

NOTE: The document identifier and heading has been changed on this page to reflect that this is a performance specification. There are no other changes to this document. The document identifier on subsequent pages has not been changed, but will be changed the next time this document is revised.

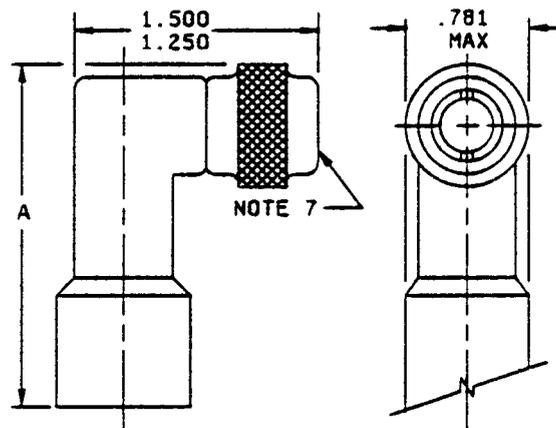
MIL-PRF-39012/10D  
3 October 1986  
SUPERSEDING  
MIL-C-39012/10C  
30 September 1982

### PERFORMANCE SPECIFICATION SHEET

#### CONNECTORS, PLUG, ELECTRICAL, COAXIAL, RADIO FREQUENCY, (SERIES C (CABLED), MALE, RIGHT ANGLE, CLASS 2)

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

The requirements for acquiring the connectors described herein shall consist of this specification and the latest issue of MIL-PRF-39012.



#### NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. For dimension A see table I.
4. Dimension A defines the maximum length of the connector when assembled to the appropriate cable.
5. Wrench flats to accommodate standard wrench in accordance with FED-STD-H28, appendix 10.
6. All undimensioned pictorial configurations are for reference purposes only.
7. Series C, pin contact interface in accordance with MIL-STD-348.

FIGURE 1. General configuration.

TABLE I. Dash numbers, cross reference, and dimensions.

Dash number 2/	Applicable cable M17/ #	Typical mating connector M39012/ (optional hardware) 1/	Dimensions	Inches (millimeters)	
				Minimum	Maximum
Category A - Field serviceable (no special tools required)					
0001 6/	065-RG165 074-RG213 75-RG214* RG-225/U@	7-0001 8-0001 11-0002	A	1.625 (41.28)	1.875 (47.63)
0005 6/	074-RG215†	7-0010 8-0009 11-0010	A	1.625 (41.28)	2.500 (63.50)
0009 6/	92-RG115@	7-0020 8-0018 11-0021	A	1.625 (41.28)	1.875 (47.63)
Category C - Field replaceable (MIL-C-22520 crimp tool) 3/ 4/ 5/ See footnote symbol next to applicable cable for crimp die					
0006	074-RG213*◄ 065-RG165@◄	7-0011 8-0010 11-0013	A	1.625 (41.28)	2.375 (60.33)
0007	75-RG214*◄	7-0012 8-0011 11-0014			
0008	RG-225/U◄	7-0013 8-0012 11-0015			
0011	92-RG115@◄	7-0016 8-0014 11-0017			

1/ Optional hardware M39012/25-0003.

2/ For cross reference of dash number to superseded part number or type designation, see table III.

3/ These connectors have captivated center contacts.

4/ Category C connectors are assembled by means of the applicable crimping tool per MIL-C-22520 to the specified cable stripping in accordance with figure 2.

5/ Complete connector assembly shall consist of a body, center contact, ferrule, and assembly instructions.

6/ Inactive for new design.

# The latest version of each cable shall be applicable.

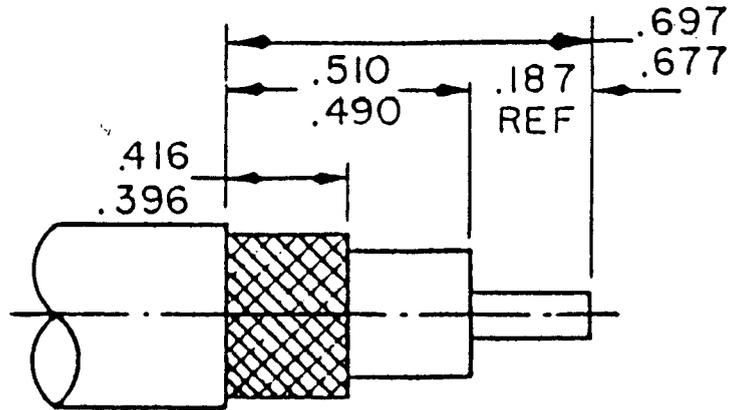
\* Cable to be used when performing tests requiring cable except as in notes @ and Δ.

@ Cable to be used for the +200°C temperature cycling tests.

Δ These are not 50 ohm cables; therefore, when attached to the specified connectors, VSWR, RF leakage, and insertion loss are not applicable.

Armored cable.

◄ M22520/5-61 is preferred die.



Inches	mm
.187	4.75
.396	10.06
.416	10.57
.490	12.45
.510	12.95
.677	17.20
.697	17.70

**NOTES:**

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.

FIGURE 2. Recommended cable stripping dimensions for category C connectors.

ENGINEERING DATA:

Nominal impedance: 50 ohms.

Frequency range: 0 to 11,000 MHz.

Voltage rating:

1,000 volts rms, maximum working voltage at sea level.

250 volts rms, maximum at 70,000 feet.

