

INCH-POUND

MIL-PRF-39012/4F  
14 August 2013  
SUPERSEDING  
MIL-PRF-39012/4E  
16 November 2006

PERFORMANCE SPECIFICATION SHEET

CONNECTORS, COAXIAL, RADIO FREQUENCY  
(SERIES N (UNCABLED) – RECEPTACLES – JAM NUT AND  
FLANGE MOUNTED, SOCKET CONTACT, 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.

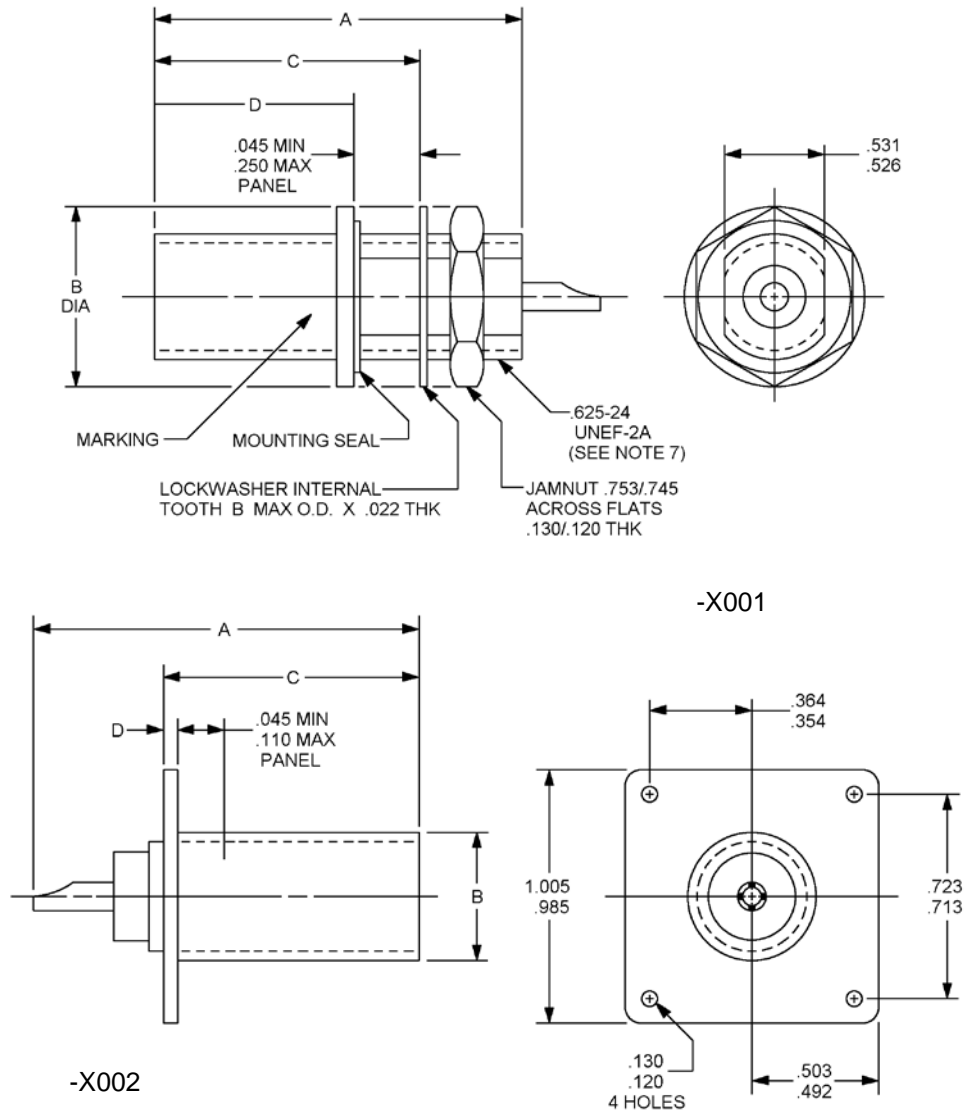
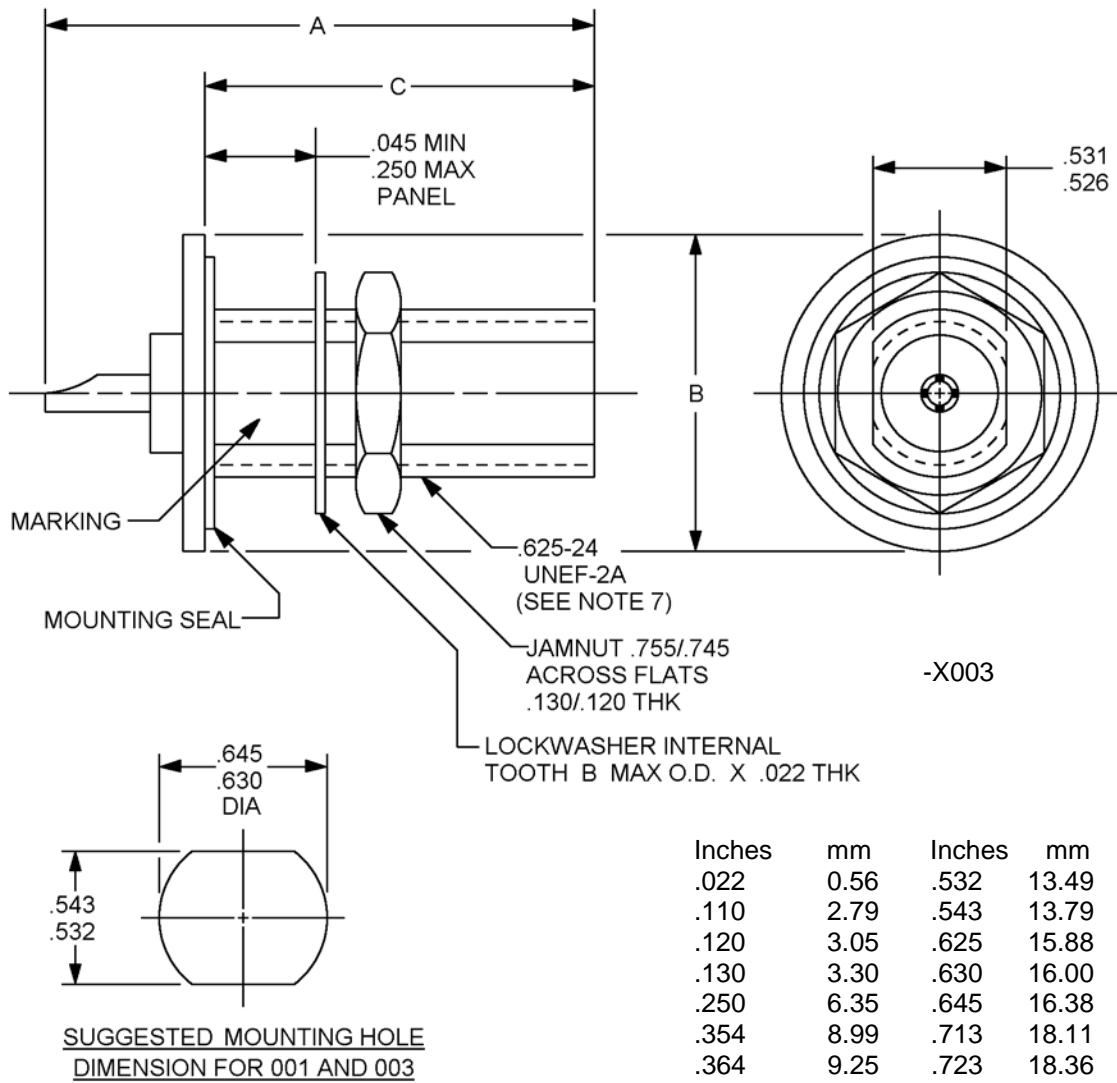


