

## 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!

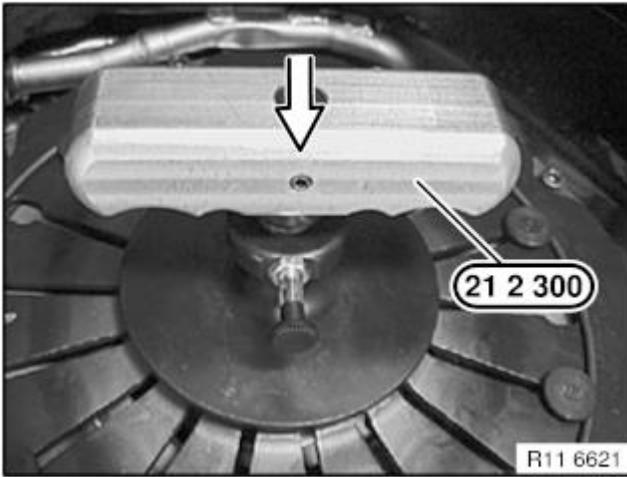
Guide sleeve, ball pin and spring clip absolutely must be renewed when the clutch is replaced.

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



#### Necessary preliminary tasks:

- Remove [transmission](#).



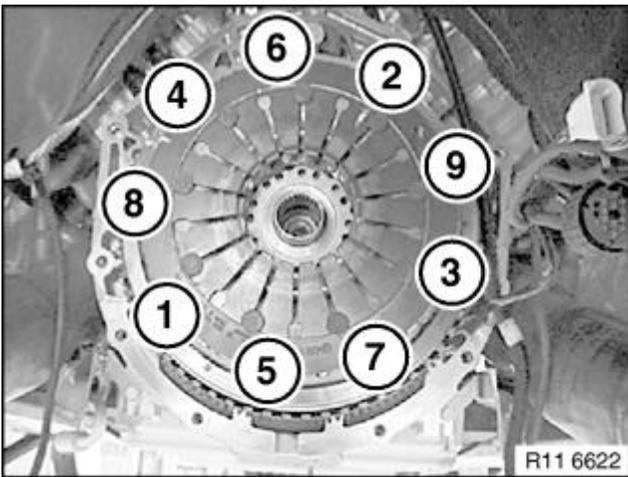
Important!

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.

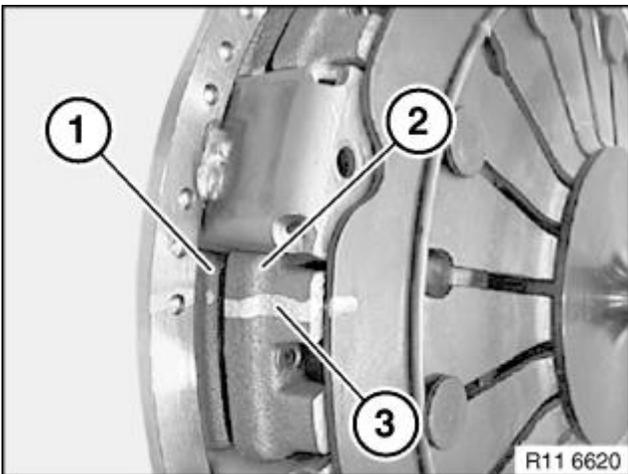


Release screws evenly in 1/2 revolutions.

Release the screws in sequence 1 to 9.

Note:

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



Important!

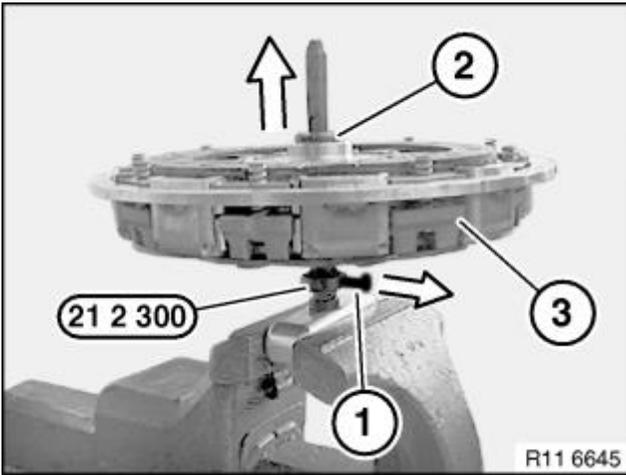
The double-disc clutch must not be disassembled or opened.

If the double-disc clutch is opened, the double-disc clutch must be completely renewed along with the pressure plate.

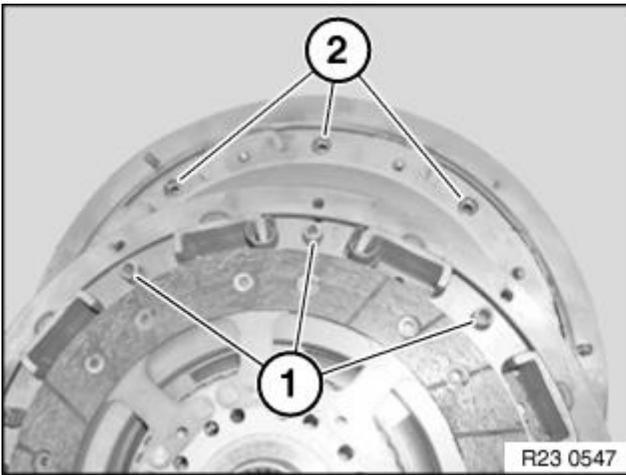
Check the control line (3) at the double-disc clutch.

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.

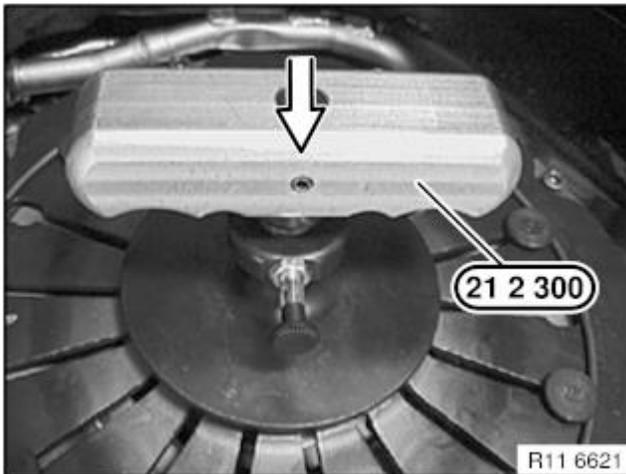


Clamp special tool [21 2 300](#) in a vice with the handle.  
Loosen lock (1) in direction of arrow.  
Lift double-disc clutch (3) in direction of arrow.  
Installation note:  
Insert new double-disc clutch (3).  
Securing catch (2) must be locked.

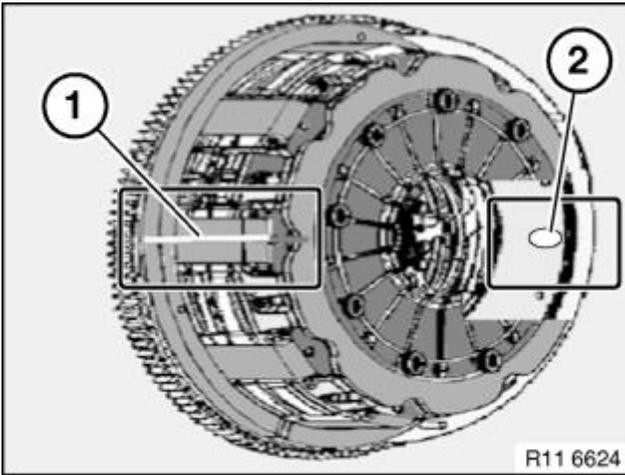


Installation note:  
When installing the clutch, the springs (1) must be fit exactly  
in the holes (2) of the flywheel.

Important!  
The clutch must be installed without tension.



