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Document in this file	IEE Nimo specification for Series 6500
Display devices in this document	6500, B26A

File created by Dieter Waechter
www.tube-tester.com

APPLICATION		REVISIONS			
NEXT ASSY	FINAL ASSY	LTR	DESCRIPTION	DATE	APPRO
		B	PRODUCTION RELEASE E.O. 04949.	12 NOV 71 GO	
		C	SEE E.O. 5416	1-17-72	
		D	SEE EO. 6785	7-10-72	
		E	SEE E.O. 7705 HNS	4-19-73	
		F	SEE EO-7985	31 JULY 73	

PRODUCT SPECIFICATION

SERIES 6500

nimo DISPLAY TUBE

REV	F	D	E	E	E	E	F	E	E	D	E	D	D	D	E	C	E	E										
SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	

REVISION STATUS

PROJ NO. 127	CONTRACT	INDUSTRIAL ELECTRONIC ENGINEERS, VAN NUYS, CALIFORNIA	
	DRAWN KUHN 10/27/71	PRODUCT SPECIFICATION 6500 SERIES nimo	
	CHECK		
	APPROVED 10/27/71	SIZE A / CODE IDENT NO. 05464	S 6500-1X
	APPROVED	SCALE NONE	SHEET 1 OF

1.0 SCOPE

This specification defines a cathode ray display tube capable of presenting any of 64 independent messages, characters or symbols. The device is identified by the trade name "nimo".

2.0 NOMENCLATURE

2.1 IEE Model #: 6500 (Basic Series) - 1 (Style) X (Color Code (See 4.9)) - XXXX (Mask No. (Factory Assigned))

2.2 Description: Trade Name "nimo"
IEE 6500 Series Display Component.

3.0 APPLICATION FIELD

The IEE 6500 Series "nimo" is primarily intended for use in applications where alpha-numeric information is to be displayed, since it has the capability of presenting the entire typewriter keyboard. It is well suited for all applications where a large number of messages or customer designed symbols have to be displayed to an operator. Color is predicated upon phosphor selection. Display positions are activated by means of X-Y selection on a control grid matrix. The IEE Series 6500 is ideally suited for high ambient light conditions.

3.1 Function: The IEE Series 6500 "nimo" is a sixty four electron gun cathode ray display device, utilizing a shadow mask for character generation.

3.2 Related Military Specification: None

4.0 DISPLAY CHARACTERISTICS

4.1 Display Type: 64 gun, shadow mask, cathode ray vacuum tube.

4.2 Intensity: (green phosphor only)

4.2.1 The intensity of the Series 6500 nimo display is a function of the applied anode voltage. Reference Figure 1 for characteristics of anode voltage versus display intensity.

4.2.2 Control of display intensity may be accomplished through variation of the anode supply voltage within the limits defined by Figure 1.

4.2.3 When an electron beam is projected through an aperture onto a phosphor screen, there is a phenomenon called gaussian distribution of brightness. Also there is a maximum brightness for a given phosphor at any given anode voltage. If the brightness of an illuminated stroke is measured, the values will increase from approximately "O" to some peak value along a smooth curve. Then remain at the peak until the gaussian distribution of the opposite side is reached, then it will taper off on a mirror image curve.

When stroke widths become small enough, the gaussian distribution of the two-sides meet before the peak brightness can be reached. For this reason there is a variation in brightness from large characters to small characters.

4.3 Display Positions: Sixty-four.

6500-1X-0103 is standard, containing 26 letters, 10 numerals, 27 symbols, and conforms to EBCDIC code requirements. (Reference Figure 2).

6500-1X-0104 is standard, containing 26 letters, 10 numerals, 28 symbols, and conforms to USASCII code requirements. (Reference Figure 3).

6500-1X-0107 is a universal mask demonstrating both alphanumeric, messages & symbol capability of the device. (Reference Figure 4).

4.4 Character Style: Modified Alternate Gothic #3 (AGC) for multi letter messages and F4 (futura demi) for single characters.

4.5 Display Area: .65" x .65" Maximum.

4.6 Character Height & Message Capability: See Pages 4 and

ALL INFORMATION ON THIS SHEET IS REFERENCE ONLY AND PERTAINS TO ACTUAL DISPLAY

LETTER/ SYMBOL HEIGHT	AVER. NO. OF CHARACTERS PER LINE	MAX. LINES PER MESSAGE	WIDTH FACTOR BASED ON AVERAGE CHARACTER	EXAMPLE OF MESSAGES	HEIGHT TOLERANCE LETTER (NON-ACCUM.)	HEIGHT TOLERANCE TOTAL (MAX
.126	(1) 7	4	5.150	C.O.D. AMOUNT TO BE CHARGED	±.010	±.025
.147	(1) 6/7	3	4.400	DRIVER LICENSE /STATE	±.010	±.025
.177	(1) 5	3	3.672	ENTER TAX TOTAL	±.010	±.025
.221	(2) 4	2	2.940	TEST LINE	±.015	±.020
.295	(2) 3		2.200	kWH	±.015	±.015
.442	(2) 2	1	1.470	MΩ	±.015	±.015
.500	(2) 1	1	1.300	$	±.020	±.020
.562	(2) 1 (STANDARD)	1	1.000	W	±.020	±.020

(1) BI-METAL MIN TIE BAR .018, STROKE .027

(2) ETCH MIN TIE BAR .027, STROKE .036

INDUSTRIAL ELECTRONIC ENGINEERS, INC. VAN NUYS, CALIFORNIA	SIZE A	CODE IDENT NO 05464	S 6500-IX
	SCALE	REV	SHEET 4

CHARACTER WIDTH FACTOR ASSIGNMENT CHART

(1) FOR ALTERNATE GOTHIC #3 MODIFIED BASED ON 1.000 HIGH CHARACTERS

(2)

WIDTH FACTOR	1.086	.913	.820	.793	.762	.732	.700	.650	.486	.340	.182
CHARACTER/SYMBOL	W	M	X	A Q V Y	B K S 4	C D G H N O P R T U Z	2 3 5 6 7 8 9 0	E F L	J	1	! : . , ( ) , ;

NOTES:

(1) THIS CHART IS INTENDED AS A REFERENCE ONLY. THE APPROXIMATE CHARACTER HEIGHT OF THE DISPLAYED MESSAGES CAN BE DETERMINED BY FINDING THE SUM OF THE REQUIRED CHARACTER WIDTHS (SPACING INCLUDED) THEN DIVIDE THE SPACE AVAILABLE (.65 MAX) BY THE SUM OF THE CHARACTER WIDTHS. THIS WILL GIVE THE APPROXIMATE DISPLAYED HEIGHT. DUE TO MANY COMBINATIONS OF CHARACTERS IT IS NOT PRACTICAL TO SPECIFY ANY SPECIFIC NUMBER OF CHARACTE PER LINE IN THIS SPECIFICATION.

(2) AVERAGE CHARACTER WIDTH 0.734.

(3) IN NO CASE SHOULD THE COMPUTED CHARACTER HEIGHT BE LESS THAN .125 INCH HIGH.

4.7 Character Alignment: Horizontal and vertical registration of displayed information will be maintained within + .030" relative to center of screen.

4.8 Angular Alignment: The angularity of dis played information will be maintained within $\pm 2^{\circ}$ of the vertical center line. The vertical is defined as 60° CW from pin #1 center line, when viewed from displayed end.

4.9 Display Color:

4.9.1 Green, color code -2-, standard.

4.9.1.1 Fluorescence: Green
4.9.1.2 Persistence: Medium-Short
4.9.1.3 Spectral Peak: 5200 Angstroms

4.9.2 Display color is determined by the type of phosphor. Color code -2- is standard and provides maximum screen life. Other phosphors and colors are available on special order.

4.9.3 Optional Colors:

4.9.3.1 Color Code 3-Red
4.9.3.2 Color Code 4-Blue

4.10 Phosphor Defects: Individual blemishes in screen faceplate shall be considered a defect if they have a diameter of more than .030. Only that portion of a blemish which affects the useful display area shall be used in computing its diameter.

4.11 Faceplate Characteristics:

4.11.1 Configurations: Curved, approximately 1.125" R. (Standard T-12 Envelope)

4.11.2 Clarity: As molded. Bull's eye defects shall not be cause for reject unless character distortion results.

4.12 Useful Display Area: The useful display area is defined as the area centered on the tube screen which is not hidden behind a bezel. Message splashover is acceptable outside this area.

