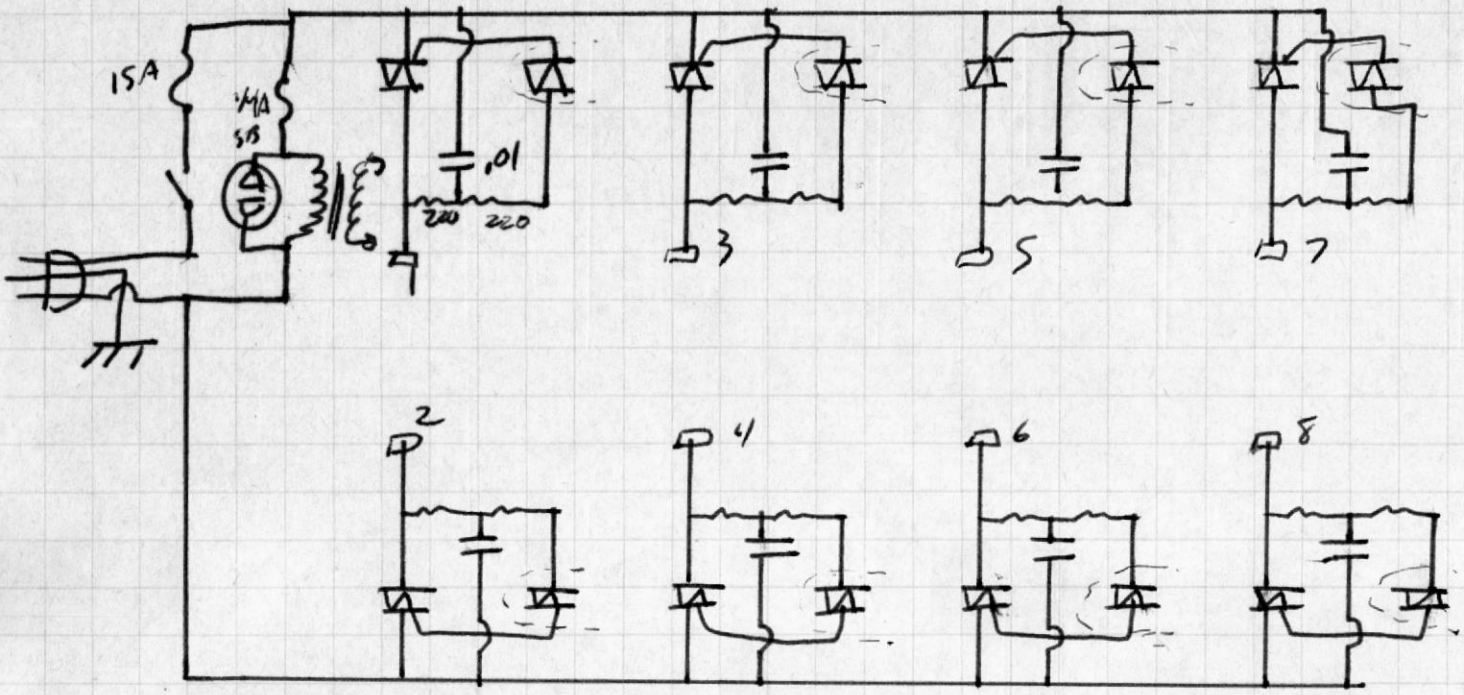
R3AM +R6M POWER CIRCUITS

(5)



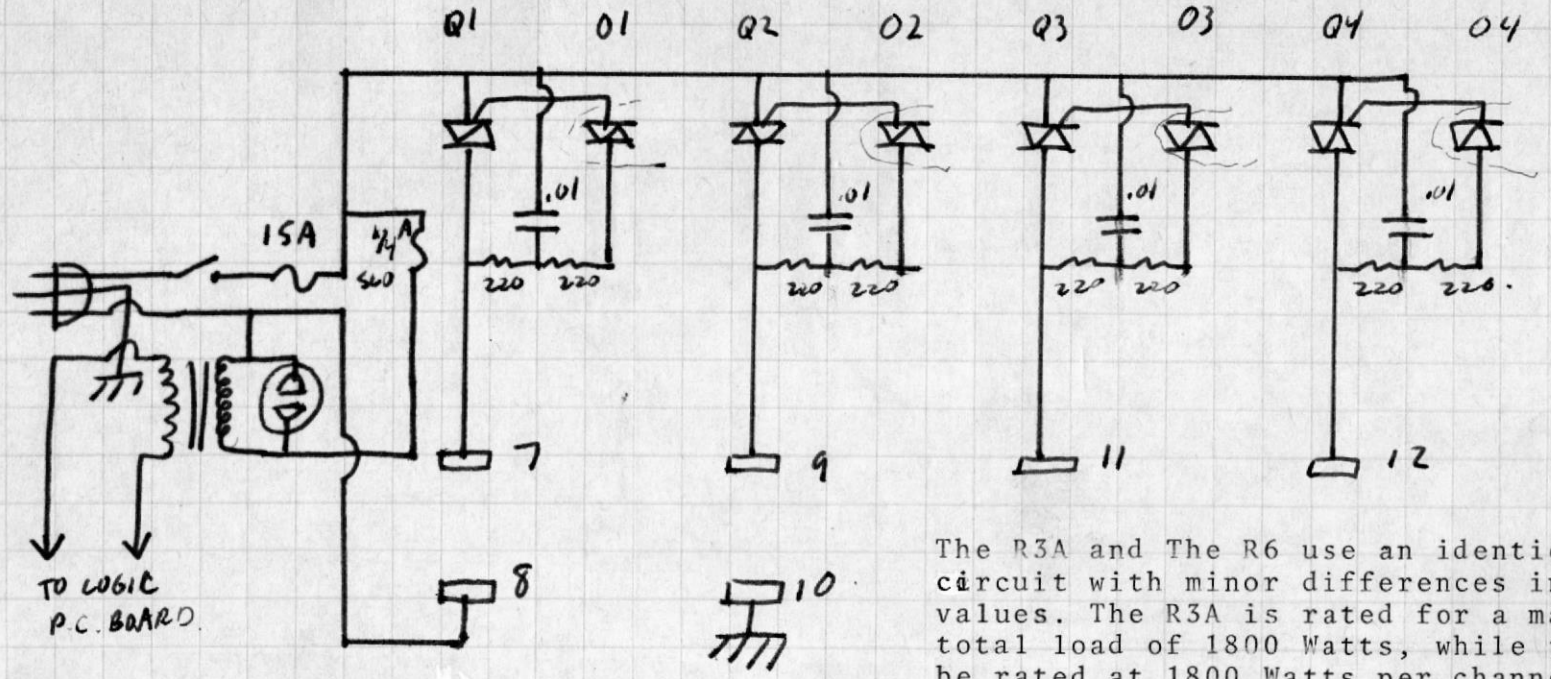
The R3AM and the R6M are a modification of the Standard R3A and R6 with an additional triac board included to allow MATRIX effects, also known as STARBURST eff-cts, where the lights will chase in pattern on 2 axis. Other than the changes shown above, and the inclusion of a matrix control board measuring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

Otherwise, see page 3 for details

Sept 13/79
Daniel Fraser.

R3A R6 POWER CIRCUITS



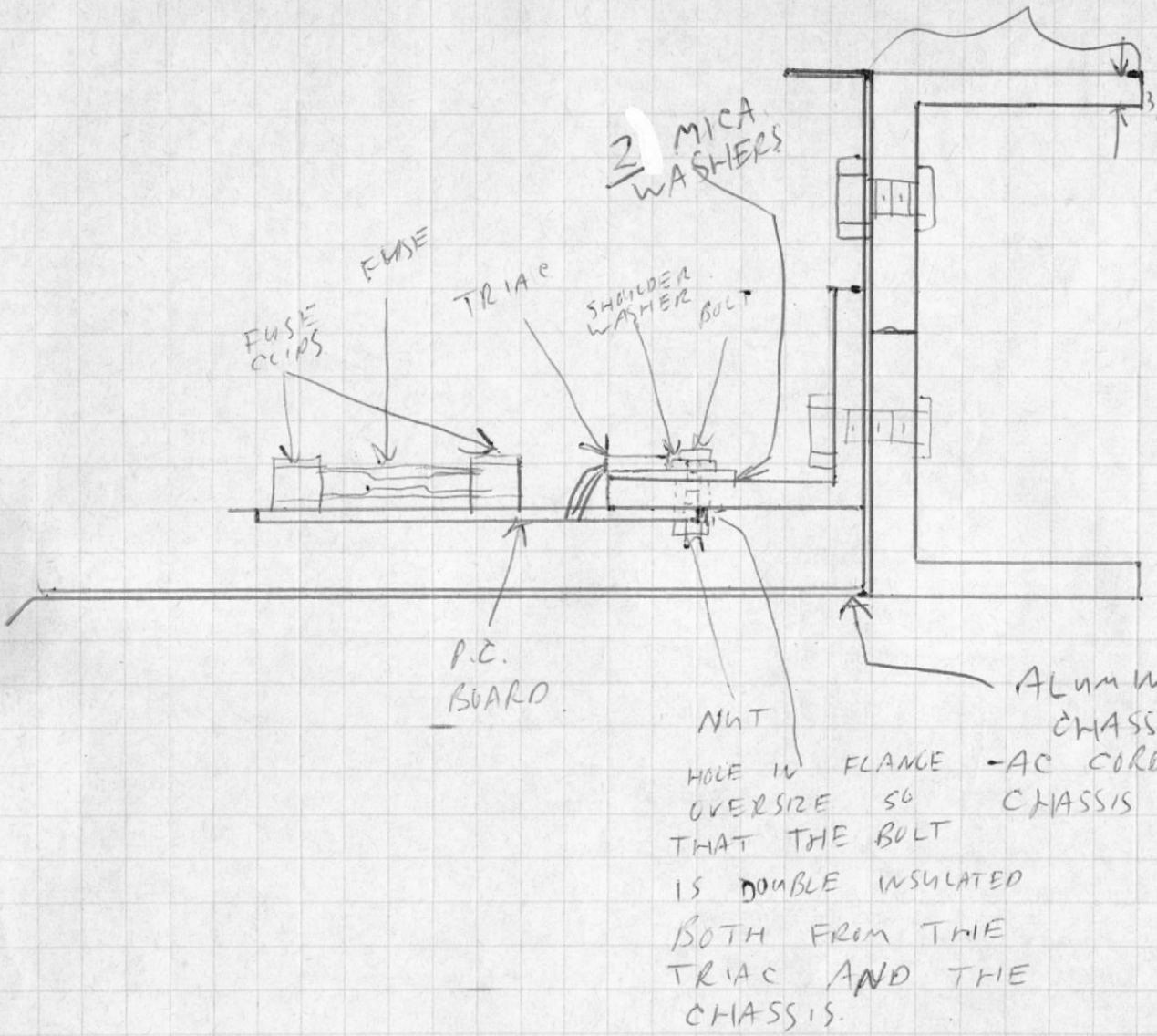
The R3A and The R6 use an identical power circuit with minor differences in component values. The R3A is rated for a maximum total load of 1800 Watts, while the R6 will be rated at 1800 Watts per channel. The logic in the R6 will only permit only one out of the four channels to be turned on at any one 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 ½A 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. Fraser

R3A, R3Am, R6, R6M, R7, R7m, R8, R8M CUTAWAY VIEW OF CHASSIS

1:1 scale.

