

Workshop Manual

Audi A3 1997 ►

Booklet Electrical system

Edition 11.01

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Audi A3 1997 ▶

Electrical system
Edition 11.01

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Technical Information should always be available to all foremen and mechanics, because their compliance with the instructions given is essential to ensure vehicle roadworthiness and safety. In the normal safety precautions to be observed when working on motor vehicles are also applicable.

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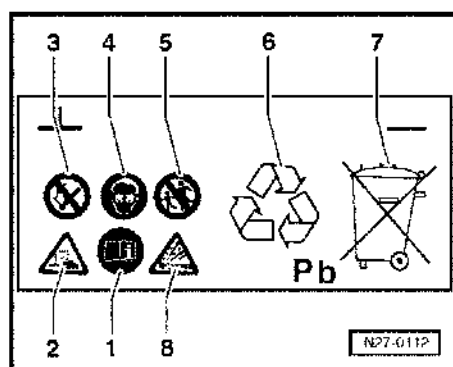
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Battery

The battery is one of the most important electrical components in the vehicle. Its proper functioning is a major factor in ensuring customer satisfaction. To guarantee a long service life, the battery must be checked, serviced and maintained as described in this manual.

In addition to its starting function, the battery acts as back-up and supplies power for the entire electrical system.

27-1

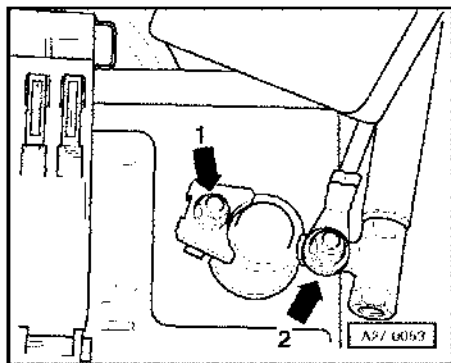


Hazard warning information and safety regulations relating to lead-acid batteries

- Pay attention to information given on battery, in electrical system workshop manual and in owner's manual.
- 2 - Danger of acid burns:
 - Electrolyte is highly corrosive; protective gloves and eye protection are therefore always to be worn.
 - Never tilt battery, as electrolyte may escape from vents.
- 3 - Fire, sparks, naked flames and smoking prohibited:
 - Take care to avoid sparks when handling cables and electrical equipment.
 - Take care to avoid short circuits.
- 4 - Wear eye protection.
- 5 - Keep electrolyte and batteries out of children's reach.
- 6 - Disposal:
 - Old batteries are never to be disposed of with domestic refuse.
- 7 - Old batteries are never to be disposed of with domestic refuse.
- 8 - Danger of explosion:
 - Battery charging produces a highly explosive gas mixture.

27-2

Notes on battery handling



Notes:

- ◆ Battery posts are no longer to be greased.
- ◆ Battery terminals are only to be connected by hand without applying force so as not to damage the battery casing.
- ◆ Tightening torque for battery terminals: 6 Nm -arrow 1-
- ◆ Tightening torque of additional terminals at battery terminals: 6 Nm -arrow 2-

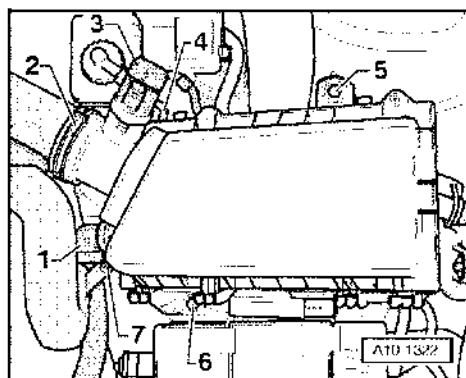
27-3

Removing battery – Audi A3 up to Model Year 2000

Attention:

On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Switch off ignition.

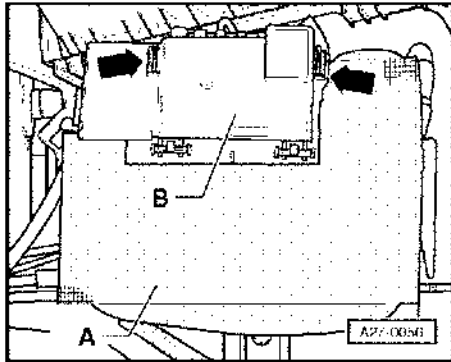


- ◆ - If fitted, disconnect air intake hose for secondary air pump -1- from air cleaner housing.
- If fitted, screw out bolt -7-.
- Detach air hose -2- at air-mass meter.
- Unplug connector -3- at air-mass meter.
- Screw out bolts -5- and -6-.

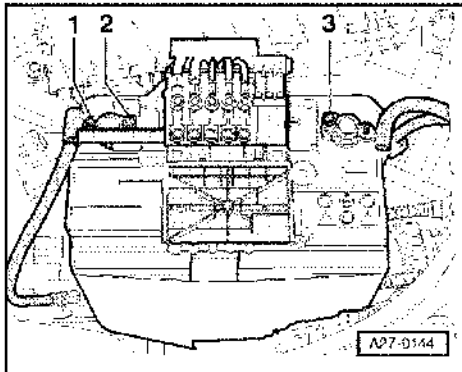
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27-4

- Take out air cleaner housing and detach breather hose -4- at rear if fitted.

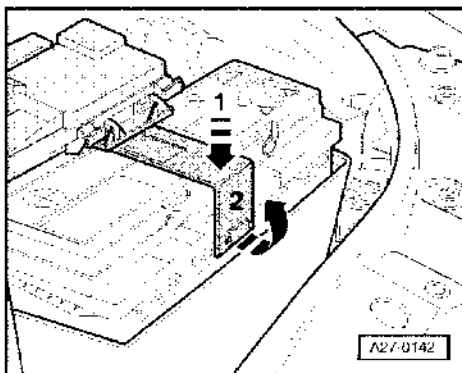


- ◀ - If fitted, open upper protective cover of battery -A- (velcro fastener).
- Press release tabs -arrows- and open lid -B- of main fuse box.

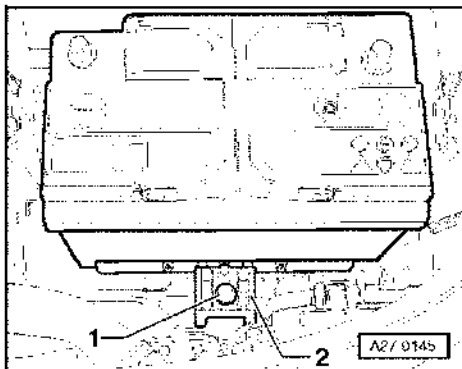


- ◀ - Unfasten nut -3- several turns and disconnect pole shoe of earth wire from battery post.
- Unscrew nut -1- and detach busbar for main fuse box at pole shoe of positive wire.
- Unfasten nut -2- several turns and disconnect pole shoe of positive wire from battery post.

27-5



- ◀ - Release retainer for main fuse box. To do so, press down front edge of retainer -arrow 1- and at the same time detach retainer from battery in direction of travel -arrow 2-.
- Fold back main fuse box and lift off protective cover for battery.



- ◀ - Screw out hexagon bolt -1- at battery bracket -2-.
- Pull battery out of fastening strip of battery bracket.
- Lift battery out of engine compartment.
- Install battery => Page 27-13.

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27-6

Removing battery – Audi A3 as of Model Year 2001

Attention:

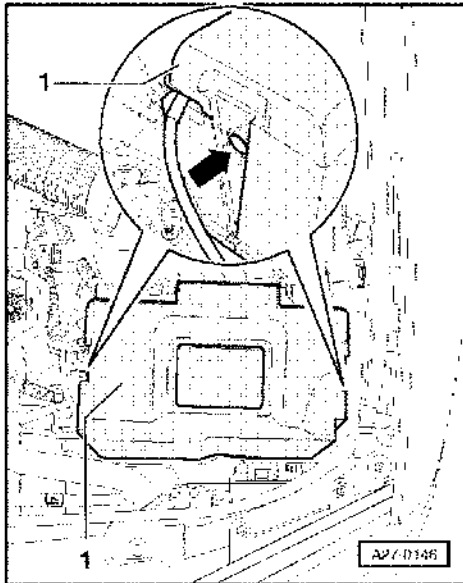
On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

– Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).

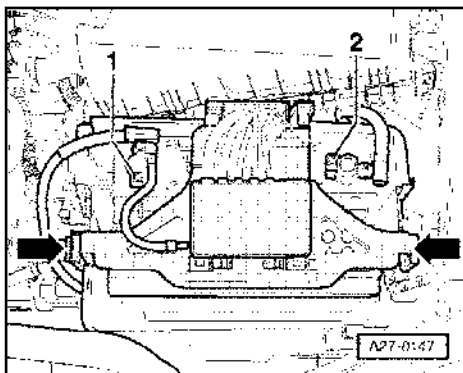
– Switch off ignition.

– Remove cover -1- over battery. To do so, press both release tabs

-arrow-.



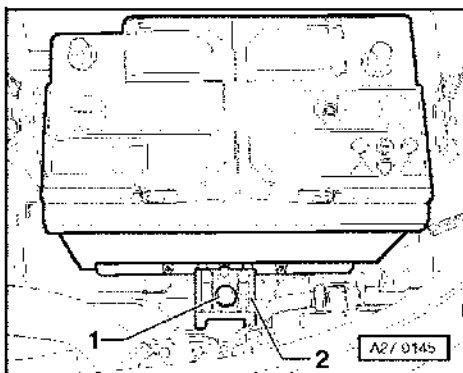
27-7



– Unfasten nut -2- several turns and disconnect pole shoe of earth wire from battery post.

– Unfasten nut -1- several turns and disconnect pole shoe of positive wire from battery post.

– Press release tabs -arrows- and fold back main fuse box.



– Screw out hexagon bolt -1- at battery bracket -2-.

– Pull battery out of fastening strip of battery bracket.

– Lift battery out of engine compartment.

– Install battery => Page 27-13.

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27-8

Removing battery – Audi S3

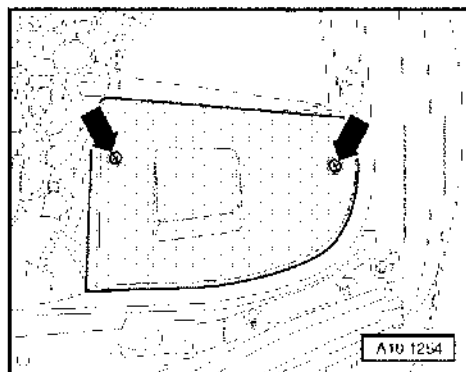
Removing

Attention:

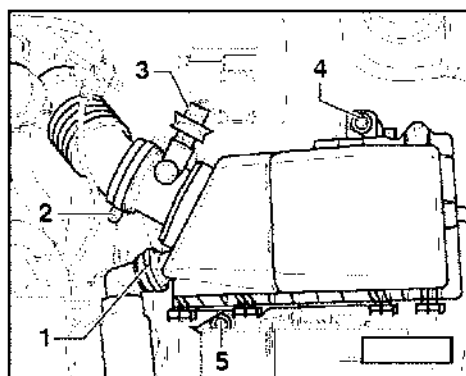
On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Switch off ignition.

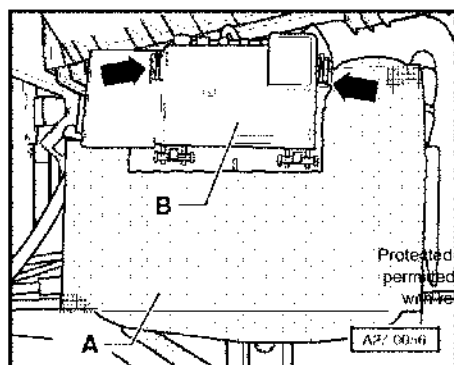
- ◀ - If fitted, remove front left cover -arrows-.



27-9



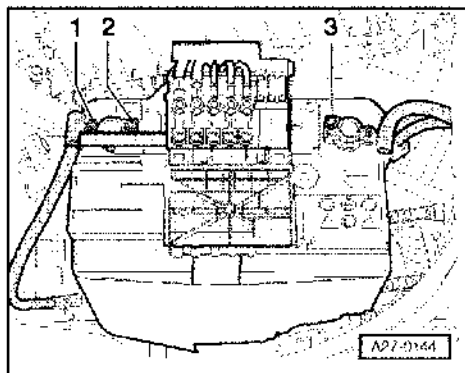
- ◀ - If fitted, disconnect air intake hose for secondary air pump -1- from air cleaner housing.
- Detach air hose at air-mass meter -2-.
- Unplug connector for air-mass meter -3-.
- Screw out bolts -4- and -5-.
- Take out air cleaner housing.



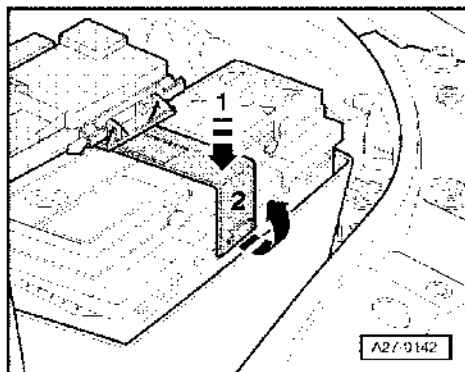
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- ◀ - If fitted, open upper protective cover of battery -A- (velcro fastener).
- Press release tabs -arrows- and open lid -B- of main fuse box.

27-10

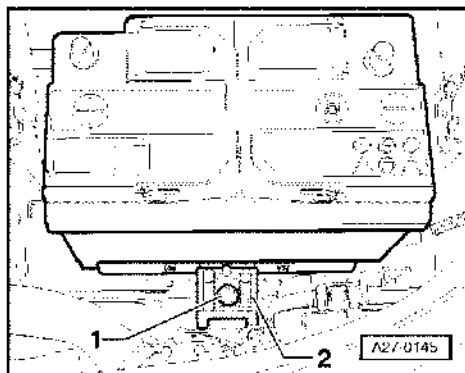


- ◀ - Unfasten nut -3- several turns and disconnect pole shoe of earth wire from battery post.
- Unscrew nut -1- and detach busbar for main fuse box at pole shoe of positive wire.
- Unfasten nut -2- several turns and disconnect pole shoe of positive wire from battery post.



- ◀ - Release retainer for main fuse box. To do so, press down front edge of retainer -arrow 1- and at the same time detach retainer from battery in direction of travel -arrow 2-.
- Fold back main fuse box and lift off protective cover for battery.

— 27-11 —



- ◀ - Screw out hexagon bolt -1- at battery bracket -2-.
- Pull battery out of fastening strip of battery bracket.
- Lift battery out of engine compartment.
- Install battery => Page 27-13.

— 27-12 —

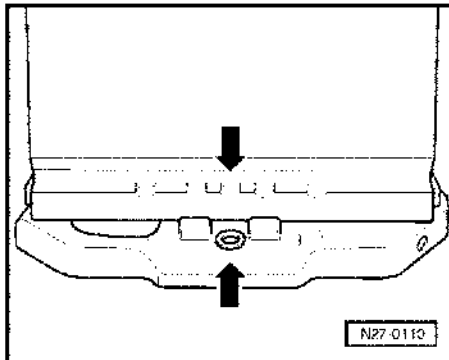
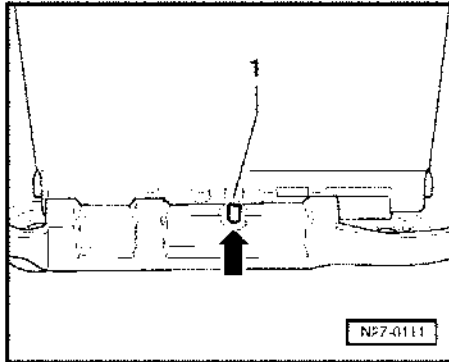
Installing battery

Note:

Batteries from the Audi parts range feature a base strip adapter for matching to different fastening strips.

When and how the base strip adapter is to be used is described in the battery operating instructions.

- Insert battery in battery carrier such that lug of battery carrier at rear -arrow- engages in recess in battery base strip -1-.
- It should no longer be possible to move battery

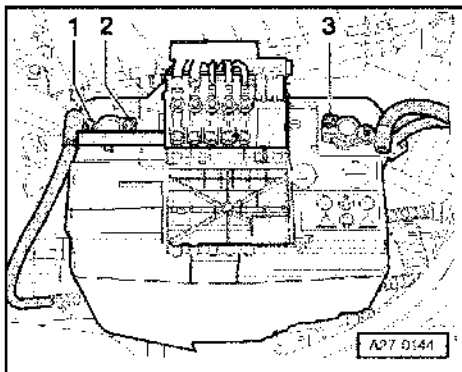


- Battery has been properly inserted if centre recess in battery base strip coincides with tapped hole in battery carrier -arrows-.

27-13

Perform further installation in reverse order, paying attention to the following:

- Pay attention to notes on battery central gas venting system
=> Page 27-16.



- Connect up battery in the following sequence with ignition and electr. loads switched off:
 - Attach pole shoe of positive wire by hand to battery positive terminal "+" and tighten nut -2- to 6 Nm.
 - If applicable, screw busbar -1- for main fuse box to pole shoe of positive wire (6 Nm).
 - Finally attach pole shoe of earth wire by hand to battery negative terminal "-" and tighten nut -3- to 6 Nm.
 - Check tightness of battery following installation => Page 27-18.

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27-14

Notes:

- ◆ On re-connecting battery, remember to activate vehicle equipment (radio/radio navigation system, clock, electric window lifters) in line with owner's manual.
- ◆ Deactivate telematics control-unit service mode.
= > Radio, Telephone, Navigation; Repair Group 91 = >
- ◆ For further operations after re-connecting power supply, refer to
= > Injection and Ignition System; Repair Group 24 = >

Tightening torques

Component	Nm
Bolt to bracket	20
Battery terminal to battery post	6
Additional terminal to battery terminal	6

Batteries with central gas venting system**Attention:**

Batteries of latest design with central gas venting system are always to be fitted.

Always use genuine battery caps. The caps must be fitted with an O-ring seal.

There are two types of battery with central gas venting system:

- ◆ Batteries with hose/connection at central gas venting system
- ◆ Batteries with no hose/connection at central gas venting system

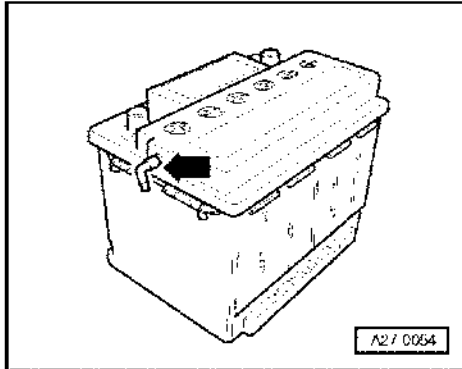
Notes:

- ◆ The latest generation of batteries features a central gas venting system and a fine-mesh flame trap.

Function: The gas produced on charging escapes centrally through a hole in the top cover. The fine-mesh flame trap which prevents ignition of the flammable gas in the battery is also located here.

The fine-mesh flame trap consists of a small round fibre-glass mat with a diameter of approx. 15 mm and a thickness of 2 mm. It operates in a manner similar to a valve, i.e. it allows the gas produced by battery gassing to escape.

- ◆ Battery posts are no longer to be greased.
- ◆ Battery terminals are only to be connected by hand so as not to damage the battery casing.



Notes on operation of central gas venting system:

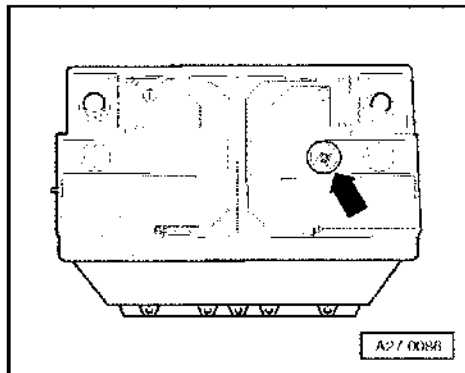
- ◆ On batteries with central gas venting hose/pipe, make sure that hose does not become disconnected as otherwise the battery will not be properly vented.
- ◆ On batteries with no central gas venting hose/pipe, it is important to ensure that opening in top cover -arrow- is not clogged.

Checking firm attachment of battery

Possible dangers if battery is not firmly in position:

- Shorter service life due to vibration damage
- Damage to battery plates if battery not properly attached
- Damage to battery casing caused by bracket (possible electrolyte leakage, high subsequent costs)
- Reduced crash safety
- To ensure that battery does not leak, only fit genuine battery caps.
- In the event of loss or damage, make exclusive use of genuine caps of the same type.
- The caps must be provided with an O-ring.

Battery with magic eye



◀ Distinguishing features

- ◆ Such batteries have a magic eye.
- ◆ This magic eye -arrow- provides information on the electrolyte level and charge of the battery to be tested.
- ◆ There are three different colour indicators:
 - Green → Battery adequately charged
 - Black → Not or inadequately charged
 - Colourless or yellow → Critical electrolyte level reached; topping up with distilled water essential

Note:

If a battery is more than 5 years old and the indicator of the magic eye is colourless, the battery is to be replaced with a new one.

———— 27-19 ————

Test sequence

Notes:

- ◆ Air bubbles may form under the magic eye, particularly if a battery has been re-charged, i.e. even if the battery has been charged whilst driving. These air bubbles falsify the colour indicator of the magic eye.
- ◆ If batteries are fitted with caps for production reasons, these are covered with plastic sheeting.
 - Before performing visual inspection, tap gently and carefully on magic eye with the handle of a screwdriver.
 - This disperses the air bubbles
 - Observe colour of "magic eye" indicator.

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———— 27-20 ————

Visual inspection

Attention:

The battery caps must always be firmly screwed on for charging, voltage measurement and load measurement.

Visually inspect battery before performing measurements, e.g. no-load voltage, specific gravity of electrolyte or battery load test.

Such inspection is designed to establish:

- ◆ Whether battery casing is damaged.
A damaged casing can result in electrolyte leakage.
- ◆ Whether battery posts (battery connections) are damaged.
Proper contact of connections is not ensured if battery posts are damaged. This may then result in cable burn-out and electrical system malfunctions.

Checking electrolyte level

Attention:

Always heed accident prevention regulations when handling electrolyte.

Always wear suitable protective clothing.

Only use torch to illuminate inside of battery casing.

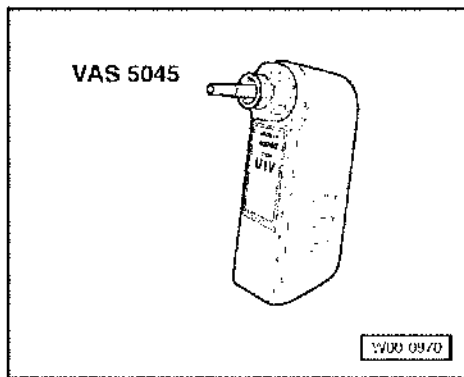
Never illuminate inside of battery casing with a naked flame.

Keep naked flames and burning cigarettes away from batteries.

When disposing of batteries, always pay attention to the appropriate regulations for batteries and sulphuric acid.

To ensure that the various battery cover systems do not leak, only screw **genuine battery caps** into battery openings. In the event of loss or damage, **make exclusive use of genuine caps of the same type.**

The caps must be fitted with an O-ring seal.

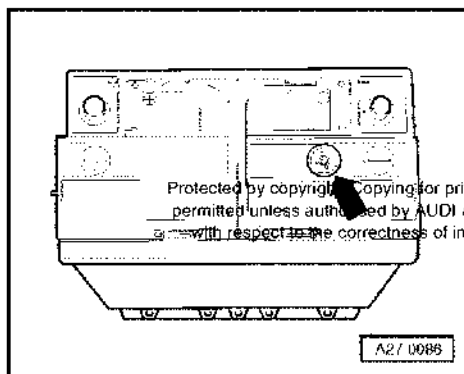


Special tools and workshop equipment required

- ◆ Battery filler VAS 5045
- ◆ Commercially available hydrometer

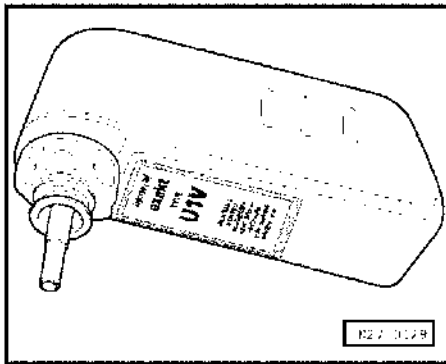
Notes:

- ◆ The correct electrolyte level is an important factor in ensuring a long battery service life.
- ◆ On batteries with visible min. and max. marks, electrolyte level can be checked simply by visually inspecting outside of battery.
- ◆ Electrolyte level must be above min. mark, but must not exceed max. mark.
- ◆ On batteries on which the outer min. and max. marks are difficult to see or proper checking of the electrolyte level cannot be guaranteed on account of the opaque nature of the battery casing, the caps have to be unscrewed. The electrolyte level can then be checked by way of a visual inspection of the inside of the battery.



- ◆ The electrolyte level must coincide with the internal level mark (plastic web). This corresponds to the outer max. mark.

- ◆ On batteries with a magic eye -arrow-, the electrolyte level can be established from the colour indicator.
- ◆ Test sequence => Page 27-19



Electrolyte level too low

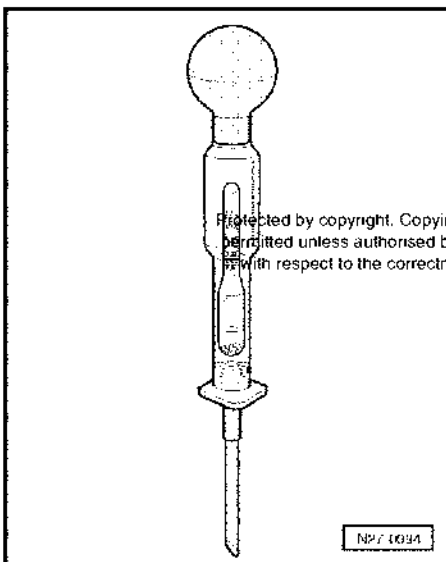
Note:

- ◀ If the electrolyte level is too low, drying-out of the cell plates will reduce the capacity (power) of the battery. If the cell plates are not surrounded by electrolyte, the plates, plate links and cell connectors will become corroded. The function of the battery is then not guaranteed and it becomes unusable.

- If the electrolyte level is too low, use battery filler bottle VAS 5045 to top up distilled water as far as max. mark.

Notes:

- ◆ The filler neck of the filler bottle VAS 5045 is designed to prevent over-filling of the battery cell and electrolyte leakage. The flow of distilled water into the battery cell is interrupted on reaching the max. level.
- ◆ Always use distilled water for topping up to prevent electrolyte contamination which results in increased self-discharge.
- Screw battery cell caps back in again => Page 27-16 (batteries with central gas venting system).



Electrolyte level too high

Note:

- ◀ If the electrolyte level is too high, escaping electrolyte (mixture of sulphuric acid and water) will cause damage outside the battery, e.g. on components in the engine compartment.

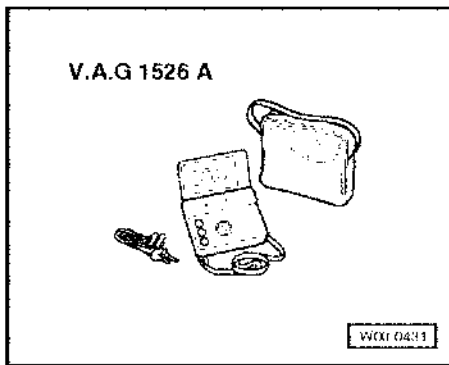
- If electrolyte level is too high (overfilled), i.e. if level is above outer electrolyte mark (plastic web) or above outer max. mark, excess electrolyte must always be drawn off using a commercially available hydrometer.

- Use hydrometer to draw off sulphuric acid until electrolyte level reaches plastic web/max. mark.
- Screw battery cell caps back in again => Page 27-16 (batteries with central gas venting system).

No-load voltage measurement

Special tools and workshop equipment required

- ◆ V.A.G 1526 A



Attention:

The battery caps must always be firmly screwed on for charging, voltage measurement and load measurement.

Always heed the following notes as otherwise correct measurement is not guaranteed.

Notes:

- ◆ Always disconnect earth strap if no-load voltage is measured with battery in vehicle.
- ◆ Loads must not have been connected to battery for at least 2 hours prior to measurement.
- ◆ Battery must not have been charged for at least 2 hours prior to measurement.

27-27

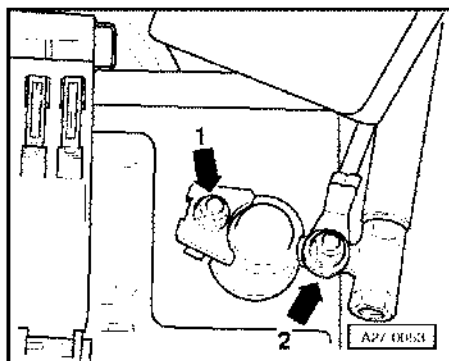
Sequence of operations

Attention:

On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 81

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Need of necessary obtain code for vehicles with encoded radio/radio navigation system (RNS).



- Lay bare battery posts => Page 27-4 onwards.
- Disconnect battery earth strap with ignition switched off. To do so, unfasten nut -arrow 1-.
- Take voltage measurement between terminals.
 - Battery is OK if reading on measuring instrument is 12.7 V or more
 - Battery no-load voltage must never drop below 12.7 V; if it does, battery is to be re-charged immediately => Page 27-38

27-28

- Repeat voltage measurement between terminals.
 - Battery no-load voltage must not drop below a value of 12.7 V
 - Replace battery if no-load voltage is not OK.
- Install in reverse order, paying attention to the following:
- Connect battery. Action to be taken => Page 27-13.

Checking specific gravity of electrolyte of all cells

Special tools and workshop equipment required

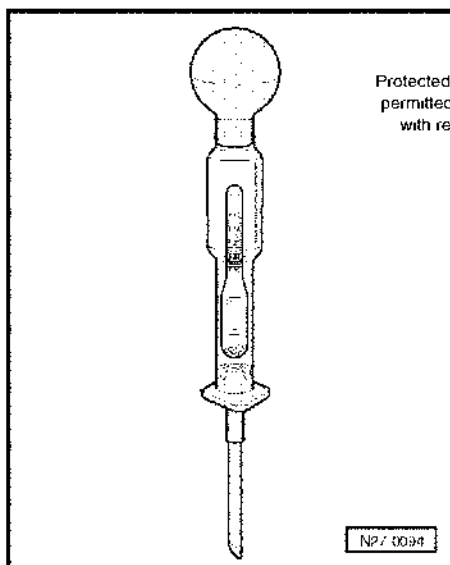
- ◆ Commercially available hydrometer

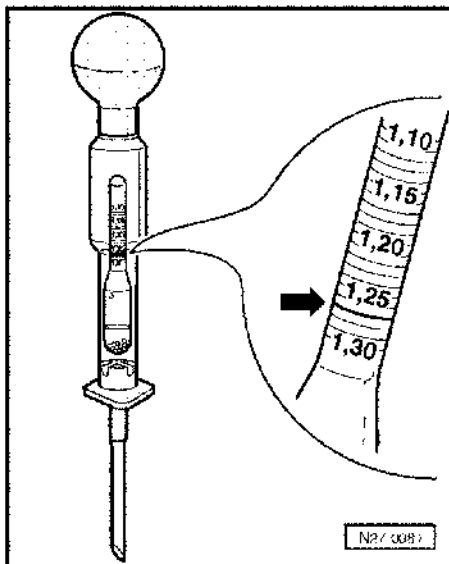
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Attention:
Always pay attention to accident prevention regulations when handling electrolyte. Appropriate protective clothing must be worn.
When disposing of batteries, always pay attention to the appropriate regulations for batteries and sulphuric acid.

Notes:

- ◆ In conjunction with the battery load test, testing of the specific gravity of the electrolyte provides information on the condition of the battery.
- ◆ The temperature of the electrolyte must be at least 10°C.
- ◆ Specific gravity of electrolyte can be checked immediately after charging battery.





Test sequence

- Screw out all battery cell caps.
- Immerse hydrometer in one of the cells and draw in electrolyte until float is freely suspended in electrolyte.
 - The greater the specific gravity of the electrolyte drawn in, the higher the float will ride.
 - The specific gravity in kg/dm³ can be read off from the hydrometer scale.

27-31

- Take reading on hydrometer and compare it to values given in table.

Charge state in normal climatic zones

Specific gravity
of electrolyte in
kg/dm³

Discharged	1.12
Semi-charged	1.20
Well charged	1.28

Charge state in the tropics

Specific gravity
of electrolyte in
kg/dm³

Discharged	1.08
Semi-charged	1.16
Well charged	1.23

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27-32

The specific gravity in normal climatic zones must be at least 1.24 kg/dm³.

- Charge battery if specific gravity is too low in all battery cells.
- Repeat testing of electrolyte specific gravity after charging battery.
- Replace battery if readings do not match specifications.

Note:

The measured values for the electrolyte specific gravity of the individual battery cells must not deviate by more than 0.03 kg/dm³, otherwise battery is to be replaced.

Battery cell:	1	2	3	4	5	6
	Specific gravity of electrolyte per cell in kg/dm ³					

Example 1:	1.24	1.25	1.25	1.10	1.24	1.25
------------	------	------	------	------	------	------

Result: Specific gravity in cell 4 is too low (deviation greater than 0.03 kg/dm³)

Example 2:	1.26	1.26	1.25	1.14	1.18	1.24
------------	------	------	------	------	------	------

Result: Specific gravity in cells 4 and 5 is too low (deviation greater than 0.03 kg/dm³)

- Screw caps back in again if readings match specifications.

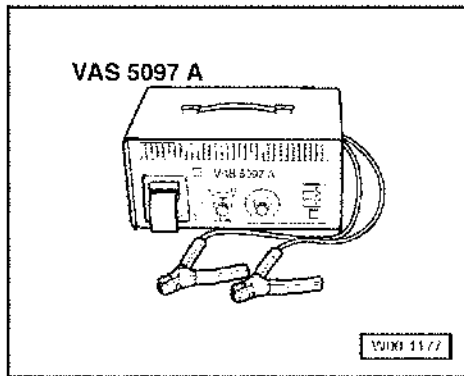
Attention:

To ensure that the various battery cover systems do not leak, only screw genuine battery caps into battery openings. In the event of loss or damage, make exclusive use of genuine caps of the same type.

The caps must be fitted with an O-ring seal.

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Measuring voltage under load



Special tools and workshop equipment required

- ◆ Battery tester VAS 5097 A

Note:

Using battery tester

= > Operating instructions

Attention:

Heed accident prevention regulations and wear protective clothing such as visor and leather gloves.

Test sequence

- Switch off ignition.
 - Connect clips to battery posts in line with tester operating instructions. The clips must make good contact with the battery posts.
 - The load current differs and must be set on the tester in line with battery capacity.
- = > Battery tester operating instructions

27-35

The load test currents can also be taken from the following table.

- Perform battery load test in line with operating instructions and compare result obtained to table.

The result of the load test is the minimum voltage for battery capacity concerned.

The load current and minimum voltage differ depending on battery capacity.

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Capacity	Cold discharge test current	Load current	Minimum voltage
44 Ah	220 A	200 A	9.4 V
60 Ah	280 A	200 A	9.4 V
70 Ah	340 A	200 A	9.5 V
80 Ah	380 A	300 A	9.5 V

- Replace battery if minimum voltage is not reached.

27-36

Explanatory notes on battery load test:

The battery voltage drops due to the heavy load on the battery during this test (flow of high current).

If the battery is OK, the voltage will only drop to the minimum voltage level.

If the battery is defective or only weakly charged, the battery voltage will drop very quickly to below the minimum voltage level stated.

This low voltage level is maintained for a lengthy period after testing and only increases again slowly.

Charging battery

Special tools and workshop equipment required

◆ Battery charger

The battery should be charged using a V.A.G battery charger, e.g. V.A.G 1471, V.A.G 1648 or VAS 1974.

Attention:

The battery caps must always be firmly screwed on for charging, voltage measurement and load measurement.

Avoid naked flames and never smoke in rooms used for charging batteries as the battery forms gas which is readily flammable during the charging process.

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Notes:

- ◆ The battery temperature must be at least 10 °C.
- ◆ Rapid charging of batteries should only be performed in exceptional circumstances (e.g. boost starting) as rapid charging causes damage.
- ◆ If rapid charging is performed on exhausted batteries, they fail to absorb any charging current or register as being fully charged prematurely due to so-called surface charging. They appear to be OK.

Sequence of operations

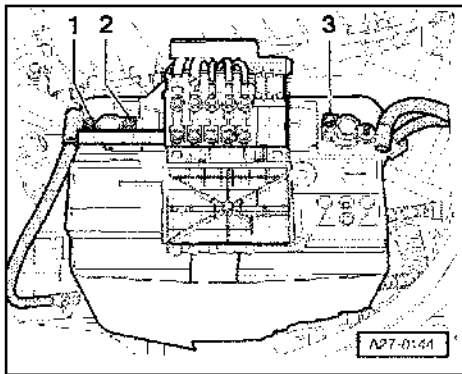
- Switch off battery charger.

Attention:

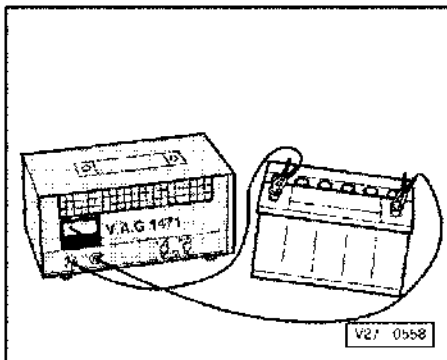
On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Switch off ignition.

27-39



- Lay bare battery posts => Page 27-4 onwards.
- Unfasten nut -3- several turns and disconnect pole shoe of earth wire from battery post.
- If applicable, unscrew nut -1- and detach busbar for main fuse box at pole shoe of positive wire.
- Unfasten nut -2- several turns and disconnect pole shoe of positive wire from battery post.



- Connect positive lead of battery charger to positive terminal of battery.
- Connect negative lead of battery charger to negative terminal of battery.
- Set charging current on battery charger in line with battery capacity. It should be roughly 10 % of battery capacity (i.e. for a 60 Ah battery approx. 6 A).
- Switch on battery charger.

Install in reverse order, paying attention to the following:

- Connect battery. Action to be taken => Page 27-13.

27-40

Explanatory notes on exhausted batteries

Batteries which have not been used for lengthy periods, e.g. in vehicles which have not been driven, are subject to self-discharge.

A battery is considered to be exhausted if the no-load voltage has dropped below 11.6 V.

Measuring no-load voltage = > Page 27-27

With exhausted batteries, the electrolyte (mixture of sulphuric acid and water) is more or less all water, with a greatly reduced sulphuric acid content.

At temperatures below zero, the battery may freeze and the casing burst.

Exhausted batteries become sulphated, i.e. all the plate surfaces of such batteries become hard. As opposed to being clear, the electrolyte has a slightly milky appearance.

If an exhausted battery is re-charged immediately after exhaustive discharge, the sulphation can be reversed.

If this is not done, the plates become even harder and their ability to absorb charge is impaired, thus resulting in a loss of power reserves.

Procedure for charging sulphated exhausted batteries

Sulphated exhausted batteries must be charged as follows using a low charging current:

- Approx. 5 % of battery capacity, i.e. for a 60 Ah battery, the charging current is approx. 3 A (amps).

Charge battery = > Page 27-38.

The charging voltage (U_{max}) must not exceed 14.4 V.

Rapid charging is never to be implemented on exhausted batteries.

Removing and installing alternator

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

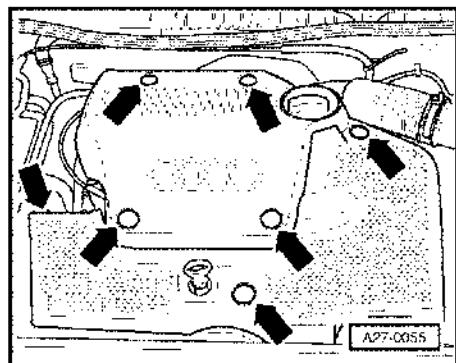
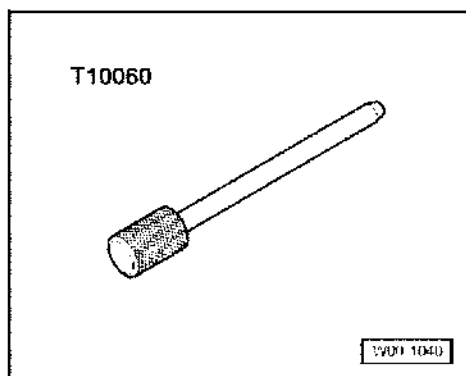
Action to be taken after re-connecting power supply => Page 27-13.

27-43

1.6 l and 1.8 l engine

Special tools and workshop equipment required

- ◆ Mandrel T10060



Removing

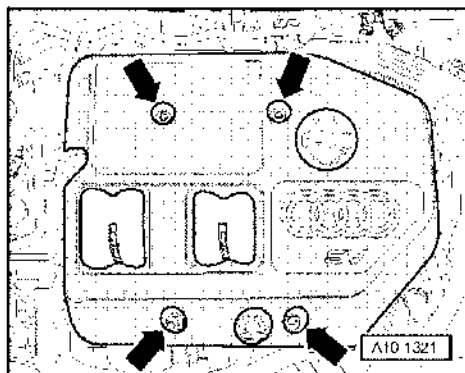
Vehicles with 1.6 l engine:

- ◀ - Prise plugs out of cover in front of intake manifold
- Remove engine cover and cover in front of intake manifold - arrows -

Note:

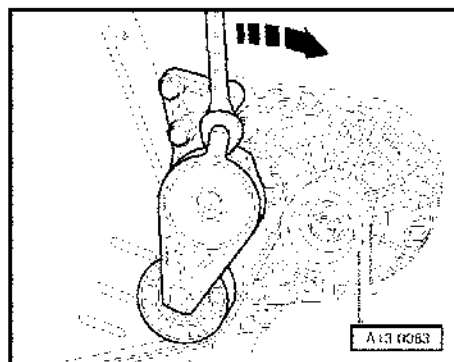
Fig. shows bolted-on engine cover.

27-44



Vehicles with 1.8 l engine:

- Remove engine cover -arrows-.



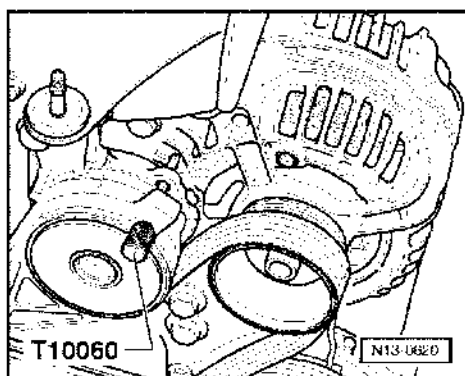
All models:

Note:

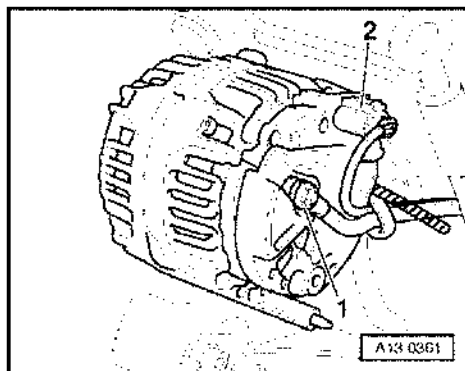
Before removing, mark direction of ribbed belt with chalk or felt-tipped pen. Running a used belt in the opposite direction could destroy it.

- Swivel tensioner in direction of arrow to slacken off ribbed belt.

27-45



- Use mandrel T10060 or offset Allen key to lock ribbed belt tensioner.
- Detach ribbed belt.



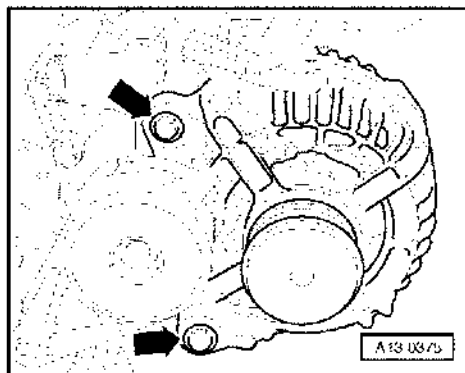
- Unplug connector -2-.
- Unscrew wire -1- at alternator.

Note:

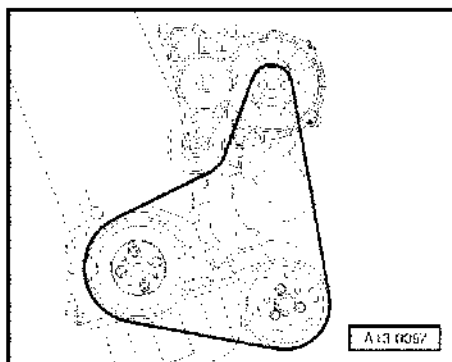
If fitted, unscrew clamp with alternator detached and lay bare wire.

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27-46



- ◀ – Screw out bolts -arrows-.
- Detach alternator and guide it upwards out of engine compartment.

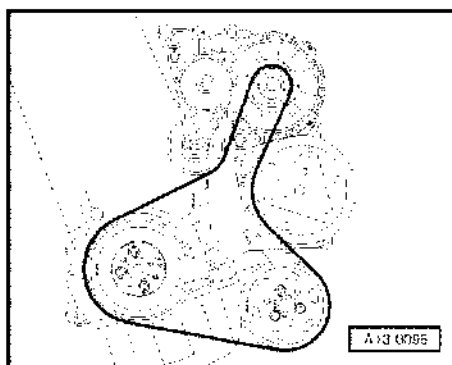


Installing

Install in reverse order, paying attention to the following:

- To facilitate positioning of alternator, drive back bushings for retaining bolts slightly.
- ◀ – Make sure ribbed belt is properly positioned and correctly routed.
 - Ribbed belt routing on vehicles with no air conditioner

———— 27-47 ————



- ◀ – Ribbed belt routing on vehicles with air conditioner
- Connect battery. Action to be taken => Page 27-13.
- Start engine and check belt running.

Tightening torques

Component	Nm
Alternator to bracket	25
Terminal 30/B+ to alternator	16

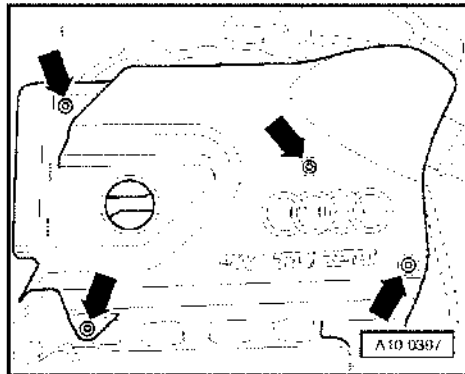
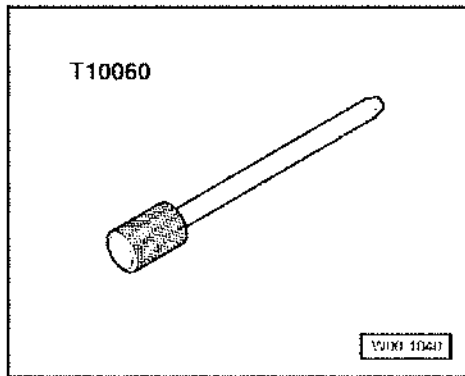
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———— 27-48 ————

1.8l turbo engine – Audi A3

Special tools and workshop equipment required

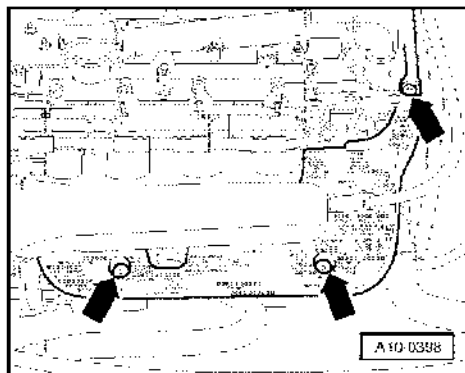
- ◆ Mandrel T10060



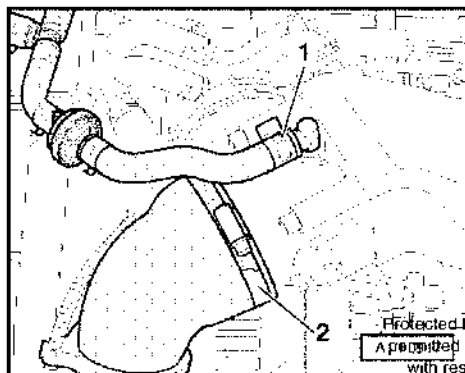
Removing

- ◀ – Remove engine cover -arrows-.

— 27-49 —



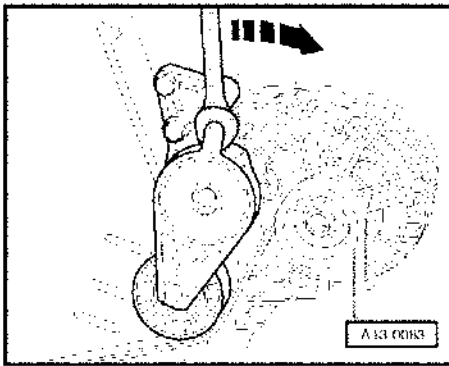
- ◀ – Remove cover in front of intake manifold -arrows-.



- ◀ – Pull off air hose -2- at throttle valve control part.

