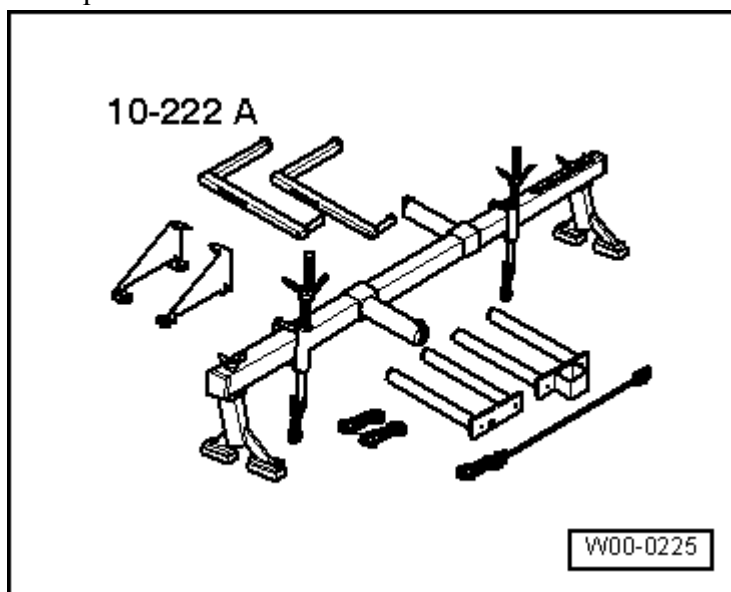


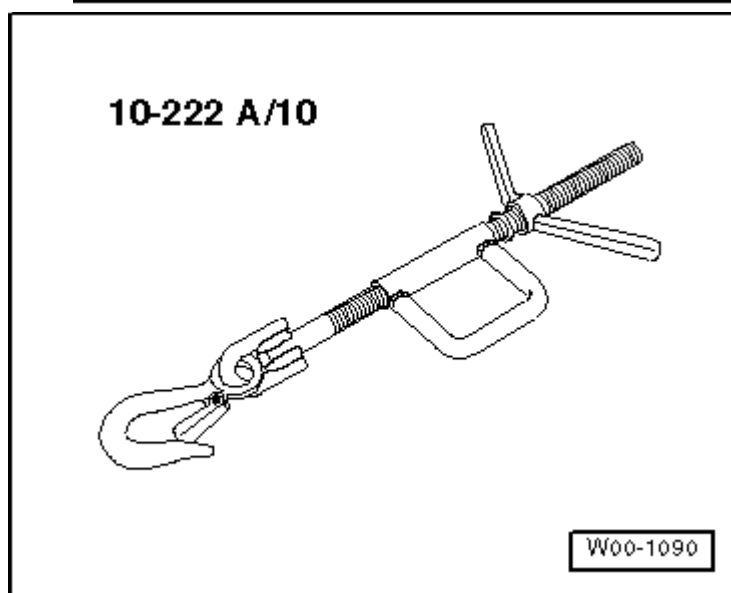
Removing and installing cylinder head

Special tools and workshop equipment required

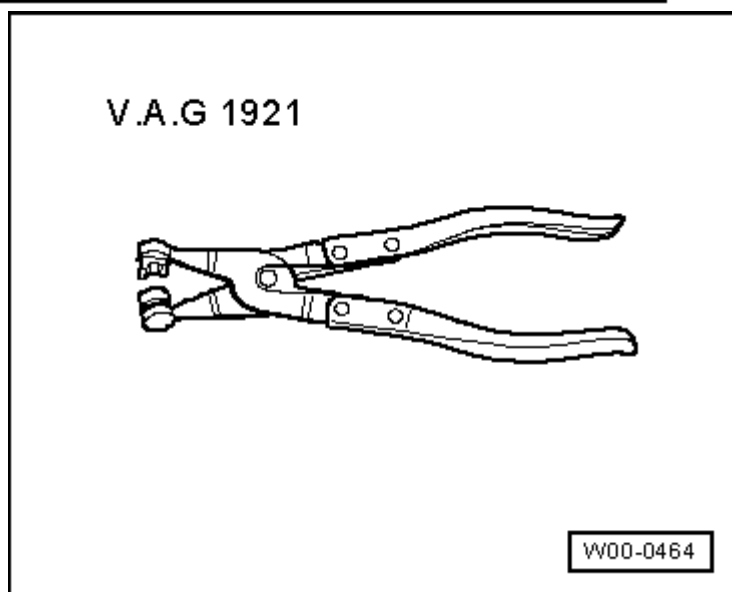
t Support bracket -10 - 222 A-



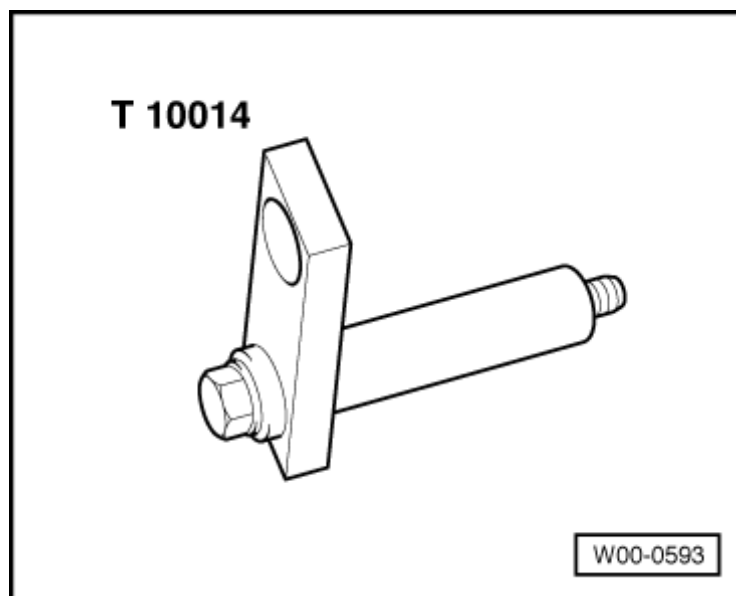
t Hook -10 - 222 A /10-



t Hose clip pliers -V.A.G 1921-



t Retainer -T10014-



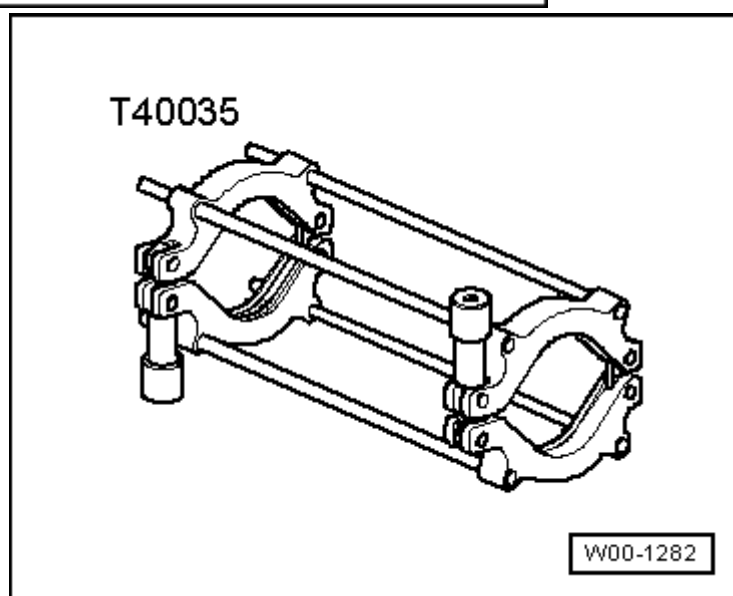
t Setting tool -T40035-

t Sealant remover, commercially available

t Sealant → [Electronic parts catalogue](#)