FIGURE 1. General configuration.

AMSC N/A

FSC 5935

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NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. See table I for dimensions A, B, C, and D.
4. Dimensions A and B are the largest overall dimensions of the receptacles except the flange height and width on dash number 0002 or 7002.
5. All undimensioned pictorial configurations are for reference purposes only.
6. Receptacle dash number 0002 or 7002 not recommended for use on panels with greater than .071 (1.80 mm) max thickness.
7. Full threads to within .063 inch (1.60 mm) of shoulder; 1 1/2 max uneven threads to shoulder.
8. There shall be a solid barrier in the socket between the pin entry and the solder pocket to prevent solder wicking.
9. Interface is a series N socket contact in accordance with MIL-STD-348.

FIGURE 1. General configuration – Continued.

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

Dash number <u>1/</u>	Type	Dimension	Inches (millimeters) <u>2/</u>	
			Min	Max
0001 <u>3/</u> 7001 <u>3/</u>	Bulkhead (front mounted – hermetic sealed)	A	--	1.750 (44.45)
		B	--	.885 (22.48)
		C	1.125 (25.40)	1.250 (31.75)
		D	.702 (17.83)	.721 (18.08)
0002 <u>3/</u> 7002 <u>3/</u>	Flange (rear mounted)	A	1.062 (26.97)	1.156 (26.36)
		B	.620 (15.65)	.670 (17.02)
		C	.721 (18.31)	.751 (19.08)
		D	.075 (1.91)	.085 (2.16)
0003 <u>3/</u> 7003 <u>3/</u>	Bulkhead (rear mounted)	A	--	1.343 (34.11)
		B	.850 (21.59)	.900 (22.86)
		C	.912 (23.16)	.940 (23.88)

1/ For cross-reference of dash number to superseded Part or Identifying Number (PIN) or type designation, see table III.

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

3/ These connectors have captivated center contacts.

