

EVENT COUNTERS SUBMINIATURE



Models B16 & L16 Ruggedized

MIL-I-8974 Equivalent Part Numbers	
Mil Spec	L-3 EDI Commercial
M8974/2-003*	B16C8A-232
M8974/2-004*	B16C8CE-232

*MIL Spec numbers are no longer available

The Electroynamics subminiature event counters were designed to meet the most difficult requirements of many military and aerospace applications. These rugged counters meet or exceed an array of tough environmental specifications including shock, vibration, temperature and are packaged in a hermetically sealed miniature enclosure. A variety of mounting configurations are available as shown on pages 78 and 79. We also welcome inquires for special requirements.

The ruggedized event counters are assembled and filled with a dielectric lubricant that dampens the effects of extreme vibration and thermal shock.

FEATURES

- Rugged design
- Hermetically sealed

MECHANICAL SPECIFICATIONS

Case: Copper-nickel or brass, with black face. E and F mounts are nickel-plated case with black face.

Max. case length: 1.094 in.

Flange: Brass

Terminals: Solder hook

Weight: Standard: Will not exceed 1.2 ounces with C flange
Ruggedized: Will not exceed 1.8 ounces with C flange

Numerals: .035" wide, .078" high. All digits are white on black.

ORDERING INFORMATION

When ordering, show model number first (B), then operating voltage, case type, maximum counts (4 or 5 digit), mount type, and mount setback desired. If this is a special part, a factory modification number will be added at the end of the ordering number. This order chart lists standard features. Other ratings and configurations are also available. Example: B16C8CE-1

Model Number	Operating Voltage	Case Type	Maximum Hours Maximum Event 4,5,&6 Digit	Mount Type	Mount Setback	Standard Factory Option Examples Code* Description
B = Standard	23-29 VDC	C = 4 Digit Square	8 = 9999	A = No Mount	A = Flush	1 Rotated 90° type C, C7, V, W mount
L = Ruggedized	18-32 Others available	G = 5 Digit Rect. F = 6 Digit Rect.	9 = 99999 6 = 999999	Others available, see page 78	B to Z See "Table A" on page 81 for "X" Dimensional Code desired	14 4-40 Clinch Nuts, for type C mount 136 Tin-plate front of mount, type C, C7, V & W

*See "Table C Standard Options" on page 81 for all codes



ELECTRICAL SPECIFICATIONS

Polarity: Not polarity sensitive

Dielectric: 500 VRMS @ 80,000 feet

Insulation Resistance: MIL-STD-202, Method 302, Condition B

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature Range: Standard: -65 to +125°C
Ruggedized: -55 to +125°C

STANDARD RATINGS

Count Rate: 5 Counts/Second

Minimum Impulse Time: 50ms / 150ms off

Thermal Shock: MIL-STD-202, Method 107, Condition B

Shock: MIL-STD-202, Method 213, Condition A

Vibration: MIL-STD-202, Method 204, Condition D except at 10 Gs max.

Life: One million counts @ 25°C

RUGGEDIZED RATINGS

Count Rate: 5 Counts/Second

Minimum Impulse Time: 50ms / 150ms off

Thermal Shock: MIL-STD-202, Method 107, Condition B, except temperature -55 °C to +125 °C

Shock: MIL-STD-202, Method 213, Condition A

Vibration: MIL-STD-202, Method 204, Condition D

Life: 5 million counts @ 25°C

POWER CONSUMPTION (for Standard & Ruggedized):

4 digit oil filled: 3.4 Watts max. @ 28VDC

4 digit dry: 1.5 Watts max. @ 28VDC

5 digit oil filled: 3.4 Watts max. @ 28VDC

5 digit dry: 2.5 Watts max. @ 28VDC

6 digit dry: 2.5 Watts max. @ 28VDC

This page consists of basic marketing information that is not defined as technical data under EAR Part 772.

