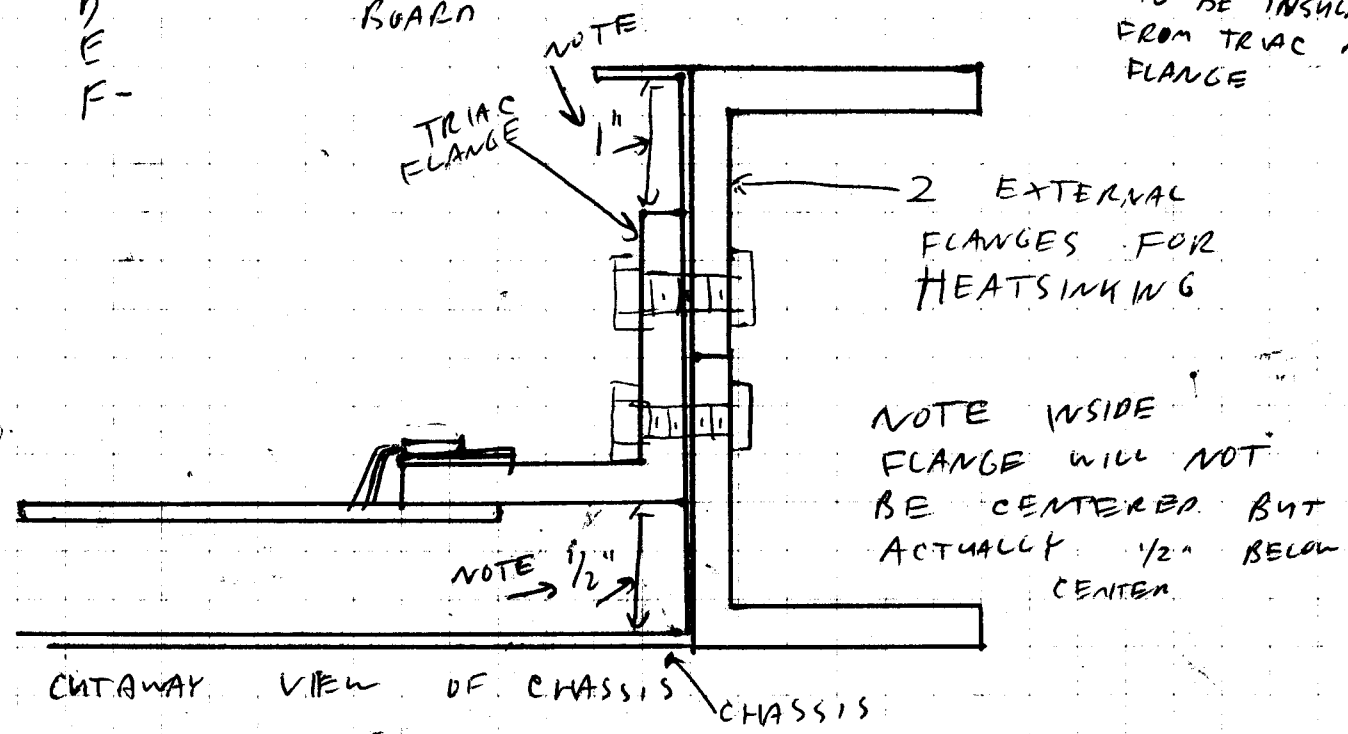
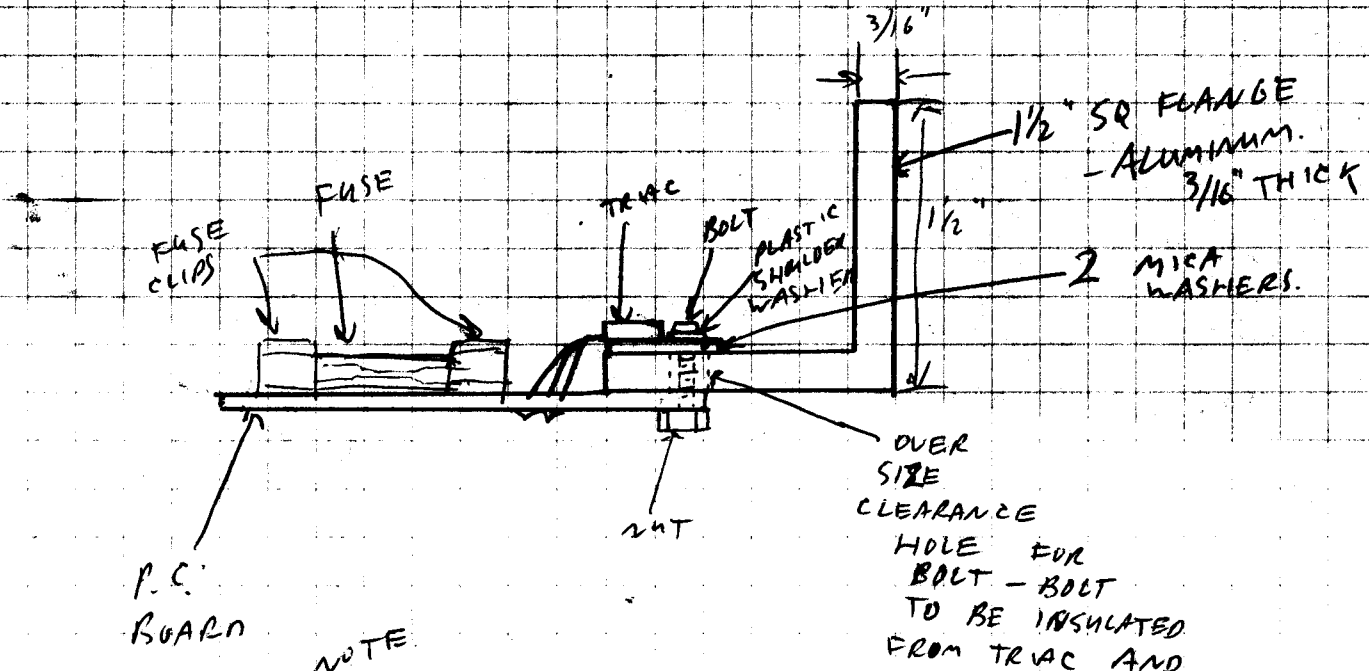


