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**REV. A**

**AS39029™/121**

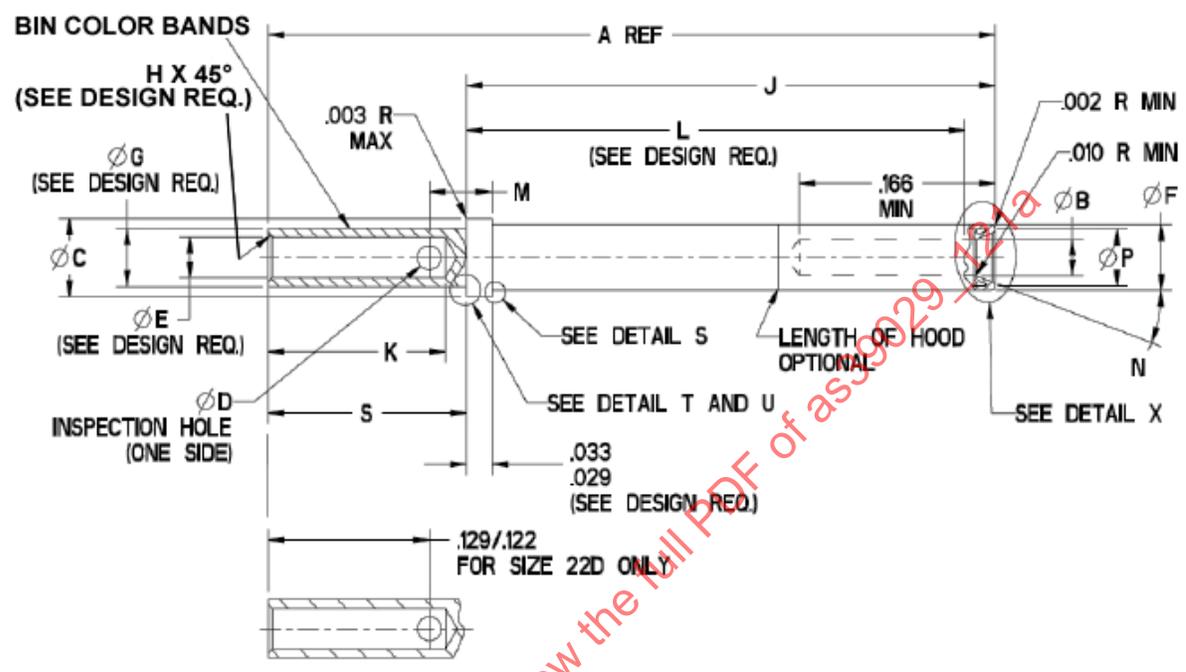
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**RATIONALE**

LIMITED SCOPE REVISION REQUIRED TO UPDATE THE TOOL TABLE AND CORRECT MINOR TECHNICAL ERRORS AS NEEDED.

**NOTICE**

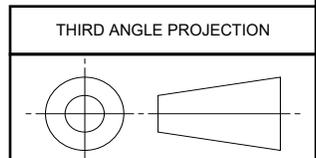
THE COMPLETE REQUIREMENTS FOR PROCURING THE PRODUCT DESCRIBED HEREIN SHALL CONSIST OF THIS DOCUMENT AND THE LATEST ISSUE OF AS39029.



