

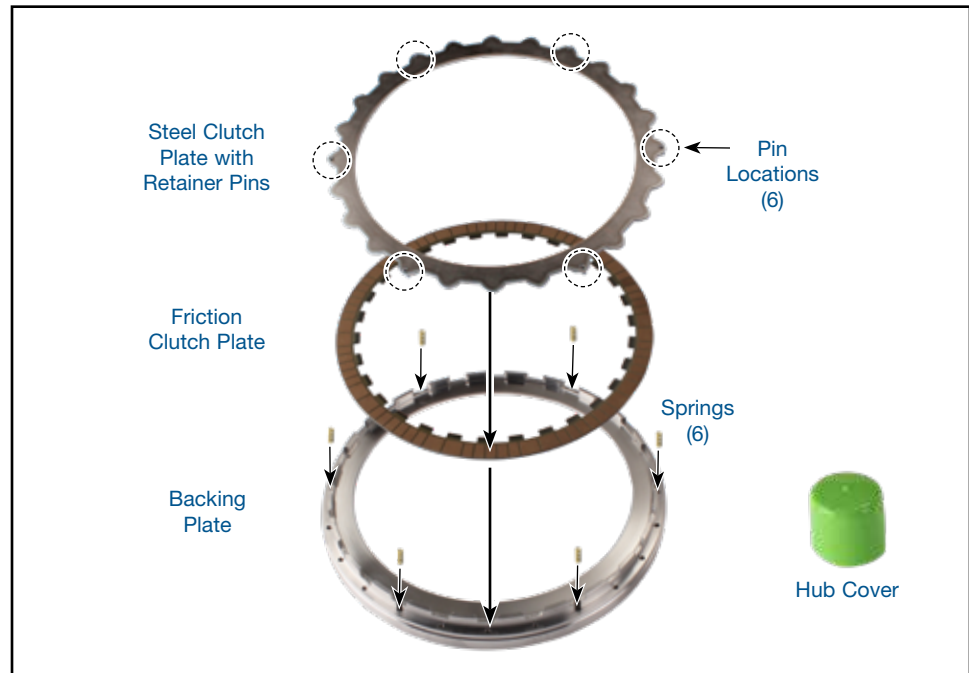
Smart-Tech® Converter Clutch Kit

Part No.
FD-CP-20K

- Steel Clutch Plate with Retainer Pins
- Friction Clutch Plate
- Springs (6)
- Backing Plate
- Hub Cover

Patent No. 10,458,540

Ford 6R140



NOTE: When cutting apart the Ford 6R140 converter, remove the least amount of impeller and front cover material as possible to leave enough lip overlap so that the torque converter can be welded back together again. If the overlap is not adequate for welding, a renewal ring can be added to extend the impeller. The clutch release clearance must be set between the backing plate and friction clutch plate for the clutch to function properly before the backing plate is welded to front cover. The shoulder on the Sonnax backing plate has been made taller to allow for machining adjustment for variation in the front cover lip height. The following instructions are for a vertical welder like the TCRS design but can be applied to other torque converter welders as well.

1. Torque Converter Disassembly

- Remove OE impeller from front cover.
- Remove OE clutch backing plate which is welded to front cover.
- Remove and discard OE clutch backing plate and clutch plate assembly.
- Remove OE piston from front cover.
- Remove two OE D-rings from piston and front cover.
- Inspect the piston for signs of wear and check the contact surfaces for flatness and thickness. If the flatness or thickness is greater than .005", face them just enough to true them up.

2. Setting Clutch Release Clearance & Preparing Converter for Welding

- Ensure OE aluminum piston is all the way down into front cover. Do not reinstall OE D-rings at this time.
- Place Sonnax backing plate with splines facing upward on a table and place Sonnax friction ring in, followed by Sonnax steel clutch plate on splines. Do not install six Sonnax release springs at this time.

