



AEROSPACE STANDARD	AS7928™	REV. C
	Issued 1999-06 Revised 2019-05	
	Superseding AS7928B	
(R) Terminals, Lug: Splices, Conductor: Crimp Style, Copper, General Specification for		
FSC 5940		

RATIONALE

A total revision is required to address Nickel finish terminals, temperature cycle, references, identification marking, and minor technical changes as needed.

1. SCOPE

1.1 Scope

AS7928 includes insulated and uninsulated crimp-style copper lug terminals and conductor splices for stranded conductors.

1.2 Classification

Terminals and conductor splices covered by AS7928 shall be of the following types and classes, as specified (see 6.3):

Type I - Uninsulated

Type II - Insulated

Class 1 - Terminal and conductor splice which conform to all of the requirements of AS7928 when installed with the Class 1 crimping tool or crimping dies shown on the applicable detail specification (see 2.3).

Class 2 - Terminal and conductor splice which conform to the material and marking requirements of AS7928 are replaceable by Class 1 terminal or conductor splice, and conform to the performance requirements of AS7928 when crimped with a Class 2 tool having crimping dies and motion conforming to manufacturer's (supplier) control drawing required by 3.6 (see 2.3 and 6.1.5).

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2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of the other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS1424	Fluid, Aircraft Deicing/Anti-Icing Fluid, Aircraft, SAE Type I
AMS2403	Plating, Nickel General Purpose
AMS2404	Plating, Electroless Nickel
AIR1351	Manufacturers' Identification of Aerospace Electrical and Electronic Wiring Devices and Accessories
ARP6807	Guide for Identification of Terminal Lugs in Electrical Wiring Interconnect Systems (EWIS)
ARP9013	Statistical Product Acceptance Requirements
AS1241	Fire Resistant Phosphate Ester Hydraulic Fluid for Aircraft
AS7928/1*	Terminals, Lug and Splices, Conductor, Crimp Style, Copper Terminal, Lug, Crimp Style, Copper, Insulated, Ring Tongue, for Thin Wall Wire, Type II Class 1 for 105 °C Total Conductor Temperature
AS7928/2*	Terminals, Lug and Splices, Conductor, Crimp Style, Copper, Insulated, Rectangular Tongue, for Thin Wall Wire, Type II, Class 1 for 105 °C Total Conductor Temperature
AS7928/4*	Terminals, Lug and Splices, Conductor, Crimp Style, Copper Terminal, Lug, Insulated, Ring Tongue, Bell-Mouthed, Type II, Class 1 (for 150 °C Total Conductor Temperature)
AS7928/5*	Terminals, Lug and Splices, Conductor, Crimp Style, Splice, Electric (Permanent, Type II, Class 1) for 105 °C Total Conductor Temperature
AS7928/6*	Terminals, Lug and Splices, Conductor, Crimp Style, Splice, Electric (Permanent, Type II, Class 1) for 150 °C Total Conductor Temperature
AS7928/7*	Terminal Lug and Splices, Conductor, Crimp Style, Copper, Terminal Lug, Crimp Style, Copper, Uninsulated, Ring Tongue Type I, Class 1 for 175 °C Total Conductor Temperature
AS7928/8*	Terminals, Lug And Splices, Conductor, Crimp Style, Copper Terminal, Lug, Crimp Style, Copper, Insulated, Ring Tongue, For Thin Wall Wire, Tin Whisker Resistant, Type II Class 1 For 105 °C Total Conductor Temperature
AS7928/9*	Terminals, Lug And Splices, Conductor, Crimp Style, Copper, Insulated, Rectangular Tongue, Tin Whisker Resistant For Thin Wall Wire, Type II, Class 1 For 105 °C Total Conductor Temperature
AS7928/10*	Terminals, Lug And Splices, Conductor, Crimp Style, Splice, Electric, Tin Whisker Resistant, Type II, Class 1) For 105 °C Total Conductor Temperature

