

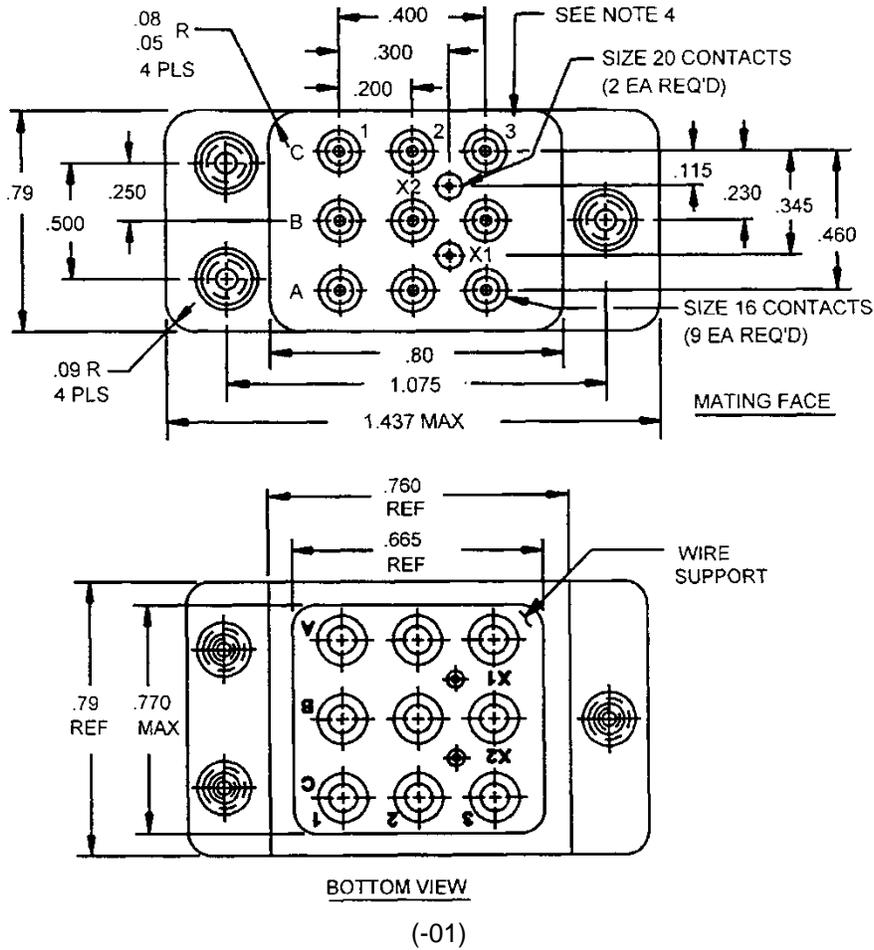
INCH-POUND  
MIL-DTL-12883/46D  
w/AMENDMENT 1  
3 Aug 2015  
SUPERSEDING  
MIL-DTL-12883/46D  
18 February 2003

DETAIL SPECIFICATION SHEET

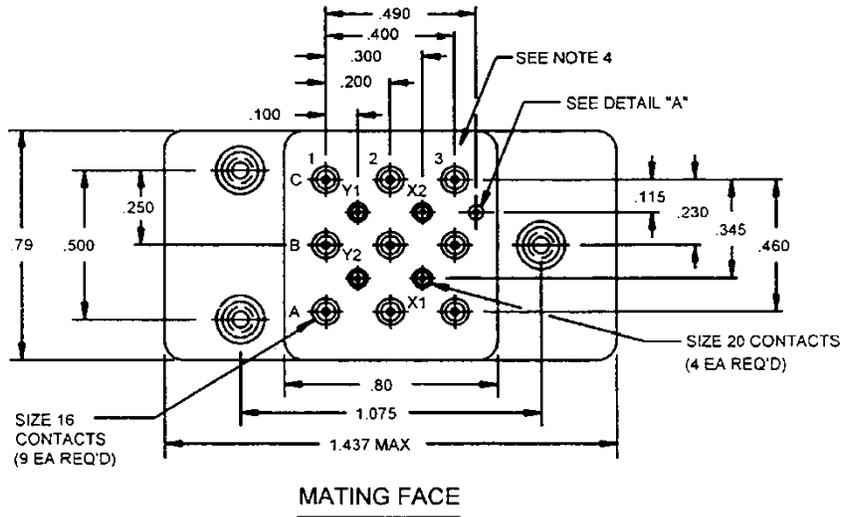
SOCKETS, PLUG-IN ELECTRONIC COMPONENTS, FOR RELAYS, 3-POLE, 10 AMPERES (MIL-PRF-6106 AND MIL-PRF-83536)

