*LIGO Laboratory / LIGO Scientific Collaboration*

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RFPD Welded Enclosure Test and Bake Procedure

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Advanced LIGO Project

This is an internal working note

of the LIGO Laboratory.

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1. **Materials Used**
2. Alpha 10 wipes
3. 1% solution of Liqui-Nox in deionized water
4. High purity isopropyl alcohol
5. Clean frock
6. Clean room gloves
7. Helium leak detector
8. **Required Safety**
9. Eye wear
10. Clean room gloves
11. Frock
12. All cleaning to be done in a fume hood
13. **Cleaning Procedure**
14. Before any cleaning the welded enclosure is inspected for visual defects.
15. Using a helium leak detector check for Leaks around the connectors on the enclosure. If no leak detector is on hand, use an Alpha-10 wipe and isopropyl alcohol to gently wipe down the surface of the RFPD before putting the RFPD into a chamber. Do a pressure vs. time scan for 1 hour or more looking for He leaks.
16. If there are no leaks, begin cleaning the Enclosure using 1% Liqui-Nox in deionized water and scrubbing with Alpha 10 wipes by hand only. ( Do not use immersion sonic cleaning)
17. Rinse with deionized water for 5 minutes.
18. Scrub using an alpha 10 wipes and Isopropyl alcohol (Do not submerge).
19. Alcohol and rinse for 2 minutes.
20. Allow to dry for a minimum of 4 hours.
21. **Testing before baking**
22. If the enclosure passed the helium leak Detector Check (or pressure vs. time scan) before cleaning, proceed with the next step.
23. Using the male connectors and a diode, insert and remove the diode into the diode socket 10 times.
24. Check each socket for leaks with a helium leak detector (or pressure vs. time scan for 1 hour or more).
25. **Bake Procedure**
26. Use a vacuum bake oven that has a valve capable of isolating all pumps while doing a pressure verses time RGA Scan for 1 hour or more.
27. Bake at 120C for 48 Hours.
28. Perform a calibration scan on the oven contents.
29. Perform an analog scan of the oven contents.
30. Close off all pumps leaving the RGA open to the oven contents and do a pressure vs. time scan for 1 hour.
31. Resume pumping on the oven and RGA. Leave the enclosure in the oven under vacuum until scans are approved in ICS.