MILITARY SPECIFICATION

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

This specification is approved for use by all Departments and Agencies of the Department of Defense.

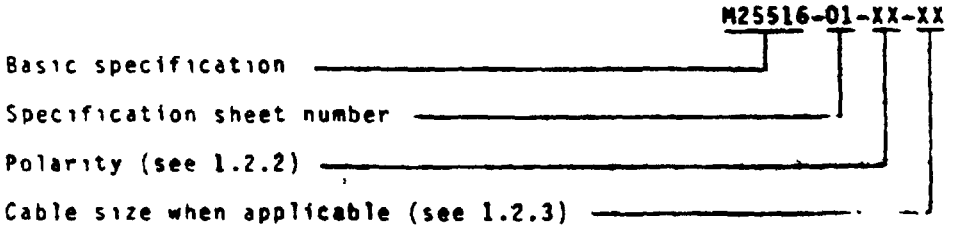
1. SCOPE

1.1 Scope. This specification covers a series of miniature, moisture proof connectors suitable for operation with shielded and unshielded cable up to 750 volts rms under severe environmental conditions.

1.2 Classification. Connectors covered by this specification shall be of the following series, classes, and types, as specified (see 3.1).

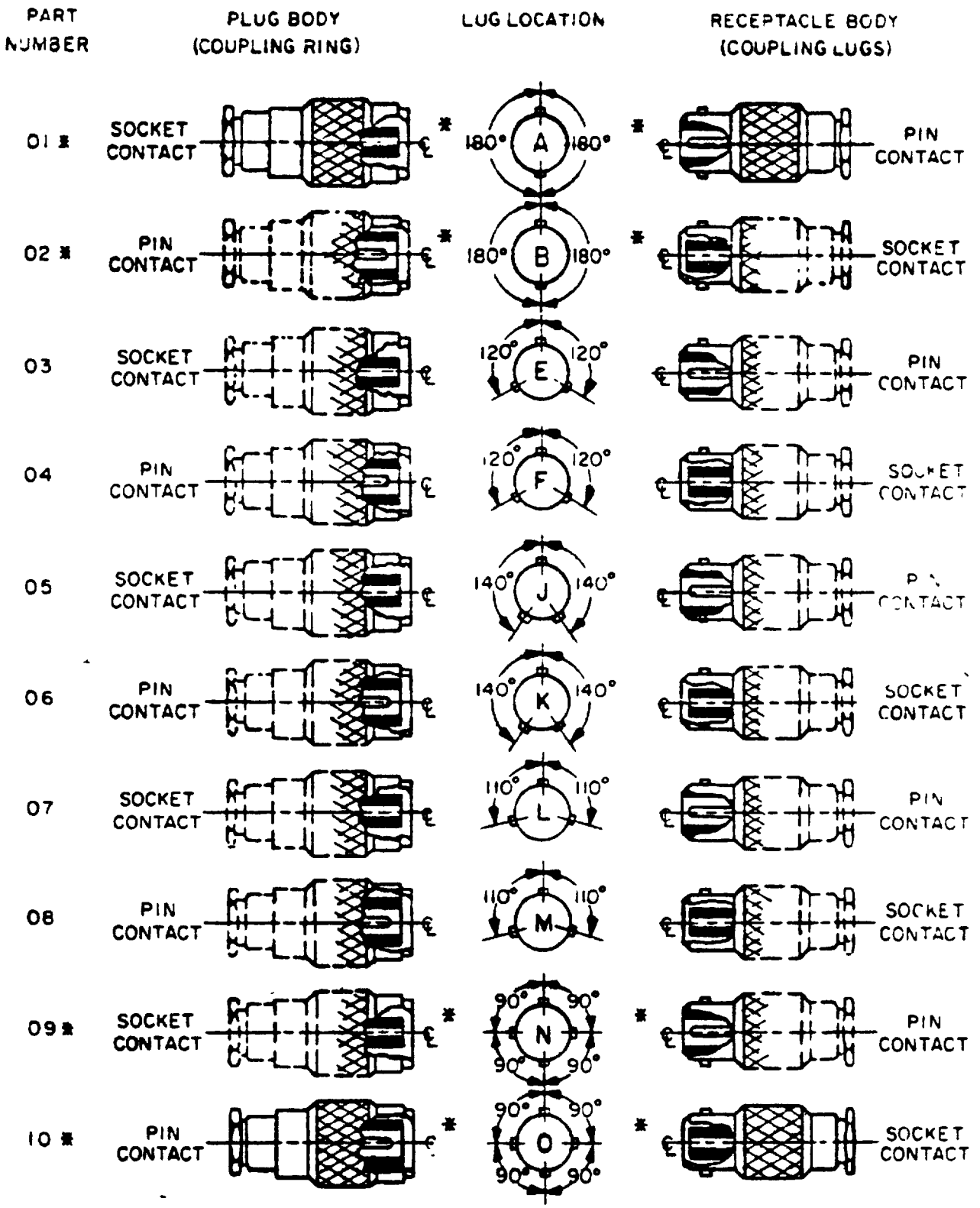
Series I	-	Plugs and receptacles, cable termination.
Series II	-	Plugs and receptacles, permanent crimp,(using a standard MIL-C-22520 tool).
Series III	-	Adapters, all types.
Series IV	-	Plugs and receptacles, solder termination.
Class G	-	General purpose.
Class H	-	Hermetic, sealed cable termination.
Class Y	-	Hermetic, adapters.
Type 1	-	Shield termination, continuous circuit, grounded.
Type 2	-	Shield termination, continuous circuit, isolated ground.
Type 3	-	Shield termination, interrupted ground.
Type 4	-	No shield termination.
Type 5	-	Class Y, grounded outer circuit.
Type 6	-	Class Y, ungrounded outer circuit.

1.2.1 Part Number. The military part number shall consist of the letter "M" followed by the basic specification sheet number and a sequentially assigned dash number which is used to designate the polarity and a letter to designate the cable size as shown in the following example:



1.2.2 Polarity. The mating interface of connectors covered by this specification shall be polarized as specified on figure 1 (see 3.1). Where connector configuration includes minor variables such as mounting features, solder terminations, etc. The first digit in the polarity dash number may be changed to show the variation. Dash number for polarities shall be as specified in table I.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to, Air Force Aquisition Logistics Division, (AFALD/PTES), Wright-Patterson AFB, OH 45433 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.



*Cancelled without replacement.

FIGURE 1. Polarity chart.

TABLE I. Polarities.

Dash number	Polarity	Uses
03	E	Basic configuration of each slash sheet
04	F	
05	J	
06	K	
07	L	
08	M	
13	E	Use for configuration variations
14	F	
Etc.	Etc.	

1.2.3 Cable size. Connectors covered by this specification shall be capable of terminating cables as designated per Appendix 1 when applicable (see 3.1).

2. APPLICABLE DOCUMENTS

2.1 Issues of documents. The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

SPECIFICATIONS

FEDERAL

QQ-F-499 - Flux, Brazing, Silver Alloy, Low Melting Point.
QQ-B-626 - Brass, Leaded and Nonleaded, Rod, Shaped, Forgings, and Flat Products With Finished Edges (Bar and Strip).
QQ-C-530 - Copper-Beryllium Alloy Bars, Rods, and Wire.
QQ-S-365 - Silver Plating, Electrodeposited, General Requirement For.
QQ-S-571 - Solder, Tin Alloy, Lead-Tin Alloy and Lead Alloy.
QQ-S-637 - Steel Bar, Carbon, Cold Finished (Standard Quality Free Machining).
TT-S-735 - Standard Test Fluids; Hydrocarbon.
VV-F-800 - Fuel Oil, Diesel.

MILITARY

MIL-G-5572 - Gasoline, Aviation, Grades 80/87, 100/130, 115/145.
MIL-H-5606 - Hydraulic Fluid, Petroleum Base, Aircraft, Missile, and Ordnance.
MIL-T-5624 - Turbine Fuel, Aviation, Grades JP-4 and JP-5.
MIL-L-6081 - Lubricating Oil, Jet Engine.
MIL-L-7808 - Lubricating Oil, Aircraft Turbine Engine, Synthetic Base.
MIL-C-22520 - Crimping Tools, Terminal, Hand or Power Actuated, Wire Termination, and Tool Kits.
MIL-F-25656 - Fuel, Aircraft Turbine and Jet Engine, Grade JP-6.
MIL-C-26074 - Coating, Electroless Nickel, Requirements For.
MIL-G-45204 - Gold Plating (Electrodeposited).
MIL-C-45662 - Calibration Systems Requirements.
MIL-S-45743 - Soldering, Manual Type, High Reliability, Electrical, Electronic, Instrument, Communication, and Radar For Aerospace, and Control Systems, Procedures For.
MIL-C-55330 - Connector, Preparation For Delivery Of.

(See Supplement 1 for applicable specification sheets.)

