FEDERAL SUPPLY CLASS
5935

NOTICE

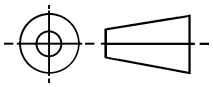
THIS DOCUMENT HAS BEEN TAKEN DIRECTLY FROM U.S. MILITARY SPECIFICATION MIL-C-39029/78B, NOTICE 1 AND CONTAINS ONLY MINOR EDITORIAL AND FORMAT CHANGES REQUIRED TO BRING IT INTO CONFORMANCE WITH THE PUBLISHING REQUIREMENTS OF SAE TECHNICAL STANDARDS. THE INITIAL RELEASE OF THIS DOCUMENT IS INTENDED TO REPLACE MIL-C-39029/78B, NOTICE 1. ANY PART NUMBERS ESTABLISHED BY THE ORIGINAL SPECIFICATION REMAIN UNCHANGED.

THE ORIGINAL MILITARY SPECIFICATION WAS ADOPTED AS AN SAE STANDARD UNDER THE PROVISIONS OF THE SAE TECHNICAL STANDARDS BOARD (TSB) RULES AND REGULATIONS (TSB 001) PERTAINING TO ACCELERATED ADOPTION OF GOVERNMENT SPECIFICATIONS AND STANDARDS. TSB RULES PROVIDE FOR (A) THE PUBLICATION OF PORTIONS OF UNREVISED GOVERNMENT SPECIFICATIONS AND STANDARDS WITHOUT CONSENSUS VOTING AT THE SAE COMMITTEE LEVEL, AND (B) THE USE OF THE EXISTING GOVERNMENT SPECIFICATION OR STANDARD FORMAT.

UNDER DEPARTMENT OF DEFENSE POLICIES AND PROCEDURES, ANY QUALIFICATION REQUIREMENTS AND ASSOCIATED QUALIFIED PRODUCTS LISTS ARE MANDATORY FOR DOD CONTRACTS. ANY REQUIREMENT RELATING TO QUALIFIED PRODUCTS LISTS (QPL'S) HAS NOT BEEN ADOPTED BY SAE AND IS NOT PART OF THIS SAE TECHNICAL DOCUMENT.

SAENORM.COM : Click to view the full PDF of as39029_78

THIRD ANGLE PROJECTION



ISSUED 2000-09

PREPARED BY SAE SUBCOMMITTEE AE-8C1

SAE The Engineering Society For Advancing Mobility Land Sea Air and Space® INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE STANDARD

CONTACTS, ELECTRICAL CONNECTOR, SOCKET, CRIMP REMOVABLE, SHIELDED, SIZE 16 (FOR MIL-C-38999 SERIES II AND MIL-C-24308 CONNECTORS)

AS39029/78
SHEET 1 OF 9

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be reaffirmed, revised, or cancelled. SAE invites your written comments and suggestions.

Copyright 2000 Society of Automotive Engineers, Inc.
All rights reserved.

Printed in the U.S.A.
TO PLACE A DOCUMENT ORDER: (724) 776-4970 FAX: (724) 776-0790 SAE WEB ADDRESS: http://www.sae.org

THE COMPLETE REQUIREMENTS FOR ACQUIRING THE CONTACTS DESCRIBED HEREIN SHALL CONSIST OF THIS SPECIFICATION AND THE LATEST ISSUE OF MIL-C-39029.