0000	0-
0001	1
0010	2
0011	3-
0100	4
0101	5
0110	6-
0111	7
1000	8
1001	9-
1010	A
1011	B
1100	C-
1101	D
1110	E
1111	F-

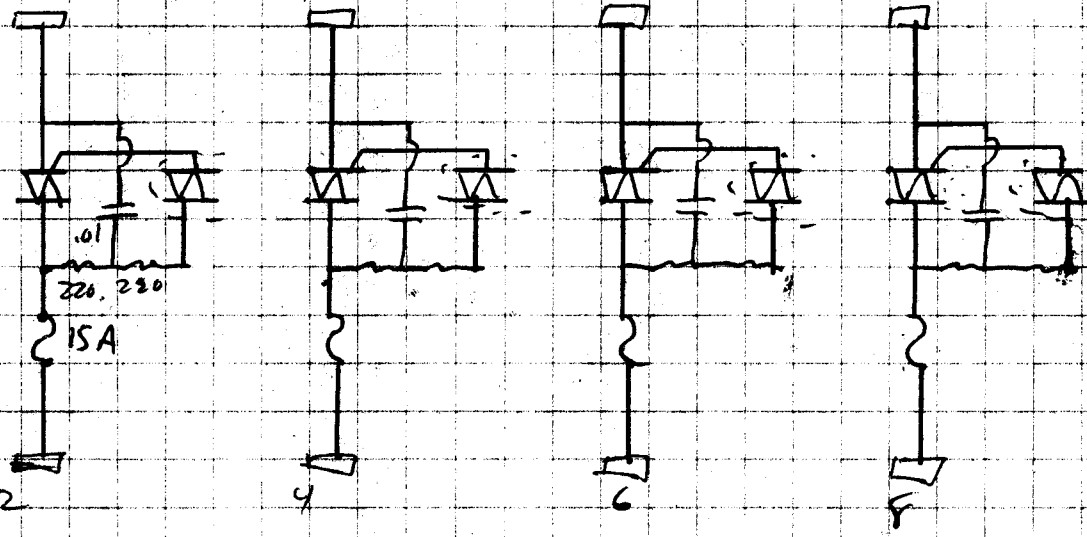


1:1 SCALE

R3A POWER CIRCUITS.

⑥

THIS UNIT WILL BE CAPABLE OF SWITCHING 1500 WATTS PER CHANNEL SIMULTANEOUSLY ON ALL FOUR CHANNELS. THE OUTPUT CONNECTOR WILL BE WIRED AS FOUR SWITCHES, ALL ISOLATED FROM ONE ANOTHER AND THE AC LINE SO THAT THE INSTALLER MAY CONNECT THEM AS NECESSARY. IT IS DONE THIS WAY SO THAT 5 MORE THAN ONE CIRCUIT MAY BE EMPLOYED TO SAFELY SUPPLY SUFFICIENT POWER TO THE UNIT.



TRIACS = TEXAS
TIC 263B OR
TIC 253B OR
EQUAL.
- OPTOS = MOTOROLA
MOC 3010 OR 3011

- CONNECTOR IS A CINCH JONES S2408 AB CSA # 14279
- OTHERWISE - SEE R6L POWER CIRCUIT FOR DETAILS.

THE R3AM WILL BE THE SAME AS THE R3A BUT THERE WILL BE 8 TRIACS AND 2 S2408 AB CONNECTORS TO ACCOMPLISH THE MATRIX FUNCTION

David Arosen.
Sept 24/79

OPERATING HINTS FOR THE R3A & R7 SERIES LIGHTING CONTROLLERS

The R3A is an automated unit that changes effects on its own, while the R7 has its effects selected by its operator manually. Each unit has 16 patterns stored in its memory. On the R3A these are changed automatically, while the R7 has a thumbwheel switch on the front panel so the operator can set his effects.

The three effect modifiers are "INVERT, SHIMMER AND REVERSE". On the R3A these are automatic in operation and three LEDs indicate which are active at any one time. The R7 has three switches to control these. The invert switch selects between a light chase and a dark chase. The reverse switch changes the direction of the chase, while the shimmer gives an all flash effect. This is best when the invert is engaged also. Without the invert being engaged, the shimmer effect is not as exciting. Because of this, on the R3A the shimmer will only engage with the invert on also.

The shimmer has another function also. It can be used to turn all of the lights on, either to tell the crowd its time to go, or to test the lamps to check for defective ones. To do this, first turn the audio sensitivity control all of the way down. Second, select the shimmer effect. On the R3A run it on auto chase until the shimmer light lights. Then switch the Auto/Audio switch to Audio and all of the lights will come on and stay on until the operator wishes otherwise.

The "LIGHTS ON" switch switches the lamps off without switching off the logic. This allows a DJ to check the pattern he has before he presents it to the audience. The "BRIGHT" switch is a Bright/Dim selector. There is more data on this on the other sheet enclosed.

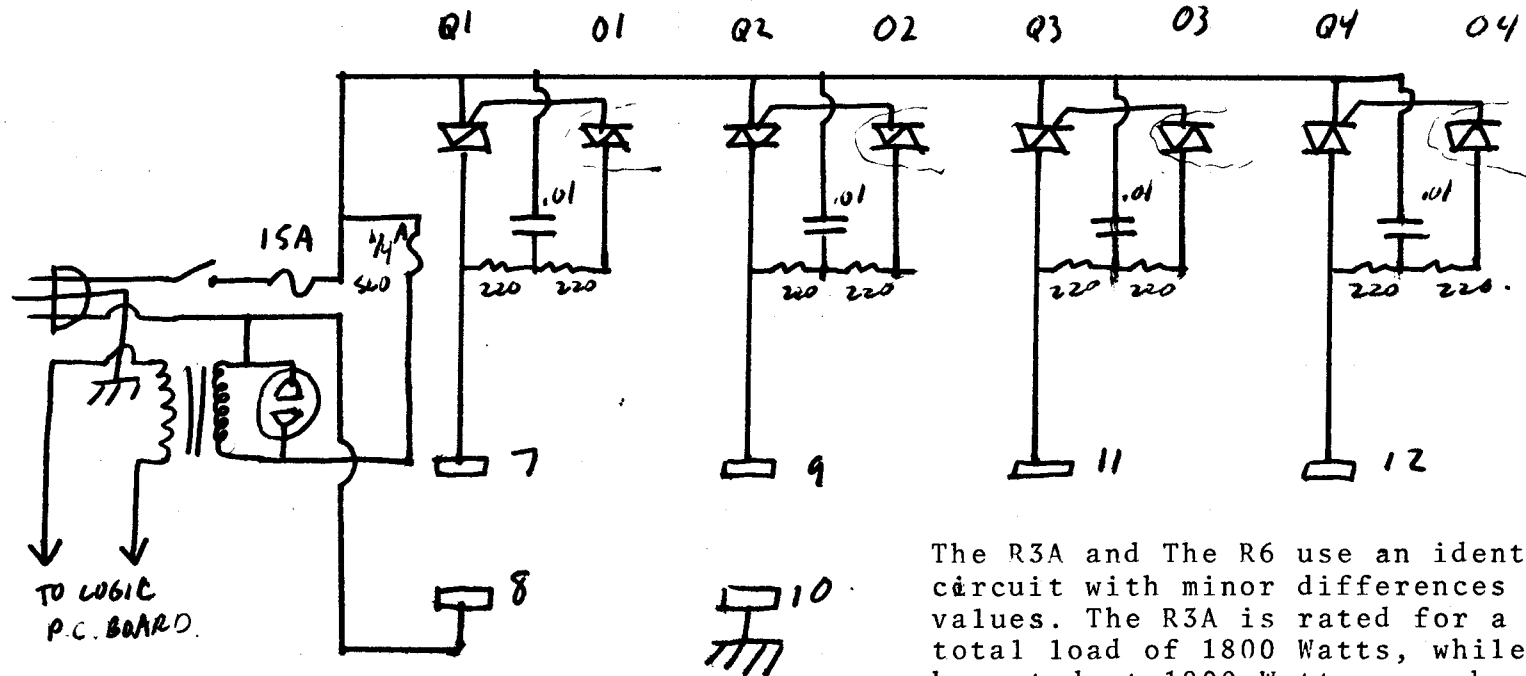
On the R7M types there is a small three position toggle switch mounted above the Auto/Audio switch. This controls the direction on the matrix.

