

Identify your I.D.

Your impeller hub affects your charge

When the torque converter rebuilding industry was in its infancy, replacement parts were at a premium. Some parts, such as bushings and thrust washers, were available from the OEM because they carried over from the earlier bolt-together units. The GM Powerglide and cast-iron Fords are good examples of these. Most other replacement parts for early converters were simply not available. The impeller hubs on the early converters were not up to the hardness or surface finish specs of today's converters. The pump bushings and drive gears would easily wear into the soft metal of the impeller hubs, requiring their replacement.

Some rebuilders would expand the worn hubs using much the same method used on exhaust pipes, and then remachine the expanded surface back to the original outside diameter. Little was known about the required level of hardness for an extended hub life, and most of these repairs were short lived. Replacing the worn impeller hub was the better option and many shops manufactured their own replacement hubs. Seamless steel tubing was the choice of most shops

because it required the least amount of machining. More often than not, the inside diameter of the seamless tubing was left in its original state when the hubs were made, but great care was taken to make the O.D. correct.

This practice carried over when the aftermarket picked up the task of supplying replacement hubs. The unfinished I.D. of some hubs had a run-out spec as liberal as $\pm .015"$. The uneven I.D. of the replacement hubs was problematic for the rebuilder who tried to pilot off of it for hub replacement, but drew little attention for any other reason. However, the I.D. of the impeller hub has proved to be more important than most rebuilders ever imagined. The perennial complaint from the R&R technician – that the transmission took fluid more easily before it was overhauled – may be one of these cases. There are numerous transmission-related issues that may affect converter charge – the wrong

INSIDE

- 1-2** Identify your I.D.
- 3-5** Featured Products
- 6** High Performance GM-RK-15
- 7** Quality Control For Your Converter Components

Continued on page 2

Identify your I.D. Continued from page 1

filter, a plugged vent or elevated line pressure are all examples. We all know what happens when a C3 modulator is mistakenly installed in an A4LD transmission. The elevated line pressure will keep the converter from filling. Another common mistake was to put a GM 400-style impeller hub on a TF8 converter: The smaller I.D. would restrict converter charge. On a non-lockup converter, charge oil passes between the stator support and the I.D. of the impeller hub to enter the converter. Restricting the clearance between the stator support and the impeller, as shown in Figure 1, will greatly reduce the converter's ability to fill. Figure 2 shows the proper stator support-to-hub clearance.



Figure 1



Figure 2

There is another very important way that the I.D. of the impeller hub affects converter charge. The raised area of the stator support creates an orifice with the I.D. of the impeller hub. This orifice lives just downstream of the pressure regulator valve on an oil chart. The oil entering and exiting the torque converter must maintain the proper charge pressure for maximum converter charge (see Figure 3).

We are already seeing how the impeller hub I.D. will affect converter charge in the future. There are many reports of converters turning blue after running only a few miles when a 47RE converter

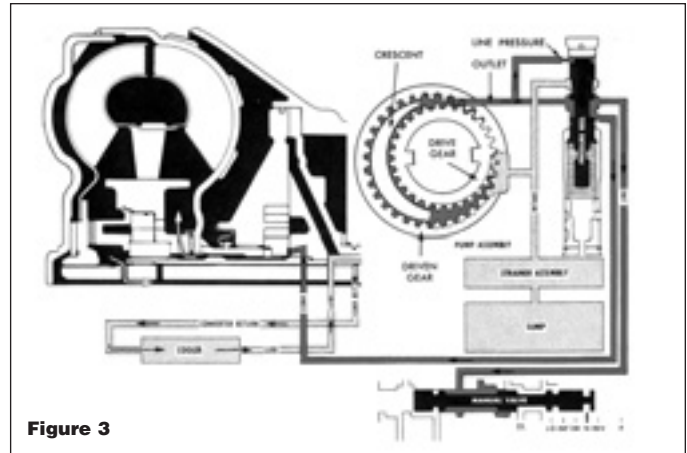


Figure 3

was mistakenly installed into a 48RE transmission. The 48RE transmission has a seal on the stator support that seals on the I.D. of the impeller hub. The I.D. of the 48RE impeller hub is smaller and has a smooth surface to accommodate this seal. Some industry experts recommend using the 48RE hub in all applications. This may cause issues in the long run because there is only .013" clearance between the I.D. of the impeller hub and the raised area on most stator supports.

A Daimler-Chrysler dealership mistakenly installed a 47RE converter into a late-model Dodge pickup with a 48RE transmission. The vehicle wouldn't move because the engine would not come off idle. A code for excessive torque load was set. The technician found that the computer was sensing a torque load in park and neutral that was inhibiting throttle movement. The converter was replaced with a 48RE converter and the vehicle returned to normal operation. The I.D. of the impeller hub is the only difference between the 47RE and the 48RE converters.

Sonnax has recognized the importance of the I.D. of the impeller hubs and now offers all of its hubs with the same I.D. profile as the OEM.