

Note:

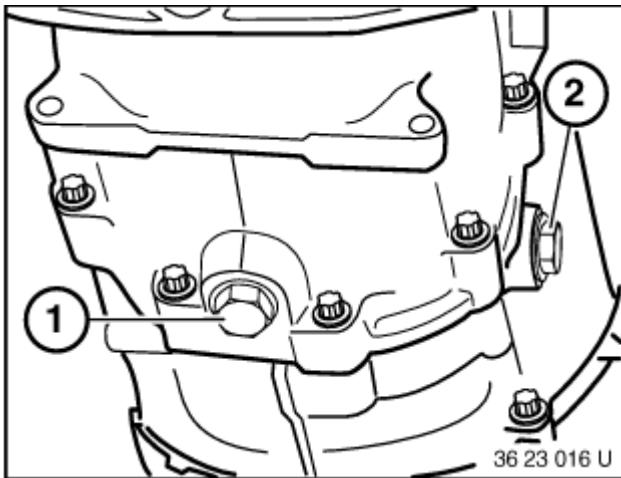
Gearbox must be at normal operating temperature.

Gear oil:

- Refer to BMW Service Operating Fluids.

Filling capacities:

- [Refer to Technical Data.](#)



Draining gear oil:

- Release oil drain plug (1) and filler plug (2).
- Clean oil drain plug (1) and screw in. Tightening torque [23 00 4AZ](#).

Fill transmission with ATF.

- Pour in gear oil until overflowing.
- Tighten in filler screw (2). Tightening torque: [23 00 4AZ](#).



Special tools required:

- [11 0 222](#)
- [11 0 224](#)
- [11 8 731](#)
- [11 8 732](#)



- Read out fault memory of DME control unit
- Check stored faults
- Rectify faults
- Delete fault memory



Important!

High tension - mortal danger!

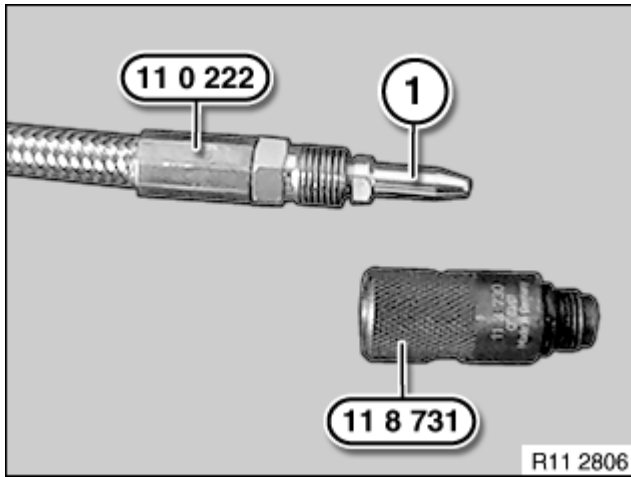
Interrupt power supply to ignition coils.

Read and comply with notes on compression pressure check.



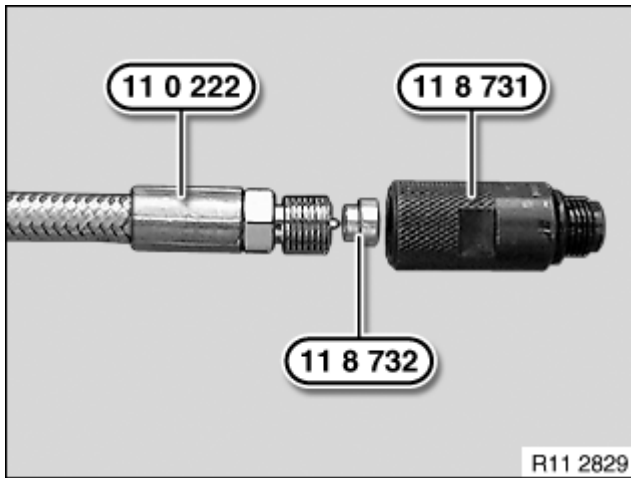
Necessary preliminary tasks:

- Remove [spark plugs](#)

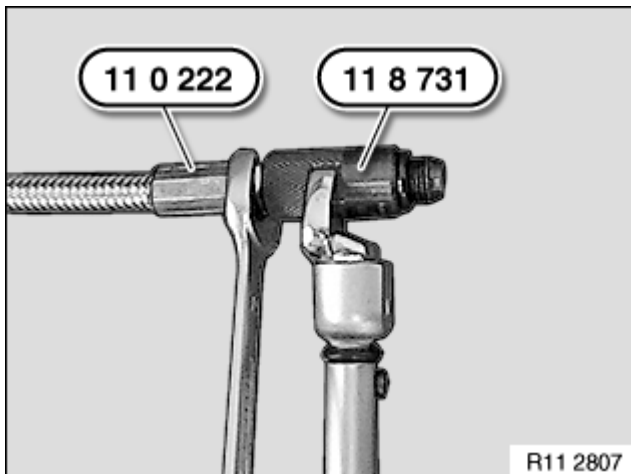


Unscrew tip (1) from special tool [11 0 222](#) .**Important!**

Then check the Schrader valve that is now visible for secure seating.

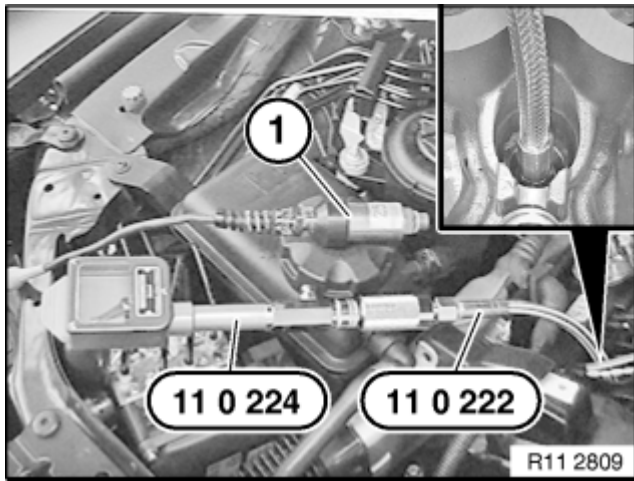


Prepare special tool [11 0 222](#) in conjunction with [11 8 732](#) and [11 8 731](#) .



Screw special tool [11 0 222](#) into special tool [11 8 731](#) to 10 Nm.**Important!**

Oil thread on special tool [11 8 731](#) .



Screw special tool [11 0 222](#) by hand into spark plug thread and connect special tool [11 0 224](#) .

Use adapter (1) if the compression pressure is being checked with the BMW diagnosis system.

Depress accelerator pedal and actuate starter until compression pressure stops rising.

- [Nominal values](#), compression pressure



Assemble engine

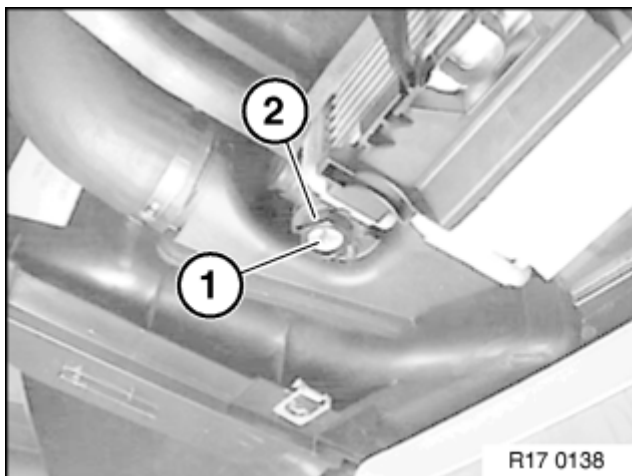
Delete fault memory.

**Special tools required:**

- [11 0 070](#)

**Necessary preliminary tasks:**

- Remove [intake silencer housing](#).
- Remove [microfilter housing](#) lower section.
- Remove intake [plenum](#).
- [Remove transmission](#).
- Loosen the [air conditioning compressor](#) and tie to the side (A/C wiring will remain connected).
- Remove the holder for A/C wiring.
- Disconnect plug connections from engine wiring harness to electronics box.
- Remove [fuel injection pipe](#).
- Remove radiator.
- Disconnect the wire from the tank vent valve (on the tank).
- Detach all coolant hoses.

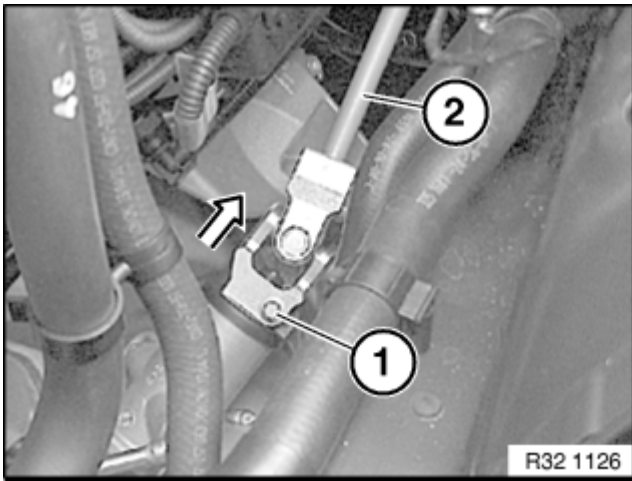


Open coolant drain plug (1) on radiator (2).
Drain and dispose of coolant.

Detach coolant hoses from cylinder head and from branch flange.

Installation note:

[Vent cooling system and check on watertightness.](#)



Release clamping bolt (1) on steering shaft lower part (2).

Move steering wheel to straight-ahead driving position and remove the ignition key.

Detach lower section of steering shaft from steering box in direction of arrow.

Detach lower section of steering shaft from steering column.

Installation note:

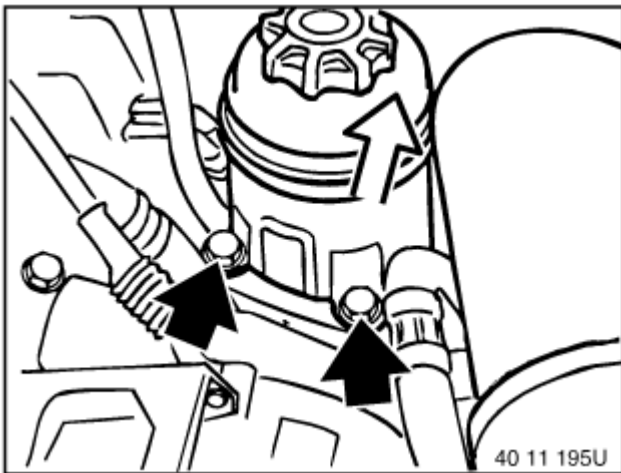
Clean thread to remove all remnants of screw locking adhesive.

Replace clamping bolt

Clamping screw must rest in groove of steering box.

Steering shaft can only be attached in one position on steering column and steering box.

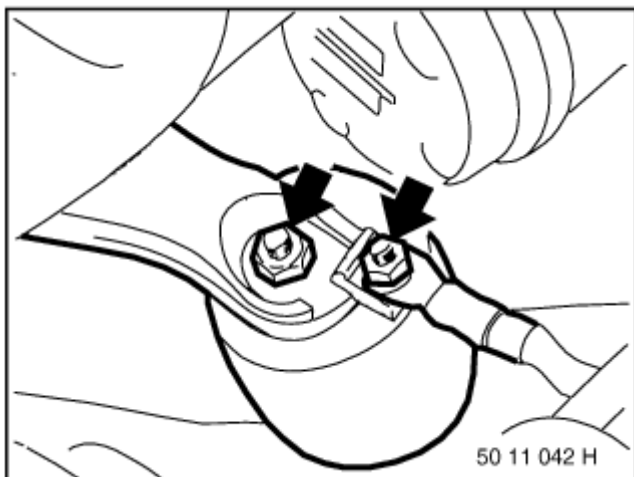
Tightening torque [32 31 1AZ](#).



Open oil reservoir of power steering pump and draw off fluid.