Removing

- Drain coolant → [Chapter](#).
- Remove intake manifold → [Rep. gr.24](#).
- Set crankshaft to „TDC“ and lock camshafts with camshaft lock -T10016- → [Chapter „Checking valve timing“](#).



Position support bracket -10 - 222 A- with hook -10 - 222 A /10- and spindle -10 - 222 A /11- on bolted flanges of wing panels as shown in illustration.

1 Spindles are located at the rear.

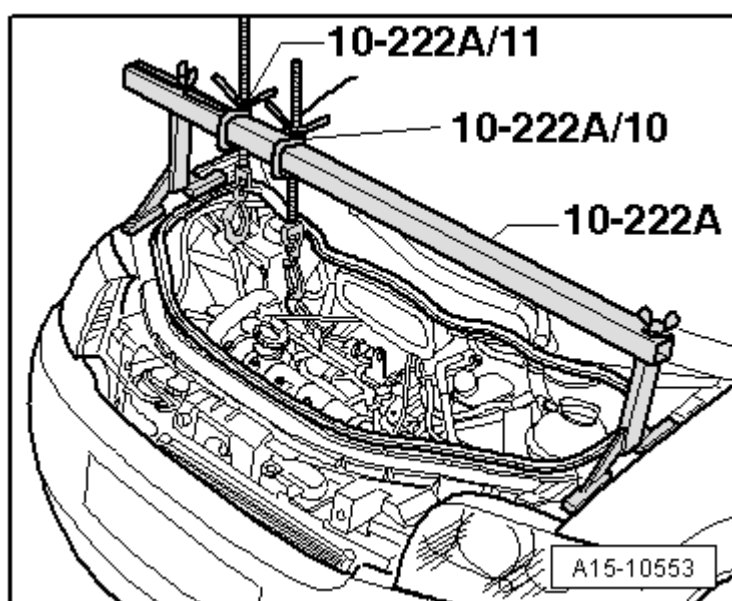
- Attach snap element of hook -10 - 222 A /10- to engine lifting eye (right-side).



