**NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER THAT THE GOVERNMENT MAY HAVE FORMULATED, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.**

**REQUIREMENTS:**

1. **GENERAL:**
   a. INTERPRET DRAWING IN ACCORDANCE WITH THE STANDARDS PRESCRIBED BY MIL-D-70377.
   b. SUPPLIER SHALL CONFORM TO THE QUALITY ASSURANCE PROVISIONS CONTAINED IN ND 1015404, CLASS 2.
   c. UNITS SHALL BE CAPABLE OF MEETING ALL QUALIFICATION REQUIREMENTS OF ND 1002016.
   d. PART MARKING: PARTS SHALL BE PERMANENTLY AND LEGIBLY MARKED, IN ACCORDANCE WITH ND 1002215, WITH THE MANUFACTURER’S NAME AND/OR SYMBOL, LOT CODE OR NUMBER, TERMINAL IDENTIFICATION AND NASA PART NUMBER (DRAWING NUMBER) AND REVISION LETTER.
   e. PREPARATION FOR DELIVERY SHALL BE IN ACCORDANCE WITH ND 1002215, CLASS 1, CODE 1.

2. **ACCEPTANCE AND INSPECTION:** (100%)  

   **A. MECHANICAL AND PHYSICAL PROPERTIES:**
   (1) DIMENSIONS: AS DELINEATED HEREIN.
   (2) SURFACE ROUGHNESS: 125/6 UNLESS OTHERWISE SPECIFIED.
   (3) MARKING: AS SPECIFIED IN NOTES 1.D. AND 1.E. NO MARKING SHALL APPEAR ON THE 32/6 AREA.
   (4) PANEL COLOR AND MARKING:

   COLOR, ENERGIZED: CROSS HATCHED LEGEND AREAS TO BE YELLOW, ALL OTHER LEGEND AREAS TO BE WHITE.

   COLOR, UNENERGIZED: LEGEND BACKGROUND TO BE LOW REFLECTIVE, DIFFUSE, NEUTRAL GREY WHEN NOT ENERGIZED. CONTRAST BETWEEN BLACK CHARACTERS AND UNELECTED BACKGROUND SHALL BE BETWEEN 2 TO 4 UNITS IN ACCORDANCE WITH MIL-P-7788.

   SURFACE GLOSS: THE DISPLAY AREAS SHALL HAVE A SURFACE GLOSS OF 5 UNITS OR LESS AS MEASURED PER MIL-P-7788 WHEN IN THE UNELECTED CONDITION.

   MARKING: LEGENDS SHALL BE AS SHOWN ON DRAWING. CHARACTERS SHALL BE GOTHIC CONDENSED WITH PROPORTIONS PER ND 1002122, TYPE I, CLASS 2. THE OVERALL HEIGHT OF CHARACTERS SHALL BE .156. THE LINE STROKE WIDTH SHALL BE .025-.125
d AND LEGEND SHALL BE CENTRED ON DISPLAY FACE PLATE. FILL SHALL BE BLACK COLOR NO. 37038 PER FED-ST-595 AND SHALL BE OPAQUE WHEN LEGEND IS ENERGIZED.

   **B. ELECTRICAL CHARACTERISTICS:**
   (1) POWER DISSIPATION: YELLOW DISPLAYS: 0.190 AMPERES ± 15% AT 5.0 ± 0.1 VDC.

   WHITE DISPLAYS: 0.325 AMPERES ± 15% AT 5.0 ± 0.1 VDC.


   (3) ELECTRICAL RESISTANCE: 100 OHMS MINIMUM AT 100 VDC AT SEA LEVEL, 70° + 10°F, 50% RH MAXIMUM, BETWEEN ADJACENT TERMINALS AND BETWEEN ANY TERMINAL AND CASE PER MIL-STD-202, METHOD 302.

   **BRIGHTNESS:** LEGEND BACKGROUNDS SHALL BE OF A BRIGHTNESS LEVEL OF 15 ± 3 FOOT-LAMBERTS AT 5.0 ± .25 VDC. THE LEGEND MUST BE READABLE (UNLESS ILLUMINATED) UNDER AN AMBIENT 50 FOOT CANDLE ILLUMINATION.

