

INCH-POUND
MIL-PRF-39012/21B
w/AMENDMENT 1
20 April 2009
SUPERSEDING
MIL-PRF-39012/21B
16 November 2006

PERFORMANCE SPECIFICATION SHEET

CONNECTORS, RECEPTACLE, ELECTRICAL, COAXIAL, RADIO FREQUENCY,
(SERIES BNC (UNCABLED), SOCKET CONTACT, JAM NUT 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.

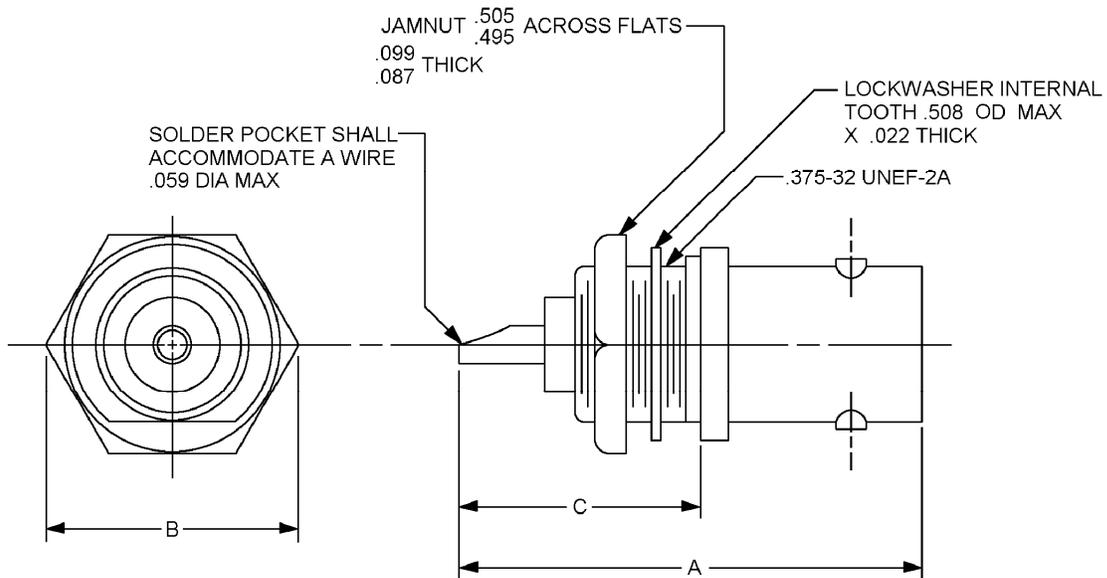
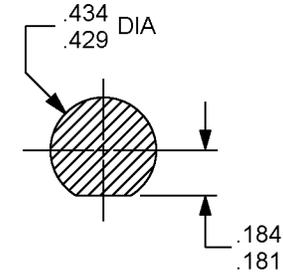
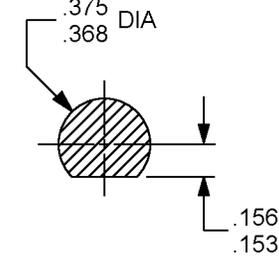


FIGURE 1. General configuration.

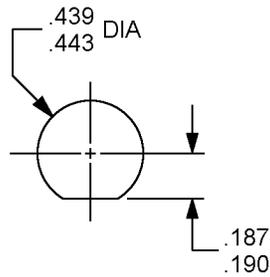
MIL-PRF-39012/21B
w/AMENDMENT 1



CONNECTOR "D"
MTG SURFACE

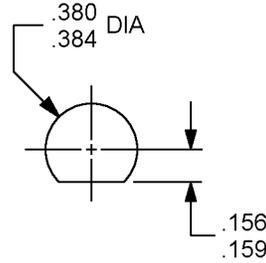


CONNECTOR "D"
MTG SURFACE



MOUNTING HOLE

M39012/21-X001
M39012/21-X003



MOUNTING HOLE

M39012/21-X002

Inches	mm	Inches	mm
.022	.56	.368	9.35
.059	1.50	.375	9.53
.087	2.21	.380	9.65
.099	2.51	.384	9.75
.153	3.89	.429	10.90
.156	3.96	.434	11.02
.159	4.04	.439	11.15
.181	4.60	.443	11.25
.184	4.67	.495	12.57
.187	4.75	.505	12.83
.190	4.83	.508	12.90

NOTES:

1. Dimensions are in inches.
2. For dimensions 'A', 'B', 'C', see table I.
3. Dimension 'B' is the largest overall diameter of the connector.
4. Metric equivalents are given for information only.
5. Orientation of mounting flats and bayonet studs shall be within $\pm 3^\circ$ of the orientation shown.
6. All undimensioned pictorial representations are for reference purposes only.
7. Interface dimensions shall be in accordance with MIL-STD-348, socket contact.

FIGURE 1. General configuration – Continued.

MIL-PRF-39012/21B
w/AMENDMENT 1

TABLE I. Dash numbers and overall dimensions.