ELAPSED TIME INDICATORS AND EVENT COUNTERS



Standard Cases & Mounts

Recommended mounting torque: 2 in. lbs.*

Recommended Panel Cut-Out:
.562" (9/16") X .562" (9/16"), 4 Digit

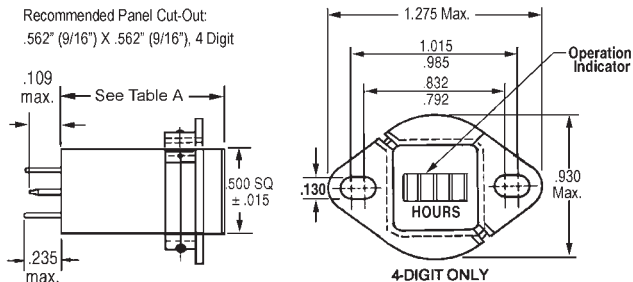


Figure 1. C2 ADJUSTABLE MOUNT

Recommended mounting torque: 3 to 5 in. lbs.*

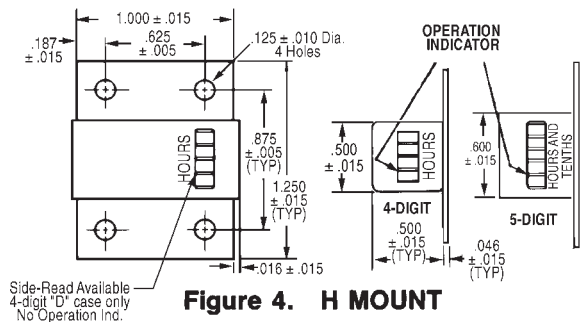


Figure 4. H MOUNT

Recommended mounting torque: 3 to 5 in. lbs.*

Recommended Panel Cut-Out: .562" (9/16") X .625" (5/8"), 5 Digit

Factory Codes
-1 Mt. Rotated 90°
-136 Tin Plate Front Mt.

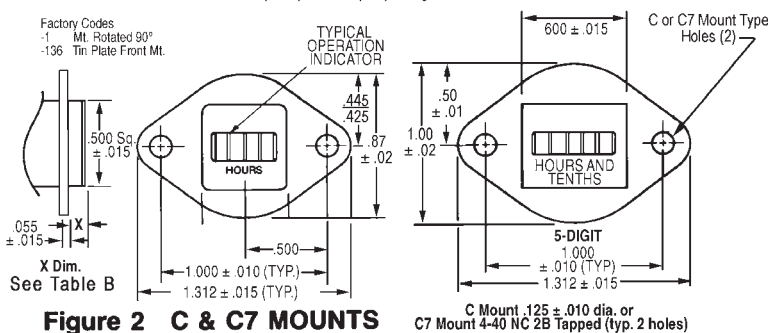


Figure 2 C & C7 MOUNTS

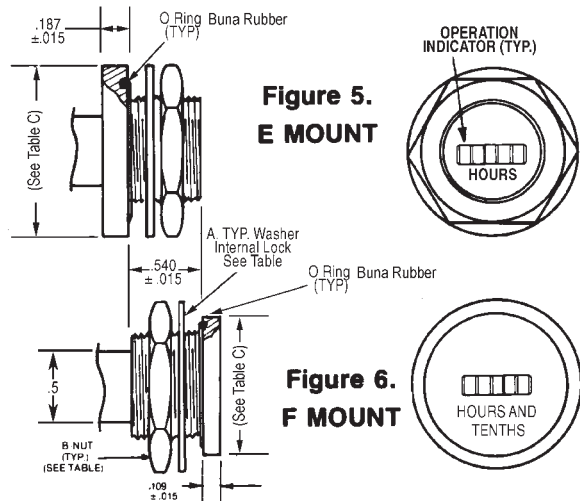


Figure 5. E MOUNT

Figure 6. F MOUNT

Recommended mounting torque: 3 to 5 in. lbs.*

Factory Codes
-1 Mt. Rotated 90°
-136 Tin Plate Front Mt.

