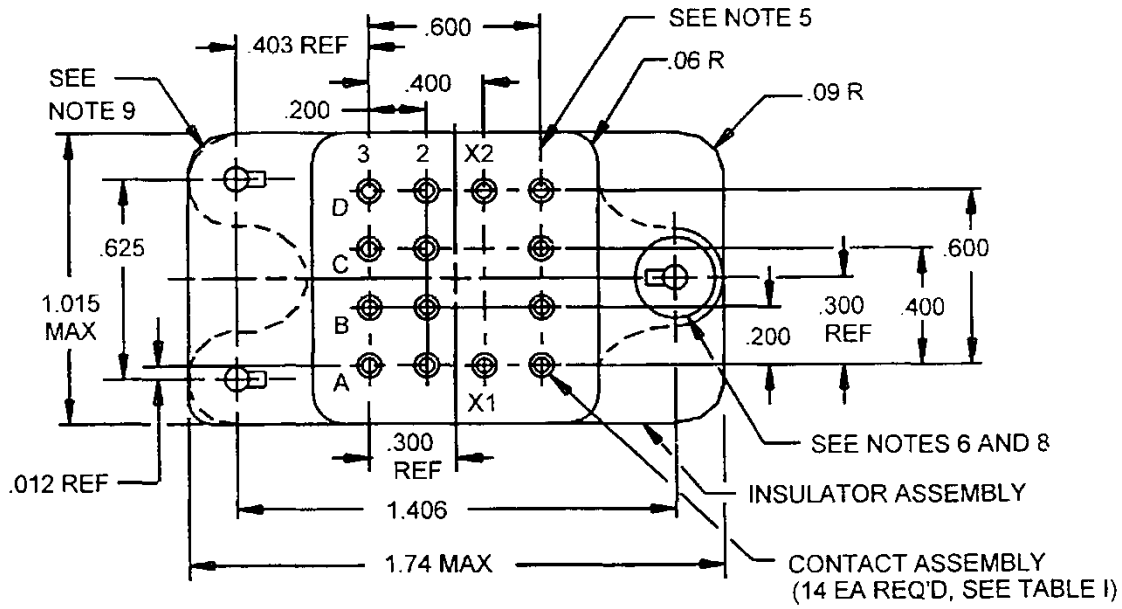
INCH-POUND
MIL-DTL-12883/40F
w/AMENDMENT 2
11 March 2016
SUPERSEDING
MIL-DTL-12883/40F
w/AMENDMENT 1
3 August 2015

DETAIL SPECIFICATION SHEET

SOCKETS, PLUG-IN ELECTRONIC COMPONENTS, FOR RELAYS, 4-POLE, 10 AMPERES (MIL-PRF-6106, MIL-PRF-83536, MIL-PRF-83726, AND MS27709)

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

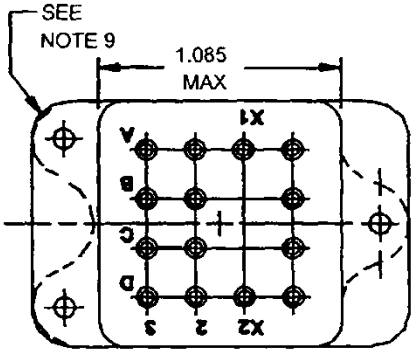
The requirements for acquiring the product described herein shall consist of this specification and MIL-DTL-12883.



MATING FACE

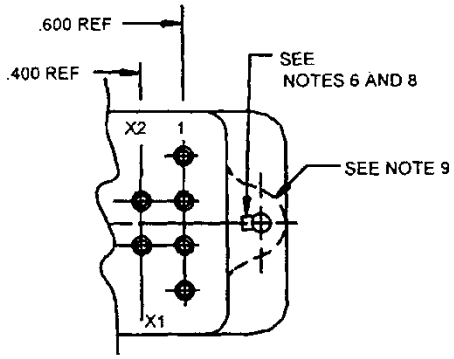
-01, -05, -07, -11, -13, -17, -19, AND -23

FIGURE 1. Socket configurations.

