

INCH-POUND

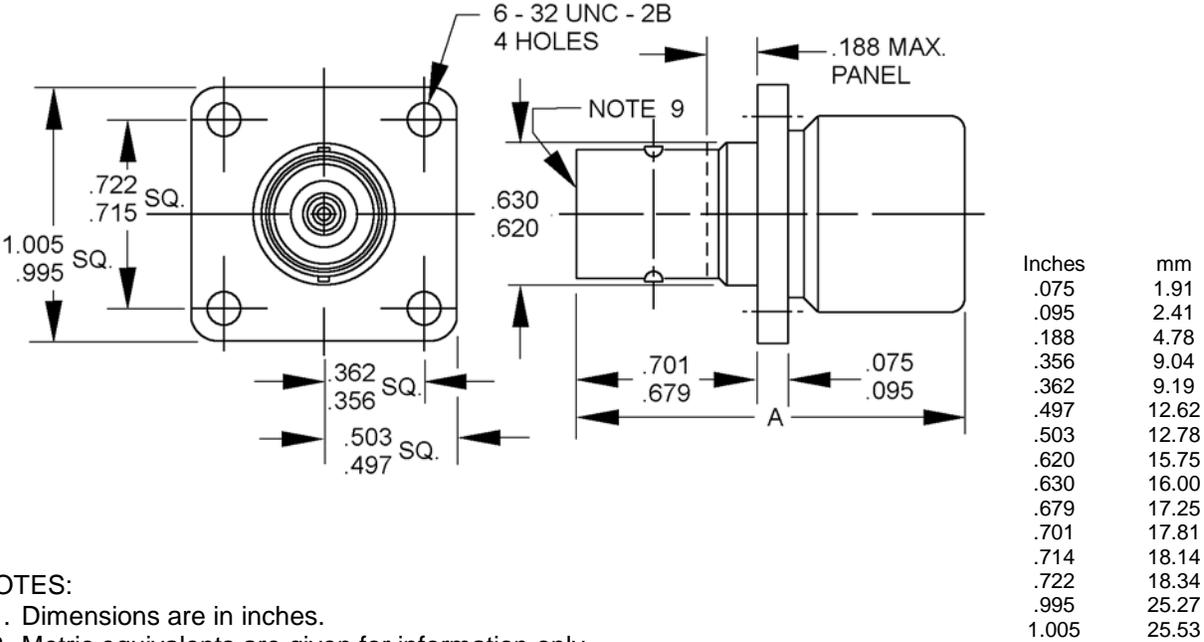
MIL-PRF-39012/8E
w/AMENDMENT 1
8 June 2016
SUPERSEDING
MIL-PRF-39012/8E
16 January 2015

PERFORMANCE SPECIFICATION SHEET

CONNECTORS, RECEPTACLE, ELECTRICAL, COAXIAL, RADIO FREQUENCY,
(SERIES C (CABLED), FEMALE, FLANGE MOUNTED, REAR MOUNTED, CLASS 2)

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

The requirements for acquiring the product described herein shall consist of this specification sheet
and MIL-PRF-39012.



NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. For dimensions A and B, see tables I and III.
4. Receptacle recommended for component part use on panels with a .090 (2.29mm) maximum thickness.
5. Wrench flats to accommodate standard wrench in accordance with FED-STD-H28.
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. Bayonet studs and edges of flange shall be within 3 inches (7.62cm) of orientation shown.
9. Series C, socket contact interface, in accordance with MIL-STD-348.

FIGURE 1. General Configuration.

