

250 Gearshift Linkage

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GENERAL

This repair group covers transmission gearshift and linkage service for both manual and automatic transmission equipped vehicles.

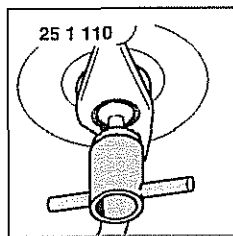
To gain access to the complete gearshift mechanism it is necessary to remove the exhaust system and the driveshaft as described in **180 Exhaust System** and **260 Driveshaft**.

NOTE—

In models with automatic transmission, the electronic immobilizer (EWS) prevents starter operation unless the gear position is Park or Neutral.

Special tools

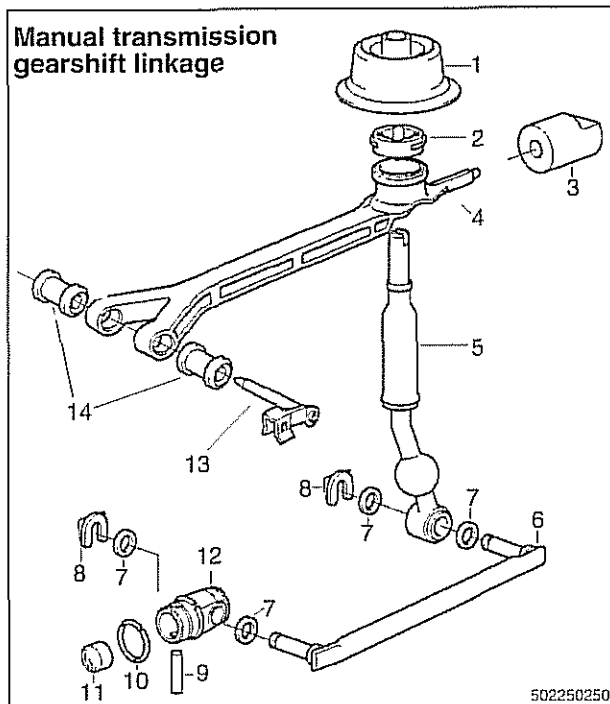
BMW suggests the use of one special tool in the removal of the gear shift lever for manual transmission equipped vehicles.



- ◀ Shifter spanner
(Tool No. BMW 25 1 110)

MANUAL TRANSMISSION GEARSHIFT

- ◀ Gearshift linkage



1. Inner rubber boot
2. Shift lever mounting ring
3. Bushing
4. Shift console
5. Shift lever
6. Selector rod
7. Spacer ring
8. Circlip
9. Dowel pin
10. Locking ring
11. Washer
12. Gear selector rod coupling
13. Locking pin
14. Bushing

Gearshift lever, removing (manual transmission)

Use the accompanying illustration as a guide when removing and installing the gearshift linkage.

- Remove shift knob by pulling knob straight off shift lever.

NOTE—

Pull up on the shift knob with about 90 lbs. of force. Do not twist knob or locating key can be damaged.

- Squeeze sides of shift boot to unclip from center console. Pull boot up and off shift lever.
- Remove sound insulation at base of shift lever.
- Raise vehicle to gain access to underside of vehicle.

WARNING—

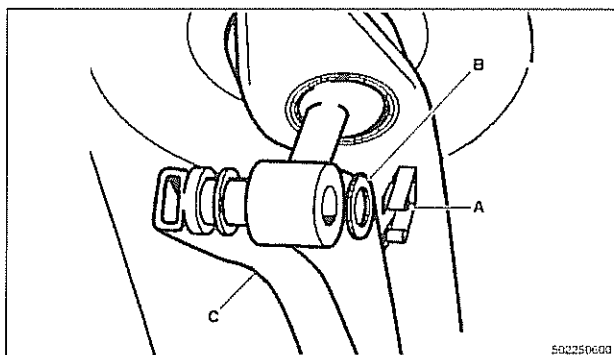
Make sure the car is stable and well supported at all times. Use a professional automotive lift or jack stands designed for the purpose. A floor jack is not adequate support.

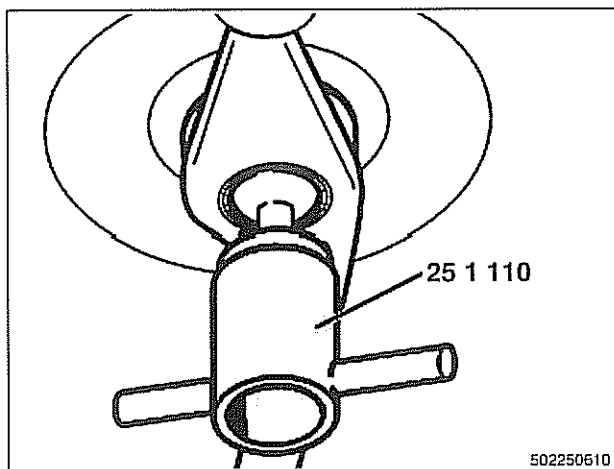
- Remove complete exhaust system. See **180 Exhaust System**.
- Remove driveshaft. See **260 Driveshaft**.
- Support transmission with transmission jack. Remove crossmember from rear of transmission.
- Lower rear of transmission to access gearshift linkage.

CAUTION—

Tilting the engine to lower the transmission can lead to damage to various components due to lack of clearance.

- Working above transmission, disconnect selector rod:
 - Pull off shift rod retaining circlip (A).
 - Remove washer (B).
 - Disengage selector rod (C) from gearshift lever.

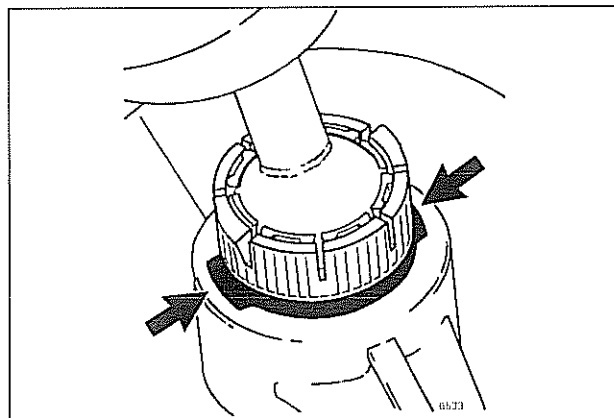




➤ Release gearshift lever mounting ring from below using BMW special spanner 25 1 110. Turn tool 90° ($\frac{1}{4}$ turn) counterclockwise.

