

DRIVELINE/AXLES

Driveline/Axles - Repair Instructions - 525xi & 530xi

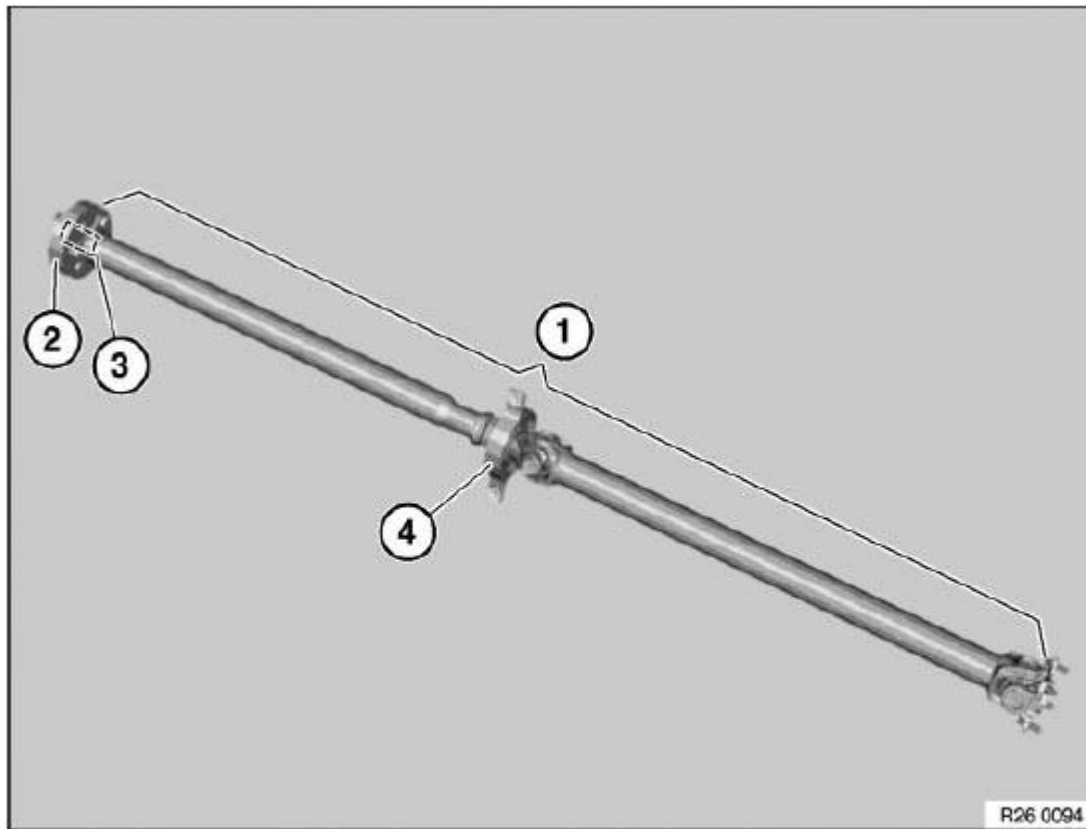
00 PROPELLER SHAFT GENERAL

26 00... PROPELLER SHAFT DEFLECTION ANGLES

IMPORTANT: Specifications on propeller shaft deflection are only possible on request with the vehicle identification number of the problem vehicle via PuMA.

11 PROPELLER SHAFT ASSEMBLY

26 11... OVERVIEW OF PROPELLER SHAFT WITH UNIVERSAL JOINT



0 General information

1 Complete propeller shaft

2 Flexible disk

3 Centring mount

4 Centre mount

Fig. 1: Identifying Propeller Shaft With Universal Joint

Courtesy of BMW OF NORTH AMERICA, INC.

26 11 000 REMOVING AND INSTALLING COMPLETE PROPELLER SHAFT (CONSTANT-VELOCITY JOINT)

Necessary preliminary tasks:

- Remove rear underbody protection.
- Remove complete **EXHAUST SYSTEM**.

Remove heat shields (1) and (2).

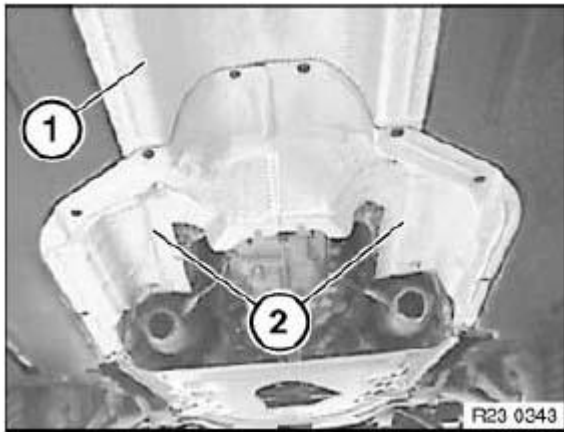


Fig. 2: Identifying Heat Shields

NOTE: Graphic similar.