2. Setting Clutch Release Clearance & Preparing Converter for Welding (continued)

- c. Holding the three pieces together, place assembly into OE front cover as shown (Figure 1). The Sonnax backing plate shoulder (A) should rest on OE front cover lip (B) with no gap in-between and Sonnax steel clutch plate should rest onto OE aluminum piston.
- d. Measure the gap between Sonnax friction plate and Sonnax backing plate reaction surface using a feeler gage while holding the backing plate down onto front cover (Figures 2 & 3).
- e. On a lathe remove measured feeler gage thickness minus the .030" clutch release clearance from Sonnax backing plate shoulder. In the example (Figures 2 & 3) a .2455" gap was measured. This needs to be reduced to .030". Therefore $.2455 - .030 = .2155$ " is the amount that needs to be turned off from the step on the backing plate to have the correct .030" clutch release clearance (See X distance in Figure 4). Ensure the new shoulder corner is sharp so that it will rest all the way on front cover lip surface.
- f. Place the three piece clutch assembly as before in step 2c. The clutch release clearance should measure between .025–.035".

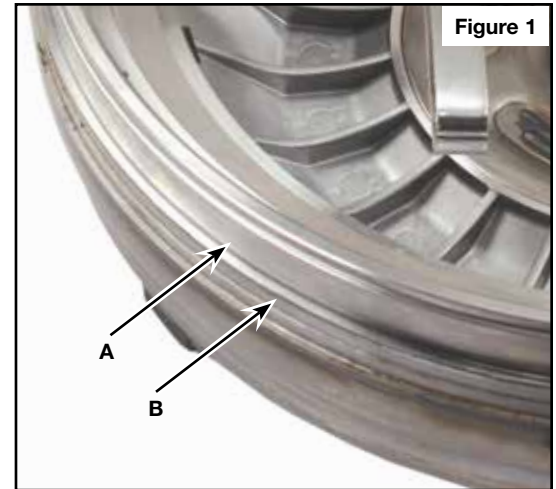


Figure 1

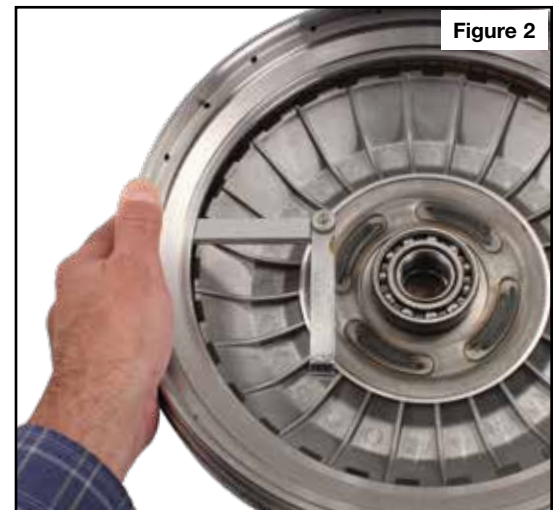


Figure 2

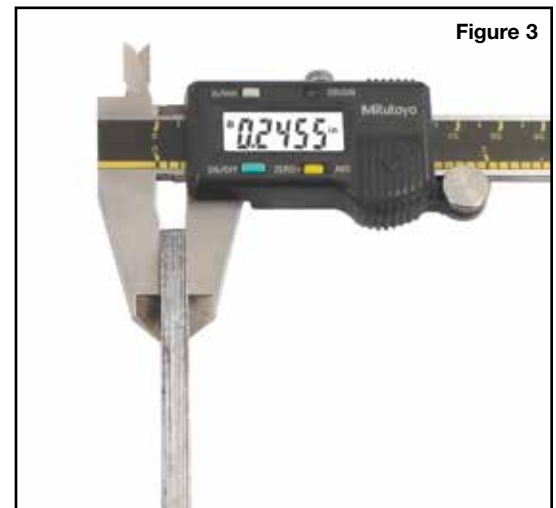


Figure 3

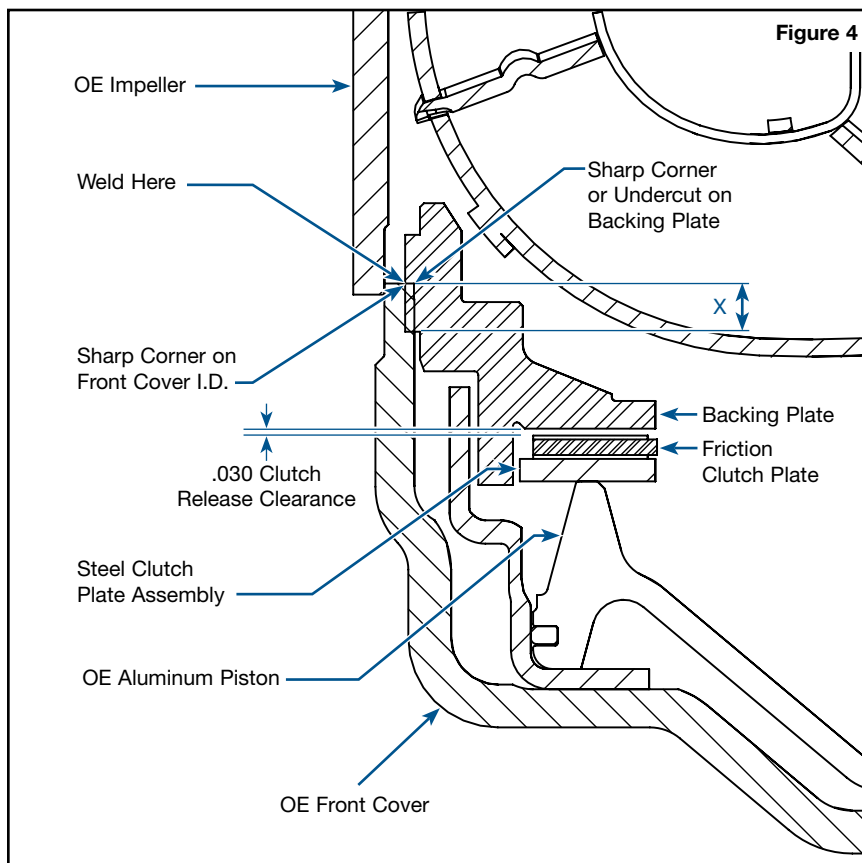


Figure 4

3. Welding Instructions & Assembly



NOTE: Sonnax suggests 100% replacement of all bearings and seals in any rebuild. Visit www.sonnax.com to view available products for this unit.

