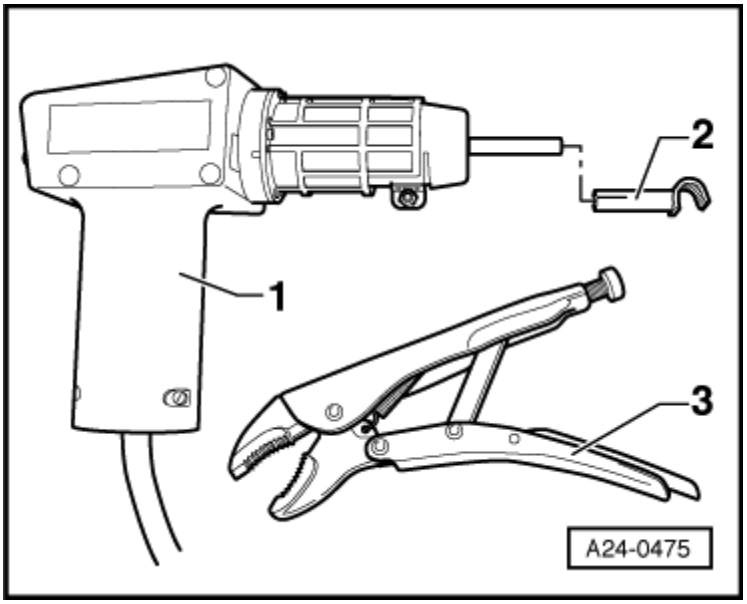
Engine Control Module (ECM), removing and installing

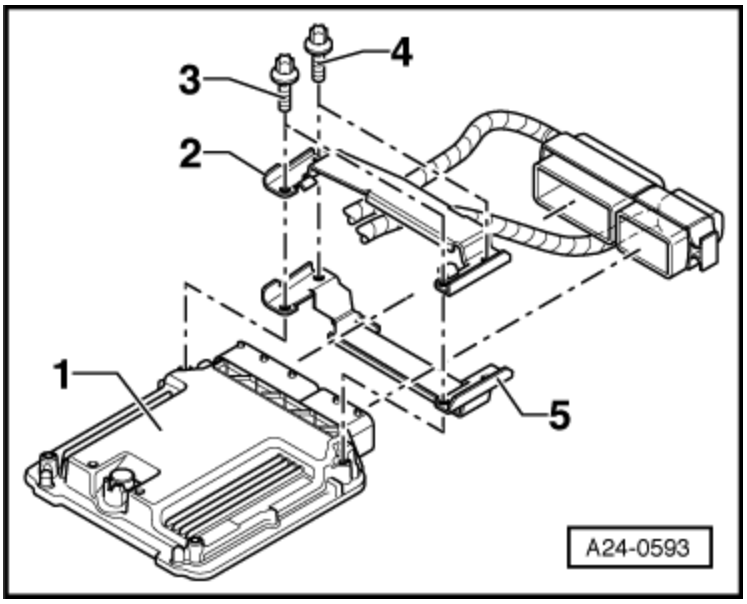
Special tools and workshop equipment required

- Heat Gun 220 V/50 Hz -VAS 1978/14--1- with nozzle attachment -2- from Wiring Harness Repair kit -VAS 1978A-
- Locking pliers -3- (commercially available)



Note

- *The Engine Control Module (ECM) -1- is bolted to a protective housing -5-. To make removal of shear bolts -4- for retaining tabs -2- more difficult, the threads are coated with locking compound.*
- *To disconnect the connectors from the engine control module (ECM) (e.g. to connect the test box or to replace the ECM), the protective housing must be removed.*