NOTE: N43, N46T only Remove transmission bearing block. Tightening torque **23 71 4AZ**

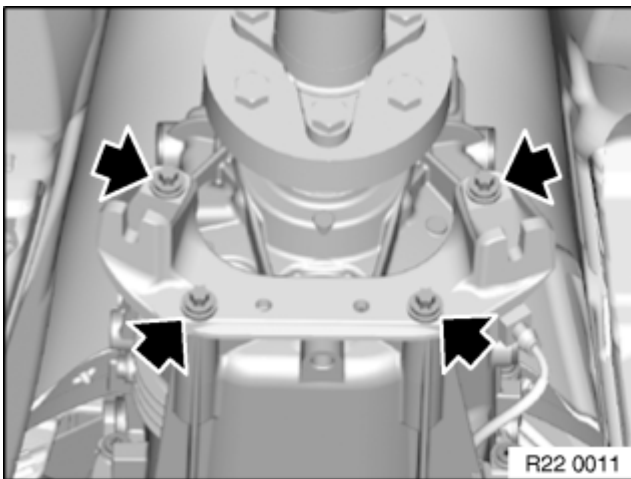


Fig. 3: Identifying Transmission Support Block Bolts

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.

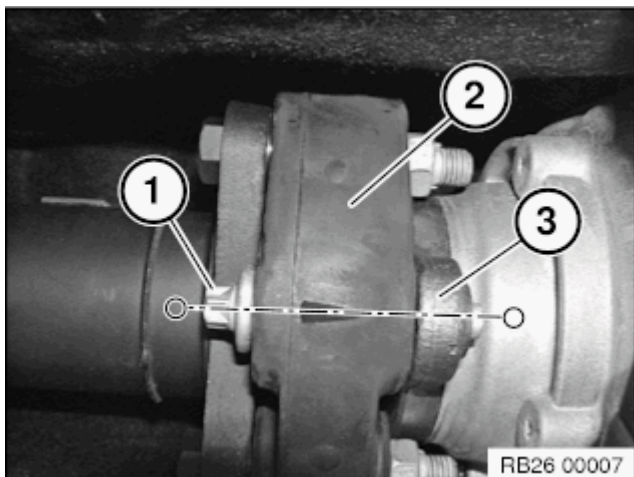


Fig. 4: Refitting Propeller Shaft

Release screws.

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

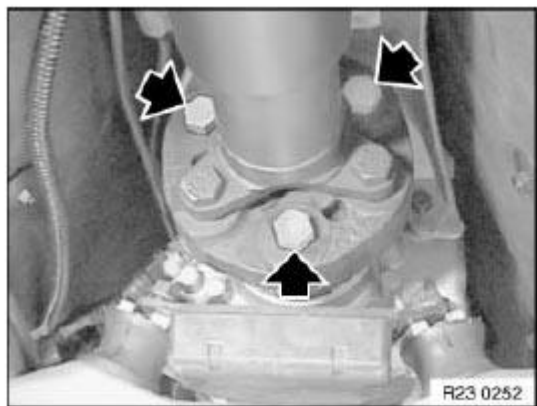


Fig. 5: Identifying ZNS Bolts

Important! M57 only: 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.

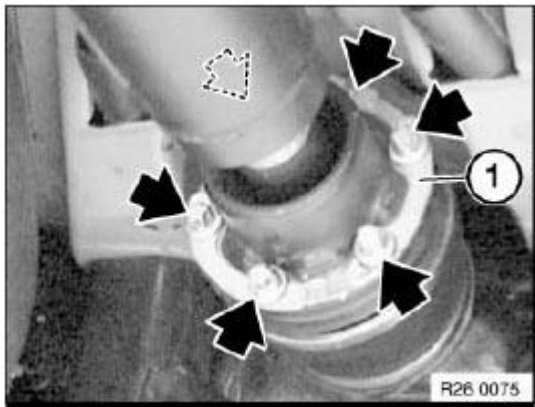


Fig. 6: Locating Flange Bolts

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

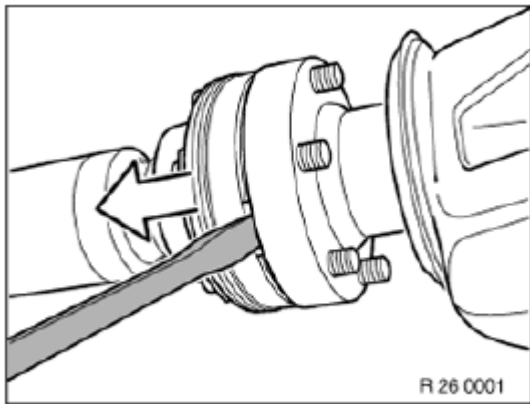


Fig. 7: Pressing Constant Velocity Joint Off Drive Flange

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

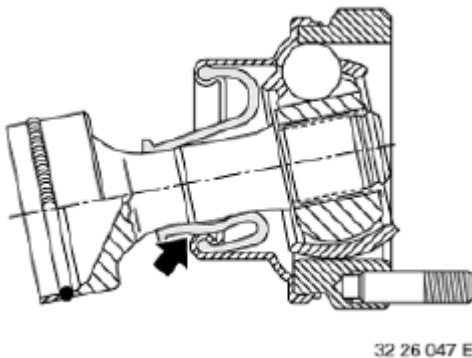
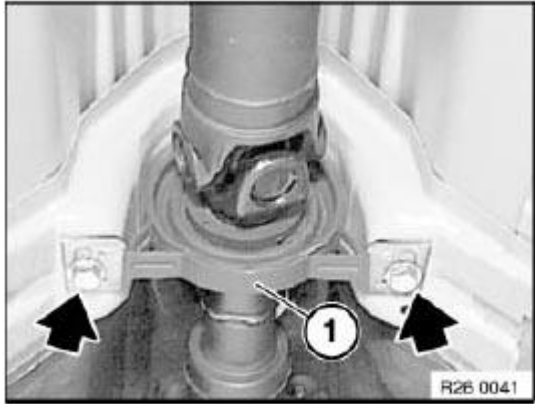
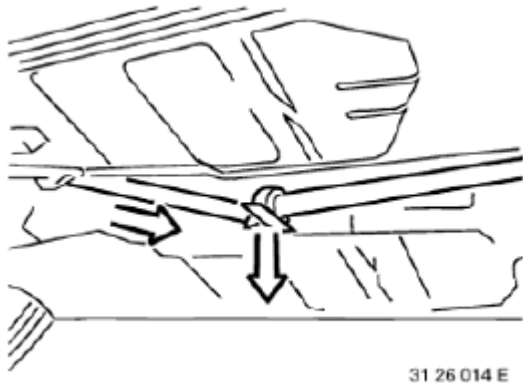


