FEDERAL SUPPLY CLASS
5935

RATIONALE

REVISE TO INCLUDE COMMENTS RECEIVED BY THE GOVERNMENT AND INDUSTRY, REMOVE GOVERNMENT JARGON, UPDATE REFERENCES, ALIGN SPECIFICATION WITH SAE GUIDELINES, AND REVIEW SPECIFICATION FOR KNOWN TECHNICAL PROBLEMS

NOTICE

THE REQUIREMENTS FOR PROCURING THE PRODUCT DESCRIBED HEREIN SHALL CONSIST OF THIS SPECIFICATION SHEET AND THE LATEST ISSUE OF SAE AS39029.

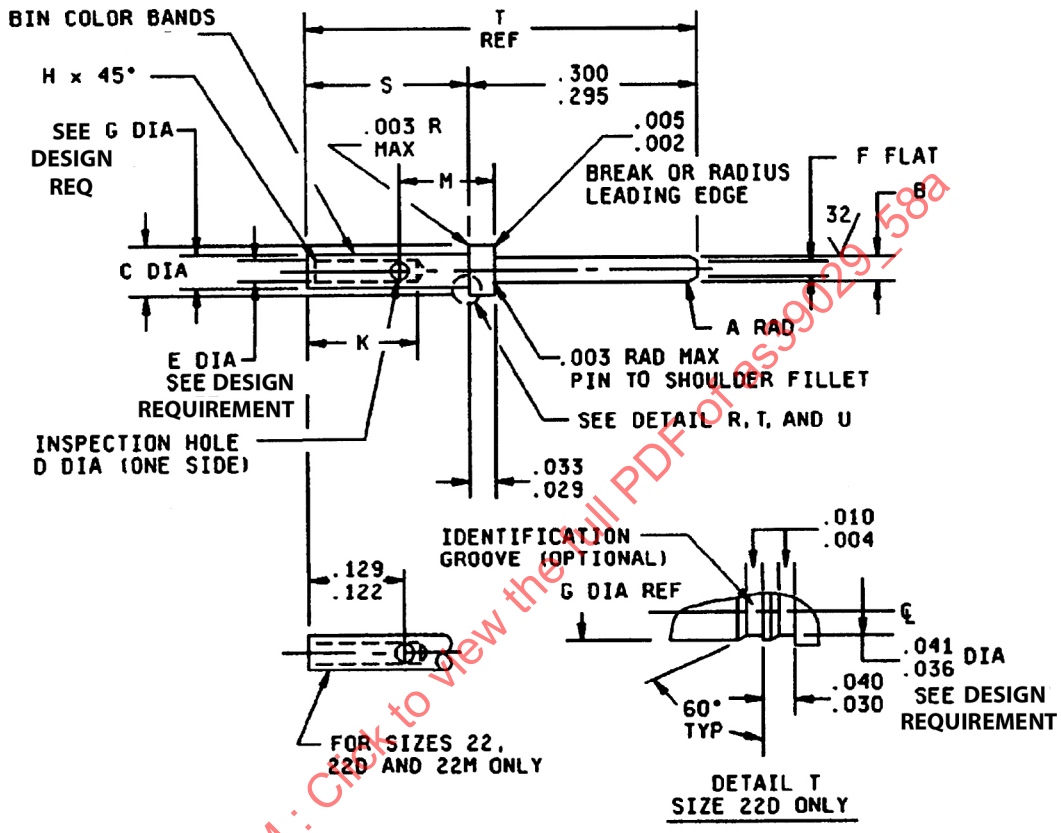
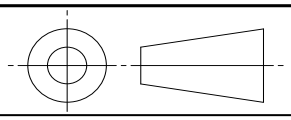


