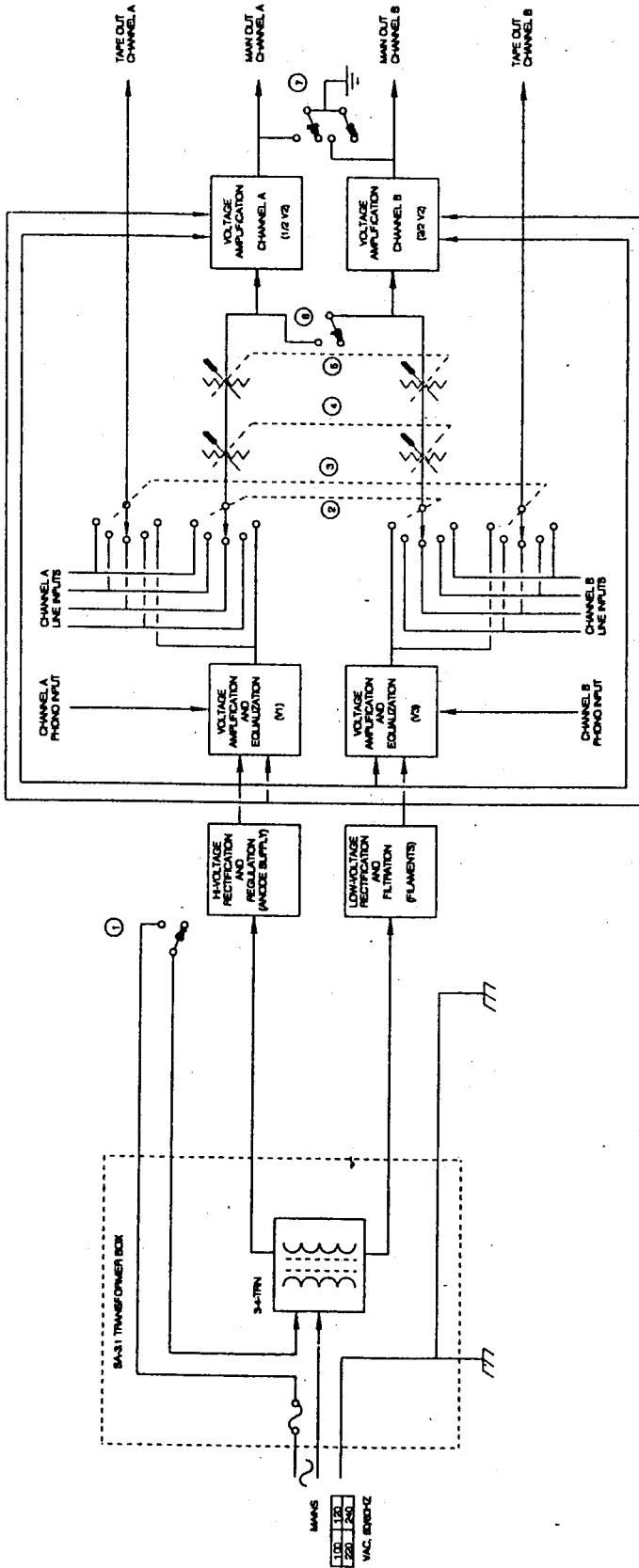


SA-3.1 BLOCK DIAGRAM  
8/3/88, JM ELLIOTT



1. WAVE ARE APPLIED TO TRANSFORMER (3-4-TN) PRIMARIES THROUGH MAINS FUSE AND ON/OFF POWER SWITCH.
2. MAINS FUSE AND TRANSFORMER REGULATES VOLTAGE FOR USE BY TUBES V1, V2, AND V3. THIS VOLTAGE IS 9.1" OR 7.5" AND SUPPLIES TUBE SOCKETS.
3. LOW-VOLTAGE SUPPLY RECTIFIER FILTERS AND REGULATES TUBE PLACEMENT (HEATER) VOLTAGE FOR USE BY TUBES V1, V2, AND V3. THIS VOLTAGE IS ALSO USED BY PILOT LAMP AND Muting CIRCUITRY.
4. SIGNAL VOLTAGE INPUT FROM PHONO JACKS IS AMPLIFIED USING CASCADED TRODES (M) OR (N) WITH PASSIVE RMA DISK DE EMPHASIS EQUALIZATION.
5. SELECTED SIGNALS ARE AMPLIFIED WITH TRODE V2 IN LINE STAGE FOR CONNECTION TO POWER AMPLIFIER (MAIN OUTPUTS).

