

21 21 000 Removing and installing/replacing clutch (GS7S47BG SMG)

Special tools required:

- [21 2 300](#)



Important!

Clutches that fell apart during disassembly or assembly may not be installed again.

Dual-mass flywheel and double-disc clutch are matched.

Note all marks.

Risk of damage at dual-mass flywheel.



Important!

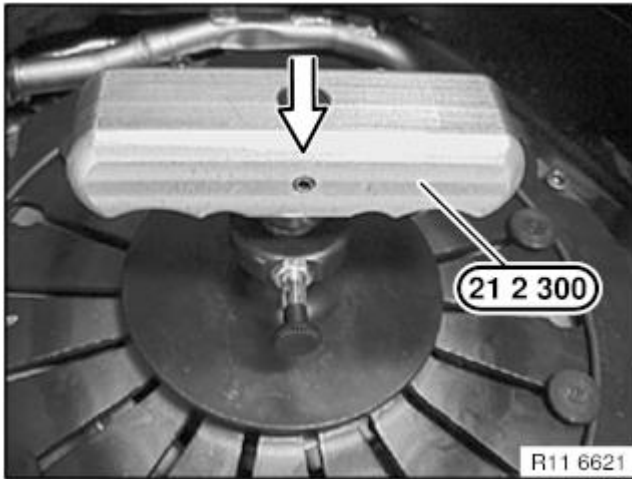
Guide sleeve, ball pin and spring clip absolutely must be renewed when the clutch is replaced.

The [clutch disengagement module](#) contained in the new AT clutch set absolutely must be installed.



Necessary preliminary tasks:

- Remove [transmission](#).



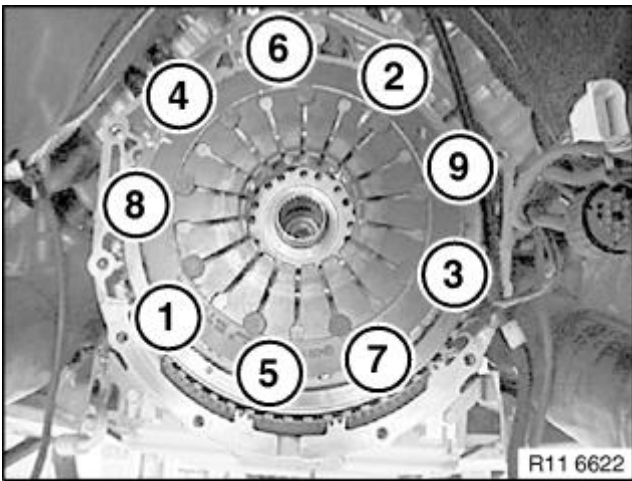
Important!

Remove double-disc clutch with special tool [21 2 300](#).

Insert special tool [21 2 300](#) in clutch in direction of arrow.

Note:

Special tool [21 2 300](#) is correctly mounted when the lock engages.

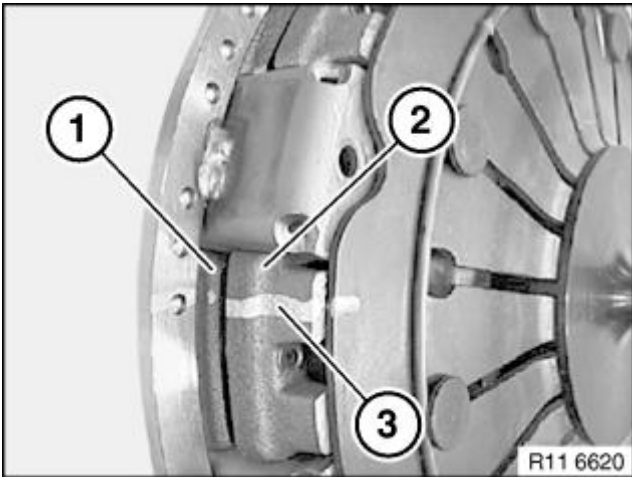


Release screws evenly in 1/2 revolutions.

Release the screws in sequence 1 to 9.

Note:

Graphic does not show special tool [21 2 300](#).



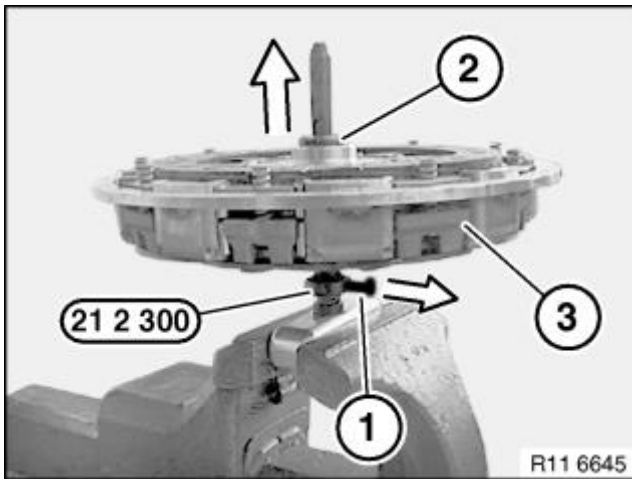
Important!

The double-disc clutch must not be disassembled or opened. If the double-disc clutch is opened, the double-disc clutch must be completely renewed along with the pressure plate.

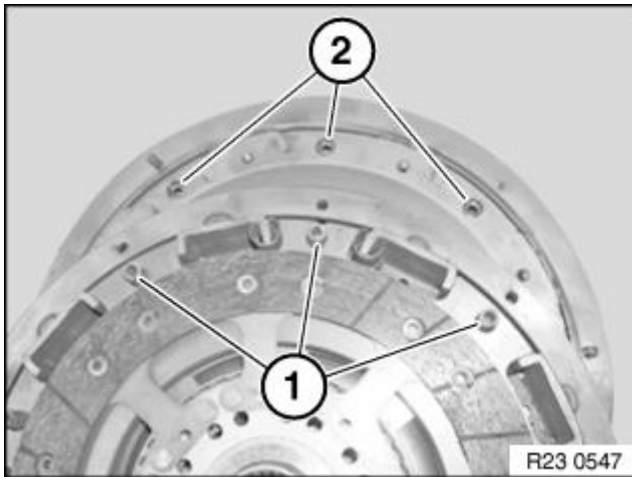
Check the control line (3) at the double-disc clutch.

Intermediate pressure plate (1) and pressure plate (2) are mutually balanced and marked with a control line (3).

If the marks (3) no longer align, the clutch must be renewed.

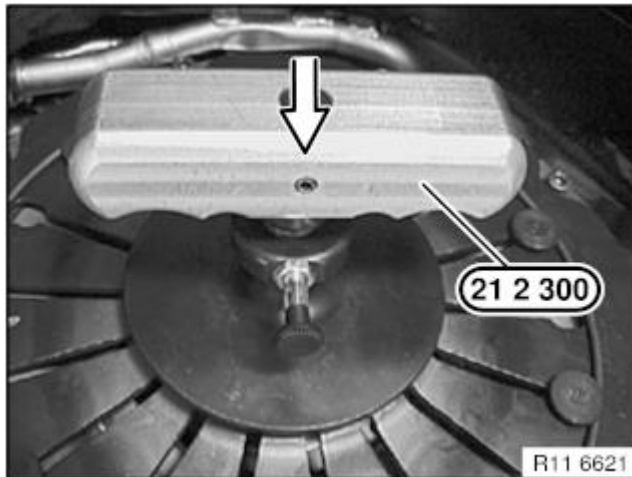


Clamp special tool [21 2 300](#) in a vice with the handle.
 Loosen lock (1) in direction of arrow.
 Lift double-disc clutch (3) in direction of arrow.
 Installation note:
 Insert new double-disc clutch (3).
 Securing catch (2) must be locked.

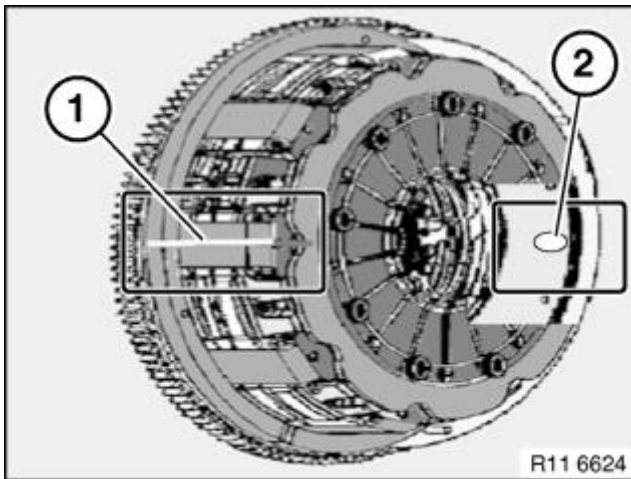


Installation note:
 When installing the clutch, the springs (1) must be fit exactly
 in the holes (2) of the flywheel.

Important!
 The clutch must be installed without tension.



Insert double-disc clutch with special tool [21 2 300](#).



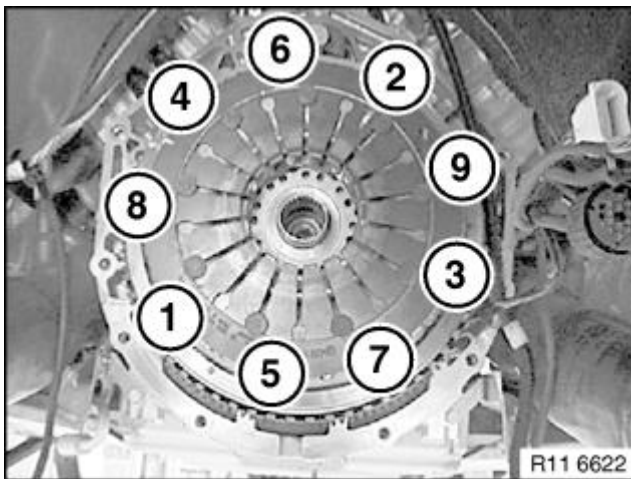
Check the mark (1) at the double-disc clutch.

Mark (2) on dual-mass flywheel.

Installation note:

The marks (1 and 2) must be mounted with an offset of 180° to each other (a tolerance of 10° - 20° is possible).

Double-disc clutch and dual-mass flywheel are matched to each other.



Insert all bolts.

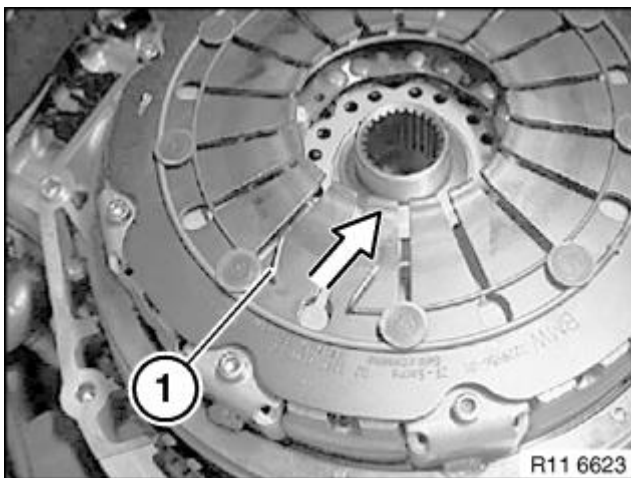
Tighten screws evenly in $1/2$ revolutions.

