

INCH-POUND

MIL-DTL-83513/3J
w/AMENDMENT 3
6 July 2016
SUPERSEDING
MIL-DTL-83513/3J
w/AMENDMENT 2
4 September 2013

DETAIL SPECIFICATION SHEET

CONNECTORS, ELECTRICAL, RECTANGULAR, PLUG, MICROMINIATURE, POLARIZED SHELL, PIN CONTACTS, CLASS M, CRIMP TYPE

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-83513.

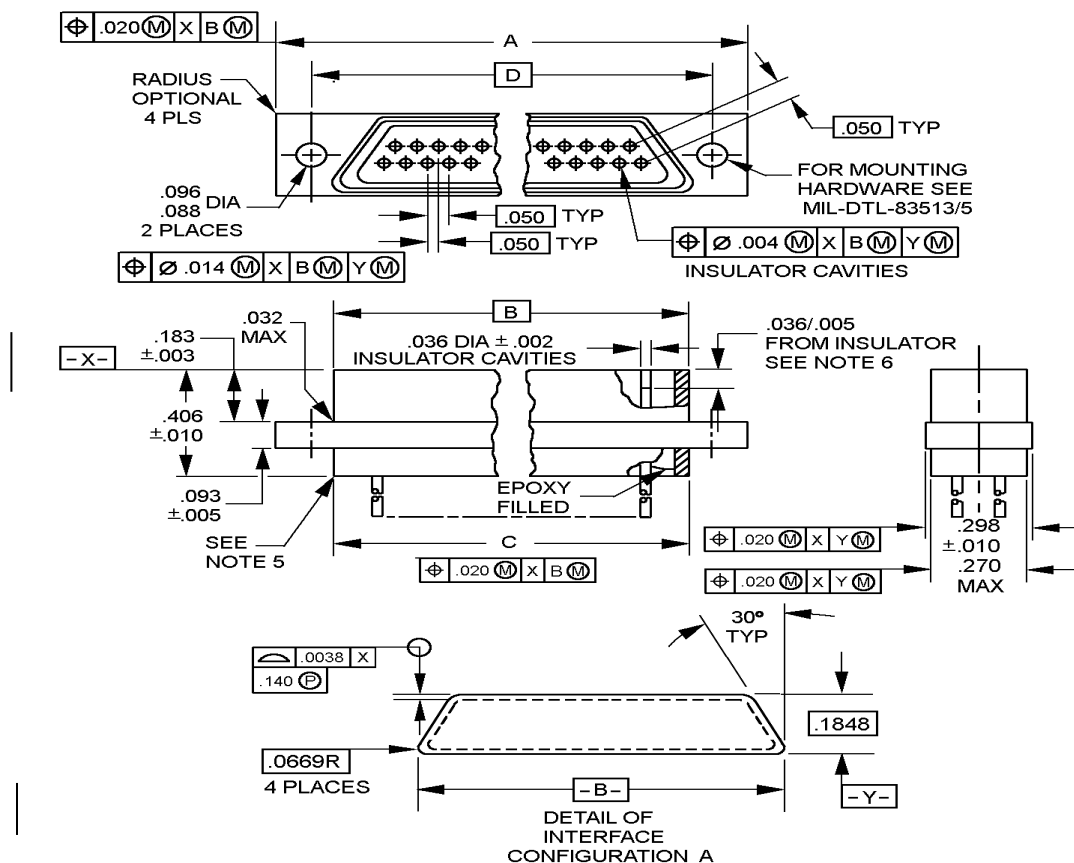


FIGURE 1. Connector, plug, .050 spacing.

