

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, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED AS 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 THEREIN.

1620101

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
C	REPLACES REV B WITH CHANGES AND UPGRADED TO CLASS A RELEASE PER TDRR 02107	7/17/63	[Signature]
D	REVISED PER TDRR 03389	7/24/63	[Signature]

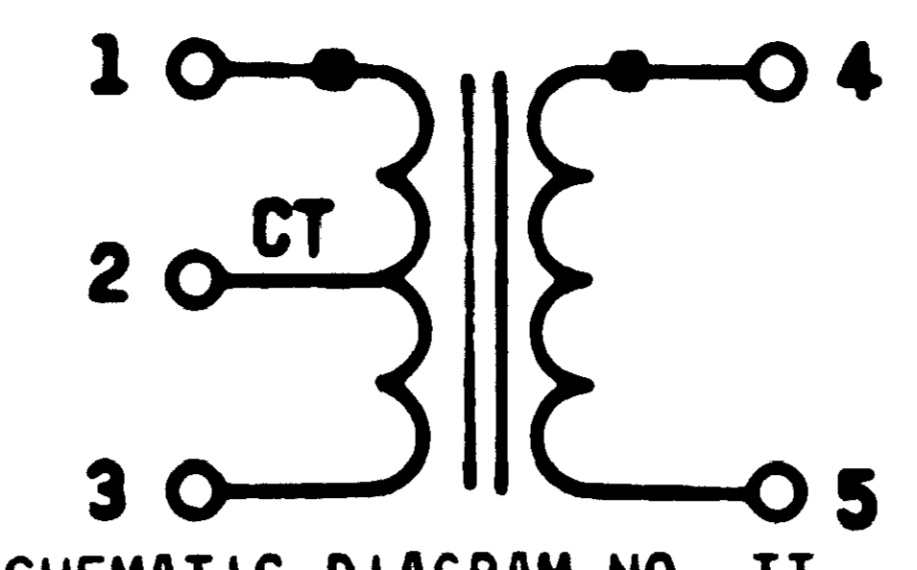
**REQUIREMENTS:**

**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 I.  
 SEALING: REFERENCE PARAGRAPH 4.7.3.2.1 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 I. REFERENCE PARAGRAPH 4.7.9.3 MIL-T-27.  
 PRIMARY IMPEDANCE: APPLY VOLTAGE AND FREQ SPECIFIED IN TABLE I TO LEADS (1-3). SECONDARY OPEN.  
 FREQUENCY RESPONSE (REFERENCE FREQUENCY 1000 CPS): SEE TEST CIRCUIT I.  $E_s$  SHALL BE DETERMINED AT 1 KC, OUTPUT POWER AT 50 MW, AND TEST CONDITIONS SPECIFIED IN TABLE I. (NOTE: IF TRANSFORMER SECONDARY IS CENTER TAPPED,  $Z_L$  SHALL BE ACROSS COMPLETE SECONDARY.)  $E_s$  SHALL BE HELD CONSTANT OVER THE FREQUENCY RANGE. REFERENCE PARAGRAPH 4.7.9.7 MIL-T-27.  
 NO LOAD VOLTAGE RATIO: SEE TABLE I. 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 I SHALL BE LIKE POLARITY. REFERENCE PARAGRAPH 4.7.9.14 MIL-T-27.



