

INCH-POUND

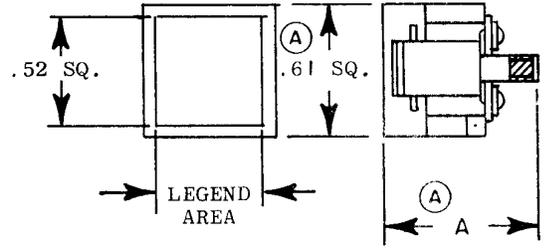
MIL-PRF-22885/102D
4 June 2010

SUPERSEDING
MIL-PRF-22885/102C
2 April 2004

PERFORMANCE SPECIFICATION SHEET
SWITCH, PUSHBUTTON, 4-LAMP, PUSHBUTTON AND LENS
ASSEMBLIES FOR, .610 SQUARE (DRIPPROOF, SUNLIGHT
READABLE, EMI/RFI SHIELDED)

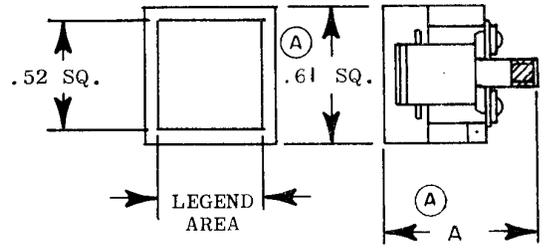
This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the switches described herein shall consist of this specification sheet and MIL-PRF-22885.



INCHES	MM
.52	13.2
.61	15.5
.71	18.0
1.01	25.6

Lamp Circuit 1 and 4
Style A – Without EMI/RFI Shielding
Style E – With EMI/RFI Shielding

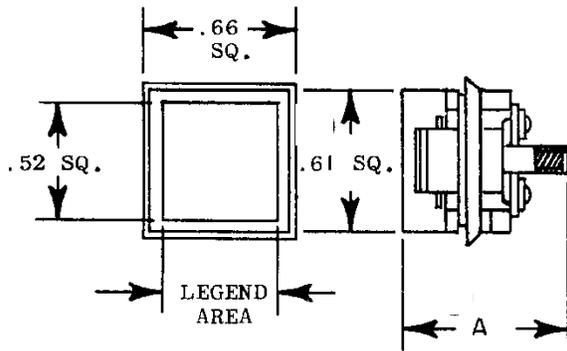


Lamp Circuit 3
Style B – Without EMI/RFI Shielding
Style F – With EMI/RFI Shielding

	DIM A
SHORT VERSION	.71
EXTENDED VERSION	1.01

FIGURE 1. PUSHBUTTON STYLES, (UNSEALED) A, B, E, F

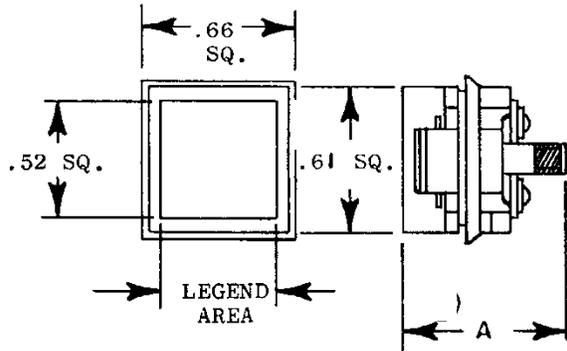
- NOTES:
1. Dimensions are in inches.
 2. Unless otherwise stated, tolerances are $\pm .010$ (0.25 mm) for three place decimals and $\pm .03$ (0.8 mm) for two place decimals.
 3. Lamps shown for reference only.
 4. The design configuration is optional within the envelope dimensions shown.



INCHES	MM
.52	13.2
.61	15.5
.66	16.7
.71	18.0
1.01	25.6

	DIM A
SHORT VERSION	.71
EXTENDED VERSION	1.01

Lamp Circuit 1 and 4
 Style C – Integral Seal
 Style G – Integral Seal/EMI/RFI Shielding



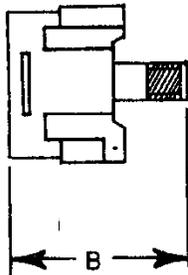
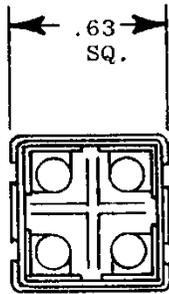
Lamp Circuit 3
 Style D – Integral Seal
 Style H – Integral Seal/EMI/RFI Shielding

FIGURE 2. PUSHBUTTON STYLES, (SEALED) C, D, G, H

NOTES:

1. Dimensions are in inches.
2. Unless otherwise stated, tolerances are ± 0.010 (0.25 mm) for three place decimals and ± 0.03 (0.8 mm) for two place decimals.
3. Lamps shown for reference only.
4. The design configuration is optional within the envelope dimensions shown.