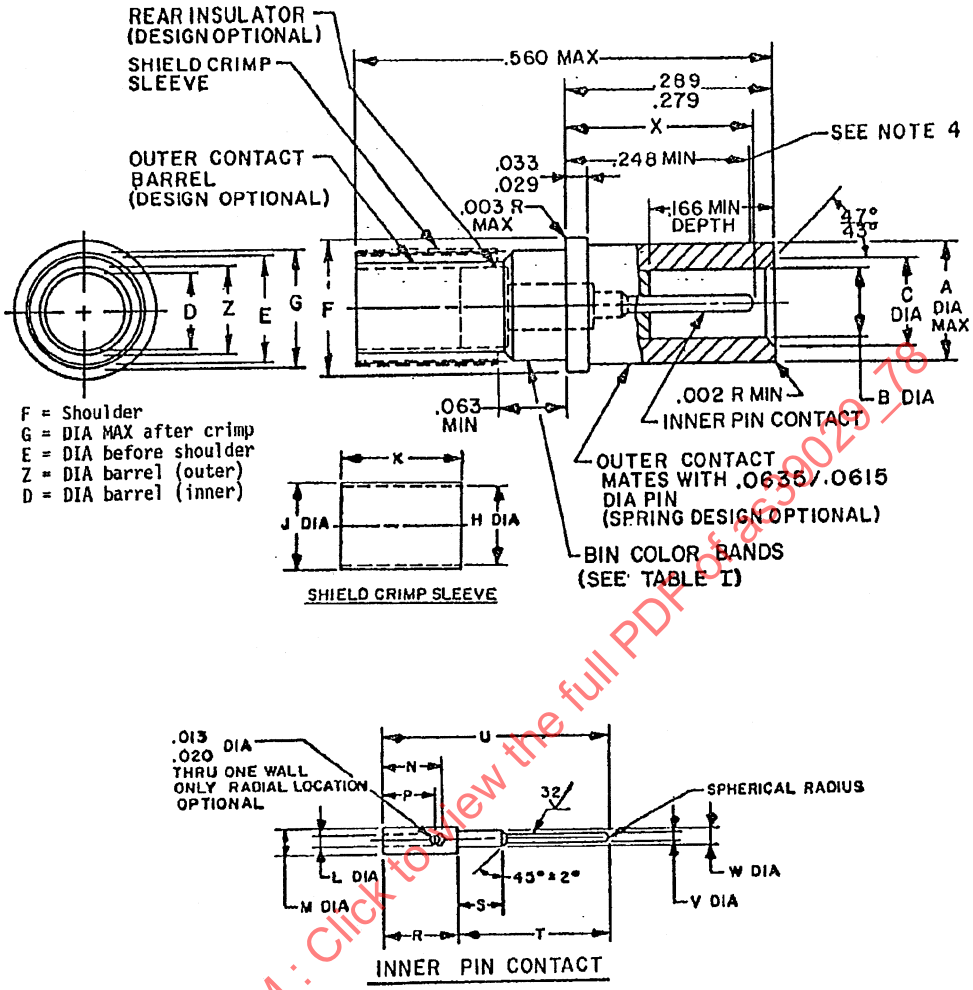


FIGURE 1. SOCKET CONTACTS.

SAENORM.COM : Click to view the full PDF of as39029_78

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.
432	.113	.068 .065	.089 .084	.0670	.103 .101	.130 .127	.108	.105	.120	.105 .095	.0210	.046
433	"	"	"	.0575	"	"	"	.094	"	"	.0210	.046
434	"	"	"	.0670	"	"	"	.105	"	"	.0355	.052
435	"	"	"	.0575	"	"	"	.094	"	"	.0270	.046

BIN code	N Min.	P	R	S	T	U REF.	V Dia.	W Dia.	X	Z Dia. Max.
432	.103	.094 .087	.125 .119	.079 .073	.269 .266	.3895	.0155 .0145	.030 .028	.274 .264	.085
433	"	"	"	"	"	"	"	"	"	.076
434	"	"	"	"	"	"	"	"	"	.085
435	"	"	"	"	"	"	"	"	"	.076

INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
.002	0.05	.030	0.76	.0670	1.700	.095	2.41	.130	3.30
.003	0.08	.033	0.84	.068	1.73	.101	2.57	.166	4.22
.013	0.33	.0355	0.902	.073	1.85	.103	2.62	.248	6.30
.0145	0.368	.046	1.17	.076	1.93	.105	2.67	.264	6.71
.0155	0.394	.052	1.32	.079	2.01	.108	2.74	.266	6.76
.020	0.51	.0575	1.460	.084	2.13	.113	2.87	.269	6.83
.0210	0.530	.0615	1.562	.085	2.16	.119	3.02	.274	6.96
.0270	0.690	.063	1.60	.087	2.21	.120	3.05	.279	7.09
.028	0.71	.0635	1.61	.089	2.26	.125	3.18	.289	7.34
.029	0.74	.065	1.65	.094	2.39	.127	3.23	.3895	9.893
								.560	14.22

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 portion of the shield crimp sleeve shall not exceed G diameter.

FIGURE 1. SOCKET CONTACTS - CONTINUED.

SAENORM.COM : Click to view the full PDF of as39029_78

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-39029/76.

Tools: See table II.

TABLE I. DESIGN CHARACTERISTICS.

BIN code	Color bands 1st	Color bands 2nd	Color bands 3rd	Cable accommodated	Contact cavity size	Type	Class
432	Yellow	Orange	Red	3/ M17/119-RG174	16	D	B
				M17/113-RG316	"	"	"
				M17/094-RG179	"	"	"
				1/2/ Times AA3248	"	"	"
				Teledyne 11299	"	"	"
				Thermax 75-738-BCCWXE	"	"	"
				Tensolite 30888/L707YX-1	"	"	"
				Haveg 8100207	"	"	"
433	Yellow	Orange	Orange	M17/093-RG178	"	"	"
434	Yellow	Orange	Yellow	1/ Haveg 61-02051	"	"	"
				Revere WH95623 (red shielded)	"	"	"
435	Yellow	Orange	Green	1/ Haveg 30-00761	"	"	"
				Haveg 30-02024	"	"	"
				Haveg 30-02033	"	"	"
				Tensolite 24713/A955KK1	"	"	"
				Tensolite 26723/A955KK1	"	"	"

1/ Or equivalent.

2/ High tensile strength copper alloy wire.

3/ M17/119-RG174 PVC not for Air Force use.

TABLE II. TOOLS.

BIN code	Inner contact: Basic crimping tool	Inner contact: Positioner	Outer contact: Basic crimping tool	Outer contact: Positioner	Installing tool	Removal tool
432, 433, 434, 435	M22520/2-01	M22520/2-35	M22520/4-01	M22520/4-02	M81969/8-07 or M81969/14-03	M81969/8-08 or M81969/14-03

Cable to contact information: See table III.

