

INCH-POUND

MIL-DTL-55302/139C  
24 March 2004  
SUPERSEDING  
MIL-C-55302/139B  
11 February 1993

DETAIL SPECIFICATION SHEET

CONNECTORS, PRINTED CIRCUIT SUBASSEMBLY AND ACCESSORIES:  
RECEPTACLES, 90 THROUGH 240 CONTACT POSITIONS,  
FOR PRINTED WIRING BOARDS (.100 SPACING)

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-55302.

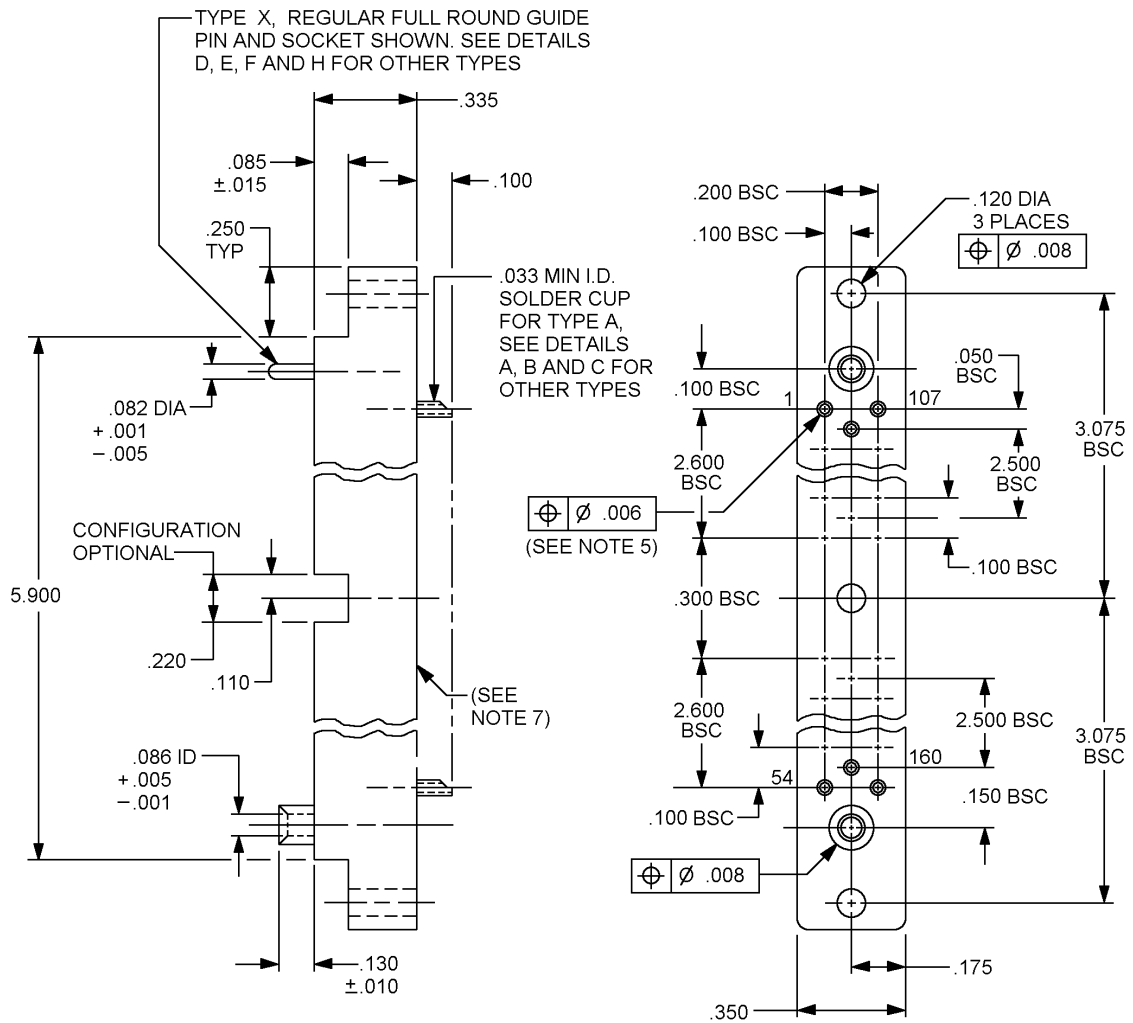
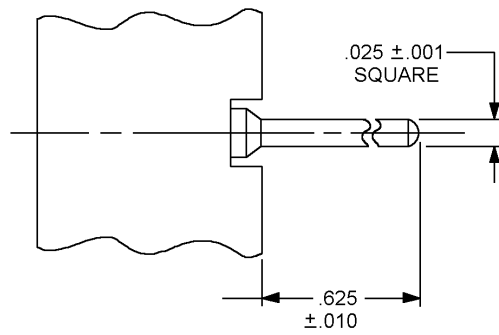
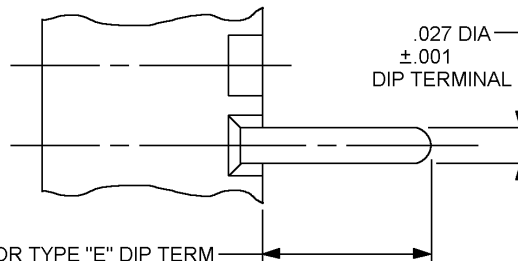


