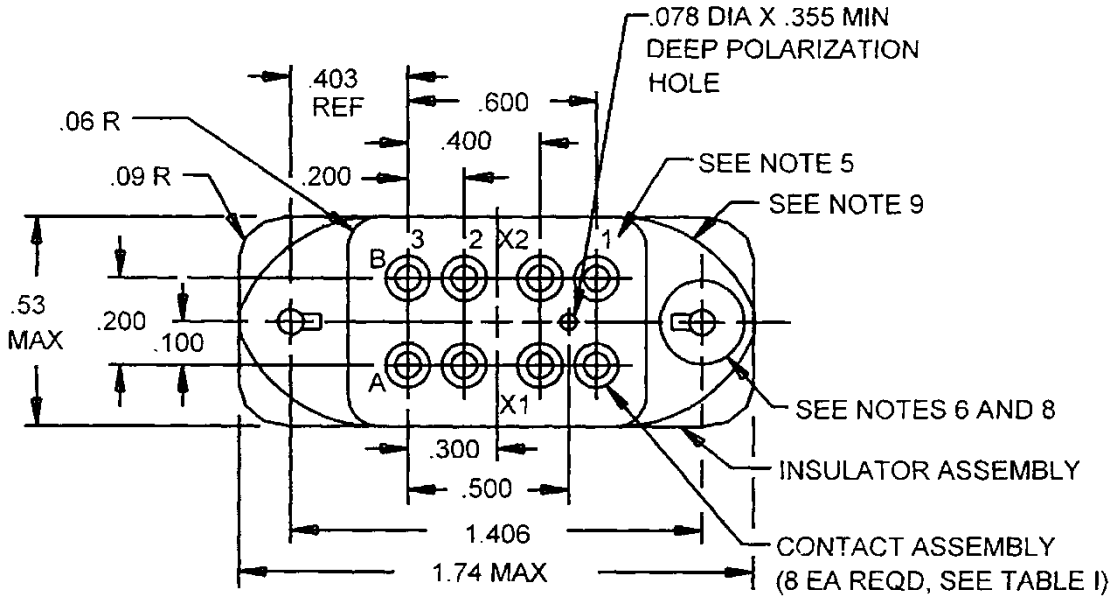
INCH-POUND
MIL-DTL-12883/41F
w/AMENDMENT 2
3 Aug 2015
SUPERSEDING
MIL-DTL-12883/41F
w/AMENDMENT 1
14 September 2004

DETAIL SPECIFICATION SHEET

SOCKETS, PLUG-IN ELECTRONIC COMPONENTS, FOR RELAYS, 2-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.



MATING FACE

-01, -04, -06, -09, -11, -14, -16, AND -19

FIGURE 1. Socket configurations.

