REMOVE, INSTALL REPLACE ONE INJECTOR N55 AS FROM ENGINE NUMBER 14407685 (HOLD-DOWN DEVICE CONCEPT AT THE TOP) [REP-REP-RAF0713N55-1353_NIEDERHALTER_OB - V.12]

Remove, install replace one injector N55 as from engine number 14407685 (hold-down device concept at the top)

REP-REP-RAF0713N55-1353_NIEDERHALTER_OB - V.12

13 53 ...

Remove, install replace one injector N55 as from engine number 14407685 (hold-down device concept at the top)

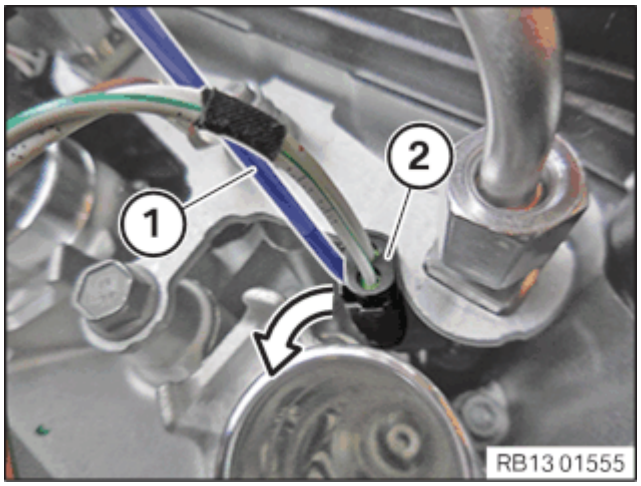
Special tools required:

- 13 0 320
- 00 9 170
- 13 0 191
- 13 0 283
- 13 0 281
- 13 0 282

It is of vital importance to adhere to the warnings on removing the injectors!

Necessary preliminary tasks:

- Disconnect negative battery terminal (risk of fire due to short-circuiting on dismantling).
- Remove ignition coil of corresponding cylinder.
- Disconnect pressure lines of corresponding cylinder.

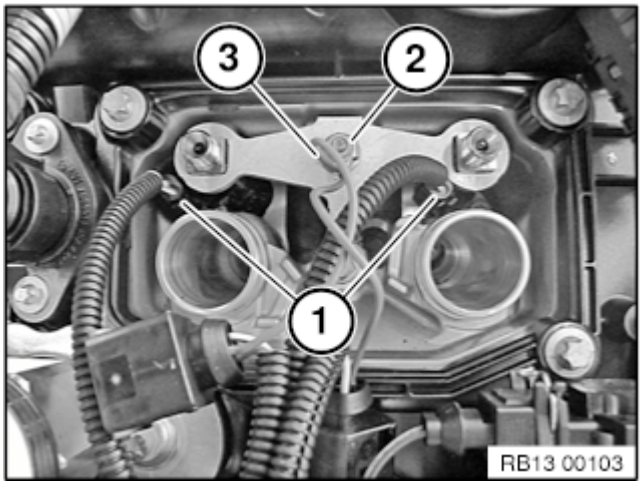


Unlock and disconnect the connectors (2) from the injectors with a small slotted screwdriver (1).

Unlock the lock in the direction of the arrow with a small slotted screwdriver (1). Disconnect the connector (2) on the connector housing from the injector.

Note:

The following description applies to all injectors in cylinders 1-6.



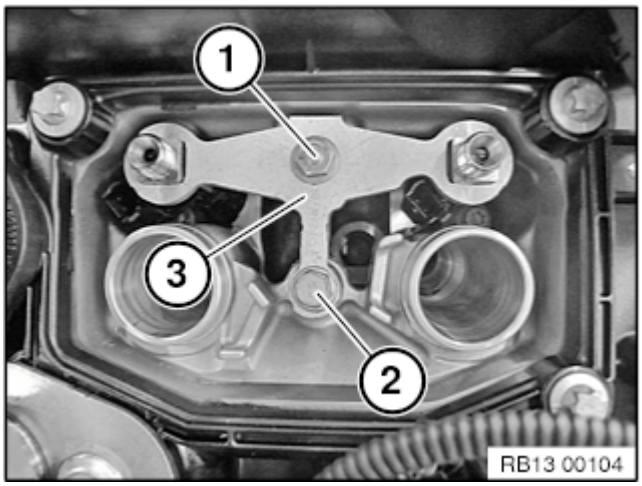
Unlock connector (1) from injectors and detach.