- Push shift lever up to remove from shift console.
- Raise transmission and temporarily install transmission crossmember.
- Lower vehicle. Working from inside passenger compartment, pull up on shift lever to remove it together with inner rubber boot and shift lever mounting ring.

Gearshift lever, installing (manual transmission)

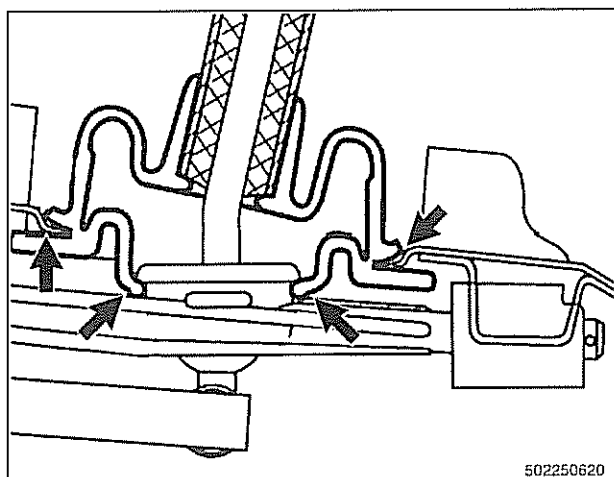


- Clean old grease from shift lever ball and mounting ring. Also clean shift console bowl. Lubricate with molybdenum disulfide grease.
- Insert shift lever together with inner boot and mounting ring into center console.

➤ Align shift lever mounting ring locking tabs with slots (arrows) in shift console bowl. Press down until ring snaps into place.

NOTE —

Install mounting ring with arrow pointing toward front of car.



➤ Pull inner rubber boot over shift console bowl (arrows) to seal base of shift lever.

NOTE —

Install rubber boot with arrow pointing toward front of car.

- Raise car and support transmission. Remove transmission crossmember and lower transmission to access base of shift lever.

CAUTION —

Tilting the engine to lower the transmission can lead to damage to various components due to lack of clearance.

- Connect selector rod to shift lever. Lift transmission, install crossmember and tighten crossmember bolts.
- Install driveshaft and heat shield. See **260 Driveshaft**.
- Reinstall exhaust system. See **180 Exhaust System**.
- Lower vehicle. Install shift boot. Push shift knob on lever.

Tightening torque

Driveshaft CV joint to final drive flange

- | | |
|------------------------|------------------|
| • M10 (Torx bolt) | 70 Nm (51 ft-lb) |
| • M8 (compression nut) | 32 Nm (24 ft-lb) |

Driveshaft clamping sleeve

- | | |
|-----------------------|------------------|
| • M10 ribbed nuts | 80 Nm (59 ft-lb) |
| • M10 compressed nuts | 64 Nm (47 ft-lb) |

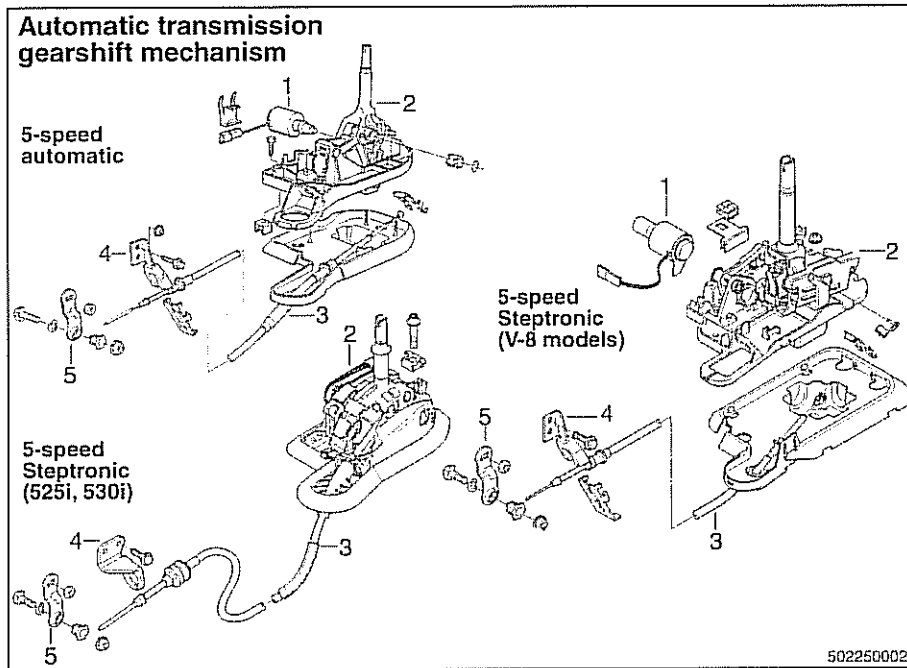
Flex-disc to driveshaft or transmission flange

- | | |
|--------------------|--------------------|
| • M10 (8.8 grade) | 48 Nm (35 ft-lb) |
| • M10 (10.9 grade) | 60 Nm (44 ft-lb) |
| • M12 (10.9 grade) | 100 Nm (74 ft-lb) |
| • M14 | 140 Nm (103 ft-lb) |

Transmission crossmember

- | | |
|-------------------|------------------|
| • to transmission | 21 Nm (15 ft-lb) |
| • to chassis | 42 Nm (30 ft-lb) |

AUTOMATIC TRANSMISSION GEARSHIFT



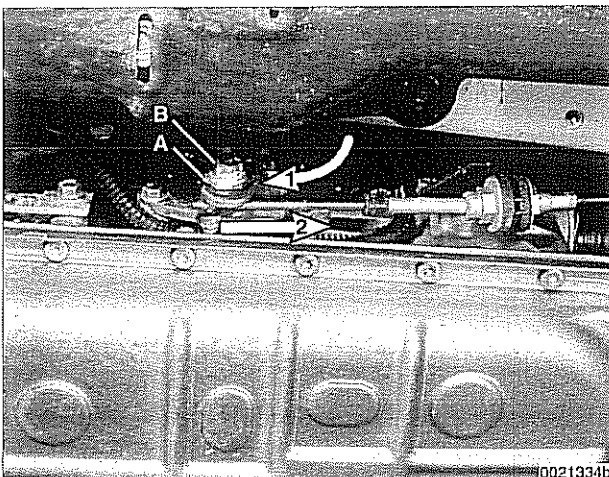
1. Shift lock solenoid
2. Shifter assembly
3. Shift cable
4. Support bracket
5. Selector lever

Gearshift mechanism, adjusting (automatic transmission)

- Position gearshift lever in Park.
- Raise vehicle to gain access to shift linkage.