AMSC N/A

FSC 5935



Configuration B Details:

- Top View:** Shows overall dimensions A, D, and B. Features include two circular mounting holes (.094 DIA, .088 DIA) and two rectangular insulator cavities. Surface texture is specified as .050 TYP. Mounting hardware reference is MIL-DTL-83513/5.
- Side View:** Shows vertical dimensions .183 ±.003, .406 ±.010, and .093 ±.005. It details the .032 MAX R fillet, .036 DIA ±.002 INSULATOR CAVITIES, and EPOXY FILLED areas. Reference is made to NOTE 5.
- Detail of Interface Configuration B:** Shows a cross-section of the interface with dimensions .0669R (4 PLACES), .0038 X, .140 P, .2278, and a 30° TYP angle. It also shows dimensions .341 ±.010 and .310 MAX.

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Technical drawing of a 16-pin connector assembly, showing top, side, and detail views with dimensions and feature callouts.

Top View:

- Overall width: $\Phi .020$ (M) X B (M)
- Feature: RADIUS OPTIONAL 4 PLS
- Pin diameter: $\Phi .014$ (M) X B (M) Y (M)
- Pin spacing: $\Phi .004$ (M) X B (M) Y (M)
- Pin diameter: $\Phi .004$ (M) X B (M) Y (M)
- Feature: INSULATOR CAVITIES
- Feature: .050 TYP
- Feature: .025 TYP
- Feature: .050 TYP
- Feature: .032 R MAX
- Feature: .183 $\pm .003$
- Feature: .406 $\pm .010$
- Feature: .093 $\pm .005$
- Feature: SEE NOTE 5
- Feature: .036 DIA $\pm .002$ INSULATOR CAVITIES1
- Feature: .036/.005 FROM INSULATOR SEE NOTE 6
- Feature: .322 REF
- Feature: .384 $\pm .010$
- Feature: .360 MAX
- Feature: .020 (M) X Y (M)
- Feature: .020 (M) X Y (M)
- Feature: .0669 R 6 PLS
- Feature: .177 MAX (SEE NOTE 7)
- Feature: .2708
- Feature: .0669 R 6 PLS
- Feature: .177 MAX (SEE NOTE 7)
- Feature: .2708
- Feature: .0669 R 6 PLS
- Feature: .177 MAX (SEE NOTE 7)
- Feature: .2708

Side View:

- Overall height: .150
- Pin diameter: .145 DIA 2 PLACES
- Feature: .050 TYP
- Feature: .025 TYP
- Feature: .050 TYP
- Feature: .032 R MAX
- Feature: .183 $\pm .003$
- Feature: .406 $\pm .010$
- Feature: .093 $\pm .005$
- Feature: SEE NOTE 5
- Feature: .036 DIA $\pm .002$ INSULATOR CAVITIES1
- Feature: .036/.005 FROM INSULATOR SEE NOTE 6
- Feature: .322 REF
- Feature: .384 $\pm .010$
- Feature: .360 MAX
- Feature: .020 (M) X Y (M)
- Feature: .020 (M) X Y (M)
- Feature: .0669 R 6 PLS
- Feature: .177 MAX (SEE NOTE 7)
- Feature: .2708
- Feature: .0669 R 6 PLS
- Feature: .177 MAX (SEE NOTE 7)
- Feature: .2708
- Feature: .0669 R 6 PLS
- Feature: .177 MAX (SEE NOTE 7)
- Feature: .2708

Detail of Interface Configuration C:

- Feature: .032 R MAX
- Feature: .183 $\pm .003$
- Feature: .406 $\pm .010$
- Feature: .093 $\pm .005$
- Feature: SEE NOTE 5
- Feature: .036 DIA $\pm .002$ INSULATOR CAVITIES1
- Feature: .036/.005 FROM INSULATOR SEE NOTE 6
- Feature: .322 REF
- Feature: .384 $\pm .010$
- Feature: .360 MAX
- Feature: .020 (M) X Y (M)
- Feature: .020 (M) X Y (M)
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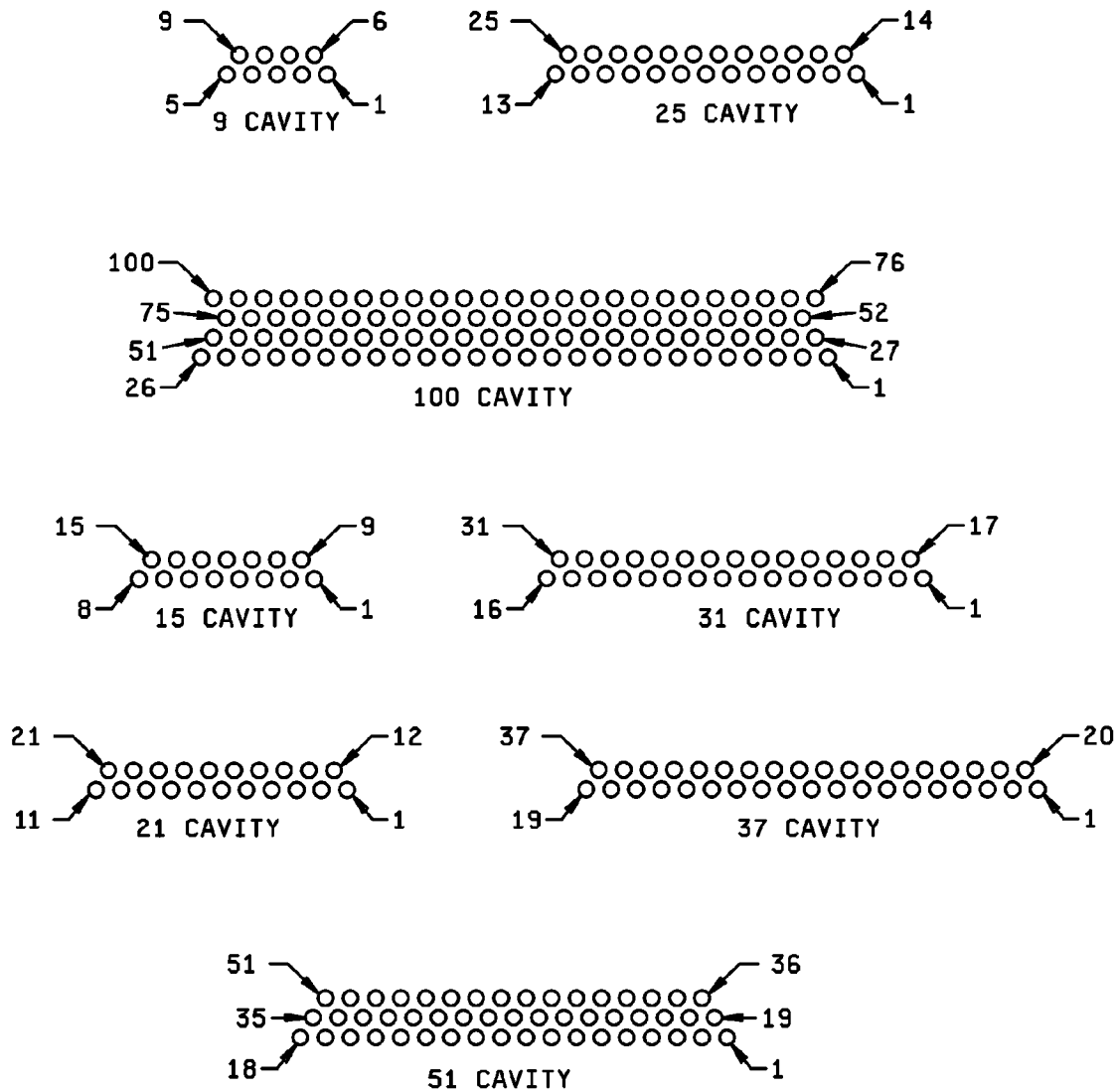
Number of cavities	A .010 (.25)	B BSC	C +.010 -.018 + (.25) - (.46)	D BSC	Configuration letter	Inches	mm	Inches	mm
9	.775 (19.69)	.3338 (8.479)	.390 (9.91)	.565 (14.35)	A	.0015	0.038	.094	2.39
15	.925 (23.50)	.4838 (12.289)	.540 (13.72)	.715 (18.16)	A	.002	0.05	.1139	2.893
21	1.075 (27.31)	.6338 (16.099)	.690 (17.53)	.865 (21.97)	A	.003	0.08	.117	2.97
25	1.175 (29.85)	.7338 (18.639)	.790 (20.07)	.965 (24.51)	A	.0038	0.097	.123	3.12
31	1.325 (33.66)	.8838 (22.449)	.940 (23.88)	1.115 (28.32)	A	.004	0.10	.145	3.68
37	1.475 (37.47)	1.0338 (26.259)	1.090 (27.69)	1.265 (32.13)	A	.005	0.13	.150	3.81
51	1.425 (36.20)	.9838 (24.989)	1.040 (26.42)	1.215 (30.86)	B	.007	0.18	.173	4.39
100	2.160 (54.86)	1.3838 (35.149)	1.432 (36.37)	1.800 (45.72)	C	.010	0.25	.181	4.60
						.014	0.36	.182	4.62
						.020	0.51	.183	4.65
						.022	0.56	.224	5.69
						.025	0.64	.2278	5.786
						.036	0.91	.267	6.78
						.050	1.27	.270	6.86
						.0669	1.699	.298	7.57
						.0671	1.704	.310	7.87
						.089	2.26	.341	8.66
						.090	2.29	.360	9.14
						.0924	2.347	.384	9.75
						.093	2.36	.406	10.31