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

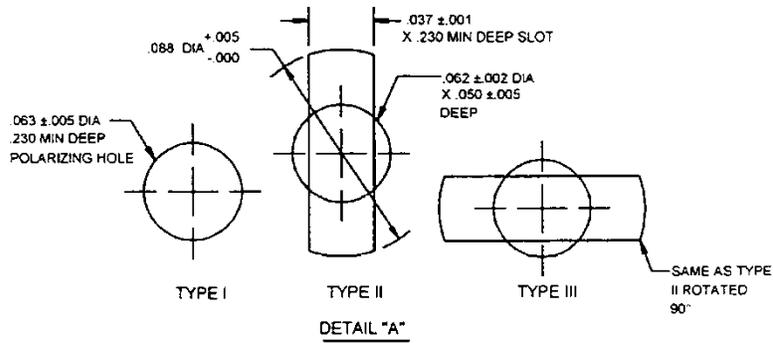
The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-12883.



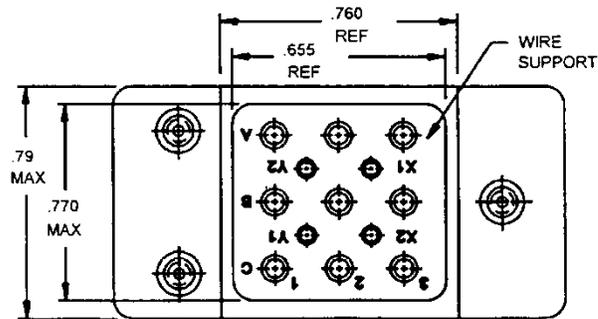
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MATING FACE



DETAIL "A"

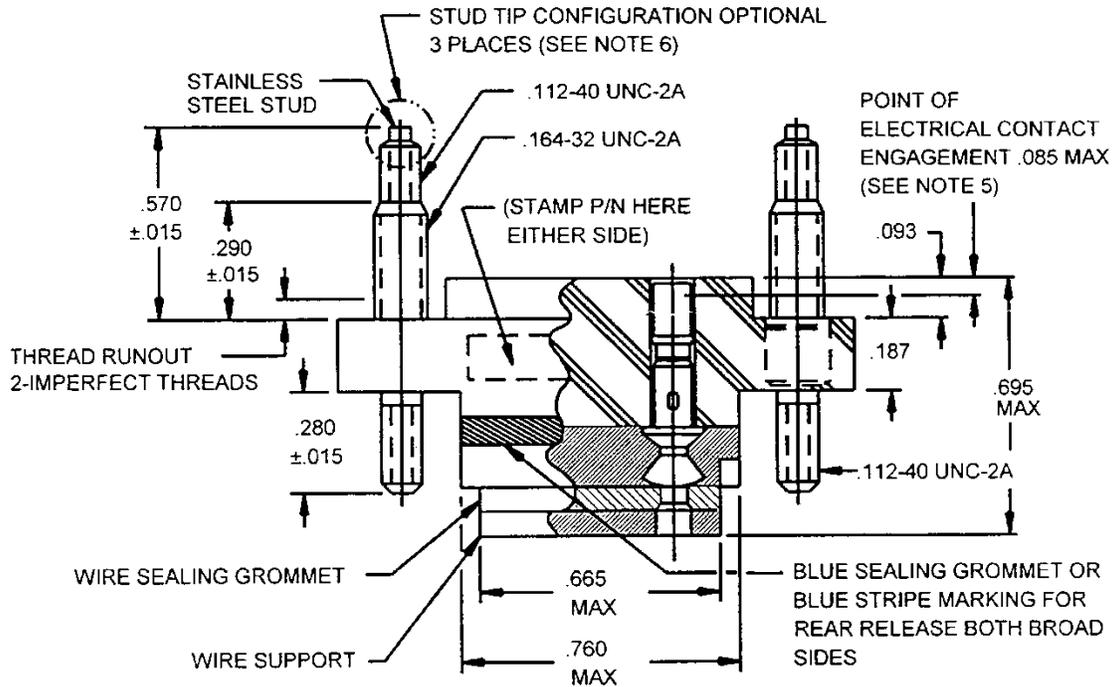


BOTTOM VIEW

(-01, -02, and -03)