Tighten in sequence 1 to 9.

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

Note:

Graphic does not show special tool .



Installation note:

Release circlip (1) with a suitable tool in direction of arrow.

Circlip (1) is only delivered with a new double-disc clutch.

Circlip (1) is no longer needed.



Remove all special tools.
Reassemble the vehicle.
Perform an SMG diagnosis/service function.

21 21 Clutch to flywheel

| Type | Thread | Tightening specification | Measure |
|------|--------|--------------------------|---------|
|------|--------|--------------------------|---------|

| | | | |
|------------------------|--------|-----------------------------------|---------|
| 1AZ Clutch to flywheel | S85 M6 | Observe tightening specification. | 10+2 Nm |
|------------------------|--------|-----------------------------------|---------|

21 51 500 Removing and installing or replacing clutch release bearing/lever (GS7S47BG SMG)

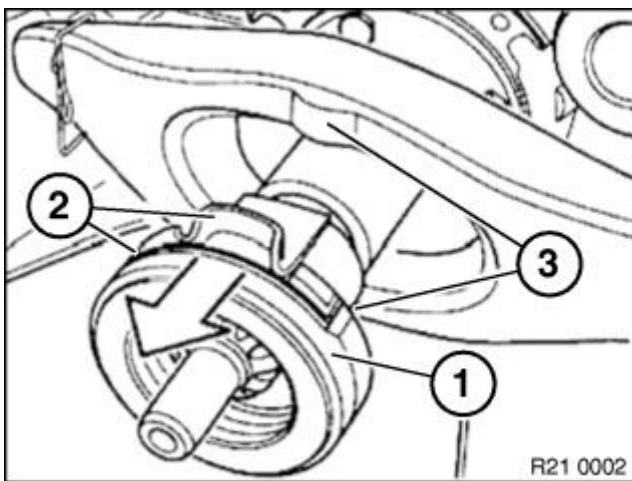
Note:

(transmission removed)



Important!

Clutch release bearing is made of aluminium and its sliding surfaces must be covered with a thin film of grease.



Detach release bearing (1).

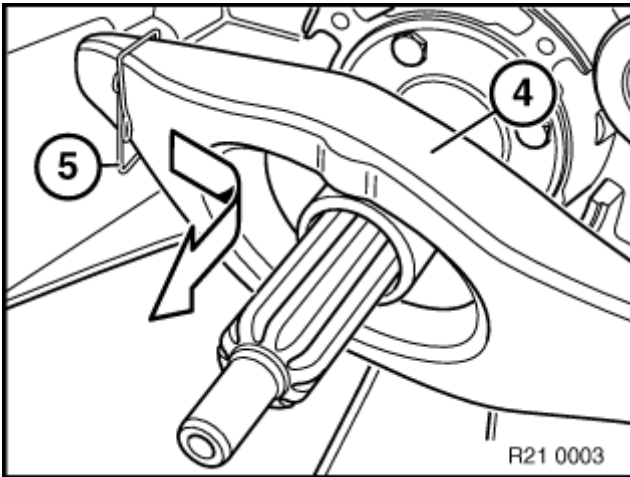
Installation:

Clean all sliding surfaces on clutch release bearing, check for damage and replace if necessary.

Sliding surfaces (2) of clutch release bearing must rest on sliding surfaces (3) of release lever.

Apply a thin coating of grease to sliding surfaces (2) of release bearing.

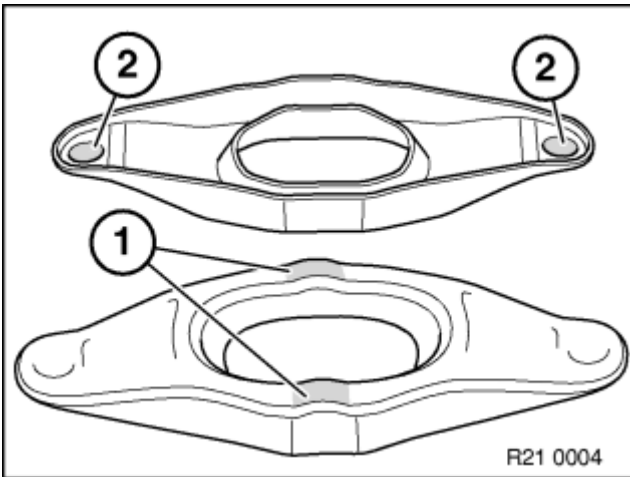
[Grease, refer to BMW Service Operating Fluids.](#)



Withdraw release lever (4) from spring wire clip (5) and remove.

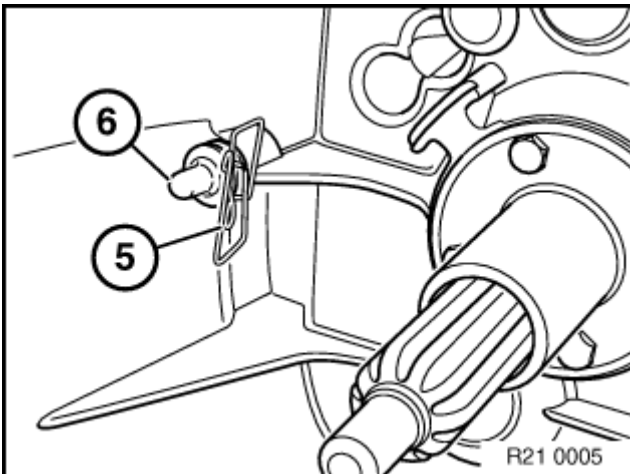
Installation:

Clean release lever.



Apply a thin coating of grease to release lever at sliding surfaces (1 and 2) only.

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

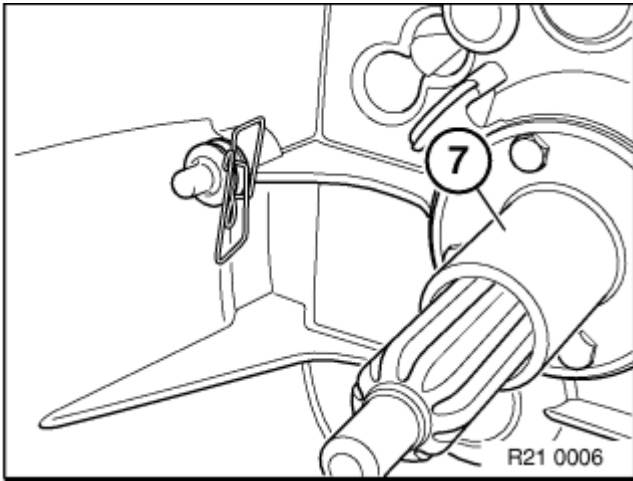


Installation:

Check spring wire clip (5) and ball pin (6) for damage and replace if necessary.

Apply a thin coating of grease to ball pin (6).

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



Installation:

Clean guide sleeve (7).

Coat guide sleeve with a thin film of grease.

If guide sleeve is greased, the release lever can stick on the guide sleeve.

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

23 00 613 Remove and install transmission (GS7S47BG SMG)



Special tools required:

- [00 2 030](#)
- [21 2 240](#)
- [23 0 131](#)
- [23 0 132](#)
- [23 0 139](#)



Important!

After completing work:

Adapt using the DIS tester: see service function in the DIS tester!

- Teach in the characteristic value for the clutch valve
- Completely adapt the SMG gearbox
- Teach-in clutch slipping point

- Check [transmission oil level](#).

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

- Read out fault memory and delete entered faults.

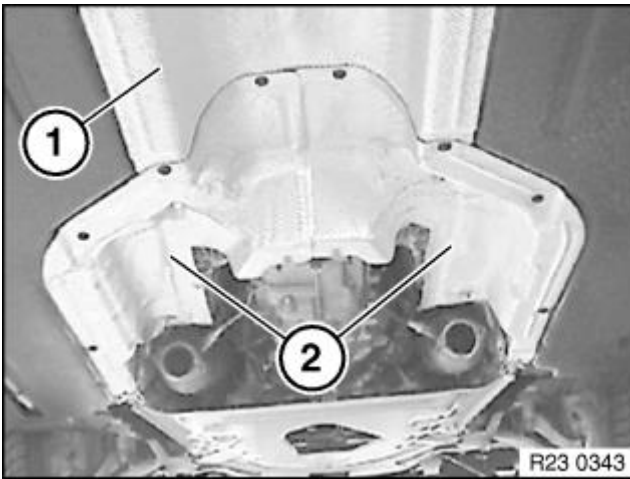
Failure to comply with this requirement will result in serious damage to the manual gearbox.



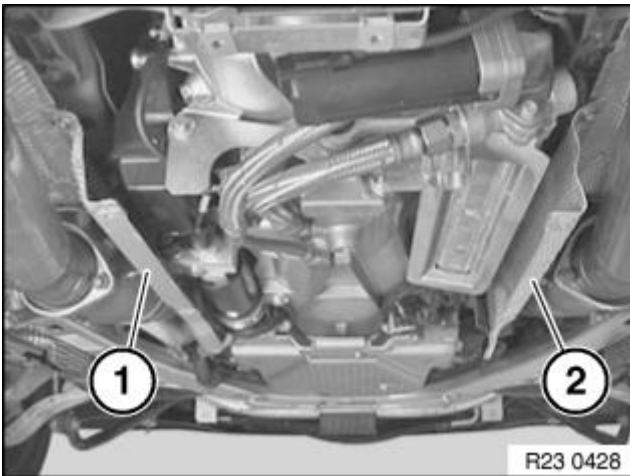
Necessary preliminary tasks:

- Remove complete [exhaust system](#).
- Remove centre underbody protection.
- Remove [reinforcement plate](#).

Important notes on installation are described in this work step.



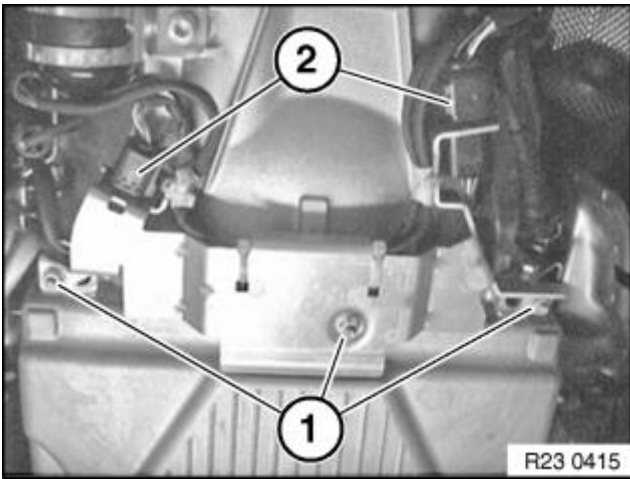
Remove heat shields (1) and (2).



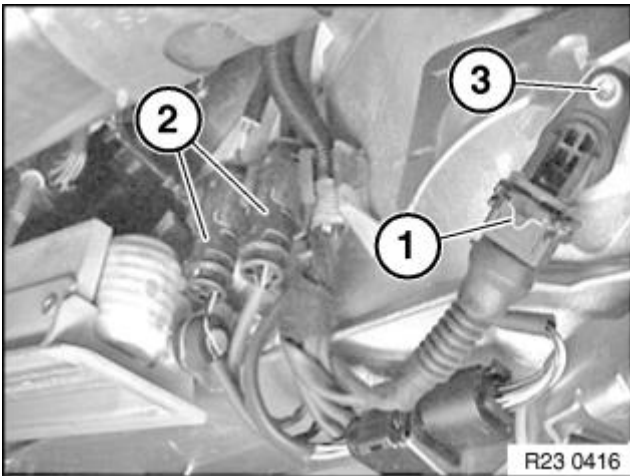
Remove heat shields (1) and (2).



