



Goddard Space Flight Center

GSFC NASA ADVISORY

1. Advisory Number NA-GSFC-2004-05		2. Subject Cable Failure Attributable to Workmanship Error During Assembly of COTS Connector.		
3. Manufacturer Trompeter Electronics, Inc. 5550 E. McDowell Road Mesa, Arizona 85215		4. Manufacturer CAGE Code 60637		5. Federal Stock Code N/A
6. Part/Material/Process Number PL3155-47		7. Lot Date Code/Batch Code/Serial Number Unknown		8. Controlling Spec/Document Number N/A
9. References N/A				
GENERAL INFORMATION: This is a NASA Advisory issued by the Goddard Space Flight Center (GSFC) in accordance with the requirements of NASA Procedures and Guidelines 8735.1. For information concerning processing and actions required to be conducted in conjunction with this information, refer to your contract, or to NASA Procedures and Guidelines 8735.1. This information has been compiled and presented as accurately, completely, and objectively as possible consistent with the primary objective of alerting potentially affected projects as early as possible. This information may be altered, revised, or rescinded by subsequent developments or additional tests; and these changes could be communicated by other NASA documents. Neither NASA, the United States Government, nor any person acting on its behalf assumes any liability resulting from any distribution or use of this information.				
10. DISTRIBUTION: While the primary distribution for this document is internal to NASA personnel and NASA contractor personnel, the information contained in this document is factual, and its release to, and use by, other entities is not restricted.				
11. Problem Description and Details: A GSFC project had cable assembly failures due to shorted connectors. Trompeter Electronics, Inc. manufactured these COTS connectors per catalog p/n PL3155-47. A GSFC failure analysis determined that the connector failures were caused by a solder bump on the ring ferrule, which wore through the insulation sheath and shorted to the connector case. This solder bump protrusion is illustrated in Figures 1 and 2 on page 2. The root cause failure mechanism was attributable to poor GSFC workmanship during the connector assembly operation. Step 4B of the Trompeter Assembly Instruction TAI-125 requires the following: "Solder white conductor to inner shield, between ridges, being careful not to allow solder to extend above ridges". As illustrated in Figure 3, the solder extended beyond the ridge line, thereby causing a solder protrusion into the insulation and a resultant shorting condition to case.				
12. Action Recommended: 1) When appropriate, it is recommended that the projects use crimped connectors, rather than relying on a cable design that uses soldered connectors. 2) If this style of Trompeter connector is assembled to cables, ensure that the manufacturer instructions are followed, especially assuring that neither solder nor conductor extends beyond the ridge of the ring ferrule.				
13. Technical Point of Contact Name/Title: Bob Humphrey/Engineer Voice Phone: 301-286-0106 Location: NASA GSFC FAX Phone: 301-286-0236 Mailing Address: Code 306, Greenbelt, MD 20771 E-Mail Address: Robert.D.Humphrey.1@gsfc.nasa.gov				14. Date Prepared March 10, 2004
15. GSFC NASA Advisory Coordinator Name/Title: Mike Sampson Voice Phone: 301-286-3335 Location: NASA GSFC FAX Phone: 301-286-1667 Mailing Address: Code 306, Greenbelt, MD 20771 E-Mail Address: Michael.J.Sampson@nasa.gov				
16. Released by: (Signature) <i>Original signed by</i> <u>GSFC NASA Advisory Coordinator</u>		OFFICIAL USE STATEMENT: Only signed and dated versions of this Advisory are to be used for official reference purposes.		17. Date Released March 16, 2004

11. Problem Description and Details: (Continued from page 1)

Figure 1: Solder Bump on the ring ferrule shorting through the insulation to the case.

