



PORSCHE

## **Technical Manual**

### **Cayenne (9PA)**

#### **Group 0**

#### **General**

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#### 0 General

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## Entire vehicle – General

### Lifting the vehicle



#### **Danger!**

***Risk of injury due to vehicles slipping or tilting off lifting platforms.***

- ◆ ***Risk of injury due to vehicles slipping or tilting off lifting platforms may be caused by improper alignment of the lifting platform arms or support plates, and by raising, supporting or removing units on raised vehicles.***
- ***Align the vehicle evenly between the lifting platform columns.***
- ***Lift the vehicle only at the take-up points provided.***
- ***Check that the support plates are seated correctly by raising the vehicle slightly and performing a visual inspection.***
- ***In order to guarantee that the vehicle is not lifted off the support plates during assembly work, the vehicle must be secured on the lifting platform when removing or supporting units or the shift in the centre of gravity must be compensated with corresponding loads in the vehicle.***
- ***In addition, the guidelines of the lifting platform manufacturers and the legal accident prevention regulations and those of the mutual indemnity association (VGB 14) must be observed.***



#### **Caution!**

***Danger of material damage if the vehicle is raised incorrectly.***

- ◆ ***Lifting or supporting the vehicle at unsuitable take-up points can lead to material damage on the vehicle.***
- ***Lift the vehicle only at the approved take-up points.***

- ***Raising the vehicle in the sill area will lead to the deformation of body parts and to leakage in the underbody area.***

When driving into the platform lift, pay attention to work to be carried out, i.e. if work has to be carried out in the front footwell, the vehicle should be positioned in such a way that the front doors can be opened far enough.

If the vehicle is a Cayenne with air suspension/level control, observe the following instructions.

### ***Adjusting car to normal level***

- If air suspension accumulators of the air suspension are filled, only the ignition has to be switched on. If air pressure in accumulators is too low, compressor comes on and loads battery. In this case, a constanter (charging unit) must be connected or the engine must be started.
- Stop the vehicle and apply the brake.
- Close vehicle doors.
- Tap the right-hand rocker switch on the center console in the appropriate direction until vehicle has reached normal level. The middle indicator light next to the rocker switch is permanently on. If a further indicator light should come on, a different level is adjusted.

### ***Switching off level control***

To do this:

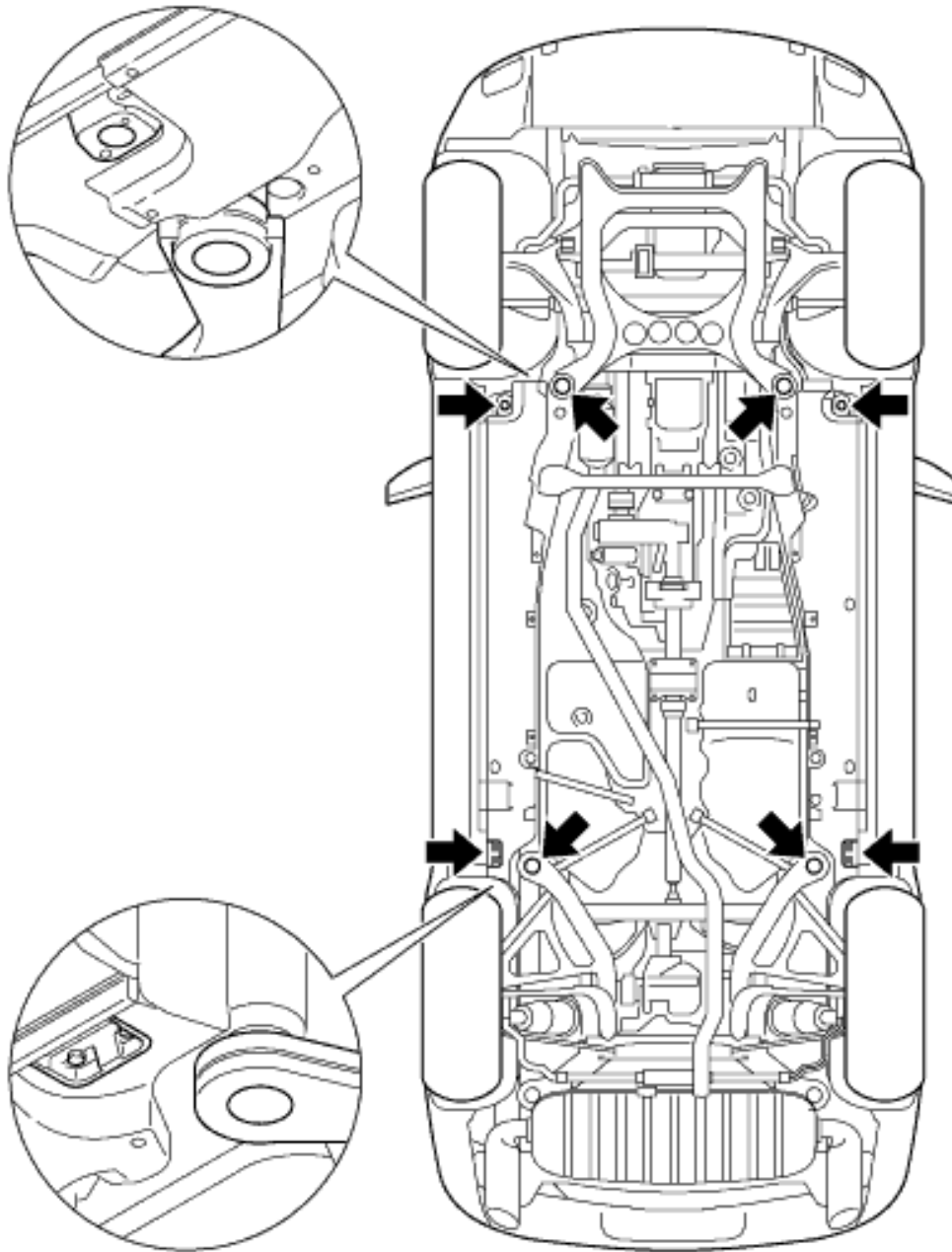
- Adjust car to normal level.
- Switch on ignition.
- Push rocker switch forwards for 5-10 seconds.

The message Car may now be lifted appears in the variable control display of the instrument panel.

### ***Switching on level control***

To do this:

- Switch on ignition.
- Push rocker switch forwards for 5-10 seconds.
- Set off with the vehicle. Level control comes on automatically.



## Technical data for air-conditioning system

Air conditioning	Refrigerant quantity	Refrigerant oil in the compressor
Climatronic (right/left)	750 g Refrigerant R 134a	200 ± 10 cm <sup>3</sup>
Climatronic 2+2	1100 g Refrigerant R 134a	200 ± 10 cm <sup>3</sup> , also 100 ± 10 cm <sup>3</sup>

	bar
High-pressure cut-off	32
Low-pressure cut-off	1
Pressure relief valve purge pressure	44 +/- 4

## Sales check

Working position 01 01 00 00



### Note!

- *The term 'checking' includes all necessary subsequent work such as adjusting, readjusting, correcting and topping up, but does not include repairing, replacing and reconditioning parts or assemblies!*

Working instruction to order no.								
Workshop no.								

### Vehicle Ident. No.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

	OK	Not OK
Check conformity of vehicle Ident. No. on vehicle, data bank, vehicle registration documents and on-board literature		
Remove transport locks, transport protection		
Complete the vehicle		
Battery: check battery charging condition (take transport and idle period into account)		
Diagnosis system: read out or erase fault memory, activate systems		
Windscreen washer/headlight cleaning system: check operation, fluid level and nozzle settings, pay attention to antifreeze protection in the winter months		
Vehicle lights: check operation; all headlights: check adjustment; horn and clock: check operation		
Electrical equipment, warning and indicator lights: check operation		
Mobile roofs: check operation		

	OK	Not OK
Check engine oil level		
Check tyre pressure		
Wheels, tyres: visual inspection for damage		
Check wheel mounting		
Brake hoses and lines: visual inspection for damage in wheel area		
Visual inspection for leaks: oils, fluids		
Paint finish: visual inspection for damage		
Glazing: visual inspection for damage		
Interior equipment: visual inspection for damage and soiling		
Exterior equipment: visual inspection for damage		
Door and lid locks: check operation		
Alarm system: check operation of indicators		
Check vehicle equipment for completeness: (observe country-specific equipment) <ul style="list-style-type: none"> <li>◆ Vehicle key set</li> <li>◆ Spare wheel/tyre sealant</li> <li>◆ Car jack</li> <li>◆ Compressor</li> <li>◆ Tool kit</li> <li>◆ Adapter for securing wheel</li> <li>◆ Emergency kit, warning triangle</li> </ul>		

<b>Test drive</b>	OK	Not OK
Foot and parking brakes, clutch, steering, automatic speed control, ParkAssist, heating, air-conditioning system and instruments: check operation		

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Test drive	OK	Not OK
Transmission: check operation		
Check vehicle for unusual handling behaviour, vibration and noise		
Diagnosis system: read out or erase fault memory		

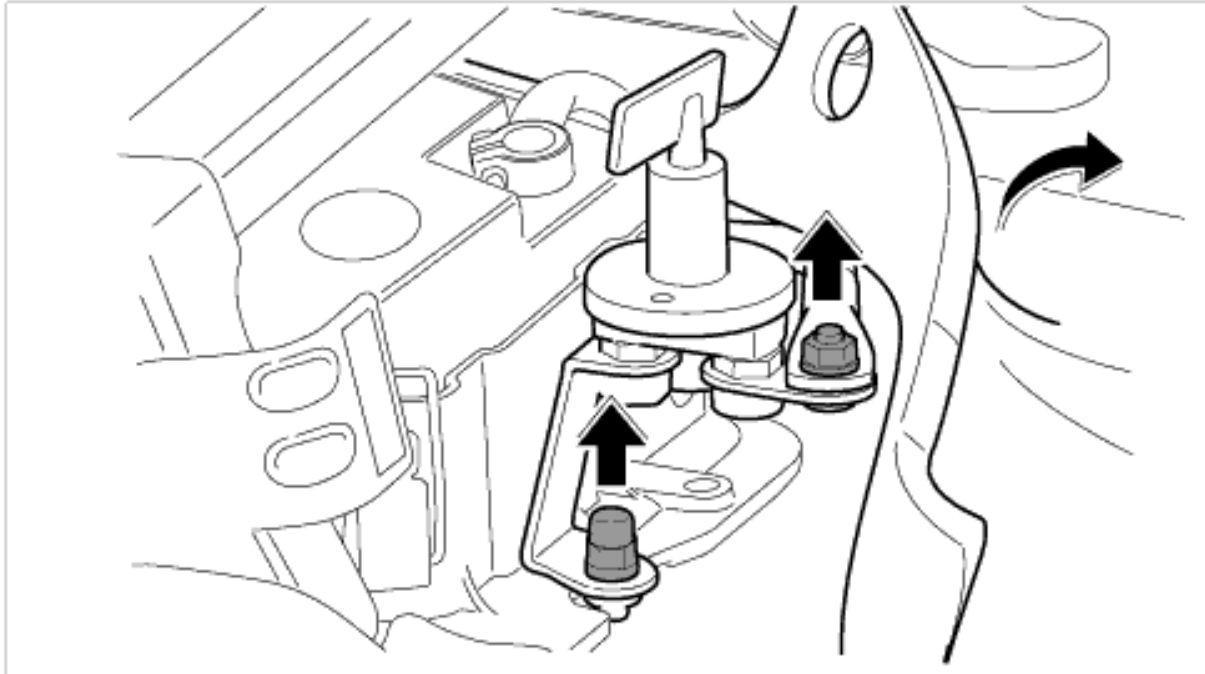
OK = functioning correctly

Not OK = not functioning correctly

Stamp of Official Porsche Centre
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## Main switch for power supply (removing battery disconnect switch)



### Note!

- All Cayenne vehicles are delivered with a factory-fitted battery disconnect switch to protect the vehicle battery while it is being transported.
- The disconnect switch is located in front of the battery under the driver's seat.
- More detailed information on what to do with the disconnect switch once removed will follow in a separate instruction.

### Danger!

#### **Danger of accident!**

**The entire electrical system is disconnected from the battery when the battery disconnect switch is operated.**

**The general certification of the vehicle is rendered null and void if a battery disconnect switch is installed.**

***The vehicle no longer corresponds to the certified status.***

***The battery disconnect switch must be removed.***

***Follow the statutory regulations specific to your country. Consult the importer responsible.***

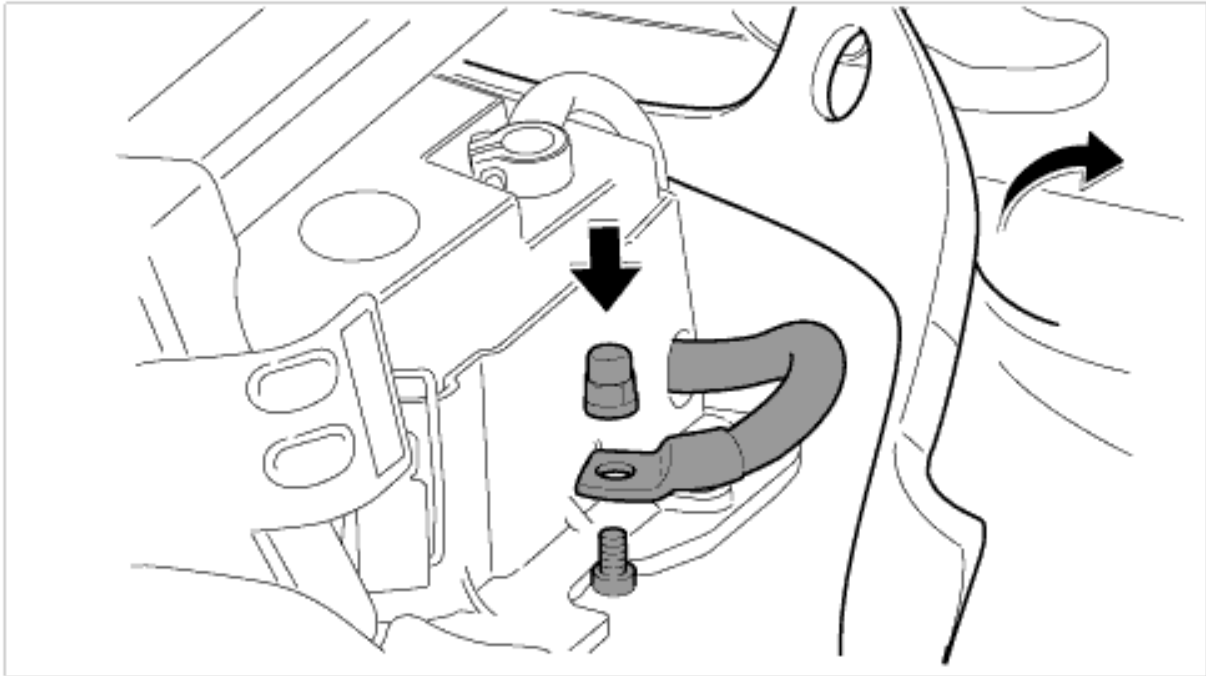
1. Move the front left seat all the way back and to its upper end position.
2. Switch off all electrical loads and remove the ignition key.
3. Pull carpet lining forwards.
4. Turn the red operating lever of the battery disconnect switch counterclockwise.



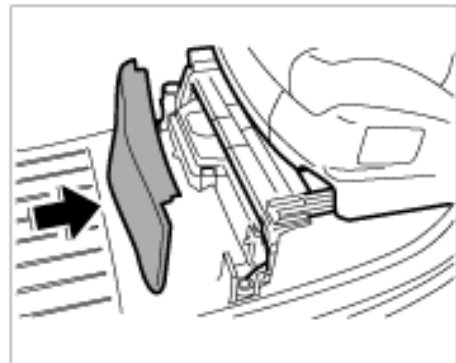
**Note!**

- *The battery is now disconnected from the vehicle electrical system.*
5. Unscrew the two fastening nuts.
  6. Remove the ground strap and isolate it with a cloth or similar.
  7. Remove disconnect switch.

## Fastening the battery ground strap



1. Place the battery ground strap on the body and secure it with the fastening nut. Tightening torque 20 Nm (15 ftlb.).
2. Lay the floor carpet correctly.
3. Clip in front seat trim (located in the luggage compartment).



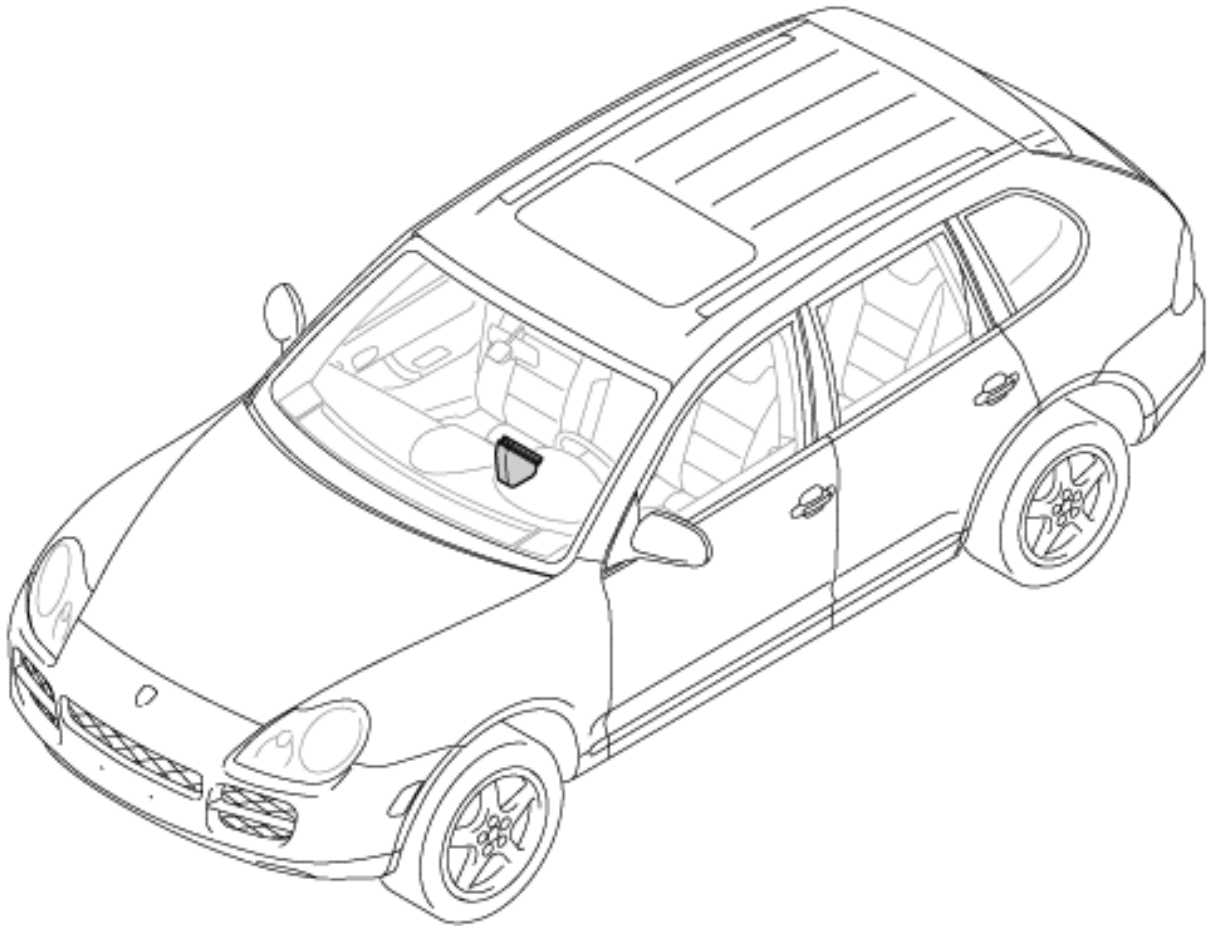
- Carry out work instruction after disconnecting the battery. Refer to No. 9, Group 9 *Work instruction after disconnecting the battery*

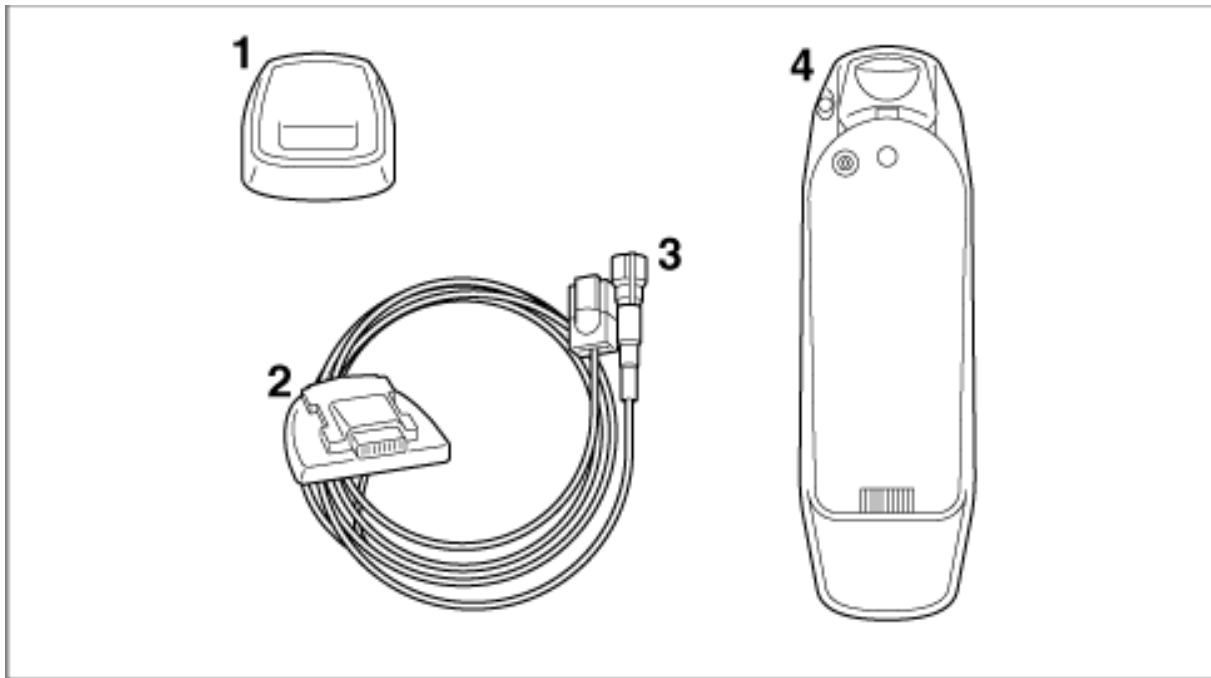


### Note!

- *The battery must be fully charged before handing over to the customer.*

- Charge battery. Refer to No. 2706, Group 2 *Battery*

**Sales check: fitting mobile phone console**

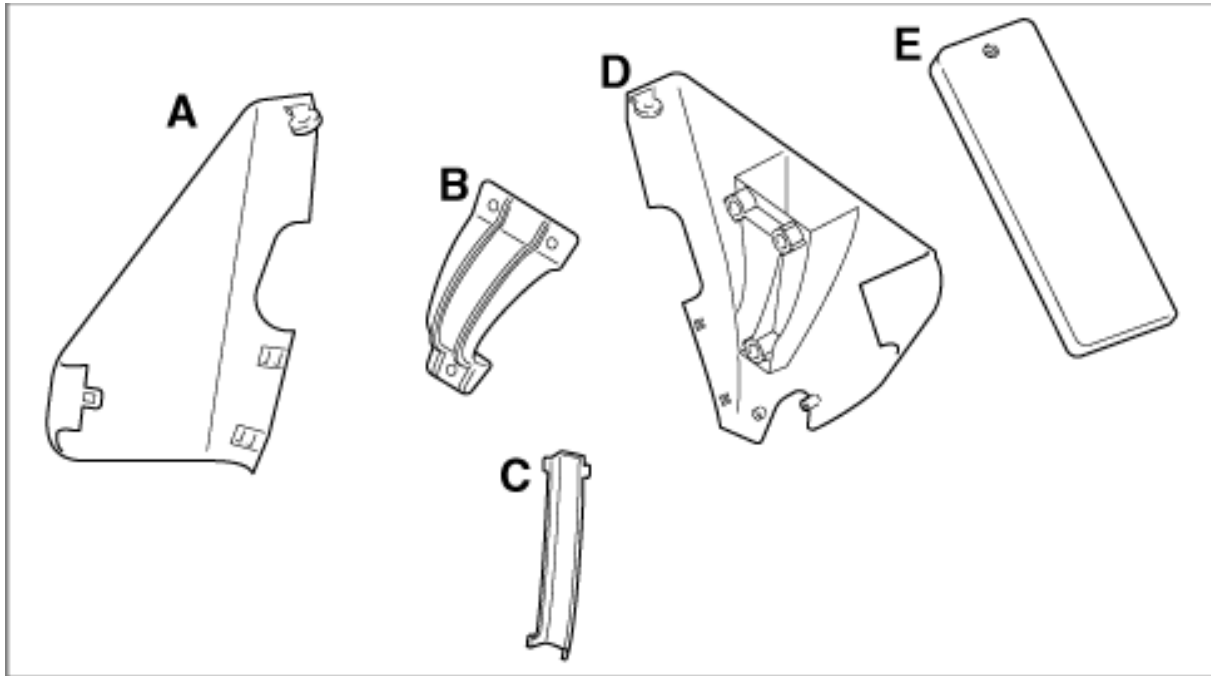
**E-box**

- 1 Cover for interface box
- 2 Interface box
- 3 VDA interface and antenna
- 4 Mobile phone-specific cradle

**Note!**

- *The E-box components are not included in the mobile phone console delivery package.*
- *If the customer already has an E-box, this can be installed on the mobile phone console.*
- *If the customer does not yet have an E-box, an E-box that can be used with the mobile phone must be purchased for the customer on the open market.*

## Fitting mobile phone console



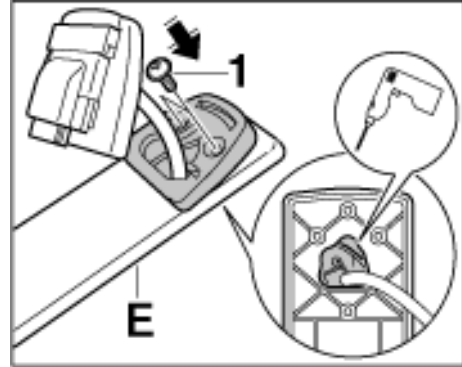
- 1      **-A-** Inner part
- 2      **-B-** Clamp
- 3      **-C-** Cable duct
- 4      **-D-** Outer part
- 5      **-E-** Upper part



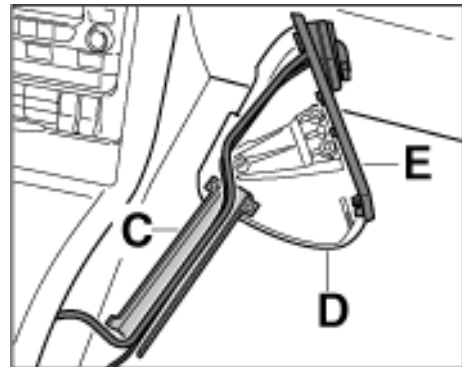
### Note!

- *An assembly kit for the mobile phone console is supplied in the vehicle along with the I No. for the mobile phone console.*
- *Before delivery to the customer, this console must be fitted with whichever E-box is required for the customer's mobile phone.*
- *The E-box to be fitted must be agreed with the customer and purchased on the open market, if required.*

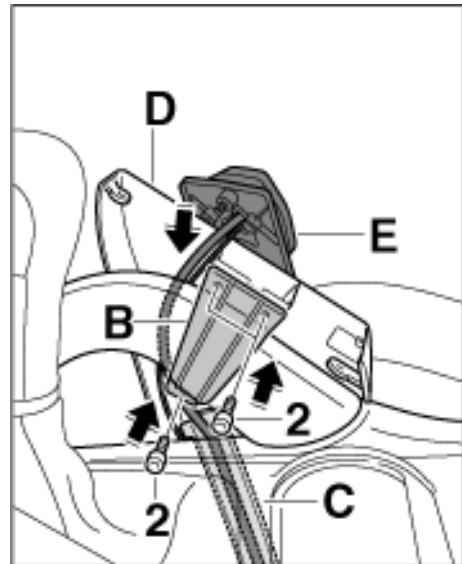
1. On the upper part **-E-**, mark the fixing variant of the relevant interface box, drill as required, push the wiring through and position correctly using the fastening screws **-1-**.



2. Fit the upper part **-E-** loosely to the outer part **-D-** and lay the VDA interface wire and antenna wire in the outer part **-D-** and in the cable duct **-C-**.

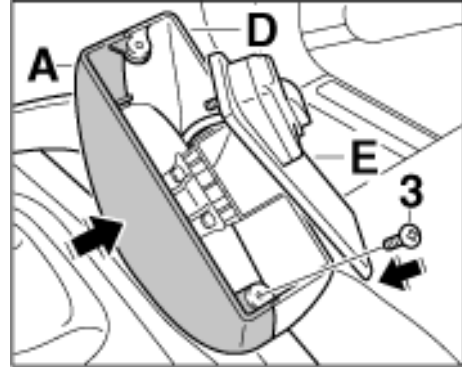


- Make sure that the wires are not pinched.
3. Engage the cable duct **-C-** in the outer part **-D-**.
  4. Lift the assembled components **-C, D, E-** onto the centre console holder, engage the cable duct at the lower edge of the centre console, and push the components **-C, D, E-** onto the centre console holder.

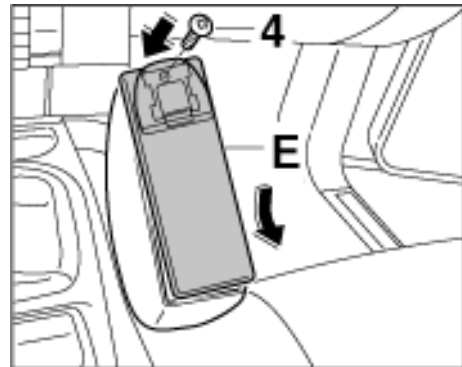


5. Place the clamp **-B-** on the outer part and secure with the three fastening screws **-2-**. ⇒ **Page 24 'Tightening torques'**

6. Engage the inner part **-A-** with the outer part **-D-** , clip into the outer part and secure with the fastening screw **-3-** . ⇒ **Page 24 'Tightening torques'**

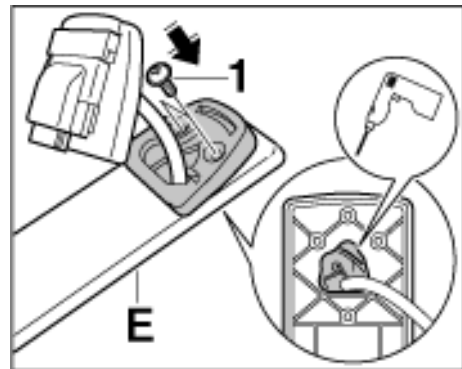


7. Unscrew the fastening screws **-1-** for the interface box holder from the upper part **-E-** .

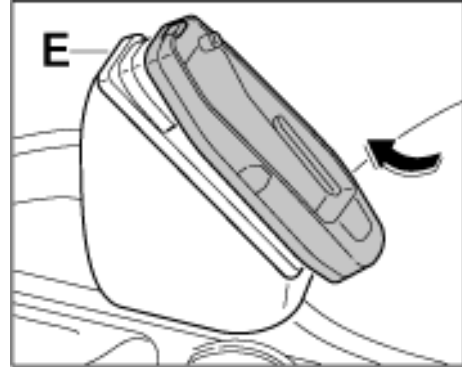


8. Engage the upper part **-E-** with the inner-outer part **-A-D-** and secure with the fastening screw **-4-** .  
⇒ **Page 24 'Tightening torques'**

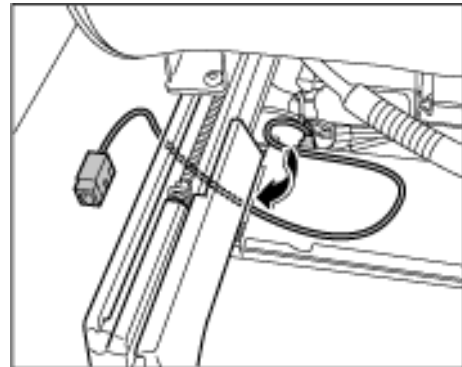
9. Screw the fastening screws **-1-** for the interface box holder into the upper part **-E-** . ⇒ **Page 24 'Tightening torques'**



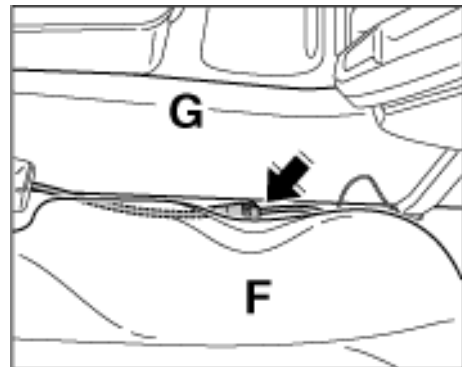
10. Push the interface box onto the cradle from below until the interface box engages.



