

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-39012/6D  
14 December 1987  
SUPERSEDING  
MIL-C-39012/6C  
30 September 1982

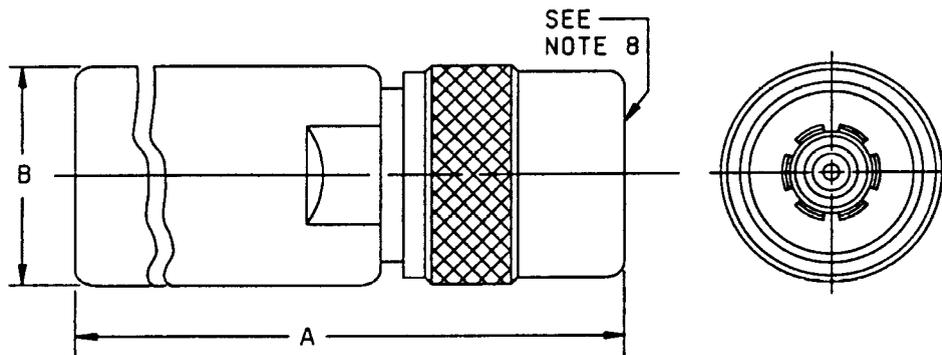
PERFORMANCE SPECIFICATION SHEET

CONNECTORS, PLUG, ELECTRICAL, COAXIAL, RADIO FREQUENCY,  
(SERIES C (CABLED), MALE, 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.

MARKING IMPLEMENTATION DATE,  
CATEGORY B, SEE TABLE IV



NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. For dimensions A and B see table I and III.
4. Dimension B is the largest overall diameter of the connector.
5. Wrench flats to accommodate standard wrench in accordance with H-28, appendix 10.
6. Dimension A defines the maximum length of the connector when assembled to the appropriate cable.
7. All undimensioned pictorial configurations are for reference purposes only.
8. Series C, pin contact interface in accordance with MIL-STD-348, 302.1.

FIGURE 1. General configuration.

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

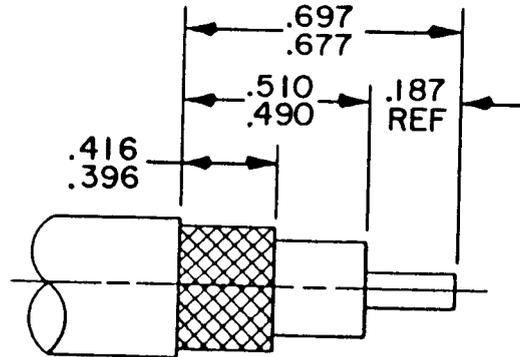
Dash no. <u>1/</u>	Applicable cable <u>2/</u> M17/	Typical mating connector M39012/ (optional hardware) <u>3/</u>	Dimensions	Inches (millimeters) maximum
CATEGORY A - FIELD SERVICEABLE (NO SPECIAL TOOLS REQUIRED)				
0001 <u>4/</u>	73-RG212 <u>5/</u> 112-RG304	7-0002 8-0002 11-0001	A B	1.609(40.87) .781(19.84)
0002 <u>4/</u>	65-RG165 74-RG213 75-RG214 <u>5/</u> 86-00001 <u>6/</u>	7-0001 8-0001 11-0002	A B	1.609(40.87) .781(19.84)
0003 <u>4/</u>	78-RG217 <u>5/</u>		A B	1.875(47.53) .891(22.63)
0004 <u>4/</u>	72-RG211 <u>5/</u>		A B	2.250(57.15) 1.328(33.73)
0005 <u>4/</u>	79-RG218 <u>5/</u>		A B	2.250(57.15) 1.328(33.73)
0013 <u>4/</u>	74-RG215 <u>7/</u>	7-0010 8-0009 11-0010	A B	2.250(57.15) .891(22.63)
0014 <u>8/</u>	73-RG212 <u>5/</u> 112-RG304	7-0018 8-0016 11-0018	A B	1.609(40.87) .781(19.84)
0015 <u>8/</u>	65-RG165 74-RG213 75-RG214 <u>5/</u> 86-00001 <u>6/</u>	7-0017 8-0015 11-0019	A B	1.609(40.87) .781(19.84)
0016 <u>8/</u>	78-RG217 <u>5/</u>		A B	1.875(47.63) .891(22.63)
0017 <u>8/</u>	72-RG211 <u>5/</u>		A	2.250(57.15)
0018 <u>8/</u>	79-RG218 <u>5/</u>		B	1.328(33.73)
0019 <u>8/</u>	74-RG215 <u>7/</u>	7-0019 8-0017 11-0020	A B	2.250(57.15) .891(22.63)
0020 <u>8/</u>	92-RG115 <u>6/</u>	7-0020 8-0018 11-0021	A B	1.609(40.87) .781(19.84)

See footnotes at end of table.