SCHEMATIC DIAGRAM NO. II  
 VOLTAGES AND CURRENTS ARE RMS VALUES UNLESS OTHERWISE NOTED

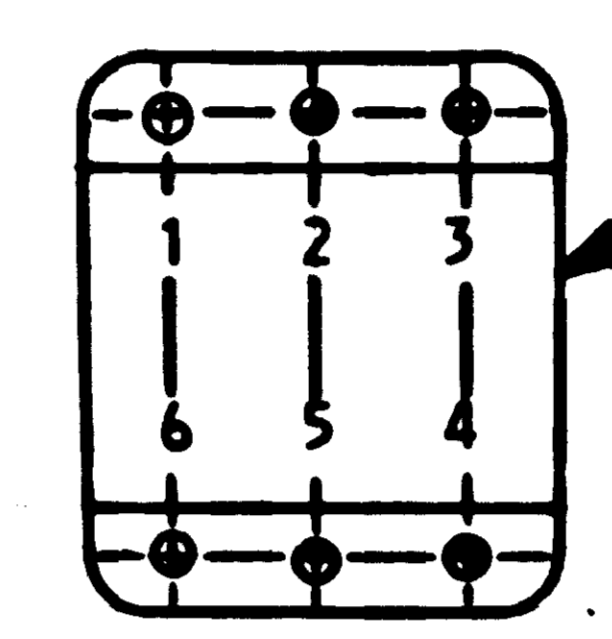
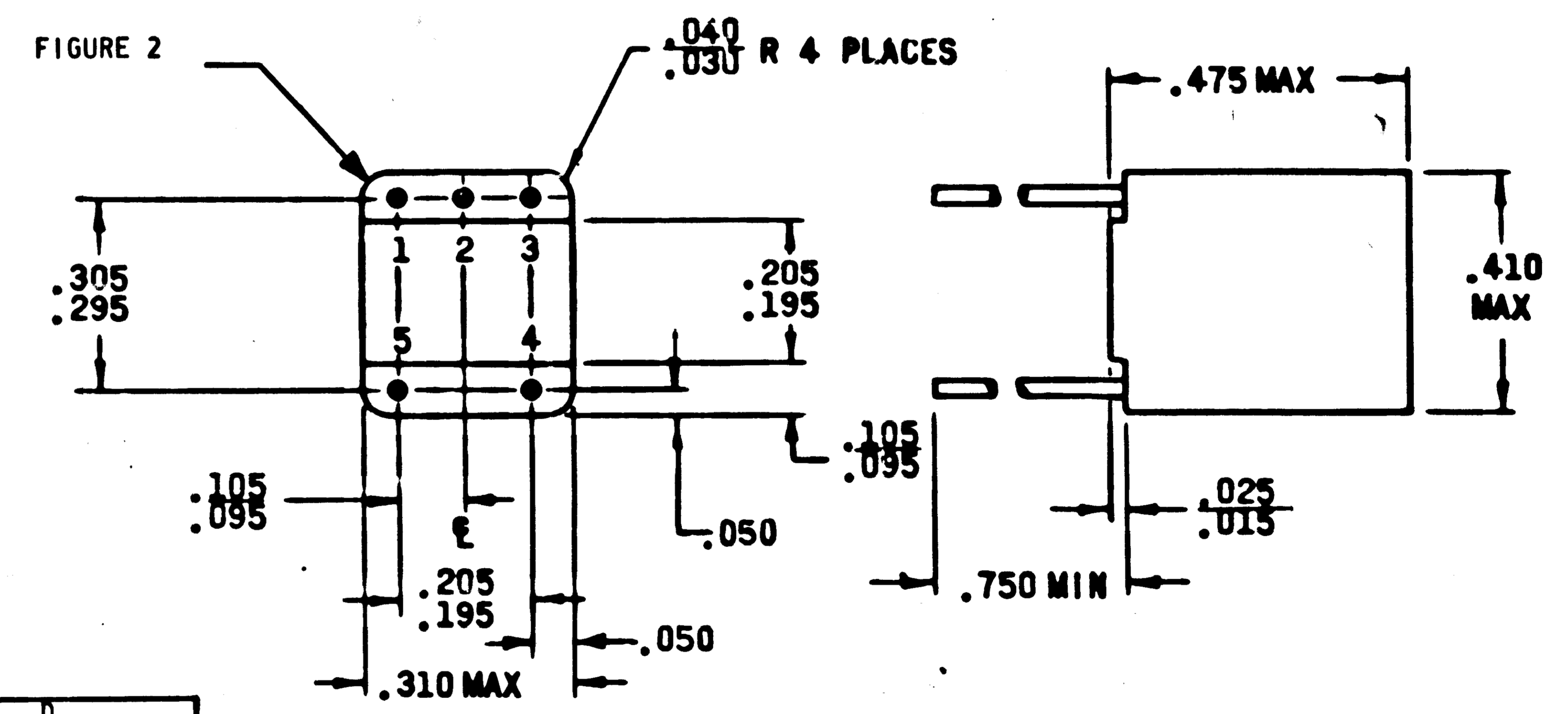
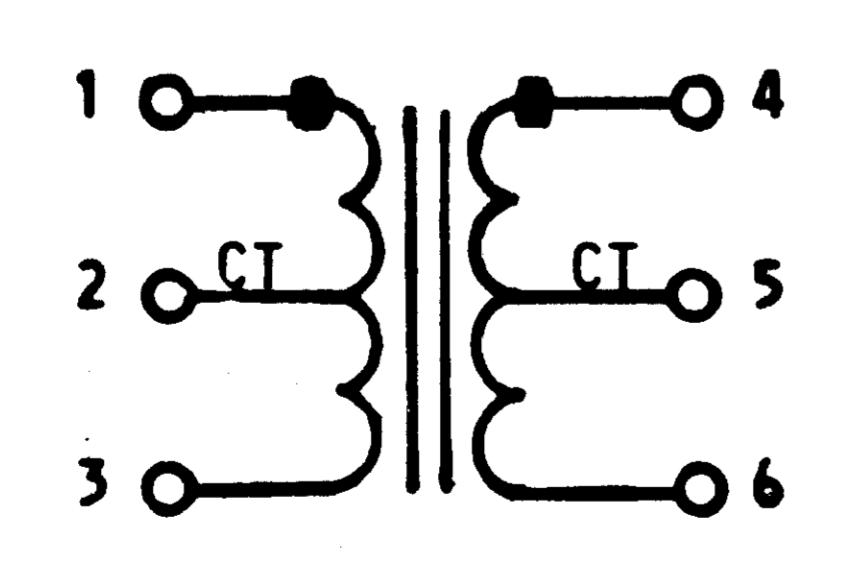


