

# Film-Tech

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These manuals are designed to facilitate the exchange of information related to cinema projection and film handling, with no warranties nor obligations from the authors, for qualified field service engineers.

If you are not a qualified technician, please make no adjustments to anything you may read about in these Adobe manual downloads.

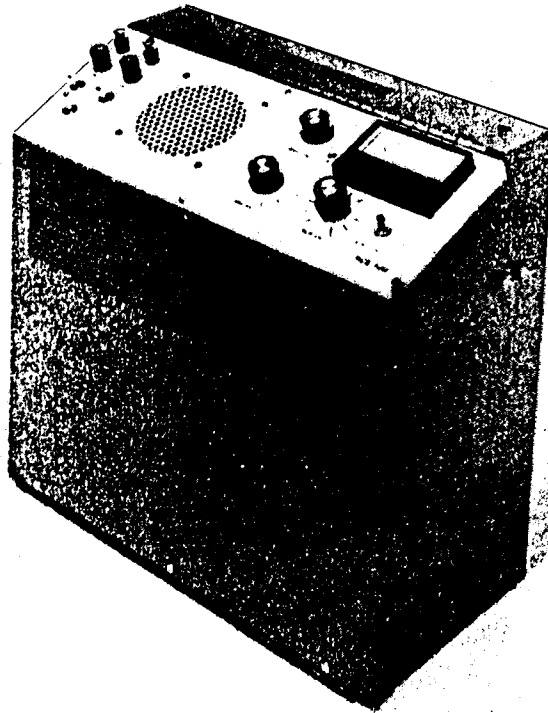
[www.film-tech.com](http://www.film-tech.com)

**EDLO INDUSTRIES**



435 MORRISSEE AVE. HALEDON, NJ 07508

(201) 445-5519 FAX (201) 444-7793



**ACE 100 SOUND SYSTEM**

# Film Systems Has It All Total Booth Film Systems

QTS Presents

## ~~ACE~~ 1 Super Sound Wall Mounted or Console Installed 100 Watt Sound Systems.

\$ 1,400.

A.K.A. SS-100



Model No. ~~ACE~~ 100

### QTS FEATURES

- DUAL 100 WATT RMS RATED AMPLIFIERS
- EXCITER LAMP SUPPLY FURNISHED AS STANDARD EQUIPMENT
- NON SYNC FADE IN FADE OUT STANDARD
- LARGE LIGHTED VU METER WITH HOUSE CALIBRATION CONTROL FOR SETTING SOUND LEVEL
- MONITOR SPEAKER AND CONTROL ON FRONT PANEL
- AUXILIARY AMPLIFIER FEEDS MONITOR SPEAKER SO THAT AUX AMP IS ALWAYS IN READINESS
- AUXILIARY AMPLIFIER IS SIMPLY SWITCHED INTO POSITION FROM FRONT PANEL CONTROL. (NO AMPLIFIERS TO PLUG IN OR OUT UNDER EMERGENCY CONDITIONS)
- EXCITER LAMP SUPPLY HAS AC POSITION SWITCHED FROM FRONT PANEL
- FAST LOW COST INSTALLATION



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ACE 100 THEATRE SOUND SYSTEM

The EDLO INDUSTRIES ACE 100 is a self contained Dual Channel sound system designed for Motion Picture Theatres. The system includes the following:

- 1) Two separate 100 watt amplifier modules, with pre-amplifiers, which serve as Regular and Auxiliary amplification systems. The amplifiers are selected by a front panel Regular/Auxiliary switch. The amplifier modules are plug-in, for ease of replacement should a component fail. Jumpers on the pre-amp board allow warping of the frequency response to accommodate desired acoustic requirements.
- 2) A heavy duty Power Supply module which is fused separately for the two Power Amplifiers. It is also removable, and may be unplugged for inspection or service. This module is shipped seperately, and is installed after the ACE 100 is mounted, to allow for an easy installation, without the additional weight of the transformer/capacitor assembly.
- 3) The Exciter Supply Regulator Control Board is also plug-in, and contains the additional components, when ordered, that comprise the Non/Sync intermission music control.
- 4) The Exciter Power Supply Transformer assembly also contains the rectifier studs, and provides switching to accommodate different AC line voltage conditions.
- 5) The Front Panel controls are:
  - a) Power switches, fuses, and pilot lights.
  - b) Reg/Aux Amplifier Switching.
  - c) Gain Controls for House Level, Monitor Level, Non/Sync, and Vu Meter adjusts.
  - d) Emergency Exciter Switching. (AC-DC)
  - e) Monitor Speaker.
  - f) Vu Meter for visual indication of House Levels and system check.

The ACE 100, due to its redundant features, will operate with all modules removed, with the exception of a single power amplifier and exciter switch on AC.

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### ACE 100 THEATRE SOUND SYSTEM

#### INSTALLATION

The ACE 100 enclosure should be mounted on a solid surface with  $\frac{1}{4}$ " Hardware, in an accessible location to allow the projectionist both visual and aural monitoring of the operation. The location should be one which will allow a good flow of air through the cabinet vent system. The electrical connections are minimal and are as follows:

**Solar Cell Input:** This should be made directly from the cell to the input module of the ACE 100. Wire should be two conductor, foil shielded, cable ( Beldin 8761 or equivalent ). There must be no shield ground or connection at the projector ( Solar Cell ) end; use tape or shrink tube to insure this. The cell should not be loaded in any way-ie: potentiometer or resistor, as this is accomplished at the input module. This is the lowest level point in the circuit and consequently the most subject to noise pickup. The Projector itself should of course be well grounded by use of an actual ground wire, rather than by depending on Greenfield, Sealtight, or conduit connection. Ground should not be the AC neutral in the service power panel.

**Exciter Lamp Wiring:** Two wires are required between the exciter lamp and the appropriate terminals in the ACE 100. For short runs 2 No. 14 wires should be sufficient; for longer runs 2 No. 12 wires are recommended. Although the current required at the exciter lamp is less than 5 amperes, at low voltage ( less than 10 volts ) even a  $\frac{1}{2}$  volt drop in the line is significant in terms of light output. These wires may be run in the same conduit as the solar cell cable if desired.

**Speaker Wiring:** Connection to the stage speaker should be at least No. 14 wire. Important, be certain that neither side of the speaker line is grounded. This must be checked before power is supplied to the system. The ACE 100 is designed to operate with speaker systems which have a nominal impedance of 4 to 16 ohms. Older speaker systems which had higher impedances ( RCA - 250 ohms, etc. ) will require a matching transformer.

**System Grounding:** The ACE 100 is designed with a three level internal grounding system which results in high immunity, from

## EDLO INDUSTRIES

### ACE 100 THEATRE SOUND SYSTEM

outside interference. Grounding Terminals are provided on the output Terminal Strip, but field experience has shown that in most cases no Cold Water Pipe Ground is required. As is the case in all grounding of electronic systems, exceptions and rules do vary on specific installations. If the rules concerning the Solar Cell hookup, having the ACE 100 on its own AC service branch circuit, and the speaker lines free of resistance to ground, are followed, the above should apply.

**AC Service:** As is standard procedure the Amplifier should be on its own, direct branch circuit. It is preferable that this branch breaker be on a different phase than high noise circuits such as motor, rewinds, xenon, etc. Input requirements are 115V $\pm$  10V, 60 HZ 3amps Max.

**Non/Sync Connections:** The, optional, Non/Sync circuit controls the start-stop functions of the tape machine, as well as fading the audio in and out on control from the automation. The AC line cord from the tape machine is connected to the "Tape Motor" terminals on the output terminal strip. This supplies 117v AC to operate the tape motor. Wires from these terminals can of course be run to an external AC plug, if desired, into which the machine is plugged. The audio output cords from the Tape Machine are plugged in the two phono input plugs on the side of the ACE 100. The terminals marked "Tape Start" are connected to appropriate connections on the automation system. The circuit requires a dry circuit closure when the Automation System is in Intermission mode. This is standard on the Raven Labs Automation Equipment System. On systems without this feature an interface relay may be required. If there is any question, please contact the factory.

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**ACE 100 THEATRE SOUND SYSTEM**

GENERAL SPECIFICATIONS

Dimensions - 15"W x 15"H x 8"D

Weight - 46 lbs.

Input Power - 115V  $\pm$  10V, 60 Hz, 3 amps Maximum

Exciter Lamp Supply - 6 to 10 volts @ 5 amps maximum  
(Recommended at lamp, 8.5 volts)

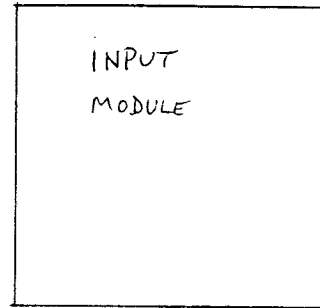
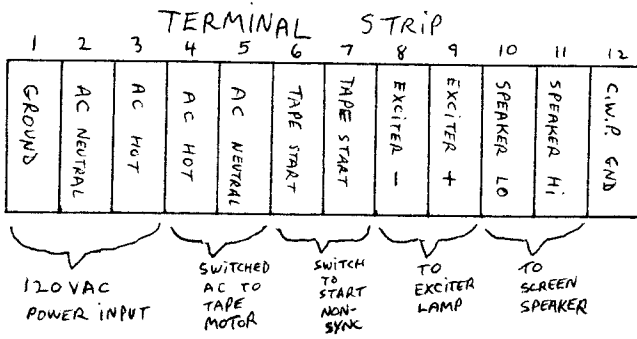
AMPLIFIER

The amplifier modules used in the ACE 100 are plug-in components offering high power output, low distortion, and exceptional reliability. The all silicon transistor design is fully protected against shorted outputs and signal overloads.

The power amplifier section will operate directly from line sources, such as magnetic head preamplifiers or signal processors. A built-in preamplifier is used with optical soundheads or dynamic microphones.

Technical Specifications

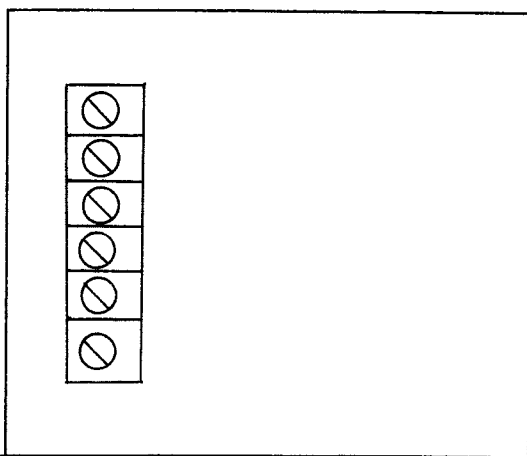
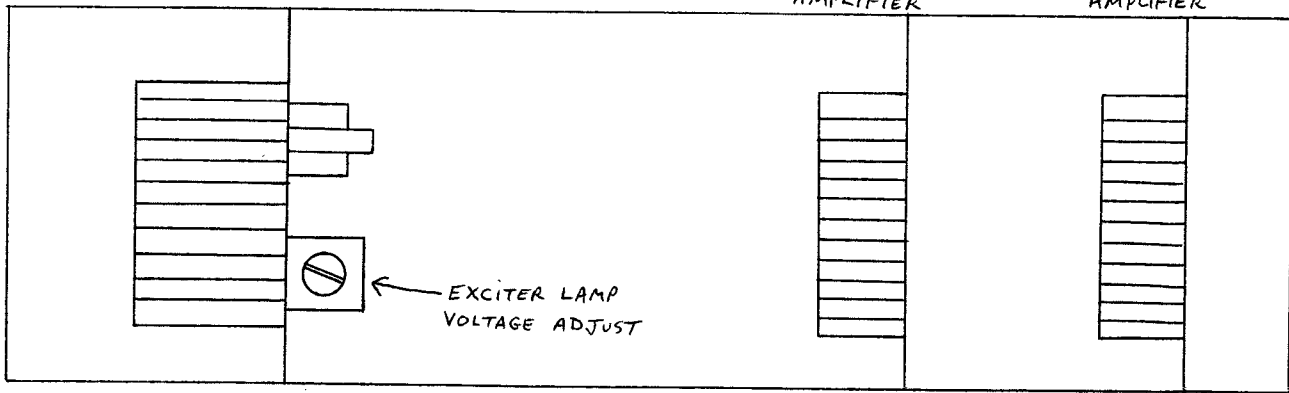
Rated Power Output:	100 Watts r.m.s. into 8 ohms with 50-volt bipolar supply.
Power Bandwidth:	20 Hz to 20,000 Hz
Distortion at Rated Power:	Less than 0.5%
Input Sensitivity (Power Section):	Approximately 0.7 Vrms for rated power output.
Input Impedance:	Approximately 50K ohms.
Input Sensitivity(Preamplifier):	Approximately 0.013 Vrms for rated power output.
Signal-to-noise-Ratio:	Better than 80 db.
Peak Supply Current:	3.5 amperes.