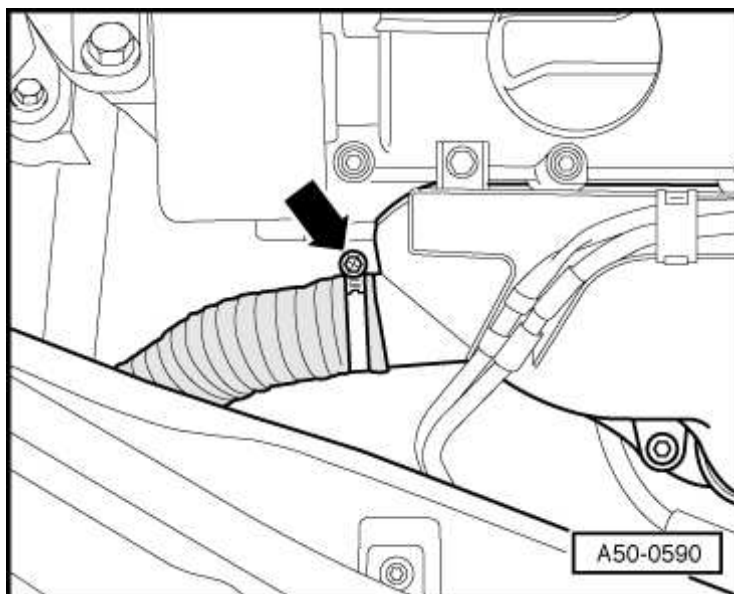
Note

The spindle -10 - 222 A /11- is used at a later stage.

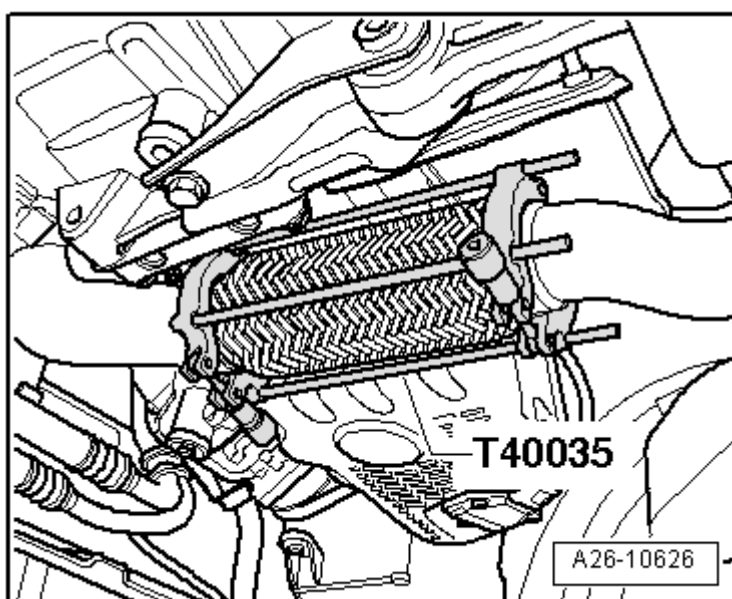
- Remove main drive toothed belt → [Chapter](#).
- Remove camshaft housing → [Chapter](#).



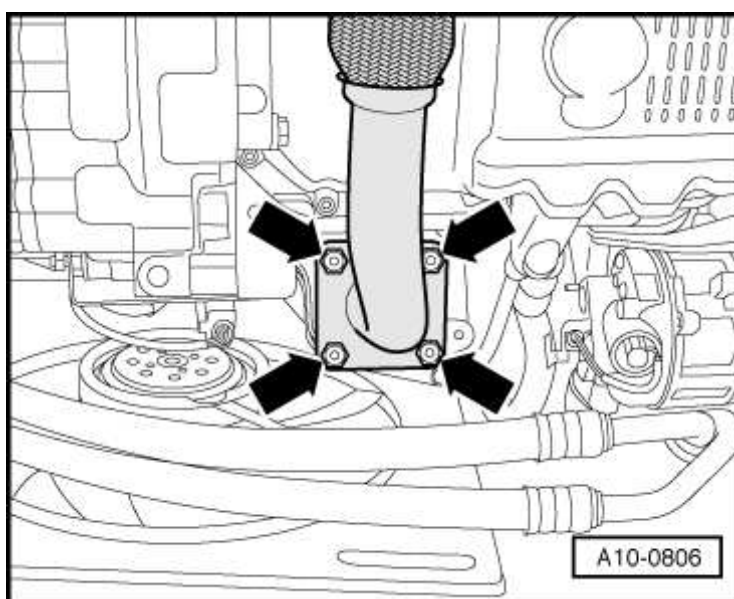
- Detach intake air preheating hose from heat shield -arrow-.



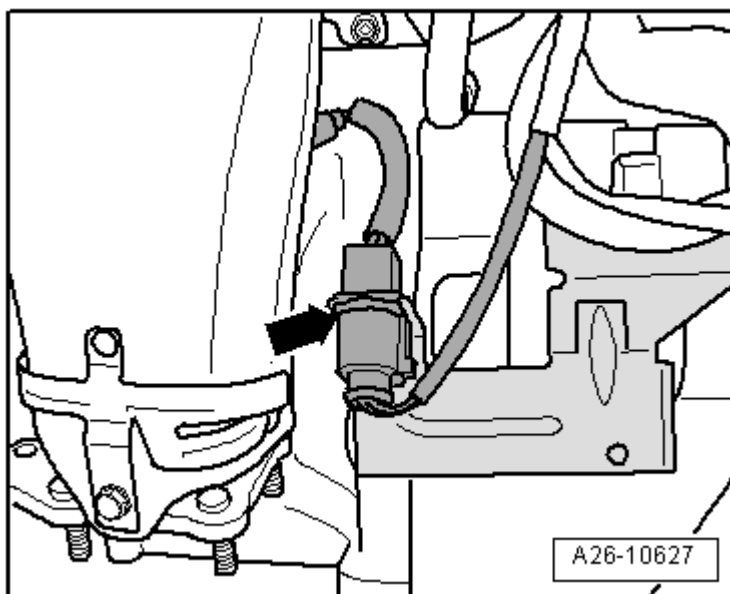
- Use setting tool -T40035- to make sure flexible joint is not kinked.