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Unless otherwise specified, tolerances are $\pm .005$ (0.13 mm).
4. Metric equivalents are in parentheses or columns.
5. Point from which the lead length is measured.
6. Shell shall be flush to insulator within $\pm .005$ (0.13 mm).
7. Dimension line at point D locates the point of intersection of the two adjacent side of the receptacle interface.
8. 26 AWG wire is the maximum wire size that can be used in the solder cup.

FIGURE 1. Connector, plug, .050 spacing - Continued.

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NOTES:

1. Engaging face of pin insert shown.
2. Cavity identification numbers are for reference only and do not appear on part.

FIGURE 2. Insert arrangement.

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REQUIREMENTS:

Dimensions and configurations: See figure 1. This specification sheet describes the pin side of a rectangular metal shell connector. This connector uses reverse gender contact, i.e., the live pin recessed in the insulator with the static socket protruding from a shrouded interface.

Materials and finish:

Shell: The requirements for shell materials shall be in accordance with MIL-DTL-83513.

Contact identification: See figure 2 for contact layout identification.

Contact connection: The pin contact (being recessed in the insulator) is normally connected to the live side of the circuit.

Current rating, maximum: 3 amperes per contact.

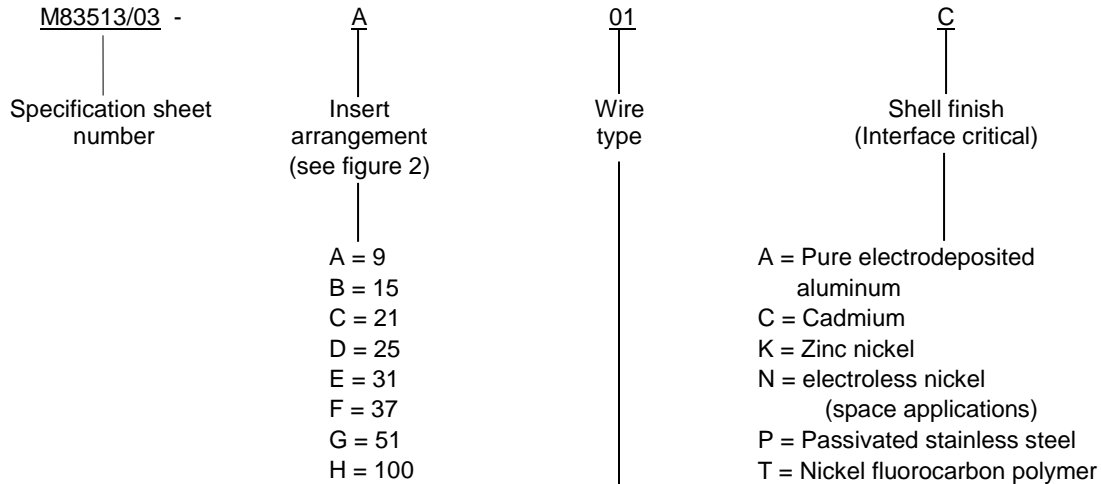
Mounting and mating hardware: Mounting hardware is to be ordered separately. Insert arrangements A through G, are in accordance with MIL-DTL-83513/5, configurations A and B. Insert arrangement H, are in accordance with MIL-DTL-83513/5, configuration C.