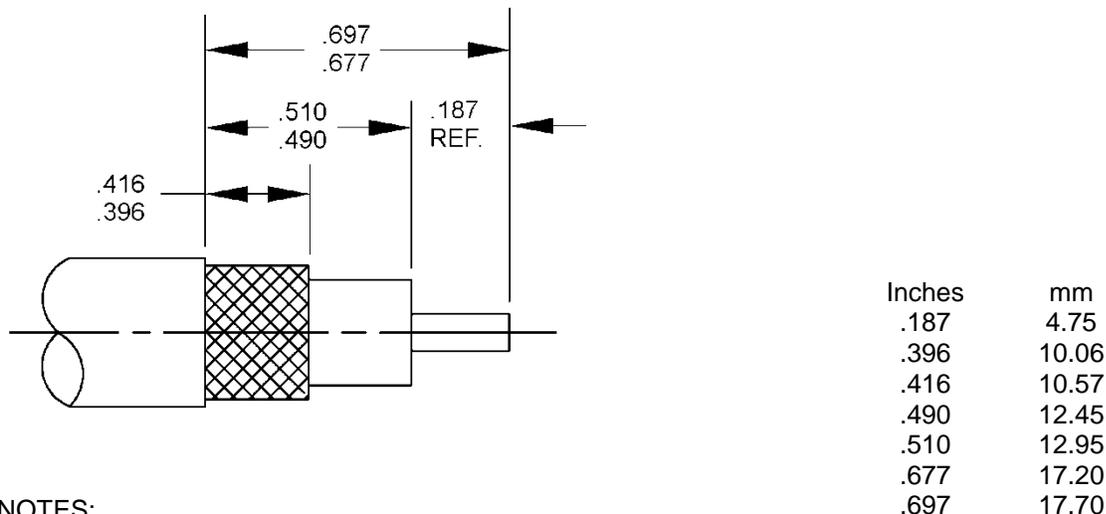


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TABLE I. Dash numbers, cross-reference, and dimensions.

Dash Number <u>4/</u>	Applicable cable M17/ <u>6/</u>	Typical mating connector M39012/ (optional hardware) <u>1/</u>	Dimensions	Inches <u>13/</u> (millimeters) maximum
CATEGORY A – FIELD SERVICEABLE (NO SPECIAL TOOLS REQUIRED)				
0001 <u>5/</u>	65-RG165 74-RG213 75-RG214 <u>7/</u> RG-225/U <u>8/</u>	6-0002 10-0001	A	1.531 (38.89)
0002 <u>5/</u>	73-RG212 <u>7/</u> 112-RG304	6-0001		
0009 Canceled	74-RG215 <u>10/</u>	6-0013 10-0005	A	2.218 (56.34)
0015	65-RG165 74-RG213 75-RG214 <u>7/</u> RG-225/U <u>8/</u>	6-0005	A	1.531 (38.89)
0016 <u>2/</u>	73-RG212 <u>7/</u> 112-RG304	6-0014		
0017 <u>2/</u>	74-RG215 <u>10/</u>	6-0019	A	2.218 (56.34)
0018 <u>2/</u>	92-RG115 <u>8/</u>	6-0020 10-0009	A	1.531 (38.89)
CATEGORY C – FIELD REPLACEABLE (MIL-DTL-22520 CRIMP TOOL) SEE NOTE NEXT TO APPLICABLE CABLE FOR CRIMP DIE <u>2/</u> <u>3/</u>				
0010	74-RG213 <u>7/</u> <u>12/</u> 65-RG165 <u>7/</u> <u>8/</u> <u>12/</u>	6-0028 10-0006	A	2.000 (50.80)
0011	75-RG214 <u>7/</u> <u>12/</u>	6-0029 10-0007		
0012	RG-225/U <u>7/</u> <u>8/</u> <u>12/</u>	6-0030 10-0008		
0013	73-RG212 <u>7/</u> <u>11/</u> 112-RG304 <u>11/</u>	6-0027		
0014	6-RG11 <u>8/</u> <u>12/</u>	6-0031		
0024	92-RG115 <u>9/</u>	6-0032		