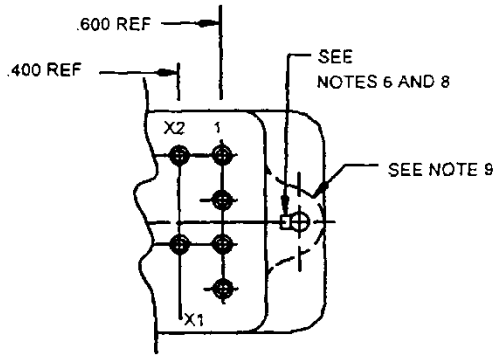


BOTTOM VIEW

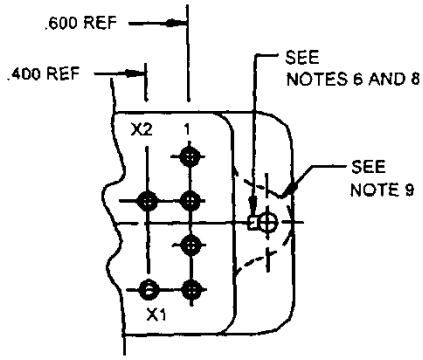
-01, -05, -07, -11, -13, -17, -19, AND -23



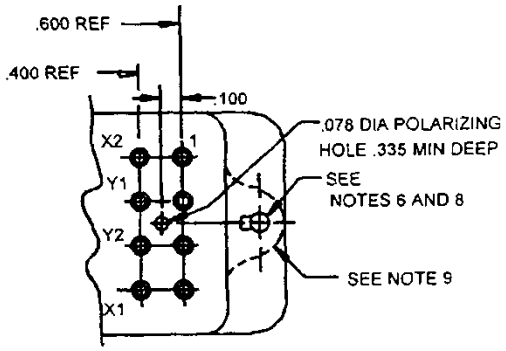
MATING FACE
-02, -14
-08, -20



MATING FACE
-03, -15
-09, -21

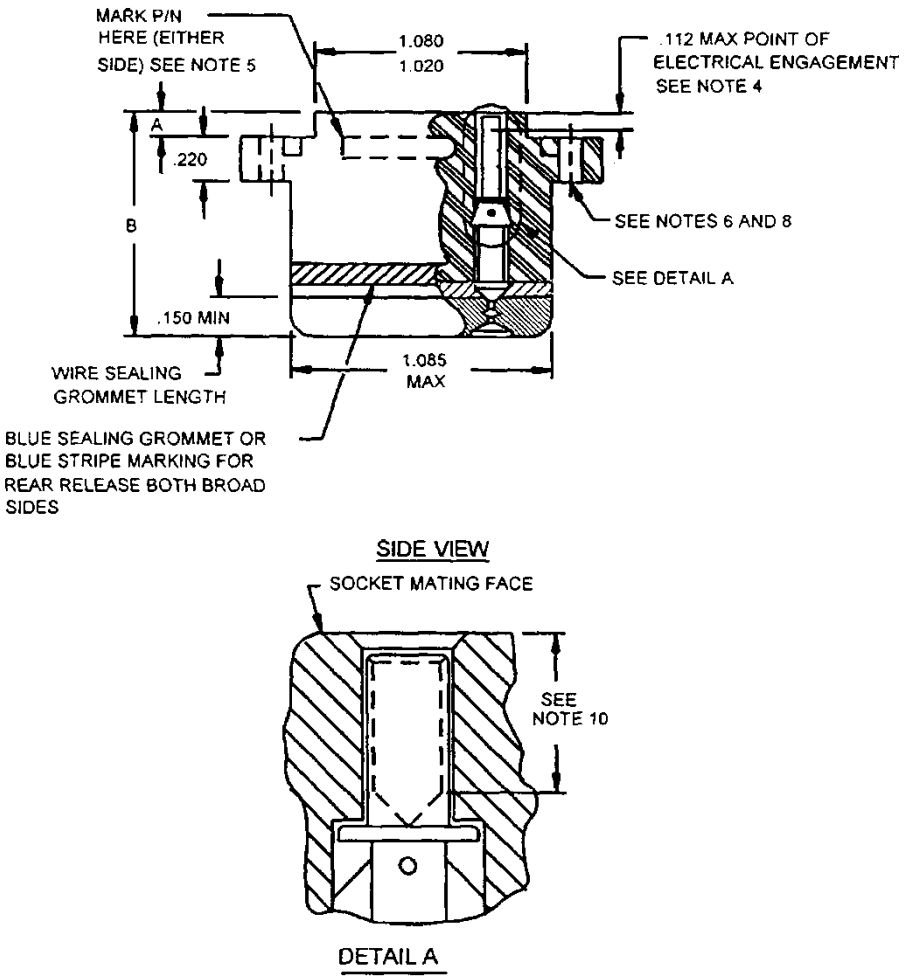


MATING FACE
-04, -16
