

INCH-POUND

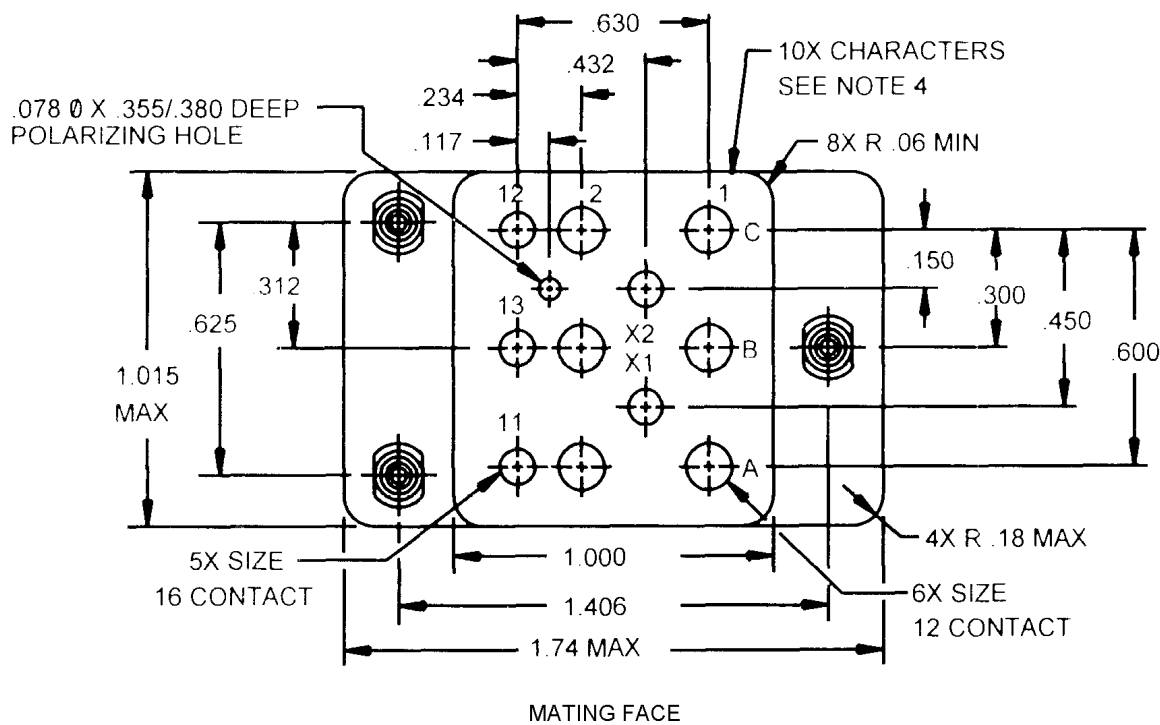
MIL-DTL-12883/54A
 18 February 2003
 SUPERSEDING
 MIL-PRF-12883/54
 24 January 1996

