

MILITARY SPECIFICATION

CONNECTORS, ELECTRICAL, MINIATURE, COAXIAL ENVIRONMENT
RESISTANT TYPE, GENERAL SPECIFICATION FOR

This amendment forms a part of MIL-C-25516D, dated 19 May 1980,
and is approved for use by all Departments and Agencies of the
Department of Defense.

PAGE 9

3.6.5, delete and substitute:

"3.6.5 Contact engagement and separation forces. When tested in accordance with 4.7.6, the forces required to insert and withdraw the specified pin shall be initially 18 ounces maximum and 0.7 ounce minimum. After conditioning, the maximum engagement force shall be 22 ounces and minimum separation force shall be 0.6 ounce."

PAGE 12

4.5.4, first sentence: Delete "12 month intervals" and substitute "24 month intervals".

4.5.5, delete and substitute:

"4.5.5 Qualification of additional polarities. Qualification may be granted for all polarities of one series, class, and type of connectors, provided connector samples of each of the four bayonet configurations have passed the tests in table VI in a different series, class, or type."

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* 4.6.3.1.1, delete and substitute:

"4.6.3.1.1 Sampling plan. Sample units of the same part number, representative of production at the time of selection shall be selected at six-month intervals for one year. Upon passing this inspection, the contractor may select sample units every 24 months. If the second level of sampling is passed 2 successive times, the contractor may select sample units every 36 months. In the event of a failure, sampling shall revert to the six-month interval."

* The attached insertable replacement pages listed below are replacements for stipulated pages. When the new pages have been entered in the document, insert the amendment as the cover sheet to the specification.

<u>Replacement page</u>	<u>Page replaced</u>
5	Reprinted without change
6	6
25	25
26	26
27	27

4.7.6, delete and substitute:

"4.7.6 Contact engagement and separation forces. When tested in accordance with method 2014 of MIL-STD-1344, the force levels shall comply with 3.6.5. A 0.0390 +.0000, -.0001 inch diameter pin shall be inserted and removed from each socket contact. The engagement forces shall be measured during insertion. A 0.0370 +.0001, -.0000 inch diameter pin shall be inserted and removed from each contact and the separation force shall be measured during removal. Except as noted herein the pins shall conform to MS3197. The insertion depth shall be 0.125 inch minimum."

4.7.11.1, after 30 pounds Add "or 90 percent of breaking strength of cable, whichever is less,".

4.7.11.3, after 30 pounds: Add "or 90 percent of breaking strength of cable, whichever is less,".

The margins of this amendment are marked with asterisks to indicate where changes (additions, modifications, corrections, deletions) from the previous amendment were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous amendment.

Custodians:

Navy - EC
Air Force - 85

Preparing activity:

Air Force - 85 -

(Project 5935-3627)

Review activities:

Navy - AS
Air Force - 99
DLA - ES

3.4.2 Metal parts. Unless otherwise specified, metal parts, except spring members and hermetically sealed assemblies shall be a suitable copper alloy such as brass, per QQ-B-626.

3.4.2.1 Spring members. Signal carrying spring members shall be manufactured of beryllium copper in accordance with QQ-C-530. Non-signal carrying spring member shall be manufactured of stainless steel in accordance with ASTM A484, or beryllium copper in accordance with QQ-C-530.

3.4.2.2 Hermetically sealed assemblies. Hermetically sealed assemblies are to be manufactured of steel per QQ-S-637, or stainless steel per ASTM A484. Hermetically sealed assemblies may also be manufactured in a suitable sleeve before soldering into a copper alloy shell. Pin contacts may be of a ferrous alloy.

3.4.3 Plating.

3.4.3.1 Center contacts. Center contacts shall be .000050 inch minimum gold per MIL-G-45204, type II, class I, over a suitable underplate except silver which shall not be used.

3.4.3.2 Shield clamp. Metal shield clamping mechanisms shall be .0001 inch minimum silver per QQ-S-365, type II, grade A. A suitable underplate may be used.

3.4.3.3 Outer contact (shell). Outer contacts of all types, shall be .000050 inch minimum gold per MIL-G-45204, type II, class I, over a suitable underplate, except silver which shall not be used.

3.4.4 Insulating materials. Insulating materials shall be suitable for the purpose intended.

3.4.5 Fungus-inert materials. Materials which are not nutrients for fungus shall be used as indicated in MIL-STD-454.

3.4.6 Solder. Soft solder shall conform to QQ-S-571.

3.4.7 Flux. Flux, used to facilitate silver soldering, shall conform to O-F-499.

3.5 Design and construction.

3.5.1 General design. The connectors shall be designed for use with small radio frequency (rf) coaxial cables or shielded or unshielded wire as shown on the specification sheet (see 3.1). Solder pot of contact shall accommodate conductor sizes AWG 18, and smaller. Outer contact spring members shall be attached to the body for uninterrupted shielding and continuity under vibration conditions. Clamping of the cable shield to the connector body shall be independent of the type of rubber utilized, but shall provide metal-to-metal pressure and continuity. Polarization positions, as shown on figure 1, with mating lugs on the receptacles and matching slots on the plug couplings, shall be provided on the connectors. The retaining nut of the cable clamp shall include a suitable chamfer in the cable entry hole to prevent damage to the cable when exposed to shock and vibration.