Slacken nut (2).

Tightening torque:

12 90 5AZ		Type	Thread	Tightening specifications	Dimension
5AZ	Earth cable for ignition coils	N53 / N55 / N55 Hybrid			5 Nm

Remove ground cable (3).



Attention!

First, release screw (2). The, release screw (1).

Otherwise, the hold-down device may tilt.

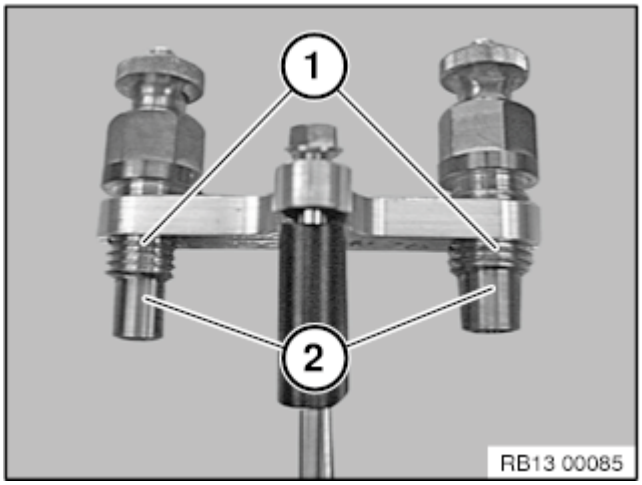
Remove holding-down element (3).

Pull injectors upward out of cylinder head and remove.

Note:

If several injectors are removed, ensure that each injector is reinstalled in its original installation location (cylinder).

Mark injectors.



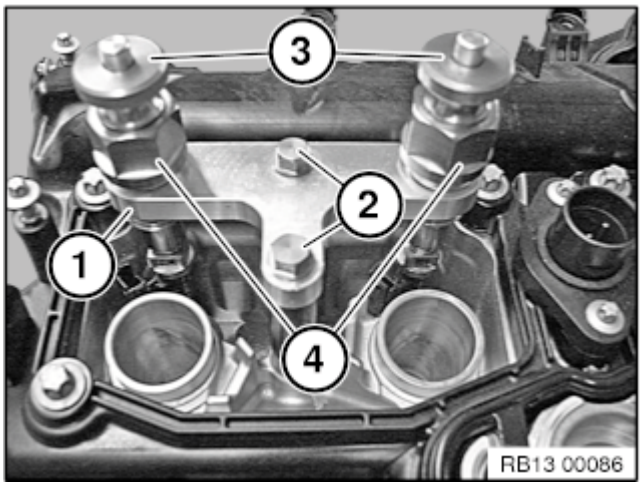
Procedure in event of stuck injector:

Use special tool 13 0 320 to remove injectors that are stuck.

Lightly oil pull-out thread (1) and unscrew completely (see graphic) before using the special tool.

Attention!

Pull-out thread (1) is a left-hand thread!

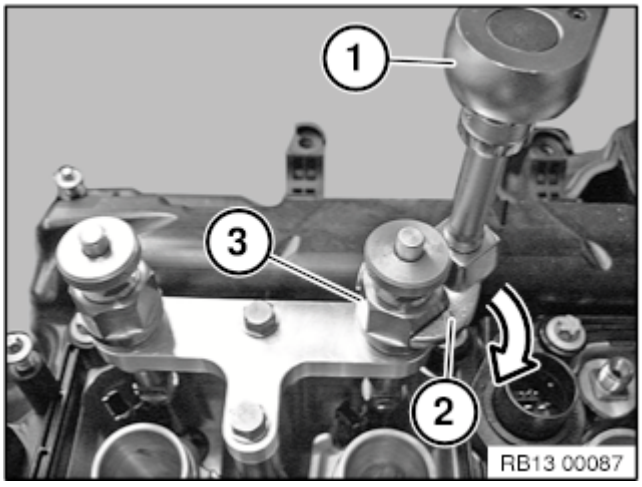


Fit special tool (1) 13 0 320 on injector slot. Join screws (2) to injector slot by a few threads. Screw in pull-out thread (4) until it is possible to screw the threaded sleeves (3) onto the injectors. Screw threaded sleeves (3) onto injectors and tighten down.

