

INCH-POUND

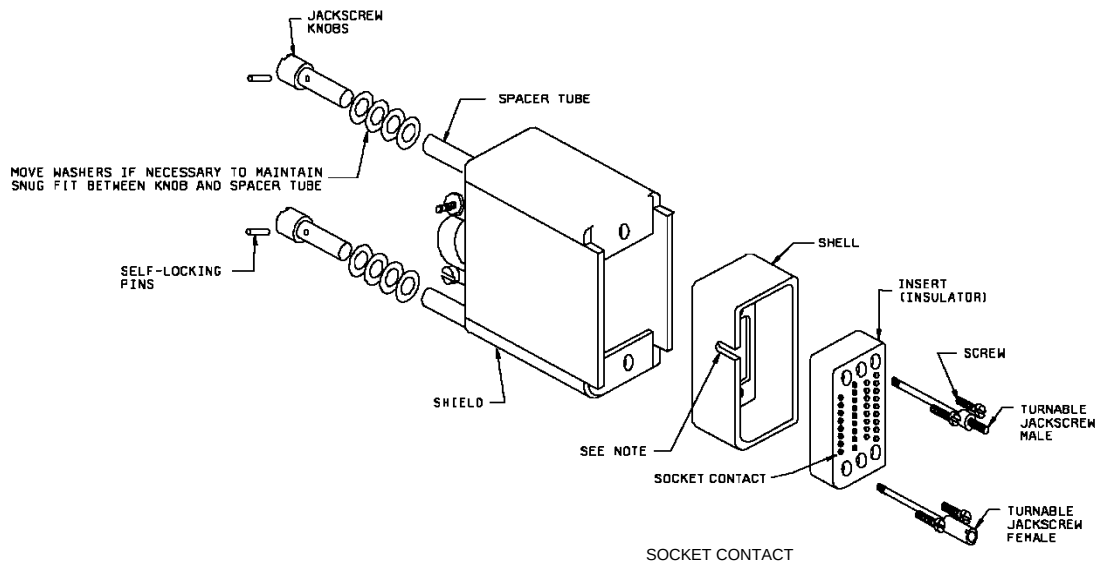
MIL-DTL-28748/2E
w/AMENDMENT 3
30 January 2018
SUPERSEDING
MIL-DTL-28748/2E
w/AMENDMENT 2
9 January 2017

DETAIL SPECIFICATION SHEET

CONNECTORS, ELECTRICAL, RECTANGULAR, RACK AND PANEL, SOLDER TYPE SOCKET CONTACTS, SIZE 16

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-28748.



Connector

NOTE: The polarization feature (groove on the receptacle shell, pin on the plug shell) shall be adjacent to the side closest to the number 1 or A contact position.

Configuration A

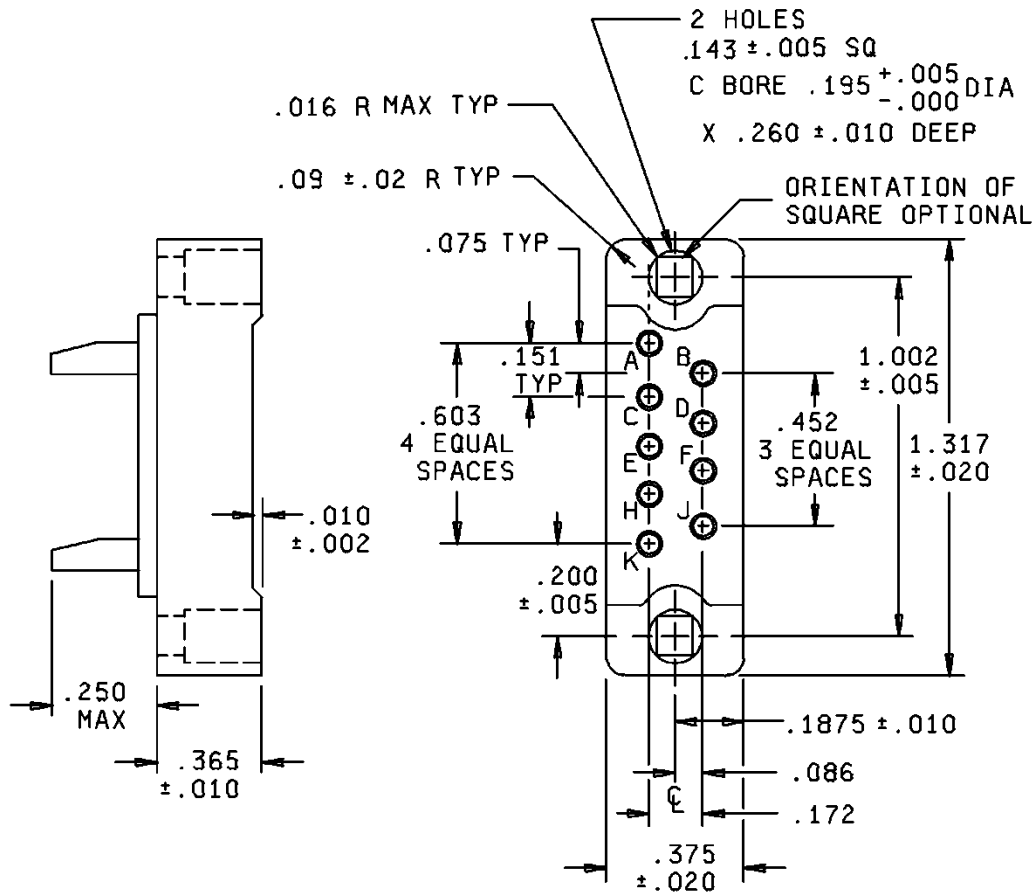
FIGURE 1. Connector with shield, plug shell, jackscrews, and guidepins.