-10, -22



MATING FACE
-06, -18
-12, -24

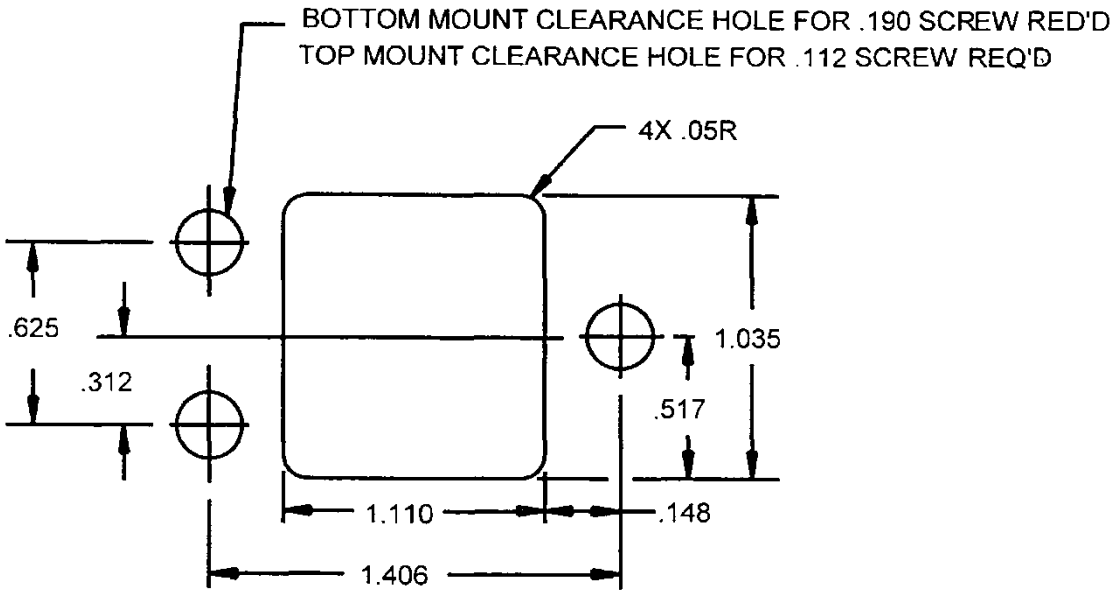
FIGURE 1. Socket configurations – Continued.



Dimensions

Dash number	A (mm)	B max (mm)
-01 thru –12	.135 - .140 (3.43 - 3.56)	1.130 (28.70)
-13 thru –24	.0930 (2.362)	.89 (22.60)

FIGURE 1. Socket configurations – Continued.

