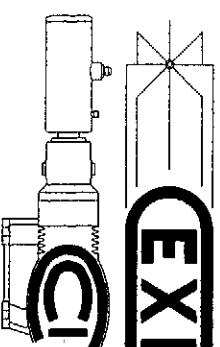


# CRYOGENIC EXPERTS, INC.

## CRYOGENIC COMPONENTS, INC.

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### Heater Casting Check Out And Replacement Procedure

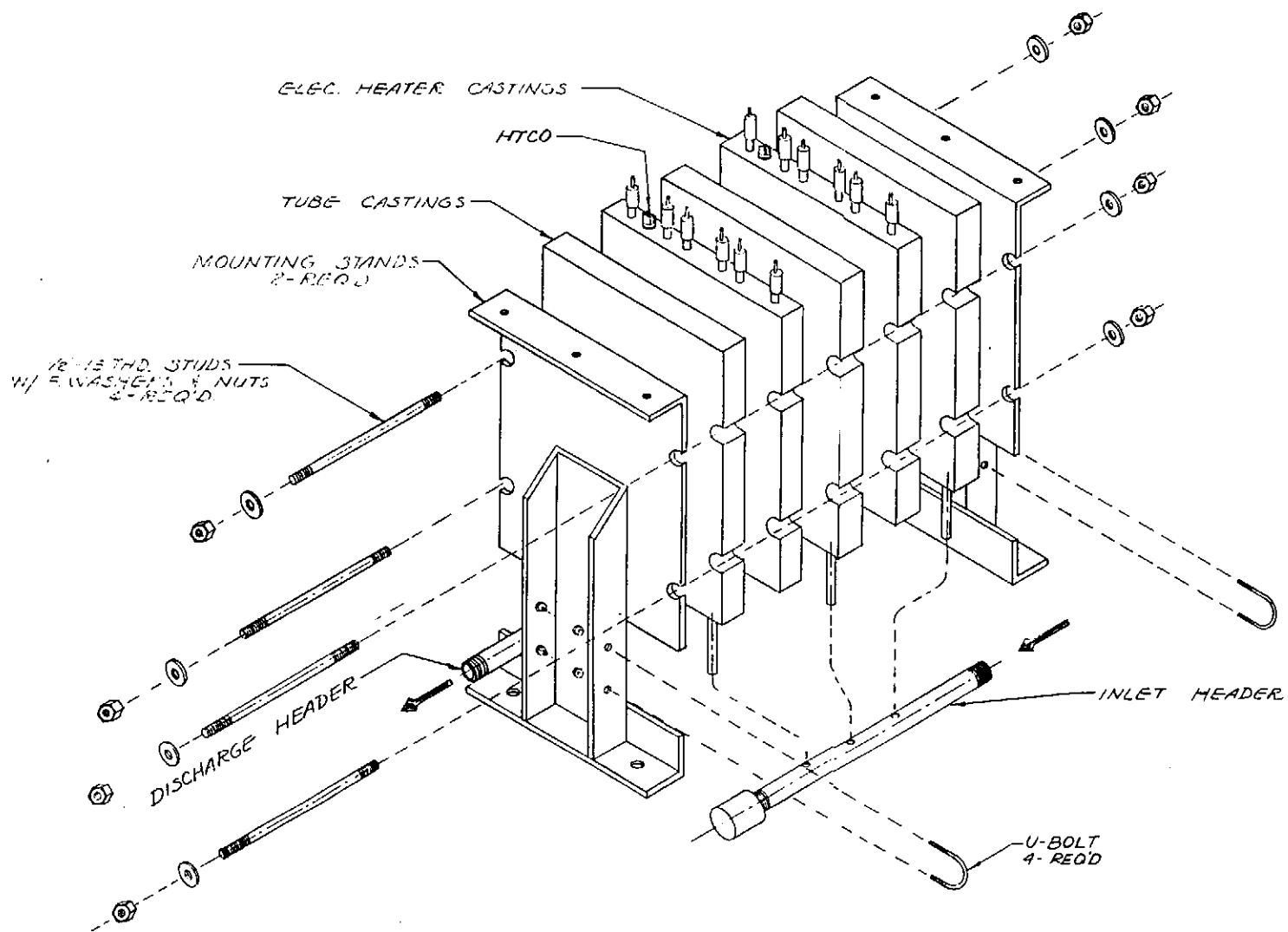
To check the heaters, the following should be done. Please note that one of the tests will be performed with the door open and full power in the cabinet. All checks should be done by a qualified electrician.

Power the unit up with the cabinet door open. Check the amperage on each leg going to the heaters. If the unit is still wired as it was from the factory, all legs should be reading equally. If one of the legs is reading low, that leg will have burned out heaters attached to the leg. If more that one leg is low, more that one leg has bad heaters. One caution, make sure that all the heater terminal nuts are tight. If there are any loose nuts, that may be the cause of the problem and heater replacement will not be required.

Turn the power off and lock it out. Sketch the bussing on a piece of paper. Then remove the buss bars from one side of each heater on that leg and check to see which heaters are bad. The heaters when bad will read open. If good they will read in the 12 to 15 ohm range. Also check to make sure that none of the heaters are shorted to ground, as that is also an indication of a bad heater.

The heaters come out as slab - 3 heaters in each slab. The heaters are removed by loosening the assembly up to allow the castings to be gently spread part. To do this the control panel bolts must be removed and the anchor bolts on at least one side of the stand must be removed. Once the stand has been freed from the anchor bolts and the cabinet bolts, then loosen the draw bolts - 4 each - only two of the draw bolts have to be removed, but all 4 must be loosened. (Note: on large castings - generally 75 kW and above - there are some side supports that must be removed to allow the castings to be withdrawn from the unit. These are held in place by the draw bolts and are about at the mid-point of the elevation of the casting assembly. Only one side must be removed to allow the heaters to be removed.) Remove the buss bars from the heater casting that has to be removed. Gently spread the casting assembly apart. Slide the heater that is bad out and clean the heat transfer compound off the sides of the tube castings that are in the unit (where the heater casting came out). Do not use any hard materials on the sides of the castings to move them apart. The casting sides are precision machined to improve the heat transfer. If the sided or edges of the casting get dinged, this will hold the castings apart and degrade performance.

The installation is the reverse. Put the heat transfer compound on the heater (Make sure that the heat transfer compound is spread evenly over the surface of the casting), install the heater into the casting, install the draw bolts, and tighten the bolts to approximately 45 foot lbs. Re-install the box. Re-buss the heaters. Turn the power on and check the amperage to the heaters. All legs should be even.



**NOTES:**

1. COAT HEAT SINK COMPOUND BETWEEN THE CASTINGS AT ASSY.
2. ALL HEATER CASTINGS ARE IDENTICAL & SYMETRICAL & MAY BE INSTALLED WITH HEATER TERMINALS UP OR DOWN.

<b>EXI</b>		CRYDLECO, EVANSVILLE, IND.	
DRAWN	SCALE	REVISED	DATE
CHECKED	NONE		
APPROVED			
DATE			
2/23/74			
TITLE		NO	REV
CEXILECTRIC CASTING ASSY.		ST 79826-00	A