AMSC N/A

FSC 5935



MIL-DTL-28748/2E
w/AMENDMENT 3



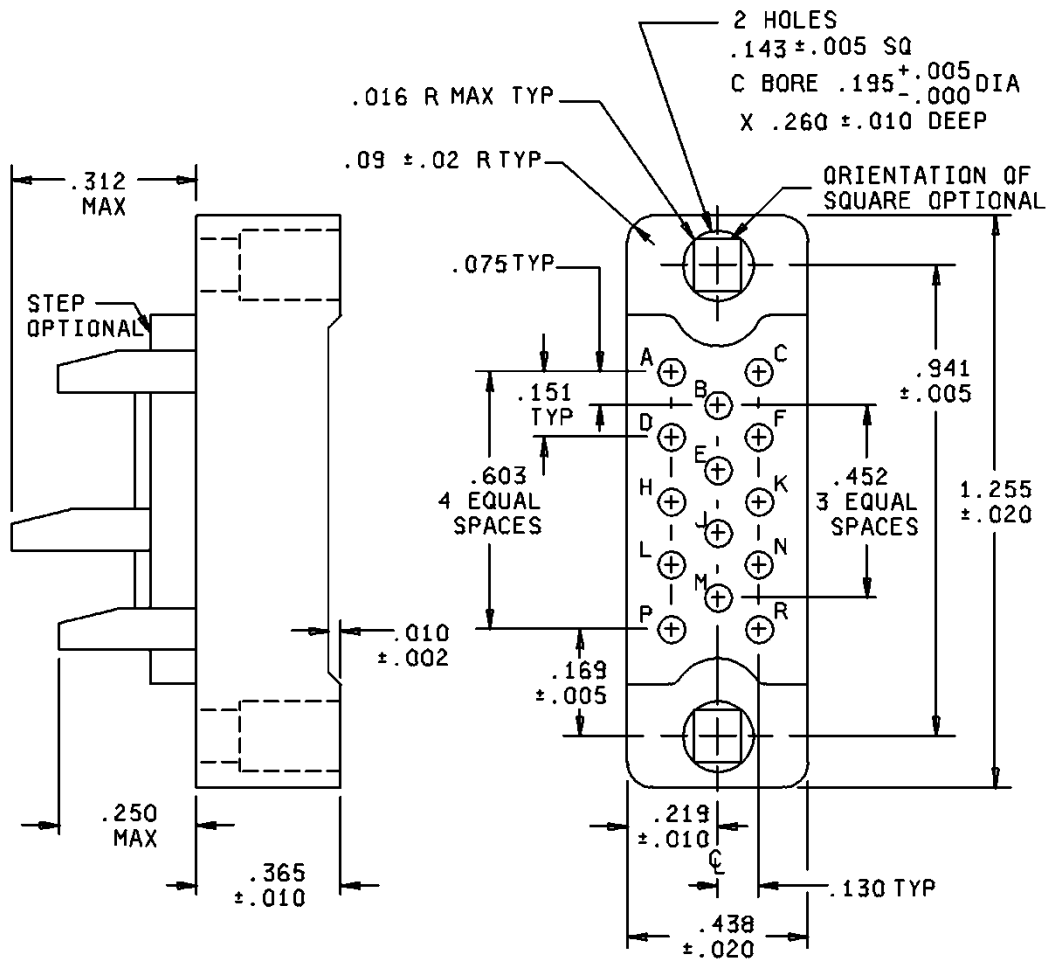
Inches	mm	Inches	mm	Inches	mm
.002	0.05	.086	2.18	.250	6.35
.005	0.13	.09	2.3	.260	6.60
.010	0.25	.143	3.63	.365	9.27
.016	0.41	.151	3.84	.375	9.53
.02	0.5	.172	4.37	.452	11.48
.020	0.51	.1875	4.763	.603	15.32
.075	1.91	.195	4.95	1.002	25.45
		.200	5.08	1.317	33.45

Insert with 9 contacts

Insert designator A

FIGURE 2. Insert arrangements.

