

REVISIONS

REV.	DESCRIPTION	DATE	APPROVAL
1.0	REL PER ER-40574		

Notes: Unless otherwise specified.

- 1. Pushbutton models T, U, J & L mate with standard switch/indicator models 52, 59 & 59C, matrix systems 5M, 5SM, 505M and modules 50M, 50CM, 50SM, & 50M"D".
- 2. Pushbutton models E, F, G & H mate with H hi-impact shock assemblies 59C"Coded"/001, 59"Coded"/001 59"Coded"/001 & 52 indicator assemblies, modules 50M, 50CM & 50SM and four flange rear mount matrix systems 5SM (-2 only), 5M"Coded"/001 (-3 only) and 505M"Coded"/001 (-3 only), if requirements of MIL-S-901C are to be met.
- 3. Will Accept four (4) MS25237-(T-1-3/4) lamps. (Not furnished).
- 4. See catalog for ordering information.
- 5. Weight: 0.023 Lb., including lamps.
- 6. When installed, visible surfaces are non-glare black.
- 7. Seal material: per ZZ-R-765.
- 8. Pushbuttons shall be marked with federal identification code (12522), date code (YR. WK.) and keying index number (when applicable). Additional (special) marking by customer request requires a 50P worksheet.
- 9. Lamp circuitry: Pushbuttons are available in either common lamp ground (CLG) or with split lamp ground (SLG)
Split lamp ground: Lamps 1 & 4 are common to one contact, lamps 2 & 3 are common to another contact. (See Charts and schematics on sheet 3).
- 10. Standard configurations are listed below unless otherwise specified.
 - 10.1 Pushbutton display styles "A" thru "H" (CLG), will be assembled with the latch on the bottom while viewing the display area.
 - 10.2 Pushbutton display styles "F", "G" & "H" (SLG), will be assembled with the latch on the bottom while viewing the display area.

(Notes cont'd on sheet 2)

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: DECIMALS .XX ± ANGLES ± .XXX ±	APPROVALS	DATE	TITLE PUSHBUTTON, ILLUMINATED 4 LAMP, SEALED SQUARE			
	DRAWN Tony Hana	4-3-08				
MATERIAL N/A	CHECKED		SIZE A	CAGE CODE 12522	DWG NO. SERIES 50	REV 1.0
FINISH N/A	PROJ. ENG.		SCALE NONE			SHEET 1 OF 11
DO NOT SCALE DRAWING	MGMT.					

