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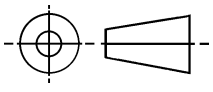

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AEROSPACE STANDARD

CONTACTS, ELECTRICAL CONNECTOR, SOCKET,
CRIMP REMOVABLE, SHIELDED, SIZE 12
(FOR MIL-C-38999 SERIES I, III, AND IV CONNECTORS)

AS39029/75
SHEET 1 OF 10

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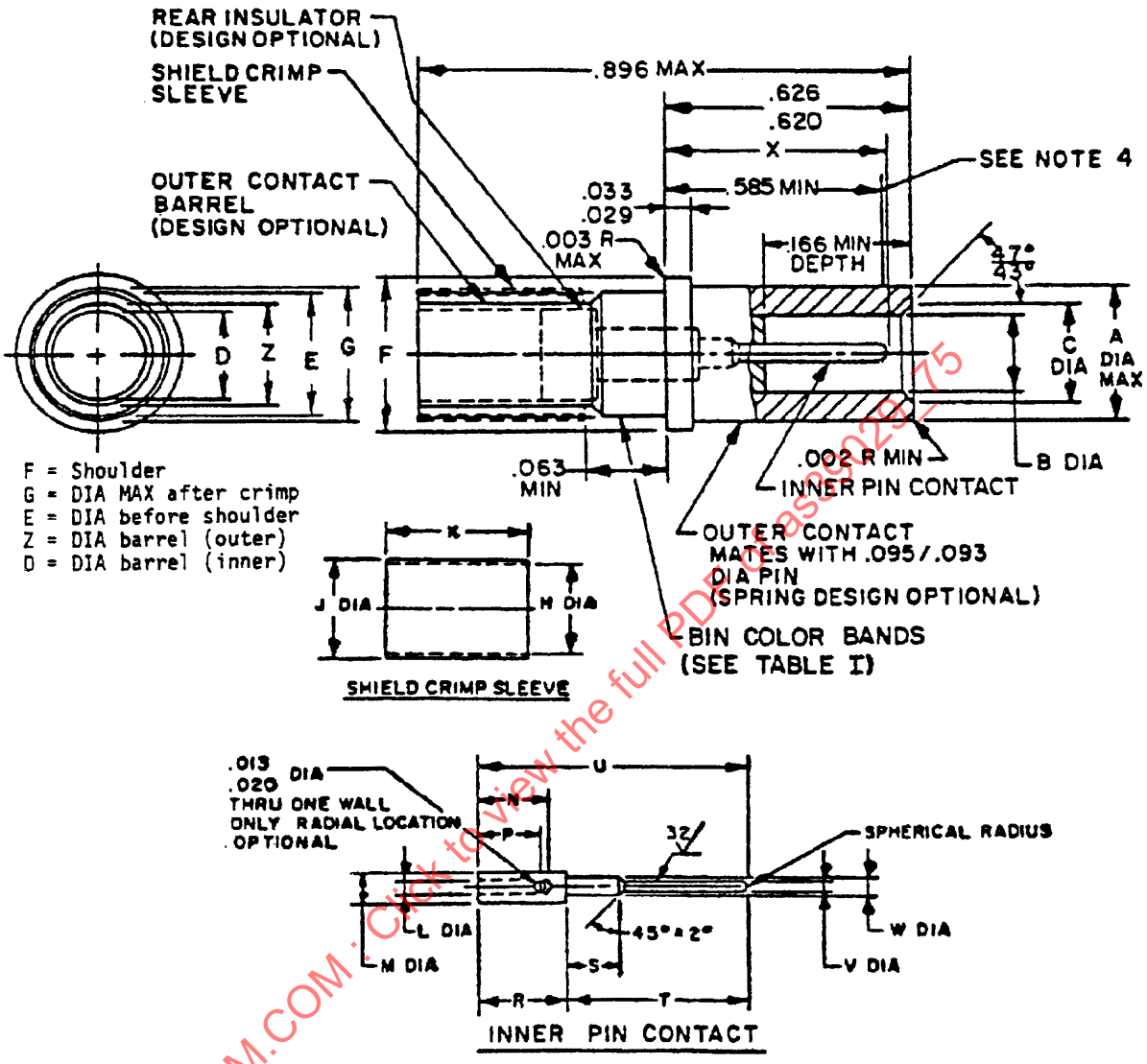

FIGURE 1. SOCKET CONTACTS.