MIL-DTL-28748/2E
w/AMENDMENT 3

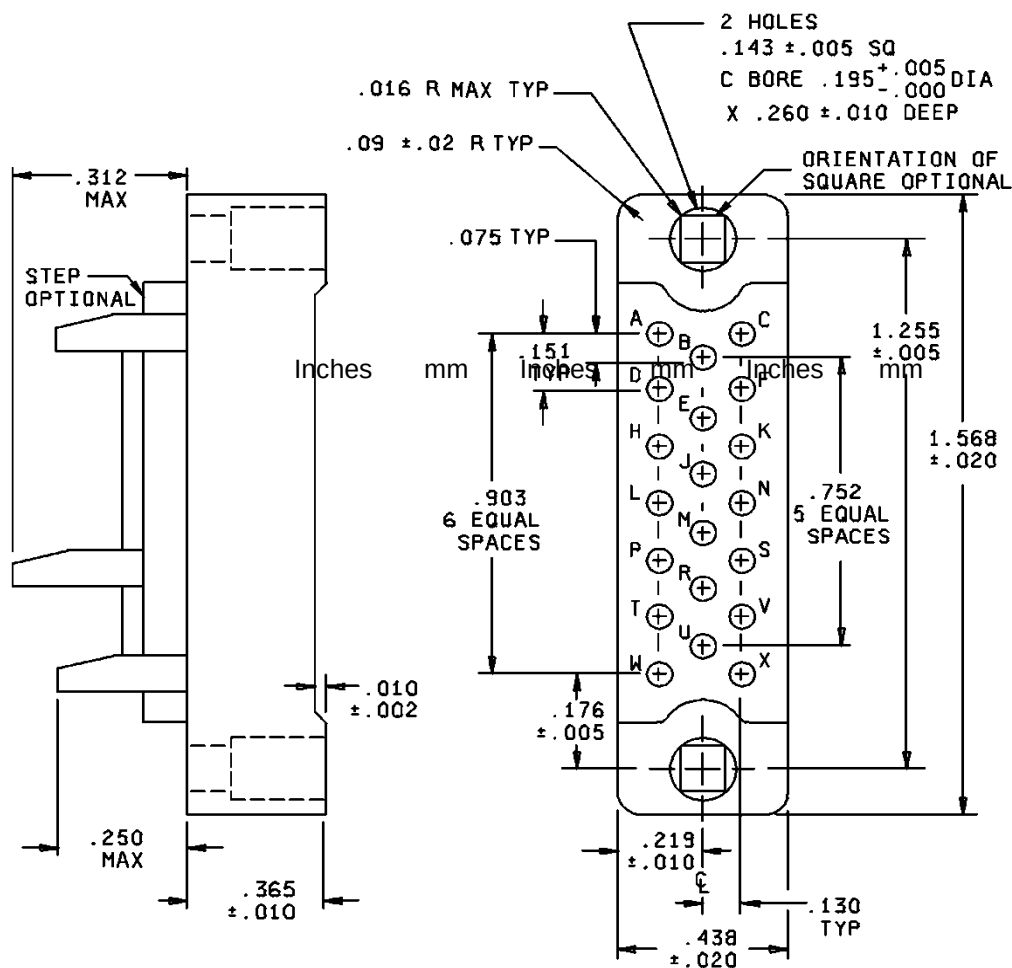


Inches	mm	Inches	mm	Inches	mm
.002	0.05	.130	3.30	.312	7.92
.005	0.13	.143	3.63	.365	9.27
.010	0.25	.151	3.84	.438	11.13
.016	0.41	.169	4.29	.452	11.48
.02	0.5	.195	4.95	.603	15.32
.020	0.51	.219	5.56	.941	23.90
.075	1.91	.250	6.35	1.255	31.88
.09	2.3	.260	6.60		

Insert with 14 contacts

Insert designator B

FIGURE 2. Insert arrangements - Continued.