11. Move/position the passenger seat all the way up and forwards.
12. The wire for the VDA interface and antenna wire is located under the seat. Guide this wire with the connector under the left seat rail and lay it up along the seat.



13. Connect wire for the VDA interface and antenna wire.



14. Press the carpet at the lower edge of the side part of the centre console down and push/press the wiring under the centre console.

Centre console **-G-**

Seat **-F-**

15. Move seat to position required by customer.

**Tightening torques**

<b>Location</b>	<b>Illustration</b>	<b>Thread</b>	<b>Tightening torque [Nm] (ftlb.)</b>
Fastening screws for interface box on upper part <b>-E-</b>	<b>-1-</b>		0.5 (0.25)
Fastening screw for clamp on outer part	<b>-2-</b>	M4	2 (1.5)
Fastening screw for fixing outer part to inner part	<b>-3-</b>		0.5 (0.25)
Fastening screw for fixing upper part to inner part	<b>-4-</b>		0.5 (0.25)

## Minor maintenance



### Note!

- *The engine oil and oil filter must be changed every 10,000 km (6,000 mls) in vehicles which are operated in countries where leaded fuel is used.*
- *If the mileage for a regular service is not reached, minor maintenance must be carried out after 2, 6, 10..... years.*
- *The term 'checking' includes all necessary subsequent work such as adjusting, readjusting, correcting and topping up, but does not include repairing, replacing and reconditioning parts or assemblies!*
- *The maintenance item > Replacing spark plugs < depends on the engine type. Please observe the "Additional maintenance" chapter ⇒ **Page 58** 'Replacing spark plugs' .*

<b>Minor maintenance after:</b> <b>30,000, 90,000, 150,000, 210,000 km etc./</b> <b>20,000, 60,000, 100,000, 140,000 mls etc.</b>	OK
Diagnosis system: read out fault memory ⇒ <b>Page 39</b> 'Diagnosis maintenance: diagnosis system'	
Vehicle underside and engine compartment: visual inspection for leaks (oils and other fluids); engine compartment: visual inspection for damage; underside panels: visual inspection for completeness, installation and damage	
Change engine oil and oil filter ⇒ <b>Page 40</b> 'Engine oil and oil filter change'	
Check drive belt ⇒ <b>Page 44</b> 'Checking drive belt'	
Power steering: check fluid level ⇒ <b>Page 118</b> 'Running gear maintenance: steering gear - fluid level and bellows'	
Coolant hoses: check condition; radiators and air inlets: visual inspection for external contamination and blockage. Coolant: check the level and antifreeze protection ⇒ <b>Page 49</b> 'Checking cooling system'	

<p><b>Minor maintenance after:</b>  <b>30,000, 90,000, 150,000, 210,000 km etc./</b>  <b>20,000, 60,000, 100,000, 140,000 mls etc.</b></p>	OK
Brake system: visual inspection of the brake pads and brake discs for wear ⇒ <b>Page 131</b> <i>'Running gear maintenance: visual inspection - brake lines/brake pads/brake discs'</i>	
Brake hoses and lines: visual inspection for damage, routing and corrosion; check brake fluid level ⇒ <b>Page 126</b> <i>'Running gear maintenance: checking the brake fluid level and changing the brake fluid'</i>	
Drive shafts: visual inspection of the boots for leaks and damage ⇒ <b>Page 120</b> <i>'Running gear maintenance: axle joints/drive shafts'</i>	
Front cardan shaft: visual inspection of rolling lobes for damage (up to '03 model) ⇒ <b>Page 117</b> <i>'Cardan shaft maintenance'</i>	
Rear cardan shaft: visual inspection of centre bearing for damage (up to '03 model) ⇒ <b>Page 117</b> <i>'Cardan shaft maintenance'</i>	
Check that the screw connections of the suspension adjustment system at the front and rear are secure (this applies only to the first service) ⇒ <b>Page 122</b> <i>'Running gear maintenance: running gear adjustment/storage of assemblies'</i>	
Exterior of tyres and spare wheel: check condition and tyre pressure ⇒ <b>Page 123</b> <i>'Running gear maintenance: tyres and spare wheel: checking condition and tyre pressure'</i>	
Windscreen wiper/washer system, headlight washer: check operation, fluid level and nozzle settings, pay attention to antifreeze protection in the winter months; check wiper blades ⇒ <b>Page 152</b> <i>'Electrics maintenance: windscreen wiper and washer system, headlight washer system'</i>	
Vehicle lights: check operation. All headlights: check adjustment. Horn: check operation ⇒ <b>Page 147</b> <i>'Electrics maintenance: checking the function of the vehicle's lights'</i>	
Battery and vent hose: check condition ⇒ <b>Page 78</b> <i>'Battery maintenance: checking condition of battery and battery vent hose'</i>	
Electrical equipment, warning and indicator lights: check operation ⇒ <b>Page 154</b> <i>'Electrics maintenance: checking the function of electrical equipment, as well as the indicator and warning lights'</i>	

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<b>Minor maintenance after:</b> <b>30,000, 90,000, 150,000, 210,000 km etc./</b> <b>20,000, 60,000, 100,000, 140,000 mls etc.</b>	<b>OK</b>
Test drive: remote control, front seats, foot and parking brakes (also actuation travel), engine, clutch, steering, transmission, ParkAssist, automatic speed control, PSM switch, heating, air-conditioning system and instruments: check operation.	
Oils, fluids: visual inspection for leaks	

## Minor maintenance, - as of MY 2004



### Note!

- *The engine oil and oil filter must be changed every 10,000 km (6,000 mls) in vehicles which are operated in countries where leaded fuel is used.*
- *If the mileage for a regular service is not reached, minor maintenance must be carried out after 2, 6, 10..... years.*
- *The term 'checking' includes all necessary subsequent work such as adjusting, readjusting, correcting and topping up, but does not include repairing, replacing and reconditioning parts or assemblies!*
- *The maintenance item > Replacing spark plugs < depends on the engine type. Please observe the "Additional maintenance" chapter ⇒ **Page 58** 'Replacing spark plugs' .*

<b>Minor maintenance after:</b> <b>30,000, 90,000, 150,000, 210,000 km etc./</b> <b>20,000, 60,000, 100,000, 140,000 mls etc.</b>	OK
Diagnostic system: read out fault memory ⇒ <b>Page 39</b> 'Diagnosis maintenance: diagnosis system'	
Vehicle underside and engine compartment: visual inspection for leaks (oils and other fluids); engine compartment: visual inspection for damage; underside panels: visual inspection for completeness, installation and damage	
Change engine oil and oil filter ⇒ <b>Page 40</b> 'Engine oil and oil filter change' (the oil change service plan applies for the Cayenne V6)	
Check drive belt ⇒ <b>Page 44</b> 'Checking drive belt'	
Radiators and air inlets: visual inspection for external contamination and blockage; check coolant level ⇒ <b>Page 49</b> 'Checking cooling system'	
Brake system: visual inspection of the brake pads and brake discs for wear ⇒ <b>Page 131</b> 'Running gear maintenance: visual inspection - brake lines/brake pads/brake discs'	

<b>Minor maintenance after:</b> <b>30,000, 90,000, 150,000, 210,000 km etc./</b> <b>20,000, 60,000, 100,000, 140,000 mls etc.</b>	OK
Brake hoses and lines: visual inspection for damage, routing and corrosion ⇒ <b>Page 131</b> <i>'Running gear maintenance: visual inspection - brake lines/brake pads/brake discs'</i>	
Drive shafts: visual inspection of the boots for leaks and damage ⇒ <b>Page 120</b> <i>'Running gear maintenance: axle joints/drive shafts'</i>	
Front cardan shaft: visual inspection of rolling lobe for damage (up to '03 model) ⇒ <b>Page 117</b> <i>'Cardan shaft maintenance'</i>	
Rear cardan shaft: visual inspection of centre bearing for damage (up to '03 model) ⇒ <b>Page 117</b> <i>'Cardan shaft maintenance'</i>	
Check that the screw connections of the suspension adjustment system at the front and rear are secure (this applies only to the first service) ⇒ <b>Page 122</b> <i>'Running gear maintenance: running gear adjustment/storage of assemblies'</i>	
Exterior of tyres and spare wheel: check condition and tyre pressure ⇒ <b>Page 123</b> <i>'Running gear maintenance: tyres and spare wheel: checking condition and tyre pressure'</i>	
Windscreen wiper/washer system, headlight washer: check operation, fluid level and nozzle settings, pay attention to antifreeze protection in winter months; check wiper blades ⇒ <b>Page 152</b> <i>'Electrics maintenance: windscreen wiper and washer system, headlight washer system'</i>	
All headlights: check adjustment. Horn: check operation ⇒ <b>Page 147</b> <i>'Electrics maintenance: checking the function of the vehicle's lights'</i>	
Battery and vent hose: check condition ⇒ <b>Page 78</b> <i>'Battery maintenance: checking condition of battery and battery vent hose'</i>	
Test drive: remote control, front seats, foot and parking brakes (also actuation travel), engine, clutch, steering, transmission, ParkAssist, automatic speed control, PSM switch, heating, air-conditioning system and instruments: check operation	
Oils, fluids: visual inspection for leaks	

## Major maintenance



### Note!

- *The engine oil and oil filter must be changed every 10,000 km (6,000 mls) in vehicles which are operated in countries where leaded fuel is used.*
- *If the mileage for a regular service is not reached, major maintenance must be carried out after 4, 8, 12..... years.*
- *The term 'checking' includes all necessary subsequent work such as adjusting, readjusting, correcting and topping up, but does not include repairing, replacing and reconditioning parts or assemblies!*
- *The maintenance item > Replacing spark plugs < depends on the engine type. Please observe the "Additional maintenance" chapter ⇒ **Page 58** 'Replacing spark plugs' .*

<b>Major maintenance after:</b> <b>60,000, 120,000, 180,000, 240,000 km etc./</b> <b>40,000, 80,000, 120,000, 160,000 mls etc.</b>	OK
Diagnosis system: read out fault memory ⇒ <b>Page 39</b> 'Diagnosis maintenance: diagnosis system'	
Vehicle underside and engine compartment: visual inspection for leaks (oils and other fluids); engine compartment: visual inspection for damage; underside panels: visual inspection for completeness, installation and damage	
Change engine oil and oil filter ⇒ <b>Page 40</b> 'Engine oil and oil filter change'	
Particle filter: replace filter element ⇒ <b>Page 145</b> 'Air conditioning maintenance: particle filter - replacing filter insert'	
Check drive belt ⇒ <b>Page 44</b> 'Checking drive belt'	
Steering gear: visual inspection of bellows for damage ⇒ <b>Page 118</b> 'Running gear maintenance: steering gear - fluid level and bellows' ; tie rod end: check the play and dust bellows ⇒ <b>Page 120</b> 'Running gear maintenance: axle joints/drive shafts'	

<p><b>Major maintenance after:</b>  <b>60,000, 120,000, 180,000, 240,000 km etc./</b>  <b>40,000, 80,000, 120,000, 160,000 mls etc.</b></p>	OK
Power steering: check fluid level ⇒ <b>Page 118</b> ' <i>Running gear maintenance: steering gear - fluid level and bellows</i> '	
Fuel lines and connections: visual inspection	
Coolant hoses: check condition; radiators and air inlets: visual inspection for external contamination and blockage. Coolant: check the level and antifreeze protection ⇒ <b>Page 49</b> ' <i>Checking cooling system</i> '	
Foot-operated parking brake: check free play ⇒ <b>Page 129</b> ' <i>Running gear maintenance: checking free play of foot-operated parking brake</i> '	
Brake system: visual inspection of the brake pads and brake discs for wear ⇒ <b>Page 131</b> ' <i>Running gear maintenance: visual inspection - brake lines/brake pads/brake discs</i> '	
Brake hoses and lines: visual inspection for damage, routing and corrosion ⇒ <b>Page 131</b> ' <i>Running gear maintenance: visual inspection - brake lines/brake pads/brake discs</i> ' ; check brake fluid level ⇒ <b>Page 126</b> ' <i>Running gear maintenance: checking the brake fluid level and changing the brake fluid</i> '	
Drive shafts: visual inspection of the boots for leaks and damage ⇒ <b>Page 120</b> ' <i>Running gear maintenance: axle joints/drive shafts</i> '	
Front cardan shaft: visual inspection of rolling lobes for damage (up to '03 model) ⇒ <b>Page 117</b> ' <i>Cardan shaft maintenance</i> '	
Rear cardan shaft: visual inspection of centre bearing for damage (up to '03 model) ⇒ <b>Page 117</b> ' <i>Cardan shaft maintenance</i> '	
Axle joints: check the play and visually inspect the dust bellows for damage ⇒ <b>Page 120</b> ' <i>Running gear maintenance: axle joints/drive shafts</i> '	
Exhaust system: visual inspection for leaks and damage, check suspension	
Exterior of tyres and spare wheel: check condition and tyre pressure ⇒ <b>Page 123</b> ' <i>Running gear maintenance: tyres and spare wheel: checking condition and tyre pressure</i> '	
Lubricate door latch snib and fastening pins ⇒ <b>Page 133</b> ' <i>Checking lid and doors</i> '	

<p><b>Major maintenance after:</b>  <b>60,000, 120,000, 180,000, 240,000 km etc./</b>  <b>40,000, 80,000, 120,000, 160,000 mls etc.</b></p>	OK
<p>Windscreen wiper/washer system, headlight washer: check operation, fluid level and nozzle settings, pay attention to antifreeze protection in the winter months; check wiper blades  ⇒ <b>Page 152</b> '<i>Electrics maintenance: windscreen wiper and washer system, headlight washer system</i>'</p>	
<p>Seat belts: check operation and condition ⇒ <b>Page 135</b> '<i>Checking seat belts</i>'</p>	
<p>Vehicle lights: check function; all headlights: check adjustment; horn: check operation ⇒ <b>Page 147</b> '<i>Electrics maintenance: checking the function of the vehicle's lights</i>'</p>	
<p>Battery and vent hose: check condition ⇒ <b>Page 78</b> '<i>Battery maintenance: checking condition of battery and battery vent hose</i>'</p>	
<p>Electrical equipment, warning and indicator lights: check operation ⇒ <b>Page 154</b> '<i>Electrics maintenance: checking the function of electrical equipment, as well as the indicator and warning lights</i>'</p>	
<p>Trailer hitch: check operation ⇒ <b>Page 140</b> '<i>Trailer hitch maintenance: check operation</i>'</p>	
<p>Airbag system: check operation and condition (see Additional maintenance) ⇒ <b>Page 136</b> '<i>Passenger protection maintenance: Inspect airbag system</i>'</p>	
<p>Test drive:  remote control, front seats, foot and parking brakes (also actuation travel), engine, clutch, steering, transmission, ParkAssist, automatic speed control, PSM switch, heating, air-conditioning system and instruments: check operation.</p>	
<p>Oils, fluids: visual inspection for leaks</p>	

## Major maintenance, - as of MY 2004



### Note!

- *The engine oil and oil filter must be changed every 10,000 km (6,000 mls) in vehicles which are operated in countries where leaded fuel is used.*
- *If the mileage for a regular service is not reached, major maintenance must be carried out after 4, 8, 12..... years.*
- *The term 'checking' includes all necessary subsequent work such as adjusting, readjusting, correcting and topping up, but does not include repairing, replacing and reconditioning parts or assemblies!*
- *The maintenance item > Replacing spark plugs < depends on the engine type. Please observe the "Additional maintenance" chapter ⇒ **Page 58** 'Replacing spark plugs' .*

<b>Major maintenance after:</b> <b>60,000, 120,000, 180,000, 240,000 km etc./</b> <b>40,000, 80,000, 120,000, 160,000 mls etc.</b>	<b>OK</b>
Diagnostic system: read out fault memory ⇒ <b>Page 39</b> 'Diagnosis maintenance: diagnosis system'	
Vehicle underside and engine compartment: visual inspection for leaks (oils and other fluids); engine compartment: visual inspection for damage; underside panels: visual inspection for completeness, installation and damage	
Change engine oil and oil filter ⇒ <b>Page 40</b> 'Engine oil and oil filter change' (the oil change service plan applies for the Cayenne V6)	
Particle filter: replace filter element ⇒ <b>Page 145</b> 'Air conditioning maintenance: particle filter - replacing filter insert'	
Check drive belt ⇒ <b>Page 44</b> 'Checking drive belt'	

<p><b>Major maintenance after:</b>  <b>60,000, 120,000, 180,000, 240,000 km etc./</b>  <b>40,000, 80,000, 120,000, 160,000 mls etc.</b></p>	OK
<p>Steering gear: visually inspect the bellows for damage ⇒ <b>Page 118</b> '<i>Running gear maintenance: steering gear - fluid level and bellows</i>'  ; tie rod end: check the play and dust bellows ⇒ <b>Page 120</b> '<i>Running gear maintenance: axle joints/drive shafts</i>'</p>	
<p>Power steering: check fluid level ⇒ <b>Page 118</b> '<i>Running gear maintenance: steering gear - fluid level and bellows</i>'</p>	
<p>Fuel lines and connections: visual inspection</p>	
<p>Radiators and air inlets: visual inspection for external contamination and blockage. Coolant: check the level and antifreeze protection ⇒ <b>Page 49</b> '<i>Checking cooling system</i>'</p>	
<p>Foot-operated parking brake: check free play ⇒ <b>Page 129</b> '<i>Running gear maintenance: checking free play of foot-operated parking brake</i>'</p>	
<p>Brake system: visual inspection of the brake pads and brake discs for wear ⇒ <b>Page 131</b> '<i>Running gear maintenance: visual inspection - brake lines/brake pads/brake discs</i>'</p>	
<p>Brake hoses and lines: visual inspection for damage, routing and corrosion ⇒ <b>Page 131</b> '<i>Running gear maintenance: visual inspection - brake lines/brake pads/brake discs</i>'</p>	
<p>Drive shafts: visual inspection of the boots for leaks and damage ⇒ <b>Page 120</b> '<i>Running gear maintenance: axle joints/drive shafts</i>'</p>	
<p>Front cardan shaft: visual inspection of rolling lobe for damage (up to '03 model) ⇒ <b>Page 117</b> '<i>Cardan shaft maintenance</i>'</p>	
<p>Rear cardan shaft: visual inspection of centre bearing for damage (up to '03 model) ⇒ <b>Page 117</b> '<i>Cardan shaft maintenance</i>'</p>	
<p>Axle joints: check the play and visually inspect the dust bellows for damage ⇒ <b>Page 120</b> '<i>Running gear maintenance: axle joints/drive shafts</i>'</p>	
<p>Exhaust system: visual inspection for leaks and damage, check suspension</p>	
<p>Exterior of tyres and spare wheel: check condition and tyre pressure ⇒ <b>Page 123</b> '<i>Running gear maintenance: tyres and spare wheel: checking condition and tyre pressure</i>'</p>	

<b>Major maintenance after:</b> <b>60,000, 120,000, 180,000, 240,000 km etc./</b> <b>40,000, 80,000, 120,000, 160,000 mls etc.</b>	OK
Lubricate door latch snib and fastening pins ⇒ <b>Page 133</b> <i>'Checking lid and doors'</i>	
Windscreen wiper/washer system, headlight washer: check operation, fluid level and nozzle settings, pay attention to antifreeze protection in winter months; check wiper blades ⇒ <b>Page 152</b> <i>'Electrics maintenance: windscreen wiper and washer system, headlight washer system'</i>	
Seat belts: check operation and condition ⇒ <b>Page 135</b> <i>'Checking seat belts'</i>	
All headlights: check adjustment; horn: check operation ⇒ <b>Page 147</b> <i>'Electrics maintenance: checking the function of the vehicle's lights'</i>	
Battery and vent hose: check condition ⇒ <b>Page 78</b> <i>'Battery maintenance: checking condition of battery and battery vent hose'</i>	
Trailer hitch: check operation ⇒ <b>Page 140</b> <i>'Trailer hitch maintenance: check operation'</i>	
Airbag system: check operation and condition (see Additional maintenance) ⇒ <b>Page 136</b> <i>'Passenger protection maintenance: Inspect airbag system'</i>	
Test drive: remote control, front seats, foot and parking brakes (also actuation travel), engine, clutch, steering, transmission, ParkAssist, automatic speed control, PSM switch, heating, air-conditioning system and instruments: check operation	
Oils, fluids: visual inspection for leaks	

## Additional maintenance



### Note!

- *The engine oil and oil filter must be changed every 10,000 km (6,000 mls) in vehicles which are operated in countries where leaded fuel is used.*

### Additional maintenance, replacing spark plugs

<b>Additional maintenance, replacing spark plugs</b> ⇒ <b>Page 58</b> ' <i>Replacing spark plugs</i> '	<b>OK</b>
Replace spark plugs in Cayenne Turbo every 60,000 km/40,000 mls or every 4 years	
Replace spark plugs in Cayenne S every 90,000 km/60,000 mls or every 4 years	

### Additional maintenance every 120,000 km/80,000 mls

<b>Additional maintenance every 120,000 km/80,000 mls</b>	<b>OK</b>
Air cleaner: replace filter element ⇒ <b>Page 66</b> ' <i>Replacing air cleaner element</i> '	

### Additional maintenance every 240,000 km/160,000 mls or every 16 years

<b>Additional maintenance every 240,000 km/160,000 mls or every 16 years</b>	<b>OK</b>
All-wheel final drive: replace oil ⇒ <b>Page 114</b> ' <i>Changing oil for all-wheel final drive</i> '	
Rear final drive: replace oil ⇒ <b>Page 104</b> ' <i>Changing oil for rear final drive</i> '	
Transfer box: replace oil ⇒ <b>Page 99</b> ' <i>Changing oil for transfer box</i> '	
Manual transmission: replace oil	
Tiptronic transmission: change ATF ⇒ <b>Page 90</b> ' <i>Replacing ATF</i> ' and ATF filter ⇒ <b>Page 107</b> ' <i>Removing and installing ATF filter</i> '	

**Maintenance every 2 years**

<b>Every 2 years</b>	<b>OK</b>
Change brake fluid (use only original Porsche brake fluid) ⇒ <b>Page 126</b> ' <i>Running gear maintenance: checking the brake fluid level and changing the brake fluid</i> '	
Condition report – preparing long-life guarantee Form WKD 444 010 02 German Form WKD 444 020 02 English Form WKD 444 021 02 US English Form WKD 444 030 02 French Form WKD 444 031 02 French-Canadian Form WKD 444 040 02 Italian Form WKD 444 050 02 Spanish Form WKD 444 091 02 Dutch	

**Maintenance every 4 years**

<b>Maintenance every 4 years</b>	<b>OK</b>
Replace tyre sealant	
Check tyre pressure monitoring system battery	

**Maintenance after 10 then every 2 years**

<b>Maintenance after 10 then every 2 years</b>	<b>OK</b>
Inspect airbag system (see Major maintenance)	

## Oil change service, - as of MY 2004

### Oil change service after 15,000 km/10,000 mls or 1 year


**Note!**

- *Following fixed service interval display.*
- *Applies only for 6-cylinder models.*
- *An oil change service must be carried out at the latest after 15,000 km/10,000 mls or 1 year.*

<b>Oil change service</b>	<b>OK</b>
Change engine oil and oil filter.	

### Oil change service after 30,000 km/20,000 mls or 2 years


**Note!**

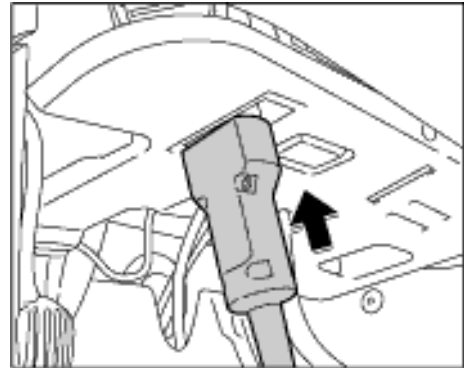
- *Following flexible service interval display.*
- *Applies only for 6-cylinder models.*
- *An oil change service must be carried out at the latest after 30,000 km/20,000 mls or 2 years.*

<b>Oil change service</b>	<b>OK</b>
Change engine oil and oil filter.	

## Diagnosis maintenance: diagnosis system

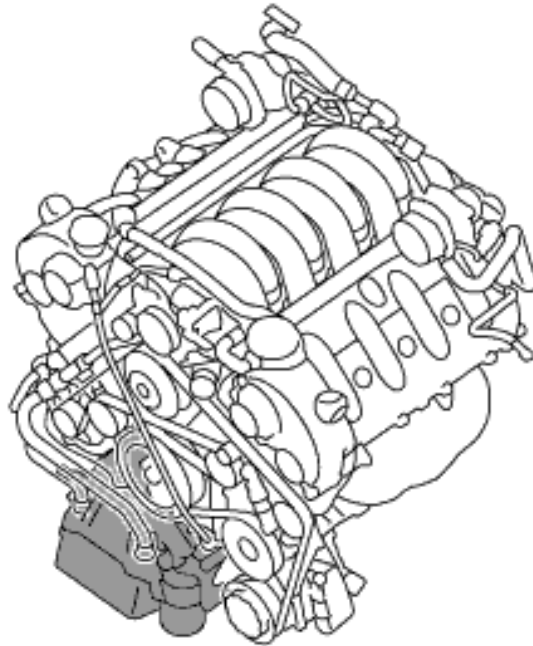
### Reading out fault memory

Porsche System Tester is connected to the vehicle via a 16-pin diagnosis socket. The diagnosis socket is located inside the vehicle below the instrument panel near the driver (left-hand drive vehicles) or the passenger (right-hand drive vehicles) **-Arrow-** .



1. Start Porsche System Tester (PST) and follow the instructions on the Tester.
2. Select vehicle type, click  and perform the automatic control module search.
3. If a star appears in front of the relevant control module, read out the fault memory. Follow the PST instructions.

## Engine oil and oil filter change



Item	Designation of the tool	Remarks

### Engine oil change (without oil filter)

**i** **Note!**

- *Engine oil should not be extracted, as particles of dirt may remain in the oil pan.*
1. Jack up the vehicle at the points provided ⇒ **Page 7 'Entire vehicle – General'**.

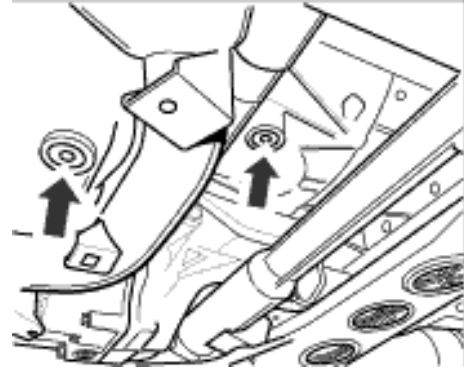
**!** **Warning!**

***Danger of scalding from draining oil!***

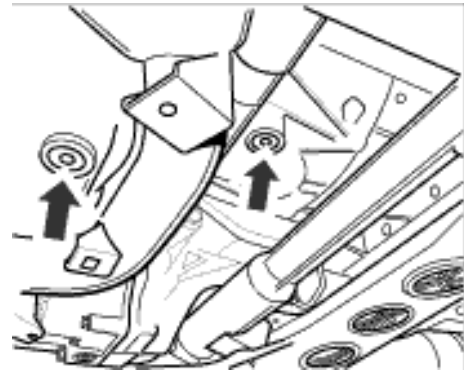
***Wear protective equipment specified.***

2. Remove underside panel.

3. Undo the 2 oil drain plugs and collect engine oil in a disposal container. Dispose of waste oil in accordance with legal requirements.



4. Clean oil drain plugs and screw in with new aluminium sealing ring. Tightening torque 50 Nm (37 ftlb.).



5. Fill with engine oil of the stipulated viscosity and quality. The oil change quantity is 8.25 litres after a dripping time of approx. 20 minutes.
6. Fit underside panel.

### Engine oil change (with oil filter)



#### Note!

- *Engine oil should not be extracted, as particles of dirt may remain in the oil pan.*

1. Remove underside panel.
2. Jack up the vehicle at the points provided.

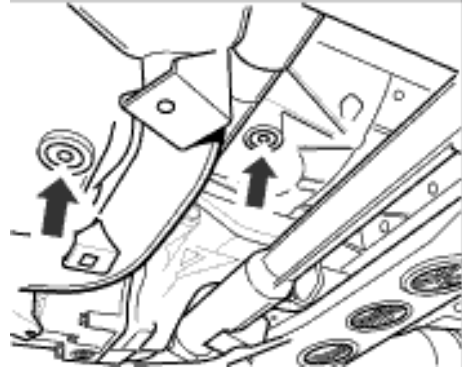


#### Warning!

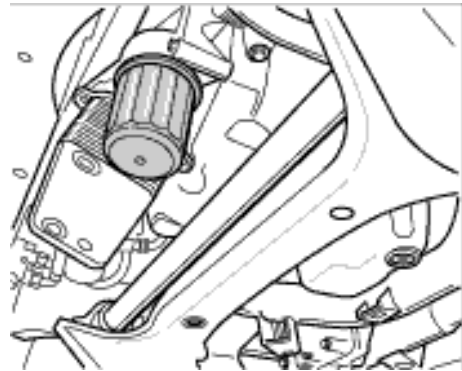
***Danger of scalding from draining oil!***

***Wear protective equipment specified.***

3. Undo the 2 oil drain plugs and collect engine oil in a disposal container. Dispose of waste oil in accordance with legal requirements.



4. Clean oil drain plug and screw in with new aluminium sealing ring. Tightening torque 50 Nm (37 ftlb.).
5. Undo oil filter with special tool (release key) 9204 and unscrew it.

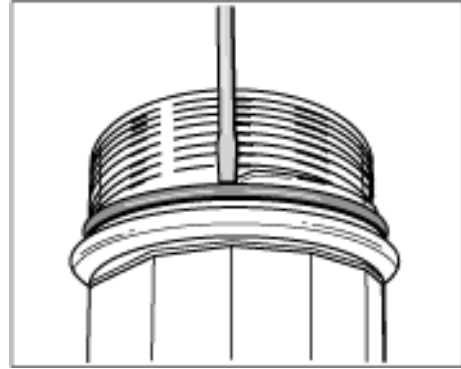


6. Remove oil filter housing vertically downwards. Drain remaining oil into a disposal container.
7. Remove filter element. Remove the filter downwards and dispose of in accordance with legal requirements.