CONTROL FUNCTIONS

REF.	DESCRIPTION	AS SHOWN
1	POWER ON/OFF	OFF
2	MAIN OUT SELECTOR	LINE INPUT
3	TAPE OUT SELECTOR	LINE INPUT
4	TAPE CONTROL	STEREO
5	MONOSTEREO SWITCH	OPERATE
6	MONOSTEREO RELAY	OPERATE
7	MUTE/OPERATE RELAY	OPERATE

4 PLCS

DRAWN	APPROVED
<b>COUNTERPOINT</b>	
SA-3.1	
BLOCK DIAGRAM	
FILE:	DWG:
38LK	

DESCRIPTION

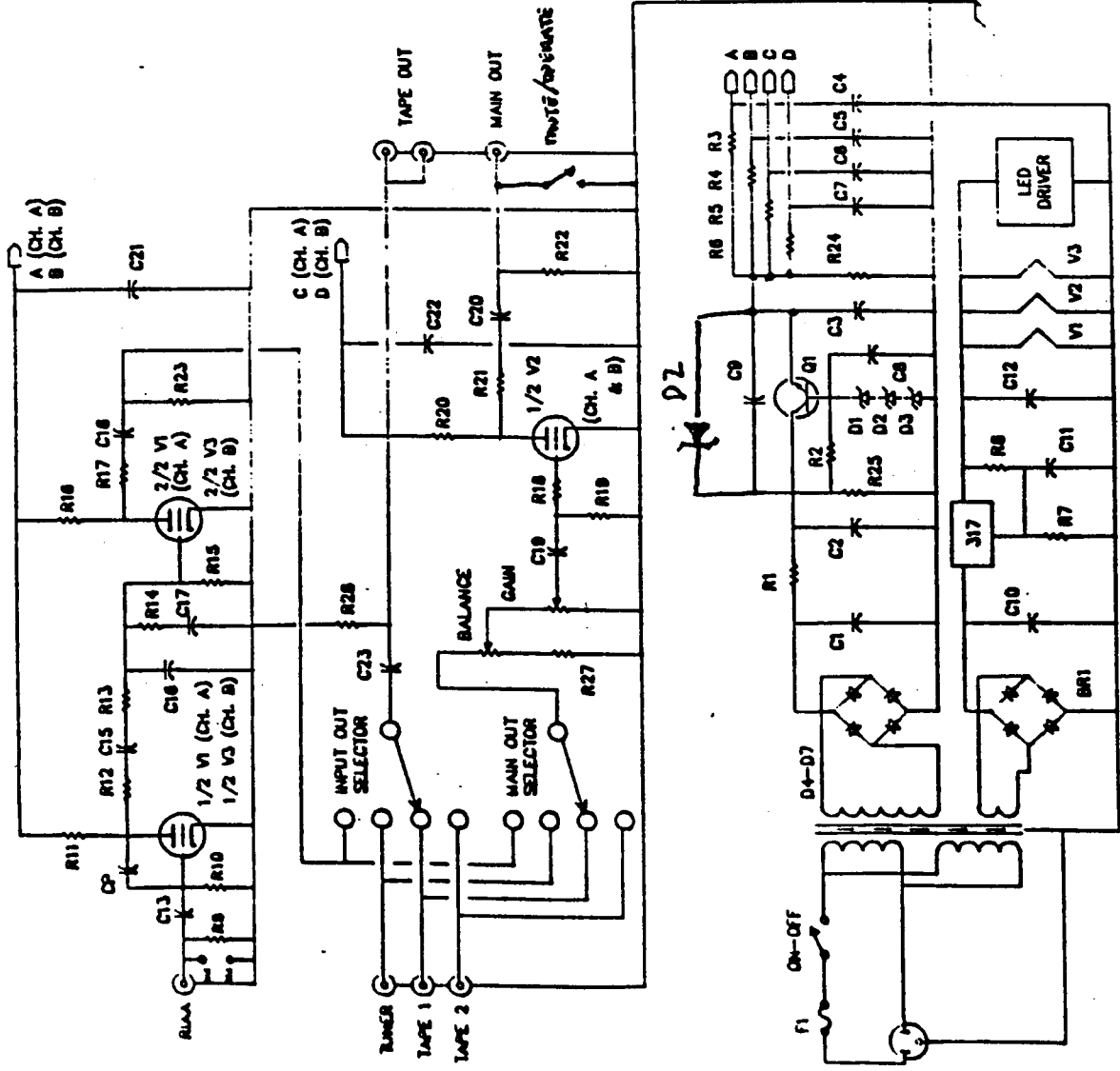
REF.