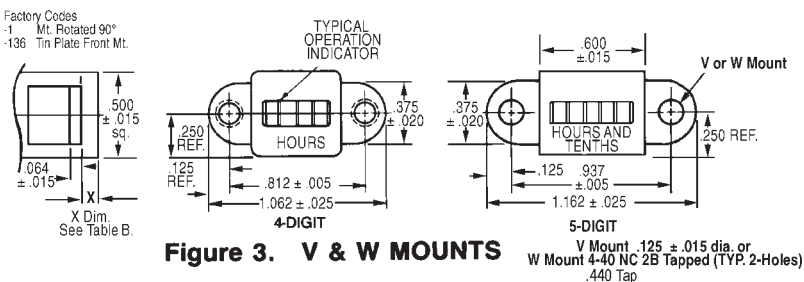


Figure 3. V & W MOUNTS

	A Max. Dia.	B (Nut)	C ± .015 E Mount	F Mount
4 Digit	1.250	3/4"-32 UN	1.250	1.000
5 Digit	1.410	7/8"-20 UN		1.375

Recommended mounting torque, E & F mount
4 digit 20 to 30 in. lbs.
5 digit 60 to 70 in. lbs.
6 digit 70 to 80 in. lbs.

Round Cases & Mounts (for ETI only)

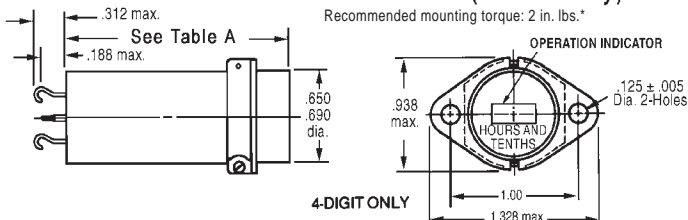


Figure 7. C2 ADJUSTABLE MOUNT

Factory Codes
-1 Mt. Rotated 90°
-136 Tin Plate Front Mt.

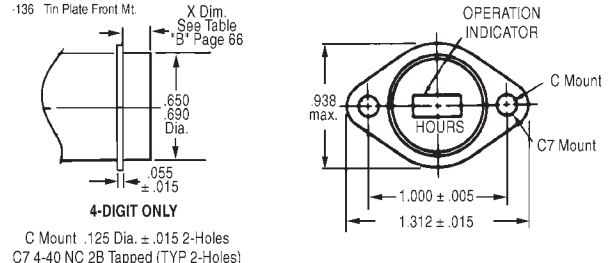


Figure 8. C & C7 MOUNTS

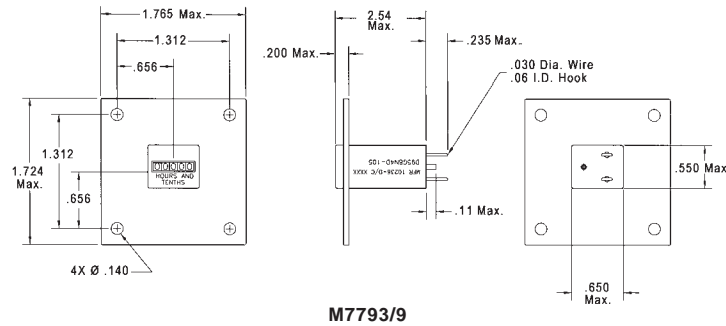
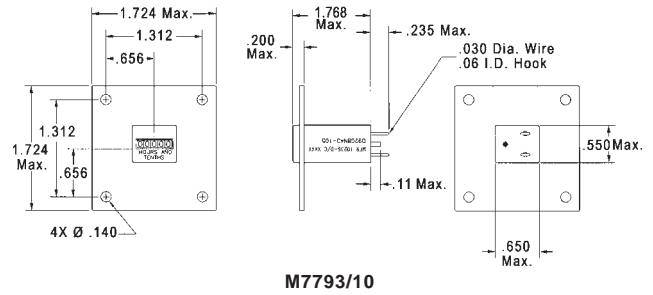
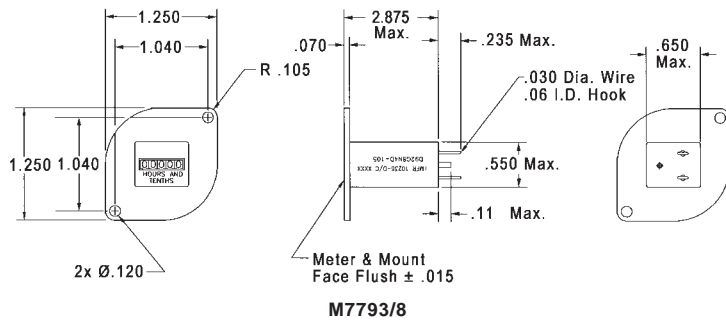
*When mounting flanged units, it is recommended to distribute the mounting torque evenly across the mounting surface. Each mounting screw should be alternately tightened about one quarter to one half turn until the recommended torque is attained on each screw. The mounting surface should be flat to avoid exerting stress on the body of the unit.

