

DODGE Pickup Vibration

Traced to Worn Front Axle Bushing

A New Column from You: Our Loyal GEARS Readers!

Welcome to our very first issue of a new column in *GEARS: Fixes from the Trenches*. What's new about this is that the articles in this column come right from the readers of *GEARS*.

Usually we take the calls that come into the ATRA HotLine and use the information we learn from them to develop unique and helpful articles for our readers. This time, we've decided to skip the middleman, so to speak, and create a new source of information for *GEARS* readers: other *GEARS* readers! That's right: We're going to provide technical information right from the field, in this all-new column from *GEARS*.

The purpose of this column is to give *GEARS* readers just like you a chance to share the fixes that you've developed while working in the shop. Real world fixes from real world technicians... that's really what ATRA and *GEARS* are all about.

In this first issue of *Fixes from the Trenches*, we're going to look at a 1999 Dodge R1500 4x4 truck with a vibration from its four wheel drive system. This article was submitted by Mark Piechowski at Berkshire Transmissions in North Adams, Massachusetts and is in his own words.



Introduction by
Pete Huscher
Story by Mark Piechowski
Berkshire Transmissions
North Adams, Massachusetts

One of the general repair shops in our area sent us a 1999 Dodge Ram 1500 with a vibration. According to their technician, it vibrated under normal driving conditions, but the vibration went away if you pull up on the transfer case shift lever.

They said I'd definitely feel the vibration, and they were right; it came in all of a sudden at 20 mph. It was so bad I couldn't see out the mirrors. And, sure enough, pull up a bit on the trans-

fer case lever and the vibration would go away. My first thought was a broken rear snap ring or bad fork pads.

We put the truck on the lift, pulled the transfer case, and got it apart on the bench. It wasn't what I thought: All the fork pads were there and the rear snap ring was fine. I did notice the chain was stretched. I learned later that they drove it on the highway in 4WD because it didn't vibrate in 4WD.

We installed a new chain, along with new fork pads that were margin-

ally thicker than the originals, and put it back together. Then we installed the transfer case and hit the road. The vibration was still there. What could I have missed?

Back on the lift went the truck. We pulled the front driveshaft and road tested it again; the vibration was still there. Then we reinstalled the front driveshaft, pulled the rear driveshaft, and road tested the truck in 4WD. No vibration. Well, I thought, the problem must be in the rear axle.



Figure 1: Front axle actuator shown installed



Figure 2: Front axle actuator removed

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So we put the truck back on the lift, reinstalled the rear driveshaft, and listened for noises in rear axle with a stethoscope. It sounded fine. We pulled the rear cover anyway. No metal, and everything looked good.

Okay, so the problem must be in the rear driveshaft, since the only time the truck didn't vibrate was when we drove it without the rear driveshaft. We put the yoke on the opposite end of the driveshaft to see whether it had any effect on the vibration. Another road test and the vibration was as harsh as ever.

Next, we raised the truck off the ground and ran it on the lift, in both 2WD and 4WD ranges. It wouldn't occur on the lift.

Since the vibration would disappear when you pulled up on the transfer case lever, we decided it must be in the transfer case. So we pulled the transfer case out again and pulled it apart. This time we examined it with a fine-tooth comb. Nothing.

I called a local Chrysler technician I knew; no bulletins or diagnostic info on this problem. Then I called around and discussed it with some other technicians. I got a few leads, such as the possibility of a bent mainshaft. So I took the mainshaft to a machine shop, chucked it up on the lathe and checked runout: perfect. I kept examining the parts on the bench. I finally decided to install a new range fork... by now I was grasping at straws. We put the transfer case back in the truck; it still vibrated.

I got the customer's approval to send the driveshaft to a driveline shop to have its balance checked. The driveshaft was fine. When it came back, we reinstalled it and road tested the truck.