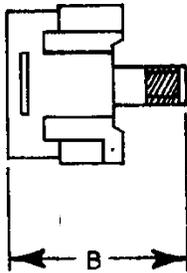
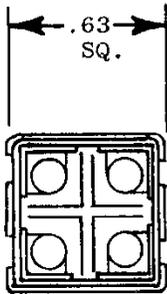
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INCHES	MM
.63	16.0
.69	17.5
.99	25.1

	DIM B
SHORT VERSION	.69
EXTENDED VERSION	.99

Lamp Circuit 1 and 4
 Style A – Without EMI/RFI Shielding
 Style E – With EMI/RFI Shielding 4/

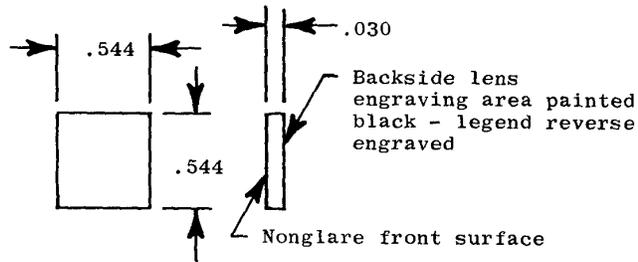


Lamp Circuit 3
 Style B – Without EMI/RFI Shielding
 Style F – With EMI/RFI Shielding 4/

FIGURE 3. SPARE PART, PUSHBUTTON STYLES, (UNSEALED) A, B, E, F

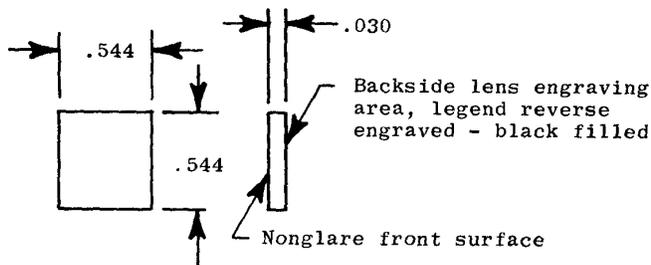
NOTES:

1. Dimensions are in inches.
2. Unless otherwise stated, tolerances are $\pm .010$ (0.25 mm) for three place decimals and $\pm .03$ (0.8 mm) for two place decimals.
3. The design configuration is optional within the envelope dimensions shown.
4. EMI/RFI screen not shown for clarity.

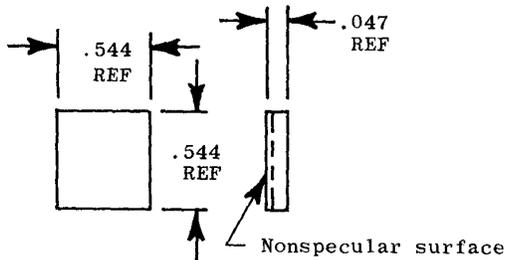


<u>INCHES</u>	<u>MM</u>
.030	.76
.047	1.19
.544	13.82

LENS STYLE 1: FRONT LENS PLATE, TYPE N



LENS STYLE 2: FRONT LENS PLATE, TYPE W AND C

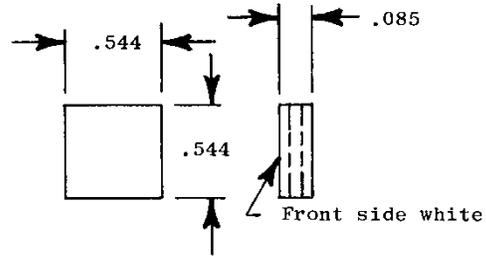


LENS STYLE 3: FRONT LENS PLATE, LAMINATED, TYPE S ^{3/}

FIGURE 4. SPARE PART, FRONT LENS PLATE

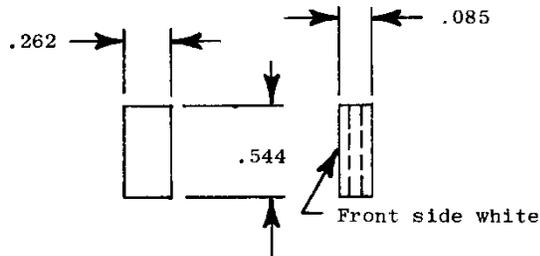
NOTES:

1. Dimensions are in inches.
2. Unless otherwise stated, tolerances are $\pm .010$ (0.25 mm) for three place decimals and $\pm .03$ (0.8 mm) for two place decimals.
- ^{3/} For reference only. Lens Style 3 must be procured as total laminated assembly of lens Type S.

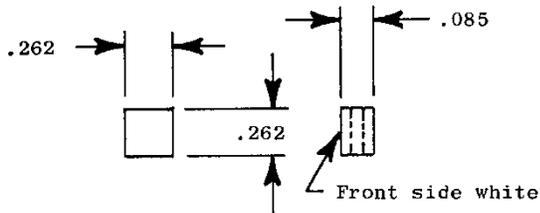


LENS STYLE 4: LAMINATED FILTER

<u>INCHES</u>	<u>MM</u>
.085	2.16
.262	6.66
.544	13.82



LENS STYLE 5: LAMINATED FILTER

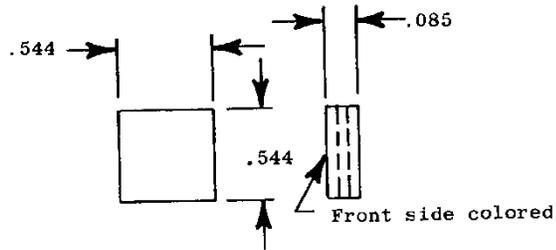


LENS STYLE 6: LAMINATED FILTER

FIGURE 5. SPARE PART, LAMINATED FILTER, TYPE N AND TYPE W

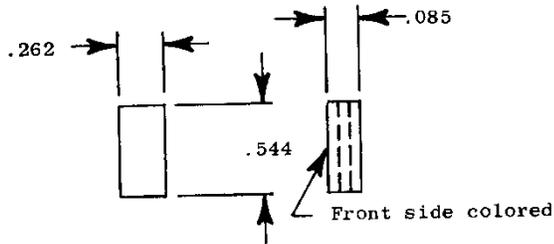
NOTES:

1. Dimensions are in inches.
2. Unless otherwise stated, tolerances are ± 0.010 for three place decimals and ± 0.03 for two place decimals.