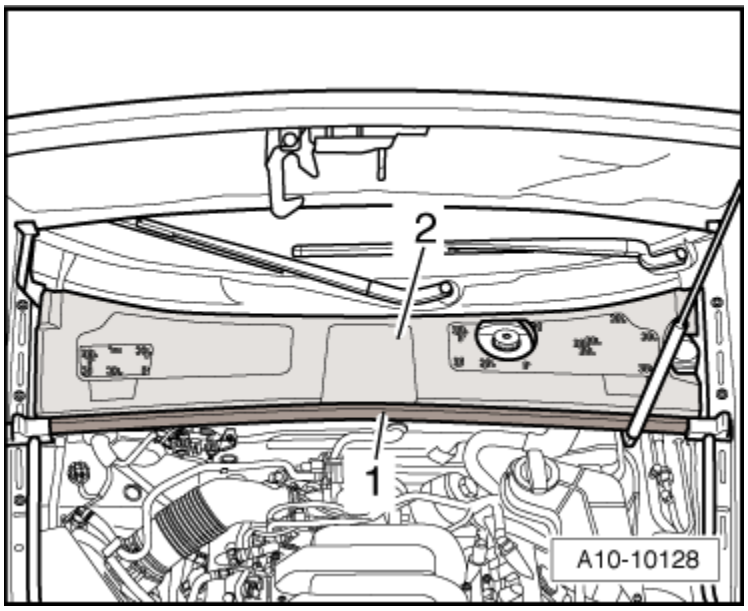
Removing

– If engine control module (ECM) was replaced, select diagnostic object “Replacing engine control module (ECM)” in “Guided Fault-Finding” → Vehicle diagnosis, testing and information system VAS 5051.

– Turn ignition and remove ignition key.

– Remove rubber seal -1- for plenum chamber cover.

– Remove plenum chamber cover -2-.



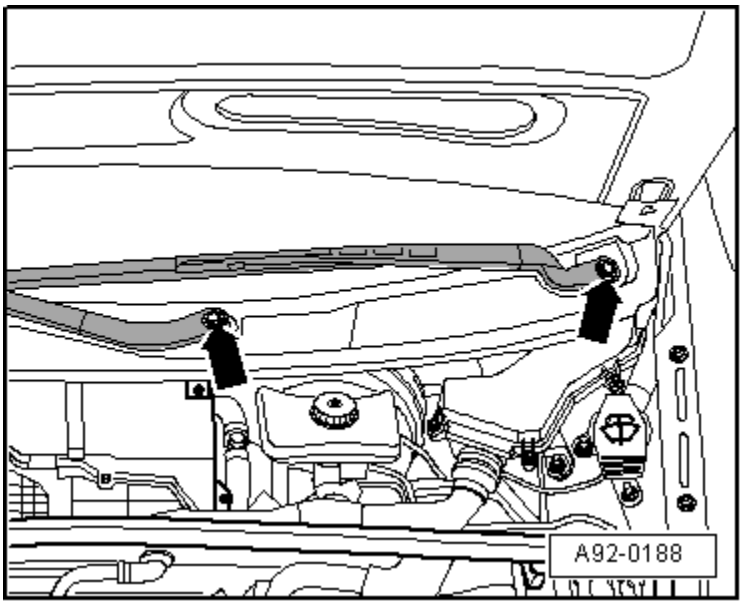
– Pry off caps on wiper arms using a screwdriver.

– Loosen nuts -arrows- by several turns.

– Loosen wiper arms by gently rocking wiper arm. Remove nuts and remove wiper arms.

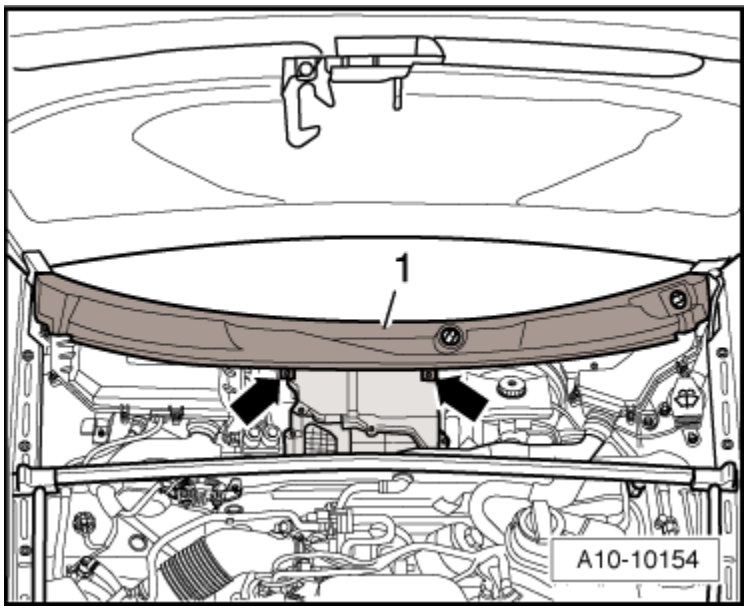
Note

If wiper arm cannot be removed in this way, use a standard puller.



– Remove bolts -arrows- for cowl grill -1-.

