

INCH-POUND

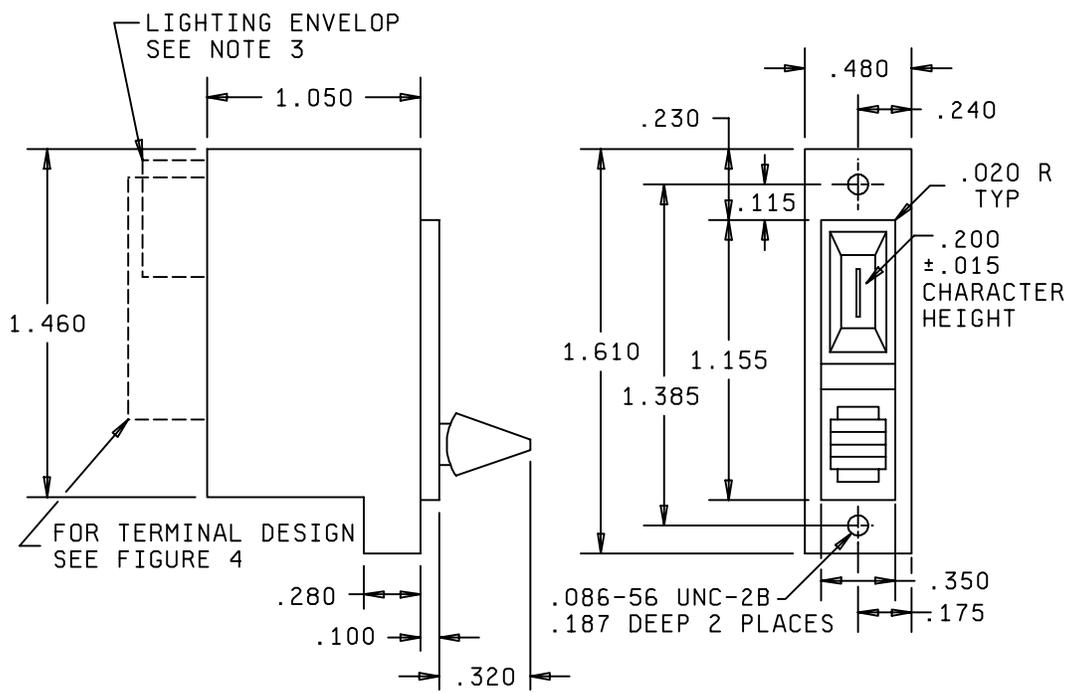
MIL-PRF-22710/24B
 20 April 2001
 SUPERSEDING
 MIL-S-22710/24A
 14 March 1977

PERFORMANCE SPECIFICATION SHEET

SWITCHES, ROTARY (PRINTED CIRCUIT),
 (TOGGLE, BIDIRECTIONAL, SEALED, ILLUMINATED OR NONILLUMINATED),
 STYLE SRPC24

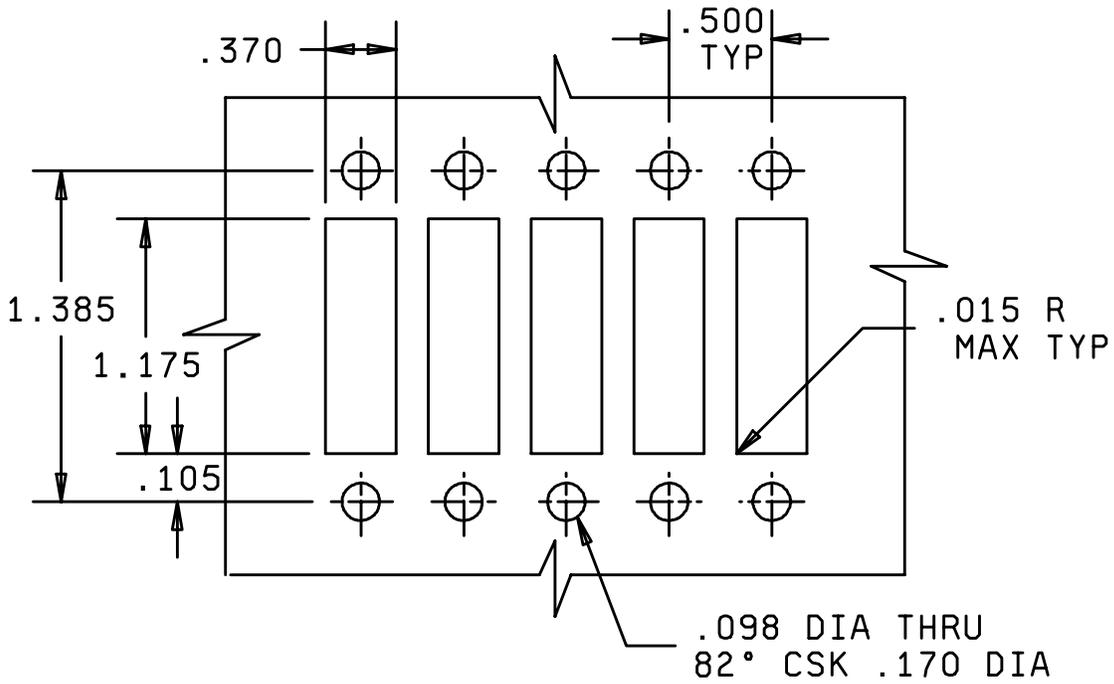
This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and the issue of MIL-PRF-22710 listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation.



