

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROGRAM OR 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 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:

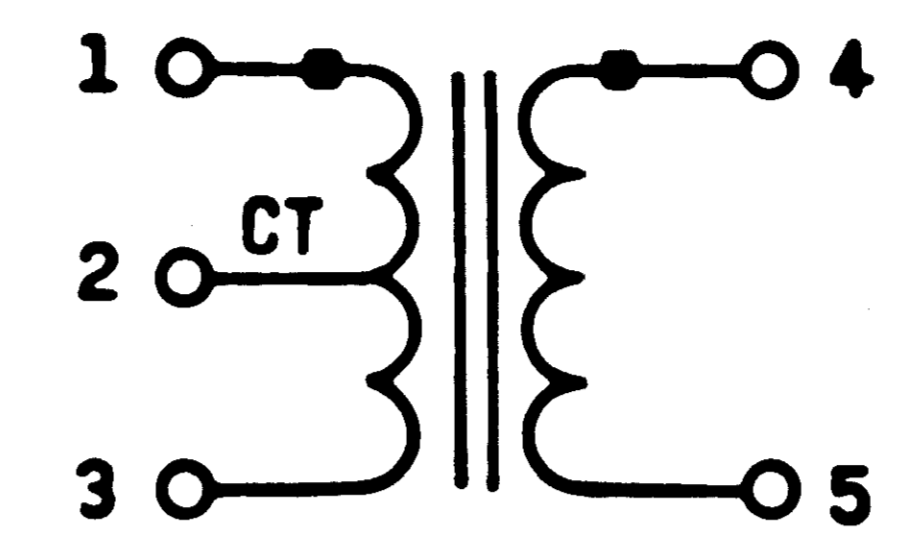
- A. DESIGN TO BE IN CONFORMANCE WITH SPECIFICATION MIL-T-27 AND ND 1015400 (FOR LEADS) AS PROVIDED BELOW.
- B. SUPPLIER SHALL CONFORM TO THE QUALITY ASSURANCE PROVISIONS AS CONTAINED IN SPECIFICATION ND 1015404, CLASS 2.
- C. INTERPRET DRAWING SYMBOLS, ABBREVIATIONS AND REFERENCE DESIGNATIONS IN ACCORDANCE WITH GOVERNMENT STANDARDS PRESCRIBED IN MIL-D-70327.
- D. UNITS SHALL BE CAPABLE OF MEETING ALL QUALIFICATION REQUIREMENTS SPECIFIED IN ND1002047.

2. INSPECTION AND ACCEPTANCE:

- A. UNIT SHALL MEET ALL REQUIREMENTS OF TABLE I.
- B. SEALING: PER MIL-T-27.
- 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 I. PER MIL-T-27.
- F. PRIMARY IMPEDANCE: APPLY VOLTAGE AND FREQ SPECIFIED IN TABLE I TO LEADS (1-3). SECONDARY OPEN.
- G. 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. PER MIL-T-27.
- H. NO LOAD VOLTAGE RATIO: SEE TABLE I. MEASURE WITH 2 VOLTS, 1000 CPS (1-3). CENTER TAP LOCATION 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 PER ND 1002019. MANUFACTURER'S PART OR TYPE NUMBER MAY APPEAR ON PART OR PACKAGE PER MIL-STD-130
- J. LEADS: NICKEL 0.020 ± .001. LEADS SHALL CONFORM TO ND1015400. A CERTIFICATE OF COMPLIANCE WITH THIS REQUIREMENT SHALL ACCOMPANY EACH SHIPMENT.
- K. POLARITY: LEADS SPECIFIED IN TABLE I SHALL BE LIKE POLARITY. PER MIL-T-27.
- L. PULL TEST: PER MIL-T-27

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	7/26/63	[Signature]
E	REVISED PER TDRR 06559	8/13/63	[Signature]
F	REVISED PER TDRR 15696	7/17/63	[Signature]