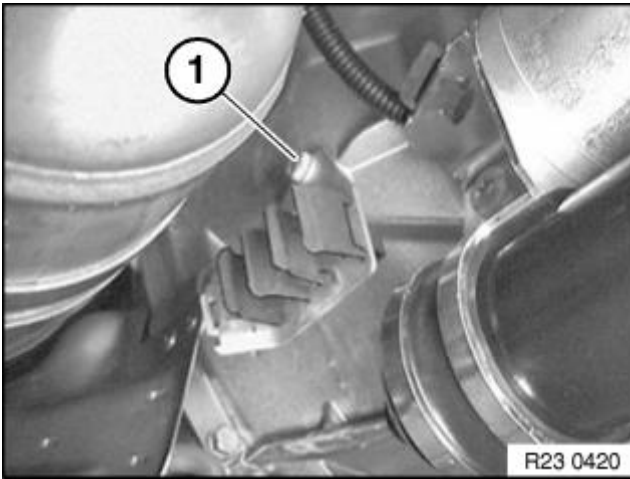
- [Remove](#) propeller shaft from transmission.
- Release centre mount.
- Important:
 - Bending the propeller shaft by an excessive angle can cause premature damage to the joint/propeller shaft!
- Tie up propeller shaft to underbody.
- Remove engine with lifter when removing transmission.



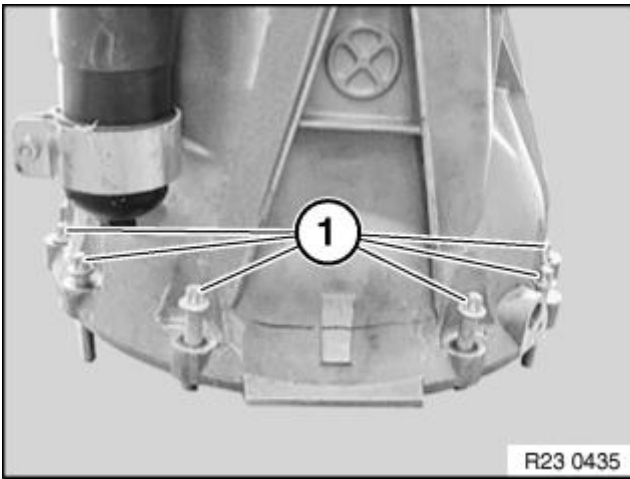
Unscrew nuts (1).
Disconnect connector (2) and unclip from holder.



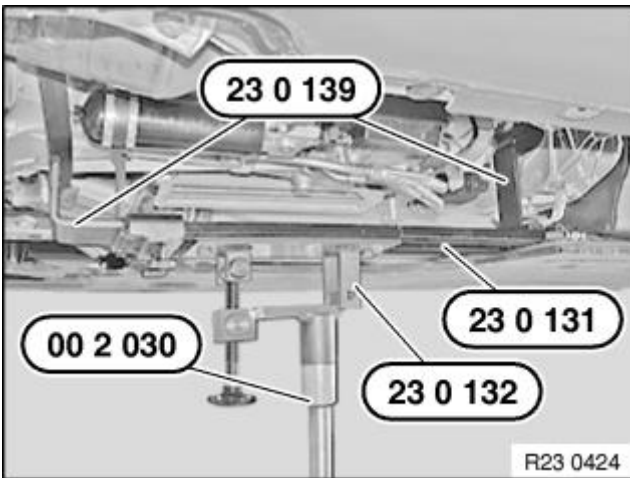
Unlock connector (1) from pulse sensor and detach.
Release screw (3) and remove pulse sensor.
Unlock connector (2) from oxygen sensor cable and detach.



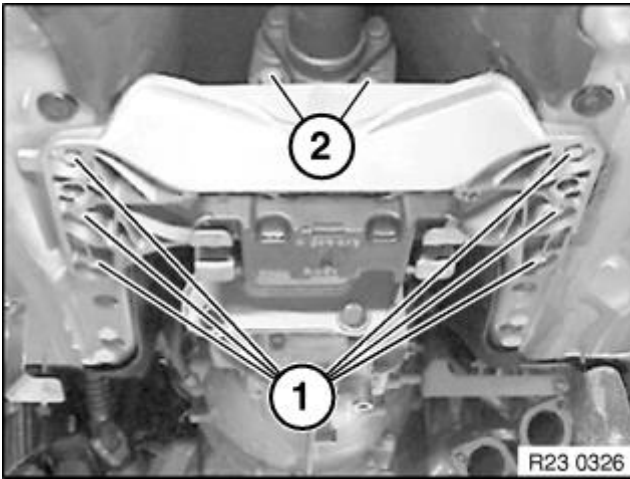
Release screw (1) and remove holder.



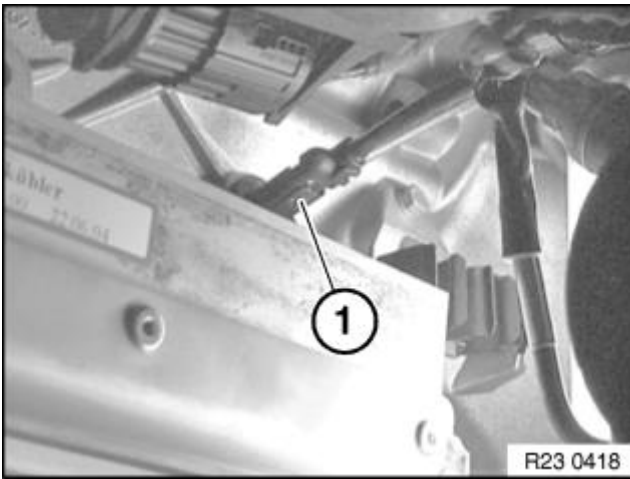
Loosen the following 6 screws (1) before supporting the transmission with a transmission lifter.
Tightening torque [23 00 1AZ](#).



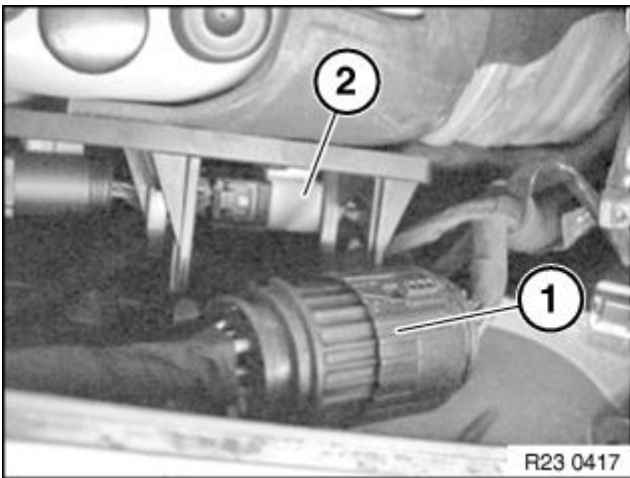
Support the transmission with special tool [00 2 030](#), [23 0 132](#), [23 0 131](#) and [23 0 139](#).



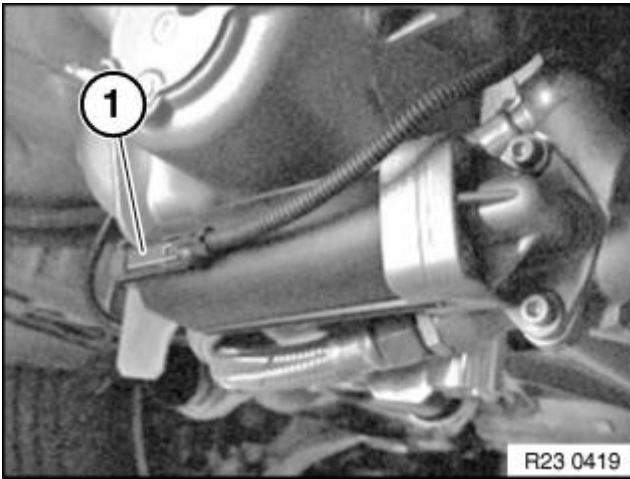
Release screws (1) and nuts (2) and remove cross member.
Tightening torque [22 32 3AZ/ 4AZ](#).
Lower transmission.



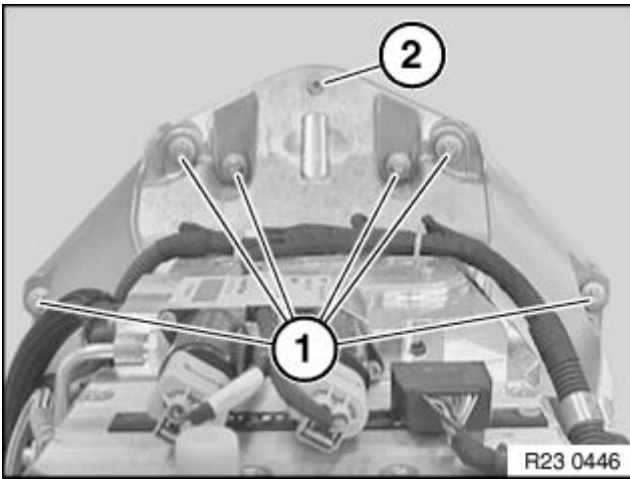
Unlock connector (1) and remove.



Unclip, unlock and remove the connector (1) from holder.
Unlock connector (2) and remove.
Installation note:
Check the connector pins of the connectors (1) and (2) for
damage and reset pin, if applicable!



Detach connector (1) from hydraulic pump.
Place wiring harness to the side!



Release remaining 6 bolts (1).
Tightening torque [23 00 1AZ](#).

Note:

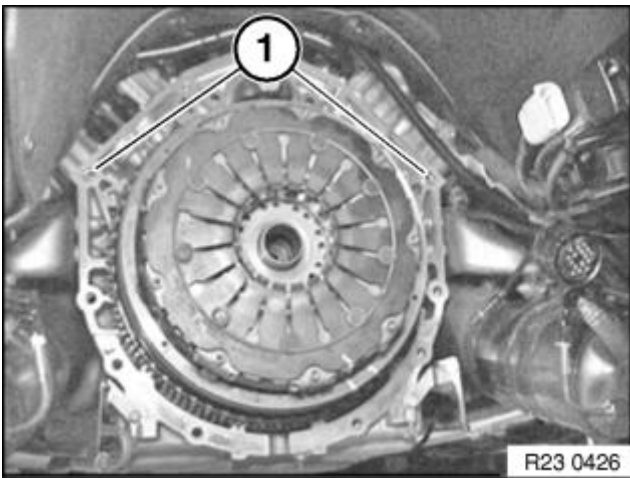
Bolt (2) must not be released.

Bolt (2) serves to secure the starter motor.

Important!

Do not allow the transmission to hang off from the
transmission drive shaft as this will deform the clutch disc.