Fig. 8: Sectional View Of Constant Velocity Joint

Grip propeller shaft at center mount and release screws. Tightening torque, **26 11 6AZ**

**Fig. 9: Locating Propeller Shaft At Centre Bearing Screws**

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

**Fig. 10: Identifying Bend Propeller Shaft At Centre Bearing**

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**.

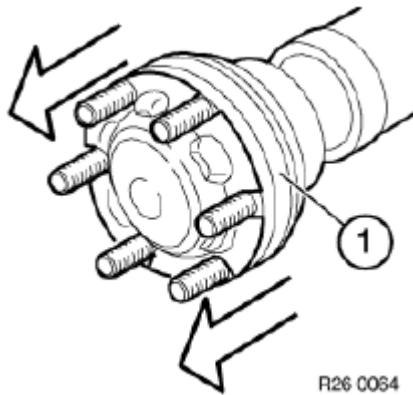


Fig. 11: Identifying Constant-Velocity Joint

Installation:

Check centering mount (4).

Replace damaged centering mount.

Grease centering mount.

Grease.

Refer to **OPERATING FLUIDS - DRIVE SHAFT** .

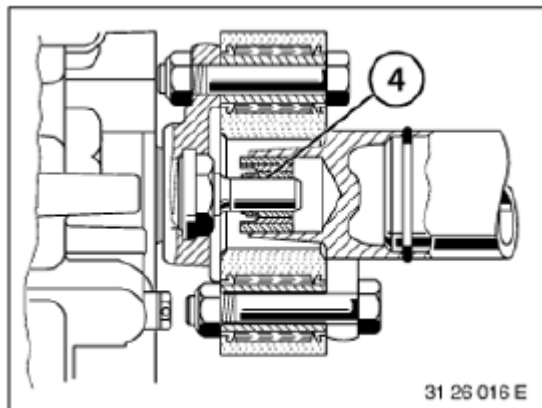


Fig. 12: Identifying Centering Mount Grease Area
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

The aluminum 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. Aluminum tubing
3. Bearing journal

Propeller shafts.

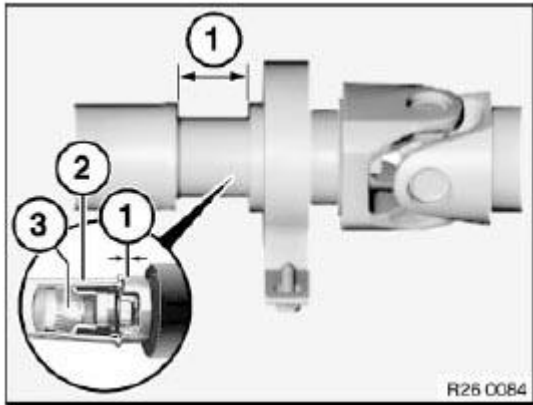


Fig. 13: Identifying Propeller Shaft Aluminum Tubing And Bearing Journal
Courtesy of BMW OF NORTH AMERICA, INC.

26 11 051 REPLACING FLEXIBLE DISK FOR PROPELLER SHAFT

Necessary preliminary tasks:

- Remove rear underbody protection.
- Remove complete **EXHAUST SYSTEM** .

NOTE: To protect constant-velocity joint, tie back propeller shaft in area of center bearing.

Remove heat shields (1) and (2).

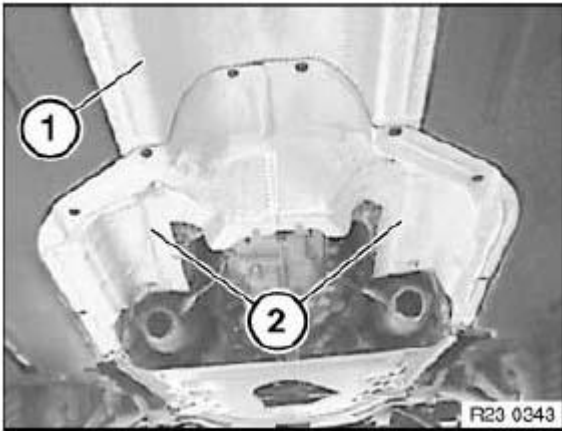


Fig. 14: Identifying Heat Shields

Remove **CROSS-MEMBER FOR TRANSMISSION MOUNTING** .

Remove **propeller shaft** at transmission and center bearing.

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

Tightening torque **26 11 1AZ** .

Installation:

Arrows (3) on circumference of flexible disk must point to flange arms (2).

Replace ZNS bolts and self-locking nuts.

Tighten down screw connection via nut only.