Tighten down screws (2).

Tightening torque:

13 53 13AZ		Type	Thread	Tightening specifications	Dimension
13AZ	Special tool 13 0 270 or 0 496 885 on injector shaft	N55 / N55 Hybrid	M6		8,5 Nm

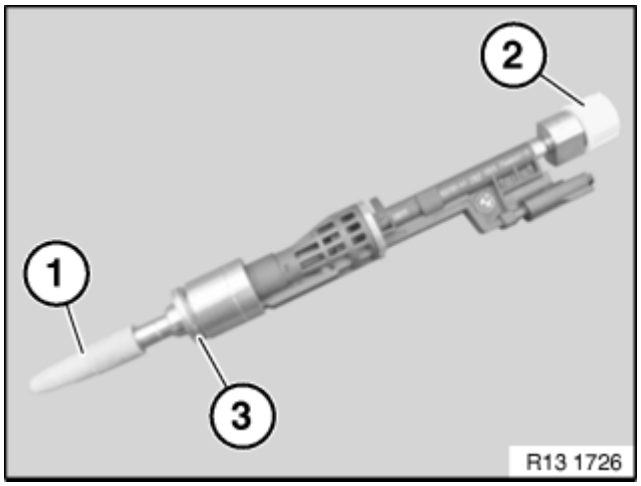


Attention!

Set torque wrench (1) to **5 Nm** clockwise rotation. Together with special tool 13 0 320 this corresponds to a tensile force of max. 2000 N. The injector must be **replaced** if the torque wrench is activated when the injector is pulled out!

Fit torque wrench (1) and special tool (2) 00 9 170 on hexagon head (3) of special tool 13 0 320.

Turn torque wrench (1) in clockwise direction until the injector is pulled out.



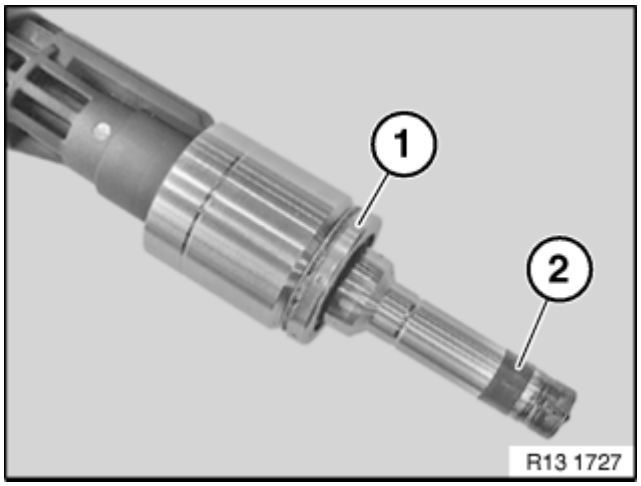
After removing, fit protective caps (1 and 2) to injector tip and fuel line connection.

Installation note:

When installing a new injector:

- Install decoupling element (3) **without fail!**

Failure to comply with this requirement may result in line breaks and fuel discharge!



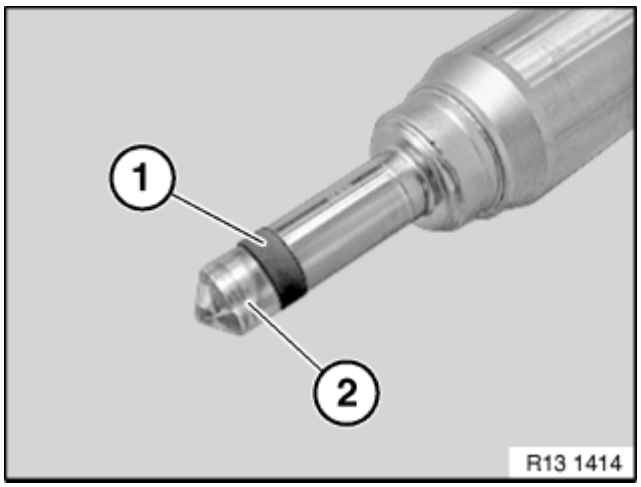
Installation note:

When reusing a running injector:

- Replace decoupling element (1) **without fail!**
- Replace Teflon ring (2) **without fail!**

  A Teflon ring that has already been installed once in the cylinder head must be replaced before the injector is reinstalled.