AS7928/11*	Terminal, Lug, Crimp Style, Copper, Uninsulated, Ring Tongue, Tin Whisker Resistant, Type I, Class I, For 175 °C Total Conductor Temperature
AS7928/12*	Terminal, Lug, Crimp Style, Copper, Insulated, Ring Tongue, Bell-Mouthed, Tin Whisker Resistant, Type II, Class 1, (For 105 °C Total Conductor Temperature)
AS7928/13*	Terminals, Lug And Splices, Conductor, Crimp Style, Copper Terminal, Lug, Insulated, Tin Whisker Resistant, Ring Tongue, Bell-Mouthed, Type II, Class 1 (For 105 °C Total Conductor Temperature)
AS7928/14*	Terminal, Electric, Permanent, Crimp Style, In-Coated Copper, Insulated, Environment Resistant, Class 1, 150 °C, Heatless Sealing
AS7928/15*	Terminal, Lug, Uninsulated, Flag Type, Crimp Style, Copper, Size 22-10, Class I
AS17143*	Terminal, Lug, Crimp Style, Copper, Insulated, Rectangular Tongue, Type II, Class 1 for 105 °C Total Conductor Temperature
AS20659*	Terminal, Lug, Crimp Style, Copper, Uninsulated, Ring Tongue, Type I, Class 1, for 175 °C or 260 °C Total Conductor Temperature
AS21004*	Terminal, Lug, Uninsulated, Rectangular Tongue, Crimp Style, Copper, Type I, Class 1 for 175 °C Total Conductor Temperature
AS25036*	Terminal, Lug, Crimp Style, Copper, Insulated, Ring Tongue, Bell-Mouthed, Type II, Class 1 (for 105 °C Total Conductor Temperature)
AS25189*	Terminal, Lug, Crimp Style, Copper, Uninsulated, Flag Tongue, Sizes 8-0000, Type I, Class I, for 150 °C Total Conductor Temperature
AS25274*	Cap, Electrical (Wire End, Crimp Style, Type II, Class 1) for 105 °C Total Conductor Temperature
AS29606	Wire, Electrical, Stranded, Uninsulated Copper, Copper Alloy, or Aluminum, or Thermocouple Extension, General Specification For
AS50881	Wiring Aerospace Vehicle
GEIA-STD-0005-2	Standard For Mitigating The Effects Of Tin Whiskers In Aerospace And High Performance Electronic Systems

* AS7928 detail specification

2.1.2 U.S. Government Publications

Copies of these documents are available online at <https://quicksearch.dla.mil>.

FED-STD-H28	Screw-Threads Standards for Federal Services
MIL-HDBK-454	General Guidelines for Electronic Equipment
MIL-DTL-5624	Turbine Fuel, Aviation, Grades JP-4 and JP-5
MIL-DTL-83133	Turbine Fuels, Aviation, Kerosene Types, NATO F-34 (JP-8), NATO F-34, and JP-8+100 (NATO F-37)
MIL-PRF-7808	Lubricating Oil, Aircraft Turbine Engine, Synthetic Base

MIL-PRF-87257	Hydraulic Fluid, Fire Resistant; Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile
MIL-STD-202	Test Methods for Electronic and Electrical Component Parts
MIL-STD-810	Environmental Engineering Considerations and Laboratory Tests
MIL-STD-1916	DoD Preferred Methods for Acceptance of Products
MIL-STD-2073-1	Standard Practice for Military Packaging
PPP-B-585	Boxes, Wood, Wire bound
PPP-B-676	Boxes, Setup
SAM	System Awards Management*
SD-6	Provisions Governing Qualification

* Available from <https://www.sam.gov/portal/public/SAM/>.

2.2 Other Publications

2.2.1 ASQ Publications

Available from American Society for Quality, 600 North Plankinton Avenue, Milwaukee, WI 53203, Tel: 800-248-1946 (United States or Canada), 001-800-514-1564 (Mexico) or +1-414-272-8575 (all other locations), www.asq.org.