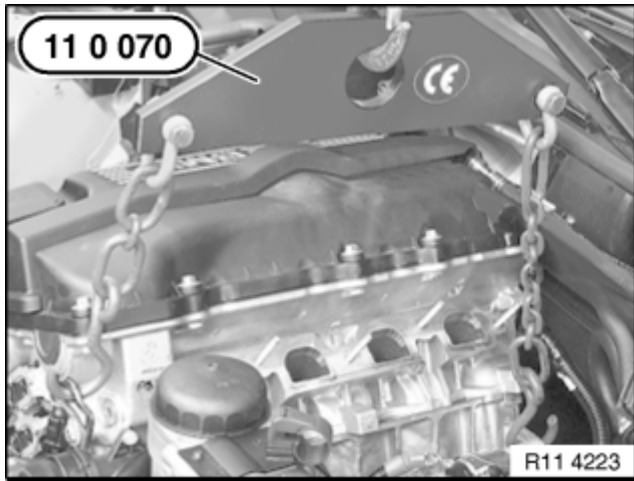
Detach fluid lines on power steering pump.

Release oil reservoir of power steering pump and tie to one side.



Loosen the ground cable on the right support shaft.

Unscrew left and right engine mounts.



Attach the engine to special tool [11 0 070](#) .

Important!

Only raise engine at suspension lugs provided for this purpose.

Lift out engine slowly and carefully.



Assemble engine.

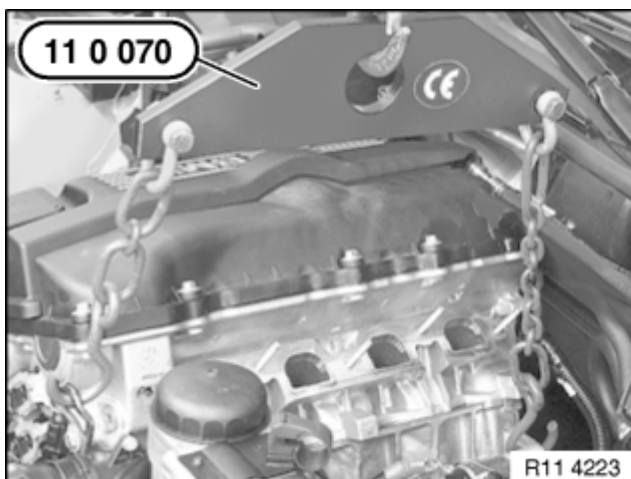
Check function of DME.

**Special tools required:**

- [11 0 070](#)

**Necessary preliminary tasks:**

- Detach B+ lead from battery.
- Remove and install [transmission](#).
- Remove and install both [tension struts](#).
- Remove and install [microfilter housing](#).
- Disconnect and connect [intake air manifold](#).
- Remove and install [drive belt](#).
- Remove and install [alternator](#).
- Remove and install [electronic fan cowl](#).
- Drain [coolant](#).
- Remove and install [radiator](#).
- Disconnect [fuel lines](#).
- Disconnect all plug connections of engine wiring harness in area of electronics box.
- Release all coolant hoses for heating.
- Release grounding strap on engine support arm.
- Release screw connection on [engine support arm](#) at top left and right.



Suspend engine from special tool [11 0 070](#) .

Important!

Only raise engine on locating lugs provided for this purpose.

Lift out engine slowly and carefully.



Assemble engine.

Check function of DME.



Special tools required:

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



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 work, check transmission fluid level.

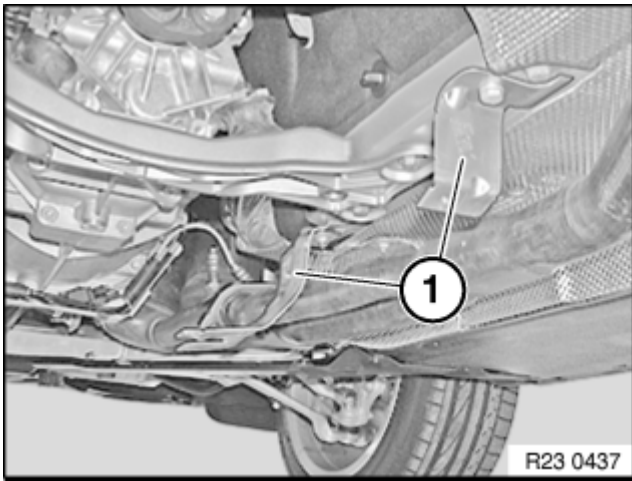
Use only the [approved transmission oil](#).

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

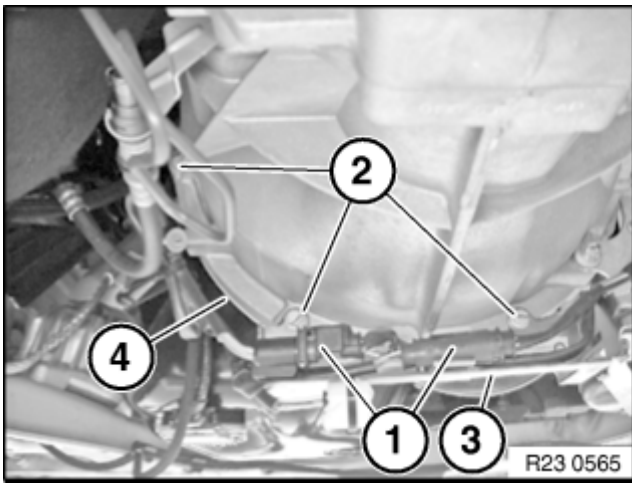


Necessary preliminary tasks:

- [Clamp off battery](#)
- Remove underbody protection
- Remove [front silencer](#)
- Remove heat shields with side brackets



Remove holder (1).



Disconnect connector (1).

Unfasten screws (2).

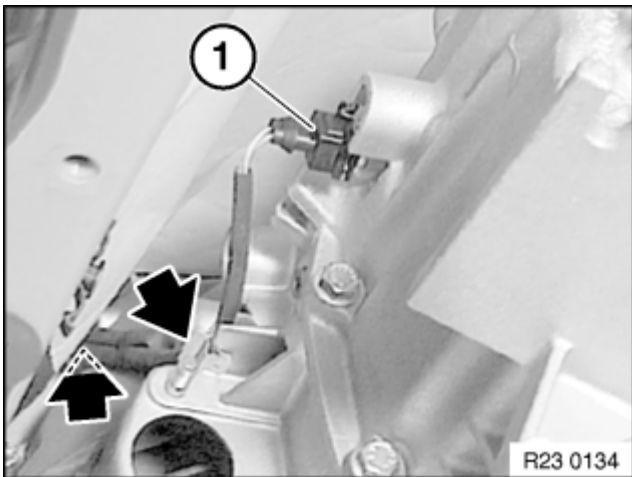
Remove bracket (3).

Remove cover plate (4).

Tightening torque [23 00 3AZ](#).

Note:

Graphic similar.

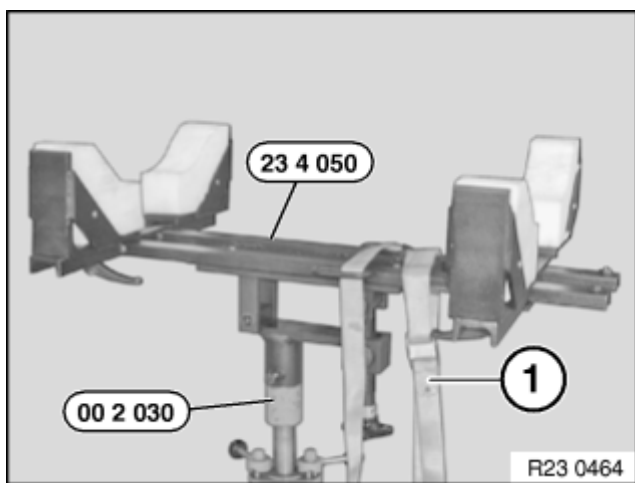


Disconnect plug connection (1) from reverse gear switch.

Detach cables from brackets on transmission.



- [Remove](#) propeller shaft from transmission.
- Release centre mount.
- **Note:**
- Bending the propeller shaft by an excessive angle can cause premature damage to the joint/propeller shaft!
- Tie up propeller shaft to underbody.
- Support engine with lifter when removing transmission.



Supporting transmission:

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

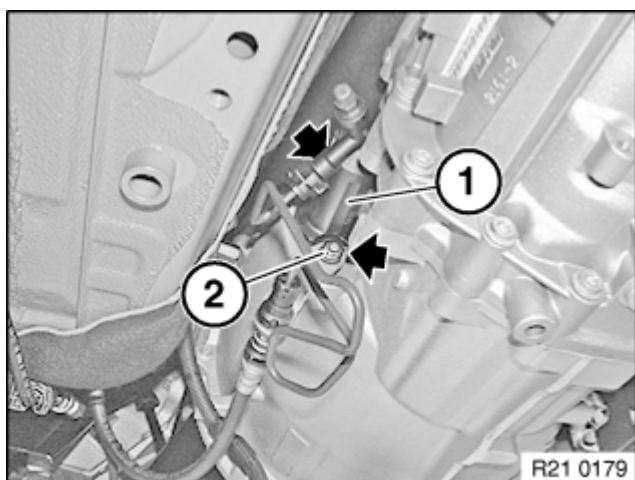
Secure transmission to mounting with tensioning strap (1).

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

After completion of work, check transmission fluid level.



Remove [transmission cross member](#).



Note:

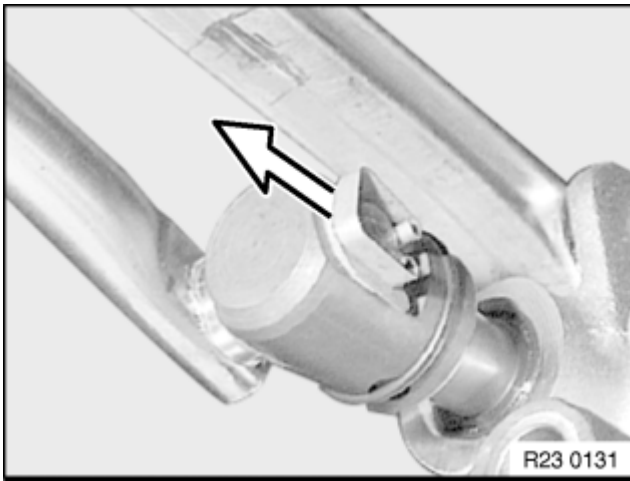
Pressure line of clutch slave cylinder remains connected.

Important!

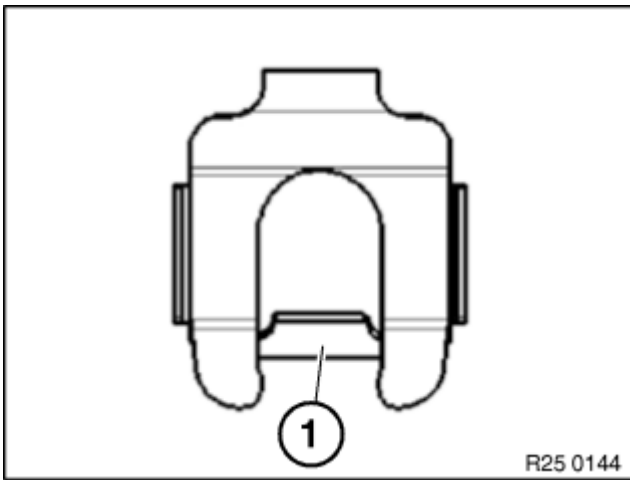
Relieve tension on clutch slave cylinder slowly; otherwise air will be drawn in through sealing cup.

Release nuts (2) and remove clutch slave cylinder (1).

Tightening torque: [21 52 5AZ](#).



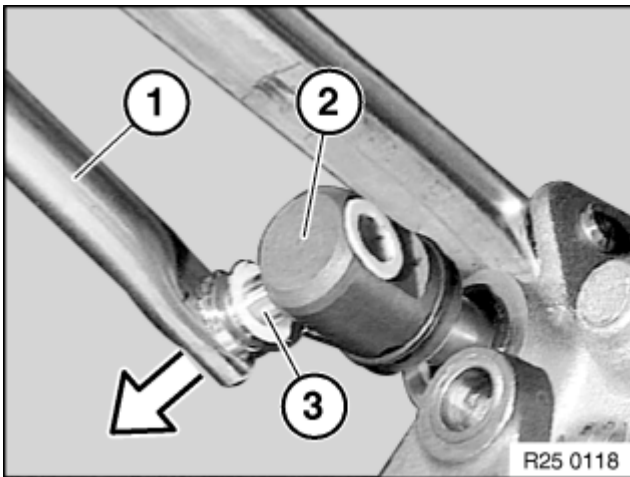
Detach retaining clip.