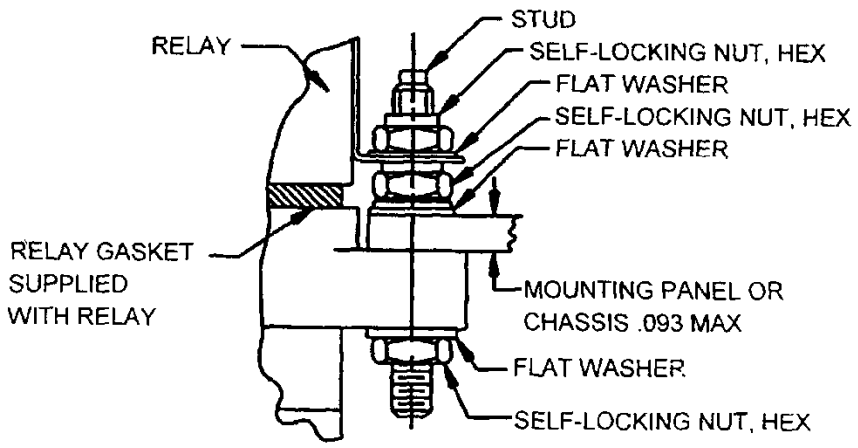


RECOMMENDED MOUNTING DIMENSIONS

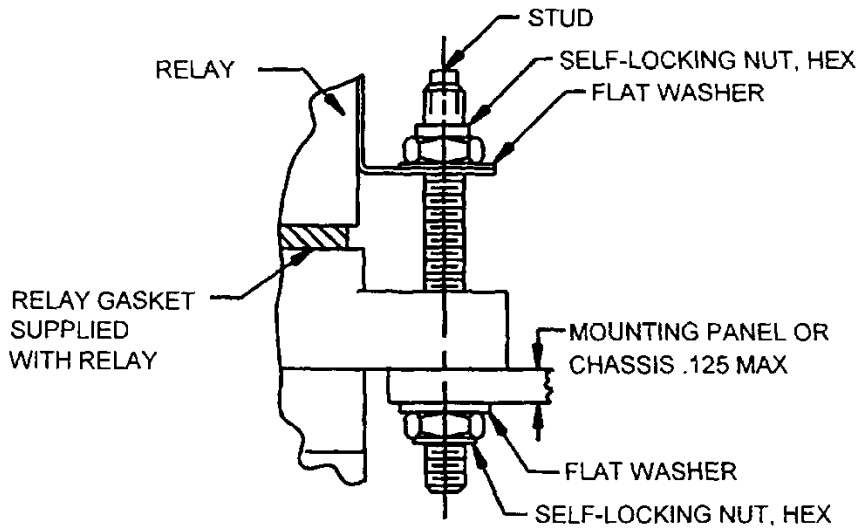
Inches	mm	Inches	mm	Inches	mm	Inches	mm
.012	0.30	.150	3.81	.335	8.51	1.020	25.91
.06	1.52	.190	4.83	.400	10.16	1.035	26.29
.078	1.98	.200	5.08	.403	10.24	1.080	27.43
.100	2.54	.220	5.59	.517	13.13	1.085	27.56
.112	2.84	.300	7.62	.600	15.24	1.110	28.19
.148	3.76	.312	7.92	.625	15.88	1.406	35.71
				1.015	25.78	1.74	44.20

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. Depth of hole for:
    - –01 through –12 depth shall be .370 inch (9.40 mm) min.
    - –13 through –24 depth shall be .233 inch (5.92 mm) min.

FIGURE 1. Socket configurations – Continued.

