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RATIONALE

LIMIT SCOPE REVISION REQUIRED TO ADDRESS CABLES IN TABLES 2, 5, AND 6.

NOTICE

THE COMPLETE REQUIREMENTS FOR PROCURING THE PRODUCT DESCRIBED HEREIN SHALL CONSIST OF THIS DOCUMENT AND THE LATEST ISSUE OF AS39029.

THIS DETAIL SPECIFICATION SPECIFIES LOWER PERFORMANCE REQUIREMENTS THAN THE APPLICABLE MIL-DTL-38999 SERIES II CONNECTORS (SEE APPLICATION NOTES).

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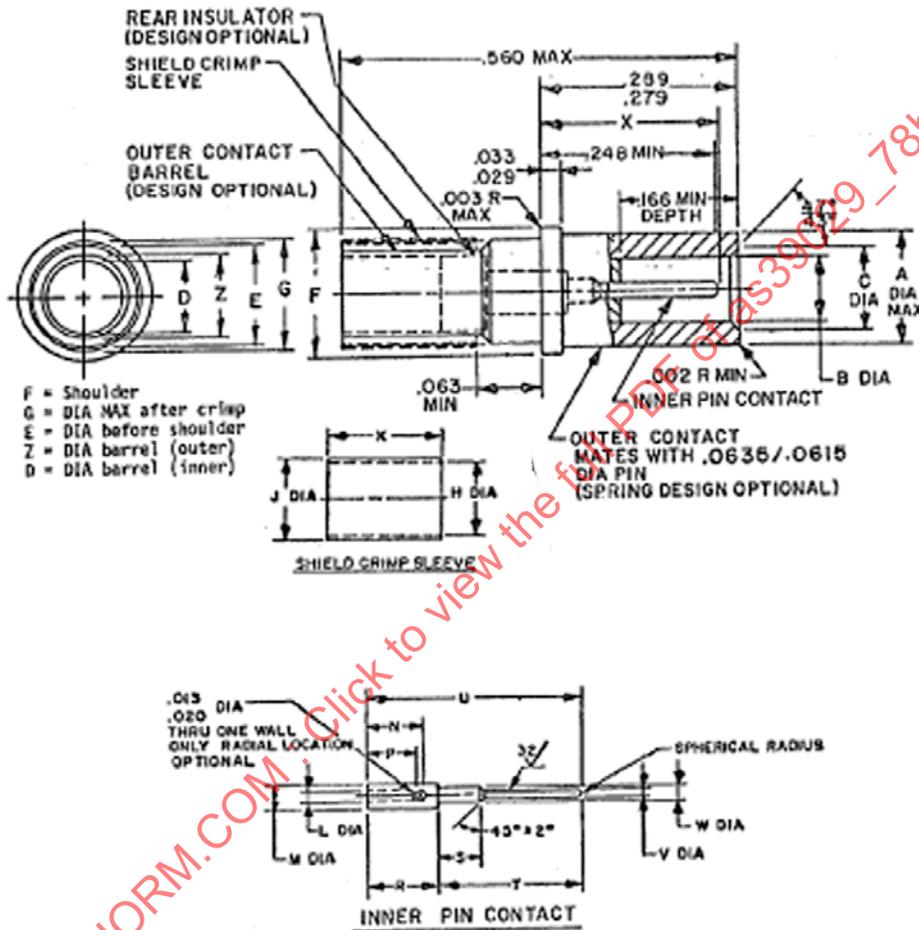
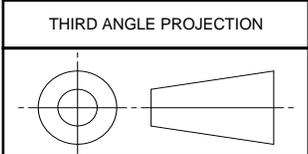


FIGURE 1 - SOCKET CONTACTS

(SEE DESIGN PARAGRAPH FOR ADDITIONAL DIMENSIONAL DETAILS)

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CUSTODIAN: AE-8/AE-8C1

PROCUREMENT SPECIFICATION: AS39029



**AEROSPACE STANDARD**

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

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TABLE 1 - CONTACT DIMENSIONS