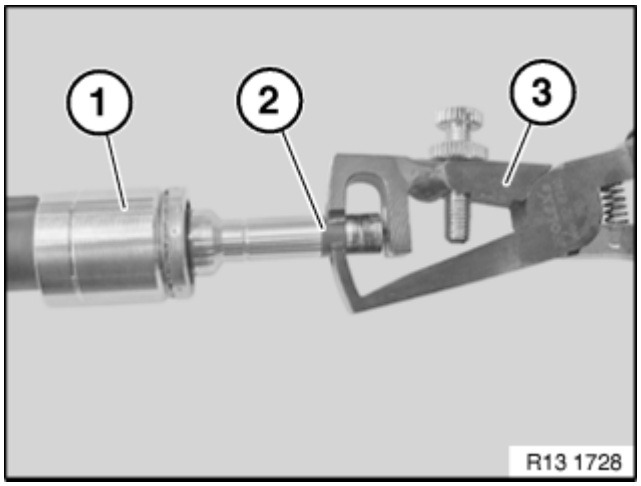
Failure to comply with this requirement may result in line breaks and fuel discharge!



Replace Teflon ring:

Before replacing the Teflon ring (1), make sure your hands and the support areas are clean and free of oil.

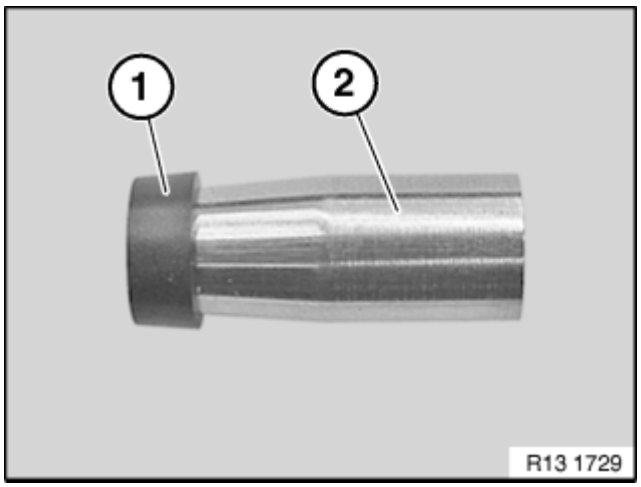
Avoid mechanical contact with injector tip (2).



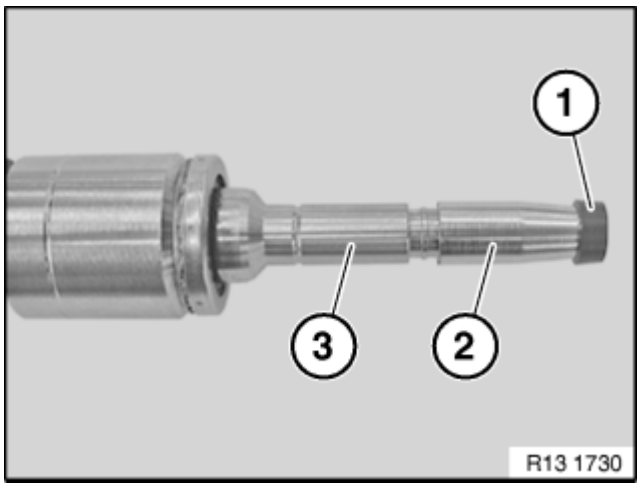
Remove Teflon ring (2) with special tool (3) 13 0 191 from injector (1).

Use a fluff-free cloth only to remove combustion residues from cylindrical part of injector tip (do not use ultrasound or other tools/agents).

Do not clean injector tip.



