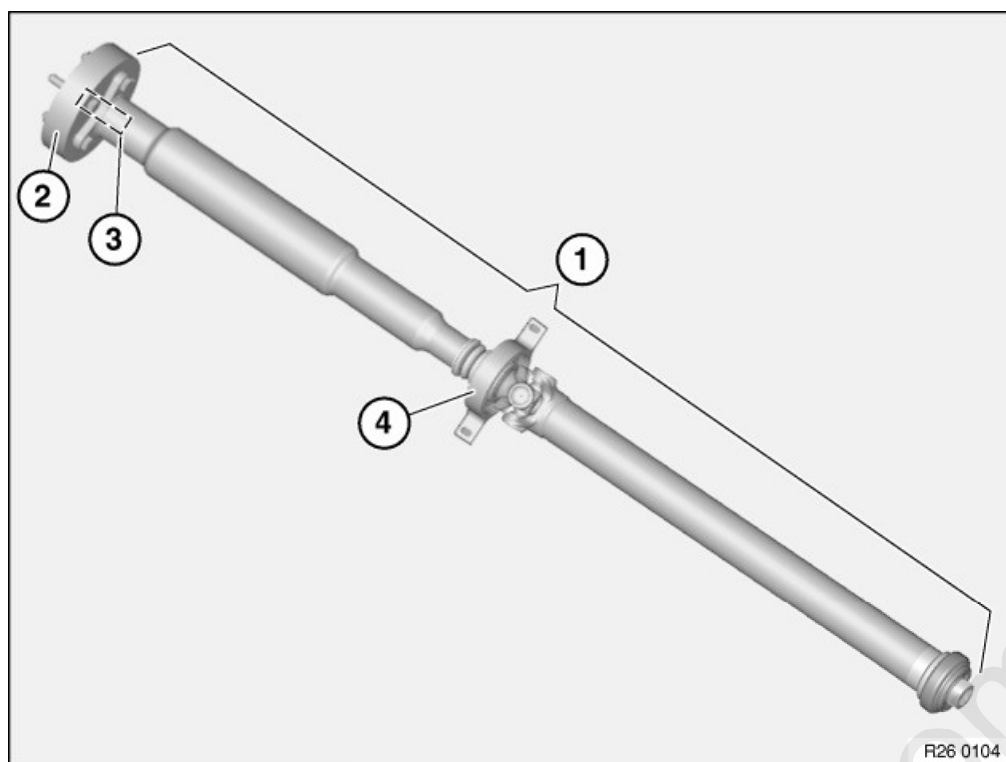


26 11 ... Overview (inserted propeller shaft)

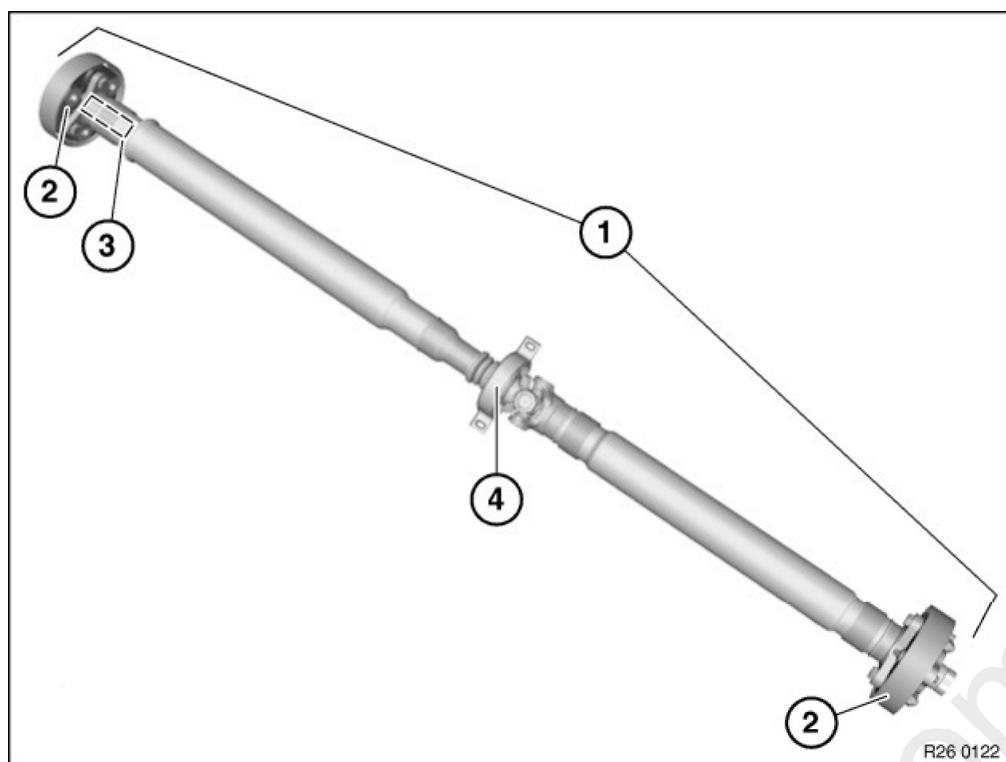


1 Complete propeller shaft 3 Centring mount

2 Flexible disc 4 Centre mount



26 11 ... Overview of propeller shaft (rear flexible disc)



1 Complete propeller shaft 3 Centring mount

2 Flexible disc 4 Centre mount



**Special tools required:**

- 00 9 120
- 00 9 130
- 33 0 080
- 33 5 070

**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 the propeller shaft.

**Important!**

Replacement of the sunk nut on the rear axle final drive is absolutely required!

The sunk nut already has a screw locking.

After the propeller shaft has been screwed into the rear axle final drive (sunk nut), a **hardening time of at least 2 hours** is absolutely necessary.

The hardening time may be extended at lower temperatures!

Failure to comply with these instructions may cause serious damage!

**Necessary preliminary tasks:**

- Remove complete exhaust system.
- Remove heat shields.
- Support transmission with lifter.
- Remove cross member if necessary.

**Important!**

Adhere without fail to the installation and bolt-tightening sequence.

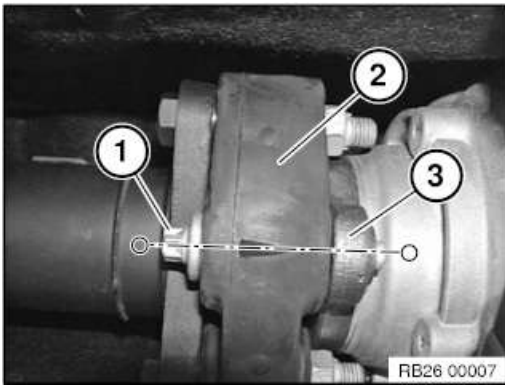
Installation sequence:

1. Join propeller shaft to transmission
2. Join propeller shaft to rear axle final drive
3. Join centre mount

Screw-fastening sequence:

1. Insert nut
2. Flexible disc to transmission
3. Centre mount

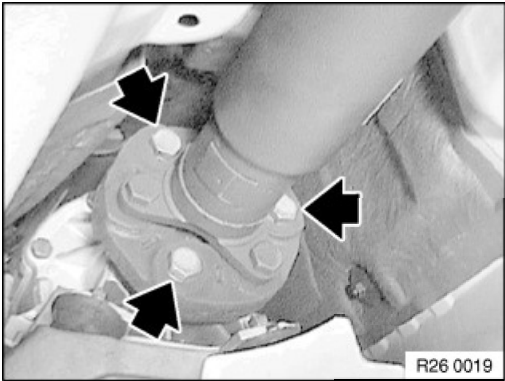




Important!