3.5.2 Mating dimensions. The connectors shall be designed with mating dimensions in accordance with figure 2. The plug shall be so designed as to give a .005 inch minimum compression to the interface gasket when mated.

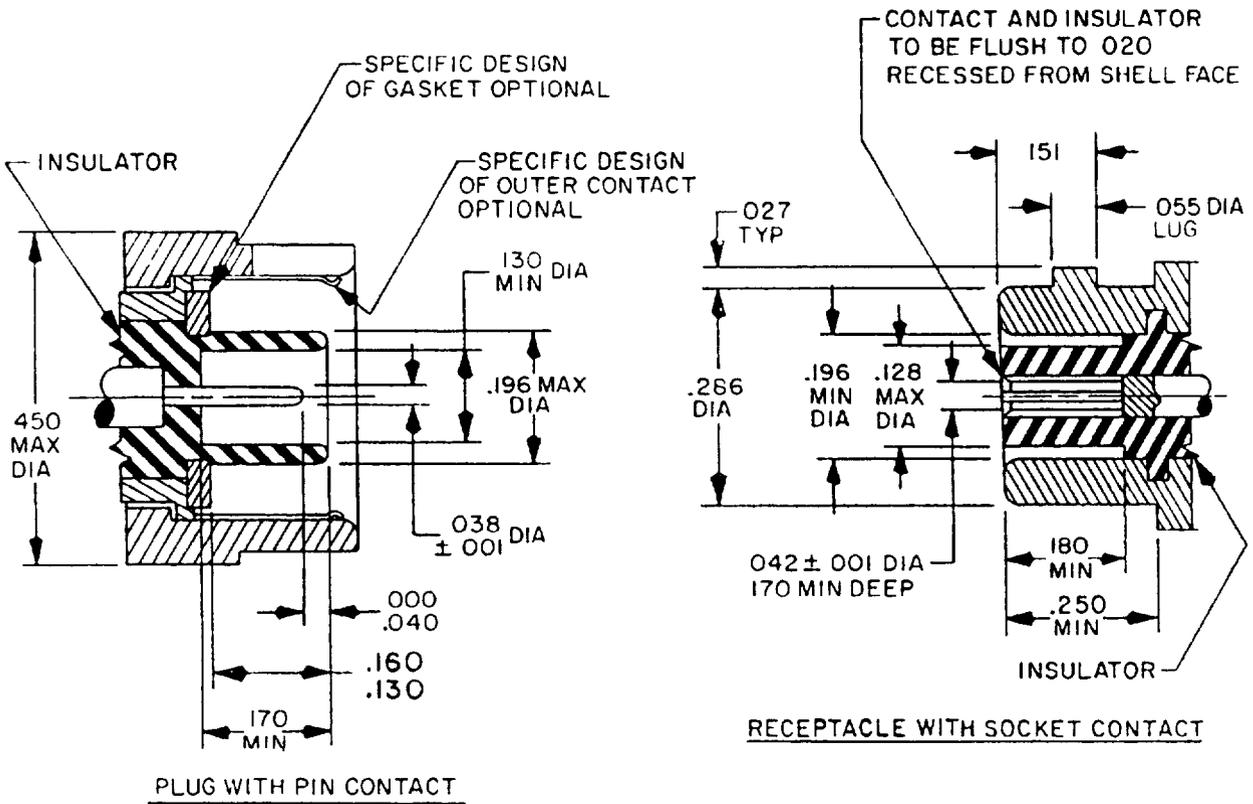
3.5.3 Moisture sealing. Moisture sealing shall be accomplished over the cable jacket in the cable entry area of the connector and over the cable primary insulation (core). Sealing shall also be effected in the area where the plug body fits the receptacle.

3.5.4 Contacts. All center contacts shall be of the "captive contact" design to insure electrical continuity without depending upon cable stability.

3.5.4.1 Socket contacts. The entering end of the socket contacts shall be rounded or chamfered to facilitate entrance of the mating contact.

3.5.5 Screw threads. Unless otherwise specified, screw threads shall conform to FED-STD-H28.

Reprinted without change.



Inches	mm	Inches	mm	Inches	mm
.001	0.03	.055	1.40	.180	4.57
.020	0.51	.128	3.25	.196	4.98
.027	0.69	.130	3.30	.250	6.35
.038	0.97	.151	3.84	.286	7.26
.040	1.02	.160	4.06	.450	11.43
.042	1.07	.170	4.32		

FIGURE 2 Mating dimensions .