| INCHES | MM | INCHES | MM | INCHES | MM |
|--------|------|--------|------|--------|-------|
| 0.015 | 0.38 | 0.180 | 4.57 | 0.350 | 8.89 |
| 0.020 | 0.51 | 0.200 | 5.08 | 0.480 | 12.19 |
| 0.086 | 2.18 | 0.230 | 5.84 | 1.050 | 26.67 |
| 0.100 | 2.54 | 0.240 | 6.10 | 1.155 | 29.34 |
| 0.115 | 2.92 | 0.280 | 7.11 | 1.385 | 35.18 |
| 0.175 | 4.45 | 0.320 | 8.13 | 1.460 | 37.08 |
| | | | | 1.610 | 40.89 |

FIGURE 1. Style SRPC24 switch and panel cutout and installation data.

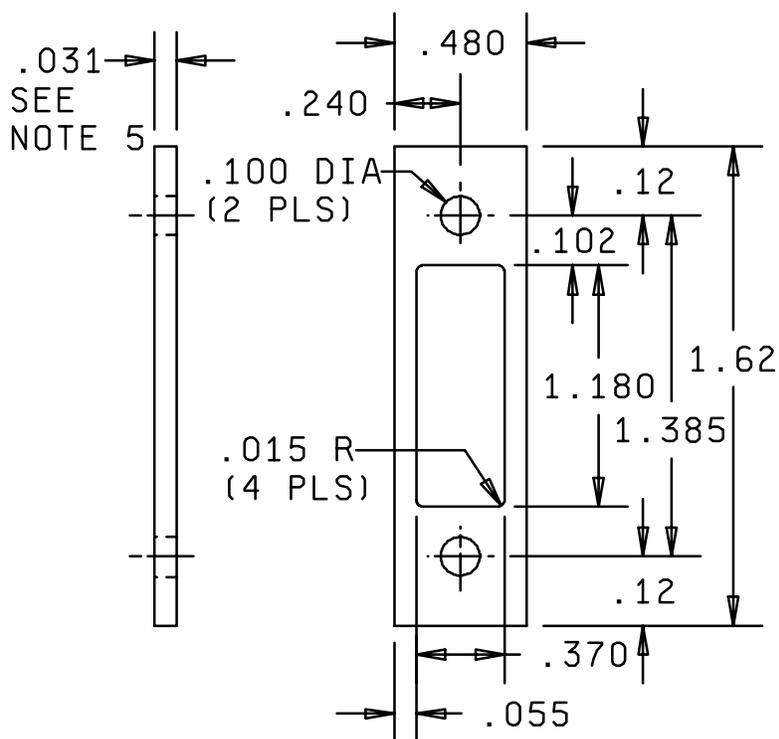


| INCHES | MM |
|--------|-------|
| 0.015 | 0.38 |
| 0.098 | 2.49 |
| 0.105 | 2.67 |
| 0.170 | 4.32 |
| 0.370 | 9.40 |
| 0.500 | 12.70 |
| 1.175 | 29.85 |
| 1.385 | 35.18 |

NOTES

1. Dimensions are in inches. Metric equivalents are for general information only.
2. Unless otherwise specified, tolerances are $\pm .010$ (.25 mm).
3. Applicable to illuminated switches only. Allowance for lighting terminals for externally replaceable lamps, when internal lighting is specified.

FIGURE 1. Style SRPC24 switch and panel cutout and installation data - Continued.