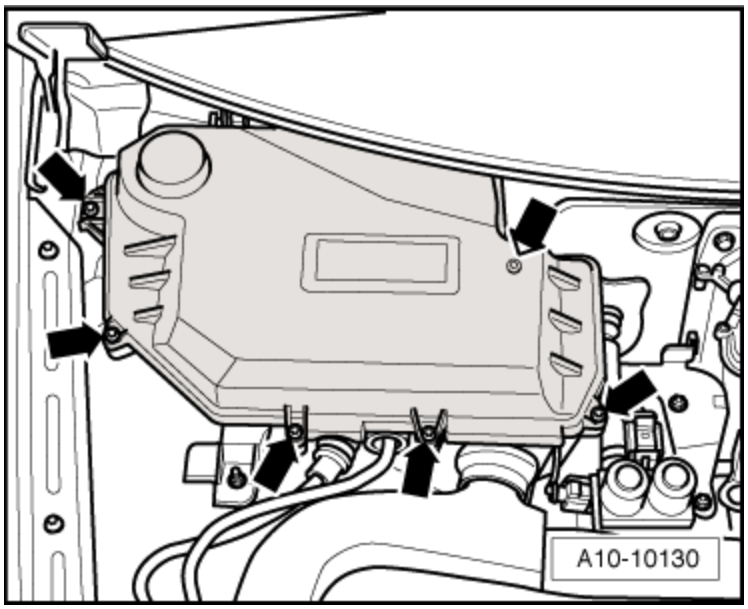
– Pull cowl grill off from windshield.



– Remove bolts -arrows- and remove cover for E-box at right in engine compartment.

WARNING

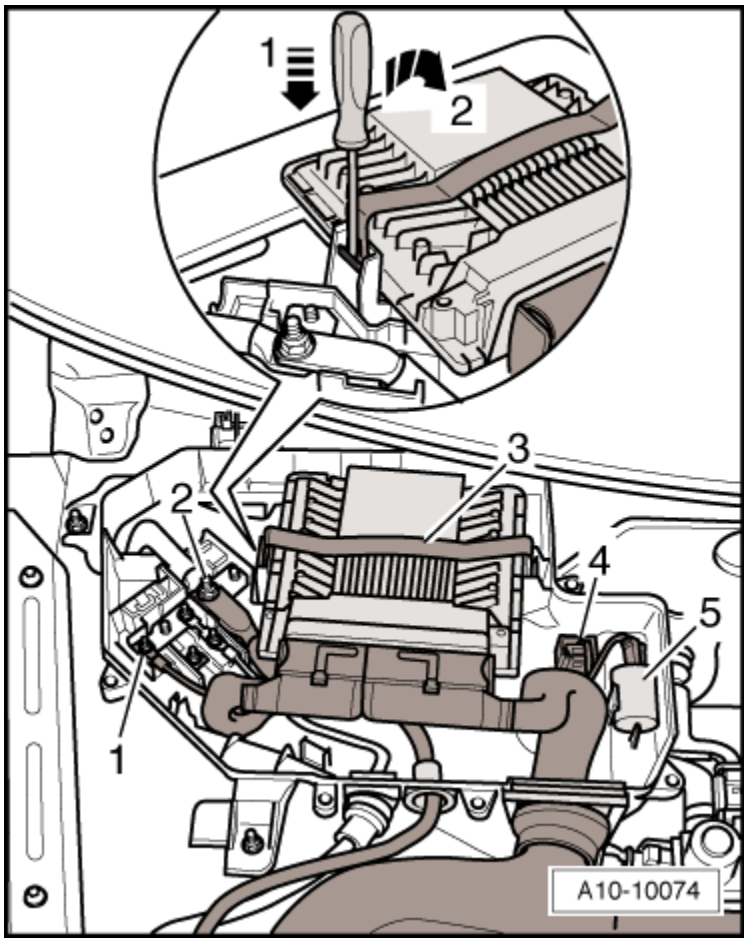
The heater pump valve unit (left of E-box) becomes very hot during operation - Risk of burning!