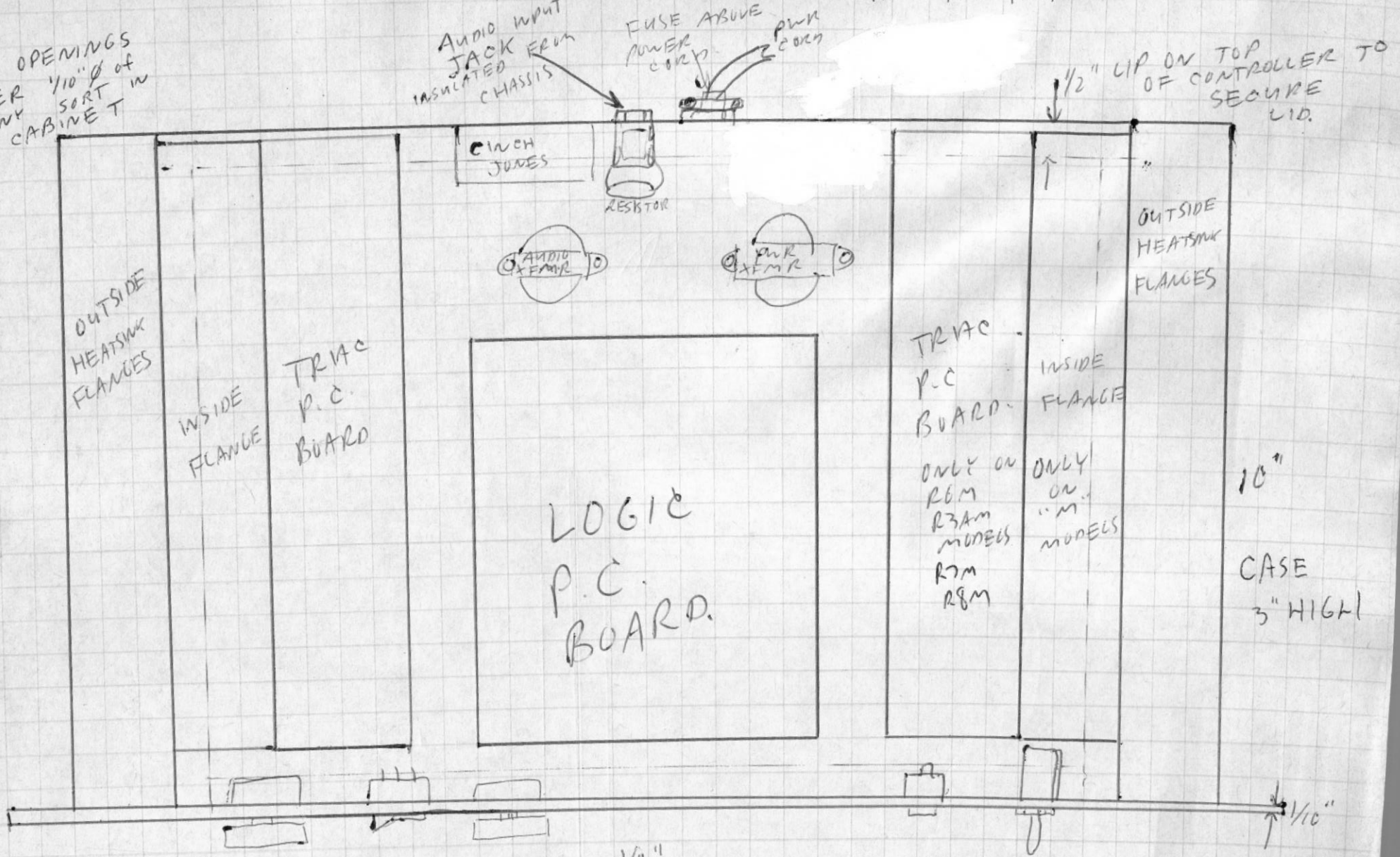


Rev A 24/79
D. Ames.

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.

OUTPUT SOCKET	- RENFREW ELECTRIC	TORONTO	5.00
HEAT SINK FLANGES	- RIO ALGOM MINING	CANADA.	3.00
PRINTED CIRCUITS	- VA ADDISON TV PARTS	MONTREAL	2.00
CASE	W.C. MFG	EDMONTON	28.00
+ EMR	HAMMOND MFG	GUELPH ONT	6.50
ANODIZING FRONT PANEL	- PERMALLOY MFG	EDMONTON	8.00

TOP VIEW OF R6 AND R3A
R6M R3AM
R7, R7M, R8, R8M



Daniel Frank
Sept 24/79

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 deaired, 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 seperate 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.

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

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 ase 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 thr 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 defectice 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.

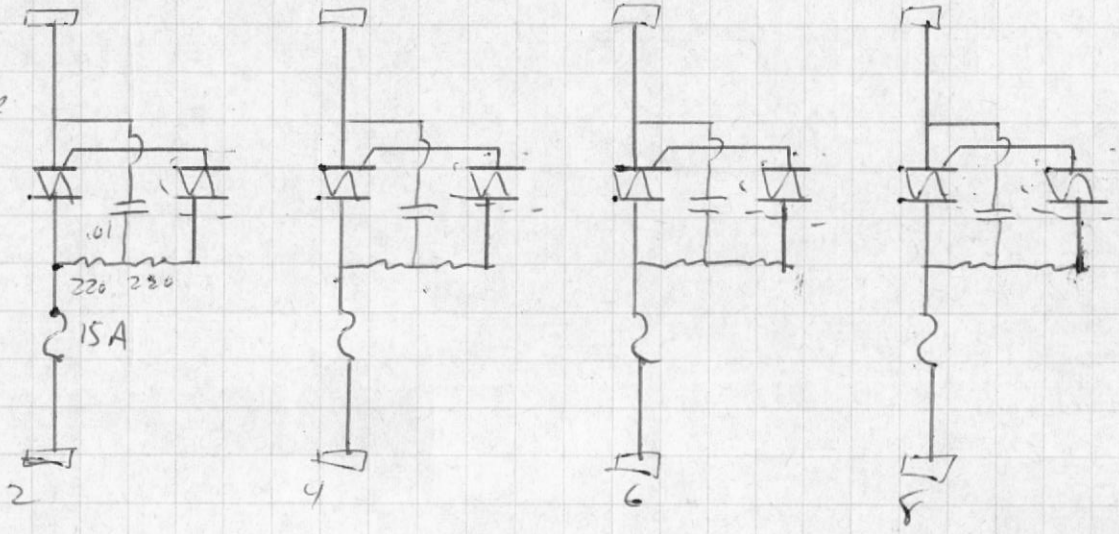
On the R7M types there is a small three position toggle switch mounted above the Auto/Audio switch. This controls the direction on the matrix.

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 c-rcuit. 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
R3AM POWER CIRCUITS.

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 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 S2408AB CSA # 14279
- OTHERWISE -SE R6L POWER CIRCUIT FOR DETAILS.

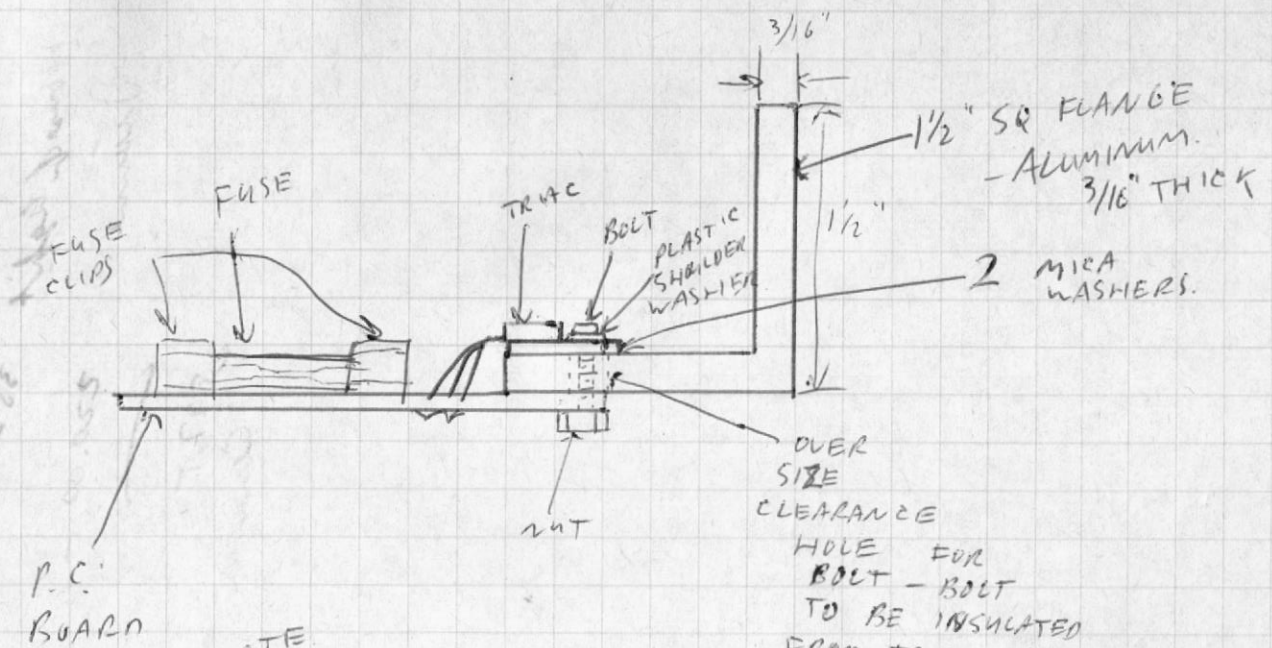
THE R3AM WILL BE THE SAME AS THE R3A BUT THERE WILL BE 8 TRIACS AND 2 S2408AB CONNECTORS TO ACCOMPLISH THE MATRIX FUNCTION