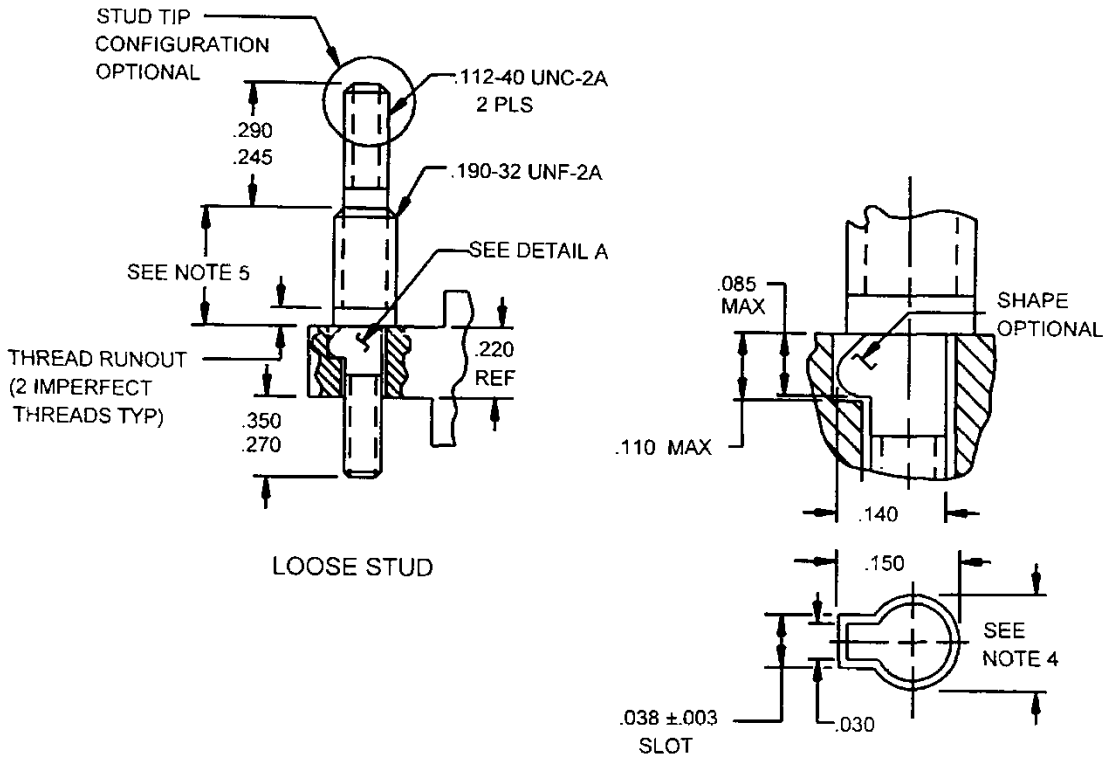


BOTTOM MOUNT (TYP)



TOP MOUNT (TYP)

FIGURE 2. Loose stud mounting (-01 through –06 and –13 through –18).

