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Workshop Manual Audi A1 2011 ➤

**4-cylinder direct injection engine (1.8, 2.0 ltr. 4-valve
TFSI - generation III)**

Engine ID	CWZ A	DAJB							
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Edition 11.2019



List of Workshop Manual Repair Groups



Repair Group 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.

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15 - Cylinder head, valve gear

17 - Lubrication

19 - Cooling

21 - Turbocharging/supercharging

24 - Mixture preparation - injection

26 - Exhaust system

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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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Audi A1 2011 ►

4-cylinder direct injection engine (1.8, 2.0 ltr. 4-valve TFSI - generation III) - Edition 11.2019



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00 – Technical data

1 Identification

(ARL006725; Edition 11.2019)

All information can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 00 ; Identification .



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2 Safety precautions

All information can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 00 ; Safety precautions .



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3 Repair instructions

All information can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 00 ; Repair instructions .



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10 – Removing and installing engine

1 Removing and installing engine

⇒ [“1.1 Removing engine”, page 4](#)

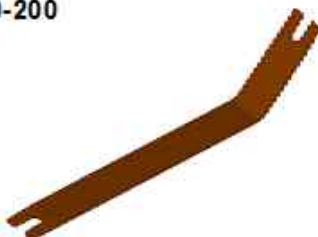
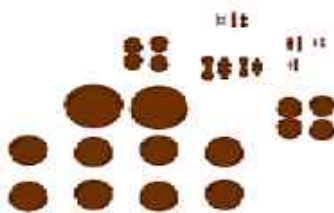
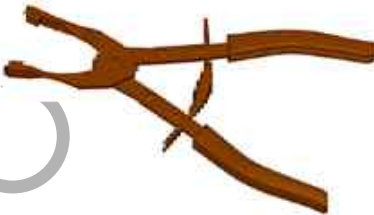
⇒ [“1.2 Separating engine and gearbox”, page 15](#)

⇒ [“1.3 Securing engine to engine and gearbox support”, page 19](#)

⇒ [“1.4 Installing engine”, page 19](#)

1.1 Removing engine

Special tools and workshop equipment required

80-200 	VA S 5085 
VA S 6122 	VA S 6208 
VA S 6362 	VA S 6931 

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- ◆ Removal lever - 80-200-
- ◆ Stepladder (commercially available) or -VAS 5085-
- ◆ Engine bung set - VAS 6122-
- ◆ Coolant collecting system - VAS 5014- or drip tray for workshop hoist - VAS 6208-
- ◆ Hose clip pliers - VAS 6362-



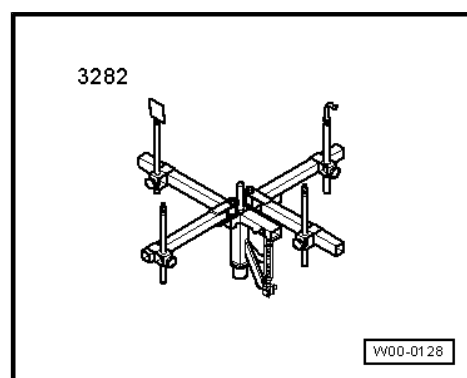
- ◆ Engine and gearbox jack - VAS 6931-

- ◆ Extension 2024A/1- for lifting tackle - 2024A-

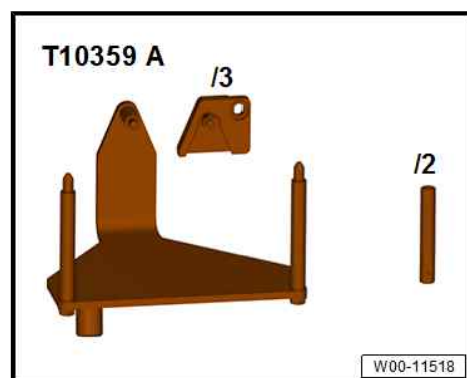
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- ◆ Locking element included with gearbox support - 3282-



- ◆ Engine bracket - T10359A-



- ◆ Safety goggles
- ◆ Protective gloves

Procedure



Note

- ◆ *The engine is removed from underneath together with the gearbox.*
- ◆ *Re-fit all cable ties and heat insulation sleeves in the same locations when installing.*



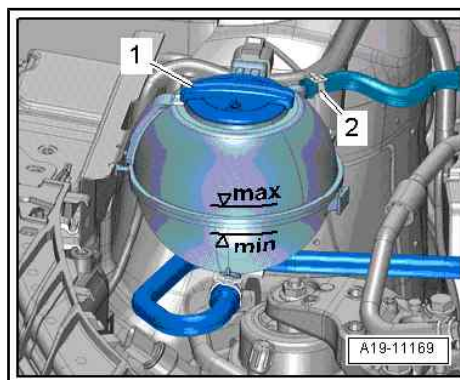
WARNING

*The cooling system is under pressure when the engine is hot.
Risk of scalding due to hot steam and hot coolant.*

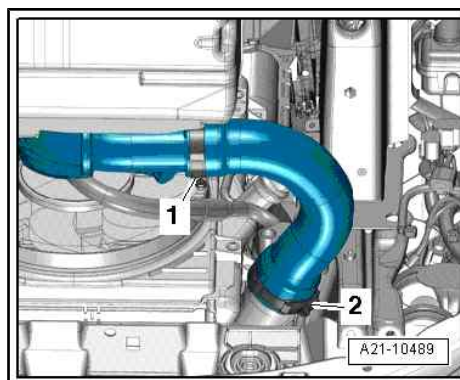
Danger of scalding skin and other parts of the body.

- **Put on protective gloves.**
- **Put on safety goggles.**
- **Cover filler cap on expansion tank with a cloth and open carefully to release pressure.**

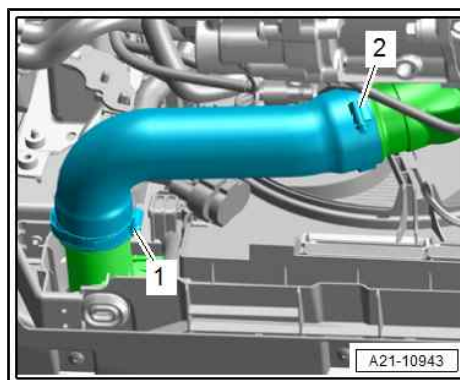
- Open filler cap -1- on coolant expansion tank.
- Remove subframe with steering rack ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Removing and installing subframe with steering rack .



- Release hose clips -1, 2- and detach air hose.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .

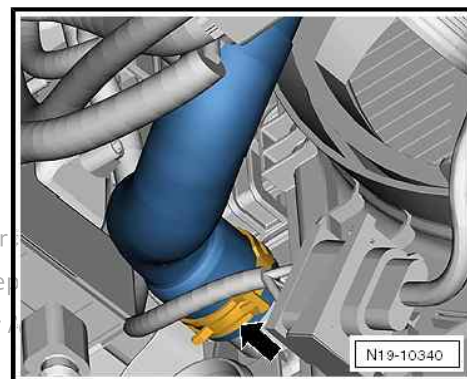


- Release hose clips -1, 2- and remove air hose.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .



**Engine code DAJB:**

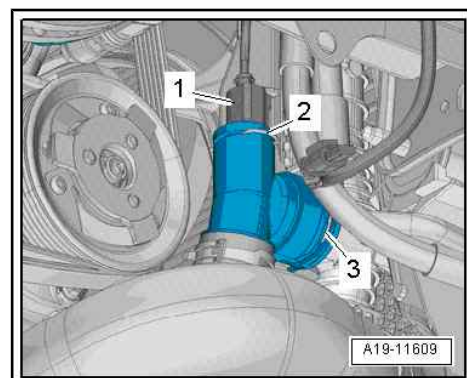
- Place coolant collecting system - VAS 5014- or drip tray for workshop hoist - VAS 6208- underneath.
- Release hose clip -arrow-, disconnect coolant hose (bottom) from radiator and drain off coolant.



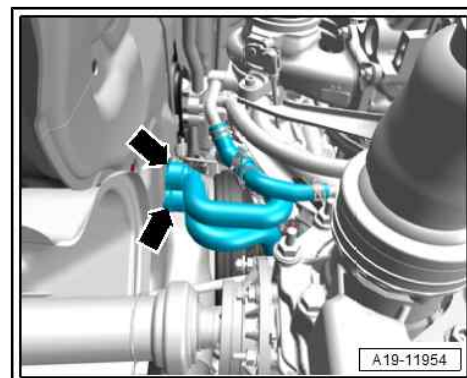
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Engine code CWZA:

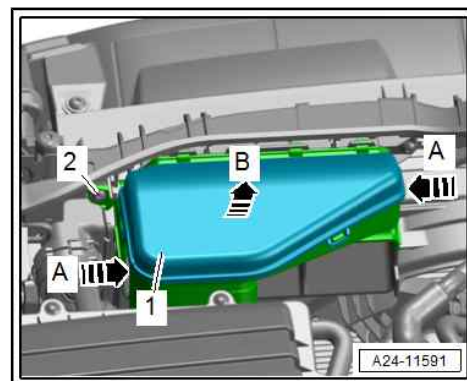
- Unplug electrical connector -1-.
- Place coolant collecting system - VAS 5014- or drip tray for workshop hoist - VAS 6208- underneath.
- Lift retaining clip -3-, disconnect coolant hose (right-side) from radiator and drain off coolant.

**All engine versions (continued):**

- Lift retaining clips -arrows- and disconnect coolant hoses from heat exchanger for heater.
- Guide coolant hoses downwards and drain off coolant.

**Engine code DAJB:**

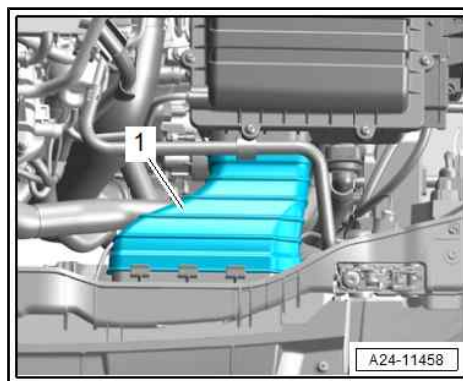
- Unscrew bolt -2- and release fasteners -arrows A-.
- Detach air duct -1- from air cleaner housing -arrow B- and remove it.





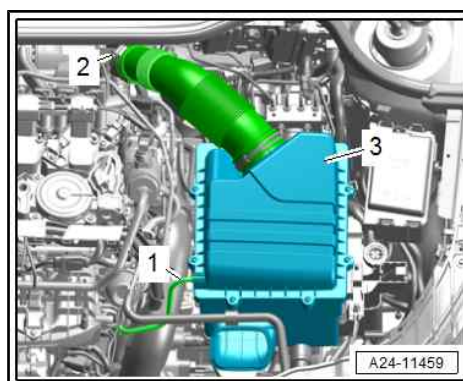
Engine code CWZA:

- Detach air duct -1-.

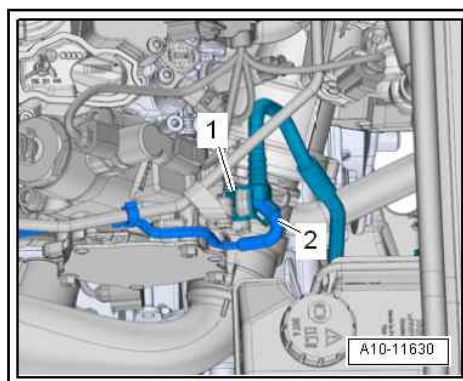


All engine versions (continued):

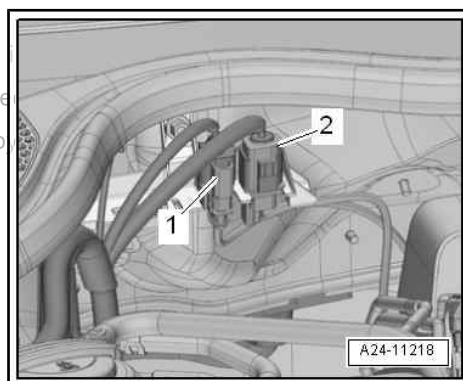
- Disconnect vacuum hose -1-.
- Release hose clip -2- and detach air hose.
- Detach air cleaner housing -3- from retaining pins and remove.



- Disconnect vacuum hose -2-.
- Press release tabs on vacuum hose -1- on both sides and disconnect hose from vacuum pump.



- Detach electrical connectors -1, 2- from bracket, unplug connectors and move electrical wiring clear.



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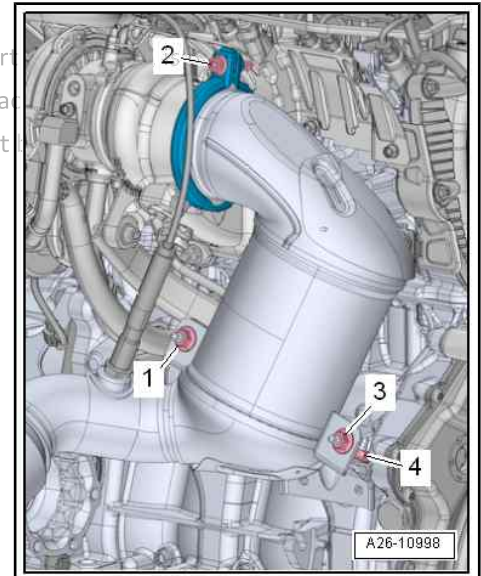


- Unscrew bolt -2- and remove screw-type clip.

Remove nuts -1, 3-.

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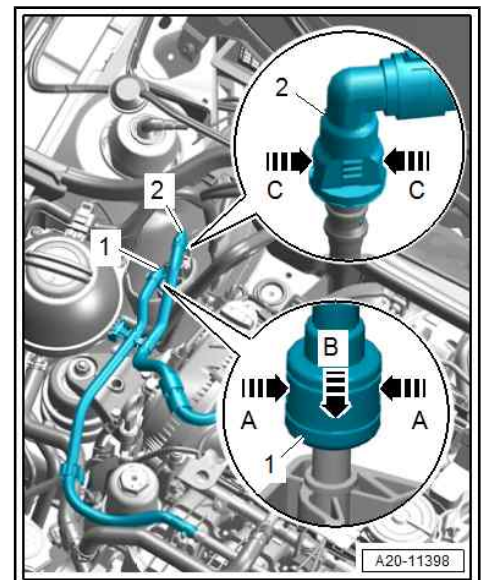
For illustration purposes, the installation position is shown with the engine removed.



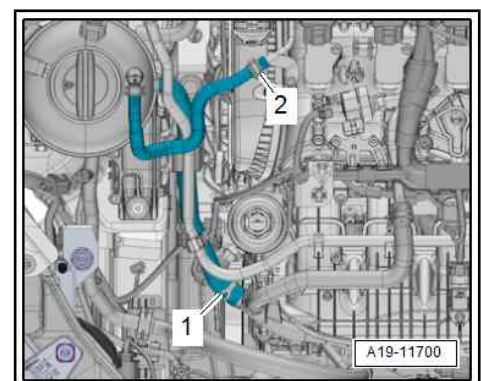
Note

Lay a cloth under the connection to catch escaping fuel.

- Disconnect fuel line -1- ⇒ Fuel supply system; Rep. gr. 20 ; Plug-in connectors; Disconnecting plug-in connectors .
- Press release tabs -arrows C- and disconnect hose -2- for activated charcoal filter.
- Move hoses clear.
- Disconnect hose -1- for activated charcoal filter (press release tab on hose) and move hose clear.



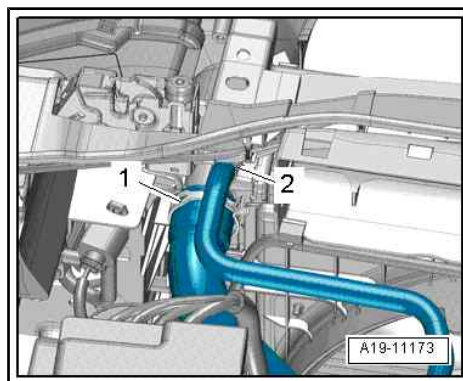
- Release hose clips -1, 2- and disconnect coolant hoses.





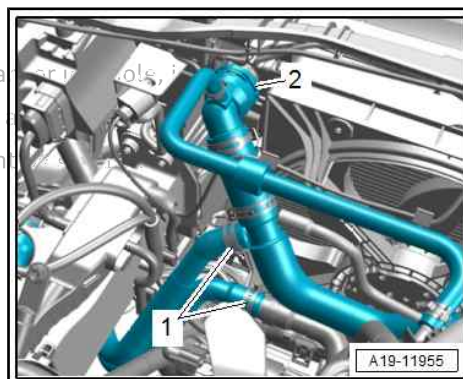
Engine code DAJB:

- Release hose clips -1 and 2- and detach coolant hoses (top left) from radiator.



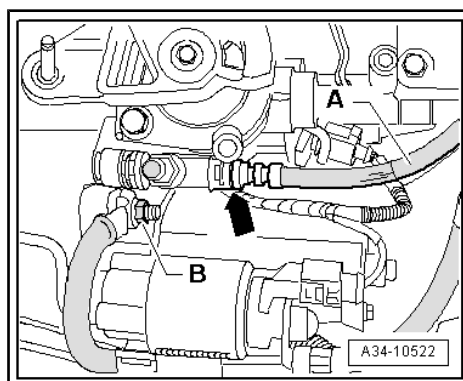
Engine code CWZA:

- Place coolant collecting system - VAS.5014- or drip tray for workshop hoist - VAS 6208- underneath.
- Release hose clips -1- and disconnect coolant hoses; guide coolant hoses downwards and drain off remaining coolant.
- Lift retaining clip -2- and disconnect coolant hose (top left) from radiator.



Vehicles with manual gearbox:

- Detach gear selector cable and gate selector cable from gearbox, remove cable support bracket and place to one side with selector cables attached ⇒ Gearbox; Rep. gr. 34 ; Selector mechanism; Removing and installing selector mechanism .
- Detach pipe/hose assembly -A- from bleeder connection ⇒ Gearbox; Rep. gr. 30 ; Clutch mechanism; Removing and installing lines for clutch hydraulics .



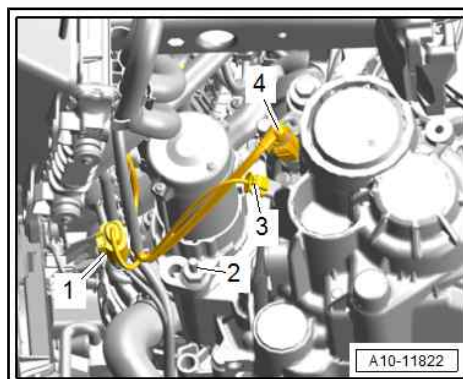
Note

- ◆ *Make sure brake fluid does not come into contact with longitudinal member or gearbox when performing the following operations. If it does, clean affected area thoroughly.*
- ◆ *Place a cloth underneath to catch escaping brake fluid.*

- Unplug electrical connector -1-.
- Vehicles with start/stop system: unplug electrical connector -4- for gearbox neutral position sender - G701- .
- Unplug electrical connector -3- at reversing light switch - F4- .

Vehicles with dual clutch gearbox:

- Detach selector lever cable from gearbox and pull it out of cable support bracket ⇒ Gearbox; Rep. gr. 34 ; Selector mechanism; Removing and installing selector mechanism .



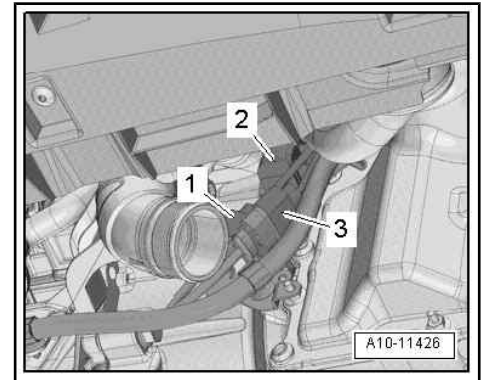


- Detach electrical connectors -1, 3- from bracket and unplug.

**Caution**

Risk of serious damage to gearbox components.

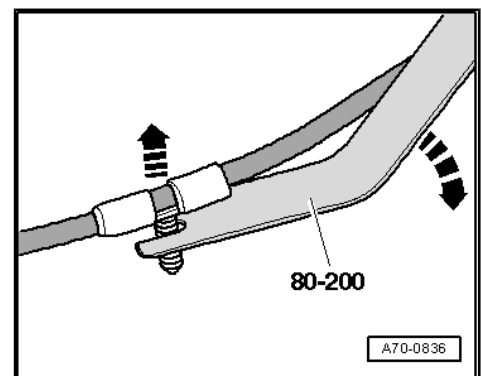
- ◆ **Do NOT touch connector contacts in gearbox connector with your hands. Doing so could cause static discharge to damage the control unit and the mechatronic unit irreparably.**



- Touch vehicle earth with bare hands to eliminate any static charge.
- Unplug electrical connector -2- for mechatronic unit for dual clutch gearbox - J743- .

All vehicles (continued):**Note**

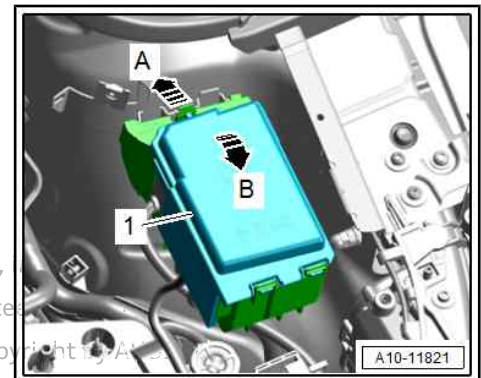
Use removal lever - 80-200- to lever out the wiring clips when performing the next work steps.



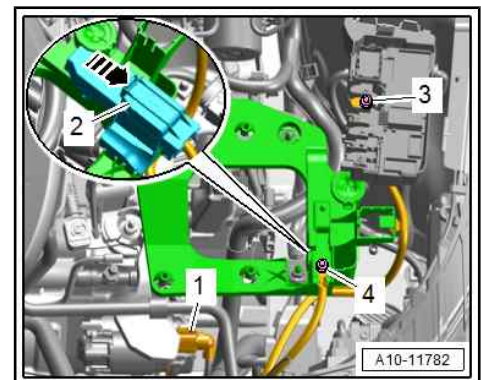
- Release catch -arrow A-, open cover -1- for electronics box in engine compartment -arrow B- and detach.



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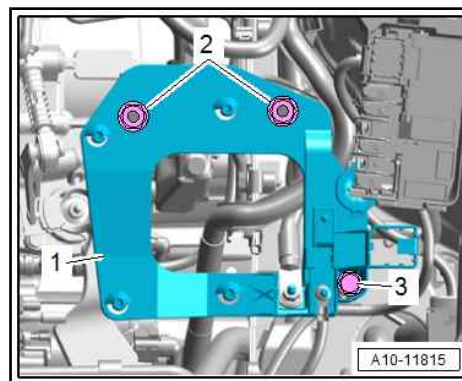


- Unplug electrical connector -1- at starter.
- Release catch -arrow- and open cover -2-.
- Remove B+ stud -4- and move electrical wiring clear.
- Remove nut -3-, detach electrical wiring and move clear.

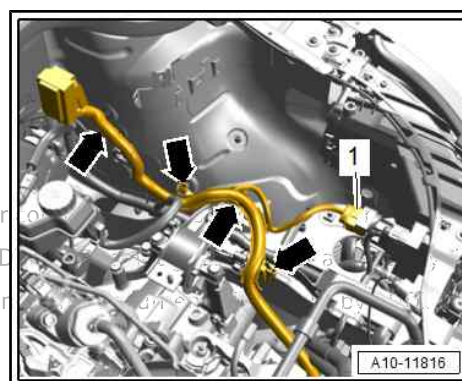




- Move electrical wiring clear.
- Remove nuts -2- and bolt -3-.
- Push bracket -1- for air cleaner housing slightly to one side.



- Remove engine control unit - J623- ⇒ [page 135](#) .
- Take electrical connector -1- out of bracket, unplug it and move electrical wiring clear.
- Move engine wiring harness clear -arrows- and lay on top of engine.

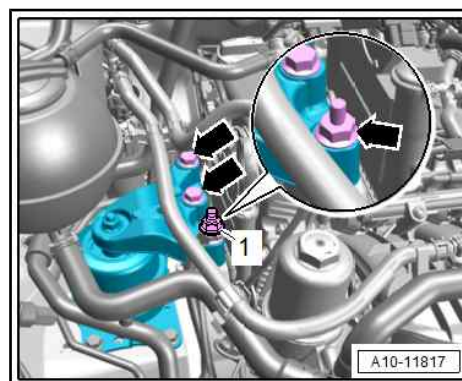


- Remove nut -1- and move earth wire clear.
- Loosen bolts -arrows- for support arm of engine mounting approx. 2 turns.

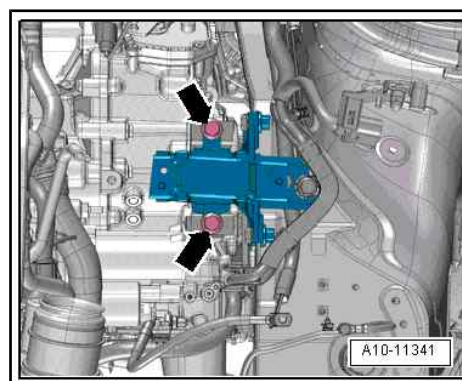


Note

Illustration shows the installation position on the 2.0 ltr. engine; it is similar on other engine versions.

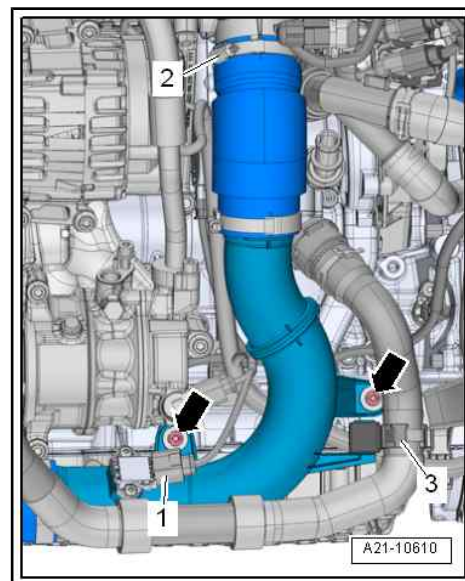


- Loosen bolts -arrows- for gearbox mounting approx. 2 turns.





- Release hose clip -2-.
- If fitted, move coolant hose -3- clear.
- Remove bolts -arrows-.
- Unplug electrical connector -1- from charge pressure sender - G31- .
- Detach air pipe (right-side).
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .

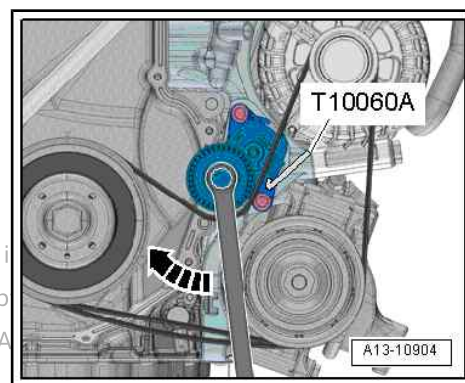
**Caution**

Running a used poly V-belt in the opposite direction could cause irreparable damage.

- ◆ *Before removing the poly V-belt, mark the direction of rotation with chalk or a felt-tip pen for re-installation.*

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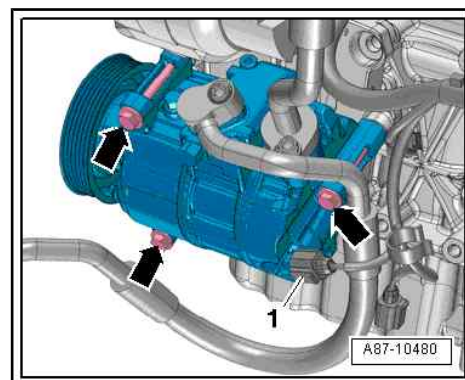
- To slacken poly V-belt, turn tensioner in clockwise direction -arrow-.
- Remove poly V-belt from pulley of air conditioner compressor and release tensioner.
- Unplug electrical connector -1- on air conditioner compressor regulating valve - N280- .

**WARNING**

Risk of injury caused by refrigerant.

- ◆ *The air conditioner refrigerant circuit must not be opened.*

- Remove bolts -arrows-.

**Caution**

Risk of damage to air conditioner compressor and refrigerant pipes/hoses.

- ◆ *Do NOT stretch, kink or bend refrigerant lines and hoses.*

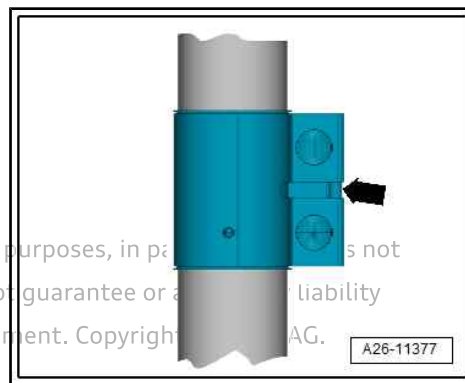
- Detach air conditioner compressor from bracket (refrigerant hoses remain connected) and tie up to right side.



- Loosen clamp -arrow- and push towards rear.
- Detach catalytic converter with front silencer.



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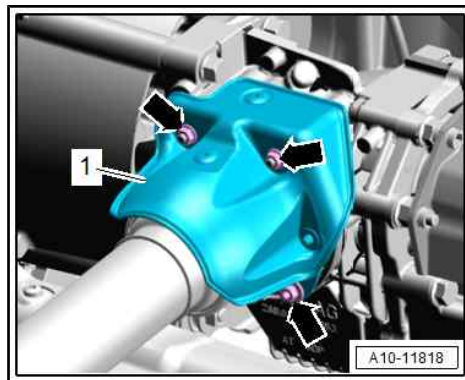


Vehicles with four-wheel drive:

- Remove nuts -arrows- and detach heat shield -1-.
- Press propshaft off bevel box and tie up ⇒ Rear final drive; Rep. gr. 39 ; Propshaft; Removing and installing propshaft .

All vehicles (continued):

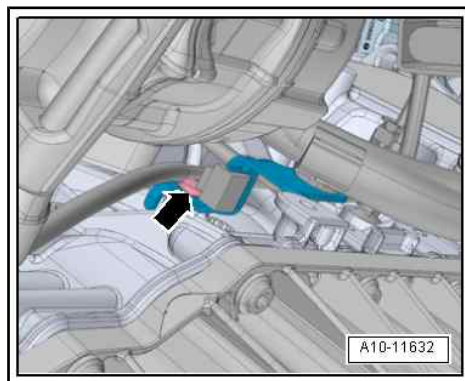
- Detach drive shafts (left and right) from flange shafts ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing drive shaft .
- Tie up drive shafts to rear.



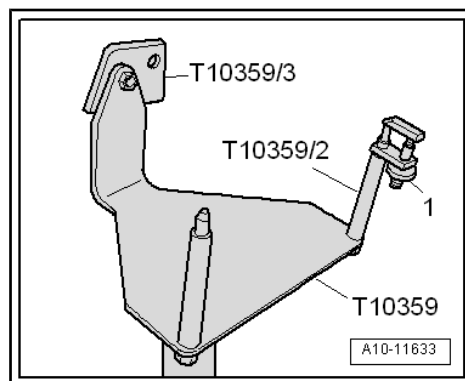
Note

Take care not to damage the surface coating of the drive shafts and propshaft.

- Remove bolt -arrow- and push bracket for electrical wiring harness to one side.

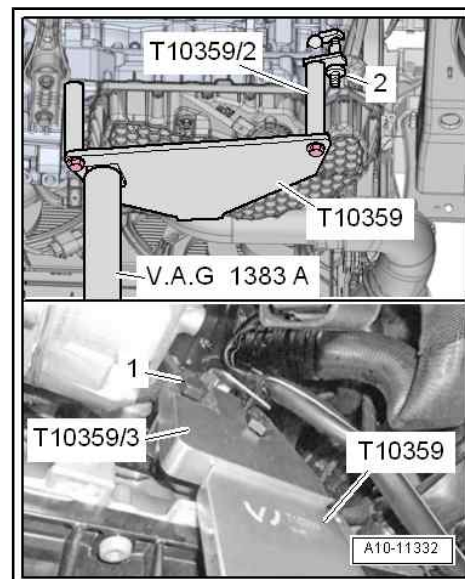


- Secure adapter -T10359/3- to engine support - T10359A- , as shown in illustration.
- Secure pin -T10359/2- to engine bracket with locking element -2- from gearbox support - 3282- .





- Use bolt -1- to fix engine bracket - T10359A- with 20 Nm to cylinder block and secure with locking element -2- from gearbox support - 3282- .
- Insert engine and gearbox jack in engine bracket - T10359A- and raise engine/gearbox assembly slightly.

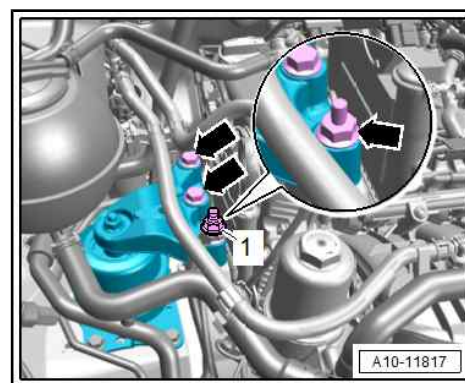


- Remove bolts -arrows- for support arm of engine mounting.



Note

Illustration shows the installation position on the 2.0 ltr. engine; it is similar on other engine versions.



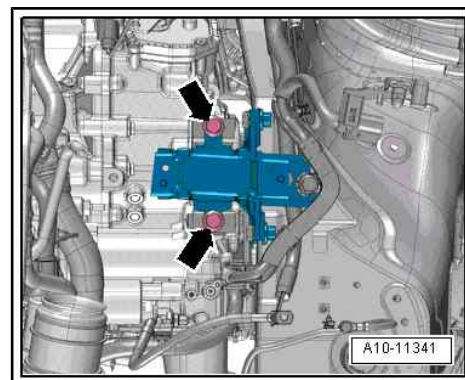
- Remove bolts -arrows- securing gearbox mounting.



Caution

Danger of damage to vacuum lines or electrical wiring and to engine compartment.

- ◆ Check that all vacuum lines and electrical wiring between engine, gearbox and body have been detached.
- ◆ Carefully guide engine/gearbox assembly out of engine compartment when lowering.



- Carefully lower engine/gearbox assembly.

1.2 Separating engine and gearbox

⇒ **"1.2.1 Separating engine and gearbox - vehicles with manual gearbox", page 15**

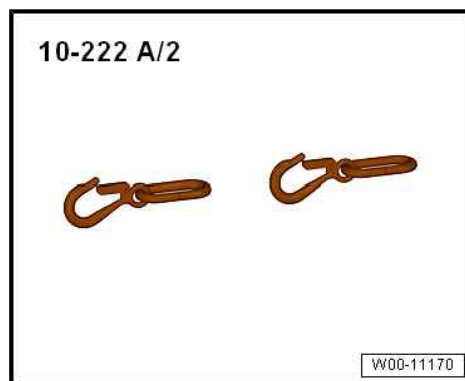
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1.2.1 Separating engine and gearbox - vehicles with manual gearbox

Special tools and workshop equipment required



◆ Hooks - 10-222A/2-



◆ Workshop hoist - VAS 6100-

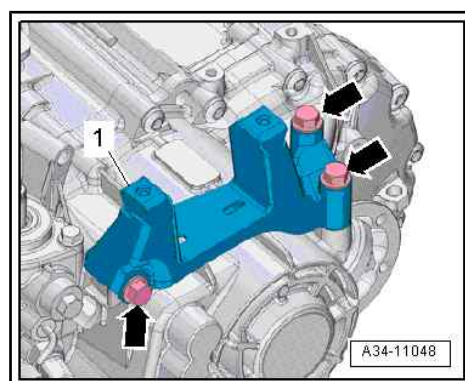


◆ Lifting tackle - T40013-



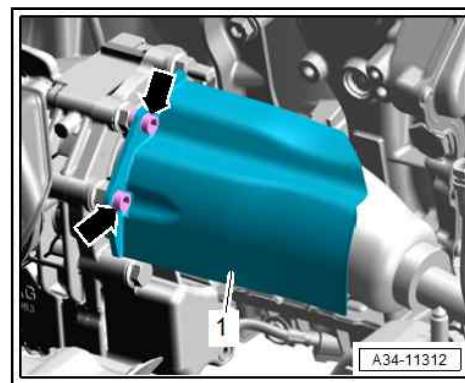
Procedure

- Engine/gearbox assembly removed and attached to engine support - T10359A- .
- Remove starter ⇒ Electrical system; Rep. gr. 27 ; Starter; Removing and installing starter .
- Unscrew bolts -arrows- and detach gearbox support -1-.

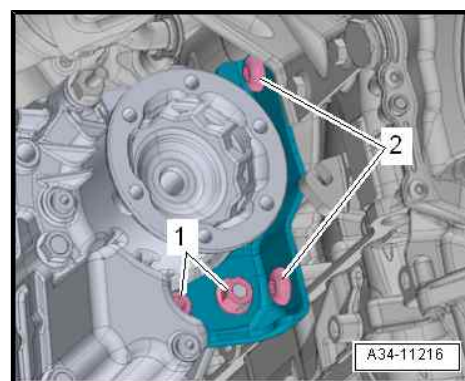




- Remove nuts -arrows- and detach heat shield -1- for drive shaft (right-side).

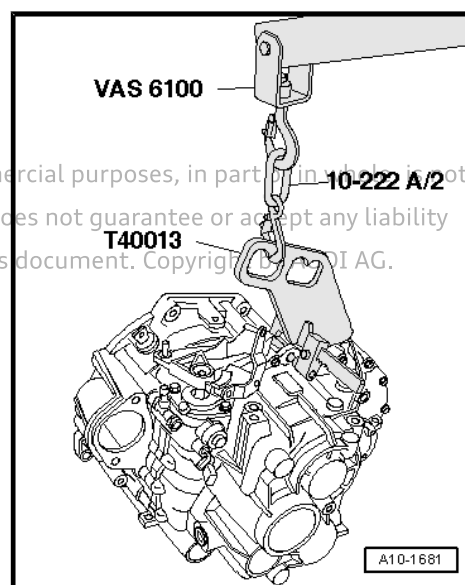


- Remove bolts -1, 2- and detach bracket for bevel box.

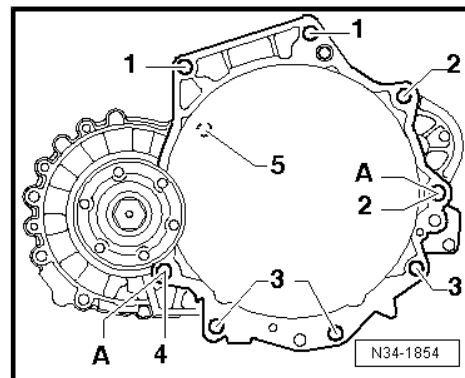


- Attach lifting tackle - T40013- to gearbox and close lock.
- Attach workshop hoist - VAS 6100- with hooks - 10-222A/2- to the lifting tackle.

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- Remove bolts -1, 3, 4- securing gearbox to engine.
- Detach gearbox from engine (pay attention to intermediate plate).





1.2.2 Separating engine and gearbox - vehicles with dual clutch gearbox

Special tools and workshop equipment required

- ◆ Shackle - 10-222A/12-



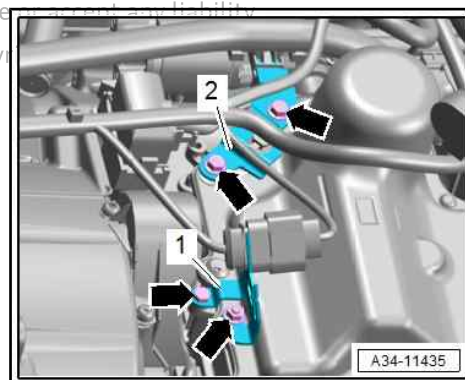
- ◆ Workshop hoist - VAS 6100-



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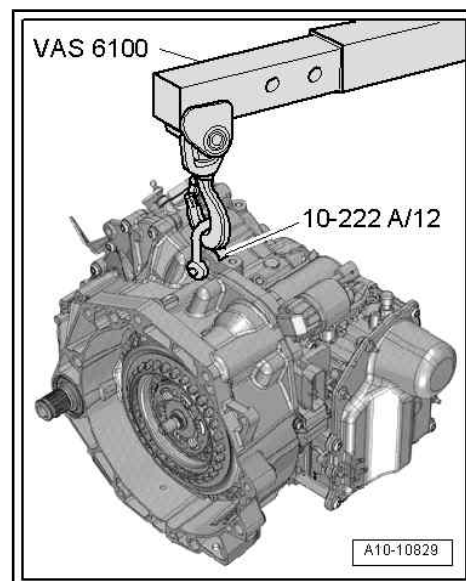
Procedure

- Engine/gearbox assembly removed and attached to engine bracket - T10359 A- .
- Remove bolts and nuts -arrows- and press bracket -1, 2- to one side.





- Secure gearbox to workshop hoist - 10-222A/12- using shackle - VAS 6100- .



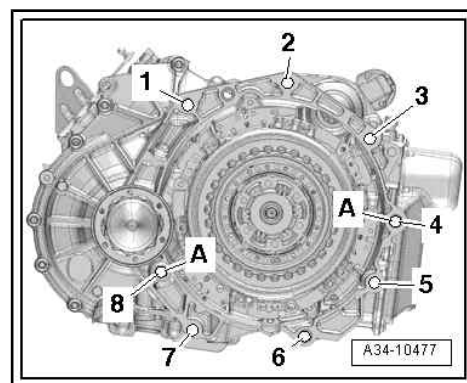
- Remove bolts -1, 3, 4, 5, 6, 7, 8- securing gearbox to engine.



Note

Bolt -3- is fitted in the installation opening of the starter.

- Detach gearbox from engine.



1.3 Securing engine to engine and gearbox support

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All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Removing and installing engine; Securing engine to engine and gearbox support .

1.4 Installing engine

Procedure

Installation is carried out in reverse order; note the following:



Note

- ◆ *Renew bolts tightened with specified tightening angle.*
 - ◆ *Renew self-locking nuts and bolts as well as seals, gaskets and O-rings.*
 - ◆ *Hose connections and air pipes/hoses must be free of oil and grease prior to fitting.*
 - ◆ *Secure all hose connections with correct type of hose clips (as original equipment) ⇒ Electronic parts catalogue .*
 - ◆ *Fit all cable ties in the original positions when installing.*
- Fit gearbox to engine ⇒ Gearbox; Rep. gr. 34 ; Removing and installing gearbox; Installing gearbox .

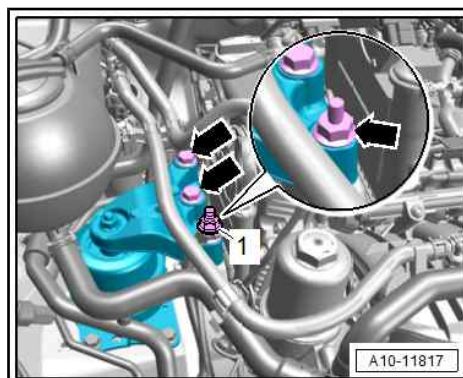


- Take up engine/gearbox assembly with engine bracket - T10359A- .
- Guide engine/gearbox assembly into body.
- Initially screw in bolts -arrows- for engine mounting by hand until they make contact.



Note

Illustration shows the installation position on the 2.0 ltr. engine; it is similar on other engine versions.



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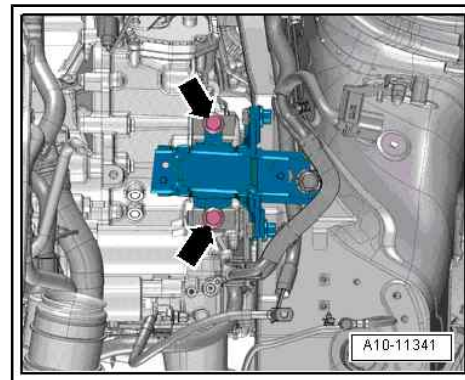


- Initially screw in bolts -arrows- for gearbox mounting by hand until they make contact.



