FEDERAL SUPPLY CLASS
5935

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.

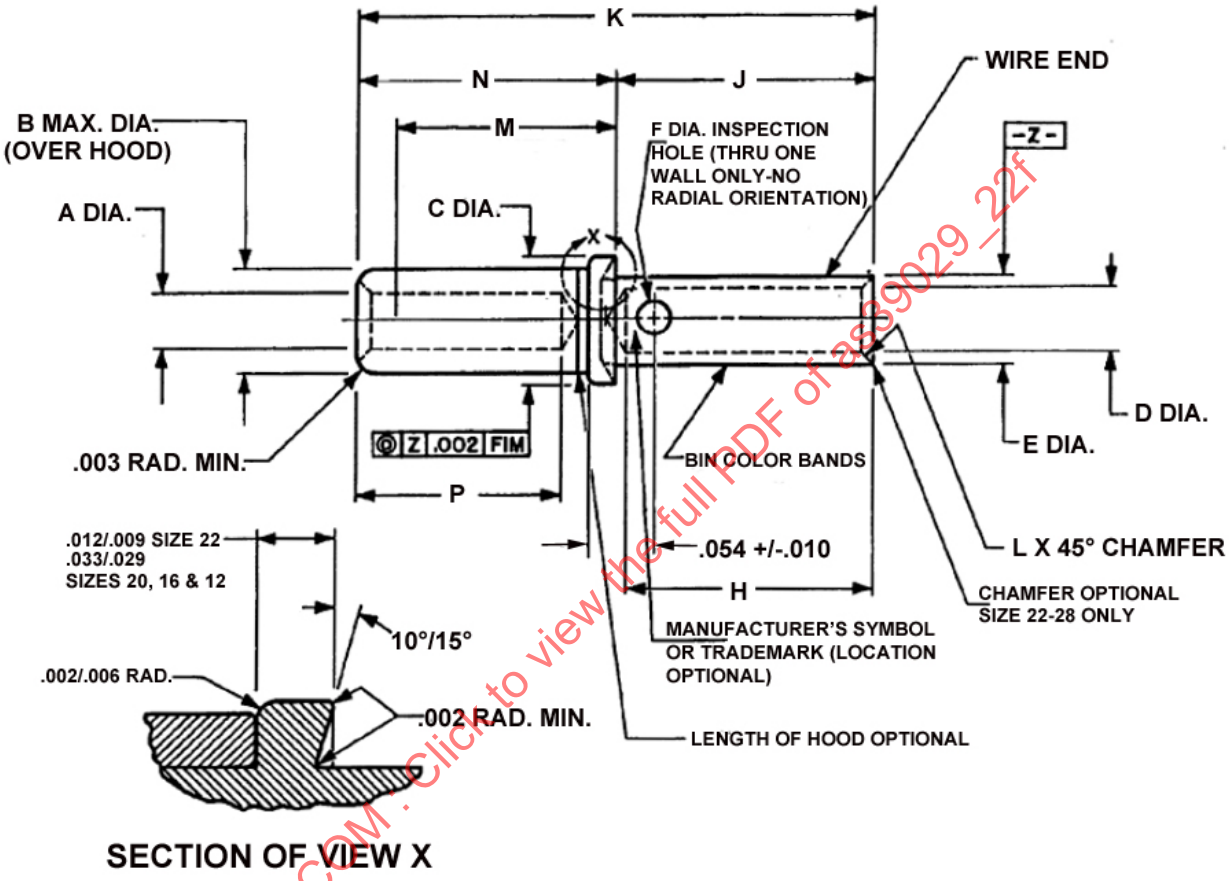
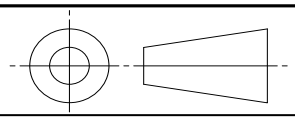


FIGURE 1 - CONTACT CONFIGURATIONS, SOCKET SIZE 22, 20, 16

ISSUED 2001-03 REAFFIRMED 2008-04 REVISED 2024-07

THIRD ANGLE PROJECTION



For more information on this standard, visit
https://www.sae.org/standards/content/AS39029/22F/

