

**Warning!****Risk of scalding!**

Carry out work on the vehicle only when wearing oil- and heat-resistant protective gloves incl. forearm protection, face guard and protective apron.

**Caution!**

Carry out engine oil service only when the engine is at operating temperature.

Observe the exact engine oil filling capacity.

Overfilling the engine with engine oil will result in **engine damage**.

Caution!**Risk of damage!**

When working on the engine oil, coolant or fuel circuit, it is essential always to protect the alternator against dirt contamination.

Cover alternator with suitable materials.

**Recycling:**

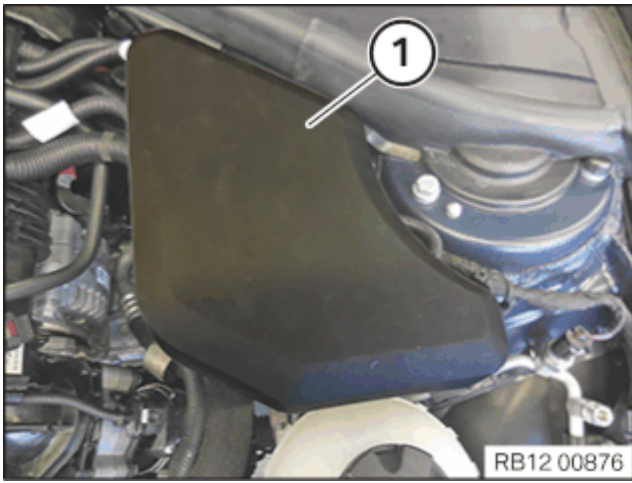
Catch and dispose of drained engine oil in a suitable collecting vessel.

Observe country-specific waste disposal regulations.

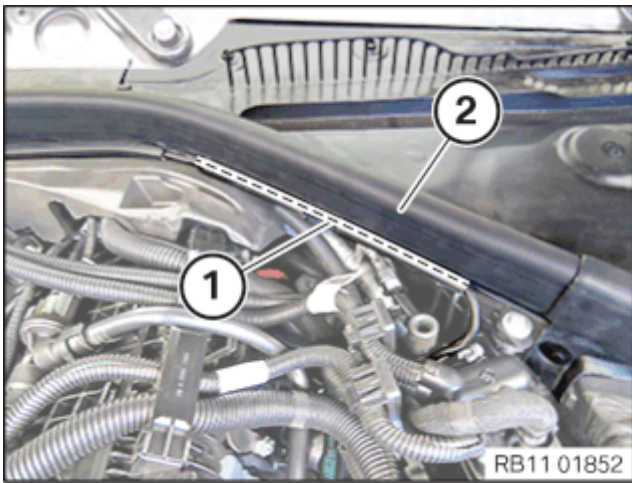
**Necessary preliminary work:**

- Remove [acoustic cover](#)

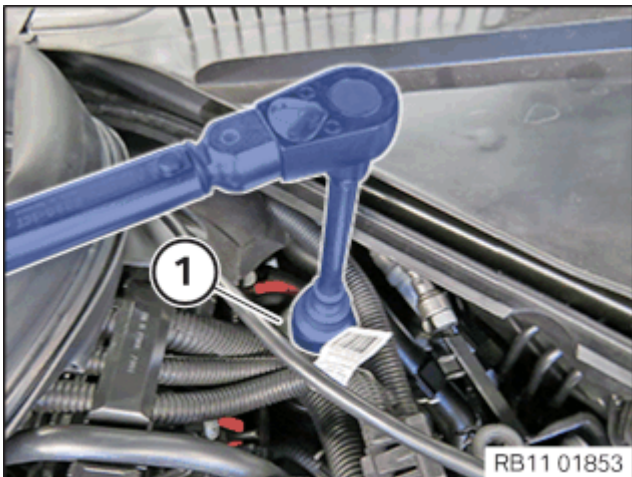
**Removal:**



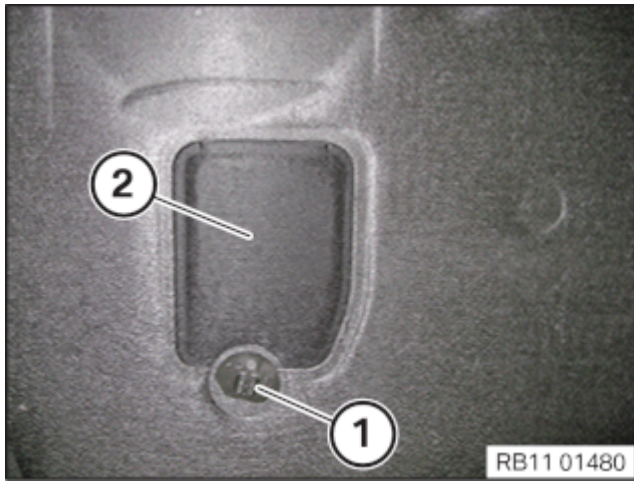
Remove cover (1).



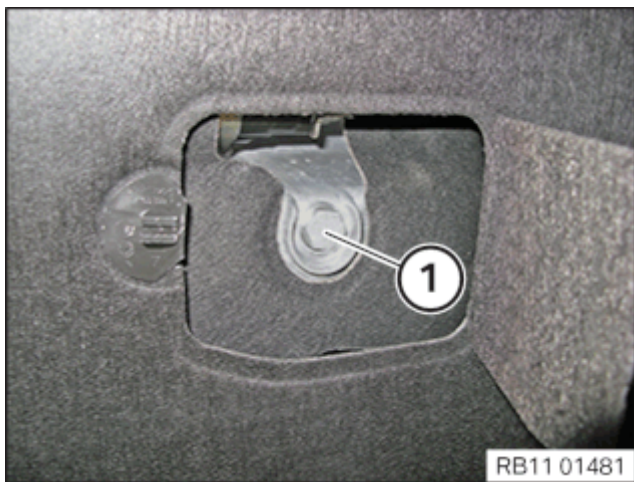
Unhook positive wire (1) in marked area.
Partially unhook engine compartment sealing (2).



Release oil filter cap (1). *Note:*
Engine oil flows out of the oil filter housing and
back into the oil sump.



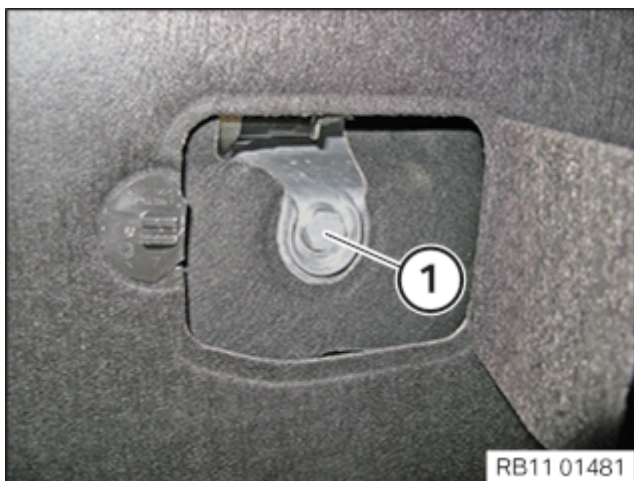
Release screw (1).
Open service cap (2).



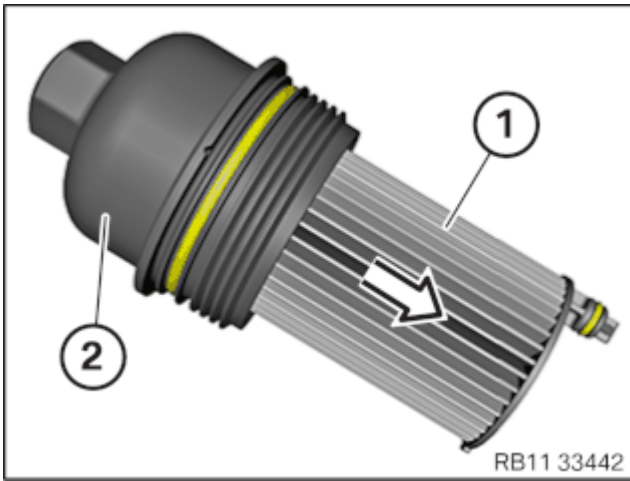
Open oil drain plug (1) and drain engine oil.
Drain the engine oil.



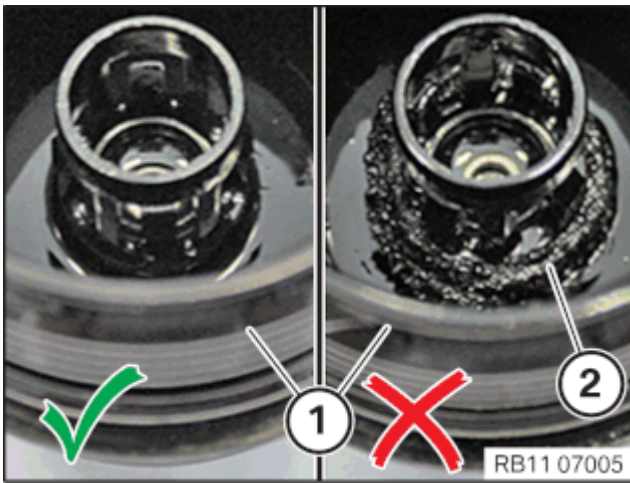
Installation:



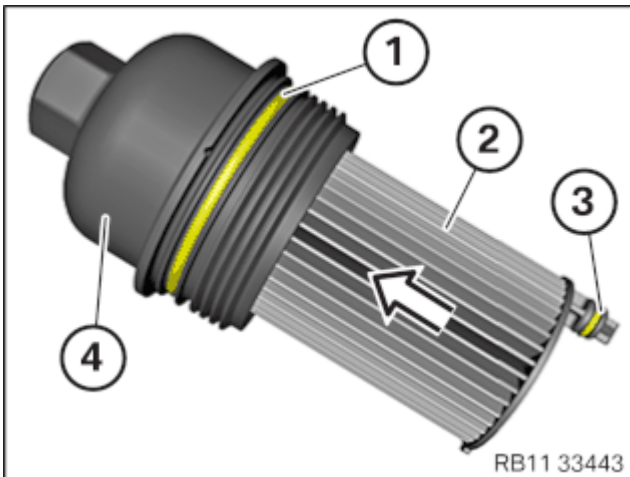
Renew the sealing ring.
Part: Sealing ring.
Tighten oil drain plug (1).
Tightening torque: [11 13 1AZ](#).



Feed the oil filter element (1) out of the oil filter cover (2) in **the direction of the arrow** and remove.



When renewing the oil filter: Check the inside of oil filter cover (1) for oil filter residues (2) of the previous oil filter, remove oil filter residues (2) if necessary.



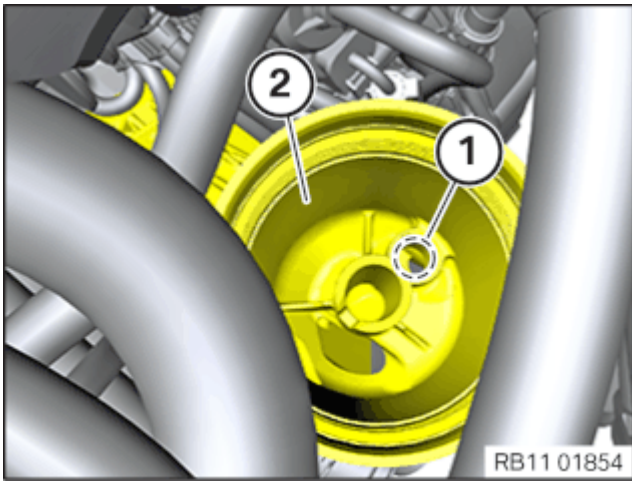
Renew the O-rings (1) and (3) with the oil filter element (2).

Parts: O-rings, oil filter element.

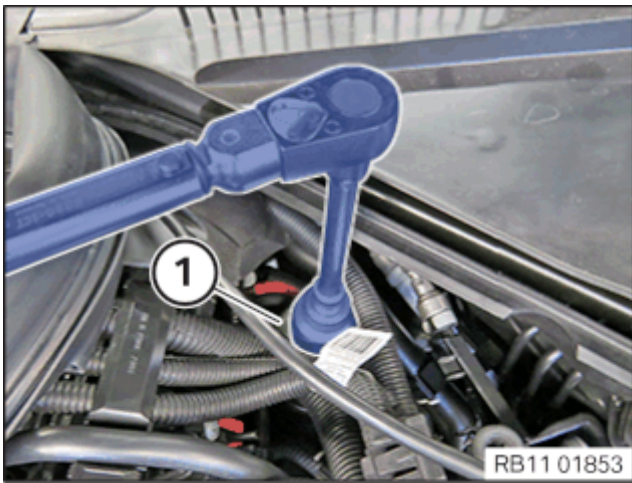
Coat O-ring (1) and (3) with engine oil.

Feed in and install the oil filter element (2) on the oil filter cover (4) in the **direction of the arrow**.

Oil filter element (2) must engage **audibly**.

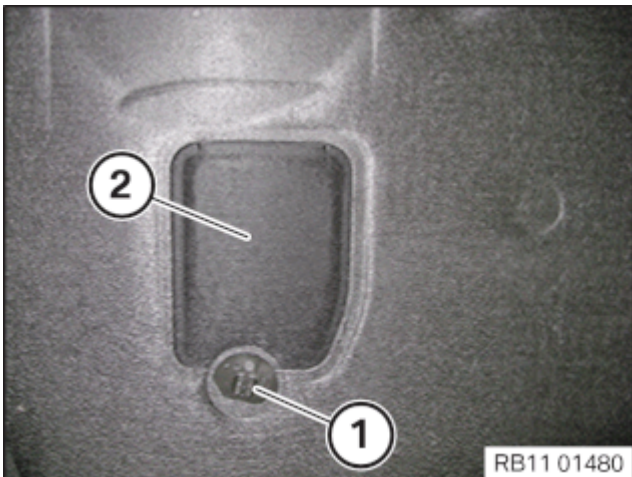


Note:
Observe the guide bore (1) for oil filter element in oil filter housing (2).

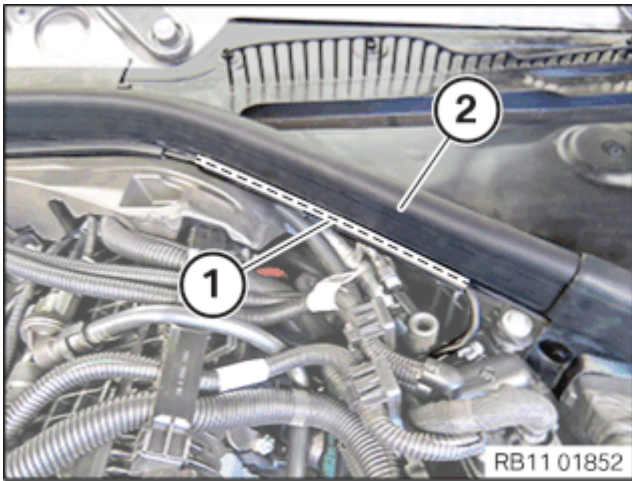


Secure oil filter cover (1).
Tightening torque [11 42 1AZ](#).

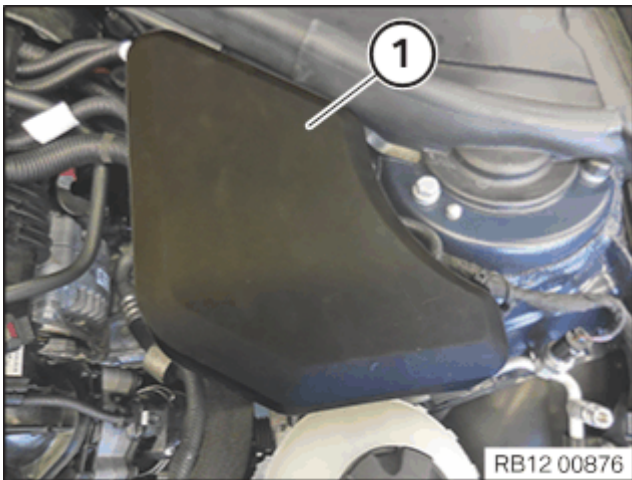
Note:
Fill in [engine oil](#) at the oil filler neck.
Start engine and run at idle until oil pressure indicator light goes out.
Switch off engine.
Check oil filter cover (1) and oil drain plug of oil sump for tightness.



Close service cap (1) in front underbody protection.



Hook in engine compartment sealing (1).
Hook-in positive wire (1).



Install cover (1).



Checking oil level:

- Park vehicle on a horizontal surface
- Check oil level at operating temperature of the engine
- Top up engine oil if necessary



Required follow-up work:

- Install [acoustic cover](#)

**Special tools required:**

- [11 0 000](#)

**Attention!****When replacing the engine:**

In all vehicles, the digital engine electronics (DME) must, if necessary, be reprogrammed / re-encoded after **replacing** the engine.

Read the vehicle I-level and proceed accordingly.

PuMA measure **62634754** must be observed.

For further information, see the electronic parts catalogue (EPC)

**Attention!**

Renewing the engine may cause damage on the valve gear due to a lack of engine oil.

It is imperative to observe [repair notes](#) for the renewal of the engine.

**Recycling:**

Catch and dispose of escaping fuel with auxiliary materials.

Observe country-specific waste disposal regulations.

**Note:**

Air conditioning does not have to be drawn off.

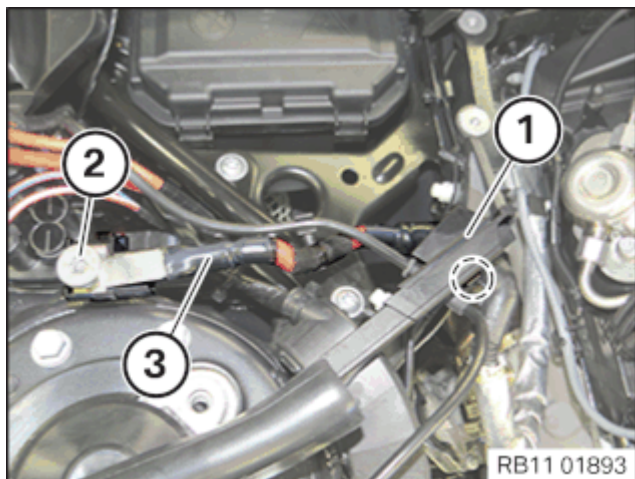


Necessary preliminary work:

- Disconnect [battery earth lead](#)
- Move [engine compartment lid into service position](#)
- Drain off [engine oil](#)
- Remove [engine with transmission](#)
- Remove [drive belt](#)
- Remove [acoustic cover at rear](#)
- Remove [fuel delivery line](#)
- Remove [electronics box](#)
- Release [air conditioning compressor](#) from component carrier
- Drain [coolant](#)
- Remove left [charge-air duct](#)
- Remove [right charge-air duct](#)
- Remove [catalytic converter](#)



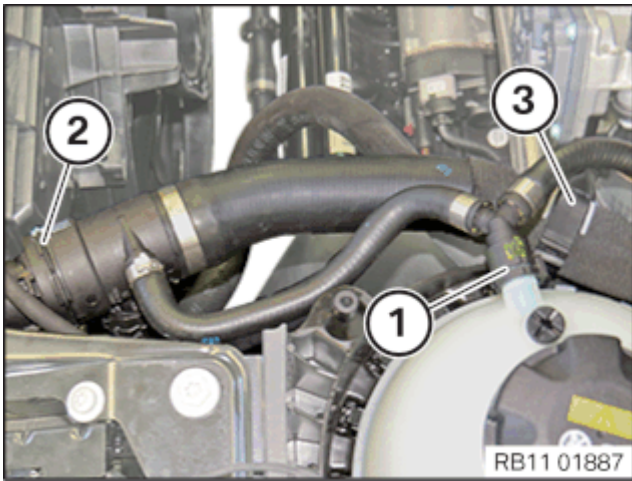
Removal:



Unclip partition wall sealing (1) in marked area.

Slacken nut (2).