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

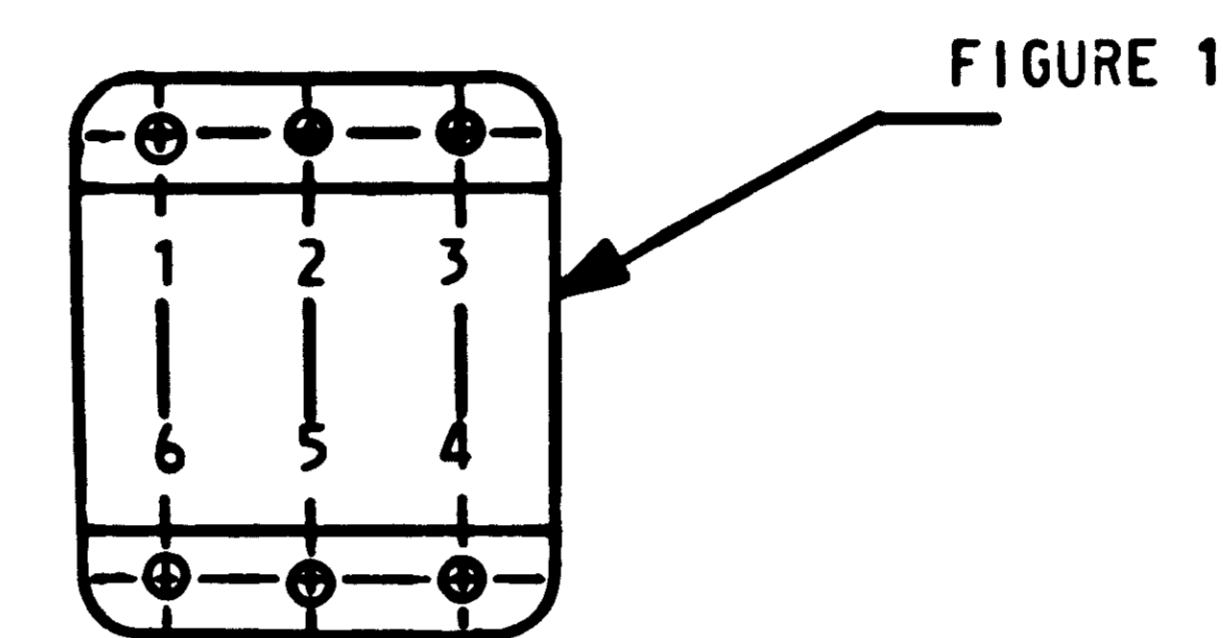
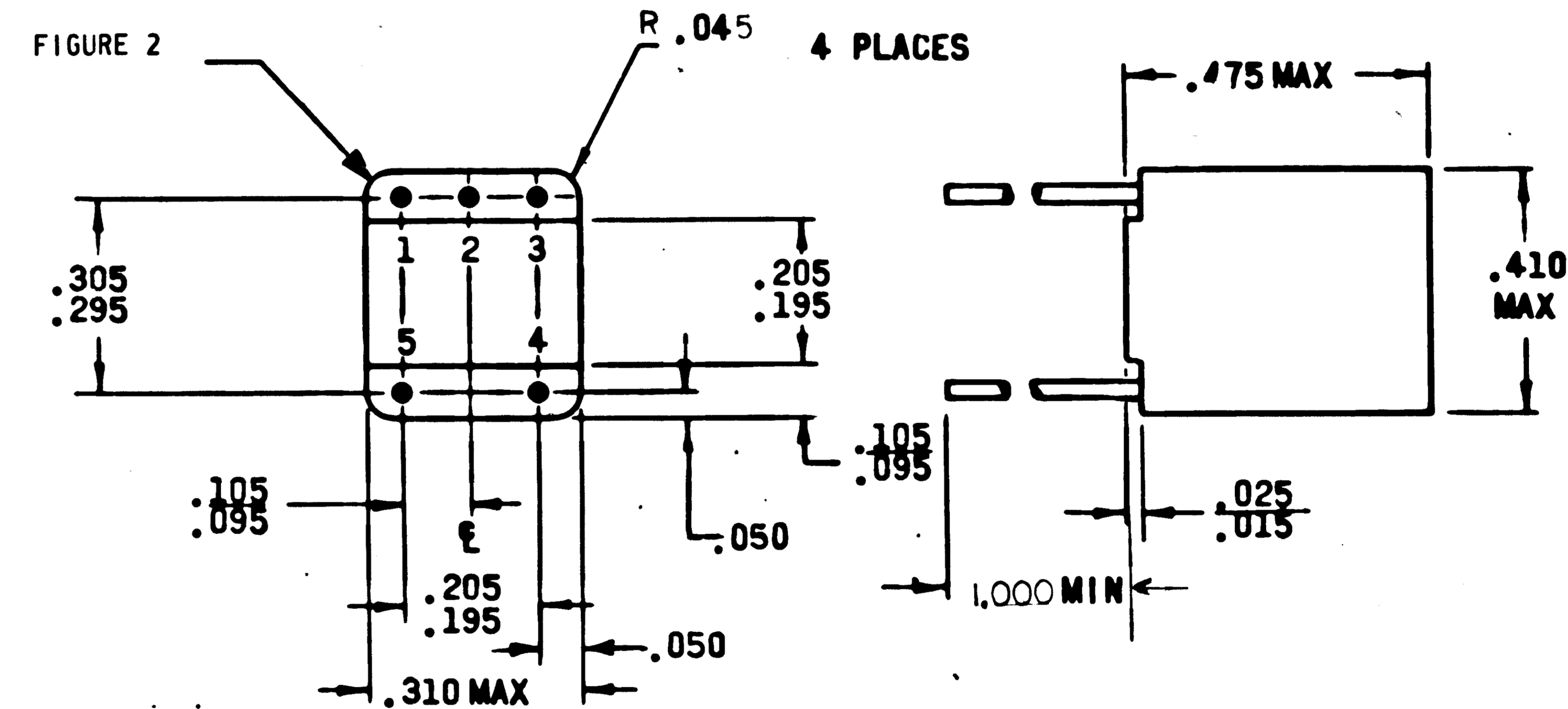
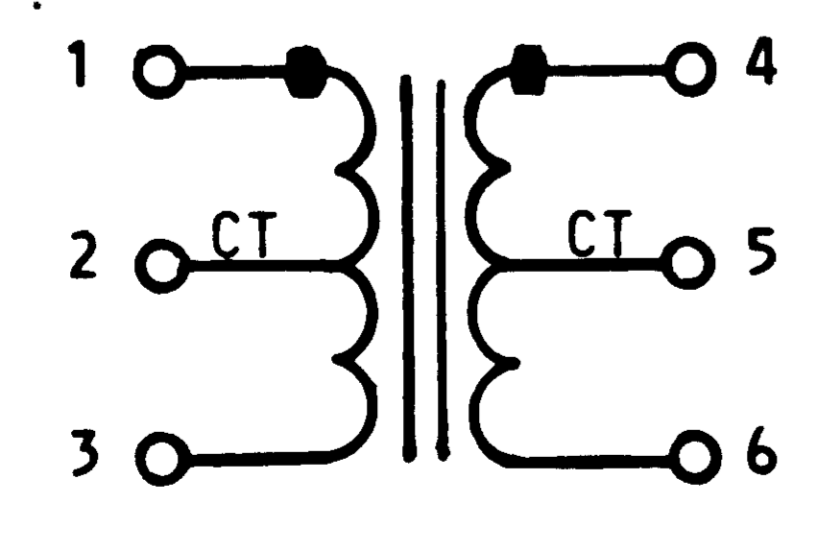