Note

The bolts are tightened to final torque only after adjusting the assembly mountings ⇒ [page 23](#) .



- Remove engine bracket - T10359A- from engine.
- Install drive shafts ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Exploded view - drive shaft .
- Install cables with cable support bracket or selector lever cable ⇒ Gearbox; Rep. gr. 34 ; Selector mechanism; Exploded view selector cables .
- Attach pipe/hose assembly to bleeder connection ⇒ Gearbox; Rep. gr. 30 ; Clutch mechanism; Removing and installing lines for clutch hydraulics .
- Install propshaft ⇒ Rear final drive; Rep. gr. 39 ; Propshaft; Removing and installing propshaft .
- Install heat shield for drive shaft ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing heat shield for drive shaft .
- Install air conditioner compressor ⇒ Heating, air conditioning; Rep. gr. 87 ; Air conditioner compressor; Exploded view - air conditioner compressor drive unit .
- Install poly V-belt ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing poly V-belt .
- Install subframe ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Removing and installing subframe with steering rack .
- Electrical connections and routing ⇒ Electrical system; Rep. gr. 97 ; Relay carriers, fuse carriers, electronics boxes; Overview of fitting locations - relay carriers, fuse carriers, electronics boxes and ⇒ Electrical system; Rep. gr. 27 ; Jump start terminal; Exploded view - jump start terminal
- Connect fuel line ⇒ Fuel supply system; Rep. gr. 20 ; Plug-in connectors; Disconnecting plug-in connectors .
- Install catalytic converter and front silencer ⇒ [page 151](#) .
- Install air pipes
⇒ [“2.1 Exploded view - charge air system”, page 107](#) .
- Install air cleaner housing and air ducts ⇒ [page 121](#) .
- Install air hoses ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system .
- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Check oil level ⇒ Maintenance ; Booklet 819 .

**Caution**

Risk of irreparable damage to control units because of excessive voltage.

- ◆ ***Never use battery charging equipment for boost starting.***

- Connect coolant hoses with plug-in connector ⇒ [page 88](#) .

**Note**

Do not reuse coolant.

- Fill up with coolant ⇒ [page 63](#) .
- After renewing engine, chain elongation must be adapted. To do so, select 01 - Chain elongation adaption diagnosis in Guided Functions mode of ⇒ Vehicle diagnostic tester.
- After renewing engine, misfire adaptations must be reset. To do so, select 01 - Reset adaptations misfires in Guided Functions mode of ⇒ Vehicle diagnostic tester.

Tightening torques**Note**

- ◆ *Tightening torques apply only to lightly greased, oiled, phosphated or black-finished nuts and bolts.*
- ◆ *Additional lubricants such as engine or gear oil may be used, but do not use lubricants containing graphite.*
- ◆ *Do not use degreased parts.*
- ◆ *Tolerance for tightening torques: ± 15 %*

Component		Nm
Bolts/nuts	M6	10
	M7	15
	M8	20
	M10	40
	M12	65

- ◆ ⇒ [“2.1 Exploded view - assembly mountings”, page 23](#)
- ◆ Engine to gearbox ⇒ Gearbox; Rep. gr. 34 ; Removing and installing gearbox; Tightening torques for gearbox



2 Assembly mountings

⇒ [“2.1 Exploded view - assembly mountings”, page 23](#)

⇒ [“2.2 Supporting engine in installation position”, page 25](#)

⇒ [“2.3 Removing and installing engine mountings”, page 27](#)

⇒ [“2.4 Removing and installing gearbox mounting”, page 31](#)

⇒ [“2.5 Removing and installing pendulum support”, page 31](#)

2.1 Exploded view - assembly mountings

⇒ [“2.1.1 Exploded view - assembly mountings \(vehicles with manual gearbox\)”, page 23](#)

⇒ [“2.1.2 Exploded view - assembly mountings \(vehicles with dual clutch gearbox\)”, page 25](#)

2.1.1 Exploded view - assembly mountings (vehicles with manual gearbox)

1 - Engine support

- ☐ Removing and installing
⇒ [page 34](#)

2 - Bolt

- ☐ Renew after removing
- ☐ Tightening torque and sequence ⇒ [page 24](#)

3 - Engine mounting

- ☐ With support arm
- ☐ Removing and installing
⇒ [page 27](#)

4 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°

5 - Centre hex stud

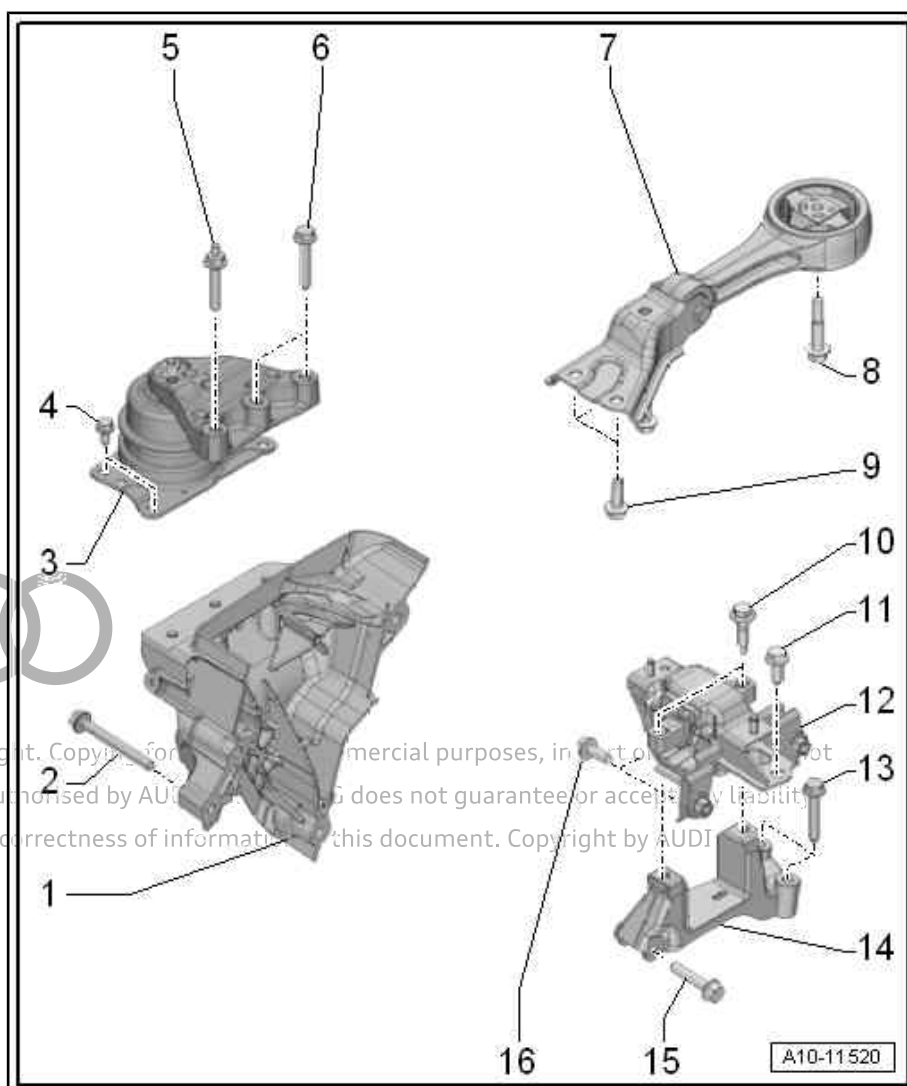
- ☐ Renew after removing
- ☐ 30 Nm +90°

6 - Bolt

- ☐ Renew after removing
- ☐ 30 Nm +90°

7 - Pendulum support

- ☐ Removing and installing





⇒ [page 31](#)

8 - Bolt

- ☐ Renew after removing
- ☐ 40 Nm +90°

9 - Bolt

- ☐ Renew after removing
- ☐ 30 Nm +90°

10, 11 - Bolt

- ☐ Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

12 - Gearbox mounting

- ☐ With support arm
- ☐ Removing and installing ⇒ [page 31](#)

13 - Bolt

- ☐ Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

14 - Gearbox support

15, 16 - Bolt

- ☐ Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

Engine support - tightening torque and sequence

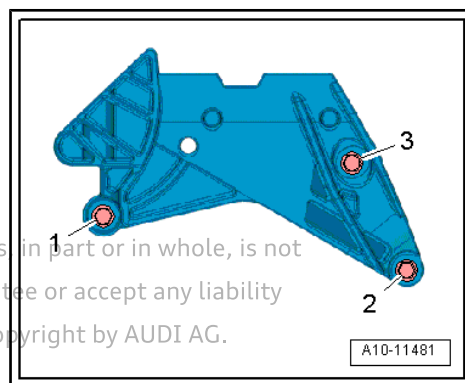


Note

Renew bolts tightened with specified tightening angle.

– Tighten bolts in stages in the sequence shown:

Stage	Bolts	Tightening torque/angle specification
1.	-1 ... 3-	7 Nm
2.	-1 ... 3-	40 Nm
3.	-1 ... 3-	Turn 90° further





2.1.2 Exploded view - assembly mountings (vehicles with dual clutch gearbox)

1 - Engine support

- ☐ Removing and installing
⇒ [page 34](#)

2 - Bolt

- ☐ Renew after removing
- ☐ Tightening torque and sequence ⇒ [page 24](#)

3 - Engine mounting

- ☐ With support arm
- ☐ Removing and installing
⇒ [page 27](#)

4 - Bolt

- ☐ Renew after removing
- ☐ 20 Nm +90°

5 - Centre hex stud

- ☐ Renew after removing
- ☐ 30 Nm +90°

6 - Bolt

- ☐ Renew after removing
- ☐ 30 Nm +90°

7 - Pendulum support

- ☐ Removing and installing
⇒ [page 31](#)

8 - Bolt

- ☐ Renew after removing
- ☐ 40 Nm +90°

9 - Bolt

- ☐ 2x
- ☐ Renew after removing
- ☐ 30 Nm +90°

10, 11 - Bolt

- ☐ Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

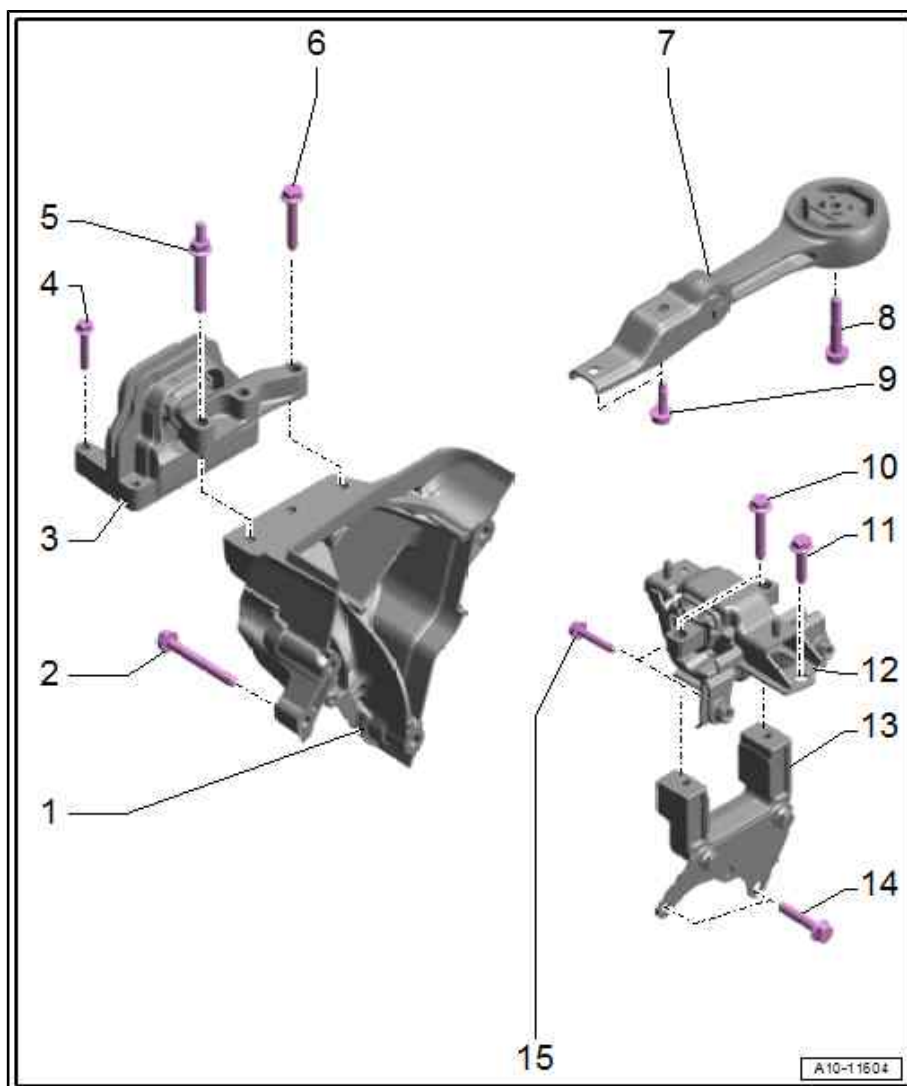
12 - Gearbox mounting

- ☐ With support arm
- ☐ Removing and installing ⇒ [page 31](#)

13 - Gearbox support

14, 15 - Bolt

- ☐ Tightening torque ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings

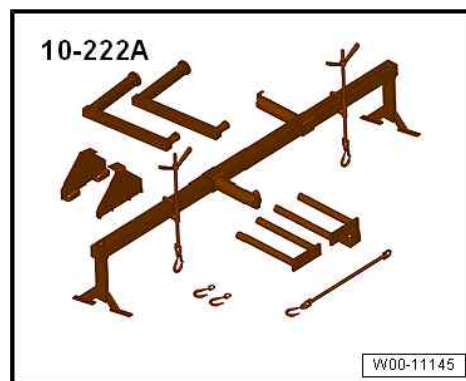


2.2 Supporting engine in installation position

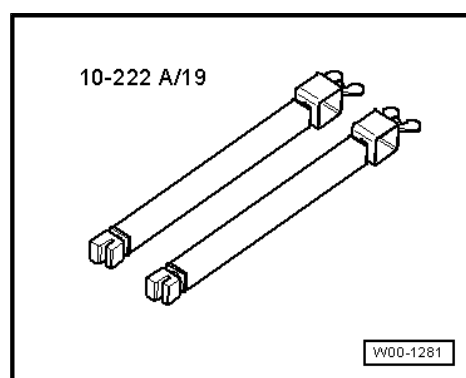
Special tools and workshop equipment required



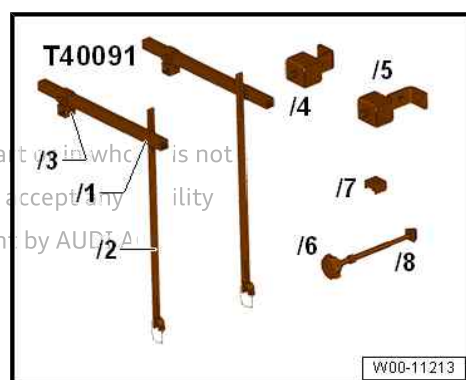
◆ Support bracket - 10-222A-



◆ Adapters - 10-222A/19-



◆ Engine support basic set - T40091-



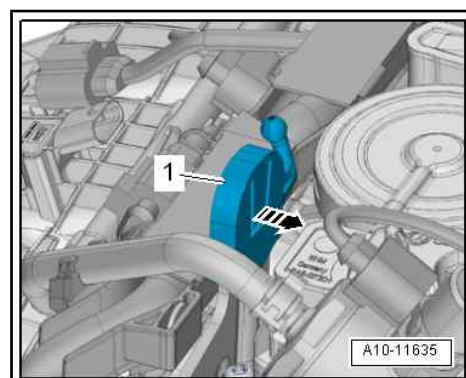
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Procedure

- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Remove filler neck for washer fluid reservoir ⇒ Electrical system; Rep. gr. 92 ; Windscreen washer system; Removing and installing washer fluid reservoir .

Engine code DAJB:

- Release catch -arrow- and pull off mounting -1- for engine cover panel.





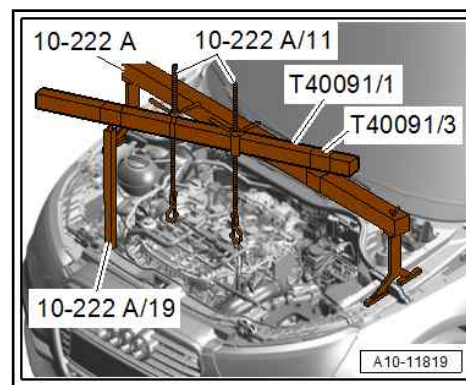
All engine versions (continued):

- Set up support bracket - 10-222A- on top edges of body flanges (left and right) and longitudinal member (right-side), as shown in illustration.
- Engage hooks of spindles -10-222A/11- in engine lifting eyes (left and right).
- Tighten spindles slightly to take up weight of engine/gearbox assembly; do not lift.

Assembling

Assembly is performed in reverse sequence; note the following:

- Install filler neck for washer fluid reservoir ⇒ Electrical system; Rep. gr. 92 ; Windscreen washer system; Removing and installing washer fluid reservoir .
- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .



2.3 Removing and installing engine mountings

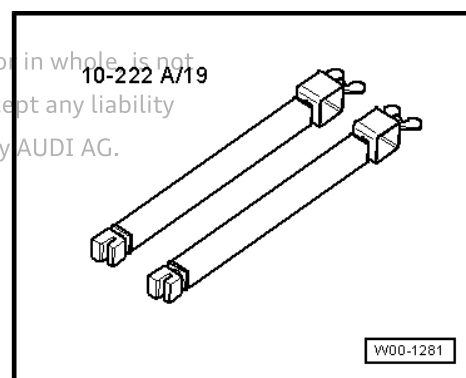
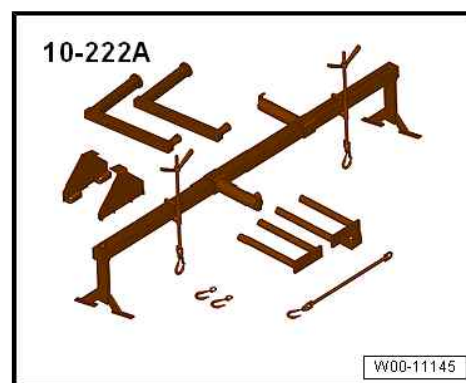
Special tools and workshop equipment required

- ◆ Support bracket - 10-222A-



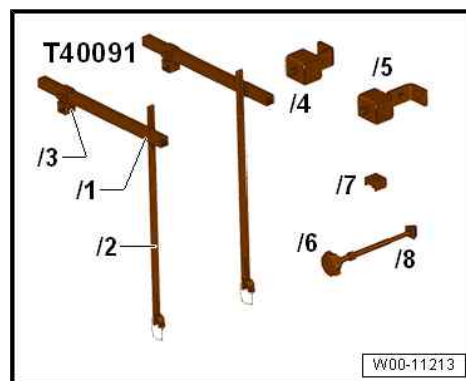
- ◆ Adapters - 10-222A/19-

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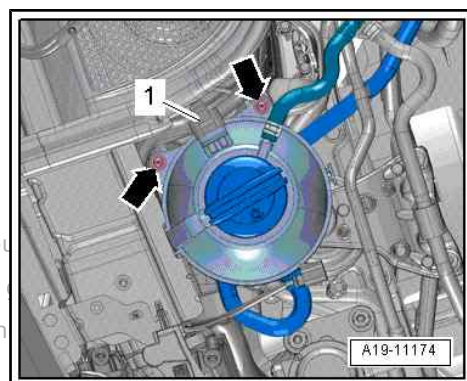




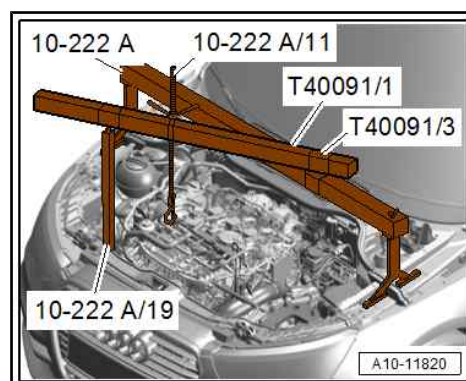
◆ Engine support basic set - T40091-

**Removing**

- Remove engine cover panel → Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Remove bolts -arrows-.
- Detach electrical connector -1- for coolant shortage indicator switch - F66- and move coolant expansion tank to side.
- Remove filler neck for washer fluid reservoir → Electrical system; Rep. gr. 92 ; Windscreen washer system; Removing and installing washer fluid reservoir .



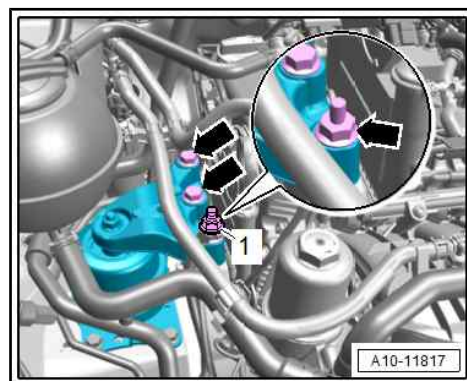
- Set up support bracket - 10-222A- on top edges of body flanges (left and right) and longitudinal member (right-side), as shown in illustration.
- Attach hook of spindle - 10-222A/11- to engine lifting eye (right-side).
- Tighten spindle slightly to take up weight of engine/gearbox assembly; do not lift.



- Remove nut -1- and move earth wire clear.
- Remove bolts -arrows- for support arm of engine mounting.

**Note**

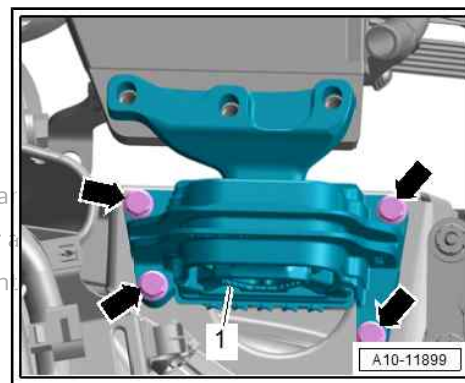
Illustration shows the installation position on the 2.0 ltr. engine; it is similar on other engine versions.



**Engine code DAJB:**

- Remove bolts -arrows- and detach engine mounting -1-.

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**Engine code CWZA:****WARNING**

Risk of accident.

- ◆ **Do NOT loosen nut -1- for support arm of engine mounting.**

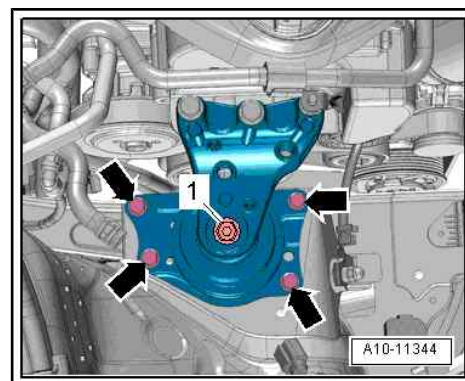
- Remove bolts -arrows- and detach engine mounting.

Installing

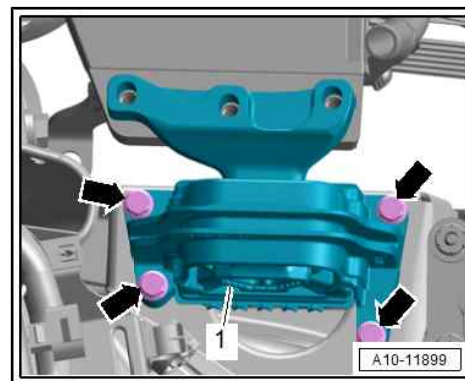
Installation is carried out in reverse order; note the following:

**Note**

Renew bolts tightened with specified tightening angle.

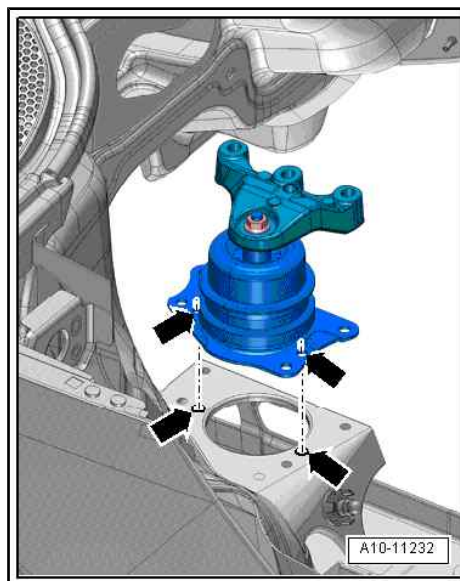
**Engine code DAJB:**

- Fit engine mounting -1- on longitudinal member.
- Initially screw in bolts -arrows- by hand until they make contact.
- Tighten bolts.



**Engine code CWZA:**

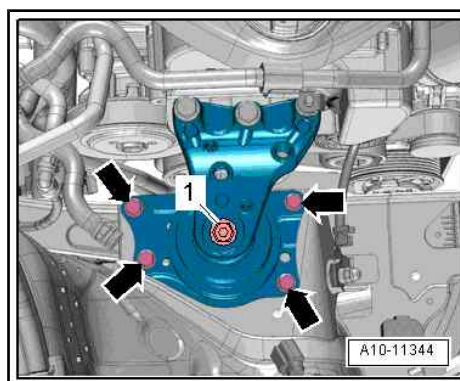
- Fit engine mounting on longitudinal member.
- The positioning holes -arrows- must align. If necessary, check with suitable drill bit.



- Initially screw in bolts -arrows- by hand until they make contact.
- Tighten bolts.

**WARNING***Risk of accident.*

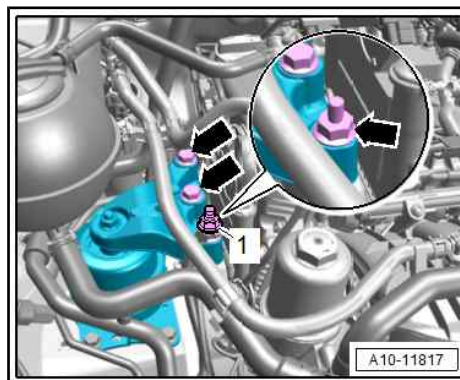
- ◆ **Do NOT loosen nut -1- for support arm of engine mounting.**

**All engine versions (continued):**

- Initially hand-tighten bolts -arrows- for support arm of engine mounting until they make contact.
- The support arm must not turn when you tighten the bolts.
- Tighten bolts and nut -1-.

**Note**

Illustration shows the installation position on the 2.0 ltr. engine; it is similar on other engine versions.



- Install filler neck for washer fluid reservoir ⇒ Electrical system; Rep. gr. 92 ; Windscreen washer system; Removing and installing washer fluid reservoir .
- Electrical connections and routing ⇒ Electrical system; Rep. gr. 97 ; Relay carriers, fuse carriers, electronics boxes; Overview of fitting locations - relay carriers, fuse carriers, electronics boxes and ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

Tightening torques

- ◆ ⇒ **"2.1 Exploded view - assembly mountings", page 23**
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2.4 Removing and installing gearbox mounting

Removing

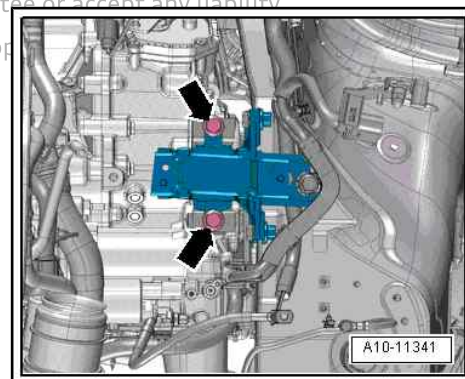
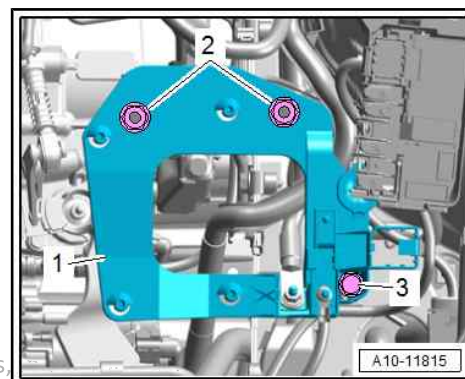
- Remove air cleaner housing ⇒ [page 121](#) .
- Support engine in installation position ⇒ [page 25](#) .
- Remove nuts -2- and bolt -3-.
- Push bracket -1- for air cleaner housing slightly to one side.



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- Remove bolts -arrows- securing gearbox mounting.

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- Remove bolts -arrows A, B, C- and detach gearbox mounting.

Installing

Installation is carried out in reverse order; note the following:



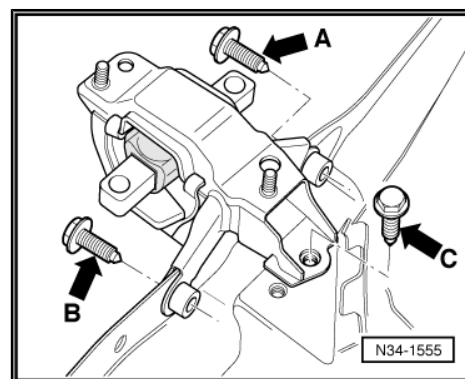
Note

Renew bolts tightened with specified tightening angle.

- Install air cleaner housing ⇒ [page 121](#) .

Tightening torques

- ◆ ⇒ Gearbox; Rep. gr. 34 ; Assembly mountings; Exploded view - assembly mountings



2.5 Removing and installing pendulum support

Removing

- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .



Vehicles with manual gearbox:

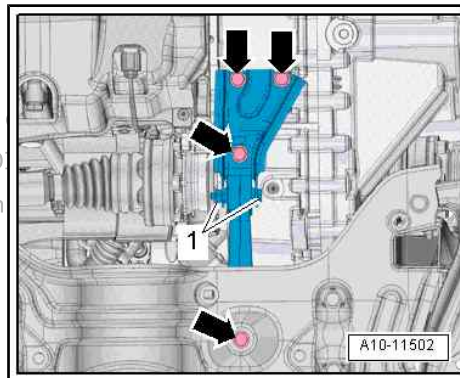


WARNING

Risk of accident.

- ◆ **Do NOT loosen bolted connection -1-**

- Remove bolts -arrows- and detach pendulum support.



Vehicles with dual clutch gearbox:



WARNING

Risk of accident.

- ◆ **Do NOT loosen bolted connection -1-**

- Remove bolts -arrows- and detach pendulum support.

Installing

Installation is carried out in reverse order; note the following:



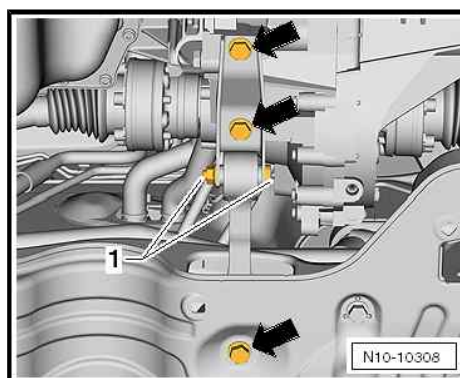
Note

Renew bolts tightened with specified tightening angle.

- Secure pendulum support first to gearbox and then to sub-frame.

Tightening torques

- ◆ ⇒ [“2.1 Exploded view - assembly mountings”, page 23](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation





3 Engine cover panel

All procedures can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel .



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13 – Crankshaft group

1 Cylinder block (pulley end)

⇒ [“1.1 Exploded view - cylinder block \(pulley end\)”, page 34](#)

⇒ [“1.2 Removing and installing poly V-belt”, page 34](#)

⇒ [“1.3 Removing and installing poly V-belt tensioner”, page 34](#)

⇒ [“1.4 Removing and installing vibration damper”, page 34](#)

⇒ [“1.5 Removing and installing bracket for ancillaries”, page 34](#)

⇒ [“1.6 Removing and installing engine support”, page 34](#)

1.1 Exploded view - cylinder block (pulley end)

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); Exploded view - cylinder block (pulley end) .

1.2 Removing and installing poly V-belt

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing poly V-belt .

1.3 Removing and installing poly V-belt tensioner

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing poly V-belt tensioner .

1.4 Removing and installing vibration damper

Removing

- Remove wheel housing liner (front right) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing vibration damper .

Tightening torques

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

1.5 Removing and installing bracket for ancillaries

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Cylinder block (pulley end); Removing and installing bracket for ancillaries .

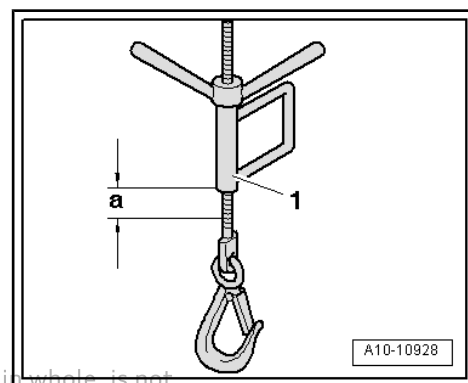
1.6 Removing and installing engine support

Removing

- Remove engine mounting ⇒ [page 27](#) .
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- Using spindle - 10-222A/11- -item 1-, raise engine through distance -a-.
- Distance -a- = approx. 30 mm.



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- Unscrew bolts 1, 2 and 3- and detach engine support.

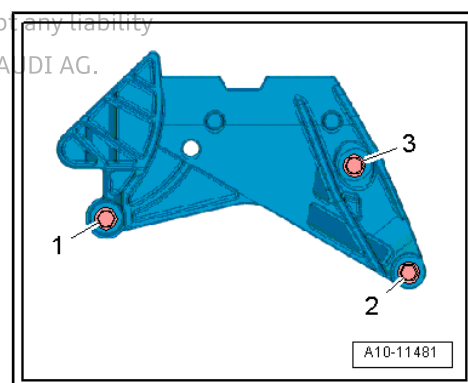
Installing

Installation is carried out in reverse order; note the following:

- Install engine mountings $\Rightarrow$ [page 27](#) .

Tightening torques

- ◆ $\Rightarrow$ Fig. ““Engine support - tightening torque and sequence”“, [page 24](#)





2 Cylinder block (gearbox end)

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13; Cylinder block (gearbox end) .



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3 Crankshaft

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Crankshaft .



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4 Balance shaft

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13; Balance shaft .



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5 Pistons and conrods

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 13 ; Pistons and conrods .



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15 – Cylinder head, valve gear

1 Timing chain cover

⇒ [“1.1 Exploded view - timing chain cover”, page 40](#)

⇒ [“1.2 Removing and installing timing chain cover”, page 40](#)

⇒ [“1.3 Renewing oil seal for vibration damper”, page 43](#)

1.1 Exploded view - timing chain cover

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Timing chain cover; Exploded view - timing chain cover .

1.2 Removing and installing timing chain cover

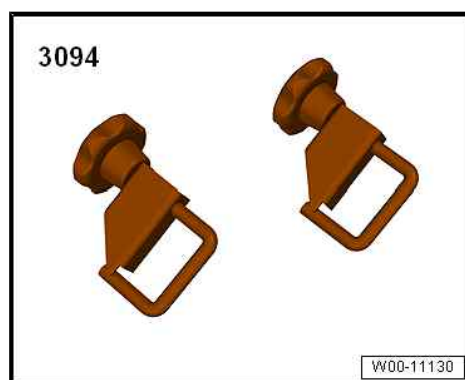
⇒ [“1.2.1 Removing and installing timing chain cover \(top\)”, page 40](#)

⇒ [“1.2.2 Renewing timing chain cover \(bottom\)”, page 43](#)

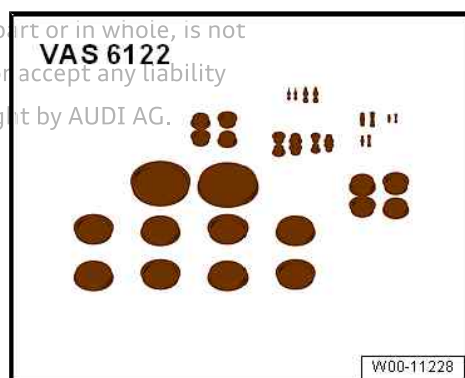
1.2.1 Removing and installing timing chain cover (top)

Special tools and workshop equipment required

- ◆ Hose clamps up to 25 mm - 3094-



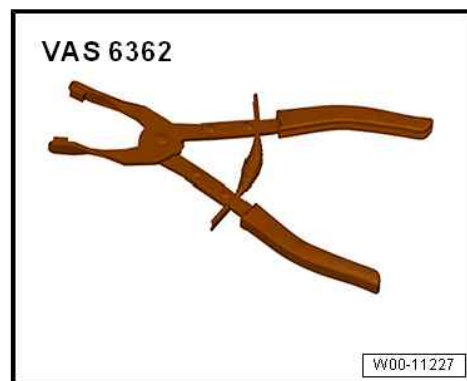
- ◆ Engine bung set - VAS 6122-



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- ◆ Hose clip pliers - VAS 6362-

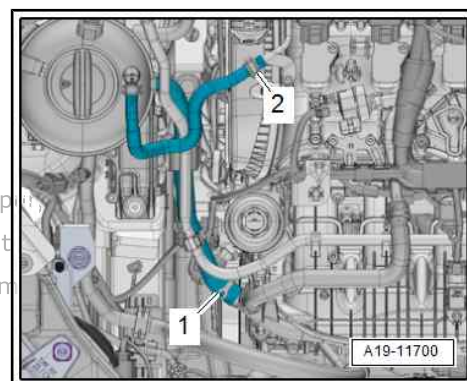
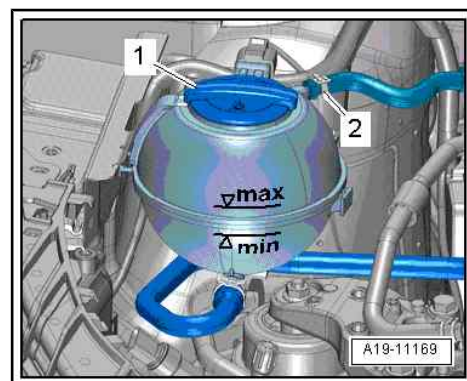


- ◆ Socket, 4 mm - T10370-



Removing

- Engine cold.
- Open filler cap -1- on coolant expansion tank briefly to relieve residual pressure in cooling system.
- Release hose clip -2- and disconnect coolant hose.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .



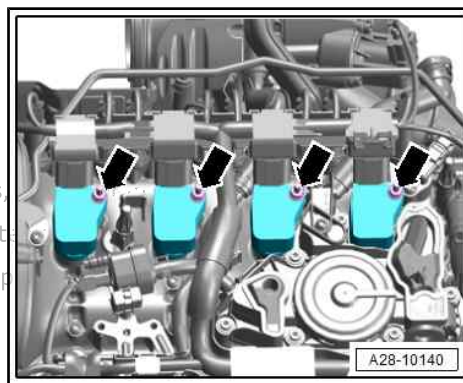
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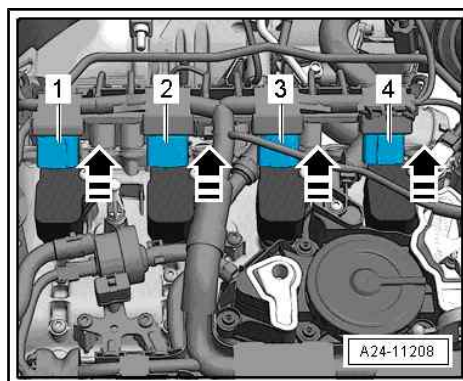
- Remove nuts -arrows- and move earth wires clear.



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- Release electrical connectors -1 ... 4- and unplug from ignition coils simultaneously -arrows-.



- Release fastener -arrow-, detach wiring duct -4- upwards from bracket and press forwards.

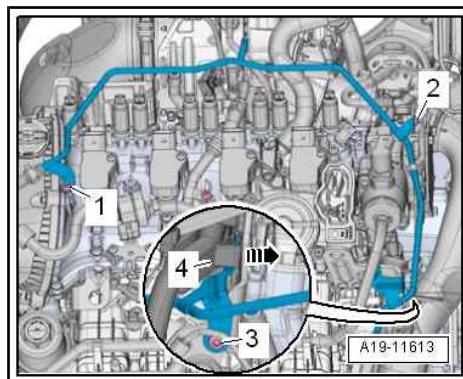


Caution

Risk of damage to coolant line

◆ ***Do not attempt to bend coolant line to a different shape.***

- Remove bolts -1, 2, 3- and carefully press coolant pipe slightly towards left.



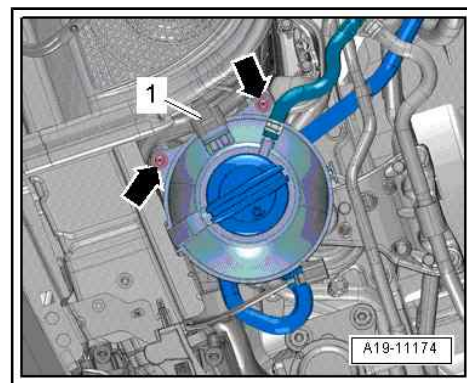


- Remove bolts -arrows-.
- Unplug electrical connector -1- for coolant shortage indicator switch - F66- and move coolant expansion tank to side.
- Remove engine mounting ⇒ [page 27](#) .

**Note**

For subsequent work, unscrew lower bolts for timing chain cover (bottom) through engine support using socket, AF 4 mm - T10370- .

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Timing chain cover; Removing and installing timing chain cover .

**Installing****Additional work:****Note**

Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .

- Install engine mountings ⇒ [page 27](#) .

Tightening torques

- ◆ ⇒ [“3.1 Exploded view - coolant pipes”, page 82](#)

1.2.2 Renewing timing chain cover (bottom)

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Timing chain cover; Removing and installing timing chain cover .

1.3 Renewing oil seal for vibration damper

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Timing chain cover ; Renewing oil seal for vibration damper.



2

Chain drive

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Chain drive .

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3 Cylinder head

⇒ [“3.1 Exploded view - cylinder head”, page 45](#)

⇒ [“3.2 Removing and installing cylinder head”, page 45](#)

⇒ [“3.3 Checking compression”, page 50](#)

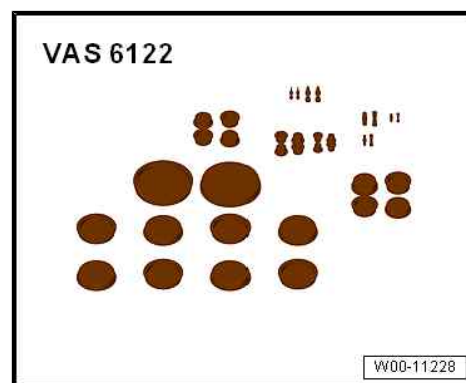
3.1 Exploded view - cylinder head

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15; Cylinder head; Exploded view - cylinder head .

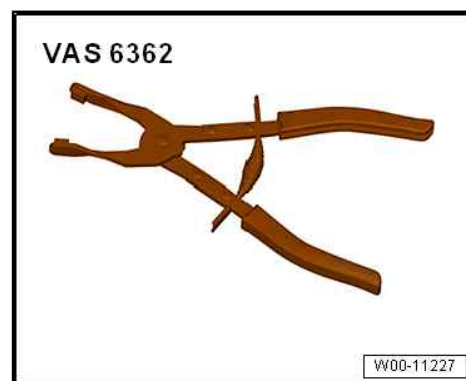
3.2 Removing and installing cylinder head

Special tools and workshop equipment required

◆ Engine bung set - VAS 6122-



◆ Hose clip pliers - VAS 6362-



Removing



Note

Fit cable ties in the original positions when installing.

– Drain coolant ⇒ [page 60](#) .