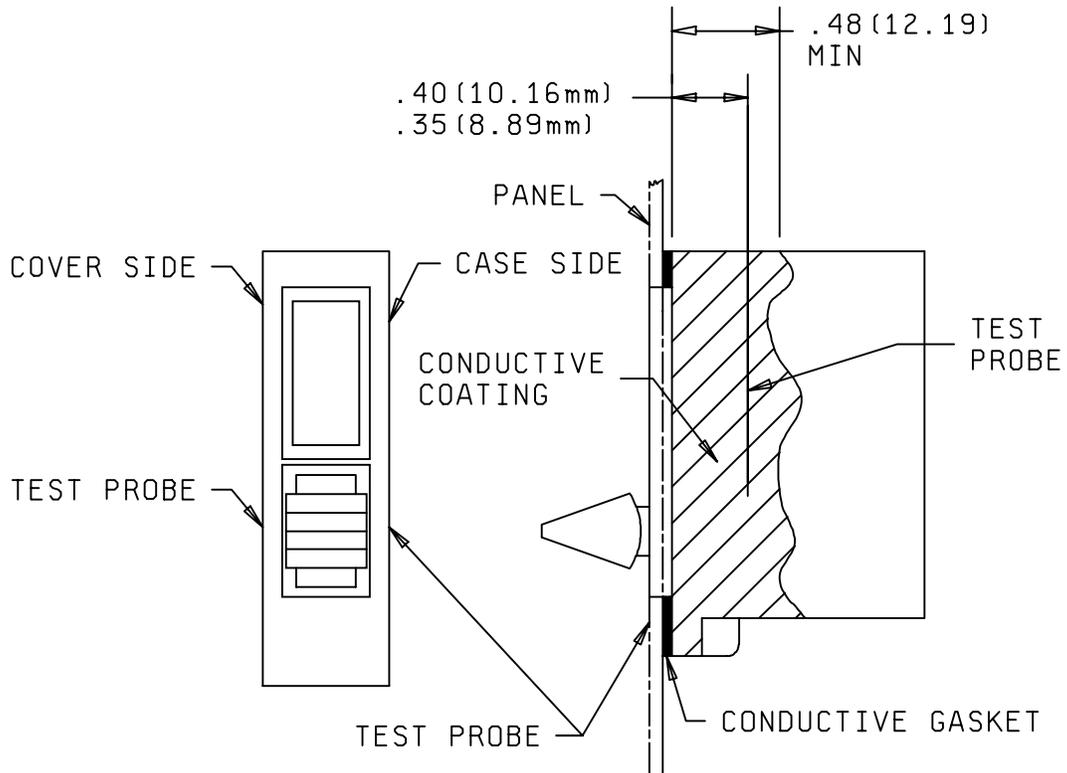


| INCHES | MM | INCHES | MM |
|--------|------|--------|-------|
| 0.015 | 0.38 | 0.240 | 6.10 |
| 0.031 | 0.79 | 0.370 | 9.40 |
| 0.055 | 1.40 | 0.480 | 12.19 |
| 0.100 | 2.54 | 1.180 | 29.97 |
| 0.102 | 2.59 | 1.385 | 35.18 |
| 0.120 | 3.05 | 1.625 | 41.28 |

NOTES

1. Dimensions are in inches. Metric equivalents are for general information only.
2. Unless otherwise specified, tolerances are $\pm .005$ (.13 mm) for three place decimals and $\pm .02$ (.5 mm) for two place decimals.

FIGURE 2. Panel seal gasket.



NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are based on 1 inch = 25.4 mm.

FIGURE 3. RFI shielded switch.

REQUIREMENTS:

Dimensions and configuration: See figures 1, 2 and 3.

Construction: D.

Angle of Throw: 36°

Temperature-life characteristic: B, except -55° low temperature for all switches and +71° C for lighted switches.

TABLE I. Electrical test load.

| Test of condition | Resistive | |
|--------------------------------|-----------|-----------------------|
| At atmospheric pressure | 0.125 A | 28 V dc and ac, 60 Hz |
| At reduced barometric pressure | 0.125 A | 28 V dc and ac, 60 Hz |
| Life (low level) | 10 mA | 30 mV |

Vibration grade: 3 (15g, 10 - 2,000 Hz).

Shock types: M (100 g's) and H (high-impact). Methods I and II are applicable.

Altitude rating: C (70,000 feet).

Terminal design: See figure 3 and table III.

Contact resistance:

Initial: 50 milliohms, maximum.

Following life (rotational): 70 milliohms, maximum.

Luminance: Illuminated switches only.