**Note!**

- Do not remove O-ring with a sharp object.
- The oil filter housing contains a cutout with which the O-ring can be removed.

8. Clean oil filter housing -1- and replace O-ring seal. Clean oil filter housing thoroughly inside and outside and replace the O-ring. Carefully lever off O-ring. The oil filter housing must not be damaged during this procedure.



9. Install filter element.



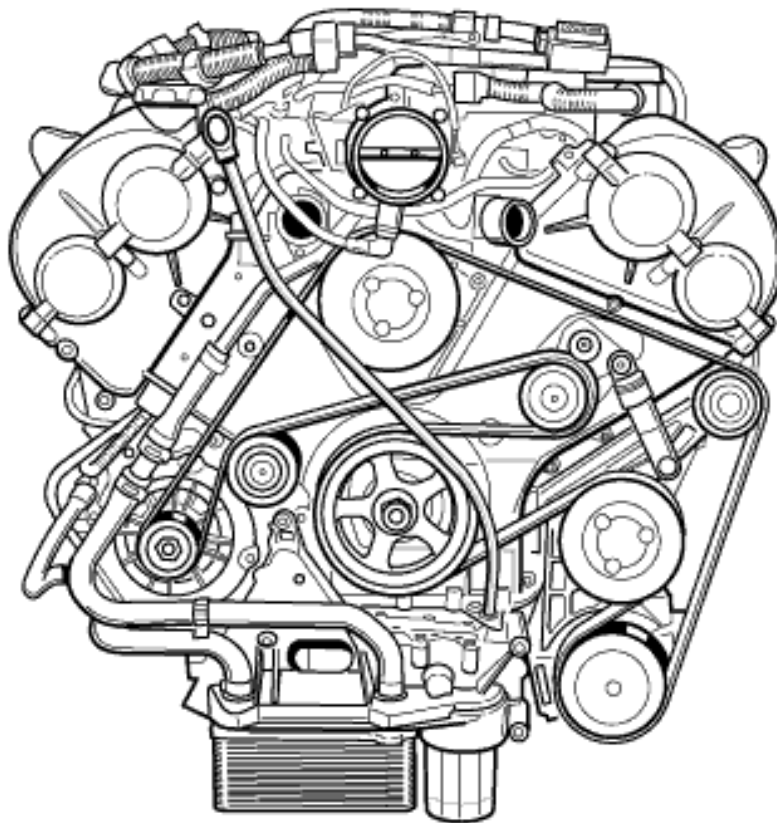
**Note!**

- *Lightly oil O-ring when installing oil filter housing.*
10. Install oil filter housing and tighten to 25 Nm (19 ftlb.) using special tool (release key) 9204 . Lightly oil the O-ring when doing this. Tightening torque 25 Nm (19 ftlb.).
11. Fill with engine oil. The oil change quantity is 8.75 litres after a dripping time of approx. 20 minutes.
12. Fit the underside panel.

### Tightening torques

Location	Thread	Tightening torque [Nm] (ftlb.)
Oil drain plugs	M18 x 1.5	50 (37)
Oil filter housing		25 (19)

## Checking drive belt



## Procedure



### Note!

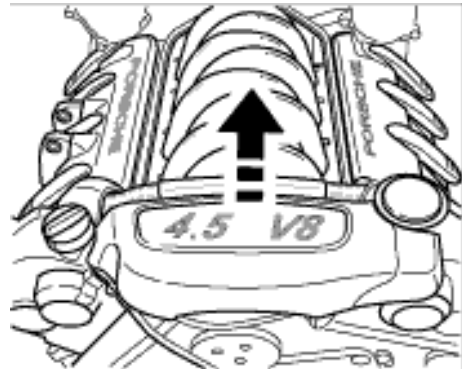
- *If spark plugs must be changed during the course of maintenance operations, the drive belt should be checked when the spark plugs are removed. The engine can then be cranked easier.*



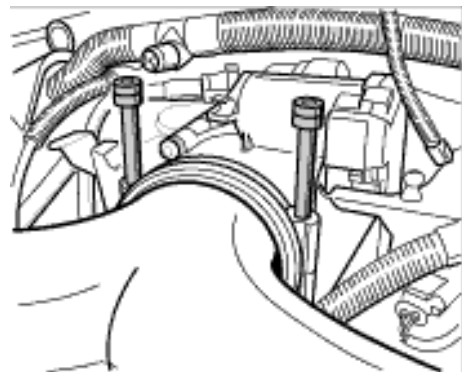
### Warning!

#### Risk of damage

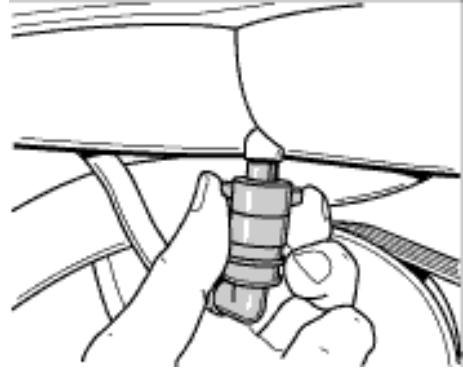
- **Never remove drive belt when it is hot.**
  - ◆ **If the drive belt is removed when it is hot, it can be pulled out of shape and damaged.**
1. Remove throttle body cover. Pull off cover vertically upwards Refer to No. 10 83 19, *Removing and installing engine cover* .



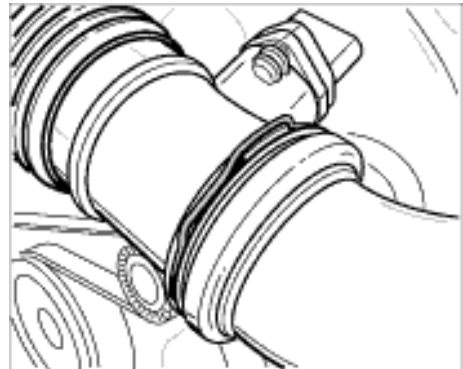
2. Remove Y intake fitting. To do this, pull the left and right fastening pins on the throttle body vertically upwards.



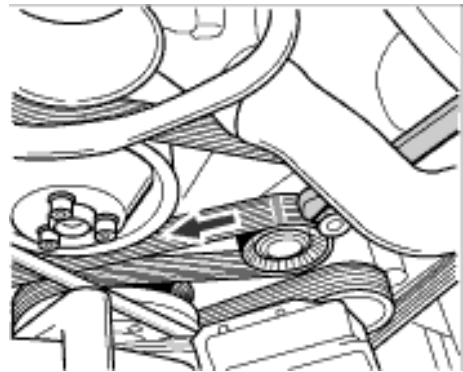
3. Disconnect pressure pipe on the underside of the Y pipe.



4. Undo the Y intake fitting left and right on the hot film mass air flow sensor. To do this, pull the locking clips vertically upwards.



5. Disconnect the hot film mass air flow sensor and remove the Y pipe from the vehicle.
6. Using chalk, mark the drive belt in the area around the tensioning roller.



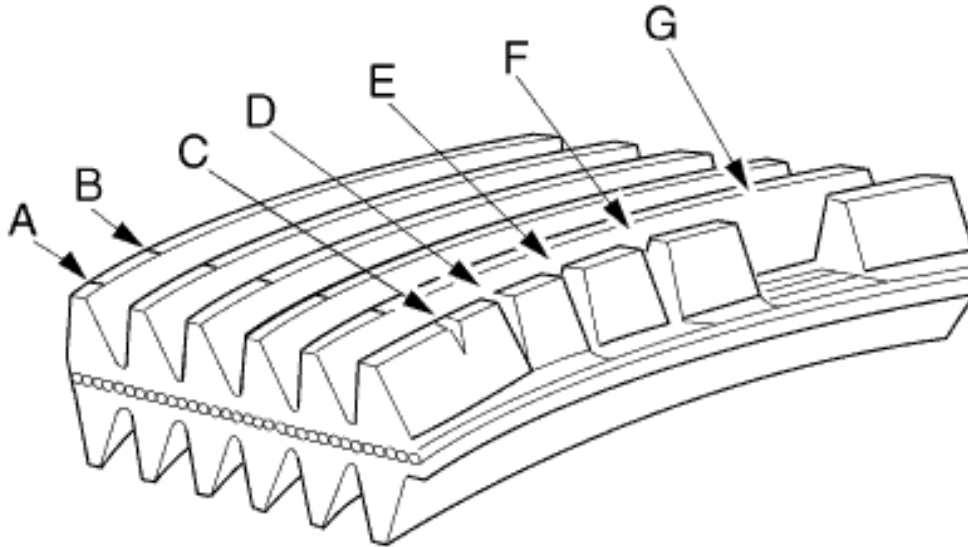
7. Twist engine on vibration damper using a socket wrench (a/f 19) until the chalk mark is at the same place again. While turning, check the deflection rollers of the drive belt on the crankshaft for damage.

## Damage symptoms



### Note!

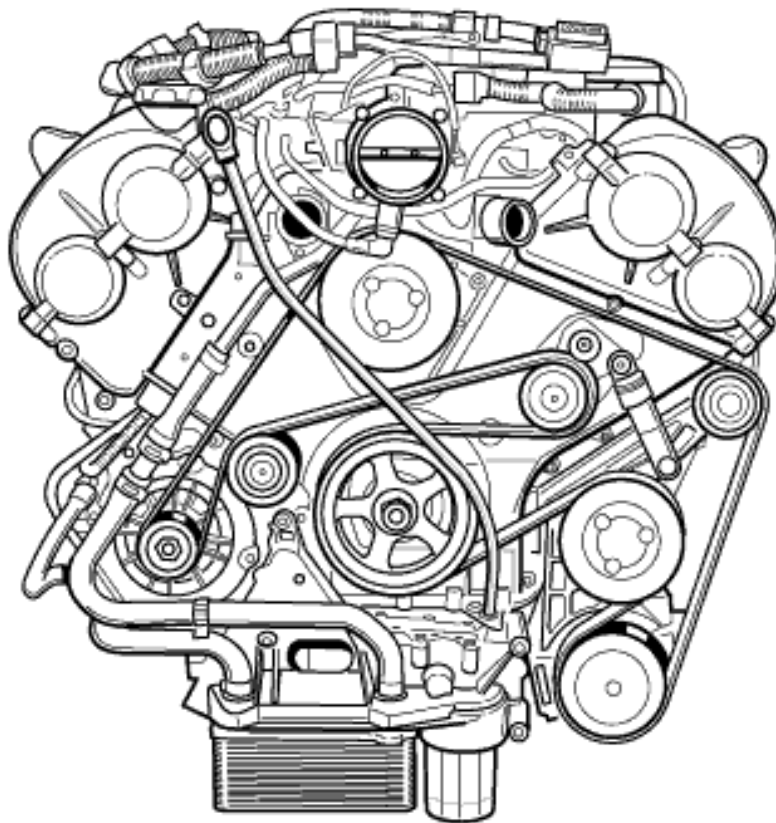
- The drive belt must be replaced if any of the following damage occurs:



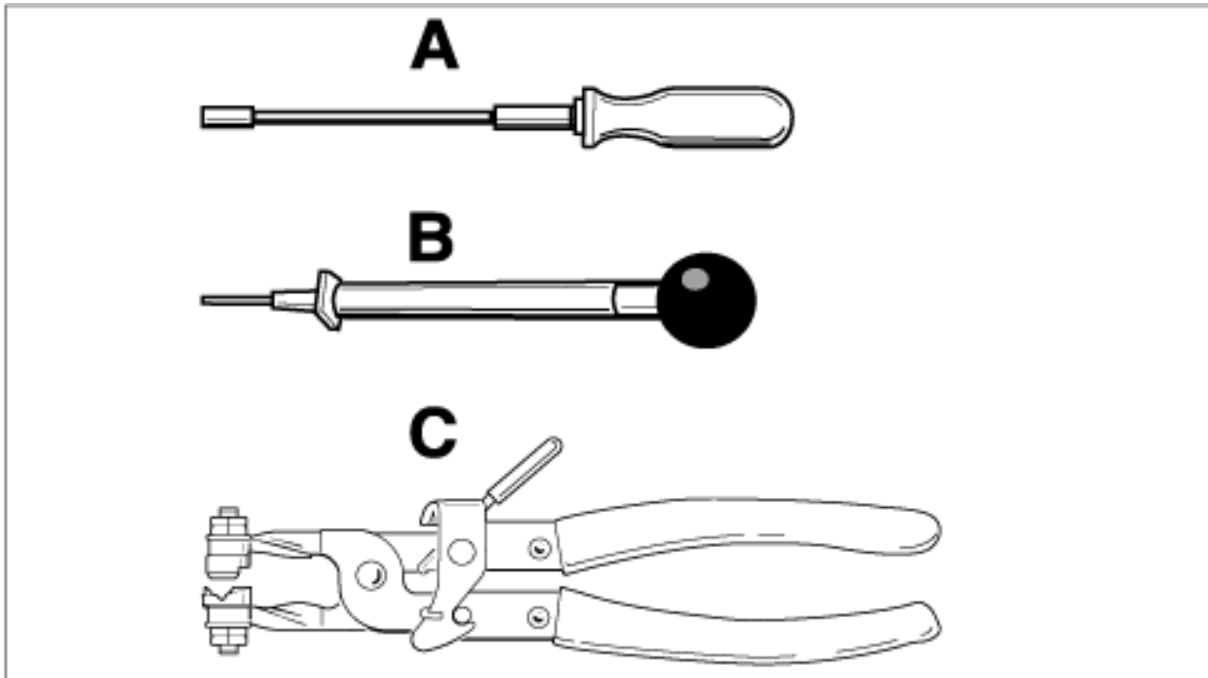
Item	Type of damage	Remarks
-A-	Slight tear in a rib	Drive belt is OK
-B-	Hair crack that runs across the entire belt width or butt seam is damaged	Replace drive belt
-C-	Crack running up to half of rib height	Drive belt must be replaced if there is more than one crack running up to half of rib height
-D-	Crack running to base of rib	Replace drive belt
-E-	Crack running to cord or sides so worn that the traction cord is no longer visible	Replace drive belt
-F-	Rib detachment	Replace drive belt

Item	Type of damage	Remarks
-G-	Rib fracture	Replace drive belt

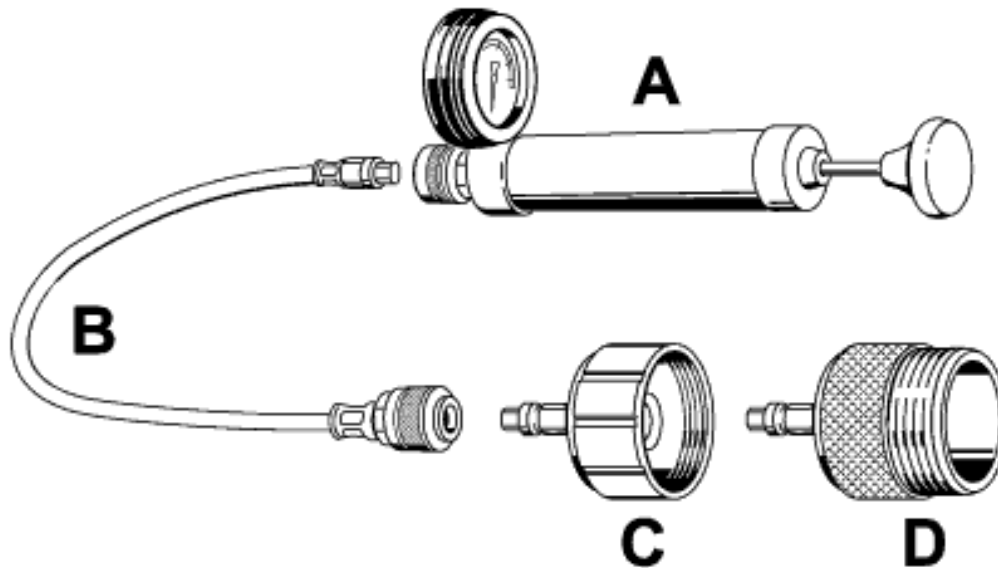
## Checking cooling system



## Tools



Item	Designation of the tool	Remarks
-A-		
-B-	Antifreeze protection and battery acid tester	Refer to Workshop Equipment Manual, Chapter 3
-C-		



Item	Designation of the tool	Remarks
-A-	Tester for cooling system leak test (pump)	Refer to Workshop Equipment Manual, Chapter 3
-B-	Hose extension FZ 100	
-C-	Lid adapter K22	For sports cars
-D-	Lid adapter K60	Contained in scope of delivery 9696

### Coolant: checking the level and antifreeze protection content

#### Note!

- *The engine cooling system is factory-filled with a coolant that does not need to be changed. The coolant should not be mixed with other coolants.*
- *Only original Porsche antifreeze protection should be used when replacing or topping up the coolant.*

1. Open maintenance cover.



**Caution!**

***Danger of scalding!***

- ***Coolants can be extremely hot and pressurised.***
- ◆ ***Only open cooling system when it is cold.***
- ◆ ***Wear gloves.***

2. Carefully open lid on expansion tank. Screw on lid in an anti-clockwise direction.



3. Check antifreeze protection content. If it is lower than  $-37\text{ }^{\circ}\text{C}$ , it should be corrected accordingly. The coolant level must not drop below the minimum mark.



**Note!**

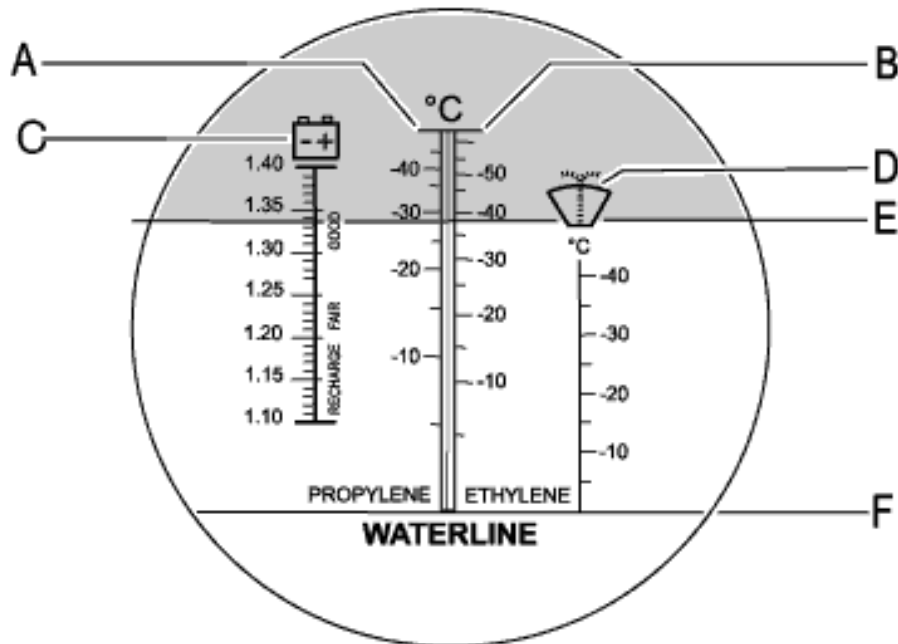
- *The following table specifies how much coolant must be replaced by pure antifreeze protection in order to adjust the freezing point to -37 °C.*

Measured antifreeze protection in °C	Antifreeze protection quantity to be added (in litres)
-5	9
-10	8.5
-15	7.5
-20	7
-25	5
-30	3.5
-35	1.5

***Checking the antifreeze protection content of the coolant using a refractometer***

**Note!**

- *The following diagram shows the scale used by Leitenberger.*
- *The scale can vary slightly, depending on the manufacturer.*
- *The ETHYLENE scale must be used for Porsche antifreeze protection.*

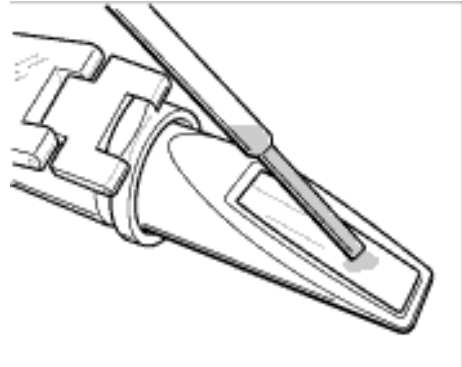


Item	Designation of the display	Remarks
-A-	Scale for propylene-based coolant	Do not use for engine type M48.
-B-	Scale for ethylene-based coolant	Coolant such as Elf's <i>GLACELF SUPRA</i> . Use for engine type M48.
-C-	Scale for battery acid	The charging condition of a battery can be checked here. The values on the left side indicate the gravity of electrolyte. The battery must be recharged once the indicator goes above 1.20.
-D-	Scale for alcohol-based windscreen cleaner	The freezing point of the windscreen cleaner can be read off here.
-E-	Light/dark limit	In conjunction with the points of intersection of the relevant scales, this boundary specifies the value to be calculated.
-F-	<i>Waterline</i>	The light/dark limit is located here when sprinkled with distilled water.

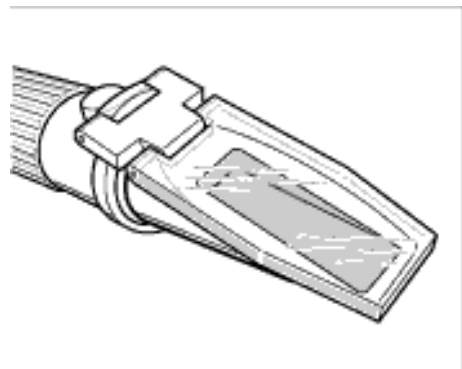
1. Using a pipette, take a sample from the expansion tank.



2. Deposit a few drops on the test area.



3. Close the lens. A closed film must be formed.



4. Using the refractometer, view against a very bright light source. A very clear light/dark limit emerges. The point of intersection between this line and the scale marks the freezing point of the coolant.
5. A freezing point that is too low must be adjusted accordingly.

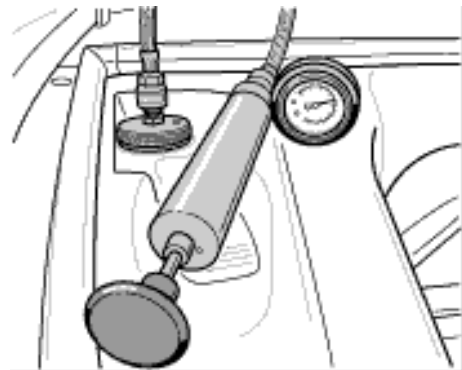
**Note!**

- *The following table specifies how much coolant must be replaced by pure antifreeze protection in order to adjust the freezing point to -37 °C.*

Measured antifreeze in °C	Antifreeze protection quantity to be added (in litres)
-5	9
-10	8.5
-15	7.5
-20	7
-25	5
-30	3.5
-35	1.5

### Checking the cooling system for leaks

1. Check the cooling system for leaks. To do this, apply a test pressure of approx. 1.5 bar using the cooling system test device and check hose connections for leakage. The pressure must not drop.
2. Check the engine coolant level. A graduated washer with a *min* and a *max* marking is located in the lock opening in the expansion tank. The "min" level must be covered with coolant.



3. Screw on the cover of the expansion tank again until it locks with an audible click.



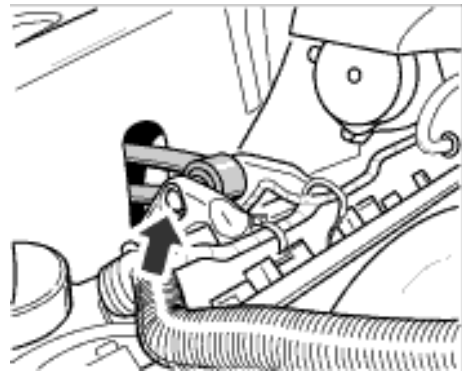
4. Close the maintenance flap.
5. Check radiators for external dirt. The radiators should not contain too much dirt. If necessary, they can be cleaned using a vacuum cleaner with a brush attachment.

## Replacing spark plugs

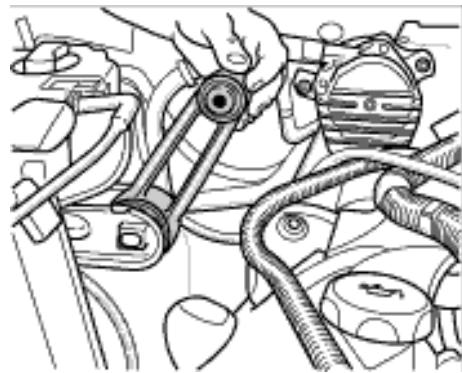
- Ignition is off, ignition key is removed.

### Removing design cover 1 - 4

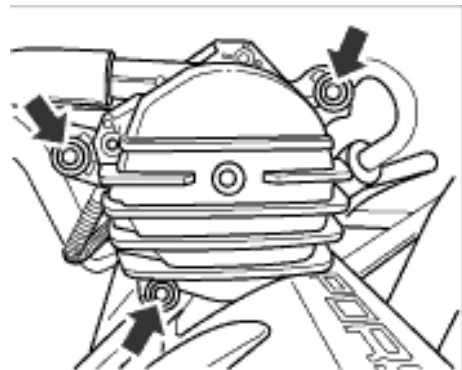
1. Remove engine compartment lining on the right side. To do this, undo the 4 bayonet screws and the fastening screw on the windshield washer reservoir.
2. Unscrew torque arm. To do this, unscrew and remove the fastening screw on the bracket of the torque arm.



3. Unscrew torque arm on the body and swivel upwards.



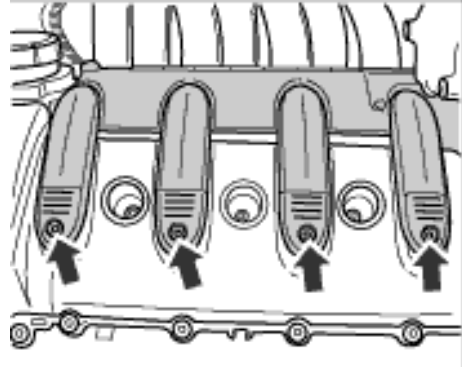
4. Unscrew secondary air pump on cylinder bank 1 - 4. To do this, unscrew the 3 fastening screws, pull the pump out of the holder and lay it to one side.



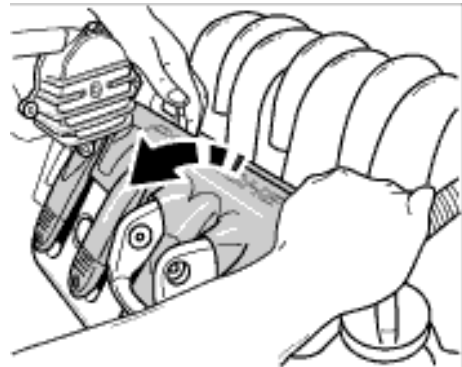
#### Note!

- *Place a cloth between design cover and secondary air pump to avoid scratching cover.*

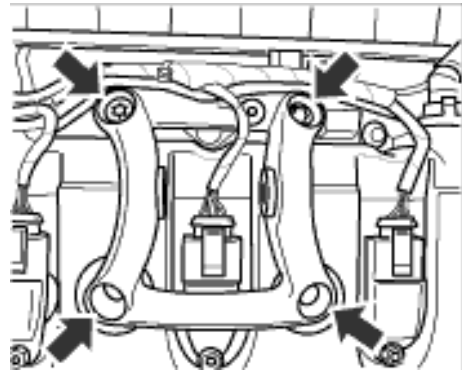
5. Unscrew the 4 fastening screws on the ignition coil cover (diagram shows side 5 - 8).



6. Remove design cover of cylinder bank 1 - 4. Using 2 hands, lift the cover slightly at the edge facing the intake system until it snaps out of the fastening points.



- Lift the cover at the front edge and pull the cover of the ignition coil on the second cylinder out of the torque arm bracket. Pull out cover to the front.
7. Remove torque arm bracket. To do so, undo the 4 fastening screws and remove bracket.



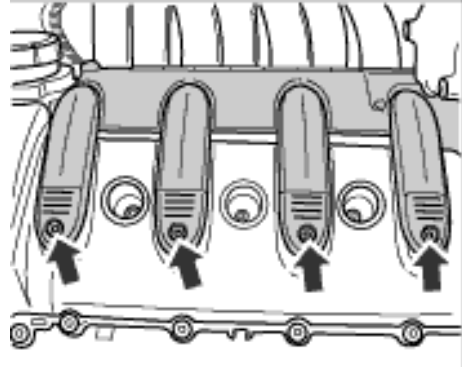
### Removing design cover of cylinder bank 5 - 8



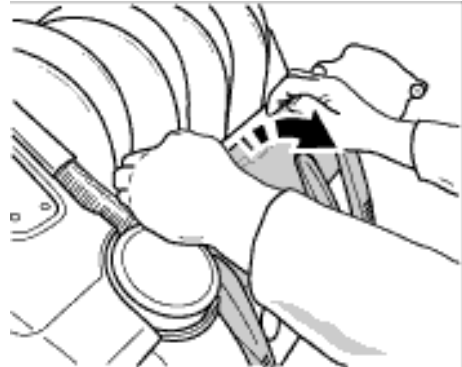
#### Note!

- *Place a cloth between secondary air pump and design cover to avoid scratching cover.*

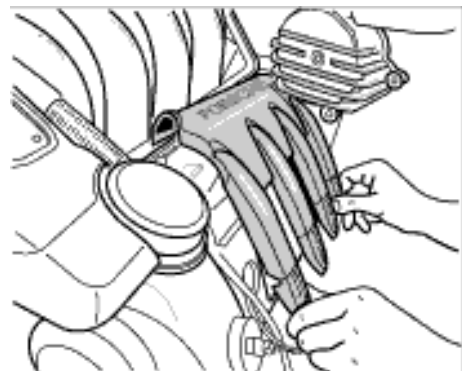
1. Unscrew the 4 fastening screws on the ignition coil cover.



2. Remove design cover of cylinder bank 5 - 8. Using 2 hands, lift the cover slightly at the edge facing the intake system until it snaps out of its holder.



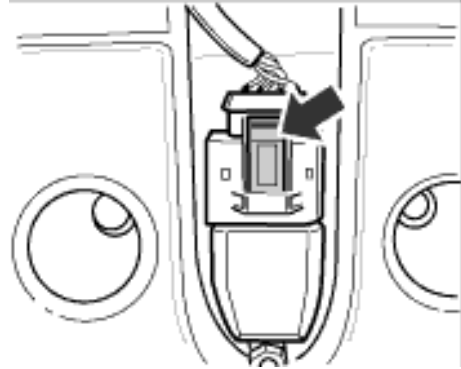
- Lift design cover at the front and pull it out.



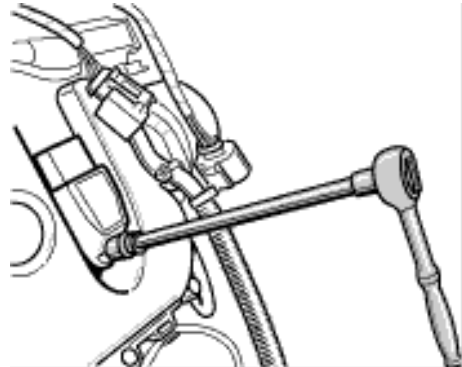
## Replacing spark plugs

1. Pull off the lower hose on secondary air pump 5 - 8.

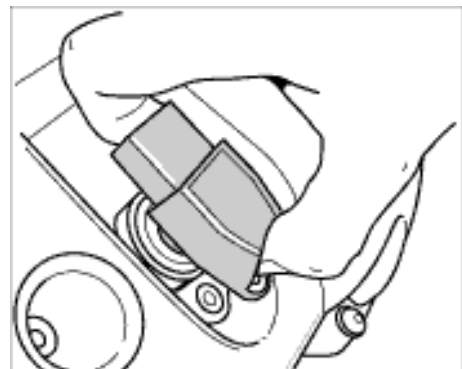
2. Disconnect the 8 ignition coils from wiring harness. To do this, press on the button and, at the same time, pull off the plug.



