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REVISIONS

LTR	ECN NUMBER	DATE	APPROVED
A	ECN-13249	9-21-01	GW

1. SCOPE

- 1.1 **Scope.** This specification covers the detail requirements for a precision potentiometer, Robertshaw Controls Company, New England Instrument Division (hereinafter called NEI) type number 116FL1-431 equivalent to Electronics & Space Corp. 881048-1 Rev A

2. APPLICABLE DOCUMENTS

- 2.1 The following documents, of the issue in effect on the date of issue of the applicable NEI sales order forms part of this specification to the extent specified herein:

SPECIFICATIONS

NEI	MILITARY
1228-0000	MIL-R-39023
2-1540	MIL-R-39023/2

3. REQUIREMENTS

- 3.1 **General specifications.** The potentiometers shall be as specified in NEI specification 1228-0000 except as modified or elaborated on herein. In the event of any conflict between this specification and the general specification, this specification shall govern.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES:

FRACTIONS	$\pm 1/64$
DECIMALS	$\pm .005$
ANGLES	$\pm 2^\circ$

DRAWN
M.A. COTE

DATE
11-14-96

CHECKED

DATE
11/13/97

MFG APPROVED DATE

APPROVED

DATE
11/13/97

Q C APPROVED DATE

APPROVED FOR NEI DATE

SALES APPROVED DATE

APPROVED FOR DATE



NEI DIVISION
NATICK, MA 01760

PRODUCT DEFINITION SPECIFICATION
PRECISION POTENTIOMETER
TYPE NO. 116FL1-431

SIZE
A

CODE IDENT NO.
08815

DRAWING NUMBER
1228-0431-00

SCALE:

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3.2 GENERAL CHARACTERISTICS

				AQL	
				QA CLASS	
				Requirement Source	
	CHARACTERISTICS	REQUIREMENT			
1.	NO. OF CUPS	1	0	A	
2.	NO. OF SECTIONS	1	0	A	
3.	ELEMENT TYPE	Conductive Plastic "Resistofilm"	N/O	Q	
4.	BEARING TYPE	Ball	N	Q	
5.	MATERIAL - MOUNTING PLATE	Anodized Aluminum	N	Q	
6.	MATERIAL-HOUSING	Anodized Aluminum	N	Q	
7.	MATERIAL-SHAFT	Stainless Steel	0	Q	
8.	WEIGHT	1.0 oz max	0	Q	

3.3 MECHANICAL PARAMETERS

				AQL	
				QA CLASS	
				Requirement Source	
	PARAMETER	REQUIREMENT			
1.	LATERAL RUNOUT	0.001 TIR max	0	A	
2.	PILOT SURFACE RUNOUT	0.001 TIR max	0	A	
3.	SHAFT RUNOUT	0.001 TIR max	0	A	
4.	END PLAY	0.005 TIR max	0	A	
5.	RADIAL PLAY	0.001 TIR max	0	A	
6.	STARTING TORQUE	0.5 oz-in max	0	A	
7.	RUNNING TORQUE	0.4 oz-in max	0	A	
8.	MOMENT OF INERTIA	N/R	-	-	
9.	STATIC STOP STRENGTH	N/A	-	-	
10.	DYNAMIC STOP STRENGTH	N/A	-	-	
11.	MECHANICAL TRAVEL	360 deg. Continuous	0	A	

LEGEND:

Requirement Source — N = NEI; O = OEM

Q.A. Class — A = Acceptance Test;

P = Preproduction Test; Q = Qualification Test

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3.4 ELECTRICAL AND ELECTROMECHANICAL PARAMETERS

AQL

QA CLASS

Requirement Source

	PARAMETER	REQUIREMENT			
1.	DIELECTRIC WITH-STANDING VOLTAGE	750 Volts @ 60 HZ	0	A	
2.	INSULATION RESISTANCE	1000 Megohms @ 500 VDC	0	A	
3.	RESISTANCE - TEMPERATURE CHARACTERISTIC	MIL-R-39023 symbol A	0	Q	
4.	POWER RATING	1.25 Watts @ 70 deg. C derated linearity to 0 watts @ 125 deg. C	0	Q	
5.	EXCITATION FREQ. FOR AC CHARACTERISTICS	N/R	-	-	
6.	QUADRATURE VOLTAGE	N/A	-	-	
7.	PHASE SHIFT	N/A	-	-	
8.	CONFORMITY OF IN-PHASE COMPONENT	N/A	-	-	
9.	TOTAL INPUT IMPEDANCE	N/A	-	-	
10.	OUTPUT SMOOTHNESS	0.01 %	0	A	
11.	ELECTRICAL TRAVEL	338°	0	A	
12.	ELECTRICAL OVERTRAVEL	N/R	-	-	
13.	MECHANICAL OVERTRAVEL	N/R	-	-	
14.	CONTINUITY TRAVEL	358 max	N	A	
15.	INDEX POINT	N/R	-	-	
16.	CONFORMITY DEFINITION	Independent Linearity	0	A	
17.	PHASING	N/A	-	-	
18.	TAP LOCATION	N/R	-	-	
19.	EFFECTIVE TAP WIDTH	N/A	-	-	
20.	BACKLASH	0.1 deg. max	0	A	
21.	RESOLUTION	Virtually Infinite	N	Q	
22.	MINIMUM VOLTAGE	0.1 % max	0	A	
23.	END VOLTAGE	0.01 % min, 0.584 % max.	0	A	

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A

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3.5 REQUIREMENTS OF INDIVIDUAL SECTIONS

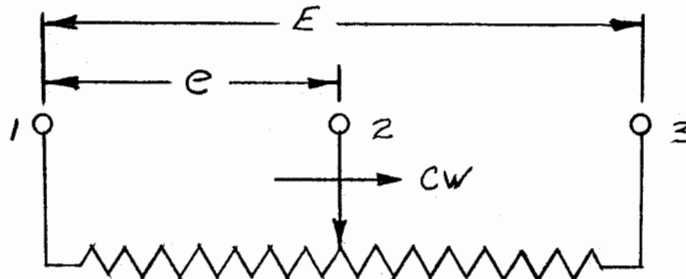
3.5.1 Total Resistance

4500 - 5500 Ω

3.5.2 Function Characteristic

When measured in accordance with the schematic diagram the output ratio e/E shall exhibit independent linearity $\pm 0.1\%$ over the theoretical travel.

