

MIL-STD-1560A  
NOTICE 1  
20 November 1981

MILITARY STANDARD  
INSERT ARRANGEMENTS FOR MIL-C-38999  
AND MIL-C-27599 ELECTRICAL,  
CIRCULAR CONNECTORS

TO ALL HOLDERS OF MIL-STD-1560A:

1. THE FOLLOWING PAGES OF MIL-STD-1560A HAVE BEEN REVISED AND SUPERSEDED THE PAGES LISTED:

<u>NEW PAGE</u>	<u>DATE</u>	<u>SUPERSEDED PAGE</u>	<u>DATE</u>
Cover	1 December 1975	(Reprinted without change)	
ii	20 November 1981	ii	1 December 1975
iii	20 November 1981	iii	1 December 1975
iv	1 December 1975	(Reprinted without change)	
1	20 November 1981	1	1 December 1975
2	20 November 1981	2	1 December 1975
100.1	20 November 1981	100.1	1 December 1975
107.1	20 November 1981	107.1	1 December 1975
107.2	1 December 1975	(Reprinted without change)	
108.9	1 December 1975	(Reprinted without change)	
109.7	1 December 1975	(Reprinted without change)	
109.8	20 November 1981	109.8	1 December 1975
109.9	1 December 1975	(Reprinted without change)	
109.10	20 November 1981	109.10	17 October 1974

2. THE FOLLOWING PAGE IS TO BE ADDED:

<u>NEW PAGE</u>	<u>DATE</u>
108.10	20 November 1981

3. RETAIN THIS NOTICE AND INSERT BEFORE TABLE OF CONTENTS.

4. Holders of MIL-STD-1560A will verify that page changes indicated above have been entered. This notice page will be retained as a check sheet. This issuance, together with appended pages, is a separate publication. Each notice is to be retained by stocking points until the Military Standard is completely revised or canceled.

Custodians:  
Army - CR  
Navy - AS  
Air Force - 85

Preparing activity:  
Air Force - 85

(Project 5935-3184)

Review activities:  
Army - MU, MI  
Navy - EC, MC, OS  
Air Force - 11, 15, 17, 99  
DLA - ES

**MIL-STD-1560A**

**1 DEC 1975**

**SUPERSEDING**

**MIL-STD-1560**

**22 April 1974**

# **MILITARY STANDARD**

## **INSERT ARRANGEMENTS**

### **FOR**

**MIL-C-33999 AND MIL-C-27599**

**ELECTRICAL, CIRCULAR CONNECTORS**



**FSC 5935**

MIL-STD-1560A  
20 November 1981

DEPARTMENT OF DEFENSE  
Washington, D.C. 20301

Insert Arrangements for MIL-C-38999  
and MIL-C-27599 Electrical, Circular Connectors

MIL-STD-1560A

1. This military standard is approved for use by all Departments and Agencies of the Department of Defense.
2. Recommended corrections, additions, or deletions should be addressed to Air Force Acquisition Logistics Division, Electronic Support Division (AFALD-PTSP), Gentile AFS, Dayton, OH 45444.

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## SECTIONS

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## 1. SCOPE

1.1 This standard covers insert arrangements for use with MIL-C-38999 and MIL-C-27599 circular connectors.

## 2. REFERENCED DOCUMENTS

2.1 The issues of the following documents in effect on the date of invitation for bids form a part of this standard to the extent specified herein.

### SPECIFICATIONS

#### MILITARY

MIL-C-38999 - Connectors, Electrical, Circular, Miniature, High Density, Quick Disconnect (Bayonet, Threaded, and Breech Coupling), Environment Resistant, Removable Crimp and Hermetic Solder Contacts, General Specification for.

MIL-C-27599 - Connector, Electrical, Miniature, Quick Disconnect (For Weapons Systems) Established Reliability.

(Copies of specifications, standards, drawings and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

## 3. DEFINITIONS


3.1 The terms used in this standard are generally accepted by the electrical and electronics industries and commonly used in electrical connector engineering practice.