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

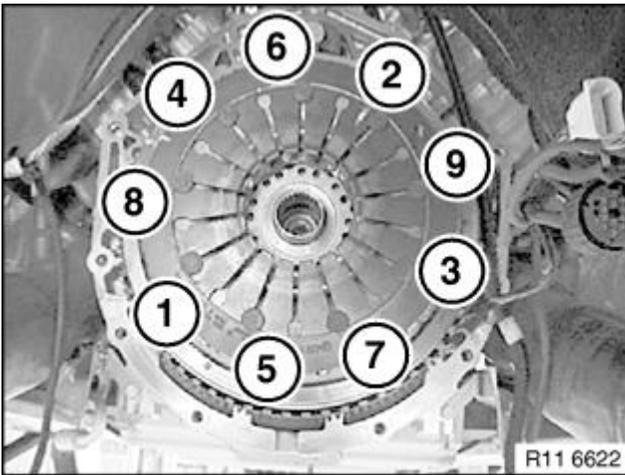


Check the mark (1) at the double-disc clutch.  
Mark (2) on dual-mass flywheel.

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.

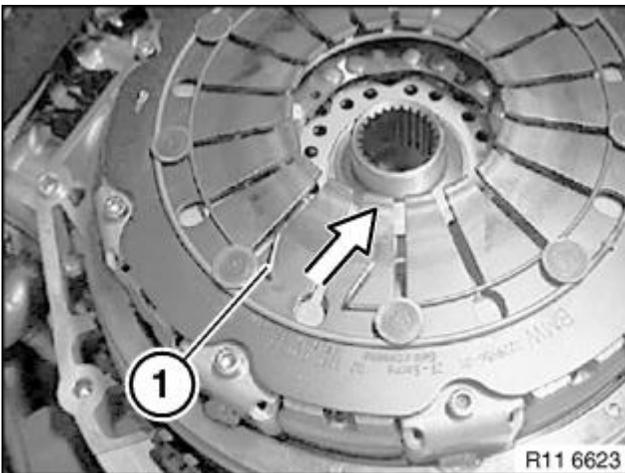
Tighten screws evenly in 1/2 revolutions.

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
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1AZ	Clutch to flywheel	S85 M6	Observe tightening specification. 10+2 Nm
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## 21 51 500 Removing and installing or replacing clutch release bearing/lever (GS7S47BG SMG)

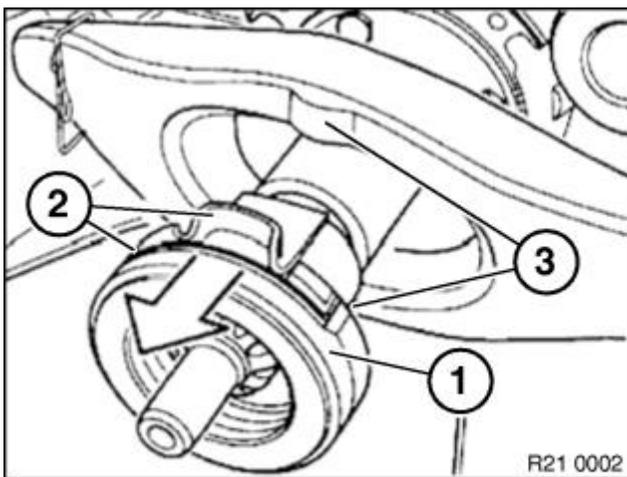
Note:

(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).

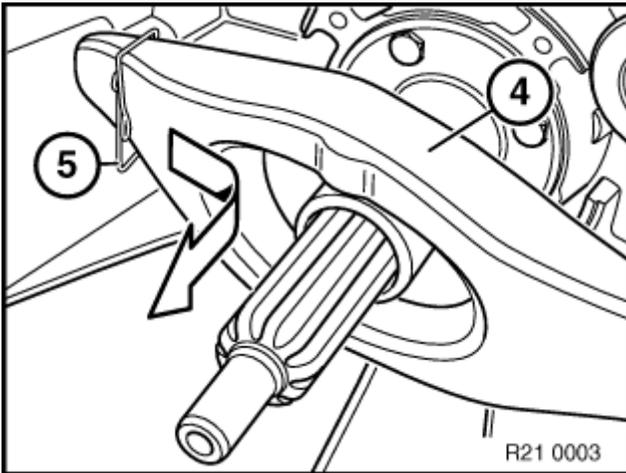
Installation:

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.

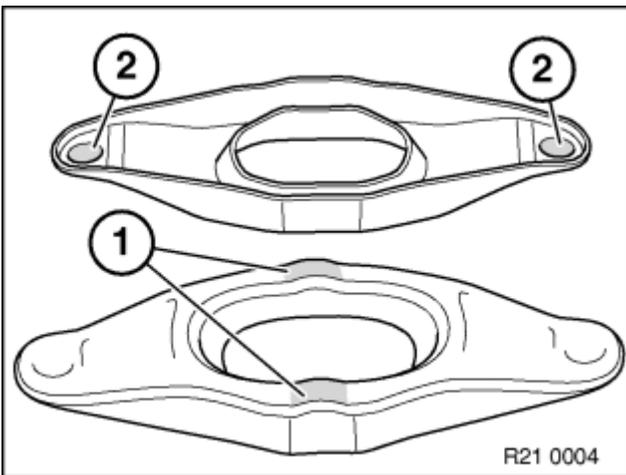
[Grease, refer to BMW Service Operating Fluids.](#)



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

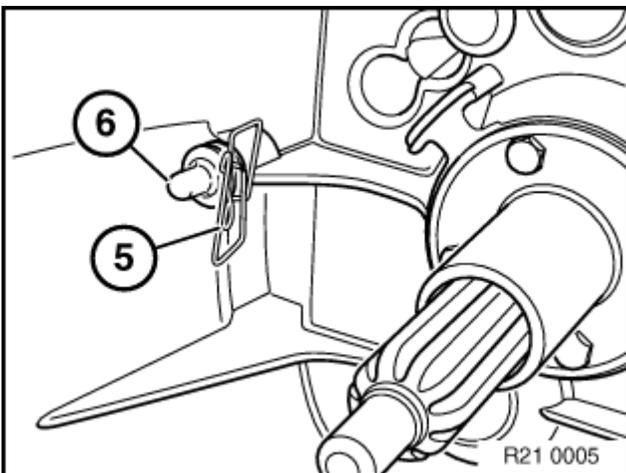
Installation:

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.](#)

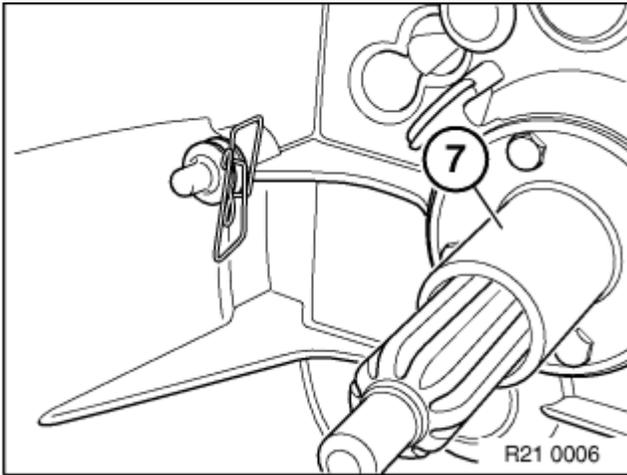


Installation:

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.

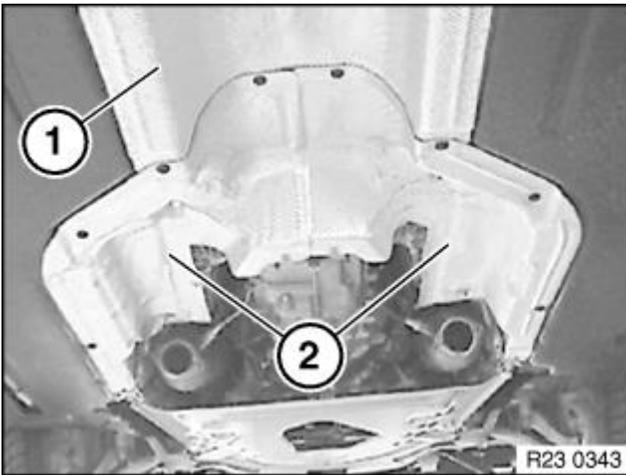
Failure to comply with this requirement will result in serious damage to the manual gearbox.