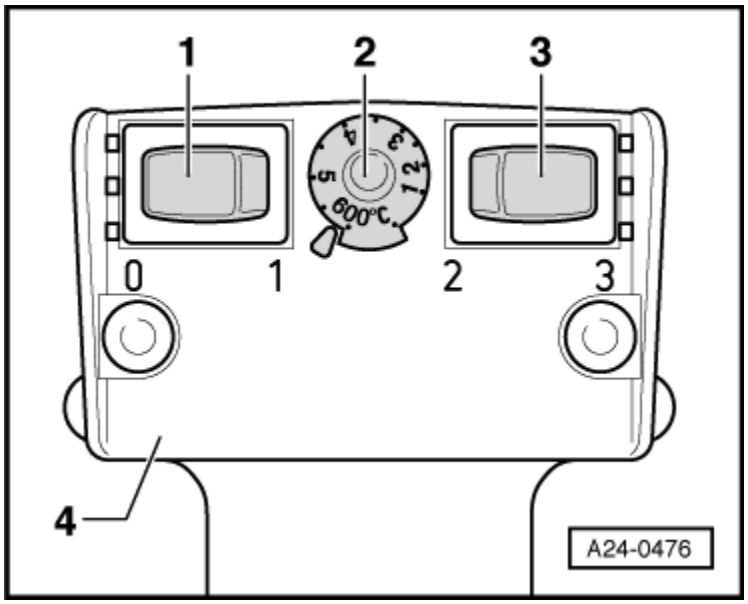
– Carefully pry off retaining clip -2- with a screwdriver -arrows 1 and 2- and remove ECM from E-box.

Caution

To avoid damage (burning) of wire connections and harness connectors, insulation and control modules, the following work steps must be adhered to exactly! Observe operating instructions for heat gun.



– Set adjustment on heat gun as shown in illustration, with temperature potentiometer -2- set to maximum heat and two-stage air flow switch -3- set to level “3”.



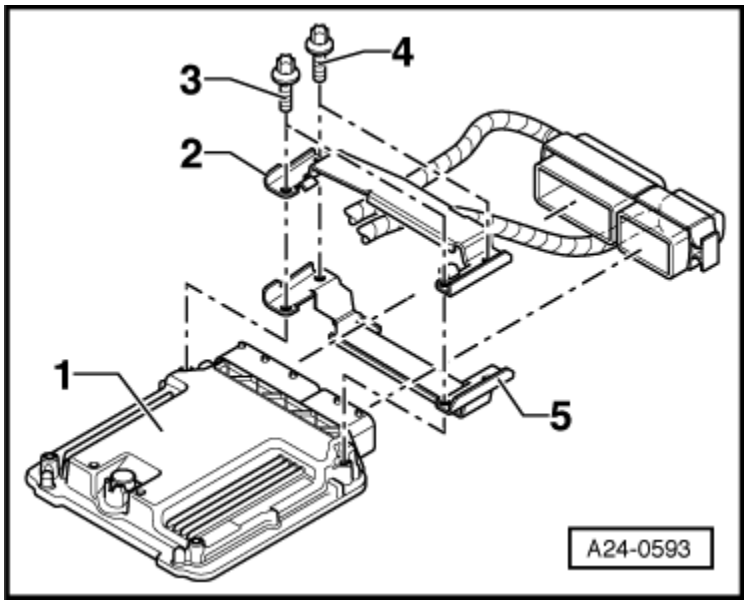
Note

Next, the threads of the protective housing in which the shear bolts are threaded is heated using the heat gun. This step decreases the locking effect of the locking compound on the shear bolt thread, thus allowing the shear bolts to be removed more easily.

WARNING

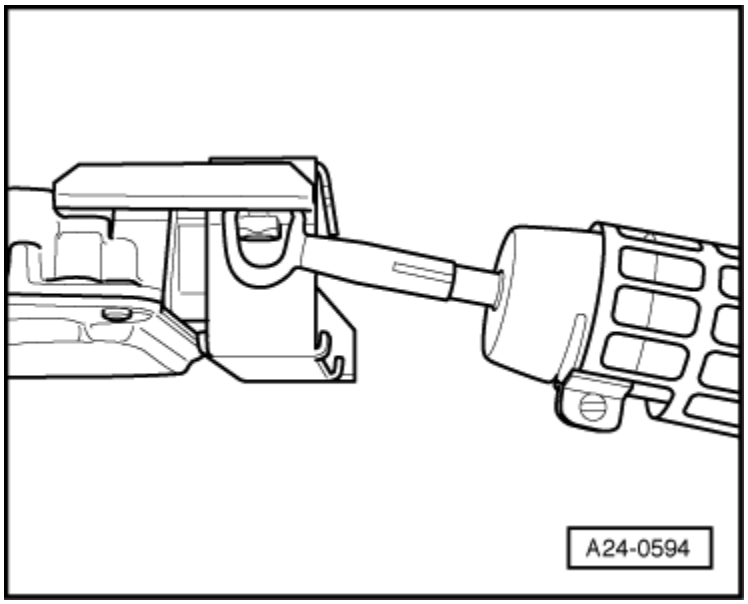
By heating the shear bolts, parts of the protective housing will become extremely hot. Do not burn yourself on this! Ensure only the shear bolts are heated and not any of the surrounding parts. Possibly cover these parts.