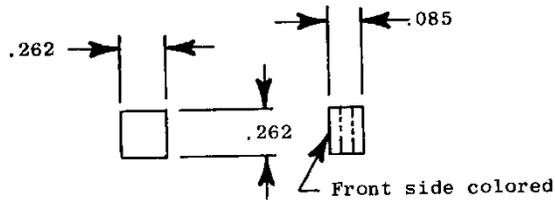


LENS STYLE 7: LAMINATED FILTER

<u>INCHES</u>	<u>MM</u>
.085	2.16
.262	6.66
.544	13.82



LENS STYLE 8: LAMINATED FILTER



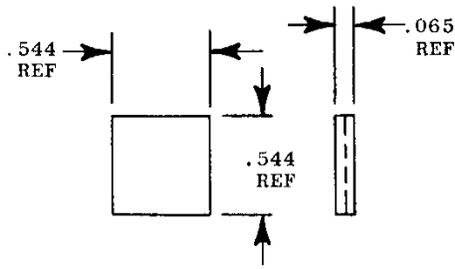
LENS STYLE 9: LAMINATED FILTER

FIGURE 6. SPARE PART, LAMINATED FILTER, TYPE C

NOTES:

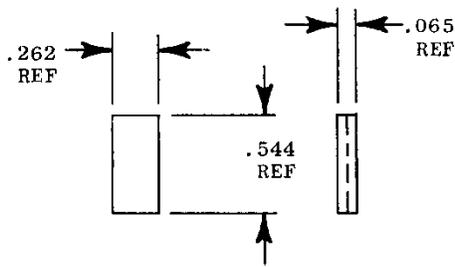
1. Dimensions are in inches.
2. Unless otherwise stated, tolerances are ± 0.010 for three place decimals and ± 0.03 for two place decimals.

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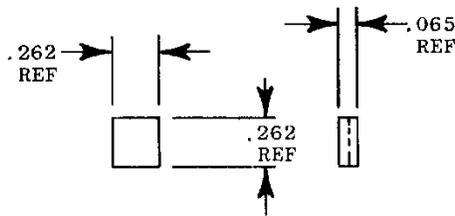


LENS STYLE 10: LAMINATED FILTER

<u>INCHES</u>	<u>MM</u>
.065	1.65
.262	6.65
.544	13.82



LENS STYLE 11: LAMINATED FILTER



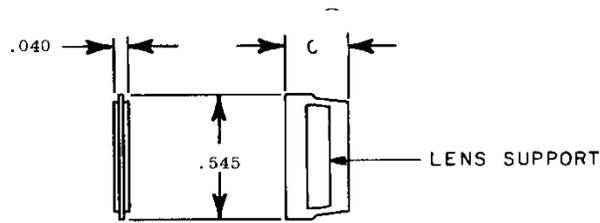
LENS STYLE 12: LAMINATED FILTER

FIGURE 7. SPARE PART, LAMINATED FILTER, TYPE S 3/

NOTES:

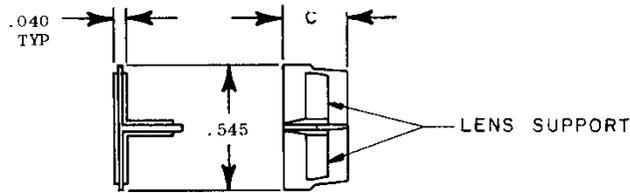
1. Dimensions are in inches.
2. Unless otherwise stated, tolerances are $\pm .010$ for three place decimals and $\pm .03$ for two place decimals.
- 3/ For reference only. Lens Style 10, 11, and 12 must be procured as total laminated assembly of lens Type S.

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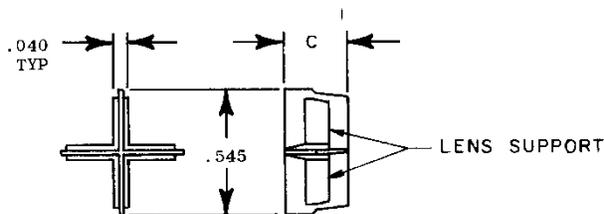
2-WAY DIVIDER

<u>INCHES</u>	<u>MM</u>
.040	1.02
.252	5.40
.545	13.84
.552	14.02



3-WAY DIVIDER

	<u>DIM C</u>
SHORT VERSION	.252
EXTENDED VERSION	.552



4-WAY DIVIDER

NOTES:

1. Dimensions are in inches.
2. Unless otherwise stated, tolerances are $\pm .010$ for three place decimals and $\pm .03$ for two place decimals.
3. Type S dividers cannot be ordered separately.
4. Design of lens support optional within envelope dimensions shown.

