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[BMW F25 X3 xDrive35i SAV / Repair Manuals and Technical Data / 32 Steering and Wheel Alignment / 32 13 Steering gear with power steering unit /](#)

32 13 580 Replacing the EPS steering thrust piece (ThyssenKrupp)



Special tools required:

- 076_42 458
- 076_32 458
- 076_22 458
- 076_3 2 458
- 076_12 458
- 2 458 076



Note:

Follow the [training video](#).



Note:

Check that the repair kit is complete.

- Slide inserts available and not damaged
- O-rings available and not damaged (no damage to the thrust piece surface)



Caution!

Risk of damage:

Ensure utmost cleanliness when carrying out all work! Non-observance may lead to malfunctions and damage to the steering gear!



Caution!

Installation gloves (personal protective equipment, BMW part number 83 19 0 441 882) **must** be worn for all work!

The described components or surfaces may **only** be cleaned using a disposable cloth (lint-free cloth)!



Necessary preliminary work:

- Disconnect [battery negative cable](#)
- Remove [underbody protection](#)
- Move steering to straight-ahead position



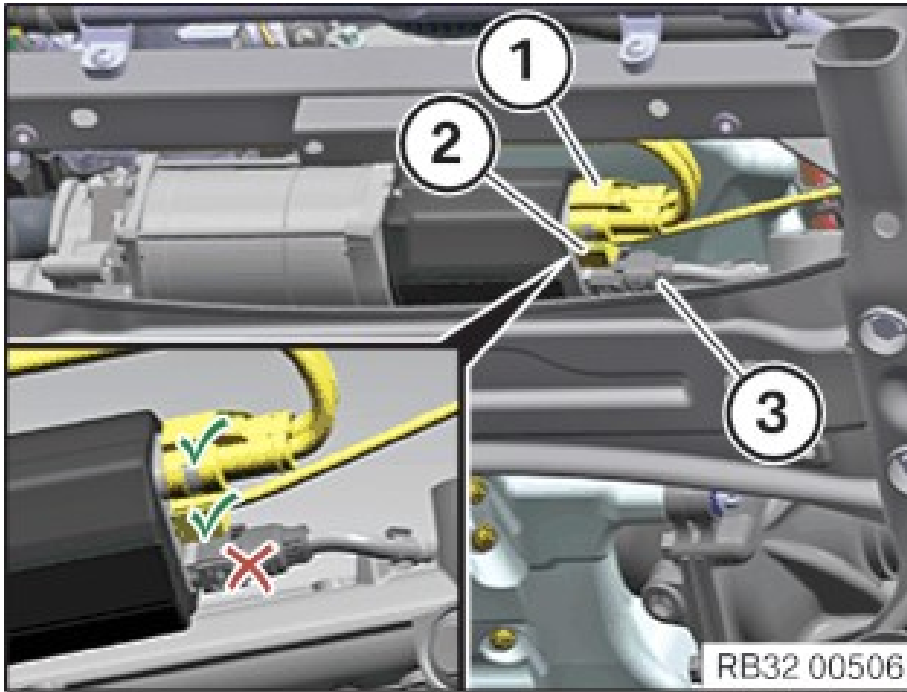
Replace thrust piece:



Caution!

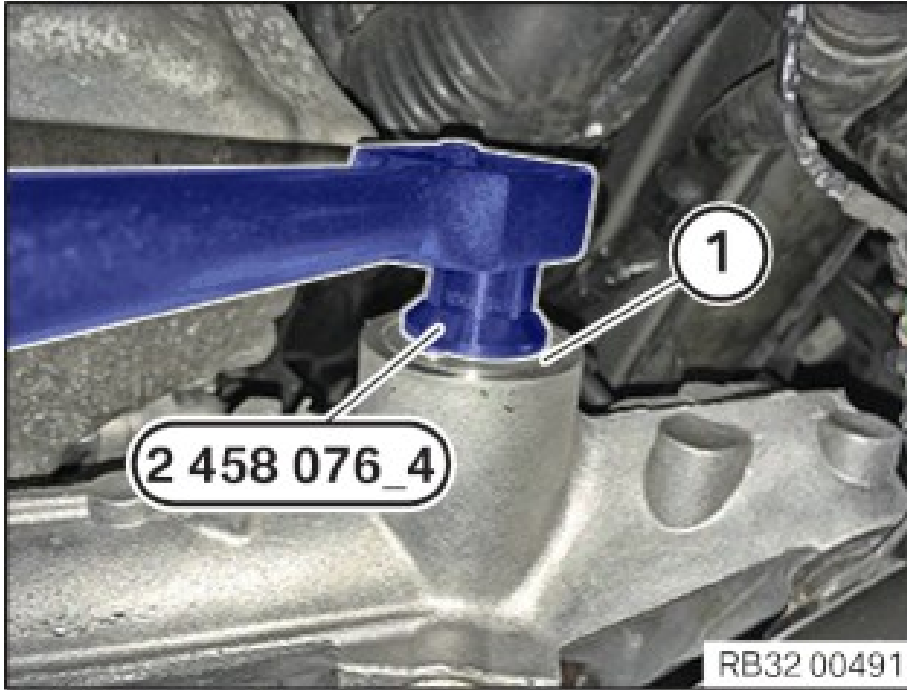
Ingress of dirt in the steering gear must be prevented!