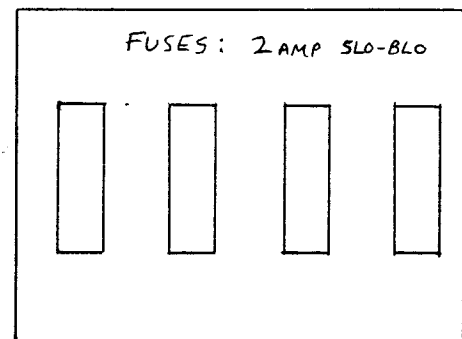
EXCITER SUPPLY  
AND NON-SYNC CONTROL

AUXILLARY  
AMPLIFIER

REGULAR  
AMPLIFIER



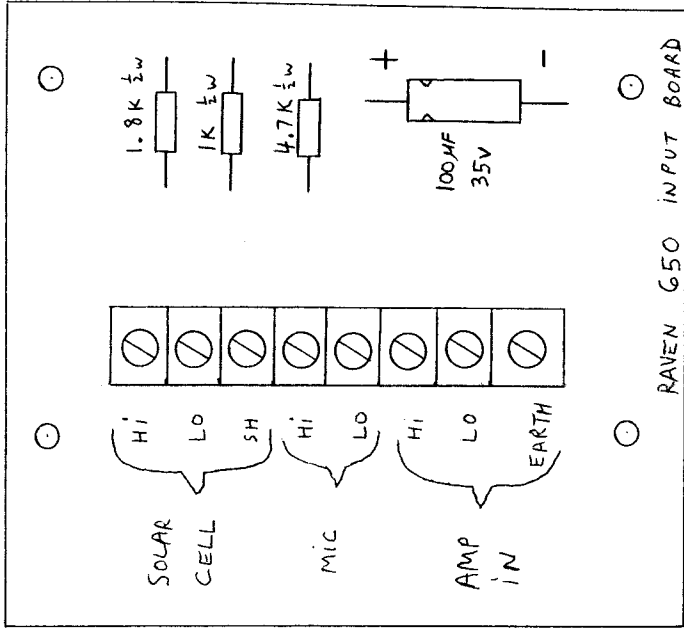
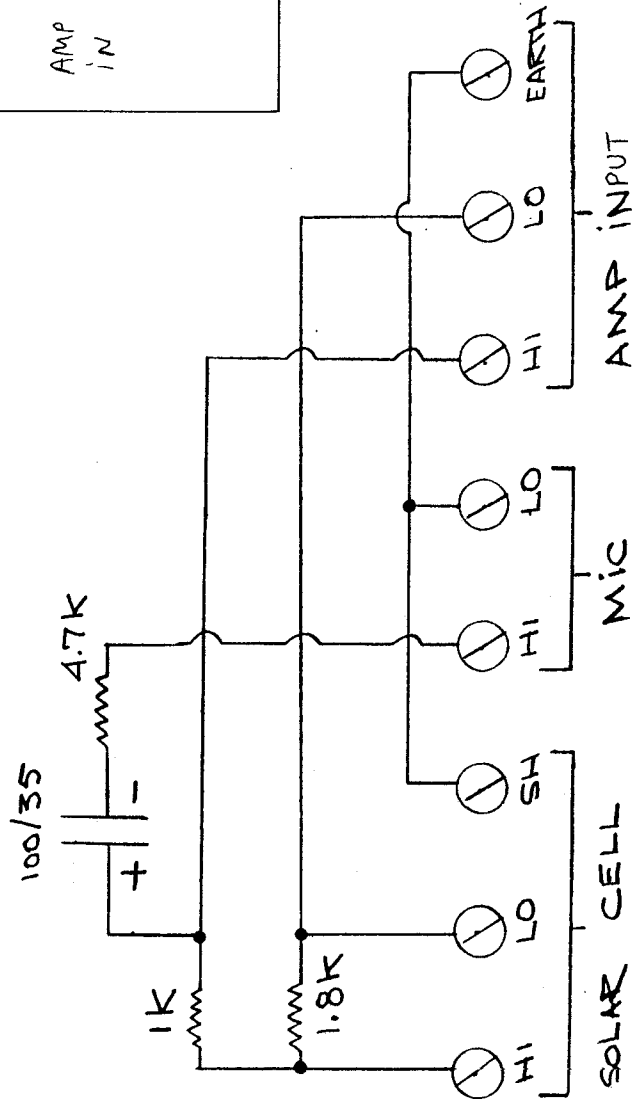
EXCITER TRANSFORMER



AMPLIFIER POWER SUPPLY



ALL RESISTORS  $\frac{1}{2}$  WATT



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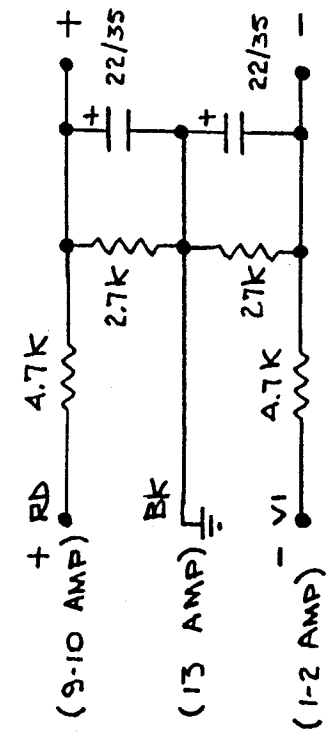
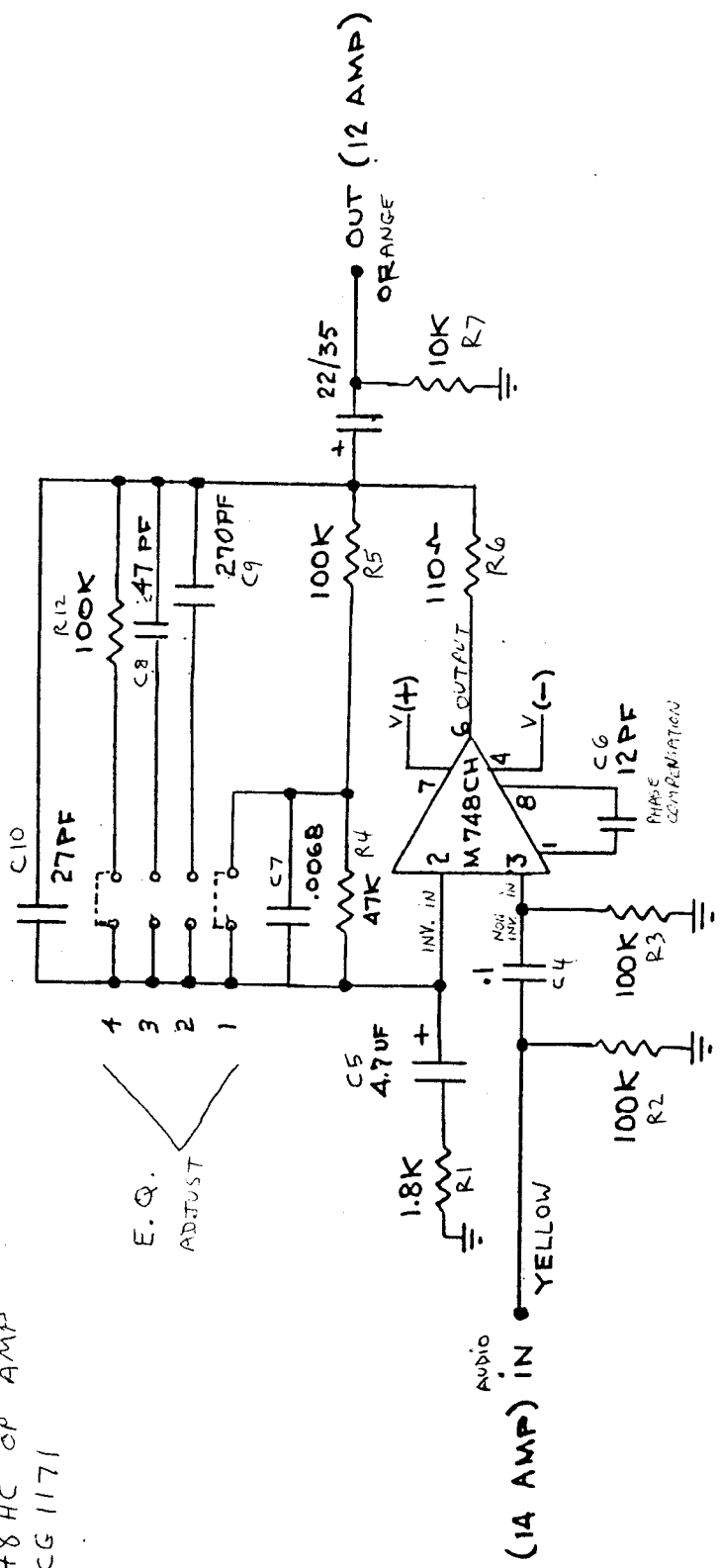
INPUT MODULE G50

