CRYOMAGNETICS, INC. INNOVATIVE TOOLS FOR SCIENTIFIC RESEARCH	**Title: Current Lead Wrapped Lap Splice**		
Doc Type: CMI – Work Instruction	Doc #: CMI-WI-001	Rev. #: 0	Rev. Date: 10/5/2026
Responsible Engineer: M. Richards	Signature & Date:		
Engineering Approval: P. Sullivan	Signature & Date:		
QA Manager Approval: C. Lorenz	Signature & Date:		
Distribution: Internal and Customer Use			

This instruction defines how to join two insulated copper conductors, so the joint is electrically sound, mechanically strong, and fully insulated.

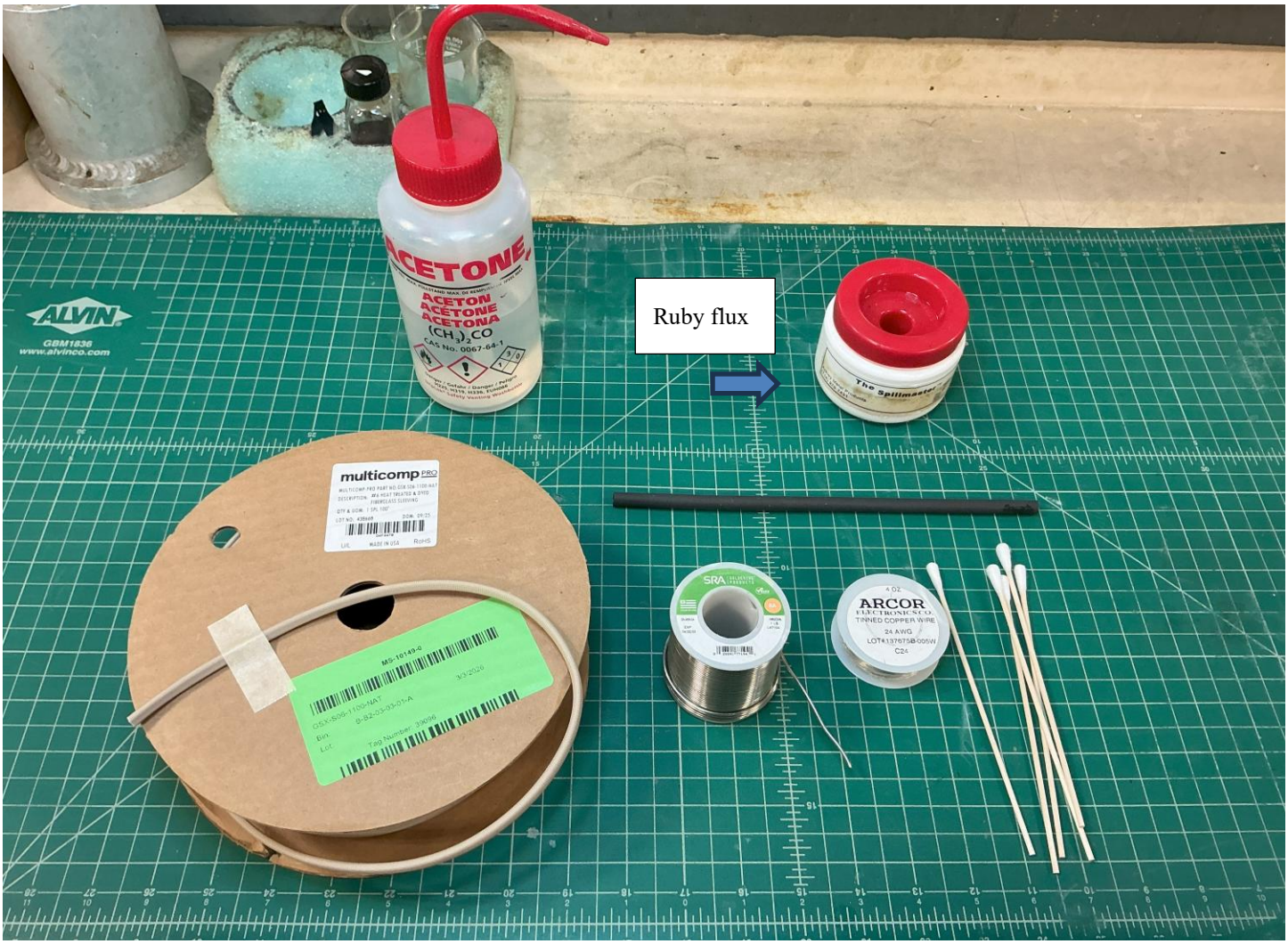
Bill of Tools

Soldering iron	Heat gun	Needle nose pliers
Wire cutters	Scissors	Tape measure



Bill of Materials

Acetone	Rubyfluid liquid soldering flux	Lead Free Solder-SN96/Ag4	1/4" Diameter heat shrink
1.68mm Diameter fiberglass sheath	24 gauge bus wire	Cotton swabs	