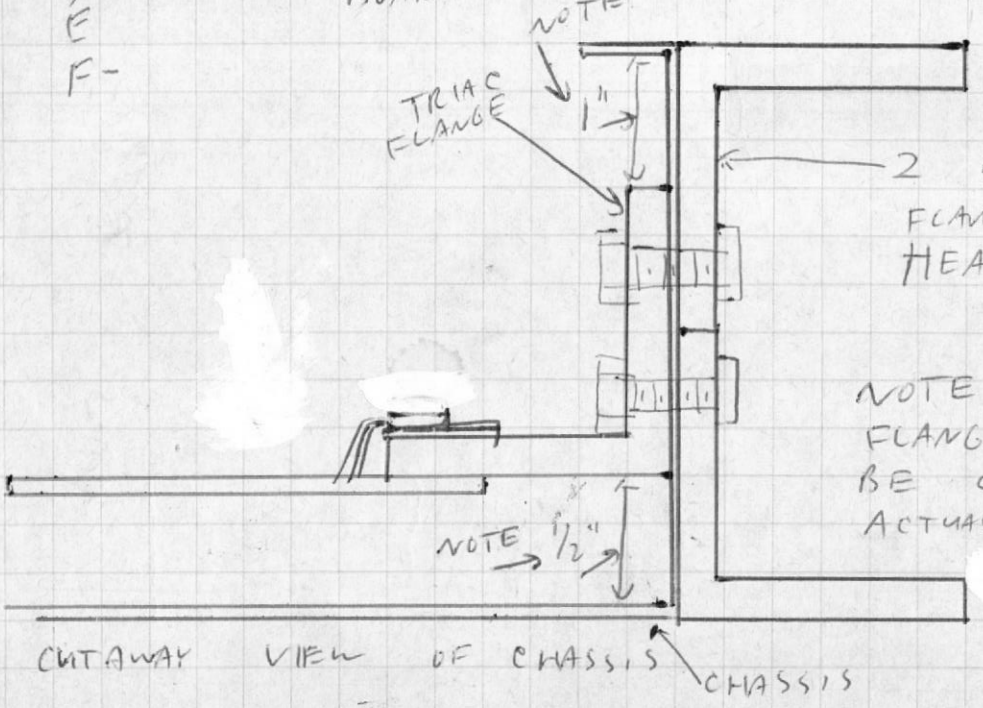
Daniel Troxen.
Sept 24/79

United	542.00
KRS	210.00
	400.00
ASE	
Cable Kurs	750.00
	≈ 2500.00
Sheraton	
	425.00
Auto Disco	350.00
House of Light	
	220.00
Drums	
	2597 +
	Caravan

AMEX	1350.00	Current
Les Thuste	42.50	
	35.00	
Keith	5,000.00	

0 0 0 0	0
0 0 0 1	1
0 0 1 0	2
0 0 1 1	3
0 1 0 0	4
0 1 0 1	5
0 1 1 0	6
0 1 1 1	7
1 0 0 0	8
1 0 0 1	9
1 0 1 0	A
1 0 1 1	B
1 1 0 0	C
1 1 0 1	D
1 1 1 0	E
1 1 1 1	F





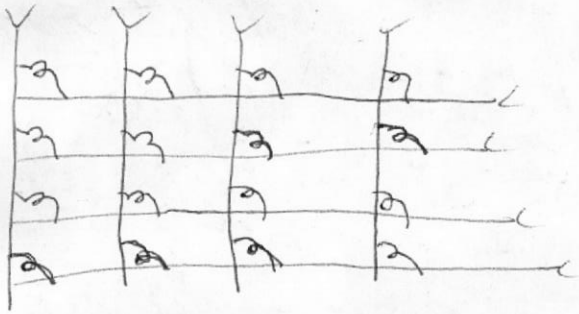
CUTAWAY VIEW OF CHASSIS

1:1 SCALE

LAMP CONNECTION

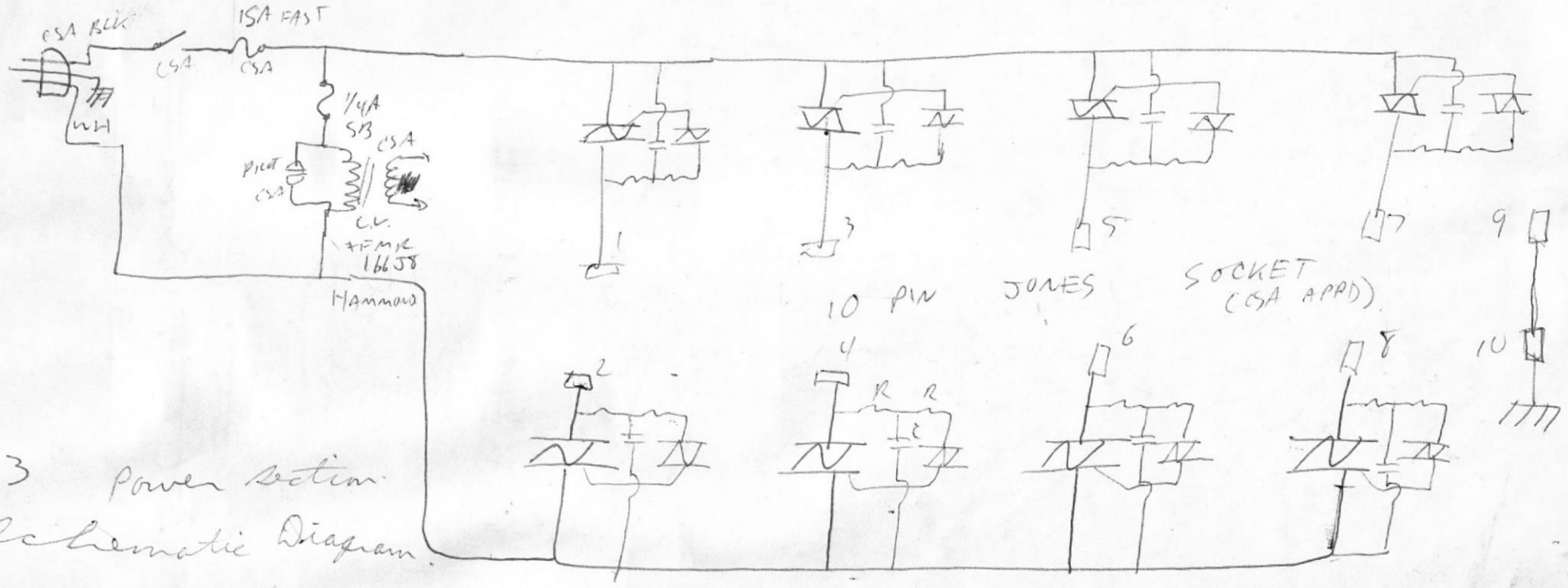
— Bulbs used in multiples of 16.

ODD PINS 1-7



EVEN 2-8 PINS

PINS 9 and 10 are third wire common earth ground.



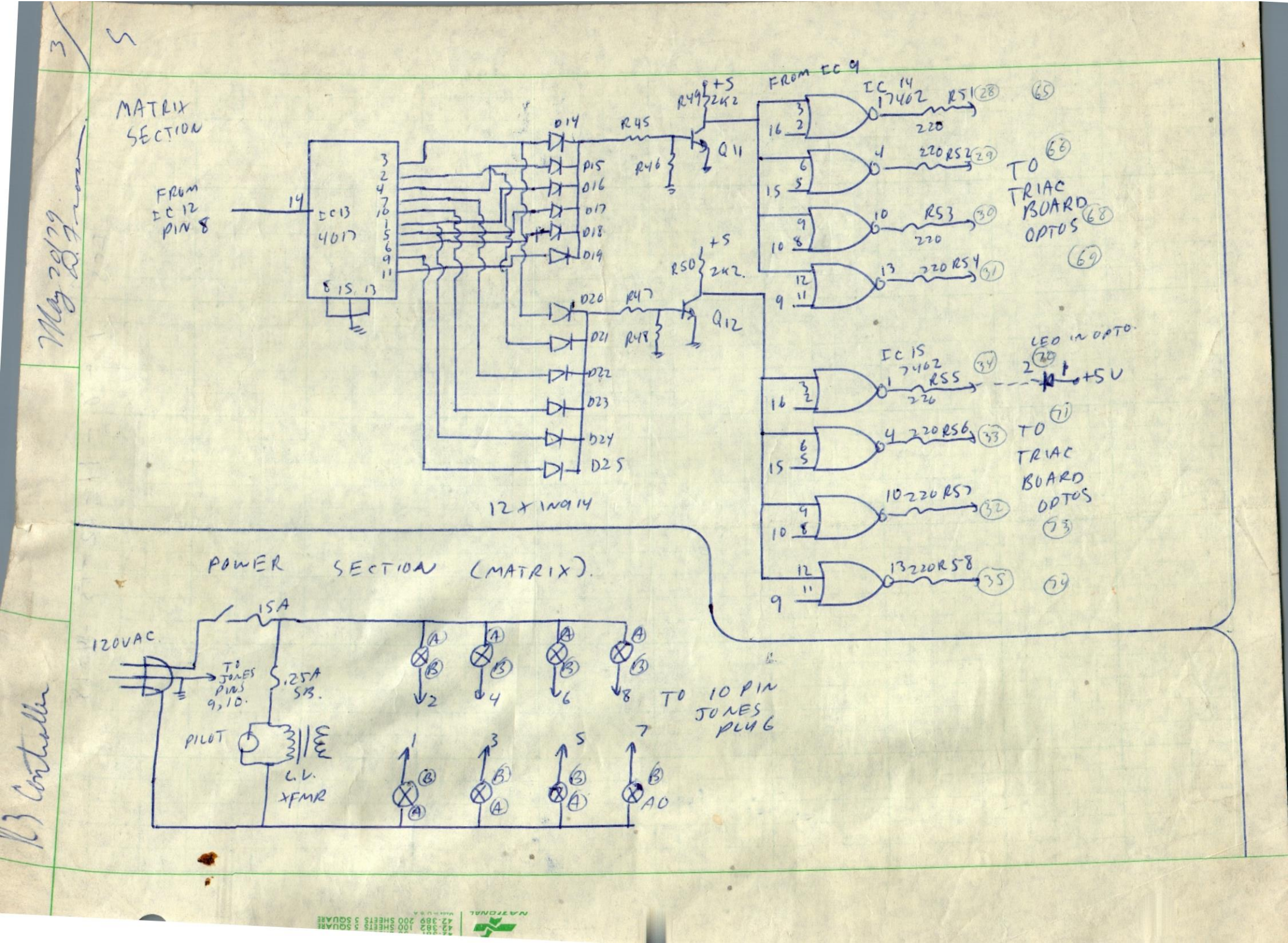
R3 Power section
Schematic Diagram

All 16 Resistors = 220Ω 2W ½ W
all 8 Capacitors = .01μF 250V min.
all Triacs - GESC142B or equal. (UL)
all Optos - Motorola MOC3010 or MOC3011 (UL APPD)

June 8/79
D. Fross

OMIT

Ecs 1 - 8 - 11 - 12 - 13 - 14 - 15 .