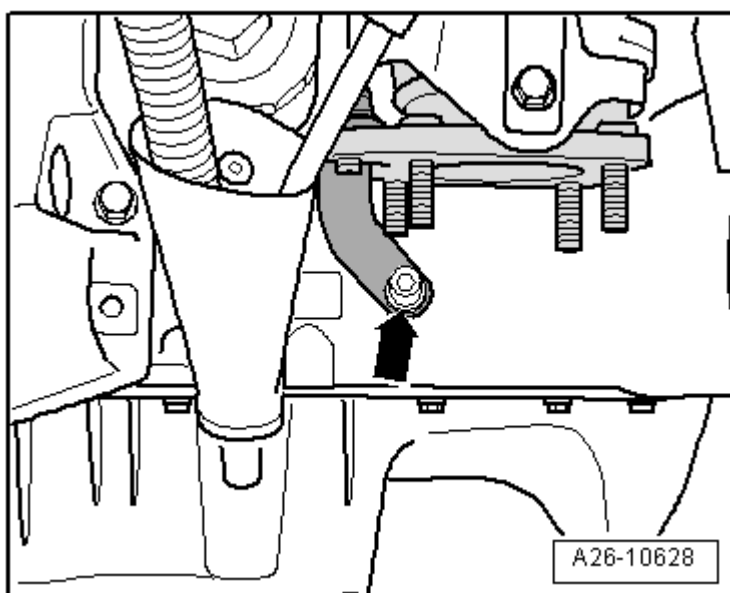
- Remove bolts -arrows- securing front exhaust pipe to exhaust manifold.



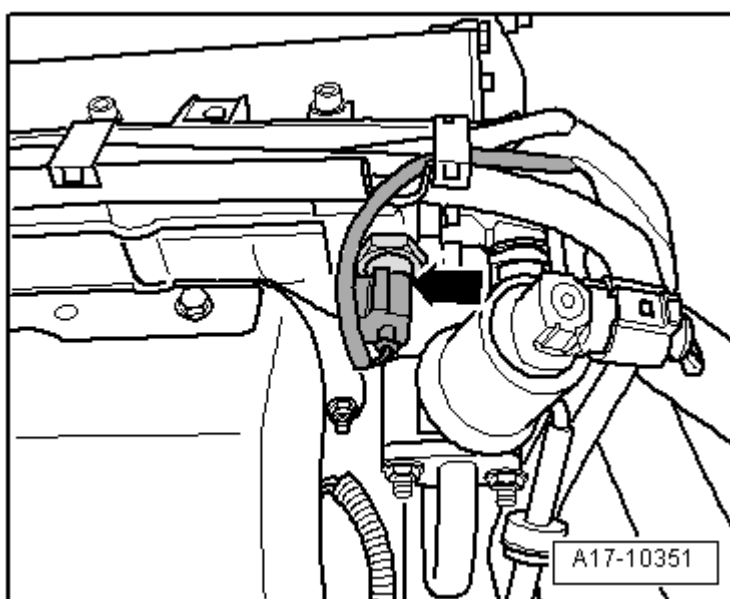
- Remove electrical connector -arrow- for Lambda probe -G39- from bracket and unplug connector.



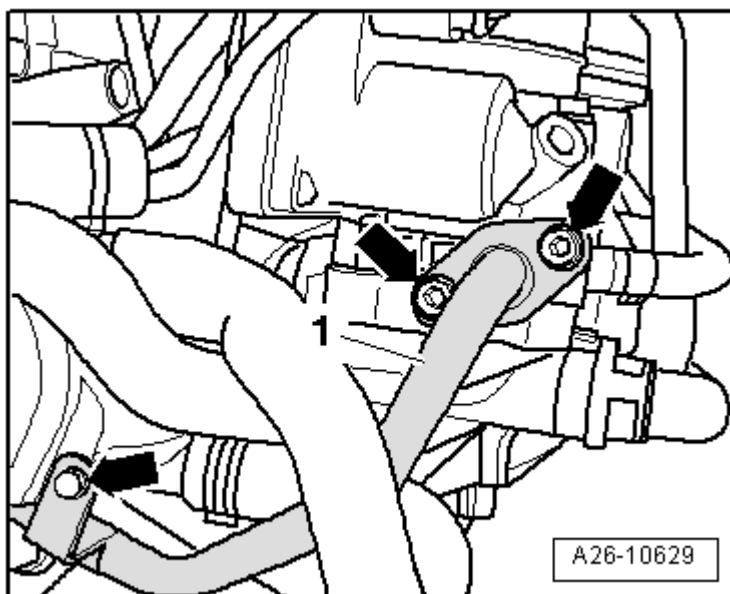
- Remove bolt -arrow- securing bracket for exhaust manifold.



