

INCH-POUND

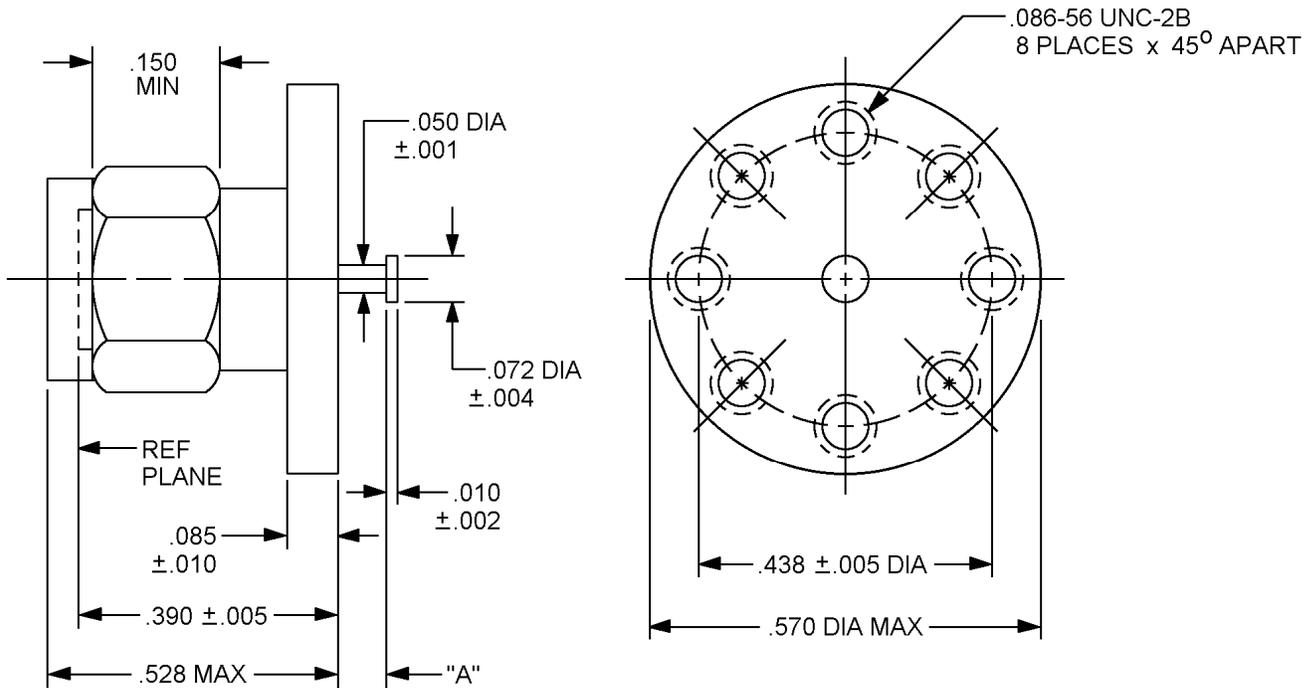
MIL-DTL-83517/7A  
 w/AMENDMENT 1  
 21 April 2015  
 SUPERSEDING  
 MIL-DTL-83517/7A  
 31 May 2005

DETAIL SPECIFICATION SHEET

CONNECTOR, RECEPTACLES, ELECTRICAL, COAXIAL, RADIO FREQUENCY,  
 STRIP OR MICROSTRIP TRANSMISSION LINE,  
 SERIES SMA (PIN CONTACT, 8 HOLE SURFACE LAUNCH)

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-DTL-83517.



Part or Identifying Number (PIN)	"A" dim.	Transmission line thickness
M83517/7-31001	.060±.003	.125
M83517/7-31002	.120±.003	.250

FIGURE 1. Series SMA, pin contact, surface launch, receptacle.



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NOTES:	INCHES	MM	INCHES	MM
1. Dimensions are in inches.	.001	.03	.085	2.16
2. Metric equivalents are given for information only.	.002	.05	.120	3.05
3. All undimensioned pictorial configurations are for reference purposes only.	.003	.08	.125	3.18
	.004	.10	.250	6.35
	.005	.13	.390	9.91
	.010	.25	.4375	11.11
	.050	1.27	.438	11.13
	.068	1.73	.528	13.41
	.072	1.83	.570	14.48

FIGURE 1. Series SMA, pin contact, surface launch, receptacle – Continued.

ENGINEERING PARAMETERS

Nominal impedance: 50 ohms.

Voltage rating: 335 V rms maximum at sea level.  
150 V rms maximum at 70,000 feet.

Frequency range: 0 to 12.4 GHz.

Temperature rating: -65° to 105°C.

REQUIREMENTS

Design and construction: See figure 1, table I, and MIL-STD-348.

Force to engage and disengage:

Torque – 2 inch-pounds maximum.  
Longitudinal force – Not applicable.

Coupling proof torque: 15 inch-pounds minimum.

Inspection note: 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.

TABLE I. PIN and characteristics.

PIN M83517/7-	Connector figure no.	Characteristics
31001	1	Strip transmission line surface launch, receptacle for .125 inch (3.18 mm) strip transmission line.
31002	1	Strip transmission line surface launch, receptacle for .250 inch (6.35 mm) strip transmission line.

Permeability of nonmagnetic materials: Applicable.

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Seal:

Hermetic sealed connectors: Not applicable.  
Pressurized and weatherproof connectors: Not applicable.

Insulation resistance: 5,000 megohms minimum in accordance with test procedure EIA/ECA-364-21.

Center contact retention:

Axial force: Not applicable.  
Torque: Not applicable.

Dielectric withstanding voltage: In accordance with test procedure EIA-364-20, test condition I.

Test voltage 1,000 V rms.

Corrosion: In accordance with test procedure EIA/ECA-364-26, test condition B.

Voltage standing wave ratio (VSWR):  $1.35 + .01F$  (F in GHz), maximum.

Test frequency range: From .5 to 18.0 GHz. (Using a test method approved by the qualifying activity.)

RF transmission loss:  $.07\sqrt{F}$  (F in GHz) tested from 2-18 GHz.

RF leakage: Not applicable.

Connector durability:

Interface:

500 cycles minimum at 12 cycles/minute maximum rate.  
Connector shall meet contact gaging and force to engage and disengage requirements.

Contact resistance: In milliohms maximum.

	<u>Initial</u>	<u>After environment</u>
Center contact:	3.0	4.0
Outer contact:	2.0	Not applicable

Thermal shock: Applicable, test condition A.

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.

RF high potential withstanding voltage:

At a frequency between 5 to 7.5 MHz.  
Leakage current – Not applicable.  
RF voltage – 670 V rms.

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Coupling mechanism retention force: 60 pounds minimum.

PIN: M83517/7-(dash number from table I.)

Group qualification: See table II.

TABLE II. Group qualification.

Group	Submission and qualification of any of the following connectors <u>1/ 2/</u> M83517/7-	Qualifies the following connectors M83517/7-
1	3+001	3+001 3+002

1/ Individual connectors other than listed are self qualifying only.

2/ Qualification of connectors, qualifies connectors of the same material only.

+ Denotes finish.

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-DTL-83517, this document references the following:

MIL-STD-202  
MIL-STD-348  
EIA-364-20  
EIA/ECA-364-21  
EIA/ECA-364-26

CONCLUDING MATERIAL

Custodians:

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

Preparing activity:  
DLA – CC

(Project 5935-2015-137)

Review activities:

Army – AR, AT, CR4, MI  
Navy – AS, MC, OS, SH  
Air Force – 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/>.