## 4. GENERAL REQUIREMENTS

Not applicable.

## 5. DETAIL REQUIREMENTS

5.1 Dimensions. Dimensions shall be in accordance with the applicable section of this standard and the following dimensional data:

(a)  Indicates  $\phi$  of insert arrangement.

(b) All dimensions (TP) and in inches.

Dimensions and markings: Front face of pin insert shown (socket insert opposite).

(c) No. 12 contacts - MIL-C-27599 pin contacts .094  $\pm$  .001 diameter, socket contacts entry hole (contact sleeve) .099 minimum diameter, number of places as applicable.

MIL-C-38999 - pin contacts .094  $\pm$  .001 diameter, socket insert entry hole .103 minimum diameter, number of places as applicable.

(d) No. 16 contacts - MIL-C-27599 - pin contacts .0825  $\pm$  .0010 diameter, socket contacts entry hole (contact sleeve) .067 minimum diameter, number of places as applicable.

MIL-C-38999 - pin contacts .0825  $\pm$  .0010 diameter, socket insert entry hole .071 minimum diameter, number of places as applicable.

(e) No. 20 contacts - MIL-C-27599 - pin contacts .040  $\pm$  .001 diameter, socket contacts entry hole (contact sleeve) .045 minimum diameter, number of places as applicable.

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- MIL-C-38999 - pin contacts  $.040 \pm .001$  diameter, socket insert entry hole  $.049$  minimum diameter, number of places as applicable.
- (f) No. 22 and 22M contacts
  - MIL-C-27599 - pin contacts  $.0300 \pm .0005$  diameter, socket contacts entry hole (contact sleeve)  $.036$  minimum diameter, number of places as applicable.
  - MIL-C-38999 - pin contacts  $.0300 \pm .0005$  diameter, socket insert entry hole  $.035$  minimum diameter, number of places as applicable.*
- (g) No. 22 D contact
  - MIL-C-38999 - pin contacts  $.0300 \pm .0005$  diameter, socket insert entry hole  $.035$  minimum diameter, number of places as applicable.
- (h) No. 8 coaxial contacts
  - MIL-C-38999 - pin contacts  $.218 \pm .001$  diameter, socket insert entry hole  $.227$  minimum diameter, number of places as applicable.
- (i) Gage features for receptable connectors shall be  $.002$  smaller than H at MMC, and  $.006$  smaller than GG at MMC.  $\oplus H-.002 \text{ (M)} GG+.006 \text{ (M)} \text{ SEE NOTE}$
- (j) Gage features for plug connectors shall be  $.002$  larger than W at MMC and  $.006$  larger than GG at MMC.  $\oplus W+.002 \text{ (M)} GG+.006 \text{ (M)} \text{ SEE NOTE}$

NOTE:

- (a)  $.004 \text{ DIA (M)}$  For MIL-C-27599 connectors; this requirement pertains to the pin contacts and the socket entry holes (contact sleeve).
- (b)  $.015 \text{ DIA (M)}$  For MIL-C-38999 connectors; this requirement pertains to the closed entry hole of the socket contacts.
- (c)  $.024 \text{ DIA (M)}$  For MIL-C-38999 connectors; this requirement pertains to the tip of the pin contact.

5.2 Marking. Marking shall be in accordance with MIL-C-38999, MIL-C-27599, and as shown in the applicable section of this military standard.

5.3 Drawing notes. The following information is applicable to all figures of this military standard.

- (a) Dimensions are in inches.
- (b) Metric equivalents (to the nearest  $.01 \text{ mm}$ ) are given for general information only and are based upon  $1 \text{ inch} = 25.4 \text{ mm}$ .

Custodians:  
Army - CR  
Navy - AS  
Air Force - 85

Preparing activity:  
Air Force - 85

Review activities:  
Army - MU, MI  
Navy - EC, MC, OS  
Air Force - 11, 15, 17, 99  
DLA - ES

Supersedes page 2 of 1 December 1975.