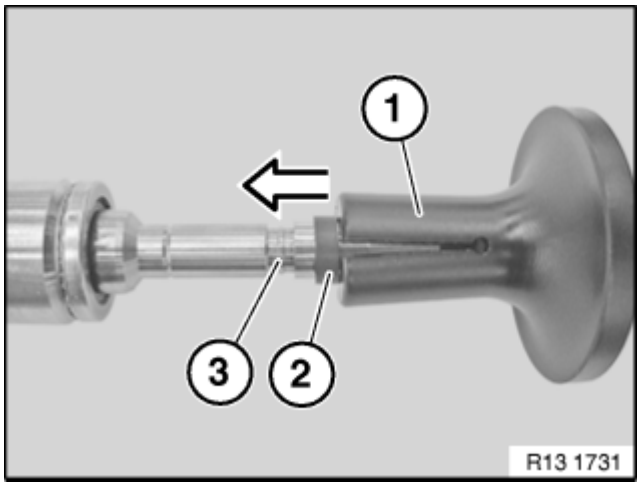
Push new Teflon ring (1) onto the installation cone (2) 13 0 283.



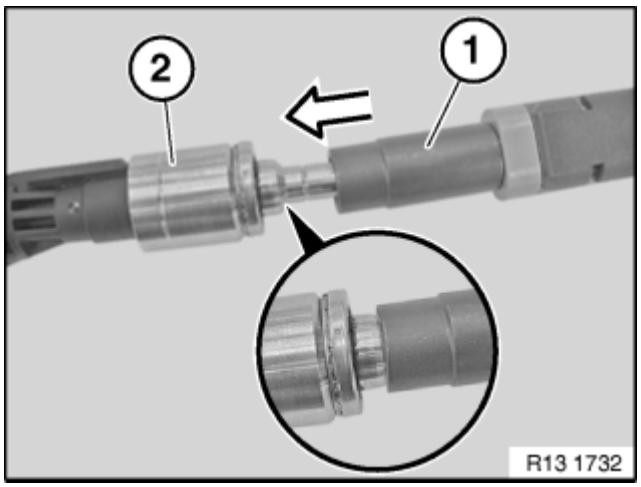
Mount Teflon ring (1) with installation cone (2) 13 0 283 onto injector tip (3).

Note:

- Do not use fingernails to slide Teflon ring on.
- Do not use any lubricating agents.
- The sealing ring is expanded when slid on.

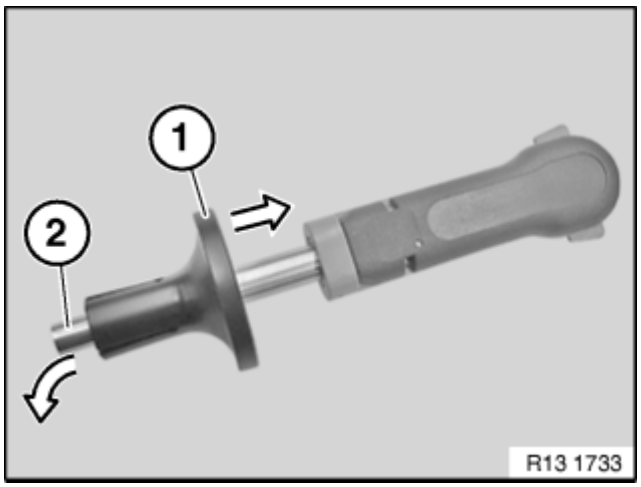


Using special tool (1) 13 0 281 push Teflon ring into injector groove (3).



To bring the widened Teflon ring to installation size, push special tool (1) 13 0 282 as far as it will go onto injector (2).

Do not use any lubricating agents.



Note:

Pull mounting tip (1) of special tool 13 0 282 towards rear to release mounting taper (2) 13 0 281.

Installing injector:

Attention!

Injection quantity compensation!

An injection quantity compensation must be carried out if an injector is replaced or changed on the cylinder side.

Injection quantity compensation is carried out with the aid of a so-called adjustment value.

The adjustment value is printed in three digits on the injector body.

The adjustment value must be read off **before** installation!