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	
432	.113 (2.87)	.068 (1.73)	.089 (2.26)	.0670 (1.70)	.103 (2.62)	.130 (3.30)	.108 (2.74)	.105 (2.67)	.120 (3.05)	.105 (2.67)	.0210 (.53)	
433				.0575 (1.46)				.127 (3.23)			.094 (2.39)	.0210 (.53)
434				.0670 (1.70)				.101 (2.57)			.105 (2.67)	.0355 (.90)
435				.0575 (1.46)				.094 (2.39)			.0270 (.69)	

TABLE 1 - CONTACT DIMENSIONS (CONTINUED)

BIN CODE	M DIA MAX	N MIN	P	R	S	T	U REF	V DIA	W DIA	X	Z DIA MAX							
432	.046 (1.17)	.103 (2.62)	.094 (2.39)	.125 (3.18)	.079 (2.01)	.269 (6.83)	.3895 (9.89)	.0155 (.39)	.030 (.76)	.274 (6.96)	.085 (2.16)							
433	.046 (1.17)										.087 (2.21)	.119 (3.02)	.073 (1.85)	.266 (6.76)	.0145 (.37)	.028 (.71)	.264 (6.71)	.076 (1.93)
434	.052 (1.32)										.087 (2.21)	.119 (3.02)	.073 (1.85)	.266 (6.76)	.0145 (.37)	.028 (.71)	.264 (6.71)	.085 (2.16)
435	.046 (1.17)										.087 (2.21)	.119 (3.02)	.073 (1.85)	.266 (6.76)	.0145 (.37)	.028 (.71)	.264 (6.71)	.076 (1.93)

TABLE 2 - MARKING AND DESIGN CHARACTERISTICS

BIN CODE	COLOR BANDS			CABLE ACCOMMODATED	CONTACT CAVITY SIZE	TYPE	CLASS
	1 <sup>ST</sup>	2 <sup>ND</sup>	3 <sup>RD</sup>				
432	YELLOW	ORANGE	RED	M17/119-RG174 <u>3/</u> M17/113-RG316 M17/094-RG179	16	D	B
433	YELLOW	ORANGE	ORANGE	M17/093-RG178			
434 <u>1/</u>	YELLOW	ORANGE	YELLOW	<u>2/</u>			
435 <u>1/</u>	YELLOW	ORANGE	GREEN	<u>2/</u>			

- 1/ CONTACT NOT RECOMMENDED FOR USE.
- 2/ NO KNOWN STANDARD CABLE EXIST TO REPLACE THE PREVIOUSLY RECOMMENDED COMMERCIAL CABLES OR THE CABLES ARE NO LONGER MANUFACTURED. STANDARD TOOLS MAY NOT APPLY. FOLLOW CONTACT SUPPLIER'S INSTRUCTIONS.
- 3/ CABLE IS NOT RECOMMENDED FOR NEW DESIGN.

TABLE 3 - TOOLS

BIN CODE	INNER CONTACT		OUTER CONTACT		INSTALLING TOOL	REMOVAL TOOL
	BASIC CRIMPING TOOL	POSITIONER	BASIC CRIMPING TOOL	POSITIONER		
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

TABLE 3A - INNER CONTACT TOOL SELECTOR SETTING

BIN CODE	KNOWN CABLE ACCOMMODATED	INNER CONTACT TOOL SELECTOR SETTING NO.
432	M17/119-RG174 <u>3/</u> M17/113-RG316 M17/094-RG179	3 5 3
433	M17/093-RG178	3
434 <u>1/</u>	<u>2/</u>	<u>2/</u>
435 <u>1/</u>	<u>2/</u>	<u>2/</u>

1/ CONTACT NOT RECOMMENDED FOR USE.

