TECHNICALLY *Speaking*

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Author: *Ed Lee*
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Taking the Fear out of Rebuilding the New G.M. Captive Clutch

The new General Motors (G.M.) Captive Clutch has four (4) spring steel straps which restrict the rotational movement of the piston. One end of each strap is riveted to the piston and the other end is riveted to the cover. (**Figures 1a & 1b**)

Figure 1a

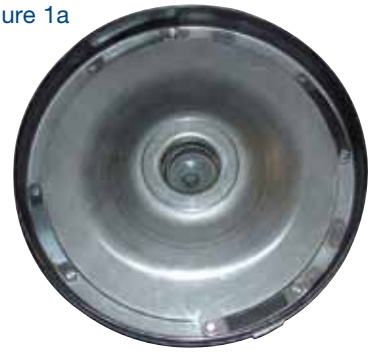
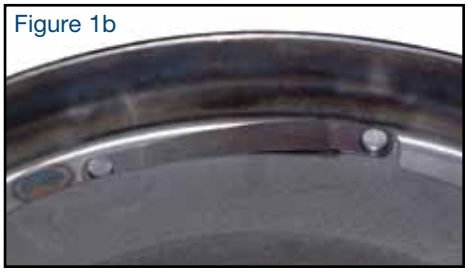


Figure 1b



There's a rebuilding fear factor in this setup because the rivet at the cover end of the strap passes through the cover and is very susceptible to leak if disturbed. (**Figure 2**)

Figure 2

One way to lessen the chances of a leak in this area is to avoid disturbing this rivet during the rebuild process. It is possible to rebuild the lockup clutch for this converter by only removing the rivets at the piston end of the straps.

The same tools rebuilders use to prep the edges of the impellers and covers prior to the weld process can be used to remove the rivets. The major portion of the rivet head can be removed by a hand grinder with the 4 ½" abrasive wheel. The final portion of material can be removed with the angle air grinder with a 2" abrasive disk. (**Figure 3**)

Figure 3

Once the rivet head has been removed and the piston is properly supported, the remaining part of the rivet can easily be driven out with a punch. A tool for supporting the piston can be made from a 6" long piece of .120" thick by ½" wide steel flat stock. Machine a slot in the end of the flat stock the width of the rivet head (.250"). Continuing the slot another .250", the .060" to .065" depth of the rivet head will allow you to use the same tool to reinstall the replacement rivet. (**Figure 4**)

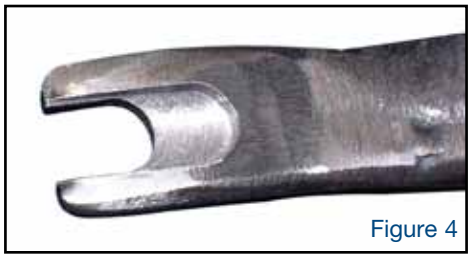


Figure 4

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Figure 5a


Figure 5b


Figure 5c

You will need to narrow and radius the sides of the tool so it will fit in between the cover I.D. and the piston O.D. while they are in the assembled position. (**See Figures 5a, b & c**) Sketch or scribe the inside and outside radius onto the tool to establish a profile for cutting or grinding.

After all four (4) rivets have been removed, rotate the piston ¼" clockwise and lift it out of the cover. The clutch will look like a typical 245mm clutch, but will have woven carbon friction material on both sides. (**Figure 6**)

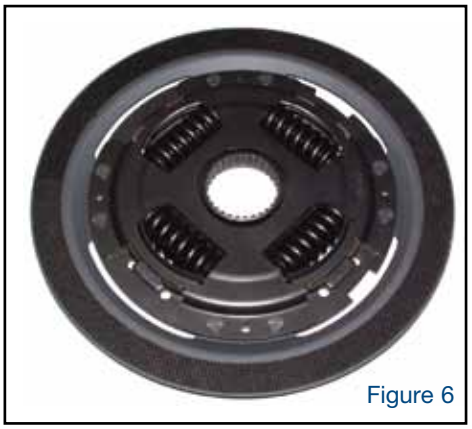
Figure 6

Measure the thickness of the O.E. piston, because like other captive clutches there is limited TCC piston travel.

Another unique feature of the G.M. captive clutch is the way the clutch release clearance is set. Since the turbine hub does not contact the cover, the converter end play is the clutch release clearance. If you followed the same procedure as with any new converter and checked the overall height and end play before the converter was cut apart, you would know that the clutch release clearance was about .010".

Rebuilding the New G.M. captive clutch converter – No worries!

Ed Lee is a Sonnax Technical Specialist who writes on issues of interest to torque converter rebuilders. Sonnax supports the Torque Converter Rebuilders Association. Learn more about the group at www.tcraonline.com.