INCH-POUND
MIL-C-39012C
AMENDMENT 7
30 October 1993
SUPERSEDING
AMENDMENT 6
11 June 1993

MILITARY SPECIFICATION

CONNECTORS, COAXIAL, RADIO FREQUENCY,
GENERAL SPECIFICATION FOR

This amendment forms a part of MIL-C-39012, dated 11 August 1982, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 1

1.2.2b, delete and substitute:

"b. Category B - Connectors which require special tools to assemble shall be designated as category B connectors. These connectors may be used for original installations only. Field replacement is intended to be made by categories A, C, D, E, or F connectors which shall provide the same form, fit and function. Category B connectors will not be stocked or procured by the Government."

1.2.2e, category E, add the following sentence to the end of the definition: "The method of assembly of the connector to the cable outer conductor shall be by solder."

Following 1.2.2e, add:

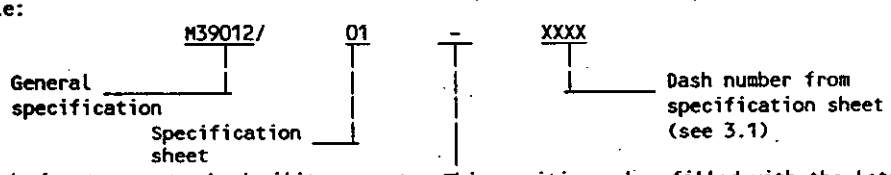
"f. Category F. - Connectors using semirigid cables with standard stripping dimensions and using standard military assembly tools. The method of assembly of the connector to the cable shall be solderless."

PAGE 2

1.2.3, delete and substitute:

"1.2.3 Part number. The part number shall consist of the letter 'M' followed by the basic specification sheet number, and a sequentially assigned four digit dash number. The first digit in the dash number designates the material of the connector body (shell); i.e., '0' for brass, '3' for corrosion-resistant steel, or '4' for copper beryllium.

Example:



The '-' designates a standard military part. This position, when filled with the letter 'B' (i.e. M39012/01BXXXX), signifies a military part which is for OEM use only. The part is assembled to the cable with special tooling. Acquisition of this type part by any agency other than OEM's is prohibited and will result in the substitution of the equivalent military replacement part (i.e., if 'M39012/01BXXXX' is submitted for acquisition, 'M39012/01-XXXX' will be recommended)."

2.1, under SPECIFICATIONS, FEDERAL, delete "L-P-389", "L-P-403", "QQ-A-225/6", "QQ-B-613", "QQ-B-626", "QQ-B-750", "QQ-C-530", "QQ-C-533" and "QQ-C-576" and associated titles.

2.1, under SPECIFICATIONS, FEDERAL, add:

"QQ-N-290 - Nickel Plating (Electrodeposited).
QQ-P-35 - Passivation Treatment For Corrosion Resistant Steel.
QQ-S-365 - Silver Plating, Electrodeposited, General Requirements For."

2.1, under SPECIFICATIONS, MILITARY, delete "MIL-F-14072(SigC)" and associated title. Also delete "MIL-C-14550" and associated title (added by previous amendment).

2.1, under SPECIFICATIONS, MILITARY, for MIL-C-55330, delete title and substitute: "Connectors, Electrical and Fiber Optic, Packaging of."

2.1, under STANDARD, add:

"FEDERAL

FED-STD-H28 - Screw Thread Standards for Federal Services."

2.1, under STANDARD, MILITARY, add:

"MIL-STD-348 - Radio Frequency Connector Interfaces.
MIL-STD-889 - Dissimilar Metals.
MIL-STD-1344 - Test Methods for Electrical Connectors.
MS20995 - Wire, Safety or Lock."

