

NOTICE OF CHANGE
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INCH-POUND
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MIL-STD-1560A  
NOTICE 8  
17 January 2003

DEPARTMENT OF DEFENSE  
INTERFACE STANDARD

INSERT ARRANGEMENTS FOR MIL-DTL-38999,  
MIL-C-29600 SERIES A, 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 SUPERSEDE THE PAGES LISTED:

<u>NEW PAGE</u>	<u>DATE</u>	<u>SUPERSEDED PAGE</u>	<u>DATE</u>
Cover	17 Jan 2003	Cover	1 Dec 1975
ii	17 Jan 2003	ii	20 Nov 1981
iii	17 Jan 2003	iii	20 Nov 1981
iv	17 Jan 2003	iv	20 Nov 1981
1	17 Jan 2003	1	25 Jun 1993
2	17 Jan 2003	2	25 Jun 1993
2a/2b	17 Jan 2003	2a/2b	30 Oct 1989
2c	17 Jan 2003	New page	---
105.1	1 Dec 1975	105.1	Reprinted without change
105.1a	17 Jan 2003	New page	---
105.2	17 Jan 2003	105.2	1 Dec 1975
105.3	17 Jan 2003	105.3	1 Dec 1975
105.4	17 Jan 2003	105.4	1 Dec 1975
105.5/105.6	17 Jan 2003	105.5/105.6	25 Jun 1993
105.6a	17 Jan 2003	New page	---

2. RETAIN THIS NOTICE AND INSERT BEFORE TABLE OF CONTENTS.
3. Holders of MIL-STD-1560A will verify that page changes and additions indicated above have been entered. This notice page will be retained as check sheet. This issuance, together with appended pages, is a separate publication. Each notice is to be retained by stocking points until the standard is completely revised or canceled.

CONCLUDING MATERIAL

Custodians:  
Army – CR  
Navy – AS  
Air Force – 11  
DLA - CC

Preparing activity:  
DLA - CC

(Project 5935-4548-000)

Review activities:  
Army – AR, MI  
Navy – EC, MC, OS

AMSC N/A

FSC 5935

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

INCH-POUND

MIL-STD-1560A  
1 December 1975  
SUPERSEDING  
MIL-STD-1560  
22 April 1974

# DEPARTMENT OF DEFENSE INTERFACE STANDARD

INSERT ARRANGEMENTS  
FOR MIL-DTL-38999, MIL-C-27599  
AND MIL-C-29600 SERIES A  
ELECTRICAL CIRCULAR CONNECTORS



SUPERSEDES COVER PAGE OF MIL-STD-1560A

AMSC N/A

FSC 5935

MIL-STD-1560A  
NOTICE 8

Insert Arrangements for MIL-DTL-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 Defense Supply Center Columbus, ATTN: DSCC-VAI, P.O. Box 3990, Columbus, OH 43216-5000

SUPERSEDES PAGE ii OF NOTICE 1 TO MIL-STD-1560A

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1. SCOPE

1.1 Scope. This standard covers insert arrangements for use with MIL-DTL-38999, MIL-C-26500 series A and MIL-C-27599 circular connectors.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, and 5 of this standard. This section does not include documents cited in other sections of this standard or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3, 4, and 5 of this standard whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation.

SPECIFICATIONS

DEPARTMENT OF DEFENSE

- |               |   |
|---------------|---|
| MIL-DTL-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-29600   | - Connectors, Electrical, Circular, Miniature, Composite, High Density, Quick Coupling, Environment Resistant, Removable Crimp Contacts, Associated Hardware General Specification For.                                 |
| MIL-C-27599   | - Connector, Electrical, Miniature, Quick Disconnect (Fore Weapon Systems) Established Reliability.   |

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.2.2 Other Government documents, drawings and publications. The following other Government documents, drawings and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

DRAWINGS

- |       |  |
|-------|--|
| 02003 | - Contact Electrical Connector Concentric Twinax, Socket Shielded, Size 12 (For (FOR MIL-DTL-38999 SERIES I, III, AND IV CONNECTORS) |
| 02004 | - Contact Electrical Connector Concentric Twinax, Pin, Shielded, Size 12 (For (FOR MIL-DTL-38999 SERIES I, III, AND IV CONNECTORS)   |