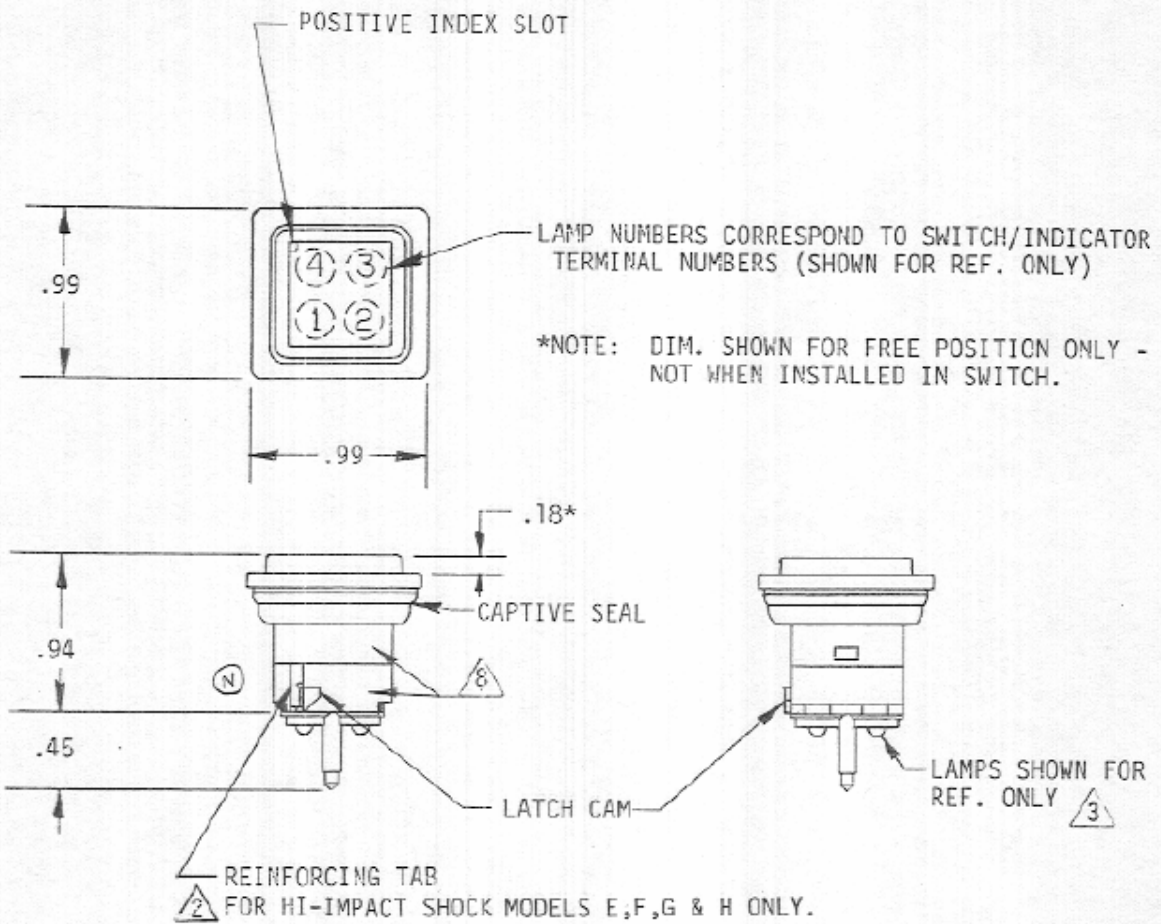
Notes: Continued

11. Standard configurations cont'd.

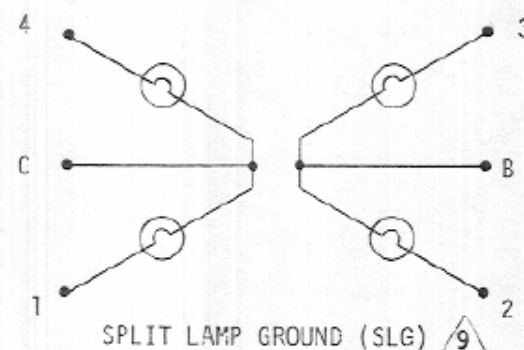
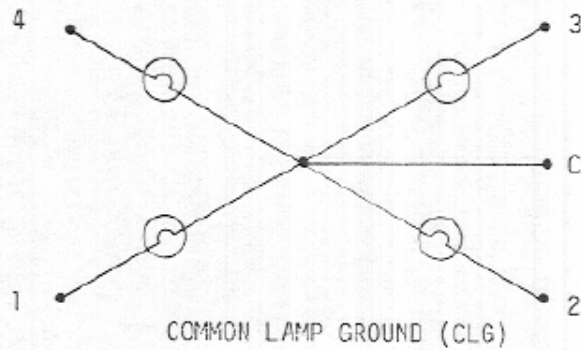
10.3 Pushbutton display styles "A" thru "E" (SLG), will be assembled with the latch to the left while viewing the display area

10.4 When pushbutton is rotated 90, legend must be installed so that it remains right reading.

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NON HI-IMPACT SHOCK MODEL	HI-IMPACT SHOCK MODEL	DESCRIPTION	NON HI-IMPACT SHOCK MODEL	HI-IMPACT SHOCK MODEL	DESCRIPTION
T	E	BASIC PUSHBUTTON COMMON LAMP GROUND	J	G	BASIC PUSHBUTTON SPLIT LAMP GROUND
U	F	RFI SHEILDDED COMMON LAMP GROUND	L	H	RFI SHEILDDED SPLIT LAMP GROUND