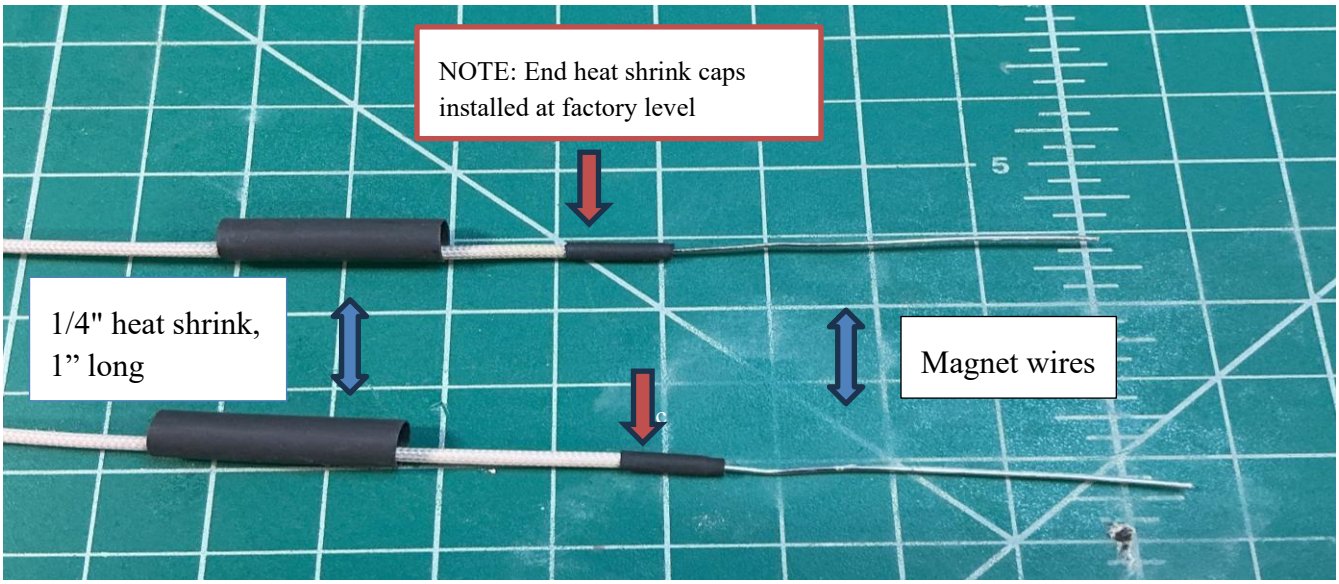


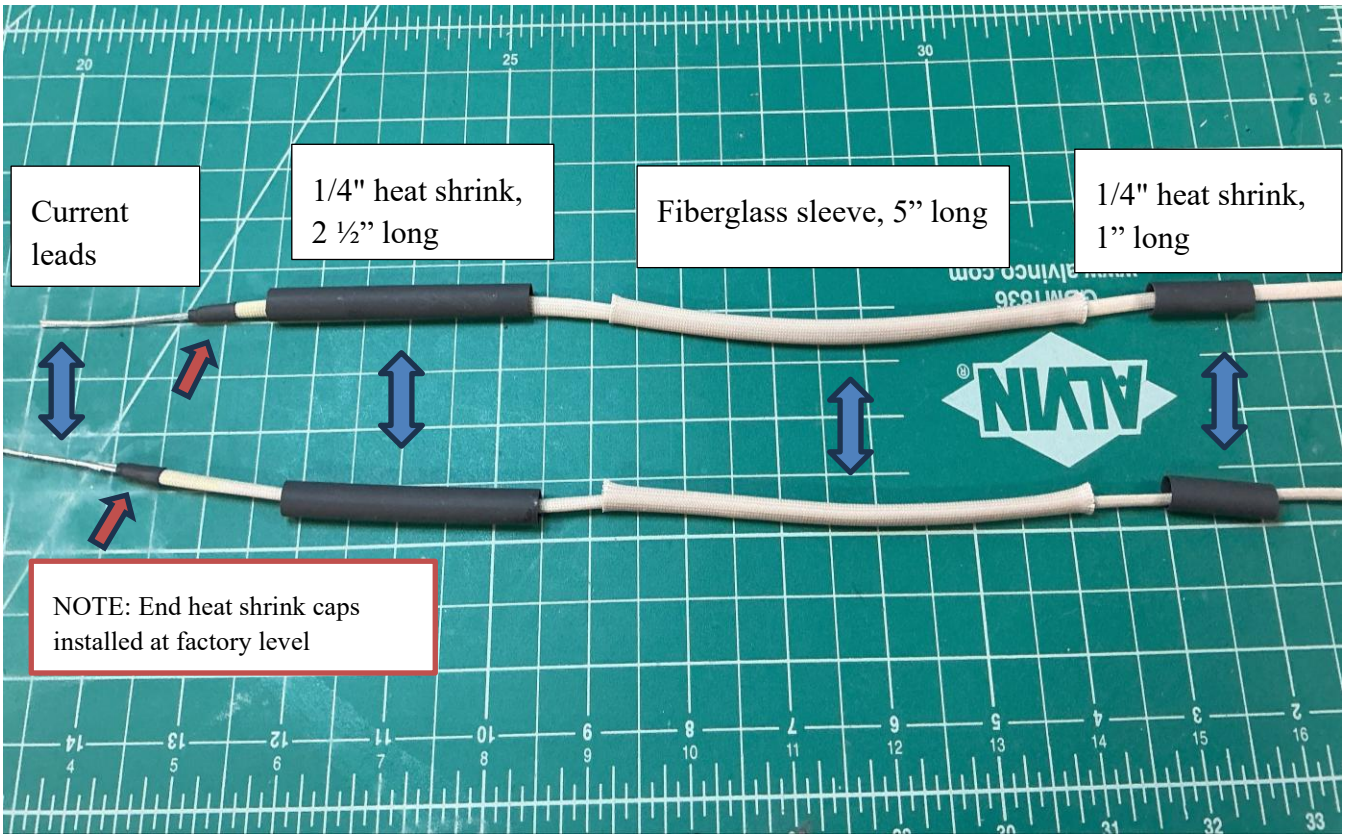
1. **Cut heat shrink, fiberglass sleeves, and bus wires as follows:**

Material	Size	Length	Quantity
Heat shrink	1/4"	1”	4
	1/4"	2 ½”	2
Fiberglass sleeve	1.68mm	5”	2
Bus wire	24 gauge	5 ½”	2