Before starting work, thoroughly clean the steering gear in area (1) and the adjacent installation space!



Unlock, disconnect and place the EPS steering gear plug connection (1) and (2) to one side. **Caution!**

Plug connection (3) must not be disconnected!



Release adjusting screw (1) using special tool 076_42 458 (socket) and 1/2" reversible ratchet. **Caution!**

Danger of injury - adjusting screw has sharp edges.

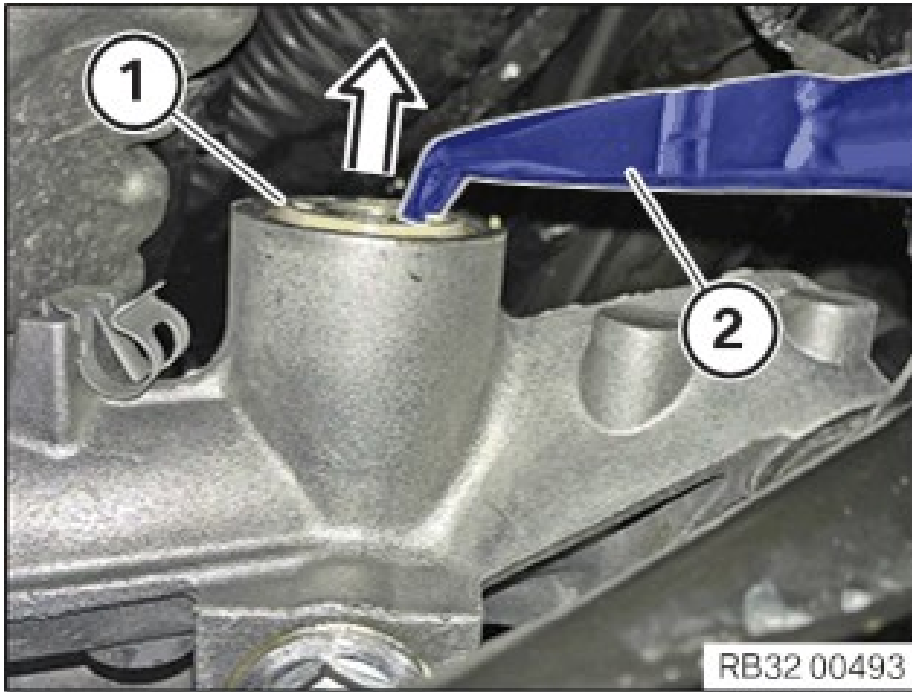


Remove compression spring (1) with offset long-nose pliers.

Carefully clean seal residues on the thread (2) using a disposable cloth (lint-free cloth), and remove any seal residues.

Note:

Cleaning using compressed air and/or a chemical cleaning agent is not permitted!

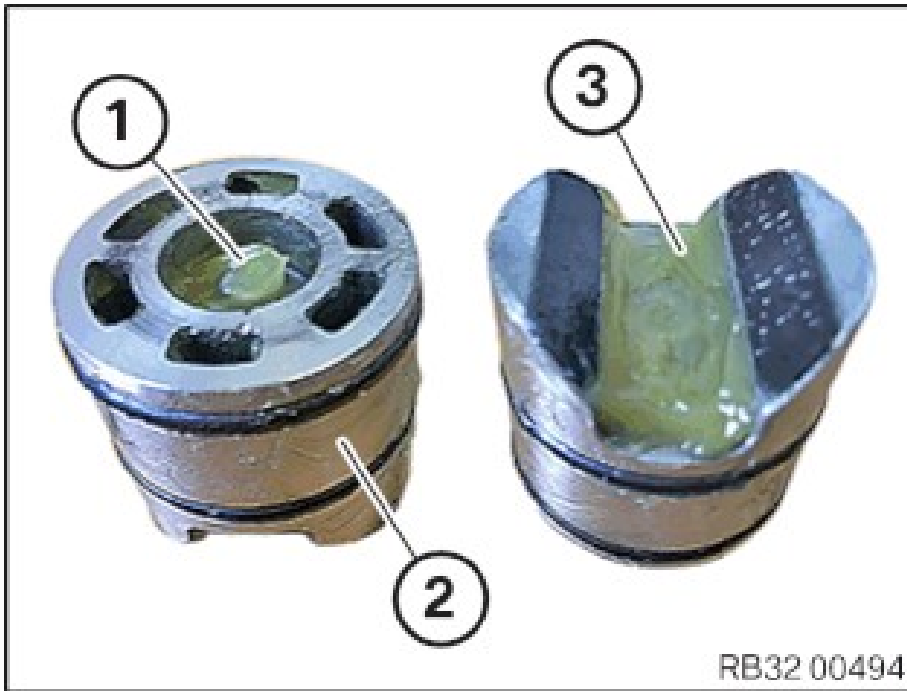


Remove thrust piece (1) upwards using offset long-nose pliers (2).

To facilitate disassembly and to slightly slacken the thrust piece, if necessary, rotate on the steering shaft approx. 1/4 turn anti-clockwise and clockwise alternating!