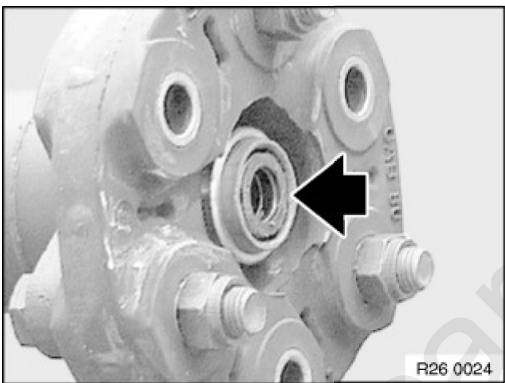
To avoid buzzing sound after refitting the propeller shaft:

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 screws and self-locking nuts.



Loosen screws. Installation note:

- Renew ZNS screws and self-locking nuts
- Grip mounting bolts of flexible disc at nuts and tighten down by way of bolts.



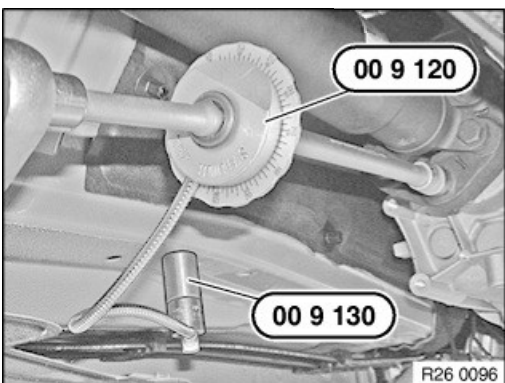
Installation note:

Check centring mount.

If necessary, replace damaged centring.

Grease centring mount.

- Grease: BMW Service Operating Fluids.



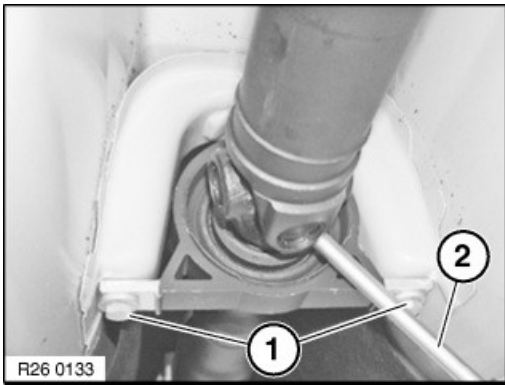
Installation note:

Tighten down screws/bolts to specified torque.

Secure angle of rotation special tool 00 9 120 with magnets 00 9 130 to vehicle underbody and screw down further according to angle of rotation.

Tightening torque 26 11 1AZ.



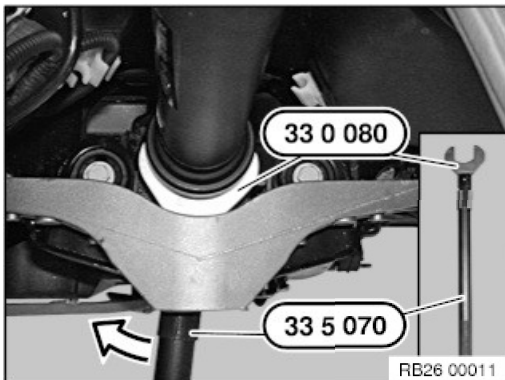


Slacken screws (1)

Tightening torque 26 11 5AZ.

Using a suitable tool (2), secure propeller shaft at centre universal joint against twisting.

Remove screws of centre mount fully only after opening insert nut.



Important!

The bi-hexagonal flange nut must not be used for bracing.

Failure to comply with this instruction may result in serious damage to the rear axle final drive.

Important!

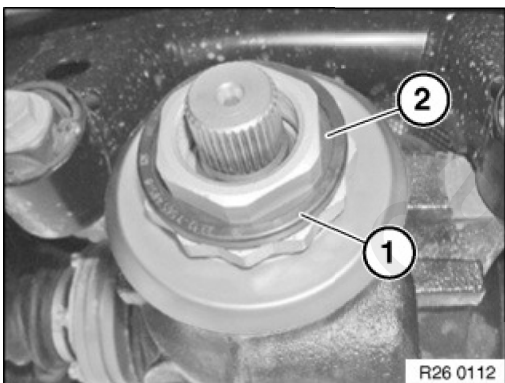
The sunk nut must be opened clockwise - see direction of arrow.

Turning the recessed nut in anticlockwise direction will automatically tighten the recessed nut further and significantly damage the bi-hexagonal flange nut.

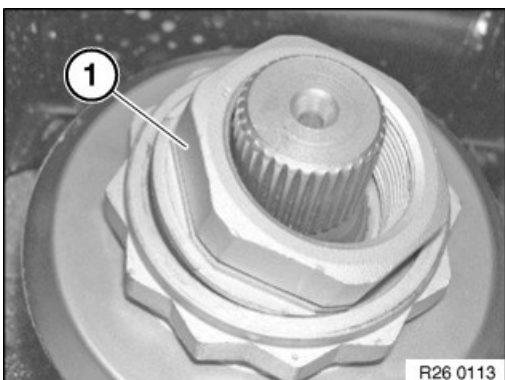
If the insert collar of the flange nut was damaged, the propeller shaft can **no longer** be secured using a new sunk nut and the rear axle differential must be replaced.

Release sunk nut **clockwise** with special tools 33 0 080 and 33 5 070 .

Tightening torque 26 11 6AZ.

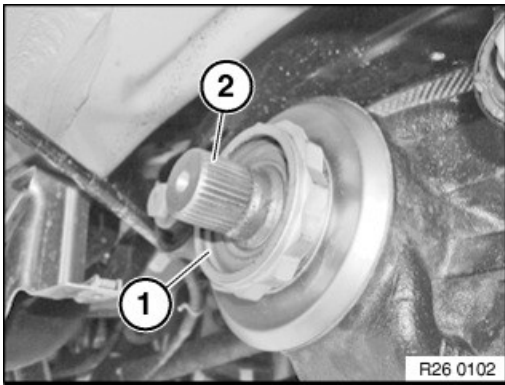


Remove retaining clip (1) and gasket (2). *Installation note:* Retaining clip and gasket must be replaced.



Remove insert nut (1). *Installation note:* Insert nut must be replaced.



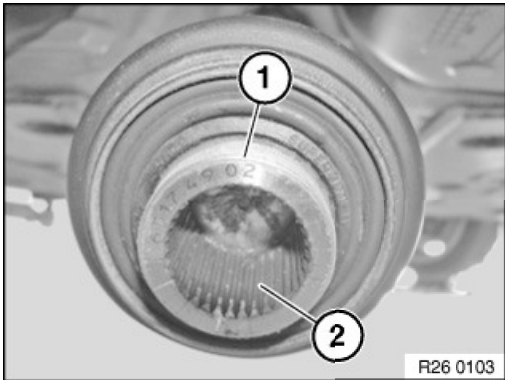


Before installing propeller shaft:

Clean insert collar (1) on flange nut and spline teeth on bevel pinion (2).

Top up insert collar (1) with grease.

Grease: BMW Service Operating Fluids.



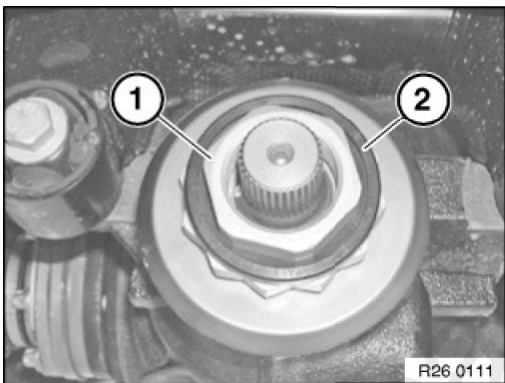
Clean thread (1) of joint hub to remove adhesive residues.