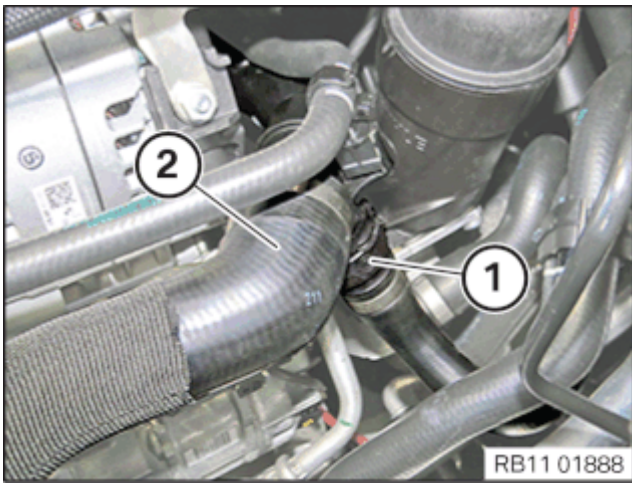
Unhook alternator cable (3) from partition wall.



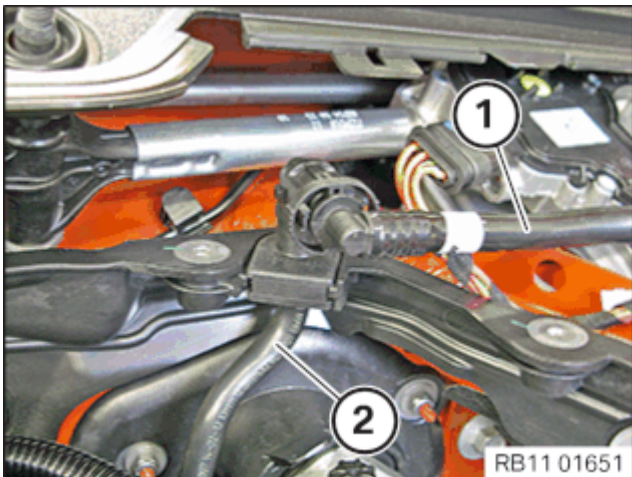
Release coolant return line (1) and detach from expansion tank.

Unlock coolant line (2) at radiator and pull off.

Release clamp (3) and unhook coolant line.

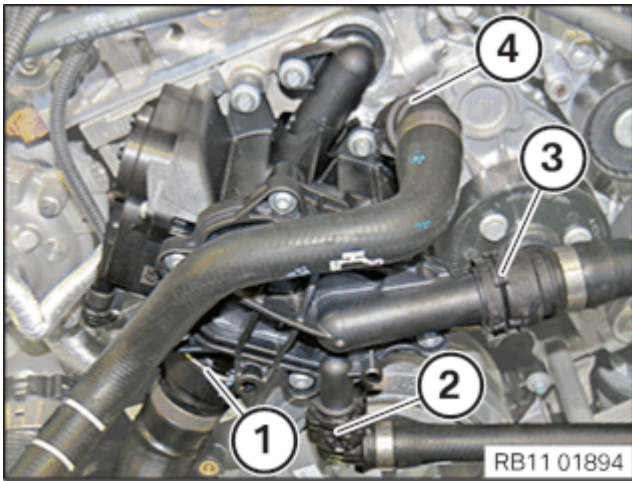


Unlock coolant line (1) and pull off coolant line (2).



Unlock vacuum line (1) and pull off vacuum line (2).

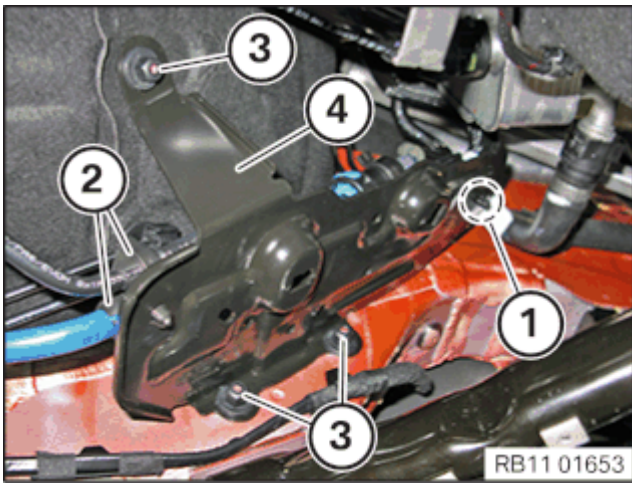
Release vacuum line (2) from partition wall.



Release coolant lines (1 to 3) and detach from heat management module.

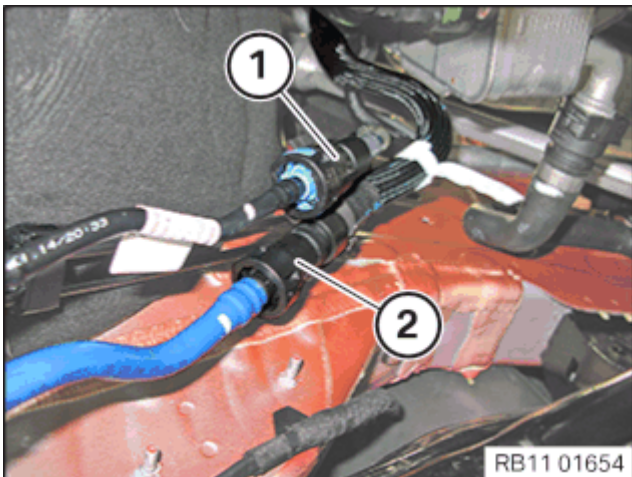
Vehicles with automatic transmission/hot country variant only:

Release coolant line (4) and detach from heat management module.



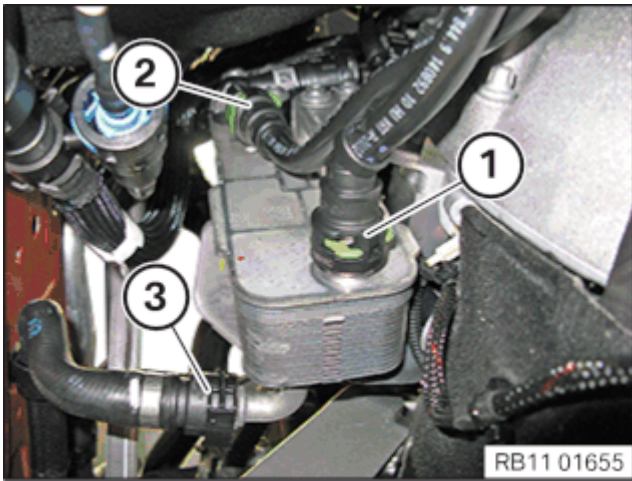
Release fuel lines at clip (1) and clamp (2) from carrier plate (4).

Release nuts (3) and remove carrier plate (4).



Unlock and disconnect fuel delivery line (1).

Unlock and disconnect fuel return line (2).

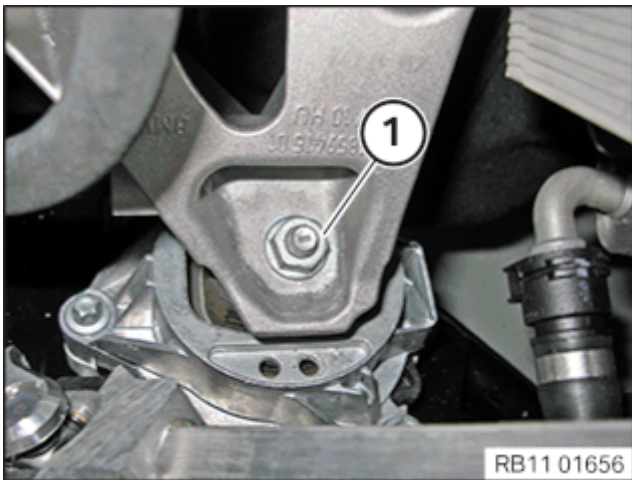


Only vehicles with automatic transmissions:

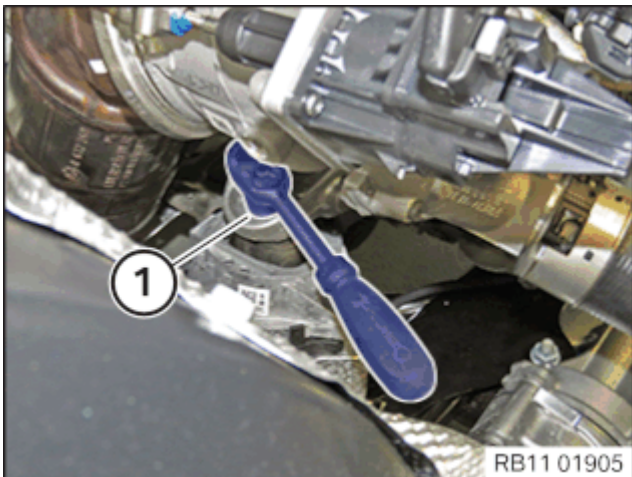
Unlock and detach transmission oil return line (1).

Unlock and pull off the transmission oil feed line (2).

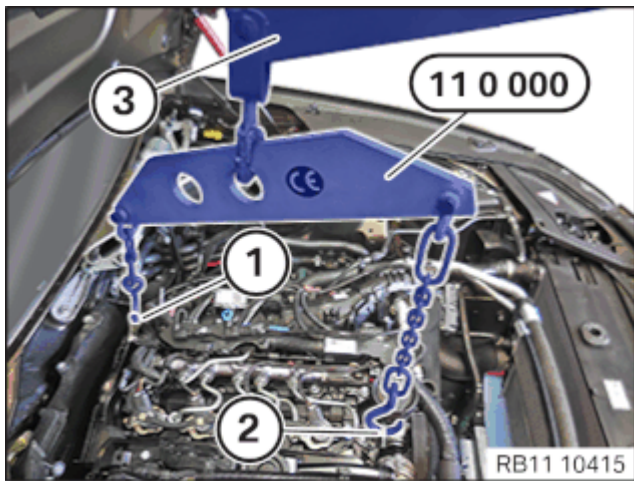
Unlock coolant line (3) and pull off.



Release nut (1) on left engine mount.



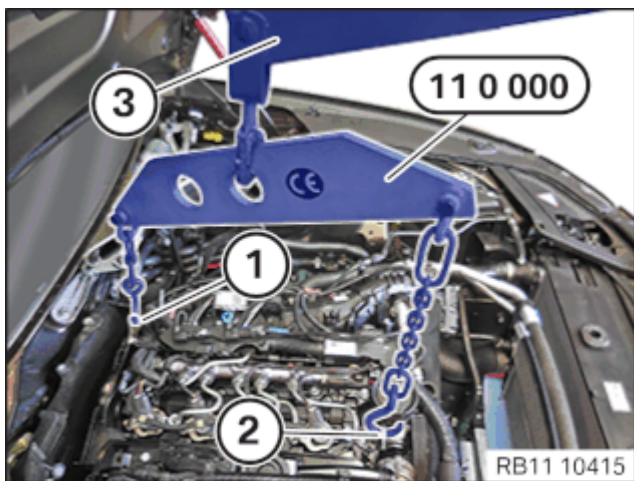
Loosen nut (1) on right engine mount.



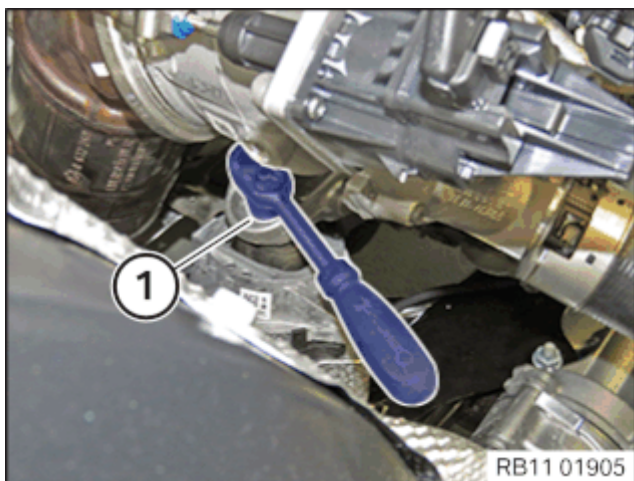
Attach special tool [11 0 000](#) to engine lifter.
Suspend special tool [11 0 000](#) from the mounting eyelets (1 and 2) only.
Lift engine out with engine lifter (3).



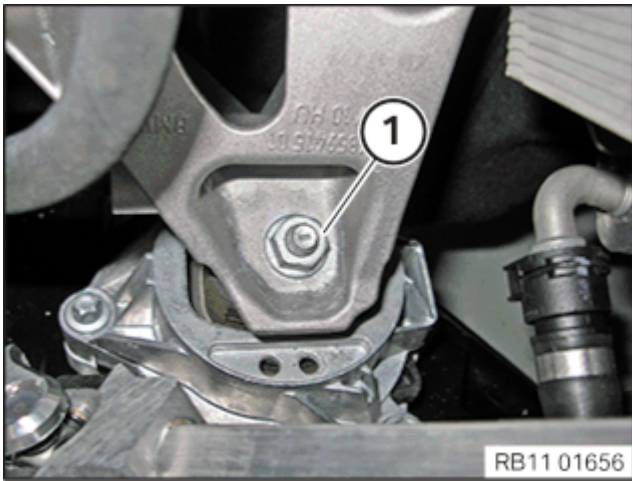
Installation:



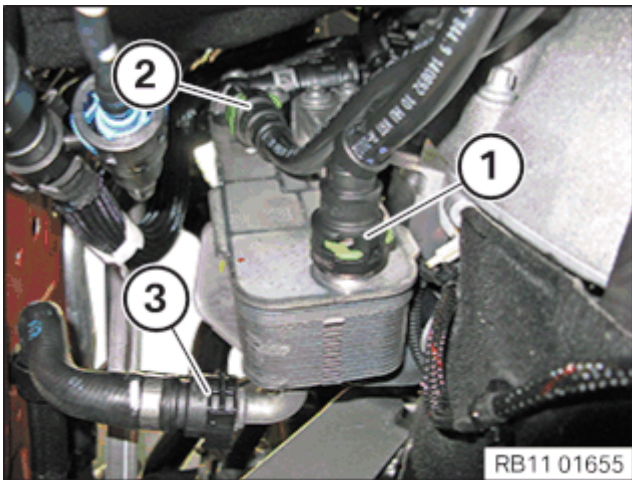
Attach special tool [11 0 000](#) to engine lifter.
Suspend special tool [11 0 000](#) from the mounting eyelets (1 and 2) only.
Lift engine using engine lifter (3) into vehicle.



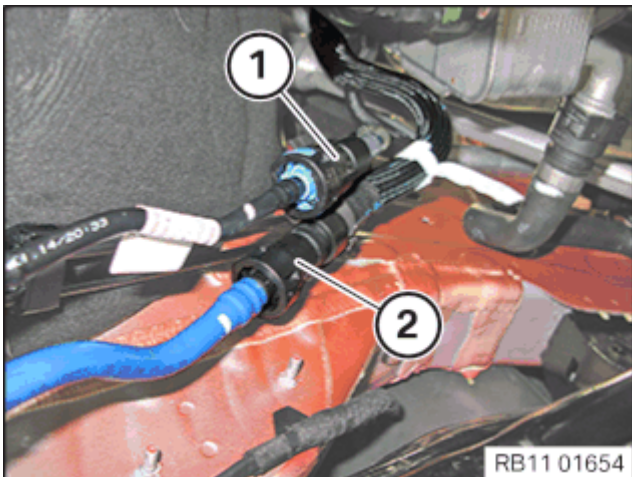
Tighten nut (1) on right engine mount.
Tightening torque [22 11 2AZ](#).



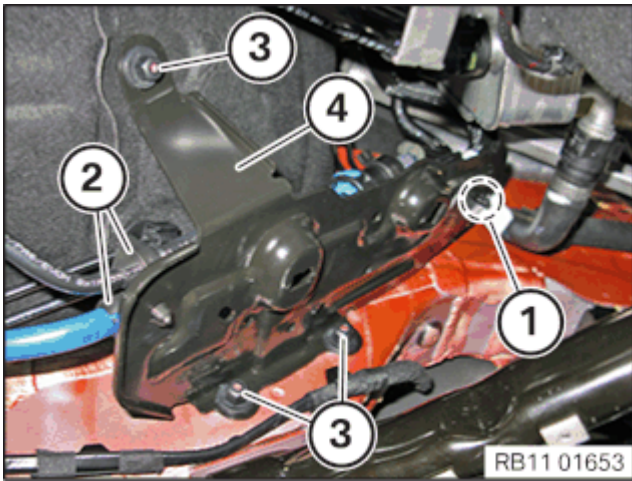
Tighten nut (1) on left engine mount.
Tightening torque [22 11 2AZ](#).



Only vehicles with automatic transmissions:
Lock and connect coolant line (3).
Lock and connect transmission oil feed line (2).
Lock and connect transmission oil return line (1).
Note:
All lines must audibly engage.



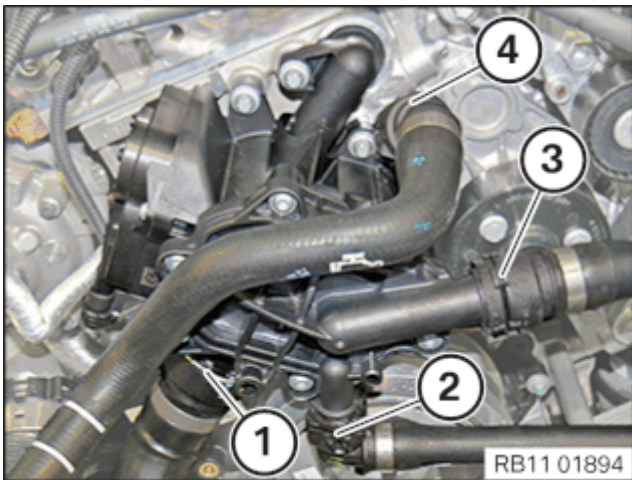
Connect fuel return line (2).
Connect fuel delivery line (1).
Note:
All locks must audibly engage.



Install carrier plate (4).

Tighten down nuts (3).

Attach fuel lines at clamp (2) and clip (1).



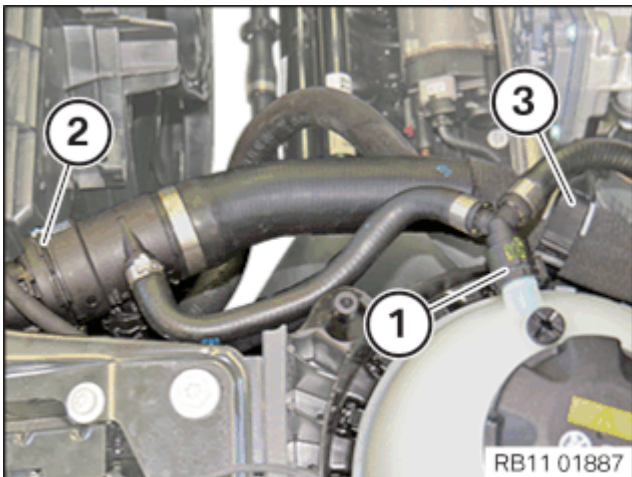
Lock coolant lines (1 to 3) and connect to heat management module.

Vehicles with automatic transmission/hot country variant only:

Lock coolant line (4) and connect to heat management module.

Note:

All locks must audibly engage.



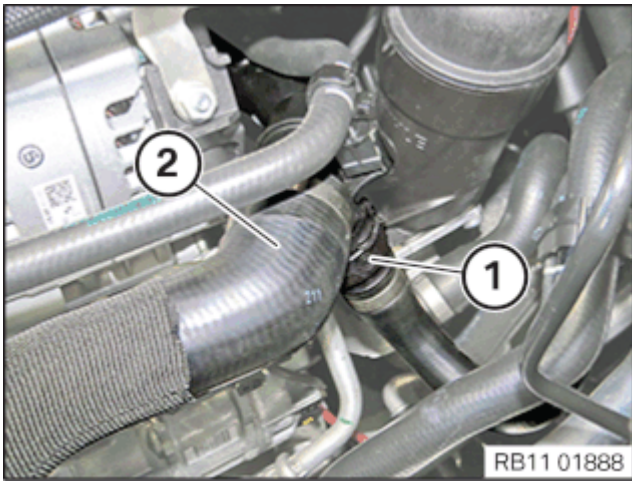
Lock coolant line (2) and connect to radiator.