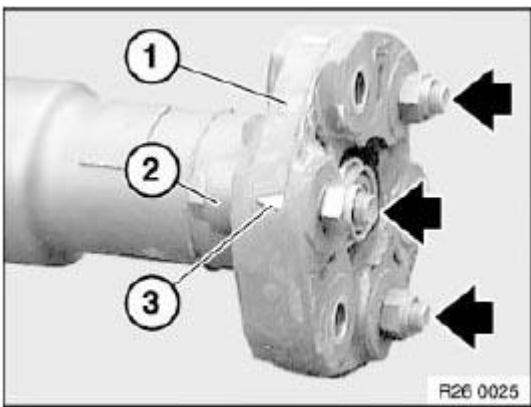


Fig. 15: Identifying Flexible Disk At Propeller Shaft
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Check centering element, replace **centering element** if damaged.

Grease centering mount.

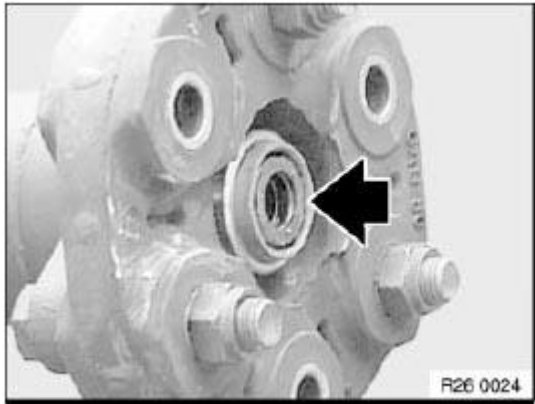


Fig. 16: Locating Centering Mount

Courtesy of BMW OF NORTH AMERICA, INC.

26 11 090 REMOVING AND INSTALLING/REPLACING CENTERING MOUNT FOR PROPELLER SHAFT

Special tools required:

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

Necessary preliminary tasks:

- Remove **propeller shaft**.

Fill centering bore (1) completely with viscous grease.

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

The centering mount (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 mount, you can also fill the centering bore with water instead of grease.

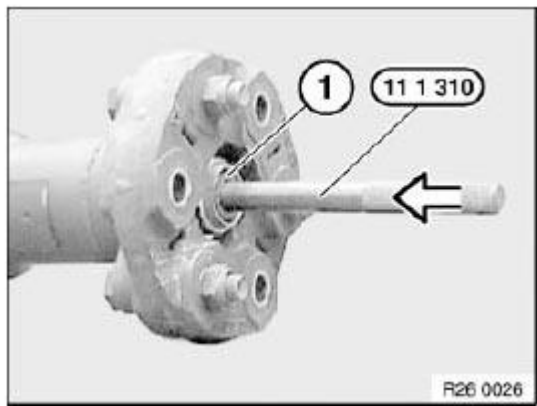


Fig. 17: Identifying Special Tool (11 1 310) Into Centering Bore
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

Remove grease/water from mount bore.

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

Grease centering mount.

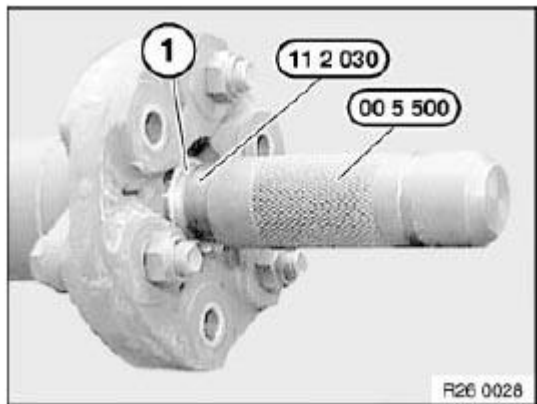


Fig. 18: Identifying Special Tools (11 2 030 And 00 5 500) Into Propeller Shaft
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

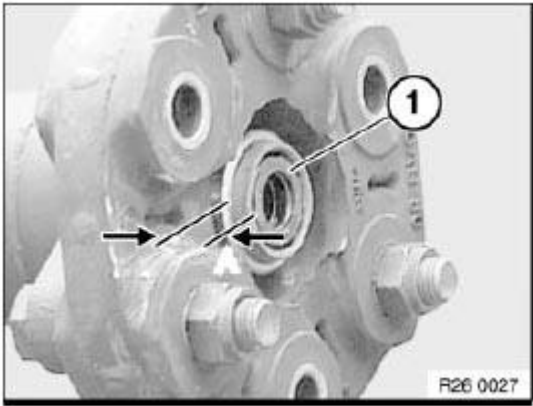


Fig. 19: Identifying Centering Bore

Courtesy of BMW OF NORTH AMERICA, INC.

26 11 160 REPLACING CONSTANT-VELOCITY JOINT FOR PROPELLER SHAFT

Special tools required:

- 23 1 160
- 26 1 110
- 26 1 121
- 26 1 122
- 31 2 102
- 31 2 104

Necessary preliminary tasks:

- Remove **propeller shaft**.

Lever sealing cap (1) with screwdriver (2) out of constant-velocity joint (3).

NOTE: Replace sealing cap (1) with seal.