DATE 11/30/88

DWG. NO. A00013

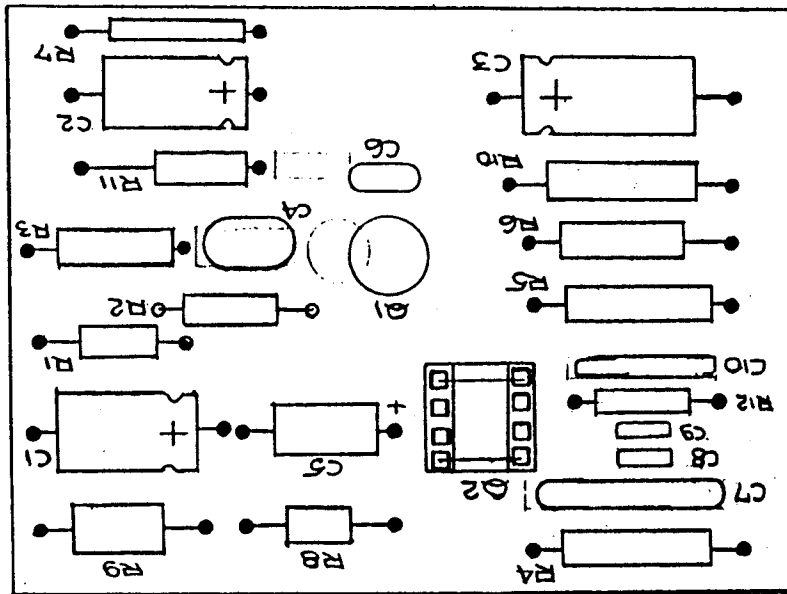
ED

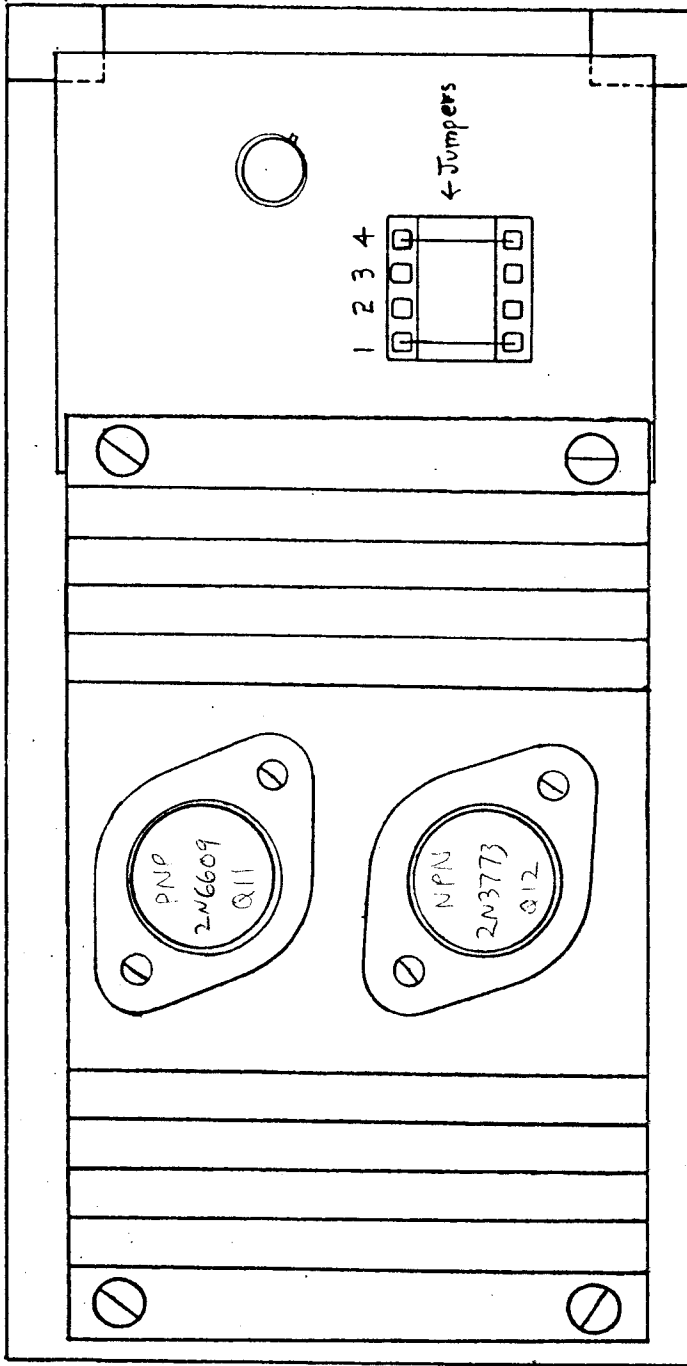
748 HC OP AMP  
ECG 1171



CINEMA FILM SYSTEMS / STRONG / RAVEN	
ACE 110 PRE AMP SCHEMATIC	DWG. NO. A0007
DATE 4-24-81	DRAWN BY ED

- R1 1.8K 1/2 W
- R2 100K
- R3 100K
- R4 47K
- R5 100K
- R6 110 $\mu$
- R7 10K
- R8 4.7K
- R9 2.7K
- R10 2.7K
- R11 4.7K
- R12 100K
- C1 22/35V AXIAL
- C2 22/35V AXIAL
- C3 22/35V AXIAL
- C4 .1/100
- C5 4.7 $\mu$ F/50V. AXIAL
- C6 12 PF
- C7 .0068/100
- C8 47 PF
- C9 270 PF
- C10 27 PF
- G1 748HC OP AMP
- G2 (2) 24 BUSS WIRE JUMPERS





EXPLANATION OF JUMPERS ON PREAMP BOARD

Unit is flat as shipped ( as shown on drawing )

Removing Jumper 1 will give a slight boost in the voice presence range.

Placing Jumper in position 2 will give Academy Motion Picture Curve.

Placing Jumper in position 3 will roll off HF 3 Db.

Removing jumper in position 4 will give an additional gain of 6 Db.

( this is not recommended unless Solar Cell with low output is in use.)

CINEMA FILM SYSTEMS / STRONG / RAVEN

ACE - 100 Preamp Jumpers

DATE 3/20/81 DRAWN BY J. D.

DWG. NO. R00012

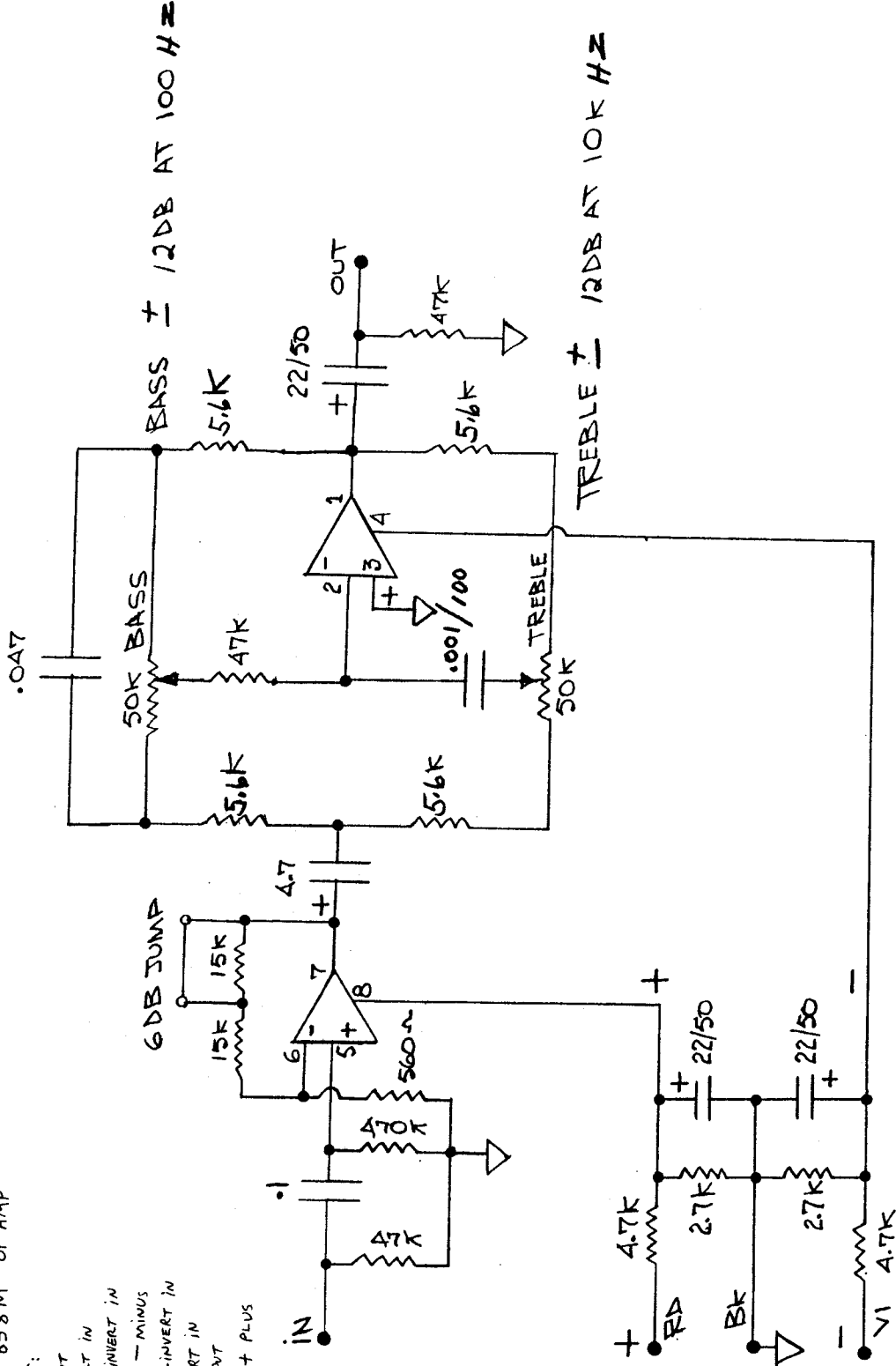


# IC-TL082CDP

ECG 858 M of AMP

PinOUT:

- 1 OUTPUT
- 2 INVERT IN
- 3 NON-INVERT IN
- 4 Vcc - MINUS
- 5 NON-INVERT IN
- 6 INVERT IN
- 7 OUTPUT
- 8 Vcc + PLUS



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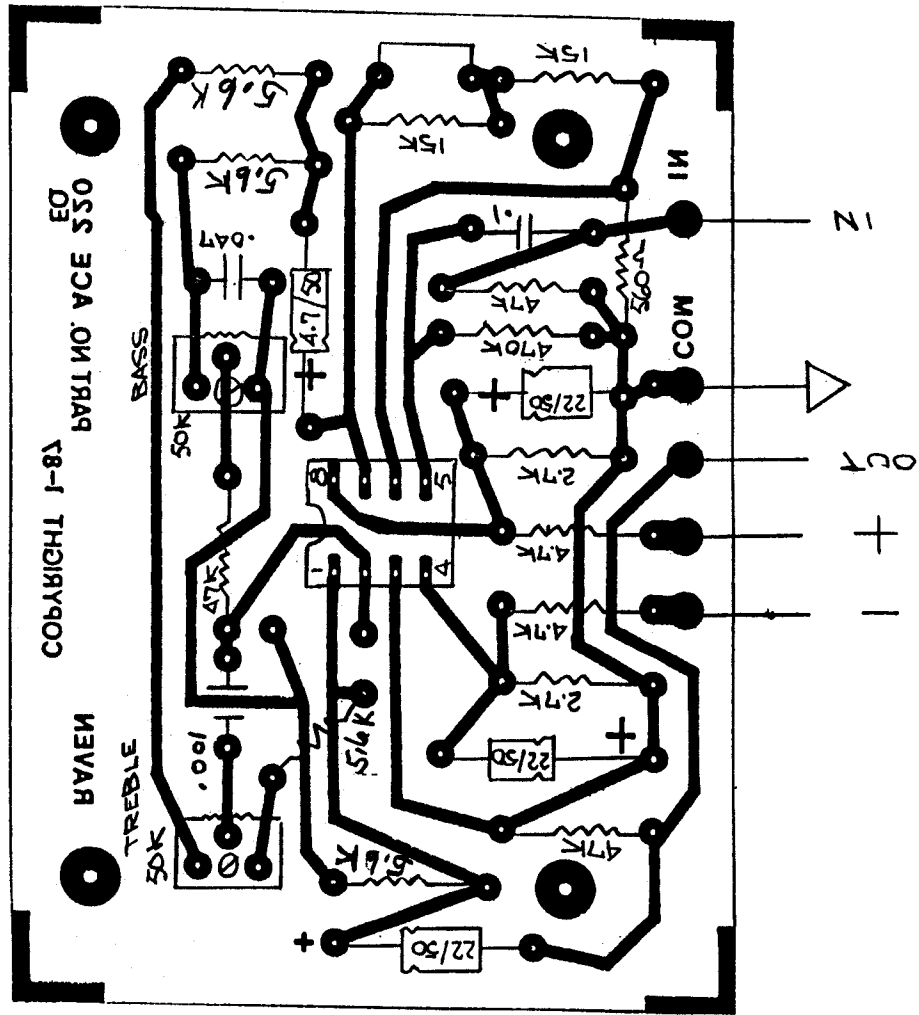
ACE 220 PRE AMP