BIN code	A Dia. Max.	B Dia.	C Dia.	D Dia. Min.	E Dia.	F Dia.	G Dia. Max.	H Dia. Min.	J Dia. Max.	K	L Dia. Min.	M Dia. Max.
416	.161	.100 .097	.123 .118	.090	.151 .148	.182 .179	.156	.127	.169	.125 .115	.0225	.052
417				.108				.144			.0225	
418				.108				.144			.0355	
419				.090				.127			.0355	
420				.090				.127	.169		.0225	
421				.117				.156	.174		.0270	
422				.090				.138	.174		.0225	
423	.161	.100 .097	.123 .118	.108	.151 .148	.182 .179	.156	.156	.174	.125 .115	.0355	.052

BIN code	N Min.	P	R	S	T	U REF.	V Dia.	W Dia.	X	Z Dia. Max.
416	.112	.103 .096	.146 .140	.039 .033	.222 .219	.3635	.0205 .0195	.035 .033	.613 .603	.110
417										.127
418										.127
419										.110
420										.110
421										.136
422										.110
423	.112	.103 .096	.146 .140	.039 .033	.222 .219	.3635	.0205 .0195	.035 .033	.613 .603	.127

INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
.002	0.05	.0355	0.90	.100	2.54	.125	3.18	.158	4.01	.3635	9.233
.003	0.08	.039	0.99	.103	2.62	.127	3.23	.161	4.09	.585	14.86
.0195	0.495	.052	1.32	.108	2.74	.136	3.45	.166	4.22	.603	15.32
.0205	0.521	.063	1.60	.110	2.79	.140	3.56	.169	4.29	.613	15.57
.0225	0.572	.090	2.29	.112	2.84	.144	3.66	.174	4.42	.620	15.75
.027	0.69	.093	2.36	.115	2.92	.146	3.71	.179	4.55	.626	15.90
.029	0.74	.095	2.41	.117	2.97	.148	3.76	.182	4.62	.896	22.76
.033	0.84	.096	2.44	.118	3.00	.151	3.84	.219	5.56		
.035	0.89	.097	2.46	.123	3.12	.156	3.96	.222	5.64		

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Dimensions shown apply after plating.
4. Point at which a square ended pin of the same basic diameter as the mating contact first engages the outer contact spring. Provision for clearance hole shall be provided.
5. Crimp deformation: The maximum diameter over the crimped protion of the shield crimp sleeve shall not exceed G diameter.

FIGURE 1. SOCKET CONTACTS - CONTINUED.

REQUIREMENTS:

Contacts shall comply with the reliability assurance provisions of MIL-STD-790 as specified in MIL-C-38999.

Dimensions, design characteristics, and configuration: See figure 1 and table I.

Mating contacts: MIL-C-39029/28.

Tools: See table II.

TABLE I. DESIGN CHARACTERISTICS.

