

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 FOR 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:

- INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
- THESE CAPACITORS SHALL CONFORM TO THE REQUIREMENTS OF MIL-C-26655/1B FOR STYLE CS15 CHARACTERISTIC B, WITH THE EXCEPTIONS AND ADDITIONS SPECIFIED IN THIS DRAWING.
- SUPPLIER SHALL CONFORM TO THE QUALITY ASSURANCE PROVISIONS IN ND 1015404 CLASS 2.
 - PERIODIC INSPECTIONS MAY BE SATISFIED BY THE SUBMISSION AND ACCEPTANCE OF CERTIFIED TEST DATA FOR PURCHASED PRODUCTION LOTS.
- CAPACITORS SHALL BE PACKAGED IN ACCORDANCE WITH SUPPLIERS NORMAL COMMERCIAL PRACTICE PER LEVEL C AS DEFINED IN MIL-C-26655.

2. INSPECTION AND ACCEPTANCE:

- MECHANICAL DIMENSIONS AND TOLERANCES PER DRAWING.
- LEAD MATERIAL SHALL BE NICKEL IN ACCORDANCE WITH ND PS1015400. CERTIFICATION OF COMPLIANCE SHALL ACCOMPANY EACH SHIPMENT.
 - LEADS SHALL WITHSTAND A 4 POUND PULL MINIMUM WITHOUT IMPAIRMENT OF PERFORMANCE.
 - LEADS SHALL WITHSTAND THE BEND TEST AS SPECIFIED IN MIL-C-26655 EXCEPT THE WEIGHT SHALL BE 2 POUNDS.
- MARKING:
 - EACH CAPACITOR SHALL BE PERMANENTLY AND LEGIBLY MARKED WITH THE MANUFACTURER'S NAME AND/OR SYMBOL, TYPE NUMBER, CAPACITANCE VALUE AND TOLERANCE, VOLTAGE RATING AND POLARITY. EACH UNIT PACKAGE AND SHIPPING CONTAINER SHALL ALSO INCLUDE THE NASA DRAWING NO. DASH NO. AND REVISION LETTER.
- DOCUMENTATION:
 - ALL PARTS SHALL BE SERIALIZED. ALL TEST DATA AND X-RAY NEGATIVES SHALL BE FORWARDED WITH PARTS. PARTS WHICH HAVE FAILED NEED NOT BE FORWARDED.

E. ELECTRICAL REQUIREMENTS:

- RATED VOLTAGE PER TABLE II.
- CAPACITANCE VALUE PER TABLE II.

3. DESIGN REQUIREMENTS:

- THE CAPACITORS SHALL MEET THE REQUIREMENTS OF MIL-C-26655/1B FOR:
 - DISSIPATION FACTOR.
 - STABILITY AT HIGH AND LOW TEMPERATURES.
 - OPERATING TEMPERATURE RANGE (-55°C TO +85°C AND 125°C OPERATION WITH DERATING PER MIL-C-26655/1B).
 - SURGE VOLTAGE.

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

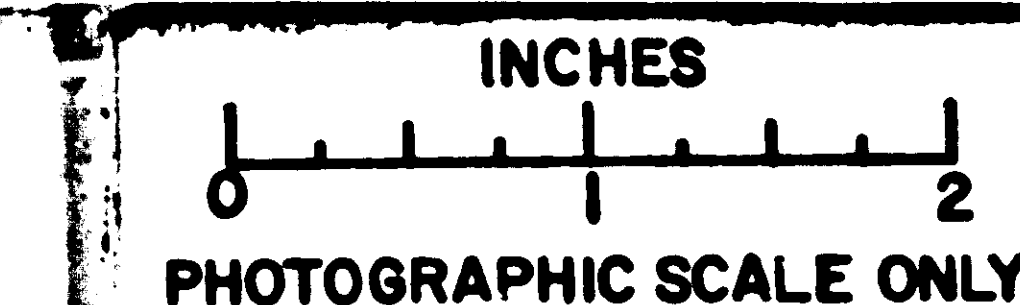
CASE SIZE	NOMINAL LEAD SIZE	DIMENSIONS		
		A	B	C
A	NO. 24 AWG	.384	.151	.422
B	(.020 DIA)	.572	.201	.610
C	NO. 22 AWG	.784	.305	.822
D	(.025 DIA)	.884	.367	.922

F	F
E	E
SHEET 1	SHEET 2
REVISION STATUS OF SHEETS	

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
		TOLERANCES ON
		FRACTIONS DECIMALS ANGLES
		± ± ±
		DO NOT SCALE THIS DRAWING
		MATERIAL
		SEE NOTES
		HEAT TREATMENT
NEXT ASSY	USED ON	FINAL FINISH
APPLICATION		