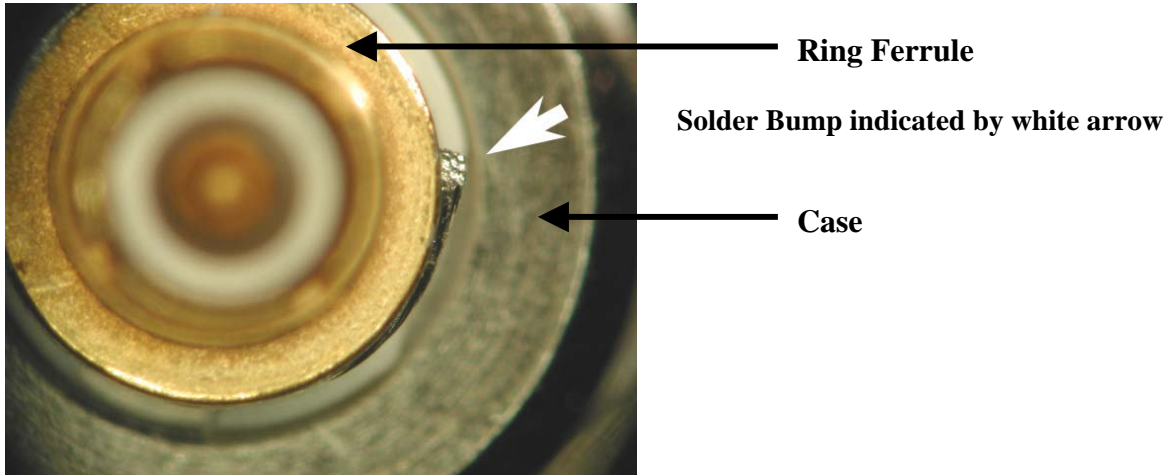
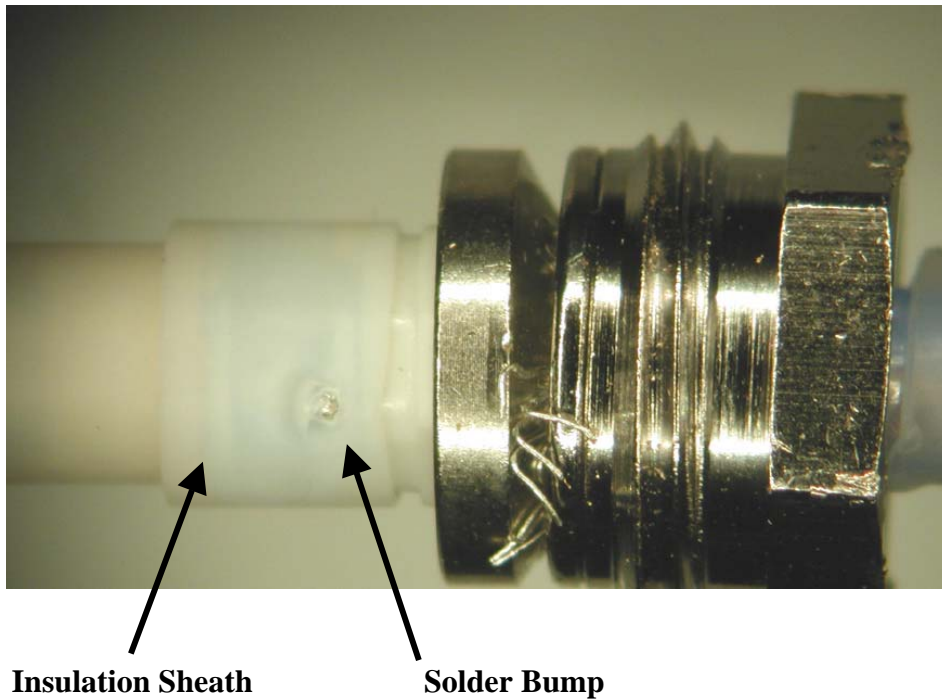


Figure 2: After connector disassembly, the same solder bump protruding through the insulation sheath.



11. Problem Description and Details: (Continued from page 1)

Figure 3: Workmanship error regarding step 4B of the Trompeter Assembly Instruction TAI-125, which requires “Solder white conductor to inner shield, between ridges, being careful not to allow solder to extend above ridges”. In this shorted connector failure, the solder bump protrudes above the ridge line, which is indicated by the white indicator line.

