

Workshop Manual

Audi A4 2008 ➤ , Audi A5 Coupé 2008 ➤ ,
Audi A5 Sportback 2010 ➤ ,
Audi Q5 2008 ➤ , Audi Q5 China 2010 ➤

Auxiliary heater, supplementary heater

Edition 01.2014

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List of Workshop Manual Repair Groups

Repair Group

00 - Technical data

82 - Auxiliary heating



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Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

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00 – Technical data

1 General notes

(ARL003559; Edition 01.2014)

⇒ [“1.1 Type plates”, page 1](#)

⇒ [“1.2 Notes on operation of auxiliary/supplementary heater on vehicles with diesel engine”, page 2](#)

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⇒ [“1.7 Rules for cleanliness when working on the auxiliary/supplementary heater and fuel system”, page 17](#)

⇒ [“1.8 Overview of components for auxiliary heater in vehicle”, page 19](#)

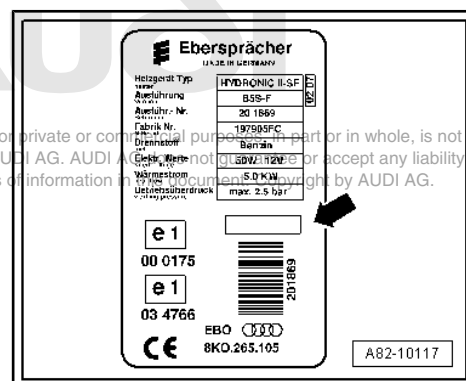
1.1 Type plates

Factory label on auxiliary heater



Note

- ◆ *The most important technical data are entered in the top section of the factory label.*
- ◆ *There are different types of factory labels and type plates; the illustrations show the type plate and factory label that were valid at the start of production.*
- ◆ *If the auxiliary heater is renewed, the factory label duplicate must be checked and renewed if necessary.*
- ◆ *The year of initial commissioning is entered below the technical data.*
- ◆ *The “Genuine replacement part” type plate must indicate the year of initial commissioning -arrow-.*
- ◆ *It is not necessary to renew the heat exchanger on auxiliary heaters after 10 years. German legislation only requires the heat exchanger to be renewed on air heaters; it is therefore not necessary to renew the heat exchanger on this auxiliary heater.*

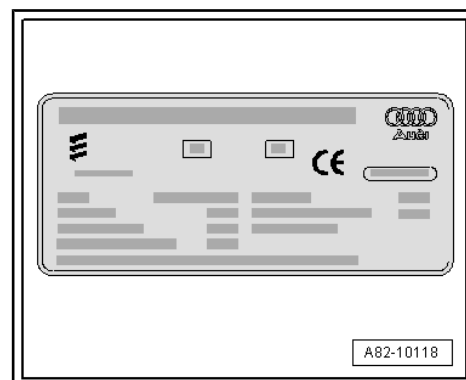


Type plate on bonnet



Note

A second type plate (duplicate) is attached to the bonnet on the right side of the engine compartment (as seen in direction of travel). If there is any doubt about the type of auxiliary heater installed, always observe the type plate attached to the auxiliary heater itself.



1.2 Notes on operation of auxiliary/supplementary heater on vehicles with diesel engine

Operation of the auxiliary heater may be impaired in cold weather (usually the only conditions under which the auxiliary heater is switched on) if vegetable or rapeseed methyl ester is used as fuel.

Reason:

- On account of their physical properties, operation with vegetable or rapeseed methyl ester fuel may result in deposits forming in the auxiliary heater combustion chamber (burner element). These deposits can cause combustion problems if the vehicle is run with vegetable or rapeseed methyl ester fuel for lengthy periods (no flame and deflagration in combustion chamber).

1.3 Starting conditions for auxiliary/supplementary heater

These requirements must be fulfilled on switching on the heater.

- Coolant circuit has been bled.
- Battery - A- is charged sufficiently.
- There is enough fuel in the fuel tank.
- No fault is stored in the heater event memory.
- The ignition is off and “auxiliary heating” mode has been set.

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Note

- ◆ Only the main steps of the operating sequence are outlined on the following pages.
- ◆ Some procedures taking place during auxiliary heater operation cannot be heard or measured ⇒ [page 13](#) .
- ◆ Depending on the vehicle equipment, the circulation pump - V55- may also be activated when requested by the corresponding engine control unit and the operating and display unit (Climatronic control unit - J255-) ⇒ [page 71](#) and ⇒ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ◆ Depending on the coolant temperature and the setting on the operating and display unit (Climatronic control unit - J255-), the heater coolant shut-off valve - N279- may also be activated when the auxiliary heater is switched off ⇒ [page 105](#) and ⇒ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ◆ On the Audi Q5, -N279- can only be activated up to a certain engine speed (currently up to approx. 1200 rpm). Therefore it is important to make sure that that version, coding and adaptation of the auxiliary heater are correct ⇒ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ◆ The voltages, times and frequencies listed in the table are approximate values regulated by the control unit on the basis of measured values (voltage, temperature etc.).
- ◆ 1 hertz (Hz) corresponds to 1 pulse per second.

1.4 Notes on auxiliary heater

⇒ ["1.4.1 Notes on auxiliary heater", page 3](#)

⇒ ["1.4.2 Switching on auxiliary heater", page 4](#)

⇒ ["1.4.3 Auxiliary heater heating mode", page 8](#)

1.4.1 Notes on auxiliary heater



Note

- ◆ *There are different versions of the auxiliary heater; the Audi Q5 must not be fitted with auxiliary heaters with part number 8K0.xxx.xxx. Pay attention to exact assignment when renewing auxiliary heater ⇒ Electronic parts catalogue .*
- ◆ *The brackets for the auxiliary heater were gradually modified on the Audi Q5 in model year 2009. Pay attention to the correct assignment when renewing the auxiliary heater and brackets ⇒ Electronic parts catalogue and ⇒ [page 45](#) .*
- ◆ *An electric supplementary air heater is currently installed on diesel-engined vehicles which are also fitted with an auxiliary heater as an optional extra ⇒ Audi sales literature . On vehicles with a supplementary air heater, the auxiliary heater is not activated as a "supplementary heater". Depending on vehicle equipment and production period, the supplementary air heater may be discontinued at a later date (not yet finalised).*
- ◆ *Vehicles with a diesel engine but no auxiliary heater are always fitted with an electric auxiliary heater. Heat energy is supplied to the air immediately after it leaves the heat exchanger of the air conditioning unit ⇒ Audi sales literature and ⇒ Heating, air conditioning; Rep. gr. 87 ; Heater and air conditioning unit (front) .*
- ◆ *This auxiliary heater is installed in various vehicle models. The part number changes each time this auxiliary heater is fitted in a new vehicle model (e.g. from 8K0 xxx xxx to 8R0 xxx xxx on introduction of the Audi Q5). Attention must therefore be paid to correct assignment. Care must however also be taken to ensure that an old auxiliary heater version is never installed in a vehicle previously fitted with a newer version. For example, an Audi A4 provided at the factory with an auxiliary heater with part number 8R0 xxx xxx is not to be fitted with an auxiliary heater with part number 8K0 xxx xxx ⇒ Electronic parts catalogue .*
- ◆ *As of 10.2010 auxiliary heaters with part number 4xx xxx xxx are gradually to be introduced. Service installation of this version of the auxiliary heater is also possible in vehicles originally fitted with an auxiliary heater with part number 8R0 xxx xxx or 8K0 xxx xxx. As, however, there are differences between certain components of the various auxiliary heater versions (e.g. 2-pin connector for power supply to auxiliary heater control unit - J364-), observe the correct assignment when renewing individual components of the auxiliary heater ⇒ Electronic parts catalogue .*
- ◆ *If an auxiliary heater with part number 4xx xxx xxx is installed, you must make sure with this version that it is correctly coded for the corresponding vehicle (different functions are stored in the control unit depending on the type of vehicle coded) ⇒ Electronic parts catalogue and ⇒ Guided Fault Finding function of vehicle diagnostic, testing and information system VAS 5051 .*

- ◆ If, following replacement of the auxiliary heater or the auxiliary heater control unit - J364- , the fault "Incorrect control unit fitted" is displayed, check that -J364- has been encoded for the correct type of fuel "Diesel" or "Petrol" and correct if necessary ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051 .
- ◆ Depending on the mode of operation set ("Auxiliary heating" or "Auxiliary ventilation"), certain faults which impair the auxiliary heating / auxiliary ventilation function are not stored in the event memory of the auxiliary heater control unit - J364- . Therefore, if there is a complaint about the auxiliary heater, also read out the event memory of the operating and display unit (Climatronic control unit - J255-) ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ◆ After renewing the auxiliary heater, remember to adapt the new auxiliary heater. For example, if an auxiliary heater with part number 8K0 xxx xxx , 8R0 xxx xxx or 4H0 xxx xxx up to index "A" is replaced by an auxiliary heater with part number 4H0 xxx xxx from index "B" onwards, it may be necessary to activate the adaption for the activation of the circulation pump - V55- by the auxiliary heater control unit - J364- in air conditioning mode (this function is deactivated for auxiliary heater with part number 4H0 xxx xxx from index "B" onwards). If -V55- cannot be activated by -J364- following a request from the air conditioner operating and display unit (Climatronic control unit - J255-), there may be problems with poor or no heating output on certain vehicle versions (depending on engine and production period). If -V55- is activated by -J364- following a request from -J255- on vehicles with a factory-fitted auxiliary heater with part number 4H0 xxx xxx from index "B" onwards (gradual introduction from model year 2012 onwards), there may also be problems ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ◆ From 06.2011 onwards, modified auxiliary heaters have been in use (changes to auxiliary heater control unit - J364- , different glow plugs for heater - Q9- , different burner elements for diesel heaters and modified moulded gasket for petrol heaters). Check the correct version and allocation of these parts prior to installation ⇒ Electronic parts catalogue .

1.4.2 Switching on auxiliary heater



Note

Vehicles with diesel engines (including those fitted with an auxiliary heater as optional extra) are currently provided with an auxiliary air heater element - Z35- ⇒ Heating, air conditioning; Rep. gr. 87 ; Heater and air conditioning unit (front) . On vehicles with an auxiliary air heater element - Z35- and fitted with an auxiliary heater, this is not activated as supplementary heater (discontinuation of the auxiliary air heater element - Z35- on vehicles fitted with an auxiliary heater as optional extra has not yet been finalised).

No.	Operating sequence
1	Cut-in signal

No.	Operating sequence																													
	Auxiliary heater: • Signal from operating and display unit, Climatronic control unit - J255- (via data bus, setting is made on MMI). • Signal from remote control receiver for auxiliary heater - R64- • Signal from vehicle diagnostic, testing and information system - VAS 5051/- (by way of basic setting function). – Operating and display unit, Climatronic control unit - J255- interrogation (by way of data bus). Supplementary heater (only on vehicles with diesel engine without auxiliary air heater element - Z35-): • Signal from operating and display unit, Climatronic control unit - J255- (by way of data bus). • Signal from vehicle diagnostic, testing and information system - VAS 5051/- (by way of basic setting function).																													
2	Initiating start procedure Auxiliary heater: • The operating and display unit, Climatronic control unit - J255- decides that heating mode is required to attain the specified temperature in the passenger compartment. – Checking of measured values and components by interrogating event memory, power supply, coolant temperature and checking of all electrical components and input signals ⇒ page 13 – Initiation of start procedure Supplementary heater (only on vehicles with diesel engine without auxiliary air heater element - Z35-): – Checking of measured values and components by interrogating event memory, power supply, coolant temperature and checking of all electrical components and input signals ⇒ page 13 – Initiation of start procedure Possible deviations; start procedure not initiated Auxiliary heater: • The operating and display unit, Climatronic control unit - J255- decides that heating mode is not required to attain the specified temperature in the passenger compartment. – Auxiliary ventilation (summer mode) ⇒ page 12																													
3	Starting 3.1 Starting (diesel) • No deviation in measured values and components monitored ⇒ page 13 – Activation of circulation pump - V55- and heater coolant shut-off valve - N279- – Voltage supplied briefly at combustion air blower - V6- – Voltage at glow plug for heater - Q9- <table><tr><th>Components</th><th>Activation with</th><th>Duration approx.</th></tr><tr><td>Combustion air blower - V6- (regulated)</td><td>approx. 8 V</td><td>5 sec.</td></tr><tr><td>Metering pump - V54- (regulated)</td><td>0 Hz</td><td>-</td></tr><tr><td>Glow plug for heater - Q9-</td><td>8 V</td><td>35 sec.</td></tr></table> – Activation of combustion air blower - V6- (supply) <table><tr><th>Components</th><th>Activation with</th><th>Duration approx.</th></tr><tr><td>Combustion air blower - V6- (regulated)</td><td>approx. 8 V</td><td>7 sec.</td></tr><tr><td>Metering pump - V54- (regulated)</td><td>0 Hz</td><td>-</td></tr><tr><td>Glow plug for heater - Q9-</td><td>8 V</td><td>7 sec.</td></tr></table> – Reduced voltage at combustion air blower - V6- – Activation of metering pump - V54- (fuel pre-supply, regulated, start-up sequence). <table><tr><th>Components</th><th>Activation with</th><th>Duration approx.</th></tr></table>			Components	Activation with	Duration approx.	Combustion air blower - V6- (regulated)	approx. 8 V	5 sec.	Metering pump - V54- (regulated)	0 Hz	-	Glow plug for heater - Q9-	8 V	35 sec.	Components	Activation with	Duration approx.	Combustion air blower - V6- (regulated)	approx. 8 V	7 sec.	Metering pump - V54- (regulated)	0 Hz	-	Glow plug for heater - Q9-	8 V	7 sec.	Components	Activation with	Duration approx.
Components	Activation with	Duration approx.																												
Combustion air blower - V6- (regulated)	approx. 8 V	5 sec.																												
Metering pump - V54- (regulated)	0 Hz	-																												
Glow plug for heater - Q9-	8 V	35 sec.																												
Components	Activation with	Duration approx.																												
Combustion air blower - V6- (regulated)	approx. 8 V	7 sec.																												
Metering pump - V54- (regulated)	0 Hz	-																												
Glow plug for heater - Q9-	8 V	7 sec.																												
Components	Activation with	Duration approx.																												

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No.	Operating sequence		
	Combustion air blower - V6- (regulated)	6 to 4 V	26 sec.
	Metering pump - V54- (regulated)	approx. 4 Hz	26 sec.
	Glow plug for heater - Q9-	approx. 8 V	26 sec.
	– Increased voltage at combustion air blower - V6- (monitoring time)		
	– Slightly increased regulation at metering pump - V54- (fuel pre-supply, regulated)		
	Components	Activation with	Duration approx.
	Combustion air blower - V6- (regulated)	4 to 9 V	37 sec.
	Metering pump - V54- (regulated)	4 to 5 Hz	37 sec.
	Glow plug for heater - Q9- (pre-heating, regulated)	8 V	37 sec.
	– Voltage at combustion air blower - V6- slightly increased to full load		
	– Clock frequency of metering pump - V54- increased to full load		
	Components	Activation with	Duration approx.
	Combustion air blower - V6- (regulated)	approx. 9 V	15 sec.
	Metering pump - V54- (regulated)	5 to 8 Hz	15 sec.
	Glow plug for heater - Q9- (pre-heating, regulated)	8 V	15 sec.
	– Combustion air blower - V6- set to full load		
	– Clock frequency of metering pump - V54- set to full load		
	– Deactivation of glow plug for heater - Q9- (start of full load operation)		
	Components	Activation with	Duration approx.
	Combustion air blower - V6- (regulated)	approx. 9 V	approx. 45 sec.
	Metering pump - V54- (regulated)	approx. 6 Hz	approx. 45 sec.
	Glow plug for heater - Q9- (flame monitoring)	0 V	-
	– Start of heating operation ⇒ page 8		
3.2 Starting (petrol)			
• No deviation in measured values and components monitored ⇒ page 13			
– Signal for activation of circulation pump - V55- and heater coolant shut-off valve - N279-			
– Voltage supplied briefly at combustion air blower - V6-			
– Voltage at glow plug for heater - Q9-			
Components	Activation with	Duration approx.	
Combustion air blower - V6- (regulated)	approx. 8 V	5 sec.	
Metering pump - V54- (regulated)	0 Hz	-	
Glow plug for heater - Q9- (pre-heating, regulated)	approx. 8 V	5 sec.	
– Increasing voltage at combustion air blower - V6- (supply)			
Components	Activation with	Duration approx.	
Combustion air blower - V6- (regulated)	0 to 2 V	40 sec.	
Metering pump - V54- (regulated)	0 Hz	-	
Glow plug for heater - Q9- (pre-heating, regulated)	approx. 8 V	40 sec.	
– Brief activation of metering pump - V54-			
Components	Activation with	Duration approx.	
Combustion air blower - V6- (regulated)	approx. 2 V	5 sec.	

No.	Operating sequence		
	Metering pump - V54- (regulated)	approx. 4 Hz	5 sec.
	Glow plug for heater - Q9- (pre-heating, regulated)	approx. 8 V	5 sec.
	- Increasing voltage at combustion air blower - V6-		
	- Clock frequency of metering pump - V54- increased to full load		
	Components	Activation with	Duration approx.
	Combustion air blower - V6- (regulated)	2 to 4 V	18 sec.
	Metering pump - V54- (regulated)	2 to 3 Hz	18 sec.
	Glow plug for heater - Q9- (pre-heating, regulated)	approx. 8 V	18 sec.
	- Increased voltage at combustion air blower - V6-		
	- Increased clock frequency of metering pump - V54- (start-up sequence)		
	- Reduced voltage at glow plug for heater - Q9-		
	Components	Activation with	Duration approx.
	Combustion air blower - V6- (regulated)	4 to 8 V	17 sec.
	Metering pump - V54- (regulated)	3 to 6 Hz	17 sec.
	Glow plug for heater - Q9- (pre-heating, regulated)	approx. 8 V	17 sec.
	- Increased clock frequency of metering pump - V54-		
	- Deactivation of glow plug for heater - Q9-		
	Components	Activation with	Duration approx.
	Combustion air blower - V6- (regulated)	8 V	20 sec.
	Metering pump - V54- (regulated)	6 to 7 Hz	20 sec.
	Glow plug for heater - Q9-	0 V	-
	- Voltage at combustion air blower - V6- slightly increased to full load (monitoring time)		
	- Increased clock frequency of metering pump - V54- to full load (start of full load operation)		
	Components	Activation with	Duration approx.
	Combustion air blower - V6- (regulated)	approx. 9 V	approx. 45 sec.
	Metering pump - V54- (regulated)	7 to 8 Hz	approx. 45 sec.
	Glow plug for heater - Q9- (pre-heating, regulated)	0 V	-
	- Start of heating operation ➔ page 8		
3.3	Possible deviations, start procedure is not initiated.		
	• Deviation in measured values and components monitored. By interrogation of event memory, power supply, coolant temperature and checking of all electrical components and input signals ➔ page 13. - Start procedure terminated • Resistance of flame monitor - G64- outside specified range ➔ page 13 - Termination of process (1 x restart) • Resistance of glow plug for heater - Q9- outside specified range even after restart Interrogation of resistance of glow plug for heater - Q9- (remains hot) ➔ page 13 - Termination of procedure (entry in event memory)/fault/off		



Note

- ◆ Activation of heater coolant shut-off valve - N279- is governed by temperature ➔ [page 16](#) .
- ◆ The operating and display unit, Climatronic control unit - J255- is switched on by the auxiliary heater control unit - J364- as soon as the coolant temperature in the auxiliary heater exceeds a value of approx. 40 ...50 °C. The exact cut-in temperature depends on the version of the auxiliary heater. The operating and display unit then activates the various air conditioner control motors and the fresh air blower - V2- in auxiliary heating mode ➔ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .

1.4.3 Auxiliary heater heating mode

No.	Operating sequence		
1	Full-load heating (max. heating output)		
	- Coolant temperature in heater less than 77 °C - No deviation in measured values and components monitored ⇒ page 13 - Resistance of flame monitor - G64- in specified range - Combustion air blower - V6- set to full load - Clock frequency of metering pump - V54- set to full load - Checking of flame formation by flame monitor - G64-		
	Components	Activation with	Duration approx.
	Combustion air blower - V6- (regulated)	approx. 9 V	Until coolant temperature in heater reaches 77 °C
	Metering pump - V54- (regulated)	approx. 8 Hz	Until coolant temperature in heater reaches 77 °C
	Glow plug for heater - Q9-	0 V	-
	- Coolant temperature in heater remains below 77 °C - Heater remains in full load operation until it is switched off. - Coolant temperature in heater reaches 77 °C. - Switching from full load to part load operation (coolant temperature in heater reaches 77 °C)		
	Possible deviations in full-load heating mode (max. heating output)		
	- Voltage drops below specified shut-off voltage. - Burn-off (entry in event memory)/fault/off. - Flame goes out. - Burn-off and re-start.		
	2	Part load operation (approx. 50 % of heat output)	
2. Part load operation (diesel)			

No.	Operating sequence		
	Switching from full load to part load operation (approx. 50 % of heat output): • The coolant temperature in the heater increases and reaches 77 °C. • No deviation in measured values and components monitored ⇒ page 13 • Resistance of flame monitor - G64- in specified range – Reduced voltage at combustion air blower - V6- – Reduced clock frequency of metering pump - V54- – Checking of flame formation by flame monitor - G64- – Activation of heater coolant shut-off valve - N279- , governed by temperature ⇒ page 16		
	Components	Activation with	Duration approx.
	Combustion air blower - V6- (regulated)	from approx. 9 V to approx. 6 V	5 sec.
	Metering pump - V54- (regulated)	approx. 4 Hz	5 sec.
	Glow plug for heater - Q9-	0 V	-
	– Combustion air blower - V6- set to part load – Clock frequency of metering pump - V54- set to part load – Checking of flame formation by flame monitor - G64-		
	Components	Activation with	Duration approx.
	Combustion air blower - V6- (regulated)	approx. 6 V	Until coolant temperature in heater drops below 60 °C or reaches 89 °C
	Metering pump - V54- (regulated)	approx. 4 Hz	Until coolant temperature in heater drops below 60 °C or reaches 89 °C
	Glow plug for heater - Q9-	0 V	-
	• Coolant temperature in heater reaches 89 °C. – Switching from part load operation to control interval • Coolant temperature in heater drops below 60 °C – Switching from part load to full load operation • Coolant temperature in heater remains between 60 °C and 89 °C – Heater remains in full load operation until it is switched off.		
2.	Part load operation (petrol)		
2	Switching from full load to part load operation (approx. 50 % of heat output): • The coolant temperature in the heater increases and reaches 77 °C. • No deviation in measured values and components monitored ⇒ page 13 • Resistance of flame monitor - G64- in specified range		

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No.	Operating sequence														
	- Reduced voltage at combustion air blower - V6- - Reduced clock frequency of metering pump - V54- - Checking of flame formation by flame monitor - G64- - Activation of heater coolant shut-off valve - N279- , governed by temperature ⇒ page 16														
	<table><tr><th>Components</th><th>Activation with</th><th>Duration approx.</th></tr><tr><td>Combustion air blower - V6- (regulated)</td><td>from approx. 9 V to 5 V</td><td>5 sec.</td></tr><tr><td>Metering pump - V54- (regulated)</td><td>approx. 2 Hz</td><td>5 sec.</td></tr><tr><td>Glow plug for heater - Q9-</td><td>0 V</td><td>-</td></tr></table>			Components	Activation with	Duration approx.	Combustion air blower - V6- (regulated)	from approx. 9 V to 5 V	5 sec.	Metering pump - V54- (regulated)	approx. 2 Hz	5 sec.	Glow plug for heater - Q9-	0 V	-
	Components	Activation with	Duration approx.												
	Combustion air blower - V6- (regulated)	from approx. 9 V to 5 V	5 sec.												
	Metering pump - V54- (regulated)	approx. 2 Hz	5 sec.												
	Glow plug for heater - Q9-	0 V	-												
	- Combustion air blower - V6- set to part load - Clock frequency of metering pump - V54- set to part load - Checking of flame formation by flame monitor - G64-														
	<table><tr><th>Components</th><th>Activation with</th><th>Duration approx.</th></tr><tr><td>Combustion air blower - V6- (regulated)</td><td>5 V</td><td>Until coolant temperature in heater drops below 60 °C or reaches 89 °C</td></tr><tr><td>Metering pump - V54- (regulated)</td><td>2 Hz</td><td>Until coolant temperature in heater drops below 60 °C or reaches 89 °C</td></tr><tr><td>Glow plug for heater - Q9-</td><td>0 V</td><td>-</td></tr></table>			Components	Activation with	Duration approx.	Combustion air blower - V6- (regulated)	5 V	Until coolant temperature in heater drops below 60 °C or reaches 89 °C	Metering pump - V54- (regulated)	2 Hz	Until coolant temperature in heater drops below 60 °C or reaches 89 °C	Glow plug for heater - Q9-	0 V	-
	Components	Activation with	Duration approx.												
	Combustion air blower - V6- (regulated)	5 V	Until coolant temperature in heater drops below 60 °C or reaches 89 °C												
	Metering pump - V54- (regulated)	2 Hz	Until coolant temperature in heater drops below 60 °C or reaches 89 °C												
	Glow plug for heater - Q9-	0 V	-												
• Coolant temperature in heater reaches 89 °C. - Switching from part load operation to control interval • Coolant temperature in heater drops below 60 °C - Switching from part load to full load operation • Coolant temperature in heater remains between 60 °C and 89 °C - Heater remains in full load operation until it is switched off.															
3	Control interval														
• The coolant temperature in the heater increases and reaches 89 °C. • No deviation in measured values and components monitored ⇒ page 13 • Resistance of flame monitor - G64- in specified range - No regulation of combustion air blower - V6- - No regulation of metering pump - V54- - No regulation of glow plug for heater - Q9-															
<table><tr><th>Components</th><th>Activation with</th><th>Duration approx.</th></tr><tr><td>Combustion air blower - V6-</td><td>0 V</td><td>-</td></tr><tr><td>Metering pump - V54- .</td><td>0 Hz</td><td>-</td></tr><tr><td>Glow plug for heater - Q9-</td><td>0 V</td><td>-</td></tr></table>			Components	Activation with	Duration approx.	Combustion air blower - V6-	0 V	-	Metering pump - V54- .	0 Hz	-	Glow plug for heater - Q9-	0 V	-	
Components	Activation with	Duration approx.													
Combustion air blower - V6-	0 V	-													
Metering pump - V54- .	0 Hz	-													
Glow plug for heater - Q9-	0 V	-													

No.	Operating sequence
	• Coolant temperature in heater remains above 65 °C. – Heater remains in control interval until it is switched off. • Coolant temperature in heater drops below 65 °C – Starting from control interval ⇒ page 4



Note

When starting from the control interval, the times for the various procedures differ from those when re-starting, as the heater is already at operating temperature (e.g. pre-heating for 20 instead of 35 s, fuel delivery for 30 instead of 56 s).

1.5 Operating sequence for auxiliary heater

⇒ [“1.5.1 Switching off auxiliary heater”, page 11](#)

⇒ [“1.5.2 Auxiliary ventilation”, page 12](#)

⇒ [“1.5.3 Measured values and components monitored during operating sequence”, page 13](#)

⇒ [“1.5.4 Sequence with required heat output between 50 and 100 %”, page 15](#)

⇒ [“1.5.5 Sequence with required heat output less than 50 %”, page 15](#)

1.5.1 Switching off auxiliary heater

No	Operating sequence		
1	Shut-off signal		
	Auxiliary heater:		
	• Signal from operating and display unit, Climatronic control unit - J255- (via data bus, setting is made on MMI). • Signal from remote control receiver for auxiliary heater - R64-		
	Supplementary heater (only on vehicles with diesel engine without auxiliary air heater element - Z35-):		
	• Signal from operating and display unit, Climatronic control unit - J255- (by way of data bus). • Signal from vehicle diagnostic, testing and information system - VAS 5051/- (by way of basic setting function)		
2	Burn-off / run-on (cooling down of heater)		
	• No deviation in measured values and components monitored ⇒ page 13		
	2.1 Diesel		
	– Increased voltage at combustion air blower - V6- – Deactivation of metering pump - V54- – Voltage at glow plug for heater - Q9-		
	Components	Activation with	Duration approx.
	Combustion air blower - V6-	6 to 9 V	20 sec.
	Metering pump - V54-	0 Hz	-
	Glow plug for heater - Q9- (afterglow, regulated)	approx. 8 V	20 sec.
	– Deactivation of glow plug for heater - Q9-		

No.	Operating sequence		
	Components	Activation with	Duration approx.
	Combustion air blower - V6-	approx. 9 V	100 sec.
	Metering pump - V54-	0 Hz	-
	Glow plug for heater - Q9- (afterglow, regulated)	0 V	-
	– Deactivation of circulation pump - V55- and heater coolant shut-off valve - N279-		
2.2	Petrol		
	• No deviation in measured values and components monitored ⇒ page 13		
	– Increased voltage at combustion air blower - V6-		
	– Deactivation of metering pump - V54-		
	– Deactivation of glow plug for heater - Q9-		
	Components	Activation with	Duration approx.
	Combustion air blower - V6-	approx. 9 V	0 to 120 sec.
	Metering pump - V54-	0 Hz	-
	Glow plug for heater - Q9-	0 V	-
	– Deactivation of circulation pump - V55- and heater coolant shut-off valve - N279-		



Note

- ◆ In “auxiliary heating mode”, the auxiliary heater is switched off automatically by the operating and display unit, Climatronic control unit - J255- after a maximum of 60 minutes. Auxiliary heater/auxiliary ventilation operating time is set on MMI (Multi Media Interface).
- ◆ If the heater is shut off while it is in the control interval, it cuts out without burn-off and run-on.
- ◆ As the supplementary heater (only on vehicles with diesel engine without auxiliary air heater element - Z35-, discontinuation of -Z35- and introduction of this auxiliary heater function not yet finalised) is operated with the engine running, it is hardly noticeable during heater operation. Heater run-on is audible if the engine is switched off.

1.5.2 Auxiliary ventilation

No.	Operating sequence
1	Cut-in signal • Signal from remote control receiver for auxiliary heater - R64- – Operating and display unit, Climatronic control unit - J255- interrogation (by way of data bus) ⇒ page 4 . – Activation of operating and display unit (Climatronic control unit - J255-), -J255- “on” Possible deviations • The operating and display unit, Climatronic control unit - J255- decides that heating mode is required to attain the specified temperature in the passenger compartment. – Auxiliary heating (winter conditions)
2	Shut-off signal

No.	Operating sequence
	• Deactivation signal from remote control receiver for auxiliary heater - R64- – Information to operating and display unit (Climatronic control unit - J255-) via data bus – Activation of operating and display unit (Climatronic control unit - J255-), -J255- "off"



Note

- ◆ *In auxiliary ventilation mode, the auxiliary heater control unit - J364- is only required to switch the signal from the remote control receiver for auxiliary heater - R64- to the data bus.*
- ◆ *If auxiliary ventilation mode has been set in the MMI (Multi Media Interface) or if the operating and display unit (Climatronic control unit - J255-) has established that auxiliary heating mode is not required to attain the specified temperature in the passenger compartment, the auxiliary heater control unit - J364- is not actuated.*

1.5.3 Measured values and components monitored during operating sequence

Measured values and components	Operating sequence
Interrogation of event memory	• No entry in event memory – Heating mode control sequence • Fault-induced interlock entered – Termination of procedure/fault/off
Interrogation of voltage at heater	• Voltage greater than specified shut-off voltage – Heating mode control sequence • Voltage is less than or drops below specified shut-off voltage – Termination of procedure (entry in event memory)/fault/off
Interrogation of information from data bus diagnostic interface - J533-	• Voltage greater than specified shut-off voltage – Heating mode control sequence • Voltage is less than or drops below specified shut-off voltage – Termination of procedure (entry in event memory)/fault/off
Monitoring of all electrical components and input signals	• No faults detected – Heating mode control sequence

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Measured values and components	Operating sequence
	• Fault detected – See above ➤ page 4 and ➤ page 8 .
Interrogation of flame monitor - G64-	• Resistance of flame monitor - G64- in specified range – Heating mode control sequence • Resistance of flame monitor - G64- outside specified range – Termination of process (1 x restart) • Resistance of flame monitor - G64- outside specified range even after start repetition – Termination of procedure (entry in event memory)/fault/off
Interrogation of coolant temperature in heater (less than 81 °C)	• Coolant temperature (81 °C or less) – Heating mode control sequence • Coolant temperature (greater than 81 °C) – Switch to control interval



Note

- ◆ *The resistance characteristic curve of the flame monitor - G64- enables the auxiliary heater control unit - J364- to detect whether a flame has formed in the heater.*
- ◆ *The heater is interlocked following three consecutive unsuccessful attempted starts involving the same fault.*
- ◆ *If the heater has been interlocked on account of a fault, the event memory must be read out and the content of the event memory erased. Depending on the cause of the fault, it might also be necessary to cancel the locking via the "Adaption" function ➤ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*



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1.5.4 Sequence with required heat output between 50 and 100 %

P (kW) = Heat output in kilowatts

t (°C) = Temperature of coolant in heater (degrees Celsius)

A = Starting procedure begins

- The coolant temperature in the heater must be less than 60 °C.

B = Starting procedure

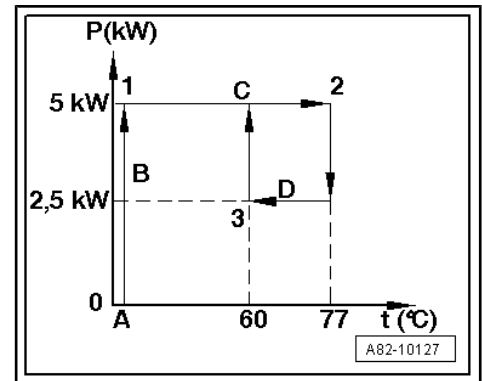
C = Full load operation

D = Part load operation

1 = Start of full load operation

2 = Switchover from full to part load operation

3 = Switchover from part to full load operation



1.5.5 Sequence with required heat output less than 50 %

P (kW) = Heat output in kilowatts

t (°C) = Temperature of coolant in heater (degrees Celsius)

A = Start procedure begins (coolant temperature in heater must be less than 60 °C)

B = Starting procedure

C = Full load operation

D = Part load operation

E = Control interval

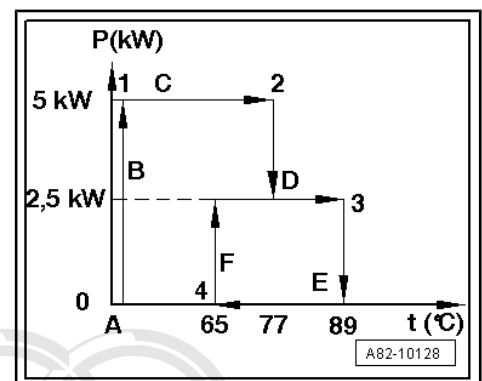
F = Starting from control interval

1 = Start of full load operation

2 = Switchover from full to part load operation

3 = Switchover from part load operation to control interval

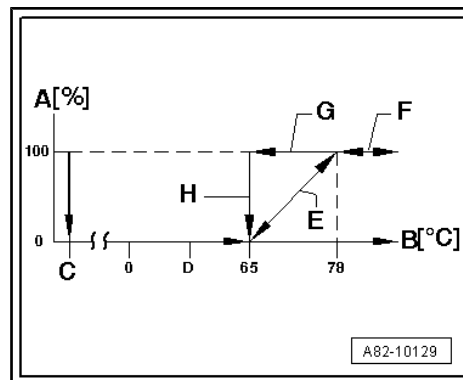
4 = End of control interval



1.6 Activation of heater coolant shut-off valve

A = This proportion of the coolant in % is conveyed in the large coolant circuit.

- If the heater coolant shut-off valve - N279- is not activated, 100 % of the coolant is delivered in the large circuit (via the engine to the auxiliary heater).
- If the heater coolant shut-off valve - N279- is constantly activated, 100 % of the coolant is delivered in the small circuit (directly from the heat exchanger in the air conditioning unit to the auxiliary heater).
- The heater coolant shut-off valve - N279- is activated by the auxiliary heater control unit - J364- in line with the coolant temperature and the specified request.



B = Temperature of coolant in auxiliary heater in °C (degrees Celsius).

C = Activation signal for auxiliary heater (the heater coolant shut-off valve - N279- is activated and the coolant flows back from the heat exchanger in the air conditioning unit to the auxiliary heater).

D = The auxiliary heater is in auxiliary heating full load mode; the coolant temperature increases (or remains constant). All the coolant drawn in by the circulation pump - V55- comes from the front air conditioner heat exchanger.

E = The auxiliary heater is in auxiliary heating full or part load mode. Depends on the characteristic curve stored in the auxiliary heater control unit - J364-. The coolant temperature increases (or remains constant) and the proportion of the coolant (drawn in by the circulation pump - V55-) which flows back via the engine to the auxiliary heater is regulated by the auxiliary heater control unit - J364- .

F = All the coolant drawn in by the circulation pump - V55- flows back via the engine to the auxiliary heater, the coolant temperature continues to increase (less heat is emitted by the air conditioner heat exchangers than is generated by the auxiliary heater or, for example, with the engine running).

G = All the coolant drawn in by the circulation pump - V55- flows back via the engine to the auxiliary heater, the coolant temperature decreases (more heat is emitted by the front air conditioner heat exchangers or the engine than is generated by the auxiliary heater and the engine).

H = The coolant temperature drops below 65 °C.

**Note**

- ◆ *Depending on the ambient temperature and the quantity of heat emitted by the air conditioner heat exchangers, the activation of the heater coolant shut-off valve - N279- may remain in the various operating statuses for a lengthy period.*
- ◆ *Actuation of the heater coolant shut-off valve - N279- is also maintained if the engine is started with the auxiliary heater in operation (however only up to a certain engine speed on the Audi Q5).*
- ◆ *Different versions of the heater coolant shut-off valve - N279- (for Audi A5 Coupé, Audi A4 and Audi Q5); pay attention to correct assignment ⇒ Electronic parts catalogue .*
- ◆ *On the Audi Q5, -N279- can only be activated up to a certain engine speed (currently up to approx. 1200 rpm). Therefore it is important to make sure that that version, coding and adaption of the auxiliary heater are correct ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ◆ *At a coolant temperature of approx. 89 °C, the auxiliary heater switches from control mode to control interval. During the control interval, the heater coolant shut-off valve - N279- is not activated and the coolant flows in the large coolant circuit (via the engine).*
- ◆ *The display in the measured value block for the activation of the heater coolant shut-off valve - N279- differs and depends on the vehicle model and the version of the auxiliary heater control unit - J364- . On this vehicle for example, currently a display of 100 % indicates that 100 % of the coolant is being circulated in the small circuit and that the heater coolant shut-off valve - N279- is being activated ⇒ Guided Fault Finding function of vehicle diagnostic, testing and information system - VAS 5051 A- .*
- ◆ *Depending on the vehicle model, the engine fitted, the coolant temperature and the setting on the operating and display unit, Climatronic control unit - J255- , -N279- may also be actuated by the auxiliary heater control unit - J364- with the auxiliary heater switched off. In this case, the activation is a response to a request from the operating and display unit (Climatronic control unit - J255-) via the data bus ⇒ Heating, air conditioning; Rep. gr. 87 ; Operating and display unit .*
- ◆ *Depending on the model and the engine, the vehicle may additionally be fitted with a non-return valve in the coolant circuit. A certain amount of coolant then flows back to the engine via this non-return valve in the small circuit if the heater coolant shut-off valve - N279- is being actuated ⇒ [page 98](#) .*

1.7 Rules for cleanliness when working on the auxiliary/supplementary heater and fuel system

- ◆ Carefully clean all connections and surrounding areas before disconnecting.
- ◆ Place parts that have been removed on a clean surface (use sheeting or paper, not fluffy cloths) and cover them over.
- ◆ Carefully cover or seal open components if repairs cannot be carried out immediately
- ◆ Only install clean components:



- Replacement parts should only be unpacked immediately prior to installation.
- Do not use parts that have been stored without their packaging (e.g. in toolboxes etc.).
- ◆ When fuel system is open:
 - Do not work with compressed air.
 - Do not move vehicle.
 - Do not start engine.
- Do not switch on the auxiliary heater (also applies to switching on via “Basic setting” function of Guided Fault Finding) ⇒ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- .



