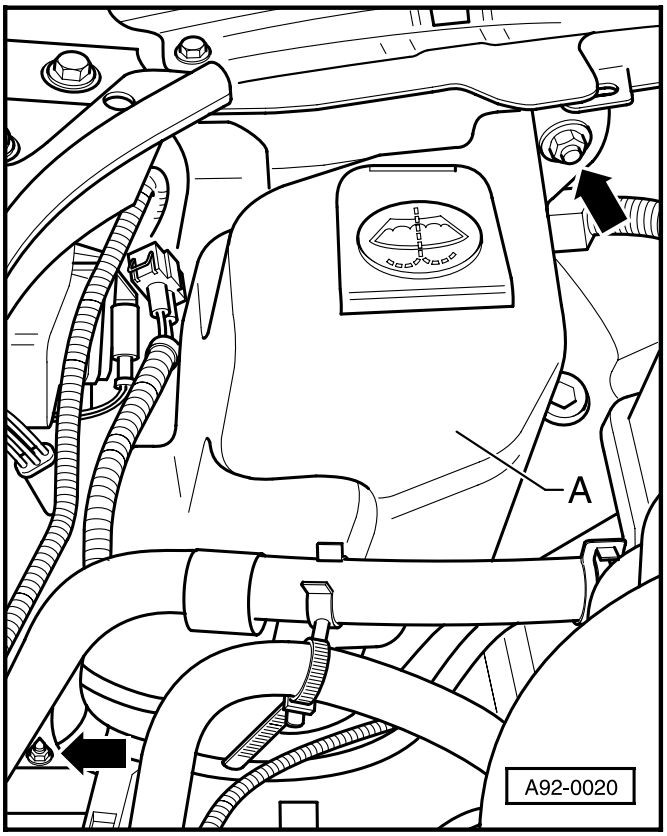
Disconnect battery earth strap before carrying out any work on the electrical system.

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

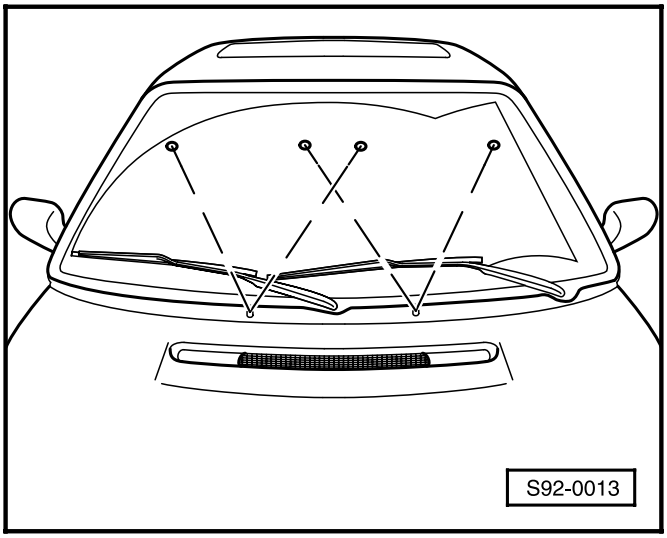
- Remove wiper arms ⇒ Page 92-1.

- Remove the water tank cover.
⇒ Body Fitting Work, Repair Group 66; Screens

- Push the spray nozzle upward out of the water tank cover.

Installing

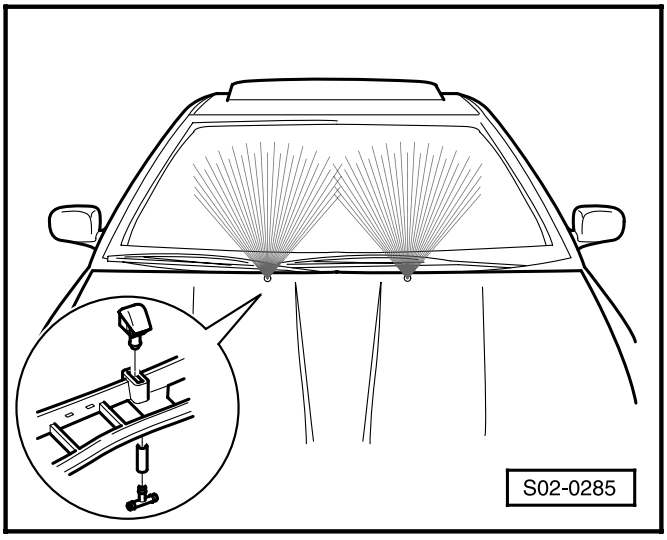
- Carry out installation in the same way in reverse order.



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.

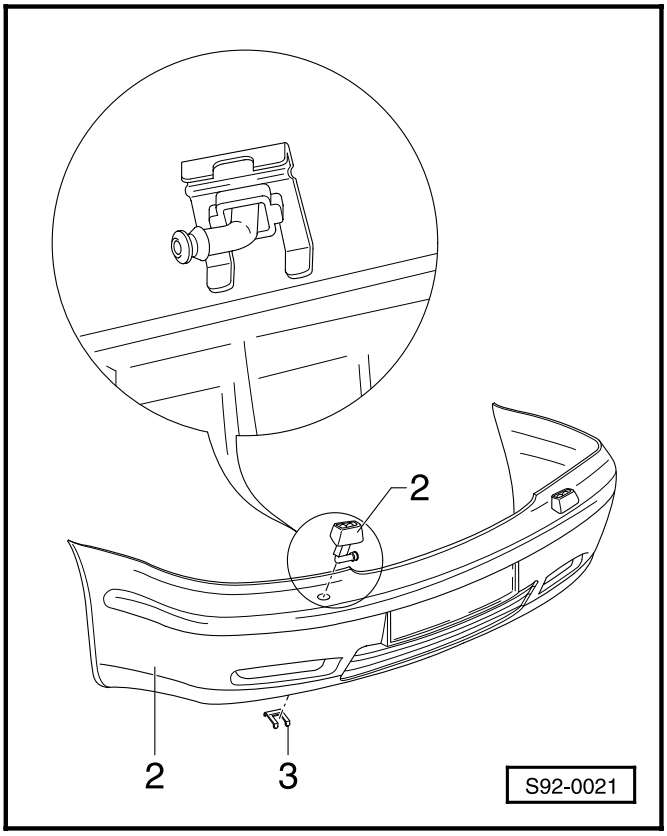
◄ - The windscreen is sprayed with two tapered spray jets.

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:

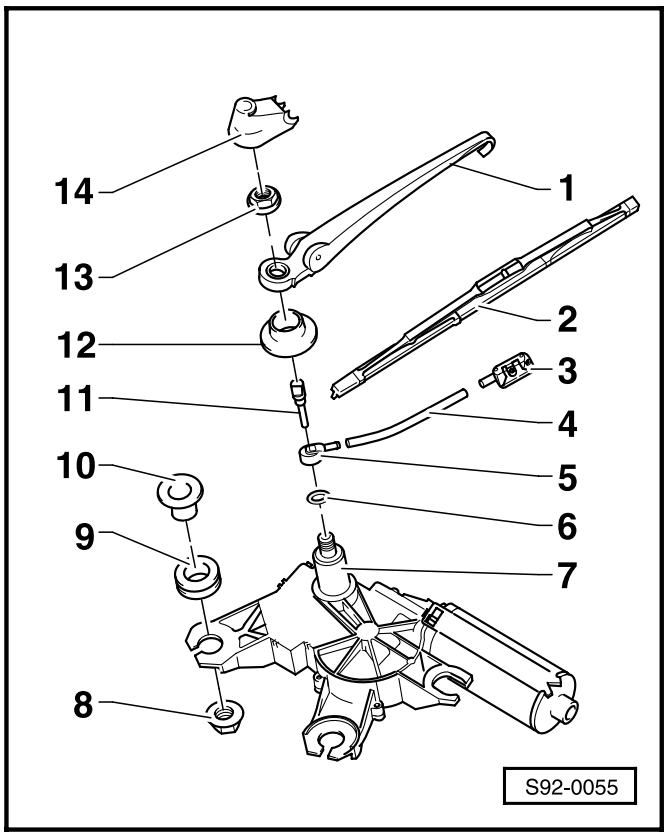
The common washer fluid reservoir for the windscreen washer and headlight cleaning system is located in the front right of the engine compartment. Removing and installing⇒ page 92-4.

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

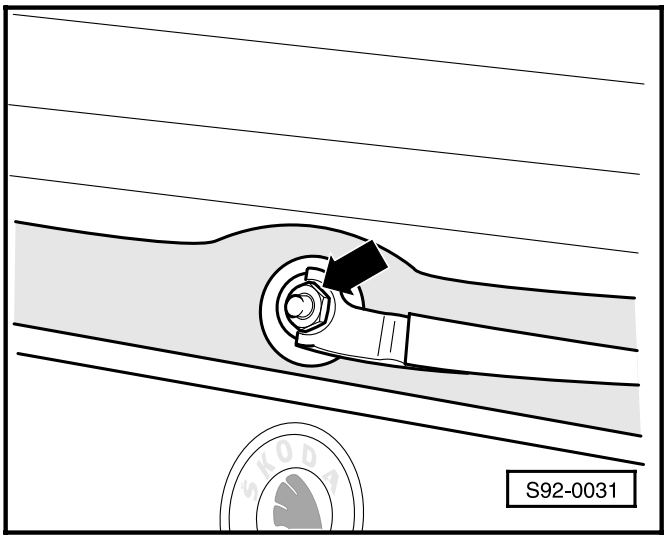
10 - Spacer

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

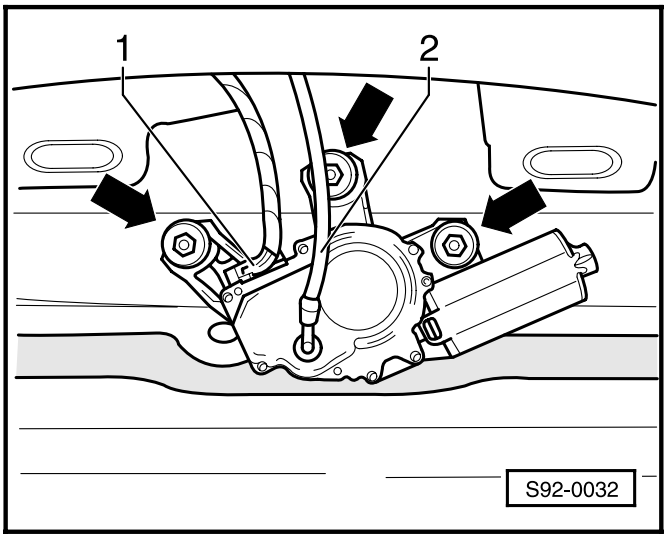


Removing and installing rear window wiper

◄ **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.



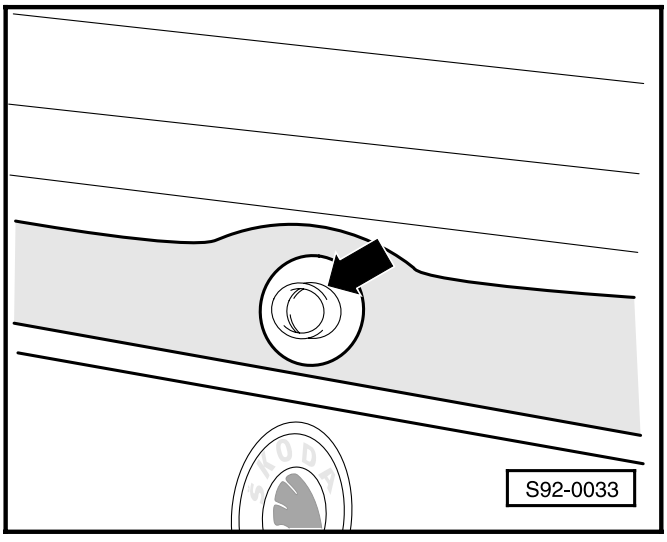
◄ **Removing and installing motor for rear window wiper**

- Take off bottom trim panel of tailgate.