ANSI/ASQC Z1.4	Sampling Procedures and Tables for Inspection by Attributes
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2.2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM B75/B75M	Seamless Copper Tube
ASTM B152/B152M	Copper Sheet, Strip, Plate and Rolled Bar
ASTM B187/187M	Standard Specification for Copper, Bus Bar, Rod, and Shapes and General Purpose Rod187
ASTM B188	Copper Bus Pipe and Tube, Seamless, Standard Specification for
ASTM B272	Copper Flat Products with Finished (Rolled or Drawn) Edges (Flat Wire and Strip)
ASTM B339	Pig Tin
ASTM B545	Electrodeposited Coatings of Tin
ASTM D770	Standard Specification for Isopropyl Alcohol
ASTM D1974/1974M	Fiberboard Boxes, Methods for Closing, Sealing and Reinforcing
ASTM D3951	Package, Commercial
ASTM D3953	Steel and Seals, Flat, Strapping
ASTM D5118	Boxes, Fiberboard Shipping, Fabrication of

ASTM D5118M

ASTM D5486/D5486M Standard Specification for Pressure-Sensitive Tape for Package, Box Closure, and Sealing

ASTM D6251/D6251M Natural Wood-Cleated Panelboard Shipping Boxes

2.2.3 National Conference of Standards Laboratories (NCSL) Publications

Available from NCSL International, 2995 Wilderness Place, Suite 107, Boulder, CO 80301, Tel: 303-440-3339, www.ncsli.org.

NCSL Z540-3 Calibration of Measuring and Test Equipment, Requirements for

2.3 Definitions

CRITICAL DEFECTS: A critical defect is a defect that judgment and experience indicates would result in hazardous or unsafe conditions for individuals using, maintaining, or depending upon the product, or a defect that judgment and experience indicate is likely to prevent performance of the actual function of a major end item such as a ship, aircraft, tank, missile, or space vehicle.

DEFECTS: A defect is any nonconformance of the unit or product with specified requirements.

MAJOR DEFECT: A major defect is a defect, other than critical, that is likely to result in failure, or to reduce the usability of the unit or product for its intended purpose.

MINOR DEFECT: A minor defect is a defect that is not likely to reduce materially the usability or the unit of product for its intended purpose, or is a departure from established standards having little bearing on the effective use or operation of the unit.

QUALIFICATION INSPECTION: Qualification Inspection is a process that demonstrates that a component is capable of fully conforming to all the requirements defined in a standard. Qualification Inspection includes definition of the measurements, tests, analysis, and associated data which provides consistent rationale for acceptance of a particular supplier's design as meeting the standard requirements typically prior to acquisition by the purchaser.

QUALIFIED PRODUCTS LIST: A Qualified Products List is a list of suppliers whose products have been evaluated to a defined process and who are authorized to provide those products to a purchaser upon request. When a Qualified Products List is specified only approved suppliers are authorized to provide products under the part number defined in the component standard. A Qualified Products List is established and maintained by a Qualifying Activity.

QUALIFYING ACTIVITY: A Qualifying Activity is a function established by a purchaser or group of purchasers that has a defined process used to consistently evaluate all suppliers' products in accordance with the component standard.

QUALITY CONFORMANCE INSPECTION: Quality Conformance Inspection is a process which includes measurements, non-destructive tests, analysis, and associated data that will provide verification that a particular individual component continually conforms to the requirements defined in the standard.

QUALIFICATION BY SIMILARITY: An alternative Qualification Inspection process accomplished without completing all of the measurements, tests, and analysis requirements defined in the standard. Acceptance and the extent of similarity, is determined by the qualifying activity, and is established through rationale that verifies that certain design features are identical to those being required to be tested or of a previously qualified component to the extent necessary to assure that the component, if tested, would meet all of the required criteria. When a Qualified Products List is being established the qualification by similarity rationale shall be approved by the purchaser or qualifying activity prior to initiation of the remaining portions of the Qualification Inspection process.

PURCHASER: A purchaser is an activity that can issue a purchase order or contract.

SUPPLIER (MANUFACTURER): A supplier or manufacturer is a register CAGE company that has design and production control of the processes used to produce the final component in accordance with the standard.

WIRE: An AS29606 conductor insulated with an electrical resistant material.