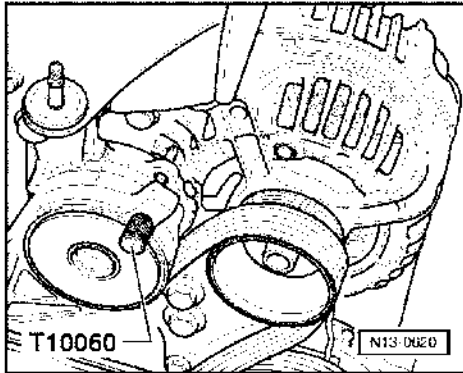
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— 27-50 —

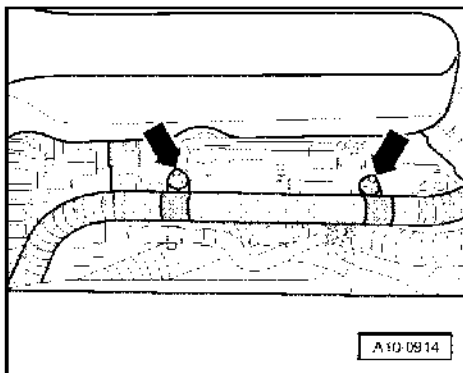


Note:

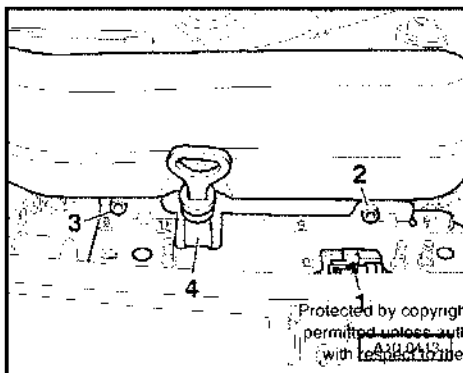
- ◀ Before removing, mark direction of ribbed belt with chalk or felt-tipped pen. Running a used belt in the opposite direction could destroy it.
- Swivel tensioner in direction of arrow to slacken off ribbed belt.



- ◀ - Use mandrel T10060 or offset Allen key to lock ribbed belt tensioner.
- Detach ribbed belt.

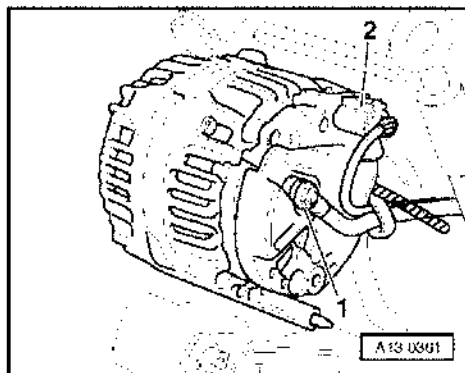


- ◀ - Detach pipe for secondary air system from holder at engine - arrows-.

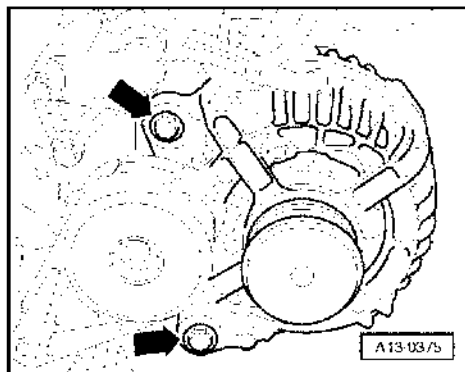


- ◀ - Screw out bolts -2- and -3- and pull holder off guide tube for dipstick -4-.
- Lay aside holder with connected hoses.
- Pull off air hoses at secondary air pump.

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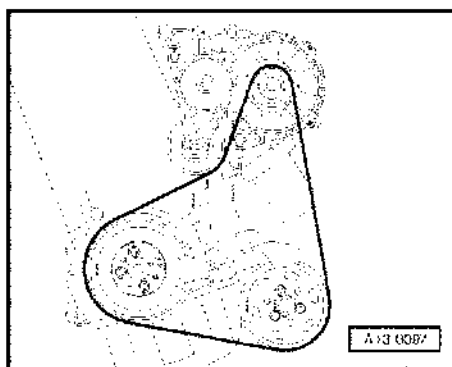


- ◀ - Unplug connector -2-.
- Unscrew wire -1- at alternator.
- Unscrew clamp at alternator.



- ◀ - Screw out bolts -arrows-.
- Take out alternator.

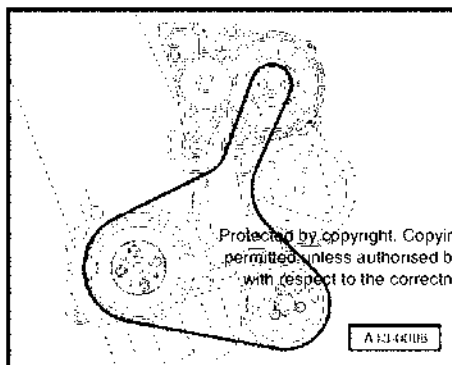
27-53



Installing

Install in reverse order, paying attention to the following:

- To facilitate positioning of alternator, drive back bushings for retaining bolts slightly.
- ◀ - Make sure ribbed belt is properly positioned and correctly routed.
 - Ribbed belt routing on vehicles with no air conditioner



- ◀ - Ribbed belt routing on vehicles with air conditioner
- Connect battery. Action to be taken => Page 27-13.
- Start engine and check belt running.

Tightening torques

Component

Alternator to bracket

Terminal 30/B+ to alternator

Nm
23
16

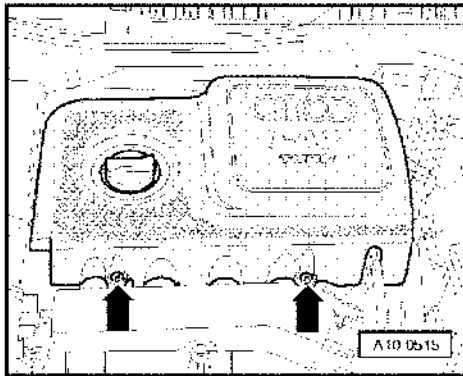
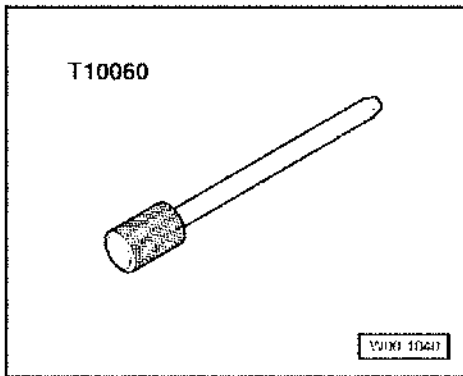
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27-54

1.8l turbo engine – Audi S3

Special tools and workshop equipment required

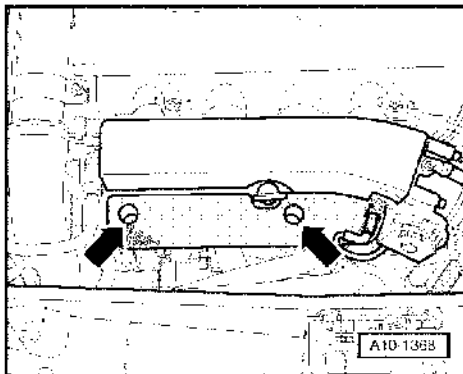
- ◆ Mandrel T10060



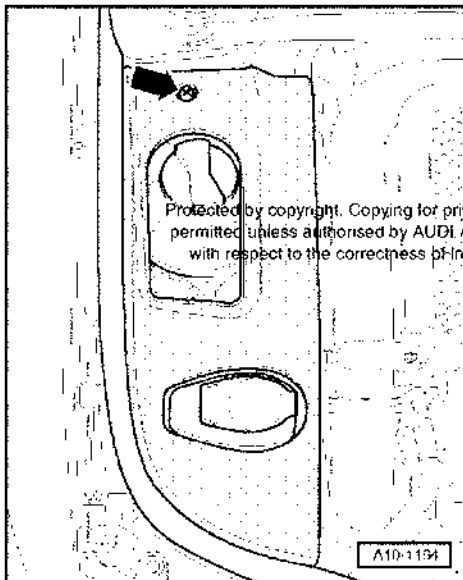
Removing

- ◀ – Remove engine cover -arrows-.

———— 27-55 ————



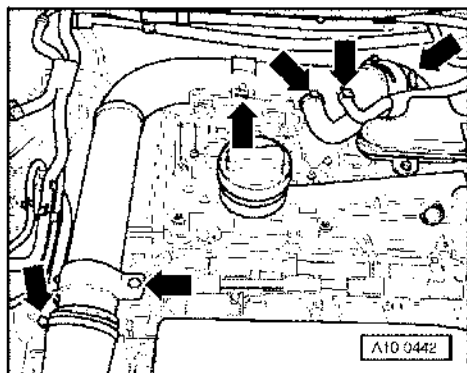
- ◀ – Remove cover in front of intake manifold -arrows-.



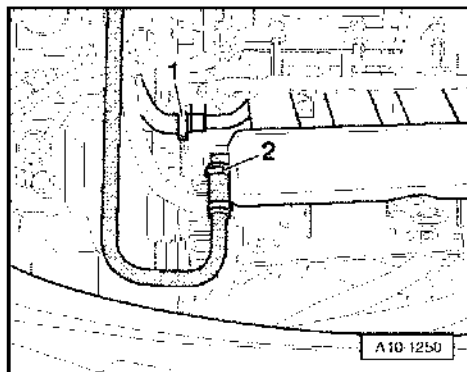
- ◀ – Screw out bolt -arrow- and remove cover over expansion tank.

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———— 27-56 ————



- ◀ - Remove air pipe -arrows-.

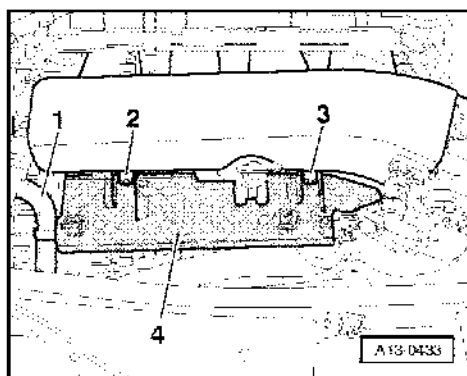


- ◀ - Disconnect vacuum pipe -2- from intake manifold.

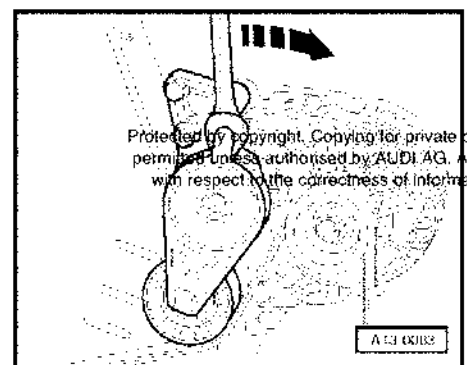
Note:

Coolant hose -1- need not be detached.

— 27-57 —



- ◀ - Screw out bolts -2- and -3- and pull holder -4- off guide tube for dipstick.
- Disengage coolant hose -1- at holder.
- Lay aside holder with connected hoses.



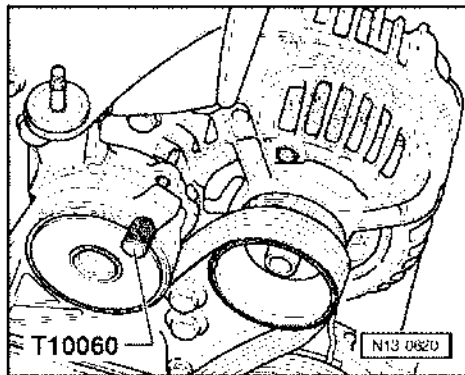
Note:

Before removing, mark direction of ribbed belt with chalk or felt-tipped pen. Running a used belt in the opposite direction could destroy it.

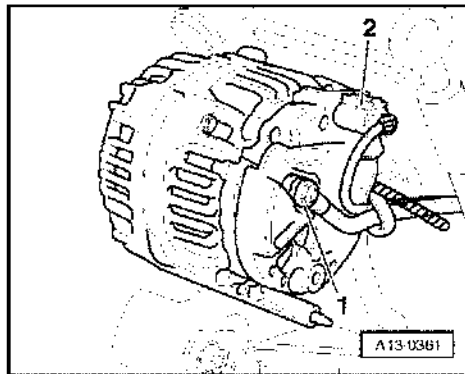
- ◀ Swivel tensioner in direction of arrow to slacken off ribbed belt.

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— 27-58 —

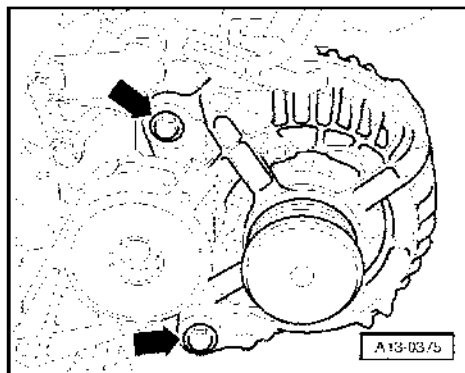


- ◀ - Use mandrel T10060 or offset Allen key to lock ribbed belt tensioner.
- Detach ribbed belt.

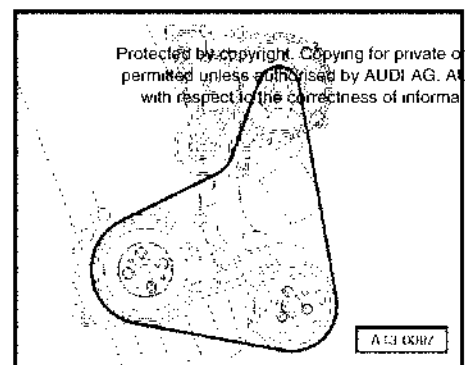


- ◀ - Unplug connector -2-.
- Unscrew wire -1- at alternator.
- Unscrew clamp and lay bare wire.

— 27-59 —



- ◀ - Screw out bolts -arrows-.
- Detach alternator and guide it to left out of engine compartment.



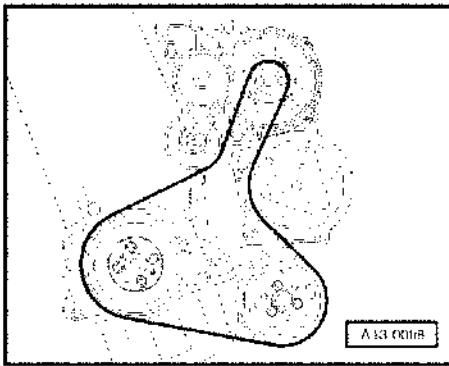
Installing

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Install in reverse order, paying attention to the following:

- ◀ To facilitate positioning of alternator, drive back bushings for retaining bolts slightly.
- Make sure ribbed belt is properly positioned and correctly routed.
 - Ribbed belt routing on vehicles with no air conditioner

— 27-60 —

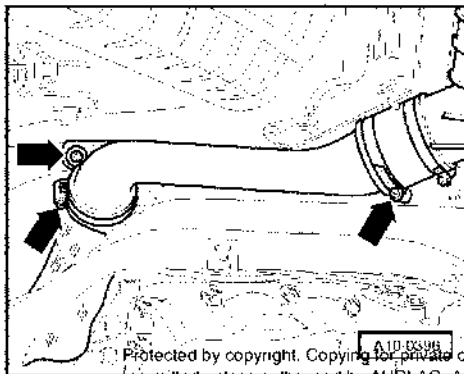


- ◀ – Ribbed belt routing on vehicles with air conditioner
- Connect battery. Action to be taken => Page 27-13.
- Start engine and check belt running.

Tightening torques

Component	Nm
Alternator to bracket	23
Terminal 30/B+ to alternator	16

———— 27-61 ————

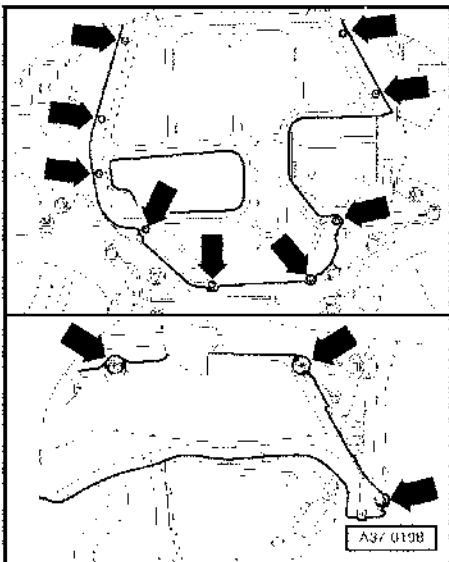


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1.9l TDI engine – distributor-type injection pump

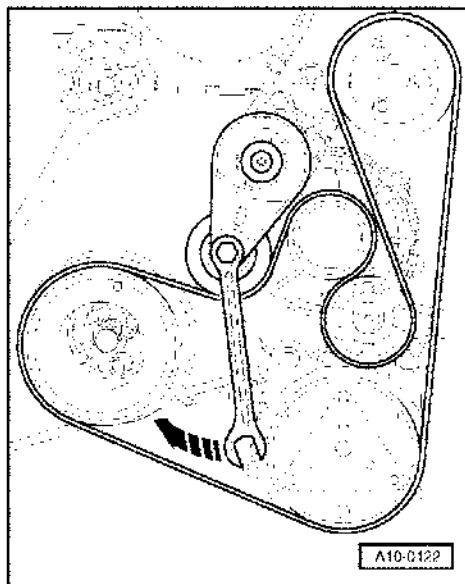
Removing

- ◀ – Remove lower air pipe -arrows-.



- ◀ – Remove centre and right noise insulation -arrows-.

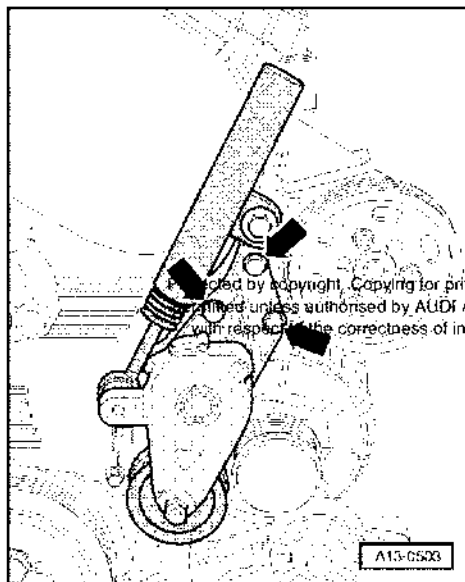
———— 27-62 ————



Note:

Before removing, mark direction of ribbed belt with chalk or felt-tipped pen. Running a used belt in the opposite direction could destroy it.

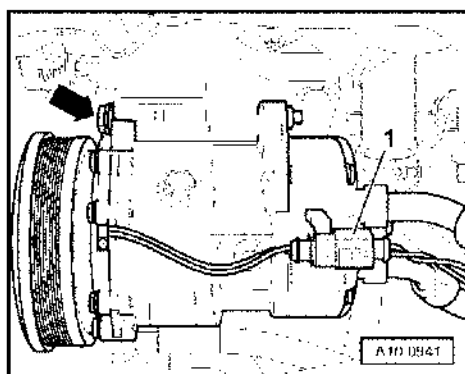
- Apply flat 16 mm box wrench at hexagon of tensioning roller.
- Swivel tensioning roller in direction of arrow to slacken off ribbed belt.
- Detach ribbed belt.



- Remove tensioner for ribbed belt -arrows-.
- If fitted, remove auxiliary fan on right. Use cardboard to protect radiator against damage if necessary.

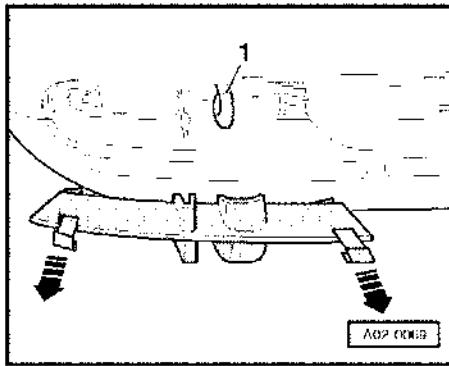
Note:

Leave wires connected.

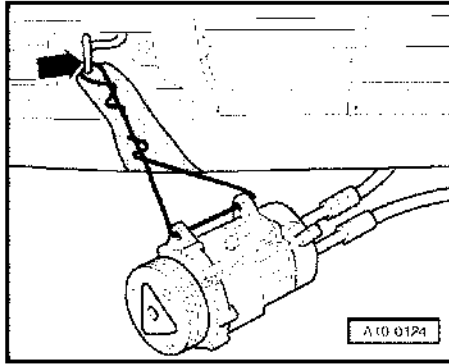


Vehicles with air conditioner:

- Unplug connector -1- for magnetic clutch at air-conditioner compressor.



- ◀ – Detach air grille after pulling release tabs -arrows-.



Attention:

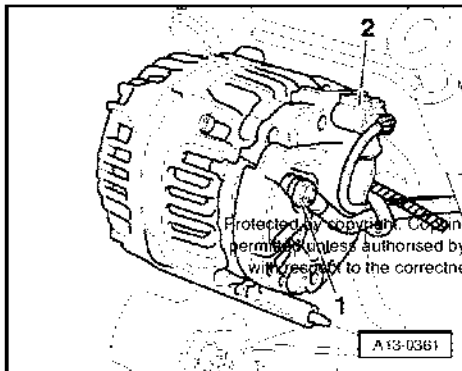
Refrigerant circuit of air conditioner is never to be opened.

- Unscrew air conditioner compressor, lower together with connected refrigerant hoses and tie up with wire at towing eye - arrow-.

Note:

Use adhesive tape to stop bumper becoming scratched.

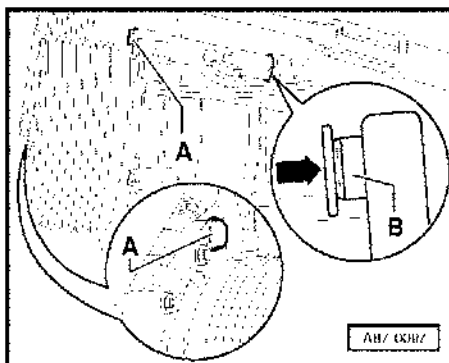
27-65



All models:

- Unplug connector -2-.
- Unscrew wire -1- at alternator.
- Unscrew clamp and lay bare wire.
- Unscrew alternator and detach downwards.

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Installing

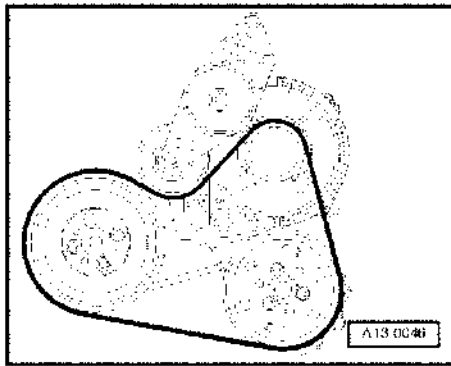
Install in reverse order, paying attention to the following:

- To facilitate positioning of alternator, drive back bushings for retaining bolts slightly.

Vehicles with air conditioner:

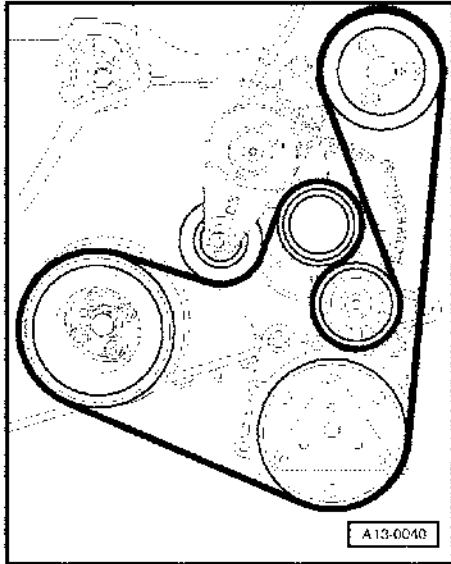
- To facilitate positioning of air conditioner compressor, drive back threaded bushes -B- for retaining bolts -A- slightly in direction of arrow.

27-66



All models:

- ◀ - Make sure ribbed belt is properly positioned and correctly routed.
 - Ribbed belt routing on vehicles with no air conditioner



- ◀
 - Ribbed belt routing on vehicles with air conditioner
 - Connect battery. Action to be taken => Page 27-13.
 - Start engine and check belt running.

27-67

Tightening torques

Component	Nm
Alternator to bracket for ancillaries	25
Terminal 30/B+ to alternator	16
Air conditioner compressor to bracket for ancillaries	45

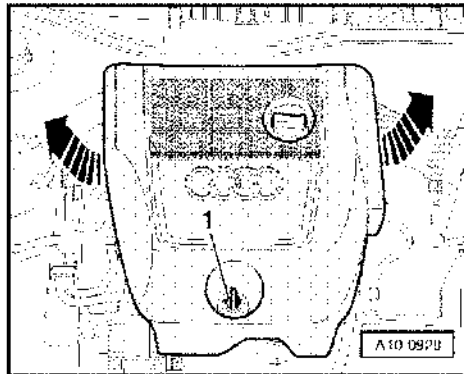
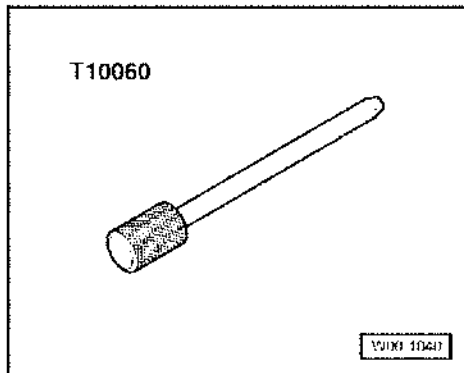
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27-68

1.9l TDI engine – UIS

Special tools and workshop equipment required

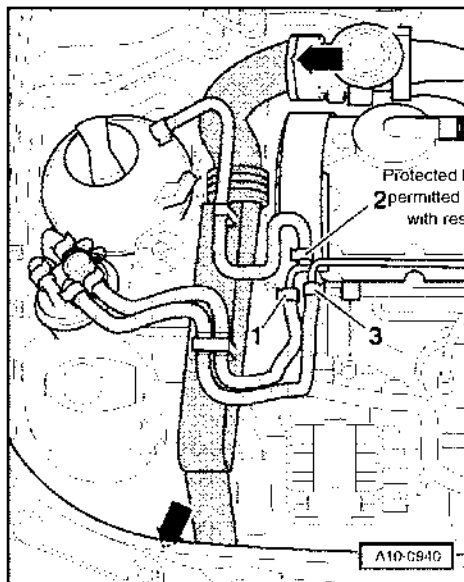
- ◆ Mandrel T10060



Removing

- Pull dipstick -1- out of guide tube.
- Pull off engine cover -arrows-.
- Re-insert dipstick in guide tube.

27-69

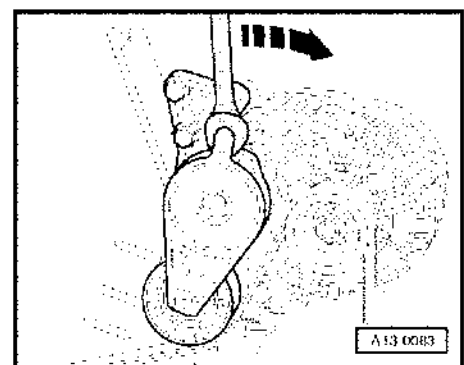


- Lay bare wires at air pipe.
- Detach air pipe -arrows-.

Note:

Leave coolant hose -2- and fuel pipes -1- and -3- connected.

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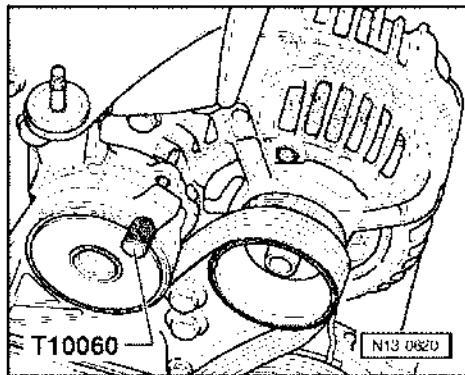


Note:

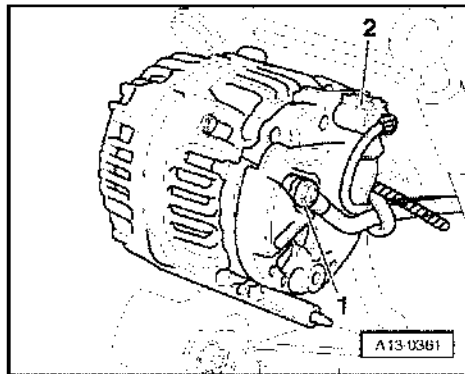
Before removing, mark direction of ribbed belt with chalk or felt-tipped pen. Running a used belt in the opposite direction could destroy it.

- Swivel tensioner in direction of arrow to slacken off ribbed belt.

27-70

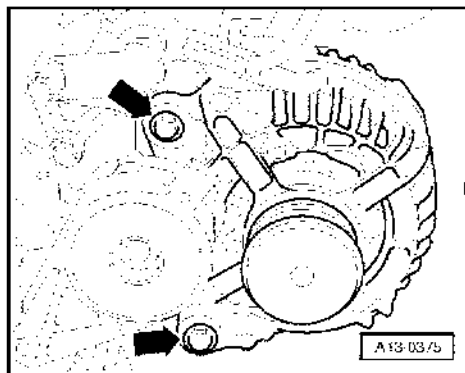


- ◀ - Use mandrel T10060 or offset Allen key to lock ribbed belt tensioner.
- Detach ribbed belt.



- ◀ - Unplug connector -2-.
- Unscrew wire -1- and clamp.

27-71



- ◀ - Screw out bolts -arrows- and detach alternator.

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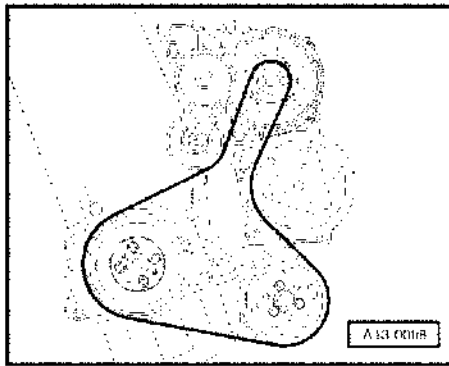


Installing

Install in reverse order, paying attention to the following:

- To facilitate positioning of alternator, drive back bushings for retaining bolts slightly.
- ◀ - Make sure ribbed belt is properly positioned and correctly routed.
 - Ribbed belt routing on vehicles with no air conditioner

27-72

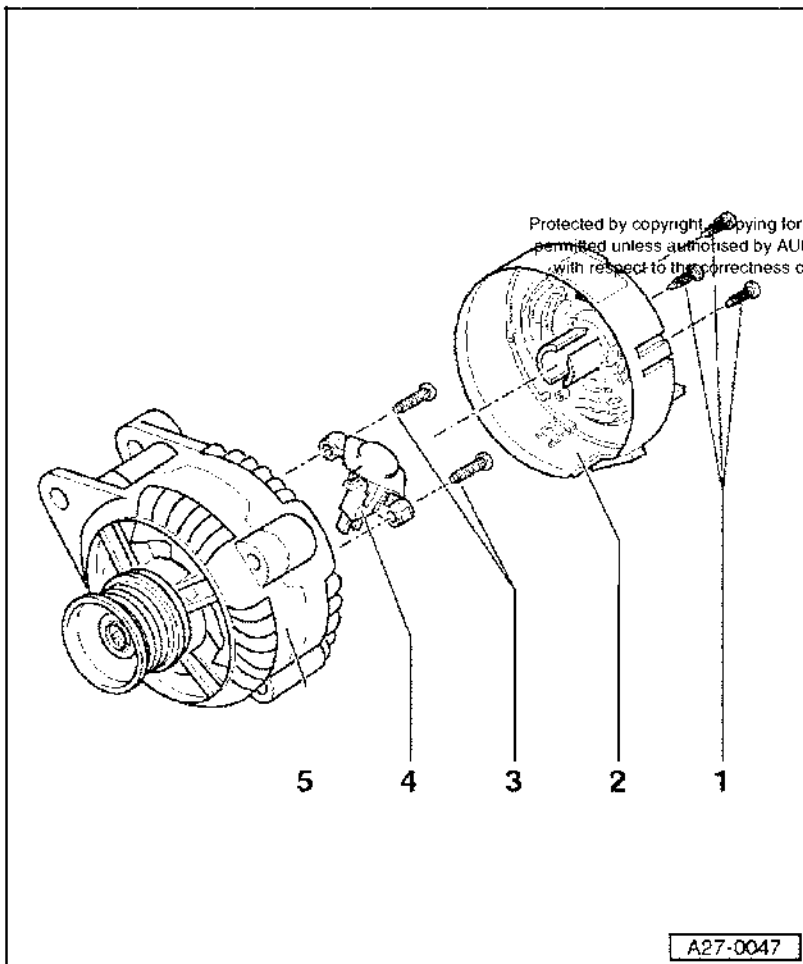


- Ribbed belt routing on vehicles with air conditioner
- Connect battery. Action to be taken => Page 27-13.
- Start engine and check belt running.

Tightening torques

Component	Nm
Alternator to bracket	25
Terminal 30/B+ to alternator	16

27-73



Replacing voltage regulator – Bosch alternator

1 – Oval cross-head bolts

◆ 1 Nm

2 – Protective cap

◆ 3 retainer tabs

3 – Oval cross-head bolts

◆ M4 = 2 Nm

4 – Voltage regulator

◆ Removing:

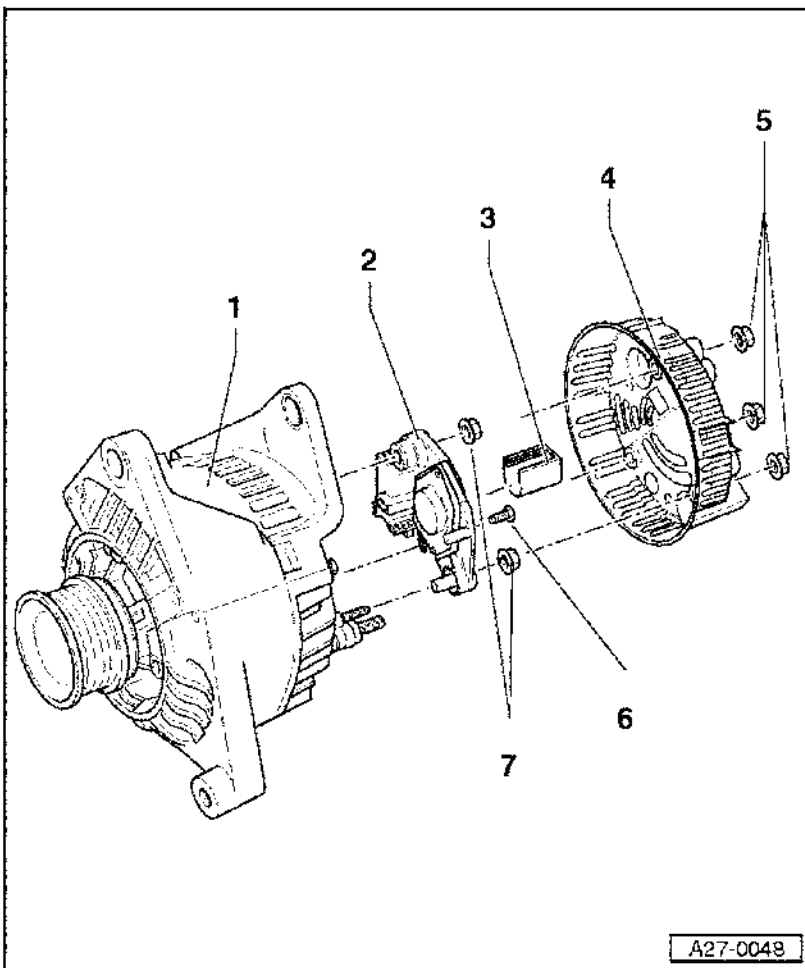
- Screw out bolts -item 1- and detach protective cap -item 2-
- Screw out bolts -item 3- and detach voltage regulator

◆ Carbon brush wear limit: 5 mm

5 – Alternator

27-74

Replacing voltage regulator – Valeo alternator



1 – Alternator

2 – Voltage regulator

◆ Removing:

– Unscrew nuts -Item 5– and detach protective cap -Item 4–

– Unscrew bolt -Item 6– and nuts -Item 7– and detach voltage regulator

◆ Carbon brush wear limit: 5 mm

3 – Cover

◆ Press off before attaching voltage regulator and press on afterwards

4 – Protective cap

5 – Combi nut, 2 Nm

6 – Hexagon bolt, 2 Nm

7 – Combi nut, 3.5 Nm

A27-0048

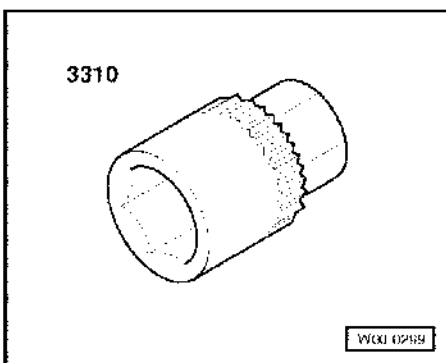
27-75

Removing and installing ribbed belt pulley without free-wheel

Special tools and workshop equipment required

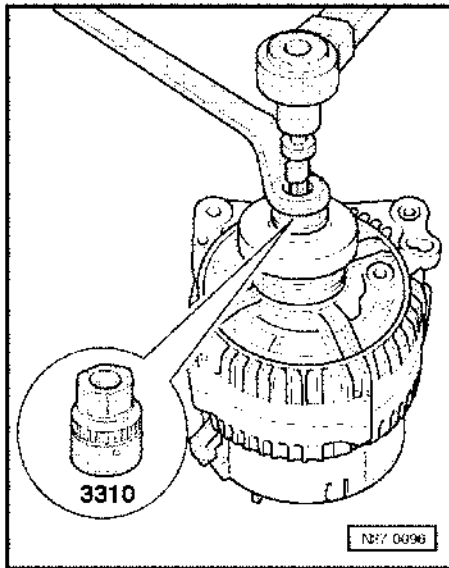
◆ Socket attachment 3310

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WOL 0269

27-76



Removing

- Support nut with socket attachment 3310 and turn alternator shaft clockwise.
- Detach ribbed belt pulley.

Installing

Install in reverse order, paying attention to the following:

- Turn alternator shaft anti-clockwise.

Tightening torque

Component

Ribbed belt pulley to alternator

Nm

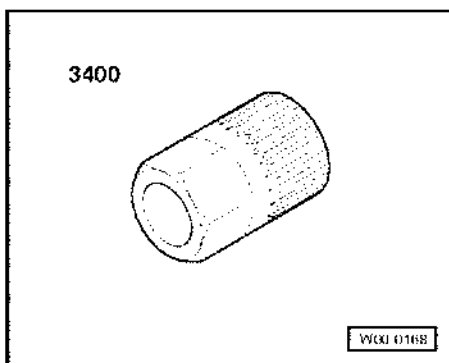
65

27-77

Removing and installing ribbed belt pulley with free-wheel

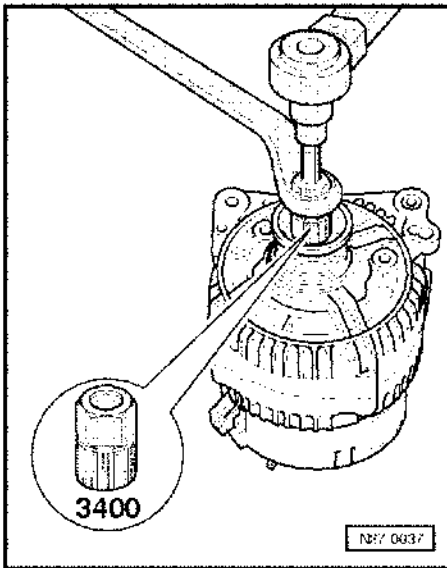
Special tools and workshop equipment required

- ◆ Multi-point adapter 3400



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27-78



Removing

- Support pulley with multi-point adapter 3400 and turn alternator shaft clockwise.

Installing

Install in reverse order, paying attention to the following:

- Turn alternator shaft anti-clockwise.
- Clip protective cap onto free-wheel pulley.

Tightening torque

Component	Nm
Ribbed belt pulley with free-wheel to alternator	80

Removing and installing starter

Attention:

- ♦ Disconnect battery earth strap before working on electrical system.
- ♦ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

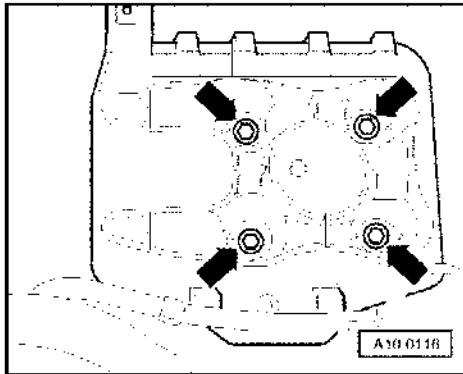
- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

Action to be taken after re-connecting power supply => Page 27-13.

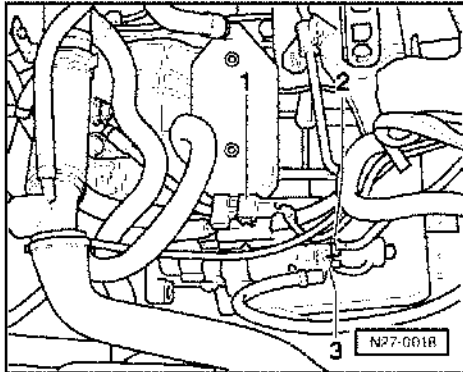
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Vehicles with 4-cylinder petrol engine



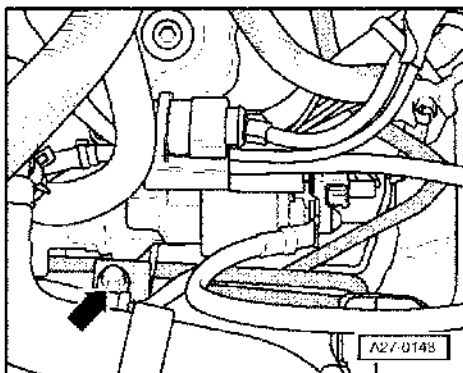
Removing

- Remove engine cover.
- Remove battery => Page 27-4 onwards.
- Remove battery carrier -arrows-.

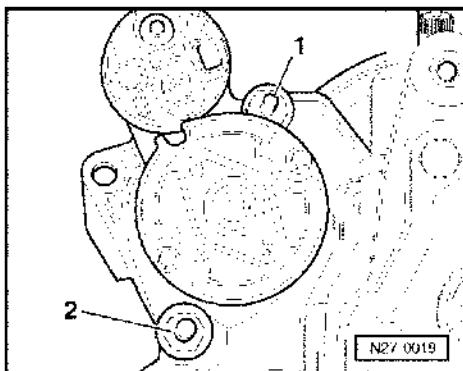


- Unplug connector -1-.
- Unclip connector from cable guide.
- Detach wires -2- and -3- at starter.
- Take wiring out of guide.

27-81



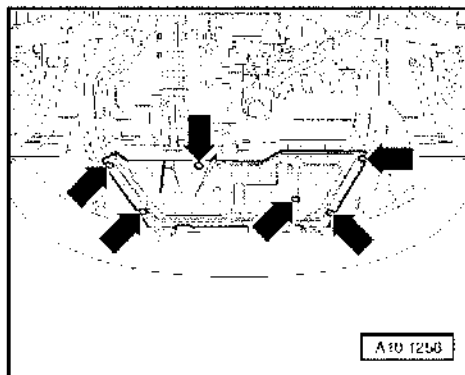
- Screw out bolt -arrow-.
- Detach power steering pressure pipe.



- Unscrew wire guide.
- Screw out top starter securing bolt -1-.

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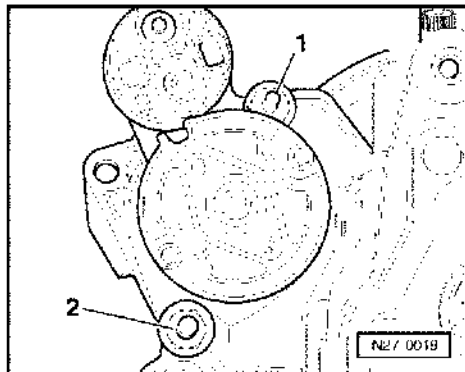
27-82



- ◀ - Remove centre noise insulation -arrows-.

Note:

Fig. shows vehicle with petrol engine.



- ◀ - Screw out bottom starter securing bolt -2-.
- Take out starter.

Installing

Install in reverse order, paying attention to the following:

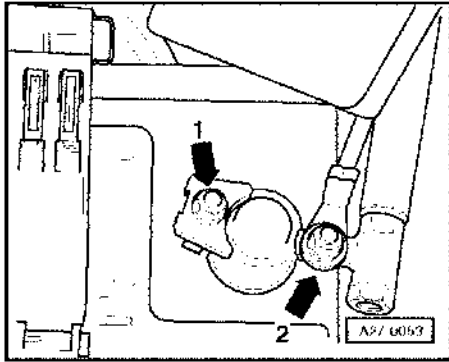
- Install battery carrier and battery.
- Connect battery. Action to be taken => Page 27-13.

Tightening torques

Component		Nm
Starter to gearbox	M10	45
	M12	65
Holder for power steering pressure pipe to starter		22
Wire guide to starter		22
Terminal B+ to starter		16
Battery carrier to longitudinal member		10

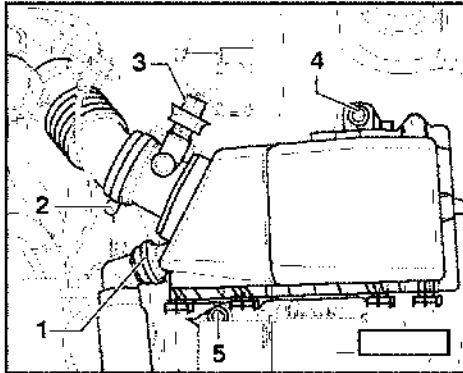
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Vehicles with automatic gearbox 09A



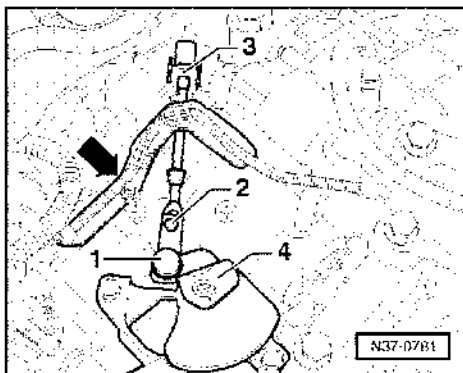
Removing

- Set selector lever to "P".
- Lay bare battery posts => Page 27-4 onwards.
- Disconnect battery earth strap with ignition switched off. To do so, unfasten nut -arrow 1-.



- If fitted, disconnect air intake hose for secondary air pump -1- from air cleaner housing.
- Detach air hose at air-mass meter -2-.
- Unplug connector for air-mass meter -3-.
- Screw out bolts -4- and -5-.
- Take out air cleaner housing.

27-85



- Use screwdriver to press selector lever cable -1- off selector shaft lever -4-.

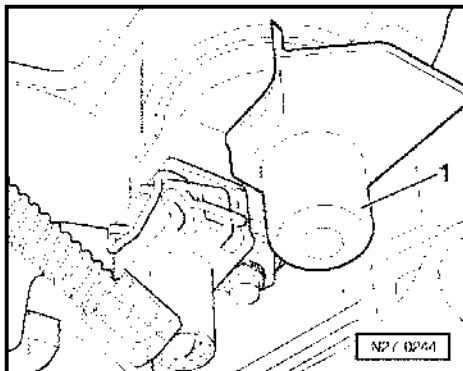
Note:

Bolt -Item 2- is not to be slackened off.

- Unclip circlip -3- at support bracket for selector lever cable.
- Pull selector lever cable out of support bracket and lay aside.

Note:

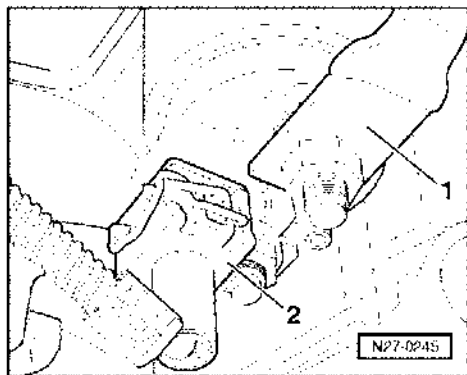
Do not bend or kink selector lever cable.



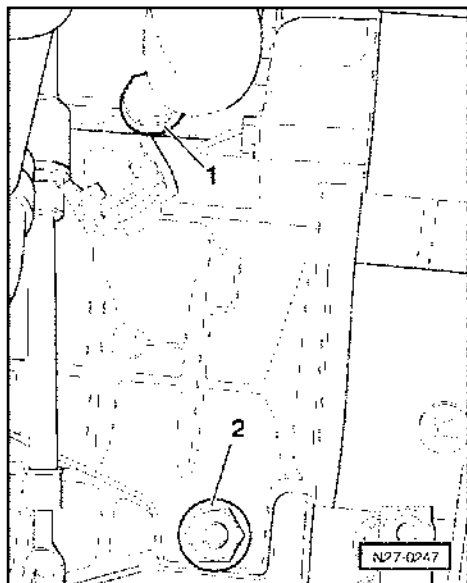
- Pull plastic cap -1- off solenoid switch.

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27-86



- ◀ - Unplug connector -2-.
- Unscrew connector -1-.



- ◀ - Screw out bolts -1- and -2-.
- Lift out starter.

27-87

Installing

Install in reverse order, paying attention to the following:

- Connect battery. Action to be taken => Page 27-13.

Tightening torques

Component		Nm
Starter to gearbox	M8	20
	M10	45
	M12	65
Terminal B+ to starter		13

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27-88

Dash panel insert – up to Model Year 1999

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

Action to be taken after re-connecting power supply => Page 27-13.