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1.8 Overview of components for auxiliary heater in vehicle



Note

- ◆ *Fitting locations of various relays and fuses for auxiliary heater
⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*
- ◆ *Performing Guided Fault Finding procedure for auxiliary heater
⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ◆ *Guided Fault Finding for the auxiliary heater can be performed using the "Guided Fault Finding" function of the ⇒ Vehicle diagnostic, testing and information system - VAS 5051/-*
- ◆ *The Guided Fault Finding for the auxiliary heater can only be started with the ignition switched on (the data bus diagnostic interface - J533- is only active when the ignition is on). After the auxiliary heater has switched to diagnosis mode, the Guided Fault Finding for the auxiliary heater can be continued even with the ignition switched off.*
- ◆ *There are different versions of the auxiliary heater (the Audi Q5 must not be fitted with auxiliary heaters with part number 8K0.xxx.xxx). When renewing an auxiliary heater, observe the exact assignment ⇒ [page 3](#) and ⇒ Electronic parts catalogue .*
- ◆ *As of 10.2010 auxiliary heaters with part number 4xx xxx xxx are gradually to be introduced. Service installation of this version of the auxiliary heater is also possible in vehicles originally fitted with an auxiliary heater with part number 8R0 xxx xxx or 8K0 xxx xxx. As, however, there are differences between certain components of the various auxiliary heater versions (e.g. 2-pin connector for power supply to auxiliary heater control unit - J364-), observe the correct assignment when renewing individual components of the auxiliary heater ⇒ Electronic parts catalogue .*
- ◆ *If an auxiliary heater with part number 4xx xxx xxx is installed, you must make sure with this version that it is correctly coded for the corresponding vehicle (different functions are stored in the control unit depending on the type of vehicle coded) ⇒ Electronic parts catalogue and ⇒ Guided Fault Finding function of vehicle diagnostic, testing and information system VAS 5051 .*
- ◆ *If the auxiliary heater is to be renewed, interrogate the coding and adaption of the auxiliary heater control unit - J364- via the "Control unit replacement" function of the Guided Fault Finding routine prior to removal (auxiliary heater control unit - J364- is fitted in heater) ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ◆ *If, depending on the version of the auxiliary heater control unit - J364- , the auxiliary heater cannot be activated on a new vehicle or in the case of a newly installed auxiliary heater, the component protection function may be active (if a large number of faults occurred simultaneously prior to initial commissioning, e.g. at the factory, this fault may no longer be displayed although it is still active). If necessary, re-adapt the component protection function in the same way as for a newly installed auxiliary heater to cancel the component protection ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*



- ◆ *The following illustration shows the positions of the components on an Audi A5 Coupé. The layout differs slightly on the Audi A4 and Audi Q5. However, the components must be removed and installed in the same manner as described for the Audi A5 Coupé (unless indicated otherwise).*



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2 Safety precautions

⇒ **"2.1 Safety precautions when working on vehicles with start/stop system", page 21**

⇒ **"2.2 Safety precautions when working on vehicles with auxiliary/supplementary heater", page 21**

2.1 Safety precautions when working on vehicles with start/stop system



WARNING

Injury risk due to automatic engine start (vehicles with start/stop system).

- ◆ ***On vehicles with an activated start/stop system (indicated by a message in the instrument cluster display), the engine may start automatically on demand.***
- ◆ ***Therefore, please make sure that the start/stop system is deactivated when performing repair work on the vehicle (switch off the ignition, and switch it on again if required).***

- ◆ From model year 2010 onwards, a start/stop system (optional equipment) is offered for this vehicle in combination with certain engines. Vehicles with a start/stop system must not be fitted with auxiliary heaters with part number 8K0 xxx xxx ⇒ Electronic parts catalogue and ⇒ Guided Fault Finding function of vehicle diagnostic, testing and information system VAS 5051 .
- ◆ On vehicles with a start/stop system, no coolant circulation pump - V50- (no coolant pump - V36-) is fitted for the stop function ⇒ Heating; air conditioning; Rep. gr. 87 ; Coolant circuit and ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses .
- ◆ On vehicles with a start/stop system, the circulation pump - V55- of the auxiliary heater is activated by the auxiliary heater control unit - J364- while the stop function is active. Via the data bus, -J364- is requested by the air conditioner operating and display unit, Climatronic control unit - J255- to switch on - V55- ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051

2.2 Safety precautions when working on vehicles with auxiliary/supplementary heater

- ◆ The auxiliary heater should not be switched on in areas where there is a danger of fire or explosion. Switch off the auxiliary heater e.g. by pressing the "OFF" button on the remote control or via the MMI (Multi Media Interface).
- ◆ The auxiliary heater must not be switched on in closed spaces without exhaust gas extraction systems.
- ◆ Observe the relevant safety regulations when working on the fuel system ⇒ Fuel supply system; Rep. gr. 00 ; Safety precautions; Safety precautions when working on the fuel supply system .
- ◆ The engine must not be started if components of the fuel system (e.g. metering pump - V54- , fuel line, fuel gauge sender) are removed or opened.



- ◆ After completing the repair work on the auxiliary heater or fuel system, check the operation of the auxiliary heater.
- ◆ Before starting repair work on auxiliary heater:
 - Release pressure in the cooling system by opening the cap on the coolant expansion tank.
 - Interrupt the power and fuel supply for the auxiliary heater (e.g. by removing the auxiliary heater fuse) ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
 - If the auxiliary heater is to be renewed, interrogate the coding and adaption of the auxiliary heater control unit - J364- in the "Control unit replacement" function of the Guided Fault Finding routine ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ◆ After completing the repair work on the auxiliary heater, perform Guided Fault Finding (check coding, interrogate event memory and perform basic setting and adaption) ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ◆ Avoid switching the auxiliary heater on repeatedly without intermediate heating operation (if the auxiliary heater is switched off repeatedly during the start sequence, fuel may accumulate in the combustion chamber and the auxiliary heater may generate additional smoke when the auxiliary heater is next switched on).

⇒ **"2.1 Safety precautions when working on vehicles with start/stop system", page 21**

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3 Repair instructions

⇒ [“3.1 General repair instructions”, page 23](#)

⇒ [“3.2 Contact corrosion”, page 23](#)

3.1 General repair instructions

- ◆ Disconnect negative and positive terminals of battery - A- before starting electric welding work on the vehicle ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .
- ◆ If coolant has been drained, bleed auxiliary heater after filling cooling system ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system and ⇒ [page 108](#) .
- ◆ If parts of the fuel system have been removed or renewed, make sure that all components used for the fuel take-off to the auxiliary heater are properly installed. The auxiliary heater is then to be switched on and operated at full load for at least 10 minutes to ensure complete bleeding of the fuel pipe. Operation of the auxiliary heater is also to be checked.
- ◆ After performing repairs in the vicinity of the fuel line to the auxiliary heater, check that:
 - There is no air in the fuel line to the auxiliary heater.
 - The fuel lines are flush with the underbody and protected against mechanical damage.
 - The fuel line to the auxiliary heater is protected against heat which could affect its operation.
 - The fuel line does not make contact with components which can become hot.
- ◆ When performing repair work in the area of the fuel delivery unit, make sure that the fuel take-off pipe for the auxiliary heater is routed correctly in the fuel tank. If the take-off pipe is not routed correctly, the metering pump - V54- may only supply fuel if the fuel tank is completely full; if this is not the case, no fuel is supplied and the auxiliary heater is deactivated due to a fault ⇒ [page 114](#) .
- ◆ After components of the fuel system have been removed and installed, the auxiliary heater must be switched on and operated at full load for at least 10 minutes to make sure that the fuel line is bled completely.
- ◆ If there is not enough fuel in the fuel tank (fuel gauge in control unit in dash panel insert - J285- in “red zone”), the auxiliary heater control unit - J364- does not switch on the auxiliary heater (activation prohibited via the data bus due to a lack of fuel).
- ◆ Prior to activation and during operation of the auxiliary heater, the auxiliary heater control unit - J364- interrogates the data bus diagnostic interface - J533- / battery monitor control unit - J367- via the data bus. As soon as the data bus diagnostic interface - J533- transmits a request for energy saving because the battery is no longer sufficiently charged or because the voltage of the electrical system is insufficient, the auxiliary heater control unit - J364- switches off the auxiliary heater.

3.2 Contact corrosion

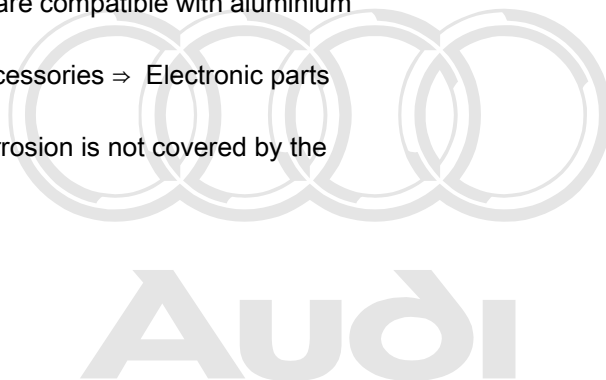
Contact corrosion can occur if unsuitable connecting elements (bolts, nuts, washers), rivets, plugs, grommets, adhesives, etc. are used.



For this reason, the manufacturer only fits connecting elements with a special coating. In addition, rubber components, plastic components and adhesives are made of non-conductive materials. These tested, aluminium-compatible components are also available as replacement parts ⇒ Electronic parts catalogue .

Please note:

- ◆ If you have any doubts about whether certain parts can be re-used, always use new components.
- ◆ We recommend the use of genuine replacement parts only as these have been checked and are compatible with aluminium ⇒ Electronic parts catalogue .
- ◆ We recommend using Audi Accessories ⇒ Electronic parts catalogue .
- ◆ Damage caused by contact corrosion is not covered by the warranty.



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82 – Auxiliary heating

1 Overview of fitting locations - auxiliary/supplementary heater

⇒ [“1.1 Overview of fitting locations - components not located in passenger compartment”, page 25](#)

⇒ [“1.2 Overview of fitting locations - components in passenger compartment \(front\)”, page 31](#)

⇒ [“1.3 Overview of fitting locations - components in passenger compartment \(rear\)”, page 37](#)

1.1 Overview of fitting locations - components not located in passenger compartment

1 - Metering pump - V54-

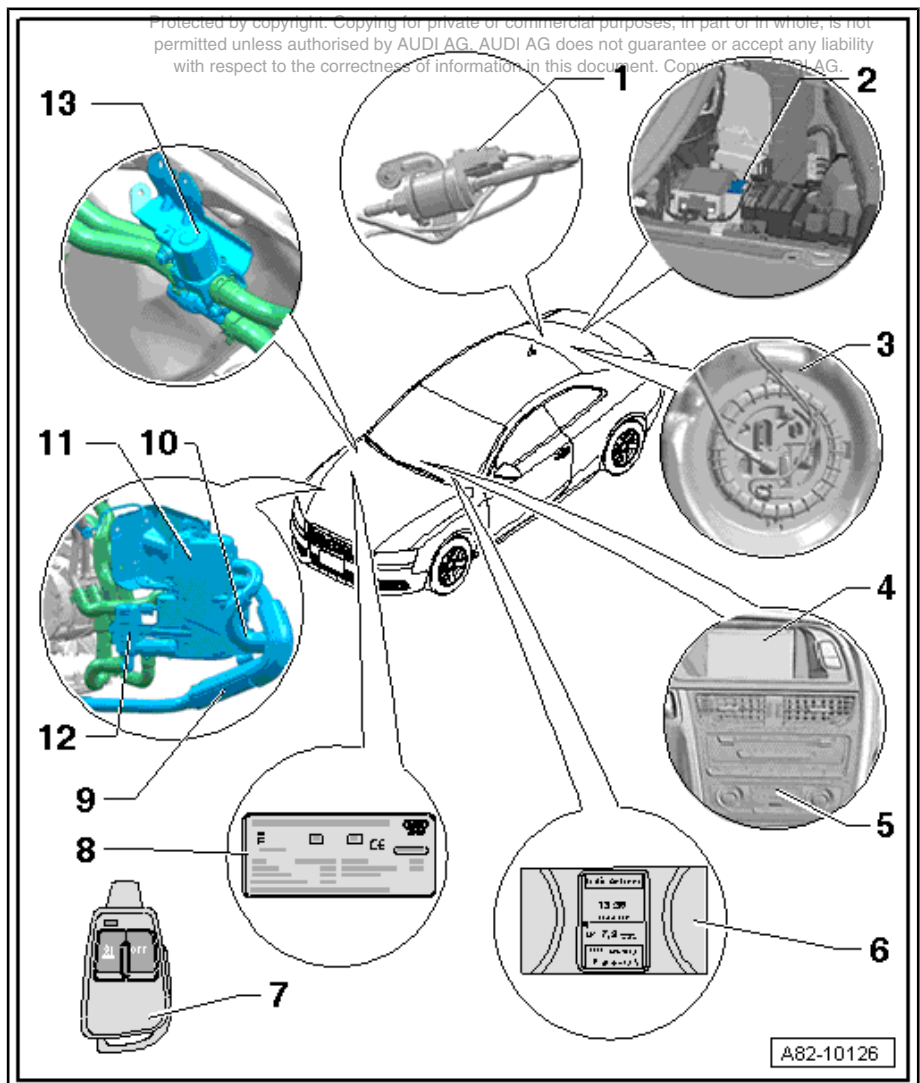
- ☐ Removing and installing ⇒ [page 130](#)
- ☐ Fuel take-off for auxiliary heater ⇒ [page 111](#)
- ☐ Checking fuel delivery rate ⇒ [page 124](#)
- ☐ Checking activation ⇒ Guided Fault Finding function of vehicle diagnostic, testing and information system - VAS 5051/-
- ☐ Checking wiring ⇒ Guided Fault Finding function of vehicle diagnostic, testing and information system - VAS 5051/-
- ☐ Depending on the model, the vehicle may be fitted with noise insulation in the fuel pipe to the auxiliary heater in the area of the metering pump - V54- to reduce noise ⇒ [page 130](#).

2 - Remote control receiver for auxiliary heater - R64-

- ☐ Description ⇒ [“1.3 Overview of fitting locations - components in passenger compartment \(rear\)”, page 37](#)

3 - Fuel delivery unit with connection for fuel take-off for auxiliary heater

- ☐ Different fuel delivery units depending on version of vehicle (petrol or diesel engine, front-wheel or four-wheel drive) ⇒ Fuel supply system; Rep. gr. 20 ; Fuel delivery unit/fuel gauge sender; Exploded view - fuel delivery unit/fuel gauge sender.
- ☐ Fuel take-off for auxiliary heater ⇒ [page 111](#)



**Note**

After components of the fuel system have been removed and installed, the auxiliary heater must be switched on and operated at full load for at least 10 minutes to make sure that the fuel line is bled completely.

4 - Multi Media Interface (MMI)

- ☐ Description

⇒ ["1.2 Overview of fitting locations - components in passenger compartment \(front\)", page 31](#)

5 - Operating and display unit (Climatronic control unit - J255-)

- ☐ Description

⇒ ["1.2 Overview of fitting locations - components in passenger compartment \(front\)", page 31](#)

6 - Instrument cluster display

- ☐ Description

⇒ ["1.2 Overview of fitting locations - components in passenger compartment \(front\)", page 31](#)

7 - Remote control for auxiliary heater

- ☐ Description

⇒ ["1.2 Overview of fitting locations - components in passenger compartment \(front\)", page 31](#)

8 - Factory label duplicate for auxiliary heater

- ☐ Indicates both technical data and auxiliary heater version.
- ☐ Bonded onto inside of bonnet

9 - Exhaust silencer of auxiliary heater

- ☐ Removing and installing ⇒ [page 74](#)

10 - Intake air noise insulation

- ☐ Removing and installing ⇒ [page 70](#)

11 - Auxiliary heater

- ☐ Removing and installing ⇒ [page 58](#)
- ☐ Incorporation into coolant circuit ⇒ [page 97](#)
- ☐ Dismantling and assembling ⇒ [page 51](#)
- ☐ Checking electrical components of auxiliary heater ⇒ Guided Fault Finding function of vehicle diagnostic, testing and information system - VAS 5051/- and ⇒ [page 90](#)
- ☐ Overview of wiring and activation of auxiliary heater ⇒ [page 88](#)

**Note**

- ◆ *When renewing, observe correct version (different versions for petrol and diesel engines) ⇒ [page 3](#) and ⇒ Electronic parts catalogue .*

- ◆ *From model year 2009 onwards, Audi A5 Coupé and Audi A4 vehicles are gradually being fitted with changed auxiliary heaters with a modified auxiliary heater control unit - J364- ; these have been installed on the Audi Q5 from the start of production. Make sure these components are correctly assigned to the vehicle ⇒ Electronic parts catalogue and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ◆ *This auxiliary heater is installed in various vehicle models. The part number changes each time this auxiliary heater is fitted in a new vehicle model (e.g. from 8K0 xxx xxx to 8R0 xxx xxx on introduction of the Audi Q5 and subsequently to 4xx xxx xxx etc.). Attention must therefore be paid to correct assignment. Care must however also be taken to ensure that an old auxiliary heater version is never installed in a vehicle previously fitted with a newer version. For example, an Audi A4 provided at the factory with an auxiliary heater with part number 8R0 xxx xxx is not to be fitted with an auxiliary heater with part number 8K0 xxx xxx ⇒ Electronic parts catalogue .*
- ◆ *As of 10.2010 auxiliary heaters with part number 4xx xxx xxx are gradually to be introduced. Service installation of this version of the auxiliary heater is also possible in vehicles originally fitted with an auxiliary heater with part number 8R0 xxx xxx or 8K0 xxx xxx. As, however, there are differences between certain components of the various auxiliary heater versions (e.g. 2-pin connector for power supply to auxiliary heater control unit - J364-), observe the correct assignment when renewing individual components of the auxiliary heater ⇒ Electronic parts catalogue .*

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- ◆ *If an auxiliary heater with part number 4xx xxx xxx is installed, you must make sure with this version that it is correctly coded for the corresponding vehicle and the hand-held remote control transmitters (currently without display); different functions are stored in the control unit depending on the type of vehicle coded ⇒ Electronic parts catalogue and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051 .*
- ◆ *The brackets for the auxiliary heater were gradually modified on the Audi Q5 in model year 2009. Pay attention to the correct assignment when renewing the auxiliary heater and brackets ⇒ Electronic parts catalogue and ⇒ [page 45](#) .*
- ◆ *From model year 2010 onwards, a start/stop system (optional equipment) is offered for this vehicle in combination with certain engines. On these vehicles, pay attention to the correct version of the air conditioner operating and display unit, Climatronic control unit - J255- and of the auxiliary heater ⇒ Electronic parts catalogue and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051 .*
- ◆ *Vehicles with a start/stop system must not be fitted with auxiliary heaters with part number 8K0 xxx xxx ⇒ Electronic parts catalogue and ⇒ Guided Fault Finding function of vehicle diagnostic, testing and information system VAS 5051 .*
- ◆ *On vehicles with a start/stop system, the circulation pump - V55- of the auxiliary heater is activated by the auxiliary heater control unit - J364- while the stop function is active. Via the data bus, - J364- is requested by the air conditioner operating and display unit, Climatronic control unit - J255- to switch on -V55- ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051*

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- ◆ *If the auxiliary heater or the auxiliary heater control unit - J364- is renewed, check the operation of at least one hand-held transmitter and re-adapt all hand-held transmitters if necessary
⇒ [page 145](#) and ⇒ Guided Fault Finding function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ◆ *Checking power supply ⇒ Guided Fault Finding function of vehicle diagnostic, testing and information system - VAS 5051/- and ⇒ [page 90](#)*
- ◆ *If, following replacement of the auxiliary heater or the auxiliary heater control unit - J364- , the fault "Incorrect control unit fitted" is displayed, check that -J364- has been encoded for the correct type of fuel "Diesel" or "Petrol" and correct if necessary ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051/- .*
- ◆ *Depending on the mode of operation set ("Auxiliary heating" or "Auxiliary ventilation"), certain faults which impair the auxiliary heating / auxiliary ventilation function are not stored in the event memory of the auxiliary heater control unit - J364- . Therefore, if there is a complaint about the auxiliary heater, also read out the event memory of the operating and display unit (Climatronic control unit - J255-) ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*

The auxiliary heater is fitted with the following electrical components:

- ◆ Auxiliary heater control unit - J364-
- ◆ Temperature sensor - G18-
- ◆ Flame monitor - G64-
- ◆ Temperature sensor 2 for supplementary and auxiliary heating - G587-
- ◆ Glow plug for heater - Q9-
- ◆ Combustion air blower - V6-
- ◆ Fuel pre-heating heater element - Z66-

12 - Circulation pump - V55-

- ☐ The circulation pump - V55- is activated by the auxiliary heater control unit - J364- ⇒ Current flow diagrams, Electrical fault finding and Fitting locations and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ☐ Removing and installing ⇒ [page 71](#)
- ☐ Depending on vehicle equipment, the auxiliary heater control unit - J364- may activate the circulation pump - V55- even when the auxiliary heater is switched off on account of a request received via the data bus (e.g. request from engine control unit or operating and display unit, Climatronic control unit - J255-).

**Note**

- ◆ *Vehicles with a start/stop system must not be fitted with auxiliary heaters with part number 8K0 xxx xxx ⇒ Electronic parts catalogue and ⇒ Guided Fault Finding function of vehicle diagnostic, testing and information system VAS 5051 .*
- ◆ *On vehicles with a start/stop system, the circulation pump - V55- of the auxiliary heater is activated by the auxiliary heater control unit - J364- while the stop function is active. Via the data bus, - J364- is requested by the air conditioner operating and display unit, Climatronic control unit - J255- to switch on -V55- ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051*

13 - Heater coolant shut-off valve - N279-

- ☐ Activated in auxiliary heating mode by auxiliary heater control unit - J364- .
- ☐ On vehicles with a 4 or 6-cyl. petrol engine, the heater coolant shut-off valve - N279- can also be actuated with the auxiliary heater switched off (e.g. with certain settings on the operating and display unit, Climatronic control unit - J255- to shut off the coolant supply to the heat exchanger of the air conditioning unit).
- ☐ Different versions (for Audi A5 Coupé, Audi A4 and Audi Q5); note correct assignment ⇒ Electronic parts catalogue .

**Note**

- ◆ *To stop the flow of coolant from the cylinder head being completely interrupted with the engine running and -N279- actuated, certain vehicles are fitted with a non-return valve in the coolant circuit ⇒ [page 97](#) .*

- ◆ *On the Audi Q5, -N279- can only be activated up to a certain engine speed (currently up to approx. 1200 rpm). Therefore it is important to make sure that that version, coding and adaption of the auxiliary heater are correct ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*

- ☐ Removing and installing ⇒ [page 106](#)
- ☐ Checking wiring ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- and ⇒ [page 90](#)
- ☐ Operation ⇒ [page 105](#)

1.2 Overview of fitting locations - components in passenger compartment (front)

1 - Metering pump - V54-

- ❑ Description
⇒ [“1.1 Overview of fitting locations - components not located in passenger compartment”, page 25](#)

2 - Remote control receiver for auxiliary heater - R64-

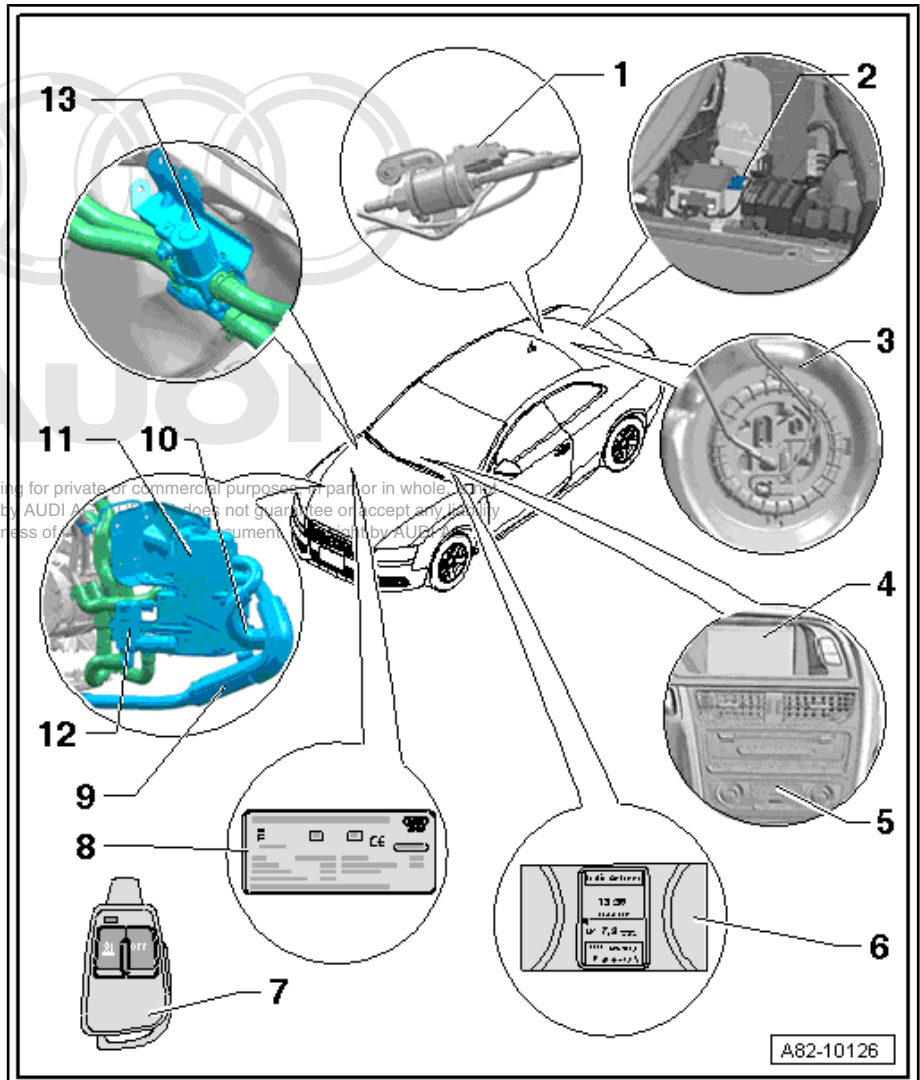
- ❑ Fitting location
⇒ [page 38](#)
- ❑ Removing and installing
⇒ [page 140](#)
- ❑ There are different versions of the remote control receiver for auxiliary heater - R64- ⇒ [Electronic parts catalogue](#)
- ❑ Further description
⇒ [“1.3 Overview of fitting locations - components in passenger compartment \(rear\)”, page 37](#)

3 - Fuel delivery unit with connection for fuel take-off for auxiliary heater

- ❑ Description
⇒ [“1.1 Overview of fitting locations - components not located in passenger compartment”, page 25](#)

4 - Multi Media Interface (MMI)

- ❑ The various auxiliary heating and auxiliary ventilation actuation functions are entered via the MMI and indicated on the corresponding display ⇒ [page 138](#) .
- ❑ Operation of auxiliary heater in “Car” menu of Multi Media Interface (MMI) and corresponding displays are described in the corresponding manual ⇒ Infotainment/MMI Operating Manual .
- ❑ If there is not enough fuel in the fuel tank (fuel gauge in red zone), the auxiliary heater cannot be switched on (tick on MMI display for “Immediate auxiliary heater activation” function and symbol for auxiliary heating mode in timer cannot be activated or disappear again) ⇒ Owner's Manual and ⇒ Infotainment/MMI Operating Manual .





Note

- ◆ *The Audi A5 Coupé and the Audi A4 from model year 2009 onwards are gradually being fitted with modified operating and display units (Climatronic control unit - J255-); these were installed on the Audi Q5 right from the start of production ⇒ Electronic parts catalogue and ⇒ Heating, air conditioning; Rep. gr. 87 ; Operating and display unit . On these operating and display units, display of the additional auxiliary heater and air conditioner functions is governed by the encoding of the operating and display unit, Climatronic control unit - J255- . If the assignment and coding are incorrect, the various functions of the auxiliary heater and air conditioner cannot be displayed or selected in the MMI ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- , ⇒ Owner's Manual and ⇒ "Infotainment/MMI" Operating Manual .*
- ◆ *Depending on the version of the control units and the coding of the operating and display unit (Climatronic control unit - J255-), the additional auxiliary heater and air conditioner functions are selected and activated via the rotary pushbutton of the - J255- or the MMI control console ⇒ Owner's Manual and ⇒ "Infotainment/MMI" Operating Manual .*
- ◆ *Pay attention to correct assignment and encoding of the operating and display unit, Climatronic control unit - J255- e.g. for the control unit for front display and information control panel - J523- or the control unit 1 for information electronics - J794- ⇒ Electronic parts catalogue (different versions). In the event of incorrect assignment, the various auxiliary heater and air conditioner functions cannot be displayed in the MMI and selected.*

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5 - Operating and display unit (Climatronic control unit - J255-)

- ☐ Activated via the data bus
- ☐ When operating the auxiliary heater via the "Timer" function or the remote control, this unit determines the mode in which the auxiliary heater starts up (auxiliary ventilation or auxiliary heating) ⇒ Heating, air conditioning; Rep. gr. 87 ; Operating and display unit and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ☐ For the auxiliary heater to be activated by way of the "Timer" function or remote control (hand-held transmitter), a temperature greater than "Lo" must have been set on the operating and display unit, Climatronic control unit - J255- .

- ❑ To de-ice the windows as quickly as possible, it is appropriate to set as high a temperature as possible on the operating and display unit, Climatronic control unit - J255- before switching off the ignition. The operating and display unit, Climatronic control unit - J255- adopts the last temperature set in auxiliary heating mode and regulates the passenger compartment temperature in line with the specified temperature set.

**Note**

- ◆ *The Audi A5 Coupé and the Audi A4 from model year 2009 onwards are gradually being fitted with modified operating and display units (Climatronic control unit - J255-); these were installed on the Audi Q5 right from the start of production. Pay attention to correct assignment of the components and correct encoding ⇒ [Item 4 \(page 31\)](#) , ⇒ [Electronic parts catalogue](#) and ⇒ [Heating, air conditioning; Rep. gr. 87 ; Operating and display unit](#) .*
- ◆ *From model year 2010 onwards, a start/stop system (optional equipment) is offered for this vehicle in combination with certain engines. On these vehicles, pay attention to the correct version of the air conditioner operating and display unit, Climatronic control unit - J255- and of the auxiliary heater ⇒ [Electronic parts catalogue](#) and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051 .*
- ◆ *On vehicles with a start/stop system, the circulation pump - V55- of the auxiliary heater is activated by the auxiliary heater control unit - J364- while the stop function is active. Via the data bus, - J364- is requested by the air conditioner operating and display unit, Climatronic control unit - J255- to switch on -V55- ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051*
- ◆ *Depending on the mode of operation set ("Auxiliary heating" or "Auxiliary ventilation"), certain faults which impair the auxiliary heating / auxiliary ventilation function are not stored in the event memory of the auxiliary heater control unit - J364- . Therefore, if there is a complaint about the auxiliary heater, also read out the event memory of the operating and display unit (Climatronic control unit - J255-) ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*

- ◆ *After renewing the auxiliary heater, remember to adapt the new auxiliary heater. For example, if an auxiliary heater with part number 8K0 xxx xxx , 8R0 xxx xxx or 4H0 xxx xxx up to index "A" is replaced by an auxiliary heater with part number 4H0 xxx xxx from index "B" onwards, it may be necessary to activate the adaption for the activation of the circulation pump - V55- by the auxiliary heater control unit - J364- in air conditioning mode (this function is deactivated for auxiliary heater with part number 4H0 xxx xxx from index "B" onwards). If -V55- cannot be activated by -J364- following a request from the air conditioner operating and display unit (Climatronic control unit - J255-), there may be problems with poor or no heating output on certain vehicle versions (depending on engine and production period). If -V55- is activated by -J364- following a request from -J255- on vehicles with a factory-fitted auxiliary heater with part number 4H0 xxx xxx from index "B" onwards (gradual introduction from model year 2012 onwards), there may also be problems ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*



6 - Instrument cluster display

- ❑ Installed in instrument cluster
- ❑ Depending on the version, the "auxiliary heater" (optional extra) must have been adapted via the "Adaption" function in the control unit in dash panel insert - J285- ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ❑ If there is not enough fuel in the fuel tank (fuel gauge in red zone), the auxiliary heater cannot be switched on (tick on MMI display for "Immediate auxiliary heater activation" function and symbol for auxiliary heating mode in timer cannot be activated or disappear again) ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- , ⇒ Owner's Manual and ⇒ Infotainment/MMI Operating Manual .
- ❑ Depending on the operating status of the auxiliary heater (auxiliary heating/auxiliary ventilation mode) or on whether the timer function has been selected, one of the symbols for auxiliary heating/auxiliary ventilation is activated permanently, or one or both symbol(s) flash(es) ⇒ Owner's Manual and ⇒ Infotainment/MMI Operating Manual .
- ❑ If the vehicle is fitted with remote control for the auxiliary heater (as optional extra), this actuates the auxiliary heater control unit - J364- . The control unit then transmits the information "Activate or deactivate auxiliary heating/auxiliary ventilation" via the data bus to the operating and display unit, Climatronic control unit - J255- . The operating and display unit then decides whether auxiliary heating mode is required to attain the specified temperature set or whether auxiliary ventilation mode is sufficient.

**Note**

If the auxiliary heater is activated via the "Timer" function or the remote control and the temperature setting on -J255- is "Lo", the auxiliary heater only starts up if the ambient temperature is below e.g. 10 °C at the time. If the ambient temperature in this setting is above approx. 10 °C, only auxiliary ventilation mode is activated ⇒ "Guided Fault Finding" function of vehicle diagnostic tester, ⇒ Owner's Manual and ⇒ Infotainment/MMI Operating Manual.

7 - Remote control for auxiliary heater

- ☐ For switching the "auxiliary heating" or "auxiliary ventilation" function of the auxiliary heater on and off ⇒ [page 141](#)
- ☐ Pressing the buttons causes the integral indicator lamp to light or flash ⇒ Owner's Manual .
- ☐ Renewing batteries ⇒ [page 144](#)
- ☐ For the remote control to detect that a button has been pressed and to then transmit a signal, the corresponding button must be pressed and held for a certain period (at least 1 second) ⇒ Owner's Manual .
- ☐ If the auxiliary heater is renewed together with the auxiliary heater control unit - J364- , check the operation of at least one hand-held transmitter and re-adapt all hand-held transmitters if necessary ⇒ [page 145](#) and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ☐ After removing the batteries ⇒ [page 141](#) , the remote control unit model can be seen from the sticker with the part number ⇒ Electronic parts catalogue .

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- ◆ *Depending on the mode of operation set ("Auxiliary heating" or "Auxiliary ventilation"), certain faults which impair the auxiliary heating / auxiliary ventilation function are not stored in the event memory of the auxiliary heater control unit - J364- . Therefore, if there is a complaint about the auxiliary heater, also read out the event memory of the operating and display unit (Climatronic control unit - J255-) ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ◆ *The Audi A4, A5 and Q5 are currently provided with a hand-held remote control transmitter for auxiliary heater without a display ⇒ Owner's Manual .*

- ◆ *Auxiliary heaters with an auxiliary heater control unit - J364- with part number 8xx xxx. xxx are only designed for actuation by way of a hand-held transmitter with no display. From 10.2010 onwards, auxiliary heaters with - J364- with part number 4xx xxx xxx are gradually being introduced. On these auxiliary heaters, the version of the hand-held transmitter (with or without display) must be coded correctly in -J364-. This also applies if a -J364- with part number 8xx xxx xxx is replaced with a -J364- with part number 4xx xxx xxx as part of the service work ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ◆ *Make sure the remote control hand-held transmitter for the auxiliary heater is correctly matched to the remote control receiver for auxiliary heater - R64- (different versions for hand-held transmitters with or without display), and also make sure that -J364- is correctly assigned and coded ⇒ Electronic parts catalogue and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*

8 - Factory label duplicate for auxiliary heater

- ☐ Description

⇒ ["1.1 Overview of fitting locations - components not located in passenger compartment", page 25](#)

9 - Exhaust silencer of auxiliary heater

- ☐ Description

⇒ ["1.1 Overview of fitting locations - components not located in passenger compartment", page 25](#)

10 - Intake air noise insulation

- ☐ Description

⇒ ["1.1 Overview of fitting locations - components not located in passenger compartment", page 25](#)

11 - Auxiliary heater

- ☐ Description

⇒ ["1.1 Overview of fitting locations - components not located in passenger compartment", page 25](#)

12 - Circulation pump - V55-

- ☐ Description

⇒ ["1.1 Overview of fitting locations - components not located in passenger compartment", page 25](#)

13 - Heater coolant shut-off valve - N279-

- ☐ Description

⇒ ["1.1 Overview of fitting locations - components not located in passenger compartment", page 25](#)

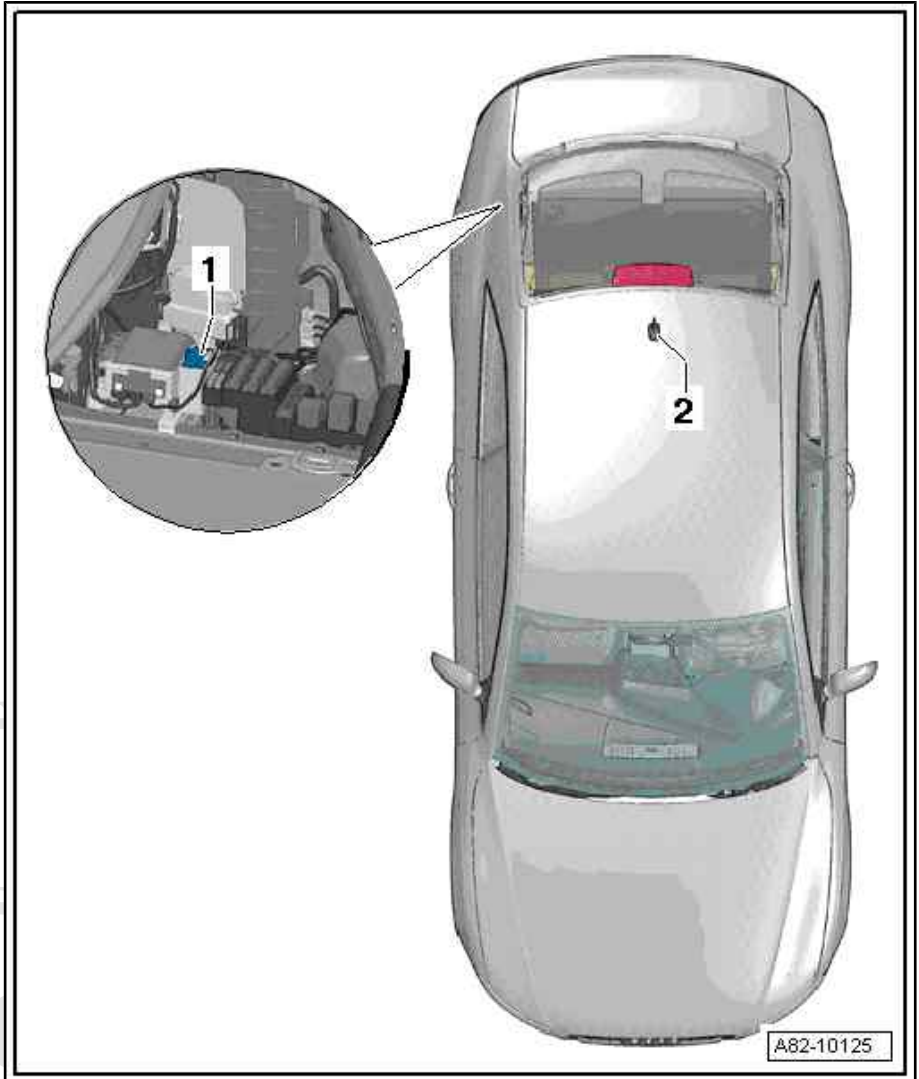
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1.3 Overview of fitting locations - components in passenger compartment (rear)

1 - Remote control receiver for auxiliary heater - R64-

For correct version refer to ➤
Electronic parts catalogue .

- ☐ Fitting location
➤ [page 38](#)
- ☐ Removing and installing
➤ [page 140](#)
- ☐ Adaption of the auxiliary heater remote control to the remote control receiver for auxiliary heater - R64- ➤ [page 145](#) .
- ☐ Transmits appropriate information to the auxiliary heater control unit - J364- on reception of remote control signals (activation or deactivation of auxiliary heating/ auxiliary ventilation).
- ☐ The remote control receiver can be switched off in the auxiliary heater control unit - J364- (thus reducing the no-load current input, e.g. in transportation mode to relieve the load on the battery - A- until the vehicle is delivered to the customer) ➤ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ☐ Reading out remote control transmitter codes ➤ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/-



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Note

- ◆ The auxiliary heater remote control is matched in the remote control receiver for auxiliary heater - R64- and not in the auxiliary heater control unit - J364- .
- ◆ The remote control signals are only relayed by the remote control receiver for auxiliary heater - R64- . They are then processed by the auxiliary heater control unit - J364- .

2 - Aerial for auxiliary heater

- ☐ Aerial for reception and transmission of the information of the auxiliary heater hand-held remote control transmitter and the remote control receiver for auxiliary heater - R64- .
- ☐ The designation of the aerial differs, e.g. radio, telephone and navigation system aerial - R52- ➤ Communication; Rep. gr. 91 ; Aerial systems; Overview of fitting locations - aerial systems and ➤ Current flow diagrams, Electrical fault finding and Fitting locations.

- ❑ Different versions depending on vehicle equipment and version; this illustration shows the version and layout on an Audi A5 Coupé ➔ Communication; Rep. gr. 91 ; Aerial systems: Overview of fitting locations - aerial systems and ➔ Electronic parts catalogue .
- ❑ The aerial for the auxiliary heater is currently integrated into the roof aerial on all vehicles (note correct version) ➔ Communication; Rep. gr. 91 ; Aerial systems: Overview of fitting locations - aerial systems .



Note

Currently the Audi A4, Audi A4 Avant and Audi Q5 are also fitted with roof aerials ➔ Communication; Rep. gr. 91 ; Aerial systems: Overview of fitting locations - aerial systems and ➔ Current flow diagrams, Electrical fault finding and Fitting locations.