FIGURE 1. Connectors, receptacle, .100 (25.4 mm) spacing.

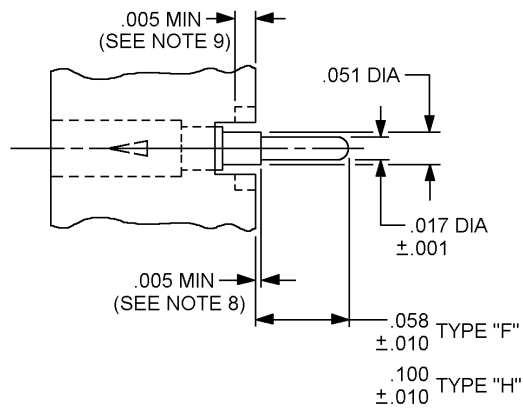
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WIRE WRAP TERMINAL (TYPE D)  
DETAIL "A"

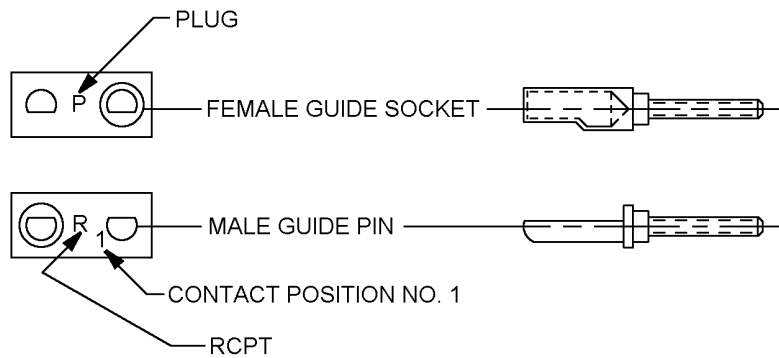


DETAIL "B"

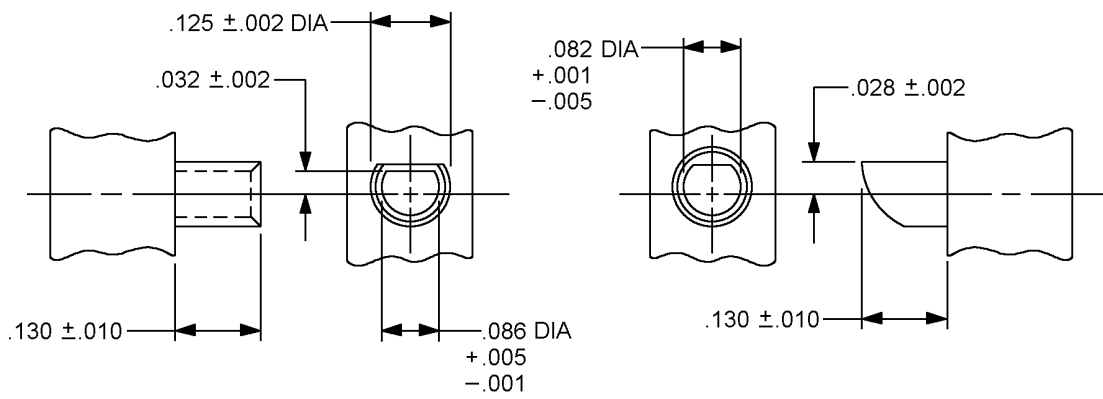


FLEXIBLE CIRCUIT TERMINAL  
DETAIL "C"

FIGURE 1. Connectors, receptacle, .100 (25.4 mm) spacing - Continued.