Lock coolant return line (1) and connect to expansion tank.

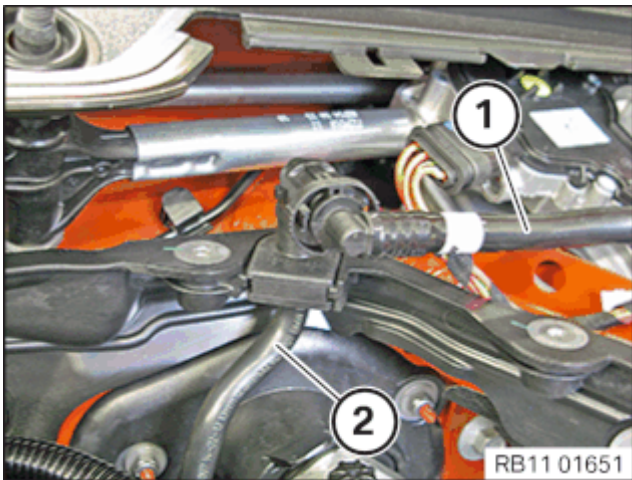
Hook coolant line onto clamp (3).

Note:

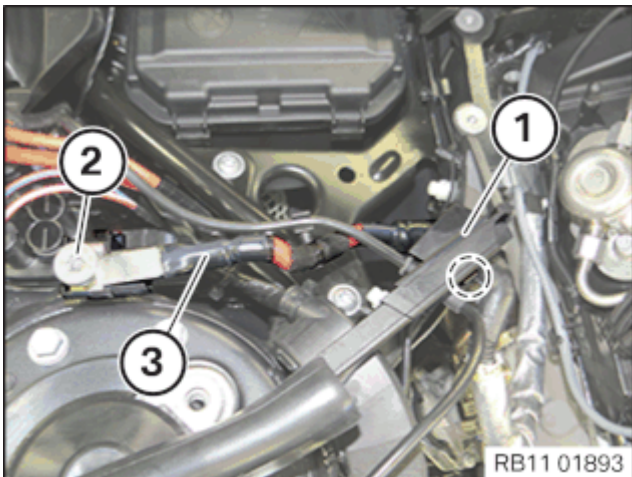
All locks must audibly engage.



Lock coolant line (1) and connect to coolant line (2).*Note:*
Lock must audibly engage.



Attach vacuum line (2) at bulkhead.
Connect vacuum line (2) to vacuum line (1).
Note:
Lock must audibly engage.



Hook alternator cable (3) onto bulkhead.
Tighten alternator cable (3) with nut (2).
Tightening torque [12 52 9AZ](#).
Clip in partition wall sealing (1).
Note:
Make sure partition wall sealing is locked correctly in marked area.



Required reworking:

- Install [engine with gearbox](#)
- Install [catalytic converter](#)
- Fasten [air conditioning compressor](#)
- Add [coolant](#)
- Install [left charge air line](#)
- Install [right charge air line](#)
- Installing [fuel delivery line](#)
- Install [acoustic cover, rear](#)
- Install [drive belt](#)
- Install [electronics box](#)
- Top up [engine oil](#)
- Move [engine compartment lid to normal position](#)
- Connect [battery earth lead](#)



When replacing the engine, the I-level must be encoded and programmed if necessary.

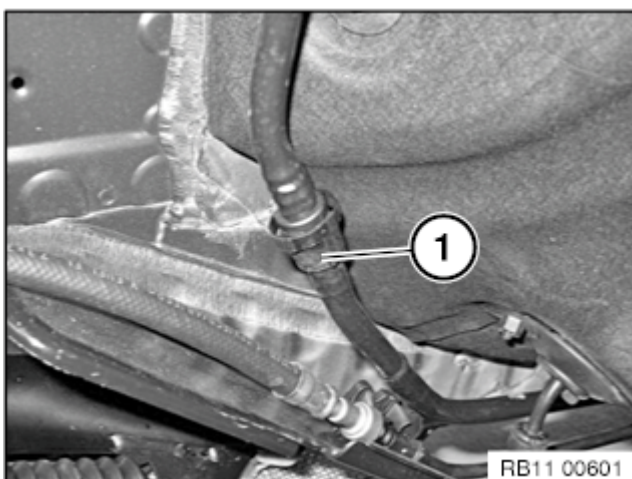
- **Connect diagnosis system and follow diagnosis instructions**
- Service functions
- Power train
- Engine electronics
- Reset VANOS adaptation values
- Encode and programme I-level if necessary

**Special tools required:**

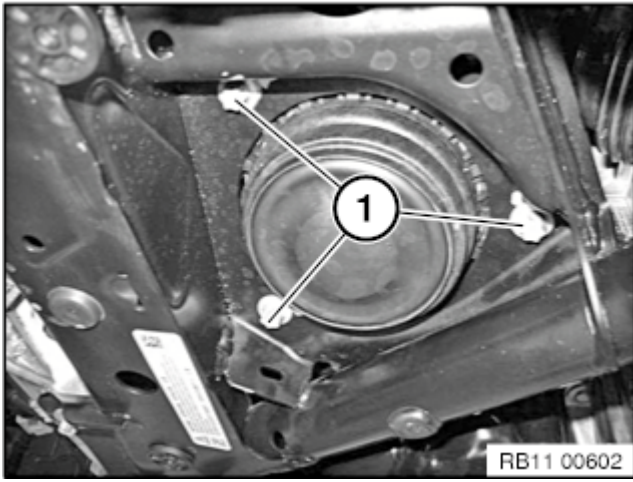
- [11 0 000](#)

**Necessary preliminary work:**

- Remove [exhaust system](#).
- Remove [transmission](#).
- [Move](#) engine compartment lid into assembly position.
- Remove [cowl panel trim panels](#).
- Drain [engine oil](#).
- Disconnect negative battery cable.
- Remove [intake silencer housing](#).
- Disconnect [fuel delivery line](#).
- Remove [both charge-air ducts](#).
- Release [air conditioning compressor](#) and set down in engine compartment.
- [Detach](#) vacuum line from brake servo.
- Detach all coolant hoses from engine.
- Remove [auxiliary coolant pump](#).

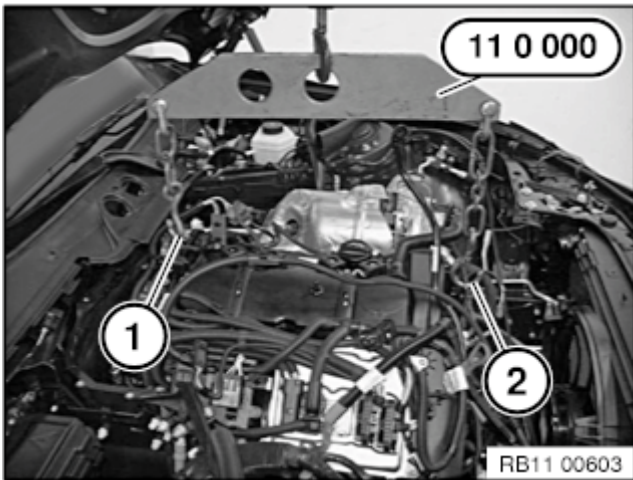


Disconnect line (1) for engine ventilation.



Release screws (1) on engine mount on left and right.

Tightening torque: [22 11 3AZ](#).



Attach special tool [11 0 000](#) to securing eye (1 and 2).

Lift out engine with workshop crane.



Assemble engine.

Check function of DME.



Special tools required:

- [00 2 030](#)
- [21 2 220](#)
- [23 4 050](#)



Attention!

To prevent heavy damage to the engine block, the protruding thread of the transmission bolts absolutely must be checked for damage and corrosion **before removal**.

If there are signs of corrosion, the rust must be removed and the threads must be cleaned **before removal**.

Replace rusted, damaged screws.

Failure to comply with this instruction will result in serious damage to the engine block and transmission.



Attention!

After completion of repair work, check [transmission oil level](#).

Use only the [approved transmission oil](#).

Failure to comply with this requirement will result in serious damage to the manual gearbox.

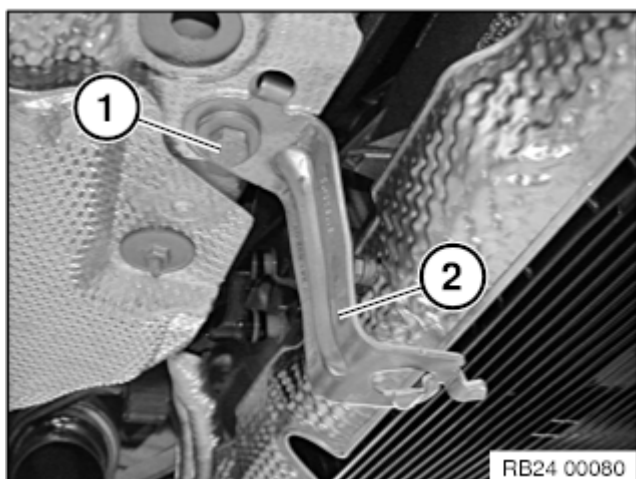


Necessary preliminary tasks:

- [Disconnect battery.](#)
- Remove [starter.](#)
- Remove complete [exhaust system.](#)
- Remove heat shields.
- Partially remove [propeller shaft.](#)
 - Disconnect propeller shaft at transmission.
 - Release centre mount.
 - Tie up propeller shaft to underbody.

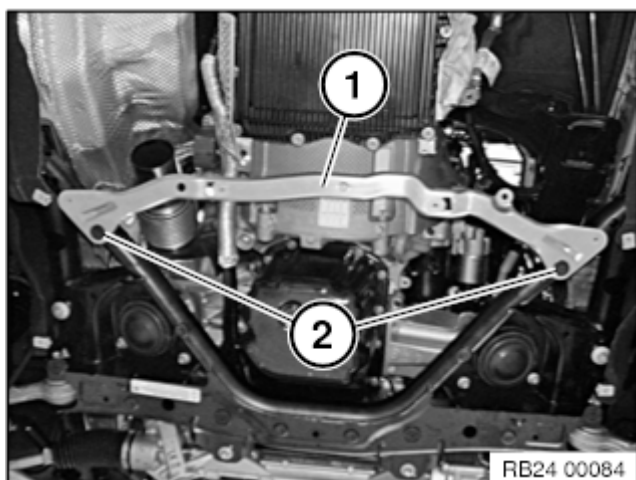
Note:

Bending the propeller shaft by an excessive angle can cause premature damage to the joint/propeller shaft!



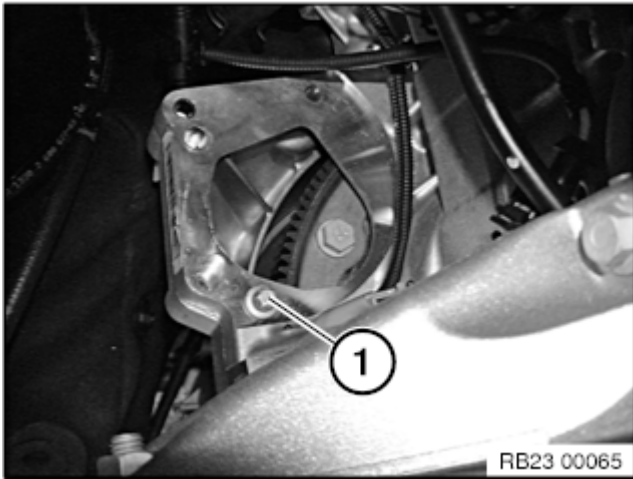
Release screws (1).

Take off holder (2).



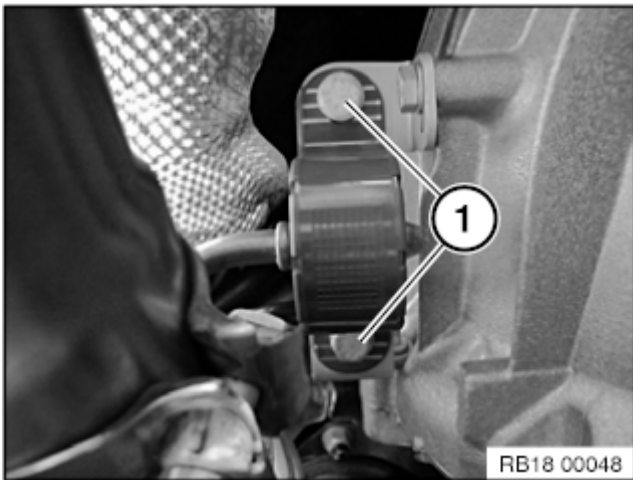
Loosen screws (2).

Remove cross member (1)



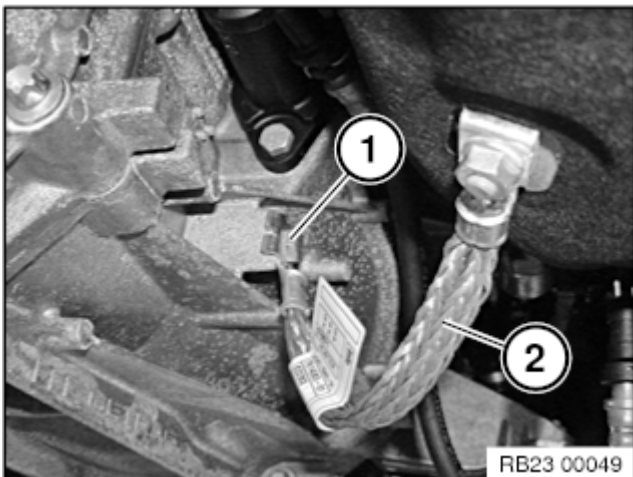
Loosen screw (1).

Tightening torque [23 00 1AZ](#).



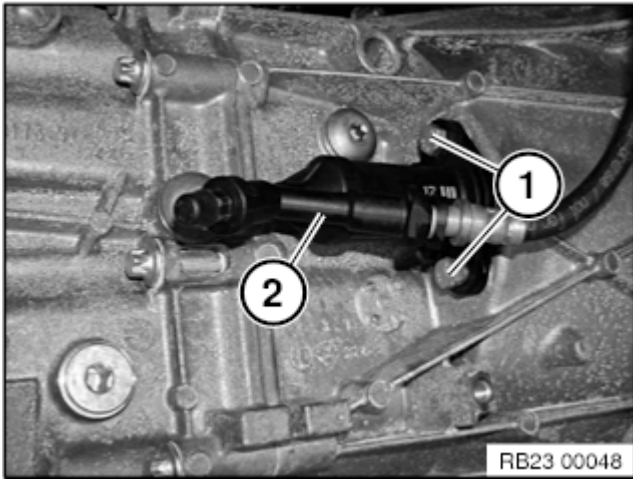
Release screws (1).

Tightening torque [18 20 5AZ](#).



Release screw (1) from ground strap (2).

Tightening torque [23 11 7AZ](#).



Note:
Pressure line of clutch slave cylinder remains connected.

Attention!

Relieve tension on clutch slave cylinder slowly; otherwise air will be drawn in through sealing cup.

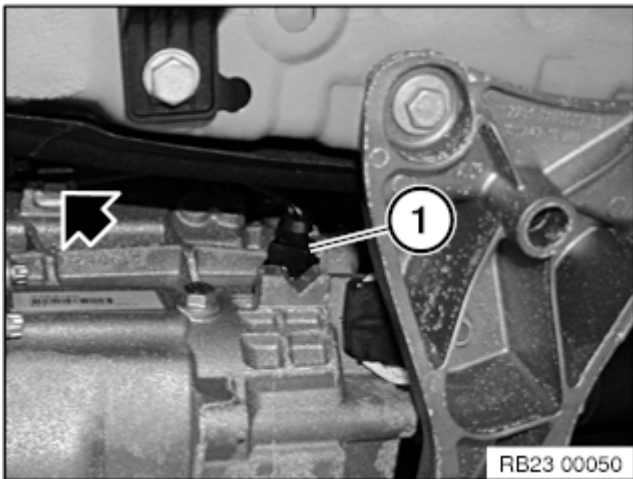
Loosen screws (1).

Tightening torque [21 52 1AZ](#).

Remove clutch slave cylinder (2).

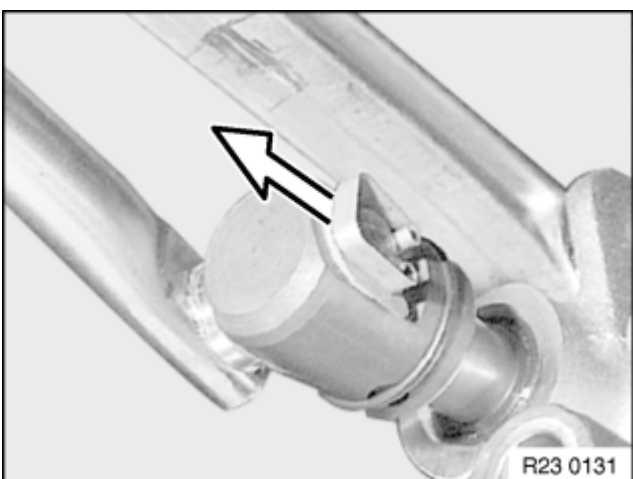
Installation note:

Renew screws (1).

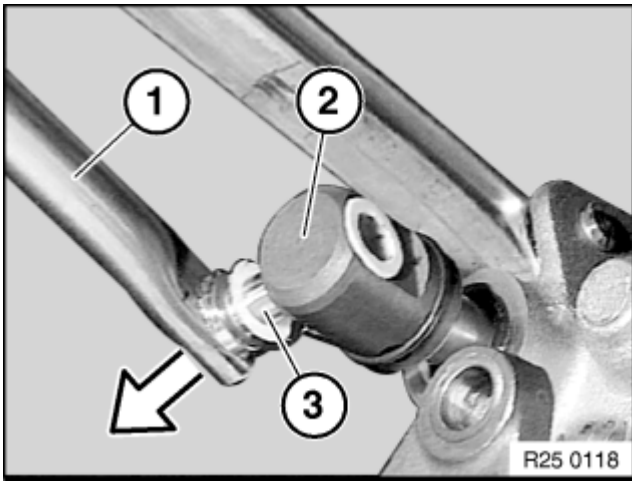


Detach connector (1) from reverse gear switch.

Detach cables from brackets on transmission.



Detach retaining clip.

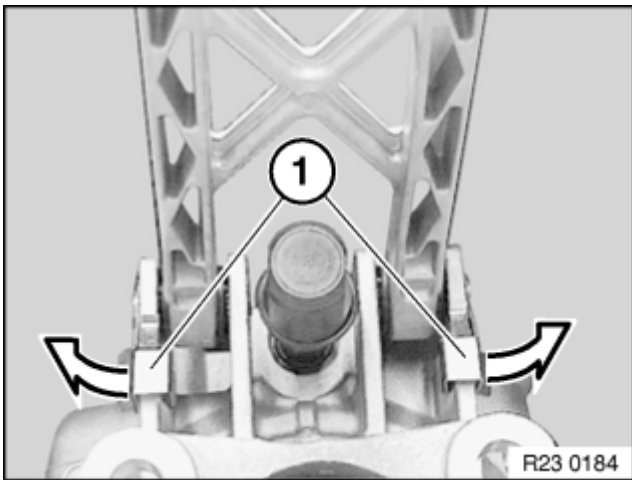


Pull gearshift rod (1) out of gearshift rod joint (2). **Installation note:**

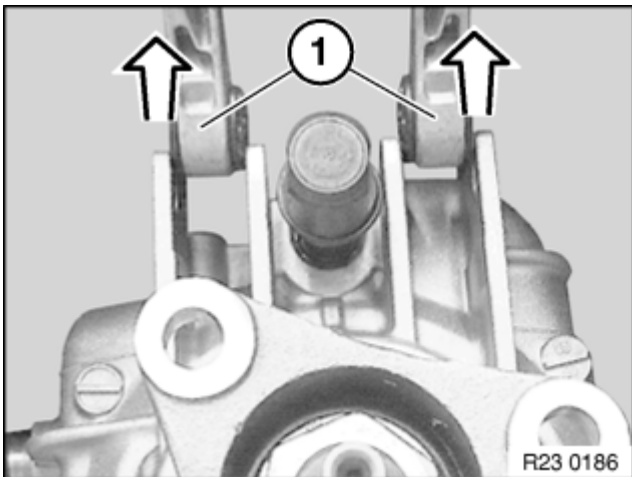
Grease gearshift rod pin (3).

