

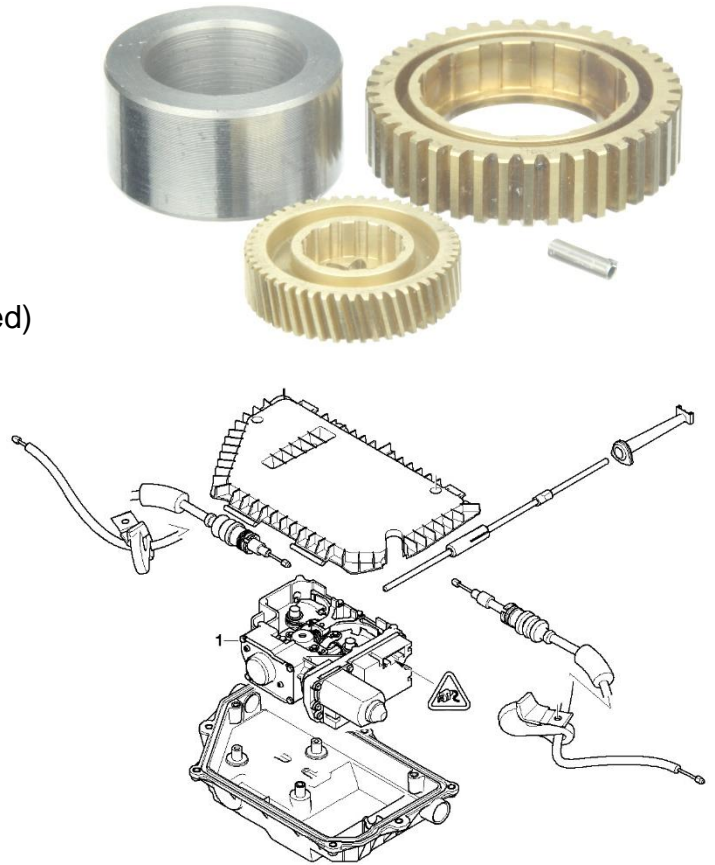
Actuator Repair Kit Includes

- (2) Brass Replacement Gears
- (1) 1/8-Inch Roll Pin
- (1) Steel Press Tool

Tools Needed

- Drill press with 1/8-inch bit (cobalt recommended)
- Small hammer with 1/4-inch or 3/8-inch drift
- Hydraulic press & bench vise
- #20 & #25 Torx bits
- BMW-compatible diagnostic scan tool
- 7/8-inch deep well socket (optional)

For related installation videos, search online for:
**“BMW E65 E66 & Rolls Royce
 Parking Brake Actuator Gear Repair How To”**

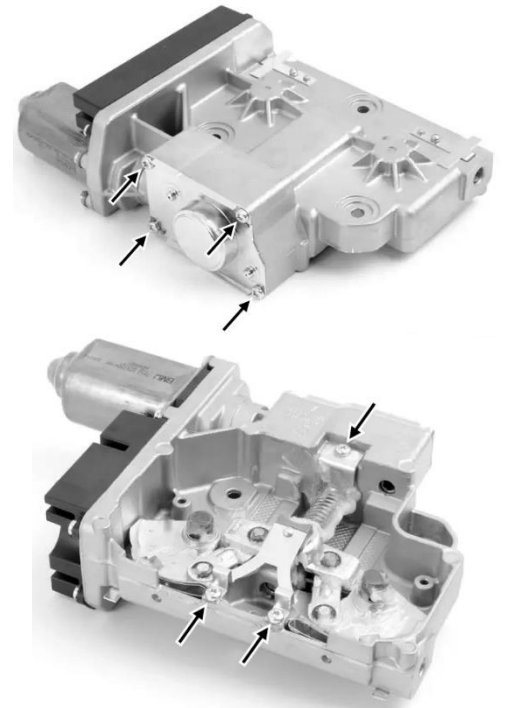


STEP 1

Remove actuator assembly (item 1 in diagram) from vehicle per BMW factory repair manual.