STANDARDS

FEDERAL

FED-STD-H28 - Screw Thread Standards For Federal Services.

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection, by Attributes.
MIL-STD-130 - Identification Marking of U.S. Military Property.
MIL-STD-414 - Sampling Procedure and Table For Inspections By Variables For Percent Defective.
MIL-STD-454 - Standard and General Requirements For Electronic Equipment.
MIL-STD-1344 - Test Methods For Electrical Connectors.

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

NATIONAL BUREAU OF STANDARDS

H4-1 - Federal Supply Code for Manufacturers.

(Application for copies should be addressed to the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 484 - General Requirement for Stainless and Heat-Resisting Wrought Steel Product (except wire).

(Application for copies of ASTM publications should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.)

3. REQUIREMENTS

3.1 Specification sheets. The individual item requirements shall be as specified herein and in accordance with the applicable specification sheets. In the event of any conflict between requirements of this specification and the specification sheet, the latter shall govern (see 6.2).

3.2 Classification of requirements. The requirements for the connectors are classified herein as follows:

Requirement	Paragraph
Qualification	3.3
Materials	3.4
Design and construction	3.5
Performance	3.6

3.3 Qualification. Connectors furnished under this specification shall be products which are qualified for listing on the applicable Qualified Products List (QPL) at the time set for the opening of bids (see 4.5 and 6.3).

3.4 Materials. Materials shall be as specified herein. However, when a definite material is not specified, a material shall be used which will enable the connectors to meet the performance requirements of this specification and the applicable specification sheet. Acceptance or approval of any constituent material shall not be construed as a guaranty of acceptance of the finished product.

3.4.1 Dissimilar metals. Dissimilar metals are defined in Requirement 16 of MIL-STD-454. Unless suitably protected against galvanic corrosion by a compatible interposing metal, dissimilar metals shall not be used in intimate contact with each other.

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 A 484, 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 A 484. 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 1, 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 1, 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. 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.

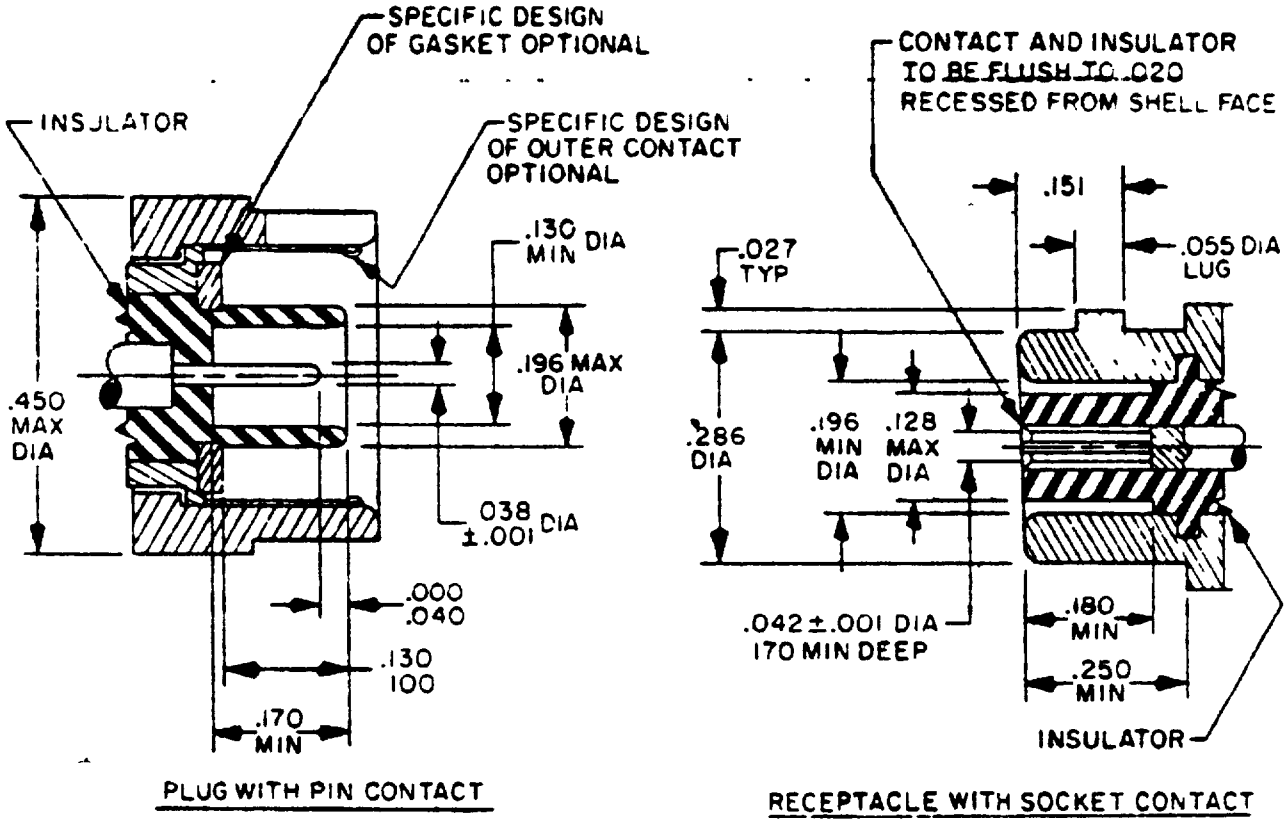
3.5.2 Mating dimensions. The connectors shall be designed with mating dimensions in accordance with figure 2. The plug shall be so designed as to give a .005 inch minimum compression to the interface gasket when mated.

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.

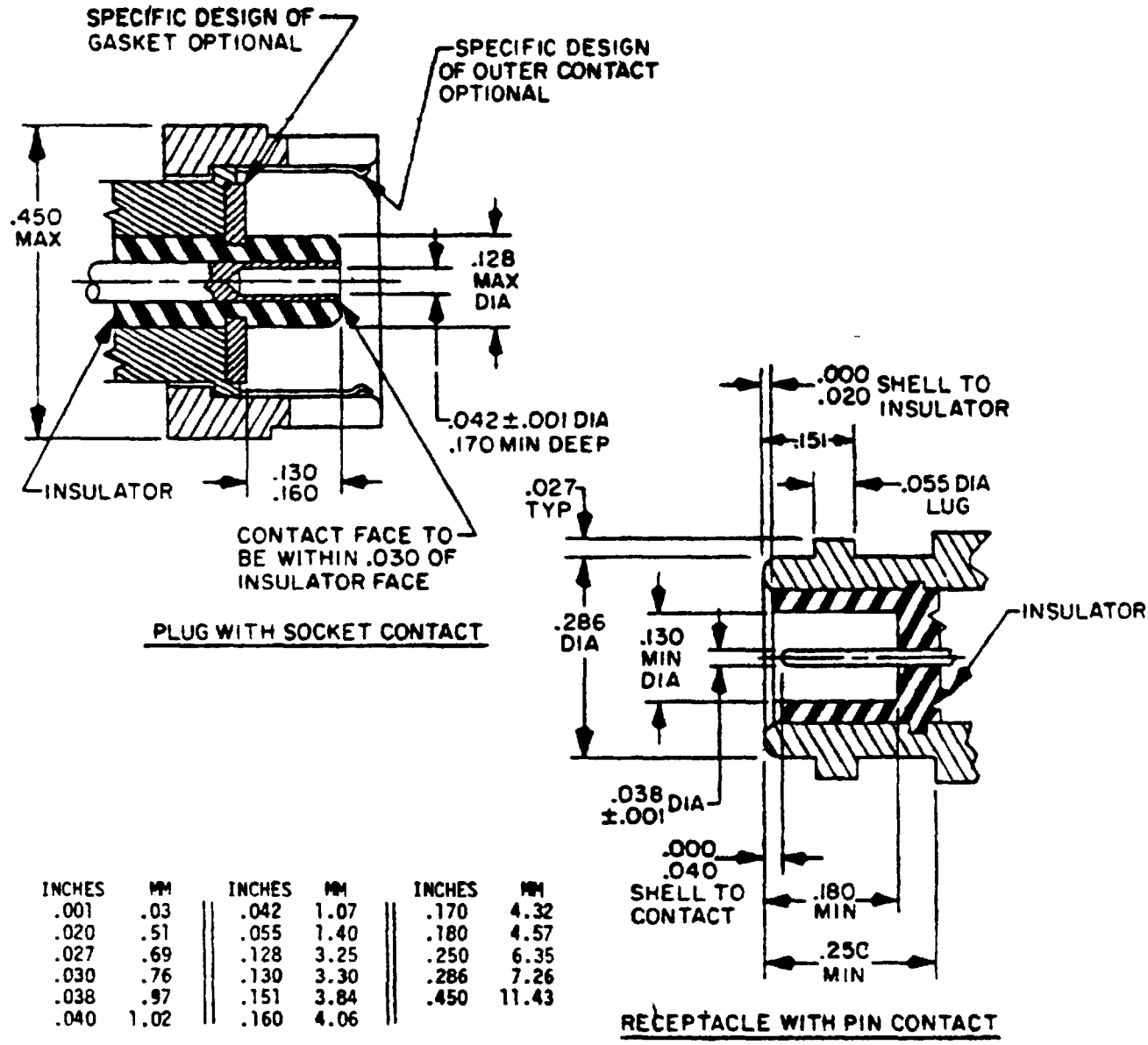
3.5.4.1 Socket contacts. The entering end of the socket contacts shall be rounded or chamfered to facilitate entrance of the mating contact.

