

DETAIL SPECIFICATION SHEET

CONNECTORS, ELECTRICAL, INSERT (INSULATOR), MALE RECTANGULAR,  
POLARIZED, CENTER SCREW LOCK FOR 117 REMOVABLE TYPE CONTACTS

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-28731.

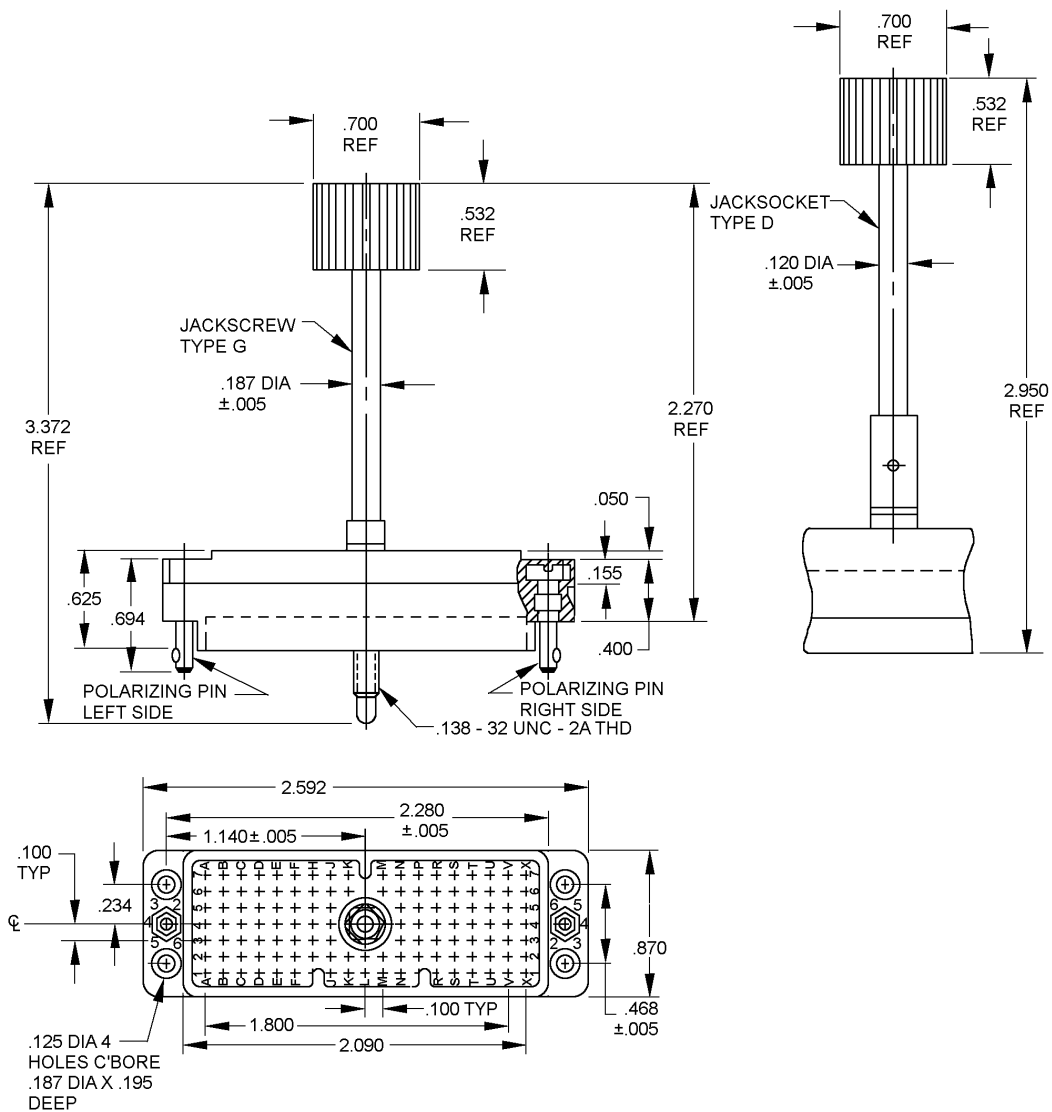
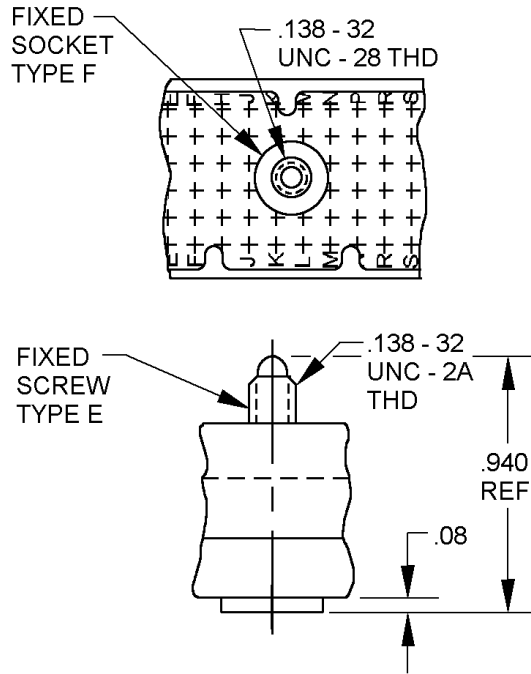