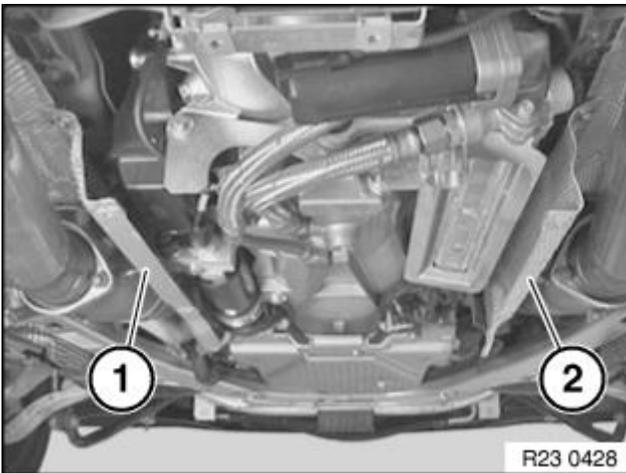
Necessary preliminary tasks:

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

Important notes on installation are described in this work step.



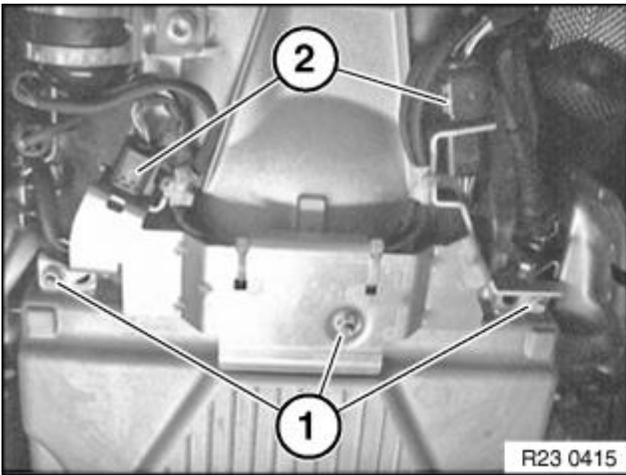
Remove heat shields (1) and (2).



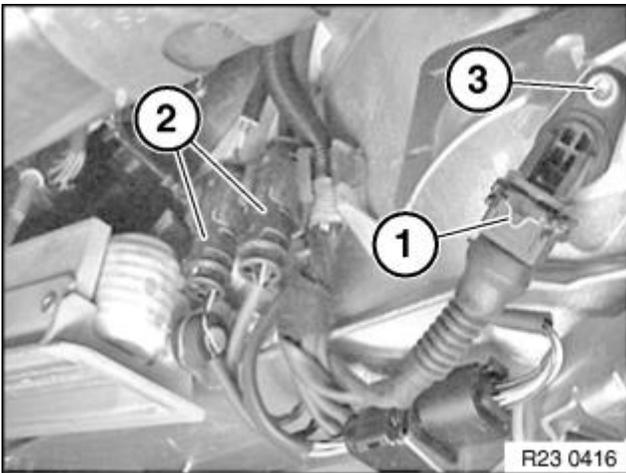
Remove heat shields (1) and (2).



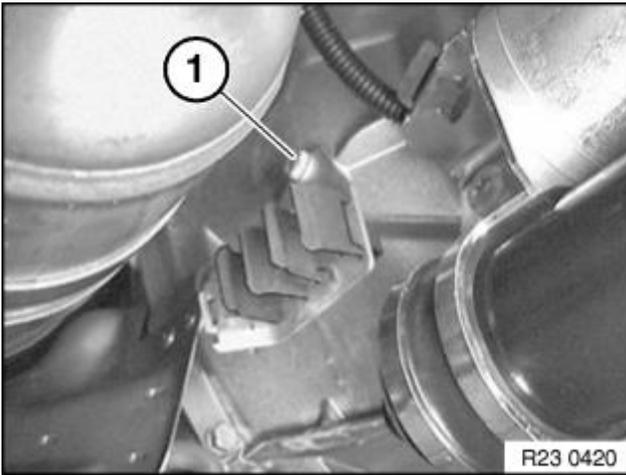
- Remove propeller shaft from transmission.
- Release centre mount.
- Important:
  - Bending the propeller shaft by an excessive angle can cause premature damage to the joint/propeller shaft!
- Tie up propeller shaft to underbody.
- Remove engine with lifter when removing transmission.



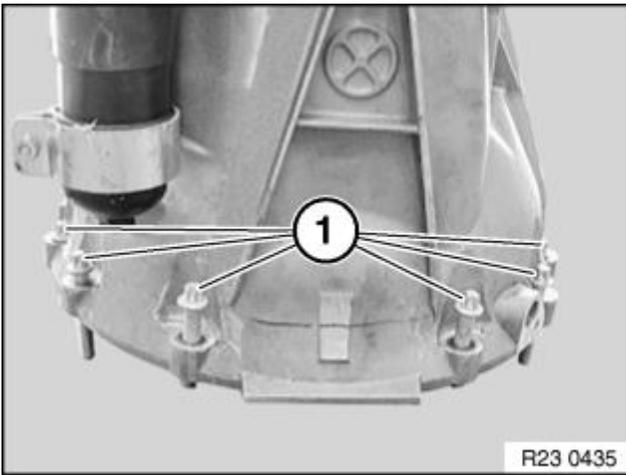
Unscrew nuts (1).  
Disconnect connector (2) and unclip from holder.



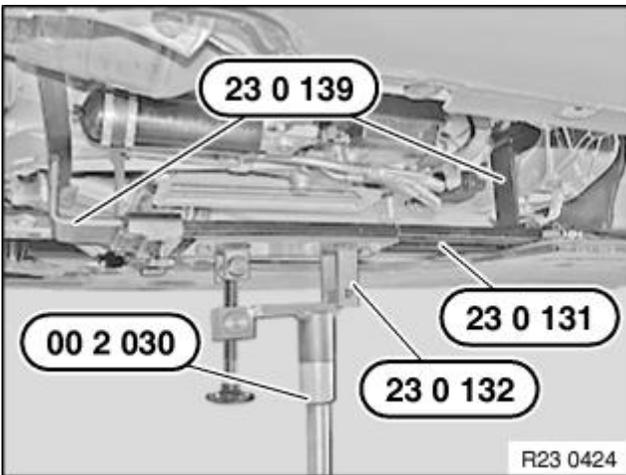
Unlock connector (1) from pulse sensor and detach.  
Release screw (3) and remove pulse sensor.  
Unlock connector (2) from oxygen sensor cable and detach.



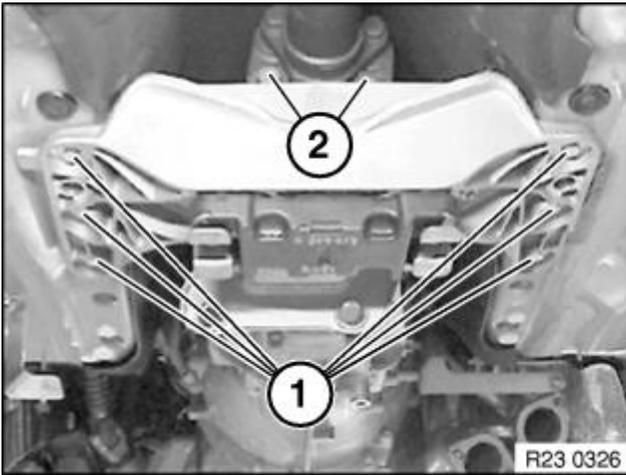
Release screw (1) and remove holder.



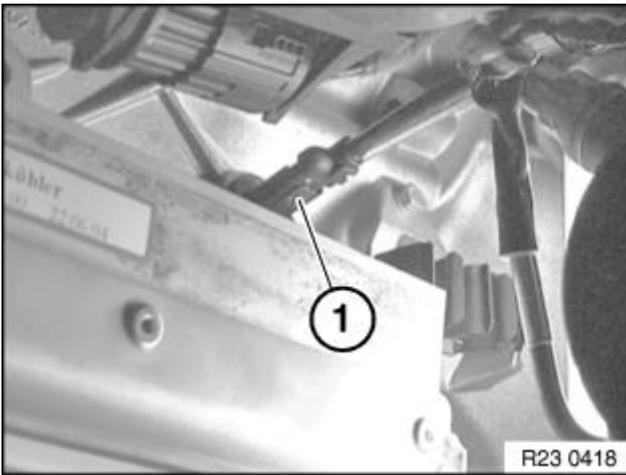
Loosen the following 6 screws (1) before supporting the transmission with a transmission lifter.  
Tightening torque [23 00 1AZ](#).



