2007 Audi A8L Quattro Sedan (4E8) V8-4.2L (BVJ)

Vehicle > Powertrain Management > Fuel Delivery and Air Induction > Fuel Injector > Service and Repair > Removal and Replacement

INTAKE MANIFOLD AND INJECTORS, WITH MAGNESIUM MANIFOLD

Intake Manifold and Injectors, with Magnesium Manifold

=> [Intake Manifold]

=> [Fuel Injectors]

Intake Manifold

Special tools, testers and auxiliary items required

- Torque wrench (5-50 Nm) (VAG 1331)
- Tool insert, AF 17 (V.A.G 1331/6)
- Socket insert AF 14 (V.A.G 1331/8)
- Assembly tool (T10118)
- Hose clamps up to 25 mm diameter (3094)

Removing

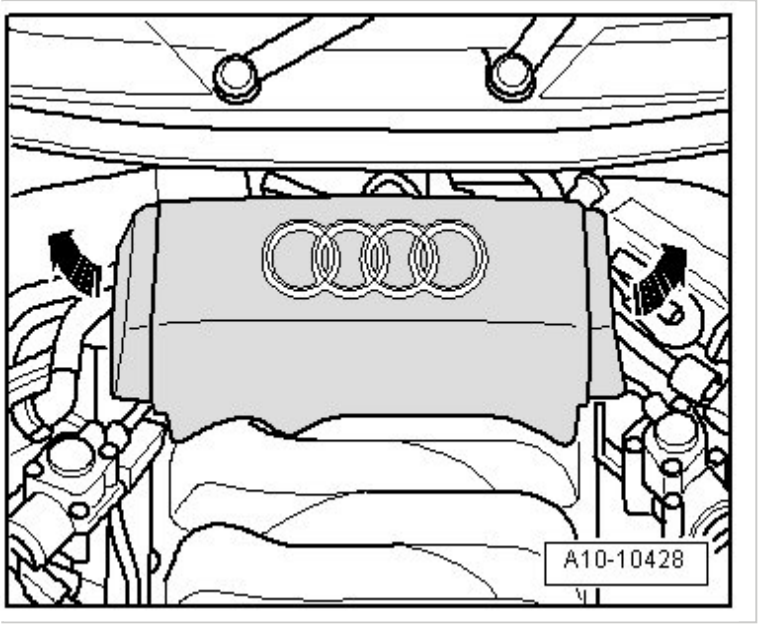
CAUTION!

- **Fuel system is under high pressure! Before opening the high pressure components of the fuel injection system, the pressure must be relieved to a residual pressure. Refer to => [High Side Fuel Pressure, Reducing] See: Fuel Pressure Release > Vehicle Damage Warnings > High Side Fuel Pressure, Reducing.**

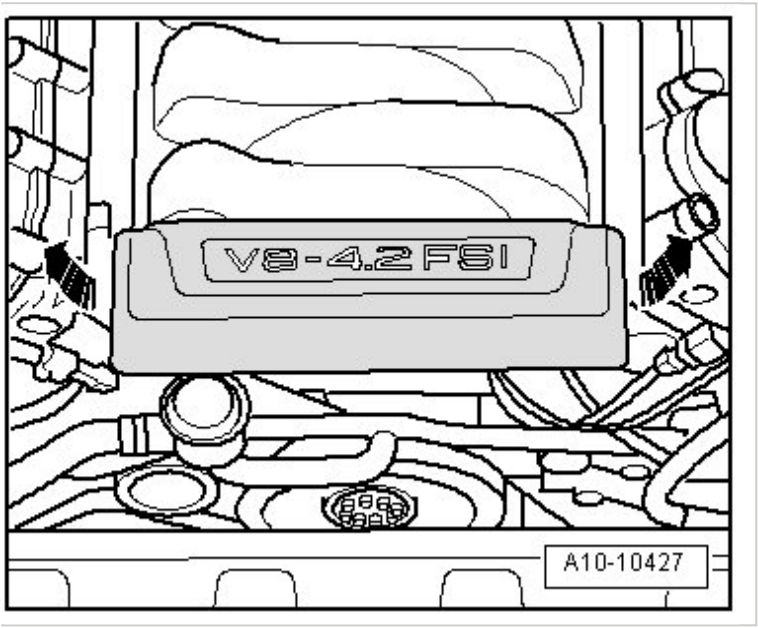
- **Then wrap a clean cloth around the connection and relieve the residual pressure by carefully loosening the connection.**

- All cable ties opened or cut off during engine removal must be reinstalled at the same locations during installation.

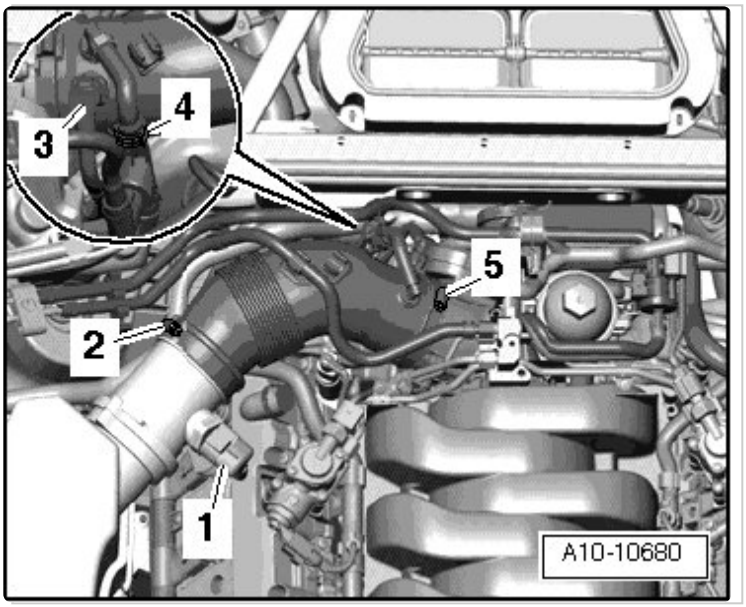
- Pull the rear engine cover off - **arrows** -.



- Pull the front engine cover off - **arrows** -.



- Free up the fuel line and vacuum line to the Evaporative Emission (EVAP) canister on the air guide hose.