CUSTODIAN: AE-8C1

PROCUREMENT SPECIFICATION: AS39029

SAE INTERNATIONAL

AEROSPACE STANDARD

CONTACTS, ELECTRICAL, CONNECTOR, SOCKET, CRIMP REMOVABLE (FOR AS81714 TERMINAL JUNCTION SYSTEM SERIES II)

AS39029™/22
SHEET 1 OF 5

REV. F

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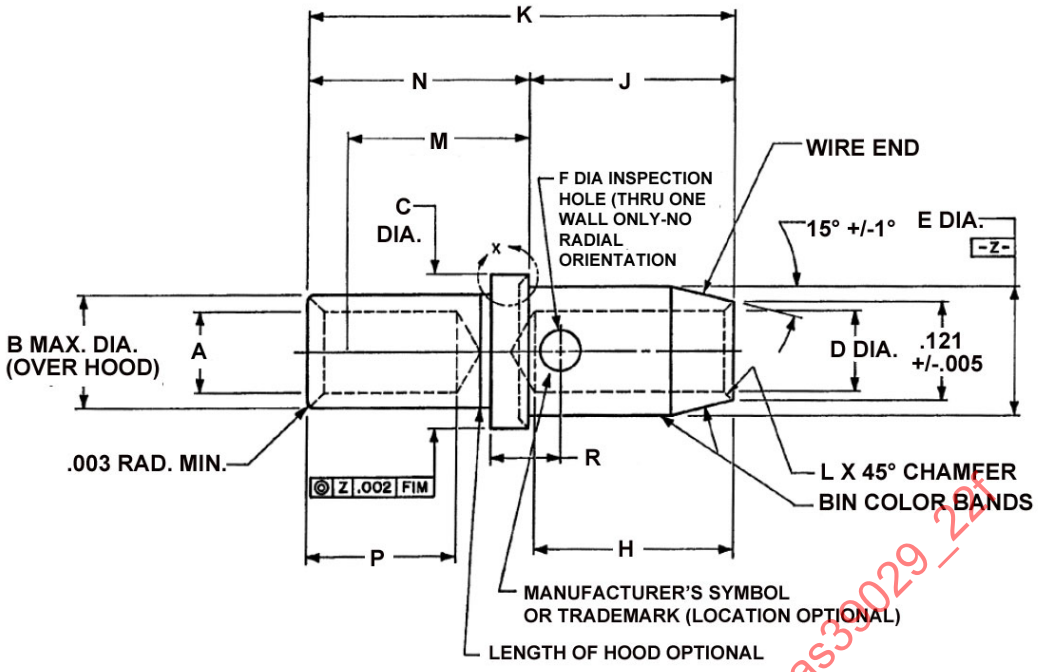

FIGURE 2 - CONTACT CONFIGURATIONS, SOCKET SIZE 12

TABLE 1 - FIGURES 1 AND 2 METRIC EQUIVALENTS

INCHES	MILLIMETERS	INCHES	MILLIMETERS	INCHES	MILLIMETERS	INCHES	MILLIMETERS
.002	0.05	.006	0.15	.012	0.30	.054	1.37
.003	0.08	.009	0.23	.029	0.74	.121	3.07
.005	0.13	.010	0.25	.033	0.84		