DATE 10/21/89

DRAWN BY ED

DWG. NO. A00017

A

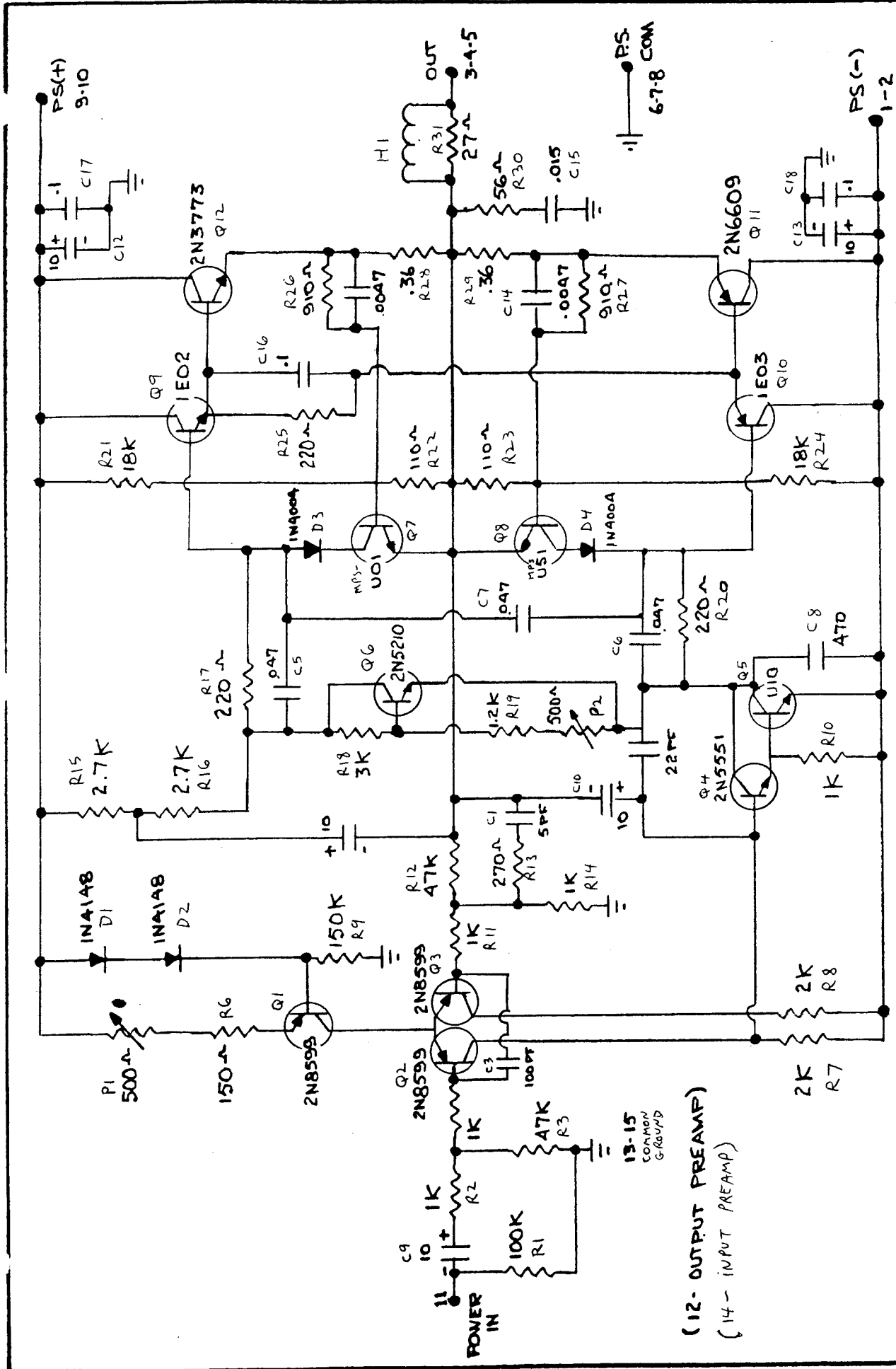


EDLO INDUSTRIES  
 ACE 220 PRE AMP

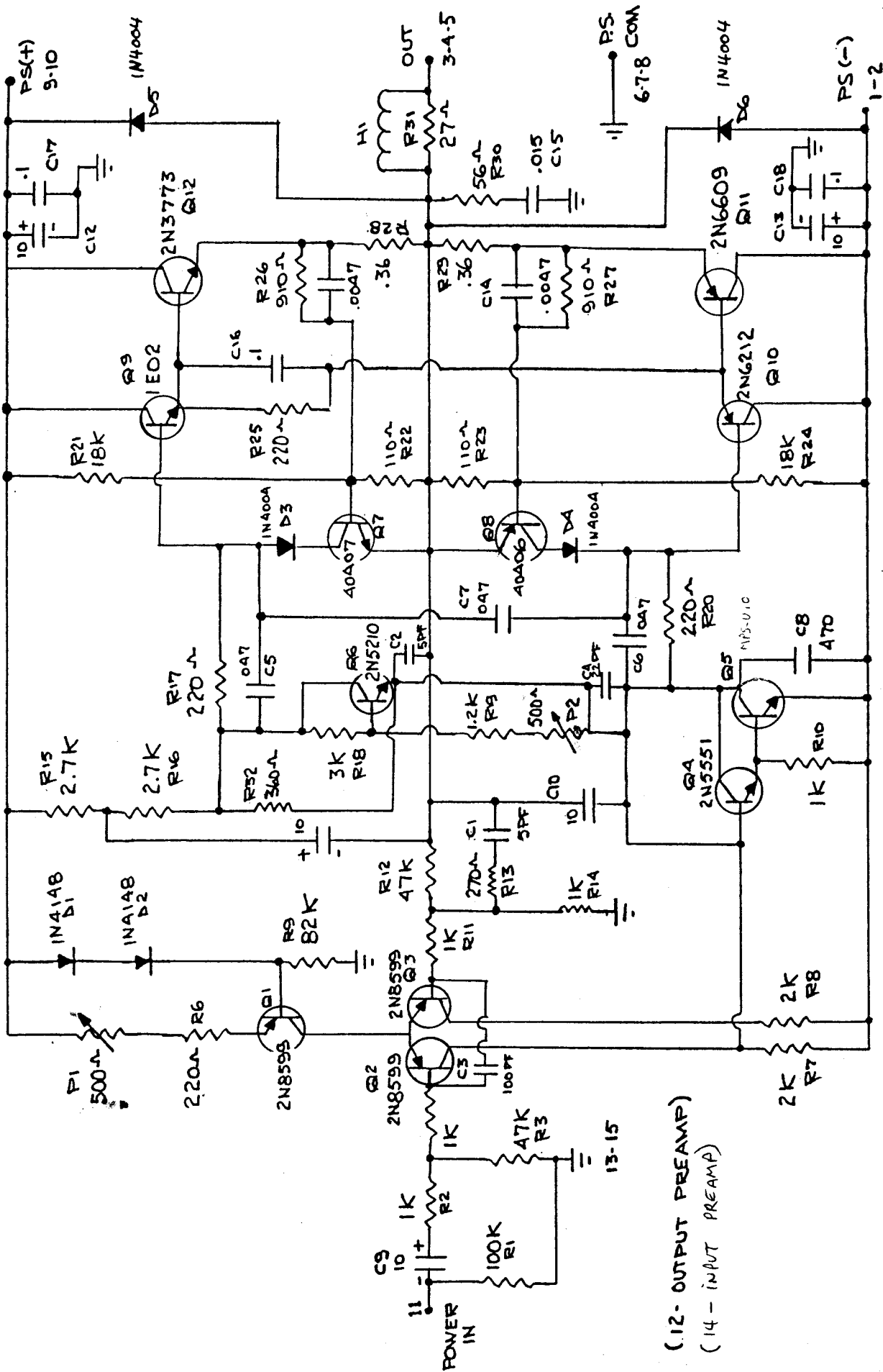
EDLO INDUSTRIES

ACE 220 PRE AMP

DATE 8-2-88  
 DRAWN BY ED  
 DWG. NO. A00016  
 A



CINEMA FILM SYSTEMS	
ACE 101 AMP	SCHEMATIC EARLY VERSION
DATE 4-24-81	DWG. NO. A0005
	DRAWN BY ED



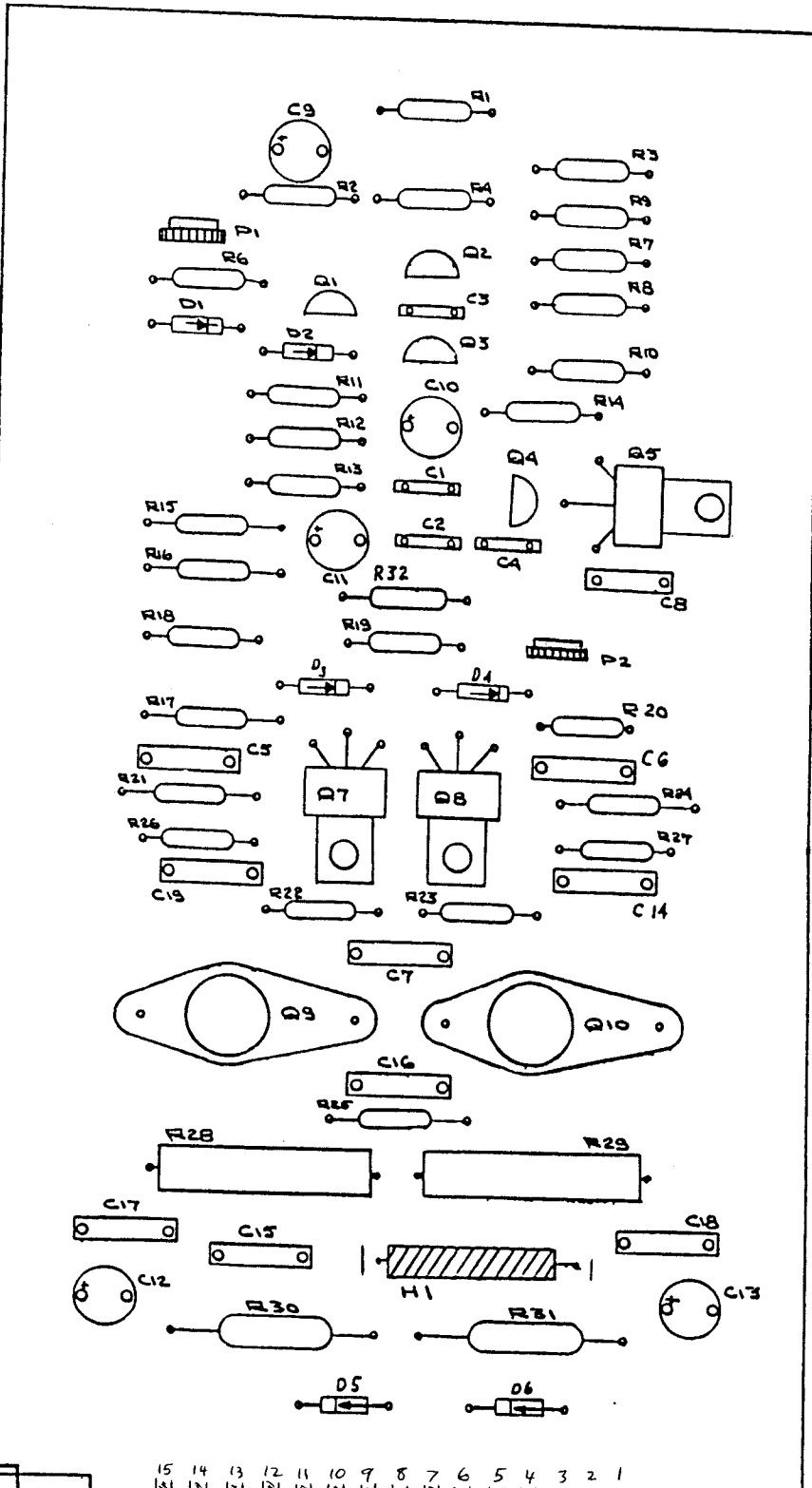
(12 - OUTPUT PREAMP)  
 (14 - INPUT PREAMP)

CINEMA FILM SYSTEMS / STRONG / RAVEN	
ACE 639NMP SCHEMATIC	
DATE A-24-81	DWG. NO. A00005
DRAWN BY ED	



- R1- 100K 1/4W
- R2- 1K 1/4W
- R3- 47K 1/4W
- R4- 1K 1/4W
- R5
- R6- 220 $\Omega$  1/4W
- R7- 2K 1/4W
- R8- 2K 1/4W
- R9- 82K 1/4W
- R10- 1K 1/4W
- R11- 1K 1/4W
- R12- 47K 1/4W
- R13- 270 $\Omega$  1/4W
- R14- 1K 1/4W
- R15- 2.7K 1/2W
- R16- 2.7K 1/2W
- R17- 220 $\Omega$  1/2W
- R18- 3K 1/4W
- R19- 1K 1/4W
- R20- 220 $\Omega$  1/2W
- R21- 18K 1/2W
- R22- 110 $\Omega$  1/4W
- R23- 110 $\Omega$  1/4W
- R24- 18K 1/2W
- R25- 220 $\Omega$  1/2W
- R26- 910 $\Omega$  1/4W
- R27- 910 $\Omega$  1/4W
- R28- .36 $\Omega$  5W
- R29- .36 $\Omega$  5W
- R30- 56 $\Omega$  2W
- R31- 27 $\Omega$  2W

- C1- 5PF
- C2- 5PF
- C3- 100PF
- C4- 22 PF
- C5- .047/100
- C6- .047/100
- C7- .047/100
- C8- 470 PF
- C9- 10/100
- C10- 10/100
- C11- 10/100
- C12- 10/100
- C13- 10/100
- C14- .0047/100
- C15- .015/100
- C16- .1/100
- C17- .1/100
- C18- .1/100
- C19- .0047/100
- D1 MPS8593
- D2 MPS8593
- D3 MPS8593
- D4 2N5551
- D5 MMPS-U10
- D7 RCA 40407
- D8 RCA 40406
- D9 1E02
- D10 1E03
- D1 IN4148
- D2 IN4148
- D3 IN4004
- D4 IN4004
- H1 CHOKE
- R32 360 $\Omega$
- D5 IN4001
- D6 IN4001