θ increases in a CW direction.



test using tape number 2-1540

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3.6 Marking: The potentiometer shall be permanently and legibly marked as follows:

3.6.1 The size and color of the marking shall be as follows:

- (A) Size (height) - 1/16
- (B) Color - White

3.6.2 The marking on the cylindrical surface shall consist of the following:

- (A) NEI logotype and MFR 08815
- (B) NEI type number: 116FL1-431
- (C) Terminal identification (per figure 1)
- (D) Electronic Industries Association date code
- (E) E & S Corp 20418SOCN 881048-1

4.0 Quality Assurance Provisions

4.1 Test Data: Generic MIL-R-39023 group A test data form shall be supplied if required per applicable purchase order.

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DETAIL A

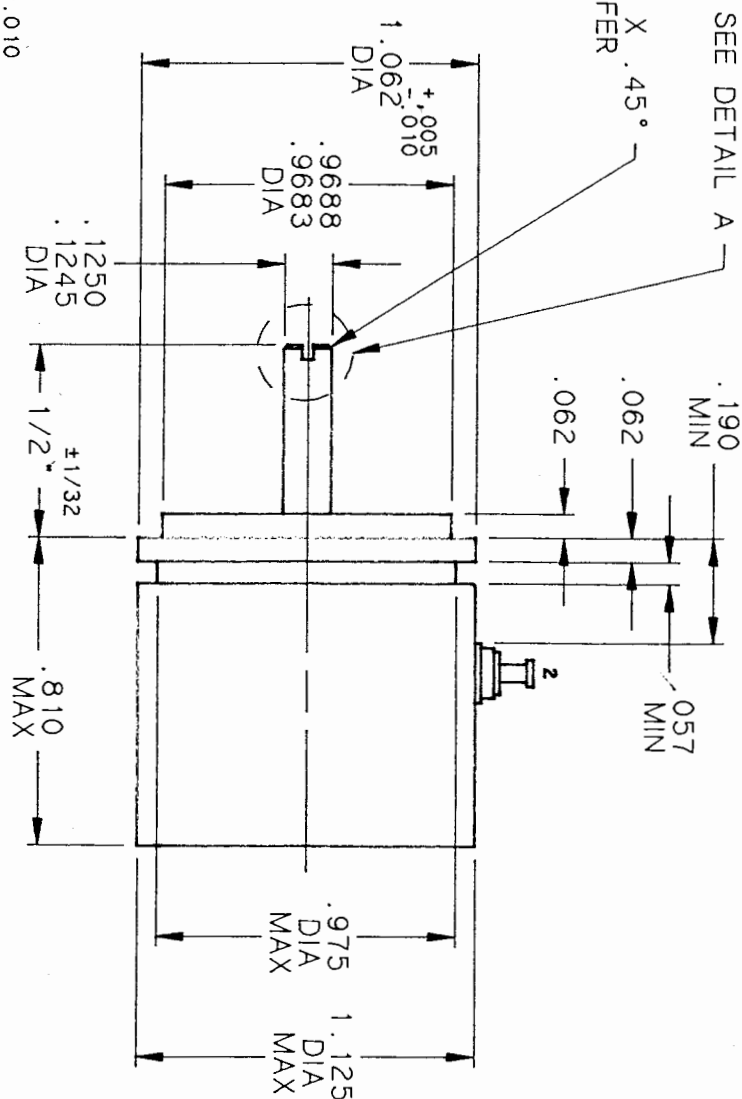
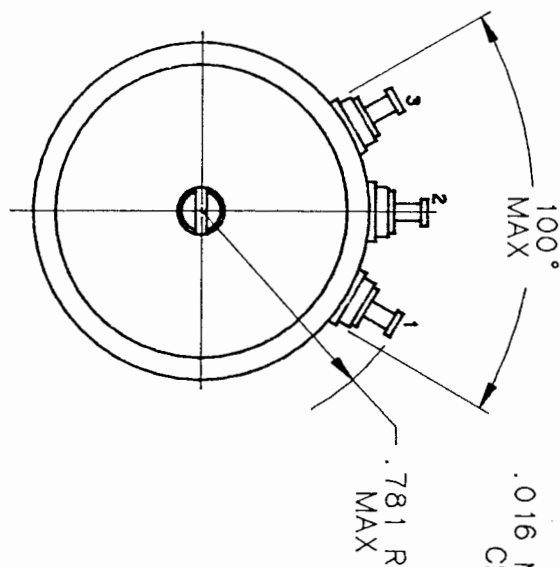
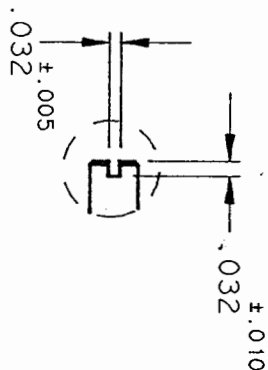


FIGURE 1

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