(Copies of DSCC drawings are available for download at internet web address <http://dsc.dla.mil>)

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## 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  of insert arrangement
- b. All dimensions (TP) and in inches. Dimensions and markings: Front face of pin insert shown (socket insert opposite).
- c. Number 12 contacts - MIL-C-27599 pin contacts .094 ± .001 diameter, socket contacts entry hole (contact sleeve) .099 minimum diameter, number of places as applicable.  
MIL-DTL-38999 and MIL-C-29600 series A – pin contacts .094 ± .001 diameter, socket insert entry hole .103 minimum diameter, number of places as applicable.
- d. Number 16 contacts - MIL-C-27599 – pin contacts .0625 ± .0010 diameter, socket contacts entry hole (contact sleeve) .067 minimum diameter, number of places as applicable.  
MIL-DTL-38999 and MIL-C-29600 series A – pin contacts .0625 ± .0010 diameter, socket insert entry hole .071 minimum diameter, number of places as applicable.
- e. Number 20 contacts - MIL-C-27599 - pin contacts .040 ± .001 diameter, socket contacts entry hole (contact sleeve) .045 minimum diameter, number of places as applicable.  
MIL-DTL-38999 and MIL-C-29600 series A – pin contacts .040 ± .001 diameter, socket insert entry hole .049 minimum diameter, number of places as applicable.
- f. Number 22 and 22M - MIL-C-27599 – pin contacts .0300 ± .0005 diameter socket contacts entry hole (contact sleeve) .036 minimum diameter, number of places as applicable.
- g. Number 22 D contacts - MIL-DTL-38999 and MIL-C-29600 series A - pin contacts .0300 ± .0005 diameter, socket insert entry hole .035 minimum diameter, number of places as applicable.




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- h. Number 8 contacts - MIL-DTL-38999 and MIL-C-29600 series A - pin contacts  $.218 \pm .001$  diameter, socket insert entry hole  $.227$  minimum diameter, number of places as applicable.
- i. Gauge features for MIL-DTL-38999 series I, II, and III, MIL-C-29600 series A and MIL-C-27599 series I and II receptacle connectors shall be  $.002$  smaller than H at MMC, and  $.006$  smaller than GG at MMC.


	H- $.002$ 	GG- $.006$ 	See notes
---	---	--	-----------

- j. Gauge features for MIL-DTL-38999 series I, II, and III, MIL-C-29600 series A and MIL-C-27599 series I and II plug connectors shall be  $.002$  larger than W at MMC and  $.006$  larger than GG at MMC.


	W+ $.002$ 	GG+ $.006$ 	See notes
---	---	--	-----------

## NOTES:


- a. 

$.004$ DIA 
--

 For fixed contact designs such as MIL-C-27599 and hermetic connectors of MIL-C-38999; this requirement pertains to the pin contacts and the socket entry holes (contact sleeve).
- b. 

$.015$ DIA 
--

 For removable contacts MIL-DTL-38999 and MIL-C-29600 series A connectors; this requirement pertains to the closed entry hole of the socket contacts.
- c. 

$.024$ DIA 
--

 For removable contacts MIL-DTL-38999 and MIL-C-29600 series A connectors, this requirement pertains to the tip of the pin contact.
- d. DATUMS H, GG, and W are located on connector intermateability dimension figures for key/keyway polarization in MIL-DTL-38999.

5.2 Marking. Marking shall be in accordance with MIL-DTL-38999, MIL-C-29600 series A, MIL-C-27599, and as shown in the applicable section of this military standard. Sawtooth lines may be used in place of straight lines.

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

- a. Dimensions are in inches.
- b. Metric equivalents are given for general information only.
- c. Insert arrangements using multi-axial (i.e coax, twinax, shielded) contacts shall not be used in firewall connector applications.