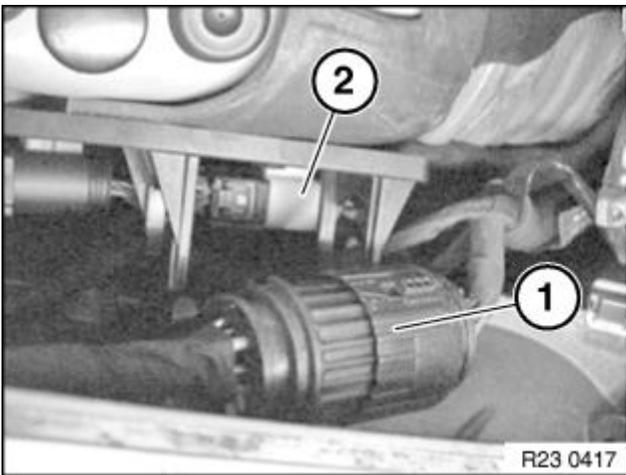
Support the transmission with special tool [00 2 030](#), [23 0 132](#), [23 0 131](#) and [23 0 139](#).



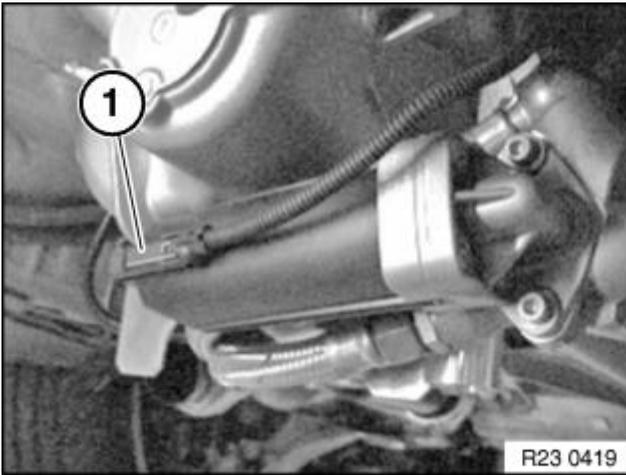
Release screws (1) and nuts (2) and remove cross member.  
Tightening torque [22 32 3AZ/ 4AZ](#).  
Lower transmission.



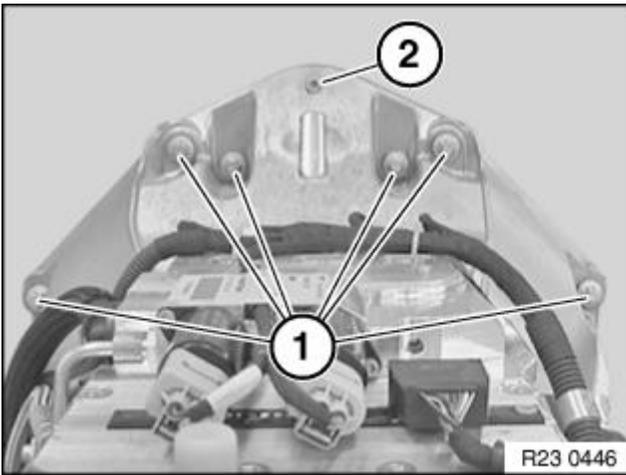
Unlock connector (1) and remove.



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:

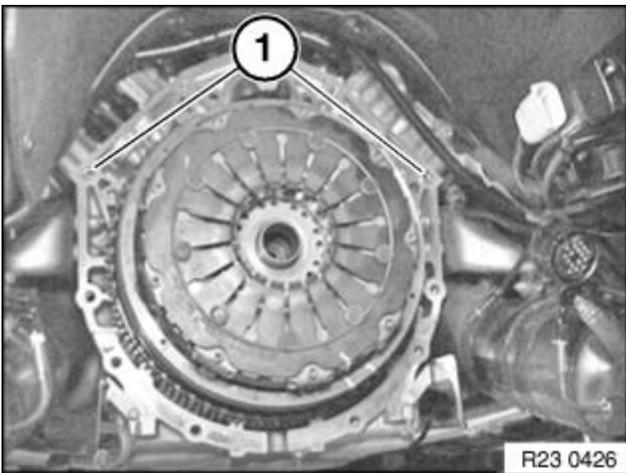
Bolt (2) must not be released.

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.

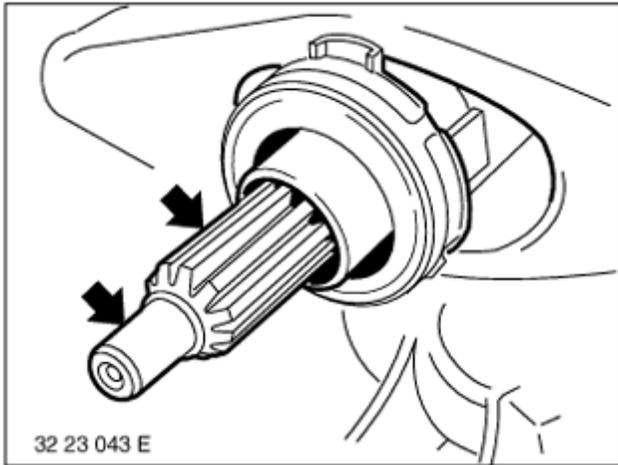
Pull out transmission towards rear and remove.



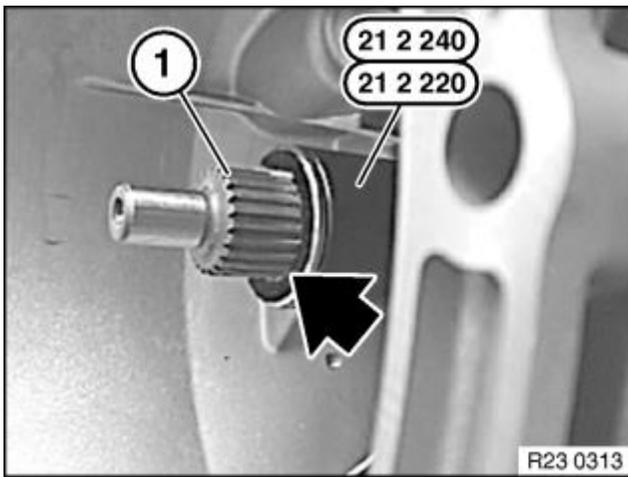
Installation note:

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 <a href="#">Transmission designations, see 23...</a>				
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
Steel screws with Torx head	I / G / H / K transmission	M8		19 Nm
Steel screws with Torx head	I / G / H / K transmission	M12		66 Nm
Transmission to engine			Replace screws	Jointing torque and angle of rotation must be observed without fail
2Az N52/N52K/N53/N54/N55 Aluminium screws/bolts are not magnetic.	I / G / H- transmission			
	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	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

18 00 020 Removing and installing complete exhaust system (S85)

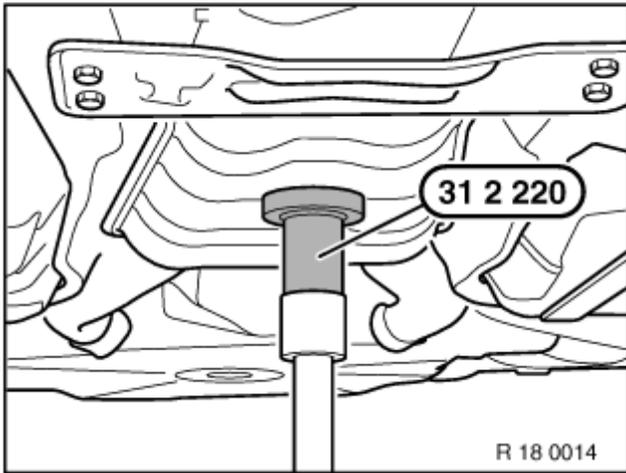


**Special tools required:**

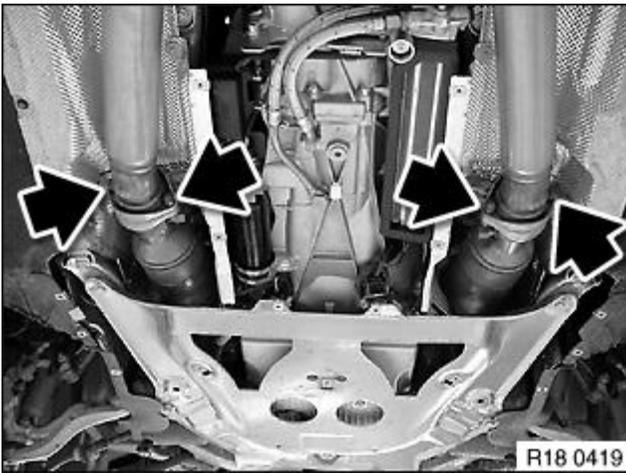
- [31 2 220](#)