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LEGEND DISPLAY OPTIONS

TYPE	NON-ILLUMINATED		ILLUMINATED	
	LEGEND	BACKGROUND	LEGEND	BACKGROUND
01	BLACK	TRANSLUCENT COLOR	BLACK	COLOR
02	NOT EASILY DISCERNIBLE	TRANSLUCENT WHITE	BLACK	COLOR
03	TRANSLUCENT COLOR	BLACK	VISIBLE IN COLOR	BLACK
04	NOT EASILY DISCERNIBLE	APPEARS TRANSLUCENT WHITE	VISIBLE IN COLOR	OPAQUE
05	BLACK FILLED ENGRAVING ON EXTERNAL SURFACE	TRANSLUCENT WHITE FACE PLATE	BLACK	COLOR
06	TRANSLUCENT WHITE	BLACK	VISIBLE IN COLOR	BLACK
07				
08	BLACK	TRANSLUCENT WHITE	BLACK	COLOR
09	NOT EASILY DISCERNIBLE	BLACK	VISIBLE IN COLOR	BLACK

TYPES 01 THRU 08

NOMINAL LUMINANCE VALUES FOR STANDARD COLOR FILTERS ARE SHOWN IN THE TABLE ON SHEET 6 OF 11, THIS TABLE FOR REFERENCE ONLY. ALL VALUES SHOWN ARE WHEN ILLUMINATED BY MS25237-327 LAMPS OF $9.34 \pm .02$ mscp AT $28.00 \pm .01$ VDC.

TYPE 09

SUNLIGHT READABLE DISPLAY, WHEN ENERGIZED, LEGEND SHALL BE READILY DISCERNIBLE UNDER 10,000 Ft. C. AND WHEN NOT ENERGIZED, LEGEND SHALL NOT BE DISCERNIBLE.

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COLOR	CODE	NOMINAL BRIGHTNESS IN FOOT LAMBERTS FOR LEGEND DISPLAY TYPES				
		1 AND 3	2 AND 4	5	6 AND 8	7
BLUE	B	25	35	20	35	3
GREEN	G	160	190	90	190	20
RED	R	160	190	90	190	20
WHITE	W	390	400	150	250	30
AMBER	A	190	220	90	220	20
YELLOW	Y	300	375	150	375	40

1. WITH RFI SCREEN. DISPLAY BRIGHTNESS DIMINISHED APPROXIMATELY 60% OF THE VALUES ABOVE.
2. EXCEPT AMBER; COLORS ABOVE ARE IN ACCORDANCE WITH MIL-S-22885/56, RED AND YELLOW ARE ALSO IN ACCORDANCE WITH MIL-C-25050.

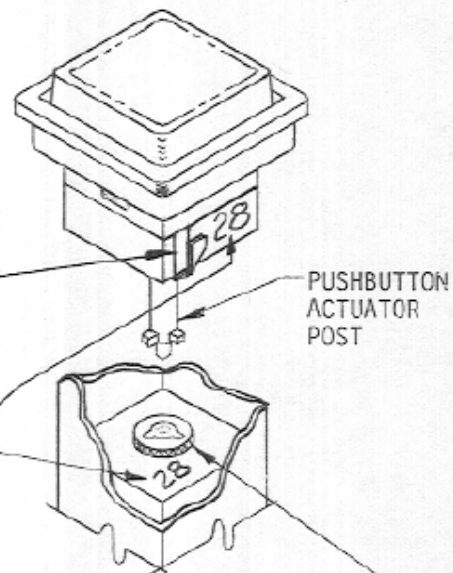
KEYED OPTION:

UP TO 60 KEYED CONFIGURATIONS ARE AVAILABLE. A KEYED PUSHBUTTON WILL MATE ONLY WITH ITS MATCHING KEYED SWITCH/INDICATOR MODULE.