Dispose of adjusting screw, compression spring and thrust piece.

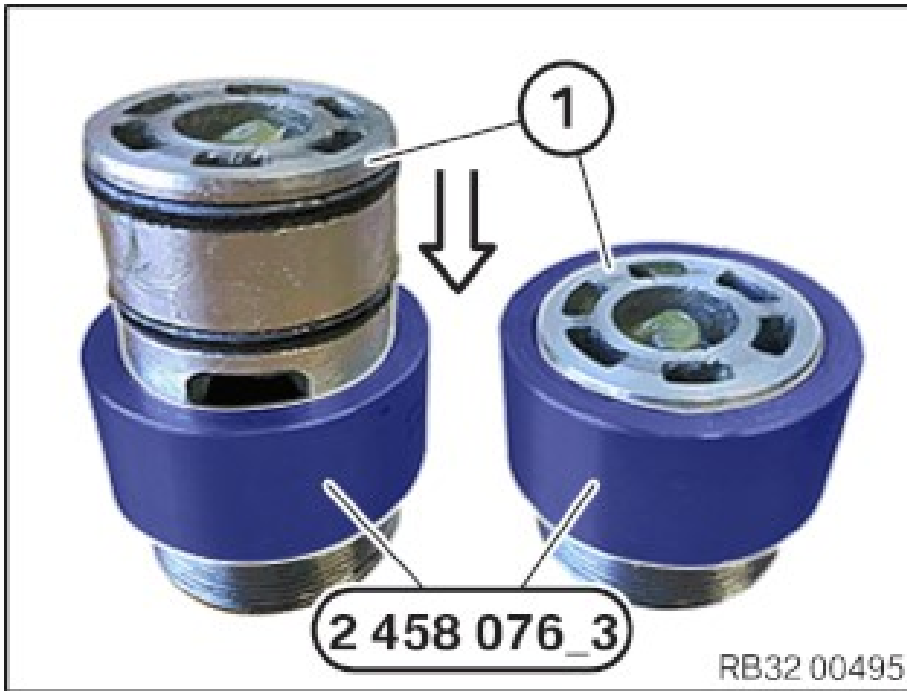
Perform a visual inspection using a mirror (no particles on the rack, no particles on the thrust piece bore hole, no damage to the thrust piece bore hole or thread).



Grease new thrust piece in pressure spring seat (1) and on thrust piece outer wall (2) **completely** with BMW FB-1 grease.

Grease guide surfaces on bottom of thrust piece **completely**. Fill guide surface (3) with plenty of BMW FB-1 grease.

Grease: FB-1, BMW part number 83 23 2 208 093



Carefully insert greased thrust piece (1) into special tool 076_32 458 (sleeve) from above (screw thread side = bottom).

Press the thrust piece (1) so far in until it is seated approx. 5 mm deep (to the upper edge of the special tool) in the special tool 076_32 458 (sleeve).

Note: The O-rings of the thrust piece may not protrude over the thread-side edge of the insertion sleeve.

Observe the following animation!



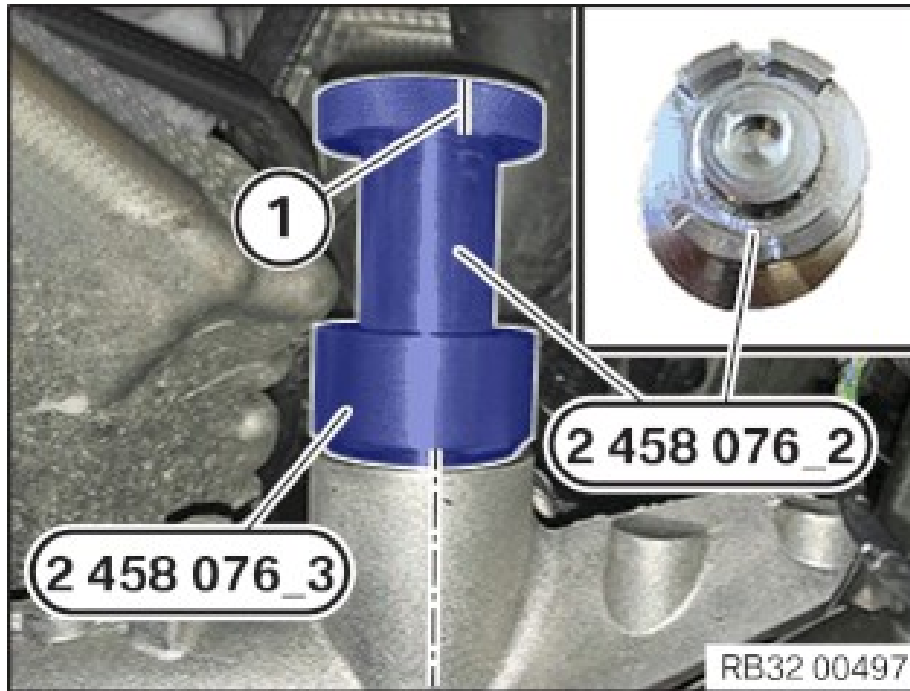
0:01 / 0:26

"Grease thrust piece and insert in special tool" animation



Screw special tool 076_32 458 (sleeve) with thrust piece engaged into steering gear up to limit position.

