REQUIREMENTS:

1. GENERAL:
   a. Design to be in conformance with Specification MIL-T-27 and NAD 1015400 (for leads) as provided below.
   b. Supplier shall conform to the quality assurance provisions as contained in Specification NAD 1015404, Class 2.
   c. Interpreting drawings, abbreviations and reference designations in accordance with Government Standards prescribed in MIL-D-79297.
   d. Units shall be capable of meeting all qualification requirements specified in NAD 1015407.

2. INSPECTION AND ACCEPTANCE:
   a. Unit shall meet all requirements of Table 1.
   c. Dielectric strength: Apply 500 volts (RMS) between windings, Per MIL-T-27.
   d. Insulation resistance: 10,000 megohms minimum at 25°C. Per MIL-T-27.
   e. DC resistance: See Table 1, Per MIL-T-27.
   f. Primary impedance: Apply voltage and freq specified in Table 1 to leads (1-3). Secondary open.
   g. Frequency response (reference frequency 1000 CPS): See test circuit 1. ES 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, ES shall be held constant over the frequency range. Per MIL-T-27.
   h. No load voltage ratio: See Table 1, Measure with 2 volts, 1000 CPS (1-3), Center tap location 1/1 1 1.5%. Per MIL-T-27.
   i. 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.
   j. Leads: Nickel 0.020 ± 0.001. Leads shall conform to NAD 1015400. A certificate of compliance with this requirement shall accompany each shipment.
   k. Polarity: Leads specified in Table 1 shall be like polarity.

VOLTAGES AND CURRENTS ARE RMS VALUES UNLESS OTHERWISE NOTED.

SCHEMATIC DIAGRAM NO. I.

SCHEMATIC DIAGRAM NO. II.

INSTRUMENTATION LABORATORY
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRANSFORMER, AUDIO

MATERIALS LIST

SPECIFICATION CONTROL DRAWING
NAD 1010291

REVISION STATUS OF SHEETS

MASTER

PHOTOGRAPIHC SCALE ONLY.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

TOLERANCES ON FRAGMENTS, DECIMALS ANGLES

DO NOT SCALE THIS DRAWING

SEE NOTES

HEAT TREATMENT

APPLICATION

FINAL FINISH

HEAT ASSAY

APPRECIATION

NASA APPRECIATION

CODE IDENTIFICATION

NASA DRAWING NO.

C 1010291

SHEET 1 OF 2
3. DESIGN REQUIREMENTS:
   A. THE UNIT SHALL BE CAPABLE OF MEETING ALL REQUIREMENTS OF MIL-T-27 FOR GRADE 5, CLASS 3 LIFE EXPECTANCY X, FAMILY PER TABLE 1 IN AMBIENT TEMPERATURE OF 85°C.
   B. THE UNIT SHALL BE CAPABLE OF MEETING ALL ELECTRICAL REQUISITES EXCEPT WHERE NOTED BEFORE, DURING, AND AFTER THE FOLLOWING EXPOSURES:
      (1) HIGH TEMPERATURE: 71°C OPERATING
      (2) LOW TEMPERATURE: -18°C OPERATING
      (3) VIBRATION: 10 TO 2000 CPS, 20 G (PER MIL-STD-202, METHOD 204 A, CONDITION B)
      (4) REDUCED PRESSURE: 96 HOURS AT A PRESSURE OF 10^-4 MM OF MERCURY.
      (5) WORKMANSHIP: THE WIRE SHALL BE UNIFORM IN QUALITY AND TEMPER CLEAN, ROUND AND SMOOTH AND FREE FROM FOREIGN MATERIALS, AND OTHER DEFECTS.
   C. DC UNBALANCE IN PRIMARY: PER TABLE 1
   D. RATED POWER LEVEL: 50 MW
   E. WORKING VOLTAGE BETWEEN WINDINGS AND FROM WINDINGS TO CASE: 175 VOLTS MAXIMUM INSTANTANEOUS.
   F. BEND TEST(SAMPLE): THIS IS A DESTRUCTIVE TEST UNITS SUBJECTED TO THIS TEST SHALL NOT BE SHIPPED.

4. SPECIAL CONDITIONING, 100% (BY MANUFACTURER):
   A. TRANSFORMER SHALL BE TEMPERATURE CYCLED FOR 5 CYCLES PER MIL-STD-202, METHOD 102A EXCEPT THAT THE TEMPERATURES SHALL BE -55°C, 25°C AND 130°C AND EXPOSURE TIME SHALL BE 15 MINUTES AT EACH TEMPERATURE. DURING THE LAST CYCLE THE UNIT SHALL BE MONITORED FOR CONTINUITY. AFTER STABILIZATION AT ROOM TEMPERATURE UNIT SHALL PASS NORMAL INSPECTION TESTS. RESISTANCE AFTER STABILIZATION SHALL NOT CHANGE MORE THAN 4% FROM INITIAL MEASURED VALUE. THE AFOREMENTIONED TEST DATA SHALL BE INCLUDED WITH EACH SHIPMENT. ANY LOT WITH A FAILURE RATE OF GREATER THAN 5% FOR THIS TEST (RESISTANCE) SHALL NOT BE SHIPPED.

### Table 1

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<th>PART NUMBER</th>
<th>DC RESISTANCE</th>
<th>PRIMARY IMPEDANCE (MINIMUM)</th>
<th>FREQUENCY RESPONSE</th>
<th>POLARITY</th>
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<th>MAX. DC UNBALANCE</th>
<th>FAMILY</th>
<th>REFERENCE SCHEMATIC DIAGRAM NUMBER</th>
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### FREQUENCY RESPONSE TEST CIRCUIT

- **TEST CIRCUIT**
- **FREQUENCY RESPONSE TEST CIRCUIT**

### Diagram

- **TEST CIRCUIT**
- **FREQUENCY RESPONSE TEST CIRCUIT**

### Notes

- **PROCURE ONLY FROM APPROVED SOURCES LISTED ON NO 1002034 FOR THIS DRAWING.**
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- **SPECIFICATION CONTROL DRAWING**
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### Photograph

- **PHOTOGRAPHIC SCALE ONLY**