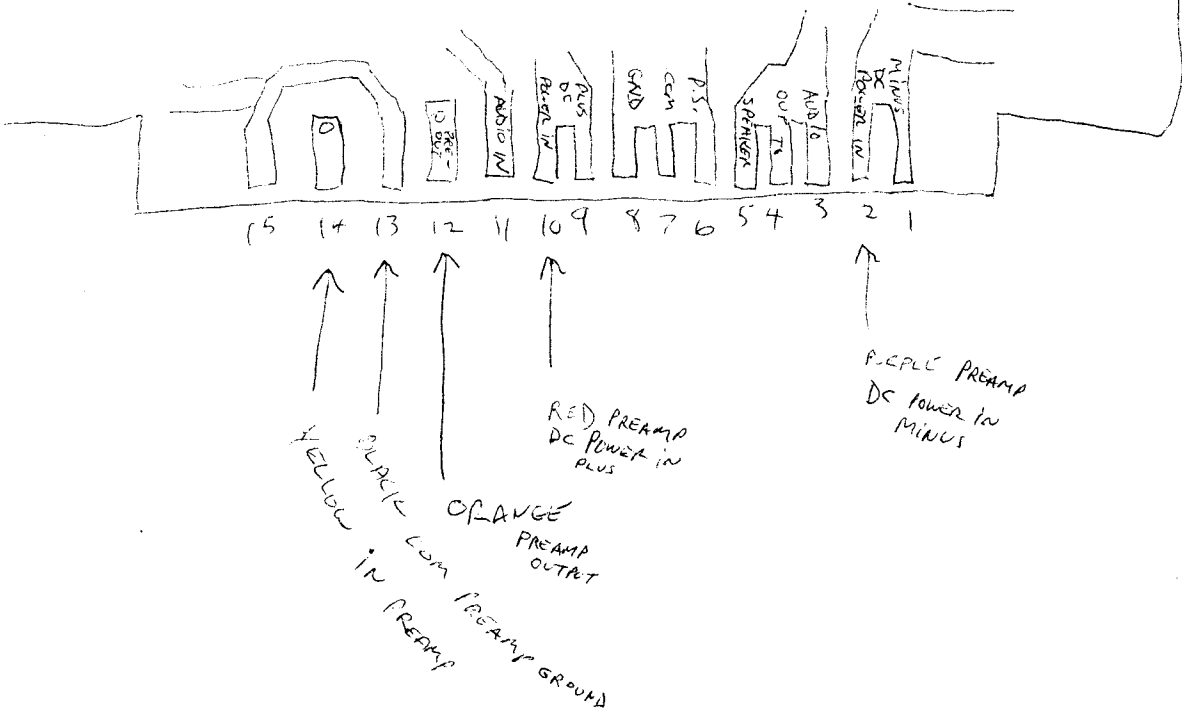


REVISIONS
Revised ACE101
Changes: R6,
R9, R17, D7, D8
Add: R32, D5, D6
2/9/81 - G.S.



CINEMA FILM SYSTEMS / STRONG / RAVEN		
ACE 639 AMP		
DATE	DRAWN BY	DWG NO
4-16-81	JD	A00003 B

PARTS  
SIDE



ACE-100 model 639 Power amplifier circuit board component substitutes:

Q1, Q2, Q3	MPS 8599	PNP	ECG 159	or SK 3715	
Q4	2N5551	NPN	ECG 194	or SK3433	
Q5	MMPS-U10	NPN	ECG 191	only	
Q6	2N5210	NPN	ECG 123AP	or SK3854	
Q7	RCA 40407 (or MPS-U01)	NPN	ECG 128	or SK 3024	
Q8	RCA 40406 (or MPS-U51)	PNP	ECG 129	or SK 3025	
Q9	RCA 1E02	NPN	ECG 175	or SK 3261	40w DRIVER
Q10	RCA 1E03 (or 2N6212)	PNP	ECG 38	or SK 3623	40w DRIVER
Q11	2N6609	PNP	ECG 285	or SK 9032	150w OUTPUT
Q12	2N3773	NPN	ECG 284	or SK 3260	150w OUTPUT

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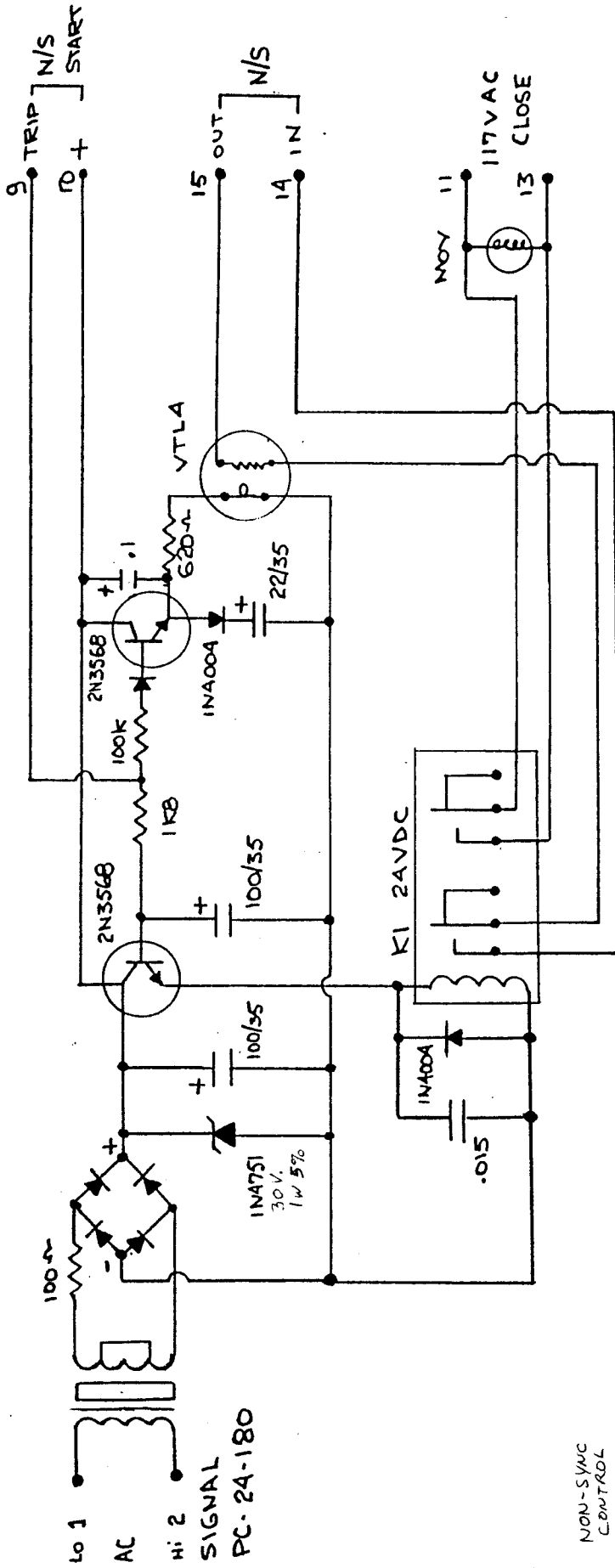
The ACE-100 amplifier is distributed by:

Edlo Industries  
435 Morrissee Ave.  
Haledon, N.J. 07508  
(201) 445-5519  
Fax: (201) 444-7793

Raven Laboratories, Inc.  
87 Central Ave.  
Glen Rock, N.J. 07452  
(201) 444-7766  
Fax: (201) 444-7793

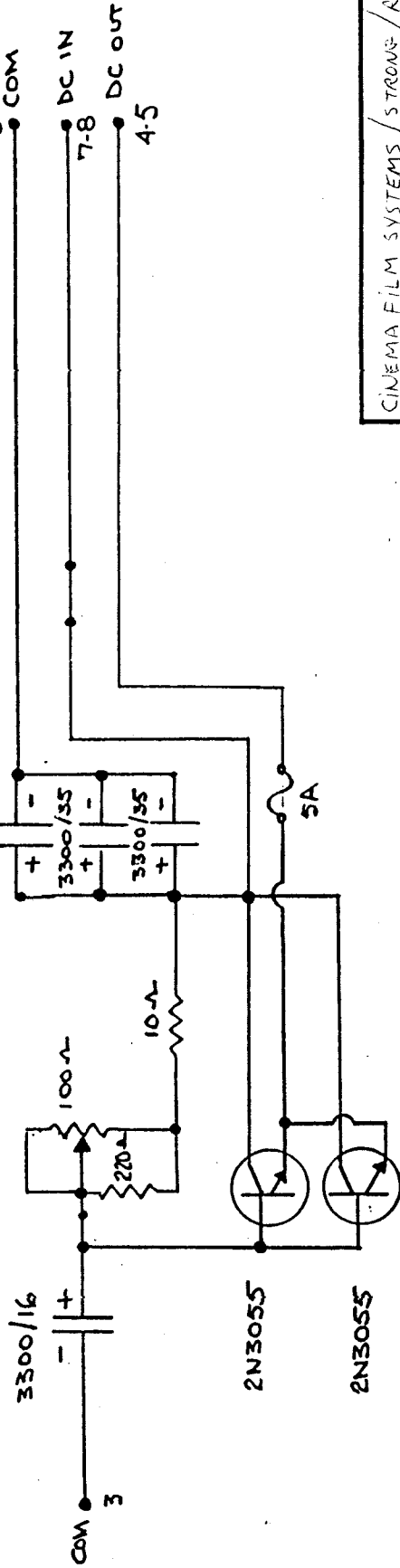
Strong International, Inc.  
4350 McKinley St.  
Omaha, Neb. 68112  
(402) 453-4444  
Fax: (402) 453-7238

Cinema Film Systems, Inc.  
791 North Benson Ave. Suite E  
Upland, Calif. 91786  
(714) 931-9318  
Fax: (714) 949-8815