TIN WHISKERS: Tin whiskers are electrically conductive, crystalline structures of tin that sometimes grow in excess of 10 mm from the surfaces where in tin (especially electroplated tin) is used as a final finish (see 6.1.12).

CAGE: Commercial and Government Entity for U. S. Government Manufacturer identification assigned number.

SAM: System for Award Management for U.S. Military qualified components

CLASS 1 TOOL: A tool defined by a commercial or military standard that is maintained by a Commercial Activity (SAE, NEMA, UL, etc.) or a Government Agency (DLA, Navy, Army, etc.) and is specified in the AS7928 detail specification for crimping a Class 1 (see 1.2) terminal and conductor splice (see 6.1.5.2).

CLASS 2 TOOL: A tool defined by a manufacturer (supplier) control drawing that is maintained by the supplier and is designed to crimp a Class 2 (see 1.2 and 3.6) terminal and conductor splice (see 6.1.6.2).

3. REQUIREMENTS

3.1 Detail Specification (see 2.1)

The product requirements shall be as specified herein and in accordance with the applicable detail specification. In the event of any conflict between the requirements of AS7928 and the detail specification, the latter shall govern.

3.2 Qualification

The lug terminals and conductor splices furnished under AS7928 shall be products that have been tested and have passed the qualification tests specified herein and have been listed on or approved for listing on the applicable Qualified Products List (see 4.5 and 6.3). M7928 part numbers listed in the detail specification can only be used by a supplier qualified by the qualifying activity. A supplier that is no longer qualified may only use the part number for an AS7928 component for a purchase order, if the supplier was qualified by the qualifying activity at the time when the purchase order was approved by the purchaser.

3.3 Material (see 4.5.7)

The material shall be as specified herein. However, when a material not specified is used, it shall be such that the lug terminals and conductor splices conform to the performance requirements of AS7928. Some materials have application restrictions (see 6.1.12). Acceptance or approval of any constituent material shall not be construed as a guaranty of the acceptance of the finished product. When equivalent material is specified, the alternate materials shall be approved by the activity responsible for qualification (see 6.3).

3.3.1.1 Metals

The lug terminals and conductor splices shall be fabricated from copper conforming to ASTM B187, ASTM B188, ASTM B272, ASTM B152, and ASTM B75 or as specified on the applicable detail specification.

3.3.2 Insulation Material

The insulation material shall be permanently colored thermoplastic or as specified on the applicable detail specification. Conductor splices need not be totally colored, but a permanent identifying color shall be clearly distinguishable on some portion of the splice (see 3.7). The insulation material shall be noncorrosive, resistant to abrasion and fungus, and shall be flame resistant (see 3.5.10). Polyvinyl Chloride (PVC) is not permitted.

3.3.3 Fungus-Resistant Material

Only fungus-resistant material shall be used. The manufacturer shall submit certification to this effect for qualification approval. The material shall meet Grade 0 or 1 or guidelines of Table 508-I of MIL-STD-810 Method 508 or equivalent. The certification shall be included in the manufacturer's certified test report to the activity responsible for qualification (see 4.5.2.1)

3.4 Design and Construction

Lug terminals and conductor splices shall conform in all respects to the design, dimensions, and construction specified herein and on the applicable detail specification. Each terminal size shall be designed for attachment to wire sizes specified on the applicable detail specification by having the terminal receiving barrel reshaped around the conductor. For Class 1 terminals and conductor splices, it shall be possible to perform the reshaping operation by means of a Class 1 crimping tool or crimping dies conforming to the applicable detail specification. For Class 2 terminals and conductor splices, it shall be possible to perform this reshaping operation by means of Class 2 tooling detailed on the manufacturer's control drawings. Terminals and conductor splices shall exhibit no evidence of fracturing or spalling as a result of the reshaping operation. Wire insertion shall be facilitated by bell mouth or chamfer of wire barrel. There shall be no protruding sharp edges of the terminal or conductor splice when reshaping the crimp barrel to the contour of the wire during or after the crimping operation.