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



INCHES	MM	INCHES	MM	INCHES	MM
.001	.03	.055	1.40	.180	4.57
.020	.51	.100	2.54	.196	4.98
.027	.69	.128	3.25	.250	6.35
.038	.97	.130	3.30	.286	7.26
.040	1.02	.151	3.84	.450	11.43
.042	1.07	.170	4.32		

FIGURE 2. Mating dimensions.



INCHES	MM	INCHES	MM	INCHES	MM
.001	.03	.042	1.07	.170	4.32
.020	.51	.055	1.40	.180	4.57
.027	.69	.128	3.25	.250	6.35
.030	.76	.130	3.30	.286	7.26
.038	.97	.151	3.84	.450	11.43
.040	1.02	.160	4.06		

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. Unless otherwise specified, tolerances are ±.002 (.05 mm) for three place decimals and ±.002 (.05 mm) on concentricity.
4. Mating dimensions will assure a .040 (1.02 mm) minimum length engagement of center contact.

FIGURE 2. Mating dimensions - Continued.

3.5.6 Maintenance. The connector shall have a minimum number of parts consistent with reliability. Where practicable, the design shall permit easy assembly, disassembly, location of trouble sources, and maintenance with tools and equipment normally available commercially by service maintenance personnel with a minimum of training. Plugs and receptacles (series II) shall be assembled to cables by military standard hand operated crimp tools.

3.5.7 Interchangeability. All connectors of the same part number shall be functionally and dimensionally interchangeable.

3.6 Performance.

3.6.1 Insulation resistance for mated connectors. When measured in accordance with 4.7.2, the insulation resistance of mated connectors shall conform to the minimum values of table II.

TABLE II. Insulation resistance in megohms.

Class	Contacts	At ambient	At 200 C	After conditioning
G	Center contact to outer contact	5,000	2,000	200
All	Outer contact to outer shell (triaxial connector)	1,000	400	40
H,Y	Center contact to outer contact (hermetic connector)	5,000	1,000	200

3.6.2 Dielectric withstanding voltages. When tested in accordance with 4.7.3, mated and unmated connectors shall conform to the minimum values specified in table III with no evidence of breakdown. Test potential is between center contact and outer contact. For Type 2 and Type 6 connectors, an additional potential shall be applied between the outer contact and the outer shell. For type 3 connectors, an additional potential shall be applied between the cable shield and outer contact.

TABLE III. Test voltage ac, rms, 60 cycle.

Altitude	Unmated	Mated	Outer insulator type 2 and 6	Interrupted ground type-3
Sea level	1,500	1,500	1,500	1,500
100,000	125	750	125	750

3.6.3 Contact resistance. When measured as specified in 4.7.4, contact resistance shall not cause the millivolt drop to exceed the values specified in table IV, as applicable.

TABLE IV. Contact Resistance.

Class	Type	Circuit	Test current	mV at 25°C	mV at 200°C	mV after conditioning
G	1,2, 3,4	Inner	1A	1.6	3.1	2.6
	1,2	Outer 1/	1A	1.6	3.1	2.6
H	1,2	Inner	1A	16	32	32
		Outer 1/	1A	1.6	3.2	3.2
Y	5,6	Inner	1A	30	60	60
		Outer	1A	2	4	4

1/ Does not apply for connectors using nonshielded cable.

NOTE Allowable millivolt drop is doubled in the case of two contacts in series.

3.6.4 Low signal level contact resistance. When tested as specified in 4.7.5, the low signal level contact resistance of each mated contact pair shall not exceed the applicable values specified in table V.

TABLE V. Low signal level contact resistance.

Circuit (class A)	Milliohms maximum	
	Initial	After conditioning
Inner contact	9	11
Outer contact	5	6

3.6.5 Contact engagment and separation forces. When socket contacts are tested as specified in 4.7.6, the forces required to insert and withdraw the specified pin shall be 18 ounces maximum and 2 ounces minimum.

3.6.6 Resistance to test probe damage. The socket contacts shall meet the contact resistance requirements after testing in accordance with 4.7.7. The entrance to the socket contact shall be designed to reject the entrance of a NO-GO test pin which is 0.044 ±.001 inch maximum diameter.

3.6.7 Contact retention. In unmated but assembled connectors, the contacts shall withstand an axial load of 10 pounds when tested in accordance with 4.7.8. Maximum allowable axial displacement of the contact after this test shall not exceed 0.010 inch.

3.6.8 Durability. It shall be possible to mate and unmate the connectors without deleterious effect on the mechanical or electrical performance when tested in accordance with 4.7.9

3.6.9 Cable retention force (except classes H and Y). When properly attached to the applicable cable, the connector shall withstand a pull force of 30 pounds or 90 percent, whichever is less, of the breaking strength of the cable when tested in accordance with 4.7.10.

3.6.10 Side load (except classes H and Y). There shall be no evidence of bending or breaking of any part of the connector when tested in accordance with 4.7.11.

3.6.11 Hermetic sealing (except class G). Connectors which are designed with glass-to-metal seals for hermetic sealing applications shall not leak in excess of 1×10^{-5} cc/second of helium at a pressure differential of one atmosphere when tested in accordance with 4.7.12.

3.6.12 Thermal shock. Connectors shall withstand the shock of repeated surface exposures to extremes of high and low temperatures without affecting the mechanical or electrical characteristics when tested in accordance with 4.7.13.

3.6.13 Shock. Connectors shall withstand a 50g shock load when tested in accordance with 4.7.14 without interruption of signal for more than 10 microseconds. In addition, they shall sustain the shock load without impairing mechanical or electrical performance.

3.6.14 Vibration. When tested in accordance with 4.7.15, connectors shall not crack, nor break, and there shall be no loosening of parts. Connectors shall be in full engagement during vibration and the coupling device shall not loosen as a result of vibration. Interruptions of electrical continuity shall not last longer than 10 microseconds.

3.6.15 High temperature. After testing in accordance with 4.7.16, mated connectors shall have an insulation resistance of 2,000 meghoms. Contact resistance shall be in accordance with table IV.

3.5.16 Fuel immersion. When tested in accordance with 4.7.17, electrical or mechanical performance shall not be impaired.

3.6.17 Altitude humidity cycling. All connectors shall withstand the electrical integrity portion of the altitude humidity cycling test as specified in 4.7.18.2.

Sealed connectors shall withstand the leak integrity portion of the altitude humidity cycling test specified in 4.7.18.1.

3.6.18 Ozone exposure. After ozone exposure, as specified in 4.7.19, rubber parts shall show no evidence of cracking or other damage that will affect performance adversely. A certified statement of the materials manufacturer may be submitted in lieu of performing the test.

3.6.19 Corrosion resistance. After passing the corrosion test specified in 4.7.20, the basic metal of plated parts of the connectors shall not be exposed.

3.6.20 Sulphide immersion. The finish of mated connectors shall not become tarnished when tested in accordance with 4.7.21.

3.6.21 Maintenance aging. When connectors are tested as specified in 4.7.22, they shall show no evidence of severe mechanical damage and the coupling device shall remain functional.

3.6.22 Shield clamp resistance (except classes H and Y). The maximum resistance shall be as specified (see 3.1) when tested in accordance with 4.7.23.

3.7 Marking. Connectors and associated fittings shall be permanently and legibly marked in accordance with the general marking requirements of MIL-STD-130 the military part number (see 1.2.1) and the manufacturer's federal supply code (H4-1). The marking location is optional; when practicable, a location should be picked that will least likely be covered in cable assembly or installation.

3.8 Workmanship. The connectors, including all parts and accessories, shall be constructed and finished in a thoroughly workmanlike manner. Particular attention shall be paid to neatness and thoroughness of soldering, freedom from burrs, and sharp edges, and freedom from loose, spattered, or excess solder, metal chips and other foreign material.

3.9 Assembly instructions. Complete assembly instructions shall be furnished by the vendor with each connector procured under this specification (see 6.4).

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government 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 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 contractor. The establishment and maintenance of a calibration system to control the accuracy of the measuring and test equipment shall be in accordance with MIL-C-45662.