Caution

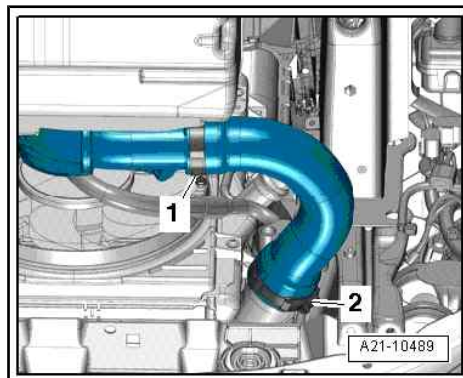
Risk of damage to valves and piston crowns.

◆ ***Do not turn the crankshaft after the camshafts have been removed.***

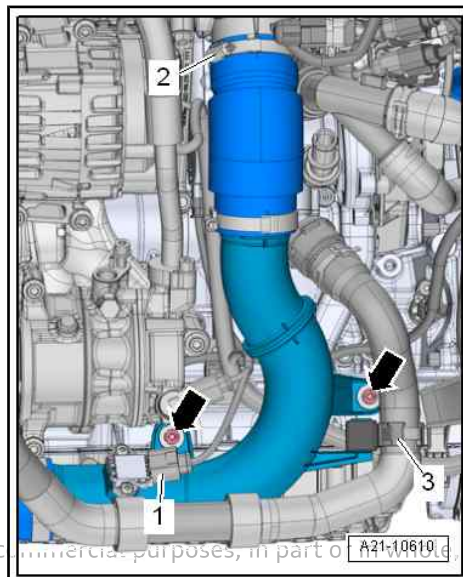
– Remove camshafts ⇒ [page 51](#) .



- Bring engine support and engine mounting into installation position and tighten bolts to 20 Nm.
- Remove engine support bracket.
- Remove catalytic converter with front silencer → [page 151](#) .
- Remove Lambda probe - G39- → [page 133](#) .
- Release hose clip -2- and detach air hose from charge air cooler.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .

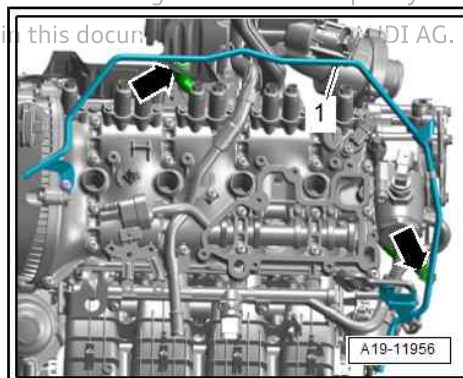


- Release hose clip -2-.
- If fitted, move coolant hose -3- clear.
- Remove bolts -arrows-.
- Unplug electrical connector -1- from charge pressure sender - G31- .
- Detach air pipe (right-side).



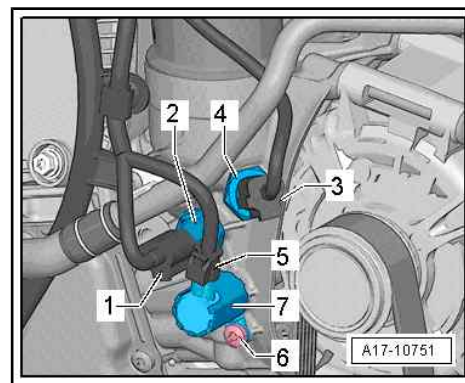
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- Release hose clips -arrows- and disconnect coolant hoses.
- Swivel coolant line -1- to side.

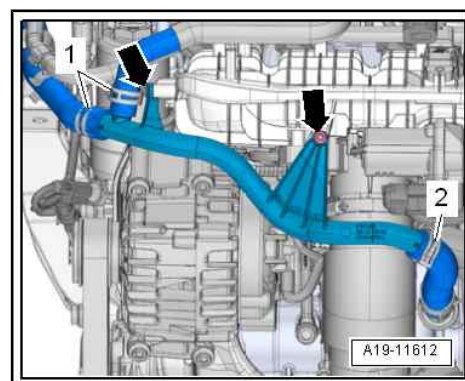




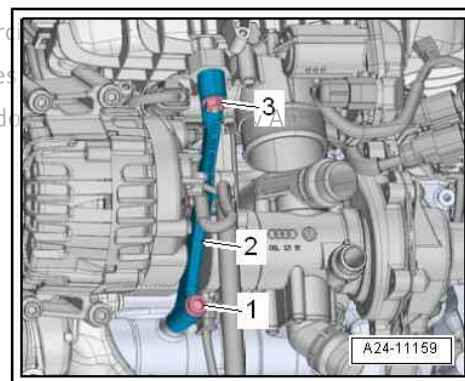
- Unplug electrical connectors:
- 1 - For oil pressure switch - F22- -item 2-
- 3 - For oil pressure switch for reduced oil pressure - F378-
-item 4-
- 5 - For piston cooling jet control valve - N522- -item 7-



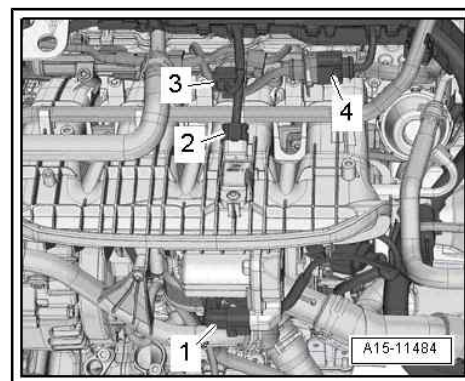
- Remove bolts -arrows- at coolant pipe (front).



- Move electrical wiring harness clear.
- Unscrew bolt -1- and nut -3- and remove bracket -2- for intake manifold.

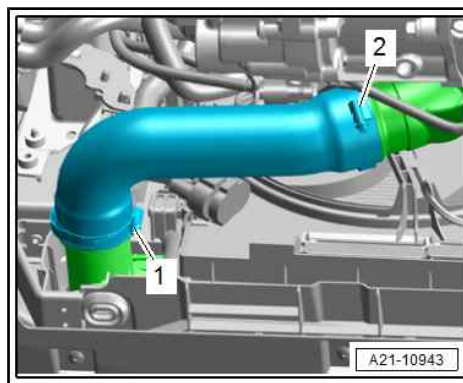


- Unplug electrical connectors:
- 1 - For throttle valve module - J338-
- 2 - For intake air temperature sender - G42- / intake manifold pressure sender - G71-
- 3 - Vehicles with MPI engine: for fuel pressure sender for low pressure - G410-
- Detach electrical connector -4- from bracket.
- Move electrical wiring harness clear and press to one side.





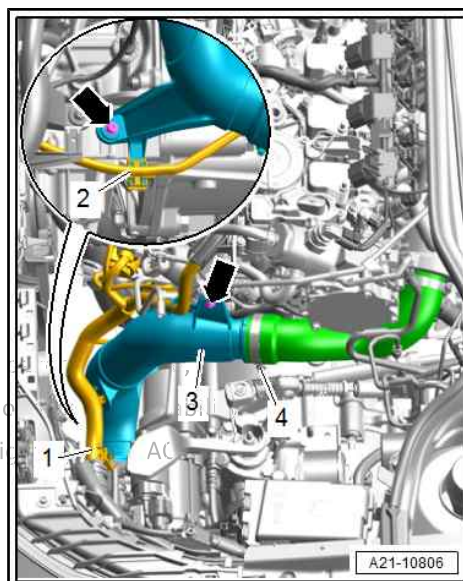
- Release hose clip -1- and detach air hose from charge air cooler.



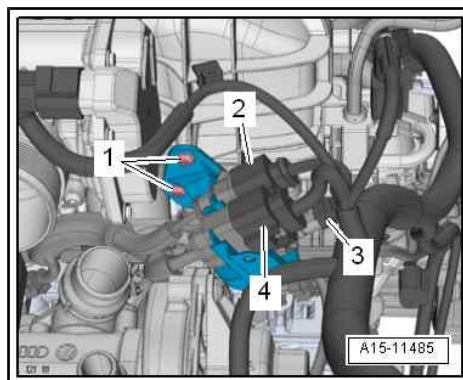
- Move electrical wiring harnesses -1, 2- clear at air pipe -3-.
- Loosen screw-type clip -4-.
- Remove bolts -arrows- and detach air pipe.



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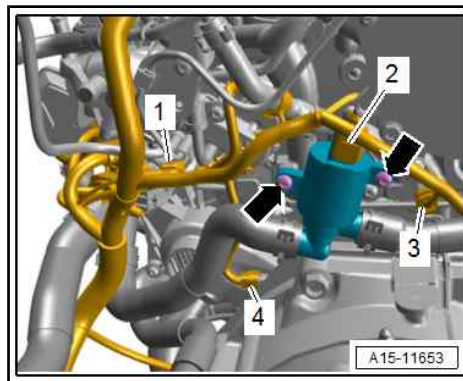


- Remove electrical connector -3- for knock sensor 1 - G61- from bracket and unplug connector.
- Unplug electrical connectors -2, 4-.



- Unplug electrical connectors and move wiring clear:

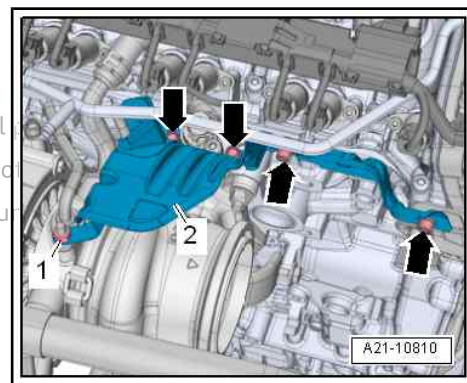
- 1 - For intake manifold flap valve - N316-
 - 2 - For coolant shut-off valve - N82-
 - 3 - For coolant temperature sender - G62-
 - 4 - For stage 3 oil pressure switch - F447-
- Remove bolts -arrows-.





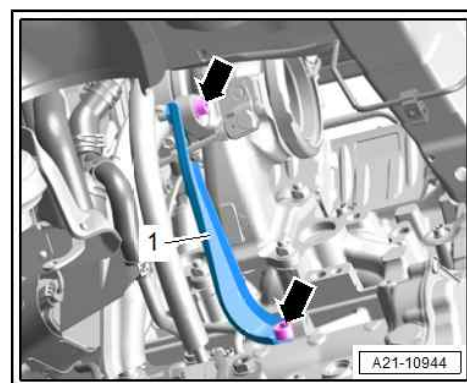
- Remove bolts -arrows- and nut -1-.
- Detach heat shield -2-.

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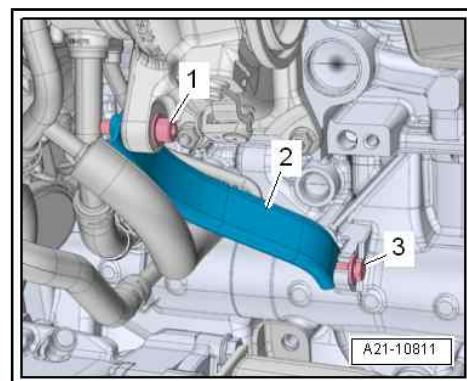
Bracket for turbocharger, version 1:

- Unscrew bolts -arrows- and detach bracket -1- for turbocharger.



Bracket for turbocharger, version 2:

- Remove bolt -1- and loosen bolt -3-.
- Remove bracket -2- for turbocharger.





All engine versions (continued):

- Remove nuts -arrows-.
- Detach turbocharger from cylinder head and tie up to rear.

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Cylinder head; Removing and installing cylinder head .

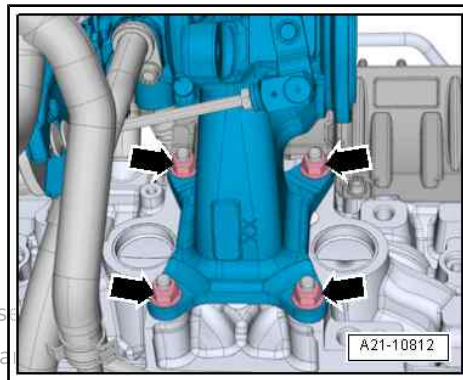
Installing

Additional work:



Note

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Secure all hose connections with correct type of hose clips (as original equipment) ⇒ *Electronic parts catalogue* .

- Install front exhaust pipe with catalytic converter
⇒ [page 151](#) .
- Install Lambda probe - G39- ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Lambda probe; Removing and installing Lambda probe .

Tightening torques

- ◆ ⇒ [“3.1 Exploded view - coolant pipes”, page 82](#)
- ◆ ⇒ [“1.1 Exploded view - turbocharger”, page 98](#)
- ◆ ⇒ [“2.1 Exploded view - charge air system”, page 107](#)
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Exploded view - intake manifold

3.3 Checking compression

All procedures can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Cylinder head; Checking compression .



4 Valve gear

⇒ [“4.1 Exploded view - valve gear”, page 51](#)

⇒ [“4.2 Removing and installing camshaft”, page 51](#)

⇒ [“4.3 Installing ball for slider”, page 52](#)

⇒ [“4.4 Removing and installing actuators for camshaft adjustment”, page 52](#)

⇒ [“4.5 Removing and installing camshaft control valve 1 N205”, page 52](#)

⇒ [“4.6 Removing and installing valve stem oil seals”, page 52](#)

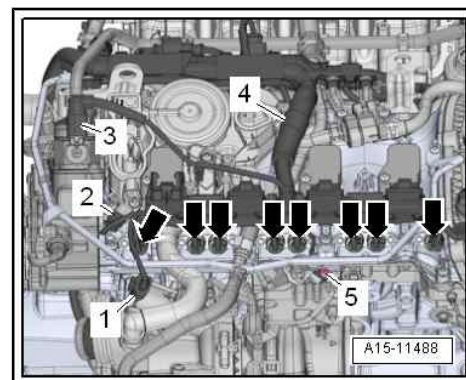
4.1 Exploded view - valve gear

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear .

4.2 Removing and installing camshaft

Removing

- Remove air cleaner housing ⇒ [page 121](#) .
- Remove coolant pipe (top) ⇒ [page 83](#) .
- Remove ignition coils ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Removing and installing ignition coils with output stages .
- Unplug electrical connectors:
 - 1 - For turbocharger air recirculation valve - N249-
 - 2 - For Hall sender 3 - G300-
 - 3 - For fuel pressure regulating valve - N276- / fuel metering valve - N290-
- Unplug electrical connectors -arrows- at actuators for camshaft adjustment.
- Remove bolt -5- and move earth wire clear.
- Move electrical wiring harness clear at clip -4- and swivel it forwards.
- Release fasteners -arrow-, detach wiring duct -4- upwards from bracket and press forwards.

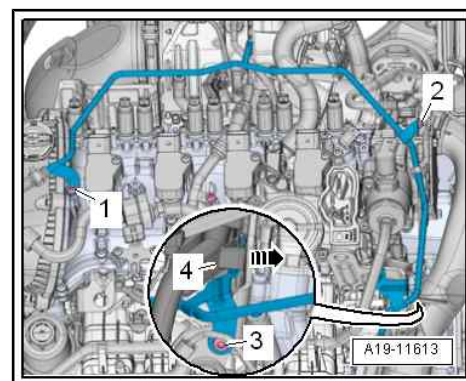


Caution

Risk of damage to coolant line

◆ *Do not attempt to bend coolant line to a different shape.*

- Remove bolts -1, 2, 3- and carefully swivel coolant line towards rear slightly.





- Unplug electrical connector -1- for activated charcoal filter solenoid valve 1 - N80- and detach solenoid valve from bracket.
- Press release tabs on crankcase breather hose -2- and detach hose.
- Remove bolts -arrows- and detach oil separator.
- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Removing and installing camshaft .

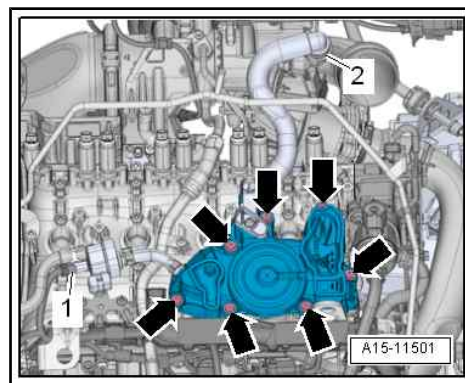
Installing

Additional work:

- Install ignition coils ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Removing and installing ignition coils with output stages .
- Install coolant pipe (top) ⇒ [page 83](#) .
- Install air cleaner housing ⇒ [page 121](#) .

Tightening torques

- ◆ ⇒ Servicing 4-cylinder engine, 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Crankcase breather; Exploded view - crankcase breather system
- ◆ ⇒ [“3.1 Exploded view - coolant pipes”, page 82](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation



4.3 Installing ball for slider

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Installing ball for slider .

4.4 Removing and installing actuators for camshaft adjustment

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Removing and installing actuators for camshaft adjustment .

4.5 Removing and installing camshaft control valve 1 - N205-

The description applies to camshaft control valve 1 - N205- and exhaust camshaft control valve 1 - N318- .

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Removing and installing camshaft control valve 1 - N205- .

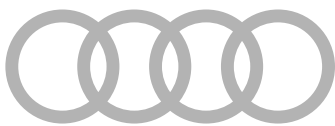
4.6 Removing and installing valve stem oil seals

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Removing and installing valve stem oil seals .



5 Inlet and exhaust valves

All procedures can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Inlet and exhaust valves .



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17 – Lubrication

1 Sump/oil pump

⇒ [“1.1 Exploded view - sump/oil pump”, page 54](#)

⇒ [“1.2 Engine oil”, page 54](#)

⇒ [“1.3 Removing and installing sump \(bottom section\)”, page 54](#)

⇒ [“1.4 Removing and installing oil pump”, page 54](#)

⇒ [“1.5 Removing and installing sump \(top section\)”, page 54](#)

⇒ [“1.6 Removing and installing oil level and oil temperature sender G266”, page 54](#)

1.1 Exploded view - sump/oil pump

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Sump/oil pump; Exploded view - sump/oil pump .

1.2 Engine oil

- ◆ Refer to ⇒ Maintenance ; Booklet 819 for instructions on draining and filling up engine oil, checking oil level, removing and installing oil filter element.
- ◆ Oil capacities, oil specifications and viscosity grades ⇒ Maintenance tables .

1.3 Removing and installing sump (bottom section)

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Sump/oil pump; Removing and installing sump (bottom section) .

1.4 Removing and installing oil pump

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Sump/oil pump; Removing and installing oil pump .

1.5 Removing and installing sump (top section)

All procedures are described in ⇒ Servicing 4-cylinder engine, 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Sump/oil pump; Removing and installing sump (top section) .

1.6 Removing and installing oil level and oil temperature sender - G266-

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Sump/oil pump; Removing and installing oil level and oil temperature sender - G266- .



2 Engine oil cooler

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Engine oil cooler .



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3 Crankcase breather

All procedures and components can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Crankcase breather .



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4 Oil filter/oil pressure switches

⇒ [“4.1 Exploded view - oil filter”, page 57](#)

⇒ [“4.2 Exploded view - oil pressure switches/oil pressure control”, page 57](#)

⇒ [“4.3 Removing and installing oil pressure switch F22 ”, page 57](#)

⇒ [“4.4 Removing and installing oil pressure switch for reduced oil pressure F378 ”, page 57](#)

⇒ [“4.5 Removing and installing stage 3 oil pressure switch F447 ”, page 57](#)

⇒ [“4.6 Removing and installing valve for oil pressure control N428 ”, page 58](#)

⇒ [“4.7 Removing and installing piston cooling jet control valve N522 ”, page 58](#)

⇒ [“4.8 Checking oil pressure”, page 58](#)

4.1 Exploded view - oil filter

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches; Exploded view - oil filter .

4.2 Exploded view - oil pressure switches/oil pressure control

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches; Exploded view - oil pressure switches/oil pressure control .

4.3 Removing and installing oil pressure switch - F22-

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches; Removing and installing oil pressure switch - F22- .

4.4 Removing and installing oil pressure switch for reduced oil pressure - F378-

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches; Removing and installing oil pressure switch for reduced oil pressure - F378- .

4.5 Removing and installing stage 3 oil pressure switch - F447-

Removing

- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Remove air cleaner housing ⇒ [page 121](#) .

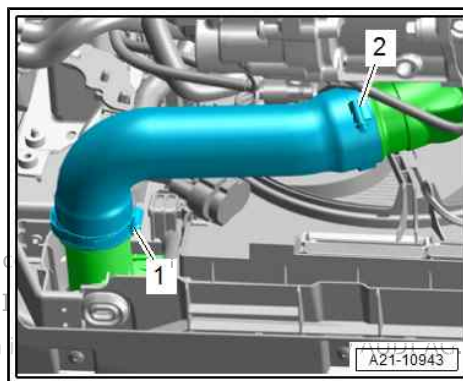
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- Release hose clip -1- and detach air hose from charge air cooler.



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- Move electrical wiring harnesses -1, 2- clear at air pipe -3-.
- Loosen screw-type clip -4-.
- Remove bolts -arrows- and detach air pipe.

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches ; Removing and installing stage 3 oil pressure switch - F447- .

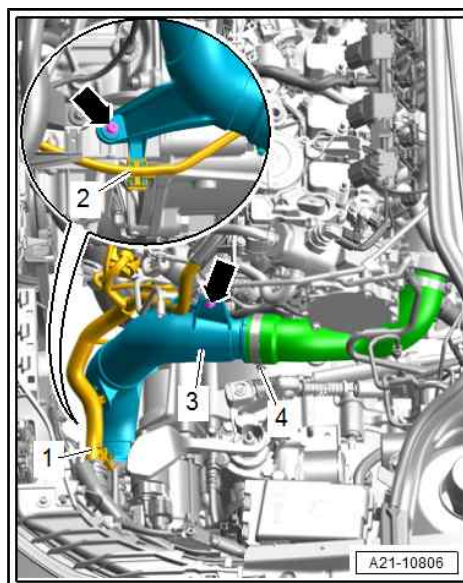
Installing

Additional work:

- Install air cleaner housing ⇒ [page 121](#) .

Tightening torques

- ♦ ⇒ [“2.1 Exploded view - charge air system”, page 107](#)
- ♦ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system
- ♦ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation



4.6 Removing and installing valve for oil pressure control - N428-

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches; Removing and installing valve for oil pressure control - N428- .

4.7 Removing and installing piston cooling jet control valve - N522-

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches ; Removing and installing piston cooling jet control valve - N522- .

4.8 Checking oil pressure

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches; Checking oil pressure .



19 – Cooling

1 Cooling system/coolant

⇒ "1.1 Connection diagram - coolant hoses", page 59

⇒ "1.2 Checking cooling system for leaks", page 60

⇒ "1.3 Draining and filling cooling system", page 60

1.1 Connection diagram - coolant hoses



Note

- ◆ Blue = Large coolant circuit
- ◆ Red = Small coolant circuit
- ◆ Brown = Heating circuit
- ◆ Arrows show direction of coolant flow.

1 - Radiator

2 - Radiator outlet coolant temperature sender - G83-

3 - Actuator for engine temperature regulation - N493-

4 - Cylinder head/cylinder block

5 - Restrictor

6 - Coolant expansion tank

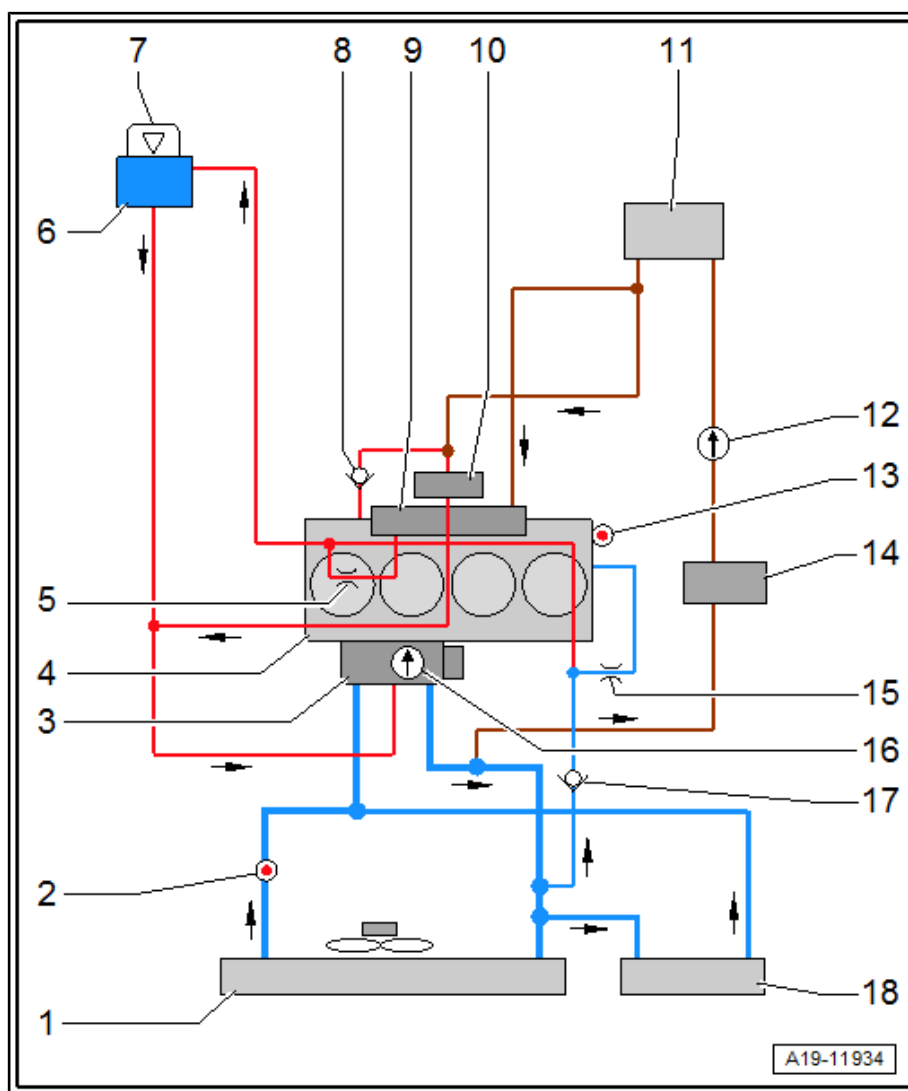
7 - Filler cap for expansion tank

- Checking pressure relief valve ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19; Cooling system/coolant; Checking cooling system for leaks

8 - Non-return valve

9 - Exhaust manifold

- Integrated in cylinder head





10 - Turbocharger

11 - Heat exchanger for heater

12 - Continued coolant circulation pump - V51-

13 - Coolant temperature sender - G62-

14 - Coolant shut-off valve - N82-

15 - Restrictor

16 - Coolant pump

17 - Non-return valve

18 - Auxiliary radiator

□ Engine code CWZA only

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1.2 Checking cooling system for leaks

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19; Cooling system/coolant; Checking cooling system for leaks .

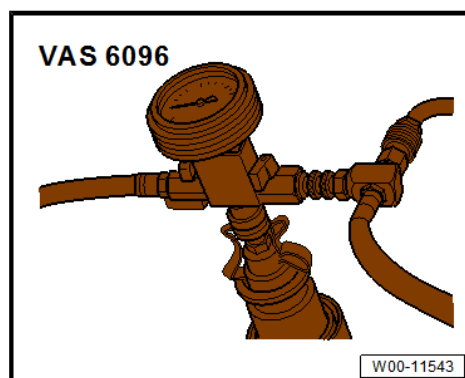
1.3 Draining and filling cooling system

Special tools and workshop equipment required

- ◆ Adapter for cooling system tester - V.A.G 1274/8-

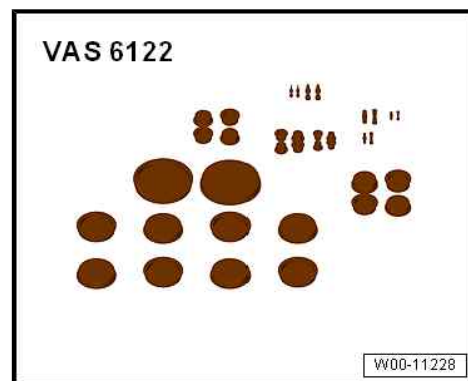


- ◆ Cooling system charge unit - VAS 6096-





- ◆ Engine bung set - VAS 6122-



- ◆ Coolant collecting system - VAS 5014- or drip tray for workshop hoist - VAS 6208-

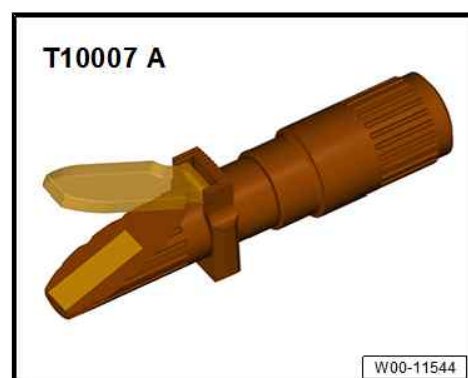


- ◆ Hose clip pliers - VAS 6362-

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- ◆ Refractometer - T10007A-



- ◆ Protective gloves
- ◆ Safety goggles



Draining



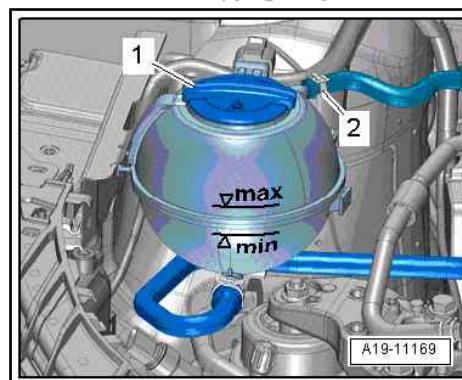
WARNING

*The cooling system is under pressure when the engine is hot.
Risk of scalding due to hot steam and hot coolant.*

Danger of scalding skin and other parts of the body.

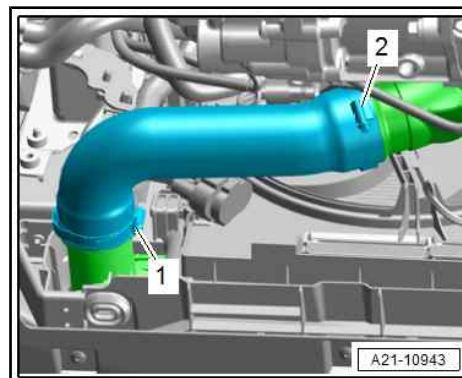
- *Put on protective gloves.*
- *Put on safety goggles.*
- *Cover filler cap on expansion tank with a cloth and open carefully to release pressure.*

- Open filler cap -1- on coolant expansion tank.
- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

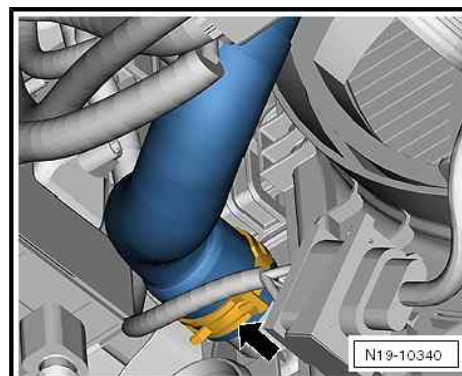


Engine code DAJB:

- Release hose clips -1, 2- and detach air hose.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .



- Place coolant collecting system - VAS 5014- or drip tray for workshop hoist - VAS 6208- underneath.
- Release hose clip -arrow-, disconnect coolant hose (bottom) from radiator and drain off coolant.

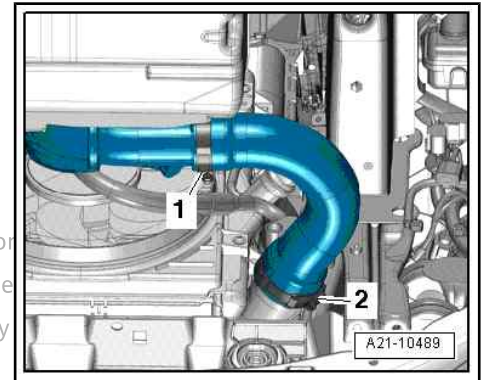




Engine code CWZA:

- Release hose clips -1, 2- and detach air hose.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .

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- Unplug electrical connector -1-.
- Place coolant collecting system - VAS 5014- or drip tray for workshop hoist - VAS 6208- underneath.
- Lift retaining clip -3-, disconnect coolant hose (bottom right) from radiator and drain off coolant.
- Reconnect coolant hoses (version with plug-in connector) ⇒ [page 88](#) .

Coolant specifications

All information can be found in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system .

Recommended mixture ratio for coolant

- Coolant (40 %) and distilled water (60 %) for frost protection to -25 °C
- Coolant (50 %) and distilled water (50 %) for frost protection to -36 °C
- Coolant ⇒ Electronic parts catalogue (ETKA)

Filling cooling system

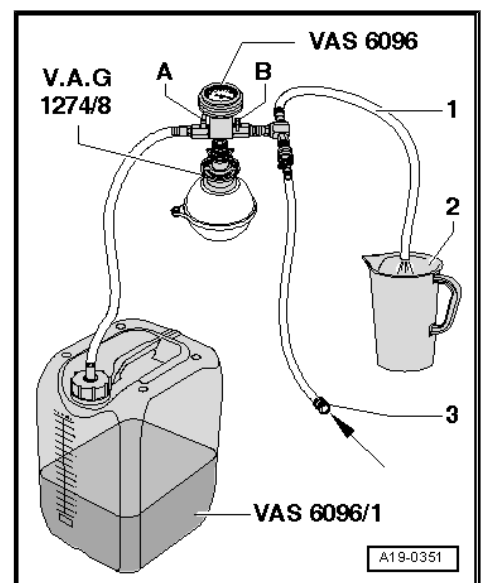
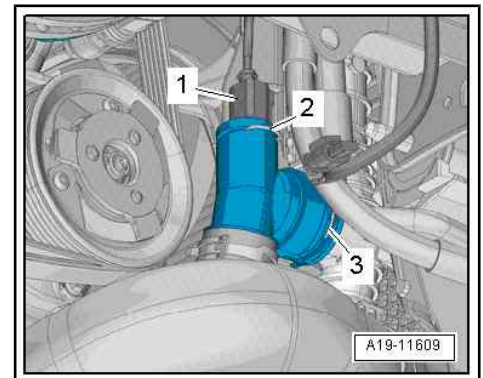
- Fill reservoir of cooling system charge unit - VAS 6096- with 10 litres of premixed coolant (according to recommended ratio). For recommended ratio, refer to ⇒ [page 63](#) .
- Fit adapter for cooling system tester - V.A.G 1274/8- onto coolant expansion tank.
- Attach cooling system charge unit - VAS 6096- to adapter - V.A.G 1274/8- .
- Run vent hose -1- into a small container -2-.



Note

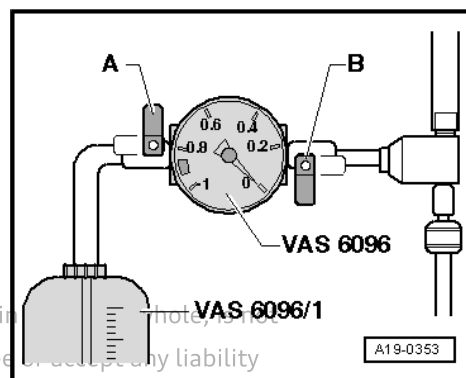
The vented air draws along a small amount of coolant, which should be collected.

- Close both valves -A- and -B- (turn lever at right angles to direction of flow).
- Connect hose -3- to compressed air supply.
- Pressure: 7 ... 10 bar.
- Open valves in coolant circuit; select 01 - Coolant circuit bleeding routine in Guided Functions ⇒ vehicle diagnostic tester .





- Open valve -B- by setting lever in direction of flow.
- The suction jet pump generates a partial vacuum in the cooling system; the needle on the gauge should move into the green zone.
- Also briefly open valve -A- (turn lever in direction of flow) so that hose on reservoir of cooling system charge unit - VAS 6096- can fill with coolant.
- Close valve -A- again.
- Leave valve -B- open for another 2 minutes.
- The suction jet pump continues to generate a partial vacuum in the cooling system; the needle on the gauge should remain in the green zone.
- Close valve -B-.
- The needle on the gauge should stop in the green zone. The vacuum level in the cooling system is then sufficient for subsequent filling.



Note

- ◆ If the needle does not reach the green zone, repeat the process.
- ◆ Check cooling system for leaks if the vacuum is not maintained.
- Detach compressed air hose.
- Open valve -A-.
- The vacuum in the cooling system causes the coolant to be drawn out of the reservoir of the cooling system charge unit - VAS 6096- ; the cooling system is then filled.
- Detach cooling system charge unit - VAS 6096- from coolant expansion tank.



- Top up coolant to "max" mark.
- Install air hose ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system .
- Set temperature to "HI".
- Set fresh air blower to lowest setting.
- Switch off air conditioner compressor (press **AC** button).
- LED in button should not light up.
- Start engine and run for 2 minutes (maximum) at approx. 1500 rpm.
- Top up coolant to overflow hole on expansion tank with engine running.
- Close filler cap on coolant expansion tank (make sure it engages).
- Allow engine to run at idling speed until both large coolant hoses at radiator become warm.
- Switch off engine.

Checking coolant level



WARNING

The cooling system is under pressure when the engine is hot. Risk of scalding due to hot steam and hot coolant.

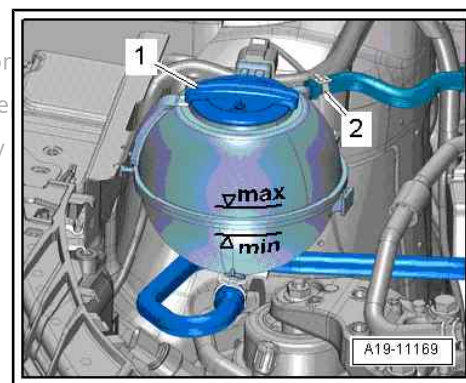
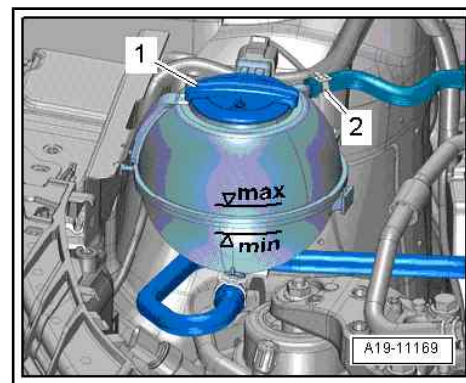
Danger of scalding skin and other parts of the body.

- *Put on protective gloves.*
- *Put on safety goggles.*
- *Cover filler cap on expansion tank with a cloth and open carefully to release pressure.*

- The coolant level must be between the "min" and "max" markings when the engine is cold.
- The coolant level can be at the "max" marking when the engine is warm.
- Top up with coolant again if necessary.

Tightening torques

- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation





2 Coolant pump/thermostat assembly

⇒ [“2.1 Exploded view - coolant pump/thermostat”, page 66](#)

⇒ [“2.2 Exploded view - electric coolant pump”, page 66](#)

⇒ [“2.3 Exploded view - coolant temperature senders”, page 69](#)

⇒ [“2.4 Removing and installing electric coolant pump”, page 70](#)

⇒ [“2.5 Removing and installing coolant pump”, page 73](#)

⇒ [“2.6 Removing and installing toothed belt for coolant pump”, page 74](#)

⇒ [“2.7 Removing and installing actuator for engine temperature regulation N493”, page 76](#)

⇒ [“2.8 Removing and installing coolant temperature sender G62”, page 76](#)

⇒ [“2.9 Removing and installing radiator outlet coolant temperature sender G83”, page 77](#)

⇒ [“2.10 Removing and installing coolant valves”, page 79](#)

2.1 Exploded view - coolant pump/thermostat

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly; Exploded view - coolant pump/thermostat .