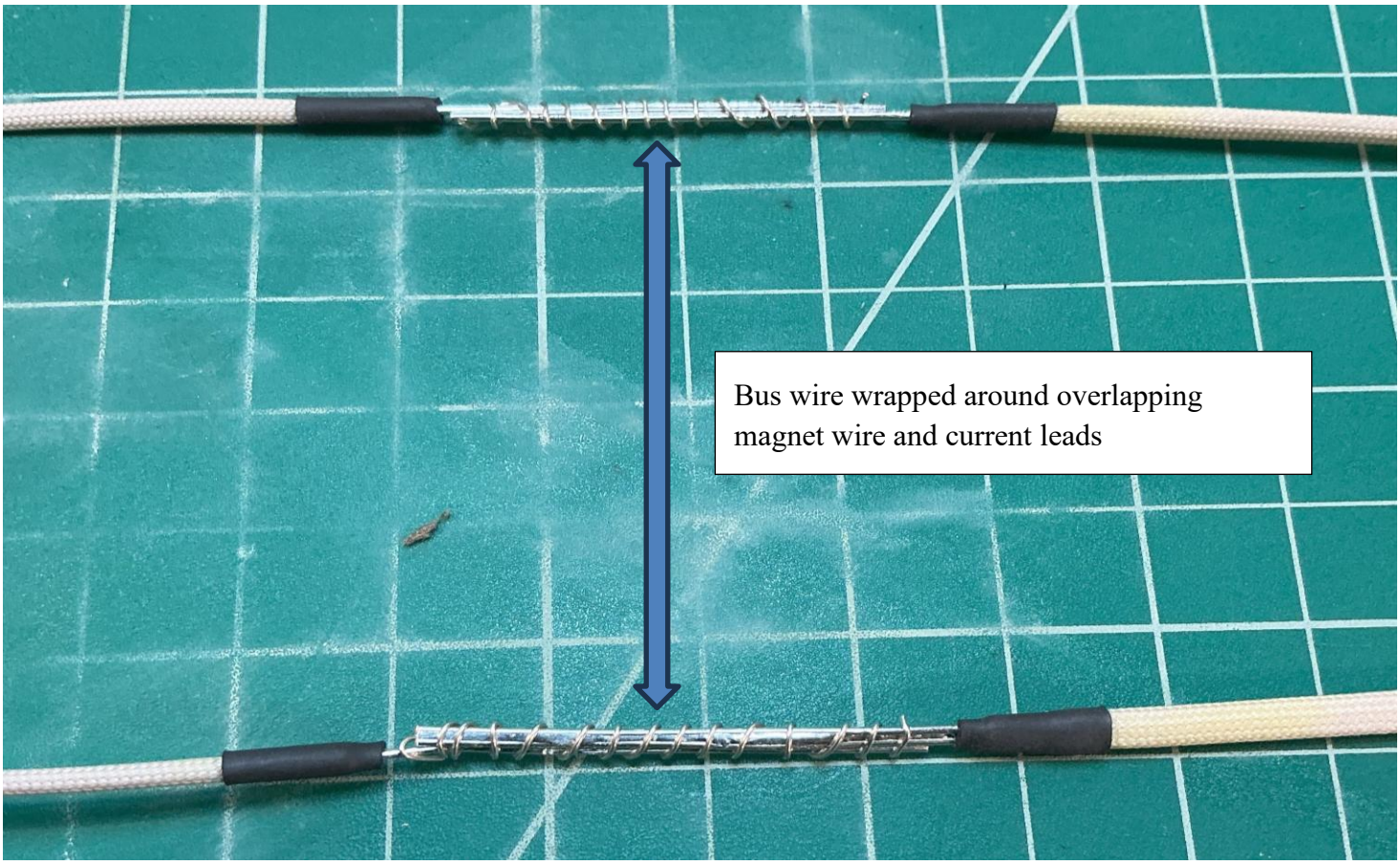


2. Place heat shrink and fiberglass sleeves on magnet wires and current leads before soldering joints. Keep heat shrink pieces away from joint to prevent shrinking during soldering.