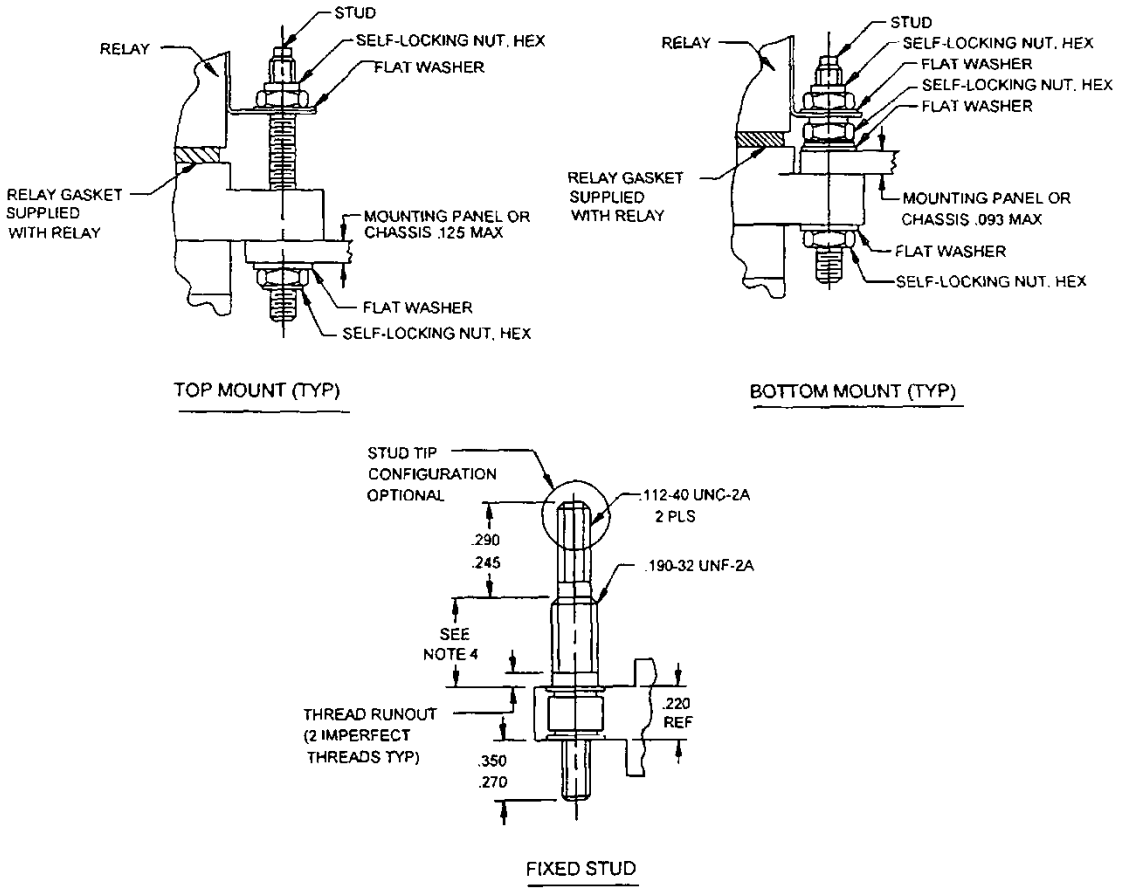


Inches	mm	Inches	mm	Inches	mm
.003	0.08	.110	2.79	.190	4.83
.030	0.76	.112	2.84	.220	5.59
.038	0.97	.125	3.18	.245	6.22
.085	2.16	.140	3.56	.270	6.86
.093	2.36	.150	3.81	.290	7.37
				.350	8.89

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are for general information only.
3. Unless otherwise specified, tolerances are ±.005 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 shall be for:
   –01 through –06 diameter shall be .125 ±.003 inch (3.175 ± 0.076 mm);
   –13 through –18 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 thread for:
   –01 through –06 length shall be .318 ±.10 inch (8.08 ± 2.54 mm).
   –13 through –18 length shall be .290 ±.10 inch (7.37 ± 2.54 mm).

FIGURE 2. Loose stud mounting (-01 through –06 and –13 through –18). – Continued.



Inches	mm	Inches	mm
.093	2.36	.220	5.59
.112	2.84	.245	6.22
.125	3.18	.270	6.86
.190	4.83	.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:
   –07 through –12 length shall be .318 ±.010 inch (8.08 ±0.25 mm).
   –19 through –24 length shall be .290 ±.010 inch (7.37 ±0.25 mm).

FIGURE 3. Fixed stud mounting (-07 through –12 and –19 through –24).

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).

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).

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
		Mating end	Wire barrel			
01	Loose stud (figure 2)	16	16	14	/5 – 116	M83536/15-022, /16-022, /16-031, 1/ M83726/1, /2, /3, /4, /28, /29, /30, /31, MS27709-2
02	Loose stud (figure 2)	16	16	14	/5 – 116	M83536/17-002, /17-005
03	Loose stud (figure 2)	16	16	14	/5 – 116	To be determined.
04	Loose stud (figure 2)	16	16	14	/5 – 116	To be determined
05	Loose stud (figure 2)	16	20 2/	14	/5 – 117	M83536/15-022, /16-022, /16-031, 1/ M83726/1, /2, /3, /4, /28, /29, /30, /31, MS27709-2

See footnotes at end of table.

TABLE I. Dash numbers and configurations - Continued.