2.2 Exploded view - electric coolant pump

Continued coolant circulation pump - V51- , coolant shut-off valve - N82- , version 1

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**1 - Coolant hose****2 - Coolant shut-off valve - N82-**

- ☐ Removing and installing
⇒ [page 79](#)

3 - Continued coolant circulation pump - V51-

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

4 - Bracket

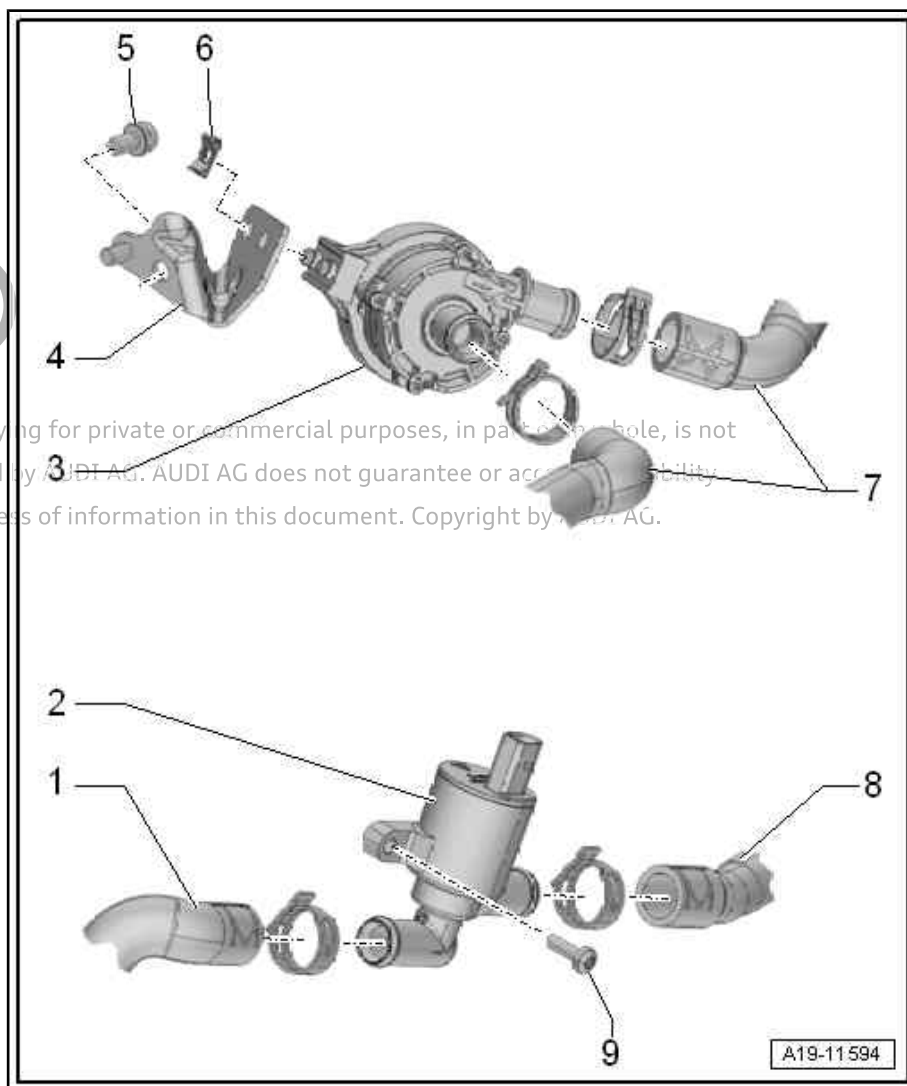
- ☐ For continued coolant circulation pump - V51-

5 - Bolt

- ☐ 20 Nm

6 - Clip**7 - Coolant hoses****8 - Coolant hose****9 - Bolt**

- ☐ 9 Nm



Continued coolant circulation pump - V51- , coolant shut-off valve
- N82- , version 2



1 - Coolant hose

2 - Coolant shut-off valve - N82-

- ❑ Removing and installing
⇒ [page 79](#)

3 - Coolant hose

4 - Continued coolant circulation pump - V51-

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

5 - Bracket

- ❑ For continued coolant circulation pump - V51-

6 - Bolt

- ❑ 40 Nm

7 - Grommet

8 - Spacer bush

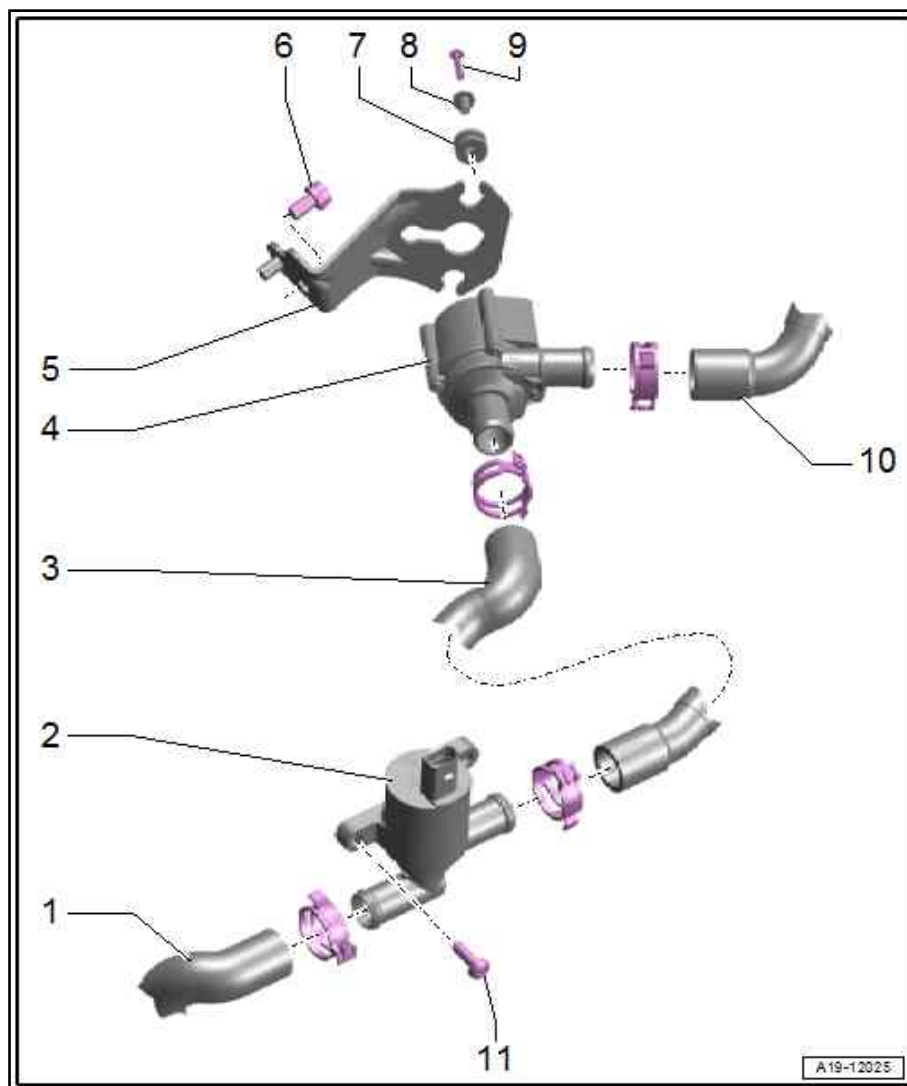
9 - Bolt

- ❑ 1.5 Nm

10 - Coolant hose

11 - Bolt

- ❑ 9 Nm



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2.3 Exploded view - coolant temperature senders

1 - Retaining clip

- ☐ Only for engine code CWZA
- ☐ Check for firm attachment

2 - O-ring

- ☐ Renew after removing
- ☐ Lubricate with coolant

3 - Radiator outlet coolant temperature sender - G83-

- ☐ Fitting location for engine code CWZA
- ☐ Fitting location and tightening torque for engine code DAJB
⇒ [page 70](#)
- ☐ Removing and installing
⇒ ["2.9 Removing and installing radiator outlet coolant temperature sender G83"](#),
[page 77](#)

4 - O-ring

- ☐ Installation instructions
⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19; Coolant pump/thermostat assembly; Exploded view - coolant temperature senders

5 - O-ring

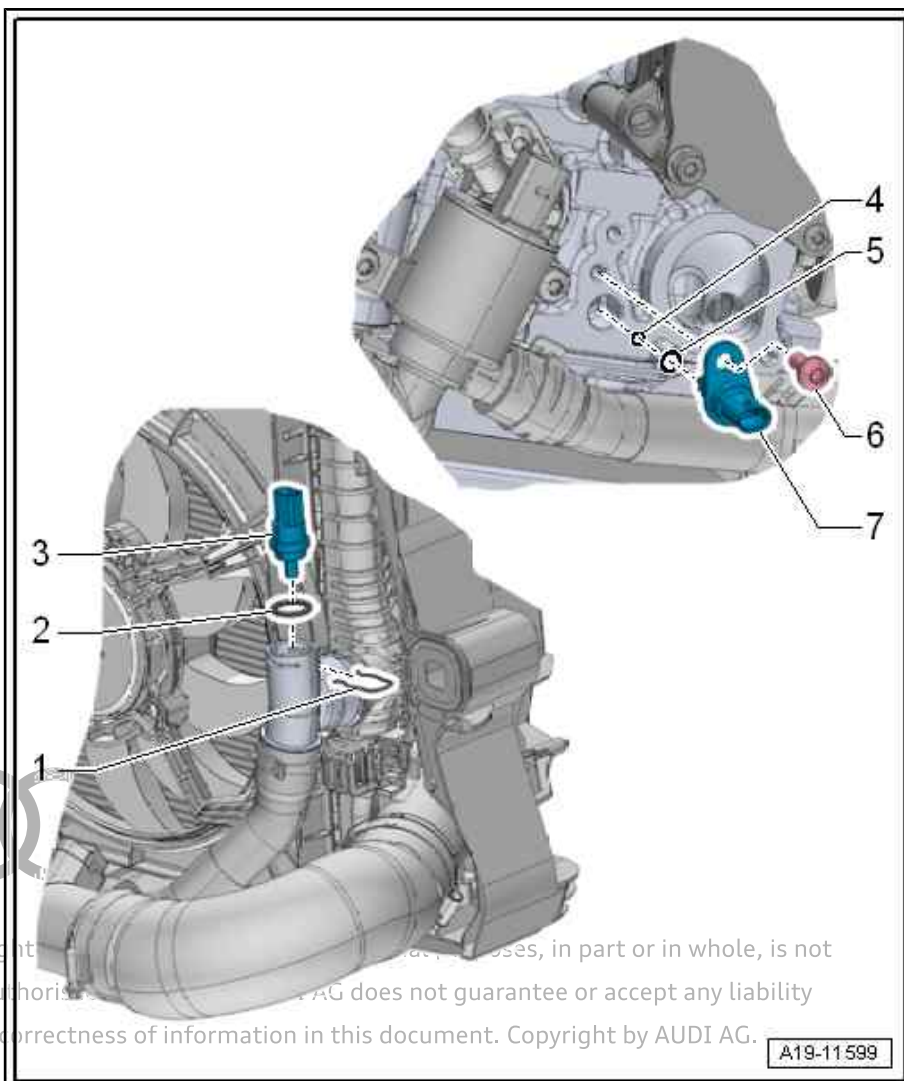
- ☐ Installation instructions
⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19; Coolant pump/thermostat assembly; Exploded view - coolant temperature senders

6 - Bolt

- ☐ Tightening torques ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19; Coolant pump/thermostat assembly; Exploded view - coolant temperature senders

7 - Coolant temperature sender - G62-

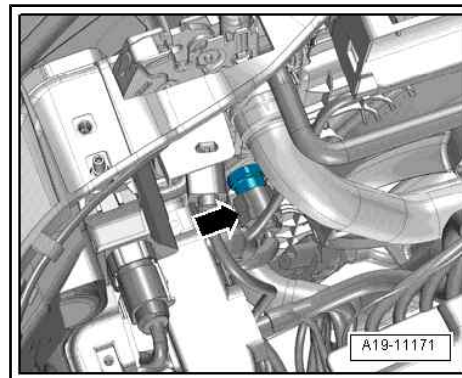
- ☐ On cylinder head (gearbox end)
- ☐ Removing and installing ⇒ [page 76](#)





Radiator outlet coolant temperature sender - G83- for engine code DAJB

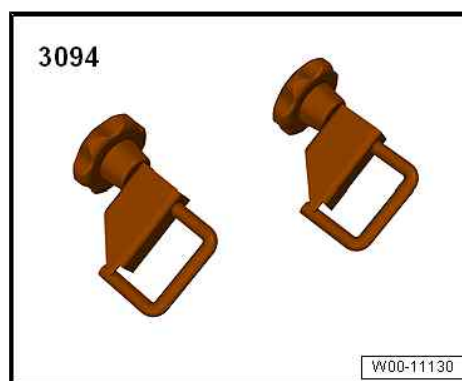
- ◆ In radiator on left -arrow-
- Tighten radiator outlet coolant temperature sender - G83- to 35 Nm.



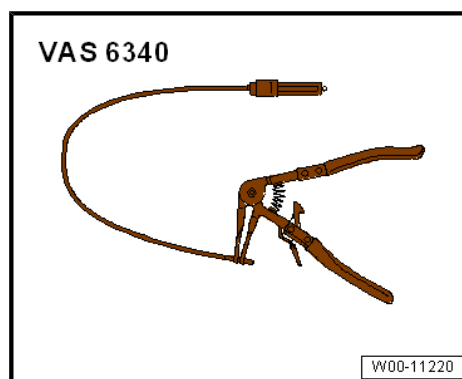
2.4 Removing and installing electric coolant pump

Special tools and workshop equipment required

- ◆ Hose clamps up to 25 mm - 3094-



- ◆ Hose clip pliers - VAS 6340-



- ◆ Hose clip pliers - VAS 6362-



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- ◆ Safety goggles
- ◆ Protective gloves



Removing



Note

Fit all heat insulation sleeves in the original position when installing.



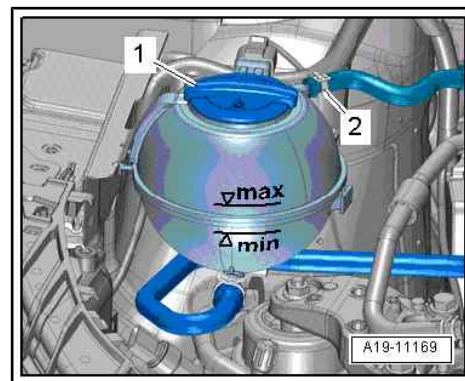
WARNING

The cooling system is under pressure when the engine is hot. Risk of scalding due to hot steam and hot coolant.

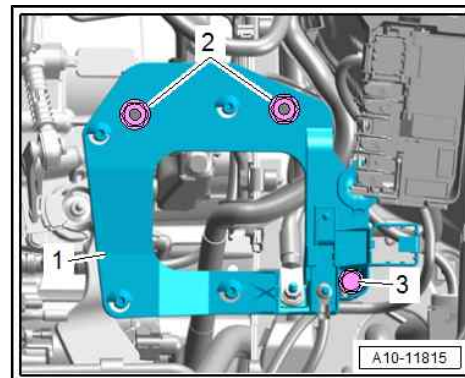
Danger of scalding skin and other parts of the body.

- Put on protective gloves.
- Put on safety goggles.
- Cover filler cap on expansion tank with a cloth and open carefully to release pressure.

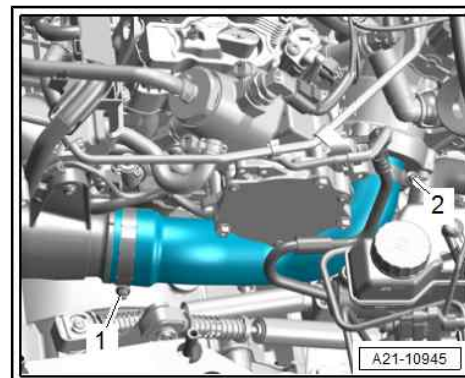
- Open filler cap -1- on coolant expansion tank.



- Remove air cleaner housing ⇒ [page 121](#) .
- Remove nuts -2- and bolt -3-.
- Push bracket -1- for air cleaner housing slightly to one side.



- Release hose clips -1, 2- and detach air hose.



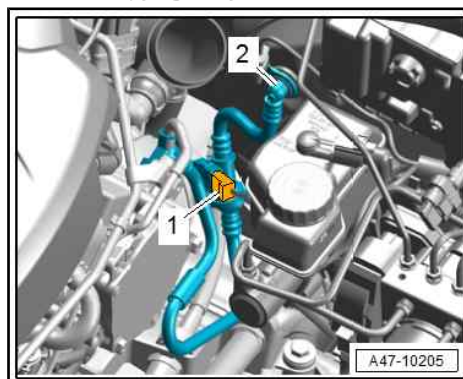
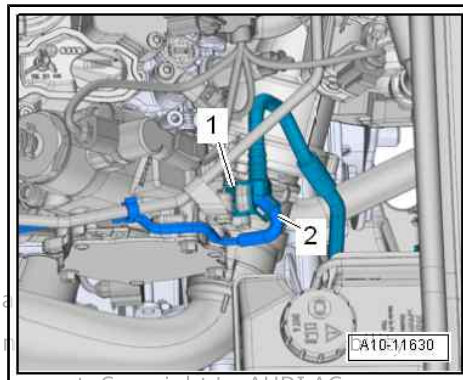


- Disconnect vacuum hose -2-.
- Press release tabs on vacuum hose -1- and disconnect hose from vacuum pump.



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- Unplug electrical connector -1- on brake servo pressure sensor - G294- .
- Detach vacuum hose -2- from brake servo and remove.

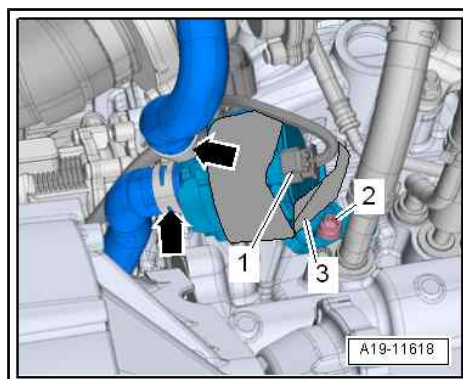


- Open heat insulation sleeve -3-.
- Unplug electrical connector -1-.
- Use hose clamps -3094- to clamp off coolant hoses at continued coolant circulation pump - V51- .

**Note**

Place a cloth underneath to catch escaping coolant.

- Release hose clips -arrows- and disconnect coolant hoses.
- Remove bolt -2- and detach continued coolant circulation pump - V51- .

**Installing**

Installation is carried out in reverse order; note the following:

**Note**

Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .

- Install air cleaner housing ⇒ [page 121](#) .
- Check coolant level ⇒ [page 65](#) .

Tightening torques

- ◆ ⇒ [“2.2 Exploded view - electric coolant pump”, page 66](#)
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system
- ◆ ⇒ [“2.1 Exploded view - air cleaner housing”, page 119](#)



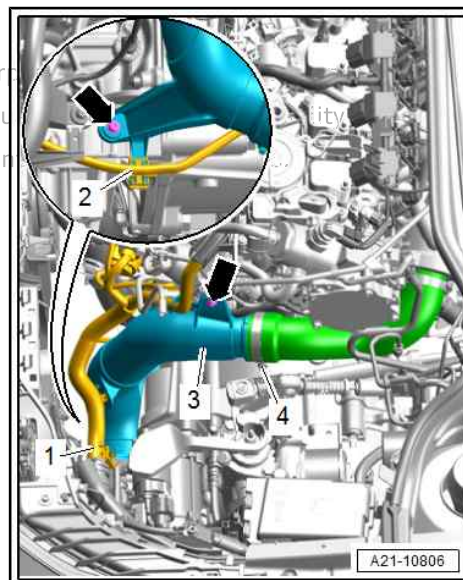
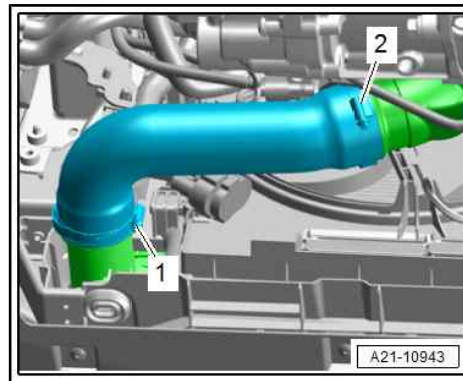
2.5 Removing and installing coolant pump

Removing

- Drain coolant ⇒ [page 60](#) .
- Remove air cleaner housing ⇒ [page 121](#) .
- Release hose clip -1- and detach air hose from charge air cooler.

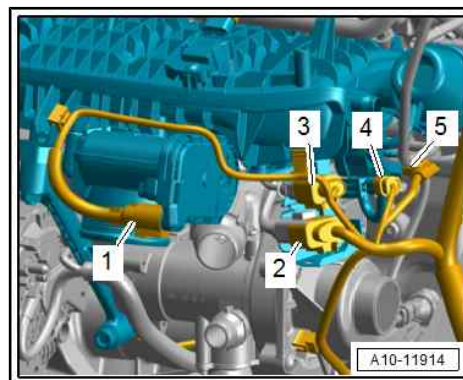


- Move electrical wiring harnesses -1, 2- clear at air pipe -3-.
- Loosen screw-type clip -4-.
- Remove bolts -arrows- and detach air pipe



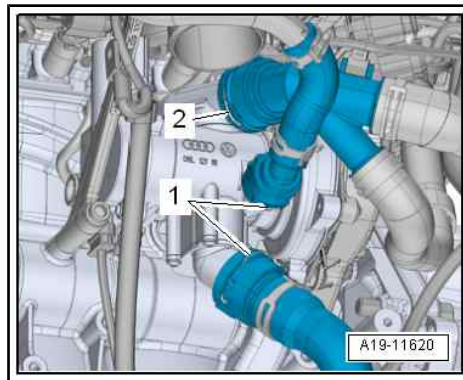
- Unplug electrical connectors and move clear:

- 1 - For throttle valve module - J338-
- 2 - For fuel pressure sender - G247- , intake manifold flap potentiometer - G336- , coolant temperature sender - G62- , Hall sender - G40-
- 3 - For FSI injectors
- 4 - For knock sensor 1 - G61-
- 5 - For intake manifold flap valve - N316-





- Lift retaining clips -1-, disconnect coolant hoses and press to side.
- Lift retaining clip -2-, detach coolant connection and press to side.



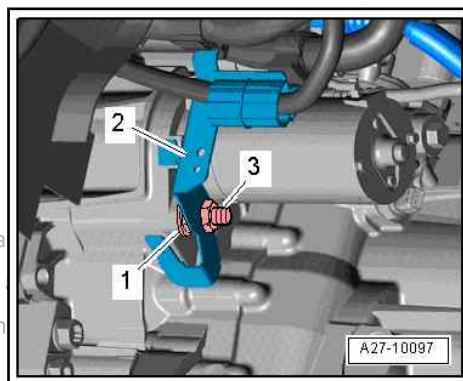
Vehicles with manual gearbox:

- Unscrew nut -3-.
- Remove bracket -2- for wiring harness.
- Unscrew bolt -1- for starter by a few turns.

All vehicles (continued):

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19; Coolant pump/thermostat assembly; Removing and installing coolant pump.

Installing



Additional work:



Note

Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ *Electronic parts catalogue*.

- Install air cleaner housing ⇒ [page 121](#).
- Connect coolant hoses and coolant connection with plug-in connector ⇒ [page 88](#).



Note

Do not reuse coolant.

- Fill up with coolant ⇒ [page 63](#).

Tightening torques

- ♦ ⇒ [“2.1 Exploded view - charge air system”, page 107](#)
- ♦ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21; Charge air system; Exploded view - hose connections for charge air system

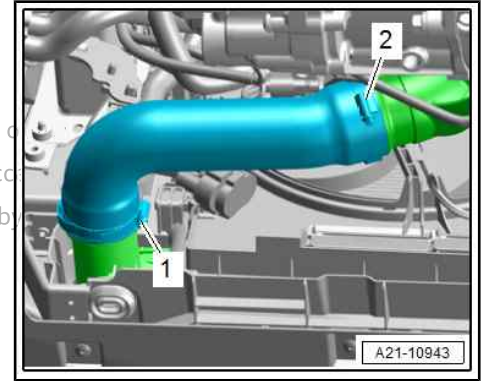
2.6 Removing and installing toothed belt for coolant pump

Removing

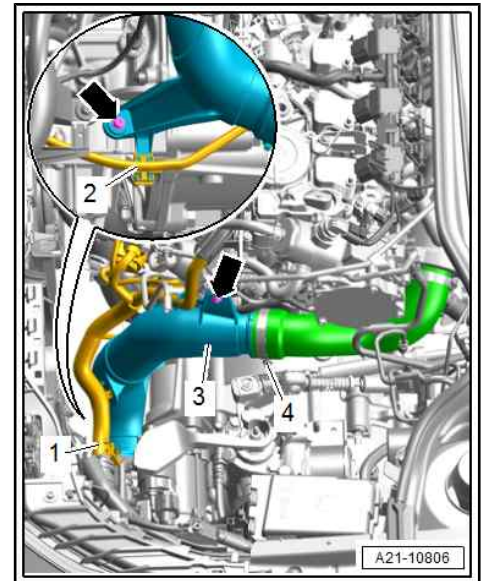
- Drain coolant ⇒ [page 60](#).
- Remove air cleaner housing ⇒ [page 121](#).



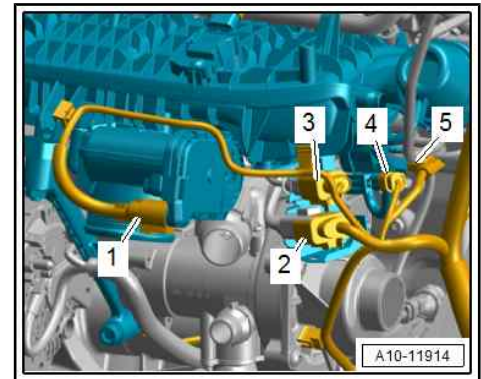
- Release hose clip -1- and detach air hose from charge air cooler.



- Move electrical wiring harnesses -1, 2- clear at air pipe -3-.
- Loosen screw-type clip -4-.
- Remove bolts -arrows- and detach air pipe.



- Unplug electrical connectors and move clear:
 - 1 - For throttle valve module - J338-
 - 2 - For fuel pressure sender - G247- , intake manifold flap potentiometer - G336- , coolant temperature sender - G62- , Hall sender - G40-
 - 3 - For FSI injectors
 - 4 - For knock sensor 1 - G61-
 - 5 - For intake manifold flap valve - N316-
- Move wiring harness clear to the side.





- Engine code DAJB: Lift retaining clips -1-, detach coolant connection and press to side.
- Engine code CWZA: Lift retaining clip -2-, detach coolant connection and press to side.

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly; Removing and installing toothed belt for coolant pump .

Installing

Additional work:



Note

Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .

- Install air cleaner housing ⇒ [page 121](#) .
- Connect coolant connection with plug-in connector ⇒ [page 88](#) .



Note

Do not reuse coolant.

- Fill up with coolant ⇒ [page 63](#) .

Tightening torques

- ♦ ⇒ “2.1 Exploded view - charge air system”, [page 107](#)
- ♦ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system

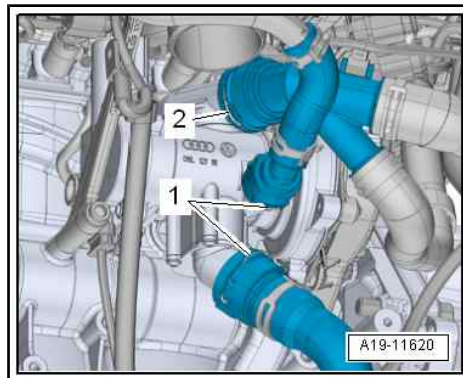
2.7 Removing and installing actuator for engine temperature regulation - N493-

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19 ; Coolant pump/thermostat assembly ; Removing and installing actuator for engine temperature regulation - N493- .

2.8 Removing and installing coolant temperature sender - G62-

Removing

- Remove air cleaner housing ⇒ [page 121](#) .



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- Release hose clip -1-.
- Detach air hose and push it to one side.

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 19; Coolant pump/thermostat assembly; Removing and installing coolant temperature sender - G62-.

Installing

Additional work:



Note

Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue.

- Install air cleaner housing ⇒ [page 121](#).

Tightening torques

- ♦ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21; Charge air system; Exploded view - hose connections for charge air system

2.9 Removing and installing radiator outlet coolant temperature sender - G83-

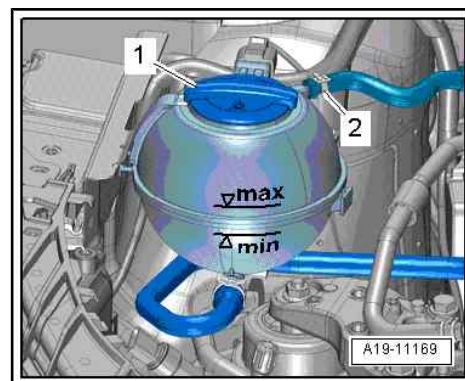
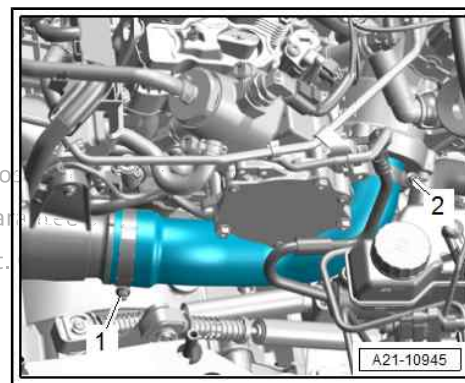
⇒ [“2.9.1 Removing and installing radiator outlet coolant temperature sender G83, vehicles with engine code DAJB”, page 77](#)

⇒ [“2.9.2 Removing and installing radiator outlet coolant temperature sender G83, vehicles with engine code CWZA”, page 78](#)

2.9.1 Removing and installing radiator outlet coolant temperature sender - G83- , vehicles with engine code DAJB

Removing

- Engine cold.
- To relieve residual pressure in cooling system, open filler cap -1- on coolant expansion tank briefly and then close cap again (it should click into place).
- Remove air cleaner housing ⇒ [page 121](#).





- Unplug electrical connector -arrow-.



Note

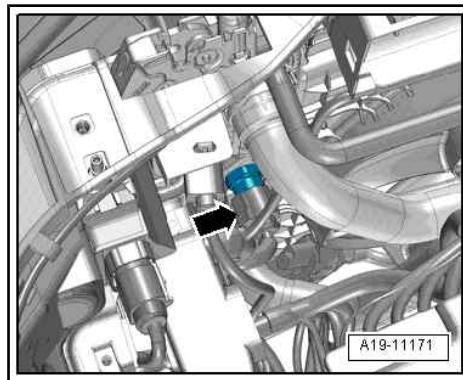
Place a cloth underneath to catch escaping coolant.

- Unscrew radiator outlet coolant temperature sender - G83- .



Note

To avoid loss of coolant, screw in new coolant temperature sender immediately.



Installing

Installation is carried out in reverse order; note the following:



Note

Fit new O-ring.

- Install air cleaner housing ⇒ [page 121](#) .
- Check coolant level ⇒ [page 65](#) .

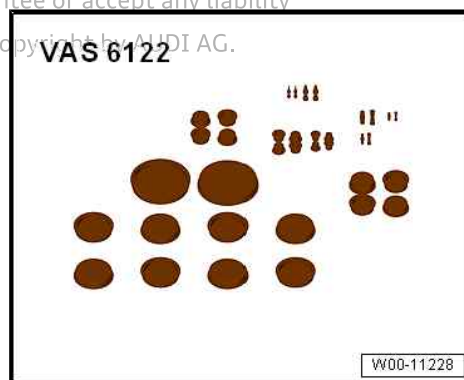
Tightening torques

- ♦ ⇒ [Item 8 \(page 86\)](#)

2.9.2 Removing and installing radiator outlet coolant temperature sender - G83- , vehicles with engine code CWZA

Special tools and workshop equipment required

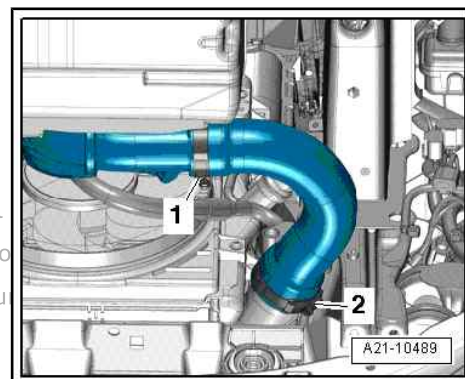
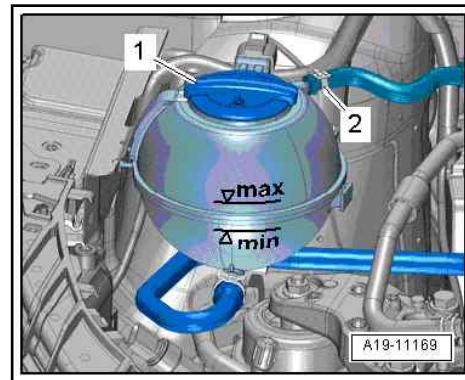
- ♦ Engine bung set - VAS 6122-





Removing

- Engine cold.
- To relieve residual pressure in cooling system, open filler cap -1- on coolant expansion tank briefly and then close cap again (it should click into place).
- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Release hose clips -1, 2- and detach air hose.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .

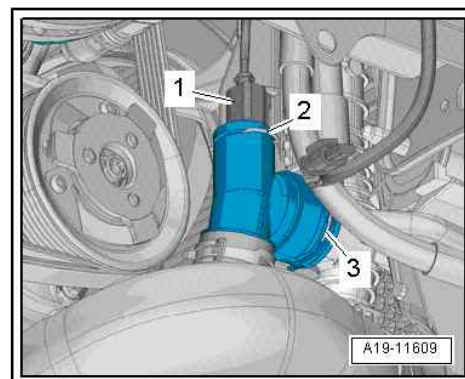


- Unplug electrical connector -1-.
- Pull out retaining clip -2- and remove radiator outlet coolant temperature sender - G83- -3-.



Note

- ◆ Place a cloth underneath to catch escaping coolant.
- ◆ Insert new coolant temperature sender immediately into connection to avoid loss of coolant.



Installing

Installation is carried out in reverse order; note the following:



Note

- ◆ Fit new O-ring.
- ◆ Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .
- Check coolant level ⇒ [page 65](#) .

Tightening torques

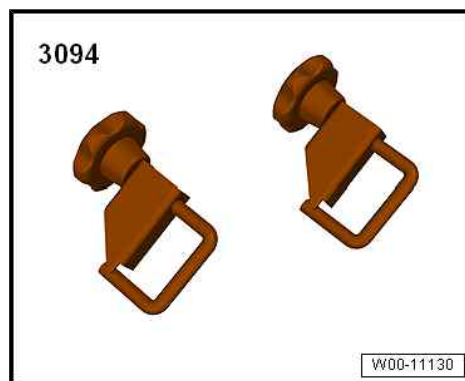
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

2.10 Removing and installing coolant valves

Special tools and workshop equipment required



- ◆ Hose clamps up to 25 mm - 3094-



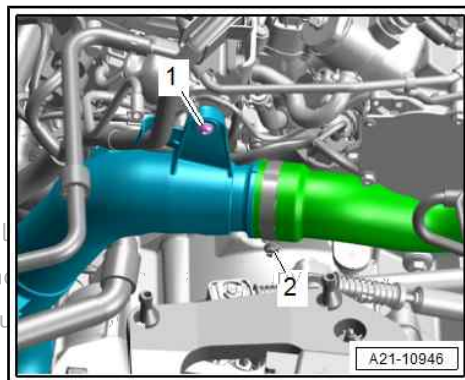
- ◆ Hose clip pliers - VAS 6362-



Removing

- Remove air cleaner housing ⇒ [page 121](#) .
- Release hose clip -2-.
- Remove bolt -1- and press air pipe (left-side) towards left slightly.

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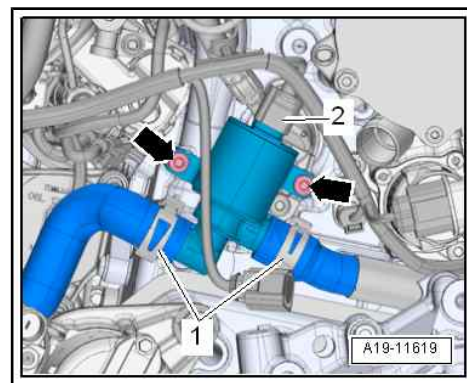


- Unplug electrical connector -2-.
- Use hose clamps -3094- to clamp off coolant hoses on coolant shut-off valve - N82- .

**Note**

Place a cloth underneath to catch escaping coolant.

- Release hose clips -1- and disconnect coolant hoses.
- Unscrew bolt -arrows- and detach coolant shut-off valve - N82- .

**Installing**

Installation is carried out in reverse order; note the following:

**Note**

Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .

- Install air cleaner housing ⇒ [page 121](#) .
- Check coolant level ⇒ [page 65](#) .

Tightening torques

- ◆ ⇒ [“2.2 Exploded view - electric coolant pump”, page 66](#)
- ◆ ⇒ [“2.1 Exploded view - charge air system”, page 107](#)
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system





3 Coolant pipes

⇒ ["3.1 Exploded view - coolant pipes", page 82](#)

⇒ ["3.2 Removing and installing coolant pipes", page 82](#)

3.1 Exploded view - coolant pipes

1 - Coolant pipe (front)

- ❑ Removing and installing
⇒ [page 82](#)

2 - Bolts

- ❑ 6 Nm

3 - Coolant pipe (top)

- ❑ Removing and installing
⇒ [page 83](#)

4 - Bolts

- ❑ 9 Nm

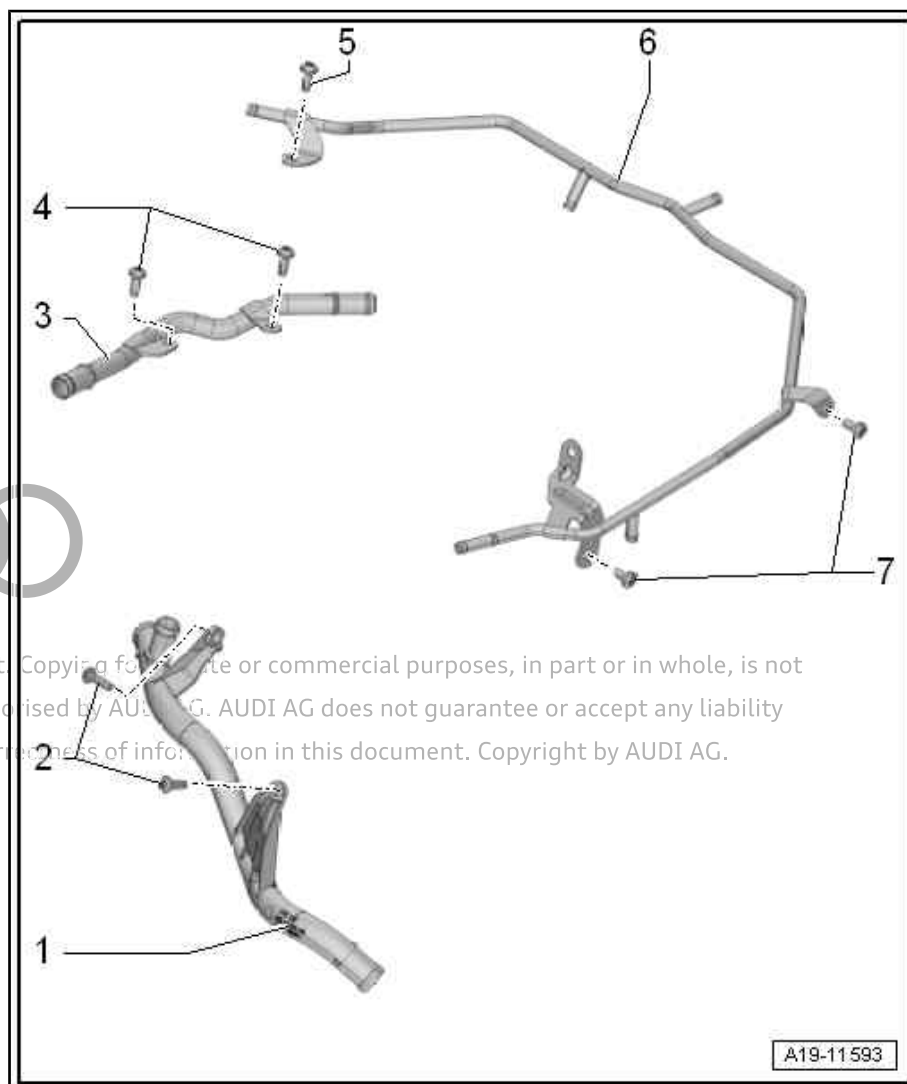
5 - Bolt

- ❑ 9 Nm

6 - Coolant pipe

7 - Bolts

- ❑ 9 Nm



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3.2 Removing and installing coolant pipes

⇒ ["3.2.1 Removing and installing coolant pipe \(front\)", page 82](#)

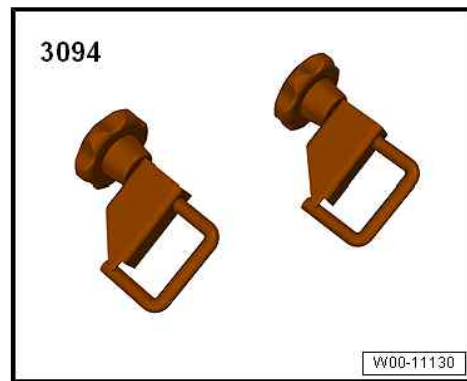
⇒ ["3.2.2 Removing and installing coolant pipe \(top\)", page 83](#)

3.2.1 Removing and installing coolant pipe (front)

Special tools and workshop equipment required



- ◆ Hose clamps up to 25 mm - 3094-



- ◆ Hose clip pliers - VAS 6362-



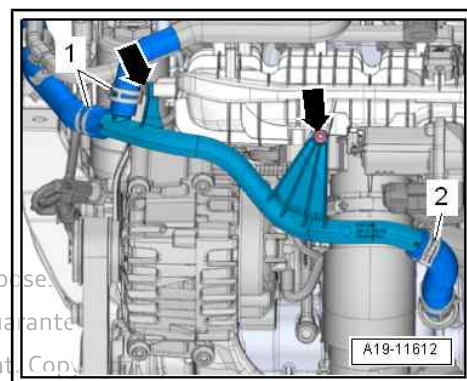
Removing



Note

Place a cloth under coolant pipe to catch escaping coolant.

- Clamp off coolant hoses -1, 2- with hose clamps up to 25 mm - 3094-.
- Release hose clips and detach coolant hoses.
- Unscrew bolts -arrows- and remove coolant pipe (front).



Installing

Installation is carried out in reverse order; note the following:



Note

Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .

- Check coolant level ⇒ [page 65](#) .

Tightening torques

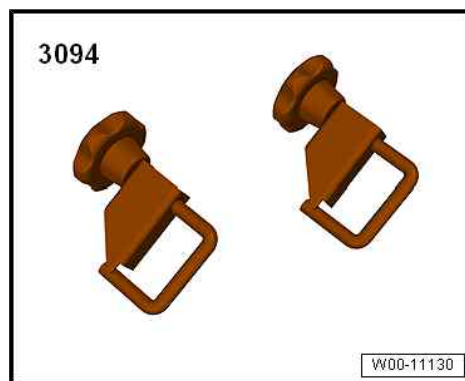
- ◆ ⇒ [“3.1 Exploded view - coolant pipes”, page 82](#)

3.2.2 Removing and installing coolant pipe (top)

Special tools and workshop equipment required



- ◆ Hose clamps up to 25 mm - 3094-



- ◆ Hose clip pliers - VAS 6362-

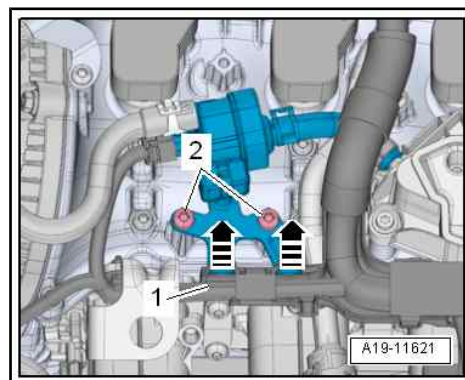


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Removing

- Remove ignition coil with output stage for cylinder “3” ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Removing and installing ignition coils with output stages .
- Release fasteners -arrows- and detach wiring duct -1- from bracket.





- Clamp off coolant hoses -arrows- with hose clamps up to 25 mm - 3094- .
- Release hose clips and detach coolant hoses.
- Unscrew bolts -1- and remove coolant pipe (top).

Installing

Installation is carried out in reverse order; note the following:



Note

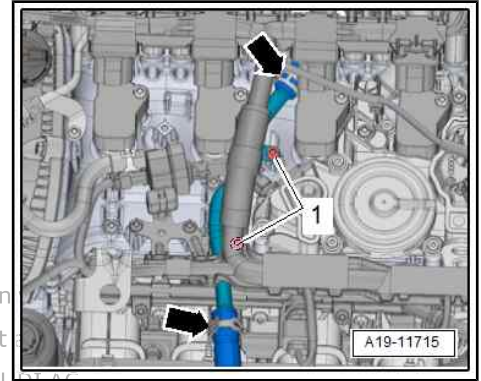
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Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .

- Install ignition coil ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Removing and installing ignition coils with output stages .
- Check coolant level ⇒ [page 65](#) .