FIGURE 1 - CONNECTOR CONTACT

THIRD ANGLE PROJECTION



ISSUED 2000-07 REVISED 2012-01

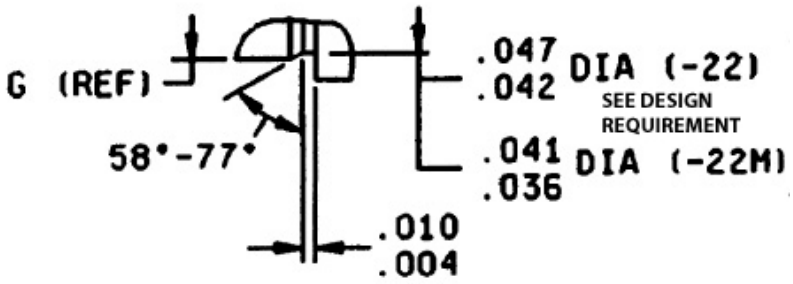
CUSTODIAN: AE-8C1

PROCUREMENT SPECIFICATION: AS39029

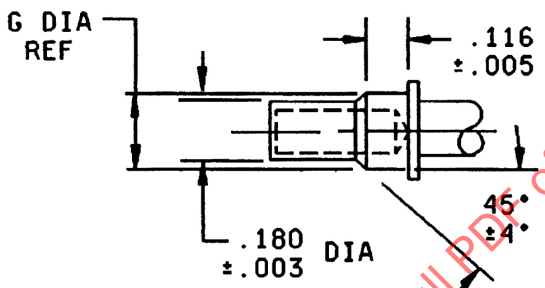
SAE Aerospace
An SAE International Group

AEROSPACE STANDARD

(R) CONTACTS, ELECTRICAL CONNECTOR, PIN, CRIMP REMOVABLE (FOR MIL-DTL-24308, MIL-DTL-38999 SERIES I, II, III, AND IV, AND MIL-DTL-55302/69 AND MIL-DTL-83733 CONNECTORS)



DETAIL R
SIZES 22, 22M ONLY



DETAIL U (SIZE 10 ONLY)

FIGURE 1 - CONNECTOR CONTACT (CONTINUED)

TABLE 1 - DIMENSIONS

BIN CODE	A RADIUS	B DIA	C DIA	D DIA	E DIA	F DIA	G DIA	H
360, 663	.020 (.508) .010 (.254)	.0305 (.774) .0295 (.749)	.062 (1.57) .060 (1.52)	.022 (.56) .018 (.46)	.0355 (.90) .0335 (.85)	.011 (.28) MAX	.048 (1.22) .046 (1.17)	.005 (.13) .003 (.08)
361					.029 (.74) .027 (.69)		.046 (1.17) .044 (1.12)	
362			.071 (1.80) .069 (1.75)		.0375 (.95) .0355 (.90)		.052 (1.32) .050 (1.27)	
363. 659	.025 (.635) .015 (.381)	.041 (1.04) .039 (.991)	.094 (2.39) .091 (2.31)	.032 (.81) .026 (.66)	.048 (1.22) .046 (1.17)	.015 (.38) MAX	.070 (1.78) .068 (1.73)	.010 (.25) .005 (.13)
364	.025 (.635) .020 (.508)	.0635 (1.613) .0615 (1.562)	.130 (3.30) .127 (3.23)	.042 (1.07) .036 (.914)	.068 (1.73) .066 (1.68)	.030 (.76 .011 (.28)	.103 (2.62) .101 (2.57)	
365		.095 (2.41) .093 (2.36)	.182 (4.62) .179 (4.55)		.102 (2.59) .098 (2.49)	.062 (1.57) .043 (1.09)	.151 (3.84) .148 (3.76)	.016 (.41) .005 (.13)
528		.126 (3.20) .124 (3.15)	.242 (6.15) .238 (6.05)	.052 (1.32) .040 (1.02)	.140 (3.56) .134 (3.40)	.094 (2.39) .074 (1.88)	.213 (5.41) .207 (5.26)	

TABLE 1 - DIMENSIONS (CONTINUED)

BIN CODE	K MIN	M	S	T (REF)
360, 663	.141 (3.58)	-----	.237 (6.02) .231 (5.87)	.531 (13.49)
361		-----		
362		-----		
363, 659	.209 (5.31)	.078 (1.98) .072 (1.83)		
364		.088 (2.24) .082 (2.08)		
365				
528	.355 (9.02)	.115 (2.92) .108 (2.74)	.405 (10.29) .395 (10.03)	.647 (16.43)

TABLE 2 - DESIGN CHARACTERISTICS

BIN CODE	COLOR BANDS			MATING END SIZE	WIRE BARRELL SIZE	TYPE	CLASS
	1ST	2ND	3RD				
360	ORANGE	BLUE	BLACK	22	22D	A	B
361	ORANGE	BLUE	BROWN	22	22M		
362	ORANGE	BLUE	RED	22	22		
363	ORANGE	BLUE	ORANGE	20	20		
364	ORANGE	BLUE	YELLOW	16	16		
365	ORANGE	BLUE	GREEN	12	12		
528	GREEN	RED	GRAY	10	10		
659 1/	BLUE	GREEN	WHITE	20	20		
663 1/	BLUE	BLUE	ORANGE	22	22D		

1/ FINISH SHALL BE GOLD PLATING IN ACCORDANCE WITH ASTM B 488, TYPE II, CODE C, CLASS 1.27 OVER A SUITABLE UNDERPLATE. SILVER AND NICKEL SHALL NOT BE USED AS AN UNDERPLATE ON CLASSES M & N. THIS FINISH IS INTENDED FOR USE WITH MIL-DTL-24308 NON-MAGNETIC CONNECTORS, CLASS M AND N ONLY.

