

Fuel Injectors

Special tools and workshop equipment required

Tool set - T10133-

High-Pressure Fuel Injector - Component Overview

- 1 - Radial adjustment - Replace if damaged
- 2 - Combustion chamber seal (Teflon seal) - replace, the seal must not be greased or be handled with any other lubricant during installation
- 3 - Groove on fuel injector
- 4 - Spacer ring - Replace if damaged
- 5 - O-ring - replace, lightly coat with clean engine oil during installation
- 6 - Support ring - fuel rail yields force via support ring to hold fuel injector tightly in cylinder head

Removing



WARNING

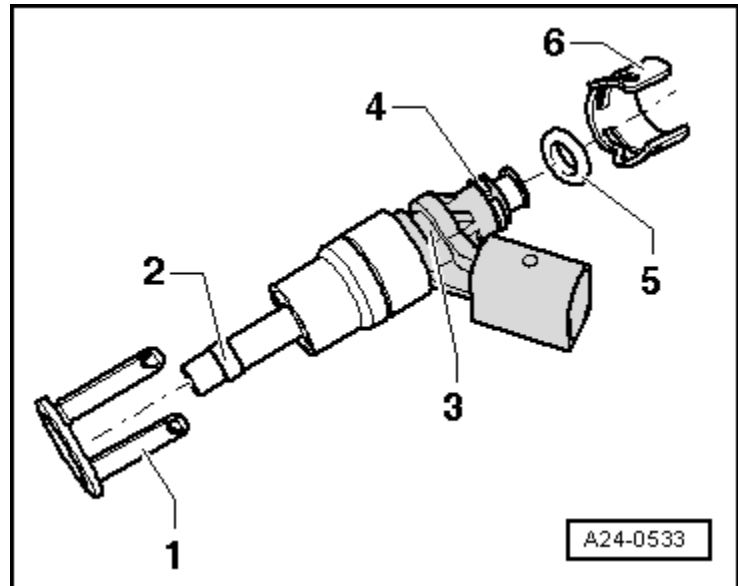
Fuel system is under high pressure! Before opening high pressure components of the fuel injection system, pressure must be relieved to residual pressure → [Chapter](#).

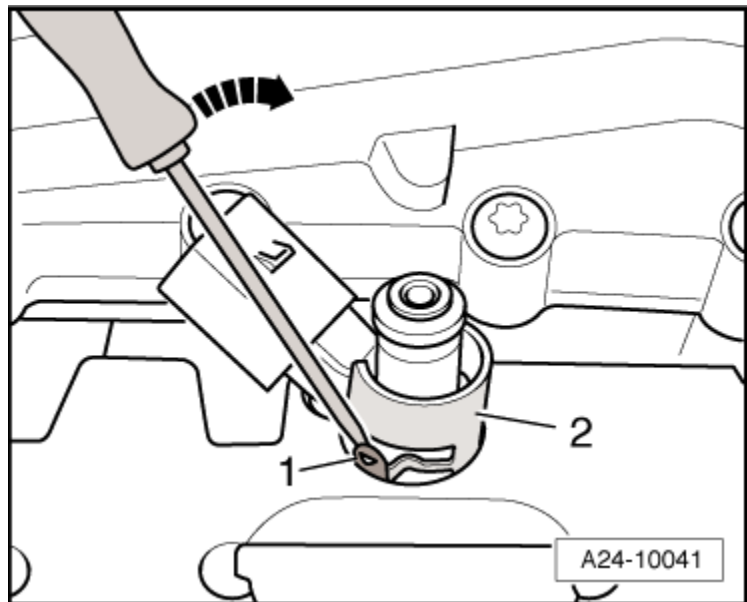
Then wrap a clean rag around the connection and relieve residual pressure by carefully loosening the connection.

- Remove upper part of intake manifold → [Chapter](#).
- Remove corresponding intake manifold lower part → [Chapter](#).

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

- Using a screw driver, bend retaining tabs -
- 1 - of radial adjustment aside - arrow - and pull support ring - 2 - from fuel injector.