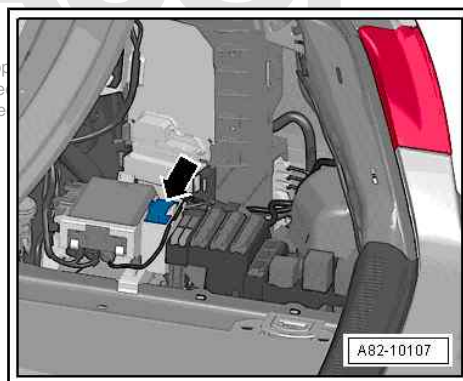


Fitting location for remote control receiver for auxiliary heater - R64-



Note

- ◆ The following illustration shows the positions of the components on an Audi A5 Coupé. The layout differs slightly on the Audi A4 and Audi Q5. On the Audi Q5 for example, the remote control receiver for auxiliary heater - R64- is installed in the control unit mounting frame behind the side trim at the D-pillar (right-side) ➔ Current flow diagrams, Electrical fault finding and Fitting locations and ➔ [page 140](#) . The components are however to be removed and installed in the same manner as described for the Audi A5 Coupé.
- ◆ The remote control receiver for auxiliary heater - R64- -arrow- is installed in the luggage compartment (right-side as seen in direction of travel); on the Audi A5 Coupé, for example, it is fitted as shown behind the side trim (right-side).
- ◆ The remote control receiver for auxiliary heater - R64- is inserted in a mounting frame.
- ◆ The feedback from the remote control receiver for auxiliary heater - R64- is supplied by the auxiliary heater control unit - J364- to the hand-held remote control transmitter.
- ◆ The remote control can be switched off by the auxiliary heater control unit - J364- (thus reducing no-load current input).
- ◆ In idle mode, the current input of the remote control receiver for auxiliary heater - R64- is less than 1 mA. The current input increases as soon as a transmission signal is received.
- ◆ The remote control is adapted in the remote control receiver for auxiliary heater - R64- . If this component is renewed, all remote controls must be re-adapted one after the other ➔ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- and ➔ [page 145](#) .



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2 Auxiliary/supplementary heater

- ⇒ [“2.1 General notes”, page 40](#)
- ⇒ [“2.2 Overview of fitting locations - auxiliary/supplementary heater”, page 41](#)
- ⇒ [“2.3 Exploded view - components inside auxiliary/supplementary heater”, page 51](#)
- ⇒ [“2.4 Removing and installing auxiliary/supplementary heater”, page 58](#)
- ⇒ [“2.5 Dismantling and assembling auxiliary/supplementary heater”, page 67](#)
- ⇒ [“2.6 Removing and installing air intake silencer”, page 70](#)
- ⇒ [“2.7 Removing and installing circulation pump V55 ”, page 71](#)
- ⇒ [“2.8 Removing and installing exhaust system”, page 74](#)
- ⇒ [“2.9 Removing and installing bracket for auxiliary/supplementary heater”, page 76](#)
- ⇒ [“2.10 Removing and installing auxiliary heater control unit J364 ”, page 78](#)
- ⇒ [“2.11 Removing and installing temperature sensor G18 ”, page 80](#)
- ⇒ [“2.12 Removing and installing temperature sensor 2 for supplementary and auxiliary heating G587 ”, page 81](#)
- ⇒ [“2.13 Removing and installing flame monitor G64 ”, page 82](#)
- ⇒ [“2.14 Removing and installing glow plug for heater Q9 ”, page 83](#)
- ⇒ [“2.15 Removing and installing fuel pre-heating heater element Z66 ”, page 84](#)
- ⇒ [“2.16 Removing and installing combustion air blower V6 ”, page 86](#)
- ⇒ [“2.17 Removing and installing burner element”, page 86](#)
- ⇒ [“2.18 Removing and installing heat exchanger”, page 88](#)
- ⇒ [“2.19 Pin assignment for auxiliary/supplementary heater”, page 88](#)
- ⇒ [“2.20 Checking electrical components of auxiliary heater”, page 90](#)

2.1 General notes



Note

- ◆ *When renewing the auxiliary heater, make sure to fit the correct version (different versions for vehicles with petrol or diesel engine) ⇒ [page 3](#) and ⇒ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- .*

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- ◆ *This auxiliary heater is installed in various vehicle models. The part number changes each time this auxiliary heater is fitted in a new vehicle model (e.g. from 8K0 xxx xxx to 8R0 xxx xxx on introduction of the Audi Q5 and subsequently to 4xx xxx xxx etc.). Attention must therefore be paid to correct assignment. Care must however also be taken to ensure that an old auxiliary heater version is never installed in a vehicle previously fitted with a newer version. For example, an Audi A4 provided at the factory with an auxiliary heater with part number 8R0 xxx xxx is not to be fitted with an auxiliary heater with part number 8K0 xxx xxx ⇒ Electronic parts catalogue .*
- ◆ *As of 10.2010 auxiliary heaters with part number 4xx xxx xxx are gradually to be introduced. Service installation of this version of the auxiliary heater is also possible in vehicles originally fitted with an auxiliary heater with part number 8R0 xxx xxx or 8K0 xxx xxx. As, however, there are differences between certain components of the various auxiliary heater versions (e.g. 2-pin connector for power supply to auxiliary heater control unit - J364-), observe the correct assignment when renewing individual components of the auxiliary heater ⇒ Electronic parts catalogue .*
- ◆ *If an auxiliary heater with part number 4xx xxx xxx is installed, you must make sure with this version that it is correctly coded for the corresponding vehicle (different functions are stored in the control unit depending on the type of vehicle coded) ⇒ Electronic parts catalogue and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*

2.2 Overview of fitting locations - auxiliary/supplementary heater

⇒ ["2.2.1 Overview of fitting locations - auxiliary/supplementary heater, Audi A4, Audi A5", page 41](#)

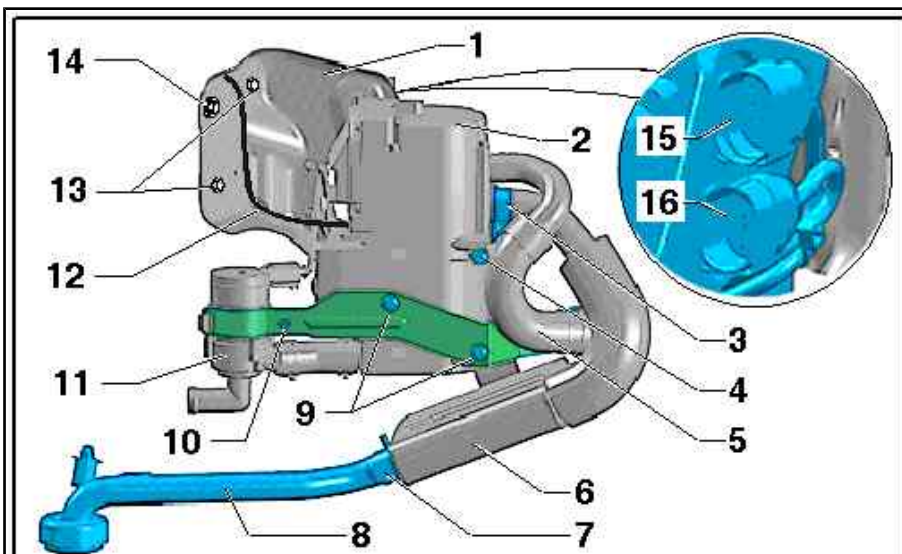
⇒ ["2.2.2 Overview of fitting locations - auxiliary/supplementary heater, Audi Q5", page 45](#)

2.2.1 Overview of fitting locations - auxiliary/supplementary heater, Audi A4, Audi A5

1 - Bracket

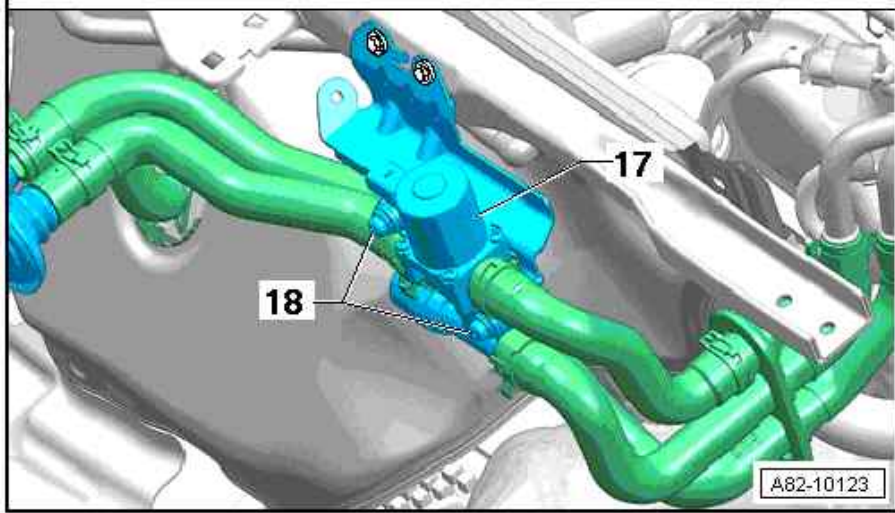
2 - Auxiliary heater

- ☐ Removing and installing ➔ [page 58](#)
- ☐ Different versions; the Audi Q5 is not to be fitted with auxiliary heaters with part number 8K0.xxx.xxx for example. In addition, the versions depend on the production period and the type of fuel (certain functions are differently matched for vehicles with petrol and diesel engine) ➔ [page 3](#) and ➔ Electronic parts catalogue .



Note

- ◆ From model year 2011 a start/stop system (equipment) is offered for vehicles in combination with engines. On these vehicles attention to the correct operation of the air conditioner or display unit, Climatronic unit - J255- and of the heater ➔ Electronic parts catalogue and ➔ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051 .
- ◆ Vehicles with a start/stop system must not be fitted with heaters with part number 8K0 xxx xxx ➔ Electronic parts catalogue and ➔ Guided Fault Finding function of vehicle diagnostic, testing and information system VAS 5051 .



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3 - Clamp

- ☐ Tightening torque of bolt: 6 Nm
- ☐ For corrugated pipe to exhaust silencer

4 - Bolt

- ☐ Tightening torque: 6 Nm
- ☐ For bracket for intake air noise insulation
- ☐ Thread-forming bolt with coating; renew

5 - Intake air noise insulation

- ☐ Removing and installing ➔ [page 70](#)



Note

- ◆ Secure the intake hose with a clamp to stop it slipping off the air intake connection of the auxiliary heater.

- ◆ *If applicable, additionally attach intake air noise insulation with cable ties to bracket for auxiliary heater.*

6 - Exhaust silencer

- ☐ Removing and installing ⇒ [page 74](#)



Note

Depending on the design of the auxiliary heater and the vehicle equipment spec, there may be a thermal insulator on the exhaust pipe fitted between the auxiliary heater and the exhaust silencer (to protect the surrounding components).

7 - Clamp

- ☐ Tightening torque: 6 Nm
- ☐ For exhaust pipe

8 - Exhaust pipe



Note

- ◆ *The flow of exhaust gas out of the exhaust pipe must not be obstructed.*
- ◆ *After working on the auxiliary/supplementary heater or the noise insulation, check the mouth of the exhaust pipe. This must be fitted at right angles to the noise encapsulation where it passes through the noise encapsulation ⇒ [page 74](#).*

9 - Bolt

- ☐ Tightening torque: 6 Nm
- ☐ For bracket for circulation pump - V55-
- ☐ Thread-forming bolt with coating; renew
- ☐ A rubber grommet is fitted as an isolator between bolt and bracket ⇒ [page 50](#)

10 - Bolt

- ☐ Tightening torque: 3.5 Nm
- ☐ For retaining clip for circulation pump - V55-

11 - Circulation pump - V55-

- ☐ Removing and installing ⇒ [page 71](#)

12 - Connection for fuel pipe

13 - Nut

- ☐ 2x
- ☐ Tightening torque: 20 Nm
- ☐ Observe tightening sequence ⇒ [page 64](#)

14 - Bolt

- ☐ Tightening torque: 20 Nm
- ☐ Observe tightening sequence ⇒ [page 64](#)

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15 - Control line connector

- ☐ Attached to bracket with a clip

16 - Power supply connector

- ☐ Attached to bracket with a clip
- ☐ Different connector versions depending on the model

**Note**

As of 10.2010 auxiliary heaters with part number 4xx xxx xxx are gradually to be introduced. Service installation of this version of the auxiliary heater is also possible in vehicles originally fitted with an auxiliary heater with part number 8R0 xxx xxx or 8K0 xxx xxx. As, however, there are differences between certain components of the various auxiliary heater versions (e.g. 2-pin connector for power supply to auxiliary heater control unit - J364-), observe the correct assignment when renewing individual components of the auxiliary heater ⇒ Electronic parts catalogue .

17 - Heater coolant shut-off valve - N279-

- ☐ Fitted in the plenum chamber on the right.
- ☐ Removing and installing ⇒ [page 106](#)
- ☐ Operation ⇒ [page 105](#)
- ☐ Different versions (for Audi A5 Coupé, Audi A4 and Audi Q5); note correct assignment ⇒ Electronic parts catalogue .

**Note**

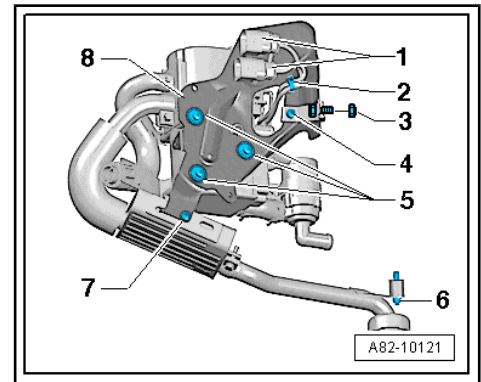
- ◆ *To stop the flow of coolant from the cylinder head being completely interrupted with the engine running and -N279- actuated, certain vehicles are fitted with a non-return valve in the coolant circuit ⇒ [page 97](#)*
- ◆ *On the Audi Q5, -N279- can only be activated up to a certain engine speed (currently up to approx. 1200 rpm). Therefore it is important to make sure that that version, coding and adaption of the auxiliary heater are correct ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*

18 - Bolt

- ☐ Tightening torque: 8 Nm
- ☐ For heater coolant shut-off valve - N279-

Bracket for auxiliary heater on Audi A4 and Audi A5 Coupé

- 1 - Power supply and control line connectors
- 2 - Clip with cable tie
- 3 - Nut - tightening torque: 8 Nm
- 4 - Bolt - tightening torque: 6 Nm
- 5 - Bolt - tightening torque: 6 Nm (thread-forming bolt with coating; renew)
- 6 - Nut - tightening torque: 6 Nm
- 7 - Bolt - tightening torque: 6 Nm
- 8 - Bracket for heater



2.2.2 Overview of fitting locations - auxiliary/supplementary heater, Audi Q5

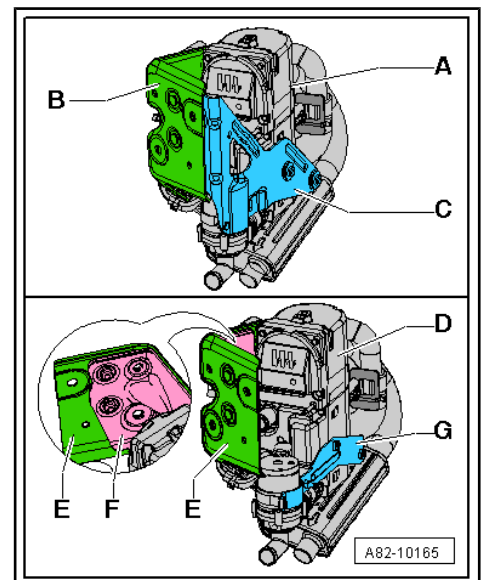
View "1" ➔ [page 45](#)

View "2" ➔ [page 48](#)



Note

- ◆ The brackets for the auxiliary heater were gradually modified on the Audi Q5 in model year 2009. Pay attention to the correct assignment when renewing the auxiliary heater and brackets ➔ [Electronic parts catalogue](#) and ➔ [page 45](#).
- ◆ At the start of production, the auxiliary heater -A- was secured to brackets -B- and -C-. Modified auxiliary heaters -D- were then gradually introduced in Model Year 2009 (soundproofing measure, not visible from outside). These auxiliary heaters are secured to brackets -D- (with reinforcement -E-) and -F-. If an auxiliary heater secured to brackets -B- and -C- at the factory is renewed, it must be fitted with brackets -D- (with reinforcement -E-) and -F- ➔ [Electronic parts catalogue](#).



View "1"



Note

- ◆ The following illustration shows the auxiliary heater with bracket "2" fitted at the start of production in model year 2009.
- ◆ Refer to view "2" for all components not mentioned.

1 - Bracket "1"

- ☐ Brackets "1" and "2" are bolted together
⇒ [page 50](#)
- ☐ Different versions depending on production period

2 - Bracket "2"

- ☐ Brackets "1" and "2" are bolted together
⇒ [page 50](#)
- ☐ Different versions depending on production period

3 - Connection for fuel pipe

4 - Auxiliary heater

- ☐ Removing and installing
⇒ [page 58](#)
- ☐ Different versions; the Audi Q5 is not to be fitted with auxiliary heaters with part number 8K0.xxx.xxx for example. In addition, the auxiliary heater version depends on the production period and the type of fuel (there are different settings for certain functions for petrol and diesel) ⇒ [page 3](#) and ⇒ Electronic parts catalogue

5 - Clamp

- ☐ Tightening torque of bolt: 6 Nm
- ☐ For corrugated pipe to exhaust silencer

6 - Intake air noise insulation

- ☐ Removing and installing ⇒ [page 70](#)
- ☐ Attached to bracket "2" with retainers and cable ties



Note

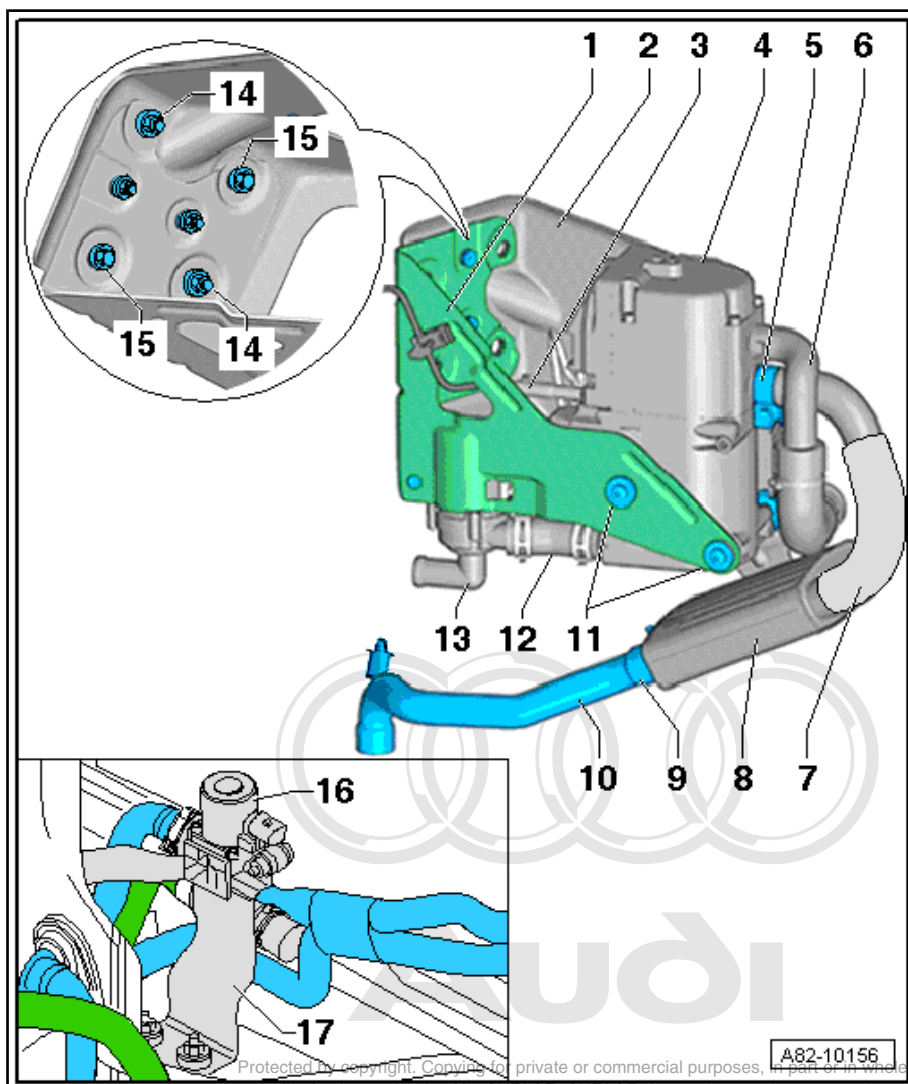
- ◆ *Secure the intake hose with a clamp to stop it slipping off the air intake connection of the auxiliary heater.*
- ◆ *If applicable, additionally attach intake air noise insulation with cable ties to bracket for auxiliary heater.*

7 - Thermal insulation at corrugated pipe to exhaust silencer

- ☐ Not fitted on all versions ⇒ Electronic parts catalogue

8 - Exhaust silencer

- ☐ With corrugated pipe
- ☐ Removing and installing ⇒ [page 74](#)



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Note

Depending on the design of the auxiliary heater and the vehicle equipment spec, there may be a thermal insulator on the exhaust pipe fitted between the auxiliary heater and the exhaust silencer (to protect the surrounding components).

9 - Clamp

- ☐ Tightening torque: 6 Nm
- ☐ For exhaust pipe

10 - Exhaust pipe



Note

- ◆ *The flow of exhaust gas out of the exhaust pipe must not be obstructed.*
- ◆ *After working on the auxiliary/supplementary heater or the noise insulation, check the mouth of the exhaust pipe. This must be fitted at right angles to the noise encapsulation where it passes through the noise encapsulation ⇒ [page 74](#) .*

11 - Bolt

- ☐ Tightening torque: 6 Nm
- ☐ For bracket "1"
- ☐ Thread-forming bolt with coating; renew
- ☐ A rubber grommet is fitted as an isolator between bolt and bracket ⇒ [page 50](#)

12 - Coolant hose

- ☐ Between circulation pump - V55- and auxiliary heater

13 - Circulation pump - V55-

- ☐ Removing and installing ⇒ [page 71](#)

14 - Nut

- ☐ 2x
- ☐ Tightening torque: 20 Nm
- ☐ Observe tightening sequence ⇒ [page 64](#)

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15 - Bolt

- ☐ 2x
- ☐ Tightening torque: 20 Nm
- ☐ Observe tightening sequence ⇒ [page 64](#)

16 - Heater coolant shut-off valve - N279-

- ☐ Fitted in the plenum chamber on the right
- ☐ Removing and installing ⇒ [page 106](#)
- ☐ Operation ⇒ [page 105](#)
- ☐ Different versions for Audi A5 Coupé, Audi A4 and Audi Q5; pay attention to correct assignment ⇒ Electronic parts catalogue .



Note

- ◆ *To stop the flow of coolant from the cylinder head being completely interrupted with the engine running and -N279- actuated, certain vehicles are fitted with a non-return valve in the coolant circuit ⇒ [page 97](#)*
- ◆ *On the Audi Q5, -N279- can only be activated up to a certain engine speed (currently up to approx. 1200 rpm). Therefore it is important to make sure that that version, coding and adaption of the auxiliary heater are correct ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*

17 - Bracket

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- ☐ For heater coolant shut-off valve - N279-
 - ☐ Tightening torques for bolts/nuts (for securing heater coolant shut-off valve - N279- to bracket, and bracket to vehicle): 8 Nm

View "2"



Note

Refer to view "1" for all components not mentioned.

1 - Control line connector

- ☐ Attached to bracket "2" with clip

2 - Power supply connector

- ☐ Attached to bracket "2" with clip

3 - Bolt

- ☐ Tightening torque: 6 Nm
- ☐ For bracket for circulation pump - V55-
- ☐ Thread-forming bolt with coating; renew
- ☐ A rubber grommet is fitted as an isolator between bolt and bracket
⇒ [page 50](#)

4 - Bolt

- ☐ Tightening torque: 6 Nm
- ☐ For exhaust silencer

5 - Circulation pump - V55-

- ☐ Removing and installing
⇒ [page 71](#)

6 - Bolt

- ☐ Tightening torque: 3.5 Nm
- ☐ For retaining clip for circulation pump - V55-

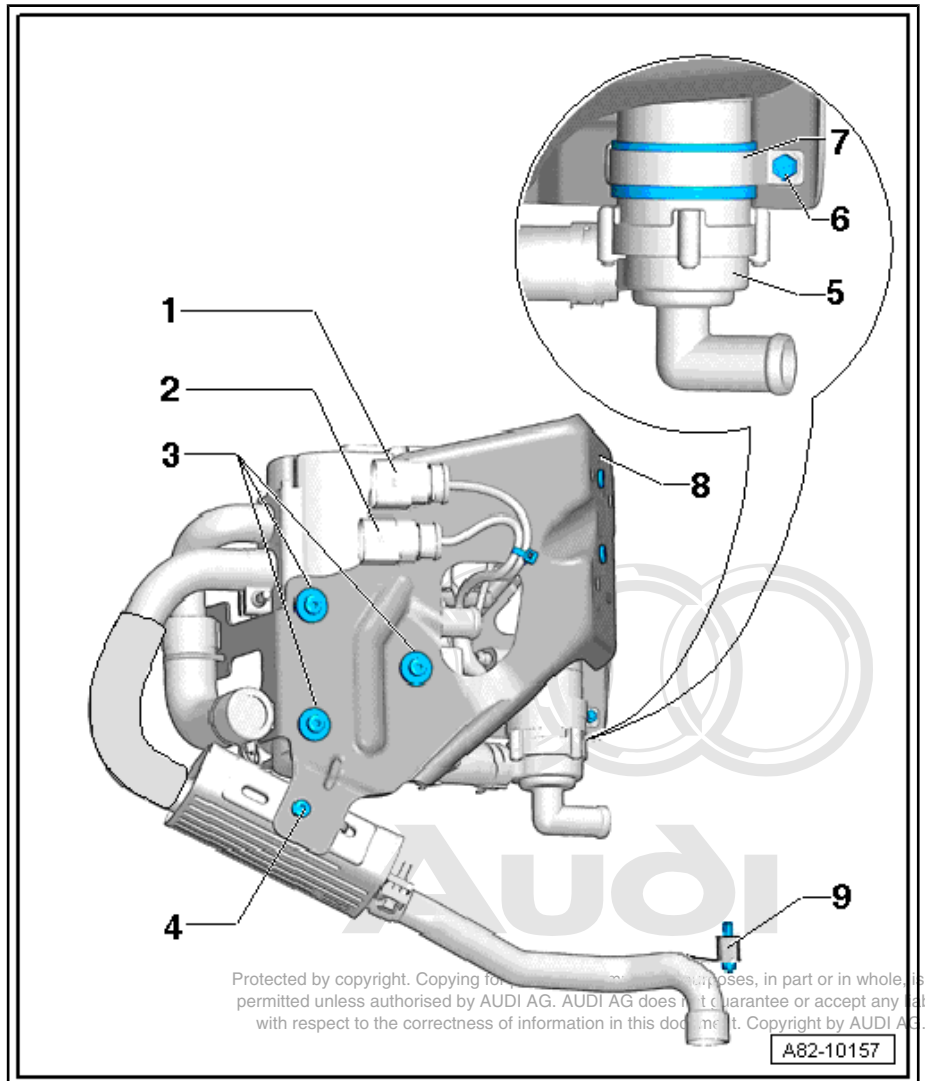
7 - Retaining clip

- ☐ For circulation pump - V55-

8 - Bracket "2"

- ☐ Brackets "1" and "2" are bolted together ⇒ [page 50](#)

9 - Bonded rubber mounting

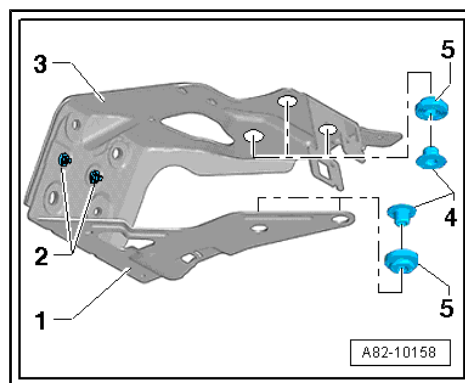


Brackets for auxiliary heater on Audi Q5



Note

- ◆ The brackets for the auxiliary heater were gradually modified on the Audi Q5 in model year 2009. Pay attention to the correct assignment when renewing the auxiliary heater and brackets ⇒ [Electronic parts catalogue](#) and ⇒ [page 45](#).
- ◆ This illustration shows the bracket for auxiliary heater fitted at the start of production in model year 2009. For the differences with respect to the bracket gradually introduced in model year 2009, refer to ⇒ [page 45](#).



- 1 - Bracket "1"
- 2 - Nut - tightening torque: 8 Nm
- 3 - Bracket "2"
- 4 - Bush
- 5 - Grommet



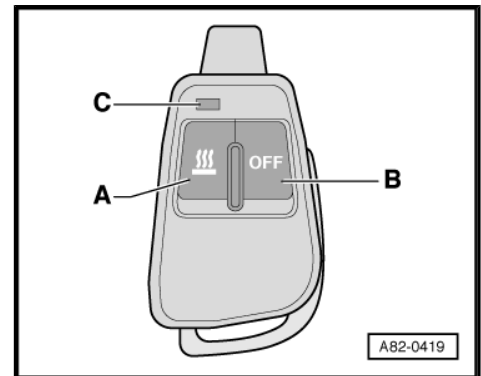
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2.3 Exploded view - components inside auxiliary/supplementary heater



Note

- ◆ There are different versions of the auxiliary heater control unit - J364- . The Audi Q5 is not to be fitted with -J364- with part number 8K0.xxx.xxx for example. In addition, the versions depend on the production period and the type of fuel (certain functions are differently matched for vehicles with petrol and diesel engine); ensure that the correct version is used ⇒ [page 3](#) and ⇒ *Electronic parts catalogue* .
- ◆ From 06.2011 onwards, modified auxiliary heaters have been in use (changes to auxiliary heater control unit - J364- , different glow plugs for heater - Q9- , different burner elements for diesel heaters and modified moulded gasket for petrol heaters). Check the correct version and allocation of these parts prior to installation ⇒ *Electronic parts catalogue* .
- ◆ Some of the auxiliary heater components listed individually in the following exploded view are not available as separate replacement parts. They are combined in various repair sets ⇒ *Electronic parts catalogue* .
- ◆ The Audi A4, A5 and Q5 are currently provided with a hand-held remote control transmitter for auxiliary heater without a display ⇒ *Owner's Manual* .
- ◆ Auxiliary heaters with an auxiliary heater control unit - J364- with part number 8xx xxx. xxx are only designed for actuation by way of a hand-held transmitter with no display. From 10.2010 onwards, auxiliary heaters with -J364- with part number 4xx xxx xxx are gradually being introduced. On these auxiliary heaters, the version of the hand-held transmitter (with or without display) must be coded correctly in -J364- . This also applies if a -J364- with part number 8xx xxx xxx is replaced with a -J364- with part number 4xx xxx xxx as part of the service work ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ◆ Make sure the remote control hand-held transmitter for the auxiliary heater is correctly matched to the remote control receiver for auxiliary heater - R64- (different versions for hand-held transmitters with or without display), and also make sure that -J364- is correctly assigned and coded ⇒ *Electronic parts catalogue* and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .



1 - Bolt M5×80

- ☐ 4x
- ☐ Tightening torque: 6 Nm

2 - Cover for combustion air blower - V6-

3 - Bolt M4×16

- ☐ 4x
- ☐ Tightening torque: 3 Nm

4 - Cover for combustion air blower - V6-

5 - Combustion air blower - V6-

- ☐ Renewing ➔ [page 86](#)
- ☐ Do not dismantle any further

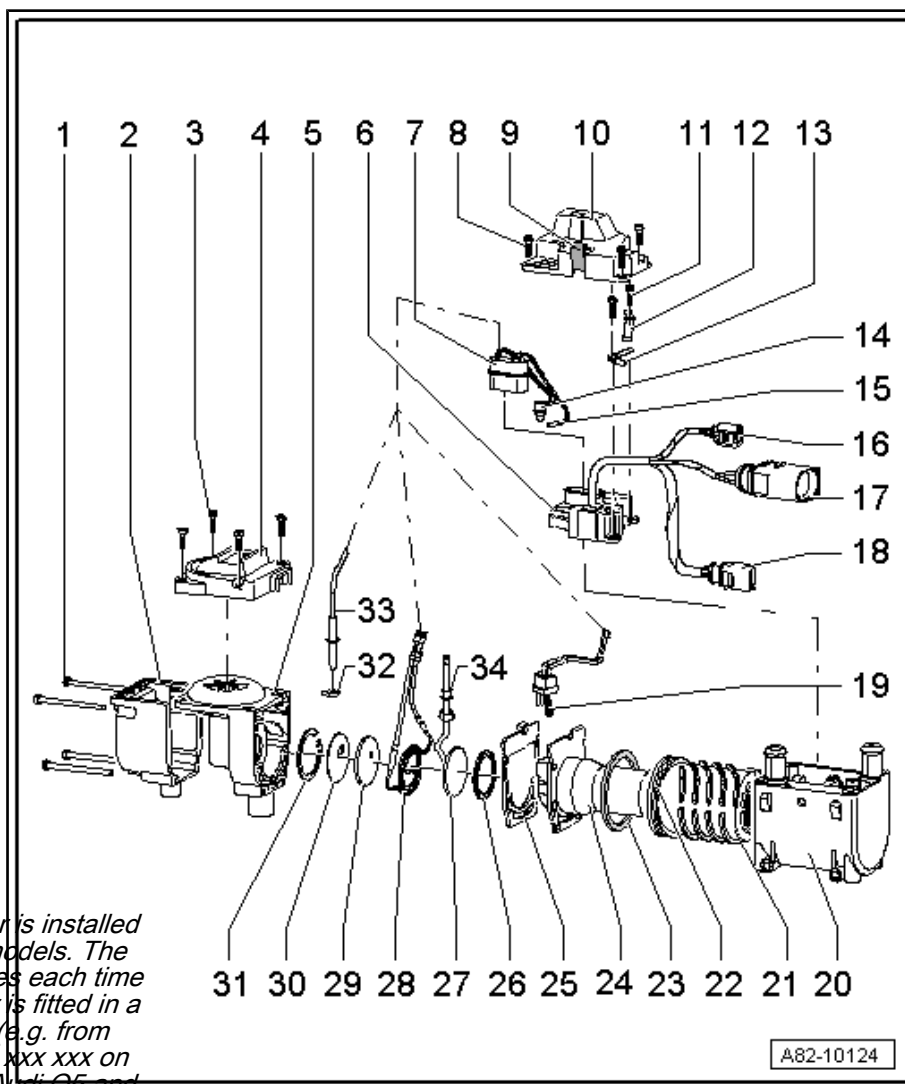
6 - Auxiliary heater control unit - J364-

- ☐ Removing and installing ➔ ["2.5 Dismantling and assembling auxiliary/supplementary heater", page 67](#)
- J364- Removing and installing ➔ [page 78](#)



Note

- ◆ *This auxiliary heater is installed in various vehicle models. The part number changes each time this auxiliary heater is fitted in a new vehicle model (e.g. from 8K0 xxx xxx to 8R0 xxx xxx on introduction of the Audi Q5 and subsequently to 4xx xxx xxx etc.). Attention must therefore be paid to correct assignment. Care must however also be taken to ensure that an old auxiliary heater version is never installed in a vehicle previously fitted with a newer version. For example, an Audi A4 provided at the factory with an auxiliary heater with part number 8R0 xxx xxx is not to be fitted with an auxiliary heater with part number 8K0 xxx xxx ➔ Electronic parts catalogue .*



- ◆ *As of 10.2010 auxiliary heaters with part number 4xx xxx xxx are gradually to be introduced. Service installation of this version of the auxiliary heater is also possible in vehicles originally fitted with an auxiliary heater with part number 8R0 xxx xxx or 8K0 xxx xxx. As, however, there are differences between certain components of the various auxiliary heater versions (e.g. 2-pin connector for power supply to auxiliary heater control unit - J364-), observe the correct assignment when renewing individual components of the auxiliary heater ⇒ Electronic parts catalogue .*
- ◆ *If an auxiliary heater with part number 4xx xxx xxx is installed, you must make sure with this version that it is correctly coded for the corresponding vehicle and remote control (different functions are stored in the control unit depending on the type of vehicle coded and the remote control version stored in the control unit) ⇒ Electronic parts catalogue and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ◆ *There are different versions of the retaining clip for the temperature sensor - G18- and the temperature sensor 2 for supplementary and auxiliary heating - G587- . -J364- with part number 8xx xxx xxx must only be fitted with retaining clips without a spacer ring. -J364- with part number 4xx xxx xxx must only be fitted with retaining clips with a spacer ring. It is therefore important to observe the correct assignment (matching part numbers of retaining clip and auxiliary heater control unit - J364-) ⇒ [page 80](#) and ⇒ Electronic parts catalogue .*
- ◆ *From 06.2011 onwards, modified auxiliary heaters have been in use (changes to auxiliary heater control unit - J364- , different glow plugs for heater - Q9- , different burner elements for diesel heaters and modified moulded gasket for petrol heaters). Check the correct version and allocation of these parts prior to installation ⇒ Electronic parts catalogue .*

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**Caution**

If a retaining clip has not been properly fitted or the wrong version is used, coolant will escape when the pressure increases in the coolant circuit.

If a retaining clip has not been properly fitted, - G18- or -G587- may work loose.

Ensure correct assignment and proper fitting of the retaining clip.



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7 - 14-pin connector at auxiliary heater control unit

Contact assignment and wiring colours:

- ◆ Temperature sensor - G18- : Contact 10 - black, contact 11 - black.
- ◆ Flame monitor - G64- : Contact 1 - brown, contact 2 - brown.
- ◆ Temperature sensor 2 for supplementary and auxiliary heating - G587- : Contact 7 - white, contact 8 - white.
- ◆ Glow plug for heater - Q9- : Contact 3 - brown, contact 6 - white.
- ◆ Combustion air blower - V6- : Contact 13 - black, contact 14 - brown.
- ◆ Fuel pre-heating heater element - Z66- : Contact 9 - black, contact 12 - black.

8 - Bolt M4×16

- ☐ 4x
- ☐ Tightening torque: 3 Nm

9 - Clip

- ☐ For pipe leadthrough

10 - Cover for auxiliary heater control unit - J364-**Note**

*There are different versions of this cover. Make sure you are using the correct version (different versions for -J364- with part number 8xx xxx xxx and 4xx xxx xxx)
⇒ [page 78](#) ⇒ Electronic parts catalogue .*

11 - Bolt M4×12

- ☐ Tightening torque: 3 Nm

12 - Retaining clip

- ☐ For temperature sensor - G18-

**Note**

*There are different versions of the retaining clip for the temperature sensor - G18- and the temperature sensor 2 for supplementary and auxiliary heating - G587- . -J364- with part number 8xx xxx xxx must only be fitted with retaining clips without a spacer ring. -J364- with part number 4xx xxx xxx must only be fitted with retaining clips with a spacer ring. It is therefore important to observe the correct assignment (matching part numbers of retaining clip and auxiliary heater control unit - J364-) ⇒ [page 78](#) and ⇒ *Electronic parts catalogue* .*

**Caution**

If a retaining clip has not been properly fitted or the wrong version is used, coolant will escape when the pressure increases in the coolant circuit.

! If a retaining clip has not been properly fitted, - G18- or -G587- may work loose.

Ensure correct assignment and proper fitting of the retaining clip.

**13 - Retaining clip**

- ☐ For temperature sensor 2 for **supplementary and auxiliary heating - G587-**

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**Note**

*There are different versions of the retaining clip for the temperature sensor - G18- and the temperature sensor 2 for supplementary and auxiliary heating - G587- . -J364- with part number 8xx xxx xxx must only be fitted with retaining clips without a spacer ring. -J364- with part number 4xx xxx xxx must only be fitted with retaining clips with a spacer ring. It is therefore important to observe the correct assignment (matching part numbers of retaining clip and auxiliary heater control unit - J364-) ⇒ [page 78](#) and ⇒ *Electronic parts catalogue* .*

**Caution**

If a retaining clip has not been properly fitted or the wrong version is used, coolant will escape when the pressure increases in the coolant circuit.

⚠️ If a retaining clip has not been properly fitted, - G18- or -G587- may work loose.

Ensure correct assignment and proper fitting of the retaining clip.

14 - Temperature sensor - G18-

- ☐ Removing and installing ⇒ [page 80](#)
- ☐ Checking ⇒ [page 93](#)

15 - Temperature sensor 2 for supplementary and auxiliary heating - G587-

- ☐ Removing and installing ⇒ [page 81](#)
- ☐ Checking ⇒ [page 95](#)

16 - 2-pin connector

- ☐ To circulation pump - V55-

17 - 6-pin connector

- ☐ To auxiliary heater control unit - J364-

18 - 2-pin connector

- ☐ For power supply

**Note**

*Different versions
⇒ [Item 6 \(page 52\)](#)*

19 - Glow plug for heater - Q9-

- ☐ Rated voltage: 8 volts
- ☐ Removing and installing ⇒ [page 83](#)
- ☐ Checking ⇒ [page 92](#)
- ☐ If applicable, carefully clean the glow element with a brass wire brush (spark plug brush).

**Note**

There are different versions of the glow plug for heater - Q9- . Ensure correct assignment ⇒ [Electronic parts catalogue](#) .