DETAIL SPECIFICATION SHEET

SOCKETS, PLUG-IN ELECTRONIC COMPONENTS SOCKET FOR MIL-PRF 6106 RELAYS AND MS27742 RELAYS

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

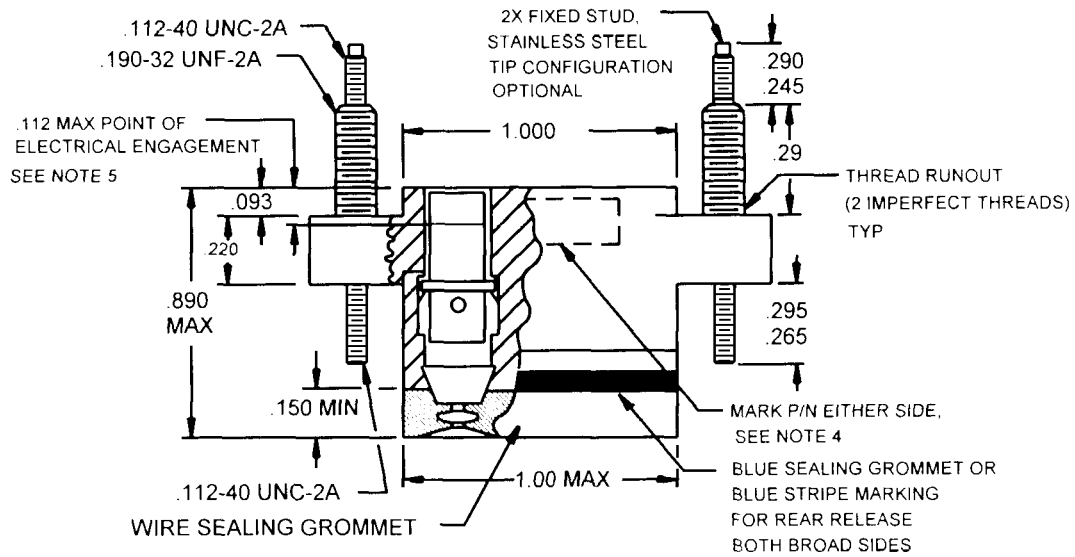
The requirements for acquiring the product described
 herein shall consist of this specification and MIL-DTL-12883.



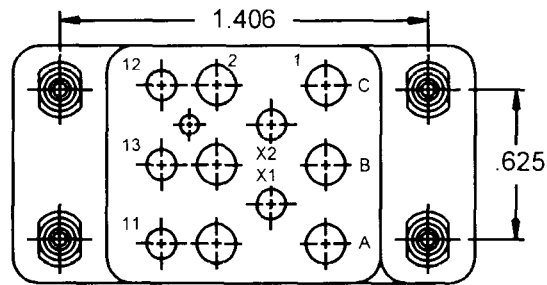
(-01)

FIGURE 1. Socket configurations.

MIL-DTL-12883/54A



FRONT VIEW
 -01 THROUGH -04



MATING FACE
 -02

ALL OTHER DIMENSIONS SAME AS -01

FIGURE 1. Socket configurations – Continued.

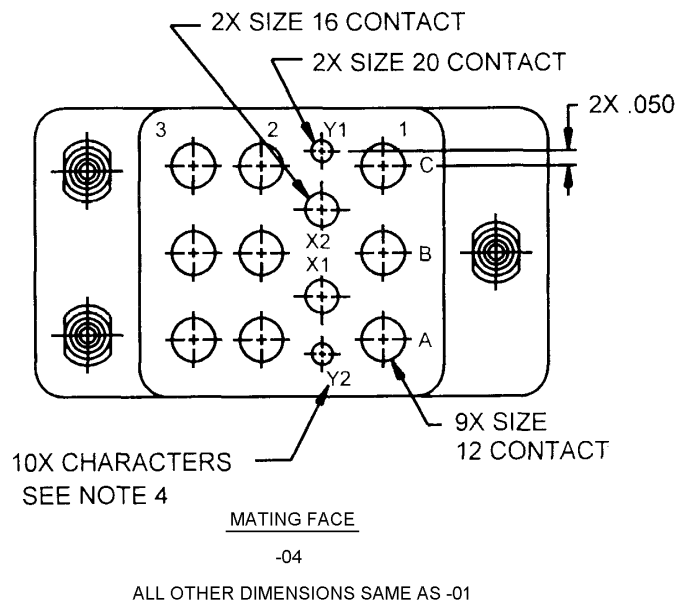


FIGURE 1. Socket configurations – Continued.