4.2 Classification of inspections. The inspections specified herein are classified as follows:

a. Qualification inspection (see 4.5).
b. Quality conformance inspection (see 4.6).

4.3 Inspection conditions. Unless otherwise specified herein, all inspections shall be performed in accordance with the ambient conditions specified in MIL-STD-1344.

4.4 Preparation of samples. Connectors, except Class Y, shall be wired with three feet of wire or cable as shown in Appendix I

4.4.1 Crimp terminations. Contacts and shield terminations shall be crimped as specified (see 3.1). When applicable, MIL-C-22520 tools shall be used.

4.4.2 Solder terminations. Soldering shall be in accordance with MIL-S-45743, or requirement 5 of MIL-STD-454.

4.5 Qualification inspection. Qualification inspection shall be performed at a laboratory acceptable to the Government (see 6.3) on sample units produced with equipment and procedures normally used in production. Application for qualification tests shall be made in accordance with Provisions Governing Qualification (SD-6)(see 6.3).

4.5.1 Sample size. Unless otherwise directed by the qualifying activity (see 6.3), the test samples shall consist of 12 connectors of one polarity which shall be submitted in equal quantities of compatible mating types. The samples shall be separated into the following test groups:

a. Eight sets of mated connectors, with associated cable or wire attached, shall be divided into test groups A and B of four sets each.
b. Four unmated connectors shall compose test group C. Cable types shal be wired in accordance with 4.5.2.
c. Twelve sets of mated contacts shall be divided evenly between groups D and E.

4.5.1.1 Non-removable contacts. Contacts for connectors that normally have nonremovable contacts, shall be selected from contact lots that have been finished in the same manner as those in the connector. The connector shells and insulators shall not be included in the finishing process.

4.5.2 Inspection routine. Sample units shall be subjected to the qualification inspection specified in Table VI, in the order shown.

4.5.3 Failures. One or more failures in any of the applicable inspections shall be cause for refusal to grant qualification.

TABLE VI. Qualification Inspection.

Inspection	Requirement paragraph	Test Method paragraph	Test groups				
			A	B	C	D	E
Visual and mechanical inspection 1/ - - -	3.1,3.4,3.5, 3.7,3.8	4.7.1	1	1	1	1	1
Insulation resistance - - - - - - - - - - -	3.6.1	4.7.2	4	4	4		
Dielectric withstanding voltage - - - - - -	3.6.2	4.7.3	4	4			
Contact resistance - - - - - - - - - - - -	3.6.3	4.7.4		4		6	6
Low signal level contact resistance - - - -	3.6.4	4.7.5		4		6	6
Contact engagement and separation forces- -	3.6.5	4.7.6				6	
Resistance to test probe damage - - - - - -	3.6.6	4.7.7			4		
Contact retention - - - - - - - - - - - - -	3.6.7	4.7.8			4		
Durability - - - - - - - - - - - - - - - -	3.6.8	4.7.9			4		6
Cable retention Force (except classes H and Y) - - - - - - - - - - - - - - - -	3.6.9	4.7.10	4				
Side load (except classes H and Y) - - - -	3.6.10	4.7.11			4		
Hermetic sealing (except class G) - - - - -	3.6.11	4.7.12		4			
Thermal shock - - - - - - - - - - - - - - -	3.6.12	4.7.13		4			
Shock - - - - - - - - - - - - - - - - - - -	3.6.13	4.7.14		4			
Vibration - - - - - - - - - - - - - - - - -	3.6.14	4.7.15		4			
High temperature - - - - - - - - - - - - -	3.6.15	4.7.16		4		6	
Fuel immersion - - - - - - - - - - - - - -	3.6.16	4.7.17	4			6	
Altitude humidity cycling - - - - - - - - -	3.6.17	4.7.18	4				
Ozone exposure - - - - - - - - - - - - - -	3.6.18	4.7.19			4		
Corrosion resistance - - - - - - - - - - -	3.6.19	4.7.20		4		6	
Sulphide immersion - - - - - - - - - - - -	3.6.20	4.7.21	4		4		
Maintenance aging - - - - - - - - - - - - -	3.6.21	4.7.22	4	4			
Shield clamp resistance (except classes H and Y) - - - - - - - - - - - - - - - -	3.6.22	4.7.23	2	2			

1/ Marking will be considered defective only if it is illegible at the completion of the required tests.

4.5.4 Retention of qualification. To retain qualification, the contractor shall forward a report at 12 month intervals to the qualifying activity. The qualifying activity shall establish the initial reporting date. The report shall consist of:

a. A summary of the results of the tests performed for inspection of product for delivery, group A, indicating as a minimum the number of lots that have passed and the number that have failed. The results of tests of all rework lots shall be identified and accounted for.
b. A summary of the results of tests performed for qualification verification inspection, group B, including the number and mode of failures. The summary shall include results of all qualification verification inspection tests performed and completed during the the 24 month period. If the summary of the test results indicates nonconformance with specification requirements, and corrective action acceptable to the qualifying activity has not been taken, action may be taken to remove the failing product from the qualified products list.

Failure to submit the report within 30 days after the end of each 24 month period may result in loss of qualification for the product. In addition to the periodic submission of inspection data, the contractor shall immediately notify the qualifying activity at any time during the 24 month period that the inspection data indicates failure of the qualified product to meet the requirements of this specification.

In the event that no production occurred during the reporting period, a report shall be submitted certifying that the company still has the capabilities and facilities necessary to produce the item. If during 3 consecutive reporting periods there has been no production, the manufacturer may be required, at the discretion of the qualifying activity, to submit a representative product of each part number to testing in accordance with the qualification inspection requirements.

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

4.5.6 Qualification of additional cable sizes (class G and H). Qualification may be granted for additional cable sizes provided those cable sizes have passed the tests in table VI in a different type configuration. For additional cable sizes not previously tested, four mated connector samples shall be subjected to the inspections specified in table VII.

TABLE VII. Qualification of additional cable sizes.

Inspection	Requirement paragraph	Test method paragraph
Visual and mechanical inspection 1/	3.1,3.4,3.5, 3.7,3.8	4.7.1
Insulation resistance	3.6.1	4.7.2
Dielectric withstanding voltage	3.6.2	4.7.3
Cable retention force (except classes H and Y)	3.6.9	4.7.10
Side load (except classes H and Y)	3.6.10	4.7.11
Corrosion resistance	3.6.19	4.7.20
Shield clamp resistance (except classes H and Y)	3.6.22	4.7.23

1/ Marking will be considered defective only if it is illegible at the completion of the required tests.

4.6 Quality conformance inspection.

4.6.1 Inspection of product for delivery. Inspection of product for delivery shall consist of group A inspection.

4.6.1.1 Inspection lot. An inspection lot shall consist of all connectors of the same military part number produced under essentially the same conditions, and offered for inspection at one time.

4.6.2 Group A inspection. Group A inspection shall consist of the inspections specified in table VIII in the order shown.

TABLE VIII. Group A inspection.

Inspection	Requirement paragraph	Test method paragraph	AQL
Visual and mechanical inspection 2/	3.1,3.4,3.5, 3.7,3.8	4.7.1	1.0 Major, 4.0 Minor
Dielectric withstanding voltage 1/	3.6.2	4.7.3	1.0
Contact engagement and separation force	3.6.5	4.7.6	1.0
Hermetic seal (except class G)	3.6.11	4.7.12	100 percent

1/ Does not apply to connectors with all contacts and insulators unassembled.
2/ Marking will be considered defective only if it is illegible at the completion of the required inspections.

4.6.2.1 Sampling plan. Unless otherwise specified, statistical sampling and inspection shall be in accordance with MIL-STD-105, inspection level II or MIL-STD-414, inspection level III. The acceptance quality level (AQL) shall be as shown in table VIII. In process controls, unrelated to lot size, may be used provided the equivalent or tighter AQL is maintained. Major and minor defects shall be defined as in MIL-STD-105.

4.6.2.2 Rejected lots. If an inspection lot is rejected, the contractor may rework it to correct the defects, or screen out the defective units, and resubmit for reinspection. Resubmitted lots shall be inspected using tightened inspection and shall not thereafter be tendered for acceptance unless the former rejection or requirement of correction is disclosed. Such lots shall be separate from new lots, and shall be clearly identified as reinspected lots.

4.6.2.3 Disposition of sample units. Sample units which have passed all of group A inspection may be delivered on the contract or purchase order, if the lot is accepted and the sample units are still within specified tolerances.

4.6.3 Qualification verification inspection. Qualification verification inspection shall consist of group B inspection. Except where the results of these inspections show noncompliance with the applicable requirements (see 4.6.3.1.5), delivery of products which have passed group A inspection shall not be delayed pending the results of these qualification verification inspections.

4.6.3.1 Group B inspection. Group B inspection shall consist of the inspections specified in Table IX, in the order shown. Sample units shall be selected from inspection lots that have passed group A inspection.