- 1/ Optional hardware numbers are in parentheses.
- 2/ These connectors have captivated center contacts.
- 3/ Category C connectors are assembled, using the applicable crimp tool, per MIL-DTL-22520 to the specified cable stripped as shown on figure 2.
- 4/ For cross reference of dash number to superseded Part or Identifying Number (PIN) or type designation, see table IV.
- 5/ Inactive for new design. Not for Air Force or Navy use.
- 6/ The RG cables are specified with the basic number. The latest version of each cable shall be applicable..
- 7/ Cable to be used when performing tests requiring cable except as in 8/ and 9/.
- 8/ Cable to be used for the +200°C temperature cycling tests.
- 9/ These are not 50 ohm cables; therefore, when attached to the specified connectors, VSWR, RF leakage and insertion loss are not applicable.
- 10/ Armored cable.
- 11/ M22520/5-35 closure A or M22520/5-55 closure A.
- 12/ M22520/5-61.
- 13/ Dimensions are in inches. Metric equivalents are given for information only.



NOTES:

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

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

ENGINEERING INFORMATION:

Nominal impedance: 50 ohms.

Frequency range: 0 to 11 GHz.

Voltage rating: 1,000 volts rms maximum working voltage at sea level.
250 volts rms maximum at 70,000 feet (4.437 kPa).

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 (.45 Nm).

Coupling proof torque: Not applicable.

Inspection conditions: Coupling torque not applicable.

Mating characteristics: See MIL-STD-348.

Center contact (female):

Oversize test pin: .098 inch (2.49 mm) diameter, minimum (non-closed entry contacts only).

Insertion depth: .125 inch (3.17 mm), minimum.

Number of insertions: 1

Insertion force test:

Steel test pin diameter: .092 inch (2.34 mm), minimum.

Test pin finish: 16 microinches (0.406 μm).

Insertion force: 2 pounds (8.90 N), maximum.

Withdrawal force test:

Steel test pin diameter: .090 inch (2.29 mm), maximum.

Withdrawal force: 2 ounce (.56 N), minimum.

Test pin finish: 16 microinches (0.406 μm).

Hermetic seal: Not applicable.

Leakage (pressurized connectors): Not applicable.

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Insulation resistance: In accordance with MIL-STD-202-302, condition B, 5,000 mega ohms minimum.

Center contact retention: 6 pounds (26.69 N), minimum axial force.

Corrosion (salt spray): In accordance with MIL-STD-202-101, condition B.

Voltage standing wave ratio (VSWR): From 500 MHz to 11 GHz, or approximately 80 percent of the upper cutoff frequency of the cable, whichever is lower; 1.35, maximum.

Swept frequency VSWR setup:

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

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

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

Group B inspection: VSWR shall be less than $1.10 + .01F$ (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 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 at sea level: In accordance with MIL-STD-202-301. 3,000 volts rms minimum at sea level.

Vibration, high frequency: In accordance with MIL-STD-202-204, test condition B.

Shock: In accordance with MIL-STD-202-213, test condition I.

Thermal shock: In accordance with MIL-STD-202-107, test condition B, except test high temperature shall be +85°C. High temperature shall be +200°C for connectors using +200°C cables (see tables I and III).

Moisture resistance: In accordance with MIL-STD-202-106. 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 tested at a frequency from 5 to 7.5 MHz.

Leakage current: Not applicable.

Cable retention force:

Non-crimp assemblies: 75 pounds (333.62 N), minimum.

Crimp assemblies:

50 lbs. (222.41 N) minimum for cables .155 - .189 inch (3.94 – 4.80 mm) OD.

60 lbs. (266.90 N) minimum for cables .190 - .229 inch (4.83 – 5.82 mm) OD.

75 lbs. (333.62 N) minimum for cables .230 - .249 inch (5.84 – 6.32 mm) OD.

90 lbs. (400.34 N) minimum for cables .250 inch (6.35 mm) OD and larger.

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Coupling mechanism retention force: Not applicable.
 RF leakage: -55 dB minimum, tested at frequency between 2 and 3 GHz.
 RF insertion loss:
 .15 dB maximum at 9 GHz.
 .05 \sqrt{F} (GHz) dB maximum tested at 3 and 6 GHz.

Part or Identifying Number (PIN): M39012/8- (dash number from table I or B number from table III).

Group qualification: See table II.