———— 90-1 ————

"dEF" display on trip recorder

If control unit in dash panel insert detects a ROM fault, "dEF" is displayed on trip recorder.

- If "dEF" appears, replace dash panel insert => Page 90-3.

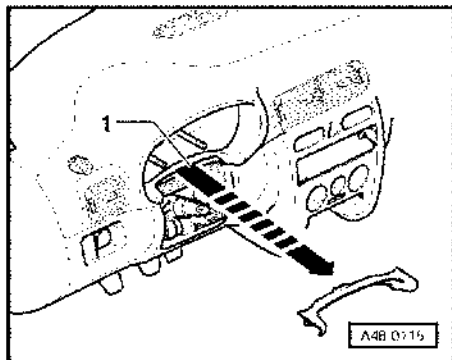
———— 90-2 ————

Removing and installing dash panel insert

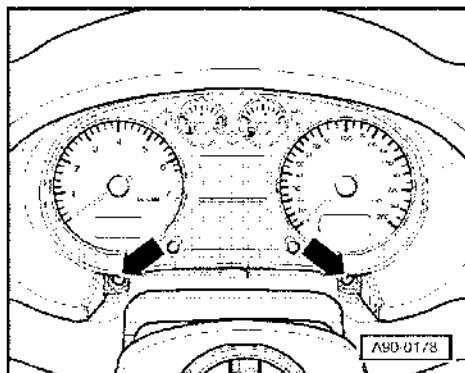
Removing

Notes:

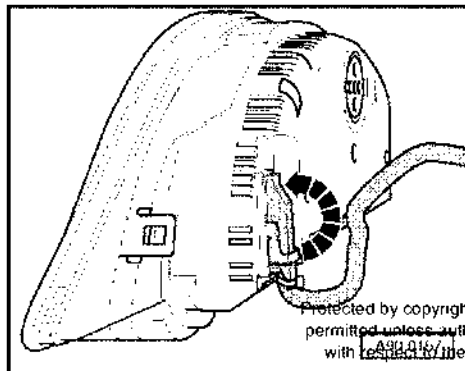
- ◆ Dash panel insert is not to be dismantled.
- ◆ Removal of dash panel insert does not involve taking out steering wheel.
- ◆ All cable ties unfastened or cut open on removal are to be re-attached in same position on installation.
- Determine input values for dash panel insert replacement:
=> Electrical System Self-diagnosis; Repair Group 01; Self-diagnosis of dash panel insert up to Model Year 1999 =>
- ◀ - Pull out steering wheel with adjuster as far as it will go and tilt it downwards.
- Pull off surround -1- in direction of arrow.



90-3



- ◀ - Screw out bolts -arrows-.
- Pull out dash panel insert to front.
- If fitted, cut open cable ties on back of dash panel insert.



- ◀ - Release catches of connectors -arrow- and unplug connectors.

Installing

Install in reverse order, paying attention to the following:

- After installation, check operation of dash panel insert.
- If operation is OK, enter input values for dash panel insert:
=> Electrical System Self-diagnosis; Repair Group 01; Self-diagnosis of dash panel insert up to Model Year 1999 =>

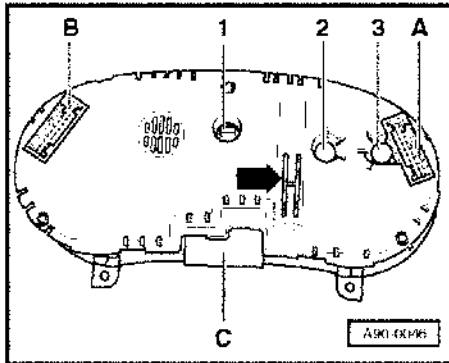
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90-4

Assignment of dash panel insert lamps – Model Year 1997

Note:

With three exceptions, all warning lamps are fitted with light-emitting diodes. Dash panel insert must be replaced in the event of failure of warning lamp with LED.



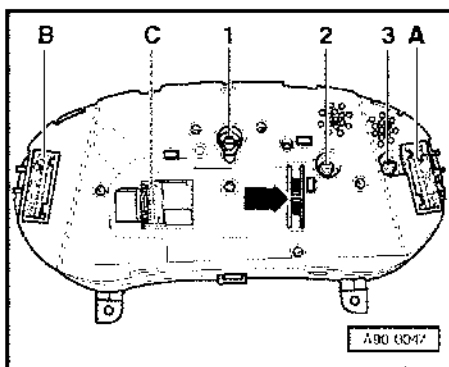
Midline dash panel insert

- 1 - Main beam warning lamp
- 2 - Traction control system (TCS) warning lamp (only if TCS fitted)
- 3 - Trailer turn signal indicator lamp (only if trailer coupling fitted)
- A - Blue 32-pin connector for basic functions
- B - Green 32-pin connector for additional functions
- C - Cover panel for vehicles with no ambient temperature display

Note:

Cover panel -C- is to be removed if dash panel insert is replaced on vehicles with ambient temperature display or if ambient temperature display is retrofitted.

90-5



Highline dash panel insert

- 1 - Main beam warning lamp
- 2 - Traction control system (TCS) warning lamp (only if TCS fitted)
- 3 - Trailer turn signal indicator lamp (only if trailer coupling fitted)
- A - Blue 32-pin connector for basic functions
- B - Green 32-pin connector for additional functions
- C - Red 20-pin connector for driver information system (DIS)

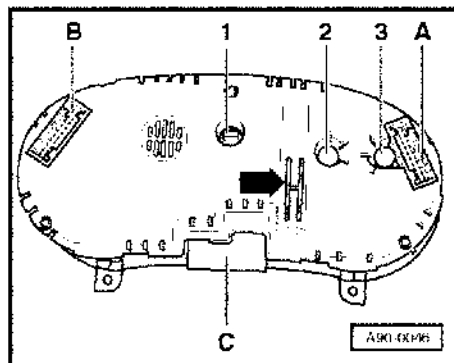
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90-6

Assignment of dash panel insert lamps – as of Model Year 1998

Note:

With two exceptions, all warning lamps are fitted with light-emitting diodes. Dash panel insert must be replaced in the event of failure of warning lamp with LED.



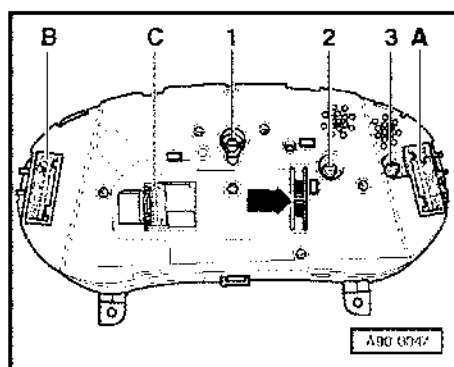
Midline dash panel insert

- 1 - Main beam warning lamp
- 2 - Electronic stability program (ESP) warning lamp (only if ESP fitted)
- 3 - Trailer turn signal indicator lamp (only if trailer coupling fitted)
- A - Blue 32-pin connector for basic functions
- B - Green 32-pin connector for additional functions
- C - Cover panel for vehicles with no ambient temperature display

Note:

Cover panel -C- is to be removed if dash panel insert is replaced on vehicles with ambient temperature display or if ambient temperature display is retrofitted.

90-7



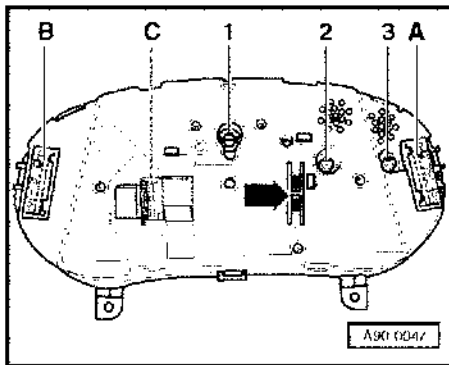
Highline dash panel insert

- 1 - Main beam warning lamp
- 2 - Electronic stability program (ESP) warning lamp (only if ESP fitted)
- 3 - Trailer turn signal indicator lamp (only if trailer coupling fitted)
- A - Blue 32-pin connector for basic functions
- B - Green 32-pin connector for additional functions
- C - Red 20-pin connector for driver information system (DIS)

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90-8

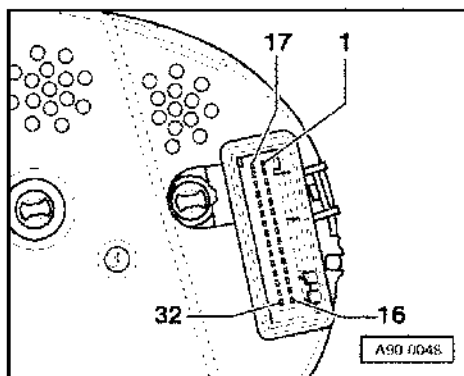
Multi-pin connectors at dash panel insert



- ◀ - A - Green 32-pin connector
- B - Blue 32-pin connector
- C - Red 20-pin connector

90-9

Assignment of contacts at multi-pin connectors at dash panel insert – Model Year 1997



Blue 32-pin connector

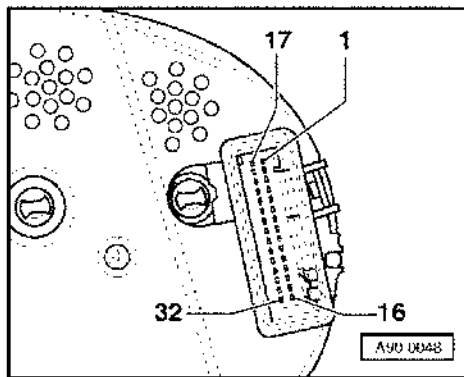
- ◀ - 1 - Terminal 15
- 2 - Right turn signal indicator
- 3 - Speedometer output 1
- 4 - Not used
- 5 - Fuel-gauge sender
- 6 - Airbag
- 7 - Terminal 31 (sensor earth)
- 8 - Coolant temperature
- 9 - Terminal 31 (load earth)

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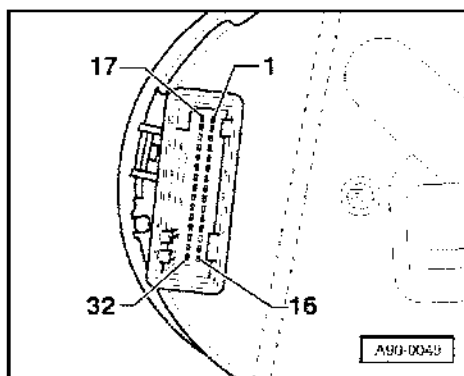
- 10 - Oil pressure switch
- 11 - Engine speed signal

- 12 - Terminal 61
- 13 - Glow period warning lamp or CAT
- 14 - Rear fog light
- 15 - Not used
- 16 - Trailer turn signal indicator

90-10



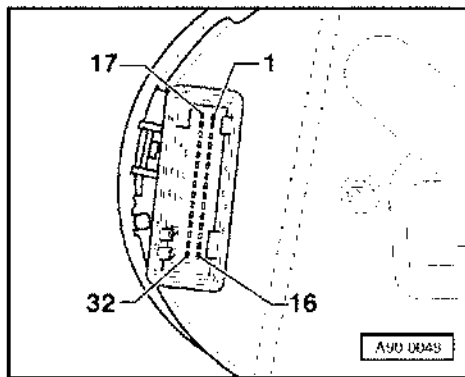
- ◀ - 17 - Main beam
- 18 - Left turn signal indicator
- 19 - ABS
- 20 - Terminal 58d
- 21 - Driver's door contact
- 22 - Coolant low
- 23 - Terminal 30
- 24 - Terminal 31 (load earth)
- 25 - K-wire
- 26 - Right parking light
- 27 - Left parking light
- 28 - Speedometer input
- 29 - Brake fluid level/pressure
- 30 - S-contact
- 31 - Belt buckle
- 32 - TCS (not used at present)



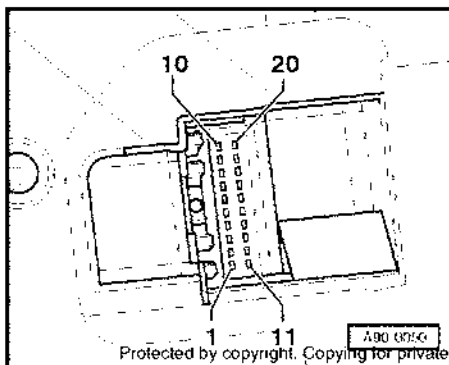
Green 32-pin connector

- ◀ - 1 - Transponder screen
- 2 - Transponder coil
- 3 - Not used
- 4 - Not used
- 5 - W-wire
- 6 - Tailgate/boot lid (midline version only)
- 7 - Brake pad (not used at present)
- 8 - Input for external buzzer actuation (not used at present)
- 9 - Input for external gong actuation (not used at present)
- 10 - Tank warning output signal for engine control unit (not used at present)
- 11 - Standing time output
- 12 - Air conditioner shutoff
- 13 - Parking brake
- 14 - Tailgate/boot lid (highline version only)
- 15 - Side light
- 16 - Not used

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- ◀ - 17 - Transponder coil
- 18 - Not used
- 19 - Not used
- 20 - Not used
- 21 - Not used
- 22 - Not used
- 23 - Not used
- 24 - Not used
- 25 - Not used
- 26 - Ambient temperature
- 27 - Not used
- 28 - Not used
- 29 - Terminal 58d (output signal from photosensor)
- 30 - Speedometer output 2
- 31 - Selector lever position display
- 32 - Not used



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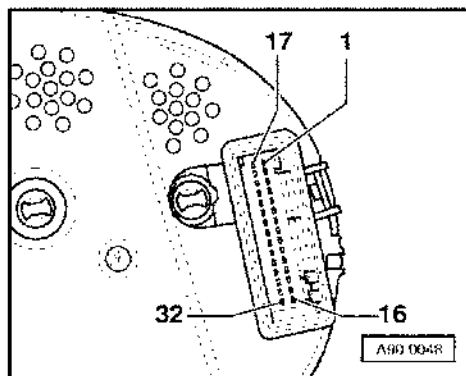
Red 20-pin connector

- ◀ - 1 - Consumption signal
- 2 - Not used
- 3 - Not used
- 4 - Not used
- 5 - Ambient temperature
- 6 - Selector lever position display
- 7 - Not used
- 8 - Not used

Blue 20-pin connector

- 9 - Washer fluid
- 10 - Hydraulic pressure
- 11 - On-board computer/reset
- 12 - Clock signal for radio frequency display
- 13 - Data signal for radio frequency display
- 14 - On-board computer/left
- 15 - Enable signal for radio frequency display
- 16 - Reversing light/dipped beam (lamp check)
- 17 - Glow plug relay (with diesel engine only, undervoltage monitoring in dash panel insert is suppressed during glow period)
- 18 - On-board computer/right
- 19 - Brake light
- 20 - Not used

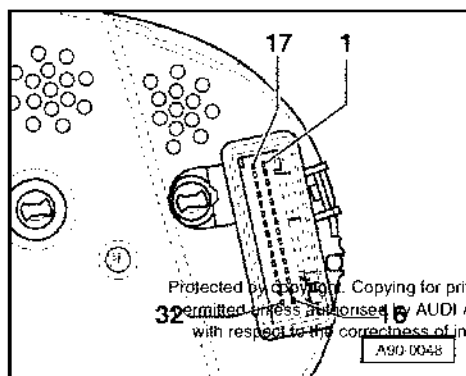
Assignment of contacts at multi-pin connectors at dash panel insert – as of Model Year 1998



Blue 32-pin connector

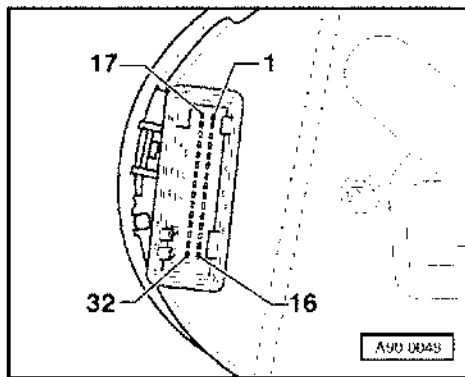
- 1 - Terminal 15
- 2 - Right turn signal indicator
- 3 - Speedometer output 1
- 4 - Not used
- 5 - Fuel-gauge sender
- 6 - Airbag
- 7 - Terminal 31 (sensor earth)
- 8 - Coolant temperature
- 9 - Terminal 31 (load earth)
- 10 - Oil pressure switch
- 11 - Engine-speed signal
- 12 - Terminal 61
- 13 - Glow period warning lamp or CAT
- 14 - Self-levelling suspension (not used at present)
- 15 - Terminal 58d
- 16 - Trailer turn signal indicator

90-15



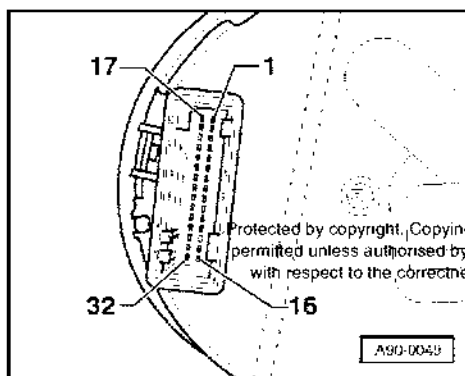
- 17 - Main beam
- 18 - Left turn signal indicator
- 19 - ABS
- 20 - Terminal 58b
- 21 - Driver's door contact
- 22 - Coolant low
- 23 - Terminal 30
- 24 - Terminal 31 (load earth)
- 25 - K wire
- 26 - Right parking light
- 27 - Left parking light
- 28 - Speedometer input
- 29 - Brake fluid level/pressure
- 30 - S-contact
- 31 - Belt buckle
- 32 - TCS

90-16



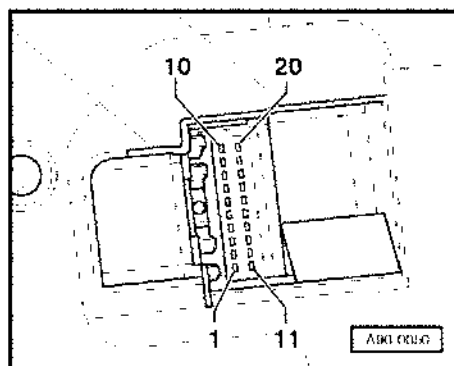
Green 32-pin connector

- ◀ - 1 - Not used
- 2 - Transponder 1
- 3 - Not used
- 4 - Not used
- 5 - W-wire
- 6 - Tailgate/boot lid (midline version only)
- 7 - Brake pad (not used at present)
- 8 - Input for external buzzer actuation (not used at present)
- 9 - Input for external gong actuation (not used at present)
- 10 - Tank warning output signal for engine control unit (not used at present)
- 11 - Standing time output
- 12 - Air conditioner shutoff



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- ◀ - 13 - Parking brake
- 14 - Electronic throttle
- 15 - Side light
- 16 - Not used
- 17 - Transponder 2
- 18 - Not used
- 19 - Not used
- 20 - Not used
- 21 - Not used
- 22 - Not used
- 23 - Not used
- 24 - Not used
- 25 - Not used
- 26 - Not used
- 27 - Not used
- 28 - Not used
- 29 - Terminal 58d (external dimmer potentiometer)
- 30 - Speedometer output 2
- 31 - Not used
- 32 - Not used



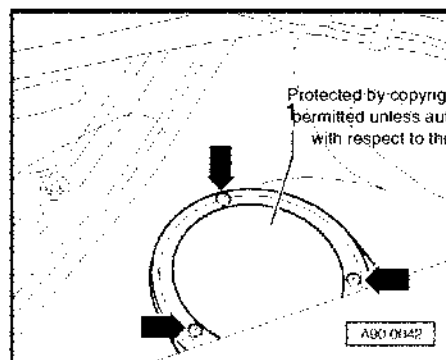
Red 20-pin connector

- 1 - Consumption signal
- 2 - Not used
- 3 - Not used
- 4 - Not used
- 5 - Ambient temperature
- 6 - Selector lever position display
- 7 - Not used
- 8 - Not used
- 9 - Washer fluid
- 10 - Hydraulic pressure
- 11 - On-board computer/reset
- 12 - Clock signal for radio frequency display
- 13 - Data signal for radio frequency display
- 14 - On-board computer/left
- 15 - Enable signal for radio frequency display
- 16 - Reversing light/dipped beam (lamp check)
- 17 - Glow plug relay (with diesel engine only, undervoltage monitoring in dash panel insert is suppressed during glow period)
- 18 - On-board computer/right
- 19 - Brake light
- 20 - Not used

Connection assignment at fuel-gauge sender

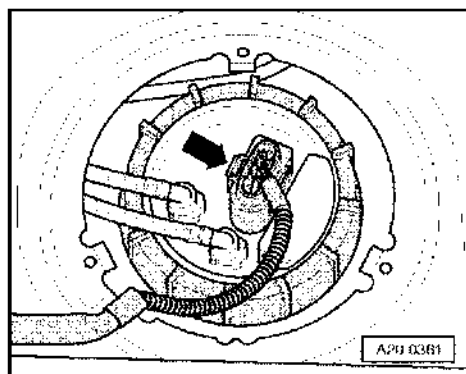
Fuel-gauge sender is located beneath rear seat bench.

- Remove rear seat bench.



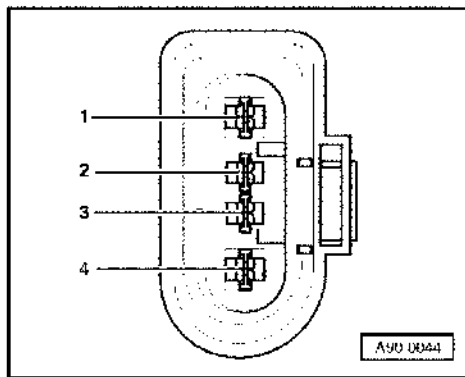
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Unscrew cover -> for sealing flange -arrows-.



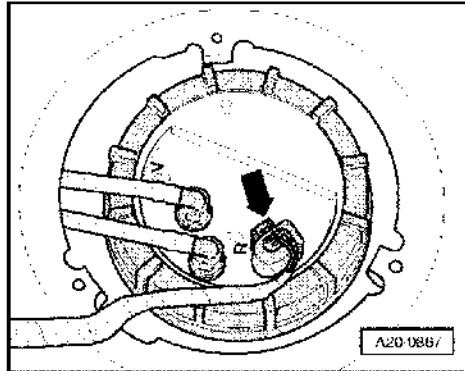
Vehicles with petrol engine:

- Carefully release 4-pin connector -arrow- and unplug.



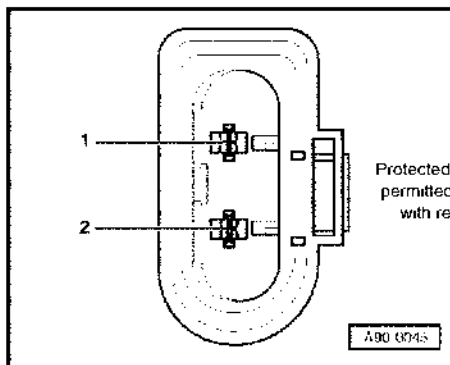
Assignment of 4-pin connector at fuel-gauge sender

- 1 - Switched-positive connection of electric fuel pump
- 2 - Wiring between fuel-gauge sender and dash panel insert (fuel gauge)
- 3 - Fuel-gauge sender earth (sensor earth)
- 4 - Electric fuel pump earth



Vehicles with TDI engine:

- Carefully release 2-pin connector -arrow- and unplug.

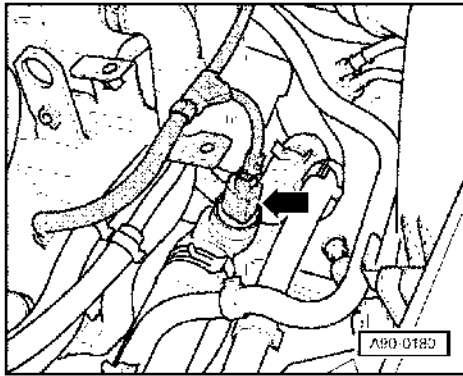


Assignment of 2-pin connector at fuel gauge sender

- 1 - Wiring between fuel-gauge sender and dash panel insert (fuel gauge)
- 2 - Fuel-gauge sender earth (sensor earth)

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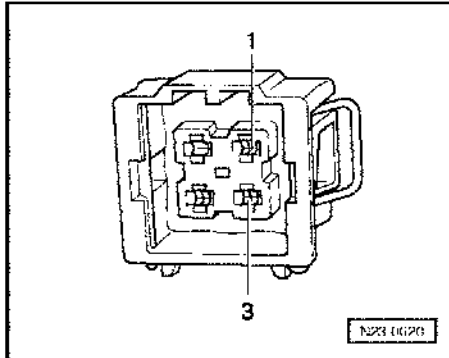
Terminal assignment at coolant temperature sender - G2



Coolant temperature sender is located at thermostat connection.
◀ – Carefully release 4-pin connector -arrow- and unplug.

Note:

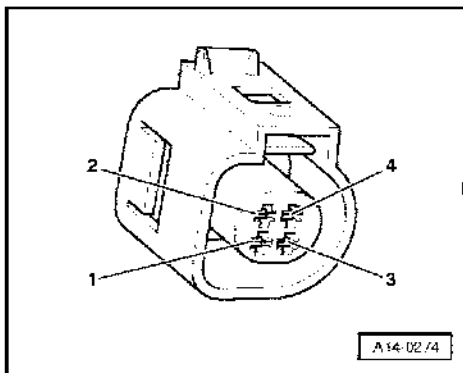
Fig. shows vehicle with 1.8 l turbo engine.



Assignment of 4-pin connector at coolant temperature sender

- ◀ ● Square connector
- 1 - Wiring between coolant temperature sender and dash panel insert (temperature gauge)
 - 2 - Earth

———— 90-23 ————



◀ ● Oval connector

- 1 - Wiring between coolant temperature sender and dash panel insert (temperature gauge)
- 2 - Earth

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———— 90-24 ————

Radio clock

Note:

Aerial symbol at top left of clock display indicates that vehicle is fitted with radio clock.

Radio clock is integrated into dash panel insert and is not available as a separate replacement part.

- If radio clock is defective, dash panel insert must be replaced

= > Page 90-3.

Dash panel insert – as of Model Year 2000

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. = > Radio, Telephone, Navigation; Repair Group 91

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- Disconnect battery earth strap with ignition switched off.

Note:

Action to be taken after re-connecting power supply = > Page 27-13.

"dEF" display on trip recorder

If control unit in dash panel insert detects a ROM fault, "dEF" is displayed on trip recorder.

– If "dEF" appears, replace dash panel insert => Page 90-28.

Removing and installing dash panel insert

Removing

Notes:

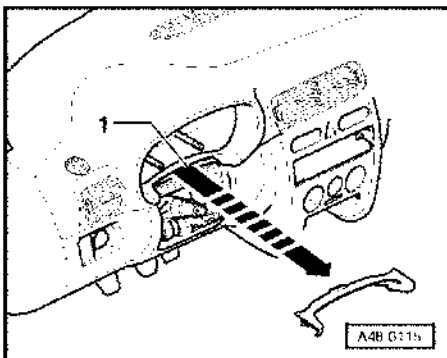
- ◆ Dash panel insert is not to be dismantled.
- ◆ Removal of dash panel insert does not involve taking out steering wheel.

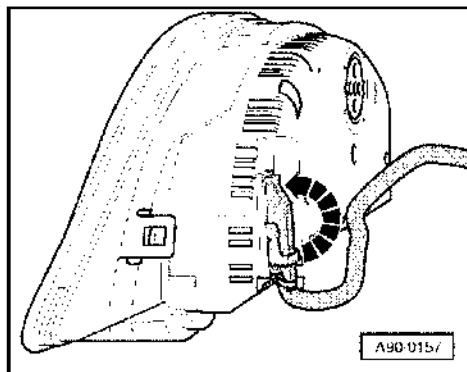
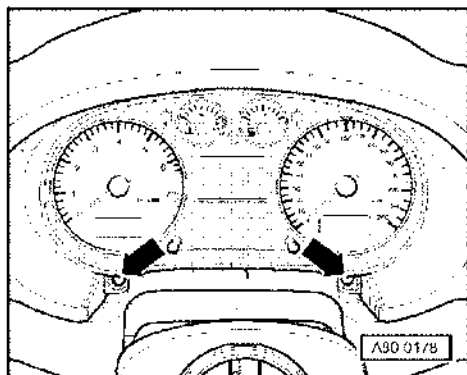
◆ All cable ties unfastened or cut open on removal are to be re-attached in same position on installation.

– Determine input values for dash panel insert replacement:

=> Electrical System Self-diagnosis; Repair Group 01; Self-diagnosis of dash panel insert with Long Life Service as of Model Year 2000 =>

- Pull out steering wheel with adjuster as far as it will go and tilt it downwards.
- Pull off surround -1- in direction of arrow.





- ◀ - Screw out bolts -arrows-.
- Pull out dash panel insert to front.
- If fitted, cut open cable ties on back of dash panel insert.

- ◀ - Release catches of connectors -arrow- and unplug connectors.

Installing

Install in reverse order, paying attention to the following:

- After installation, check operation of dash panel insert.
- If operation is OK, enter input values for dash panel insert:
=> Electrical System Self-diagnosis; Repair Group 01; Self-diagnosis of dash panel insert with Long Life Service as of Model Year 2000 =>

Multi-pin connectors at dash panel insert

Note:

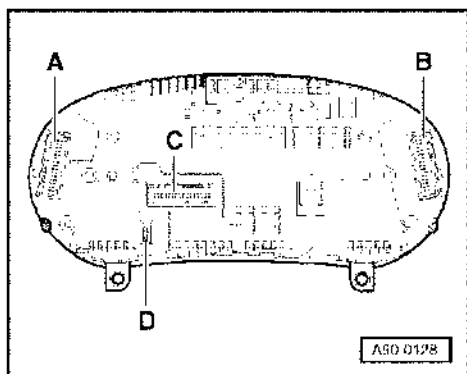
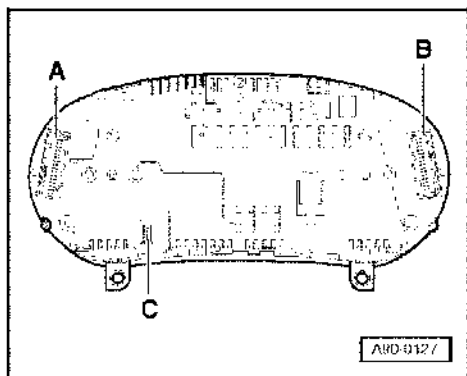
All warning lamps in dash panel insert are fitted with light-emitting diodes. Dash panel insert must be replaced in the event of warning lamp failure.



Midline dash panel insert

- A - Green 32-pin connector
- B - Blue 32-pin connector

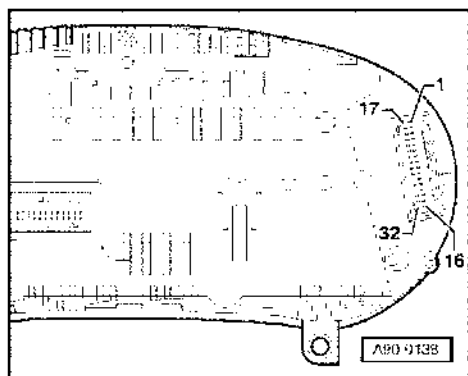
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Highline dash panel insert

- ◀ - A - Green 32-pin connector
- B - Blue 32-pin connector
- C - Grey 32-pin connector
- D - Black, 4-pin connector for radio clock

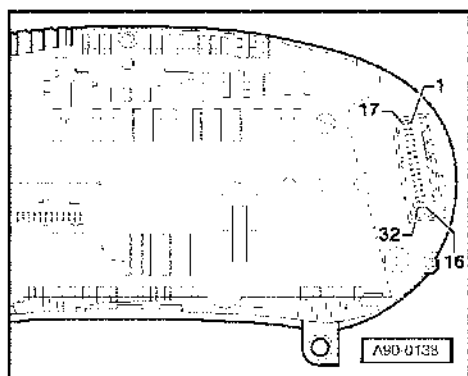
Assignment of contacts at multi-pin connectors at dash panel insert



Blue 32-pin connector

- 1 - Terminal 15
- 2 - Brake pad wear
- 3 - Speedometer output 1
- 4 - Not used
- 5 - Fuel-gauge sender
- 6 - Tank warning OBD 2
- 7 - Terminal 31 (sensor earth)
- 8 - Coolant temperature
- 9 - Terminal 31 (load earth)
- 10 - Oil pressure 2 (high)
- 11 - Engine-speed signal
- 12 - Air conditioner shutoff
- 13 - Electronic throttle/glow period warning lamp
- 14 - Self-levelling suspension
- 15 - Terminal 58d
- 16 - Trailer turn signal indicator

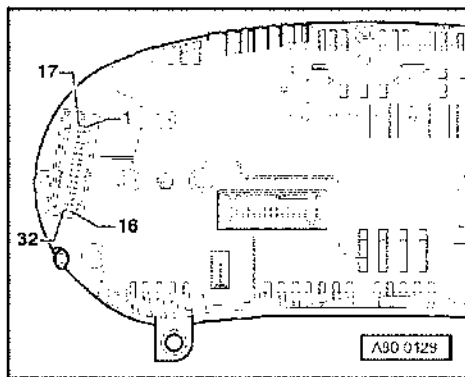
90-31



- 17 - Main beam
- 18 - Left turn signal indicator
- 19 - Not used
- 20 - Terminal 58s
- 21 - Driver's door contact
- 22 - Coolant low
- 23 - Terminal 30
- 24 - Terminal 31 (load earth)
- 25 - Consumption signal
- 26 - Right parking light
- 27 - Left parking light
- 28 - Speedometer input
- 29 - Brake
- 30 - S-contact
- 31 - Speedometer output 2
- 32 - ESP/TCS

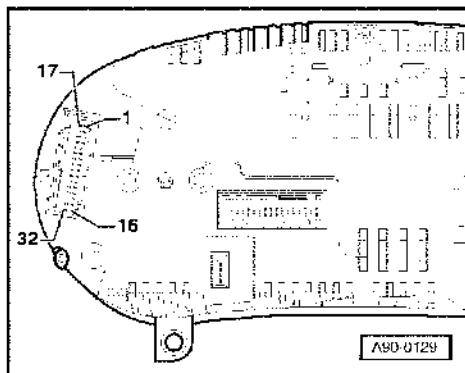
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90-32



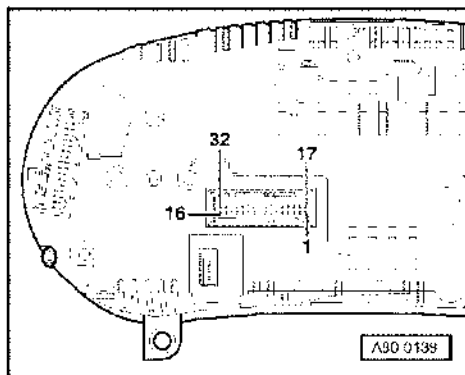
Green 32-pin connector

- 1 - Door contact (all doors)
- 2 - Transponder 1
- 3 - Not used
- 4 - Not used
- 5 - W-wire
- 6 - Tailgate/boot lid
- 7 - Right turn signal indicator
- 8 - External buzzer
- 9 - External gong
- 10 - Airbag
- 11 - Standing time output
- 12 - Terminal 61
- 13 - Parking brake/BRAKE
- 14 - CHECK
- 15 - Oil level/oil temperature
- 16 - Not used



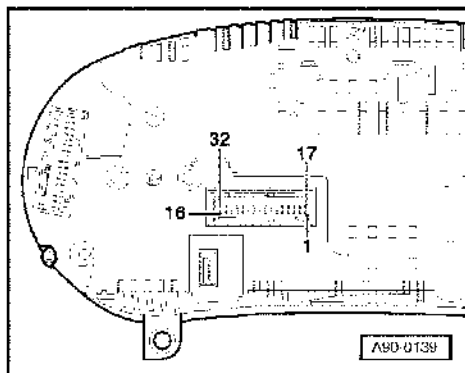
- 17 - Transponder 2
- 18 - CAN high speed (drive) (high +)
- 19 - CAN high speed (drive) (low -)
- 20 - CAN high speed (drive) (screen)
- 21 - ABS
- 22 - CAN low speed (convenience) (high +)
- 23 - CAN low speed (convenience) (low -)
- 24 - CAN low speed (convenience) (screen)
- 25 - Bonnet
- 26 - Filler neck compartment lid
- 27 - Belt buckle
- 28 - K-wire
- 29 - Ambient temperature input
- 30 - Not used
- 31 - Selector lever position display
- 32 - Not used

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Grey 32-pin connector

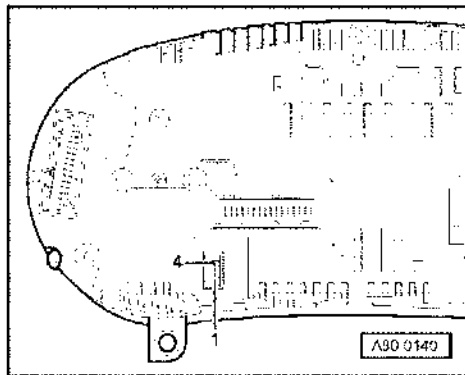
- 1 - Menu switch
- 2 - Menu switch (out A)
- 3 - Menu switch (out B)
- 4 - Menu switch (enter)
- 5 - CAN high speed display (high +)
- 6 - CAN high speed display (low -)
- 7 - CAN high speed display (screen)
- 8 - Front passenger's door contact
- 9 - Rear right door contact
- 10 - Rear left door contact
- 11 - Enable
- 12 - Clock
- 13 - Data
- 14 - Brake light
- 15 - Washer fluid level
- 16 - Reversing light/dipped beam



- 17 - On-board computer/left
- 18 - On-board computer/right
- 19 - On-board computer/reset
- 20 - Not used
- 21 - Not used
- 22 - Not used
- 23 - Control group 1/navigation
- 24 - Control group 2/navigation
- 25 - Telematics control group
- 26 - Not used
- 27 - Not used
- 28 - Not used
- 29 - Not used
- 30 - Not used
- 31 - Not used

32 - Not used

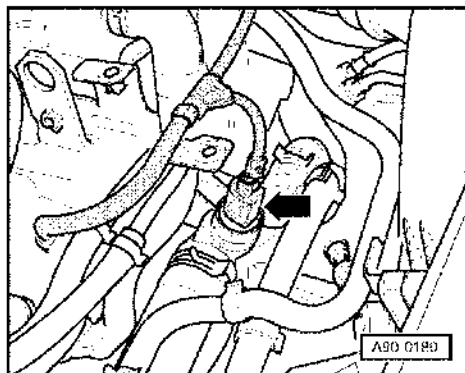
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Black, 4-pin connector for radio clock

- 1 - Radio clock signal (data)
- 2 - Radio clock 5V
- 3 - Not used
- 4 - Radio clock earth

Terminal assignment at coolant temperature sender - G2



Coolant temperature sender is located at thermostat connection.

- Carefully release 4-pin connector -arrow- and unplug.

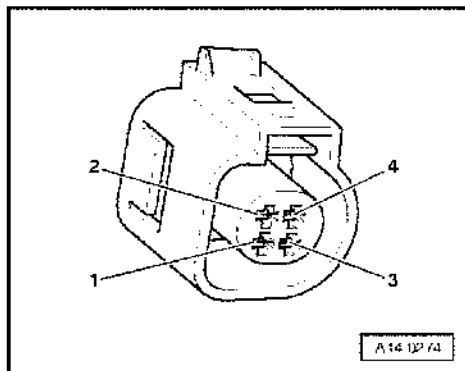
Note:

Fig. shows vehicle with 1.8 l turbo engine.

Assignment of 4-pin connector at coolant temperature sender

- 1 - Wiring between coolant temperature sender and dash panel insert (temperature gauge)
- 2 - Earth
- 3 - Not used
- 4 - Coolant temperature sender

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Radio clock

Note:

Aerial symbol at top left of clock display indicates that vehicle is fitted with radio clock.

Radio clock is integrated into dash panel insert and is not available as a separate replacement part.

- If radio clock is defective, dash panel insert must be replaced

= > Page 90 28.

Servicing windscreen wiper system

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

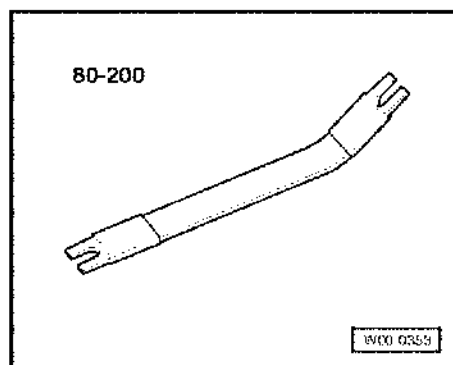
Action to be taken after re-connecting power supply => Page 27-13.

92-1

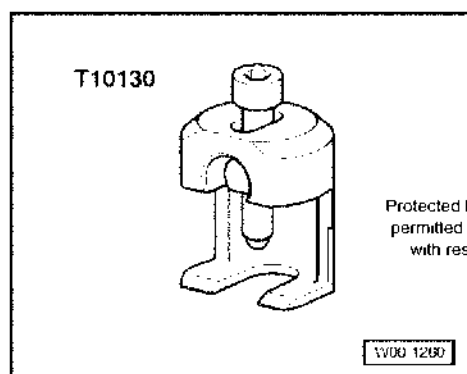
Removing and installing windscreen wiper system

Special tools and workshop equipment required

- ◆ Pressing-off lever 80-200

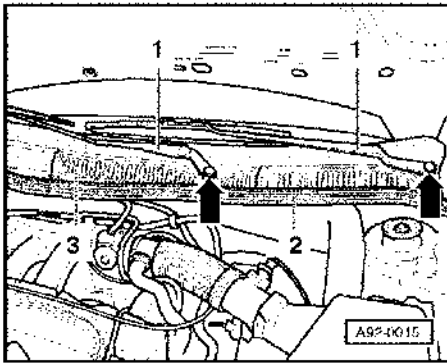


- ◆ Puller T10130



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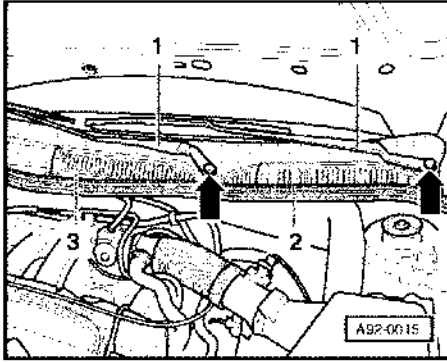
92-2



Removing

Detaching wiper arms

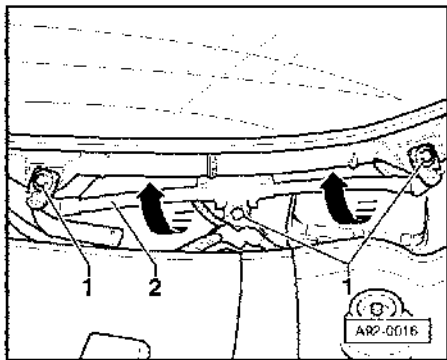
- ◀ - Use screwdriver to prise off caps at wiper arms -arrows- and unscrew hexagon nuts.
- Use puller T10130 to pull wiper arms -1- off wiper shaft and detach.



Removing wiper frame with linkage and wiper motor

- ◀ - Pull off rubber seal -2- of plenum chamber cover.
- Lift plenum chamber cover -3- such that washer fluid pipe can be disconnected.
- Unplug connector if fitted.
- Detach plenum chamber cover -3-.

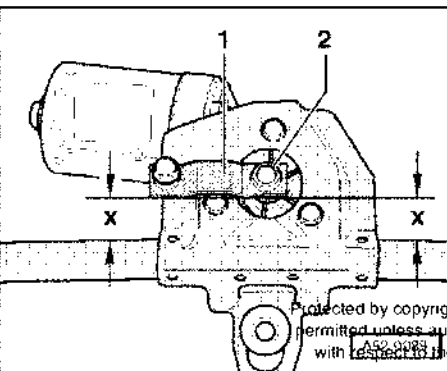
92-3



- ◀ - Screw out bolts -1-.
- Carefully tip up -arrows- wiper frame -2- at front and unplug connector.
- Take wiper frame with linkage and wiper motor to left out of plenum chamber.

Note:

Use adhesive tape to stop wing becoming scratched.

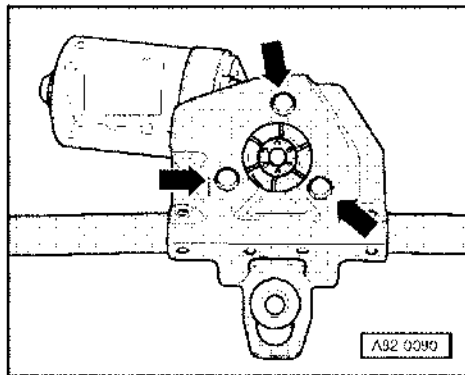


Detaching wiper motor from wiper frame

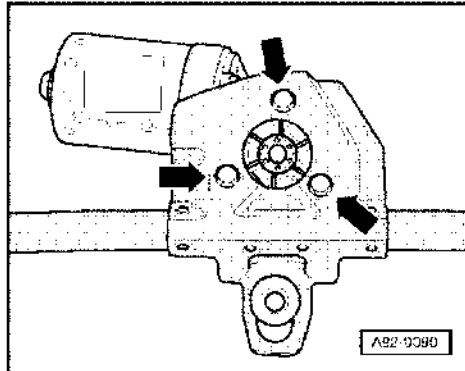
- Use pressing-off lever 80-200 to prise wiper linkage off ball end -arrow-.
- ◀ - Unscrew nut -2-.
- Pull crank -1- off wiper motor.

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92-4



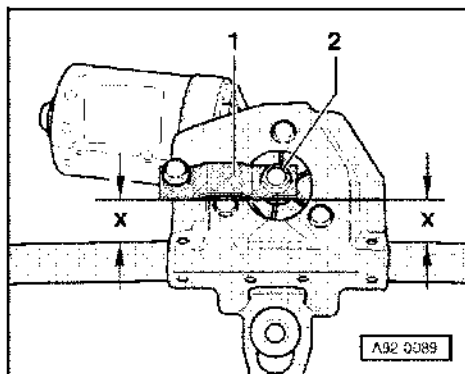
- ◀ – Unscrew wiper motor from wiper frame -arrows-.



Installing

- ◀ Install in reverse order, paying attention to the following:
 - Screw wiper motor without crank to wiper frame (9 Nm) - arrows-.
 - Attach connector to wiper motor.
 - Fit wiper motor with wiper frame in vehicle (5 Nm). To do so, slide wiper frame towards windscreen as far as it will go.

92-5



- Actuate flick wipe function.
- Allow wiper motor to run into park position.
- ◀ – Align crank -1- in parallel with wiper frame and tighten nut -2- to 18 Nm.
 - Dimension x on left = Dimension x on right

Note:

Wiper frame has been removed in Fig.

- Set park position of wiper blades => Page 92-7.

Tightening torque

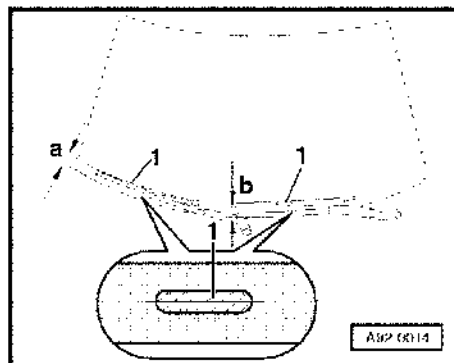
Component	Nm
Wiper frame to plenum chamber	5

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92-6

Adjusting park position of wiper blades

- Allow wiper motor to run into park position.
- Check whether wiper blades rest on marks -1- on windscreen in stated position.
- Check whether distance between ends of wiper blades and water deflector at bottom edge of windscreen is as follows:



Type of vehicle	Dimension a mm	Dimension b mm
Saloon	15 ... 25	17 ... 27

Note:

Dimensions indicate distance between wiper blades and cowl panel grille of plenum chamber at bottom edge of windscreen.

- Tighten securing nuts for wiper arms to 16 Nm.
- Actuate flick wipe function.
- If necessary, align wiper arms again and tighten securing nuts.

92-7

Eliminating wiper judder

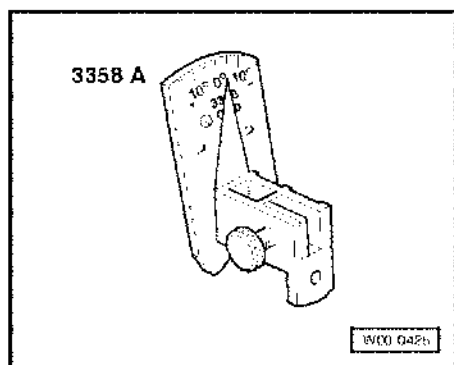
Special tools and workshop equipment required

- ◆ Wiper adjustment tool 3358

Possible causes of wiper judder:

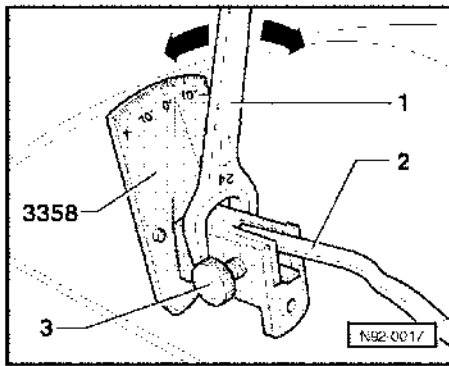
- ◆ Scratches on window
- ◆ Wiper rubber come loose or cracked
- ◆ Wiper arms/blades loose or bent
- ◆ Wax on wiper blades or blades warped

If none of the above are the cause of the "Wiper judder" problem, check and if necessary adjust contact angle of wiper arms before replacing wiper blades.