FIGURE 8. Spare part, divider, type W, N and C. (See note 3)

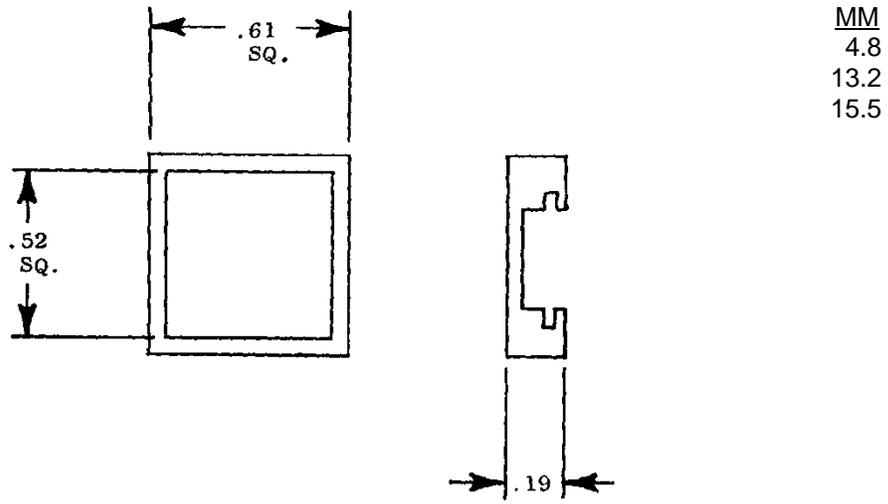


FIGURE 9. SPARE PART, LENS RETAINER

NOTES:

1. Dimensions are in inches.
2. Unless otherwise stated, tolerances are $\pm.010$ for three place decimals and $\pm.03$ for two place decimals.