20 - Water jacket

- ☐ If applicable, clean inside and outside with brass wire brush (spark plug brush)

21 - Heat exchanger

- ☐ Removing and installing ⇒ [page 88](#)
- ☐ Note installation position ⇒ [page 58](#)
- ☐ If applicable, clean inside and outside with brass wire brush (spark plug brush)

22 - O-ring

- ☐ Renew
- ☐ Coat with small quantity of coolant when fitting

23 - Seal

- ☐ Renew

24 - Burner element

- ☐ If applicable, clean inside and outside with brass wire brush (spark plug brush)
- ☐ Different versions (for petrol and diesel) ⇒ Electronic parts catalogue



Note

From 06.2011 onwards, modified auxiliary heaters have been in use (changes to auxiliary heater control unit - J364- , different glow plugs for heater - Q9- , different burner elements for diesel heaters and modified moulded gasket for petrol heaters). Check the correct version and allocation of these parts prior to installation ⇒ Electronic parts catalogue .

25 - Moulded gasket

- ☐ Renew



Note

From 06.2011 onwards, modified auxiliary heaters have been in use (changes to auxiliary heater control unit - J364- , different glow plugs for heater - Q9- , different burner elements for diesel heaters and modified moulded gasket for petrol heaters). Check the correct version and allocation of these parts prior to installation ⇒ Electronic parts catalogue .

26 - Seal

- ☐ Renew

27 - Fuel evaporator

- ☐ Removing and installing ⇒ [page 84](#)
- ☐ Different versions (for petrol and diesel) ⇒ Electronic parts catalogue

28 - Fuel pre-heating heater element - Z66-

- ☐ Removing and installing ⇒ [page 84](#)
- ☐ Checking ⇒ [page 96](#)

29 - Seal

- ☐ Renew

30 - Washer

31 - Circlip

32 - Graphite seal

- ☐ Check and renew if damaged
- ☐ Note installation position ⇒ [page 83](#)
- ☐ The graphite seal is supplied together with the flame monitor - G64- ⇒ Electronic parts catalogue .

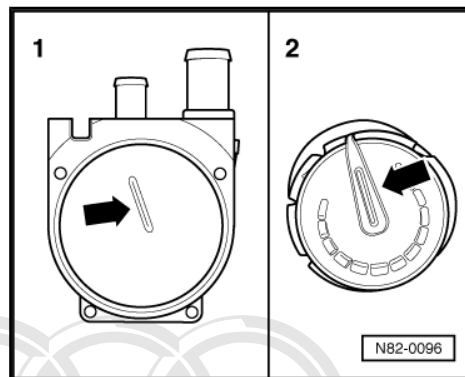
33 - Flame monitor - G64-

- ☐ Removing and installing ➔ [page 82](#)
- ☐ Checking ➔ [page 93](#)

34 - Clip

- ☐ Only provided for petrol heater (attached to fuel pipe of fuel evaporator)

Installation position of heat exchanger



2.4 Removing and installing auxiliary/supplementary heater



WARNING

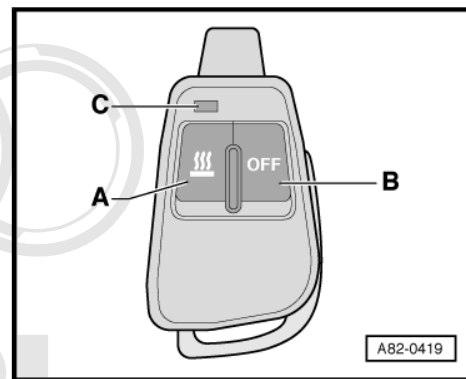
The cooling system is pressurised. When the engine is warm, the coolant temperature may be above 90 °C. Release pressure and wait for temperature to drop before performing repairs. Release pressure in coolant circuit by opening cap on coolant expansion tank ➔ Rep. gr. 00 ; Safety precautions; Safety precautions when working on the cooling system .

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Note

- ◆ When renewing, make sure you install the correct auxiliary heater version (different versions for vehicles with petrol or diesel engine) ⇒ [page 3](#) .
- ◆ From model year 2009 onwards, Audi A5 Coupé and Audi A4 vehicles are gradually being fitted with changed auxiliary heaters with a modified auxiliary heater control unit - J364- ; these have been installed on the Audi Q5 from the start of production. Make sure these components are correctly assigned to the vehicle ⇒ *Electronic parts catalogue* and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ◆ This auxiliary heater is installed in various vehicle models. The part number changes each time this auxiliary heater is fitted in a new vehicle model (e.g. from 8K0 xxx xxx to 8R0 xxx xxx on introduction of the Audi Q5 and subsequently to 4xx xxx xxx etc.). Attention must therefore be paid to correct assignment. Care must however also be taken to ensure that an old auxiliary heater version is never installed in a vehicle previously fitted with a newer version. For example, an Audi A4 provided at the factory with an auxiliary heater with part number 8R0 xxx xxx is not to be fitted with an auxiliary heater with part number 8K0 xxx xxx ⇒ *Electronic parts catalogue* .
- ◆ As of 10.2010 auxiliary heaters with part number 4xx xxx xxx are gradually to be introduced. Service installation of this version of the auxiliary heater is also possible in vehicles originally fitted with an auxiliary heater with part number 8R0 xxx xxx or 8K0 xxx xxx. As, however, there are differences between certain components of the various auxiliary heater versions (e.g. 2-pin connector for power supply to auxiliary heater control unit - J364-), observe the correct assignment when renewing individual components of the auxiliary heater ⇒ *Electronic parts catalogue* .
- ◆ If an auxiliary heater with part number 4xx xxx xxx is installed, you must make sure with this version that it is correctly coded for the corresponding vehicle (different functions are stored in the control unit depending on the type of vehicle coded) ⇒ *Electronic parts catalogue* and ⇒ *Guided Fault Finding* function of vehicle diagnostic, testing and information system VAS 5051 .
- ◆ The Audi A4, A5 and Q5 are currently provided with a hand-held remote control transmitter for auxiliary heater without a display ⇒ *Owner's Manual* .
- ◆ Auxiliary heaters with an auxiliary heater control unit - J364- with part number 8xx xxx. xxx are only designed for actuation by way of a hand-held transmitter with no display. From 10.2010 onwards, auxiliary heaters with -J364- with part number 4xx xxx xxx are gradually being introduced. On these auxiliary heaters, the version of the hand-held transmitter (with or without display) must be coded correctly in -J364- . This also applies if a -J364- with part number 8xx xxx xxx is replaced with a -J364- with part number 4xx xxx xxx as part of the service work ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ◆ From model year 2010 onwards, a start/stop system (optional equipment) is offered for this vehicle in combination with certain engines. On these vehicles, pay attention to the correct version of the air conditioner operating and display unit, Climatronic control unit - J255- and of the auxiliary heater ⇒ *Electronic parts catalogue* and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051 .



- ◆ *Vehicles with a start/stop system must not be fitted with auxiliary heaters with part number 8K0 xxx xxx ⇒ Electronic parts catalogue and ⇒ Guided Fault Finding function of vehicle diagnostic, testing and information system VAS 5051 .*
- ◆ *On vehicles with a start/stop system, the circulation pump - V55- of the auxiliary heater is activated by the auxiliary heater control unit - J364- while the stop function is active. Via the data bus, -J364- is requested by the air conditioner operating and display unit, Climatronic control unit - J255- to switch on - V55- ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051*
- ◆ *If the assignment of the auxiliary heater control unit - J364- (type plate) differs from the information given on the fault reader display, check the display in the measured value block ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/-*
- ◆ *If the auxiliary heater is renewed (together with the auxiliary heater control unit - J364-), check the operation of at least one hand-held remote control transmitter; if the operation is not OK, re-adapt all hand-held transmitters via the auxiliary heater control unit - J364- ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- and ⇒ [page 141](#) .*
- ◆ *If auxiliary heater has been renewed (together with auxiliary heater control unit - J364-), perform Guided Fault Finding for auxiliary heater after installing auxiliary heater (interrogate event memory, perform basic setting, check coding and adaption etc.) ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ◆ *If components of auxiliary heater have been renewed (e.g. combustion air blower - V6-), check CO₂ content in auxiliary heater exhaust gas.*
- ◆ *If, depending on the version of the auxiliary heater control unit - J364- , the auxiliary heater cannot be activated on a new vehicle or in the case of a newly installed auxiliary heater, the component protection function may be active (if a large number of faults occurred simultaneously at some point, this fault may no longer be displayed although it is still active). If necessary, re-adapt the component protection function in the same way as for a newly installed auxiliary heater to cancel the component protection ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ◆ *There are different auxiliary heater versions. The Audi Q5 is not to be fitted with auxiliary heaters with part number 8K0.xxx.xxx. Observe exact assignment when renewing an auxiliary heater ⇒ [page 3](#) and ⇒ Electronic parts catalogue .*
- ◆ *If the auxiliary heater is to be renewed, interrogate the coding and adaption of the auxiliary heater control unit - J364- via the "Control unit replacement" function of the Guided Fault Finding routine prior to removal (auxiliary heater control unit - J364- is fitted in heater) ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ◆ *The brackets for the auxiliary heater were gradually modified on the Audi Q5 in model year 2009. Pay attention to the correct assignment when renewing the auxiliary heater and brackets ⇒ Electronic parts catalogue and ⇒ [page 45](#) .*

- ◆ *If, following replacement of the auxiliary heater or the auxiliary heater control unit - J364- , the fault "Incorrect control unit fitted" is displayed, check that -J364- has been encoded for the correct type of fuel "Diesel" or "Petrol" and correct if necessary ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051 .*
- ◆ *After renewing the auxiliary heater, remember to adapt the new auxiliary heater. For example, if an auxiliary heater with part number 8K0 xxx xxx , 8R0 xxx xxx or 4H0 xxx xxx up to index "A" is replaced by an auxiliary heater with part number 4H0 xxx xxx from index "B" onwards, it may be necessary to activate the adaption for the activation of the circulation pump - V55- by the auxiliary heater control unit - J364- in air conditioning mode (this function is deactivated for auxiliary heater with part number 4H0 xxx xxx from index "B" onwards). If -V55- cannot be activated by -J364- following a request from the air conditioner operating and display unit (Climatronic control unit - J255-), there may be problems with poor or no heating output on certain vehicle versions (depending on engine and production period). If -V55- is activated by -J364- following a request from -J255- on vehicles with a factory-fitted auxiliary heater with part number 4H0 xxx xxx from index "B" onwards (gradual introduction from model year 2012 onwards), there may also be problems ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*

After installing the auxiliary heater, perform the following checks/
make the following settings depending on the repair work involved:

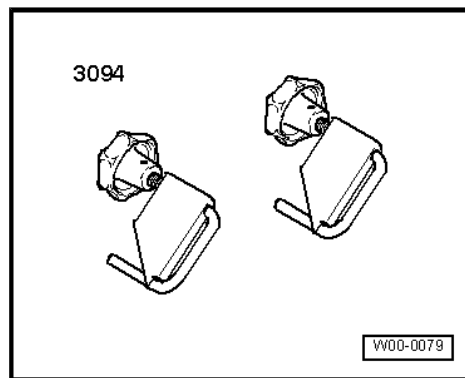
- Check/enter coding of auxiliary heater control unit - J364- ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- Interrogate adaption of auxiliary heater control unit - J364- and perform adaption for auxiliary heater control unit - J364- if necessary (pay attention to any customer-specific settings) ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- Match any remote control units to auxiliary heater control unit - J364- via "Adaption" function ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- Interrogate event memory of auxiliary heater control unit - J364- and erase any faults displayed ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- Interrogate adaption of auxiliary heater control unit - J364- and if necessary change adaption in "Pipe filling" adaption channel (time for activation of metering pump - V54- for pipe filling) and perform basic setting in "Pipe filling" display group (to erase "Pipe filling" fault) ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- Start engine and interrogate event memory of all control units fitted. Faults may also have been entered for other control units via the data bus ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- Switch on the auxiliary heater and check operation of the auxiliary heater as well as the CO₂ content of the exhaust gas
⇒ [page 120](#) .

- After renewing auxiliary heater components, switch on auxiliary heater and allow it to run for at least 10 minutes at full load before the vehicle is returned to the customer. There may still be traces of factory lubricant (or similar) in the components which would evaporate following initial activation as soon as the components become hot.

Removing auxiliary heater

Special tools and workshop equipment required

- ◆ Hose clamps up to Ø 25 mm - 3094-



Note

If the engine is warm, the cooling system is pressurised. If necessary, release pressure before starting repair work ⇒ Rep. gr. 00 ; Safety precautions; Safety precautions when working on the cooling system .

- Interrogate coding and adaption of auxiliary heater control unit - J364- in "Control unit replacement" function of Guided Fault Finding routine ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- Switch off ignition (and auxiliary heater).
- Release pressure in coolant circuit by opening cap on coolant expansion tank ⇒ Rep. gr. 00 ; Safety precautions; Safety precautions when working on the cooling system .
- Remove front wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner; Exploded view - wheel housing liner (front)
- Detach noise insulation (front) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .



Note

Depending on the version of the vehicle, it may be necessary to remove the front bumper cover to make it possible to remove the noise insulation (e.g. on Audi A4 allroad) ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing bumper cover .

- Remove trim for fog light (right-side) ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Exploded view - bumper cover .
- Remove right fog light (vehicles with adaptive cruise control unit - J428- only) ⇒ Electrical system; Rep. gr. 94 ; Fog lights; Removing and installing fog lights .

Work not required for all vehicles, e.g. not necessary for Audi Q5:

- Remove air cleaner housing ⇒ Rep. gr. 23 ; Air cleaner; Exploded view - air cleaner housing / ⇒ Rep. gr. 24 ; Air cleaner; Exploded view - air cleaner housing .
- Remove headlight (right-side) ⇒ Electrical system; Rep. gr. 94 ; Headlights; Removing and installing headlights .
- Remove wheel housing liner brace ⇒ General body repairs, exterior; Rep. gr. 50 ; Lock carrier; Exploded view - lock carrier .

Work only required for vehicles with turbo engine:

- Remove air hose leading to charge air cooler ⇒ Rep. gr. 21 ; Charge air system; Exploded view - charge air system .

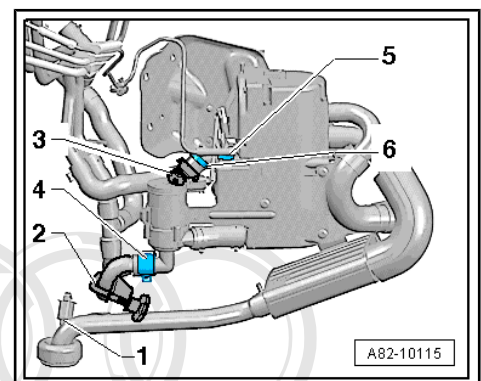
All vehicles (continued):



Note

- ◆ *The following illustration shows the position of the auxiliary heater on an Audi A5 Coupé. The layout differs slightly on the Audi A4 and Audi Q5. On these other vehicles the work is however to be performed in the same manner as described for the Audi A5 Coupé.*
- ◆ *The brackets for the auxiliary heater were gradually modified on the Audi Q5 in model year 2009. Pay attention to the correct assignment when renewing the auxiliary heater and brackets ⇒ Electronic parts catalogue and ⇒ [page 45](#).*

- Remove nut -1-.
- Clamp off coolant hoses at positions -2- (coolant supply to auxiliary heater) and -3- (coolant supply to heat exchanger in air conditioning unit) e.g. with hose clamps up to Ø 25 mm - 3094- .
- Unfasten the clamps at the auxiliary heater coolant pipes -4- and -6- and detach the coolant hoses.



Note

Make sure that only coolant can escape from the auxiliary heater and that the coolant circuit in the other components (engine, heat exchanger in air conditioning unit etc.) remains full, so that only the auxiliary heater has to be bled after installation ⇒ [page 108](#).

- Unfasten the clamp -5- and detach and seal off the fuel pipe.



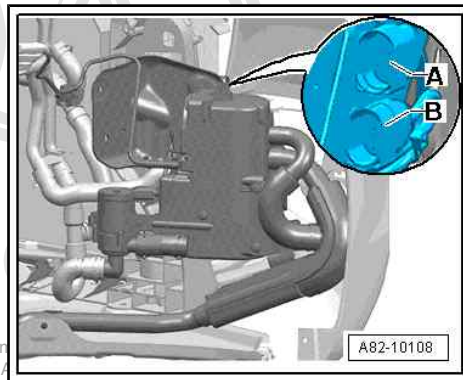
WARNING

When working on the open fuel system, observe the rules for cleanliness and the safety precautions ⇒ Fuel supply system; Rep. gr. 00 ; Safety precautions when working on the fuel system .

- Release the 6-pin connector -A- and the 2-pin connector -B- (press towards left side of vehicle and unfasten the catches whilst pressing the connector) and unplug.


Note

- ♦ Depending on the vehicle model, both connectors may be accessible by way of the opening for the fog light trim removed.
- ♦ As of 10.2010 auxiliary heaters with part number 4xx xxx xxx are gradually to be introduced. Service installation of this version of the auxiliary heater is also possible in vehicles originally fitted with an auxiliary heater with part number 8R0 xxx xxx or 8K0 xxx xxx. As, however, there are differences between certain components of the various auxiliary heater versions (e.g. 2-pin connector for power supply to auxiliary heater control unit - J364- -B-), observe the correct assignment when renewing individual components of the auxiliary heater ⇒ *Electronic parts catalogue* .



- Unfasten earth wire at earth point of longitudinal member (in area of bracket for auxiliary heater) e.g. on Audi A5 Coupé and Audi A4.


Note

On e.g. the Audi A5 Coupé and Audi A4 the auxiliary heater cannot be removed without bending the bracket if the earth wire is bolted on.

- Unscrew nut -1- (not fitted on Audi Q5).
- Unscrew nuts -2- and securing bolt -3- and take out auxiliary heater with bracket.

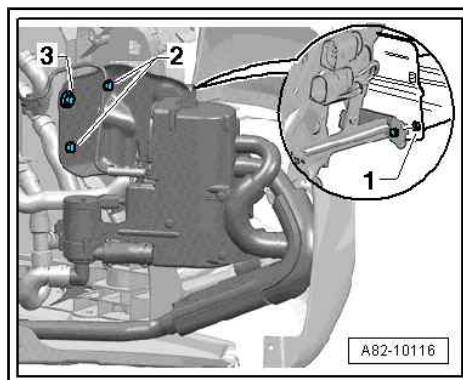
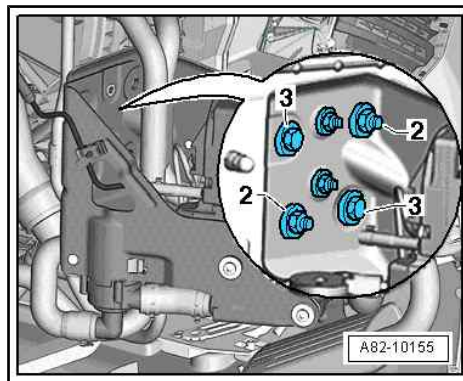

Note

The Audi Q5 is fitted with a different bracket, which is additionally attached to the longitudinal member with a second bolt -3-.

Installing auxiliary heater

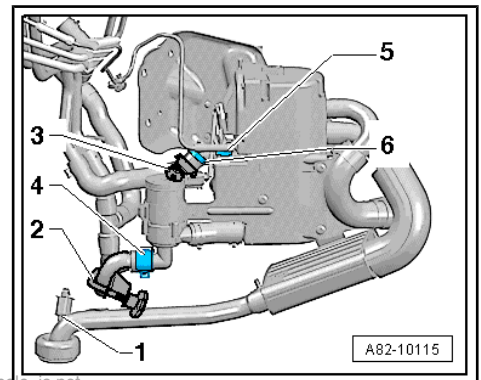
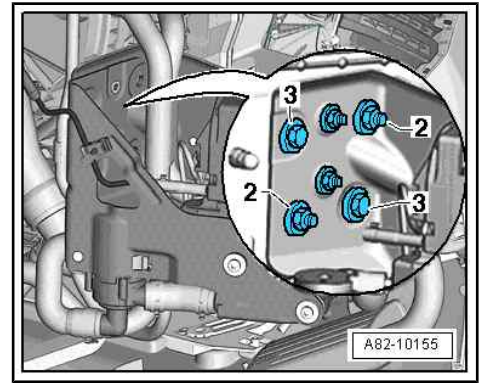
Install in the reverse order of removal ⇒ [page 62](#) , paying attention to the following.

- Insert the heater and hand-tighten the bolts and nuts.
- Finish-tighten the bolts and nuts in the following sequence:
 - 1 - Bolt -3- (2x on Audi Q5)
 - 2 - Nut -1- (not fitted on Audi Q5)
 - 3 - Nuts -2-



 Note

- ◆ *The Audi Q5 is fitted with a different bracket (two-part), which is attached to the longitudinal member with two bolts -3- and two nuts -2-.*
 - ◆ *Butt-joint the coolant hoses and secure with clamps at the marked locations.*
 - ◆ *Butt-joint the fuel lines and secure with clamps at the marked locations.*
 - ◆ *If applicable, replace the clamps with screw-type clamps or clips of the same type and secure these using suitable pliers ⇒ *Electronic parts catalogue* .*
 - ◆ *If the coolant circuit has been drained, a new circulation pump - V55- must not be started up until the coolant circuit has been filled to prevent the pump from being damaged irreparably when it is run dry.*
 - ◆ *Depending on the version of the auxiliary heater and the vehicle equipment, the exhaust pipe fitted between the auxiliary heater and the exhaust silencer of the auxiliary heater may be provided with thermal insulation (to protect the surrounding components) ⇒ *Electronic parts catalogue* .*
- Fill coolant expansion tank with coolant as far as upper mark ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system .
 - Attach the coolant hose -4- to the circulation pump - V55- of the auxiliary heater and secure with the clamp.
 - Carefully release hose clamps up to Ø 25 mm - 3094- -2- and allow coolant to flow into auxiliary heater.
 - As soon as coolant emerges from the upper connection of the auxiliary heater, attach the coolant hose -3- to the auxiliary heater and secure it with the clamp.
 - Detach both hose clamps up to Ø 25 mm - 3094- .
 - Bleed coolant circuit of auxiliary heater ⇒ [page 108](#) .
 - Fill coolant expansion tank with coolant as far as upper mark ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system .

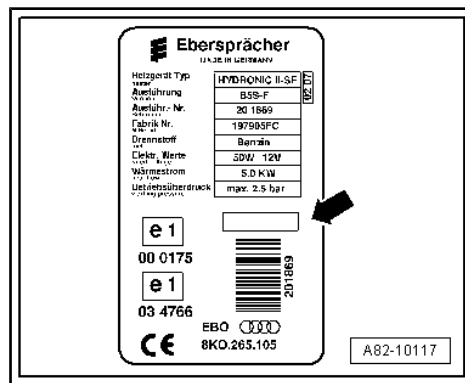


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Note

- ◆ *Following installation, check exhaust pipe, coolant hoses, fuel pipe and wiring to auxiliary heater (they must not make contact with other components).*
- ◆ *If the auxiliary heater is renewed, the factory label duplicate must be checked and renewed if necessary.*
- ◆ *If the auxiliary heater has been renewed, the year of initial commissioning for the newly installed heater must be entered on the heater type plate -arrow- and on the new "duplicate type plate" (illustration shows type plate for an auxiliary heater in a vehicle with petrol engine).*
- ◆ *There are different versions of factory labels.*
- Check the position of the air intake and the intake air noise insulation of the auxiliary heater (air inlet and exhaust outlet must not be obstructed).
- If necessary, release the component protection function in the same way as for a newly installed auxiliary heater to cancel the auxiliary heater locking by the component protection ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- Check coding of auxiliary heater control unit - J364- ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- Interrogate event memory of auxiliary heater control unit - J364- and erase any faults displayed ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- Check operation of remote control for auxiliary heater and perform adaption of auxiliary heater control unit - J364- if necessary ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .



Note

If the auxiliary heater is renewed together with auxiliary heater control unit - J364- , check operation of at least one hand-held transmitter and re-adapt all hand-held transmitters if necessary (adapt hand-held remote control transmitter) ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - 5051/- .

- Interrogate adaption of auxiliary heater control unit - J364- and if necessary change adaption in "Pipe filling" adaption channel (if a value unequal to "0" is displayed) and perform basic setting in "Pipe filling" display group (to erase "Pipe filling" fault) ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .

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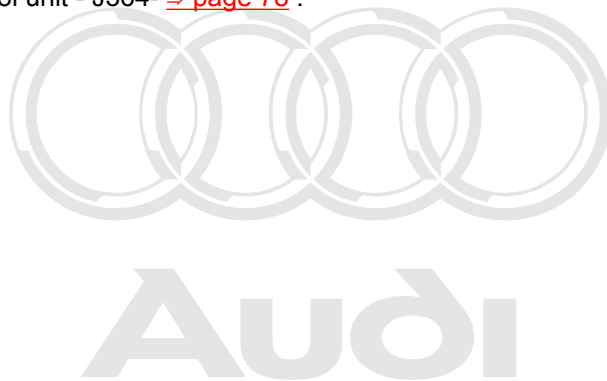
Note

- ◆ *If the value displayed in the "Pipe filling" adaption channel was other than "0", perform the "Basic setting" function, "Pipe filling" display group (the metering pump - V54- is actuated for the time set in the "Pipe filling" adaption channel, the adaption in the adaption channel is reset to "0" and the fault "Pipe filling" is erased).*
- ◆ *To prevent an excessive amount of fuel from being delivered into the auxiliary/supplementary heater if the fuel line is already full, the value entered for the "Pipe filling" function in the basic setting must not be above "3" in the "Pipe filling" adaption channel ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - 5051/- .*
- Start engine and interrogate event memory of all control units fitted. Faults may also have been entered for other control units via the data bus ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- After renewing auxiliary heater components, switch on auxiliary heater and allow it to run for at least 10 minutes at full load before the vehicle is returned to the customer. There may still be traces of factory lubricant (or similar) in the components which would evaporate following initial activation as soon as the components become hot.

Tightening torques ⇒ [page 41](#)

2.5 Dismantling and assembling auxiliary/supplementary heater

- Switch off ignition (and auxiliary heater).
- Remove auxiliary heater ⇒ [page 58](#) .
- Detach add-on components of auxiliary heater ⇒ [page 76](#) .
- Remove auxiliary heater control unit - J364- ⇒ [page 78](#) .

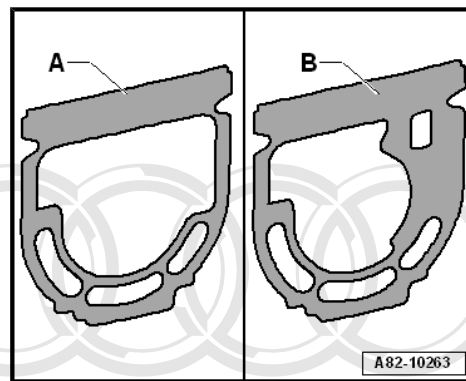


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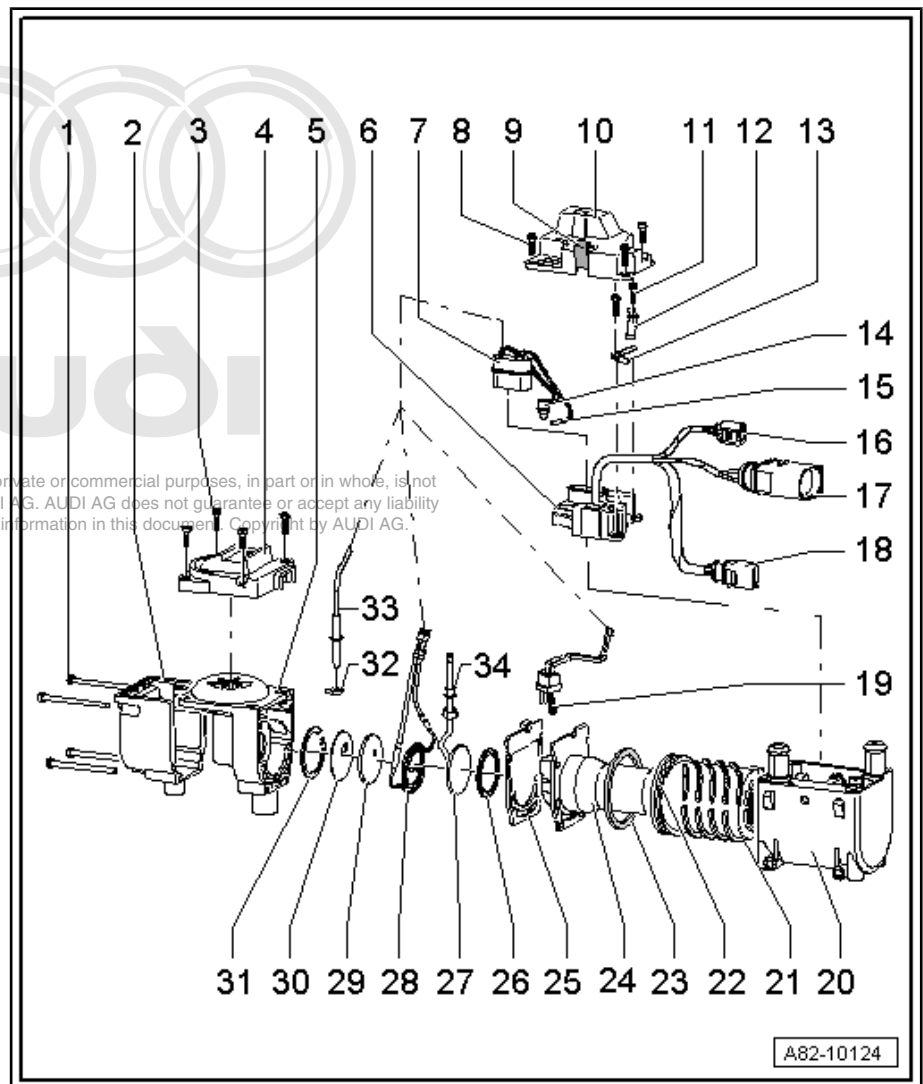
Note

- ◆ *This auxiliary heater is installed in various vehicle models. The part number changes each time this auxiliary heater is fitted in a new vehicle model (e.g. from 8K0 xxx xxx to 8R0 xxx xxx on introduction of the Audi Q5 and subsequently to 4xx xxx xxx etc.). Attention must therefore be paid to correct assignment. Care must however also be taken to ensure that an old auxiliary heater version is never installed in a vehicle previously fitted with a newer version. For example, an Audi A4 provided at the factory with an auxiliary heater with part number 8R0 xxx xxx is not to be fitted with an auxiliary heater with part number 8K0 xxx xxx ⇒ Electronic parts catalogue .*
- ◆ *As of 10.2010 auxiliary heaters with part number 4xx xxx xxx are gradually to be introduced. Service installation of this version of the auxiliary heater is also possible in vehicles originally fitted with an auxiliary heater with part number 8R0 xxx xxx or 8K0 xxx xxx. As, however, there are differences between certain components of the various auxiliary heater versions (e.g. 2-pin connector for power supply to auxiliary heater control unit - J364-), observe the correct assignment when renewing individual components of the auxiliary heater ⇒ Electronic parts catalogue .*
- ◆ *If an auxiliary heater with part number 4xx xxx xxx is installed, you must make sure with this version that it is correctly coded for the corresponding vehicle (different functions are stored in the control unit depending on the type of vehicle coded) ⇒ Electronic parts catalogue and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ◆ *From 06.2011 onwards, modified auxiliary heaters have been in use (changes to auxiliary heater control unit - J364- , different glow plugs for heater - Q9- , different burner elements for diesel heaters and modified moulded gasket for petrol heaters). Check the correct version and allocation of these parts prior to installation ⇒ Electronic parts catalogue .*
- ◆ *Version -A- of moulded gasket was fitted on petrol heaters until 06.2011. From 06.2011 onwards, version -B- was introduced for noise optimisation. On diesel heaters, version -A- is still installed ⇒ Electronic parts catalogue .*



Dismantling auxiliary heater

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- Unscrew bolts -8- and lift cover for water jacket -10-.
- Release clip -9- at bottom, slide it out upwards and detach cover for water jacket -10-.
- Remove bolts -3- and carefully detach cover for combustion air blower -4- from fuel connection of fuel evaporator -27-.

 Note

There are different versions of the cover -4-. Pay attention to correct assignment (different versions for an auxiliary heater control unit - J364- with part number 8xx xxx xxx and 4xx xxx xxx) ⇒ Electronic parts catalogue .

- Unplug the 14-pin connector at the auxiliary heater control unit -7-.
- Unscrew bolts -11- and detach them together with retaining clips -12- and -13-.

 Note

There are different versions of the retaining clips for the temperature sensors -12- and -13-. Pay attention to correct assignment (different versions for an auxiliary heater control unit - J364- with part number 8xx xxx xxx and 4xx xxx xxx) ⇒ [page 80](#) and ⇒ Electronic parts catalogue .

- Carefully pull out the temperature sensor - G18- -14-.
- Detach auxiliary heater control unit - J364- -6-.
- Remove bolts -1-.
- Carefully detach the cover -2- and combustion air blower - V6- -5- from the water jacket -20-.

Assembling auxiliary heater

Assemble in reverse order; note the following:

- Clean the various components prior to assembly.
- Check the various components for damage. Pay particular attention to the sealing surfaces for the components and any permanently attached seals. Renew components with a damaged sealing surface or seal.
- Renew any seals.



Note

- ◆ *There are different versions of the auxiliary heater control unit - J364- . The Audi Q5 is not to be fitted with -J364- with part number 8K0.xxx.xxx for example. In addition, the versions depend on the production period and the type of fuel (certain functions are differently matched for vehicles with petrol and diesel engine); ensure that the correct version is used ⇒ [page 3](#) and ⇒ *Electronic parts catalogue* .*
- ◆ *As of Model Year 2009, the Audi A5 Coupé and the Audi A4 are gradually being fitted with modified auxiliary heaters with a reworked auxiliary heater control unit - J364- . Certain functions are not yet provided on the version with part number 8K0.xxx.xxx. The Audi Q5 has been fitted with the modified auxiliary heaters right from the start of production. Pay attention to correct assignment of these components to vehicle ⇒ *Electronic parts catalogue* and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ◆ *If an auxiliary heater or an auxiliary heater control unit - J364- with part number 4xx xxx xxx is fitted, attention must also be paid with this version to correct encoding for the vehicle concerned (different functions are stored in the control unit depending on the type of vehicle encoded) ⇒ *Electronic parts catalogue* and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051 .*

Tightening torques ⇒ [page 51](#)

2.6 Removing and installing air intake silencer



Note

The following illustration shows the position of the auxiliary heater on an Audi A5 Coupé. The layout differs slightly on the Audi A4 and Audi Q5 (different bracket for auxiliary heater). On these other vehicles the intake air noise insulation is however to be removed and installed in the same manner as described for the Audi A5 Coupé.

Removing

- Switch off ignition (and auxiliary heater).

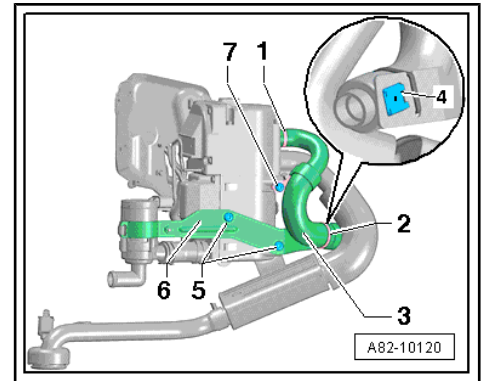
- Remove front wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner; Exploded view - wheel housing liner (front) .
- Unfasten clamp -1-.
- Remove cable tie -2-.
- Detach the intake pipe with intake air noise insulation -3- from the heater and remove from the guides -4- and -7-.

Installing

Install in reverse order of removal; note the following.

- Renew thread-forming bolts -5- and -7- (not on Audi Q5).
- If applicable, replace the clamps with screw-type clamps or clips of the same type and secure these using suitable pliers ⇒ Electronic parts catalogue .
- Slide the intake pipe with intake air noise insulation -3- towards the auxiliary heater until this makes contact with the housing of the combustion air blower.
- Make sure the guides -4- and -7- are correctly positioned.

Tightening torques ⇒ [page 41](#)



Note

- ◆ *Secure the intake hose with a clamp to stop it slipping off the air intake connection of the auxiliary heater.*
- ◆ *If applicable, additionally attach intake air noise insulation with cable ties to bracket for auxiliary heater.*

2.7 Removing and installing circulation pump - V55-



WARNING

The cooling system is pressurised. When the engine is warm, the coolant temperature may be above 90 °C. Release pressure and wait for temperature to drop before performing repairs. Release pressure in coolant circuit by opening cap on coolant expansion tank ⇒ Rep. gr. 00 ; Safety precautions; Safety precautions when working on the cooling system .

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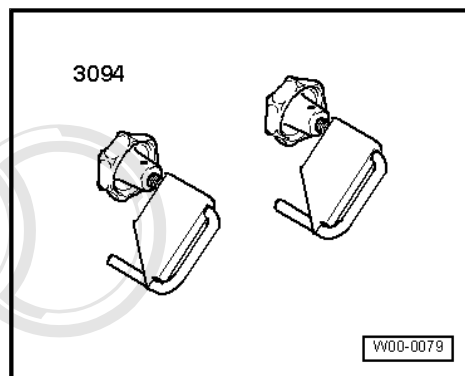


Note

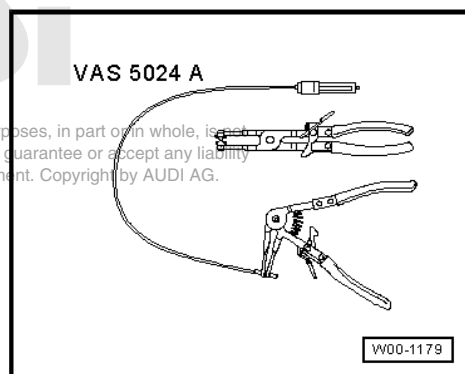
- ◆ Depending on the vehicle equipment, the circulation pump - V55- may also be activated by the auxiliary heater control unit - J364- when a request is transmitted by the corresponding engine control unit or the operating and display unit (Climatronic control unit - J255-) via the data bus system ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- ◆ From model year 2010 onwards, a start/stop system (optional equipment) is offered for this vehicle in combination with certain engines. On these vehicles, pay attention to the correct version of the air conditioner operating and display unit, Climatronic control unit - J255- and of the auxiliary heater ⇒ Electronic parts catalogue and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051 .
- ◆ On vehicles with a start/stop system, the circulation pump - V55- of the auxiliary heater is activated by the auxiliary heater control unit - J364- while the stop function is active. Via the data bus, -J364- is requested by the air conditioner operating and display unit, Climatronic control unit - J255- to switch on - V55- ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051
- ◆ The circulation pump - V55- is incorporated into the auxiliary heater hoses.
- ◆ When removing the circulation pump - V55- , only clamp off, release and disconnect the coolant hoses at the circulation pump - V55- so that the entire engine coolant circuit does not have to be bled.

Special tools and workshop equipment required

- ◆ Hose clamps up to Ø 25 mm - 3094-



- ◆ Hose clip pliers - VAS 6340- (or spring-type clip pliers - VAS 5024/-)



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Removing

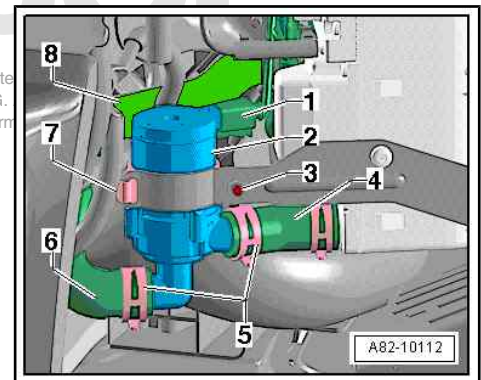
- Switch off ignition (and auxiliary heater).
- Release pressure in coolant circuit by opening cap on coolant expansion tank ⇒ Rep. gr. 00 ; Safety precautions; Safety precautions when working on the cooling system .
- Remove front right wheel (for fitting wheel refer to ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheel alignment).
- Remove front wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner; Exploded view - wheel housing liner (front) .

Note

The following illustration shows the position of the circulation pump - V55- on an Audi A5 Coupé. The position of the circulation pump - V55- differs slightly on the Audi A4 and Audi Q5. On these other vehicles the work is however to be performed in the same manner as described for the Audi A5 Coupé.

- Clamp off coolant hoses -6- and -8- (e.g. with hose clamps up to Ø 25 mm - 3094-).
- Unfasten clamps -5-.
- Detach the coolant hose -6- from the circulation pump - V55-2-.
- Slacken off the bolt -3- and detach the clip -7-.
- Disconnect the circulation pump - V55-2- from the coolant hose -4-.
- Unplug the connector -1- from the circulation pump - V55- and take out the circulation pump .

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Installing

Install in reverse order of removal; note the following.

Note

- ◆ *If the coolant circuit has been drained, a new circulation pump - V55- must not be started up until the coolant circuit has been filled to prevent the pump from being damaged irreparably when it is run dry.*
- ◆ *As only a small quantity of coolant escapes from the coolant circuit during removal of the circulation pump - V55- (as described above), coolant runs into the circulation pump - V55- following installation and after removing the hose clamps (additionally open the expansion tank cap), and there is no danger that the pump will run dry.*
- Only plug in electrical connector to circulation pump - V55- after hose clamps have been removed (and coolant circuit has been filled).
- Bleed coolant circuit ⇒ [page 108](#) .