Grease,

[Refer to BMW Service Operating Fluids.](#)



Unlock bearing journal (1) in direction of arrow and remove.

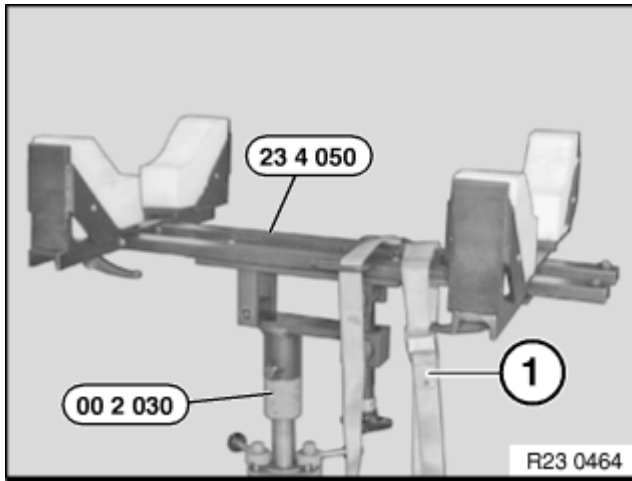


Lift out gearshift arm (1). **Installation note:**

Grease bearing journal.

Grease,

[Refer to BMW Service Operating Fluids.](#)



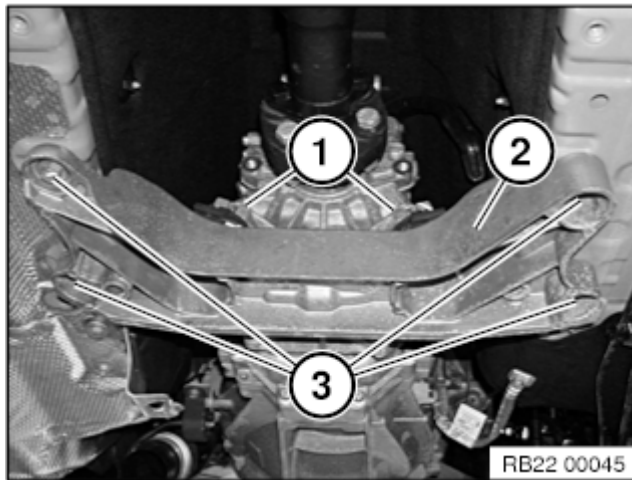
Supporting transmission:

Support transmission with special tools [23 4 050](#) , [00 2 030](#) .

Secure transmission to mounting with tensioning strap (1).

Tasks are described in [Transmission bracket](#).

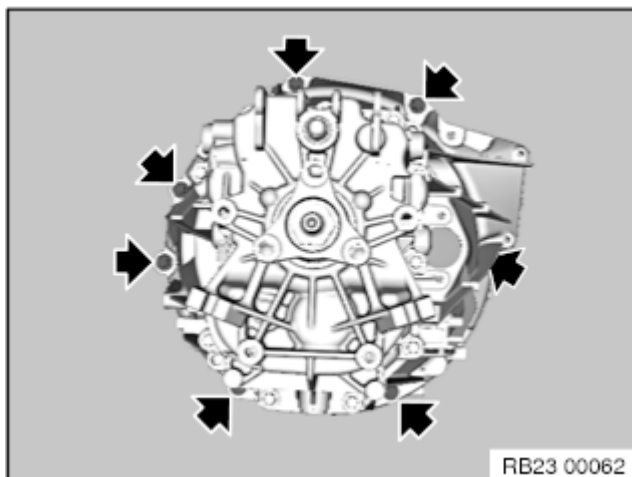
After completion of repair work, check transmission oil level.



Loosen screws (3).

Tightening torque [22 32 3AZ](#).

Slightly lower the transmission.

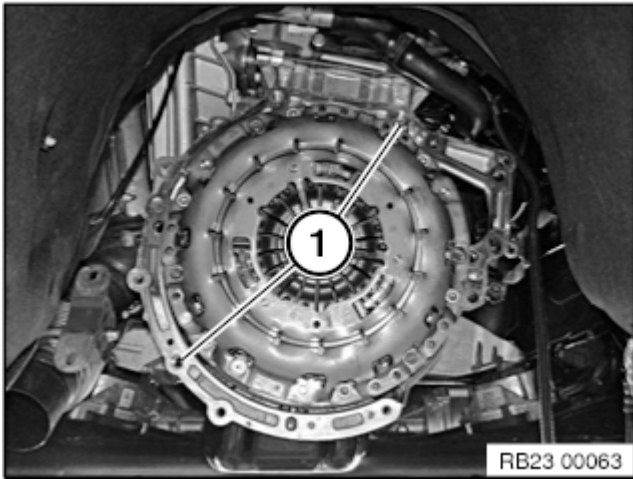


Loosen screws.

Tightening torque [23 00 1AZ](#).

Attention!

Do not allow transmission to hang on transmission input shaft when removing and installing, as the clutch disc will be deformed. Pull transmission downwards and remove.

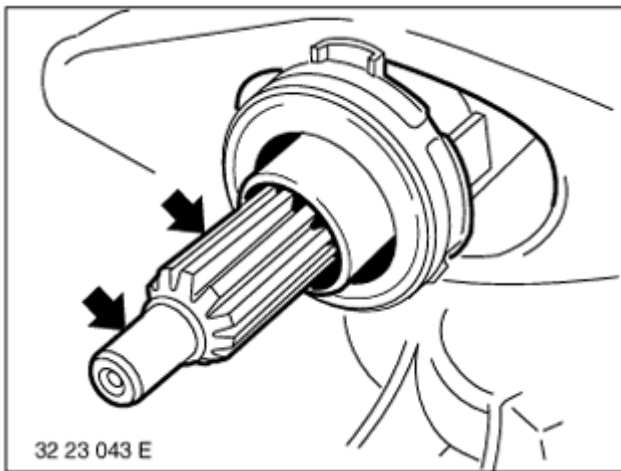


Installation note:

Check fitting sleeves (1 and 2) for correct fit.

Replace damaged sleeves.

Ensure correct position of cover plate.

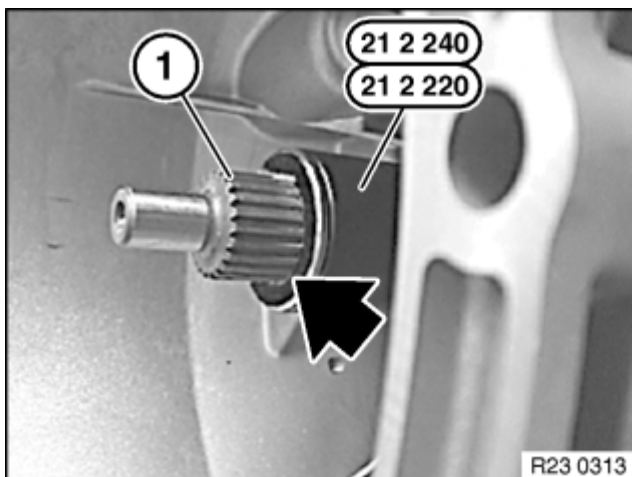


Installation note:

Check lubrication of transmission input shaft for sticky consistency. If the grease is sticky, clean the transmission input shaft and check if the clutch disc is free of grease, [replace the clutch disc](#) if applicable.

Check clutch disc for friction rust in gearing and [replace if necessary](#).

Remove any grease and lining abrasion from gearing of clutch disc by mechanical means (with a cloth).



Installation note:

Greasing specification:

- [Remove the release bearing and release lever](#) and clean (do not grease)
- Push on grease scraper ring [21 2 220](#) until limit position.
- Grease gearing (1) of input shaft with a brush.
- [Refer to BMW Service Operating Fluids](#)
- Detach grease scraper ring.
- [Install the release lever and release bearing](#)



Special tools required:

- [00 2 030](#)
- [00 9 120](#)
- [00 9 130](#)
- [21 2 220](#)
- [23 4 050](#)



Attention!

To prevent heavy damage to the engine block, the protruding thread of the transmission bolts absolutely must be checked for damage and corrosion **before removal**.

If there are signs of corrosion, the rust must be removed and the threads must be cleaned **before removal**.

Replace rusted, damaged screws.

Failure to comply with this instruction will result in serious damage to the engine block and transmission.



Attention!

After completion of work, check transmission fluid level.

Use only the [approved transmission oil](#).

Failure to comply with this requirement will result in serious damage to the manual gearbox.



Necessary preliminary work:

- Disconnect [battery negative lead](#).
- Remove underbody protection at front and rear.
- Remove [exhaust system](#).
- Remove heat shields.
- Partially remove [propeller shaft](#).
 - Disconnect propeller shaft at transmission.
 - Release centre mount.
 - Tie up the propeller shaft to the vehicle underbody.

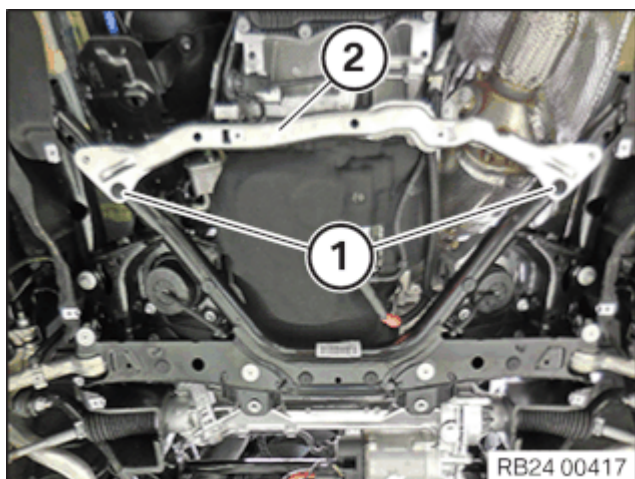
Attention:

Bending the propeller shaft by an excessive angle can cause premature damage to the joint/propeller shaft!

- Support engine with lifter when removing transmission.

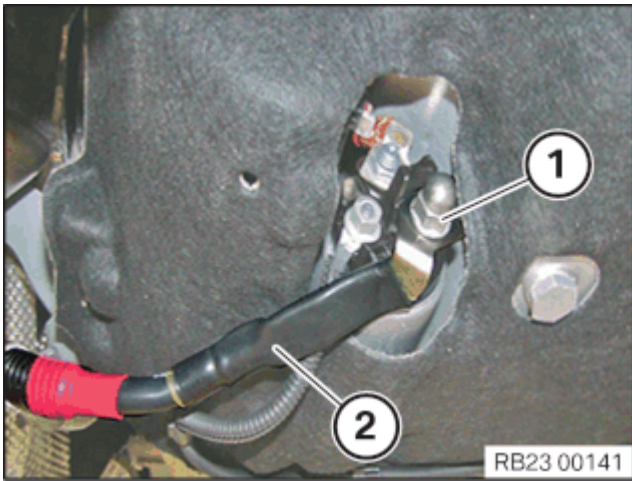


Removal:



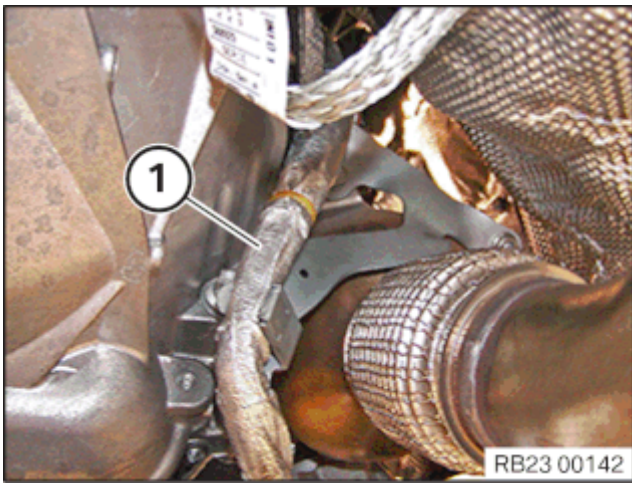
Loosen screws (1).

Remove reinforcement bar (2).

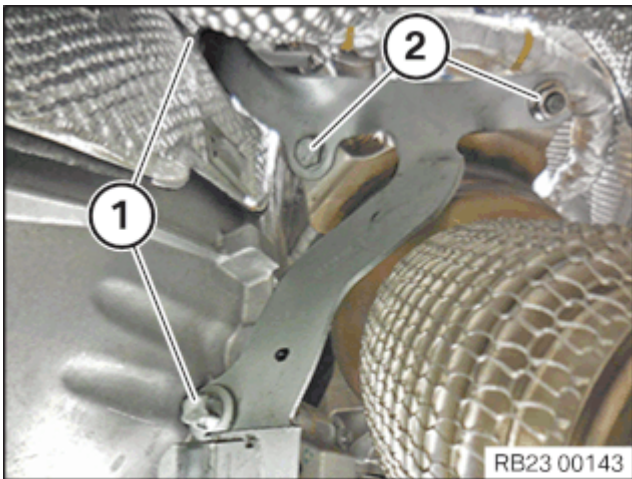


Slacken nut (1).

Detach cable (2) from starter.

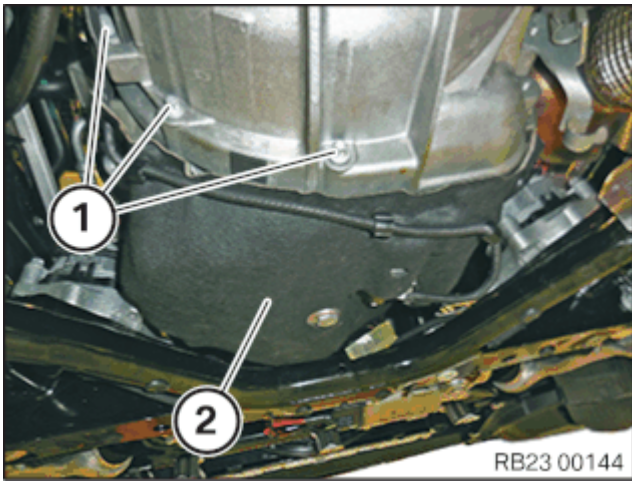


Release cable (1) from holders.

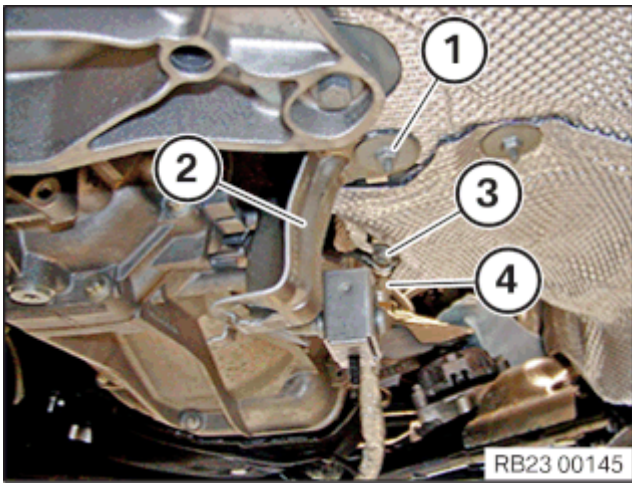


Undo the transmission bolts (1).

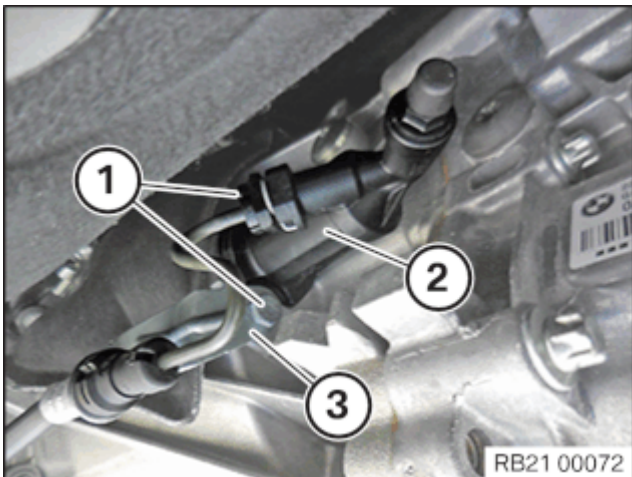
Release screw and nut (2).



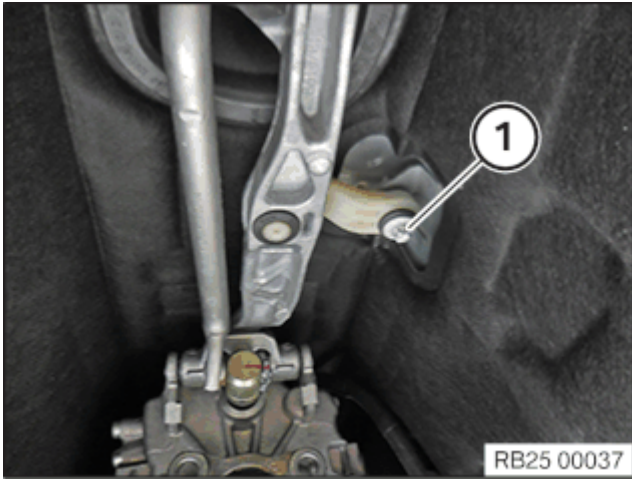
Undo the transmission bolts (1).
Press acoustic cover (2) slightly to one side.



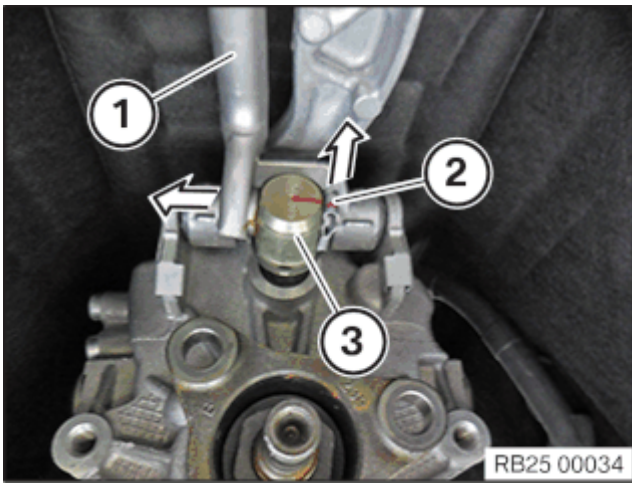
Slacken nut (1).
Remove holder (2).
Unscrew nut (3).
Release ground strap (4) from body.



Pressure line of clutch slave cylinder remains connected.
Relieve tension on clutch slave cylinder slowly; otherwise air will be drawn in through sealing cup.
Remove bolts (1) and remove clutch slave cylinder (2) with holder (3).

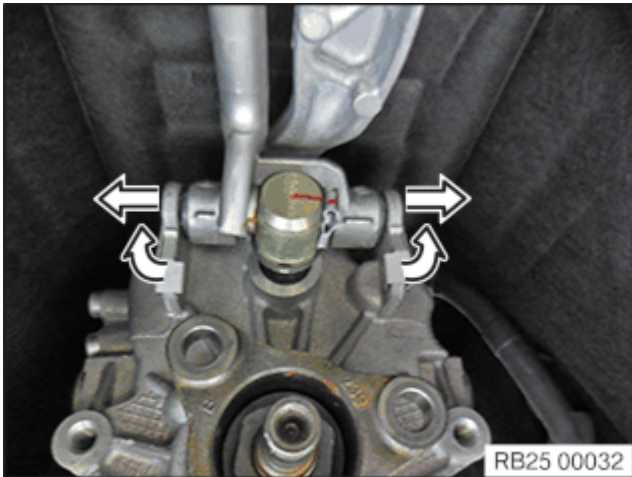


Loosen screw (1).