H1	500 OHM, 5W
H2,11,111	47K, 2W, MO
H3,4,5,6	127 OHM, MK3
R7	402 OHM, MK3
R8	110 OHM, MK3
R9,109	47.5K, MK3
R10,15,19,110,115,119	4.00M, MK3
R12,17,21,112,117,121	100 OHM, MK3
R13,113	121K, MK3
R14,114	15.4K, MK3
R16,116	27K, 2W, MO
R18,118	13K, 2W, MO
R20,120	681 OHM, MK3
R22,73,74,75,122,123,124,125	1.00M, MK3
R26,126	100K, MK3
R27,127	75.0K, MK3

C1,2	80/450 LYTC
C3,4,5,6,7	200 '250 LYTC
C8	01 '400 P.P.
C9	8 '200 P.P.
C10	1000 '25 LYTC
C11	10 '35 LYTC
C12	2200 '18 LYTC
C13,15,19,113,115,119	47 '200 P.P.
C16,116	7M '100 P.S. 18
C17,117	20.6M '100 P.S. 18
C18,20,118,120	1 '200 P.P.
C21,22,121,122	1 '250 P.P.
CP	3pf D.M.

D1	2S2530
D2	1N5368
D3	1N5378
D4,5,6,7	1N4007
BR1	FW100
317	LM317

DZ = 1N5377

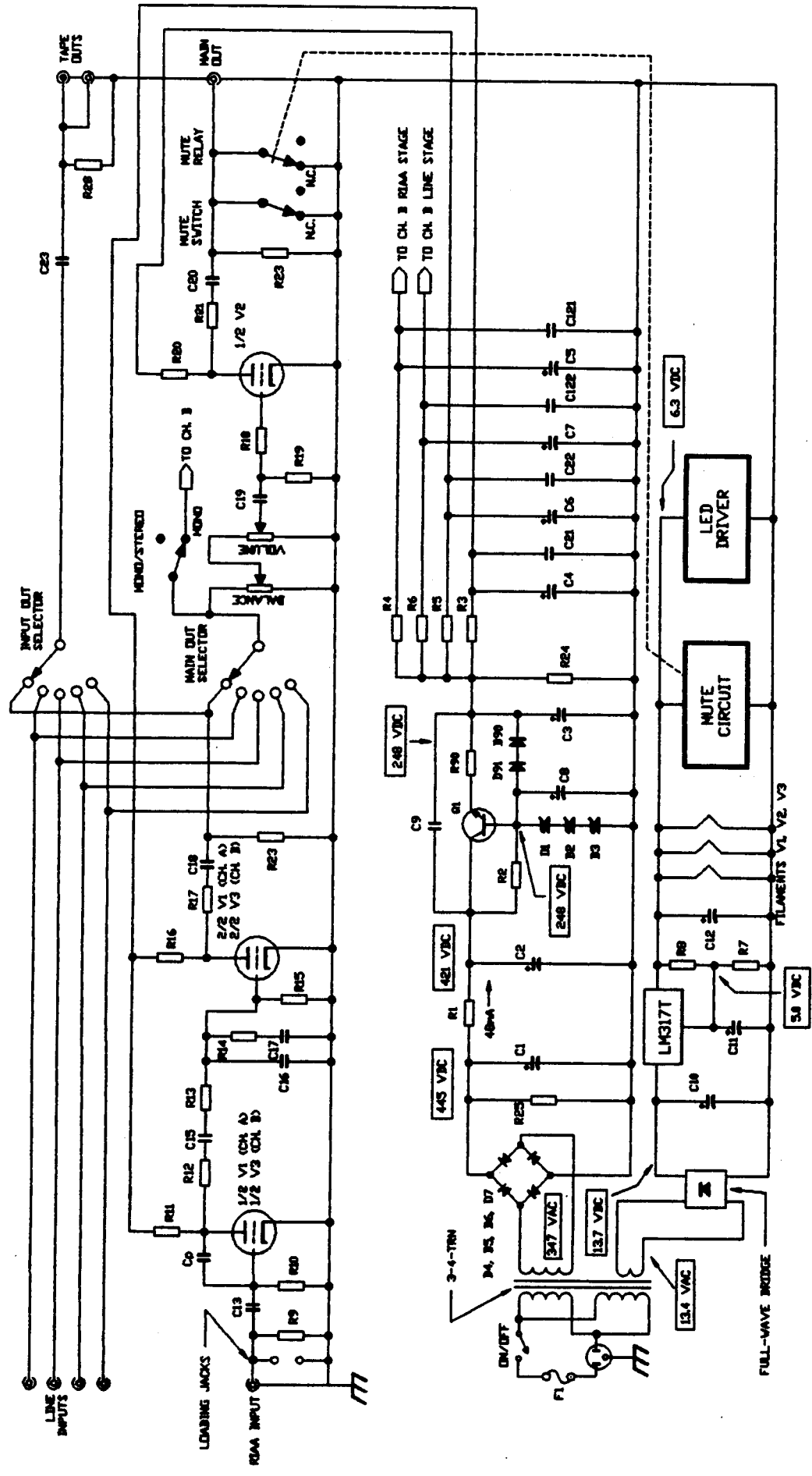


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND APPLY AFTER PLATING DRESS UNIFORM QUOTE	
XX	Y
MATERIAL	
FINISH	

SCHEMATIC SA31

- CHANNEL A OF AUDIO PATH SHOWN ONLY.
  - 100-PREFIX INDICATES CHANNEL B COMPONENT.
- NOTES: UNLESS OTHERWISE SPECIFIED

FILE	C
DRAWING NUMBER	SA31FNL
SCALE	
SHEET	OF