Tightening torques ⇒ [page 41](#)

2.8 Removing and installing exhaust system



Note

The following illustrations show the position of the auxiliary heater on an Audi A5 Coupé. The layout differs slightly on the Audi A4 and Audi Q5 (different bracket for auxiliary heater). On these other vehicles the exhaust system is however to be removed and installed in the same manner as described for the Audi A5 Coupé.

Removing

- Switch off ignition (and auxiliary heater).
- Detach noise insulation (front) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .



Note

Depending on the version of the vehicle, it may be necessary to remove the front bumper cover to make it possible to remove the noise insulation (e.g. on Audi A4 allroad) ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing bumper cover .

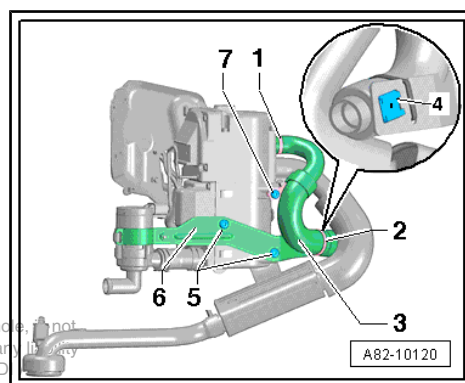
- Remove front wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner; Exploded view - wheel housing liner (front) .
- Remove front right headlight (not necessary on Audi Q5; if applicable remove trim for fog light) ⇒ Electrical system; Rep. gr. 94 ; Headlights; Removing and installing headlights .
- Pull intake air noise insulation -3- sideways out of bracket (not necessary on Audi Q5).



Note

Pull intake air noise insulation -3- sideways out of bracket to make clamp accessible.

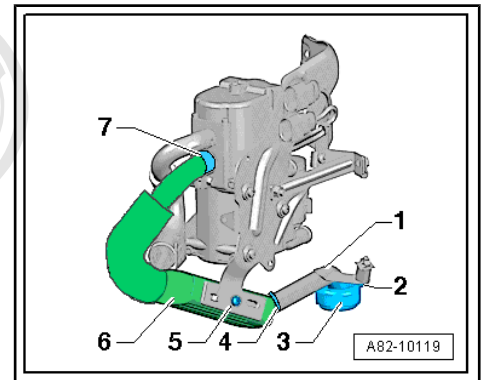
- Loosen bolt -7- at bracket and swivel bracket to side (not fitted on Audi Q5).



- Unscrew nut -2-.
- Release clamp -7-.
- Unscrew bolt -5- and detach silencer -6- with exhaust pipe -1-.

**Note**

Depending on the design of the auxiliary heater and the vehicle equipment spec, there may be a thermal insulator on the exhaust pipe fitted between the auxiliary heater and the silencer -6- (to protect the surrounding components).

**Installing**

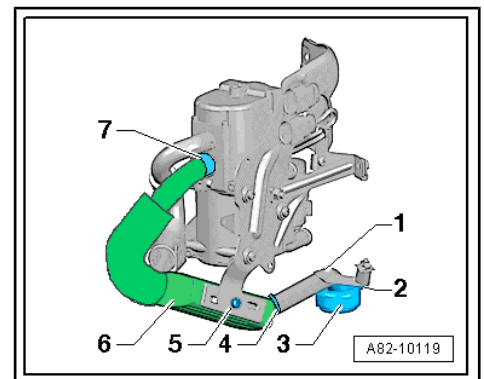
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Install in reverse order of removal, note the following.

**Note**

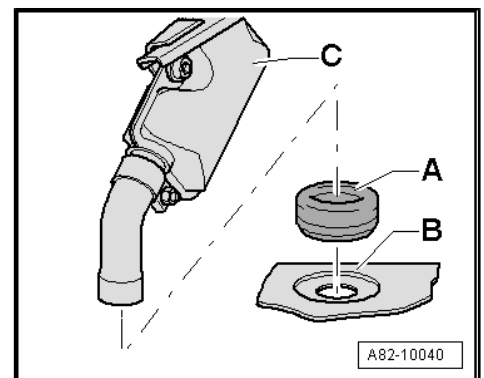
If the exhaust pipe -1- and the silencer -6- are separated, make sure that the slit in the exhaust pipe is facing the arrow on the silencer on assembly.

- Make sure that exhaust system is not making contact with any other component.
- When attaching the noise insulation, make sure the grommet -3- slides over the exhaust pipe -1-.

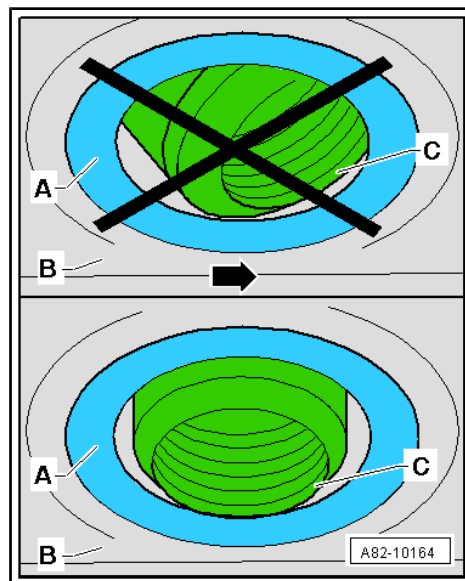


- After fitting front noise insulation, check rubber grommet -A- and exhaust pipe of auxiliary heater. Rubber grommet -A- must be positioned in noise insulation -B- so it is free of stress; exhaust pipe must be flush with rubber grommet -A- or protrude slightly out of rubber grommet -A-.

Tightening torques ➔ [page 41](#)

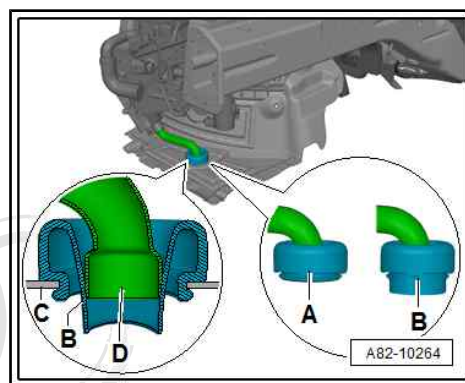


- After working on the auxiliary/supplementary heater or the noise insulation, check the mouth of the exhaust pipe -C-. The mouth of the exhaust pipe -C- must be fitted at right angles to the noise encapsulation -B- where it passes through the grommet -A- in the noise encapsulation -B-.



Note

- ♦ The end of the exhaust pipe -C- must not face the direction of travel -arrow-; otherwise the head wind could cause increased counter pressure in the exhaust system when the vehicle is in motion.
- ♦ A modified rubber grommet is being gradually introduced on certain vehicles in model year 2013 ➔ Electronic parts catalogue . This rubber grommet -B- is longer than the old one; this improves the flow characteristics at the exhaust pipe when the vehicle is travelling with the auxiliary heater running. It therefore protrudes somewhat further out of the noise insulation -C- than rubber grommet -A-. The position of the exhaust pipe -D- is the same with both rubber grommets.



2.9 Removing and installing bracket for auxiliary/supplementary heater



Note

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The following illustrations show the position of the auxiliary heater on an Audi A5 Coupé. The layout differs slightly on the Audi A4 and Audi Q5 (different bracket for auxiliary heater). On these other vehicles the auxiliary heater is however to be removed and installed in the same manner as described for the Audi A5 Coupé.

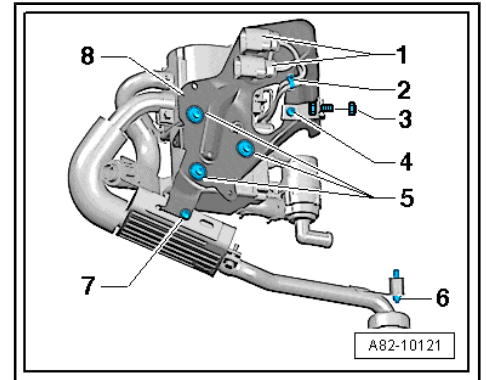
Removing

- Switch off ignition (and auxiliary heater).
- Remove heater unit ➔ [page 58](#) .
- Remove the intake air noise insulation ➔ [page 70](#) .
- Remove the auxiliary heater exhaust system ➔ [page 74](#) .

- Unclip power supply and control line connectors -1- from heater bracket -8-.
- Unfasten the cable tie -2- at the retaining clip.
- Unscrew bolts -5- and detach bracket -8-.

 Note

Renew thread-forming bolts -5-.



- Unscrew bolts -5- and detach bracket -6-.

 Note

On the Audi Q5, take auxiliary heater out of two-part bracket after removing bolts -5- ➔ [page 45](#).

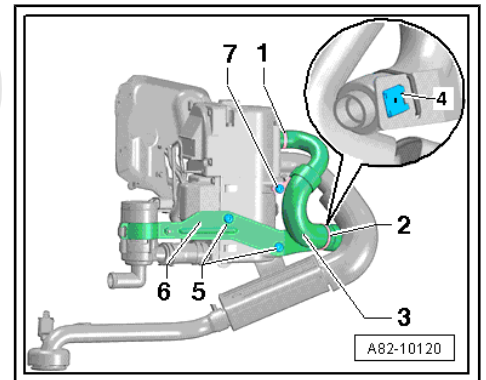
Attaching bracket, installing auxiliary heater

Perform attachment and installation in reverse order, paying attention to the following.

Tightening torques ➔ [page 41](#)

 Note

Renew thread-forming bolts -5-.



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2.10 Removing and installing auxiliary heater control unit - J364-



Note

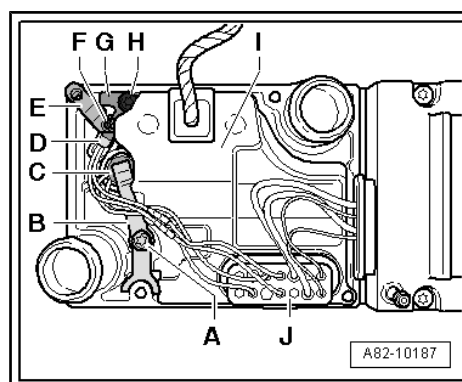
- ◆ If an auxiliary heater or an auxiliary heater control unit - J364- is installed, you must pay attention to the correct version and coding (different functions are stored in the control unit depending on the type of vehicle coded) ⇒ [page 67](#) , ⇒ *Electronic parts catalogue* and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051 .
- ◆ There are different versions of -J364- (different housings, part numbers and software versions) ⇒ [page 67](#) .
- ◆ On the Audi A5 Coupé, Audi A4 and Audi Q5, auxiliary heaters with auxiliary heater control unit - J364- with part number 8xx.xxx.xxx (version "1", see below) were installed at the start of production. Starting with the market launch of the Audi A8 2010>, the Audi A5 Coupé, Audi A4 and Audi Q5 are also fitted with auxiliary heaters with auxiliary heater control unit - J364- with part number 4xx.xxx.xxx (version "2", see below) instead of heaters with control units with part number 8xx.xxx.xxx (gradual introduction). From a certain time onwards, auxiliary heaters are only available as replacement parts with control units version "2", and only these version "2" control units are available as separate replacement parts ⇒ *Electronic parts catalogue* and "Guided Fault Finding" function of ⇒ vehicle diagnostic, testing and information system - VAS 5051/- .
- ◆ Further notes ⇒ [page 67](#)

Preparation

- Switch off ignition (and auxiliary heater).
- Remove auxiliary heater ⇒ [page 58](#) .
- Detach add-on components of auxiliary heater ⇒ [page 76](#) .
- Dismantle auxiliary heater ⇒ [page 67](#) .

Removing

- Unplug 14-pin connector -J- from auxiliary heater control unit - J364- -I-.
- Unscrew bolts and detach cover for water jacket ⇒ [page 67](#) .



Auxiliary heater control unit - J364- (version "1")

- Remove bolts -D-.

**Note**

Not required on version "2" (see description for installing).

- Detach brackets -E- and -F-.

All

- Detach control unit -J364- -B- from water jacket.

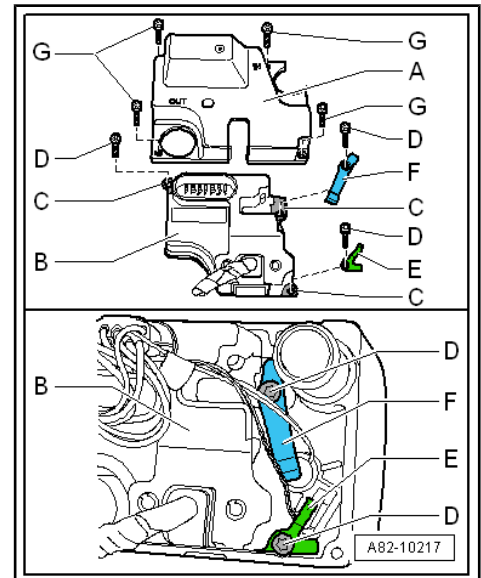
Installing

Install in reverse order of removal; note the following:

**Caution**

If a retaining clip has not been properly fitted or the wrong version is used, coolant will escape when the pressure increases in the coolant circuit.

- ◆ ***If a retaining clip has not been properly fitted, -G18- or -G587- may work loose.***
- ◆ ***Ensure correct assignment and proper fitting of the retaining clip.***



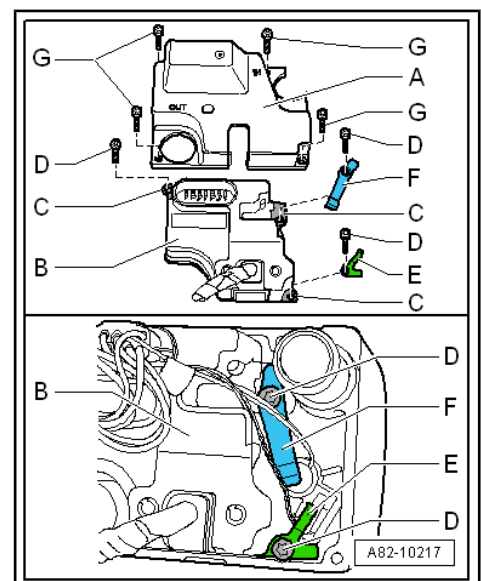
Auxiliary heater control unit - J364- (version "1")

- ◆ -A- Cover for water jacket and for -J364- (version "1")
- ◆ -B- -J364- , version "1" (with three attachment points -C- for securing to water jacket of heater unit)
- ◆ -D- Bolt (for securing -J364- , version "1", and brackets -E- and -F-), tightening torque ➔ [page 51](#)
- ◆ -E- Bracket for temperature sensor - G18- for version "1" ➔ [page 80](#)
- ◆ -F- Bracket for temperature sensor 2 for supplementary and auxiliary heating - G587- for version "1" ➔ [page 81](#)
- ◆ -G- Bolt (for securing cover -A-), tightening torque ➔ [page 51](#)

**Note**

- ◆ ***On version "1", the potential is equalised between the water jacket of the heater unit and the control unit -J364- via the bolts -D-.***

- ◆ ***From 06.2011 onwards, altered auxiliary heaters are in use (changes to auxiliary heater control unit - J364- version "2", different glow plugs for heater - Q9- , different burner elements for diesel heaters and modified moulded gasket for petrol heaters). Check the correct version and allocation of these parts prior to installation ➔ Electronic parts catalogue .***



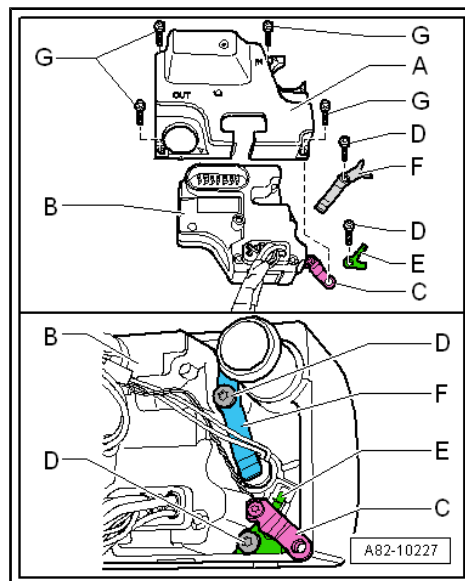
Auxiliary heater control unit - J364- (version "2")

- ◆ -A- Cover for water jacket and for -J364- (version "2")
- ◆ -B- -J364- , version "2" (without attachment points for securing to water jacket of heater unit; instead with bolted-on tab for earth connection -C-)
- ◆ -D- Bolts for securing brackets -E- and -F-; tightening torque ➔ [page 51](#)
- ◆ -E- Bracket for temperature sensor - G18- for version "2" ➔ [page 80](#)
- ◆ -F- Bracket for temperature sensor 2 for supplementary and auxiliary heating - G587- for version "2" ➔ [page 81](#)
- ◆ -G- Bolt (for securing cover -A-), tightening torque ➔ [page 51](#)



Note

-J364- -B- is not bolted onto the water jacket of the heater unit directly; it is only held in place by the cover for the water jacket -A-. On version "2", the potential is equalised via the tab -C- (bolted onto -J364- -B-) to the water jacket of the heater unit. Tab -C- is bolted onto the water jacket of the heater unit with the securing bolts -G- for the cover for the water jacket.



2.11 Removing and installing temperature sensor - G18-

Special tools and workshop equipment required

- ◆ Release tool - VAS 1978/18-

Preparation

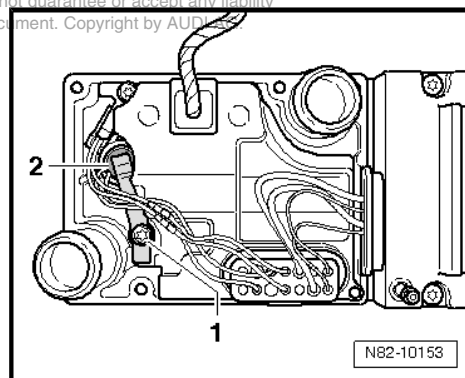
- Switch off ignition (and auxiliary heater).
- Remove auxiliary heater ➔ [page 58](#) .
- Detach add-on components of auxiliary heater ➔ [page 76](#) .
- Dismantle auxiliary heater ➔ [page 67](#) .

Removing

- Remove the cover for the combustion air blower - V6- ➔ [page 67](#) (dismantling and assembling auxiliary heater ➔ [Item 10 \(page 54\)](#)).
- Press the black wires out of the 14-pin connector housing to the auxiliary heater control unit - J364- (contacts 10 and 11).
- Unscrew bolt -1- and detach retaining clip.
- Pull out temperature sensor - G18- -2-.

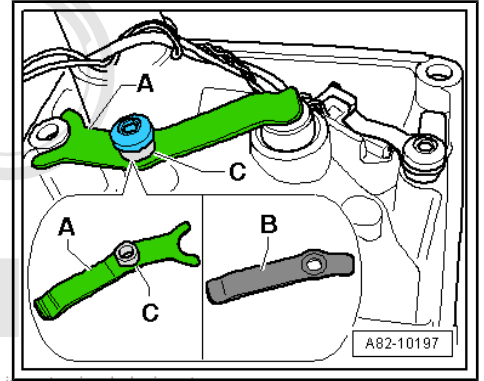
Installing

Install in reverse order of removal; note the following.



**Note**

There are different versions of the retaining clip for the temperature sensor - G18- and the temperature sensor 2 for supplementary and auxiliary heating - G587- . -J364- with part number 8xx xxx xxx must only be fitted with retaining clips -B- without a spacer ring. -J364- with part number 4xx xxx xxx must only be fitted with retaining clips -A- with a spacer ring -C-. It is therefore important to observe the correct assignment (matching part numbers of retaining clip and auxiliary heater control unit - J364-) ➔ [page 78](#) and ➔ [Electronic parts catalogue](#) .

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If a retaining clip has not been properly fitted or the wrong version is used, coolant will escape when the pressure increases in the coolant circuit.

- ◆ **If a retaining clip has not been properly fitted, -G18- or -G587- may work loose.**
- ◆ **Ensure correct assignment and proper fitting of the retaining clip.**

- Clean connection area and temperature sensor - G18- and check for damage.
- Renew O-ring.
- Coat O-ring with small quantity of coolant.

Tightening torques ➔ [page 51](#)

2.12 Removing and installing temperature sensor 2 for supplementary and auxiliary heating - G587-

Special tools and workshop equipment required

- ◆ Release tool - VAS 1978/18-

Preparation

- Switch off ignition (and auxiliary heater).
- Remove auxiliary heater ➔ [page 58](#) .
- Detach add-on components of auxiliary heater ➔ [page 76](#) .
- Dismantle auxiliary heater ➔ [page 67](#) .

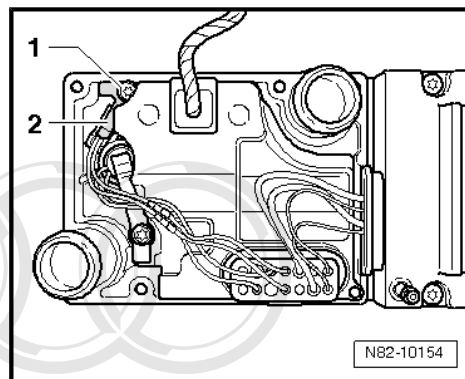
Removing

- Remove cover for combustion air blower - V6- ➔ [page 67](#) (Dismantling and assembling auxiliary heater ➔ [Item 10 \(page 54\)](#)).

- Press the wires out of the 14-pin connector housing to the auxiliary heater control unit - J364- (contacts 7 and 8).
- Unscrew bolt -1- and detach retaining clip.
- Pull out temperature sensor 2 for supplementary and auxiliary heating - G587- -2-.

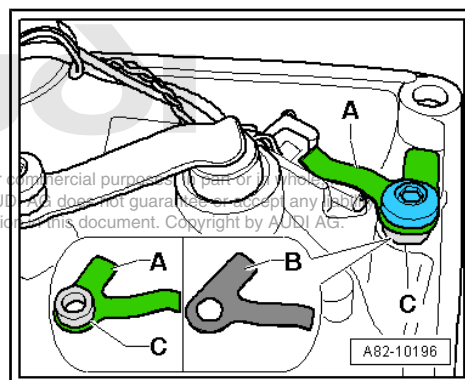
Installing

Install in reverse order of removal; note the following.



Note

There are different versions of the retaining clip for the temperature sensor - G18- and the temperature sensor 2 for supplementary and auxiliary heating - G587- . -J364- with part number 8xx xxx xxx must only be fitted with retaining clips without a spacer ring -B-. -J364- with part number 4xx xxx xxx must only be fitted with retaining clips -A- with a spacer ring -C-. It is therefore important to observe the correct assignment (matching part numbers of retaining clip and auxiliary heater control unit - J364-) ➔ [page 78](#) and ➔ *Electronic parts catalogue* .



Caution

If a retaining clip has not been properly fitted or the wrong version is used, coolant will escape when the pressure increases in the coolant circuit.

- ◆ *If a retaining clip has not been properly fitted, -G18- or -G587- may work loose.*
- ◆ *Ensure correct assignment and proper fitting of the retaining clip.*

Tightening torques ➔ [page 51](#)

2.13 Removing and installing flame monitor - G64-

Special tools and workshop equipment required

- ◆ Release tool - VAS 1978/18-

Preparation

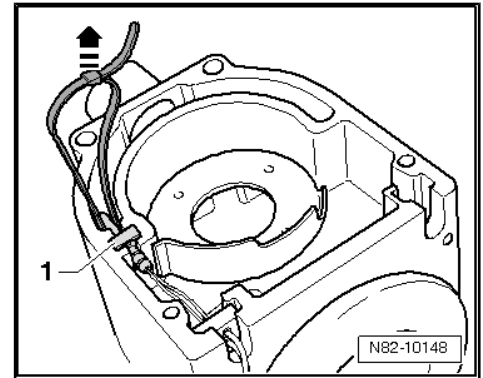
- Switch off ignition (and auxiliary heater).
- Remove auxiliary heater ➔ [page 58](#) .
- Detach add-on components of auxiliary heater ➔ [page 76](#) .
- Dismantle auxiliary heater ➔ [page 67](#) .

Removing

- Use a commercially available cable tie to pull out the flame monitor - G64- -1-.
- Eject the wires of the flame monitor - G64- from the 14-pin connector (black), contacts 1 and 2.

Installing

Install in reverse order of removal; note the following.



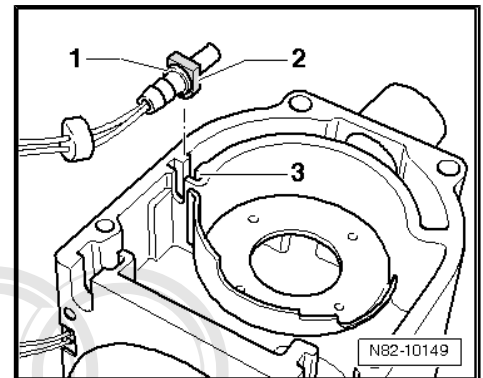
- Check graphite seal -2- and renew if damaged.



Note

The graphite seal is supplied together with the flame monitor - G64- → Electronic parts catalogue .

- Fit new graphite seal -2- on flame monitor - G64- -1-.



Note

The burrless side of the graphite seal -2- must face the collar of the flame monitor - G64- -1-.

- Insert the flame monitor - G64- in the groove -3-.



Caution

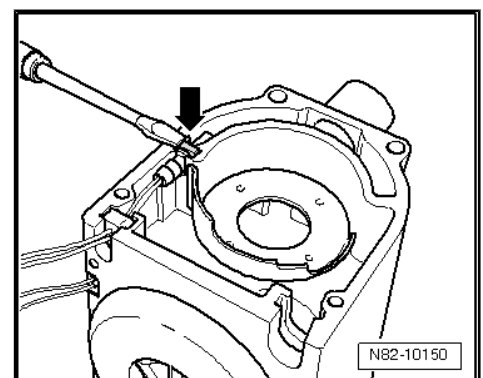
The sealing surfaces may become damaged.

This may lead to heater malfunctions.

Do not use any other sharp-edged tools.

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- Use a screwdriver to press graphite seal in direction of -arrow-.



2.14 Removing and installing glow plug for heater - Q9-

Special tools and workshop equipment required

- ◆ Release tool - VAS 1978/18-

Preparation

- Switch off ignition (and auxiliary heater).
- Remove auxiliary heater ⇒ [page 58](#) .
- Detach add-on components of auxiliary heater ⇒ [page 76](#) .
- Dismantle auxiliary heater ⇒ [page 67](#) .

Removing

- Eject the wire of the glow plug for heater - Q9- from the 14-pin connector (black), contacts 3 and 6.
- Pull the wires of the fuel pre-heating heater element - Z66- sideways out of the seal -1-.
- Pull out glow plug for heater - Q9- .

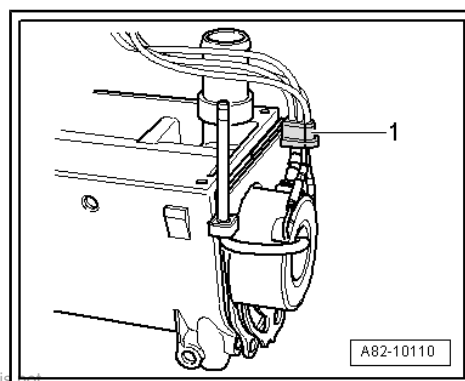
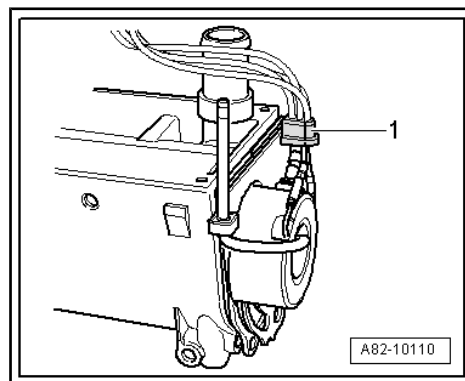
Installing

Install in reverse order of removal; note the following.



Note

- ♦ *From 06.2011 onwards, modified auxiliary heaters have been in use (changes to auxiliary heater control unit - J364- , different glow plugs for heater - Q9- , different burner elements for diesel heaters and modified moulded gasket for petrol heaters). Check the correct version and allocation of these parts prior to installation ⇒ Electronic parts catalogue .*
- ♦ *Check the burner element and clean or renew it if the glow plug for heater - Q9- is defective or if deposits have formed in the burner element which affect the heating operation and cannot be removed with workshop equipment.*
- ♦ *Before fitting, check the leads to the glow plug for heater - Q9- . They must not be damaged or show signs of overheating (risk of short circuit).*
- ♦ *When fitting, pay attention to correct routing and attachment of the leads to the glow plug for heater - Q9- .*
- ♦ *There are different versions of the glow plug for heater - Q9- . Ensure correct assignment ⇒ Electronic parts catalogue .*
- Pay attention to the position of the seal -1- at the wires to the glow plug for heater - Q9- .



2.15 Removing and installing fuel pre-heating heater element - Z66-

Special tools and workshop equipment required

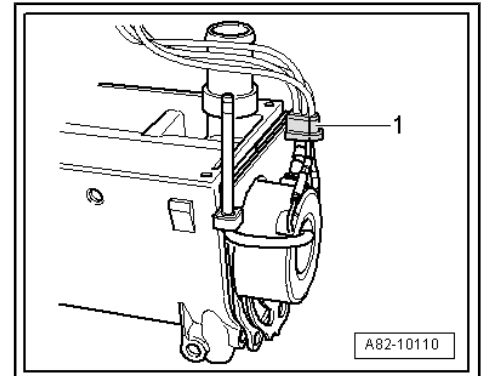
- ♦ Release tool - VAS 1978/18-

Preparation

- Switch off ignition (and auxiliary heater).
- Remove auxiliary heater ⇒ [page 58](#) .
- Detach add-on components of auxiliary heater ⇒ [page 76](#) .
- Dismantle auxiliary heater ⇒ [page 67](#) .

Removing

- Eject the wires of the fuel pre-heating heater element - Z66- from the 14-pin connector (black), contacts 9 and 12.
- Pull the wires of the fuel pre-heating heater element - Z66- sideways out of the seal -1-.



- Remove the circlip -arrow- and detach the fuel pre-heating heater element - Z66- with fuel evaporator, seal and plate.

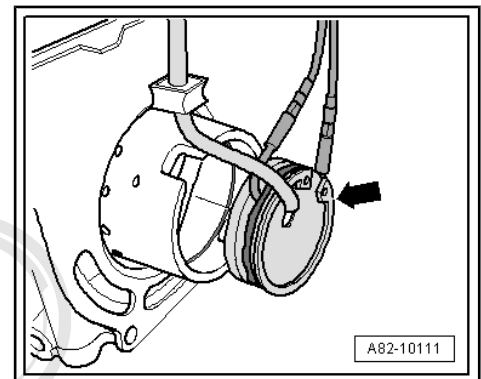
Installing:

Install in reverse order of removal; note the following.



Note

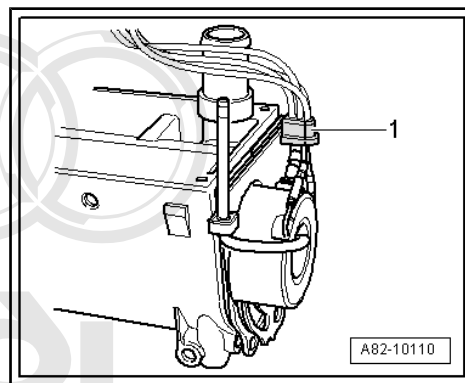
- ◆ Check burner element and clean or renew it if fuel pre-heating heater element - Z66- is defective or if deposits have formed in the burner element which affect the heating operation and cannot be removed with workshop equipment.
- ◆ Before fitting, check the leads to the fuel pre-heating heater element - Z66- . They must not be damaged or show signs of overheating (risk of short circuit).
- ◆ When installing, ensure that the leads to the fuel pre-heating heater element - Z66- are correctly routed and attached.



- Renew seals/gaskets.
- Pay attention to correct assembly of the fuel pre-heating heater element - Z66- , evaporator, seal and plate unit.
⇒ [“2.3 Exploded view - components inside auxiliary/supplementary heater”, page 51](#) .

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- Pay attention to the position of the seal -1- at the wires to the glow plug for heater - Q9- .



2.16 Removing and installing combustion air blower - V6-

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Special tools and workshop equipment required

- ◆ Release tool - VAS 1978/18-

Preparation

- Switch off ignition (and auxiliary heater).
- Remove auxiliary heater ⇒ [page 58](#) .
- Detach add-on components of auxiliary heater ⇒ [page 76](#) .
- Dismantle auxiliary heater ⇒ [page 67](#) .

Removing

- Remove flame monitor - G64- ⇒ [page 82](#) .
- Eject the wire of the combustion air blower - V6- from the 14-pin connector (black), contacts 13 and 14 ⇒ [page 67](#) .
- Detach combustion air blower - V6- ⇒ [page 67](#) .

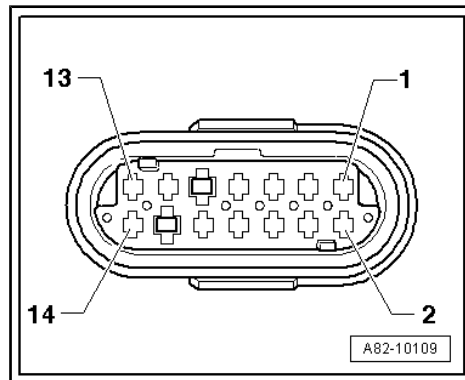
Installing:

Install in reverse order of removal; note the following.



Note

Before installing the combustion air blower - V6- , renew the moulded gasket (between combustion air blower - V6- and heater).



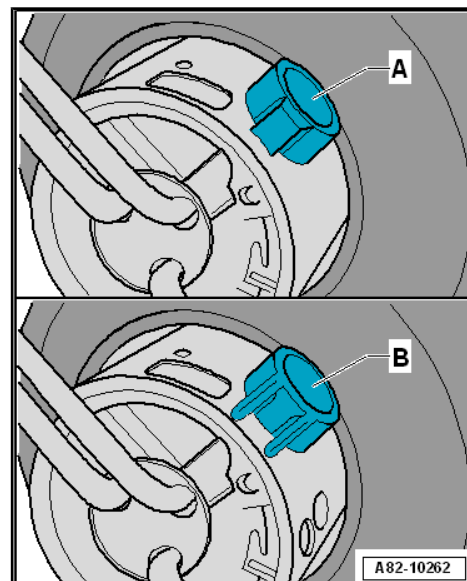
2.17 Removing and installing burner element

Preparation

- Switch off ignition (and auxiliary heater).
- Remove auxiliary heater ⇒ [page 58](#) .
- Detach add-on components of auxiliary heater ⇒ [page 76](#) .
- Dismantle auxiliary heater ⇒ [page 67](#) .
- Remove combustion air blower - V6- ⇒ [page 86](#) .

 Note

- ◆ From 06.2011 onwards, modified auxiliary heaters have been in use (changes to auxiliary heater control unit - J364- , different glow plugs for heater - Q9- , different burner elements for diesel heaters and modified moulded gasket for petrol heaters). Check the correct version and allocation of these parts prior to installation ⇒ *Electronic parts catalogue* .
- ◆ You can tell the difference between the two burner elements for diesel heaters by looking at the connection piece for the glow plugs for heater - Q9- . Version -A- was installed until 06.2011 and version -B- was installed from 06.2011 onwards ⇒ *Electronic parts catalogue* .
- ◆ If a version -B- burner element is installed in a diesel heater which previously had a version -A- burner element, the concentration of CO₂ in the exhaust gases will increase. Please therefore refer to
⇒ *"4.8 Checking CO₂ content in auxiliary heater exhaust gas", page 120* .



Removing

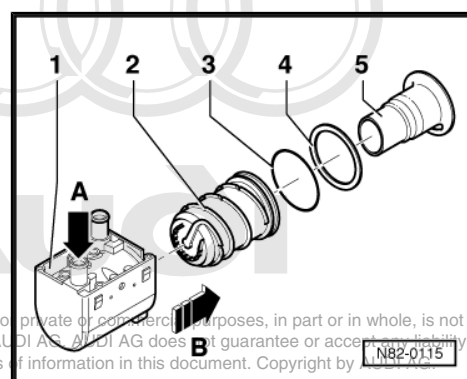
- Pull the burner element -5- out of the heat exchanger -2-.

Installing:

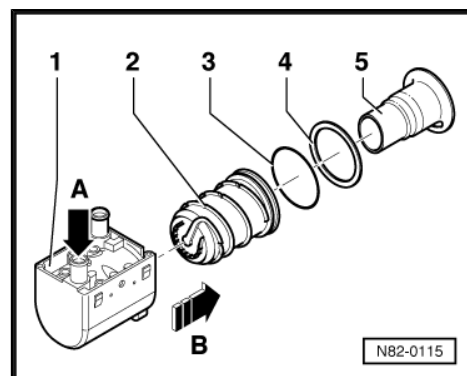
Install in reverse order of removal; note the following.

 Note

- ◆ Before installing burner element -5-, renew moulded gasket -4- (between burner element and heater).
- ◆ If the burner element is faulty, also renew the glow plug for heater - Q9- .
- ◆ Check the burner element and renew this component, too, if the glow plug for heater - Q9- is defective or if deposits have formed in the burner element which affect the heating operation and cannot be removed with workshop equipment.
- ◆ This illustration shows a burner element -5- with round connection area. The burner element -5- fitted with this auxiliary heater has a connection area of rectangular design ⇒ *Electronic parts catalogue* .



- If applicable, clean the inside and outside of the burner element -5- with a brass wire brush (spark plug brush).
- If applicable, clean the inside of the heat exchanger -2- with a brass wire brush (spark plug brush).
- Check the sealing surfaces at the burner element -5- and the heat exchanger -2- for damage.



2.18 Removing and installing heat exchanger

Preparation

- Switch off ignition (and auxiliary heater).
- Remove auxiliary heater ⇒ [page 58](#) .
- Detach add-on components of auxiliary heater ⇒ [page 76](#) .
- Dismantle auxiliary heater ⇒ [page 67](#) .
- Remove combustion air blower - V6- ⇒ [page 86](#) .
- Remove burner element ⇒ [page 86](#) .

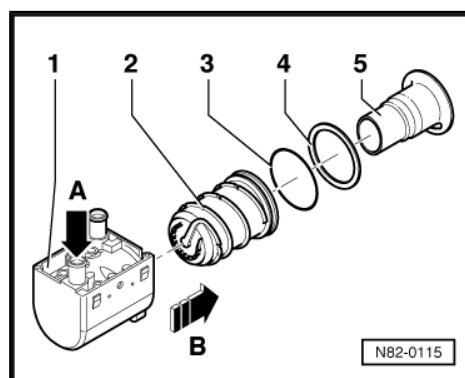
Removing

- Use a suitable screwdriver to carefully press the heat exchanger -2- through the rear water connection (water inlet)
 - arrow A- out of the water jacket -1- in the direction of
 - arrow B-



Note

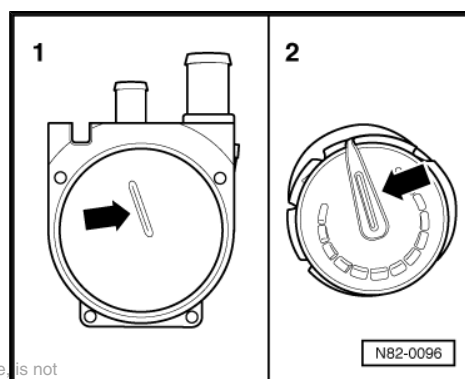
This illustration shows a burner element -5- with round connection area. The burner element -5- fitted with this auxiliary heater has a connection area of rectangular design ⇒ Electronic parts catalogue .



Installing:

Install in reverse order of removal; note the following.

- If applicable, clean the inside and outside of the heat exchanger -2- with a brass wire brush (spark plug brush).
- Check the sealing surfaces at the heat exchanger -2- for damage.
- Always renew O-ring -3- and seal -4- before assembly.
- Ensure that heat exchanger is installed in correct position -arrows-.



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2.19 Pin assignment for auxiliary/supplementary heater

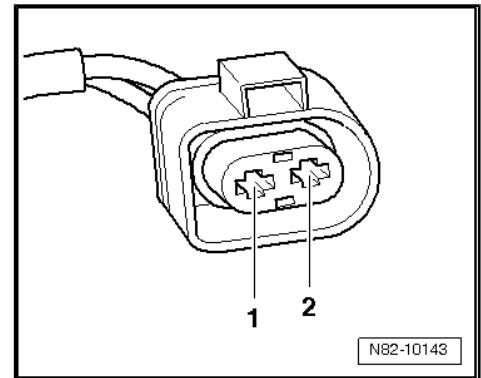


Note

*Incorporation of auxiliary heater into vehicle electrical system
⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*

Assignment of contacts in the 2-pin connector (wire from heater to circulation pump - V55-)

- 1 - Activation of circulation pump - V55-
- 2 - Earth connection to circulation pump - V55-



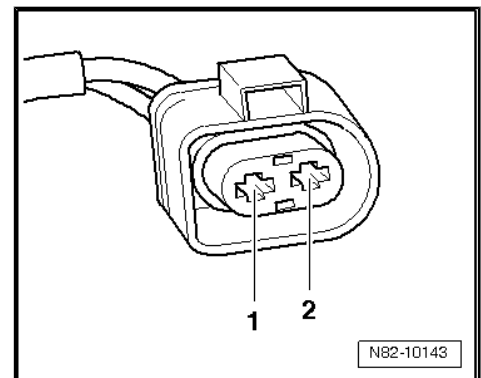
Assignment of contacts in the 2-pin connector (wire on vehicle end to heater)

- 1 - Power supply, terminal 30
- 2 - Earth connection



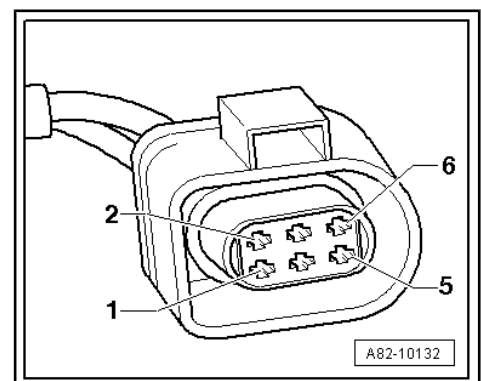
Note

As of 10.2010 auxiliary heaters with part number 4xx xxx xxx are gradually to be introduced. Service installation of this version of the auxiliary heater is also possible in vehicles originally fitted with an auxiliary heater with part number 8R0-xxx xxx or 8K0-xxx xxx. As, however, there are differences between certain components of the various auxiliary heater versions (e.g. 2-pin connector for power supply to auxiliary heater control unit - J364-), observe the correct assignment when renewing individual components of the auxiliary heater ⇒ Electronic parts catalogue .