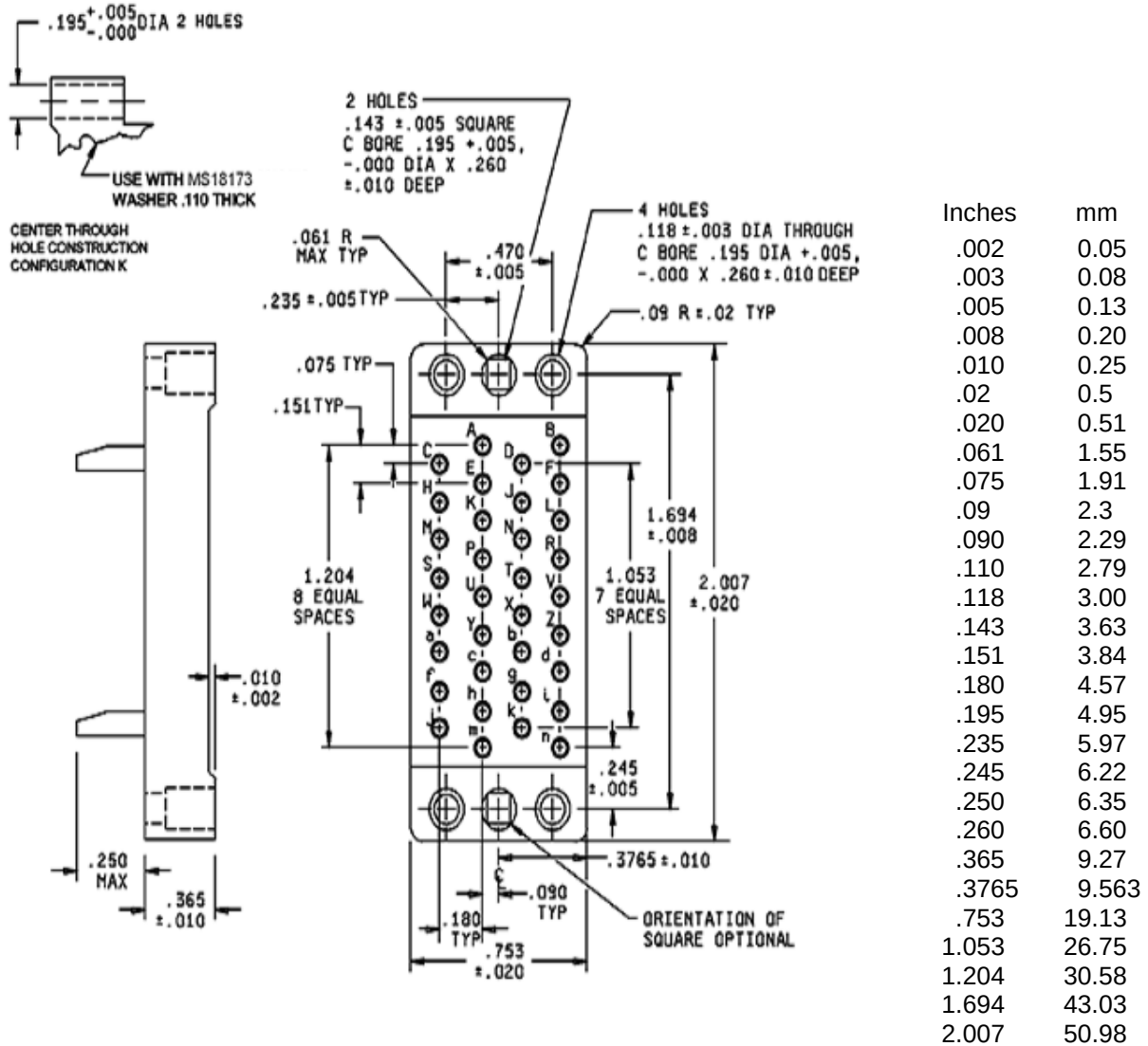
Inches	mm	Inches	mm	Inches	mm
.002	0.05	.130	3.30	.312	7.92
.005	0.13	.143	3.63	.365	9.27
.010	0.25	.151	3.84	.438	11.13
.016	0.41	.176	4.47	.752	19.10
.02	0.5	.195	4.95	.903	22.94
.020	0.51	.219	5.56	1.255	31.88
.075	1.91	.250	6.35	1.568	39.83
.09	2.3	.260	6.60		

Insert with 20 contacts

Insert designator C

FIGURE 2. Insert arrangements - Continued.

MIL-DTL-28748/2E
w/AMENDMENT 3



Configuration D - Suitable for all applications, except one-piece jackscrews.

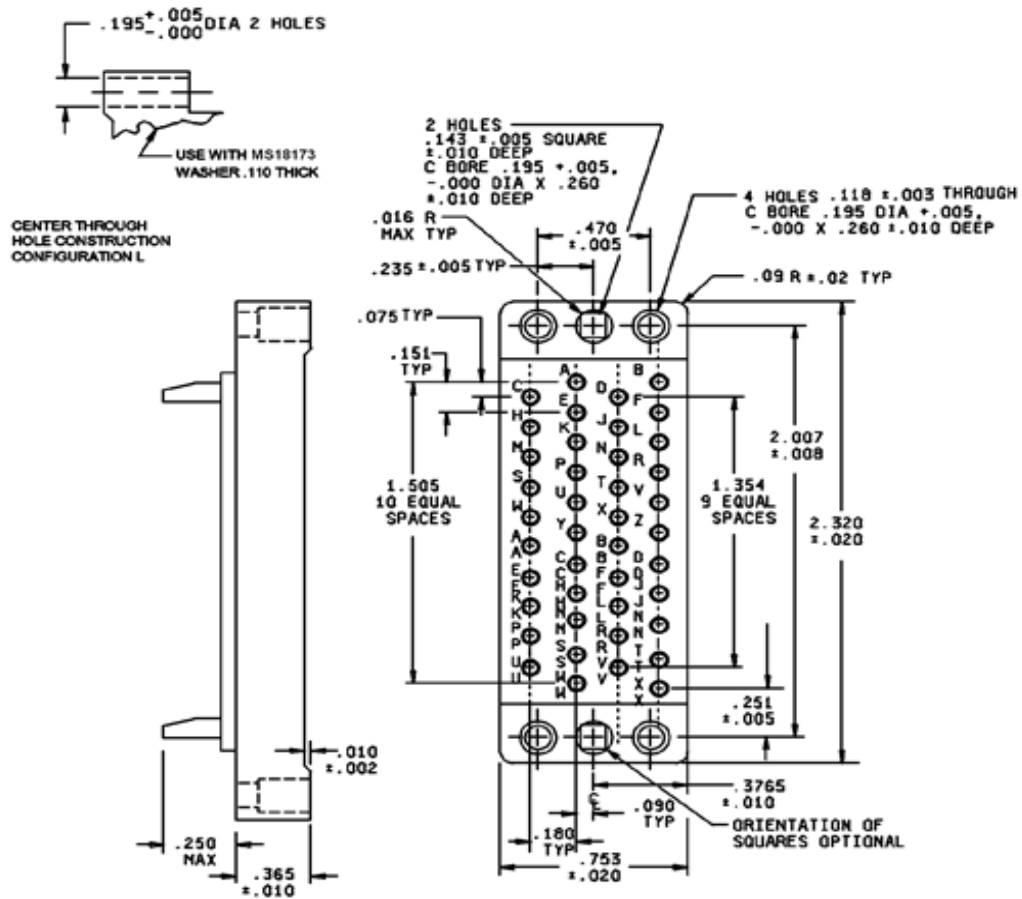
Configuration K - For long jackscrews and shield only (through hole alternate construction).