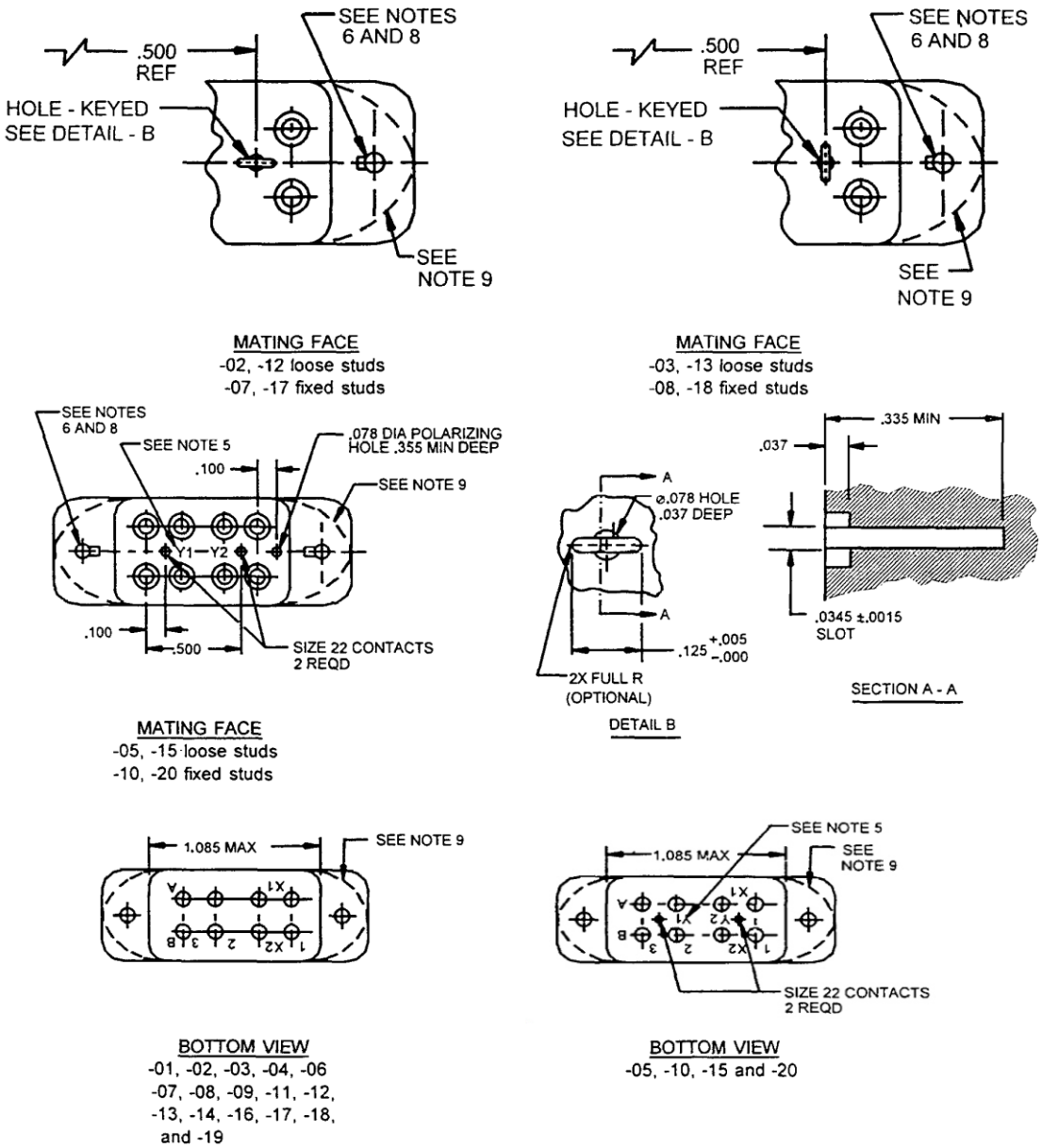
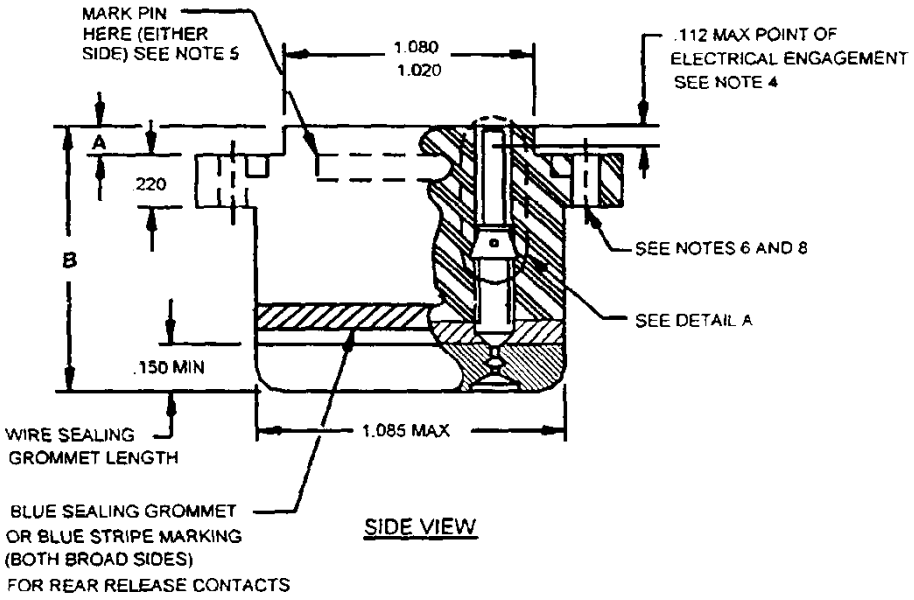
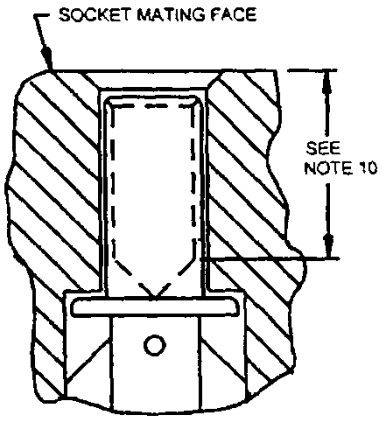