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92-8

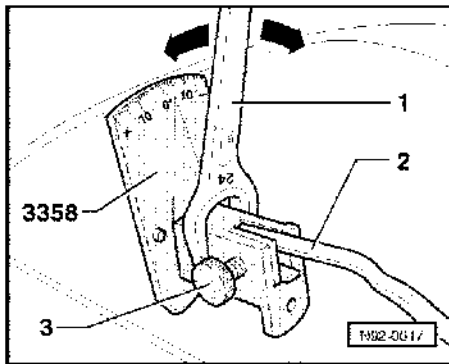


Checking contact angle

- Switch wiper on and off and allow it to return to park position.
- Detach wiper blade.
- Insert wiper arm -2- in wiper arm adjustment tool 3358 and fix in position with lock screw -3-.
- Compare angle displayed to specification.

Contact angle specifications

Vehicle side	Contact angle
Driver's side	$-9^{\circ} \pm 0^{\circ}$
Passenger's side	$-3^{\circ} \pm 0^{\circ}$



Adjusting wiper arms

- Switch wiper on and off and allow it to return to park position.
- Detach wiper blade.
- Insert wiper arm -2- in wiper arm adjustment tool 3358 and fix in position with lock screw -3-.
- Apply 24 mm open-ended wrench -1- to adjustment tool and set wiper arm -2- to specified angle -arrows- => Page 92-9.
- Slacken off lock screw -3- and pull wiper arm -2- out of adjustment tool.
- Re-insert wiper arm -2- in wiper arm adjustment tool 3358 and fix in position again with lock screw -3-.
- Compare angle displayed to specification => Page 92-9.
- If necessary, repeat setting and checking procedure until specification is attained.

Detach adjustment tool and fit wiper blade.

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Servicing windscreen washer system

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

Action to be taken after re-connecting power supply => Page 27-13.

92-11

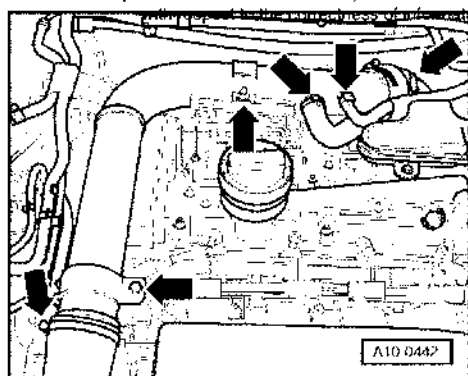
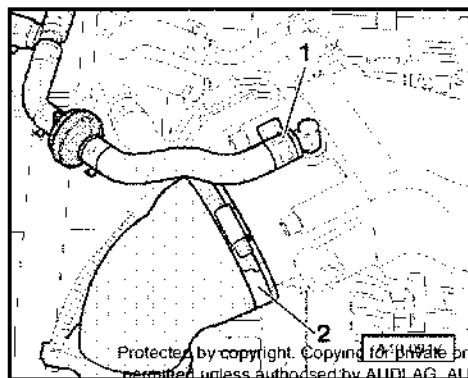
Removing and installing washer fluid reservoir

Removing

- Remove engine covers.

◀ Audi A3 with 1.8 l turbo engine:

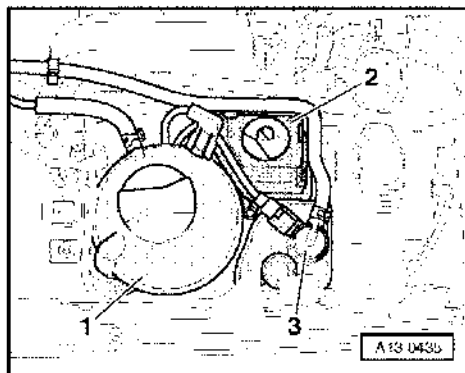
- Pull off air hose -2- at throttle valve control part.



◀ Audi S3:

- Remove air pipe -arrows-.

92-12



All models:

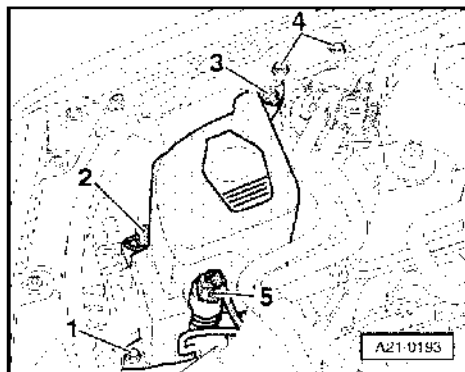
- Unscrew coolant expansion tank -1-.

Vehicles with petrol engine:

- Unscrew activated charcoal filter -3-.

Note:

Leave hoses connected.



Vehicles with TDI engine:

- Unscrew fuel filter bracket from body -4-. Leave hoses connected to fuel filter.

All models:

- Unplug connectors -2- and -5-.
- Unscrew bolt -1- and nut -3-.
- Unplug connectors -2- and -5-.
- Lift out washer fluid reservoir.

Installing

Install in reverse order, paying attention to the following:

Note:

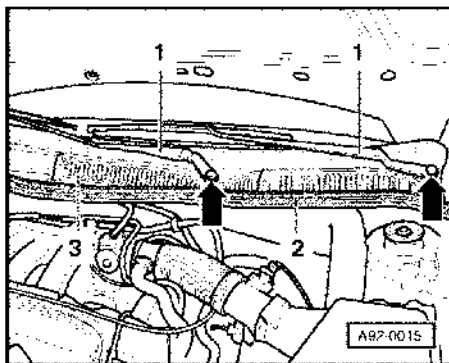
Fluid hose must be heard to engage in washer fluid pump connection.

Tightening torques

Component	Nm
Washer fluid reservoir to body	2.5
Coolant expansion tank to body	10
Activated charcoal filter to body	10
Fuel filter to body	10

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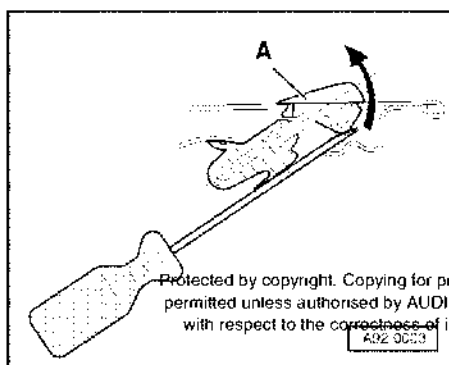
Removing and installing spray jets



Removing

- ◀ - Use screwdriver to prise off caps at wiper arms -arrows- and slacken off hexagon nuts several turns.
- Detach wiper arms -1- from wiper shaft by tilting slightly.
- Completely unscrew hexagon nuts and detach wiper arms.
- Pull off rubber seal -2- of plenum chamber cover.
- Lift plenum chamber cover -3- such that washer fluid pipe can be disconnected.
- Unplug connector if fitted.
- Detach plenum chamber cover -3-.

92-15



- ◀ - Use small screwdriver to press back retainer tab -arrow- and at the same time press gently against connection piece.
- Press spray jet -A- outwards out of plenum chamber cover.

Installing

Install in reverse order, paying attention to the following:

Note:

Fluid hose must be heard to engage in spray jet connection.

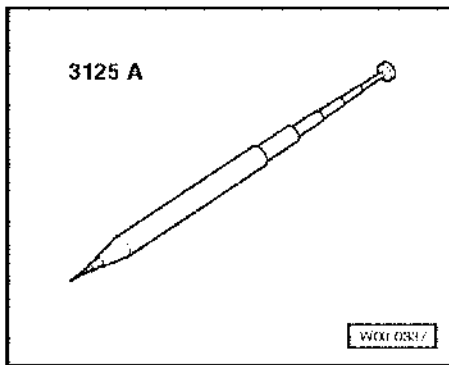
Set park position of wiper blades => Page 92-7.

92-16

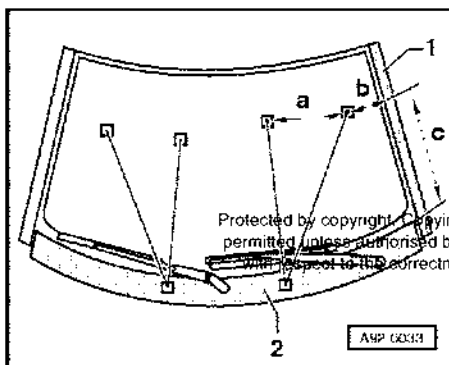
Adjusting spray jets

Special tools and workshop equipment required

- ◆ Adjustment tool for wiper jet
- 3125 A fitted with needle 3125 / 5A



92-17



Notes:

- ◆ Settings for windscreen are calculated from weatherstrip -1- at side and from plenum chamber -2- at bottom.
- ◆ The settings indicate the values for a moving vehicle, i.e. the spray from the jets is slightly offset when the vehicle is stationary.

Use water-soluble pen to mark four points on windscreen.

Dimension a = 240 ± 50 mm

- Dimension b = 190 ± 50 mm

- Dimension c = 320 ± 50 mm

- Aim adjustment tool at the points from each of the spray jets.

92-18

Servicing rear window wipe/wash system

Attention:

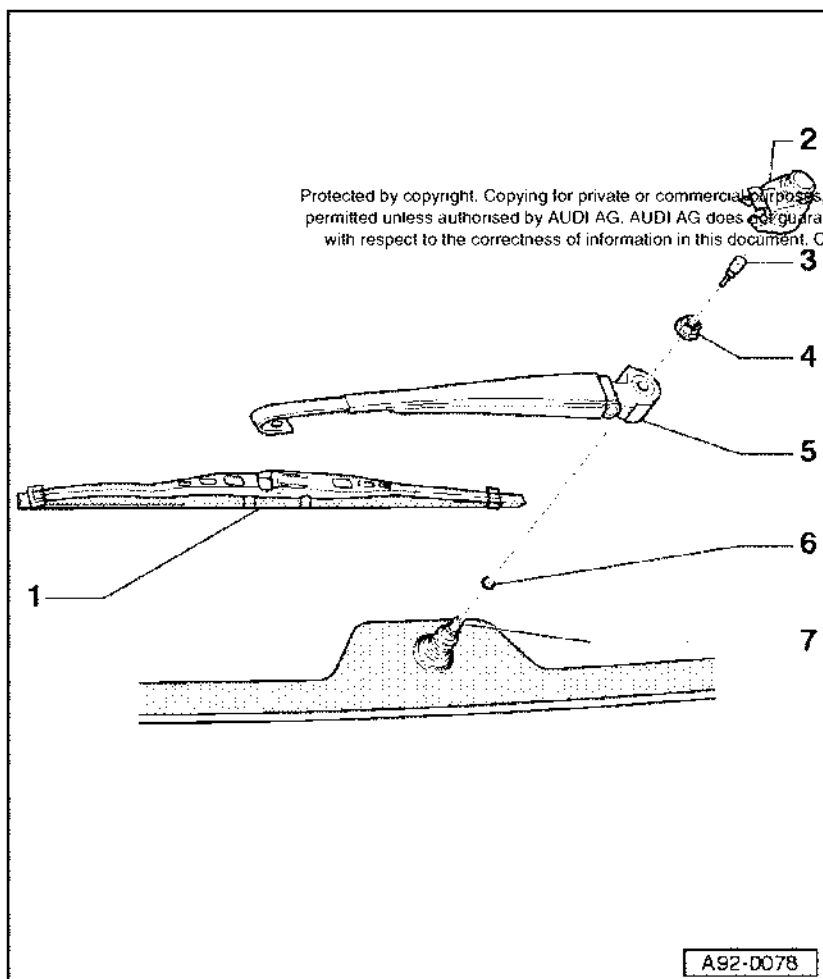
- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

Action to be taken after re-connecting power supply => Page 27-13.

92-19



Removing and installing rear wiper

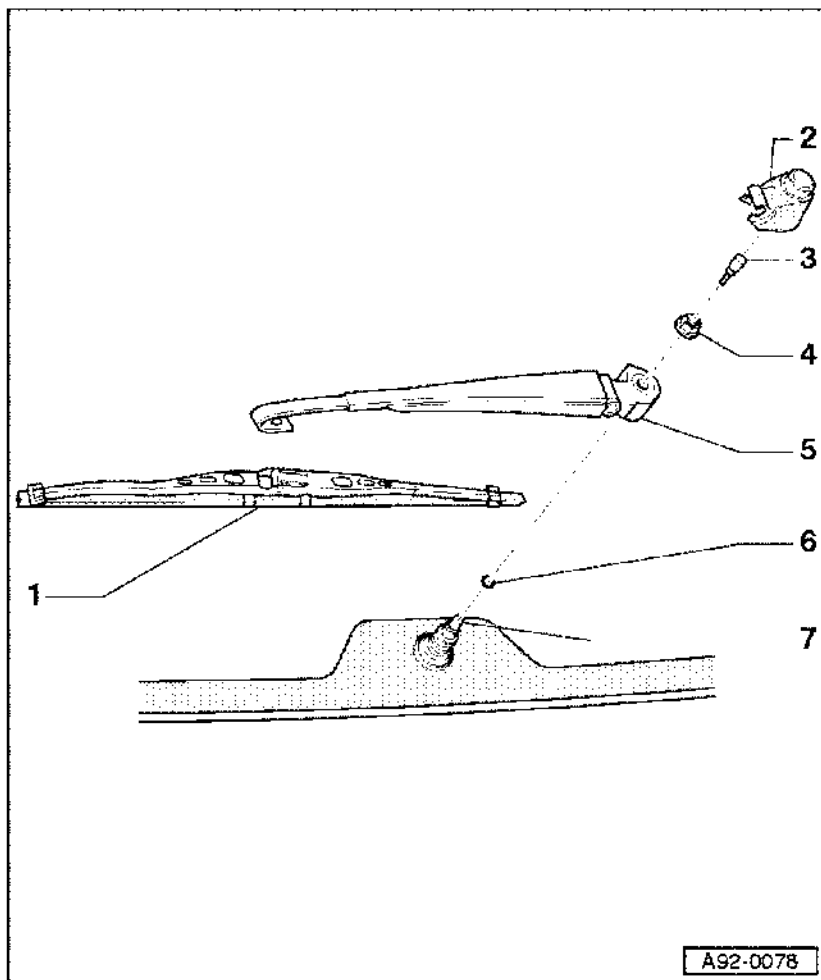
Note:

Before removing wiper arm, make sure wiper motor is in park position.

- 1 - Wiper blade
- 2 - Cap for rear wiper
- 3 - Spray jet
- 4 - Securing nut, 16 Nm
- 5 - Wiper arm
- 6 - O-ring
- 7 - Connection pipe
 - ◆ For spray jet

A92-0078

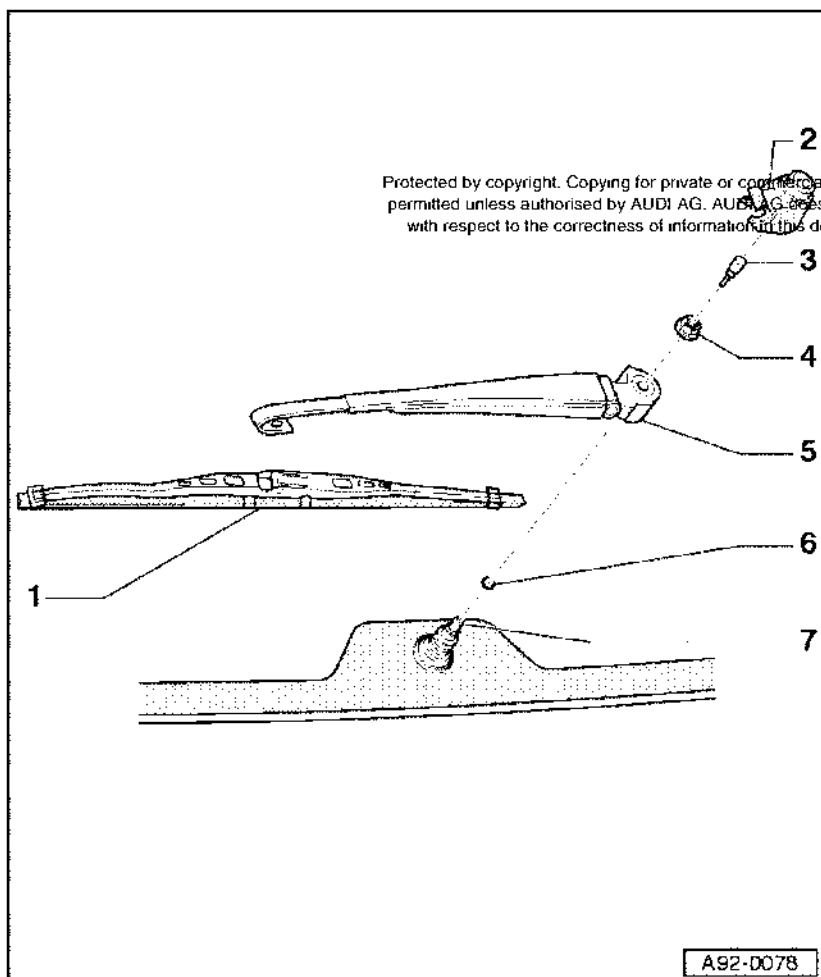
92-20



Removing

- Use small screwdriver to carefully prise off cap -2-.
- Unscrew securing nut -4-.
- Detach wiper arm -5- from drive shaft.

92-21



Installing

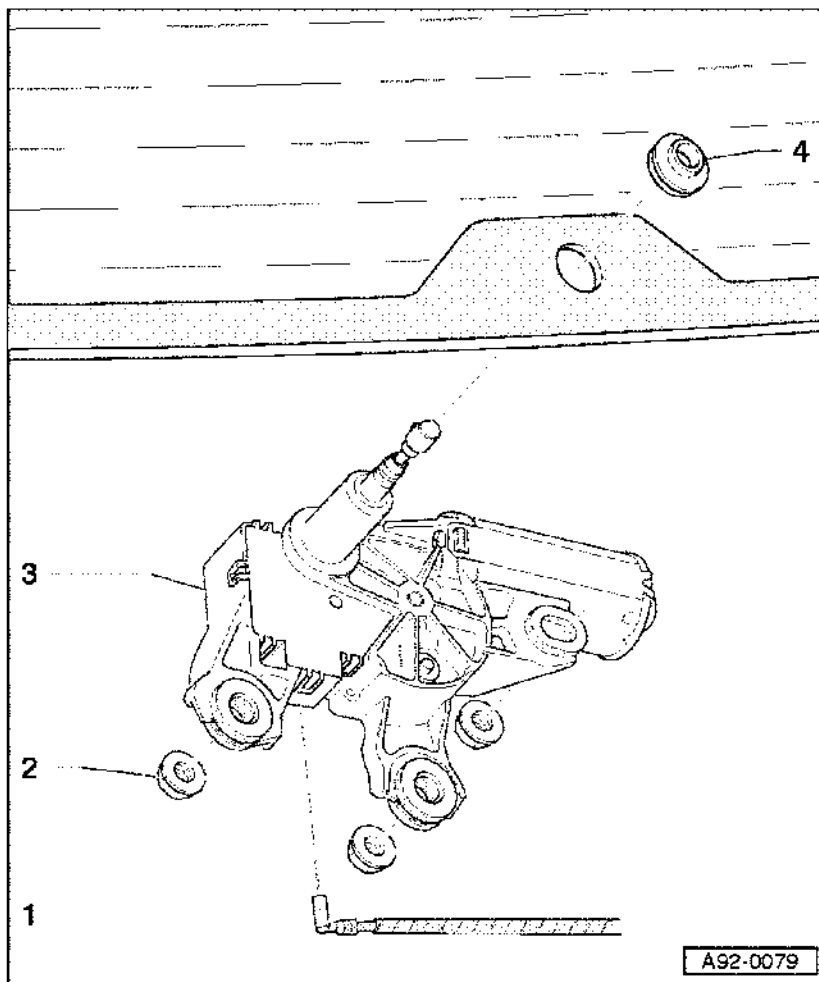
Install in reverse order, paying attention to the following:

- With wiper arm still detached, switch rear wiper on and off and allow it to return to park position.
- Attach wiper arm -5- with wiper blade -1- to drive shaft.
- Align wiper blade in parallel with bottom filament on rear window.
- Screw on wiper arm with nut -4- (16 Nm).
- Operate rear wiper.
- If necessary, align wiper arm again and tighten securing nut.

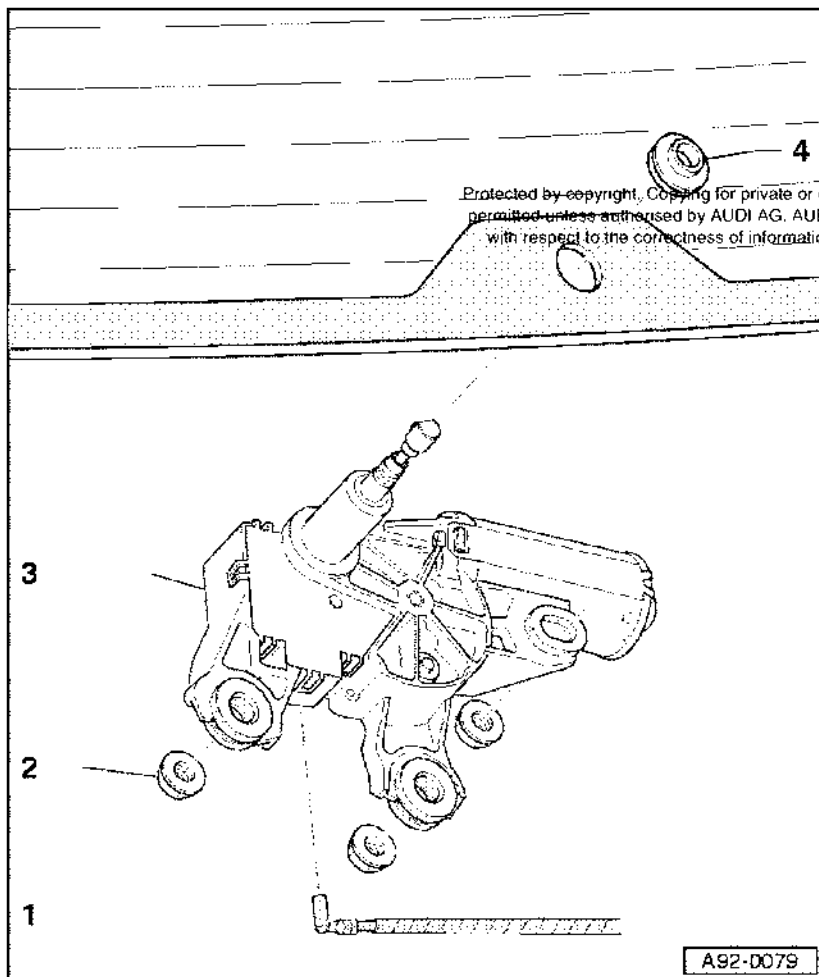
92-22

Removing and installing rear wiper motor

- 1 - Fluid hose
- 2 - Securing nut, 8 Nm
- 3 - Wiper motor
- 4 - Rubber seal



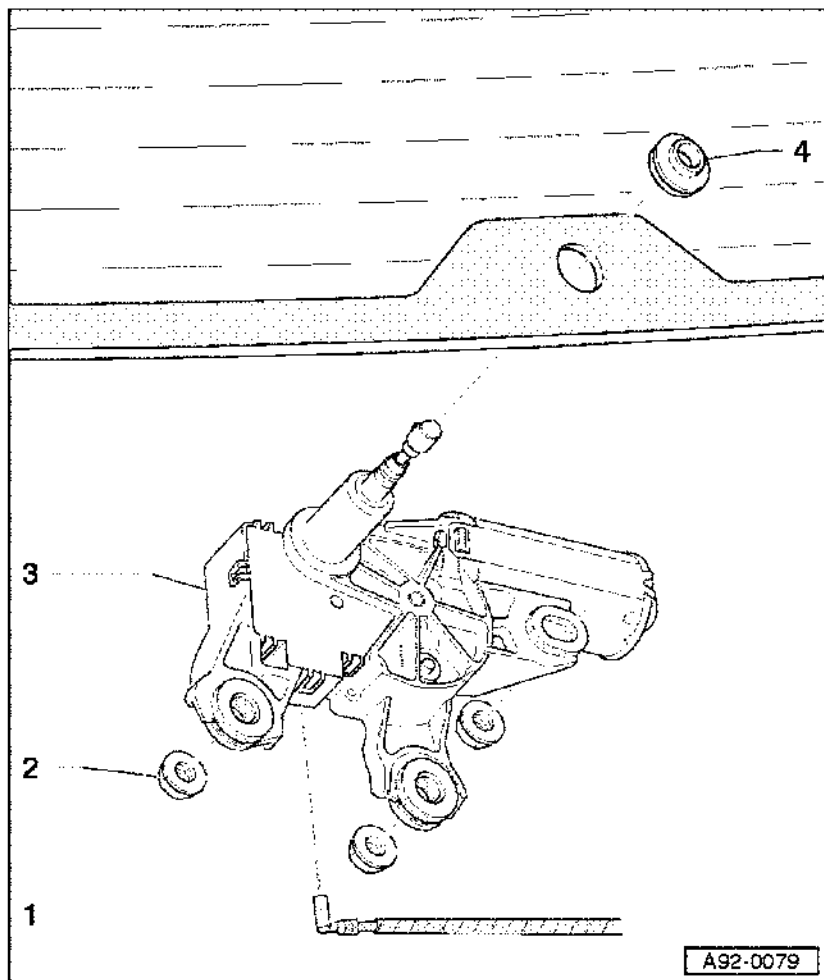
92-23



Removing

- Remove rear wiper => Page 92-20.
- Remove trim at bottom of tailgate. => General Body Repairs, Interior;
- Repair Group 70 => Unplug connector.
- Carefully pull fluid hose -1- off connection pipe.
- Unscrew securing nuts -2-.
- Detach wiper motor -3-.

92-24



Installing

Install in reverse order, paying attention to the following:

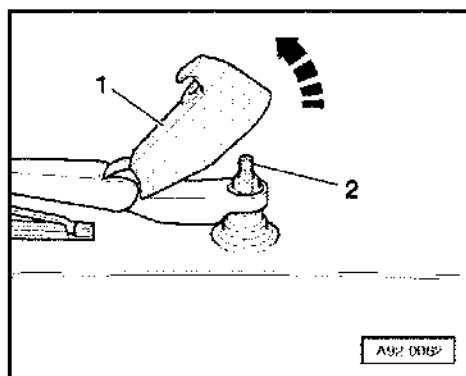
Note:

Carefully insert rubber seal -4- in hole in rear window.

- Tighten securing nuts -2- (8 Nm).
- Fluid hose must be heard to engage in spray jet connection.

92-25

Removing and installing spray jet



Removing

- Carefully prise off cap -1- of spray jet -arrow-.
- Pull spray jet -2- out of connection pipe.

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Installing

Install in reverse order, paying attention to the following:

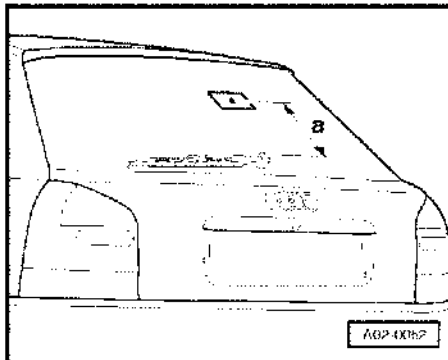
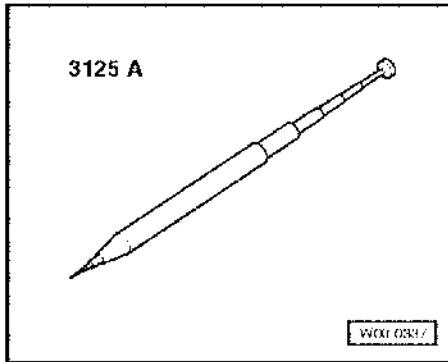
- Insert spray jet such that opening is facing upwards.

92-26

Adjusting spray jet

Special tools and workshop equipment required

- ♦ Adjustment tool for wiper jet
3125 A fitted with needle 3125 / 5A



Sequence of operations

- Use special tool 3125 A to set spray jet such that fluid jet is sprayed onto rear window at a distance of $a = 280$ mm above wiper shaft.

92-27

Adjusting park position of wiper blade

- Allow wiper motor to run into park position.
- Check whether wiper blade comes to rest on upper edge of hatched area at bottom of rear window.
- If necessary, slacken off wiper arm, align it correctly and then tighten nut.

Tightening torque

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Component	Nm
Wiper arm to wiper shaft	16

92-28

Eliminating rear wiper judder

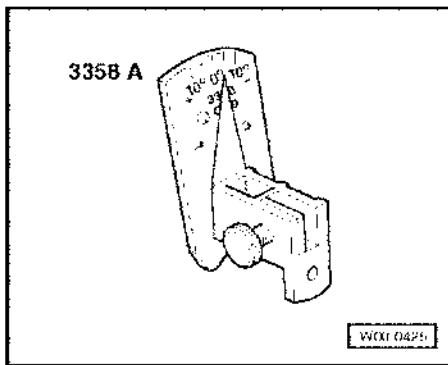
Special tools and workshop equipment required

- ◆ Wiper adjustment tool 3358

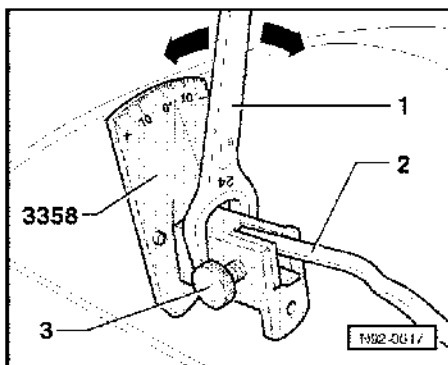
Possible causes of wiper judder:

- ◆ Scratches on window
- ◆ Wiper rubber come loose or cracked
- ◆ Wiper arms/blades loose or bent
- ◆ Wax on wiper blades or blades warped

If none of the above are the cause of the "Wiper judder" problem, check and if necessary adjust contact angle of wiper arms before replacing wiper blades.



92-29



Checking contact angle

- Switch wiper on and off and allow it to return to park position.
- Detach wiper blade.
- Insert wiper arm -2- in wiper arm adjustment tool 3358 and fix in position with lock screw -3-.
- Compare angle displayed to specification.

Contact angle specification

Vehicle side

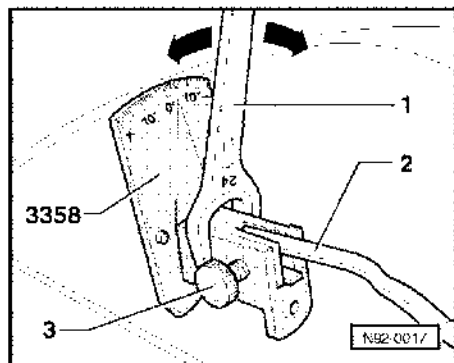
Driver's side

Contact angle

$-9^{\circ} \pm 0^{\circ}$

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92-30



Adjusting wiper arms

- Switch wiper on and off and allow it to return to park position.
- Detach wiper blade.
- Insert wiper arm -2- in wiper arm adjustment tool 3358 and fix in position with lock screw -3-.
- Apply 24 mm open-ended wrench -1- to adjustment tool and set wiper arm -2- to specified angle -arrows- =>Page 92-9.
- Slacken off lock screw -3- and pull wiper arm -2- out of adjustment tool.
- Re-insert wiper arm -2- in wiper arm adjustment tool 3358 and fix in position again with lock screw -3-.
- Compare angle displayed to specification =>Page 92-30.
- If necessary, repeat setting and checking procedure until specification is attained.
- Detach adjustment tool and fit wiper blade.

Removing and installing washer fluid reservoir

Note:

The joint washer fluid reservoir for the windscreen and rear window washer systems is located at the front left of the engine compartment. Removing and installing => Page 92-12.

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Servicing headlight washer system

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

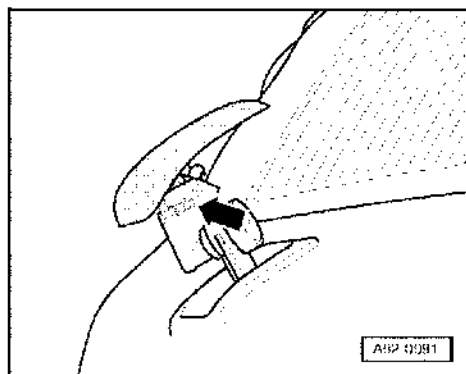
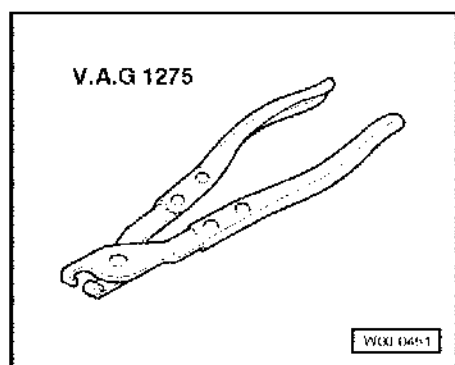
Action to be taken after re-connecting power supply => Page 27-13.

92-33

Removing and installing spray jets of headlight washer system

Special tools and workshop equipment required

- ◆ Hose clamp pliers V.A.G 1275

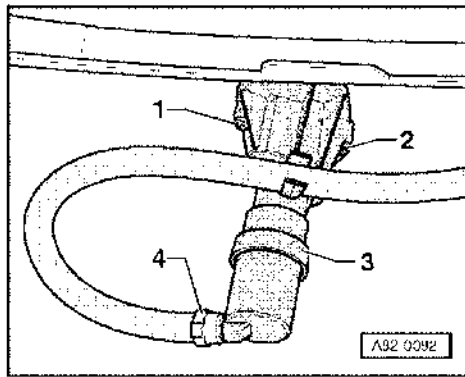


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Removing

- Remove front bumper.
- > General Body Repairs, Exterior; Repair Group 63 =>
- Pull up cover of spray jets on bumper and carefully release clips -arrow-.

92-34



- ◀ - Detach fluid hose -4- at spray jet -3-.
- Screw out bolts -1- and -2- and detach spray jet.

Installing

Install in reverse order, paying attention to the following:

Note:

Secure all hose connections with standard hose clamps.

= > Parts List

- Use pliers V.A.G 1275 to fit hose clamp.

- Install front bumper.

= > General Body Repairs, Exterior; Repair Group 63 = >

Tightening torque

Component	Nm
Spray jet to bumper	2.5

Adjusting spray jets

Note:

The spray jets supplied are pre-set at the factory and do not have to be adjusted following installation.

Removing and installing washer fluid reservoir

Note:

The joint washer fluid reservoir for the windscreen and headlight washer systems is located at the front left of the engine compartment. Removing and installing => Page 92-12.

Servicing headlights – up to Model Year 2000

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

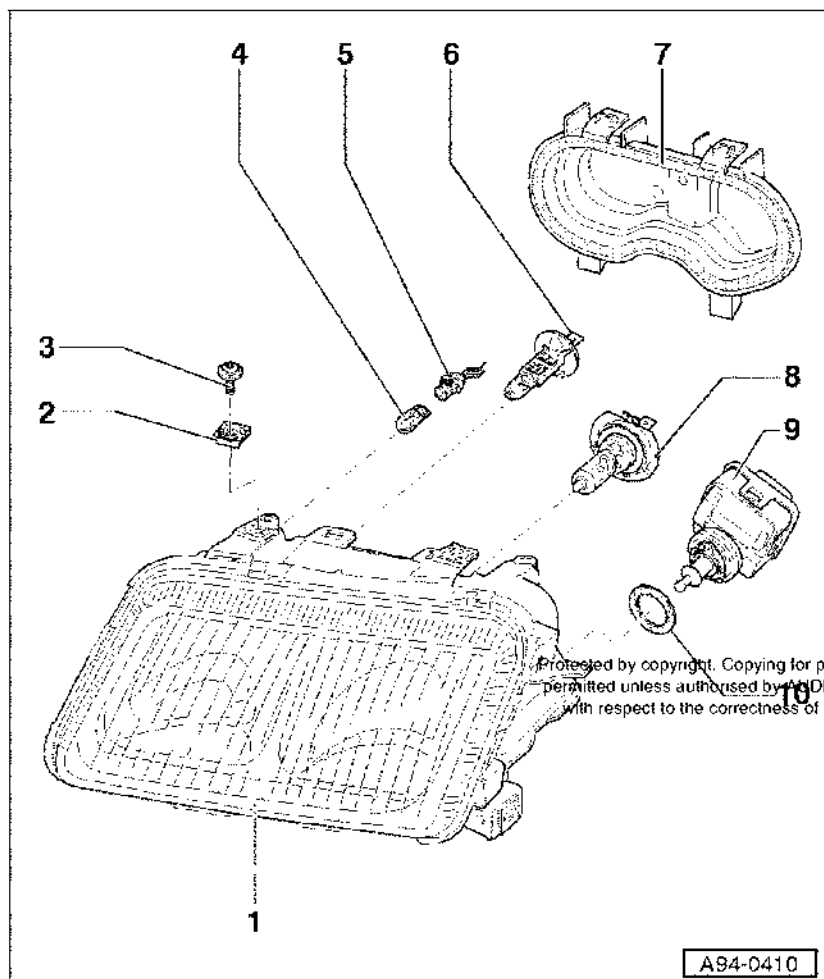
Note:

Action to be taken after re-connecting power supply => Page 27-13.

Attention: High voltage

On vehicles with gas-discharge headlights, always disconnect battery earth strap before working on gas-discharge headlight components marked with yellow high-voltage symbols.

94-1



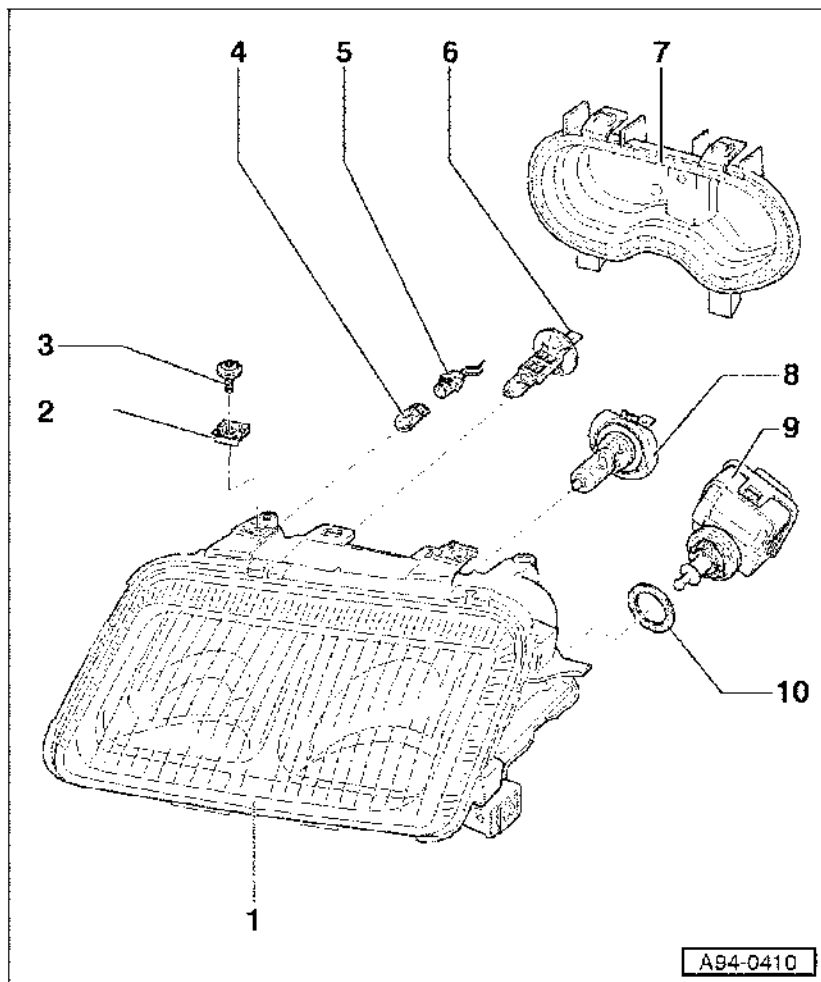
Exploded view of halogen headlight

- 1 - Headlight housing
- 2 - Speed nut
- 3 - 6 Nm
- 4 - Side light bulb
 - ◆ 12 V, 5 W
 - ◆ Bulb replacement => Page 94-20
- 5 - Bulb holder
 - ◆ For side light bulb
- 6 - Bulb for main beam/main beam with fog light
 - ◆ H1 - 12 V, 55 W (without fog light)
 - ◆ H4 - 12 V, 60/55 W (with fog light)
 - ◆ Bulb replacement => Page 94-18

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A94-0410

94-2



7 - Housing cover

◆ With seal

8 - Dipped beam bulb

◆ H7 - 12 V, 55 W

◆ Bulb replacement => Page 94-17

9 - Left/right headlight range control motor -V48/V49

◆ Removing and installing => Page 94-27

Note:

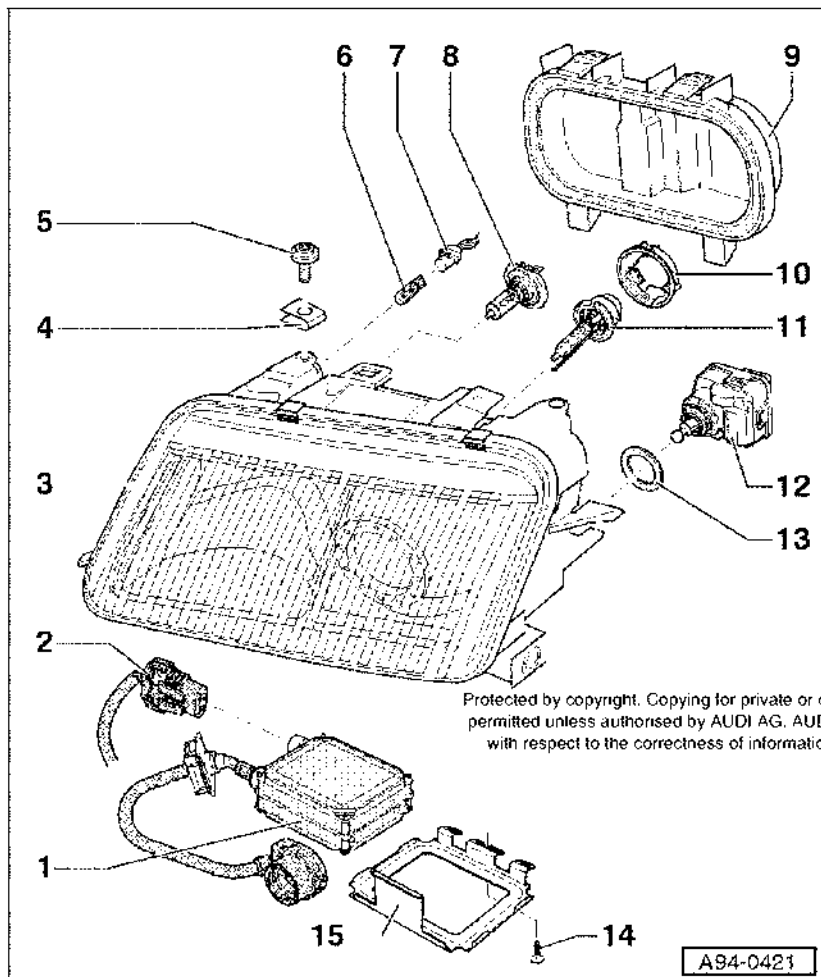
If measures are taken which could affect headlight setting, headlights are to be re-adjusted.

10 - O-ring

◆ Replace if damaged or leaking

A94-0410

94-3



Exploded view of gas-discharge headlight

1 - Gas-discharge lamp starter unit - N195

◆ Removing and installing => Page 94-28

2 - Connector

3 - Headlight housing

4 - Speed nut

5 - 6 Nm

6 - Side light bulb

◆ 12 V, 5 W

◆ Bulb replacement => Page 94-24

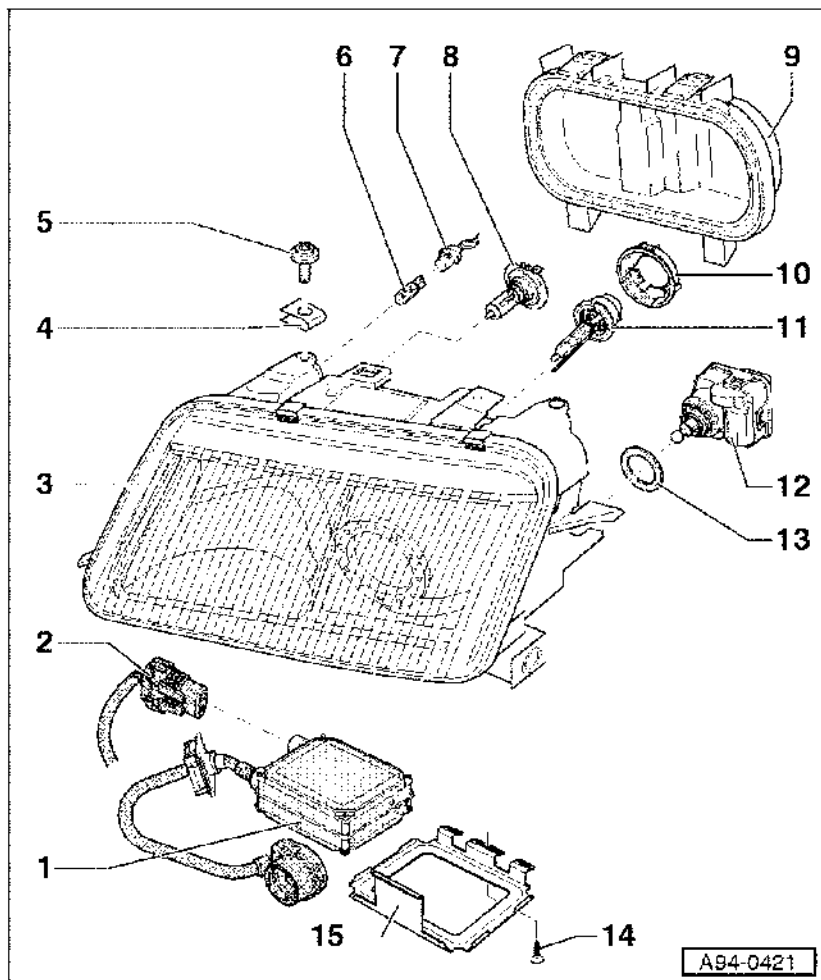
7 - Bulb holder

◆ For side light bulb

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A94-0421

94-4



8 – Main beam bulb
 ♦ H7 – 12 V, 55 W
 ♦ Bulb replacement => Page 94-23

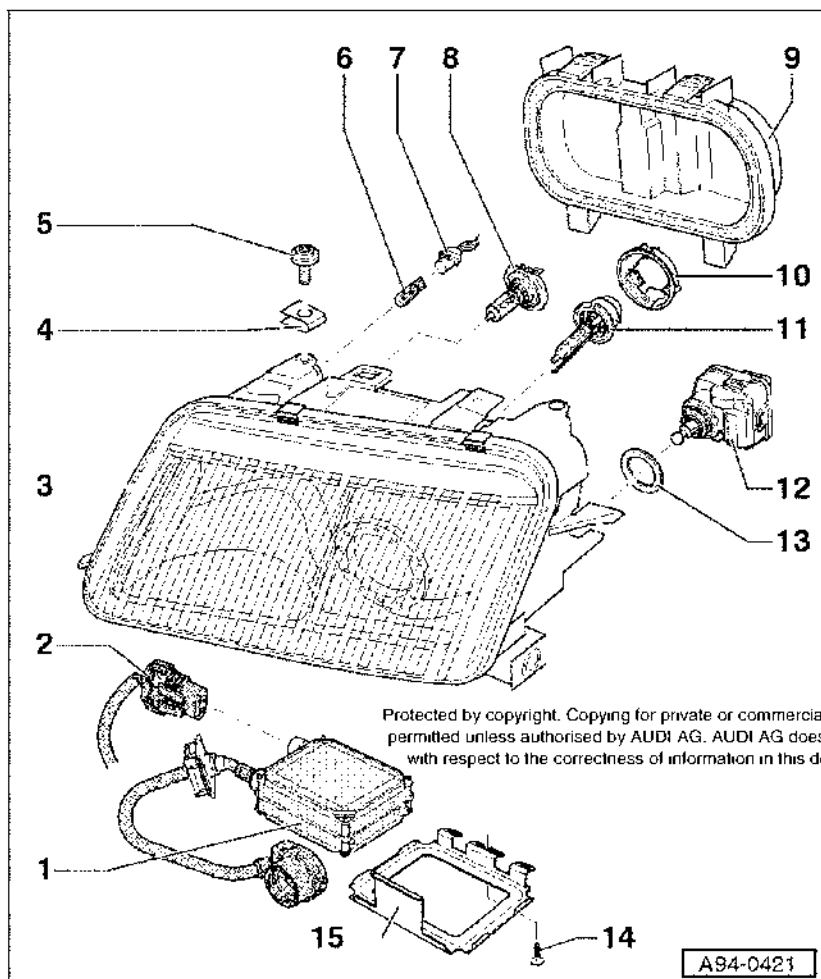
9 – Housing cover
 ♦ With seal

10 – Retaining ring
 ♦ For gas-discharge lamp

11 – Gas-discharge lamp
 ♦ 35 W, D2S
 ♦ Bulb replacement => Page 94-21

12 – Left/right headlight range control motor -V48/V49
 ♦ Removing and installing => Page 94-27

Note:
 If measures are taken which could affect headlight setting, headlights are to be re-adjusted.