Moisture resistance: Method 103, test condition A, MIL-STD-202, with polarization voltage.

TABLE II. Photometric brightness.

| Lamp | Switch filter | Brightness | Rating | |
|-----------------------|---------------|-------------------------|--------|--------|
| | | | Volts | Ampere |
| M6363/6 or equivalent | Clear | 2.0 ± 1.0 foot-lamberts | 5 | 0.115 |
| | Red | 1.0 ± 0.5 foot-lamberts | 5 | 0.115 |
| | Amber | 2.0 ± 1.0 foot-lamberts | 5 | 0.115 |

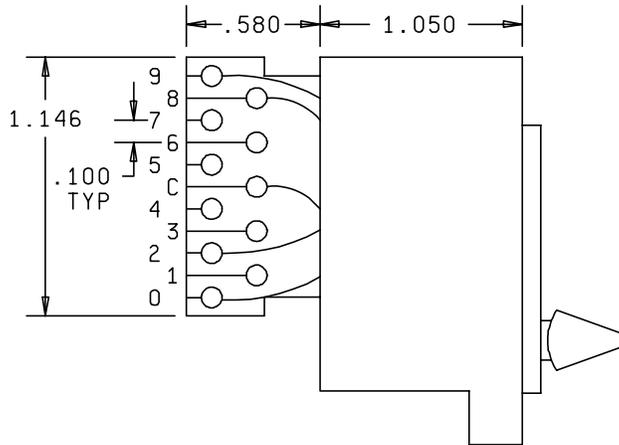
Operating force (tangential): 12 ounces minimum
36 ounces maximum

Seal: Method II, when specified in table I.

Dielectric withstanding voltage: 750 volts rms at atmospheric pressure
250 volts rms at reduced barometric pressure, test condition C.

EMI/RFI shielding: Shielded switches (see table III) are intended for use in equipment required to meet the radiated (R) portions of MIL-STD-461. The conductive coating and conductive gasket shall be as shown in figure 3. When the switch is mounted facing outward to an electrically conductive panel, the resistance shall be measured between the RFI shielding on the switch and the mounting panel. The resistance shall not exceed 1 ohm.

Military part number: M22710/24- (dash number from table III).



| Truth table 1/ Straight decimal | |
|------------------------------------|----------------------|
| Dial Marking | Common c Conn to: |
| 0 | 0 |
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |
| 6 | 6 |
| 7 | 7 |
| 8 | 8 |
| 9 | 9 |

| INCHES | MM |
|--------|-------|
| .100 | 2.54 |
| .580 | 14.73 |
| 1.050 | 26.67 |
| 1.146 | 29.11 |

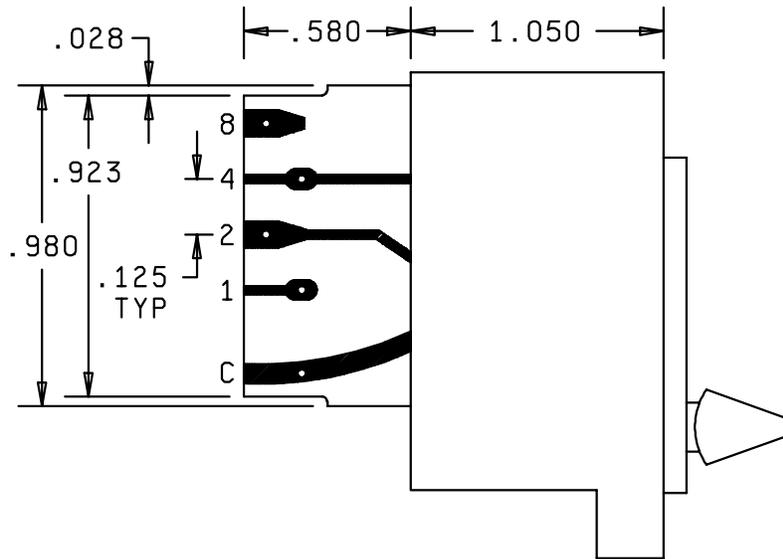
1/ Code explanation: Dial reads 0 - Common C active with terminal 0 only.
 Dial reads 1 - Common C active with terminal 1 only.
 Dial reads 2 - Common C active with terminal 2 only.
 and so forth.

NOTES

1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are base upon 1 inch = 25.4 mm.