MIL-DTL-12883/54A

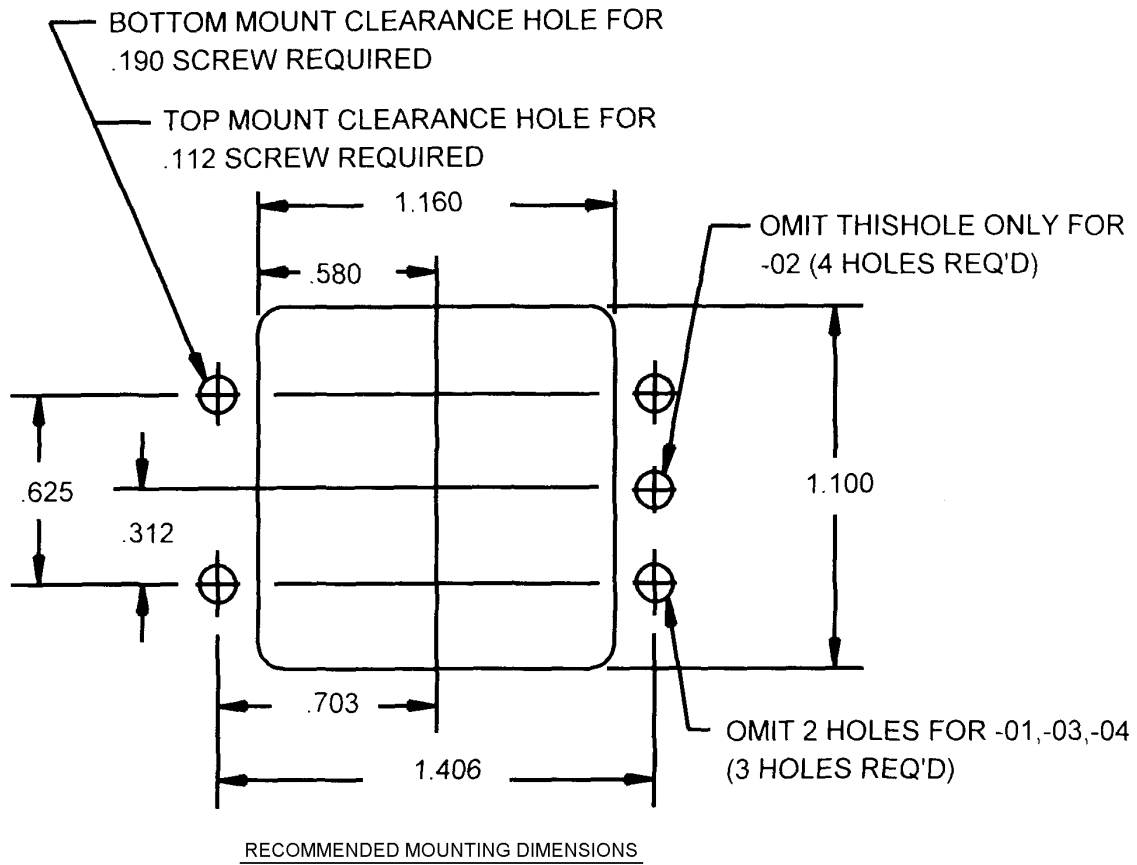
| Inches | mm | Inches | mm | Inches | mm |
|--------|------|--------|-------|--------|-------|
| .050 | 1.27 | .245 | 6.22 | .600 | 15.24 |
| .06 | 1.5 | .265 | 6.73 | .625 | 15.88 |
| .078 | 1.98 | .290 | 7.37 | .630 | 16.00 |
| .093 | 2.36 | .29 | 7.37 | .625 | 15.88 |
| .100 | 2.54 | .295 | 7.49 | .703 | 17.86 |
| .112 | 2.84 | .300 | 7.62 | .890 | 22.61 |
| .117 | 2.97 | .312 | 7.92 | 1.000 | 25.40 |
| .150 | 3.81 | .355 | 9.02 | 1.015 | 25.78 |
| .18 | 4.57 | .380 | 9.65 | 1.100 | 27.94 |
| .190 | 4.83 | .432 | 10.97 | 1.160 | 29.46 |
| .220 | 5.59 | .450 | 11.43 | 1.406 | 35.71 |
| .234 | 5.94 | .580 | 14.73 | 1.74 | 44.20 |

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are $\pm .005$ (0.13 mm) for three place decimals and $\pm .01$ (0.25 mm) for two place decimals.
4. Marking shall be characters which are molded .035 (0.89 mm) minimum, ink marking optional; see MIL-STD-1285.
5. Point of electrical contact from mating face of socket insulator to the socket contact.
6. Configuration mounting (see figure 2).