## SECTION 100A

INSERT ARRANGEMENTS. ELECTRICAL CONNECTORS,  
SERIES I, III AND IV OF MIL-C-38999 AND  
SERIES I OF MIL-C-27589

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103A	Insert Arrangement, Electrical Connector, Shell Size 13 - - - - -	103.1
104A	Insert Arrangement, Electrical Connector, Shell Size 15 - - - - -	104.1
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109A	Insert Arrangement, Electrical Connector, Shell Size 25 - - - - -	109.1

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SECTION 100A

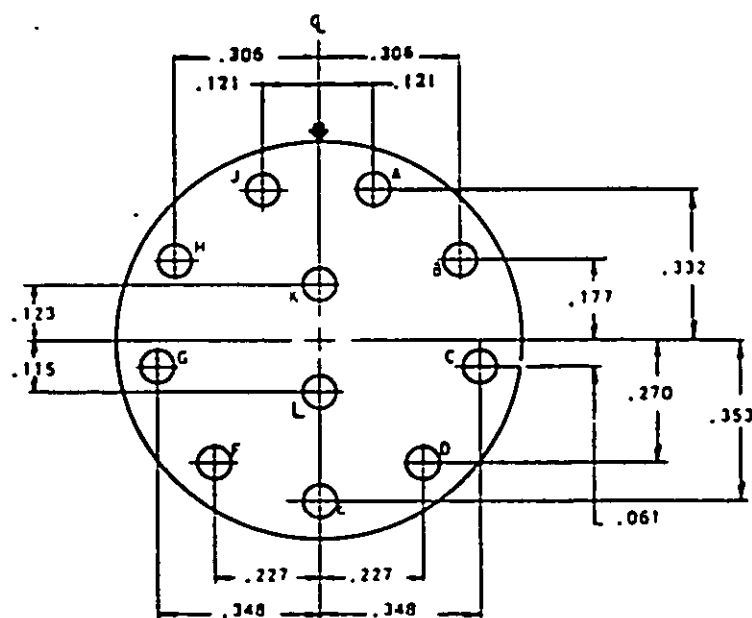


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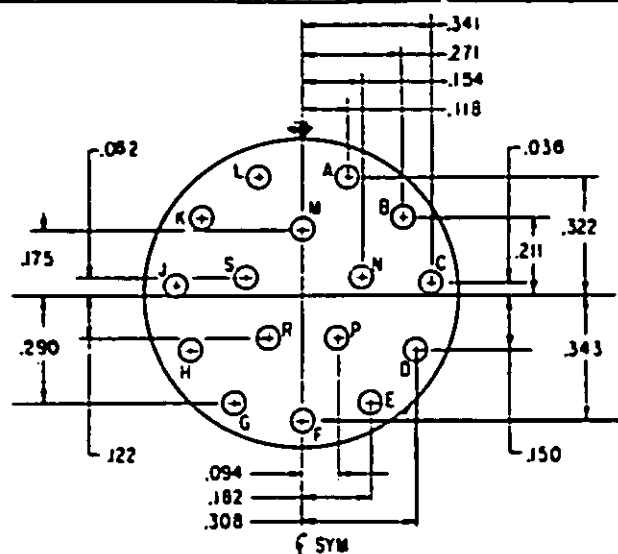
## INSERT ARRANGEMENT, ELECTRICAL CONNECTOR

### SHELL SIZE 21



INCHES	MM	INCHES	MM
.061	1.55	.227	5.77
.115	2.92	.270	6.86
.121	3.07	.306	7.77
.123	3.12	.332	8.43
.177	4.50	.348	8.84
		.353	8.97

Shell size	Arrangement No.	Number of contacts	Size contacts	Service rating	Contact location	Supersedes document
21	-11	11	12	I	A11	MS20055-11