TABLE 3 - TOOLS

BIN CODE	BASIC CRIMPING TOOL	POSITIONER	INSTALLING TOOL 1/	REMOVAL TOOL 1/
360, 663	M22520/2-01 M22520/7-01	M22520/2-09 M22520/7-07	M81969/14-01 M81969/8-01	M81969/14-01 M81969/8-02
361	M22520/2-01 M22520/7-01	M22520/2-09 M22520/7-07	M81969/14-01 M81969/8-01	M81969/14-01 M81969/8-02
362	M22520/2-01 M22520/7-01	M22520/2-09 M22520/7-07	M81969/8-03	M81969/8-04
363, 659	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	M81969/14-10 M81969/8-06
364	M22520/1-01 M22520/7-01	M22520/1-04 (BLUE) M22520/7-04	M81969/14-03 M81969/8-07	M81969/14-03 M81969/8-08
365	M22520/1-01	M22520/1-04 (YELLOW)	M81969/14-04 M81969/8-09	M81969/14-04 M81969/8-10
528	1716P (DANIELS) 2/ AL114 (ASTRO) 2/	POSITIONER BUILT INTO BASIC TOOL	M81969/8-11 M81969/14-05	M81969/8-12 M81969/14-05

1/ SEE APPLICATION NOTE 2.
2/ OR EQUIVALENT

TABLE 4 – PART NUMBERS

PART NUMBER	BIN CODE	SUPERSEDED
M39029/58-360	360	MS27493-22D
M39029/58-361 1/, 2/, 3/	361	MS27493-22M
M39029/58-362 1/, 2/, 3/	362	MS27493-22
M39029/58-363 2/	363	MS27493-20
M39029/58-364 2/, 3/	364	MS27493-16
M39029/58-365 2/, 3/	365	MS27493-12
M39029/58-528 2/, 3/	528	
M39029/58-659	659	
M39029/58-663	663	

1/ INACTIVE FOR NEW DESIGN.
2/ NOT FOR USE WITH MIL-DTL-83733 OR MIL-DTL-24308 CONNECTORS. (FOR MIL-DTL-83733 USAGE, CONTACT SIZES 20, 16, AND 12, SEE AS39029/4 AND /5.)
3/ NOT FOR USE WITH MIL-DTL-55302 CONNECTORS.

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

1. DESIGN:

CONTACTS SHALL BE DESIGNED IN ACCORDANCE WITH FIGURE 1 AND TABLE 1 AND 2. DIMENSIONS ARE IN INCHES. METRIC EQUIVALENTS ARE GIVEN FOR GENERAL INFORATION ONLY. DIMENSIONS SHOWN APPLY AFTER PLATING. OPERATING TEMPERATURE RANGE: -65 °C (-85 °F) TO 200 °C (392 °F). FOR BIN CODE 360 ONLY, DIAMETERS E AND G ARE TO BE CONCENTRIC WITHIN .003 (TIR) REGARDLESS OF FEATURE SIZE (RFS); FOR ALL OTHER CONTACT SIZES , DIAMETERS E AND G TO BE CONCENTRIC WITH .001 (TIR) OF MAXIMUM MATERIAL CONDITION (MMC). THE .036-.041 DIAMETER IN DETAIL "T" AND THE .042-.047/.036-.041 DIAMETERS IN DETAIL "R" SHALL BE CONCENTRIC TO G DIAMETER WITHIN .003 TIR (RFS).

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 4. SUPERSEDED PART NUMBERS ARE AS SPECIFIED.

4. MATERIALS:

MATERIALS SHALL BE IN ACCORDANCE WITH SAE AS39029.

OUTGASSING REQUIREMENT:

PART NUMBERS M39029/58-659 AND M39029/58-663 SHALL MEET THE OUTGASSING REQUIREMENTS OF ASTM-E595. THE REQUIREMENT MAY BE VERIFIED BY CERTIFICATION. CONTACT THE QUALIFYING ACTIVITY FOR DETAILS CONCERNING THE CERTIFICATION PROCESS.