WARNING—

Make sure the car is stable and well supported at all times. Use a professional automotive lift or jack stands designed for the purpose.



- Counterhold bushing **A** and loosen cable clamping nut **B**.

- Push transmission shift arm forward toward engine (**arrow 1**) (Park position).
- Push cable end backward away from engine (**arrow 2**). Release pressure on cable.
- Tighten clamping nut.

CAUTION—

Do not overtighten the nut so that it twists the cable.

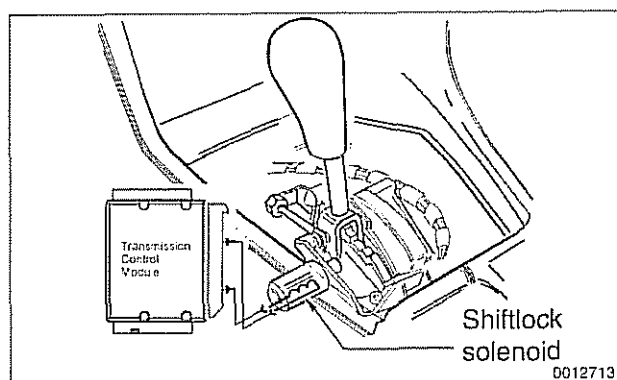
Tightening torque

Shift cable clamping nut

10 Nm (7.5 ft-lb)

Automatic shiftlock, checking function (automatic transmission)

The automatic shiftlock uses an electric solenoid to lock the selector lever in Park or Neutral. Depressing the foot brake with the ignition on energizes the solenoid, allowing the lever to be moved into a drive gear. The solenoid is energized only when the engine speed is below 2,500 rpm and the vehicle speed is below 3 mph (5 kph). The solenoid is mounted in the right side of the selector lever housing.



⚡ Automatic shiftlock prevents drive gear selection until brake pedal is depressed.

- With engine running and car stopped, place selector lever in Park or Neutral.
- Without depressing brake pedal, check that selector lever is locked in position (Park or Neutral).
- Depress brake pedal firmly. Solenoid should click audibly.
- Check that selector lever can now be moved out of Park or Neutral.

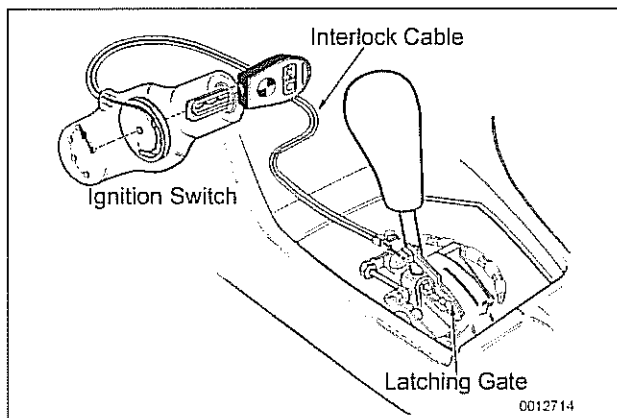
NOTE —

The next test should be performed in an open area with the parking brake on and with extreme caution.

- With selector lever in Park or Neutral and brake pedal depressed, raise engine above 2,500 rpm. Check that selector lever cannot be moved out of Park or Neutral.
- If any faults are found check the electrical operation of the shiftlock solenoid and check for wiring faults to or from the transmission control module (TCM). See **610 Electrical Component Locations** and **ELE Electrical Wiring Diagrams**.

NOTE —

The solenoid is controlled via the TCM, using brake pedal position, engine speed, and road speed as controlling inputs.



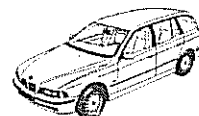
Shift interlock, checking function (automatic transmission)

◀ The shift interlock uses a cable between the ignition switch and the shift lever to lock the shift lever in the park position when the key is in the off position or removed. This feature also prevents the key from being removed from the ignition lock until the selector lever is in Park.

- Shift selector lever to Park position and turn ignition key to the off position.
- Remove ignition key. Check that selector lever cannot be shifted out of Park position.
- Turn ignition key on and depress brake pedal. Check that selector lever moves freely from gear to gear.
- With selector lever in a gear position other than Park, attempt to turn key to off position and remove. Key should not go into off position.
- If any faults are found check cable for kinks and check cable attachment points for damage or faults.

NOTE —

- *It must only be possible to remove ignition key with selector lever in Park position.*
- *Do not kink shift interlock cable.*
- *Shift interlock repair is covered in **320 Steering and Wheel Alignment**.*



260 Driveshaft

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GENERAL

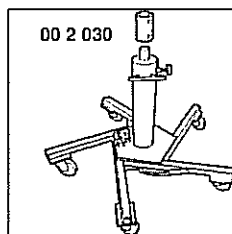
This repair group covers repair and replacement of the driveshaft and driveshaft components.

Driveshaft repairs consist of replacement of front flex-disc, center mount or rear CV joint. If the driveshaft joint is defective, replace the complete driveshaft.

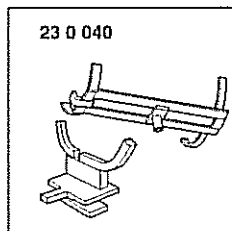
Drive axle repairs are covered in **331 Final Drive**.

Special tools

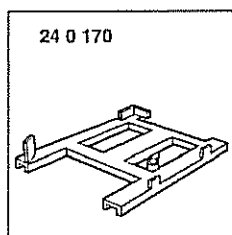
BMW suggests the use of certain special tools in removing, installing or servicing the driveshaft or its components.