   **ISOLATION:** THERE SHALL BE NO LIGHT LEAKAGE FROM LIT TO UNELECTED LEGEND AREAS. PAINT SHALL NOT BE DEEPER THAN ADEQUATE LIGHT BLOCK.

**LIST OF MATERIALS**

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<tr>
<th>KEY NO.</th>
<th>PART OR MATERIAL NOMENCLATURE</th>
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**MATERIAL**

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES, CAPACITOR VALUES ARE IN MILLI-FARADS, RESISTOR VALUES ARE IN OHMS, TOLERANCES ON FRACTIONS DECAPIMALS ARE ROUNDED UP TO 3 DECIMALS AND DO NOT SCALE THIS DRAWING.

**APPLICATION**

80230 C

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SYM DESCRIPTION

REQUIREMENTS: (CONTINUED)

3. DESIGN:
   a. OPERATING LIFE: 4000 HOURS MINIMUM AT POWER DISSIPATION PER NOTE 2.A.(4) AT 70°F 10°F AMBIENT TEMPERATURE.
   b. MATERIAL: ALL MATERIAL SHALL BE CAPABLE OF MEETING THE REQUIREMENTS OF THIS DRAWING AND EXHIBIT NO TOXICITY.
      1. PLASTIC FACE PLATE: ACRYLIC SHEET PLASTIC PER MIL-P-5425, FINISH A.
      2. CASE: ALUMINUM ALLOY.
   c. FINISHES:
      1. ALUMINUM CASE: CHROMATE TREAT PER MIL-C-5541.
      2. EXPOSED ACRYLIC SURFACES TO BE COATED WITH EPOXY RESIN PER SCD 1010657 USING CATALYST PER SCD 1010660, COATING TO BE SMOOTH AND UNIFORM. LEGEND AREA TO MEET THE REQUIREMENTS OF PARA 2.A.(4).
      3. PAINT SURFACES MARKED ** BLACK EPOXY ENAMEL PER MIL-P-27316.
      4. PAINT TOP BORDER AREA RED EPOXY ENAMEL PER NO 1002110 USING 1010729.
   d. TERMINALS AND INSULATORS: SHALL MEET THE REQUIREMENTS OF MIL-C-25050.
   e. PANEL COLORS: REF NOTE 2.A.(4) YELLOW COLOR TO BE AVIATION YELLOW AND WHITE COLOR TO BE AVIATION WHITE PER MIL-C-20005. COLOR COORDINATES SHALL REMAIN WITHIN THE LIMITS OF THE SPECIFIED AVIATION COLORS WHEN ENERGIZED FROM 5.0 THRU 3.0 VDC. THE X COORDINATE FOR THE AVIATION WHITE DISPLAYS SHALL NOT EXCEED X = .560 WHEN ENERGIZED FROM 5.0 THRU 2.0 VDC.
   f. LAMPS: EACH OF THE 14 LEGEND AREAS SHALL BE ILLUMINATED BY 3 LAMPS, PARALLEL WIRED AS SHOWN IN THE SCHEMATIC. YELLOW DISPLAY LAMPS TO BE MS 24367-680, WHITE DISPLAY LAMPS TO BE MS 24367-715.
   g. WHEN MOUNTED ON A SUITABLE FIXTURE, THE UNIT SHALL BE CAPABLE OF WITHSTANDING A PRESSURE OF 15 PSIA OF HELIUM, APPLIED AGAINST THE 39/ AREA, WHEN THE EXTERNAL PRESSURE IS REDUCED TO 1" HG EQUIVALENT PRESSURE; WHEN SUBJECTED TO THIS DIFFERENTIAL PRESSURE, THE UNIT SHALL EXHIBIT A LEAK RATE OF NO MORE THAN 8 X 10^-7 ATM CC/SEC OVER THE TEMPERATURE RANGE OF -10°C TO +82°C.
   h. NOTE: THIS UNIT IS TO BE MOUNTED ON A HEAT SINK WHEN LEGENDS ARE ENERGIZED FOR PERIODS LONGER THAN TWO (2) MINUTES. A SATISFACTORY HEAT SINK CAN BE AN ALUMINUM OR BRASS PLATE 12" X 10" X 1/8" WITH A CENTERED RECTANGULAR OPENING FOR MOUNTING THE UNIT.