**FIGURE 1 - CONNECTOR CONTACT (EXCEPT SIZE 23)**

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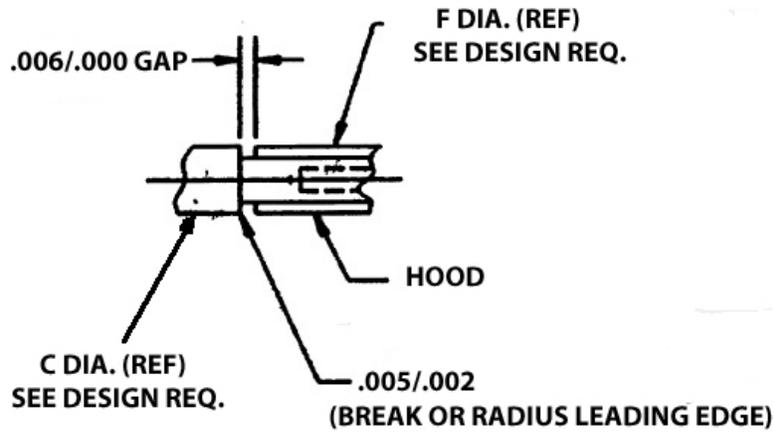
**For more information on this standard, visit**  
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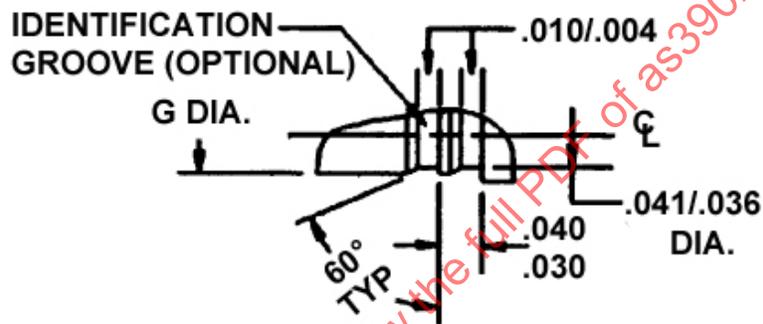
CUSTODIAN: AE-8C1 PROCUREMENT SPECIFICATION: AS39029

	<p><b>AEROSPACE STANDARD</b></p> <p>CONTACTS, ELECTRICAL CONNECTOR, SOCKET, CRIMP REMOVABLE, EXPANDED PERFORMANCE, SIZES 10, 12, 16, 20, 22, AND 23 (FOR MIL-DTL-38999 SERIES III CONNECTORS)</p>	<p><b>AS39029™/121</b></p> <p>SHEET 1 OF 9</p>	<p><b>REV. A</b></p>
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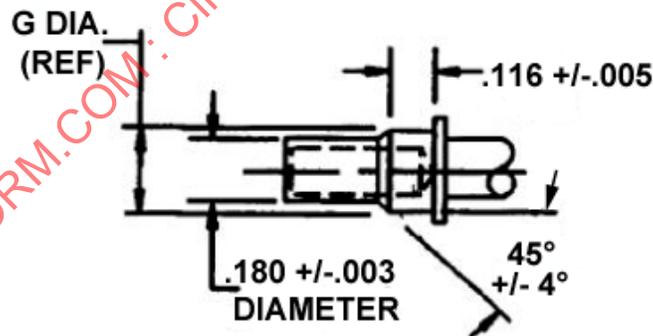
ISSUED 2015-01 REAFFIRMED 2020-03 REVISED 2024-10