Important!

New retaining clips fitted as from 04.08.

Retaining clip must interlock captively with retaining web (1) **behind** gearshift rod pin.

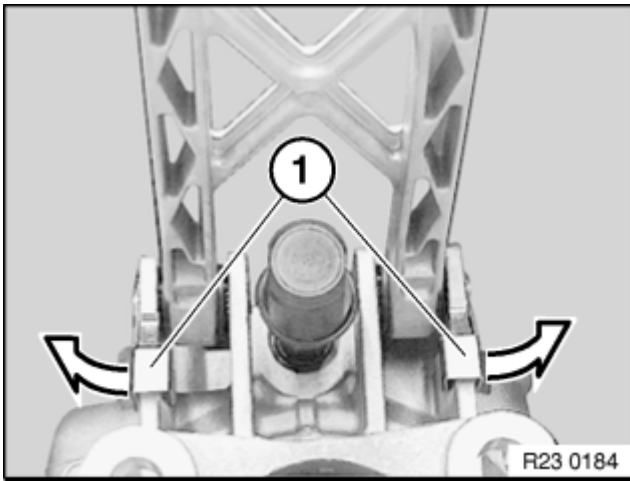


Pull gearshift rod (1) out of gearshift rod joint (2). **Installation note:**

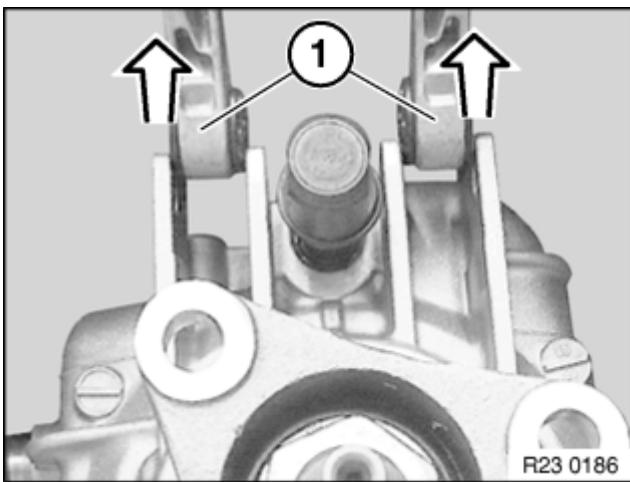
Grease gearshift rod pin (3).

Grease,

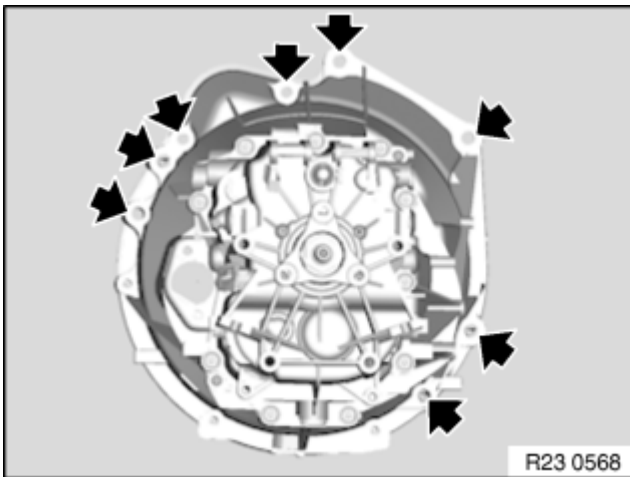
[Refer to BMW Service Operating Fluids.](#)



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



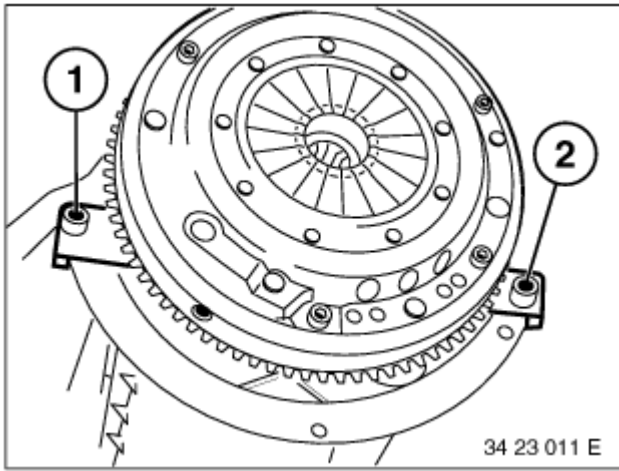
Lift out gearshift arm (1). **Installation note:**
Grease bearing journal.
Grease,
[Refer to BMW Service Operating Fluids.](#)



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

Important!

Do not suspend the transmission from the transmission drive shaft during removal and installation as this will deform the clutch disc. Pull out transmission towards rear and remove.

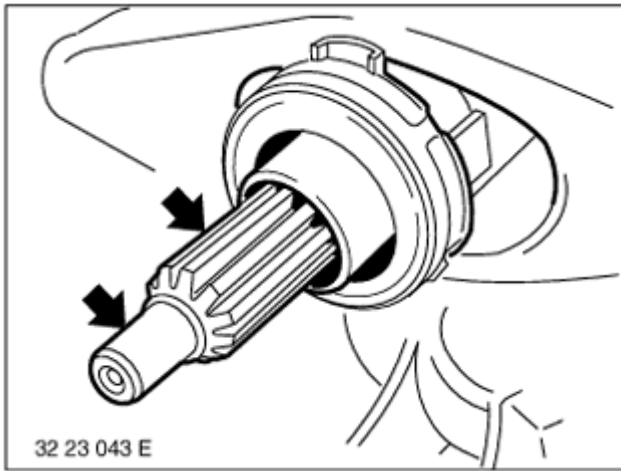


Installation note:

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

Replace damaged sleeves.

Ensure correct position of cover plate.

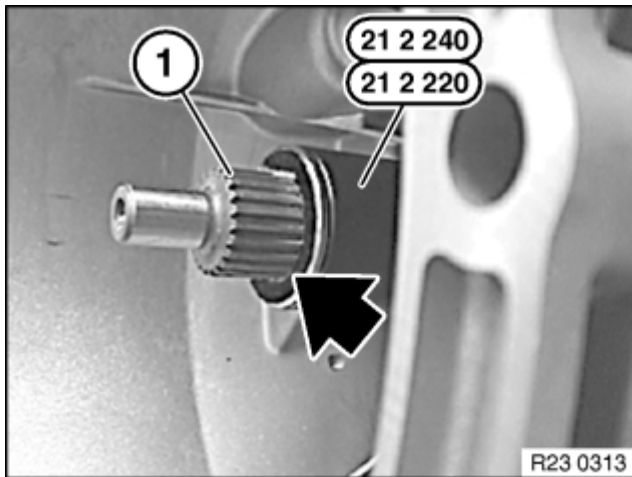


Installation note:

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

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 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.

**Special tools required:**

- [21 2 220](#)

**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.

**Note:**

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

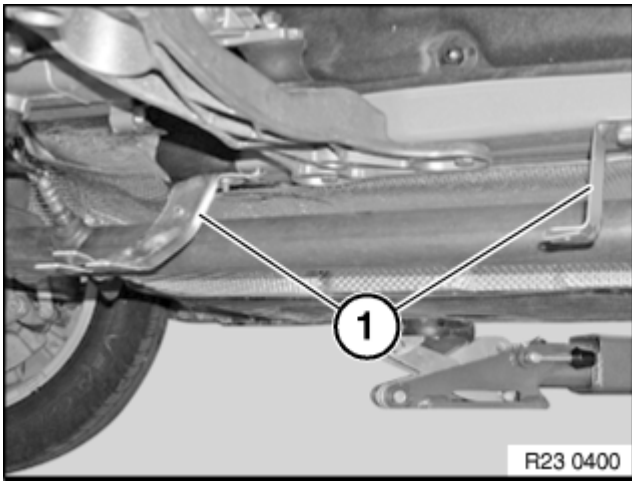
Important!

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

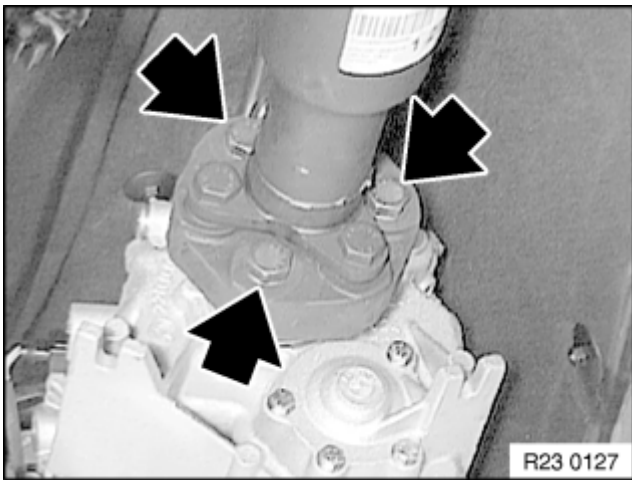
Failure to comply with this requirement will result in serious damage to the manual gearbox.

**Necessary preliminary tasks:**

- [Clamp off battery](#)
- Remove [front silencer](#)
- Remove heat shields



Remove holder (1).

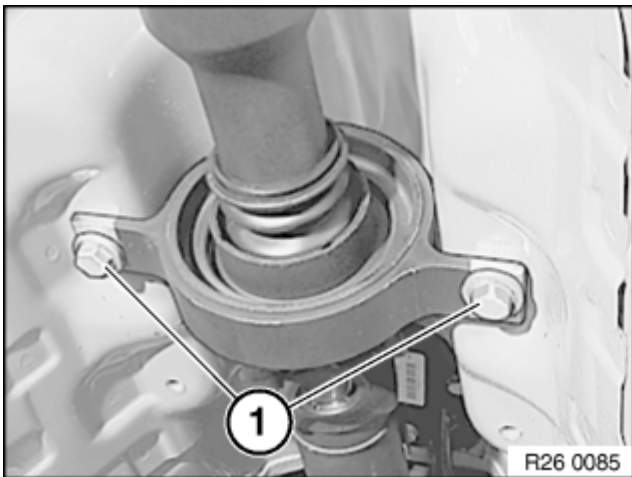


Release screws.

Tightening torque [26 11 1AZ](#).

Installation note:

Replace self-locking nuts.

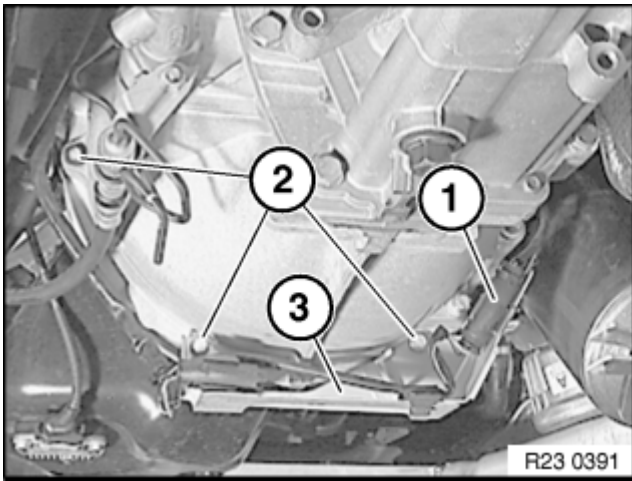


Grip propeller shaft firmly and release bolts (1).

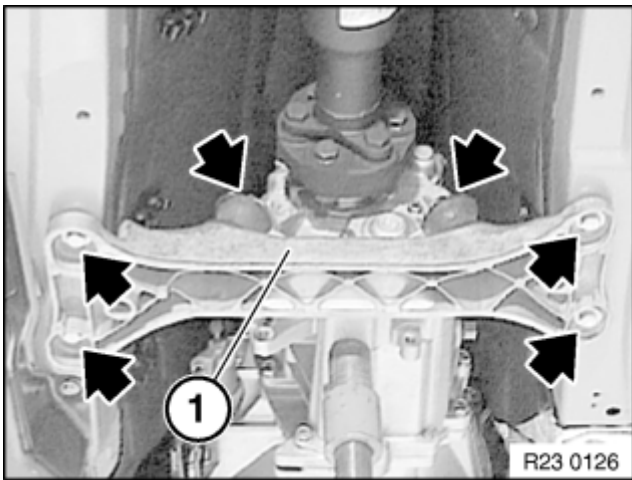
Tightening torque: [26 11 6AZ](#).