Clean hub teeth (2), then coat with grease.

Grease: BMW Service Operating Fluids.

Important!

Thread of joint hub must **not** be fouled with grease.



Place insert nut (1) with seal in insert collar of flange nut.

Install retaining clip (2).



Important!

Adhere without fail to the installation and bolt-tightening sequence.

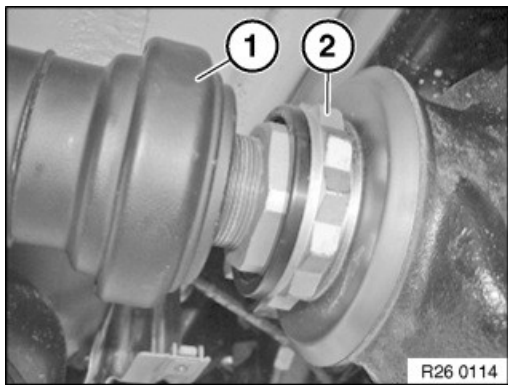
Installation sequence:

1. Join propeller shaft to transmission
2. Join propeller shaft to rear axle final drive
3. Join centre mount

Screw-fastening sequence:

1. Insert nut
2. Flexible disc to transmission
3. Centre mount





Slide propeller shaft (1) to the limit position onto insert nut and secure.

Secure propeller shaft at centre universal joint against turning with a mounting lever.

Important!

The bi-hexagonal flange nut (2) must not be used for bracing.

Failure to comply with this instruction may result in serious damage to the rear axle final drive.

Insert nut must be screwed into place **within 5 min.**

Tightening torque 26 11 6AZ.

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**Special tools required:**

- 23 0 020
- 33 5 040
- 33 5 070

**Important!**

The slide-in nut must be replaced by a new one.

The sunk nut already has a screw locking.

After the propeller shaft has been screwed into the rear axle final drive (sunk nut), a **hardening time of at least 2 hours** is absolutely necessary.

The hardening time may be extended at lower temperatures!

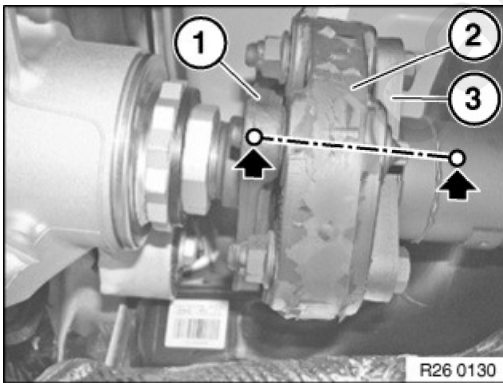
Failure to comply with these instructions may cause serious damage!

*Necessary preliminary tasks:*

- Remove propeller shaft



Since the three-hole flange, the flexible disc and the propeller shaft are balanced as a single unit, the balance quality of the propeller shaft, flexible disc and three-hole flange may be compromised slightly when the three-hole flange is replaced.

**Important!**

Before removing propeller shaft:

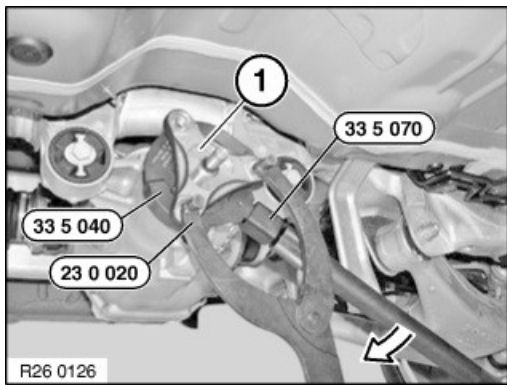
The three-hole flange and the propeller shaft must be reassembled in the same position.

Mark three-hole flange (1), flexible disc (2) and propeller shaft (3) in one plane.

Installation note:

Replace ZNS bolts and self-locking nuts.





Important!

The sunk nut must be opened against direction of travel in clockwise direction.

If an attempt is made to open the sunk nut in direction of travel in clockwise direction, the sunk nut is automatically screwed in further and the insert collar of the 12-edge flange nut is severely damaged.

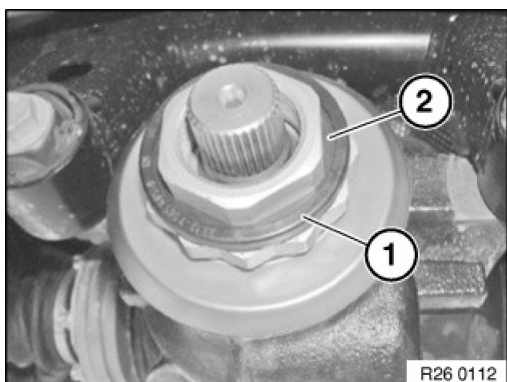
If the insert collar of the flange nut was damaged, the propeller shaft can **no longer** be secured using a new sunk nut and the rear axle differential must be replaced.

Release insert nut against direction of travel in clockwise direction with special tool 33 5 040 and 33 5 070 .

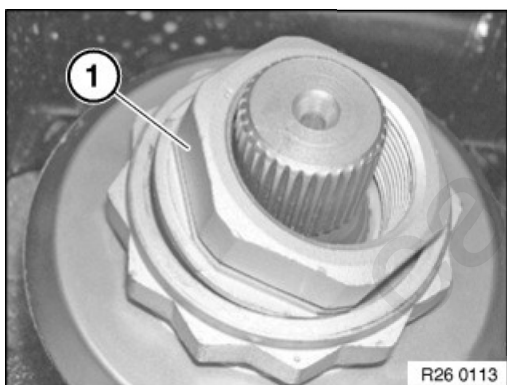
Grip with special tool 23 0 020 .

Release three-hole flange (1) from bevel pinion.

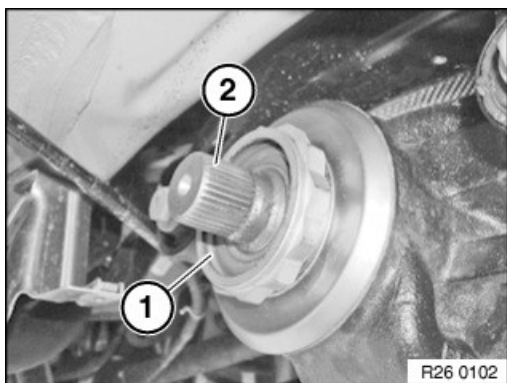
Tightening torque 26 11 6AZ.



Remove retaining clip (1) and gasket (2). *Installation note:* Retaining clip and gasket must be replaced.



Remove insert nut (1). *Installation note:* Insert nut must be replaced.



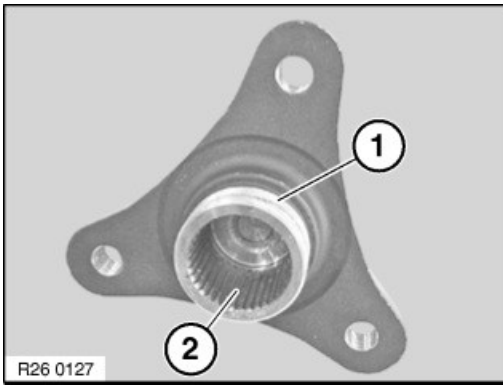
Before installing three-hole flange:

Clean insert collar (1) on flange nut and gearing on bevel pinion (2).