Then, release special tool 076_32 458 (sleeve) once again by 45°- 90°.



Caution!

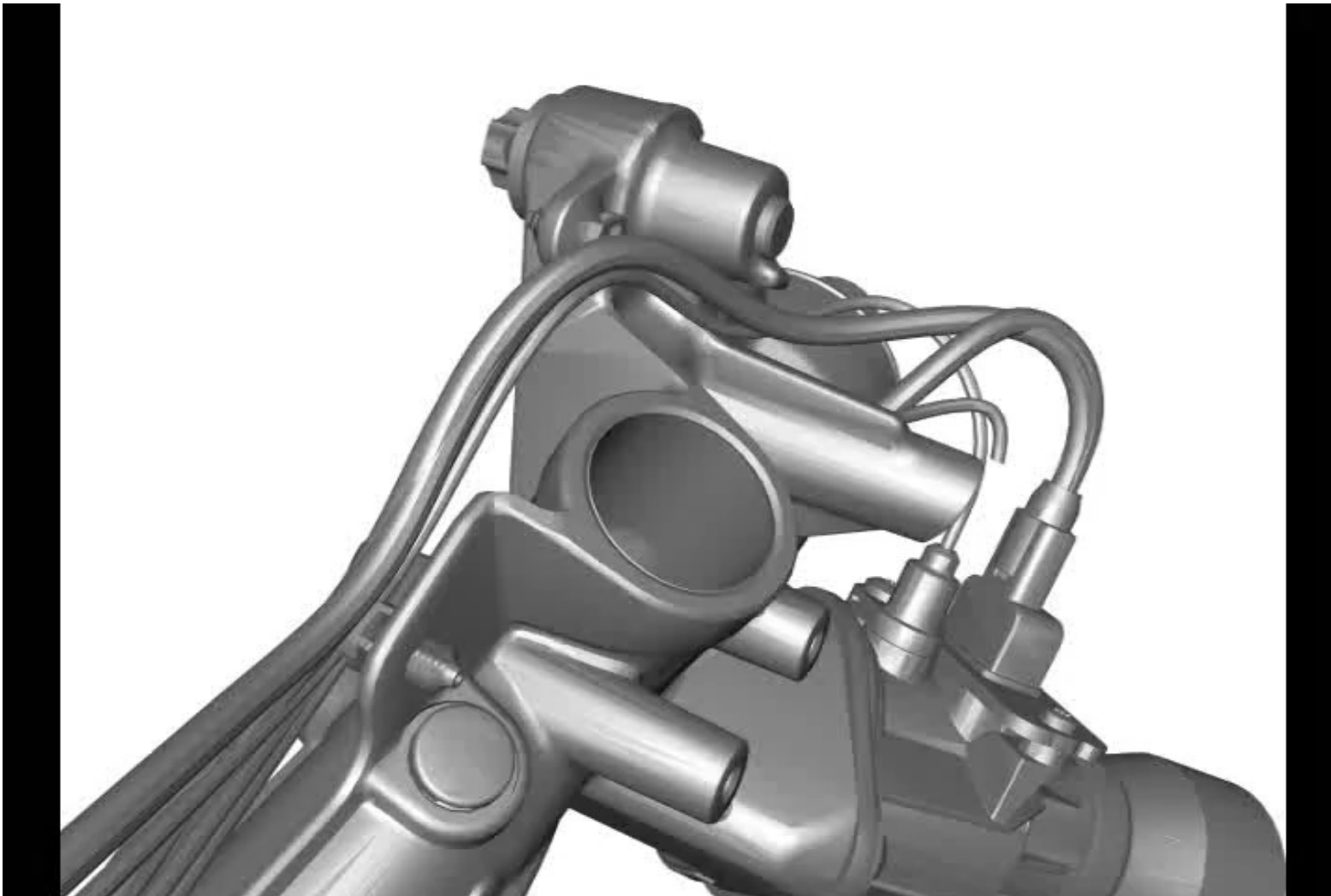
**Observe correct mounting orientation!
Align thrust piece with rack !**

Special tool 076_22 458 (assembly tool) is encoded.

Position and twist assembly tool on the thrust piece until the assembly tool journal fits in the thrust piece recess.

Turn the assembly tool or the thrust piece such that (note: hold sleeve 076_3 2 458 in position while doing so), mark (1) on the assembly tool points downwards.

Observe the following animation!