MIT INSTRUMENTATION LAB CAMBRIDGE, MASS.	
DES. NO.	CONTRACT
DRAWN <i>Louis V. Lee</i>	DATE <i>5-4-63</i>
CHECKED <i>Joe H. Hall</i>	<i>5/7/63</i>
APPROVAL	
APPROVAL <i>Edmund Hall</i>	<i>10/20/63</i>
NASA APPROVAL <i>Jack Berman</i>	
MIT APPROVAL <i>W. H. Hall</i>	<i>8/14/63</i>

MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
CAPACITOR FIXED ELECTROLYTIC SOLID TANTALUM	
SPECIFICATION CONTROL DRAWING	
NASA DRAWING NO.	1006755
CODE IDENT NO.	C
SCALE	WT
SHEET 1	OF 2



1006755

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
E	REPLACES REV. D WITH CHANGES AND UPGRADED TO A RELEASE PER TOBR 01161	May 63	WK
F	REVISED PER TOBR 01560	June 63	P.K.B

4. SPECIAL CONDITIONING BY SUPPLIER:

- EVERY SHIPMENT SHALL BE TESTED ON A 100% BASIS, BY THE METHODS SPECIFIED TO ELIMINATE ALL SUBSTANDARD OR POTENTIALLY SUBSTANDARD UNITS. X-RAY INSPECTION SHALL BE PER MIL-STD-202 METHOD 209, AND SHALL BE ACCOMPLISHED PERPENDICULAR TO THE MAJOR AXIS OF THE CAPACITOR. THIS INSPECTION SHALL ELIMINATE ANY CAPACITORS HAVING LARGE SOLDER PARTICLES OR HAVING INADEQUATE ANODE ANCHORAGE AND CONNECTION OR POOR ALIGNMENT.
- BURN-IN: TO ELIMINATE ALL DEFECTIVE COMPONENTS.

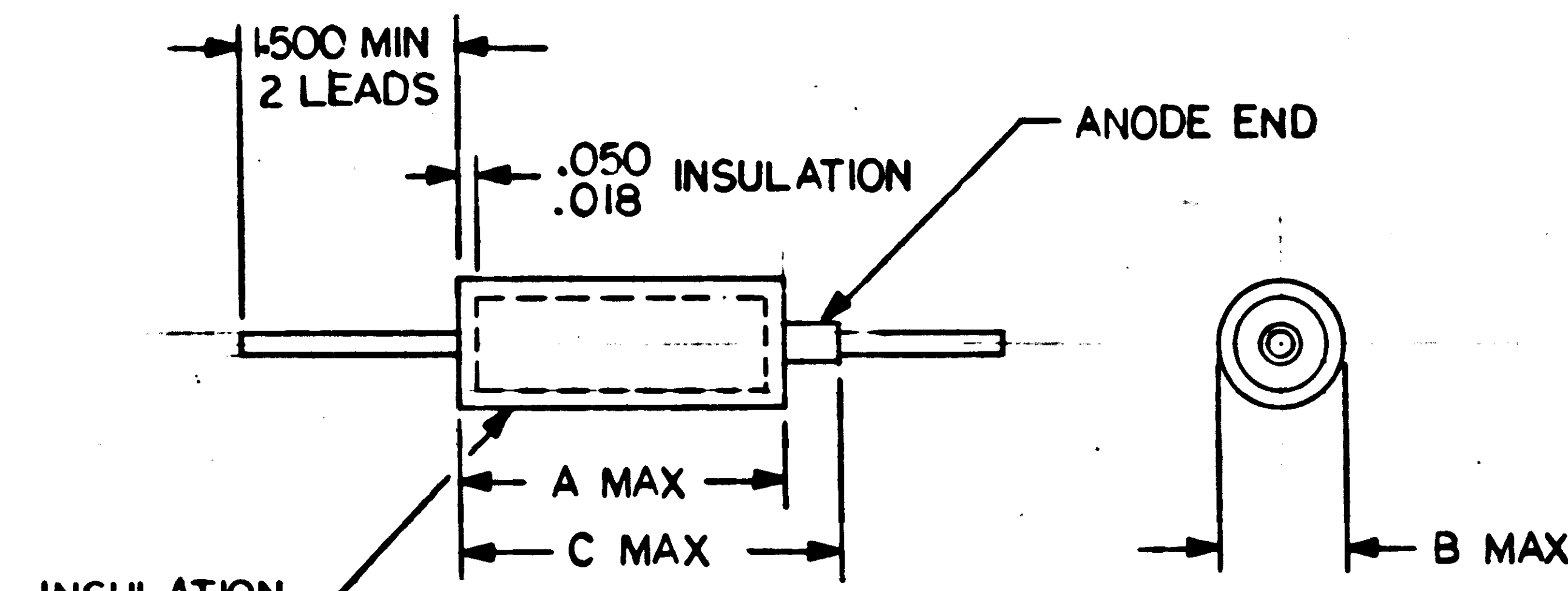
EACH UNIT SHALL BE CONNECTED IN SERIES WITH A 3 OHM RESISTOR AND A 1 AMP FUSE: UNITS SHALL THEN BE TESTED AT RATED VOLTAGE AT 125°C MINIMUM OF 250 HOURS. ALL UNITS WHICH HAVE A BLOWN FUSE OR WHICH ARE OUTSIDE OF ALLOWABLE TOLERANCE FOR CAPACITANCE, DISSIPATION FACTOR, OR LEAKAGE CURRENT, WHEN TESTED AT 25°C ON COMPLETION OF BURN-IN SHALL BE DISCARDED.