Dash Number	Mounting style	Contact size		Number of contacts	Contact designation M39029	Mating relay
		Mating end	Wire barrel			
06	Loose stud (figure 2)	16	16	16	/5 – 116	MS27745-2, -4, -5
07	Fixed stud (figure 3)	16	16	14	/5 – 116	M83536/15-022, /16-022, /16-031, 1/ M83726/1, /2, /3, /4, /28, /29, /30, /31 MS27709-2
08	Fixed stud (figure 3)	16	16	14	/5 – 116	M83536/17-002, /17-002, /17-005
09	Fixed stud (figure 3)	16	16	14	/5 – 116	To be determined.
10	Fixed stud (figure 3)	16	16	14	/5 – 116	To be determined.
11	Fixed stud (figure 3)	16	20 2/	14	/5 – 117	M83536/15-022, /16-022, /16-031, 1/ M83726/1, /2, /3, /4, /28, /29, /30, /31 MS27709-2
12	Fixed stud (figure 3)	16	16	16	/5 – 116	MS27745-2, -4, -5
13	Loose stud (figure 2)	16	16	14	/92 - 533	M83536/15-022, /16-022, /16-031, 1/ M83726/1, /2, /3, /4, /28, /29, /30, /31 MS27709-2
14	Loose stud (figure 2)	16	16	14	/92 - 533	MS83536/17-002, /17-005
15	Loose stud (figure 2)	16	16	14	/92 - 533	To be determined.
16	Loose stud (figure 2)	16	16	14	/92 - 533	To be determined.
17	Loose stud (figure 2)	16	20 2/	14	/92 - 534	M83536/15-022, /16-022, /16-031, 1/ M83726/1, /2, /3, /4, /28, /29, /30, /31 MS27709-2
18	Loose stud (figure 2)	16	16	16	/92 - 533	MS27745-2, -4, -5
19	Fixed stud (figure 3)	16	16	14	/92 – 533	M83536/15-022, /16-022, /16-031, 1/ M83726/1, /2, /3, /4, /28, /29, /30, /31 MS27709-2

See footnotes at end of table.

TABLE I. Dash numbers and configurations - Continued.

Dash number	Mounting style	Contact size		Number of contacts	Contact designation M39029	Mating relay
		Mating end	Wire barrel			
20	Fixed stud (figure 3)	16	16	14	/92 – 533	M83536/17-002, /17-005
21	Fixed stud (figure 3)	16	16	14	/92 – 533	To be determined.
22	Fixed stud (figure 3)	16	16	14	/92 – 533	To be determined.
23	Fixed stud (figure 3)	16	20 2/	14	/92 – 534	M83536/15-022, /16-022, /16-031, 1/ M83726/1, /2, /3, /4, /28, /29, /30, /31 MS27709-2
24	Fixed stud (figure 3)	16	16	16	/92 – 533	MS27745-2, -4, -5

1/ Applies to all plug-in type relays of these documents.
2/ Caution: Because of the wire barrel size of -05, -11, -17, and -23, 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)
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-202-204, 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 MIL-STD-202-201 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, letter G, with a test duration of 15 minutes. The mating relay shall be used as the test gage.

Shock (mechanical): In accordance with MIL-STD-202-213, 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 specified as in table III.

TABLE III. Insertion and withdrawal forces.

Condition		M12883/40	
		-01 through –05, -07 through –11, -13 through –17, -19 through –23	-06, 012, -18, and –24
Initial	Insertion force (max)	26.25 lbf (116.77 newton)	30.0 lbf (133.4 newton)
	Withdrawal force (min)	1.75 lbf (7.78 newton)	2.00 lbf (8.90 newton)
After 10 insertions and withdrawals, before vibration	Insertion force (max)	25 lbf (111 newton)	30.0 lbf (133.4 newton)
	Withdrawal force (min)	1.75 lbf (7.78 newton)	2.00 lbf (8.90 newton)
After vibration	Insertion force (max)	14 lbf (62 newton)	26 lbf (116 newton)
	Withdrawal force (min)	1.31 lbf (5.83 newton)	1.5 lbf (6.7 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.

Supplied with relay socket:

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

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

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

3 each .190 flat washers (.360 max dia x .036 max height)

3 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 designed 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 installation tools.