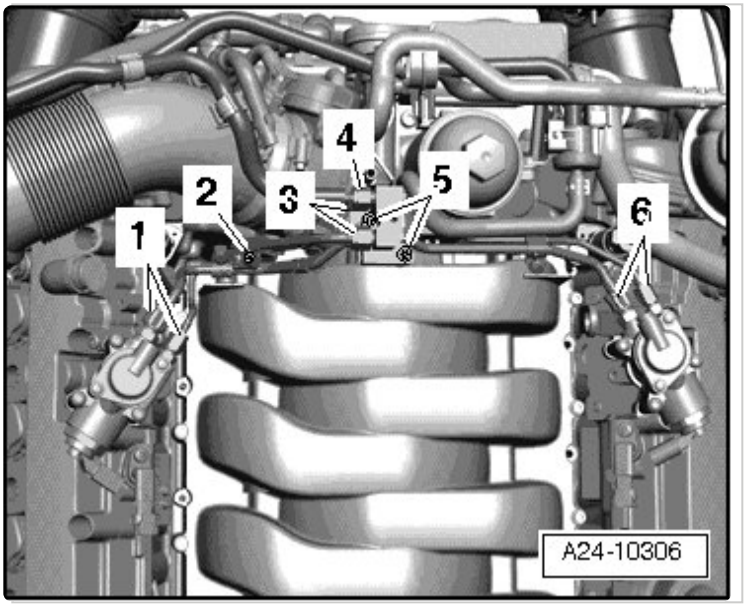
♦ Ignore - **item 1** -.

- Remove the vacuum line - **4** - at the air guide hose.

- Lay aside the air guide hose with the connected crankcase ventilation hose - **3** - by loosening hose clamps - **2 and 5** -.

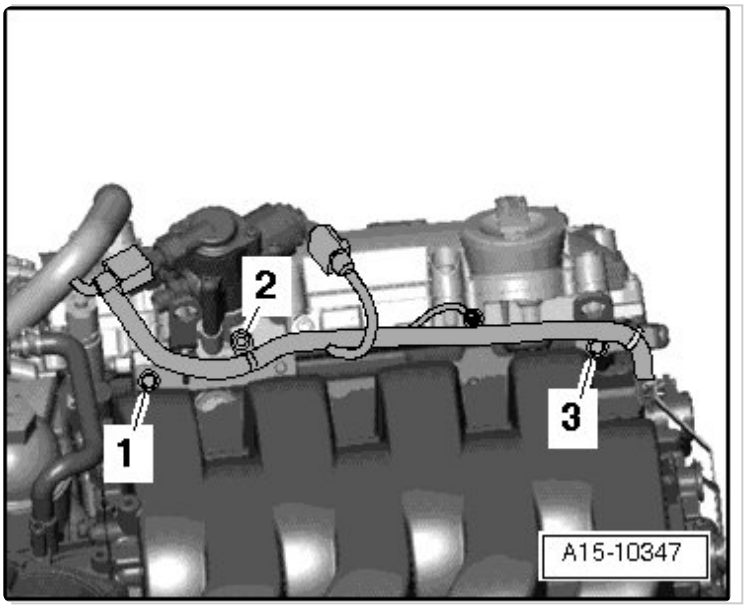
CAUTION!
Hose connectors - 3 - must not be opened.

- Disconnect the fuel lines - **1, 3, 4 and 6** -

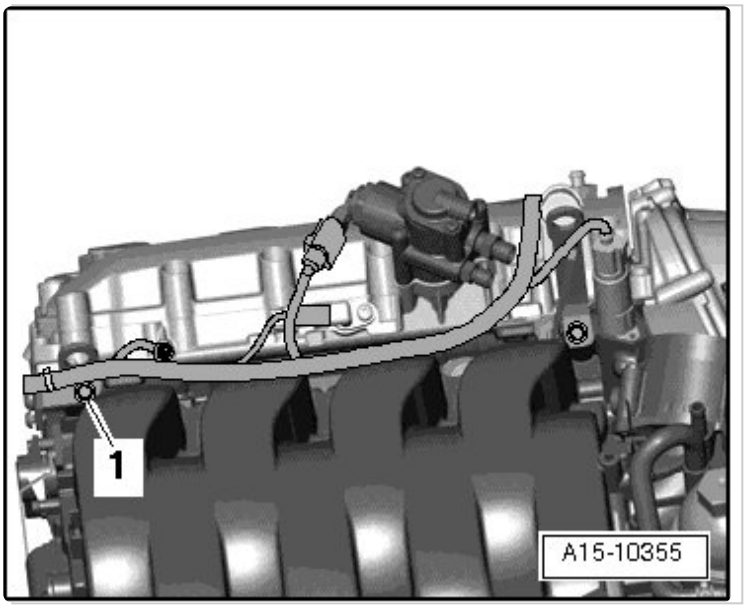


- Remove bolts - **2 and 5** - and remove the fuel rail with high pressure lines.

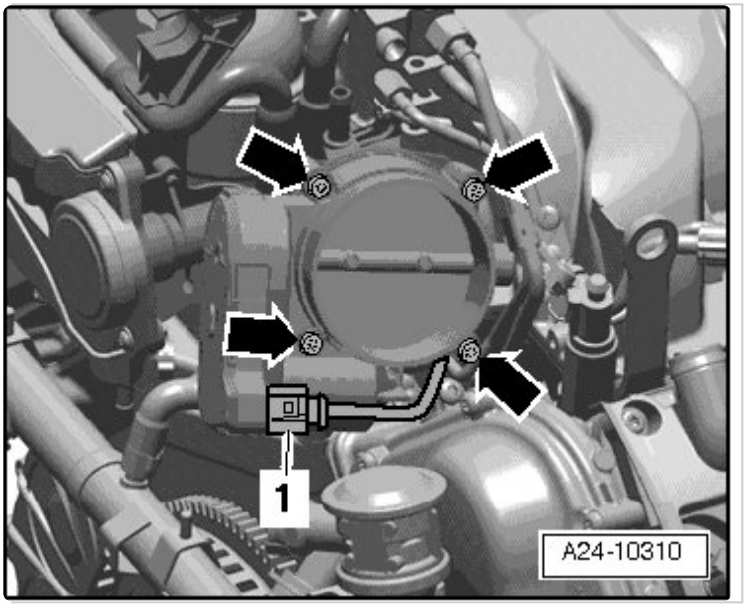
- Remove bolt - **2** -, free up the wiring harness and press it to left.
- Remove bolt - **1** - and remove the left rear engine lifting eye.
- Remove bolt - **3** - and remove the left front engine lifting eye.



- Remove the bolt - **1** - and remove the right front engine lifting eye.

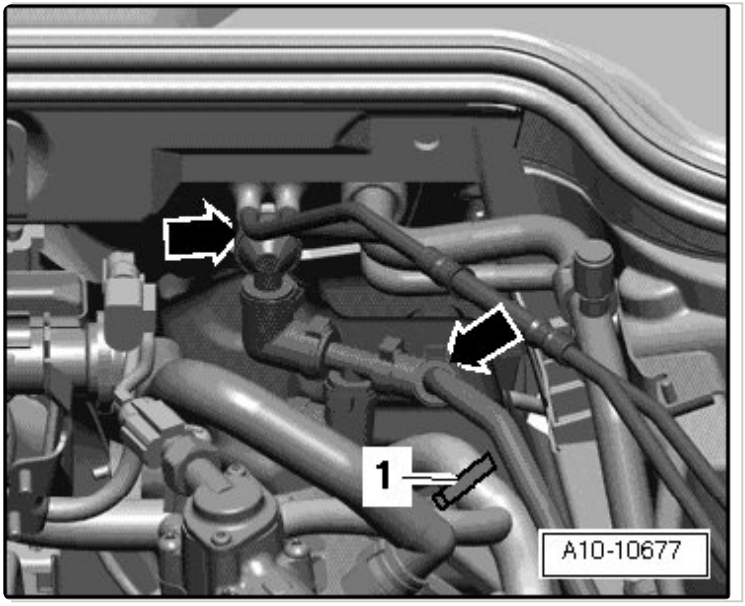


- Free up the wiring harness and press it to right.
- Disconnect the electrical connector - **1** - from the throttle valve control module.