FIGURE 1. Socket configurations – Continued.

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(-01, -02, -03, and -04)

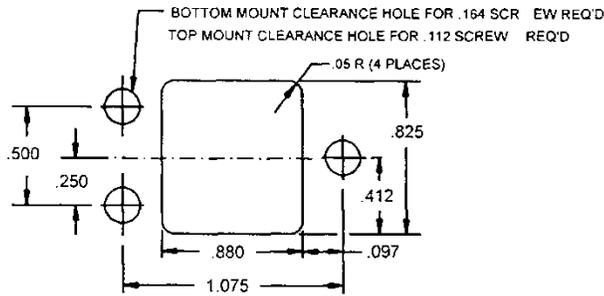
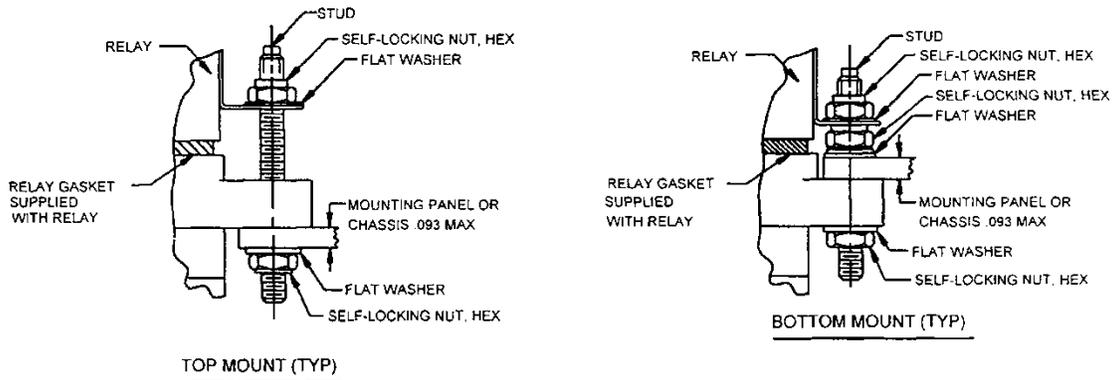
Inches	mm	Inches	mm	Inches	mm	Inches	mm
.001	0.03	.085	2.16	.230	5.84	.570	14.48
.002	0.05	.088	2.24	.250	6.35	.655	16.64
.005	0.13	.09	2.29	.280	7.11	.665	16.89
.015	0.38	.093	2.36	.290	7.37	.695	17.65
.037	0.94	.100	2.54	.300	7.62	.760	19.30
.05	1.27	.112	2.84	.345	8.76	.770	19.56
.050	1.27	.115	2.92	.400	10.16	.79	20.07
.062	1.57	.164	4.17	.460	11.68	.80	20.32
.063	1.60	.187	4.75	.490	12.45	1.075	27.31
.08	2.03	.200	5.08	.500	12.70	1.437	36.50

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are  $\pm .005$  inch (0.13 mm) for three place decimals and  $\pm .01$  inch (0.25 mm) for two place decimals.
4. Marking shall be characters that are molded .035 inch (0.89 mm) minimum. Ink marking optional (see MIL-STD-1285).
5. Point of electrical contact engagement from mating face of socket insulator to the socket contact.
6. The configuration of the stud tip shall be optional provided it meets all the requirements of the specification.

FIGURE 3. Socket configurations – Continued.