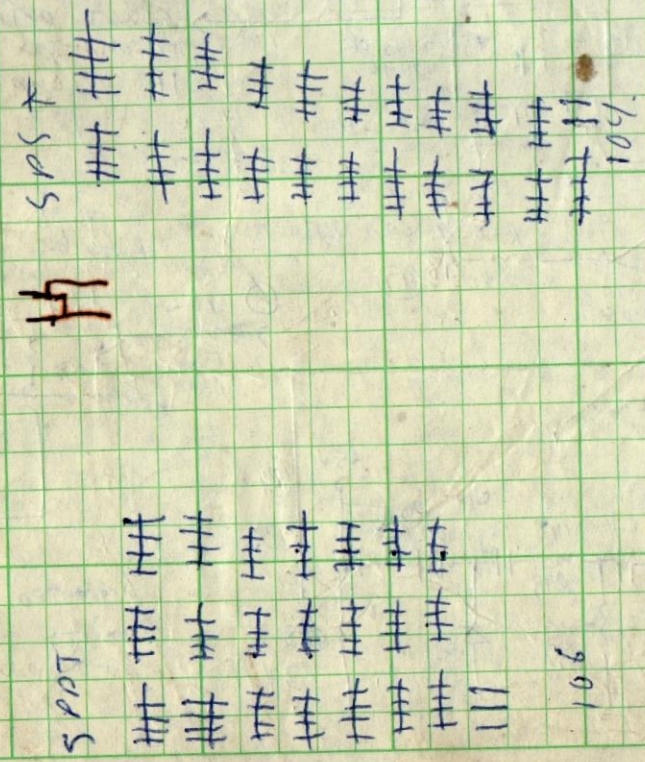

MATRIX SECTION
FROM IC 12 PIN 8
14
IC 13 4017
3 2 4 7 10 1 5 6 9 11
8 15 13
D14
D15
D16
D17
D18
D19
D20
D21
D22
D23
D24
D25
12 x IN914
R45
R46
R47
R48
R49 +5 2K2
R50 +5 2K2.
Q11
Q12
FROM IC 9
IC 14 7402
R51 220
220 RS2
RS3 220
220 RS4
IC 15 7402
RS5 220
220 RS6
10 220 RS7
13 220 RS8
LED IN OPTO.
+5V
TO TRIAC BOARD OPTOS
TO TRIAC BOARD OPTOS
POWER SECTION (MATRIX).
120VAC
15A
TO JONES PINS 9, 10.
.25A SB.
PILOT
C.V. XFMR
TO 10 PIN JONES PLUG
A0

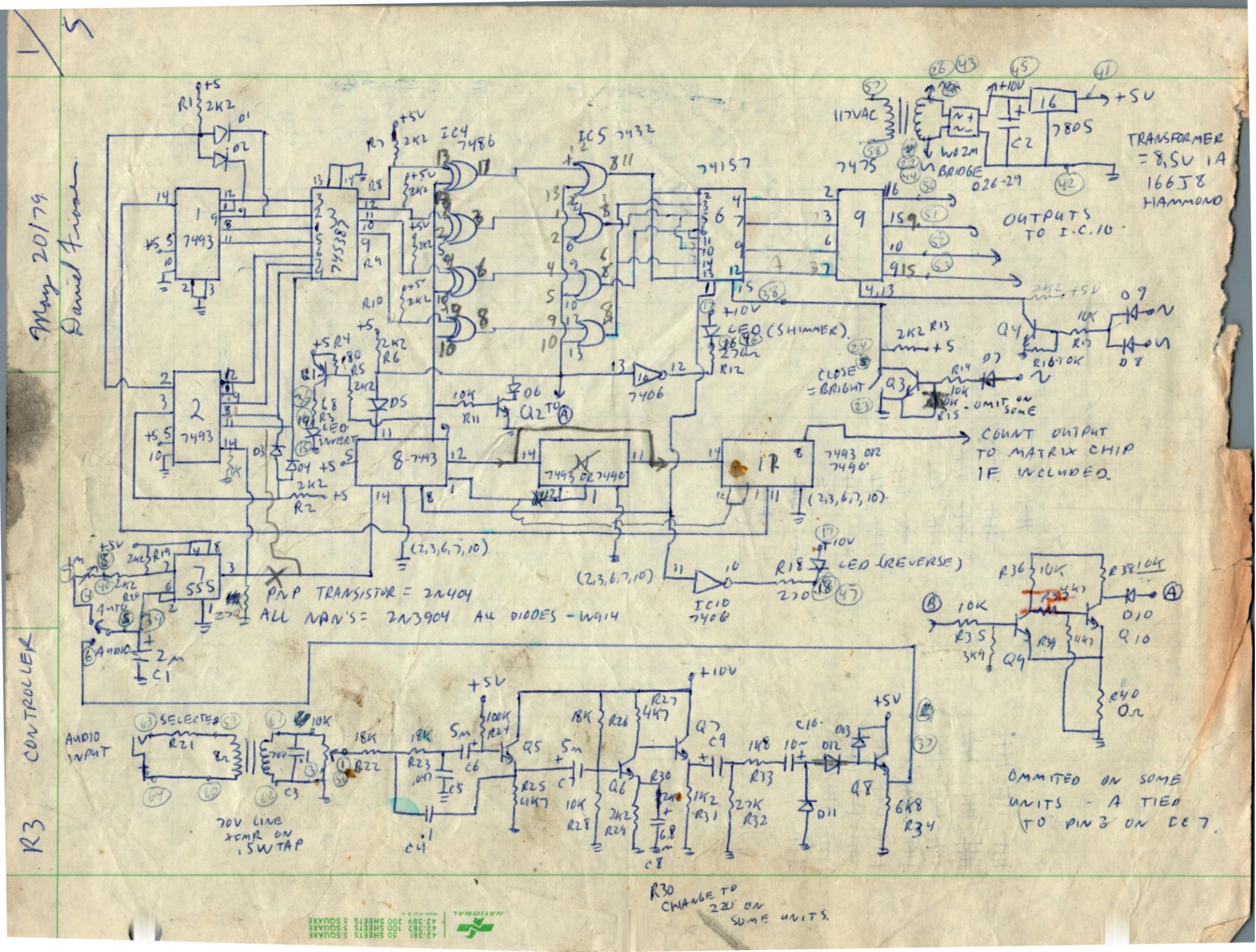
LEAVE OUT IC 11.

- CONNECT PIN 3 - IC7 DIRECT TO PIN 14 on IC 2 - NOT TO IC 8.

PIN 14 IC 8 TO PIN 11 IC 2.

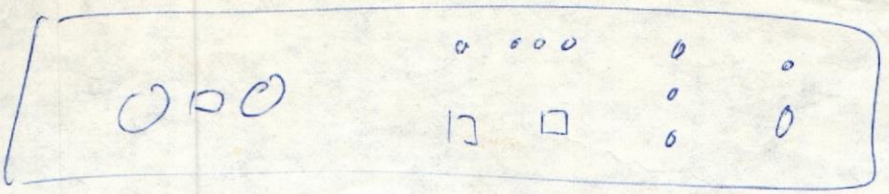
JUMPER PIN 11 TO 14 ON IC 11




May 20/79
Daniel Fraser
CONTROLLER
R3
1/5
R1 2K2
D1
D2
+5
7493
7493
7493
7493
7493
555
74S288
74LS86
IC4 7486
IC5 7432
74157
7475
117VAC
W02M BRIDGE
026-29
7805
TRANSFORMER = 8.5V 1A 166J8 HAMMOND
OUTPUTS TO I.C.10.
LED (SHIMMER).
CLOSE = BRIGHT
OMIT ON SOME
COUNT OUTPUT TO MATRIX CHIP IF INCLUDED.
7493 OR 7490
(2,3,6,7,10)
PNP TRANSISTOR = 2N404
ALL NPN'S = 2N3904 ALL DIODES - IN914
LED (REVERSE)
IC10 7406
7406
AUDIO INPUT
SELECTED
70V LINE
OMMITED ON SOME UNITS - A TIED TO PIN 3 ON IC7.
R30 CHANGE TO 22K ON SOME UNITS.


FRASER ELECTRONICS
MEMORY LIGHTING CONTROLLER
MODEL R3
BASS
LO-MID
HI-MID
TREBLE
AUTO/AUDIO
S/L
BOTH
CHASE
MANUAL
AUTOMATIC
BRIGHT
DIM
POWER
AUDIO CHASE SENSITIVITY
AUTO CHASE RATE
EFFECT CHANGE RATE
MODE CHANGE RATE
MADE IN CANADA
PROTOTYPE

R3A



The R3A is a second generation automated lighting control unit featuring 16 chase patterns stored in a PROM type memory integrated circuit. This unit is for the busy DJ who prefers to concentrate his attention to the music. Being automated it will change effects by itself, and has three modifiers to the effects which also are controlled automatically. The chase pattern changes after every 32 runs of its 12 or 16 step sequence, while the modifier combination will change every 8 runs of each pattern. The modifiers include reverse direction, invert light for dark and shimmer. The shimmer is a bass sound to light which is superimposed onto the chase pattern.

As with the other models, a Bright/Dim switch is provided along with an audio automatic triggering of the chase effects. The power rating is for an 1800 watt load but higher power ratings are available on request. As with all of our models, the R3A employs opto couplers and zero crossing switching on all four channels. A light enable switch is provided to allow the DJ to preview the effect available at any time without the lights or the dance floor to come on.

It will mean the long term preservation of our society.

Not to make a concerted international effort to develop technology to the point that Earth Ltd. can break even will mean gradual deterioration of our society, lessened less for each person and passing of world leadership to the Soviet Union.

1

Pessimism seems to be spreading like a disease through western society today. One needs only to turn on the TV or to read the newspaper to see doomsday pronouncements. They say we are running out of this and that, that we are polluting ourselves to death and are creating another ice age, though some say we will create a runaway killing our lakes with acid rain. In one way these people are correct, with todays pessimistic attitude we are heading right down that road with no return.

But, we need not go down that road. We can create the technology to avoid this eventual destruction. Some people cry out that we are going to run out of resources soon and we will if we continue to live off of them without investment.