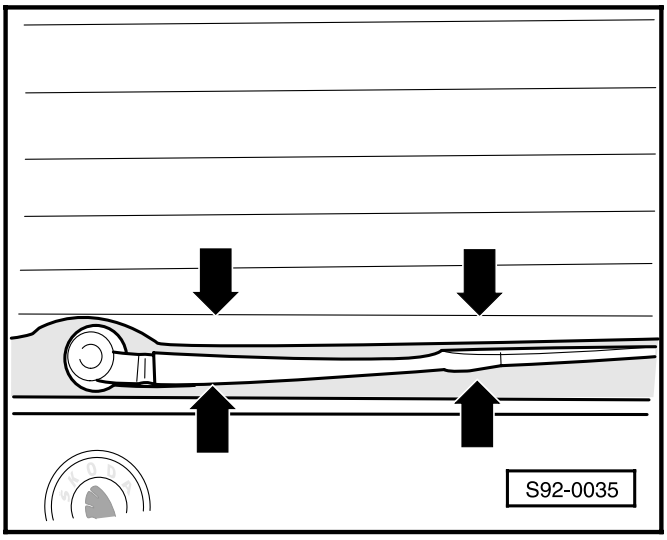
⇒ Body Fitting Work; Repair Group 70; Trim panels of cargo area/luggage compartment

- 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

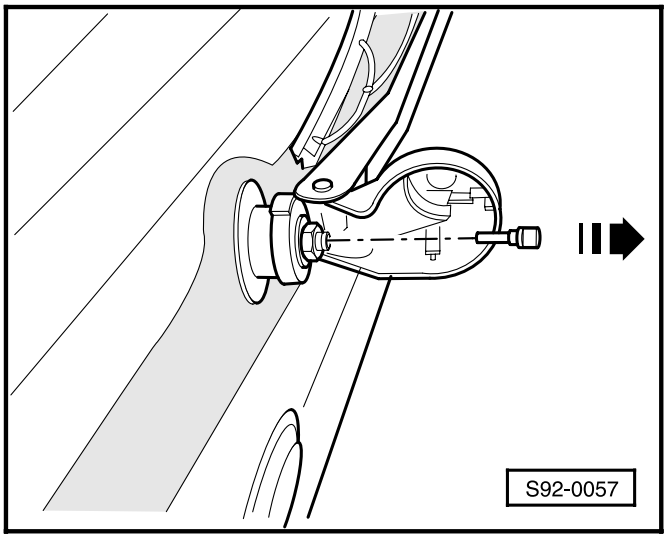
To middle of swept area.

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.

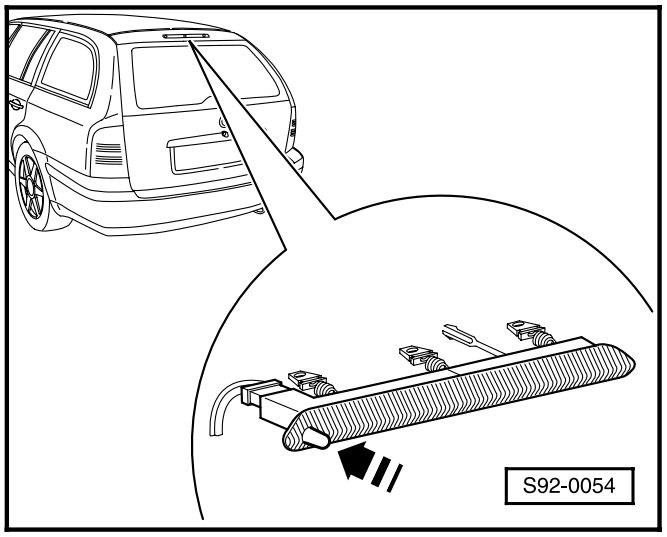


Installing

- 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.



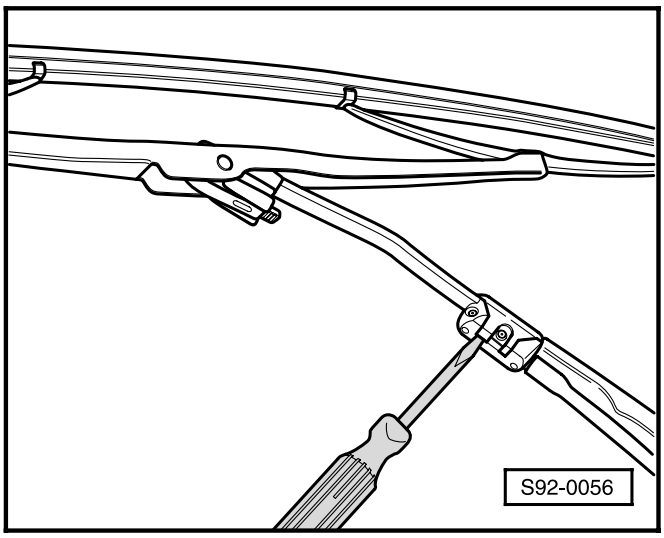
Removing

- 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.

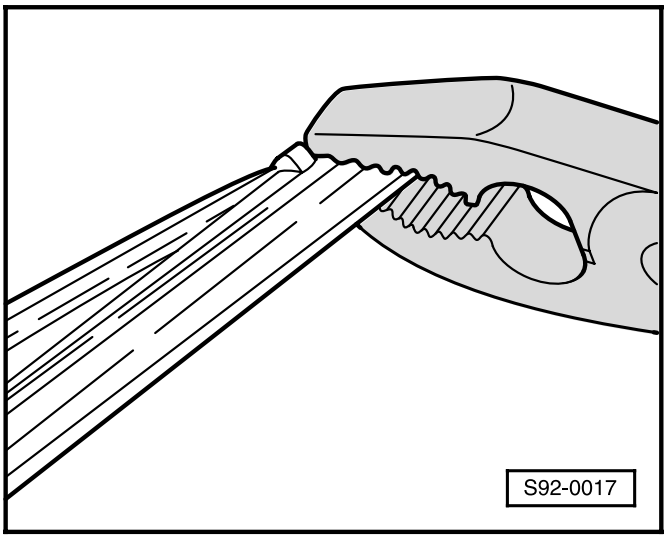
◄ - Use a small screwdriver to separate clip of spray nozzle.

- Pull off spray nozzle.

Installing

- Installation is carried out in the reverse order.

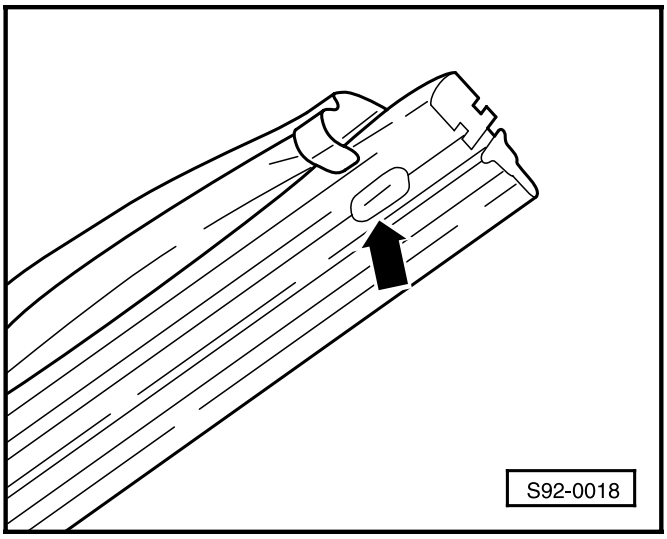
Removing and installing wiper rubber



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.

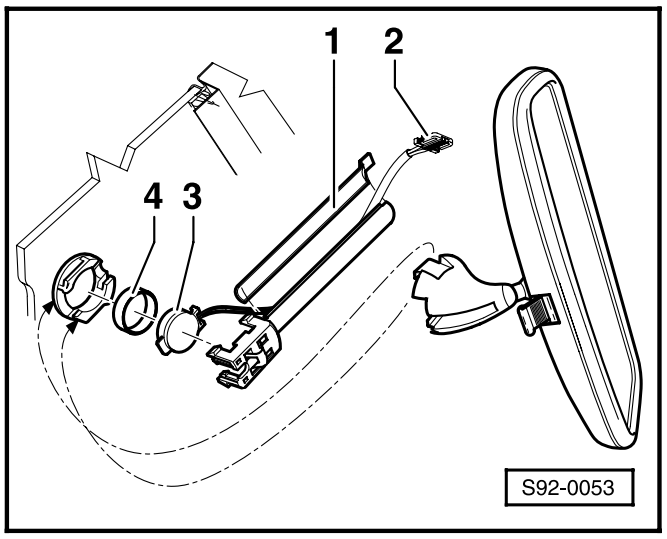
- Insert both steel rails into the first groove of the wiper rubber so that the recesses of the rails point toward the rubber and engage in the rubber studs of the groove.

◄- 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).

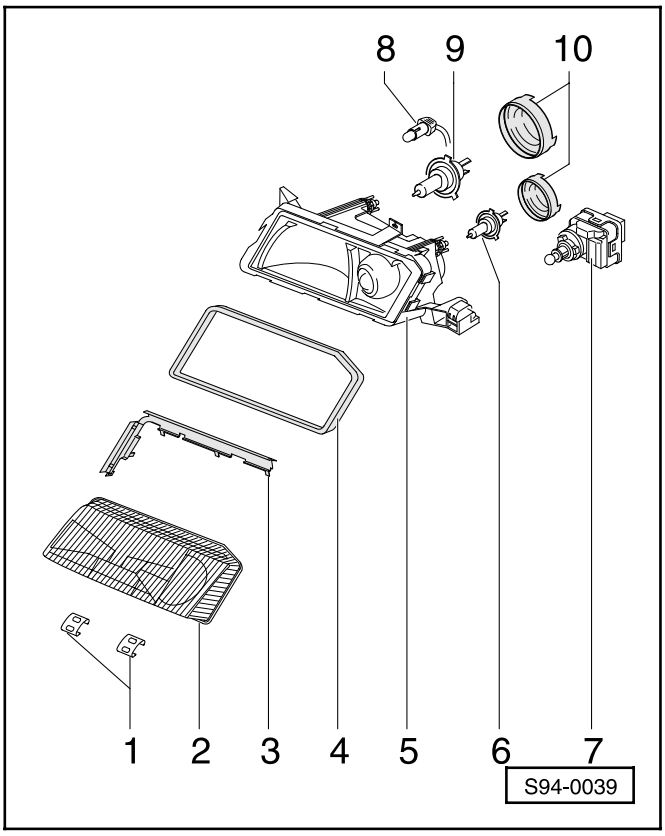
- Press sensor against windscreen. Do not touch sensor surface when carrying out this step!

- 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

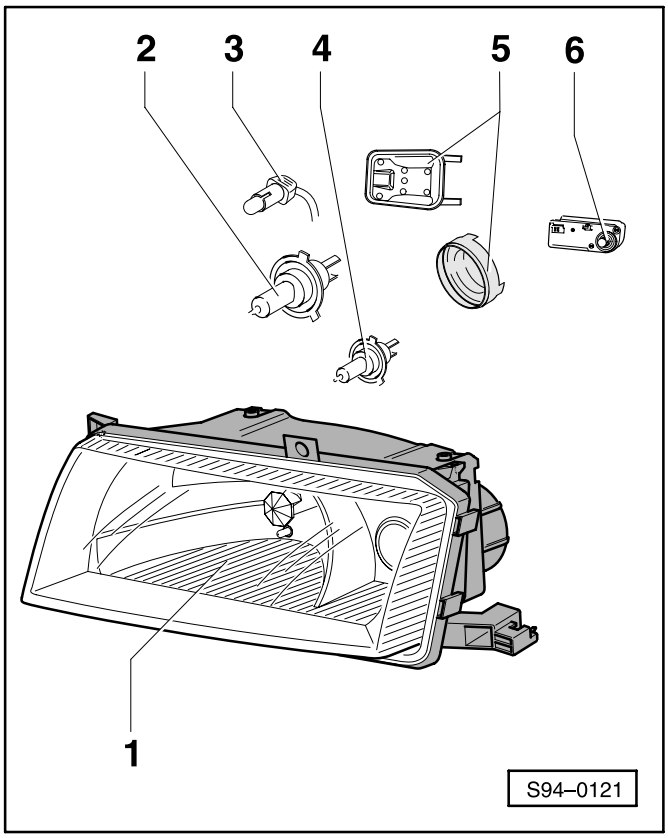
6 - Bulb for low beam
- ♦ H3 - 12 V, 55 W
- ♦ changing bulb ⇒ page 94-4

