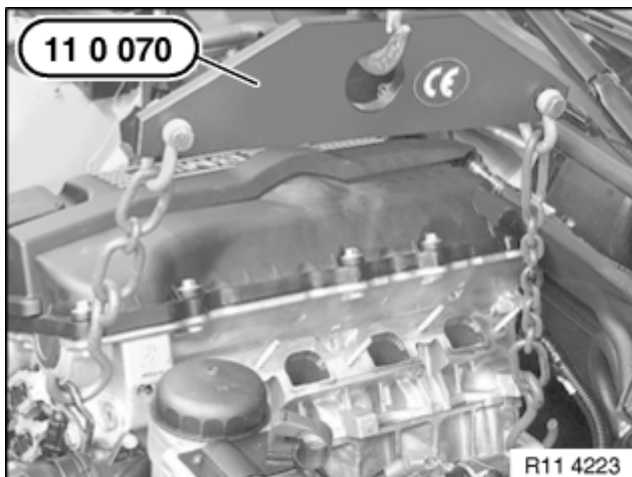


**Special tools required:**

- [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.

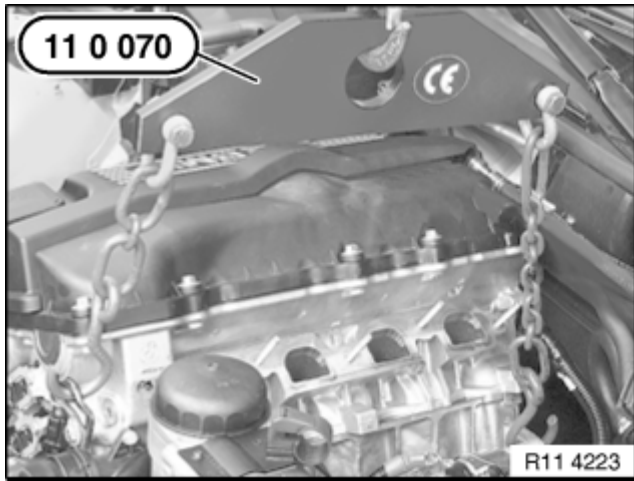
Check function of DME.

**Special tools required:**

- [11 0 070](#)

***Necessary preliminary tasks:***

- Disconnect battery, [refer to 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.
- Drain [coolant](#) from crankcase.
- Disconnect plug connections from engine wiring harness to electronics box.
- [Remove intake air manifold](#).
- [Remove fan cowl](#).
- Disconnect line from tank venting valve (tank side).
- Detach all water hoses.
- [Remove oxygen control sensors](#).
- [Remove oxygen monitor sensor after primary catalytic converter](#).
- Disconnect all coolant hoses from engine.
- Remove [coolant pump](#).
- Tie power steering pump in vehicle to one side with suitable equipment.
- Detach [vacuum hose](#) from brake booster.
- Unscrew left and right [engine mounts](#).



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

Important!

Only raise engine at the suspension lugs (lifting lugs) provided for this purpose.

Lift out engine slowly and carefully.



Assemble engine.

Check function of DME.

23 00 017 Removing and installing transmission (GS6-17BG)N43,N46T



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.

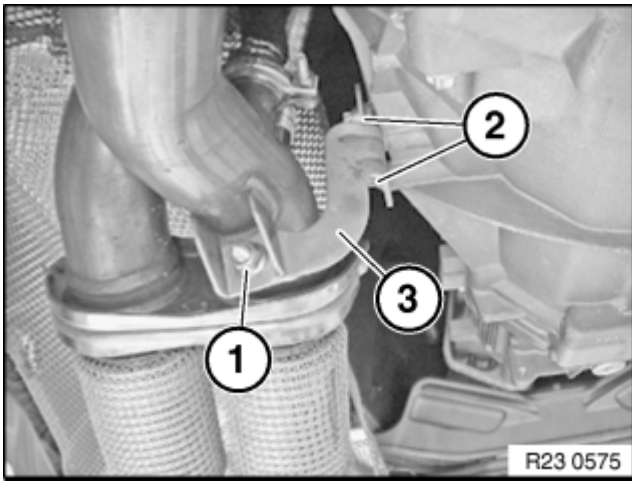
Use only the [approved transmission oil](#).

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

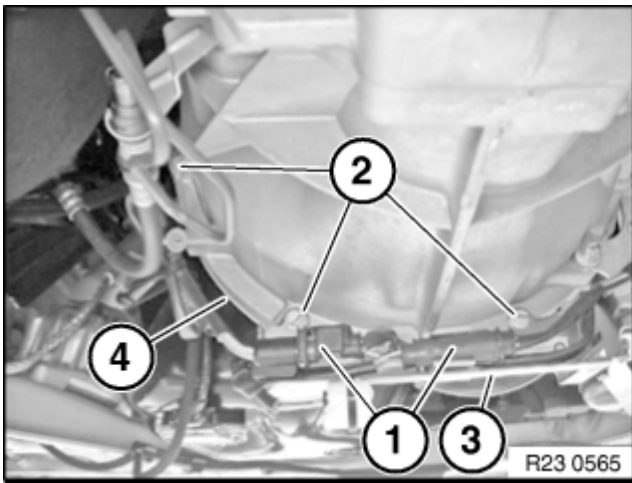


Necessary preliminary tasks:

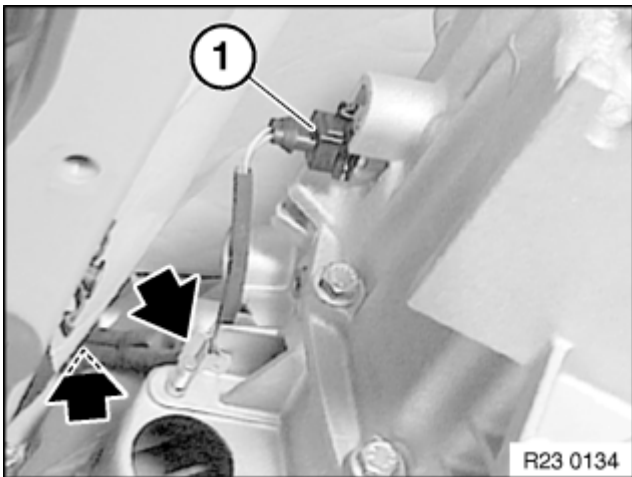
- [Clamp off battery](#)
- [Remove reinforcement plate](#)
- Remove complete [exhaust system](#)
- Remove heat shields



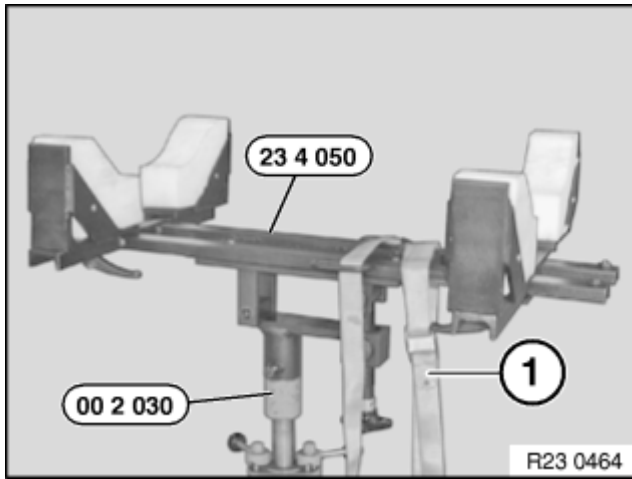
Release screws (1) and (2).
Remove bracket (3).



Unfasten screws (2).
Tightening torque [23 00 3AZ](#)
Remove cover plate (4).
Installation note:
Graphic similar



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



Supporting transmission:

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

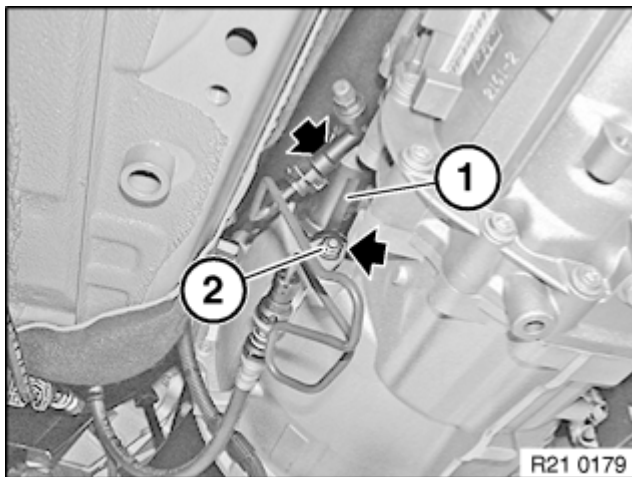
Secure transmission to mounting with tensioning strap (1).

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

After completion of work, check transmission fluid level.



- [Remove](#) 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.



Note:

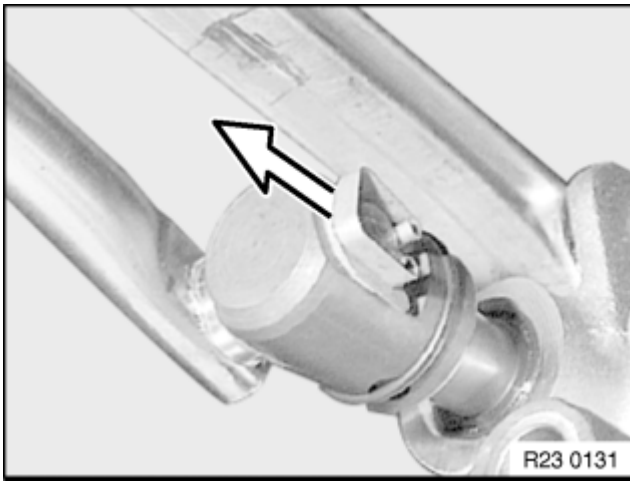
Pressure line of clutch slave cylinder remains connected.

Important!