FIGURE 1. Socket configurations – Continued.

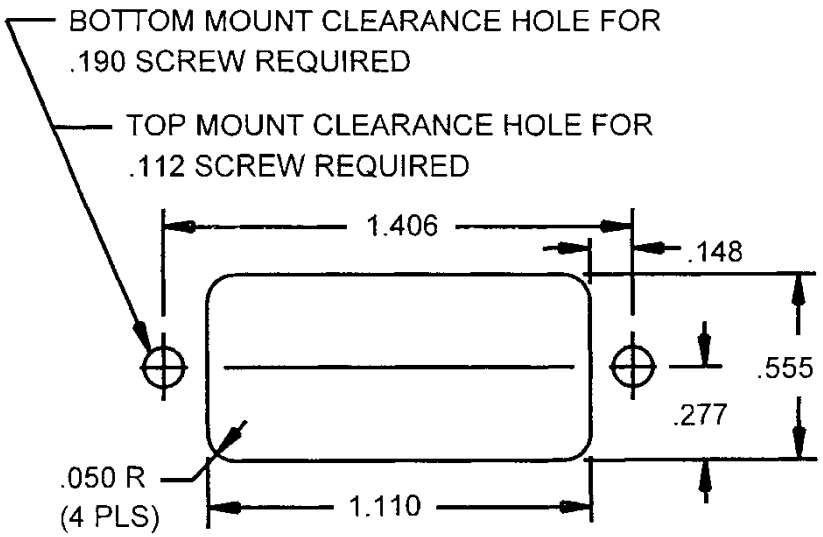




Dimensions

Dash number	A (mm)	B max (mm)
-01 thru -10	.135 - .140 (3.43 - 3.56)	1.130 (28.70)
-11 thru -20	.093 (2.362)	.89 (22.6)

FIGURE 1. Socket configurations – Continued.