3.4.1 Insulated Conductor Type (Wire)

Terminals and splices specified herein shall be designed to crimp only on conductor sizes made in accordance with AS29606. The Class 1 lug terminal and conductor splice shall be designed for attachment to the wire using the specified Class 1 tool specified in the applicable detail specification. The Class 2 lug terminal and conductor splice shall be designed for attachment to the wire using the supplier's controlled Class 2 tool. The terminal or splice may accommodate American Wire Gage sizes, but the performance of the terminal or splice may not meet all requirements of AS7928.

3.4.2 Mounting Holes

The tongue of each size lug terminal shall be designed for attachment to the stud size specified in Table 1 or the detail specification. The diameter of the clearance hole for each stud size is listed in Table 1 or on the applicable detail specification.

Table 1 - Clearance hole (reference)

Stud Size ^{1/}	Clearance Hole Diameter		Clearance Hole (Reference)					
	Minimum	Maximum	Inch	mm	Inch	mm	Inch	mm
2 (0.086)	0.090	0.098	0.086	2.18	0.190	4.83	0.437	11.10
4 (0.112)	0.114	0.122	0.090	2.29	0.193	4.90	0.448	11.38
5 (0.125)	0.129	0.137	0.098	2.49	0.203	5.16	0.463	11.76
6 (0.138)	0.142	0.152	0.112	2.84	0.216	5.49	0.500	12.70
8 (0.164)	0.168	0.178	0.114	2.90	0.220	5.59	0.510	12.95
10 (0.190)	0.193	0.203	0.122	3.10	0.236	5.99	0.525	13.34
12 (0.216)	0.220	0.236	0.125	3.18	0.250	6.35	0.625	15.88
1/4 (0.250)	0.260	0.275	0.129	3.28	0.260	6.60	0.651	16.54
5/16 (0.312)	0.323	0.338	0.137	3.48	0.275	6.99	0.666	16.92
3/8 (0.375)	0.385	0.400	0.138	3.51	0.312	7.92	0.750	19.05
7/16 (0.437)	0.448	0.463	0.142	3.61	0.323	8.20	0.770	19.56
1/2 (0.500)	0.510	0.525	0.152	3.86	0.338	8.59	0.785	19.94
5/8 (0.625)	0.651	0.666	0.164	4.17	0.375	9.53	0.875	22.23
3/4 (0.750)	0.770	0.785	0.168	4.27	0.385	9.78	0.895	22.73
7/8 (0.875)	0.895	0.910	0.178	4.52	0.400	10.16	0.910	23.11

^{1/} Stud size in accordance with FED-STD-H28. Metric equivalents (to the nearest 0.01 mm) are given for general information only and are based upon 1 inch to 25.4 mm.

3.4.3 Wire Insulation Support

When conductor insulation supports are specified on the applicable detail specification, the insulation supports shall encompass the wire and which, if deformed by the crimping tool, is not required to grip the wire insulation.

3.4.4 Terminal or Splice Insulation

Polyvinyl chloride (PVC) insulation is restricted on any aerospace vehicles by AS50881 (see individual detail specification). Insulated (Type II) lug terminals and conductor splices shall be insulated over the entire outer surface of the barrel and wire insulation support. The insulation, and metal sleeve if used, shall remain in its original position on the barrel of the terminal or conductor splice before and after crimping except as specified in 3.5.5. The insulation shall exhibit no evidence of fracturing or spalling as a result of the reshaping operation.

3.4.5 Finish

Unless otherwise specified (see 3.1), lug terminals and conductor splices shall have conducting parts tin plated over their entire surface in accordance with ASTM B545 and ASTM B339 (see 6.1.11), tin whisker resistant plating in accordance with ASTM B545 and ASTM B339 with a minimum co-disposition of 3% by weight of lead (see 6.1.12), or nickel plated over the entire surface in accordance with AMS2403 or AMS2404. Bare copper exposed at slug-out points on lug terminals, in strip form, shall not in itself be cause for rejection. The slug-out points shall not exceed 1/8 inch in width. Mercury shall not be used in the manufacture of these terminals.