Fill insert collar (1) with grease.

Grease: BMW Service Operating Fluids.





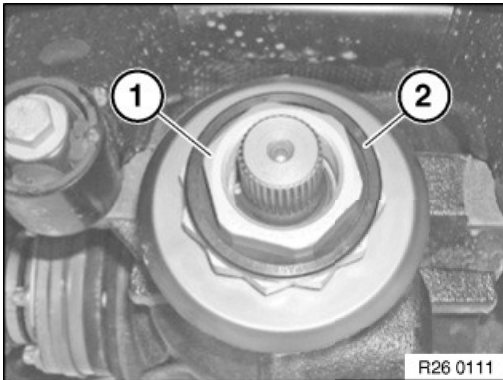
Important!

Thread of flange hub must **not** be contaminated with grease.

Clean thread (1) of flange hub to remove adhesive residues.

Clean hub teeth (2), then coat with grease.

Grease: BMW Service Operating Fluids.



Place flange nut (1) with gasket in insert collar of flange nut.

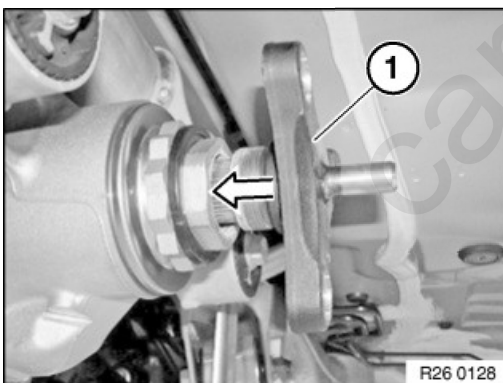
Install retaining clip (2).



Important!

The bi-hexagonal flange nut must not be used for bracing.

Failure to comply with this instruction may result in serious damage to the rear axle final drive.



Important!

Insert nut must be screwed into place **within 5 minutes**.

Tightening torque 26 11 6AZ.

Slide drive flange (1) to the limit position onto insert nut and secure.



26 11 090 Removing and installing/replacing centring for propeller shaft in three-hole flange



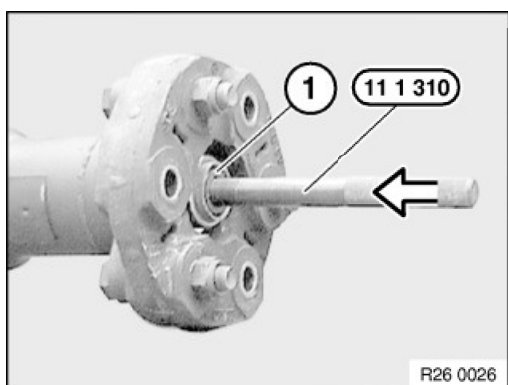
Special tools required:

- 00 5 500
- 11 1 310
- 11 2 030



Necessary preliminary tasks:

- Remove propeller shaft.



Completely fill centring bore hole (1) with viscous grease.

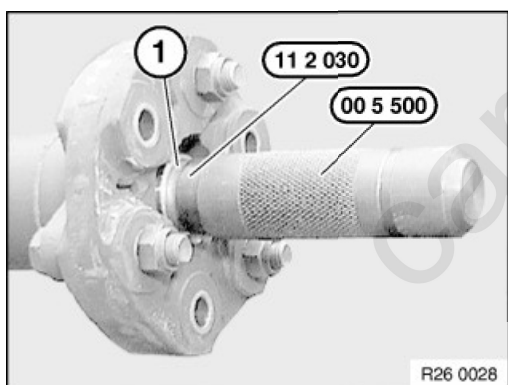
Drive special tool 11 1 310 with a plastic hammer into centring bore hole.

The centring bearing (1) is forced out of the propeller shaft by the pressure on the grease filling.

If necessary, top up grease repeatedly.

Note:

To drive out the bearing, you can also fill the centring bore hole with water instead of grease.



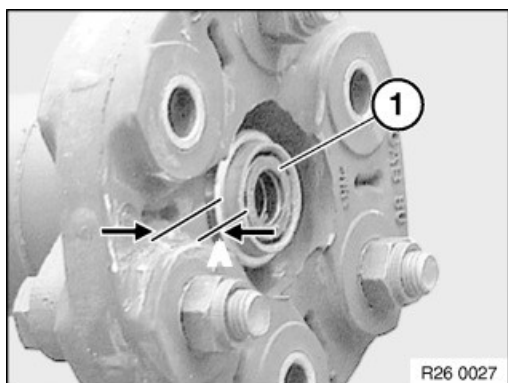
Installation note:

Grease or water must be removed from the bearing bore.

Drive in centring mount (1) with special tools 11 2 030 and 00 5 500 into propeller shaft (observe protrusion).

Important!

Plastic centring mount must not be greased.



Installation note:

Observe protrusion $A = 4^{+2}$ mm of centring (1).



26 11 090 Removing and installing/replacing front centring mount for propeller shaft



Special tools required:

- 2 450 247
- 11 2 030
- 00 5 500

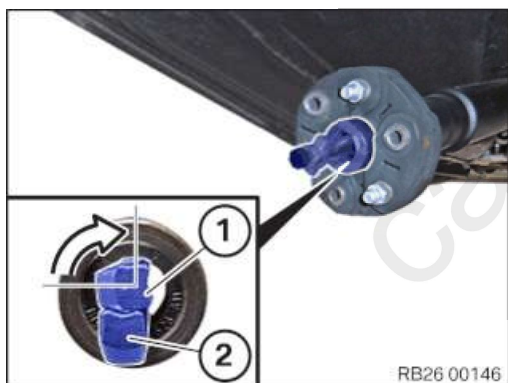


Necessary preliminary work:

- Remove propeller shaft.

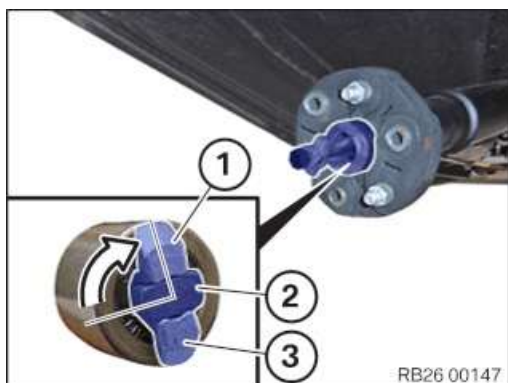


Use the special tool 2 450 247 to remove the centring bearing.



Insert pin (1) and pin (2) of the special tool 2 450 247 into the centring bearing of the propeller shaft.

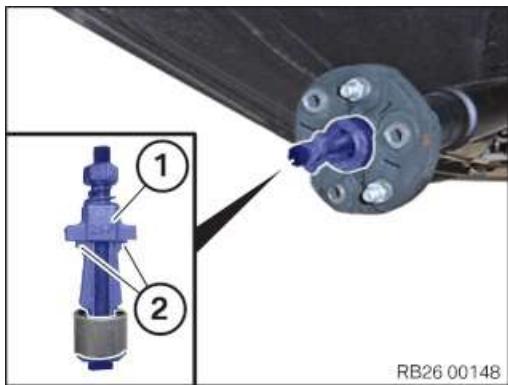
Twist pin (1) 90° to pin (2).