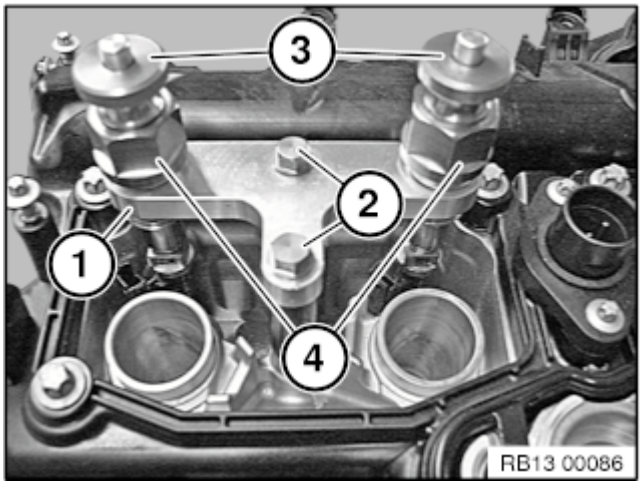
Enter the adjustment value according to the installation location (cylinder) of the injector.

If injector quantity compensation is not carried out, the engine may run roughly or fail to start.

Injection quantity compensation is described at the end of these instructions.

Insert injectors in injector bores.

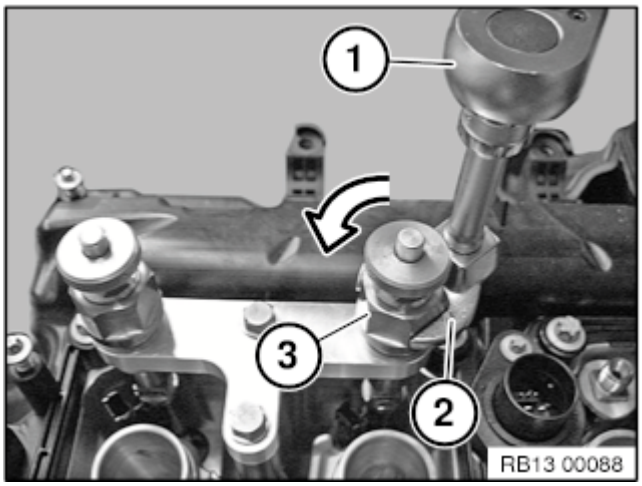
Fit special tool (1) 13 0 320 on injector slot. Join screws (2) to injector slot by a few threads. Screw in the pull-out thread (4) until the threaded sleeves (3) can be screwed onto the injectors. Screw threaded sleeves (3) onto injectors and tighten down.



Tighten down screws (2).

Tightening torque:

13 53 13AZ		Type	Thread	Tightening specifications	Dimension
13AZ	Special tool 13 0 270 or 0 496 885 on injector shaft	N55 / N55 Hybrid	M6		8,5 Nm

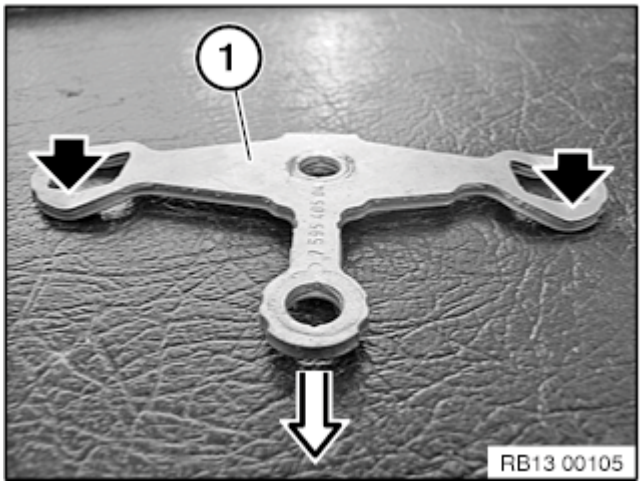


Attention!

Set torque wrench (1) to **2 Nm** counter-clockwise rotation.

