

INCH-POUND

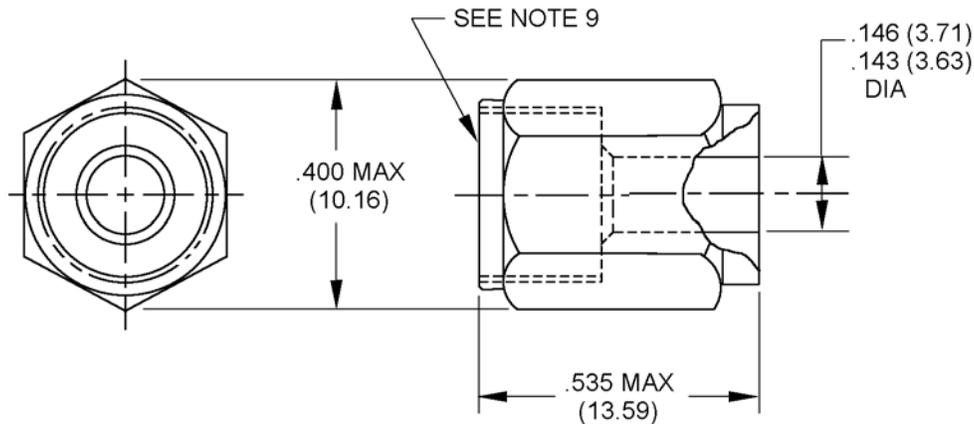
MIL-PRF-39012/92C  
w/AMENDMENT 5  
15 July 2016  
SUPERSEDING  
MIL-PRF-39012/92C  
w/AMENDMENT 4  
5 April 2002

PERFORMANCE SPECIFICATION SHEET

CONNECTORS, PLUG, ELECTRICAL, COAXIAL, RADIO FREQUENCY, SERIES SMA  
(CABLED, CLASS 2, WITHOUT CONTACT, .141 SEMIRIGID CABLE)

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.