FIGURE 1
BOTTOM VIEW OF TRANSFORMER WITH 6 LEADS. ALL DIMENSIONS ARE THE SAME AS SHOWN BELOW



SCHEMATIC DIAGRAM NO. I



VOLTAGES AND CURRENTS ARE RMS VALUES UNLESS OTHERWISE NOTED

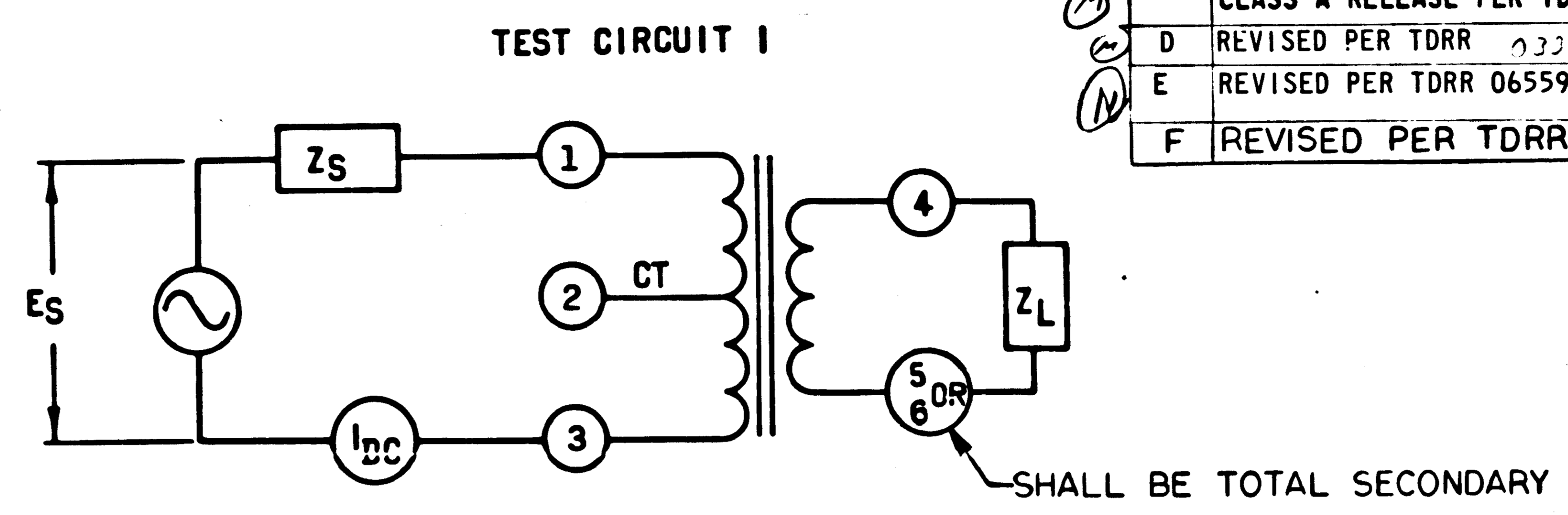
© REPLACES REV B WITH CHANGE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			
MIT INSTRUMENTATION LAB CAMBRIDGE MASS NAS 9- CONTRACT 497		MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
DRAWN [Signature] DATE 25 JUNE 63		TRANSFORMER, AUDIO	
CHECKED [Signature] DATE 26 JUNE 63			
APPROVAL [Signature] 7/17/63		SPECIFICATION CONTROL DRAWING	
NASA APPROVAL [Signature] 7/17/63		CODE IDENT NO. SIZE	NASA DRAWING NO.
MIT APPROVAL [Signature] 7/17/63		C	1010291
APPLICATION		SCALE NONE	WT
NEXT ASSY		SHEET 1 OF 2	
USED ON			
HEAT TREATMENT			
NONE			
FINAL FINISH			
NONE			