When using the unit in the Audio chase mode, if the Audio Chase Sensitivity control is turned up too high, this could stop the chase as much as if it were turned too low due to overloading the trigger circuit. If turning up does not help, try turning it down a bit.

If you have any questions, the dealer can pass them on to us if he is unable to answer them for you. Note, there is no possible combination of control settings that can cause injury or damage to the unit, giving the DJ complete freedom to try any patterns, etc. within the capability of the unit.

R3A R6 POWER CIRCUITS

3



The R3A and The R6 use an identical power circuit with minor differences in component values. The R3A is rated for a maximum total load of 1800 Watts, while the R6 will be rated at 1800 Watts per channel. The logic

in the R6 will only permit only one out of the four channels to be turned on at any one time, so that this higher rating may be achieved. In the R3A we will use triacs such as the TIC226B or equivalent, which are 8 Amp devices while the R6 will use the TIC253B or equivalent which is rated at 20Amps. These are Texas Instruments devices, though, depending on availability, General Electric or Motorola devices may have to be substituted.

The output connector will be a Cinch Jones S2406AB or S2406DB (CSA Approval #14279)

The line cord will be Leviton HB14-3 SJTW Outdoor or CSA Approved equivalent.

The line plug will be a Hubbel 5965VY Dead Front type.

The power switch will be either JBT or Carling and will bear the CSA mark

The transformer will be a CSA approved Hammond 166J8

The fuse holder will be a 20A type from Littlefuse or Buss depending on availability.

The 1/4A fuse will be mounted on the triac P.C. board with fuse clips made by Littlefuse.

The Opto couplers (O1-O4 on schematic) will be Motorola MOC3010 or 3011 and are U.L. approved and are rated at 7500Volts peak guaranteed minimum breakdown voltage.

The line cord will be clamped by a CSA approved cable clamp as used on electrical boxes.

The pilot lamp will be a CSA approved type.

The logic circuitry is completely insulated from the chassis and the audio input is isolated from the circuitry by an input transformer. The audio input jack is a nylon type insulating the audio input from the chassis also.

Oct 14/79
D. Fran

NOTES ON THE OPERATION OF THE R3AM and R7M LIGHTING CONTROLLERS

The R3A is the automatic while the R7 is the manual version of the same controller. There are 16 patterns stored in the memory chip of the units. They include a straight chase, a pairs chase, 4R4L4R4L Slow, Random Flash, 8L8R, Zig-Zag, 3L2R1L2R, Pairs 10L2R, Pairs Fast/Slow Shimmy, 12L4R, 15L1R, Fast/Slow Shimmy, 8L4R4L4R, Pairs Zig-Zag, Pairs 4L4R Slow, 1L1R2L2R3L3R.

In addition there are three modifiers. The invert inverts the pattern light for dark, while the reverse changes the direction of the pattern. The shimmer flashes all of the lamps on for one half of the clock cycle. This effect is best when used with the invert, and on the R3A automatic unit, an interlock is provided so that the shimmer will work only when the invert is engaged. This function can also be used to aid in replacing defective lamps as the operator need only engage the shimmer mode, switch the Auto/Audio switch to audio and turn the audio sensitivity control to zero and all of the lamps will be lit and will stay that way until the operator wants otherwise.

All units shipped to the USA have the Bright/Dim Switch defeated. This is because some users are using either "Rain" lights or neon with the controller. On these or any other transformer operated load, engaging the dim function would apply DC to the transformers and very quickly destroy them. If, however, you are using incandescent lamps, the Dim function is perfectly safe. To restore it all that must be done on the unit is to cut the wire jumper across the Bright/Dim switch and tape the ends so they do not short anywhere. The switch and jumper are tagged for ease of identification.

We have switched to an AMP brand connector on the output due to difficulties in getting the Cinch-Jones types we were using. With the connectors and the supplied pins we have included one spare pin in case of breakage. With these connectors, the wires are either soldered or crimped to the pins and then inserted in the connector, making it much easier to connect the unit.

The audio input requires at least 3V RMS of signal for reliable audio triggering. If operation from line level is desired, have a technician place a jumper across the resistor soldered to the rear of the audio input jack. This will reduce the input impedance to 10K but will result in good triggering at levels of 500mV. Note that the maximum input level should not exceed 10V RMS after this has been done. Normally a 40VRMS input signal is safe. This is equivalent to an amplifier with an 8 ohm power rating of 500WRMS per channel. If the sound system has a sub-woofer or a separate bass amplifier, the audio should be taken from that source.

On units set up for loads over 500W/ch., care should be taken to provide an unobstructed air flow. If the loading exceeds 1000W/Ch. it is highly recommended that a cooling fan be used to ensure maximum life for the unit. If there is a ventalated top, extreme care should be taken to avoid spillage of liquids into the unit. Liquid spillage will void any warranty on the unit.

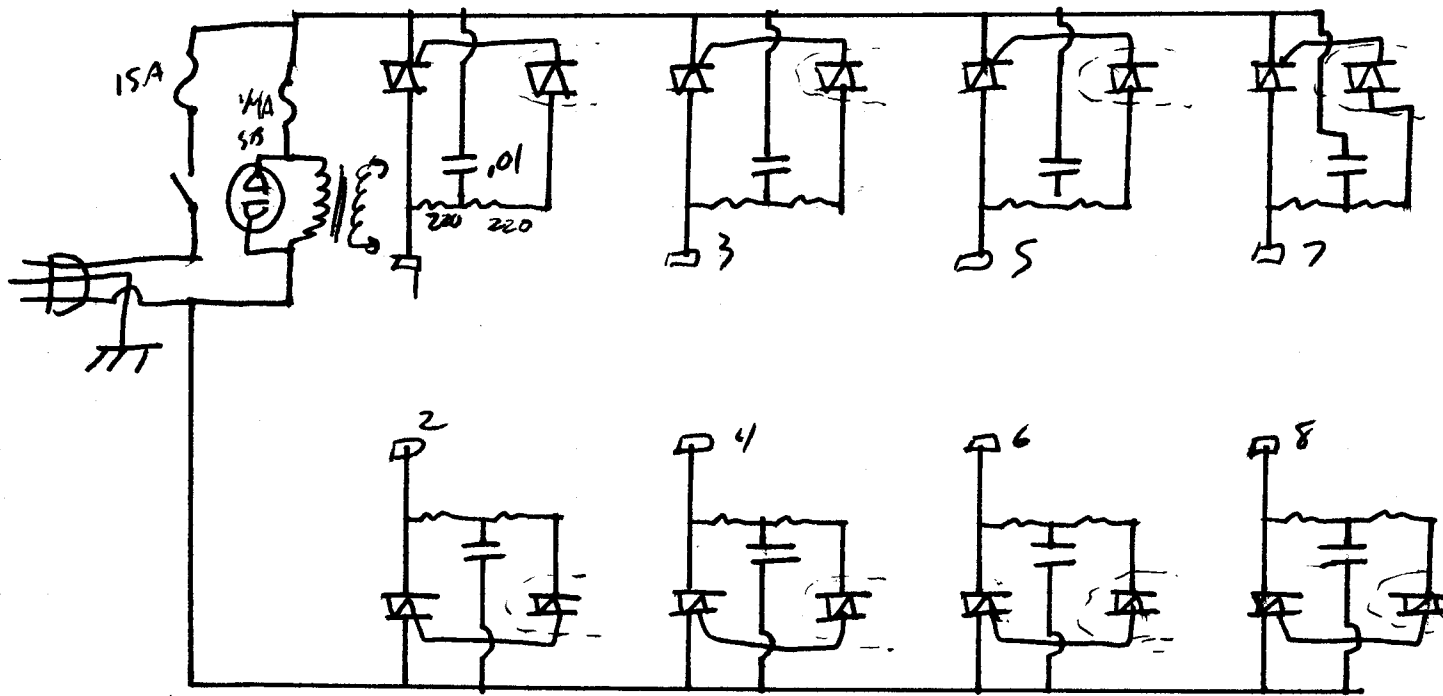
Extreme care should also be taken to avoid short circuits in the load. Any load shorts will instantly damage some of the triacs. Blown triacs are not covered under warranty nor the labor to replace them. With no shorts across the load, the triacs should last indefinitely.