0:00 / 0:33



"Install thrust piece in steering gear" animation

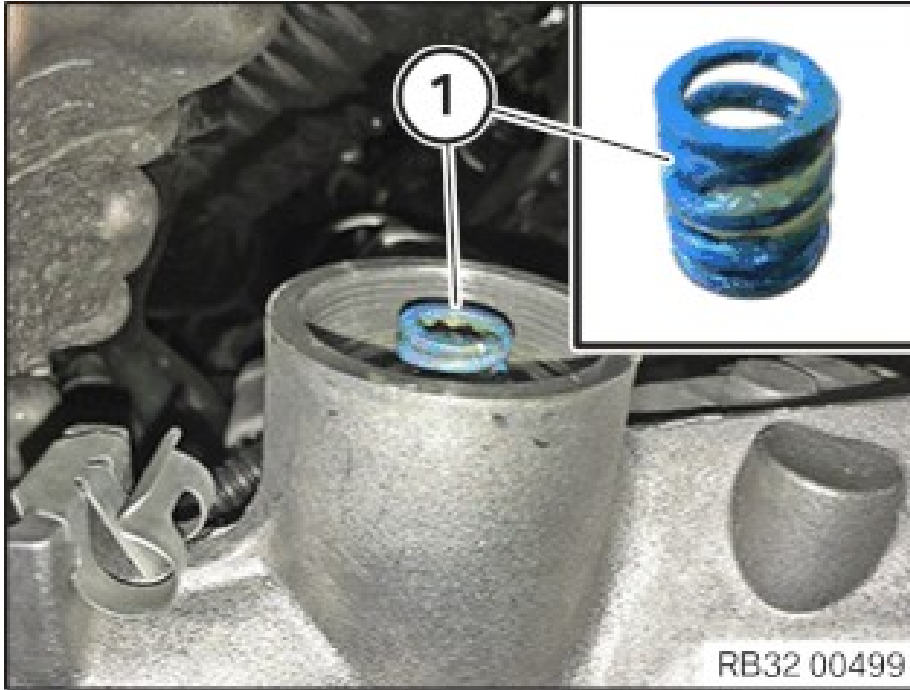


Press thrust piece with special tool 076_22 458 (assembly tool) into the steering gear by hand.

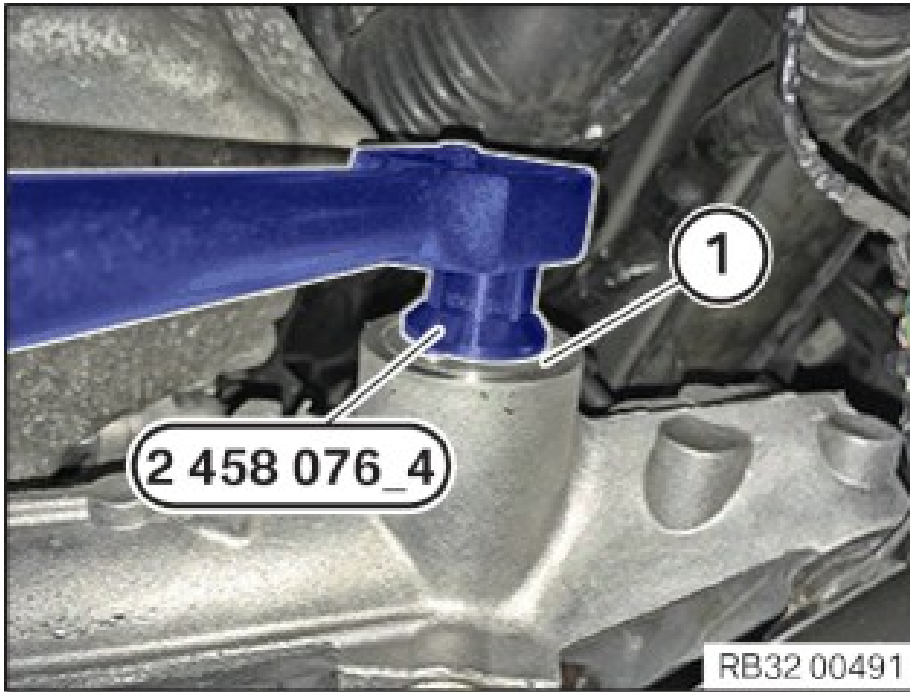
Caution!

The thrust piece may only be inserted by hand in the thrust piece bore hole and not by means of other tools (aside from the assembly tool).

Remove special tools.



Grease compression spring (1) with BMW FB-1 grease, BMW part number 83 23 2 208 093 and insert into thrust piece using long-nose pliers.



Caution!

Compliance with the tightening torque is absolutely mandatory!

Danger of injury - adjusting screw has sharp edges.

Installation note:

- Renew adjusting screw (1)
- Place adjusting screw (1) from the rep. kit onto special tool 076_42 458 (socket), grease it at the spring seat and thread and tighten by hand
- Tighten adjusting screw (1) with special tool 076_42 458 (socket) to **70 Nm**
- **Then turn the steering wheel in both directions four times up to the limit position.**

After turning the steering wheel to the limit position, adjust the thrust piece play (between

rack and thrust piece). Refer to the following steps.