RESIDUAL MAGNETISM REQUIREMENT:

PART NUMBERS M39029/58-659 AND M39029/58-663 SHALL ALSO MEET THE RESIDUAL MAGNETISM. CONTACT HOODS MAY BE OF AN ALTERNATE MATERIAL TO MEET THE RESIDUAL MAGNETISM REQUIREMENT, HOWEVER THE CONTACTS MUST MEET ALL OTHER REQUIREMENTS OF AS39029 AND THIS DETAIL SHEET. WHEN TESTED WITH THE APPLICABLE MIL-DTL-24308 CONNECTOR, THE RESIDUAL MAGNETISM SHALL NOT EXCEED 200 GAMMA. THE FOLLOWING DETAILS SHALL APPLY:

ACCEPTABLE TEST METHOD.

CONNECTOR SHALL BE FULLY ASSEMBLED BEFORE TESTING. THE RESIDUAL MAGNETISM TEST SHALL BE PERFORMED IN A MAGNETICALLY QUIET AREA, I.E., WHERE MACHINES, ELECTRONIC EQUIPMENT, VEHICLES, AND PERSONNEL TRAFFIC ARE RESTRICTED. REFER TO THE TEST ARRANGEMENT OF FIGURE 2 BELOW AND PROCEED AS FOLLOWS:

A. WARM UP THE MILLIAMMETER OR FLUX METER FOR A MINIMUM OF FIFTEEN MINUTES

B. MOUNT THE MAGNETOMETER PROBE IN A NON-MAGNETIC STAND IN A HORIZONTAL POSITION AT FULL CABLE LENGTH FROM THE MILLIAMMETER.

C. WITH THE METER PRESET TO THE APPROPRIATE SCALE, ALIGN THE PROBE IN A MAGNETIC E-W DIRECTION OR ORIENT TO OBTAIN A ZERO READING ON THE METER.

D. PASS THE CONNECTOR SPECIMEN THREE TIMES BETWEEN THE POLES OF A MAGNET WITH A FIELD STRENGTH OF 5000 GAUSS, ± 5 PERCENT. THE CONNECTOR SHALL NOT CONTACT THE POLE PIECES.

E. IMMEDIATELY PLACE THE CONNECTOR TO WITHIN ONE-EIGHT (1/8) INCH OF THE PROBE TIP AND ORIENT THE SPECIMEN FOR A MAXIMUM MAGNETISM READING. THE MEASUREMENT UNIT SHALL BE IN GAMMA, WHERE ONE GAMMA IS EQUIVALENT TO 1 X 10^{-5} GAUSS.

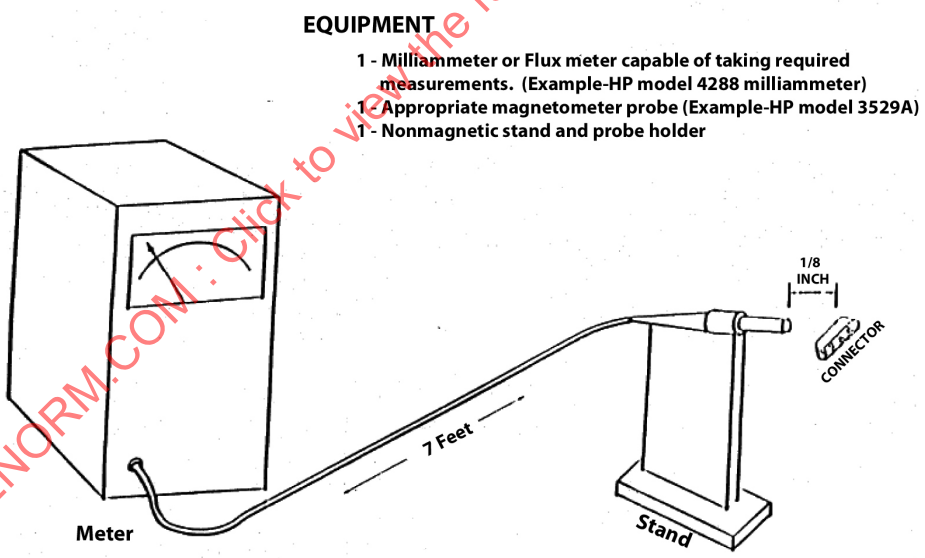


FIGURE 2 – RESIDUAL MAGNETISM TEST ARRANGEMENT

AN ALTERNATIVE RESIDUAL MAGNETISM TEST METHOD MAY BE USED WITH APPROVAL FROM THE QUALIFYING ACTIVITY.

5. MECHANICAL:

MECHANICAL PROPERTIES SHALL BE IN ACCORDANCE WITH SAE AS39029.