5.0 ELECTRICAL PARAMETERS - SERIES 6500 nimo
(Measured per Test Circuit - Figure 5)

	CHARACTERISTIC (All Electr. Parameters are referred to Cathode Potential)	UNITS	MEASURED PARAMETER @ 2 kVDC ANODE POTENTIAL* MIN	TEST	MAX	MEASURED PARAMETER @ 2,5 kVDC ANODE POTENTIAL* MIN	TEST	MAX
5.1	Intensity: Average Measured 5 Places on Display	Foot Lambert	20					
5.2	Filament Voltage	VAC/ RMS VDC	1.60 1.60	1.75 1.75	1.90 1.90	1.60 1.60	1.75 1.75	1.90 1.90
5.3	Filament Current @ 1.75 Vac rms	AMPS ±10%		0.700			0.700	
5.4	Anode Current (One Message = Displayed)	MICRO AMPS	10		100			125
** 5.5	Aperture Grid (OFF) Isolation Resistance R4 (Figure 5)	OHMS ±50%	For power	470K supply protection			470K	
** 5.6	Blanking Grid (OFF) Isolation Resistance R3 (Figure 5)	OHMS ±50%	For power	470K supply protection			470K	
** 5.7	Aperture Grid (ON) Isolation Resistance R1 (Figure 5)	OHMS ±20%	For power	470K supply protection			470K	
** 5.8	Blanking Grid (ON) Isolation Resistance R2 (Figure 5)	OHMS ±20%	For power	470K supply protection			470K	
5.9	Aperture Grid "OFF" Control Voltage (No Display)	VDC	-12.5	-12.5	-16	-14	-14.0	-18
5.10	Blanking Grid "OFF"							

5.0 ELECTRICAL PARAMETERS - SERIES 6500 nimo Continued
(Measured per Test Circuit - Figure 5)

CHARACTERISTIC (All Electr. Parameters are referred to Cathode Potential)	UNITS	MEASURED PARAMETER @ 2 kVDC ANODE POTENTIAL* MIN	TEST	MAX	MEASURED PARAMETER @ 2,5 kVDC ANODE POTENTIAL* MIN	TEST	MAX
5.11 Aperture Grid "ON" Control Voltage (Full Display)	VDC	+ 2.0	+2.5	+ 3.0	+ 2.0	+2.5	+ 3.0
5.12 Blanking Grid "ON" Control Voltage (Full Display)	VDC	+ 2.0	+2.5	+3.0	+ 2.0	+2.5	+ 3.0
5.13 Aperture Grid "OFF" Control Current (No Display)	MICRO AMPS			0.25			0.25
5.14 Blanking Grid "OFF" Control Current (No Display)	MICRO AMPS			0.25			0.25
5.15 Aperture Grid "ON" Control Current (Full Display)	MICRO AMPS			2.0			2.0
5.16 Blanking Grid "ON" Control Current (Full Display)	MICRO AMPS			20.0			20.0

** As close to socket as possible

6.0 ENVIRONMENTAL CHARACTERISTICS

6.1 Vibration: 10-50-10 cps at 0.06 inch Double amplitude on all three axis.

6.2 Shock: 35 g magnitude; 11 millisecond duration

6.3 RFI: Meets MIL-I-26600 requirements

6.4 Operating Life: (Green, standard phosphor only). The limit of useful life for the nimo display is defined as the point at which the intensity has degenerated to a measured value of 50% of the original intensity. (This represents a 25% reduction in visual intensity). This time span is a function of the phosphor deterioration rate. Expected life is therefore dependent upon phosphor type and average beam current density. All life data contained herein is related to the standard, green phosphor which produces maximum useful life as defined above.

6.4.1 The rated useful operating life of the Model 6500 nimo is given by Table 1 for three operating conditions:

RATED LIFE (COLOR CODE) -2-	ANODE VOLTAGE	BRIGHTNESS INITIAL	BRIGHTNESS FINAL
20,000 HRS	1.75 KVDC	10 FL	5 FL
15,000 HRS	2.00 KVDC	20 FL	10 FL
10,000 HRS	2.50 KVDC	40 FL	20 FL

6.5 Operating Temperature Range: 0°C to + 85°C

6.6 Humidity: Up to 95% relative humidity

6.7 Storage Temperature Range: -20°C to +125°C

7.0 MECHANICAL CHARACTERISTICS (Ref. Figure 6)

7.1 Operating Position: Any

7.2 Envelope: Standard, T12ZD1, Lime Glass

7.3 Base: 26 Pin (Ref. Figure 7)

PIN NO.	FUNCTION
14	Aperture Control Grid No. 1
1	Aperture Control Grid No. 2
12	Aperture Control Grid No. 3
2	Aperture Control Grid No. 4
11	Aperture Control Grid No. 5
3	Aperture Control Grid No. 6
9	Aperture Control Grid No. 7
5	Aperture Control Grid No. 8
4	Blanking Grid No. 1
20	Blanking Grid No. 2
21	Blanking Grid No. 3
7	Blanking Grid No. 4
22	Blanking Grid No. 5
23	Blanking Grid No. 6
10	Blanking Grid No. 7
13	Blanking Grid No. 8
6	Filament Voltage
15	Filament Voltage
17	Anode Voltage

Pin No. 24 & 25 are internally connected and maybe used for electr. interlo purpose.

7.4 Physical Size: Reference Figure 6

7.5 Socket: IEE Part Number 21049 (Reference Figure 8)

8.0 MARKING

The IEE 6500 Series nimo shall be legibly and permanently identified with:

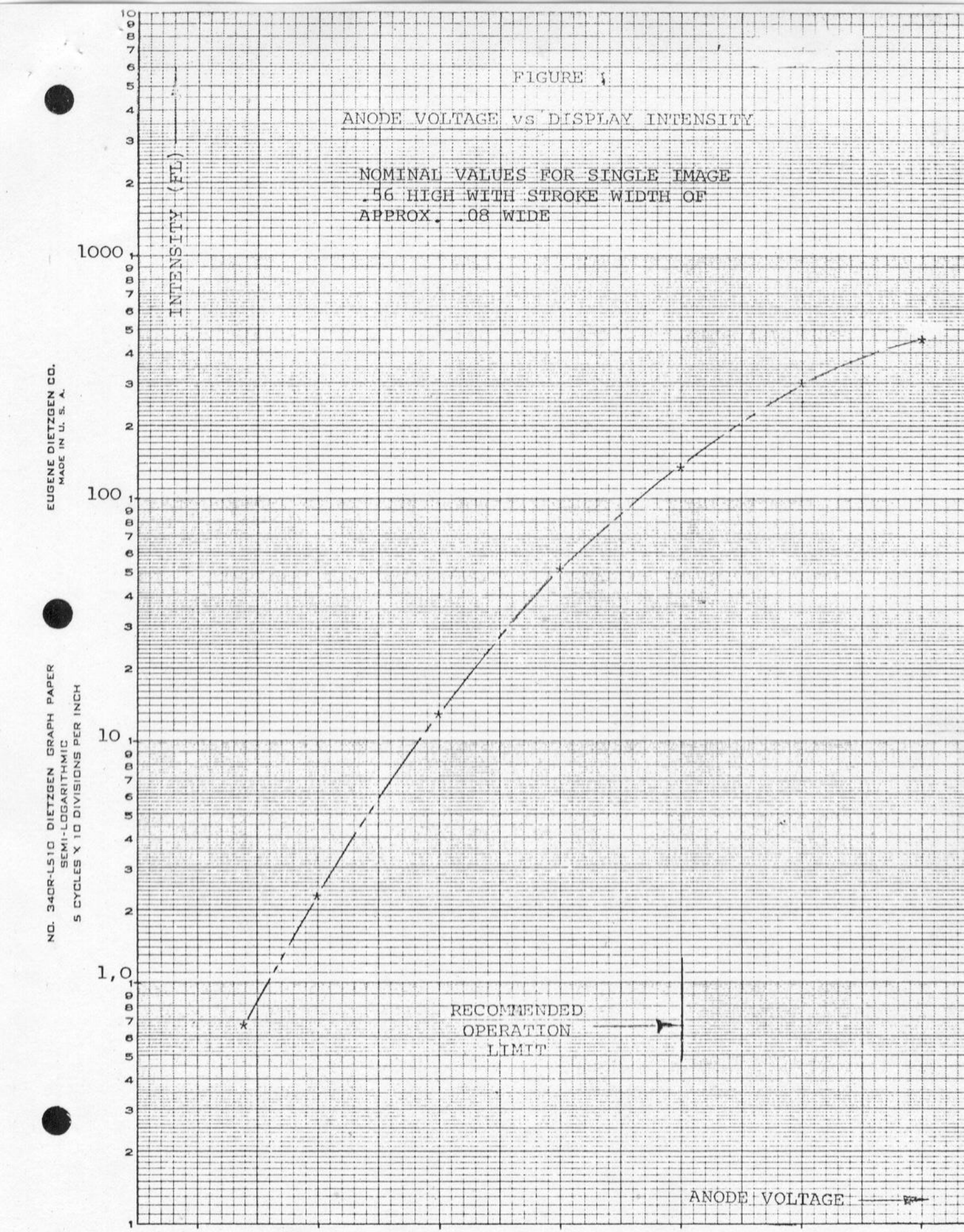
IEE's Trademark
The Trade Name "nimo"
Model Number
Color Code
Mask Number
Country Manufactured
IEE's Address
Patent Information
Manufacturing Code

OPTIONAL: Customer Part Number upon special request only.