Tightening torques

- ◆ ⇒ [“3.1 Exploded view - coolant pipes”, page 82](#)





4 Radiator/radiator fans

⇒ ["4.1 Exploded view - radiator/radiator fans", page 86](#)

⇒ ["4.2 Exploded view - auxiliary radiator", page 90](#)

⇒ ["4.3 Removing and installing radiator", page 90](#)

⇒ ["4.4 Removing and installing radiator cowl", page 93](#)

⇒ ["4.5 Removing and installing radiator fan V7 ", page 95](#)

⇒ ["4.6 Removing and installing auxiliary radiator", page 95](#)

4.1 Exploded view - radiator/radiator fans

Radiator and radiator cowl with radiator fans, engine code DAJB

1 - Radiator fan 2 - V177-

- ☐ With radiator fan control unit 2 - J671-
- ☐ Removing and installing
⇒ [page 95](#)

2 - Radiator fan - V7-

- ☐ With radiator fan control unit - J293-
- ☐ Removing and installing
⇒ [page 95](#)

3 - Bracket

- ☐ For electrical connector

4 - Radiator cowl

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

5 - Nut

- ☐ 8 Nm

6 - Grommet

- ☐ For charge air cooler

7 - Coolant hose

8 - Radiator outlet coolant temperature sender - G83-

- ☐ Removing and installing
⇒ [page 77](#)
- ☐ 35 Nm

9 - O-ring

- ☐ Renew

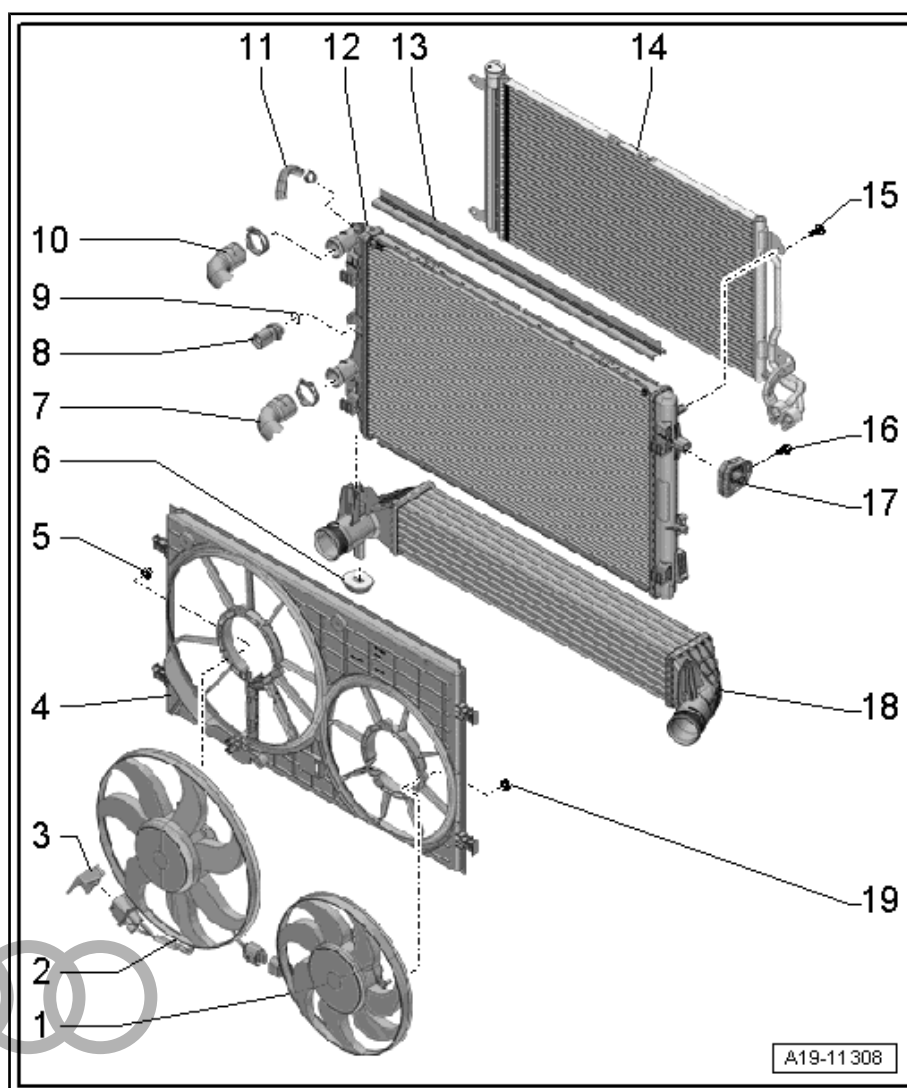
10 - Coolant hose

11 - Coolant hose

- ☐ To coolant expansion tank

12 - Radiator

- ☐ Removing and installing ⇒ [page 90](#)
- ☐ If renewed, change coolant in entire system



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**13 - Air duct****14 - Condenser**

- ☐ Removing and installing ⇒ Heating, air conditioning; Rep. gr. 87 ; Refrigerant circuit; Removing and installing condenser

15 - Bolt

- ☐ Tightening torque ⇒ Heating, air conditioning; Rep. gr. 87 ; Refrigerant circuit; Exploded view - condenser

16 - Bolt

- ☐ 7 Nm

17 - Bracket

- ☐ Note installation position

18 - Charge air cooler

- ☐ Removing and installing ⇒ ["4.3 Removing and installing radiator", page 90](#)

19 - Nut

- ☐ 8 Nm

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Radiator, engine code CWZA**1 - Charge air cooler**

- ☐ Removing and installing
⇒ ["4.3 Removing and installing radiator", page 90](#)

2 - Air duct**3 - Radiator**

- ☐ Removing and installing
⇒ [page 90](#)
- ☐ If renewed, refill system with fresh coolant

4 - Coolant hose

- ☐ Lift retaining clip to detach
- ☐ Connecting
⇒ [page 88](#)

5 - O-ring

- ☐ Renew after removing
- ☐ Lubricate with coolant

6 - Rubber bush

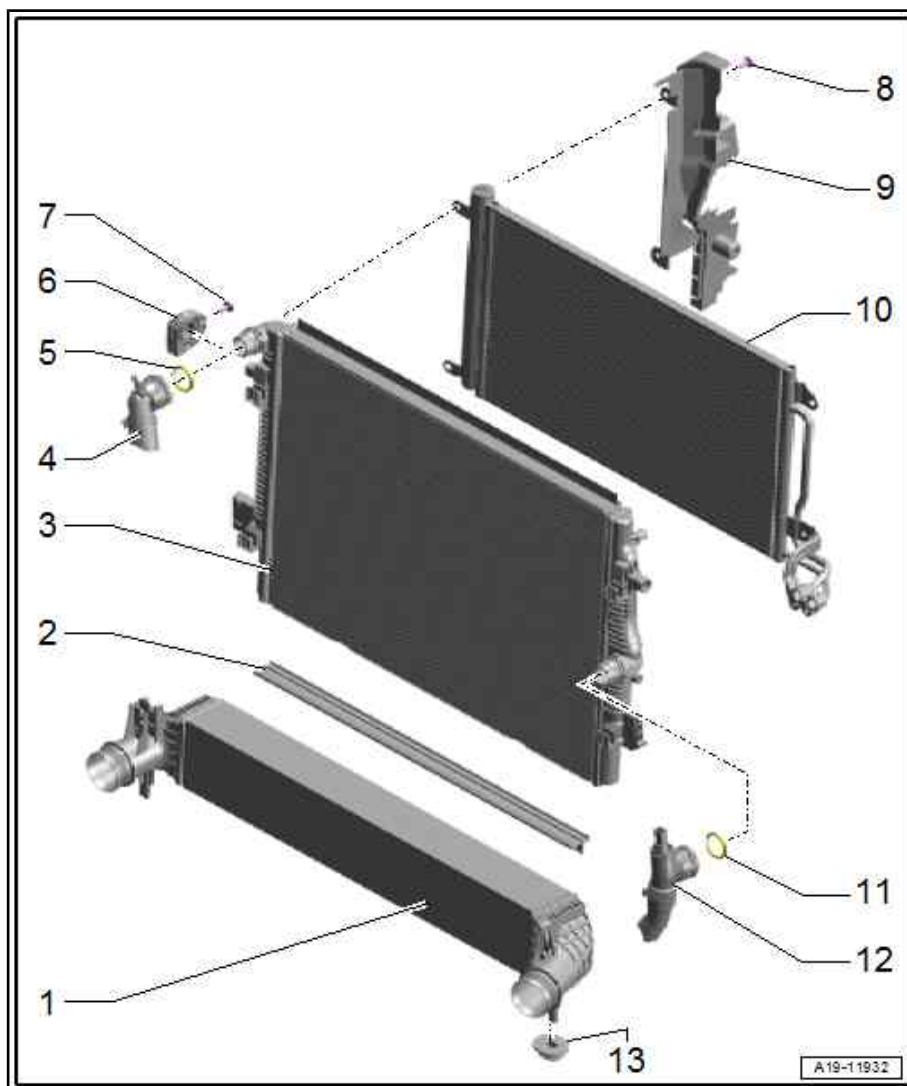
- ☐ For radiator

7 - Bolt

- ☐ 5 Nm

8 - Bolt

- ☐ Tightening torque ⇒ Heating, air conditioning; Rep. gr. 87 ; Refrigerant circuit; Exploded view - condenser





9 - Air duct

10 - Condenser

- ❑ Removing and installing ⇒ Heating, air conditioning; Rep. gr. 87 ; Refrigerant circuit; Removing and installing condenser

11 - O-ring

- ❑ Renew after removing
- ❑ Lubricate with coolant

12 - Coolant hose

- ❑ Lift retaining clip to detach
- ❑ Connecting ⇒ [page 88](#)

13 - Rubber bush

- ❑ For charge air cooler

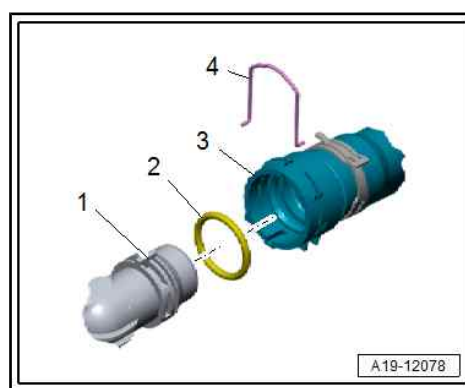
Connecting coolant hose with plug-in connector



Note

If damaged, renew retaining clip -4-.

- Remove old O-ring -2- from coolant hose -3-.
- Lubricate new O-ring lightly with coolant and fit O-ring in coolant hose.
- Press coolant hose onto coolant pipe -1- until it engages with a click.
- Press coolant hose in again and then pull to check that plug-in connector is correctly engaged.



Radiator cowl and radiator fans, engine code CWZA

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**1 - Bolt**

- ☐ 5 Nm

2 - Radiator cowl

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

3 - Bolt

- ☐ 5 Nm

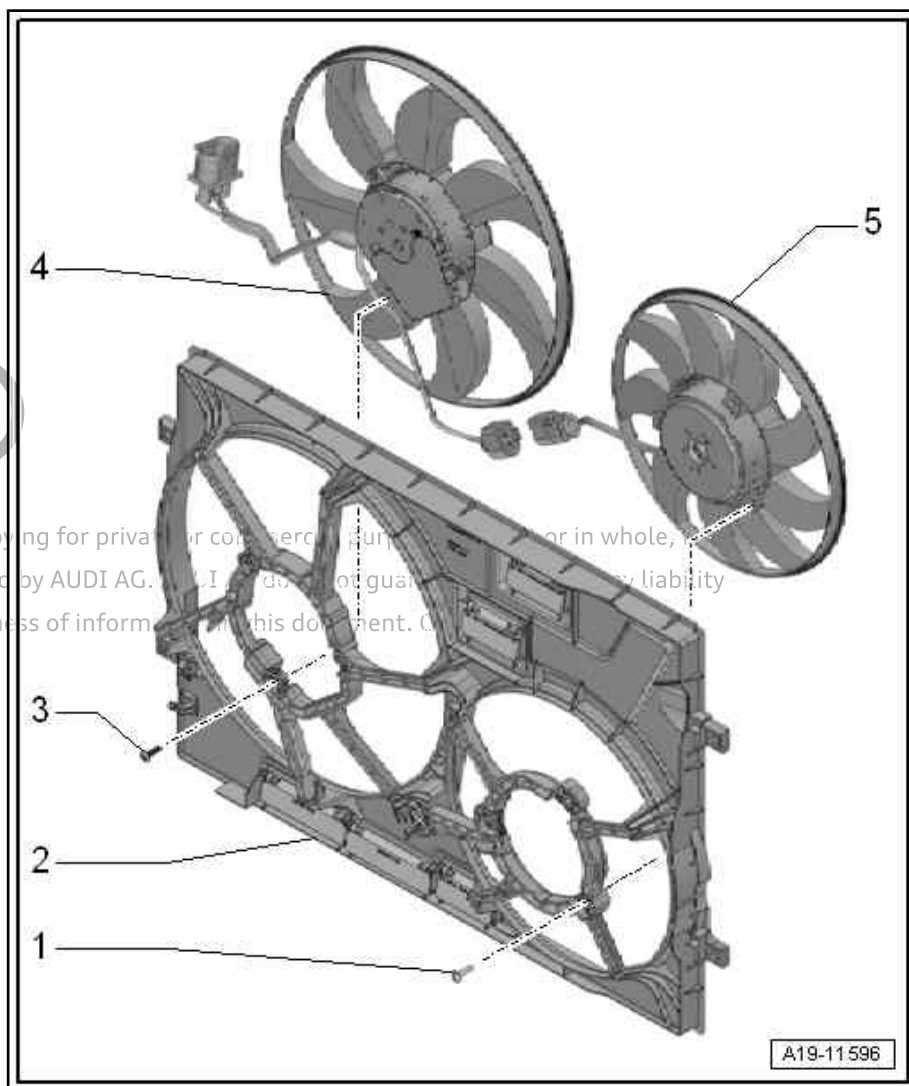
4 - Radiator fan - V7-

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

5 - Radiator fan 2 - V177-

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

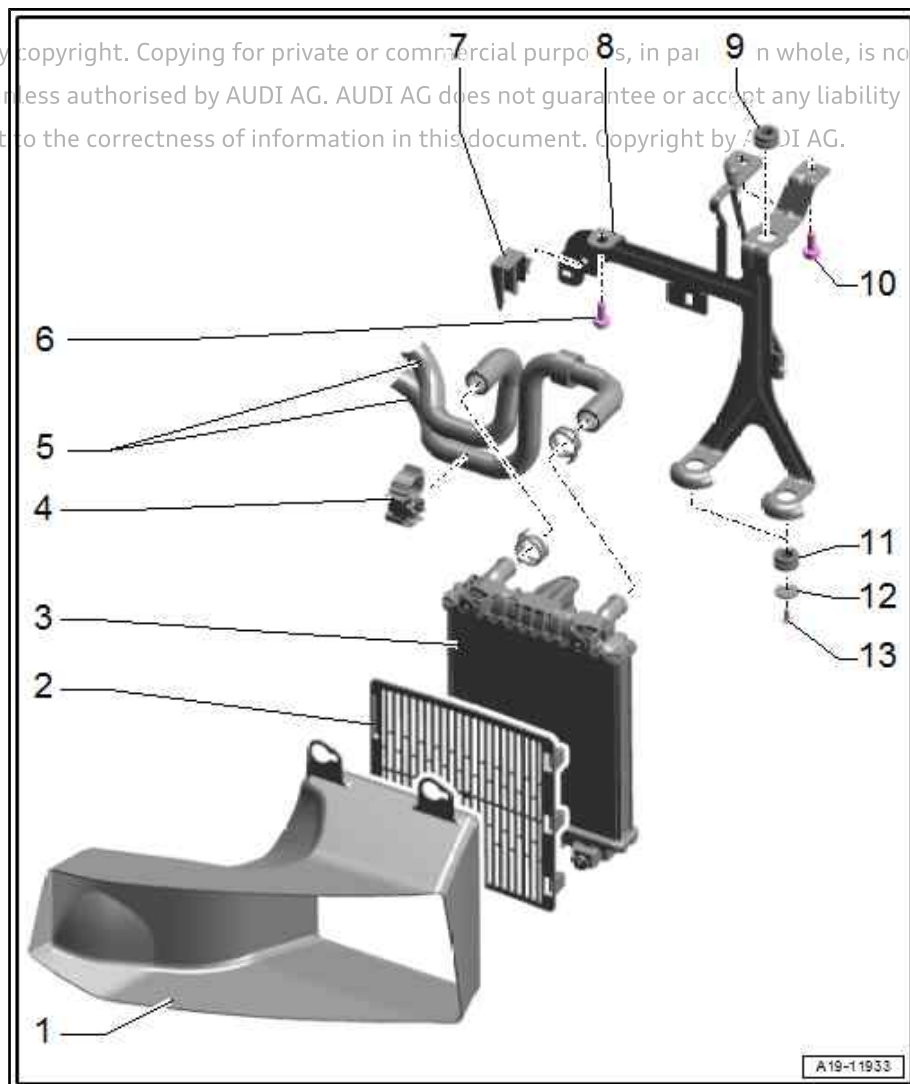
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4.2 Exploded view - auxiliary radiator

- 1 - Air duct
- 2 - Protective screen
- 3 - Auxiliary radiator
 - ❑ Removing and installing
⇒ [page 95](#)
- 4 - Hose retainer
- 5 - Coolant hoses
- 6 - Bolt
 - ❑ 20 Nm
- 7 - Bracket
 - ❑ For electrical connector
- 8 - Bracket
 - ❑ For auxiliary radiator
- 9 - Rubber grommet
 - ❑ For auxiliary radiator
- 10 - Bolt
 - ❑ 20 Nm
- 11 - Rubber grommet
 - ❑ For auxiliary radiator
- 12 - Support
- 13 - Bolt
 - ❑ 3.5 Nm



4.3 Removing and installing radiator



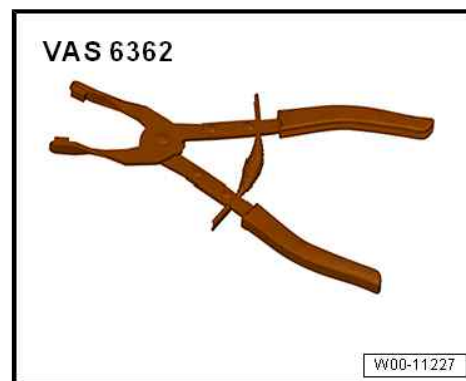
Note

The radiator and charge air cooler must be removed and installed together.

Special tools and workshop equipment required



- ◆ Hose clip pliers - VAS 6362-



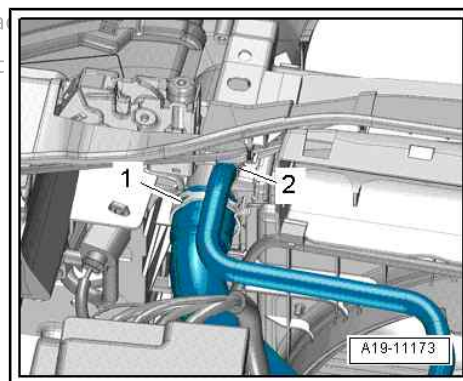
Removing

- Remove radiator cowl ⇒ [page 93](#) .
- Drain coolant ⇒ [page 60](#) .
- Remove bumper cover (front) ⇒ General body repairs, exterior; Rep. gr. 63 ; Bumper (front); Removing and installing bumper cover.

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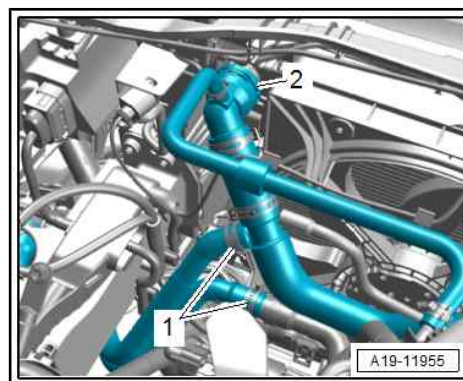
Engine code DAJB: Copyrighted by AUDI AG. AUDI AG does not guarantee or accept any liability for the content of this document.

- Release hose clips -1 and 2- and detach coolant hoses (top left) from radiator.



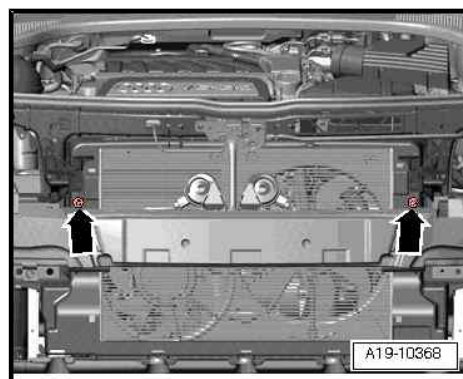
Engine code CWZA:

- Lift retaining clip -2- and disconnect coolant hose (top left) from radiator.



All engine versions (continued):

- Remove bolts -arrows-.
- Swivel top edge of radiator slightly to rear.
- Lift radiator, disengage it from bottom mounting points and press it to the rear.



**WARNING***Risk of injury caused by refrigerant.*

- ◆ *The air conditioner refrigerant circuit must not be opened.*

- Remove bolts -arrows- and detach air ducts -1, 2-.

**Caution***Risk of damage to refrigerant lines and hoses*

- ◆ *Do NOT stretch, kink or bend refrigerant lines and hoses.*

- Move condenser to front and place in lock carrier, then secure with cable ties to prevent from dropping.
- Release fasteners on charge air cooler -1- -arrows A-.
- Detach radiator -2- from charge air cooler -arrow B- and disengage on right side.
- Remove both radiators.

Installing

Installation is carried out in reverse order; note the following:

**Note**

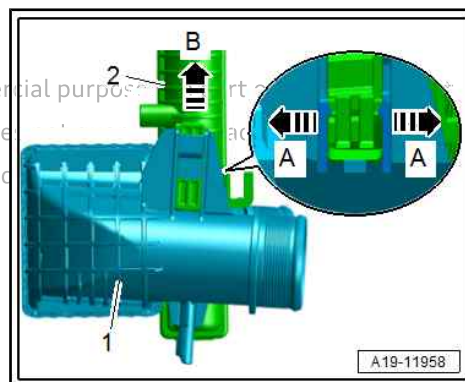
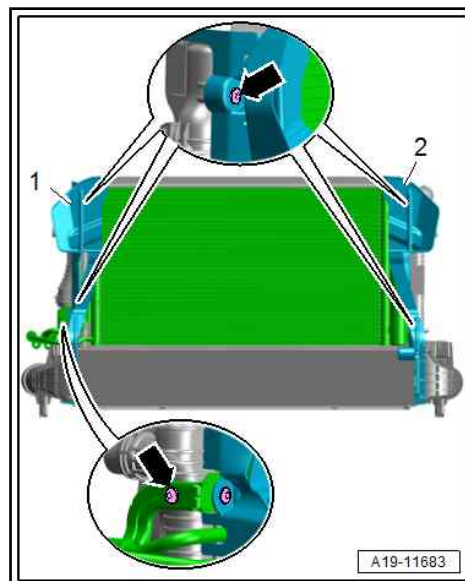
- ◆ *If there are slight impressions on the fins, refer to ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 00; Repair notes; Installing radiators and condensers.*
- ◆ *Renew O-rings after removing.*
- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue.*
- Install bumper cover (front) ⇒ General body repairs, exterior; Rep. gr. 63; Bumper (front); Removing and installing bumper cover.
- Install radiator cowl ⇒ [page 93](#).
- Connect coolant hose with plug-in connector ⇒ [page 88](#).

**Note***Do not reuse coolant.*

- Fill up with coolant ⇒ [page 63](#).

Tightening torques

- ◆ ⇒ [“4.1 Exploded view - radiator/radiator fans”, page 86](#)



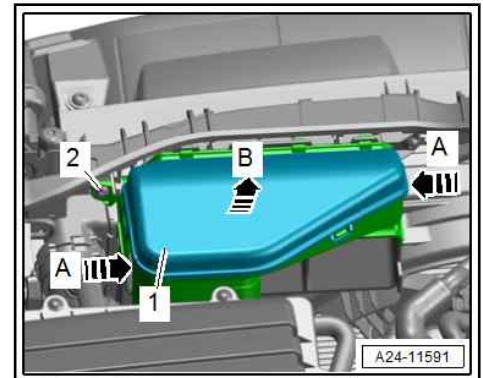


4.4 Removing and installing radiator cowl

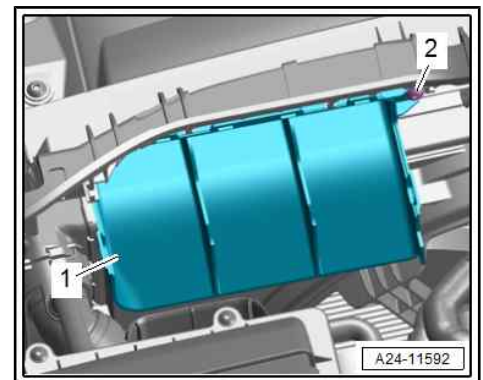
Removing

Engine code DAJB:

- Unscrew bolt -2- and release fasteners -arrows A-.
- Detach air duct -1- from air cleaner housing -arrow B- and remove it.



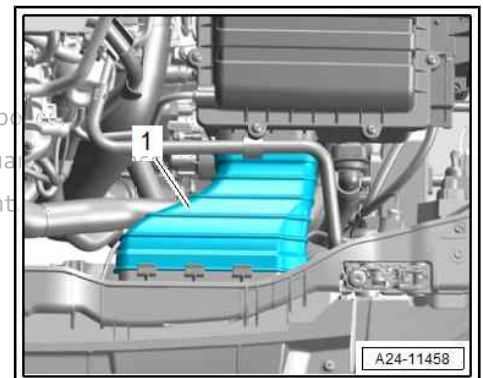
- Remove bolt -2- and detach air duct -1-.



Engine code CWZA:

- Detach air duct -1-.

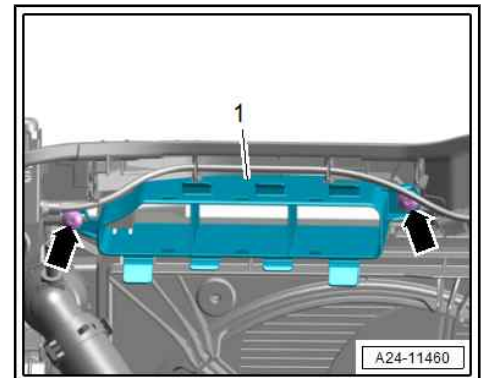
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- Remove bolts -arrows- and move air duct -1- to one side.

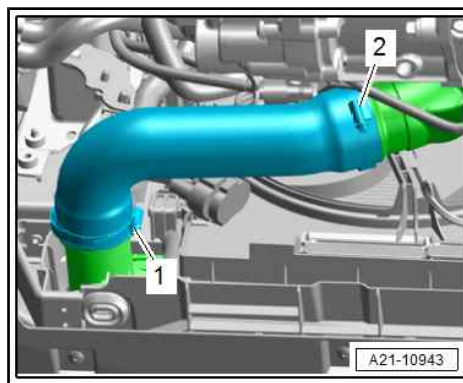
All engine versions (continued):

- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .





- Release hose clips -1, 2- and remove air hose.



WARNING

Risk of injury as the radiator fans may start up automatically.

- ◆ *Unplug electrical connectors before working in vicinity of radiator cowl.*

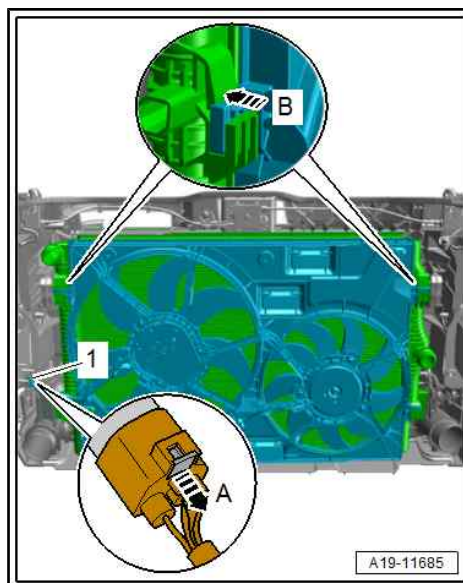
- Unplug electrical connector -1- for radiator fan (push retainer in direction of -arrow A- and press release catch down).
- Press locking tabs on left and right sides of radiator cowl simultaneously -arrow B-, lift radiator cowl off radiator and remove from below.

Installing

Installation is carried out in reverse sequence.

Tightening torques

- ◆ ⇒ Servicing 4-cylinder engine, 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system
- ◆ ⇒ [“2.1 Exploded view - air cleaner housing”, page 119](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation



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4.5 Removing and installing radiator fan - V7-

⇒ [“4.5.1 Removing and installing radiator fans, engine code DAJB”, page 95](#)

⇒ [“4.5.2 Removing and installing radiator fans, engine code CWZA”, page 95](#)

4.5.1 Removing and installing radiator fans, engine code DAJB

Removing

- Remove radiator cowl ⇒ [page 93](#) .
- Unplug electrical connector -1- and move wiring clear.
- Unscrew nuts -arrows- and remove corresponding radiator fan.

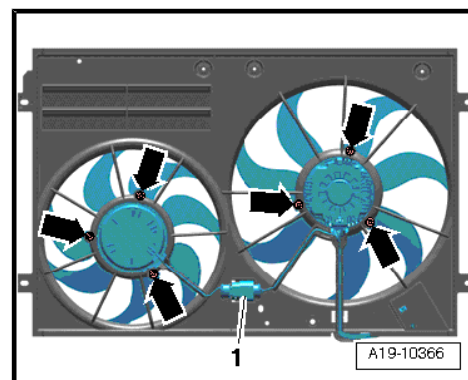
Installing

Installation is carried out in reverse order; note the following:

- Install radiator cowl ⇒ [page 93](#) .

Tightening torques

- ♦ ⇒ [“4.1 Exploded view - radiator/radiator fans”, page 86](#)



4.5.2 Removing and installing radiator fans, engine code CWZA

Removing



Note

Fit all cable ties in the original positions when installing.

- Remove radiator cowl ⇒ [page 93](#) .
- Unplug electrical connector -arrow-.

Radiator fan - V7- :

- Unscrew bolts -1- and remove radiator fan - V7- .

Radiator fan 2 - V177- :

- Unscrew bolts -2- and remove radiator fan 2 - V177- .

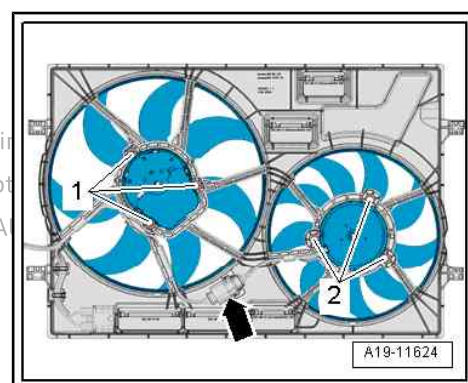
Installing

Installation is carried out in reverse order; note the following:

- Install radiator cowl ⇒ [page 93](#) .

Tightening torques

- ♦ ⇒ [“4.1 Exploded view - radiator/radiator fans”, page 86](#)

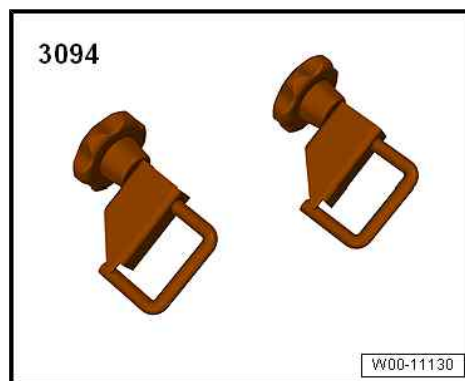


4.6 Removing and installing auxiliary radiator

Special tools and workshop equipment required



- ◆ Hose clamps up to 25 mm - 3094-



- ◆ Hose clip pliers - VAS 6362-



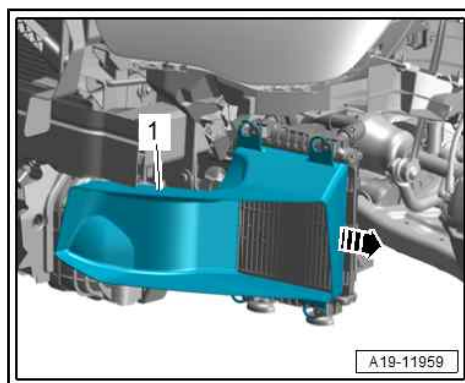
Removing

- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Remove wheel housing liner (front left) ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Removing and installing wheel housing liner (front) .
- Detach air duct -1- from auxiliary radiator -arrow- (but leave it in installation position).



Note

For illustration purposes, the installation position is shown with the bumper cover removed.



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- Detach electrical connector -2- from bracket.
- Clamp off coolant hoses using hose clamps -3094- , release hose clips -1- and disconnect coolant hoses.
- Move coolant hoses clear.
- Remove bolts -arrows- and detach auxiliary radiator and bracket.

**Caution**

Take care to keep components clean.

- ◆ *There will still be some coolant in the auxiliary radiator.*

- Detach auxiliary radiator from bracket.

Installing

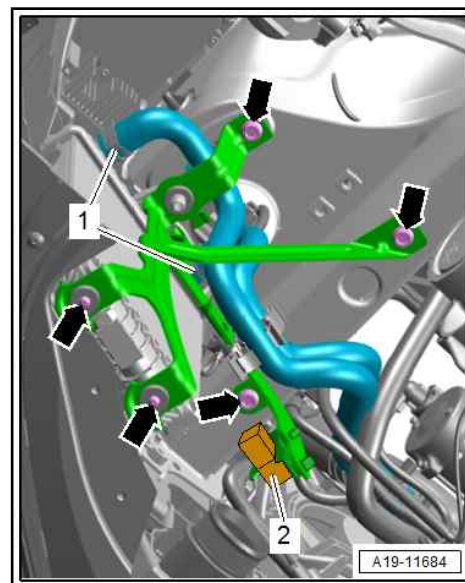
Installation is carried out in reverse order; note the following:

**Note**

- ◆ *If there are slight impressions on the fins, refer to ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 00 ; Repair notes; Installing radiators and condensers .*
- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*
- Check coolant level ⇒ [page 65](#) .

Tightening torques

- ◆ ⇒ [“4.2 Exploded view - auxiliary radiator”, page 90](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Wheel housing liners; Exploded view - wheel housing liner (front)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation



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21 – Turbocharging/supercharging

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1 Turbocharger

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⇒ [“1.1 Exploded view - turbocharger”, page 98](#)

⇒ [“1.2 Removing and installing turbocharger”, page 100](#)

⇒ [“1.3 Removing and installing charge pressure positioner V465”, page 105](#)

1.1 Exploded view - turbocharger

Part I

Part II ⇒ [page 99](#)

1 - O-ring

- ☐ Renew after removing
- ☐ Lubricate lightly with engine oil

2 - Bolt

- ☐ 9 Nm

3 - Coolant supply line

4 - O-ring

- ☐ Renew after removing
- ☐ Lubricate with coolant

5 - Gasket

- ☐ Renew after removing

6 - Nut

- ☐ Renew after removing
- ☐ 25 Nm

7 - Turbocharger

- ☐ Removing and installing
⇒ [page 100](#)

8 - Oil supply line

9 - Heat shield

10 - Bolt

- ☐ 9 Nm

11 - Nut

- ☐ 9 Nm

12 - Bolt

- ☐ 9 Nm

13 - O-ring

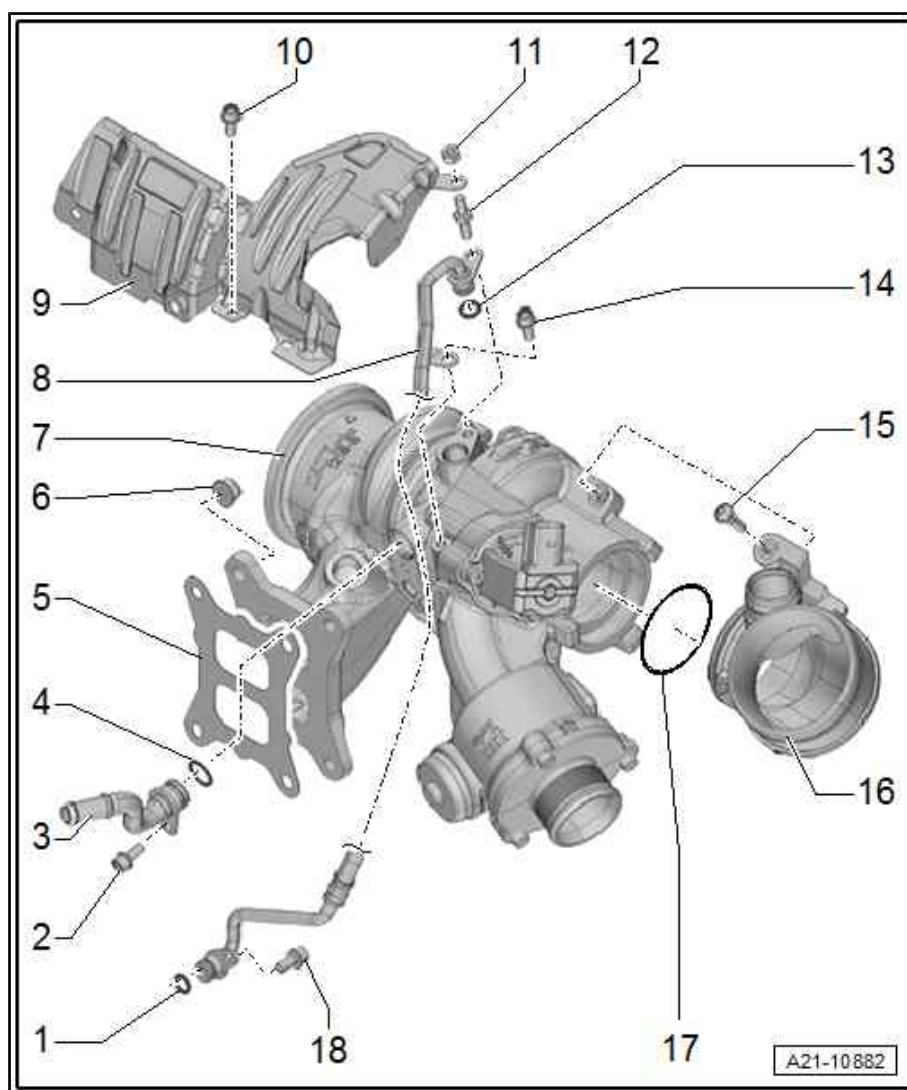
- ☐ Renew after removing
- ☐ Lubricate lightly with engine oil

14 - Bolt

- ☐ 9 Nm

15 - Bolt

- ☐ 9 Nm



**16 - Connection****17 - O-ring**

- ☐ Renew after removing

18 - Bolt

- ☐ 9 Nm

Part II

Part I ⇒ [page 98](#)

1 - Bolt

- ☐ 9 Nm

2 - O-ring

- ☐ Renew after removing
☐ Lubricate lightly with engine oil

3 - Oil return line**4 - Bolt**

- ☐ 10 Nm

5 - O-rings

- ☐ Renew after removing

6 - Bolt

- ☐ 9 Nm

7 - Charge pressure positioner - V465-

- ☐ Before removing charge pressure positioner - V465-, check it is available in ⇒ Electronic parts catalogue (ETKA)
☐ Removing and installing ⇒ ["1.3 Removing and installing charge pressure positioner V465", page 105](#)

8 - Nut

- ☐ 10 Nm

9 - Bolt

- ☐ 9 Nm

10 - Connection**11 - O-ring**

- ☐ Renew after removing

12 - Turbocharger

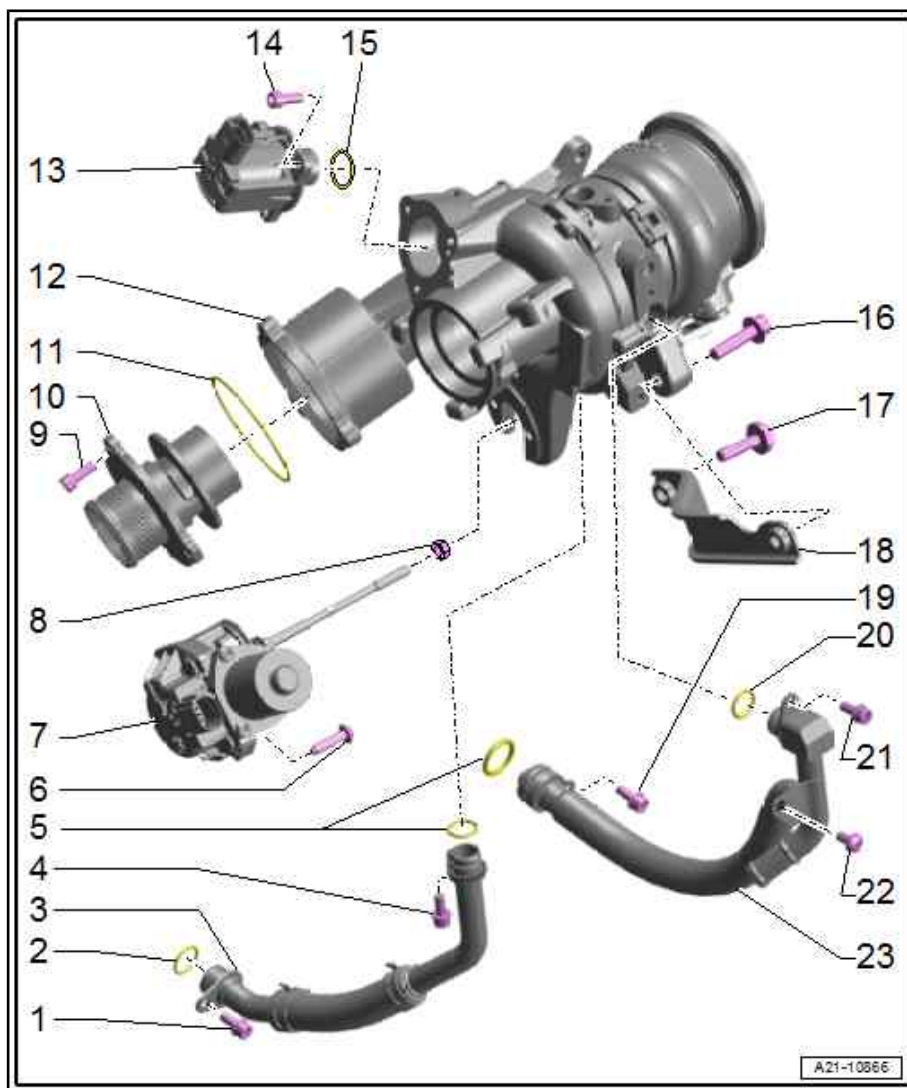
- ☐ Removing and installing ⇒ [page 100](#)

13 - Turbocharger air recirculation valve - N249-

- ☐ Note installation position ⇒ [page 100](#)

14 - Bolt

- ☐ 9 Nm





15 - O-ring

- ☐ Renew after removing
- ☐ Lubricate with coolant

16 - Bolt

- ☐ Coat thread with high-temperature paste; for high-temperature paste refer to ⇒ Electronic parts catalogue
- ☐ 30 Nm

17 - Bolt

- ☐ Renew
- ☐ 20 Nm + turn 90° further

18 - Bracket

- ☐ For turbocharger

19 - Bolt

- ☐ 9 Nm

20 - O-ring

- ☐ Renew after removing
- ☐ Lubricate with coolant

21 - Bolt

- ☐ 9 Nm

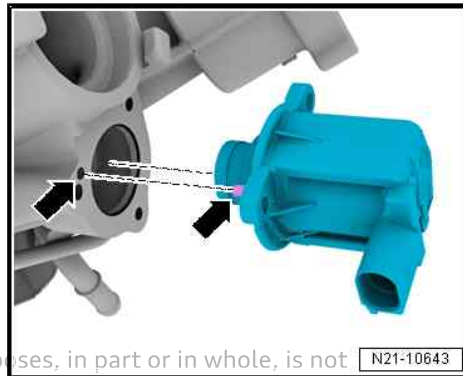
22 - Bolt

- ☐ 30 Nm

23 - Coolant return line

Fitting location of turbocharger air recirculation valve - N249-

- Note installation position -arrows-.



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1.2 Removing and installing turbocharger



Caution

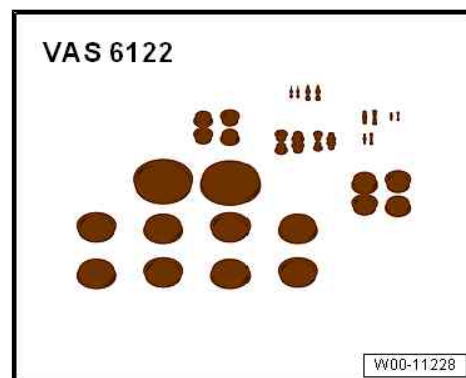
If the turbocharger has suffered mechanical damage (e.g. damaged compressor wheel), it is not sufficient merely to fit a new turbocharger. The following work must be performed in order to avoid further damage:

- ◆ ***Check air cleaner housing, air filter element and air hoses for dirt and foreign particles.***
- ◆ ***Check the entire charge air system (including the charge air cooler) for foreign matter.***
- ◆ ***If foreign matter is found in the charge air system, clean all relevant ducts and hoses and renew charge air cooler if necessary.***

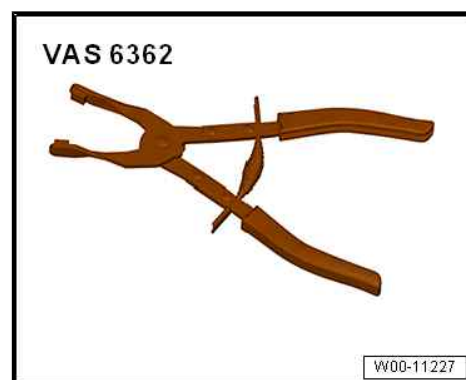


Special tools and workshop equipment required

- ◆ Engine bung set - VAS 6122-

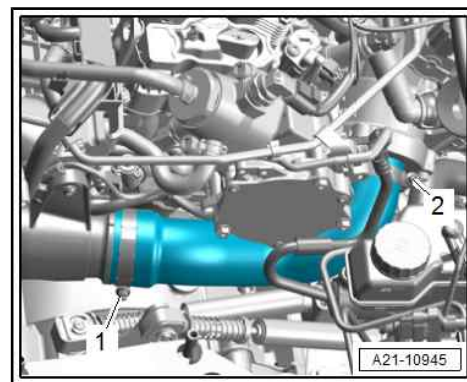


- ◆ Hose clip pliers - VAS 6362-



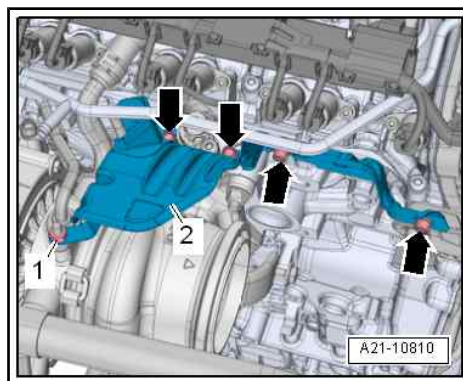
Removing

- Observe rules for cleanliness ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 00; Repair notes; Rules for cleanliness .
- Drain coolant ⇒ [page 60](#) .
- Remove subframe with steering rack ⇒ Running gear, axles, steering; Rep. gr. 40; Subframe; Removing and installing subframe with steering rack .
- Remove catalytic converter with front silencer ⇒ [page 151](#) .
- Remove air cleaner housing ⇒ [page 121](#) .
- Remove Lambda probe - G39- ⇒ [page 133](#) .
- Release hose clips -1, 2- and detach air hose.



