REQUIREMENTS:

GENERAL:

Design to be in conformance with specification MIL-T-27 and ND 1015400 (for leads) as provided below.

Supplier shall conform to the quality assurance provisions as contained in specification ND 1015404, Class 2.

Interpret drawing symbols, abbreviations and reference designations in accordance with government standards prescribed in MIL-D-70327.

INSPeCTION AND ACCEPTANCE:

Unit shall meet all requirements of Table 1.

Sealing: Reference paragraph 4.7.2.1 MIL-T-27.

Dielectric strength: Apply 500 volts (rms) between windings, reference paragraph 4.7.5 MIL-T-27.

Insulation resistance: 10,000 megohms minimum at 25°C, reference paragraph 4.7.7 MIL-T-27.

DC resistance: See table 1, reference paragraph 4.7.9.3 MIL-T-27.

Primary impedance: apply voltage and freq specified in Table 1 to leads (1-3). Secondary open.

Frequency response (reference frequency 1000 cps): See test circuit 1, $X_{eq}$ shall be determined at 1 kHz, output power at 50 mw, and test conditions specified in Table 1. (Note: If transformer secondary is center tapped, $X_{eq}$ shall be across complete secondary.) $X_{eq}$ shall be held constant over the frequency range. Reference paragraph 4.7.7 MIL-T-27.

No load voltage ratio: See Table 1. Measure with 2 volts, 1000 cps (1-3), center tap location 1-1 + 1.5%. Reference paragraph 4.7.9.17 MIL-T-27.

Minimum marking: The NASA drawing number, dash number and revision letter, manufacturer's name or symbol, serial number, and lead identification shall be permanently and legibly marked on unit. Manufacturer's part or type number may appear on part or package.

Leads: Nickel alloy 200-1/8 hard, 0.020 + .001. Leads shall conform to ND 1015400 except for paragraph 3.3.2, finished lead diameter. A certificate of compliance with this requirement shall accompany each shipment.

Polarity: leads specified in Table 1 shall be like polarity, reference paragraph 4.7.9.14 MIL-T-27.

Schematic Diagram No. 1

Voltages and currents are RMS values unless otherwise noted.

Figure 1

Bottom view of transformer with leads. All dimensions are the same as shown below.
**DESIGN REQUIREMENTS:**

The unit shall be capable of meeting all requirements of MIL-T-27 for Grade S, Class R, Life Expectancy X, family per Table 1, in ambient temperature of 10°C.

The unit shall be capable of meeting all electrical requirements except where noted before, during, and after the following exposures:

- High temperature: 71°C operating
- Low temperature: -19°C operating
- Vibration: 10 to 2000 cps, 20 g (PER MIL-STD-202, method 204 A, condition D)
- Reduced pressure: 96 hours at a pressure of 10^-4 mm of mercury.

DC unbalance in primary: per Table 1

Rated power levels: 50 W

Working voltage between windings and from windings to case: 175 volts maximum instantaneous.

**SPECIAL CONDITIONING:** 100% (BY MANUFACTURER):

Transformer shall be temperature cycled for 5 cycles per MIL-STD-202, method 022A except that the temperatures shall be -55°C, +25°C, and +105°C and exposure time shall be 15 minutes at each temperature. During the last cycle the unit shall be tested for continuity at each of the ambient conditions, after stabilization at room temperature unit shall pass normal inspection tests.

**TABLE 1**

<table>
<thead>
<tr>
<th>NASA PART NUMBER</th>
<th>DC RESISTANCE</th>
<th>PRIMARY IMPEDANCE (MINIMUM)</th>
<th>FREQUENCY RESPONSE</th>
<th>NO LOAD VOLTAGE RATIO</th>
<th>MAX. DC MA UNBALANCE</th>
<th>FAMILY</th>
<th>REFERENCE</th>
<th>FIG. NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1010291-1</td>
<td>162 Ω</td>
<td>92 Ω</td>
<td>1600 (2)</td>
<td>5 VOLTLS</td>
<td>300, 1,500, 600</td>
<td>3</td>
<td>350 CPS TO 900 CPS</td>
<td>1 100</td>
</tr>
<tr>
<td>-2</td>
<td>77 Ω</td>
<td>3 Ω</td>
<td>110 Ω</td>
<td>1 VOLT</td>
<td>300, 600</td>
<td>12</td>
<td>300 CPS TO 900 CPS</td>
<td>2 2 DB</td>
</tr>
<tr>
<td>-3</td>
<td>790 Ω</td>
<td>0.76 Ω</td>
<td>15,000 (XL)</td>
<td>4 VOLTLS</td>
<td>300, 8,000</td>
<td>3.2</td>
<td>300 CPS TO 900 CPS</td>
<td>2 2 DB</td>
</tr>
<tr>
<td>-4</td>
<td>1050 Ω</td>
<td>2000 (XL)</td>
<td>10,000 (2)</td>
<td>4 VOLTLS</td>
<td>300, 10,000</td>
<td>2.0</td>
<td>300 CPS TO 900 CPS</td>
<td>2 2 DB</td>
</tr>
<tr>
<td>-5</td>
<td>720 Ω</td>
<td>230 Ω</td>
<td>800 (3)</td>
<td>2.8 VOLTLS</td>
<td>300, 600, 600</td>
<td>3</td>
<td>300 CPS TO 900 CPS</td>
<td>2 2 DB</td>
</tr>
</tbody>
</table>

**APPLICATION**

Procure only from approved sources listed on KD 1002034 for this drawing.

**MATERIAL**

Designated by purchaser and subject to change.

**INSTRUMENTATION LAB MANUFACTURER**

Houston, Texas

**SPECIFICATION CONTROL DRAWING**

MANNED SPACECRAFT CENTER

TRANSFORMER, AUDIO

**NASA APPROVAL**

**CODE IDENT NO.**

**NASA DRAWING NO.**

**SHEET 2 OF 2**