NON-SYNC CONTROL

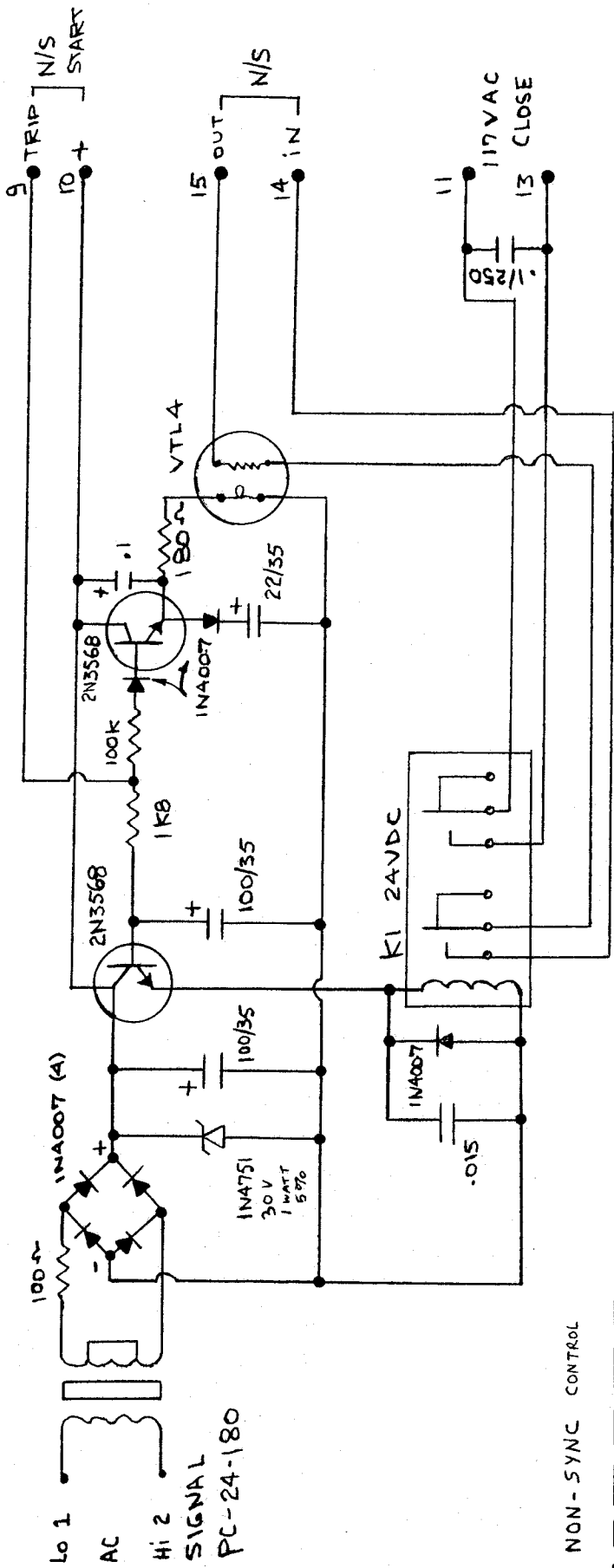
EXCITER SUPPLY



CINEMA FILM SYSTEMS / STROUS / RAVEN

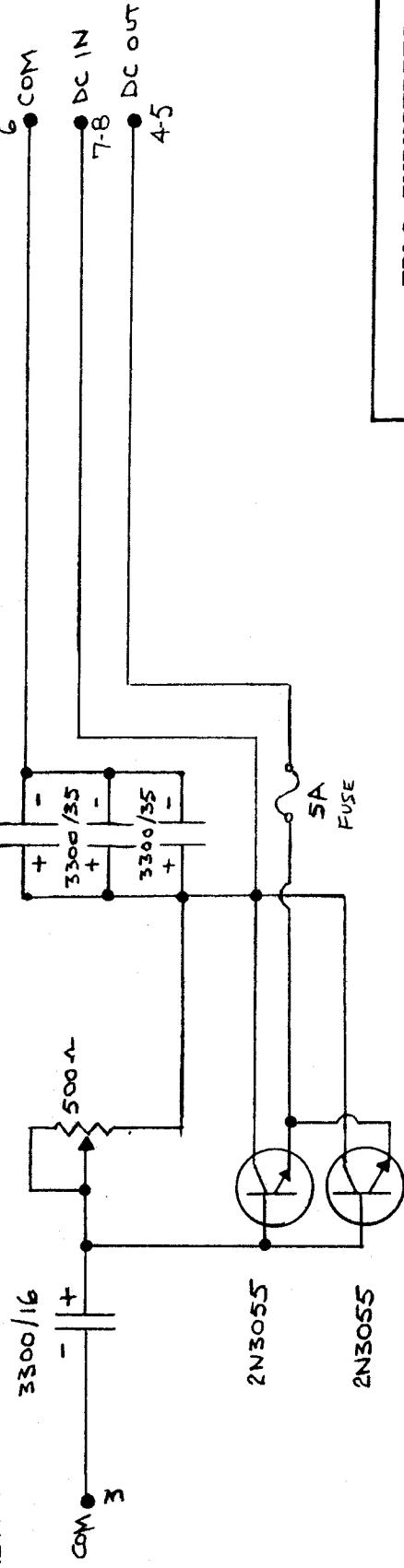
ACE 10A EXCITER / NON SYNC SCH.

DATE 4-24-81 DRAWN BY ED DWG. NO. A00009



NON-SYNC CONTROL

EXCITER SUPPLY

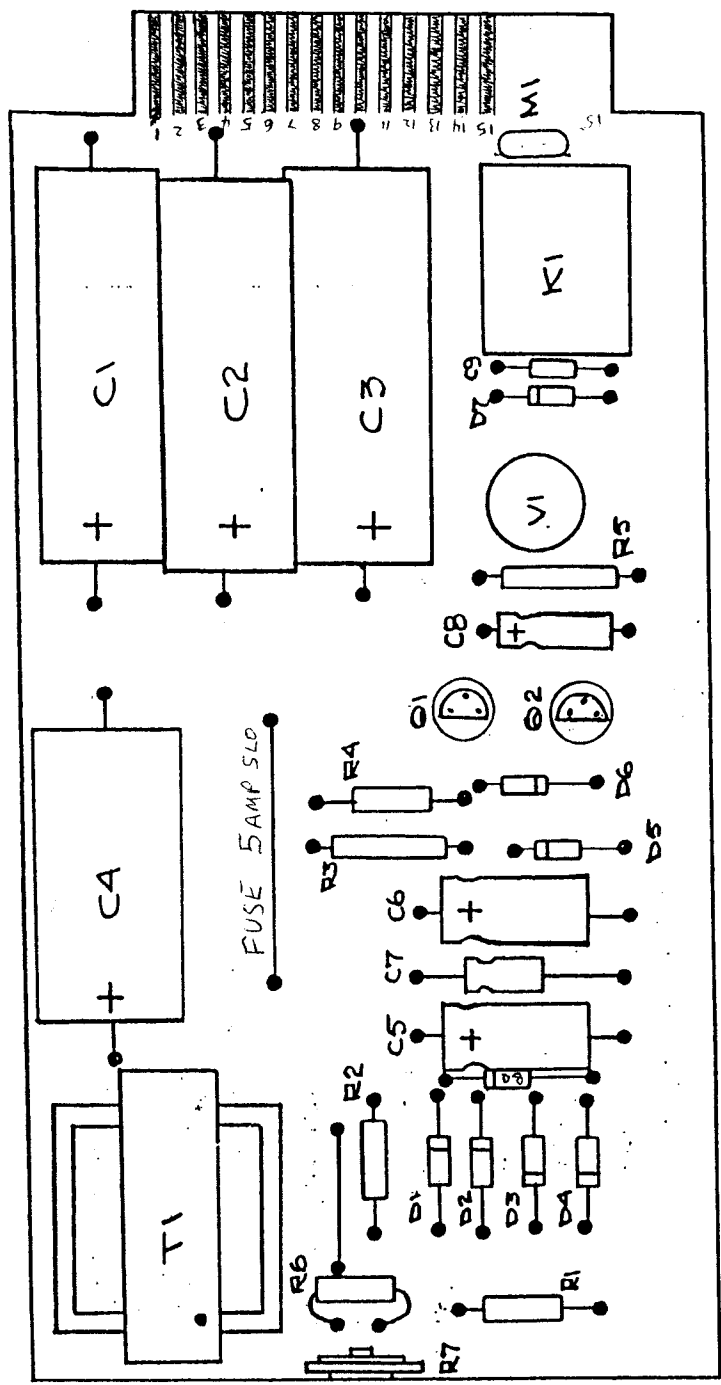


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ACE 10C EXCITER / NON SYNC SCH

DATE 8/20/87 DRAWN BY ED DWG. NO. A0009

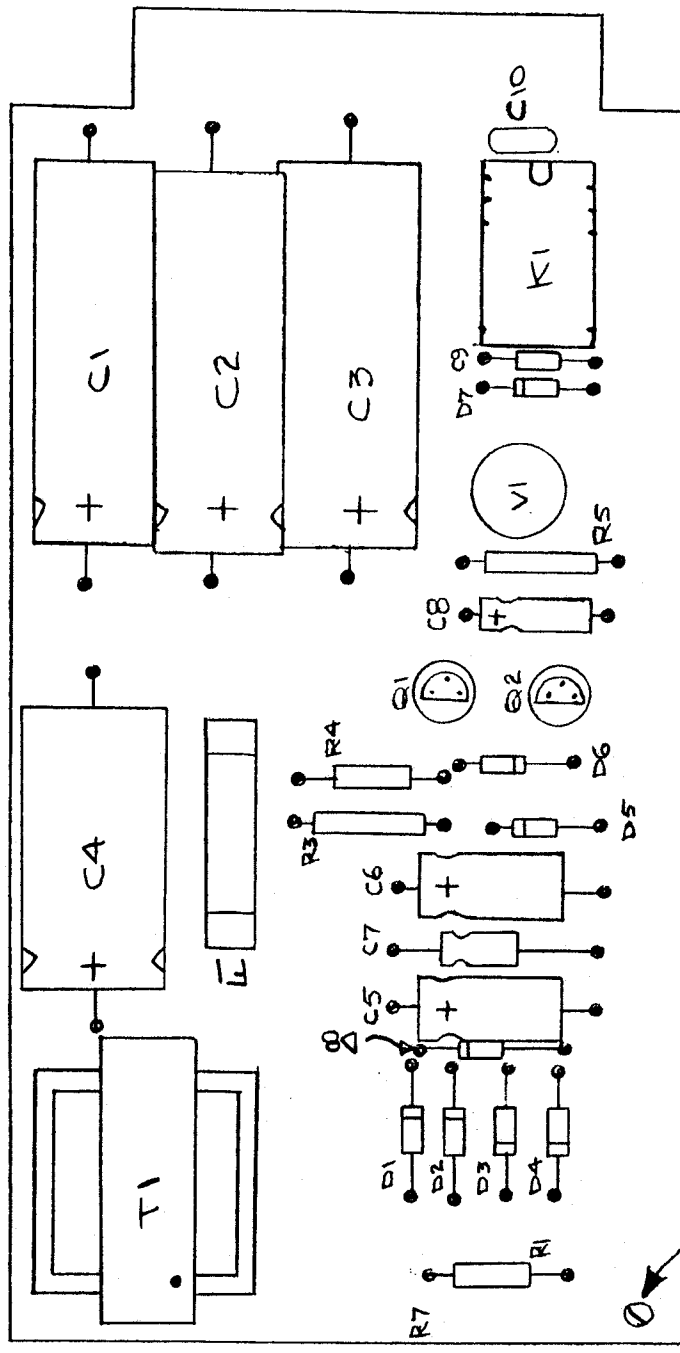
- R1 100 $\Omega$  1/2W
- R2 10 $\Omega$  1/2W
- R3 1.8K 1/2W
- R4 100K 1/2W
- R5 620 $\Omega$  1/2W
- R6 220 $\Omega$  1/2W
- R7 100 $\Omega$  POT
- C1 3300UF/35V, AXIAL
- C2 3300UF/35V, AXIAL
- C3 3300UF/35V, AXIAL
- CA 3300UF/16V, AXIAL
- C5 100/35V, AXIAL
- C6 100/35V, AXIAL
- C7 22/35V, AXIAL
- C8 1/50V, AXIAL
- C9 .015/100
- K1 KHP 4PDT
- T1 SIGNAL-PC 24180
- D1-D7 1N4004
- D8 1N4751
- V1 VACTROL-VTL9AA
- M1 MOV 10A
- Q1 2N3568 SK 3275
- Q2 2N3568



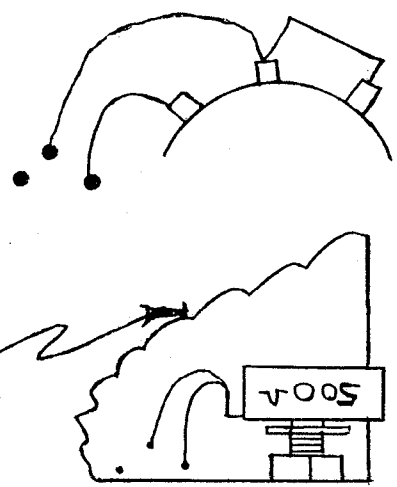
EARLY VERSION

CINEMA FILM SYSTEMS / STRONG / RAVEN	
ACE 10A EXCITER / NON SYNC	
DATE 4-15-81	DRAWN BY SD
	DWG. NO. A00008

- R1 100 $\Omega$  1/2W
- R2 1.8K 1/2W
- R3 100K 1/2W
- R4 100K 1/2W
- R5 180 $\Omega$  1/2W
- R6 220 $\Omega$  1/2W
- R7 500 $\Omega$  POT
- C1 3300 uF/35v
- C2 3300 uF/35v
- C3 3300 uF/35v
- C4 3300 uF/16v
- C5 100/35v
- C6 100/35v
- C7 22/35v
- C8 1/50v
- C9 .015/100v
- K1 HB2-DC2A
- T1 SIGNAL-PC-24-180
- D1-D7 1N4004
- D8 1N4751
- V1 VACTROL-VTL9A4
- C10 .1/250
- Q1 2N3568
- Q2 2N3568
- F1 5A5B.