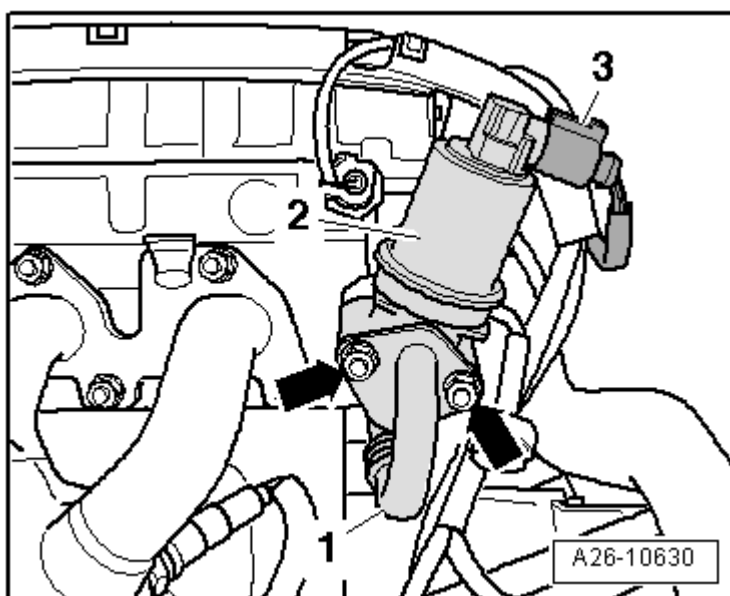
- Unplug electrical connector -arrow- on oil pressure switch -F1-.



- Remove bolts -arrows- for exhaust gas recirculation pipe.



- Unplug electrical connector -3-.
- Remove nuts -arrows- and detach exhaust gas recirculation pipe -1- and exhaust gas recirculation valve -N18- with exhaust gas recirculation potentiometer -G212--item 2-.

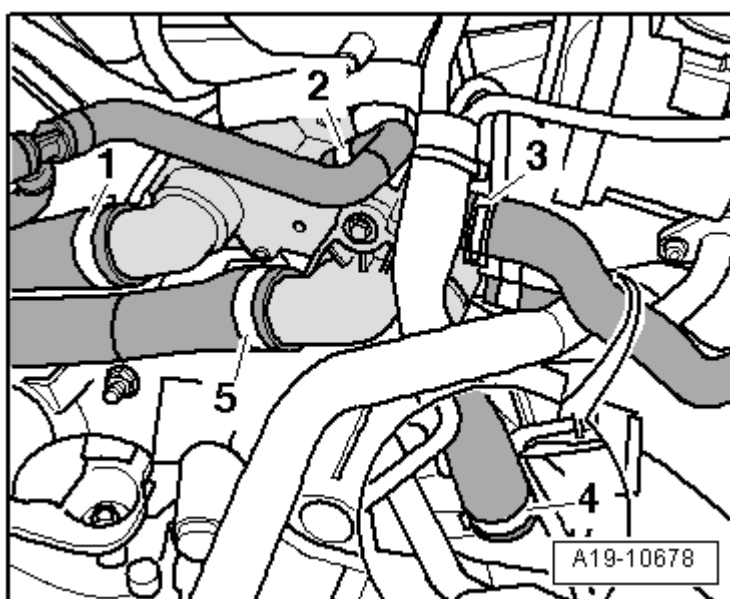


- Remove coolant hose -5- from thermostat housing.