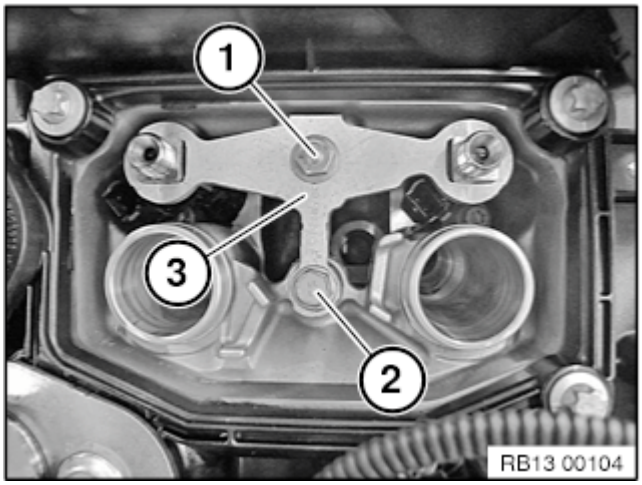
Fit torque wrench (1) and special tool (2) 00 9 170 on hexagon head (3) of special tool 13 0 320.

Turn torque wrench (1) in counterclockwise direction until 2 Nm are reached.



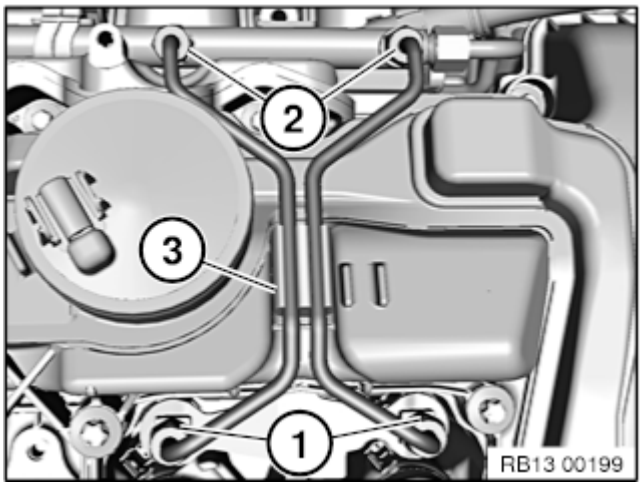
Installation note:

Install hold-down device (1) with curvatures (black arrows) downward.



Fit hold-down device (3) on injectors.

Tighten screws (1) and (2) only hand-tight.



Install pressure lines on injectors and rail. Tighten nuts (1) and (2) manually only.

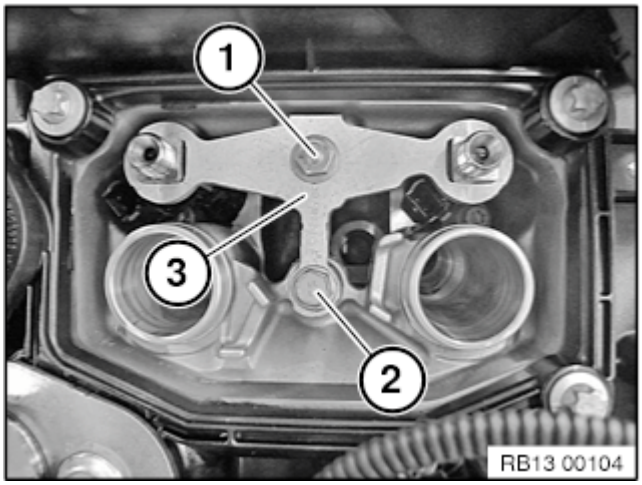
Installation note:

Reinstall line damper (3).

Firstly tighten screw (1).

Tightening torque:

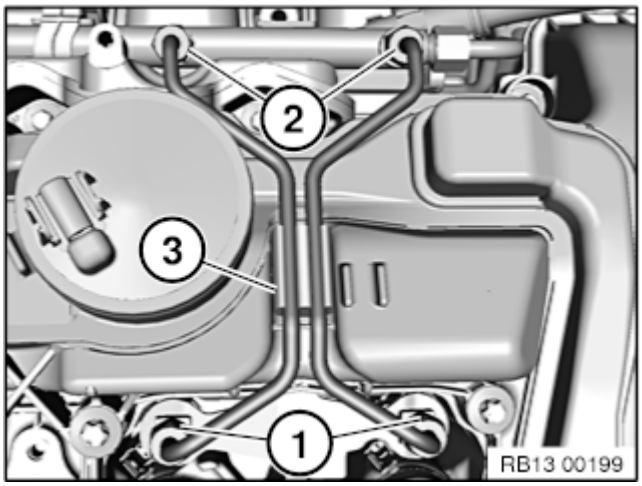
13 53 6AZ.		Type	Thread	Tightening specifications	Dimension
6AZ	Hold-down device to cylinder head	N55 / N55 Hybrid	M7 x 20		13±1 Nm



Then tighten down screw (2).