FIGURE 1. Socket configurations – Continued.

MIL-DTL-12883/54A



| Inches | mm |
|--------|-------|
| .112 | 2.84 |
| .190 | 4.83 |
| .312 | 7.92 |
| .580 | 14.73 |
| .625 | 15.88 |
| .703 | 17.86 |
| 1.100 | 27.94 |
| 1.160 | 29.46 |
| 1.406 | 35.71 |

FIGURE 2. Socket mounting.

MIL-DTL-12883/54A

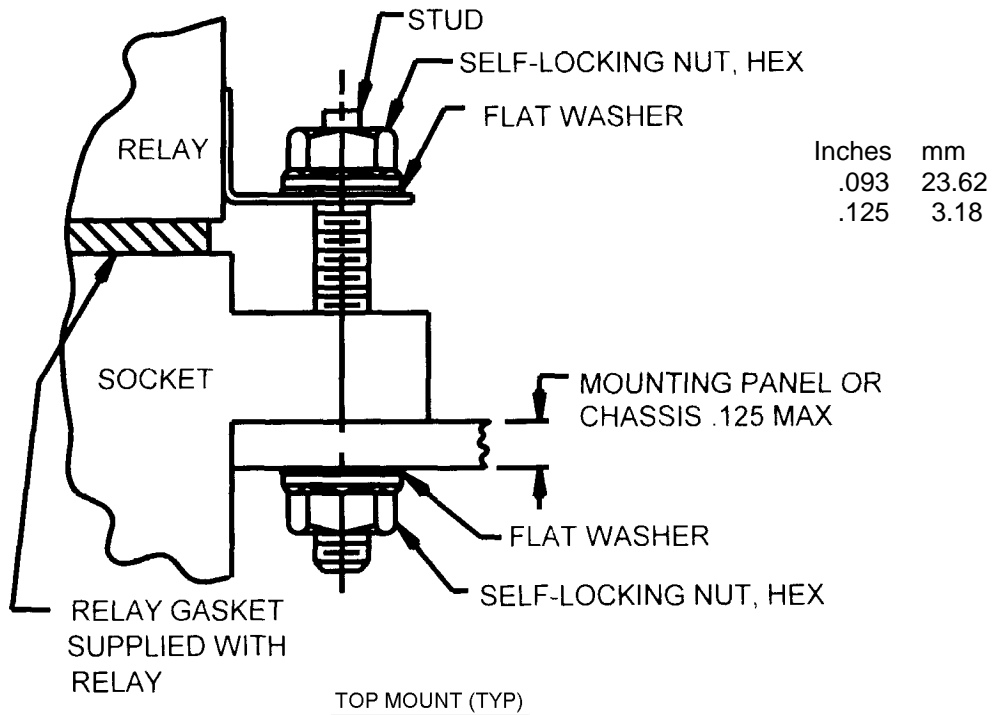
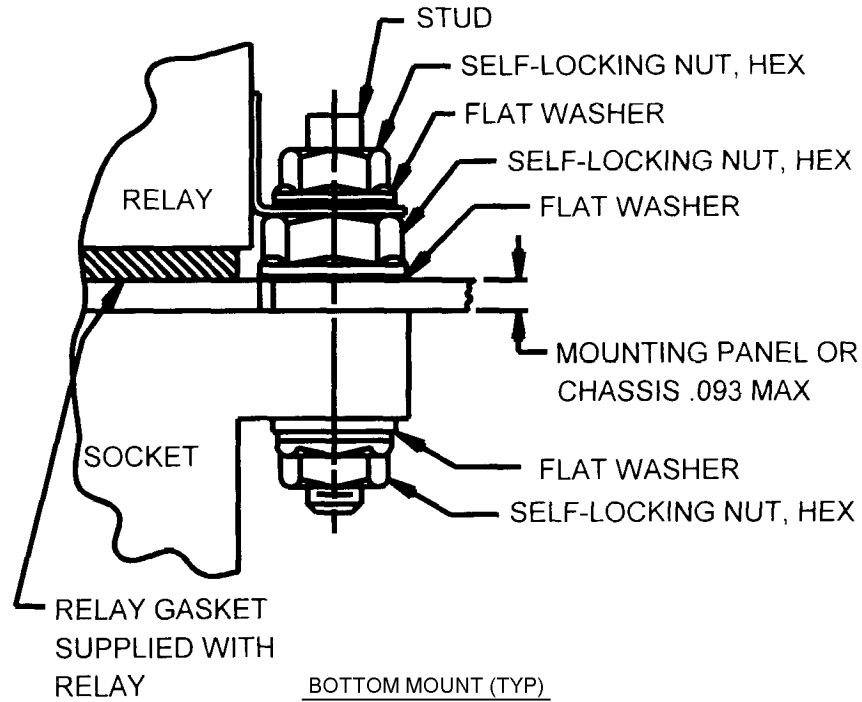


