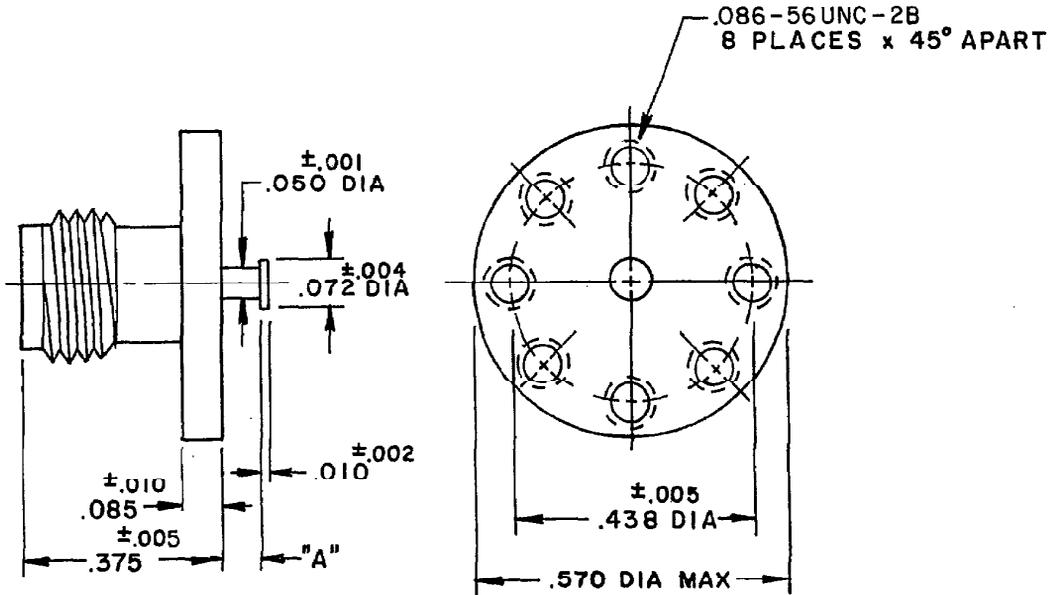


MILITARY SPECIFICATION SHEET

CONNECTOR, COAXIAL, RADIO FREQUENCY,  
STRIP OR MICROSTRIP TRANSMISSION LINE,  
SERIES SMA (SOCKET CONTACT, 8 HOLE SURFACE LAUNCH RECEPTACLE)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The complete requirements for acquiring the connectors described herein shall consist of this specification and the latest issue of MIL-C-83517.



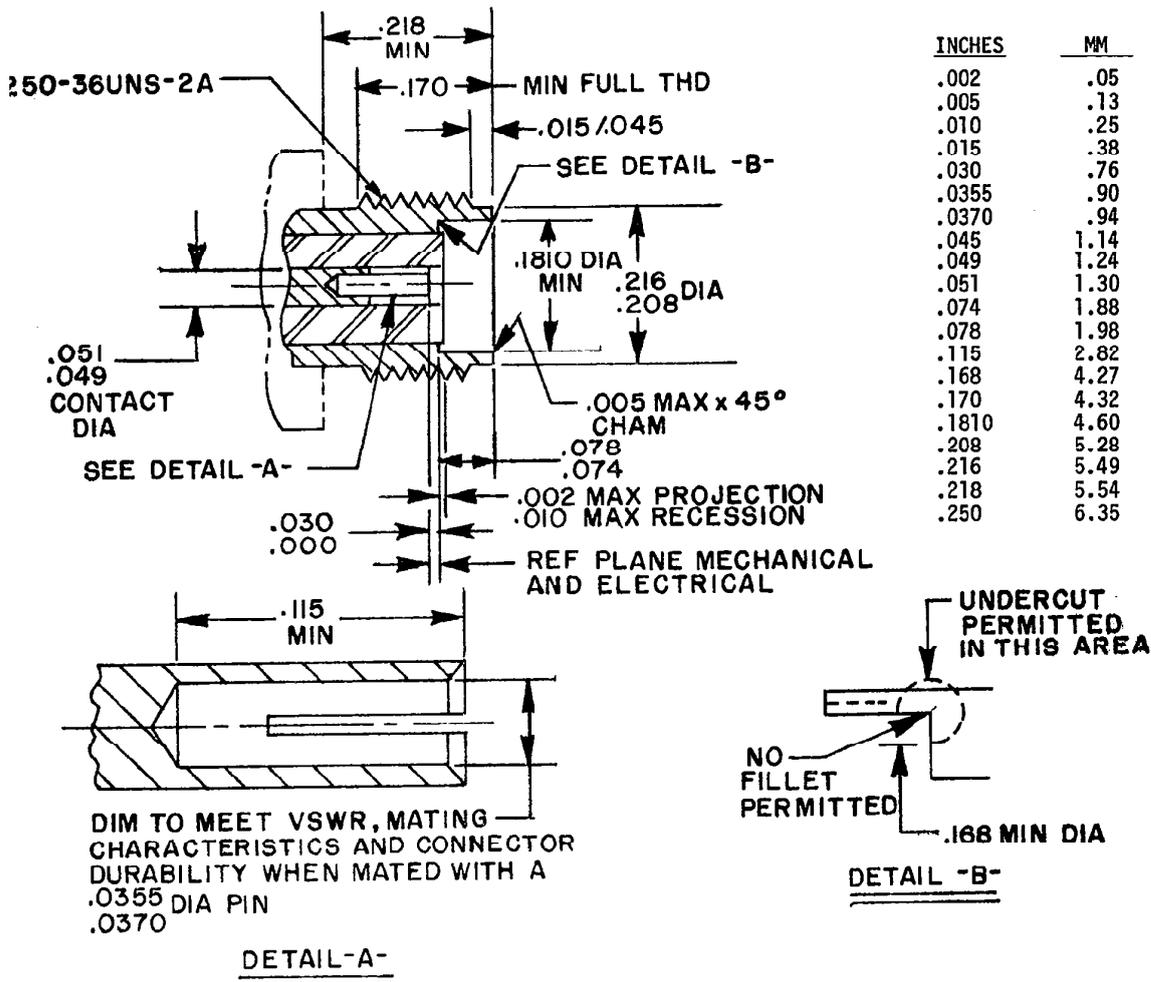
PART NO.	"A" DIM	TRANSMISSION LINE THICKNESS
-31001	.060 ±.003	.125
-31002	.120 ±.003	.250