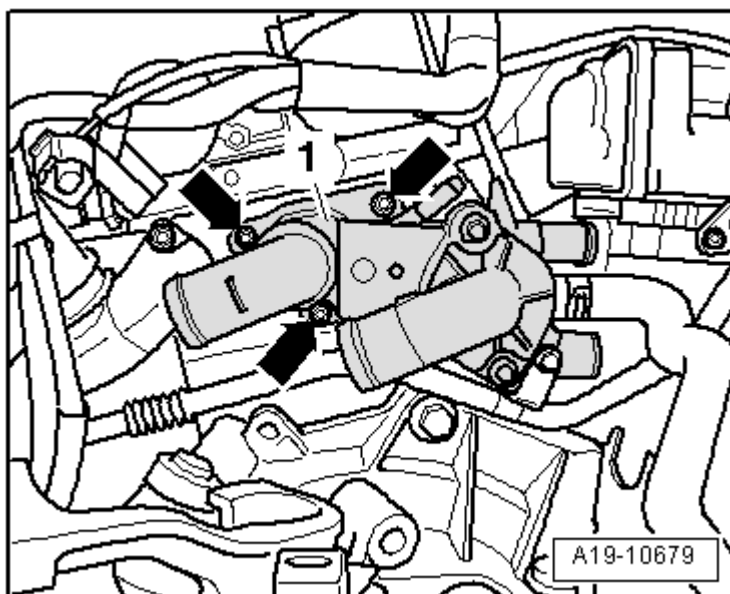


Note

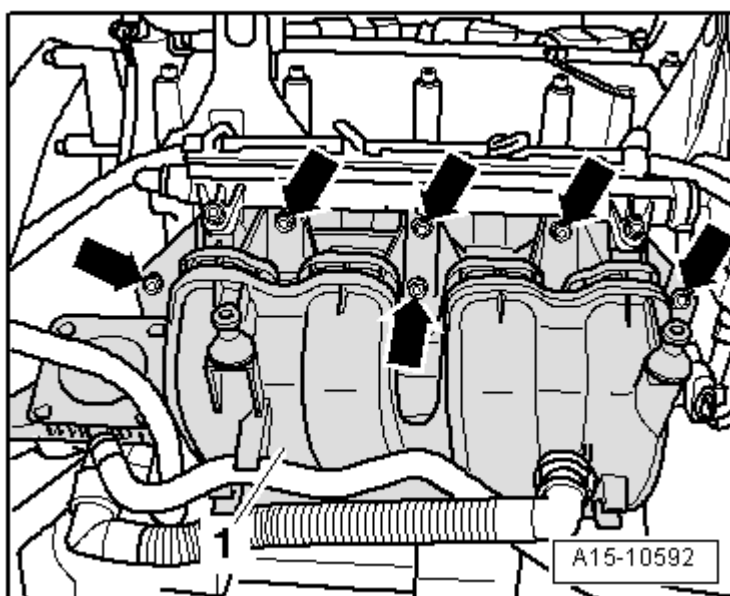
Disregard items -1 ... 4-.



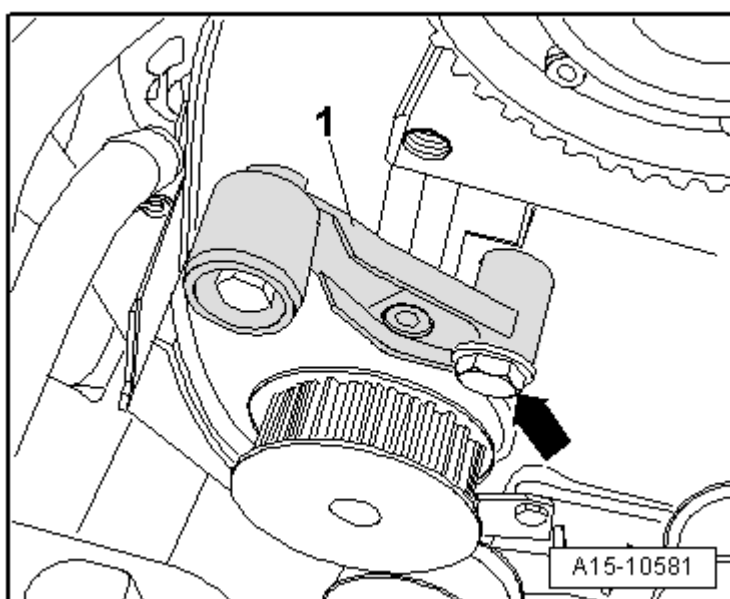
- Remove bolts -arrows- for thermostat housing.



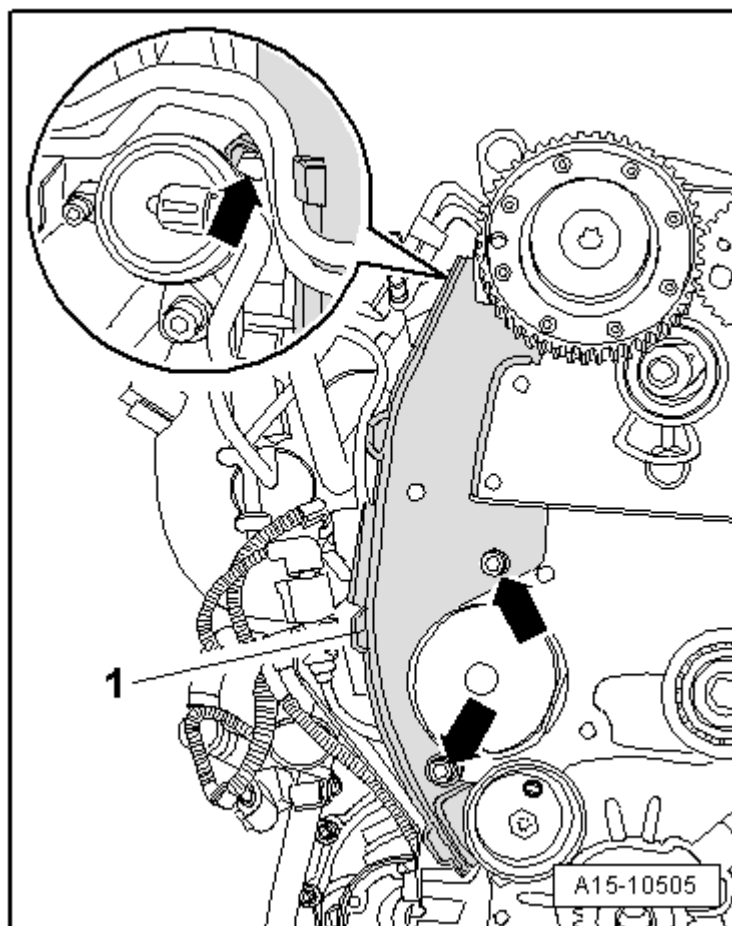
- Remove throttle valve module -J338- → [Rep. gr.24.](#)
- Remove bolts -arrows- and move intake manifold slightly to rear.



