



Announcements

The Fall JSWAG/JFOWG Technical Interchange Meeting is scheduled for September 6-7, 2016 at MCAS Cherry Point, NC. For more information, visit the JSWAG website.

Resources

- The Wiring Awareness (806881), Fiber Optic Awareness (806707) and Joint Service Wiring Manual Maintenance Techniques (806994) DVDs can be ordered by calling 888-743-4662 or by submitting a ticket at <http://www.dimoc.mil/customer/contact.html>
- Heatless Splice Application Video- <https://www.youtube.com/watch?v=Op1YMaz454E&feature=youtu.be>
- MIL-HDBK-522A- Guidelines for Inspection of Aircraft Wiring Interconnect Systems http://quicksearch.dla.mil/qsDocDetails.aspx?ident_number=277535
- MIL-HDBK-525- Electrical Wiring Interconnect System (EWIS) Integrity- http://quicksearch.dla.mil/qsDocDetails.aspx?ident_number=279725
- Need help locating information on connectors, contacts or accessories? If so, email us at jswag@navy.mil.

Newsletter Contact

JSWAG Coordinator
jswag@navy.mil

Electrical Connector Manufacturing Issues

Recently released Government Industry Data Exchange Program (GIDEP) reports have identified manufacturing concerns with connectors meeting; MIL-DTL-38999, -22992, -26482, -26500, -27599, -55302, -83513 and -83723 along with MIL-PRF-39012, -49142, -55339 and -28748. The discrepancies are detailed in GIDEP and Defense Logistics Agency (DLA) Land and Maritime alerts: AAN-U-16-226, CVS-P-16-01, PE2-P-16-01, NX4-P-16-01, NX4-P-16-02, NX4-P-16-03, NX4-P-16-04, NX4-P-16-05, NX4-P-16-07, NX4-P-16-08, PE2-P-16-02 and EA-P-15-01A. After careful analysis, evaluation and risk assessment on these cited issues, the Air Force, NAVAIR and DLA Land and Maritime have independently provided a review and course of action recommendations. At this time these issues collectively were deemed as low risk. If additional data supports further evaluation, the issue will be reevaluated. JSWAG strongly encourages following individual service guidance and direction to ensure specific applications requirements are met. See JSWAG Action Chit 1837.

High Speed Data Cable

The NAVAIR Wiring Systems Team (AIR-4.4.5.3) in cooperation with various industry representatives and the Society of Automotive Engineers (SAE) has been working to resolve an issue with standardization of High Speed Data Cables. High Speed Data transmission as discussed in this newsletter is the transfer of high speed digital data across twisted pairs of wires and connectors. One of the more common protocols used is Ethernet which is a family of computer networking technologies for local area networks (LANs) used commercially today in homes and offices around the world. The data transmission speed has a bandwidth of 100MHz to 500MHz and can transmit digital data at 10 megabits to 10 gigabits per second. In your home or office you often hear the high speed data connector referred to as a RJ45 connector and the cable referred to as CAT 5, 5e, 6, 6a or 7. Unfortunately, the RJ45

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connector, CAT 5 through 7 twisted pair cable material and shielding are not rated for aircraft operating environment and installation guidance is not available for aircraft installation.

The effort is to result in standardization of aerospace high speed cable applications for Firewire (IEEE 1394b™) and Ethernet (IEEE 802.3™) protocols. SAE AS6070™ is the dedicated specification, with details defined in AS6070/1 - /6 and /8™. Excellent progress is being made to define and qualify cables. Having standardized performance requirements and qualified sources of supply ensures all uniform services have long term availability for aircraft installation employing these high speed data protocols. Change 2 of the joint service wire maintenance manual (NA 01-1A-505-1) updates WP 022 00, 022 02 and 022 03 to reflect the latest configuration, bend radius damage limitation and termination recommendations. The two basic configurations of the cables are reflected in Figure 1, for Firewire (IEEE 1394b™) and Figure 2, for Ethernet (IEEE 802.3™).

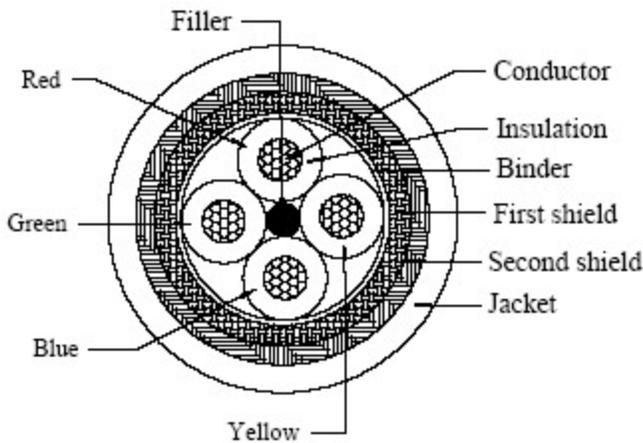


Figure 1: Firewire (IEEE 1394b™)

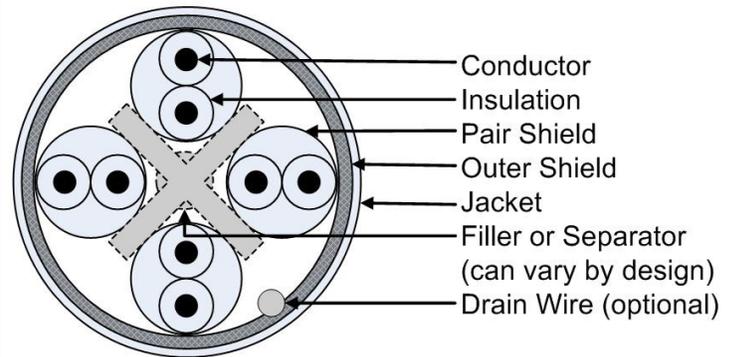


Figure 2: Ethernet (IEEE 802.3™)

High Speed Data Connector

High Speed Data Connector performance definition and standardization are just as pivotal as they are for cable applications. The connector and cable selected make up the pathway for the Electrical Wiring Interconnector System side of the high speed system. As mentioned above, the commercially available RJ45 connector cannot meet the demanding aircraft temperature, vibration or electromagnetic interference operating environments. NAVAIR led the effort, and with manufacturer support, drafted and published MIL-DTL-32546, /1 - /3. It is the first connector series for high speed data for aerospace applications. More are to follow and address protocols such as USB™, DVI™, HDMI™, eSATA, etc. 

Lu Roberts Nominations

We are accepting nominations for the 2016 Lu Roberts Award. Nominations can be sent to jswag@navy.mil. Please include the nominee's name and a paragraph justifying the nomination. You may also place a nomination online on our private SharePoint site at <https://myteam.navair.navy.mil/org/jswag>. Nominations are placed by navigating to the "Lu Roberts Nominations" page.

Find the Answer

What is the maximum allowable broken/nicked strands of a 19-strand copper conductor?

Resources: NA 01-1A-505-1, WP 009 00 or SAE AS50881

Answer will be provided in Fall 2016 Newsletter