REINFORCING TAB FOR HI-IMPACT SHOCK MODELS E, F, G & H ONLY

BOTH PUSHBUTTON AND SWITCH/INDICATOR ARE MARKED WITH KEYING NUMBER

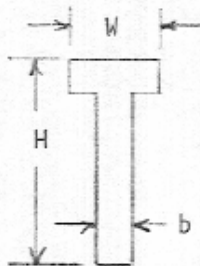


KEY HOLE WASHER, SWITCH MODULE (REF.)

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LEGENDS:

1. TYPES 01 THRU 04, 06 & 08 EMPLOY A POSITIVE OR NEGATIVE IMAGE ON THIN MYLAR PHOTOGRAPHIC FILM, INSTALLED BEHIND THE PUSHBUTTON FACEPLATE (CLEAR).
2. TYPE 05 EMPLOYS ENGRAVING, WITH A CONTRASTING COLOR-FILL, INTO THE FRONT SURFACE OF THE PUSHBUTTON FACEPLATE.
3. TYPE 09 LEGENDS ARE "HIDDEN".
4. CHARACTER FORMAT:
 - 4.1 TYPES 01 THRU 04 AND 06 THRU 09, CHARACTER FORMAT FOR ALPHA-NUMERICS IS AN ALTERNATE GOTHIC NO. 2, (SANS-SERIF), WITH LINE RELATIONSHIPS AS SHOWN BELOW. STANDARD LEGEND HEIGHTS FOR THESE TYPES ARE 1 = .100", 2 = .125" & 3 = .187"
 - 4.2 TYPE 05, CHARACTER FORMAT FOR ALPHA-NUMERICS IS EITHER "NORMAL" OR "CONDENSED" GOTHIC, WITH LINE RELATIONSHIPS AS SHOWN BELOW. STANDARD LEGEND HEIGHTS FOR TYPE 05 ARE 1 = .100", 2 = .125 & 3 = .187"



LETTER HEIGHT TO WIDTH RATIO:

EXAMPLE: LETTER "T" = 2.5 : 1

LINE WEIGHT RATIO: $\frac{H}{b} =$ 6:1 FOR ALL TYPES EXCEPT 05.
8:1 FOR TYPE 05

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LEGEND ARRANGEMENTS

DISPLAY STYLE CODE	LEGEND AREA	CHARACTERS PER COLUMN OR LINE * MAX. NO.				COLUMNS OR LINES* PER AREA MAX. NO.					
		CHARACTER HEIGHT	LEGEND AREA				CHARACTER HEIGHT	LEGEND AREA			
			1	2	3	4		1	2	3	4
A	1	.100	8				.100	5			
		.125	6				.125	3			
		.187	3				.187	2			
B	1	.100	8	2			.100	2	2		
	2	.125	6	6			.125	1	1		
		.187	3	3			.187	1	1		
C	1 2	.100	3	3	8		.100	2	2	2	
	3	.125	3	3	6		.125	1	1	1	
		.187	2	2	3		.187	1	1	1	
D	1	.100	8	3	3		.100	2	2	2	
	2 3	.125	6	3	3		.125	1	1	1	
		.187	3	2	2		.187	1	1	1	
E	1 2	.100	3	3	3	3	.100	2	2	2	2
	3 4	.125	3	3	3	3	.125	1	1	1	1
		.187	2	2	2	2	.187	1	1	1	1
F	1 2	.100	5	5			.100	2	2		
		.125	3	3			.125	1	1		
		.187	2	2			.187	1	1		
G	1 2 3	.100	5	2	2		.100	2	2	2	
		.125	3	1	1		.125	1	1	1	
		.187	2	1	1		.187	1	1	1	
H	1 3 2	.100	2	2	5		.100	2	2	2	
		.125	1	1	3		.125	1	1	1	
		.187	1	1	2		.187	1	1	1	