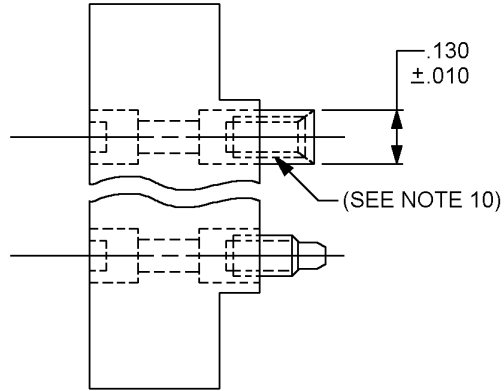


CONNECTOR POLARIZATION WITH "D" SHAPED GUIDE PINS AND SOCKETS. (TYPE "Y")

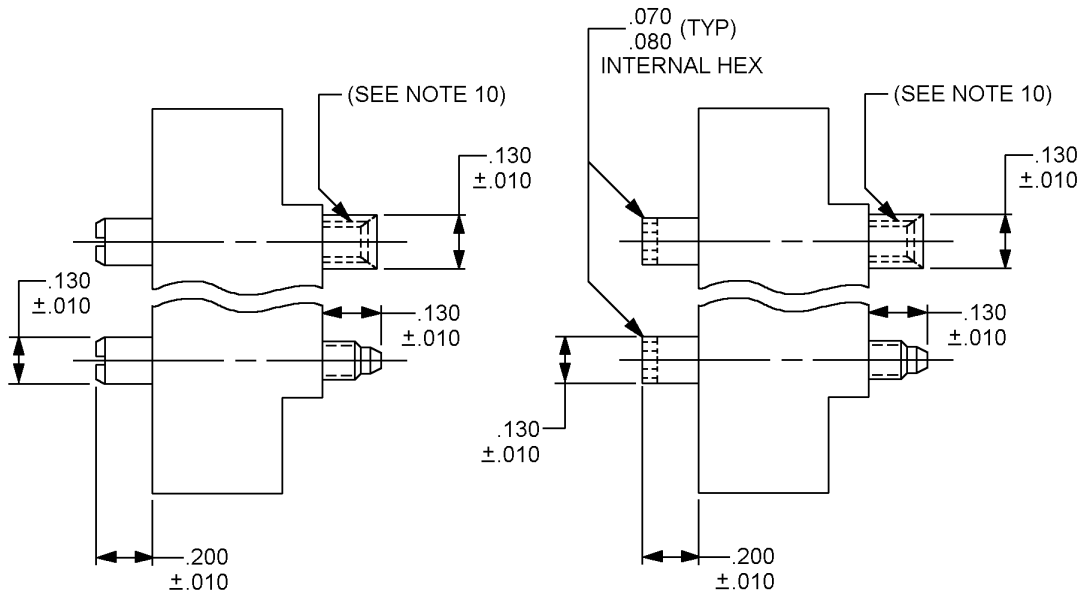


DETAIL "D" POLARIZATION PIN/SOCKET

FIGURE 1. Connectors, receptacle, .100 (25.4 mm) spacing - Continued.



TYPE "F" FIXED JACKSET  
DETAIL "E"



TYPE "S" SHORT TURNING SLOTTED JACKSET  
DETAIL "F"

TYPE "H" SHORT TURNING HEX JACKSET  
DETAIL "H"

FIGURE 1. Connectors, receptacle, .100 (25.4 mm) spacing - Continued.