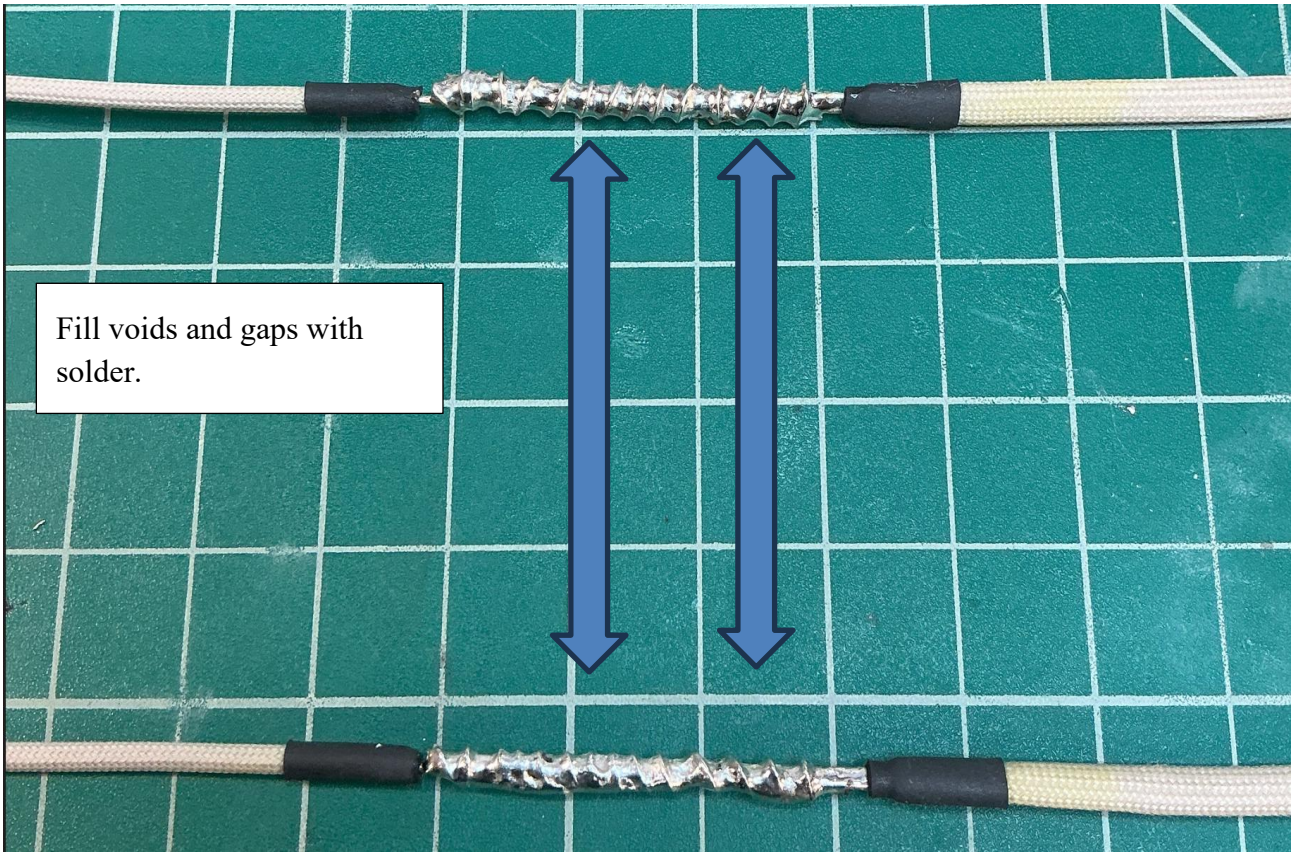


3. **Place magnet wire and current lead together, overlapping each other approximately 2". Wrap bus wire along the entire length of overlapping magnet wire and current lead.**