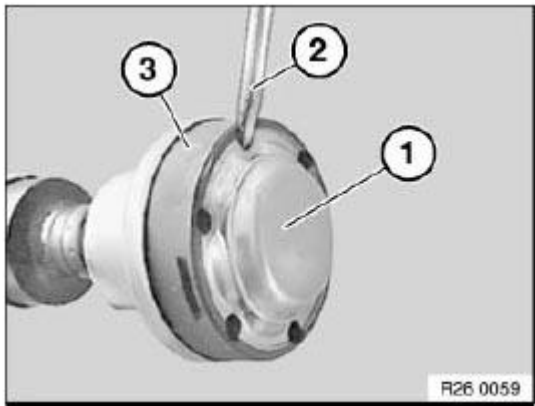


Fig. 20: Identifying Sealing Cap With Seal

Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Installation sequence:

1. Constant-velocity joint
2. Seal
3. Sealing cap

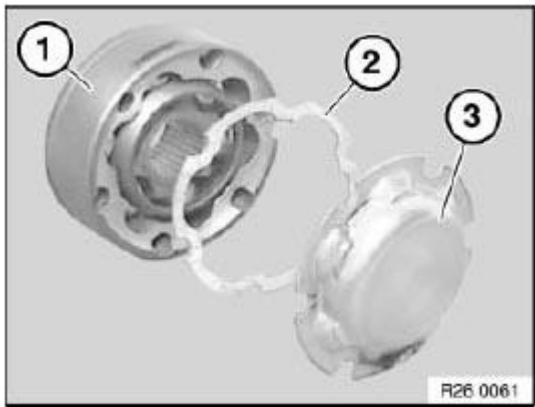


Fig. 21: Identifying Constant-Velocity Joint Installation Sequence

Courtesy of BMW OF NORTH AMERICA, INC.

Lift off retainer

Installation:

Replace circlip.

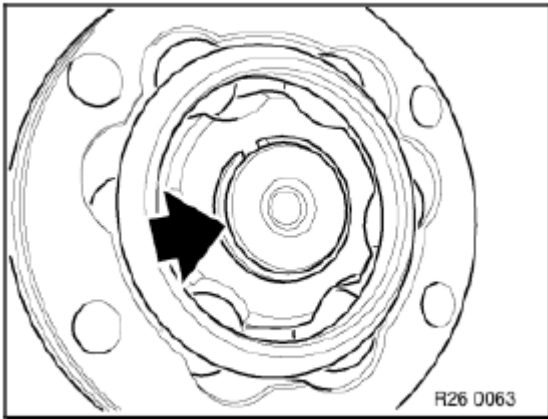


Fig. 22: Locating Circlip

Courtesy of BMW OF NORTH AMERICA, INC.

Force cap off constant velocity joint.

Installation:

Insert sealing washer (1) into constant-velocity joint.

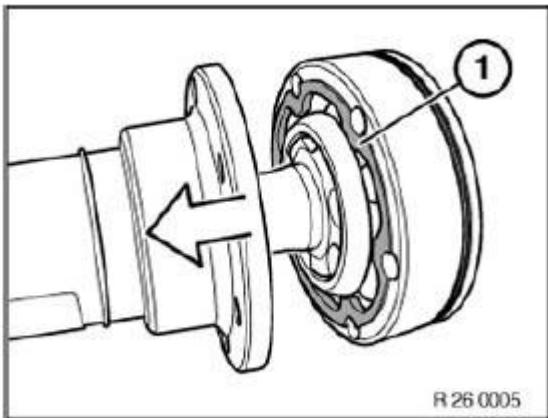


Fig. 23: Inserting Sealing Washer Into Constant-Velocity Joint

Courtesy of BMW OF NORTH AMERICA, INC.

Detach constant-velocity joint (1) with special tool 26 1 110 and commercially available special tool (2).

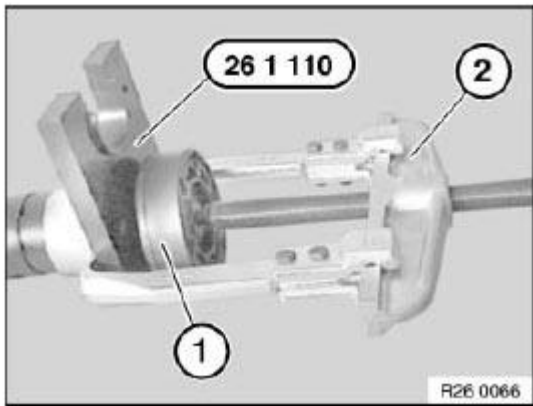


Fig. 24: Identifying Special Tool (26 1 110) On Constant-Velocity Joint
 Courtesy of BMW OF NORTH AMERICA, INC.

Release clamp (1) and detach cap with gaiter.

Push on new cap with gaiter.

NOTE: Do not tighten down clamp (1) yet.

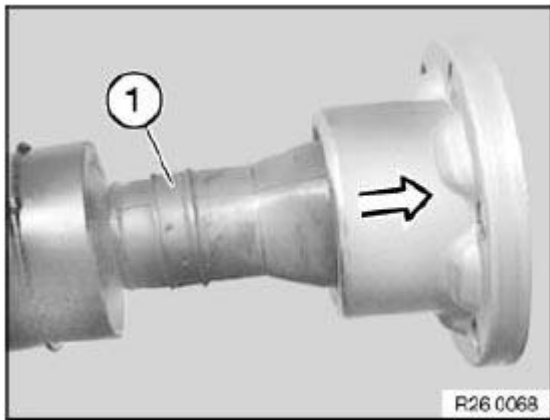


Fig. 25: Identifying Special Tool (26 1 110) On Constant-Velocity Joint
 Courtesy of BMW OF NORTH AMERICA, INC.

Mount constant-velocity joint with special tool 23 1 160 up to stop.

Align bores of constant velocity joint and cap to each other.

Tighten down clamp on gaiter.

NOTE: Keep toothing free of grease.
 Inject new grease into constant velocity joint from rubber gaiter and flange sides.