Circuit configuration 1

FIGURE 4. Module and circuit configuration.



| Truth table 1/ Binary coded decimal | | | | |
|--|----------------------|---|---|---|
| Dial marking | Common C Conn to: | | | |
| | 1 | 2 | 4 | 8 |
| 0 | | | | |
| 1 | • | | | |
| 2 | | • | | |
| 3 | • | • | | |
| 4 | | | • | |
| 5 | • | | • | |
| 6 | | • | • | |
| 7 | • | • | • | |
| 8 | | | | • |
| 9 | • | | | • |

| INCHES | MM |
|--------|-------|
| .028 | .71 |
| .125 | 3.18 |
| .580 | 14.73 |
| .923 | 23.44 |
| .980 | 24.89 |
| 1.050 | 26.67 |

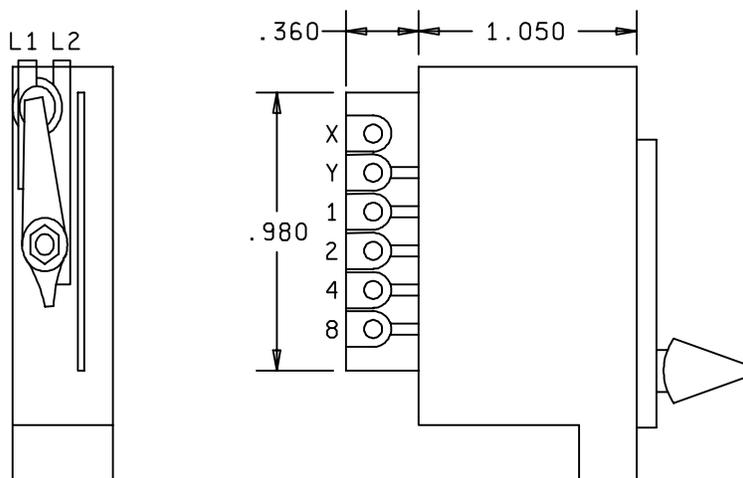
1/ Code explanation: Dial reads 0 - All terminals non-active.
 Dial reads 1 - Common C active with terminal 1 only.
 Dial reads 2 - Common C active with terminal 2 only.
 and so forth.

NOTES

1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are base upon 1 inch = 25.4 mm.

Circuit configuration 2

FIGURE 4. Module and circuit configuration - Continued.



| Truth table 1/ Binary coded octal with two commons | | | | |
|---|------------------------------|---|---|---|
| Dial marking | Common X(●) Y(o) Conn to: | | | |
| | 1 | 2 | 4 | 8 |
| 0 | o | o | o | o |
| 1 | ● | o | o | o |
| 2 | o | ● | o | o |
| 3 | ● | ● | o | o |
| 4 | o | o | ● | o |
| 5 | ● | o | ● | o |
| 6 | o | ● | ● | o |
| 7 | ● | ● | ● | o |
| 8 | o | o | o | ● |
| 9 | ● | o | o | ● |

| INCHES | MM |
|--------|-------|
| .360 | 9.14 |
| .980 | 24.89 |
| 1.050 | 26.67 |

1/ Code explanation: Dial reads 0 - Common Y active with terminals 1, 2, 4 and 8 while common X is not connected to any terminals.

Dial reads 1 - Common X connected to terminal 1, while common Y is connected to terminals 2, 4 and 8.

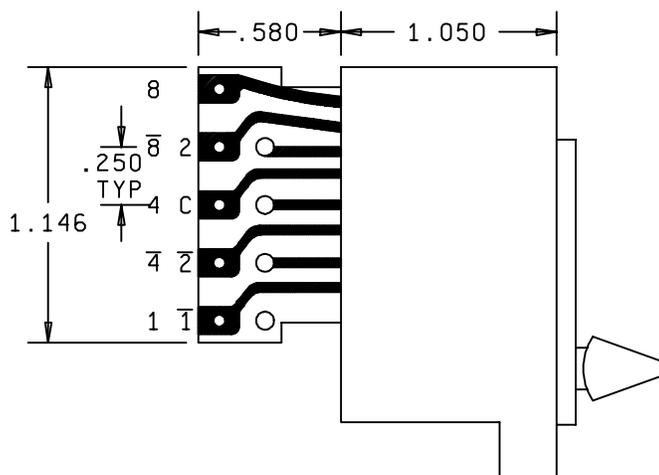
Dial reads 2 - Common X connected to terminal 2, while common Y is connected to terminals 1, 4 and 8. and so forth.

NOTES

1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are base upon 1 inch = 25.4 mm.
3. Where lighting is specified, terminals shall be marked L1, L2.