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 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.

1010291		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 03387	7/26/63	[Signature]
E	REVISED PER TDRR 06559	7/31/64	[Signature]
F	REVISED PER TDRR 15696	2/12/65	[Signature]

3. DESIGN REQUIREMENTS:
- A. THE UNIT SHALL BE CAPABLE OF MEETING ALL REQUIREMENTS OF MIL-T-27 FOR GRADE 5, CLASS S LIFE EXPECTANCY X, FAMILY PER TABLE 1, IN AMBIENT TEMPERATURE OF 85°C.
 - B. THE UNIT SHALL BE CAPABLE OF MEETING ALL ELECTRICAL REQUIREMENTS 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 D)
 - (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) HOLD THE COMPONENT IN SUCH A MANNER THAT A TWO(2) POUND WEIGHT MAY BE SUSPENDED IN AN AXIAL DIRECTION FROM THE LEAD UNDER TEST. THE BEND CYCLE (ONE(1)) REQUIRED, SHALL BE ACCOMPLISHED BY MOVING THE BODY OF THE UNIT WHILE IN THE SAME PLANE, THRU 90° IN ONE DIRECTION THEN BACK 180° IN THE OPPOSITE DIRECTION AND BACK 90° TO THE ORIGINAL POSITION.



FREQUENCY RESPONSE TEST CIRCUIT

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.

NASA PART NUMBER	DC RESISTANCE ±20%		PRIMARY IMPEDANCE (MINIMUM)		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	FREQ CPS	Zs	ZL							Idc MA	BAND WIDTH	RESPONSE
1010291 -1	168ΩCT	92Ω	1600 (Z)	5 VOLTS	300	1,500	600	3	350 CPS TO 90KC	±1DB	1 AND 4	1.58 : 1	3	13	II	2
-2	77ΩCT	3Ω	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	790ΩCT	0.76Ω	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	1050ΩCT	200ΩCT	10,000 (Z)	4 VOLTS	300	10,000	1200	1	300 CPS TO 60KC	± 2 DB	1 AND 4	2.88 : 1 CT	1	13	I	1
-5	72ΩCT	92ΩCT	800 (Z)	2.8 VOLTS	300	600	600	3	300 CPS TO 60KC	± 3 DB	1 AND 4	1:1 CT	3	17	I	1
1010291 -6	41ΩCT	98Ω	325 (Z)	2.1 VOLTS	300	300	600	7	300 CPS TO 60KC	± 3 DB	1 AND 4	1:1.42	7	17	II	2

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

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIG. NO.
LIST OF MATERIALS			
MIT INSTRUMENTATION LAB CAMBRIDGE MASS		MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
DRAWN <i>J. J. Wilson</i> DATE 25 JUNE 63		TRANSFORMER, AUDIO	
CHECKED <i>Wilson</i> 26 JUNE 63			
DO NOT SCALE THIS DRAWING MATERIAL		SPECIFICATION CONTROL DRAWING	
HEAT TREATMENT		NASA APPROVAL <i>[Signature]</i> 7/17/63	CODE IDENT NO. SIZE C
NEXT ASSY	USED ON	MIT APPROVAL <i>[Signature]</i> 7/17/63	NASA DRAWING NO. 1010291
APPLICATION		SCALE NONE	WT SHEET 2 OF 2