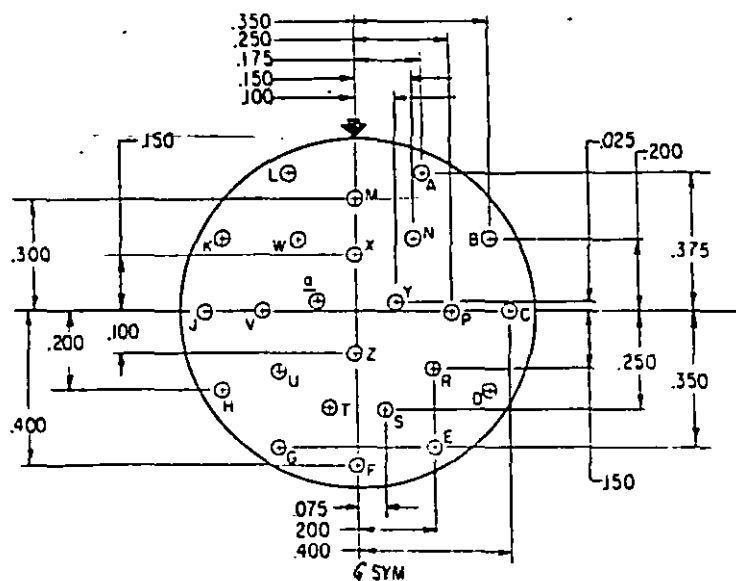


INCHES	MM	INCHES	MM
.036	.91	.150	3.81
.062	1.57	.154	3.91
.094	2.39	.175	4.45
.118	3.00	.182	4.62
.122	3.10	.211	5.38

INCHES	MM
.271	6.88
.290	7.37
.308	7.82
.322	8.18
.341	8.66
.343	8.71

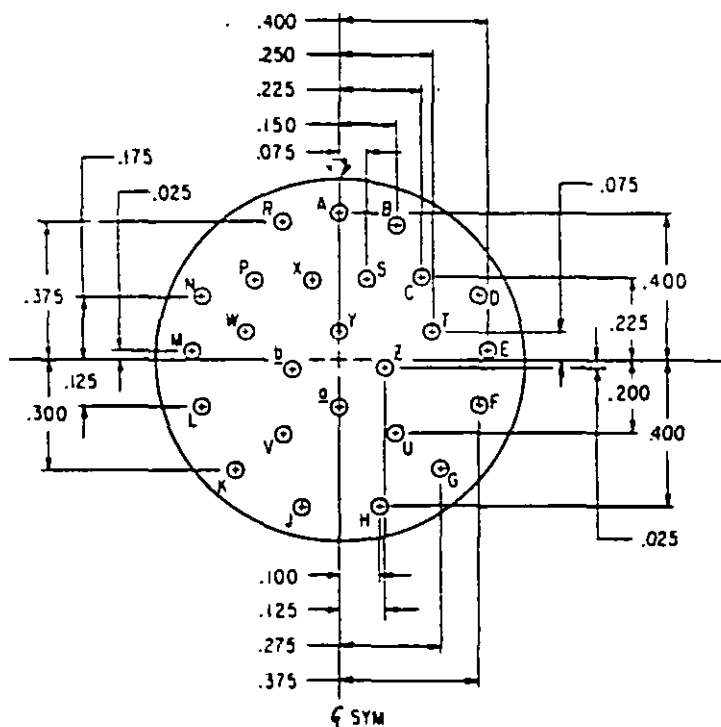
Shell size	Arrangement No.	Number of contacts	Size contacts	Service rating	Contact location	Supersedes document
21	-16	16	16	II	A11	MS20055-16

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INCHES	MM	INCHES	MM
.025	.64	.200	5.08
.075	1.88	.250	5.59
.100	2.54	.300	7.62
.150	3.81	.350	8.89
.175	4.45	.375	9.53
		.400	10.16

Shell size	Arrangement No.	Number of contacts	Size contacts	Service rating	Contact location	Supersedes document
21	-24	24	20	I	All	MS20055-24