Assignment of contacts in the 6-pin connector (wire on vehicle end to heater)

- 1 - Data line to data bus (high-speed CAN bus)
- 2 - Data line to data bus (low-speed CAN bus)
- 3 - Activation of heater coolant shut-off valve - N279-
- 4 - Activation of metering pump - V54-
- 5 - Currently not used
- 6 - Data line from remote control receiver for auxiliary heater - R64-



2.20 Checking electrical components of auxiliary heater

⇒ [“2.20.1 Checking activation and electrical connections of auxiliary heater”, page 90](#)

⇒ [“2.20.2 Preparation for checking auxiliary heater components”, page 91](#)

⇒ [“2.20.3 Checking glow plug for heater Q9 ”, page 92](#)

⇒ [“2.20.4 Checking combustion air blower V6 ”, page 93](#)

⇒ [“2.20.5 Checking flame monitor G64 ”, page 93](#)

⇒ [“2.20.6 Checking temperature sensor G18 ”, page 94](#)

⇒ [“2.20.7 Checking temperature sensor 2 for supplementary and auxiliary heating G587 ”, page 95](#)

⇒ [“2.20.8 Checking fuel pre-heating heater element Z66 ”, page 96](#)

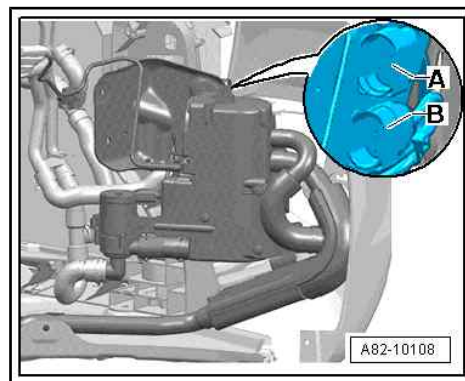
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2.20.1 Checking activation and electrical connections of auxiliary heater



Note

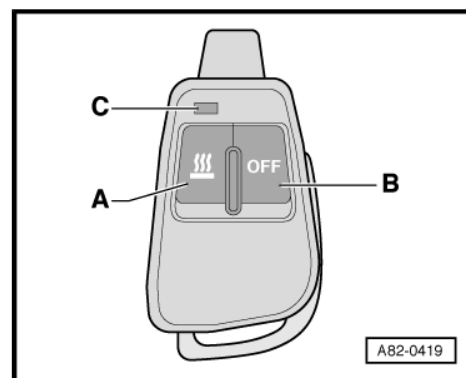
- ◆ *The “Electrical check” function is not described in this Workshop Manual. The Manual merely gives a brief outline of the checking of individual components.*
 - ◆ *Perform “Electrical check” as described in Guided Fault Finding ⇒ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- .*
 - ◆ *The following illustrations show the position of the auxiliary heater on an Audi A5 Coupé. The layout differs slightly on the Audi A4 and Audi Q5 (different bracket for auxiliary heater). On these other vehicles the electrical components of the auxiliary heater must be checked in the same way as the Audi A5 Coupé.*
- Switch off the ignition and the auxiliary heater.
 - Remove trim for fog light (right-side) ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Exploded view - bumper cover .
 - Remove right fog light (not necessary on Audi Q5) ⇒ Electrical system; Rep. gr. 94 ; Fog lights; Removing and installing fog lights .
 - Release the 6-pin connector -A- and the 2-pin connector -B- (press towards left side of vehicle and unfasten the catches whilst pressing the connector) and unplug.





Note

- ◆ For greater clarity the heater is shown from the rear.
 - ◆ As of 10.2010 auxiliary heaters with part number 4xx xxx xxx are gradually to be introduced. Service installation of this version of the auxiliary heater is also possible in vehicles originally fitted with an auxiliary heater with part number 8R0 xxx xxx or 8K0 xxx xxx. As, however, there are differences between certain components of the various auxiliary heater versions (e.g. 2-pin connector for power supply to auxiliary heater control unit - J364- -B-), observe the correct assignment when renewing individual components of the auxiliary heater ⇒ *Electronic parts catalogue*.
 - ◆ The Audi A4, A5 and Q5 are currently provided with a hand-held remote control transmitter for auxiliary heater without a display ⇒ *Owner's Manual*.
 - ◆ Auxiliary heaters with an auxiliary heater control unit - J364- with part number 8xx xxx xxx are only designed for actuation by way of a hand-held transmitter with no display. From 10.2010 onwards, auxiliary heaters with -J364- with part number 4xx xxx xxx are gradually being introduced. On these auxiliary heaters, the version of the hand-held transmitter (with or without display) must be coded correctly in -J364-. This also applies if a -J364- with part number 8xx xxx xxx is replaced with a -J364- with part number 4xx xxx xxx as part of the service work ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/-.
 - ◆ Make sure the remote control hand-held transmitter for the auxiliary heater is correctly matched to the remote control receiver for auxiliary heater -R64- (different versions for hand-held transmitters with or without display), and also make sure that -J364- is correctly assigned and coded ⇒ *Electronic parts catalogue* and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/-.
- Implement electrical checks as specified in "Guided Fault Finding" ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/-.



2.20.2 Preparation for checking auxiliary heater components

- Remove auxiliary heater ⇒ [page 58](#).
- Detach bracket and coolant pipes from auxiliary heater ⇒ [page 40](#).
- Detach cover for auxiliary heater control unit - J364- ⇒ [page 51](#).

Summary of electrical checks to be performed

Component checked	Page
Glow plug for heater - Q9-	⇒ page 92
Combustion air blower - V6-	⇒ page 93
Flame monitor - G64-	⇒ page 93
Temperature sensor - G18-	⇒ page 94

Component checked	Page
Temperature sensor 2 for supplementary and auxiliary heating - G587-	➤ page 95
Fuel pre-heating heater element - Z66-	➤ page 96

2.20.3 Checking glow plug for heater - Q9-

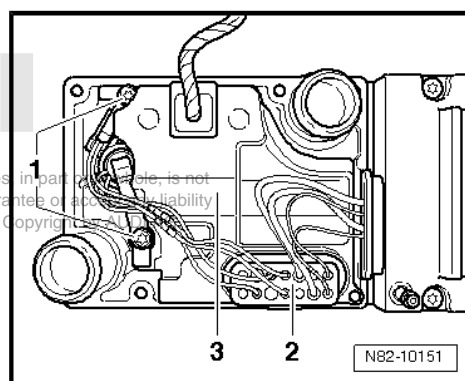


Note

The following illustrations show the position of the auxiliary heater on an Audi A5 Coupé. The layout differs slightly on the Audi A4 and Audi Q5 (different bracket for auxiliary heater). On these other vehicles the electrical components of the auxiliary heater must be checked in the same way as the Audi A5 Coupé.

- Preparation for checking auxiliary heater components performed ➤ page 91 .
- Unplug connector -2- from auxiliary heater.

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- Measure resistance at connector between contact "3" and heater housing.

Specification:

$\infty \Omega$

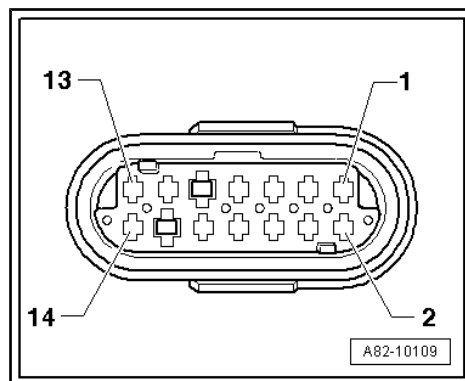
- Measure resistance at connector between contacts "3" and "6".

Specification:

Less than 1 Ω

Rated value:

0.42 - 0.63 Ω ~ (at 20 + / -2 °C)



Note

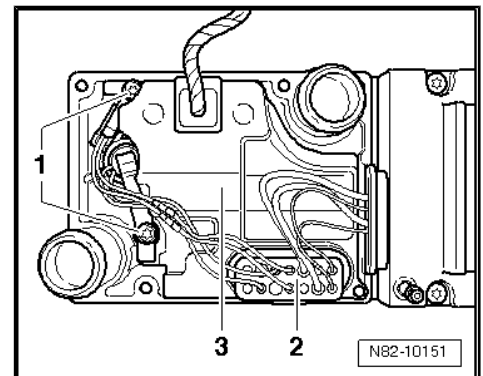
- Resistances of less than 1 Ω cannot be measured as exactly as required using workshop equipment. Therefore this test can only be used to detect major damage to the component.
- If a voltage of 9 V is applied to the glow plug for heater - Q9- , the power input is between 9 and 20 A.

2.20.4 Checking combustion air blower - V6-

Note

The following illustrations show the position of the auxiliary heater on an Audi A5 Coupé. The layout differs slightly on the Audi A4 and Audi Q5 (different bracket for auxiliary heater). On these other vehicles the electrical components of the auxiliary heater must be checked in the same way as the Audi A5 Coupé.

- Preparation for checking auxiliary heater components performed ➔ [page 91](#) .
- Unplug connector -2- from auxiliary heater.



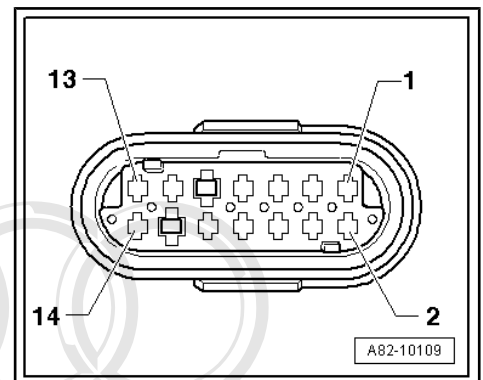
- Measure resistance at connector between contact “13” and heater housing.

Specification:

$\infty \Omega$

Note

- ◆ If a voltage of 12 V is applied to the combustion air blower - V6- the power input is between 2 and 3 A.
- ◆ The internal resistance of the combustion air blower - V6- is between 3 and 6 Ω (40 Ω if the combustion air blower has not been in operation for a lengthy period). Resistances of less than 10 Ω cannot be measured as exactly as required using workshop equipment. Therefore this internal resistance test can only be used to detect major damage to the component.



2.20.5 Checking flame monitor - G64-

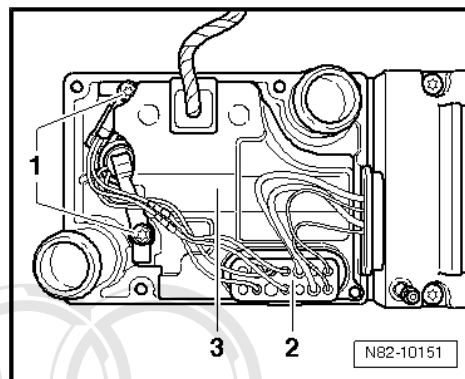
Note

The following illustrations show the position of the auxiliary heater on an Audi A5 Coupé. The layout differs slightly on the Audi A4 and Audi Q5 (different bracket for auxiliary heater). On these other vehicles the electrical components of the auxiliary heater must be checked in the same way as the Audi A5 Coupé.

- Preparation for checking auxiliary heater components performed ➔ [page 91](#) .

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- Detach connector housing -2- from auxiliary heater control unit - J364- -3 -.



- Measure resistance between contact "2" and contact "1" at brown wires.

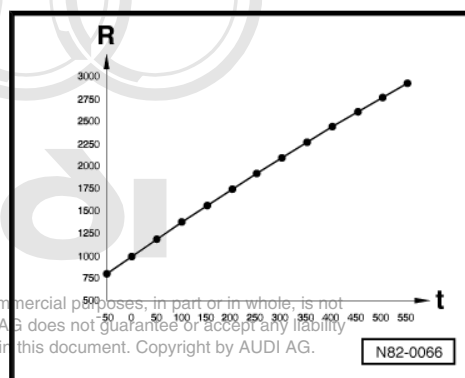
R = Resistance in Ω (ohms)

t = Temperature in $^{\circ}\text{C}$ (degrees Celsius)

- Measure resistance at current temperature.

Evaluation:

- ♦ Resistance value greater than 3040 Ω = open circuit (defective)
- ♦ Resistance value less than 780 Ω = short circuit (defective)



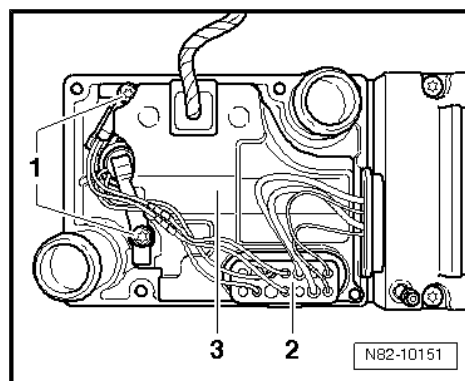
2.20.6 Checking temperature sensor - G18-



Note

The following illustrations show the position of the auxiliary heater on an Audi A5 Coupé. The layout differs slightly on the Audi A4 and Audi Q5 (different bracket for auxiliary heater). On these other vehicles the electrical components of the auxiliary heater must be checked in the same way as the Audi A5 Coupé.

- Preparation for checking auxiliary heater components performed ➔ [page 91](#).
- Detach connector housing -2- from auxiliary heater control unit - J364- -3 -.



- Measure resistance between contact “10” and contact “11” at black wires.

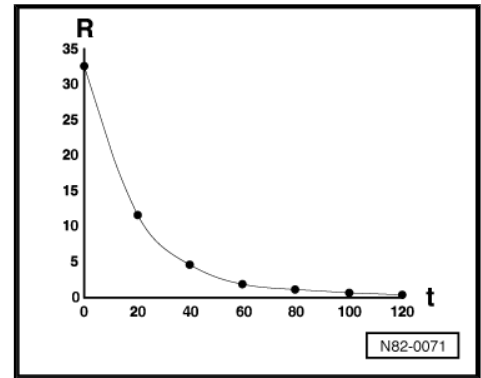
R = Resistance in kΩ (kiloohms)

t = Temperature in °C (degrees Celsius)

- Measure resistance at current temperature.

Evaluation:

- ◆ Resistance value greater than 2 MΩ (megaohms) = open circuit (defective)
- ◆ Resistance less than 50 Ω = short circuit (defective)



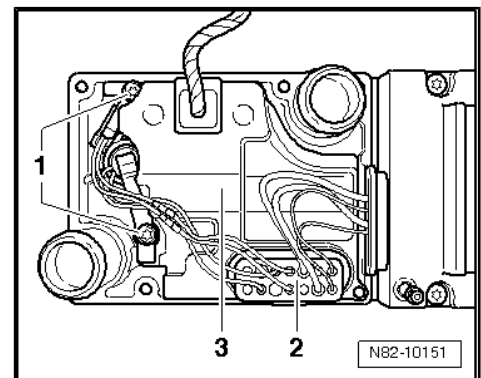
2.20.7 Checking temperature sensor 2 for supplementary and auxiliary heating - G587-



Note

The following illustrations show the position of the auxiliary heater on an Audi A5 Coupé. The layout differs slightly on the Audi A4 and Audi Q5 (different bracket for auxiliary heater). On these other vehicles the electrical components of the auxiliary heater must be checked in the same way as the Audi A5 Coupé.

- Preparation for checking auxiliary heater components performed ➔ [page 91](#).
- Detach connector housing -2- from auxiliary heater control unit - J364- -3 -.



- Measure resistance between contact “7” and contact “8” at white wires.

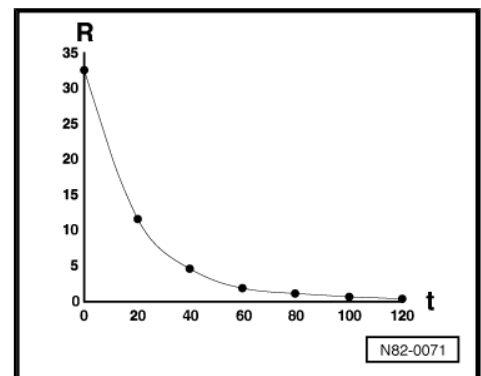
R = Resistance in kΩ (kiloohms)

t = Temperature in °C (degrees Celsius)

- Measure resistance at current temperature.

Evaluation:

- ◆ Resistance value greater than 2 MΩ (megaohms) = open circuit (defective)
- ◆ Resistance less than 50 Ω = short circuit (defective)



2.20.8 Checking fuel pre-heating heater element - Z66-



Note

The following illustrations show the position of the auxiliary heater on an Audi A5 Coupé. The layout differs slightly on the Audi A4 and Audi Q5 (different bracket for auxiliary heater). On these other vehicles the electrical components of the auxiliary heater must be checked in the same way as the Audi A5 Coupé.

- Preparation for checking auxiliary heater components performed ⇒ [page 91](#).
- Detach connector housing -2- from auxiliary heater control unit - J364- -3 -.
- Measure resistance between contact “9” and contact “12” at white wires.

Evaluation:

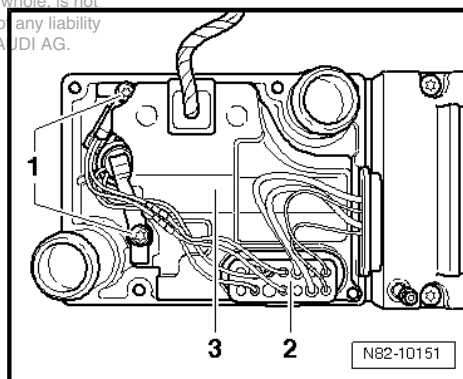
Specification:

0.79 - 0.97 Ω (ohms at 23 + / -5 °C)



Note

Resistances of less than 1 Ω cannot be measured as exactly as required using workshop equipment. Therefore this test can only be used to detect major damage to the component.



3 Coolant circuit with auxiliary/supplementary heater

⇒ [“3.1 General notes”, page 97](#)

⇒ [“3.2 Connection diagram - coolant hoses”, page 98](#)

⇒ [“3.3 Operation of heater coolant shut-off valve”, page 105](#)

⇒ [“3.4 Removing and installing heater coolant shut-off valve”, page 106](#)

⇒ [“3.5 Bleeding coolant circuit”, page 108](#)

3.1 General notes

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Note

- ◆ *Depending on the model and the engine, the vehicle may additionally be fitted with a non-return valve in the coolant circuit. A certain amount of coolant then flows back to the engine via this non-return valve in the small circuit if the heater coolant shut-off valve - N279- is being actuated.*
- ◆ *After renewing the auxiliary heater, remember to adapt the new auxiliary heater. For example, if an auxiliary heater with part number 8K0 xxx xxx , 8R0 xxx xxx or 4H0 xxx xxx up to index “A” is replaced by an auxiliary heater with part number 4H0 xxx xxx from index “B” onwards, it may be necessary to activate the adaption for the activation of the circulation pump - V55- by the auxiliary heater control unit - J364- in air conditioning mode (this function is deactivated for auxiliary heater with part number 4H0 xxx xxx from index “B” onwards). If -V55- cannot be activated by -J364- following a request from the air conditioner operating and display unit (Climatronic control unit - J255-), there may be problems with poor or no heating output on certain vehicle versions (depending on engine and production period). If -V55- is activated by -J364- following a request from -J255- on vehicles with a factory-fitted auxiliary heater with part number 4H0 xxx xxx from index “B” onwards (gradual introduction from model year 2012 onwards), there may also be problems ⇒ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- .*

3.2 Connection diagram - coolant hoses

⇒ **“3.2.1 Connection diagram - coolant hoses, vehicles without non-return valve”, page 98**

⇒ **“3.2.2 Connection diagram - coolant hoses, vehicles with non-return valve”, page 101**

3.2.1 Connection diagram - coolant hoses, vehicles without non-return valve



Note

- ◆ The -arrows- indicate the direction of coolant flow. With the heater coolant shut-off valve - N279- actuated (e.g. in auxiliary heating mode). With cold coolant and the ignition switched off, the coolant is drawn in directly from the heat exchanger of the air conditioning unit by the circulation pump - V55- .
- ◆ Bleed coolant circuit ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system and ⇒ [page 108](#) .
- ◆ For information on components not mentioned here, refer to ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses .
- ◆ Incorporation of air conditioner into coolant circuit ⇒ Heating, air conditioning; Rep. gr. 87 ; Heater and air conditioning unit (front) .

1 - Auxiliary heater

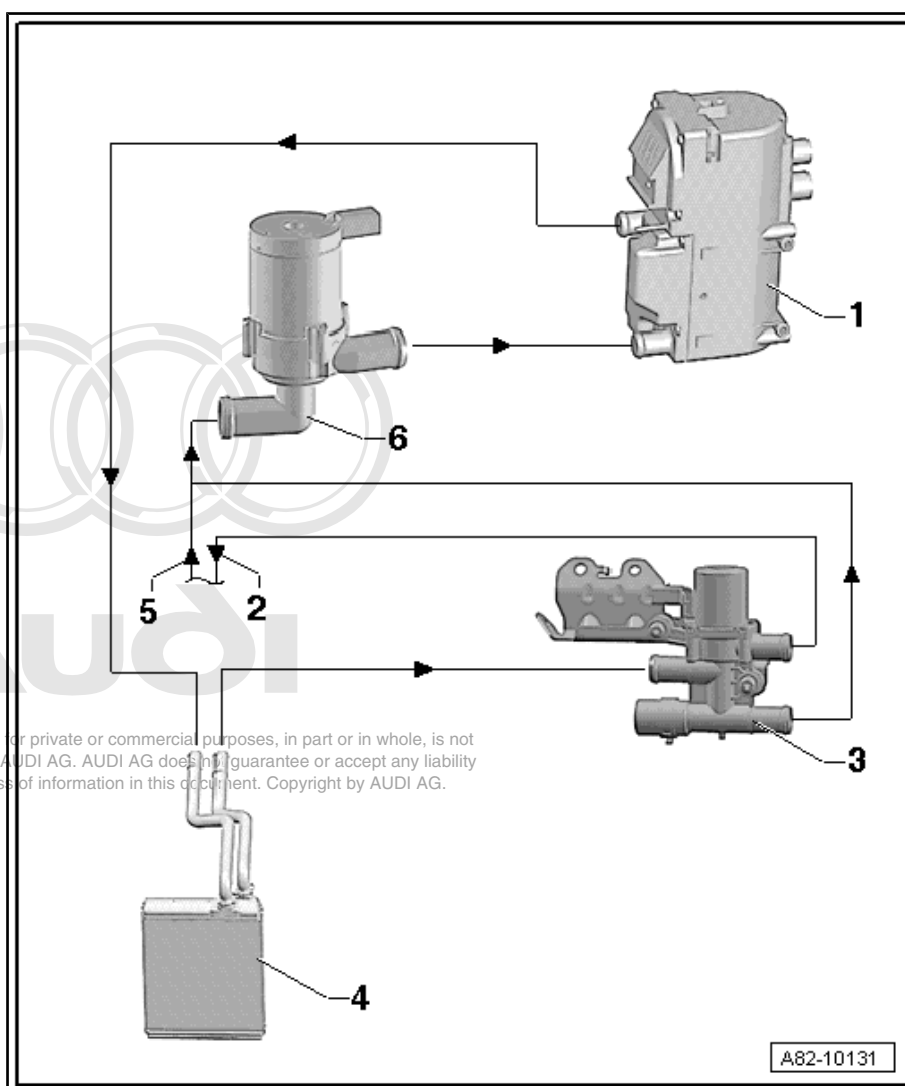
- ❑ Removing and installing
⇒ [page 58](#)

2 - Coolant return to engine

- ❑ Incorporation of air conditioner into coolant circuit ⇒ Heating, air conditioning; Rep. gr. 87 ; Heater and air conditioning unit (front) and ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses

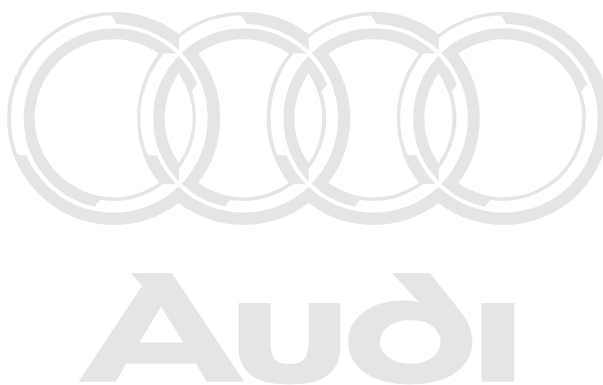
3 - Heater coolant shut-off valve - N279-

- ❑ Activated in auxiliary heating mode by auxiliary heater control unit - J364- .
- ❑ Removing and installing
⇒ [page 106](#)
- ❑ Checking wiring ⇒ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ❑ Operation ⇒ [page 105](#)
- ❑ Different versions (for Audi A5 Coupé, Audi A4 and Audi Q5); note correct assignment ⇒ Electronic parts catalogue .



**Note**

- ◆ *Depending on the vehicle model, the engine fitted, the coolant temperature and the setting on the operating and display unit, Climatronic control unit - J255- , -N279- may also be actuated by the auxiliary heater control unit - J364- with the auxiliary heater switched off. In this case, the activation is a response to a request from the operating and display unit (Climatronic control unit - J255-) via the data bus ⇒ Heating, air conditioning; Rep. gr. 87 ; Operating and display unit .*
- ◆ *On the Audi Q5, -N279- can only be activated up to a certain engine speed (currently up to approx. 1200 rpm). Therefore it is important to make sure that that version, coding and adaption of the auxiliary heater are correct ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ◆ *There are different versions of - N279- (with 3 or 4 connections for coolant hoses). On the version with 4 connections, one connection is sealed with a cap.*



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4 - Heat exchanger in air conditioning unit

- ☐ Incorporation of air conditioner into coolant circuit ⇒ Heating, air conditioning; Rep. gr. 87 ; Heater and air conditioning unit (front) and ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses

5 - Coolant supply from engine

- ☐ Incorporation of air conditioner into coolant circuit ⇒ Heating, air conditioning; Rep. gr. 87 ; Heater and air conditioning unit (front) and ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses

6 - Circulation pump - V55-

- ☐ The circulation pump - V55- is incorporated into the auxiliary heater hoses.
- ☐ Removing and installing ⇒ [page 71](#)

**Note**

- ◆ *From model year 2010 onwards, a start/stop system (optional equipment) is offered for this vehicle in combination with certain engines. On these vehicles, pay attention to the correct version of the air conditioner operating and display unit, Climatronic control unit - J255- and of the auxiliary heater ⇒ Electronic parts catalogue and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051 .*



- ◆ *On vehicles with a start/stop system, the circulation pump - V55- of the auxiliary heater is activated by the auxiliary heater control unit - J364- while the stop function is active. Via the data bus, - J364- is requested by the air conditioner operating and display unit, Climatronic control unit - J255- to switch on -V55- ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051*



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3.2.2 Connection diagram - coolant hoses, vehicles with non-return valve

Note

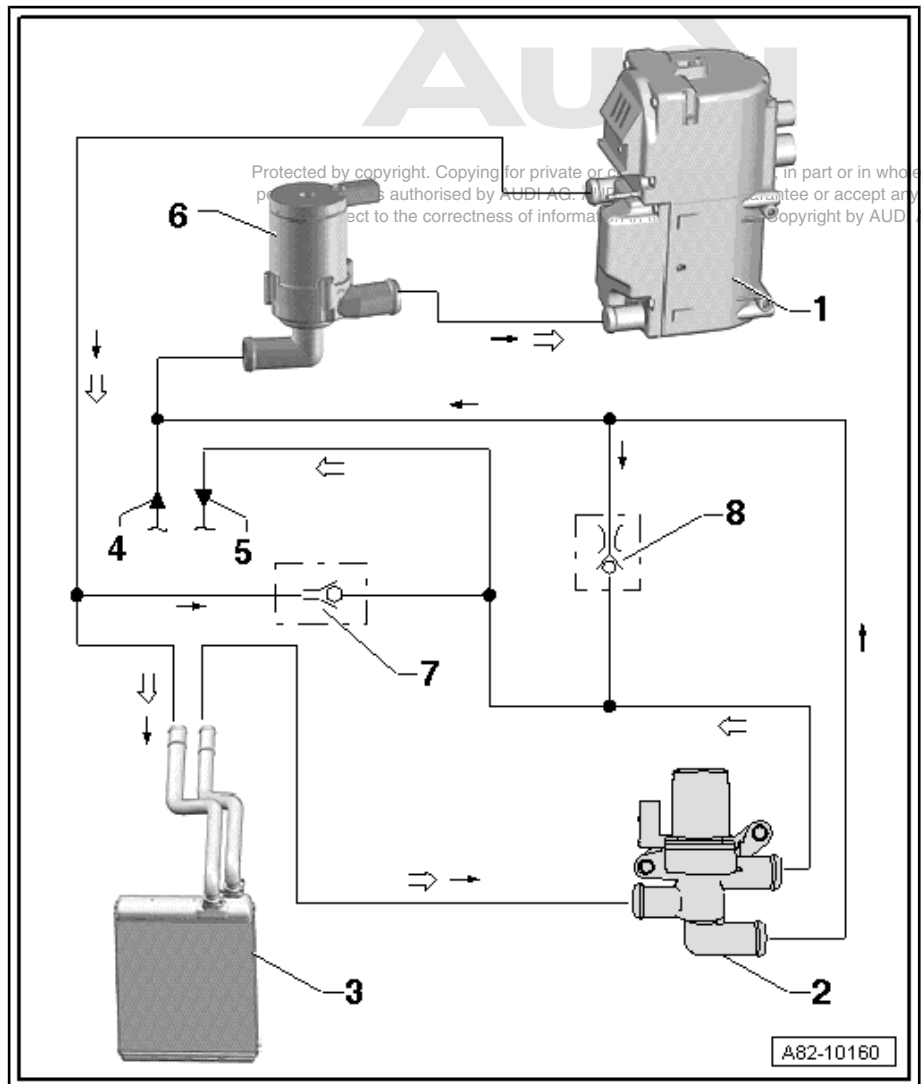
- ◆ The -arrows- indicate the direction of coolant flow. If the heater coolant shut-off valve - N279- is activated (e.g. in auxiliary heating mode with cold coolant and ignition switched off), the coolant is drawn in → directly from the heat exchanger of the air conditioning unit by the circulation pump - V55-. If the heater coolant shut-off valve - N279- is not activated (e.g. with warm coolant and ignition switched on), the coolant flows back → to the engine from the heat exchanger of the air conditioning unit.
- ◆ Bleed coolant circuit ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system and ⇒ [page 108](#) .
- ◆ For information on components not mentioned here, refer to ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses .
- ◆ Incorporation of air conditioner into coolant circuit ⇒ Heating, air conditioning; Rep. gr. 87 ; Heater and air conditioning unit (front) .

1 - Auxiliary heater

- ☐ Removing and installing
⇒ [page 58](#)

2 - Heater coolant shut-off valve - N279-

- ☐ Activated in auxiliary heating mode by auxiliary heater control unit - J364- .
- ☐ Removing and installing
⇒ [page 106](#)
- ☐ Checking wiring ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- ☐ Operation ⇒ [page 105](#)
- ☐ Different versions (for Audi A5 Coupé, Audi A4 and Audi Q5); note correct assignment ⇒ Electronic parts catalogue .





Note

- ◆ Depending on the vehicle model, the engine fitted, the coolant temperature and the setting on the operating and display unit, Climatronic control unit - J255- , -N279- may also be actuated by the auxiliary heater control unit - J364- with the auxiliary heater switched off. In this case, the activation is a response to a request from the operating and display unit (Climatronic control unit - J255-) via the data bus ⇒ Heating, air conditioning; Rep. gr. 87 ; Operating and display unit .
- ◆ On the Audi Q5, -N279- can only be activated up to a certain engine speed (currently up to approx. 1200 rpm). Therefore it is important to make sure that that version, coding and adaption of the auxiliary heater are correct ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ◆ There are different versions of -N279- (with 3 or 4 connections for coolant hoses). On the version with 4 connections, one connection is sealed with a cap.

3 - Heat exchanger in air conditioning unit

- ☐ Incorporation of air conditioner into coolant circuit ⇒ Heating, air conditioning; Rep. gr. 87 ; Heater and air conditioning unit (front) and ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses

4 - Coolant return to engine

- ☐ Incorporation of air conditioner into coolant circuit ⇒ Heating, air conditioning; Rep. gr. 87 ; Heater and air conditioning unit (front) and ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses

5 - Coolant supply from engine

- ☐ Incorporation of air conditioner into coolant circuit ⇒ Heating, air conditioning; Rep. gr. 87 ; Heater and air conditioning unit (front) and ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses

6 - Circulation pump - V55-

- ☐ The circulation pump - V55- is incorporated into the auxiliary heater hoses.
- ☐ Removing and installing ⇒ [page 71](#)



Note

- ◆ *From model year 2010 onwards, a start/stop system (optional equipment) is offered for this vehicle in combination with certain engines. On these vehicles, pay attention to the correct version of the air conditioner operating and display unit, Climatronic control unit - J255- and of the auxiliary heater ⇒ Electronic parts catalogue and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051 .*
- ◆ *On vehicles with a start/stop system, the circulation pump - V55- of the auxiliary heater is activated by the auxiliary heater control unit - J364- while the stop function is active. Via the data bus, - J364- is requested by the air conditioner operating and display unit, Climatronic control unit - J255- to switch on -V55- ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051*

7 - Non-return valve

- ☐ With constriction for restricting the flow rate
- ☐ For installation position on vehicles with e.g. 2.0 ltr. 4-cyl. TDI engine, refer to ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses .
- ☐ The fitting location depends on the engine (in plenum chamber or in engine compartment) ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses .



Note

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- ◆ *When the engine is running, coolant also flows back to the engine via this non-return valve in the small circuit with the heater coolant shut-off valve - N279- actuated.*
- ◆ *This connection between the supply to the heat exchanger and the return to the engine is only provided on vehicles which are also fitted with a non-return valve.*

8 - Non-return valve

- ☐ With constriction for restricting the flow rate
- ☐ For installation position on vehicles with e.g. 3.0 ltr. 6-cyl. TDI engine, refer to ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses .
- ☐ The fitting location depends on the engine (in plenum chamber or in engine compartment) ⇒ Rep. gr. 19 ; Cooling system/coolant; Connection diagram - coolant hoses .



Note

When the engine is running, coolant also flows back to the engine via this non-return valve in the small circuit with the heater coolant shut-off valve - N279- actuated.

This connection between the return to the engine and the return to the auxiliary heater is only provided on vehicles which are also fitted with a non-return valve.



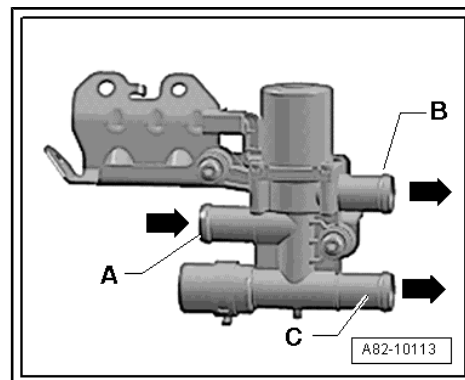
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3.3 Operation of heater coolant shut-off valve



Note

- ◆ If voltage is not applied to the heater coolant shut-off valve - N279- (large coolant circuit), the coolant can flow from connection -A- (from the heat exchanger in the air conditioning unit) to connection -B- (to the engine).
- ◆ There are different versions of -N279- (with 3 or 4 connections for coolant hoses). On the version with 4 connections, one connection is sealed with a cap.
- ◆ Depending on the installation position of -N279- , the cap shown may also be fitted at connection -C-.
- ◆ If voltage is applied to the heater coolant shut-off valve - N279- (small coolant circuit), the coolant can flow from connection -A- (from the heat exchanger in the air conditioning unit) to connection -C- (to the circulation pump - V55-).
- ◆ In auxiliary heating mode, the heater coolant shut-off valve - N279- is activated by the auxiliary heater control unit - J364- until the coolant temperature in the auxiliary heater has reached a specified level (or until the engine speed exceeds e.g. approx. 1200 rpm on the Audi Q5) ➔ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- and ➔ [page 16](#) .
- ◆ Depending on the model and the engine, the vehicle may additionally be fitted with a non-return valve in the coolant circuit. A certain amount of coolant then flows back to the engine via this non-return valve in the small circuit if the heater coolant shut-off valve - N279- is being actuated ➔ [page 98](#) .
- ◆ Depending on the vehicle model, the engine fitted, the coolant temperature and the setting on the operating and display unit, Climatronic control unit - J255- , -N279- may also be actuated by the auxiliary heater control unit - J364- with the auxiliary heater switched off. In this case, the activation is a response to a request from the operating and display unit (Climatronic control unit - J255-) via the data bus ➔ Heating, air conditioning; Rep. gr. 87 ; Operating and display unit .
- ◆ Different versions of -N279- (for Audi A5 Coupé, Audi A4 and Audi Q5); note correct assignment ➔ Electronic parts catalogue .
- ◆ The -N279- currently fitted on the Audi Q5 (with 3 connections for coolant hoses) is only to be actuated up to a certain engine speed (currently up to approx. 1200 rpm). At higher engine speeds, -N279- no longer opens on completion of actuation on account of the resultant higher delivery of the engine coolant pump and the heated engine coolant does not flow through the heat exchanger in the air conditioning unit. You must therefore pay attention to the correct version, coding and adaption of the auxiliary heater ➔ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .



3.4 Removing and installing heater coolant shut-off valve

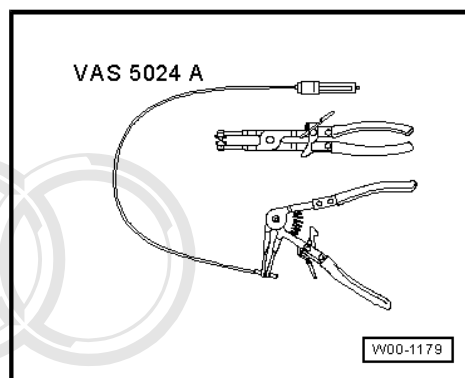
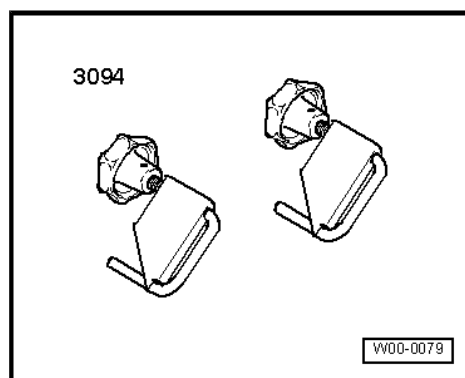


Note

- ◆ *If there are problems with poor heating of the passenger compartment in auxiliary heating mode and poor heating of the passenger compartment when the engine is running, check the incorporation of the heater coolant shut-off valve - N279- into the coolant circuit and the activation of the heater coolant shut-off valve - N279- by the auxiliary heater control unit - J364- ➔ [page 97](#) and ➔ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ◆ *Different versions of -N279- (for Audi A5 Coupé, Audi A4 and Audi Q5); note correct assignment ➔ Electronic parts catalogue .*

Special tools and workshop equipment required

- ◆ Hose clamps up to Ø 25 mm - 3094-
- ◆ Hose clip pliers - VAS 6340- (or spring-type clip pliers - VAS 5024/-)

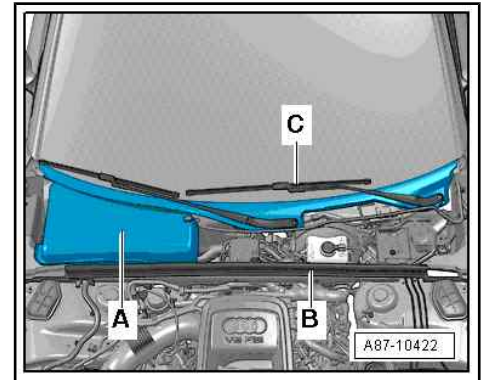


Removing

- Switch off ignition (and auxiliary heater).