The schematic diagrams are enclosed, tucked away under the main printed circuit board in order to ease the labors ^{of} anyone that may be called upon to service the unit.

Male Conn.	1-480706-0
Female Chassis "	1-480707-0
Pin contact	350552-1
Rocket "	350551-1

R3AM + R6M POWER CIRCUITS

(5)



The R3AM and the R6M are a modification of the Standard R3A and R6 with an additional triac board included to allow MATRIX effects, also known as STARBURST effects, where the lights will chase in pattern on 2 axis. Other than the changes shown above, and the inclusion of a matrix control board measuring 2" by 2" the units will have all the same components.

Also, the output connector will be changed to a Cinch Jones S2408AB or S2408DB which are CSA approved. Otherwise, see page 3 for details

Sept 13/79
Daniel Frasen

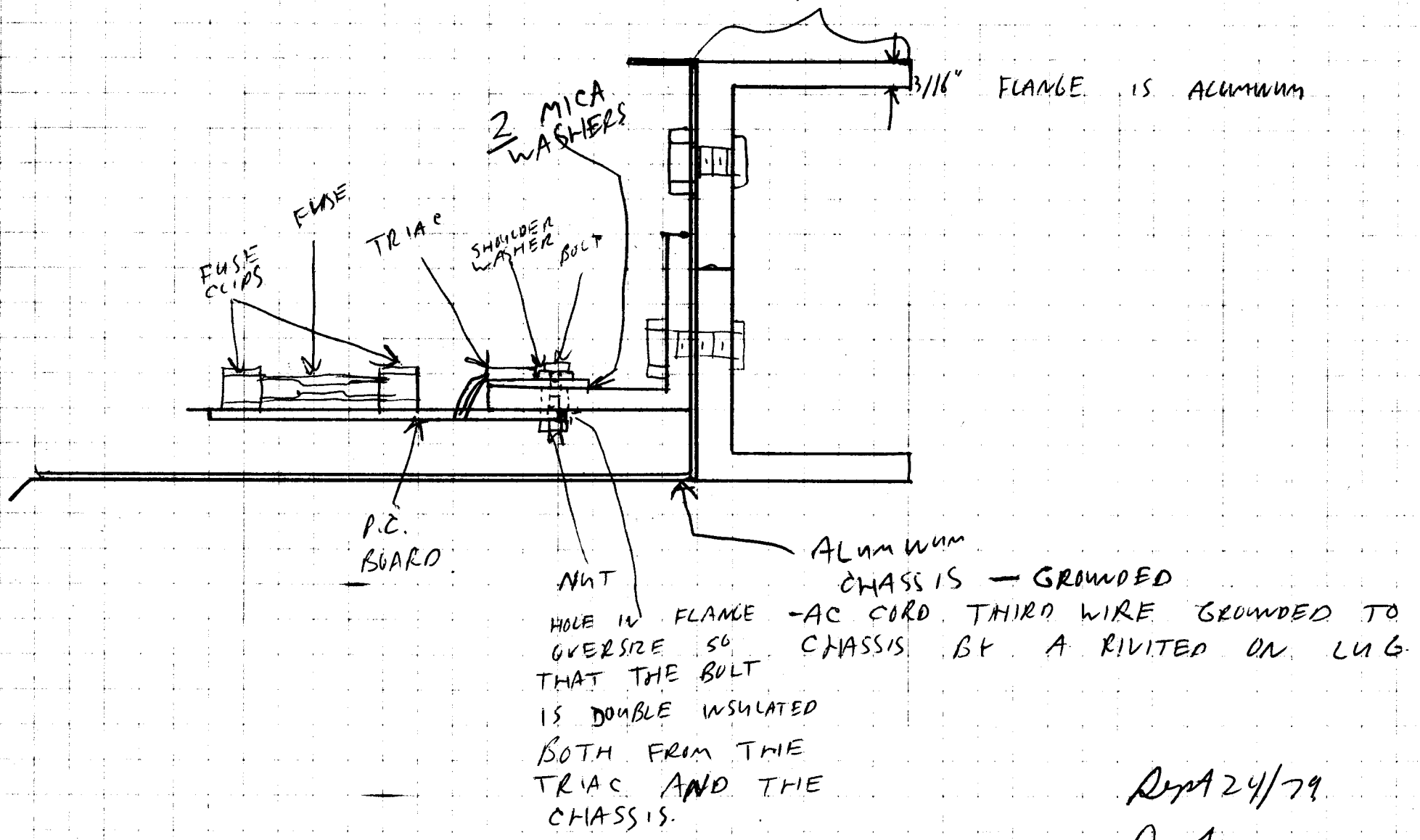
R3A, R3AM, R6, R6M
R7, R7M, R8, R8M

CUTAWAY VIEW
OF CHASSIS

1/2"

1:1 Scale

6



APR 24/79

D. Aron

The rear panel will be printed with the usual warnings such as "No User Servicable Parts....", etc, along with the connections for the load and the fuse sizes along with all other pertinent data.