## ENGINEERING DATA:

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:

Design and configuration: See figure 1.

Force to engage and disengage:

Longitudinal force: Not applicable.

Torque: 6 inch-pounds (.68 Nm) maximum.

Coupling proof torque: Not applicable.

Inspection conditions: Coupling torque: 6 to 10 inch-pounds (.68 to 1.13 Nm).

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Mating characteristics: In accordance with MIL-STD-348.

Contact with spring members:

Center contact (socket):

Oversize test pin: .074 inch (1.88 mm), diameter minimum (nonclosed entry contacts only).

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

Number of insertions: 1.

Insertion force test: Steel test pin diameter .066 inch (1.68 mm), minimum.

Test pin finish: 16 microinches (0.406  $\mu\text{m}$ ).

Insertion force: 2 pounds (8.90 N) maximum.

Withdrawal force test: Steel test pin diameter .063 inch (1.60 mm), maximum.

Withdrawal force: 2 ounces (.56 N) minimum.

Test pin finish: 16 microinches (0.406  $\mu\text{m}$ ).

Hermetic seal: Applicable to M39012/04-0001 and M39012/04-7001.

(Leakage shall not exceed  $1 \times 10^{-7}$   $\text{cm}^3/\text{s}$  of tracer gas at atmospheric pressure)

Leakage (pressurized connectors): Applicable to M39012/04-0001, M39012/04-0003, M39012/04-7001 and M39012/04-7003. The receptacle shall be mounted in its normal manner on a closed container with the mating end capped. Container interior air pressure shall be 30 psi.

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

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

Corrosion (salt spray): Method 101 of MIL-STD-202.

Voltage standing wave ratio (VSWR): Not applicable.

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

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Contact resistance: In milliohms maximum.

	<u>Initial</u>	<u>After environment</u>
Center contact:		
M39012/04-X001	4.0	5.0
Outer contact:		
M39012/04-0001	.2	Not applicable
M39012/04-7001	.4	Not applicable
Center contact:		
M39012/04-X002	1.0	1.5
M39012/04-X003	1.0	1.5
Outer contact:		
M39012/04-0002	.2	Not applicable
M39012/04-0003	.2	Not applicable
M39012/04-7002	.4	Not applicable
M39012/04-7003	.4	Not applicable

Dielectric withstanding voltage: Method 301 of MIL-STD-202. 2,500 volts rms minimum at sea level.

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

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

Temperature cycling: Method 102, test condition C, MIL-STD-202 except high temperature shall be 85°C. High temperature shall be  $\pm 200^\circ\text{C}$ .

Thermal shock: Method 107 of MIL-STD-202, test condition B, except high temperature shall be +85°C. High temperature shall be +200°C for connectors using +200°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: Not applicable

RF high potential withstanding voltage:

Voltage and frequency: 1,500 volts rms at 5 MHz.

Leakage current: Not applicable.

Cable retention force: Not applicable.

Coupling mechanism retention force: Not applicable.

RF leakage: Not applicable.

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Insertion loss: Not applicable.

Part or Identifying Number (PIN): M39012/04- (dash number from table I).

**CAUTION: THE “7000” SERIES OF DASH NUMBERS ALLOW FOR A NICKEL PLATED CONNECTOR BODY. A NICKEL PLATED BODY IS NOT FOR USE IN APPLICATIONS WHERE PASSIVE INTERMODULATION GENERATION (PIM) MAY BE A CONCERN (<http://amphenolrf.com/simple/PIM%20Paper.pdf>). Silver is the preferred plating option.**

Group qualification: See table II.

Cross-reference information: See table III.

TABLE II. Group qualification. 1/, 2/

Group	Submission and qualification of any of the following connectors	Qualifies the following connectors
I	M39012/04-X001	M39012/04-X001
II	M39012/04-X002	M39012/04-X002
III	M39012/04-X003	M39012/04-X003

1/ If a connector manufacturer produces a connector which meets all the requirements for two or more connector PIN (within the same series), the manufacturer may receive qualification approval for two or more connector PIN 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.

2/ Connectors of the same body material and finish may only qualify connectors of the same body material and finish.

TABLE III. Cross-reference of PIN's.

Preferred PIN	Substitute for PIN or type designation <u>1/</u>
M39012/04-0001	MS90531-680A
M39012/04-0002	UG-58/U
M39012/04-0003	--

1/ The superseded PIN or the type designation is for cross-reference only. Where a superseded PIN or type designation is not given, none was assigned or will be assigned. The PIN M39012/04-XXXX shall be used in all cases for marking and identifying the connector.

Changes from previous issue. The margins of this specification are marked with vertical lines to indicate where changes from the previous issue 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 issue.

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

MIL-STD-202  
MIL-STD-348

CONCLUDING MATERIAL

Custodians:

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

Preparing activity:  
DLA – CC

(Project 5935-2013-193)

Review activities:

Army – AR, AT, EA, 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>.