SAENORM.COM : Click to view the full PDF of as39029_78

TABLE III. CABLE TO CONTACT INFORMATION.

BIN code	Cable accommodated	Inner contact tool selector setting no.
432	3/ M17/119-RG174	3
	M17/113-RG316	5
	M17/094-RG179	3
	1/ 2/ Times AA3248	"
	Teledyne 11299	"
	Thermax 75-738-BCCWXE	"
	Tensolite 30888/L707YX-1	"
	Haveg 8100207	"
433	M17/093-RG178	3
434	1/ Haveg 61-02051	4
	Revere WH95623 (red shielded)	4
435	1/ Haveg 30-02024	4
	Haveg 30-02033	3
	Tensolite 24713/A955KK1	3
	Tensolite 26723/A955KK1	3

1/ Or equivalent.

2/ High tensile strength copper alloy wire.

3/ M17/119-RG174 PVC not for Air Force use.

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	
.0635 +.0002 -.0000	NA	NA	30.0	36.0	NA
.0615 +.0000 -.0002	2.0	1.5	NA	NA	NA

Dielectric withstanding voltage (applied between inner and outer contact):
Test voltage:
At sea level - 800 V ac rms.
At 50,000 feet - 250 V ac rms.

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

SAENORM.COM : Click to view the full PDF of as39029_78

TABLE IV. CONTACT RESISTANCE.

BIN code	Cable accommodated	Maximum voltage drop (millivolts) 25° +3° -0°C Inner contact	25° +3° -0°C Outer contact	2/ 25° +3° -0°C Inner contact	2/ 25° +3° -0°C Outer contact	200° +3° -0°C Inner contact	200° +3° -0°C Outer contact	Maximum average voltage drop
432	5/ 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	"
	1/ 3/ Times AA3248	170	150	204	180	290	255	"
	Teledyne 11299	"	"	"	"	"	"	"
	Thermax 75-738-BCCWXE	"	"	"	"	"	"	"
	Tensolite 30888/L707YX-1	"	"	"	"	"	"	"
	Haveg 8100207	"	"	"	"	"	"	"
433	M17/093-RG178	120	110	144	132	204	187	"
434	1/ Haveg 61-02051	65	100	78	120	111	170	"
	Revere WH95623 (red shielded)	65	100	78	120	111	170	"
435	1/ Haveg 30-02024	120	110	144	132	204	187	"
	Haveg 30-02033	"	"	"	"	"	"	"
	Tensolite 24713/A955KK1	55	100	66	120	94	170	"
	Tensolite 26723/A955KK1	65	100	78	120	111	170	"

1/ Or equivalent.

2/ After conditioning.

3/ High tensile strength copper alloy wire.

4/ 85° +3°, -0°C is maximum operating temperature of cable.

5/ M17/119-RG174 PVC not for air Force use.

SAENORM.COM : Click to view the full PDF of as39029/78

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
432	3/ M17/119-RG174	55	66	15.0	15.0
	M17/113-RG316	55	66	10.0	"
	M17/094-RG179	120	144	3.5	"
	1/ 2/ Times AA3248	170	204	7.0	35.0
	Teledyne 11299	"	"	"	"
	Thermax 75-738-BCCWXE	"	"	"	"
	Tensolite 30888/L707YX-1	"	"	"	"
	Haveg 8100207	"	"	"	"
433	M17/093-RG178	120	144	3.5	10.0
434	1/ Haveg 61-02051	65	78	15.0	15.0
	Revere WH95623 (red shielded)	65	78	15.0	15.0
435	1/ Haveg 30-02024	120	144	4.0	10.0
	Haveg 30-02033	"	"	"	"
	Tensolite 24713/A955KK1	55	66	"	"
	Tensolite 26723/A955KK1	65	78	"	"

1/ Or equivalent.

2/ High tensile strength copper alloy wire.

3/ M17/119-RG174 PVC not for Air Force use.

Vibration (random): Connectors shall be subjected to the test specified in method 2005 of MIL-STD-1344. The following details shall apply:

a. Test condition V. Using the vibration envelope shown on figure 2. (Derived from zone 2 outlined in Aerospace Information Report AIR 1557.)
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.

Shock (high-impact): Wired and mated connectors shall be subjected to the test specified in MIL-S-901, grade A with the following modifications and additions:

a. Connectors shall be coupled together by normal coupling means. All contacts shall be wired in a series circuit with 100 milliamperes maximum current flow through the series circuit during high-impact shock. Connectors shall be monitored for any discontinuities. A detector capable of detecting all discontinuities in excess of 1 microsecond shall be used.
b. Mounting fixture shall be in accordance with MIL-S-901, light weight.
c. The cable or wire bundle shall be supported on a stationary frame in such a manner to provide a free flexing cable length between frame and fixture of not less than 36 inches (914.4 mm).
d. Test condition A. The plug shall be terminated with at least 80 percent of wired contacts. The wire bundle shall be provided with straight, open frame, strain relief accessory hardware.

SAENORM.COM : Click to view the full PDF of as39029_78