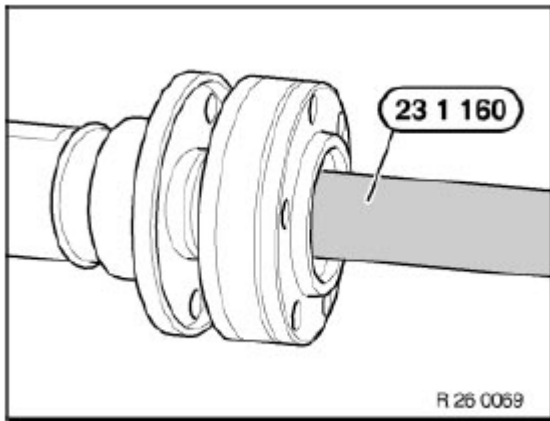


Fig. 26: Identifying Special Tool (23 1 160)
Courtesy of BMW OF NORTH AMERICA, INC.

NOTE: Prepare special tools 31 2 102 and 31 2 104.

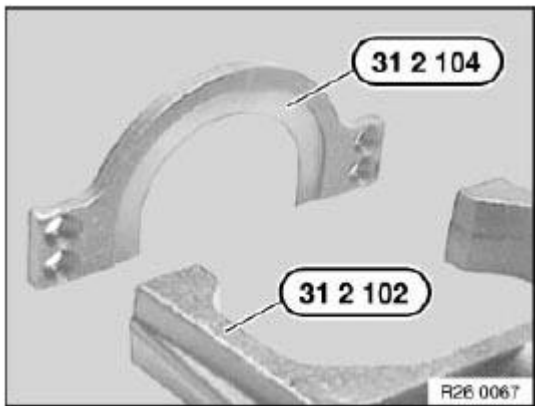


Fig. 27: Identifying Special Tools (31 2 102 And 31 2 104)
Courtesy of BMW OF NORTH AMERICA, INC.

Press sealing cap with special tools 26 1 121, 26 1 122, 31 2 102 and 31 2 104 into constant-velocity joint (1).

NOTE: Align sealing cap and seal to bores of constant-velocity joint with screw.

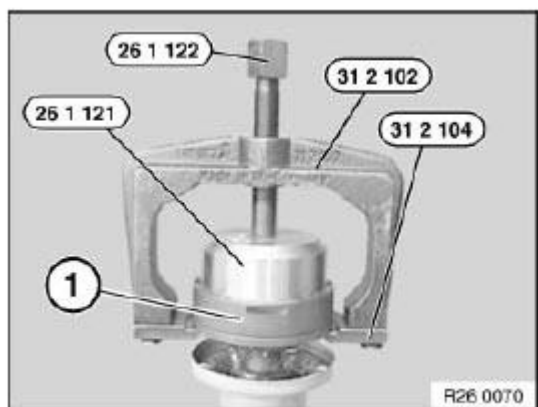


Fig. 28: Identifying Special Tools (26 1 121, 26 1 122, 31 2 102 And 31 2 104) Into Constant-Velocity Joint
Courtesy of BMW OF NORTH AMERICA, INC.

Push cap (1) onto constant-velocity joint (2).

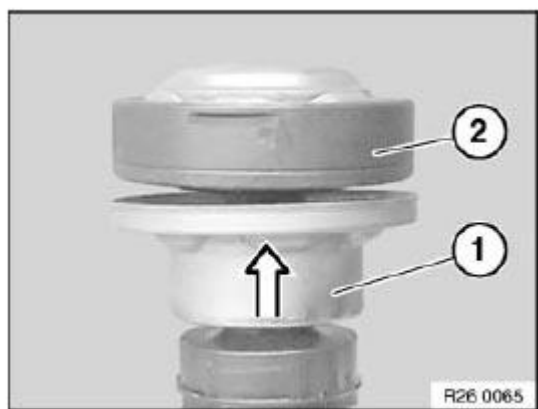


Fig. 29: Pulling Cap Onto Constant-Velocity Joint
Courtesy of BMW OF NORTH AMERICA, INC.

12 CENTER CONSOLE ASSEMBLY

26 12 001 REPLACING COMPLETE PROPELLER SHAFT CENTER BEARING (CONSTANT-VELOCITY JOINT)

Special tools required:

- 00 7 500
- 24 0 090
- 24 1 050
- 33 1 307

Remove **propeller shaft**.

IMPORTANT: Propeller shaft is balanced as a unit.

Mark front propeller shaft relative to rear propeller shaft with paint stick.

Marking by means of engraving which causes surface damage (e.g. center mark) is not permitted.

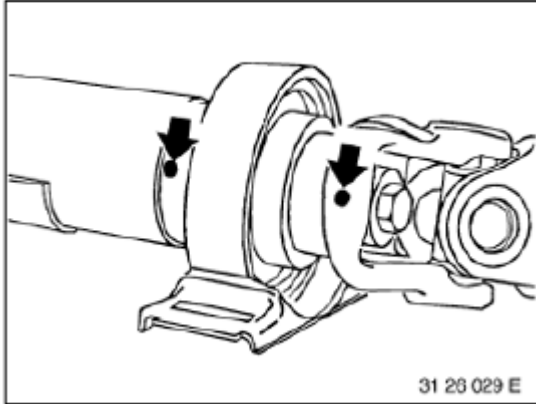


Fig. 30: Locating Propeller Shaft With Paint Stick
Courtesy of BMW OF NORTH AMERICA, INC.

Release screw (1).

Pull propeller shaft apart.