TOP VIEW OF

R6 AND R3A
R6m R3Am

1/2 SCALE
R7, R7M, R8, R8M

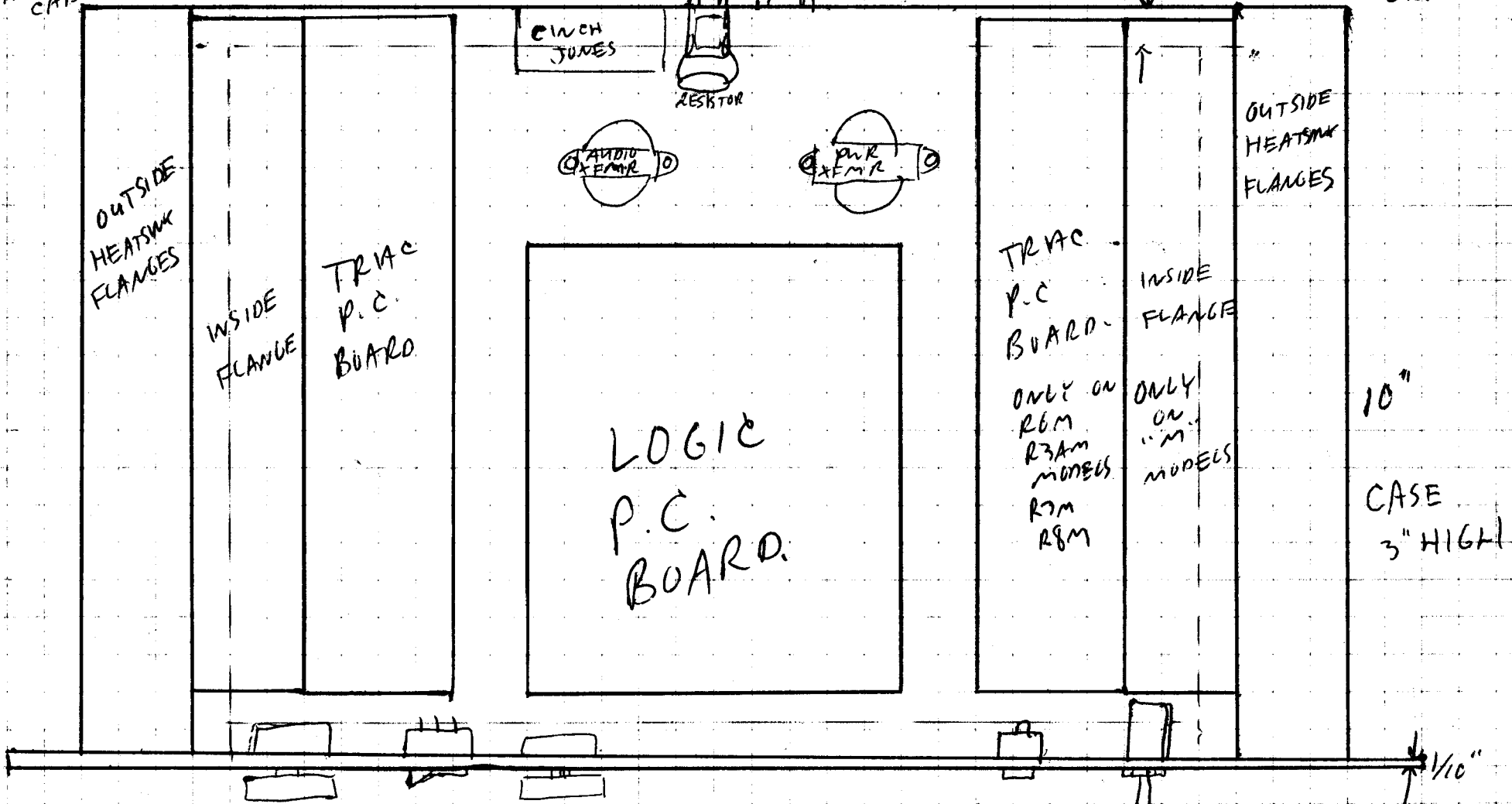
(7)

NO OPENINGS
OVER 1/10" Ø OF
ANY SORT IN
CABINET.

AUDIO INPUT
JACK FROM
INSULATED
CHASSIS

FUSE ABOVE
POWER
CORD
PWR
CORD

1/2" LIP ON TOP
OF CONTROLLER TO
SECURE
LID.



CINCH
JONES

RESISTOR

AUDIO
EXTR

PWR
EXTR

OUTSIDE
HEATSINK
FLANGES

INSIDE
FLANGE

TRAC
P.C.
BOARD

LOGIC
P.C.
BOARD

TRAC
P.C.
BOARD

INSIDE
FLANGE

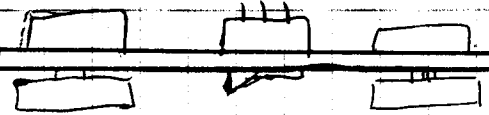
ONLY ON
R6M
R3Am
MODELS
R7M
R8M

ONLY
ON
"M"
MODELS

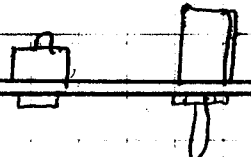
OUTSIDE
HEATSINK
FLANGES

10"