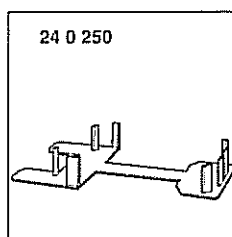
- Transmission jack
(Tool No. BMW 00 2 030)



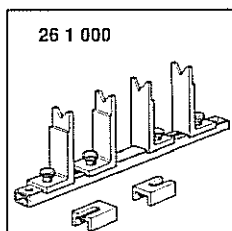
- Transmission support (for use with transmission jack)
(Tool No. BMW 23 0 040)



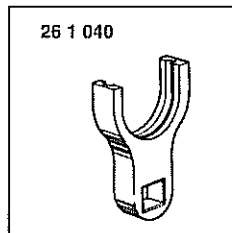
- Transmission support (for use with transmission jack, A5S 560Z transmission)
(Tool No. BMW 24 0 170)



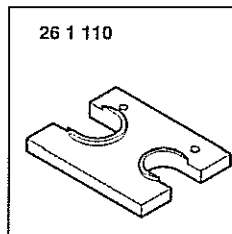
- Transmission support (for use with transmission jack, A5S 440Z transmission)
(Tool No. BMW 24 0 250)



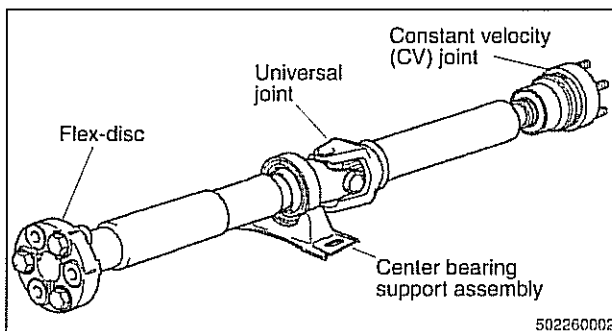
- Driveshaft center mount aligning jig
Tool No. BMW 26 1 000)



- ◀ Driveshaft center slide nut spanner
(Tool No. BMW 26 1 040)



- ◀ CV joint removal tool
(Tool No. BMW 26 1 110)



Driveshaft description

- ◀ The two-piece driveshaft is connected to the transmission by a rubber flex-disc and to the rear final drive by a constant velocity (CV) joint.

- A universal joint is used at the center of the driveshaft and the shaft is supported in the middle by a center support bearing. The bearing is mounted in rubber to isolate vibration.
- The rear constant velocity joint compensates for fore and aft movement of the drive line.

Troubleshooting

The source of driveline vibrations and noise can be difficult to pinpoint. Engine, transmission, rear axle, or wheel vibrations can be transmitted through the driveshaft to the car body. Noises from the car may be caused by final drive problems, or by faulty wheel bearings, drive axles, or even worn or improperly inflated tires.

NOTE—

For drive axle repair information, see 331 Final Drive.

Driveshaft noise or vibration may be caused by worn or damaged components. Check the universal joint for play. With the driveshaft installed, pull and twist the driveshaft while watching the joint. The BMW specification for play is very small, so almost any noticeable play could indicate a problem.

Check the torque of the fasteners at the flange connections. Check the rubber of the flex-disc and center bearing for deterioration or tearing. Check the driveshaft for broken or missing balance weights. The weights are welded tabs on the driveshaft tubes. In addition to inspecting for faulty driveshaft parts, the installed angles of the driveshaft should also be considered.

Further inspection requires removal of the driveshaft. Check the front centering guide on the transmission output flange for damage or misalignment. Also check runout at the transmission output flange and output shaft, and at the final drive input flange. Check the bolt hole bores in the flange for wear and elongation.

Driveshaft flange runout (max. allowable)

Transmission flange	
• Axial play	0.10 mm (0.004 in.)
• Radial play	0.07 mm (0.003 in.)

Spin the driveshaft center bearing and check for smooth operation without play. Check the constant velocity joint for wear or play. Check the universal joint for wear or binding. If it is difficult to move or binds, the driveshaft section should be replaced.

Universal joint play

Maximum allowable	0.15 mm (0.006 in.)
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NOTE —

With the driveshaft installed, the actual amount that the driveshaft joint pivots is limited. For the most accurate test, check joint in its normal range of movement.

If inspection reveals nothing wrong with the driveshaft, it may need to be rebalanced. This can be done by a speciality driveshaft repair shop. Also, check driveshaft alignment as described below.

NOTE —

Minor driveshaft vibrations can often be corrected simply by disconnecting the driveshaft at the final drive and repositioning it 90°, 180° or 270° in relation to the final drive input flange.

The troubleshooting table below lists symptoms of driveshaft problems and their probable causes. Most of the repair information is contained within this repair group. There are references to other repair groups, where applicable.