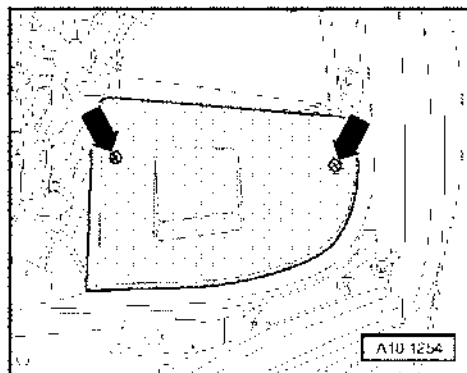


13 – O-ring
 ♦ Replace if damaged or leaking

14 – 2.5 Nm

15 – Bracket
 ♦ For gas-discharge lamp starter unit -N195

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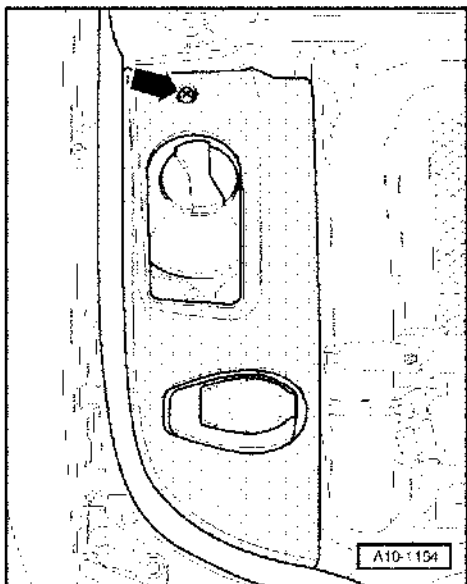


Removing and installing headlights

Removing

Left headlight:

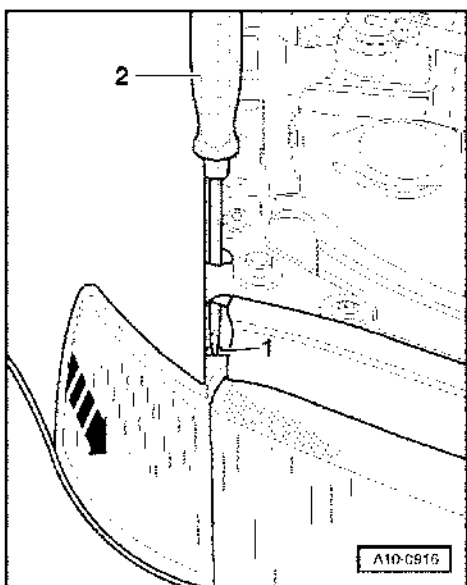
- If fitted, remove front left cover -arrows-.



Right headlight:

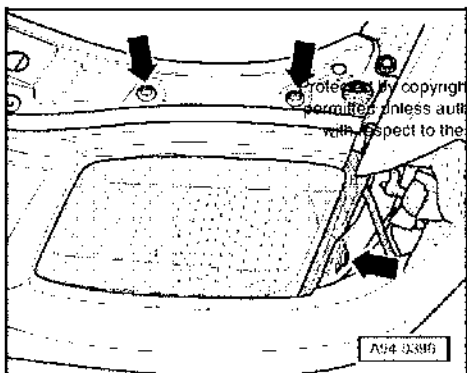
- If applicable, screw out bolt -arrow- and remove cover over expansion tank.

94-7



Both sides (continued):

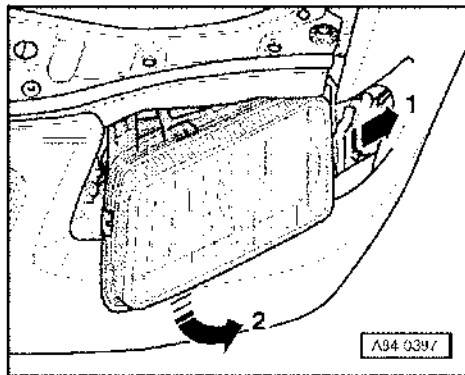
- Use adhesive tape to mask area beneath turn signal indicator, beneath headlight and at radiator grille as protection for paint-work.
- Release catch -1- at turn signal indicator housing with cross-head screwdriver -2- by giving 1/4 turn to left.
- Squeeze catch and slide turn signal indicator housing to front -arrow- out of guide.



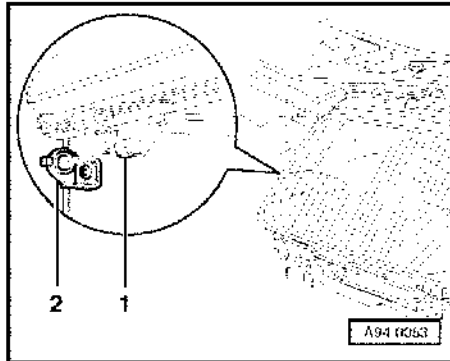
- Screw out bolts -arrows-.

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94-8



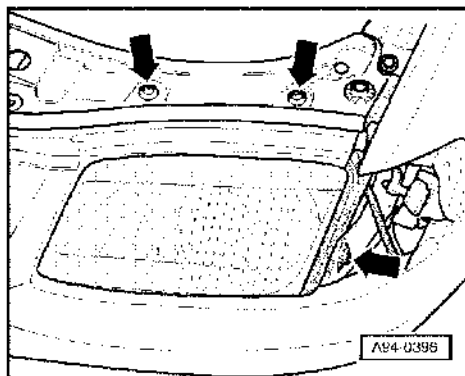
- ◀ - Slide headlight slightly towards wing -arrow 1- and then swivel out headlight -arrow 2-.
- Unplug connectors.
- Take headlight to front out of body.



Installing

- ◀ Install in reverse order, paying attention to the following:
 - Engage lug -1- of headlight in guide -2- in centre area.
 - Align headlight with body contours (gap widths) and secure.

94-9



- ◀ - Tighten bolts -arrows-.
- Following installation, adjust headlights => Page 94-11.

Tightening torque

Component	Nm
Headlight to lock carrier	6

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94-10

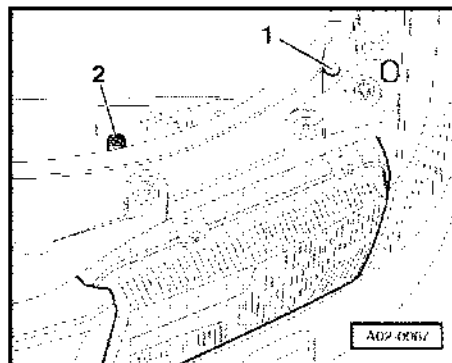
Adjusting headlights (halogen headlights)

Specifications for headlight adjustment:

= > Maintenance

Test requirement:

- Headlight range adjuster knob must be set to -0-



Sequence of operations

Adjusting screws at left headlight

The arrangement at the right headlight is a mirror image.

- 1 - Height adjustment screw
- 2 - Height/lateral adjustment screw
- To adjust height, give adjusting screws -1- and -2- the same number of turns.
- For lateral adjustment, only turn adjusting screw -2-.

94-11

Adjusting headlights (gas-discharge headlights)

Special tools and workshop equipment required

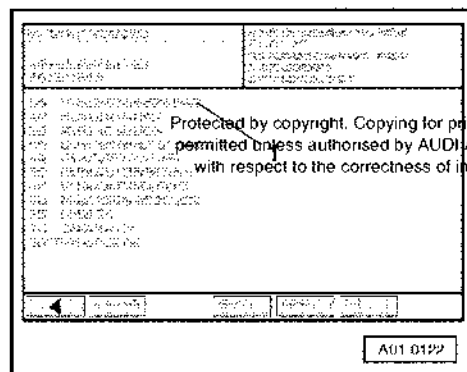
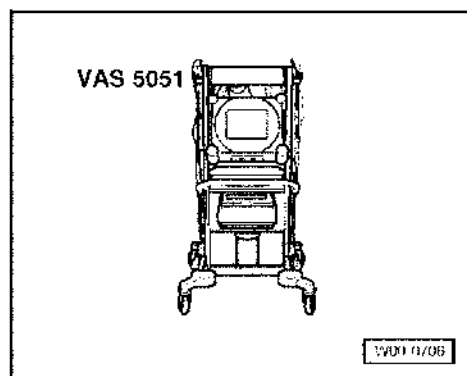
- ◆ VAS 5051 with VAS 5051/1

Note:

On vehicles with gas-discharge headlights, fault memory must be interrogated and erased and basic setting then performed prior to making any manual adjustments at the adjusting screws.

Requirement:

- Vehicle diagnostic, testing and information system VAS 5051 connected up; vehicle self-diagnosis and vehicle system "55 - Headlight range control" selected



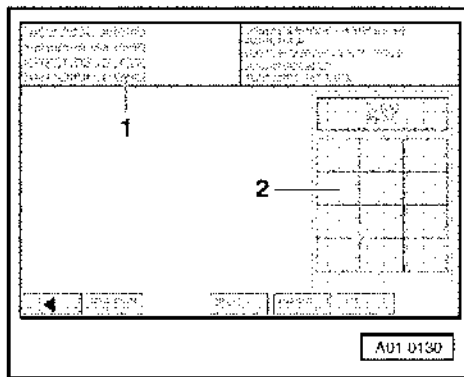
Sequence of operations

Display on VAS 5051:

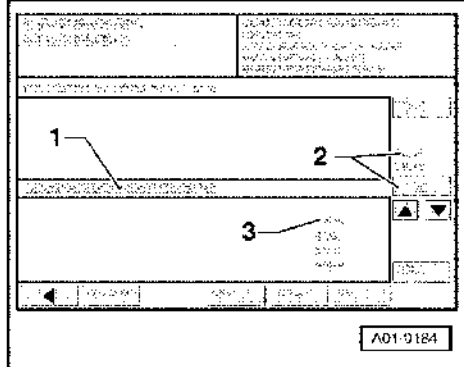
- From list -1- select diagnosis function "04 - Basic setting".

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94-12



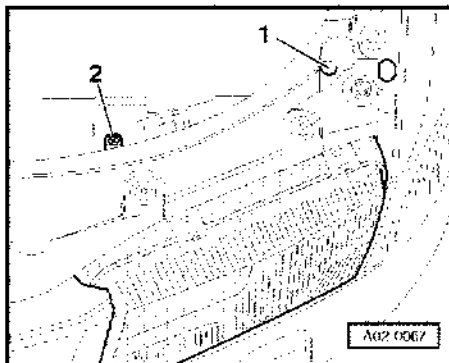
- ◀ Display on VAS 5051:
- 1 - Enter display group
 - Use keypad -2- to enter "001" for "Display group number 001" and confirm by touching Q key.



- ◀ Display on VAS 5051:
- 1 - Basic setting
 - 2 - Display group 1
 - 3 - Wait
 - ◆ Headlights are moved to adjustment position
 - Wait until next display appears.
 - 3 - Headlight adjustment
 - ◆ Headlights are now in adjustment position

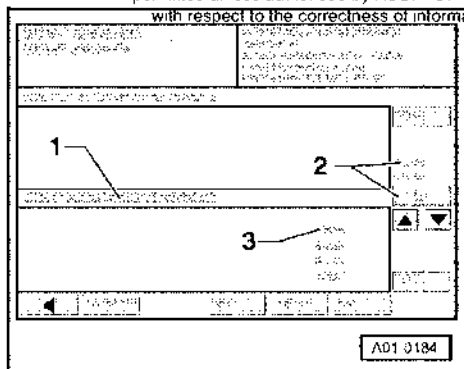
Note:

Basic setting 1 deactivates control mode and "Headlights not adjusted" is entered in fault memory.



- ◀ Adjusting screws at left headlight
The arrangement at the right headlight is a mirror image.
- 1 - Height adjustment screw
 - 2 - Height/lateral adjustment screw
 - To adjust height, give adjusting screws -1- and -2- the same number of turns.
 - For lateral adjustment, only turn adjusting screw -2-.

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- ◀ Display on VAS 5051:
- Touch s key to switch to display group 002.
 - 1 - Basic setting
 - 2 - Display group 2
 - 3 - Control position learnt
 - Control unit now recognises this position as being the control position

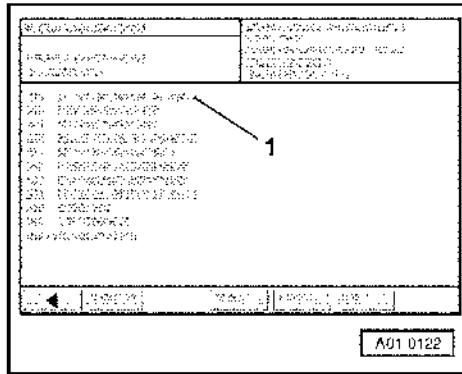
Note:

Entry in fault memory ("Headlights not adjusted") is erased and control mode re-activated.

– Terminate function "04 – Basic setting" by touching < key.

◀ Display on VAS 5051:

– From list -1- select diagnosis function "06 – End of output".



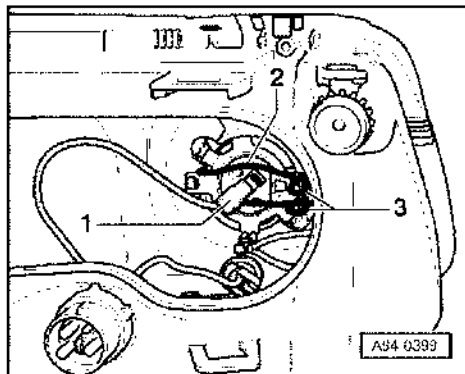
Preparation for headlight bulb replacement/replacement of headlight range control motor

Depending on engine version and equipment, headlight bulbs and headlight range control motor may be difficult to reach.

It may therefore also be necessary to remove battery => Page 27-4 or headlight => Page 94-7.

Replacing dipped beam bulb (halogen headlight)

- Preparation for bulb replacement => Page 94-16



Removing

- Detach cover from headlight housing.
- Unplug connector -1- at dipped beam bulb.
- Disengage spring clip -3- and take bulb -2- out of housing.

Installing

Install in reverse order, paying attention to the following:

- Insert new bulb in housing, taking care not to touch glass bulb with bare hands.
- Secure bulb with spring clip.
- Re-attach connector and close housing cover.

Replacing main beam bulb (halogen headlight)

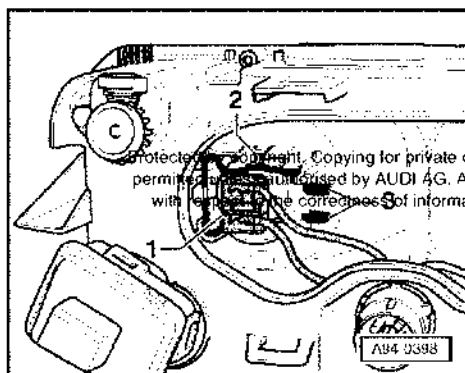
- Preparation for bulb replacement => Page 94-16

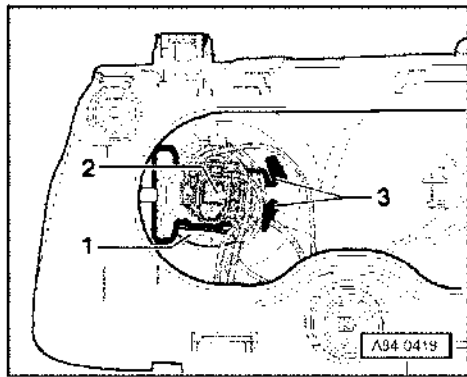
Removing

- Detach cover from headlight housing.

Vehicles with no fog lights:

- Unplug connector -1- at main beam bulb.
- Disengage spring clip -3- and take bulb -2- out of housing.





Vehicles with fog lights:

- Unplug connector -2- at main beam bulb.
- Disengage spring clip -3- and take bulb -1- out of housing.

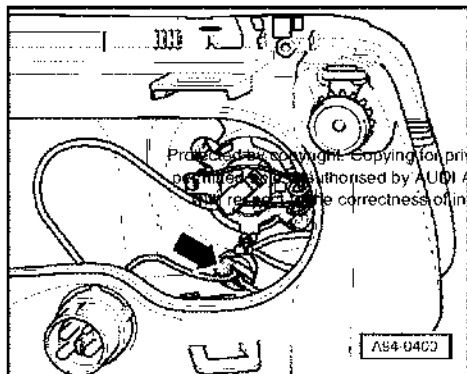
Installing

Install in reverse order, paying attention to the following:

- Insert new bulb in housing, taking care not to touch glass bulb with bare hands.
- Secure bulb with spring clip.
- Re-attach connector and close housing cover.

Replacing side light bulb (halogen headlight)

- Preparation for bulb replacement => Page 94-16



Removing

- Detach cover from headlight housing.
- Pull holder -arrow- out of housing.
- Pull side light bulb out of holder.

Installing

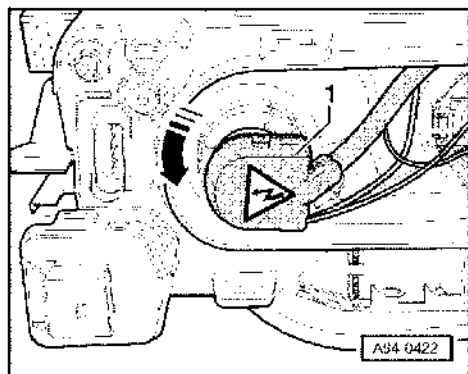
Install in reverse order, paying attention to the following:

- Insert new bulb in holder, taking care not to touch glass bulb with bare hands.
- Press holder into reflector until it is felt to engage.
- Close housing cover.

Replacing gas-discharge lamp for dipped beam (gas-discharge headlight)

Attention: High voltage

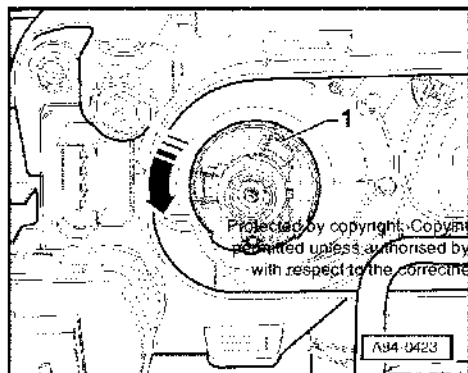
Always disconnect battery earth strap before working on gas-discharge headlight components marked with yellow high-voltage symbols.



Removing

- Remove headlight => Page 94-7.
- Detach cover from headlight housing.
- Unplug connector -1- at gas-discharge lamp by turning anti-clockwise -arrow-.

94-21



- Detach retaining ring -1- for gas-discharge lamp by turning anti-clockwise -arrow-.
- Pull gas-discharge lamp out of headlight housing.

Installing

Install in reverse order, paying attention to the following:

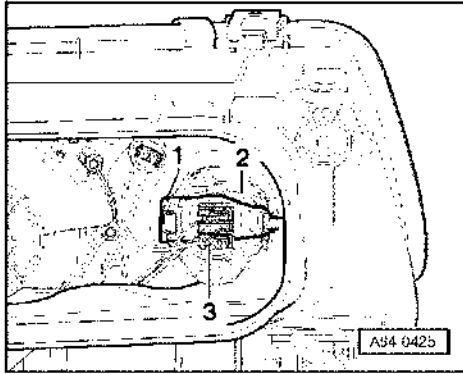
Notes:
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- ◆ Heed installation position: Lug at top of bulb holder must engage in recess of bulb.
- ◆ Retaining ring can only be fitted in one position.
- Insert new bulb in housing, taking care not to touch glass bulb with bare hands.
- Secure gas-discharge lamp with retaining ring.
- Re-attach connector and close housing cover.
- Install headlight => Page 94-9.

94-22

Replacing main beam bulb (gas-discharge headlight)

- Preparation for bulb replacement => Page 94-16



Removing

- Detach cover from headlight housing.
- Unplug connector -3- at main beam bulb.
- Disengage spring clip -1- and take bulb -2- out of housing.

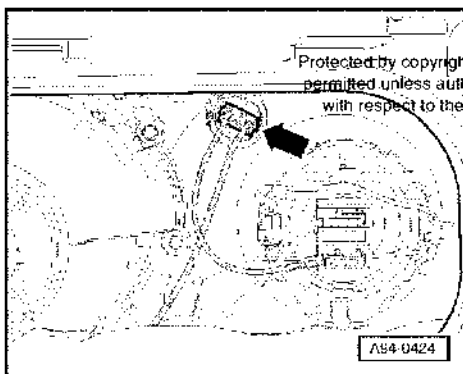
Installing

Install in reverse order, paying attention to the following:

- Insert new bulb in housing, taking care not to touch glass bulb with bare hands.
- Secure bulb with spring clip.
- Re-attach connector and close housing cover.

Replacing side light bulb (gas-discharge headlight)

- Preparation for bulb replacement => Page 94-16



Removing

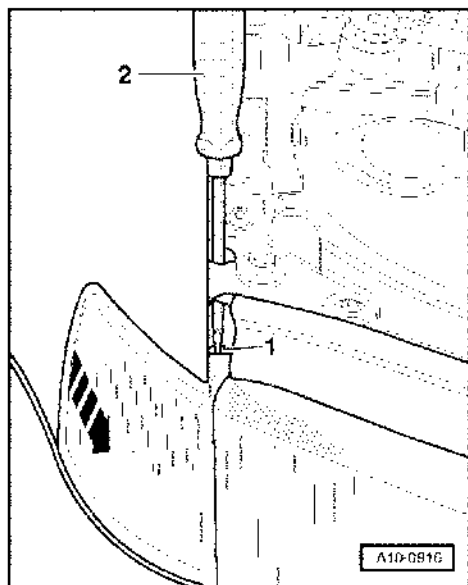
- Detach cover from headlight housing.
- Pull holder arrow out of housing.
- Pull side light bulb out of holder.

Installing

Install in reverse order, paying attention to the following:

- Insert new bulb in holder, taking care not to touch glass bulb with bare hands.
- Press holder into reflector until it is felt to engage.
- Close housing cover.

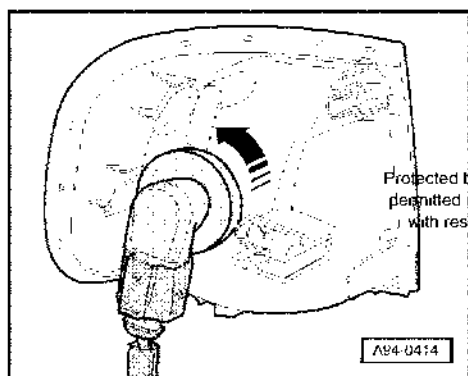
Replacing turn signal indicator bulb



Removing

- ◀ - Release catch -1- at turn signal indicator housing with cross-head screwdriver -2- by giving 1/4 turn to left.
- Press down catch at rear of turn signal indicator housing slightly and at the same time slide turn signal indicator housing to front -arrow- out of guide.

94-25



Installing

- ◀ - Turn holder -arrow- anti-clockwise and pull out of housing.
- Screw bulb out of holder.

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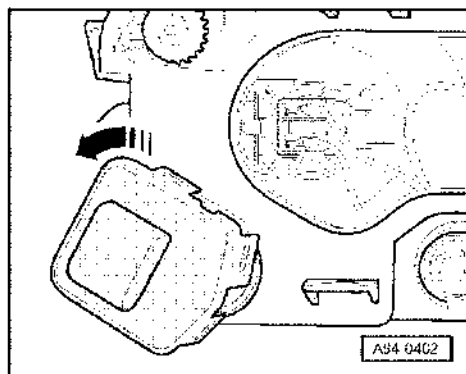
Install in reverse order, paying attention to the following:

Insert new bulb in housing, taking care not to touch glass bulb with bare hands.

94-26

Removing and installing headlight range control motor

● Preparation for motor removal => Page 94-16



Removing

- Release headlight range control motor: At right headlight by turning clockwise; at left headlight by turning anti-clockwise - arrow-
- By tilting control motor, push ball end of positioning stem out of socket.
- Unplug connector.

Installing

Install in reverse order, paying attention to the following:

Note:

Control motor removal/installation and replacement are always to be followed by headlight adjustment => Page 94-11 or 94-12.

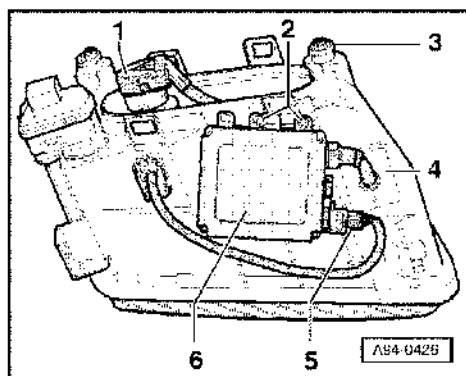
94-27

Removing and installing gas-discharge lamp starter unit -N195

Attention: High voltage

Always disconnect battery earth strap before working on gas-discharge headlight components marked with yellow high-voltage symbols.

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Removing

- Remove headlight => Page 94-7.
- Detach cover from headlight housing.
- Turn adjuster -3- until headlight reflector is swivelled completely forwards.
- Unplug connector -1- at gas-discharge lamp by turning anti-clockwise.
- Unclip cable guide -4- from inside.
- Screw out bolts -2-.
- Detach starter unit -6- with holder and unplug connector -5-.

94-28

Installing

Install in reverse order, paying attention to the following:

- Install headlight => Page 94-9.

Installing repair set for headlight housing

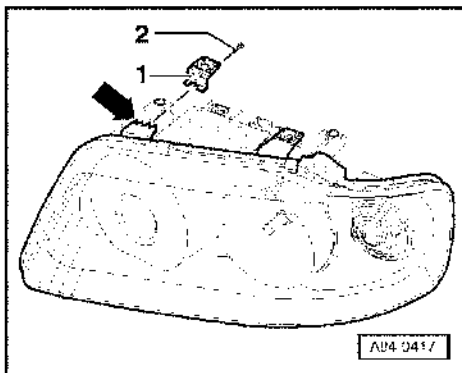
Notes:

- ◆ Broken-off headlight fasteners can be replaced by installing repair set, thus avoiding replacement of entire headlight.
- ◆ Different repair sets are available for left and right headlight.

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Sequence of operations

- Remove headlight with broken fastener => Page 94-7.
- Remove remnants of broken-off fastener at location marked with arrow.
- Position fastener -1- of repair set at edge (arrow) of headlight housing and secure from rear with packing plate and bolt -2-.



Tightening torque

Component
Headlight to lock carrier

Nm
6

94-31

Resetting headlights for driving on left/ right (gas-discharge headlights)

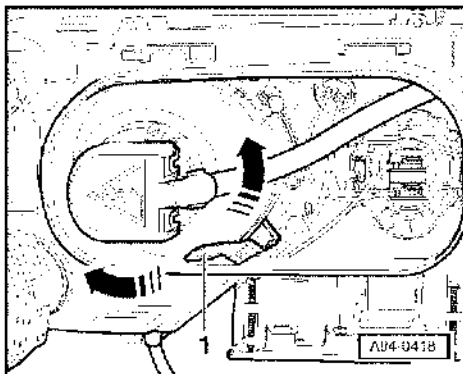
When travelling in countries where the vehicle is to be driven on the other side of the road, both headlights must be reset to prevent dazzling by the asymmetric dipped beam.

- Preparation for resetting headlights for driving on left/ right
=> Page 94-16

Detach cover from headlight housing.
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Sequence of operations

- ◀ - Check position of setting lever -1- at both headlights.
 - Lever down = Driving on right
 - Lever up = Driving on left
- If necessary, swivel lever until it engages in desired position - arrow-.
- Close housing cover.



94-32

Servicing headlights – as of Model Year 2001

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

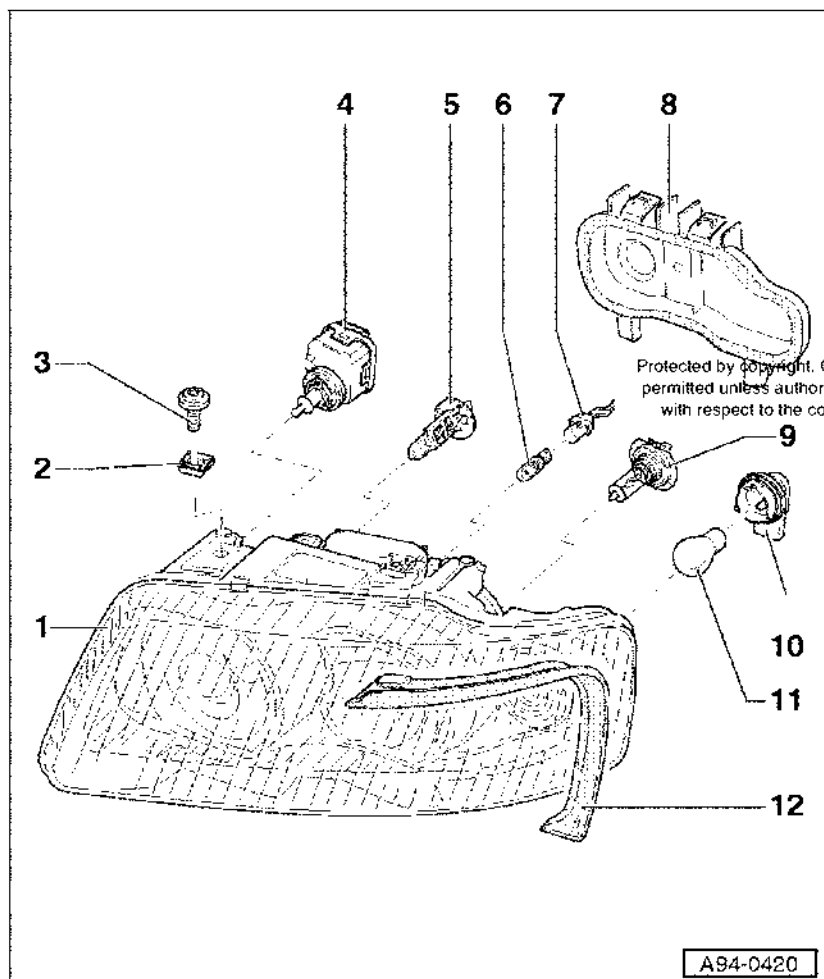
Note:

Action to be taken after re-connecting power supply => Page 27-13.

Attention: High voltage

On vehicles with gas-discharge headlights, always disconnect battery earth strap before working on gas-discharge headlight components marked with yellow high-voltage symbols.

94-33



Exploded view of halogen headlight

1 - Headlight housing

2 - Speed nut

3 - 6 Nm

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

◆ Removing and installing
=> Page 94-57

Note:

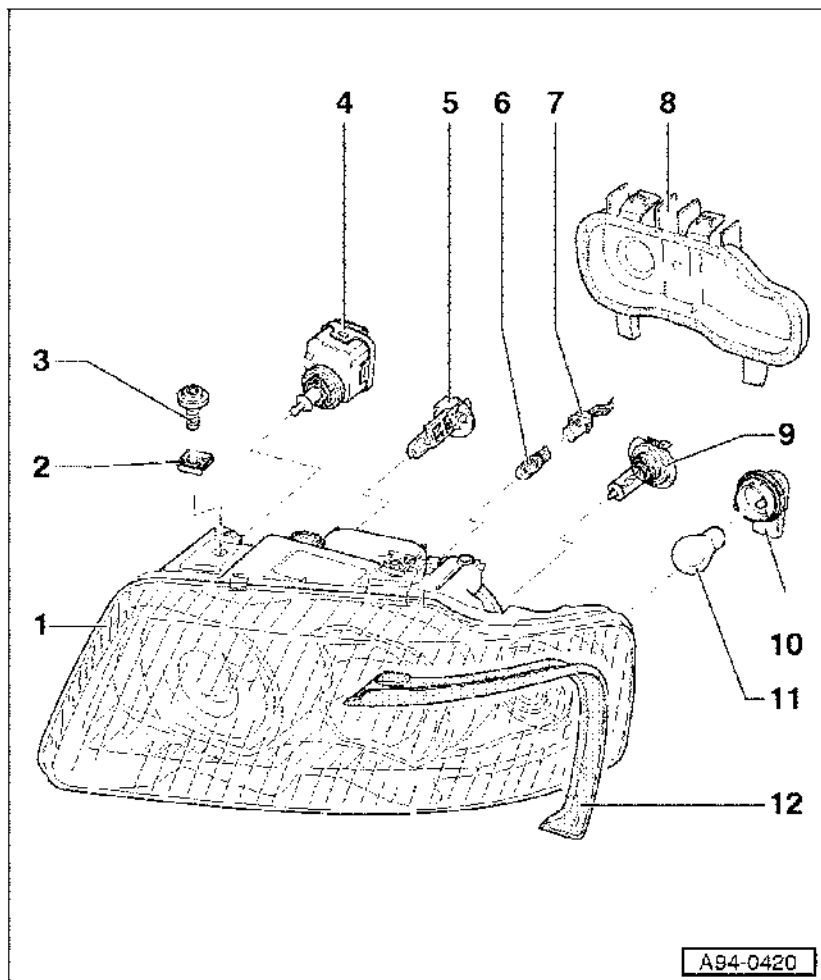
If measures are taken which could affect headlight setting, headlights are to be re-adjusted.

5 - Dipped beam bulb

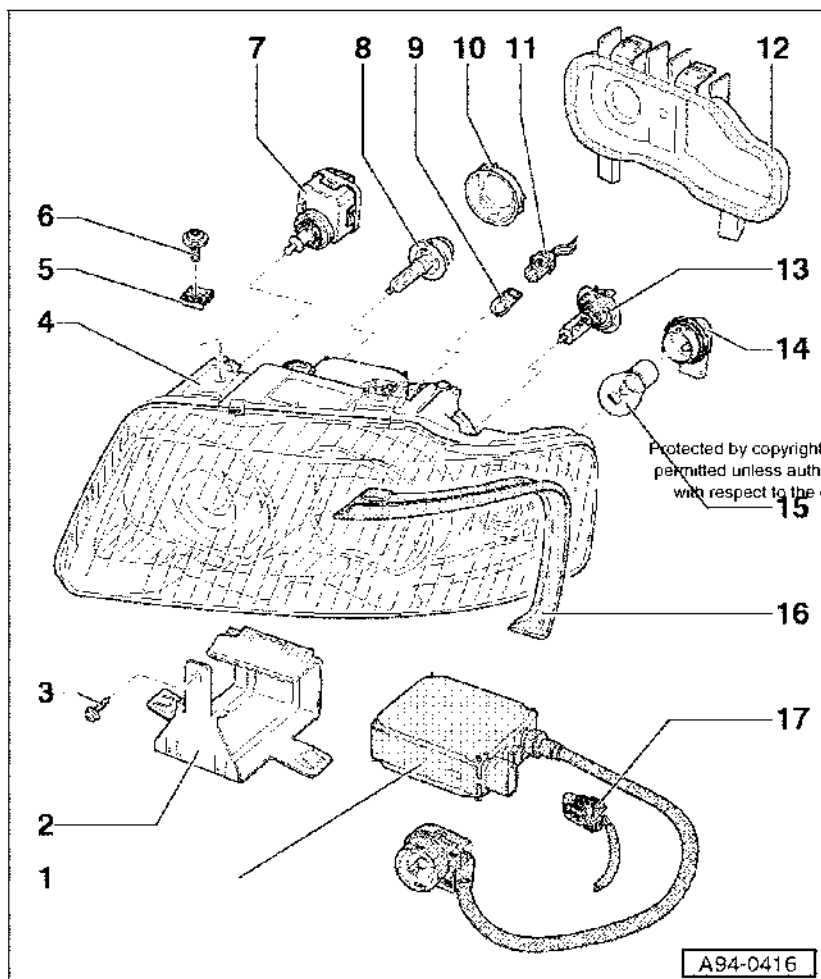
◆ H1 - 12 V, 55 W

◆ Bulb replacement => Page 94-49

94-34

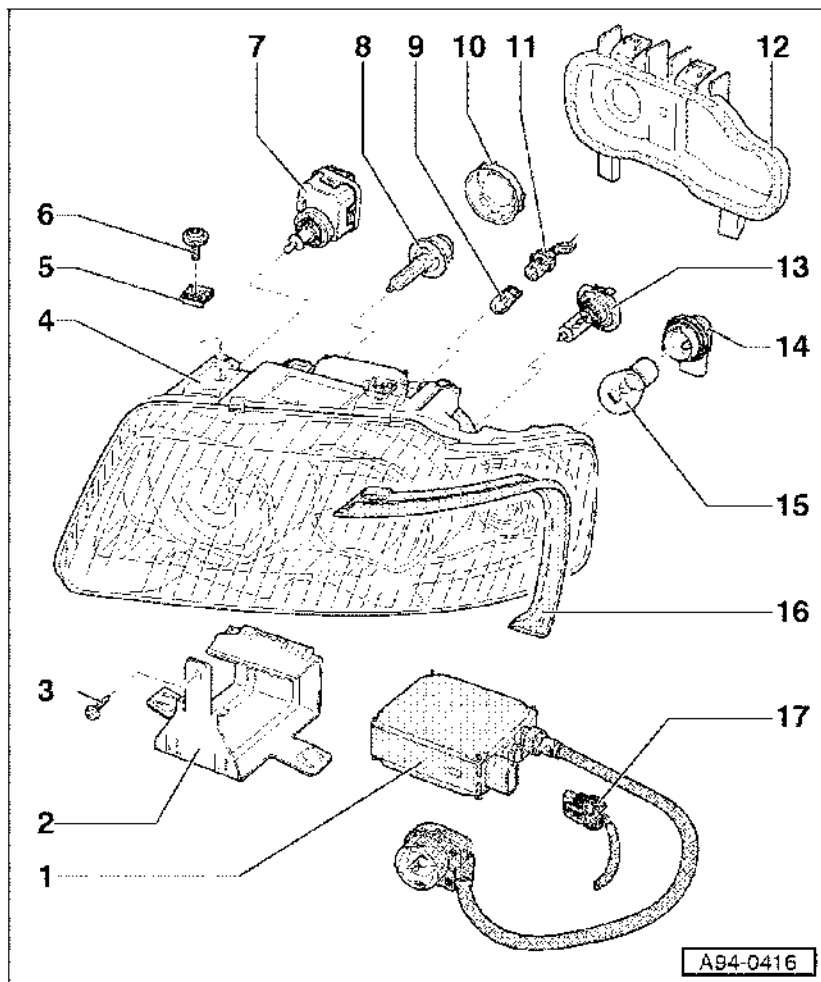


- 6 – Side light bulb**
 - ◆ 12 V, 5 W
 - ◆ Bulb replacement => Page 94-51
- 7 – Bulb holder**
 - ◆ For side light bulb
- 8 – Housing cover**
 - ◆ With seal
- 9 – Main beam bulb**
 - ◆ H7 – 12 V, 55 W
 - ◆ Bulb replacement => Page 94-50
- 10 – Bulb holder**
 - ◆ For turn signal indicator
- 11 – Turn signal indicator bulb**
 - ◆ 12 V, 21 W
 - ◆ orange
 - ◆ Bulb replacement => Page 94-56
- 12 – Sealing strip**



Exploded view of gas-discharge headlight

- 1 – Gas-discharge lamp starter unit**
 - N195
 - ◆ Removing and installing => Page 94-58
- 2 – Bracket**
 - ◆ For gas-discharge lamp starter unit
 - N195
- 3 – 2,5 Nm**
- 4 – Headlight housing**
- 5 – Speed nut**
- 6 – 6 Nm**



7 – Left/right headlight range control motor -V48/V49

◆ Removing and installing
=> Page 94-57

Note:

If measures are taken which could affect headlight setting, headlights are to be re-adjusted.

8 – Gas-discharge lamp

◆ 35 W, D2S
◆ Bulb replacement => Page 94-52

9 – Side light bulb

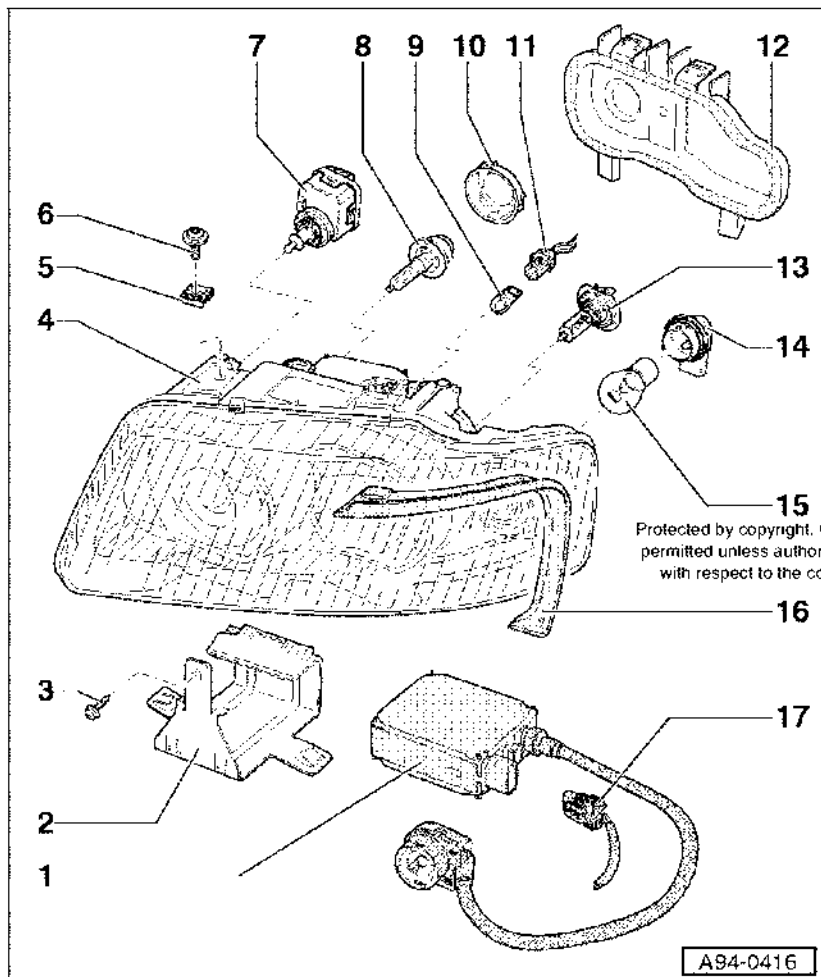
◆ 12 V, 5 W
◆ Bulb replacement => Page 94-55

10 – Retaining ring

◆ For gas-discharge lamp

A94-0416

94-37



11 – Bulb holder

◆ For side light bulb

12 – Housing cover

◆ With seal

13 – Main beam bulb

◆ H7 – 12 V, 55 W
◆ Bulb replacement => Page 94-54

14 – Bulb holder

◆ For turn signal indicator

15 – Turn signal indicator bulb

◆ 12 V, 21 W
◆ orange
◆ Bulb replacement => Page 94-56

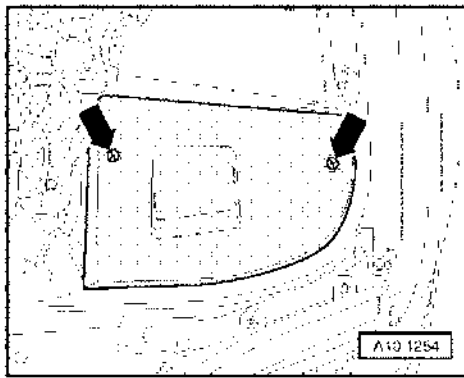
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information.

16 – Sealing strip

17 – Connector

A94-0416

94-38

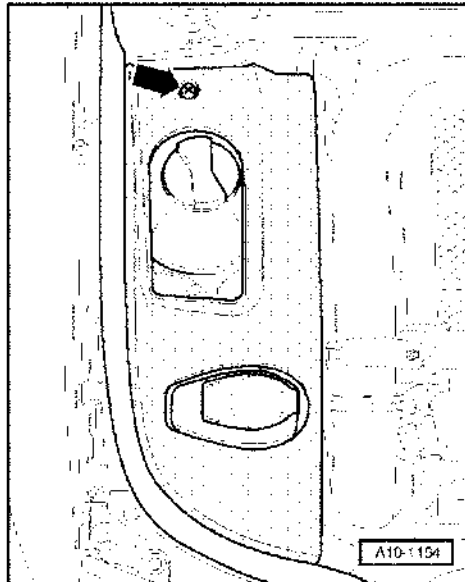


Removing and installing headlights

Removing

Left headlight:

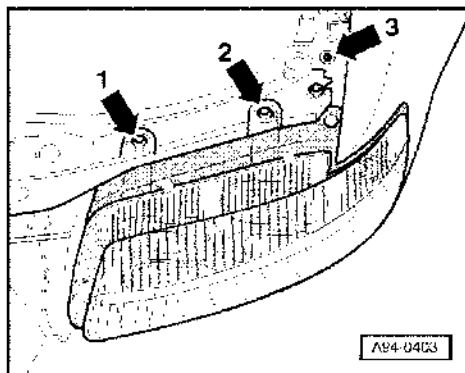
- If fitted, remove front left cover -arrows-.



Right headlight:

- If applicable, screw out bolt -arrow- and remove cover over expansion tank.

94-39

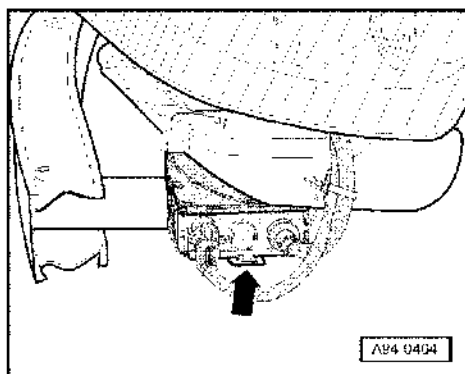


Both sides (continued):

- Remove front bumper cover.
- = > General Body Repairs, Exterior; Repair Group 63; Front Bumper =>
- Screw out bolts -arrow 1- and -arrow 2-.
- Guide long TORX socket wrench through recess -arrow 3- and screw out retaining bolt at bottom of headlight housing.

Note:

If necessary, apply small quantity of body sealant to bolt to affix it to TORX wrench.



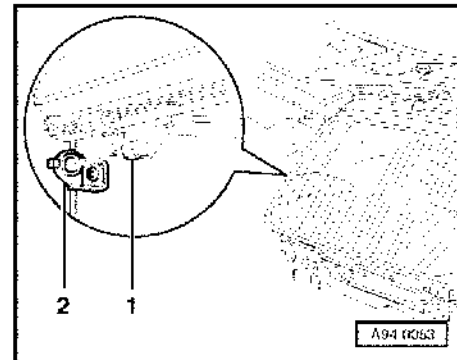
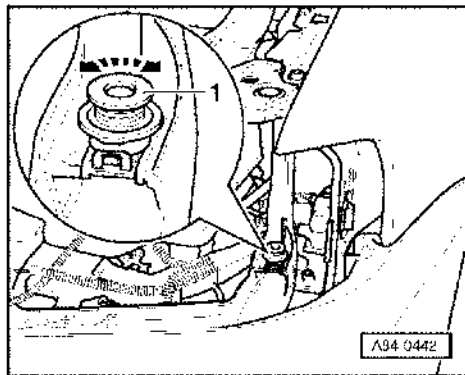
Vehicles with gas-discharge headlights:

- Release clip -arrow- and pull starter unit sideways out of mount.

All models:

Take headlight from front out of body.
 Disconnecting the headlight from the front of the body is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for the use of information in this document. Copyright by AUDI AG.

94-40



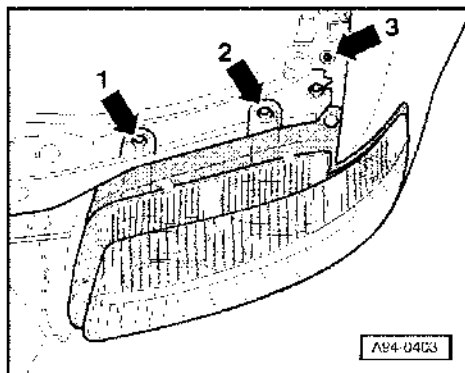
Installing

Install in reverse order, paying attention to the following:

Notes:

- ◀ ♦ All cable ties unfastened or cut open on removal are to be re-attached in same position on installation.
- ♦ Headlight can be aligned with bumper contour by screwing adjusting nut -1- in or out. Adjusting nut can only be turned after removing headlight.
- ◀ – Engage lug -1- of headlight in guide -2- in centre area.
- Align headlight with body contours (gap widths) and secure.

94-41



- ◀ – Tighten bolts -arrows 1 ... 3-.
- Install front bumper cover.
- = > General Body Repairs, Exterior; Repair Group 63; Front Bumper =>
- Following installation, adjust headlights => Page 94-43 or 94-44.

Tightening torque

Component	Nm
Headlight to lock carrier	6

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94-42

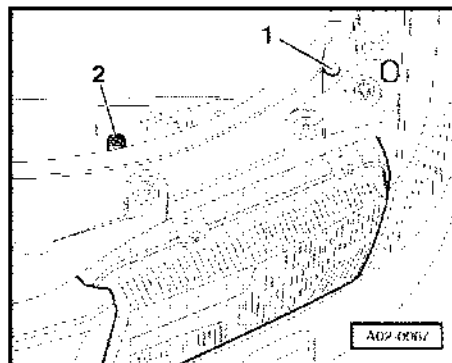
Adjusting headlights (halogen headlights)

Specifications for headlight adjustment:

= > Maintenance

Test requirement:

- Headlight range adjuster knob must be set to -0-



Sequence of operations

Adjusting screws at left headlight

The arrangement at the right headlight is a mirror image.

- 1 - Height/lateral adjustment screw
- 2 - Height adjustment screw
- To adjust height, give adjusting screws -1- and -2- the same number of turns.
- For lateral adjustment, only turn adjusting screw -1-.

94-43

Adjusting headlights (gas-discharge headlights)

Special tools and workshop equipment required

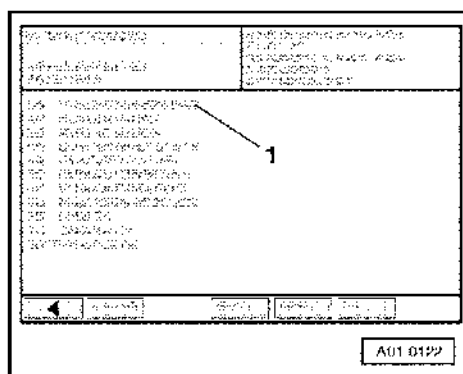
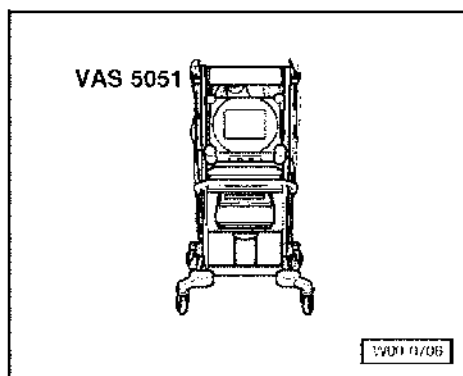
- ◆ VAS 5051 with VAS 5051/1

Note:

On vehicles with gas-discharge headlights, fault memory must be interrogated and erased and basic setting then performed prior to making any manual adjustments at the adjusting screws.