3.5 Performance Requirements

The lug terminals and conductor splices shall conform to the following requirements, when crimped to each of the specified wire sizes with the applicable tool or crimping dies specified in the detail specification. The specified performance of the terminals and splices is premised that nicked or broken strands of the conductor are in accordance with AS50881.

3.5.1 Voltage Drop

When tested as specified in 4.7.2, the millivolt drop of the lug terminal or conductor splice shall not exceed the millivolt drop of an equivalent length of wire by more than the value specified in Table 2.

3.5.2 Current Cycling

When tested as specified in 4.7.3, the voltage drop (see 3.5.1) shall be as specified in the applicable columns of Table 2 under "after test."

3.5.3 Dielectric Withstanding Voltage (Type II)

When tested as specified in 4.7.4, insulated lug terminals and conductor splices shall show no evidence of damage, arcing, or breakdown.

3.5.4 Salt Spray (Corrosion)

When tested as specified in 4.7.5, lug terminals and conductor splices shall show no evidence of exposure of the base metal or blistering of the plated surfaces. After salt spray, the voltage drop and tensile strength shall be as specified in Table 2 or Table 3 as applicable. For voltage drop, the "after test" requirement shall apply.

3.5.5 Axial Load

3.5.5.1 Axial Load (Type I, Multiple Piece Construction, Crimped, and Uncrimped Specimens)

On multiple piece construction, the metal sleeve on uncrimped lug terminals shall withstand a minimum axial force of 8 pounds and shall not move more than 1/32 inch on the barrel of the lug terminal. The metal sleeve on a crimped lug terminal shall withstand a minimum axial force of 8 pounds (see 4.7.6.1 and 4.7.6.2).

3.5.5.2 Axial Load (Type II, Crimped and Uncrimped Specimens)

The insulation, and metal sleeve if used, on uncrimped lug terminals or conductor splices shall withstand a minimum axial force of 8 pounds and shall not move more than 1/32 inch on the barrel of the lug terminal or conductor splice. The insulation, and metal sleeve if used, on a crimped lug terminal or conductor splice shall withstand a minimum axial force of 8 pounds and shall meet the dielectric withstanding voltage requirement specified in 3.5.3 (see 4.7.6.3 and 4.7.6.4).

Table 2 - Performance requirements for tin- and nickel-plated lugs and splices

Wire Size (Nominal AWG)	Test Current (Amperes) A	Maximum Voltage Drop (mV) - Millivolt Drop of Equivalent Length of Wire Plus Appropriate Value Below								Tensile Strength lb.	
		Initial Value				After Test				(min)	
		Lug		Splice		Lug		Splice		Lug/Splice	Lug
		Conductor Coating		Conductor Coating		Conductor Coating		Conductor Coating		Conductor Coating	Conductor Coating
		Tin or Silver	Nickel <u>1/</u>	Tin or Silver	Nickel <u>1/</u>	Tin or Silver	Nickel <u>1/</u>	Tin or Silver	Nickel	Tin or Silver	Nickel <u>1/</u>
26	3	3	5	6	-	5	8	10	-	7	5
24	4.5	2	5	4	-	4	8	8	-	10	7
22	9	1	5	2	-	3	8	6	-	15	11
20	11	1	5	2	-	3	8	6	-	19	13
18	16	1	5	2	-	3	8	6	-	38	27
16	22	1	5	2	-	3	8	6	-	50	35
14	32	1	5	2	-	3	8	6	8	70	49
12	41	1	5	2	-	3	8	6	-	110	77
10	55	1	5	2	-	3	8	6	-	150	105
8	73	1	5	2	-	3	8	6	-	225	158
6	101	1	5	2	-	3	8	6	-	300	210
4	135	1	2	2	-	3	4	6	-	400	300
2	181	1	2	2	-	3	4	6	-	550	440
1	211	1	2	2	-	3	4	6	-	650	585
0	245	2	2	4	-	4	4	8	-	700	700
00	283	2	2	4	-	4	4	8	-	750	750
000	328	2	2	4	-	4	4	8	-	825	825
0000	380	2	2	4	-	4	8	8	-	875	875

1/ Tin, Silver, and Nickel coated copper conductors Types TCC, SCC, and NCC respectively in accordance with AS29606.