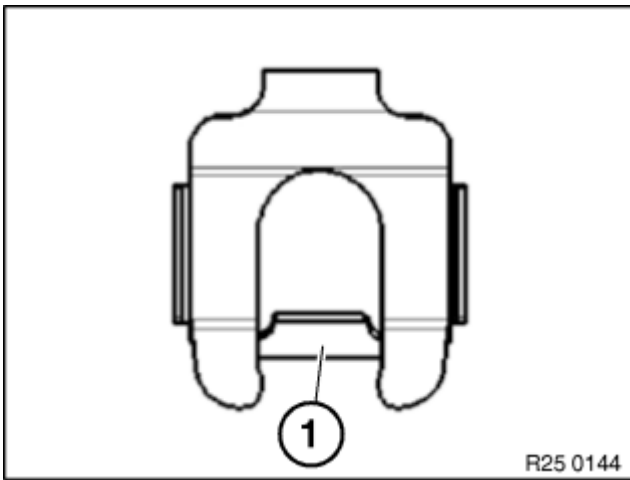
Relieve tension on clutch slave cylinder slowly; otherwise air will be drawn in through sealing cup.

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

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



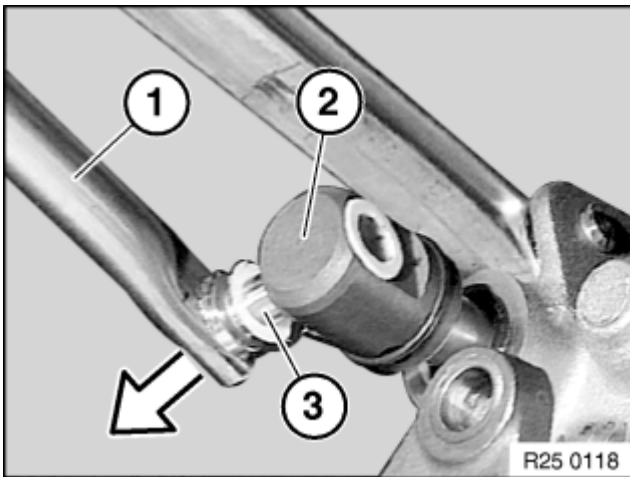
Detach retaining clip.



Important!

New retaining clips fitted as from 04.08.

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

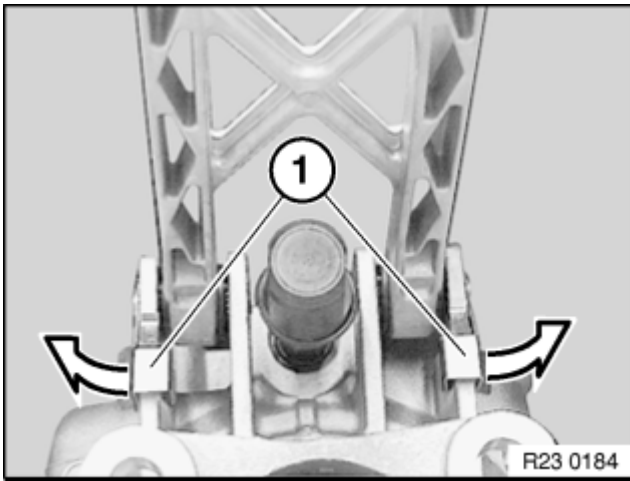


Pull gearshift rod (1) out of gearshift rod joint (2). **Installation note:**

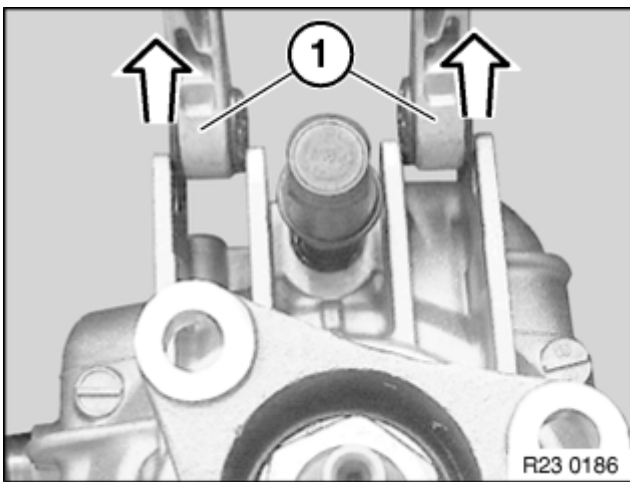
Grease gearshift rod pin (3).

Grease,

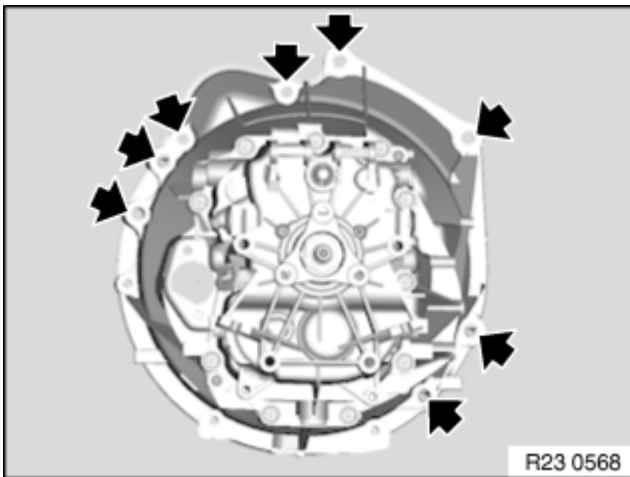
[Refer to BMW Service Operating Fluids.](#)