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

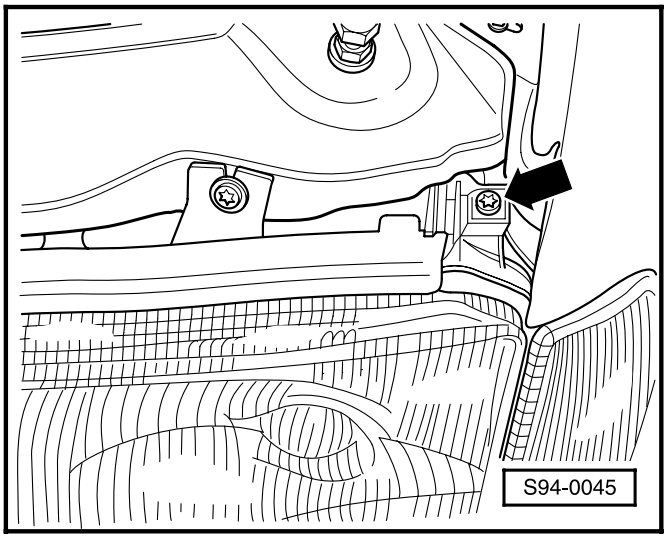
3 - Bulb for side light
- ♦ W5W - 12 V, 5 W
- ♦ changing bulb ⇒ page 94-4

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



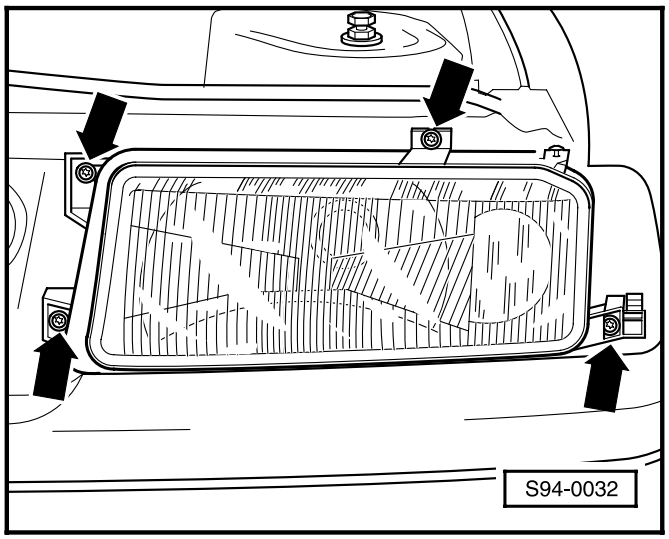
Removing:

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

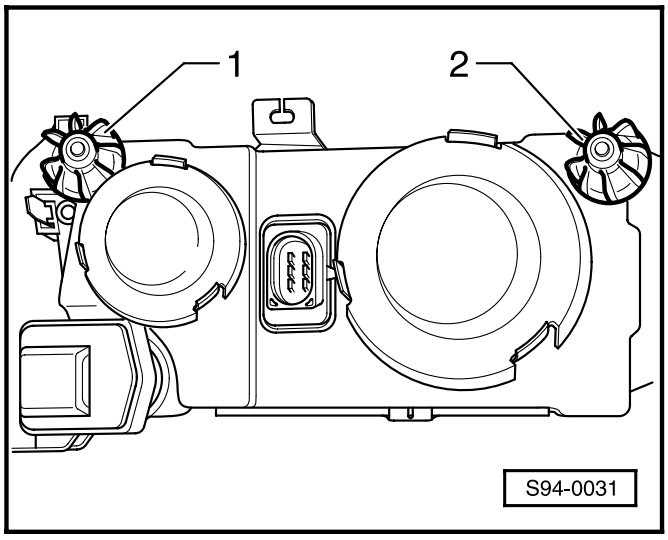
- Separate plug connection at headlight range adjustment motor.

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.

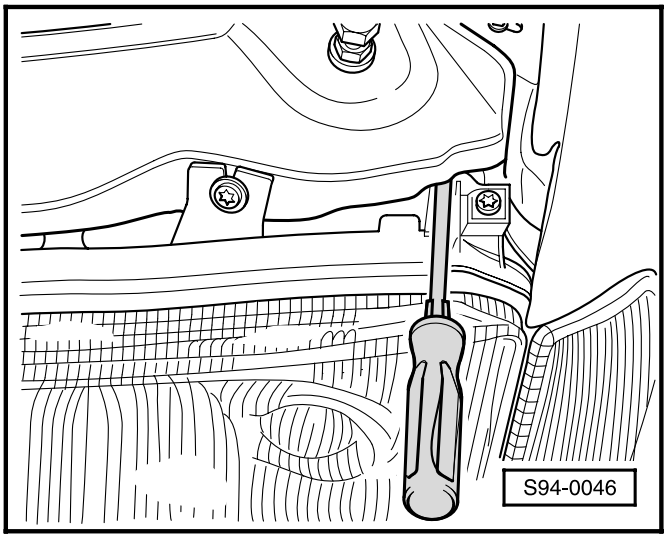
Models ➤ 07.00

◄ Adjusting screws at left-hand headlight.

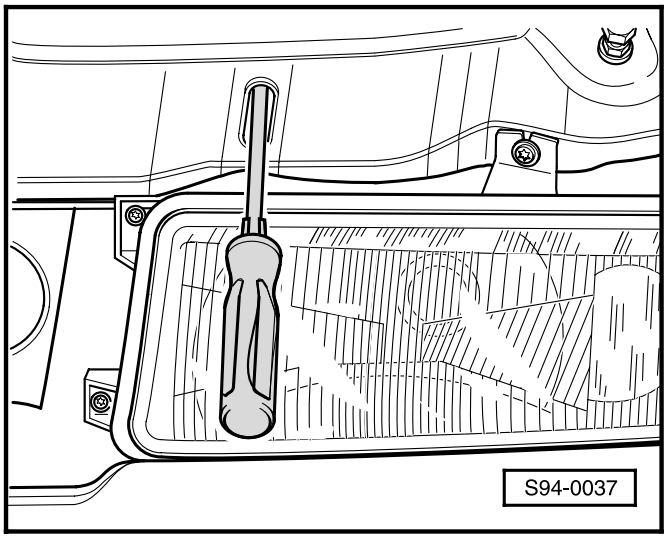
The position of the screws at the right-hand headlight is a mirror image.

1 - Screw for adjusting height

2 - Screw for lateral adjustment

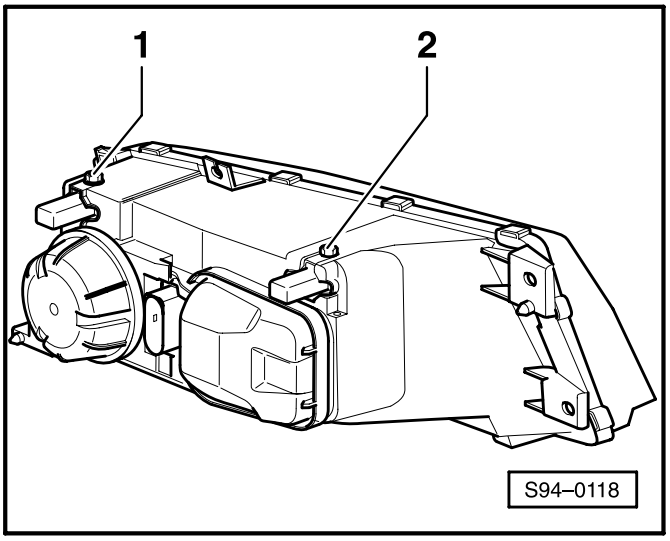


◄ - To adjust the height of the headlight, insert a screwdriver through the slot above the headlight and alter the position of the knurled wheel.



◄ - 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 ➤

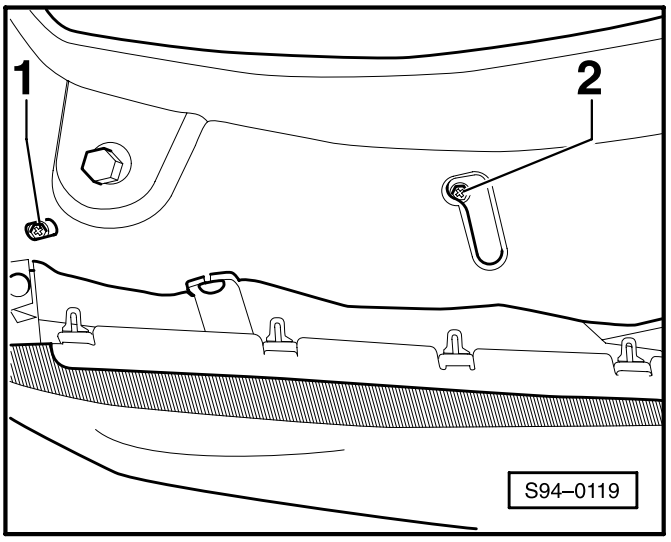


◄ Adjusting screws at left-hand headlight.

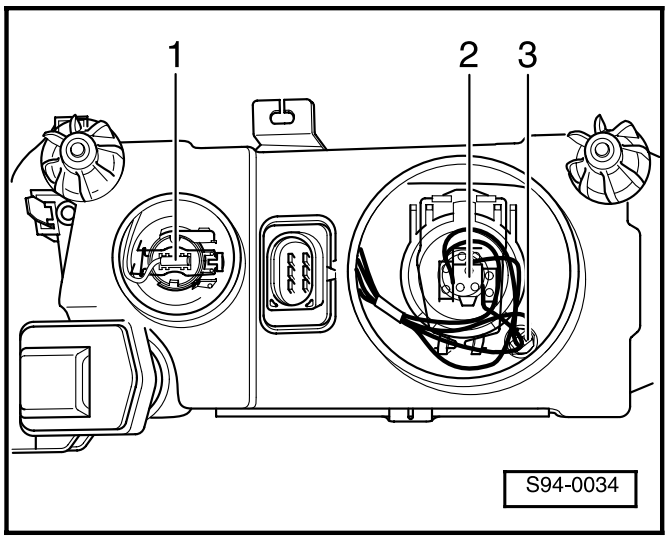
The position of the screws at the right-hand headlight is a mirror image.

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.

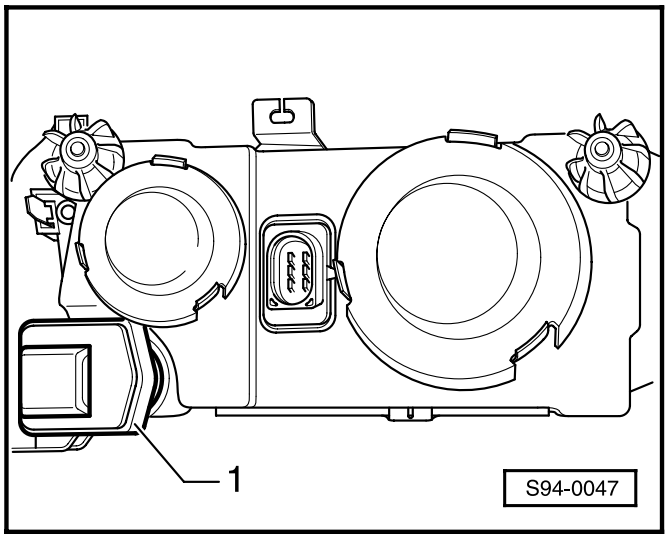
- Pull bulb together with holder -3- at the connector out of the reflector.

- 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.

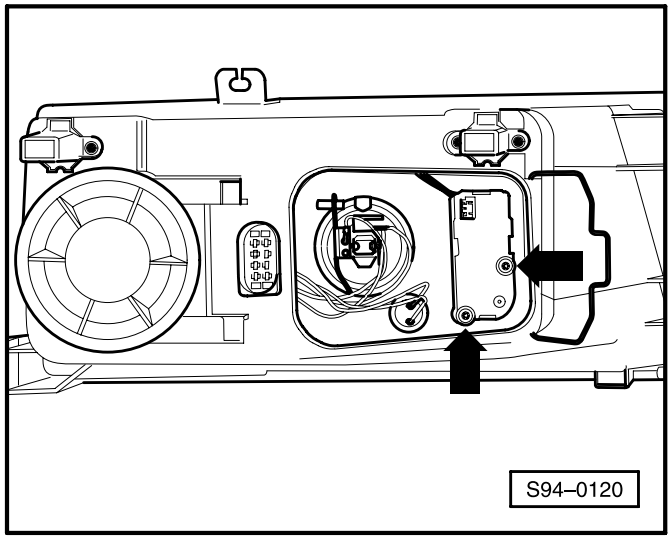
Models ➤ 07.00

◄- 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.