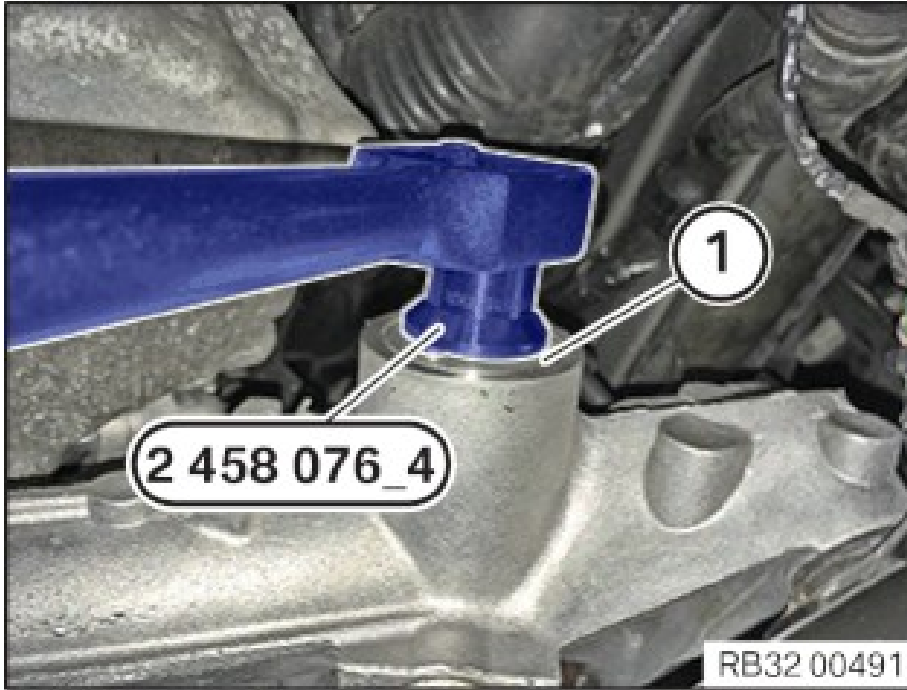
Check/adjust the thrust piece play (between the rack and thrust piece):



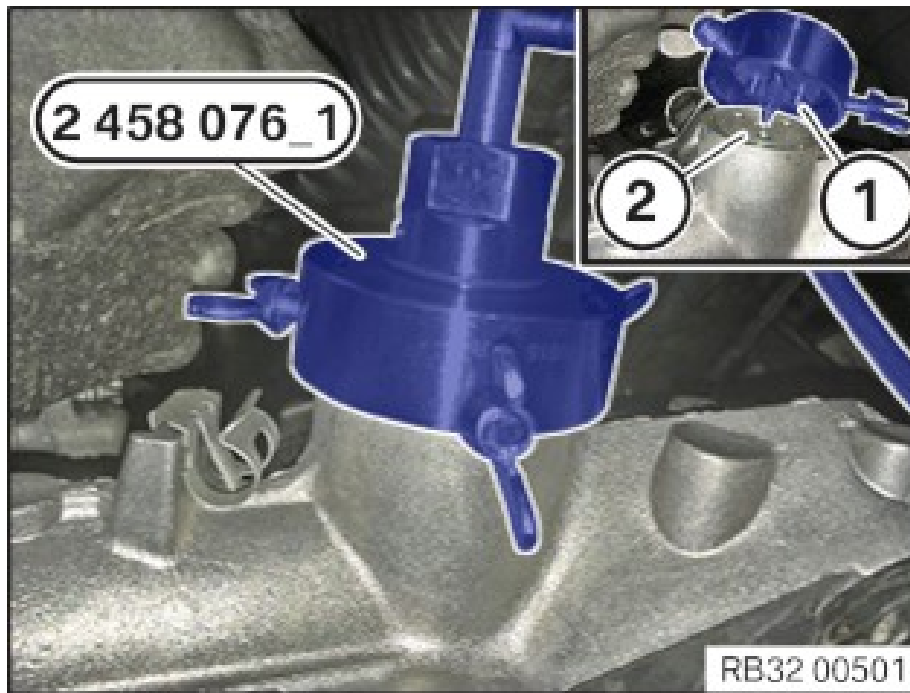
Caution!

In order to achieve the correct measuring result, the following work must be performed before adjusting the thrust piece!

- Remove the [gaiter](#) for the left and right steering gear
- Remove the left and right [track rod](#) on the steering gear
- Move steering wheel to centre position (straight-ahead driving)



Loosen adjusting screw (1) with special tool 076_42 458 (socket) by **approx. 60°**.



Check thrust piece play:

Position special tool 076_12 458 (calliper) on the steering gear housing and tighten by hand using the knurled screws.

Caution!

Ensure correct mounting orientation of special tool 076_12 458 !

Journal and calliper (1) on special tool must fit in recesses (2) of the adjusting screw.

Special tool must be flush with steering gear housing!