FIGURE 2. Socket mounting – Continued.

MIL-DTL-12883/54A

REQUIREMENTS:

Design and construction: See figure 1.

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

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

Grommet: Silicone rubber.

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

Electrical:

Contacts: Contacts shall be removable crimp type in accordance with MIL-C-39029/92 (see table I).

Insulation resistance: 1000 megohms minimum, the following conditions shall apply:

a. Test pin diameter:

Size 12, .0940 \pm 0.0010 inch (2.39 \pm 0.025 mm).

Size 16, .0620 \pm .0010 inch (1.575 \pm 0.025 mm)

Size 20, .0400 \pm .0010 inch (1.02 \pm 0.03 mm).

TABLE I. Dash numbers and configuration.

| Dash Number | Contact size | | Number of Contacts | Contact Designation M39029 | Mating relay |
|-------------|--------------|-------------|--------------------|----------------------------|--------------------------------------|
| | Mating End | Wire Barrel | | | |
| 01 | 16 | 16 | 5 | /92-533 | M6106/13-002, -008, -011, -013, -015 |
| | 12 | 12 | 6 | /92-535 | |
| 02 | 16 | 16 | 5 | /92-533 | M6106/13-004 |
| | 12 | 16 | 6 | /92/536 | |
| 03 | 20 | 20 | 2 | /92-532 | M6106/12-002 |
| | 16 | 16 | 5 | /92-533 | |
| | 12 | 12 | 6 | /92-535 | |
| 04 | 20 | 20 | 2 | /92-532 | MS27742-2 |
| | 16 | 16 | 2 | /92-533 | |
| | 12 | 12 | 9 | /92-535 | |

Dielectric withstanding voltage:

Sea level: Test voltage, 1500 V rms.

High altitude (80,000 feet (24,384 meters)): Test voltage, 500 V rms.

Test pin diameter, size 20, .0400 \pm .0010 inch (1.02 \pm 0.03 mm), size 16, 0.0625 \pm 0.0010 inch (1.595 \pm 0.025 mm), size 12, .0940 \pm .0010 inch (2.39 \pm 0.025 mm).

Environmental:

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

MIL-DTL-12883/54A

Wire sealing: A resilient grommet is permanently bonded to the wire entry face of the socket so as to provide moisture sealing capabilities for AWG size 12, 16, and 20 wire as applicable (see figure 1, front view).

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 used as a test gauge.

Vibration (random): In accordance with MIL-STD-1344, method 2005, test condition V, letter G, with a 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.

Mounting hardware: The mounting hardware shall allow mounting the socket above or below the panel or chasses (see figure 2), 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 of mounting configuration.

Supplied with relay socket:

2 each per mounting stud:

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

.112 flat washers (.220 max O.D. x .018 max thick).

1 each per mounting stud:

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

.190 flat washers (.360 max O.D. x .019 max thick).

Fixed mounting studs: Studs shall be fixed into the mounting flange of the socket and shall be designed so as to prevent rotation of the stud within the flange (see figure 2).