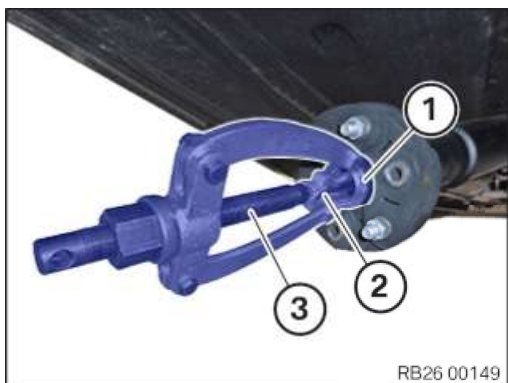
Twist pin (2) between pin (1) and (3) of the special tool 2 450 247 into the centring bearing of the propeller shaft.

Twist pin (2) by 90°.

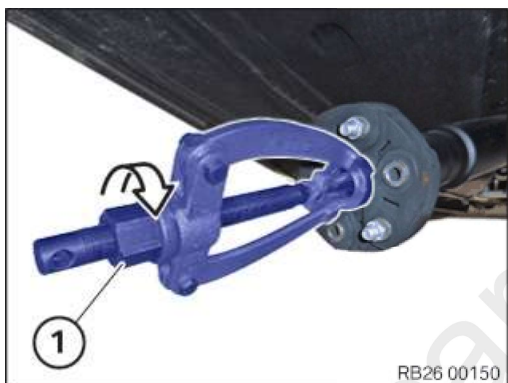




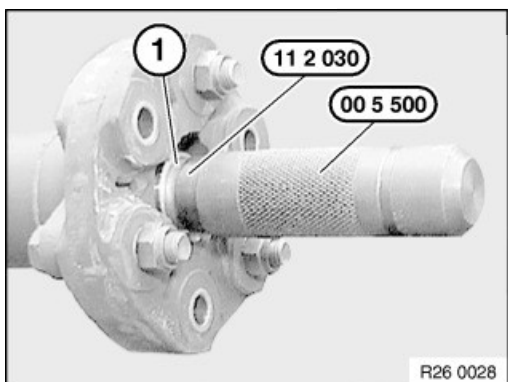
Lock special tool 2 450 247 by twisting the sleeve (1).
Pins (2) are locked with sleeve (1).



Install guide sleeve (1).
Screw spindle (3) with special tool 2 450 247 (2) and support on the guide sleeve (1).



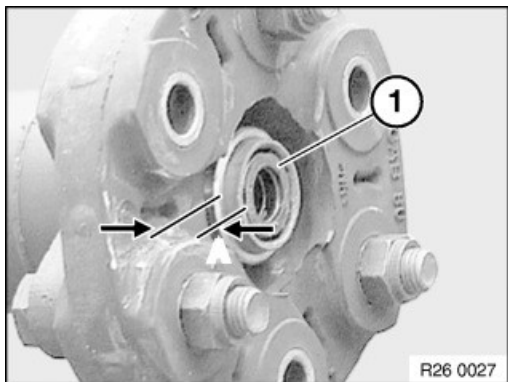
Rotate nut (1) in direction of arrow and pull out of the centring bearing.



Installation note:
Remove the grease/water from bore hole.
Drive in centering bearing (1) with special tools 11 2 030 and 00 5 500 into propeller shaft (observe protrusion).
Grease the centring bearing.

- Grease: BMW Service Operating Fluids.





Installation note:

Observe protrusion $A = 4^{+2}$ mm of centring bearing (1).

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**Necessary preliminary work:**

- Remove propeller shaft.

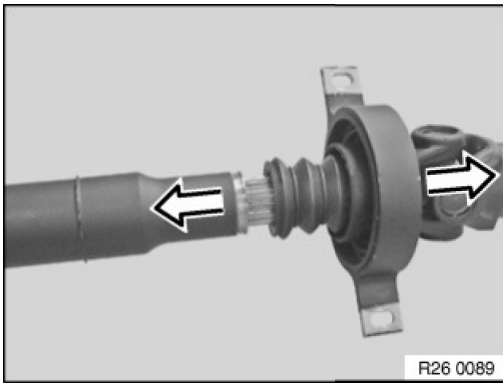
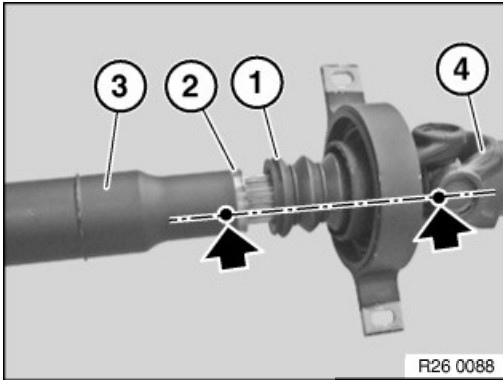
Note:

The propeller shaft is balanced.

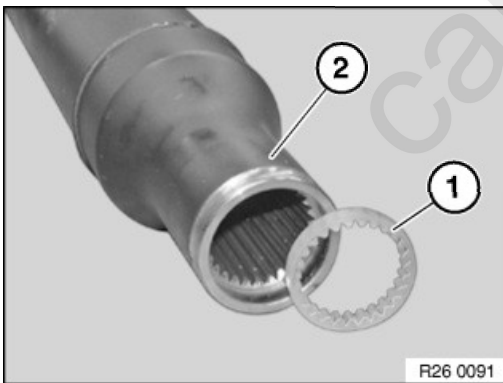
The front and rear propeller shafts must be reassembled in the same position.

Detach gaiter (1) from groove (2).

Mark front propeller shaft (3) and rear propeller shaft (4) in one plane.

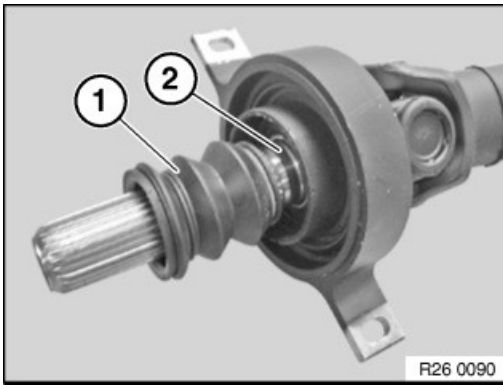


Pull apart propeller shaft.

**Installation note:**

If necessary, insert new clamping ring (1) into front propeller shaft (2).





Release gaiter (1) with screwdriver from groove (2) and pull off over longitudinal splines. *Installation note:*

Apply an even coating of grease to longitudinal splines on shaft.

Grease, refer to BMW Service Operating Fluids.

Observe markings and force front propeller shaft onto longitudinal splines (markings must be flush).

Push gaiter (1) during installation into groove (2) and make sure it is firmly fitted.

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**Special tools required:**

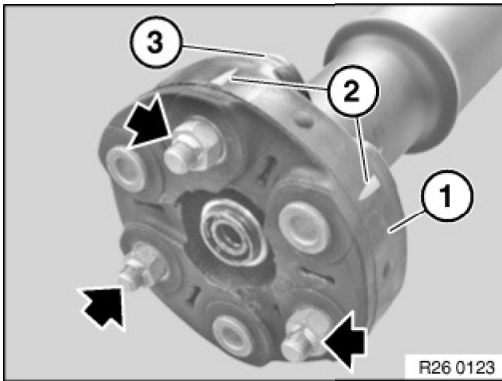
- 11 2 030
- 00 5 500

**Necessary preliminary work:**

- Remove propeller shaft at transmission and centre bearing.
- Remove complete propeller shaft (F06, F10, F12, F13 - S63).

Note:

To protect universal joints, tie back propeller shaft in area of centre mount.