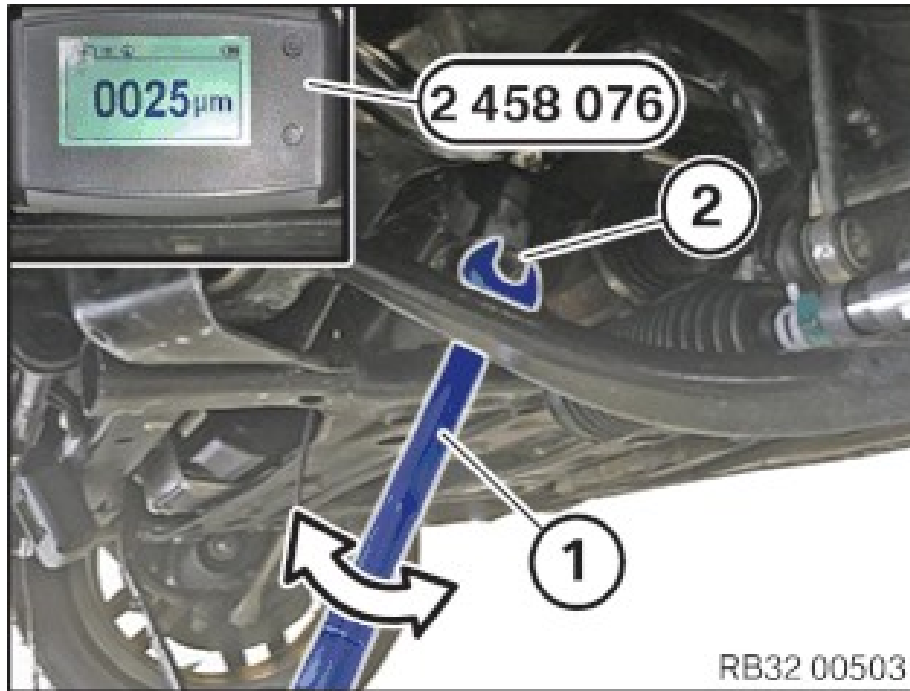
Rack shaking free:

Lightly shake the mounting flats of the rack with the torque wrench with open-end spanner attachment of AF 24. **This must be repeated prior to each calibration (set to zero value) of the measuring device.**

Attach special tool 2 458 076 (measuring device) and secure on front axle support (measuring device is equipped with a magnet).

Switch on and calibrate measuring device (set to zero value).

- The exact procedure can be found in the measuring device's Owner's Handbook, and must be complied with



Caution!

A torque of 20 Nm must be complied with for the thrust piece play!

While measuring the play of the thrust piece, the torque wrench must not touch the front axle support (if necessary, hold the torque wrench in an inclined position).

Non-observance may cause damage to the steering gear or incorrect measurement!

Set torque wrench (1) to 20 Nm.

Position the torque wrench (1) with an open-end spanner attachment (2) AF 24 on the mounting flats of the rack.

Twist and hold rack using a torque wrench (1) (20 Nm).

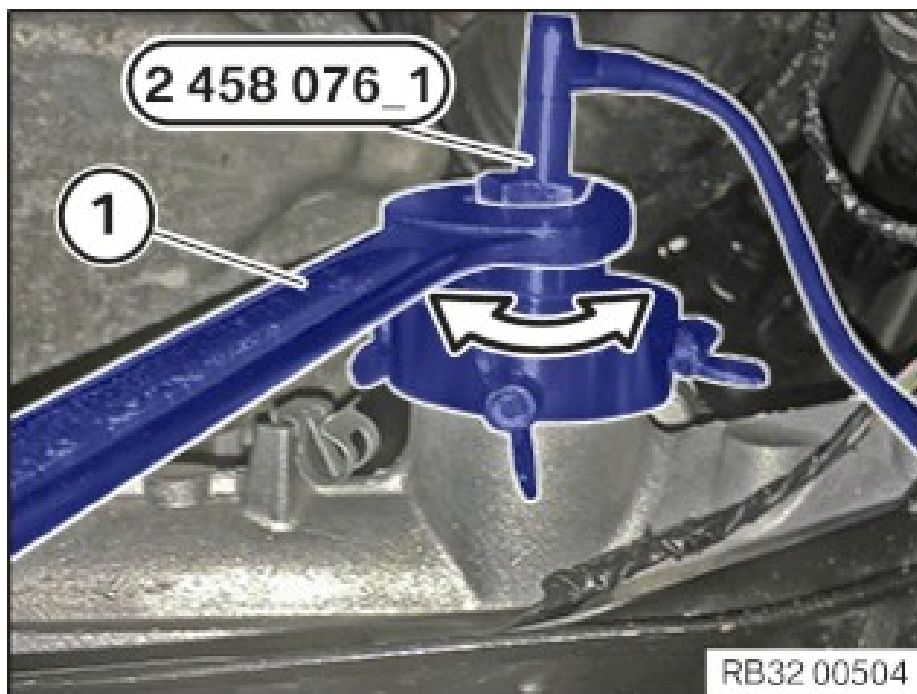
Read off the measured value on the measuring device at the same time (maximum thrust piece play measured value at exactly 20 Nm)!

Perform procedure once in direction of travel

and once in opposite direction.

Permissible setpoint value 25 +/-5 μm (in both directions of rotation)!

If the permissible setpoint value is not reached → adjust thrust piece play. (Refer to following step)



Adjust thrust piece play:

Position open-end spanner AF 24 (1) on special tool 076_12 458 (calliper) and twist in the respective direction (adjusting screw of thrust piece is thus screwed in or out).

Increase thrust piece play → turn special tool anticlockwise (loosen adjusting screw anticlockwise)

Reduce thrust piece play → turn special tool clockwise (screw in adjusting screw clockwise)

After adjusting thrust piece play, perform thrust piece play measurement again at 100° +/- 5° steering wheel angle (deflection to the left):

If the thrust piece play is less than 5 µm, repeat the thrust piece play adjustment at 100° steering wheel angle and set to 5 µm to 10 µm.