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

MIL-DTL-12883/54A

TABLE II. Insertion and withdrawal forces.

| Condition | Test | M12883/54 | | |
|---|------------------------|-------------------|-------------------|-------------------|
| | | -01, -02 | -03 | -04 |
| Initial | Insertion force (max) | 21 lbf (93.41 N) | 23 lbf (102.31 N) | 25 lbf (111.21) |
| | Withdrawal force (min) | 2.0 lbf (8.90 N) | 2 lbf (8.90N) | 2 lbf (8.90 N) |
| After 10 insertions and withdrawals, before vibration | Insertion force (max) | 23 lbf (102.31 N) | 25 lbf (111.21 N) | 27 lbf (120.10 N) |
| | Withdrawal force (min) | 2.0 lbf (8.90 N) | 2 lbf (8.90 N) | 2 lbf (8.90 N) |
| After vibration | Insertion force (max) | 23 lbf (102.31 N) | 25 lbf (111.21 N) | 27 lbf (120.10 N) |
| | Withdrawal force (min) | 2.0 lbf (8.90 N) | 2.0 lbf (8.90 N) | 2 lbf (8.90 N) |

Contact installation tools: See table III.

TABLE III. Contact installation tools.

| Nomenclature | Part or Identifying Number (PIN) (size 20-20 contacts) | PIN (size 16-16) contacts | PIN (size 12-12, 12-16) contacts |
|--|---|---------------------------------|--|
| Crimp tool Positioner | M22520/2-01 M22520/2-02 | M22520/1-01 M22520/1-02 | M22520/1-01 M22520/1-02 |
| Insertion/removal tool Unwired Wired | M81969/30-05 M81969/14-02 | M81969/30-06 M81969/14-03 | M81969/30-07 M81969/14-04 |

Torque: Relay socket and hardware shall be subjected to testing as specified in table IV. Sockets shall be installed in mounting panel when test torque is applied. No 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 IV).

TABLE IV. 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 | | |
| .190-32 | 24 | 2.71 | 18 ±1 | 2.03 ±0.11 |
| | +1 | +0.11 | | |
| | -0 | -0 | | |

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

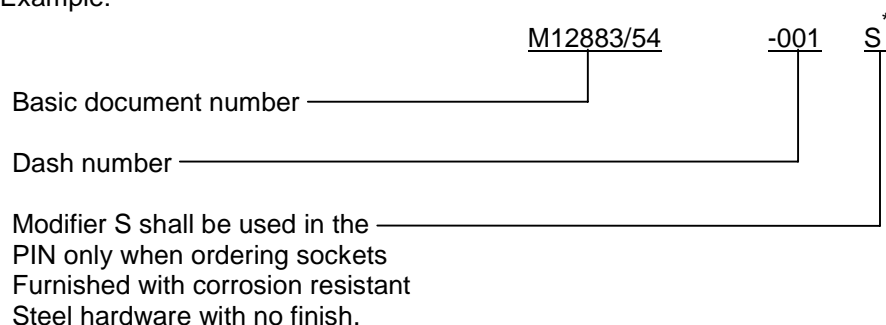
MIL-DTL-12883/54A

TABLE V. Weight.

| Part designations M12883/54 | Maximum weight | |
|--------------------------------|----------------|-------|
| | Pounds | Grams |
| -01 and -02 | .132 | 60 |
| -03 and -04 | .154 | 70 |

PIN: The PIN shall be marked on the mounting track as shown in the example (see figure 1). The PIN shall consist of the basic number of this specification sheet and the dash number.

Example:



*For acquisition of these sockets, 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 (OEM's) 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 VI, supersedes the following commercial PINs.

TABLE VI. Supersession and cross reference.

| Active Government PIN | Superseded number |
|-----------------------|-------------------|
| | CAGE 58982 |
| M12883/54-01 | RSE116627 |
| M12883/54-02 | RSE116631 |
| M12883/54-03 | RSE116629 |
| M12883/54-04 | RSE116635 |

MIL-DTL-12883/54A

CONCLUDING MATERIAL

Custodians:
Army - CR
Navy - EC
Air Force - 11
DLA - CC

Preparing activity:
DLA - CC

(Project 5935-4344-19)