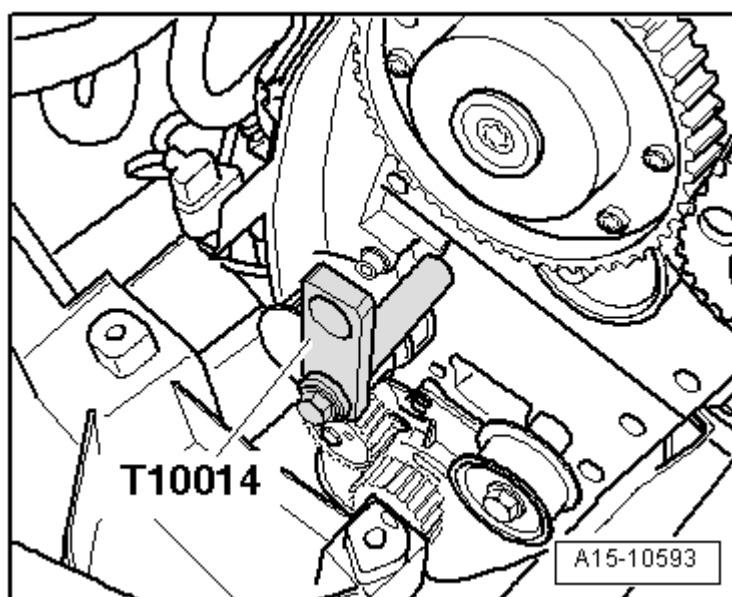
- Remove bolt -arrow- and take off idler roller -1- for main drive toothed belt.



- Remove bolts -arrows- and remove rear cover -1- for toothed belt.



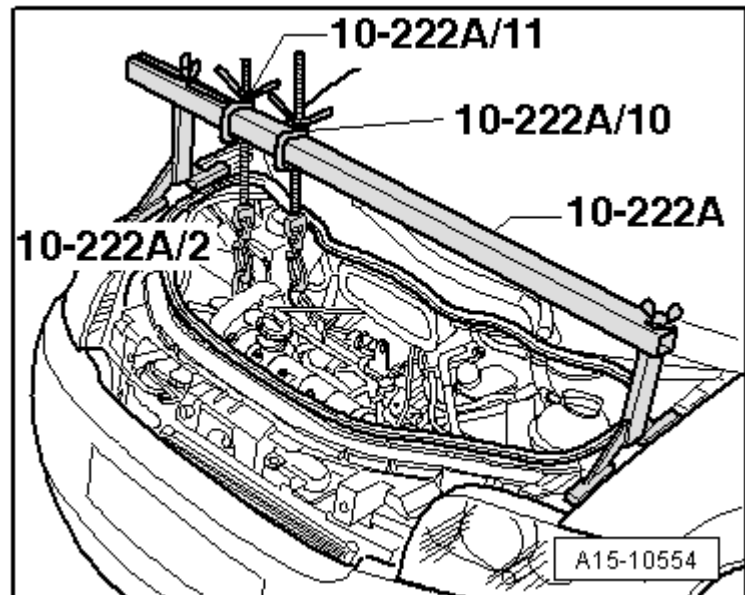
- Secure retainer -T10014- in threaded hole in cylinder block as shown in illustration and tighten to 40 Nm.



- Attach spindle -10 - 222 A /11- with hook -10 - 222 A /2- onto retainer - T10014- at right.

Take up weight at spindle, detach

- hook -10 - 222 A /10- and move to side.



- Slacken cylinder head bolts in the sequence -1 ... 10-.
- Remove bolts and carefully take off cylinder head.
- Place cylinder head onto soft surface (foam plastic).

Installing

1 Tightening torques → [Chapter](#)



Caution

Avoid damage to sealing surfaces.

t Carefully remove sealant residue from cylinder head and cylinder block.

t Ensure that no long scores or scratches are made on the surfaces.

Avoid damage to cylinder block.

No oil or coolant must be allowed to remain in the blind holes for the cylinder head bolts in the cylinder block.

Risk of leaks at cylinder head gasket.

t Carefully remove any sealant residue from the cylinder head and cylinder block. Ensure that no long scores or scratches are made on the surfaces.

t Carefully remove any remaining emery and abrasive material.

t Do not remove new cylinder head gasket from packaging until it is ready to be fitted.

t Handle the cylinder head gasket very carefully to prevent damage to the silicone coating or the indented area of

the gasket.