- Remove the screws - **arrows** - and remove the throttle valve control module.

- Disconnect the vacuum lines - **arrows** - from the brake booster.



- Lay the vacuum lines aside.

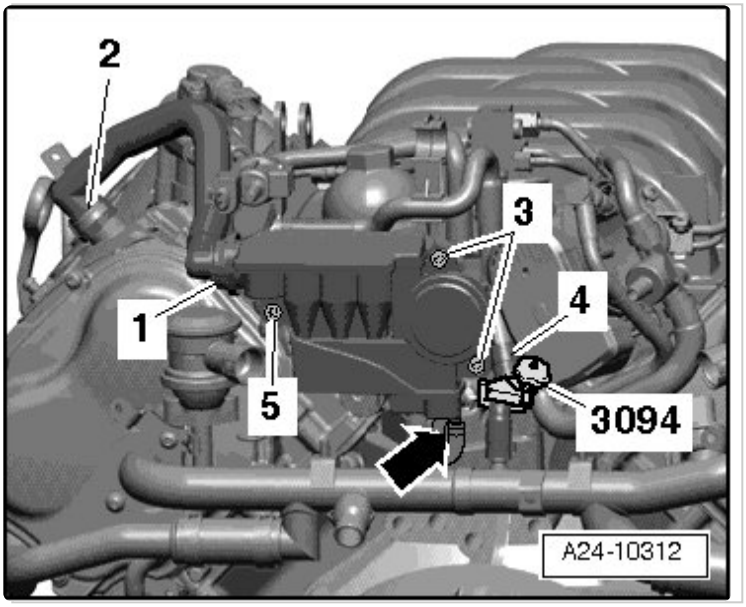
♦ Ignore - **item 1** -.

CAUTION!

Cover the coolant expansion tank cap with cloth and open carefully, as hot steam or hot coolant may escape when opening.

- Open the coolant expansion tank cap.

- Remove the crankcase ventilation house at - **item 1** - and - **item 2** - by pressing the release buttons.



- Clamp off the coolant hose - **4** - using the (3094) and remove the coolant hose from the intake manifold connection.

- Loosen the bolt - **5** - several turns.

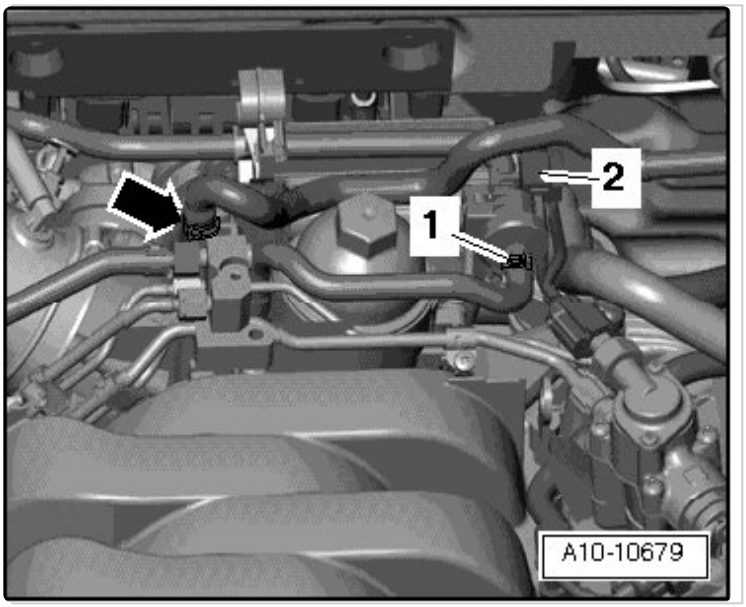
- Remove the bolts - **3** - and press the crankcase ventilation pressure control valve carefully off the intake manifold support.

♦ Disregard - **arrow** -.

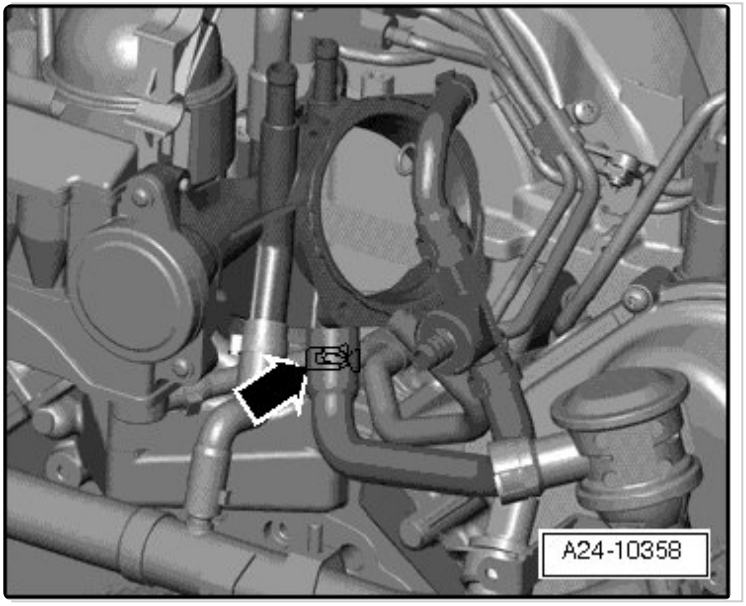
♦ To improve clarity, the removed engine is shown from the rear.

♦ Place a cloth under the intake manifold support to collect leaking coolant.

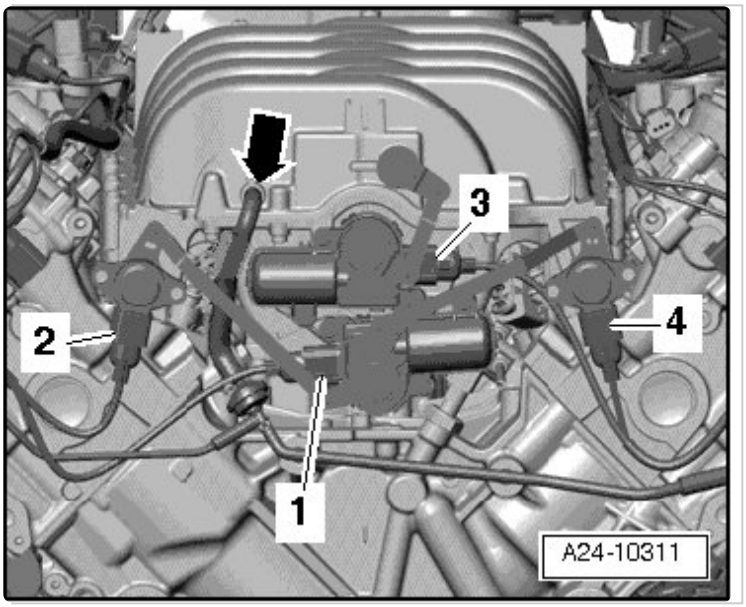
- Disconnect the electrical connector - **2** - for the EVAP canister purge regulator valve and remove the vacuum hose - **1** -.