BIN code	Color bands			Cable accommodated	Contact cavity size	Type	Class
	1st	2nd	3rd				
416	Yellow	Brown	Blue	M17/119-RG174 M17/113-RG316 M17/094-RG179 1/ 2/ Times AA3248 Teledyne 11299 Thermax 75-738-BCCWXE Tensolite 30888/L707YX-1 Haveg 8100207	12	D	B
417	Yellow	Brown	Violet	M17/095-RG180 1/ Raychem 9527D1514-2L Raychem 9528A1318 Microdot 293-3922	"	"	"
418	Yellow	Brown	Gray	1/ Microdot 250-4070	"	"	"
419	Yellow	Brown	White	1/ Raychem 48-502 & 5022E5111	"	"	"
420	Yellow	Red	Black	1/ Raychem 48-950 & 9530D5117	"	"	"
421	Yellow	Red	Brown	1/ Raychem 7624D1311 Raychem 9527A1318	"	"	"
422	Yellow	Red	Red	1/ Gore GWN1159A M17/152-00001	"	"	"
423	Yellow	Red	Orange	1S50MU-16, -20, -40, -70 (MIL-C-24643/28)	"	"	"

1/ Or equivalent.

2/ High tensile strength copper alloy wire.

TABLE II. TOOLS.

BIN code	Inner contact		Outer contact		Installing tool	Removal tool 1/
	Basic crimping tool	Positioner	Basic crimping tool	Positioner		
416,417, 418,419, 420,421, 422,423	M22520/2-01	M22520/2-34	M22520/31-01	M22520/31-02	M81969/8-09 or M81969/14-04 DAK264-12 ,1/	M81969/8-10 or M81969/14-04 DRK264-12,1/

1/ Daniels tool number or equivalent for MIL-STD-1760 program applications.

Mating cable: Mating cable shall be as specified in table III.

TABLE III. MATING CABLE TO CONTACT.

BIN code	Cable accommodated	Inner contact tool selector setting no.
416	M17/119-RG174	4
	M17/113-RG316	5
	M17/094-RG179	3
	Times AA3248	4
	Teledyne 11299	4
	1/ 2/ Thermax 75-738-8CCWXE	4
	Tensolite 30888/L707YX-1	4
	Haveg 8100207	4
417	M17/095-RG180	3
	Raychem 9527D1514-2L	5
	Raychem 9528A1318	4
	1/ Microdot 293-3922	3
418	1/ Microdot 250-4070	4
419	1/ Raychem 48-502 & 5022E5111	4
420	1/ Raychem 48-950 & 9530D5117	3
421	1/ Raychem 7624D1311	5
	Raychem 9527A1318	5
422	1/ Gore GWN1159A & M17/152-00001	4
423	1550MU-16, -20, -40, -70 (MIL-C-24643/28)	4

1/ Or equivalent.

2/ High tensile strength copper alloy wire.

Contact resistance: See table IV.

Test current:

Inner contact - 1 ampere.
Outer contact - 12 amperes.

Low signal level contact resistance (inner contact only): See table V.

Contact engagement and separation forces (socket contact only): The engagement depth shall be as encountered in normal service. The test pins shall be in accordance with MS3197 except the diameters shall be as specified in the following, and surface roughness shall not exceed 3 microinches. Provision for clearance hole shall be provided.

Test pin diameter (inch)	Minimum separation force (ounces)		Maximum engagement force (ounces)		Maximum average engagement force
	Initial	After conditioning	Initial	After conditioning	
.0950 +.0002 -.0000	NA	NA	30	36	NA
.0930 +.0000 -.0002	3.0	2.5	NA	NA	NA

Dielectric withstanding voltage (applied between inner and outer contact):

Test voltage:

At sea level - 1,000 V ac rms.
At 50,000 feet - 250 V ac rms.

Tensile strength (inner and outer contact crimp joint): See table V.

TABLE IV. CONTACT RESISTANCE.

BIN code	Cable accommodated	Maximum voltage drop (millivolts)						Maximum average voltage drop
		25°C +3°C -0°C		1/ 25°C +3°C -0°C		200°C +3°C -0°C		
		Inner contact	Outer contact	Inner contact	Outer contact	Inner contact	Outer contact	
416	M17/119-RG174	55	85	66	102	94 4/	145 4/	NA
	M17/113-RG316	55	75	66	90	94	128	"
	M17/094-RG179	120	70	144	84	204	119	"
	Times AA3248	170	150	204	180	290	255	"
	2/ 3/ Teledyne 11299	"	"	"	"	"	"	"
	Thermax 75-738-BCCWXE	"	"	"	"	"	"	"
	Tensolite 30888/L707YX-1	"	"	"	"	"	"	"
	Haveg 8100207	"	"	"	"	"	"	"

See footnotes at end of table.