2.2, under AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM), add:

"ASTM B16 Free-Cutting Brass Rod, Bar and Shapes for Use in Screw Machines.
ASTM B36 Brass Plate, Sheet, Strip and Rolled Bar.
ASTM B121 Leaded Brass Plate, Sheet, Strip and Rolled Bar.
ASTM B124 Copper and Copper Alloy Forging Rod, Bar and Shapes.
ASTM B139 Phosphor Bronze Rod, Bar and Shapes.
ASTM B152 Copper Sheet, Strip, Plate and Rolled Bar.
ASTM B194 Copper Beryllium Alloy Plate, Sheet, Strip and Rolled Bar.
ASTM B196 Copper Beryllium Alloy Rod and Bar.
ASTM B197 Copper Beryllium Alloy Wire.
ASTM D1457 Polytetrafluoroethylene (PTFE) Molding and Extrusion Materials.
ASTM D2116 FEP Fluorocarbon Molding and Extrusion Materials."

3.1, delete and substitute the following: "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 sheets, unless specifically stated otherwise herein, the specification sheets shall govern."

3.2, line 3, add: "Permission to grant qualification testing on category 'B' connectors shall only be granted when a noncategory 'B' connector is available on the latest issue of the Qualified Products List."

TABLE I, delete and substitute the following:

" TABLE I. Materials.

Component Material	Applicable Specification
Brass	ASTM-B-16, ASTM-B-36, ASTM-B-121 or ASTM-B-124
Copper beryllium	ASTM-B-194, ASTM-B-196 or ASTM-B-197
Phosphor bronze	ASTM-B-139
Soft copper	ASTM-B-152
Copper	WW-T-799
Steel, corrosion resisting	QQ-S-763, ASTM-A-484 or ASTM-A-582
Flux	O-F-499
PTFE fluorocarbon	ASTM-D-1457
FEP fluorocarbon	ASTM-D-2116
Silicon rubber	ZZ-R-765
Silver solder	QQ-B-654
Soft solder	QQ-S-571
Bronze (alloy 425)	---

"

3.3.1, delete and substitute:

"3.3.1 Finish. Unless otherwise specified (see 3.1), connector center contacts and bodies shall be plated in the following manner."

3.3.1.1, delete and substitute:

"3.3.1.1 Center contacts. Center contacts shall be gold plated to a minimum thickness of 0.000050 inch in accordance with MIL-G-45204, type II, class 1 over a 0.000050 inch minimum nickel underplate in accordance with QQ-N-290, class 1. A silver underplate shall not be permitted.

NOTE: No part number changes will be made as a result of this plating change. The change will be tracked via the manufacturer's date code.

Change effectivity. Unless otherwise specified (see 3.1) this plating change shall become effective for new manufactured product not later than 11 June 1994.

Disposition of stock. Manufacturers and their selling agents and distributors may ship from stock connectors which were manufactured and qualified to the previous amendment (5) until 11 December 1995.

3.3.1.2, delete and substitute:

"3.3.1.2 Connector bodies. All brass bodied connectors shall be silver plated in accordance with QQ-S-365 to a minimum thickness of 0.000200 inch over a copper underplate. All copper beryllium bodied connectors shall be gold plated in accordance with MIL-G-45204, type II, class 1 over a copper flash. All corrosion resistant steel bodied connectors shall be passivated in accordance with QQ-P-35, unless otherwise specified (see 3.1). NOTE: Ferrous or nickel alloys shall not be used on brass or copper beryllium bodied connectors (i.e., coupling nuts, etc.)."

3.3.1.2.1: Delete.

3.3.1.3: Delete in its entirety. (Paragraph added by previous amendment.)

3.3.2, delete "MIL-F-14072(SigC)" and substitute "MIL-STD-889".

After 3.4.1, add the following:

"3.4.2 Screw threads. Screw threads shall be in accordance with FED-STD-H28 unless otherwise specified (see 3.1).

"3.4.3 Connector interfaces. Connector interfaces shall be in accordance with MIL-STD-348 unless otherwise specified (see 3.1)."

PAGE 5

3.16, add the following new sentence to the end of the paragraph: "The following statement takes precedence over any specification sheet interpretation, The outer contact resistance values given for steel bodied connectors are typical values and are for engineering information purposes only."

PAGE 6

3.24, add the following sentence: "The direct clamping of the cable jacket shall not be the primary method of cable retention."