FIGURE 1

ANODE VOLTAGE vs DISPLAY INTENSITY

NOMINAL VALUES FOR SINGLE IMAGE
.56 HIGH WITH STROKE WIDTH OF
APPROX. .08 WIDE



EUGENE DIETZGEN CO.
MADE IN U. S. A.

NO. 340R-LS10 DIETZGEN GRAPH PAPER
SEMI-LOGARITHMIC
5 CYCLES X 10 DIVISIONS PER INCH

FIGURE 2

nimo # 6500-IX-0103

INDUSTRIAL ELECTRONIC ENGINEERS, INC. VAN NUYS. CALIFORNIA	SIZE A	CODE IDENT NO 05464	S 6500-IX
	SCALE FULL	REV D	SHEET 12

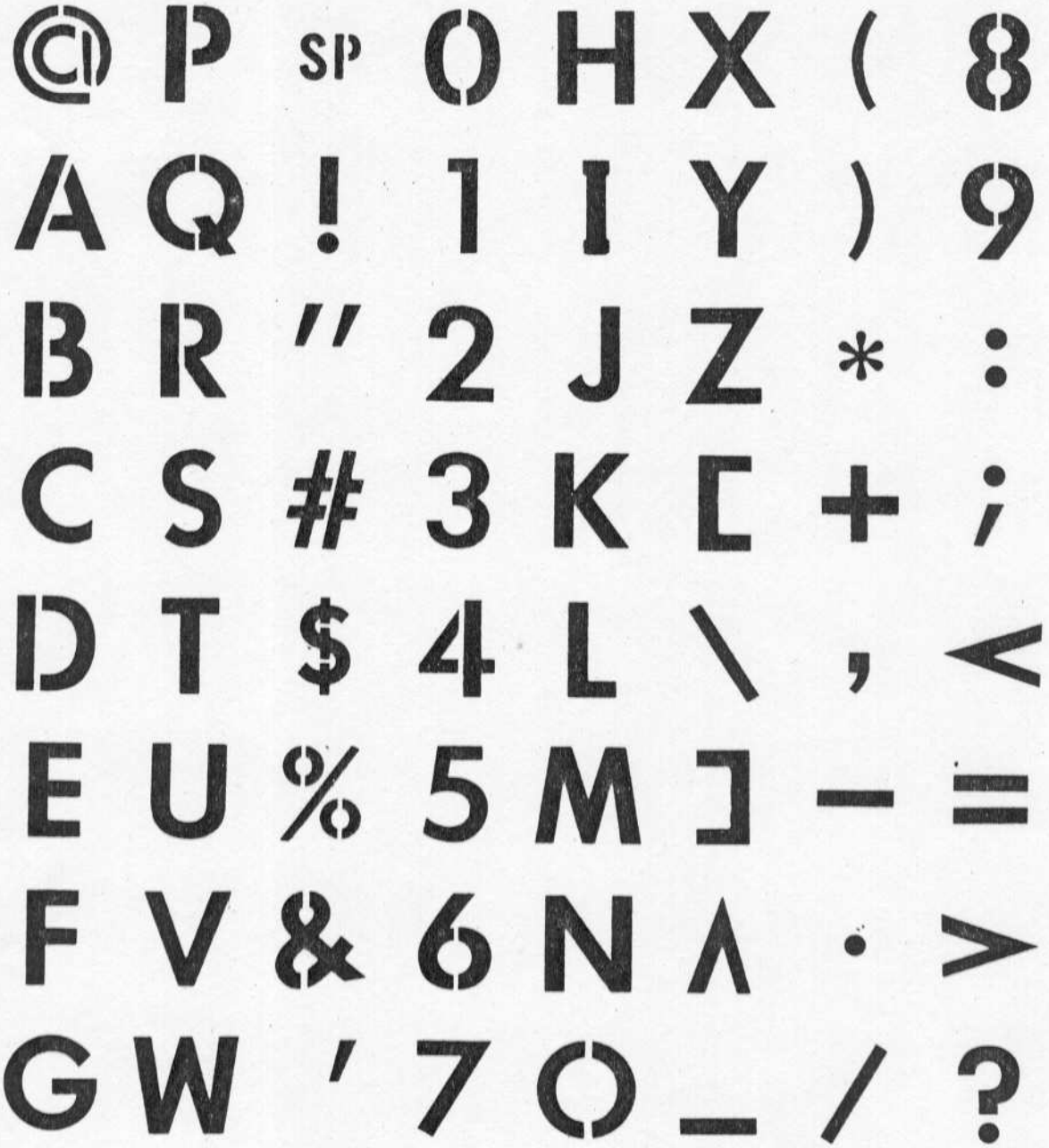


FIGURE 3

nimo # 6500-1X-0104

INDUSTRIAL ELECTRONIC ENGINEERS, INC. VAN NUYS, CALIFORNIA	SIZE A	CODE IDENT NO 05464	S 6500-IX
	SCALE FULL	REV D	SHEET 13

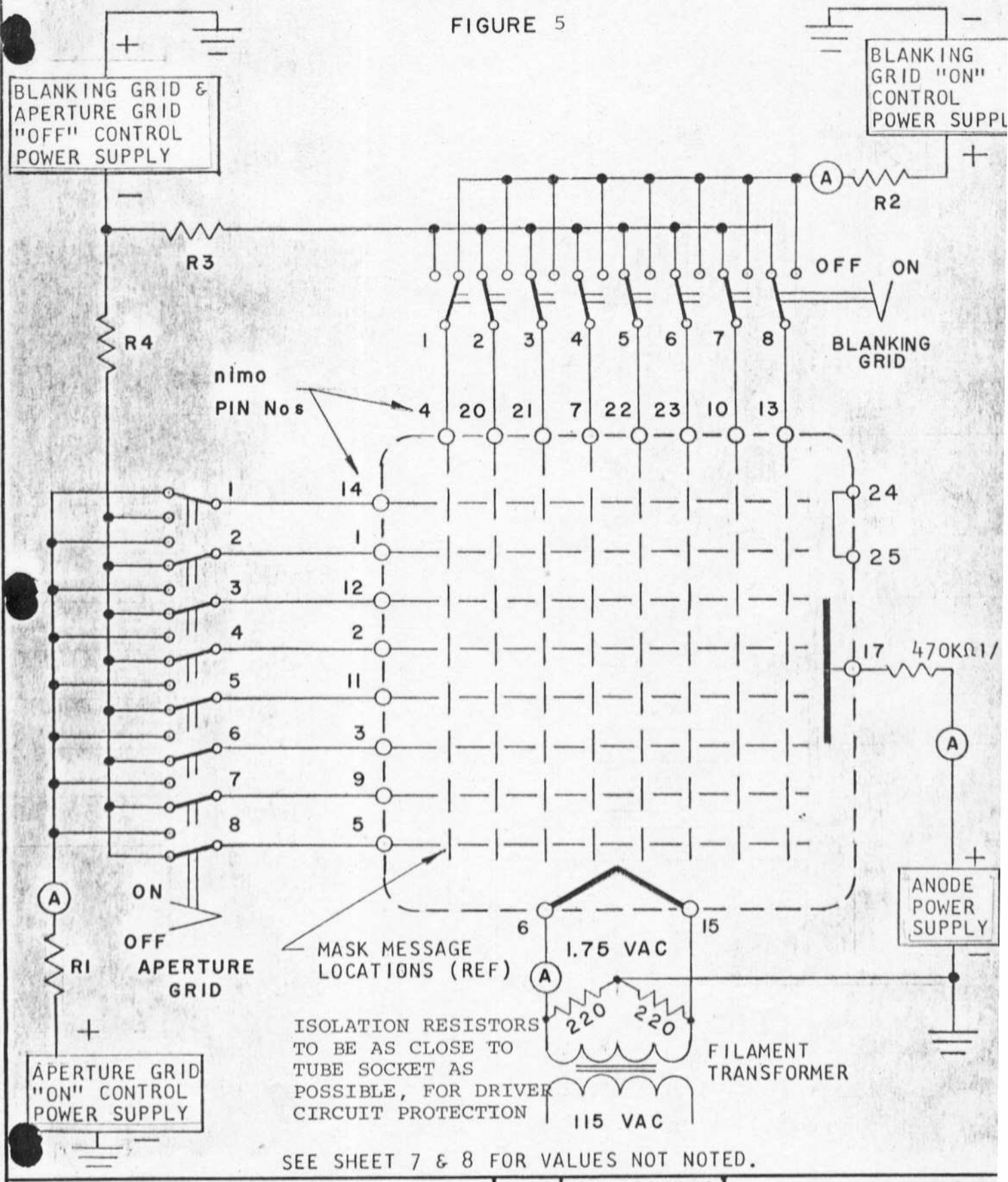
FIGURE 4

nimo #6500-1X-0107

INDUSTRIAL ELECTRONIC ENGINEERS, INC. VAN NUYS, CALIFORNIA	SIZE A	CODE IDENT NO 05464	S 6500-IX
	SCALE FULL	REV D	SHEET 14