TABLE IX. Group B inspection.

Inspection	Requirement paragraph	Test method paragraph	Mated - group A	Not mated - group B	Contacts - group C
Visual and mechanical inspection 1/ - - - - - -	3.1,3.4,3.5, 3.7,3.8	4.7.1	X	X	X
Maintenance aging - - - - -	3.6.21	4.7.22	X		
Insulation resistance - - -	3.6.1	4.7.2	X		
Dielectric withstanding voltage - - - - - - - - -	3.6.2	4.7.3	X	X	
Contact resistance - - - -	3.6.3	4.7.4	X		X
Side load, (except classes H and Y) - - - - - - - -	3.6.10	4.7.11	X		
Fuel immersion - - - - - -	3.6.16	4.7.17	X		
Corrosion resistance - - -	3.6.19	4.7.20		X	X

1/ Marking will be considered defective only if it is illegible at the completion of the required test.

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 1 year. Upon passing this inspection, the contractor may select sample units every 12 months. If the second level of sampling is passed two successive times, the contractor may select sample units every 24 months. In the event of a failure, sampling shall revert to the 6-month interval.

4.6.3.1.2 Failures. If one or more sample units fail to pass group B inspection, the sample shall be considered to have failed.

4.6.3.1.3 Rejected lots. If an inspection lot is rejected, the contractor may rework it to correct the defects, or screen out the defective units, and resubmit for reinspection. Resubmitted lots shall be inspected using tightened inspection and shall not thereafter be tendered for acceptance unless the former rejection or requirement of correction is disclosed. Such lots shall be separate from new lots, and shall be clearly identified as reinspected lots.

4.6.3.1.4 Disposition of sample units. Sample units which have been subjected to group B inspection shall not be delivered on the contract or purchase order.

4.6.3.1.5 Noncompliance. If a sample fails to pass group B inspection, the supplier shall take corrective action on the materials or processes, or both, as warranted, and on all units of product which can be corrected and which were manufactured under essentially the same conditions, with essentially the same materials, processes, etc., and which are considered subject to the same failure. Acceptance of the product shall be discontinued until corrective action, acceptable to the Government, has been taken. After the corrective action has been taken, group B inspection shall be repeated on additional sample units (all inspections, or the inspection which the original sample failed, at the option of the Government). Group A inspections may be reinstituted; however, final acceptance shall be withheld until the group B reinspection has shown that the corrective action was successful. In the event of failure after reinspection, information concerning the failure and corrective action taken shall be furnished to the cognizant inspection activity and the qualifying activity.

4.6.4 Inspection of packaging . The sampling and inspection of the preservation, packing, and container marking shall be in accordance with the requirements of MIL-C-55330.

4.7 Methods of inspection.

4.7.1 Visual and mechanical inspection (see 3.1, 3.4, 3.5, 3.7, and 3.8). Connectors shall be inspected to verify that the materials, screw threads, physical dimensions, marking, and workmanship are in accordance with the applicable requirements.

4.7.2 Insulation resistance. The connectors shall be measured for insulation resistance between the center conductor and connector body, or inner and outer conductors of wired and mated assemblies, at 500 volts dc in accordance with Method 3003 of MIL-STD-1344 (see 3.6.1).

4.7.3 Dielectric withstanding voltage. A dielectric withstanding voltage test for both mated and unmated connectors shall be conducted in accordance with method 3001 of MIL-STD-1344. The test voltage shall be in accordance with table III (see 3.6.2).

4.7.4 Contact resistance. Electrical resistance of mated connector inner and outer contacts shall be determined separately in accordance with Method 3002 of MIL-STD-1344. Test current shall be in accordance with table IV (see 3.6.3).

4.7.4.1 Inner contacts. A test current as required by table IV shall be applied to the ends of the wire attached to the mated contacts. One test probe shall be placed on each end of the mated contact pair and the millivolt drop shall be measured by means of a suitable instrument.

4.7.4.2 Outer contacts. Test as above, except that the current is applied to the coaxial shield of the attached cables, and the voltage test probes placed on each end of the mated connector pair.

4.7.5 Low signal level contact resistance. When tested in accordance with method 3002 of MIL-STD-1344, the low signal level contact resistance of each mated pair shall not exceed the applicable values specified in table V (see 3.6.4).

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. The depth of engagement shall be 0.125 inch minimum.

4.7.7 Resistance to test probe damage (see 3.6.6). Socket contacts shall be tested in accordance with method 2006 of MIL-STD-1344. The following details and exceptions shall apply:

a. The contact shall be locked into a connector.
b. The test probe shall have a diameter of 0.038 ±0.001 inch.
c. While inserted, a bending moment of 1/2 inch-pound ±10 percent shall be applied to the probe.
d. After the test, the contacts shall meet the requirements of 3.5.5.
e. The NO-GO test pin (0.044 ±.001 inch diameter) shall be applied with a force of 5 ±1 pounds.

4.7.8 Contact retention (see 3.6.7). An unmated connector assembled with its proper cable shall be tested in accordance with method 2007 of MIL-STD-1344. The following details shall apply:

a. The axial load shall be 10 pounds.
b. The load shall be applied from the mating end.
c. The axial displacement shall be in accordance with 3.6.7.

4.7.9 Durability (see 3.6.8). Parts of mated connectors shall be tested per method 2016 of MIL-STD-1344. The connectors shall be mated and unmated 500 times.

4.7.10 Cable retention force (except classes H and Y). The connector shall be properly wired to a 3-foot length of cable and connected in a test circuit to indicate any discontinuity. It shall then be subjected to an axial pull force which will tend to pull the attached cable from the connector. The cable shall not separate from the connector nor indicate discontinuity between the shield and the shell or the center conductor and the center contact (see 3.6.9).

4.7.11 Side load (except classes H and Y) (see 3.6.10).

4.7.11.1 Cable plugs. Cable plugs and right-angle cable plugs shall be mated with a fixed, mounted receptacle and shall withstand a side-load force of 30 pounds applied at the cable end and at right angles to the major axis of the mounted jack (see figures 3a and 3b).

4.7.11.2 Cable Receptacles. A side-load test shall not be required for cable receptacles.

4.7.11.3 Panel mounting receptacles. Panel mounting receptacles shall be mounted on a panel and shall withstand a side-load force of 30 pounds applied at the cable end and at right angles to the major axis (see figure 3c).

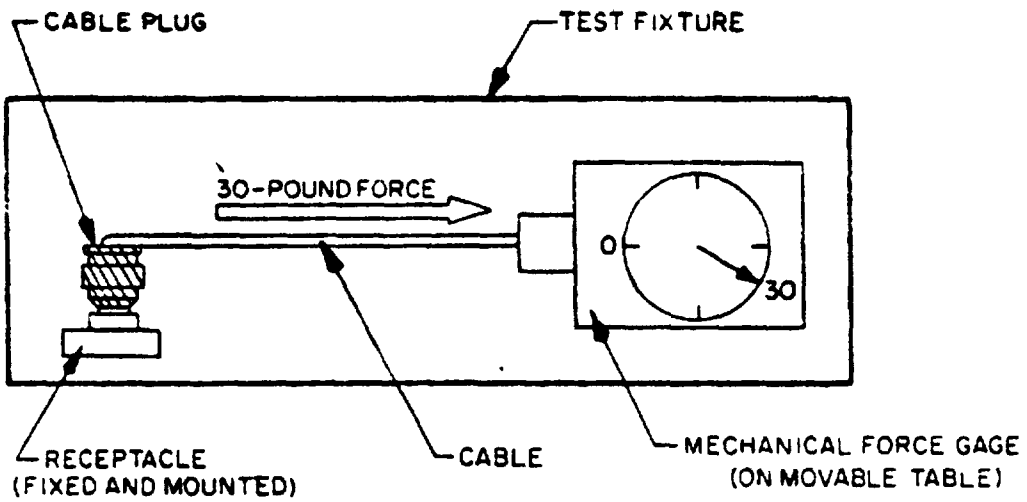
4.7.11.4 Adapters. Adapters shall be secured to a fixed, mounted receptacle or clamped in a vise and shall withstand a side-load force of 25 pounds applied at the other end and at right angles to the major axis (see figure 3d).

4.7.12 Hermetic sealing (except class G) (see 3.6.11). Connectors shall be tested per method 1008 of MIL-STD-1344. The following detail shall apply:

a. The pressure differential shall be one atmosphere.

4.7.13 Thermal shock. A pair of mated and wired connectors shall be tested in accordance with method 1003.1, test condition A, of MIL-STD-1344 (see 3.6.12).