**DETAIL S (ALL SIZES EXCEPT 23)**



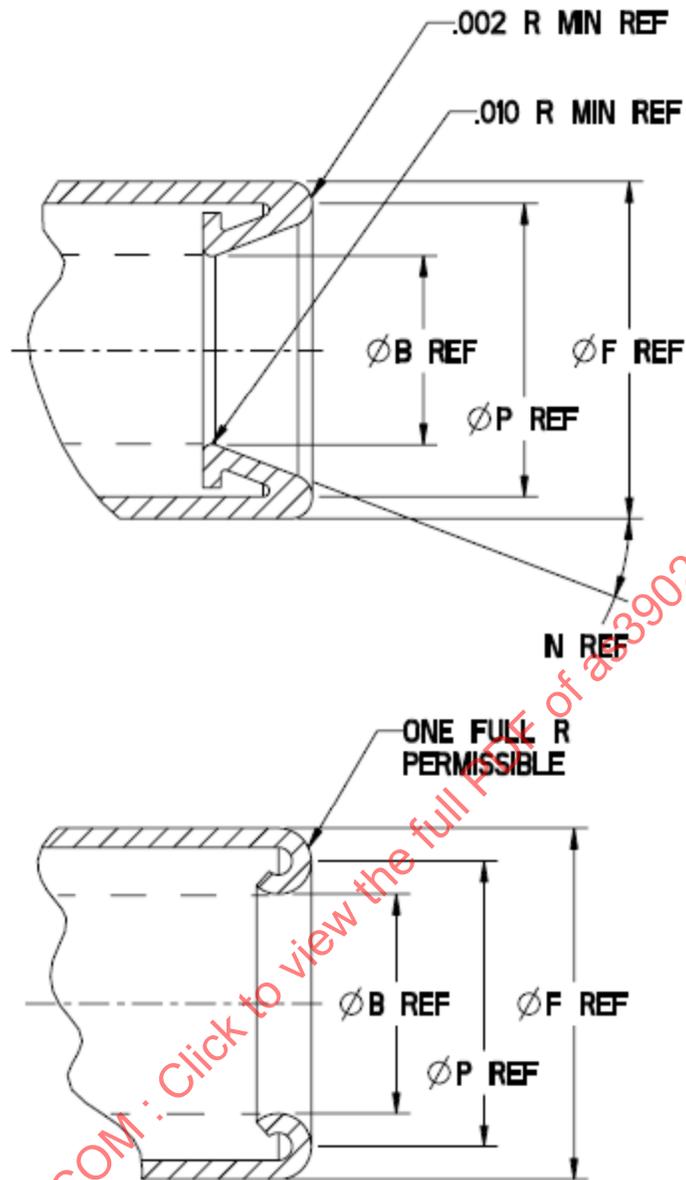
**DETAIL T (SIZE 22D ONLY)**



**DETAIL U (SIZE 10 ONLY)**

FIGURE 1 - CONNECTOR CONTACT (EXCEPT SIZE 23) (CONT.)

	<b>AEROSPACE STANDARD</b>	<b>AS39029/121</b> SHEET 2 OF 9	<b>REV.</b> <b>A</b>
	<small>CONTACTS, ELECTRICAL CONNECTOR, SOCKET, CRIMP REMOVABLE, EXPANDED PERFORMANCE, SIZES 10, 12, 16, 20, 22, AND 23 (FOR MIL-DTL-38999 SERIES III CONNECTORS)</small>		



**DETAIL X**

**FIGURE 1 - CONNECTOR CONTACT (EXCEPT SIZE 23) (CONT.)**

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	<b>AEROSPACE STANDARD</b>	<b>AS39029/121</b> SHEET 3 OF 9	<b>REV.</b> <b>A</b>
	<small>CONTACTS, ELECTRICAL CONNECTOR, SOCKET, CRIMP REMOVABLE, EXPANDED PERFORMANCE, SIZES 10, 12, 16, 20, 22, AND 23 (FOR MIL-DTL-38999 SERIES III CONNECTORS)</small>		