Installation:

Thread free from grease.

When pushing shaft together, make sure that markings match up.

Insert bolt (1) with thread-locking liquid, refer to BMW Parts Service.

Tightening torque **26 11 5AZ.**

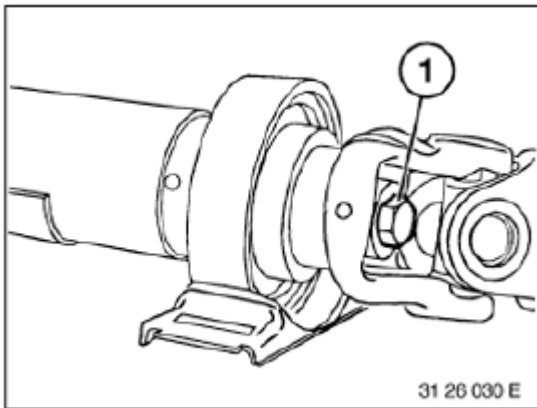


Fig. 31: Identifying Thread-Locking Liquid
Courtesy of BMW OF NORTH AMERICA, INC.

Remove shim and dust gaiter.

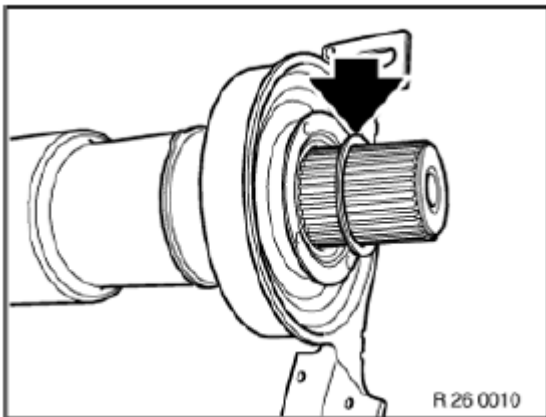


Fig. 32: Locating Shim And Dust Gaiter
Courtesy of BMW OF NORTH AMERICA, INC.

Pull off center bearing with special tool 00 7 500 / 33 1 307 and commercially available puller.

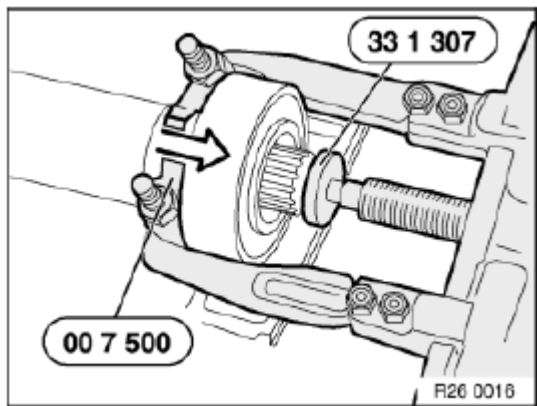


Fig. 33: Identifying Special Tool (00 7 500, 33 1 307) On Center Bearing
 Courtesy of BMW OF NORTH AMERICA, INC.

Drive new center bearing firmly home with special tool 24 0 090 or 24 1 050.

NOTE: Bearing inside diameter 30 mm, use special tool 24 0 090.
 Bearing inside diameter 35 mm, use special tool 24 1 050.

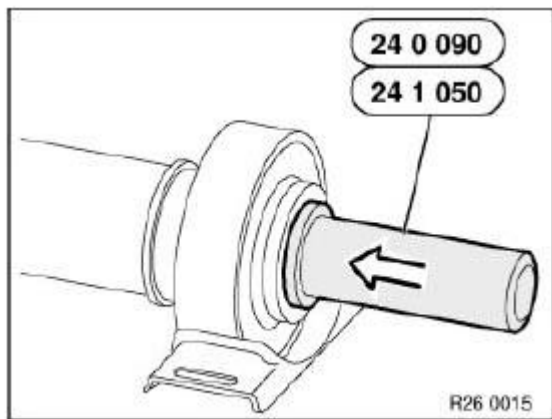


Fig. 34: Identifying Special Tool (24 0 090, 24 1 050) On Center Bearing Installation Positions
 Courtesy of BMW OF NORTH AMERICA, INC.

26 12 001 REPLACING COMPLETE PROPELLER SHAFT CENTER MOUNT

Special tools required:

- 00 7 500
- 23 1 160

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:

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

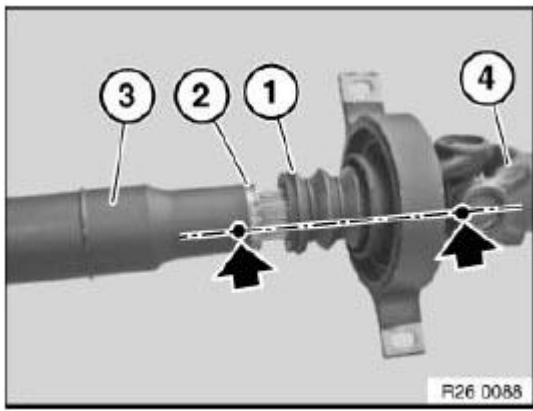


Fig. 35: Locating Propeller Shaft Center Mark
Courtesy of BMW OF NORTH AMERICA, INC.

Pull propeller shaft apart.