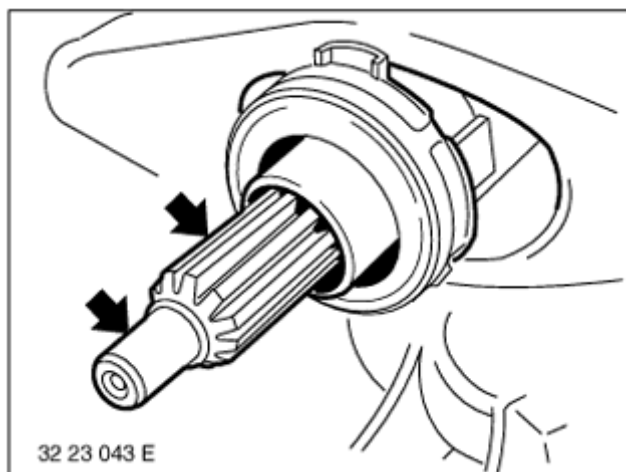
Pull out transmission towards rear and remove.



Installation note:

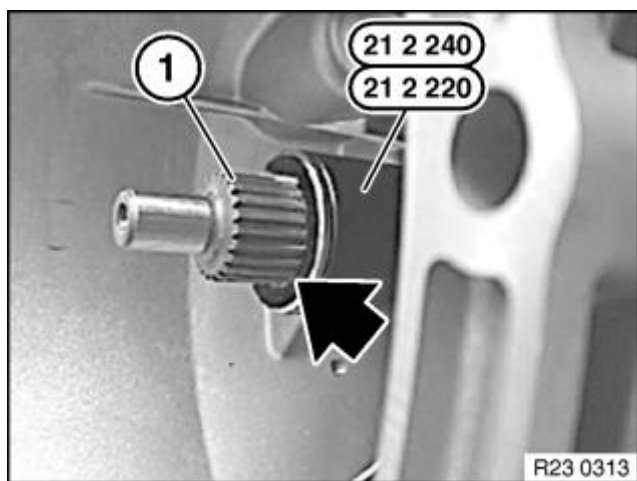
Check that fitting sleeves (1) are correctly seated.

Replace damaged fitting sleeves.



Installation note:

Check lubrication of transmission drive shaft for sticky consistency. If grease is sticky, [replace clutch disc](#).
Check the clutch disk for friction dust in taper spline and [replace](#), if applicable.
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](#).
- Push on grease scraper ring [21 2 240](#) until limit position.
- Grease gearing (1) of input shaft.
- [Refer to BMW Service Operating Fluids](#).
- Detach grease scraper ring.

23 00 Transmission in general

| | Type | Thread | Tightening specifications | Dimension |
|------------------------|--|--------|---------------------------|-----------|
| Transmission to engine | | | | |
| 1AZ | Transmission designations, see 23... | | | |
| Hex screws | B / C / D / E / F / G / H / I / 7-speed SMG | M6 | | 8 Nm |
| | B / C / D / E / F / G / H / I / 7-speed SMG | M8 | | 25 Nm |
| | B / C / D / E / F / G / H / I / 7-speed SMG | M10 | | 49 Nm |
| | B / C / D / E / F / G / H / I / 7-speed SMG | M12 | | 74 Nm |

| | | | | |
|-----------------------------|---|-------------------------------|---|------------|
| Torx bolt | B / C / D / E / F / G / H / I / 7-speed SMG | M6 | | 9 Nm |
| | B / C / D / E / F / 7-speed SMG | M8 | | 19 Nm |
| | B / C / D / E / H / I / 7-speed SMG | M10 | | 43 Nm |
| | G-transmission | M10 | | 38 Nm |
| | 7-speed SMG | M10x55 8.8 | | 43 Nm |
| | 7-speed SMG | M10x42 8.8 | | 42 Nm |
| | I / G / H / K transmission | M8 | | 19 Nm |
| Steel screws with Torx head | I / G / H / K transmission | M12 | | 66 Nm |
| Transmission to engine | | | | |
| 2Az | N52/N52K/N53/N54/N55 Aluminium screws/bolts are not magnetic. | I / G / H- transmission | Replace screws Jointing torque and angle of rotation must be observed without fail | |
| | | I / G / H- transmission | M10x30 Jointing torque | 20 Nm |
| | | | Angle of rotation | 90--110° |
| | | I / G / H- transmission | M10x85 Jointing torque | 20 Nm |
| | | | Angle of rotation | 180--200° |
| | | I / G / H / K transmission | M12 Jointing torque | 25 Nm |
| | | | Angle of rotation | 130 ° +20° |
| 3AZ | Cover plate, transmission | I / H-transmission | M6 | 8 Nm |

22 32 Transmission mounting

| | Type | Thread | Tightening specifications | Dimension |
|-----|---|---|----------------------------------|-----------|
| 1AZ | Bolt to transmission cross member | E60 / E65 / E66 / E67 | | 30 Nm |
| 2AZ | Transmission bearing support to transmission | E60 / E61 / E63 / E64 / E65 / E66 / E67 / E81 / E82 / E84 / E85 / E86 / E87 / E88 / E89 / E90 / E91 / E92 / E93 | ASA screw Isa flat-head screw | 38 Nm |
| | | | M10x32.5 | 48 Nm |

| | | | | |
|---|--|---|-----|-------|
| 3AZ | Transmission mount to transmission/transmission cross member | E60 / E61 / E63 / E64 / E67 / E81 / E82 / E84 / E85 / E86 / E87 / E88 / E89 / E90 / E91 / E92 / E93 | M8 | 19 Nm |
| 4AZ | Transmission cross member to body | E85 / E86 / E46 / E83 | M8 | 21 Nm |
| | | E60 / E61 / E63 / E64 / E67 / E81 / E82 / E84 / E87 / E88 / E89 / E90 / E91 / E92 / E93 | | 19 Nm |
| | | E53 | M10 | 41 Nm |
| | | E70 / E71 / E72 | M10 | 38 Nm |
| 5AZ | Transmission cross member to rubber mounts | E46 / E53 / E83 | M12 | 73 Nm |
| | | E70 / E71 / E72 / E84 | M12 | 68 Nm |
| 6AZ | Vibration absorber to transmission cross member | E60 / E61 | M10 | 38 Nm |
| 18 00 020 Removing and installing complete exhaust system (S85) | | | | |

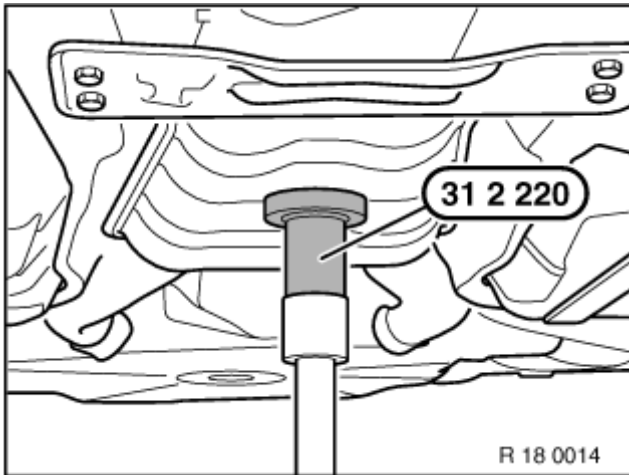


Special tools required:

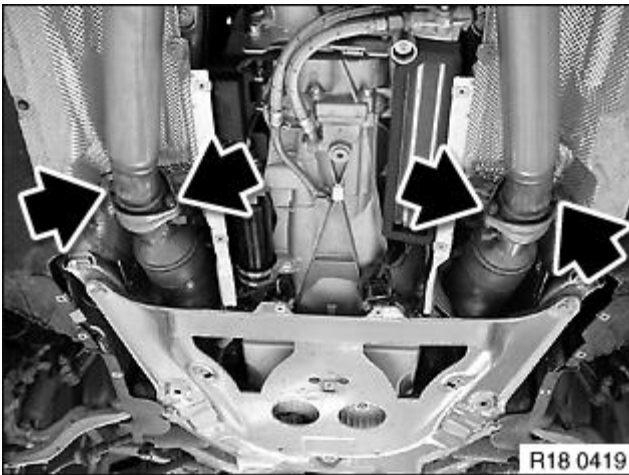
- [31 2 220](#)



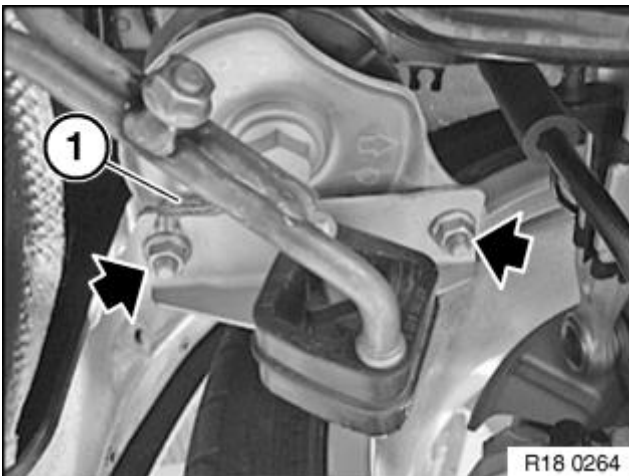
Warning!
Scalding hazard!
 Only perform this work after engine has cooled down.
Risk of injury!
 Removal of the exhaust system must be carried out with the assistance of a second person.



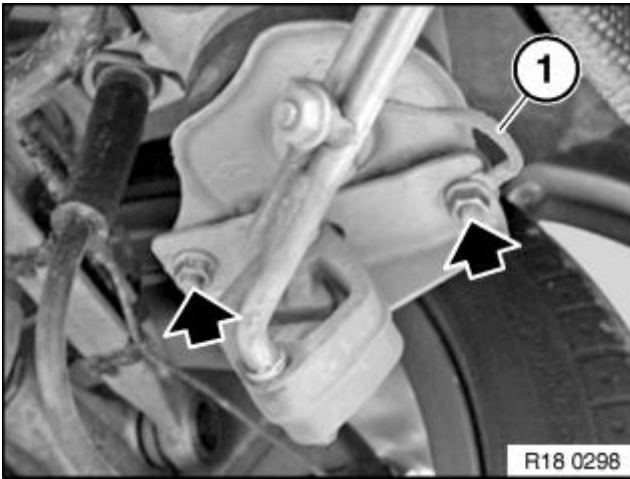
Support exhaust system with special tool [31 2 220](#).



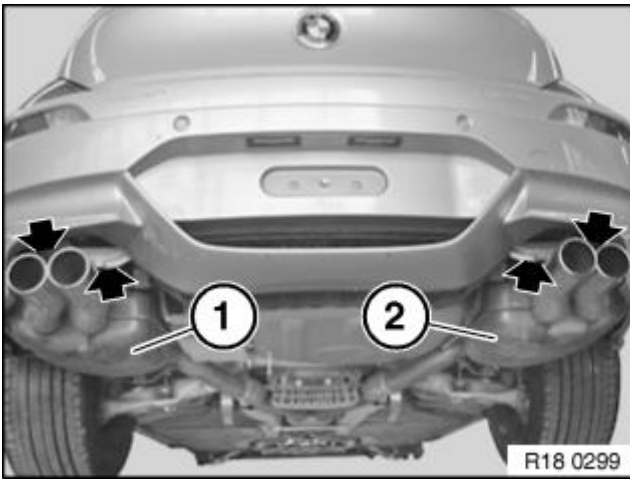
Unscrew nuts (1).
Tightening torque [18 40 2AZ](#).



