

Announcements

The next JSWAG/JFOWG Technical Interchange Meeting is scheduled for March 19-21, 2013 in Lexington Park, MD. Please contact a committee chair if interested in attending or send an email to jswag@navy.mil as seating is limited. DCO/VTC capability is available for those who cannot travel.

Voting for the 2012 Lu Roberts award recipient has begun. Please visit <https://jswag.navair.navy.mil/> to make your selection. Voting will close March 5. The winner will be announced at the 2013 Spring JSWAG/JFOWG Technical Interchange Meeting.

Training 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.
- MIL-HDBK-522- Guidelines for Inspection of Aircraft Wiring Interconnect Systems- <https://assist.daps.dla.mil>.

Newsletter Contact

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Cold Applied (Heatless) Splice and Ring Terminal

The NAVAIR Wiring Systems Team (AIR-4.4.5.3) in cooperation with TE Connectivity and Daniels Manufacturing Company (DMC), has been continuing its efforts to develop new Heatless Splices and Ring Terminals. In addition, we have been working with Society of Automotive Engineers (SAE) to develop new SAE Aerospace Standards for these devices. The Heatless/Cold Applied Splice is designed to be an alternative for the conventional heat applied AS81824/1 splice. The Heatless Ring Terminal (AS7928/14) has also been developed. It is an environment resistant terminal, which is designed to be an alternative for the AS7928/4 Ring Terminal.

Heatless Splice – The SAE standard AS81824/12, details the requirements for this splice rated at 150°C, which does not require a heat gun to shrink the sealing sleeve. This splice 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. The splice is slightly larger than the current AS81824/1 but is a permanent splice which can be used anywhere that the AS81824/1 splice is used. The splice has taken about two years to develop as a result of challenging requirements. One by one the deficiencies were corrected and the design was perfected. Qualification testing is currently in process and expected to be completed by April '13.



Figure 1 – Cold Splice M81824/12-1, -2 and -3

Heatless Ring Terminal – A new SAE standard AS7928/14 details this heatless, environment resistant ring terminal rated at 150°C. This terminal does not require a heat gun to shrink the sealing sleeve. This ring terminal is a one

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piece terminal that uses the same crimp tool developed for the Heatless Splice. Similar to the Heatless Splice, environment resistance protection is provided by an encapsulated transparent cross-linked gel. The Ring Terminal is slightly larger than the current AS7928/4 but is a permanent terminal lug installation which can be used anywhere that the AS7928/4 terminal is used; in addition it provides environment resistance. Qualification testing will follow shortly behind the testing of the Heatless Splice and expected to be completed by June '13.



Figure 2- Heatless Terminal AS7928/14

New Crimp Tool – A new crimp tool was developed to crimp the Heatless Splice and Ring Terminal due to the increased crimping dimensions of the combined sleeve and metal splice. This new tool is unique in that it has a spring-loaded locator which will expand to compensate for outer sleeve elongation during crimping. The NAVAIR Wiring Team has worked closely with DMC to develop a crimp tool to meet these new requirements.



Figure 3- Crimp Tool M22520/44-1

The M22520/44-1 military part number was issued for the new crimp tool. NAVAIR, TE Connectivity and DMC, in cooperation with SAE are on the final steps to release the new AS22520/44 standard for the crimp

tool. The qualification of the new crimp tool to be used on both these described devices is ongoing at the same time, since they are used together.

The new crimp tool also incorporates a novel improvement which helps ensure that the stripped wire length is the correct length. On the side of the tool there are two notches which identify the correct wire range. Simply lay the wire end in the corresponding slot and trim to fit to length.



Figure 4- Crimp Tool Wire Strip Length Gauge

Inspection Differences-These two types of devices have additional inspection requirements, different than heat applied ones (see NA 01-1A-505-1, WP 014 00).

- Crimp barrel and insulation are not cracked.
- No bubbles visible in Gel (both sides).
- Gel overlaps wire insulation at least 3/16".
- Gap of up to 1/32 inch exists between crimp barrel and wire insulation.

Note: The terminal lug wire insertion is inspected from the transparent ring end to ensure visible wire.

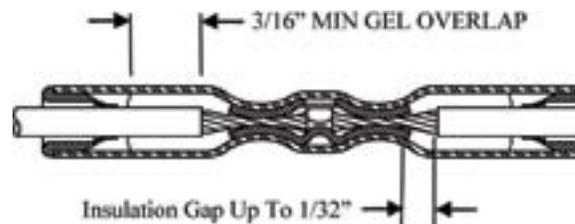


Figure 5- Heatless Splice Inspection

The revision to the Joint Service Wiring Maintenance Manual NA 01-1A-505-1/T.O. 1-1A-14/TM 1-1500-323-24-1 is complete and will provide authorization for their use on all military aircraft for wiring repairs. Its release is anticipated by Summer '13. For further questions on the topic, contact your JSWAG representative. 🛡️