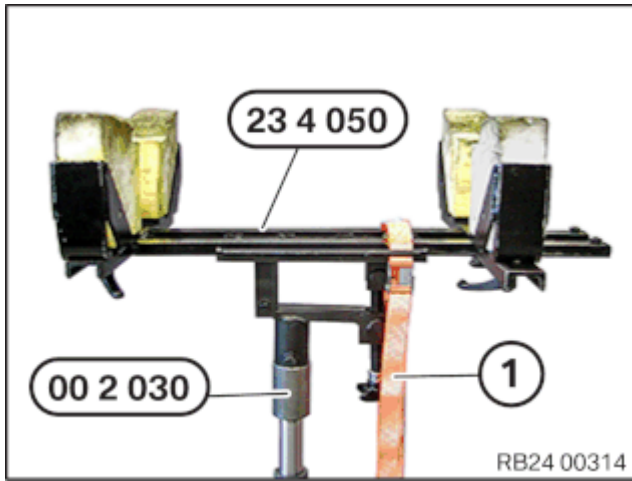
Pull off retaining clip (2).

Pull gearshift rod (1) out of gearshift rod joint (3).



Unlock and remove bearing journal in direction of arrow.

Pull gearshift arm forward out of support bearing.

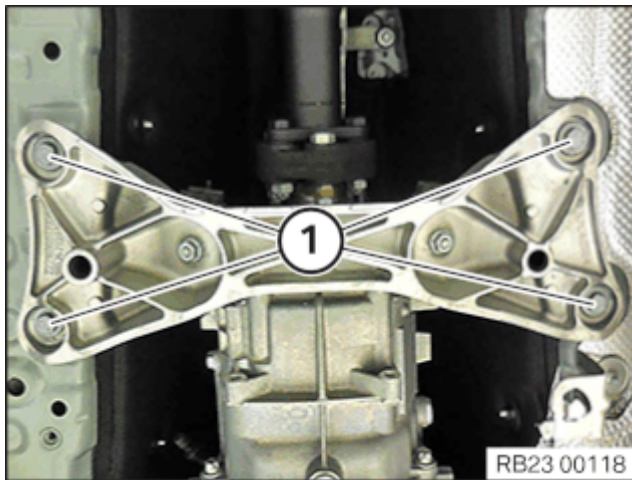


Supporting transmission:

Support transmission with special tools [23 4 050](#) , [00 2 030](#) .

Secure transmission to mounting with tensioning strap (1).

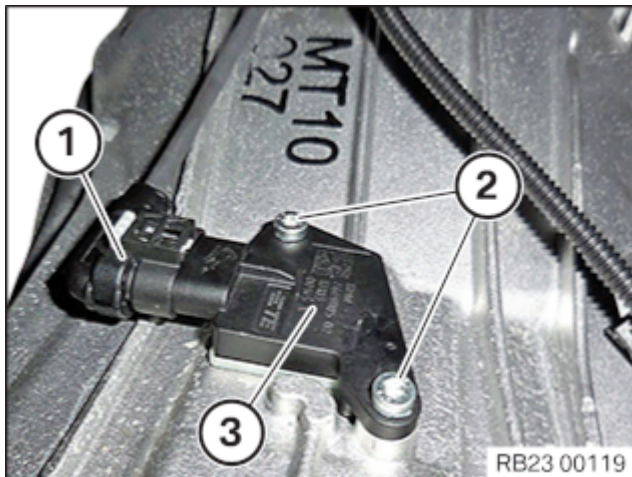
Tasks are described in [gearbox holder](#).



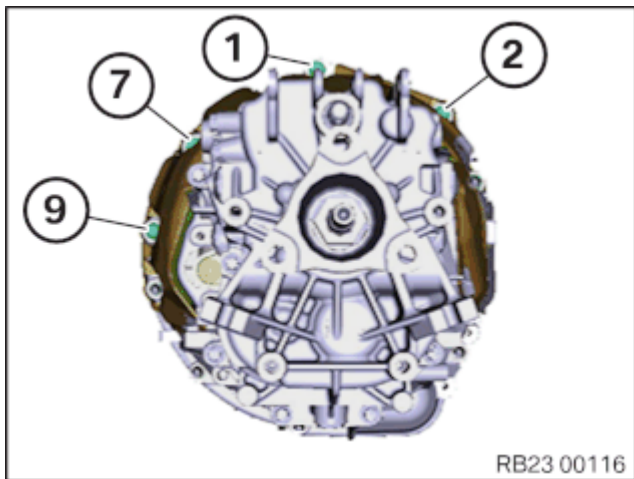
Release screws (1).

Release transmission cross-member from body.

Lower transmission.



Disconnect connector (1).

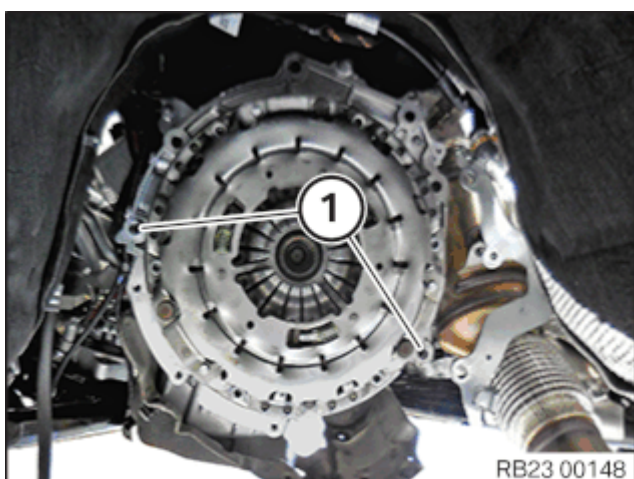


Loosen screws. Attention!

Do not allow transmission to hang on transmission input shaft when removing and installing, as the clutch disc will be deformed. Pull out transmission towards rear and remove.



Installation:

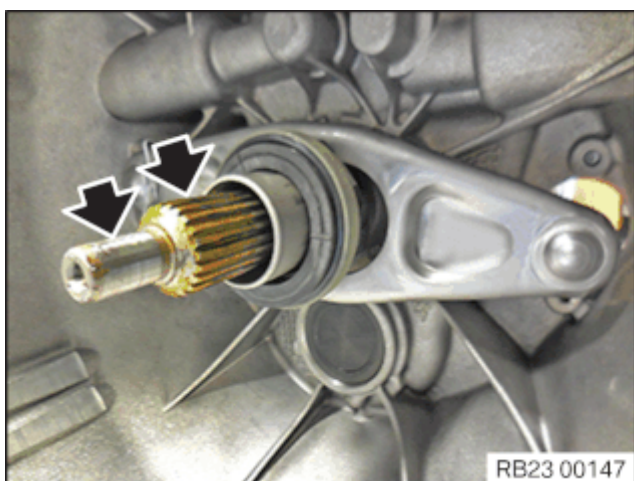


Installation note:

Check that fitting sleeves (1) are correctly seated.

Replace damaged sleeves.

Ensure correct position of cover plate.

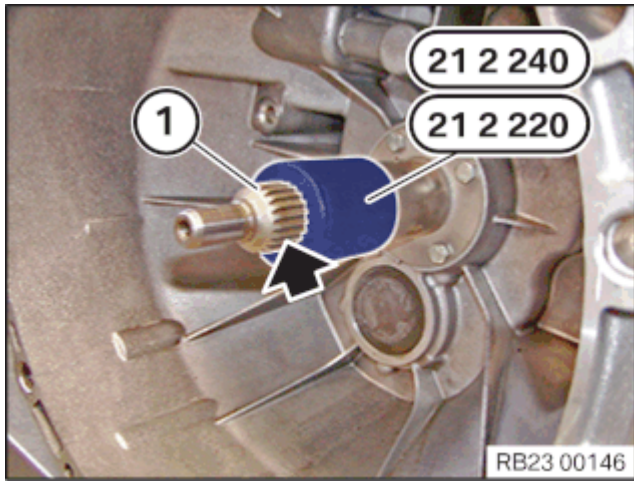


Installation note:

Check lubrication of transmission input shaft for sticky consistency. If the grease is sticky, clean the drive shaft and check the clutch disc for the presence of grease. [Replace the clutch disc](#) as needed.

Check clutch disc for frictional corrosion in gearing and replace [if necessary](#).

Remove any grease and lining abrasion from gearing of clutch disc by mechanical means (with a cloth).



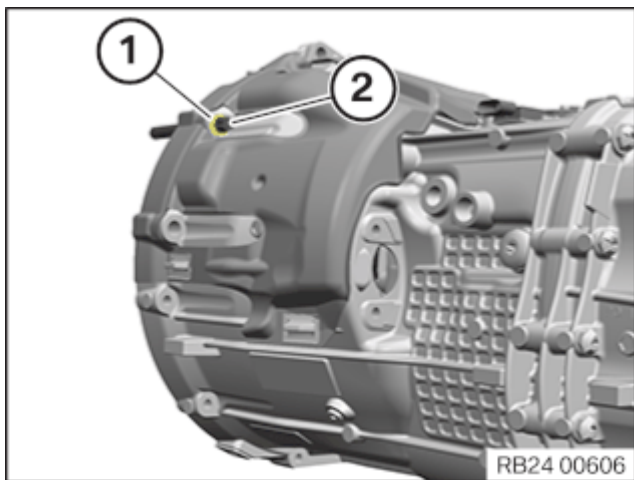
Installation note:

Greasing specification:

- Remove and clean release bearing and release lever (do not grease).
- Push on grease scraper ring [21 2 220](#) until limit position.
- Grease gearing (1) of input shaft with a brush.
- [Refer to BMW Service Operating Fluids](#)
- Detach grease scraper ring.
- [Installing release lever and release bearing](#)

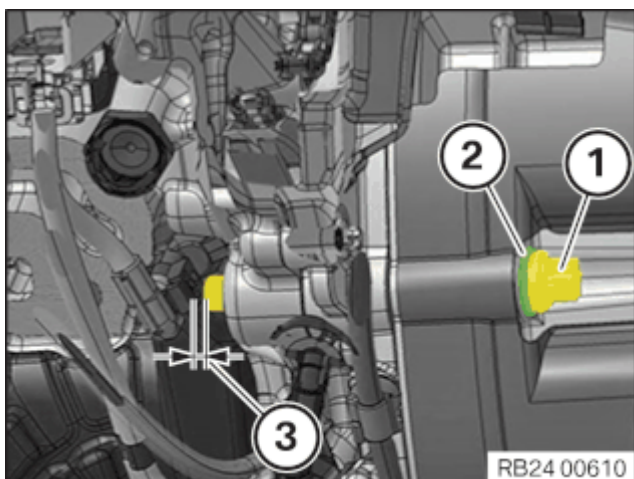


Transmission flange-mount.



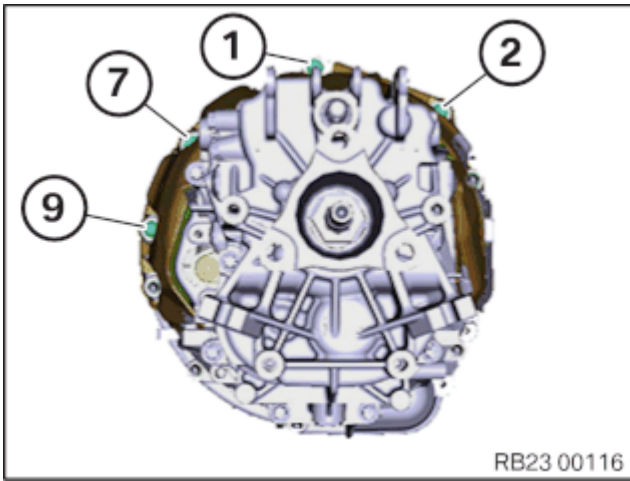
Observe the following in engines B46O, B48M, B48O, B47U, B47K:

Install the screw (1) with the washer (2) (part no. 07 11 9 906 063).

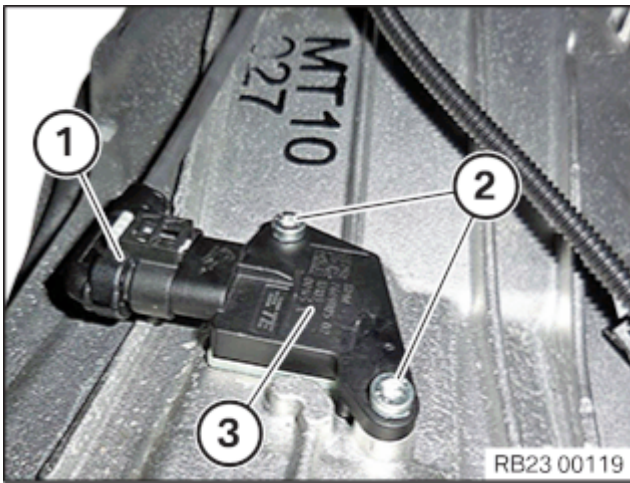


Note:

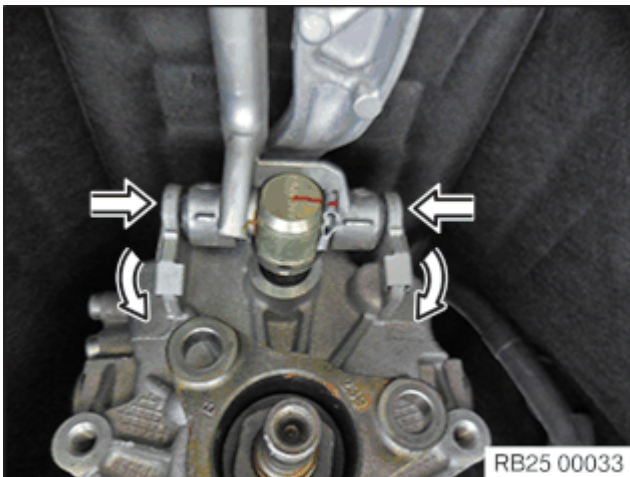
The washer (2) guarantees that a distance (3) is maintained between the screw (1) and the oil pressure sensor and this prevents component contact.



Insert screws and tighten lightly.



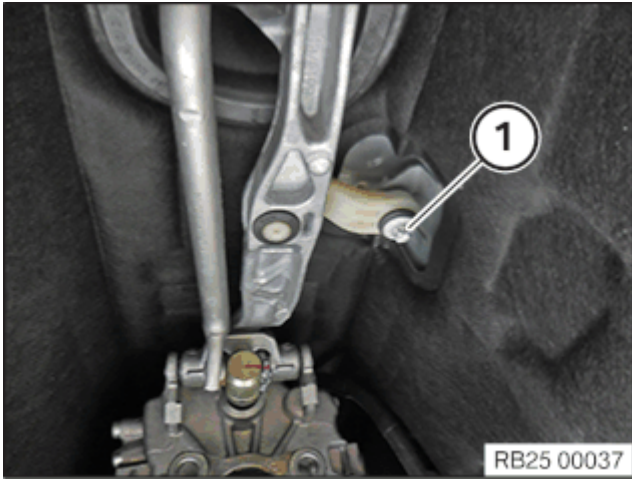
Connect the connector (1).



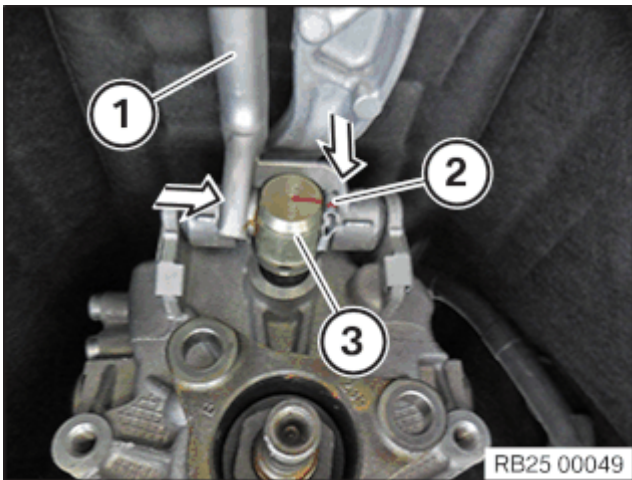
Grease bearing journal and bearing pin.
Grease, [refer to BMW Service Operating Fluids](#).

Insert gearshift arm.

Install bearing journal in direction of arrow and lock in place.



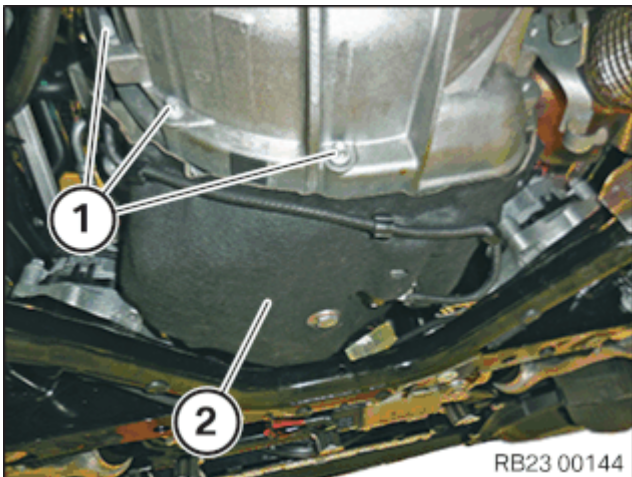
Insert screw (1) and tighten.
Tightening torque [25 11 2AZ](#).



Installation note:
Grease gearshift rod pin.
Grease, refer to [BMW Service Operating Fluids](#).

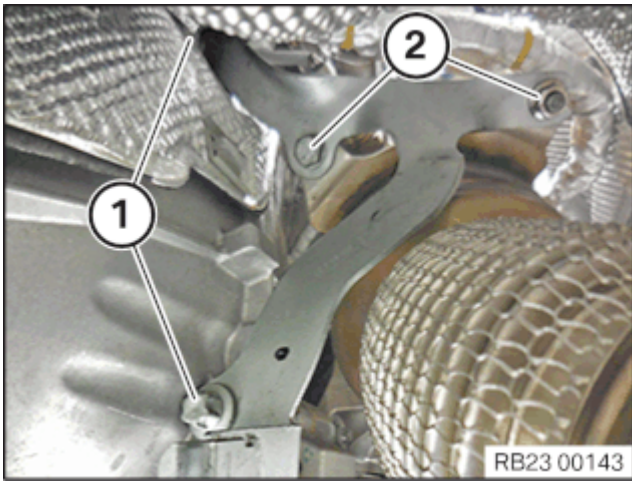
Hook gearshift rod (1) into gearshift rod joint (3).

Insert retaining clip (2).

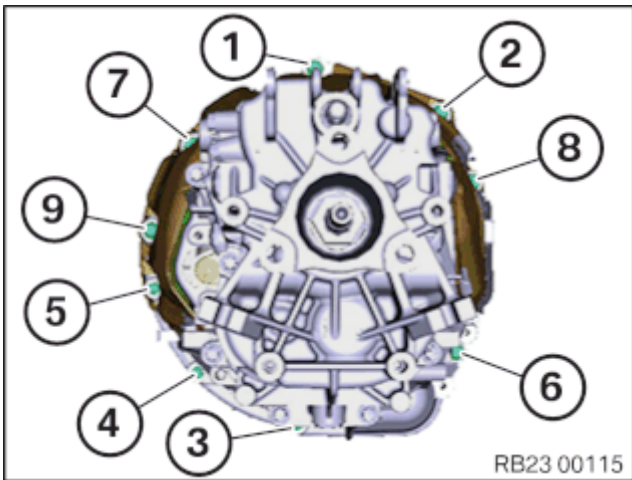


Check acoustic cover (2) for correct fit.

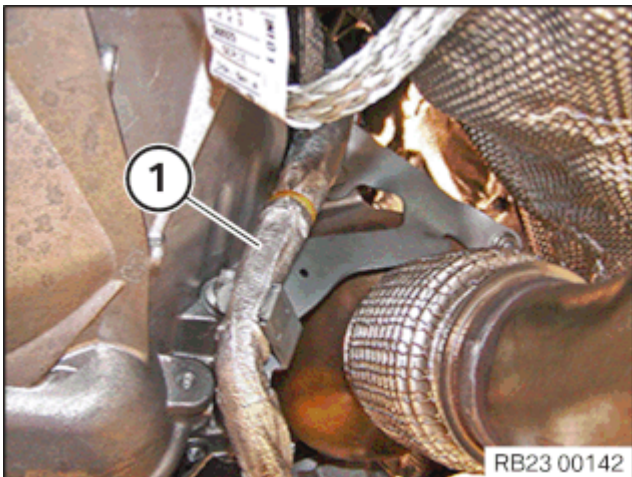
Insert Torx screws (1) and tighten.