↑ ARCMAT # HB2-DC2A  
 RELAY K1 IS MOUNTED IN A  
 16-PIN DIP SOCKET

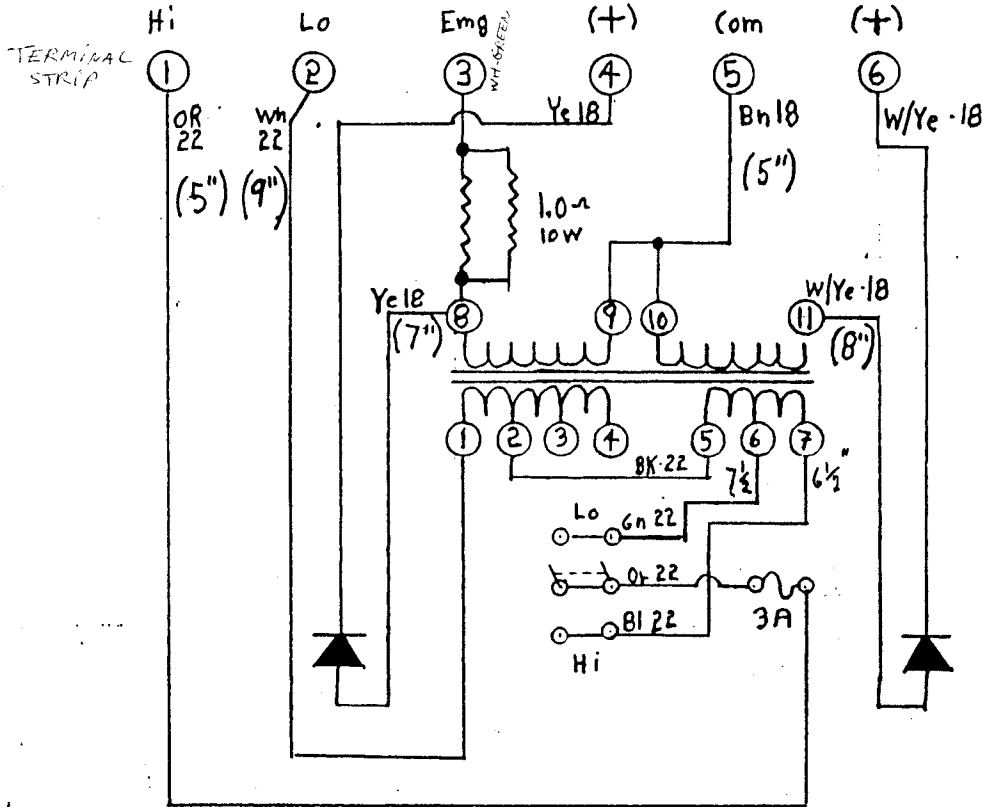


R7  
 MOUNTING DETAIL

EDLO INDUSTRIES	
ACE 10C EXCITER / Non SYNC	
DATE	DWG. NO.
8/26/87	A0008
DRAWN BY	ED







WITH HI-LO SWITCH

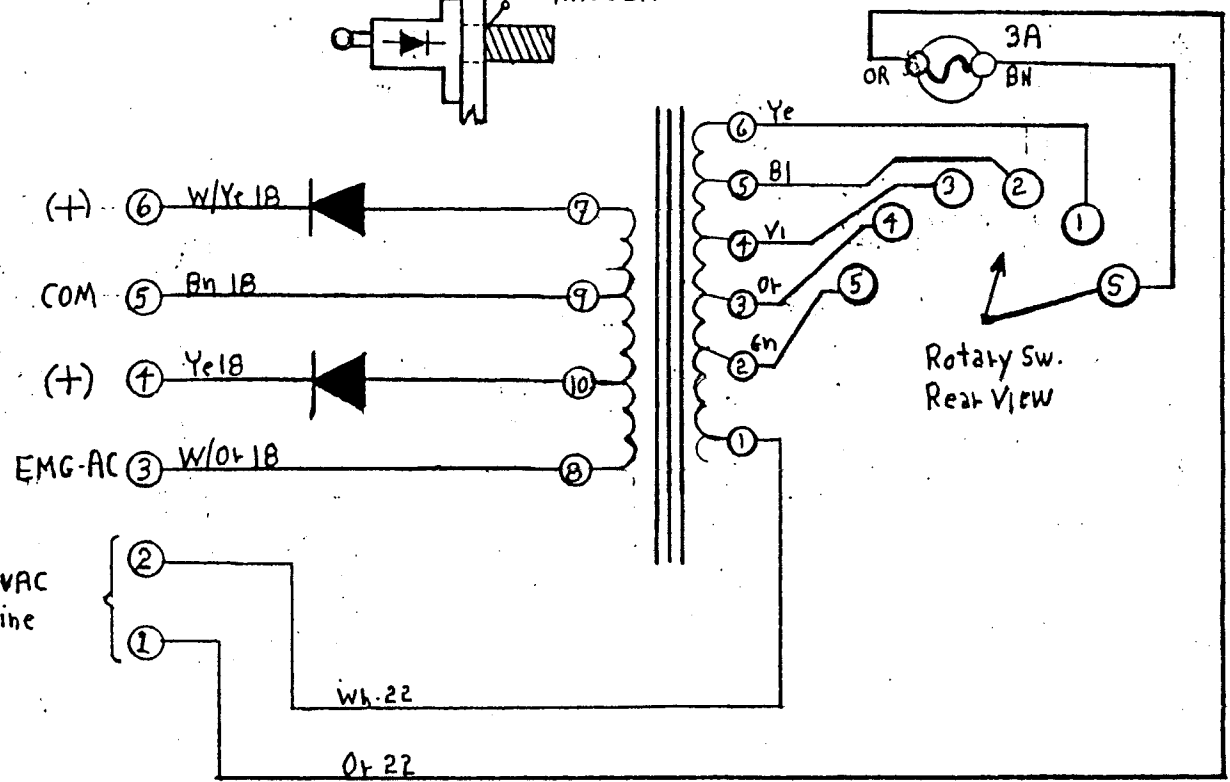
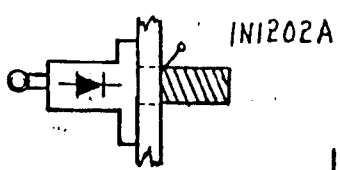
X-FORMER  
SIGNAL A41-80 20



IN1202A

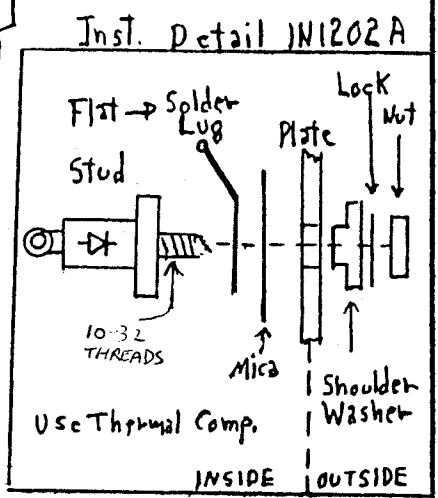
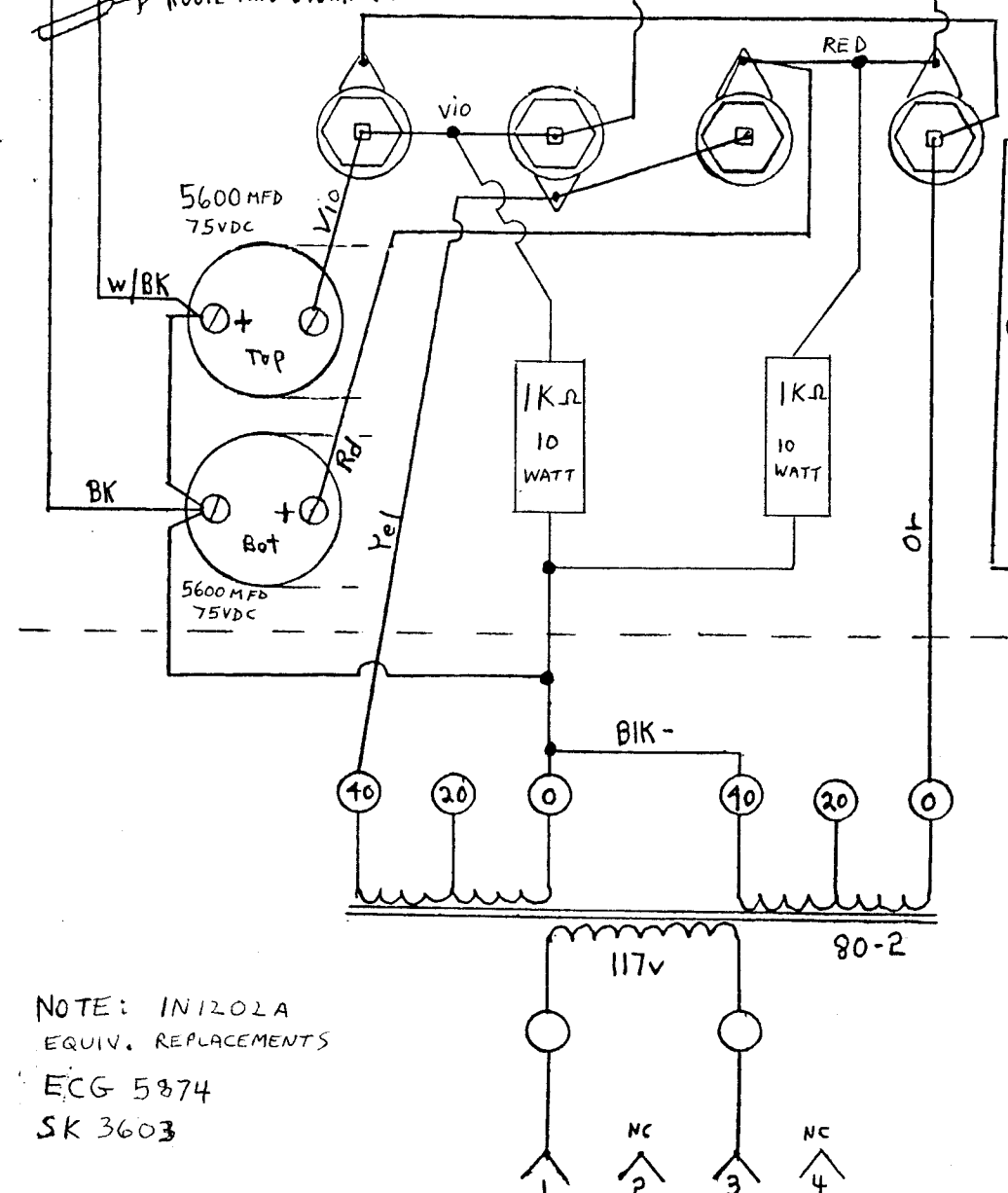
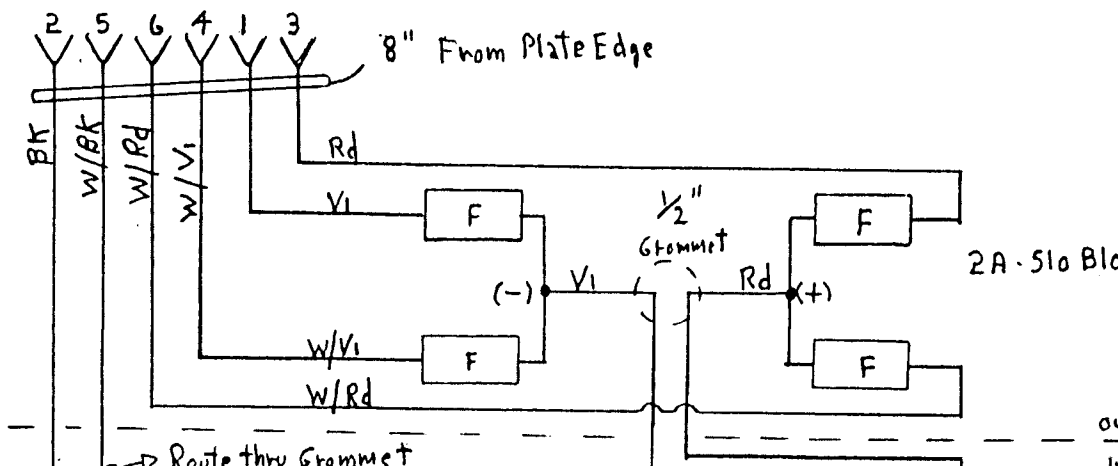
Wall Mount