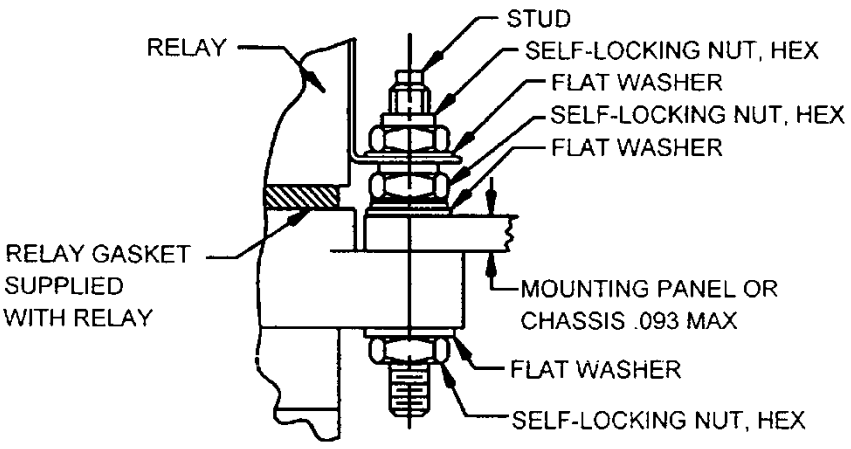


RECOMMENDED MOUNTING DIMENSIONS

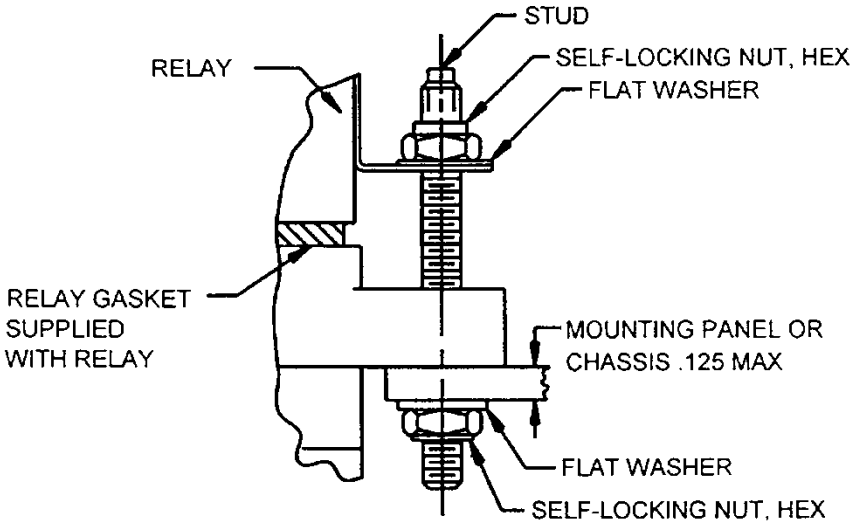
Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
.0015	0.038	.078	1.98	.150	3.81	.355	9.02	1.080	27.43
.005	0.13	.09	2.29	.190	4.83	.400	10.16	1.085	27.56
.0345	0.876	.100	2.54	.200	5.08	.403	10.24	1.110	28.19
.037	0.94	.112	2.84	.220	5.59	.500	12.70	1.020	25.91
.050	1.27	.125	3.18	.277	7.04	.53	13.46	1.085	27.56
.06	1.52	.148	3.76	.300	7.62	.555	14.10	1.406	35.71
				.335	8.51	.600	15.24	1.74	44.2

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance is ± .005 inch (0.13 mm) for three place decimals and ± .01 inch (0.25 mm) for two place decimals.
4. Point of electrical contact engagement, from mating face of socket insulator to the socket contact.
5. Marking shall be characters, which are molded .035 inch (0.89 mm) minimum. Ink marking optional (see MIL-STD-1285).
6. Keyway is shown for loose stud mounting configuration only (see figure 2 detail A).
7. For mating relay (see table I).
8. Configuration mounting (see figures 2, 3, and table I).
9. Shape is optional.
10. Hole depth:
    –01 through –10 depth shall be .370 inch (9.40 mm) min.
    –11 through –20 depth shall be .233 inch (5.92 mm) min.

FIGURE 1. Socket configuration – Continued.

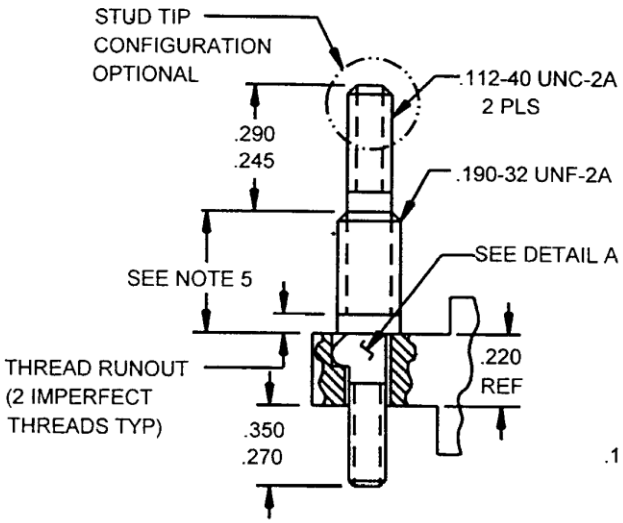


BOTTOM MOUNT (TYP)