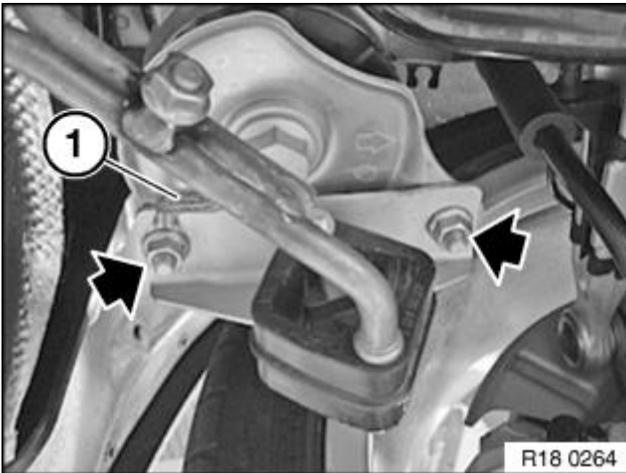
**Warning!**  
**Scalding hazard!**  
 Only perform this work after engine has cooled down.  
**Risk of injury!**  
 Removal of the exhaust system must be carried out with the assistance of a second person.



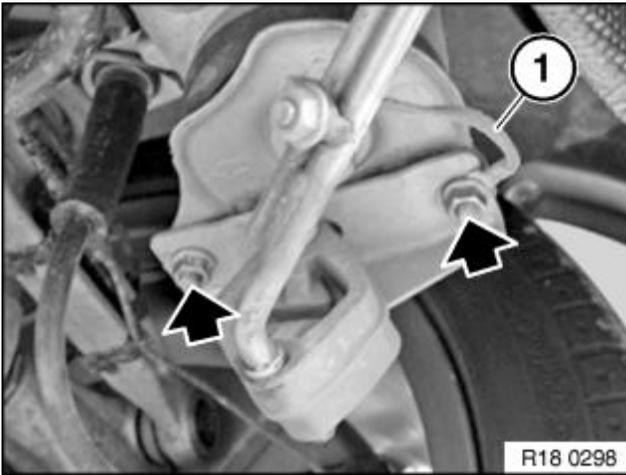
Support exhaust system with special tool [31 2 220](#).



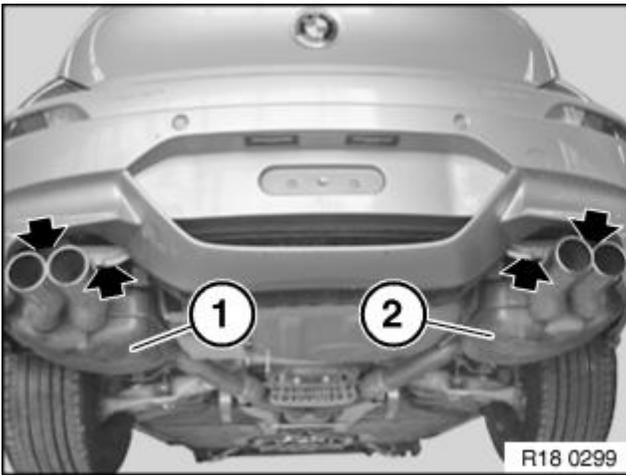
Unscrew nuts (1).  
Tightening torque [18 40 2AZ](#).



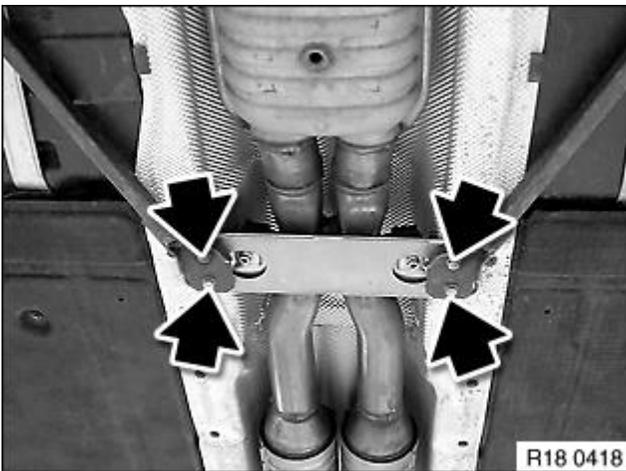
Unscrew nuts.



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				

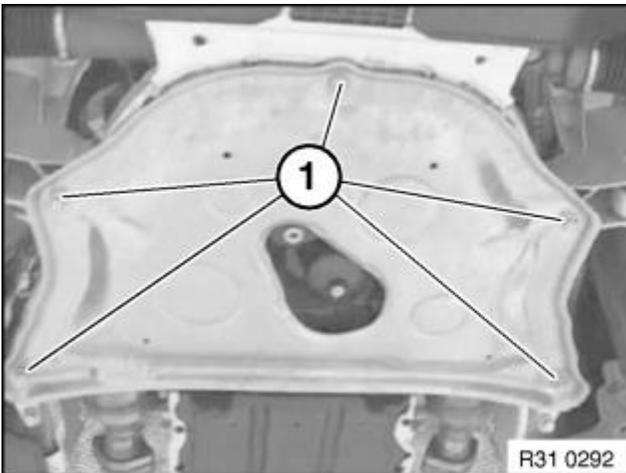


Important!  
Observe [safety instructions](#) for raising the vehicle  
Driving without reinforcement plate is not permitted!



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](#).

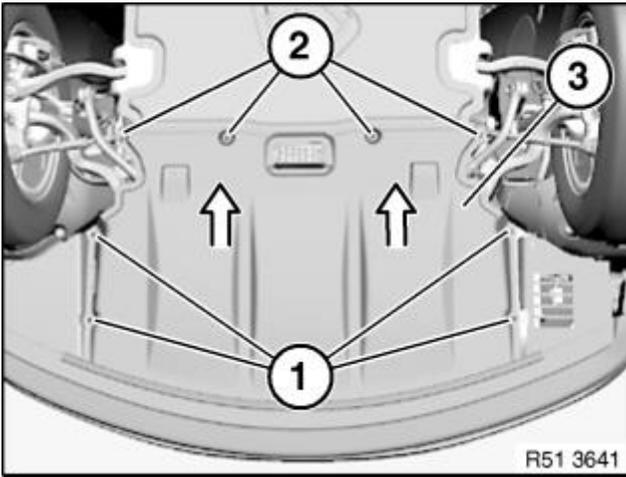


Replacement:  
If applicable, remove heat shield.

### 31 10 Front Axle Suspension

	Type	Thread	Tightening specification	Measure
1AZ Front axle carrier to engine carrier	E30, E31, E32, E34	M10 8.8	Replace screws (E30 AWD insert with Loctite)	42 Nm
	E30, E31, E32, E34	M10 9.8	Replace screws	47 Nm
	E36	M12 12.9	Replace screws	105 Nm
	E36, E46	M12 10.9	Replace screws	110 Nm
	E38, E39	M12 8.8	Replace screws	77 Nm
	E52	M12 front 10.9 middle 8.8 rear 8.8	Replace screws	75 Nm
	E53, E60 / Rear end, E61 / Rear end, E63, E64, E65, E66, E67, E85, E86	M12 10.9	Observe repair instruction.	100 Nm
	E60 / Four Wheel Drive, E61 / Four Wheel Drive	M12 10.9	Observe repair instruction.  Replace screws	100 Nm
2AZ Front end of front axle carrier to body	E34 / Four Wheel Drive	M10 8.8	Jointing torque	90 °
	E83	M12 10.9	Replace screws	47 Nm
3AZ Front axle subframe rear / middle to body	E34 / Four Wheel Drive	(collar screw)		59 Nm
	E83	M10 10.9		50 Nm
	E83	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				