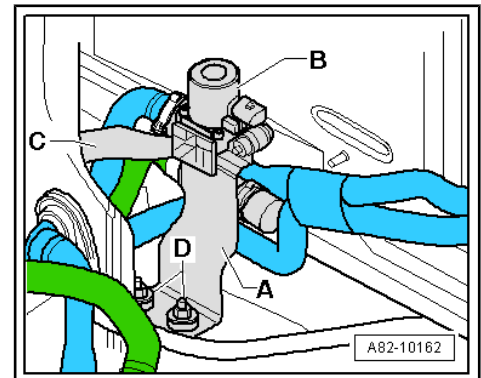
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- Detach rubber seal (left-side) -B- as far as necessary ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .
- Remove cover for fresh-air intake at cowl panel trim -A-, or remove cowl panel trim (different versions) ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .



Note

- ◆ If necessary, carefully detach cowl panel trim from fastener at cross member of windscreen -C- ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .
 - ◆ The method of attaching the heater coolant shut-off valve -N279- -B- in the plenum chamber depends on the vehicle. On the Audi Q5, -N279- is mounted for example at a bracket -A- (which is attached to the bottom of the plenum chamber). In addition, the bracket is held in position by way of the support -C- at the plenum chamber bulkhead. The bracket -A- and the support -C- are not bolted directly to the body. To reduce the noise level, use is made of a rubber grommet for attachment with the studs and nuts -D-.
 - ◆ The following illustration shows the arrangement of the heater coolant shut-off valve - N279- on an Audi A5 Coupé. On the Audi A4 and Audi Q5 the arrangement of the heater coolant shut-off valve - N279- is slightly different. On these other vehicles the work is however to be performed in the same manner as described for the Audi A5 Coupé.
 - ◆ There are different versions of -N279- (with 3 or 4 connections for coolant hoses). On the version with 4 connections, one connection is sealed with a cap.
 - ◆ Depending on the model and the engine, the vehicle may additionally be fitted with a non-return valve in the coolant circuit. A certain amount of coolant then flows back to the engine via this non-return valve in the small circuit if the heater coolant shut-off valve - N279- is being actuated = **page 98**.
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- Mark the arrangement of the coolant hoses at the heater coolant shut-off valve - N279- .
 - Clamp off coolant hoses in vicinity of heater coolant shut-off valve - N279- (e.g. with hose clamps up to Ø 25 mm - 3094-).



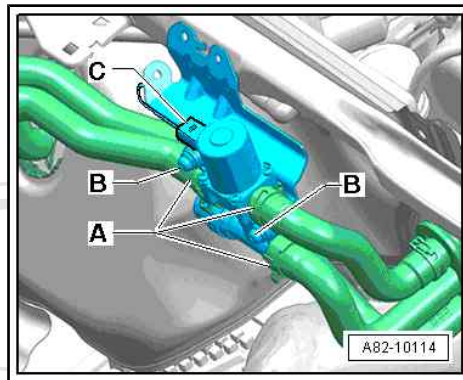
- Unfasten the clamps -A- and detach the coolant hoses.
- Unplug connector -C-.
- Unscrew bolts -B- from heater coolant shut-off valve - N279- .
- Remove heater coolant shut-off valve - N279- .

Installing

Install in reverse order of removal; note the following.

- Butt-joint coolant hoses.
- Bleed coolant circuit ⇒ [page 108](#) .
- If applicable, check activation and operation of heater coolant shut-off valve - N279- ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .

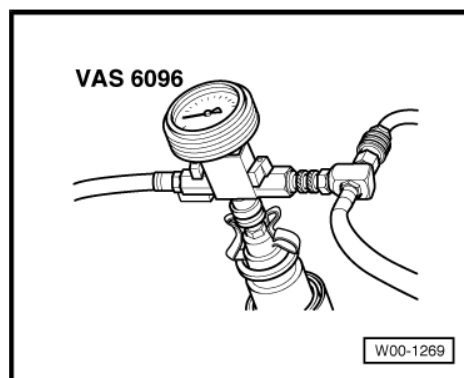
Tightening torques ⇒ [page 41](#)



3.5 Bleeding coolant circuit

Special tools and workshop equipment required

- ◆ Cooling system charge unit - VAS 6096-



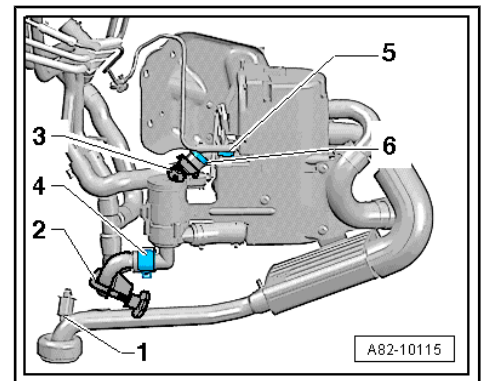
Note

- ◆ *The removal and installation procedures for the auxiliary heater described in this Workshop Manual ensure that only a small quantity of air enters or remains in the coolant circuit. Therefore it is not necessary to bleed the coolant circuit completely after removing and installing the auxiliary heater.*
- ◆ *However, if a large quantity of coolant has escaped due to another problem, e.g. a leaking hose, or after coolant pipes have been renewed, the coolant circuit must be bled completely using the cooling system charge unit - VAS 6096- ⇒ Rep. gr. 19; Cooling system/coolant; Draining and filling cooling system .*
- ◆ *After bleeding and filling the coolant circuit with the cooling system charge unit - VAS 6096- , the auxiliary heater and the circulation pump - V55- must be bled additionally as described below ⇒ [page 109](#) .*

Bleeding coolant circuit of auxiliary heater



- ◆ The following illustration shows the position of the auxiliary heater on an Audi A5 Coupé. The layout differs slightly on the Audi A4 and Audi Q5. On these other vehicles the work is however to be performed in the same manner as described for the Audi A5 Coupé.
- ◆ The circulation pump - V55- must be completely filled with coolant to prevent the pump from being damaged irreparably **when it is run dry**.
- ◆ ~~As only a small quantity of coolant escapes from the coolant circuit during removal and installation of the auxiliary heater, and only a small quantity of air remains in the coolant circuit during installation ⇒ page 64 (auxiliary heater and circulation pump - V55- are already filled with coolant during installation), the system only has to be bled as described below.~~
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- ◆ After removing hose clamps -2- and -3-, activate circulation pump - V55- if necessary via final control diagnosis ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - 5051/- . This additionally bleeds the coolant return from the heat exchanger in the air conditioning unit via the heater coolant shut-off valve - N279- to the circulation pump - V55- ⇒ **page 98** .



Condition

Most of the coolant circuit is filled with coolant; there are only a few air bubbles at a few locations in the coolant circuit.

- Fill coolant expansion tank with coolant as far as upper mark.
- Switch on ignition.
- Set the temperature on the operating and display unit, Climatronic control unit - J255- to "HI" (for the driver's and front passenger's side).
- Switch on "auxiliary heater" via of "AC" function in "Car" menu of MMI (Multi Media Interface) ⇒ Infotainment/MMI Operating Manual or e.g. via vehicle diagnostic, testing and information system , "Basic setting" function ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- Allow auxiliary heater to run for at least 2 minutes at full load (circulation pump - V55- starts up and heater coolant shut-off valve - N279- is activated).
- Start the engine and set the temperature on the operating and display unit, Climatronic control unit - J255- to "HI" (for the driver's and front passenger's side).
- Run engine at high idling speed (approx. 2000 to 2500 rpm) for at least 2 minutes.
- Switch off engine and auxiliary heater.

**WARNING**

The cooling system is pressurised. When the engine is warm, the coolant temperature may be above 90 °C. Release pressure and wait for temperature to drop before performing repairs. Release pressure in coolant circuit by opening cap on coolant expansion tank ⇒ Rep. gr. 00 ; Safety precautions; Safety precautions when working on the cooling system .

- Check coolant level in coolant expansion tank and top up coolant if necessary ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system .

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4 Fuel supply system

⇒ [“4.1 Overview of fitting locations - fuel supply system”, page 111](#)

⇒ [“4.2 Overview - metering pump V54 ”, page 114](#)

⇒ [“4.3 Fuel take-off from fuel tank”, page 114](#)

⇒ [“4.4 Fuel delivery unit in fuel tank”, page 116](#)

⇒ [“4.5 Filling fuel line to metering pump V54 with fuel, bleeding”, page 118](#)

⇒ [“4.6 Releasing quick-release coupling at fuel line for auxiliary heater”, page 118](#)

⇒ [“4.7 Routing of fuel pipe to auxiliary heater”, page 119](#)

⇒ [“4.8 Checking CO2 content in auxiliary heater exhaust gas”, page 120](#)

⇒ [“4.9 Checking fuel delivery rate”, page 124](#)

⇒ [“4.10 Removing and installing metering pump V54 ”, page 130](#)

4.1 Overview of fitting locations - fuel supply system



WARNING

When working on the open fuel system, observe the rules for cleanliness and the safety precautions ⇒ Fuel supply system; Rep. gr. 00 ; Safety precautions when working on the fuel system .



Note

- ◆ *Air in the fuel supply to the auxiliary heater can lead to problems in auxiliary heater operation. To stop air being drawn in by the metering pump - V54- and conveyed to the auxiliary heater when the auxiliary heater is first switched on after working on the fuel tank or fuel delivery unit, the fuel diversion pipe is to be filled with fuel (bled) after working in this area ⇒ [page 118](#) .*
- ◆ *The following illustration shows the positions of the components on an Audi A5 Coupé. The layout differs slightly on the Audi A4 and Audi Q5. However, the components must be removed and installed in the same manner as described for the Audi A5 Coupé (unless indicated otherwise).*
- ◆ *The fuel line must be flush with the underbody and protected against mechanical damage.*
- ◆ *The fuel line to the auxiliary heater must be protected against heat which could affect its operation.*
- ◆ *The fuel line must not make contact with moving components or components which can become hot.*
- ◆ *There must not be any air in the fuel pipe to the auxiliary heater.*
- ◆ *Vehicles with and without auxiliary heater have different fuel delivery units fitted in the fuel tank ⇒ Fuel supply system; Rep. gr. 20 ; Fuel delivery unit/fuel gauge sender; Exploded view - fuel delivery unit/fuel gauge sender and ⇒ Electronic parts catalogue .*
- ◆ *The sections of the fuel line must be butt-jointed to stop vapour bubbles from accumulating at the connections.*

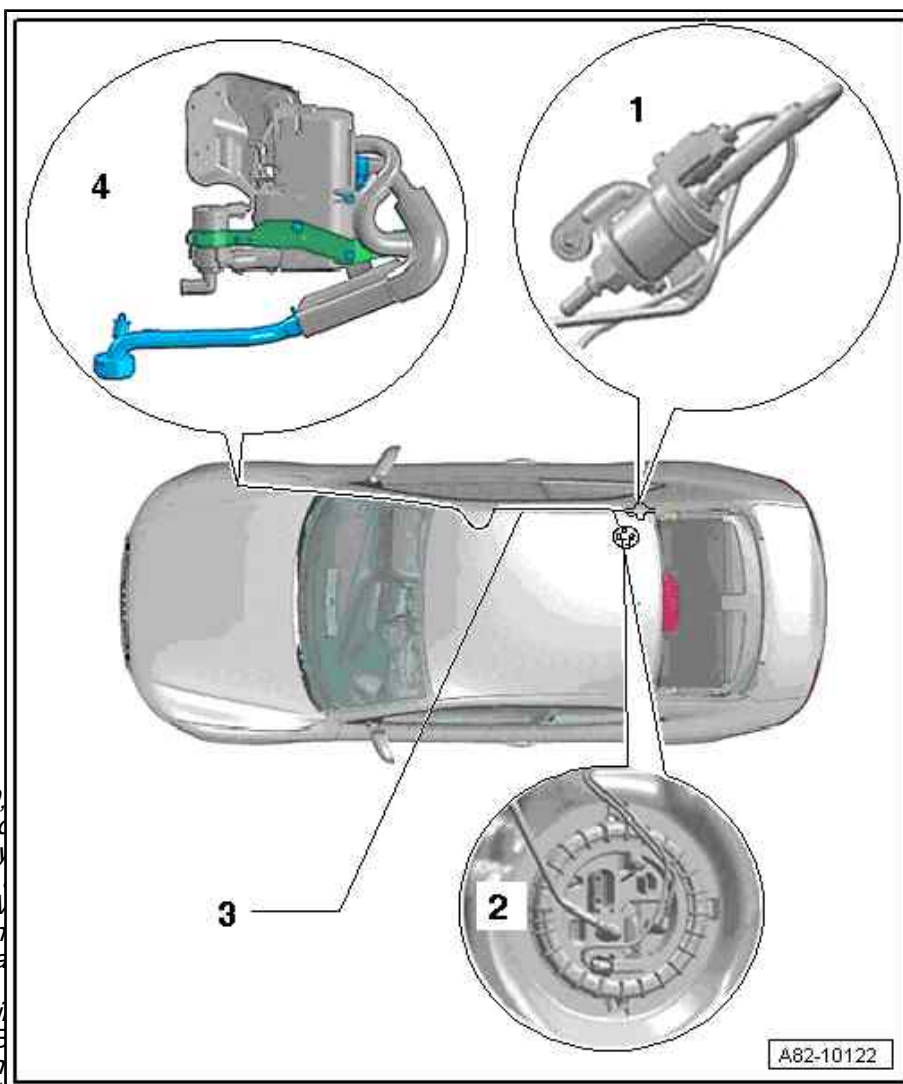
1 - Metering pump - V54-

- ❑ Removing and installing ⇒ [page 130](#)
- ❑ Checking fuel delivery rate ⇒ [page 124](#) and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/-
- ❑ Checking activation ⇒ Guided Fault Finding function of vehicle diagnostic, testing and information system - VAS 5051/-
- ❑ Depending on the model, the vehicle may be fitted with noise insulation in the fuel pipe to the auxiliary heater in the area of the metering pump - V54- to reduce noise ⇒ [page 130](#) .



Note

As of Model Year 2009, pump - V54- with a modulator is being gradually replaced. Pay attention to correct connection assignment. If the metering pump - V54- with a modulator is no longer available, the correct connector (with the correct wiring contacts from the wiring harness) must be fitted. Repair set - VAS 1978 B must be attached to the wiring harness. When doing so, pay attention to the correct connection assignment ⇒ Electronic parts catalogue and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations



2 - Fuel delivery unit with connection for fuel take-off for auxiliary heater

- ❑ Removing and installing ⇒ Fuel supply system; Rep. gr. 20 ; Fuel delivery unit/fuel gauge sender; Removing and installing fuel delivery unit/fuel gauge sender
- ❑ Fuel take-off from fuel tank ⇒ [page 114](#) and ⇒ Fuel supply system; Rep. gr. 20 ; Fuel delivery unit/fuel gauge sender .
- ❑ Different fuel delivery units depending on version of vehicle (petrol or diesel engine) ⇒ Fuel supply system; Rep. gr. 20 ; Fuel delivery unit/fuel gauge sender; Exploded view - fuel delivery unit/fuel gauge sender .
- ❑ Filling fuel line to metering pump - V54- with fuel (bleeding) ⇒ [page 118](#)

3 - Fuel line

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- ❑ Routing of fuel pipe between fuel delivery unit and metering pump - V54- ⇒ [page 119](#) .
- ❑ Routing of fuel pipe from metering pump - V54- to auxiliary heater ⇒ Fuel supply system; Rep. gr. 20 ; Fuel delivery unit/fuel gauge sender
- ❑ The sections of the fuel line must be butt-jointed to stop vapour bubbles from accumulating at the connections.
- ❑ Filling fuel line to metering pump - V54- with fuel (bleeding) ⇒ [page 118](#)

**Note**

Depending on the vehicle model, the fuel pipe (from the metering pump - V54- to the auxiliary heater) may be provided with a constriction (restrictor in the fuel pipe hose) for noise reduction or fitted with noise insulation (gradual introduction of restrictor or noise insulation in Model Year 2008) ⇒ [page 130](#) .

4 - Auxiliary heater

- ❑ Different versions depending on the production period and vehicle model as well as for vehicles with petrol or diesel engine (the Audi Q5 for example is not to be fitted with an auxiliary heater with part number 8K0.xxx.xxx) ⇒ [page 3](#) .
- ❑ Removing and installing ⇒ [page 58](#)

**Note**

- ◆ *This auxiliary heater is installed in various vehicle models. The part number changes each time this auxiliary heater is fitted in a new vehicle model (e.g. from 8K0 xxx xxx to 8R0 xxx xxx on introduction of the Audi Q5 and subsequently to 4xx xxx xxx etc.). Attention must therefore be paid to correct assignment. Care must however also be taken to ensure that an old auxiliary heater version is never installed in a vehicle previously fitted with a newer version. For example, an Audi A4 provided at the factory with an auxiliary heater with part number 8R0 xxx xxx is not to be fitted with an auxiliary heater with part number 8K0 xxx xxx ⇒ Electronic parts catalogue .*
- ◆ *As of 10.2010 auxiliary heaters with part number 4xx xxx xxx are gradually to be introduced. Service installation of this version of the auxiliary heater is also possible in vehicles originally fitted with an auxiliary heater with part number 8R0 xxx xxx or 8K0 xxx xxx. As, however, there are differences between certain components of the various auxiliary heater versions (e.g. 2-pin connector for power supply to auxiliary heater control unit - J364-), observe the correct assignment when renewing individual components of the auxiliary heater ⇒ Electronic parts catalogue .*

- ◆ *If an auxiliary heater with part number 4xx xxx xxx is installed, you must make sure with this version that it is correctly coded for the corresponding vehicle (different functions are stored in the control unit depending on the type of vehicle coded) ⇒ Electronic parts catalogue and ⇒ Guided Fault Finding function of vehicle diagnostic, testing and information system VAS 5051 .*

4.2 Overview - metering pump - V54-

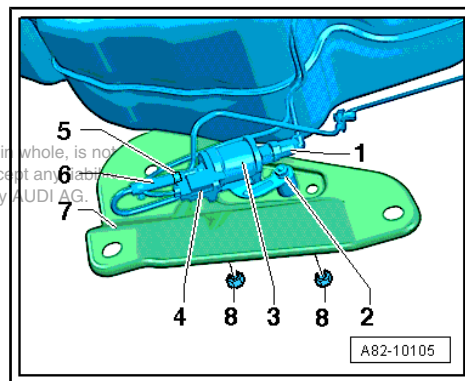


Note

The following illustration shows the positions of the components on an Audi A5 Coupé and on the Audi A4. The layout differs slightly on the Audi Q5 ⇒ [page 130](#) .

Layout on Audi A5 Coupé and Audi A4

- 1 - Quick-release coupling; unfastening ⇒ [page 118](#) .
- 2 - Nut - tightening torque: 6 Nm
- 3 - Metering pump V54-
- 4 - Connector
- 5 - Clamp
- 6 - Hose
- 7 - Support
- 8 - Nut - tightening torque: 6 Nm



Note

Depending on the model, the vehicle may be fitted with noise insulation in the fuel pipe to the auxiliary heater in the area of the metering pump - V54- to reduce noise ⇒ [page 130](#) .

4.3 Fuel take-off from fuel tank



WARNING

When working on the open fuel system, observe the rules for cleanliness and the safety precautions ⇒ Fuel supply system; Rep. gr. 00 ; Safety precautions when working on the fuel system .

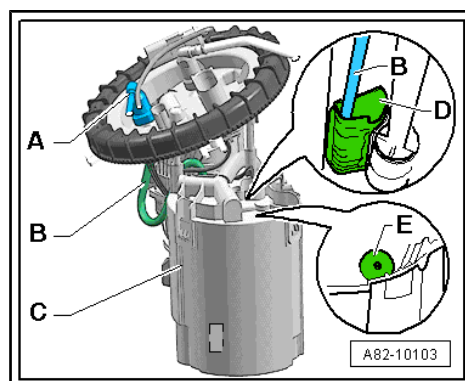


Note

- ◆ *To operate the auxiliary heater, fuel is extracted from a stable zone in the baffle housing of the fuel delivery unit in the fuel tank ⇒ Fuel supply system; Rep. gr. 20; Fuel delivery unit/fuel gauge sender; Exploded view - fuel delivery unit/fuel gauge sender .*
- ◆ *To ensure there is sufficient fuel for the operation of the auxiliary heater when the engine is stopped and the fuel tank is less than 1/2 full, the fuel system pressurisation pump - G6- in the baffle housing is activated already when auxiliary heating mode is started if the engine has not been running for a certain period (currently approx. 24 hours). To ensure that there is always a minimum quantity of fuel in the baffle housing, -G6- is also activated intermittently during and at the end of auxiliary heating mode so that the baffle housing is refilled ⇒ "Guided Fault Finding" function of vehicle diagnostic tester . This also prevents the metering pump - V54- from drawing in air/fuel vapour instead of liquid fuel if the vehicle is awkwardly positioned with the fuel tank not completely full ⇒ Fuel supply system; Rep. gr. 20; Fuel delivery unit/fuel gauge sender; Exploded view - fuel delivery unit/fuel gauge sender .*
- ◆ *To operate the auxiliary heater, liquid fuel has to be drawn in with no bubbles (air or fuel vapour) from the fuel tank by the metering pump - V54- and conveyed to the auxiliary heater. If air or vapour bubbles are conveyed by -V54- together with the liquid fuel, problems may occur during auxiliary heater operation (e.g. flame interruption during operation or no flame formation at the start of auxiliary heating mode ⇒ "Guided Fault Finding" function of vehicle diagnostic tester). If there are such problems, check the fuel conveyed in auxiliary heating mode. To do so, fit e.g. a section of transparent fuel line in the vicinity of the auxiliary heater. If bubbles are visible in this hose during auxiliary heater operation, determine and eliminate the cause of the bubbles in the fuel.*
- ◆ *Depending on the amount of fuel in the tank, problems may be encountered during heating operation if the fuel system pressurisation pump - G6- is not activated in auxiliary heating mode. There may be no supply of liquid fuel and the fault "Flame interruption" may be entered ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ◆ *Vehicles with no auxiliary heater are generally fitted with a fuel delivery unit with no additional connection for fuel take-off for auxiliary heater and with no suction line in the fuel tank ⇒ Electronic parts catalogue .*
- ◆ *Butt-joint the fuel lines and secure with clamps at the marked locations.*

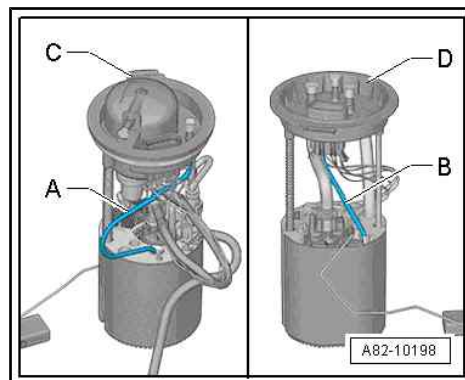
4.4 Fuel delivery unit in fuel tank

The fuel for the auxiliary heater is drawn in via connection -A- and riser -B- from the baffle housing of the fuel delivery unit -C-. Depending on the version of the fuel delivery unit, the vehicle model (Audi A4/A5 or Q5), the vehicle version (front or four-wheel drive) and the production period, riser -B- ends in a stable zone -D- (e.g. on vehicles from model year 2008) or in the baffle housing of the fuel delivery unit -C- between the fuel pump and fuel filter installed in the fuel delivery unit.



Note

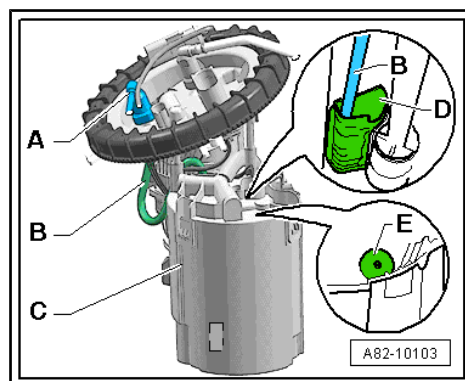
- ◆ The version of the fuel delivery unit -C- and the position of the riser -B- varies on different vehicle versions ➔ Fuel supply system; Rep. gr. 20 . This illustration shows the fuel delivery unit -C- on an Audi A5 from model year 2008.
- ◆ On vehicles without a stable zone -D-, the riser -B- ends approx. 40 mm above the floor of the baffle housing of the fuel delivery unit -C-.
- ◆ On vehicles with a diesel engine, a strainer for separating vapour bubbles may be fitted at the end of the riser -B- (depending on version).
- ◆ The following illustration shows the position of the riser -A- (vehicle with petrol engine) / -B- (vehicles with diesel engine.) on an Audi Q5 from model year 2010.



Caution

Problems occur with operation of auxiliary heater if riser -A-/B- is not installed correctly.

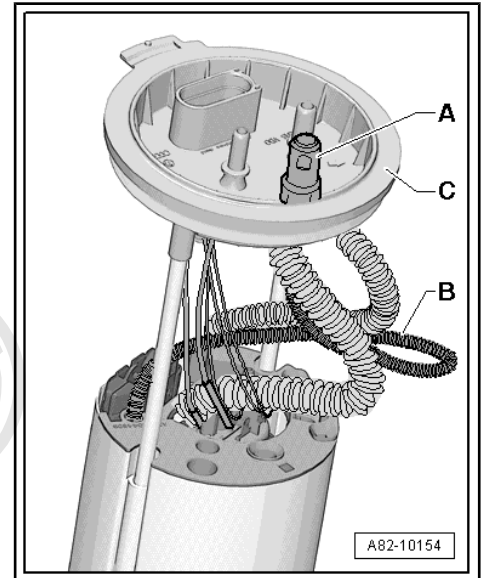
- ◆ **If the riser -B- is not installed exactly in the specified position when installing the fuel delivery unit -C-/D-, the metering pump -V54- can no longer draw in liquid fuel if e.g. the fuel tank is not completely full; this will lead to problems with the operation of the auxiliary heater.**
- ◆ **When installing the fuel delivery unit -C-/D-, pay particular attention to the correct installation of the riser -A-/B- ➔ Fuel supply system; Rep. gr. 20 .**





Note

- ◆ The riser -B- is attached in the reservoir housing of the fuel delivery unit -C-. This ensures that the auxiliary heater can still be operated even if the fuel tank is more or less empty.
- ◆ To prevent an excessive drop in the fuel level in the baffle housing of the fuel delivery unit -C- in auxiliary heating mode, the fuel system pressurisation pump - G6- is activated briefly at the start (depending on quantity of fuel in fuel tank and period for which vehicle has been standing), during and at the end of auxiliary heating mode ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ◆ To stop the fuel tank becoming completely drained in auxiliary heating mode, the auxiliary heater is no longer activated if the fuel gauge (control unit in dash panel insert - J285-) is in the "red zone".
- ◆ If the auxiliary heater functions properly when the fuel tank is completely full or when the engine is running and problems are encountered if the fuel tank is only partially full after the engine has been stopped for a certain period (fault message "No flame formation" or "Repeated flame interruption"), this indicates that the suction line is routed incorrectly or that the bottom valve of the fuel delivery unit is leaking. If the baffle housing of the fuel delivery unit is leaking at the bottom valve, the fuel level will drop if the fuel tank is almost empty, and no further fuel can flow into the stable zone -D-. The fuel in the steady zone -D- is soon used up and this results in failure of the auxiliary heater (e.g. on account of flame interruption during operation). As the fuel system pressurisation pump - G6- currently is not always activated (in order to fill the baffle housing) even if the fuel tank is less than 1/2 full ⇒ [page 114](#) , it might be advisable to shorten the time for which the engine must have been stopped so that -G6- is activated briefly when auxiliary heating mode is started ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ◆ If the baffle housing of the fuel delivery unit -C- is leaking at the bottom valve -E-, the fuel level will drop if the fuel tank is almost empty, and no further fuel can flow into the stable zone -D-. The fuel in the steady zone -D- is soon used up and this results in failure of the auxiliary heater.
- ◆ After removing and installing components of the fuel system, the fuel line to the metering pump - V54- must be filled with fuel ⇒ [page 118](#) . The auxiliary heater must then be switched on and operated at full load for at least 10 minutes to make sure the fuel line is bled completely.
- ◆ Depending on the model and equipment, vehicles not fitted with an auxiliary heater as an optional extra may also be provided with a fuel delivery unit -C- with a suction pipe -B- for the auxiliary heater.
- ◆ Depending on the version of the fuel delivery unit, the connection for the auxiliary heater in the cover -C- might be sealed on the inside; check. If the connection for the fuel take-off pipe is not sealed on vehicles with no "auxiliary heater" (optional extra), it must always be closed off with a cap -A-.



4.5 Filling fuel line to metering pump - V54- with fuel, bleeding



Note

- ◆ *Air/fuel vapour in the fuel supply to the auxiliary heater can lead to problems in auxiliary heater operation. To stop air/fuel vapour being drawn in by the metering pump - V54- and conveyed to the auxiliary heater when the auxiliary heater is first switched on after working on the fuel tank or fuel delivery unit, the fuel diversion pipe is to be filled with fuel (bled) after working in this area.*
- ◆ *The following illustration shows the positions of the components on an Audi A5 Coupé. The layout differs slightly on the Audi A4 and Audi Q5. The components are however to be bled in the same manner as described for the Audi A5 Coupé.*
- ◆ *After working on the fuel system, switch on the auxiliary heater and let it run for at least 10 minutes at full load to check operation.*

- Auxiliary heater is switched off (metering pump - V54- is not activated).

- Switch off ignition.

- Unfasten quick-release coupling -1- ➔ [page 118](#) .

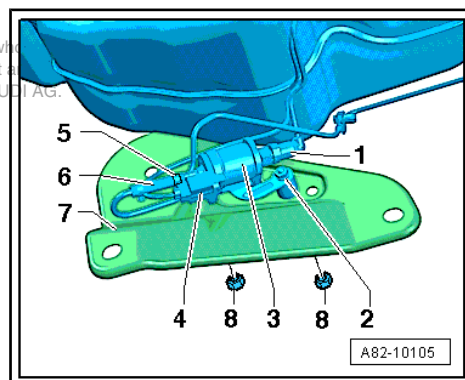
- Connect the quick-release coupling -1- of the fuel pipe to the diesel extraction unit - VAS 5226- .

- Connect the diesel extraction unit - VAS 5226- to the workshop compressed air system ➔ Fuel supply system; Rep. Gr. 20 .

- Completely fill fuel line with fuel by briefly extracting air.

- Connect the fuel pipe with the quick-release coupling -1- to the metering pump - V54- .

- After re-installing all components removed, switch on auxiliary heater and let it run at full load for roughly 10 minutes.



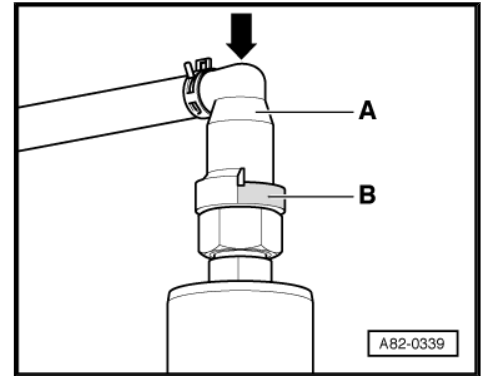
4.6 Releasing quick-release coupling at fuel line for auxiliary heater



WARNING

When working on the open fuel system, observe the rules for cleanliness and the safety precautions ➔ Fuel supply system; Rep. gr. 00 ; Safety precautions when working on the fuel system .

- Press quick-release coupling -A- for fuel line in direction of -arrow- towards connection.
- Release fastener on quick-release coupling by pressing on area -B-.
- Detach quick-release coupling -A- with fuel line.
- Seal fuel line -A- and its connection.



4.7 Routing of fuel pipe to auxiliary heater



Note

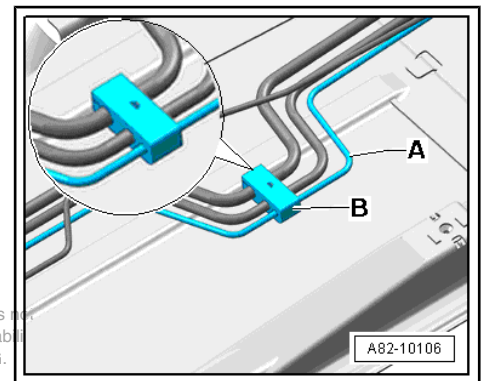
Butt-joint the fuel lines and secure with clamps at the marked locations.

The fuel line -A- between the metering pump - V54- and the auxiliary heater is routed along the underbody.

The retainers -B- secure the fuel line -A- to the auxiliary heater and the fuel lines to the engine in position ⇒ Fuel supply system; Rep. gr. 20 ; Fuel tank; Exploded view - fuel tank .

The fuel line -A- must be routed such that it does not make contact with components which can become hot, is protected against heat which could affect its operation and does not make contact with other components (noise).

- When installing fuel lines, make sure that they are butt-jointed



4.8 Checking CO₂ content in auxiliary heater exhaust gas

CO₂ (carbon dioxide) content



Note

- ◆ *For this check, the auxiliary heater can be switched on using the rotary pushbutton of the MMI (Multi Media Interface) or using the remote control. For activation with remote control, the temperature setting on the operating and display unit, Climatronic control unit - J255- of the air conditioner must however be "Hi", as otherwise, depending on the ambient temperature, the "auxiliary ventilation" function is activated and the auxiliary heater does not start up.*
- ◆ *For this check, the auxiliary heater can also be switched on via the "Basic setting" function ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ◆ *With the "Basic setting" function, the auxiliary heater can be operated up to a coolant temperature of 110 °C and starting from the control interval is possible. The operating time is then restricted to a maximum of 10 minutes ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ◆ *For notes on switching on the auxiliary heater via the "Basic setting" function, refer to e.g. the section "Checking CO₂ content in exhaust gas" of Guided Fault Finding; please also note the display of the activation signals for the auxiliary heater (e.g. in "General function check") ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*

Test requirements

- Sufficient fuel in tank (fuel gauge in dash panel insert not in red zone)
- Battery - A- (vehicle battery) fully charged
- Auxiliary heater installed completely and connected to vehicle electrical system
- All auxiliary heater fuses OK ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Auxiliary heater switched off

Checking CO₂ content

Special tools and workshop equipment required

- ◆ Vehicle diagnostic, testing and information system - VAS 5051/-
- ◆ Diagnosis lead - VAS 5051/5A-
- ◆ Exhaust emission test station - VAS 6300-
- ◆ Battery charger - VAS 5903-
- With ignition switched off, connect vehicle diagnostic, testing and information system - VAS 5051/- to diagnostic connection in vehicle with diagnosis cable - VAS 5051/5A- ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .

- Connect up a battery charger, switch on ignition (and switch off all electrical equipment).

Or

- Start engine (and switch off all electrical equipment).



Note

The Guided Fault Finding for the auxiliary heater can only be started with the ignition switched on (the data bus diagnostic interface - J533- is only active when the ignition is on). After the auxiliary heater has switched to diagnosis mode, the Guided Fault Finding for the auxiliary heater can be continued even with the ignition switched off.

- Select address word “supplementary/auxiliary heater” ⇒ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- .
- Interrogate event memory and eliminate any faults displayed ⇒ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- .
- Erase event memory if necessary ⇒ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- .



Note

The following illustration shows the positions of the components on an Audi A5 Coupé. The layout differs slightly on the Audi A4 and Audi Q5. On these other vehicles the work is however to be performed in the same manner as described for the Audi A5 Coupé.

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- Switch on exhaust emission test station - VAS 6300- and insert exhaust probe -B- in exhaust pipe -A- of auxiliary heater.



WARNING

When pulling out the exhaust probe, take care not to touch the exhaust probe of the exhaust emission test station - VAS 6300- or the exhaust pipe as these become very hot.



Note

- ♦ *The CO₂ test does not involve removing the right wheel housing liner or the noise insulation.*
- ♦ *Hose -B- of exhaust probe must not prevent exhaust gas from leaving exhaust pipe -A- during check.*

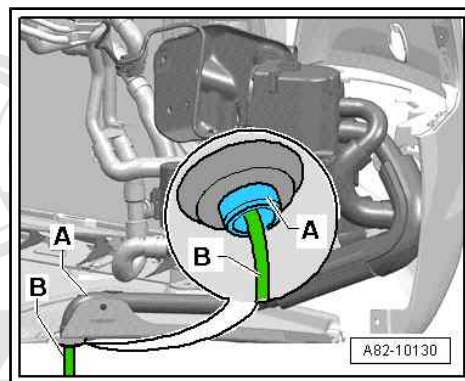
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- Set the operating and display unit, Climatronic control unit - J255- to maximum heat output ("HI" temperature setting).
- Restrict the fresh air blower speed by setting the operating and display unit to approx. 50 % of the maximum fresh air blower speed.
- Switch on the auxiliary heater via the MMI (Multi Media Interface) ➔ [page 138](#) or e.g. via the vehicle diagnostic, testing and information system ("Basic setting" function) ➔ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- Wait until the auxiliary heater switches from starting to full load mode (approx. 4 minutes).



Note

- ♦ *The current operating status of the auxiliary heater is indicated in the measured value block ➔ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ♦ *Unplugging the connector at the heater coolant shut-off valve - N279- causes the engine to be heated as well and the auxiliary heater operates for longer in full load mode.*
- ♦ *For notes on switching on the auxiliary heater via the "Basic setting" function, refer to e.g. the section "Checking CO₂ content in exhaust gas" of Guided Fault Finding; please also note the display of the activation signals for the auxiliary heater (e.g. in "General function check") ➔ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- Once the auxiliary heater has switched to full load mode, wait at least another 1 minute (approx. 4 minutes after activation, the auxiliary heater must be in full load mode).
- Read off measured value for CO₂ (carbon dioxide) content of exhaust gas from CO₂ measuring instrument.





Note

Hose -B- of exhaust probe must not prevent exhaust gas from leaving exhaust pipe -A- during check.

Specifications:

◆ 8 to 11 % by CO₂ volume for vehicles with diesel engine

◆ 7.5 to 10.5 % by CO₂ volume for vehicles with petrol engine
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Note

◆ *If measured value is in lower range (less than 9 % for diesel or less than 8.5 % for petrol), problems may occur with auxiliary heater combustion under unfavourable conditions, e.g. high vehicle speed with auxiliary heater switched on. Check fuel delivery rate of metering pump - V54- ➔ [page 124](#) .*

◆ *If CO₂ values displayed by measuring instrument only fluctuate slightly, calculate mean value from highest and lowest measured value.*

◆ *If the measured values displayed for CO₂ fluctuate considerably (more than approx. +/- 0.6 % depending on the analyser), check the position of the measurement probe in the auxiliary heater exhaust pipe.*

- If applicable, plug connector back in at heater coolant shut-off valve - N279- .
- Interrogate and, if necessary, erase event memory ➔ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .

If the measured value is outside the permitted range:

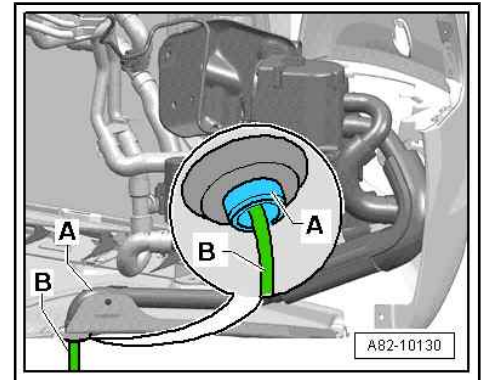
- Check intake air noise insulation and auxiliary heater exhaust system for contamination or cross-sectional constriction; clean or renew these components if necessary ➔ [page 70](#) and ➔ [page 74](#) .
- Check fuel delivery rate of metering pump - V54- ➔ [page 124](#) .
- If CO₂ content of exhaust gas and fuel delivery rate of metering pump - V54- are in lower specified range, renew metering pump - V54- ➔ [page 130](#) .

If the CO₂ content of the exhaust gas is not OK although the fuel delivery rate is OK:

- Check intake air noise insulation and auxiliary heater exhaust system for contamination or cross-sectional constriction; clean or renew these components if necessary ➔ [page 70](#) and ➔ [page 74](#) .

If the CO₂ content of the exhaust gas is not OK and no fault can be found:

- Check combustion air blower - V6- ➔ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- and ➔ [page 90](#) .



If there are problems starting the auxiliary heater although the fuel delivery volume and the CO₂ content in the exhaust gas are OK:

- Check glow plug for heater - Q9- and fuel pre-heating heater element - Z66- ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- and ⇒ [page 92](#) .



Note

If problems with auxiliary heater operation only occur when the engine is switched off and the fuel tank is less than half full, refer to ⇒ ["4.3 Fuel take-off from fuel tank", page 114](#) .

4.9 Checking fuel delivery rate



WARNING

When working on the open fuel system, observe the rules for cleanliness and the safety precautions ⇒ Fuel supply system; Rep. gr. 00 ; Safety precautions when working on the fuel system .

Test requirements ⇒ [page 124](#) Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Preparation ⇒ [page 125](#)

Filling fuel line completely ⇒ [page 126](#)

Checking fuel delivery rate ⇒ [page 128](#)

Test requirements

- ◆ Coolant temperature below 30 °C
- ◆ Ambient temperature below 25 °C



Note

A higher ambient temperature can lead to incorrect measurements of the fuel quantity delivered due to fuel evaporation.

- Sufficient fuel in tank (fuel gauge in dash panel insert not in red zone)
- Battery - A- (vehicle battery) fully charged
- Auxiliary heater installed completely and connected to vehicle electrical system
- All auxiliary heater fuses OK (according to current flow diagram) ⇒ Current flow diagrams, Electrical fault finding and Fitting locations
- Auxiliary heater switched off
- Event memory of all systems with self-diagnosis capability read out, cause of any faults displayed in the vehicle systems eliminated and displayed event memory entries erased ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051 .