Our earths natural resources are our working capital of Earth Ltd. Up until recently we have been using them to create the structure of a society capable of creating renewable energy sources and of going out into space and getting more. This ended in 1969 with the moon landing. Since then we have not progressed as a society and have been living off

FRASER ELECTRONICS

P.O. BOX 778 - EDMONTON, ALBERTA T5J 2L4 - (403) 428-9655

978 Statement of Self-Employment by Daniel Fraser

ncome:

Parts Sales	1249.30
Merchandise Sales	15465.00
Labor Charges	4134.75
Loan(To finance deal with Honeywell)	700.00
Total Income	21549.05

Cost of doing business:

Parts ans resale merchandise	10541.69
Shop Supplies	192.35
Shop Expenses	273.99
Technical Books and Magazines	195.82
Postage	141.64
Advertising	10.80
Tools	208.75
Duty on imported goods	121.86
Office Supplies	19.54
Misc.	244.76
Repay loan from above	345.00
Car Expenses(1398.22 less 25% for personal use)	1048.66
Casual Wages(paid to Paul Boyson-Student)	64.00
	14109.32

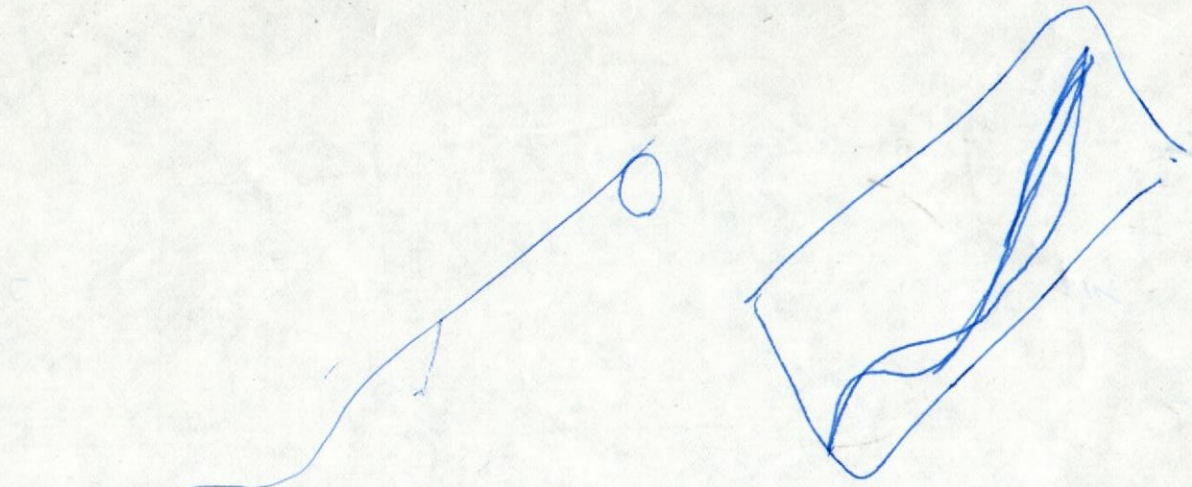
Depreciation

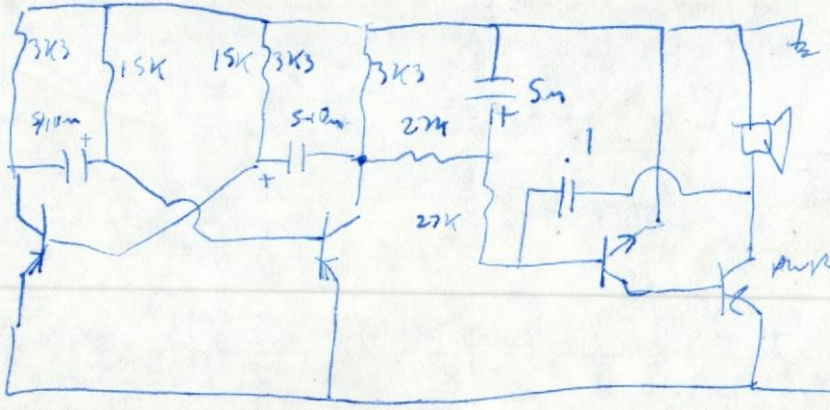
Drill Press	117.50
Oscilloscope	104.00
Test Bench Signal Generator	192.00
IM and THD Distortion analyzers	211.88
Car(757.50 less 25% for personal use)	568.13
Video Cassette recorder(220 less 50% for personal use)	110.00

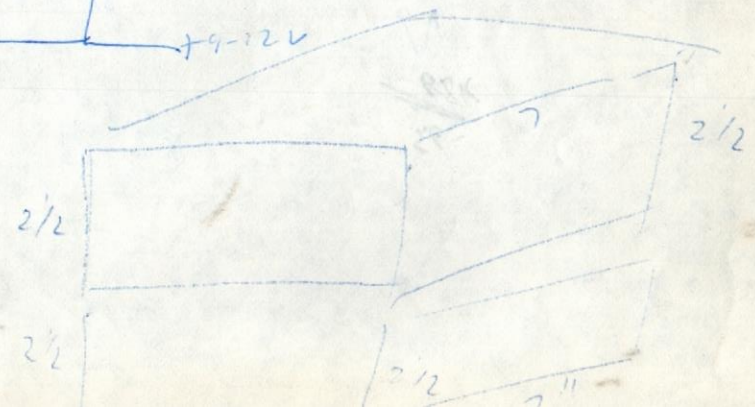
Use of home for business purposes(23% of my 50% of home used for businesspurposes.(Drill Press,Etching Machine and Warehousing))

Jan.1 to June 30-Rent at $425/mo.X6X50%X23%	293.25
Jul.1 to Dec.31-Depreciation of building-$27,000 X 10% Dep. X 6months X 50% X 23%=	155.25
Total Expenses	15861.39

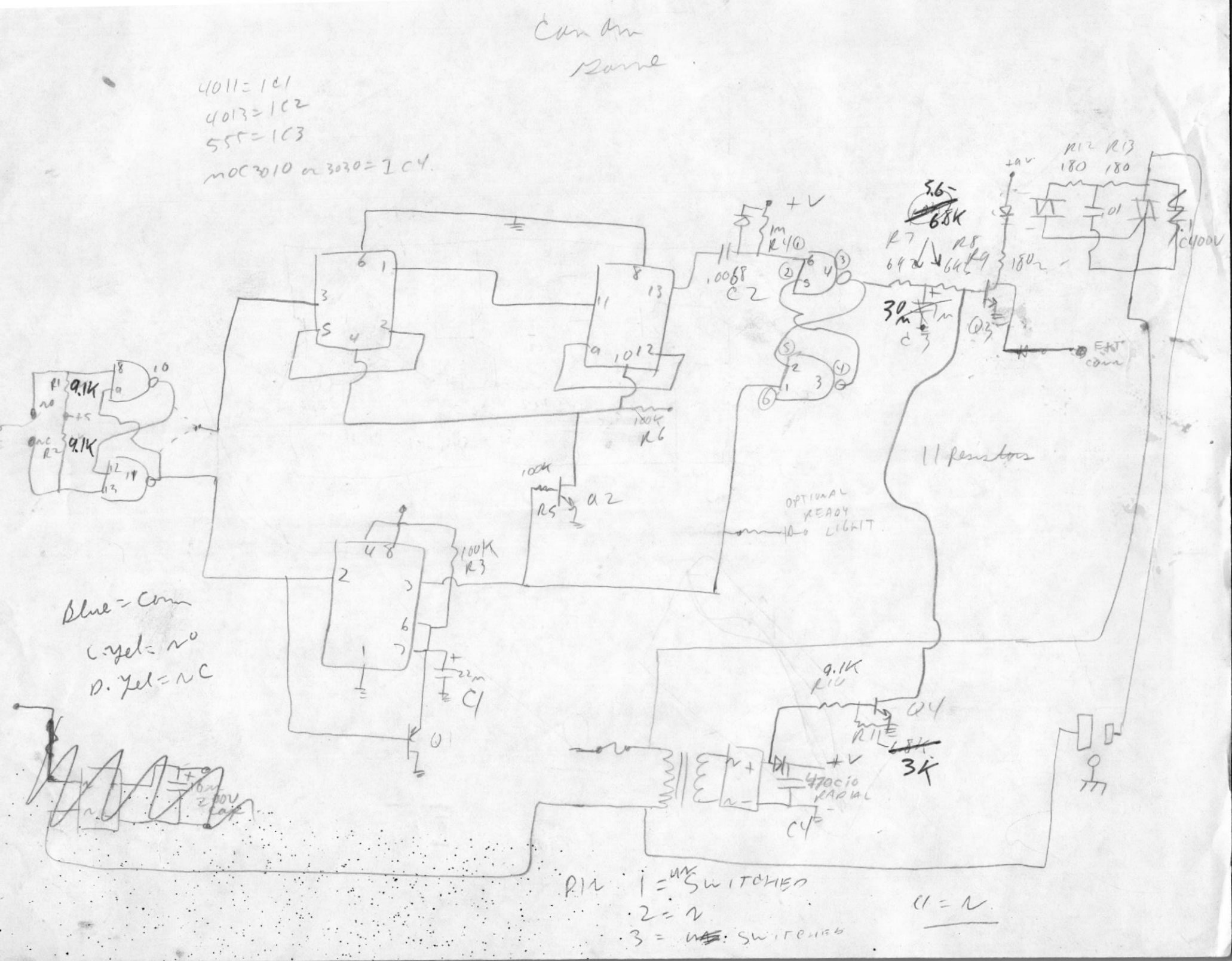
Total Income for year(Net)=5687.72




3K3
15K
15K
3K3
3K3
5m
5m10m
5m10m
27K
27K
1
siren
+9-12V


2½
2½
2½
2½

1x 1"
to 7x12"


4011 = IC1
4013 = IC2
555 = IC3
moc3010 or 3030 = IC4
Blue = Com
C. yel = N°
D. yel = NC
11 resistors
OPTIONAL READY LIGHT
EXT COM
9.1K
100K
5.6-68K
180Ω
.01
.1 400V
.0068 C2
1m
30m
22m C1
470 10 RADIAL
3K
PIN 1 = 4MS SWITCHED
2 = N
3 = NA SWITCHED
C1 = N

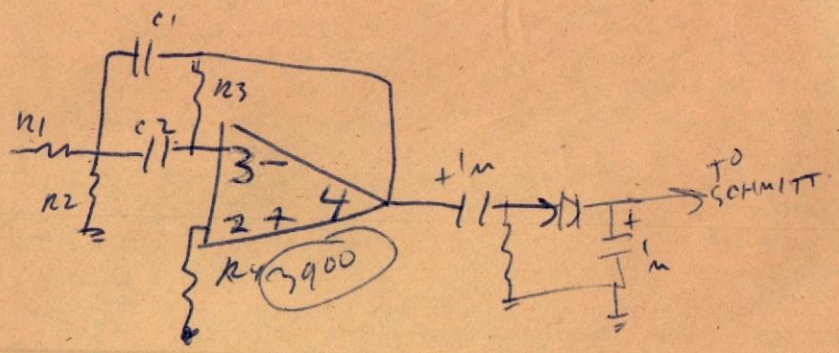
1/

$H0 = 5$

$Q = 5$

$f0 = 1KHz$

$\omega_0 = 6.28 \times 10^3$



$C1 - C2 = 10nf = 10 \times 10^{-9}$

$\omega_0 C_1 = 6.28 \times 10^3 \times 10 \times 10^{-9}$

$= 62.8 \times 10^{-6}$

$R1 = \dfrac{5}{5 + 6.28 \times 10^3 + 10 \times 10^{-9}}$

$= \dfrac{5}{5 \times 62.8 \times 10^{-6}} = .015 \times 10^6 = 15K$

$R2 = \dfrac{5}{([2 \times 5^2] - 5) \times 6.28 \times 10^3 \times 10 \times 10^{-9}} = \dfrac{5 \times 10^6}{62.8 \times 45} = .00176 \times 10^6$