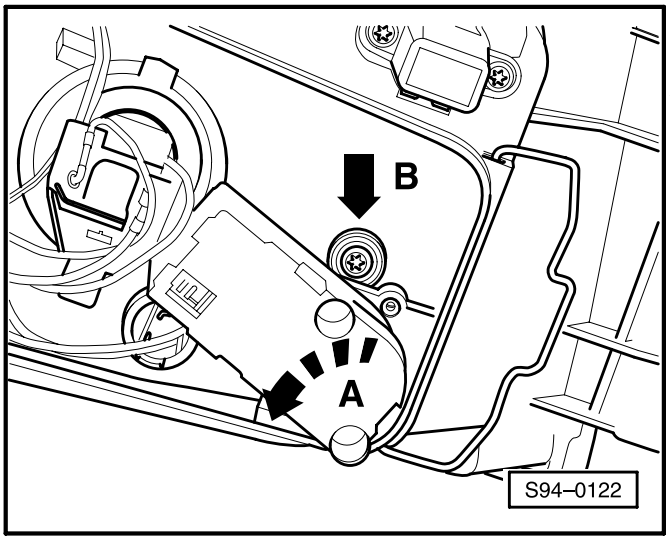


Models 08.00 ➤

- 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.

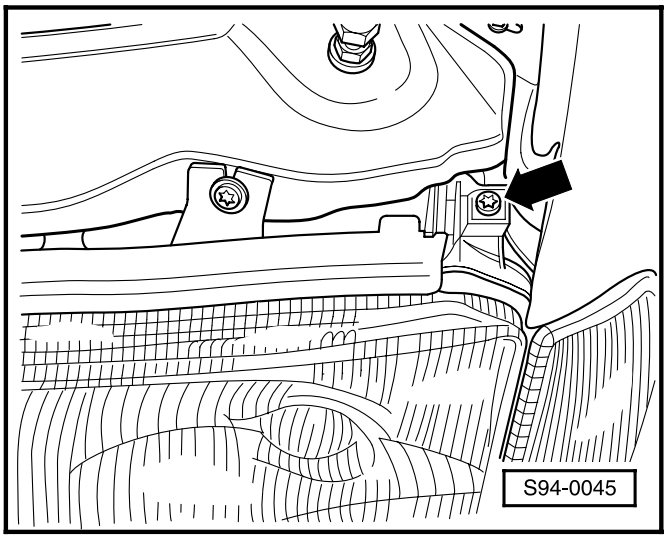
Servicing turn signal lights

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.



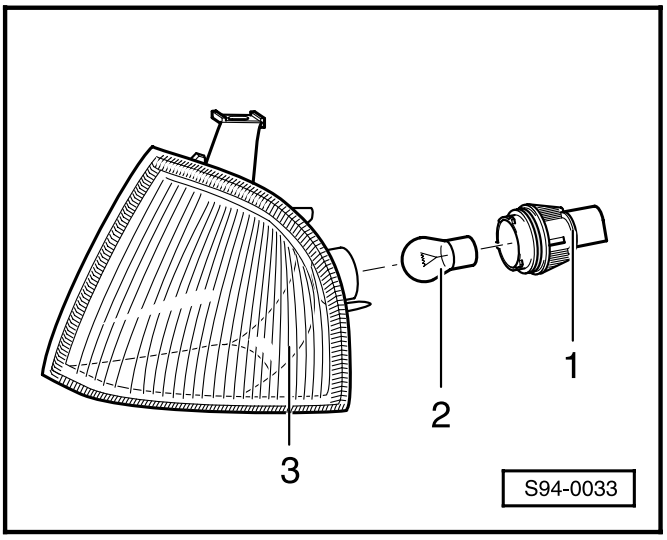
Removing:

- 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.

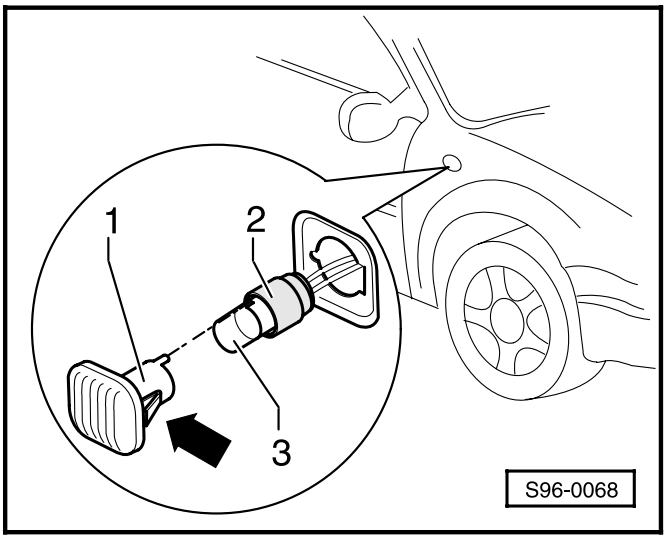
Bulb for turn signal light: 12 V, 21 W (orange)

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:

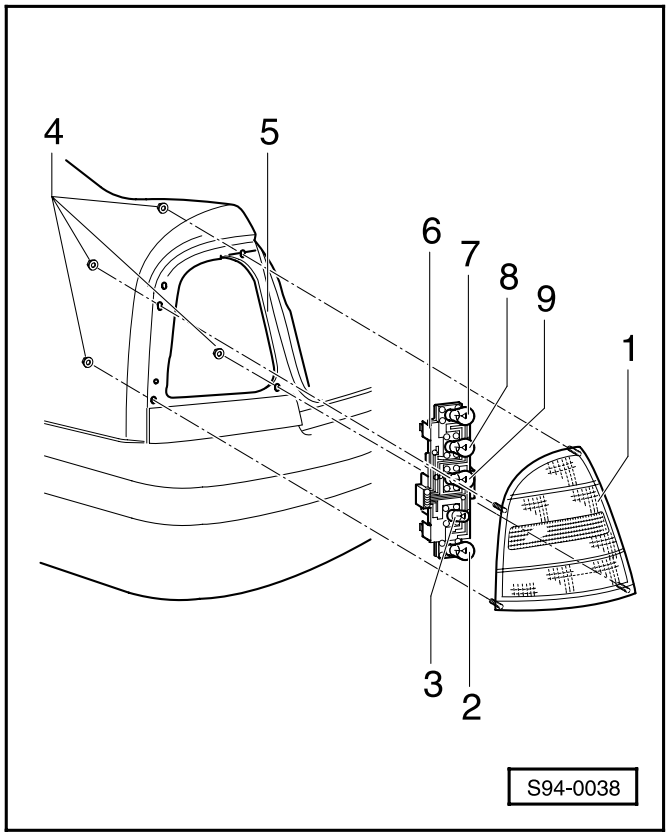
When installing the housing -1-, ensure that the guide lugs engage in the recesses of the socket -2-.

- 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

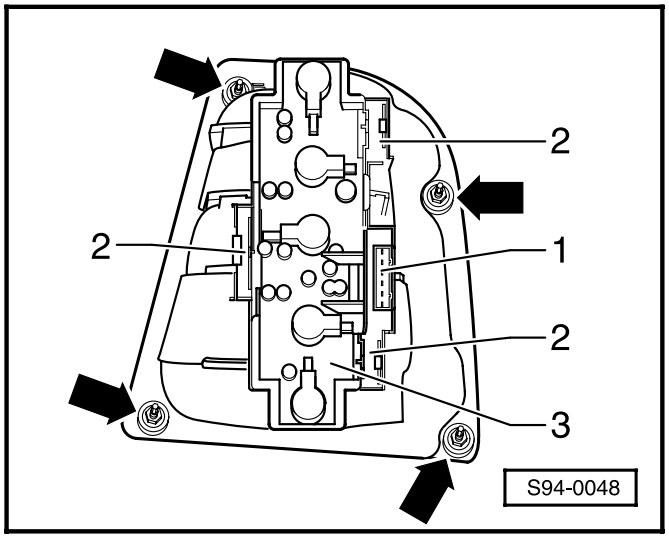
5 - Body

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

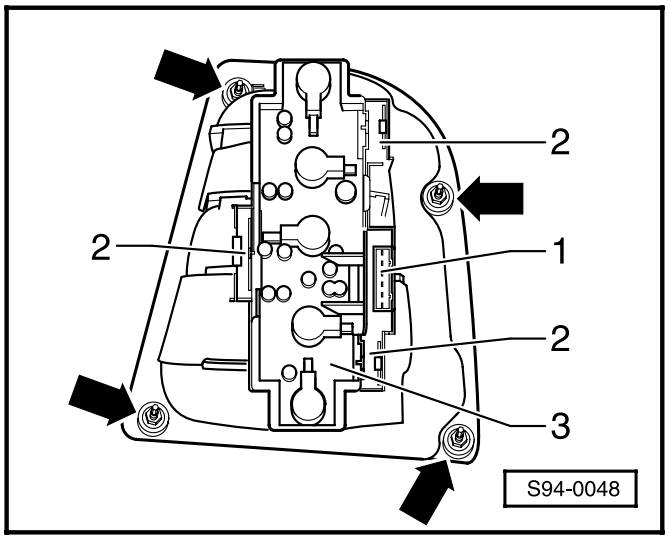


Removing and installing bulbs from the bulb holder

◄ - 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:

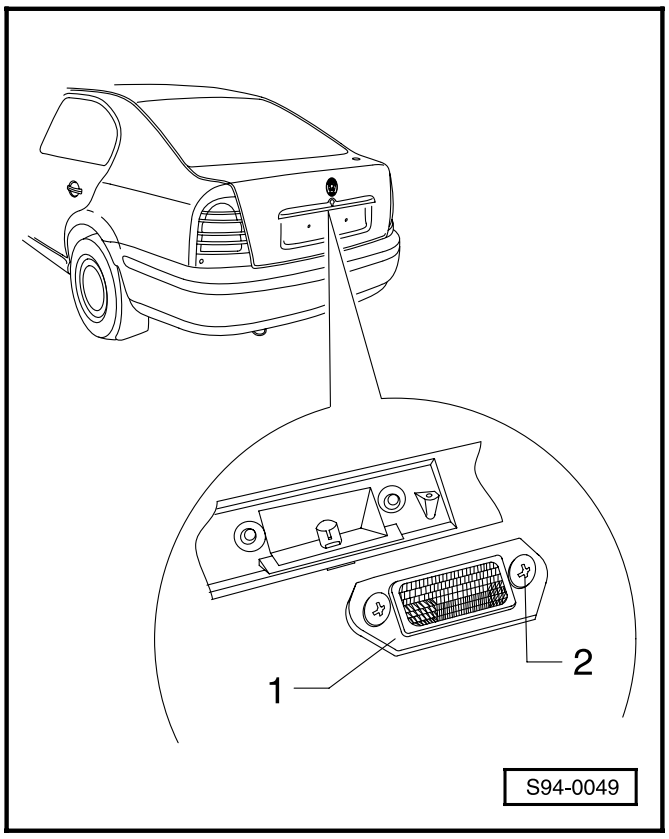
When installing, ensure that the seal between the body and the tail light housing provides a proper seal.

- 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

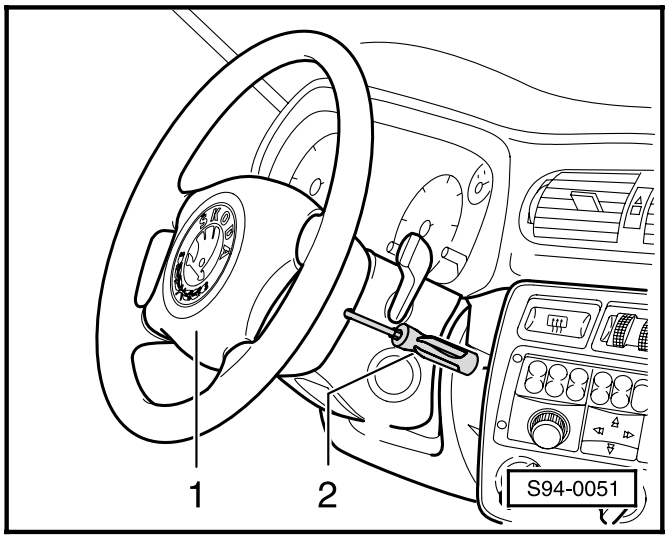
Removing:

- 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:

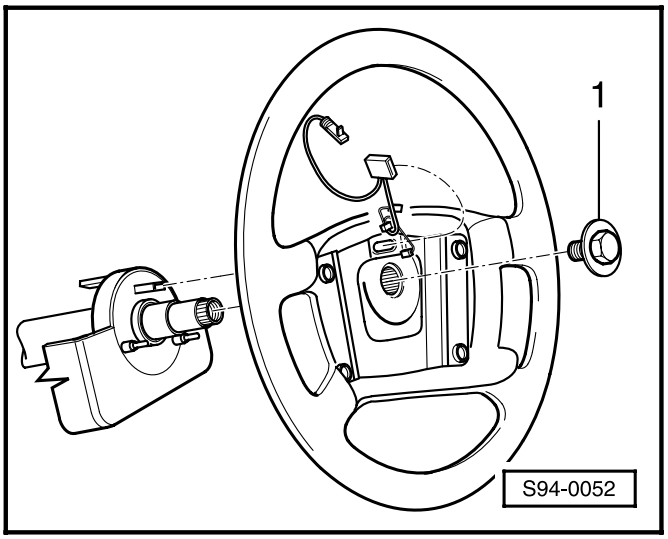
Always pay attention to the safety precautions for airbag systems when carrying out work on the components of the airbag system

⇒ 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.