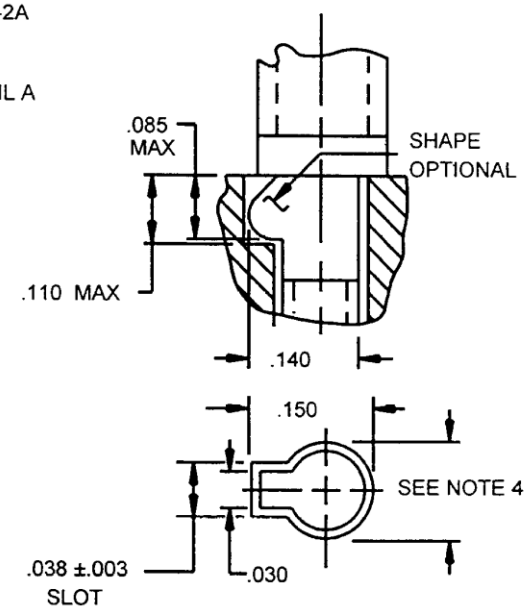


TOP MOUNT (TYP)

FIGURE 2. Loose stud mounting (-01 through –05 and –11 through –15).



LOOSE STUD



DETAIL A

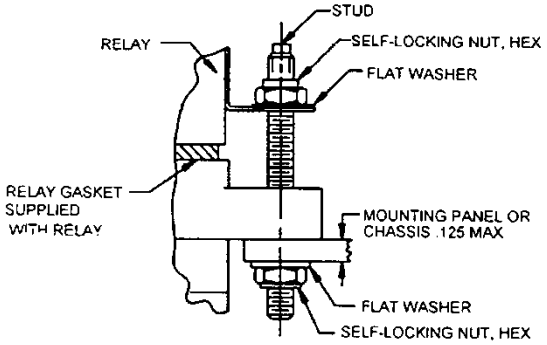
SOCKET BODY MOUNTING
HOLE AND MATING STUD

Inches	mm	Inches	mm
.003	0.08	.140	3.56
.030	0.76	.150	3.81
.038	0.97	.190	4.83
.085	2.16	.220	5.59
.093	2.36	.245	6.22
.110	2.79	.270	6.86
.112	2.84	.290	7.37
.125	3.18	.350	8.89

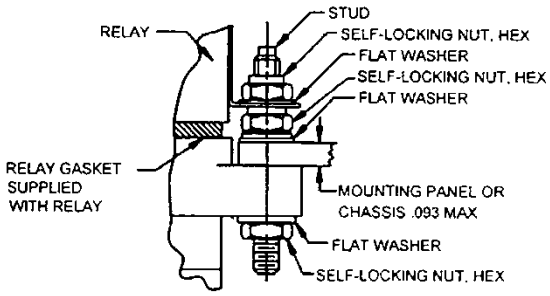
NOTES:

1. Dimensions are in inches.
2. Metric equivalents are for general information only.
3. Unless otherwise specified, tolerances are ± .005 inch (0.13 mm) for three place decimals and ± .01 inch (0.25 mm) for two place decimals.
4. The diameter for loose stud mating hole in the socket body:
   -01 through –05 diameter shall be .125 ± .003 inch (3.175 ± 0.076 mm);
   -11 through –15 diameter shall be .116 ± .003 inch (2.946 ± 0.076 mm).
5. Length from top of socket flange to base of .112-40 UNC-2A for:
   –01 through –05 length shall be .318 ± .10 inch (8.08 ± 2.54 mm).
   –11 through –15 length shall be .290 ± .10 inch (7.37 ± 2.54 mm).

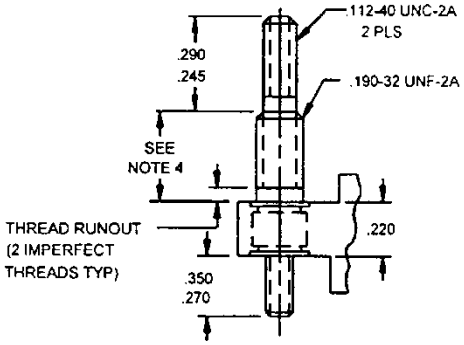
FIGURE 2. Loose stud mounting (-01 through –05 and –11 through –15) – Continued.



TOP MOUNT (TYP)



BOTTOM MOUNT (TYP)



FIXED STUD

Inches	mm
.093	2.36
.112	2.84
.125	3.18
.190	4.83
.220	5.59
.245	6.22
.270	6.86
.290	7.37
.350	8.89

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are for general information only.
3. Unless otherwise specified, tolerances are ± .005 (0.13 mm) for three place decimals and ± .01 inch (0.25 mm) for two place decimals.
4. Length from top of socket flange to base of .112-40 UNC-2A thread for:
   –06 through –10 length shall be .318 ± .010 inch (8.08 ± 0.25 mm).
   –16 through –20 length shall be .290 ± .010 inch (7.37 ± 0.25 mm).