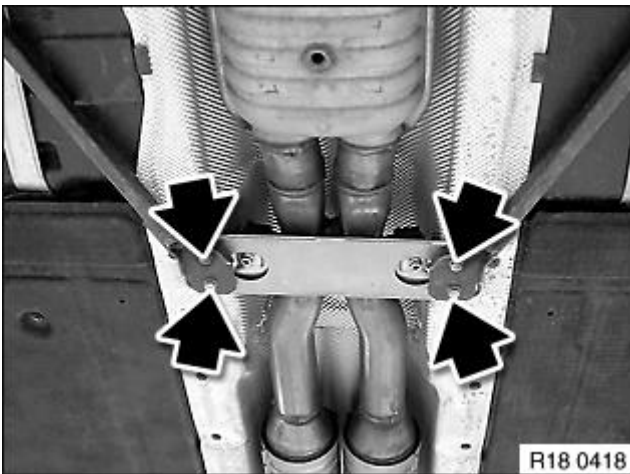
Unscrew nuts.



Unscrew nuts.



Picture shows E63:
Release nuts on rear mufflers (1 and 2).



Picture shows E61:
Release screws.
Tightening torque, [51 61 3AZ](#).
Carefully lower exhaust system (1).

18 40 Exhaust manifold

| | Type | Thread | Tightening specification | Measure |
|---|------|--------|--------------------------|---------|
| 1AZ Exhaust manifold to cylinder head | S85 | M8 | | 25 Nm |
| 2AZ Exhaust manifold to exhaust system | S85 | M10 | | 27 Nm |
| 31 10 010 Removing and installing/replacing reinforcement plate | | | | |



Important!

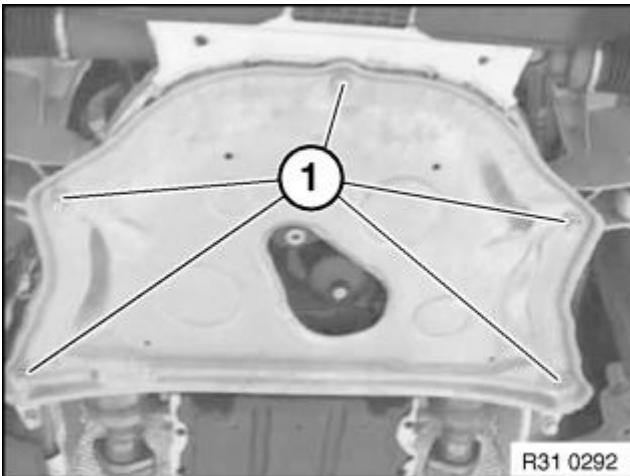
Observe [safety instructions](#) for raising the vehicle

Driving without reinforcement plate is not permitted!



Necessary preliminary tasks:

- Remove [underbody protective plate](#)



Release screws (1) and remove reinforcement plate.

Installation:

Replace screws and insertion nuts.

Tightening torque [31 10 9AZ](#).

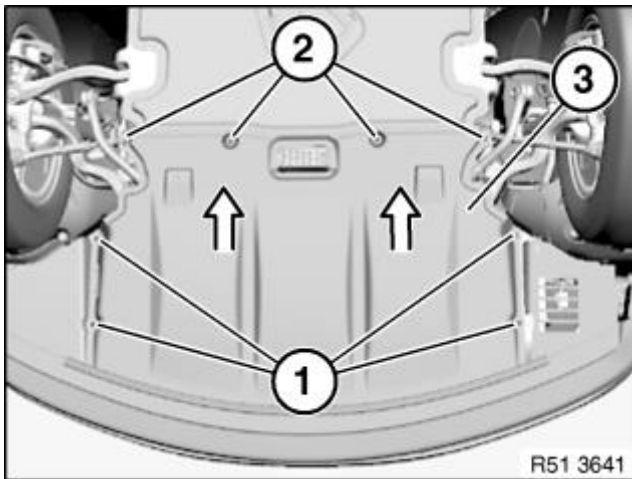


Replacement:
If applicable, remove heat shield.

31 10 Front Axle Suspension

| | Type | Thread | Tightening specification | Measure |
|-----|---|------------------------------------|-------------------------------|----------------|
| 1AZ | Front axle carrier to engine carrier | | Replace screws | |
| | | M10 8.8 | (E30 AWD insert with Loctite) | 42 Nm |
| | | M10 9.8 | Replace screws | 47 Nm |
| | | M12 12.9 | Replace screws | 105 Nm |
| | | M12 10.9 | Replace screws | 110 Nm |
| | | M12 8.8 | Replace screws | 77 Nm |
| | | M12 front 10.9 middle 8.8 rear 8.8 | Replace screws | 75 Nm |
| | | M12 10.9 | Observe repair instruction. | 100 Nm |
| 2AZ | Front end of front axle carrier to body | M12 10.9 | Observe repair instruction. | |
| | | | Replace screws | |
| | | | Jointing torque Torque angle | 100 Nm 90 ° |
| 3AZ | Front axle subframe rear / middle to body | M10 8.8 | | 47 Nm |
| | | M12 10.9 (collar screw) | | 113 Nm |
| 4AZ | Front axle carrier with reinforcement to engine carrier | M12 10.9 | | 59 Nm |
| | | M10 10.9 | | 50 Nm |
| | | M12 10.9 | | 100 Nm |
| 4AZ | Front axle carrier with reinforcement to engine carrier | E31 | | 47 Nm |

| | | | | |
|-----------|--|---|---------|--|
| 5AZ | Cruciform reinforcement to door sill | E31 | | 42 Nm |
| 6AZ | Reinforcement to bracket Bracket to body | E31 | | 42 Nm |
| 7AZ | Reinforcement (sleeve) to body | E31 | | 127 Nm |
| 8AZ | Front end reinforcement on front axle carrier/engine carrier | E46 | | Replace screws; first tighten down rear screws Jointing torque 59 Nm Torque angle 90+30 ° |
| 9AZ | Reinforcement plate to front axle support/engine carrier | E53 | | Replace screws & nuts Jointing torque 56 Nm Torque angle 90 ° |
| | | E60 / Rear end, E61 / Rear end, E63, E64, E65, E66, E67 | | Replace screws & insertion nuts Jointing torque 56 Nm Torque angle 90 ° |
| | | E60 / Four Wheel Drive, E61 / Four Wheel Drive | | Replace screws Jointing torque 56 Nm Torque angle 90 ° |
| | | E83 | M10 | Replace screws 74 Nm |
| 10AZ | Adapter to body | E46 / Four Wheel Drive | | Replace screws 59 Nm |
| 11AZ | Front axle support to adapter | E46 / Four Wheel Drive | | Replace screws 110 Nm |
| 12AZ | Heat shield to front axle carrier | E60, E61, E63, E64, E65, E66, E67 | | 8 Nm |
| 13AZ | Mounting bracket to front axle carrier / engine carrier | E60 / Four Wheel Drive, E61 / Four Wheel Drive | M8 x 26 | 19 Nm |
| 51 47 490 | Removing and installing / replacing front underbody protection | | | |



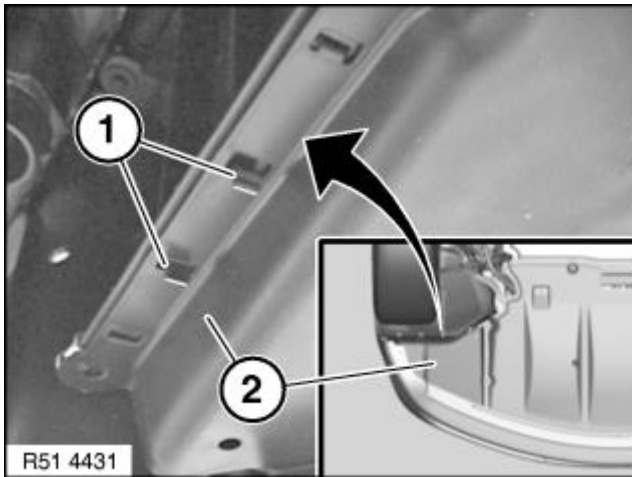
All except M5:

Release screws (1 and 2) and pull out underbody protection (3) from under bumper trim.

Installation:

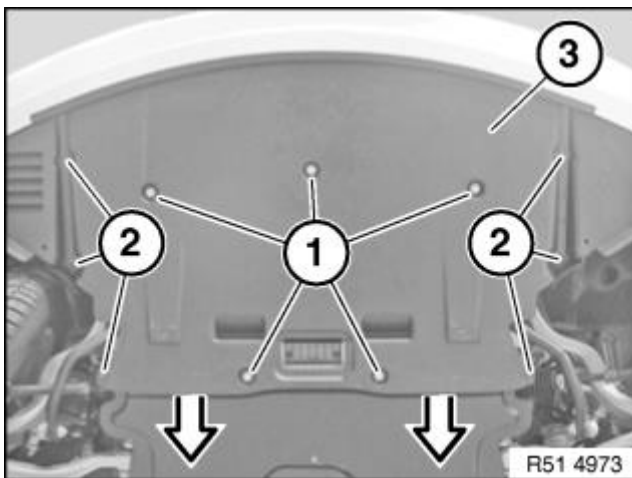
Ensure that seals are correctly seated.

Center underbody protection (3) and tighten down screws (1) and (2).



Replacement:

If necessary, remove catches (1) on cover (2).



Version with rough road package:

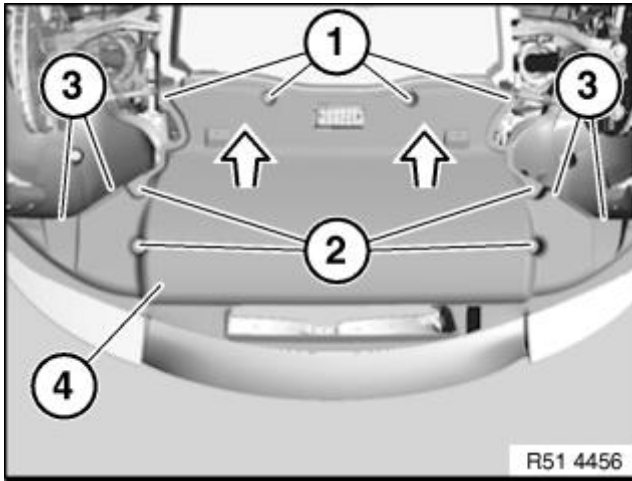
Release screws (1 and 2).

Feed out underbody protection (3) towards rear.

Installation:

Replace screws (1).

Tightening torque [51 71 20AZ](#).



M5 only:

Release screws (1 and 2).

Release screws (3) at side from wheel arch trim.

Pull underbody protection (4) forward under bumper trim.

Installation:

Ensure that seals are correctly seated.

Center underside protection (4) and tighten down screws (1, 2 and 3).