EXAMPLES
TYPICAL LEGEND
ARRANGEMENTS

BYPASS PUMP CHECK

AUTO
MANUAL

A	B
MOTOR	

POWER	
ON	OFF

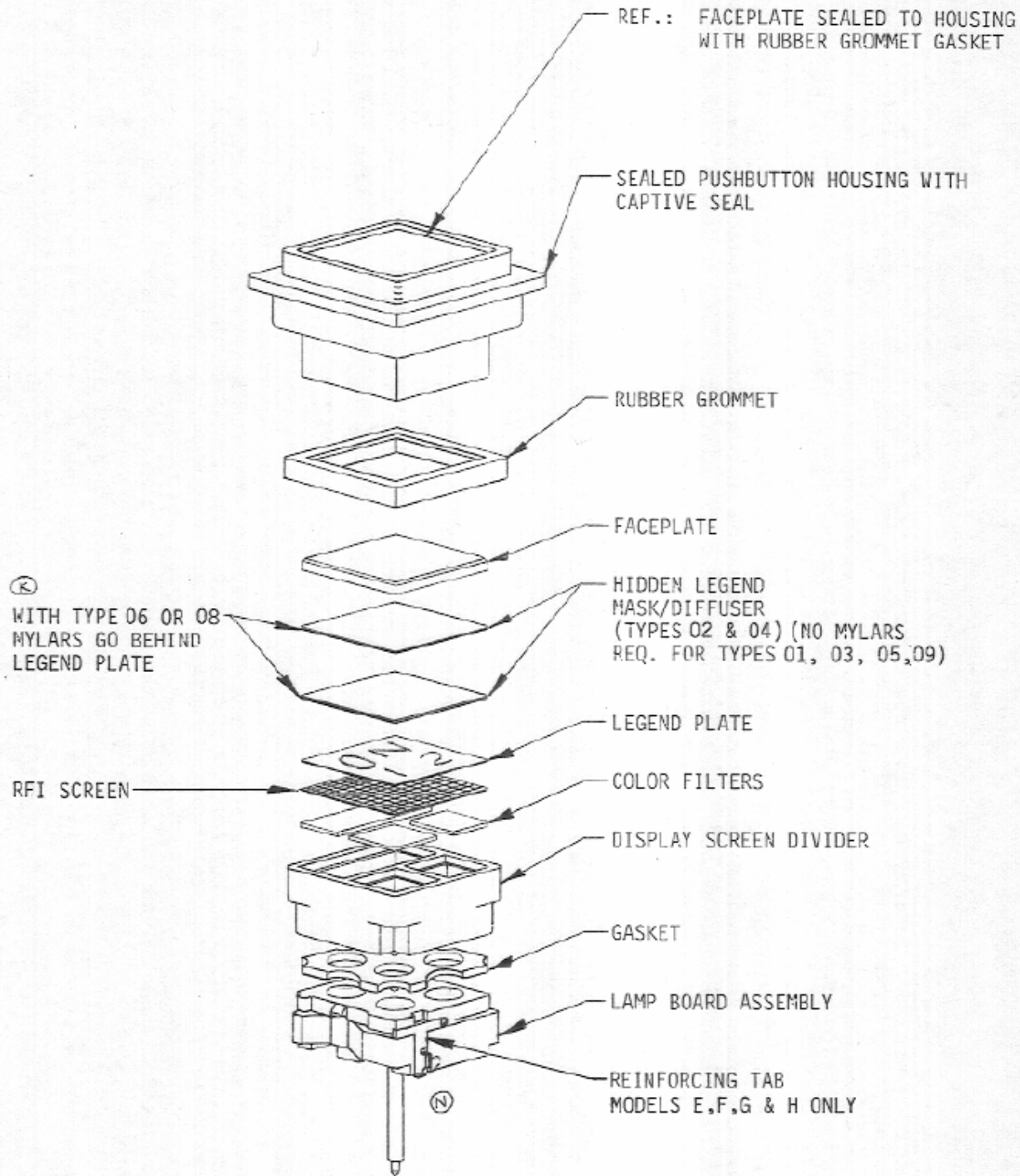
A-1	B-1
B-2	A-2

M	S
U	T
V	O
E	P

P	GO
A	NO
R	GO
T	

AC	E
	L
DC	E
	C

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CODE IDENT NO.	DRAWING NO.	REV.	SHEET
12522	SERIES 50	1.0	8

SPECIFICATIONS, SERIES 50 PUSHBUTTON:

THE PUSHBUTTONS DEFINED BY THIS SPECIFICATION CONTROL DRAWING MEET OR EXCEED ALL APPLICABLE REQUIREMENTS OF MIL-S-22885.