Part or Identifying Number (PIN) <u>1/</u>	Dim.	Inches (millimeters) <u>2/</u>		Panel thickness <u>2/</u>	
		Minimum	Maximum	Minimum	Maximum
M39012/21-X001	A	--	1.187 (30.15)	.045 (1.14)	.130 (3.30)
	B	--	.585 (14.86)		
	C	.529 (13.44)	.653 (16.59)		
M39012/21-X002 (Not for new design)	A	--	1.312 (33.32)	.045 (1.14)	.260 (6.60)
	B	--	.585 (14.86)		
	C	.654 (16.61)	.778 (19.76)		
M39012/21-X003	A	--	1.312 (33.32)	.045 (1.14)	.260 (6.60)
	B	--	.585 (14.86)		
	C	.654 (16.61)	.778 (19.76)		

1/ For cross reference of dash number to superseded PIN or type designation see table III.

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

X Denotes connector body plating material option. The only plating options allowable are Silver or Nickel over brass in accordance with MIL-PRF-39012. Only connectors of the same materials shall be mated to avoid dissimilar metal problems. **CAUTION: 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.

TABLE II. Group qualification. 1/ 2/

Group	Submission and qualification of any of the following connectors	Qualifies the following connectors
I	M39012/21-X001, M39012/21-0002, M39012/21-X003, M39012/22-0001	M39012/21-X001, M39012/21-X002, M39012/21-X003, M39012/22-X001

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 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.

2/ For qualification retention, where more than one part is listed in a group in this column, data may be supplied on any of those parts in order to retain qualification for those parts in the corresponding right hand column. The part does not necessarily have to be the part initially qualified.

MIL-PRF-39012/21B
w/AMENDMENT 1

TABLE III. Cross reference of PINs.

PIN	Substitute for type <u>1/</u> designation
M39012/21-0001	UG-625/U
M39012/21-0002	UG-1094/U
M39012/21-0003	

1/ The superseded PIN or the type designation is for cross reference only.
The PIN M39012/21-XXXX shall be used in all cases for marking and identifying the connector.

ENGINEERING DATA

Nominal impedance: 50 ohms.

Frequency range: 0 to 4 GHz.

Voltage rating: 500 volts rms maximum working voltage at sea level. 125 volts rms maximum at 70,000 feet (4.437 kPa).

Temperature rating: -65°C to +165°C.

REQUIREMENTS

Design and construction: See figure 1.

Center contacts: 4 pounds (17.8 N), minimum axial force. 4 inch-ounces (0.03 Nm) minimum radial torque.

Force to engage and disengage:

Longitudinal force – 3 pounds (13.34 N), maximum.

Torque – 2.5 inch-pounds (0.28 Nm), maximum.

Coupling mechanism retention force:

Not applicable.

Mating characteristics:

See MIL-STD-348 for mating dimensions.

Contacts with spring members:

Center contact (female):

Oversize test pin: .057 inch (1.45 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 - .054 inch (1.37 mm) minimum.

Test pin finish: 16 microinches (0.406 μ m).

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

Withdrawal force test: Steel test pin diameter - .052 inch (1.32 mm), maximum.

Withdrawal force: 2 ounces (0.56 N), minimum.

Test pin finish: 16 microinches (0.406 μ m).

MIL-PRF-39012/21B
w/AMENDMENT 1

Hermetic seal: Not applicable.

Leakage (pressurized connectors): Not applicable.

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

Contact resistance: In milliohms maximum.

	<u>Initial</u>	<u>After environment</u>
Center contact	2.0	2.5
Outer contact (Silver)	.2	Not applicable
Outer contact (Nickel)	.4	Not applicable

Resistance to test prod damage: Not applicable.

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

Voltage standing wave ratio (VSWR): Not applicable.

Dielectric withstanding voltage: Method 301 of MIL-STD-202. 1,500 volts rms at sea level.

Corona level:

Voltage: 375 volts minimum.

Altitude: 70,000 feet (4.437 kPa).

RF high potential withstanding voltage:

Voltage and frequency: 1,000 volts rms at 5 MHz.

Leakage current: Not applicable.

Contact durability: Insertion and withdrawal force 500 cycles minimum at 12 cycles/min maximum. The mating force shall meet the mating characteristics requirements.

Vibration, high frequency: Method 204, test condition B of MIL-STD-202. No discontinuities.

Shock: Method 202 of MIL-STD-202.

Acceleration: 50 G's at 7 milliseconds.

No discontinuities permitted.

Temperature cycling: Method 102, test condition C of MIL-STD-202, except high temperature shall be 200°C.

Thermal shock: Not applicable.

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. Dielectric withstanding voltage shall be met.

Cable retention force: Not applicable.

MIL-PRF-39012/21B
w/AMENDMENT 1

RF leakage: Not applicable.

Insertion loss: Not applicable.

Qualification by similarity: Qualification by similarity may be given for the like styles of currently qualified TNC series connectors with the approval of the qualifying and preparing activity. Similarity will include, cable accommodation, materials and plating, assembly procedures and crimp tools/dies, as a minimum.

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:

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 5935-2008-192)

Review activities:

Army – AR, AT, AV, CR4, MI
Navy – AS, OS
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 <http://assist.daps.dla.mil>.