3.28, add the following after the first sentence: "It is not the intention of this specification to require assembly instructions with uncabled connectors (i.e., solder pot, solder tab or posts, etc.)."

3.28c, delete "loss" and substitute "loose".

3.29, delete and substitute:

"3.29 Marking. Connectors and associated fittings shall be permanently and legibly marked in accordance with the general marking requirements of MIL-STD-130 with the military part number (see 1.2.3), manufacturer's federal supply code, and final assembly date code. The marking location is optional; when practicable, a location should be picked that will be least likely to be covered in cable assembly or installation. Marking is required on all parts manufactured to this specification unless specifically excepted (see 3.1)."

Add 3.31, as follows:

"3.31 Manufacturers' control drawing. Connector manufacturers shall insure that special tooling and dies are documented. The replacement category A, C, D, E, or F part numbers shall be listed on the manufacturers' control drawing."

Add 3.32, as follows:

"3.32 Safety wire hole pullout. When applicable (see 3.1), connectors are to be tested as specified in 4.6.25. There shall be no evidence of hole tear out."

PAGE 7

4.4.2, add the following sentence between the two existing sentences. "Group qualification will be limited to those connectors for which evidence of manufacturing capability is demonstrated by providing engineering drawings to the qualifying agency."

4.4.5, delete and substitute:

"4.4.5 Retention of qualification. To retain qualification, the contractor shall forward a report at 12- or 36-month intervals, as indicated below, 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. Groups A and B shall be submitted every 12 months indicating, as a minimum, the number of lots that have passed and the number that have failed. The results of tests of all reworked lots shall be identified and accounted for.

b. A summary of the results of tests performed for qualification verification inspection, group C, shall be submitted every 36 months including the number and mode of failures. The summary shall include results of all qualification verification inspection tests performed and completed during the 36-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 60 days after the end of each 12- or 36-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 12- or 36-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 three consecutive reporting periods there has been no production, the manufacturer may be required, at the discretion of the qualifying activity, to submit the connector to testing in accordance with the qualification inspection requirements."

PAGE 8

TABLE II, add the following to group III after Connector durability:

"Safety wire hole pullout	3.32	4.6.25"

TABLE II, the following new note 1/ shall apply to the following tests: Vibration, Shock, Corona, RF high potential withstanding voltage, RF leakage and RF insertion loss:

"1/ These tests are only to be performed during initial qualification, as long as the qualifying design and manufacturing process does not change."

PAGE 9

4.5.1.1.1.1, delete and substitute:

"4.5.1.1.1.1 Sampling plan. Statistical sampling and inspection shall be in accordance with MIL-STD-105 for general inspection level II, except that for DWV special inspection level S-1 shall be used. The acceptable quality level (AQL) shall be as specified in table III. Major and minor defects shall be as defined in MIL-STD-105."

4.5.1.1.2.1, delete and substitute:

"4.5.1.1.2.1 Sampling plan. The sampling plan shall be in accordance with MIL-STD-105 for special inspection level S-4, except that for IR and VSWR special inspection level S-1 shall be used. The sample size shall be based on the inspection lot size from which the sample was selected for group A inspection. The AQL shall be 2.5 percent defective."

PAGE 10

TABLE IV, following "Voltage standing wave ratio (uncabled)", add "1/".
Following table IV, add "1/ Destructive test."

PAGE 11

TABLE V, add the following to subgroup 2 after Connector durability:

"Safety wire hole pullout	3.32	4.6.25"

TABLE V, delete the following tests from the table: "Vibration, Shock, Corona, RF high potential withstanding voltage, RF leakage and RF insertion loss."

4.6.6, item b: Delete "III" and substitute "I".