INCHES	MM	INCHES	MM
.001	.03	.072	1.83
.002	.05	.085	2.16
.003	.08	.096	2.48
.004	.10	.120	3.05
.005	.13	.125	3.18
.010	.25	.250	6.35
.050	1.27	.375	9.53
.060	1.52	.438	11.13
		.570	14.48

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.

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



**NOTES:**

1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
3. All undimensioned pictorial configurations are for reference purposes only.

**FIGURE 2. Mating dimensions for socket termination.**

## ENGINEERING PARAMETERS:

Nominal impedance: 50 ohms.  
 Voltage rating: 600 Vrms maximum at sea level.  
                   150 Vrms maximum at 70,000 feet.  
 Frequency range: 0 to 12.4 GHz.  
 Temperature rating: -65° to 105°C.

## REQUIREMENTS:

Design and construction: See figures 1 and 2 and table I.

Force to engage and disengage:

Torque - 2 inch-pounds maximum.

Longitudinal force - Not applicable.

Coupling proof torque: Not applicable.

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.

Contact gaging: See figure 3.

Contacts with spring members:

Center contact (socket)

Oversize test pin -  $.0375 +.0001$

Test pin finish - 16 microinches.

Insertion depth -  $.030/.045$ .

Number of insertions - 3.

Insertion force test: Steel test pin diameter  $.0370 +.0001$ .

Insertion depth -  $.050/.075$ .

Test pin finish - 16 microinches.

Insertion force - 3 pounds maximum.

Withdrawal force test: Steel test pin diameter  $.0355 - .0001$ .

Insertion depth -  $.050/.075$ .

Withdrawal force - 1 ounce minimum.

Test pin finish - 16 microinches.

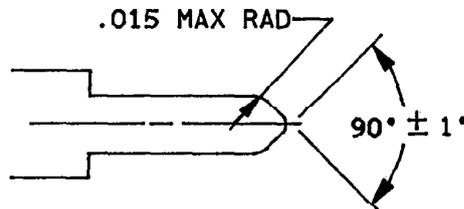


FIGURE 3. Test pin data.

TABLE I. Part number and characteristics.

Part no. M83517/06-	Connector figure no.	Characteristics
31001	1	Strip transmission line surface launch, receptacle for 1/8" strip transmission line.
31002	1	Strip transmission line surface launch, receptacle for 1/4" strip transmission line.

Permeability of nonmagnetic materials: Applicable.

Seal:

Hermetic sealed connectors: Not applicable.

Pressurized and weatherproof connectors: Not applicable.

Insulation resistance: 5,000 megohms minimum.

Center contact retention:

Axial force: Not applicable.

Torque: Not applicable.

Dielectric withstanding voltage: Applicable, test condition I.

Test voltage 1,000 Vrms.

Corrosion: Applicable, test condition B.

Voltage standing wave ratio (VSWR):

Test frequency range: From .5 to 18.0 GHz.

Swept frequency VSWR test setup:

Step 1: See basic specification.

Step 2: VSWR shall be less than  $1.080 + .005$  frequency (frequency in GHz).

Item 11p VSWR shall be less than  $1.025 + .002$  frequency (frequency in GHz).

Item 11j VSWR shall be less than  $1.025 + .002$  frequency (frequency in GHz).

Step 3: VSWR shall be less than (to be determined).

Test fixture - See figure 1 of basic specification.

Step 4: VSWR test shall be less than (to be determined).

RF transmission loss: (To be determined).

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 - 1,000 Vrms.

Coupling mechanism retention force: Not applicable.

Part number: M83517/6-(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>	Qualifies the following connectors
I	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.

**Custodians:**

Army - CR  
Navy - EC  
Air Force - 85

**Preparing activity:**  
Air Force - 85

(Project 5935-3159-6)

**Review activities:**

Army - AR, MI, AT  
Navy - SH, AS  
Air Force - 11, 99  
DLA - ES

**User activities:**

Navy - MC  
Air Force - 19