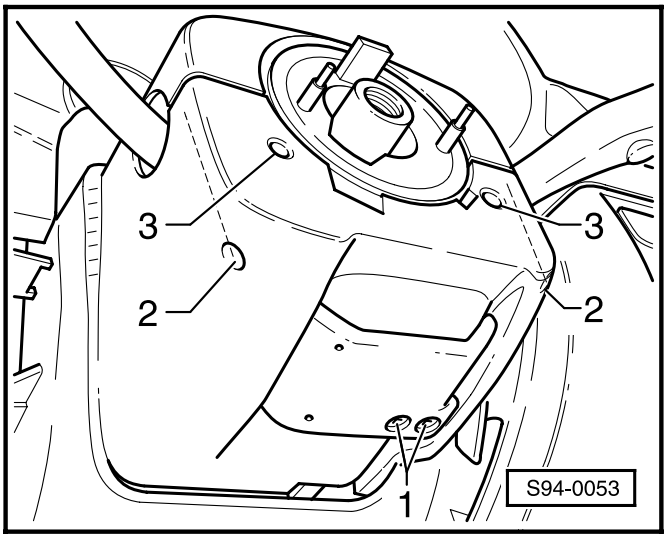
Important!

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.

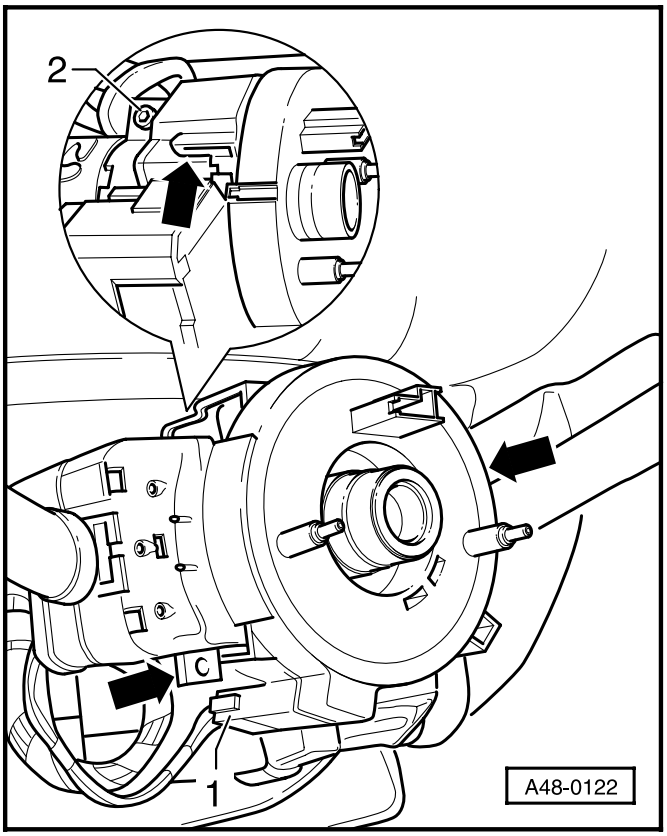


◄ - Slacken the two cross-head screws -1- and take off the handle for adjusting the steering wheel.

- 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-.

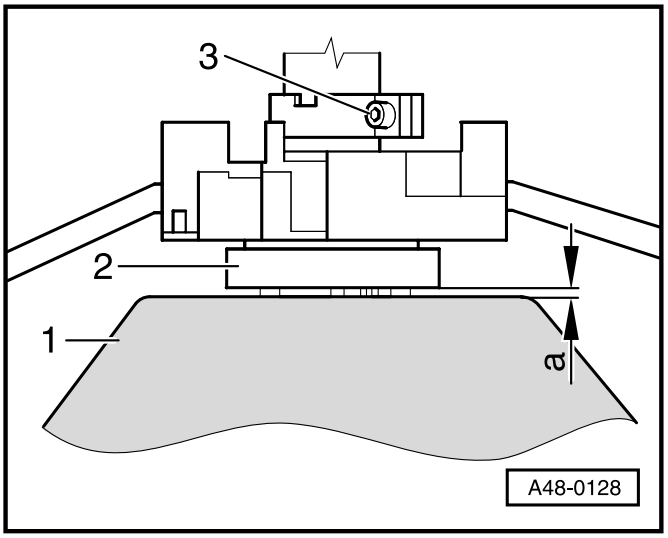
- Slacken hexagon socket screw (5 mm) -2- at the clamp until the steering column switch can be moved easily.

- 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.

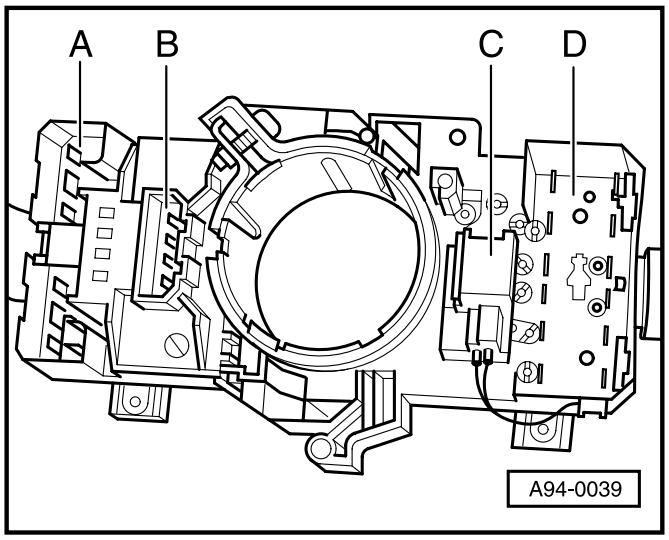
- Take steering column switch off the steering column and place down.



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.



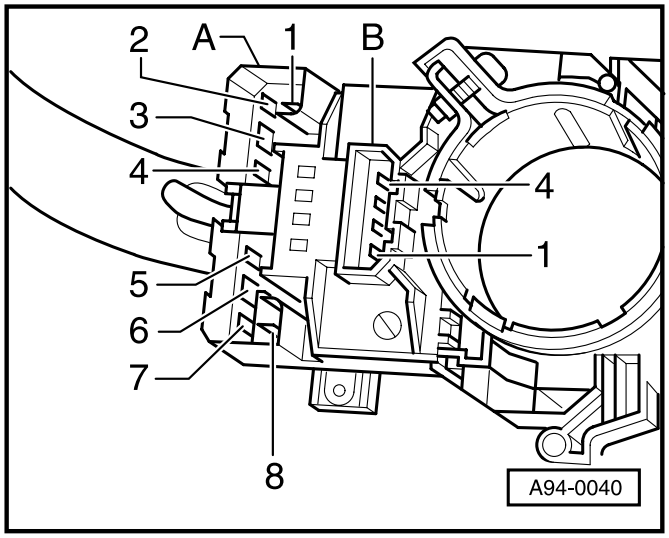
Contact assignment at steering column switch - up to MY 98

◄ 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

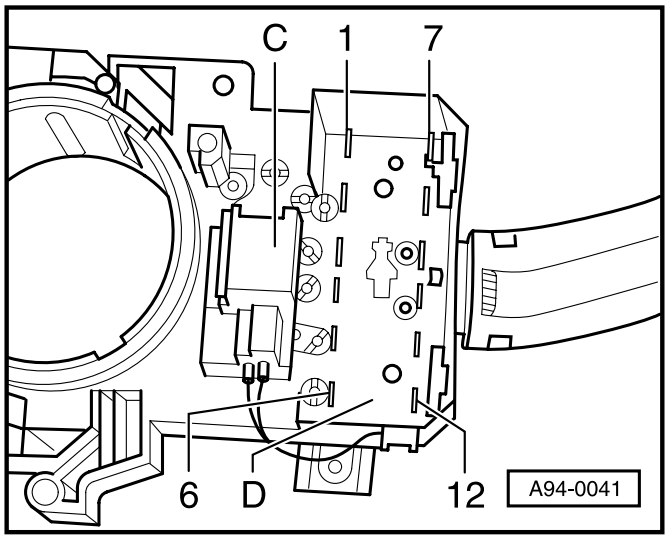
4 - Rear-window wiper

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

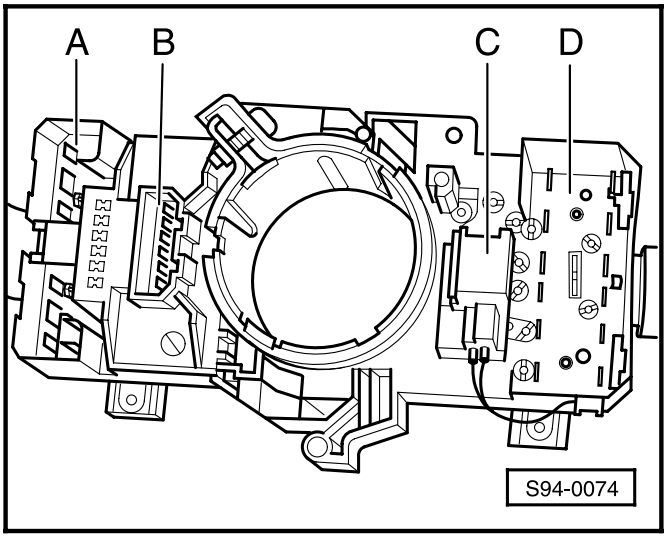
8 - Terminal 30

9 - Terminal L

10 - Terminal P

11 - Terminal 49a

12 - Terminal 71



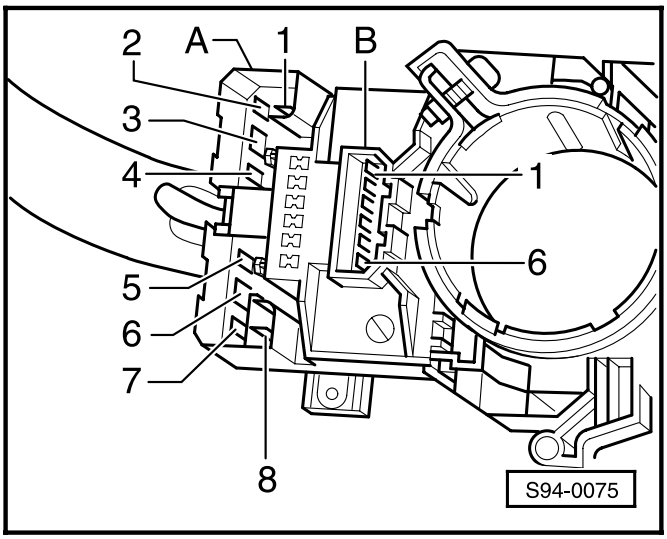
Contact assignment at steering column switch - as from MY 99

◄ 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

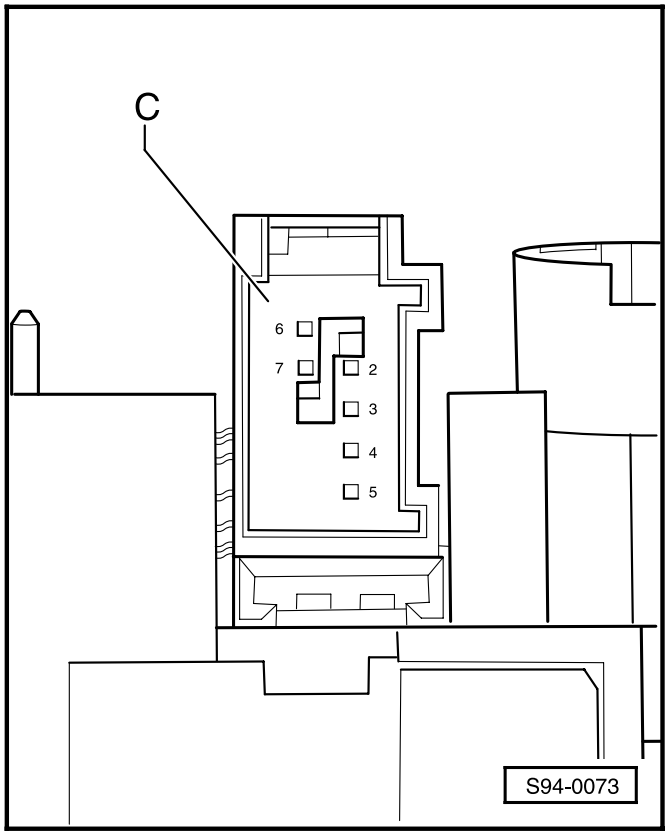
2 - MFI - bottom function selection

3 - MFI - Terminal 31

4 - MFI - Reset/change-over switch level ½

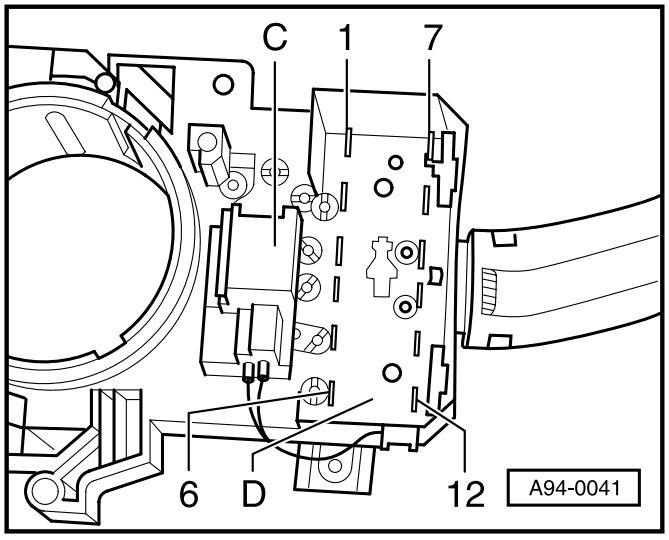
5 - Control unit for windscreen wiper interval control (POT)

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!