3.5.6 Vibration

When tested as specified in 4.7.7.1 or 4.7.7.2, there shall be no evidence of cracking, breaking, or loosening of parts. After vibration, the voltage drop shall not exceed the “after test” values specified in Table 2, and tensile strength shall be not less than the values specified in Table 2 or Table 3, as applicable.

3.5.7 Tensile Strength

When tested as specified in 4.7.8, lug terminals and conductor splices shall not break or separate from the wire to which it is terminated before the minimum tensile strength specified in Table 2 or Table 3, as applicable, is reached.

3.5.7.1 Additional Tensile Strength Requirements

Table 3 tensile strength requirements shall apply only to the AS17143 and AS21004 detail specifications:

Table 3 - Tensile strength requirements

Wire Size AWG <u>1/</u>	Navy Cable Size (AN Type)	Tensile Strength lb. (min)
22-18	1 (1)	15
	1 (7)	16
	1 (10)	15
	1-1/2 (1)	24
	1-1/2 (7)	
	1-1/2 (16)	23
	1-1/2 (41)	24
	2 (7)	
16-14	2-1/2 (1)	40
	2-1/2 (19)	38
	2-1/2 (26)	41
	3 (7)	43
	4 (1)	50
	4 (19)	
	4 (7)	
	4 (41)	
12-10	6 (7)	60
	6 (19)	
	9 (7)	100
	9 (37)	

1/ American Wire Gage Size (see 6.1.14)

3.5.8 Immersion (Type II)

After testing as specified in 4.7.9.1 or 4.7.9.2, lug terminals and conductor splices shall withstand the dielectric withstanding voltage test (see 4.7.4).

3.5.9 Heat Aging

3.5.9.1 Heat Aging (Type II)

After testing as specified in 4.7.10.1, 4.7.10.2, or 4.7.10.3 lug terminals and conductor splices shall meet the dielectric withstanding voltage requirements specified in 3.5.3. Discoloration of the insulation material during this test shall not be cause for rejection. The plating color identification band, dash, or dot will be maintained after all heat tests. Slight discoloration of the color identification will not be cause for rejection.

3.5.9.2 Heat Aging (Type I)

After testing as specified in 4.7.10.4 or 4.7.10.5, lug terminals shall meet the requirements of 3.5.4.

3.5.10 Flammability (Type II)

When tested as specified in 4.7.11, lug terminal and splice insulation shall be self-extinguishing within 30 seconds after removal from flame.

3.5.11 Low-Temperature Crimp (Type II)

When tested as specified in 4.7.12, insulated lug terminals and splices shall show no evidence of rupture or cracking and shall withstand the dielectric withstanding voltage test (see 4.7.4).

3.5.12 Temperature Cycle (Type I and II)

When tested as specified in 4.7.13, Type I terminals and conductor splices shall meet the requirements in 3.5.1 and 3.5.7. Type II lug terminals and conductor splices shall meet the requirements in 3.5.1, 3.5.3, and 3.5.7.

3.6 Manufacturer's Control Drawing

The terminal manufacturer (supplier) shall prepare a control drawing for Class 2 crimping dies used to crimp Class 2 terminals and conductor splices for the applicable tests. The control drawing shall specify the critical dimensions and motion of the dies and shall also specify the acceptance and in-service gauging requirements. The terminal manufacturer shall certify to the equipment manufacturer that the equipment manufacturer's dies are in accordance with the control drawing and shall furnish to the equipment manufacturer the acceptance and in-service gauging requirements (see 4.5.2.1).

3.7 Identification of Product

AS7928 terminals and splices can be identified by using the process specified in ARP6807 (see 6.1.13).

3.7.1 Wire Size Number Identification

Terminals, and conductor splices for wire sizes 22 and larger shall have the wire size, or range of wire sizes molded or stamped on the part when specified in the detail specification.

3.7.2 Manufacturer's Trademark

The manufacturer's trademark shall be legibly molded or stamped on the part and recorded in AIR1351.

