

**TARGET STACK ASSEMBLY STEPS**

1. Wrap clamp nut (8000.110-MB-449221 Rev A) O.D. with a heater tape. Attach TC.
2. Place clamp nut upside down in hydraulic press on ceramic paper to insulate from steel.
3. Heat to 200C.
4. Insert shaft (8000.110-446222 Rev A) into clamp nut and apply 1000 lb load in four quadrants to ensure that the shaft is fully and evenly seated. Turn off heat. Leave under 1000 lb pressure until cool.
5. All tapped holes in Inconel target cylinder (8000.110-MD-449254) should be checked for proper thread depth and smooth engagement. Tap if necessary.
6. All screws should be test fit in a nut first then in the tapped holes to verify proper thread depth and smooth engagement chase threads if necessary. Adjust screw length as necessary.
7. All parts except beryllium cover (8055.110-MB-449116 Rev D) and copper balls should be ultrasonically cleaned prior to assembly.
8. The beryllium cover should be wiped off using ethyl alcohol.
9. The copper balls are fine as is.
10. All parts should be handled with latex gloves during assembly.
11. Place the beryllium cover on two layers of ceramic paper on a flat steel pate.
12. Wrap the beryllium cover with a 420 watt 1" X 48" long heat tape.
13. Secure the heat tape by tying it to itself (do not tape it to beryllium cover).
14. Wrap the beryllium cover with two layers of ceramic paper taped to it self only.
15. Wrap the cover with one layer of ceramic wool taped to it self only.
16. Wipe off the I.D. of the beryllium cover with alcohol.
17. Insert a thermo-couple between the bottom of the beryllium cover and the ceramic paper it sets on.
18. Cover the top of the beryllium cover with a piece of ceramic paper then a piece of ceramic wool.
19. Heat the beryllium cover to 250° C at the rate of 20° C every 5 minutes.
20. Place the Inconel target upside down on a metal plate near the beryllium cover .
21. Wipe off the O.D. of the Inconel target with alcohol.
22. Place three 0.120" thick shims on the Inconel target cylinder's lip to control the gap between it and the beryllium cover.
23. When the beryllium cover is at 250° C remove the layer of ceramic wool (wear welders gloves).
24. Remove the layer of ceramic paper covering the top of the beryllium cover so you can see down the center to align and install it on Inconel target cylinder. Leave on the two layers of ceramic paper covering the O.D. of the beryllium cover to help insulate your hands from the heat.
25. Pick up the beryllium cover (wear welders gloves) and slide it over the Inconel cylinder until it rests on the 0.120" shims.
26. Re-apply the ceramic paper to the top of the assembly.
27. Turn off the heat. Leave the assembly covered with the ceramic paper and let it cool slowly.
28. When the target/cover assembly is cool, remove the shims and ceramic paper.
29. Cover the beryllium cover with a protective cover, e.g., manila folder cut to size with the seam overlapped and taped to itself.
30. Coat the twelve ½"-13 "Bumax 88" type 316L S.S. socket head cap screw's threads with McLube. Let dry.
31. Flip the target assembly upside down, install the bottom plate and insert the twelve ½"-13 Bumax 88 type 316L S.S. socket head cap screws. Tighten screws by hand until bottomed out. If resistance is felt stop and investigate source. DO NOT FORCE! Screws will gall.
32. Torque the twelve ½"-13 screws to 50 lb-ft.

33. Install copper sleeve (8000.110-MB-449231) into Inconel target cylinder and form the top half for a tight fit. Remove, flip 180°, re-install and form the other half for a tight fit. Adjust copper sleeve so it is centered in the Inconel target cylinder leaving a 0.062" space at the top and bottom.
34. Thread the center cylinder (8000.110-MB-449225 Rev A) into the ¼"-20 tapped hole in the bottom of the target cylinder and tighten hand tight. Install a ¼"-20 S.S. nut on the center cylinder threads protruding out the bottom of the target. Torque nut to 66 lb-in (to be welded later).
35. Install 23 layers containing 72 gold plated 0.25" diameter copper balls each into the copper sleeve.
36. Install the lower pressure disk (8000.110-MC-449224) flat side down.
37. Install four Inconel Belleville disk springs (McMaster 97125K79) stacked in series, e.g., ><<.
38. Install the upper pressure disk flat side up.
39. Coat the six ¼"-20 X 3/8" long S.S. set screw's threads with McLube. Let dry.
40. Install the six ¼"-20 X 3/8" long S.S. set screws into the clamp nut tapped holes until their tops are flush with the top of the clamp nut.
41. Install clamp nut (8000.110-MB-449221 Rev A) and shaft (8000.110-446222 Rev A) assembly.
42. Coat the twelve 3/8"-16 X 7/8" long "Bumax 88" type 316L S.S. socket head cap screw's threads with McLube. Let dry.
43. Install the twelve 3/8"-16 X 7/8" long "Bumax 88" type 316L S.S. socket head cap screws in the clamp nut finger tight only. Adjust so that they are not applying any pressure to the clamp nut and the gap between the clamp nut and cylinder even.
44. Measure the gap between the clamp nut and cylinder. The total Belleville stack travel is 0.180". The six ¼"-20 set screws should be adjusted to allow for 0.100" compression of the bellevilles.
45. Place target in hydraulic press and apply a 1000 load on clamp nut using an appropriate sized cylinder to slide over the shaft. Be aware of any uneven travel or binding due to misalignment of the target shaft in the Bellevilles as the gap closes. The gap should close up smoothly and evenly.
46. Tighten the twelve 3/8"-16 X 7/8" long "Bumax 88" type 316L S.S. socket head cap screws by hand until bottomed out. If resistance is felt – stop and investigate source. DO NOT FORCE! Screws will gall.
47. Torque the twelve 3/8"-16 X 7/8" long "Bumax 88" type 316L S.S. socket head cap screws to 30 lb-ft.
48. Peen the top thread of the six ¼"-20 holes in the Inconel 600 clamp nut to lock the set screws. If the set screws are not low enough in the hole to allow for peening, tack weld them instead.
49. Weld the S.S. nut to the S.S. center cylinder.