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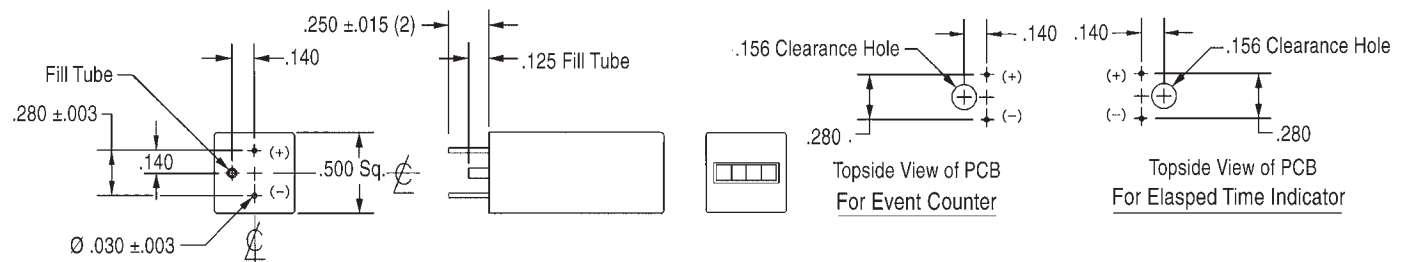
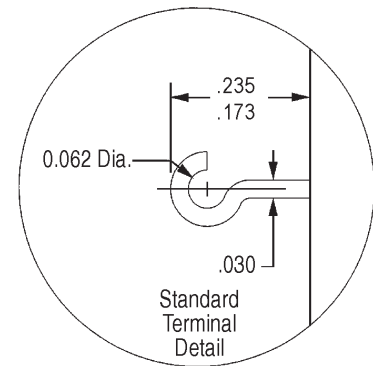
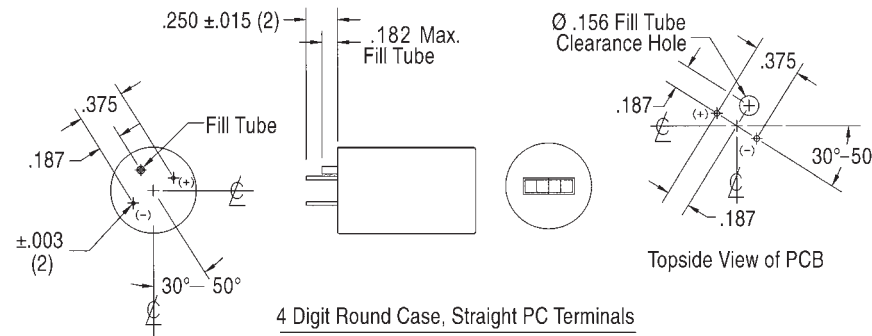
ELAPSED TIME INDICATORS AND EVENT COUNTERS



