FEDERAL SUPPLY CLASS
5935

RATIONALE

AS39029/91D CONTACT IS BEING STABILIZED BECAUSE THE PROCESSES/PRODUCT IS CONSIDERED MATURE AND THE COMMITTEE DOES NOT ANTICIPATE FUTURE TECHNICAL CHANGES. STABILIZATION DOES NOT IMPLY THE PROCESS OR PRODUCT IS UNACCEPTABLE FOR APPLICATIONS FOR WHICH IT IS DESIGNED. ANY TECHNICAL CHANGES NOTED BY A SUPPLIER OR USER WHICH RESULTS IN A PRODUCT OR REQUIREMENT CHANGE WILL BE ADDRESSED BY A NEW REVISION. QUALIFIED SUPPLIERS ARE STILL MAINTAINED. AS39029/91 IS RECOMMENDED FOR REPLACEMENT ONLY. USERS ARE REFERRED TO AS39029/114.

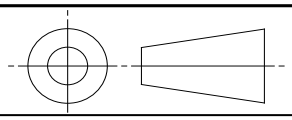
STABILIZED NOTICE

THIS DOCUMENT HAS BEEN DECLARED "STABILIZED" BY SAE AE-8C1 CONNECTORS COMMITTEE AND WILL NO LONGER BE SUBJECTED TO PERIODIC REVIEWS FOR CURRENCY. USERS ARE RESPONSIBLE FOR VERIFYING REFERENCES AND CONTINUED SUITABILITY OF TECHNICAL REQUIREMENTS. NEWER TECHNOLOGY MAY EXIST.

ISSUED 2001-03 REVISED 2018-11 STABILIZED 2025-03

For more information on this standard, visit
https://www.sae.org/standards/content/AS39029/91D/