Requirement:

- Vehicle diagnostic, testing and information system VAS 5051 connected up; vehicle self-diagnosis and vehicle system "55 - Headlight range control" selected



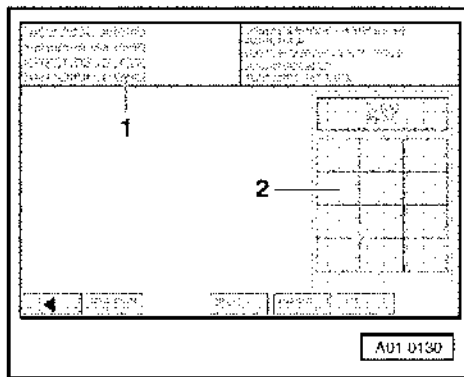
Sequence of operations

Display on VAS 5051:

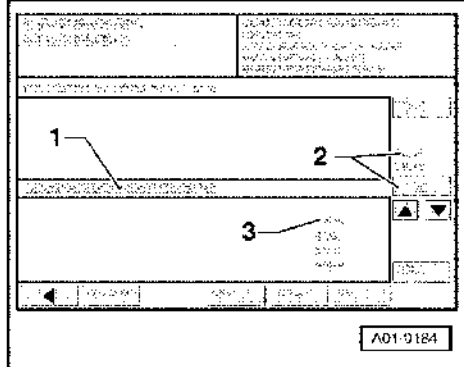
- From list -1- select diagnosis function "04 - Basic setting".

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94-44



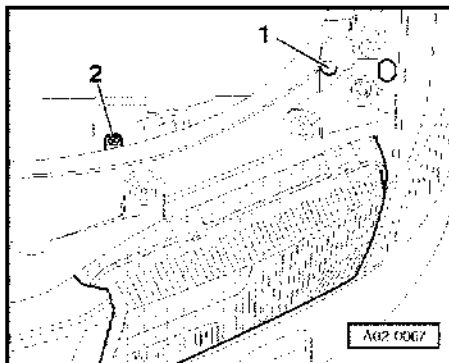
- Display on VAS 5051:
- 1 - Enter display group
 - Use keypad -2- to enter "001" for "Display group number 001" and confirm by touching Q key.



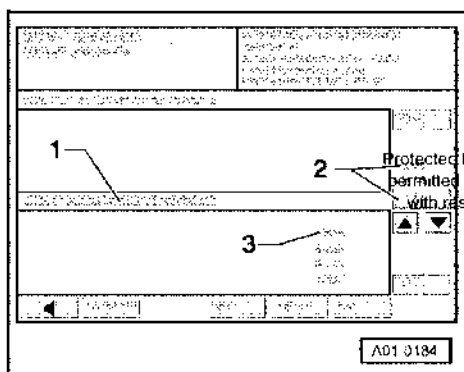
- Display on VAS 5051:
- 1 - Basic setting
 - 2 - Display group 1
 - 3 - Wait
 - ◆ Headlights are moved to adjustment position
 - Wait until next display appears.
 - 3 - Headlight adjustment
 - ◆ Headlights are now in adjustment position

Note:

Basic setting 1 deactivates control mode and "Headlights not adjusted" is entered in fault memory.



- Adjusting screws at left headlight
The arrangement at the right headlight is a mirror image.
- 1 - Height/lateral adjustment screw
 - 2 - Height adjustment screw
 - To adjust height, give adjusting screws -1- and -2- the same number of turns.
 - For lateral adjustment, only turn adjusting screw -1-.



- Display on VAS 5051:
- Touch s key to switch to display group 002.
 - 1 - Basic setting
 - 2 - Display group 2
 - 3 - Control position learn
 - Control unit now recognises this position as being the control position

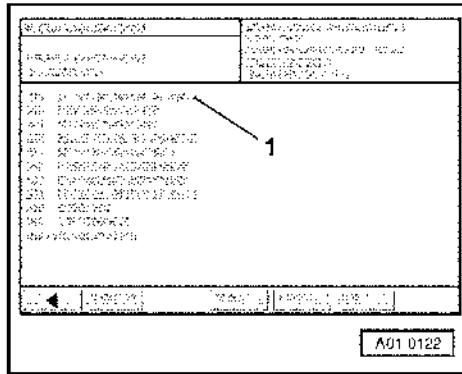
Note:

Entry in fault memory ("Headlights not adjusted") is erased and control mode re-activated.

- Terminate function "04 - Basic setting" by touching < key.

◀ Display on VAS 5051:

- From list -1- select diagnosis function "06 - End of output".



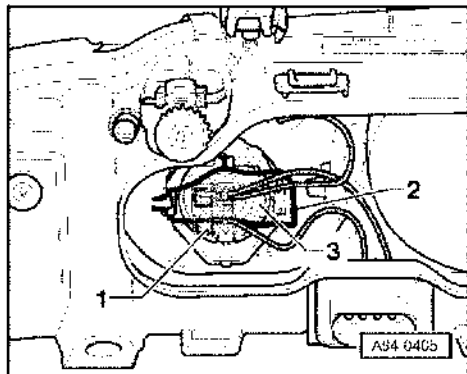
Preparation for headlight bulb replacement/replacement of headlight range control motor

Depending on engine version and equipment, headlight bulbs, turn signal indicator bulb and headlight range control motor may be difficult to reach.

It may therefore also be necessary to remove battery => Page 27-4 or headlight => Page 94-39.

Replacing dipped beam bulb (halogen headlight)

● Preparation for bulb replacement => Page 94-48



Removing

- Detach cover from headlight housing.
- Unplug connector -1- at dipped beam bulb.
- Disengage spring clip -2- and take bulb -3- out of housing.

Installing

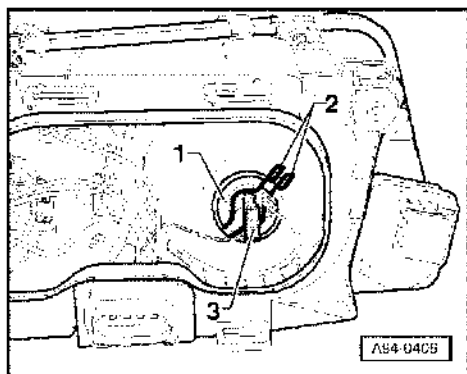
Install in reverse order, paying attention to the following:

- Insert new bulb in housing, taking care not to touch glass bulb with bare hands.
- Secure bulb with spring clip.
- Re-attach connectors and close housing cover.

94-49

Replacing main beam bulb (halogen headlight)

● Preparation for bulb replacement => Page 94-48



Removing

- Detach cover from headlight housing.
- Unplug connector -3- at main beam bulb.
- Disengage spring clip -2- and take bulb -1- out of housing.

Installing

Install in reverse order, paying attention to the following:

- Insert new bulb in housing, taking care not to touch glass bulb with bare hands.
- Secure bulb with spring clip.
- Re-attach connector and close housing cover.

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94-50

Replacing side light bulb (halogen headlight)

● Preparation for bulb replacement => Page 94-48

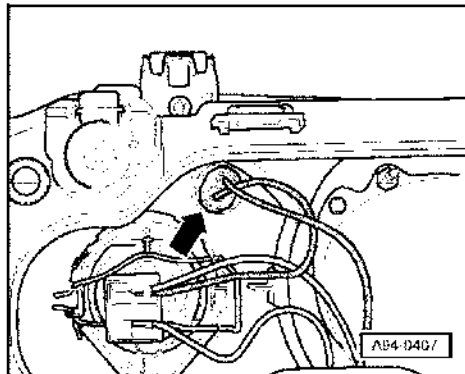
Removing

- Detach cover from headlight housing.
- Pull holder -arrow- out of housing.
- Pull side light bulb out of holder.

Installing

Install in reverse order, paying attention to the following:

- Insert new bulb in holder, taking care not to touch glass bulb with bare hands.
- Press holder into reflector until it is felt to engage.
- Close housing cover.



94-51

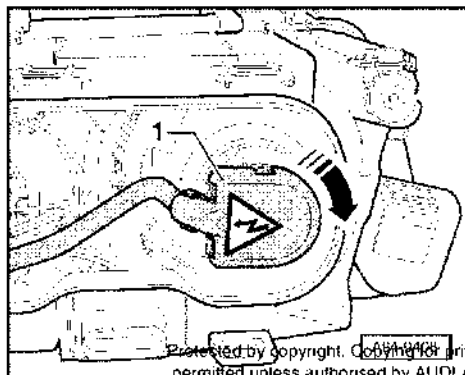
Replacing gas-discharge lamp for dipped beam (gas-discharge headlight)

Attention: High voltage

Always disconnect battery earth strap before working on gas-discharge headlight components marked with yellow high-voltage symbols.

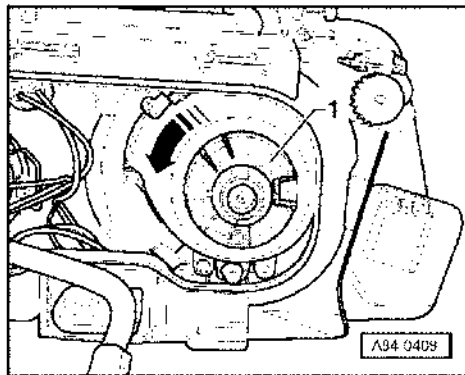
Removing

- Remove headlight => Page 94-39.
- Detach cover from headlight housing.
- Unplug connector -1- at gas-discharge lamp by turning anti-clockwise -arrow-.



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94-52



- ◀ - Detach retaining ring -1- for gas-discharge lamp by turning anti-clockwise -arrow-.
- Pull gas-discharge lamp out of headlight housing.

Installing

Install in reverse order, paying attention to the following:

Notes:

- ◆ Heed installation position: Lug at top of bulb holder must engage in recess of bulb.
- ◆ Retaining ring can only be fitted in one position.
- Insert new bulb in housing, taking care not to touch glass bulb with bare hands.
- Secure gas-discharge lamp with retaining ring.
- Re-attach connector and close housing cover.
- Install headlight => Page 94-41.

Replacing main beam bulb (gas-discharge headlight)

- Preparation for bulb replacement => Page 94-48

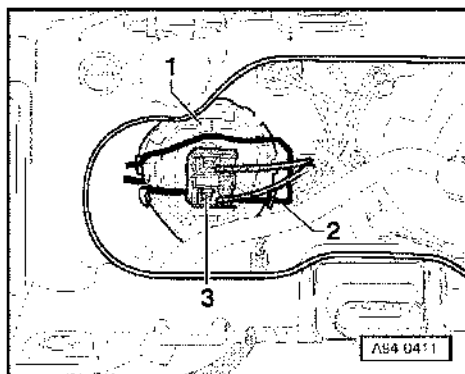
Removing

- ◀ - Detach cover from headlight housing.
- Unplug connector -3- at main beam bulb.
- Disengage spring clip -2- and take bulb -1- out of housing.

Installing

Install in reverse order, paying attention to the following:

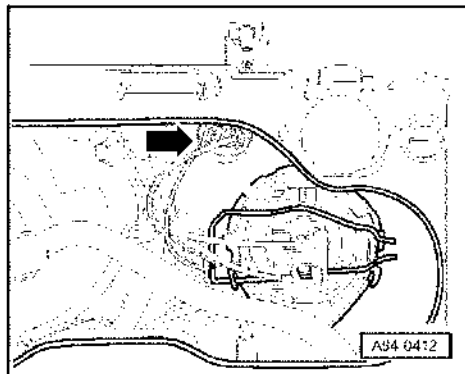
- Insert new bulb in housing, taking care not to touch glass bulb with bare hands.
- Secure bulb with spring clip.
- Re-attach connector and close housing cover.



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Replacing side light bulb (gas-discharge headlight)

- Preparation for bulb replacement => Page 94-48



Removing

- Detach cover from headlight housing.
- Pull holder -arrow- out of housing.
- Pull side light bulb out of holder.

Installing

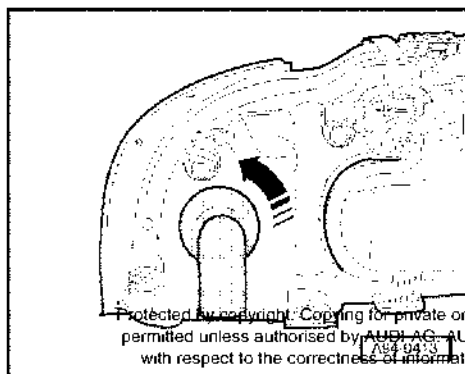
Install in reverse order, paying attention to the following:

- Insert new bulb in holder, taking care not to touch glass bulb with bare hands.
- Press holder into reflector until it is felt to engage.
- Close housing cover.

94-55

Replacing turn signal indicator bulb

- Preparation for bulb replacement => Page 94-48



Removing

- Left: Turn holder anti-clockwise -arrow- and pull out of housing.
- Right: Turn holder clockwise and pull out of housing.
- Screw bulb out of holder.

Installing

Install in reverse order, paying attention to the following:

- Insert new bulb in housing, taking care not to touch glass bulb with bare hands.

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94-56

Removing and installing headlight range control motor

● Preparation for motor removal => Page 94-48

Removing

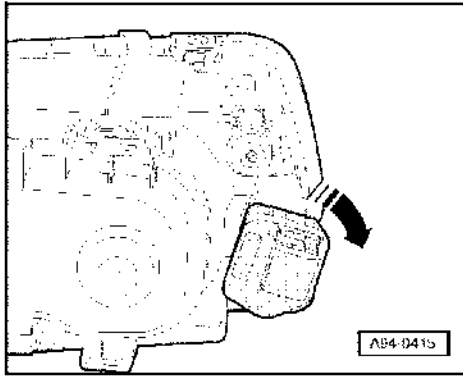
- ◀ - Release headlight range control motor: At right headlight by turning anti-clockwise; at left headlight by turning clockwise - arrow-
- By tilting control motor, push ball end of positioning stem out of socket.
- Unplug connector.

Installing

Install in reverse order, paying attention to the following:

Note:

Control motor removal/installation and replacement are always to be followed by headlight adjustment => Page 94-43 or 94-44.



94-57

Removing and installing gas-discharge lamp starter unit -N195

Attention: High voltage

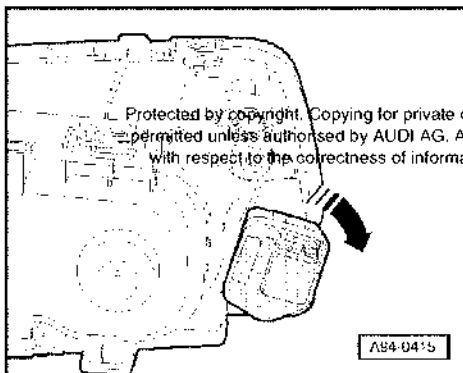
Always disconnect battery earth strap before working on gas-discharge headlight components marked with yellow high-voltage symbols.

Removing

- ◀ - Remove headlight => Page 94-39.

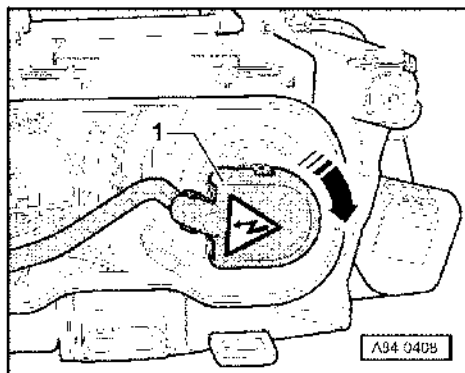
Release headlight range control motor: At right headlight by turning anti-clockwise; at left headlight by turning clockwise - arrow-

- By tilting control motor, push ball end of positioning stem out of socket.

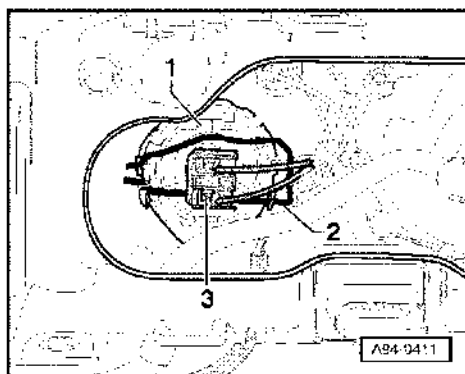


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94-58

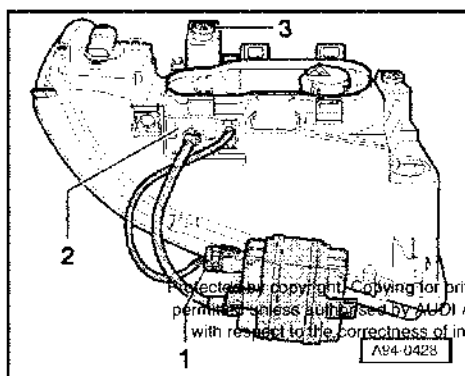


- ◀ - Detach cover from headlight housing.
- Unplug connector -1- at gas-discharge lamp by turning anti-clockwise -arrow-.



- ◀ - Unplug connector -3- at main beam bulb.
- Disengage spring clip -2- and take bulb -1- out of housing.

———— 94-59 ————



- ◀ - Turn adjuster -3- until headlight reflector is swivelled completely forwards.
- Unclip cable guide -2- from inside.
- Unplug connector -1-.

Installing

Install in reverse order, paying attention to the following:

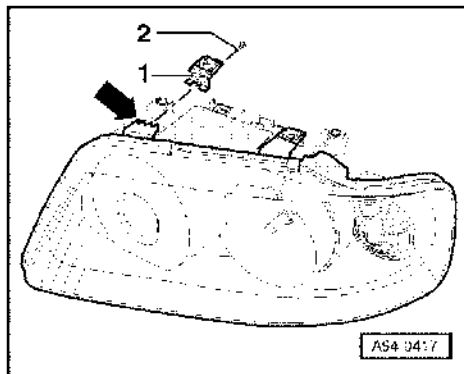
install headlight range control motor => Page 94-57.
install headlight => Page 94-41.

———— 94-60 ————

Installing repair set for headlight housing

Notes:

- ◆ Broken-off headlight fasteners can be replaced by installing repair set, thus avoiding replacement of entire headlight.
 - ◆ Different repair sets are available for left and right headlight.
- => Parts List



Sequence of operations

- Remove headlight with broken fastener => Page 94 39.
- Remove remnants of broken-off fastener at location marked with arrow.
- Position fastener -1- of repair set at edge (arrow) of headlight housing and secure from rear with packing plate and bolt -2-.

94-61

Tightening torque

Component
Headlight to lock carrier

Nm
6

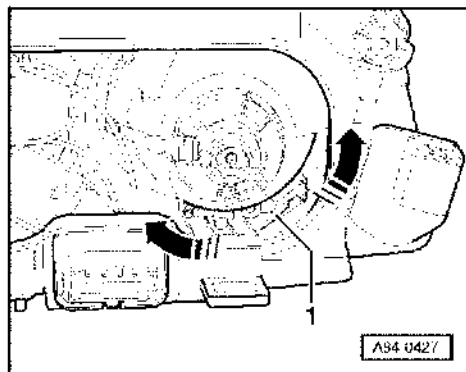
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94-62

Resetting headlights for driving on left/ right

When travelling in countries where the vehicle is to be driven on the other side of the road, both headlights must be reset to prevent dazzling by the asymmetric dipped beam.

- Preparation for resetting headlights for driving on left/ right
=> Page 94-48



Sequence of operations

- Detach cover from headlight housing.
- Check position of setting lever -1- at both headlights.
 - Lever down = Driving on right
 - Lever up = Driving on left
- If necessary, swivel lever until it engages in desired position - arrow-.
- Close housing cover.

94-63

Servicing fog lights – up to Model Year 2000

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation: Repair Group 91

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- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

Action to be taken after re-connecting power supply => Page 27-13.

94-64

Removing and installing fog lights (halogen headlights)

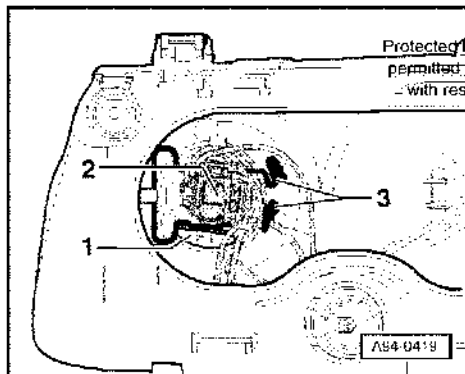
On vehicles with halogen headlights, fog lights are integrated into main beam of main headlights. Removing and installing => Removing and installing headlights, Page 94-7.

- Adjust fog light => Page 94-11.

94-65

Replacing fog light bulbs (halogen headlights)

● Preparation for bulb replacement => Page 94-16



Removing

4 Detach cover from headlight housing.

- Unplug connector -2- at main beam bulb.
- Disengage spring clip -3- and take bulb -1- out of housing.

94-66

Installing

Install in reverse order, paying attention to the following:

- Insert new bulb in housing, taking care not to touch glass bulb with bare hands.
- Secure bulb with spring clip.
- Re-attach connector and close housing cover.
- Adjust fog light => Page 94-11.

Adjusting fog lights (halogen headlights)

Specifications for fog light adjustment:

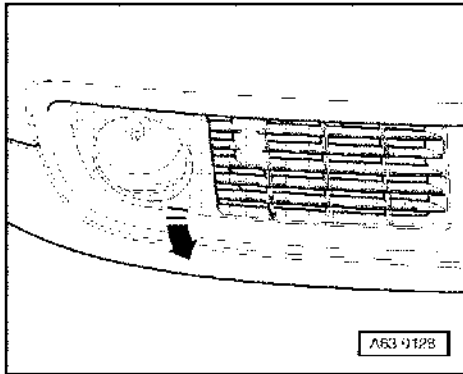
=> Maintenance

On vehicles with halogen headlights, fog lights are integrated into

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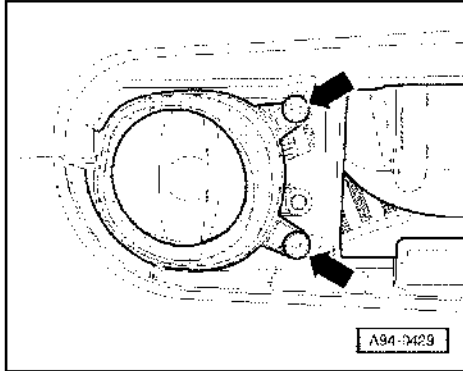
Main beam or main headlights => Adjusting Headlights, Page 94-11

Removing and installing fog lights (gas-discharge headlights)



Removing

- ◀ – Pull off trim in lower section of bumper -arrow-.



- ◀ – Screw out bolts -arrows-.
- Disengage and take out headlamp insert.
- Unplug connector.

94-69

Installing

Install in reverse order, paying attention to the following:

- Engage fog light on inside at bumper.
- Adjust fog light => Page 94-73.

Tightening torque

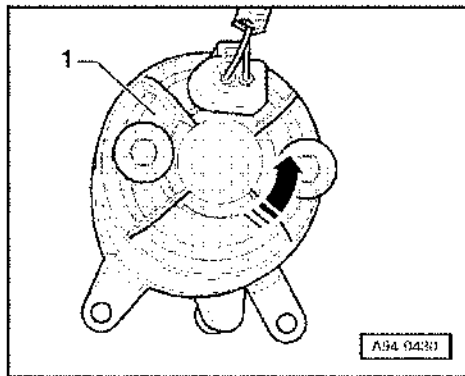
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Component
Fog light housing to bumper

Nm
5

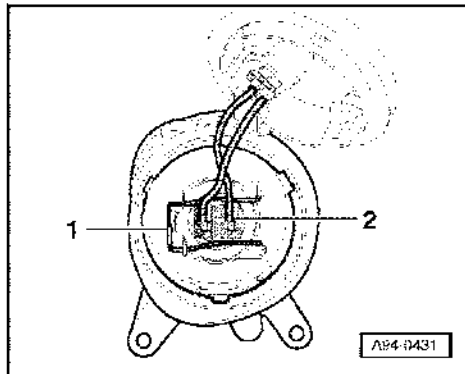
94-70

Replacing fog light bulbs (gas-discharge headlights)



Removing

- Remove fog light => Page 94 65.
- Release cover -1- by turning anti-clockwise -arrow- and detach cover.



- Unplug connector -2-.
- Disengage spring clip -1- and take bulb out of housing.

94-71

Installing

Install in reverse order, paying attention to the following:

- Insert new bulb in housing, taking care not to touch glass bulb with bare hands.
 - Heed bulb installation position
- Secure bulb with spring clip.
- Re-attach connector and close housing cover.

Adjust fog light => Page 94 73

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94-72

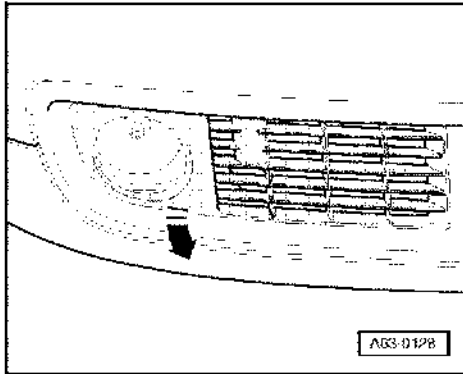
Adjusting fog lights (gas-discharge headlights)

Specifications for fog light adjustment:

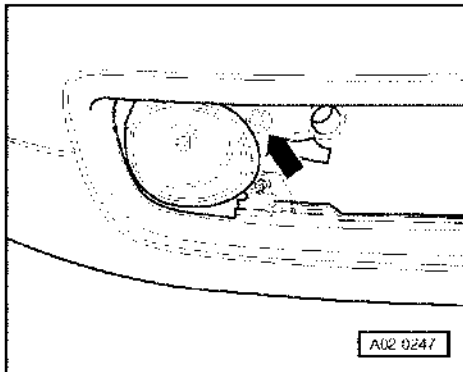
= > Maintenance

Sequence of operations

- ◀ – Pull off trim in lower section of bumper -arrow-.



- ◀ – Turn adjusting screw -arrow- to set height. No provision is made for lateral adjustment.



94-73

Servicing fog lights – vehicles as of Model Year 2001

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).

- Disconnect battery earth strap with ignition switched off.

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Action to be taken after re-connecting power supply => Page 27-13.

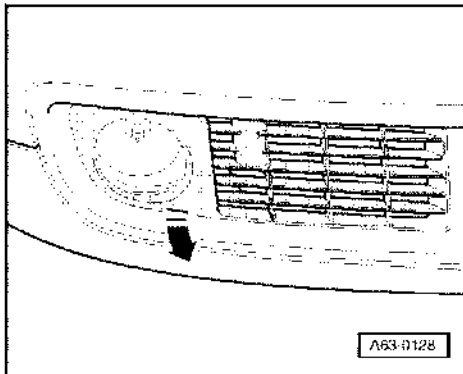
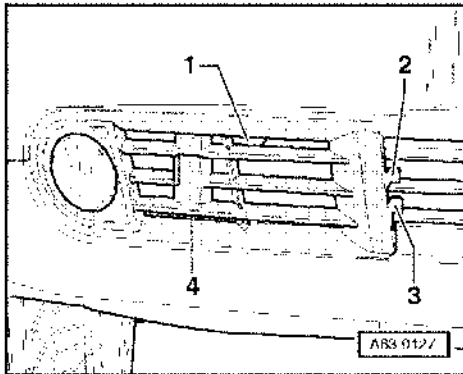
94-74

Removing and installing fog lights

Removing

Audi A3:

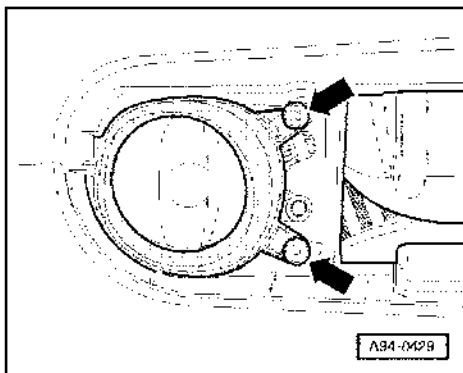
- Release fasteners -1 ... 4- with screwdriver -arrow- and pull off air inlet grille in bottom part of bumper.



Audi S3:

- Pull off trim in lower section of bumper -arrow-.

94-75



All models:

- Screw out bolts -arrows-.
- Disengage and take out headlamp insert.
- Unplug connector.

Installing

Install in reverse order, paying attention to the following:

- Engage fog light on inside at bumper.
- Adjust fog light => Page 94-79.

Tightening torque

Component

Fog light housing to bumper

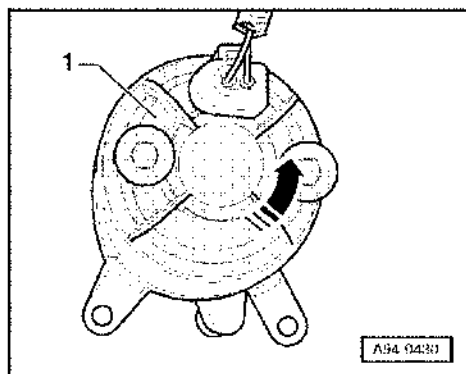
Nm

6

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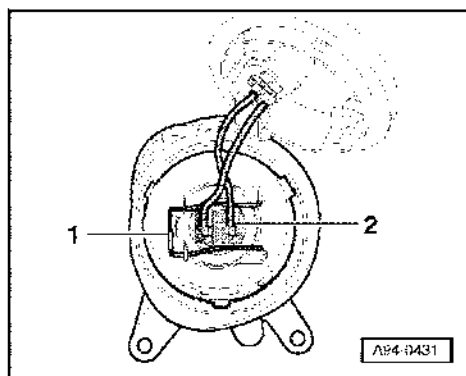
94-76

Replacing fog light bulbs



Removing

- Remove fog light => Page 94 75.
- Release cover -1- by turning anti-clockwise -arrow- and detach cover.



- Unplug connector -2-.
- Disengage spring clip -1- and take bulb out of housing.

94-77

Installing

Install in reverse order, paying attention to the following:

- Insert new bulb in housing, taking care not to touch glass bulb with bare hands.
 - Heed bulb installation position
- Secure bulb with spring clip.
- Re-attach connector and close housing cover.
- Adjust fog light => Page 94 79.

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94-78

Adjusting fog lights

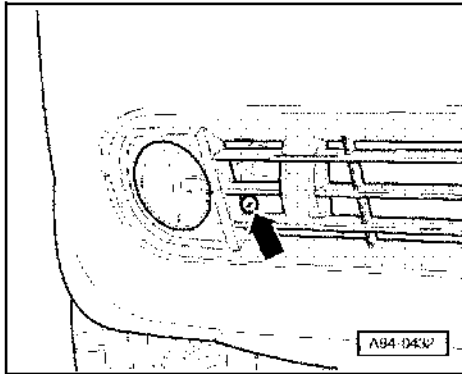
Specifications for fog light adjustment:

= > Maintenance

Sequence of operations

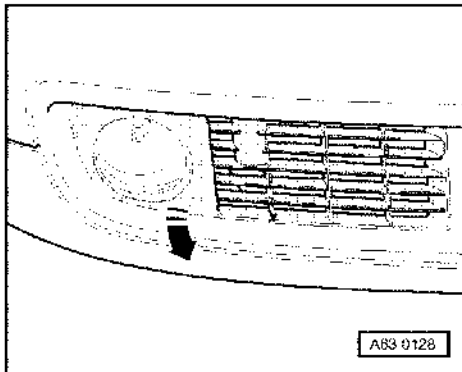
Audi A3:

- Turn adjusting screw -arrow- to set height. No provision is made for lateral adjustment.



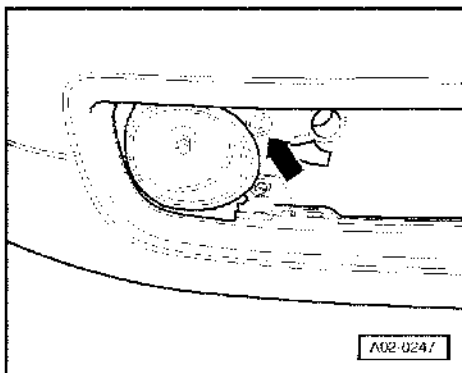
Audi S3:

- Pull off trim in lower section of bumper -arrow-.



94-79

- Turn adjusting screw -arrow- to set height. No provision is made for lateral adjustment.



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94-80

Side-mounted turn signal indicators

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

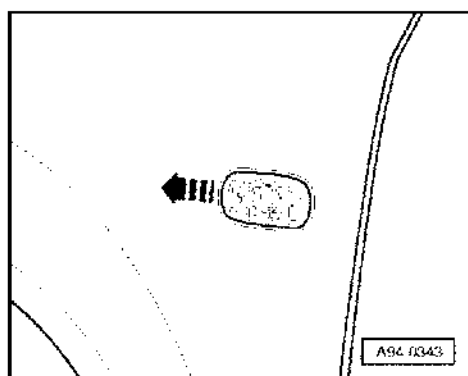
- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

Action to be taken after re-connecting power supply => Page 27-13.

94-81

Removing and installing side-mounted turn signal indicator



Removing

- Press turn signal indicator in direction of travel against retainer -arrow- and remove carefully from wing penetration.
- Pull housing for side-mounted turn signal indicator off bulb holder.

Note:

Fig. shows vehicle as of Model Year 2001.

Installing

Install in reverse order.

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94-82

Servicing rear lights

Attention:

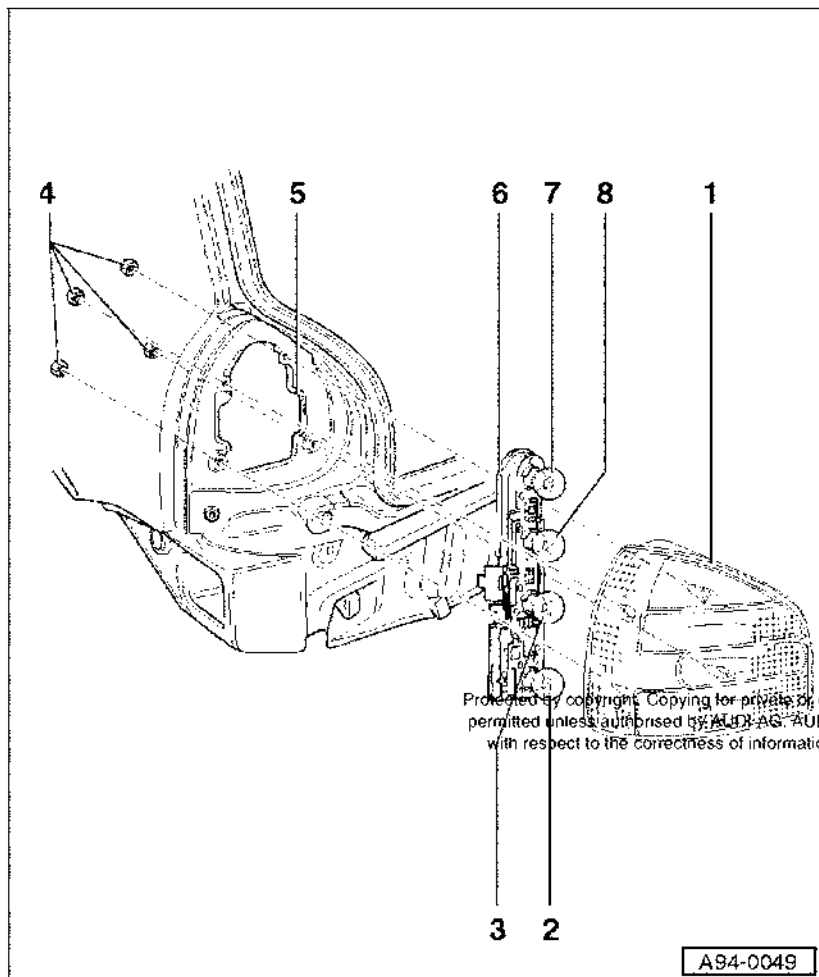
- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

Action to be taken after re-connecting power supply => Page 27-13.

94-83



Exploded view

1 - Housing

- ◆ Removing and installing
=> Page 94-85

2 - Brake light/tail light bulb

- ◆ 12 V, 21/5 W

3 - Reversing light bulb

- ◆ 12 V, 21 W

4 - Nut, 4 Nm

5 - Body

6 - Bulb carrier

7 - Rear fog light bulb

- ◆ 12 V, 21 W

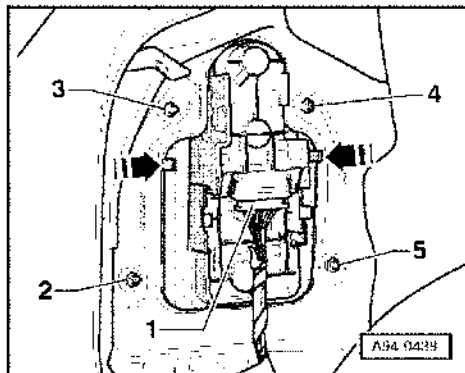
8 - Turn signal indicator bulb

- ◆ 12 V, 21 W

- ◆ As of Model Year 2001: Orange glass bulb

94-84

Removing and installing rear light



Removing

- Open appropriate luggage compartment storage area.
- Unplug connector -1-.
- Unscrew nuts -2 ... 5-.
- Squeeze together retainer tabs -arrows- at bulb housing and pull rear light outwards off rear end of vehicle.

Installing

Install in reverse order, paying attention to the following:

Note:

Ensure tight seal between body and rear light housing.

Tightening torque

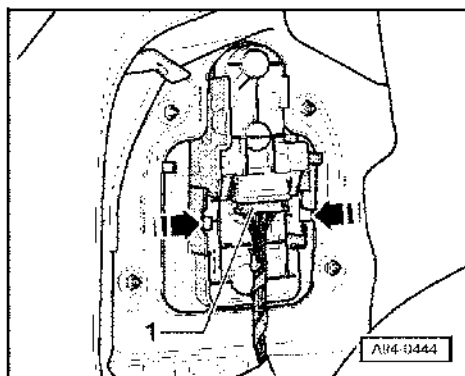
Component

Rear light to body

Nm

4

94-85



Replacing bulbs for rear light

Removing

- Open appropriate luggage compartment storage area.
- Unplug connector -1-.
- Squeeze catches -arrows- and take bulb carrier out of rear light in direction of passenger compartment.
- Screw bulbs out of holders.

Installing

Install in reverse order.

94-86

Servicing high-level brake light

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

Action to be taken after re-connecting power supply => Page 27-13.

94-87

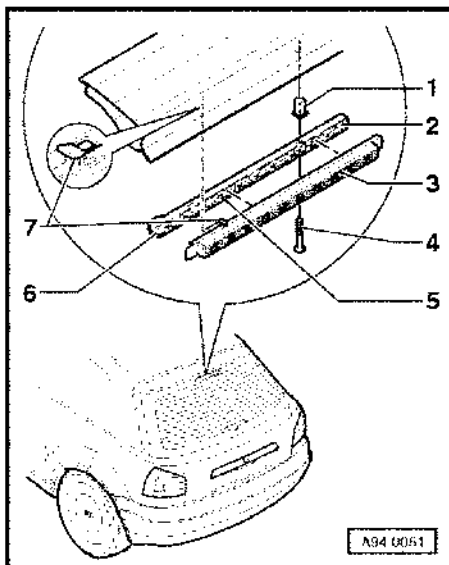
Removing and installing high-level brake light

Removing

- Remove upper tailgate trim.
=> General Body Repairs, Interior; Repair Group 70 =>
- Screw out bolt -4-.
- Slide high-level brake light to right and disengage retainer tab -7- from panel opening.
- Detach high-level brake light.
- Unplug connector -6-.
- Release fasteners and detach lens -3- with outer glass from bulb holder -2-.
- Pull brake-light bulbs -5- (12 V, 2.3 W) out of bulb holder.
- 1 - Expanding rivet

Installing

Install in reverse order.



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94-88

Servicing number plate light

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

Action to be taken after re-connecting power supply => Page 27-13.

94-89

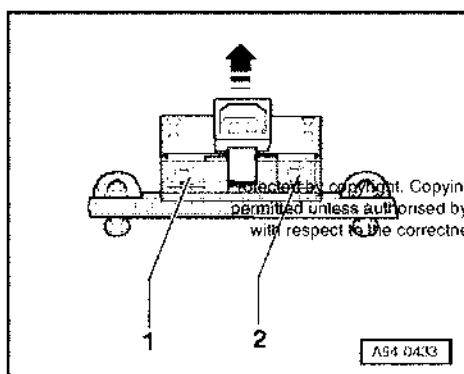
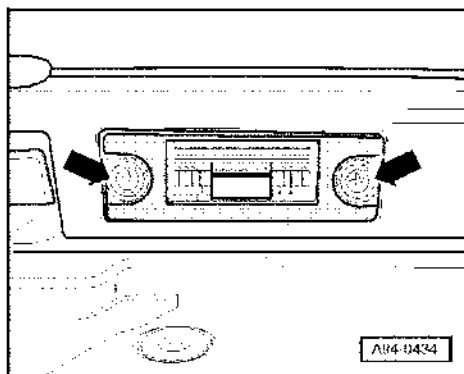
Removing and installing number plate light

Removing

Note:

Fig. only shows right number plate light.

- Screw out bolts -arrows- in handle cover strip.
- Prise bulb carrier out of handle cover strip.
- Unplug connector.



- Press release tabs -1- and -2- and pull bulb holder off bulb carrier -arrow-.
- Remove bulb (12 V, 5 W) out of holder.

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94-90

Installing

Install in reverse order, paying attention to the following:

- Insert bulb in clamp-type holder.
- Slide clamp-type holder onto housing for number plate light.

Steering column switch

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

Action to be taken after re-connecting power supply => Page 27-13.

Safety precautions when working on airbag

= > General Body Repairs, Interior; Repair Group 69; Airbag Safety Regulations; Safety precautions when working on airbag = >

Removing and installing airbag unit

– Remove driver's airbag unit.

= > General Body Repairs, Interior; Repair Group 69; Servicing driver's airbag = >

94-93

Removing and installing steering column switch

Removing

– Remove airbag unit and steering wheel.

= > General Body Repairs, Interior; Repair Group 69 = >

– Remove driver's storage compartment.

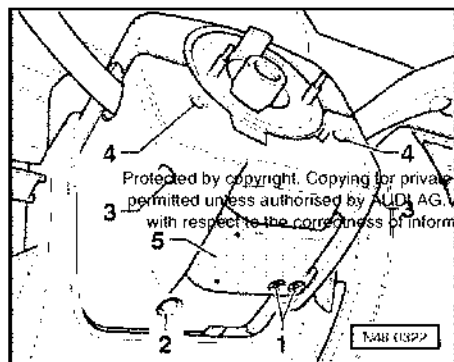
= > General Body Repairs, Interior; Repair Group 68; Storage compartments/covers and trim panels; Removing driver's storage compartment = >

◀ – Pull out steering wheel with adjuster as far as it will go and tilt it downwards.

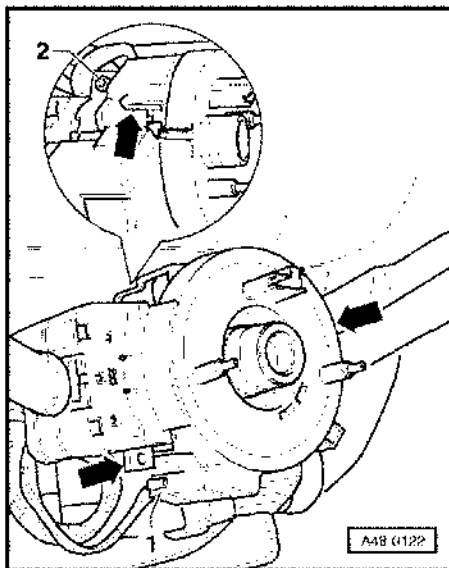
– Screw out bolts -1- and detach handle for steering column adjustment -5-.

– Screw out bolts -2...4-.

◀ – Detach upper and lower steering column trim sections.



94-94



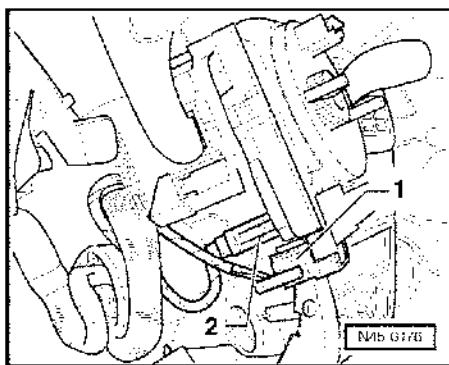
Vehicles without ESP:

- ◀ - Unplug connector -1-.
- Use adhesive tape to secure coil connector with slip ring in installation position.
- Release fasteners -arrows- and detach coil connector with slip ring from steering column switch.

Attention:

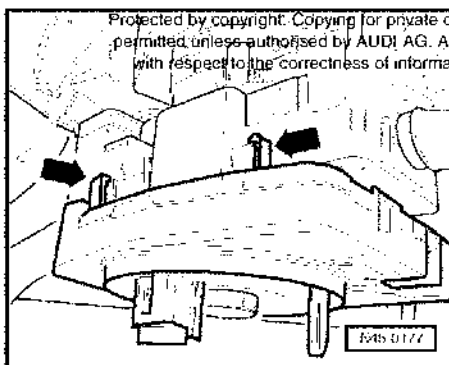
Coil connector with slip ring must not be turned out of centre position (secure in installation position using adhesive tape).

- Slacken off bolt -2- of clamp until steering column switch can be detached.
- Unplug connectors for steering column switch.



Vehicles with ESP:

- ◀ - Unplug connectors -1- and -2-.



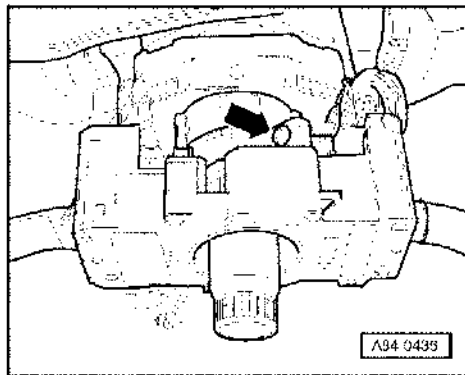
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Carefully release upper fasteners -arrows-.

Carefully release lower fasteners and detach housing of coil connector with slip ring and steering angle sender from steering column switch.

Attention:

Coil connector with slip ring must not be turned out of centre position (secure in installation position using adhesive tape).



- ◀ - Slacken off bolt -arrow- of clamp until steering column switch can be detached.
- Unplug connectors for steering column switch.

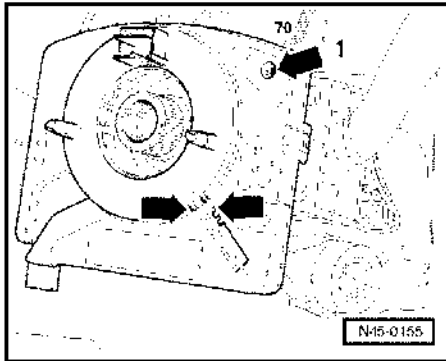
Installing

Install in reverse order, paying attention to the following:

- Slide housing of coil connector with slip ring and steering angle sender onto steering column switch until all fasteners are heard to engage.
- Break off transportation protection to remove/detach adhesive securing tape.