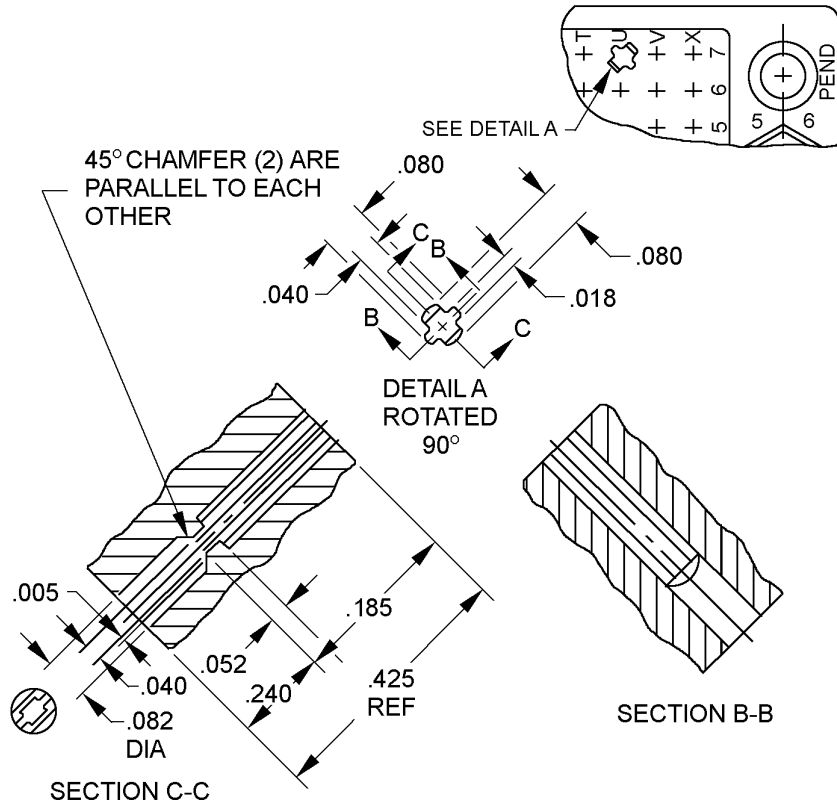
FIGURE 1. Connector, male rectangular.

MIL-DTL-28731/31C



Inches	mm	Inches	mm
.005	0.13	.532	13.51
.050	1.27	.625	15.88
.08	2.0	.694	17.62
.100	2.54	.700	17.78
.120	3.05	.870	22.10
.128	3.25	.940	23.11
.138	3.51	1.140	28.96
.155	3.94	1.800	45.72
.187	4.75	2.090	53.09
.195	4.95	2.230	56.64
.234	5.94	2.592	65.84
.439	11.15	2.950	74.93
.468	11.89	3.372	85.65

FIGURE 1. Connector, male rectangular – Continued.

