

Halfshaft Bolt Check

Excerpt Dave Breggins CD on Hummer Maintenance (available for purchase at www.bluehummer.com)
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Description

Although checking the Halfshaft bolts is not part of the AMG scheduled maintenance, the bolts should be checked every time you have the chance. At a minimum, they should be checked at every "A" Service.

Related Tasks

Check Brakes

Tools and Supplies

15 mm Wrench or Socket
3/8" Drive Handle and short extension
9/16" Socket
Pry Bar

Special Tools

Rethreading tap, 10mm x 1.5

Fasteners

Fastener	Wrench Size	Loctite	Torque	Notes / Special Tools
Halfshaft Flange bolt	15mm	Red 272	57 lb ft	
Halfshaft Retaining Bolt	9/16"	Blue 242	37 lb ft	In Hub, behind Access Cover
Access Cover, w/ Gasket	3/8" square	-	15 lb ft	In Hub; use socket extension
Access Cover, w/o Gasket	3/8" square	PST	15 lb ft	In Hub; use socket extension; pipe thread – do not over-tighten

Notes / Special Instructions

- Loose Halfshaft Flange Bolts sometimes manifest as a "clunk" or slack in the drive train. It clunks one way when you accelerate and the other way when you brake. Is it sometimes audible when starting from a stop. (This symptom can be caused by other problems as well.)
- Loose Halfshaft Flange Bolts can be caused by Differential Mounting Bolts coming loose, or Brake Mounting Bolts coming loose. Refer to the "Brakes - Checking" section.
- As Halfshaft Flange Bolts back out, they come in contact with the Brake Yoke. They can easily destroy this yoke and cause the brake caliper to come loose. The bolts can also shear off and allow the Halfshaft to come loose from the brake rotor. A flopping Halfshaft makes a lot of noise at any speed.
- Replacing the Right Front Halfshaft requires that the front Driveline Protection section be removed.
- Over-tightening the Halfshaft Flange Bolts can warp the Brake Rotor causing vibration during braking.
- When removing or reinstalling the Halfshaft Retaining Bolt, use care that the Lockwasher does not fall into the Geared Hub.
- When installing the Halfshaft Flange Bolts, replace the lockwashers unless you are certain that they can be reused. The manufacturer recommends always replacing the lockwashers.

Procedure

General

There are 6 Flange Bolts on each Halfshaft, arranged in pairs. The bolts fasten the Halfshaft and the Brake Rotor to the Differential Output Flange.

It will be necessary to rotate the Halfshaft to gain access to all of the bolts (unless the brake caliper is removed). This procedure is described below.

If **ANY** of the Flange Bolts on a halfshaft are loose, **ALL** 6 bolts should be removed and reinstalled.

Chock the truck carefully. Turning the Halfshaft Flange Bolts can cause the truck to move.

Check Halfshaft Flange Bolts

1. Visual Check.

- Make sure all bolts appear tight. No gaps or spaces under the heads.
- Halfshaft bolts should have lockwashers under the heads. There are several types of lockwashers in use, depending upon model year and lockwasher upgrade.
- Standard split-type lockwashers should be completely flat.
- Nordlock lockwashers are made from two separate washers (see illustration 1). On these washers, the “ramp” sides should be facing each other and the ribbed sides should face the bolt head and the flange. Make sure that the pieces are not split, cracked, or missing. There should be no gaps.
- Note: Nordlock lockwashers are single-use items and should not be re-used if replacement lockwashers are available. New Nordlock lockwashers come glued together in pairs for easy assembly. (Illustration 2)
- Check all 6 bolts.



Illustration 1 – Nordlock Lockwasher

2. Torque Check.

- Place the wrench or torque wrench on the head of a bolt.
- Turn the wrench gently in either direction. Bolt should not turn.
- Turn the wrench firmly clockwise (tighten). Do not significantly exceed the correct torque setting. Bolt should not turn.
- If you exceed the torque setting and turn the bolt, the Loctite will no longer hold. The bolt must be removed and reinstalled, and the lockwasher may need to be replaced.
- Check all 6 bolts. It may be necessary to rotate the Halfshaft for access.



Illustration 2 – New Nordlock and New Halfshaft Bolt

Remove and Reinstall Halfshaft Flange Bolts

1. Chock a wheel (or set the parking brake if not working in the rear).

2. Remove Halfshaft Bolts.

- If you are not removing the Halfshaft, the bolts should be removed and reinstalled in pairs. This will preserve the alignment of the rotor and differential output flange.

3. Clean Halfshaft Bolts and Bolt Holes.

- If the bolt is to be re-used, the thread area of the bolts should be cleaned using a wire brush.
- The thread area of the Differential Output Flange can be cleaned using a rethreading tap if the correct size. Alternatively, a bolt can be inserted and removed.

4. Check the Lockwashers

- If you are not certain that the lockwashers can be reused, replace them. Current manufacturer recommendation is the Nordlock lockwasher.

5. Reinstall Halfshaft Bolts.

- Place a drop or two (no more) of Loctite 272 (High-strength Red) on the bolt threads about $\frac{1}{4}$ " from the tip of the bolt. Note: New halfshaft bolts now come with pre-applied threadlocker (Illustration 2). The color of the pre-applied threadlocker may be different than the recommended Loctite 272. This is OK, and additional threadlocker should not be used.
- Install the Bolts, making sure not to cross-thread them.
- Carefully torque the bolts. Over-tightening can warp the brake rotor causing vibrations during braking.

Checking Halfshaft Retaining Bolt

1. Remove Access Cover.

- Tire/wheel assembly must be removed.
- Rotate the Halfshaft such that the cutout between wheel lugs allows access to the Access Cover. See section below.
- Clean the area around the Cover.
- Remove the Cover using a 3/8" extension and drive handle.

2. Check Bolt Torque.

- Place the socket or torque wrench on the head of the bolt.
- Turn gently in either direction. Bolt should not turn.
- Turning the Halfshaft Retaining Bolt will cause the Hub Spindle to rotate. It may be necessary to hold the Hub flange with a pry bar to keep it from moving while tightening the Retaining Bolt. Use care not to damage the wheel lugs with the pry bar.
- Turn clockwise (tighten) firmly. Do not significantly exceed the correct torque setting. Bolt should not turn.
- If you exceed the torque setting and turn the bolt, the Loctite will no longer hold. The bolt must be removed and reinstalled.

3. Replace Access Cover

- Clean the thread area of the Cover.
- If the Cover has a plastic Gasket, clean and inspect the Gasket. Replace if necessary.
- If the Cover does not have a plastic Gasket, apply Loctite PST to the thread area.
- Install and torque the Access cover using a torque wrench and a short 3/8" extension.

Rotating a Halfshaft

1. Chock a wheel (or set the parking brake if not working in the rear).

2. For the Halfshaft you are working on, raise the wheel off the ground. (Refer to the section on Tire/Wheel Removal for lifting procedures.)

3. Shift the Transfer Case into Neutral (N).

4. Rotate the Halfshaft as needed. Halfshaft can be rotated as follows:

- Turn the tire/wheel.
- Turn the driveshaft.
- Turn the halfshaft itself.
- Insert a screwdriver into the edge of the brake rotor and turn the brake rotor.

5. Lock the Halfshaft in position for wrenching. Halfshaft can be locked as follows:

- Lower the wheel.
- Apply Parking Brake (rear only).
- Shift Transfer Case out of Neutral (with Transmission in Park).
- Placing a screwdriver into the edge of the brake rotor and holding it against the wrenching.