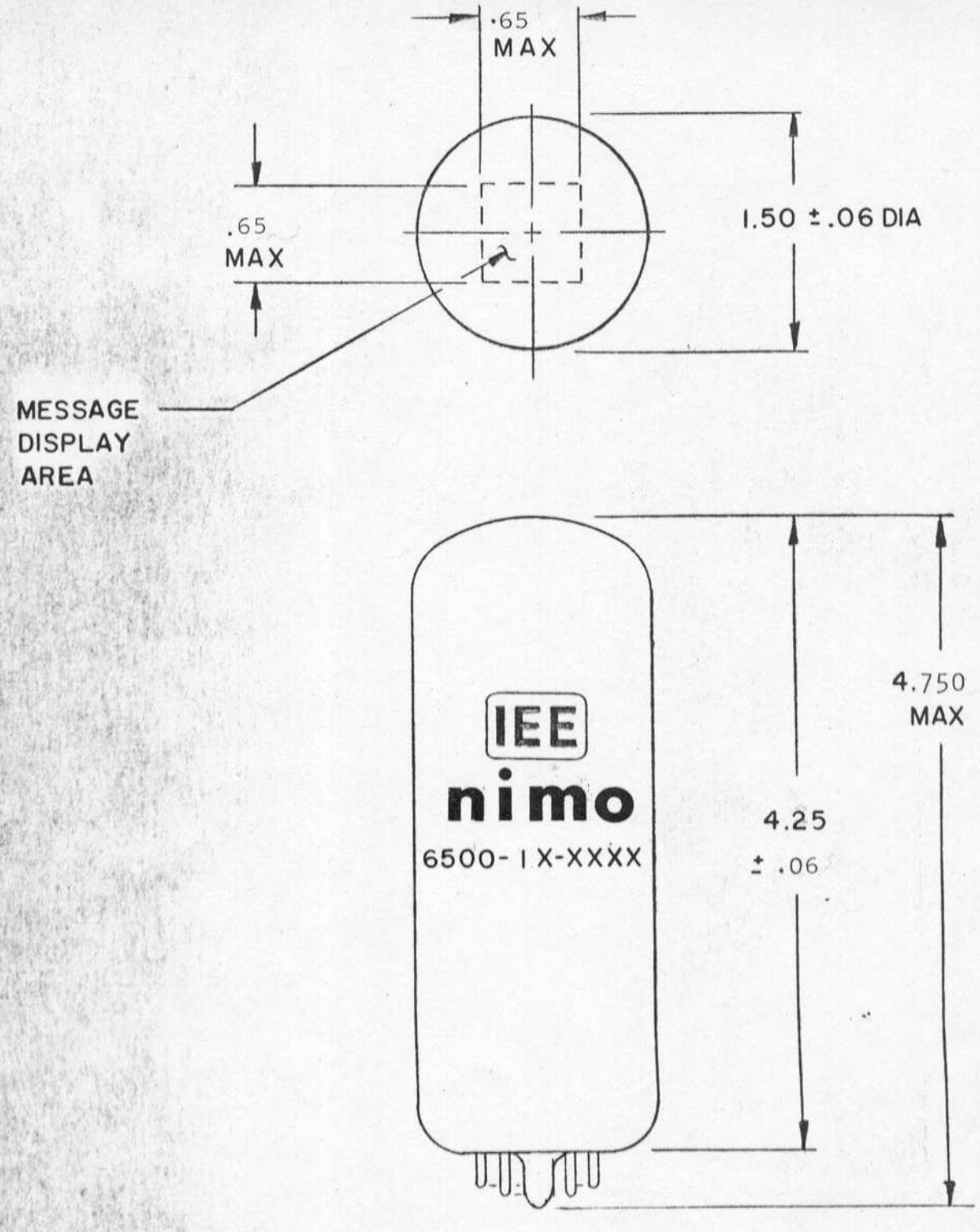
TEST CIRCUIT

FIGURE 5



SEE SHEET 7 & 8 FOR VALUES NOT NOTED.