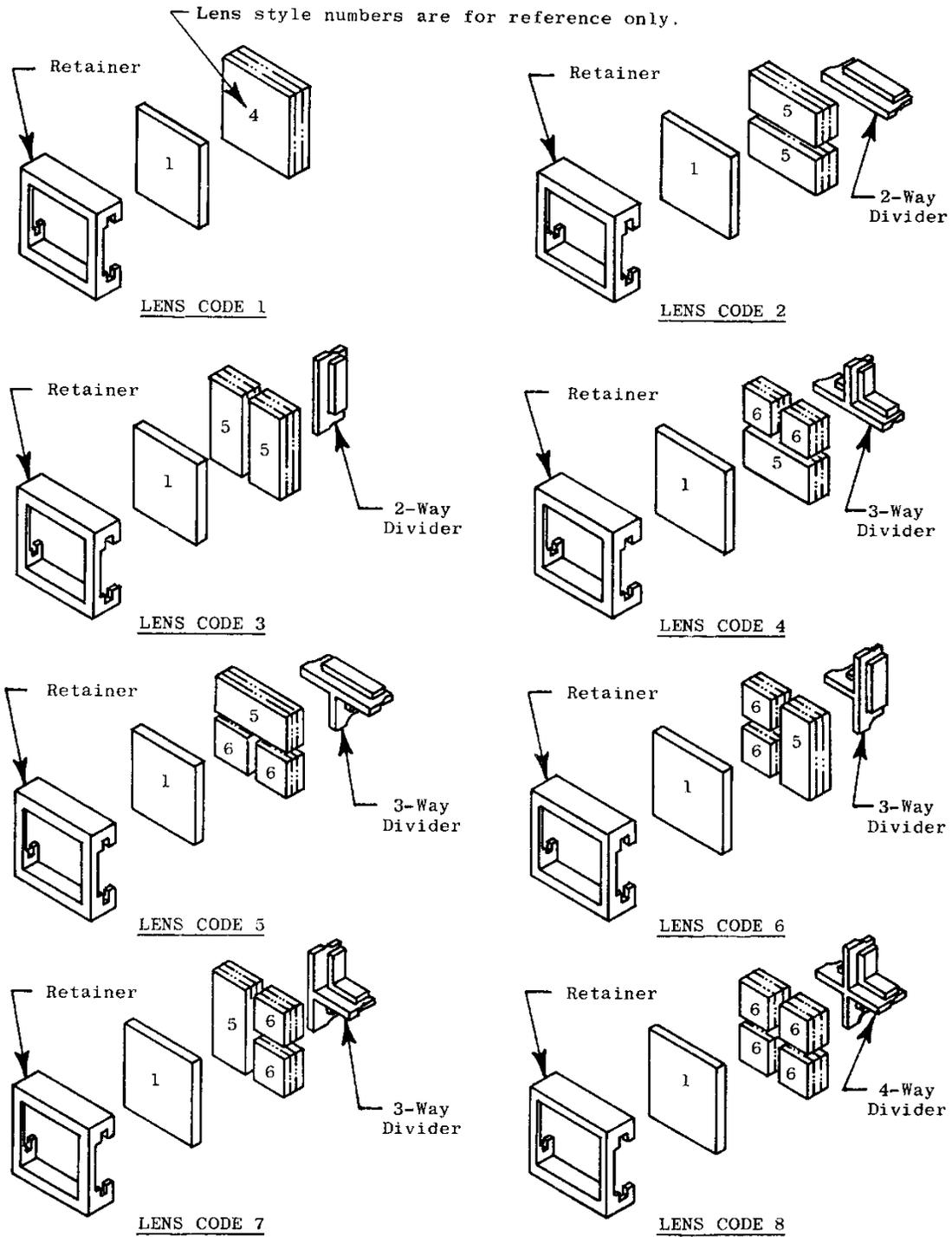


FIGURE 10. LENS ASSEMBLY DIAGRAM, TYPE N

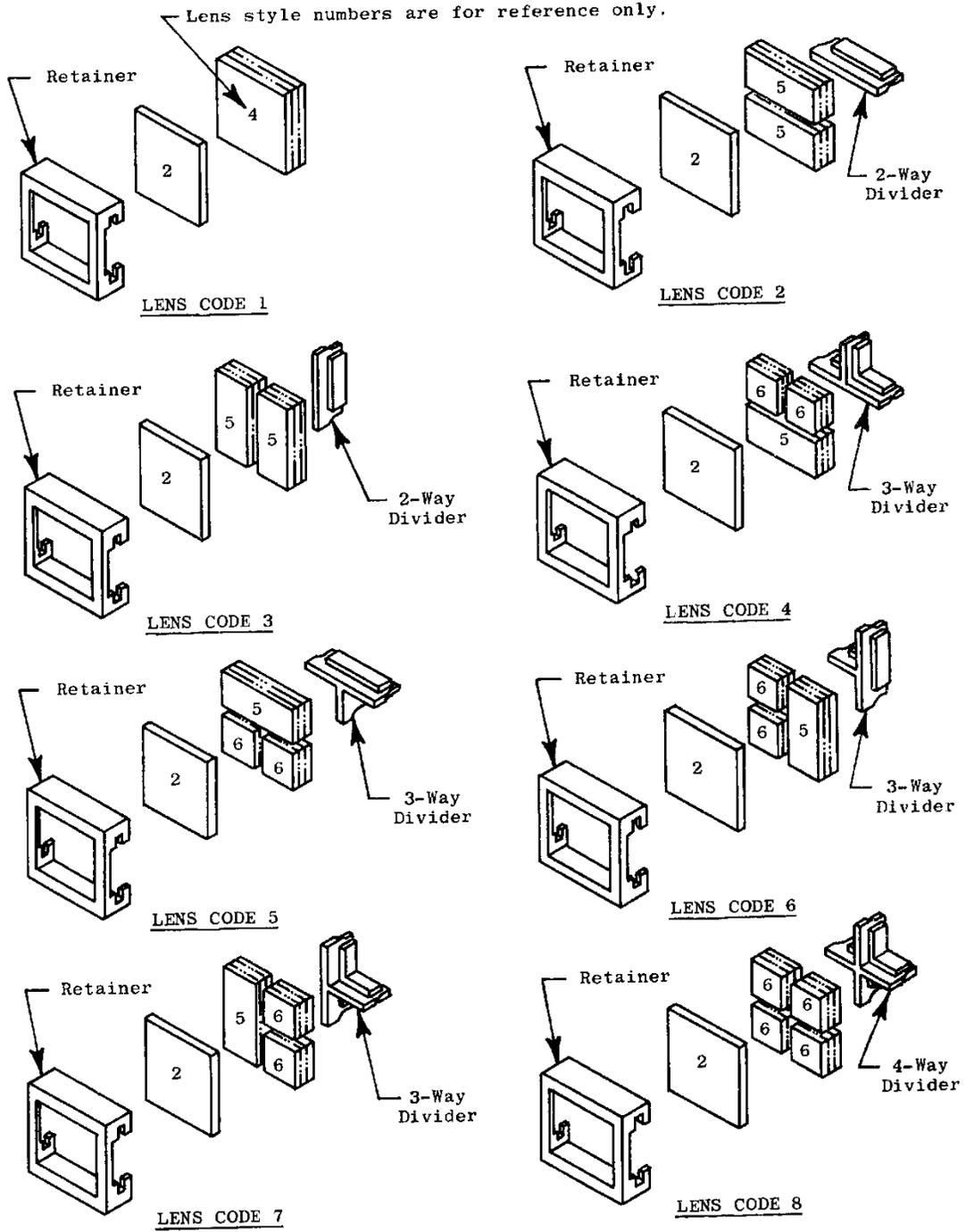


FIGURE 11. LENS ASSEMBLY DIAGRAM, TYPE W

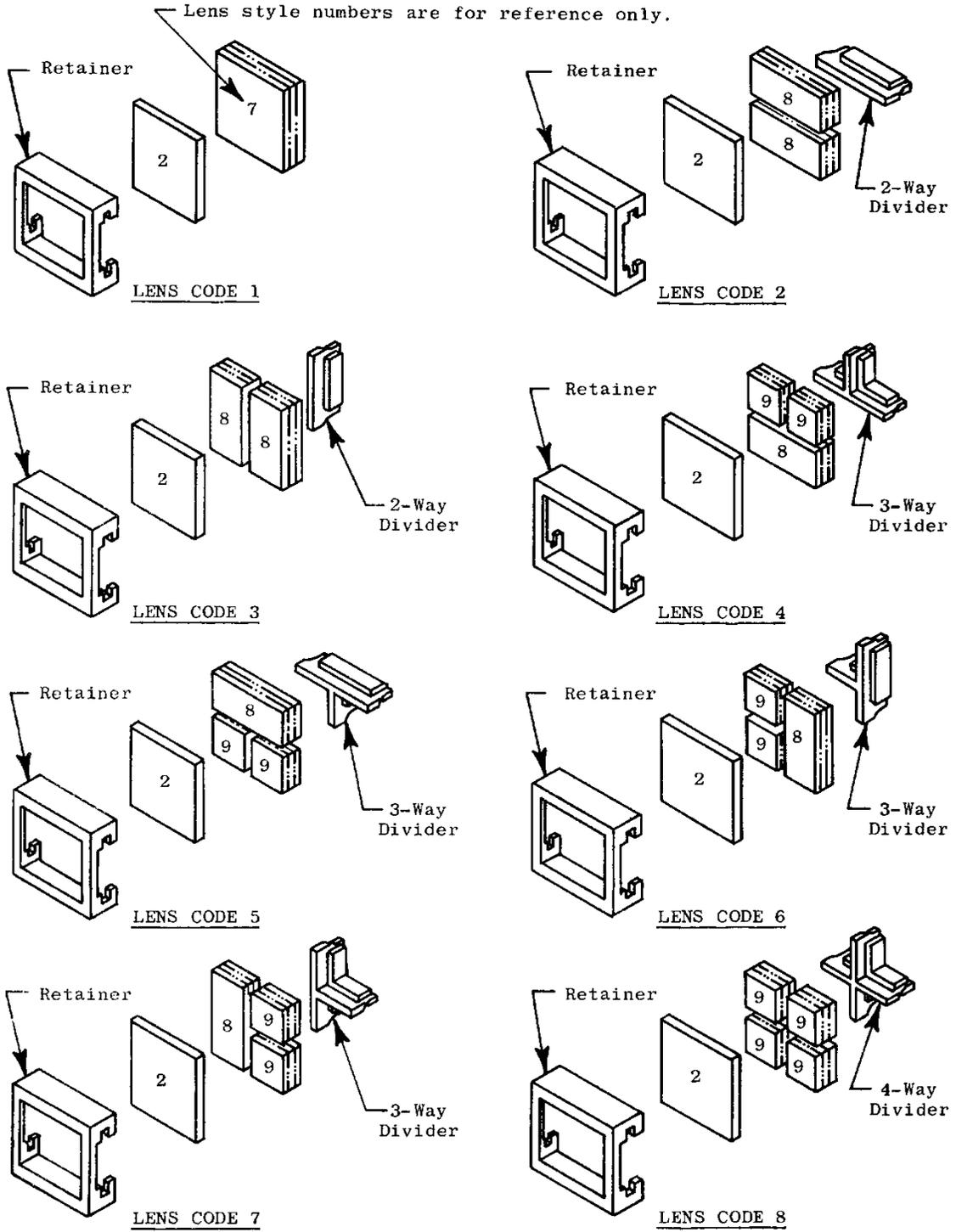


FIGURE 11. LENS ASSEMBLY DIAGRAM, TYPE C