- Remove the EVAP canister purge regulator valve from the bracket and lay aside with the hose connected.
- Remove the coolant hose - **arrow** - and lay it aside.
- Remove the vacuum hose - **arrow** - to the intake manifold support.



- Remove the vacuum hose - **arrow** -.



- Disconnect the electrical connectors for the:

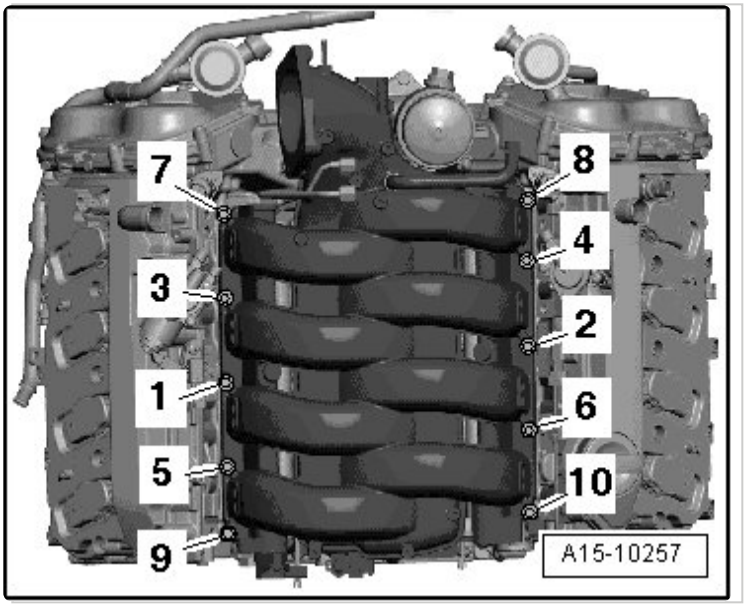
1. Intake flap motor (brown connector)

2. Intake manifold runner position sensor

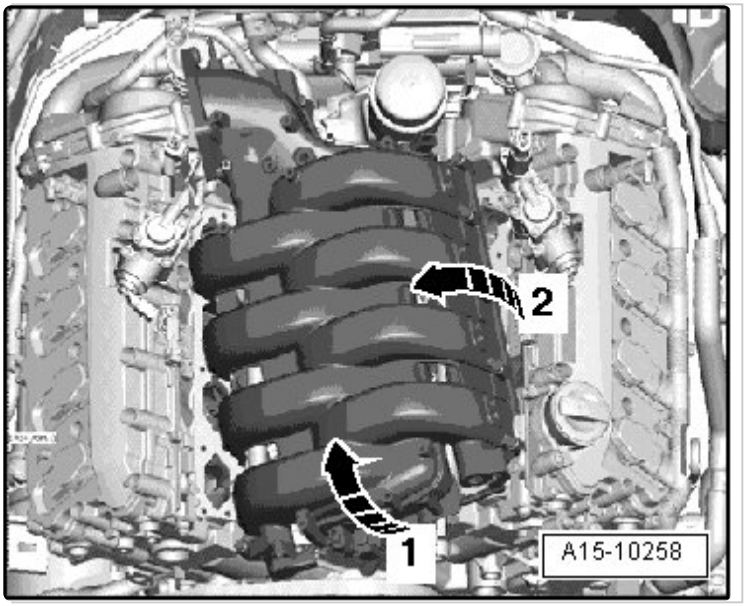
3. Variable intake manifold runner motor (black connector)

4. Intake manifold runner position sensor 2

- Remove the intake manifold bolts in sequence - **10 through 1** -.



- To avoid scratching the intake manifold, apply adhesive tape in the area of the high pressure lines.



- Next, raise the front of the intake manifold upward - **arrow 1** -.

- Swing the intake manifold to the right side of the vehicle - **arrow 2** -, under the high pressure fuel lines and out.

- Remove the intake manifold from the engine compartment.

♦ Plug the intake ports of the cylinder head with clean cloths.

Installing

♦ Replace gaskets and O-rings.

♦ Secure all hose connections using hose clamps appropriate for the model type.

♦ During installation, all cable ties must be reinstalled at the same location.

♦ Tightening specifications, refer to => [Intake Manifold] See: Intake Manifold > Removal and Replacement > Intake Manifold and Fuel Rail Assembly Overviews, with Magnesium Manifold, and => [Fuel Rail and Injectors] See: Intake Manifold > Removal and Replacement > Intake Manifold and Fuel Rail Assembly Overviews, with Magnesium Manifold.

Installation is performed in reverse order of removal, noting the following:

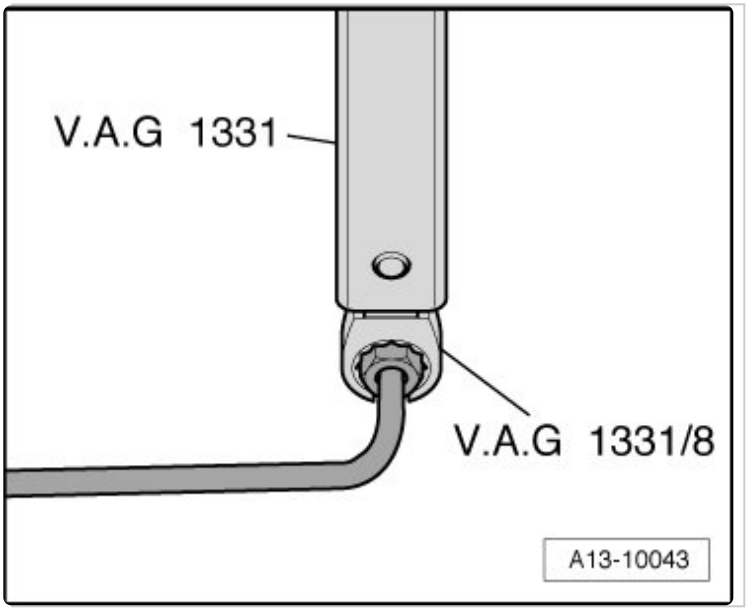
♦ High pressure line connections must not show any signs of damage.

♦ Do not change the angles of the high pressure lines.