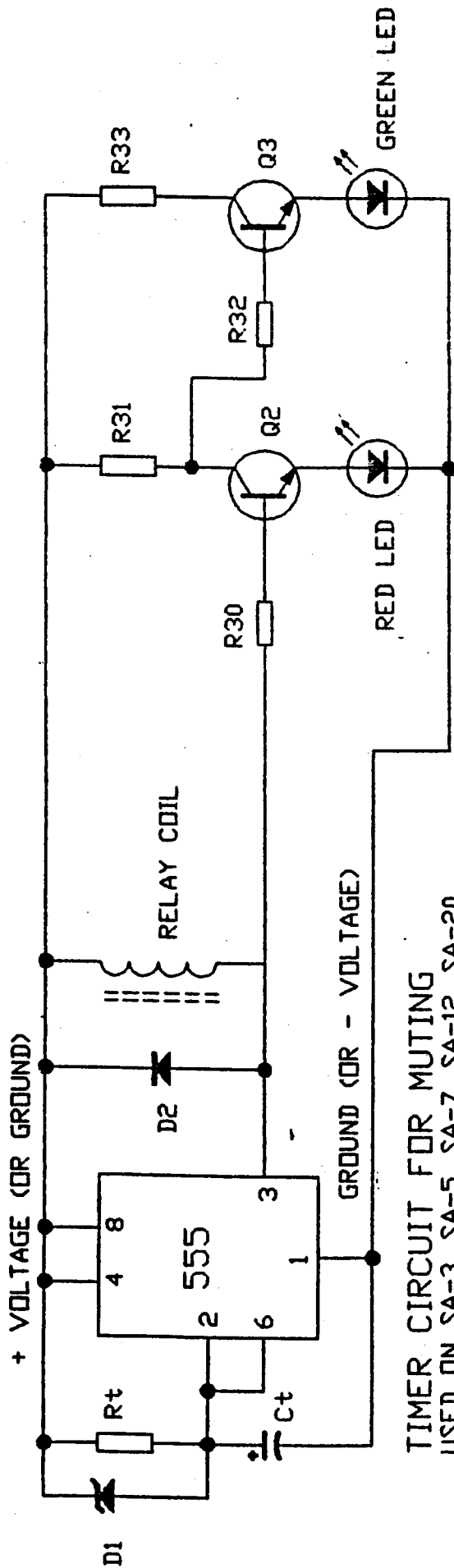


- NOTES:
- CHANNEL A OF AUDIO PATH SHOWN ONLY.
  - 100-PREFIX INDICATES CHANNEL B COMPONENT.
  - THIS SCHEMATIC REVISED 7/1/1987 AND APPLIES TO ALL SA-31 UNITS WITH SERIAL NUMBER STARTING WITH 2730X AND GREATER HAVE FOUR LINE INPUTS, AS SHOWN. EARLIER HAVE THREE ONLY.
  - REPAIRS SHOULD BE MADE BY PERSONNEL TRAINED IN THE USE OF THIS SCHEMATIC. THIS SCHEMATIC IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY OTHER PURPOSE WITHOUT WRITTEN PERMISSION.

SCHEMATIC SA-31

<u>REF</u>	<u>DESG</u>	<u>DESCRIPTION</u>	<u>REF</u>	<u>DESG</u>	<u>DESCRIPTION</u>
R1	806K, MK, dno		R51	1 Meg, MK	
R2	1 Meg, MK		R52	27K, 2W, 10%, M.O. or M.F.	
R3	127 ohm, MK, dno		R53	100 ohm, MK	
R4	681 ohm, MK		R54	51K, 1W, 10%, M.O. or M.F.	
R5	619 ohm, MK, dno		R55	1 Meg, MK	
R6	100 ohm, MK		R56	10K, MK	
R7	523 ohm, MK, dno		R57	619 ohm, MK3	
R8	118K, MK, dno		R58	JUMPER	
R9	13K, 2W, 10%, M.O. or M.F.		R59	JUMPER	
R10	100 ohm, MK		R60	407 ohm, any, dno	
R11	681 ohm, MK		R61	100 ohm, MK, dno	
R12	13K, 2W, 10%, M.O. or M.F.		R62	25.5K, MK3,	