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

Dash no. <u>1/</u>	Applicable cable <u>2/</u> M17/	Typical mating connector M39012/ (optional hardware) <u>3/</u>	Dimensions	Inches (millimeters) maximum
CATEGORY C - FIELD REPLACEABLE (MIL-C-22520 CRIMP TOOL) <u>8/</u> <u>9/</u> SEE FOOTNOTE NEXT TO APPLICABLE CABLE FOR CRIMP DIE				
0027	73-RG212 <u>5/</u> <u>10/</u> 112-RG304 <u>10/</u>	7-0014 8-0013 11-0012	A B	2.000(50.80) .781(19.84)
0028	74-RG213 <u>5/</u> <u>11/</u> 65-RG165 <u>6/</u> <u>11/</u>	7-0011 8-0010 11-0013		
0029	75-RG214 <u>5/</u> <u>11/</u>	7-0012 8-0011 11-0014		
0030	86-00001 <u>5/</u> <u>6/</u> <u>11/</u>	7-0013 8-0012 11-0015		
0031	6-RG11 <u>5/</u> <u>11/</u> <u>12/</u>	7-0015 11-0016		
0032	92-RG115 <u>6/</u> <u>11/</u>	7-0016 8-0014 11-0017		

- 1/ For cross-reference of dash number to superseded part number or type designation, see table IV.
- 2/ The latest version of each cable shall be applicable.
- 3/ Optional hardware M39012/25-0003.
- 4/ Inactive for new design.
- 5/ Cable to be used when performing tests requiring cable except as in 6/ and 12/.
- 6/ Cable to be used for the +200°C temperature cycling tests.
- 7/ Armored cable.
- 8/ These connectors have captivated center contacts.
- 9/ Category C connector are assembled by means of the applicable crimping tool in accordance with MIL-C-22520 to the specified cable stripping in accordance with figure 2.
- 10/ M22520/5-35 closure A or M22520/5-55 closure A
- 11/ M22520/5-61
- 12/ These are not 50-ohm cables; therefore, when attached to the specified connectors, VSWR, RF leakage, and insertion loss are not applicable.



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 and MIL-STD-348.

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:

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: 6 pounds minimum axial force.

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; 1.35 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/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	1.0	1.5
Outer contact	.15	Not applicable
Braid to body	.05	Not applicable

Dielectric withstanding voltage: Method 301 of MIL-STD-202. 3,000 volts rms minimum 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  $+85^{\circ}\text{C}$ . Test high temperature shall be  $+200^{\circ}\text{C}$  for  $+200^{\circ}\text{C}$  cables (see table I and III).

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: -55 dB minimum, tested at a frequency between 2 and 3 GHz.

Insertion loss:

.15 dB maximum tested at 9 GHz.

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

Part number: M39012/6- (dash number from table I or "B" number from table III).

TABLE II. Group Qualification.

Group	Submission and qualification of any of the following connectors	Qualifies the following connectors
I	M39012/6 -0002	M39012/6 -0001 -0002 -0003 -0004 -0005 -0013
II	-0015	-0014 -0015 -0016 -0017 -0018 -0019 -0020
III	B0022	B0021 B0022 B0023 B0024 B0025 B0026
IV	-0028	-0027 -0028 -0029 -0030 -0031 -0032

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. CATEGORY B - NONFIELD REPLACEABLE (SPECIAL TOOLS MAY BE REQUIRED).

| NOT FOR AIR FORCE OR NAVY USE. FOR OEM USE ONLY. |

Part no. M39012/6B <u>2/</u>	Applicable cable <u>1/</u> M17/ <u>1</u>	Typical mating connector M39012/ (optional hardware) <u>7/</u>	Dimensions	Inches (millimeters) maximum
0021 <u>3/</u>	73-RG212 <u>4/</u> 112-RG304 <sup>-</sup>	7-0024 8-0022	A B	2.000(50.80) .781(19.84)
0022 <u>3/</u>	74-RG213 <u>4/</u> 65-RG165 <u>5/</u>	7-0021 8-0019 11-0023		
0023 <u>3/</u>	75-RG214 <u>4/</u>	7-0022 8-0020 11-0024		
0024 <u>3/</u>	86-00001 <u>4/</u> <u>5/</u>	7-0023 8-0021 11-0025		
0025 <u>3/</u>	6-RG11 <u>4/</u> <u>6/</u>	7-0025 11-0026		
0026 <u>3/</u>	92-RG115 <u>5/</u>	7-0026 8-0023 11-0027		

- 1/ The latest version of each cable shall be applicable.
- 2/ For cross reference of dash number to superseded part number or type designation, see table IV.
- 3/ These connectors have captivated center contacts.
- 4/ Cable to be used when performing tests requiring cable except as in 5/ and 6/.
- 5/ Cable to be used for the +200°C thermal shock.
- 6/ These are not 50-ohm cables; therefore, when attached to the specified connectors, VSWR, RF leakage, and insertion loss are not applicable.
- 7/ Optional hardware M39012/25-0003.

TABLE IV. Cross reference of part numbers. 1/

Preferred part number M39012/6	Substitute for part number or type designation <u>2/3/</u>
-0001	UG-626/U
-0002	UG-573/U
-0003	UG-707/U
-0004	UG-711/U
-0005	UG-708/U
-0013	UG-943/U
-0014	M39012/6-0001
-0015	M39012/6-0002
-0016	M39012/6-0003
-0017	M39012/6-0004
-0018	M39012/6-0005
-0019	M39012/6-0013
-0020	
B0021	M39012/6-0021, M39012/6-0007, UG-1748/U
B0022	M39012/6-0022, M39012/6-0008, UG-1749/U
B0023	M39012/6-0023, M39012/6-0009, UG-1750/U
B0024	M39012/6-0024, M39012/6-0010, UG-1751/U
B0025	M39012/6-0025, M39012/6-0011, UG-1752/U
B0026	M39012/6-0026
-0027	M39012/6-0021
-0028	M23329/1-01, M23329/1-03
-0029	M23329/1-02
-0030	M23329/1-04
-0031	M23329/1-09
-0032	

1/ The new "B" part numbers will be required marking 6 months after the date of this specification. The connectors that are in stock or distribution that were previously qualified and marked with the old part number shall also be considered acceptable for Government use until connector stock is purged.

2/ 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 M39012/6-XXXX shall be used in all cases for marking and identifying the connector.

3/ 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 - 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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