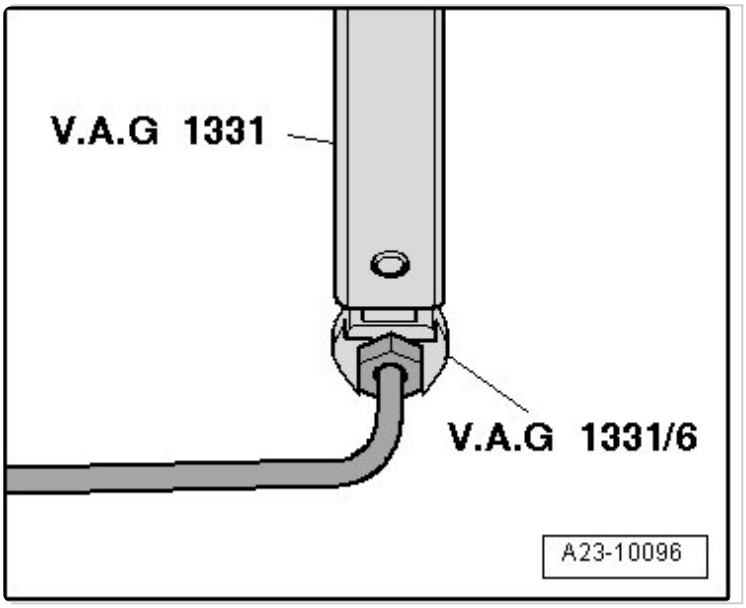
- Hand tighten the union nuts for the high pressure lines.

- Make sure the high pressure lines are seated free of stress.

- To tighten the 14 mm diameter union nut on the high pressure lines, use the (VAG 1331) with the (VAG 1331/8).



- To tighten the 17 mm diameter union nut on the high pressure lines, use the (VAG 1331) with the (VAG 1331/6).



- Only install the retaining tabs after the high pressure lines have been tightened.

- Observe the safety precautions after connecting the battery.

- If necessary, fill the cooling system.

Fuel Injectors

Special tools, testers and auxiliary items required

- Torque wrench (5-50 Nm) (VAG 1331)
- Tool insert, AF 17 (VAG 1331/6)
- Socket insert AF 14 (VAG 1331/8)
- Tool set (T10133)

Removing

CAUTION!

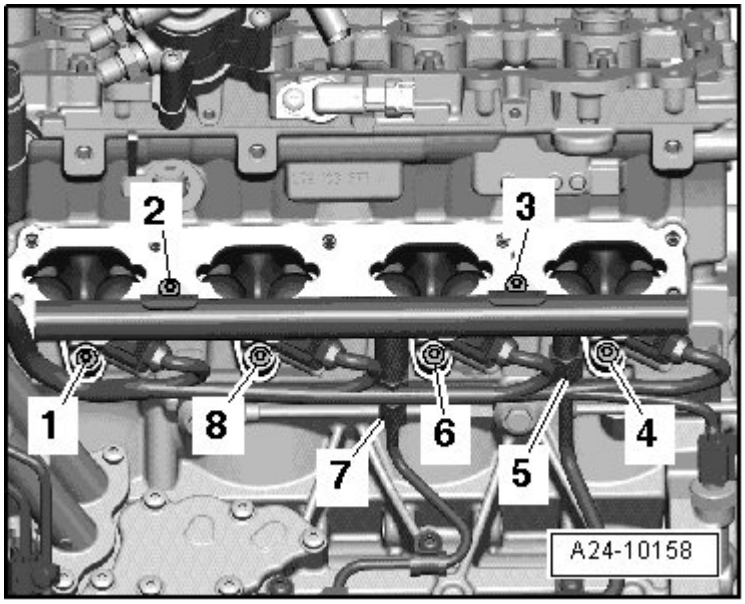
- **Fuel system is under high pressure! Before opening the high pressure components of the fuel injection system, the pressure must be relieved to a residual pressure. Refer to => [High Side Fuel Pressure, Reducing] See: Fuel Pressure Release > Vehicle Damage Warnings > High Side Fuel Pressure, Reducing.**

- **Then wrap a clean cloth around the connection and relieve the residual pressure by carefully loosening the connection.**

- Remove the intake manifold. Refer to => [Intake Manifold].

- Seal the injector channels in the cylinder heads with clean cloths.

- Disconnect the electrical connectors from the fuel injectors.



- Remove the high pressure line - **5** - from the fuel rail.

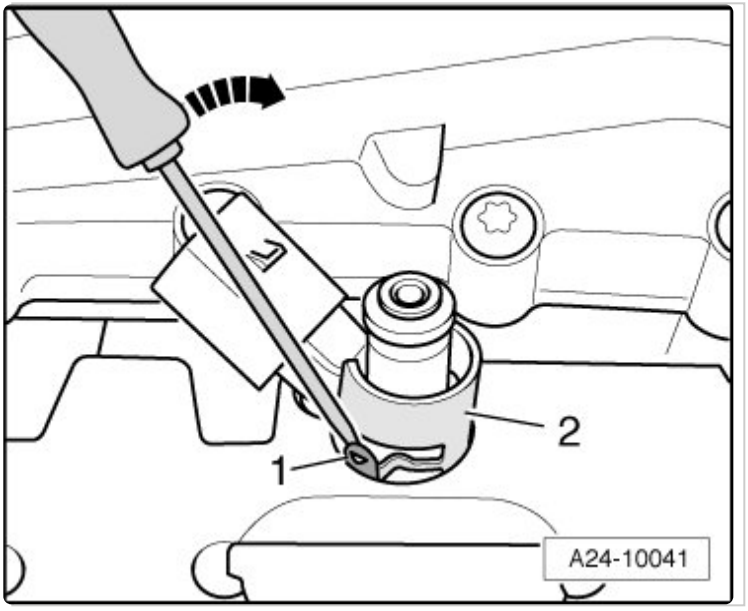
- Remove the high pressure line - **7** - from the fuel rail. To do this, counter hold at the hex head with a open end wrench and loosen the union nut.

- Remove the screws - **1, 2, 3, 4, 6 and 8** -.

♦ Do not change the angles of the high pressure lines.

- Remove the fuel rail with the injectors.