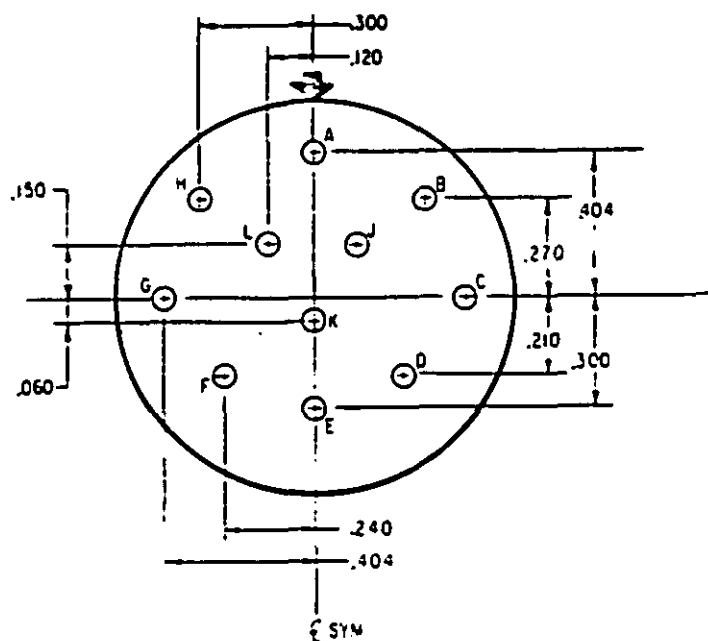


INCHES	MM	INCHES	MM
.025	.64	.150	3.81
.075	1.91	.175	4.45
.100	2.54	.200	5.08
.125	3.18	.225	6.72

INCHES	MM
.250	6.35
.275	6.99
.300	7.62
.375	9.53
.400	10.16

Shell size	Arrangement No.	Number of contacts	Size contacts	Service rating	Contact location	Supersedes document
21	-25	25	20	I	A11	MS20055-25

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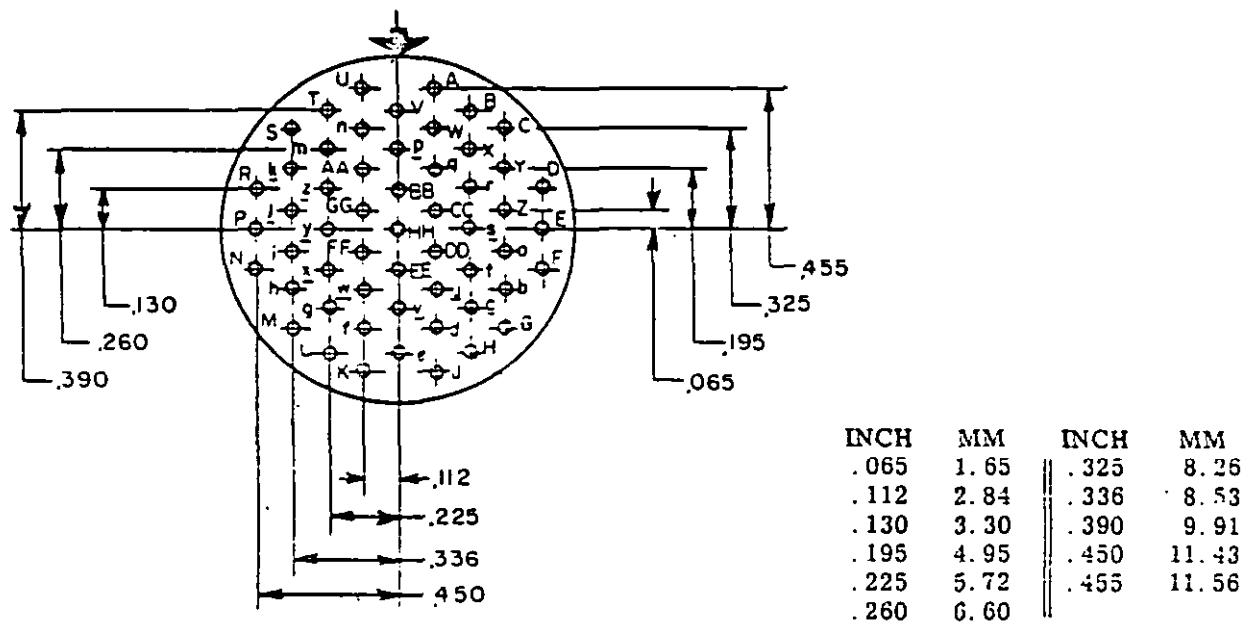