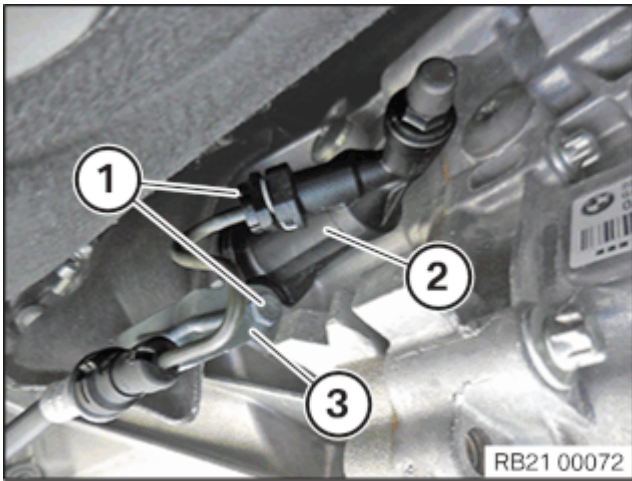
Insert Torx screws (1) and tighten.
Tightening torque [18 31 3AZ](#).
Tightening torque [18 30 3AZ](#).
Position bolt and nut (2) and tighten.
Tightening torque [18 31 4AZ](#).
Tightening torque [18 30 4AZ](#).



Lightly tighten the remaining screws on the transmission.
Tighten the screws in the specified screwing sequence.
Tightening torque [23 00 1AZ](#).



Clip in cable (1).

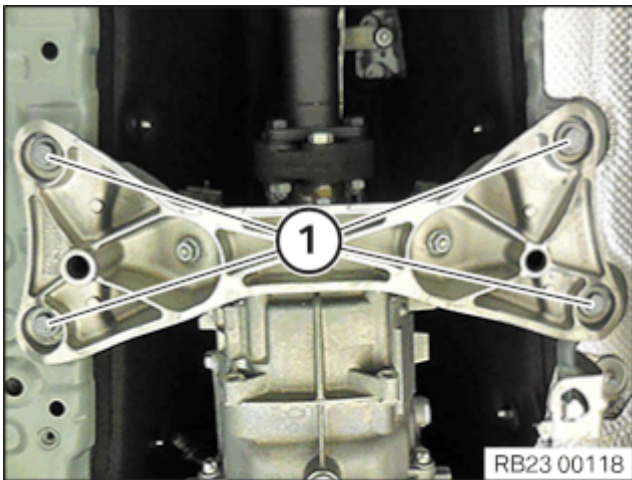


Parts: Renew screws.

Install clutch slave cylinder (2) with holder (3).

Insert screws (1) and tighten.

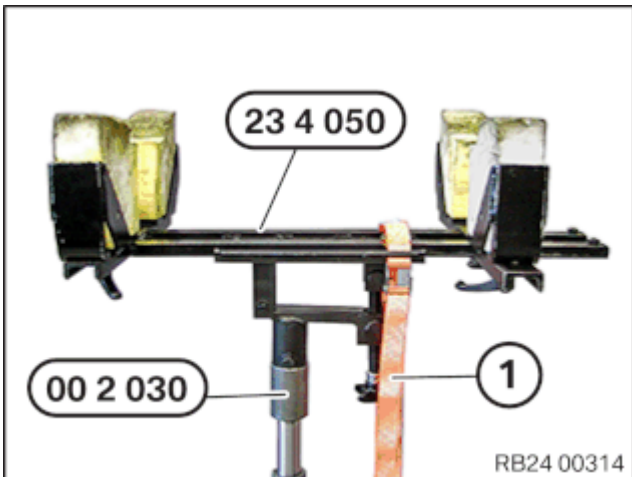
Tightening torque [21 52 1AZ](#).



Install the transmission cross member.

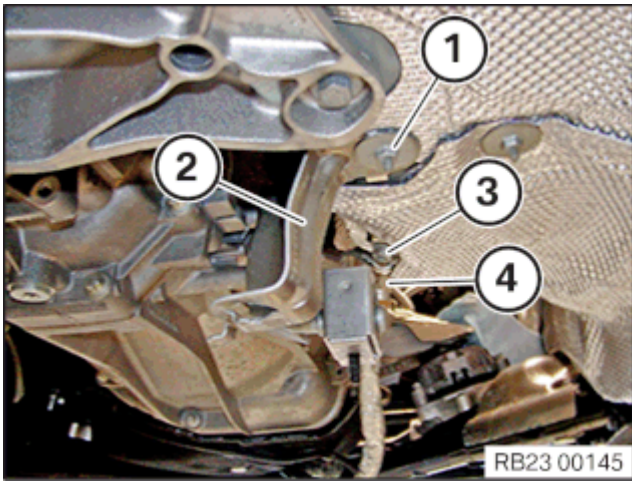
Insert screws (1) and tighten.

Tightening torque [22 32 3AZ](#).

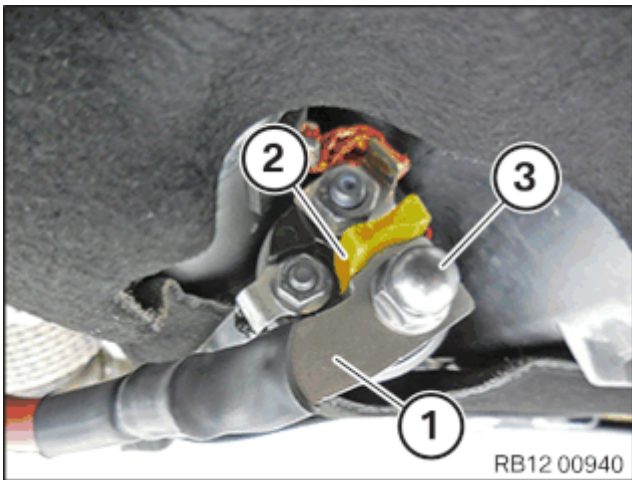


Release tensioning strap (1) from transmission.

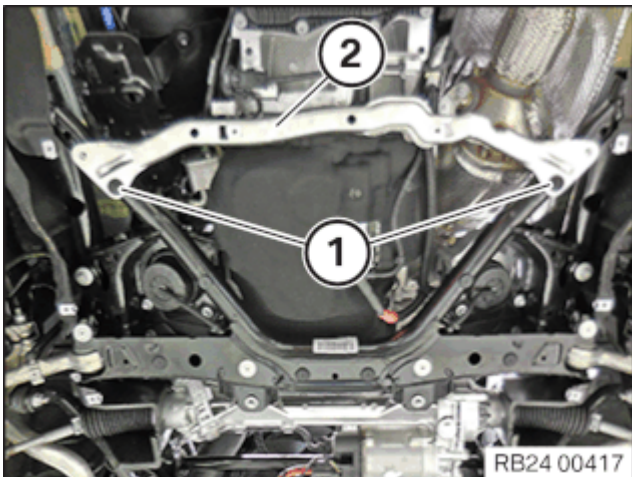
Remove special tools [23 4 050](#) , [00 2 030](#) and mounting from the transmission.



Mount ground strap (4).
Fit nut (3) and tighten.
Install holder (2).
Position nut (1) and tighten.
Tightening torque [23 11 8AZ](#).



Connect positive battery cable (1) to starter motor.
Move anti-twist lock for positive battery cable on starter up to limit position (2).
Tighten nut (3).
Tightening torque [12 42 2AZ](#) / [12 52 2AZ](#)



Fit reinforcement bar (2).
Insert screws (1) and tighten.
Tightening torque [12 41 1AZ](#).



Required reworking:

- Install [propeller shaft](#).
- Install heat shields.
- Install [exhaust system](#).
- Install front and rear [underbody protection](#).
- Connect [battery earth lead](#).

24 00 033 Removing and installing automatic transmission (GA8HP45Z) N13



Special tools required:

- [24 1 110](#)
- [24 4 161](#)
- [24 4 165](#)
- [24 4 160](#)
- [24 2 390](#)
- [23 4 050](#)
- [00 2 030](#)



Important!

To prevent heavy damage to the engine block, the protruding thread of the transmission bolts absolutely must be checked for damage and corrosion **before removal**.

If there are signs of corrosion, the rust must be removed and the threads must be cleaned **before removal**.

Replace rusted, damaged screws.

Failure to comply with this instruction will result in serious damage to the engine block and transmission.



Important!

After completion of repair work, check [transmission oil level](#).

[Use only the approved transmission oil.](#)

Failure to comply with this requirement will result in serious damage to the automatic transmission!

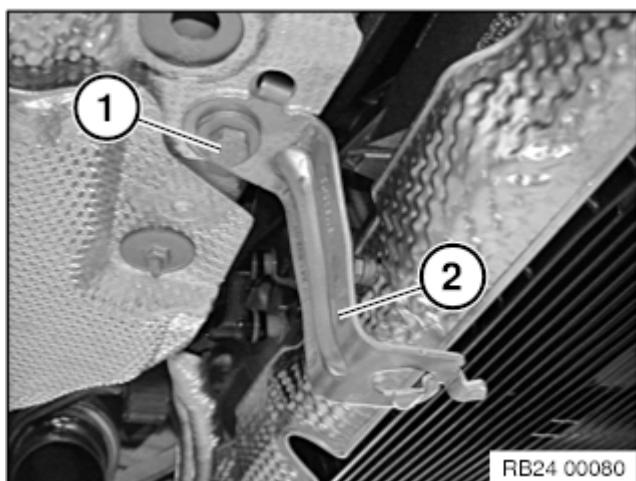


Necessary preliminary tasks:

- Clamp off [battery](#).
- Remove [starter](#).
- Remove [exhaust system](#)
- Remove heat shields.
- Partially remove [propeller shaft](#).
 - Disconnect propeller shaft at transmission.
 - Release centre mount.
 - Tie up propeller shaft to underbody.

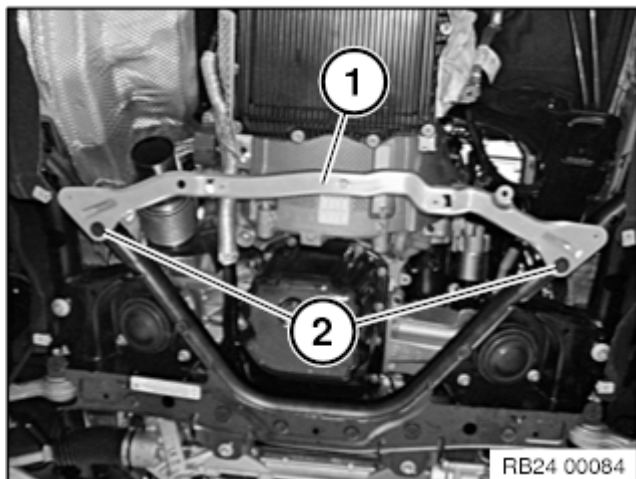
Note:

Bending the propeller shaft by an excessive angle can cause premature damage to the joint/propeller shaft!



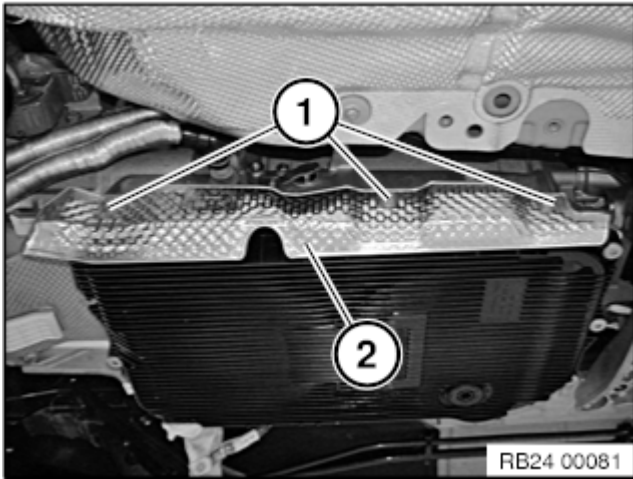
Release screw (1).

Take off holder (2).

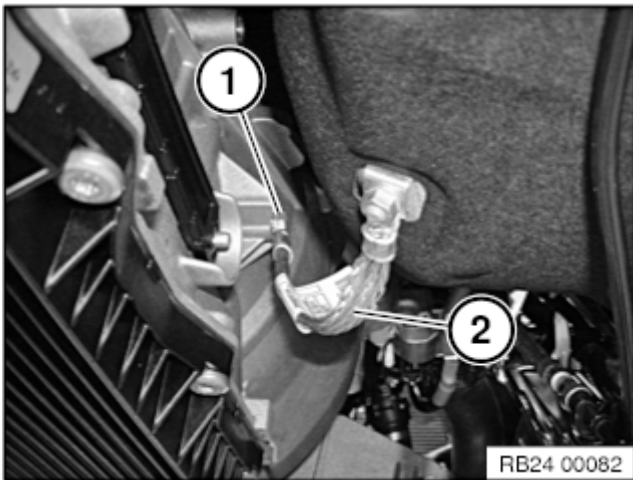


Unfasten screws (2).

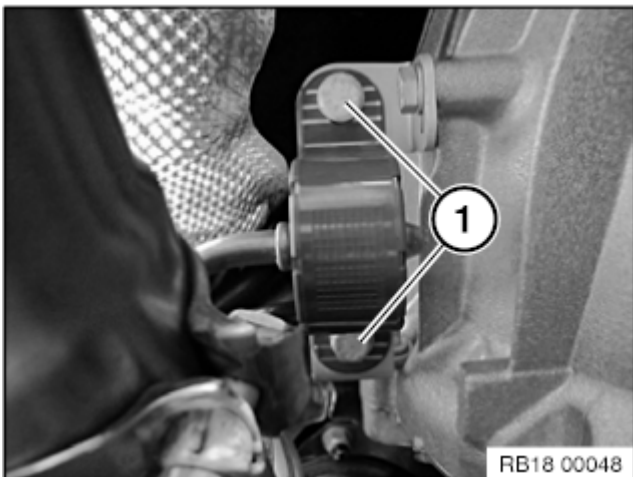
Remove cross member (1)



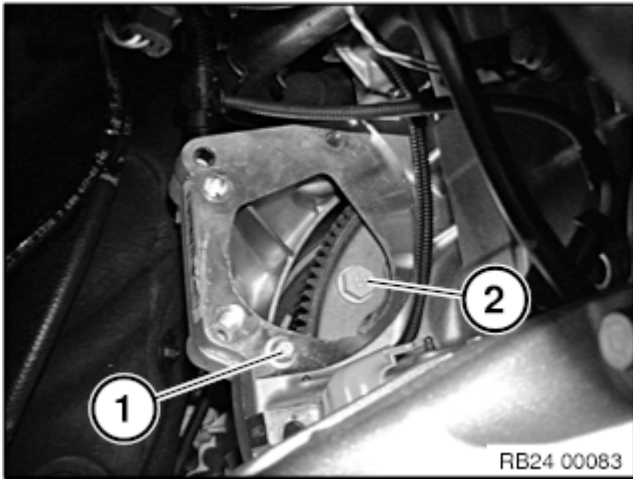
Release screws (1).
Tightening torque [24 11 6AZ](#).
Remove heat shield (2).



Release screw (1) from ground strap (2).
Tightening torque [24 11 7AZ](#).



Release screws (1).
Tightening torque [18 20 5AZ](#).



Release screw (1).

Tightening torque [24 00 1AZ](#).

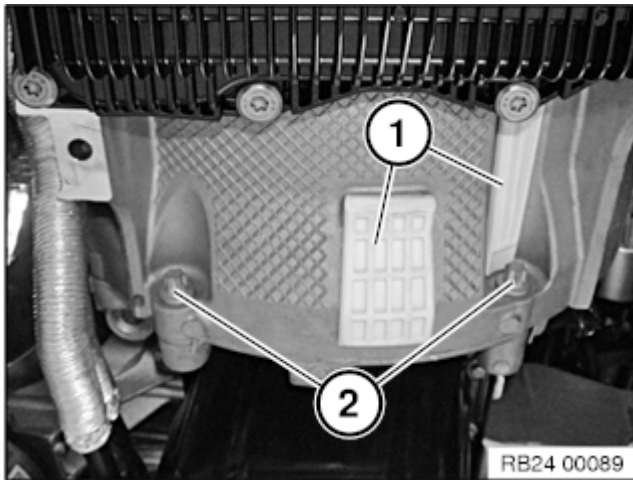
4 converter screws (2) with special tool [24 1 110](#) .

Tightening torque [24 40 1AZ](#).

Installation note:

Renew converter screws.

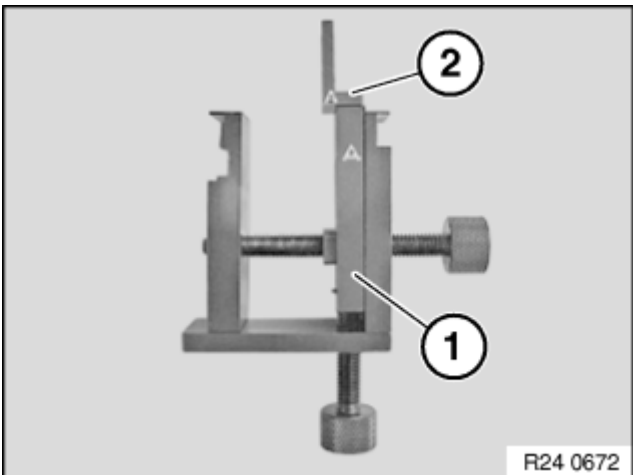
Remove any remaining adhesive residue from the thread.



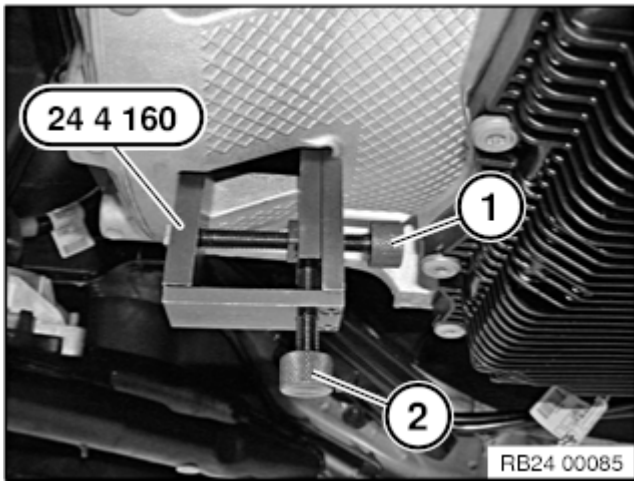
Remove covers (1).

Unfasten screws (2).

Tightening torque [24 00 1AZ](#).

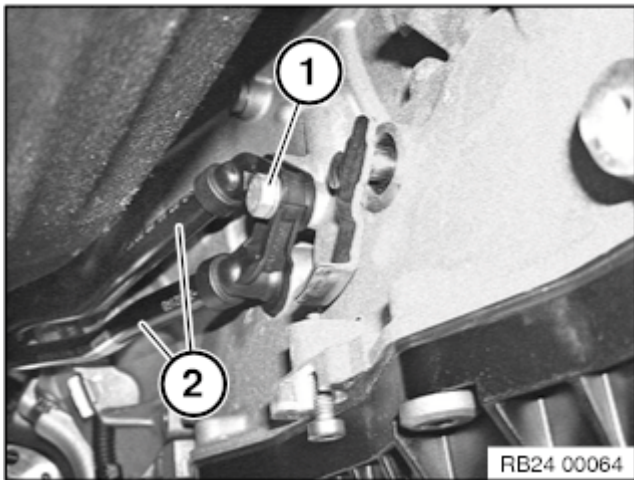


Prepare special tool (1) [24 4 161](#) with shaped element (2) [24 4 165](#) as pictured.



Insert special tool [24 4 160](#) into recess of transmission housing and clamp gently with screw (1).

Raise by turning screw (2) and clamp down. Then tighten down screw (1).