TABLE IV. CONTACT RESISTANCE - CONTINUED.

BIN code	Cable accommodated	Maximum voltage drop (millivolts) 25°C +3°C -0°C Inner contact	25°C Outer contact	1/ 25°C +3°C -0°C Inner contact	1/ 25°C Outer contact	200°C +3°C -0°C Inner contact	200°C Outer contact	Maximum average voltage drop
417	M17/095-RG180	120	60	144	72	204	102	NA
	2/ Raychem 9527D1514-2L	"	"	"	"	204 5/	102 5/	"
	2/ Raychem 9528A1318	"	"	"	"	204 5/	102 5/	"
	2/ Microdot 293-3922	"	"	"	"	204	102	"
418	2/ Microdot 250-4070	"	"	"	"	204	102	"
419	2/ Raychem 48-502 & 5022E5111	55	"	66	"	94 5/	102 5/	"
420	2/ Raychem 48-950 & 9530D5117	120	"	144	"	204 5/	102 5/	"
421	2/ Raychem 7624D1311	55	"	66	"	94 5/	102 5/	"
	2/ Raychem 9527A1318	120	"	144	"	204 5/	102 5/	"
422	2/ Gore GWN1159A M17/152-00001	120	"	144	"	204	102	"
423	1S50MU-16, -20, -40, -70 (MIL-C-24643/28)	55	"	66	"	94 4/	102 4/	"

1/ After conditioning.

2/ Or equivalent.

3/ High tensile strength copper alloy wire.

4/ 85°C +3°C -0°C.

5/ 115°C +3°C -0°C.

TABLE V. LOW SIGNAL LEVEL CONTACT RESISTANCE (INNER CONTACT ONLY) AND TENSILE STRENGTH.

BIN code	Cable accommodated	Maximum contact resistance (milliohms)		Tensile load (pounds) (minimum)	
		Initial	After conditioning	Inner contact	Outer contact
416	M17/119-RG174	55	66	15.0	15.0
	M17/113-RG316	55	66	10.0	15.0
	M17/094-RG179	120	144	3.5	15.0
	1/ 2/ Times AA3248	170	204	7.0	35.0
	Teledyne 11299	"	"	"	"
	Thermax 75-738-BCCWXE	"	"	"	"
	Tensolite 30B88/L707YX-1	"	"	"	"
	Haveg 8100207	"	"	"	"
417	M17/095-RG180	120	144	3.5	20.0
	1/ Raychem 9527D1514-2L	"	"	6.0	"
	Raychem 9528A1318	"	"	6.0	"
	Microdot 293-3922	"	"	3.5	"
418	1/ Microdot 250-4070	"	"	4.0	"
419	1/ Raychem 48-502 & 5022E5111	55	66	10.0	"
420	1/ Raychem 48-950 & 9530D5117	120	144	3.5	"
421	1/ Raychem 7624D1311	55	66	6.0	"
	Raychem 9527A1318	120	144	6.0	"
422	1/ Gore GWN1159A M17/152-00001	120	144	4.0	"
423	1S50MU-16, -20, -40, -70 (MIL-C-24643/28)	55	66	15.0	"

1/ Or equivalent.

2/ High tensile strength copper alloy wire.

Random vibration: Connectors shall be subjected to the test specified in test condition V, method 2005 of MIL-STD-1344. The following details shall apply:

a. Use the vibration envelope shown on figure 2 herein.
b. Vibration to be conducted at standard test conditions.
c. Duration shall be 8 hours in the longitudinal direction and 8 hours in a perpendicular direction for a total of 16 hours.