- EQUIVALENT SERIES RESISTANCE AT 25°C: UNITS SPECIFIED IN TABLE I SHALL BE SCREENED FOR MAXIMUM ESR BY PLACING UNITS IN TEST CIRCUIT AND CALCULATING ESR BY THE FORMULA:

$$ESR = \frac{\left[\frac{E_c R_1}{C_1} \right] \left[\frac{E_1^2 + E_c^2 - E_A^2}{2 E_1 E_c} \right]}$$

WHERE

- E_c = AC COMPONENT ACROSS C_1 (RMS)
 E_1 = AC COMPONENT ACROSS R_1 (RMS)
 E_A = AC VOLTAGE APPLIED (RMS)
 R_1 = VALUE FROM TABLE I



REPLACES REV D WITH CHANGES

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 FOR 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.

TABLE II

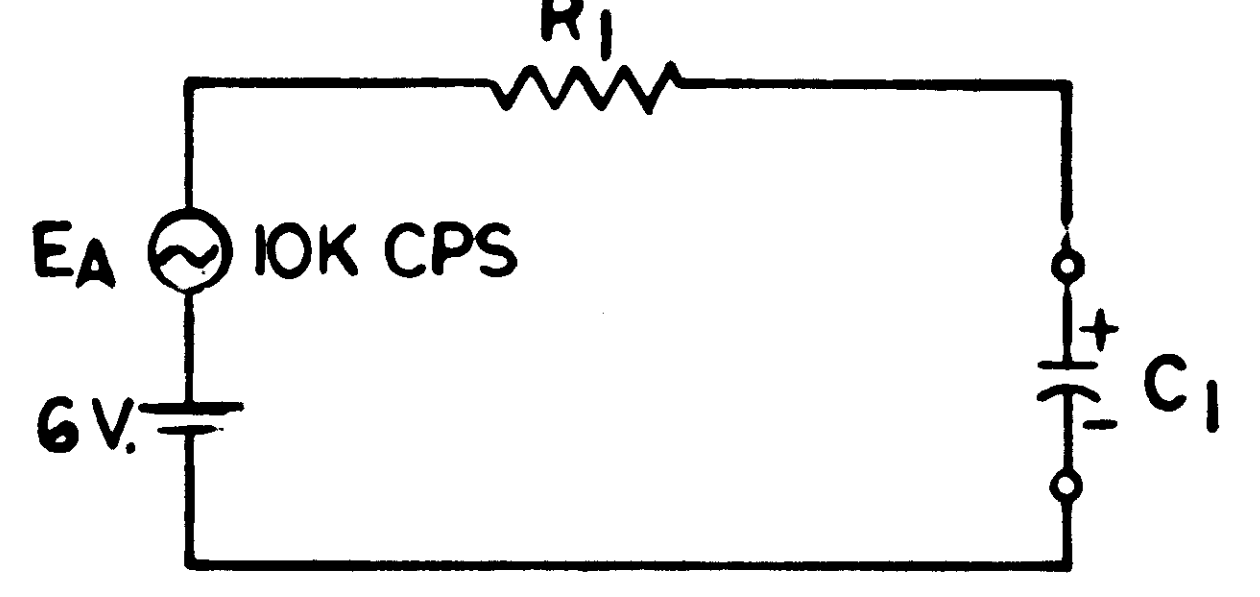
CAP VALUE UF ±10%	RATED CONTINUOUS DC VOLTAGE AT 25°C																	
	6 VDC			10 VDC			15 VDC			20 VDC			35 VDC			50 VDC		
	DASH NO.	I _L	S _C	DASH NO.	I _L	S _C	DASH NO.	I _L	S _C	DASH NO.	I _L	S _C	DASH NO.	I _L	S _C	DASH NO.	I _L	S _C
.0047													- 41	.6	A	- 90	0.1	A
.0056													- 42	.6	A	- 91	0.1	A
.0068													- 43	.6	A	- 92	0.1	A
.0082													- 44	.6	A	- 93	0.1	A
.010													- 45	.6	A	- 94	0.1	A
.012													- 46	.6	A	- 95	0.1	A
.015													- 47	.6	A	- 96	0.1	A
.018													- 48	.6	A	- 97	0.1	A
.022													- 49	.6	A	- 98	0.1	A
.027													- 50	.6	A	- 99	0.1	A
.033													- 51	.6	A	- 100	0.1	A
.039													- 52	.6	A	- 101	0.1	A
.047													- 53	.6	A	- 102	0.1	A
.056													- 54	.6	A	- 103	0.1	A
.068													- 55	.6	A	- 104	0.1	A
.082													- 56	.6	A	- 105	0.1	A
.10													- 57	.6	A	- 106	1.0	A
.12													- 58	.6	A	- 107	1.0	A
.15													- 59	.6	A	- 108	1.0	A
.18													- 60	.6	A	- 109	1.0	A
.22													- 61	.6	A	- 110	1.0	A
.27													- 62	.6	A	- 111	1.0	A
.33													- 63	.6	A	- 112	1.0	A
.39													- 64	.6	A	- 113	1.0	A
.47													- 65	.6	A	- 114	1.0	A
.56													- 66	.6	A	- 115	1.0	A
.68													- 67	.6	A	- 116	2	A
.82													- 68	.6	A	- 117	2	A
1.0													- 69	.6	A	- 118	2	A
1.2										- 26	.6	A	- 70	.6	B	- 119	2	B