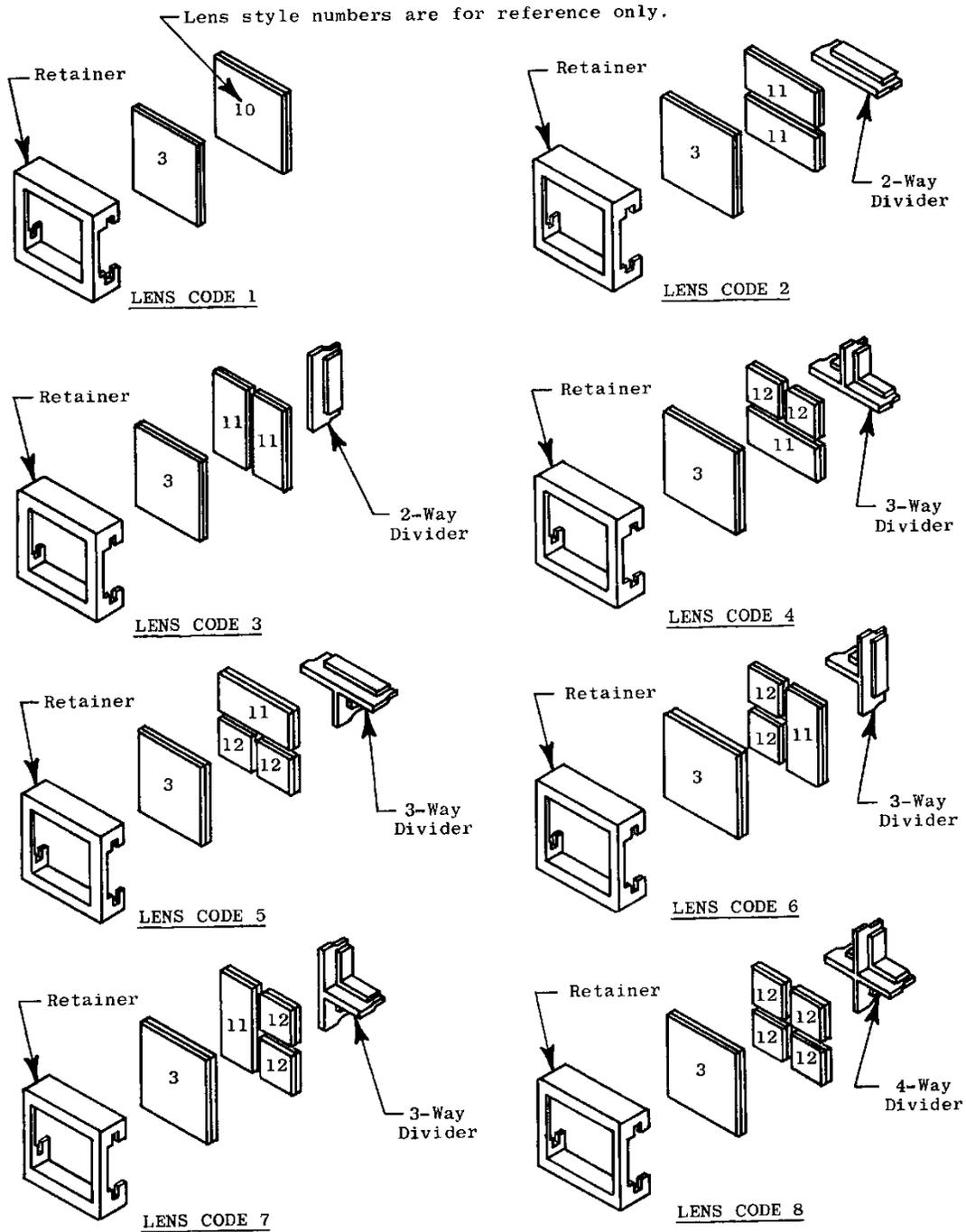


FIGURE 13. LENS ASSEMBLY DIAGRAM, TYPE S 1/

1/ Lens assembly diagram for Type S displays for reference only. Type S displays shall be procured as complete laminated assemblies.