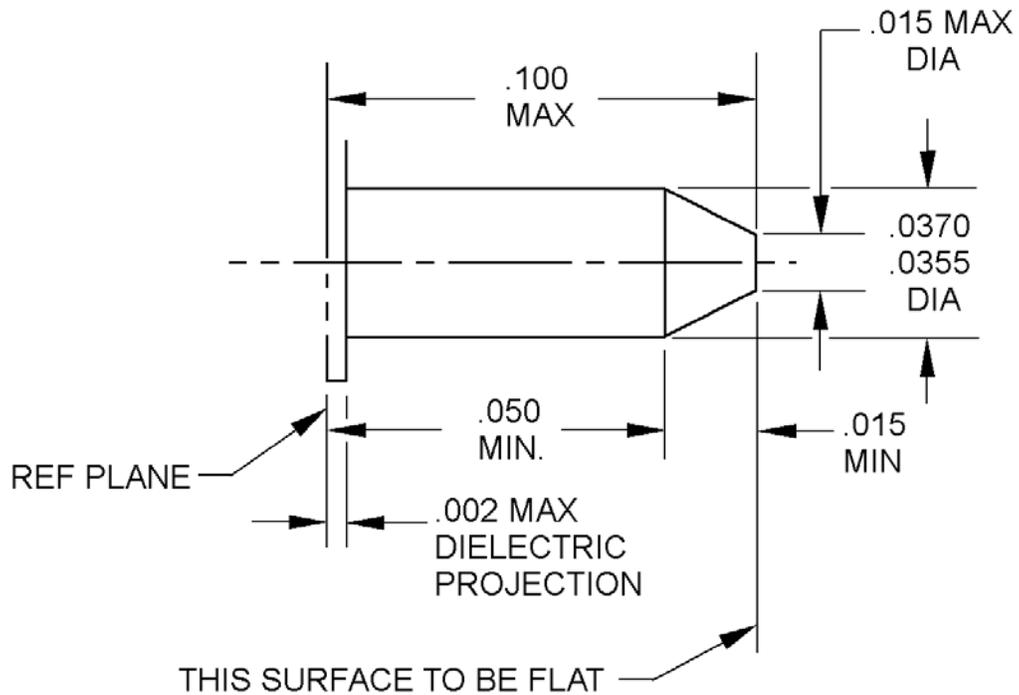


NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Metric equivalents are in parentheses.
4. Dimension .400 (10.16 mm) is the largest overall diameter of the connector.
5. Wrench flats to accommodate standard wrench opening in accordance with FED-STD-H28, appendix 10.
6. All undimensioned pictorial configurations are for reference purpose only.
7. Dimension .535 (13.59 mm) maximum defines the overall length of connector when assembled to the cable.
8. When applicable (see table I), three holes .016 (0.41 mm) minimum diameter, equally spaced, are required for safety wire after mating. Location on the coupling nuts optional.
9. Series SMA, no contact, in accordance with section 310 of MIL-STD-348.

FIGURE 1. General configuration.





Inches	mm
.002	0.05
.015	0.38
.0355	0.902
.0370	0.940
.050	1.27
.100	2.54

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Deburring is required.

FIGURE 2. Cable stripping dimensions for category E and category F connectors.

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TABLE I. Dash number and applicable cable.

Dash no. M39012/92-	Applicable cable <u>1/</u>
CATEGORY A – FIELD SERVICEABLE (NO SPECIAL TOOLS REQUIRED) <u>2/ 3/ 4/</u>	
3002 3102 <u>5/</u> 4002 4102 <u>5/</u>	M17/130-RG402 <u>6/</u> M17/130-00001 M17/130-00002 M17/130-00003
CATEGORY E – FIELD REPLACEABLE (STANDARD ASSEMBLY TOOL KIT) <u>2/ 3/ 4/ 9/</u>	
3003 3103 <u>5/</u> 4003 4103 <u>5/</u>	M17/130-RG402 <u>6/</u> M17/130-00001 M17/130-00002 M17/130-00003

Dash no. M39012/92-	Applicable cable <u>1/</u>	Tool no.	Positioning dies	Locator pins <u>8/</u>	Crimp dies M22520/5
CATEGORY F – FIELD REPLACEABLE (MIL-C-22520 CRIMP TOOL) <u>2/ 3/ 4/</u>					
3201 <u>9/</u> 3301 <u>9/ 5/</u> 4201 <u>9/</u> 4301 <u>9/ 5/</u>	M17/130-RG402 <u>6/</u> M17/130-00001 M17/130-00002 M17/130-00003	M22520/36-01	M22520/36-03	M22520/36-06, or -16	---
3202 3302 <u>5/</u> 4202 4302 <u>5/</u>		M22520/5-01	---	---	-05 or -41 cavity B

- 1/ MIL-DTL-17 cables are specified by the basic number. The latest version of each cable shall be applicable.
- 2/ Durability for center conductor is limited, not to be used in applications requiring frequent matings.
- 3/ Coupling nuts shall be corrosion-resistant steel with a passivated finish per MIL-DTL-14072. (Applied to “-3XXX” series connectors only).
- 4/ For logistics purposes, only connectors with safety wire holes will be stocked.
- 5/ No safety wire holes.
- 6/ Cable to be used when performing tests requiring cable.
- 7/ All corrosion-resistant steel-bodied connectors shall be gold plated in accordance with ASTM B488, type II, code C, class 1.27, at least in the area of solder attachment.
- 8/ The locators required shall be indicated in the assembly instructions.
- 9/ Not for use in Army equipment.

ENGINEERING DATA:

Nominal impedance: 50 ohms.

Frequency range: 0 to 18 GHz.

Voltage rating: 335 V rms (sea level), 85 V rms (70,000 feet).

Temperature rating: -65°C to +105°C.

Category F: Connectors using semirigid cables with standard stripping dimensions and using standard military assembly tools. The method of assembly of the connector to the cable shall be solderless.

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REQUIREMENTS:

Dimensions and configuration: See figure 1 and MIL-STD-348.

Force to engage and disengage:

Longitudinal force: Not applicable.

Torque: 2 inch-pounds maximum.

Coupling proof torque: 15 inch-pounds minimum.

Inspection conditions: For each test of threaded coupling connector where the test is performed on mated pairs, the pairs shall be torqued to 7 to 10 inch-pounds.

Mating characteristics: See figure 2 and MIL-STD-348 for dimensions.

Hermetic seal: Not applicable.

Leakage (pressurized connectors): Not applicable.

Center contact retention: Not applicable.