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



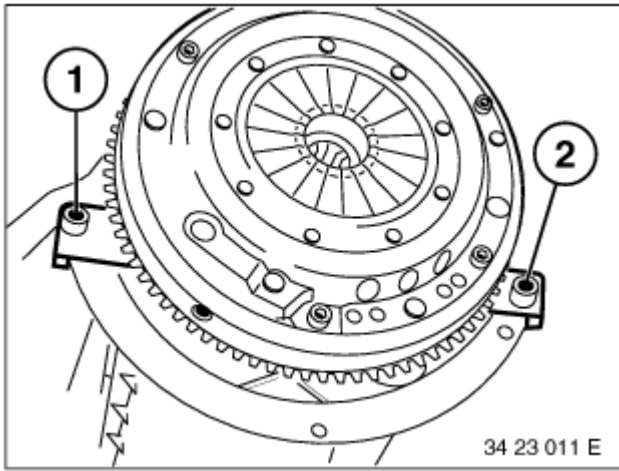
Lift out gearshift arm (1). **Installation note:**
Grease bearing journal.
Grease,
[Refer to BMW Service Operating Fluids.](#)



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.

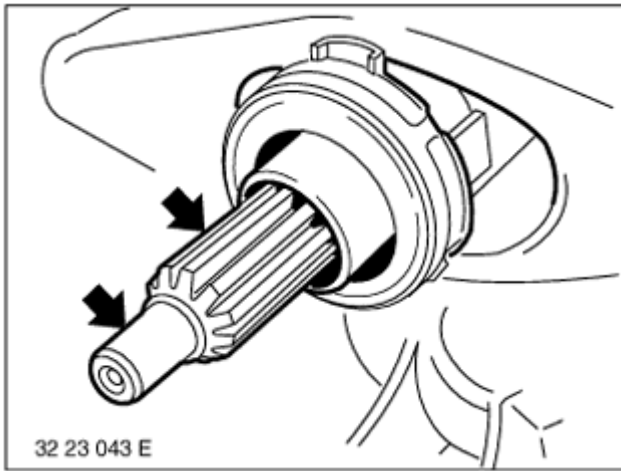


Installation note:

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

Replace damaged sleeves.

Ensure correct position of cover plate.

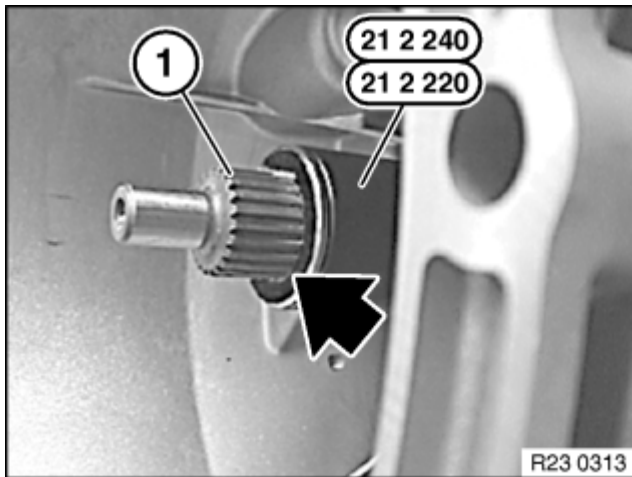


Installation note:

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:**

- [00 2 030](#)
- [23 0 131](#)
- [23 0 132](#)
- [23 0 134](#)

**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 oil level](#).

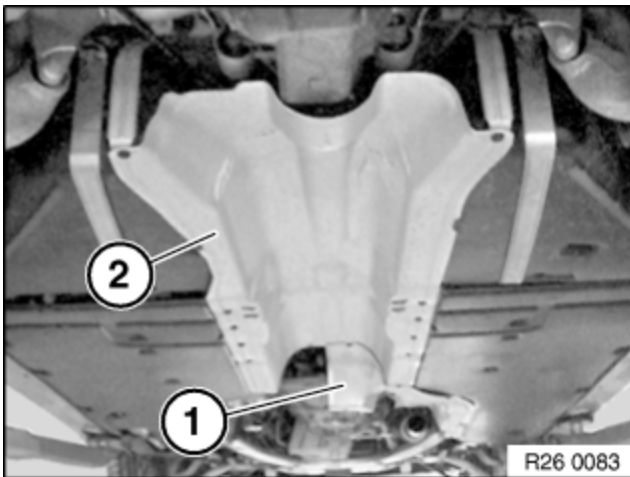
Use only the [approved transmission oil](#).