(a) CABLE PLUGS



(b) RIGHT ANGLE CABLE PLUGS

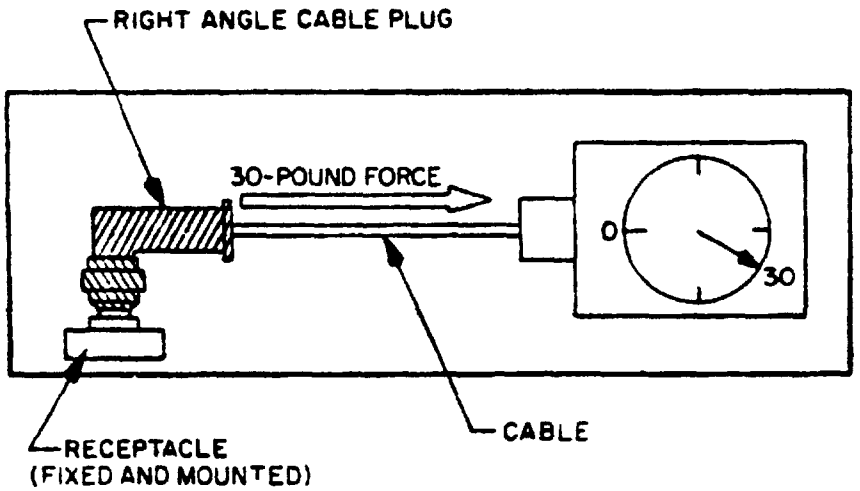
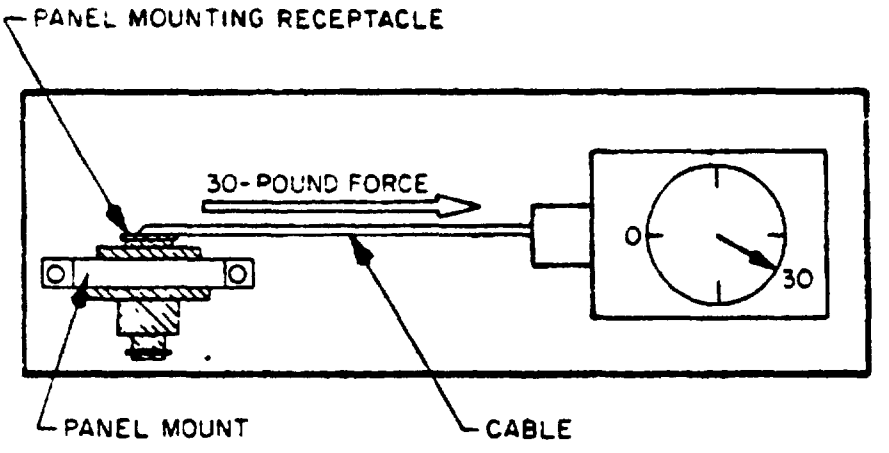


FIGURE 3. Side and test diagrams.

(c) PANEL MOUNTING RECEPTACLES



(d) ADAPTERS

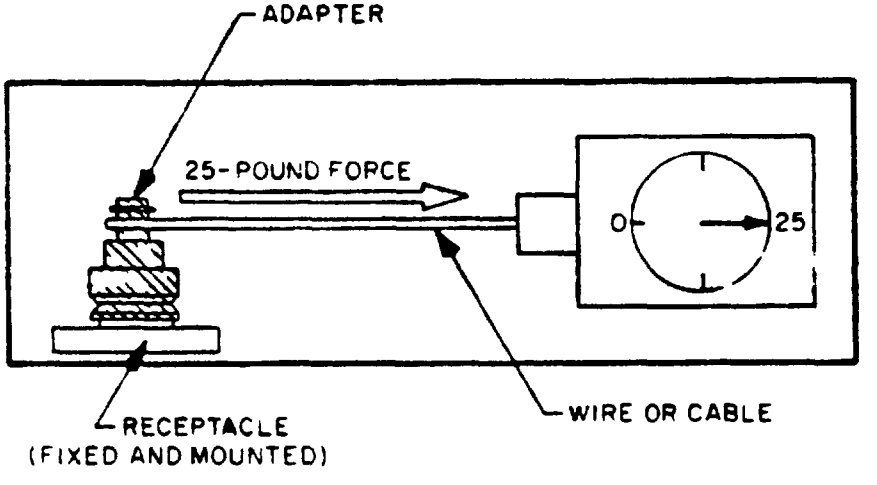


FIGURE 3. Side and test diagrams - Continued.

4.7.14 Shock (see 3.6.13). A pair of wired and mated connectors shall be tested in accordance with method 2004, test condition A, of MIL-STD-1344. The following details and exceptions shall apply:

a. Connectors shall be mounted on the shock device or carriage as shown on figure 4 of the vibration test.
b. The connector shall be fully wired and the cable clamped to points that move with the connector. A minimum of 8 inches of cable shall be unsupported behind the rear of each connector.
c. Inner and outer contacts shall be wired in series and a test current of 100 milliamperes flowing during the test. The open circuit voltage shall be 6 volts. A check shall be made for interruption of the test current.
d. After testing, the connectors shall have remained mated and mechanically functional.

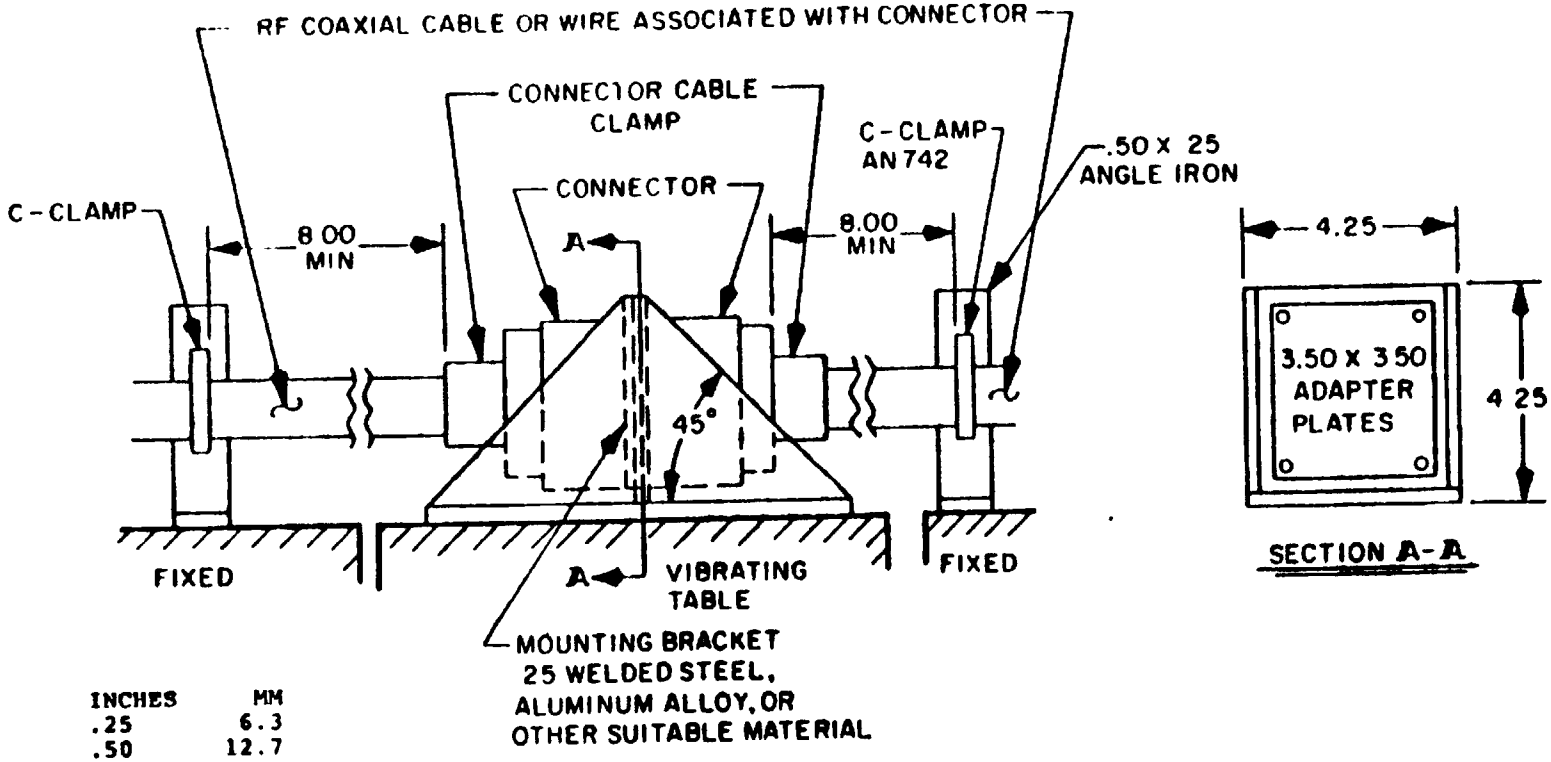
4.7.15 Vibration. The connector assembly shall be mounted as shown on figure 4 and vibrated in accordance with method 2005, condition IV, of MIL-STD-1344. In addition, vibration shall be conducted at a low temperature ambient of -55°C and a high ambient of 200°C. Inner and outer contacts shall be wired in series with at least 100 milliamperes of current flowing. The open circuit test voltage shall be 6 volts. A suitable instrument shall be used to monitor current flow and to indicate any discontinuity of contact or interruption of current flow. Duration of vibration at extremes of temperature shall be 25 percent of the duration specified for the standard temperature condition. The connectors shall remain in full engagement during vibration. The coupling device shall not loosen and there shall be no cracking or breaking of parts (see 3.6.14).