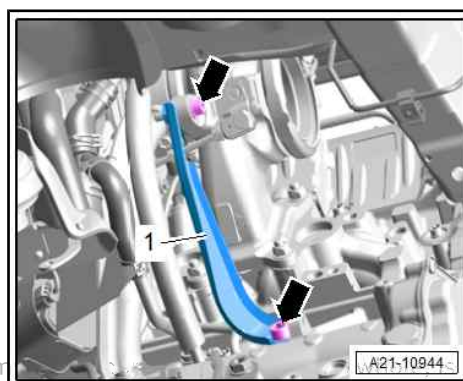


- Remove bolts -arrows- and nut -1-.



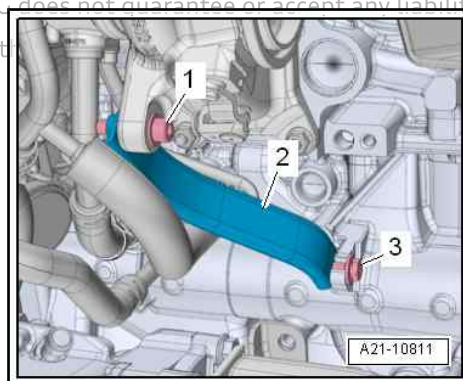
Bracket for turbocharger, version 1:

- Unscrew bolts -arrows- and detach bracket -1- for turbocharger.



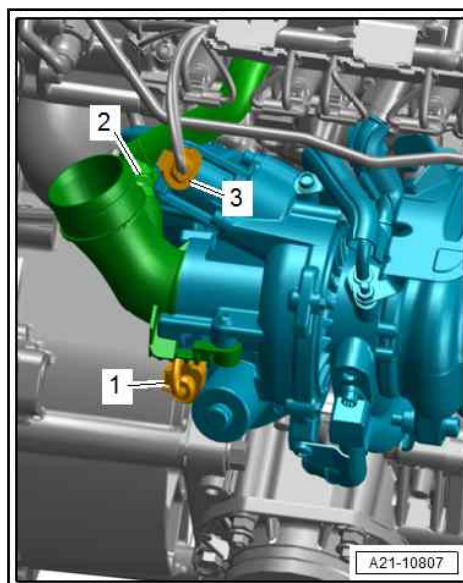
Bracket for turbocharger, version 2:

- Remove bolt -1- and loosen bolt -3-.
- Remove bracket -2- for turbocharger.



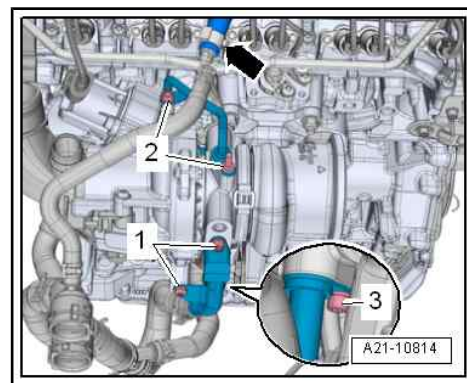
All engine versions (continued):

- Unplug electrical connectors -1, 3-.
- Press release tabs on both sides of crankcase breather hose -2- and detach hose.





- Unscrew bolts -1- and detach connection.
- Unscrew bolts -2, 3- and detach oil supply line and oil return line.
- Release hose clip -arrow-.



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- Remove nuts -arrows-.
- Detach turbocharger from cylinder head.

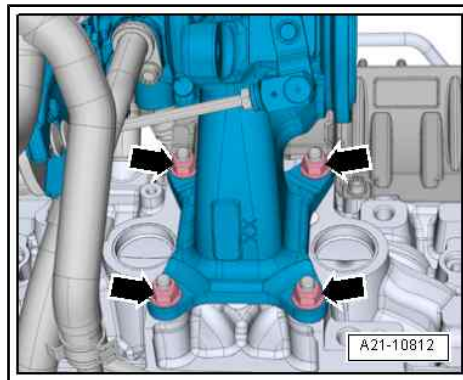
Installing

Installation is carried out in reverse order; note the following:



Note

- ◆ *Renew seals, gaskets, O-rings and self-locking nuts.*
- ◆ *Lubricate studs for turbocharger with high-temperature paste. For high-temperature paste refer to ⇒ [Electronic parts catalogue](#).*
- ◆ *Fill turbocharger with engine oil at connection for oil supply line.*
- ◆ *Hose connections and charge air system hoses must be free of oil and grease prior to fitting.*
- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ [Electronic parts catalogue](#).*
- Install Lambda probe - G39- ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Lambda probe; Removing and installing Lambda probe .
- Install air cleaner housing ⇒ [page 121](#) .
- Install catalytic converter and front silencer ⇒ [page 151](#) .
- Install subframe with steering rack ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Removing and installing subframe with steering rack .



Note

Do not reuse coolant. Copying for private or commercial purposes, in part or in whole, is not

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- Fill up with coolant ⇒ [page 63](#) .
- Check oil level ⇒ Maintenance ; Booklet 819 .



Note

After installing turbocharger, allow engine to idle for approx. 1 minute and do not rev up immediately to ensure turbocharger is supplied with oil.

Tightening torques

- ◆ ⇒ [“1.1 Exploded view - turbocharger”, page 98](#)
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system
- ◆ ⇒ [“2.1 Exploded view - air cleaner housing”, page 119](#)



1.3 Removing and installing charge pressure positioner - V465-

Note

Before removing charge pressure positioner - V465- , check it is available in ⇒ Electronic parts catalogue (ETKA) .

Shape of charge pressure positioner - V465- and its position on turbocharger may vary depending on manufacturer. The following removal and installation instructions describe one version as an example; the procedure is similar for all other versions.

Removing

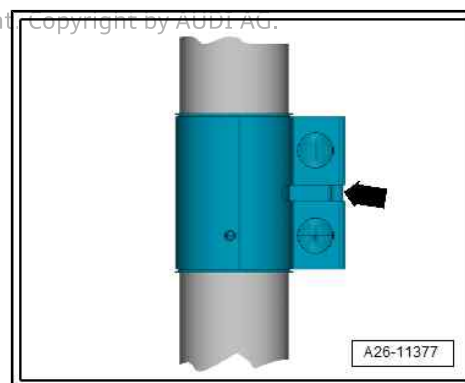
Observe rules for cleanliness ⇒ Servicing 4-cylinder engine, 2.0 ltr. 4-valve TFSI (EA 888 Gen. III); Rep. gr. 00 ; Repair instructions; Rules for cleanliness .

Vehicles with four-wheel drive

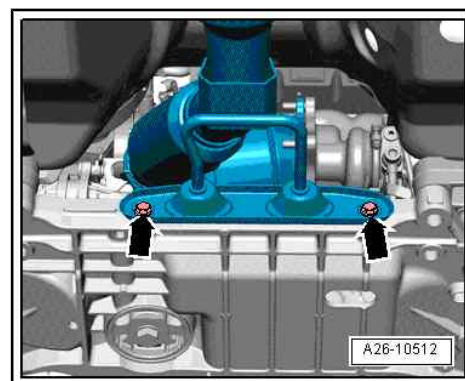
- Remove catalytic converter.
⇒ **“2.2 Removing and installing catalytic converter”, page 151.**

Vehicles with front-wheel drive

- Release clamp -arrow-.



- Remove bolts -arrows-.
- Press catalytic converter to side together with front exhaust pipe.





All vehicles (continued)

- Unplug electrical connector -4-.
- Loosen lock nut -2- by a quarter turn (counterhold at hexagon flats -arrow- on control rod).
- Unscrew control rod from actuating lever -1-, taking care not to turn lock nut.
- Remove bolts -3- and detach charge pressure positioner -V465-.

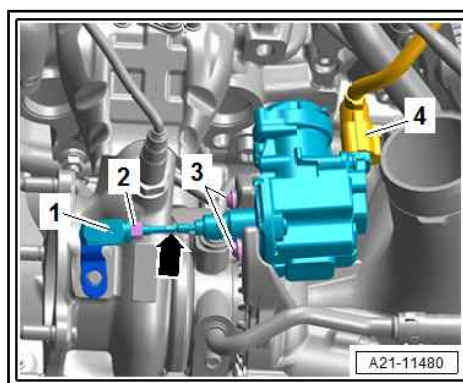
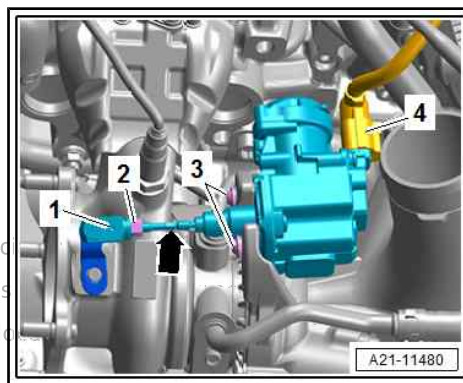
Installing

- If renewing charge pressure positioner, ensure installation position of lock nut is the same on new charge pressure positioner.
- Place charge pressure positioner -V465- in installation position and tighten bolts -3-.
- Screw control rod into actuating lever -1- until it makes contact with lock nut -2-.
- Plug in electrical connector -4-.
- Learnt values must be adapted after renewing charge pressure positioner -V465-.
- Connect ⇒ Vehicle diagnostic tester.
- Select **Diagnosis** mode and then **Start diagnosis**.
- Choose **Select own test** tab and select following options one after the other:
 - ◆ **Drive train**
 - ◆ **Select engine code and engine**
 - ◆ **01 - Self-diagnosis compatible systems**
 - ◆ **01 - Engine electronics**
 - ◆ **01 - Engine electronics, functions**
 - ◆ **01 - Set charge pressure adjuster -V465**

The remaining installation steps are carried out in the reverse sequence.

Tightening torques

- ◆ Exploded view - emission control system
⇒ [“2.1 Exploded view - emission control system”, page 149](#)
- ◆ Exploded view - turbocharger ⇒ [page 99](#)





2 Charge air system

⇒ ["2.1 Exploded view - charge air system", page 107](#)

⇒ ["2.2 Exploded view - hose connections for charge air system", page 108](#)

⇒ ["2.3 Removing and installing charge pressure sender G31", page 108](#)

⇒ ["2.4 Checking charge air system for leaks", page 108](#)

2.1 Exploded view - charge air system



Note

Check that all air pipes and hoses and vacuum lines are correctly fitted and that there are no leaks before carrying out tests or repairs.

1 - Air pipe

2 - Air pipe

3 - Grommet

4 - Spacer sleeve

5 - Bolt

□ 7 Nm

6 - Air hose

- Installing ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21; Charge air system; Exploded view - hose connections for charge air system

7 - Charge air cooler

- Removing and installing ⇒ ["4.3 Removing and installing radiator", page 90](#)



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If there are slight impressions on the fins, refer to ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 00; Repair notes; Installing radiators and condensers.

8 - Rubber bush

- For charge air cooler

9 - Grommet

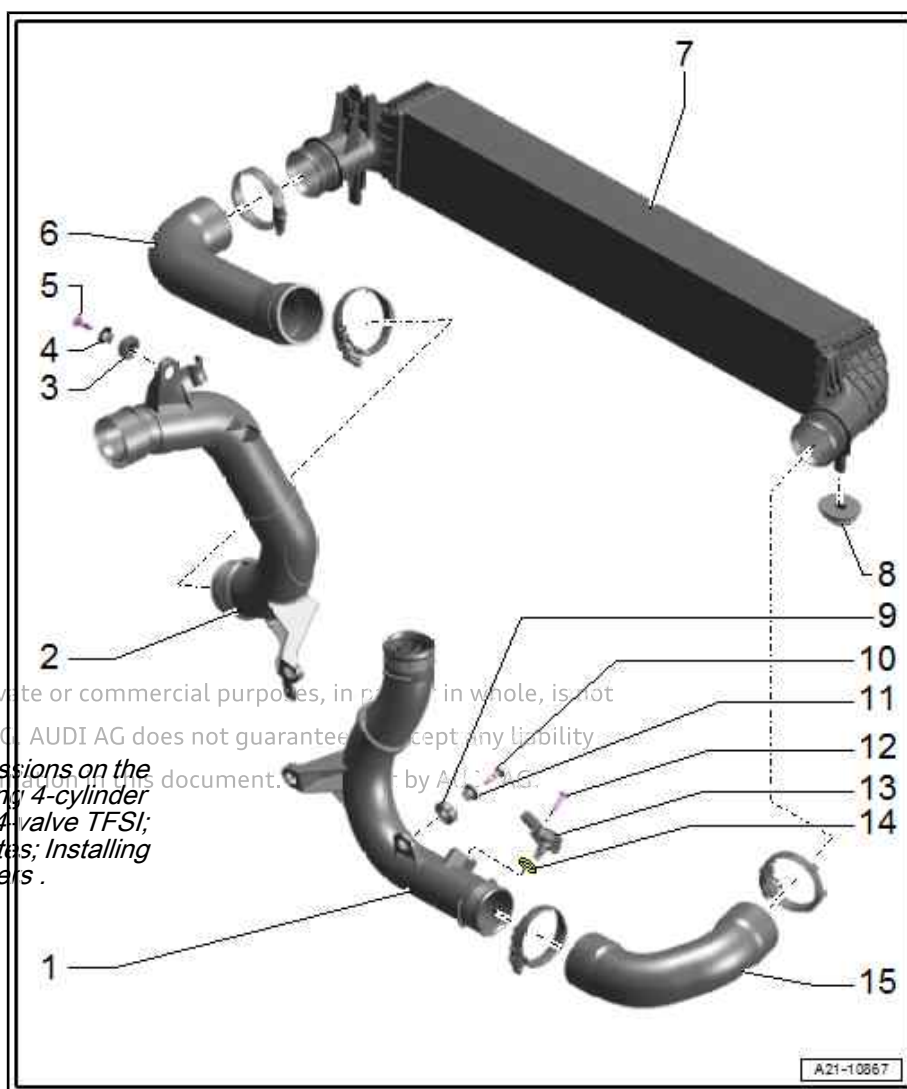
10 - Bolt

- 7 Nm

11 - Spacer sleeve

12 - Bolt

- 5 Nm



A21-10867



13 - Charge pressure sender - G31-

- ❑ Removing and installing ⇒ [page 108](#)

14 - O-ring

- ❑ Renew after removing

15 - Air hose

- ❑ Installing ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system

2.2 Exploded view - hose connections for charge air system

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system .

2.3 Removing and installing charge pressure sender - G31-

Removing

- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Unplug electrical connector -2-.
- Remove bolts -1- and pull charge pressure sender - G31- out of air pipe.

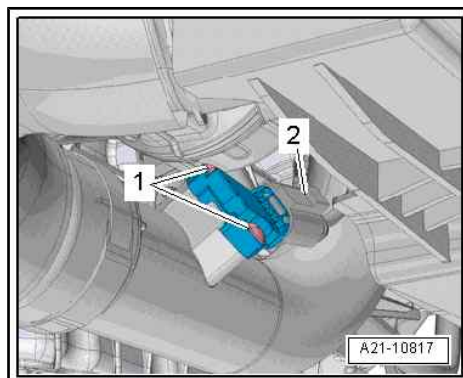
Installing

Installation is carried out in reverse order; note the following:



Note

Fit new O-ring.



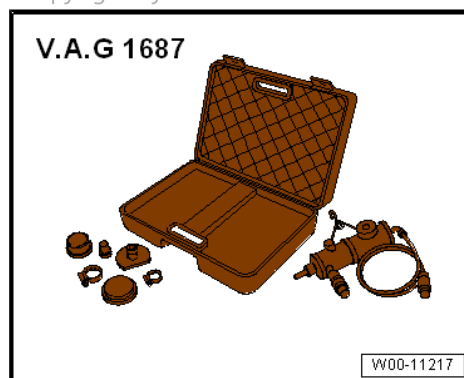
Tightening torques

- ◆ ⇒ [“2.1 Exploded view - charge air system”, page 107](#)
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

2.4 Checking charge air system for leaks

Special tools and workshop equipment required

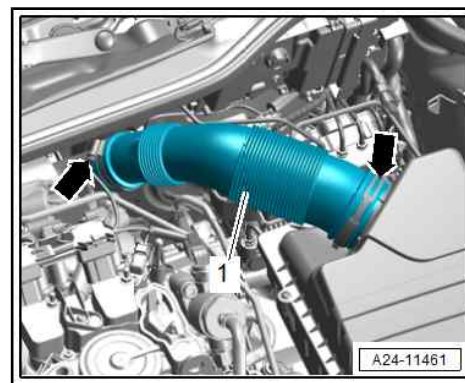
- ◆ Charge air system tester - V.A.G 1687-





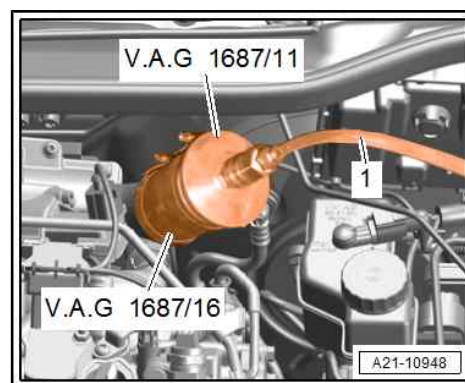
Procedure

- Release hose clips -arrows- and remove air pipe -1-.



- Connect adapter - V.A.G 1687/11- with -V.A.G 1687/16- to turbocharger.
- Connect charge air system tester - V.A.G 1687- -item 1- to adapter.

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Checking charge air system for leaks .



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24 – Mixture preparation - injection

1 Injection system

⇒ [“1.1 Overview of fitting locations - injection system”, page 110](#)

1.1 Overview of fitting locations - injection system

Overview of fitting locations - engine compartment

1 - Actuator for structure-borne sound - R214-

- ☐ Exploded view
⇒ [“5.1 Exploded view - actuator for structure-borne sound and control unit for structure-borne sound”, page 128](#)

2 - Control unit for structure-borne sound - J869-

- ☐ Exploded view
⇒ [“5.1 Exploded view - actuator for structure-borne sound and control unit for structure-borne sound”, page 128](#)

3 - Accelerator position sender - G79- and accelerator position sender 2 - G185-

- ☐ Fitting location
⇒ [page 111](#)

4 - Brake servo pressure sensor - G294-

- ☐ Fitting location
⇒ [page 112](#)

5 - Brake light switch - F- / brake pedal switch - F63-

- ☐ Fitting location
⇒ [page 111](#)

6 - Engine control unit - J623-

- ☐ Removing and installing
⇒ [page 135](#)

7 - Clutch position sender - G476-

- ☐ Fitting location ⇒ [page 111](#)

8 - Gearbox neutral position sender - G701-

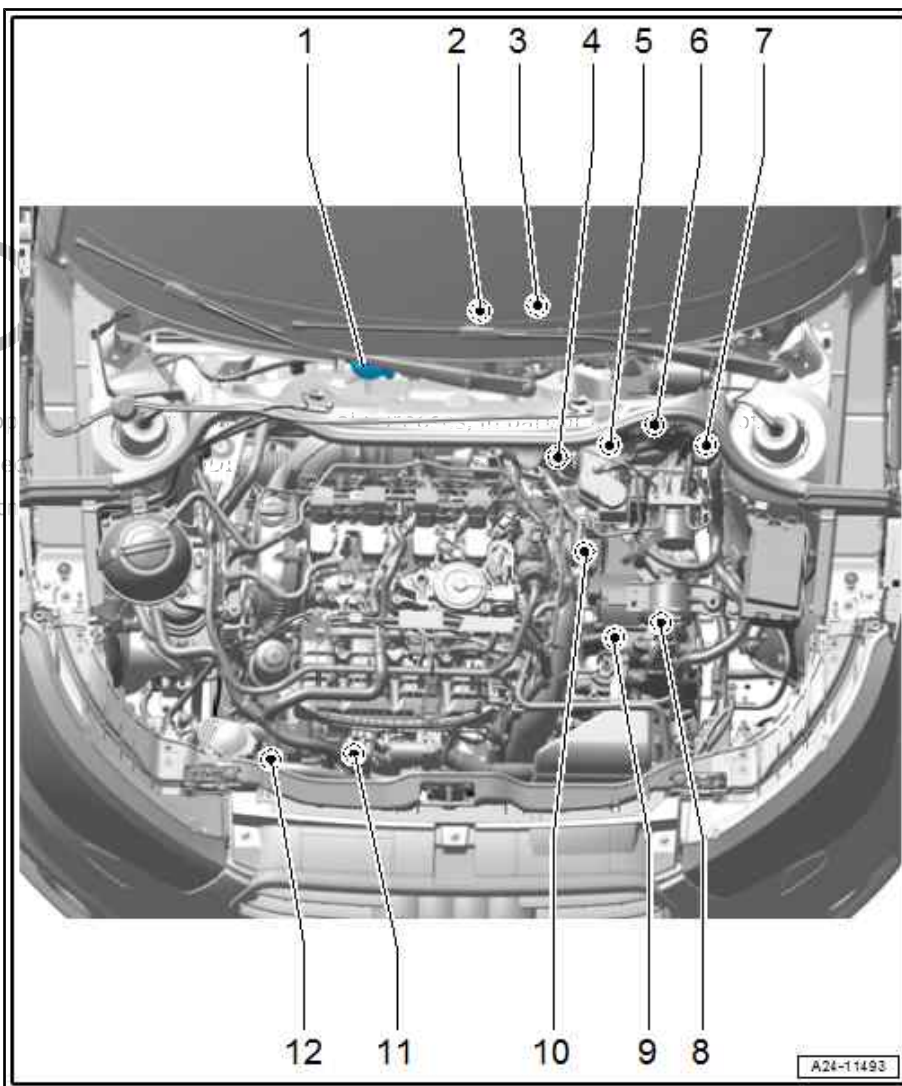
- ☐ Fitting location ⇒ [page 113](#)

9 - Reversing light switch - F4-

- ☐ Fitting location ⇒ [page 113](#)

10 - Radiator outlet coolant temperature sender - G83-

- ☐ Different fitting locations ⇒ [page 112](#)
- ☐ Exploded view ⇒ [“2.3 Exploded view - coolant temperature senders”, page 69](#)



**11 - Coolant shut-off valve - N82-**

- ❑ Fitting location ⇒ [page 113](#)

12 - Charge pressure sender - G31-

- ❑ Fitting location ⇒ [page 112](#)

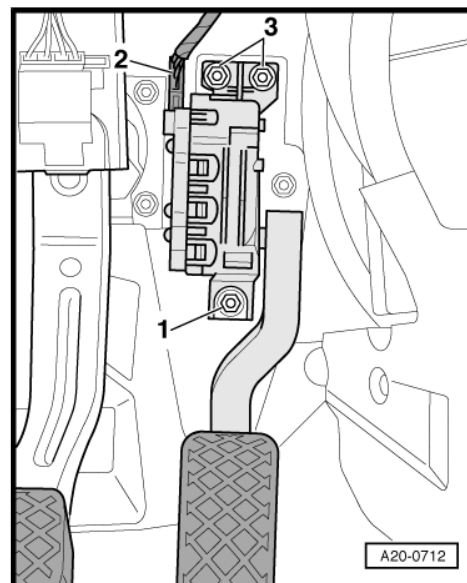
Fitting location of accelerator position sender - G79- / accelerator position sender 2 - G185-

2 - Electrical connector for accelerator pedal module

**Note**

The accelerator position sender - G79- and accelerator position sender 2 - G185- are integrated in the accelerator pedal module and cannot be renewed individually.

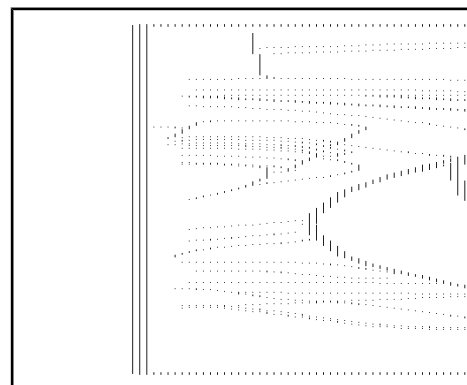
Exploded view ⇒ Fuel supply system, petrol engines; Rep. gr. 20 ; Accelerator mechanism; Exploded view - accelerator pedal module

**Fitting location of brake light switch - F- / brake pedal switch - F63-**

C - Brake light switch - F- / brake pedal switch - F63-

- ◆ In engine compartment on brake master cylinder

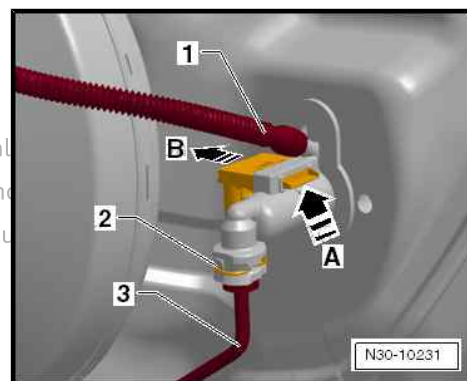
Removing and installing ⇒ Brake system; Rep. gr. 45 ; Sensors; Removing and installing brake light switch

**Fitting location of clutch position sender - G476-**

- ◆ -Item 2- on clutch master cylinder, next to brake servo

Exploded view ⇒ Gearbox; Rep. gr. 30 ; Clutch mechanism; Exploded view - pedal cluster

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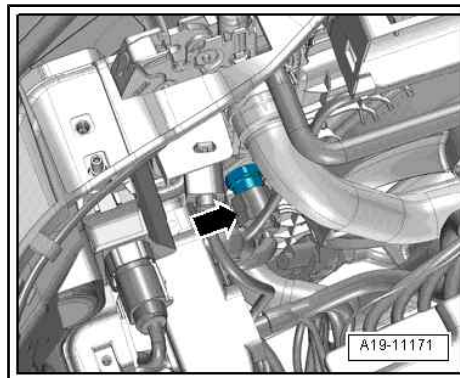
Fitting location of radiator outlet coolant temperature sender - G83-

Engine code DAJB

- ◆ In radiator on left -arrow-

Exploded view

⇒ ["2.3 Exploded view - coolant temperature senders", page 69](#) .

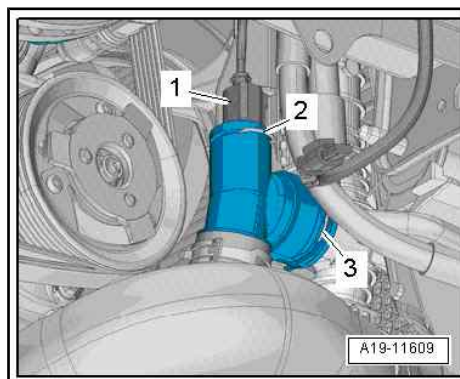


Engine code CWZA

- ◆ -Item 3- in coolant hose (bottom right)

Exploded view

⇒ ["2.3 Exploded view - coolant temperature senders", page 69](#) .

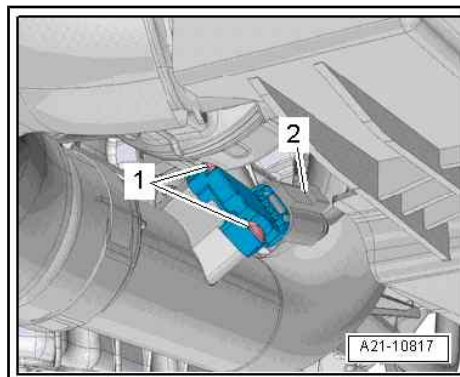


Fitting location of charge pressure sender - G31-

- ◆ In air pipe (front) on engine

Exploded view

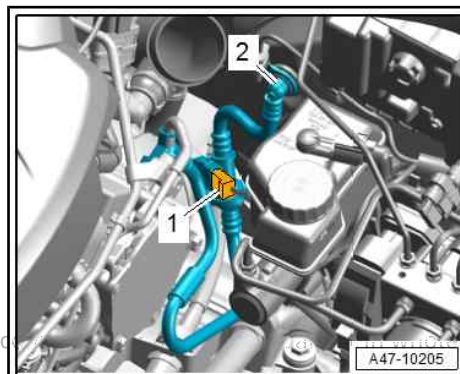
⇒ ["2.1 Exploded view - charge air system", page 107](#) .



Fitting location of brake servo pressure sensor - G294-

- ◆ On vacuum line leading to brake servo

- 1 - Electrical connector for brake servo pressure sensor - G294-



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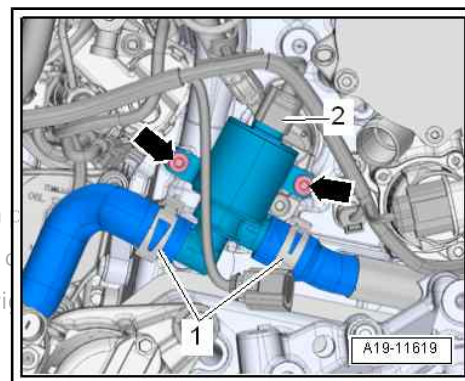
Fitting location of coolant shut-off valve - N82-

- ◆ On left side of cylinder head

Exploded view

⇒ ["2.2 Exploded view - electric coolant pump", page 66](#) .

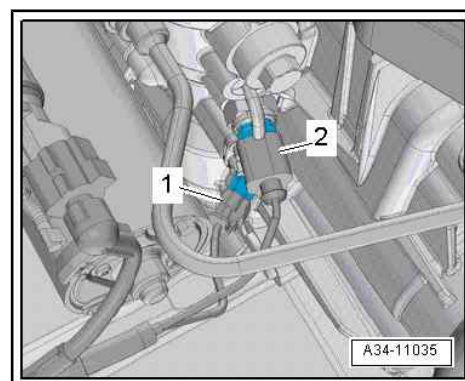
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Fitting location of reversing light switch - F4- / gearbox neutral position sender - G701-

- ◆ On manual gearbox (front left)

- 1 - Electrical connector for gearbox neutral position sender - G701-
- 2 - Electrical connector for reversing light switch - F4-



Overview of fitting locations - engine (view from left side)

**1 - Knock sensor 1 - G61-**

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system

2 - Fuel pressure sender - G247-

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Exploded view - fuel rail with injectors

3 - Injector, cylinder 1 - N30-

- ❑ For FSI engines
- ❑ Fitting location
⇒ [page 115](#)

4 - Injector, cylinder 2 - N31-

- ❑ For FSI engines
- ❑ Fitting location
⇒ [page 115](#)

5 - Injector, cylinder 3 - N32-

- ❑ For FSI engines
- ❑ Fitting location
⇒ [page 115](#)

6 - Injector, cylinder 4 - N33-

- ❑ For FSI engines
- ❑ Fitting location
⇒ [page 115](#)

7 - Hall sender - G40-

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system

8 - Intake manifold flap valve - N316-

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Exploded view - intake manifold

9 - Coolant temperature sender - G62-

- ❑ Exploded view ⇒ [“2.3 Exploded view - coolant temperature senders”, page 69](#)

10 - Throttle valve module - J338-

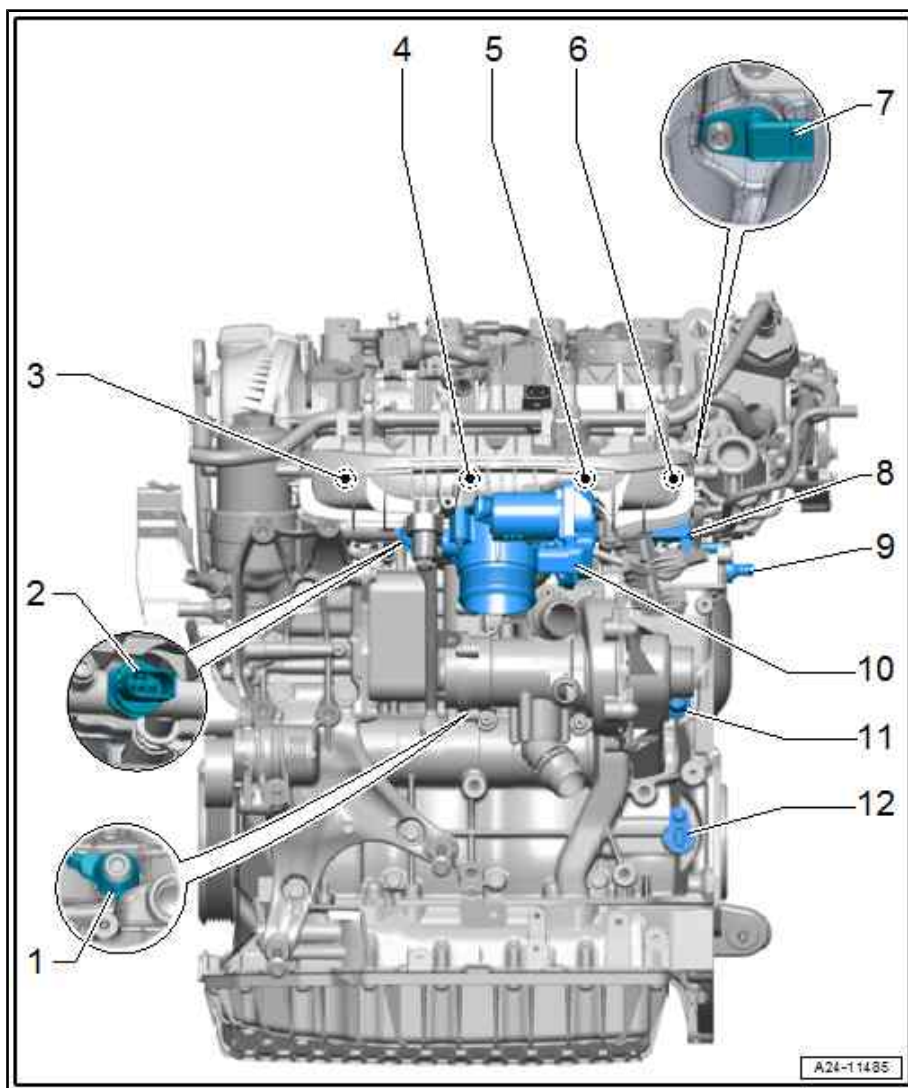
- ❑ With throttle valve drive for electric throttle - G186- throttle valve drive angle sender - G187- and throttle valve drive angle sender 2 - G188-
- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Exploded view - intake manifold

11 - Stage 3 oil pressure switch - F447-

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches; Exploded view - oil pressure switches/oil pressure control

12 - Engine speed sender - G28-

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system

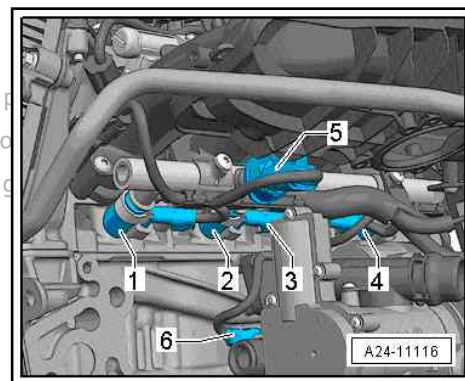




Fitting location of injectors for FSI engines

- 1 - Injector, cylinder 1 - N30-
- 2 - Injector, cylinder 2 - N31-
- 3 - Injector, cylinder 3 - N32-
- 4 - Injector, cylinder 4 - N33-
- 5 - Fuel pressure sender - G247-
- 6 - Knock sensor 1 - G61-

Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Exploded view - fuel rail with injectors



Overview of fitting locations - engine (view from right side)

1 - Continued coolant circulation pump - V51-

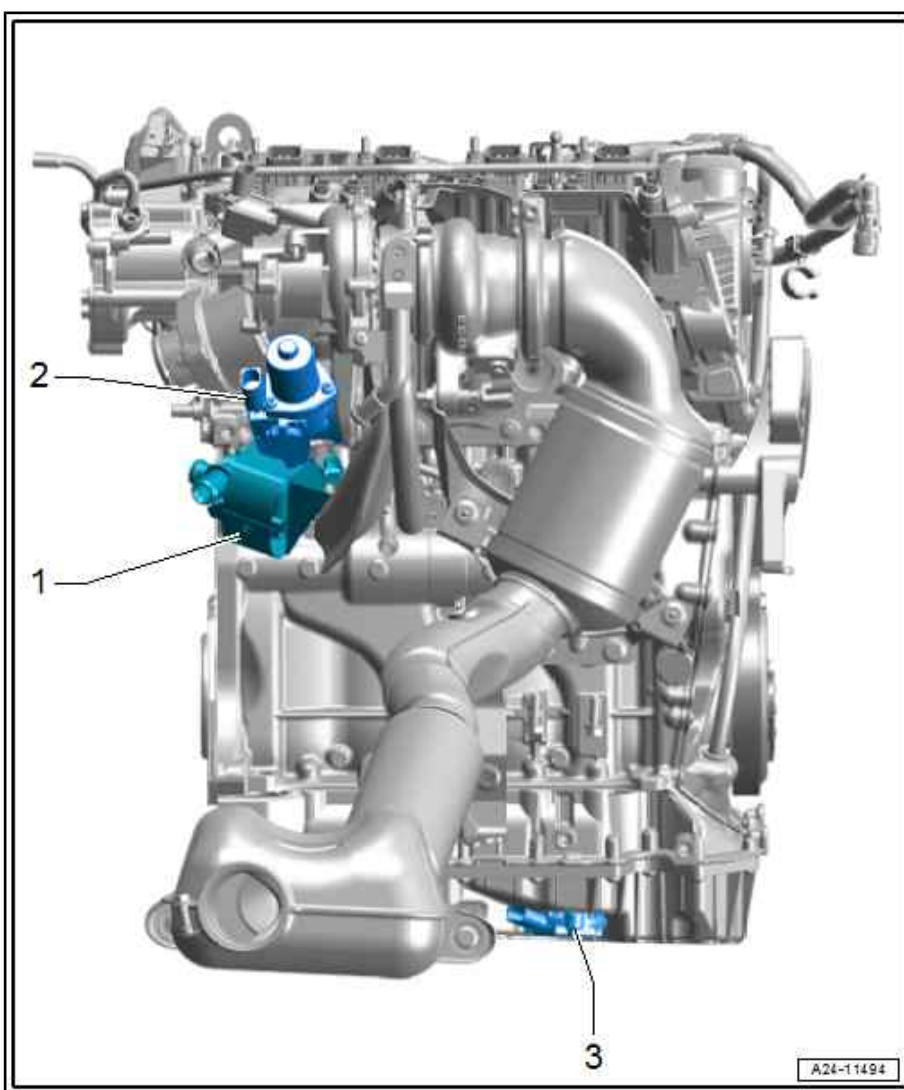
- Exploded view
⇒ ["2.2 Exploded view - electric coolant pump", page 66](#)

2 - Charge pressure positioner - V465- / position sender for charge pressure positioner - G581-

- Exploded view
⇒ ["1.1 Exploded view - turbocharger", page 98](#)

3 - Oil level and oil temperature sender - G266-

- Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Sump/oil pump; Exploded view - sump/oil pump



Overview of fitting locations - engine (view from front)



1 - Lambda probe after catalytic converter - G130- with Lambda probe 1 heater after catalytic converter - Z29-

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Lambda probe; Exploded view - Lambda probe

2 - Lambda probe - G39- with Lambda probe heater - Z19-

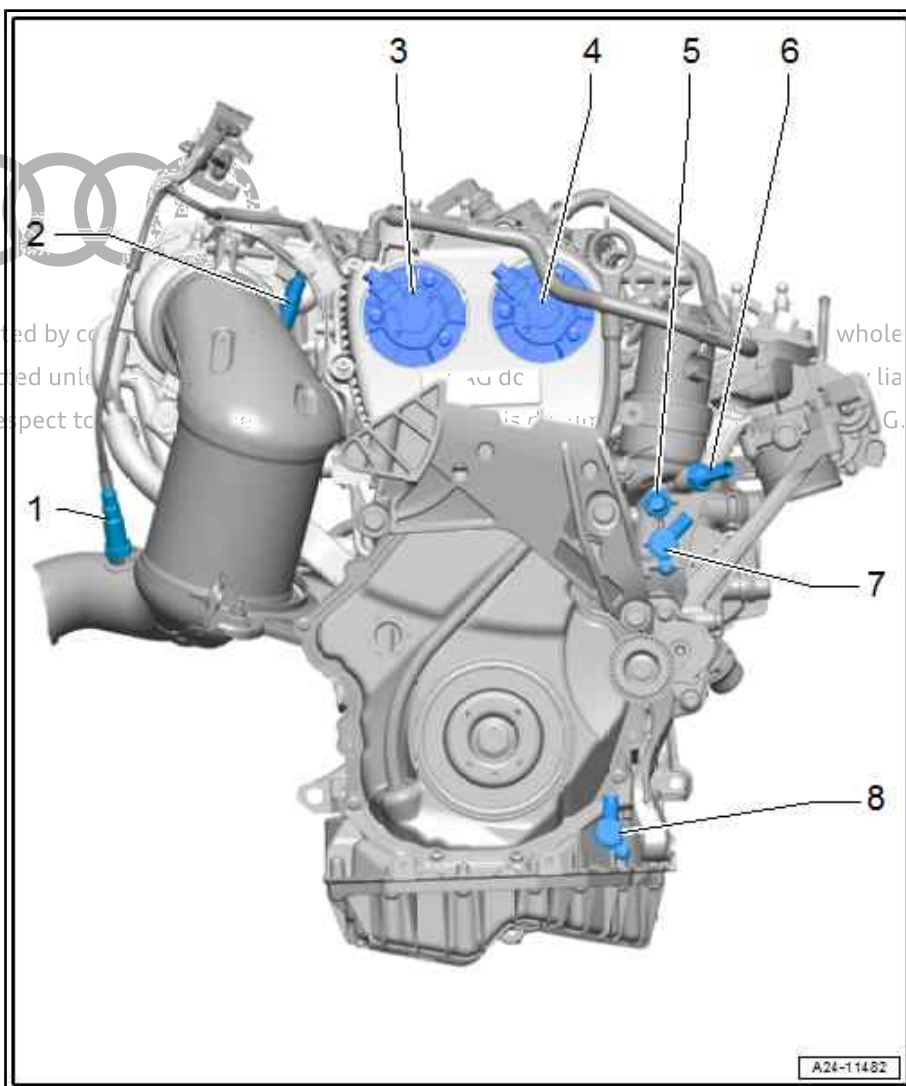
- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Lambda probe; Exploded view - Lambda probe

3 - Exhaust camshaft control valve 1 - N318-

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Timing chain cover; Exploded view - timing chain cover

