



Announcements

The next JSWAG/JFOWG Technical Interchange Meeting will be held 11-13 August 2015 in Huntsville, AL. For more information, please email jswag@navy.mil.

Resources

- Aircraft Wiring Systems Awareness DVD- Defense Imagery PIN #806881
- Fiber Optic Awareness DVD- Defense Imagery PIN #806707
- Joint Services Wiring Manual Maintenance Techniques DVD- Defense Imagery PIN #806994
- Heatless Splice Application Video- <https://www.youtube.com/watch?v=Op1YMaz454E&feature=youtu.be>
- MIL-HDBK-522- Guidelines for Inspection of Aircraft Wiring Interconnect Systems- <https://assist.daps.dla.mil>
- MIL-HDBK-525- Electrical Wiring Interconnect System (EWIS) Integrity- <https://assist.daps.dla.mil>
- Need help locating information on connectors, contacts or accessories? If so, email us at jswag@navy.mil.

Newsletter Contact

JSWAG Coordinator
jswag@navy.mil

Wiring Maintenance Manual Received Update (Change 1)

The Joint Service General Wiring Maintenance Manual (NA 01-1A-505-1, T.O. 1-1A-14, TM 1-1500-323-24-1) has just been updated. The change is a collaborative effort between warfighters, engineers and logisticians to bring together needed improvements to wiring systems procedures, materials and equipment. This change; not a revision, incorporated change bars for easy identification. It incorporated IRACs 5 and 6 and over 30 deficiency reports including:

- New heatless splices (M81824/14)
- HAZMAT review of entire manual; removed or replaced several hazardous compounds, with less toxic/hazardous ones
- Large gauge terminal crimp indent positioning
- Critical Clamp Marking (CCM) materials and methods
- CPC guidance clarification to apply CPC to only the outer metallic surface of connectors (not inside); connector cleaning procedure updated
- Wiring secondary protection requirements updated (for M81381 Polyimide wire)
- Incoming wire inspection clarified
- IR Heat gun procedure corrected/updated
- Flag terminal lug guidance improved; commercial crimp tool id'ed
- CB collars and blanking caps part numbers updated
- M7928 terminal lugs; several updates (p/n, description, range reduced)
- Two piece shield termination crimp ferrules, range and tool information updated
- Connector EMI finger seal description and damage criteria defined
- Electroless Nickel connector plating restriction updated
- Capping and stowing wire; not for energized circuits; operational short term only-tape use
- Metal mesh shield repair tape information updated
- HH-80C crimp tool will retain commercial part number
- Wire harness marker label procurement method improved
- The A-A-59163 tape call-out, replaced with: "Insulation Tape, Electrical, Self-Adhering Silicone"

For any issues or improvements to this technical publication, please submit your service's approved form.

New heatless splice – NAVAIR has been working with industry to develop a new heatless (cold applied) splice. Its performance is detailed in the recently published SAE standard AS81824/14 (Figure 1). This splice is a two piece design consisting of a metal crimp barrel and

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sealing sleeve. Different than the AS81824/12 heatless splice (Figure 2) which uses a gel to provide the environmental sealing, this new heatless splice uses a sealing gland which is integral to the sealing sleeve to provide environmental sealing. The sealing gland is similar in design to that on the back of an environmental connector. In addition, it employs the same already fielded crimp tool (M22520/37) used for the conventional AS81824/1 environmental splice. This splice is a permanent install splice which is an alternative to the M81824/1 splice. It is rated to 175°C and is for single wire to wire splicing applications due to the sealing gland design. This splice has completed qualification testing and is approved for use.



Figure 1 - Heatless Splice M81824/14



Figure 2 - Heatless Splice (Cold Applied) M81824/12

Heatless splice (see JSWAG Newsletter Fall 2010) – SAE standard AS81824/12 was published in 2011, detailing the requirements for a 150°C rated splice, which does not require a heat gun to shrink the sealing sleeve (Figure 2). It is a one piece splice, which requires a new tool for crimping the combined metal crimp sleeve and sealing sleeve. Environment resistance protection is provided by an encapsulated transparent cross-linked gel. Several development and production challenges have resulted in the delay of qualification of this splice. Two sources of supply for the new crimp tool and inspection crimp gage required for this splice have been qualified and added to the Qualified Products List. This splice has completed qualification testing and is approved for use.

Matched Impedance Splice – A new military performance specification MIL-PRF-32517 has been drafted by NAVAIR and published. It details the requirements for splicing of MIL-DTL-17 coaxial cables (Figure 3); RG-393, RG-400 and RG-142. This splice is designed to match the impedance of the coaxial cable to ensure signal integrity. NAVAIR's engineering evaluation has validated that the splice can match the cable impedance to within +10 to -3 percent. This splice is awaiting qualification testing.



Figure 3 - Matched Impedance Splice M32517

2014 Lu Roberts Award – The award was presented to Brian Vetter. Vetter, a dedicated Aircraft Wiring Systems engineer, supported NAVAIR Propulsion and Power Engineering Department (AIR-4.4.5.3) at Patuxent River, MD. Vetter was awarded the Lu Roberts Award for providing assistance to the aerospace wiring systems community by establishing the NAVAIR capability to test high speed protocol to enable standardization, leading the effort to standardize and develop the wire abrasion test method, and to test and facilitate the fielding of the new composite wire group M22759/180-/192. To read more about the Lu Roberts Award or see previous winners, please visit www.navair.navy.mil/jswag/luroberts.htm. 