$= 1.76K$

$R3 = \dfrac{2 \times 5}{6.28 \times 10^3 \times 10 \times 10^{-9}}$

$= \dfrac{10}{62.8 \times 10^{-6}} = \dfrac{10 \times 10^6}{62.8} = .159 \times 10^6$

$= 159K$

S/L = 741 -1

3900 -4

PS = 7800-1

$H0 = 10$

7.5K R1

2K R2

R1 - 15K

R2 - 1.76K = 1.8K

R3 - 159K 150K for 1K

R4 = 300K

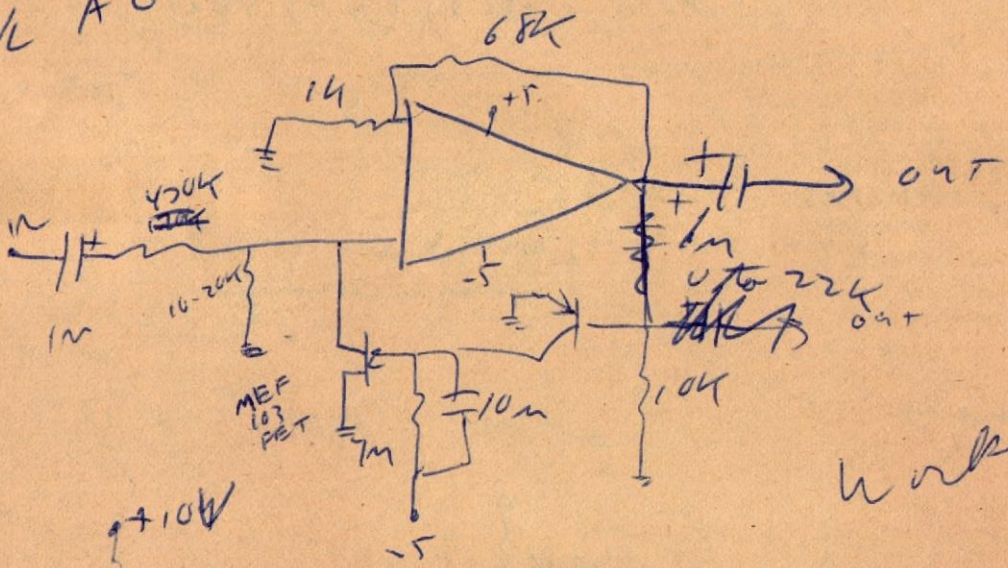
Make R4 = 2.5 × R3. 2.4-

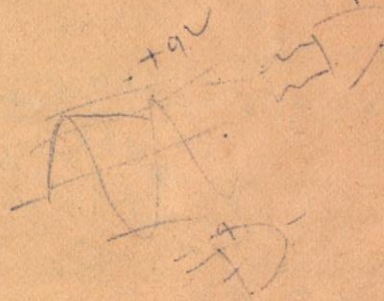
Prefer 18V

9V prob. acceptable

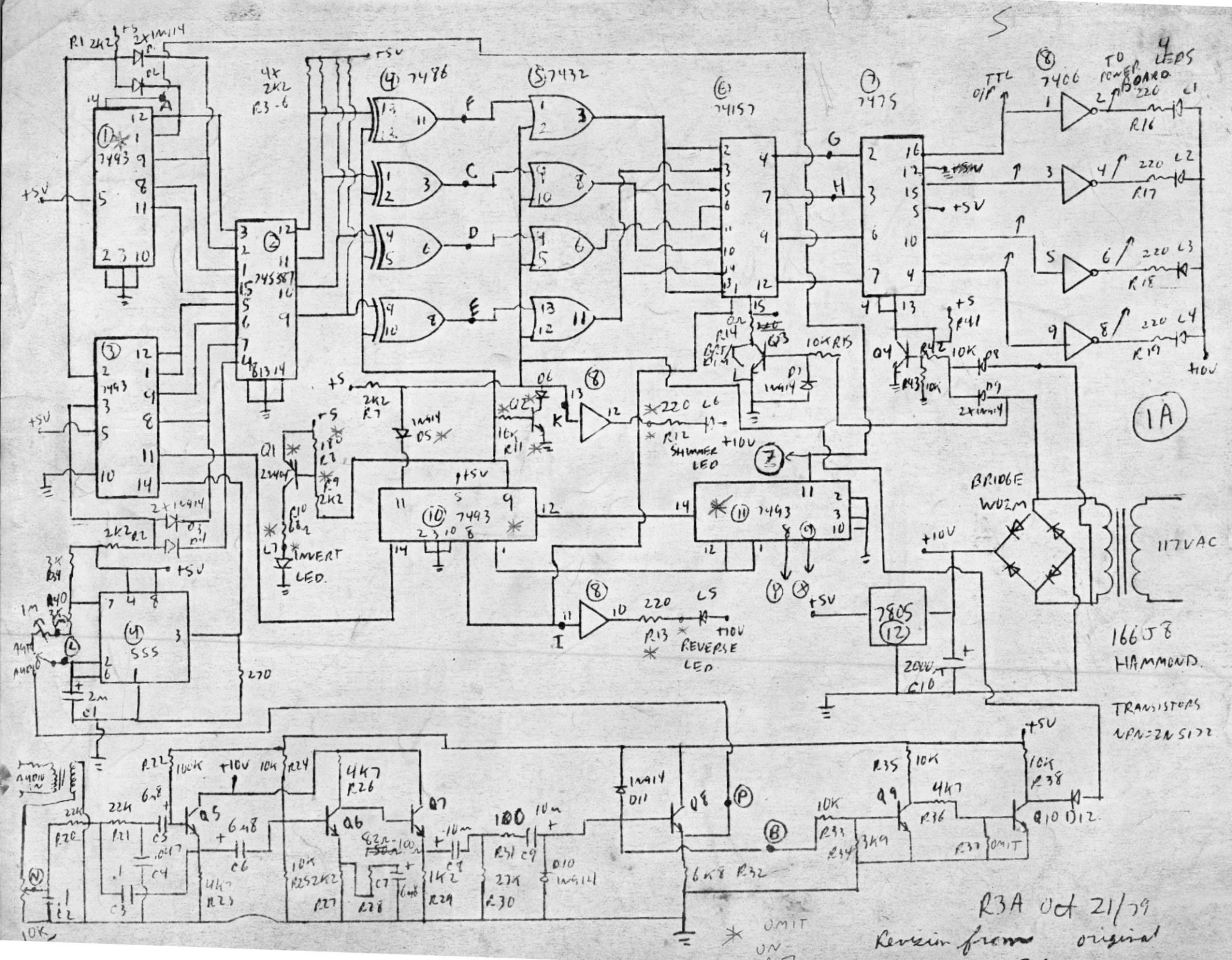
Drawer 6mA total

S/L AGC.