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| Inches | mm   | Inches | mm   | Inches | mm   | Inches | mm     |
|--------|------|--------|------|--------|------|--------|--------|
| .001   | 0.03 | .032   | 0.81 | .100   | 2.54 | .175   | 4.44   |
| .002   | 0.05 | .033   | 0.84 | .107   | 2.72 | .200   | 5.08   |
| .005   | 0.13 | .050   | 1.27 | .109   | 2.77 | .220   | 5.59   |
| .006   | 0.15 | .051   | 1.30 | .110   | 2.79 | .250   | 6.35   |
| .008   | 0.20 | .058   | 1.47 | .120   | 3.05 | .300   | 7.62   |
| .010   | 0.25 | .070   | 1.78 | .125   | 3.18 | .335   | 8.51   |
| .015   | 0.38 | .075   | 1.90 | .130   | 3.30 | .350   | 8.89   |
| .017   | 0.43 | .080   | 2.03 | .140   | 3.56 | .625   | 15.88  |
| .025   | 0.64 | .082   | 2.08 | .150   | 3.81 | 2.500  | 63.50  |
| .027   | 0.69 | .085   | 2.16 | .160   | 4.06 | 2.600  | 66.04  |
| .028   | 0.71 | .086   | 2.18 | .172   | 4.37 | 3.075  | 78.10  |
|        |      |        |      |        |      | 5.900  | 149.86 |

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Unless otherwise specified, tolerances are  $\pm 0.005$  (0.13 mm).
4. These connectors mate with connectors specified in MIL-DTL-55302/138.
5. Numbers indicating the first and last position in each row and every fourth contact position in between shall be marked on the side(s) of the connector. As an option to the above, numbers indicating every fourth cavity may be stamped on the side of the connector, with the exception that the number one contact shall be marked.
6. Termination layout on .025 (0.51 mm) modular grid.
7. Optional undercut .050 (1.27 mm) maximum, on PCB side for cleaning purposes.
8. Conformal coating clearances shall be .005 (0.13 mm) minimum (not required for optional design).
9. Optional design conformal coating.
10. Hole depth to female guide hardware is .282 min (7.16 mm). Full thread depth to female threaded hardware is .240 min (6.1 mm).

FIGURE 1. Connectors, receptacle, .100 (25.4 mm) spacing - Continued.

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Requirements:

Dimensions and configuration: See figure 1.

Material: Guide pins, type X guide sockets, jackscrews and jack sockets shall be made of corrosion resisting stainless steel in accordance with ASTM A581 or ASTM A582 passivated in accordance with SAE-AMS-QQ-P-35 or shall be corrosion resistant copper nickel alloy (61 ±2% nickel, 2.5% max. other, and the balance zinc) and shall have a brinell hardness of 145 to 175. Type Y guide sockets shall be beryllium copper in accordance with ASTM B196 or ASTM B197, nickel plated in accordance with SAE-AMS-QQ-N-290, class 2, 50 to 150 microinches.

Plating: The contact plating shall be in accordance with MIL-DTL-55302 or gold in accordance with ASTM B 488 type II, code C, class 1.27, over nickel plating in accordance with SAE-AMS-QQ-N-290, class 2, 50 to 150 microinches in the engaging area and gold in accordance with ASTM B 488 type II, grade C, class 0.51 type III, code A, class 0.51, over nickel plating in accordance with SAE-AMS-QQ-N-290, 50 to 150 microinches.

Nonfunctional areas: See MIL-DTL-55302.

Contact identification: See figure 1.

Contact engagement and separation forces (number 22 contacts):

Minimum separation: 0.5 ounce.

Maximum engagement: 12.0 ounces for standard force and 4.0 ounces for low force.

Mating and unmating:

Standard insertion force contacts: The maximum mating force, in pounds, shall be the number of contacts multiplied by 0.56 and the withdrawal force, in pounds, shall be a minimum of 0.08 times the number of contacts and shall not exceed the measured insertion force.

Low insertion force contacts: The maximum mating force, in pounds, shall be the number of contacts multiplied by 0.25 and the withdrawal force, in pounds, shall be a minimum of 0.04 times the number of contacts and shall not exceed the maximum insertion force.

NOTE: Not applicable when mating and unmating is accomplished through the engaging of turning jackssets.

Jackscrew and jack socket torque: 2-inch pounds maximum, fully mated.

Current rating: 5.0 amperes maximum in accordance with contact.

Contact resistance: The average contact resistance of all contacts measured shall not exceed 0.010 ohm, and no individual contact pair shall have a resistance exceeding 0.020 ohm.

Dielectric withstanding voltage:

Sea level: 1,000 volts rms.