FIGURE 1  
 BOTTOM VIEW OF TRANSFORMER WITH 6 LEADS. ALL DIMENSIONS ARE THE SAME AS SHOWN BELOW



D	D
C	C
SHEET 1	SHEET 2
REVISION STATUS OF SHEETS	

SCHEMATIC DIAGRAM NO. I

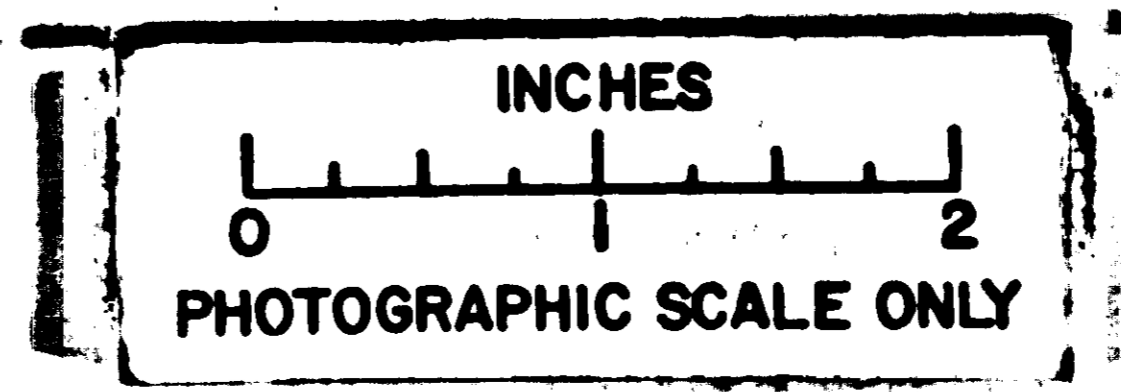


VOLTAGES AND CURRENTS ARE RMS VALUES UNLESS OTHERWISE NOTED

C REPLACES REV B WITH CHANGE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			
MIT INSTRUMENTATION LAB CAMBRIDGE MASS 0-497		MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
DRAWN [Signature] DATE 25 JUNE 63		TRANSFORMER, AUDIO	
CHECKED [Signature] DATE 26 JUNE 63		SPECIFICATION CONTROL DRAWING	
APPROVAL [Signature] DATE 7/17/63		NASA DRAWING NO. 1010291	
NASA APPROVAL [Signature] DATE 7/17/63		CODE IDENT NO. C	SIZE C
MIT APPROVAL [Signature] DATE 7/17/63		SCALE NONE	WT
APPLICATION		SHEET 1 OF 2	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	MIT
TOLERANCES ON FRACTIONS DECIMALS ANGLES	INSTRUMENTATION LAB
± .005	CAMBRIDGE MASS 0-497
DO NOT SCALE THIS DRAWING	CONTRACT 497
MATERIAL	DATE 25 JUNE 63
SEE NOTES	DRAWN [Signature]
HEAT TREATMENT NONE	CHECKED [Signature]
FINAL FINISH NONE	APPROVAL [Signature]
NEXT ASSY	NASA APPROVAL [Signature]
USED ON	MIT APPROVAL [Signature]
APPLICATION	