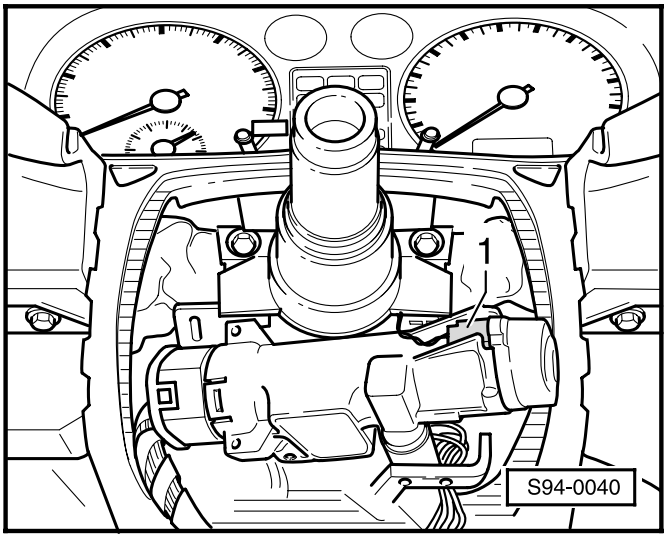
Before carrying out any work on the electrical system, disconnect earth strap of the battery.

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:

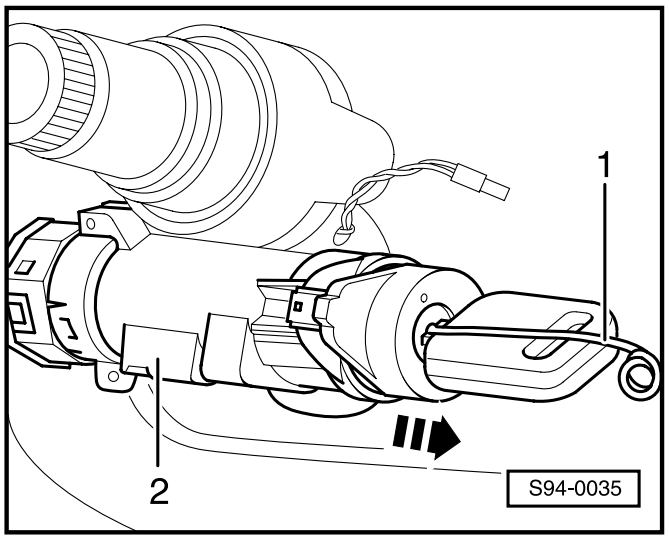


- Move the adjustable steering column fully down.

- 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 ∅ 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.

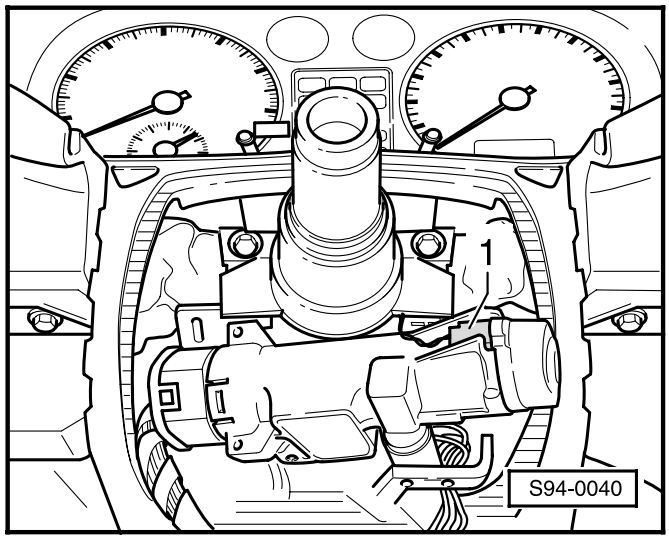
Note:

- *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:

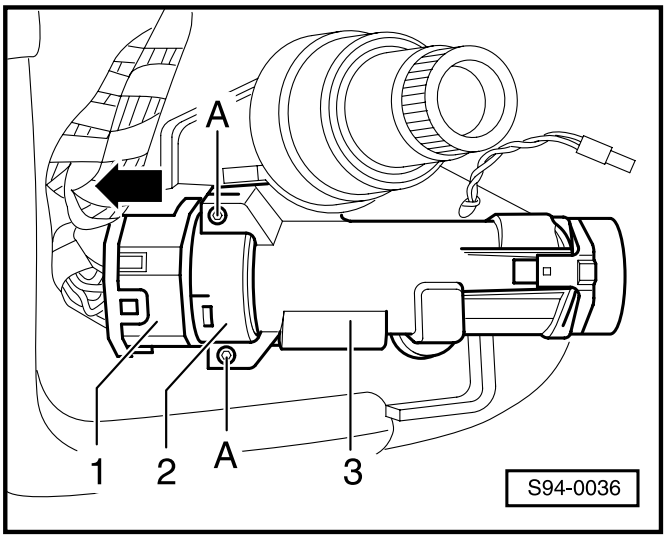
- Insert ignition key into ignition lock and turn into position „Ignition ON“.
- Push lock cylinder together with ignition key fully into steering lock housing.
- Fit together the electrical plug connection at the immobiliser reader coil.

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-.

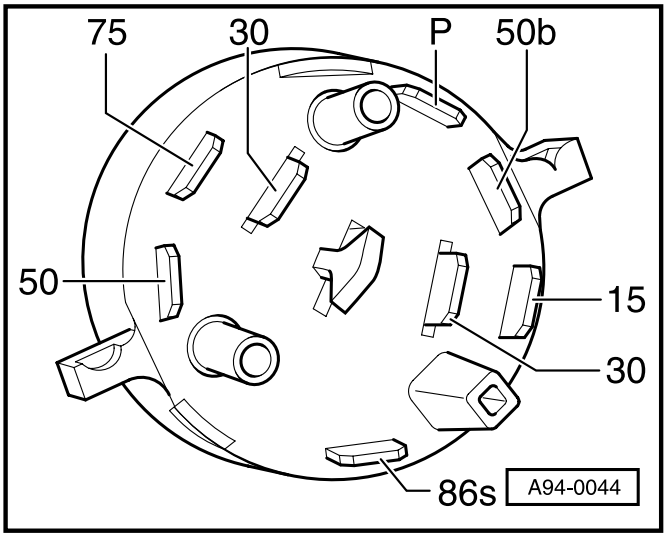
- Slacken the securing screws -A- slightly and pull the ignition/starter switch -2- out of the steering lock housing -3- in direction of arrow.

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.

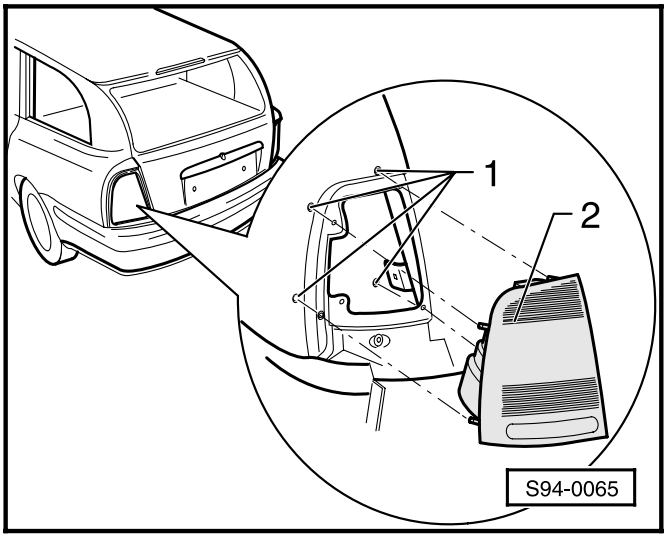
Notes:

- *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

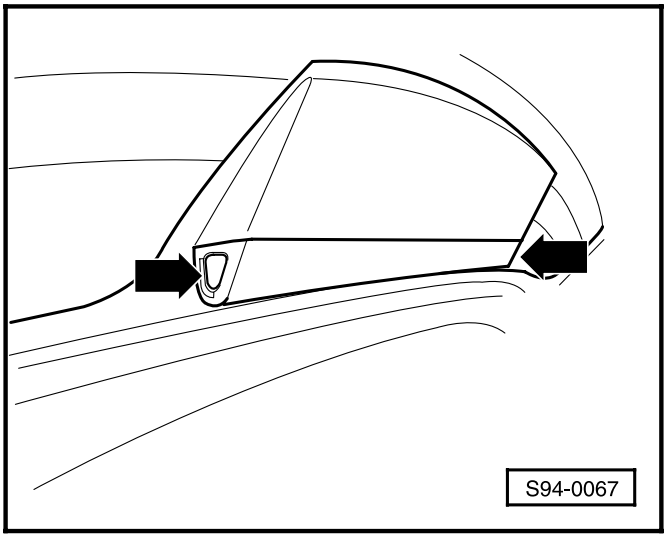
Warning!

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

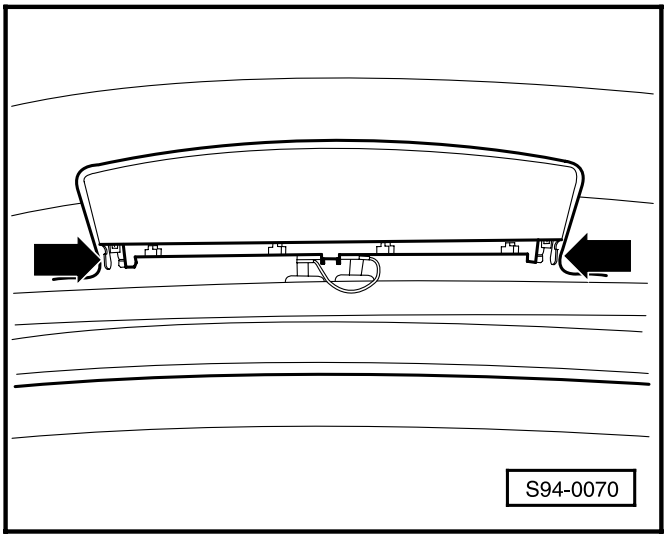
The centre high-mounted brake light is installed in the top part of the boot lid, directly at the rear window.

Removing

- Open the boot lid.

◄ - Press in the catches on the right and left -arrows- and pull the bulb holder down.

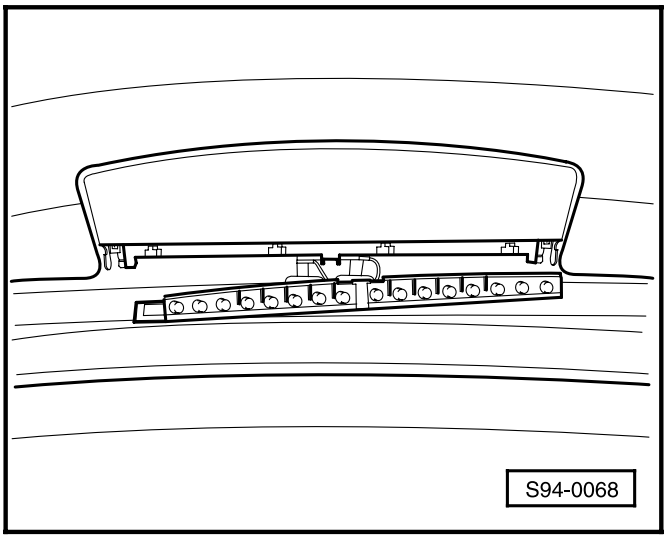
- Detach the plug connection.