Vehicles with ESP:

- ◀ - Move steering angle sender to centre position.
 - Yellow dot must be visible in hole -arrow 1- and the two marks
 - arrows- must be aligned



All models:

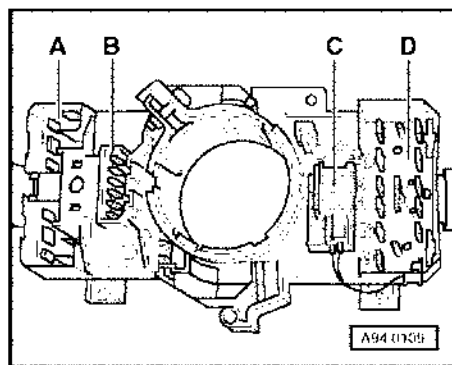
- Install driver's storage compartment.
=> General Body Repairs, Interior; Repair Group 68; Storage compartments/covers and trim panels; Removing driver's storage compartment =>
- Install steering wheel and airbag unit.
=> General Body Repairs, Interior; Repair Group 69 =>

Vehicles with ESP:

- Start basic setting for steering angle sender -G85.
=> Running Gear, Self-diagnosis; Repair Group 01 =>
- On vehicles with ABS/ESP Mark 60, perform ESP drive test.
=> Running Gear, Self-diagnosis; Repair Group 01 =>

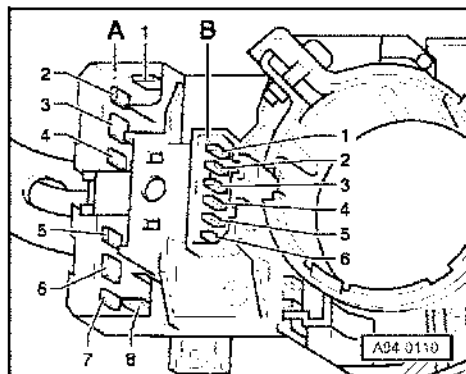
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Terminal assignment at steering column switch



Exploded view

- A - Connection for wiper switch
- B - Connection for driver information system and intermittent setting
- C - Connection for cruise control system
- D - Connection for turn-signal indicator switch



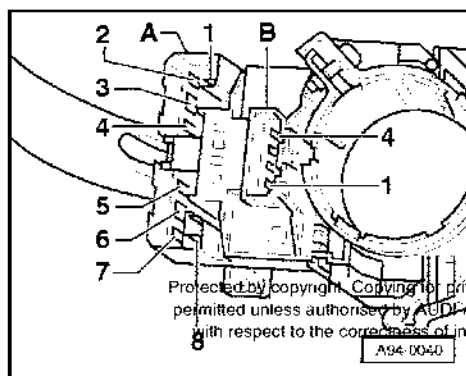
Terminal assignment for wiper switch -A-

- 1 - Terminal 53
- 2 - Terminal 31
- 3 - Terminal 53e
- 4 - Terminal 53c (vehicles up to 07.97 only)
- 5 - Rear wiper
- 6 - Terminal 53b
- 7 - Intermittent wipe
- 8 - Terminal 53a

Note:

Pin assignment for intermittent wiper control -E38 => Page 94-100

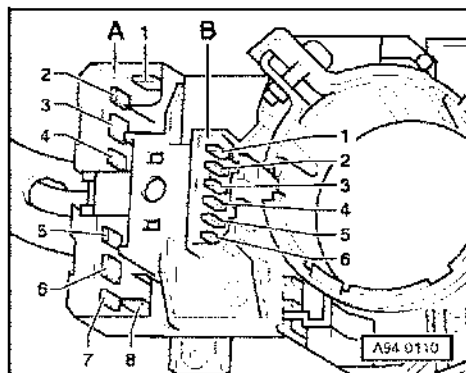
94-99



Terminal assignment for on-board computer -B- – vehicles up to 07.97

- 1 - On-board computer/switch rocker to right
- 2 - On-board computer/switch rocker to left
- 3 - Terminal 31
- 4 - On-board computer/reset

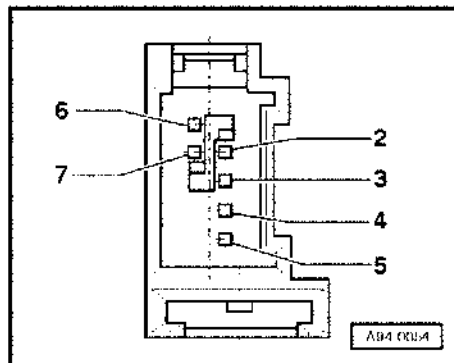
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Terminal assignment for on-board computer -B- – vehicles as of 08.97

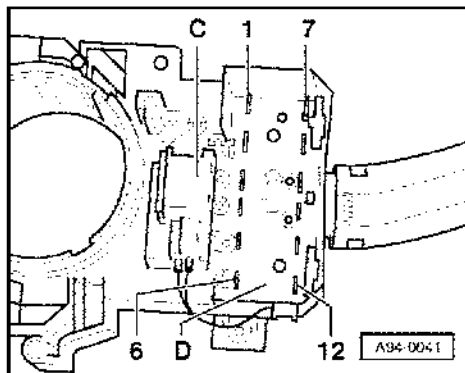
- 1 - Driver information system/switch rocker to right
- 2 - Driver information system/switch rocker to left
- 3 - Terminal 31
- 4 - Driver information system/reset
- 5 - Automatic intermittent wash/wipe relay -J31
- 6 - Terminal 31

94-100



Terminal assignment for cruise control system -C-

- 2 - Engine control unit
- 3 - Engine control unit
- 4 - Engine control unit
- 5 - Engine control unit
- 6 - Terminal 15
- 7 - Engine control unit



Terminal assignment for turn-signal indicator switch -D-

- 1 - Terminal 30
- 2 - Terminal 30
- 3 - Terminal L
- 4 - Terminal P
- 5 - Terminal 49a
- 6 - Not used
- 7 - Terminal 56
- 8 - Terminal 56b
- 9 - Terminal PL
- 10 - Terminal PR
- 11 - Terminal R
- 12 - Terminal 56a

94-101

Servicing lock cylinder and ignition/starter switch

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation, Repair Group 91

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- ◆ Reader coil for immobilizer is attached to lock cylinder and cannot be replaced separately.
- ◆ Lock cylinder must be replaced if reader coil is defective.
- ◆ When replacing lock cylinders, heed reader coil specifications
=> Page 96-27.

94-102

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

Action to be taken after re-connecting power supply => Page 27-13.

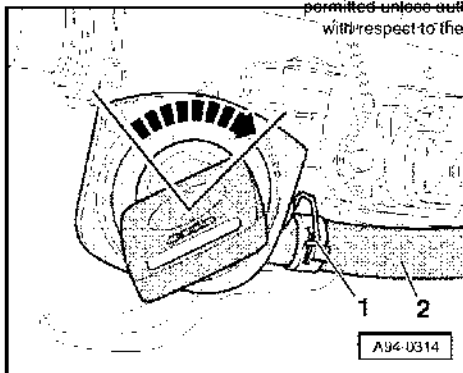
Removing and installing lock cylinder

Removing

- Remove steering column switch => Page 94-94.

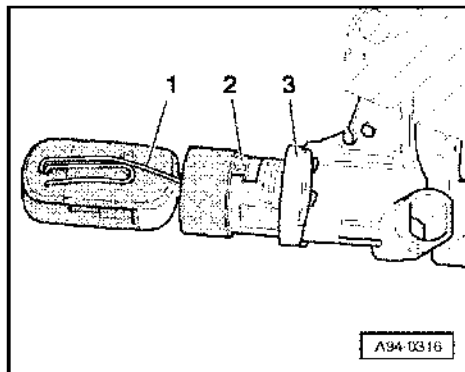
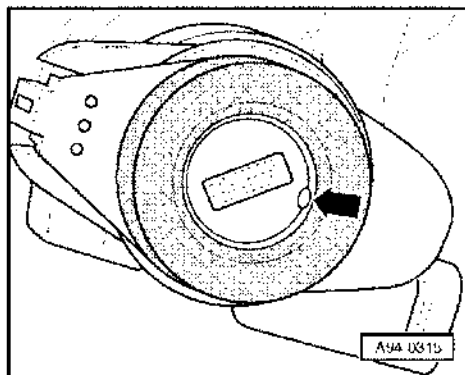
- Unplug connector at reader coil.

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Vehicles with automatic gearbox:

- Set selector lever to "P".
- Turn ignition key to "Ignition ON" position -arrow-.
- Then lift interlock lever -1- slightly and pull locking cable -2- out of ignition lock housing.



All models:

Note:

- ◀ Spare key is required for removal of lock cylinder as the following operations can only be performed with an ignition key with a flat grip, i.e. no light and no remote control.

– Turn spare key to "ignition ON" position, thus aligning recess in trim -arrow- with hole in ignition lock.

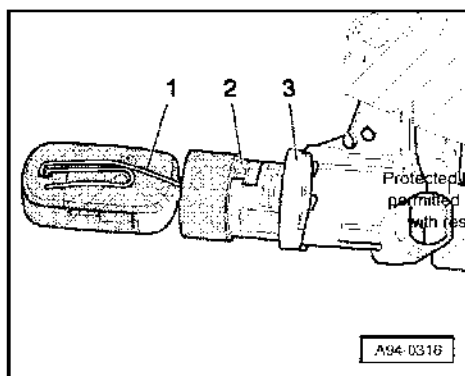
Note:

Fig. shows correct lock position without ignition key.

- ◀ – Insert steel wire or pin (\varnothing approx. 1.5 mm) in hole -1- as far as it will go, at the same time pulling lock cylinder -2- with reader coil out of steering lock housing -3-.

Note:

If lock cylinder has to be replaced, always heed specifications for immobilizer reader coil replacement => Page 96-27.



Installing

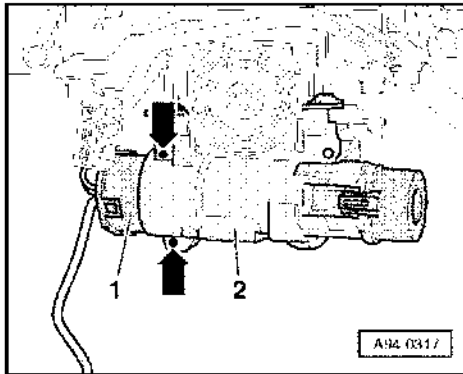
Install in reverse order, paying attention to the following:

- ◀ – Insert spare key in lock cylinder and turn to "ignition on" position.

Reinsert steel wire/pin 1 in hole on end face as far as it will go.

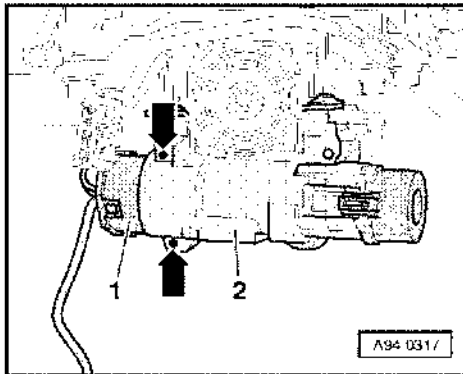
- Insert lock cylinder -2- with reader coil in steering lock housing -3-.
- Then pull out steel wire and firmly press in lock cylinder until catch is heard to engage.
- Plug in connector at immobilizer reader coil.

Removing and installing ignition/starter switch



Removing

- Remove steering column switch => Page 94-94.
- Unplug connector -1- at ignition/starter switch.
- Remove locking compound from both bolts -arrows-.
- Slacken off bolts -arrows- slightly and pull ignition/starter switch out of steering lock housing -2-.



Installing

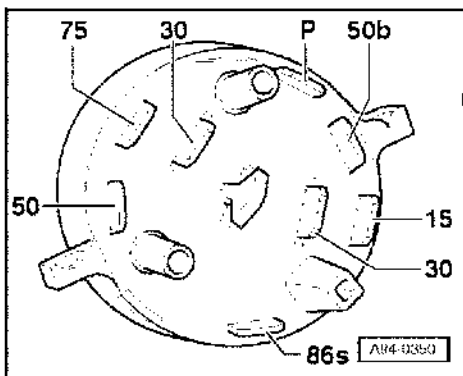
Install in reverse order, paying attention to the following:

Note:

- On installation, ignition/starter switch and lock cylinder must be in same position, e.g. "ignition ON".
- Secure bolts -arrows- at steering lock housing -2- with locking compound.

94-107

Connection 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

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94-108

Servicing parking aid

Attention:

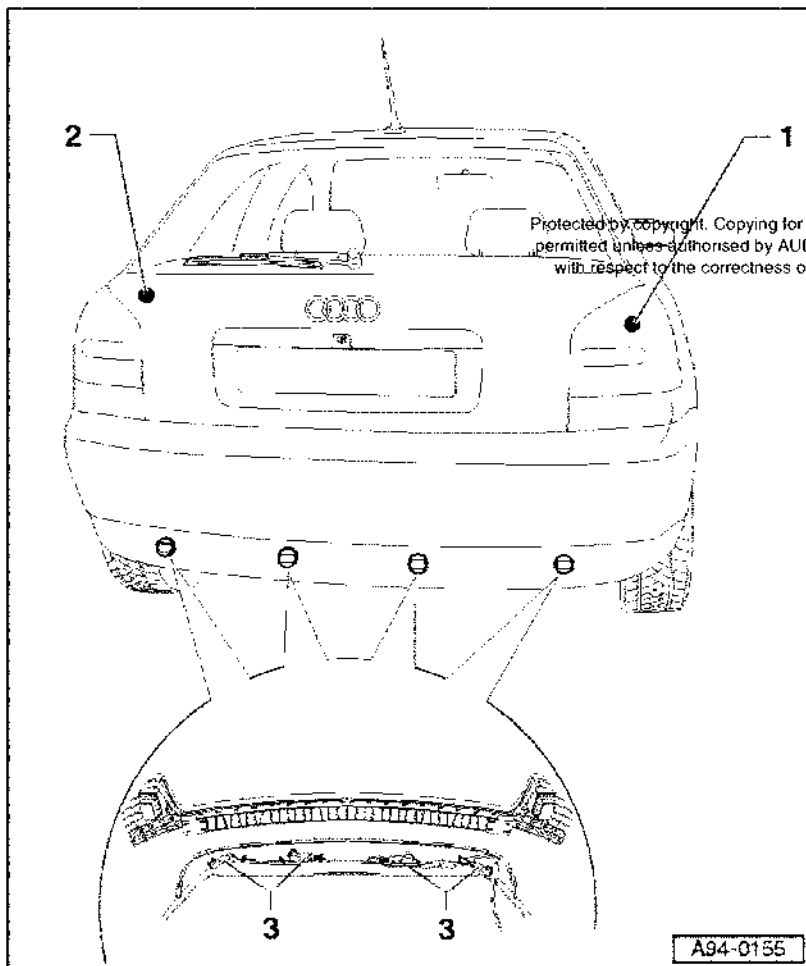
- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

Action to be taken after re-connecting power supply => Page 27-13.

94-109



Exploded view of parking aid

1 - Parking aid control unit -J446

- ◆ At rear right of luggage compartment beneath side trim
- ◆ Removing and installing => Page 94-111

2 - Rear parking aid warning buzzer - H15

- ◆ At rear left of luggage compartment beneath side trim
- ◆ Removing and installing => Page 94-113

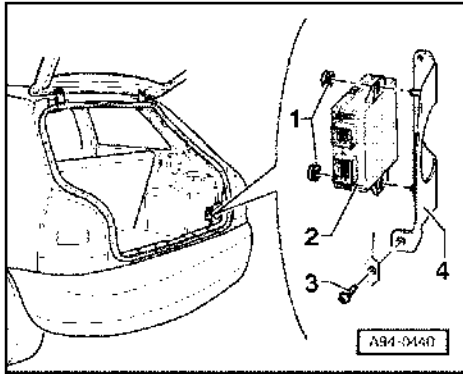
3 - Parking aid sender

- ◆ In rear bumper
- ◆ Removing and installing => Page 94-115

94-110

Removing and installing parking aid control unit -J446

Fitting location: At rear right at back wall of luggage compartment beneath rear light



Removing

- Remove right luggage compartment side trim.
=> General Body Repairs, Interior; Repair Group 70 =>
- Unplug connectors.
- Screw out bolts -3-.
- Detach holder -4- with parking aid control unit -2-.
- Unscrew nuts -1- and detach parking aid control unit from holder.

94-111

Installing

Install in reverse order.

Tightening torques

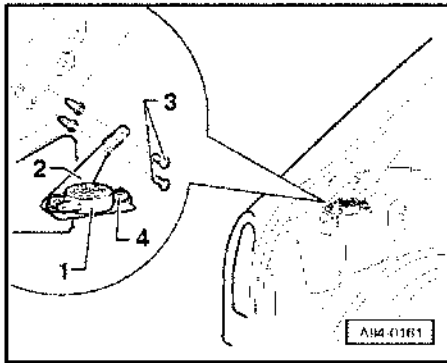
Component	Nm
Control unit to holder	1.5
Holder to body	1.5

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94-112

Removing and installing rear parking aid warning buzzer -H15

Fitting location: At rear left of luggage compartment beneath side trim



Removing

- Open left luggage compartment storage area.
- Unplug connector.
- Unscrew bolts -3- and detach holder -2-.
- Unscrew nuts -4-.
- Lift out warning buzzer.

Note:

Fig. shows 3-door model.

94-113

Installing

Install in reverse order.

Tightening torques

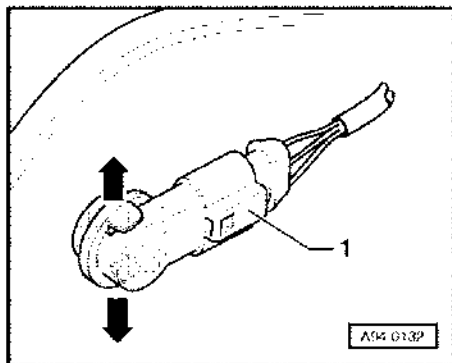
Component	Nm
Parking aid warning buzzer to holder	1.5
Holder to body	1.5

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94-114

Removing and installing rear parking aid sender

Fitting location: In bumper (on back)



Removing

- Unplug connector -1- at sender.
- Press both retainer tabs aside -arrows- and press out sender inwards.

Note:

Second mechanic may be required to press disengaged senders inwards.

Installing

Install in reverse order.

94-115

Servicing automatic headlight range control

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

Action to be taken after re-connecting power supply => Page 27-13.

Attention: High voltage

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On vehicles with gas-discharge headlights, always disconnect battery earth strap before working on gas-discharge headlight components marked with yellow high-voltage symbols.

94-116

Exploded view of automatic headlight range control

1 – Left/right headlight range control motor -V48/V49

2 – Front left vehicle level sender - G78

◆ At front left link

◆ Removing and installing:

= > Running Gear, Front-wheel Drive and Four-wheel Drive; Repair Group 40 = >

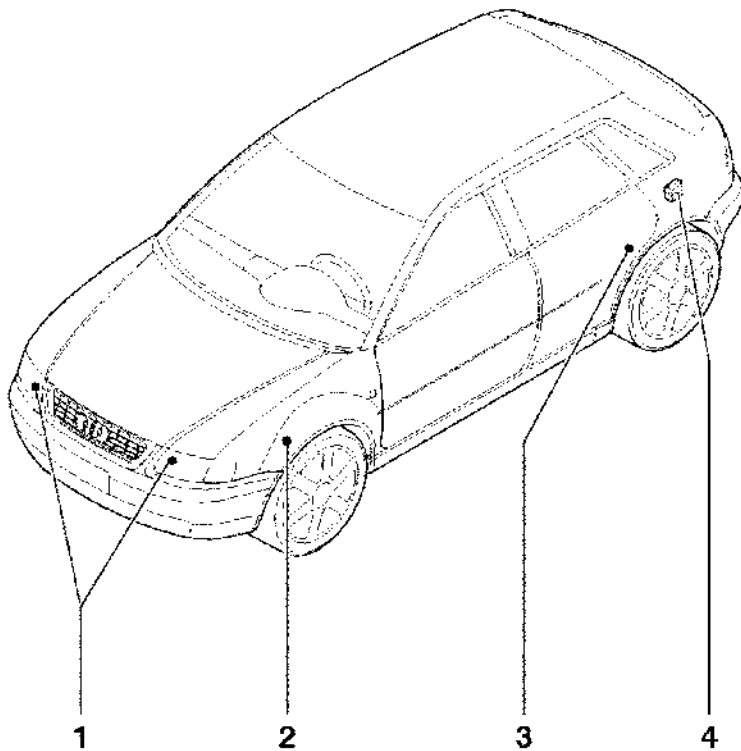
3 – Rear left vehicle level sender - G76

◆ FWD: At rear axle beam

◆ 4WD: At rear left link

◆ Removing and installing:

= > Running Gear, Front-wheel Drive and Four-wheel Drive; Repair Group 42 = >



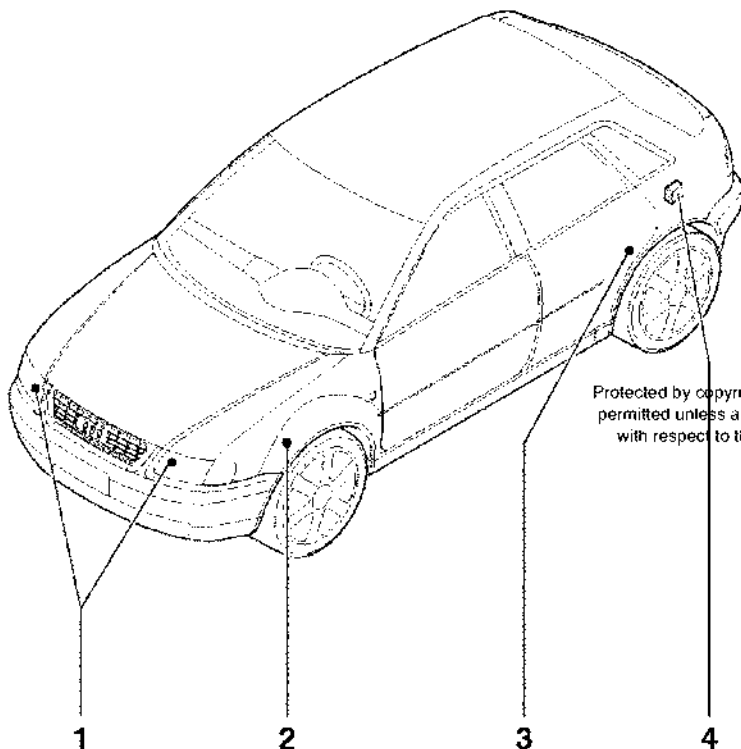
A94-0438

94-117

4 – Headlight range control unit - J431

◆ Fitting location on 3-door model: In wheel housing on left beneath side trim at rear – Removing and installing = > Page 94-119

◆ Fitting location on 5-door model: At rear left of luggage compartment beneath side trim – Removing and installing = > Page 94-120



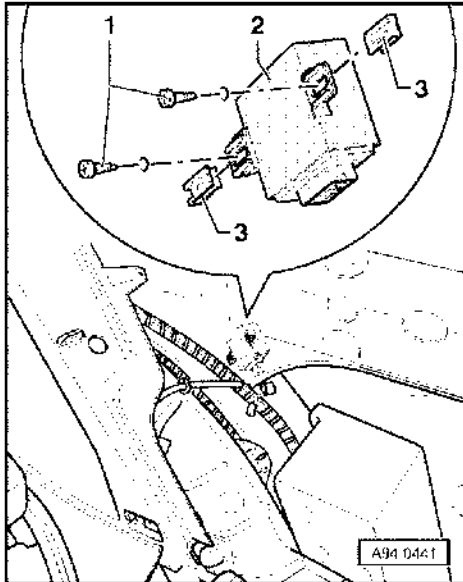
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A94-0438

94-118

Removing and installing headlight range control unit - J431 - 3-door model

Fitting location: In wheel housing on left beneath side trim at rear



Removing

- Remove rear side trim.
- = > General Body Repairs, Interior; Repair Group 70 = >
- Unplug connector.
- Screw out bolts -1- and detach headlight range control unit -2-.
- 3 - Speed nut

Installing

Install in reverse order.

Tightening torque

Component

Control unit to body

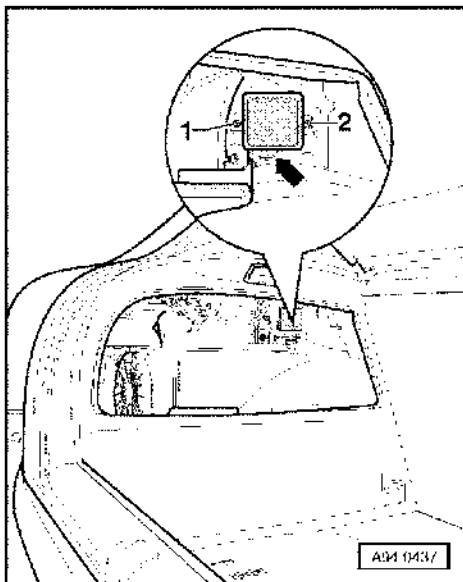
Nm

2

94-119

Removing and installing headlight range control unit - J431 - 5-door model

Fitting location: At rear left of luggage compartment beneath side trim



Removing

- Open left luggage compartment storage area.
- Unscrew nuts -1- and -2-.
- Detach headlight range control unit.
- Unplug connector -arrow-.

Installing

Install in reverse order.

Tightening torque

Component

Control unit to body

Nm

1.5

94-120

Servicing ultrasonic interior monitor

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

Action to be taken after re-connecting power supply => Page 27-13.

94-121

Removing and installing ultrasonic sensors for interior monitor

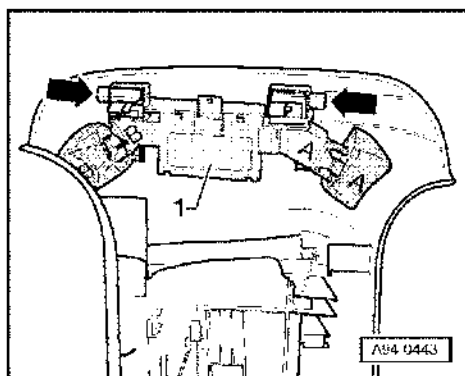
Fitting location: Ultrasonic sensors are located in upper left and right B-pillar trim.

Removing

- Remove B-pillar trim.
=> General Body Repairs, Interior; Repair Group 70; Trim; Removing and installing B-pillar trim =>
- Unplug connector.
- Unscrew ultrasonic sensor -1- from B-pillar trim -arrows-.

Installing

Install in reverse order.

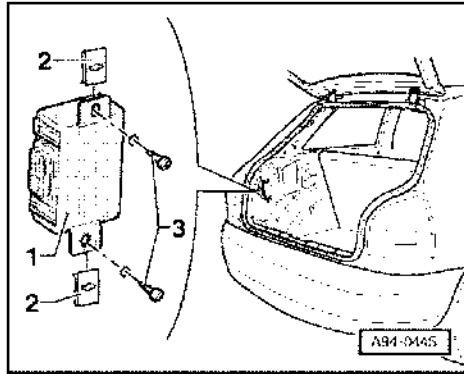


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94-122

Removing and installing interior monitor control unit

Fitting location: Interior monitor control unit is located at rear left of luggage compartment.



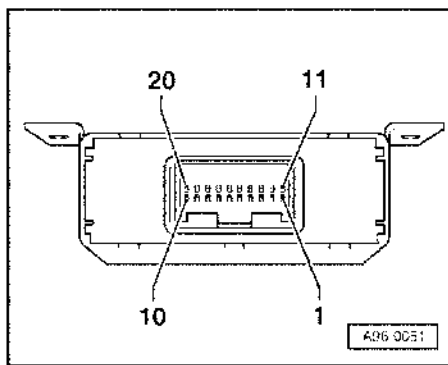
Removing

- Open left luggage compartment storage area.
- Screw out bolts -3- and detach interior monitor control unit -1-.
- 2 - Speed nut

Installing

Install in reverse order.

94-123

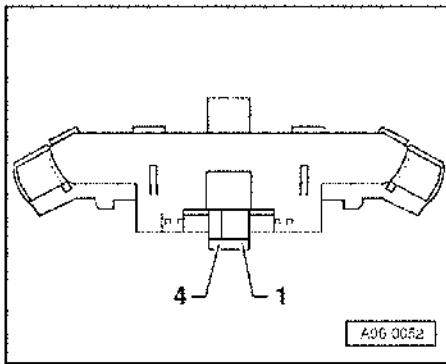


Assignment of connector at ultrasonic sensor control unit -J347

- 1 - Power supply/terminal 30
- 2 - Not used
- 3 - Activation/deactivation (by central locking pump)
- 4 - Not used
- 5 - Left ultrasonic sensor power supply
- 6 - Left sensor earth
- 7 - Left ultrasonic sensor analog signal
- 8 - Left ultrasonic sensor 40 kHz pulse
- 9 - Deactivation switch
- 10 - Left -M27 and right -M28 door warning lamp output
- 11 - Earth/terminal 31
- 12 - Warning lamp (interior monitor switch -E183)
- 13 - Driver's side door contact switch -F2 input
- 14 - Not used
- 15 - Right ultrasonic sensor power supply
- 16 - Right ultrasonic sensor earth
- 17 - Right ultrasonic sensor analog signal
- 18 - Right ultrasonic sensor 40 kHz pulse
- 19 - K wire to diagnosis socket
- 20 - Alarm output to central locking pump

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94-124



◀ **Assignment of connector at ultrasonic sensor**

- 1 - 40 kHz pulse
- 2 - Supply voltage
- 3 - Earth
- 4 - Analog signal

Servicing switches

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

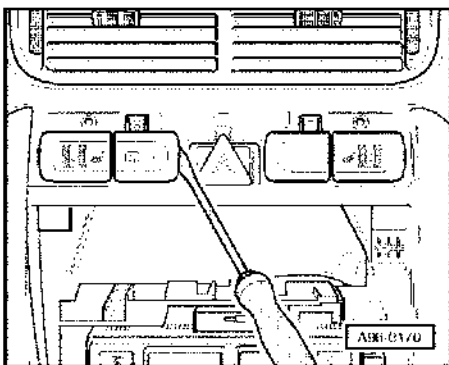
- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

Action to be taken after re-connecting power supply => Page 27-13.

96-1

Removing and installing switches in centre console – up to Model Year 2000



Removing

- Remove trim for centre section of dash panel.
=> General Body Repairs, Interior; Repair Group 68 =>
- Use flat screwdriver to carefully prise corresponding switch out of mount.
- Unplug connector.

Installing

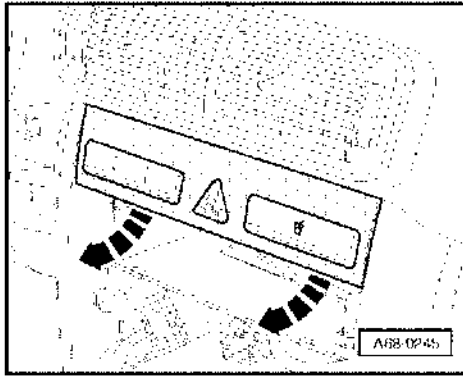
Install in reverse order, paying attention to the following:

- Plug in connector.
- Press switch into mount in dash panel and engage.
- Fit trim for centre section of dash panel.
=> General Body Repairs, Interior; Repair Group 68 =>

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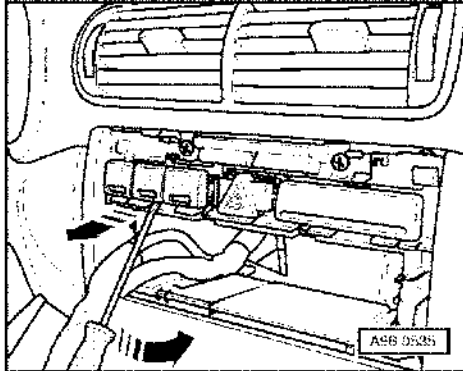
96-2

Removing and installing switches in centre console – as of Model Year 2001



Removing

- Remove radio/monitor navigation system.
= > Radio, Telephone, Navigation; Repair Group 91 = >
- Unclip trim for switch module -arrows-.
- Detach trim for switch module.



- Use flat screwdriver to carefully prise corresponding switch out of mount -arrows-.
- Unplug connector.

96-3

Installing

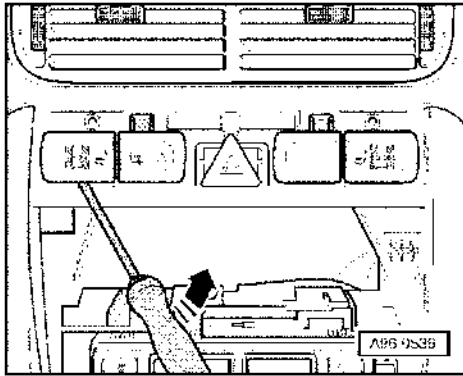
Install in reverse order, paying attention to the following:

- Plug in connector.
- Press switch into mount in dash panel and engage.

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96-4

Removing and installing front seat heating switch – up to Model Year 2000



Removing

- Remove trim for centre section of dash panel.
- = > General Body Repairs, Interior; Repair Group 68 = >
- Use flat screwdriver to carefully prise seat heating switch out of mount -arrow-.
- Unplug connector.

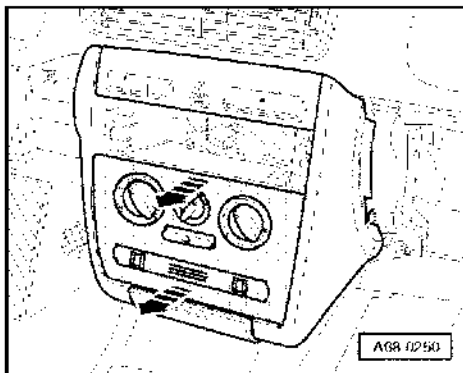
Installing

Install in reverse order, paying attention to the following:

- Plug in connector.
- Press switch into mount in dash panel and engage.

96-5

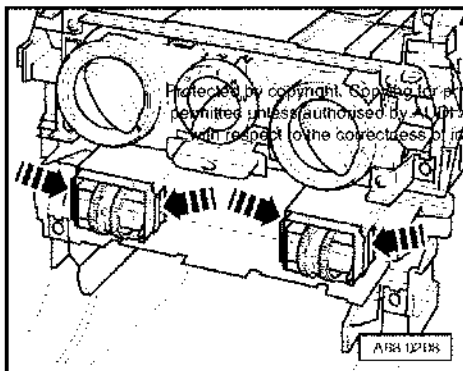
Removing and installing front seat heating switch – as of Model Year 2001



Removing

Vehicles with no air conditioner:

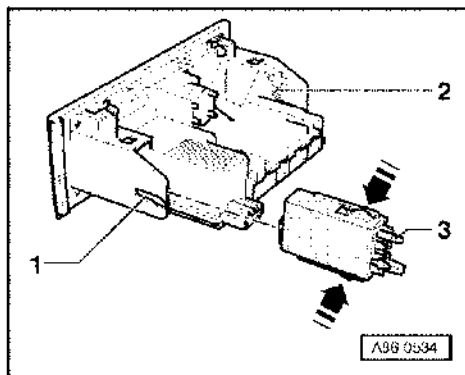
- Remove radio.
- = > Radio, Telephone, Navigation; Repair Group 91 = >
- Unclip trim for heater controls -arrows-.



- Use small screwdriver to carefully release fasteners -arrows-.
- Take out seat heating switch.

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96-6



Vehicles with air conditioner:

On vehicles with air conditioner, front seat heating switches are integrated into operating and display unit -E87.

- ◀ - Remove air-conditioner operating element.
= > Air Conditioner; Repair Group 87 = >
- Use small screwdriver to carefully release fasteners -arrows-.
- Take seat heating switches -1- and -2- out of air conditioner operating element -1-.

Installing

Install in reverse order, paying attention to the following:

- Plug in connector.
- Press switch into mount and engage.

96-7

Removing and installing light switch

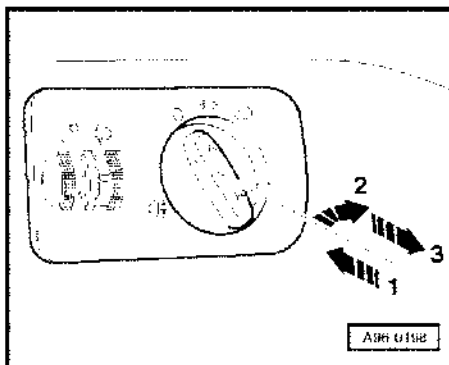
Removing

- ◀ - Press light switch -arrow 1- and at the same time turn it to right -arrow 2-.
- Hold switch in this position and pull it out of housing -arrow 3-.
- Unplug connector.

Installing

Install in reverse order, paying attention to the following:

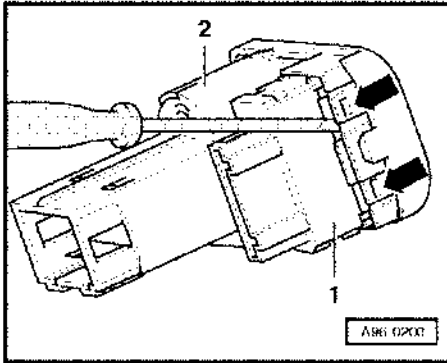
- Press switch into switch housing until catch engages.



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96-8

Removing and installing adjuster for manual headlight range control



Removing

- Remove light switch => Page 96-8.
- Use small screwdriver to carefully release fasteners -arrows-.
- Pull headlight range control adjuster -1- to rear out of light switch housing -2-.
- Unplug connector.

Installing

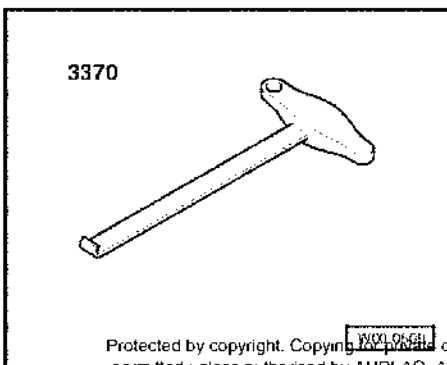
Install in reverse order.

96-9

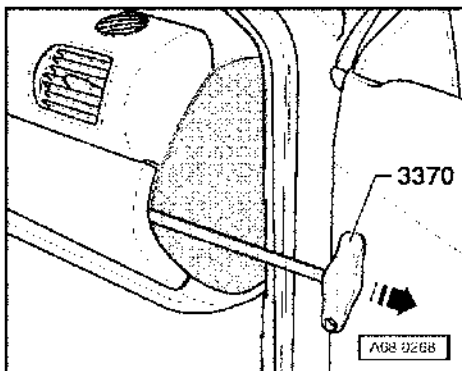
Removing and installing switch for glove box light

Special tools and workshop equipment required

- ◆ Hook for front end 3370



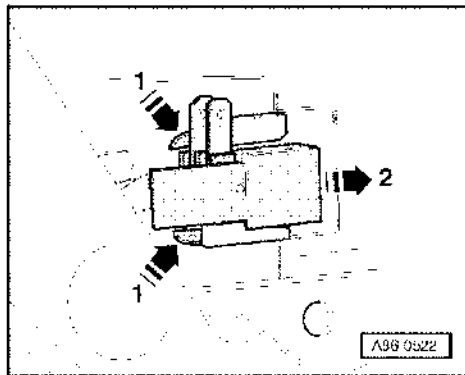
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Removing

- Open glove box.
- Use special tool 3370 to pull off right dash panel end trim -arrow-.

96-10

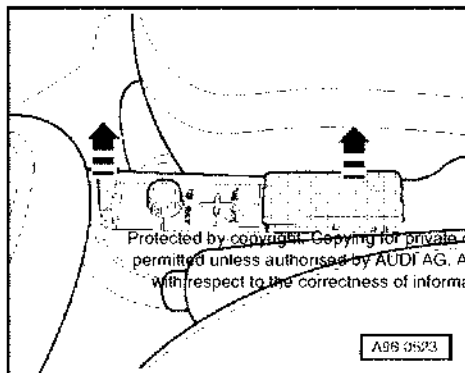


- ◀ - Squeeze both release tabs together -arrows 1- and pull switch out of guide at glove box in direction of travel -arrow 2-.
- Unplug connectors.

Installing

Install in reverse order.

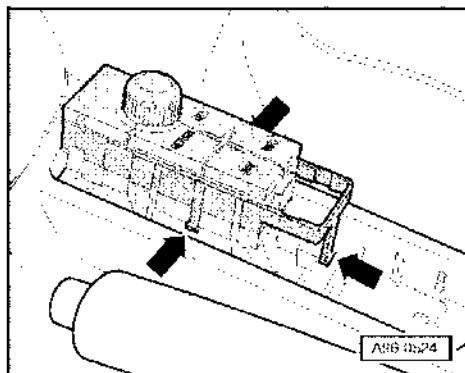
Removing and installing function selection switch II - E272



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Removing

- ◀ - Prise out the two covers in front of and behind function selection switch -arrows-.

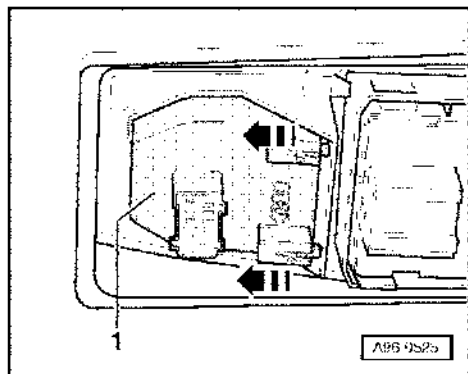


- ◀ - Use small knife or feeler gauge to release the 3 retainer tabs - arrows- of the function selection switch.
- Pull function selection switch out of storage compartment.
- Slide back foam sheath and unplug connectors.

Installing

Install in reverse order.

Removing and installing mirror adjustment switch – 3-door model



Removing

- Remove front door trim.
- ◀ = > General Body Repairs, Interior; Repair Group 70 = >
- Carefully release the two fasteners in direction of arrow.
- Pull mirror adjustment switch downwards out of door trim.

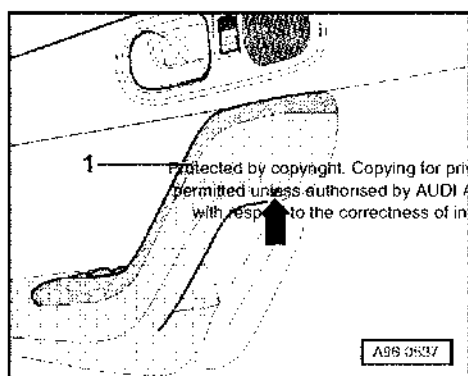
Installing

Install in reverse order, paying attention to the following:

- Press mirror adjustment switch into switch mount until fasteners engage.

96-13

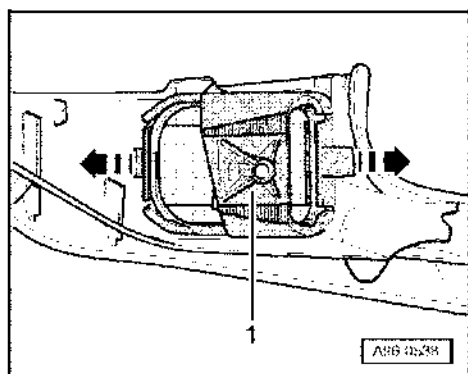
Removing and installing mirror adjustment switch – 5-door model



Removing

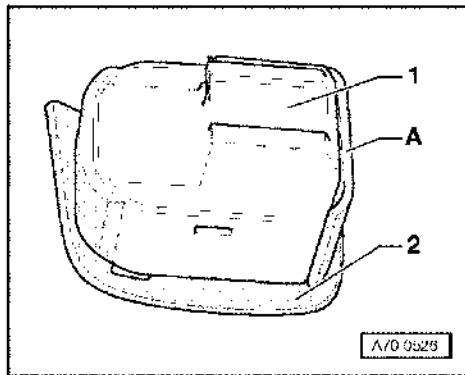
- ◀ – Screw out bolt -arrow-.
- Release top part of recessed handle moulding -1- and detach.
- Unplug connectors.

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- ◀ – Use small screwdriver to carefully release fasteners -arrows- at retaining frame -1-.
- Pull mirror adjustment switch out of top part of recessed handle moulding.

96-14



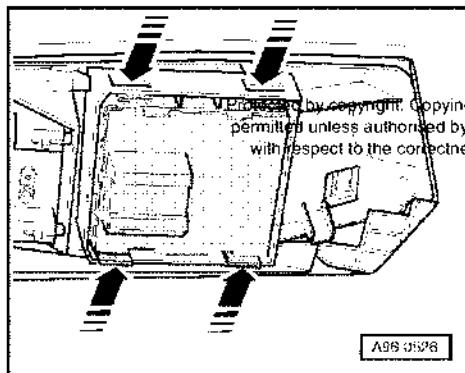
- ◀ – Separate mirror adjustment switch -1- from trim -2- (release fastener -A-).

Installing

Install in reverse order, paying attention to the following:

- Press mirror adjustment switch into mirror adjustment trim until fasteners engage.
- Insert mirror adjuster in top part of recessed handle moulding and press on retaining frame until fasteners engage.

Removing and installing window lifter switch – 3-door model



Removing

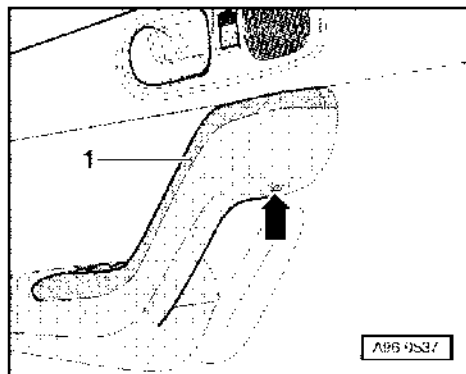
- Remove front door trim.
- Use small screwdriver to carefully release fasteners -arrows-.
- Press window lifter switch downwards out of door trim.

Installing

Install in reverse order, paying attention to the following:

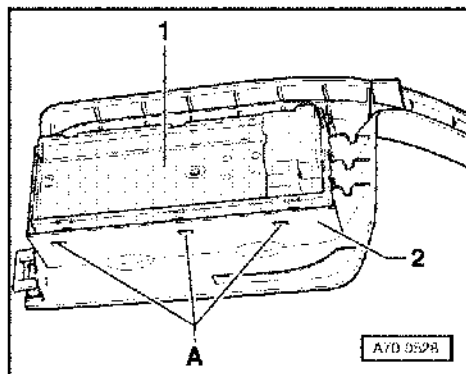
- Press window lifter switch into switch mount until fasteners engage.

Removing and installing driver's window lifter switch – 5-door model



Removing

- Screw out bolt -arrow-.
- Release top part of recessed handle moulding -1- and detach.
- Unplug connectors.



- Use small screwdriver to carefully release fasteners -A-.
- Pull window lifter switch -1- downwards out of mount -2-.

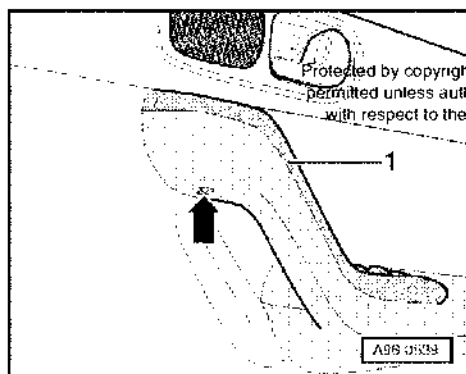
Installing

Install in reverse order, paying attention to the following:

- Press window lifter switch into switch mount until fasteners engage.

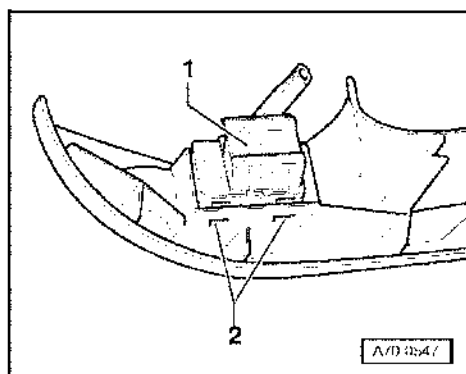
96-17

Removing and installing front passenger's window lifter switch – 5-door model



Removing

- Screw out bolt -arrow-.
- Release top part of recessed handle moulding -1- and detach.
- Unplug connector.



- Use small screwdriver to carefully release fasteners -2-.
- Pull window lifter switch -1- downwards out of mount.

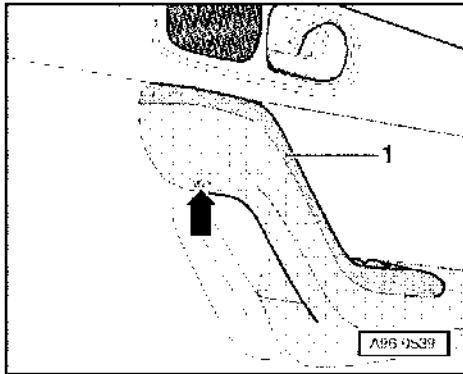
Installing

Install in reverse order, paying attention to the following:

- Press window lifter switch into switch mount until fasteners engage.

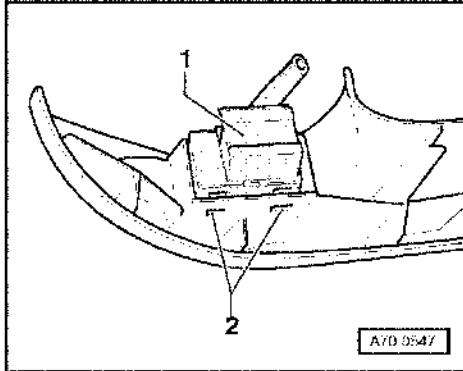
96-18

Removing and installing rear door window lifter switch



Removing

- Screw out bolt -arrow-.
- Release top part of recessed handle moulding -1- and detach.
- Unplug connector.



- Use small screwdriver to carefully release fasteners -2-.
- Pull window lifter switch -1- downwards out of mount.

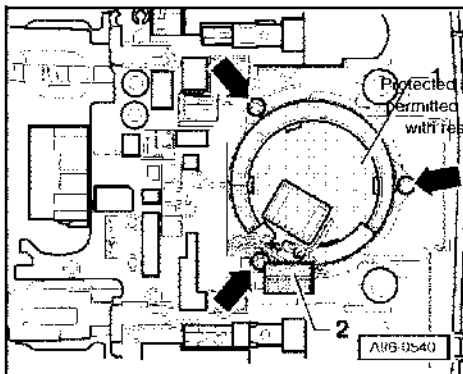
Installing

Install in reverse order, paying attention to the following:

- Press window lifter switch into switch mount until fasteners engage.

96-19

Removing and installing sun roof switch



Removing

- Remove front interior light/reading light => Page 96-33.
- Unplug connector -2-.
- Screw out bolts -arrows-.
- Take sun roof switch -1- out of interior light/reading light.

Installing

Install in reverse order, paying attention to the following:

- Plug in connector.

Tightening torque

Component	Nm
Sun roof switch to interior light/reading light	1.5

96-20

Removing and installing door contact switch

Door contact switch is located in door lock and cannot be replaced separately in the event of a fault.

- Replacing front door lock
=> General Body Repairs, Exterior; Repair Group 57 =>
- Replacing rear door lock
=> General Body Repairs, Exterior; Repair Group 58 =>

96-21

Removing and installing front central locking switch

Removing

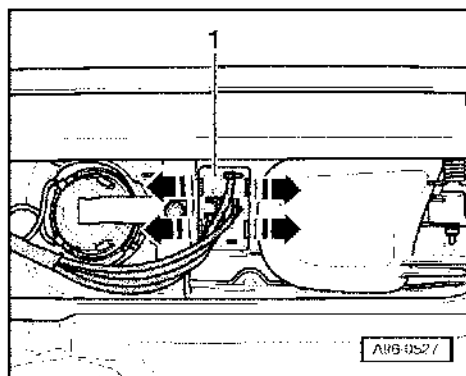
- Remove front door trim.
=> General Body Repairs, Interior; Repair Group 70 =>

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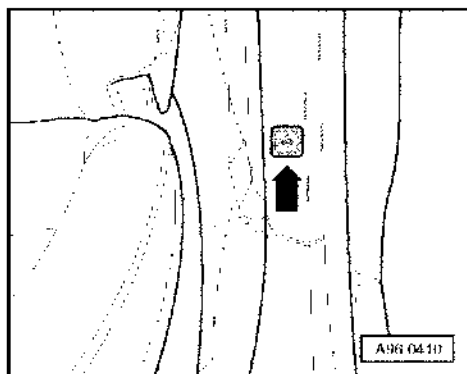
- Release retainer tabs -arrows- and press central locking switch -1- out of driver's door trim.