FIGURE 3. Fixed stud mounting (-06 through –10 and –16 through –20).

REQUIREMENTS:

Dimensions and configurations: See figures 1, 2, 3, and table I.

Insulator: 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 or blue color bands indicating rear release contacts.

Grommet: Silicon rubber.

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

Electrical:

Insulation resistance: 1,000 megohms minimum.

Test pin diameter, size 16: .0620 ± .0010 inch (1.575 ± 0.025 mm)
Test pin diameter, size 22, .0300 ± .0010 inch (0.762 ± 0.025 mm)

Dielectric withstanding voltage:

Sea level:

Test voltage: 1,500 V rms.
Test pin diameter, size 16, .0620 ± .0010 inch (1.575 ± 0.025 mm).

High altitude: 80,000 feet (24,384 meters):

Test voltage: 500 V rms.
Test pin diameter, size 16: .0620 ± .0010 inch (1.575 ± 0.025 mm).
Test pin diameter, size 22: .0300 ± .0010 inch (0.762 ± 0.025 mm).

Contact resistance: Contacts shall be removable crimp type in accordance with SAE-AS39029/92, SAE-AS39029/5 (see table I).

TABLE I. Dash numbers and configurations.

Dash Number	Mounting style	Contact Size		Number of contacts	Contact designation M39029	Mating relay 1/
		Mating end	Wire barrel			
01	Loose stud (figure 2)	16	16	8	/5 – 116	M83536/9-024, /9-029, /10-024
02	Loose stud (figure 2)	16	16	8	/5 – 116	M83536/11-002, /11-004, /11-007
03	Loose stud (figure 2)	16	16	8	/5 – 116	To be determined.
04	Loose stud (figure 2)	16	16	8	/5 – 117	2/ M83536/9-024, /9-029, /10-024
05	Loose stud (figure 2)	16 22	16 22	8 2	/5 – 116 /5 – TBD	M83536/12-008, /14-008
06	Fixed stud (figure 3)	16	16	8	/5 – 116	M83536/9-024, /10-024
07	Fixed stud (figure 3)	16	16	8	/5 – 116	M83536/11-002, /11-004, 11-007
08	Fixed stud (figure 3)	16	16	8	/5 – 116	To be determined.
09	Fixed stud (figure 3)	16	20	8	/5 – 117	2/ M83536/9-024, /9-029, 10-024
10	Fixed stud (figure 3)	16 22	16 22	8	/5 – 116 /5 – TBD	M83536/12-008, /14-008
11	Loose stud (figure 2)	16	16	8	/92 - 533	M83536/9-024, /9-029, 10-024
12	Loose stud (figure 2)	16	20 21	8	/92 - 533	M83536/9-024, /11-004, /11-002, /11-007
13	Loose stud (figure 2)	16	16	8	/92 - 533	To be determined.
14	Loose stud (figure 2)	16	20	8	/92 - 534	2/ M83536/9-024, /9-029, 10-024
15	Loose stud (figure 2)	16 22	16 22	8 8	/92 – 533 /92 – 531	M83536/12-008, /14-008
16	Fixed stud (figure 3)	16	16	8	/92 - 533	M83536/9-024, /9-029, 10-024
17	Fixed stud (figure 3)	16	16	8	/92 - 533	M83536/9-024, /11-004, /11-002, /11-007
18	Fixed stud (figure 3)	16	16	8	/92 - 533	To be determined.
19	Fixed stud (figure 3)	16	20	8	/92 - 534	2/ M83536/9-024, /9-029, 10-024
20	Fixed stud (figure 3)	16 22	16 22	8 2	/92 – 533 /92 – 531	M83536/12-008, /14-008

1/ Reference MIL-PRF-83536 for supersession data on MIL-PRF-6106 relays.
2/ Caution: Because of the wire barrel size of M83536/9-024, current overload may be experienced at 10 amperes.

