

FED. SUP CLASS
MISC

1. Purpose: The purpose of this Military Standard is to define the additional design, technical, and performance requirements for implementing the Integrated Wire Termination System (IWTS) to any electrical component. This standard is not complete in itself, but is an addition to the basic component specification. This design standard excludes the Terminal Junction System (TJS) of MIL-T-81714, which covers TJS modules and splices. Based on commonality and standardization, TJS and IWTS may be referred to interchangeably. The following paragraphs contain alternate means of implementation of IWTS. To determine the best means for a specific component, the cognizant component engineer should be contacted as follows: Hq AFPLC (Attn: MMGE), Wright-Patterson AFB, Ohio 45433.

2. Contact: The qualified contact shall be selected from Table I.

Table I Contact and Wire Data

MIL Part No. and Specifications	Color Code 1/ (Contact & Tools)	Contact & Crimp Barrel Size (Max AWG)	Wire Size Accommodated (A.W.G.)	Insulation (O.D.) Max.	Outside Diam. Range Min.	Insertion & Extraction Tools
MIL-C-39029 (Pins)						MIL-C-83723/2 (USAF)
M39029-01-12	Yellow	12	12 & 14	.158	.106	-12
M39029-01-16	Blue	16	16, 18 & 20	.163	.098	-16
M39029-01-24	Red	20	20, 22 & 24	.183	.040	-20
MIL-C-38999(USAF) (Sockets)						
MS27492-12	Yellow	12	12 & 14	.158	.106	-12
MS27492-16	Blue	16	16, 18 & 20	.163	.098	-16
MS27492-20	Red	20	20, 22 & 24	.183	.040	-20 & MS2759A 5" R
MS27492-22D	Green	22	22, 24, 26 & 28	.060	.040	-22D

1/ Insertion tool tip color only; all extraction tool tips are white.
2/ A - Insertion tool and R - extraction tool.

3. Mechanical Design and Performance Requirements:

a. Wire Accommodations. The contact crimp barrel is designed to function with wire sizes defined in Table I. When crimped to wire, using a qualified crimp tool per MIL-C-83724(USAF), the crimped joint shall be capable of passing the tensile test requirements of MIL-C-83724(USAF). The seal grommet, when used, shall demonstrate sealing capability on wire insulation O. D. range as defined in Table I. (See paragraph 5).

b. Contact Insertion and Removal Forces. When using tools specified in Table I, the insertion and removal forces specified in Table II shall not be exceeded.

Table II Contact Insertion and Removal Forces

Contact Size	Max Force in lbs.	
	Insertion	Removal
12	15	15
16	15	10
20	10	10
22	5	5

c. Component Terminal Strength. The crimped wired contact shall be inserted and removed from the electrical component 10 times, using the appropriate tool(s) per Table I. The crimped contact shall again be inserted and tensile tested to 75% of the tensile values given in MIL-C-83724(USAF), for the appropriate wire and contact size combination. After preloading of the wired contact to 2 pounds, the tensile force shall be applied at the rate of 1 pound per second, approximately, until the specified load is reached. The specified load shall be maintained for a minimum of 10 sec, and the contact shall not move more than .010" from its preloaded position.

d. Component Socket Probe Damage. The component sockets shall be tested for probe damage, in accordance with the procedure of MIL-C-39029. Bending moments shall be in accordance with MIL-C-39029 based on contact size. The probe shall be of the maximum diameter accommodated by the socket spring member. The probe shall be inserted into the socket spring area, and the pressure member shall be stressed by one rotation of the component. (See MIL-C-81511 for further data).

e. Color Coding. The contact holes on the electrical component may be color coded on the grommet support per the appropriate colors of Table I. The grommet support may be marked to indicate internal circuitry, or such circuitry shall be controlled by the basic specification.

4. Electrical Performance: The electrical parameters shall not be degraded for a component when IWTS is to be added. If component electrical measurements must include a length of test wire, this wire resistance shall be deducted from the measured values, so the original test wires can be used as the IWTS criteria.

5. Environmental Performance: When IWTS is added to an electrical component to obtain complete environmental sealing, a wire sealing grommet shall be provided as an integral part of the component.

a. Wire Seal. The grommet shall be designed with a minimum of two seals per wire and shall be capable of sealing on the O.D. range specified in Table I, when tested to the primary component specification.

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PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE

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This military standard is approved by the Air Force Logistics Command (85) Department of the Air Force and shall be used by that activity. All other military activities are required to employ this standard where suitable.

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