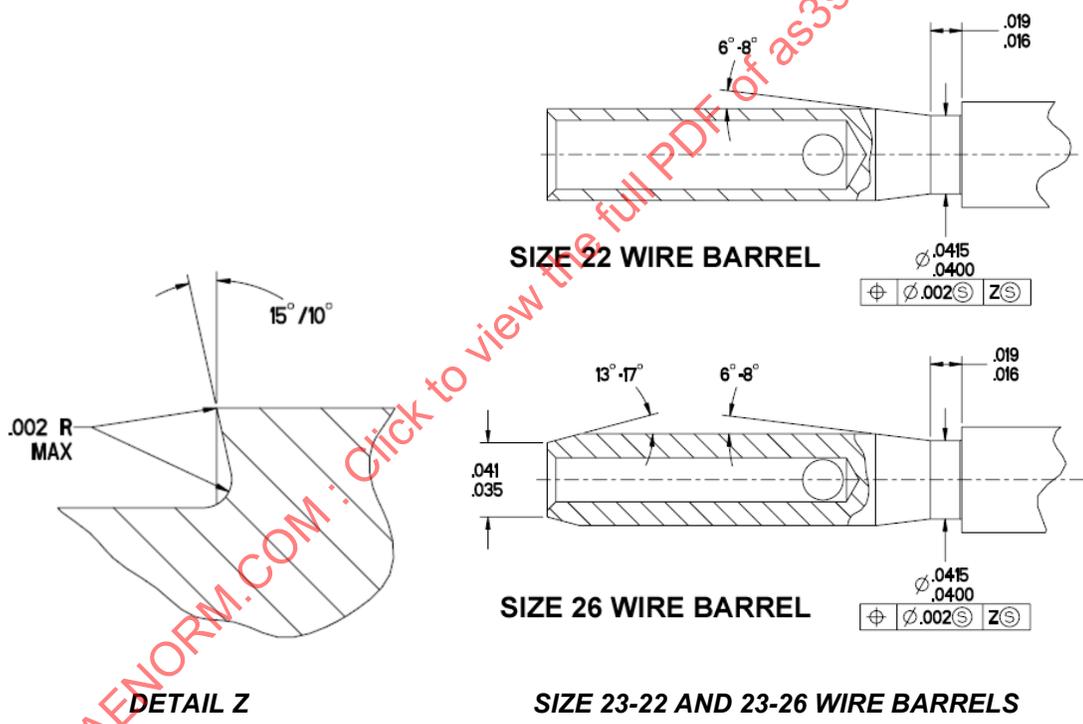
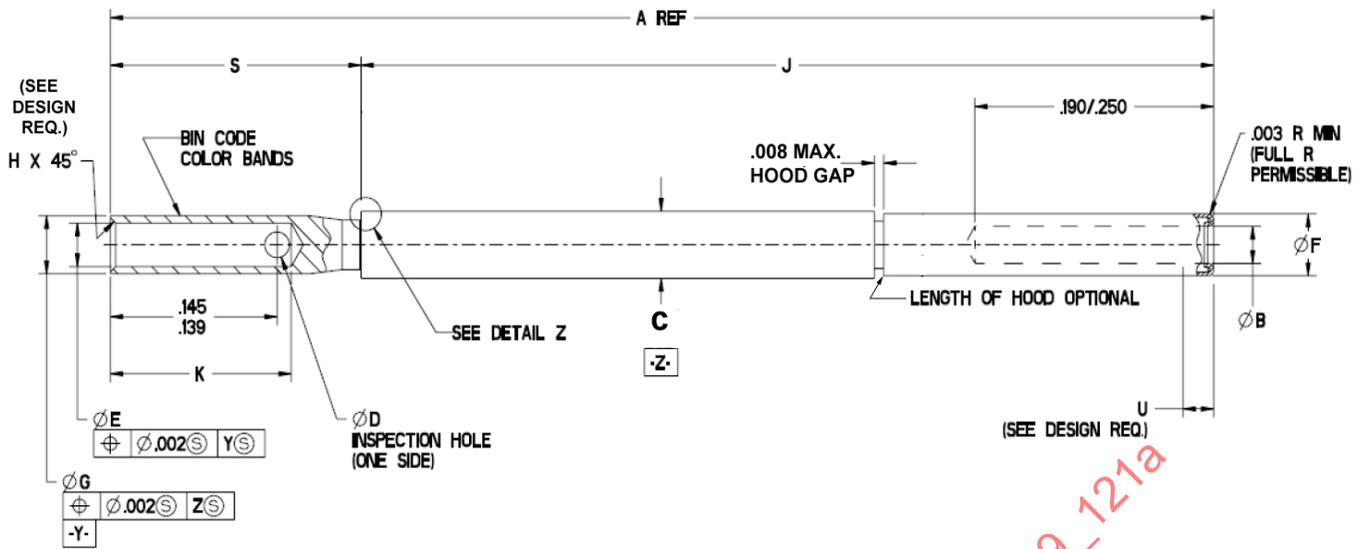


FIGURE 2 - CONNECTOR CONTACT (SIZE 23 ONLY)

	<b>AEROSPACE STANDARD</b> CONTACTS, ELECTRICAL CONNECTOR, SOCKET, CRIMP REMOVABLE, EXPANDED PERFORMANCE, SIZES 10, 12, 16, 20, 22, AND 23 (FOR MIL-DTL-38999 SERIES III CONNECTORS)	<b>AS39029/121</b> SHEET 4 OF 9	<b>REV.</b> <b>A</b>