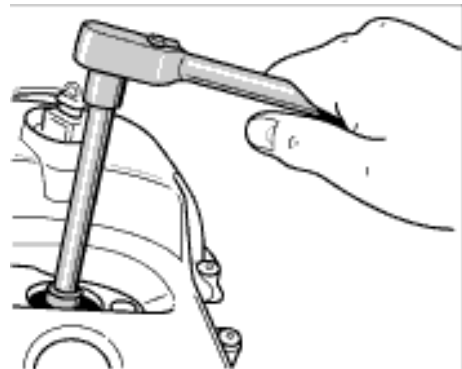
3. Undo active ignition coil. To do this, undo the fastening screw on the valve cover.



4. Pull out ignition coil and lay to one side.

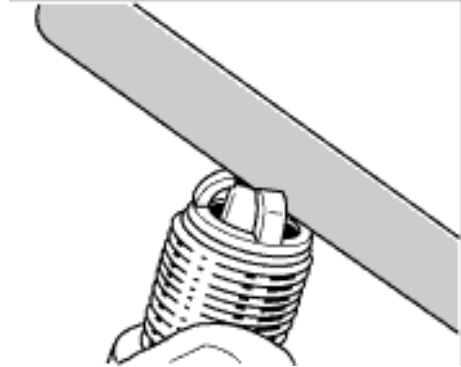


5. Undo spark plug using special tool (spark plug wrench) 3122B .

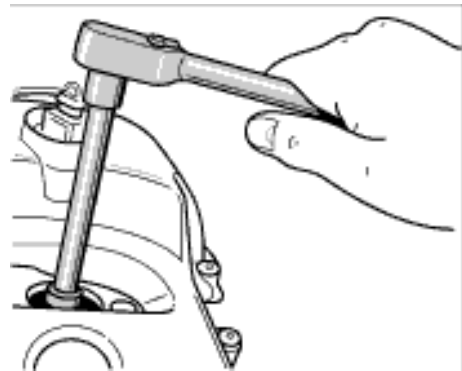


**i** **Note!**

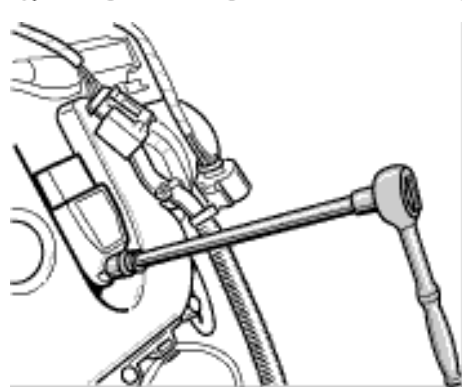
- *Permissible spark plugs: Bosch FGR 6 KQE*
  - *Check electrode gap before screwing in a new spark plug.*
6. Check electrode gap. The electrode gap for the spark plug must be 1.6 mm.



7. Tighten spark plug using special tool (spark plug wrench) 3122B . Spark plugs that are already fitted are tightened to 25 Nm (19 ftlb.), new spark plugs are tightened to 30 Nm (22 ftlb.) when first tightened.



8. Push on active ignition coil again. Tighten the fastening screws to 10 Nm (7.5 ftlb.).

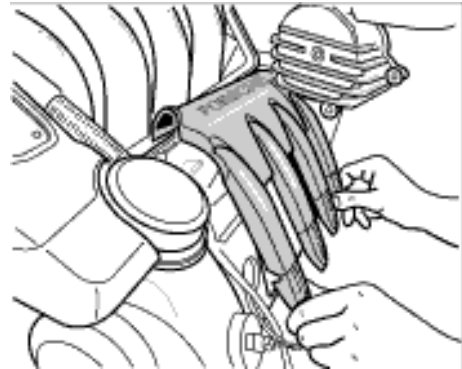


9. Reconnect ignition coil. The plugs must engage audibly.
10. Push on the lower hose on secondary pump 5 - 8.

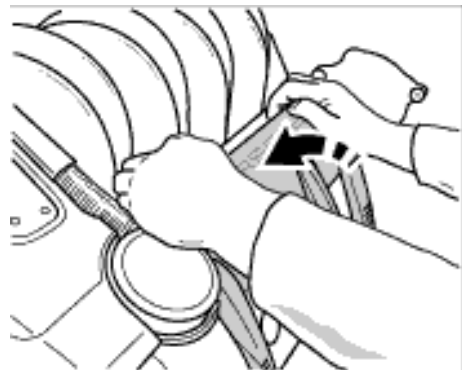
### Installing design cover for cylinder bank 5 - 8

**Note!**

- *Place a cloth between secondary air pump and design cover to avoid scratching cover.*
1. As shown in the Figure, push design cover under secondary air pump.



2. Then press in the 2 rubber mounts on the holder. The rubber mounts must engage perceptibly.



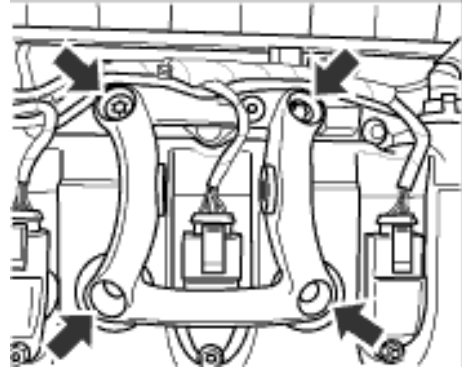
3. Tighten the 4 fastening screws on the ignition coils to 4 - 5 Nm (3 - 3.5 ftlb.).

### Installing design covers for cylinder bank 1 - 4

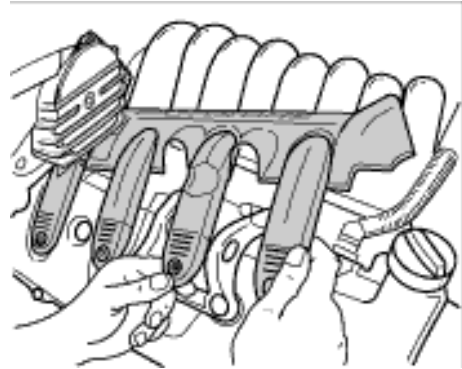
**Note!**

- *Place a cloth between secondary air pump and design cover to avoid scratching cover.*

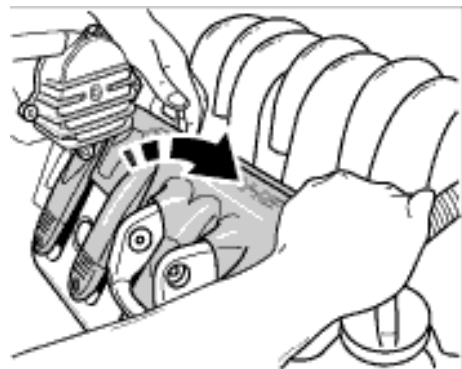
1. Install bracket for torque arm. The M8 x 45 Torx screws are tightened to 23 Nm (17 ftlb.) on the upper pickup points. On the lower screw-mounting points (middle of valve cover) the M6 x 40 screws are first tightened to 5 Nm (3.5 ftlb.) and then to 10 Nm (7.5 ftlb.).



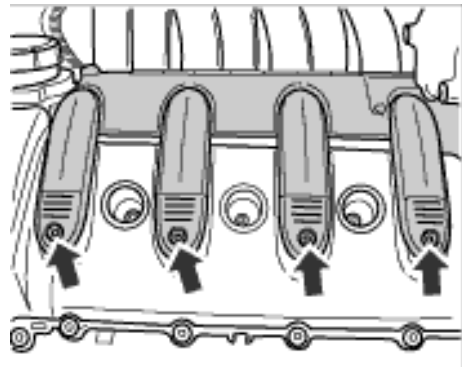
2. As shown in the Figure, push the design cover of cylinder bank 1 - 4 under the secondary air pump and then push through the cover of the second ignition coil under the bracket of the torque arm.



3. Press in the 2 rubber mounts on the holder. The rubber mounts must engage perceptibly.



4. Tighten the 4 fastening screws on the ignition coils to 4 - 5 Nm (3 - 3.5 ftlb.).



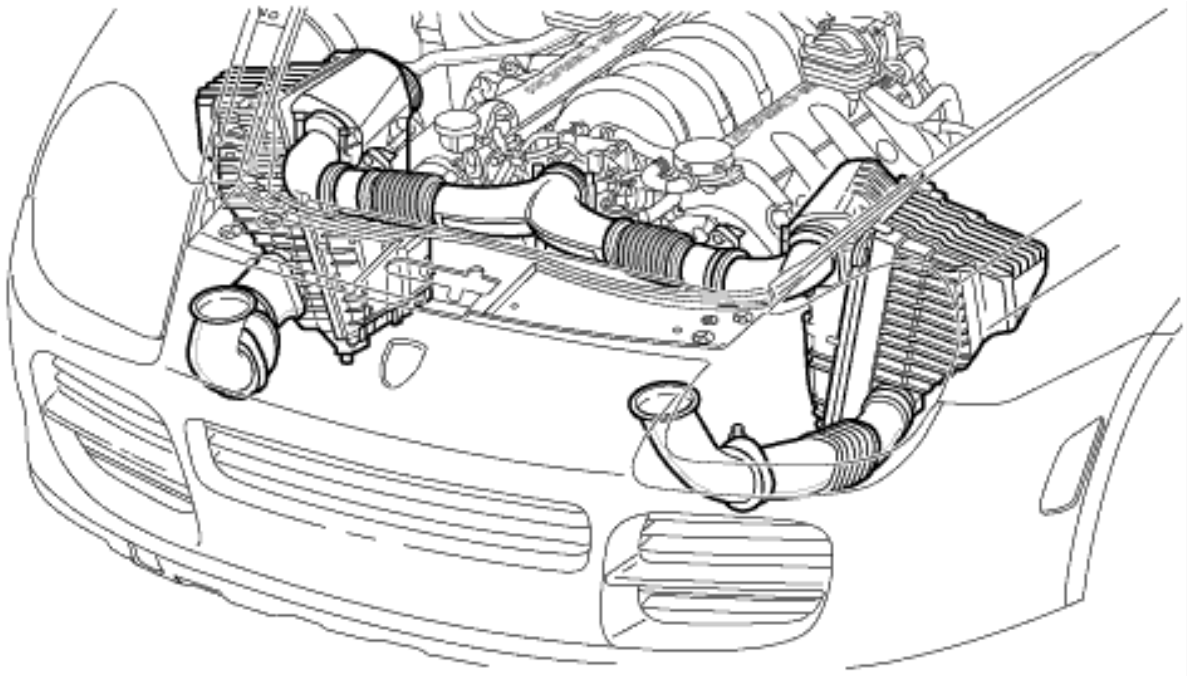
5. Reinstall secondary air pump. Tighten the 3 fastening screws to 10 Nm (7.5 ftlb.).

6. Reinstall torque arm. Fit fastening screw (M10 x 70) on the bracket using a new fastening nut. Tightening torque 60 Nm (44 ftlb.).
7. Tighten torque arm fastening screw (M10 x 20) on the body to 60 Nm (44 ftlb.).
8. Install engine compartment cover on the right side. To do this, tighten the 4 bayonet screws and the sheetmetal screw on the windshield washer reservoir.

### Tightening torques

Location	Thread	Tightening torque [Nm] (ftlb.)
Spark plugs Initial tightening Refitting	M14 x 1.25	30 (22) 25 (19)
Ignition coil	M6	10 (7.5)
Fastening screws of design cover	M5	5 (3.5)
Bracket for torque arm	M8 x 45 M6 x 40	23 (17) 5 (3.5), then 10 (7.5)
Torque arm on bracket	M10 x 70	60 (44)
Torque arm on body	M10 x 20	60 (44)
Secondary air pump	M6 x 50	10 (7.5)

## Replacing air cleaner element



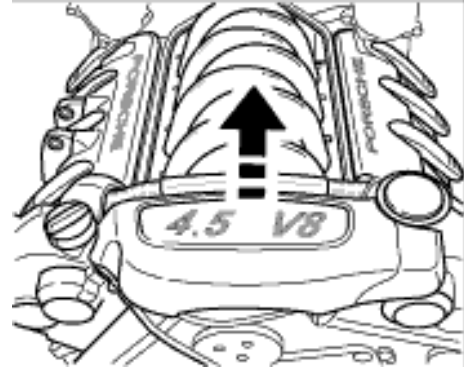
### Note!

- *Under particularly difficult conditions (dusty environments) it may be necessary to change the filter element outside the maintenance intervals.*
- *The description only applies to changing one filter element. The second element is changed in the same way.*

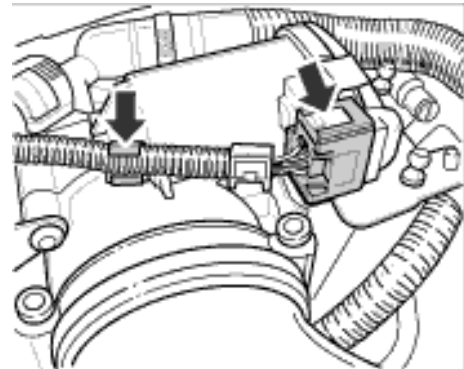
## Replacing air cleaner element — Cayenne S (type M48/00)

1. Remove left and right engine compartment cover  
Refer to No. 70 02 19, Group 70 *Removing and installing front cover* .

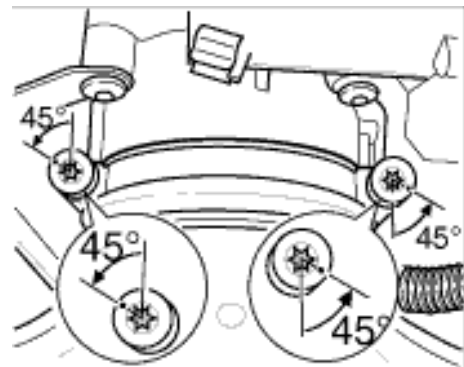
2. Pull the cover of the throttle body vertically upwards.



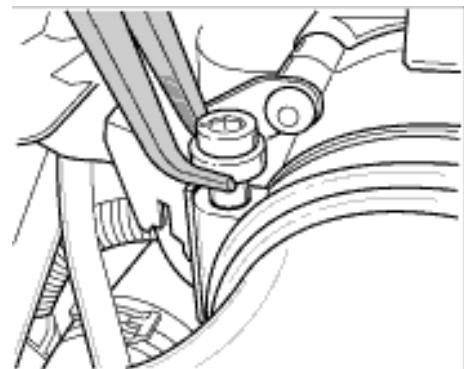
3. Separate the electrical connection from the throttle adjuster. To do this, press on the plug at the top and bottom and, at the same time, pull off. Unclip the cable from the sheetmetal holder.



4. Release the fastening bolts on the throttle body. To do this, twist the right and left pin through 45° in an anti-clockwise direction. The small point on the pins must be located in the position indicated in the diagram.

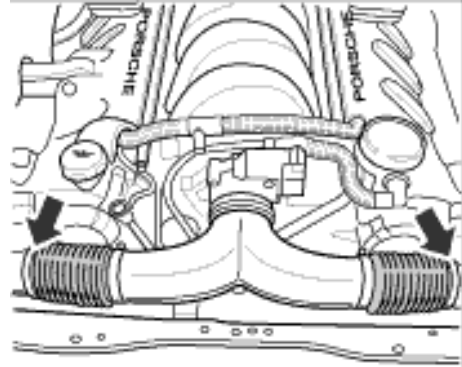


5. Remove the fastening bolts. Take hold of the bolts on the rubber ring with pliers and pull them out.

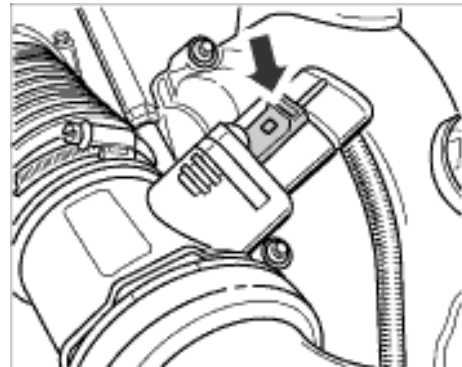


6. Pull off the Y pipe from the throttle body.

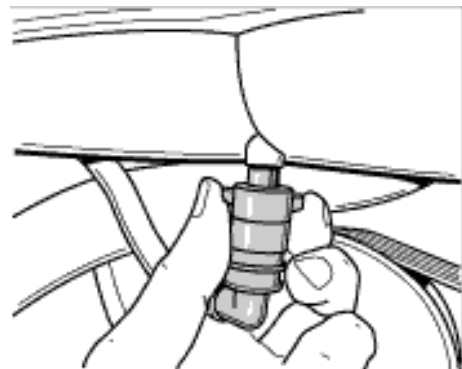
7. Disconnect the air flow sensors. To do this, undo the hose clamps on the left and right of the bellows and pull the bellows off the air flow sensors.



8. Pull off the air flow sensor plug.

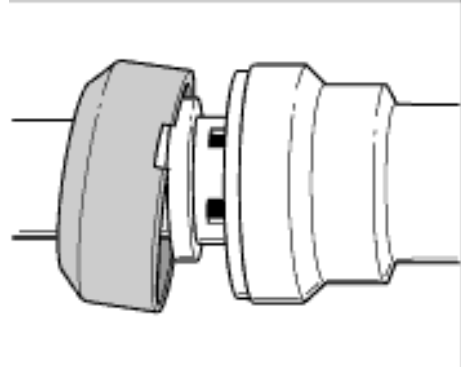


9. Remove the vacuum line on the Y pipe. Press the button and remove the vacuum line.

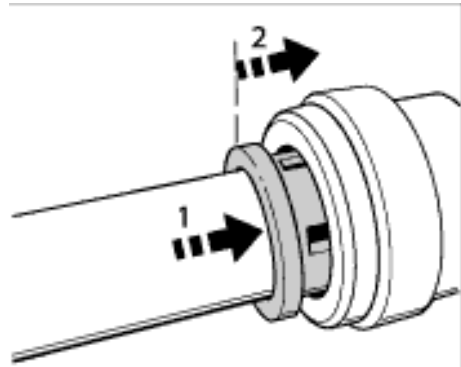
**Note!**

- *Points 10 to 12 must only be carried out for vehicles with air suspension.*

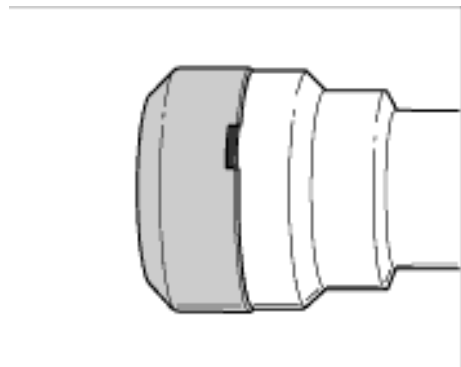
10. Remove the air line on the right air cleaner cover. To do this, unclip the green cap. Insert a screwdriver into the notch of the cap and lever the cap off.



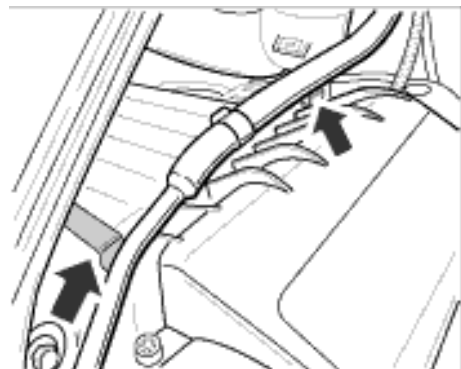
11. Push the snap ring into the flange -1- and then pull it off together with the flange -2- .



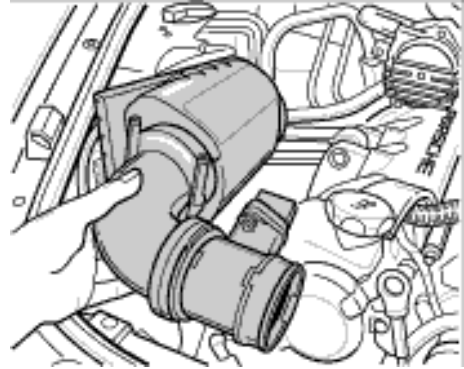
12. Clip the green cap on again after disassembly.



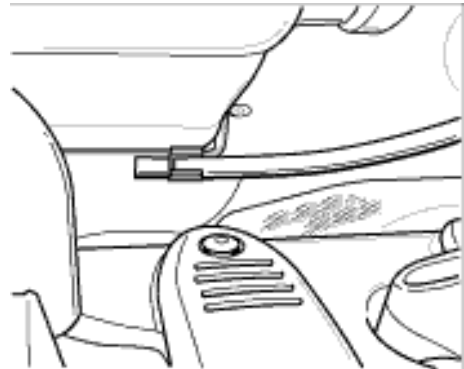
13. Open the 2 upper fastening clips on the air cleaner housing.



14. Press the cover of the air cleaner element in the direction of the engine, pulling it upwards at the same time.



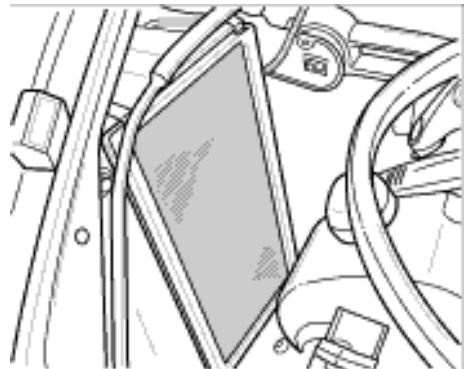
15. The overflow hose on the coolant expansion tank should be unclipped from the air cleaner housing cover of the cylinder bank 1 - 4.



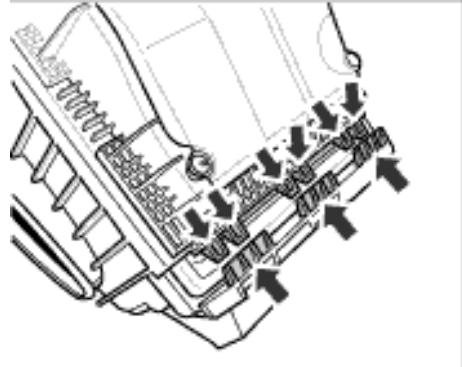
16. Remove the air cleaner element from the air cleaner housing.



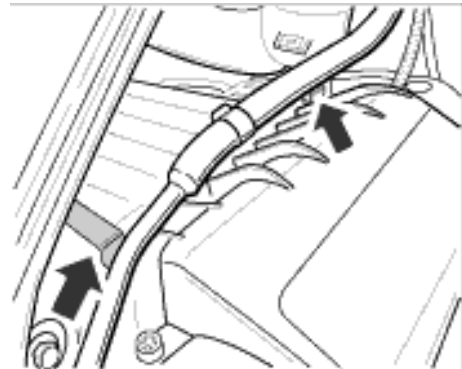
17. Insert filter element into the housing.



18. Place the cover on the air cleaner housing and run in from top to bottom. Make sure that the 3 mounting elements run into the mounting points on the underside. The figure gives a clearer view of the dismantled air cleaner housing.

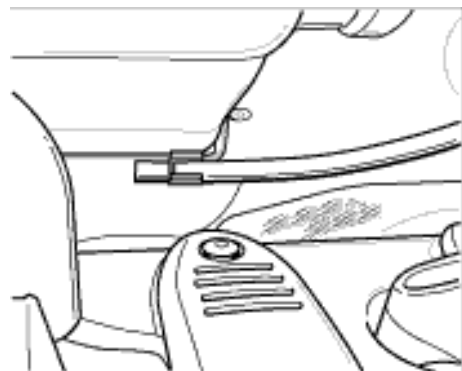


19. Push cover up against the air cleaner housing and release the 2 fastening clips



**Note!**

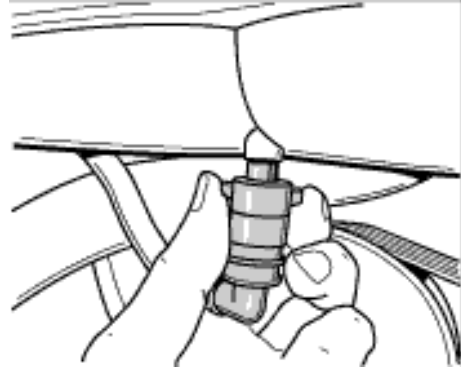
- *Point 20 must only be carried out for vehicles with air suspension.*
20. Push the air suspension line onto the right air cleaner cover.
21. The coolant bleeder hose and the coolant overflow hose must be clipped back onto the cylinder bank 1 - 4 on the air cleaner housing.



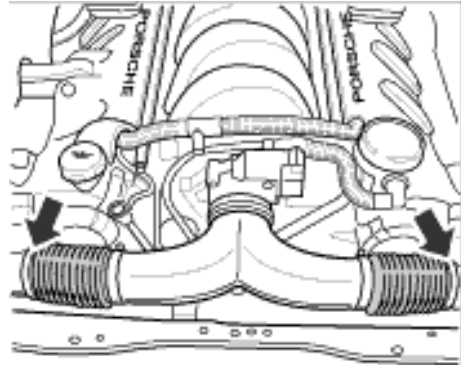
**Note!**

- *The air cleaner housing of the cylinder bank 5 - 8 is installed in the same way.*

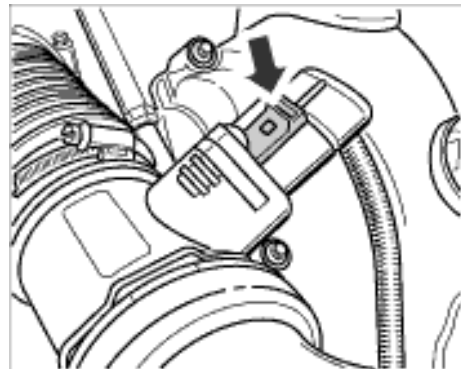
22. Attach the vacuum line to the underside of the Y pipe.



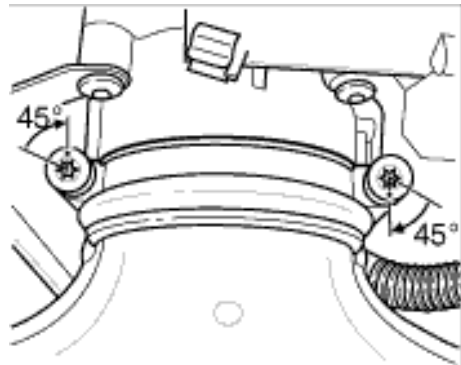
23. Slide the bellows onto the air flow sensors and tighten the hose clamps.



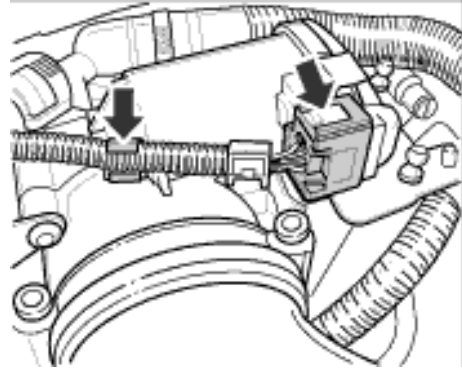
24. Connect the air flow sensors.



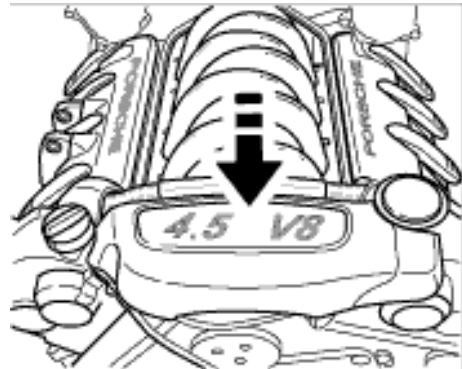
25. Slide the Y pipe onto the throttle adjuster. Then insert the left and right fastening bolts. Turn the left and right bolts 45° clockwise.



26. Connect the throttle adjuster. The connector must engage audibly. Clip the connecting cable into the sheetmetal holder.



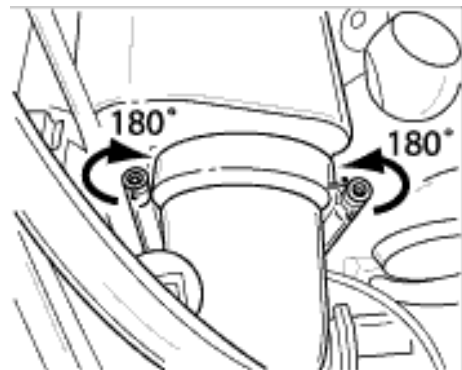
27. Press the 4 rubber elements in the cover onto the 4 ball socket holders. The fastening elements must be felt to engage.



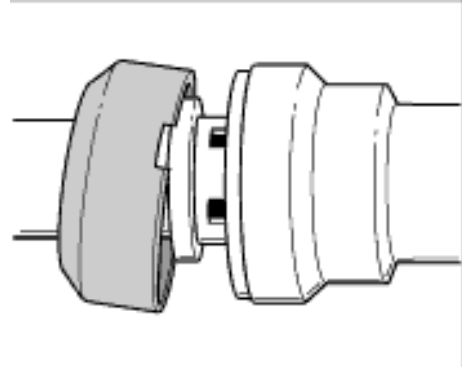
28. Install left and right engine compartment cover Refer to No. 70 02 19, Group 70 *Removing and installing front cover*.

### Replacing air cleaner element — Cayenne Turbo (type M48/50)

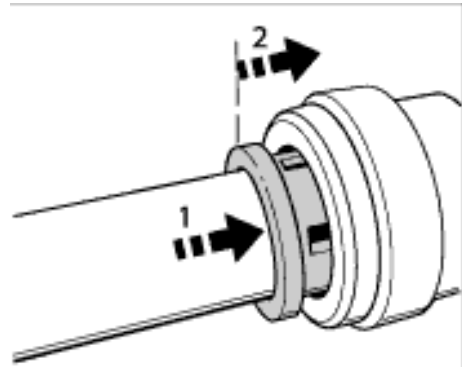
1. Remove left and right engine compartment cover Refer to No. 70 02 19, Group 70 *Removing and installing front cover*.
2. Separate connections on the air cleaner covers. To do this, turn the pins by 180° and pull them out. Then pull off the intake manifolds.



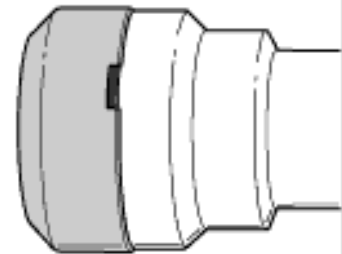
3. Remove the air line on the right air cleaner cover. To do this, unclip the green cap. Insert a screwdriver into the notch of the cap and lever the cap off.



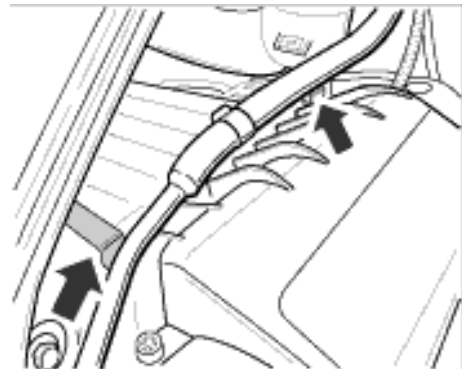
4. Push the snap ring into the flange -1- and then pull it off together with the flange -2- .