◄ - 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:

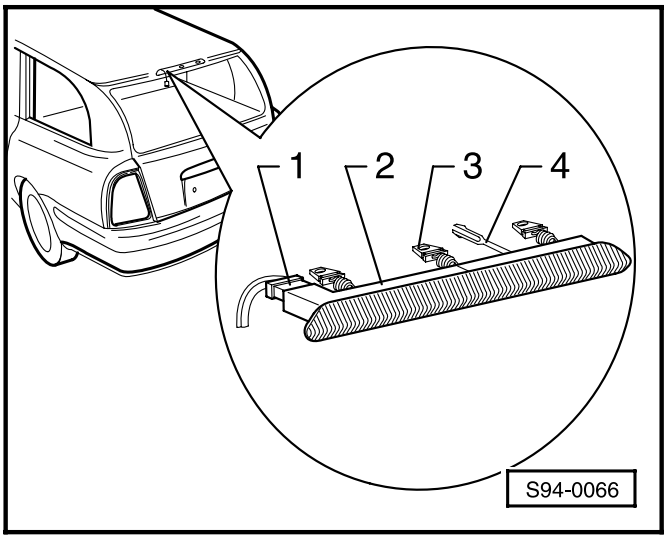
The bulbs do not have a base and can be replaced by hand.

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.

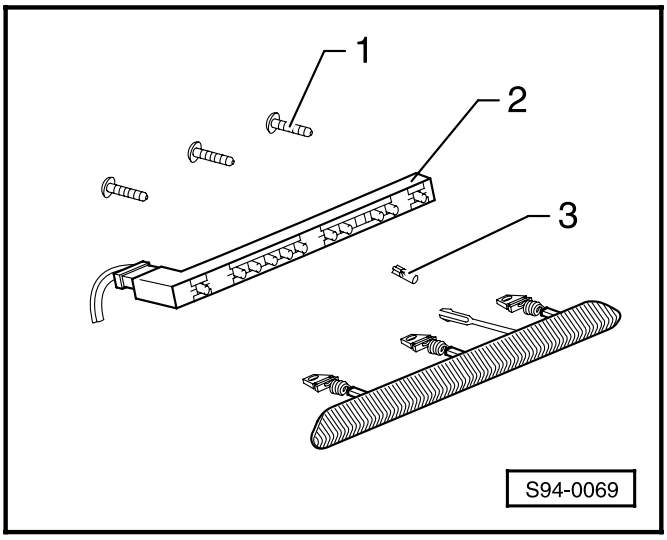
- Close the tailgate.

- 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:

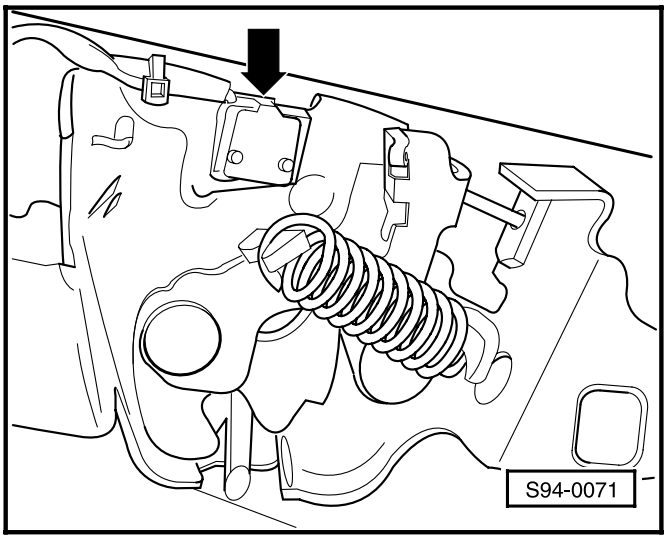
◄ - Remove the cross-head screws (3x) -1- from the bulb holder -2-.

- 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.

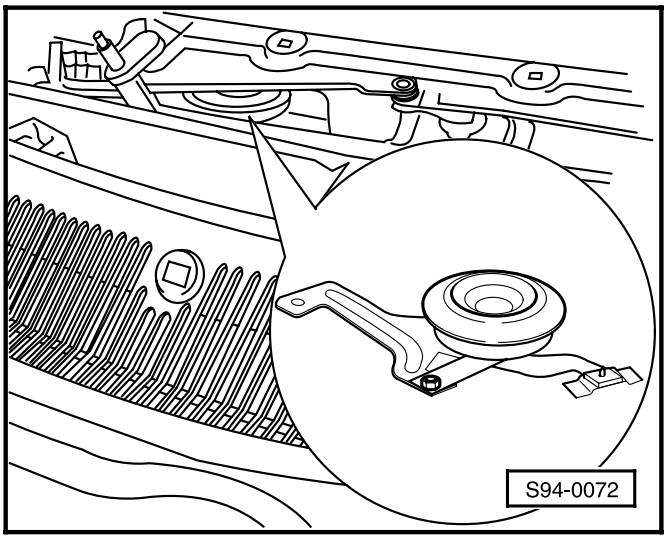
◄- Use a flat screwdriver to carefully lever out the contact switch from the feather spring -arrow-.

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.

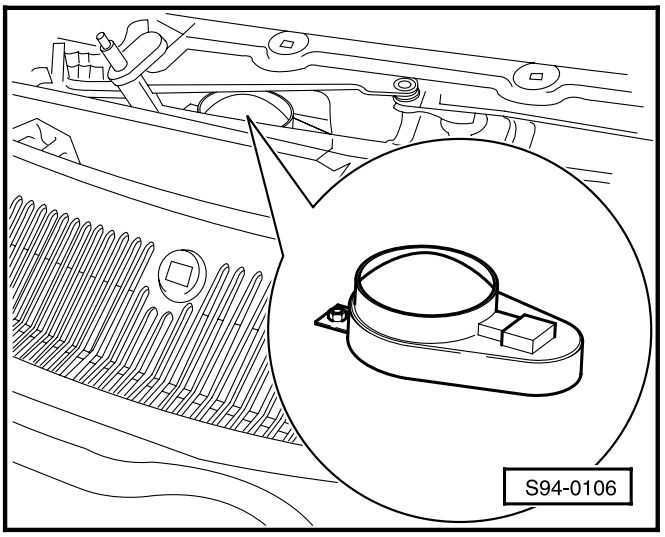
- Remove horn from holder.

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.

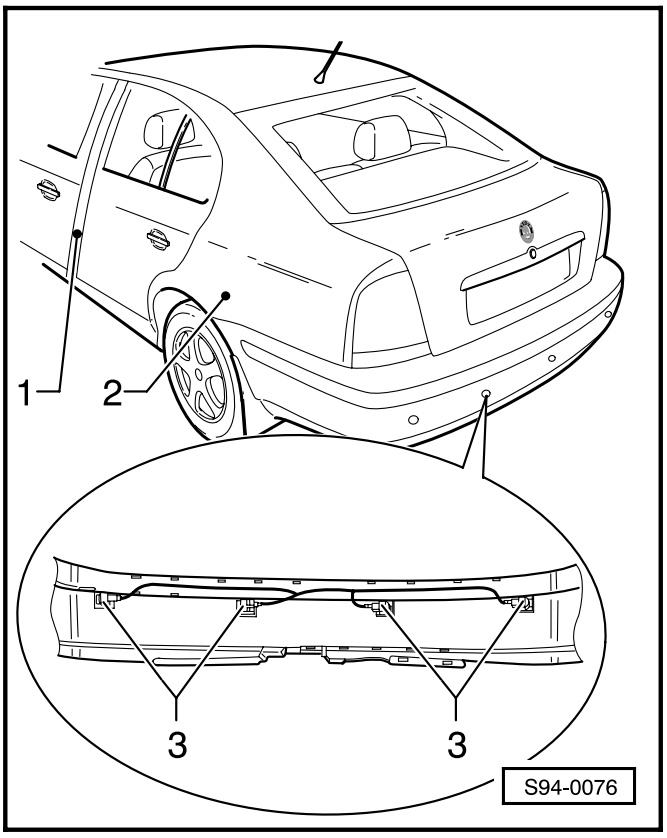
◄- Remove the horn with the holder from the plenum chamber and disconnect the plug connection.

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.

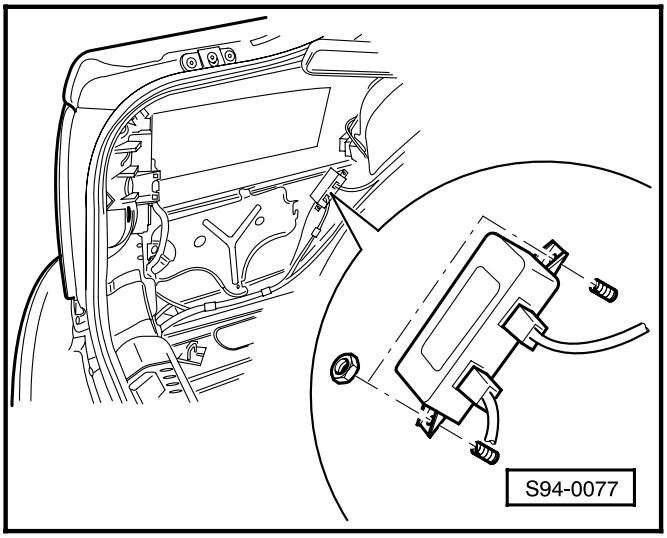
⇒ Inspection and Maintenance

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.

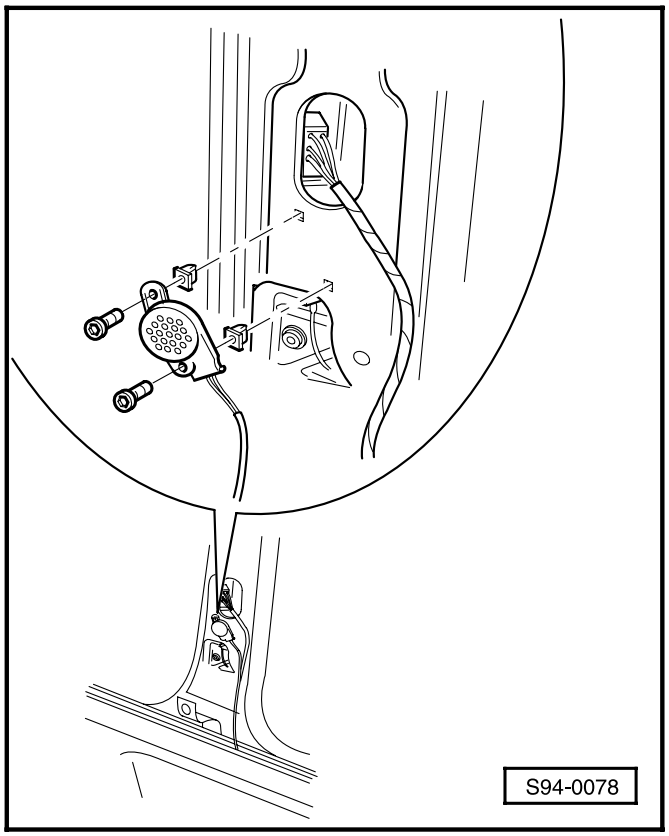
⇒ Body Fitting Work; Repair Group 70; Trim panels of cargo area and luggage compartment; Removing and installing side luggage compartment trim panel

◄- 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

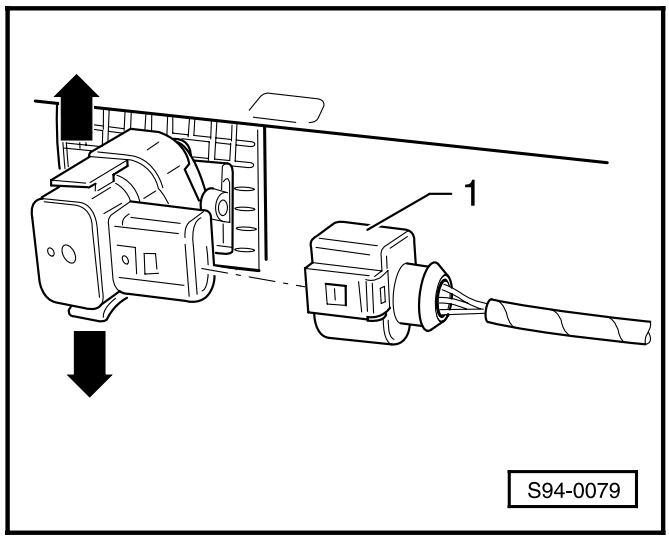
Removing:

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

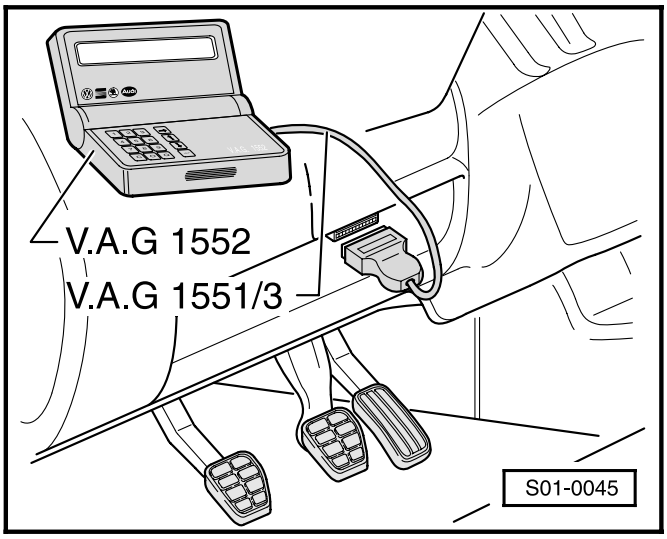
Initiating self-diagnosis of parking aid

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	HELP
Enter address word XX	

◄ 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	0001 →
Coding 00103	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	HELP
Control unit does not answer!	