Standard Cases & Mounts



Standard and Straight Pin Headers



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ELAPSED TIME INDICATORS AND EVENT COUNTERS



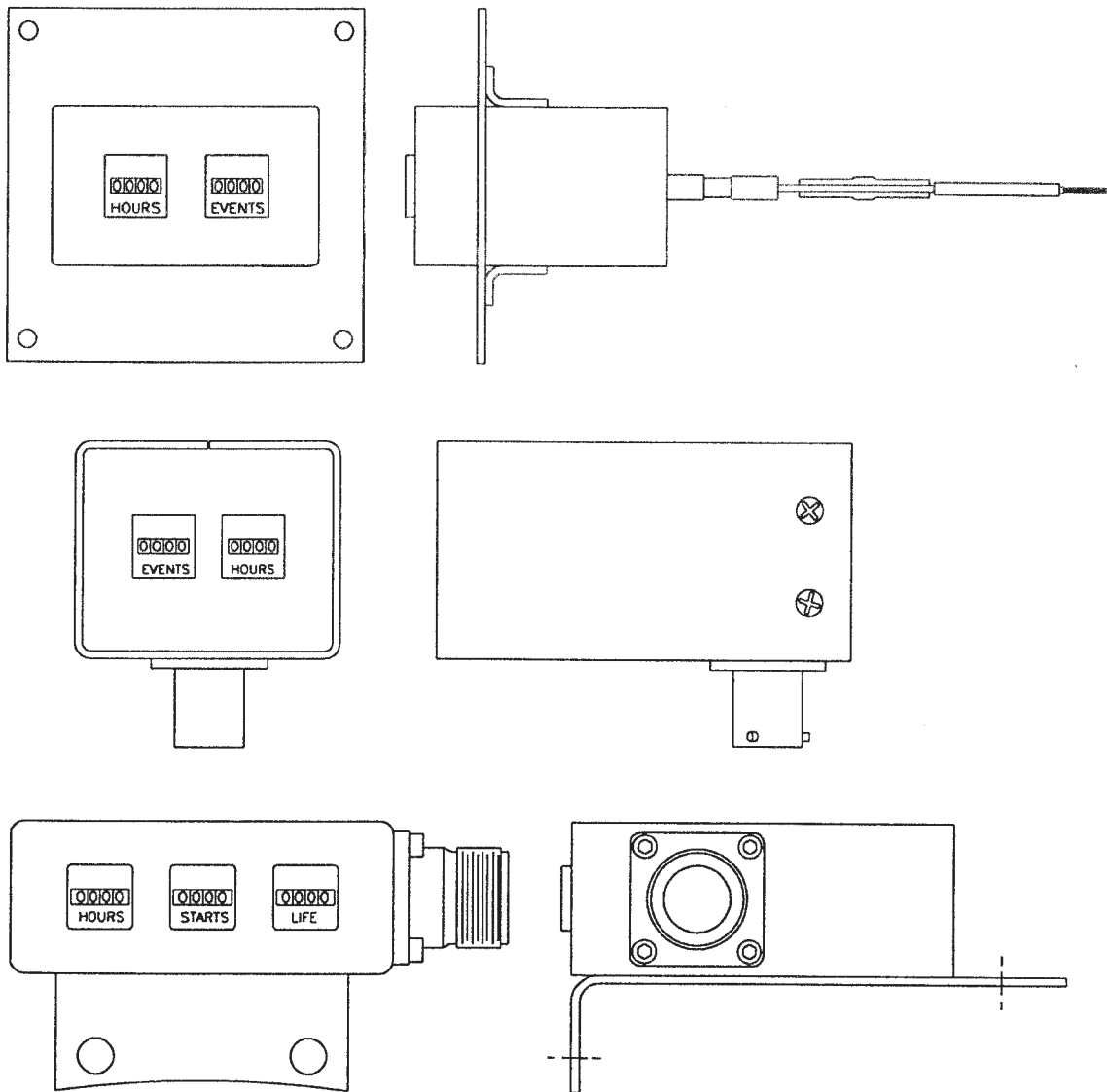
999A Series Enclosures

L-3 Electroynamics, Inc. offers customized enclosures to house a variety of Elapsed Time Indicators and Event Counters. The customized enclosures include the connectors, wire leads and mounting brackets, as required, for mounting into final assemblies. Refer to the Elapsed Time Indicator and Event Counter sections of the catalog for mechanical, electrical and environmental specifications.

DC series Elapsed Time Indicators meet or exceed requirements of MIL-M-7793-M7793/1, /2, /5 and MS21341 A & B.

AC series Elapsed Time Indicators meet or exceed applicable requirements of MIL-M-7793-M7793/3, /4, /6, /8, /9, /10 (if QPL'd), MS27650 and MS21651.