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CONCLUDING MATERIAL

Custodians:

Army - CR  
Navy - AS  
Air Force - 11  
DLA - CC

Preparing activity:  
DLA - CC

(Project 5935-3464)

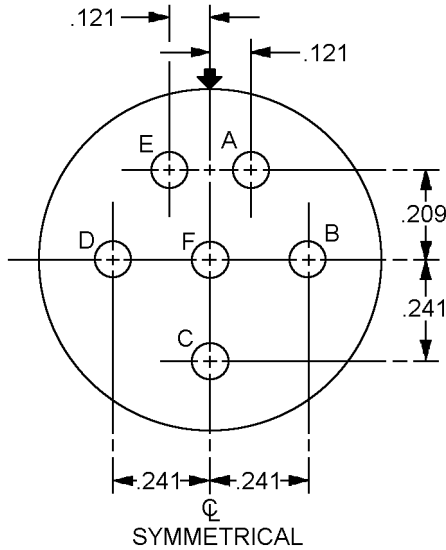
Review activities:

Army - AR, MI  
Navy - OS  
Air Force - 99

NEW PAGE

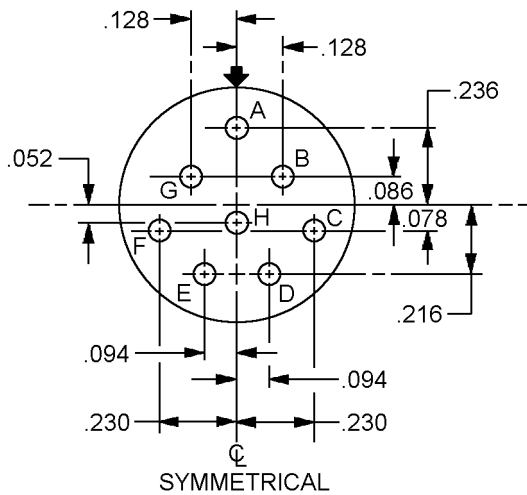
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INSERT ARRANGEMENT, ELECTRICAL CONNECTOR  
SHELL SIZE 17



Inches	mm
.121	3.07
.209	5.31
.241	6.12

Shell size	Arrangement number	Number of contacts	Size of contacts	Service rating	Contact position ID	Supersedes document
17	-6	6	12	I	All	MS20053-6

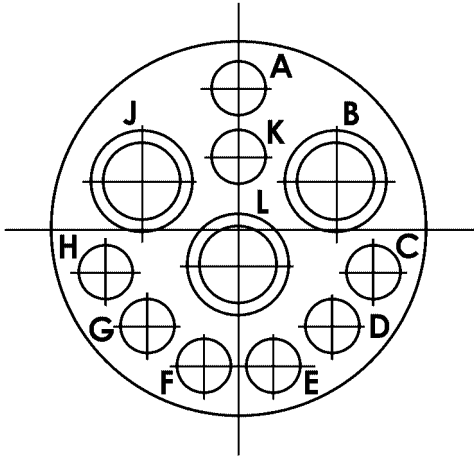


Inches	mm	Inches	mm
.052	1.32	.128	3.25
.078	1.98	.216	5.49
.086	2.18	.230	5.84
.094	2.39	.236	5.99

Shell size	Arrangement number	Number of contacts	Size contacts	Service rating	Contact position ID	Supersedes document
17	-8	8	16	II	All	MS20053-8

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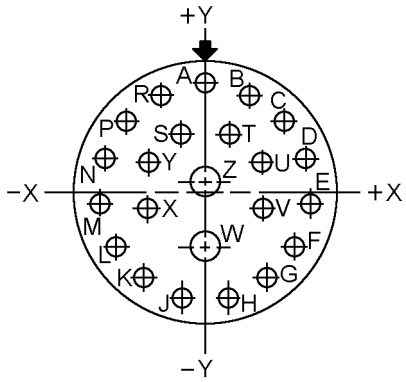
Inches	mm	Inches	mm
.071	1.80	.190	4.83
.075	1.90	.199	5.05
.088	2.24	.200	5.08
.100	2.54	.275	6.98
.150	3.81	.282	7.16
		.290	7.37

Contacts		
Contact position ID	Contact location	
	X-Axis	Y-Axis
A	.000	+.290
B	+.200	+.100
C	+.275	-.088
D	+.190	-.199
E	+.071	-.282
F	-.071	-.282
G	-.190	-.199
H	-.275	-.088
J	-.200	+.100
K	.000	+.150
L	.000	-.075

Shell size	Arrangement number	Number of contacts	Size contacts	Service rating	Contact position ID	Standard contacts	
						Pin	Socket
17	-11	1	12	Coax	J	M39029/28-211	M39029/75-416
		2	12	Twinax	B, L	02004-936	02003-926
		8	20	N	A, C, D,E, F,G, H, K	M39029/58-363	M39029/56-351