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

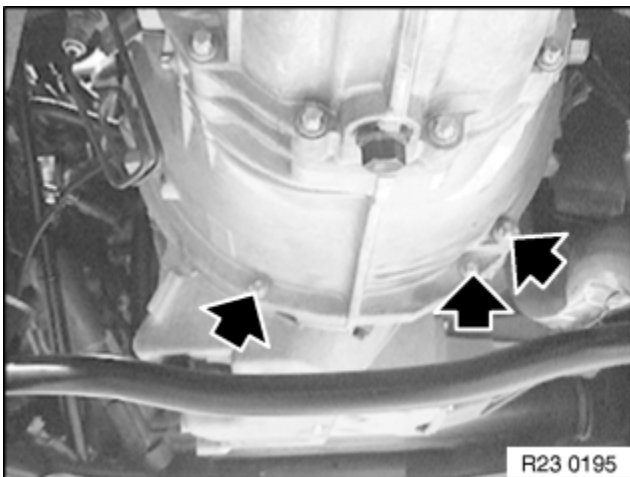


Necessary preliminary tasks:

- Clamp off [battery](#).
- Remove underbody protection at front and rear.
- Remove [reinforcement plate](#).
Important notes on installation are described in this work step.
- Remove [exhaust system](#) after catalytic converter.

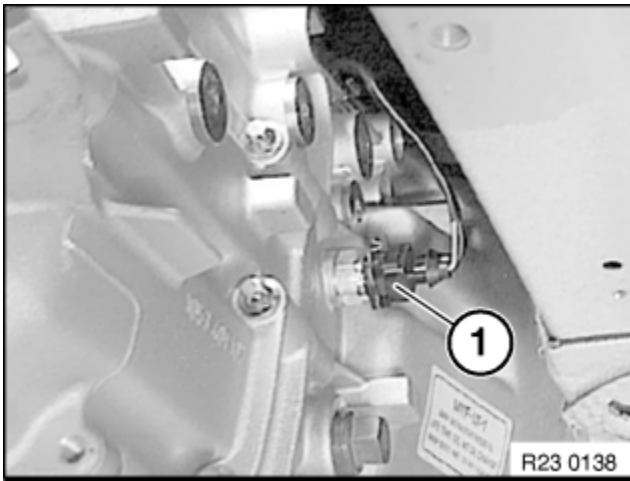


Remove heat shields (1) and (2).



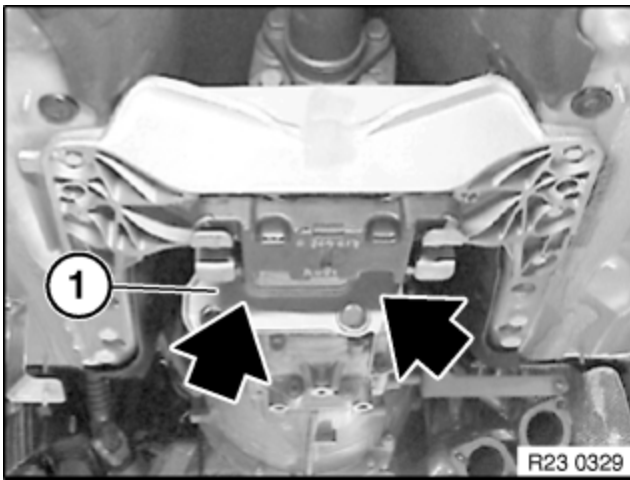
Release screws.

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



Detach connector (1) from reversing light switch.

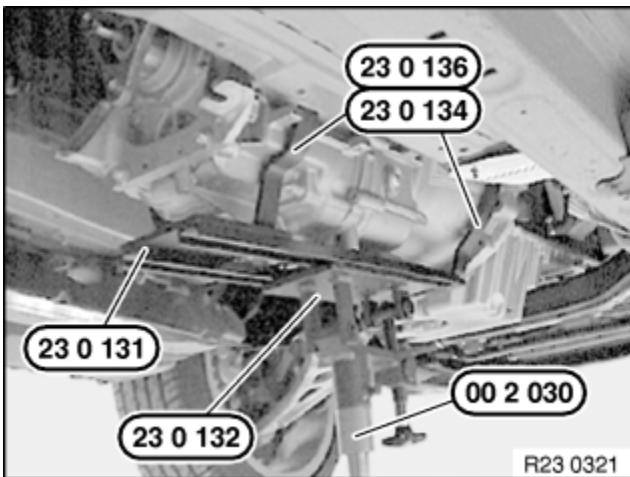
Release cable from brackets.



Release screws.

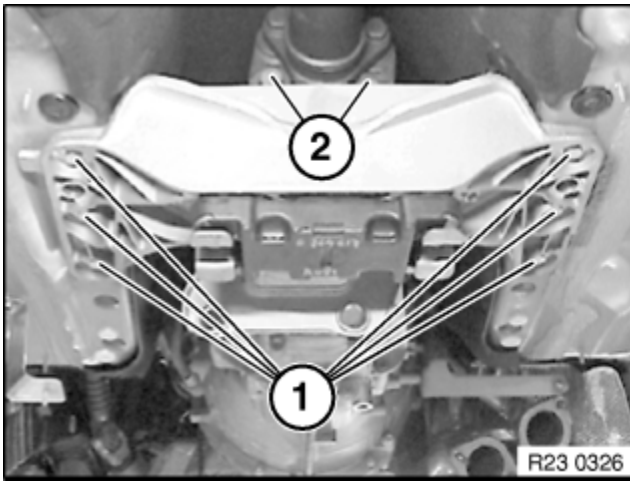
Tightening torque [23 71 4AZ](#).