Installing

Install in reverse order.



96-22



Removing and installing button for interior monitor

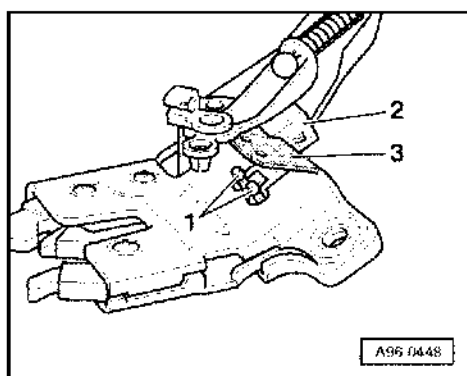
Removing

- Remove B-pillar trim on driver's side.
=> General Body Repairs, Interior; Repair Group 70 =>
- ◀ - Unplug connector.
- Use small screwdriver to press in clip of button on side.
- Press button for interior monitor -arrow- to front out of B-pillar trim.

Installing

Install in reverse order.

96-23



Removing and installing tailgate/boot lid contact switch – up to Model Year 2000

Removing

- Remove tailgate/boot lid lock.
- ◀ - Use flat screwdriver to prise plastic lug 3 off retaining pins 1-
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- Fold plastic lug completely to rear.
- First pull contact switch -2- to one side and then upwards out of tailgate/boot lid lock.

Installing

Install in reverse order, paying attention to the following:

Note:

Make sure packing plates are properly positioned between plastic lug and tailgate/boot lid lock.

96-24

Removing and installing tailgate/boot lid contact switch – as of Model Year 2001

Tailgate/boot lid contact switch is part of tailgate/boot lid lock and cannot be replaced separately in the event of a fault.

– Replacing tailgate/boot lid lock

= > General Body Repairs, Exterior; Repair Group 55 = >

96-25

Servicing immobilizer

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. = > Radio, Telephone, Navigation; Repair Group 91

– Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).

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Notes:

- ◆ Action to be taken after re-connecting power supply = > Page 27-13.
- ◆ Immobilizer control unit is integrated into dash panel insert, i.e. it is replaced together with dash panel insert = > Page 90-3 or 90-28.

96-26

Defective transponder and/or loss of key

- ◆ Transponder is integrated into vehicle key.
 - ◆ Vehicle key must be replaced complete if transponder is defective or if a key has been lost.
 - Order replacement key with integrated transponder on the basis of the lock number.
 - Perform matching for all vehicle keys.
- = > Electrical System, Self-diagnosis; Repair Group 01 = >

Replacing reader coil

- ◆ Reader coil is permanently connected to lock cylinder and cannot be replaced separately.
- ◆ Reader coil is to be replaced together with lock cylinder.
- Order new lock cylinder with vehicle-specific lock number via Regional Sales Centre or importer.

Procedure for replacing lock set or dash panel insert

Note:

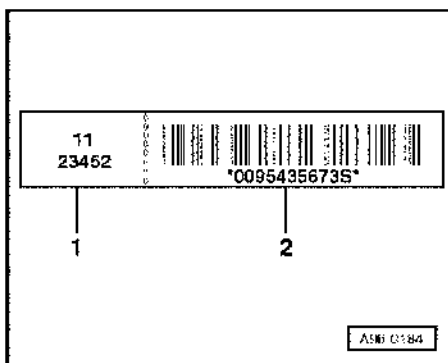
To guarantee subsequent identification of immobilizer, the following steps must always be performed on replacing lock set or dash panel insert.

1. Lock set with 2-piece sticker

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- Detach right sticker -2- (with bar code) from key ring of new lock set and dispose of it.
- Pull left sticker -1- (with no bar code) off new key ring and stick it onto customer's key ring in place of old left sticker.



2. Immobilizer control unit integrated into dash panel insert

For security reasons, the immobilizer PIN is encoded. The encoded number (PIN = Personal Identification Number) is made up of 7 digits.

The PIN can only be used with the vehicle diagnostic, testing and information system VAS 5051 as of basic CD version V02.00.

The 7-digit PIN must be obtained by way of the appropriate Regional Sales Centre/importer on the basis of the 14-position immobilizer/engine control unit identification number.

The PIN is only valid for one day, after which a new number has to be requested. The PIN is of no use to the customer or other dealerships.

The PIN is of no use to the customer or other dealerships.

– Establish PIN.

= > Electrical System, Self-diagnosis; Repair Group 01 = >

System test

Note:

Following successful login, immobilizer is always released for 10 minutes, i.e. it is not appropriate to test system or check operation during this period.

- Switch off ignition for at least 5 minutes.
- Cover reader coil with a slotted metal plate, for example by positioning appropriate shim on ignition lock and inserting ignition key through hole into ignition lock.

Or

- Disconnect reader coil wire at connector between ignition/starter switch and dash panel insert.

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– Start engine.
Engine must not run and warning lamp must flash.

- Start immobilizer self-diagnosis and interrogate fault memory.
 - = > Electrical System, Self-diagnosis; Repair Group 01 = >
- One of the two following fault messages appears on the display.
- ◆ Key signal too low
- Or
- ◆ Immobilizer reading coil -D2
- Erase fault memory and end output.

Servicing interior lights

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. = > Radio, Telephone, Navigation; Repair Group 91

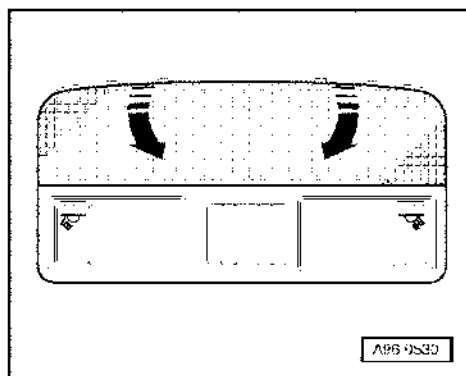
- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

Action to be taken after re-connecting power supply = > Page 27-13.

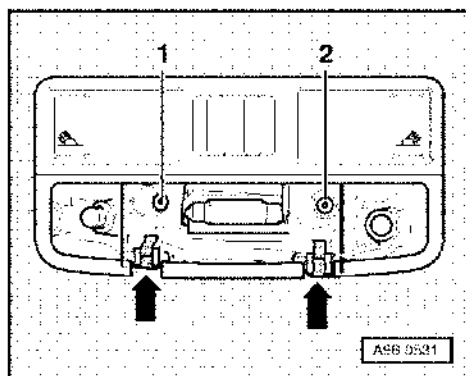
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Removing and installing front interior light/reading light – up to Model Year 1999



Removing

- Unclip lens at interior light/reading light -arrows-.



- Screw out bolts -1- and -2-.
- Release retainer tabs -arrows- and take interior light/reading light out of roof opening.
- Unplug connector.

96-33

Installing

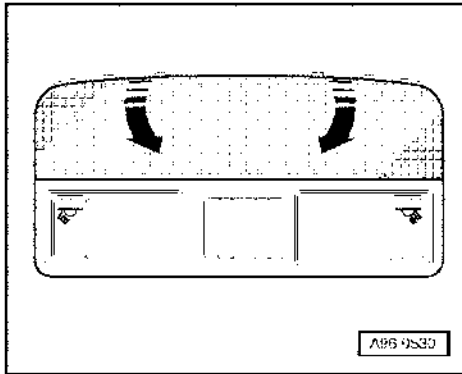
Install in reverse order, paying attention to the following:

- Engage interior light and tighten to 1 Nm.
- Press on lens for interior light/reading light until it engages.

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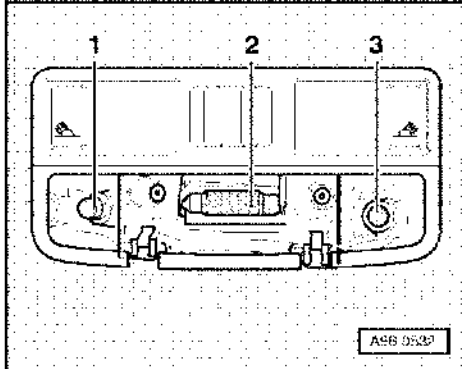
96-34

Replacing bulbs for front interior light/reading light – up to Model Year 1999



Removing

- Unclip lens at interior light/reading light -arrows-.



- Take bulb -2- (12 V, 10 W) for interior light out of clamp-type holder.
- Twist bulb -1- or -3- (12 V, 5 W) for reading light out of holder.

Installing

Install in reverse order, paying attention to the following:

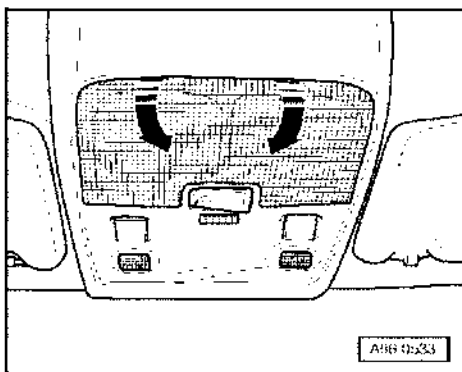
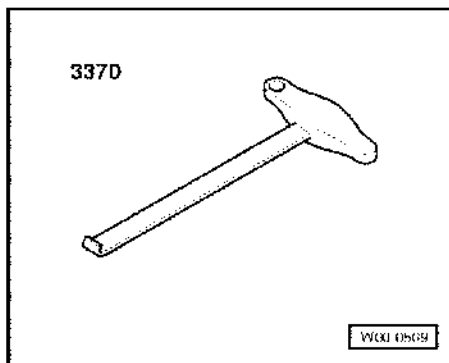
- Press on lens for interior light/reading light until it engages.

96-35

Removing and installing front interior light/reading light – as of Model Year 2000

Special tools and workshop equipment required

- ◆ Hook for front end 3370

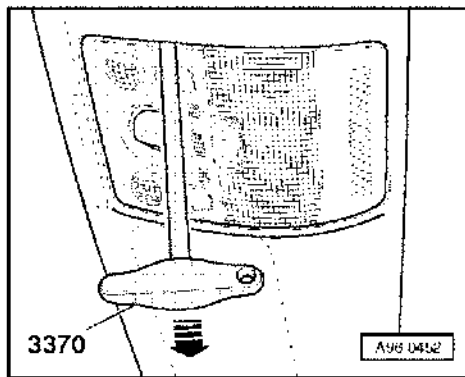


Removing

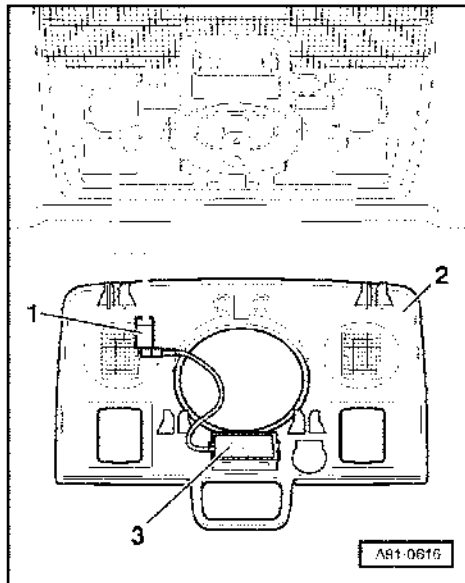
- Unclip lens at interior light -arrows-.

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96-36

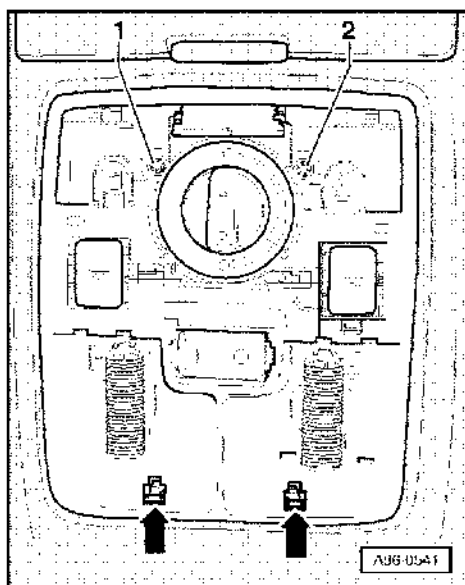


- ◀ – Use special tool 3370 to carefully pull off cover for reading light.



- ◀ – If fitted, unplug connector -1- of hands-free microphone.

———— 96-37 ————



- ◀ – Screw out bolts -1- and -2-.
- Release retainer tabs -arrows- and take interior light/reading light out of roof opening.
- Unplug connectors.

Installing

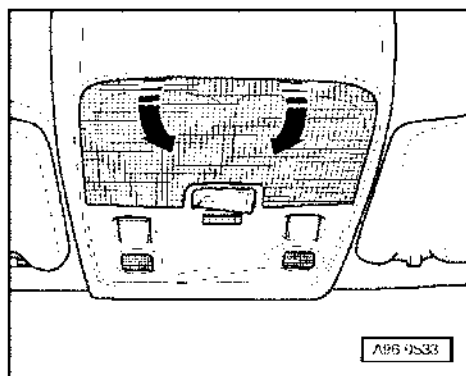
Install in reverse order, paying attention to the following:

- Engage interior light and tighten to 1 Nm.
- Press on cover for reading lights and lens for interior light until they engage.

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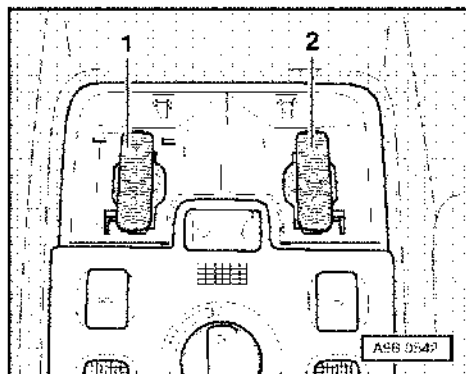
———— 96-38 ————

Replacing bulbs for front interior light – as of Model Year 2000



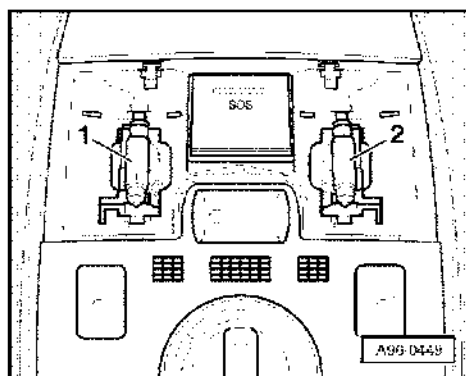
Removing

- Unclip lens at interior light -arrows-.



- Disengage small lenses -1- and -2- over bulbs.

96-39



- Take bulb -1- or -2- (12 V, 10 W) out of clamp-type holder.

Installing

Install in reverse order, paying attention to the following:

- Press on lens for interior light until it engages.

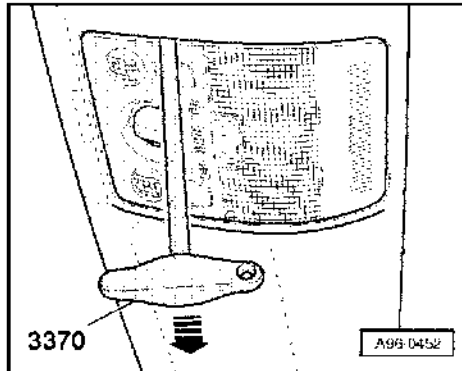
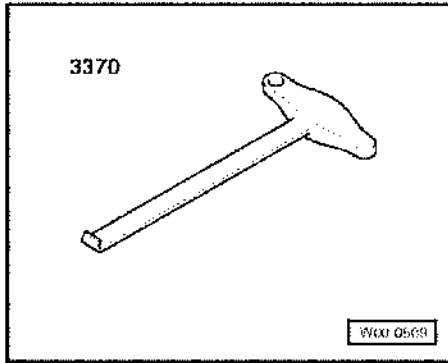
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96-40

Replacing bulbs for front reading light – as of Model Year 2000

Special tools and workshop equipment required

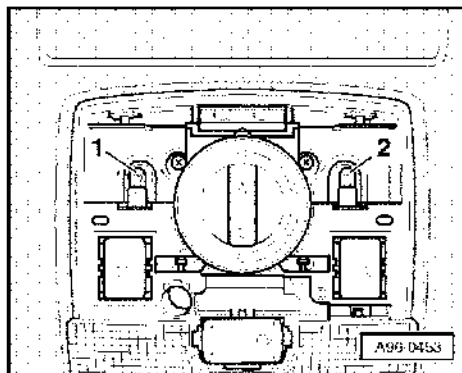
- ◆ Hook for front end 3370



Removing

- Use special tool 3370 to carefully pull off cover for reading light.

96-41



- Twist bulb -1- or -2- (12 V, 5 W) out of holder.

Installing

Install in reverse order, paying attention to the following:

- Press on cover for reading light until it engages.

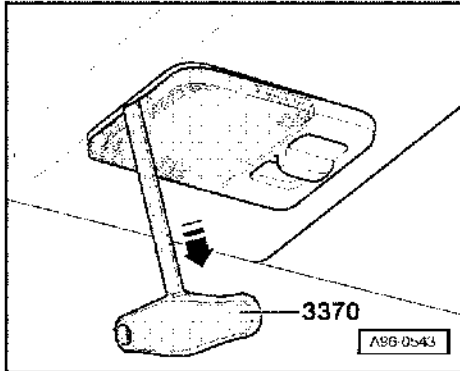
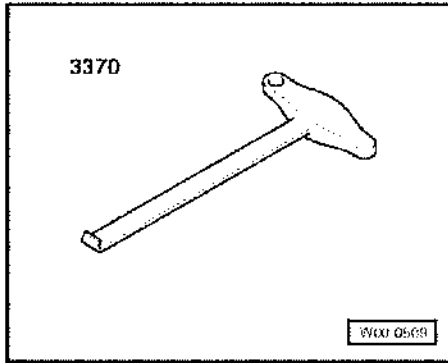
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96-42

Removing and installing rear interior light – up to Model Year 1999

Special tools and workshop equipment required

- ◆ Hook for front end 3370



Removing

- Use special tool 3370 to carefully pull interior light out of roof opening.
- Unplug connector.

96-43

Installing

Install in reverse order, paying attention to the following:

- Insert interior light/reading light in roof opening and engage.

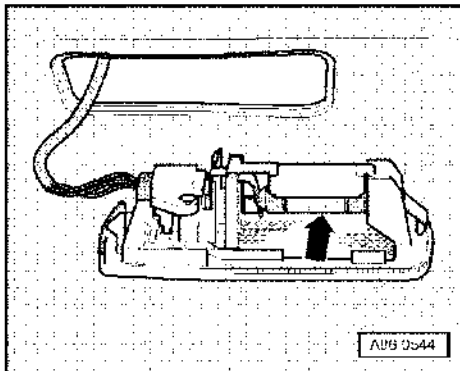
Replacing bulb for rear interior light – up to Model Year 1999

Removing

- Remove rear interior light => Page 96-43.
- Take bulb -2- (12 V, 10 W) -arrow- for interior light out of clamp-type holder.

Installing

Install in reverse order.



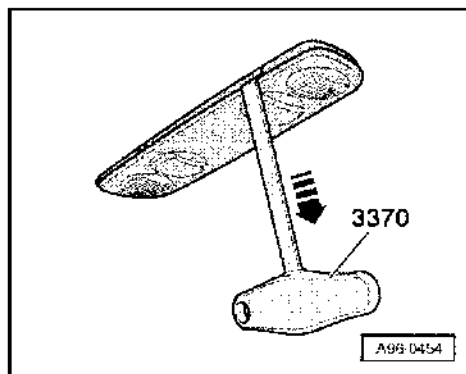
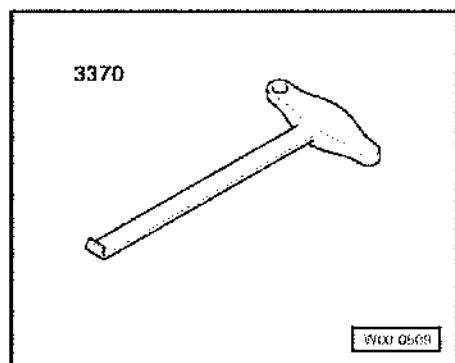
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96-44

Removing and installing rear interior light/reading light – as of Model Year 2000

Special tools and workshop equipment required

- ◆ Hook for front end 3370



Removing

- Use special tool 3370 to carefully pull interior light/reading light out of opening in headliner.
- Unplug connector.

96-45

Installing

Install in reverse order, paying attention to the following:

- Insert interior light/reading light in roof opening and engage.

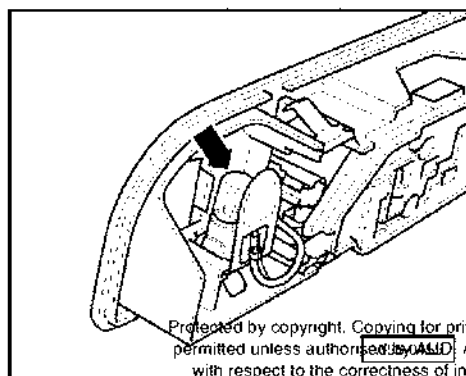
Replacing bulb for rear interior light/reading light – as of Model Year 2000

Removing

- Remove rear interior light/reading light => Page 96-45.
- Twist bulb 12 V, 5 W -arrow- on back of reading light out of holder.

Installing

Install in reverse order.



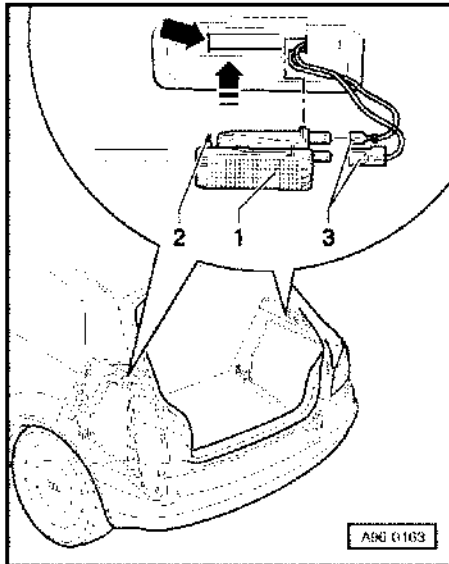
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96-46

Removing and installing luggage compartment lights

Notes:

- ◆ Bulb replacement involves removing luggage compartment lights.
- ◆ Bulb for luggage compartment light: 12 V, 5 W



Removing

- Use flat screwdriver to press in retainer tab -2- and prise out luggage compartment light -1-.
- Unplug connector -3-.
- Take bulb on back of luggage compartment light out of holder.

Installing

Install in reverse order, paying attention to the following:

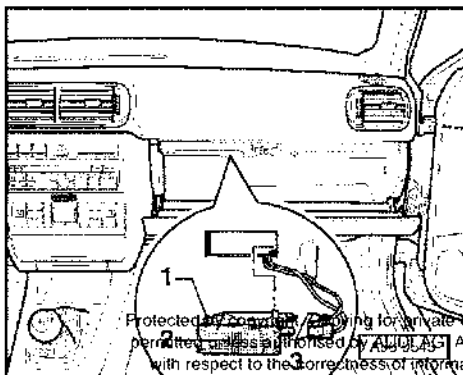
- Plug in connector.
- Insert luggage compartment light in opening and engage on opposite side.

96-47

Removing and installing glove box light

Notes:

- ◆ Bulb replacement involves removing glove box light.
- ◆ Bulb for glove box light: 12 V, 5 W



Removing

- Use flat screwdriver to press in retainer tab -1- and prise out glove box light -2-.
- Unplug connector -3-.
- Take bulb on back of glove box light out of holder.

Installing

Install in reverse order, paying attention to the following:

- Plug in connector.
- Insert glove box light in opening and engage on opposite side.

96-48

Removing and installing make-up mirror light

Notes:

- ◆ Fig. shows left make-up mirror light. Right light is installed on a mirror-image basis.
- ◆ Bulb for make-up mirror light:
12 V, 5 W

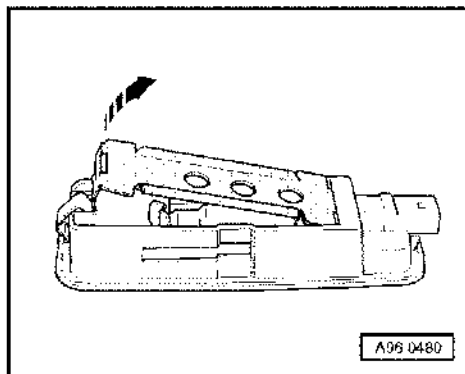
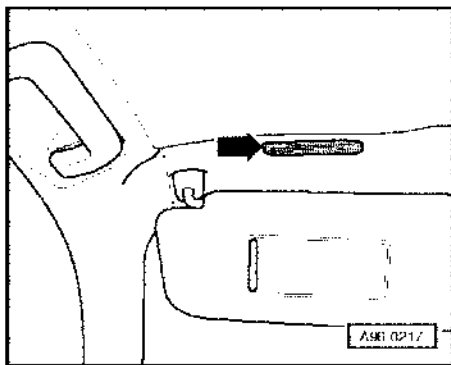
Removing

- Use flat screwdriver to carefully prise out make-up mirror light at recess -arrow-.
- Unplug connector.

- If fitted, pull off cover over bulb -arrow-.
- Take bulb out of holder on back of make-up mirror light.

Installing

Install in reverse order.



96-49

Removing and installing door safety light and entry light

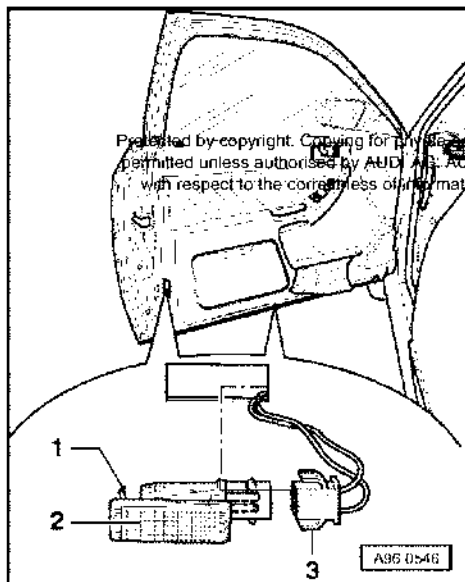
Notes:

- ◆ Bulb replacement involves removing door safety light/entry light.
- ◆ Bulb for door safety light: 12 V, 5 W
- ◆ Bulb for entry light: 12 V, 5 W

Removing

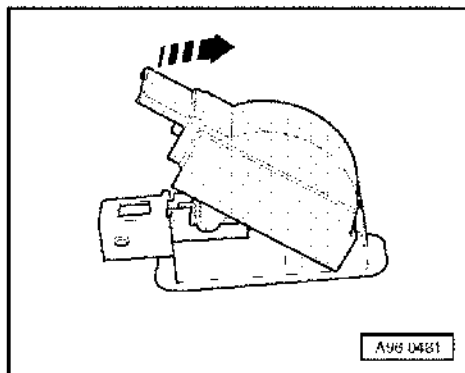
- Use flat screwdriver to press in retainer tab -1- and prise out door safety light/entry light -2-.

Unplug connector -3-.



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96-50



- ◀ – If fitted, carefully prise off cover at door safety light -arrow-.
- Take bulb on back of door safety light/entry light out of holder.

Installing

Install in reverse order, paying attention to the following:

- If applicable, attach cover at door safety light.
- Plug in connector.
- Insert door safety light/entry light in opening and engage on opposite side.

Servicing lock cylinder heater

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

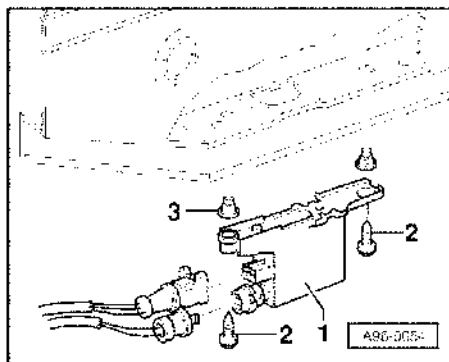
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Action to be taken after re-connecting power supply => Page 27-13.

Removing and installing lock cylinder heater control unit

Lock cylinder heater control unit is located at upper cross member in driver's door.



Removing

- Remove front door trim.
- = > General Body Repairs, Interior; Repair Group 70 = >
- Screw out bolts -2-.
- Unplug connectors.
- Detach lock cylinder heater control unit -1-.
- 3 - Clip

Installing

Install in reverse order.

96-53

Servicing horns

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. = > Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).

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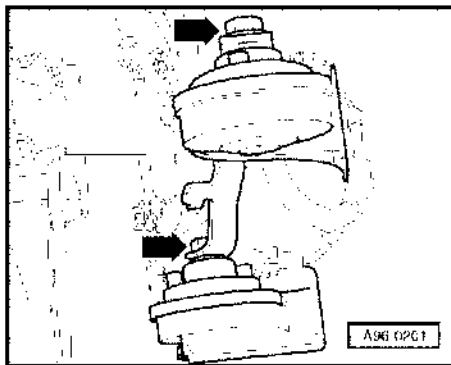
Disconnect battery earth strap with ignition switched off.

Note:

Action to be taken after re-connecting power supply = > Page 27-13.

96-54

Removing and installing horn



Removing

- Remove front bumper.
- = > General Body Repairs, Exterior; Repair Group 63 = >
- Unscrew nuts -arrows- and detach horns from mount.
- Unplug connectors.

Notes:

- ◆ On Audi A3, horns are installed beneath left headlight as illustrated.
- ◆ On Audi S3, horns are located on a level with radiator grille.

Installing

Install in reverse order.

96-55

Servicing connection socket for towing hitch

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. = > Radio, Telephone, Navigation; Repair Group 91

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Use of the necessary obtain code for vehicles with encoded radio/radio navigation system (RNS).

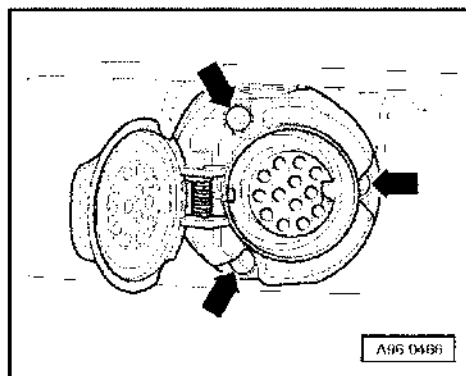
- Disconnect battery earth strap with ignition switched off.

Note:

Action to be taken after re-connecting power supply = > Page 27-13.

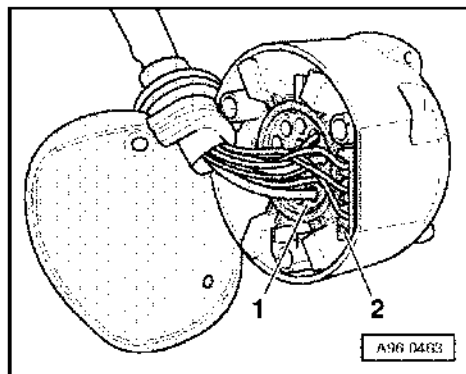
96-56

Removing and installing connection socket for towing hitch



Removing

- Screw out bolts -arrows-.
- Detach connection socket from retaining plate.



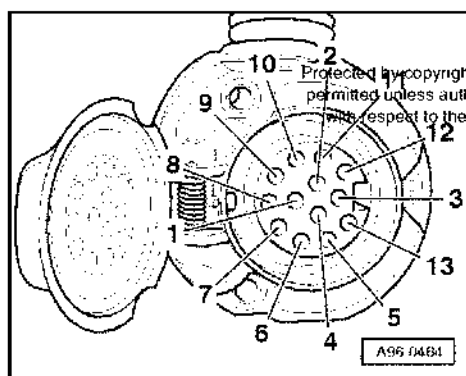
- Unplug connector -2- for rear fog light cut-out contact switch - F216 and press connector -1- out of connection socket.

Installing

Install in reverse order.

96-57

Terminal assignment at connection socket for towing hitch



- 1 - Terminal BL (left turn signal indicator)
- 2 - Terminal ASL (rear fog light)
- 3 - Terminal SL (right fog light)
- 4 - Terminal BR (right turn signal indicator)
- 5 - Terminal 58 R (right taillight)
- 6 - Terminal 54 (brake light)
- 7 - Terminal 58 L (left taillight)
- 8 - Terminal RF (reversing light)
- 9 - Terminal 30 a (battery +)
- 10 - Not used
- 11 - Not used
- 12 - Not used

96-58

Relay carriers, fuse carriers

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. => Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

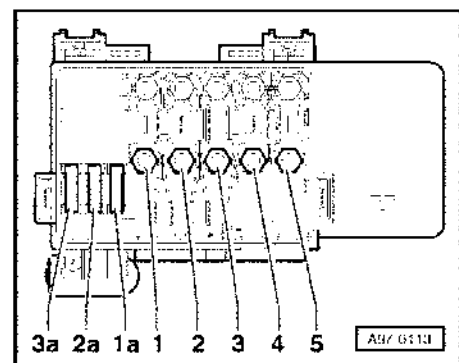
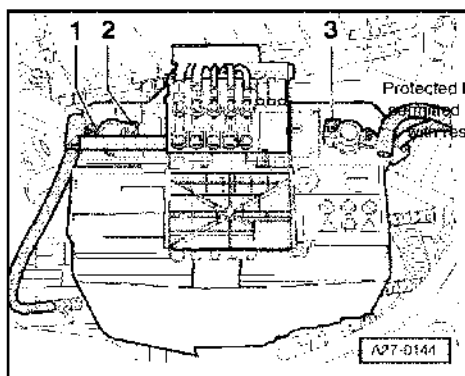
Action to be taken after re-connecting power supply => Page 27-13.

97-1

Removing and installing fuse box for main fuse

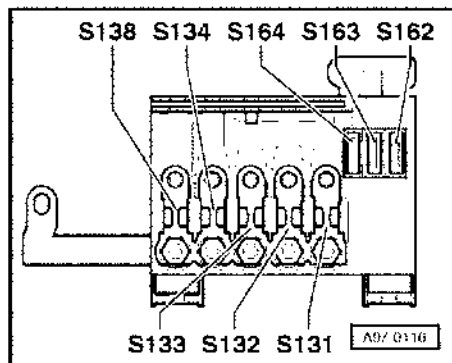
Removing

- Lay bare battery posts => Page 27-4 onwards.
- Open cover of main fuse box.
- Unscrew nut -1-.



- Unscrew nuts -1 ... 5-.
- Lay bare wires.
- Detach fuse box for main fuse.

97-2



Note:

Precise assignment of fuse box can be seen from appropriate current flow diagram.

=> Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

Installing

Install in reverse order.

Tightening torque

Component

Wire to fuse box

Nm

6

97-3

Removing and installing fuse box

Removing

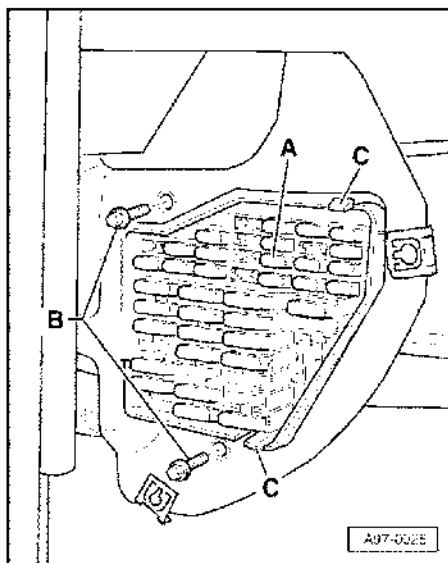
- Remove driver's storage compartment.

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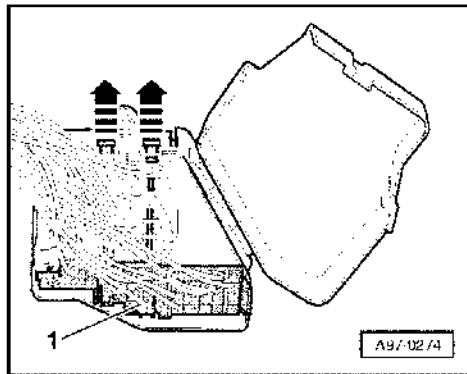
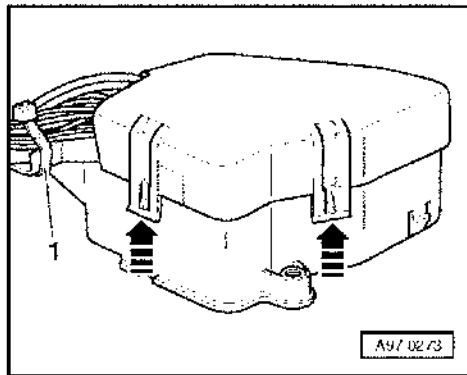
=> General Body Repairs, Interior, Repair Group 68 =>

Screw out bolts B on fuse box A

- Release clips -C- and detach fuse box from central tube for dash panel.
- Disengage and lay bare wiring harness at dash panel central tube.

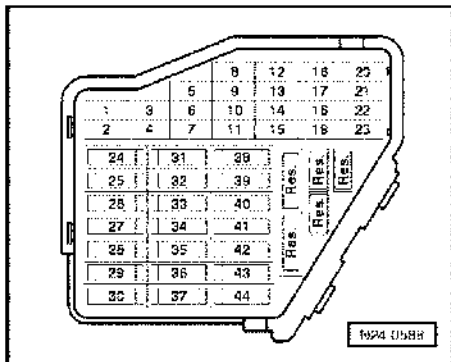


97-4



- ◀ - Cut open cable tie -1-.
 - Release cover for fuse box -arrows-.
 - Detach fuses at fuse box.
-
- ◀ - Pull off retaining strip for connectors -arrows- and take connectors out of fuse box.
 - Unclip socket -1-.

———— 97-5 ————



Note:

- ◀ *Precise assignment of fuse box can be seen from appropriate current flow diagram.*
- => Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

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Installing

Install in reverse order.

Tightening torque

Component	Nm
Fuse box to dash panel central tube	3

———— 97-6 ————

Removing and installing central electrics and 13-position relay carrier

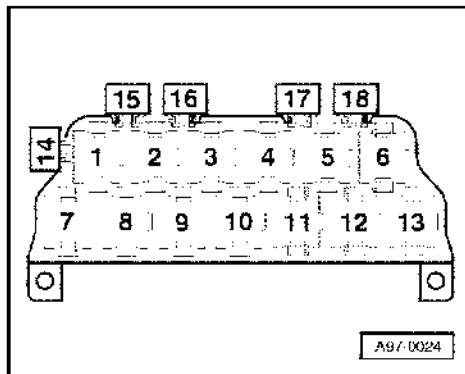
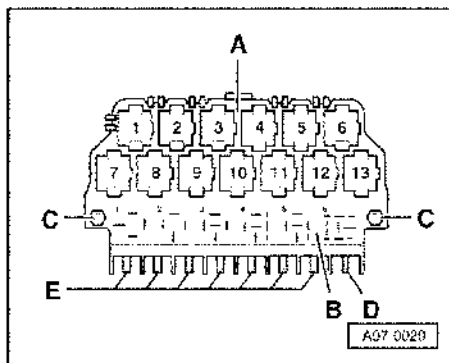
Removing

- Remove driver's storage compartment.
- = > General Body Repairs, Interior; Repair Group 68 = >
- Screw out bolts -C-. If necessary, unfasten all screw connections -D- and -E-.
- Pull out relays and control units and then unclip appropriate relay carrier.
- Detach central electrics and 13-position relay carrier downwards.

Note:

Precise assignment of 13-position relay carrier can be seen from appropriate current flow diagram.

= > Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder



97-7

Note:

Precise assignment of micro central electrics can be seen from appropriate current flow diagram.

= > Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

Installing

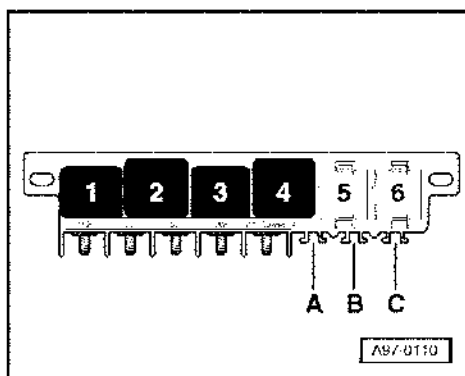
Install in reverse order.
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Component

Nm

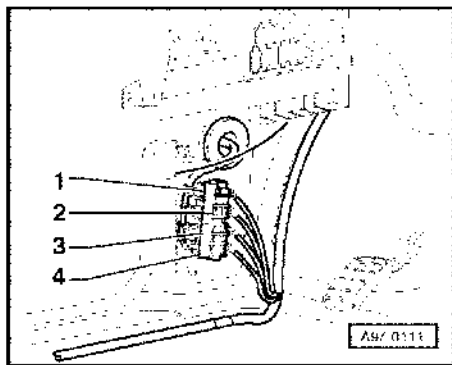
Central electrics and 13-position relay carrier to holder

2



97-8

Left connector point



- ◀ Fitting location: Left connector point -arrow- is located in left footwell beneath A-pillar trim

– Remove A-pillar trim.

= > General Body Repairs, Interior; Repair Group 70 = >

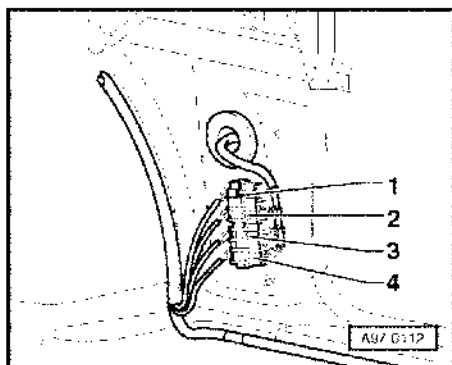
- 1 - Central locking – brown
- 2 - Electric window lifter – red
- 3 - Electric mirror – blue
- 4 - Speaker – green

Note:

Precise assignment of connector point can be seen from appropriate current flow diagram.

= > Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

Right connector point



- ◀ Fitting location: Right connector point -arrow- is located in right footwell beneath A-pillar trim

– Remove A-pillar trim.

= > General Body Repairs, Interior; Repair Group 70 = >

- 1 - Central locking – brown
- 2 - Electric window lifter – red
- 3 - Electric mirror – blue
- 4 - Speaker – green

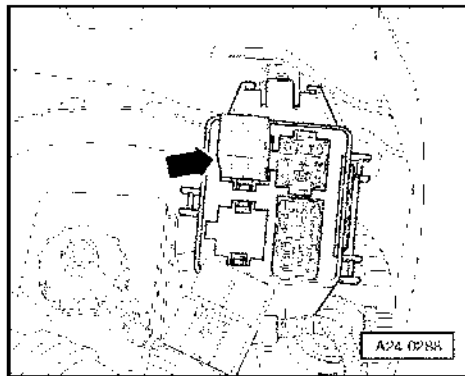
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Note:

Precise assignment of connector point can be seen from appropriate current flow diagram.

= > Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

Relay carrier at bulkhead on left



- ◀ Fitting location: Relay carrier -arrow- is located on left of engine compartment in front of bulkhead
- Release the 3 clips and detach protective cover for relay carrier.

Notes:

- ◆ To detach protective cover on vehicles with dome brace, disengage and lower relay carrier at bulkhead. Connector at air-mass meter is also to be unplugged if necessary.
 - ◆ Precise assignment of relay carrier at bulkhead can be seen from appropriate current flow diagram.
- = > Current Flow Diagrams, Electrical Fault-finding and Fitting Locations binder

97-11

Wiring harness and connector repair

Attention:

- ◆ Disconnect battery earth strap before working on electrical system.
- ◆ On vehicles fitted with telematics system, activate telematics control-unit service mode before disconnecting battery. = > Radio, Telephone, Navigation; Repair Group 91

- Heed (if necessary obtain) code for vehicles with encoded radio/radio navigation system (RNS).
- Disconnect battery earth strap with ignition switched off.

Note:

Action to be taken after re-connecting power supply => Page 27-13.

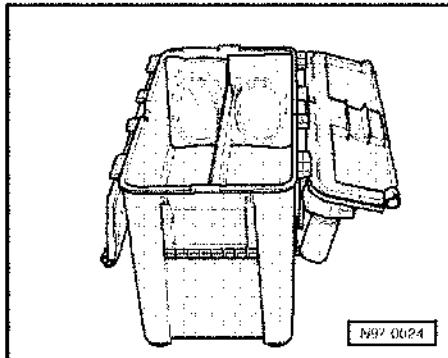
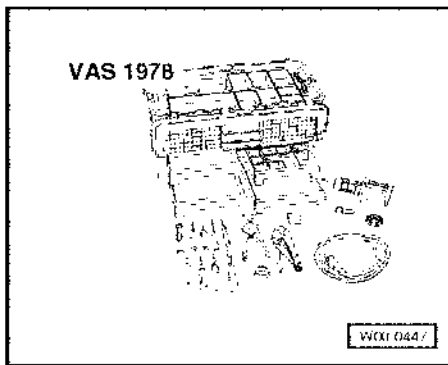
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General

Special tools and workshop equipment required

- ◆ Wiring harness repair set VAS 1978



Note:

Exclusive use is to be made for wiring harness and connector repairs of repair set VAS 1978.

VAS 1978 is described in detail in the enclosed operating instructions.

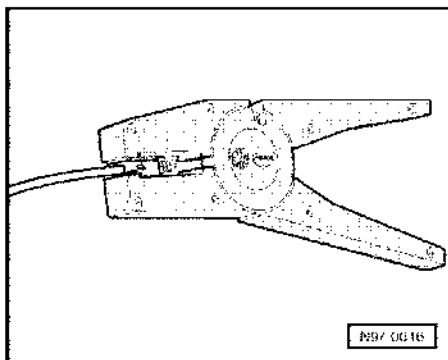
The repairing of open circuits and defective connectors is also explained by way of examples.

97-13

Repairing 0.22 mm²/ 0.35 mm² wire

Notes:

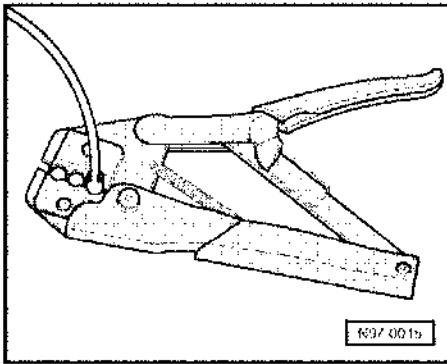
- ◆ The wiring harness repair set VAS 1978 contains three different repair wire cross-sections (0.5 mm², 1.5 mm², 4.0 mm²) and the appropriate crimp connectors.
- ◆ A 0.35 mm² wire has to be repaired using a 0.5 mm² repair wire.
- ◆ The repair procedure is as follows:



- Strip ends of 0.22 mm²/ 0.35 mm² wire with stripping pliers VAS 1978/3 (approx. 12 ... 14 mm).
- Fold back half the stripped wire ends.
- Use stripping pliers to strip the ends of the 0.5 mm² wire (approx. 6 ... 7 mm).

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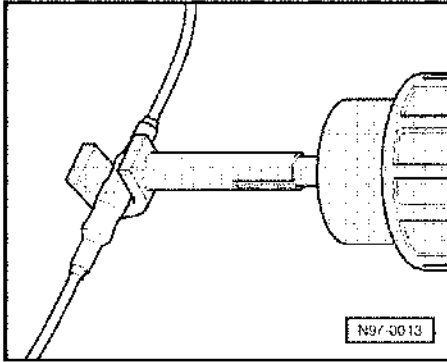
97-14



- ◀ – Slip crimp connectors over ends of wires and crimp on both sides using crimping tool VAS 1978/1.

Notes:

- ◆ Take care to select the correct red crimping insert VAS 1978/24 for 0.5 mm².
- ◆ Take care not to crimp insulation of wire ends.



- ◀ – After crimping, shrink down crimp connector using hot-air blower VAS 1978/14 and attachment VAS 1978/15.

Crimp connector must be heated working outwards from centre until it is completely sealed and adhesive emerges.

Set hot-air blower to appropriate temperature as indicated in operating instructions.

When shrinking-down take care not to damage any other wires, plastic parts or insulating material with hot nozzle.

- If repair wire was previously wrapped, yellow insulating tape must again be wound around this point; re-attach wire with a cable tie if necessary.

Safety precautions for wiring harness and connector repair

Attention:

Disconnect battery earth strap before working on electrical system.

Before commencing repair work, always eliminate cause of damage, e.g. sharp body edges, defective loads, corrosion.

Wires forming part of airbag system and screened wires, such as speed and knock sensor wires, are never to be repaired.

Further information, relating for example to the removal and installation of individual components, can be found in the appropriate Workshop Manual.

Exclusive use is to be made of yellow wires for wiring harness repairs.

Each yellow wire and every location on the wiring harness wrapped with yellow insulating tape is a sign of a previous repair.

On completion of repair work, always check operation, interrogate fault memory if necessary and set systems to basic setting.

Replacing aerial wires

Aerial wires cannot be repaired. They are to be replaced as a complete set. Service replacement of individual connectors is also not envisaged.

Connectors are to be cut off old defective aerial wire, leaving the actual wire in the vehicle wiring harness.

Adapters for all applicable aerial connectors can be obtained for use when replacing aerial wires. Connection pieces of different lengths make it possible to retrofit all aerial wires used in the vehicle.