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P0123
Cable Sub-Assy, Ground

Materials & Supplies

1. Ground coax Plug connector Stanford Interface #65113-1C34319-101
2. Stanford coax ground connector Adapter #65113-1C34446-101
3. Silver-Plated copper wire #178-8679
4. Indium Solder,Indalloy #9 solder.
5. Flux, Indalloy Rma #5.
6. Tra-Bond BA-2143D epoxy.
7. B-D 1cc Syringes (tuberculin) with out stainless needle #309602
8. Sem-Flex-needle-Teflon tip Lavender #232749
9. Vacuum system for outgassing epoxy.
10. Hot Weezers (model #M-10) #4 B cutter.
11. Non-magnetic cutter #M-17
12. Isopropyl Alcohol #2
13. Clean room wipes Durx #670.
14. Baxter clean room glove #G7300-26
15. Texwipe small foam swab #TX751B
16. Ultrasonic Cleaner (Branson B-220 H)
17. Calibrated Fluke 77 Multimeter (or equivalent.)
18. Napco E series (model 5831) vacuum oven
19. Traveler sheet for Cable Sub-Assy, Ground (Drawing #23543-101 Rev -)
20. All test equipment must be calibrated in accordance to original manufacture's specifications.
21. All soldering must be performed by NASA Certified solder personnel.

Procedure

1.   Preparation

1.1   Check kits, clean hardware by ultrasonic parts for 20 minutes in Alcohol, use 80ml. glass beaker.

2.   Wire Cutting

2.1   Cut silver-plated wires #178-8679, 15.5" long.

2.2   Clean the wire with clean room wipe **#**Durx 670 and alcohol #2-Propanol. Wipe the wire until there is no residue on the wipe.

3.   Wire Tinning

3.1   Soldering to be performed by *NASA Certified Solder Personnel***.** Pre-tin per GPB Solder Specification 5835072. Use the Hot Weezer #4B set the setting at 10 hi.
Remove outer insulation 0.15". Fit check one of the exposed wire ends into the Lemo center connector pin and trim wire as required.

3.2   Remove one layer of wrap wire. Verify that the end can be completely inserted into solder opening to obtain flush interface between insulation and solder pin. (This is important for hi-voltage reason.)
Trim the exposed wire length and width as required in order to butt the Teflon insulation up against the pin interface. Use a Q-tip and rub a small amount of flux RMA #5.

3.3   Use alloy Ind #9 solder to tin the end of the wire. Use a Q-tip and wipe away any flux residue.

3.4 Roughen up the Teflon surface on the stripped end of the cable. Start at the end of the insulation on the stripped end of the cable and go back approximately 0.75 inches on each end. Roughen up the entire region thoroughly with #320 grit paper.

3.5 Ultrasonic the tined end of the wire in alcohol for 10 minutes. Use a small beaker.

Note: The wire is made up of 19 stands of 5 mil wire and will need to be trimmed in order to fit into the pin solder opening. Unravel the stranded wire and cut off strands as required to obtain clearance with the pin opening.

3.6 Visually inspect the wire carefully, check for any breaks in the insulation.

3.7 Do a quick resistance check.

4. **Solder tinning of Contact Pin**

4.1 Soldering to be performed by *NASA Certified Solder Personnel*. Pre-tin per GPB Solder Specification 5835072. Pre-tin the contact pin. Use a Q-tip and rub a small amount of flux #5 at the end of the tin wire. Use the microscope, to solder the pin to the end of the wire.

4.2 Use #9 solder, and solder the pin to the end of the wire. Use a Q-tip wipe away any flux residue with alcohol.

4.3 Take continuity, Verify resistance from end to end of connector pin to the end of the silver plated wire.
Make sure resistance is within range. 00.1 Ω / 00.2 Ω.

4.4 Ultrasonic the hold assembly in a large breaker for 20 minutes. Use Alcohol.

4.5 Bake-out the Assembly in the vacuum oven set temperature control #1.5 (temperature range between 130°F / 146°F) for 20 minutes. Remove the assembly from the oven and visually inspect the wires carefully.

5. **Inspect Point**

5.1 A Product Assurance representative will inspect solder joints.

6. **Epoxy Bonding Tra-Bond BA-2143D Contact Pin**

6.1 Tra-Bond epoxy come in a two-part package, Remove the clamp knead and mix the two parts together.

6.2 Vacuum system should be used to remove any entrapped air introduced during the mixing process.
The foam will rise several times and then subside, Continue vacuum outgassing until most of the bubbling has ceased. This usually requires 3-10 minutes, Using the dessicator pumped to 3 torr.

6.3 Use a 1cc Syringe #309602 with a 22 lewar lock teflon tip put a drop of tra-bond epoxy at the end of the contact pin and the teflon wire to secure the pin and wire in place.

6.4 Let Tra-Bond epoxy cure over night or 24 hours.

Note: The recommended time is for 24 hours at room temperature.

7. **Solder tinning of Connector Adapter and Lemo backshell back.**

7.1 Soldering to be performed by *NASA Certified Solder Personnel*. Pre- tin per GPB Solder Specification 5835072. Pre-tin the inside of 1C34319-101 Lemo backshell back, a distance of .120″ +/-.020″ with Indium solder #9. Tin the circumference of the connector rim as well.

7.2 Pre-tin the outside edge of 1C34446-101 Coax Connector Adapter a distance of   .120_. 020 inches.

(Note the outside will be soldered to the connector backshell and the inside will   be bonded to the teflon wire.)

8.   Soldering Connector Adapter and Lemo backshell to 26 Awg Wire

8.1   Slide the connector adapter over the end of the wire. Position the adapter so that   it is against the back of the contact pin.

8.2   Slide the Lemo backshell over the end of the contact pin so that it overlaps the cable adapter by 0.165+ 0.010″.

8.3   Refold solder connector adapter to backshell back. Add solder if necessary to prevent voids in solder joint.

8.4   Have a Product Assurance representative inspect the soldered Adapter and Lemo backshell.

9.   Epoxy Bonding Tra-Bond BA-2143D

9.1   Use a drop of tra-bond BA-2143D epoxy at the end of the connector Adapter and the teflon wire to secure the wire in place. **Refer to step 6. (Epoxy Bonding)**

9.2   Let Tra-Bond epoxy cure over night or 24 hours.

9.3   Verify resistance. **Refer to step 4.3.**

10.   Cable Sub-Assembly is complete.