INCH-POUND

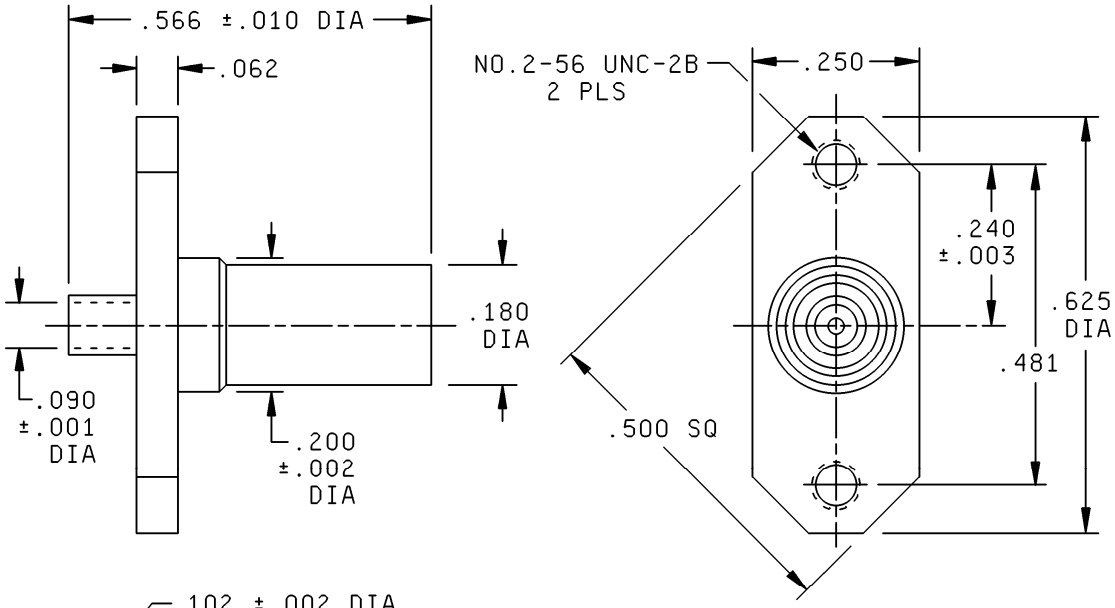
MIL-PRF-31031/42
10 March 2008

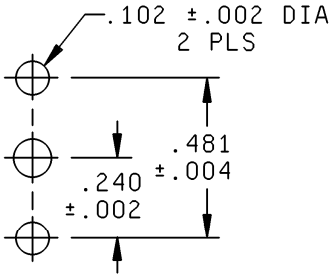
PERFORMANCE SPECIFICATION SHEET

CONNECTOR, ELECTRICAL, RECEPTACLE, RADIO FREQUENCY, HIGH RELIABILITY, COAXIAL, SERIES BMZ, SOCKET CONTACT, FOR 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-31031.





RECOMMENDED MOUNTING HOLE
SCALE 1/2

Inches	mm	Inches	mm
.001	0.03	.102	2.59
.002	0.05	.180	4.57
.003	0.08	.240	6.10
.004	0.10	.250	6.35
.010	0.25	.481	12.22
.062	1.57	.500	12.70
.090	2.29	.625	15.87

FIGURE 1. General configuration.

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. All undimensioned pictorial configurations are for reference purposes only.
4. Unless otherwise specified all tolerances shall be ±.005 inch (0.13 mm).
5. Wrench flats are to accommodate standard wrench opening in accordance with FED-STD-H28, appendix 10.
6. Dimension .576 (14.63 mm) defines the maximum overall length of the connector when assembled to the cable.
7. Method of assembly to the cable shall be solder.
8. Interface series BMZ, socket contact, in accordance with MIL-STD-348.

FIGURE 1. General configuration – Continued.

TABLE I. Part or Identifying Number (PIN) to cable cross-reference.

PIN M31031/42	Cable accommodation 1/ M17/
E3N01 2/	133-RG405 * 133-00001 through 133-00018

* Cable to be used when performing test requiring cable. All cable dash numbers in accordance with MIL-DTL-17 specification sheet accommodate this connector.

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

2/ 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.

ENGINEERING DATA:

Nominal impedance: 50 ohms.

Frequency range: 2 to 18 GHz (Connector performance only, frequency range is dependent on cable used).

Voltage rating:

335 V rms at sea level
85 V rms at 70,000 feet.

Temperature rating: -65ºC to +165ºC.

REQUIREMENTS:

Dimensions and configurations: See figure 1.

Interface dimensions: In accordance with MIL-STD-348.

Force to engage:

Longitudinal force: Not applicable.

Torque: Not applicable.

Mating characteristics:

Center contact:

Oversize test pin: .0215 +.0001/-.0000 inch.
Test pin finish: 16 microinches.
Insertion depth: .070 inch.
Number of insertions: 1.

Insertion force test:

Steel test pin diameter: .0210 +.0000/-.0001 inch.
Insertion depth: .070 inch.
Test pin finish: 16 microinches.
Insertion force: 12 ounces, max.

Withdrawal test force:

Steel test pin diameter: .0195 +.0001/.0000 inch.
Insertion depth: .070 inch.
Withdrawal force: 2 ounces, min.
Test pin finish: 16 microinches.

Coupling proof torque: Not applicable.

Hermetic seal: Not applicable.

Leakage (pressurized connectors): Not applicable.

Center contact retention: 4 pounds minimum axial force.

Radial torque: Not applicable.

Voltage standing wave ratio (VSWR): 1.07 +.010F (F in GHz), maximum.

Moisture resistance: MIL-STD-202, method 106. No measurements shall be taken at high humidity. Insulation resistance shall be 200 megohms within 5 minutes after removal from humidity.

Contact resistance (in milliohms, maximum):

	Initial	After environmental
Center contact:	4.0	4.0
Outer contact:	2.0	N/A
Outer cable conductor to body:	0.5	N/A

Dielectric withstanding voltage: 1000 V rms, minimum.
250 V rms at 70,000 feet.

Vibration, high frequency: MIL-STD-202, method 204 test condition D. No discontinuity shall be permitted..

Corona level:

Altitude: 70,000 feet.
250 V rms, minimum.

Insulation resistance: MIL-STD-202, method 302, condition B, 10,000 megohms minimum.

Shock (specified pulse): MIL-STD-202, method 213 test condition I.

Thermal shock: MIL-STD-202, method 107 test condition B (except high temperature to be +85°C).

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

RF high potential withstanding voltage: 670 V rms, minimum..

Frequency: 5 to 7 MHz.

Leakage current: Not applicable.

RF leakage: -85 dB, minimum. Tested at a frequency between 2 and 3 GHz.

RF insertion loss: $.04\sqrt{F}$, (F in GHz) dB, maximum.

Cable retention: 30 pounds, minimum. 16 inch-ounces, minimum.

Coupling mechanism retention force: Not applicable.

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

PIN: See table I.

Referenced documents. In addition to MIL-PRF-31031, this document references the following:

MIL-DTL-17
MIL-STD-202
MIL-STD-348
FED-STD-H28
ASTM B488

CONCLUDING MATERIAL

Custodians:
Army - CR
Navy - EC
Air Force - 11
NASA - NA
DLA – CC

Review activities:
Army - AT, AV, EA, MI
Navy - AS, MC, OS, SH
Air Force - 19, 99

Preparing activity:
DLA - CC

(Project 5935-2006-228)

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.