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TABLE I. Illuminated color limits. 3/

Color	X <u>1/</u>	Y <u>1/</u>
Red (R)	.665	SL <u>2/</u>
	.663	.335
	.711	.287
	.713	SL <u>2/</u>
Green (G)	.300	.560
	.300	SL <u>2/</u>
	.365	.560
	.365	SL <u>2/</u>
Yellow (Y)	.568	.425
	.575	SL <u>2/</u>
	.630	SL <u>2/</u>
	.623	.370
Blue (B) <u>4/</u>	.250	.330
	.250	.420
	.330	.330
	.330	.420
White (W)	.480	.395
	.480	.435
	.540	.431
	.540	.391

1/ The chromaticities of the colors are expressed as "X" and "Y" coordinates on the CIE chromaticity diagram and are within the limits bound by the coordinates listed for each color.

2/ Where intersection occurs with the spectrum locus on the CIE chromaticity diagram.

3/ Chromaticity values are obtained when switch is illuminated by 4 (T-1 midget-flange base) subminiature lamps of $.15 \pm .01$ mean spherical candlepower (MSCP) at 5 V dc, 2400°K.

4/ Not available on type S with EMI/RFI screen.

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REQUIREMENTS:

Intended use: As pushbutton and lens assemblies for 4-lamp illuminated pushbutton switches, MIL-S-22885/100 and MIL-PRF-22885/101.

Dimensions and configurations: See figures 1 through 13.

Pushbutton:

Complete pushbutton shall consist of:

- 1 - Pushbutton: Includes integral seal and EMI/RFI screen when specified.
- 1 - Front lens and color filter assembly, lens retainer and divider, as specified.
- 4 - Lamps: (T-1 submidget-flange base) not included, order separately. Industry Lamp No. 6180 is recommended (5 volt, .060 amps, .15 MSCP). Other lamps are available with various power requirements and illumination results. When using higher wattage lamps, additional heat sinking and air flow must be provided (use extended version of switch), and matrix mounting is not recommended.

Lens assemblies:

Code 1 consists of:

- 1 - Retainer
- 1 - Front lens plate
- 1 - Laminated filter

Code 2 and 3 consist of:

- 1 - Retainer
- 1 - Front lens plate
- 2 - Laminated filters
- 1 - Divider, 2-way split

Code 4, 5, 6, and 7 consist of:

- 1 - Retainer
- 1 - Front lens plate
- 3 - Laminated filters
- 1 - Divider, 3-way split

Code 8 consists of:

- 1 - Retainer
- 1 - Front lens plate
- 4 - Laminated filters
- 1 - Divider, 4-way split

Materials and finishes:

Lens retainer: Lens retainer shall be of a material, which will allow the switch to meet the performance requirements, black paint.

Front lens plate and laminated filter: High temperature heat resistant plastic. Thermal shock test is performed in accordance with MIL-PRF-22885, the maximum temperature shall be +85°C.

Characteristics: See table IV.

Color: See table I. For brightness and chromaticity values, see MIL-S-22885/100 and MIL-PRF-22885/101.

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Qualification inspection: Required as part of the 4-lamp illuminated pushbutton switch, M22885/100 or /101.

Group A inspection: Shall be in accordance with MIL-PRF-22885, visual and mechanical only.

Part number:

Short version: M22885/102- (dash number from table II).

Extended version: M22885/102E (dash number from table II).

For acquisition of government spares, M22885/102 or M22885/102E (dash numbers from tables II and III) shall be used.

Part numbers: Part numbers for complete pushbutton are assigned as follows:

Extended version:	M22885/102E	25	S	2GR
Short version:	<u>M22885/102-</u>	<u>25</u>	<u>S</u>	<u>2GR</u>
	Specification number	Pushbutton config. (see table II)	Display type (see table IV) <u>2/</u>	Display config. (see table V)
	Standard pushbutton, no seal, no EMI/RFI shielding, Lamp Ckt. 1 and 4, Display Type S		Sunlight readable Display	Display code 2: Horiz. split, green color filter top half, red color filter bottom half

These part numbers are for the convenience of users only and do not include legends. Acquire legend portion of assembly separately from QPL source. For acquisition of government spares, use dash numbers shown in tables II and III.

TABLE II. Pushbutton configuration and dash numbers.

Display type					Pushbutton style	Lamp <u>4/</u> circuit
N	W	C	S	<u>1/</u>		
Standard pushbutton no seal, no EMI/RFI shielding						
01	09	17	25	33	A	1 and 4
02	10	18	26	34	B	3
Standard pushbutton with seal, no EMI/RFI shielding						
03	11	19	27	<u>3/</u>	C	1 and 4
04	12	20	28		D	3
Standard pushbutton with EMI/RFI shielding, no seal						
05	13	21	29	35	E	1 and 4
06	14	22	30	36	F	3
Standard pushbutton with seal and EMI/RFI shielding						
07	15	23	31	<u>3/</u>	G	1 and 4
08	16	24	32		H	3

1/ For pushbutton spare parts, order 33 through 36, as required. Does not include lens retainer, lens assemblies, or dividers.

2/ Reference letter code for display type. Must be used in conjunction with appropriate dash numbers; i.e., -25S, -01N, -09W, etc.

3/ Spare pushbutton styles C, D, G, and H not available.

4/ Lamps circuits per MIL-S-22885/100 and MIL-PRF-22885/101, for reference only.