Environmental:

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

Wire sealing: A resilient grommet is permanently bonded to the wire entry face of the socket so as to provide moisture-sealing capabilities (see figure 1). Wire sealing range shall be as specified in table II.

TABLE II. Wire sealing range.

Contact size	Wire sealing range (mm)
22-22	.030 min to .054 max (0.76 min to 1.37 max)
16-20	.040 min to .083 max (1.02 min to 2.11 max)
16-16	.065 min to .109 max (1.65 min to 2.77 max)

Mechanical:

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 201 of MIL-STD-202 may be applied during 10 Hz to 55 Hz band of the vibration frequency range.
c. Qualified mating relay shall be used as a test gauge.

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

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

Insertion and withdrawal forces: The insertion and withdrawal forces of the relay and socket shall be as specified as in table III.

TABLE III. Insertion and withdrawal forces.

Condition		M12883/41	
		-01 through –04 -06 through –09 -11 through –14	-16 through –19 -05, 10, -15 and -20
Initial	Insertion force (max)	15 lbf (67 newton)	17.5 lbf (77.8 newton)
	Withdrawal force (min)	1.0 lbf (4.4 newton)	1.1 lbf (4.9 newton)
After 10 insertions and withdrawals, and before vibration	Insertion force (max)	15 lbf (67 newton)	17.5 lbf (77.8 newton)
	Withdrawal force (min)	1.0 lbf (4.4 newton)	1.1 lbf (4.9 newton)
After vibration	Insertion force (max)	14 lbf (62 newton)	16.25 lbf (72.28 newton)
	Withdrawal force (min)	.75 lbf (3.34 newton)	.82 lbf (3.65 newton)

Mounting hardware: The mounting hardware shall allow mounting the socket above, or below the panel or chassis (see figures 2 and 3), 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 spacing between socket surface and relay mounting flange, regardless or mounting configuration, (see figures 2 and 3).

Supplied with relay socket:

4 each .112-40 self locking nuts (.206 inch max dia x .176 inch max height).

4 each .112 flat washers (.224 inch max O.D. x .021 inch max thick).

2 each .190-32 self locking nuts (.330 inch max dia x .190 inch max height).

2 each .190 flat washers (.360 inch max O.D. x .036 inch max height).

2 each studs for loose mounting configuration only (see figure 2).

Fixed mounting studs: Studs shall be molded into the mounting flange of the socket and shall be designated so as to prevent rotation of the stud within the flange (see figure 3).

Contact installation tools shall be in accordance with table IV.

TABLE IV. Contact installing and removal tools.

Contact type M39029	Basic Crimping Tool M22520	Positioner tool M22520	Installing tool M81969	Removal	
				Wired contact M81969	Unwired contact M81969
5-116	/1-01 or /7-01	/1-02 Blue /7-03	/8-07 /14-03	/8-08 /14-03	/30-06
5-117	/1-01 or /7-01	/1-02 Blue /7-03	/8-05 /14-02	/8-06 /14-02	/30-05
92-531	/2-01	/2-06	/8-03 /14-01	/8-04 /14-03	/30-01
92-533	/1-01 or /7-01	/1-02 Blue /7-03	/8-07 /14-03	/8-08 /14-03	/30-06
92-534	/1-01 or /7-01	/1-02 Blue /7-03	/8-07 14-03	/8-08 /14-03	/30-05

Torque: Relay socket and hardware shall be subjected to torque testing as specified in table V. Sockets shall be installed in mounting panel when test torque is applied. No visual evidence of physical damage shall be permitted. Torque shall be maintained for a reasonable period of time to insure stud, socket, and associated hardware have not been damaged (see table V).