4 - Camshaft control valve 1 - N205-

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Timing chain cover; Exploded view - timing chain cover



5 - Oil pressure switch - F22-

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches; Exploded view - oil pressure switches/oil pressure control

6 - Oil pressure switch for reduced oil pressure - F378-

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches; Exploded view - oil pressure switches/oil pressure control

7 - Piston cooling jet control valve - N522-

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches; Exploded view - oil pressure switches/oil pressure control

8 - Valve for oil pressure control - N428-

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 17 ; Oil filter/oil pressure switches; Exploded view - oil pressure switches/oil pressure control

Overview of fitting locations - engine (view from above)



1 - Activated charcoal filter solenoid valve 1 - N80-

2 - Ignition coil 1 with output stage - N70-

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system

3 - Actuator 1 for camshaft adjustment - F366- (for cylinder No. 1)

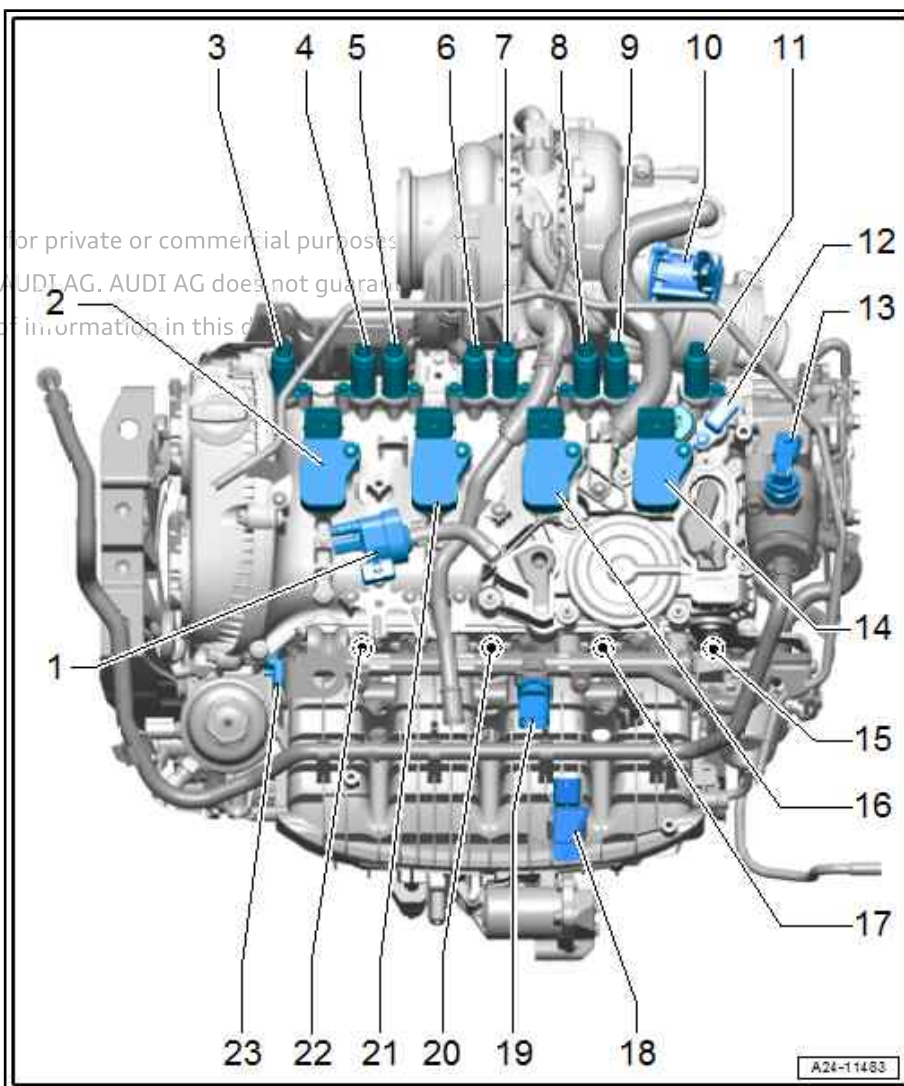
- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

4 - Actuator 2 for camshaft adjustment - F367- (for cylinder No. 1)

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

5 - Actuator 3 for camshaft adjustment - F368- (for cylinder No. 2)

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear



6 - Actuator 4 for camshaft adjustment - F369- (for cylinder No. 2)

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

7 - Actuator 5 for camshaft adjustment - F370- (for cylinder No. 3)

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

8 - Actuator 6 for camshaft adjustment - F371- (for cylinder No. 3)

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

9 - Actuator 7 for camshaft adjustment - F372- (for cylinder No. 4)

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

10 - Turbocharger air recirculation valve - N249-

- ❑ Exploded view ⇒ ["1.1 Exploded view - turbocharger", page 98](#)

11 - Actuator 8 for camshaft adjustment - F373- (for cylinder No. 4)

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 15 ; Valve gear; Exploded view - valve gear

12 - Hall sender 3 - G300-

- ❑ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system

**13 - Fuel metering valve - N290- or fuel pressure regulating valve - N276-**

- ☐ Fuel metering valve - N290- or fuel pressure regulating valve - N276- may be fitted, depending on version
- ☐ Integrated in high-pressure pump

14 - Ignition coil 4 with output stage - N292-

- ☐ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system

15 - Injector 2, cylinder 4 - N535-

- ☐ For MPI engines
- ☐ Fitting location ⇒ [page 118](#)

16 - Ignition coil 3 with output stage - N291-

- ☐ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system

17 - Injector 2, cylinder 3 - N534-

- ☐ For MPI engines
- ☐ Fitting location ⇒ [page 118](#)

18 - Intake air temperature sender - G42- / intake manifold pressure sender - G71-

- ☐ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Exploded view - intake manifold

19 - Fuel pressure sender for low pressure - G410-

- ☐ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Exploded view - fuel rail with injectors

20 - Injector 2, cylinder 2 - N533-

- ☐ For MPI engines
- ☐ Fitting location ⇒ [page 118](#)

21 - Ignition coil 2 with output stage - N127-

- ☐ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system; Exploded view - ignition system

22 - Injector 2, cylinder 1 - N532-

- ☐ For MPI engines
- ☐ Fitting location ⇒ [page 118](#)

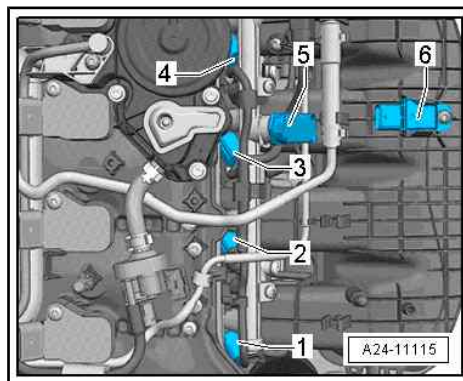
23 - Intake manifold flap potentiometer - G336-

- ☐ Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Exploded view - intake manifold

Fitting location of injectors for MPI engines

- 1 - Injector 2, cylinder 1 - N532-
- 2 - Injector 2, cylinder 2 - N533-
- 3 - Injector 2, cylinder 3 - N534-
- 4 - Injector 2, cylinder 4 - N535-
- 5 - Fuel pressure sender for low pressure - G410-
- 6 - Intake air temperature sender - G42- / intake manifold pressure sender - G71-

Exploded view ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Exploded view - fuel rail with injectors





2 Air cleaner

⇒ [“2.1 Exploded view - air cleaner housing”, page 119](#)

⇒ [“2.2 Removing and installing air cleaner housing”, page 121](#)

2.1 Exploded view - air cleaner housing

⇒ [“2.1.1 Exploded view - air cleaner housing, engine code DAJB”, page 119](#)

⇒ [“2.1.2 Exploded view - air cleaner housing, engine code CWZA”, page 120](#)

2.1.1 Exploded view - air cleaner housing, engine code DAJB

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1 - Water drain hose

- ☐ With valve
- ☐ Clean

2 - Bolt

- ☐ 5 Nm

3 - Air duct (bottom section)

- ☐ On lock carrier

4 - Bolt

- ☐ 5 Nm

5 - Air duct (top section)

- ☐ On lock carrier

6 - Cover

- ☐ For air duct

7 - Breather hose

8 - Bolt

- ☐ 1.5 Nm

9 - Air hose

10 - Air cleaner (top section)

- ☐ Check for dirt

11 - Air filter element

- ☐ Use genuine air filter element ⇒ Electronic parts catalogue
- ☐ Change intervals ⇒ Maintenance tables
- ☐ Removing and installing ⇒ Maintenance ; Booklet 819

12 - Insert

- ☐ For air cleaner (bottom section)

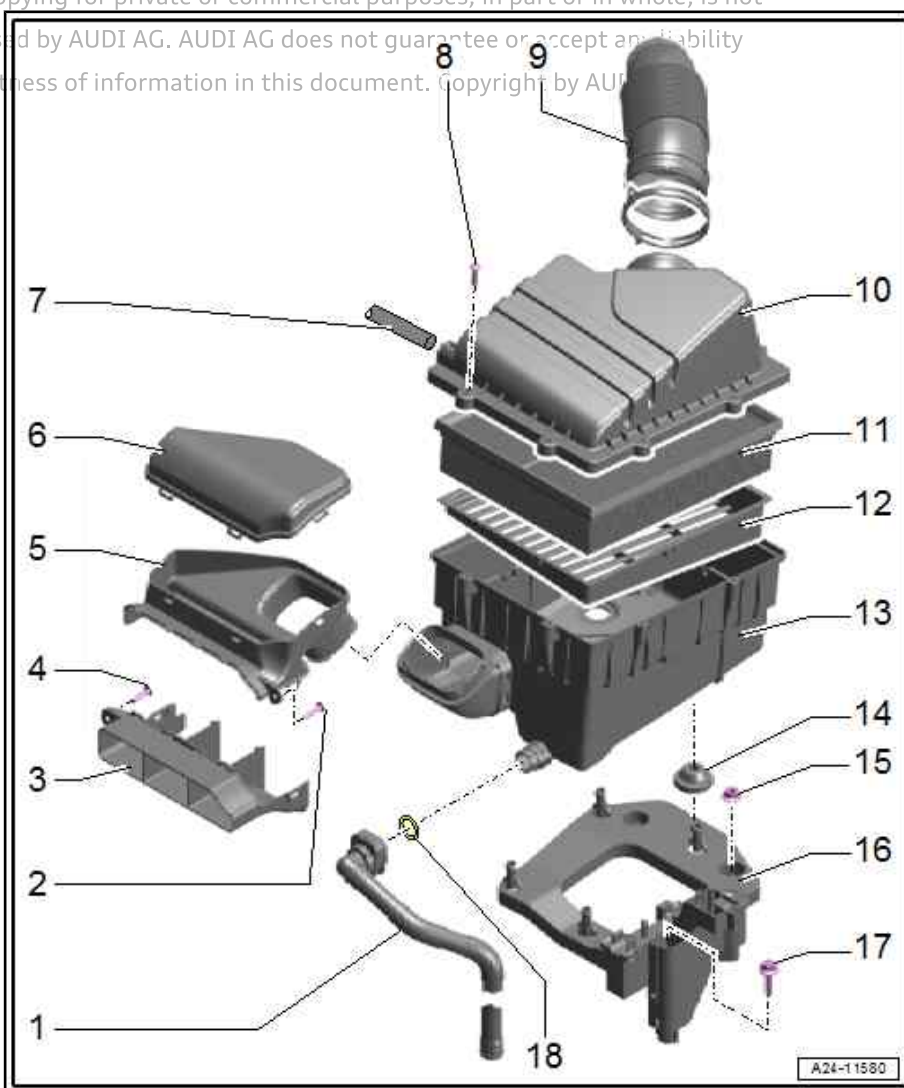
13 - Air cleaner (bottom section)

- ☐ Remove any salt residue, dirt and leaves

14 - Rubber buffer

15 - Nut

- ☐ Tightening torque ⇒ Electrical system; Rep. gr. 27 ; Jump start terminal; Exploded view - jump start terminal





- ☐ Removing and installing ⇒ Electrical system; Rep. gr. 27 ; Jump start terminal; Removing and installing jump start terminal

14 - Nut

- ☐ Tightening torque ⇒ Electrical system; Rep. gr. 27 ; Jump start terminal; Exploded view - jump start terminal

15 - Bolt

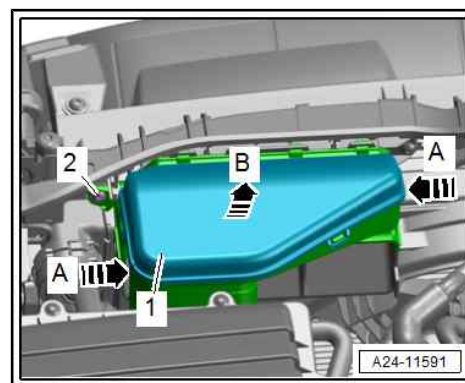
- ☐ Tightening torque ⇒ Electrical system; Rep. gr. 27 ; Jump start terminal; Exploded view - jump start terminal

2.2 Removing and installing air cleaner housing

Removing

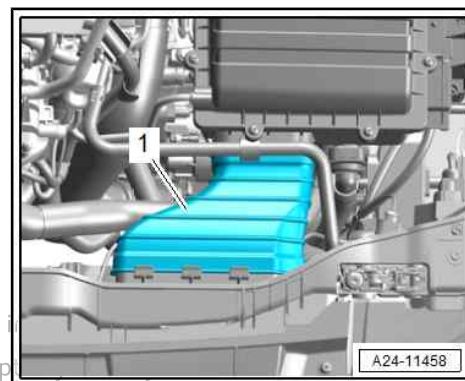
Engine code DAJB:

- Unscrew bolt -2- and release fasteners -arrows A-.
- Detach air duct -1- from air cleaner housing -arrow B- and remove it.



Engine code CWZA:

- Detach air duct -1-.



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All engine versions (continued):

- Disconnect vacuum hose -1-.
- Release hose clip -2- and detach air hose.
- Detach air cleaner housing -3- from retaining pins and remove (pay attention to water drain hose).

Installing



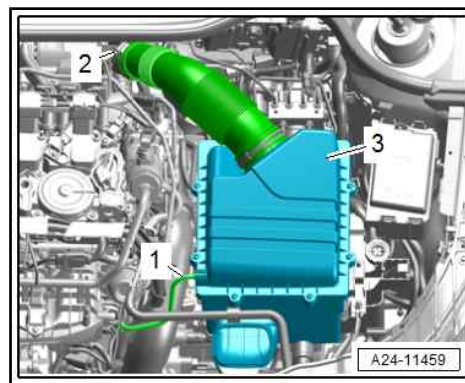
Note

- ◆ *Use a silicone-free lubricant when installing the air hose.*
- ◆ *Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .*
- Check for salt residue, dirt and leaves in air hose (engine intake side).
- Check for dirt in intake duct leading to air filter element.
- Install air cleaner housing.



Note

The water drain hose must be routed straight downwards without kinks.



Tightening torques

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- ◆ ⇒ [“2.1 Exploded view - air cleaner housing” page 119](#)
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr. 2.0 ltr. 4-valve TFSI;
Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system



3 Intake manifold

⇒ [“3.1 Exploded view - intake manifold”, page 123](#)

⇒ [“3.2 Removing and installing intake manifold”, page 123](#)

⇒ [“3.3 Removing and installing throttle valve module J338”, page 124](#)

⇒ [“3.4 Cleaning throttle valve module”, page 125](#)

3.1 Exploded view - intake manifold

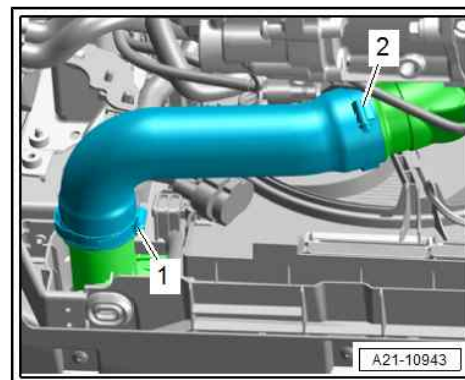
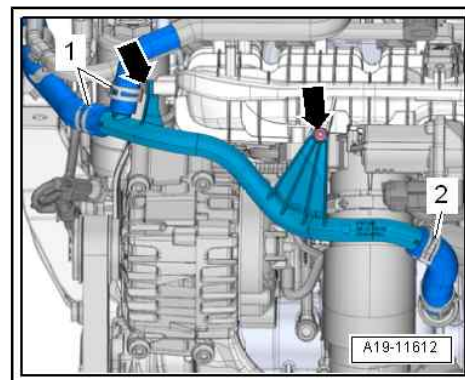
All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24; Intake manifold; Exploded view - intake manifold.

3.2 Removing and installing intake manifold

Removing

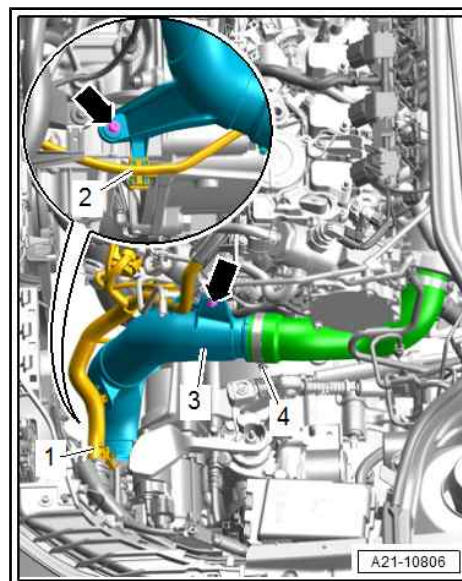
- Remove air cleaner housing ⇒ [page 121](#) .
- Remove throttle valve module - J338- ⇒ [page 124](#) .
- Remove bolts -arrows- at coolant pipe (front).

- Release hose clip -1- and detach air hose from charge air cooler.

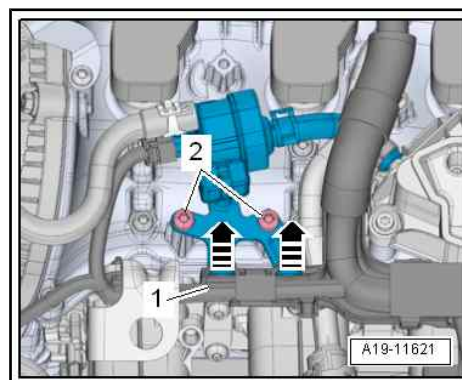




- Move electrical wiring harnesses -1, 2- clear at air pipe -3-.
- Loosen screw-type clip -4-.
- Remove bolts -arrows- and press air pipe towards left slightly.



- Release fasteners -arrows- and detach wiring duct -1- from bracket.



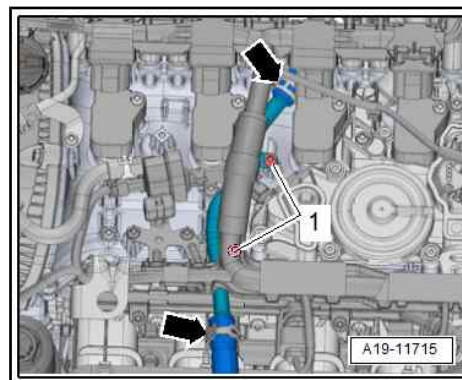
- Remove bolts -1- for coolant pipe (top).

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Removing and installing intake manifold .

Installing

Additional work:

- Install throttle valve module - J338- ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Removing and installing throttle valve module - J338- .
- Install air cleaner housing ⇒ [page 121](#) .



Tightening torques

- ◆ ⇒ [“3.1 Exploded view - coolant pipes”, page 82](#)
- ◆ ⇒ [“2.1 Exploded view - charge air system”, page 107](#)
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system

3.3 Removing and installing throttle valve module - J338-

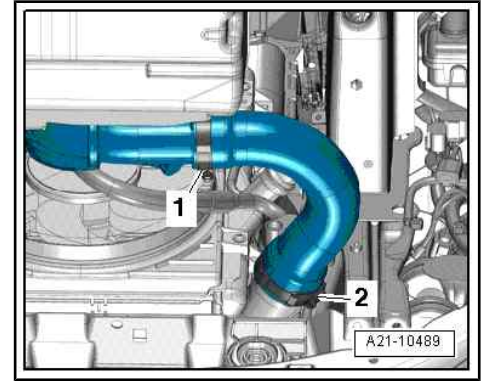
Removing

- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

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- Release hose clip -2- and detach air hose from charge air cooler.

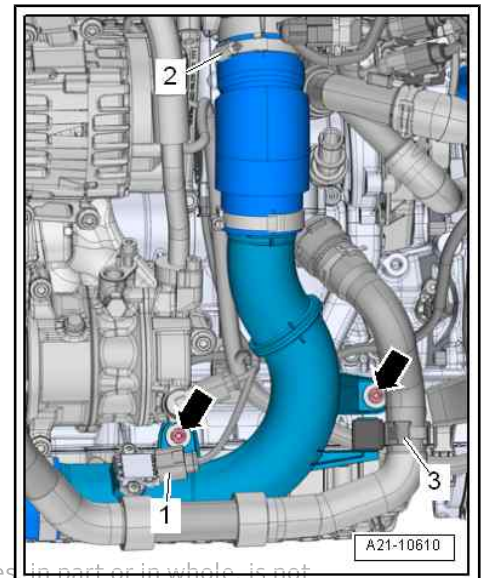


- Release hose clip -2-.
- If fitted, move coolant hose -3- clear.
- Remove bolts -arrows-.
- Unplug electrical connector -1- from charge pressure sender - G31- .
- Detach air pipe (right-side).

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Removing and installing throttle valve module - J338- .

Tightening torques

- ◆ ⇒ [“2.1 Exploded view - charge air system”, page 107](#)
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation



3.4 Cleaning throttle valve module

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Intake manifold; Cleaning throttle valve module .



4 Injectors

⇒ [“4.1 Exploded view - fuel rail with injectors”, page 126](#)

⇒ [“4.2 Removing and installing fuel rail”, page 126](#)

⇒ [“4.3 Removing and installing injectors”, page 126](#)

⇒ [“4.4 Cleaning injectors”, page 127](#)

4.1 Exploded view - fuel rail with injectors

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Exploded view - fuel rail with injectors .

4.2 Removing and installing fuel rail

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Removing and installing fuel rail .

4.3 Removing and installing injectors

⇒ [“4.3.1 Removing and installing injectors - vehicles with FSI engine”, page 126](#)

⇒ [“4.3.2 Removing and installing injectors - vehicles with MPI engine”, page 126](#)

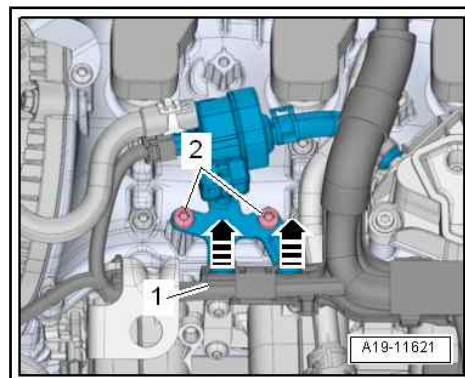
4.3.1 Removing and installing injectors - vehicles with FSI engine

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Removing and installing injectors .

4.3.2 Removing and installing injectors - vehicles with MPI engine

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- Removing**
- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
 - Release fasteners -arrows- and detach wiring duct -1- from bracket.





- Remove bolts -1- for coolant pipe (top).

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Removing and installing injectors .

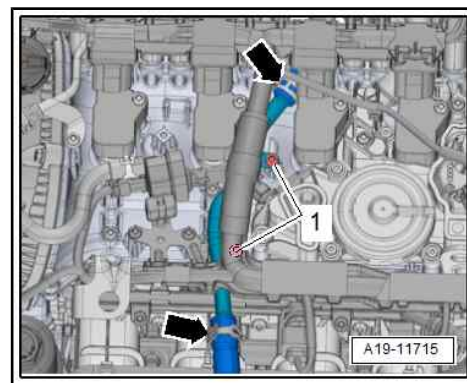
Installing

Additional work:

- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

Tightening torques

- ♦ ⇒ [“3.1 Exploded view - coolant pipes”, page 82](#)



4.4 Cleaning injectors

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Injectors; Cleaning injectors .



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5 Senders and sensors

⇒ ["5.1 Exploded view - actuator for structure-borne sound and control unit for structure-borne sound", page 128](#)

⇒ ["5.2 Removing and installing actuator for structure-borne sound R214", page 129](#)

⇒ ["5.3 Removing and installing control unit for structure-borne sound J869", page 129](#)

⇒ ["5.4 Removing and installing intake air temperature sender G42 / intake manifold pressure sender G71", page 129](#)

⇒ ["5.5 Removing and installing fuel pressure sender G247", page 130](#)

⇒ ["5.6 Checking fuel pressure sender G247", page 130](#)

⇒ ["5.7 Removing and installing fuel pressure sender for low pressure G410", page 131](#)

5.1 Exploded view - actuator for structure-borne sound and control unit for structure-borne sound

1 - Electrical connector

2 - Actuator for structure-borne sound - R214-

- ❑ Removing and installing
⇒ [page 129](#)

3 - Nut

- ❑ 5 Nm

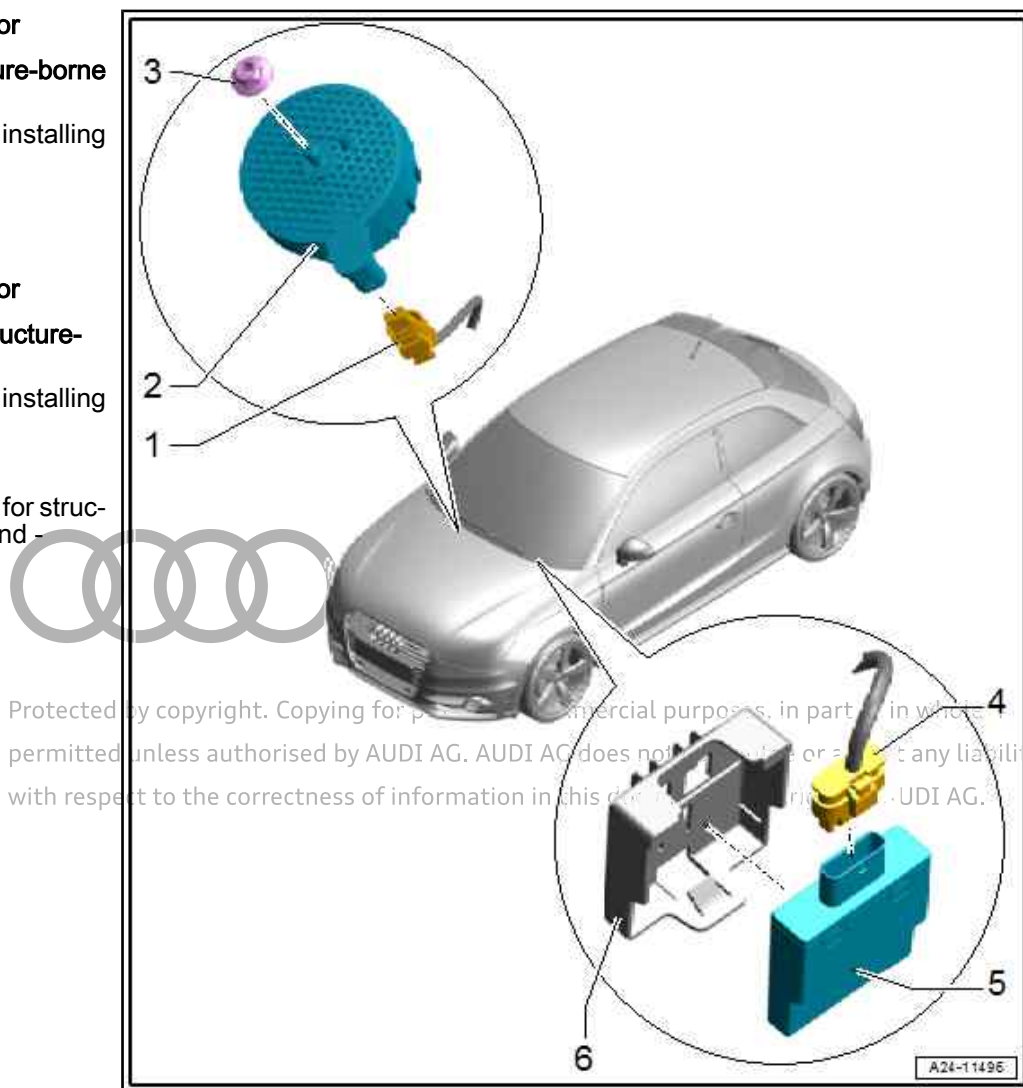
4 - Electrical connector

5 - Control unit for structure-borne sound - J869-

- ❑ Removing and installing
⇒ [page 129](#)

6 - Mounting

- ❑ For control unit for structure-borne sound - J869-





5.2 Removing and installing actuator for structure-borne sound - R214-

Removing

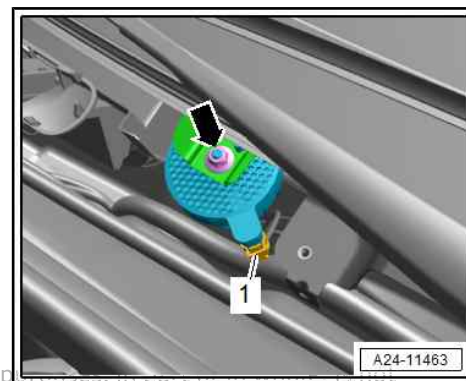
- Remove plenum chamber cover ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Removing and installing plenum chamber cover .
- Remove nut -arrow-.
- Detach actuator for structure-borne sound - R214- and disconnect electrical connector -1-.

Installing

Installation is carried out in reverse sequence.

Tightening torques

- ◆ ⇒ ["5.1 Exploded view - actuator for structure-borne sound and control unit for structure-borne sound", page 128](#)



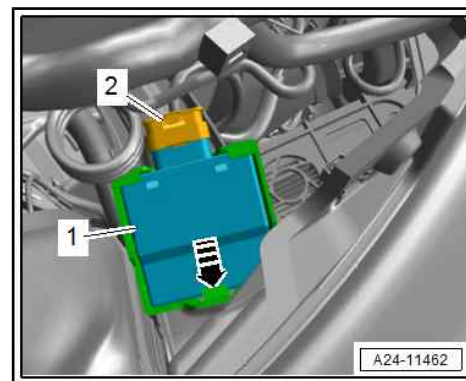
5.3 Removing and installing control unit for structure-borne sound - J869-

Removing

- Remove dash panel cover (driver side) ⇒ General body repairs, interior; Rep. gr. 68 ; Storage compartments/covers/trim panels; Removing and installing dash panel cover (driver side) .
- Unplug electrical connector -2-.
- Release fastener -arrow- and detach control unit for structure-borne sound - J869- -item 1- from bracket.

Installing

Installation is carried out in reverse sequence.



5.4 Removing and installing intake air temperature sender - G42- / intake manifold pressure sender - G71-

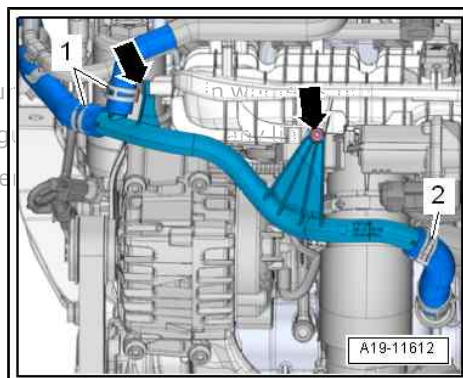
All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Senders and sensors; Removing and installing intake air temperature sender - G42- / intake manifold pressure sender - G71- .



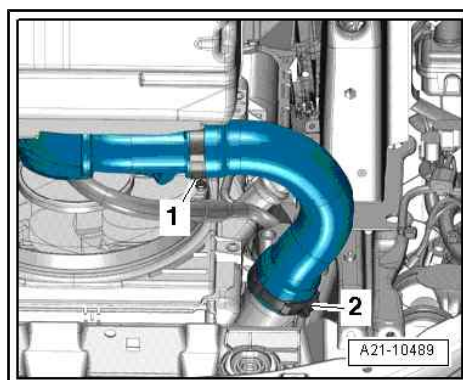
5.5 Removing and installing fuel pressure sender - G247-

Removing

- Remove bolts -arrows- at coolant pipe (front).
- Remove noise insulation ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Removing and installing noise insulation.



- Release hose clip -2- and detach air hose from charge air cooler.

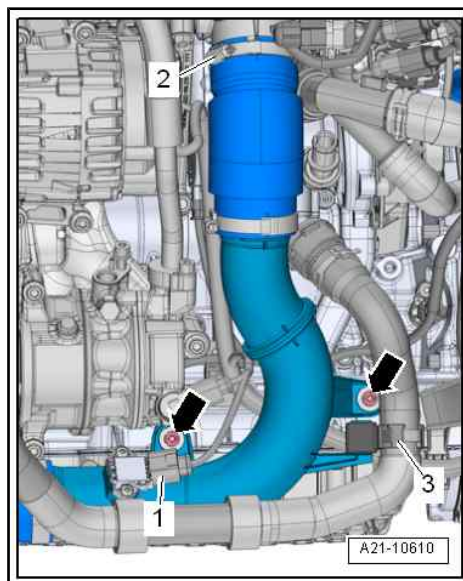


- Release hose clip -2-.
- If fitted, move coolant hose -3- clear.
- Remove bolts -arrows-.
- Unplug electrical connector -1- from charge pressure sender - G31-.
- Detach air pipe (right-side).

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24; Senders and sensors; Removing and installing fuel pressure sender - G247-.

Tightening torques

- ◆ ⇒ [“3.1 Exploded view - coolant pipes”, page 82](#)
- ◆ ⇒ [“2.1 Exploded view - charge air system”, page 107](#)
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21; Charge air system; Exploded view - hose connections for charge air system
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Exploded view - noise insulation



5.6 Checking fuel pressure sender - G247-

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24; Senders and sensors; Checking fuel pressure sender - G247-.



5.7 Removing and installing fuel pressure sender for low pressure - G410-

All procedures are described in ➔ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24; Senders and sensors; Removing and installing fuel pressure sender for low pressure - G410- .

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6 High-pressure pump

⇒ [“6.1 Exploded view - high-pressure pump”, page 132](#)

⇒ [“6.2 Removing and installing high-pressure pump”, page 132](#)

6.1 Exploded view - high-pressure pump

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; High-pressure pump; Exploded view - high-pressure pump .

6.2 Removing and installing high-pressure pump

Removing

- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Remove air cleaner housing ⇒ [page 121](#) .
- Release hose clip -2-.
- Unscrew bolt -1- and push air pipe clear to left side.

All further procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; High-pressure pump; Removing and installing high-pressure pump .

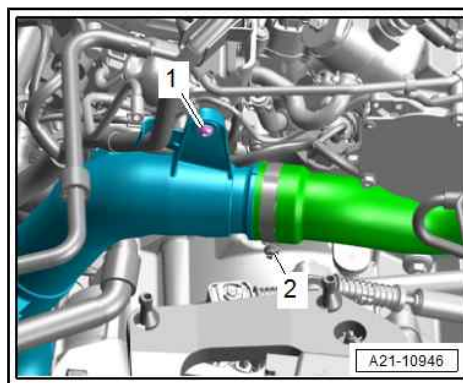
Installing

Additional work:

- Install air cleaner housing ⇒ [page 121](#) .
- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

Tightening torques

- ◆ ⇒ [“2.1 Exploded view - charge air system”, page 107](#)
- ◆ ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 21 ; Charge air system; Exploded view - hose connections for charge air system





7 Lambda probe

⇒ "7.1 Exploded view - Lambda probe", page 133

⇒ "7.2 Removing and installing Lambda probe", page 133

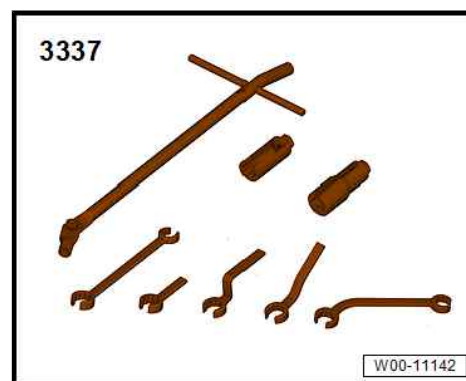
7.1 Exploded view - Lambda probe

All components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Lambda probe; Exploded view - Lambda probe .

7.2 Removing and installing Lambda probe

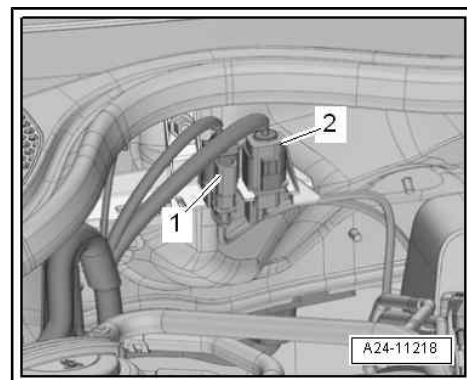
Special tools and workshop equipment required

- ◆ Lambda probe open ring spanner set - 3337-



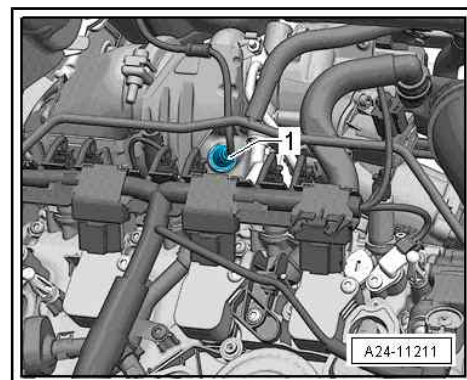
Removing

- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .
- Unplug electrical connector:
 - 1 - For Lambda probe after catalytic converter - G130- and Lambda probe heater 1 after catalytic converter - Z29-
 - 2 - For Lambda probe - G39- and Lambda probe heater - Z19-



Lambda probe - G39- :

- Unscrew Lambda probe - G39- -1- using a tool from Lambda probe open ring spanner set - 3337- .



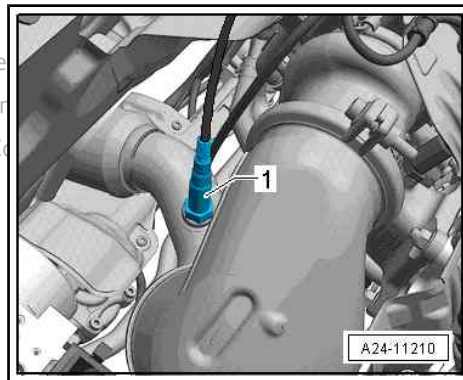


Lambda probe after catalytic converter - G130- :

- Unscrew Lambda probe after catalytic converter - G130-1- using a tool from Lambda probe open ring spanner set - 3337- .

Installing

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 24 ; Lambda probe; Removing and installing Lambda probe .





8 Engine control unit

⇒ **"8.1 Removing and installing engine control unit J623", page 135**

8.1 Removing and installing engine control unit - J623-

⇒ **"8.1.1 Removing and installing engine control unit J623 without protective housing", page 135**

⇒ **"8.1.2 Removing and installing engine control unit J623 with protective housing", page 136**

8.1.1 Removing and installing engine control unit - J623- without protective housing

Special tools and workshop equipment required

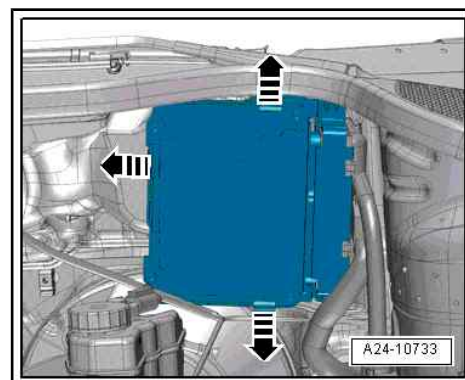
- ◆ Vehicle diagnostic tester

Removing

- When renewing engine control unit, select diagnosis object "Replace engine control unit" in "Guided Functions" mode of ⇒ Vehicle diagnostic tester.
- Switch off ignition and remove ignition key.
- Remove air cleaner housing ⇒ [page 121](#).

Bracket (version 1):

- Release fasteners -arrows- and detach engine control unit - J623- from bracket.



Bracket (version 2):

- Release catch -arrow- and detach engine control unit - J623- -item 1- from bracket.

All versions (continued):

- Release and unplug connectors for engine control unit - J623-.

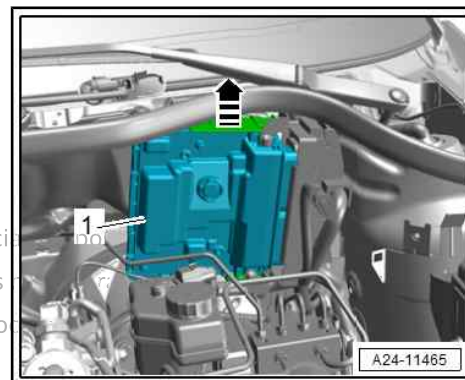
Installing

Installation is carried out in reverse order; note the following:

- Install air cleaner housing ⇒ [page 121](#).

After installing a new engine control unit, the following operation must be performed:

- Activate engine control unit in Guided Functions mode, Replace engine control unit ⇒ Vehicle diagnostic tester.



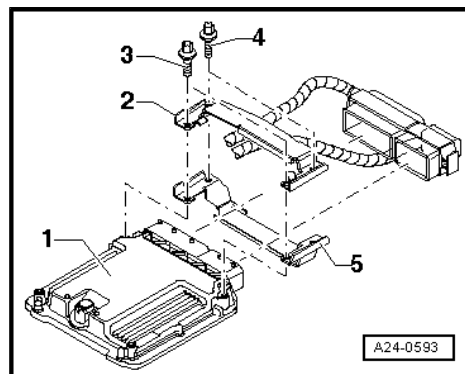


8.1.2 Removing and installing engine control unit - J623- with protective housing



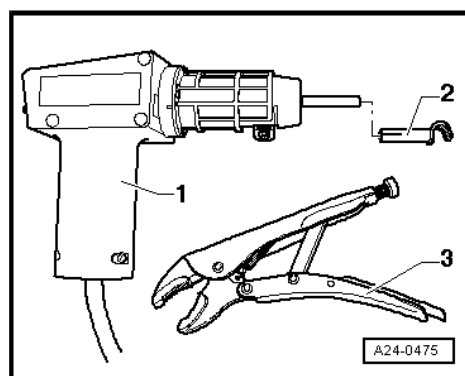
Note

- ◆ Not every engine control unit is bolted to a protective housing. Whether a protective housing is fitted depends on the engine/gearbox combination.
- ◆ The engine control unit -1- is bolted to the protective housing -5-. To make it more difficult to unscrew the shear bolts -4- for locking plate -2-, their threads have been coated with locking fluid.
- ◆ The protective housing has to be removed before the connectors can be unplugged from the engine control unit (e.g. to connect the test box or renew the engine control unit).



Special tools and workshop equipment required

- ◆ Hot air blower - VAS 1978/14A- -item 1- with nozzle attachment -2- from wiring harness repair set - VAS 1978 B-



- ◆ Small grinder (commercially available)

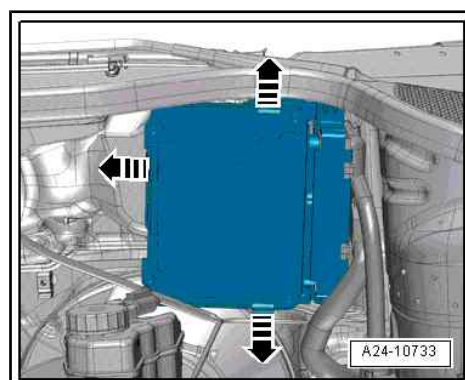
- ◆ Vehicle diagnostic tester
- Permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Removing

- When renewing engine control unit, select diagnosis object "Replace engine control unit" in "Guided Functions" mode of ⇒ Vehicle diagnostic tester.
- Switch off ignition and remove ignition key.
- Remove air cleaner housing ⇒ [page 121](#) .