TABLE 2 - FIGURES 1 AND 2 DIMENSIONS

BIN CODE	A DIA	B DIA MAX	C DIA	D DIA	E DIA	F DIA	H	J	K REF	L CHAM	M MIN	N	P	R
190	.033 (0.84) .031 (0.79)	.060 (1.52)	.0615 (1.56) .0600 (1.52)	.0200 (0.51) .0180 (0.46)	.0480 (1.22) .0465 (1.18)	.017 (0.43) .013 (0.33)	.175 (4.45) .160 (4.06)	.170 (4.32) .160 (4.06)	.327 (8.31)	.006 (0.15) .003 (0.08)	.130 (3.30)	.166 (4.22) .158 (4.01)	.137 (3.48) .120 (3.05)	.035 (0.89) .033 (0.84)
191				.0355 (0.90) .0335 (0.85)		.022 (0.56) .018 (0.46)								
192	.044 (1.12) .042 (1.07)	.076 (1.93)	.094 (2.39) .091 (2.31)	.048 (1.22) .046 (1.17)	.070 (1.78) .068 (1.73)	.027 (0.69) .023 (0.58)			.349 (8.86)	.010 (0.25) .005 (0.13)	.150 (3.81)	.188 (4.78) .180 (4.57)		.055 (1.40) .053 (1.35)
193	.066 (1.68) .064 (1.63)	.108 (2.74)	.130 (3.30) .127 (3.23)	.068 (1.73) .066 (1.68)	.103 (2.62) .101 (2.57)									
605	.100 (2.54) .097 (2.46)	.168 (4.27)	.171 (4.34) .168 (4.27)	.102 (2.59) .096 (2.44)	.152 (3.86) .148 (3.76)	.030 (0.76) .019 (0.48)	.220 (5.59) .205 (5.21)	.215 (5.46) .205 (5.21)	.446 (11.33)	.016 (0.41) .005 (0.13)	.176 (4.47)	.240 (6.10) .230 (5.84)	.187 (4.75) .170 (4.32)	

TABLE 3 - DESIGN CHARACTERISTICS

BIN CODE	COLOR BANDS			MATING END SIZE	WIRE BARREL SIZE	TYPE	CLASS
	1ST	2ND	3RD				
1/ 190	BROWN	WHITE	BLACK	22	28	A	B
191	BROWN	WHITE	BROWN	22	22		
192	BROWN	WHITE	RED	20	20		
193	BROWN	WHITE	ORANGE	16	16		
605	BLUE	BLACK	GREEN	12	12		

1/ SEE APPLICATION NOTE.

TABLE 4 - TOOLS

BIN CODE	BASIC CRIMPING TOOL	POSITIONER	INSTALLING TOOL (REF) 1/	REMOVAL TOOL (REF) 1/
-190	M22520/7-01	M22520/7-11	M81969/14-01 M81969/8-01 M81969/8-301	M81969/14-01 M81969/8-02 M81969/8-302
-191			M81969/14-01 M81969/8-03 M81969/8-303	M81969/14-01 M81969/8-04 M81969/8-304
-192	M22520/7-01	M22520/7-12	M81969/14-10 M81969/8-05 M81969/8-205 M81969/8-305	M81969/14-10 M81969/8-06 M81969/8-206 M81969/8-306
	M22520/1-01	M22520/1-18 RED		
-193	M22520/7-01	M22520/7-13	M81969/14-03 M81969/8-07 M81969/8-207 M81969/8-307	M81969/14-03 M81969/8-08 M81969/8-208 M81969/8-308
	M22520/1-01	M22520/1-18 BLUE		
-605	M22520/1-01	M22520/1-18 YELLOW	M81969/8-09 M81969/8-209 M81969/8-309 M81969/16-03	M81969/8-10 M81969/8-210 M81969/8-310 M81969/16-03

1/ SEE THE APPLICATION NOTE FOR THE APPLICABLE PRODUCT SPECIFICATION.

TABLE 5 - CONTACT RESISTANCE

ENGAGING END SIZE	WIRE SIZE RANGE	TEST CURRENT (AMPERES)	MAXIMUM VOLTAGE DROP (MILLIVOLTS)		
			25 °C ± 3 °C	25 °C ± 3 °C AFTER CONDITIONING	200 °C +3 °C, -0 °C
22	28 32	1.5 1.0	60 95	70 105	100 135
22	22 26	5.0 2.0	70 60	80 70	120 100
20	20 24	7.5 3.0	55 45	65 55	95 80
16	16 20	13.0 7.5	50 45	60 55	85 80
12	12 1/ 14	23.0 17.0	60 55	70 65	100 95

1/ SILVER-PLATED WIRE.