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TOP MOUNT (TYP)

Inches	mm
.05	1.27
.093	2.36
.097	2.46
.112	2.84
.164	4.17
.250	6.35
.412	10.46
.500	12.70
.825	20.96
.880	22.35
1.075	27.31

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Unless otherwise specified, tolerances are  $\pm .005$  inch (0.13 mm) for three place decimals and  $\pm .01$  (0.25 mm) for two place decimals.

FIGURE 4. Socket mounting (hardware and panel).

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REQUIREMENTS:

Qualification:

Insulator and wire support: Diallyl phthalate, in accordance with ASTM-D5948, type SDG-F, or any glass filled thermoplastic material in accordance with ASTM-D5204.

Color: Material color shall be optional providing that the color provides a contrasting background for the blue sealing grommet/blue color bands indicating rear release contacts.

Contact: In accordance with SAE-AS39029/101 (see table I).

Grommet: Silicon rubber.

Mounting hardware: Corrosion resistant steel or steel with cadmium/chromate finish.

Design, construction and physical dimensions:

Design, construction and physical dimensions shall be as specified in figures 1, 2, 3, 4, and table I.

TABLE I. Dash number and characteristics.

Dash number	Contact size mating end wire barrel		Number of contacts	Contact designation	Mating relay <sup>1/</sup>	Polarization type
01	16	16	9	M39029/101-554	M83536/21-019, /21-022, /22-022	None
	20	20	2	M39029/101-553		
02	16	16	9	M39029/101-554	M6106/40-002	I
	20	20	4	M39029/101-553		
03	16	16	9	M39029/101-554		II
	20	20	4	M39029/101-553		
04	16	16	9	M39029/101-554		III
	20	20	4	M39029/101-553		

<sup>1/</sup> Reference MIL-PRF-83536 for supersession data on MIL-PRF-6106 relays.

Test gage: A mating relay in accordance with table I shall be used as a test gauge or mating connector.

Electrical:

Insulation resistance: 1,000 megohms minimum.

Dielectric withstanding voltage:

Test voltage at sea level shall be 1,250 V rms.

Test voltage at 80,000 feet (24.4 km) shall be 500 V rms.

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Environmental:

Temperature range: Operating temperature range -70 degrees C to +125 degrees C.

Wire sealing: A resilient socket grommet is permanently bonded to the wire entry face of the socket so as to provide moisture sealing capabilities, over the following range of finished wire:

Contact	Wire diameter
M39029/101-553	.040 min-.083 max (1.02 min - 2.11 max mm)
M39029/101-554	.053 min-.103 max (1.35 min - 2.62 max mm)

Mechanical:

Contacts: Contact shall be in accordance with table I. Contacts shall be crimp removable type, rear release and accept the following relay pins:

- a. Size 16: .0610 through .0630 inch (1.549 through 1.600 mm).
- b. Size 20: .039 through .041 inch (0.99 through 1.04 mm).

Insertion and withdrawal force: The insertion and withdrawal forces shall be as specified in table II.

TABLE III. Insertion and withdrawal forces.

Condition	Test	M12883/46	
		-01	-02 through -04
Initial	Insertion force (max)	19.1 lbf (85.0 newton)	21.4 lbf (95.2 newton)
	Withdrawal force (min)	1.2 lbf (5.3 newton)	1.3 lbf (5.8 newton)
After 10 insertions and withdrawals, before vibration	Insertion force (max)	23 lbf (102 newton)	25.8 lbf (114.8 newton)
	Withdrawal force (min)	.92 lbf (4.09 newton)	1.0 lbf (4.45 newton)
After vibration	Insertion force (max)	23 lbf (102 newton)	25.8 lbf (114.8 newton)
	Withdrawal force (min)	.92 lbf (4.09 newton)	.99 lbf (4.4 newton)

Durability: Shall be in accordance with MIL-DTL-12883.

Vibration (sinusoidal): In accordance with MIL-STD-202, method 204, test condition G.

- a. Except that the frequency range shall be varied logarithmically between the limits of 10 Hz and 3,000 Hz.
- b. Except that the procedure of method of 201 of MIL-STD-202 may be applied during 10 Hz to 55 Hz band of the vibration frequency range.

Vibration (random): In accordance with EIA-364-28, test condition V, letter G, with a test duration of 15 minutes. The mating relay shall be used as the test gage.