**TABLE 1 - FIGURES 1 AND 2 DIMENSIONS**

BIN CODE	MATING END SIZE	WIRE BARREL SIZE	A REFERENCE	B Ø MINIMUM	C Ø	D Ø	E Ø	F Ø MAXIMUM	G Ø	H	
662	23	26	.934 (23.72)	.028 (0.711)	.0555 (1.41) .0540 (1.37)	.022 (0.56) .018 (0.46)	.0235 (0.60) .0215 (0.55)	.055 (1.40)	.0480 (1.22) .0465 (1.18)	.006 (0.15) .003 (0.08)	
663	23	22	.934 (23.72)	.028 (0.711)	.0555 (1.41) .0540 (1.37)		.0355 (0.90) .0335 (0.85)	.055 (1.40)	.0480 (1.22) .0465 (1.18)	.006 (0.15) .003 (0.08)	
664	22	22D	<b>.855 (21.72)</b>	.031 (0.79)	.062 (1.57) .060 (1.52)	.032 (0.81) .026 (0.66)	.0355 (0.90) .0335 (0.85)	.062 (1.57)	.048 (1.22) .046 (1.17)	.005 (0.13) .003 (0.08)	
665	<b>20</b>	<b>20</b>		.0415 (1.05)	.094 (2.39) .091 (2.31)		.048 (1.22) .046 (1.17)	.078 (1.98)	.070 (1.78) .068 (1.73)	.010 (0.25) .005 (0.13)	
666	16	16		.064 (1.63)	.130 (3.30) .127 (3.23)	.042 (1.07) .036 (0.914)	.068 (1.73) .066 (1.68)	.113 (2.87)	.103 (2.62) .101 (2.57)		
667	12	12		.0955 (2.43)	.182 (4.62) .179 (4.55)	.042 (1.07) .036 (0.914)	.102 (2.59) .098 (2.49)	.161 (4.09)	.151 (3.84) .148 (3.76)	.016 (0.41)	
668	10	10		1.021 (25.93)	.1265 (3.21)	.242 (6.15) .238 (6.05)	.052 (1.32) .046 (1.17)	.140 (3.56) .134 (3.40)	.215 (5.46)	.213 (5.41) .207 (5.26)	.005 (0.13)

**TABLE 1 - FIGURES 1 AND 2 DIMENSIONS (CONT.)**

BIN CODE	MATING END SIZE	WIRE BARREL SIZE	J	K MINIMUM	L MINIMUM	M	N°	P Ø MINIMUM	S	U MAXIMUM	
662	23	26	.726 (18.44) .716 (18.19)	.155 (3.94) .145 (3.68)	N/A	N/A	N/A	N/A	.218 (5.54) .208 (5.28)	.038 (0.965)	
663	23	22	.726 (18.44) .716 (18.19)	.155 (3.94) .145 (3.68)	N/A	N/A	N/A	N/A	.218 (5.54) .208 (5.28)	.038 (0.965)	
664	22	22D	.626 (15.90) .616 (15.65)	.141 (3.58)	.585 (14.86)	--	50° 44°	.047 (1.19)	.237 (6.02) .231 (5.87)	N/A	
665	<b>20</b>	<b>20</b>		.209 (5.31)		.078 (1.98) .072 (1.83)	47° 40°	.053 (1.35)		N/A	
666	<b>16</b>	<b>16</b>		.209 (5.31)		.088 (2.24) .082 (2.08)	47° 40°	.084 (2.13)		N/A	
667	<b>12</b>	<b>12</b>		.209 (5.31)		.088 (2.24) .082 (2.08)	47° 40°	.118 (3.00)		N/A	
668	10	10		.385 (9.78) .355 (9.02)		.115 (2.92) .108 (2.74)	N/A	.146 (3.71) 1/		.405 (10.29) .395 (10.03)	N/A

1/ FULL RADIUS PERMISSIBLE.

**TABLE 2 - DESIGN CHARACTERISTICS**

BIN CODE	COLOR BANDS			MATING END SIZE	WIRE BARREL SIZE	TYPE	CLASS
	1ST	2ND	3RD				
662	BLUE	BLUE	RED	23	26	A	B
663	BLUE	BLUE	ORANGE	23	22		
664	BLUE	BLUE	YELLOW	22	22D		
665	BLUE	BLUE	GREEN	20	20		
666	BLUE	BLUE	BLUE	16	16		
667	BLUE	BLUE	VIOLET	12	12		
668	BLUE	BLUE	GRAY	10	10		