Bend propeller shaft downwards on centre bearing.

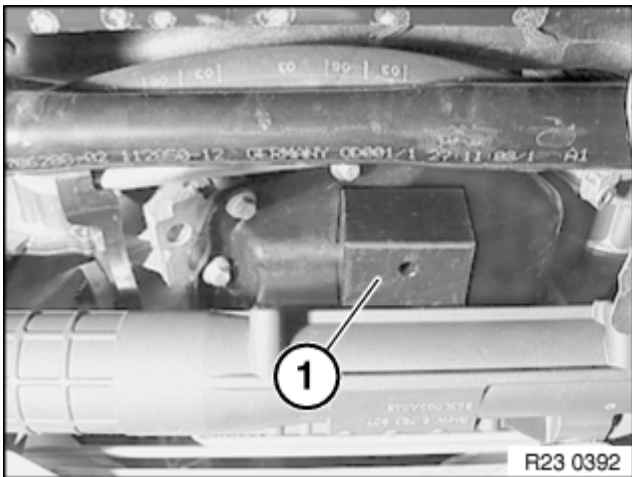
Detach propeller shaft from transmission output flange and tie back to side on vehicle underbody.



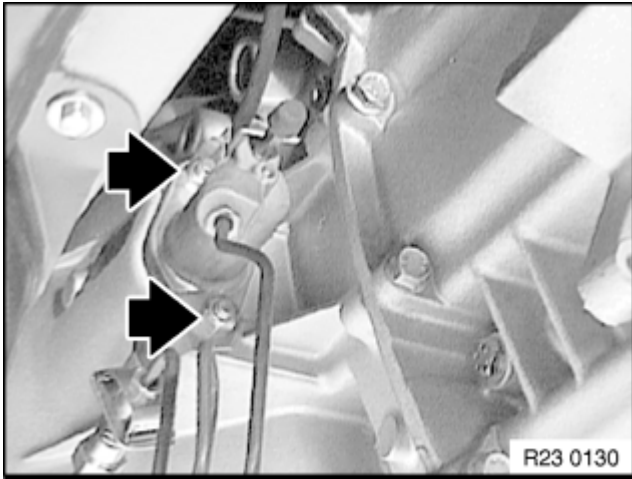
Disconnect plug connector (1).
Unfasten screws (2).
Remove cover plate (3).



Support transmission with workshop jack.
Remove screws and nuts.
Remove cross member (1)
Tightening torque [23 71 1AZ / 2AZ](#).



Lower transmission and lock with a suitable block (1) or workshop jack.

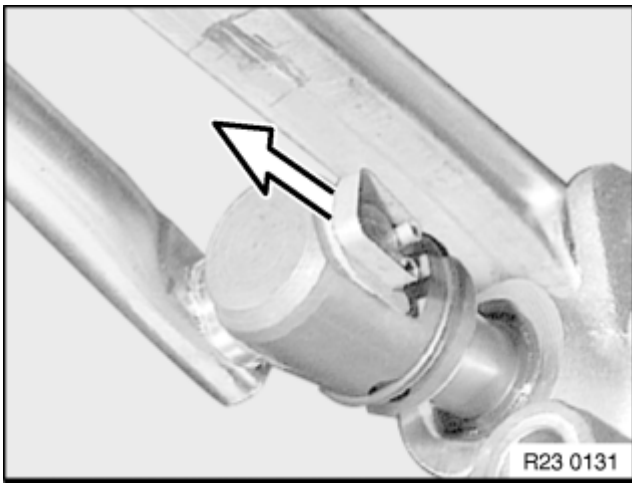


Important!

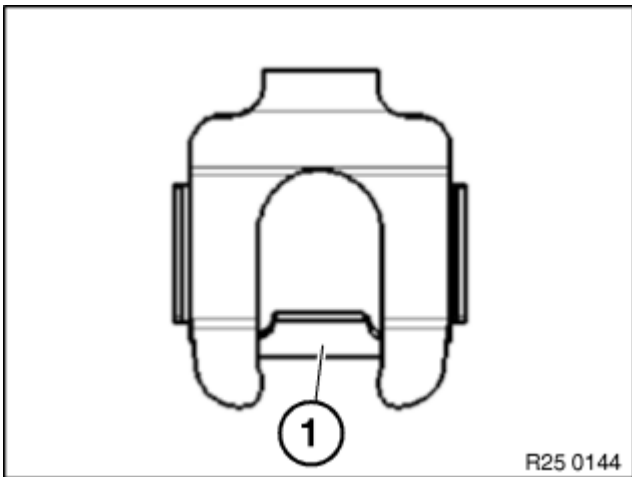
Relieve tension on clutch slave cylinder slowly when removing; otherwise air will be drawn in through sealing cup.

Release nuts and remove clutch slave cylinder. Pressure line remains connected.

Tightening torque [21 52 5AZ](#).



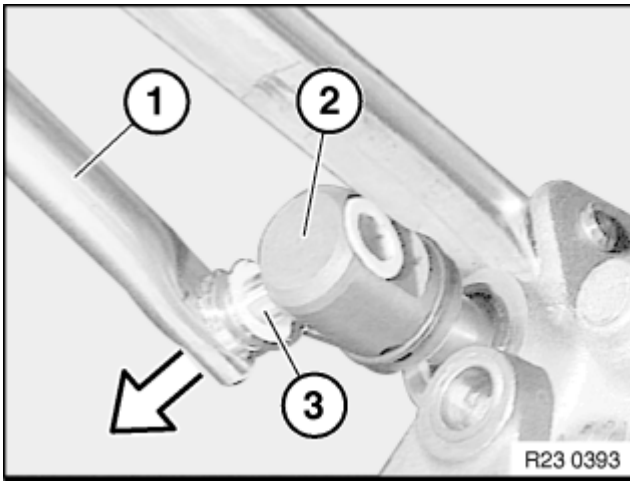
Detach retaining clip.



Important!

New retaining clips fitted as from 04.08.

Retaining clip must interlock captively with retaining web (1) **behind** gearshift rod pin.

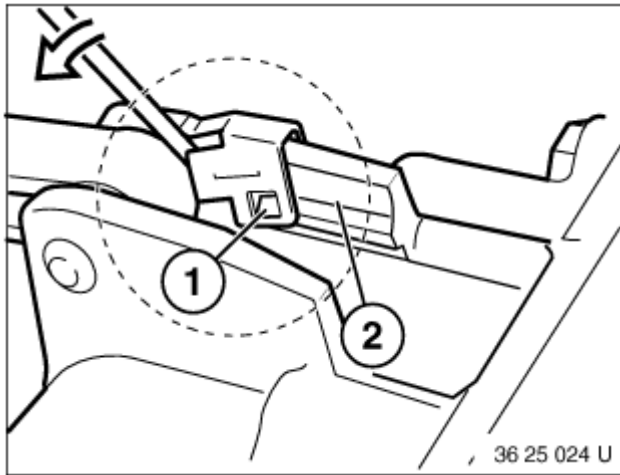


Pull gearshift rod (1) out of gearshift rod joint (2). **Installation note:**

Grease gearshift rod pin (3).

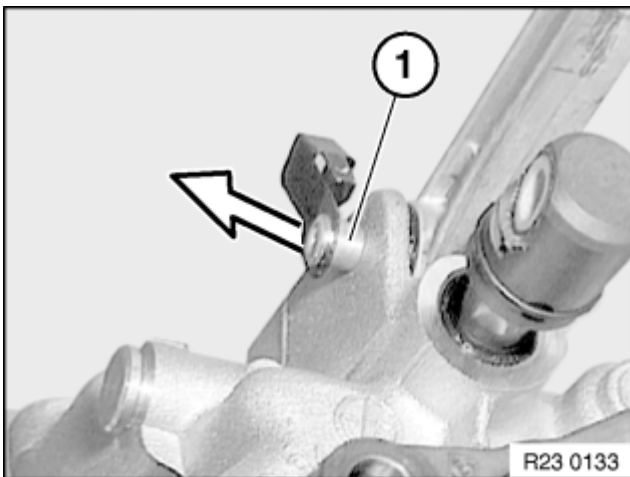
Grease:

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



Lever out spring (1) with a screwdriver from lug (2) on housing.

Tilt spring (1) upwards.

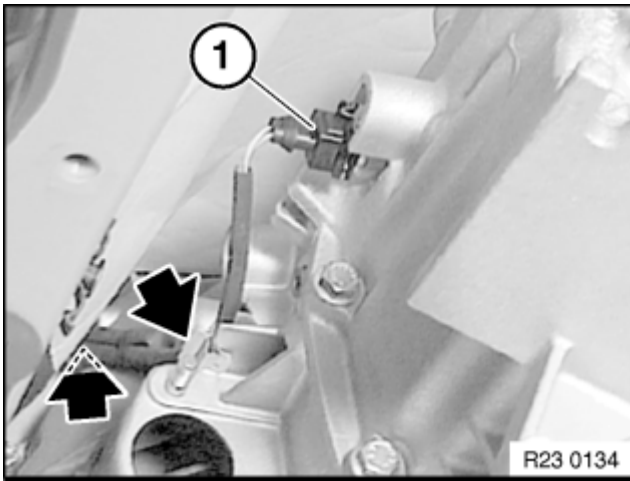


Remove bearing journal (1). **Installation note:**

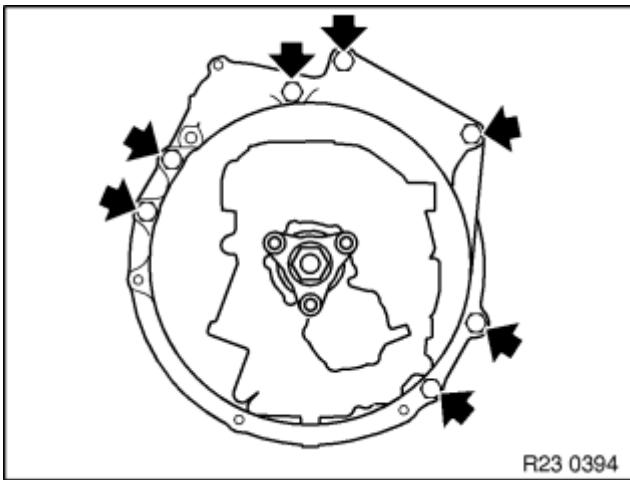
Grease bearing journals (1).

Grease:

[refer to Service Operating Fluids.](#)



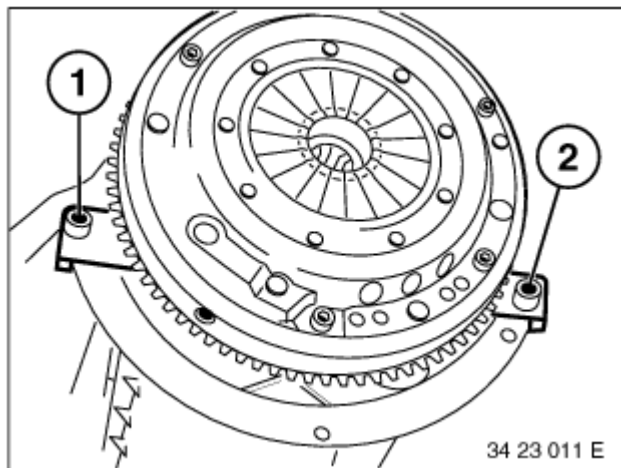
Detach connector (1) from reverse gear switch.
Detach cables from brackets on transmission.



Support transmission with workshop jack.
Release screws.
Tightening torque [23 00 1AZ](#) .
Pull transmission downwards and remove.

