

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.

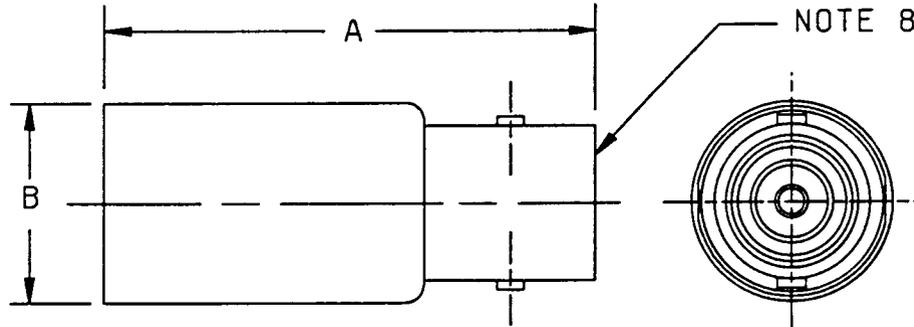
MIL-PRF-39012/7D
3 October 1986
SUPERSEDING
MIL-C-39012/7C
30 September 1982

PERFORMANCE SPECIFICATION SHEET

CONNECTORS, PLUG, ELECTRICAL, COAXIAL, RADIO FREQUENCY,
(SERIES C (CABLED), FEMALE, 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:

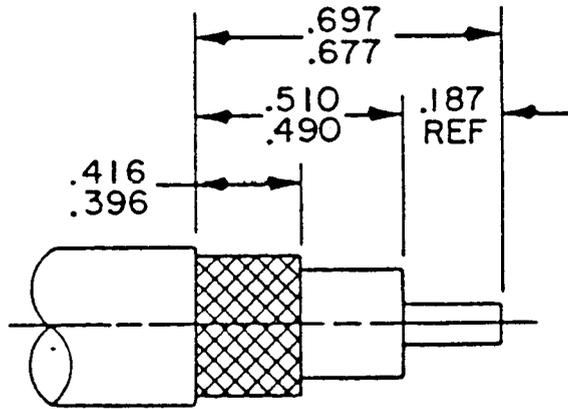
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. For dimensions A and B see table I and III.
4. Dimension B is the largest overall diameter of the connector.
5. Wrench flats to accommodate standard wrench in accordance with FED-STD-H28, appendix 10.
6. Dimension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

FIGURE 1. General configuration.

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

Dash number <u>2/</u>	Applicable cable M17/ #	Typical mating connector M39012/ (optional hardware) <u>1/</u>	Dimensions	Inches (millimeters) maximum
Category A - Field serviceable (no special tools required)				
0017 <u>3/</u>	065-RG165 074-RG213 075-RG214* RG-225/U@	6-0015 6-0002 10-0001	A B	1.531(38.89) .760(19.30)
0018 <u>3/</u>	073-RG212* 112-RG304	6-0014 6-0001		
0019 <u>3/</u>	074-RG215+	6-0019 6-0013	A B	2.218(56.34) .891(22.63)
0020 <u>3/</u>	92-RG115@	6-0020	A B	1.531(38.89) .760(19.30)
Category C - Field replaceable (MIL-C-22520 crimp tool) <u>3/4/5/</u> See footnote symbol next to applicable cable for crimp die				
0011	074-RG213*← 065-RG165@←	6-0028 10-0006		
0012	075-RG214*←	6-0029 10-0007		
0013	RG-225/U@←	6-0030 10-0008	A	1.875(47.63) .766(19.46)
0014	073-RG212*≠ 112-RG304≠	6-0027		
0015	6-RG11Δ←	6-0031		
0016	92-RG115@←	6-0032		

- 1/ Optional hardware M39012/25-0001.
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/ 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.
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.
≠ M22520/5-35 Closure A or M22520/5-55 Closure A
← M22520/5-61



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.

Center contact (female):

Oversize test pin: .098 diameter, minimum (non-closed entry contacts only).

Insertion depth: .125, minimum.

Number of insertions: One.

Insertion force test: Steel test pin diameter .092, minimum.

Test pin finish: 16 microinches.

Insertion force: 2 pounds, maximum.

Withdrawal force test: Steel test pin diameter .090, maximum.

Withdrawal force: 2 ounces, minimum.

Test pin finish: 16 microinches.

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 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	1.0	1.5
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 $+85^{\circ}\text{C}$. Test high temperature shall be $+200^{\circ}\text{C}$ for $+200^{\circ}\text{C}$ cables (see tables 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: Not applicable.

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: M39012/7 (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	M39012/7 -0017	M39012/7
		-0017
		-0018
		-0019
		-0020
II	B0021	B0021
		B0022
		B0023
		B0024
		B0025
		B0026
III	-0011	-0011
		-0012
		-0013
		-0014
		-0015
		-0016

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.
--

Dash number <u>2/</u>	Applicable cable M17/ #	Typical mating connector M39012/ (optional hardware) <u>1/</u>	Dimensions	Inches (millimeters) maximum
M39012/7B0021 <u>3/</u>	074-RG213* 065-RG165@	6-0022		
M39012/7B0022 <u>3/</u>	75-RG214*	6-0023	A	1.078
M39012/7B0023 <u>3/</u>	RG-225/U@	6-0024	B	.760
M39012/7B0024 <u>3/</u>	073-RG212* RG-304/U	6-0021		
M39012/7B0025 <u>3/</u>	6-RG11Δ	6-0025		
M39012/7B0026 <u>3/</u>	92-RG115@	6-0025		

1/ Optional hardware M39012/25-0001.

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

3/ These connectors have captivated center contacts.

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.

TABLE IV. Cross reference of part numbers.

Preferred part number M39012/7	Substitute for part number or type designation <u>1/2/</u>
-0011	IM23329/1-05, M23329/1-07
-0012	IM23329/1-06
-0013	IM23329/1-08
-0014	
-0015	IM23329/1-10
-0016	
-0017	IM39012/7-0001, UG-572/U
-0018	IM39012/7-0002, UG-633/U
-0019	IM39012/7-0010, UG-944/U
-0020	
B0021 3/	IM39012/7-0021, M39012/7-0003, UG-1754/U
B0022 3/	IM39012/7-0022, M39012/7-0004, UG-1755/U
B0023 3/	IM39012/7-0023, M39012/7-0005, UG-1756/U
B0024 3/	IM39012/7-0024, M39012/7-0007, UG-1758/U
B0025 3/	IM39012/7-0025, M39012/7-0008, UG-1759/U
B0026 3/	IM39012/7-0026

- 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 M39012/7-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.
- 3/ The new "B" part numbers will be required marking 6 months after the date of this specification. The previous part number may be used in the interim.

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

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

Preparing activity:
 Army - CR

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

Agent:
 DLA - ES

(Project 5935-3518-4)

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

Agent:
 DLA - ES