THIRD ANGLE PROJECTION



CUSTODIAN: AE-8C1

PROCUREMENT SPECIFICATION: AS39029

SAE INTERNATIONAL

AEROSPACE STANDARD

CONTACT, ELECTRICAL CONNECTOR, CONCENTRIC TWINAX, SOCKET, SHIELDED, SIZE 8

AS39029™/91

REV. D

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NOTICE

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

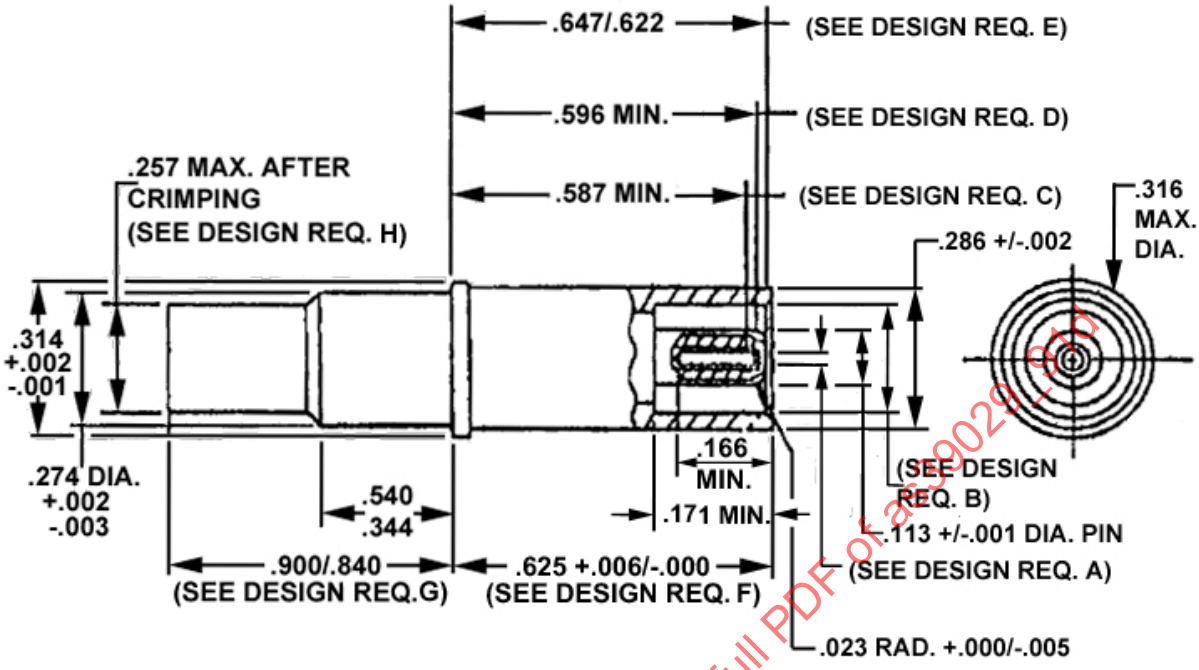


FIGURE 1 - CONCENTRIC TWINAX CONTACT

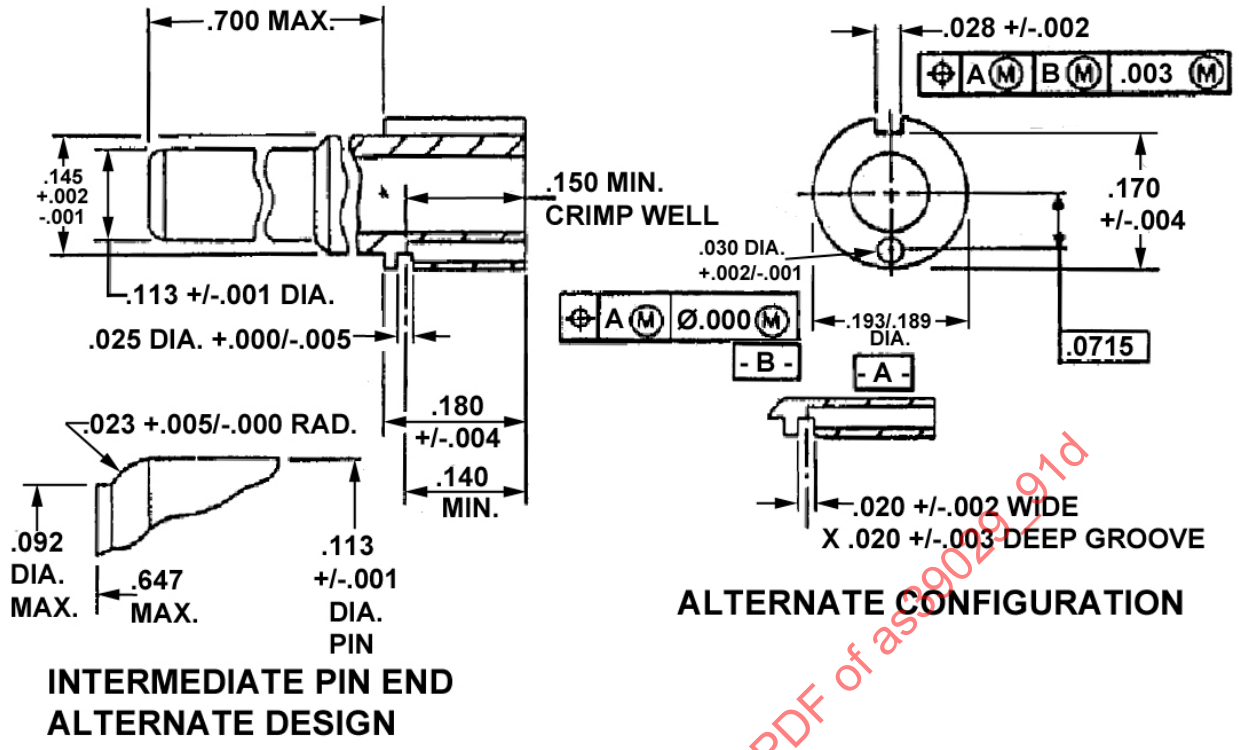


FIGURE 2 - INTERMEDIATE PIN CONTACT

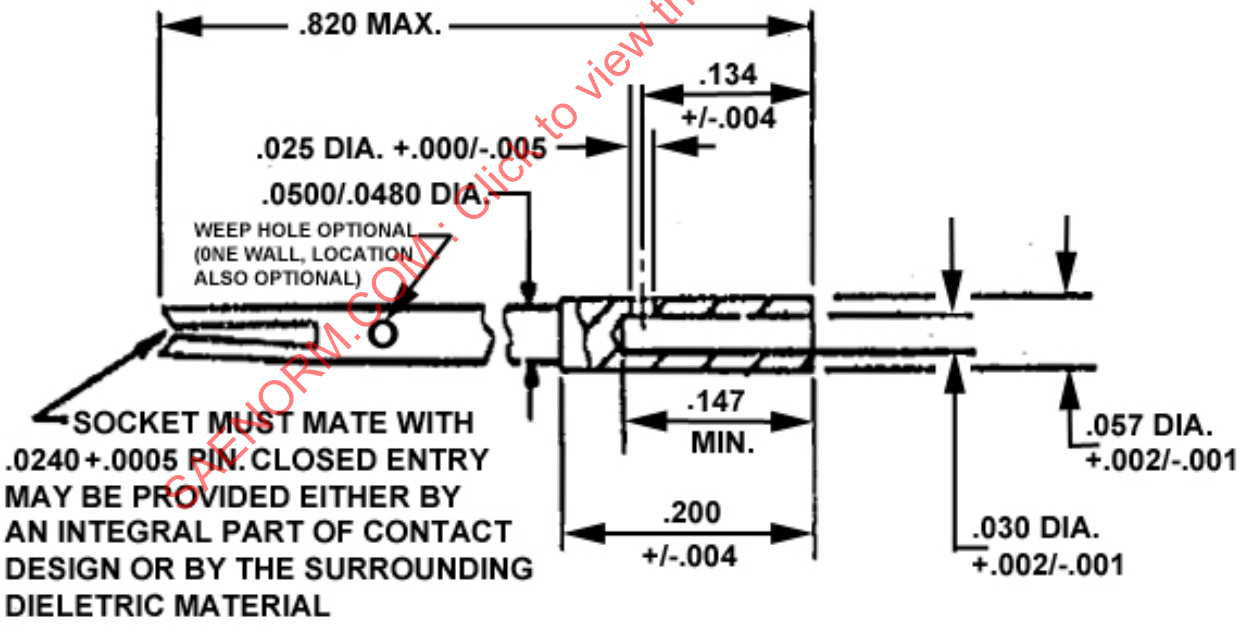


FIGURE 3 - CENTER SOCKET CONTACT