Circuit configuration 3

FIGURE 4. Module and circuit configuration - Continued.



| Truth table 1/ Binary coded decimal plus compliment | | | | | | | | |
|--|----------------------|---|---|---|----------------|----------------|----------------|----------------|
| Dial marking | Common C Conn to: | | | | | | | |
| | 1 | 2 | 4 | 8 | $\overline{1}$ | $\overline{2}$ | $\overline{4}$ | $\overline{8}$ |
| 0 | | | | | • | • | • | • |
| 1 | • | | | | | • | • | • |
| 2 | | • | | | • | | • | • |
| 3 | • | • | | | | | • | • |
| 4 | | | • | | • | • | | • |
| 5 | • | | • | | | • | | • |
| 6 | | • | • | | • | | | • |
| 7 | • | • | • | | | | | • |
| 8 | | | | • | • | • | • | |
| 9 | • | | | • | | • | • | |

| | |
|--------|-------|
| INCHES | MM |
| .250 | 6.35 |
| .580 | 14.73 |
| 1.050 | 26.67 |
| 1.146 | 29.11 |

1/ Code explanation: Dial reads 0 - Common C active with terminals $\overline{1}$, $\overline{2}$, $\overline{4}$ and $\overline{8}$
 Dial reads 1 - Common C active with terminals 1, $\overline{2}$, $\overline{4}$ and $\overline{8}$.
 Dial reads 2 - Common C active with terminals 2, 1, 4 and 8.
 and so forth.

NOTES

1. Dimensions are in inches.
2. Metric equivalents are given for general information only and are base upon 1 inch = 25.4 mm.

Circuit configuration 4

FIGURE 4. Module and circuit configuration - Continued.

Table III. Part numbers and characteristics.

| Part Number M22710/24- | Circuit configuration | Dial | | illumination | | Special features |
|---------------------------|-----------------------|--------------|-------------------|--------------|----------|------------------|
| | | Background | Marking | Color | Location | |
| 001 | 1 | Black Opaque | White Opaque | --- | --- | --- |
| 002 | 1 | Black Opaque | White Opaque | --- | --- | RFI Shielded |
| 003 | 1 | Black Opaque | White Translucent | Red | Back | --- |
| 004 | 1 | Black Opaque | White Translucent | Red | Back | RFI Shielded |
| 005 | 1 | Black Opaque | White Translucent | Clear | Back | --- |
| 006 | 1 | Black Opaque | White Translucent | Clear | Back | RFI Shielded |
| 007 | 2 | Black Opaque | White Opaque | --- | --- | --- |
| 008 | 2 | Black Opaque | White Opaque | --- | --- | RFI Shielded |
| 009 | 2 | Black Opaque | White Translucent | Red | Back | --- |
| 010 | 2 | Black Opaque | White Translucent | Red | Back | RFI Shielded |
| 011 | 2 | Black Opaque | White Translucent | Clear | Back | --- |
| 012 | 2 | Black Opaque | White Translucent | Clear | Back | RFI Shielded |
| 013 | 3 | Black Opaque | White Opaque | --- | --- | --- |
| 014 | 3 | Black Opaque | White Opaque | --- | --- | RFI Shielded |
| 015 | 3 | Black Opaque | White Translucent | Red | Back | --- |
| 016 | 3 | Black Opaque | White Translucent | Red | Back | RFI Shielded |
| 017 | 3 | Black Opaque | White Translucent | Clear | Back | --- |
| 018 | 3 | Black Opaque | White Translucent | Clear | Back | RFI Shielded |
| 019 | 3 | Black Opaque | White Translucent | Amber | Back | --- |
| 020 | 3 | Black Opaque | White Translucent | Amber | Back | RFI Shielded |
| 021 | 4 | Black Opaque | White Opaque | --- | --- | --- |
| 022 | 4 | Black Opaque | White Opaque | --- | --- | RFI Shielded |
| 023 | 4 | Black Opaque | White Translucent | Red | Back | --- |
| 024 | 4 | Black Opaque | White Translucent | Red | Back | RFI Shielded |
| 025 | 4 | Black Opaque | White Translucent | Clear | Back | --- |
| 026 | 4 | Black Opaque | White Translucent | Clear | Back | RFI Shielded |

Custodians:

Army - CR
Navy- EC
Air Force - 11
DLA - CC

Preparing Activity:

DLA - CC

(Project 5930-1724-09)

Review activities:

Army - AR. CR4, MI, SM
Navy - MC
Air Force - 99