Release screws and remove flexible disc (1) from propeller shaft.

Tightening torque and angle of rotation 26 11 2AZ.

Attention!

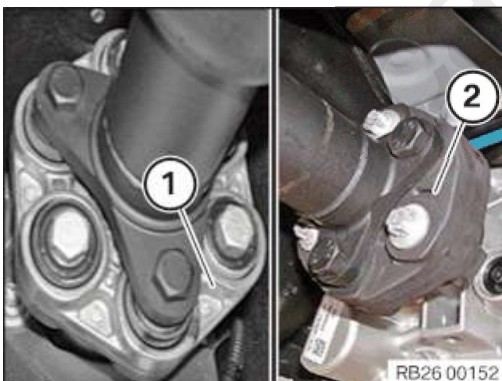
Replace ZNS screw and self-locking nuts.

Note:

On the F06, F10, F12, F13 - S63 a silicone flexible disc is installed instead of the conventional rubber part flexible disc.

Installation note:

- During installation arrows (2) on circumference of flexible disc must point to flange arms (3).

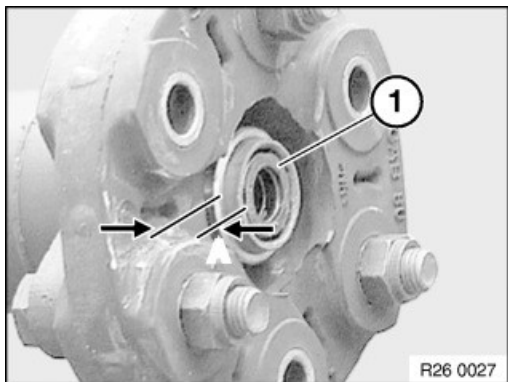
**Attention!**

An aluminium flexible disc (EGG flexible constant velocity joint) (1) can also be installed instead of the conventional rubber part flexible disc (2).

The aluminium flexible disc (1) must be replaced with a rubber part flexible disc (2)!

Also refer to the Electronic Parts Catalogue.





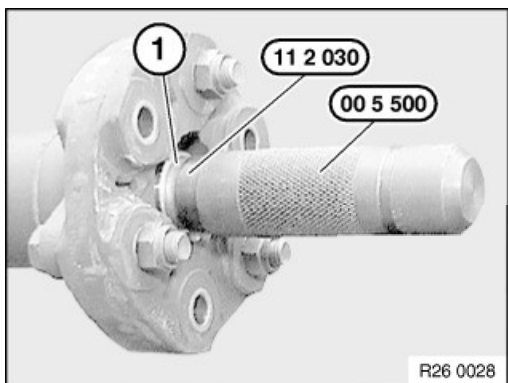
Attention!

When changing the aluminium flexible disc to the rubber part flexible disc, the protrusion (dimension A) of the centring sleeve (1) must be adjusted without fail.

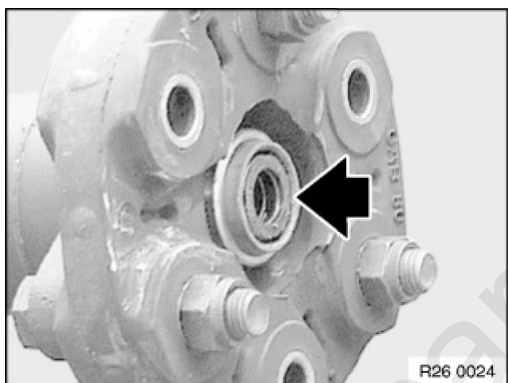
Non-observance leads to damage to the propeller shaft!

Protrusion dimension (A) = 4 mm

Drive in centring sleeve, see the following operation!



Carefully drive centring sleeve (1) with special tool 11 2 030 and 00 5 500 into the propeller shaft to dimension (A).



Installation note:

Check centring.

Replace damaged centring mount.

Grease centring mount.



**Necessary preliminary work:**

- Remove propeller shaft.

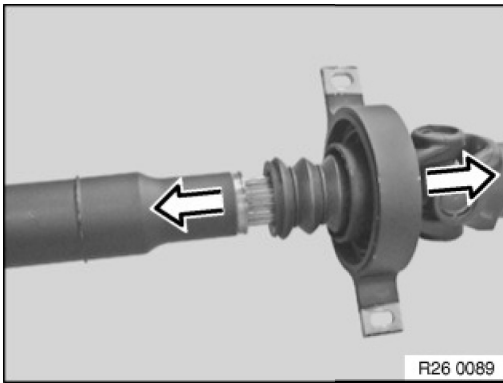
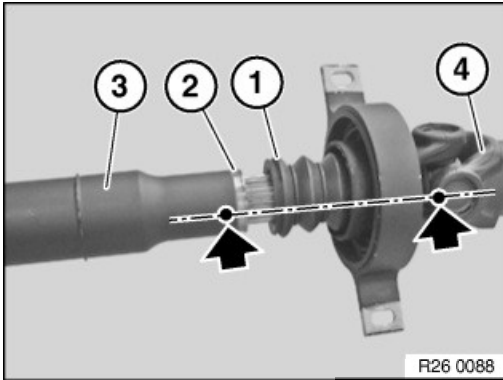
Note:

The propeller shaft is balanced.

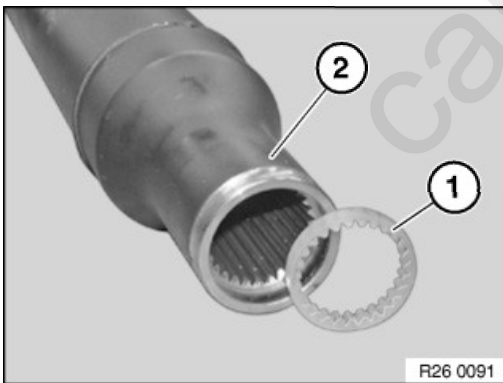
The front and rear propeller shafts must be reassembled in the same position.

Detach gaiter (1) from groove (2).

Mark front propeller shaft (3) and rear propeller shaft (4) in one plane.

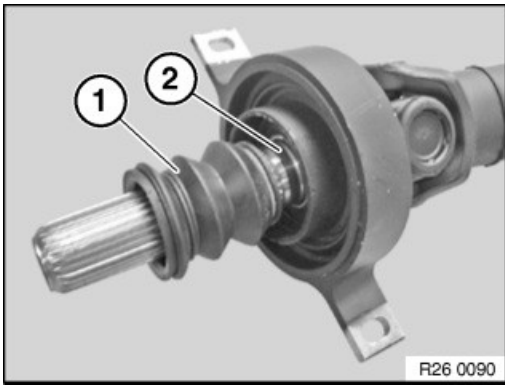


Pull apart propeller shaft.

**Installation note:**

If necessary, insert new clamping ring (1) into front propeller shaft (2).





Release gaiter (1) with screwdriver from groove (2) and pull off over longitudinal splines. *Installation note:*

Apply an even coating of grease to longitudinal splines on shaft.

Grease, refer to BMW Service Operating Fluids.

Observe markings and force front propeller shaft onto longitudinal splines (markings must be flush).

Push gaiter (1) during installation into groove (2) and make sure it is firmly fitted.

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**Special tools required:**

- 00 7 500
- 33 1 020

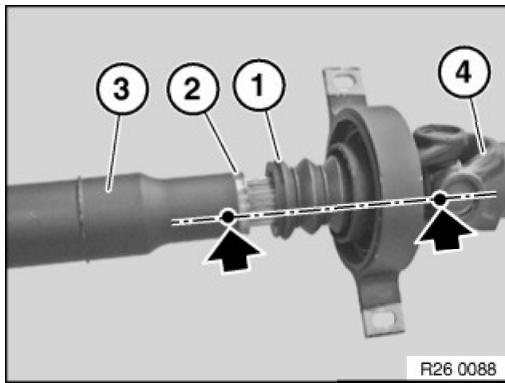
**Necessary preliminary tasks:**

- Remove propeller shaft.