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

Thread size	Torque			
	Testing		Installation	
	Inch-pounds	Newton-meters	Inch-pounds	Newton-meters
.112-40	8 +1 -0	0.90 + 0.11 -0	4 ±1	0.45 ± 0.11
.190-32	24 +1 -0	2.71 + 0.11 -0	18 ±1	2.03 ± 0.11

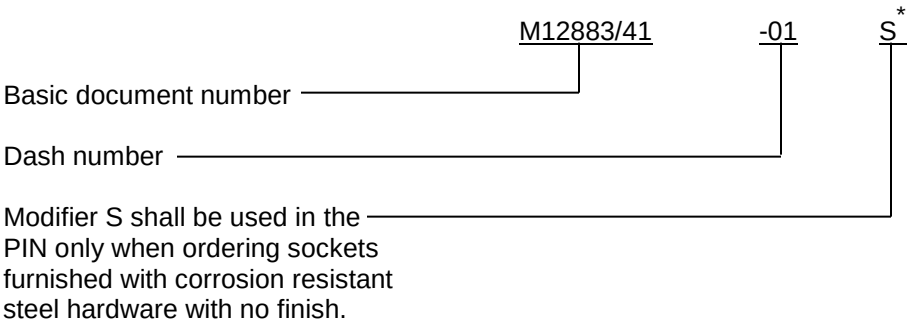
Weight: Maximum weight of relay, socket, all contacts and all associated hardware shall be as specified in table VI.

TABLE VI. Weight.

Part designations M12883/41	Maximum weight	
	Pounds	Grams
-01 through -10	.073	33.1
-11 through -20	.055	24.9

PIN: The PIN shall be marked on the socket body as shown in the example (see figure 1). The PIN shall consist of the basic number of this specification sheet, the dash number from table I, and an optional modifier.

Example:



* For future acquisition of these sockets as of the effective date of revision D, 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.

Ordering data: Sockets without contacts may be ordered when so indicated in the ordering data (see MIL-DTL-12883). This applies only to original equipment manufacturers (OEMs) and subcontractors. All direct shipments to the government shall include all applicable contacts and mounting hardware. The PIN to be marked on the socket shall be as shown in the PIN example (see figure 1 and table I).

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

TABLE VII. Supersession and cross reference data.

	Superseded manufacturers PIN		
Active Government PIN	CAGE 58982	CAGE 99699	CAGE F7913
M12883/41-01	RSL116091 AND -S	SE210-2001 AND S	TBD
M12883/41-02	RSL116093 AND -S	SE210-2002 AND S	TBD
M12883/41-03	RSL116095 AND -S	SE210-2003 AND S	TBD
M12883/41-04	RSL116097 AND -S	SE210-2004 AND S	TBD
M12883/41-05	RSL116099 AND -S	TBD	TBD
M12883/41-06	RSL116063 AND -S	SE210-1001 AND S	TBD
M12883/41-07	RSL116065 AND -S	SE210-1002 AND S	TBD
M12883/41-08	RSL116067 AND -S	SE210-1003 AND S	TBD
M12883/41-09	RSL116069 AND -S	SE210-1004 AND S	TBD
M12883/41-10	RSL116071 AND -S	TBD	TBD
M12883/41-11	RSL116685 AND -S	SME210-2001 AND S	001585 351 07 A 1
M12883/41-12	RSL116687 AND -S	SME210-2002 AND S	001585 352 07 A 1
M12883/41-13	RSE116689 AND -S	SME210-2003 AND S	001585 353 07 A 1
M12883/41-14	RSE116691 AND -S	SME210-2004 AND S	001585 351 07 A 2
M12883/41-15	RSE116693 AND -S	SMEL210-2001 AND S	001585 355 07 A 1
M12883/41-16	RSE116695 AND -S	SME210-1001 AND S	001585 351 07 A 1
M12883/41-17	RSE116697 AND -S	SME210-1002 AND S	001585 352 07 A 1
M12883/41-18	RSE116699 AND -S	SME210-1003 AND S	001585 353 07 A 1
M12883/41-19	RSE116701 AND -S	SME210-1004 AND S	001585 351 06 A 2
M12883/41-20	RSE116703 AND -S	SMEL21-1001 AND S	001585 355 06 A 1

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-12883, this document references the following:

MIL-STD-202
MIL-STD-1285
MIL-PRF-6106
MIL-PRF-83536
ASTM-D5948
ASTM-D5204
EIA-364-28
SAE-AS39029/5
SAE-AS39029/92

CONCLUDING MATERIAL

Custodians:
Army – CR
Navy – EC
Air Force – 85
DLA – CC

Preparing activity:
DLA – CC

(Project 5935-2015-162)

Review activities:
Army – AR, AT
Navy – 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.