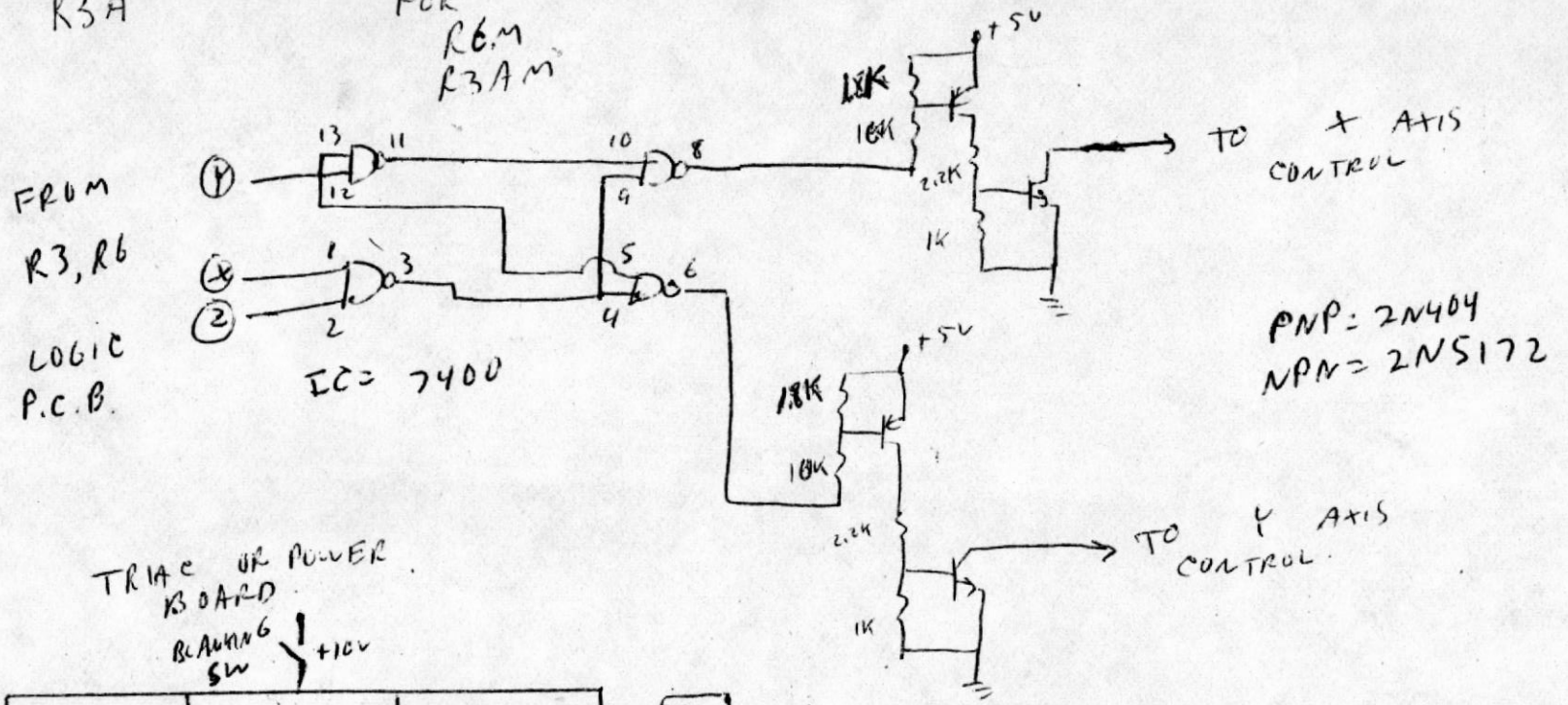


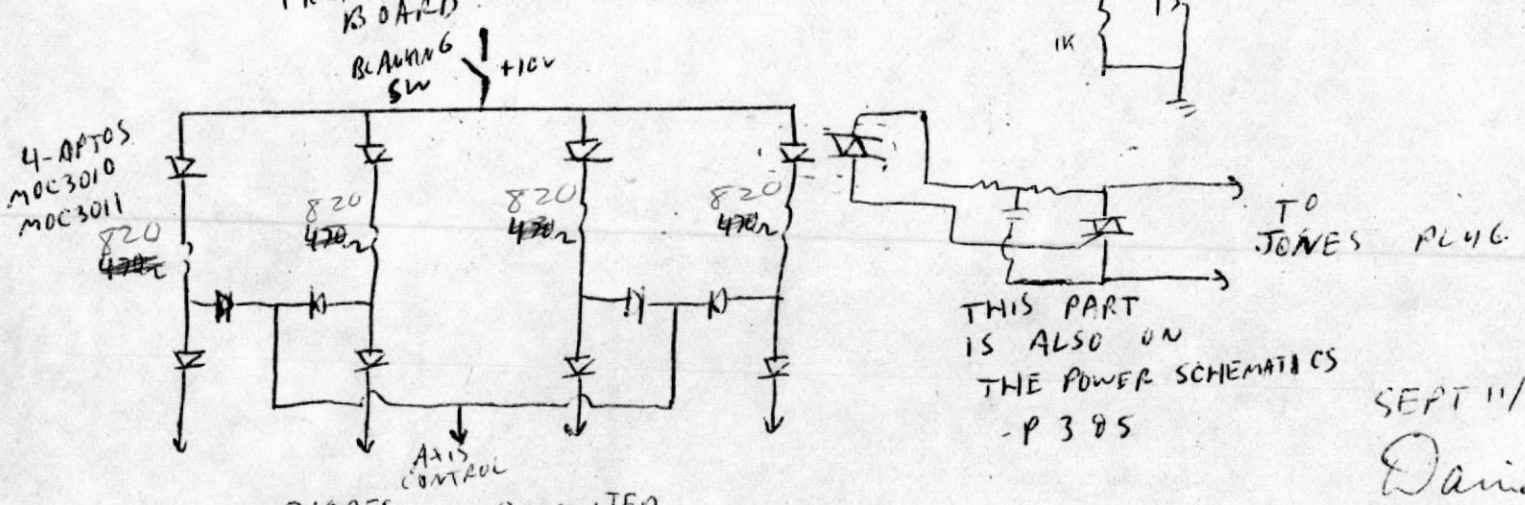
Works OK.


5
4 LEDS
TO POWER BOARD
TTL o/p
7406
7475
74157
7432
7486
7493
555
7805
BRIDGE W02M
117VAC
1A
166J8 HAMMOND.
TRANSISTORS NPN=2N5172
R3A Oct 21/79
Revision from original
INVERT LED.
REVERSE LED
SHIMMER LED
OMIT ON

R6
R3A

MATRIX OPTION FOR R6M R3AM





SEPT 11/79

Daniel Fuse

DIODES OMMITED ON NON-MATRIX MODELS

R7M AND R8M TO HAVE MANUAL AXIS CONTROL SWITCHES

A Note for the Professional Technician Installing this unit. 5

When installing these units care should be taken to allow unrestricted air flow around the cabinet if the loading exceeds 2500Watts total. If it is inst-lled in an enclosed xabinet, a fan should be provided to allow sufficient cooling.

When inserting the AMP pins into the connector they should be inserted as far as they can go until they click into place. After the socket pins are in place, the pin should be flared slightly with the prong on a pair of needle nose pliers or with a small punch. If this is not done the connector will be extremely difficult to fit into place. Also, If more than 5 Amps will be flowing through any pin, the connection should be soldered as well as crimped or the connector will run warm.

Note that any short circuit in the load will instantly blow a triac if power is connected and shorted triacs are not covered under the warranty except when the lights are also purchased and installed by the dealer selling the controller.

While the power switch is a UL and CSA approved 20Amp per side type, its life can be extended indefinitely if the lamps are switched off by the "LIGHTS ON" switch before the power is switched off. Conversely, when switching on, switch life will be imporoved if the lamp load is turned off with the lights on switch before switching on. After the power switch is turned on and the controller is running, the load can be engaged with the lights on switch. The lights on switch operates at logic level and may be used as often as necessary with no detrement to anything.

The Bright/Dim switch comes jumpered out on all US models, and this jumper must be removed if you want the dim function to work. The reason that this is done, is because if the dim is engaged with transformer operated loads such as "RAIN LIGHTS" or NEON, the transformers in them will be destroyed and the controller may be damaged. The reason for this is that on dim, DC is applied to the load which cannot be used by tranforrmers. Thr jumper prevents accidental damage from the use of this switch. If ordinary incandescent lamps are used, however, it is perfectly safe to use the dim function as long as none of the lamps are transformer operated.

To ease in service, the schematic diagram is tucked in under the main printed circuit board.

The input connections for the power are industry standard color code. The BLACK and RED are the HOT lines and should be 110Volts above the Neutral which is WHITE. The voltage between the Red and Black may be 180' out of phase giving a reading of as high as 240V. The GREEN of course is your chassis ground. Under no circumstances should the unit be connected to two legs of a three phase system. If this is done, it will still function, but the zero crossing timing will be at the wrong time for two channels, and there will be a large amount of electrical noise induced into the sound system. If the input power is three phase, both the red and black must be on the same leg.

If there are any further question, I may be contacted through the dealer where this unit was purchased.