Bracket (version 1):

- Release fasteners -arrows- and detach engine control unit - J623- from bracket.



**Bracket (version 2):**

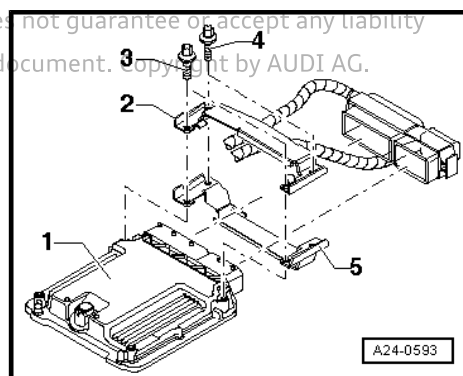
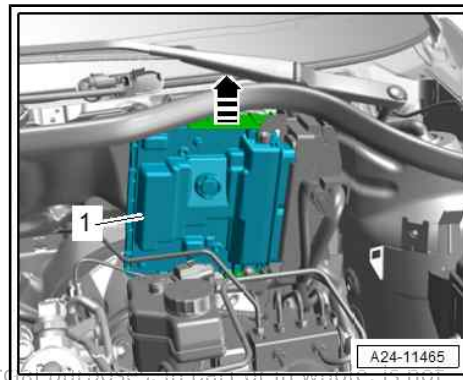
- Release catch -arrow- and detach engine control unit - J623-
-item 1- from bracket.



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All versions (continued):**Note**

- ◆ *The threads of the two shear bolts -4- which are not screwed into the engine control unit -1- are secured with locking fluid. To unscrew these two bolts, the threads must therefore be heated with the hot air blower.*
- ◆ *The threads of the two shear bolts -3- which are screwed into the engine control unit are not secured with locking fluid. Do not apply heat to the threads in the control unit housing; this is not necessary and would cause overheating of the control unit.*



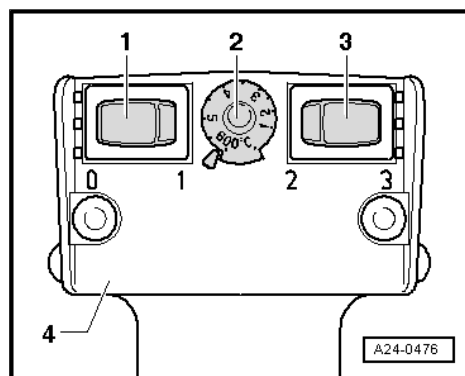


Caution

Wiring, connectors, insulation and control units can be burnt and damaged.

- ◆ *Keep exactly to the following procedure. Observe operating instructions for hot air blower.*

- Select settings on hot air blower -4- as shown in illustration:
- 2 - Temperature potentiometer to maximum heat output
- 3 - Two-stage air flow switch to position “3”



Note

- ◆ *Then use hot air blower to heat threaded holes in protective housing into which shear bolts have been screwed. This reduces the inhibiting action of the locking fluid on the shear bolt threads and makes it easier to unscrew these bolts.*
- ◆ *Cover up all painted parts to avoid any damage caused by hot air blower or vice-grip pliers.*

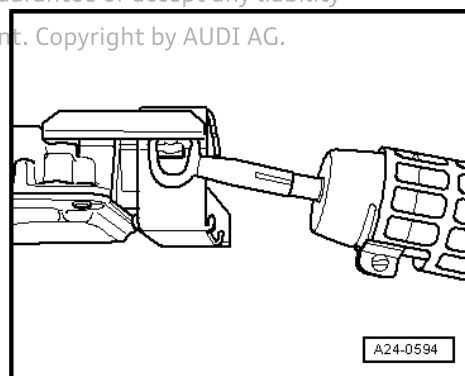


WARNING

Risk of burns from hot air blower.

- ◆ *Parts of the protective housing will become very hot as a result of heating the threads. It is also important to ensure that only the thread is heated and none of the surrounding components if at all possible. These should be covered if necessary.*

- Attach shrink element for hot air blower - VAS 1978/15A- to hot air blower - VAS 1978/14A- .
- Hold shrink element on hot air blower close to shear bolt on protective housing.
- Switch on hot air blower and heat bolt for 20 ... 25 seconds.

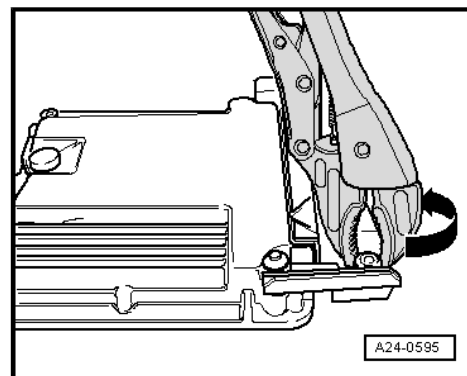




- Then grasp bolt head with vice-grip pliers and unscrew shear bolt.
- Repeat procedure for second shear bolt.
- Detach protective housing from multi-pin connectors.
- Unscrew the two shear bolts screwed into the engine control unit (they do not need to be heated).
- Release and unplug connectors for engine control unit - J623-.

Installing

Installation is carried out in reverse order; note the following:



Note

Renew the shear bolts.

- Re-install protective housing on engine control unit.
- Use thread tap or similar to remove remnants of locking fluid from tapped holes for shear bolts.
- Install air cleaner housing ⇒ [page 121](#) .

After installing a new engine control unit, the following operation must be performed:

- Activate engine control unit in Guided Functions mode, Replace engine control unit ⇒ Vehicle diagnostic tester.



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26 – Exhaust system

1 Exhaust pipes/silencers

⇒ [“1.1 Exploded view - silencers”, page 140](#)

⇒ [“1.2 Separating exhaust pipes/silencers”, page 143](#)

⇒ [“1.3 Removing and installing silencers”, page 145](#)

⇒ [“1.4 Stress-free alignment of exhaust system”, page 147](#)

⇒ [“1.5 Checking exhaust system for leaks”, page 148](#)

1.1 Exploded view - silencers

⇒ [“1.1.1 Exploded view - silencers, engine code DAJB”, page 140](#)

⇒ [“1.1.2 Exploded view - silencers, engine code CWZA”, page 142](#)

1.1.1 Exploded view - silencers, engine code DAJB

1 - Rear silencer

- ☐ Combined in one unit with centre silencer as original equipment. Can be renewed separately for repair purposes
- ☐ Removing and installing ⇒ [page 145](#)
- ☐ Disconnecting exhaust pipes/silencers ⇒ [page 143](#)
- ☐ Align exhaust system so it is free of stress ⇒ [page 147](#)

2 - Bolt

- ☐ 20 Nm

3 - Rubber mounting

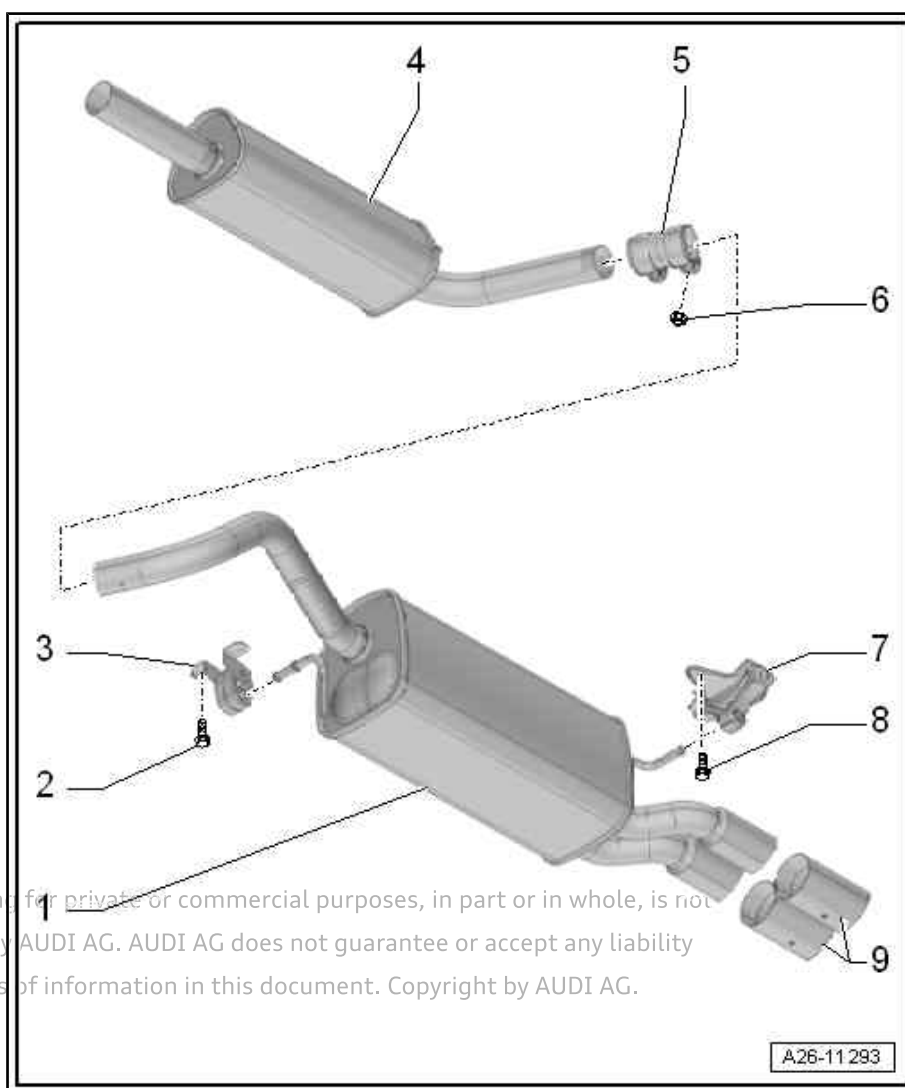
- ☐ Renew if damaged

4 - Centre silencer

- ☐ Combined in one unit with rear silencer as original equipment. Can be renewed separately for repair purposes
- ☐ Removing and installing ⇒ [page 145](#)
- ☐ Disconnecting exhaust pipes/silencers ⇒ [page 143](#)
- ☐ Align exhaust system so it is free of stress ⇒ [page 147](#)

5 - Clamp (rear)

- ☐ Before tightening, align exhaust system so it is free of stress ⇒ [page 147](#)
- ☐ Installation position ⇒ [page 141](#)





- ☐ Tighten bolted connections evenly

6 - Nut

- ☐ 30 Nm

7 - Mounting

- ☐ Renew if damaged

8 - Bolt

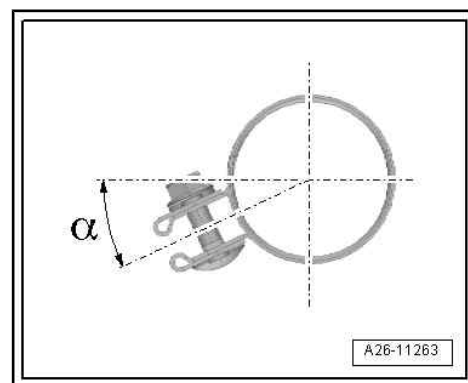
- ☐ 20 Nm

9 - Trim

- ☐ For tailpipes
- ☐ Slide onto tailpipes as far as stop

Installation position of rear clamp

- Fit clamp in position shown.
- Angle α = approx. 20°
- Bolt connections face to left
- Nuts facing upwards



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1.1.2 Exploded view - silencers, engine code CWZA

1 - Rear silencer

- ☐ Combined in one unit with centre silencer as original equipment. Can be renewed separately for repair purposes
- ☐ Removing and installing ⇒ [page 145](#)
- ☐ Cutting point ⇒ [page 143](#)
- ☐ Align exhaust system so it is free of stress ⇒ [page 147](#)

2 - Bolt

- ☐ 20 Nm

3 - Rubber mounting

- ☐ Renew if damaged

4 - Mounting

- ☐ Renew if damaged

5 - Centre silencer

- ☐ Combined in one unit with rear silencer as original equipment. Can be renewed separately for repair purposes
- ☐ Removing and installing ⇒ [page 145](#)
- ☐ Cutting point ⇒ [page 143](#)
- ☐ Align exhaust system so it is free of stress ⇒ [page 147](#)

6 - Mounting

- ☐ Renew if damaged

7 - Bolt

- ☐ 20 Nm

8 - Clamp (rear)

- ☐ Before tightening, align exhaust system so it is free of stress ⇒ [page 147](#)
- ☐ Installation position ⇒ [page 141](#)
- ☐ Tighten bolted connections evenly

9 - Nut

- ☐ 23 Nm

10 - Nut

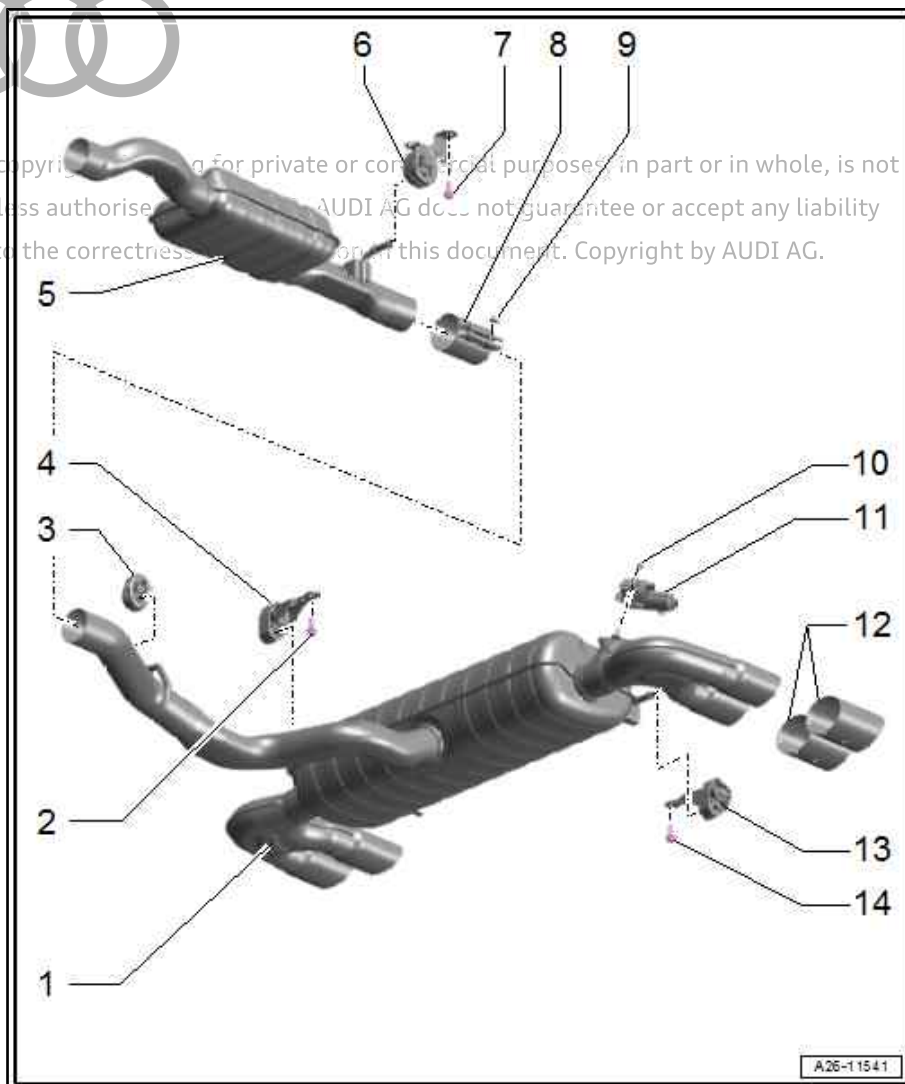
- ☐ 3 Nm

11 - Exhaust flap control unit - J883-

- ☐ Removing and installing ⇒ [page 152](#)

12 - Trim

- ☐ For tailpipes





13 - Mounting

- ☐ Renew if damaged

14 - Bolt

- ☐ 20 Nm

1.2 Separating exhaust pipes/silencers

⇒ ["1.2.1 Disconnecting exhaust pipes/silencers, engine code DAJB", page 143](#)

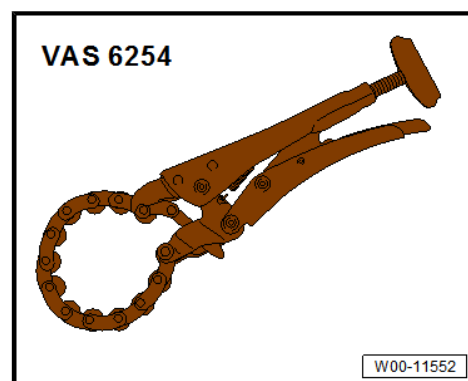
⇒ ["1.2.2 Disconnecting exhaust pipes/silencers, engine code CWZA", page 143](#)

1.2.1 Disconnecting exhaust pipes/silencers, engine code DAJB

- ◆ The connecting pipe can be cut through at the cutting location in order to renew the centre and rear silencers separately.
- ◆ The cutting point is marked by an indentation on the circumference of the exhaust pipe.

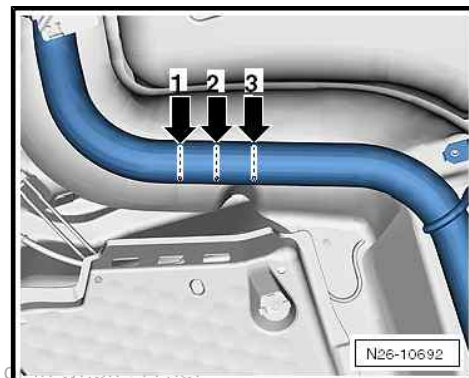
Special tools and workshop equipment required

- ◆ Chain pipe cutter - VAS 6254-



Procedure

- Cut through exhaust pipe at right angles at the position marked -arrow 2- using chain pipe cutter - VAS 6254- .
- Position clamp centrally at side marks -arrows 1, 3- when installing.
- Fit rear clamp ⇒ [page 141](#) .
- Align the exhaust system so it is free of stress ⇒ [page 147](#) .



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1.2.2 Disconnecting exhaust pipes/silencers, engine code CWZA

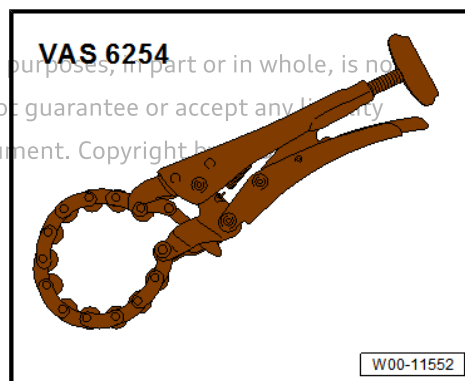
- ◆ The connecting pipe can be cut through at the cutting location in order to renew the centre and rear silencers separately.
- ◆ The cutting point is marked by an indentation on the circumference of the exhaust pipe.

Special tools and workshop equipment required



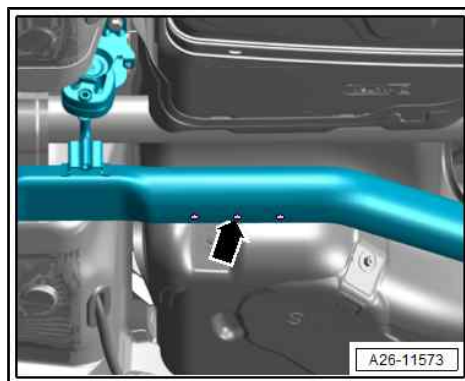
◆ Chain pipe cutter - VAS 6254-

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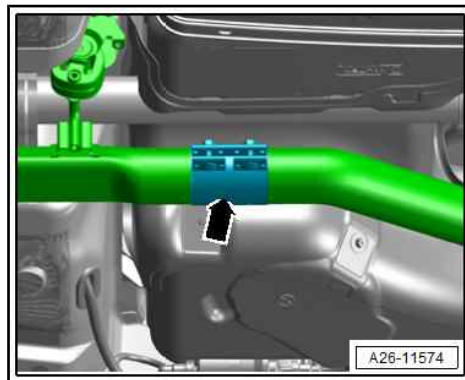


Procedure

- Cut through exhaust pipe at right angles at the position marked -arrow- using chain pipe cutter - VAS 6254- .



- When installing, position centre of clamp -arrow- over cutting location.
- Fit rear clamp ⇒ [page 141](#) .
- Align the exhaust system so it is free of stress ⇒ [page 147](#) .





1.3 Removing and installing silencers

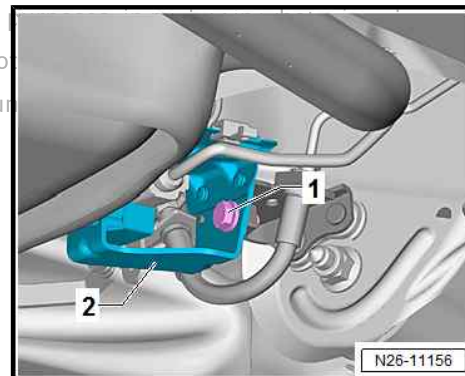
⇒ ["1.3.1 Removing and installing silencers, engine code DAJB", page 145](#)

⇒ ["1.3.2 Removing and installing silencers, engine code CWZA", page 146](#)

1.3.1 Removing and installing silencers, engine code DAJB

Removing

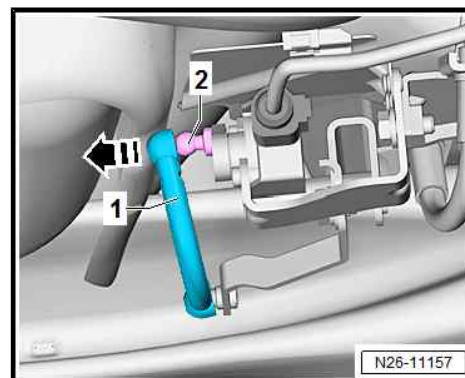
- Press coupling rod of rear left vehicle level sender - G76- off ball stud -2- -arrow-



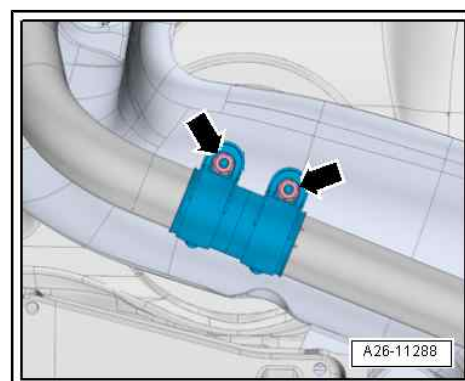
- Remove bolt -1- and press bracket -2- with rear left vehicle level sender - G76- to one side.

Removing centre silencer

- Remove tunnel cross-piece (rear) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim .
- Vehicles without connection point: separate exhaust pipe/silencer ⇒ [page 143](#) .

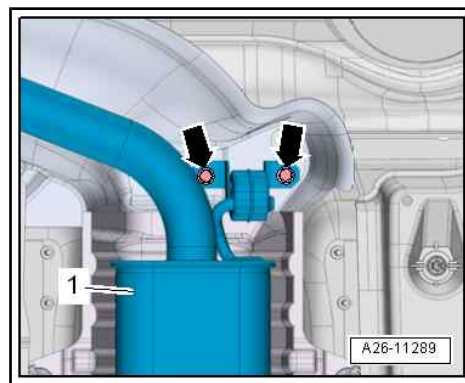


- Vehicles with connection point: release clamp -arrows- and push to right side.



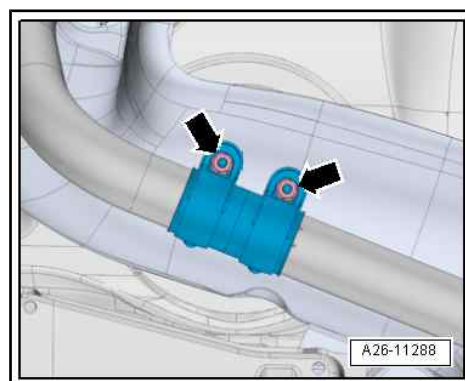


- Remove bolt -2- and detach centre silencer.



Removing rear silencer

- Vehicles without connection point: separate exhaust pipe/silencer ⇒ [page 143](#) .
- Vehicles with connection point: release clamp -arrows- and push to right side.



- Unscrew bolts -1, 3- and detach rear silencer -2-.

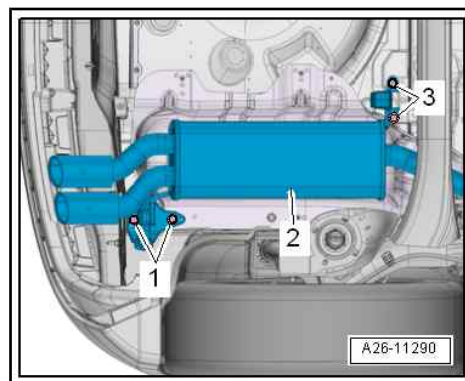
Installing

Installation is carried out in reverse order; note the following:

- Align the exhaust system so it is free of stress ⇒ [page 147](#) .

Tightening torques

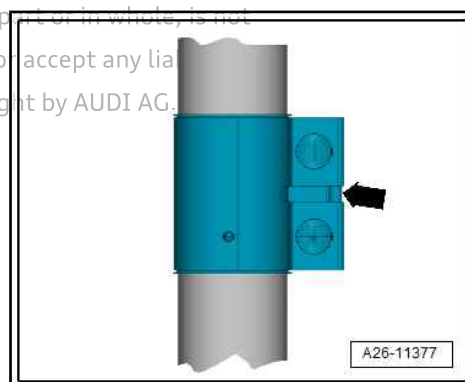
- ◆ ⇒ [“1.1 Exploded view - silencers”, page 140](#)
- ◆ ⇒ [“2.1 Exploded view - emission control system”, page 149](#)
- ◆ ⇒ Running gear, axles, steering; Rep. gr. 43 ; Vehicle level sender; Exploded view - rear vehicle level sender
- ◆ Tunnel cross-piece ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim



1.3.2 Removing and installing silencers, engine code CWZA

Removing

- Loosen bolt connections for front clamp -arrow-.
- Tie up front silencer.
- Remove tunnel cross-pieces (front and rear) ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim .



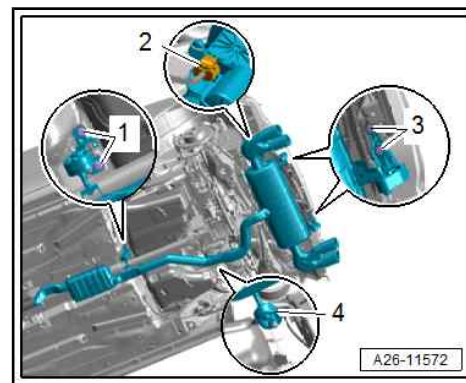


- Unplug electrical connector -2-.
- Disengage mounting -4- at exhaust system (rear).

**WARNING**

Risk of accident caused by weight of silencers.

- ◆ *A second mechanic is required for removal of the rear silencer.*



- Unscrew bolts -1, 3- and remove silencers.

Installing

Installation is carried out in reverse order; note the following:

- Align the exhaust system so it is free of stress ⇒ [page 147](#) .

Tightening torques

- ◆ ⇒ [“1.1 Exploded view - silencers”, page 140](#)
- ◆ Tunnel cross-piece ⇒ General body repairs, exterior; Rep. gr. 66 ; Underbody trim; Exploded view - underbody trim

1.4 Stress-free alignment of exhaust system

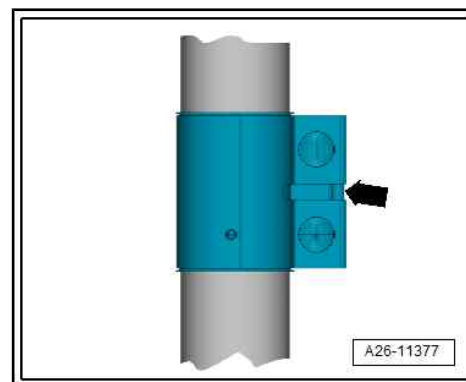
⇒ [“1.4.1 Stress-free alignment of exhaust system”, page 147](#)

⇒ [“1.4.2 Aligning tailpipes”, page 148](#)

1.4.1 Stress-free alignment of exhaust system

Procedure

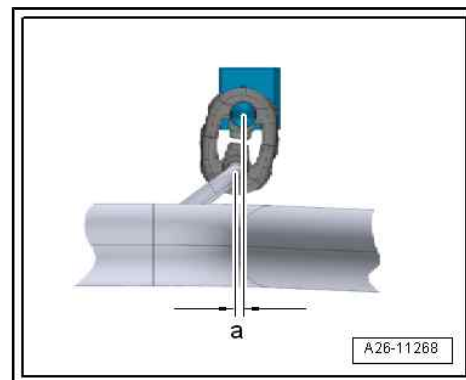
- The exhaust system must be aligned when it is cool.
- Loosen bolt connections for front clamp -arrow-.



- Push exhaust system towards front of vehicle until preloading at mounting for exhaust pipe -a- = 5 mm.
- Fit front clamp ⇒ [page 150](#) .

Tightening torques

- ◆ ⇒ [“1.1 Exploded view - silencers”, page 140](#)



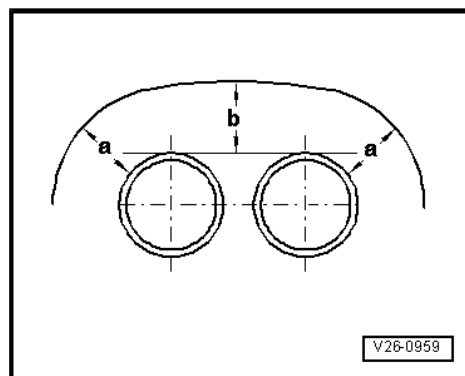


1.4.2 Aligning tailpipes

Procedure

Engine code DAJB:

- Align rear silencer so that there is an equal distance -a- and -b- between bumper cut-out and tailpipes.
- Unfasten rear silencer mounting to align tailpipes.

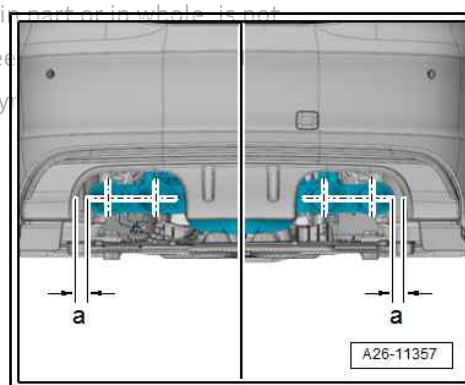


Engine code CWZA:

- Adjust rear silencer so that there is an even distance between bumper cut-out and tailpipes.
- Dimension -a- = dimension -a-
- Unfasten rear silencer mounting to align tailpipes.

Tightening torques

- ♦ ⇒ [“1.1 Exploded view - silencers”, page 140](#)



1.5 Checking exhaust system for leaks

All procedures are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 26 ; Exhaust pipes/silencers; Checking exhaust system for leaks .



2 Emission control system

⇒ ["2.1 Exploded view - emission control system", page 149](#)

⇒ ["2.2 Removing and installing catalytic converter", page 151](#)

⇒ ["2.3 Removing and installing exhaust flap control unit J883", page 152](#)

2.1 Exploded view - emission control system

1 - Bolt

- ☐ 20 Nm

2 - Bracket

- ☐ Renew if damaged

3 - Bolt

Tightening torque and sequence ⇒ [page 150](#)

4 - Bracket

- ☐ For catalytic converter

5 - Bracket

- ☐ For catalytic converter

6 - Nut

Tightening torque and sequence ⇒ [page 150](#)

7 - Nut

Tightening torque and sequence ⇒ [page 150](#)

8 - Catalytic converter

- ☐ With front silencer
- ☐ Different versions available; for allocation refer to ⇒ Electronic parts catalogue
- ☐ Protect catalytic converter from damage by knocks and impact
- ☐ Removing and installing ⇒ [page 151](#)
- ☐ Align exhaust system so it is free of stress ⇒ [page 147](#)

9 - Screw-type clip

- ☐ Renew after removing
- ☐ Installation position ⇒ [page 150](#)
- ☐ Tightening torque and sequence ⇒ [page 150](#)

10 - Seal

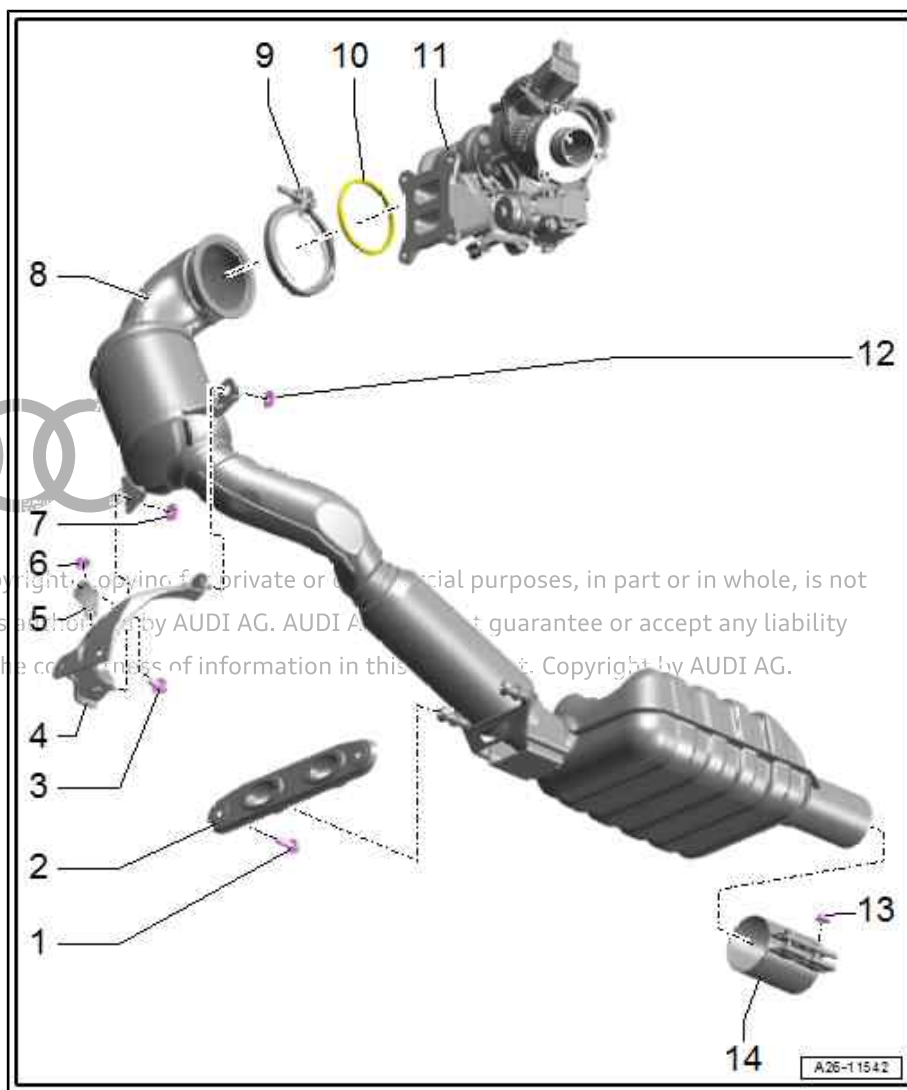
- ☐ Renew after removing

11 - Turbocharger

- ☐ Removing and installing ⇒ [page 98](#)

12 - Nut

Tightening torque and sequence ⇒ [page 150](#)



**13 - Nut**

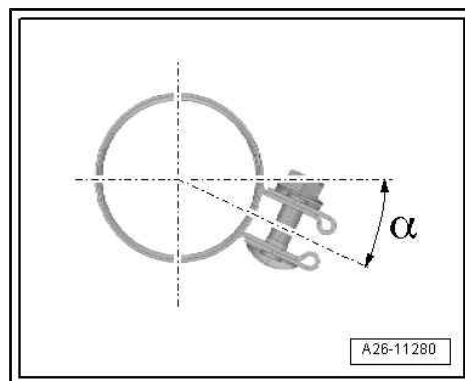
- 23 Nm

14 - Clamp (front)

- Before tightening, align exhaust system so it is free of stress ⇒ [page 147](#)
- Installation position ⇒ [page 150](#)
- Tighten bolted connections evenly

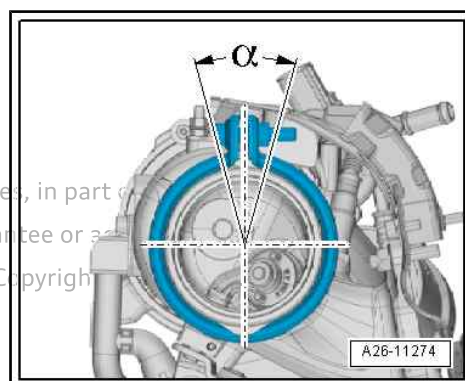
Installation position of front clamp

- Fit clamp in position shown.
- Angle $-\alpha-$ = approx. 20°
- Bolted connection facing towards right
- Nuts facing upwards

**Installation position of screw-type clip for catalytic converter**

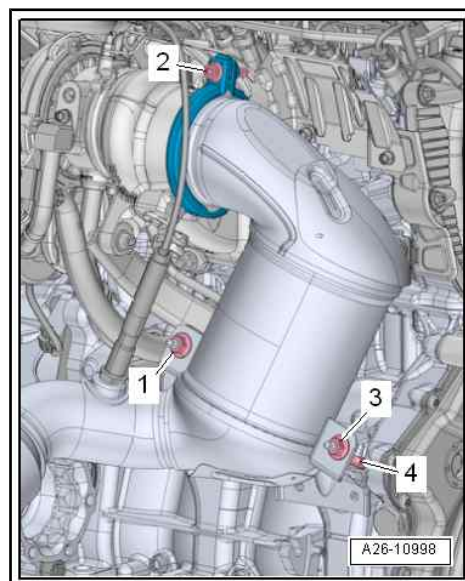
- Angle $-\alpha-$ = 30°

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**Catalytic converter - tightening torque and sequence**

- Tighten bolted connections in stages in the sequence shown:

Stage	Screw-type clip/nuts	Tightening torque
1.	-1, 3, 4-	Screw in by hand until contact is made • It must still be possible to move catalytic converter and bracket
2.	-2-	Tighten screw-type clip to 15 Nm
3.	-1, 3, 4-	Tighten to 20 Nm





2.2 Removing and installing catalytic converter



Note

The catalytic converter is removed together with the front silencer.

Special tools and workshop equipment required

- ◆ High-temperature paste ⇒ Electronic parts catalogue

Removing

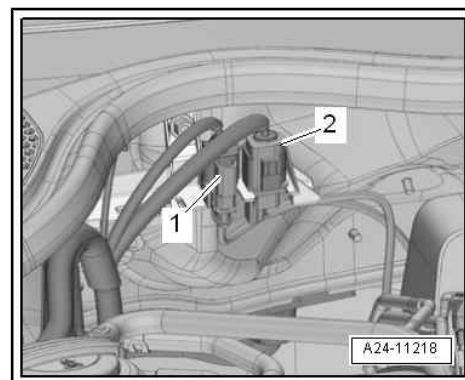


Note

Fit all cable ties in the original positions when installing.

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- Remove engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr. 2.0 ltr. 4-valve TFSI; Rep. gr. 10; Engine cover panel; Removing and installing engine cover panel.
- Take electrical connector -1- (black) out of bracket, unplug it and move electrical wiring clear.



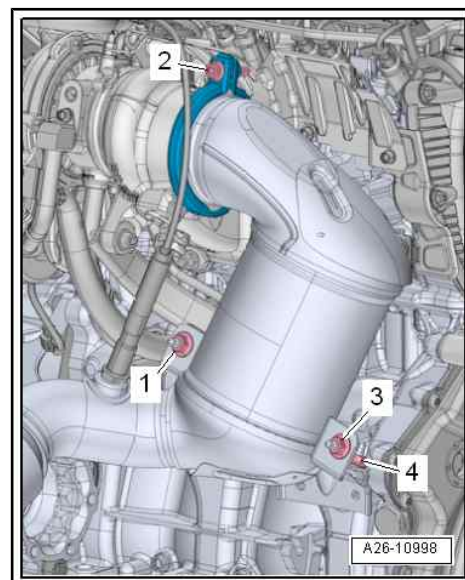
- Unscrew bolt -2- and remove screw-type clip.
- Remove nuts -1-, 3-.



Note

For illustration purposes, the installation position is shown with the engine removed.

- Lower subframe ⇒ Running gear, axles, steering; Rep. gr. 40; Subframe; Lowering subframe.





- Loosen clamp -arrow- and push towards rear.
- Detach catalytic converter with front silencer.

Installing

Installation is carried out in reverse order; note the following:



Note

- ◆ *Renew seals, gaskets and self-locking nuts.*
- ◆ *Coat exhaust manifold studs with high-temperature paste; for high-temperature paste refer to ⇒ [Electronic parts catalogue](#).*
- Fit catalytic converter to turbocharger and attach screw-type clip loosely without tightening it.
- Tighten nuts and screw-type clip ⇒ [page 150](#).
- Align the exhaust system so it is free of stress ⇒ [page 147](#).
- Install subframe ⇒ Running gear, axles, steering; Rep. gr. 40; Subframe; Lowering subframe.
- Install engine cover panel ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 10; Engine cover panel; Removing and installing engine cover panel.

Tightening torques

- ◆ ⇒ [“2.1 Exploded view - emission control system”, page 149](#)

2.3 Removing and installing exhaust flap control unit - J883-

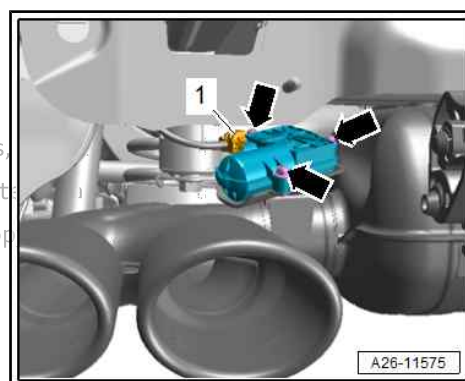
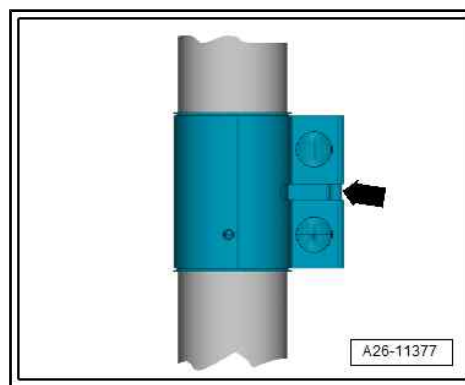
Removing

- Unplug electrical connector -1-.
- Remove nuts -arrows- and detach exhaust flap control unit.



Note

For illustration purposes, the installation position is shown with the rear bumper cover removed.



Installing

Installation is carried out in reverse order; note the following:



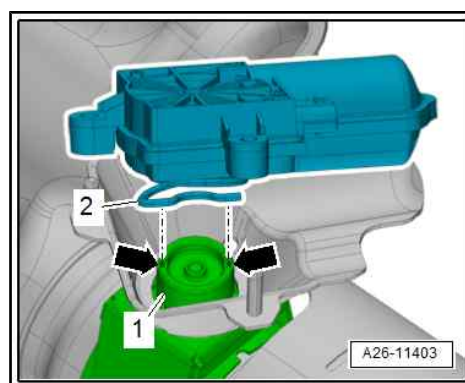
Note

Renew nuts after removing.

- Move exhaust flap control unit - J883- into installation position.
- Spring -2- must engage in grooves -arrows- on exhaust flap -1-.

Tightening torques

- ◆ ⇒ [“2.1 Exploded view - emission control system”, page 149](#)





28 – Ignition system

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1 Ignition system

All procedures and components are described in ⇒ Servicing 4-cylinder engine, 1.8 ltr., 2.0 ltr. 4-valve TFSI; Rep. gr. 28 ; Ignition system .