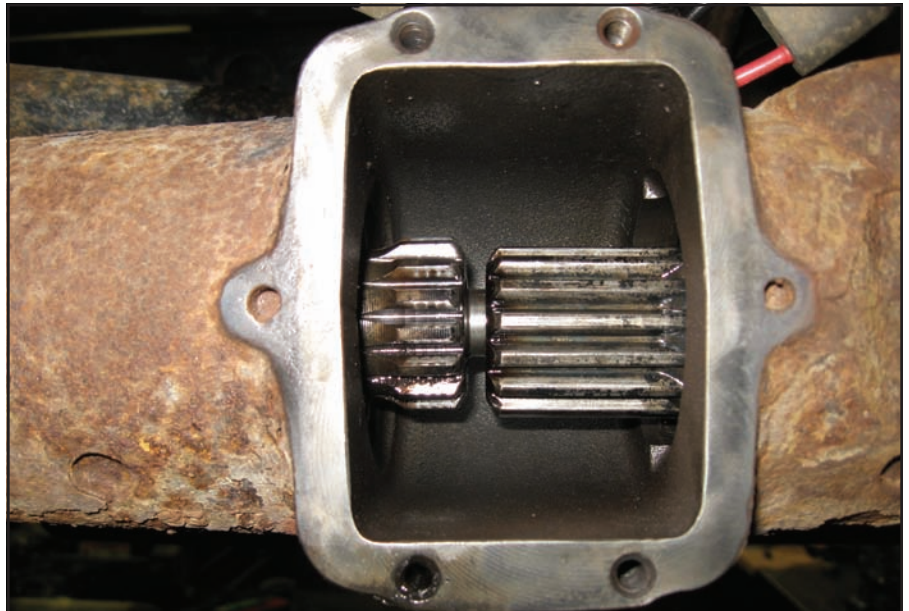


Figure 3: Notice axle bushing worn or missing

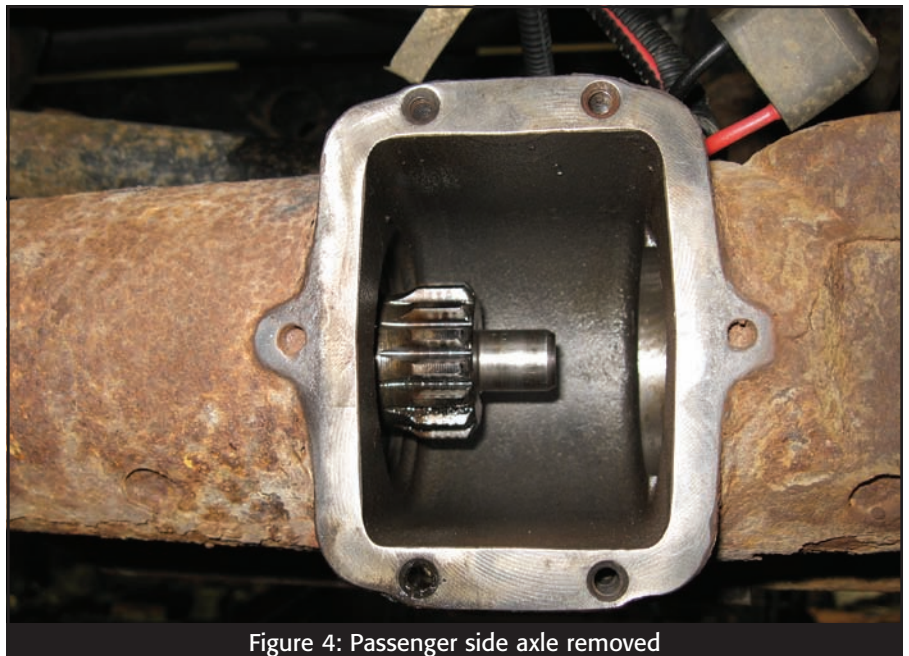


Figure 4: Passenger side axle removed

No surprise: The vibration was still there.

I decided to try one more test: I connected two long pieces of vacuum hose



Figure 5: Compare worn bushing and new bushing

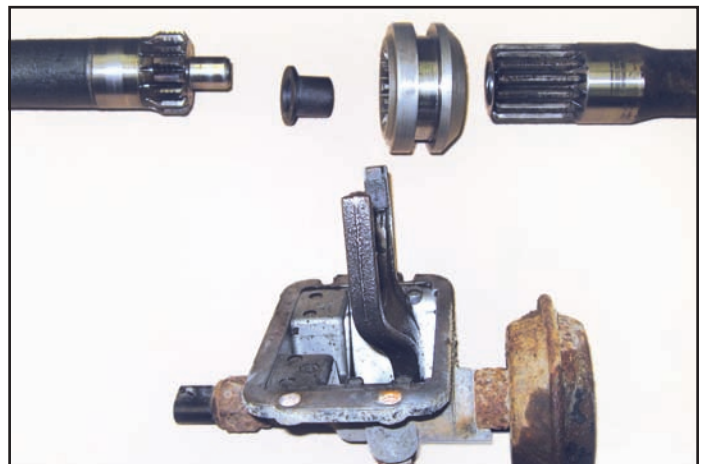


Figure 6: Breakdown of axle shafts, bushing, shift collar and actuator

to the vacuum actuator and ran them into the cab. I drove the truck while my helper used a handheld vacuum pump to pull vacuum on the hoses, one at a time. We finally had control over the vibration: It was in the front axle, and it had something to do with the actuator. We went back to the shop, lifted the truck, and pulled the axle actuator.


Here's what we found: The intermediate shaft has a stub that fits into a plastic bushing in a pilot hole in the passenger side axle. The stub and pilot hole are the support for the passenger

side axle shaft. The bushing for the stub was almost completely wiped out, allowing the axle shaft to flop around on the stub when the transfer case was set for 2WD. When shifted into 4WD, the sliding coupler would connect both shafts, providing support for the flopping axle shaft.

The bushing part number is Mopar 05252686 and the seal just to the right of the slide coupler is 04506005.

The reason we couldn't get the vibration to occur on the lift was because the only time the right front

wheel rotated fast enough with the vehicle on the lift was with 4WD engaged. But in 4WD, the sliding coupler was supporting the axle shaft, so it wouldn't vibrate. The right front wheel doesn't spin on the lift when the transfer case is set to 2WD. We'd have had to spin the right front wheel to 20 mph by hand to get the vibration, something we never thought to try.

We installed the new bushing, cleaned everything up, reassembled the axle, and went on a road test. This time the vibration was gone. 

Thanks Mark, for taking the time to send this in; your information should go a long way to help your fellow *GEARS* readers when they're confronted with a similar situation.

And we'd like to invite the rest of the *GEARS* readership to participate in this new forum. With your participation, we can make *Fixes from the Trenches* a hit... issue after issue.

To submit an article to *Fixes from the Trenches*:

- Your article should be typed and in a common digital format.
- Pictures should be digital, no less than 4" x 3" with at least 300 DPI resolution. Standard format photos are acceptable, but photos can't be returned, and any pictures sent will become the property of ATRA.

And the technical information must be complete, including the initial complaint; full diagnostic procedure, including failed paths and missteps; complete explanation of the repair process; and the final resolution or repair.

All submissions must pass a rigorous evaluation and editing process by the ATRA Technical Department before they'll be approved for publication. And all submissions become the property of ATRA. We look forward to receiving your articles, and seeing your byline in an upcoming issue of *GEARS*.



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