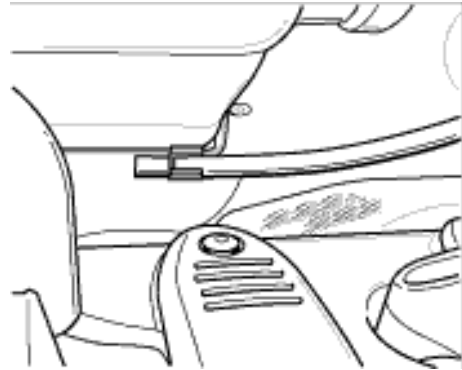
5. Clip the green cap on again after disassembly.



6. Open the 2 upper fastening clips on the air cleaner housing.



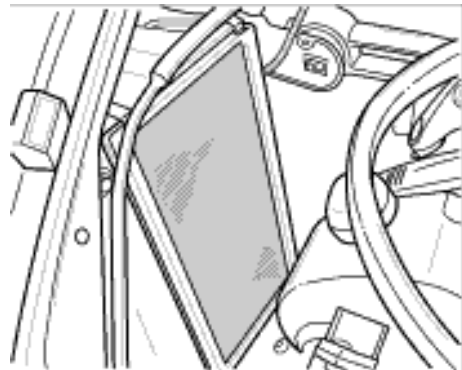
7. Press the cover of the air cleaner element in the direction of the engine, pulling it upwards at the same time.
8. The overflow hose on the coolant expansion tank should be unclipped from the air cleaner housing cover of the cylinder bank 1 - 4.



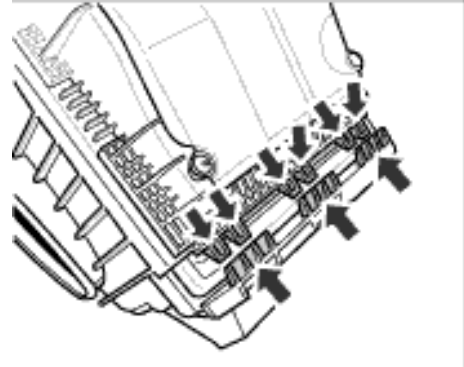
9. Remove the air cleaner element from the air cleaner housing.



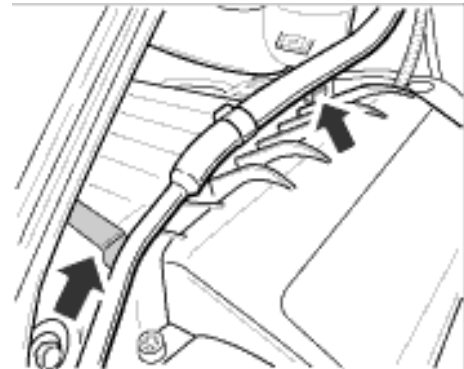
10. Insert filter element into the housing.



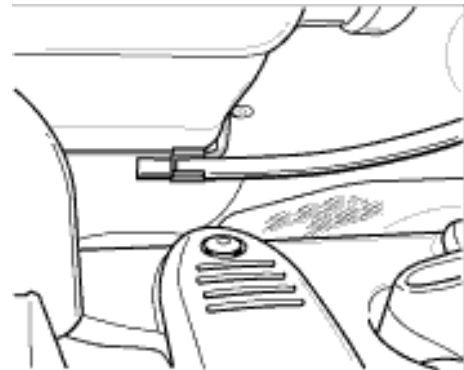
11. Place the cover on the air cleaner housing and run in from top to bottom. Make sure that the 3 mounting elements run into the mounting points on the underside. The figure gives a clearer view of the dismantled air cleaner housing.



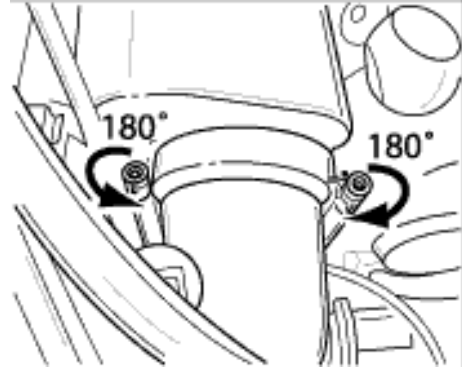
12. Push cover up against the air cleaner housing and release the 2 fastening clips.



13. The coolant bleeder hose and the coolant overflow hose must be clipped back onto the cylinder bank 1 - 4 on the air cleaner housing.
14. Push the air suspension line onto the right air cleaner cover.



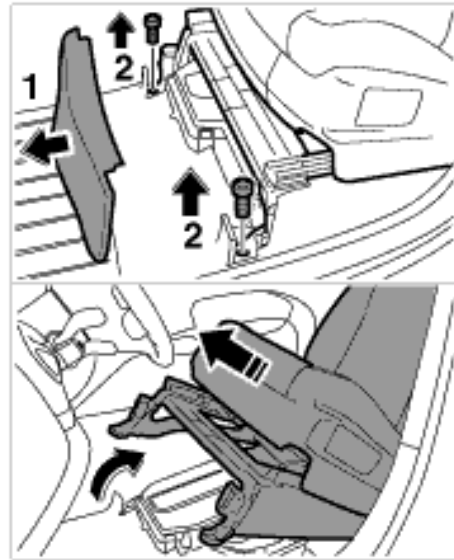
15. Push the connections onto the cover of the air cleaner housing and mount and lock the fastening pins.

**Note!**

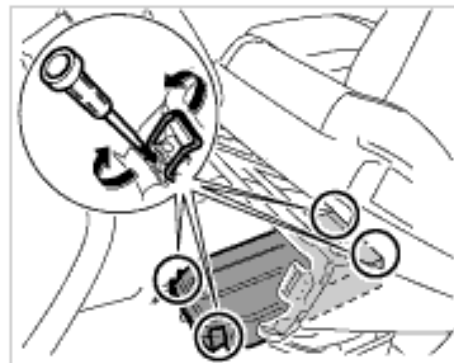
- *The air cleaner housing of the cylinder bank 5 - 8 is installed in the same way.*
16. Install left and right engine compartment cover Refer to No. 70 02 19, Group 70 *Removing and installing front cover* .

## Battery maintenance: checking condition of battery and battery vent hose

- Switch off all loads and remove ignition key.
  - Observe the warning notes and safety regulations for hydrocyanic acid batteries.
1. Move the front left seat back and up as far as possible. Move the backrest as far forward as possible.



2. Detach the front seat trim -1- towards the front.
3. Fold the carpet sections forward and remove the two fastening screws -2- .
4. Fold the seat back as far as possible. With the seat in its folded position, move the seat forward again using the fore-and-aft adjustment.
5. Open the four tension hooks on the battery case cover using a screwdriver.



6. Remove the battery case cover with ventilation channel.

## Checking condition of battery

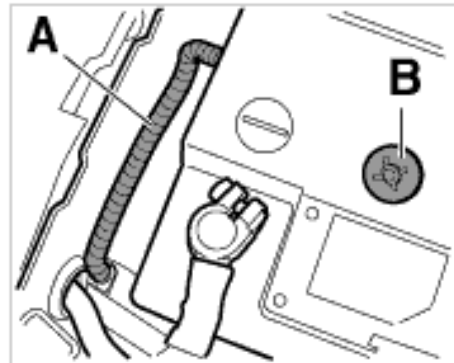
### Maintenance-free battery



#### Note!

- The maintenance-free battery has an inspection glass.
- The charge state and acid level of the battery can be checked via inspection glass **-B-**.
- If a battery is more than 5 years old and the colour indicator of the inspection glass is colourless, replace the battery.
- If the battery was charged, air bubbles can form under the inspection glass. Before carrying out a visual inspection, tap carefully on the inspection glass using the handle of a screwdriver, for example.

#### Maintenance-free battery:



Three different colour indicators are possible:

Colour indicator	State of charge
Green	The battery is charged sufficiently.
Black	The battery is not charged or the charge is too low.
Colourless or yellow	Critical acid level is reached. => Replace battery.

### **Low-maintenance battery**



#### **Caution!**

#### **Danger of injury!**

- ***The accident prevention regulations must be observed when handling battery acids.***
- ***Wear suitable protective clothing and protective glasses.***
- ***Only illuminate the inside of the battery with a torch.***
- ***Never illuminate the inside of the battery with a naked flame.***
- ***Do not handle a naked flame or lit cigarettes near batteries.***
- ***Observe the disposal regulations for batteries when disposing of batteries and sulphuric acids.***



#### **Note!**

- *Use a commercially available battery filling bottle.*
  - *The correct acid level of the battery is an important factor for long and efficient operation of the battery.*
  - *When the acid level is too low, a capacity loss (performance loss) of the battery occurs which is caused by the cell plates drying out. If the cell plates are not surrounded by electrolyte (battery acid), it will lead to corrosion of the lead plates, the plate bridges and the cell connectors. The result of the corrosion is that battery functioning cannot be guaranteed. The battery will become useless.*
  - *If the acid level is too high, damage can occur by the battery acid (sulphuric acid/water mixture) leaking out of the battery.*
1. Unscrew battery plugs.
  2. Shine a torch into the battery. The electrolyte level of the battery must be at the protruding *lug* .
- If the acid level is too low, refill with distilled water using the battery filling bottle.

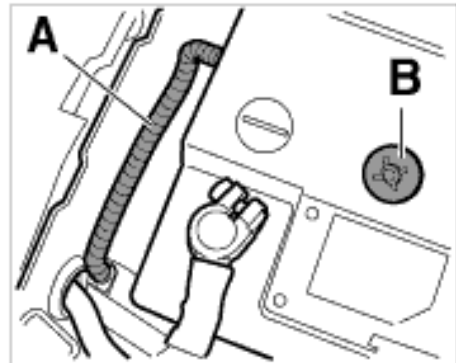
3. Screw in battery plugs again and ensure that they are seated correctly.

### Checking battery vent hose



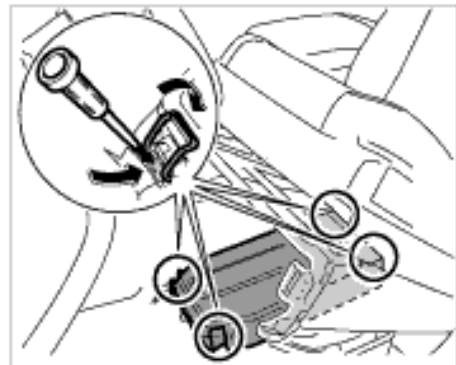
#### Note!

- Make sure that vent hose **-A-** is not kinked or damaged. If in doubt, replace it.
- Vent hose **-A-** must be inserted in the battery and in the battery case.



### Checking battery vent hose under the driver's seat

1. Replace the battery box cover carefully. The ventilation channel must be mounted properly.



2. Attach the four tension hooks in the battery case cover and close using the screwdriver.

3. Move the seat in its folded position towards the rear and then tip forward.



4. Screw in fastening screws -2- . Tightening torque: 45 Nm (33 ftlb.).
5. Clip in front seat trim -1- .

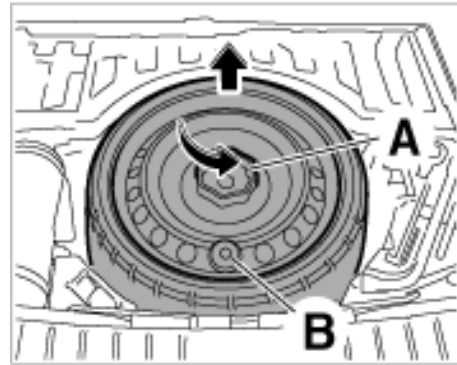
### ***Checking battery vent hose of the auxiliary battery***



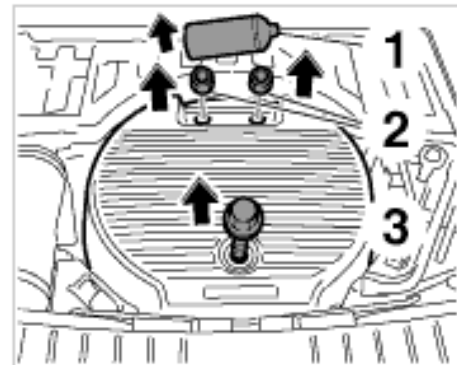
#### **Note!**

- *The battery is located in the luggage compartment under the loadspace floor.*
- *If the vehicle contains a subwoofer or collapsible spare wheel, the relevant component must be removed before the auxiliary battery is removed.*

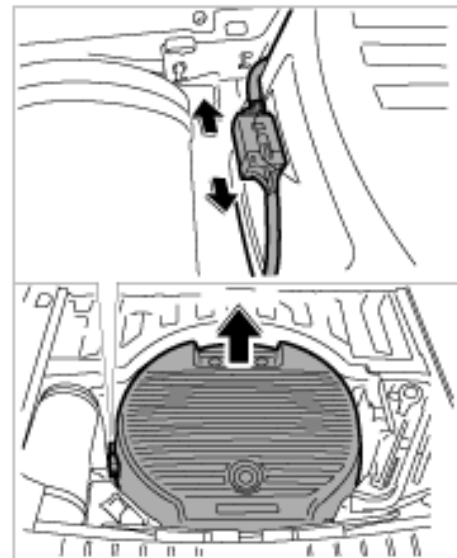
1. Removing collapsible spare wheel:
  - a. Remove twist grip **-A-** and position it on bolt **-B-** .
  - b. Unscrew the bolt and remove it together with the collapsible spare wheel.



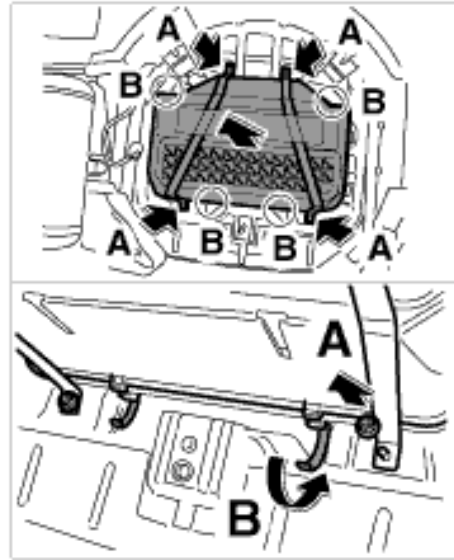
1. Removing subwoofer fastening:
  - a. Remove tyre sealant **-1-** if it is present.
  - b. Unscrew the two fastening nuts **-2-** .
  - c. Undo fastening screw **-3-** .



2. Disconnecting electrical plug connection and removing subwoofer:



- a. Take the plug connection out of the retaining bracket on the subwoofer and disconnect the plug connection.
  - b. Lift subwoofer up and out.
3. Removing battery case cover:
- a. **-A-** Unscrew the four fastening nuts.
  - b. **-B-** Unclip the four fastening clips using a screwdriver.
  - c. Remove the battery case cover by pulling it up.
  - d. Check vent hose.



## Checking and topping up the ATF



**Caution!**

*Use only ATF approved by Porsche!*



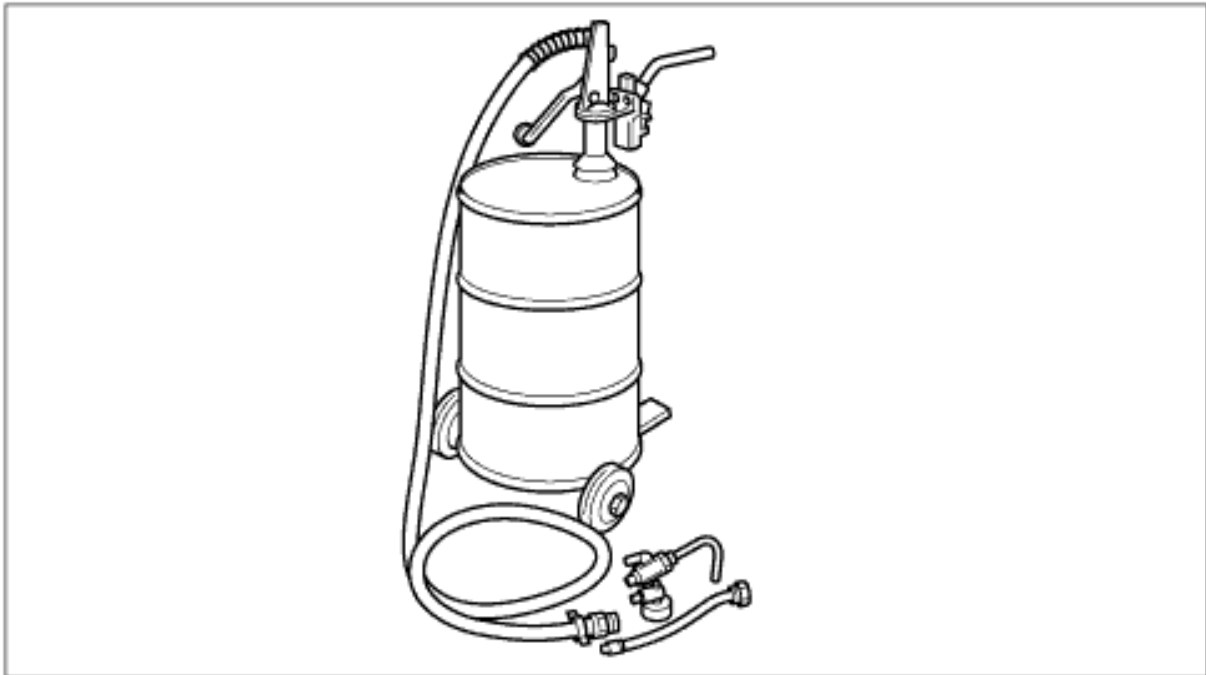
**Caution!**

*Injuries in the eye area caused by leaking ATF.*

*Danger of scalding from hot ATF.*

- ◆ *Wear personal protective equipment (e.g. safety goggles, gloves).*

### Special tools



Item	Designation	Source	Remarks
		Refer to see <i>Workshop Equipment Manual, chapter 3.3.2</i>	

## Test conditions

### ***Test conditions without opening the cooler lines***

- ATF cooler line was not opened between the thermostat and the ATF cooler.
- For example: transmission changed, sealing ring replaced on the transmission, ATF filter replaced, general checks
- ◆ Warm up transmission in lower load range. Switch all transmission ranges several times while doing so.
- ◆ Read out ATF sump temperature with Porsche System Tester (PST) 2.
- ◆ ATF temperature: 40 °C.
- ◆ Selector lever is in position P.
- ◆ Test and filling process at idle speed.

### ***Test conditions after opening the cooler lines***

- ATF cooler line was opened between the thermostat and the ATF cooler.
- For example: ATF replaced, ATF line change, ATF cooler replaced, ATF thermostat replaced
- ◆ Warm up transmission in lower load range. Switch all transmission ranges several times while doing so.
- ◆ Read out ATF sump temperature with Porsche System Tester (PST) 2.
- ◆ The ATF temperature must have reached 90 °C (coolant circuit open).
- ◆ Allow ATF to cool to 40 °C.
- ◆ Selector lever is in position P.
- ◆ Test and filling process at idle speed.

## Checking ATF

1. Remove engine guard Refer to No. 10 80 19, *Removing and installing engine guard.*



### **Note!**

- *Secure vehicle to prevent it rolling away.*
- *Vehicle must be horizontal to check ATF.*

**Note!**

- *Note the test conditions ⇒ **Page 86** 'Test conditions' for the following steps.*
2. Move selector lever to position P and continue the test process at idle speed.

**Caution!**

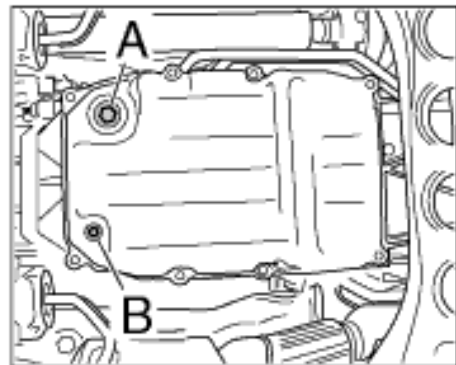
***Injuries in the eye area caused by leaking ATF.***

***Danger of scalding from hot ATF.***

- ◆ ***Wear personal protective equipment (e.g. safety goggles, gloves).***

**Note!**

- *Undo oil inspection plug -A- only when temperature reaches 40 °C.*



3. Unscrew oil inspection plug -A- .

**Note!**

- *When you unscrew the oil inspection plug, always make sure that no oil escapes. This is caused by the remaining oil on the plug in the lifting tube.*
4. The oil level is correct when oil emerges at the lifting tube.
  - If this is not the case, add more ATF ⇒ **Page 88** 'Topping up ATF' .
  5. Screw in oil inspection plug -A- .

**Tightening torque: 70 Nm (52 ftlb.)**

6. Move selector lever to position P and switch off engine.
7. Install engine guard Refer to No. 10 80 19, *Removing and installing engine guard.*

### Topping up ATF

1. Remove engine guard Refer to No. 10 80 19, *Removing and installing engine guard.*



#### Note!

- *Secure vehicle to prevent it rolling away.*
- *Vehicle must be horizontal to check ATF.*



#### Note!

- *Note the test conditions ⇒ **Page 86** 'Test conditions' for the following steps.*
2. Start engine, move selector lever to position P and continue at idle speed.



#### Caution!

***Injuries in the eye area caused by leaking ATF.***

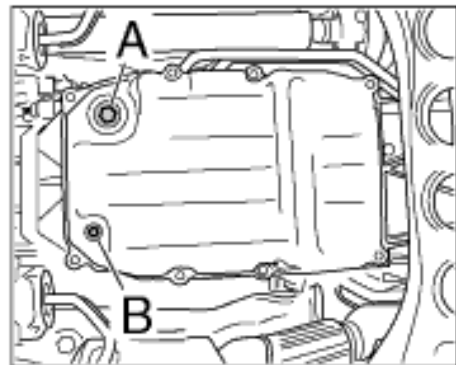
***Danger of scalding from hot ATF.***

- ◆ ***Wear personal protective equipment (e.g. safety goggles, gloves).***



#### Note!

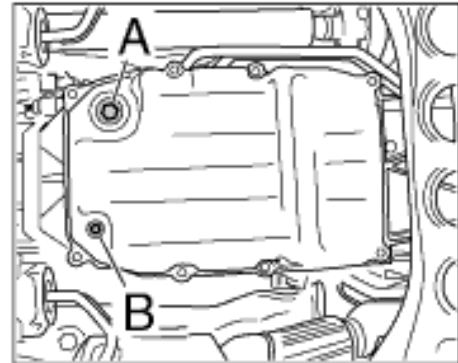
- *Undo oil inspection plug -A- only when temperature reaches 40 °C.*
3. Unscrew oil inspection plug -A- .



**Caution!**

**Use only ATF approved by Porsche!**

4. Fill with ATF using the oil filler for ATF until oil emerges at lifting pipe.
5. Screw in oil inspection plug **-A-**.



6. Move selector lever to position P and switch off engine.
7. Install engine guard Refer to No. 10 80 19,  
*Removing and installing engine guard.*

**Tightening torques**

Location	Thread	Tightening torque [Nm] (ftlb.)
Oil inspection plug/filler screw	M24 x 1.5	70 (52)

## Replacing ATF



**Caution!**

*Use only ATF approved by Porsche!*



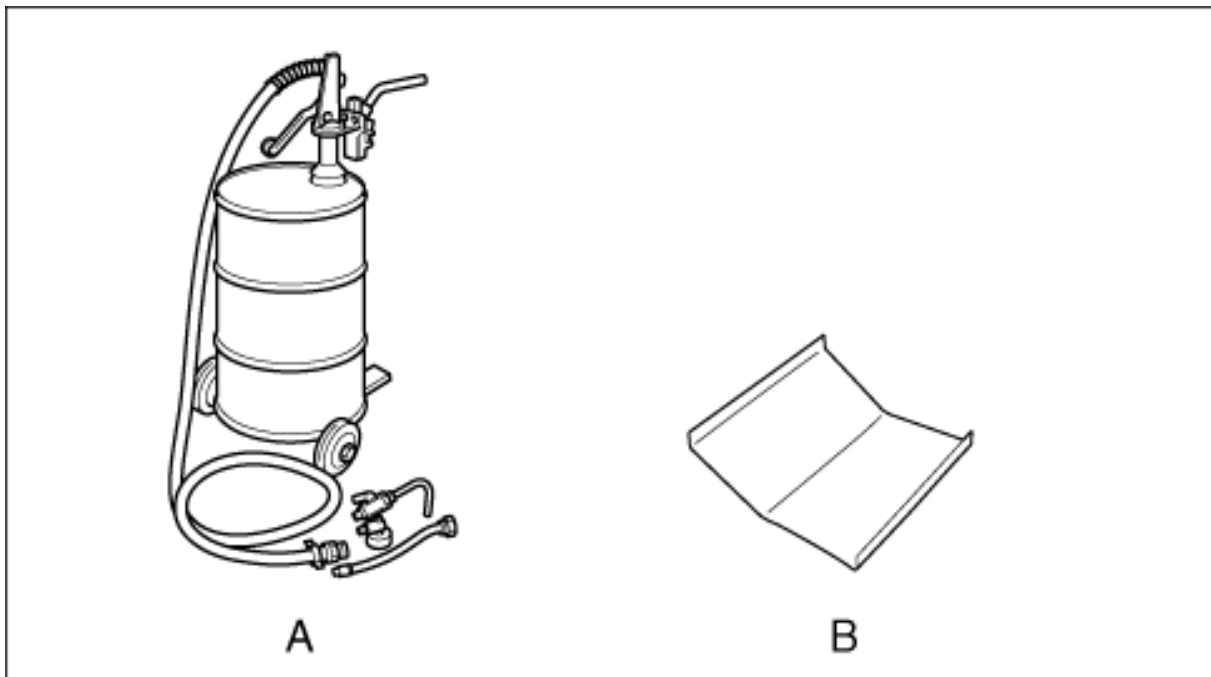
**Caution!**

*Injuries in the eye area caused by leaking ATF.*

*Danger of scalding from hot ATF.*

- ◆ *Wear personal protective equipment (e.g. safety goggles, gloves).*

### Tools



Item	Designation	Source	Remarks
-A-		Refer to see <i>Workshop Equipment Manual, chapter 3.3.2</i>	
-B-			Size approx. 300 x 200 mm, bend outer edges up and create central camber

## Replacing ATF



### Note!

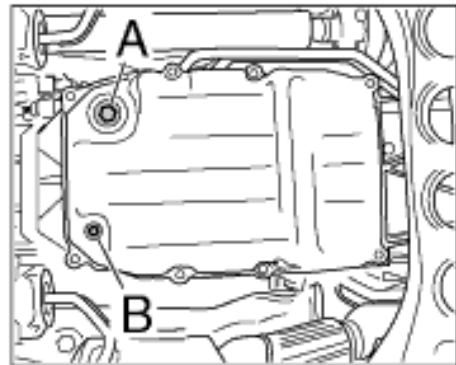
- *ATF should only be replaced when the engine/transmission is cold.*
1. Remove engine guard Refer to No. 10 80 19, *Removing and installing engine guard.*
  2. Place oil collecting container underneath the vehicle.



### Caution!

**Injuries in the eye area caused by leaking ATF.**

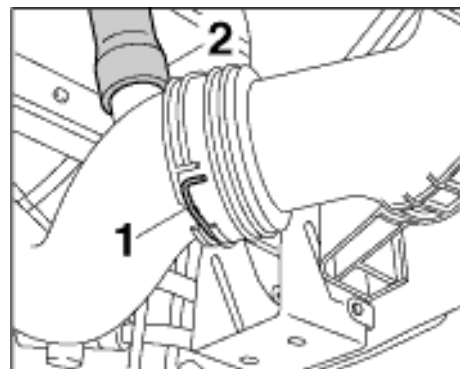
- ◆ **Wear personal protective equipment (e.g. safety goggles, gloves).**
3. Unscrew oil drain plug **-B-** and drain ATF.



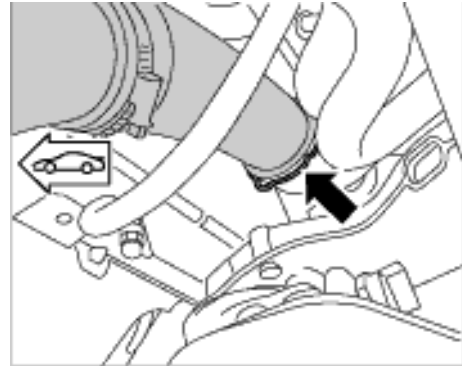
4. Screw in oil drain plug **-B-** with new sealing ring.

### Tightening torque: 28 Nm (21 ftlb.)

- The following three points also apply to the V8 Biturbo engine variant:
- ◆ Disconnect the connection on the charge air cooler. To do this, remove locking clip **-1-** and pull off the line.



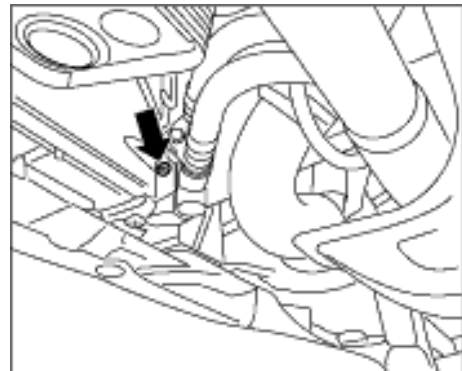
- ◆ Disconnect lead of the ambient air valve module **-2-** . To do this, remove the spring band clamp and pull off the line.
- ◆ Disconnect suction line from engine. To do this, remove locking clip **-arrow-** and pull off the line.



5. Undo ATF line screw connection on cooler side **-arrow-** at the thermostat.

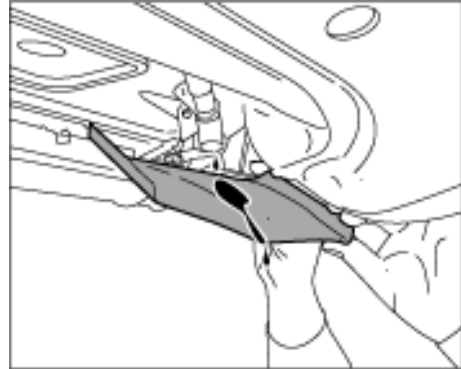


6. Unscrew screw connection of ATF thermostat holder **-arrow-** .

**Note!**

- *In order to prevent the distribution of oil in the area of the front of the vehicle, a discharge chute should be held in position.*

7. Hold shop-made tool discharge chute **-Figure-** under the ATF thermostat.

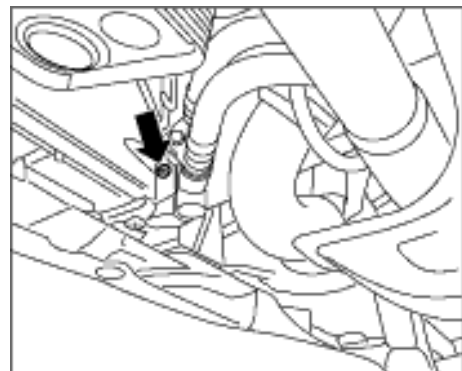


8. Drain ATF from ATF cooler.
9. Tighten ATF line screw connection on cooler side **-arrow-** at the thermostat.



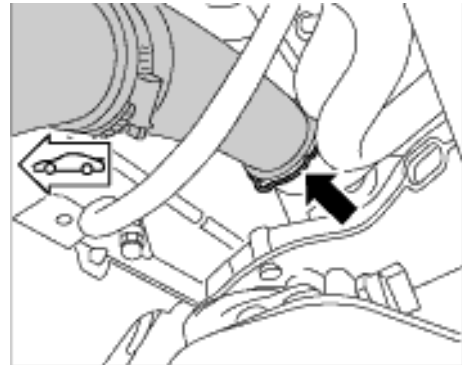
**Tightening torque: 30 Nm (22 ftlb.)**

10. Screw in screw connection of ATF thermostat holder **-arrow-**.

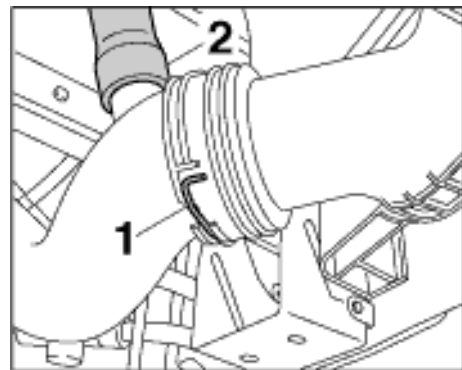


- The following three points also apply to the V8 Biturbo engine variant:

- ◆ Connect suction line to engine. To do so, insert locking clip **-arrow-** and push line on until it engages.