Tightening torque:

13 53 6AZ.		Type	Thread	Tightening specifications	Dimension
6AZ	Hold-down device to cylinder head	N55 / N55 Hybrid	M7 x 20		13±1 Nm



Tighten down pressure lines on injectors (1).

Tightening torque:

13 53 9AZ		Type	Thread	Tightening specifications	Dimension
9AZ	High pressure lines to rail and injection system	N55 / N55 Hybrid	M12	Coat screw connection with transmission oil.	23±3 Nm

Then tighten down pressure lines (2) on the rail.

Tightening torque:

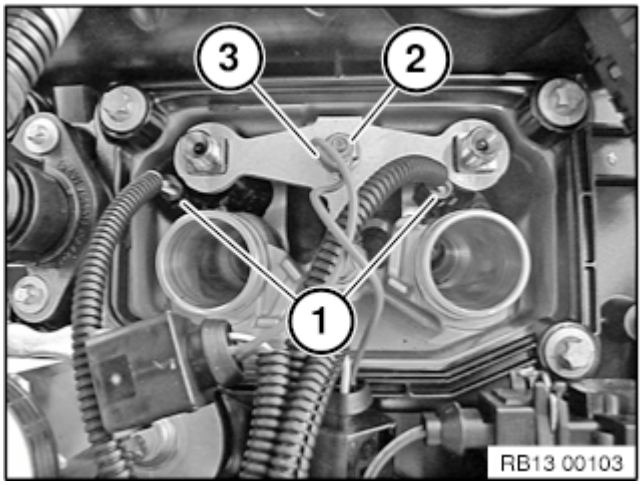
13 53 9AZ		Type	Thread	Tightening specifications	Dimension
9AZ	High pressure lines to rail and injection system	N55 / N55 Hybrid	M12	Coat screw connection with transmission oil.	23±3 Nm

Installation note:

Reinstall line damper (3).

Note:

The following description applies to all injectors.



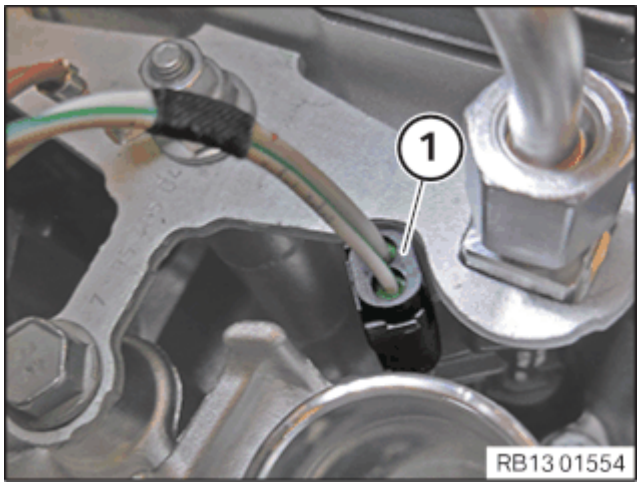
Noticeably connect connector (1) to the injectors.

Mount the ground cable (3).

Tighten nut (2).

Tightening torque:

12 90 5AZ		Type	Thread	Tightening specifications	Dimension
5AZ	Earth cable for ignition coils	N53 / N55 / N55 Hybrid			5 Nm



Check all connectors (1) on the injectors again for correct fit and make sure that all connectors have noticeably engaged.

Perform an injection quantity compensation:

The adjustment value is printed with three digits - depending on the version - on the injector body.

- Connect BMW diagnosis system.
- Identify vehicle.
- Select "Function selection."
- Select "Service functions."
- Select "Engine electronics."
- Select "Adjustment functions."
- Select "Adjust injectors."
- Select "Test plan"
- For each replaced injector, the adjustment value must be entered according to the installation location (cylinder).

Clean spark plug slot.

Assemble engine.

Check fuel system for leak tightness.

Check function of DME.