



JSWAG Conferences/ Announcements

The next JSWAG/JFOWG Meeting is scheduled for March 26-29, 2012 in Virginia Beach, VA. Please visit <https://jswag.navair.navy.mil/> for more information.

Voting for the 2011 Lu Roberts award recipient has begun. Please visit <https://jswag.navair.navy.mil/> to place your vote. Voting will end March 15 so the winner can be announced at the 2012 Spring JSWAG/JFOWG meeting.

Other Conferences

- EA-6B MAG -- St. Augustine, FL
February 7-8, 2012
- Dixie Crow -- Warner Robins, GA
March 18-22, 2012
- Quad-A -- Nashville, TN
April 1-4, 2012
- AA&S -- Baltimore, MD
April 2-5, 2012
- AEA -- Washington, DC
April 3-6, 2012
- AIMS Conference --
Panama City Beach, FL
April 30-May 3, 2012
- AUVSI Unmanned Systems 2012 -- Las Vegas, NV
August 6-9, 2012
- DoD Maintenance Symposium & Exhibition -- Grand Rapids, MI
November 13-16, 2012

Newsletter Contacts

JSWAG Coordinator
jswag@navy.mil

Terminal Lug Update

The NAVAIR Wiring Systems Team (AIR-4.4.5.3 and 6.7.1.3), in cooperation with Society of Automotive Engineers (SAE) and the wiring community, have been working to resolve an issue with crimping the ring terminal bell-mouth and to develop a new standard for environmental resistant ring terminals.

JSWAG Action Chit: 467 - Reported an issue with the crimping of M7928/1 terminals with the M22520/5 and /10 crimp tools and associated M22520/5-100 and M22520/10-100 crimp dies. Three actions are being pursued for corrective action: (1) Clearly define the crimp of the terminal bell-mouth, (2) qualify MIL-C-22520/40 and /41 crimp tools, (3) add two commercially available adjustable dies to AS22520/5¹ and /10¹.

(1) Instructions – The SAE committee understood the need for the bell-mouth crimp to support the wire, but was unable to technically define how the belmouth crimp grips or deforms the wire insulation when it is crimped. The issue is in the inability to define the pressure of the bell-mouth grip against the wire insulation, or the amount of insulation deformation when the bell-mouth is crimped against the wire insulation (Fig: 1 and 2). The SAE committee and wiring community consensus resulted in SAE AS22520 crimp tool slash sheets being revised to include installation instructions. The installation and inspection instructions are being added to both the NA 01-1A-505-1 General Wiring Maintenance manual and to the Mil-Hdbk-522, EWIS Inspection.

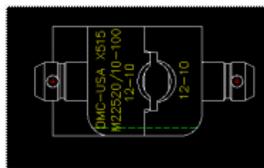


Figure 1 - M22520/5-100 Crimp Die



Figure 2 - Terminal Crimped with M22520/100 Die

(2) MIL-C-22520/40 and /41 Tool Qualification – Daniels Manufacturing Corporation (DMC) conducted an extensive analysis to compare crimped wire/terminal assemblies as per IPC/WHMA-A-620A standard. The analysis did not determine conformance to MIL-C-22520, but did

Terminal from page 1

demonstrate that MIL-C-22520/5 and /10 crimp dies do not properly crimp the terminal bell-mouth to support the wire insulation. The DMC analysis demonstrated that the MIL-C-22520/40 crimp tool did crimp the bell-mouth and adequately supported the wire insulation (Fig.3). The NAVAIR Qualified Products Activity conducted qualification testing of the MIL-C-22520/40 and /41 crimp tools (Fig. 4) and added them to the Qualified Products List.



Figure 3 - Terminal Crimped with M22520/40 Crimp Tool



Figure 4 - MIL-C-22520/40 Crimp Tool

(3) Proposed AS22520/5 Commercial Dies - NAVAIR forwarded a letter requesting SAE to establish a Task Group to add commercially available, adjustable dies to AS22520/5 and /10. The M22520/5 and /10 crimp tools have fixed, non-adjustable dies; they do not properly crimp the ring terminal bell-mouth to support the installed wire insulation. The DMC analysis also evaluated the M22520/5-100 and M22520/10-100 dies, which demonstrated that they do not properly crimp the terminal bell-mouth to support the wire insulation, while the adjustable dies do. The adjustable dies will be added to the AS22520/5, and /10 specification slash sheets (Fig: 5-10).

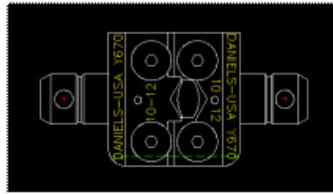


Figure 5 - DMC Y670 Die



Figure 6 - Terminal Crimped with DMC Y670 Crimp Die

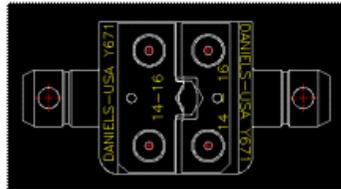


Figure 7 - DMC Y671 Die



Figure 8 - Terminal Crimped with DMC Y671 Crimp Die

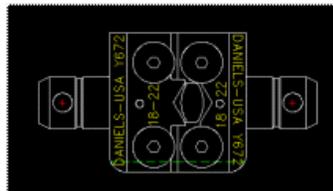


Figure 9 - DMC Y672 Die



Figure 10 - Terminal Crimped with DMC Y671 Crimp Die

Heatless Environment Resistant Ring Terminal – Currently available terminals are not environmental resistant; they are susceptible to water wicking inside the terminal resulting in corrosion and poor connections. Using the same technology employed in the heatless environmental splice (M81824/11), NAVAIR has been working with TE Connectivity to develop a heatless ring terminal. A new SAE standard AS7928/14 was published for a 150°C rated environmental resistant ring terminal. It does not require a heat gun to shrink the sealing sleeve. Simply strip the wire and crimp the terminal on to it. This terminal is a one piece design, which uses the same crimp tool (M22520/44-01) developed for the heatless splice. Environmental resistance protection is provided by an encapsulated transparent cross-linked gel. The terminal is slightly longer than the current AS7928/4, but is a permanent installation which can be installed anywhere that the AS7928/4 terminal can be used (Fig. 11).



Figure 11 – Heatless Terminal AS7928/14

¹ **NOTE:** MIL-C-22520 is in the process of being converted to an SAE standard AS22520. AS22520 and some of the slash sheets have been published, but they have not been adopted by DoD at this time. 