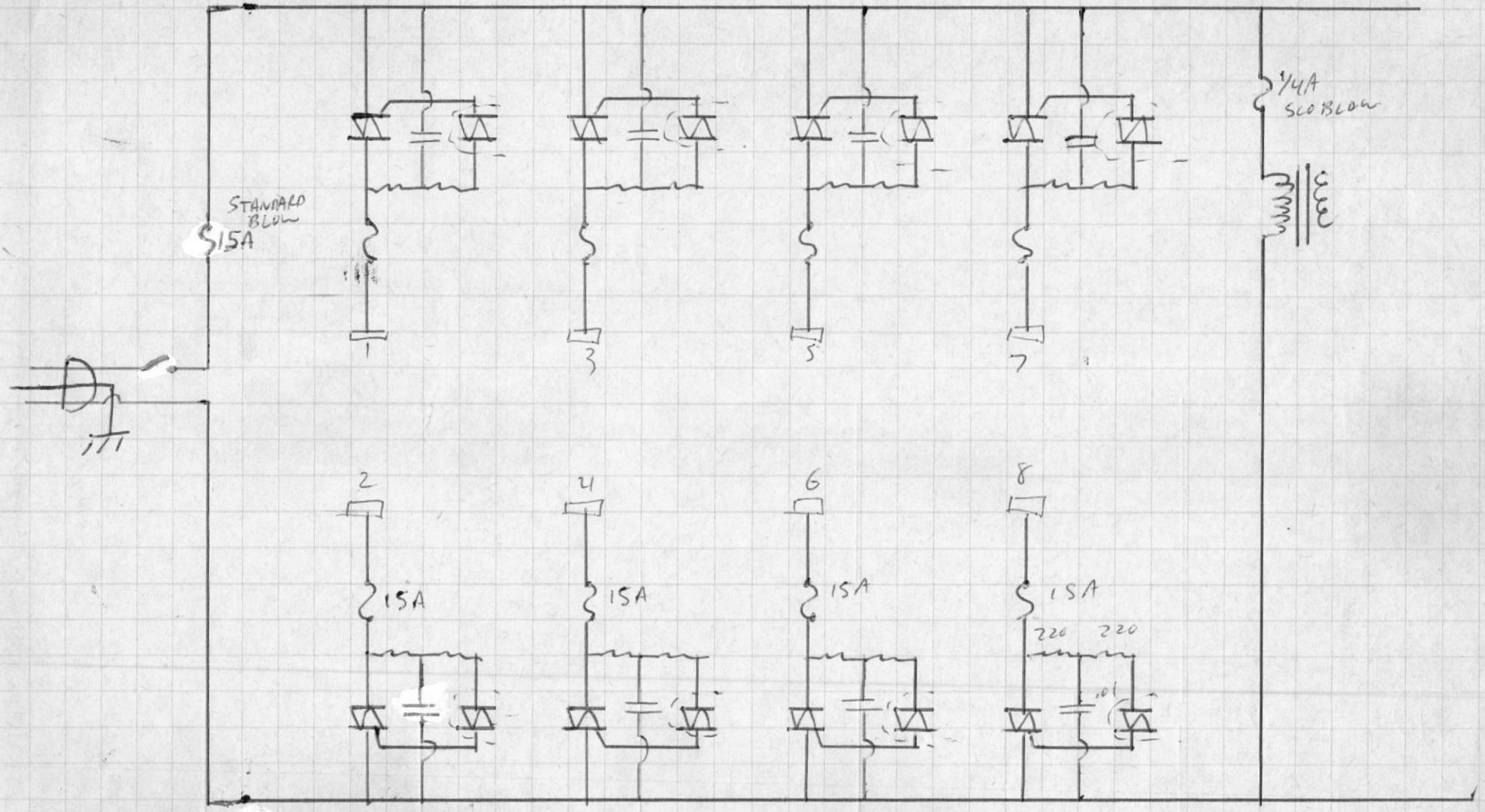
Daniel Fraser

Daniel Fraser

Aug. 18/1980

R6M POWER CIRCUITS

(5) 5



DETAIL ARE THE SAME AS THE R6 EXCEPT THE OUTPUT CONNECTOR IS CINCH JONES S 2408 AB

THE LOAD IS A 4X4 MATRIX OF A MULTIPLE OF 16 LAMPS TO PERMIT WHAT IS KNOWN IN THE DISCO TRADE AS A STAR BURST EFFECT

Sept 24/79 Daniel Fraser

R6 MEMORY

10 of these

1101 = D
1100 = C

Maureen Eber

WORD NO.	OUTPUTS 04	03	02	01	REMARKS
0	0	0	0	0	0
1	0	0	0	1	5
2	0	0	1	0	A
3	0	0	1	1	F
4	0	1	0	0	2
5	0	1	0	1	5
6	0	1	1	0	8
* 7	0	1	1	1	E D
8	1	0	0	0	3
9	1	0	0	1	7
10	1	0	1	0	A
* 11	1	0	1	1	E D
12	1	1	0	0	0
13	1	1	0	1	5
14	1	1	1	0	A
15	1	1	1	1	F
16	0	0	0	0	0
17	0	0	0	1	5
18	0	0	1	0	2
19	0	0	1	1	7
20	0	1	0	0	8
21	0	1	0	1	5
22	0	1	1	0	2
23	0	1	1	1	7
24	1	0	0	0	8
* 25	1	0	0	1	E D
26	1	0	1	0	A
27	1	0	1	1	7
28	1	1	0	0	0
29	1	1	0	1	5
30	1	1	1	0	A
* 31	1	1	1	1	F D
32	0	0	0	0	0
33	0	0	0	1	5
34	0	0	1	0	A
35	0	0	1	1	F
36	0	1	0	0	2
37	0	1	0	1	5
38	0	1	1	0	A
39	0	1	1	1	F
40	1	0	0	0	0
41	1	0	0	1	5
42	1	0	1	0	A
43	1	0	1	1	7
44	1	1	0	0	0
* 45	1	1	0	1	E D
46	1	1	1	0	A
47	1	1	1	1	F
48	0	0	0	0	0
49	0	0	0	1	5
50	0	0	1	0	A
51	0	0	1	1	F
52	0	1	0	0	8
53	0	1	0	1	5
54	0	1	1	0	2
55	0	1	1	1	7
56	1	0	0	0	8
57	1	0	0	1	E
58	1	0	1	0	A
59	1	0	1	1	7
60	1	1	0	0	0
61	1	1	0	1	5
62	1	1	1	0	A
* 63	1	1	1	1	F D

WORD NO.	OUTPUTS 04	03	02	01	REMARKS
64	0	0	0	0	0
65	0	0	0	1	7
66	0	0	1	0	8
67	0	0	1	1	F
68	0	1	0	0	0
69	0	1	0	1	7
70	0	1	1	0	8
71	0	1	1	1	F
72	1	0	0	0	1
73	1	0	0	1	E
74	1	0	1	0	9
75	1	0	1	1	6
76	1	1	0	0	1
77	1	1	0	1	E
78	1	1	1	0	9
79	1	1	1	1	6
✓ 80	0	0	0	0	C
81	0	0	0	1	9
82	0	0	1	0	7
83	0	0	1	1	E
84	0	1	0	0	B
85	0	1	0	1	6
86	0	1	1	0	5
87	0	1	1	1	2
✓ 88	1	0	0	0	C
89	1	0	0	1	9
90	1	0	1	0	7
91	1	0	1	1	E
92	1	1	0	0	B
93	1	1	0	1	6
94	1	1	1	0	5
95	1	1	1	1	2
96	0	0	0	0	0
97	0	0	0	1	5
98	0	0	1	0	A
99	0	0	1	1	F
100	0	1	0	0	2
101	0	1	0	1	5
102	0	1	1	0	8
103	0	1	1	1	D
104	1	0	0	0	2
105	1	0	0	1	7
106	1	0	1	0	8
* 107	1	0	1	1	E D
108	1	1	0	0	2
109	1	1	0	1	7
110	1	1	1	0	A
111	1	1	1	1	F
112	0	0	0	0	0
113	0	0	0	1	5
114	0	0	1	0	8
115	0	0	1	1	D
116	0	1	0	0	2
117	0	1	0	1	5
118	0	1	1	0	4
119	0	1	1	1	1
120	1	0	0	0	E
121	1	0	0	1	B
122	1	0	1	0	6
123	1	0	1	1	1
124	1	1	0	0	4
125	1	1	0	1	9
126	1	1	1	0	E
127	1	1	1	1	B

WORD NO.	OUTPUTS 04	03	02	01	REMARKS
128	0	0	0	0	0
129	0	0	0	1	5
130	0	0	1	0	A
131	0	0	1	1	F
132	0	1	0	0	2
133	0	1	0	1	5
134	0	1	1	0	A
* 135	0	1	1	1	E D
136	1	0	0	0	0
137	1	0	0	1	5
138	1	0	1	0	A
139	1	0	1	1	F
140	1	1	0	0	E
141	1	1	0	1	9
142	1	1	1	0	6
143	0	0	0	1	1
144	0	0	1	0	1
145	0	0	1	1	6
146	0	1	0	0	1
✓ 147	0	1	0	1	9
148	0	1	1	0	C
149	0	1	1	1	5
150	1	0	0	0	A
151	1	0	0	1	F
152	1	0	1	0	1
153	1	0	1	1	A
154	1	1	0	0	D
155	1	1	0	1	2
156	1	1	1	0	4
157	1	1	1	1	D
158	0	0	0	0	2
159	0	0	0	1	7
160	0	0	1	0	A
161	0	0	1	1	4
162	0	1	0	0	9
163	0	1	0	1	4
164	0	1	1	0	9
165	0	1	1	1	6
166	1	0	0	0	9
167	1	0	0	1	4
168	1	0	1	0	9
169	1	0	1	1	E
170	1	1	0	0	B
171	1	1	0	1	E
172	1	1	1	0	9
173	1	1	1	1	C
174	0	0	0	0	9
175	0	0	0	1	E
176	0	0	1	0	9
177	0	0	1	1	0
178	0	1	0	0	5
179	0	1	0	1	A
180	0	1	1	0	F
181	0	1	1	1	0
182	1	0	0	0	5
183	1	0	0	1	A
184	1	0	1	0	F
185	1	0	1	1	B
186	1	1	0	0	6
187	1	1	0	1	1
188	1	1	1	0	4
189	1	1	1	1	9
190	0	0	0	0	E
191	0	0	0	1	B

WORD NO.	OUTPUTS 0	03	02	01	REMARKS
192	0	0	0	0	0
193	0	0	0	1	5
194	0	0	1	0	2
195	0	0	1	1	F
196	0	1	0	0	0
197	0	1	0	1	5
198	0	1	1	0	A
199	0	1	1	1	7
200	1	0	0	0	3
201	1	0	0	1	E
202	1	0	1	0	9
203	1	0	1	1	C
204	1	1	0	0	3
205	1	1	0	1	6
206	1	1	1	0	9
207	1	1	1	1	C
208	0	0	0	0	0
209	0	0	0	1	9
210	0	0	1	0	3
211	0	0	1	1	A
212	0	1	0	0	0
213	0	1	0	1	9
214	0	1	1	0	3
215	0	1	1	1	A
216	1	0	0	0	4
217	1	0	0	1	D
218	1	0	1	0	7
219	1	0	1	1	E
220	1	1	0	0	4
221	1	1	0	1	D
222	1	1	1	0	7
223	1	1	1	1	E
224	0	0	0	0	0
225	0	0	0	1	5
226	0	0	1	0	A
227	0	0	1	1	F
228	0	1	0	0	0
229	0	1	0	1	D
230	0	1	1	0	A
231	0	1	1	1	5
232	1	0	0	0	0
233	1	0	0	1	7
234	1	0	1	0	A
235	1	0	1	1	D
236	1	1	0	0	0
237	1	1	0	1	D
238	1	1	1	0	A
239	1	1	1	1	7
240	0	0	0	0	0
241	0	0	0	1	5
242	0	0	1	0	A
243	0	0	1	1	D
244	0	1	0	0	8
245	0	1	0	1	7
246	0	1	1	0	2
247	0	1	1	1	E D
248	1	0	0	0	A
249	1	0	0	1	7
250	1	0	1	0	2
251	1	0	1	1	5
252	1	1	0	0	8
253	1	1	0	1	E D
254	1	1	1	0	A
255	1	1	1	1	7

5

$6.00

D Ø

Next Time Please Check TRUTH TABLE

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 ase 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 thr 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 defectice 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.

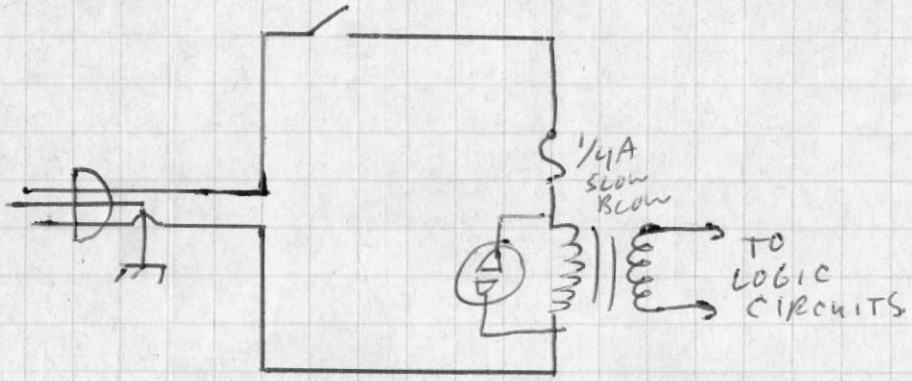
On the R7M types there is a small three position toggle switch mounted above the Auto/Audio switch. This controls the direction on the matrix.

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 c-rcuit. 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.

R6 L POWER CIRCUITS.
R3A L
DS-3 - THE DS-3 IS AN AUDIO LIMITER AND TOTALLY DIFFERENT THAN THE R3A OR R6 SERIES, BUT ITS POWER CIRCUIT IS IDENTICAL TO THE R6C OR R3AL

(4)



THESE UNITS CONSIST MERELY OF LOGIC CIRCUITS. TO BE USED TO DRIVE SOLID STATE RELAYS OR POWER UNITS PURCHASED SEPERATELY OR BUILT BY THE PURCHASER. THE ONLY OUTPUT IS AT 5V TTL LOGIC LEVELS.

- LINE CORD IS MADE BY "CORDS" AND SUPPLIED BY COSRAD INDUSTRIAL ELECTRONICS IN TORONTO AND IS CSA APPROVED. THE CABLE IS MARKED "CABLE TECH SUPERFLEX SJT 300V 18AWG"
- SWITCH WILL BE SUPPLIED BY ARMACO OF VANCOUVER OR EQUAL AND WILL BEAR THE CSA MARK.
- THE FUSE HOLDER WILL BE FROM LITTLEFUSE OR BUSS.
- THE TRANSFORMER WILL BE EITHER A HAMMOND 166J8, 166D20 OR 166E20 WITH A CSA MARK

Sept 24/79
David Fraser


FRASER ELECTRONICS
EDMONTON CANADA
TRIGGER SOURCE
AUDIO
AUTO
AUDIO CHASE SENSITIVITY
AUTO CHASE RATE
MODE
INVERT
SHIMMER
REVERSE
MODEL
R3
PROGRAMMED LIGHTING CONTROLLER
BRIGHT
DIM
POWER

OMIT

EC5 1 - 8 - 11 - 12 - 13 - 14 - 15 .