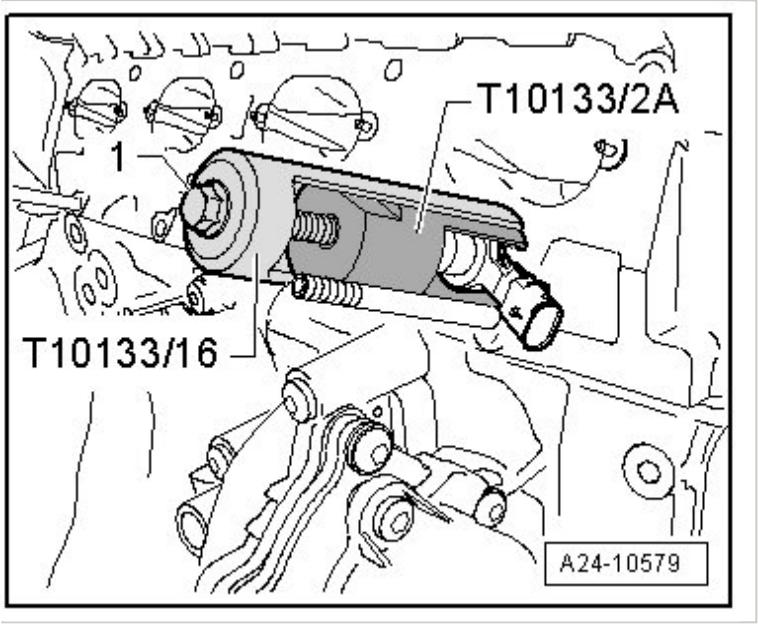
If the fuel injectors cannot be pulled out of the cylinder head by hand, proceed as follows:



- Using a screwdriver, bend the retaining tabs - **1** - of the radial adjustment aside - **arrow** - and pull the support ring - **2** - off from the fuel injector.

- Remove the O-ring from the fuel injector.

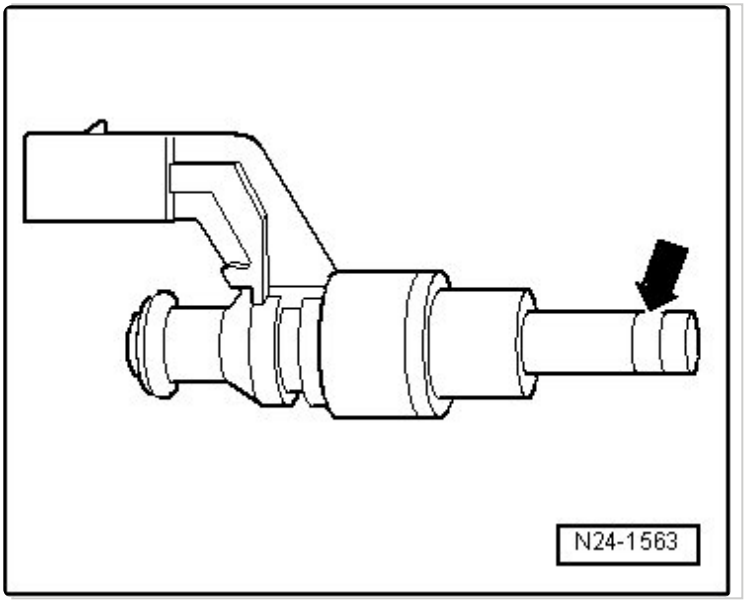
- Install the (T10133/2A) in the groove on the fuel injector.



- Then position the (T10133/16) and remove the fuel injector by loosening the bolt - **1** -.

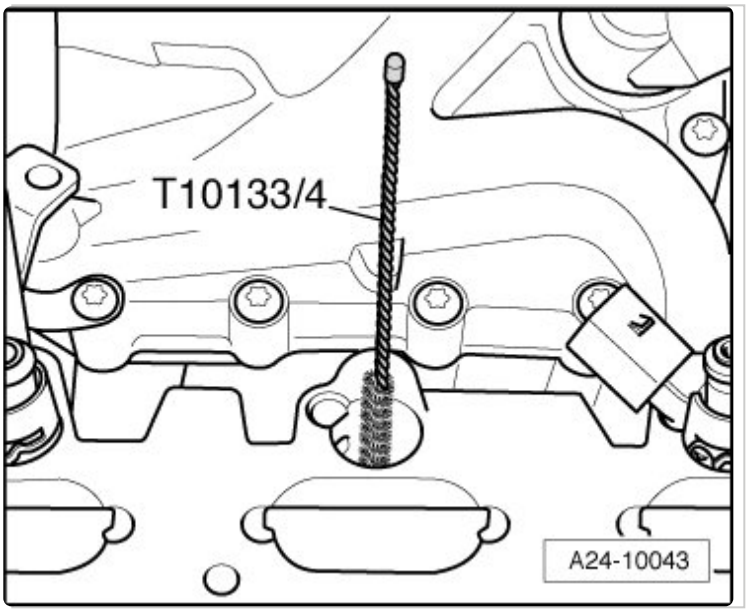
♦ When setting the (T10133/2A) in place, the radial adjustment can be destroyed, because the retaining tabs break

- Carefully remove the old combustion chamber seal - **arrow** -, thereby cutting the seal open with a knife or spreading the seal open with a small screwdriver and pulling it forward and off.



- Make sure that the groove of the fuel injector does not become damaged. If the groove is damage, the fuel injecto must be replaced.

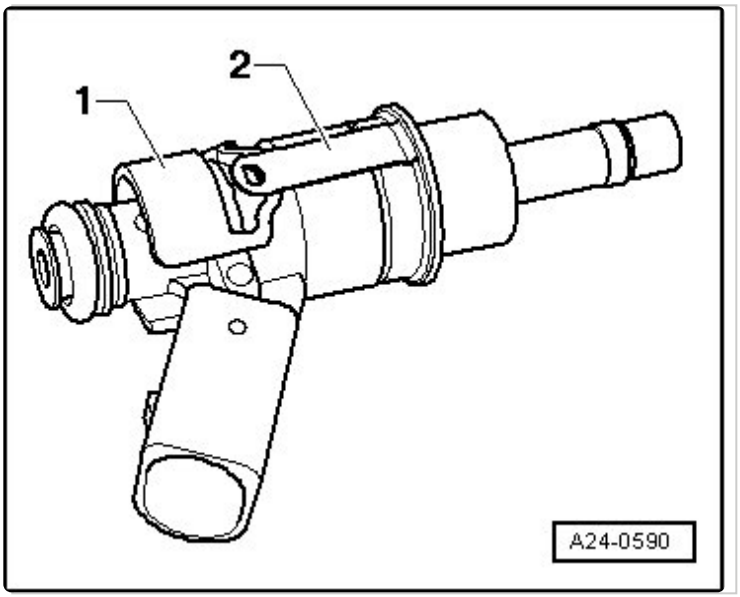
Installing



- Replace the combustion chamber seal and O-ring.
- Replace the spacer ring if damaged.
- Lightly lubricate the fuel injector O-rings with clean engine oil.
- Reinstall the injector lines at the same cylinder.