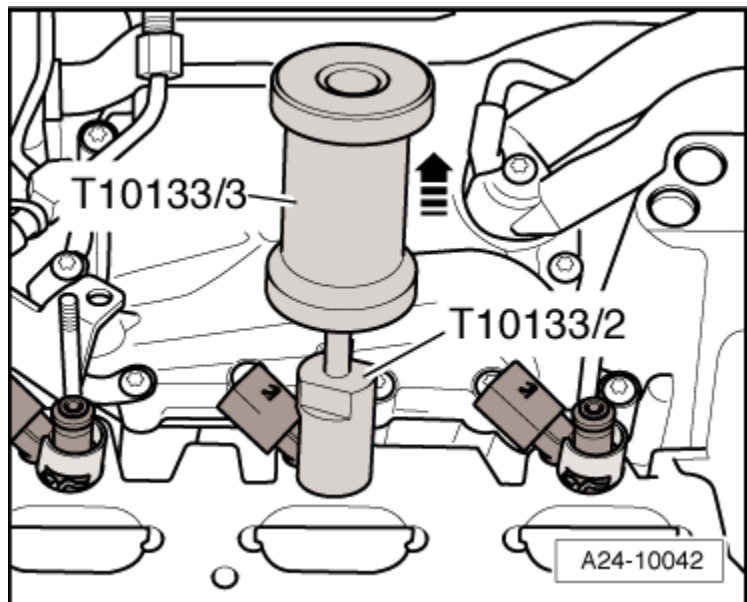


- Attach slide wrench -T10133/3- with adapter -T10133/2-.
- Guide puller -T10133/2- into groove on fuel injector and carefully drive fuel injector out.



Note

When setting the puller in place, the radial adjustment can be destroyed, because the retaining tabs break.



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

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

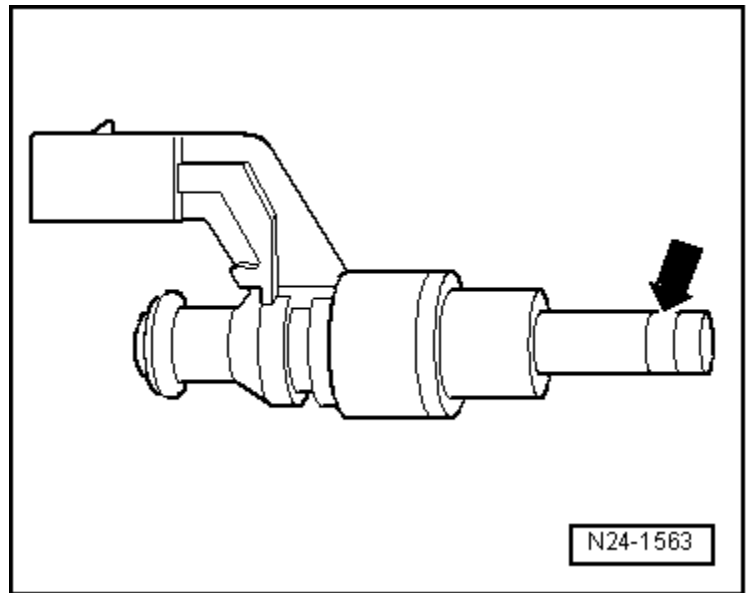
Installing



Note

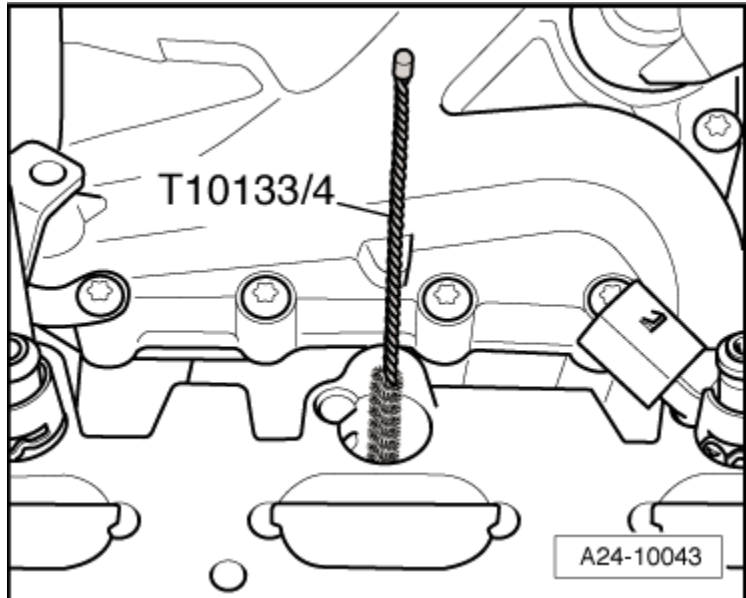
- Replace combustion chamber seal and O-ring.
- Replace spacer ring if damaged.
- Lightly moisten fuel injector O-rings with clean engine oil.