51 71 Gaskets and loose body components

| | Type | Thread | Tightening specifications | Dimension |
|--|---|--------|---------------------------|------------|
| 1AZ Front spoiler to bumper | E36 / M3 | | | 3 Nm |
| 2AZ Rear spoiler | E34 / touring, E36 / Z3 coupé / M coupé | M6 | | 6 Nm |
| | E36 / M3 | M6 | | 7 Nm |
| | E53 | | | 3 Nm |
| | E83 | M6 | | 10 Nm |
| | E61 | | | 8 Nm |
| 3AZ Reinforcement plate to front axle support/engine support | E46 / ohne Allrad, E85, E86 | | Replace screws | |
| | | | Jointing torque | 59 Nm |
| | | | Angle of rotation | 90 ° |
| 4AZ Trailing link in engine compartment | E85, E86 | | Nut | 41 Nm |
| | | | Replace screw | 56 Nm |
| | | | Angle of rotation | 105 ± 15 ° |
| | E83 | M8 | | 19 Nm |
| | E89 | | Replace screws | 100 Nm |
| | | | Angle of rotation | 105 ± 15 ° |
| 5AZ Reinforcement plate/trailing link to rear axle | E46 / Cabrio, E85, E86 | M10 | Replace screws | |
| | | | Jointing torque | 59 Nm |
| | | | Angle of rotation | 90 ° |
| 6AZ Reinforcement plate to body | E85, E86 | M8 | | 21 Nm |
| 7AZ Trailing link to rear axle | E46 / Cabrio | M8 | | 24 Nm |
| | E85, E86 | | Replace nut | 24 Nm |
| 8AZ Cross member, A-pillar, to bracket | E52 | M8 | | 19 Nm |
| 9AZ Cross member, A-pillar, middle | E52 | M8 | | 10 Nm |

| | | | | | |
|------|--|-------------------------|-----|--|------------------------|
| 10AZ | Strut to transmission tunnel | E52 | M8 | | 19 Nm |
| 11AZ | Cross member, A-pillar, bottom, to bracket | E52 | M6 | | 11 Nm |
| 12AZ | Support tube to support, steering column upper section | E65, E66, E67 | M8 | | 21 Nm |
| 13AZ | Support tube to body | E85 / E86 | M8 | | 20 Nm |
| 14AZ | Heating unit to support tube | E85, E86 | | | 4 Nm |
| 15AZ | Support tube to body | E60, E61, E63, E64, E83 | M8 | | 21 Nm |
| 16AZ | Mounting, cover, sill to body | E83 | M8 | | 5 Nm |
| 17AZ | Cover, partition, to body, front | E61 | | | 2.5 Nm |
| 18AZ | Retaining strip, sill trim, to side panel | E61 | | | 5 Nm |
| 19AZ | Multifunction pan to body | E60 / M5 E86 | | | 3 Nm 12 Nm |
| 20AZ | Underride protection to retaining bracket | E60, E61 | M8 | Replace bolts | 8 Nm |
| 21AZ | Retaining bracket for underride protection to frame side member | E60, E61 | M8 | Replace bolts | 8 Nm |
| 22AZ | Protective mat/protective cover to body | E60 / Security | M6 | Screw | 10 Nm |
| 23AZ | Cross connection (engine compartment) to upper section, support, front panel | E89 | | Screw | 7.6 Nm |
| 24AZ | Stiffening plate to body | E89 | M10 | Replace screws Jointing torque Angle of rotation | 56 Nm 105 ±15 ° |
| 25AZ | Stiffening plate to exhaust system | E89 | | Nut | 20 Nm |
| 26AZ | Stiffening plate to body | E89 | | Nut | 24 Nm |
| 27AZ | Diagonal strut in engine compartment | E89 | | Nut Screw | 56 Nm 56 Nm |

26 11 000 Removing and installing complete propeller shaft (constant-velocity joint)

Important!

On four-wheel drive vehicles with defective, non-engaging drive, it is imperative that the following information is taken account of.

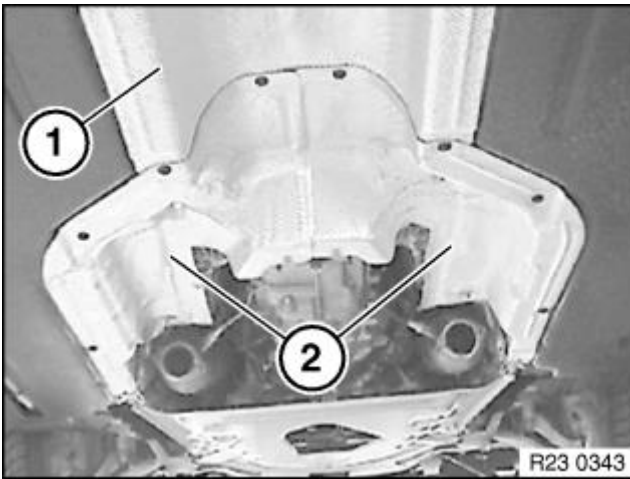


- Additional work when replacing propeller shaft.



Necessary preliminary tasks:

- Remove rear underbody protection.
- Remove complete [exhaust system](#).



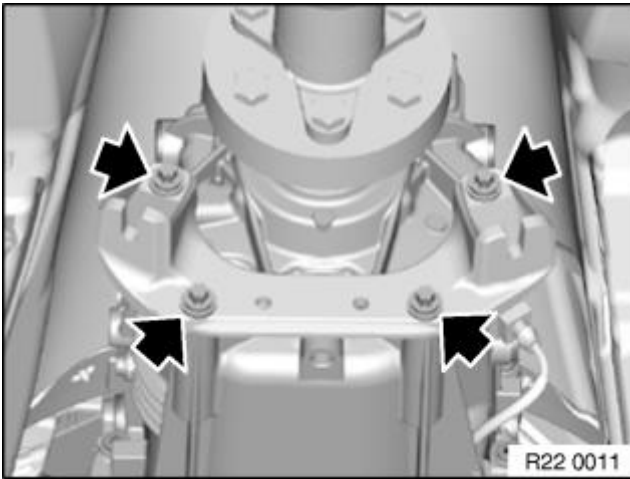
Remove heat shields (1) and (2).

Note:
Graphic similar.



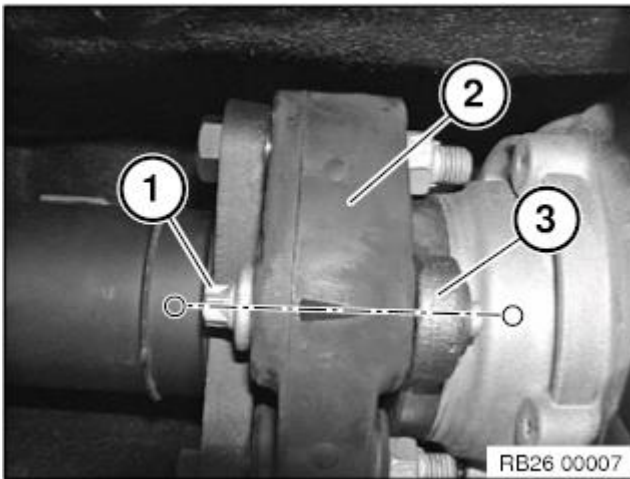
Note:
M57/N47/M57T2/N54/N43/N46T only.

- Remove [transmission cross-member](#).



Note:
N43, N46T only

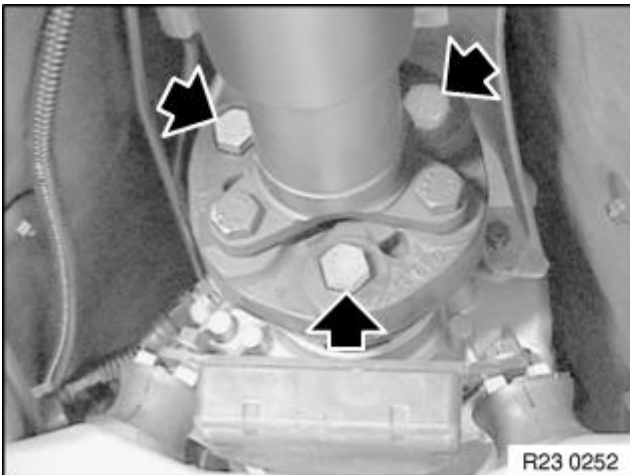
Remove transmission bearing block.
Tightening torque, [23 71 4AZ](#).



Important!

To avoid buzzing sound after refitting the propeller shaft:

1. The flexible disc connection (1) on the front at the propeller shaft must be marked in one plane with the flexible disc (2) and the three-bolt flange (3) before removal.
2. During installation the three-bolt flange (3) must be forced back together again with the flexible disc (2) in the same position.
3. Replace ZNS bolts and self-locking nuts.



Release screws.

Installation note:

ZNS bolts and nuts must be replaced.

Replace self-locking nuts.

Important!

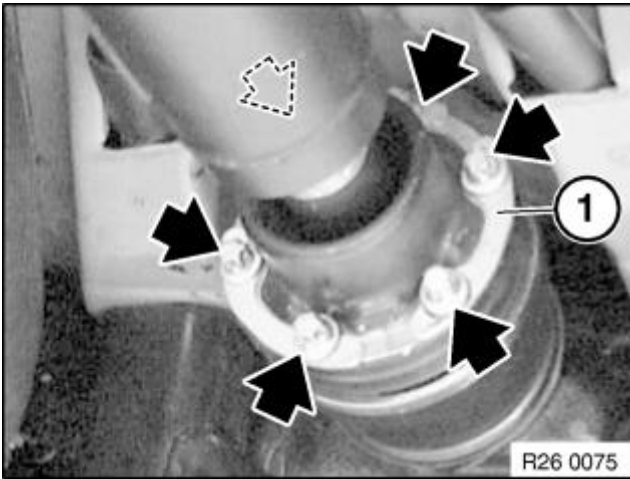
Only M57:

The bolt without washer may only be tightened by means of the nut.

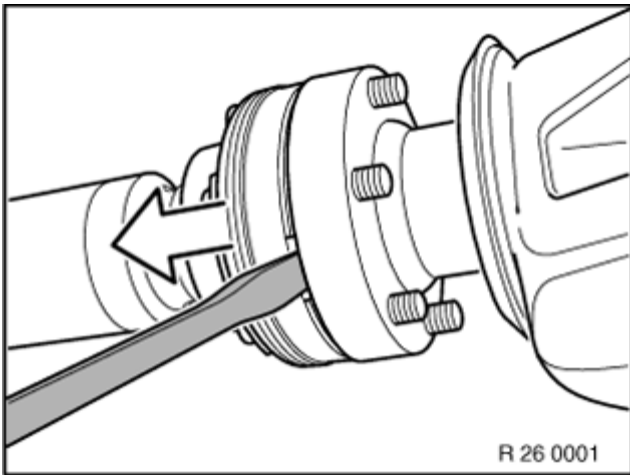
The bolt with rolled-on washer which has ribbed teeth facing the support side must be tightened by means of the bolt.

Observe different tightening torques.

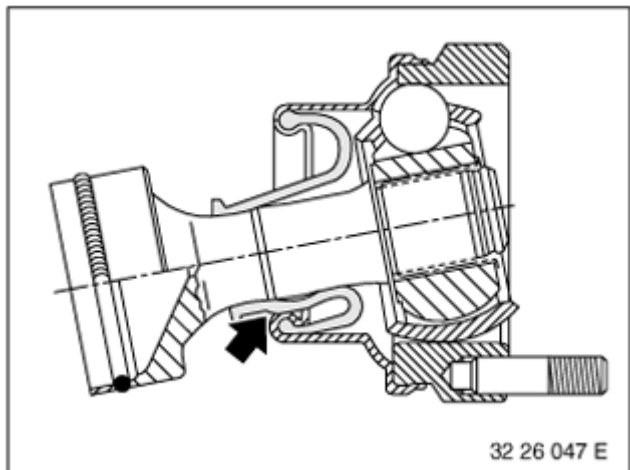
[Tightening torque, 26 11 1AZ](#).