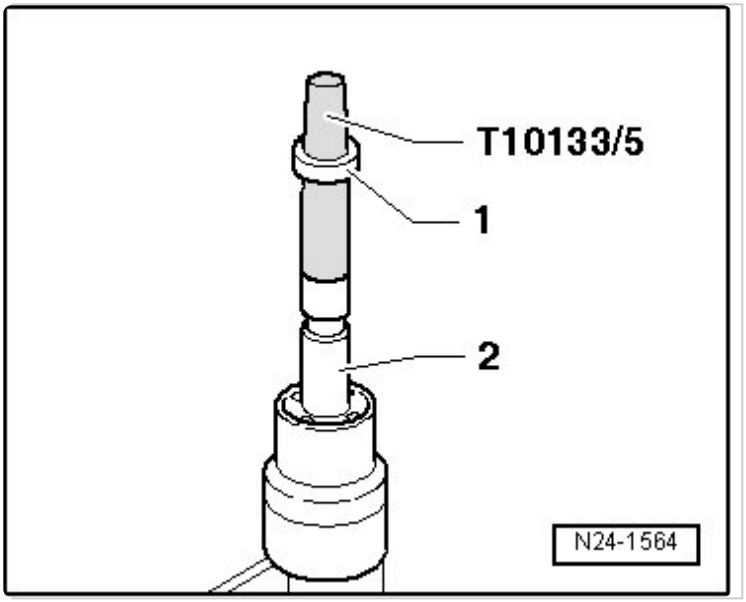
- Clean the bore in the cylinder head with (T10133/4).

- Clip the radial adjustment - **1** - to the support ring - **2** -.

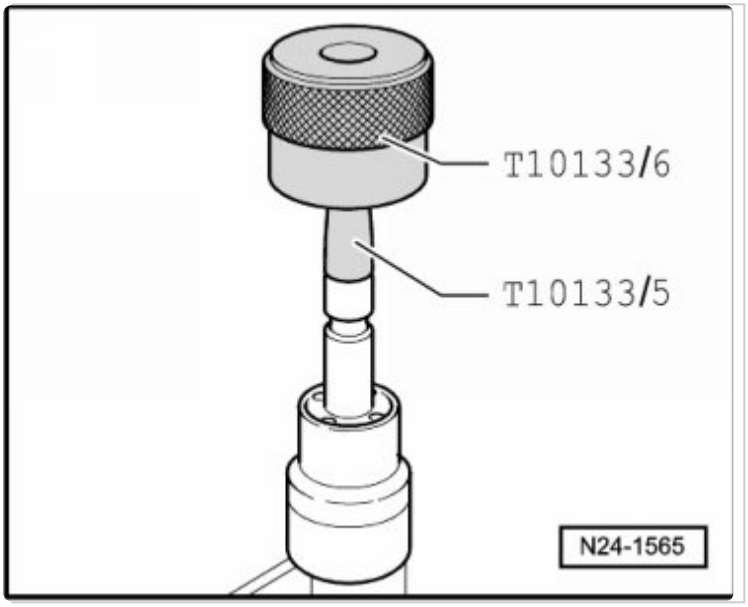


- When reinstalling a fuel injector, use a clean cloth to clean the combustion residue from the groove for combustion chamber seal and the shaft of the fuel injector.

- Place the (T10133/5) with new combustion chamber seal - **1** - on the fuel injector - **2** -.

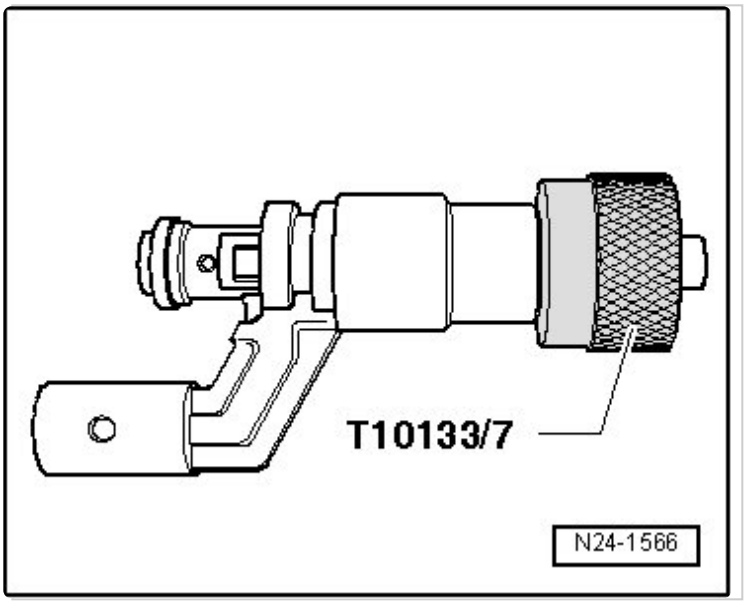


- Slide the combustion chamber seal as far possible onto the (T10133/5) using the (T10133/6).

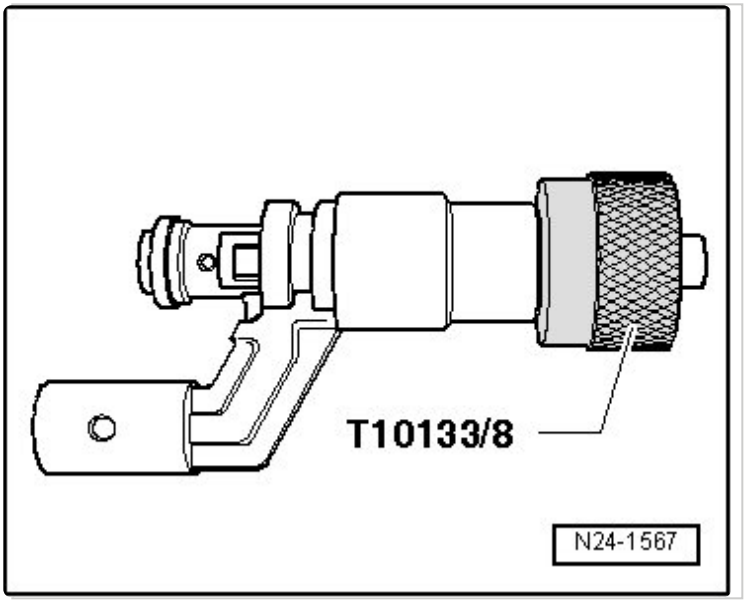


- Turn the (T10133/6) around and slide the combustion chamber seal into the groove.

♦ When pushing the combustion chamber seal onto the fuel injector, the seal spreads open. Therefore after pushing it on, it must be tightened again in 2 steps, as follows:



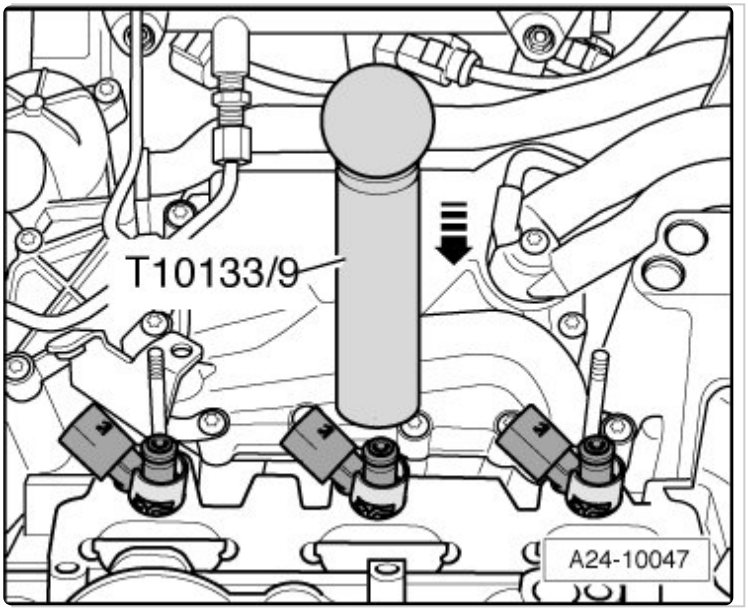
- Press the (T10133/7) with a slight turning motion (approximately 180 degrees) onto the fuel injector until it stops.
- Pull the (T10133/7) off again, turning it in the opposite direction.
- Press the (T10133/8) with a slight turning motion (approximately 180 degrees) onto the fuel injector until it stops.