Insert with 34 contacts

Insert designators D and K

FIGURE 2. Insert arrangements - Continued.

MIL-DTL-28748/2E
w/AMENDMENT 3



Inches	mm	Inches	mm	Inches	mm
.002	0.05	.09	2.3	.251	6.38
.003	0.08	.090	2.29	.260	6.60
.005	0.13	.110	2.79	.365	9.27
.008	0.20	.118	3.00	.3765	9.56
.010	0.25	.143	3.63	.470	11.94
.016	0.41	.151	3.84	.753	19.13
.02	0.5	.180	4.57	1.354	34.39
.020	0.51	.195	4.95	1.505	38.23
.075	1.91	.235	5.97	2.007	50.98
		.250	6.35	2.320	58.93

Configuration E - Suitable for all applications, except one-piece jackscrews.

Configuration L - For long jackscrews and shield only (through hole alternate construction).

Insert with 42 contacts

Insert designators E and L

FIGURE 2. Insert arrangements - Continued.

MIL-DTL-28748/2E
w/AMENDMENT 3

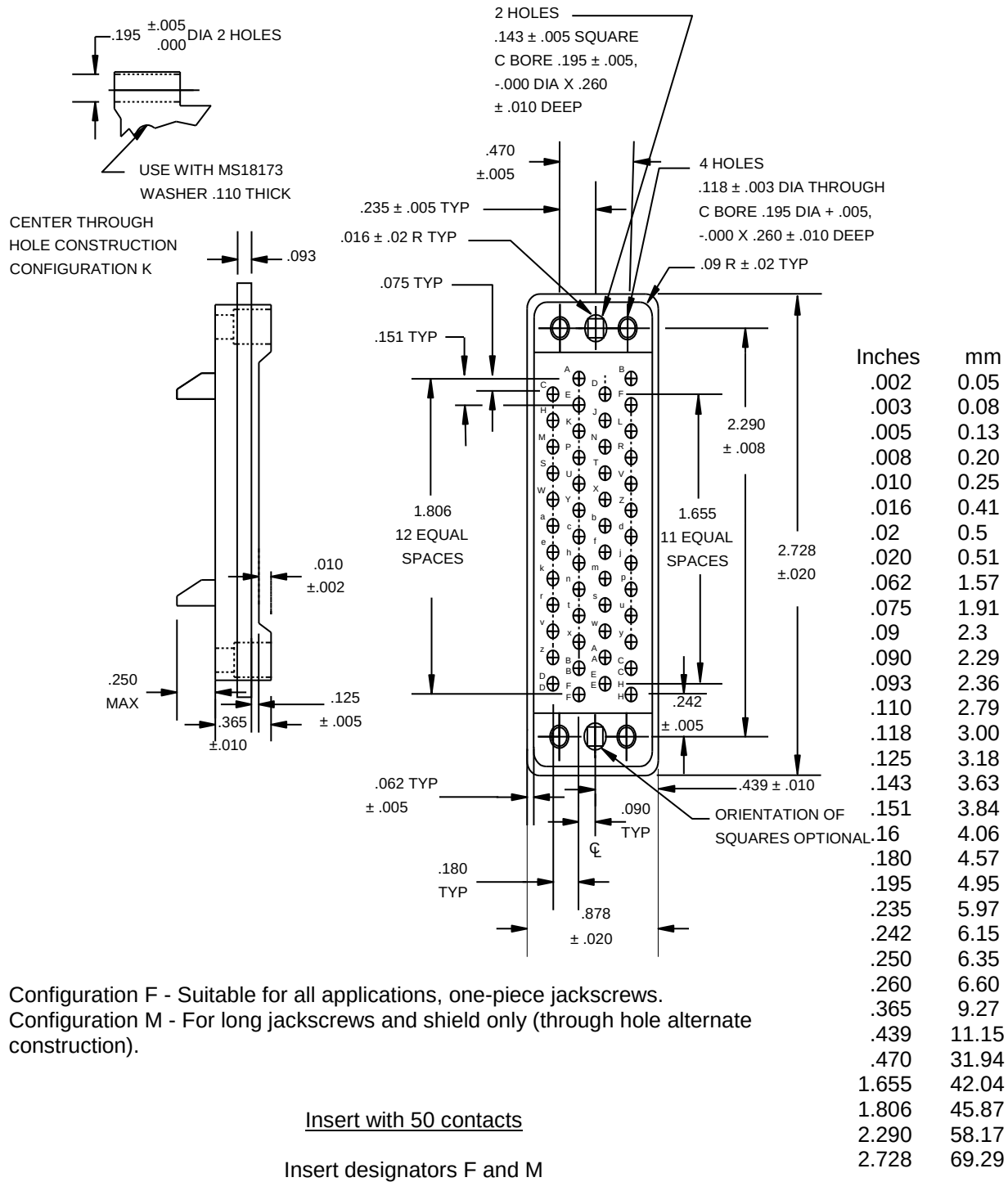
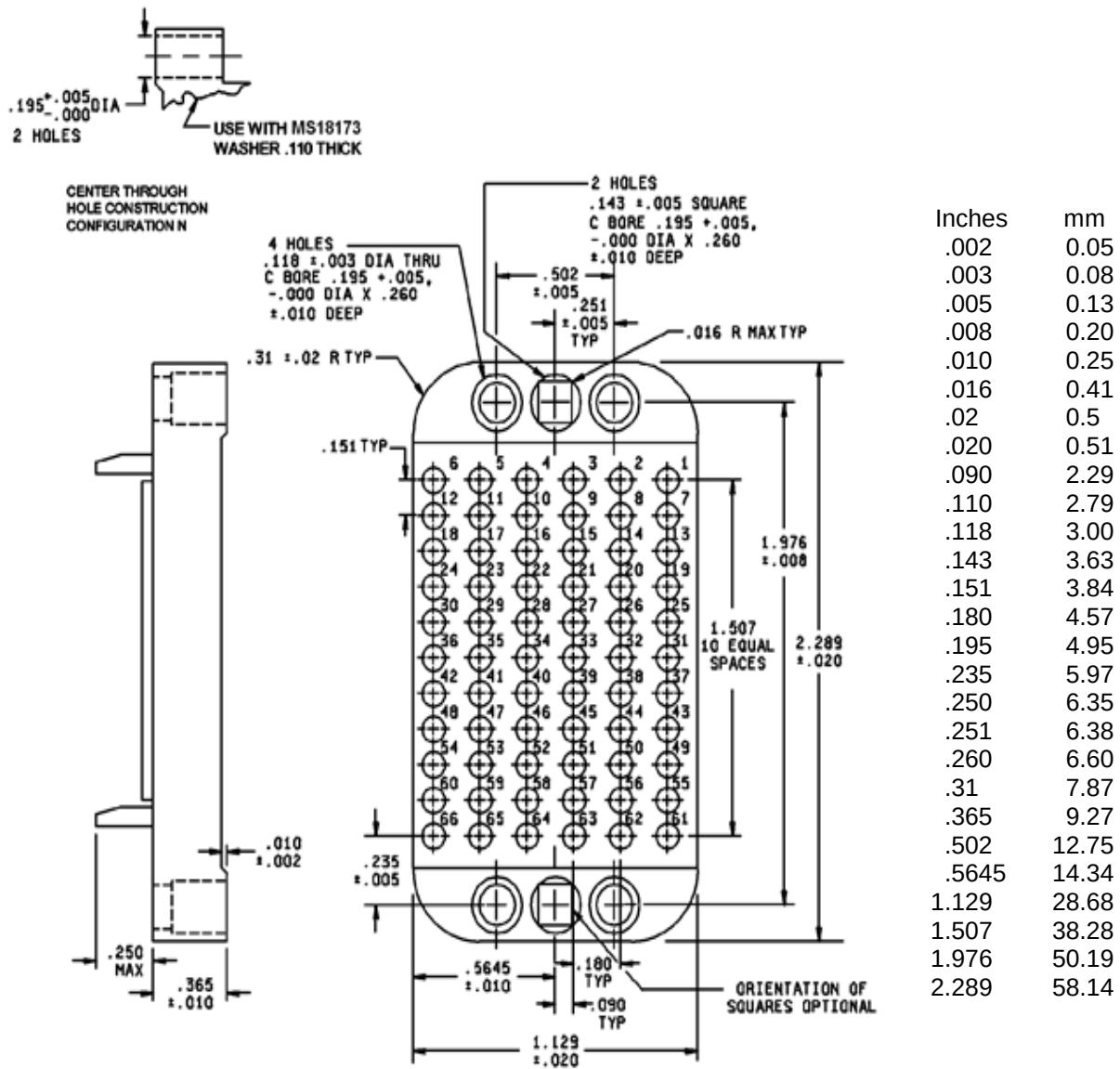


FIGURE 2. Insert arrangements - Continued.

MIL-DTL-28748/2E
w/AMENDMENT 3



Configuration G - Suitable for all applications, except one-piece jackscrews.