- a. Remove the clutch assembly from front cover.
- b. Install large D-ring seal on the piston and the small D-ring seal on front cover.
- c. Install six Sonnax springs in Sonnax backing plate spring holes.
- d. Ensure the six Sonnax clutch plate retainer pins engage inside these springs. Three binder clips can be used to hold the clutch assembly together while placing in front cover (**Figure 5**).
- e. Place front cover assembly on the welder turntable.
- f. A GM 6L80/90 torque converter front cover can be used as a tool to hold Sonnax backing plate securely to front cover and prevent weld spatter from entering the converter. The front cover will also fit in one of the bores on backing plate and will compress the six springs.
- g. Engage welder hold down pin onto the GM 6L80/90 front cover pilot and check to make sure that the machined shoulder on the backing plate is in contact with the 6R140 front cover (**Figure 6**).
- h. Tack weld Sonnax backing plate in at least three locations.
- i. Check the clutch release clearance again. If it is within .025–.035" continue welding the backing plate to front cover.



NOTE: This weld does not have to be leak proof.

- j. Assemble the rest of the converter and weld the impeller to front cover. The 6R140 torque converter end clearance should be between .005–.020". The overall height should be from 7.787–7.817".

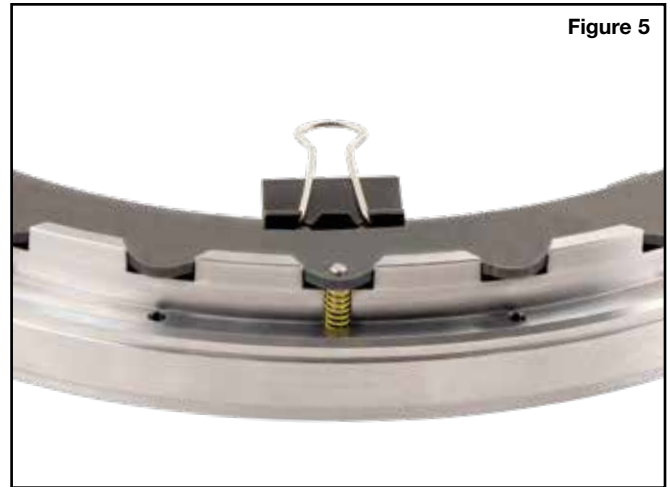


Figure 5



Figure 6