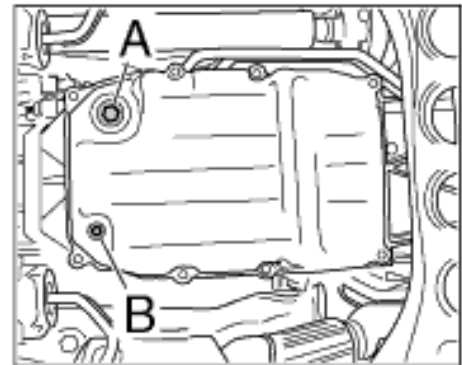


- ◆ Connect lead of the ambient air valve module **-2-**. To do so, fit the spring band clamp and connect lead.



- ◆ Insert locking clip **-1-** on charge air cooler suction line and push line on until it engages.

11. Unscrew ATF inspection plug/filler screw **-A-**.



**Caution!**

**Use only ATF approved by Porsche!**



**Note!**

- Only part of the total change quantity can be filled because of the test specifications stipulated for the ATF.

- *The rest must then be filled as described in the Checking ATF chapter.*
12. Fill with ATF using the special tool oil filler for ATF until oil emerges at lifting pipe.

**ATF change quantity: approx. 8.5 l**

**Tightening torque: 70 Nm (52 ftlb.)**

13. Checking ATF ⇒ **Page 85** '*Checking and topping up the ATF*'.
14. Install engine guard Refer to No. 10 80 19, *Removing and installing engine guard.*

### Tightening torques

Location	Thread	Tightening torque [Nm] (ftlb.)
Oil inspection plug/filler screw	M24 x 1.5	70 (52)
Oil drain plug	M8	28 (21)
ATF line connections		30 (22)

## Checking and topping up oil for transfer box



### Note!

- Use only oils approved by Porsche.

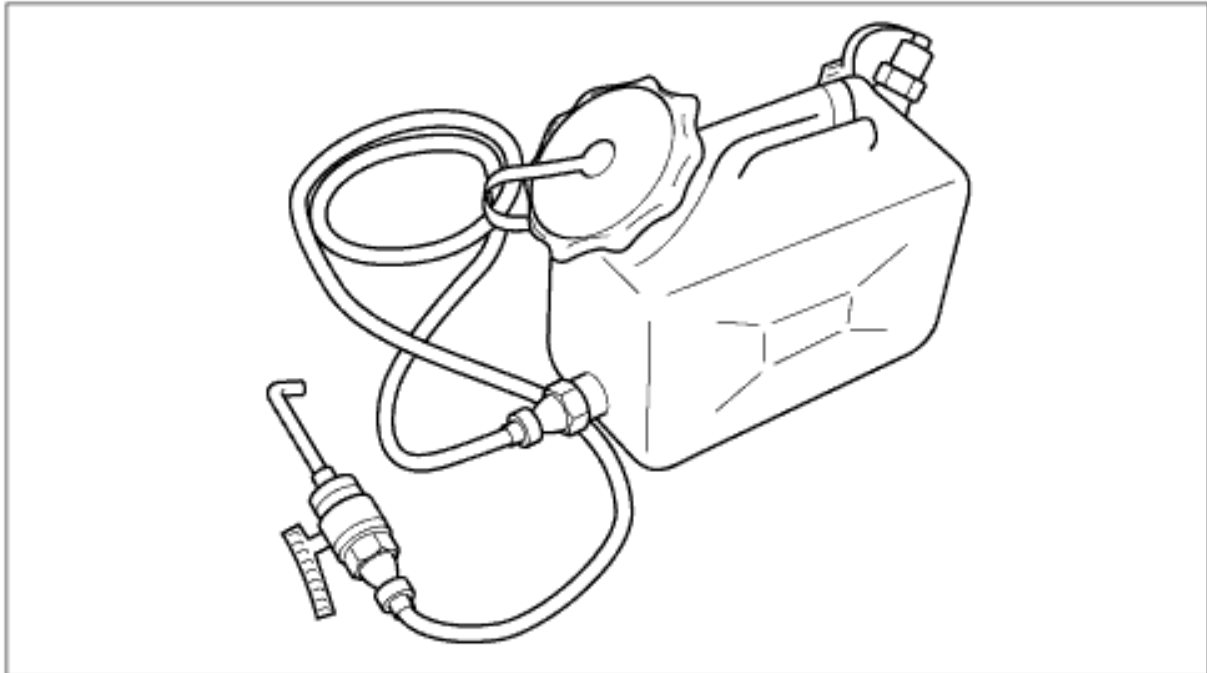


### Caution!

**Emerging oil is harmful to the eyes**

- ◆ Wear personal protective equipment (e.g. safety goggles)

## Tools



Item	Designation of the tool	Remarks
		Refer to <i>Standard Tools Manual</i>

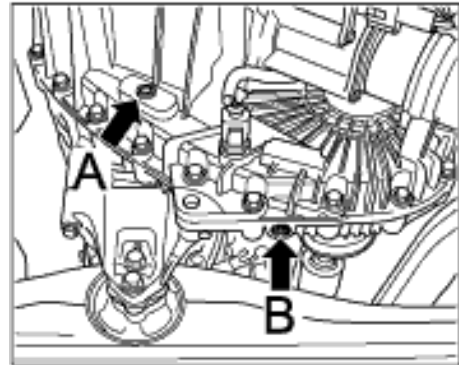
## Checking oil for transfer box



### Note!

- The vehicle must stand horizontally.
- The oil level can only be checked after the vehicle has been idle for 45 minutes.

- The engine must not be started during this time.
1. Unscrew oil inspection plug **-A-** .



**i** Note!

- *The oil level is correct if the oil reaches the lower edge of the inspection window.*
  - If this is not the case, top up the oil.
2. Screw in oil inspection plug **-A-** with new sealing ring.

**Tightening torque: 20 Nm (15 ftlb.)**

### Topping up oil for transfer box

**i** Note!

- *Use only oils approved by Porsche.*

**!** Caution!

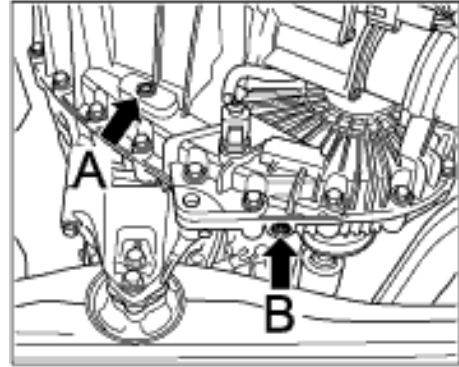
**Emerging oil is harmful to the eyes**

- ◆ **Wear personal protective equipment (e.g. safety goggles)**

**i** Note!

- *The vehicle must stand horizontally!*

1. Unscrew oil inspection plug **-A-** .



2. Fill with oil to the lower edge of the inspection plug **-A-** using the ATF filling device for filling transmission 161 . Raise filling device.
3. Screw in oil inspection plug **-A-** with new sealing ring.

**Tightening torque: 20 Nm (15 ftlb.)**

### Tightening torques

Location	Thread	Tightening torque [Nm] (ftlb.)
Oil inspection and filler plug		20 (15)

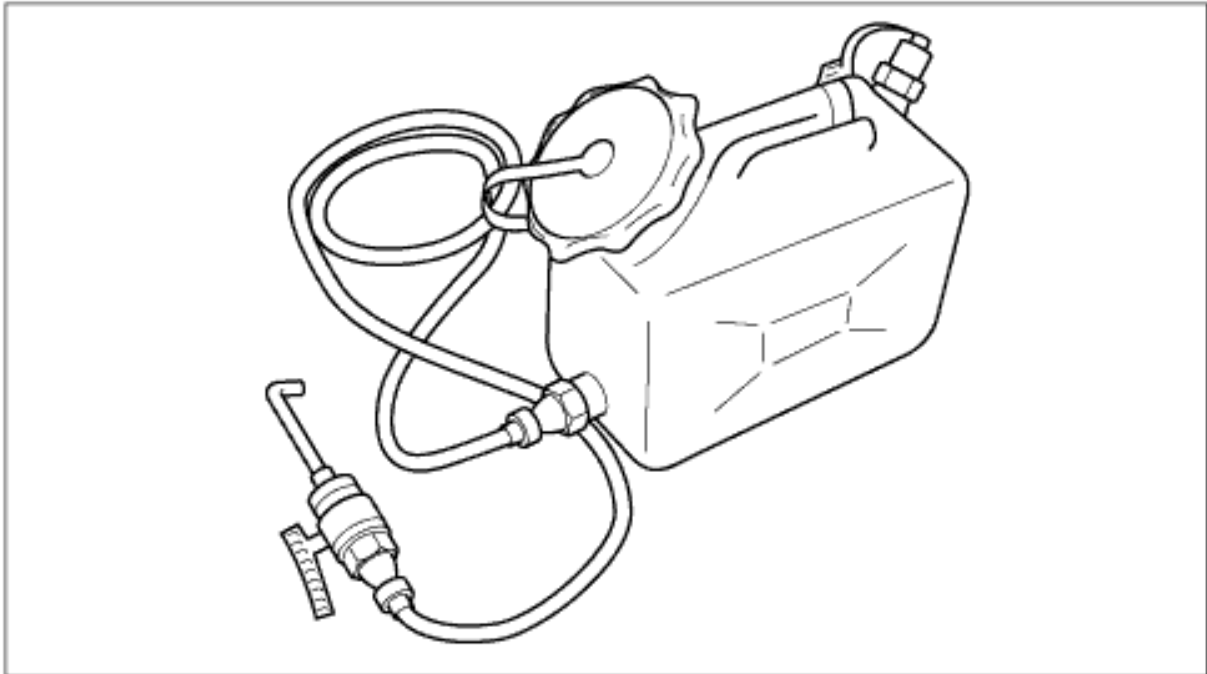
## Changing oil for transfer box



### Note!

- Use only oils approved by Porsche.

## Tools



Item	Designation of the tool	Explanation
		Refer to <i>Commercially Available Tools Manual</i>

## Changing oil for transfer box

1. Slide oil collecting container under the vehicle.

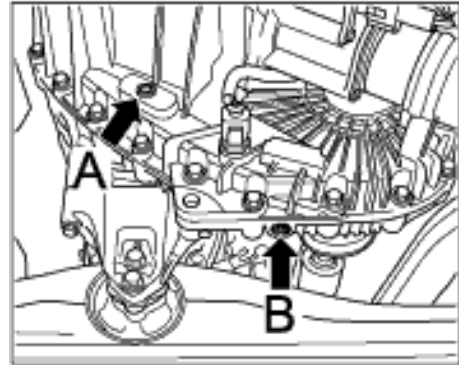


### Caution!

***Emerging oil is harmful to the eyes***

- ◆ ***Wear personal protective equipment (e.g. protective goggles)***

2. Unscrew oil drain plug **-B-** and drain oil.



3. Screw in oil drain plug **-B-** with new sealing ring.

**Tightening torque: 20 Nm (15 ftlb.)**

4. Unscrew oil inspection plug **-A-** .



**Note!**

- Use only oils approved by Porsche.
  - Vehicle must be horizontal in order to fill transfer box.
5. Fill with oil to the lower edge of the inspection plug opening **-A-** using the ATF filling device for filling transmission 161 . Raise filling device.

**Filling capacity: Approx. 0.75 l**

6. Screw in oil inspection plug **-A-** with new sealing ring.

**Tightening torque: 20 Nm (15 ftlb.)**

7. Check oil ⇒ **Page 96** 'Checking and topping up oil for transfer box' .

### Tightening torques

Location	Thread	Tightening torque [Nm] (ftlb.)
Oil inspection and filler plug		20 (15)
Oil drain plug		20 (15)

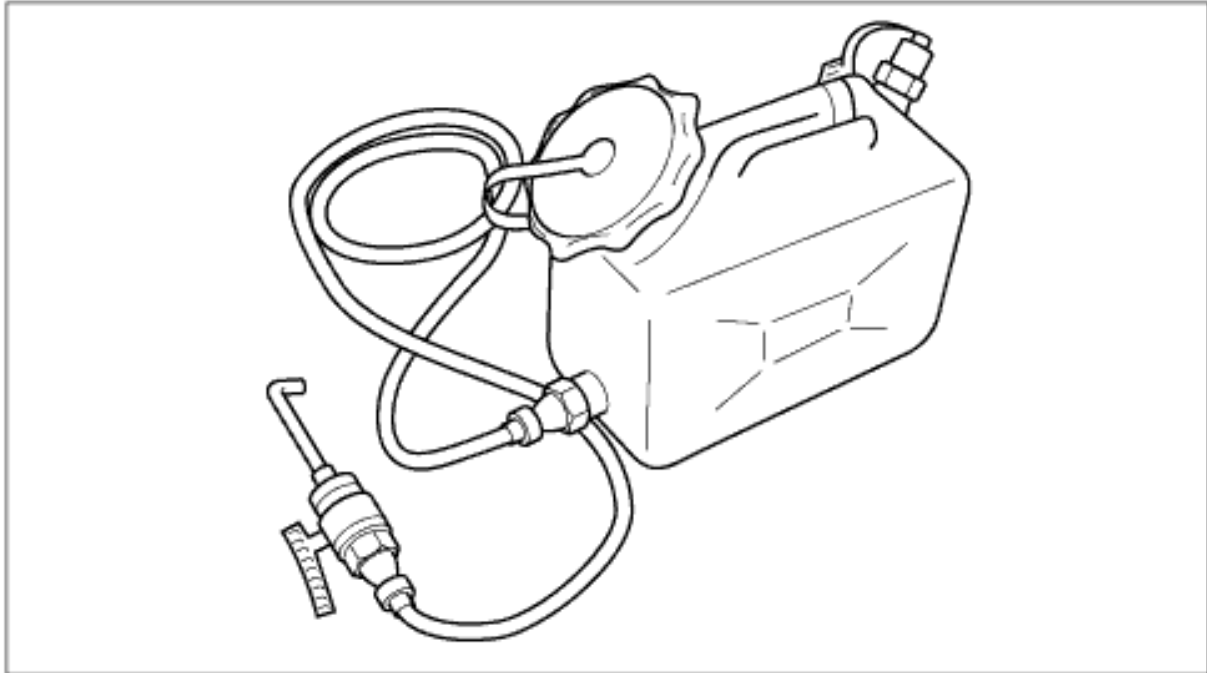
## Checking and topping up oil for rear final drive



**Caution!**

*Use only oil approved by Porsche.*

### Tools



Item	Designation of the tool	Remarks
		Refer to <i>Standard Tools Manual</i>

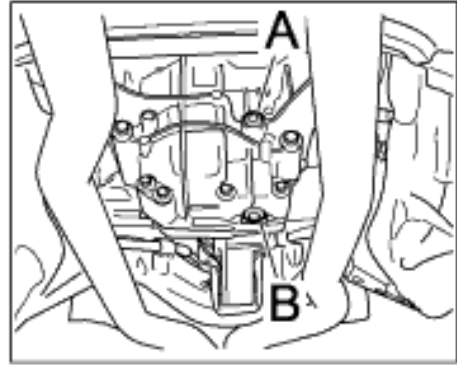
## Checking oil for rear final drive



**Note!**

- *Vehicle must be horizontal to check fluid level in rear final drive.*

1. Unscrew oil inspection plug **-A-** .



**i** **Note!**

- *The oil level is correct if the oil reaches the lower edge of the inspection window.*
  - If this is not the case, top up the oil ⇒ **Page 102** 'Topping up oil for final drive' .
2. Screw in oil inspection plugs **-A-** with new sealing ring.

**Tightening torque: 35 Nm (26 ftlb.)**

### Topping up oil for final drive

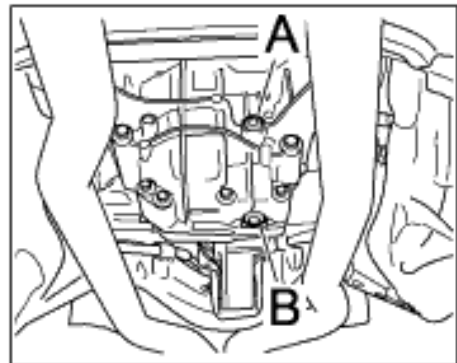
**!** **Caution!**

*Use only oil approved by Porsche.*

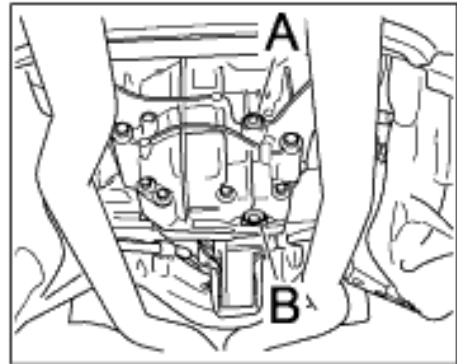
**i** **Note!**

- *Vehicle must be horizontal to fill rear final drive.*

1. Unscrew oil inspection plug **-A-** .



2. Fill with oil to the lower edge of the inspection plug **-A-** using the ATF filling device for filling transmission 161 .
3. Screw in oil inspection plugs **-A-** with new sealing ring.



**Tightening torque: 35 Nm (26 ftlb.)**

### Tightening torques

Location	Thread	Tightening torque [Nm] (ftlb.)
Oil inspection plug/filler screw		35 (26)

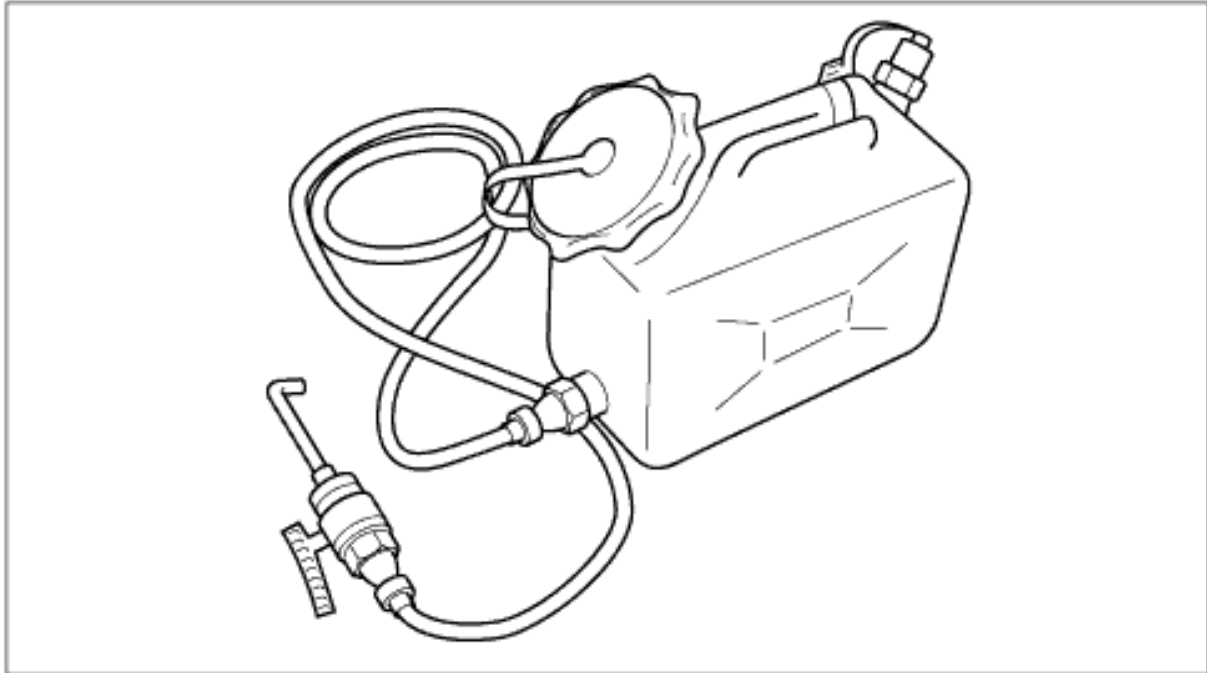
## Changing oil for rear final drive



**Caution!**

*Use only oil approved by Porsche!*

### Tools



Item	Special tool designation	Remarks
		Refer to <i>Standard Tools Manual</i>

## Changing oil for rear final drive

1. Place oil collecting container underneath the vehicle.

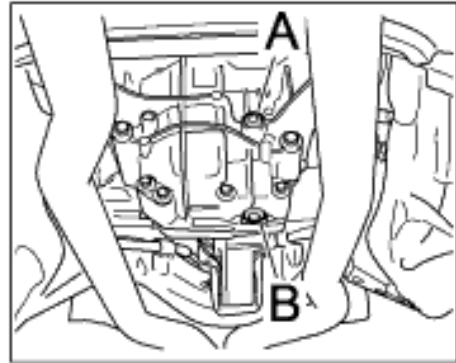


**Caution!**

*Emerging oil is harmful to the eyes.*

- ◆ *Wear personal protective equipment (e.g. safety goggles).*

2. Unscrew oil drain plugs **-B-** and drain oil.



3. Screw in oil drain plug **-B-** with new sealing ring.

**Tightening torque: 35 Nm (26 ftlb.)**

4. Unscrew oil inspection plug **-A-**.



**Caution!**

**Use only oil approved by Porsche!**

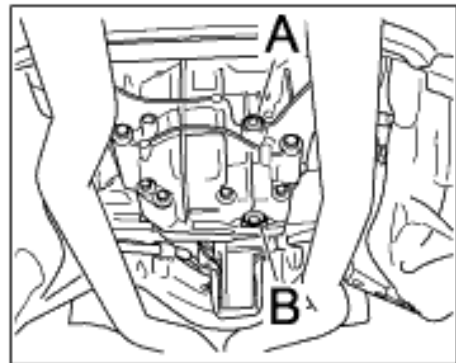


**Note!**

- *Vehicle must be horizontal to fill rear final drive.*
5. Fill with oil to the lower edge of the inspection plug opening **-A-** using the ATF filling device for filling transmission 161.

**Filling capacity: approx. 1.25 - 1.4 l**

6. Screw in oil inspection plug **-A-** with new sealing ring.



**Tightening torque: 35 Nm (26 ftlb.)**

**Tightening torques**

Location	Thread	Tightening torque [Nm] (ftlb.)
Oil inspection plug		35 (26)
Oil drain plug		35 (26)

## Removing and installing ATF filter



### **Caution!**

***Danger of scalding with hot ATF.***

- ◆ ***Wear personal protective equipment (e.g. safety goggles, gloves).***
- ◆ ***Park vehicle and allow it to cool before starting repairs.***

## Removing ATF filter

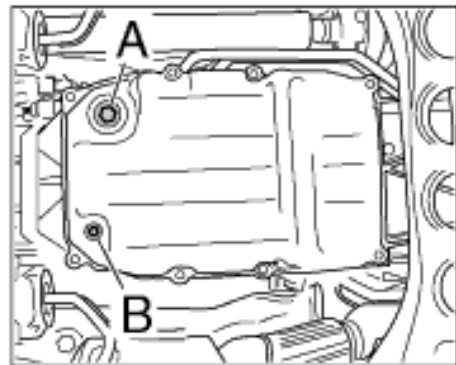
1. Remove engine guard Refer to No. 10 80 19, *Removing and installing engine guard.*
2. Place oil collecting container underneath the vehicle.



### **Caution!**

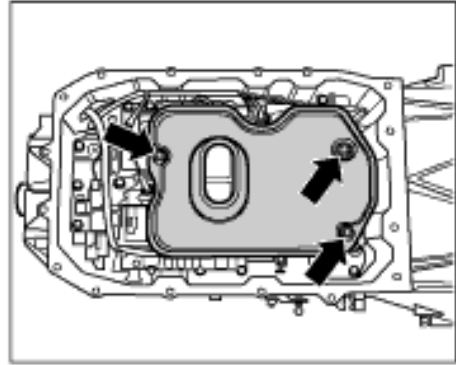
***Danger of eye injuries resulting from emerging ATF.***

- ◆ ***Wear personal protective equipment (e.g. safety goggles).***
3. Unscrew oil drain plug **-B-** and drain ATF.



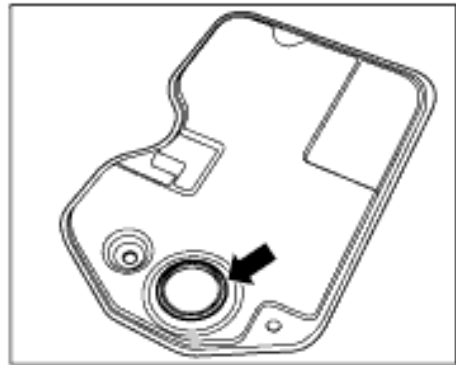
4. Remove ATF pan Refer to No. 375519, *Removing and installing ATF pan.*

5. Unscrew three screws **-arrows-** on the ATF filter and remove filter.

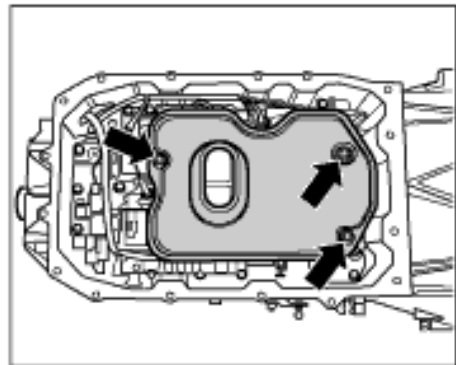


### Installing ATF filter

1. Position new sealing ring **-arrow-** on the ATF filter.



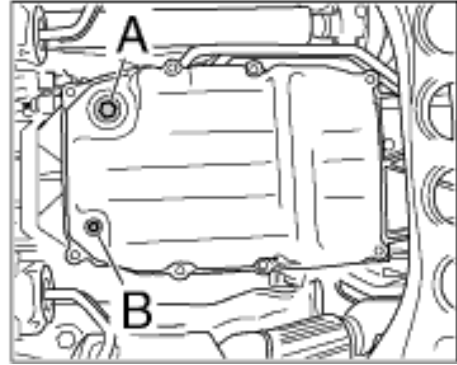
2. Insert ATF filter and tighten screws **-arrows-**.



### Tightening torque: 10 Nm (7.5 ftlb.)

3. Install ATF pan Refer to No. 375519, *Removing and installing ATF pan*.

4. Unscrew oil inspection screw **-A-** and fill ATF until excess oil is visible on the ascending pipe.



5. Tighten inspection screw.

**Tightening torque: 70 Nm (52 ftlb.)**

6. Checking and topping up the ATF ⇒ **Page 85** '*Checking and topping up the ATF*' .
7. Install engine guard Refer to No. 10 80 19, *Removing and installing engine guard*.

### Tightening torques

Location	Thread	Tightening torque [Nm] (ftlb.)
ATF filter to hydraulic control unit	M6 x 10	10 (7.5)
ATF pan to transmission	M6 x 25	10 (7.5)
ATF inspection plug/filler screw	M24 x 1.5	70 (52)
ATF drain plug	M10 x 1.0	28 (21)

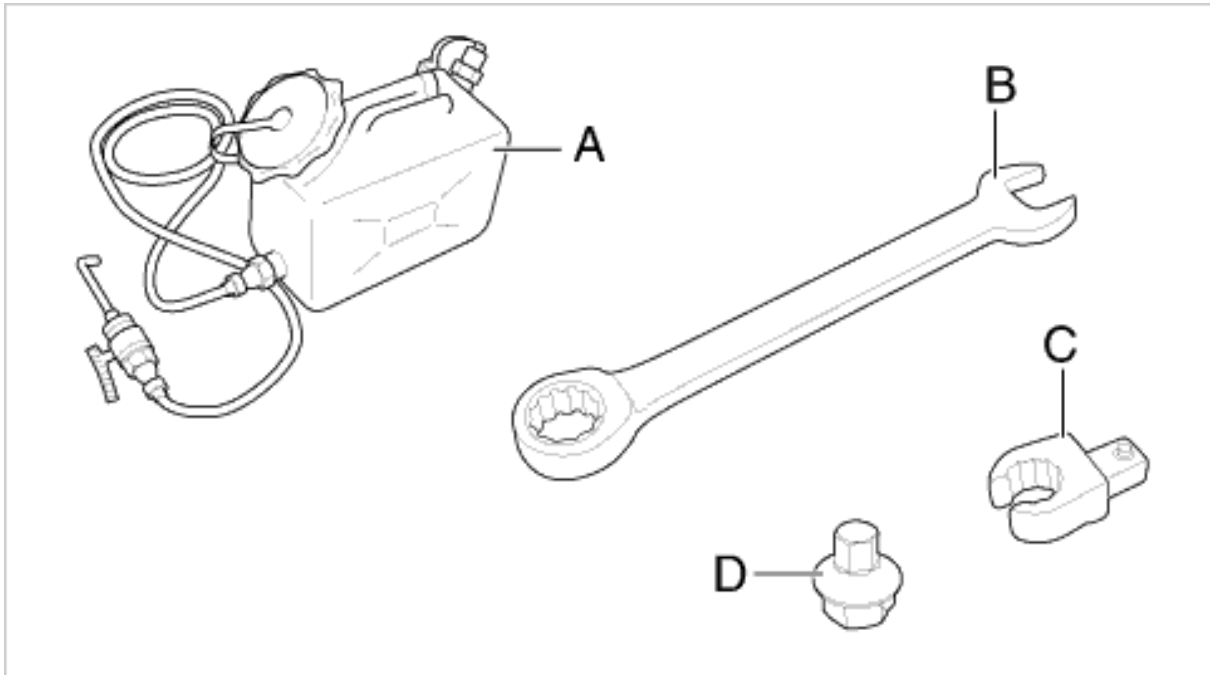
## Checking and topping up oil for all-wheel final drive



### Note!

- Use only oil approved by Porsche.

### Tools



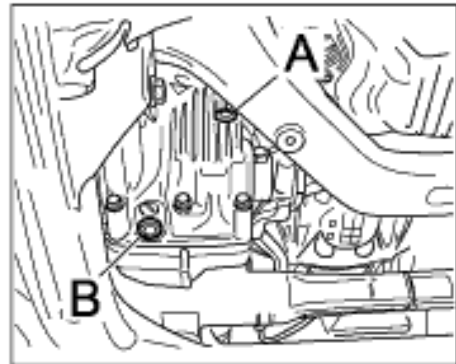
Item	Designation	Source	Remarks
-A-		Refer to <i>See Workshop Equipment Manual, Chapter 2.4</i>	
-B-		Refer to <i>See Workshop Equipment Manual, Chapter 2.4</i>	
-C-		Refer to <i>See Workshop Equipment Manual, Chapter 2.4</i>	
-D-		Refer to <i>See Workshop Equipment Manual, Chapter 2.4</i>	

## Checking oil for all-wheel final drive

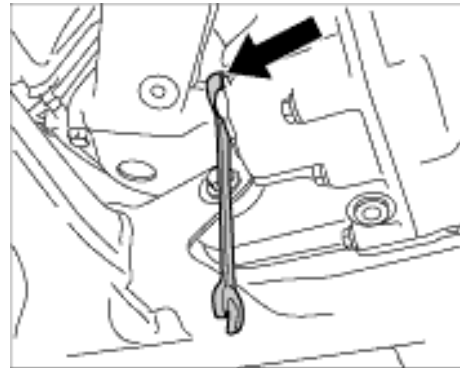


### Note!

- *Vehicle must be horizontal to check oil level in all-wheel final drive.*
1. Remove engine guard Refer to No. 10 80 19, *Removing and installing engine guard.*
  2. Unscrew oil inspection plug **-A-** using the special inserts model AB 170 tool **-arrow-** .