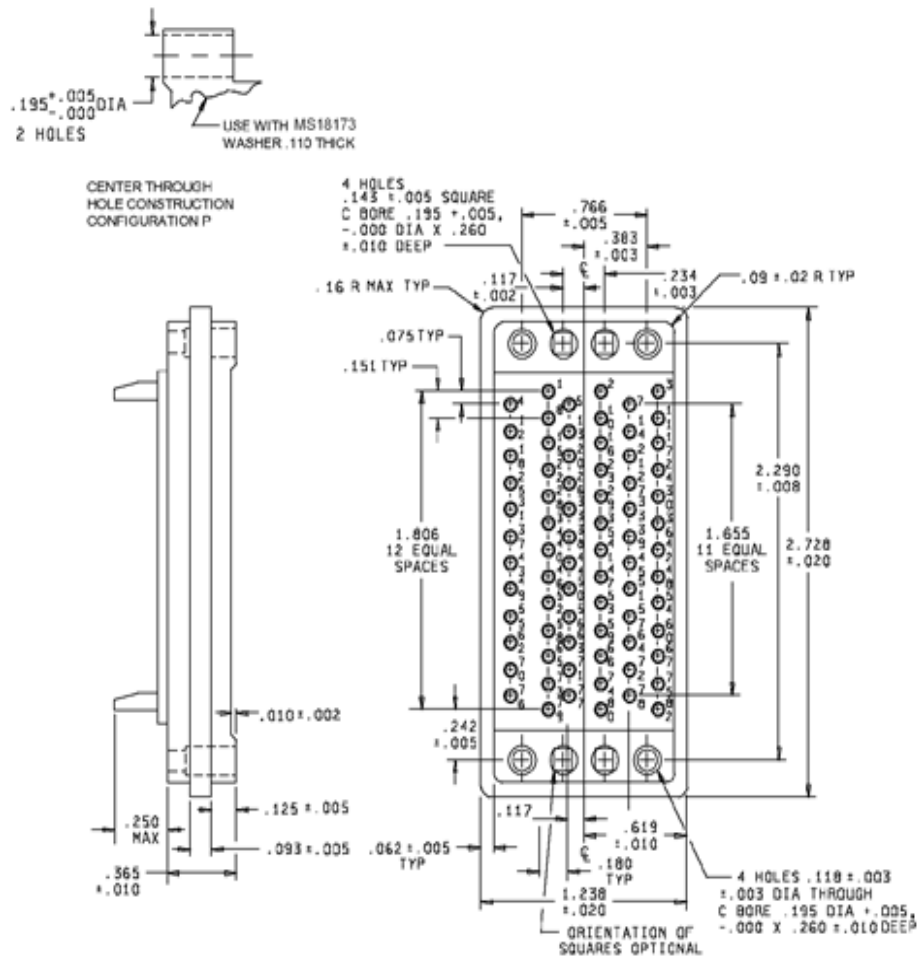
Configuration N - For long jackscrews and shield only (through hole alternate construction).

Insert with 66 contacts

Insert designators G and N

FIGURE 2. Insert arrangements - Continued.

MIL-DTL-28748/2E
w/AMENDMENT 3



Inches	mm	Inches	mm	Inches	mm	Inches	mm
.002	0.05	.075	1.91	.16	4.1	.383	9.73
.003	0.08	.09	2.3	.180	4.57	.619	12.75
.005	0.13	.093	2.36	.195	4.95	.766	19.46
.008	0.20	.110	2.79	.234	5.94	.769	19.53
.010	0.25	.117	2.97	.242	6.15	1.238	31.45
.016	0.41	.118	3.00	.250	6.35	1.655	42.04
.02	0.5	.125	3.18	.260	6.60	1.806	44.97
.020	0.51	.143	3.63	.365	9.27	2.290	58.17
.062	1.57	.151	3.84	.383	9.73	2.728	59.29

Configuration H - Suitable for all applications, except one-piece jackscrews.

Configuration P - For long jackscrews and shield only (through hole alternate construction).

Insert with 75 contacts

Insert designators H and P

FIGURE 2. Insert arrangements - Continued.

USE WITH MS18173 WASHER .110 THICK

.234 $\pm$.005 DIA
2 HOLES

CENTER THROUGH HOLE CONSTRUCTIONS CONFIGURATION Q

2 HOLES
.143 $\pm$.005 SQUARE
C BORE .234 $\pm$.005,
-.000 DIA X .260
 $\pm$.010 DEEP

.878 $\pm$.005

.439 $\pm$.005

ORIENTATION OF SQUARES OPTIONAL

.016 R MAX TYP

.38 R $\pm$.02 TYP

.075 TYP

.151 TYP

1.806
12 EQUAL SPACES

2.389 $\pm$.008

1.906
12 EQUAL SPACES

2.769 $\pm$.020

.010 $\pm$.002

254 $\pm$.005

.250 MAX

.365 $\pm$.010

.180 TYP

.090 TYP

.768 $\pm$.010

4 HOLES
.150 $\pm$.003 DIA THROUGH
C BORE .234 DIA $\pm$.005,
-.000 X .260 $\pm$.010 DEEP

1.536 $\pm$.020

Configuration J - Suitable for all applications, except one-piece jackscrews.
Configuration O - For long jackscrews and shield only (through hole alternate construction).