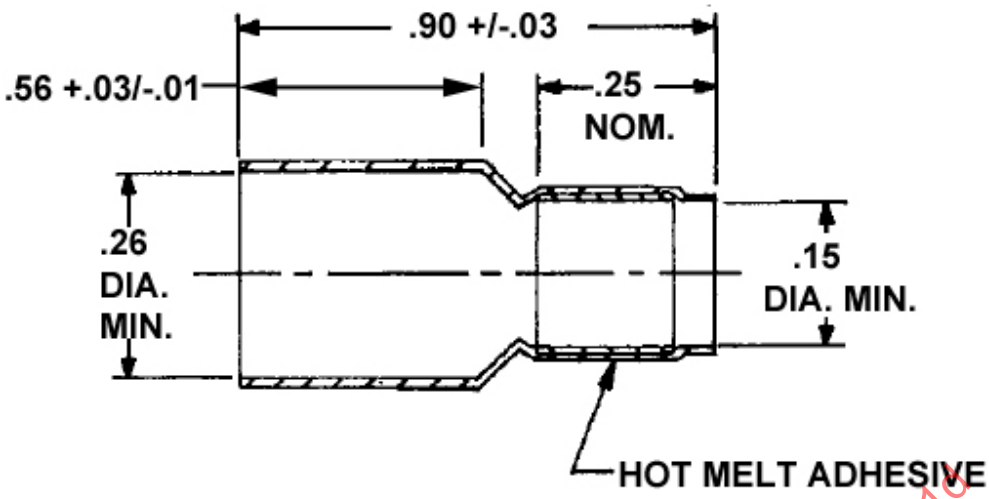
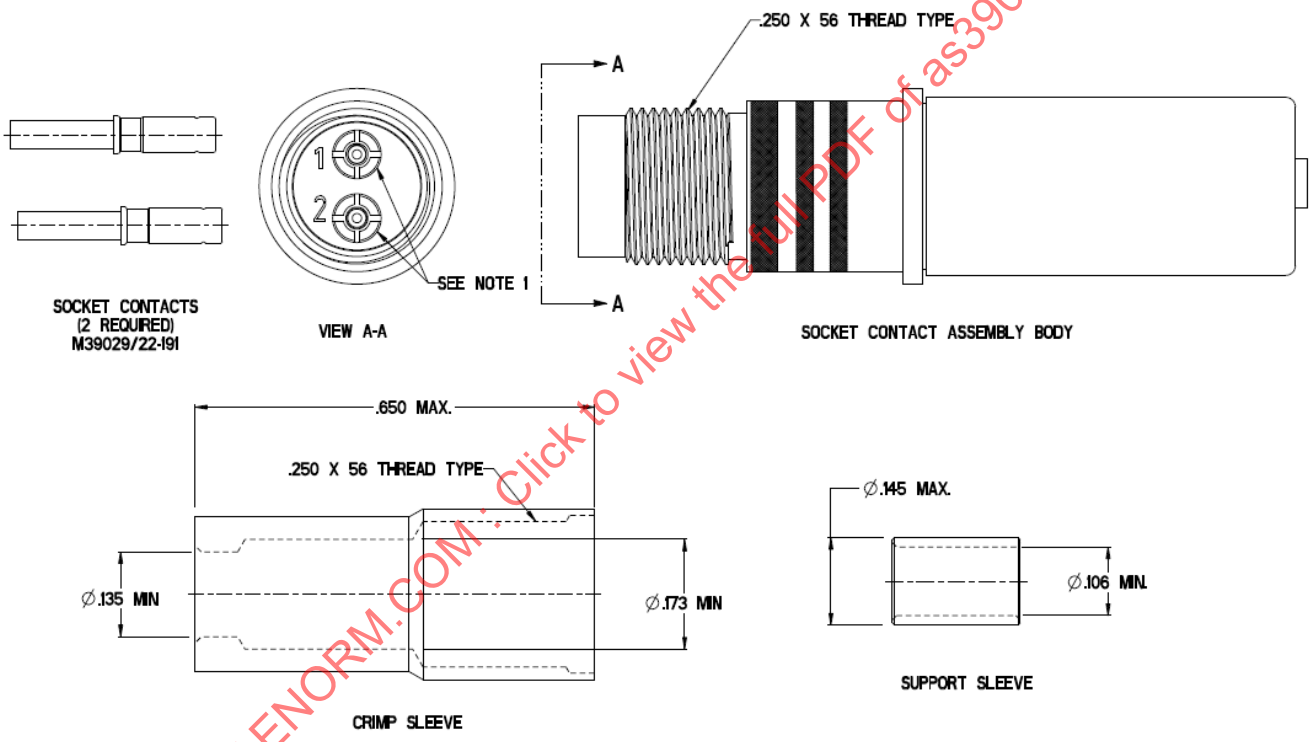


FIGURE 4 - HEAT SHRINK BOOT



1. CAVITY MARKED "1" CONNECTS TO INNER CONTACT. CAVITY MARKED "2" CONNECTS TO INTERMEDIATE CONTACT.
2. CONTACTS MAY BE INSERTED/REMOVED USING MIL-I-81969/14-1 INSERTION/EXTRACTION TOOL.