1. MECHANICAL:

- A. WEIGHT .028 POUND, INCLUDING LAMPS
- B. FACEPLATE WILL WITHSTAND 40 POUND DISTRIBUTED LOAD.
- C. RELAMPING MAY BE ACCOMPLISHED WITHOUT TOOLS.
- D. LAMP RETENTION FORCE = 4 GRAMS MINIMUM.

2. ELECTRICAL:

- A. DIELECTRIC STRENGTH
 - SEA LEVEL 1000 VRMS
 - 70,000 FEET 450 VRMS
- B. INSULATION RESISTANCE 1,000 MEGOHMS @ 500 VDC PER MIL-STD-202 METHOD 302

3. ENVIRONMENTAL (TO BE MET INSTALLED IN MATING SEALED SWITCH/INDICATOR HOUSING)

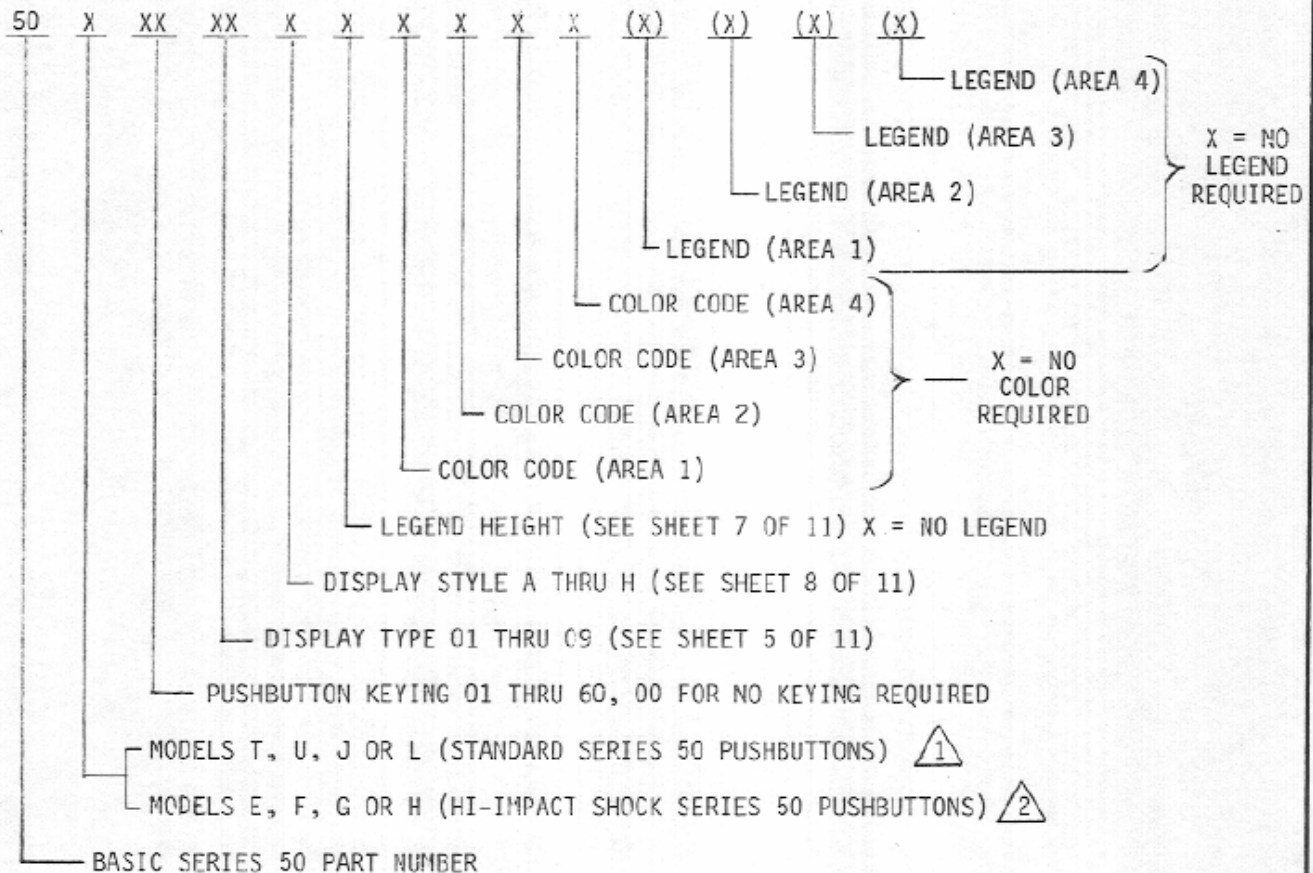
- A. TEMPERATURE - OPERATING -65°C TO +55°C
- B. THERMAL SHOCK -55°C TO +85°C, PER MIL-STD-202C, METHOD 107, TEST CONDITION A.
- C. ALTITUDE SEA LEVEL TO 70,000 FEET
- D. VIBRATION .06 D.A. OR 15 G'S, 10 TO 2,000 HZ PER MIL-STD-202C, METHOD 204, TEST CONDITION B
- E. SHOCK 75 G'S, 6 +1MILLISECOND: PER MIL-STD-202C, METHOD 213, TEST CONDITION B
- F. SAND AND DUST PER MIL-STD-202C, METHOD 110, TEST CONDITION CONDITION B.
- G. HUMIDITY 10 DAYS, WITH 10 CYCLES AT 90-98 PERCENT RELATIVE HUMIDITY AT + 65° C PER MIL-STD 202, METHOD 106D. (S)