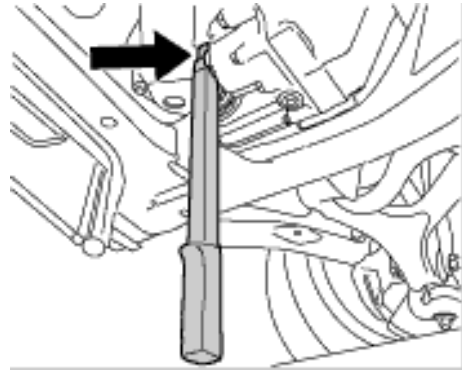
### Ring wrench with insert



### Note!

- *The oil level is correct if the oil reaches the lower edge of the inspection window.*
- If this is not the case, top up the oil ⇒ **Page 112** '*Topping up oil for all-wheel final drive*' .

- Screw in oil inspection plugs **-A-** with new sealing ring. To do this, use the special tool, special inserts model AB 170 , and the accessory for the torque wrench: open ring wrench insert a/f 13 + adapter 98-1 .

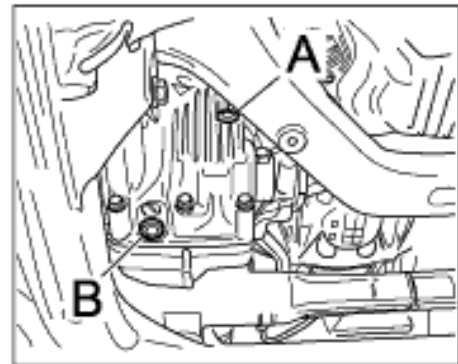


**Tightening torque: 35 Nm (26 ftlb.)**

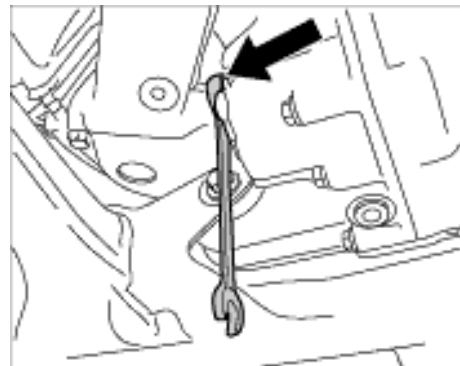
### Topping up oil for all-wheel final drive

#### Note!

- Use only oil approved by Porsche.
  - Vehicle must be horizontal in order to fill final drive.
- Unscrew oil inspection plug **-A-** using the special inserts model AB 170 tool **-arrow-** .



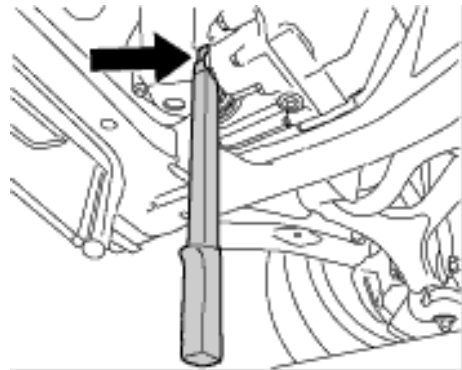
#### Ring wrench with insert



- Fill with oil to the lower edge of inspection plug **-A-** using the ATF filling device for filling transmission 161 .

**Filling capacity: approx. 1.0 l**

3. Screw in oil inspection plugs **-A-** with new sealing ring. To do this, use the special tool, special inserts model AB 170 , and the accessory for the torque wrench: open ring wrench insert a/f 13 + adapter 98-1 .

**Tightening torque: 35 Nm (26 ftlb.)**

4. Install engine guard Refer to No. 10 80 19, *Removing and installing engine guard.*

**Tightening torques**

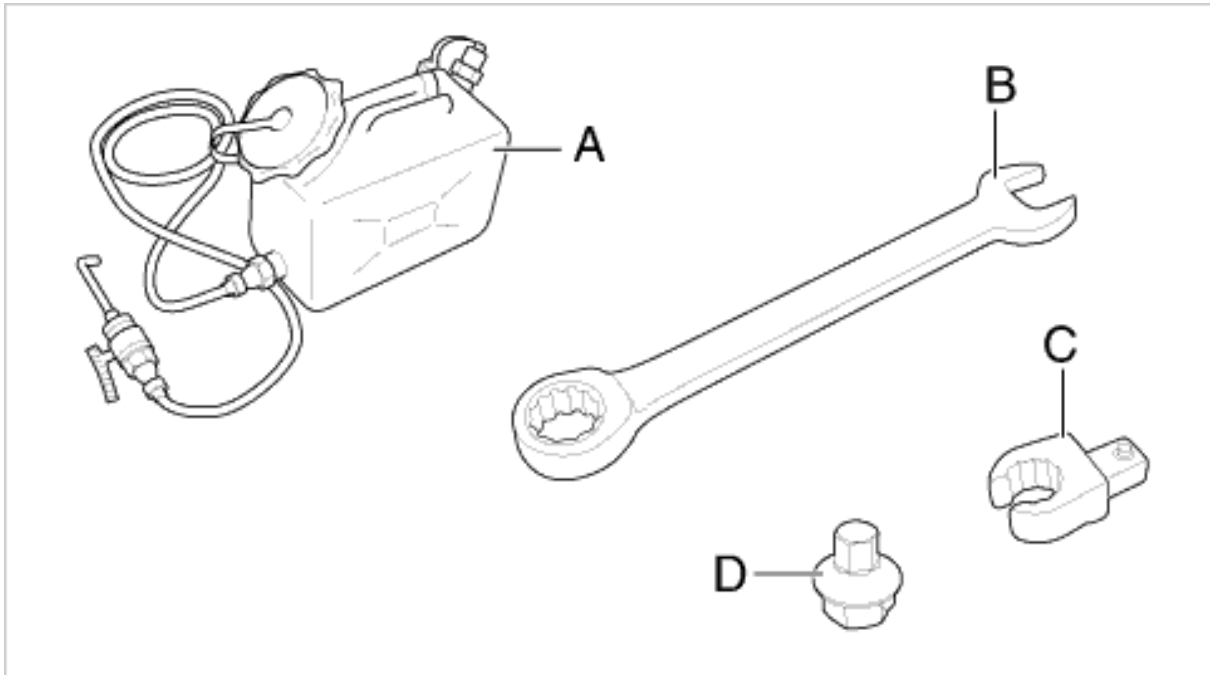
Location	Thread	Tightening torque [Nm] (ftlb.)
Oil drain plug		35 (26)
Oil inspection and filler plug		35 (26)

## Changing oil for all-wheel final drive

### Note!

- Use only oil approved by Porsche.

### Tools

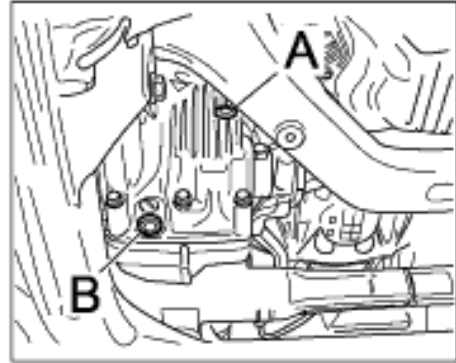


Item	Designation of the tool	Remarks
-A-		Refer to <i>Standard Tools Manual, Chapter 2.4</i>
-B-		Refer to <i>Standard Tools Manual, Chapter 2.4</i>
-C-		Refer to <i>Standard Tools Manual, Chapter 2.4</i>
-D-		Refer to <i>Standard Tools Manual, Chapter 2.4</i>

## Changing oil for all-wheel final drive

1. Remove engine guard Refer to No. 10 80 19, *Removing and installing engine guard.*

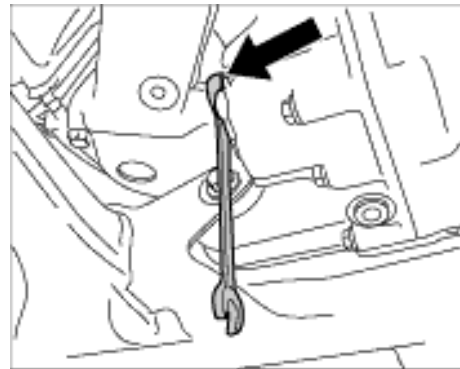
2. Place oil collection pan under the all-wheel final drive.
3. Unscrew oil drain plug **-B-** .



4. Screw in oil drain plug **-B-** with new sealing ring.

**Tightening torque: 35 Nm (26 ftlb.)**

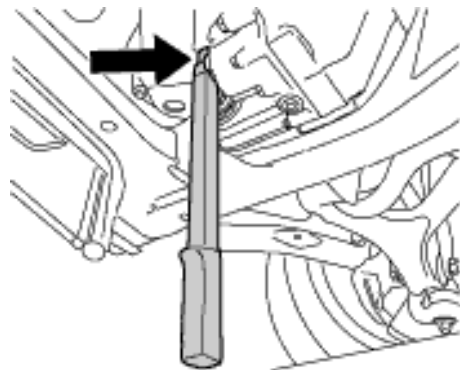
5. Unscrew oil inspection plug **-A-** using the special inserts model AB 170 tool.



6. Fill with oil to the lower edge of inspection plug **-A-** using the ATF filling device for filling transmission 161 .

**Filling capacity: approx. 1.0 l**

7. Unscrew oil inspection plugs **-A-** using the special inserts model AB 170 tool and the accessory for the torque wrench: open ring wrench insert a/f 13 + adapter 98-1 and screw in a new sealing ring.



**Tightening torque: 35 Nm (26 ftlb.)**

8. Remove engine guard Refer to No. 10 80 19,  
*Removing and installing engine guard.*

### Tightening torques

Location	Thread	Tightening torque [Nm] (ftlb.)
Oil drain plug		35 (26)
Oil inspection plug		35 (26)

## Cardan shaft maintenance



### Note!

- *The rolling lobes of the cardan shafts can be damaged by external influences, e.g. off-road driving or similar use.*
- *Result: large amount of grease emerges, dirt can work its way into the universal joints.*
- *Early replacement of the cardan shaft may be required.*

### Visual inspection of the rolling lobes (front cardan shaft)

1. Remove engine guard Refer to No. 10 80 19, *Removing and installing engine guard.*
2. Check cardan shaft rolling lobes for damage. To do this, gradually turn the cardan shaft once by 180°.
3. Install engine guard Refer to No. 10 80 19, *Removing and installing engine guard.*

### Visual inspection of centre bearing (rear cardan shaft)

1. Check rolling lobe of centre bearing for damage. To do this, gradually turn the cardan shaft once by 180°.

## Running gear maintenance: steering gear - fluid level and bellows

### Power steering: checking the fluid level



**Caution!**

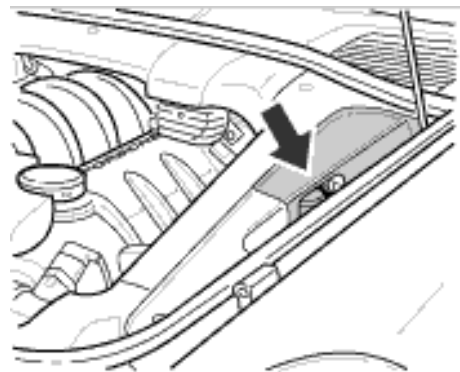
***Danger of damage to property if too much Pentosin CHF 11 S is filled or if Pentosin comes into contact with the coolant hoses when filling or topping up!***

- ***Observe the following specifications in order to avoid overfilling and thus overflowing!***
- ***Multiple steering operations (manoeuvring) with the engine switched off change the fluid level in the reservoir! In this case, the engine must be run for approx. 20 seconds immediately prior to the fluid level check!***
- ***If coolant hoses come into contact with Pentosin, thoroughly clean them with water IMMEDIATELY!***
- ***Replace visibly swollen coolant hoses!***

Damage to the power steering is caused by a shortage of oil in the hydraulic system. Even small leaks can cause the fluid to escape and damage the servo pump as a result of the high oil pressure occurring in the hydraulic circuit.

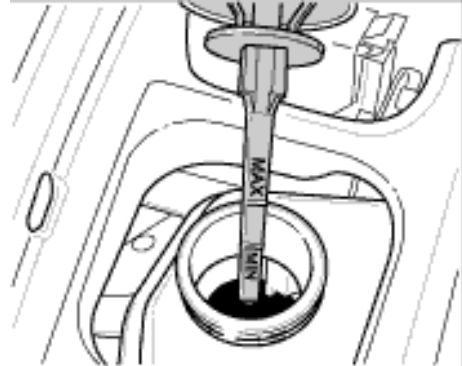
Grunt-like noises that can be heard when the steering is locked, or foam formation in the reservoir indicate a shortage of oil and/or that air has also been sucked in. Before filling the reservoir, any existing leaks must be eliminated on the suction side. Alternatively, the defective part on the pressure side should be replaced.

The reservoir is located in the engine compartment, at the front left under the engine compartment lining **-Arrow-**



Only Pentosin CHF 11 S may be used in the reservoir. Pentosin CHF 11 S can be ordered with the following part number: Quantity supplied 1 litre = 000.043.203.33.

A dipstick with a MAX/MIN marking is mounted on the closure cap of the expansion tank. The marks apply to fluid levels when engine is cold (approx. 20 °C)!



#### Note!

- *The MAX mark can be easily exceeded at higher temperatures!*
1. Start engine and run it at idle speed for approx. 20 seconds. Switch off engine.
  2. Open engine cover and open the flap to the engine compartment lining **-Arrow-** .
  3. Open reservoir cap.
  4. Wipe off the dipstick. Close and then reopen the cap. The fluid level must be in the designated range (MAX/MIN level at approx. 20 °C). Top up with Pentosin if necessary.

#### Steering gear: visual inspection of the bellows

- ◆ The bellows on the steering gear can be damaged by outside influences for example, by stone damage or during assembly work!
- ◆ The steering gear can become leaky if dirt or moisture enter a leaky bellows!
- Visually inspect the bellows for damage.

## Running gear maintenance: axle joints/drive shafts

### Tie rod ends: checking the play and dust bellows

**Note!**

- *The rubber dust bellows and bellows on the steering gear and on the tie rods can be damaged by external influences, e.g. stone impact or during assembly work!*
  - *If a rubber dust bellow leaks, the joint or the tie rod must be replaced, because any dirt or moisture that seeps in will destroy the joint!*
1. Check the play and dust bellows.
  2. Check that the dust bellows, bellows and joints are in working order and ensure that they are free of leaks.

### Axle joints: checking the play and dust bellows

1. Check play.
2. Visually inspect the dust bellows for damage.

**Note!**

- *When doing so, the rubber dust bellows should be pressed down with the fingers in order to reveal hidden cracks!*
- *If a rubber dust bellow leaks, the corresponding joint or control arm must be replaced, because any dirt or moisture that seeps in will destroy the joint!*

**Caution!**

***Danger of material damage if the vehicle is raised incorrectly or if the vehicle is driven incorrectly onto the lifting platform!***

- ***Lift the vehicle only at the take-up points provided!***
- ***Ensure that screw connections are accessible.***

- ***When driving onto a platform lift, ensure that there is sufficient distance between the platform lift and the vehicle!***
  - ***In order to avoid damage to the side members and side member panels, the mounting plates of the platform lift must be raised!***
3. Inspect the dust bellows of the axle joints (ball joints) on the suspension (front and rear) as follows:
- ◆ Put the vehicle onto a lifting platform with the steering lock disengaged.
  - ◆ Perform a visual inspection after cleaning.

**Note!**

- *In the vicinity of the brake cover panels, no visual inspection is possible in a small area!*
- *Check this area by touch!*

The procedure for the front axle is as follows:

- ◆ Turn the front wheels as far as they will go.
- ◆ Perform a visual inspection of the visible surfaces on the left and on the right.
- ◆ After turning the front wheels to the other steering stop, check the other half of each rubber dust bellows.

**Drive shafts: visual inspection of the boots**

- Perform a visual inspection of the boots for leaks and damage.

## **Running gear maintenance: running gear adjustment/storage of assemblies**

### **Running gear adjustment (wheel alignment values)**

- Check that the screw connections of the running gear adjustment facility (wheel alignment values) at the front and rear are secure.

### **Storage of assemblies and running gear**

- Visual inspection of all rubber mounts for damage.

## Running gear maintenance: tyres and spare wheel: checking condition and tyre pressure

### Checking condition

Tyres are a safety element that fulfil the demands placed on them only if they have the correct air pressure and a sufficient tread depth.



#### **Warning!**

***Danger of injury and damage to property as a result of modified handling behaviour if the pressure in the tyres falls below the minimum values.***

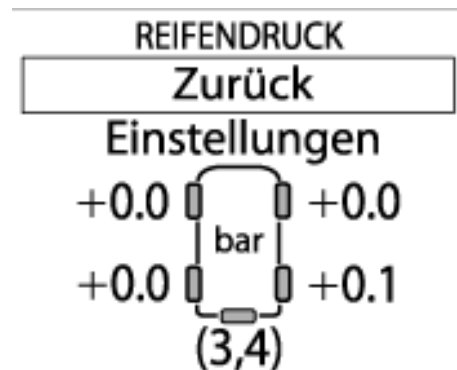
***Danger of injury and damage to property as a result of modified handling behaviour in the case of insufficient tread depth, foreign bodies, pricks, cracks and bulges in the sidewall (ply breakage).***

- ***The air pressure must never be lower than the values specified (these are minimum pressures).***
- ***A visual inspection of the tyres must be carried out.***

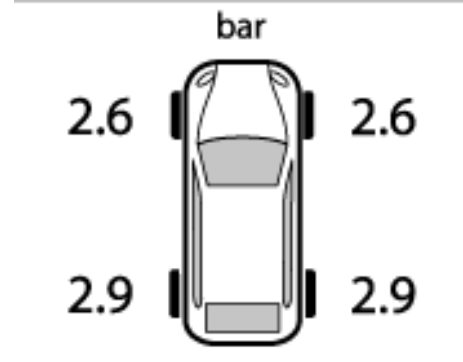


#### **Note!**

- *For vehicles with a tyre pressure monitoring system, which can be identified by aluminium valves, the tire pressure should be adjusted according to the filling information in the multi-function display. To do this, in the >> Main menu >> Tire pressure >> **-Settings-** << adjust the deviation values so that they are from 0.0 bar to +0.1 bar . Fill the tyres according to the display using the tyre-inflating device. For example, If the tyre-pressure display shows >> Settings << – 0.2 bar , 0.2 bar must be added.*



- Due to the pressure and temperature relationship (0.1 bar / 10° C), the actual pressures displayed in the **-Basic tire pressure screen-** in the multifunction display, or on the pressure gauge of the tyre-inflating device, can deviate from the required pressure specification on the tyre pressure plate, which is defined at 20° C. This is particularly the case if the tyre air temperature is significantly above (higher values) or significantly below (lower values) 20° C. Changes in the tyre pressure are displayed up to a max. of 1 minute later in the >> Settings <<.



- For vehicles with the tire pressure monitoring system, always use plastic valve caps. Valve caps protect from dust, dirt, and humidity, and therefore from damage (corrosion, etc.).

1. Check condition and tyre pressure.

Valve caps protect the valve from dust and dirt and therefore from damage.

2. Always screw on valve caps tightly and replace missing valve caps.

### Cold tyre pressures (at approx. 20° C)

- Tyre pressures apply to all-season, all-terrain, summer and winter tyres. They also apply only to tyres approved by Porsche.
- Partial load: the tyre pressure is defined for a load of up to 3 people + 21 kg of luggage.
- The collapsible spare wheel, or alternatively the spare wheel, is an option (standard: tyre sealant).
- The spare wheel on the carrier is inflated to 3.4 bar gauge pressure max. During operation, tyres are to be adjusted to the gauge pressure prescribed for the particular vehicle axle and load condition.

### Tyre pressure - vehicle partially loaded

Values in bar overpressure

Partial load	Cayenne S 18/19/20-inch	Cayenne Turbo 18/19/20-inch
--------------	----------------------------	--------------------------------

Front axle	2.6 bar	2.6 bar
Rear axle	2.9 bar	2.9 bar
Collapsible spare wheel, front/rear	3.5 bar	

### ***Tyre pressure - vehicle fully loaded***

Values in bar overpressure

Full load	Cayenne S 18/19/20-inch	Cayenne Turbo 18/19/20-inch
Front axle	2.6 bar	2.6 bar
Rear axle	3.4 bar	3.4 bar
Collapsible spare wheel, front/rear	3.5 bar	

## Running gear maintenance: checking the brake fluid level and changing the brake fluid

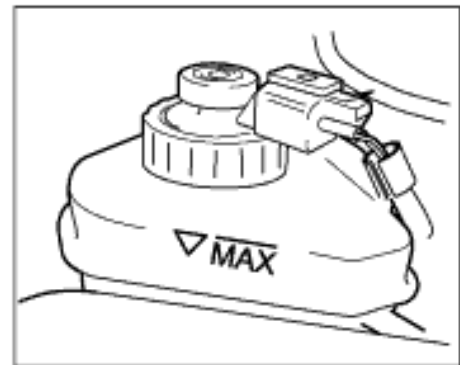
### Checking the brake fluid level

Visually inspect brake fluid level. The brake fluid level must be between the MAX and MIN markings. The brake fluid reservoir is located under the left radiator cover -**Arrow**- .



#### Note!

- The brake fluid level must not exceed the MAX mark.



- Observe brake fluid quality. Use only new DOT 4 brake fluid!
- This brake fluid is available under the following part numbers: container quantity 1 litre = 000.043.203.66; container quantity 30 litres = 000.043.203.67.

### Changing the brake fluid



#### Note!

- Observe brake fluid quality. Use only new DOT 4 brake fluid!
- The brake fluid change interval is 2 years in conjunction with Super DOT 4 brake fluid!

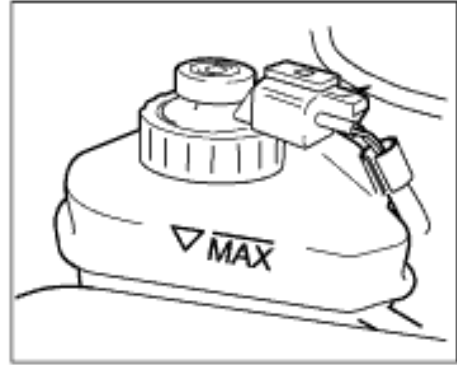
- *This brake fluid is available under the following part numbers: container quantity 1 litre = 000.043.203.66; container quantity 30 litres = 000.043.203.67!*
- *Drain brake fluid at every brake caliper on both bleeder valves!*
- *Bleed the outer bleeder valve first!*

1. Open screw cover of brake fluid reservoir **-Arrow-**



2. Connect a bleeding device to the brake fluid reservoir.
3. Switch on the bleeding device. Bleeding pressure is approximately 2.0 bar.
4. Continue changing the brake fluid at the brake calipers. Do so in the following sequence: rear right/rear left/front left/front right.
5. Open every bleeder valve until clear, bubble-free brake fluid emerges and until the corresponding change quantity per brake calliper is reached (approx. 250 cm<sup>3</sup>).
6. Use a transparent hose and a collecting bottle to check the escaping brake fluid accurately for cleanliness, lack of air bubbles and to determine the brake fluid used.
7. Tighten the bleeder valves to the stipulated tightening torque and remove the bleeder hoses.

8. Switch off bleeding device and remove the adapter on the brake fluid reservoir. The brake fluid level in the brake fluid reservoir must be between the MIN and MAX markings once the vehicle has been filled and bled. Adjust the brake fluid level if necessary.



## Running gear maintenance: checking free play of foot-operated parking brake

### Foot-operated parking brake: checking free play

The foot-operated parking brake, hereafter referred to as the FPB, is equipped with asbestos-free brake pads. The FPB's pedal module is located on the left in the driver's footwell.



#### Note!

- *An FPB that is equipped with asbestos-free brake pads must never be adjusted in such a way that the pad must grind down during operation!*
- *It may only be adjusted on the two adjustment devices on the rear wheels! No adjustment can be made on the pedal module or on the Z deflector on the centre console.*
- *Ensure that the FPB cables are routed correctly.*

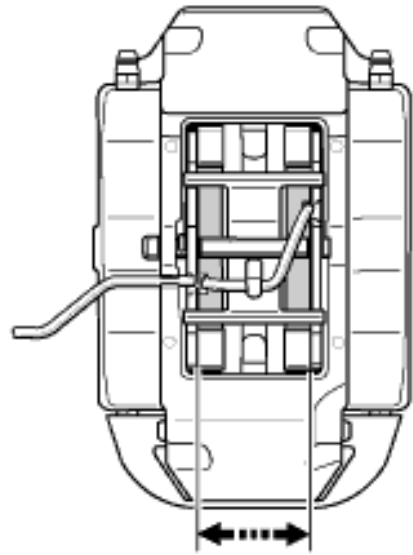
Check free play on the pedal module:

- To do this, measure from the left seat rail up to the lower edge of the pedal plate on the FPB!
  1. Press pedal 40 mm (+ 5 mm). If this dimension is reached, the wheels must be able to turn without grinding the brake pads.
  2. Press pedal 75 mm (+ 5 mm). If this dimension is reached, the wheels must be fixed. If the wheels can still turn, the FPB must be adjusted!

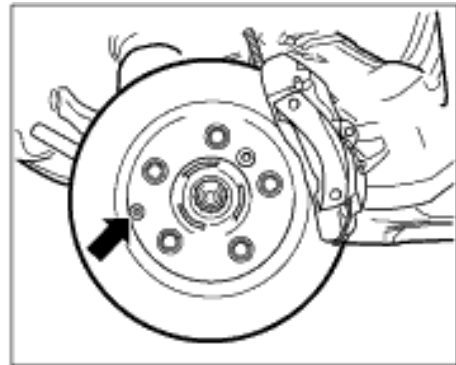
### Adjusting the foot-operated parking brake

- The rear wheels must be removed so that the adjustment device can be accessed!

- In the event of unfavourable tolerances, the brake pads may prevent the brake disc from turning freely. If this happens, the brake pads must be pressed back slightly and uniformly **-Direction arrow-** using piston resetting fixture 144, see Workshop Equipment Manual, Chapter 2.4!



1. Release the FPB pedal so that the wheels and brake discs can turn freely.
- The wheels may still grind slightly even then! If this happens, loosen the rear brake cables by moving them to and fro gently.
2. Remove rear wheels.
3. Adjust the brake shoes (on both wheels). To do this, unscrew the plugs **-Arrow-** and turn the brake disc with the opening towards the adjustment device position. Using a screwdriver, modify the adjustment device until the wheel can no longer be turned. Then unscrew 6 teeth (wheels must be free to turn).



4. Check the free play on the pedal module once again.
5. Mount rear wheels.

## Running gear maintenance: visual inspection - brake lines/brake pads/brake discs

### Brake hoses and lines

- Carry out visual inspection for leaks, damage, routing and corrosion.

### Brake system: visual inspection of the brake pads and brake discs for wear



#### **Warning!**

***Braking effect impaired if the brake pads are replaced too late!***

***Braking effect impaired if the brake discs are replaced too late!***

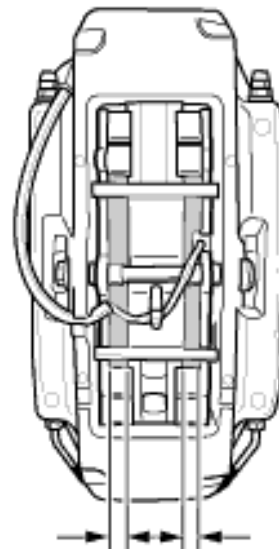
***Danger of injury and damage to vehicle if braking effect is impaired!***

- ***The brake pads must be replaced when the brake pad warning indicator lights up, but no later than when there is a residual pad thickness of 2 mm!***



#### **Note!**

- *If brake pad wear is indicated by the warning light, the warning contact (sender including wire and plug connection) must also be replaced!*
- *Replacing the warning contact can be avoided by replacing the brake pads no later than when the pad thickness is approx. 2.5 mm!*



- *Warning contacts must be replaced if the core of the wire is worn!*
  - *However, if only the plastic part of the warning contact is worn, there is no need to replace it!*
1. To check the brake pads, remove the wheels.
  2. Visually inspect the brake pads for wear (wear limit 2 mm).
  3. Carry out visual inspection of the brake discs for wear.

## Checking lid and doors

### Checking lid lock, front and rear

- Check that the lid locks engage when the lids (front and rear) are closed by engaging the lock upper parts and that they disengage again when the lid releases are activated.

### Checking safety hook, front lid

1. Check that the front lid is held down by the safety hook (locking hook) after the lid lock is opened.
2. Check whether the return spring on the upper part of the lock pulls back the safety hook as far as the stop.

### Door lock function test

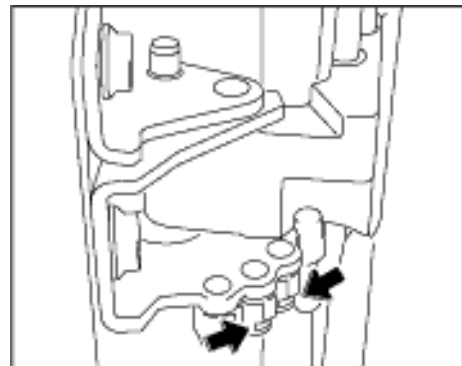
- Check that the door locks engage in two stages when the doors are closed and that they disengage again when the door handles are operated (inside and outside).

### Functional inspection of the tank cap lock

- Lock vehicle.
- Check that the tank cap lock locks the tank cap in the closed position.

### Lubricating door latch snib and fastening pins

1. Lubricating door latch snib and fastening pins



Lubricate door latch snib and fastening pins at the locations indicated by the **-arrows-** using lubricant

### Tools and materials

Item	Designation	Remarks
1		Refer to <i>Gr 8. Parts Catalogue</i>

## Checking seat belts

### Functional inspection

- The following requirements must be met when fitting the seat belt:
  - It must be possible to unroll the belt strap smoothly from the belt retractor via the deflector fitting by pulling evenly.
  - The tongue of the seat belt must engage audibly in the buckle.
  - An abrupt pull on the belt strap must lock the belt retractor.
  - If one of the above requirements is not met, the seat belt or the buckle must be replaced.

### Condition inspection

- Visually inspect the belt strap for damage by unrolling it completely.
- If it displays evidence of damage in the form of cuts, fraying, seam tears etc., the seat belt must be replaced.

## Passenger protection maintenance: Inspect airbag system



### Note!

- *An inspection must be carried out every 60,000 km (40,000 mls) in the first 10 years.*
- *After the first 10 years, the airbag system must be inspected every 2 years, regardless of the mileage.*

### Visual inspection

1. Check airbag units visually:
  - a. Check that a trim or stickers are not attached to the airbag units (driver's, passenger's, side, head airbag).
  - b. Visual inspection of the components for damage and deformation.
  - c. The system check must be acknowledged in the stamp spaces provided in the Guarantee and Maintenance booklet.