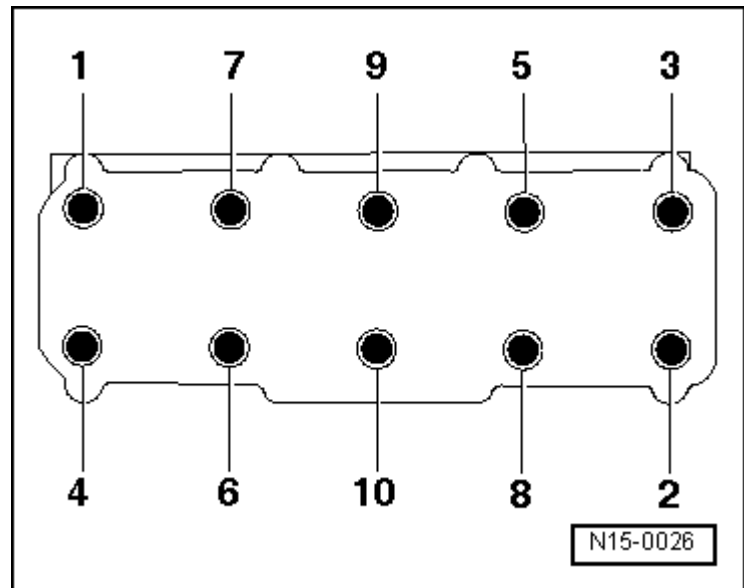
Avoid damage to open valves.

When installing an exchange cylinder head, the plastic protectors fitted to protect the open valves should not be removed until the cylinder head is ready to be fitted.



Note

- t Renew the bolts tightened with specified tightening angle.
 - t Renew self-locking nuts as well as seals, gaskets and O-rings.
 - t Renew oil strainer in cylinder head.
- When installing an exchange cylinder head, the contact surfaces between the hydraulic compensation elements, roller rocker fingers and cams must be oiled before installing the camshaft housing.
- Secure all hose connections with the correct type of hose clips (same as original equipment) → [Electronic parts catalogue](#).
- After fitting a new cylinder head or cylinder head gasket, change the engine oil and the coolant in the entire cooling system.



Caution

Protect lubrication system and bearings against contamination.

Cover exposed parts of the engine.

- Remove sealant residue on cylinder head and camshaft housing using commercially available sealant remover.
- Clean sealing surfaces; they must be free of oil and grease.
- Check „TDC“ position of crankshaft:
The flat tooth on crankshaft sprocket - 1 - must align with marking -arrow- on oil pump housing.

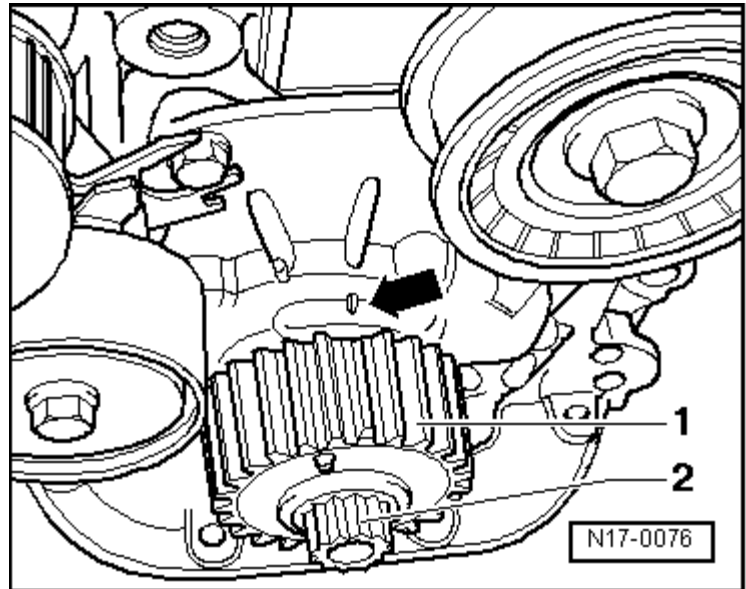


Note

Disregard item -2-.

- Turn back crankshaft in opposite direction of engine rotation by approx. 45° from this position.

- Fit seal for thermostat housing.
- Fit intake manifold gasket
- Place cylinder head gasket in position.
- 1 Note position of dowel sleeves in cylinder block.
- Check installation position of cylinder head gasket: the word „oben“ (top) or the Part No. should be visible.
- Fit cylinder head.



- Tighten cylinder head bolts → [Fig.](#)



Note

Cylinder head bolts do not have to be torqued down again later after repair work.

Remaining installation steps are carried out in reverse sequence; note the following:

- Install cover (rear) for toothed belt → [Chapter](#).
- Install idler roller for main drive toothed belt → [Chapter](#).
- Install throttle valve module -J338- → [Rep. gr.24](#).
- Install thermostat housing → [Chapter](#).
- Install exhaust gas recirculation valve - N18- with exhaust gas recirculation potentiometer -G212- and exhaust gas recirculation pipe → [Chapter](#).
- Install bracket for exhaust manifold → [Chapter](#).
- Install front exhaust pipe with catalytic converter → [Chapter](#).
- Install camshaft housing → [Chapter](#).
- Install main drive toothed belt → [Chapter](#).
- Install intake manifold → [Rep. gr.24](#).
- Change engine oil → [Booklet809](#).
- Fill cooling system with fresh coolant → [Chapter](#).