**TABLE 3 - TOOLS**

BIN CODE	BASIC CRIMPING TOOL	POSITIONER	INSTALLING TOOL 1/	REMOVAL TOOL	
				WIRED CONTACT	UNWIRED CONTACT
662	M22520/2-01	M22520/2-16	M81969/1-05 M81969/8-15 M81969/8-315	M81969/1-05 M81969/8-16 M81969/8-316	M81969/30-15M
663	M22520/2-01	M22520/2-16	M81969/1-05 M81969/8-15 M81969/8-315	M81969/1-05 M81969/8-16 M81969/8-316	M81969/30-15M
664	M22520/2-01 M22520/7-01	M22520/2-07 M22520/7-05	M81969/14-01 M81969/8-01 M81969/8-301	M81969/14-01 M81969/8-02 M81969/8-302	M81969/30-08 M81969/30-08M
665	M22520/2-01 M22520/7-01 M22520/1-01	M22520/2-10 M22520/7-08 M22520/1-04 (RED)	M81969/14-10 M81969/8-05 M81969/8-305	M81969/14-10 M81969/8-06 M81969/8-306	M81969/30-11 M81969/30-11M
666	M22520/1-01 M22520/7-01	M22520/1-04 (BLUE) M22520/7-04	M81969/14-03 M81969/8-07 M81969/8-307	M81969/14-03 M81969/8-08 M81969/8-308	M81969/30-12 M81969/30-12M
667	M22520/1-01	M22520/1-04 (YELLOW)	M81969/14-04 M81969/8-09 M81969/8-309	M81969/14-04 M81969/8-10 M81969/8-310	M81969/30-13 M81969/30-13M
668	M22520/45-01	POSITIONER BUILT INTO BASIC TOOL	M81969/14-05 M81969/8-11 M81969/8-311	M81969/14-05 M81969/8-12 M81969/8-312	M81969/30-10 M81969/30-10M

1/ SEE APPLICATION NOTE 2.

**TABLE 4 - PROBE DAMAGE INSERTION DEPTHS**

CONTACT SIZE	INSERTION DEPTH (INCHES) +.020 (0.508) -.000 (0.000)
23, 22, 20	.083 (2.11) AND .125 (3.18) 1/
16	.135 (3.43)
12	.166 (4.22)
10	.166 (4.22)

1/ INDICATED DIMENSIONS REPRESENT 1/2 AND 3/4 DEPTHS. PROBE DAMAGE TOOL SHALL BE USED ONCE FOR EACH INSERTION DEPTH LISTED.

**TABLE 5 - PART NUMBER AND BIN CODE**

BIN CODE	PART NUMBER	SUPERSEDED PART NUMBER
662	M39029/121-662	N/A
663	M39029/121-663	N/A
664	M39029/121-664	N/A
665	M39029/121-665	N/A
666	M39029/121-666	N/A
667	M39029/121-667	N/A
668	M39029/121-668	N/A

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

1. DESIGN:

CONTACTS SHALL BE DESIGNED IN ACCORDANCE WITH FIGURES 1 AND 2 AND TABLES 1 AND 2. DIMENSIONS ARE IN INCHES. METRIC EQUIVALENTS IN PARENTHESES ARE FOR GENERAL INFORMATION ONLY. DIMENSIONS APPLY AFTER PLATING. OPERATING TEMPERATURE RANGE: -65 TO 200 °C (-85 TO 392 °F). HOODS, IF USED, SHALL CONFORM TO THE REQUIREMENTS HEREIN. WIRE BARREL RANGE ACCOMMODATION FOR CONTACT SIZE 23-26 IS WIRE SIZES 26, 28, AND 30.

	<b>AEROSPACE STANDARD</b>	<b>AS39029/121</b> SHEET 6 OF 9	<b>REV.</b> <b>A</b>
	CONTACTS, ELECTRICAL CONNECTOR, SOCKET, CRIMP REMOVABLE, EXPANDED PERFORMANCE, SIZES 10, 12, 16, 20, 22, AND 23 (FOR MIL-DTL-38999 SERIES III CONNECTORS)		

FIGURE 1 ADDITIONAL DETAILS:

THE "L" MINIMUM DIMENSION IS THE POINT AT WHICH A SQUARE-ENDED PIN OF THE SAME BASIC DIAMETER AS THE MATING CONTACT FIRST ENGAGES THE SOCKET CONTACT SPRING. FOR BIN CODES 664 ONLY, DIAMETERS E AND G ARE TO BE CONCENTRIC WITHIN .003 TOTAL INDICATOR READING (TIR) REGARDLESS OF FEATURE SIZE (RFS); FOR BIN CODES 665, 666, 667, AND 668, DIAMETERS E AND G TO BE CONCENTRIC WITHIN .001 (TIR) AT MAXIMUM MATERIAL CONDITION (MMC). THE .029-.033 SHOULDER DIMENSION DOES NOT APPLY TO BIN CODES -662, 663, AND -664. FOR DETAIL "S," THE MECHANICAL PRESSURE MEMBER SHALL BE SHROUDED. IN HOOD ATTACHMENT AREA, THE CONTACT BODY "C" DIAMETER SHALL EXCEED THE HOOD "F" DIAMETER BY .001 INCH MINIMUM (RFS). OPTIONAL DESIGNS MAY HAVE A FULL LENGTH CORROSION RESISTANT STEEL HOOD. THE .036-.041 DIAMETER IN DETAIL "T" SHALL BE CONCENTRIC TO G DIAMETER WITHIN .003 (TIR) (RFS). FOR DIMENSION H, THE FOLLOWING BLEND RADIUS DIMENSIONS ARE OPTIONAL:

- SIZE 23 - BLEND RADIUS .010 INCH ± .005 INCH.
- SIZE 22 - BLEND RADIUS .010 INCH ± .005 INCH.
- SIZE 20 - BLEND RADIUS .015 INCH ± .005 INCH.
- SIZE 16 - BLEND RADIUS .020 INCH ± .005 INCH.
- SIZE 12 - BLEND RADIUS .020 INCH ± .010 INCH.
- SIZE 10 - BLEND RADIUS .020 INCH ± .010 INCH.

FIGURE 2 ADDITIONAL DETAILS:

DIMENSION "U" IS THE POINT OF INITIAL ENGAGEMENT. THERE SHALL BE A MAXIMUM GAP OF .008 INCH BETWEEN THE HOOD AND BODY OF THE CONTACT. A .002 INCH MAXIMUM BURR IS PERMITTED ON THE PERIPHERY OF SHOULDER NOTED (SEE SECTION OF DETAIL Z).

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 5. SUPERSEDED PART NUMBERS ARE AS SPECIFIED.

4. MATERIALS:

MATERIALS SHALL BE IN ACCORDANCE WITH AS39029.

5. MECHANICAL:

MECHANICAL PROPERTIES SHALL BE IN ACCORDANCE WITH AS39029. RESISTANCE TO PROBE DAMAGE - SEE TABLE 4.

6. ELECTRICAL:

ELECTRICAL PROPERTIES SHALL BE IN ACCORDANCE WITH AS39029.

7. ENVIRONMENTAL:

ENVIRONMENTAL PROPERTIES SHALL BE IN ACCORDANCE WITH AS39029 AND AS LISTED BELOW:

VIBRATION: THE FOLLOWING VIBRATION TESTS SHALL BE PERFORMED ON SEPARATE SAMPLES FOR EACH TEST. EACH TEST SAMPLE MUCH COMPLY WITH THE AS39029 BASIC SPECIFICATION SAMPLE REQUIREMENTS.

SAMPLE PREPARATION:

- a. THE SAMPLE SIZE OF CONTACTS FOR GROUP 2 SHALL BE TRIPLED TO ALLOW FOR THREE GROUPS OF CONTACTS TO BE SUBJECTED TO THE VIBRATION TEST.
- b. THE CONTACTS SHALL BE DIVIDED INTO THREE SUB-GROUPS AND MOUNTED IN MIL-DTL-38999 CONNECTORS (MATING FREE PLUG AND RECEPTACLE) RATED AT 200 °C.
- c. HIGH STRENGTH WIRE MAY BE USED FOR VIBRATION TESTING.

	<b>AEROSPACE STANDARD</b>	<b>AS39029/121</b> SHEET 7 OF 9	<b>REV.</b> <b>A</b>
	CONTACTS, ELECTRICAL CONNECTOR, SOCKET, CRIMP REMOVABLE, EXPANDED PERFORMANCE, SIZES 10, 12, 16, 20, 22, AND 23 (FOR MIL-DTL-38999 SERIES III CONNECTORS)		