INCHES	MM	INCHES	MM
.060	1.52	.240	6.10
.120	3.05	.270	6.86
.150	3.81	.300	7.62
.210	5.33	.404	10.26

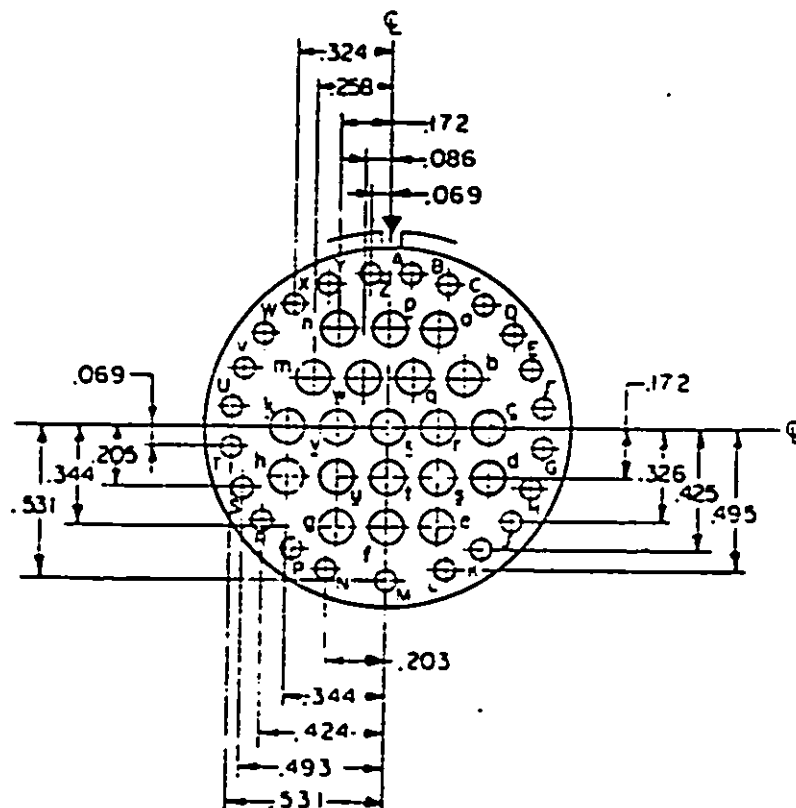
Shell size	Arrangement No.	Number of contacts	Size contacts	Service rating	Contact location	Supersedes document
23	-99	11	16	11	A11	MS20056-99