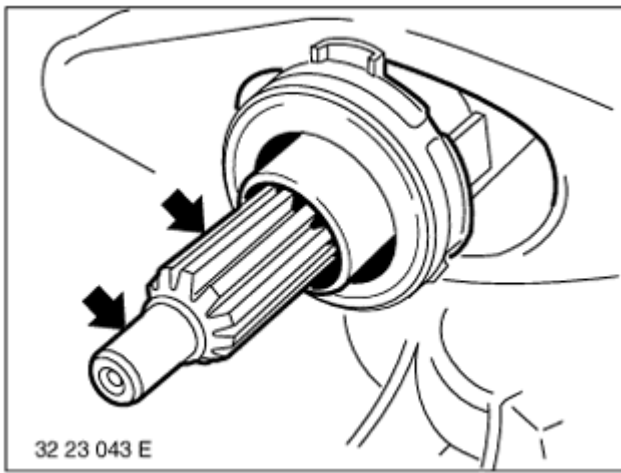
Important!

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



Installation note:

Pay attention to fitting bushes (1 ... 2),
replace if necessary.

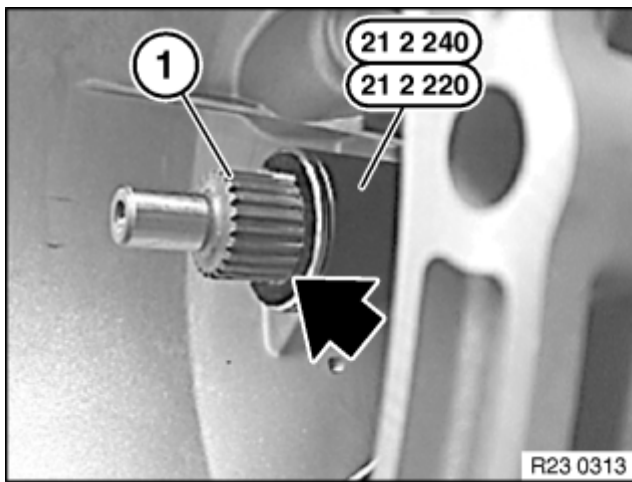


Installation note:

Check lubrication of transmission input shaft for sticky consistency. If grease is sticky, [replace clutch disc](#).

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

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



Installation note:

Greasing specification:

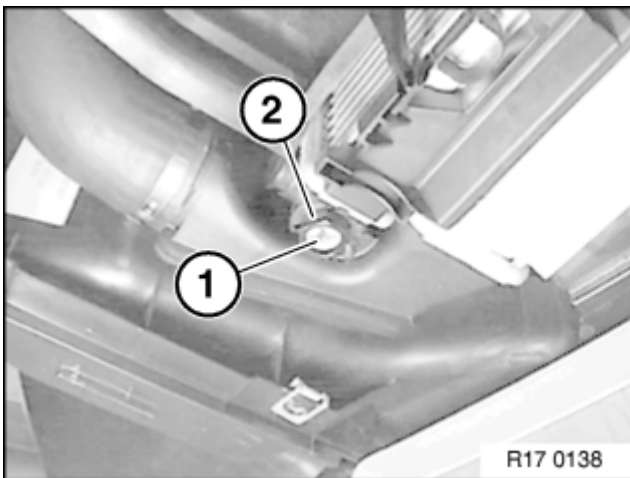
- Remove and clean [release bearing and release lever](#) (do not grease).
- Push on grease scraper ring [21 2 220](#) until limit position.
- Grease gearing (1) of input shaft with a brush.
- [Refer to BMW Service Operating Fluids](#)
- Detach grease scraper ring.

**Special tools required:**

- [11 0 070](#)

**Necessary preliminary tasks:**

- Disconnect battery
Follow [instructions for disconnecting and connecting](#) battery
- Remove [transmission](#)
- Detach A/C compressor and tie up to one side (A/C lines remain connected).
- Remove holder for A/C lines
- Disconnect plug connections from engine wiring harness to electronics box
- Release steering spindle
- Release suction jet pump
- Remove [intake air manifold](#)
- Remove [fuel rail](#).
- Remove [fan cowl](#)
- Remove [coolant pump](#)
- Disconnect line from tank venting valve (tank side)
- Release all coolant hoses

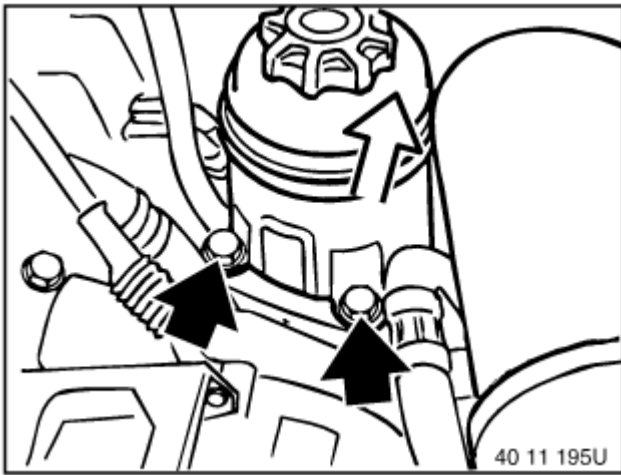


Open coolant drain plug (1) on radiator (2).
Drain and dispose of coolant.

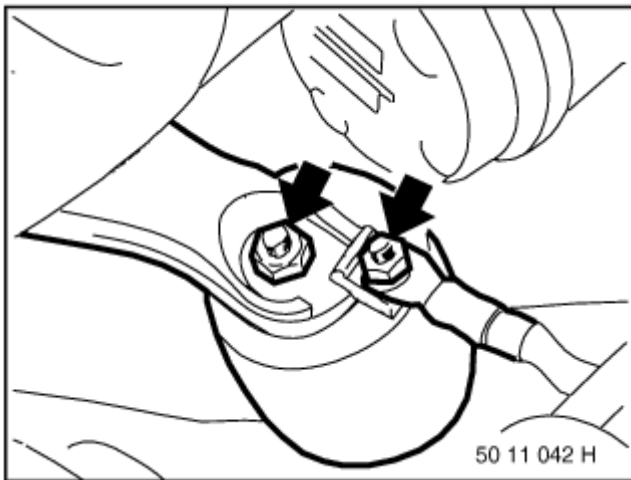
Detach coolant hoses from cylinder head and
from branch flange.

Installation:

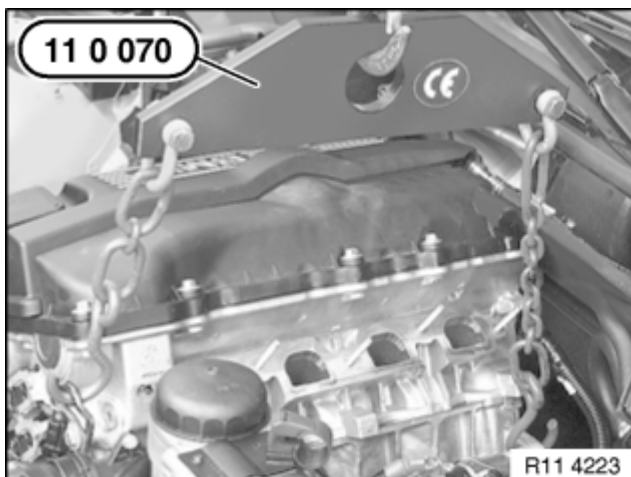
Vent [cooling system and check for leaks](#).



Open fluid reservoir for power-steering pump.
Draw off fluid.
Detach fluid lines on power steering pump.
Release fluid reservoir of power steering pump and tie to one side.



Release grounding cable on left engine support arm.
Unscrew left and right engine mounts.



Suspend engine from special tool [11 0 070](#) .

Important!

Only raise engine at suspension lugs provided for this purpose.

Lift out engine slowly and carefully.



Assemble engine.
Check function of DME.



Special tools required:

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



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 work, check transmission fluid level.

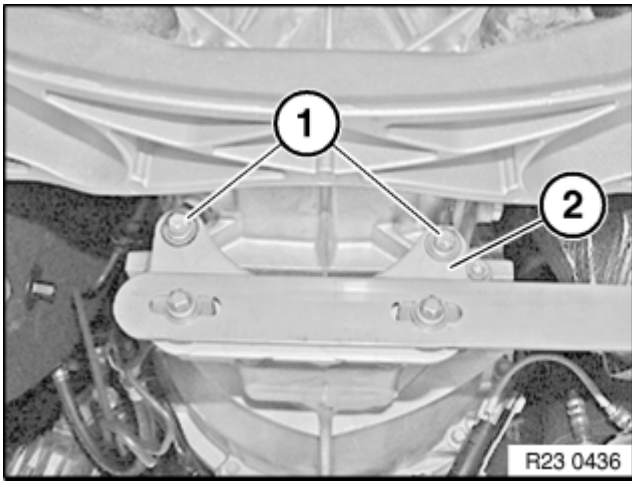
Use only the [approved transmission oil](#).

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



Necessary preliminary tasks:

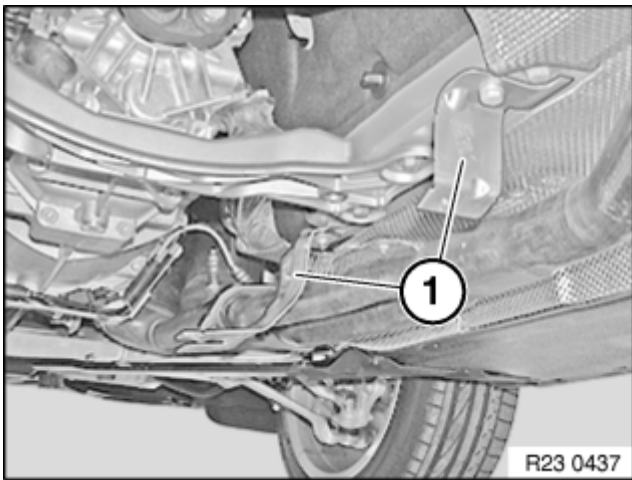
- [Clamp off battery](#)
- Remove [front underbody protection](#)
- Remove [rear underbody protection](#)
- Remove [front silencer](#)
- Remove complete [exhaust system](#) (320SI)
- Remove heat shields with side brackets



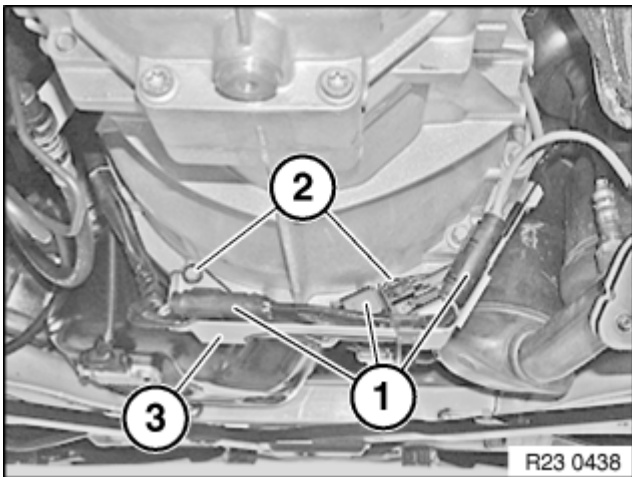
Release screws (1).

Remove exhaust bracket (2).

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



Remove holder (1).



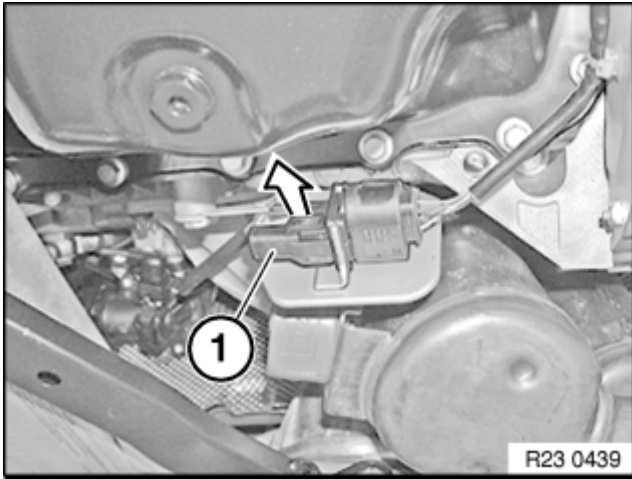
Disconnect connector (1).

Release cable from holder.

Unfasten screws (2).