Re-insert injector lines at same cylinder.



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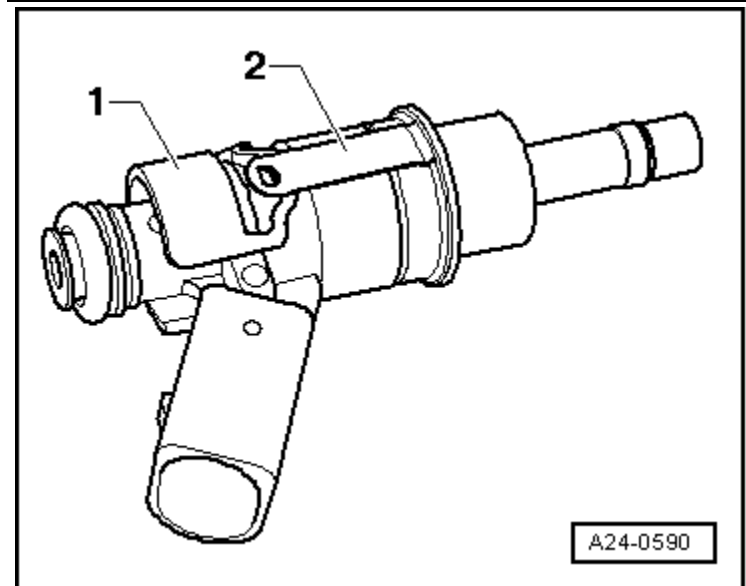
Clean bore in cylinder head with nylon cylinder brush -T10133/4-.



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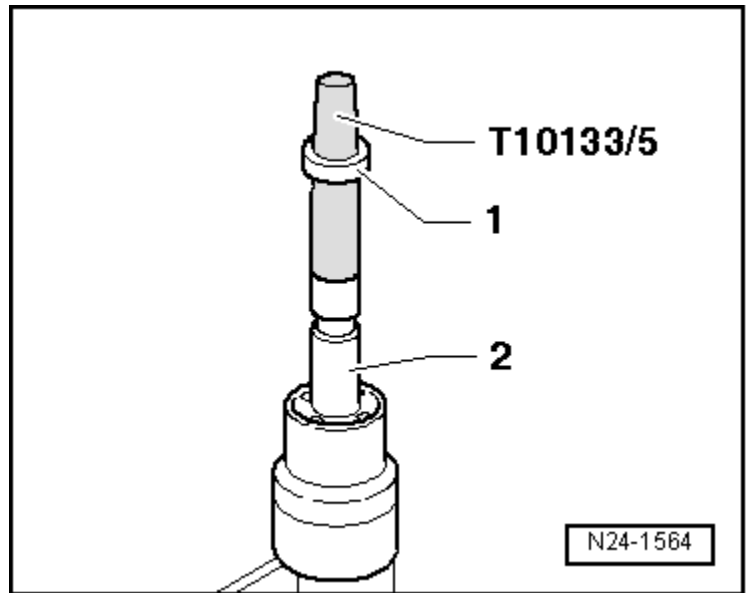
Clip radial adjustment -1- to support ring -2-.

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



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- Place assembly cone -T10133/5- with new combustion chamber seal -1- on fuel injector -2-.