Mating hardware torque: Mating hardware torque shall be in accordance with MIL-DTL-83513/5.

Mating plug: Mating plug is in accordance with MIL-DTL-83513/2 or MIL-DTL-83513/4.

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Part or Identifying Number (PIN): Consists of the letter M, the basic number of the specification sheet, a letter from the insert column and the shell finish.



Wire type 1/	Wire specification	Wire length (inches)	Notes
01 =	M22759/11-26-9	18	<u>2/</u> , <u>3/</u>
02 =	M22759/11-26-9	36	<u>2/</u> , <u>3/</u>
03 =	M22759/11-26-()	18	<u>3/</u> , <u>4/</u> , <u>5/</u>
04 =	M22759/11-26-()	36	<u>3/</u> , <u>4/</u> , <u>5/</u>
05 =	A-A-59551, type S, 25 AWG, gold plated 10 micro inches	0.5	<u>6/</u> , <u>7/</u>
06 =	A-A-59551, type S, 25 AWG, gold plated 10 micro inches	1.0	<u>6/</u> , <u>7/</u>
07 =	A-A-59551, type S, 25 AWG, tin plated 100 micro inches	0.5	<u>6/</u> , <u>7/</u> , <u>9/</u>
08 =	A-A-59551, type S, 25 AWG, tin plated 100 micro inches	1.0	<u>6/</u> , <u>7/</u> , <u>9/</u>
09 =	M22759/33-26-9	18	<u>3/</u> , <u>8/</u>
10 =	M22759/33-26-9	36	<u>3/</u> , <u>8/</u>
11 =	M22759/33-26-()	18	<u>3/</u> , <u>4/</u> , <u>5/</u> , <u>8/</u>
12 =	M22759/33-26-()	36	<u>3/</u> , <u>4/</u> , <u>5/</u> , <u>8/</u>
13 =	M22759/11-26-9	72	<u>2/</u> , <u>3/</u>
14 =	M22759/11-26-()	72	<u>3/</u> , <u>4/</u> , <u>5/</u>
15 =	M22759/33-26-9	72	<u>3/</u> , <u>8/</u>
16 =	M22759/33-26-()	72	<u>3/</u> , <u>4/</u> , <u>5/</u> , <u>8/</u>
17 =	04035-26A-9	18	<u>2/</u> , <u>3/</u>
18 =	04035-26A-9	36	<u>2/</u> , <u>3/</u>
19 =	04035-26A-9	72	<u>2/</u> , <u>3/</u>
20 =	04035-26A-()	18	<u>3/</u> , <u>4/</u> , <u>5/</u>
21 =	04035-26A-()	36	<u>3/</u> , <u>4/</u> , <u>5/</u>
22 =	04035-26A-()	72	<u>3/</u> , <u>4/</u> , <u>5/</u>

See notes at end of wire type.

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PIN – Continued.