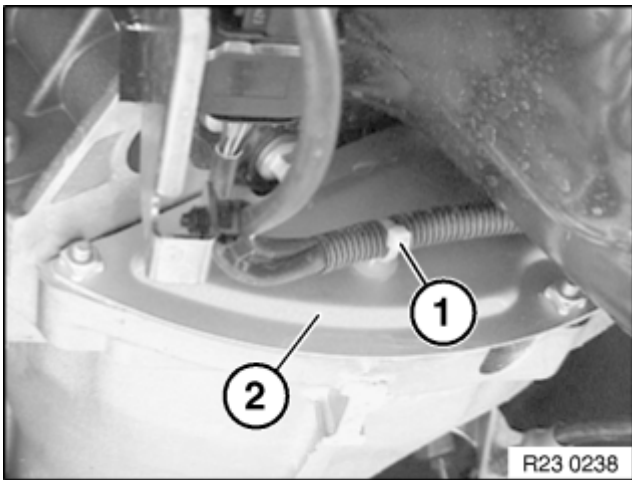
Remove bracket (3).

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



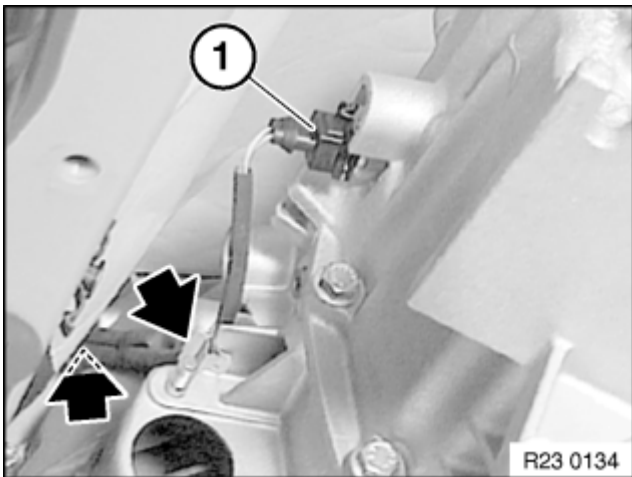
Note:
120i and 320i only

Pull connector (1) out of holder and disconnect.



Cut through cable strap (1). (120i and 320i only)

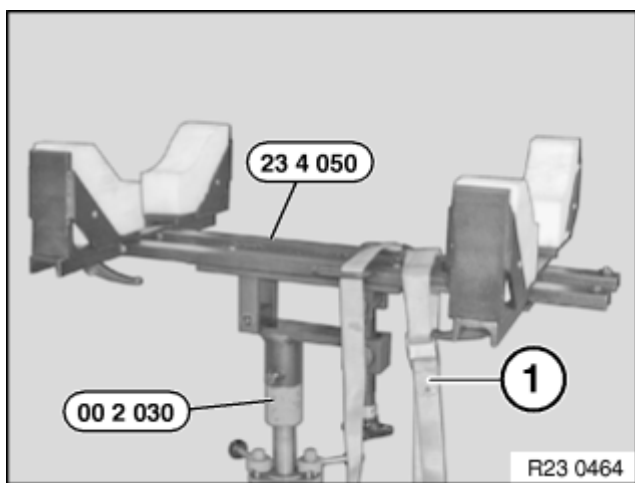
Remove cover plate (2).



Detach connector (1) from reverse gear switch.
Detach cables from brackets on transmission.



- [Remove](#) propeller shaft from transmission.
- Release centre mount.
- **Note:**
- Bending the propeller shaft by an excessive angle can cause premature damage to the joint/propeller shaft!
- Tie up propeller shaft to underbody.
- Support engine with lifter when removing transmission.



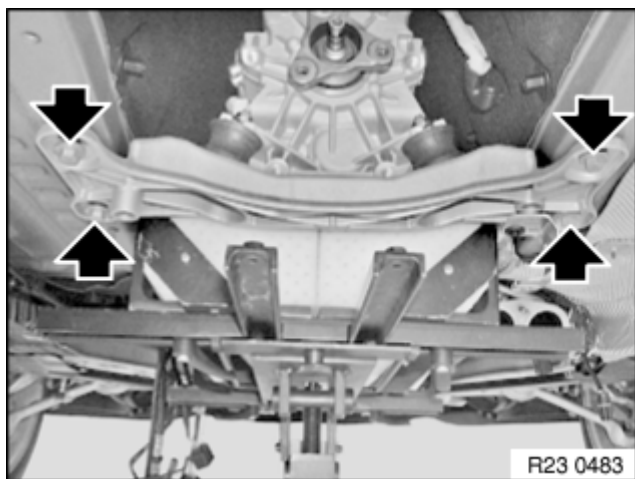
Supporting transmission:

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](#).

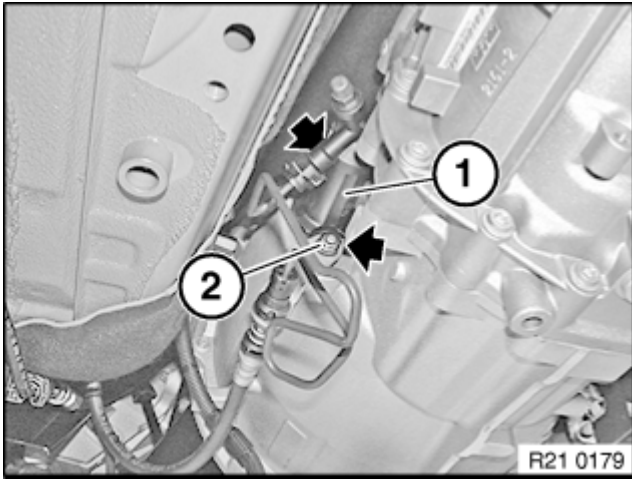
After completion of work, check transmission fluid level.



Remove screws and nuts.

Remove cross member (1)

Tightening torque: [23 71 1AZ / 2AZ](#).



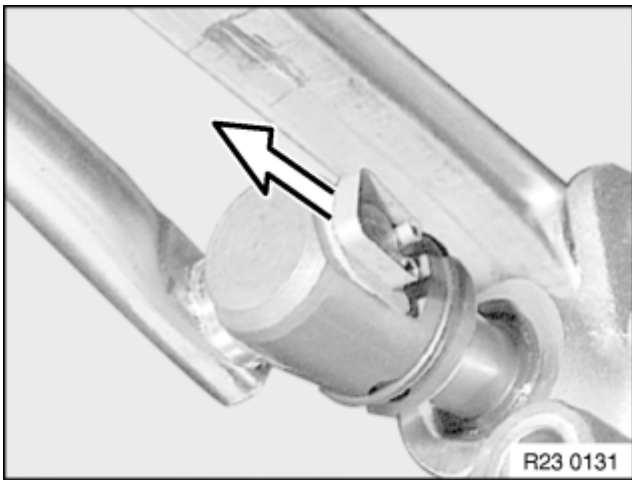
Note:
Pressure line of clutch slave cylinder remains connected.

Important!

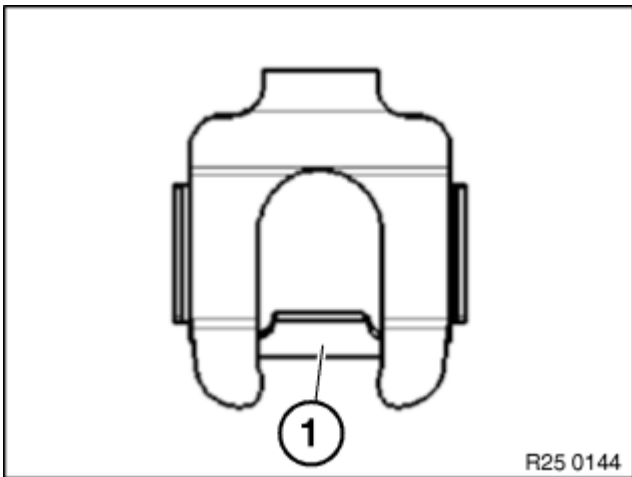
Relieve tension on clutch slave cylinder slowly; otherwise air will be drawn in through sealing cup.

Release nuts (2) and remove clutch slave cylinder (1).

Tightening torque: [21 52 5AZ](#).



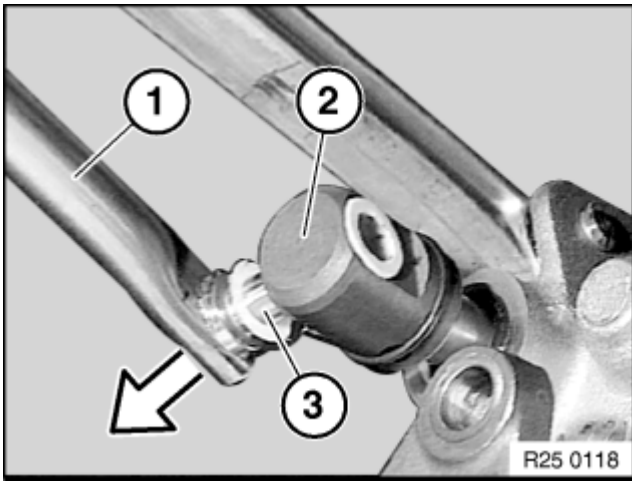
Detach retaining clip.



Important!

New retaining clips fitted as from 04.08.

Retaining clip must interlock captively with retaining web (1) **behind** gearshift rod pin.

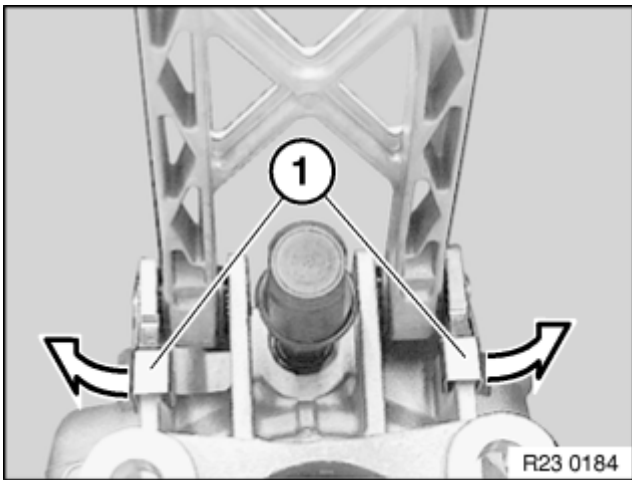


Pull gearshift rod (1) out of gearshift rod joint (2). **Installation note:**

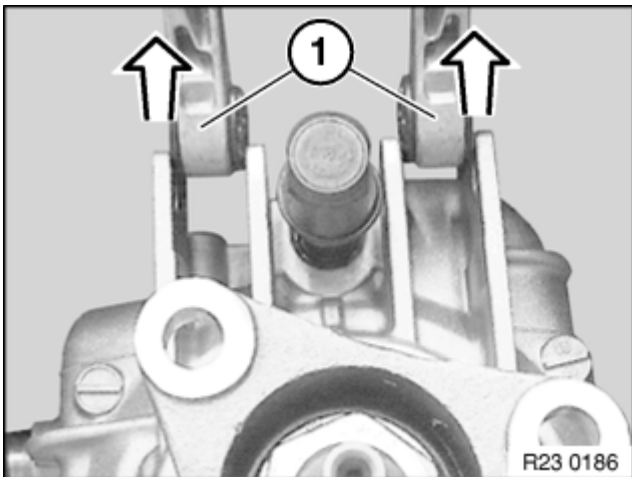
Grease gearshift rod pin (3).

Grease,

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



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

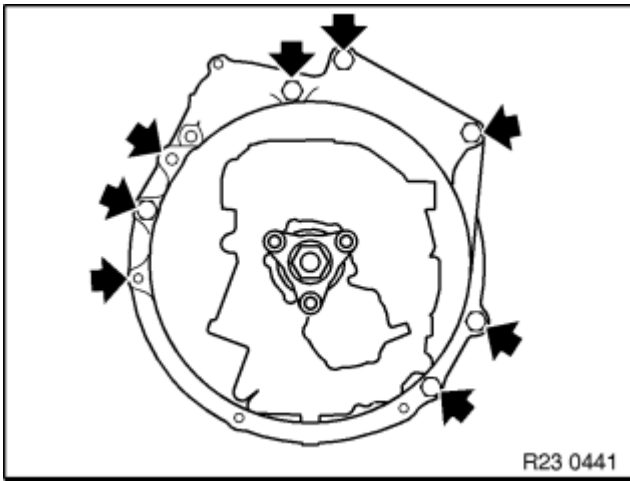


Lift out gearshift arm (1). **Installation note:**

Grease bearing journal.