Tool	Nomenclature	Part or Identifying Number (PIN) (size 16 contacts)
Crimp tool		M22520/1-01, /7-01
Positioner		M22520/1-02, /7-03
Insertion/removal tool	Unwired	M81969/14-03
	Wired	M81969/30-06, /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-meter	Inch-pounds	Newton-meter
.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

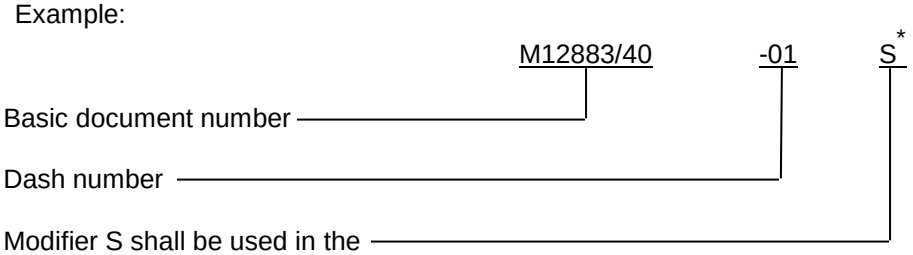
Weight: Maximum weight of relay, socket, all contacts and all associated hardware shall be as specified in table VI.

TABLE VI. Weight.

Part designations M12883/40	Maximum weight	
	Pounds	Grams
-01 through –12	.132	59.9
-13 through –24	.100	45.4

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.

Active Government PIN	Superseded manufacturers PIN		
	CAGE 58982	CAGE 99699	CAGE F7913
M12883/40-01	RSL116079 AND –S	SE410-2001 AND –S	TBD
M12883/40-02	RSL116081 AND –S	SE410-2002 AND –S	TBD
M12883/40-03	RSL116083 AND –S	SE410-2003 AND S	TBD
M12883/40-04	RSL116085 AND –S	SE410-2004 AND S	TBD
M12883/40-05	RSL116087 AND –S	SE410-2005 AND S	TBD
M12883/40-06	RSL116089 AND –S	SEL410-2006 AND S	TBD
M12883/40-07	RSL116051 AND –S	SE410-1001 AND –S	TBD
M12883/40-08	RSL116053 AND –S	SE410-1002 AND –S	TBD
M12883/40-09	RSL116055 AND –S	SE410-1003 AND S	TBD
M12883/40-10	RSL116057 AND –S	SE410-1004 AND S	TBD
M12883/40-11	RSL116059 AND –S	SE410-1005 AND S	TBD
M12883/40-12	RSL116061 AND –S	SEL410-1012 AND S	TBD
M12883/40-13	RSE116661 AND –S	SME410-2001 AND –S	001585 301 07 A 1
M12883/40-14	RSE116663 AND –S	SME410-2002 AND –S	001585 302 07 A 1
M12883/40-15	RSE116665 AND –S	SME410-2003 AND S	001585 304 07 A 1
M12883/40-16	RSE116667 AND –S	SME410-2004 AND S	001585 303 07 A 1
M12883/40-17	RSE116669 AND –S	SME410-2005 AND –S	001585 301 07 A 2
M12883/40-18	RSE116671 AND –S	SMEL410-2001 AND –S	001585 305 07 A 1
M12883/40-19	RSE116673 AND –S	SME410-1001 AND –S	001585 301 06 A 1
M12883/40-20	RSE116675 AND –S	SME410-1002 AND –2	001585 302 06 A 1
M12883/40-21	RSE116677 AND –S	SME410-1003 AND S	001585 304 06 A 1
M12883/40-22	RSE116679 AND –S	SME410-1004 AND S	001585 303 06 A 1
M12883/40-23	RSE116681 AND –S	SME410-1005 AND –S	001585 301 06 A 2
M12883/40-24	RSE116683 AND –S	SMEL410-1001 AND -S	001585 305 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-PRF-6106
MIL-PRF-83536
MIL-PRF-83726
MS27709
MIL-STD-202-201
MIL-STD-202-204
MIL-STD-202-213
MIL-STD-1285
ASTM-D5204
ASTM-D5948
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 5935-2016-041)

Review activities:
Army – AR, AT
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.