Remove the exhaust bracket (1).

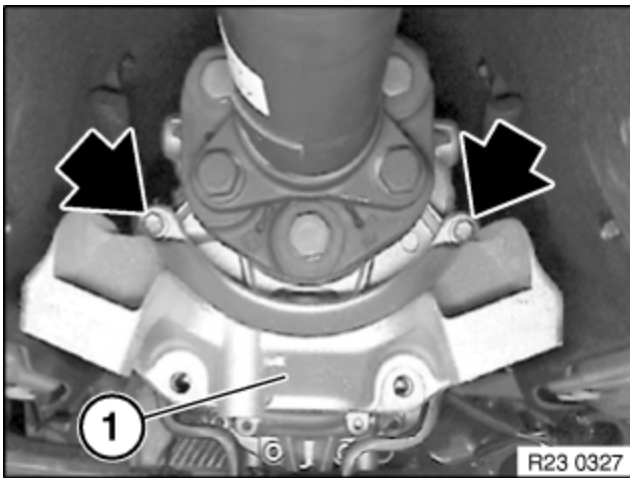


Supporting transmission:

Support with special tools [23 0 134](#) , [23 0 131](#) , [23 0 132](#) and [00 2 030](#) . After completion of work, check transmission fluid level.



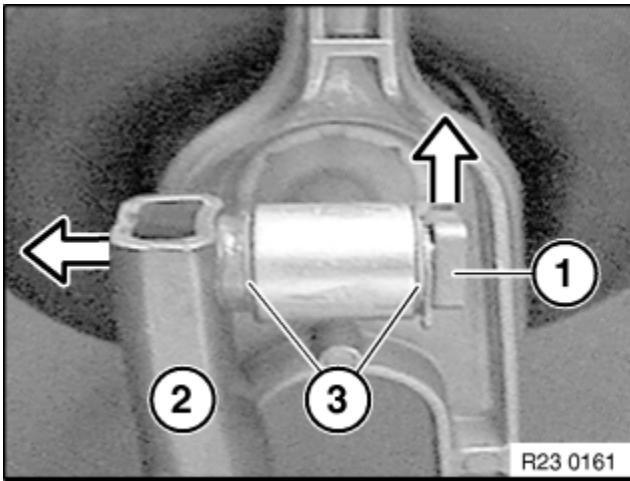
Unfasten screws (1) and nuts (2).
Remove transmission cross member.
Tightening torque [23 71 2AZ/5AZ](#).



Release screws.
Remove transmission bearing block (1).
Tightening torque [23 71 4AZ](#).



- [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.



Lift off retainer (1).

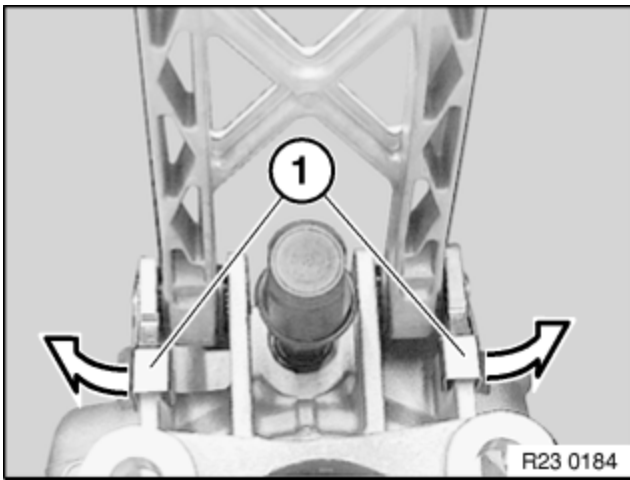
Detach gearshift rod (2).

Installation note:

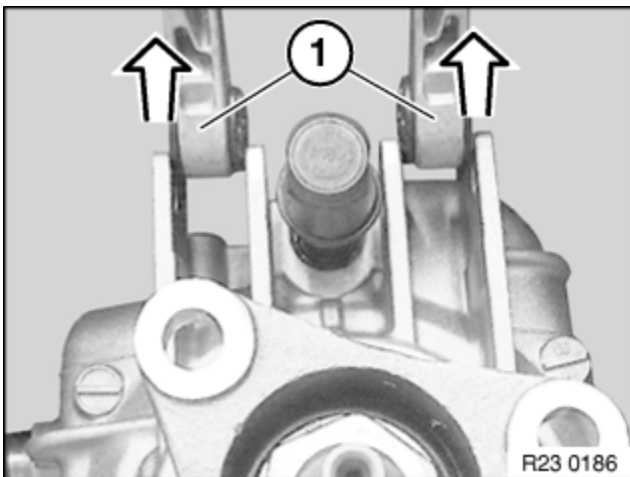
Grease gearshift rod.

Grease, refer to [BMW Service Operating Fluids](#).

Make sure shims (3) are in correct position.