Grease,

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

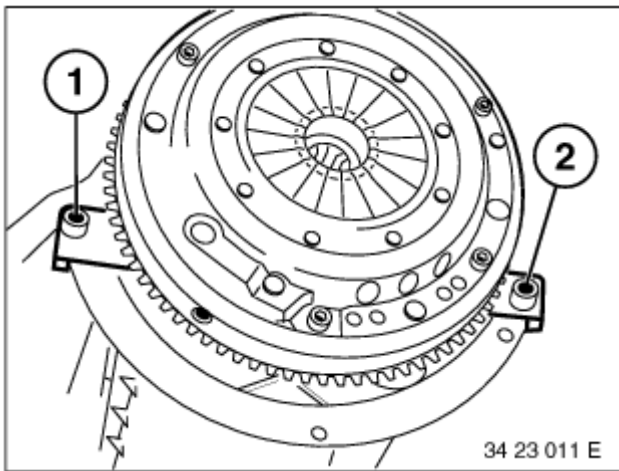


Release screws.

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

Important!

Do not suspend the transmission from the transmission drive shaft during removal and installation as this will deform the clutch disc. Pull out transmission towards rear and remove.

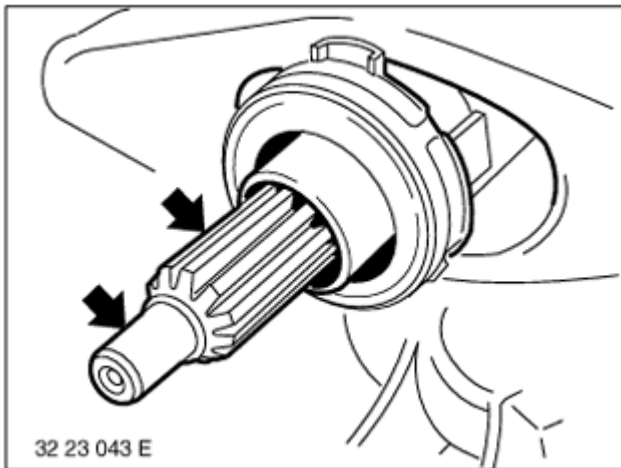


Installation note:

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

Replace damaged sleeves.

Ensure correct position of cover plate.

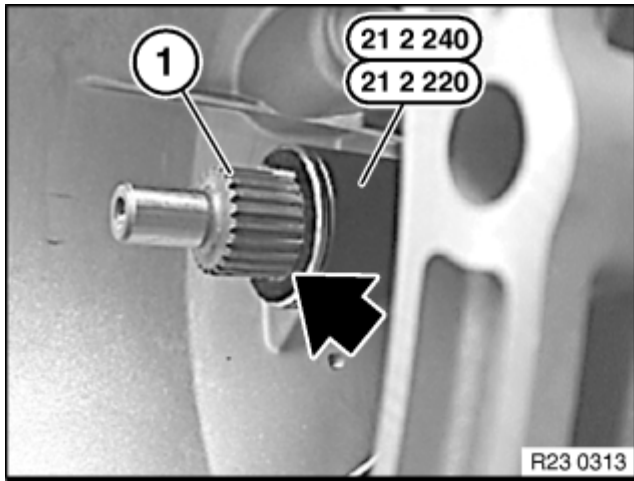


Installation note:

Check lubrication of transmission drive shaft for sticky consistency. If grease is sticky, clean drive shaft and [replace clutch disc](#).

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 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.



Special tools required:

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



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 work, check transmission fluid level.

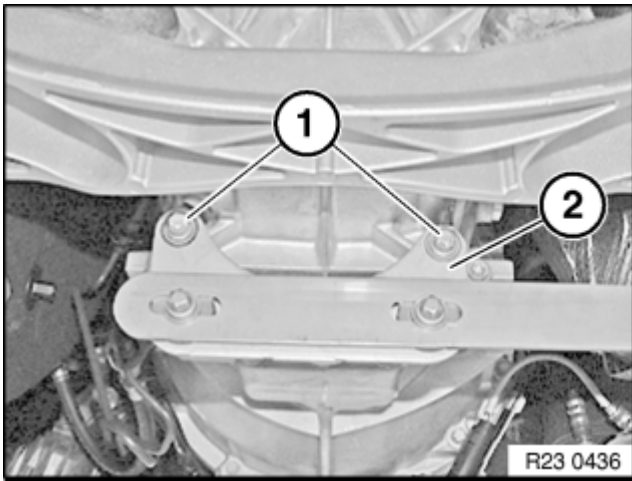
Use only the [approved transmission oil](#).

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

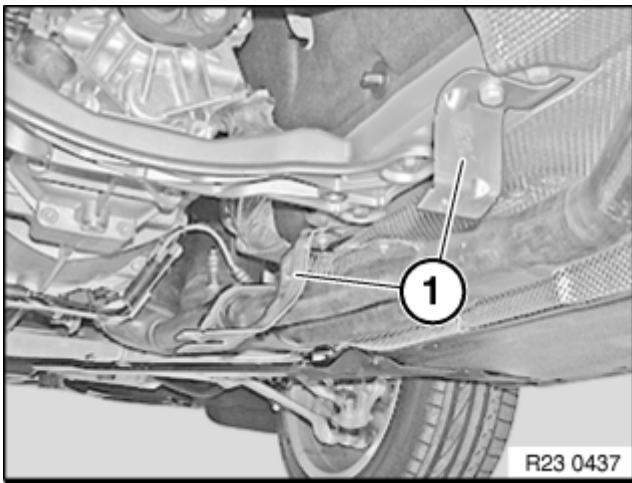


Necessary preliminary tasks:

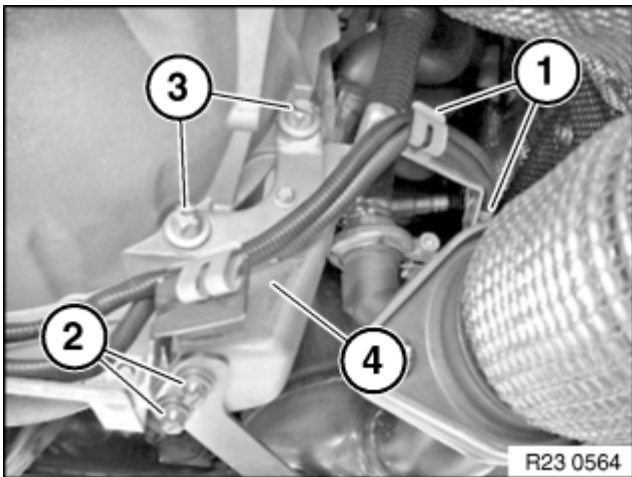
- [Clamp off battery](#)
- Remove engine guard
- Remove complete [exhaust system](#)
- Remove heat shields with side brackets



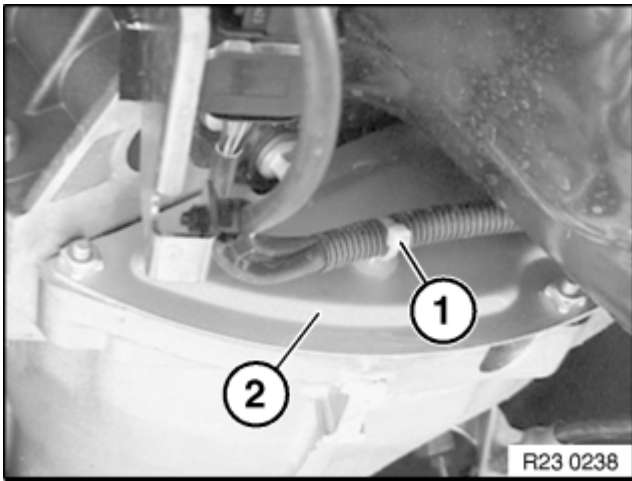
Release screws (1).
Remove exhaust bracket (2).



Remove holder (1).

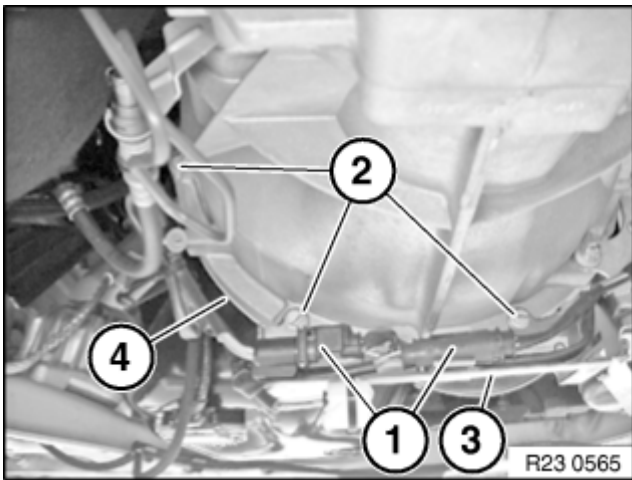


Remove cables from holders (1).
Release screws (2) and (3) and remove holder (4).

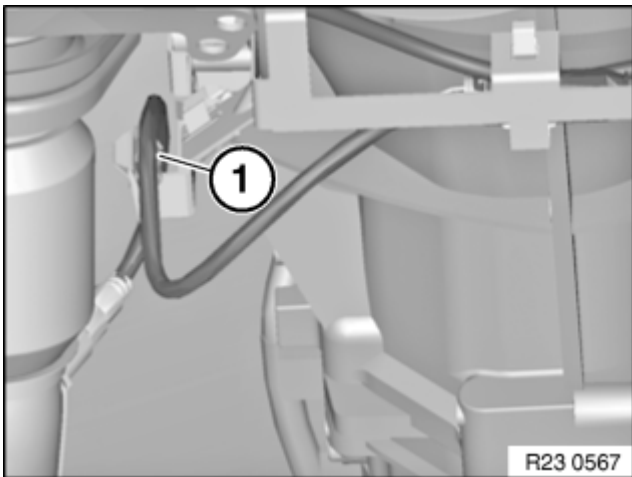


Note:
120i and 320i only

Cut through cable strap (1).

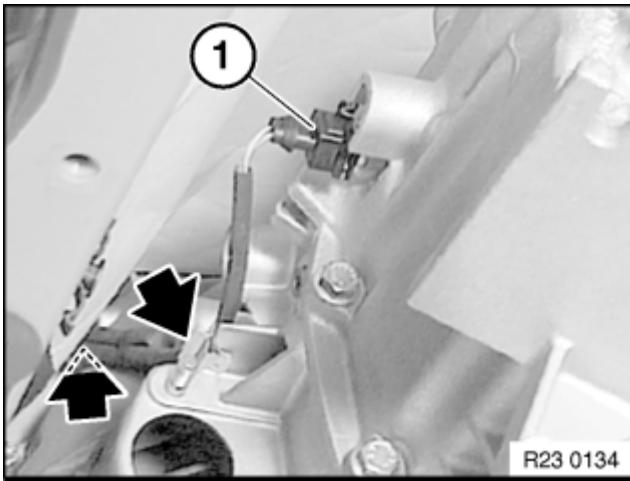


Disconnect connector (1).
Unfasten screws (2).
Remove bracket (3).
Remove cover plate (4).
Tightening torque [23 00 3AZ](#).



Note:
120i only

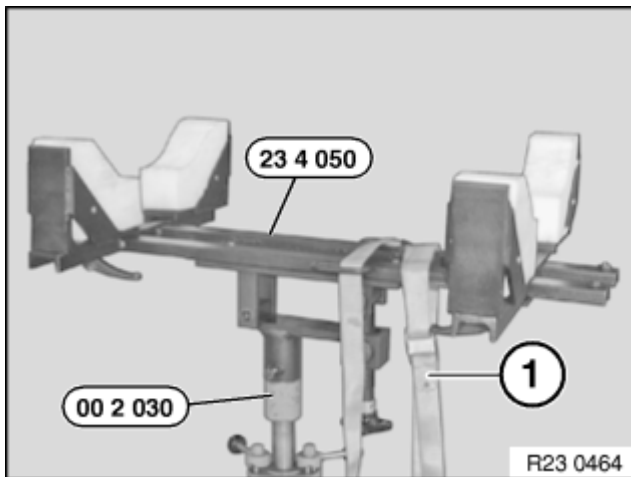
Release cable (1) from holder.