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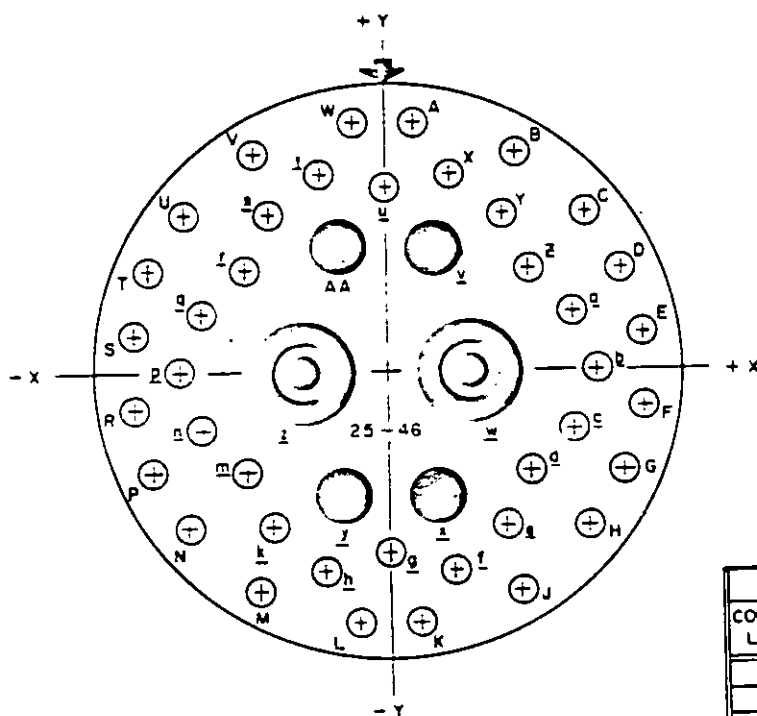
Shell size	Arrangement No.	Number of contacts	Size contacts	Service rating	Contact location	Supersedes document
23	-55	55	20	I	A11	

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INCHES	MM	INCHES	MM
.069	1.75	.326	8.28
.086	2.18	.344	8.78
.172	4.37	.424	10.77
.203	5.16	.425	10.80
.205	5.21	.493	12.52
.258	6.55	.495	12.57
.324	8.23	.531	13.49

Shell size	Arrangement No.	Number of contacts	Size contacts	Service rating	Contact location	Supersedes document
25	-43	20	16	I	a,b,c,d,e, f,g,h,k,m, n,p,q,r,s,t, u,v,w,x	MS20057-43
		23	20		All others	

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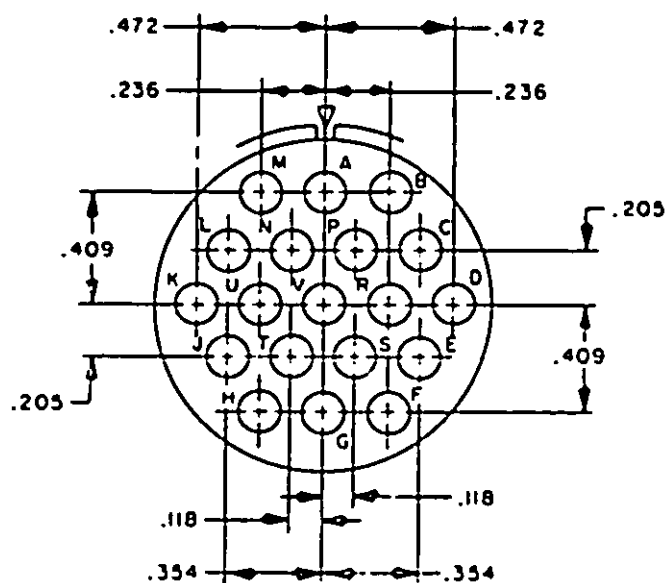
INCHES	MM	INCHES	MM	INCHES	MM
.065	1.65	.245	6.22	.420	10.67
.079	2.01	.265	6.73	.424	10.77
.097	2.46	.275	6.99	.426	10.82
.125	3.18	.297	7.54	.466	11.84
.136	3.45	.337	8.56	.493	12.52
.180	4.57	.390	9.91	.531	13.49
.217	5.51	.395	10.03	.533	13.54