FIGURE 5 - ALTERNATE PRE-ASSEMBLED DESIGN

TABLE 1 - FIGURE 1 THROUGH 5 METRIC EQUIVALENTS

INCH	MILLIMETERS	INCH	MILLIMETERS	INCH	MILLIMETERS	INCH	MILLIMETERS
.0005	0.013	.031	0.79	.171	4.34	.316	8.03
.001	0.03	.0480	1.219	.173	4.39	.344	8.74
.002	0.05	.050	1.27	.180	4.57	.495	12.57
.003	0.08	.057	1.45	.189	4.80	.540	13.72
.004	0.10	.0715	1.816	.193	4.90	.56	14.2
.005	0.13	.106	2.69	.200	5.08	.587	14.91
.006	0.15	.113	2.87	.218	5.54	.622	15.80
.008	0.20	.134	3.40	.25	6.4	.625	15.88
.010	0.25	.135	3.43	.257	6.53	.647	16.43
.023	0.58	.145	3.68	.26	6.6	.650	16.51
.0240	0.61	.147	3.73	.274	6.96	.840	21.34
.025	0.64	.150	3.81	.286	7.26	.900	22.86
.030	0.76	.166	4.22	.314	7.98		

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

1. DESIGN:

   CONTACT SHALL BE DESIGNED IN ACCORDANCE WITH FIGURES 1 THROUGH 4 AND TABLE 2. THE CONTACT MAY ALSO BE DESIGNED IN ACCORDANCE WITH THE ALTERNATE PRE-ASSEMBLED CONFIGURATION OF FIGURE 5, FIGURE 1, FIGURE 4 AND TABLE 2. DIMENSIONS ARE IN INCHES AND SHOWN AFTER PLATING. METRIC EQUIVALENTS ARE IN PARENTHESES, ARE GIVEN FOR GENERAL INFORMATION ONLY, AND ARE BASED UPON 1 INCH = 25.4 MILLIMETERS (SEE TABLE 1).

   a. MATES WITH A .0240 ± .0005 CENTER PIN CONTACT (SPRING DESIGN OPTIONAL).

   b. MATES WITH A .218 ± .001 DIAMETER PIN (SPRING DESIGN OPTIONAL).

   c. THE .587 MINIMUM DIMENSION IS TO THE POINT AT WHICH A .218 BASIC DIAMETER SQUARE ENDED PIN, THE SAME BASIC DIAMETER AS THE MATIING CONTACT, FIRST ENGAGES THE OUTER CONTACT SPRING. PROVISIONS FOR A CLEARANCE HOLE SHALL BE PROVIDED FOR THE TEST PIN.

   d. THE .596 MINIMUM DIMENSION IS TO THE POINT AT WHICH A .0240 BASIC DIAMETER SQUARE ENDED PIN, THE SAME BASIC DIAMETER AS THE MATIING CONTACT, FIRST ENGAGES THE INNER CONTACT SPRING.

   e. THE .647/.622 DIMENSION IS TO THE END OF THE INTERMEDIATE PIN CONTACT.

   f. DIELECTRIC PROTRUSION SHALL NOT BE GREATER THAN .035 INCHES.

   g. THE .900/.840 DIMENSION MEASUREMENT SHALL BE TAKEN AFTER ASSEMBLY AND SHALL INCLUDE THE CRIMP FERRULE.

   h. THE .257 MAXIUM DIAMETER SHALL NOT EXCEED .276 (7.01 MM) OVER THE RECOVERED HEAT SHRINK TUBING.

TABLE 2 - DESIGN CHARACTERISTICS

BIN CODE	COLOR BANDS			CONTACT CAVITY SIZE	CABLE ACCOMMODATED	TYPE	CLASS
	1ST	2ND	3RD				
530	GREEN	ORANGE	BLACK	8	M17/176-00002	D	B

2. ASSEMBLY PROCEDURE: MANUFACTURER'S RECOMMENDED ASSEMBLY INSTRUCTIONS SHALL BE SHIPPED WITH UNIT PACKAGE. ASSEMBLY INSTRUCTIONS TO INCLUDE REQUIRED TOOLS FOR ASSEMBLY.

3. MATERIAL:

   HEAT SHRINK BOOT: SHALL BE IN ACCORDANCE WITH AMS-DTL-23053/8.

4. ELECTRICAL:

LOW SIGNAL LEVEL CONTACT RESISTANCE (CENTER AND INTERMEDIATE CONTACTS ONLY): SEE TABLE 3.

CONTACT RESISTANCE: SEE TABLE 4.

FREQUENCY: 0 TO 20 MHz (OPERATING FREQUENCY RANGE).