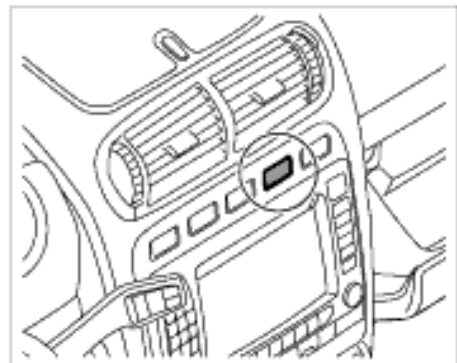
### Checking airbag warning light

1. Function test on airbag warning light in instrument cluster:
  - a. Switch on ignition.



### Note!

- *The airbag warning light must light up for approx. 3 seconds. If the warning light does not light up, check the light unit and power supply.*
2. Function test on airbag warning light in centre console:



**Danger!**

***Danger of serious or fatal injuries from passenger's airbag!***

***If the PASSENGER AIRBAG warning light does not light up when the ignition is switched on, there may be a fault in the system.***

- a. Use the vehicle key to deactivate the passenger's airbag on the key-operated switch (cover of right fuse carrier).
- b. Switch position ON - airbag active.
- c. When you switch on the ignition, the warning light must light up continuously.
- d. Switch position OFF - airbag deactivated.

**Function test on airbag system**

1. Function test on airbag system:
  - a. Move the driver's seat back and up as far as possible.
  - b. Unclip front cover of driver's seat subframe.
  - c. Connect and switch on the Porsche System Tester.
  - d. Switch on ignition.
  - e. Establish communication with the airbag control module.
  - f. Read out fault memory: No fault stored.

**Warning!**

***Danger of personal injury if the drive link test is carried out when the vehicle is in motion!***

- ◆ ***Never carry out the drive link test when the vehicle is in motion.***

***The following conditions must be observed when carrying out the drive link test:***

- ◆ ***The drive link test must always be carried out on a stationary vehicle in a workshop with sufficient commercially available tools. The disconnecting relay must be activated again following the drive link test. Only then can the***

***engine be started again (see warning note below).***

- g. Start the engine and activate central locking using the switch in the door trim panel.
- h. Start Drive links menu.



**Note!**

- *When you perform the drive link test:*
  - *The disconnecting relay is activated. The disconnecting relay must be activated again. To activate the disconnecting relay: Press on the coloured areas of the disconnecting relay (located in the current distributor).*
  - *The engine is switched off.*
  - *The hazard warning lights are activated.*
  - *The central locking system is opened.*
- i. Read out and erase fault memory for the DME and airbag control modules.
  - j. Switch off ignition and disconnect battery.



**Caution!**

***Danger of injury and damage to property as a result of incorrect handling of airbag units!***

***Always observe the safety regulations for handling airbag units Refer to No. 69, Group 6 Safety regulations for handling airbag and belt tensioner units***

***Remove ignition key. Disconnect battery ground strap on body (in front of driver's seat) and place ground strap on floor carpet. Refer to No. 2760, Group 2 Battery***

***After the battery is disconnected, always wait for 1 minute before disconnecting the airbag plugs.***

- 2. Simulate the fault:

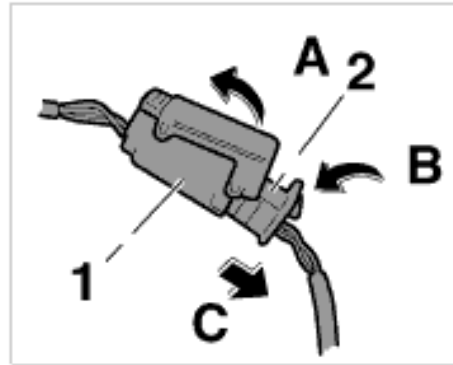
**Simulate the fault using the side airbag, for example. Move seat all the way forward.**



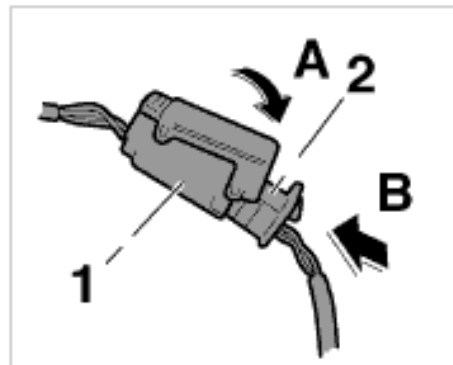
**Note!**

- To check the operation of the airbag system, a plug connection is disconnected from an airbag unit. A fault code - *Static fault* - must then be stored in the Porsche System Tester.

- Fold up the retainer **-A-** on the socket housing **-1-**, press lock **-B-** on the airbag plug **-2-** and pull out the plug **-C-**.
- Connect the battery and switch on ignition.
- Read out fault memory. *Static fault present*.



- Correct the fault:
  - Switch off ignition, disconnect the battery and wait for 1 minute.
  - Fold up the retainer **-A-** on the socket housing **-1-** and insert **-B-** plug **-2-** until the plug engages perceptibly.



- Read out and delete faults:
  - Connect the battery, switch ignition on and read out the fault memory with the Porsche System Tester.



**Note!**

- *Fault memory shows a Sporadic fault*.
- b. Clear fault memory
- Follow work instructions after disconnecting the battery. Refer to No. 9, Group 9 *Work instructions after disconnecting the battery*

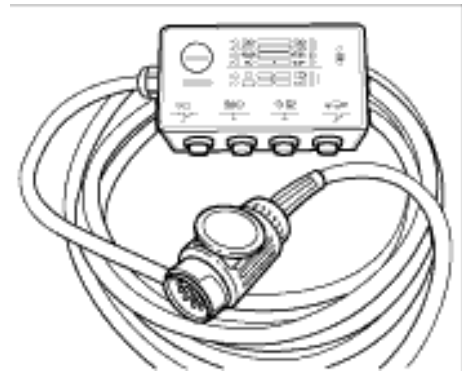
## Trailer hitch maintenance: check operation



### Note!

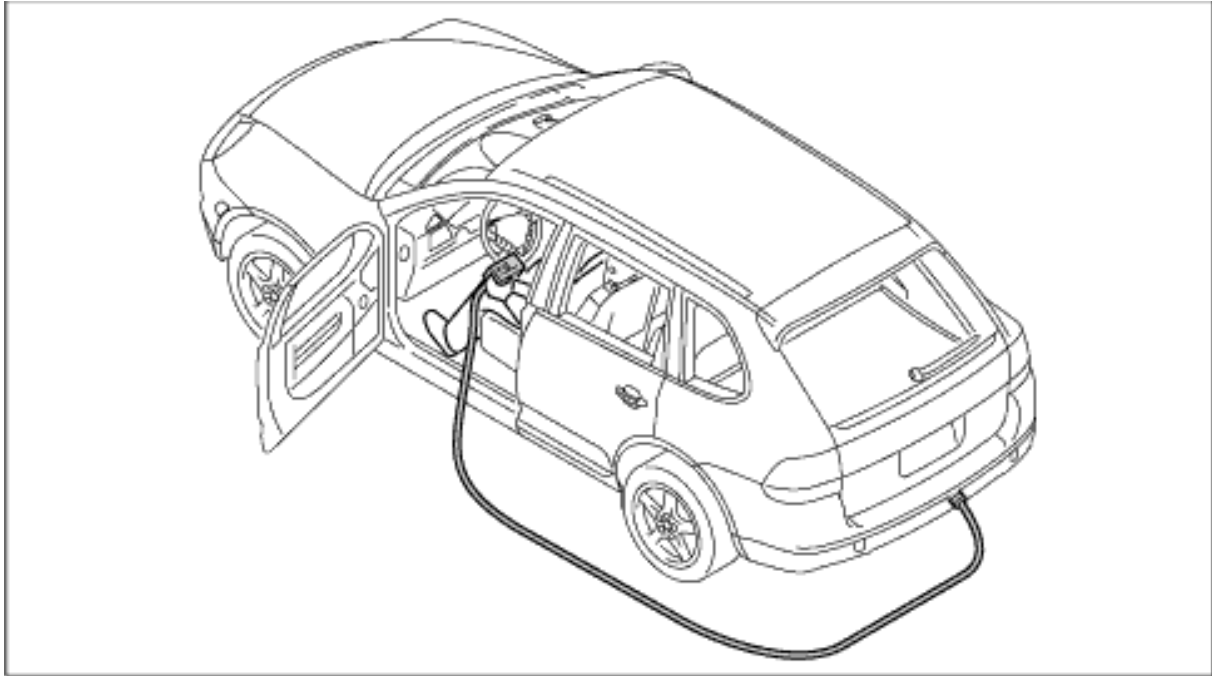
- *A trailer in which the wiring and lights are operating perfectly or the VAS 1537 A trailer test cable is required to perform this check.*
- *Please note that, if the VAS 1537 A trailer test cable is used, only vehicles with a 13-pin plug can be checked.*
- *The test cable can be attached to the trailer socket to locate faults. The plug has 13 pins; adapters are required for 7-pin sockets. Because of the build-up of heat, ensure that a thermal circuit breaker is used in the test cable.*

### Test cable VAS 1537 A:



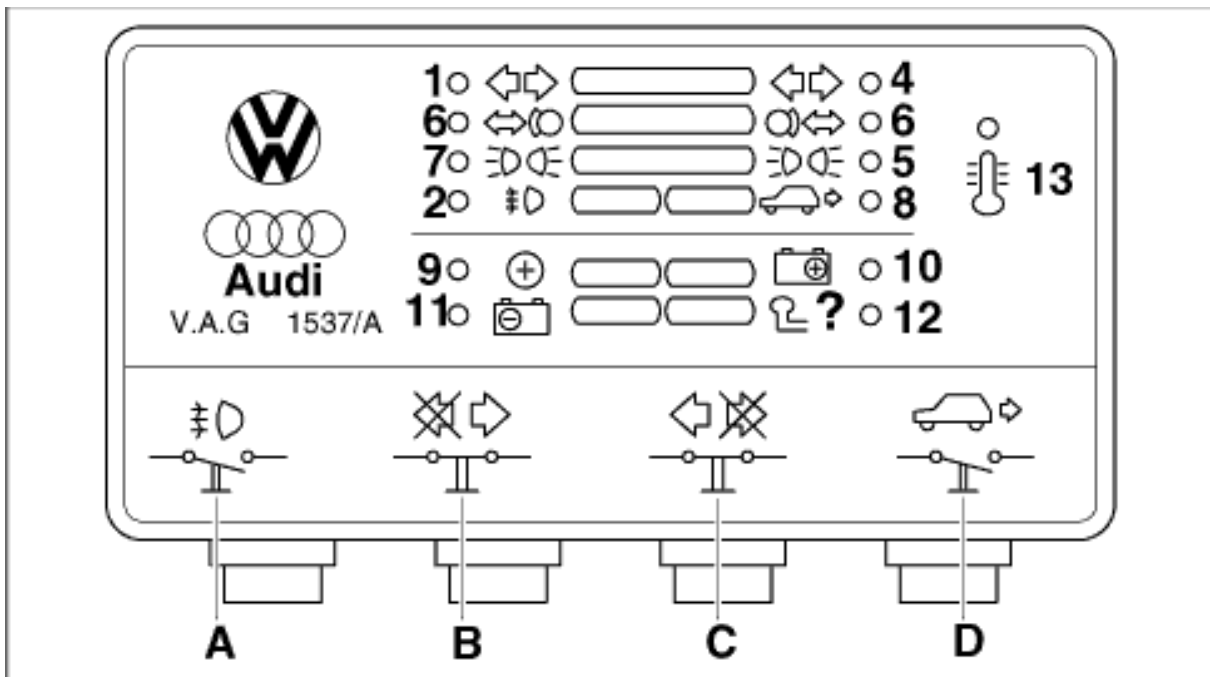
Item	Designation	Remarks
		Refer to See Workshop Equipment Manual, Chapter 3.0

## Checking operation of trailer hitch socket



1. Connect the test cable to the trailer hitch socket on the vehicle and lay the cable to the front.

### Procedure



**Note!**

- *The LED for permanent positive -9- is lit for the entire duration of the test.*

1. Switch on the ignition and change through the following loads in turn:

Switch on left direction indicator **-1-** or right direction indicator **-4-**, the direction indicator and the direction indicator pilot light for the trailer in the instrument cluster light up; press the relevant key (**-B-** for left or **-C-** for right): now, LEDs **-1-** or **-4-** and the direction indicator in the instrument cluster should not light up.

2. Actuate the brake pedal - LEDs **-6-** should light up.
3. Switch on the parking light - LEDs **-5 and 7-** should light up.
4. Switch on the parking light and rear fog light. LEDs **-2, 5 and 7-** should light up.

With the tester behind the vehicle, press button **-A-**, the rear fog light should light up on the vehicle, LED **-2-** should go out.

5. Switch off the light, shift into reverse gear.

LED **-8-** is off, the reversing light on the vehicle should light up.

With the tester behind the vehicle, press button, **-D-**. LED **-8-** should light up and the reversing light should go out.

**General:**

**-10-** Charge positive

**-11-** Ground for charge positive

**-12-** Trailer detection

**-13-** Depending on the load (heat build-up) in the tester (the more LEDs that are lit up), the tester is switched off and this is indicated by the lighting up of this LED. Disconnect the tester and let it cool for at least 20 minutes.

### **Checking electrically retractable trailer hitch (AHK)**

#### **Checking electrically retractable trailer hitch (AHK)**



#### **Warning!**

***Risk of injury and damage when retracting and extending the ball hitch.***

- ***Make sure that no persons, animals or obstacles are in the movement range of the ball hitch.***
- ***To interrupt the swivel action of the ball hitch in the event of danger, touch the rocker switch -A- again.***
- ***Never swivel the ball hitch when a trailer is attached or when bicycle racks, for example, are fitted to or mounted on the ball hitch.***
- ***Only use the trailer hitch when the ball hitch is extended fully.***
- ***Never insert tools of any kind into the ball hitch swivel mechanism. This could damage the locking mechanism and as a result, the safe operation of the trailer hitch could no longer be assured.***
- ***Check that the ball hitch locks into position correctly before every journey.***

#### **Overload protection**



#### **Note!**

- ***The swivel action of the ball hitch is interrupted in the one-touch function of the rocker switch if resistance interferes with the movement sequence. The interruption is indicated by the rapid flashing of the red LED in the rocker switch.***
- ***Overload protection is switched off by pressing the rocker switch for at least 2 seconds.***

## 1. Swivelling the trailer hitch out

**Requirements:**** Note!**

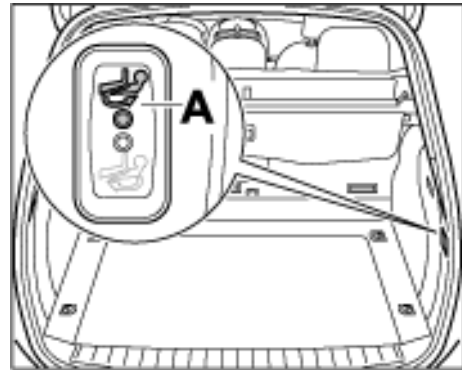
- *The vehicle must be stationary.*
- *Rear lid or rear window must be open.*

**To swivel out:**

Touch rocker switch **-A-** .

>> The ball hitch moves automatically into operating position.

The red LED in the rocker switch flashes until the operating position is reached.



## 2. Retracting the trailer hitch

**Requirements:**** Note!**

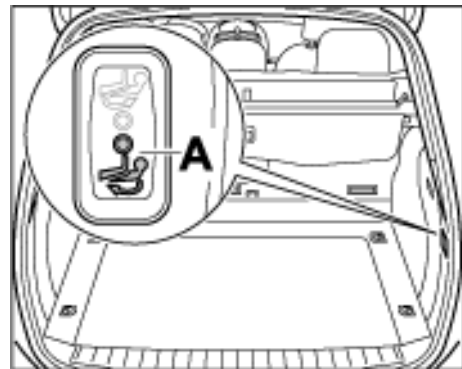
- *The vehicle must be stationary.*
- *Rear lid or rear window must be open.*
- *Trailer must be unhitched.*
- *Connectors (and any adapters) must be removed from the socket.*
- *There must not be any accessories on the ball hitch (e.g. ball protection cap, bicycle rack, etc.).*

**To retract:**

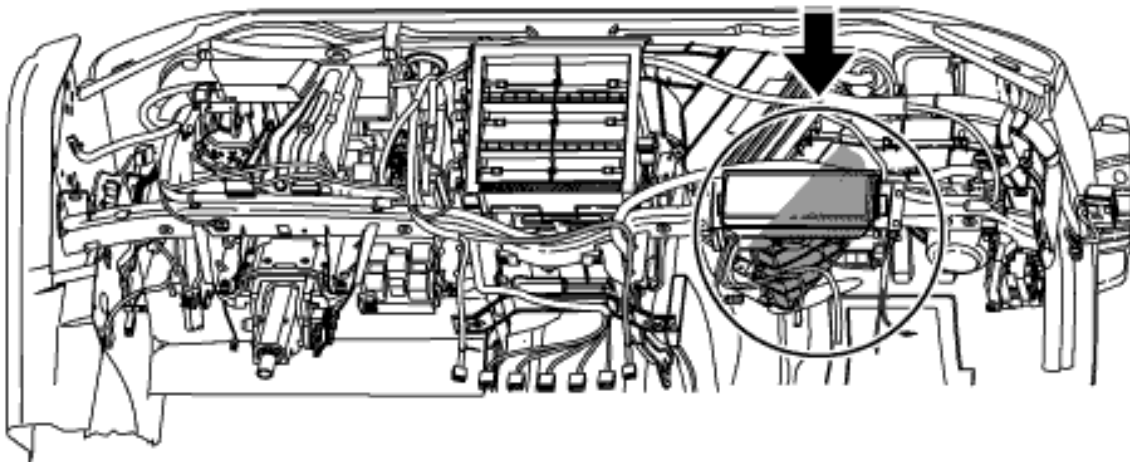
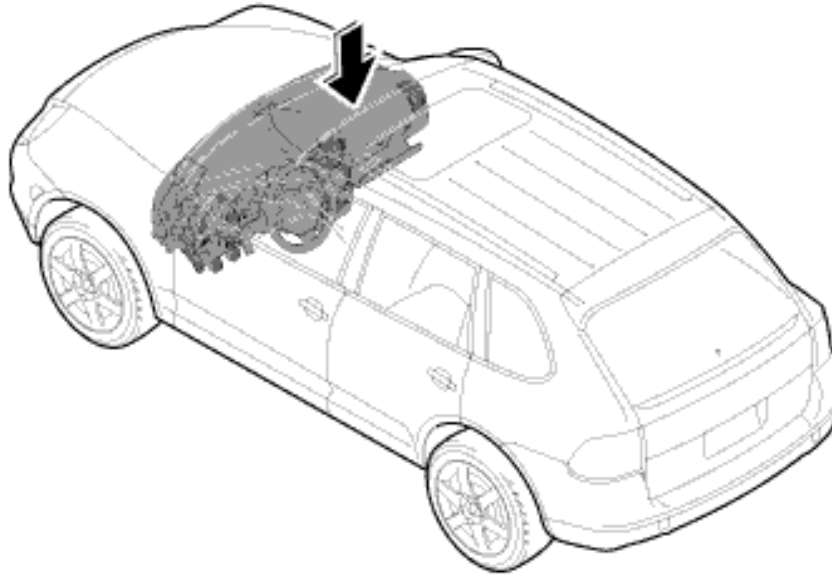
Touch rocker switch **-A-** .

>> The ball hitch moves automatically into operating position.

The red LED in the rocker switch flashes until the operating position is reached.



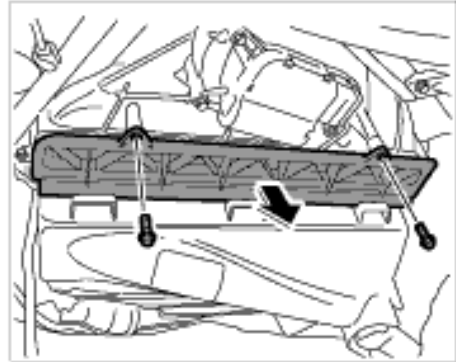
## Air conditioning maintenance: particle filter - replacing filter insert



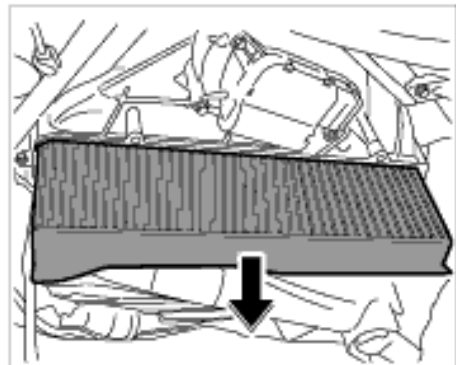
### Removing particle filter

- Remove cover under right instrument panel. Refer to No. 701919, Group 7 *Removing and installing cover under instrument panel*

1. Unscrew the two fastening screws and remove cover.

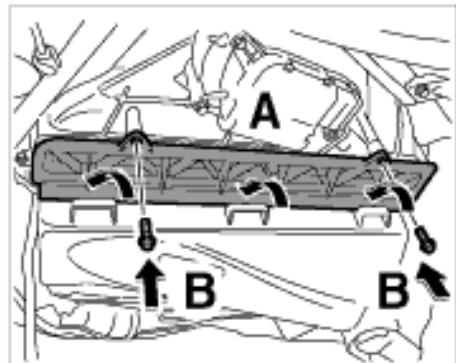


2. Pull out filter downwards.



### Installing particle filter

1. Position filter from underneath and carefully push it into the heating unit.



2. Engage cover **-A-** and screw in the fastening screws **-B-**.
- Install cover under right instrument panel. Refer to No. 701919, Group 7 *Removing and installing cover under instrument panel.*

## Electrics maintenance: checking the function of the vehicle's lights

Turn on ignition, switch on all vehicle lights one after another and check that the individual lights are working.

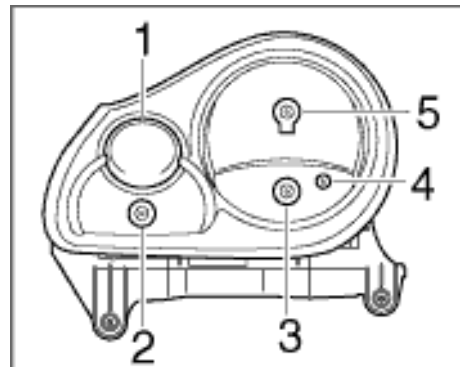
### Lights to be checked:

- ◆ Main headlights
- ◆ Fog lights
- ◆ Side direction indicator light
- ◆ Tail light
- ◆ Number plate light
- ◆ Additional brake light

### Bulbs

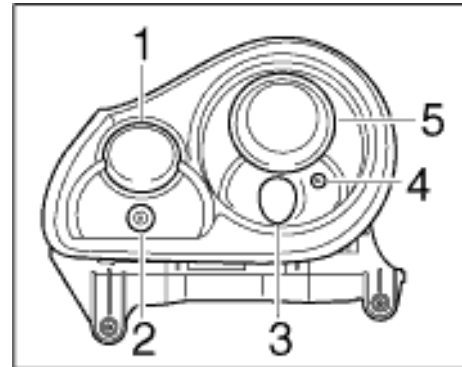
#### Halogen headlights

- **-1-** Bulb for direction indicator light. PY 21 W, 12V (yellow bulb).
- **-2-** Bulb for auxiliary high beam headlight. H7 (12V, 55W).
- **-3-** Bulb for high beam headlight. H7 (12V, 55W).
- **-4-** Bulb for parking light. H6W (12V, 6W).
- **-5-** Bulb for dipped beam headlight. H7 (12V, 55W).



### ***Xenon headlights***

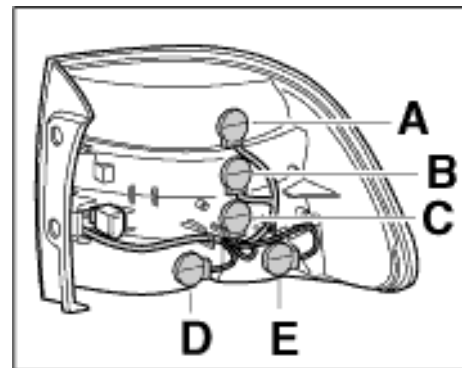
- **-1-** Bulb for direction indicator light. PY 21 W, 12V (yellow bulb).



- **-2-** Bulb for auxiliary high beam headlight. H7 (12V, 55W).
- **-3-** Bulb for cornering light. H3 (12V, 55W).
- **-4-** Bulb for parking light. H6W (12V, 6W).
- **-5-** Xenon gas discharge lamp for dipped beam and high beam. D1S (12V, 35W).

### ***Tail light***

- **-A-** Brake light. P 21 W.



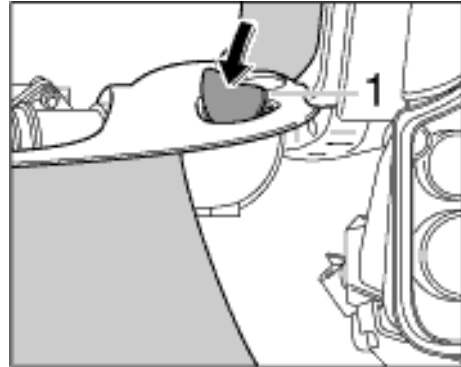
- **-B-** Direction indicator light. P 21 W.
- **-C-** Reverse light. P 21 W.
- **-D-** Rear fog light and tail light. P 21/4W.
- **-E-** Tail light. P 21/5W.

### **Adjusting the main headlights**

Flexible screwdriver 9703 .

- The vehicle must be on a horizontal surface!
- Make the adjustment with the regulator switch set to 0 (headlight beam adjustment)!

- Use flexible screwdriver 9703 with a hexagon bit to adjust the headlights.
  - Make the adjustment with the vehicle ready for driving (fuel tank full, driver's seat occupied by a person or 75 kg, the tyre pressure must correspond to the stipulated values) using a headlight adjustment unit.
1. Press down the cover -1- in the engine compartment and remove it.



2. Turn on the ignition, turn on dipped beam and high beam headlights.
3. Check setting, adjust if necessary.

#### Adjusting:

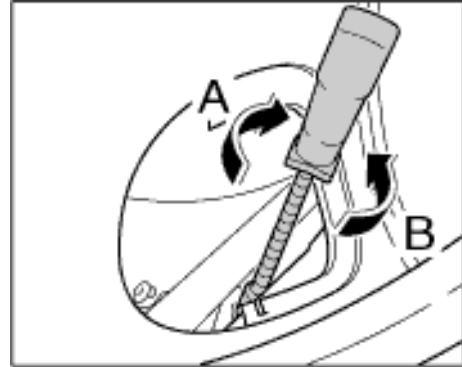
- Set the headlight adjustment unit to 10 cm/10 m (1%)!
- With this alignment, preference must be given to the central zone around the salient point of the light/dark limit!



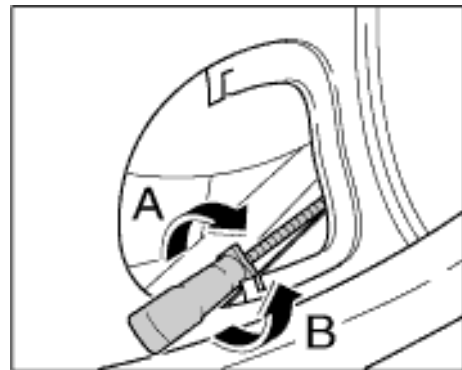
#### Note!

- *The distance between the headlights and the adjustment unit should be as small as possible!*
- *It should not exceed 30 cm, because if the distance is greater, it is no longer possible to define the formation of the light/dark limit in the adjustment unit clearly!*

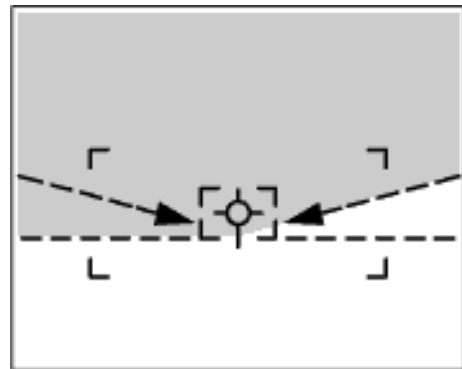
The vertical/side adjustment of the dipped beam/high beam highlight is made first: adjustment **-A-** and **-B-** .



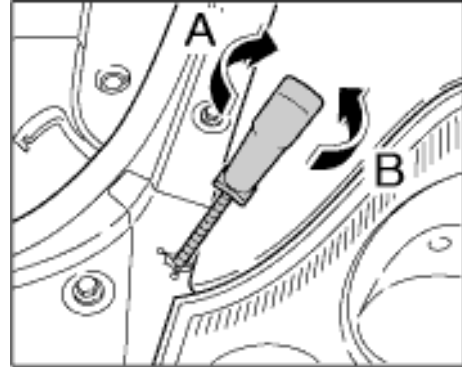
4. To do this, line up the light/dark borderline running upwards at an angle on the right-hand side with the dotted 15° line of the adjustment unit.
5. The dipped beam headlight is then adjusted horizontally: adjustment **-A-** and **-B-** .



To do this, line up the left, horizontal section of the light/dark limit (when driving on the right) with the dotted horizontal line of the adjustment unit.



6. Check auxiliary high beam headlight and, if necessary, adjust the side setting using **-A-** and **-B-**.



7. In the case of Xenon headlights, the ignition must be switched off and on after the adjustment has been made with the lights switched on.
8. After this, the adjustment must be checked again.
9. Fit cap again.

### ***Adjusting the main headlights, USA version***



#### **Note!**

- *A new adjustment may only be made in the case of accident repairs or replacement of the main headlights!*
- Vertical and horizontal adjustment must be carried out with a headlight adjustment unit.

### **Checking horn function**

Press horn actuation on steering wheel and check the function and sound of horn.

## Electrics maintenance: windscreen wiper and washer system, headlight washer system



### Caution!

***Danger of material damage if headlights are cleaned incorrectly!***

- ***Use only soapy water to clean the exterior lights and the plastic headlight lenses!***
- ***Never use chemical cleaning agents!***
- ***To avoid scratches, do not rub with dry or only damp cloths, paper towels or insect-removal sponges!***



### Note!

- *The headlight washer nozzles are pre-set!*
  - *Generally, it is not necessary to adjust them!*
  - *The spray nozzle for the rear window wiper cannot be adjusted!*
- Check the function, fluid levels and nozzle settings.

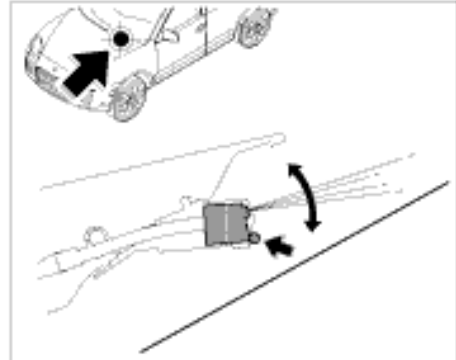
## Adjusting spray nozzles



### Note!

- *The angle of the spray nozzle can be adjusted without the use of a tool, i.e. it can be adjusted by hand.*
- *The recommended spraying range is in the central position.*
- *Sharp objects must not be placed in the nozzle bore as there is a risk of damaging the spray nozzle!*
- The bonnet must be closed.

**-Arrow-** Spray nozzle adjustment.



### Mix ratio of fluids for windscreen washer system

Fluid:	Mix ratio:
Water	Undiluted
Water/isopropanol	1 : 1
	2 : 1
	3 : 1
Water/ethanol	1 : 1
	2 : 1
	3 : 1

### Checking wiper blades

Check the wiper blades for any deformities and tears.

Turn on the ignition, activate the wipers and check the quality of the wipers.

## **Electrics maintenance: checking the function of electrical equipment, as well as the indicator and warning lights**

- Turn ignition key and check function of warning and indicator lights (visual inspection).
- Actuate power windows and check operation.
- Check that rear window heater is in working order.
- Adjust heater blower and fans to high and low and check the air vents for air throughput.
- Check operation of front seats.
- Check audio function.
- Check operation of door mirror, check adjustment options.
- Check operation of orientation lights.
- Actuate central locking and check operation.
- Operate cigarette lighter and check that it is in working order.