High altitude: 300 volts rms.

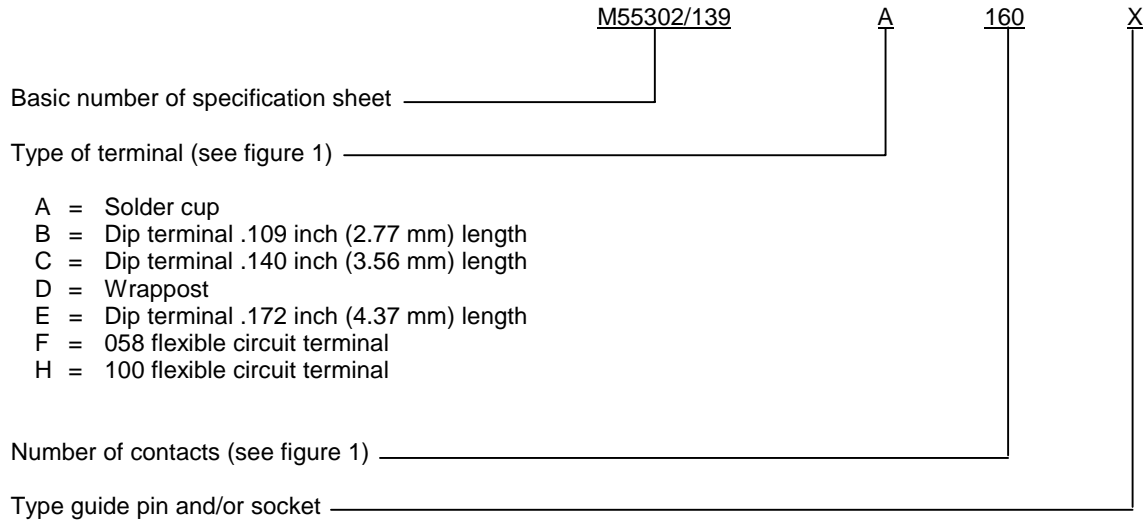
Polarization: Type X, regular, guide pin and socket, full round (see figure 1). Type Y, adjustable "D" shaped guide pin and/or socket (see detail D and MIL-DTL-55302/57, detail B). All connectors are supplied in the -1 polarized position. For other than OEM use, connectors may be repolarized by using M55302/57-01 spanner wrench and M55302/57-02 guide pin and guide socket kit. When guides are removed and reinstalled in another position apply Loctite 83-CV or equivalent to the threads. Ordering connectors in other than the -1 polarized position may be done by the OEM's by placing the desired polarized in brackets three spaces after the Part or Identifying Number (PIN), on the purchase order. Example M55302/139-A100Y [-32]. Polarization pins and sockets shall be adjusted to any desired configuration by spanner wrench (M55302/57-01). Ordering connectors in the -1 polarized position without Loctite 83-CV or equivalent applied may be done by placing a "-0" in brackets three spaces after the part on the purchase order.

M55302/57-02 kit: Consists of one type "D" shaped guide socket and spanner nut and one type Y "D" shaped guide pin and spanner nut.

NOTE: Hardware with Loctite 83-CV or equivalent applied, shall withstand a torque of 7-inch ounces applied through the nut.

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Example of PIN:



- A = Solder cup
- B = Dip terminal .109 inch (2.77 mm) length
- C = Dip terminal .140 inch (3.56 mm) length
- D = Wrappost
- E = Dip terminal .172 inch (4.37 mm) length
- F = 058 flexible circuit terminal
- H = 100 flexible circuit terminal

- X = Full round
- Y = D-shaped
- F = Fixed jackset
- S = 200 slotted turning jackset
- H = 200 hex turning jackset

Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

In addition to MIL-DTL-55302, this document references the following:

- MIL-DTL-55302/57
- MIL-DTL-55302/138
- ASTM A581
- ASTM A582
- ASTM B196
- ASTM B197
- ASTM B488
- SAE-AMS-QQ-N-290
- SAE-AMS-QQ-P-35

CONCLUDING MATERIAL

Custodians:  
Air Force - 11  
DLA - CC

Preparing activity:  
DLA - CC

(Project 5935-4552-000)

Review activities:  
Air Force - 19, 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 <http://www.dodssp.daps.mil>.