CASE
3" HIGH



CONTROLS

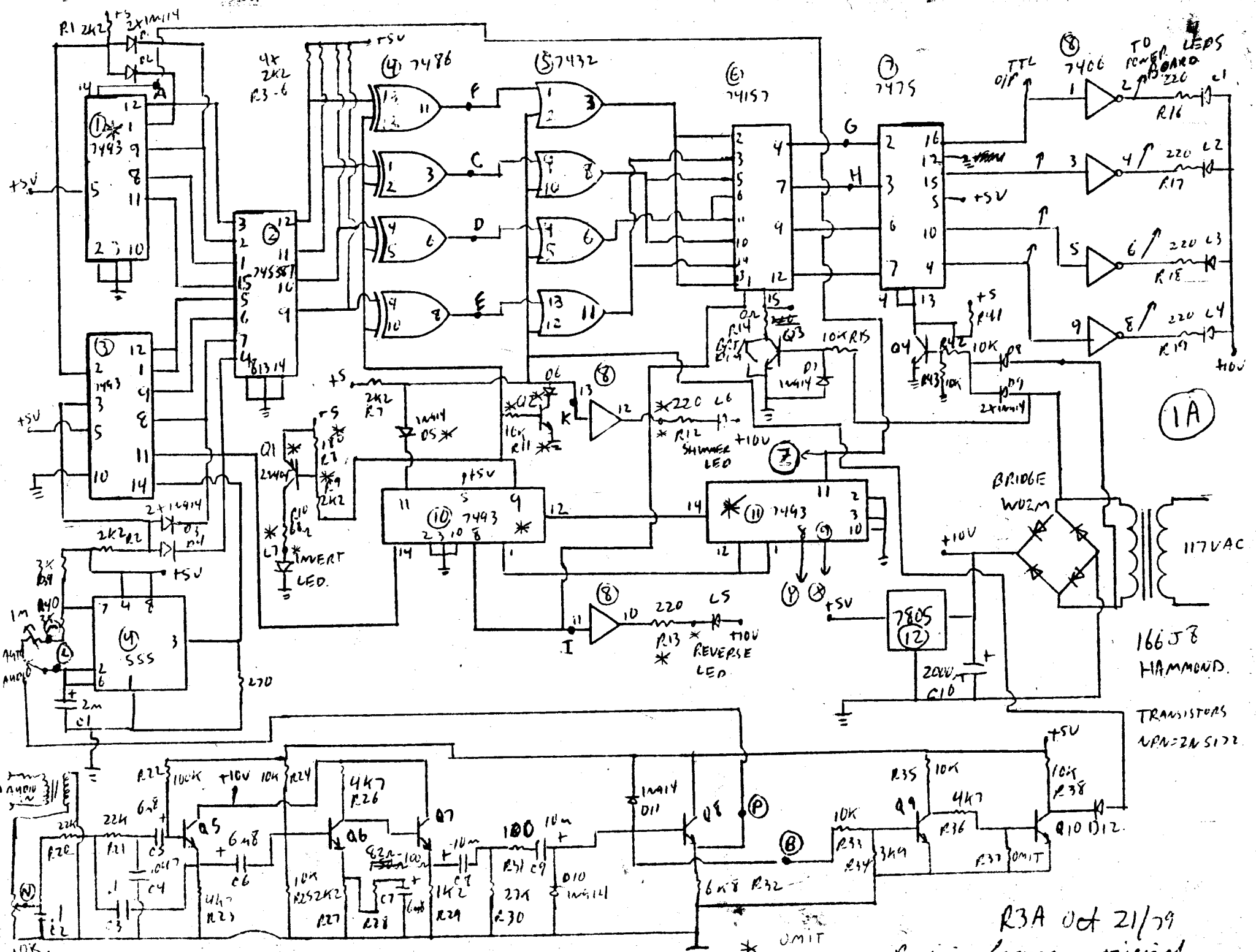


POWER
SWITCH

- WILL CLEAR
FLANGE BY 3/8"
- WIRING TO BE AT LEAST
1/2" FROM ABOVE FLANGE
POWER SWITCH

19"
PANEL
3 1/2" HIGH

Daniel A. Rossi
Sept 24/79



IA

166J8
HAMMOND.

TRANSISTORS
NPN=2N5172

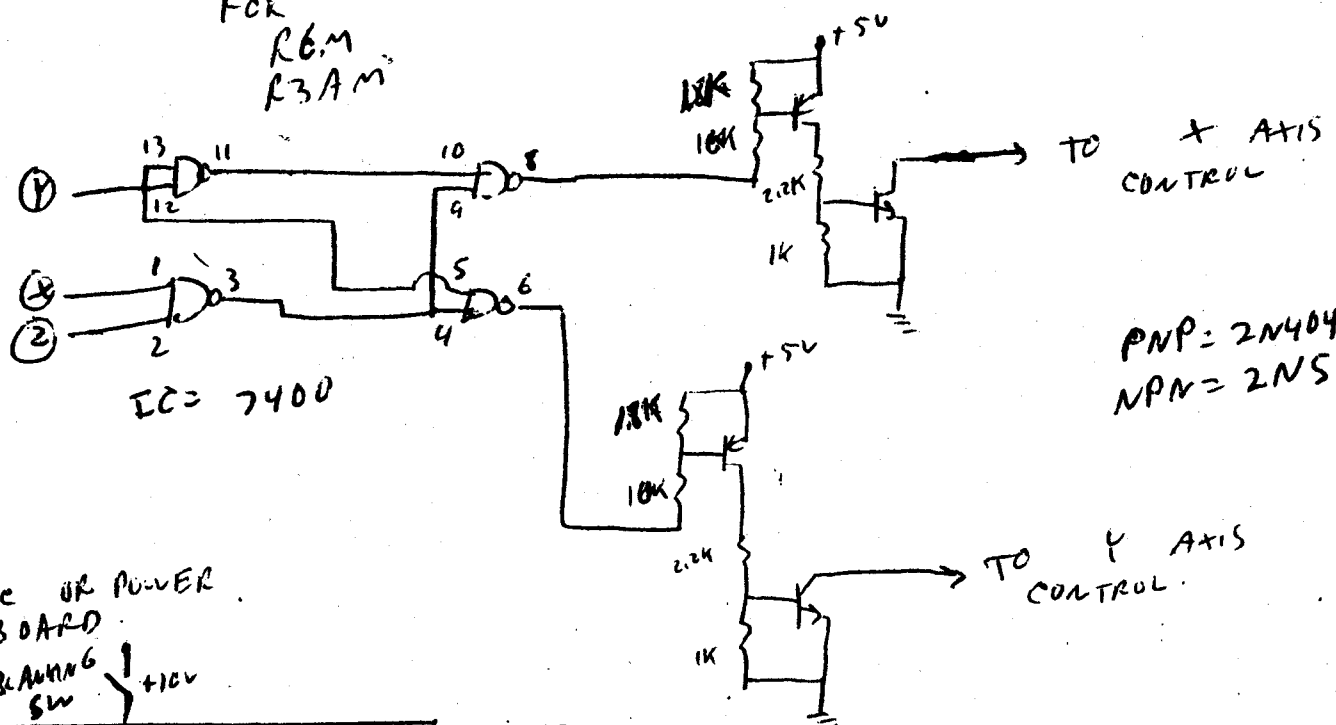
R3A Oct 21/79
Revised from original

* OMIT
ON

R6.
R3A

MATRIX OPTION
FOR
R6.M
R3A.M

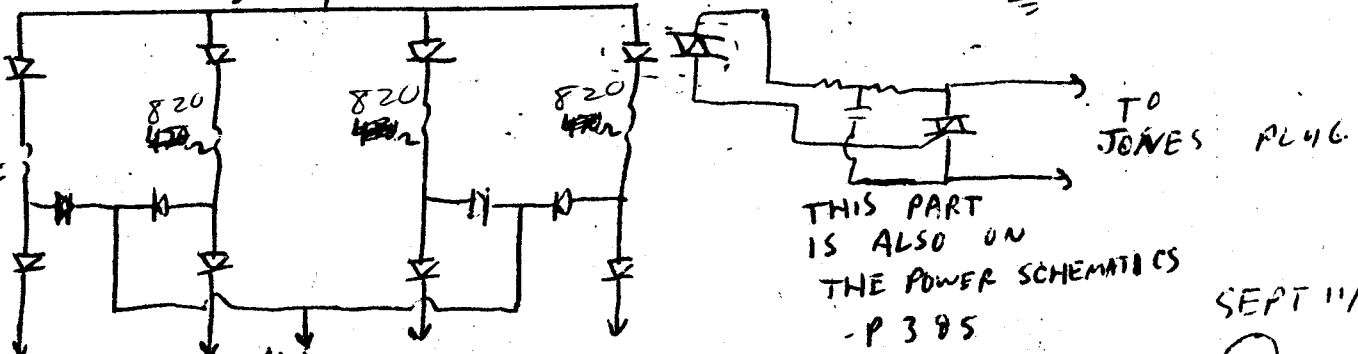
FROM
R3, R6
LOGIC
P.C.B.