TABLE II. Group qualification. ^{1/}

Group	Submission and qualification of any of the following connectors.	Qualifies the following Connectors
I	M39012/8	M39012/8
	-0001	-0001 -0002 -0009
	-0015	-0015 -0016 -0017 -0018
III	B0019	B0019 B0020 B0021 B0022 B0023
	-0010	-0010 -0011 -0012 -0013 -0014 -0024

^{1/} If a connector manufacturer produces a connector which meets all the requirements for two or more connector PIN's (within the same series), the manufacturer may receive qualification approval for two or more connector PIN's by 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 PIN. For group qualification, the connectors must be of similar design and be of the same materials and plating.

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TABLE III. Category B – non-field replaceable (special tools may be required).

Not for Air Force, Army, or Navy use. For OEM use only.

PIN <u>2/</u> <u>3/</u> M39012/8	Applicable Cable M17/ <u>4/</u>	Typical mating connector M39012/ (optional hardware) <u>1/</u>	Dimensions	Inches <u>8/</u> (millimeters) maximum
B0019	74-RG213 <u>5/</u> 65-RG165	6-0022	A	2.000 (50.80)
B0020	75-RG214	6-0023		
B0021	RG-225/U <u>5/</u> <u>6/</u>	6-0024		
B0022	73-RG212 <u>5/</u> RG-304/U	6-0021		
B0023	92-RG115 <u>6/</u>	6-0026		

- 1/ Optional hardware numbers are in parentheses.
- 2/ These connectors have captivated center contacts.
- 3/ For cross-reference of PIN to superseded PIN or type designation, see table IV.
- 4/ The latest version of each cable shall, be applicable.
- 5/ Cable to be used when performing tests requiring cable except as in 6/ and 7/.
- 6/ Cable to be used for the +200°C temperature cycling tests.
- 7/ These are not 50 ohm cables; therefore, when attached to the specified connectors, VSWR, RF leakage, and insertion loss are not applicable.
- 8/ Dimensions are in inches. Metric equivalents are given for information only.

Supersession data: See table II.

TABLE IV. Supersession data. 1/ 2/

Preferred PIN M39012/8	Superseded PINs or superseded type designation
-0010	M23329/1-11, M23329/1-13
-0011	M23329/1-12
-0012	M23329/1-14
-0013	
-0014	
-0015	M39012/8-0001, UG-571/U
-0016	M39012/8-0002, UG-629/U
-0017	M39012/8-0009
-0018	
B0019	UG-1761/U, M39012/8-0003, M39012/8-0019
B0020	UG-1762/U, M39012/8-0004, M39012/8-0020
B0021	UG-1763/U, M39012/8-0005, M39012/8-0021
B0022	UG-1765/U, M39012/8-0007, M39012/8-0022
B0023	
-0024	M23329/1-15

1/ The superseded PIN or the type designation is for reference only. Where a superseded PIN or type designation is not given, none was assigned or will be assigned. The PIN 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.

TABLE V. Maintenance replacements for category B.

Category B number 1/	Category C dash number	Category A dash number
B0019	0010	-----
B0020	0011	-----
B0021	0012	-----
B0022	-----	-----
B0023	0024	0018

1/ Category B connectors are for original installation only. They will not be stocked or procured by the government.

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Amendment notations. The margins of this specification are marked with vertical lines to indicate modifications generated by this amendment. 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.

Referenced documents. In addition to MIL-PRF-39012, this document references the following:

FED-STD-H28	MIL-STD-202-204	MIL-STD-202-302
MIL-STD-202-101	MIL-STD-202-213	MIL-STD-348
MIL-STD-202-106	MIL-STD-202-301	MIL-DTL-22520
MIL-STD-202-107		

CONCLUDING MATERIAL

Custodians:

Army – CR
Navy – EC
Air Force – 85
DLA - CC

Preparing activity:
DLA - CC

(Project 5935-2016-062)

Review activities:

Army – AT, CR4, MI
Navy – AS, MC, OS, SH
Air Force – 19, 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil>.