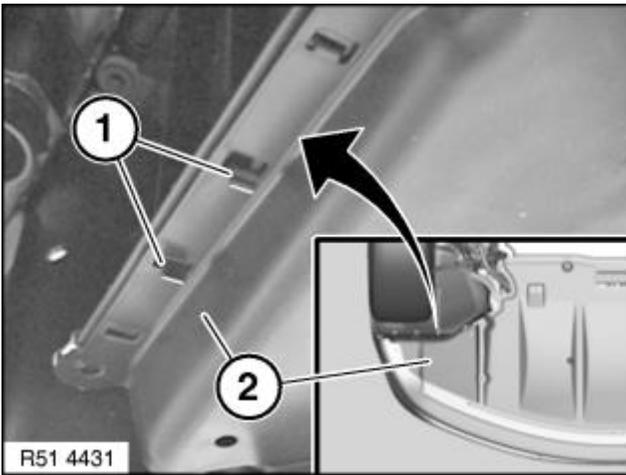
All except M5:

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

Installation:

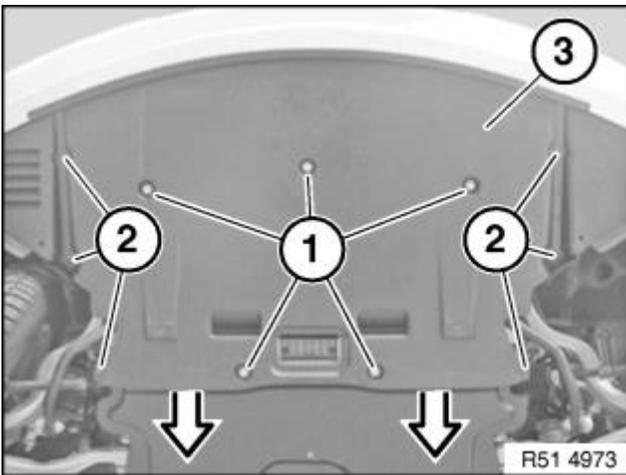
Ensure that seals are correctly seated.

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:

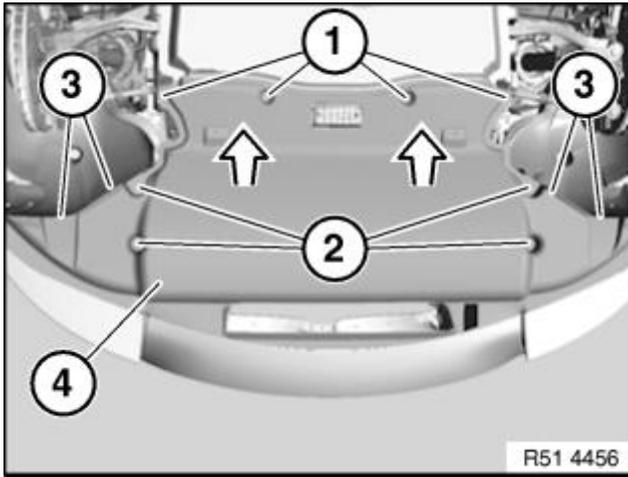
Release screws (1 and 2).

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
4AZ Trailing link in engine compartment	E85, E86		Angle of rotation	90 °
			Nut	41 Nm
			Replace screw	56 Nm
			Angle of rotation	105 ± 15 °
			E83	M8
5AZ Reinforcement plate/trailing link to rear axle	E89		Replace screws	100 Nm
			Angle of rotation	105 ± 15 °
			E46 / Cabrio, E85, E86	M10
6AZ Reinforcement plate to body	E85, E86	M8	Jointing torque	59 Nm
			Angle of rotation	90 °
7AZ Trailing link to rear axle	E85, E86	M8		24 Nm
			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	56 Nm
				Angle of rotation	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	56 Nm
				Screw	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.

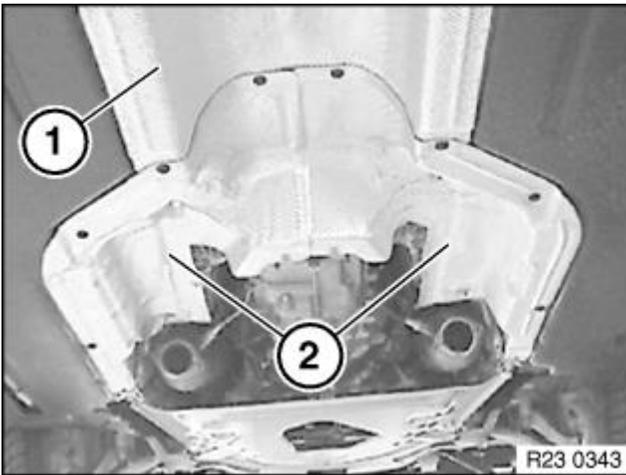


- Additional work when replacing propeller shaft.



Necessary preliminary tasks:

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



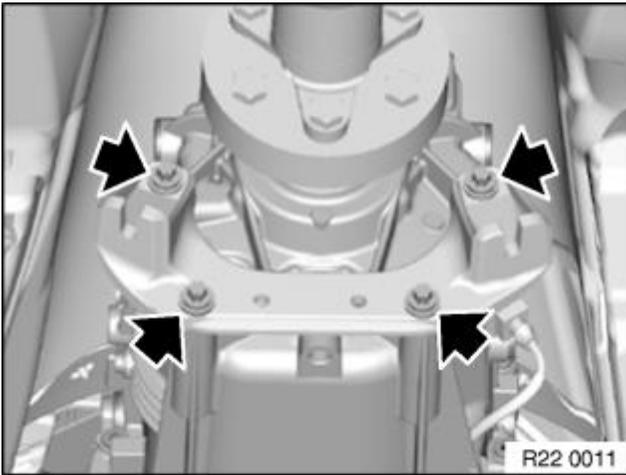
Remove heat shields (1) and (2).

Note:  
Graphic similar.



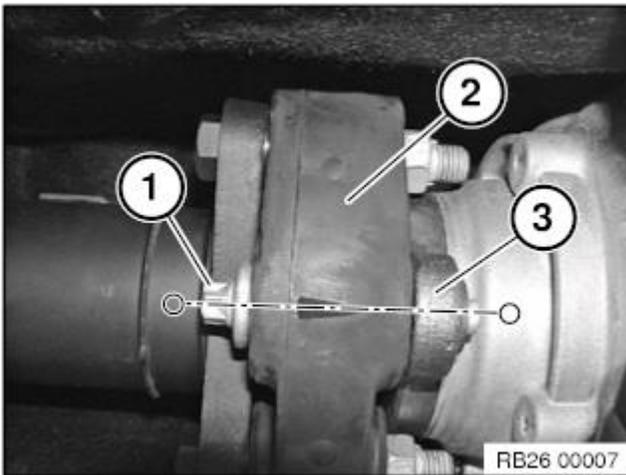
Note:  
M57/N47/M57T2/N54/N43/N46T only.

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



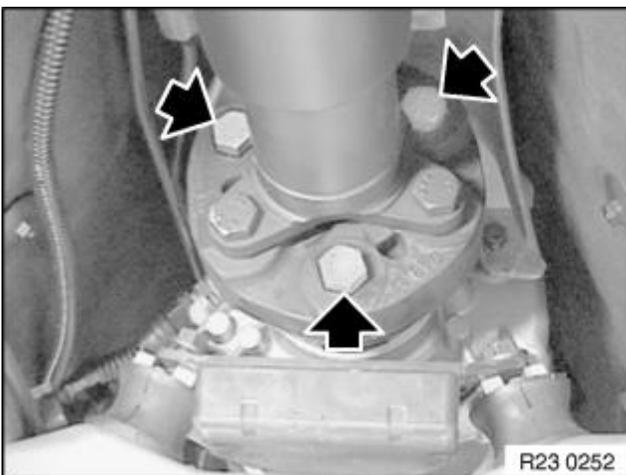
Note:  
N43, N46T only

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



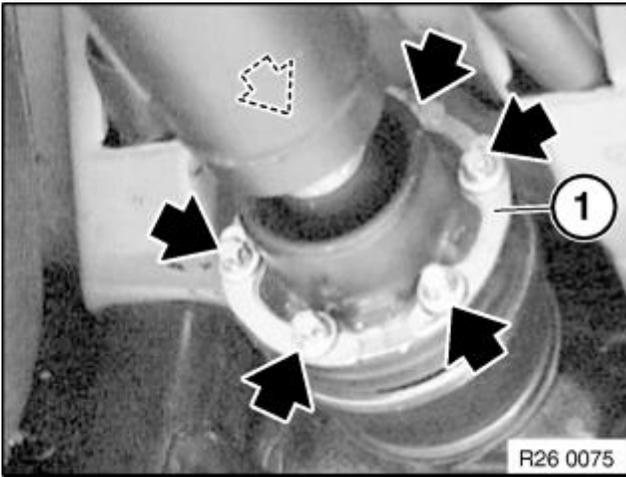
Important!  
To avoid buzzing sound after refitting the propeller shaft:

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.