Then measure thrust piece play in centre position.

The thrust piece play may be more than **25**

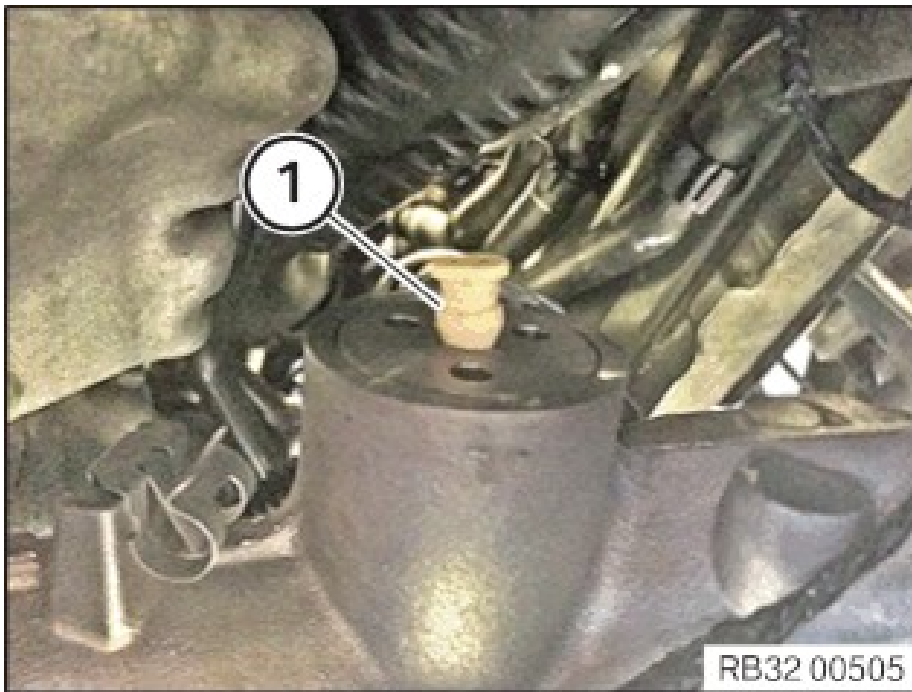
+5µm during this.

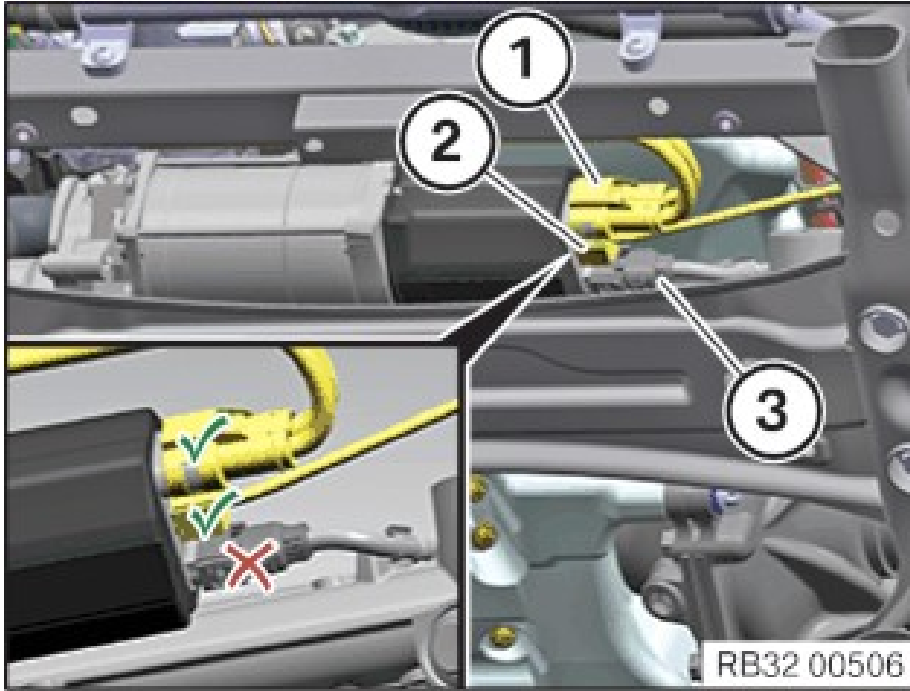
The measured values for the thrust piece play in the centre position and at a 100° steering angle must be noted in the non-electrical diagnosis.

After correctly adjusting the thrust piece play, remove special tool and install sealing plug (1)!

Join sealing plug to, for example, a hexagon socket wrench (4 mm) in the adjusting screw up to limit position.

Apply thread-locking sealant!





Connect and lock connector (1) and (2) on EPS steering gear.



After installation:

- Install the [left and right track rods](#) on the steering gear
- Install [left and right gaiter](#)
- Fit [underbody protection](#)
- Connect [negative battery terminal](#).
- With the vehicle on the vehicle lift, move steering wheel twice in both directions up to the limit position and check for friction
- Set vehicle down on its wheels. Start the engine, move the steering wheel twice in both directions up to the limit position and check for friction
- While driving, check for increased friction and rattling noises

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