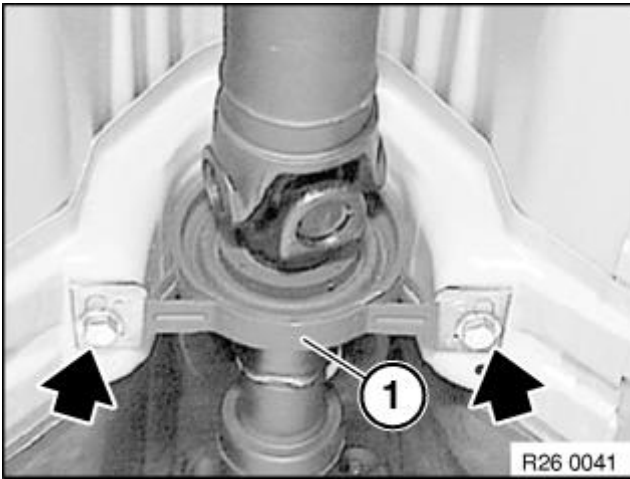
Release bolts and replace.



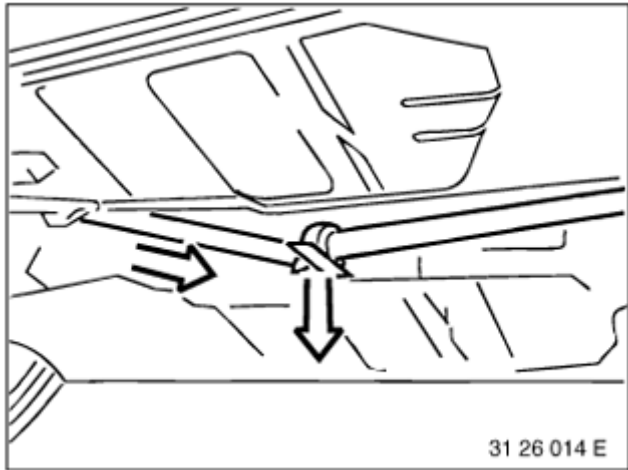
Using a screwdriver, press constant velocity joint off drive flange at dismantling grooves.



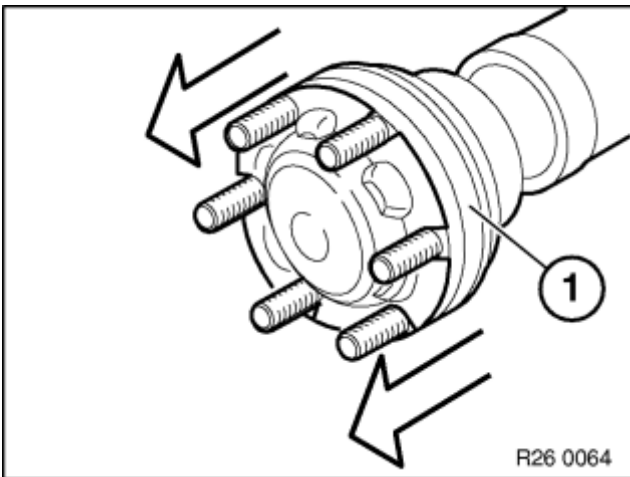
Important!
Do not let propeller shaft fall into joints.
Joints and rubber cup can be damaged on constant velocity joint.



Grip propeller shaft at centre mount and release screws.
[Tightening torque, 26 11 6AZ.](#)



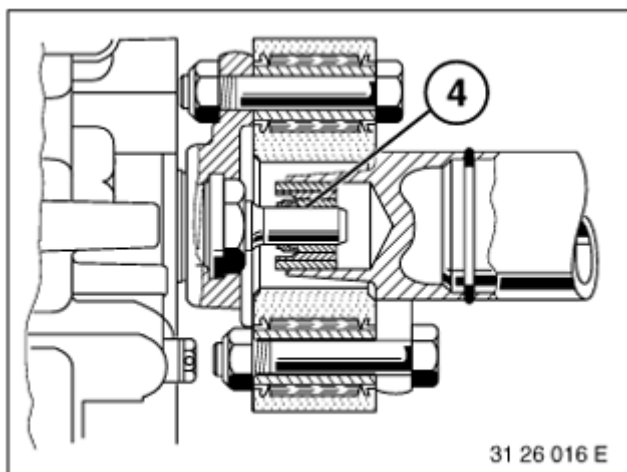
Bend propeller shaft downwards at centre bearing.
 Remove propeller shaft from transmission output flange and detach constant velocity joint from rear axle final drive.



Installation note:
 Withdraw constant velocity joint (1) up to limit position.
 Fit shims.
 Attach propeller shaft with pulled-apart constant velocity joint to drive flange of rear axle final drive.

Alternately tighten 2 opposing screws to draw constant-velocity joint evenly into the input flange.
 Replace ZNS bolts.

[Tightening torque, 26 11 4AZ.](#)

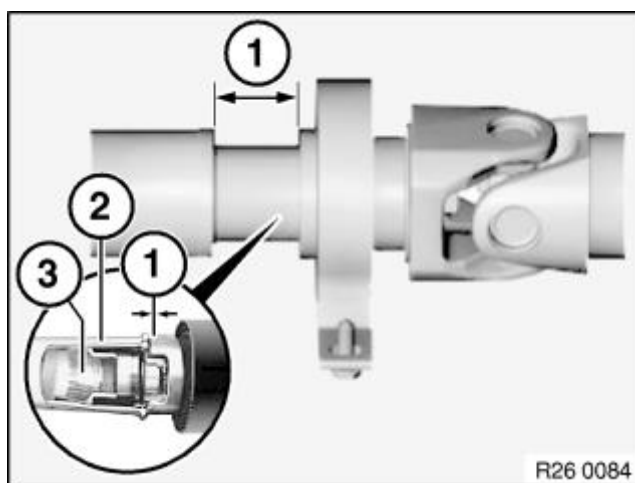


Installation note:
Check centring mount (4).

[Replace damaged centring mount](#) .

Grease centring mount.

Grease,
refer to BMW Service Operating Fluids.



Installation note:

The aluminium propeller shaft contains a crash element.
Check the crash element before installing the propeller shaft.
Replace the propeller shaft if the crash element has been
pushed together.

1 Deformation travel approx. 100 mm

2 Aluminium tubing

3 Bearing journal

Propeller shafts: [refer to Technical Data](#).

23 71 Transmission mounts

| | Type | Thread | Tightening specification | Measure |
|--|-----------------------|--------|----------------------------|---------|
| 1AZ Transmission mounts (rubber) to body | B / C / D / E / F / G | | | |
| | / H / I / 7-speed | M10 | | 42 Nm |
| | SMG | | | |
| | B / C / D / E / F / G | | | |
| | / H / I / 7-speed | M12 | | 73 Nm |
| | SMG | | | |
| 2AZ Transmission cross-member to body | B / C / D / E / F / G | | | |
| | / H / I / 7-speed | M10 | | 42 Nm |
| | SMG | | | |
| | B / C / D / E / F / G | | | |
| | / H / I / 7-speed | M8 | | 19 Nm |
| | SMG | | | |
| | B / C / D / E / F / G | | | |
| | / H / I / 7-speed | M8 | E83, E85, E86, E46 only | 21 Nm |
| | SMG | | | |
| 3AZ Mount bracket to transmission | B / C / D / E / F / G | | | |
| | / H / I / 7-speed | M8 | | 19 Nm |
| | SMG | | | |

| | | | | |
|-----|---|---|---------------------|-------|
| 4AZ | Transmission support block to transmission | B / C / D / E / F / G / H / I / 7-speed SMG | M10 ASA screw | 38 Nm |
| | | B / C / D / E / F / G / H / I / 7-speed SMG | M10 ISA pan head | 48 Nm |
| 5AZ | Transmission mount to transmission support bracket/transmission cross-member | B / C / D / E / F / G / H / I / 7-speed SMG | M8 | 19 Nm |

26 11 Propeller Shaft. complete

| | Type | Thread | Tightening specifications | Dimension |
|---|---|--------|---|-----------|
| Propeller shaft to 4AZ drive flange (rear axle final drive) | | | | |
| Version, universal joint: | E36 / E38 / E39 / E46 / E52 / E53 / E60 / E61 / E63 / E64 / E65 / E66 / E83 / E85 | M10 | Only finned nuts to higher tightening torque | 64 Nm |
| Compression nut | | | | |
| Version, universal joint: | E36 / E38 / E39 / E46 / E52 / E53 / E60 / E61 / E63 / E64 / E65 / E66 / E83 / E85 | M10 | | 85 Nm |
| Torx bolt | | | | |
| Version, constant- velocity joint: | E46 (M3) / E38/ E39/ E46 / E60 / E83(M57TU)E63(N52) | M10 | | 70 Nm |
| Torx bolt | | | | |
| Version, constant- velocity joint: | E36 / E38 / E39 / E46 / E52 / E53 / E60 / E61 / E63 / E64 / E65 / E66 / E83 / E85 | M8 | | 32 Nm |
| Compression nut | | | | |
| Compression nut | E36 / E38 / E39 / E46 / E52 / E53 / E60 / E61 / E63 / E64 / E65 / E66 / E83 / E85 | M10 | | 64 Nm |
| Finned nut | E36 / E38 / E39 / E46 / E52 / E53 / E60 / E61 / E63 / E64 / E65 / E66 / E83 / E85 | M8 | | 43 Nm |
| Finned nut | E36 / E38 / E39 / E46 / E52 / E53 / E60 / E61 / E63 / E64 / E65 / E66 / E83 / E85 | M10 | | 70 Nm |
| ZNS screws and nuts, shiny zinc coating | | | Replace bolts and nuts Jointing torque and angle of rotation must | |

| All versions with universal or constant-velocity joint | | be observed without fail | |
|--|---|---|----------------------------------|
| | E83 / E85 / E86 / E87 / E90 / E91 / E92 / E93 / E81 / E82 / E84 / E88 | M10-10.9 screw with ribbed teeth | Jointing torque 40 Nm |
| | | Angle of rotation | 45 ° |
| | E92 M3 / E82 M Coupé | M10 screw with ribbed teeth | Jointing torque 20 Nm |
| | | Angle of rotation | 90 ° |
| | E46 / E60 / E61 / E63 / E64 / E65 / E66 / E83 / E85 / E86 / E81 / E82 / E87 / E90 / E91 / E92 / E93 / E88 / E84 | M10-10.9 | Jointing torque 20 Nm |
| | | Angle of rotation | 90 ° |
| | E90 / E91 / E92 / E93 / E81 / E87 / E82 / E83 / E88 / E84 | M12x55-10.9 | Jointing torque 55 Nm |
| | | Angle of rotation | 90 ° |
| Screw with ribbed teeth | E85 / M, E86 / M | M10x46-10.9 | Replace screws and washers 70 Nm |
| 5AZ | Pivot fork piece to centre propeller shaft bearing journal with Loctite | | 97 Nm |
| | (Version without slide) | | |
| 6AZ | Centre mount to body | | 21 Nm |
| 7AZ | Flexible disc to front axle differential | M10-10.9 | 60 Nm |
| 8AZ | Flexible disc on propeller shaft | M10-10.9 | 64 Nm |
| 9AZ | Front propeller shaft to transfer box/front differential | Replace bolts and nuts Jointing torque and angle of rotation must be observed without fail | |