VOLTAGE RATING: 500 VRMS MAXIMUM; WORKING VOLTAGE AT SEA LEVEL, 125 VRMS MAXIMUM AT 70000 FEET.

TABLE 3 - LOW SIGNAL LEVEL CONTACT RESISTANCE (CENTER AND INTERMEDIATE CONTACTS ONLY)

BIN CODE	CABLE ACCOMMODATED	MAXIMUM CONTACT RESISTANCE (MILLIOHMS)	
		INITIAL	AFTER CONDITIONING
530	M17/176-00002	55	66

TABLE 4 - CONTACT RESISTANCE

BIN CODE	CONTACT	CABLE ACCOMMODATED	TEST CURRENT (AMPERES)	MAXIMUM VOLTAGE DROP (MILLIVOLTS)		
				25 °C, +3 °C, -0 °C		+175 °C, +3 °C, -0 °C
				INITIAL	AFTER CONDITIONING	AFTER CONDITIONING
530	CENTER	M17/176-00002	1.0	55	66	94
530	INTERMEDIATE	M17/176-00002	1.0	55	66	94
530	OUTER	M17/176-00002	12.0	75	90	128

DIELECTRIC WITHSTANDING VOLTAGE: SHALL BE AS SPECIFIED IN TABLE 5.

TABLE 5 - DIELECTRIC WITHSTANDING VOLTAGE

CONTACTS	ALTITUDE	TEST VOLTAGES AC RMS
CENTER TO INTERMEDIATE	SEA LEVEL	1000
INTERMEDIATE TO OUTER	SEA LEVEL	500

MATING CONTACT: SHALL BE IN ACCORDANCE WITH AS39029/90.

5. MECHANICAL:

CONTACT ENGAGEMENT AND SEPARATION FORCE (SOCKET CONTACTS ONLY): THE ENGAGEMENT DEPTH SHALL BE A MINIMUM OF 0.7 OF THE MINIMUM SOCKET BORE. THE TEST PINS SHALL BE IN ACCORDANCE WITH AS31971, EXCEPT THE DIAMETERS SHALL BE AS SPECIFIED IN TABLE 6. PROVISION FOR CLEARANCE HOLE ON OUTER CONTACT TEST PINS SHALL BE PROVIDED.

TABLE 6 - CONTACT ENGAGEMENT AND SEPARATION FORCE

TEST PIN DIAMETER (INCH)	MINIMUM SEPARATION FORCE (OUNCES)		MAXIMUM ENGAGEMENT FORCE (OUNCES)		MAXIMUM AVERAGE ENGAGEMENT FORCE
	INITIAL	AFTER CONDITIONING	INITIAL	AFTER CONDITIONING	
.2190 +.0000 -.0001	NA	NA	48	60	NA
.2170 +.0001 -.0000	3.0	2.0	NA	NA	NA
.0245 +.0000 -.0001	NA	NA	12	14	NA
.0235 +.0001 -.0000	0.5	0.4	NA	NA	NA

CRIMP TENSILE STRENGTH (CENTER, INTERMEDIATE, AND OUTER CONTACT CRIMP JOINT): SEE TABLE 7.

TABLE 7 - CRIMP TENSILE STRENGTH (AT AMBIENT)

BIN CODE	CABLE ACCOMMODATED	AXIAL LOAD (POUNDS, MINIMUM)		
		CENTER CONTACT	INTERMEDIATE CONTACT	OUTER CONTACT
530	M17/176-00002	8	8	25