INDUSTRIAL ELECTRONIC ENGINEERS, INC. VAN NUYS, CALIFORNIA	SIZE A	CODE IDENT NO 05464	S 6500-IX
	SCALE	REV E	SHEET 15

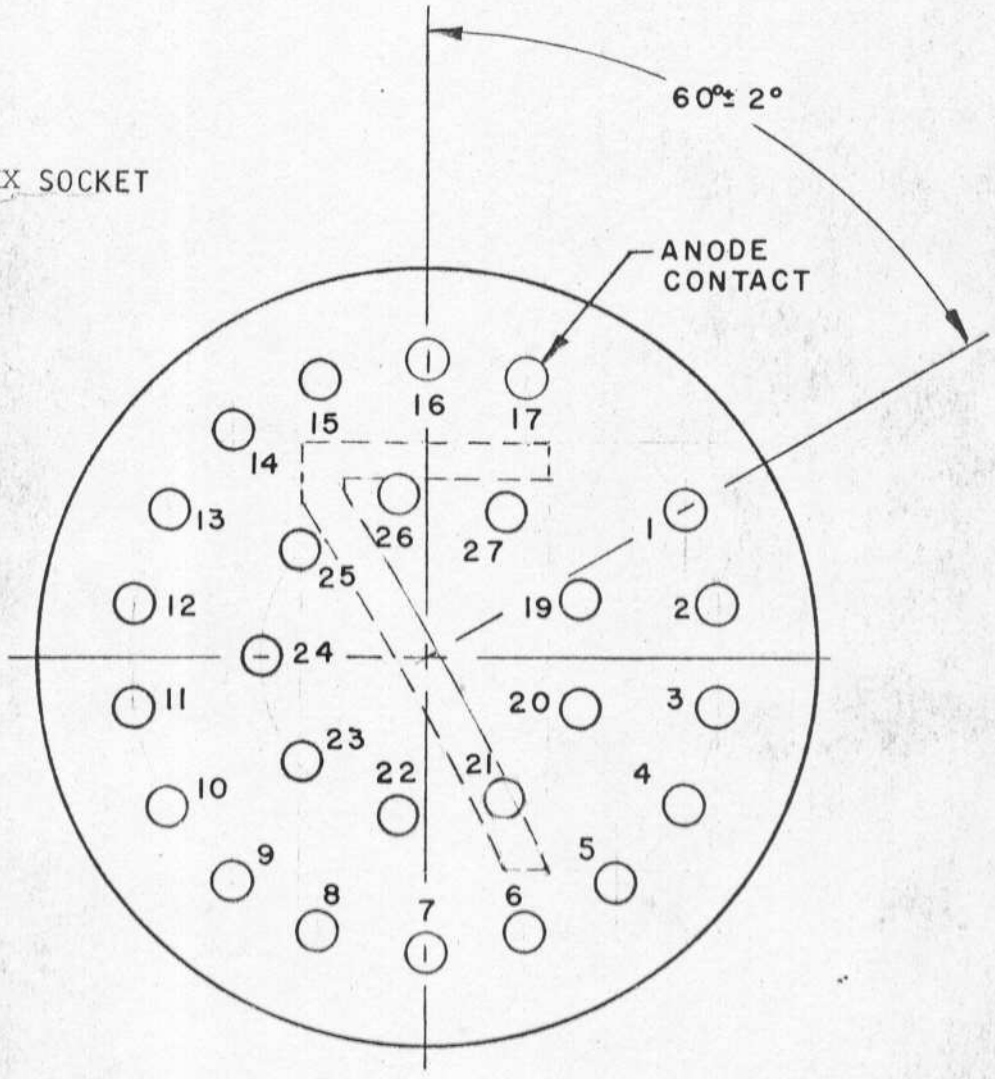


SEE SHEET 17 FOR
PIN ORIENTATION
AND ANODE CONTACT

FIGURE 6

INDUSTRIAL ELECTRONIC ENGINEERS, INC. VAN NUYS, CALIFORNIA	SIZE A	CODE IDENT NO 05464	S 6500-IX
	SCALE	REV E	SHEET 16

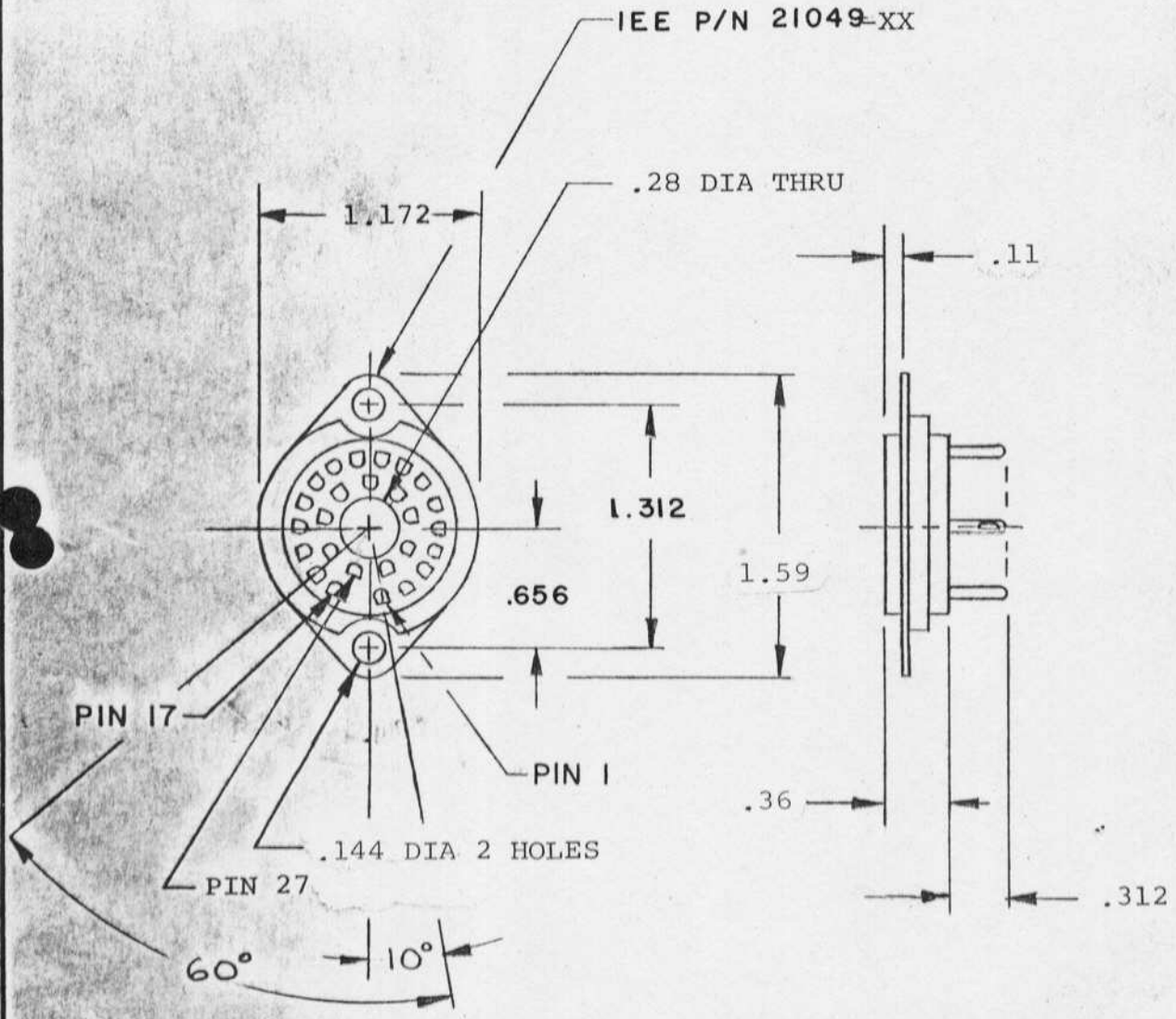
PINS MATE WITH
IEE P/N 21049-XX SOCKET
(SEE FIG. 8)



PIN LAYOUT
REAR VIEW

FIGURE 7

INDUSTRIAL ELECTRONIC ENGINEERS, INC. VAN NUYS, CALIFORNIA	SIZE A	CODE IDENT NO 05464	S 6500-IX
	SCALE	REV E	SHEET 17



NOTE: ALL DIMENSIONS REF

FIGURE 8

APPLICATION		REVISIONS			
NEXT ASSY	FINAL ASSY	LTR	DESCRIPTION	DATE	APPROVE
		—	PRODUCTION RELEASE EO 6815	7-21-72	
		A	SEE EO/7124	7-19-72	
		B	SEE EO 7214		
		C	SEE EO7236, 7601	3-9-73	

® SPECIFICATION
nimo ANODE POWER SUPPLY

TABULATION
-01 Figure 1
-02 Figure 2

REV	C	C	C	C	C	C																						
SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28

REVISION STATUS

PROJ NO. 127	CONTRACT	IEE INDUSTRIAL ELECTRONIC ENGINEERS, IN VAN NUYS, CALIFORNIA	
	DRAWN RWK 9-21-72	POWER SUPPLY - nimo ANODE	
	CHECK		
NOTICE IS HEREBY GIVEN THAT THIS DRAWING IS PART OF A PROPRIETARY ITEM OWNED BY INDUSTRIAL ELECTRONIC ENGINEERS, INC. AND SHALL NOT BE REPRODUCED, OR COPIED OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF APPARATUS WITHOUT WRITTEN PERMISSION OF I. E. E., INC	APPROVED 9-21-72	SIZE A	CODE IDENT NO. 05464 S 06700
	APPROVED	SCALE	SHEET 1 OF 7

1.0 SCOPE

This specification describes a miniature power supply designed to provide anode voltage to the nimo cathode ray display tube.

2.0 NOMENCLATURE

IEE PART NUMBER 06700-01 or -02 - Power Supply, nimo anode.

3.0 APPLICATION

These power supplies will deliver sufficient anode power to operate nimo Tube Displays. Filament power is not provided. The supply operates from low voltage DC and delivers anode voltage in the range of 1 to 3K VDC, roughly proportional to the DC input voltage.

4.0 ELECTRICAL CHARACTERISTICS

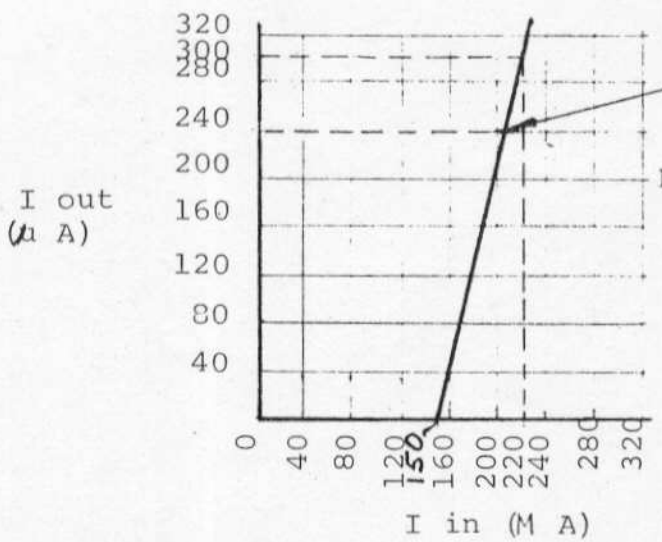
All electrical characteristics are specified at a nominal ambient temperature of +25°C unless otherwise stated.

4.1 Input (Primary) Characteristics:

4.1.1 Input Power Requirements:

MAXIMUM VOLTAGE
+16.0 VDC

MAXIMUM CURRENTS
@ 15 VDC ± 1% input
see graph

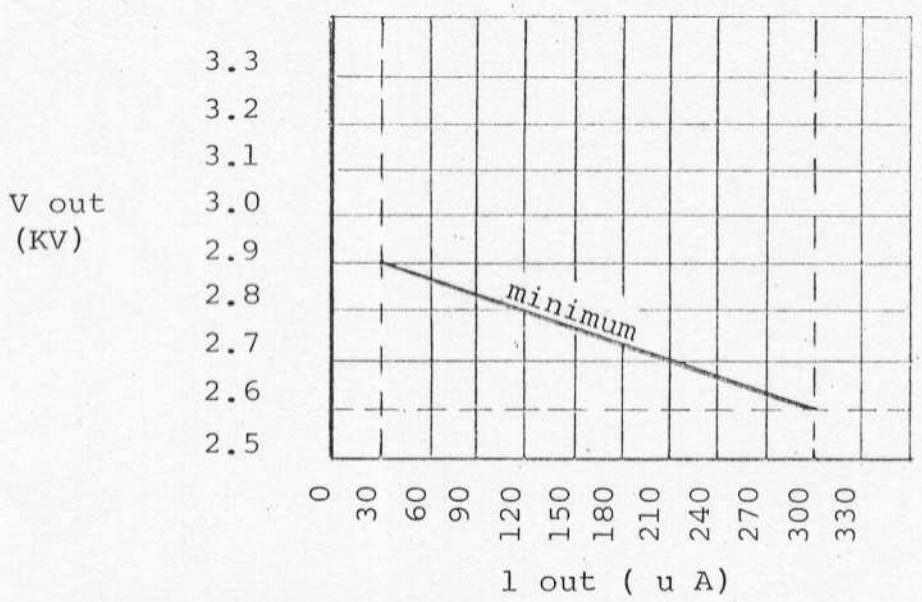


Note:
Due to the nature of the verter circuit used, a lar amount of current is need at one time, and this cau a voltage drop (negative spike) on the input power line. If these spikes ca not be tolerated they can filtered by using a large capacitor on the input po line.

4.1.2 Line Regulation: These power supplies are, in effect, DC transformers. Variations in input voltage are proportionately reflected in output voltage.