CONTACT LOCATION					
CONTACT LETTER	LOCATION		CONTACT LETTER	LOCATION	
	X AXIS	Y AXIS		X AXIS	Y AXIS
A	+.065	+.533	g	+.390	+.125
B	+.275	+.466	h	+.426	.000
C	+.420	+.337	i	+.390	-.125
D	+.493	+.217	j	+.297	-.217
E	+.531	+.079	k	+.245	-.337
F	+.531	-.079	l	+.136	-.424
G	+.493	-.217	m	.000	-.395
H	+.420	-.337	n	-.136	-.424
J	+.275	-.466	o	-.245	-.337
K	+.065	-.533	p	-.297	-.217
L	-.065	-.533	q	-.390	-.125
M	-.275	-.466	r	-.426	.000
N	-.420	-.337	s	-.390	+.125
P	-.493	-.217	t	-.297	+.217
R	-.531	-.079	u	-.245	+.337
S	-.531	+.079	v	-.136	+.424
T	-.493	+.217	w	.000	+.395
U	-.420	+.337	x	+.097	+.265
V	-.275	+.466	y	+.180	.000
W	-.065	+.533	z	+.097	-.265
X	+.136	+.424	AA	-.097	-.265
Y	+.245	+.337		-.180	.000
Z	+.297	+.217			

Shell size	Arrangement No.	Number of contacts	Size contacts	Service rating	Contact location	Supersedes document
25	-46	2	No. 8 COAX	COAX	z,w	MS20057-46
		4	16	I	AA,v x,y	
		40	20		All others	

# SECTION 109A

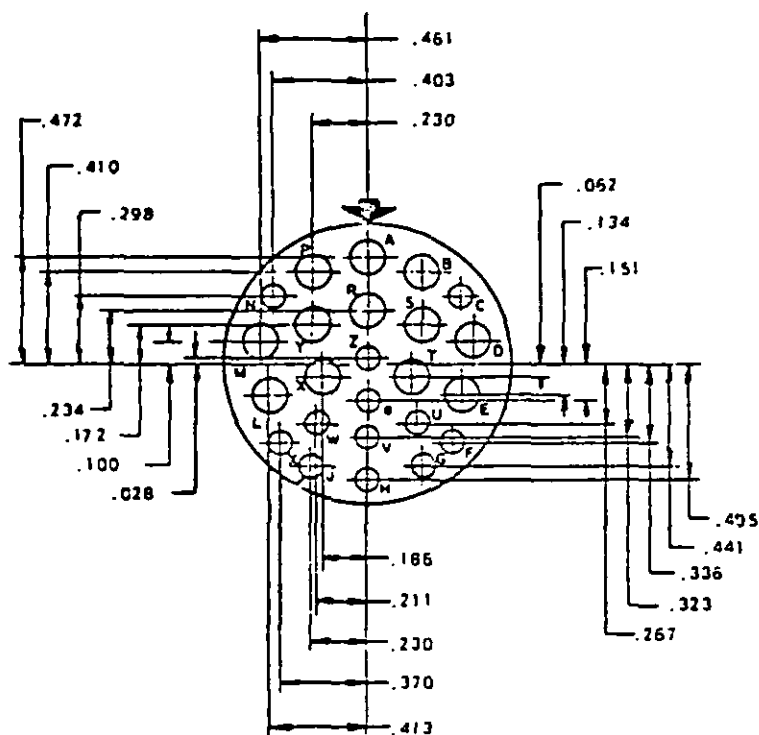
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INCHES	MM
.118	3.00
.205	5.21
.236	5.99
.354	8.99
.409	10.39
.472	11.99

Shell size	Arrangement No.	Number of contacts	Size contacts	Service rating	Contact location	Supersedes document
25	-19	19	12	I	All	MS20057-19

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INCHES	MM	INCHES	MM
.028	.71	.298	7.57
.062	1.57	.323	8.20
.100	2.54	.336	8.53
.134	3.40	.370	9.40
.151	3.84	.403	10.24
.172	4.37	.410	10.41
.185	4.70	.413	10.49
.211	5.36	.441	11.20
.230	5.84	.461	11.71
.234	5.94	.472	11.99
.267	6.78	.495	12.57

SHELL SIZE	ARRANGE-MENT NO.	NUMBER OF CONTACTS	SIZE CONTACTS	SERVICE RATING	CONTACT LOCATION
25	-24	12	12	I	A, B, D, E, LM
		12	16		P, R, S, T, X, Y
					ALL OTHERS

SECTION 109

Supersedes page 109.10 of 17 October 1974.

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