4.7.15.1 Connector mounting. The vibration mounting shall be in accordance with figure 4 except as specified herein. The receptacle shall be mounted on an adapter plate, using the normal mounting provisions and suitable hardware. The connector mounting bracket may be of another design, provided the connectors received the required magnitude of vibration. The associated plug or adapter shall be mated with the receptacle, as used in service. Safety wires or supplementary locking devices shall not be used.

4.7.16 High temperature. Mated connectors shall be subjected to 200°C for 1 hour. At the end of this time and while at the elevated temperature the connectors shall be subjected to the insulation resistance test 4.7.2 and the contact resistance test 4.7.4 (see 3.6.15).

4.7.17 Fuel immersion. Mated and cabled connectors shall be immersed in type II hydrocarbon fuel in accordance with TT-S-735 at ±71°C for 7 days. Following this test, the connectors shall unmate and mate satisfactorily with their corresponding plug or receptacle and pass the insulation resistance, dielectric withstanding voltage and contact resistance tests (see 3.6.16).

4.7.17.1 Fluids. Separate samples of each of the nonmetallic parts of the connectors shall be immersed in each of the fluids listed in table X for the specified time and temperature. At the end of this period, all parts shall be rinsed, air blasted, and dried at 40°C for 24 hours. A visual inspection shall be made to insure that there is no cracking, peeling, splitting, blistering, or swelling.



INCHES	MM
.25	6.3
.50	12.7
3.50	8.8[illegible]
4.25	10.80
8.00	20.32

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.

FIGURE 4. Vibration testing arrangement.

TABLE X. Fuels.

Fluid	Specification	Temp. °F	Immersion time (hours)
Aviation gasoline	MIL-G-5572	160	168
Aviation fuel (grade JP-5)	MIL-F-25656	160	168
Aviation fuel (grade JP-4)	MIL-T-5624	160	168
Oil, lubricating, jet engine (grade 1010, petroleum base)	MIL-L-6081	160	20
Lubricating oil, aircraft	MIL-L-7808	160	20
Salt water (95 percent water, 5 percent chloride)		160	20
Diesel, fuel oil	VV-F-800	160	168
Hydrocarbon fluid	TT-S-735	160	168
Aviation hydraulic fluid, petroleum base	MIL-H-5606	160	20

4.7.18 Altitude humidity cycling (see 3.6.17). Connectors shall be mounted on a sealed test vessel and subjected to alternate vacuum-pressure environment in the presence of test fluid and water vapor at both high and low temperatures to determine leak integrity and the effect on electrical characteristics. Figure 5 shows the recommended test vessel.

4.7.18.1 Leak integrity.

a. Hermetically sealed and pressurized connectors shall be installed approximately as shown on the right side of the pressure-tight vessel as shown on figure 5.
b. The test box shall be filled with test fluid, in accordance with type III of TT-S-735, to a level of a least 4 inches above the connectors.
c. With the fluid in the test box at room temperature, 6 pounds per square inch pressure (lb_f/in^2) shall be applied to the test box and held for 1 hour while checking for leaks.
d. With the test box at room temperature, the pressure shall be slowly increased to 20 lb_f/in^2 and then relieved. This cycle shall be repeated for a total of 10 times. On the tenth cycle, the pressure shall be held at 20 lb_f/in^2. A check shall be made for signs of leakage and pressure shall be relieved.
e. The temperature of the test box shall be decreased to -54°C and pressure of 6 lb_f/in^2 shall be applied and held for 1 hour while checking for leaks. The temperature shall be held at -54°C and the pressure slowly increased to 20 lb_f/in^2 and then relieved. This cycle shall be repeated for a total of 10 times. On the tenth cycle, the pressure shall be held at 20 lb_f/in^2. A check shall be made for leakage. Pressure shall be relieved.
f. The temperature of the test box shall be allowed to return to room temperature and, with pressure relieved, the wire in the connector shall be pulled from the inside of the test box with a force of 5 ±1/2 pounds. 1/ With the test box still at room temperature, the box shall be pressurized at 6 lb_f/in^2 pressure and a check made for leaks. The pressure shall be increased to 20 lb_f/in^2 and a check made for leaks. Upon completion of these tests, the pressure shall be relieved.

1/ For this test, a mechanical device may be rigged to pull the cable or contact from the inside without removing the cover.

4.7.18.2 Electrical integrity.

a. The connectors shall be removed from the test box, examined for damage, and remounted approximately as shown on the left side of figure 5 so that the connector receptacle is toward the inside of the test vessel. Both ends of the electrical wire shall terminate outside the test box. Water, containing 5 percent salt solution, shall be poured inside the box to a fluid level at least 1 inch below the connectors.

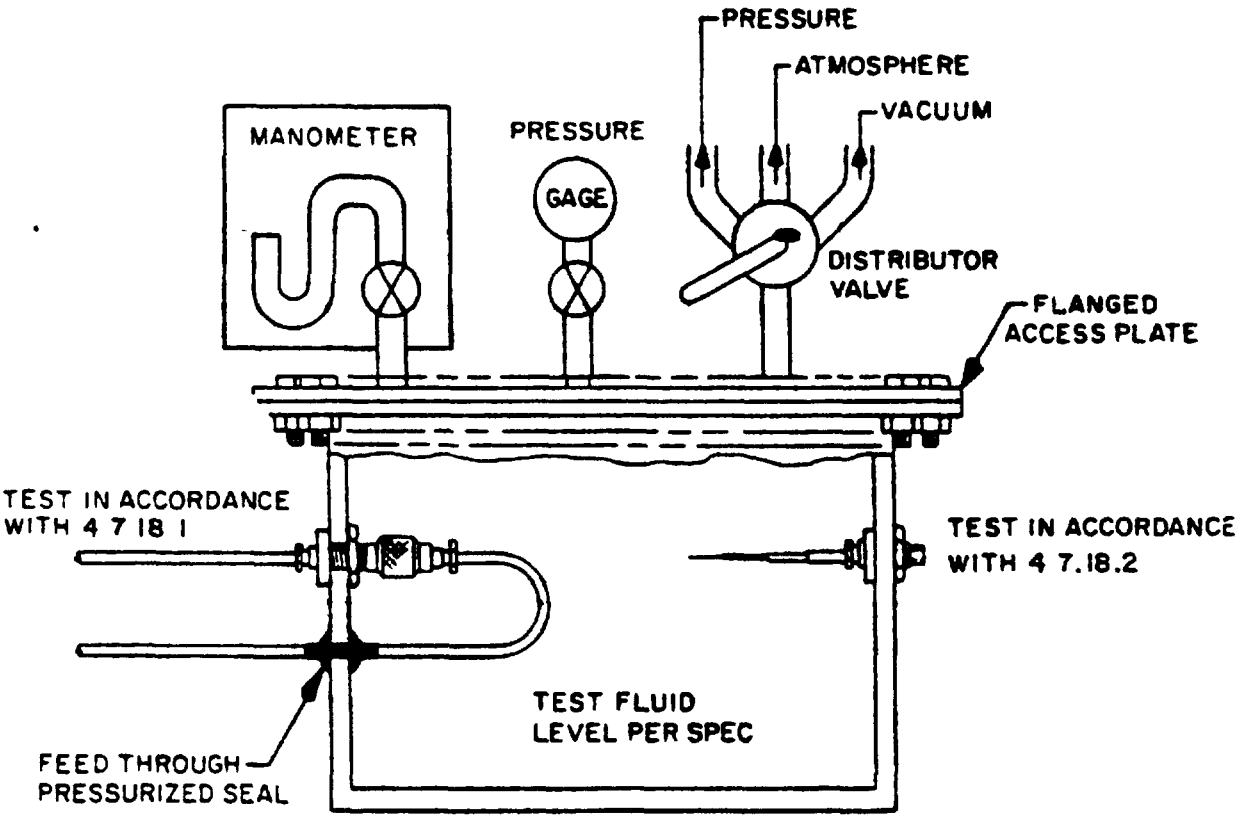


FIGURE 5. Sealed test vessel.

b. A vacuum of 27 inches of mercury shall be applied to the test box for 5 minutes and then relieved. The box shall be placed in an ambient temperature of 71°C for 1 hour and then reduced to -1°C for 1 hour. Insulation resistance shall be checked at 500 volts dc, using the ends of the outside lead wire and the body of the connector as terminals. The insulation resistance shall not read less than 200 megohms. This cycle shall be repeated for a total of 10 times.