◄ *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	HELP
Fault in communication build-up	

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

Test of vehicle systems	HELP
K wire not switching to earth	

Test of vehicle systems	HELP
K wire not switching to positive	

- 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 HELP Select function XX

◄ 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 HELP Select function XX

◄ 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 HELP Select function XX

◄ 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
01543 **Parking aid warning buzzer -H15** Short circuit to earth	♦ Short circuit between -H15 and earth ♦ Warning buzzer faulty	No warning provided when reversing	- Fault finding according to current flow diagram - Replace H15
01545 **Rear left parking aid sensor -G203** Short circuit to positive Short circuit to earth	♦ Short circuit between -G203 and control unit and earth ♦ G203 faulty	No warning provided when reversing	- Fault finding according to current flow diagram - Replace G203
01546 **Rear left, middle parking aid sensor -G204** Short circuit to positive Short circuit to earth	♦ Short circuit between -G204 and control unit and earth ♦ G204 faulty	No warning provided when reversing	- Fault finding according to current flow diagram - Replace G204
01547 **Rear right, middle parking aid sensor -G205** Short circuit to positive Short circuit to earth	♦ Short circuit between -G205 and control unit and earth ♦ G205 faulty	No warning provided when reversing	- Fault finding according to current flow diagram - Replace G205

Readout on V.A.G 1552	Possible cause of fault	Possible effects	Rectifying fault
01548 **Rear right parking aid sensor -G206** Short circuit to positive Short circuit to earth	♦ Short circuit between -G206 and control unit and earth ♦ G206 faulty	No warning provided when reversing	- Fault finding according to current flow diagram - Replace G206
01549 **Supply voltage for parking aid sensors** 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
65535 **Control unit defective**	♦ 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 [1]
		1			with function acknowledgement [1]
			0		Octavia and Octavia Estate
				3	Škoda

[1] 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

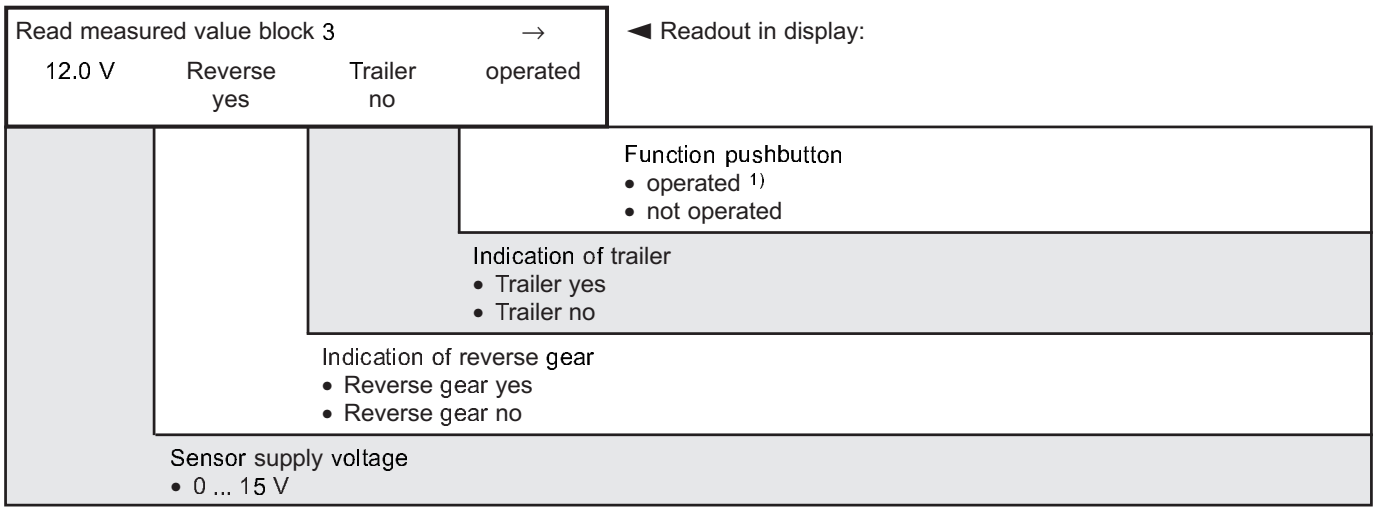
Read measured value block 1 →				◄ Readout in display:
50 cm	110 cm	90 cm	50 cm	
				Distance from rear right sensor • 0 ... 200 cm
				Distance from rear right, middle sensor • 0 ... 200 cm
				Distance from rear left, middle sensor • 0 ... 200 cm
				Distance from rear left sensor • 0 ... 200 cm

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 [1]
				Warning buzzer • Signal on • Signal off
				Vehicle speed • 0 ... 300 km/h
				Minimum distance • Minimum value of the four measured distances

[1] Readout also if indicator lamp is not fitted.

Measured value block 003



1) 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 HELP Select function XX	◄ Readout in display: - Press keys 1 and 0 and confirm the entry with the key Q.
Adaptation 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 → 〈– ↑ ↓–〉	◄ Readout in display: - Press → key.
Channel 01 Adaptation 6 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 6 Q Enter adaptation value 00005	◄ Readout in display: - Confirm the entry with the key Q.
Channel 01 Adaptation 5 Q 〈– ↑ ↓–〉	◄ Readout in display: - Confirm the entry with the key Q.
Channel 01 Adaptation 5 Q Store changed value?	◄ Readout in display: - Confirm the entry with the key Q.
Channel 01 Adaptation 5 → Changed value is stored	◄ Readout in display: - End adaptation of volume by pressing the → key.
Test of vehicle systems HELP Select function XX	◄ 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

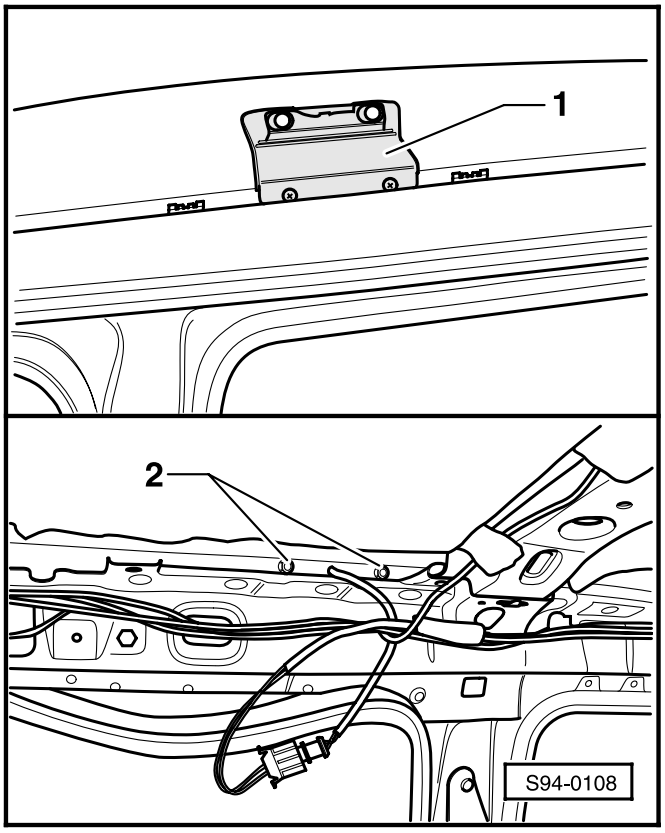
- Remove roof rack

⇒ 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 headlights 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

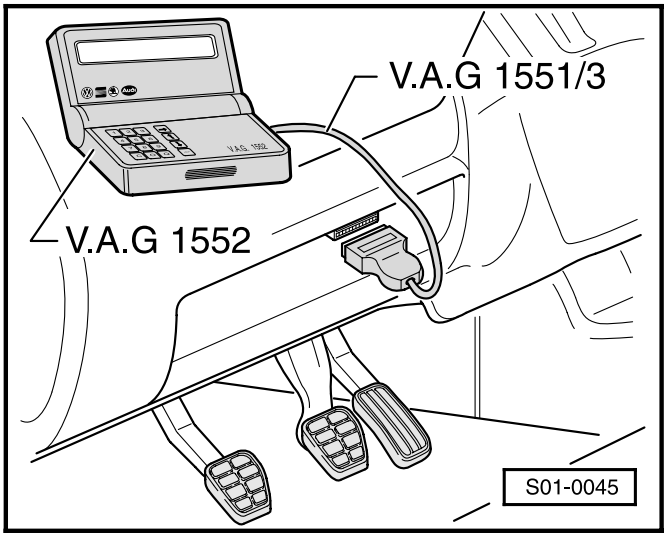
- Vehicle system tester V.A.G 1552 with cable V.A.G 1551/3, 3A, 3B or 3C

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	HELP
Enter address word XX	

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 HELP Select function XX	◄ 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 HELP Select function XX	◄ 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[1)] ♦ no fault recognised	If „No fault recognised“ is displayed after completing repairs, self-diagnosis is ended.	
65535 000[1)] ♦ control unit defective	♦ Internal failure of control unit ♦ Internal failure of ECU on ignition of gas discharge bulb	- Replace control unit
00496 Front vehicle level sensor ♦ signal too small ♦ signal too large	♦ Sensor main wiring loom faulty ♦ Sensor faulty	- Test main wiring loom and sensor cable ⇒ Current Flow Diagrams, Fault Finding and Fitting Locations - Replace front sensor
00497 Rear vehicle level sensor ♦ signal too small ♦ signal too large	♦ Sensor main wiring loom faulty ♦ Sensor faulty	- Test main wiring loom and sensor cable ⇒ Current Flow Diagrams, Fault Finding and Fitting Locations - Replace rear sensor
00546 Dataline defective ♦ implausible signal	♦ Slave receiving incorrect communication signal	- Test main wiring loom between master ECU and slave sensor cable - Test master - Replace slave ECU
01344 Gas discharge bulb ♦ signal not to tolerance	♦ Static voltage on ignition of discharge bulb not within permissible range (after 3 minutes ignition time) ♦ Gas discharge bulb faulty ♦ Gas discharge bulb is at end of life	- Replace gas discharge bulb
01345 Gas discharge bulb ignition module -N195 ♦ implausible signal	♦ Ignition of gas discharge bulb not successful	- If fault 01344 is stored, replace gas discharge bulb - Otherwise, replace ignition/high voltage unit
♦ defective	♦ Electrical fault at high voltage unit when preparing ignition/artificial light source ♦ Ignition/high voltage unit is faulty ♦ Ignition/high voltage unit missing or plug connection is not correctly plugged in	- Test main wiring loom between ECU and ignition/high voltage unit - Replace ignition/high voltage unit
01344 Gas discharge bulb ♦ defective	♦ Ignition of gas discharge bulb is not possible	- Replace gas discharge bulb