3.7.3 Terminal and Splices Plating Color Identification

3.7.3.1 Tin plated terminals and splices have no color identification

3.7.3.2 Tin plated whisker resistant terminals and splices are identified by a blue color ink mark. Nickel plated terminals and splices are identified by a green color ink mark.

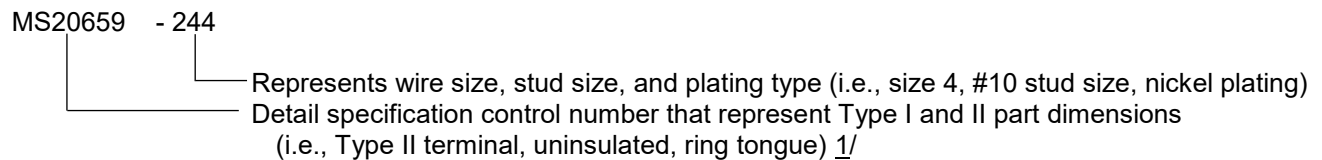
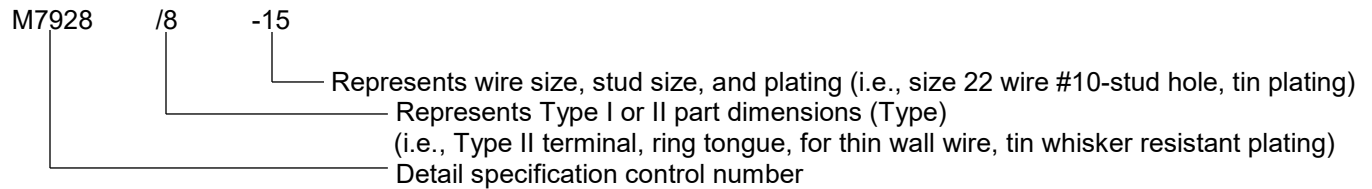
- a. The Type I terminal ink marking shall be a color band located circumferentially on the barrel near the end with the inspection hole. The band is to be 0.06 inch wide minimum and shall wrap around the barrel a minimum of 150 degrees.
- b. The Type II terminal color mark shall be a dash or dot located on the tongue as specified in the detail specification.
- c. The Type II splice color mark shall be a color band located circumferentially on the barrel near the end. The band is to be .06 inch wide minimum and shall wrap around the barrel a minimum of 150 degrees.

3.7.4 Type II Terminal and Splices Wire Size Color Identification

Type II terminal and conductor splice sleeves shall be color coded in accordance with the applicable detail specification for wire size or wire size range identification purposes.

3.7.5 Part Identification Number

Type I and II terminals and splices part identification numbers crimped with Class 1 tool shall be as follows:



1/ "MS" part numbers were maintained from the canceled U.S. Military Standards (MS). All future detail specifications shall use the "M" control number.

Type I and II terminals and splices crimped with Class 2 tools can have the same part identification number as a part crimped with Class 1 tool provided the Class 2 tool crimped part can be directly replaced (size, color, etc.) with a Class 1 tool crimped part (see 2.1).

3.8 Workmanship

Lug terminals and conductor splices shall be free from burrs, sharp edges, blistering, pitting or peeling of plating, cracks, and other defects which may affect serviceability.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection

Unless otherwise specified in the contract or purchase order, the manufacturer is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, the manufacturer may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the activity responsible for qualification. The purchaser reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for Compliance

All items must meet all technical requirements of the product standard. The inspection set forth in this standard shall become a part of the supplier's overall inspection system or quality program. The absence of any inspection requirements in the standard shall not relieve the supplier of the responsibility of assuring that all products comply with all requirements of the contract or purchase order. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the purchaser to acceptance of defective material.

4.1.2 Test Equipment and Inspection Facilities

Test and measuring equipment and inspection facilities of sufficient accuracy, quality and quantity to permit performance of the required inspection shall be established and maintained by the supplier. The establishment and maintenance of a calibration system to control the accuracy of the measuring and test equipment shall be in accordance with NCSL Z540-3 or equivalent standards.