PNP = 2N404
NPN = 2N5172

TRIAC OR POWER
BOARD
BLANKING
SW

4-DPTOS
MOC3010
MOC3011



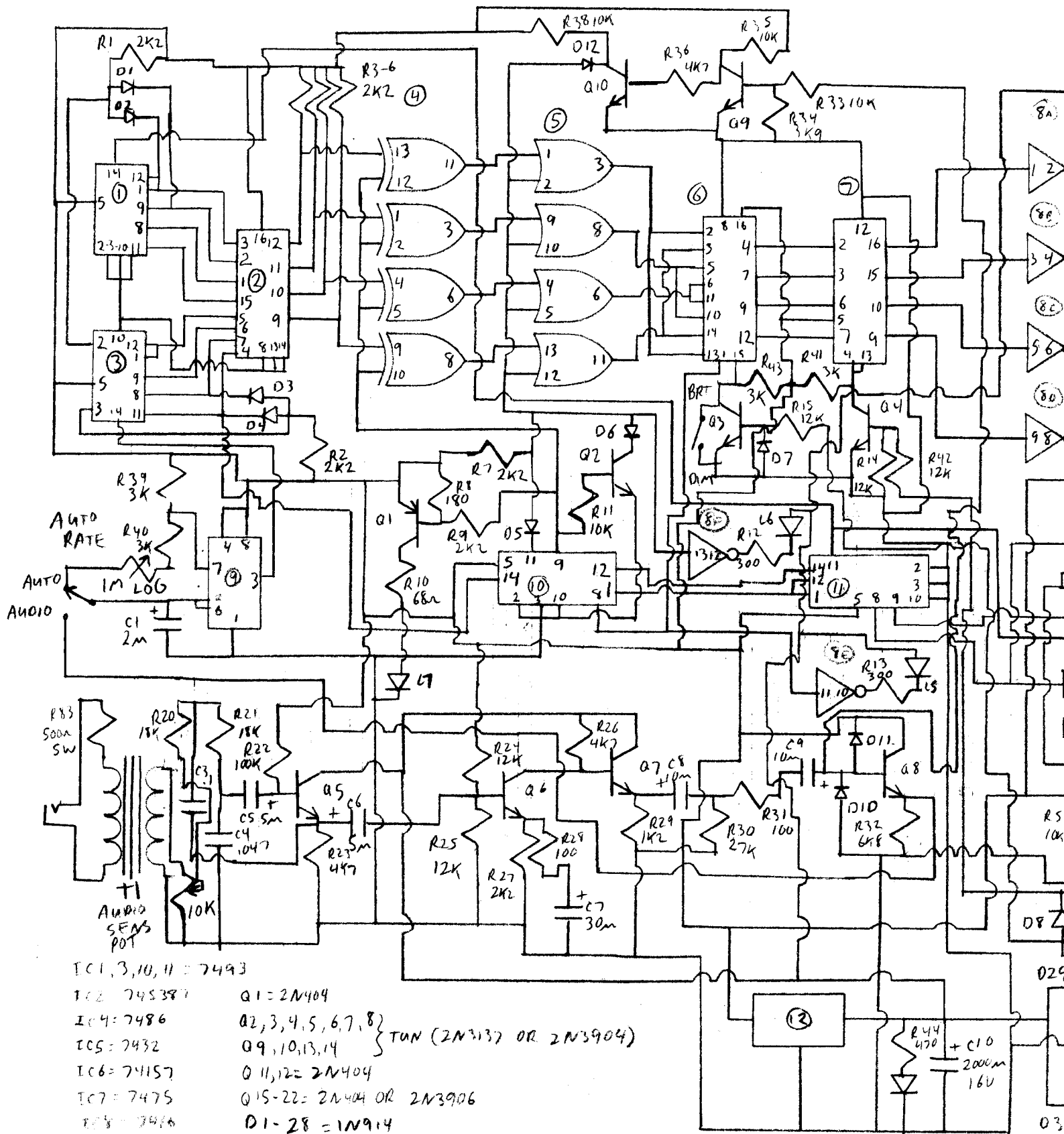
DIODES OMITTED
ON NON-MATRIX
MODELS

THIS PART
IS ALSO ON
THE POWER SCHEMATICS
- P 385

SEPT 11/79

Daniel F...

R7M AND
R8M TO
HAVE MANUAL
AXIS CONTROL
SWITCHES.



IC1, 3, 10, 11 = 7493

IC2 = 745387

IC4 = 7486

IC5 = 7432

IC6 = 74157

IC7 = 7475

IC8 = 7476

IC9 = 555

IC12 = 7805

IC13 = 7400

Q1 = 2N404

Q2, 3, 4, 5, 6, 7, 8 } TAN (2N3137 OR 2N3904)

Q9, 10, 13, 14

Q11, 12 = 2N404

Q15-22 = 2N404 OR 2N3906

D1-28 = 1N914

D29-32, 35-36 = 1N4001

D33-34, 37-38 = 4.3V 1WATT

L1-4 = TIL220 RED LED

LS-7 = TIL224 YELLOW LED

O1-8 = TIL111 OR IL-1 OPTO COUPLER

T1 = 20:1 TURNS RATIO

T2 = 2 X 8.5V 1A XFMR (USE 9-0-9 SEC)

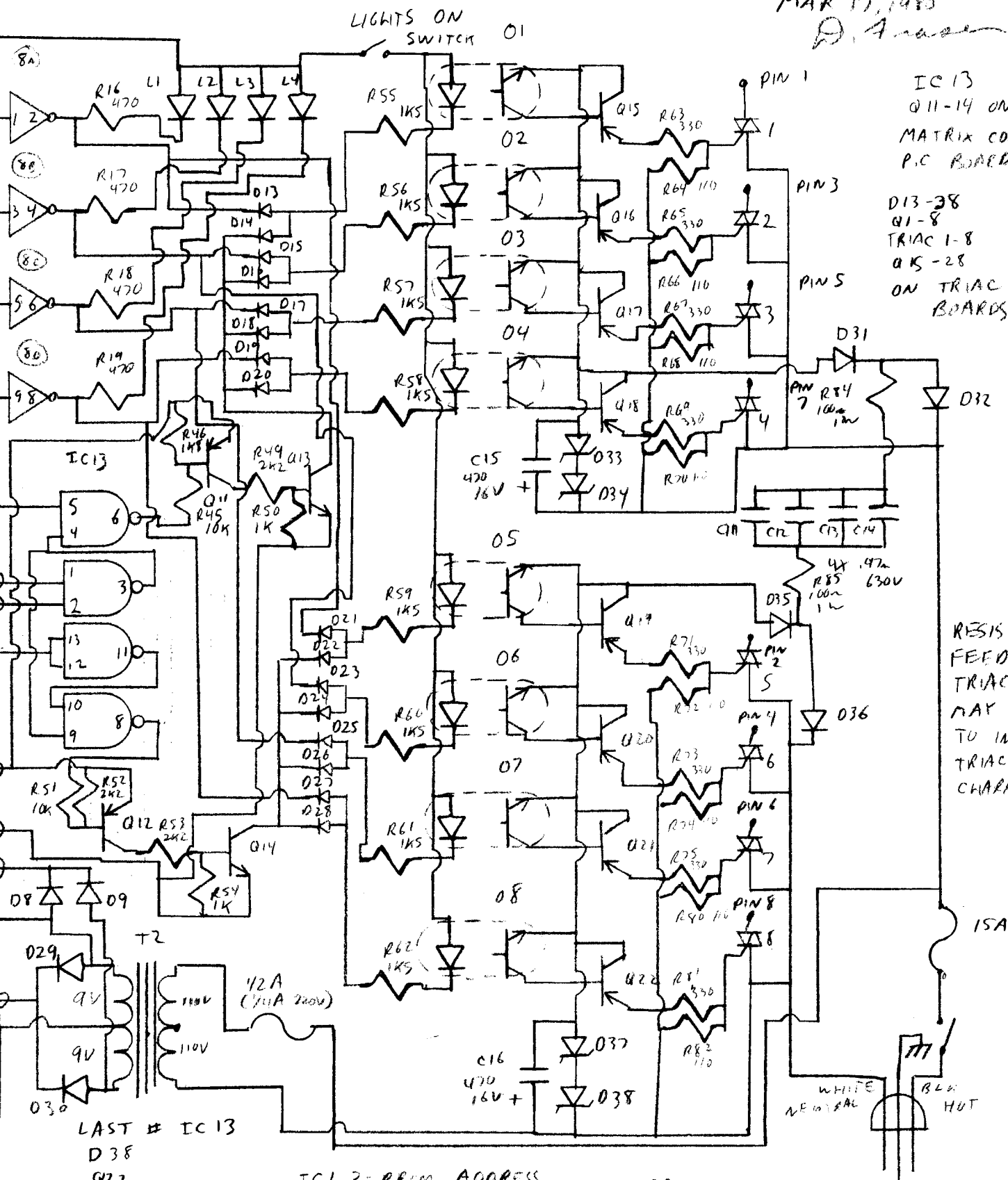
TRIACS:

1T48 = 8AMP 400V HUTSON TRIAC

= USE TIC 246D OR SC142D G.E. TEXAS

R3A - 220 VOLT FOR

SOUND + LIGHTSHOW AG
 BASEL SWITZERLAND
 MAR 17, 1983
 D. A. [signature]



IC 13
 Q11-14 ON
 MATRIX CONTROL
 P.C BOARD
 D13-28
 Q1-8
 TRIAC 1-8
 Q5-28
 ON TRIAC
 BOARDS.

RESISTOR VALUES
 FEEDING
 TRIACS
 MAY VARY
 TO INDIVIDUAL
 TRIAC
 CHARACTERISTICS.

LAST # IC 13
 D38
 Q22
 R85
 C16
 L7
 Q8
 TRIAC 8

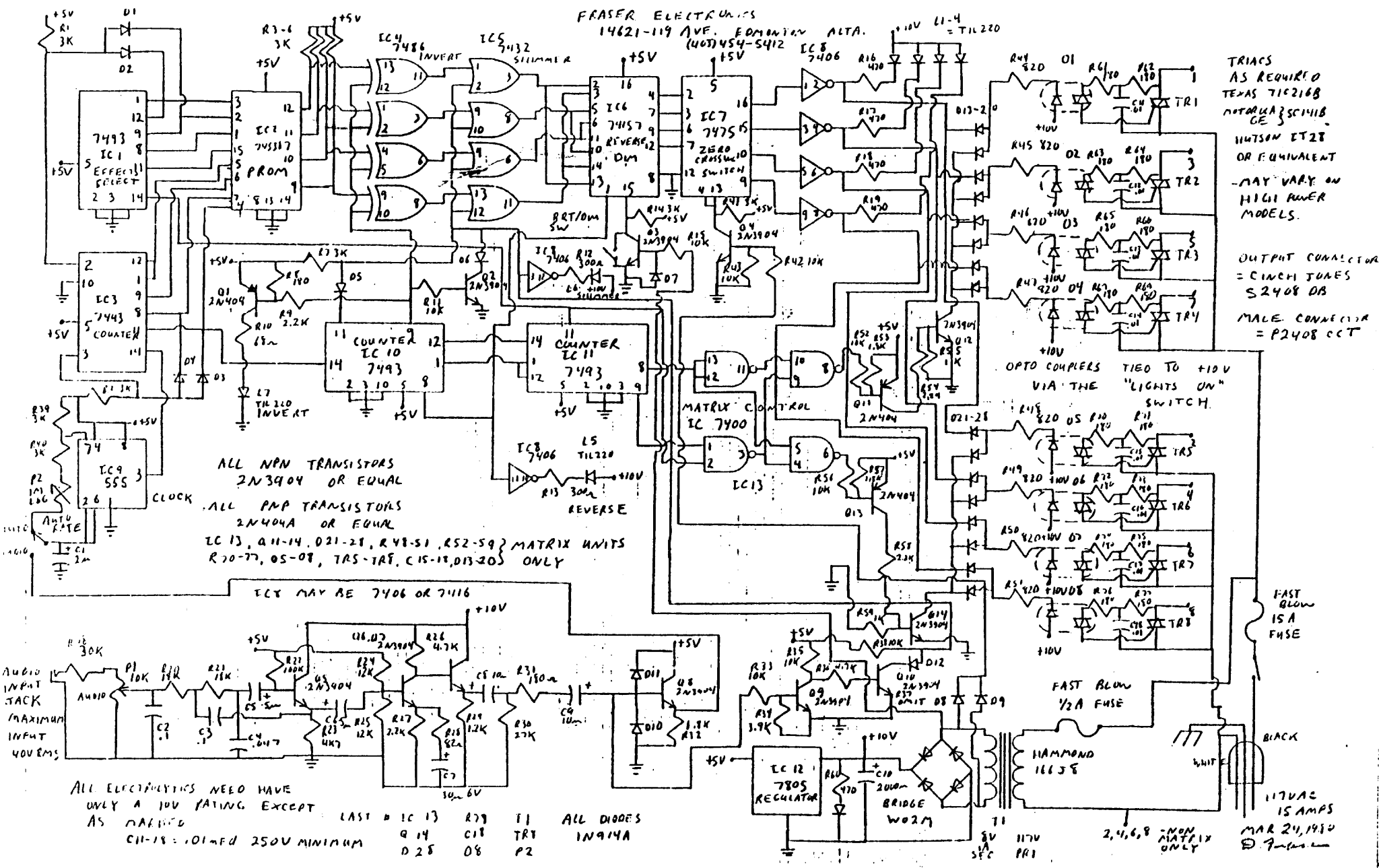
IC1,3 = PROM ADDRESS
 IC2 = PROM
 IC4 = INVERT
 IC5 = SHIMMER
 IC6 = REVERSE / DIM
 IC7 = ZERO CROSSING

IC8 = DRIVER
 IC9 = CLOCK
 IC10,11 = AUTOMATIC EFFECT CHANGE
 IC12 = REGULATOR
 IC13 = MATRIX CONTROL

S.E.

FRASER ELECTRONICS R3A LIGHTING CONTROLLER

FRASER ELECTRONICS
14621-119 AVE. EDMONTON ALTA.
(407) 454-5412



ALL NPN TRANSISTORS
2N3904 OR EQUAL

ALL PNP TRANSISTORS
2N404A OR EQUAL

IC 13, Q11-14, Q21-28, R48-51, R52-59, MATRIX UNITS
R70-77, Q5-08, TR5-TR8, C15-18, D13-20 ONLY

IC1 MAY BE 7406 OR 7416

ALL ELECTROLYTICS NEED HAVE
ONLY A 10V RATING EXCEPT LAST D IC 13

AS MARKED

C11-18 = 0.01MFD 250V MINIMUM

LAST D IC 13 R79 F1
Q14 C18 TR1
D28 D8 P2

ALL DIODES
1N914A

TRIACS
AS REQUIRED
TEXAS TIC2168
MOTOROLA SC1418
GE

HUTSON ET28
OR EQUIVALENT

-MAY VARY ON
HIGH POWER
MODELS.

OUTPUT CONNECTOR
= CINCH JONES
S2408 DB

MALE CONNECTOR
= P2408 CCT

OPTO COUPLERS TIED TO +10V
VIA THE "LIGHTS ON"
SWITCH.

FAST BLOW
15A
FUSE

FAST BLOW
1/2A
FUSE

117VAC
15AMPS
MAR 24, 1980
D 9-6-80