2/ NO KNOWN STANDARD CABLE EXIST TO REPLACE THE PREVIOUSLY RECOMMENDED COMMERCIAL CABLES OR THE CABLES ARE NO LONGER MANUFACTURED. STANDARD TOOLS MAY NOT APPLY. FOLLOW CONTACT SUPPLIER'S INSTRUCTIONS.

3/ CABLE IS NOT RECOMMENDED FOR NEW DESIGN.

TABLE 4 - CONTACT ENGAGEMENT AND SEPARATION FORCES

TEST PIN DIAMETER (INCH)	MINIMUM SEPARATION FORCE (OUNCES)		MAXIMUM ENGAGEMENT FORCE (OUNCES)		MAXIMUM AVERAGE ENGAGEMENT FORCE (OUNCES)	
	INITIAL	AFTER CONDITIONING	INITIAL	AFTER CONDITIONING	INITIAL	AFTER CONDITIONING
.0635 (1.61) +.0002 (0.01) -.0000 (0.00)	N/A	N/A	30	36	N/A	N/A
.0615 (1.56) +.0000 (0.00) -.0002 (0.01)	2.0	1.5	N/A	N/A	N/A	N/A

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TABLE 5 - CONTACT RESISTANCE

BIN CODE	CABLE ACCOMMODATED	MAXIMUM VOLTAGE DROP (MILLIVOLTS)					
		25° +3°, -0 °C		25° +3°, -0 °C 2/		200° +3°, -0 °C	
		INNER	OUTER	INNER	OUTER	INNER	OUTER
432	M17/119-RG174 3/ M17/113-RG316 M17/094-RG179	55	85	66	102	94 1/	145 3/
		55	75	66	90	94	128
		120	70	144	84	204	119
433	M17/093-RG178	120	110	144	132	204	187
434 1/	2/						
435 1/	2/						

- 1/ CONTACT NOT RECOMMENDED FOR USE.  
 2/ NO KNOWN STANDARD CABLE EXIST TO REPLACE THE PREVIOUSLY RECOMMENDED COMMERCIAL CABLES OR THE CABLES ARE NO LONGER MANUFACTURED. STANDARD TOOLS MAY NOT APPLY. FOLLOW CONTACT SUPPLIER'S INSTRUCTIONS.  
 3/ THE MAXIMUM OPERATING TEMPERATURE OF THE RG174 PVC CABLE IS 85° +3, -0 °C. CABLE IS NOT RECOMMENDED FOR NEW DESIGN.

TABLE 6 - 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	M17/119-RG174 3/ M17/113-RG316 M17/094-RG179	55	66
55	66			10.0	15.0
120	144			3.5	15.0
433	M17/093-RG178	120	144	3.5	10.0
434 1/	2/				
435 1/	2/				

- 1/ CONTACT NOT RECOMMENDED FOR USE.  
 2/ NO KNOWN STANDARD CABLE EXIST TO REPLACE THE PREVIOUSLY RECOMMENDED COMMERCIAL CABLES OR THE CABLES ARE NO LONGER MANUFACTURED. STANDARD TOOLS MAY NOT APPLY. FOLLOW CONTACT SUPPLIER'S INSTRUCTIONS.  
 3/ CABLE IS NOT RECOMMENDED FOR NEW DESIGN.

TABLE 7 - PART NUMBER AND BIN CODE

PART NUMBER	BIN CODE	SUPERSEDED PART NUMBER
M39029/78-432	432	M39029/78-16A
M39029/78-433	433	M39029/78-16B
M39029/78-434	434	M39029/78-16C
M39029/78-435	435	M39029/78-16D

REQUIREMENTS: ALL REQUIREMENTS SHALL CONSIST OF THIS SPECIFICATION AND THE LATEST ISSUE OF AS39029.