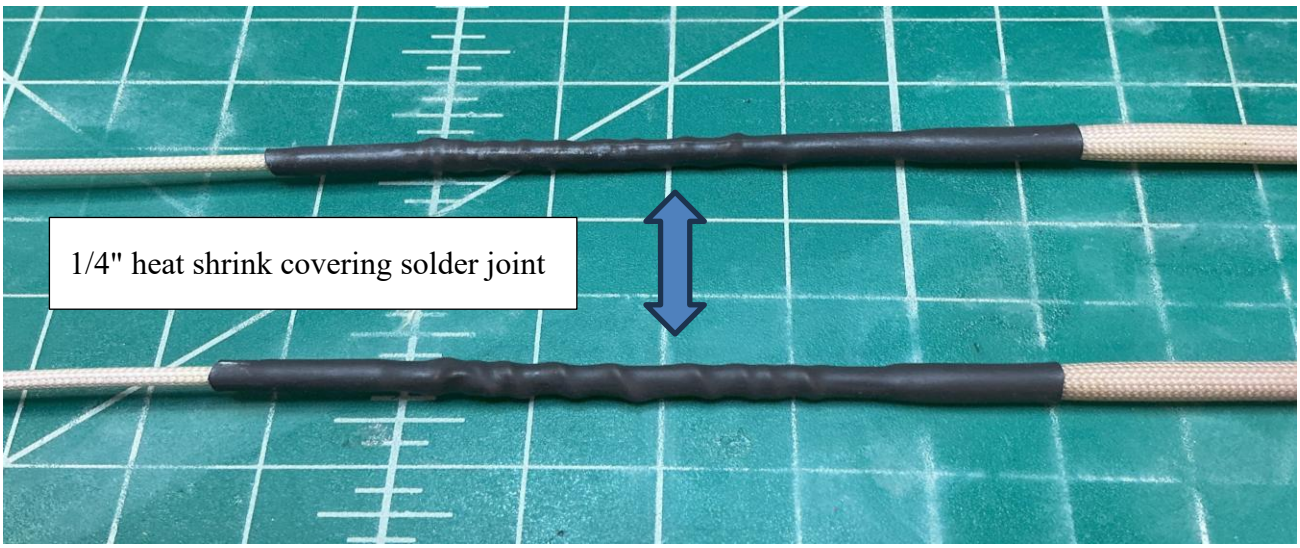


4. **Apply flux to bundle and heat with soldering iron (approximately 700° F). Apply enough solder to fill all voids and gaps. Clean thoroughly with Acetone.**