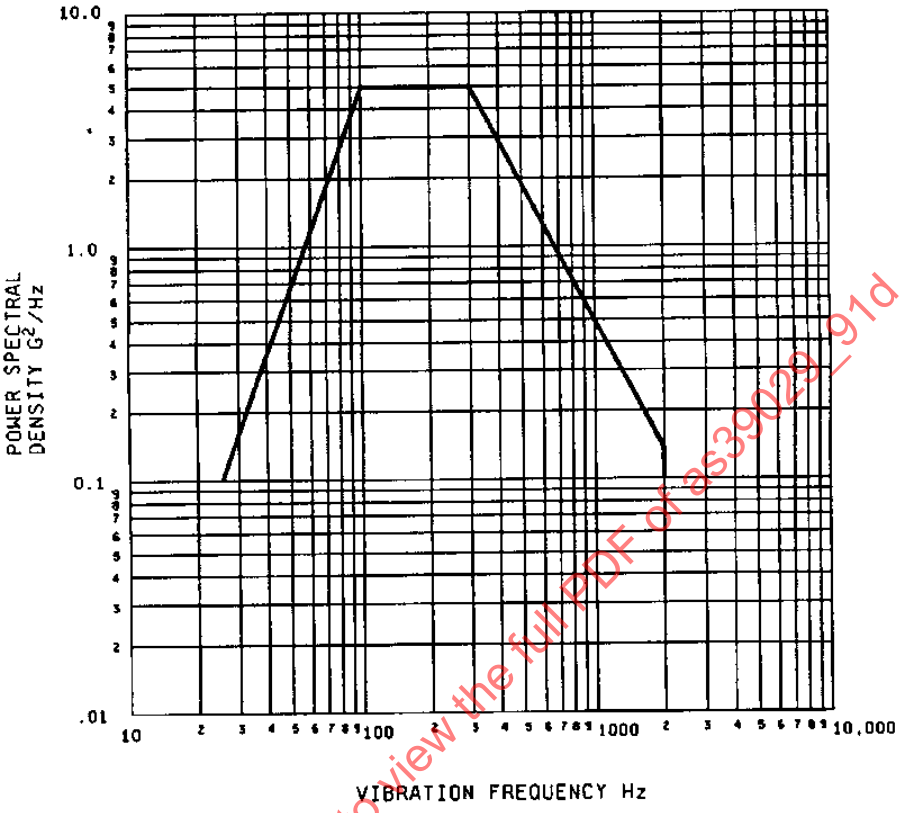


FIGURE 6 - VIBRATION ENVELOPE

6. VIBRATION: VIBRATION SHALL BE IN ACCORDANCE WITH AS39029, EXCEPT TEST CONDITION V SHALL BE USED. THE FOLLOWING DETAILS SHALL APPLY:

   a. USE THE VIBRATION ENVELOPE SHOWN ON FIGURE 6.

   b. VIBRATION: TO BE CONDUCTED AT STANDARD TEST CONDITIONS.

   c. DURATION: 8 HOURS IN THE LONGITUDINAL DIRECTION AND 8 HOURS IN A PERPENDICULAR DIRECTION (16 HOURS).

7. HIGH IMPACT SHOCK: ALL CONTACTS SHALL BE WIRED IN A SERIES CIRCUIT WITH 100 mA MAXIMUM CURRENT FLOW THROUGH THE SERIES CIRCUIT DURING SHOCK. CONNECTORS SHALL BE MONITORED FOR ANY DISCONTINUITIES. A DETECTOR CAPABLE OF DETECTING ALL DISCONTINUITIES IN EXCESS OF 1 µS SHALL BE USED. WIRED AND MATED CONNECTORS SHALL BE SUBJECTED TO THE TEST SPECIFIED IN MIL-S-901, GRADE A WITH THE FOLLOWING MODIFICATIONS AND ADDITIONS. MOUNTING FIXTURE SHALL BE IN ACCORDANCE WITH MIL-S-901, LIGHTWEIGHT. THE CABLE OR WIRE BUNDLE SHALL BE SUPPORTED ON A STATIONARY FRAME TO PROVIDE A FREE FLEXING CABLE LENGTH BETWEEN THE FRAME AND FIXTURE OF NOT LESS THAN 36 INCHES (914.4 MM).

   a. COUPLING: COUPLED BY NORMAL MOUNTING MEANS.

   b. TEST CONDITION A: PLUG SHALL BE TERMINATED WITH AT LEAST 80% OF WIRED CONTACTS. THE WIRE BUNDLE SHALL BE PROVIDED WITH STRAIGHT, OPEN FRAME, STRAIN RELIEF ACCESSORY HARDWARE.