1. DESIGN:

- a. CONTACTS SHALL BE DESIGNED IN ACCORDANCE WITH FIGURE 1, TABLES 1 AND 2.
- b. DIMENSIONS ARE IN INCHES, METRIC EQUIVALENTS ARE GIVEN FOR GENERAL INFORMATION ONLY. DIMENSIONS SHOWN APPLY AFTER PLATING.
- c. THE .248 MIN DIMENSION IS THE POINT AT WHICH A SQUARE ENDED PIN OF THE SAME BASIC DIAMETER AS THE MATING CONTACT FIRST ENGAGES THE OUTER CONTACT SPRING.
- d. PROVISION FOR CLEARANCE HOLE SHALL BE PROVIDED.
- e. THE MAXIMUM DIAMETER OVER THE CRIMPED PORTION OF THE SHIELD CRIMP SLEEVE(CRIMP DEFORMATION) SHALL NOT EXCEED G DIAMETER.
- f. CONTACTS ARE DESIGN FOR 50 OHM IMPEDANCE MATCHING CABLES (SEE APPLICATION NOTE). FOR COMMERCIAL CABLE ELECTRICAL AND MECHANICAL PROPERTIES OF THE CONTACT IS A FUNCTION OF THE CABLE SPECIFIED BY THE DESIGNER (SEE QUALIFICATION REQUIREMENTS).

2. TOOLS:

TOOLS REQUIRED FOR CRIMPING CONTACTS TO THE WIRE/CABLE AND THE INSTALLING/REMOVAL FROM THE CONNECTOR SHALL BE IN ACCORDANCE WITH TABLE 3.

3. PART NUMBERS:

CONTACT PART NUMBERS SHALL BE IN ACCORDANCE WITH TABLE 7. SUPERSEDED PART NUMBERS ARE AS SPECIFIED.

4. MATERIALS:

MATERIALS SHALL BE IN ACCORDANCE WITH AS39029.

5. MECHANICAL:

- a. MECHANICAL PROPERTIES SHALL BE IN ACCORDANCE WITH AS39029.
- b. CONTACT ENGAGEMENT AND SEPARATION FORCES APPLY TO THE INNER SOCKET CONTACT ONLY. THE ENGAGEMENT DEPTH IS DETERMINED BY MIL-DTL-38999. THE TEST PINS SHALL BE IN ACCORDANCE WITH AS31971 EXCEPT THE DIAMETERS SHALL BE AS SPECIFIED IN TABLE 4, AND SURFACE ROUGHNESS SHALL NOT EXCEED 3 MICROINCHES. PROVISION FOR CLEARANCE HOLE SHALL BE PROVIDED.
- c. TENSILE STRENGTH (INNER AND OUTER CONTACT CRIMP JOINTS) FOR STANDARD CABLES SHALL BE IN ACCORDANCE WITH TABLE 6. TENSILE STRENGTH FOR COMMERCIAL CABLES IS A FUNCTION OF THE APPLICABLE CABLE (SEE QUALIFICATION REQUIREMENT).

6. ELECTRICAL:

- a. ELECTRICAL PROPERTIES SHALL BE IN ACCORDANCE WITH AS39029.
- b. LOW SIGNAL LEVEL CONTACT RESISTANCE APPLIES TO THE INNER CONTACT ONLY
- c. CONTACT RESISTANCE TEST CURRENT FOR THE INNER CONTACT SHALL BE 1 AMPERE AND OUTER CONTACT SHALL BE 12 AMPERES.
- d. THE DIELECTRIC WITHSTANDING TEST VOLTAGE (APPLIED BETWEEN INNER AND OUTER CONTACTS) AT SEA LEVEL SHALL BE 800 VAC RMS AND AT 50 000 FEET 250 VAC RMS.

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	<b>AEROSPACE STANDARD</b>	<b>AS39029/78</b> SHEET 5 OF 7	<b>REV.</b> <b>B</b>
	CONTACTS, ELECTRICAL CONNECTOR, SOCKET, CRIMP REMOVABLE, SHIELDED, SIZE 16 (FOR MIL-DTL-38999 SERIES II CONNECTORS)		