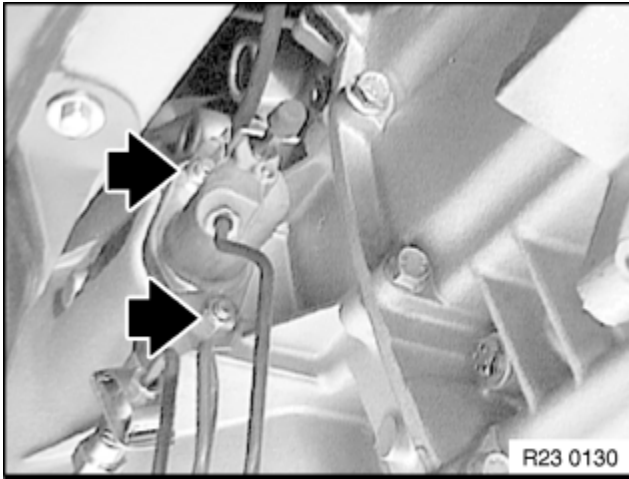
Release and remove bearing journals (1) in direction of arrow.



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

Grease bearing journals (1).

Grease, refer to [BMW Service Operating Fluids](#).

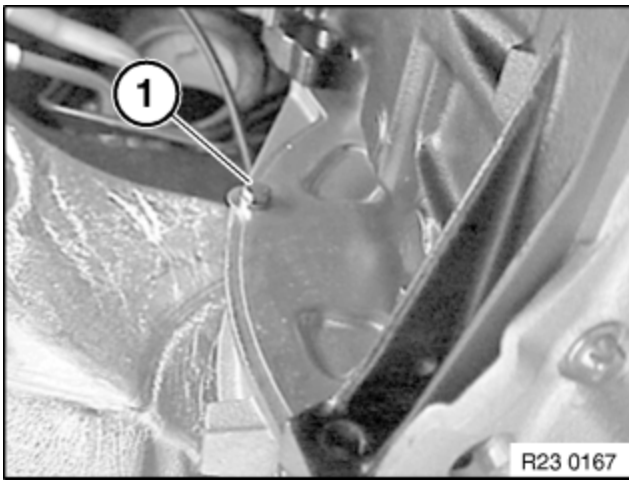


Note:
Pressure line of clutch slave cylinder remains connected.

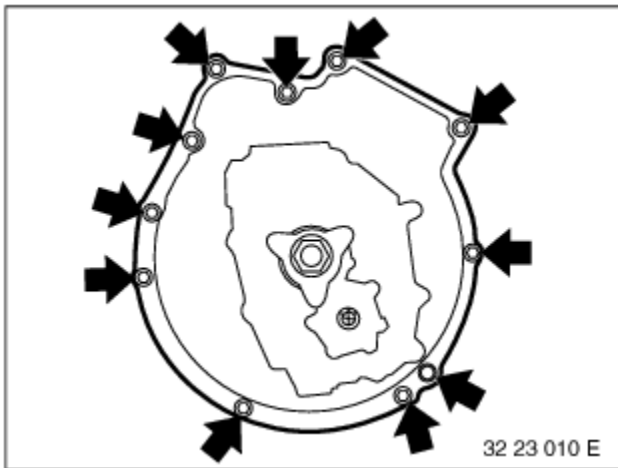
Important!

Slowly relieve tension on clutch slave cylinder otherwise air is drawn in through sealing cup.

Release nuts and remove clutch slave cylinder.
Tightening torque [21 52 5AZ](#).



Release screw (1).

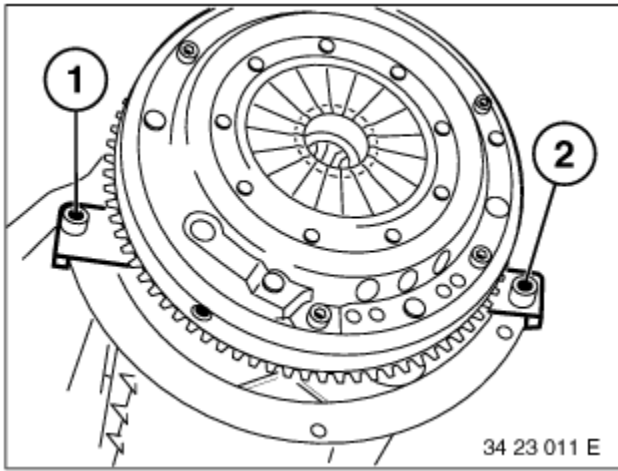


Release screws.

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

Important!

Do not allow the transmission to hang off from the transmission drive shaft as this will deform the clutch disc. Pull out transmission towards rear and remove.

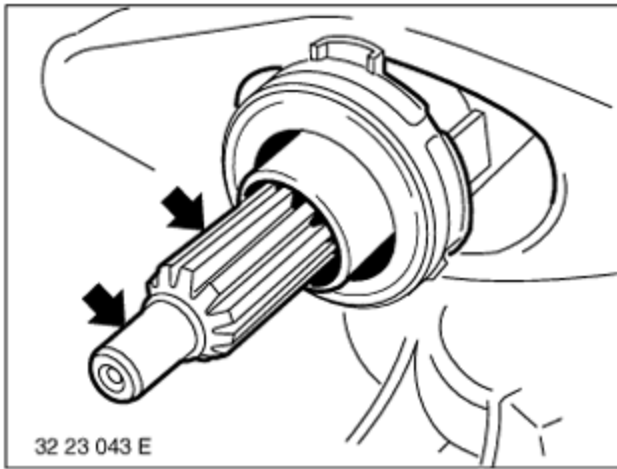


Installation note:

Check that fitting sleeves are correctly fitted.