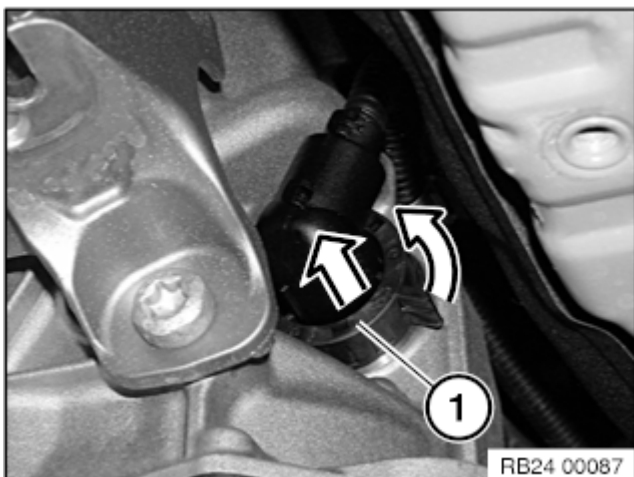
Release screw (1).

Disconnect hydraulic lines (2) to transmission oil cooler.

Tightening torque [17 22 1AZ](#).

Installation note:

Replace sealing rings.



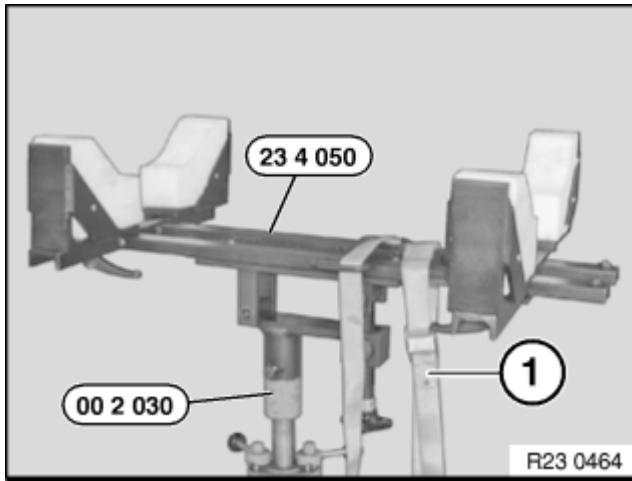
- Unlock and disconnect connector (1) by turning.
- Do not touch pins.
- Release cable from brackets.
- Insert special tool [24 2 390](#) in sealing cup.

Tasks are described in Gearbox holder.

[Notes on mechatronics](#)

Important!

Read and comply with important note.

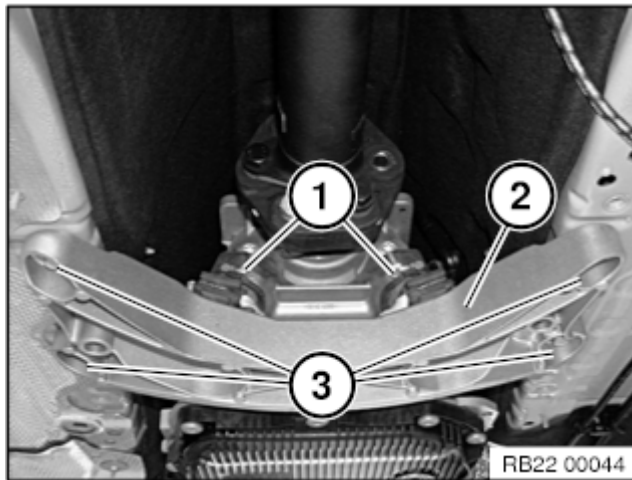


Supporting transmission:

Support transmission with special tools [23 4 050](#) , [00 2 030](#) .

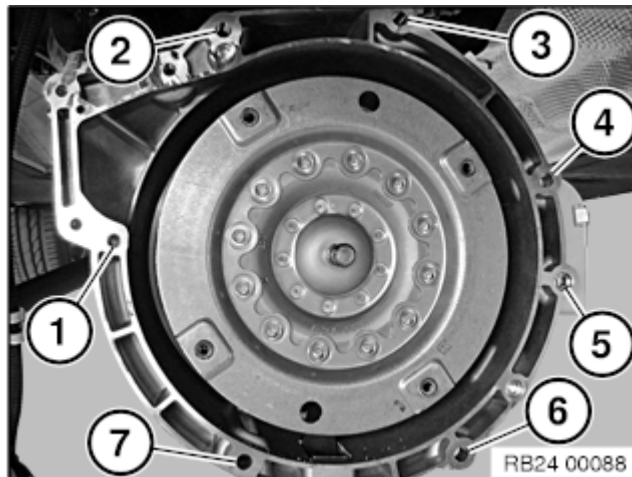
Secure transmission to mounting with tensioning strap (1).

Tasks are described in [Transmission bracket](#).



Release screws (3).

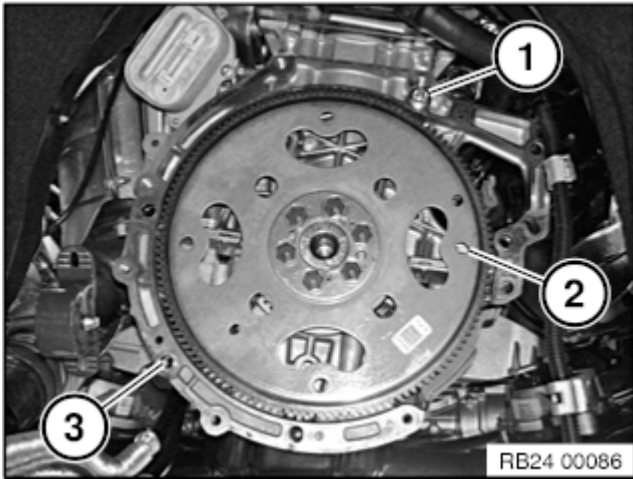
Tightening torque [22 32 3AZ](#).



Release screws.

Tightening torque [24 00 1AZ](#).

Remove transmission.



Installation note:

Bore hole (2) in drive plate must be accessible from opening for the starter. Check that fitting sleeves (1, 3) are correctly seated.

Replace damaged fitting sleeves.



Installation note:

Rotate torque converter until bore hole in torque converter is flush with bore hole in drive plate.

Flange automatic transmission to engine.

24 00 039 (GA8HP50Z)

Removing and installing automatic transmission



Special tools required:

- [00 2 030](#)
- [00 9 120](#)
- [00 9 130](#)
- [11 8 910](#)
- [23 4 050](#)
- [24 2 390](#)
- [24 4 160](#)
- [24 4 161](#)
- [24 4 164](#)
- [11 6 480](#)
- [24 1 110](#)



Caution!

To prevent heavy damage to the engine block, the protruding thread of the transmission bolts absolutely must be checked for damage and corrosion **before removal**.

If there are signs of corrosion, the rust must be removed and the threads must be cleaned **before removal**.

Replace rusted, damaged screws.

Failure to comply with this instruction will result in serious damage to the engine block and transmission.



Caution!

- Do not let skin come in contact with transmission oil and do not inhale fuel vapours.
- Wear protective gloves.
- Ensure adequate ventilation.



Caution!

After completion of repair work, check [transmission oil level](#).

[Use only the approved transmission oil.](#)

Failure to comply with this requirement will result in serious damage to the automatic transmission!



Necessary preliminary work:

- Clamp off [battery earth lead](#).
- Remove underbody protection at front and rear.
- Remove [exhaust system](#).
- Remove heat shields.
- Remove [starter motor](#).
- Partially remove [propeller shaft](#).
 - Disconnect propeller shaft at transmission.
 - Release centre mount.
 - Tie up the propeller shaft to the vehicle underbody.

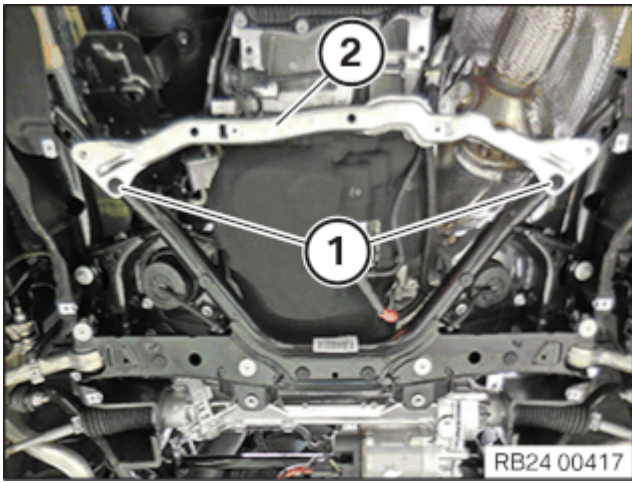
Attention:

Bending the propeller shaft by an excessive angle can cause premature damage to the joint/propeller shaft!

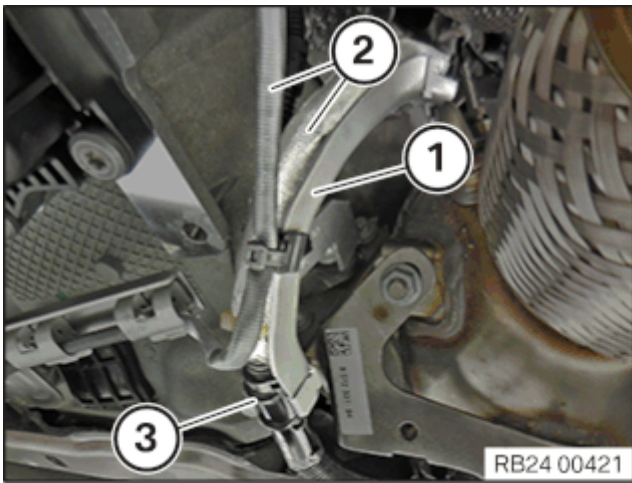
- Support engine with lifter when removing transmission.



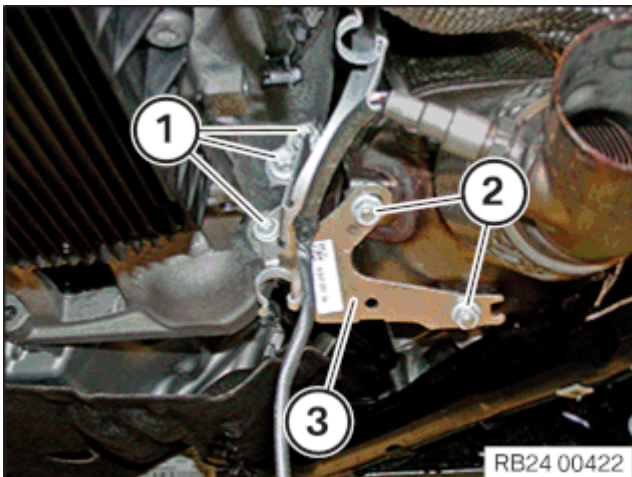
Removal:



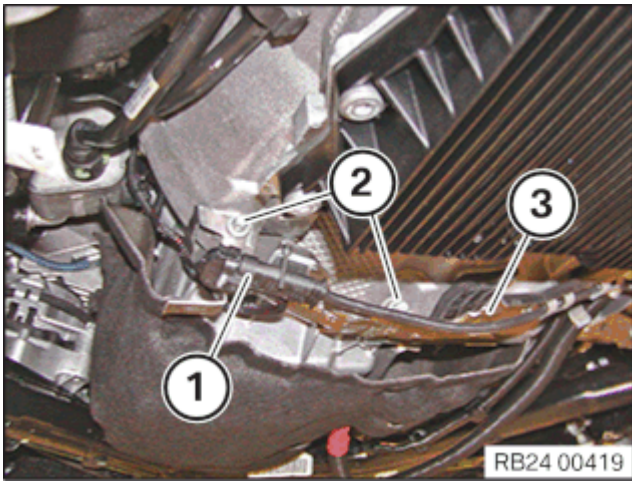
Loosen screws (1).
Remove reinforcement bar (2).



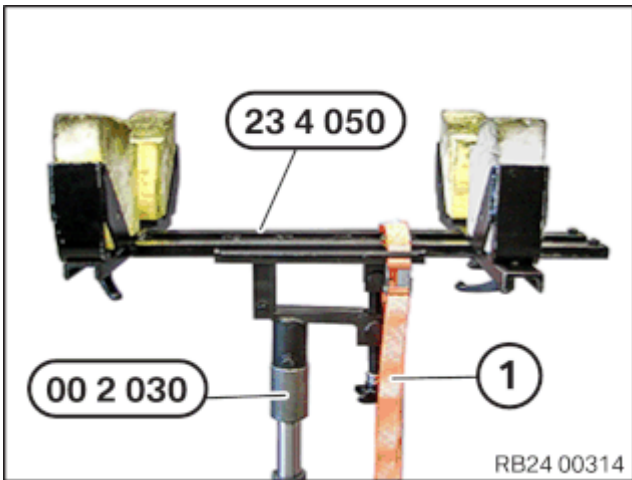
Disconnect connector (3).
Disconnect the cables (2) from the holder (1)
and the transmission.



Release screws (1).
Unscrew nuts (2).
Remove bracket (3).



- Disconnect connector (1).
- Unfasten screws (2).
- Take off holder (3).

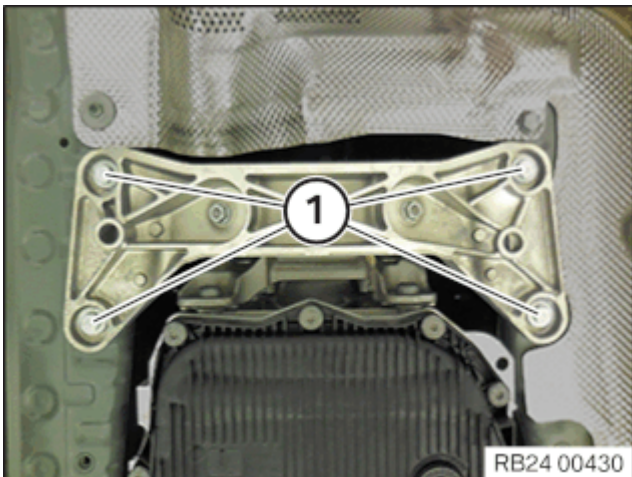


Supporting transmission:

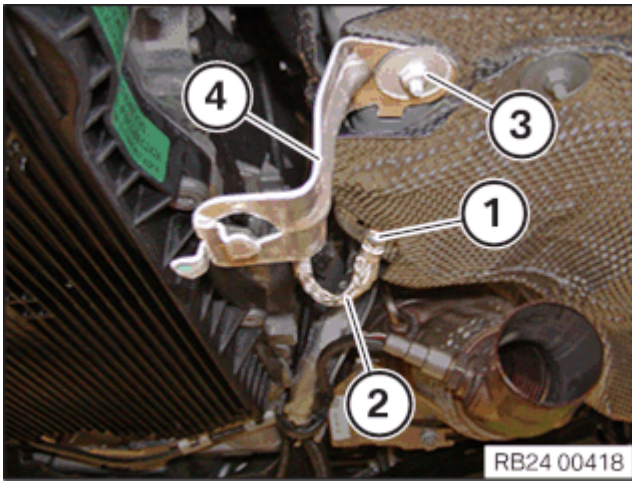
Support transmission with special tool [23 4 050](#) , [00 2 030](#) .

Secure transmission to mounting with tensioning strap (1).

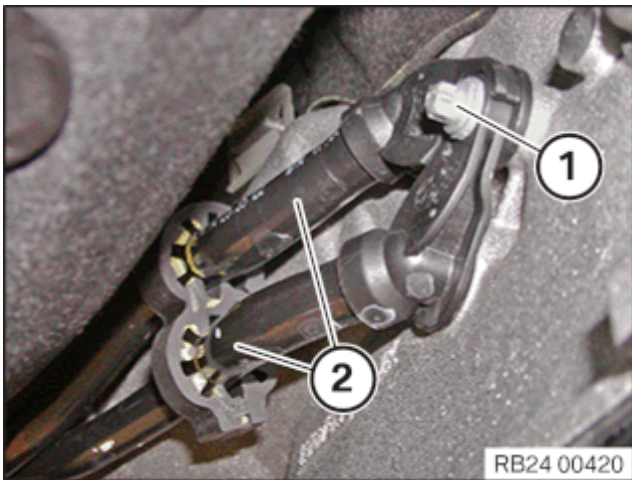
Tasks are described in [gearbox holder](#).



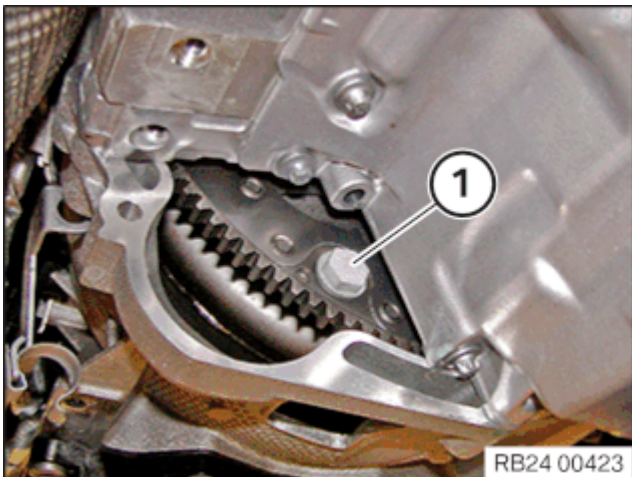
- Release screws (1).
- Release cross member from body.



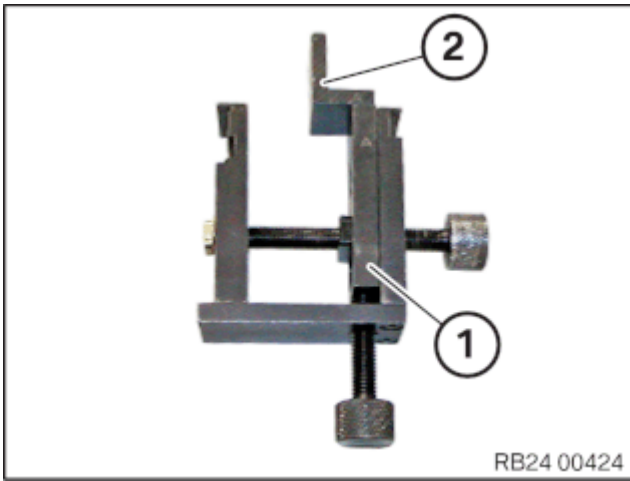
- Slacken nut (1).
- Release ground strap (2) from body.
- Unscrew nut (3).
- Remove holder (4).



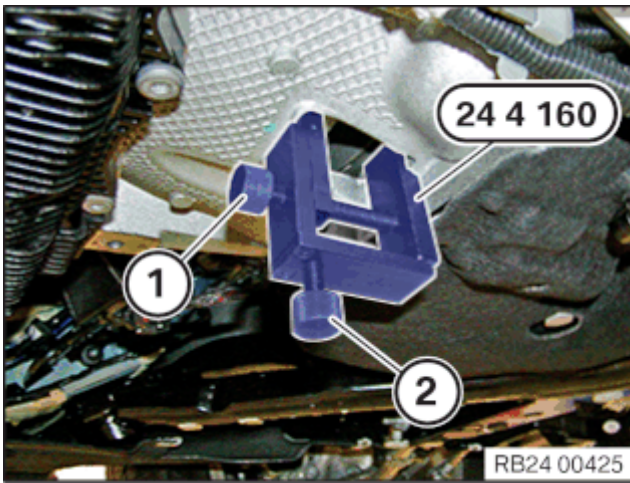
- Release screw (1).
- Disconnect hydraulic lines (2) to transmission oil cooler.



- Crank engine with special tool [11 6 480](#) at the vibration damper in direction of rotation until screw (1) is visible in the recess.
- Release all 6 bolts of torque converter with special tool [24 1 110](#) .

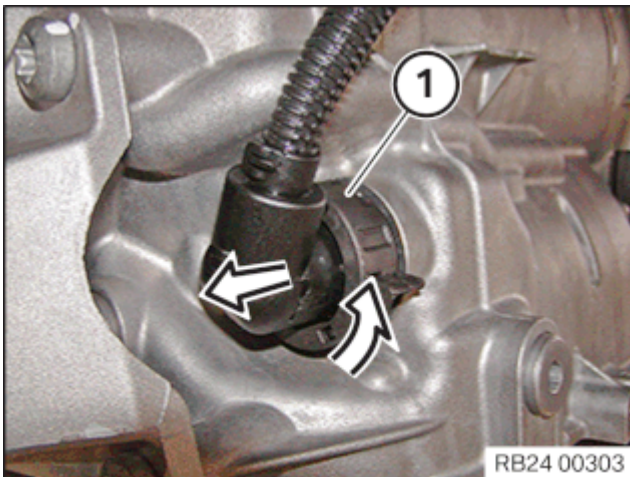


Prepare special tool (1) [24 4 161](#) (A) with the shaped element (2) [24 4 164](#) as shown.