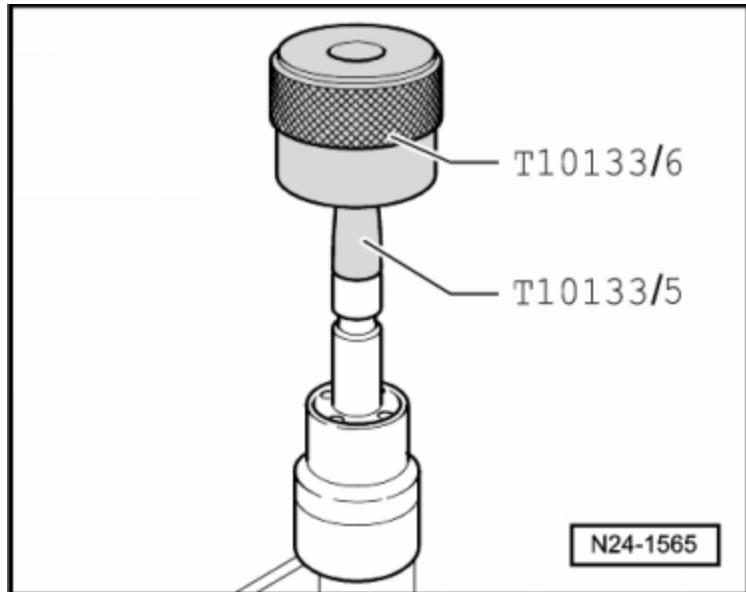


- Slide combustion chamber seal as far possible onto assembly cone -T10133/5- using assembly sleeve -T10133/6-.
- Turn assembly sleeve -T10133/6- around and slide combustion chamber seal into groove.

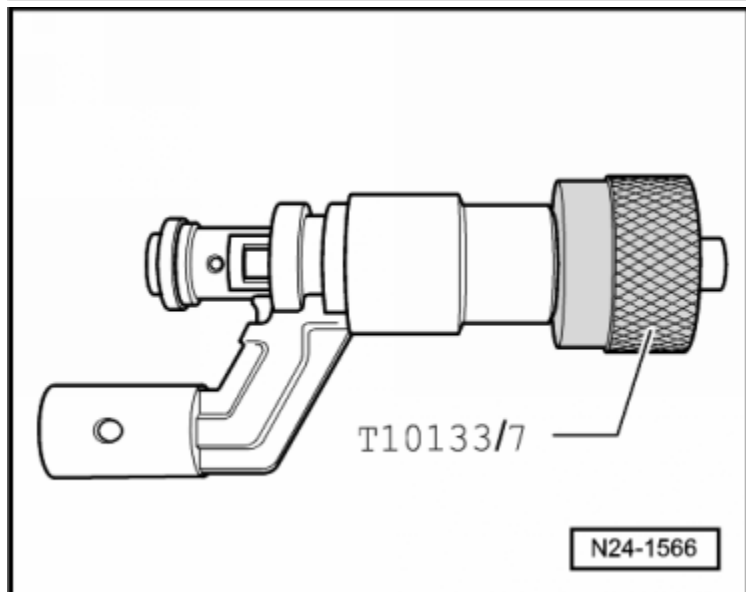


Note

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

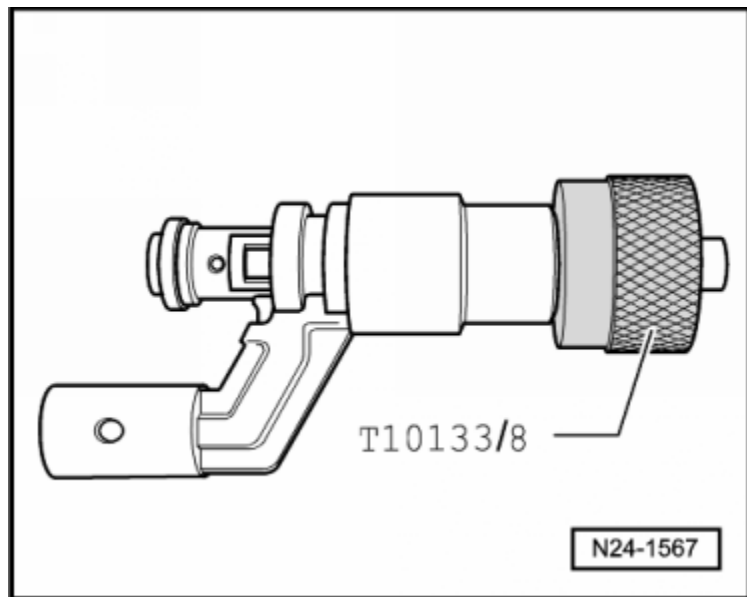


- Press sizing sleeve -T10133/8- with a slight turning motion (approximately 180 degrees) onto fuel injector until it stops.
- Pull sizing sleeve -T10133/8- off again, turning it in opposite direction.
- Moisten new O-ring 3 with clean engine oil before installing.



Note

The combustion chamber seal must not be oiled.



- Slide fuel injector into bore cylinder head as far as stop using assembly drift - T10133/9-.



Note

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

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

The electrical connection of fuel injector must engage in intended recess of cylinder head.

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

- Install intake manifold lower-part
→ [Chapter](#).
- Install intake manifold upper-part
→ [Chapter](#).