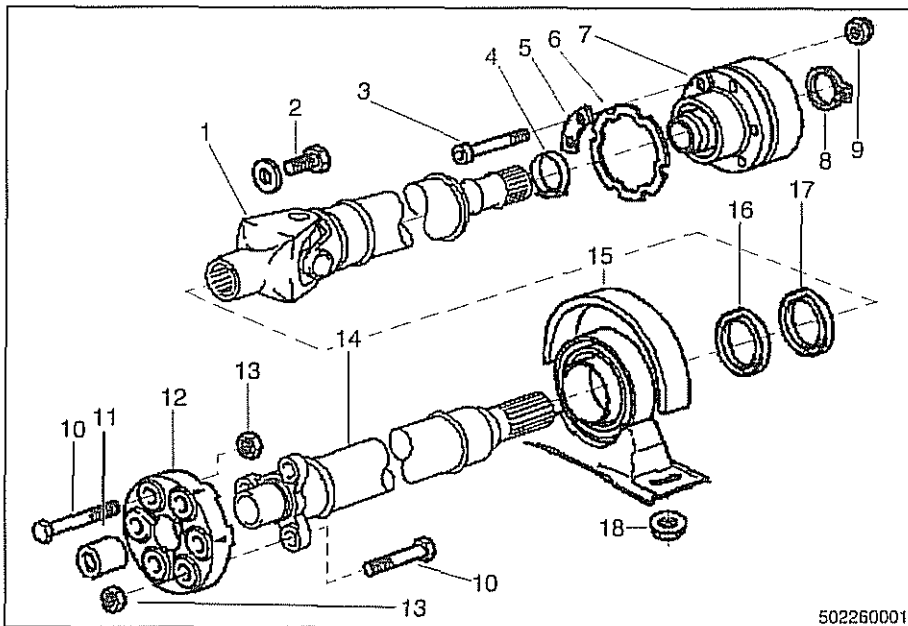
Driveshaft problems and causes

Symptom	Probable cause	Corrective action
Vibration when starting off (forward or reverse)	Center bearing rubber deteriorated.	Inspect center bearing and rubber. Replace if necessary.
	Flex-disc damaged or worn.	Inspect flex-disc. Replace if necessary.
	Engine or transmission mounts faulty.	Inspect engine and transmission mounts. Align or replace, if necessary.
	Front centering guide worn, or driveshaft mounting flanges out of round.	Check front centering guide and replace if necessary. Check runout of driveshaft flanges.
	Universal joint worn or seized.	Check universal joint play and movement. Replace driveshaft if necessary.
	Driveshaft misaligned.	Check driveshaft alignment.
Noise during on/off throttle or when engaging clutch.	Final drive components worn or damaged (excessive pinion-to-ring-gear clearance).	Remove final drive and repair. 331 Final Drive
	Drive axle or CV joint faulty.	Inspect drive axles and CV joints. Repair or replace as necessary. 331 Final Drive
Vibration at 25 to 30 mph (40 to 50 km/h).	Front centering guide worn, or driveshaft mounting flanges out of round or damaged.	Check front centering guide and replace if necessary. Check runout of driveshaft mounting flanges.
	Universal joint worn or seized.	Check universal joint play and movement. Replace driveshaft if necessary.
	Flex-disc damaged or worn.	Inspect flex-disc. Replace if necessary.
	Center bearing rubber deteriorated.	Inspect center bearing. Replace if necessary.
	Misaligned installed position.	Check driveshaft alignment.
Vibration, audible rumble over 35 mph (60 km/h).	Front centering guide worn, or driveshaft mounting flanges out of round or damaged.	Check front centering guide and replace if necessary. Check runout of driveshaft mounting flanges.
	Mounting flange bolts loose or holes worn.	Remove driveshaft and check transmission output flange and final drive input flange. Replace if necessary.
	Driveshaft unbalanced.	Check driveshaft for loose or missing balance weights. Have driveshaft rebalanced or replace if necessary.
	Universal joint worn or seized.	Check universal joint play and movement. Replace driveshaft if necessary.
	Center bearing faulty.	Replace center bearing.
	Final drive rubber mount faulty.	Inspect final drive rubber mount and replace if necessary.
	Driveshaft misaligned.	Check driveshaft alignment.

DRIVESHAFT SERVICE

Repair kits for the universal joint are not available for BMW driveshafts. A worn or damaged universal joint usually require replacement of the driveshaft.

The driveshaft is balanced to close tolerances. Whenever it is to be removed or disassembled, the mounting flanges and driveshaft sections should be marked with paint or a punch before proceeding with work. This will ensure that the driveshaft can be reassembled and installed in exactly the original orientation.

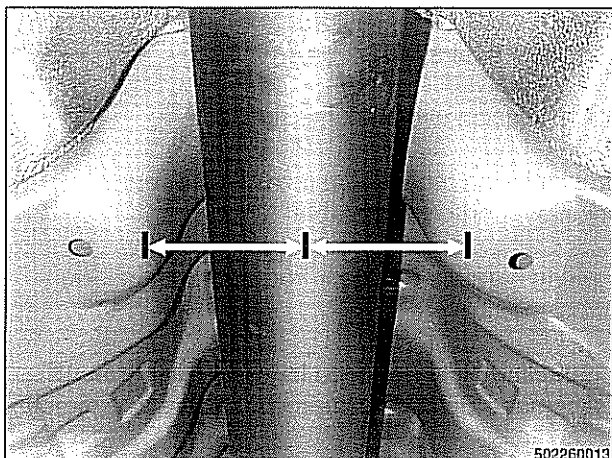


1. Rear section of drive shaft
2. Hex bolt, M12 x 1.5 x 25
3. Knurled bolt
4. Clamp
5. Reinforcement
6. Seal
7. Constant velocity joint
8. Circlip
9. Hex nut
10. Hex bolt, M12 x 1.5 x 58
11. Centering sleeve
12. Flexible disk
13. Self-locking hex nut
14. Front section of driveshaft
15. Center bearing
16. Dust cover (some models)
17. Spacer (some models)

Driveshaft, aligning

The alignment of the driveshaft does not normally need to be checked unless the engine/transmission or the final drive have been removed and installed. If all other parts of the driveshaft have been inspected and found to be okay, but there is still noise or vibration, driveshaft alignment should be checked.

There are two important driveshaft alignment checks. The first is to make sure that the driveshaft runs straight from the transmission to the final drive, without any variation from side-to-side caused by misalignment of the engine/transmission in its mounts. Make a basic check by sighting along the driveshaft from back to front. Any misalignment should be apparent from the center bearing forward.

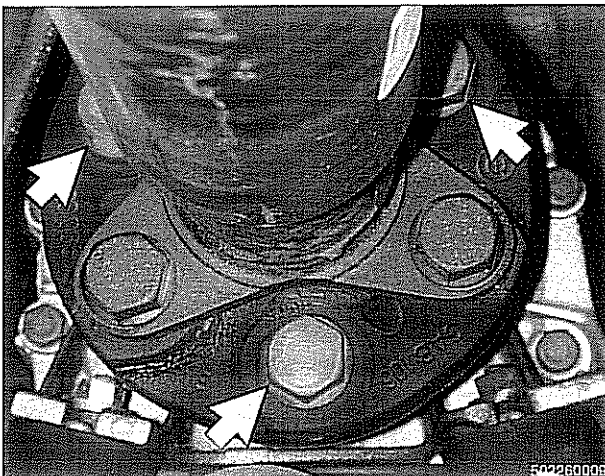
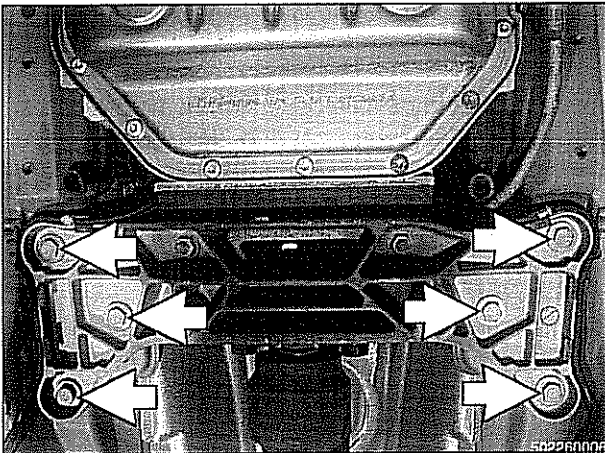
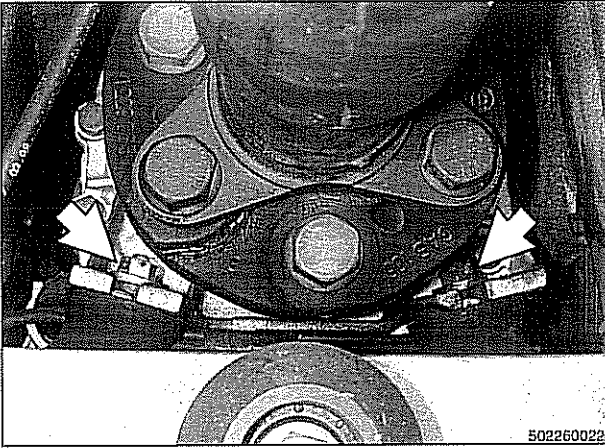