STEP 2

Remove the plastic cover on the parking brake actuator. Locate and remove the four T25 Torx screws (see arrows) attaching the gearbox cover plate. Remove plate to expose the broken gears. Remove excess grease and broken pieces of plastic gear.



STEP 3

Locate and remove the screws that attach the stamped sheet-metal shaft limiter and stopper, which secure the main gear shaft inside the case. Remove these retainers.



Installation by a professional technician is recommended. Refer to the factory repair manual for vehicle-specific service procedures for this part. Tighten all hardware to factory torque specifications and observe all repair manual cautions and warnings. Use safety stands whenever beneath a vehicle and always wear protective eyewear.

STEP 4

Spin the main gear shaft counter-clockwise to remove it from the assembly. Remove the smaller secondary gear from the gearbox by pulling it straight out.

STEP 5

Observe the individual components making up the gear shaft assembly, and take photos for future reference. Note how top edge of the main gear shaft is peened to retain the top collar (which has a steel semi-circle on one side). Identify the splined steel center section of the gear (assuming the pieces of broken gear have fallen off). Note how the gear center section rotates on a steel spacer bushing (which helps prevent the gear from being pinched between the top and bottom collars). Lastly, identify the flanged bottom collar that is pressed to a shoulder on the shaft, and the orientation of the flange.

STEP 6

Slip the bottom (the threaded end) of the main gear shaft through the provided press tool, and snugly center the shaft assembly between press blocks on the hydraulic press. Using a small ¼-inch socket centered against the top of the shaft, press the shaft out of the top collar.

***** IMPORTANT ***** Ensure that socket is small enough diameter to allow peened areas at the top of the shaft to deform around the socket. If tool is too large (or it is not centered) and doesn't provide space for the peened areas to deform, the hydraulic press can push them through the collar, possibly cracking the collar. This collar is not available for purchase separately, so be careful to not break it.

STEP 7

Now that shaft components have been separated, insert the steel center section (the part with quarter-circle tab) into the large brass gear. Lubricate mating surfaces lightly, align splines, position the pieces between bench vise jaws (with quarter-circle tab above jaws) or in press, and lightly press the pieces together. When fully pressed, the steel center will still protrude from face of gear slightly.



STEP 8

Using the press and press tool and (or bench vise and 7/8-inch deep-well socket), press the splined shaft out of the plastic secondary gear. Use same tools to press the splined shaft into the new brass gear. (Try clocking the brass gear at different positions on the shaft splines to see which orientation fits together the easiest.)



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STEP 9

Grease the splines and gear teeth, and insert secondary gear into the gearbox.

STEP 10

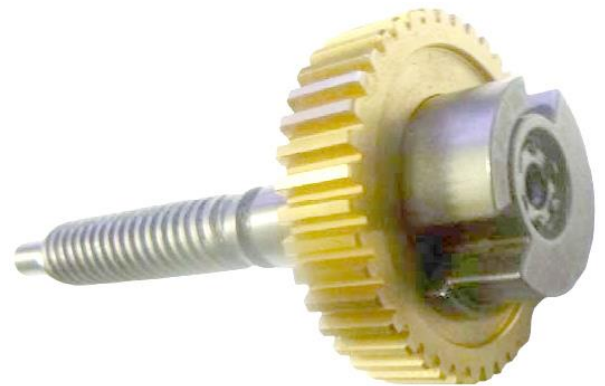
Using a file or small grinder to smooth the top edge of the main shaft, remove remnants of the peened areas and round the top edge of the shaft slightly to make it easier to reinstall the shaft components.

STEP 11

Locate the flanged bottom collar, and press collar down the shaft to the shoulder. Next, press the gear spacer bushing until it contacts the bottom collar. Generously grease the OD of the bushing and the ID of the gear center, and place the gear into position on the bushing (with the quarter-circle pointed up).