ZNS screws and
nuts, shiny zinc
coating

| | | | | |
|-----------------|---|-----------------|-------------------|-------|
| Universal joint | E60 / E61 / E90 / E91 / E92 / E84 / E70 / E71 | M8 | Jointing torque | 20 Nm |
| | | | Angle of rotation | 45 ° |
| | E46 | M10-10.9 | Jointing torque | 20 Nm |
| | | | Angle of rotation | 45 ° |
| | E53 / E70 / E71 / E72 | M10-12.9 | Jointing torque | 10 Nm |
| | | | Angle of rotation | 45 ° |
| | E46 | M10x1.5 10.9 | Jointing torque | 5 Nm |
| | | | Angle of rotation | 90 ° |
| | E70 / E71 / E72 / E83 | M10-10.9 | Jointing torque | 40 Nm |
| | | | Angle of rotation | 45 ° |

22 32 Transmission mounting

| | Type | Thread | Tightening specifications | Dimension |
|--|---|----------|-------------------------------|-----------|
| 1AZ Bolt to transmission cross member | E60 / E65 / E66 / E67 | | | 30 Nm |
| 2AZ Transmission bearing support to transmission | E60 / E61 / E63 / E64 / E65 / E66 / E67 / E81 / E82 / E84 / E85 / E86 / E87 / E88 / E89 / E90 / E91 / E92 / E93 | M10x35 | ASA screw Isa flat-head screw | 38 Nm |
| | | M10x32.5 | | 48 Nm |
| 3AZ Transmission mount to transmission/transmission cross member | E60 / E61 / E63 / E64 / E67 / E81 / E82 / E84 / E85 / E86 / E87 / E88 / E89 / E90 / E91 / E92 / E93 | M8 | | 19 Nm |
| 4AZ Transmission cross member to body | E85 / E86 / E46 / E83 | M8 | | 21 Nm |
| | E60 / E61 / E63 / E64 / E67 / E81 / E82 / E84 / E87 / E88 / E89 / E90 / E91 / E92 / E93 | | | 19 Nm |
| | E53 | M10 | | 41 Nm |
| | E70 / E71 / E72 | M10 | | 38 Nm |
| 5AZ Transmission cross member to rubber mounts | E46 / E53 / E83 | M12 | | 73 Nm |
| | E70 / E71 / E72 / E84 | M12 | | 68 Nm |
| 6AZ Vibration absorber to transmission cross member | E60 / E61 | M10 | | 38 Nm |

21 51 500 Removing and installing or replacing clutch release bearing/lever (GS7S47BG SMG)

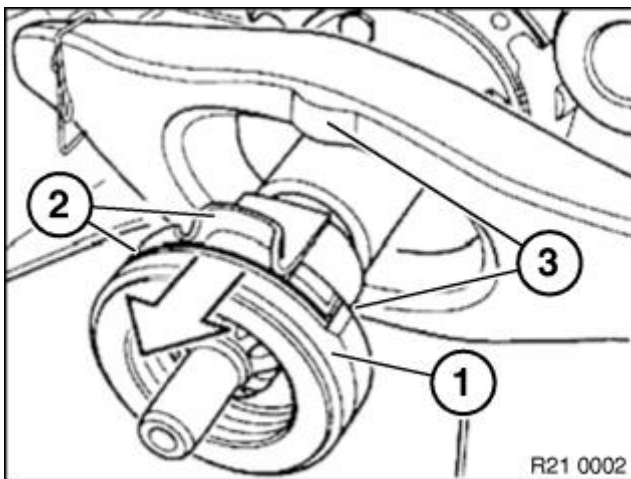
Note:

(transmission removed)



Important!

Clutch release bearing is made of aluminium and its sliding surfaces must be covered with a thin film of grease.



Detach release bearing (1).

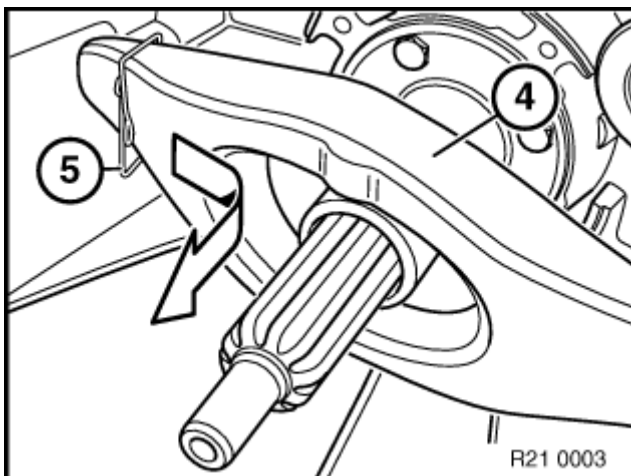
Installation:

Clean all sliding surfaces on clutch release bearing, check for damage and replace if necessary.

Sliding surfaces (2) of clutch release bearing must rest on sliding surfaces (3) of release lever.

Apply a thin coating of grease to sliding surfaces (2) of release bearing.

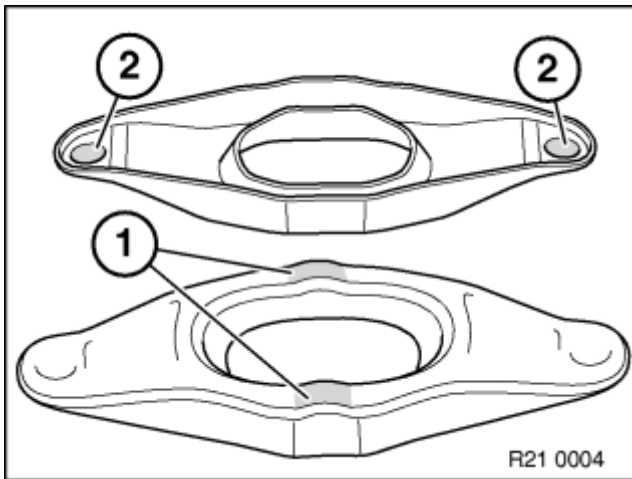
[Grease, refer to BMW Service Operating Fluids.](#)



Withdraw release lever (4) from spring wire clip (5) and remove.

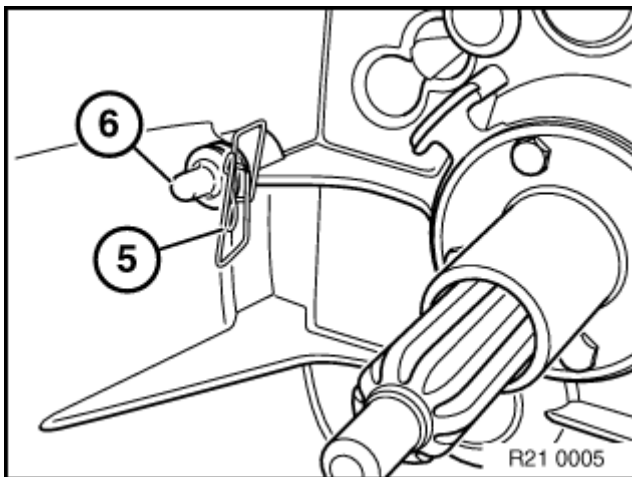
Installation:

Clean release lever.



Apply a thin coating of grease to release lever at sliding surfaces (1 and 2) only.

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

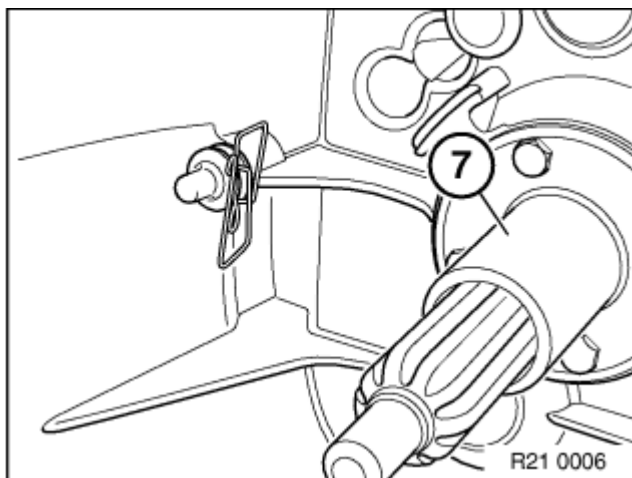


Installation:

Check spring wire clip (5) and ball pin (6) for damage and replace if necessary.

Apply a thin coating of grease to ball pin (6).

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



Installation:

Clean guide sleeve (7).

Coat guide sleeve with a thin film of grease.

If guide sleeve is greased, the release lever can stick on the guide sleeve.

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



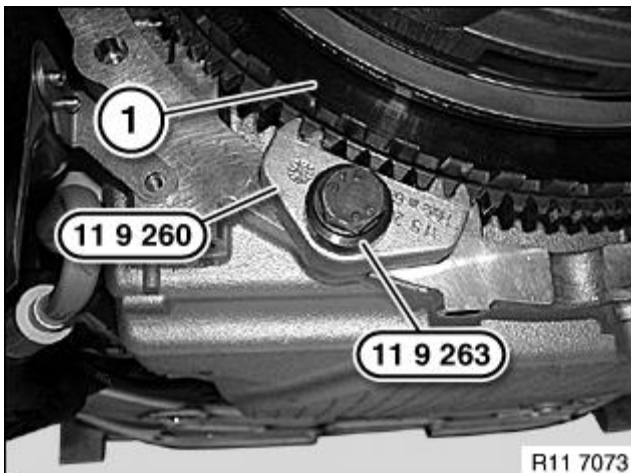
Special tools required:

- [11 4 180](#)
- [11 9 260](#)
- [11 9 263](#)

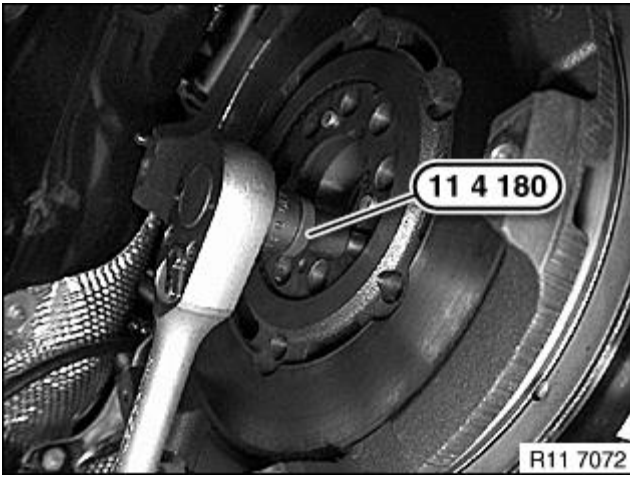


Necessary preliminary tasks:

- Remove [transmission](#).
- Remove [clutch](#).



Secure flywheel (1) with special tools [11 9 263](#) and [11 9 260](#).



Installation:
Fit new flywheel screws.

Tightening torque: [11 22 1AZ](#).
Release flywheel screws with special tool [11 4 180](#).



Assemble engine.

11 22 Flywheel

Type Thread Tightening specification Measure

1AZ DM flywheel to crankshaft (manual transmission) S85 M12x1.5 105 Nm