- To adjust the side-to-side alignment, loosen transmission or engine mounts to reposition them, then retighten mounts. The driveshaft should be exactly centered in driveshaft tunnel.
- The second important driveshaft alignment check is more complicated. It checks the amount the driveshaft is angled vertically at the joints. This angle is known as driveshaft deflection.
- In general, there should be little deflection in the driveshaft between the engine, the center bearing, and the final drive. Precise checks require the use of a large protractor or some other means of measuring the angle of the engine and the final drive and comparing these angles to the angle of the driveshaft sections.
- To change the deflection angle, shims can be placed between the center bearing and the body or between the transmission and its rear support. When using shims to change a deflection angle, keep in mind that the angle of adjacent joints will also change. Deflection angles should be as small as possible.

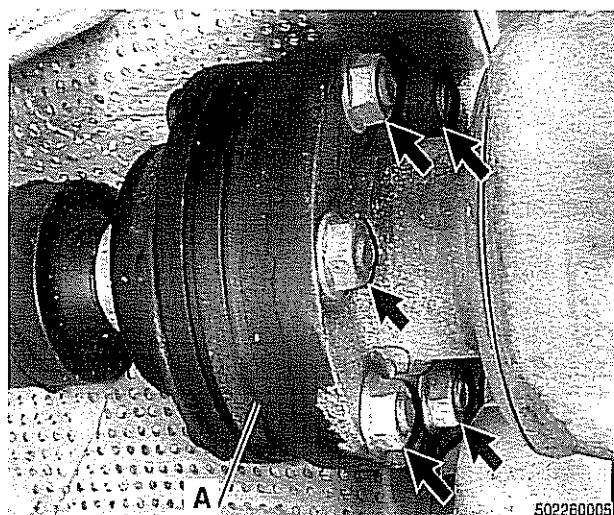
Driveshaft, removing

CAUTION—

- Be sure the wheels are off the ground before removing the driveshaft. Set the parking brake before removing the driveshaft.
- Once the driveshaft has been removed, the vehicle can roll regardless of whether the transmission is in gear or not.
- The driveshaft is mounted to the transmission and final drive with self-locking nuts. These nuts are designed to be used only once and should be replaced during reassembly.

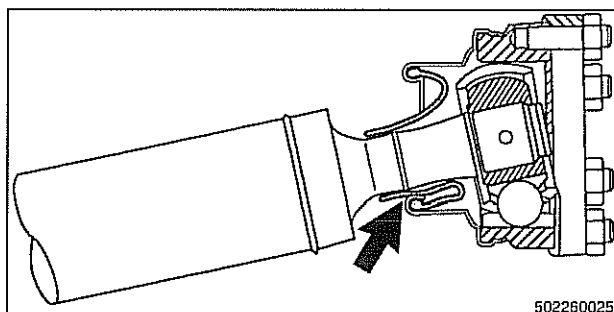


- Remove complete exhaust system. See **180 Exhaust System**.
- Remove exhaust heat shields.
- Support transmission with transmission jack.
- Loosen transmission mount nuts (**arrows**) on rear transmission support crossmember.
- Release wiring harness retainers from rear transmission support crossmember.
- Remove mounting bolts (**arrows**) for rear transmission support crossmember. Slide crossmember rearward to remove.
- Matchmark front and rear driveshaft halves to corresponding transmission output and final drive input flanges.
- Remove nuts securing driveshaft mounting bolts at transmission output flange. Counterhold bolts (**arrows**) at transmission flex-disc. Discard old nuts.
- Hang driveshaft front section from body using stiff wire.

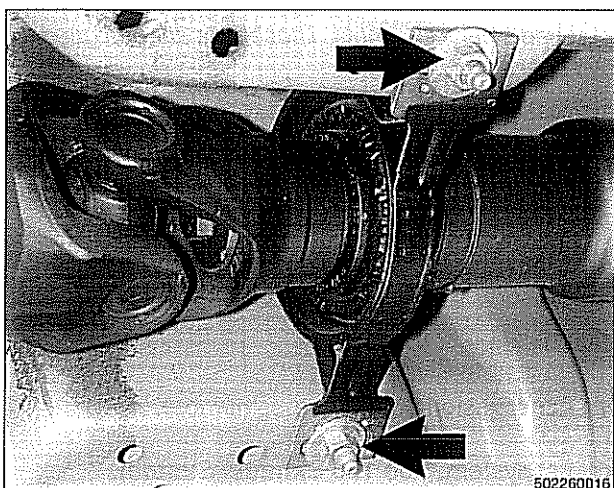


Remove nuts (arrows) from constant velocity joint mounting bolts at final drive. Pry constant velocity joint free from final drive input flange at groove (A).

- Hang driveshaft rear section from body using stiff wire.



Do not let driveshaft hang unsupported, as rear CV joint rubber boot (arrow) may be damaged.



Remove center support bearing mounting nuts (arrows).

- Remove driveshaft. Pull down on center of driveshaft to facilitate removal.

CAUTION—
Protect CV joint with plastic cover.