NEW PAGE

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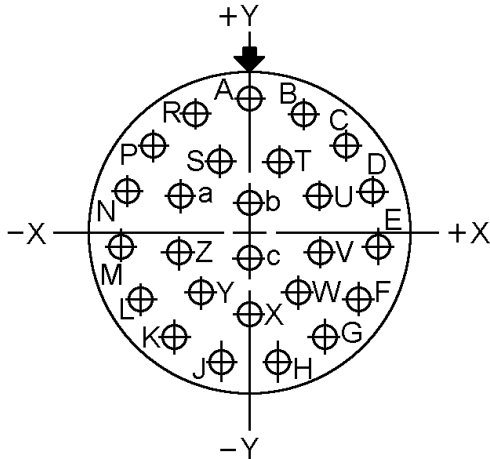


Inches	mm	Inches	mm
.025	.64	.177	4.50
.034	.86	.189	4.80
.067	1.70	.214	5.44
.070	1.78	.239	6.07
.075	1.91	.260	6.60
.094	2.39	.278	7.06
.099	2.51	.293	7.44
.131	3.33	.305	7.75
.150	3.81	.314	7.98
.161	4.09	.319	8.10
.175	4.45	.321	8.15

Contacts					
Contact position ID	Contact location		Contact position ID	Contact location	
	X-axis	Y-axis		X-axis	Y-axis
A	.000	+.321	N	-.305	+.099
B	+.131	+.293	P	-.239	+.214
C	+.239	+.214	R	-.131	+.293
D	+.305	+.099	S	-.070	+.177
E	+.319	-.034	T	+.070	+.177
F	+.278	-.161	U	+.175	+.094
G	+.189	-.260	V	+.150	-.075
H	+.067	-.314	W	.000	-.161
J	-.067	-.314	X	-.150	-.075
K	-.189	-.260	Y	-.175	+.094
L	-.278	-.161	Z	.000	+.025
M	-.319	-.034			

Shell size	Arrangement number	Number of contacts	Size contacts	Service rating	Contact position ID	Supersedes document
17	-99	2	16	I	W, Z	MS20053-99
		21	20		All others	

SUPERSEDES PAGE 105.2 TO MIL-STD-1560A

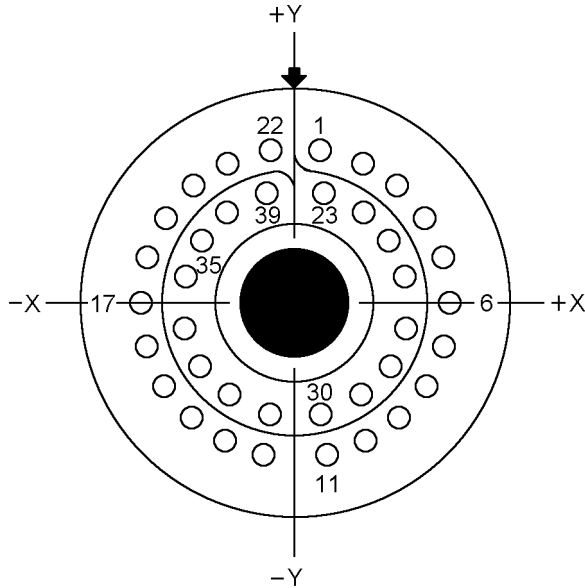
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Inches	mm	Inches	mm
.034	.86	.117	4.50
.036	.91	.178	4.53
.065	1.65	.189	4.80
.067	1.70	.203	5.16
.070	1.78	.214	5.44
.094	2.39	.239	6.07
.099	2.51	.260	6.60
.119	3.02	.278	7.06
.131	3.33	.293	7.44
.151	3.84	.305	7.75
.161	4.09	.315	7.98
.175	4.45	.319	8.10
		.321	8.15

Contacts					
Contact position ID	Contact location		Contact position ID	Contact location	
	X-axis	Y-axis		X-axis	Y-axis
A	.000	+.321	P	-.239	+.214
B	+.131	+.293	R	-.131	+.293
C	+.239	+.214	S	-.070	+.177
D	+.305	+.099	T	+.070	+.177
E	+.319	-.034	U	+.175	+.094
F	+.278	-.161	V	+.178	-.036
G	+.189	-.260	W	+.119	-.151
H	+.067	-.314	X	.000	-.203
J	-.067	-.314	Y	-.119	-.151
K	-.189	-.260	Z	-.178	-.036
L	-.278	-.161	a	-.175	+.094
M	-.319	-.034	b	.000	+.065
N	-.305	+.099	c	.000	-.065