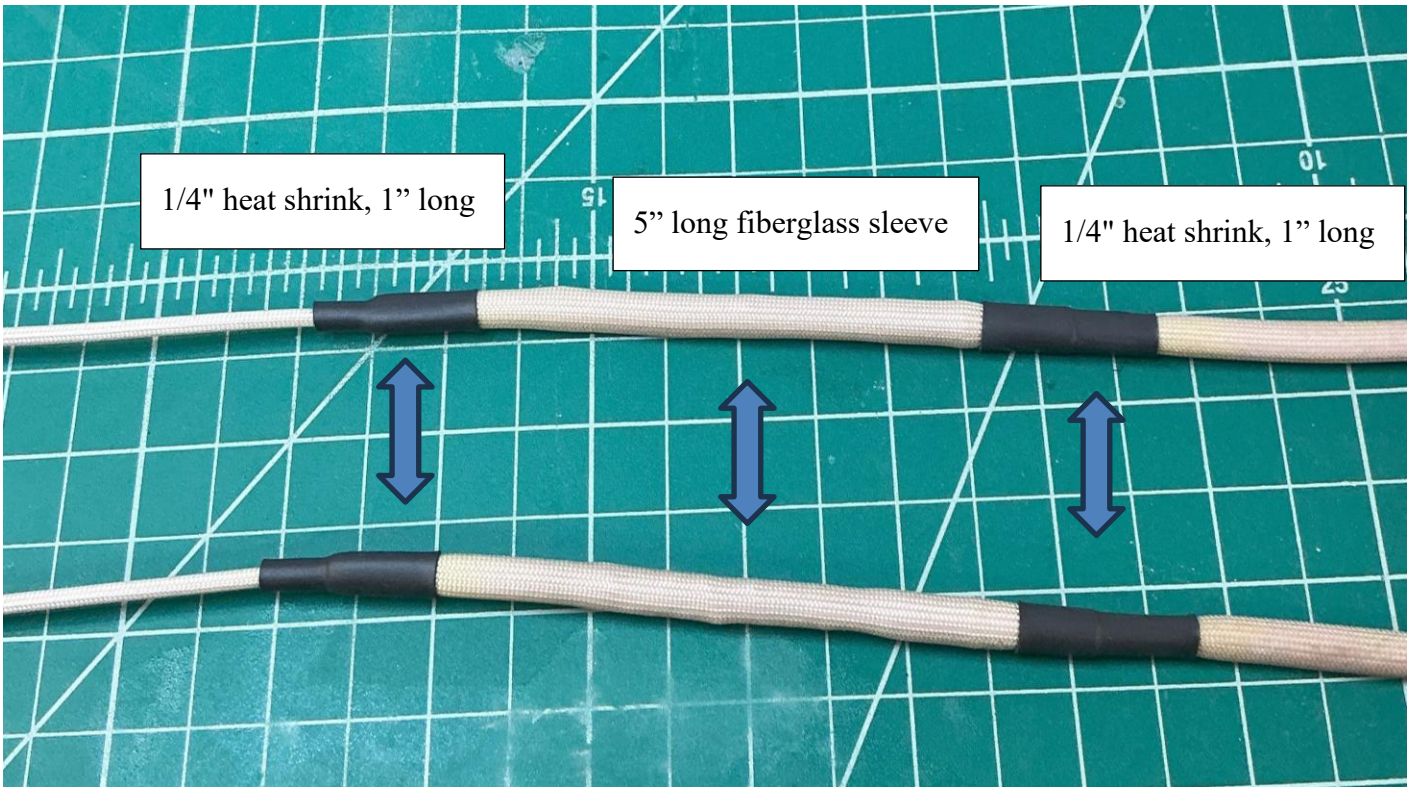
   (Solder standards MIL-STD-2000A and NASA-STD-8739.4A)



5. **Cover solder joint with the 2 ½" long piece of 1/4" diameter heat shrink. Use heat gun to activate heat shrink.**



6. Cover heat shrink with 5" piece of fiberglass sleeve. Cover the ends of the sleeve with 1" pieces of 1/4" diameter heat shrink. Use heat gun to activate heat shrink.



7. **End work instructions**

⚠ DANGER – ACETONE: HIGHLY FLAMMABLE LIQUID AND VAPOR. CAUSES SERIOUS EYE IRRITATION. VAPORS MAY CAUSE DROWSINESS OR DIZZINESS.

- **Keep away from heat, sparks, and open flames. Do not use near soldering irons, thermal wire strippers, heat guns, or other ignition sources. Allow wires to dry fully before applying heat or solder.**
- **Use only in a well-ventilated area or under local exhaust.**
- **Wear safety glasses or goggles and chemical-resistant gloves (butyl rubber preferred; nitrile provides only brief splash protection, so change it immediately if contaminated).**
- **Dispense only the minimum quantity needed, from an approved safety container or pump dispenser. Keep containers closed when not in use.**
- **Place used wipes and rags in a closed, self-closing metal waste can.**
- **Acetone may damage some plastics, insulation, markings, and finishes. Avoid contact with surfaces not being stripped.**
- **First aid: *Eyes:* rinse with water for at least 15 minutes and get medical attention. *Skin:* wash with soap and water. *Inhalation:* move to fresh air. Refer to the SDS for full information.**