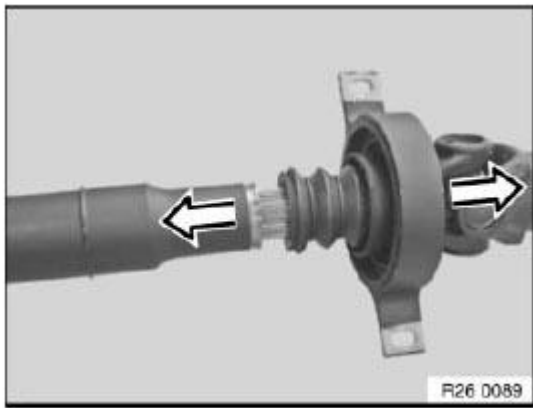


Fig. 36: Pulling Propeller Shaft Apart
Courtesy of BMW OF NORTH AMERICA, INC.

Installation:

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

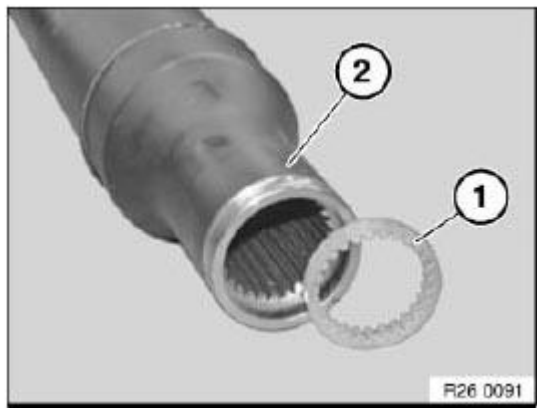


Fig. 37: Inserting Clamping Ring Into Front Propeller Shaft
Courtesy of BMW OF NORTH AMERICA, INC.

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

Installation:

Apply a coating of grease to longitudinal splines on shaft.

Grease. Refer to **OPERATING FLUIDS - DRIVE SHAFT** .

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

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

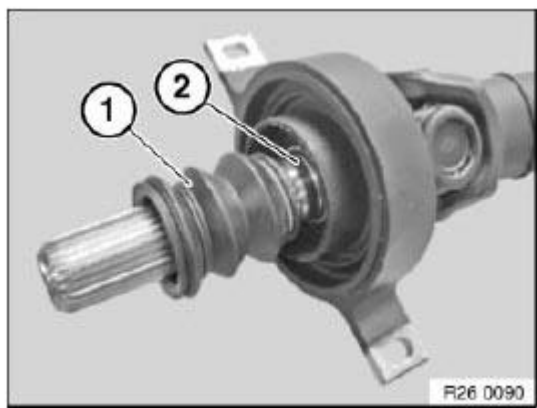


Fig. 38: Identifying Gaiter Installation Into Groove
Courtesy of BMW OF NORTH AMERICA, INC.

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

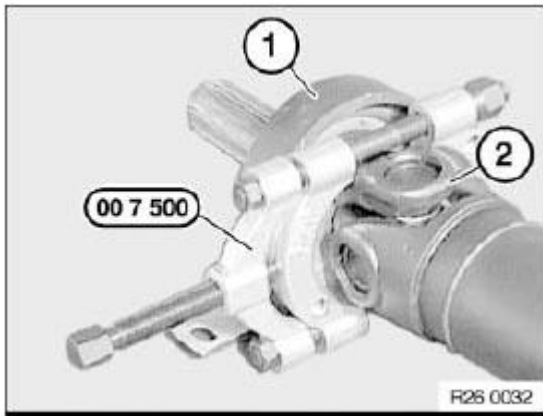


Fig. 39: Identifying Special Tool (00 7 500) On Center Mount And Universal Joint (2)
Courtesy of BMW OF NORTH AMERICA, INC.

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

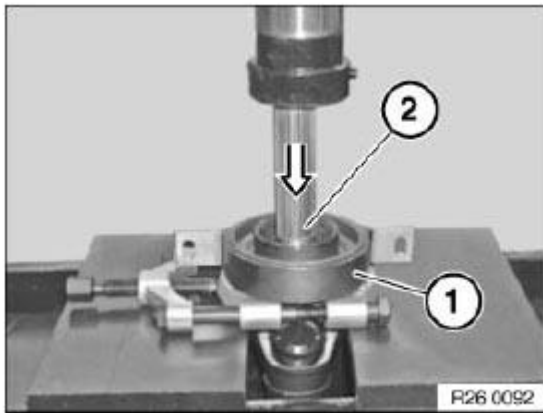


Fig. 40: Pressing Center Mount Off Propeller Shaft
Courtesy of BMW OF NORTH AMERICA, INC.

Force new center mount (1) onto propeller shaft. Collar (2) must point in direction of travel towards front propeller shaft. Drive center mount firmly home with special tool 23 1 160.

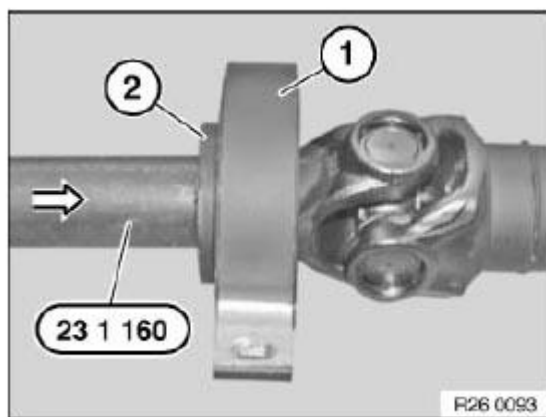


Fig. 41: Identifying Special Tool (23 1 160) On Center Mount
Courtesy of BMW OF NORTH AMERICA, INC.