4.7.19 Ozone exposure. Connectors shall be tested for ozone exposure per method 1007 of MIL-STD-1344. Rubber portions of the connectors shall be subjected to ozone exposure having a concentration of 0.010 to 0.015 percent by volume for 2 hours at room temperature. After testing, the connectors shall be visually checked for evidence of cracking or other damage that will affect performance adversely (see 3.6.18).

4.7.20 Corrosion resistance. Mated and wired connectors and contacts shall be subjected to 5 percent salt spray in accordance with method 1001.1, condition B of MIL-STD-1344. Mated connectors shall pass the insulation resistance test (4.7.2) and outer contact resistance test (4.7.4). It shall be possible to mate and unmate the connectors as in service and there shall be no corrosion (3.6.19).

4.7.21 Sulphide immersion (see 3.6.20). Mated and cabled connectors shall be immersed for 1 minute in the following solution, prepared as specified, after which they shall be Double rinsed in tap water, rinsed in alcohol, air dried, and examined for tarnish:

a. Dissolve 1 pound of sodium sulphite in 800 cm^3 of distilled water.
b. Dilute to 1,000 cm^3.
c. Add 250 grains of powdered sulphur.
d. Allow solution to stand 16 hours.
e. Dilute with distilled water to a specific gravity of 1.14. This solution shall be replaced once each week.

4.7.22 Maintenance aging. The connectors shall be mated and unmated 10 times to provide accelerated maintenance aging of the contact, contact locking mechanism, and sealing provisions (see 3.6.21).

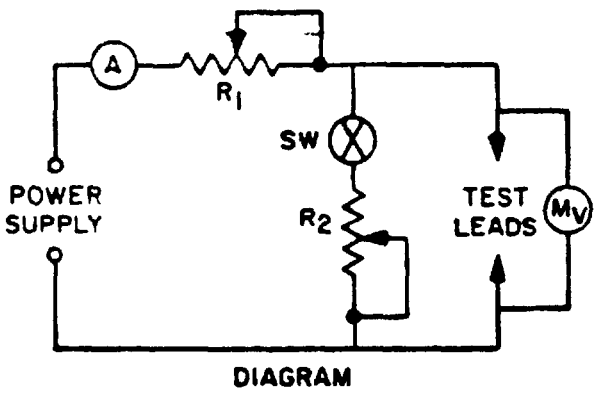
4.7.23 Shield clamp resistance (except classes H and Y) (see 3.6.22). The shield clamp (cable braid to connector) resistance measurement shall be conducted with the apparatus shown on figure 6 and under the steps indicated below:

a. Accurately determine the resistance per inch of several feet of the coaxial cable shield (braid outer conductor) and record this value as R_b/inch.
b. Assemble 5-inch lengths of cable to the test sample connectors and accurately determine the shield effective length in inches from where the shield enters the braid clamp to where it enters the power supply connection, as shown on figure 7 and record this value as Eb.
c. Then the effective cable shield (braid) resistance shall be (R_b/inch) (Eb) = R_b. (Eb is the effective braid length) (R_b is the effective braid resistance).
d. Determine the total shield circuit resistance from the body of the connector to the power supply cable braid connection and record as R_T.
e. Then the resistance of the shield clamp connection will be $R_T - R_b = R_c$. R_c is the shield clamp resistance in milliohms.

1/ The millivolt values can be used as milliohm values, if the current has been kept to one ampere as required.

5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in acordance with MIL-C-55330.

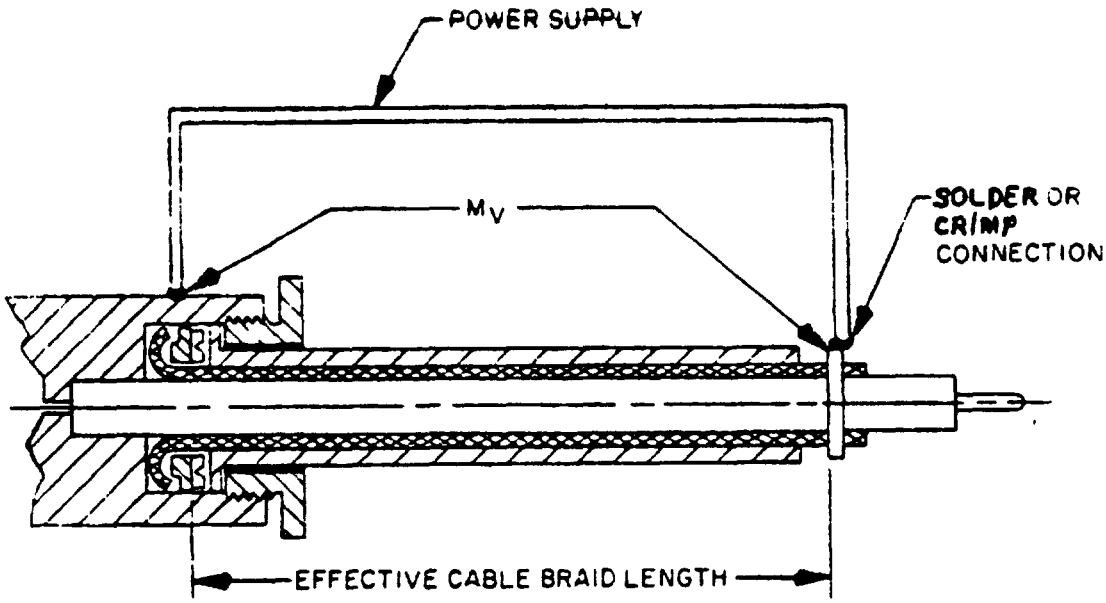


DIAGRAM

A	Ammeter	0 - 1 Amp	R_2	Variable resistor	0 - 100 Mil Ohms
R_1	Variable resistor	0 -15 Ohms	Mv	Millivoltmer	0 - 100 Mv
SW	Switch	Less than .01 ohms contact resistance		Power Supply	10 volts DC at 1 amp.

(a) With test leads open, close switch SW.
(b) Adjust R_2 for a millivoltmeter reading of 50 Mv.
(c) Connect test leads across the test sample and see that the Mv drops significantly before opening switch SW required in (d). A drop in Mv will indicate a satisfactory dry circuit continuity.
(d) Open SW and than adjust R_1 for a circuit current A of one ampere.
(e) Measure the millivolt drop Mv across the test sample and call this ET.

FIGURE 6. Resistance measurement (voltage drop).



NOTE: TYPICAL SHIELD CLAMP SHOWN (SPECIFIC DESIGN NOT REQUIRED). ILLUSTRATES METAL TO METAL CLAMPING OF THE SHIELD (REQUIRED).

FIGURE 7. Set-up for resistance measurement of cable shield clamp connection.

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. Procurement 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 this Qualified Products List is Air Force Acquisition Logistics Division, Electronic Support Division (AFALD/PTES), Wright-Patterson AFB, Ohio 45433; 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

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

Preparing activity:
Air Force - 85

Project No. 5935-3076

APPENDIX
Associated Cable Dimensions

MIL-C-17 part number M17/	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	.212/.198
93-RG178	-02	20	.035/.045	Shielded	.070/.085
	-03	19	.065/.075	Shielded	.110/.120
123-RG279	-04	19	.082/.092	Shielded	.120/.130
	-05	19	.085/.095	Shielded	.130/.140
	-06	20	.080/.095	Nonshielded	.120/.130
	-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	.083/.094
	-11	20	.125/.135	Nonshielded	.165/.175
	-12	19	.090/.100	Nonshielded	.134/.145
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	.184/.200
54-RG122	-16	20	.105/.115	Shielded	.147/.165
	-17	20	.090/.100	Nonshielded	.134/.145
95-RG180	-18	20	.100/.110	Shielded	.145/.155
28-RG58, 111-RG303 60-RG142	-19	18	.110/.121	Shielded	.188/.202
	-20	18	.066/.070	Nonshielded	.105/.115

MIL-C-17 part number M17/	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)
	-21	18	.080 / .090	Nonshielded	.125 / .135
	-22	19	.068 / .070	Shielded	.133 / .147
	-23	20	.123 / .133	Shielded	.160 / .170
	-24	18	.118 / .128	Shielded	.158 / .172
95-RG180	-25	20	.105 / .115	Shielded	.130 / .150

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NOTE: This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

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1. DOCUMENT NUMBER	2. DOCUMENT TITLE

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5. PROBLEM AREAS

a. Paragraph Number and Wording

b. Recommended Wording

c. Reason/Rationale for Recommendation

6. REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI)* – Optional	b. WORK TELEPHONE NUMBER *(Include Area Code)* – Optional
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