Temperature rating: -65°C to +165°C.

REQUIREMENTS:

Dimensions and configuration: See figure 1.

Force to engage and disengage:

Longitudinal force: 4-1/2 pounds, maximum.

Torque: 4 inch-pounds, maximum.

Coupling proof torque: Not applicable.

Inspection conditions: Coupling torque not applicable.

Mating characteristics:

Reference MIL-STD-348.

Outer contact:

Test ring ID: .411 maximum, 16 microinch finish.

Insertion force: 7 pounds, maximum when inserted a minimum of .125.

Contacts with slotted members: Shall contact a .419, minimum diameter ring within .031 of their tip ends.

Hermetic seal: Not applicable.

Leakage (pressurized connectors): Not applicable.

Insulation resistance: Method 302 of MIL-STD-202, test condition B, 5,000 megohms, minimum.

Center contact retention: Not applicable.

Corrosion (salt spray): Method 101 of MIL-STD-202, test condition B.

Voltage standing wave ratio (VSWR): From .5 to 11 GHz, or approximately 80 percent of upper cutoff frequency of the cable, whichever is lower;

.5 to 9 GHz: 1.35, maximum.

9 to 11 GHz: 1.50, maximum.

Swept frequency VSWR test setup:

Item 6: VSWR shall be less than  $1.015 + .005 F$  (F in GHz).

Item 16: VSWR shall be less than  $1.015 + .005 F$  (F in GHz).

Second step of VSWR checkout procedure: VSWR shall be less than  $1.045 + .015 F$  (F in GHz).

Group B inspection: VSWR shall be less than  $1.10 + .01 F$  (F in GHz).

Qualification and group C inspection: VSWR shall not exceed 1.15.

Connector durability: 500 cycles, minimum at 12 cycles per minute, maximum. The connector shall meet the mating characteristics and force to engage and disengage requirements.

Contact resistance: In milliohms, maximum:

	<u>Initial</u>	<u>After environment</u>
Center contact	2.0	2.5
Outer contact	.35	Not applicable
Braid to body	.05	Not applicable

Dielectric withstanding voltage: Method 301 of MIL-STD-202, 3,000 volts rms at sea level.

Vibration, high frequency: Method 204 of MIL-STD-202, test condition B.

Shock: Method 213 of MIL-STD-202, test condition I.

Thermal shock: Method 107 of MIL-STD-202, test condition B, except test high temperature shall be +85°C. High temperature shall be +200°C for connectors using +200°C cables (see table I).

Moisture resistance: Method 106 of MIL-STD-202. No measurements at high humidity. Insulation resistance shall be at least 200 megohms within 5 minutes after removal from humidity.

Corona level:

Voltage: 750 volts rms, minimum.

Altitude: 70,000 feet.

RF high potential withstanding voltage:

Voltage and frequency: 2,500 volts rms at a frequency from 5 to 7.5 MHz.

Leakage current: Not applicable.

Cable retention force:

Noncrimp assemblies: 75 pounds, minimum.

Crimp assemblies:

50 pounds, minimum for cables .155 - .189 OD.

60 pounds, minimum for cables .190 - .229 OD.

75 pounds, minimum for cables .230 - .249 OD.

90 pounds, minimum for cables .250 OD and larger.

Coupling mechanism retention force: 100 pounds, minimum.

RF leakage<sup>1/</sup>: -55 dB minimum, tested at a frequency between 2 and 3 GHz.

<sup>1/</sup> This requirement may be met when RF leakage on M39012/6, having the same mating end design and intended for the same cable, is met.

## Insertion loss:

.21 dB maximum tested at 9 GHz.

.07  $\sqrt{F}$  (GHz) dB maximum tested at 3 GHz and 6 GHz.

Part number: M39012/10- (dash number from table I).

TABLE II. Group qualification.

Group	Submission and qualification of any of the following connectors	Qualifies the following connectors
	M39012/10	M39012/10
I	-0001	-0001 -0005 -0009
II	-0006	-0006 -0007 -0008 -0011

NOTE: If a connector manufacturer produces a connector which meets all the requirements for two or more connector part numbers (within the same series), the manufacturer may receive qualification approval for two or more connector part numbers qualifying the one connector. It is not necessary that such connectors be in the same group. Each connector, however, must be marked with its own appropriate part number. For group qualification, the connectors must be of similar design.

TABLE III. Cross reference of part numbers.

Preferred part number M39012/10-	Substitute for part number or type designation <u>1/2/</u>
0001	UG-710/U
0005	
0006	UG-1769/U, M39012/10-0002
0007	UG-1770/U, M39012/10-0003
0008	UG-1771/U, M39012/10-0004
0009	
0010	
0011	M39012/10-0010

- 1/ The superseded part number or the type designation is for cross reference only. Where a superseded part number or type designation is not given, none was assigned or will be assigned. The part number M39012/10-XXXX shall be used in all cases for marking and identifying the connector.
- 2/ The basic type designation includes all letter versions of the specified number, e.g. UG-18/U includes UG-18 A/U, UG-18B/U, etc.

Revision letters are not used to denote changes due to the extensiveness of the changes.

Custodians:

Army - CR  
Navy - EC  
Air Force - 85

Review activities:

Army - CR, EA, MI  
Air Force - 11, 17, 99  
DLA - ES

User activities:

Army - AT, AV  
Navy - AS, MC, OS, SH  
Air Force - 19

Preparing activity:

Army - CR

Agent:

DLA - ES

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