4.2 Output Load Characteristics
@ + 15.0 VDC ± 1% input

Maximum Ripple:
100 V P-P (resistive load) at roughly 20 KH_z basic frequency



5.0 PHYSICAL CHARACTERISTICS

5.1 Mechanical: The IEE #06700-01 and -02 power supplies are an encapsulated, non-repairable assembly. Ref. Figure 1 and 2.

CONFIGURATION

See Figures 1 and 2
Weight: 60 grams maximum.

MOUNTING: The -01 supply is designed to mount to the rear of th IEE nimo tube socket, as the nimo tube assembly kit provides. A stranded wire lead is provided for input voltage.

The -02 supply is designed to mount on a flat surface with two No. 6 faste ners and provides standard quick disconnect tabs for all connections.

5.2 Environmental:

5.2.1 Ambient temperature (operating):
0°C to 70°C

5.2.2 Ambient temperature (storage):
-54°C to +85°C

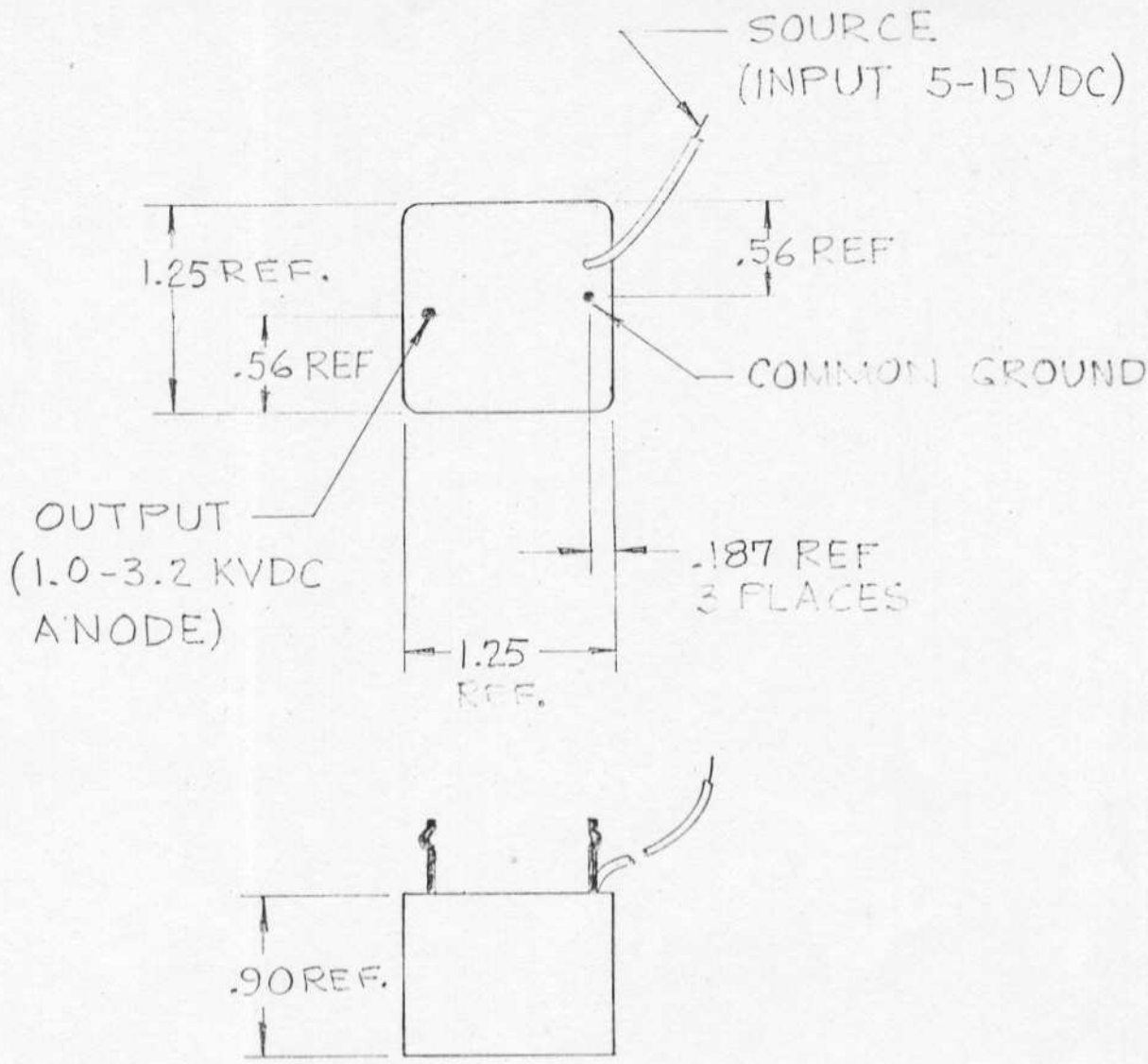
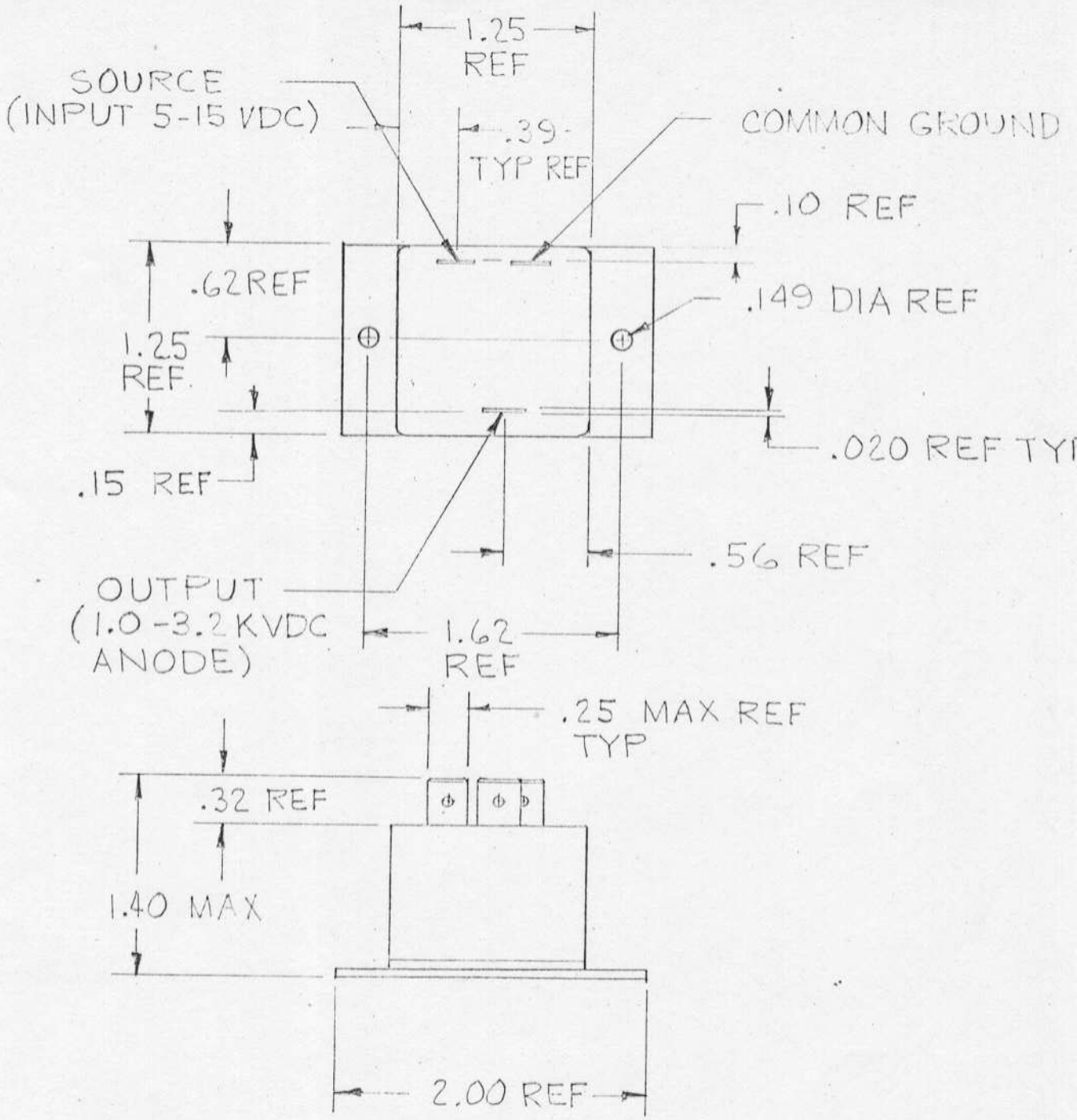


FIGURE 1.

-01

INDUSTRIAL ELECTRONIC ENGINEERS, INC.	SIZE A	CODE IDENT NO 05464	S 06700
VAN NUYS, CALIFORNIA	SCALE	REV	SHEET 4



-02

FIGURE 2

INDUSTRIAL ELECTRONIC ENGINEERS, INC.	SIZE A	CODE IDENT NO 05464	S06700
VAN NUYS, CALIFORNIA	SCALE	REV C	SHEET 5

In order to compensate for the difference between supplies, the input voltage must be adjustable over at least a small range, and a larger range may be desirable for brightness control, etc.. There are many ways to control or vary the input voltage to this supply. A few of these are described below along with advantages and disadvantages associated with each.