STEP 12

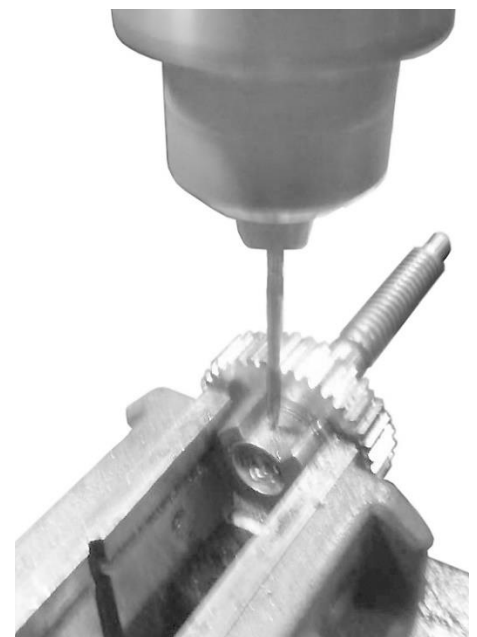
Press the shaft into the top collar until it contacts the spacer bushing. The assembled shaft assembly should look like photo, with brass gear able to turn freely between stops.


**STEP 13**

Using an 1/8-inch metal-compatible bit in a drill press, drill a hole through the top collar in the middle of the space between the semi-circle and the quarter-circle, and into the main shaft. The hole must be deeper than the length of the roll pin. Hammer the roll pin through the hole in the top collar (using a drift if hammer doesn't fit into the space) and into the main shaft until the end of the pin is flush with the top collar. Do not drive the pin deeper than the surface of the collar, as the pin must lock the top collar to the shaft.

STEP 14

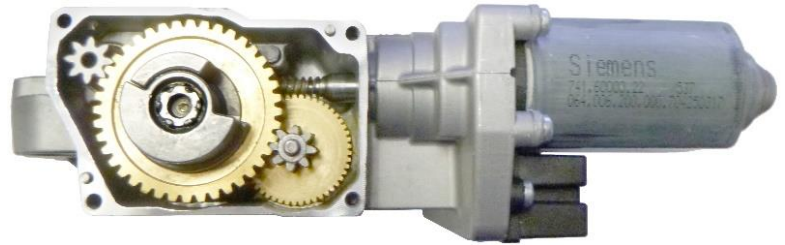
Reinstall the main shaft assembly in gearbox by pulling up cable balance beam (which has female threads in the center piece) and screwing the threaded main shaft clockwise through balance beam until main gear bottoms out against secondary gear splines. Align gear teeth with splines on secondary gear shaft and push the main shaft assembly down into its final position.



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STEP 15

Reinstall shaft retainers and gearbox cover plate. Spin motor armature as necessary to align semi-circle with spring tabs under gearbox cover plate. (If unsure, see online installation videos for more details.)



STEP 16

Reinstall parking brake actuator assembly in vehicle.

STEP 17

Carefully adjust parking brake cables and shoes per BMW factory manual. Clear codes for parking brake system using BMW diagnostic scan tool.

STEP 18

Turn on ignition and press parking brake button. Turn off ignition. Repeat cycle three times.

***** IMPORTANT *****

- **Prior to operating vehicle**, ensure that all components have been properly installed, codes are clear, cables and parking brake mechanism are carefully adjusted to BMW specifications, and the parking brake system is operating properly.
- **Failure to clear codes** will prevent operation of parking brake system.
- **Failure to properly adjust** cables and parking brake system to BMW factory specifications can result in improper operation and cause damage to parking brake actuator assembly. Improper installation and/or adjustment voids URO warranty.

Resetting brake system using instrument cluster

1. Place key in ignition, but DO NOT depress the brake pedal.
2. Press start/stop button (dash warning lights will illuminate).
3. Press & hold odometer reset button 5 to 10 seconds until menu appears in speedometer.
4. Press odometer reset button and release in 1 second intervals until "*Front Brakes*" is displayed.
5. Press & hold odometer reset button until "*Okay to reset*" message appears in middle of tachometer. Press & hold the odometer reset button to execute reset.
6. Press odometer reset button and release in 1 second intervals until "*Rear Brakes*" is displayed.
7. Press & hold odometer reset button until "*Okay to reset*" message appears in middle of tachometer. Press & hold the odometer reset button to execute reset.



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