Detach connector (1) from reverse gear switch.
Detach cables from brackets on transmission.



- [Remove](#) propeller shaft from transmission.
- Release centre mount.
- **Note:**
- Bending the propeller shaft by an excessive angle can cause premature damage to the joint/propeller shaft!
- Tie up propeller shaft to underbody.
- Support engine with lifter when removing transmission.



Supporting transmission:

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

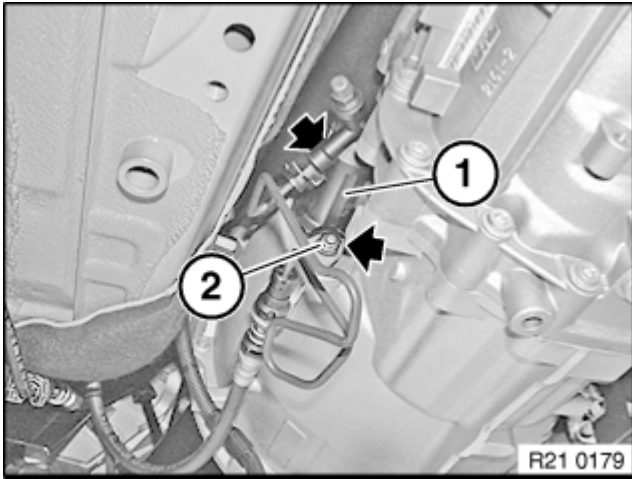
Secure transmission to mounting with tensioning strap (1).

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

After completion of work, check transmission fluid level.



Remove [transmission cross member](#).



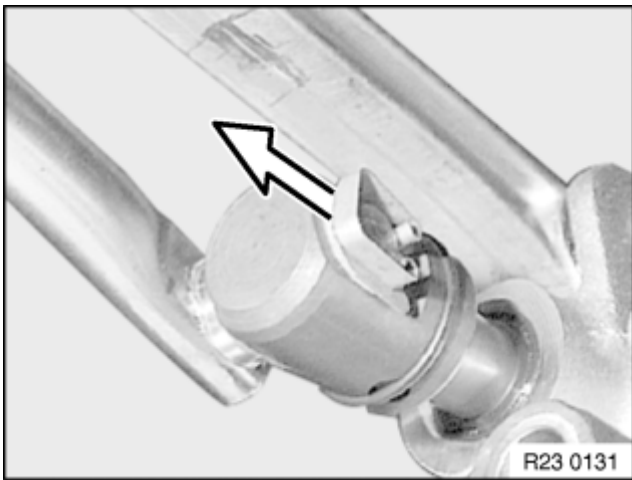
Note:
Pressure line of clutch slave cylinder remains connected.

Important!

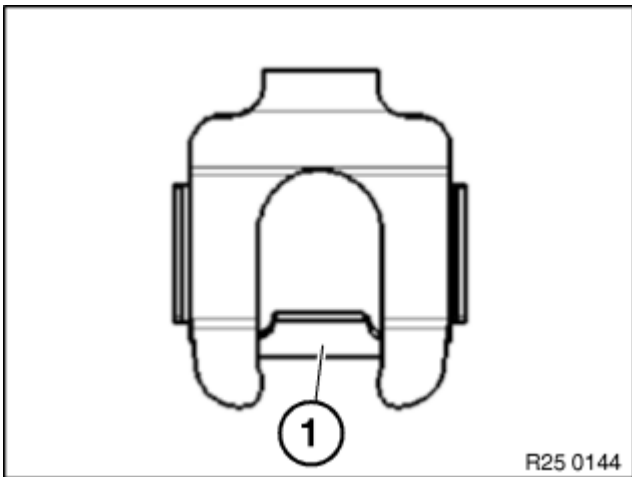
Relieve tension on clutch slave cylinder slowly; otherwise air will be drawn in through sealing cup.

Release nuts (2) and remove clutch slave cylinder (1).

Tightening torque: [21 52 5AZ](#).



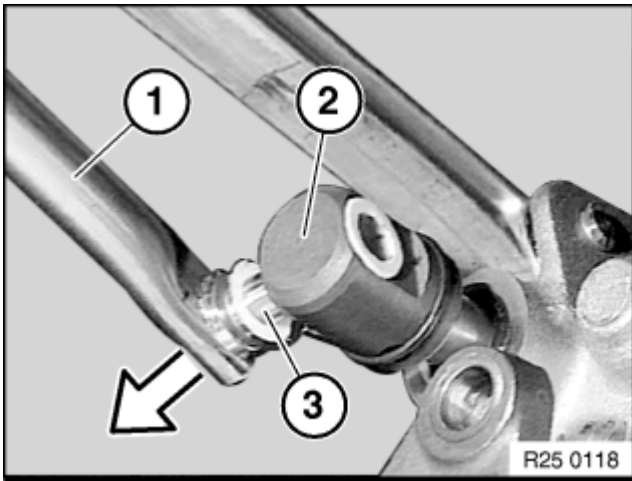
Detach retaining clip.



Important!

New retaining clips fitted as from 04.08.

Retaining clip must interlock captively with retaining web (1) **behind** gearshift rod pin.

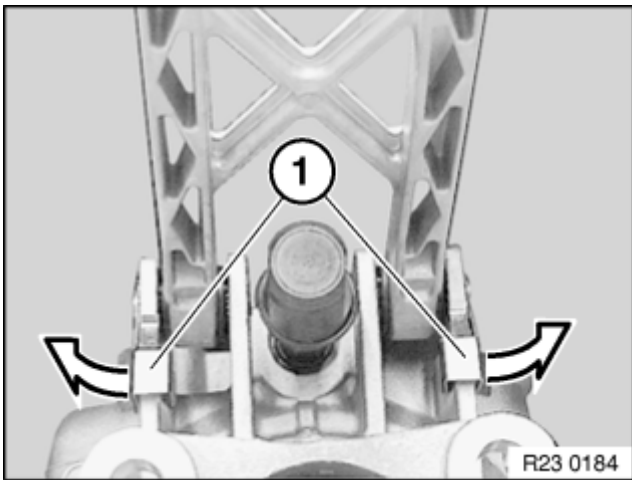


Pull gearshift rod (1) out of gearshift rod joint (2). **Installation note:**

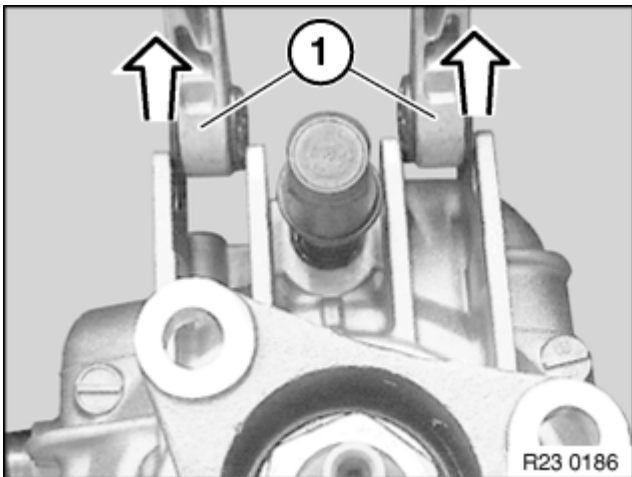
Grease gearshift rod pin (3).

Grease,

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



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

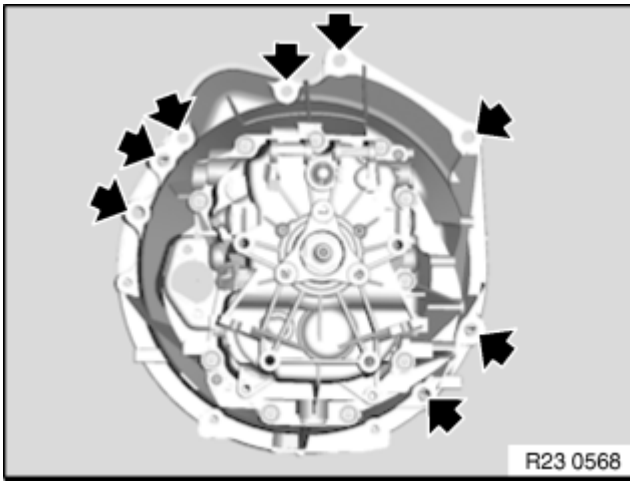


Lift out gearshift arm (1). **Installation note:**

Grease bearing journal.

Grease,

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

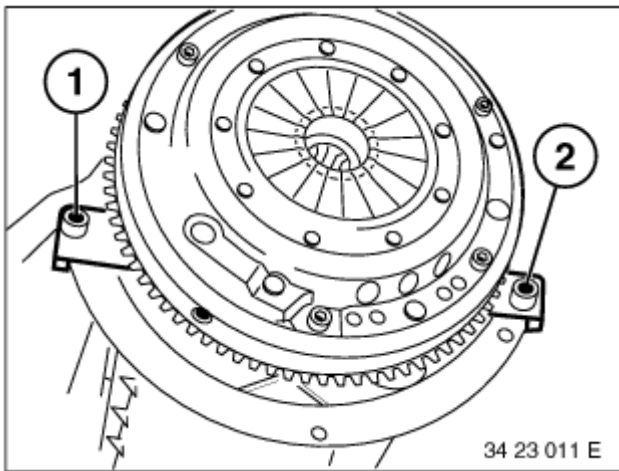


Release screws.

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

Important!

Do not suspend the transmission from the transmission drive shaft during removal and installation as this will deform the clutch disc. Pull out transmission towards rear and remove.

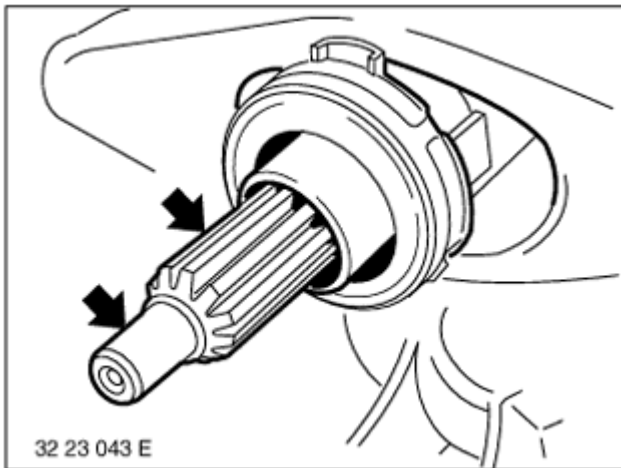


Installation note:

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

Replace damaged sleeves.

Ensure correct position of cover plate.

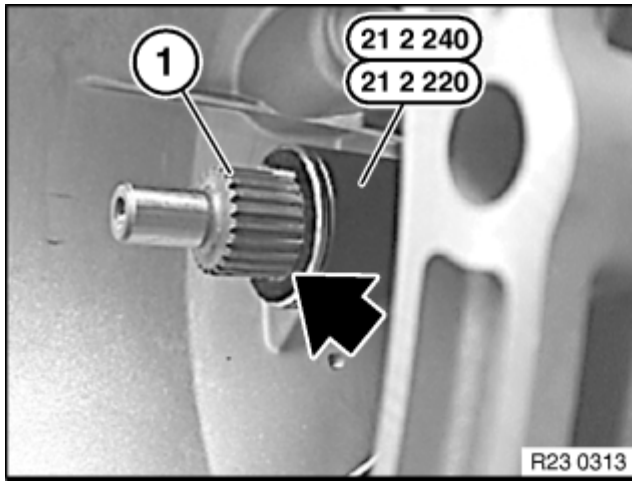


Installation note:

Check lubrication of transmission drive shaft for sticky consistency. If grease is sticky, clean drive shaft and [replace clutch disc](#).

Check clutch disc for friction rust in gearings 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.
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- Detach grease scraper ring.