1.5										- 27	.6	A	- 71	.8	B	- 120	2	B
1.8										- 28	.6	A	- 72	1	B	- 121	2	B
2.2										- 29	.7	A	- 73	1.2	B	- 122	2	B
2.7							- 18	.6	A				- 74	1.4	B	- 123	2	B
3.3							- 19	.8	A				- 75	1.7	B	- 124	2	B
3.9				- 9	.6	A							- 76	2	B	- 125	2	B
4.7				- 10	.7	A							- 77	2.5	B	- 126	3	B
5.6	- 1	.6	A										- 78	3	B	- 127	3	C
6.8	- 2	.6	A										- 79	3.5	B	- 128	3	C
8.2										- 30	2.5	B	- 80	3.5	C	- 129	3	C
10										- 31	3	B	- 81	4	C	- 130	3	C
12										- 32	3.5	B	- 82	4	C	- 131	3	C
15										- 33	4	B	- 83	6	C	- 132	6	C
18							- 20	4	B				- 84	6	C	- 133	6	C
22							- 21	5	B				- 85	7	C	- 134	6	D
27				- 11	4	B							- 86	7	D			
33				- 12	5	B				- 34	5	C	- 87	8	D			
39				- 13	5	B				- 35	6	C	- 88	10	D			
47	- 3	4	B							- 36	7	C	- 89	10	D			
56	- 4	5	B				- 22	7	C	- 37	8.5	D						
68							- 23	9	C	- 38	10	D						
82							- 24	9	D	- 39	12	D						
100				- 14	10	C				- 40	15	D						
120				- 15	12	C												
150	- 5	9	C				- 25	15	D									
180	- 6	11	C	- 16	18	D												
220				- 17	20	D												
270	- 7	16	D															
330	- 8	20	D															

* I_L = MAX LEAKAGE CURRENT AT 25°C IN MICROAMPERES
**S_C = CASE SIZE - SEE TABLE I

1006755

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
E	REPLACES REV D WITH CHANGES PER TDRR 01161	8/16/63	WKE
F	REVISED PER TDRR 01560	12 Jan 63	PXB

TABLE I			
C ₁	R ₁	E _{R1}	ESR, MAX
1006755-134	1Ω ± 1%	1.0 VRMS	0.5Ω
1006755-128	5Ω ± 1%	0.5 VRMS	1.0Ω
1006755-118	15Ω ± 1%	1.5 VRMS	5.0Ω



TEST CIRCUIT

Ⓔ REPLACES REV D WITH CHANGES

QTY REQD		PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS				
MIT INSTRUMENTATION LAB CAMBRIDGE, MASS.		MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
DRAWN C. La. Cat. HP DATE 2 MAR 63		CAPACITOR, FIXED, ELECTROLYTIC, SOLID TANTALUM		
CHECKED D.M. Sluiper 5 MAR 63		SPECIFICATION CONTROL DRAWING		
APPROVAL E. E. Hall 10 June 63		NASA DRAWING NO. 1006755		
NASA APPROVAL Jack Baran		CODE IDENT NO. C	SIZE	SHEET 2 OF 2
MIT APPROVAL W. H. Taylor 8 May 63		SCALE NONE	WT	