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Shock (mechanical): In accordance with MIL-STD-202, method 213, condition C, except peak value shall be 200 g's.

Torque: Relay sockets and hardware shall be subjected to testing torque as specified in table III.

Sockets shall be installed in mounting panel when test torque is applied. No physical damage will be permitted. Torque shall be maintained for a reasonable period of time to insure stud, socket, and associated hardware have not been damaged.

TABLE III. Torque requirements (installed in panel conditions).

Thread size	Torque			
	Testing		Installation	
	Inch-pounds	Newton-meters	Inch-pounds	Newton-meters
.112-40	8	0.90	4 ±1	0.45 ± 0.11
	+ 1	+ 0.11		
	-0	-0		
.164-32	20	2.20	15 ±1	1.70 ± 0.11
	+1	+ 0.11		
	-0	-0		

Socket, contact tools shall be in accordance with table IV.

TABLE IV. Contact tools.

Nomenclature	Part or Identifying Number (PIN)
Crimp tool	M22520/7-01
Positioner	M22520/7-12 and -13
Insertion and removal tool	M81969/16-01 and -02

Weight: The socket, hardware, and electrical contacts shall have a maximum weight of .055 pounds (25 grams).

Mounting hardware: The mounting hardware shall allow mounting the socket above, or below the panel or chassis (see figure 4), and shall allow mounting and securing the relay to the socket without disturbing the mounted socket or access to the wiring side of the socket. The hardware shall provide the nominal .197-inch (5.00 mm) spacing between socket surface and relay mounting flange, regardless of mounting configuration.

Mounting hardware shall be supplied with the relay socket and shall consist of the following:

Self locking nuts .112-40 (6 each) (.224 max dia x .176 max height).

Flat washers .112 (6 each) (.224 max O.D. x .021 max thickness).

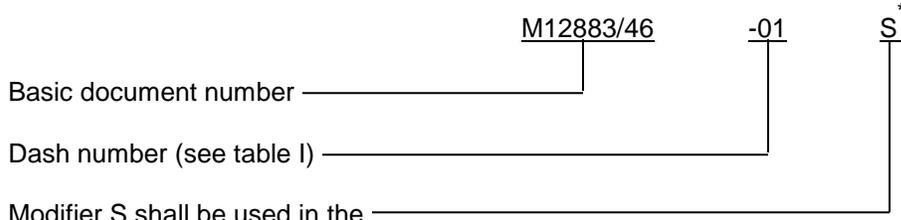
Self locking nuts .164-32 (3 each) (.290 max dia x .190 max height).

Flat washers .164 (3 each) (.290 max O.D. x .019 max thickness).

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PIN: The PIN shall be marked on the socket body as shown in the example (see figure 3). The PIN shall consist of the basic number of this specification sheet, the dash number from table I, and an optional modifier.

Example:



Modifier S shall be used in the PIN only when ordering sockets furnished with corrosion resistant steel hardware with no finish.

\* For future acquisition of these sockets as of the effective date of revision B, 20 December 1989, parts identified with an "S" modifier shall be corrosion resisting steel (CRS), and parts without an "S" modifier shall be cadmium chromate finish. No mixing of hardware types shall be permitted.

Packaging: Hardware, socket insulator, and contacts shall be packaged in separate packages within a common container.

The Government PIN, specified in table VI, supersedes the following commercial PINs.

TABLE VI. Supersession and cross reference.

Active Government PIN	Superseded manufacturer PIN	
	CAGE 58982	CAGE 99699
M12883/46-01	RSE116747	SE310-1010
M12883/46-02	RSE116749	SEL-310-1011
M12883/46-03	RSE116751	SEL310-1012
M12883/46-04	RSE116753	SEL310-1013

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.

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Referenced documents: In addition to MIL-DTL-12883, this document references the following:

MIL-PRF-83536  
MIL-STD-202  
MIL-STD-1285  
MIL-PRF-6106  
ASTM-D5204  
ASTM-D5948  
EIA-364-28  
SAE-AS39029/101

CONCLUDING MATERIAL

Custodians:

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

Preparing activity:  
DLA - CC

(Project 5935-2015-164)

Review activities:

Army - AT, CR4  
Navy - AS, CG, 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>.