Note

Pay particular attention to the following vehicle systems: dash panel insert, air conditioner/heater electronics, auxiliary/supplementary heater and data bus diagnostic interface - J533- .

- Terminate Guided Fault Finding and switch off ignition.

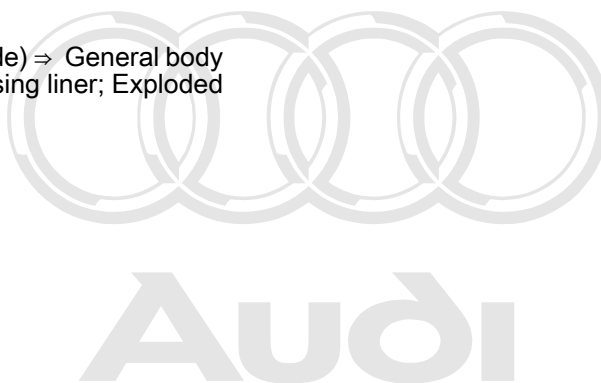
Preparation



Note

The following illustration shows the positions of the components on an Audi A5 Coupé. The layout differs slightly on the Audi A4 and Audi Q5. On these other vehicles the work is however to be performed in the same manner as described for the Audi A5 Coupé.

- Remove front wheel housing liner (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liner; Exploded view - wheel housing liner (front) .



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- Detach fuel line -A- from auxiliary heater.
- Attach measuring cup -B- in vicinity of fuel line -A- (e.g. with wire) and guide fuel line into measuring cup.
- If necessary, use a hose -C- to extend the fuel pipe -A-.



Note

If necessary, use a piece of wire to guide the fuel pipe into the graduated beaker.

Filling fuel line completely

Test requirements satisfied ➔ [page 124](#) and test preparation performed ➔ [page 125](#)

- With ignition switched off, connect vehicle diagnostic, testing and information system - VAS 5051/- to diagnostic connection in vehicle with diagnosis cable - VAS 5051/5A- ➔ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- .
- Switch on ignition and switch off all electrical equipment.



Note

The Guided Fault Finding for the auxiliary heater can only be started with the ignition switched on (the data bus diagnostic interface - J533- is only active when the ignition is on). After the auxiliary heater has switched to diagnosis mode, the Guided Fault Finding for the auxiliary heater can be continued even with the ignition switched off ➔ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- .

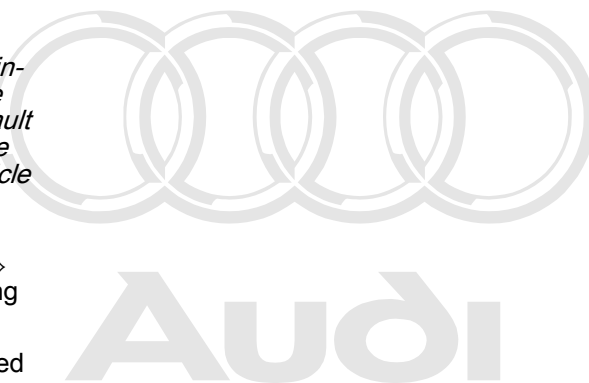
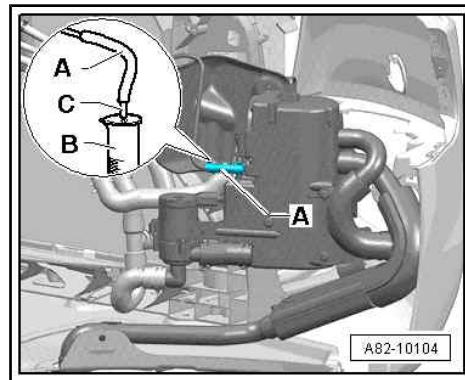
- Select address word for “auxiliary/supplementary heater” ➔ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- .
- Interrogate event memory and eliminate any faults displayed ➔ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- .
- Erase event memory if necessary ➔ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- .
- Check and correct coding of auxiliary heater if necessary ➔ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- .
- Select “Adaption” function and enter adaption values required for filling fuel line in the various adaption channels ➔ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- .



Note

There may be several reasons if the message “Function unknown or cannot be implemented currently” appears in the display zone ➔ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- .

- Completely fill the fuel pipe (from the metering pump - V54- to the graduated beaker) with fuel ➔ “Guided Fault Finding” function of vehicle diagnostic, testing and information system VAS 5051 .



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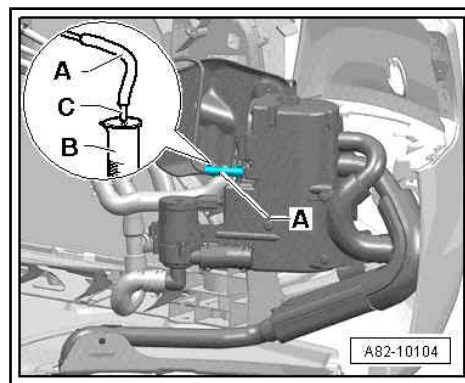
Note

- ◆ *Filling of the fuel pipe and checking of the fuel delivery rate can only be performed by way of the "Basic setting" function. This does however involve using the "Adaption" function to enter the actuation time of the metering pump - V54- and enabling the "Pipe filling" function in a further adaption channel ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051 .*
- ◆ *For replacement auxiliary heaters (with a new auxiliary heater control unit - J364-) for which basic setting has not yet been performed using the "Pipe filling" function, the value displayed for the "pipe filling" time may for example not be "0", but rather a different value e.g. "200" and this function may not be disabled ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051 .*
- ◆ *The fuel pipe can only be filled and the fuel delivery rate checked by way of the "Basic setting" function if the pipe filling function has been enabled in the adaption channel for enabling "Pipe filling". When the "Pipe filling" function is implemented, the adaption is reset and this function is thus disabled again ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051 .*
- ◆ *The metering pump - V54- is actuated for the time entered (e.g. for 30 s) at 8 hertz (8 pulses per second) in the "Pipe filling" routine of the "Basic setting" function if e.g. "30" has been entered in the adaption channel for the "Pipe filling" function (the fuel pipe is then completely filled with fuel).*
- ◆ *Initial actuation of the metering pump - V54- is designed to completely fill the fuel pipe with fuel. 30 seconds are sufficient, as the fuel pipe is already more or less full.*
- ◆ *Once the "Pipe filling" function has been started, it cannot be aborted and is implemented in full by the control unit regardless of any entries made via the tester.*
- ◆ *Values entered which are not within the specified limits are displayed but not implemented.*
- ◆ *If the value entered is too high or too low, the display is automatically reset (to the lowest or highest value still permitted).*
- ◆ *In the "Pipe filling" function of the "Adaption", the activation time for the metering pump - V54- is entered in seconds. The next time the "Pipe filling" function is selected in the "Basic setting" function, the metering pump - V54- is activated for this period ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ◆ *In the "Pipe filling" routine of the "Basic setting" function, the metering pump - V54- is actuated at a frequency of 8 hertz (8 pulses per second). The fuel delivery rate set in the metering pump - V54- is approx. 0.028 ml per stroke (0.028/1000 litres).*
- ◆ *The "Pipe filling" routine in the "Basic setting" function can only be performed after entering a "Pipe filling" time by way of the adaption function and enabling the "Pipe filling" function in another adaption channel. The "Pipe filling" function can now be implemented once. The auxiliary heater control unit - J364- then resets the values automatically and disables the function again ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- *Wait until the time for the "Pipe filling" function has been completed and the metering pump - V54- is no longer actuated.*

- Empty and re-attach the graduated beaker -B-.
- Terminate Guided Fault Finding ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .

To prevent inadvertent actuation of the "Pipe filling" function and thus an excessive amount of fuel being conveyed into the auxiliary heater, the following criteria are stored in the auxiliary heater control unit - J364- :

- ◆ It may only be possible to perform the "Pipe filling" routine once in the "Basic setting" function during Guided Fault Finding depending on the version of the auxiliary heater control unit - J364- . In such cases, terminate Guided Fault Finding and start again.
- ◆ After completing the "Pipe filling" routine in the "Basic setting" function, the auxiliary heater control unit - J364- resets the activation time for the metering pump - V54- to "0", and the "Pipe filling" function is disabled again ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .



Checking fuel delivery rate

- Test preparation performed ⇒ [page 124](#) and fuel pipe completely filled with fuel ⇒ [page 126](#)
- Select the "Guided Fault Finding" function for the auxiliary/ supplementary heater on the vehicle diagnostic, testing and information system ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .



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- ◆ *If the auxiliary heater does not respond, switch on the ignition if applicable before selecting the auxiliary heater control unit - J364- again.*
- ◆ *Auxiliary heater Guided Fault Finding can only be started with the ignition switched on or within a specified period after switching off the ignition or following the last exchange of data between the tester and a control unit (the data bus diagnostic interface - J533- is not constantly active).*
- Check the fuel delivery rate of the metering pump - V54- ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051.



Note

- ◆ *There may be several reasons for the display zone showing "Function unknown" or "Cannot be performed at present" ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .*
- ◆ *With the auxiliary heater control unit - J364- fitted at present, the maximum value which can be entered is "255".*
- ◆ *The metering pump - V54- actuation time for "Pipe filling" is entered in seconds in the adaption channel. When the "Pipe filling" routine is next selected in the "Basic setting" function, the metering pump - V54- is actuated for this period. The "Pipe filling" function can however only be performed in "Basic setting" if this has been enabled in a further adaption channel ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051.*
- ◆ *For checking the fuel delivery rate of the metering pump - V54- , the pump is actuated in the "Pipe filling" routine of the "Basic setting" function in accordance with the time set (in this case for 240 seconds).*
- ◆ *In the "Pipe filling" routine of the "Basic setting" function, the metering pump - V54- is actuated at a frequency of 8 hertz (8 pulses per second). The fuel delivery rate set in the metering pump - V54- is approx. 0.028 ml per stroke (0.029 ml per stroke or 0.029/1000 litres for vehicles with a diesel engine and 0.027 ml per stroke or 0.027/1000 litres for vehicles with a petrol engine).*
- ◆ *The following illustration shows the positions of the components on an Audi A5 Coupé. The layout differs slightly on the Audi A4 and Audi Q5. On these other vehicles the work is however to be performed in the same manner as described for the Audi A5 Coupé.*

The metering pump - V54- is actuated in the "Pipe filling" function for 240 seconds at a fixed clock frequency.

- Wait until the time set for the "Pipe filling" routine of the "Basic setting" function has been completed and the metering pump - V54- is no longer actuated.

- Measure the fuel delivery rate of the metering pump - V54- in the graduated beaker -B-.

Specifications:

Diesel - 51 to 62 ml

Benzin - 48 to 58 ml



Note

One millilitre (ml) corresponds to 1/1000 litre or 1 cm³.

If the quantity of fuel delivered is outside the tolerance range:

- Check fuel line (from fuel tank via metering pump - V54- to auxiliary heater) for damage and proper routing ➔ [page 119](#) .
- Check operation of fuel system pressurisation pump - G6- ➔ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- and ➔ [page 114](#) .
- If no fault is found, renew metering pump - V54- ➔ [page 130](#) .
- If there are problems starting the auxiliary heater although the fuel delivery volume is OK, check the CO₂ content in the exhaust gas ➔ [page 120](#) .



Note

If problems with auxiliary heater operation only occur when the engine is switched off and the fuel tank is less than half full, refer to ➔ “4.3 Fuel take-off from fuel tank”, page 114 .

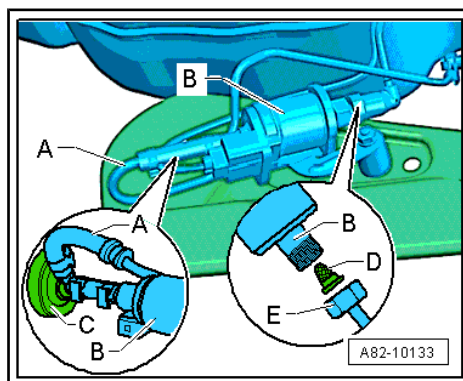
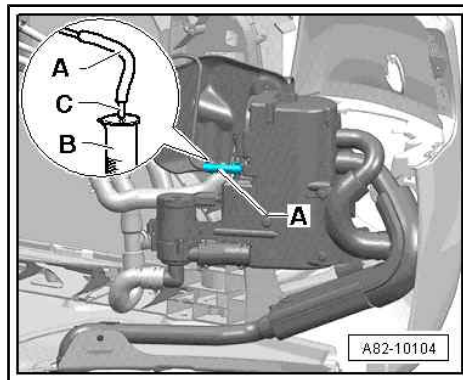
- If the quantity of fuel delivered is in the lower tolerance range (less than 52 ml for diesel engine/less than 49 ml for petrol engine) and there are problems starting the auxiliary heater, renew metering pump - V54- if applicable ➔ [page 130](#) .

4.10 Removing and installing metering pump - V54-



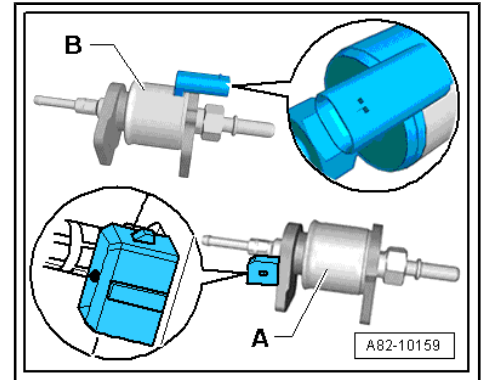
WARNING

When working on the open fuel system, observe the rules for cleanliness and the safety precautions ➔ Fuel supply system; Rep. gr. 00 ; Safety precautions when working on the fuel system .



 Note

- ◆ Butt-joint the fuel lines and secure with clamps at the marked locations.
- ◆ Depending on the vehicle model, the fuel pipe -A- (hose between metering pump - V54- and fuel pipe to auxiliary heater) may be provided with a constriction (restrictor in fuel pipe hose) for noise reduction or fitted with noise insulation -C- (in the area of the metering pump - V54- -B-) (gradual introduction of restrictor or noise insulation in Model Year 2008).
- ◆ If the fuel pipe hose -A- is fitted with a restrictor, the dimensions of this are currently as follows: OD 5 mm, length 7 mm, restrictor bore 1.3 mm. The restrictor (or noise insulation -C-) reduces the increase in pressure in the fuel pipe to the auxiliary heater during the working stroke of the metering pump - V54-, with the result that less -V54- operating noise is transmitted.
- ◆ Between the connection for the fuel pipe from the fuel tank -E- and the metering pump - V54- -B- and depending on the version of the metering pump - V54- there may be a strainer -D- to stop dirt particles ingressing into the metering pump.
- ◆ As of Model Year 2009, a metering pump - V54- of type -B- with a modified connector is being gradually introduced. Pay attention to correct assignment. If the metering pump - V54- of type -A- with the plug connection fitted in Model Year 2008 is no longer available, a different connector (with the corresponding contacts from the wiring harness repair set - VAS 1978 B-) must be attached to the wiring harness. When doing so, pay attention to the correct connection assignment ⇒ *Electronic parts catalogue and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.*



Removing (Audi A5 Coupé or Audi A4)

- Switch off ignition (and auxiliary heater).
- If fitted, remove underbody trim (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim .

 Note

For greater clarity, the metering pump - V54- is shown in its installation position on the support (axle section to right of fuel tank).

- Unscrew nuts -8-.
- Remove support -7- ⇒ Running gear, axles, steering; Rep. gr. 42 ; Subframe; Exploded view - subframe .
- Unfasten clamp -5-.
- Unplug connector -4- from metering pump - V54- -3-.
- Detach the fuel hose -6- from the metering pump - V54- -3- and seal the fuel pipes.
- Release quick-release coupling -1- ⇒ [page 118](#) and seal fuel line.

Removing (Audi Q5)

- Switch off ignition (and auxiliary heater).
- Remove underbody trim (right-side; with corresponding brackets in front of fuel tank) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim .
- Unplug connector -4- from metering pump - V54- -3-.



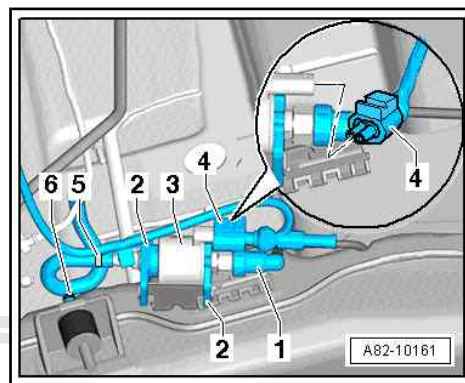
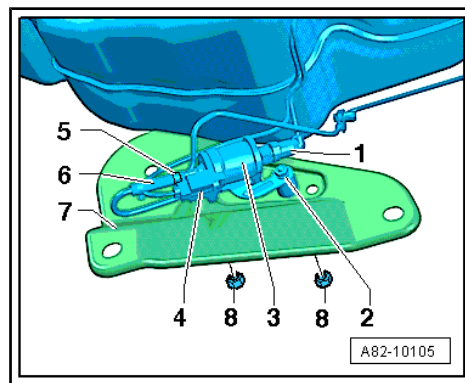
Note

This illustration shows the connector -4- and the metering pump - V54- -3- gradually introduced as of Model Year 2009.

- Unfasten clamp -5-.
- Detach fuel hose -6- from metering pump - V54- -3- and seal fuel lines.
- Release quick-release coupling -1- ⇒ [page 118](#) and seal fuel line.
- Release metering pump - V54- -3- from retainers -2-.

Installing (all vehicles)

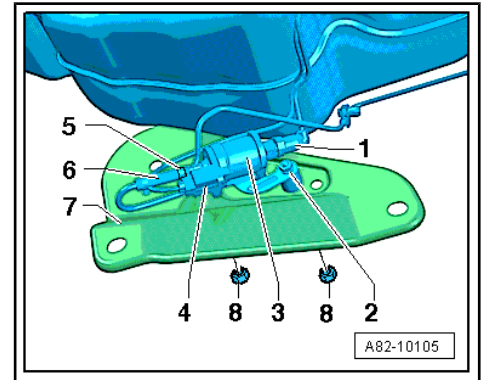
Install in reverse order of removal; note the following.



- Replace hose clamp -5- on fuel line with clamps of the same type ⇒ Electronic parts catalogue , butt-joint fuel line and secure clamps using suitable pliers.

Pay attention to the following when installing the metering pump - V54- :

- ◆ Fit the metering pump - V54- and the corresponding fuel pipes such that they do not make contact with other components (noise).
- ◆ Take care not to twist fuel lines.
- ◆ Attach fuel lines at intended locations.
- Slacken off rear right running gear spring with a spring tensioner and then bolt on support -7- ⇒ Running gear, axles, steering; Rep. gr. 42 ; Subframe; Exploded view - subframe (Audi A4 and Audi A5 Coupé).
- Install underbody trim (right-side; with corresponding brackets in front of fuel tank) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim (on Audi Q5).
- After renewing metering pump - V54- , switch on auxiliary heater and check operating sequence ⇒ [page 11](#) .



 Note

After components of the fuel system have been removed and installed, the auxiliary heater must be switched on and operated at full load for at least 10 minutes to make sure that the fuel line is bled completely.



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5 Auxiliary/supplementary heater control

⇒ ["5.1 Functional description", page 135](#)

⇒ ["5.2 Overview of activation of auxiliary heater with remote control", page 137](#)

⇒ ["5.3 Activating and deactivating auxiliary heating/auxiliary ventilation via Multi Media Interface \(MMI\)", page 138](#)

5.1 Functional description



Note

- ◆ The "Auxiliary heating" function can be activated and deactivated via the "AC" function in the "Car" menu of the MMI (Multi Media Interface) ⇒ Infotainment/MMI Operating Manual .
- ◆ Activate/deactivate the auxiliary heater via the MMI (Multi Media Interface) or using remote control.
- ◆ If the "auxiliary heating/auxiliary ventilation" function has been set with the MMI (Multi Media Interface) by way of the "timer" function or if auxiliary heating/auxiliary ventilation is activated via remote control, the air conditioner operating and display unit, Climatronic control unit - J255- determines on the basis of the set "specified temperatures" and the measured "actual temperature" whether the "auxiliary heater" is switched on or only the "auxiliary ventilation" function is activated.
- ◆ Depending on the amount of heat generated by the auxiliary heater (and engine) and emitted by the heat exchangers of the air conditioning unit, the heater may remain at full load, part load (controlled operation) or in the control interval for a lengthy period.
- ◆ To ensure that combustion in the heater always remains in the optimum range, the metering pump - V54- (clock frequency) and combustion air blower - V6- (voltage) are regulated over the entire sequence.
- ◆ If the heater has been interlocked on account of a fault, the event memory must be read out and the content of the event memory erased. Depending on the cause of the fault, it may also be necessary to cancel the interlock by way of the "Adaption" function.
- ◆ If the first attempted start fails to produce a flame, the auxiliary heater control unit - J364- terminates the sequence and attempts a restart after any combustion residue has been blown out with the combustion air blower - V6- . The auxiliary heater control unit - J364- is switched off if the restart also fails to produce a flame. The heater is disabled after 3 manual attempted starts with start repetition in each case by way of the operating and display unit, Climatronic control unit - J255- .
- ◆ If the heater is switched off during the starting process, the heater is either immediately switched off or switches to run-on mode (burn-off, cooling) if necessary, depending on the point reached in the starting sequence.
- ◆ If the coolant temperature exceeds 89 °C before full load is reached (e.g. with a hot engine), the heater switches to the control interval.
- ◆ Various functions of the auxiliary heater are constantly monitored during operation (the auxiliary heater is switched off as soon as a fault occurs).



- ◆ *The auxiliary heater operating sequence can be monitored by way of the vehicle diagnostic, testing and information system - VAS 5051/- ("Reading measured value block" function).*
- ◆ *The temperatures given in the sequence of operations and function diagram are approximate. The actual temperatures at which the various functions are activated and deactivated may differ depending on the vehicle model and characteristic curves stored in the auxiliary heater control unit - J364- .*
- ◆ *On vehicles with a start/stop system, the circulation pump - V55- of the auxiliary heater is activated by the auxiliary heater control unit - J364- while the stop function is active. Via the data bus, -J364- is requested by the air conditioner operating and display unit, Climatronic control unit - J255- to switch on - V55- ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system VAS 5051*



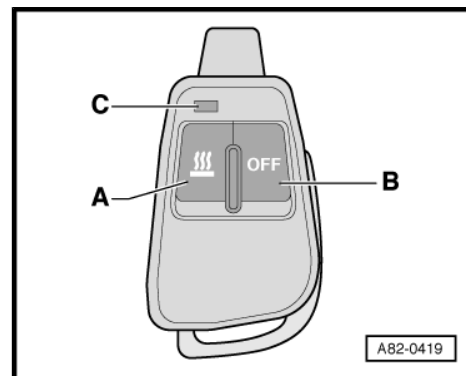
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5.2 Overview of activation of auxiliary heater with remote control



Note

- ◆ At present, remote control is available for vehicles with "Auxiliary heater" as optional extra.
- ◆ The remote control receiver for auxiliary heater - R64- is installed in the luggage compartment (right-side as seen in direction of travel) underneath side trim ➔ [page 38](#) and ➔ [page 140](#).
- ◆ The Audi A4, A5 and Q5 are currently provided with a hand-held remote control transmitter for auxiliary heater without a display ➔ Owner's Manual.
- ◆ Auxiliary heaters with an auxiliary heater control unit - J364- with part number 8xx xxx. xxx are only designed for actuation by way of a hand-held transmitter with no display. From 10.2010 onwards, auxiliary heaters with -J364- with part number 4xx xxx xxx are gradually being introduced. On these auxiliary heaters, the version of the hand-held transmitter (with or without display) must be coded correctly in -J364-. This also applies if a -J364- with part number 8xx xxx xxx is replaced with a -J364- with part number 4xx xxx xxx as part of the service work ➔ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/-.
- ◆ Make sure the remote control hand-held transmitter for the auxiliary heater is correctly matched to the remote control receiver for auxiliary heater - R64- (different versions for hand-held transmitters with or without display), and also make sure that -J364- is correctly assigned and coded ➔ Electronic parts catalogue and ➔ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/-.
- ◆ Only one activation/deactivation signal is transmitted by the auxiliary heater hand-held remote control transmitter. The operating and display unit, Climatronic control unit - J255- decides whether auxiliary heating mode is required to attain the set specified temperature in the passenger compartment or whether auxiliary ventilation mode is sufficient.
- ◆ The following illustration shows the positions of the components on an Audi A5 Coupé. The layout differs slightly on the Audi A4 and Audi Q5. However, the components must be removed and installed in the same manner as described for the Audi A5 Coupé (unless indicated otherwise).



If the auxiliary heater is switched on by way of remote control, further operation is governed by the operating and display unit, Climatronic control unit - J255- :

- ◆ If the operating and display unit, Climatronic control unit - J255- determines that auxiliary heating mode is not required to attain the specified temperature: The operating and display unit (Climatronic control unit - J255-) starts up without transmitting a request for activation of the auxiliary heater via the data bus to the auxiliary heater control unit - J364- (auxiliary ventilation mode) ➔ Heating, air conditioning; Rep. gr. 87 ; Operating and display unit.

- ◆ If the operating and display unit, Climatronic control unit - J255- determines that auxiliary heating mode is required to attain the specified temperature: The operating and display unit (Climatronic control unit - J255-) transmits the request for activation of the auxiliary heater via the data bus to the auxiliary heater control unit - J364- , the auxiliary heater control unit - J364- switches on the auxiliary heater and, as soon as the coolant temperature in the auxiliary heater exceeds approx. 40 °C, sends feedback information to the operating and display unit (Climatronic control unit - J255-), which then starts up ⇒ Heating, air conditioning; Rep. gr. 87 ; Operating and display unit .

5.3 Activating and deactivating auxiliary heating/auxiliary ventilation via Multi Media Interface (MMI)

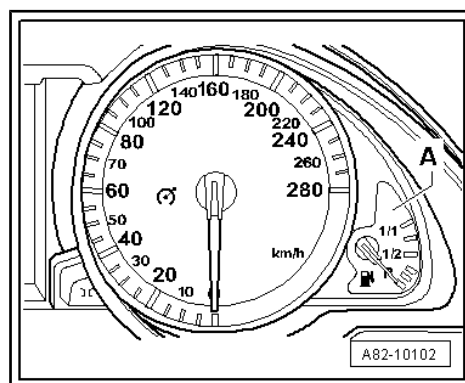


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The following illustration shows the dash panel insert of an Audi A5 Coupé. The dash panel insert differs slightly on the Audi A4 and Audi Q5. Activation and deactivation are however performed in the same manner as described for the Audi A5 Coupé.

Conditions

- The auxiliary heater is adapted in the operating and display unit (Climatronic control unit - J255-); check and perform coding ⇒ Heating, air conditioning; Rep. gr. 87 ; Operating and display unit and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- The auxiliary heater can only be switched on by the auxiliary heater control unit - J364- and the "Auxiliary heating on" function can only be activated if there is sufficient fuel in the fuel tank. When the ignition is switched on, the fuel gauge -A- must not be in the "red zone" ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- There must not be any faults stored in the auxiliary heater control unit - J364- .
- The battery - A- (vehicle battery) must be charged sufficiently.
- There must not be any faults in the vehicle data bus.
- Transportation mode and component protection for auxiliary heater must not be active ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .

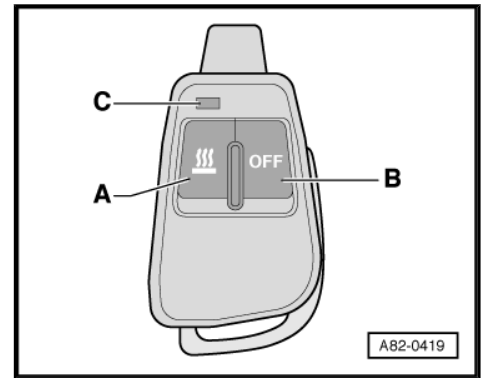


Switching auxiliary heating/auxiliary ventilation on and off

- Press the remote control button -A- to activate or the button -B- (OFF button) to deactivate auxiliary heating / auxiliary ventilation.

Or

- Switch on ignition.
- Press **CAR** button on MMI control console ➔ Infotainment/MMI Operating Manual .
- Activate by pressing **AC** button.
- Using rotary pushbutton, select “Auxiliary heating” or “Auxiliary ventilation” and select settings as desired ➔ Infotainment/MMI Operating Manual .



Setting auxiliary heating / auxiliary ventilation

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- Switch on ignition.
- Press **CAR** button on MMI control console ➔ Infotainment/MMI Operating Manual .
- Activate by pressing **AC** button.
- Using rotary pushbutton, select “Auxiliary heating” or “Auxiliary ventilation” and select settings as desired ➔ Infotainment/MMI Operating Manual .
- Pre-select the required temperature on the operating and display unit, Climatronic control unit - J255- .



Note

Depending on vehicle version, equipment, production period and the setting in the Multi Media Interface (MMI), certain auxiliary heater functions can also be switched on and off via the programmable steering wheel button ➔ Owner's Manual and ➔ Infotainment/MMI Operating Manual .

6 Further control components

⇒ [“6.1 Removing and installing remote control receiver for auxiliary heater R64”, page 140](#)

⇒ [“6.2 Auxiliary heater remote control buttons and indicator lamp”, page 141](#)

⇒ [“6.3 Renewing batteries of remote control for auxiliary heater”, page 144](#)

⇒ [“6.4 Adaption of remote control for auxiliary heater”, page 145](#)

6.1 Removing and installing remote control receiver for auxiliary heater - R64-



Note

There are different versions of the remote control receiver for auxiliary heater - R64- and the hand-held remote control transmitter. Pay attention to the correct version and assignment ⇒ Electronic parts catalogue and the correct coding of the auxiliary heater control unit - J364- (from control unit part number 4xx xxx xxx onwards) ⇒ “Guided Fault Finding” function of vehicle diagnostic, testing and information system - VAS 5051/- .

The remote control receiver for auxiliary heater - R64- -arrow- is located e.g. behind the luggage compartment side trim (right-side) on the Audi A5.

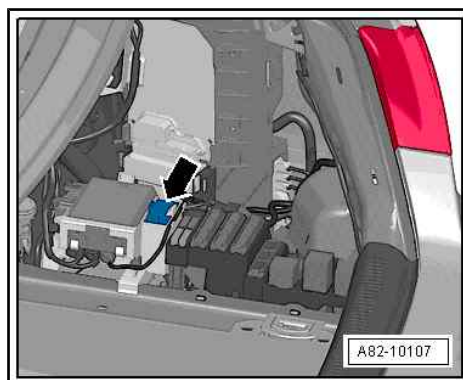
The remote control receiver for auxiliary heater - R64- is engaged in a retainer.



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



Removing



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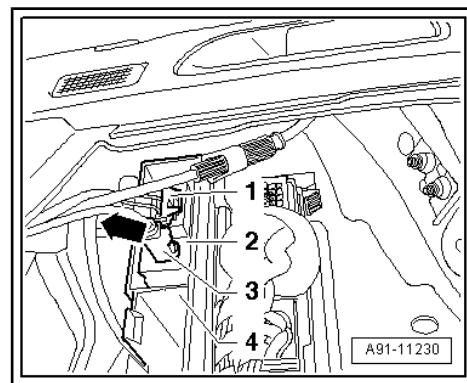
The following illustration shows the remote control receiver for auxiliary heater - R64- on the Audi Q5. The layout differs slightly on the Audi A4 and Audi A5, but the procedures for removing and installing are the same.

- Switch off ignition and all electrical equipment and remove ignition key.
- Detach cover from luggage compartment side trim (right-side).

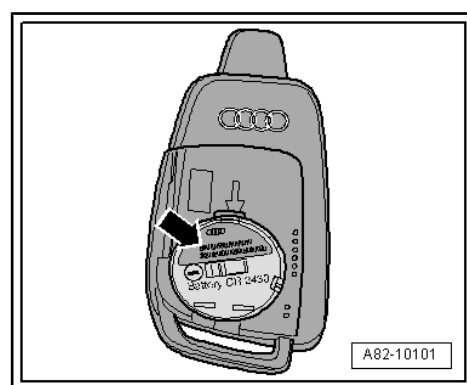
- Unplug connectors -1- and -3- at remote control receiver for auxiliary heater - R64- -2-.
- Press retaining tab -arrow- outwards and pull remote control receiver for auxiliary heater - R64- -2- out of mounting frame -4-.

Installing

- Install in reverse order of removal.



6.2 Auxiliary heater remote control buttons and indicator lamp

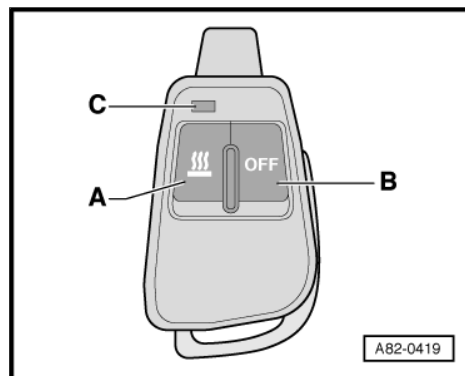


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Note

- ◆ There are different versions of the auxiliary heater remote control (with different transmission signals); therefore it is important to observe the exact assignment. After the batteries are removed ⇒ [page 144](#) , the version of the remote control can be seen on the sticker -arrow- with the part number (observe exact assignment) ⇒ *Electronic parts catalogue* .
- ◆ The Audi A4, A5 and Q5 are currently provided with a hand-held remote control transmitter for auxiliary heater without a display ⇒ *Owner's Manual* .
- ◆ Auxiliary heaters with an auxiliary heater control unit - J364- with part number 8xx xxx. xxx are only designed for actuation by way of a hand-held transmitter with no display. From 10.2010 onwards, auxiliary heaters with -J364- with part number 4xx xxx xxx are gradually being introduced. On these auxiliary heaters, the version of the hand-held transmitter (with or without display) must be coded correctly in -J364- . This also applies if a -J364- with part number 8xx xxx xxx is replaced with a -J364- with part number 4xx xxx xxx as part of the service work ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ◆ Make sure the remote control hand-held transmitter for the auxiliary heater is correctly matched to the remote control receiver for auxiliary heater - R64- (different versions for hand-held transmitters with or without display), and also make sure that -J364- is correctly assigned and coded ⇒ *Electronic parts catalogue* and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ◆ The remote control has a range of approx. 600 m. This may be considerably reduced by obstacles (e. g. buildings) situated between the remote control and the vehicle.



-A- ON button

-B- OFF button

-C- Indicator lamp (flashes red or green)



Note

- ◆ For the remote control to recognise that a button has been pressed and transmit a radio signal, the corresponding button must be pressed for roughly 3 seconds ➤ Owner's Manual .
- ◆ If the remote control batteries are discharged to such an extent that a radio signal can no longer be transmitted with sufficient strength, the indicator lamp -C- does not light on pressing the ON button -A- or the OFF button -B-.
- ◆ The indicator lamp -C- lights up green briefly (approx. 2 seconds) as a functional check after the ON button -A- is pressed.
- ◆ If the cut-in signal is received correctly by the auxiliary heater control unit - J364- and there are no faults in the auxiliary heater, the auxiliary heater control unit - J364- transmits confirmation and the indicator lamp -C- then flashes green 30 times at approx. 1 Hz (1 pulse per second).
- ◆ If the cut-in signal is not received correctly by the auxiliary heater control unit - J364- , e.g. because the transmitter is too far away from the vehicle (and a connection with the control unit cannot be established), the indicator lamp -C- flashes red 30 times.
- ◆ If there is a fault in the vehicle or the auxiliary heater (e.g. the auxiliary heater cannot be switched on as the fuel tank is empty), the auxiliary heater control unit - J364- transmits a fault message and the indicator lamp -C- flashes red 30 times.
- ◆ The indicator lamp -C- lights red briefly (approx. 2 seconds) as a functional check after pressing the OFF button -B-, and then flashes red 30 times at approx. 1 Hz (1 pulse per second).
- ◆ If the shut-off signal is not received correctly by the auxiliary heater control unit - J364- , e.g. because it is too far away from the vehicle (and a connection with the control unit cannot be established), the indicator lamp -C- then flashes red for 10 seconds at approx. 4 Hz (4 pulses per second).
- ◆ When transmitting, hold radio remote control with transmission aerial upwards.
- ◆ Ensure a sufficient distance from the vehicle aerial when pressing the buttons of the hand-held remote control transmitter. There may be reception problems if the radio signal is too strong; if necessary, cover transmission aerial with hand or keep a minimum distance of 10 metres from the vehicle.
- ◆ The remote control receiver for auxiliary heater - R64- can be switched to power saving mode by the auxiliary heater control unit - J364- (radio signal can no longer be received, no-load current input decreases from approx. 1 mA to approx. 0.04 mA) ➤ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .
- ◆ Depending on the mode of operation set ("Auxiliary heating" or "Auxiliary ventilation"), certain faults which impair the auxiliary heating / auxiliary ventilation function are not stored in the event memory of the auxiliary heater control unit - J364- . Therefore, if there is a complaint about the auxiliary heater, also read out the event memory of the operating and display unit (Climatronic control unit - J255-) ➤ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/- .

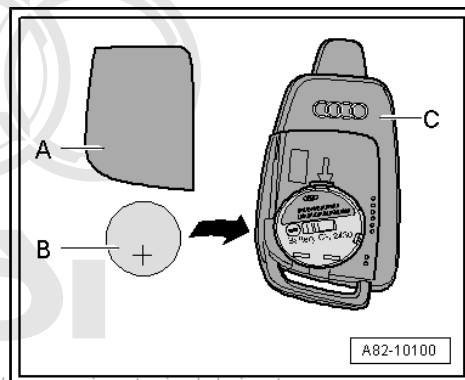
6.3 Renewing batteries of remote control for auxiliary heater

- Carefully detach the battery cover -A- from the remote control -C-.



Note

- ◆ On insertion, pay attention to the correct position of the batteries (marked in the battery compartment, the "negative terminal" faces the underside of the remote control).
- ◆ Only fit batteries -B- with specifications corresponding to the original battery (e.g. CR2430 3V 280mAh). You can obtain these batteries e.g. from specialised dealers or via the replacement parts programme ⇒ *Electronic parts catalogue*.



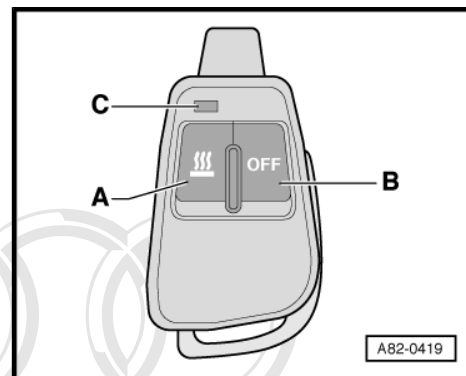
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6.4 Adaption of remote control for auxiliary heater



Note

- ◆ The Audi A4, A5 and Q5 are currently provided with a hand-held remote control transmitter for auxiliary heater without a display ⇒ Owner's Manual.
- ◆ Keep remote control vertical (transmission aerial at top) whilst pressing buttons.
- ◆ Auxiliary heaters with an auxiliary heater control unit - J364- with part number 8xx xxx. xxx are only designed for actuation by way of a hand-held transmitter with no display. From 10.2010 onwards, auxiliary heaters with -J364- with part number 4xx xxx xxx are gradually being introduced. On these auxiliary heaters, the version of the hand-held transmitter (with or without display) must be coded correctly in -J364-. This also applies if a -J364- with part number 8xx xxx xxx is replaced with a -J364- with part number 4xx xxx xxx as part of the service work ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/-.
- ◆ Make sure the remote control hand-held transmitter for the auxiliary heater is correctly matched to the remote control receiver for auxiliary heater - R64- (different versions for hand-held transmitters with or without display), and also make sure that -J364- is correctly assigned and coded ⇒ Electronic parts catalogue and ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/-.
- ◆ Currently up to four remote controls can be adapted in the remote control receiver for auxiliary heater - R64- (via auxiliary heater control unit - J364-). If a fifth remote control is adapted, the first remote control that was adapted is deleted.
- ◆ The remote control is adapted in the remote control receiver for auxiliary heater - R64-. If this is renewed, all remote controls must be re-adapted.
- ◆ The remote control hand-held transmitter for the auxiliary heater can be adapted after tapping the Go to key in the "Function/component selection" under "Remote control adaption" via the auxiliary heater control unit - J364- ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/-.
- ◆ The remote control hand-held transmitter for the auxiliary heater can also be adapted in the "Basic setting" function via the auxiliary heater control unit - J364- ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/-.
- ◆ As the batteries become weaker, the power of the hand-held transmitter and thus the reception quality deteriorate. The reception quality of the transmission signal is displayed in the measured value block ⇒ "Guided Fault Finding" function of vehicle diagnostic, testing and information system - VAS 5051/-.
- ◆ The code of the remote control units is stored in the remote control receiver for auxiliary heater - R64-.
- ◆ In the event of adaption problems, check the aerial connector ⇒ [page 38](#) and attempt to perform adaption with the remote control transmitter in the luggage compartment if applicable.





- ◆ *Should it not be possible to activate the auxiliary heater by way of the remote control, check the fuel level in the fuel tank (there must be a sufficient amount of fuel) and the operating status of the vehicle (transportation mode must not be active). If these two shut-off criteria were recently active, e.g. on a new vehicle, it may be necessary to briefly interrupt the power supply to the auxiliary heater and the remote control receiver for auxiliary heater - R64- to restore the normal function (auxiliary heater "reset").*



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