6. NOTES

6.1 Intended use. The miniature coaxial connectors covered by this specification are intended primarily for use in capacitance-type fuel-quantity-measurement systems in all types of aircraft and missiles at the lower frequencies. These connectors are not intended to be used for RF applications.

6.2 Ordering data. Acquisition documents should specify the following:

- a. Title, number, and date of the specification.
- b. Title, number, and date of the applicable specification sheets (see 3.1) and complete part number (see 1.2.1).

6.3 Qualification. With respect to products requiring qualification, awards will be made only for such products as have, prior to the time set for opening of bids, been tested and approved for inclusion in the applicable Qualified Products List whether or not such products have actually been so listed by that date. The attention of the contractors is called to this requirement, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. The activity responsible for the Qualified Products List is Air Force Acquisition Logistics Division, Electronic Support Division (2750 ABW/ESP), Gentile Air Force Station, Ohio 45444. However, information pertaining to qualification of products may be obtained from the Defense Electronics Supply Center (DESC-E), 1507 Wilmington Pike, Dayton, Ohio 45444. Application for qualification tests shall be made in accordance with "Provisions Governing Qualification" (SD-6). Copies of "Provisions Governing Qualification" may be obtained upon application to Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

6.4 Assembly instructions. Assembly instructions shall include:

- a. Cable preparation - stripping dimensions and tolerances.
- b. List and description of crimping tools if required.
- c. Pictorial presentation of sub-assemblies and loose piece parts.
- d. Sufficient pertinent dimensions for verification of correct parts; as a minimum the cable entry openings for conductor, dielectric, braid, and jacket shall be specified.
- e. Recommended cable clamp tightening torque (if applicable).

6.5 Specific requirements. If a specific requirement specified in the general specification is not required for an item, it should be so indicated on the specification sheet.

6.6 Definitions.

- a. Isolated ground - where system ground is separated from real ground.
- b. Interrupted ground - where ground path is broken at one or both ends of cable.

Custodians
Navy - EC
Air Force - 85

Preparing activity:
Air Force - 85

(Project 5935-3076)

Review activities
Navy - AS
Air Force - 99
DLA - ES

MIL-C-25516D
AMENDMENT 6

APPENDIX

ASSOCIATED CABLE DIMENSIONS

MIL-C-17 part number M17/ REF 1/	Cable designation dash digits	Center conductor solid or str. max. AWG size	Core O.D. min. max. (inch)	Shield	Jacket O.D. min. max. (inch)
84-RG223	-01	20	.109 .119	Shielded	.198 .212
93-RG178	-02	20	.035 .045	Shielded	.070 .085
	-03	19	.065 .075	Shielded	.110 .120
	-04	19	.082 .092	Shielded	.120 .130
	-05	19	.085 .095	Shielded	.130 .140
	-06	20	.075 .095	Nonshielded	
	-07	19	.090 .100	Shielded	.136 .150
	-08	20	.044 .054	Shielded	.074 .088
	-09	20	.052 .062	Shielded	.081 .096
	-10	20	.056 .060	Nonshielded	
	-11	20	.125 .135	Nonshielded	
	-12	19	.090 .100	Nonshielded	
119-RG174, 94-RG179 113-RG316	-13	20	.050 .060	Shielded	.100 .110
94-RG179	-14	20	.060 .066	Shielded	.095 .105
	-15	18	.110 .120	Nonshielded	
54-RG122	-16	20	.105 .115	Shielded	.147 .165
	-17	20	.090 .100	Nonshielded	
95-RG180	-18	20	.100 .110	Shielded	.145 .155

Supersedes page 26 of MIL-C-25516D dated 19 May 1980.

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MIL-C-17 part number M17/ REF 1/	Cable designation dash digits	Center conductor solid or str. max. AWG size	Core O.D. <u>min.</u> <u>max.</u> (inch)	Shield	Jacket O.D. <u>min.</u> <u>max.</u> (inch)
28-RG58, 111-RG303 60-RG142	-19	18	<u>.110</u> <u>.121</u>	Shielded	<u>.188</u> <u>.202</u>
	-20	18	<u>.066</u> <u>.070</u>	Nonshielded	
	-21	18	<u>.080</u> <u>.090</u>	Nonshielded	
	-22	19	<u>.068</u> <u>.070</u>	Shielded	<u>.133</u> <u>.147</u>
	-23	20	<u>.123</u> <u>.133</u>	Shielded	<u>.160</u> <u>.170</u>
	-24	18	<u>.118</u> <u>.128</u>	Shielded	<u>.158</u> <u>.172</u>
95-RG180	-25	20	<u>.105</u> <u>.115</u>	Shielded	<u>.130</u> <u>.150</u>

Supersedes page 27 of MIL-C-25516D dated 19 May 1980.