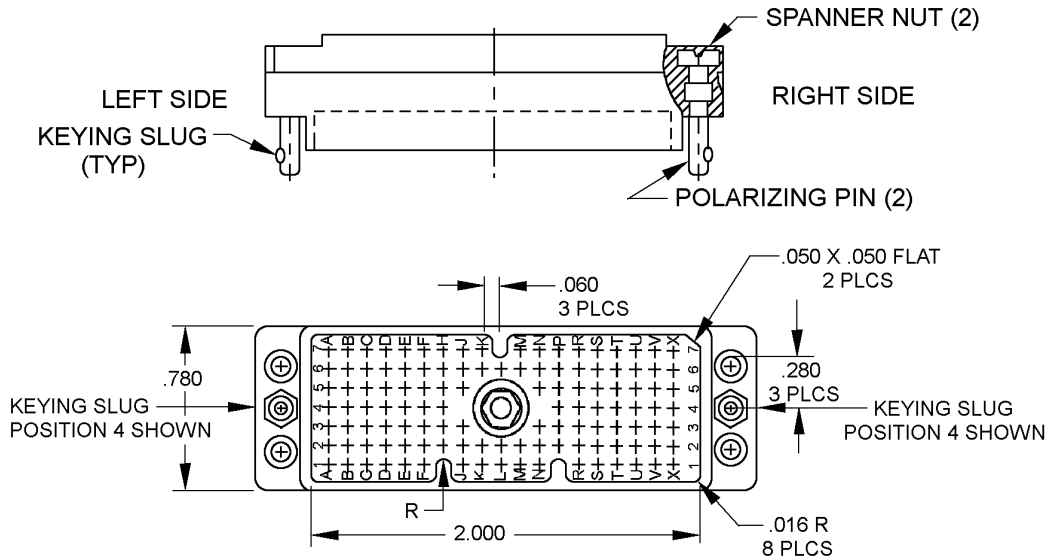


Configuration A – Contact hole detail

Inches	mm
.005	0.13
.018	0.46
.040	1.02
.052	1.32
.080	2.03
.082	2.08
.185	4.70
.240	6.10
.425	10.80

FIGURE 1. Connector, male rectangular – Continued.

MIL-DTL-28731/31C

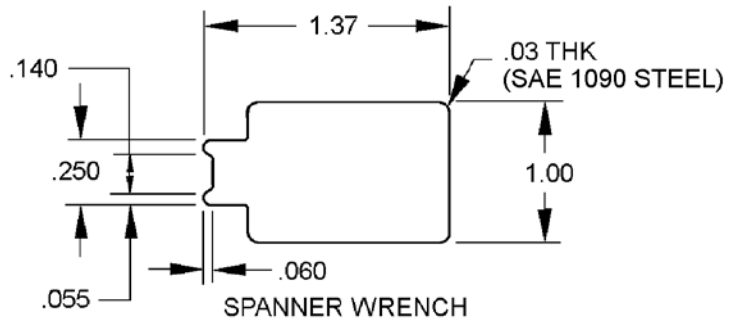


POLARIZING POSITION CHANGE

Keying position on both polarizing pins can be rotated to desired position by loosening spanner nut (counter-clockwise), resetting socket in one of six positions then retightening spanner nut (clockwise).

NOTE: Over tightening of spanner nut can fracture connector. Spanner keying wrench shown.

POLARIZING KEY MATING CODE	
R (FEMALE) Position	P (MALE) Position
4	1
5	2
6	3
1	4
2	5
3	6



CONFIGURATION OPTIONAL  
DIMENSIONS REF. ONLY

Configuration B – Connector polarization guide layout

FIGURE 1. Connector, male rectangular – Continued.