Note:

The propeller shaft is balanced.

The front and rear propeller shafts must be reassembled in the same position.

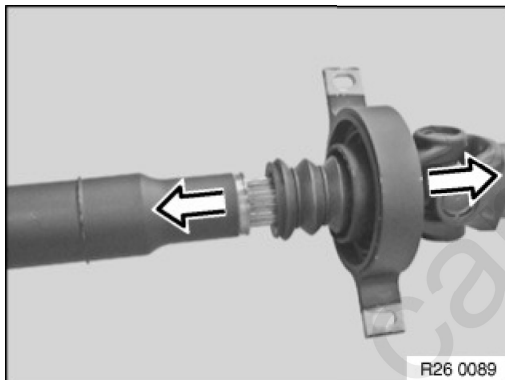


Detach gaiter (1) from groove (2).

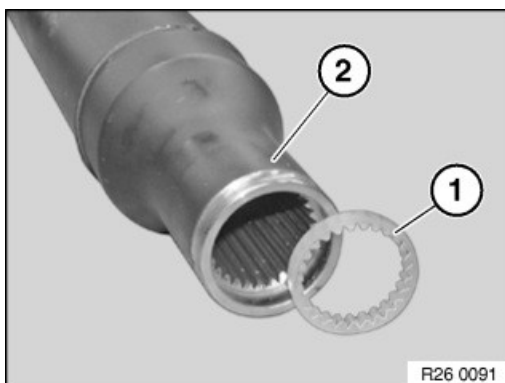
Mark front propeller shaft (3) and rear propeller shaft (4) in one plane.

Installation note:

Make sure gaiter (1) is securely fitted in groove (2).

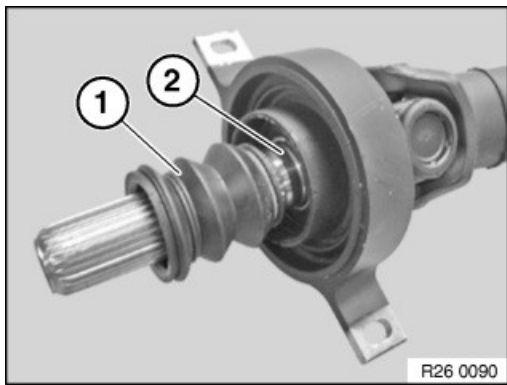


Pull apart propeller shaft.

**Installation note:**

If necessary, insert new clamping ring (1) into front propeller shaft (2).





Release gaiter (1) with screwdriver from groove (2) and pull off over longitudinal splines.

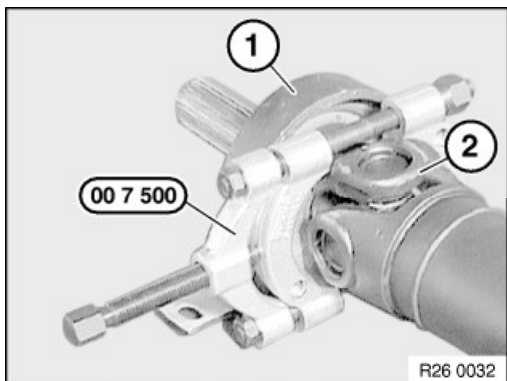
Installation note:

Apply a coating of grease to longitudinal splines on shaft.

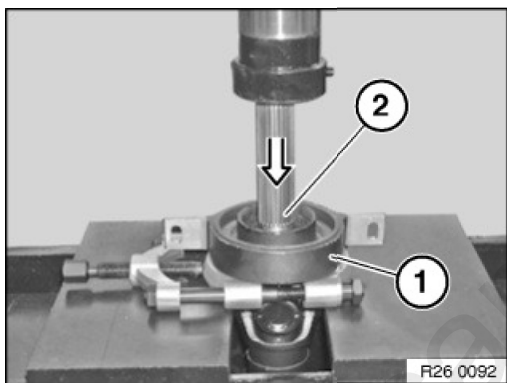
Grease, refer to BMW Service Operating Fluids.

Push gaiter (1) during installation into groove (2) and make sure it is firmly fitted.

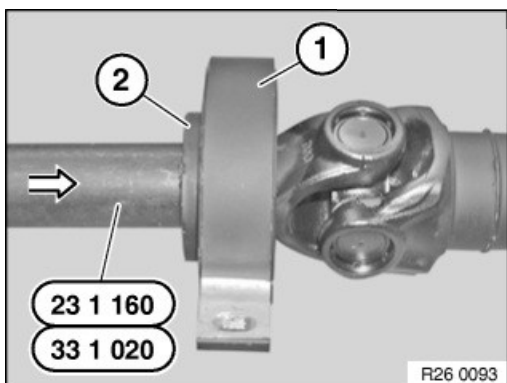
Observe markings and force front propeller shaft onto longitudinal splines (markings must be flush).



Install special tool 00 7 500 between centre mount (1) and universal joint (2).



Using a hydraulic press, force centre mount (1) off propeller shaft (2).



Force new centre mount (1) onto propeller shaft. Collar (2) must point in direction of travel towards front propeller shaft. Drive centre mount to limit position with special tool 33 1 020 .

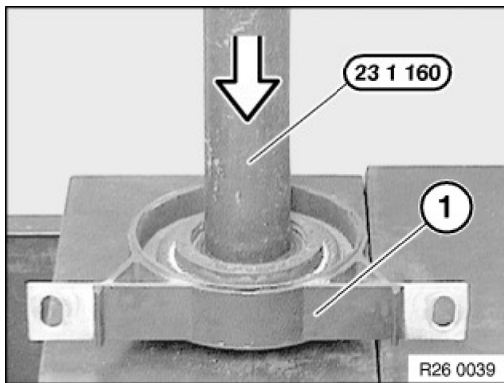


**Special tools required:**

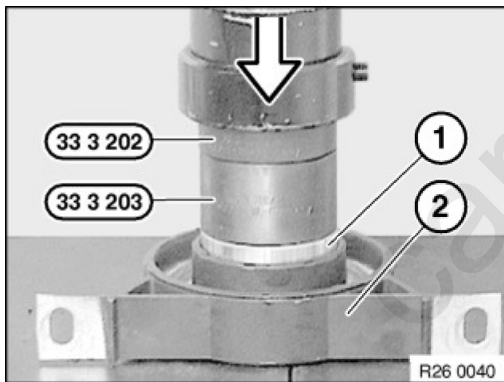
- 23 1 160
- 33 3 202
- 33 3 203

**Necessary preliminary tasks:**

- Replace propeller shaft centre bearing



Press grooved ball bearing using special tool 23 1 160 out of centre mount (1). *Note:*
Illustration shows E46.



Coat rubber-coated bearing seat of centre mount (2) with Circolight.

Circolight, refer to BMW Parts Department.

Use special tools 33 3 202 / 33 3 203 to press grooved ball bearing (1) into centre mount (2).

Note:

Illustration shows E46.



**Special tools required:**

- 23 0 020
- 33 5 040
- 33 5 070

**Important!**

The slide-in nut must be replaced by a new one.

The sunk nut already has a screw locking.

After the propeller shaft has been screwed into the rear axle final drive (sunk nut), a **hardening time of at least 2 hours** is absolutely necessary.