01			
Wire type			
Wire type 1/	Wire specification	Wire length (inches)	Notes
23 =	M22759/47-26-9	18	<u>2/</u> , <u>3/</u>
24 =	M22759/47-26-9	36	<u>2/</u> , <u>3/</u>
25 =	M22759/47-26-9	72	<u>2/</u> , <u>3/</u>
26 =	M22759/47-26-()	18	<u>3/</u> , <u>4/</u> , <u>5/</u>
27 =	M22759/47-26-()	36	<u>3/</u> , <u>4/</u> , <u>5/</u>
28 =	M22759/47-26-()	72	<u>3/</u> , <u>4/</u> , <u>5/</u>
29 =	M22759/48-26-9	18	<u>2/</u> , <u>3/</u>
30 =	M22759/48-26-9	36	<u>2/</u> , <u>3/</u>
31 =	M22759/48-26-9	72	<u>2/</u> , <u>3/</u>
32 =	M22759/48-26-()	18	<u>3/</u> , <u>4/</u> , <u>5/</u>
33 =	M22759/48-26-()	36	<u>3/</u> , <u>4/</u> , <u>5/</u>
34 =	M22759/48-26-()	72	<u>3/</u> , <u>4/</u> , <u>5/</u>
35 =	M22759/49-26-9	18	<u>2/</u> , <u>3/</u>
36 =	M22759/49-26-9	36	<u>2/</u> , <u>3/</u>
37 =	M22759/49-26-9	72	<u>2/</u> , <u>3/</u>
38 =	M22759/49-26-()	18	<u>3/</u> , <u>4/</u> , <u>5/</u>
39 =	M22759/49-26-()	36	<u>3/</u> , <u>4/</u> , <u>5/</u>
40 =	M22759/49-26-()	72	<u>3/</u> , <u>4/</u> , <u>5/</u>
41 =	M22759/50-26-9	18	<u>2/</u> , <u>3/</u>
42 =	M22759/50-26-9	36	<u>2/</u> , <u>3/</u>
43 =	M22759/50-26-9	72	<u>2/</u> , <u>3/</u>
44 =	M22759/50-26-()	18	<u>3/</u> , <u>4/</u> , <u>5/</u>
45 =	M22759/50-26-()	36	<u>3/</u> , <u>4/</u> , <u>5/</u>
46 =	M22759/50-26-()	72	<u>3/</u> , <u>4/</u> , <u>5/</u>

- 1/ These connectors have leads attached of which wire type, wire size, wire color, and lead length are specified in the PIN.
- 2/ For connectors with shell finish N intended for space applications, wire shall be M22759/47-26-9 or M22759/33-26-9.
- 3/ Lead length tolerance +1.0, -0.0 inch.
- 4/ For connectors with shell finish N intended for space applications, wire shall be M22759/47-26-() or M22759/33-26-().
- 5/ Color coding in accordance with MIL-STD-681, system I, except the appropriate color code shall be the individual contact cavity number minus 1 for contact positions 1 through 10 only, 11 through 20, etc. For example:

Pin number	Identification
4	3
9	8
21	0
31	0
77	6
100	9

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- 6/ Lead length tolerance +0.2, -0.0 inch.
- 7/ Contact and wire may be a single piece design.
- 8/ Corrosion has been experienced on M83513 connectors that are prewired with SAE AS22759/33 and stored in a sealed environment. CAUTION SHOULD BE EXCERCISED WHEN USING THIS WIRE.
- 9/ Pure tin. The use of pure tin is prohibited. Tin content used in connector materials shall not exceed 97 percent, and an alloy material shall be chosen to inhibit the growth of tin whiskers.

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-83513, this document references the following:

A-A-59551
MIL-DTL-83513/2
MIL-DTL-83513/4
MIL-DTL-83513/5
MIL-STD-681
SAE AS22759/33

CONCLUDING MATERIAL

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

Preparing activity:
DLA - CC

(Project: 5935-2016-094)

Review activities:
Army - AT, MI
Navy - AS, CG, MC, SH
Air Force - 99

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