Driveshaft, installing

- Prepare CV joint for reinstallation:
 - Extend joint to limit.
 - Clean off old grease and fill with fresh grease.
 - Install new seal.
- Bend driveshaft slightly at center universal joint to install.

CAUTION—

Do not allow CV joint seal to become displaced.

- Align matchmarks on driveshaft to matchmarks on final drive and transmission flanges.
- Fit constant velocity joint to final drive input flange. Alternately tighten two opposite nuts to draw constant velocity joint evenly into the final drive input flange. Once seated, tighten down remaining nuts.

CAUTION—

Do not reuse self-locking nuts. These nuts are designed to be used only once.

- Insert bolts in front of driveshaft to transmission output flange. Counterhold each bolt while tightening nut.

CAUTION—

- *Do not reuse self-locking nuts. These nuts are designed to be used only once.*
- *Avoid stressing the flex-disc when torquing the bolts. Do this by counterholding the bolts and turning the nuts on the flange side.*

- Position center support bearing and install mounting nuts. Use new self-locking nuts.
- Install heat shields.
- Install rear transmission support crossmember.
- Install exhaust system. See **180 Exhaust System**. Reconnect oxygen sensor wiring harnesses and reattach wiring harness retainers to rear transmission support crossmember.

- Road test vehicle to check for noise or vibration.

CAUTION—

- *Do not reuse self-locking nuts. These nuts are designed to be used only once.*
- *Avoid stressing the flex-disc when torquing the bolts. Do this by counterholding the bolts and turning the nuts on the flange side.*

Tightening torques

Aluminum driveshaft to flex-disc

- M12 (use coated washers) 90 Nm (66 ft-lb)

Driveshaft CV joint to final drive flange

- M10 (Torx bolt) 70 Nm (51 ft-lb)
- M8 (compression nut) 32 Nm (24 ft-lb)

Flex-disc to transmission flange or driveshaft

- M10 (8.8 grade) 48 Nm (35 ft-lb)
- M10 (10.9 grade) 60 Nm (44 ft-lb)
- M12 (8.8 grade) 81 Nm (60 ft-lb)
- M12 (10.9 grade) 100 Nm (74 ft-lb)
- M14 140 Nm (103 ft-lb)

Transmission crossmember

- to transmission (M8) 21 Nm (15 ft-lb)
- to chassis (M10) 42 Nm (30 ft-lb)

NOTE —

Bolt grade is marked on the bolt head. When replacing bolts, only use bolts of the same strength and hardness as the originals installed.

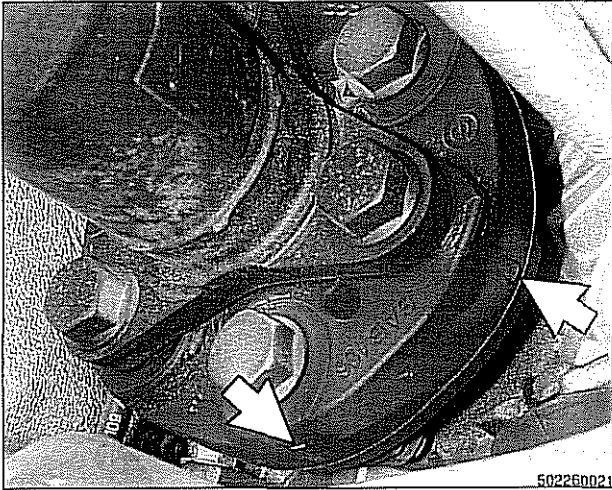
Flex-disc, replacing

- Check flex-disc between front section of driveshaft and transmission output flange for cracks, tears, missing pieces, or distortion. Check for worn bolt hole bores in flange.
- If flex-disc needs replacement, remove driveshaft as described earlier.
- Unbolt flex-disc from driveshaft.

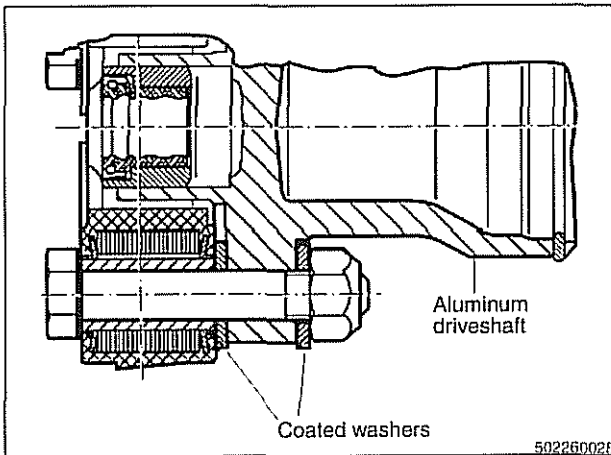
NOTE —

Removal and installation of the bolts may be made easier by placing a large hose clamp around the flex-disc, and tightening the clamp slightly to compress the rubber.

Driveshaft



- Install new flex-disc using new self-locking nuts. Molded arrows (**arrows**) on coupling should point towards flange arms.



- On vehicles with aluminum driveshaft, use coated washers to prevent contact corrosion.

- Counterhold bolts while tightening nuts.

Tightening torque

Aluminum driveshaft to flex-disc

- M12 (use coated washers) 90 Nm (66 ft-lb)

Steel driveshaft to flex-disc

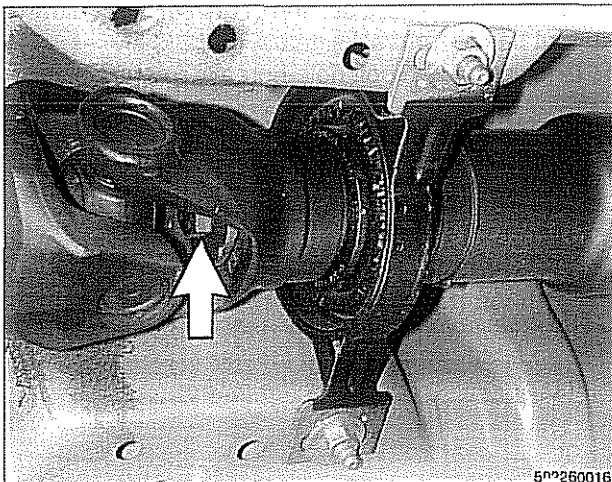
- M10 (8.8 grade) 48 Nm (35 ft-lb)
- M10 (10.9 grade) 60 Nm (44 ft-lb)
- M12 (8.8 grade) 81 Nm (60 ft-lb)
- M12 (10.9 grade) 100 Nm (74 ft-lb)
- M14 140 Nm (103 ft-lb)

- Install driveshaft as described earlier.