A variable series resistor is the simplest method of control, but it requires a relatively large pot (250Ω 2W has been found to be satisfactory) to pass the necessary input current. An additional disadvantage is the lack of load regulation. That is to say, when a supply has been adjusted to give the desired output voltage at one load, the output voltage increases as the load is reduced. This is caused by a reduced current through the variable resistor, which allows more voltage to be applied to the input of the supply. A less expensive and smaller method which has the same lack of load regulation is achieved by the use of a fixed series resistor (of slightly larger value than would ever be required) paralleled by a fixed trimmer selected at a later stage of assembly. This method significantly reduces the effect of the negative voltage spikes (mentioned in Section 4.1.1) on the driven (source) side of the resistor.

A simple transistorized control can greatly improve the load regulation lacking in the previous description. This is accomplished as shown in Figure A1, where the transistor is acting as an emitter follower and the pot (acting as a voltage divider) applies a

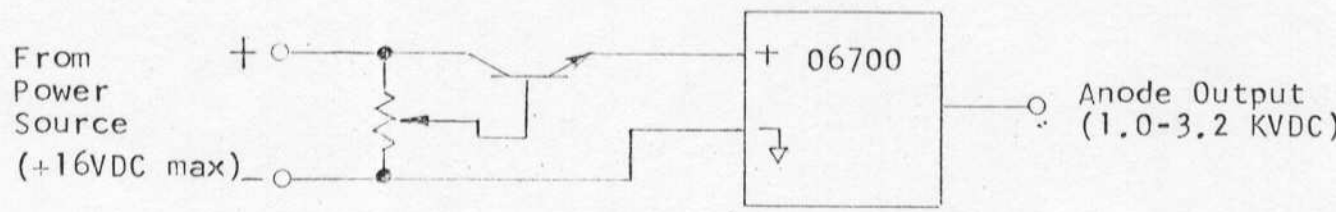


FIGURE A1.

selectable and nominally constant voltage to its base. This voltage in fact, is not constant since the current supplied to the base of the transistor changes proportionably to the current through the collector causing the currents in the voltage divider to be upset. This upset may be reduced even further by increasing the gain of the transistor

portion of the control, such as by the use of a darlington configuration. The value of the pot depends on the degree of load regulati required and on the gain of the transistor(s) used. A disadvantage of this control method is that it does not reduce the effects of the negative voltage spikes as much as the purely resistive control does, since the transistor tries to give the 6700 as much current as it wants. And since it does, the transistor should be capable of handling an 800 milliamp spike of 1 to 3 microsecond duration and approximately 20KHz repetition rate, typical of the negative voltage spike.

A logical extension of the last method of voltage control is the use of a variable power supply dedicated to driving a 6700 alone. This control would probably produce the ultimate performance, but it is also the most expensive of the methods suggested here.

In concluding this appendix a word should be said concerning the source of power for the 6700 power supply. It was designed to be an anode supply for the 6500 nimo tube, whose grids require 12.5 to 15 VDC potential difference (+2.5 to -10, or +3 to - 12, etc.,). 15VDC was selected as the maximum input voltage with the intent that a 12.5 or 15 volt supply would be used for grid bias, and the center tap on t filament supply would be biased at +10 or +12VDC. This mode of operation also renders the negative voltage spike that is mentioned ir Section 4.1.1, inconsequential, since it cannot be seen in the tube's display and it will not harm the tube. However, the spike must still be dealt with if solid state logic other than "open collector" type is used to drive the grids.

APPLICATION		REVISIONS			
NEXT ASSY	FINAL ASSY	LTR	DESCRIPTION	DATE	APPRO
		—	PRODUCTION RELEASE/E.O. 7147	7-27-72	GRV
		A	SEE EO 7440 DOSC HNS	SJM:B	DGB.

SPECIFICATION

117 VAC FILAMENT TRANSFORMER

1 THRU 4 nimo DISPLAYS

-01	AS SHOWN
-02	OBSOLETE

REV	A	-	-	-	-	A	-																					
SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	

REVISION STATUS

PROJ NO. 127	CONTRACT	IEE INDUSTRIAL ELECTRONIC ENGINEERS, VAN NUYS, CALIFORNIA.	
	DRAWN [illegible] 9-8-72	TRANSFORMER, 117 VAC FILAMENT	
	CHECK [illegible] 9-22-72		
	APPROVED [illegible] 9-8-72	SIZE A / CODE IDENT NO. 05464	21913
	APPROVED	SCALE NONE	SHEET 1 OF

1.0 SCOPE:

This specification defines a transformer used to provide filamen
power for one thru four 64 gun nimo tube filaments (1.75V @ .75a

2.0 ELECTRICAL CHARACTERISTICS:

2.1 Primary input voltage @ 50-60 Hz A.C.

Terminals	Primary Voltage
1-2	107
1-3	117
1-4	127

2.2 Secondary output voltage (resistive load)

Terminals	Secondary Voltage
5-6	1.75 ± 3% @ 1.75 amps (nomina

2.3 Dielectric Withstanding Voltages:

Terminal 1,2,3 and 4 to 5,6 and case -
1500 VRMS @ 60 Hz for 30 seconds

Terminal 1,2,3,4 and case to 5 and 6 -
500 VRMS @ 60 Hz for 30 seconds

3.0 WINDING INFORMATION:

3.1 Material:

3.1.1 Core - .625 E&I laminations 100% interleaved .625 stack. 24 gauge M-45 material.

3.1.2 Mounting Bracket - "A" frame horizontal for .625 E& with square stack.

3.1.3 Impregnation - Vacuum impregnate with NEMA Class F polyester varnish.

3.2 Coil:

	Primary	Secondary
Wire	#35 HF	#17 HF
Turns	1504	22
Taps	1270 & 1385	-
Turns/layer	90	11
Layers	17	2
Layer Insulation	.001 KRAFT every 2 layers	2 x .007 KRAFT
PRI-SEC. Insulation	.006 KRAFT	
Terminations	1-2-3-4	5-6
Wrap	.010 KRAFT + .025 fish paper for terminals	

3.3 Lead Terminations:

3.3.1 Primary:

All primary leads shall be terminated to solder lugs (Zierick #357 or equivalent) configured as shown in figure 3.

3.3.2 Secondary:

Both secondary terminals shall be hooks formed from the winding wires and tinned - configured as shown in figure 3.

4.0 PHYSICAL PROPERTIES:

4.1 Environmental:

4.1.1 Temperature Range:

Ambient Operating Temperature	$0^{\circ}C$ to $+75^{\circ}C$
Storage Temperature	$-40^{\circ}C$ to $+125^{\circ}C$

4.1.2 Humidity:

95%

4.1.3 Duty Cycle:

Continuous

4.1.4 Altitude:

Sea level to 10,000 feet

4.2 Case Dimensions:

Shall be in accordance with Figure 2.

4.3 Weight:

0.9 lbs (max)

4.4 Marking:

4.4.1 Part Number: 21913-01

Mark IEE part number in .12 high Gothic characters on the channel bracket top.

4.4.2 Lead Numbers:

Mark lead number below each termination on outer wrap of transformer coil.