Salt atmosphere (corrosion): In accordance with MIL-STD-202-101, test condition B.

Voltage standing wave ratio (VSWR): From 0.5 to 18 GHz, or approximately 80 percent of upper cutoff frequency of the cable, whichever is lower.  $1.035 \pm .005 F$  (F in GHz).

Group B inspection: Use step 5, long cable method.

Qualification and group C inspection: Use step 5, long cable method.

Connector durability:

Insertion and withdrawal force:

100 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).

	Initial	After environment
Center contact	Not applicable	Not applicable
Outer contact	2.0	Not applicable
Outer cable conductor to body	0.5	Not applicable

Dielectric withstanding voltage at sea level: Not applicable.

Vibration, high frequency: In accordance with MIL-STD-202-204, except cable clamps shall be mounted on the vibration table 6 inches minimum from mating face of the connector pair.

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 +115°C.

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: 250 volts minimum.

Altitude: 70,000 feet.

RF high potential withstanding voltage: 670 V rms.

Frequency: 5 MHz to 7.5 MHz.

Leakage current: Not applicable.

Cable retention force: 60 pounds minimum.

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Torque: 55 inch-ounces (to be applied 4 inches maximum from the end of the connector).

Coupling mechanism retention force: 60 pounds minimum.

RF leakage: -90 dB minimum tested at a frequency between 2 and 3 GHz.

RF insertion loss: dB max = 0.3 x  $\sqrt{\text{freq GHz}}$ . Test frequency at 15.5 to 18 GHz.

Group qualification: Not applicable.

Supplemental test requirements for qualification and group C inspection for category F connectors.

Six additional connectors shall be selected from the production lot and terminated to produce three cable leads, twelve inches minimum, sixteen inches maximum. The three assemblies shall be subjected to the following tests in sequence: VSWR, thermal shock, VSWR, and cable retention.

The following exceptions to the requirements apply to this supplemental test only:

Voltage standing wave ratio (VSWR) of the cable assembly: From 0.5 to 18 GHz.

Test cable assemblies	VSWR (initial)	VSWR (after thermal shock)
M17/130-RG402 M17/130-00001 M17/130-00002 M17/130-00003	1.07 + .011 F (GHz)	1.07 + .013 F (GHz)

Thermal shock: 10 cycles.

Part number: M39012/92- (dash number from table I or "B" number from table II).

TABLE II. CATEGORY B – NONFIELD REPLACEABLE (SPECIAL TOOLS MAY BE REQUIRED).

NOT FOR AIR FORCE OR NAVY USE. FOR DEM USE ONLY.

Part number M39012/92B <u>1/ 2/ 3/ 4/</u>	Applicable cable <u>5/</u>
3001	M17/130-RG402 <u>7/</u>
3101 <u>6/</u>	M17/130-00001
4001	M17/130-00002
4101 <u>6/</u>	M17/130-00003

1/ Durability for center conductor is limited, not to be used in applications requiring frequent matings.

2/ For logistics purposes, only connectors with safety wire holes will be stocked.

3/ Coupling nuts shall be corrosion-resistant steel with a passivated finish in accordance with MIL-DTL-14072. (Applied to "-3XXX" series connectors only).

4/ All corrosion –resistant steel-bodied connectors which are designed to be assembled to the outer conductor using solder shall be gold-plated in accordance with ASTM B488, type II, code C, class 1.27.

5/ MIL-DTL-17 cables are specified by the basic number. The latest version of each cable shall be applicable.

6/ No safety wire holes.

7/ Cable to be used when performing tests requiring cable.

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TABLE III. Cross-reference of part numbers.

Current part number M39012/92	Superseded part number M39012/92
B3001	-3001
B3101	-3101
B4001	-4001
B4101	-4101

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-DTL-17	MIL-STD-202-101	MIL-STD-202-213
MIL-DTL-14072	MIL-STD-202-106	FED-STD-H28
MIL-DTL-22520	MIL-STD-202-107	ASTM B488
MIL-STD-348	MIL-STD-202-204	

CONCLUDING MATERIAL

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

Preparing activity:  
DLA - CC

(Project 5935-2016-097)

Review activities:  
Army - AM, AT, AR, CR4, MI  
Navy - AS, MC, OS, SA, 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>.