Center bearing assembly, replacing

The center bearing assembly consists of a grooved ball bearing in a rubber mount. The bearing assembly is pressed onto the driveshaft.

- Remove driveshaft. See **Driveshaft, removing**.
- Matchmark front and rear driveshaft sections before separating.
- Remove bolt (**arrow**) securing front and rear halves of driveshaft and pull driveshaft apart.
- Remove shim and dust shield, where fitted.
- Use puller to remove center bearing assembly from driveshaft.



- On installation, drive new center bearing firmly to stop. Reassemble driveshaft using matchmarks made prior to disassembly.
- Clean threads and install bolt securing driveshaft halves. Use thread locking compound Loctite® or equivalent.

Tightening torque

Driveshaft front half to rear half (use thread locking compound)	97 Nm (72 ft-lb)
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- Install driveshaft as described earlier.

Front centering guide, replacing

The front centering guide centers the driveshaft in relation to the transmission. The guide is press-fit into a cavity in the front of the driveshaft and slides onto the transmission output shaft.

No specifications are given for wear of the guide, but generally the guide should fit snugly on the transmission output shaft.

NOTE —

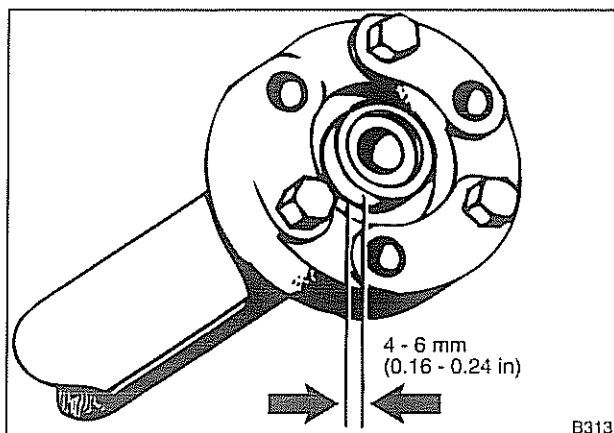
Some driveshafts have a dust cap installed on the end of the driveshaft, over the centering guide. The dust cap may become bent or distorted when the driveshaft is removed or installed. Damage to the dust cap should not affect the centering guide and should not be mistaken for guide wear.

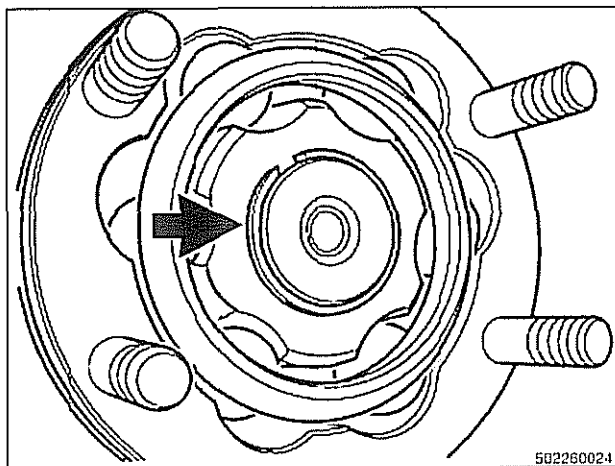
- Remove driveshaft as described earlier.
- Pack cavity behind centering guide with heavy grease until grease is flush with bottom edge of guide.
- Insert 14 mm (approximately 9/16 in.) diameter mandrel or metal rod into guide. Strike guide with hammer to force centering guide out.

NOTE —

The mandrel should fit snugly in the centering guide so that the grease cannot escape around the sides of the mandrel.

- Remove old grease from driveshaft, lubricate new centering guide with molybdenum disulfide grease (Molykote®, Long-term® 2 or equivalent) and drive it into driveshaft.
- ◀ When installing new driveshaft centering guide, be sure sealing lip of guide faces outward. Drive guide into driveshaft to a protrusion depth of 4 — 6mm (0.16 — 0.24 in.).
- Install driveshaft as described earlier.

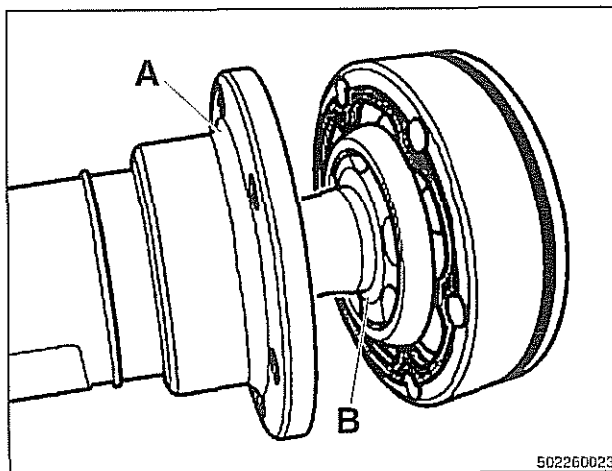




Constant velocity (CV) joint, replacing

The CV joint at the rear of the driveshaft is available from BMW as a separate part.

- Remove complete driveshaft as described earlier in this section.
- Clean grease off CV joint. Remove retaining circlip (arrow) from CV joint end of driveshaft.
- Drive out bolts from CV joint.



- Remove CV joint from driveshaft:
 - Pry back protective boot (A).
 - Using BMW special tool 26 1 110 on inner race (B), press or pull joint off shaft.
- Check protective boot for damage. Replace if necessary.
- Install new CV joint:
 - Working from both sides of joint, inject approximately 80 grams of Optimol® grease (or equivalent) into joint.
 - Install new sealing gasket on joint face that mates with protective boot. Seal fits in groove on outer race of joint.
 - Clean grease off driveshaft and mating splines on joint.
 - Apply Loctite® 648 to driveshaft splines.
 - Press new CV joint onto shaft as far as it will go.

CAUTION—

Only press on inner CV joint race.

- Install new retaining circlip to end of driveshaft.
- Insert CV joint mounting bolts. Be sure to reuse washers.
- Install driveshaft as described earlier in this section.