Shell size	Arrangement number	Number of contacts	Size contacts	Service rating	Contact position ID	Supersedes document
17	-26	26	20	I	All	MS20053-26

SUPERSEDES PAGE 105.3 OF MIL-STD-1560A

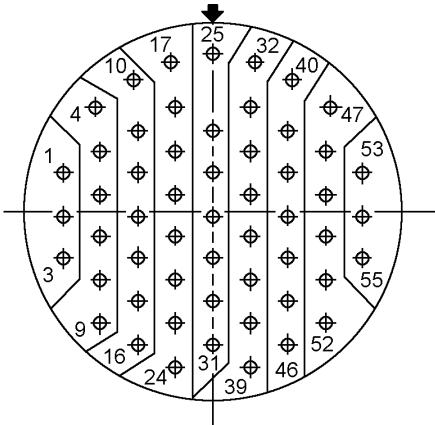
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Inches	mm	Inches	mm
.011	.28	.200	5.08
.040	1.02	.211	5.36
.046	1.17	.228	5.79
.050	1.27	.229	5.82
.055	1.40	.230	5.84
.068	1.73	.231	5.87
.079	2.26	.232	5.89
.101	2.57	.236	5.99
.125	3.18	.251	6.38
.129	3.28	.272	6.91
.133	3.38	.284	7.21
.137	3.48	.289	7.34
.154	3.91	.299	7.59
.164	4.17	.312	7.92
.183	4.65	.318	8.08
.191	4.85	.321	8.15
.194	4.93	.325	8.26
.197	5.00	.328	8.33

Contacts								
Contact position ID	Location		Contact number	Location		Contact position ID	Location	
	X-axis	Y-axis		X-axis	Y-axis		X-axis	Y-axis
1	+.046	+.325	14	-.228	-.236	27	+.232	-.040
2	+.133	+.299	15	-.284	-.164	28	+.200	-.125
3	+.211	+.251	16	-.318	-.079	29	+.137	-.191
4	+.272	+.183	17	-.328	+.011	30	+.055	-.229
5	+.312	+.101	18	-.312	+.101	31	-.055	-.229
6	+.328	+.011	19	-.272	+.183	32	-.137	-.191
7	+.318	-.079	20	-.211	+.251	33	-.200	-.125
8	+.284	-.164	21	-.133	+.299	34	-.232	-.040
9	+.228	-.236	22	-.046	+.325	35	-.230	+.050
10	+.154	-.289	23	+.046	+.231	36	-.194	+.133
11	+.068	-.321	24	+.129	+.197	37	-.129	+.197
12	-.068	-.321	25	+.194	+.133	38	-.046	+.231
13	-.154	-.289	26	+.230	+.050	39	+.000	-.000

Shell size	Arrangement number	Number of contacts	Size contacts	Service rating	Contact position ID	Standard contact	
						Pin	Socket
17	-2	38	22D	M	All other	M39029/58-360	M39029/56-348
		1	8	Twinax	39	M39029/90-529	M39029/91-530

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Inches	mm	Inches	mm
.004	.10	.184	4.67
.041	1.04	.221	5.61
.049	1.24	.229	5.82
.078	1.98	.234	5.94
.086	2.18	.242	6.15
.089	2.26	.274	6.96
.094	2.39	.279	7.09
.131	2.33	.312	7.92
.139	3.53	.316	8.03
.156	3.96	.319	8.10
.172	4.37	.321	8.15
.176	4.47	.329	8.36