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TABLE III. Spare part configuration part number.

Part no. M22885/102-	Display type	Lens <u>3</u> / code	Style <u>4</u> / number	Color	Description
37	N	All	1	Clear	Front lens plate Painted black
38	W, C	All	2	Clear	Front lens plate
39	N, W	1	4	White	Filter, full display
40	"	"	"	Red	"
41	"	"	"	Green	"
42	"	"	"	Yellow	"
43	"	"	"	Blue	"
44	"	2, 3, 4, 5, 6, 7	5	White	Filter, half display
45	"	"	"	Red	"
46	"	"	"	Green	"
47	"	"	"	Yellow	"
48	"	"	"	Blue	"
49	"	4, 5, 6, 7, 8	6	White	Filter, qtr. display
50	"	"	"	Red	"
51	"	"	"	Green	"
52	"	"	"	Yellow	"
53	"	"	"	Blue	"
54	C	1	7	White	Filter, full display
55	"	"	"	Red	"
56	"	"	"	Green	"
57	"	"	"	Yellow	"
58	"	"	"	Blue	"
59	"	2, 3, 4, 5, 6, 7	8	White	Filter, half display
60	"	"	"	Red	"
61	"	"	"	Green	"
62	"	"	"	Yellow	"
63	"	"	"	Blue	"

See footnotes at end of table.

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TABLE III. Spare part configuration part number - Continued.

Part no. M22885/102-	Display type	Lens <u>3</u> / code	Style <u>4</u> / number	Color	Description
64	C	4, 5, 6, 7, 8	9	White	Filter, qtr. display
65	"	"	"	Red	"
66	"	"	"	Green	"
67	"	"	"	Yellow	"
68	"	"	"	Blue	"
69	All	2, 3	---	---	Divider, 2-way
70	All	4, 5, 6, 7	---	---	Divider, 3-way
71	All	8	---	---	Divider, 4-way
72	All	All	---	---	Lens retainer
73	S	All	All	All	Lens assembly
<u>1</u> /	S	All	3 <u>2</u> /	---	Front lens plate
<u>1</u> /	S	1	10 <u>2</u> /	All	Filter, full display
<u>1</u> /	S	2, 3, 4, 5, 6, 7	11 <u>2</u> /	All	Filter, half display
<u>1</u> /	S	4, 5, 6, 7, 8	12 <u>2</u> /	All	Filter, qtr. display

1/ Type S displays shall be procured as complete assemblies only, that consist of front lens plate, filters, and dividers. To order, specify: M22885/102-73S or M22885/102E73S (plus display configuration and color(s)) as required.

2/ Lens style 3, 10, 11, and 12 are shown for reference only.

3/ see table V and figures 10, 11, 12, and 13.

4/ See figures 4, 5, 6 and 7.

5/ When ordering extended dividers, specify M22885/102E (dash number 69, 70, or 71, as required).

TABLE IV. Display type.

Display type	Description
N	LIGHTER LETTERS: Letters appear white on a black background until illuminated and then letters appear in color, background remains black.
W	LIGHTED BACKGROUND: Letters appear black on a white background until illuminated and then background appears in color, letters remain black.
S	SUNLIGHT READABLE: Letters are not legible until illuminated and then letters appear in color, background remains black. When illuminated, lighted letters are readable in direct sunlight.
C	COLORED BACKGROUND: Letters appear black against a colored background until illuminated and then background appear in lighted color, letters remain black.

TABLE V. Display configuration. 2/

Display code <u>1/ 3/</u>	Display				
1X	<table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">1</td> </tr> </table>	1			
1					
2XX	<table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">1</td> </tr> <tr> <td style="padding: 5px;">2</td> </tr> </table>	1	2		
1					
2					
3XX	<table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">1</td> <td style="padding: 5px;">2</td> </tr> </table>	1	2		
1	2				
4XXX	<table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">1</td> <td style="padding: 5px;">2</td> </tr> <tr> <td colspan="2" style="padding: 5px;">3</td> </tr> </table>	1	2	3	
1	2				
3					
5XXX	<table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">1</td> </tr> <tr> <td style="padding: 5px;">2</td> <td style="padding: 5px;">3</td> </tr> </table>	1	2	3	
1					
2	3				
6XXX	<table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">1</td> <td rowspan="2" style="padding: 5px;">2</td> </tr> <tr> <td style="padding: 5px;">3</td> </tr> </table>	1	2	3	
1	2				
3					
7XXX	<table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">1</td> <td style="padding: 5px;">2</td> </tr> <tr> <td colspan="2" style="padding: 5px;">3</td> </tr> </table>	1	2	3	
1	2				
3					
8XXXX	<table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">1</td> <td style="padding: 5px;">2</td> </tr> <tr> <td style="padding: 5px;">3</td> <td style="padding: 5px;">4</td> </tr> </table>	1	2	3	4
1	2				
3	4				

- 1/ Display codes shown are for pushbuttons without color filters.
 Replace X's with the color symbols of table I in sequence shown.
- 2/ Legends shall be procured separately from a source listed on the qualified products lists.
- 3/ Display codes 3XX through 8XXXX not available with pushbutton styles B, D, F, and H.

The margins of this specification are marked with vertical lines to indicate where modifications from this revision were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.

Reference Documents:

MIL-PRF-22885
MIL-PRF-22885/101
MIL-S-22885/100

Custodian:
Air Force - 85
DLA - CC

Preparing activity:
DLA - CC

(Project 5930-2009-016)

Review activities:
Air Force - 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.daps.dla.mil/> .