CINEMA FILM SYSTEMS / STROBE / RAVEN	DWG. NO. A0010
ACE-100 EXCT. P.S. MODULE	DRAWN BY WQ
DATE 12/1/80	



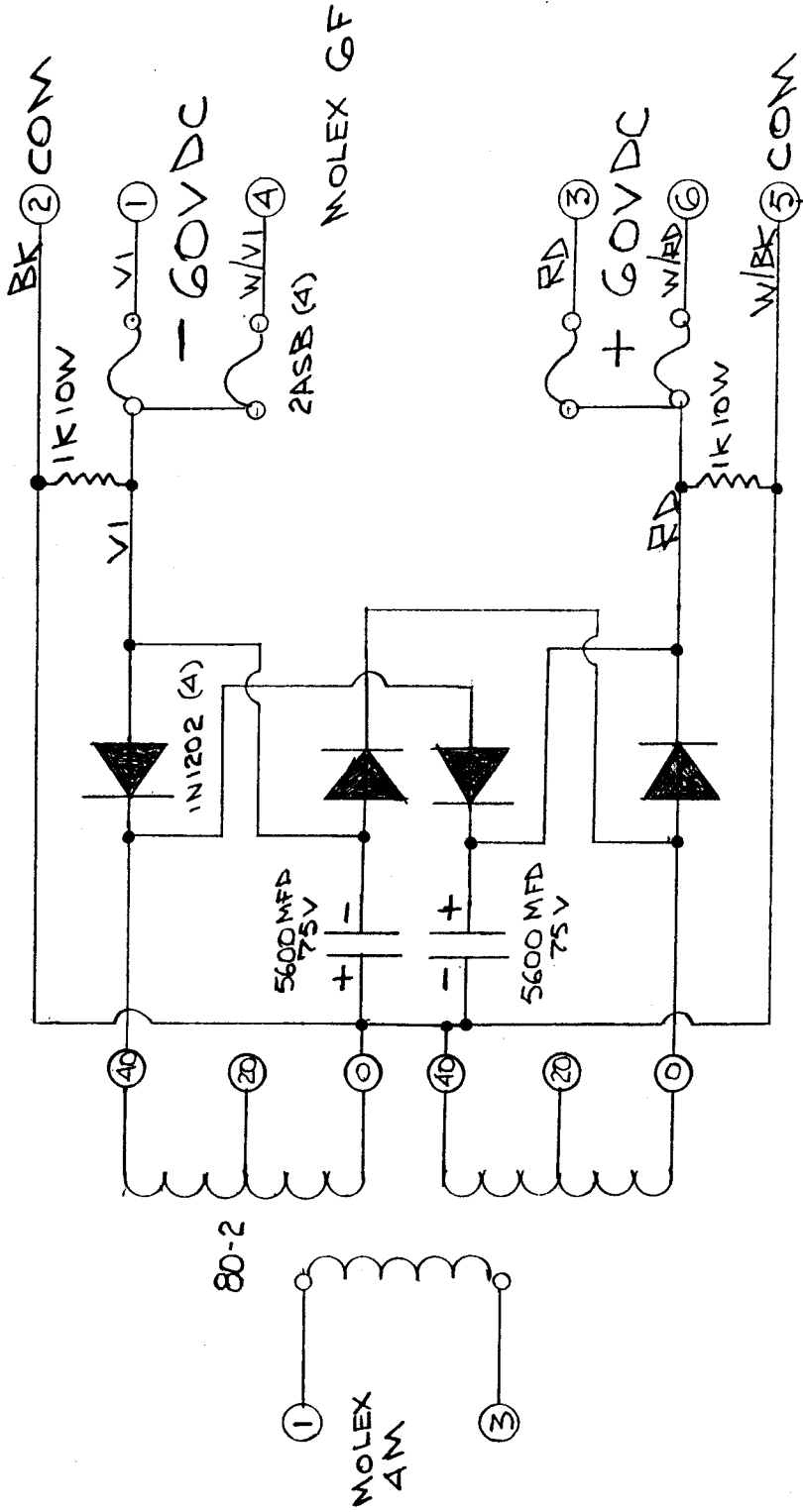
Console Mount

CINEMA FILM SYSTEMS / STRONG / RAVEN  
 ACE-100-S Power Supply  
 DRAWN BY w. q.  
 DATE 1/13/81  
 DWG. NO. A00011

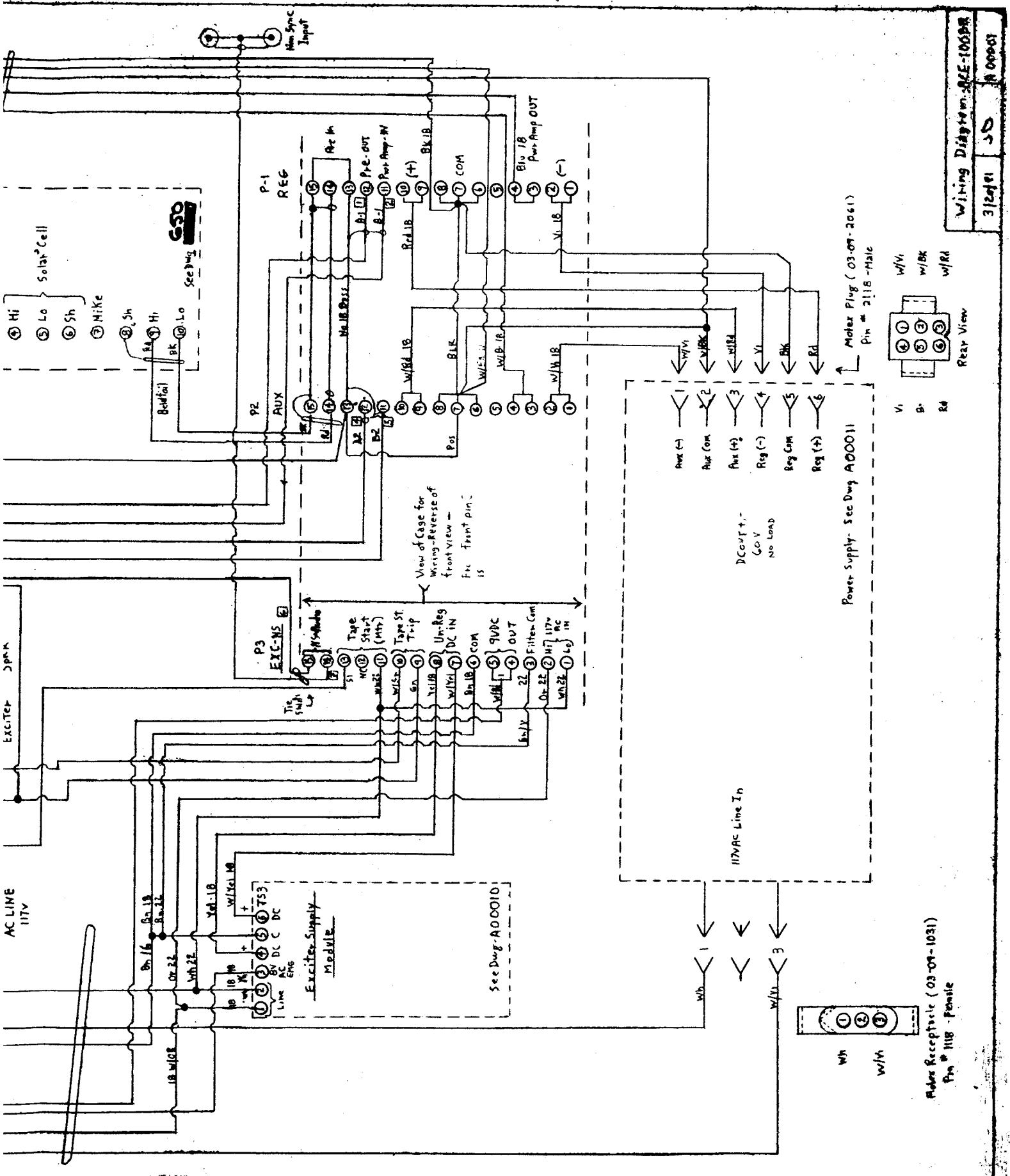


NOTE: IN1202A  
 EQUIV. REPLACEMENTS  
 ECG 5874  
 SK 3603

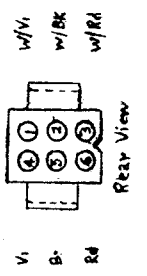
All wires No. 18



EDLO INDUSTRIES	
ACE 100 PS.	
DATE 10/18/88	DRAWN BY ED
DWG. NO. A000115	



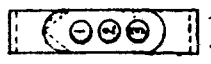
Wiring Diagram - SEE - 1008PR  
3/24/81 JD 18 00001



Rear View

Power Supply - See Dwg A00010

Molex Receptacle (03-09-1031)  
Pin # 1118 - Female



117V AC Line In

DC out +, -  
Co V  
No Load

View of Cage for Wiring - Reverse of front view - Fix front pin 15

Solar Cell

650  
Seedwg

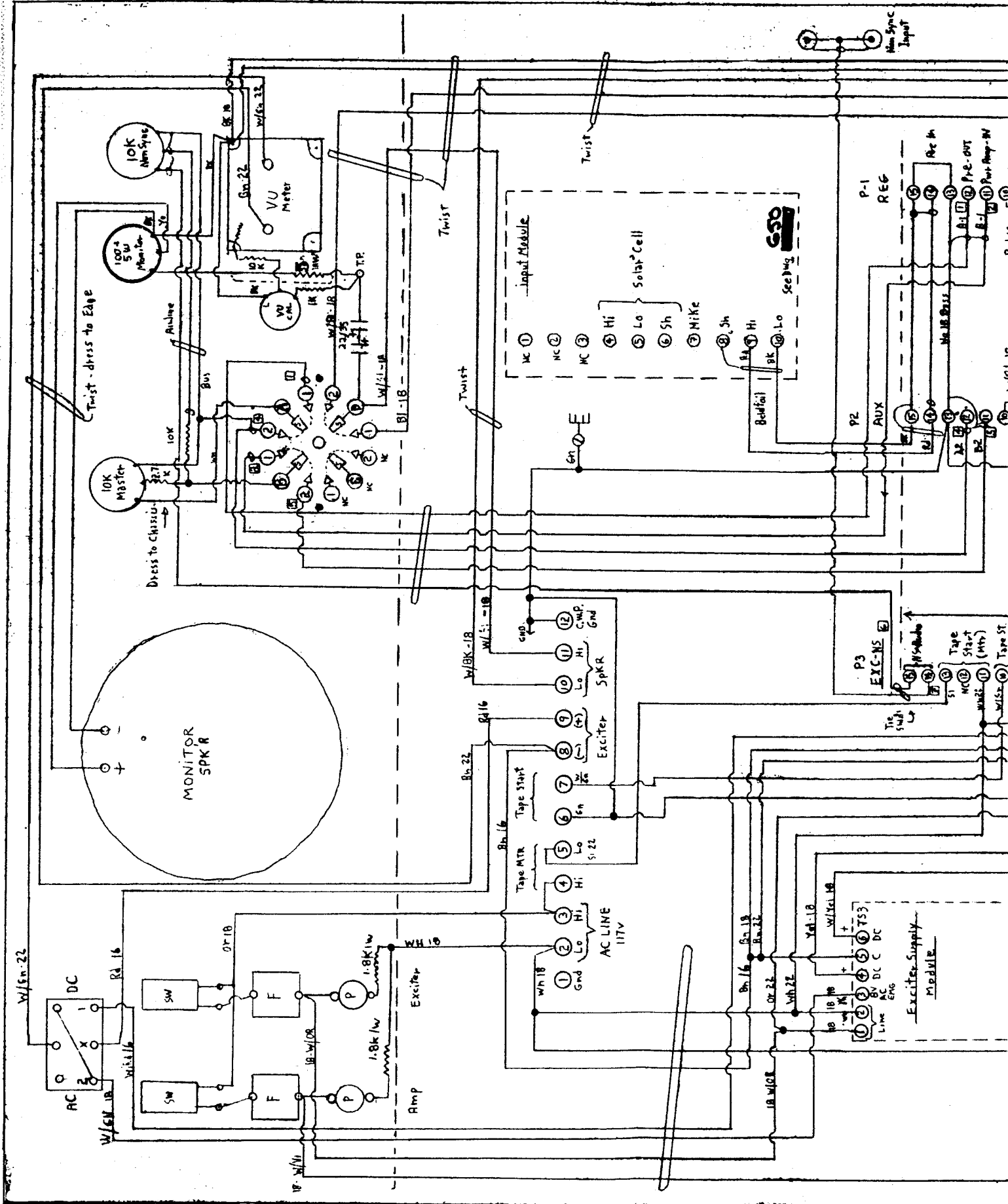
- ④ Hi
- ⑤ Lo
- ⑥ Sh
- ⑦ Ni/Ke
- ⑧ Sh
- ⑨ Hi
- ⑩ Lo

EXCITER

AC LINE  
117V

Exciter Supply Module

Seedwg-A00010



Twist - dress to Edge

Twist

Twist

Twist

Dress to Chassis

MONITOR SPKR

Exciter

Amp

VU Meter

VU CAL

Input Module

Solar Cell

Exciter

Spkr

P-1 REG

AUX

P-2

P-3 EXC-NS

P-4

Exciter Supply Module

Line AC

753

755

756

757

758

759

760

761

762

763

764

765

766

767

768

769

770

771

772

773

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