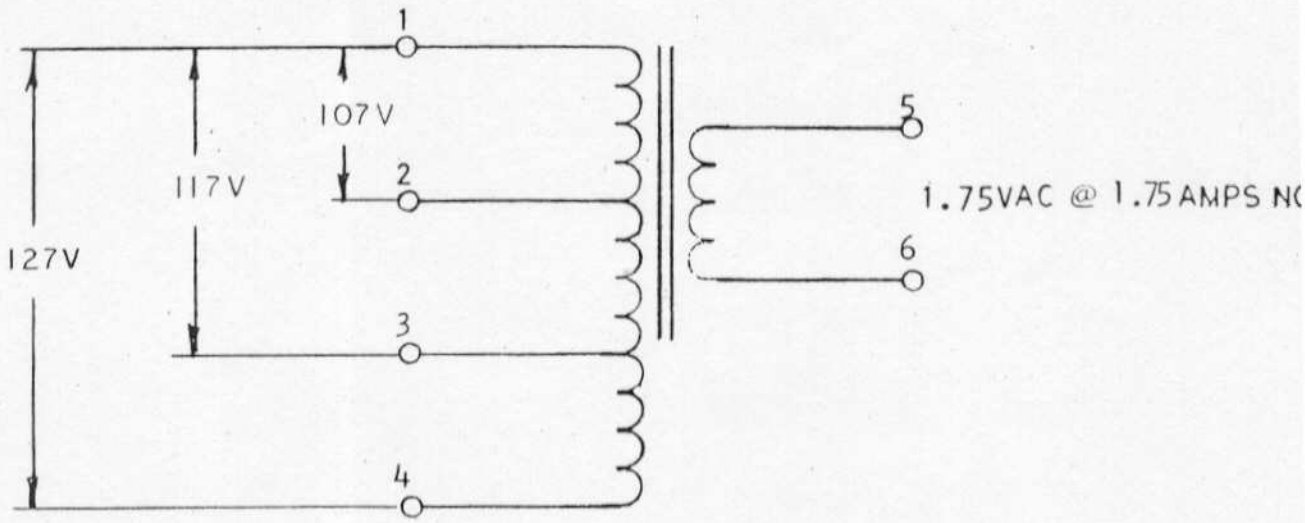


FIGURE 1

SCHEMATIC

[illegible] ELECTRONIC ENGINEERS, INC. VAN NUYS, CALIFORNIA	SIZE A	CODE IDENT NO 05464	21913
	SCALE	REV —	SHEET 5

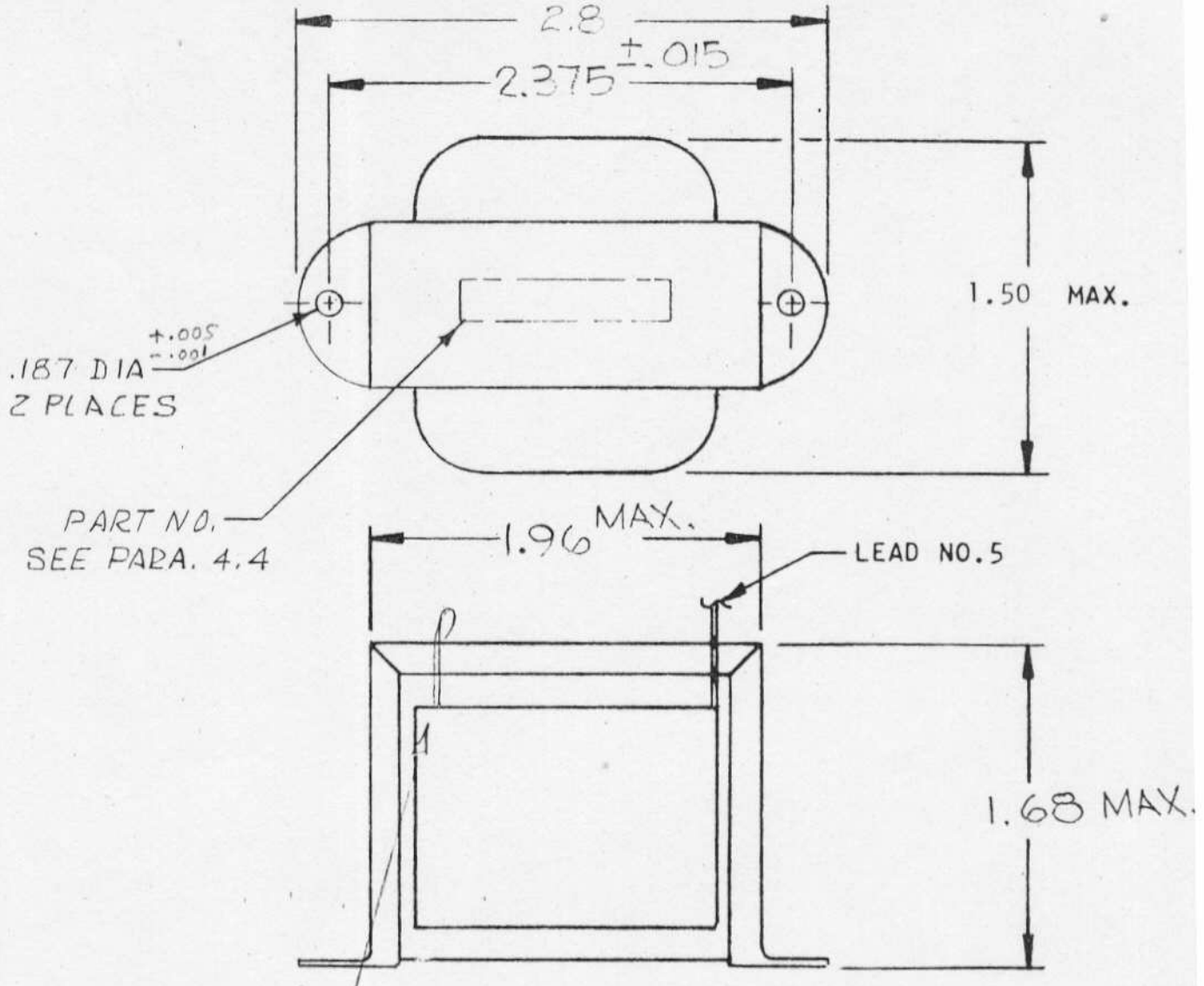


FIG 2
CASE DIMENSIONS

TOLERANCES: .X = ±.06
.XX = ±.030
.XXX = ±.010

INDUSTRIAL ELECTRONIC ENGINEERS, INC. VAN NUYS, CALIFORNIA	SIZE A	CODE IDENT NO 05464	21913
	SCALE	REV A	SHEET 6

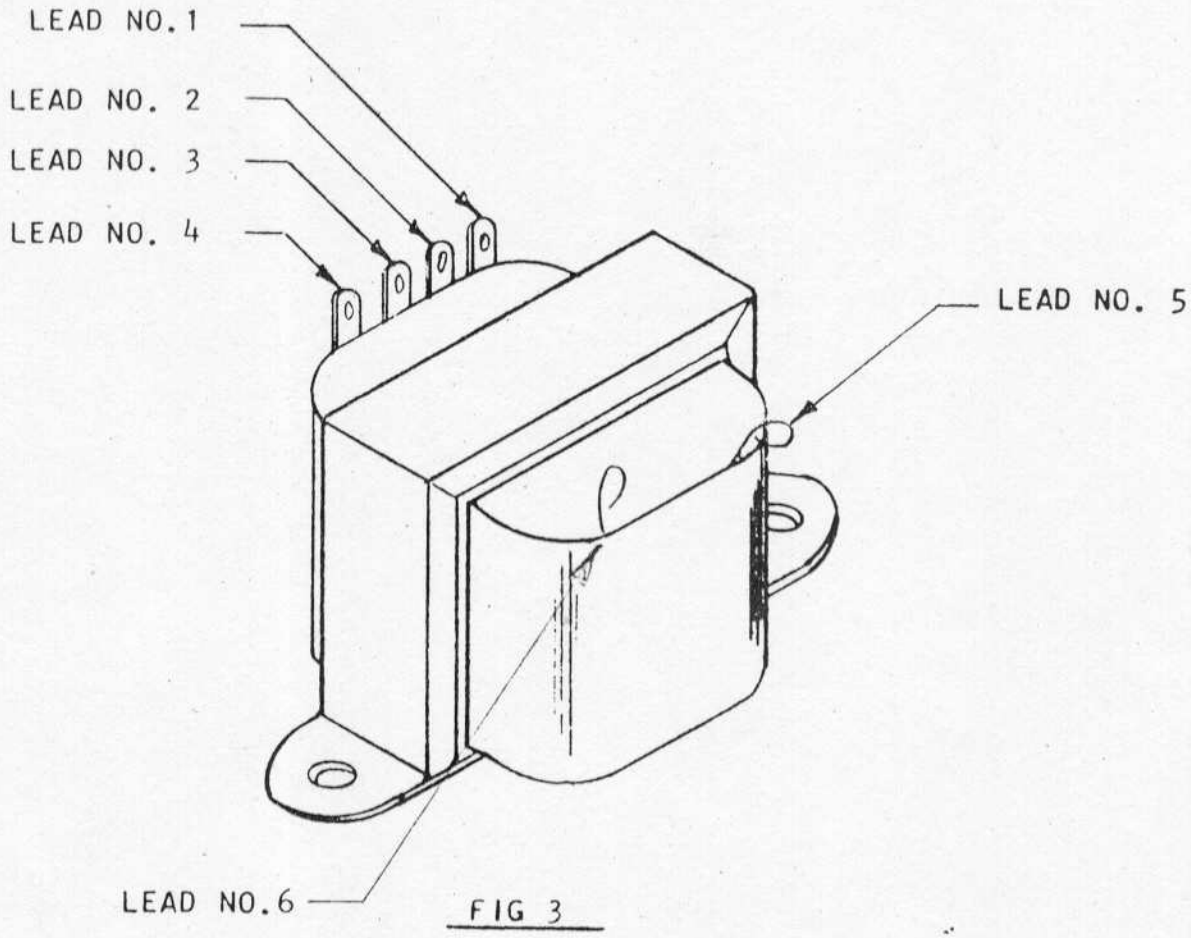


FIG 3

NOTE:

1. TERMINALS 1,2,3 and 4 are No. 375 by Zierick
2. TERMINALS 5 and 6 are self lead hooks 1/2 tinned.

INDUSTRIAL ELECTRONIC ENGINEERS, INC. VAN NUYS, CALIFORNIA	SIZE A	CODE IDENT NO 05464	21913
	SCALE NONE	REV —	SHEET 7