Don’t Let Run-out Make Problems for Your 4L60-E

By Gregg Nader

It is O.K. to run out and eat your lunch but don’t let run-out eat the components in your 4L60-E.

Some of the most common durability complaints about the 4L60-E relate to the reaction shell and rear planet bearing. There are many factors that play a role in why these parts are prone to failure: Poor stampings, soft metal, bad or poorly supported bearings, endplay and shaft thrust are a few that we know about. But there is one thing more you ought to consider.

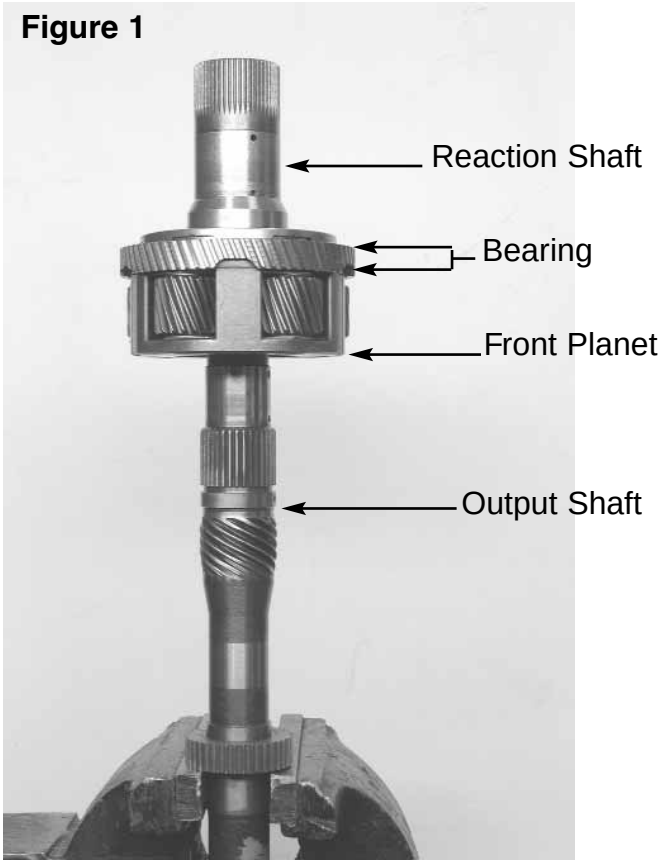
It is always a good idea to look at run-out of rotating parts, but checking run-out with parts installed in a transmission case is not a practical method. Here is a method for quickly checking some parts in the 4L60-E transmission that are related to reaction shell breakage, rear planet failure and even shudder shifting into 2nd gear. This can easily be done using extra parts that are available in most shops.

Begin by collecting the following parts from a 4L60 or 4L60-E:

- Output shaft
- Front planet
- Bearing between front planet and reaction carrier shaft
- Reaction carrier shaft (late bearing style) GM# 24222756
- Bearing between reaction carrier shaft and reaction shell
- Rear planet with pinions removed
- Rear planet inner bearing

Clamp the output shaft in a vise and stack the parts as shown in Figure 1.
Note: Some output shaft splines may allow the front planet to slide down past the splines, so you may have to look for an output shaft that holds the planet in place as shown in Figure 1.

Figure 1



To check your reaction shell and rear sun gear, place them over the other parts and top off with the rear planet bearing and carrier as shown in Figure 2. The reaction shell and sun gear are now sandwiched between bearings, and the shell should spin freely to allow run-out checks and inspection of the sun gear.

In addition to having a nice piece of folk art that looks like it was created for some alien culture, you also have a quick method for inspecting reaction shells and rear sun gears before installing them into your transmission.

1. Check run-out of the shell. Most have about .010” run-out when checked here. On others there has been as much as .050” of wobble! This will contribute to reaction shell breakage, spline wear, and could contribute the rare 2nd gear shudder these have been known to have.
2. Check the gear tooth contact pattern on used sun gears. A pattern that moves around indicates a poorly manufactured gear.
3. As the shell/sun gear spins, watch the planet sitting on top. A wobbling sun gear causes the planet to rock back and forth. This can be due to the sun gear bushing being out of position, or a poorly manufactured sun gear.

When you see the run-out and wobbling some of these parts have, it is easy to connect them to the common failures of rear planet bearings and reaction shells that these units are known for.

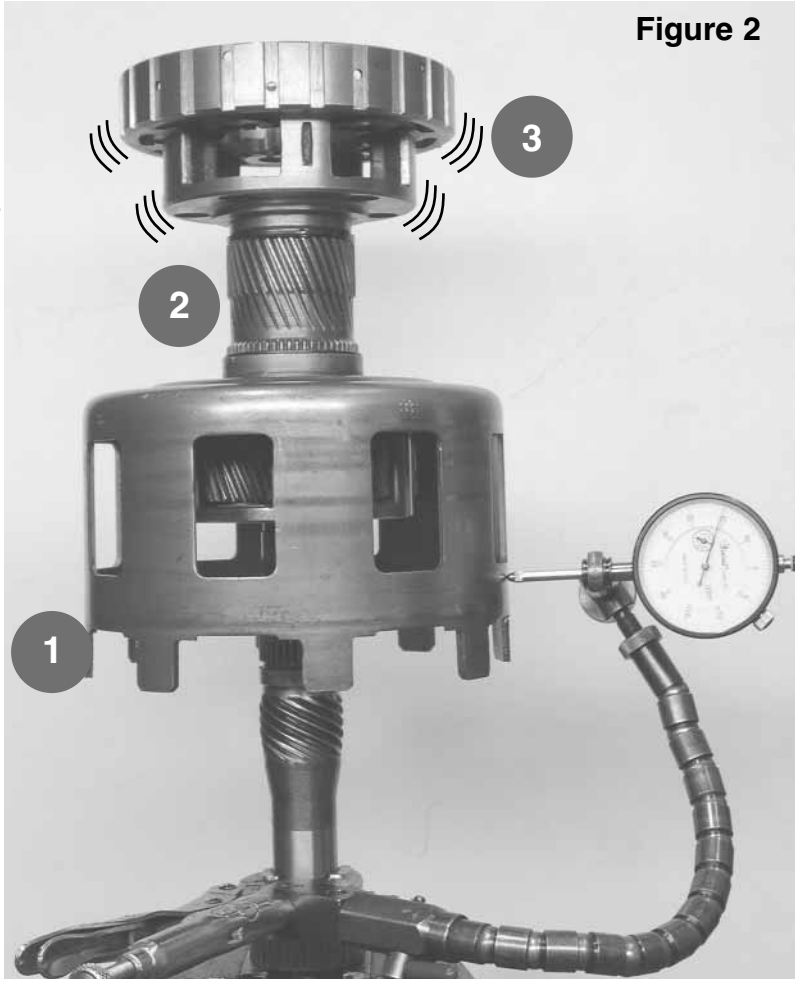


Figure 2

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