Insert special tool [24 4 160](#) into recess of transmission housing and clamp gently with screw (1).

Raise by turning screw (2) and clamp down. Tighten screw (1).



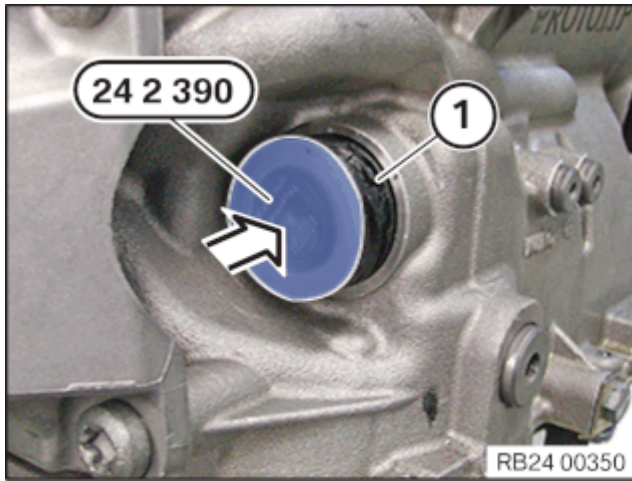
- Unlock and disconnect connector (1) by turning.
- Do not touch pins.
- Loosen all cable clips.

Operations are described in:

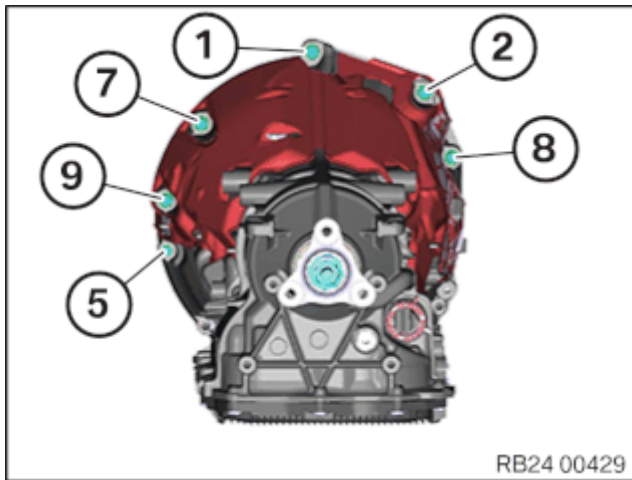
[Notes on mechatronics](#)

Caution!

Read and comply with important note.



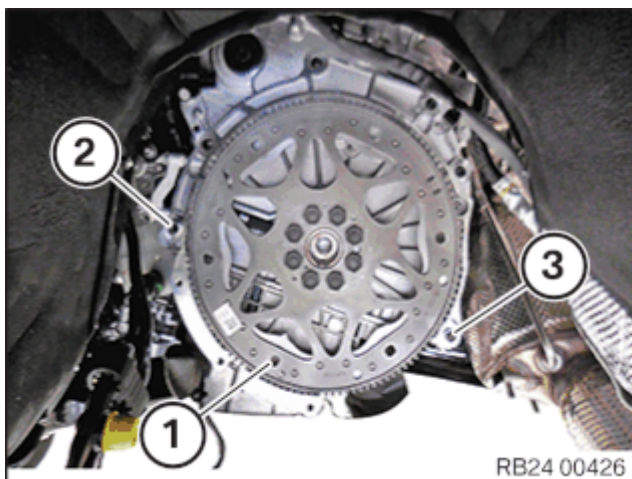
Insert special tool [24 2 390](#) in the sealing sleeve.



Loosen screws.



Installation:



Bore hole (1) in drive plate must be accessible from recess for the starter.

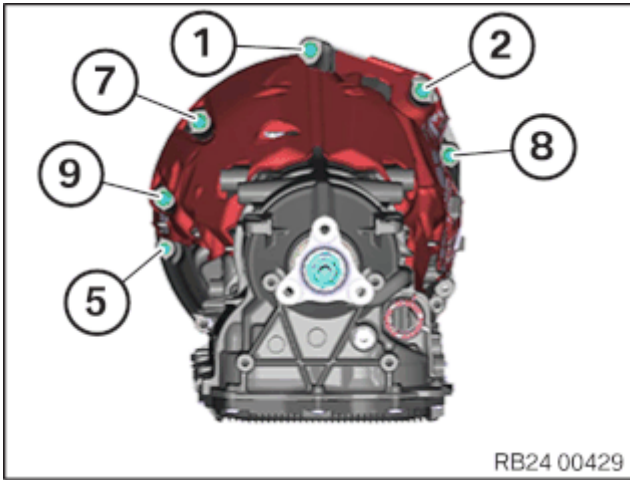
Check dowel sleeves (2) and (3) for correct seating.

Replace damaged fitting sleeves.

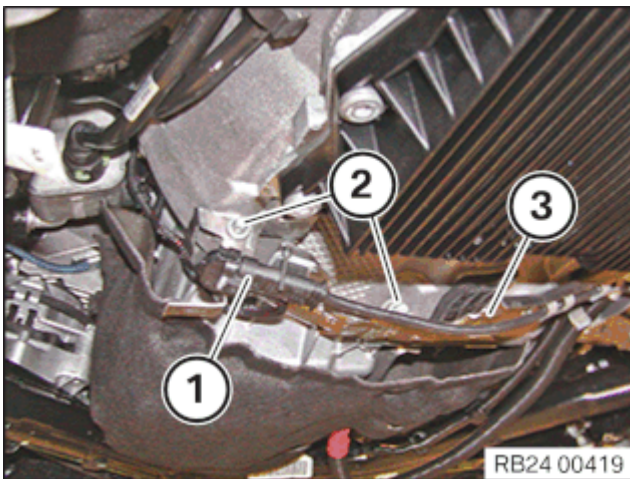


Transmission flange-mount.

Rotate torque converter until bore hole in torque converter is flush with bore hole in drive plate.



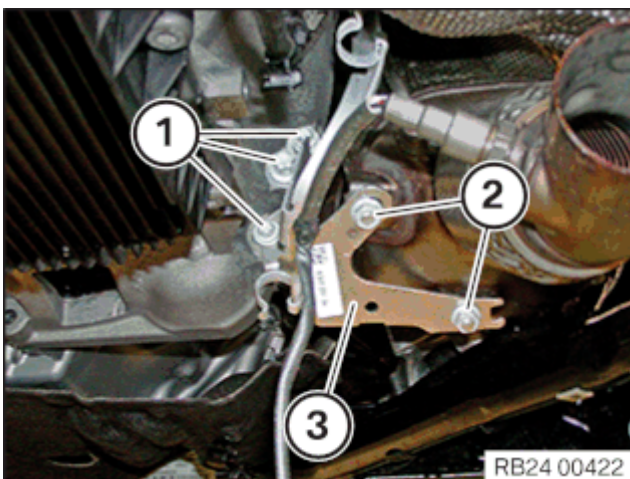
Insert screws and tighten.



Attach holder (3).

Insert screws (2) and tighten.

Connect the connector (1).



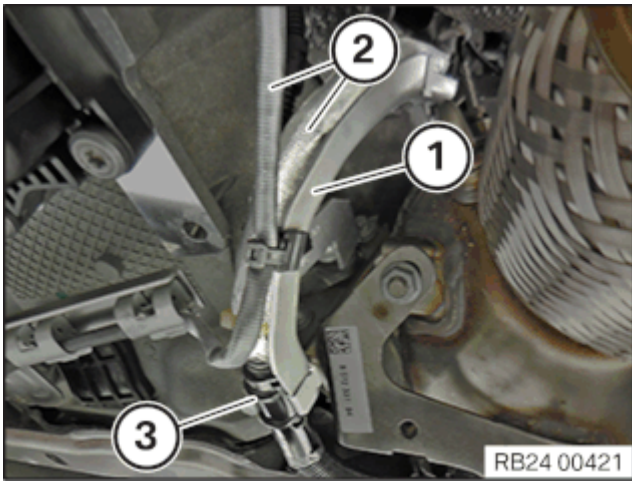
Install holder (3).

Insert screws (1) and tighten.

Tightening torque [24 00 1AZ](#).

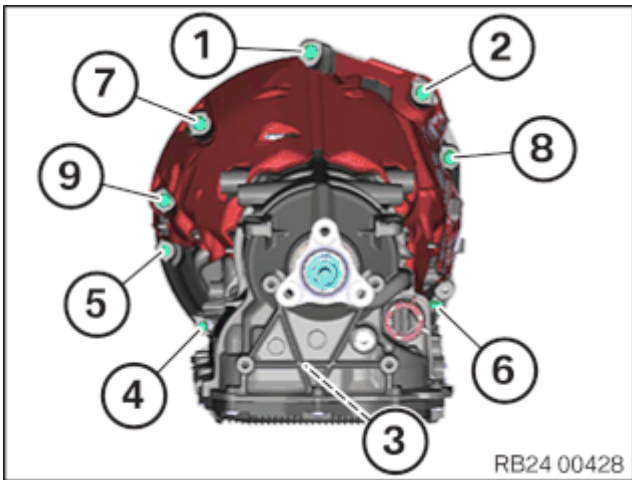
Insert nuts (2) and tighten.

Tightening torque [18 30 3AZ](#).



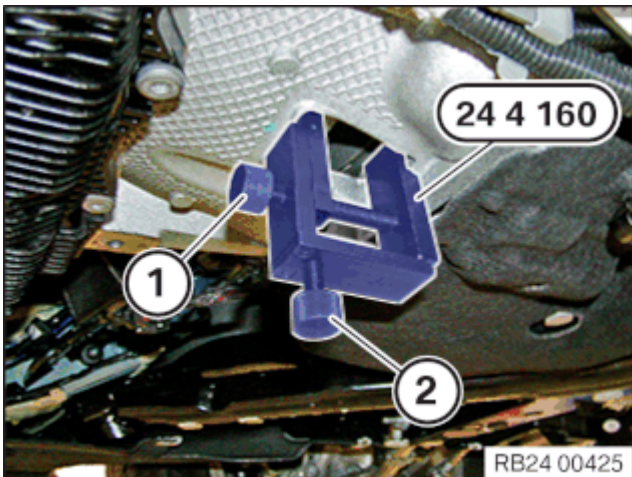
Connect lines (2) to holder (1) and transmission.

Connect connector (3).



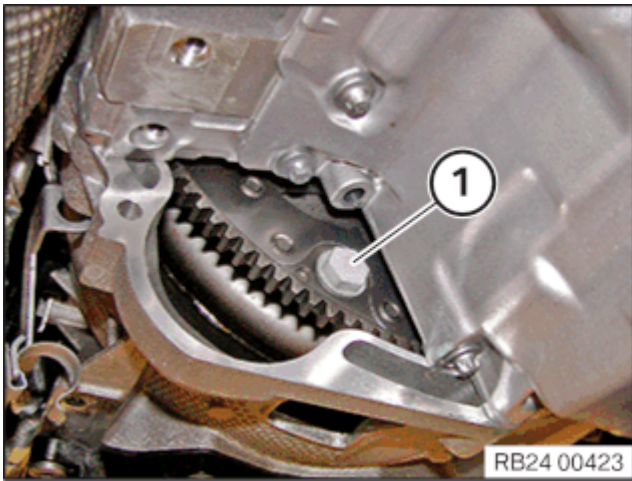
Tighten the screws.

Tightening torque [24 00 1AZ](#).



Unscrew screw (1) and screw (2).

Remove the special tool [24 4 160](#).

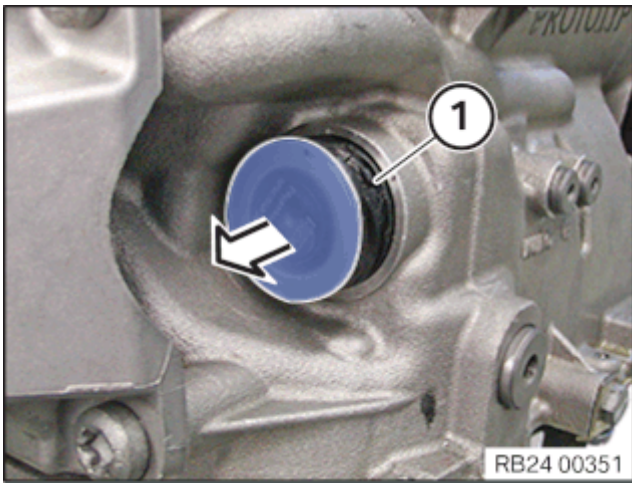


Parts: Renew screws.

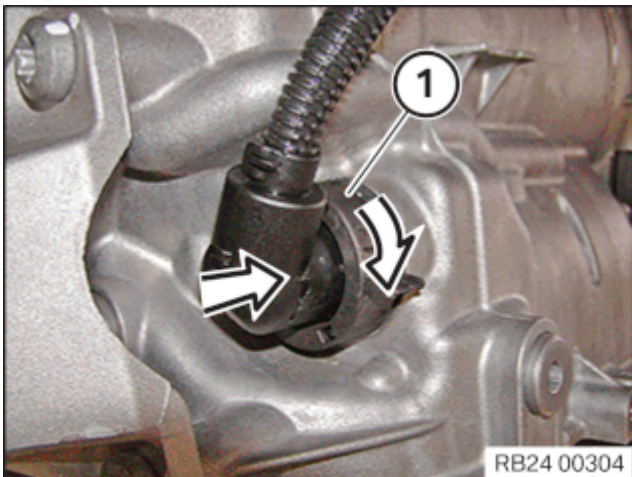
Crank engine with special tool [11 6 480](#) at the vibration damper in direction of rotation until screw (1) is visible in the recess.

Tighten all 6 bolts of torque converter with special tool [24 1 110](#).

Tightening torque [24 40 1AZ](#).



Remove special tool [24 2 390](#) from sealing sleeve.



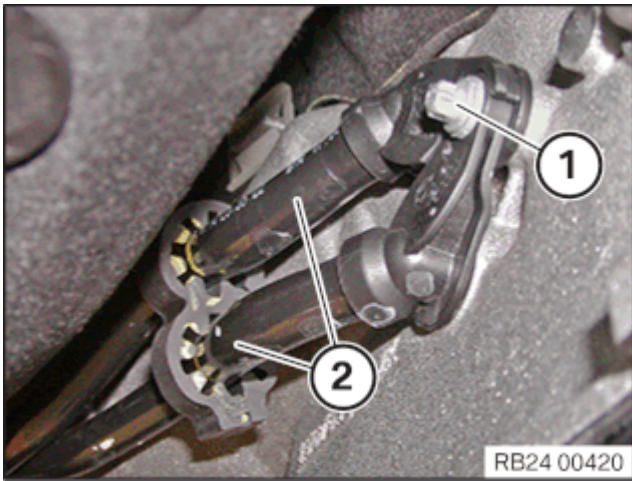
- Push on plug connector (1) and lock by turning.

Operations are described in:

[Notes on mechatronics](#)

Caution!

Read and comply with important note.



Caution!

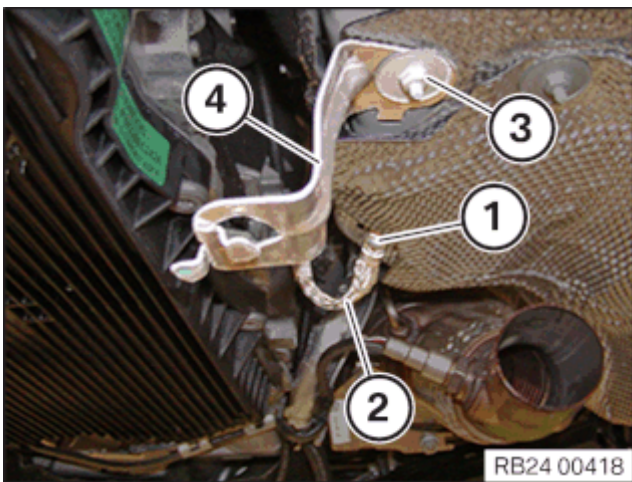
It is mandatory to use the screw **with washer M6x20**, also see BMW ETK!

Parts: Renew sealing rings.

Install hydraulic lines (2) on transmission.

Insert screw (1) and tighten.

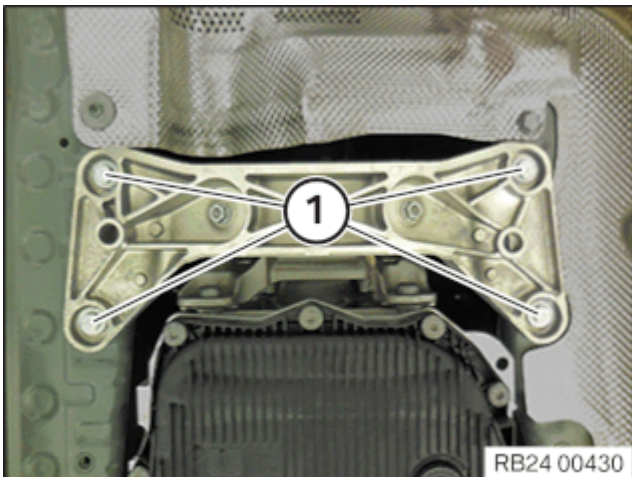
Tightening torque [17 22 1AZ](#).



Install ground strap (2).

Tighten screw (1).

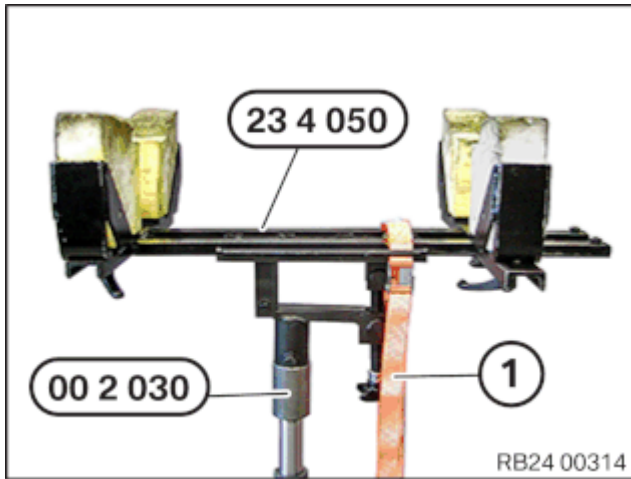
Tightening torque [24 11 7AZ](#).



Install the cross member.

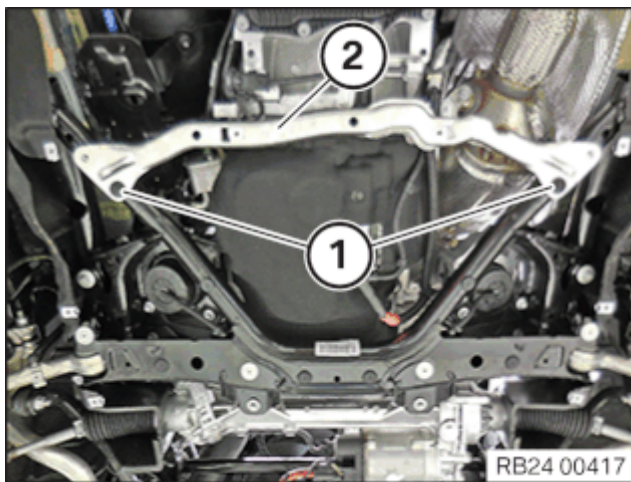
Insert screws (1) and tighten.

Tightening torque [22 32 3AZ](#).



Release tensioning strap (1) from transmission.

Remove special tool [23 4 050](#) , [00 2 030](#) from the transmission.



Fit reinforcement bar (2).

Insert screws (1) and tighten.



Required follow-up work:

- Install [propeller shaft](#).
- Install [starter](#).
- Install heat shields.
- Install [exhaust system](#).
- Install front and rear [underbody protection](#).
- Connect [battery earth lead](#).