ENCLOSURE EXAMPLES



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MILITARY ELAPSED TIME INDICATOR GUIDE



Table A Specifications

Operating Voltage	Case Length Max. Inches	L-3 Electroynamics Model Number	Fig. No.	Military Number	
10-34 VDC	Short	D16C8C*-16	2	M7793/1-XXX	
		D16C8C2	1	M7793/1-001	
		D16C8A	—	M7793/1-002	
		D16C8C*-136	2	M7793/1-XXX	
		D16B8C2	7	M7793/2-001	
		D16B8A	—	M7793/2-002	
	2.062	D16B8C*-136	8	M7793/2-XXX	
		16B8C2	7	M7793/5-001	
		16C8C2	1	M7793/5-002	
		16C8C*-16	2	MS21341B-XX	
100-130 VAC 50-70Hz	1.094	D92C8C2	1	M7793/3-001	
		D92C8A	—	M7793/3-002	
	Short	D92C8C*-136	2	M7793/3-XXX	
		D92B8C2	7	M7793/4-001	
	2.062	D92B8A	—	M7793/4-002	
		D92B8C*-136	8	M7793/4-XXX	
		1.765	D95B8C2	7	M7793/6-001
			1.094	D95C8C2	1
100-130 VAC 380-420Hz	1.094	C7*-16	2	MS27651-XXA	
		C7*-1-16	2	MS27651-XXB	
		D95C8 C*-16	2	MS27651-XXC	
		C*-1-16	2	MS27651-XXD	
	Short	W*-16	3	MS27651-XXE	
		W*-1-16	3	MS27651-XXF	
		V*-16	3	MS27651-XXG	
		V*-1-16	3	MS27651-XXH	
15-40 VAC 380-420Hz	Replace D95 above with D25 Example: D25C8CE-16 = MS27650-05C		Replace MS27651 above with MS27650		

Notes:

- All meter readouts are to 9999 Hours, maximum.
- See "Table B Mount Setback Data" to select desired "X" Dim. (* in model no.) and corresponding military dash no. (xx & xxx).
- "-136" in model number denotes tin-plated mount face; "-16" in model number is same plus USAF testing; "-1" in model number is mount rotated 90°.

Qualified products purchased to the Military Part Number comply with the latest revision of the applicable Military Specification. Commercial, Non-Qualified, and EDI versions of Military Specification products are designed in accordance with the applicable Military Specification, but may not be tested and/or qualified per said Military Specification.

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Table B Mount Setback Data

M7793/1 to /4 Dash No.	MS21341, 27650, 27651 Dash No.	Setback ± .015 In.	"X" Dim. Code
-003	-01	Flush	A
-004	-02	.031	B
-005	-03	.062	C
-006	-04	.094	D
-007	-05	.125	E
-008	-06	.156	F
-009	-07	.188	G
-010	-08	.219	H
-011	-09	.250	I
-012	-10	.281	J
-013	-11	.312	K
-014	-12	.344	L
-015	-13	.375	M
-016	-14	.406	N
-017	-15	.438	O
-018	-16	.469	P
-019	-17	.500	R
-020	-18	.531	S
-021	-19	.562	T
-022	-20	.594	T-8
-023	-21	.625	U
-024	-22	.656	U-8
-025	-23	.688	V
-026	-24	.719	V-8
-027	-25	.750	W
-028	-26	.781	W-8
		.813	X
		.875	Y
		.938	Z

Table C Standard Options

Code	Additional Standard Factory Options	AC/DC Meters	Events
1	Flange rotated 90° clockwise from standard	X	X
2	Flange rotated 180° clockwise from standard	X	X
3	Flange rotated 270° clockwise from standard	X	X
13	#4-40 self locking nylon clinch nut on backside of flange	X	X
14	#4-40 self locking stainless steel clinch nut on backside of flange	X	X
16	Front face of flange is pure tin plated and unit is tested an additional 25 hours per MS27650 / 27651 / 21341	X	
26	A flat is added to E mounts for D hole installation - .710" for 4 digit meter, .810" for 5 digit meter	X	X
28	"C/C7 type flanges, RFI gasket - Must be used with tin plated flange (-105, -136, -200) E & F mounts - RFI o-ring"	X	X
46	.150" long .030" diameter straight pins in place of hook terminals	X	X
47	.250" long .030" diameter straight pins in place of hook terminals	X	X
75	RFI conductive glass window	X	X
105	Rear face of flange is pure tin plated	X	X
136	Front face of flange is pure tin plated	X	X
200	Front & rear face of flange is pure tin plated	X	X
237	Entire unit except terminals is painted and unit is tested an additional 25 hours per MS27650 / 27651 / 21341	X	
493	A flat is added to F mounts for D hole installation- .710" for 4 digit, .810" for 5 digit	X	X

ELAPSED TIME INDICATORS & EVENT COUNTERS