Replace damaged fitting sleeves.

Ensure correct position of cover plate.

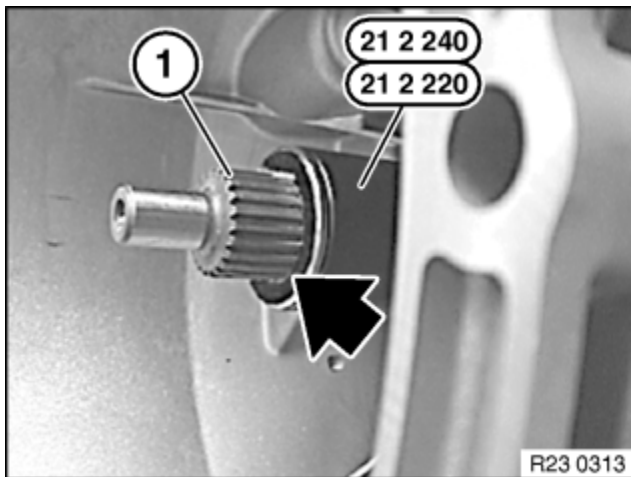


Installation note:

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

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

Mechanically remove existing grease and lining abrasion from gearings of clutch disc (with a cloth).



Installation note:

Greasing specification:

- Remove and clean [release bearing and release lever](#).
- Push on grease scraper ring 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 0 020](#)

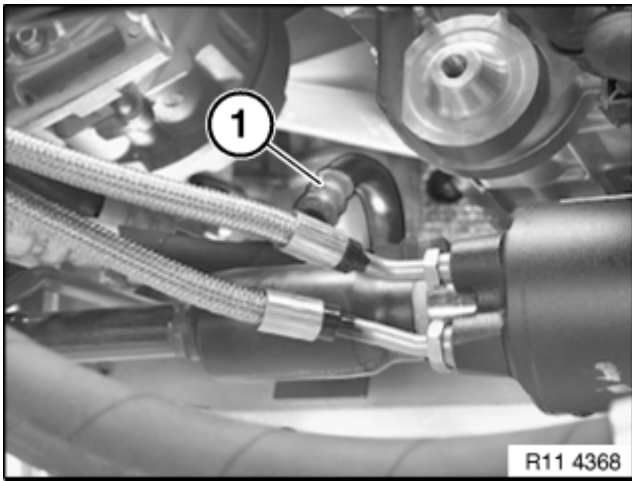


[Follow instructions for disconnecting and connecting battery.](#)

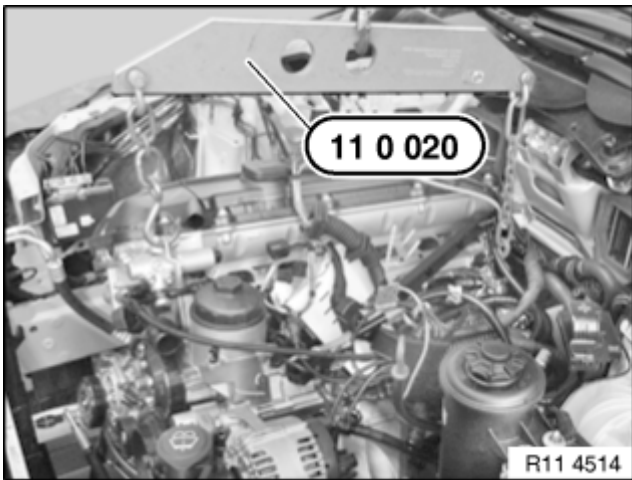
Disconnect negative battery lead.

Observe specified tightening torque and safety precautions in all work steps.

Work step	Note:
Lift engine hood into assembly position Secure engine in installation position with special tool Remove gearbox	After removing transmission, secure engine against tilting.
Remove intake filter housing	
Remove radiator	
Remove radiator lines.	
Remove expansion tank.	
Remove intake air manifold	
Release heater cooler line	
Unlock engine wiring harness section on control unit and detach.	Wiring harness remains on engine.
Unlock spark plug wiring harness section on control unit and detach.	Wiring harness remains on engine.
Disconnect positive lead at battery connection point	
Detach vacuum line from brake booster	
Unlock line on tank venting valve and disconnect.	
Remove both monitor sensors	
Release negative lead on engine support arm.	
Remove alternator drive belt	
Release power steering pump on bracket, hydraulic lines remain connected.	Do not remove power steering pump, secure against falling down.
Release A/C compressor on bracket, lines remain connected, do not evacuate A/C system.	Do not remove A/C compressor, secure against falling down.



Vehicles with Dynamic Drive only:
Unlock and detach hydraulic line (1).



Suspend engine from special tool [11 0 020](#) .
Release engine mounts on left and right from above.



Protect assembly compartment and hydraulic lines against damage. *Installation:*
Observe specified tightening torque and safety precautions in all work steps.