TABLE 6 - CONTACT ENGAGEMENT AND SEPARATION FORCE

SOCKET ENGAGING END SIZE	TEST PIN DIAMETER	
	MIN +.0001, -.0000	MAX +.0000, -.0001
22	.0295	.0305
20	.0395	.0405
16	.0615	.0625
12	.0935	.0945

TABLE 7 - PROBE DAMAGE

SOCKET ENGAGING END SIZE	TEST PROBE DIAMETER	BENDING MOMENT	
		DEPTH OF INSERTION	MOMENT (MAX IN-LB)
22	.0305 .0295	.105 .095	.10
20	.0405 .0395	.135 .125	.25
16	.0625 .0615		.37
12	.0935 .0945	.185 .175	.55

TABLE 8 - TENSILE STRENGTH

WIRE BARREL SIZE	WIRE SIZE (AWG)	AXIAL LOAD (POUNDS)				1/ MAXIMUM RECOMMENDED CRIMP BARREL GROWTH PER DIA
		SILVER- OR TIN-PLATED COPPER WIRE		NICKEL-PLATED COPPER WIRE		
		INITIAL CONDITION VALUES	THERMAL CONDITION VALUES	INITIAL CONDITION VALUES	THERMAL CONDITION VALUES	
28	28 32	2.7 1.0	2 .75	1.7 1.0	1.28 .75	.0015
22	22 26	12.0 5.0	7.5 4	8.0 3.0	6 2.5	
20	20 24	20.0 8.0	14 6	10.0 6.0	7.5 4.5	.0030
16	16 20	50.0 20.0	37 14	29.0 10.0	21 7.5	.0050
12	12 14	100.0 60.0	85 52	65.0 34.0	55 30	.0070

1/ UNTIL A TEST METHOD IS DEFINED FOR VERIFICATION, THE MAXIMUM GROWTH DIAMETER WILL REMAIN A RECOMMENDATION RATHER THAN A REQUIREMENT.

TABLE 9 - PART NUMBERS

BIN CODE	AS39029 PART NUMBER	SUPERSEDED PART NUMBER(S)
190	M39029/22-190	M39029/22-22-28 M39029/15-22-28
191	M39029/22-191	M39029/22-22-22 M39029/15-22-22
192	M39029/22-192	M39029/22-20-20
193	M39029/22-193	M39029/22-16-16
605	M39029/22-605	AIR FORCE LOGISTIC COMMAND B2070520-2-1

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 2 AND 3. DIMENSIONS ARE IN INCHES. METRIC EQUIVALENTS IN PARENTHESES ARE FOR GENERAL INFORMATION ONLY AND ARE BASED ON 1 INCH = 25.4 MM (SEE TABLE 1). DIMENSIONS APPLY AFTER PLATING. DIMENSION “M” IS THE DISTANCE BETWEEN REAR OF CONTACT SHOULDER AND POINT AT WHICH A GAGE PIN, OF SAME BASIC DIAMETER AS MATING PIN CONTACT AND A SQUARE FACE, FIRST ENGAGES SOCKET CONTACT SPRING MEMBER. THE MAXIMUM ALLOWABLE GAP BETWEEN THE HOOD AND BODY OF THE CONTACT IS .010 INCH. AXIAL CONCENTRICITY: ALL DIAMETERS TO BE CONCENTRIC WITHIN .004 FIM, EXCEPT AS NOTED.

2. TOOLS:

   TOOLS REQUIRED FOR CRIMPING CONTACTS TO THE WIRE/CABLE AND THE INSTALLING/REMOVAL FROM THE CONNECTOR SHALL BE IN ACCORDANCE WITH TABLE 4.

3. PART NUMBERS:

   CONTACT PART NUMBERS SHALL BE IN ACCORDANCE WITH TABLE 9. SUPERSEDED PART NUMBERS ARE AS SPECIFIED.