- Pull the (T10133/8) off again, turning it in the opposite direction.
- Lubricate the new O-ring with clean engine oil before installing.

♦ The combustion chamber seal must not be oiled.

- Slide the fuel injector into the cylinder head bore until seated using the (T10133/9).

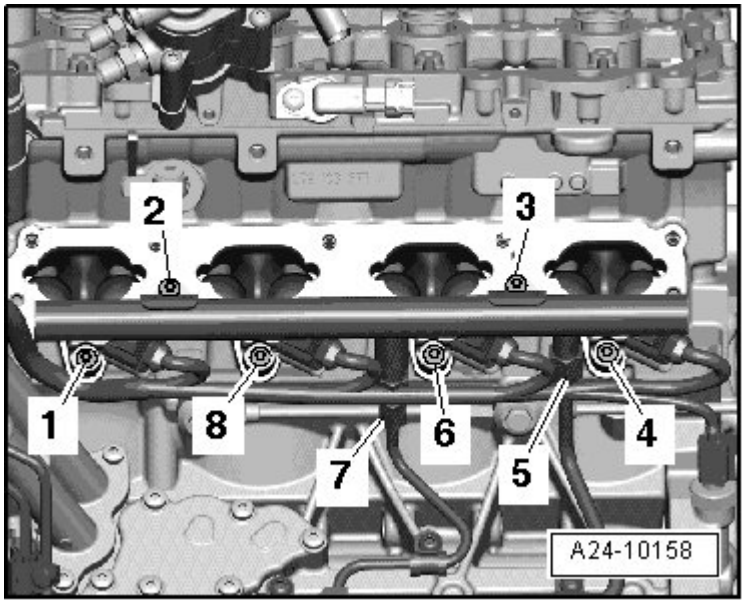


♦ The fuel injector must not be difficult to install. If necessary, wait as the combustion chamber seal continues to pull itself together.

- Make sure the fuel injectors are correctly positioned in the cylinder head.

♦ The electrical connectors for the fuel injectors must engage in the intended recess of the cylinder head.

- Press the fuel rail onto the fuel injectors with uniform pressure.

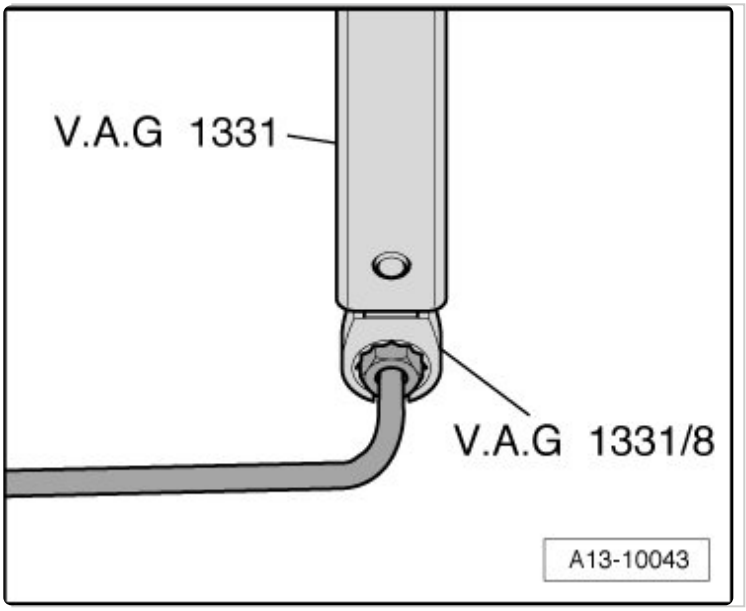


- Tighten screws - **1, 2, 3, 4, 6 and 8** - diagonally in stages.

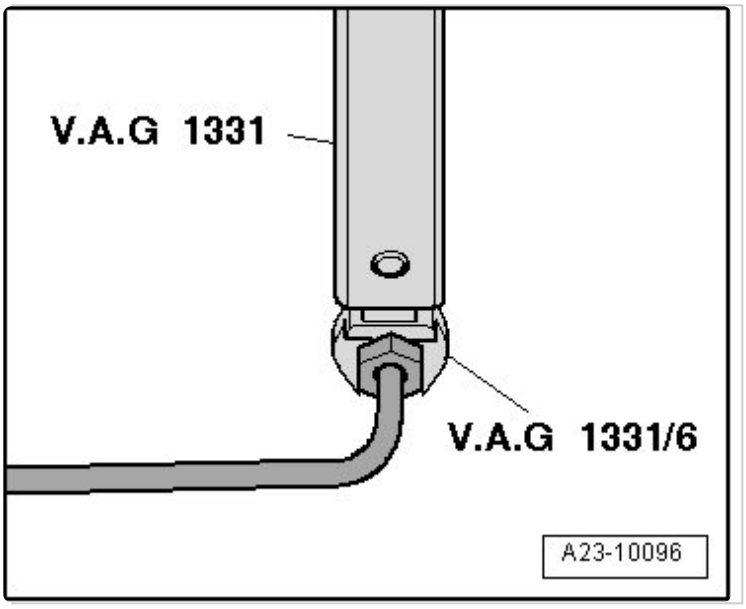
♦ Tightening specifications, refer to => [Fuel Rail and Injectors] See: Intake Manifold > Removal and Replacement > Intake Manifold and Fuel Rail Assembly Overviews, with Magnesium Manifold.

♦ High pressure line connections must not show any signs of damage.

- Do not change the angles of the high pressure lines.



- Hand tighten the union nuts for the high pressure lines.
- Make sure the high pressure lines are seated free of stress.
- To tighten the 14 mm diameter union nut on the high pressure line, use the (VAG 1331) with the (VAG 1331/8).
- To tighten the 17 mm diameter union nut on the high pressure line, use the (VAG 1331) with the (VAG 1331/6).



- Only install the retaining tabs after the high pressure lines have been tightened.

Further installation is performed in reverse order of removal, noting the following:

- Install the intake manifold. Refer to => [Intake Manifold].