Insert designators J and Q

10

MIL-DTL-28748/2E
w/AMENDMENT 3

REQUIREMENTS:

Dimensions and configuration: See figures 1 and 2.

Insert material: See MIL-DTL-28748.

Mating connector: See MIL-DTL-28748/1 and MIL-DTL-28748/3.

Part or Identifying Number (PIN): As shown in the following example. 1/

(See PIN codes)					
<u>M28748/2 –</u> Basic number of specification sheet	<u>A</u> Insert designator	<u>1</u> Shield and shield clamp location or retaining plate	<u>H</u> Shell and polarization position	<u>L</u> Jackscrews or guidepins	<u>1 A</u> Contacts
PIN codes:					
Insert designator	Number of contact positions	Shield and shield clamp location or retaining plate <u>2</u> /	Shell and polarization designator <u>3</u> /	Jackscrews or guidepins <u>4</u> /	
A	9	0 - No shield or retaining plate	0 - No shell included	0 - No Jackscrews or guidepins.	
B	14		<u>Receptacle shell</u>	F - Fixed jackscrews, MS18196 (not used with shield).	
C	20		A - A of MS18204	G - Guidepins, MS18197 (not used with shield).	
D	34	Shield and shield clamp location	B - B of MS18204	L - Long jackscrews MS18194	
E	42		C - C of MS18204	S - Short jackscrews MS18195 (not used with shield).	
F	50		D - D of MS18204		
G	66	1 - top MS24132	E - E of MS18204		
H	75	2 - side MS24132	F - F of MS18204		
J	104	3 - top MS24133	G - G of MS18204		
		4 - side MS24133	H - Unpolarized M18204		
Insert designator through hole <u>5</u> /		5 - top MS18192			
		6 - side MS18192			
		A - top MS18193	<u>Plug shell</u>		
		B - side MS18193	J - A of MS18203		
K	34		K - B of MS18203		
L	42		L - C of MS18203		
M	50	<u>Retaining plate</u>	M - D of MS18203		
N	66	7 - MS18198	N - E of MS18203		
P	75	8 - MS18199	P - F of MS18203		
Q	104	9 - MS18200	Q - G of MS18203		
			R - Unpolarized MS18203		

Contacts: In accordance with MIL-DTL-28748.

1A - 100 percent size 16

1L - none included

Jack and guide location: The jackscrew male (turning or fixed) or guide pin shall be located by the A or 1 pin contact.

See footnotes on next page.

MIL-DTL-28748/2E
w/AMENDMENT 3

- 1/ The number zero (0) is used to indicate which parts are not included.
- 2/ Retaining plate and shells are not available for insert size A.
- 3/ Polarization positions are for location of plug and receptacle shell pins and slots.
- 4/ Jackscrew designator L: Multi-piece jackscrews will be supplied with insert designators A through J. Long one-piece jackscrews will be supplied for insert designators K through Q.
- 5/ Inserts K through Q have through holes for use with long one-piece jackscrew designs only.
- 6/ Mold bodies and hardware from different manufacturers are not necessarily interchangeable.

For superseded insert Military Standard sheet PIN's to M28748 PIN's see table I.

TABLE I. Supersession data (inserts).

MS PIN	M28748/2 PIN	Number of contact positions
MS18239-1	M28748/2-A0001L	9
MS18241-1	M28748/2-B0001L	14
MS18243-1	M28748/2-C0001L	20
MS18245-1	M28748/2-D0001L	34
MS18247-1	M28748/2-E0001L	42
MS18249-1	M28748/2-F0001L	50
MS18251-1	M28748/2-G0001L	66
MS18253-1	M28748/2-H0001L	75
MS18255-1	M28748/2-J0001L	104
MS18245-2	M28748/2-K0001L	34 <u>1/</u>
MS18247-2	M28748/2-L0001L	42 <u>1/</u>
MS18249-2	M28748/2-M0001L	50 <u>1/</u>
MS18251-2	M28748/2-N0001L	66 <u>1/</u>
MS18253-2	M28748/2-P0001L	75 <u>1/</u>
MS18255-2	M28748/2-Q0001L	104 <u>1/</u>

1/ Insert through hole designator. Inserts -2 (K through Q) have through holes for use with long one-piece jackscrew designs only.

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.

MIL-DTL-28748/2E
w/AMENDMENT 3

Reference documents. In addition to MIL-DTL-28748, this document references the following:

MIL-DTL-28748/1
MIL-DTL-28748/3
MS18173
MS18192
MS18193
MS18194
MS18195
MS18196
MS18197
MS18198
MS18199
MS18200
MS18203
MS18204
MS24132
MS24133

CONCLUDING MATERIAL

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

Preparing activity:
DLA - CC

(Project 5935-2018-005)

Review activities:
Army - AT, MI
Navy - AS, 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>.