The hardening time may be extended at lower temperatures!

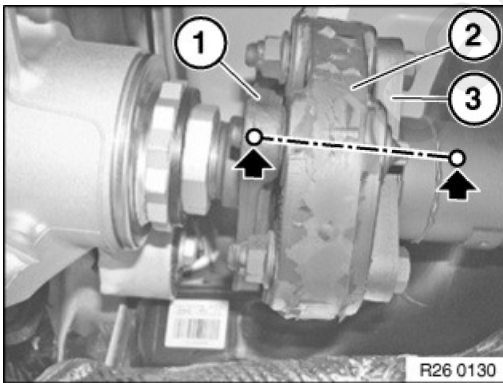
Failure to comply with these instructions may cause serious damage!

*Necessary preliminary tasks:*

- Remove propeller shaft



Since the three-hole flange, the flexible disc and the propeller shaft are balanced as a single unit, the balance quality of the propeller shaft, flexible disc and three-hole flange may be compromised slightly when the three-hole flange is replaced.

**Important!**

Before removing propeller shaft:

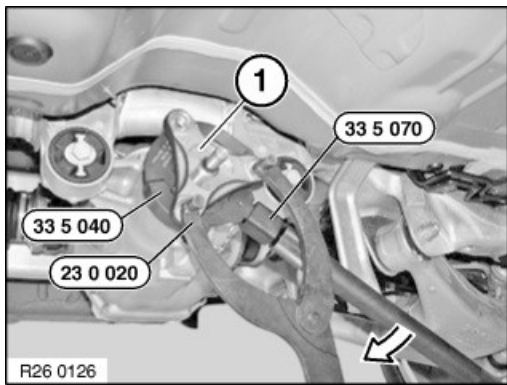
The three-hole flange and the propeller shaft must be reassembled in the same position.

Mark three-hole flange (1), flexible disc (2) and propeller shaft (3) in one plane.

Installation note:

Replace ZNS bolts and self-locking nuts.





Important!

The sunk nut must be opened against direction of travel in clockwise direction.

If an attempt is made to open the sunk nut in direction of travel in clockwise direction, the sunk nut is automatically screwed in further and the insert collar of the 12-edge flange nut is severely damaged.

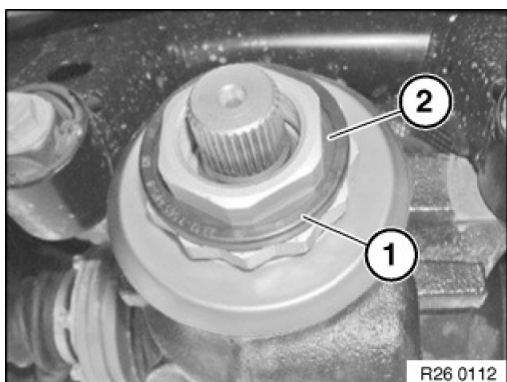
If the insert collar of the flange nut was damaged, the propeller shaft can **no longer** be secured using a new sunk nut and the rear axle differential must be replaced.

Release insert nut against direction of travel in clockwise direction with special tool 33 5 040 and 33 5 070 .

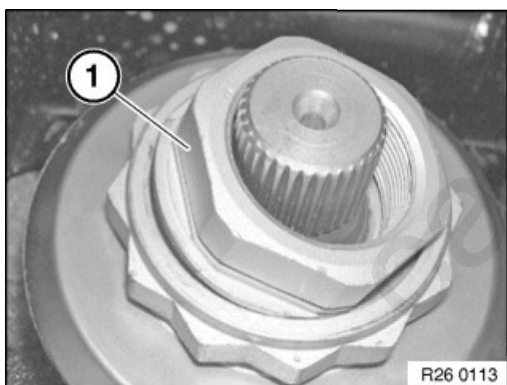
Grip with special tool 23 0 020 .

Release three-hole flange (1) from bevel pinion.

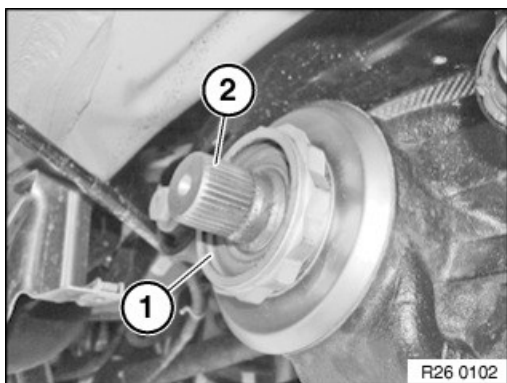
Tightening torque 26 11 6AZ.



Remove retaining clip (1) and gasket (2). *Installation note:* Retaining clip and gasket must be replaced.



Remove insert nut (1). *Installation note:* Insert nut must be replaced.



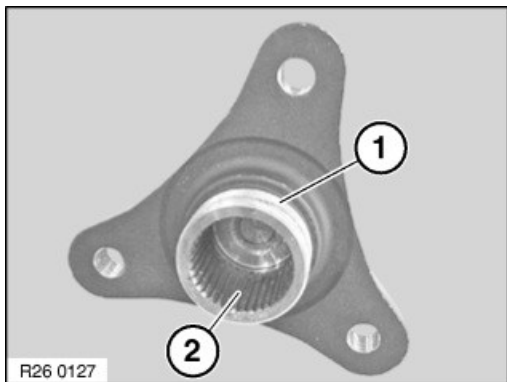
Before installing three-hole flange:

Clean insert collar (1) on flange nut and gearing on bevel pinion (2).

Fill insert collar (1) with grease.

Grease: BMW Service Operating Fluids.





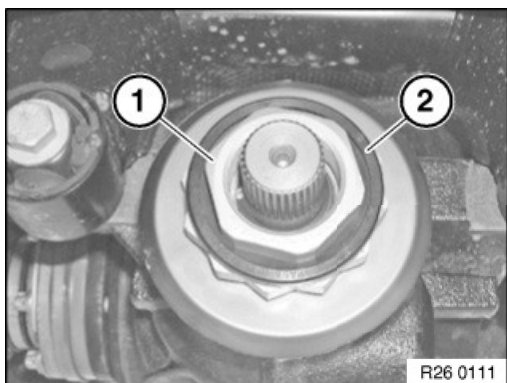
Important!

Thread of flange hub must **not** be contaminated with grease.

Clean thread (1) of flange hub to remove adhesive residues.

Clean hub teeth (2), then coat with grease.

Grease: BMW Service Operating Fluids.



Place flange nut (1) with gasket in insert collar of flange nut.

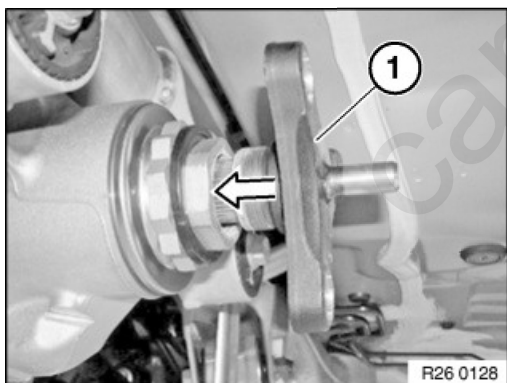
Install retaining clip (2).



Important!

The bi-hexagonal flange nut must not be used for bracing.

Failure to comply with this instruction may result in serious damage to the rear axle final drive.



Important!

Insert nut must be screwed into place **within 5 minutes**.

Tightening torque 26 11 6AZ.

Slide drive flange (1) to the limit position onto insert nut and secure.