MIL-DTL-28731/31C

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Tolerances between any two contact centers shall be  $\pm .004$  (0.10 mm).
4. Flatness, squareness, and parallelism shall be within dimensional tolerances.
5. Contact hole details shall be in accordance with configuration B.
6. Mating connector information:  
M28731/32-0001 mate with M28731/31-0003 and M28731/31-0005  
M28731/32-0002 mate with M28731/31-0004 and M28731/31-0006  
M28731/32-0003 and M28731/32-0005 mate with M28731/31-0001  
M28731/32-0004 and M28731/32-0006 mate with M28731/31-0002
7. Polarization information: Polarization sockets are provided for indexing to preclude intermixing of adjacent connectors. By using a standard type spanner wrench, polarization sockets can be rotated to desired position. For parts supplied directly to the government, polarization will be in the 1-1 position. For other polarization positions see connector polarization guide configuration A (see marking, note 13d). For direct government acquisition a tool is supplied in the unit package for polarization socket adjustment.
8. Contact and terminal designation: Contacts and terminals shall be designated on the insulator using letters in the location shown on figure 1.
9. Tolerance shall be  $\pm .010$  (0.25 mm) unless otherwise specified.
10. For direct government acquisition crimp contacts M28731/35-0001 (see table I) are furnished in a plastic bag in each unit package (see marking, note 13a).
11. For direct government acquisition wrappost contacts are M28731/36-0001 (see table I) and are factory installed in a connector body (see marking, note 13a).
12. Marking:
  - a. Connectors supplied directly to the government shall be marked with the military Part or Identifying Number (PIN) (see table I). Example: M28731/30-0001.
  - b. Connectors supplied with contacts to government end users shall be marked with the military PIN (see table I). Example: M28731/30-0001.
  - c. Connectors supplied without contacts to government end users shall be marked as follows: Example: M28731/30E (screw or socket type from table I). The user shall complete the remaining portion of the military PIN as shown in table I based upon contact type he assembles. Example: M28731/30E-0004.
  - d. Polarization position marking is not required unless otherwise specified. When required polarization marking shall be in accordance with the connector polarization guide (see configuration B). The marking shall appear following the PIN.
13. Applicable contact insertion and removal tools:  
Insertion - MIL-I-81969/5-01  
Removal - MIL-I-81969/4-02
14. Rectangular shield: Shall conform to MIL-DTL-28731/19, PIN M28731/19-0003 through M28731/19-0006 and -0015, -0016 for type A and B hardware.
15. Recommended hardware (not furnished) for panel mounting. (4) .112-40-UNC-2A (length to suit) bolt with No. 4 washer and mating nut.

FIGURE 1. Connector, male rectangular – Continued.

MIL-DTL-28731/31C

REQUIREMENTS:

Dimensions and configuration: See figure 1.

Mating and unmating forces (torque): 120 inch-ounces, maximum.

Dielectric withstanding voltage: 1,000 volts rms (sea level).

Mechanical shock (specified pulse): Applicable.

Contact retention: 6 pounds.

Contact separation force: 1 ounce, minimum.

Contact current rating: 5 amperes, 22 AWG wire.

PIN: See table I.

TABLE I. PIN information.

Military PIN	Actuating hardware	Polarizing socket position		Contact type
		Left side	Right side	
M28731/31-0001	Jackscrew Type G	4	4	Crimp, MIL-DTL-28731/35
M28731/31-0002	Jack socket Type D	4	4	Crimp, MIL-DTL-28731/35
M28731/31-0003	Fixed socket Type F	4	4	Crimp, MIL-DTL-28731/35
M28731/31-0004	Fixed screw Type E	4	4	Crimp, MIL-DTL-28731/35
M28731/31-0005	Fixed socket Type F	4	4	Wrappost, MIL-DTL-28731/36
M28731/31-0006	Fixed screw Type E	4	4	Wrappost, MIL-DTL-28731/36

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

Referenced documents. In addition to MIL-DTL-28731, this document references the following:

MIL-DTL-28731/19  
MIL DTL-28731/35  
MIL-DTL-28731/36

MIL-DTL-28731/31C

CONCLUDING MATERIAL

Custodians:

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

Preparing activity:

DLA - CC

(Project 5935-2012-067)

Review activities:

Army – AR, AT, AV, CR4, MI  
Navy – AS, MC, OS  
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 <https://assist.daps.dla.mil/>.