– Perform the following steps in order one after the other for both shear bolts -4-.



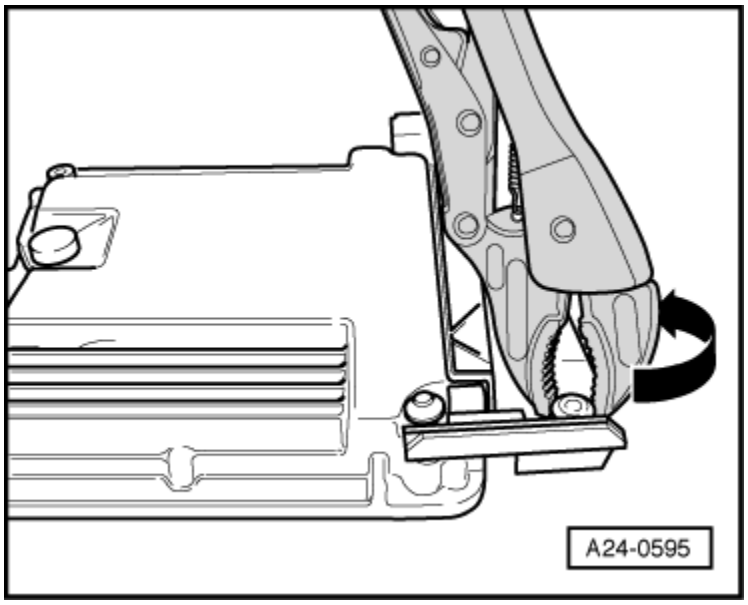
– Direct heat gun nozzle at protective housing shear bolts.

– Switch heat gun on and heat bolt for approx. 20 to 25 seconds.



– Remove shear bolts with locking pliers -arrow-.

Note

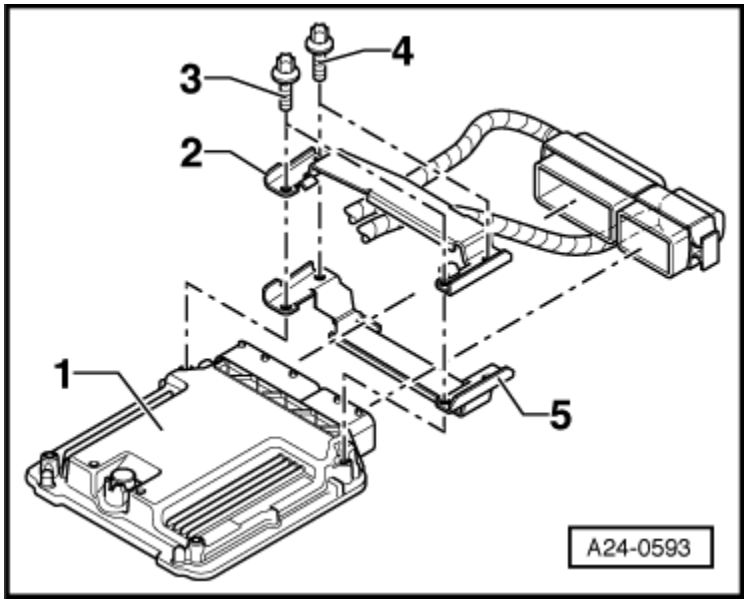


The threads of both shear bolts -3- that are installed in the ECM are not coated with a locking compound. The threads in the ECM housing must not be heated and do not require to be heated (unintentional heating of the ECM).

– Remove both shear bolts -3-.

– Separate retaining tab -2- of control module connector.

– Release and pull off connectors from engine control module (ECM).



Note

Adaptation values are erased when connectors are disconnected from the Engine Control Module (ECM), DTC memory content remains intact.

Installing

Installation is in reverse order of removal, note the following:

– The ECM must be equipped with protective housing again.

– Clean locking compound residue from shear bolt threaded holes. Cleaning can be performed with a thread cutter (tap).

– Use new shear bolts.

After installing a new Engine Control Module (ECM), the following work steps must be performed:

– Activate engine control module (ECM) in “Guided Fault-Finding” under “Replacing engine control module (ECM)” → Vehicle diagnosis, testing and information system VAS

5051.