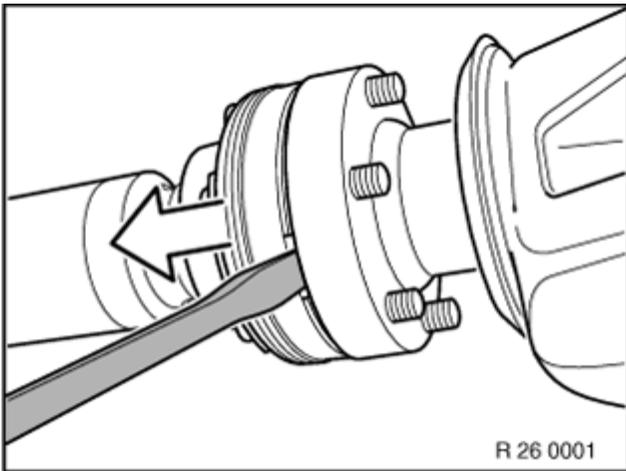


Release screws.  
Installation note:  
ZNS bolts and nuts must be replaced.  
Replace self-locking nuts.

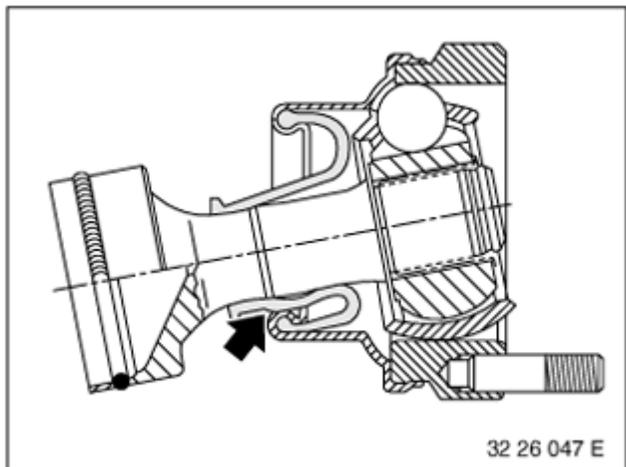
Important!  
Only M57:  
The bolt without washer may only be tightened by means of the nut.  
The bolt with rolled-on washer which has ribbed teeth facing the support side must be tightened by means of the bolt.  
Observe different tightening torques.  
[Tightening torque, 26 11 1AZ](#).



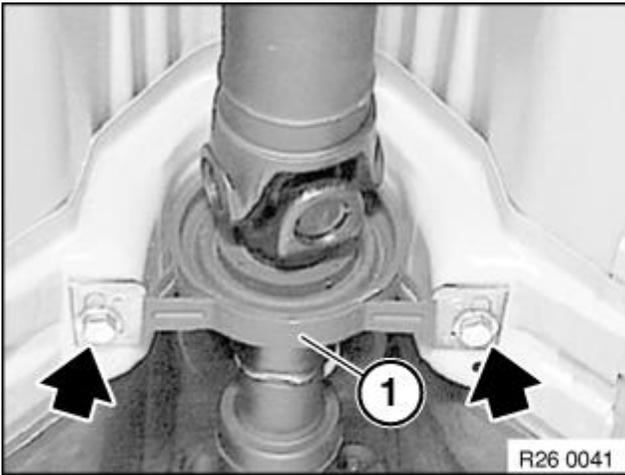
Release bolts and replace.



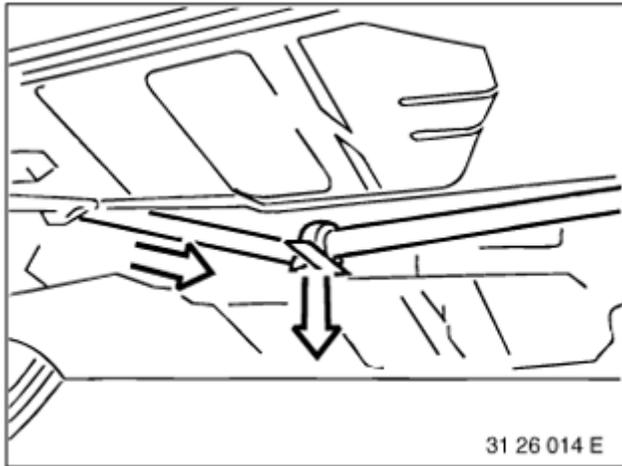
Using a screwdriver, press constant velocity joint off drive flange at dismantling grooves.



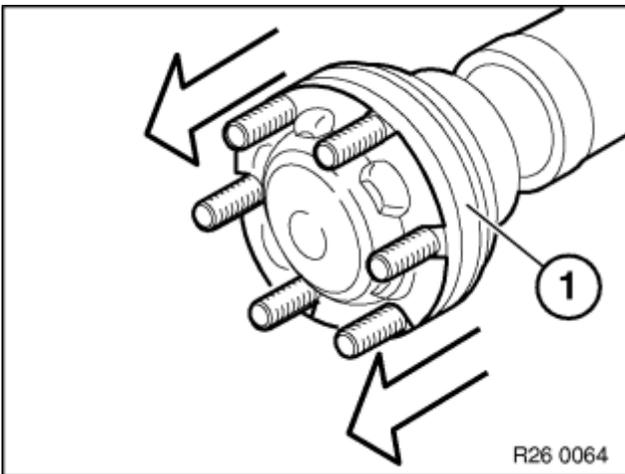
Important!  
Do not let propeller shaft fall into joints.  
Joints and rubber cup can be damaged on constant velocity joint.



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



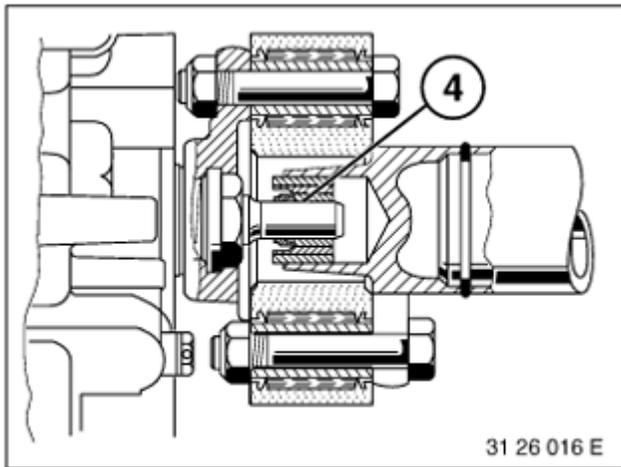
Bend propeller shaft downwards at centre bearing.  
Remove propeller shaft from transmission output flange and detach constant velocity joint from rear axle final drive.



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.](#)

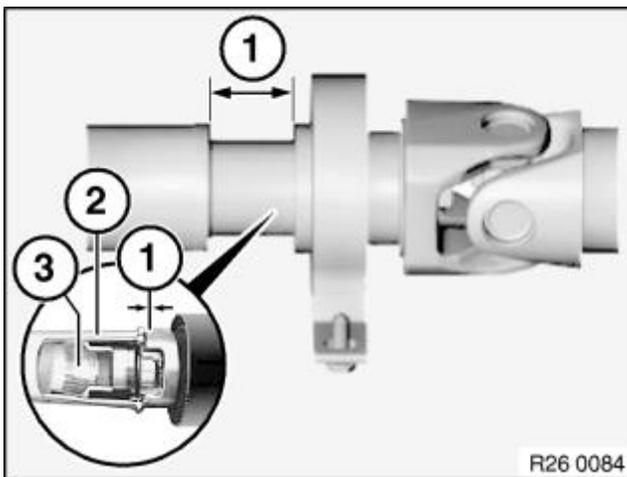


Installation note:  
Check centring mount (4).