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3. ENVIRONMENTAL: CONT'D

- H. SALT SPRAY 96 HR., PER MIL-STD-202C, METHOD 101, TEST CONDITION A WITH PUSHBUTTON INSTALLED IN A MATING SWITCH/INDICATOR.
- I. FUNGUS NONE OF THE MATERIALS OR FINISHES USED IN THE CONSTRUCTION OF THIS ASSEMBLY WILL SUPPORT ANY FUNGUS ENCOUNTERED IN TROPICAL CLIMATES.
- J. EXPLOSION SWITCHES OR INDICATORS COMPLETE WITH THESE PUSHBUTTONS CAN BE SAFELY OPERATED UNDER LOAD IN AN EXPLOSIVE ATMOSPHERE WITHOUT DANGER OF EXPLOSION PER MIL-STD-202C, METHOD 109.
- K. DRIP PROOF FIVE GALLONS OF WATER, FIVE MINUTES DURATION PER MIL-STD-108.
- L. HI-IMPACT SHOCK PER MIL-S-901C (MODELS E, F, G & H ONLY, WHEN MATED WITH CORRECT HOUSINGS AND MODULES).

PART NUMBER CODE:



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Appendix A RoHS (Restriction of certain Hazardous Substance) Compliance requirement per EU Directive 2002/95/EC.

No Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr⁺⁶), PBB or PBDE is intentionally added to these devices. Any traces impurities of these substances contained in the parts are below RoHS specified threshold levels:

Substance	RoHS (Max allowed)
Cd (Cadmium)	100ppm or 0.01% by weight
Pb (Lead)	1000ppm or 0.1% by weight
Hg (Mercury)	1000ppm or 0.1% by weight
Cr6+ (Hexavelant Chromium)	1000ppm or 0.1% by weight
PBBs (Polybrominated Biphenyls)	1000ppm or 0.1% by weight
PBDEs (Polybrominated Dipheny Ethers)	1000ppm or 0.1% by weight

Exemptions to the RoHS Directive:

Lead as an alloying element in steel containing up to 0.35 % lead by weight, aluminum containing up to 0.4 % lead by weight and as a copper alloy containing up to 4 % lead by weight.

Note1: Lamps are not included.

Note2: The product does not contain printed circuit board (PCB).

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12522	SERIES 50	1.0	11