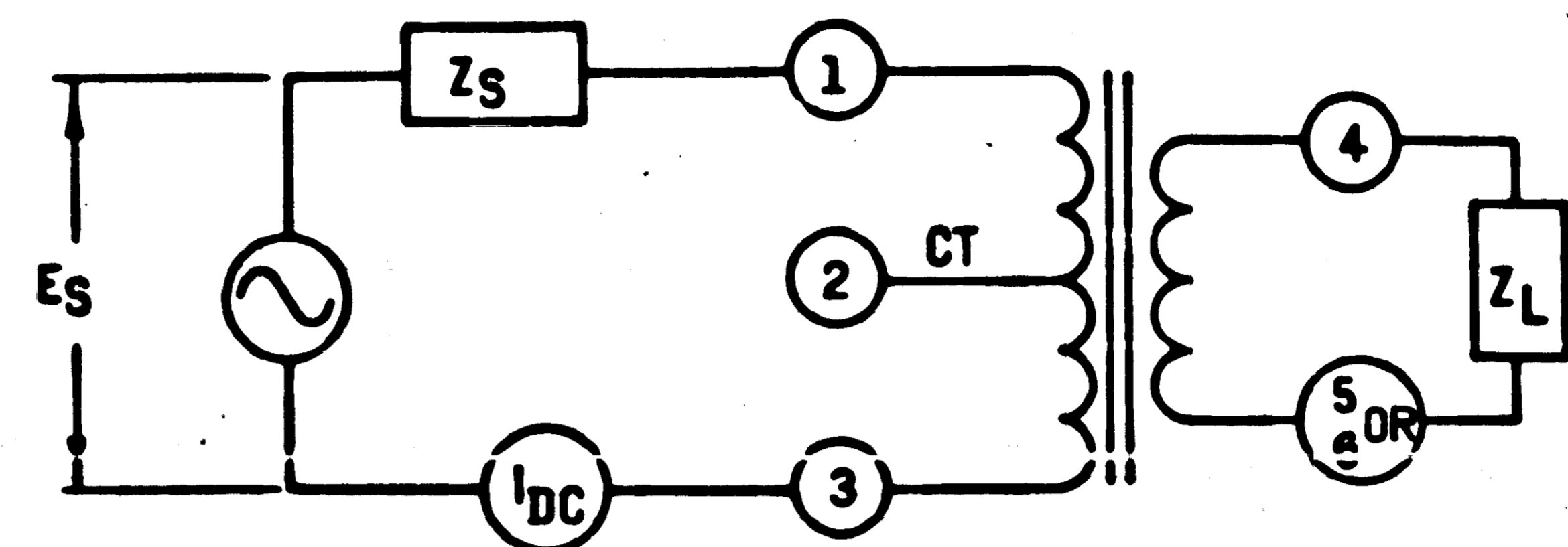


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1620101

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
C	THIS SHEET ADDED AND UPGRADED TO CLASS A RELEASE PER TDRR 02107	7/17/63	[Signature]
D	REVISED PER TDRR 03389	7/26/63	[Signature]

**DESIGN REQUIREMENTS:**  
 THE UNIT SHALL BE CAPABLE OF MEETING ALL REQUIREMENTS OF MIL-T-27 FOR GRADE 5, CLASS R, LIFE EXPECTANCY X, FAMILY PER TABLE 1, IN AMBIENT TEMPERATURE OF 85°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: -18°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<sup>-4</sup> MM OF MERCURY.



FREQUENCY RESPONSE TEST CIRCUIT

DC UNBALANCE IN PRIMARY: PER TABLE 1  
 RATED POWER LEVEL: 50 MW  
 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 102A 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.

NASA PART NUMBER	DC RESISTANCE @ 25°C ± 20%		PRIMARY IMPEDANCE (MINIMUM)		FREQ CPS	FREQUENCY RESPONSE TEST CONDITIONS				POLARITY	NO LOAD VOLTAGE RATIO ± 3% PRIMARY : SECONDARY	MAX. DC MA UNBALANCE	FAMILY	REFERENCE SCHEMATIC DIAGRAM NUMBER	FIG. NO.	
	PRIMARY	SECONDARY	OHMS	TEST VOLTAGE		Zs	ZL	Idc MA	BAND WIDTH							RESPONSE
	1010291-1	168 Ω	92 Ω	1600 (Z)		5 VOLTS	300	1,500	600							3
-2	77 Ω	3 Ω	1130 (XL)	1 VOLT	300	600	12	4.5	300 CPS TO 60KC	± 2 DB	1 AND 4	7.06 : 1	4.5	17	II	2
-3	790 Ω	0.76 Ω	15,000 (XL)	4 VOLTS	300	8,000	3.2	1	300 CPS TO 60KC	± 2 DB	1 AND 4	50 : 1	1	13	II	2
-4	1050 Ω	200 Ω CT	10,000 (Z)	4 VOLTS	300	10,000	12,000	1	300 CPS TO 60KC	± 2 DB	1 AND 4	2.88 : 1	1	13	I	1
-5	72 Ω	92 Ω	800 (Z)	2.8 VOLTS	300	600	600	3	300 CPS TO 60KC	± 3 DB	1 AND 4	1 : 1	3	17	I	1

PROCURE ONLY FROM APPROVED SOURCES LISTED ON ND 1002034 FOR THIS DRAWING.

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
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APPROVAL [Signature] DATE 7/17/63		NASA DRAWING NO. 1010291	
NASA APPROVAL [Signature] DATE 7/17/63		CODE IDENT NO. SIZE C	SHEET 2 OF 2
MIT APPROVAL [Signature] DATE 7/17/63		SCALE NONE	WT