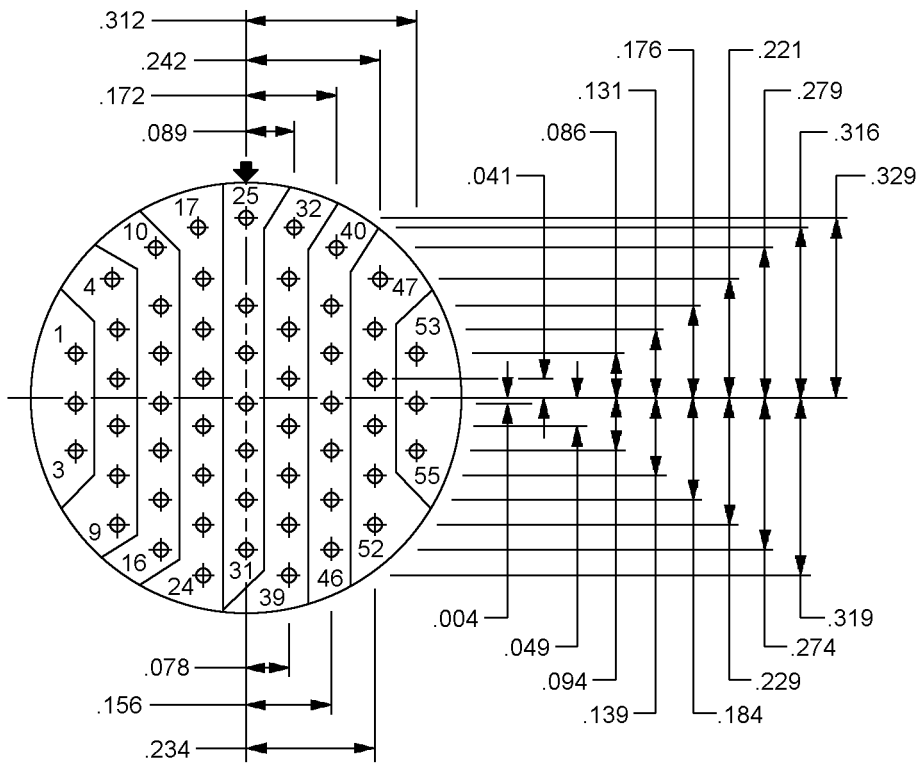
Contacts					
Contact position ID	Contact location		Contact position ID	Contact location	
	X-axis	Y-axis		X-axis	Y-axis
1	-.312	+.086	29	.000	-.094
2	-.312	-.004	30	.000	-.184
3	-.312	-.094	31	.000	-.274
4	-.242	+.221	32	+.089	+.316
5	-.234	+.131	33	+.078	+.221
6	-.234	+.041	34	+.078	+.131
7	-.234	-.049	35	+.078	+.041
8	-.234	-.139	36	+.078	-.049
9	-.234	-.229	37	+.078	-.139
10	-.172	+.279	38	+.078	-.229
11	-.156	+.176	39	+.078	-.319
12	-.156	+.086	40	+.172	+.279
13	-.156	-.004	41	+.156	+.176
14	-.156	-.094	42	+.156	+.086
15	-.156	-.184	43	+.156	-.004
16	-.156	-.274	44	+.156	-.094
17	-.089	+.316	45	+.156	-.184
18	-.078	+.221	46	+.156	-.274
19	-.078	+.131	47	+.242	+.221
20	-.078	+.041	48	+.234	+.131
21	-.078	-.049	49	+.234	+.041
22	-.078	-.139	50	+.234	-.049
23	-.078	-.229	51	+.234	-.139
24	-.078	-.319	52	+.234	-.229
25	.000	+.329	53	+.312	+.086
26	.000	+.176	54	+.312	-.004
27	.000	+.086	55	+.312	-.094
28	.000	-.004			

Shell size	Arrangement number	Number of contacts	Size contacts	Service rating	Contact position ID	Supersedes document
17	-35	55	22D	M	All	MS27529-35

SUPERSEDES 105.5/105.6 OF NOTICE 6 OF MIL-STD-1560A

105.5/105.6

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NOTE: Inactive for new design.

Inches	mm	Inches	mm
.004	.10	.184	4.67
.041	1.04	.221	5.61
.049	1.24	.229	5.82
.078	1.98	.234	5.94
.086	2.18	.242	6.15
.089	2.26	.274	6.96
.094	2.39	.279	7.09
.131	3.33	.312	7.92
.139	3.53	.316	8.03
.156	3.96	.319	8.10
.172	4.37	.329	8.36
.176	4.47		

Shell size	Arrangement number	Number of contacts	Size of contacts	Service rating	Contact position ID	Supersedes document
17	-55	55	22D	M	All	MS20053-55

NEW PAGE