[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 SMG	M10		42 Nm
	B / C / D / E / F / G / H / I / 7-speed SMG	M12		73 Nm
2AZ Transmission cross-member to body	B / C / D / E / F / G / H / I / 7-speed SMG	M10		42 Nm
	B / C / D / E / F / G / H / I / 7-speed SMG	M8		19 Nm
3AZ Mount bracket to transmission	B / C / D / E / F / G / H / I / 7-speed SMG	M8	E83, E85, E86, E46 only	21 Nm
	B / C / D / E / F / G / H / I / 7-speed SMG	M8		19 Nm

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 (Version without slide)	E36 / E38 / E39 / E46 / E52 / E53 / E60 / E61 / E63 / E64 / E65 / E66 / E83 / E85 / E86 / E87 / E90 / E91 / E92		97 Nm
6AZ	Centre mount to body	E36 / E38 / E39 / E46 / E52 / E53 / E60 / E61 / E63 / E64 / E65 / E66 / E70 / E71 / E72 / E81 / E83 / E82 / E84 / E85 / E86 / E87 / E88 / E89 / E90 / E91 / E92 / E93		21 Nm
7AZ	Flexible disc to front axle differential	E53	M10-10.9	60 Nm
8AZ	Flexible disc on propeller shaft	E53	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

	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 °
Universal joint	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)

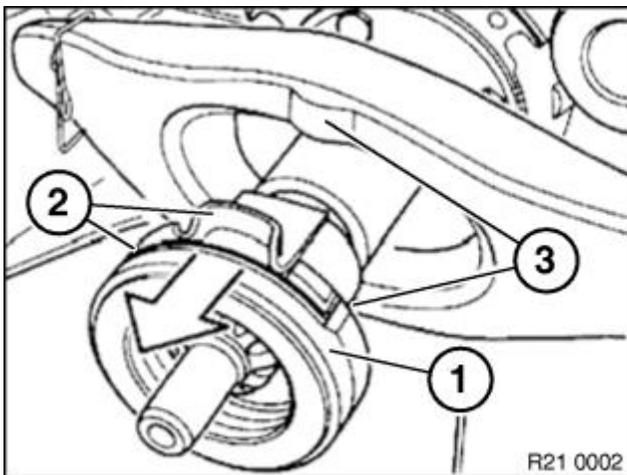
Note:

(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).

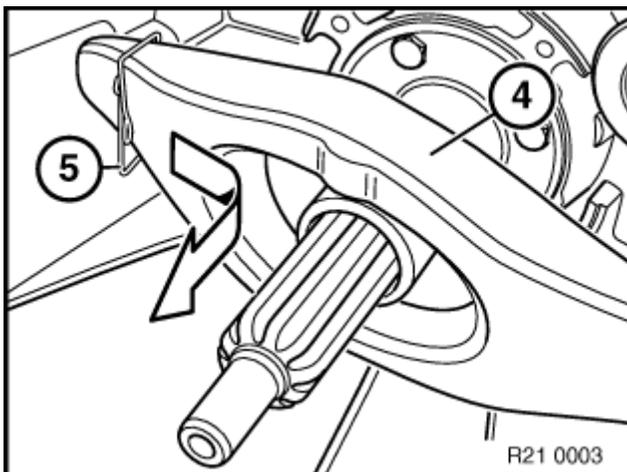
Installation:

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.

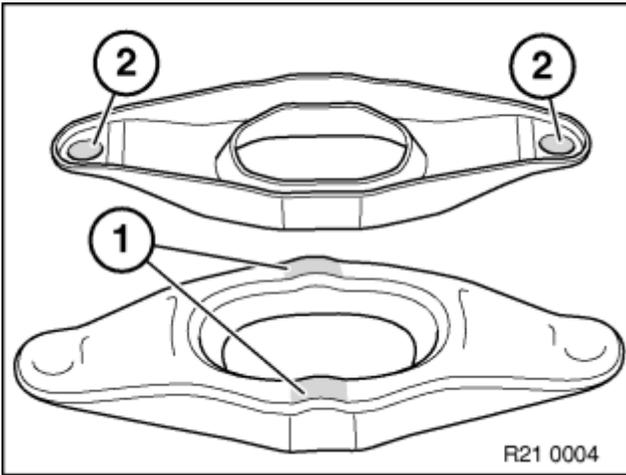
[Grease, refer to BMW Service Operating Fluids.](#)



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

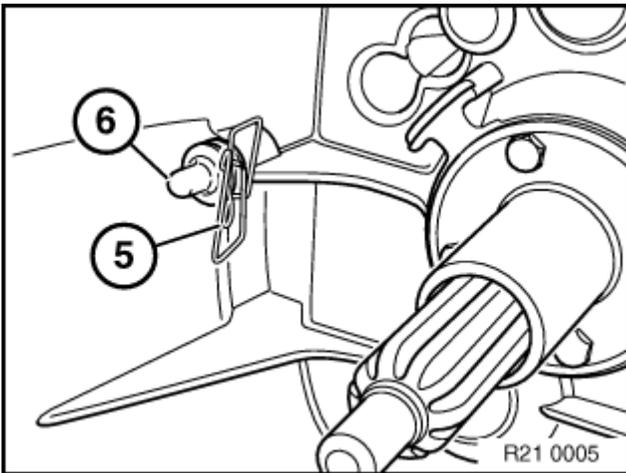
Installation:

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.](#)

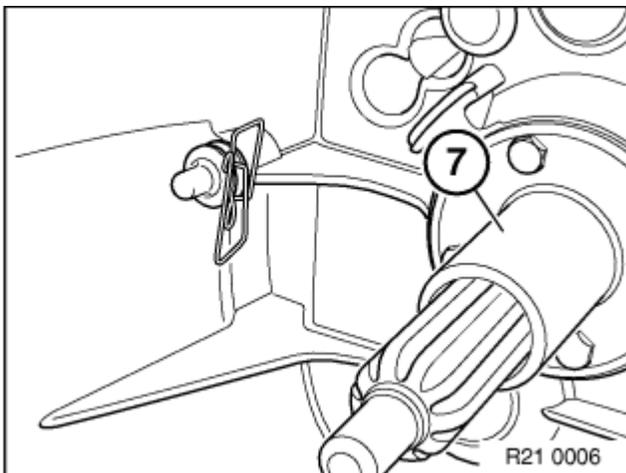


Installation:

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.](#)



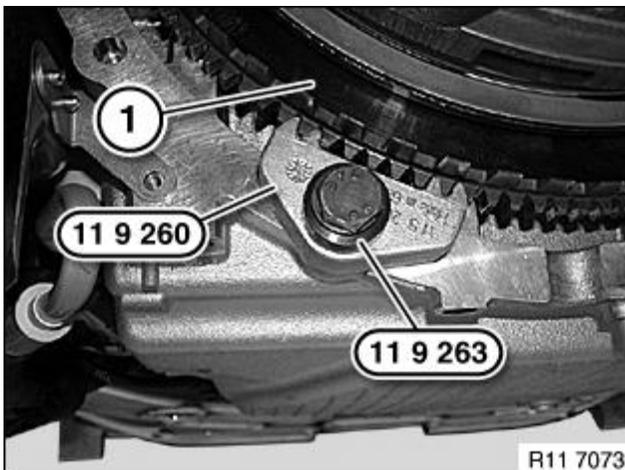
**Special tools required:**

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

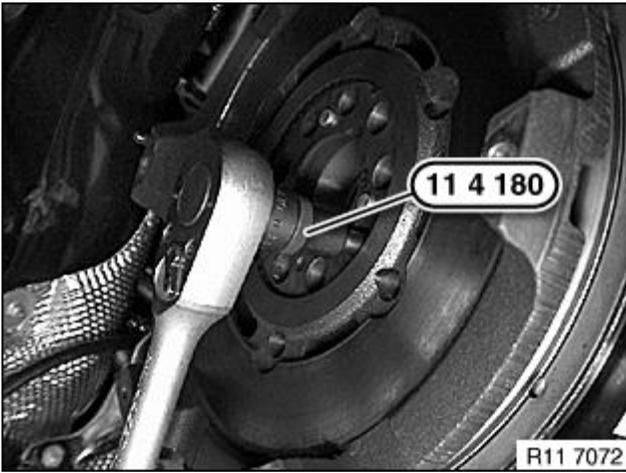


**Necessary preliminary tasks:**

- 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