4.6.21, delete and substitute:

"4.6.21 Cable retention force (see 3.24). When specified (see 3.1), the connector shall be assembled to its standard mating test cable. The connector shall be firmly fixed and a movable sleeve attached to the cable. The sleeve is then moved longitudinally away from the fixed connector gradually and in such a manner that the cable remains unbent and untwisted. A scale for measuring the retention force (see 3.1) shall be attached to the sleeve. The force shall be held for 30 seconds minimum. The assembly shall then be examined for mechanical failure, loosening, or rupture and tested for continuity using a suitable test method. When specified (see 3.1), a torque shall be applied to the cable about its axis in each direction relative to the connector at the location and to the torque value given on the detail specification sheet. The cable (flexible types only) shall then be bent at a radius of 10 times the diameter of the cable starting at the connectors at an angle of 90° ±5° from the axis of the connector, then reversed 180° ±10°. Repeat this procedure four times, then retest and reexamine as outlined above."

4.6.24, following last sentence, add: "Use of alternate test methods may be approved by the qualifying activity."

Add 4.6.25 as follows:

"4.6.25 Safety wire hole pullout (see 3.32). A single strand of safety wire shall be looped through the safety wire hole and secured to itself. Forces of 15 pounds (67 newtons) minimum shall be applied to the safety wire pulling away from the connector. One pull shall be parallel to the connector axis and one pull perpendicular to the connector axis (see figure 6). The safety wire shall be corrosion resistant steel .020 inch diameter (24 gauge) or .015 inch diameter, (27 gauge) in accordance with MS20995. This test is to be conducted under static conditions. All holes are to be tested individually."

Add figure 6 as follows:

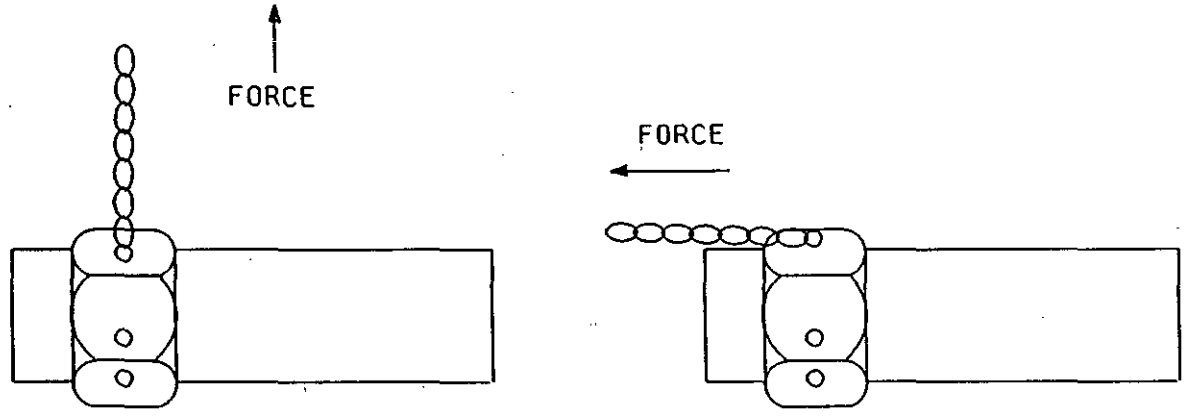


FIGURE 6. Safety wire hole pullout procedure.

6.2, items d and e: Delete in their entirety.

PAGE 26

Add 6.6.2 as follows:

"6.6.2 Installation of category 'B' connectors. Field replaceable connectors for category 'B' shall be those specified on the latest issue of the Qualified Products List and shall be adequate as a replacement without rework of the connector. The equipment parts list shall indicate the appropriate connector that will be used for the service replacement of a category 'B' connector."

PAGE 27

30.2, line 2: Delete "figures 8, 9, and 10" and substitute "MIL-STD-348."

PAGES 30 THROUGH 55

Figures 8, 9, and 10: Delete in their entirety.

The text of this amendment is highlighted 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.

CONCLUDING MATERIAL

Custodians:
Army - CR
Navy - EC
Air Force - 85
NASA - NA

Review activities:
Army - AR, AT, MI
Navy - AS, MC, OS, SH
Air Force - 19, 99
DLA - ES

Preparing activity:
Army - CR

Agent:
DLA - ES

(Project 5935-3966)