R13	100 ohm, MK		R63	75.9K, MK3	
R14	681 ohm, MK		R64	1 Meg, MK	
R15	619 ohm, MK, dno		R65	681 ohm, MK	
R16	100 ohm, MK		R66	10K, 1W, 10%, M.O. or M.F.	
R17	523 ohm, MK, dno		R67	2.5K, 5W, 5%, WW, Non-Ind	
R18	118K, MK, dno		R68	1 Meg, MK	
R19	806K, MK, dno		R69	7.32K, MK, or very close	
R20	1 Meg, MK		R70	7.32K, MK, or very close	
R21	127 ohm, MK, dno		R71	1 Meg, MK,	
R22	681 ohm, MK		R72	332 10% MK	
R23	47K, MK		RT	332 10% MK	
R24	100 ohm, MK		C1	845pF Siemens	
R25	51K, 1W, 10%, M.O. or M.F.		C2	2700pF Siemens	
R26	27K, 2W, 10%, M.O. or M.F.		C3	845pF Siemens	
R27	1 Meg, MK		C4	2700 pF Siemens	
R28	20K, MK		C5	3uF/200v PPMF w/ Styrene bypass	
R29			C6		
R30			C7		
R31			C8		
R32			C9		
R33			C10		
R34			C11	.33uF/63v WIMA MKS	
R35			C12	.33uF/63v WIMA MKS	
R36			C13	200uF/250v 'lytic w/ 1uF/200v PPMF and styrene bypass	
R37			C14	See C13	
R38			C15	370uF/200v 'lytic	
R39			C16	1uF/200v PPMF	
R40			C17	1000uF/25v 'lytic	
R41			C18	80uF/450v 'lytic	
R42	681 ohm, MK		C19	See C18	
R43	681 ohm, MK		C20	1000uF/6.3v 'lytic, Radial	
R44	10K, MK, dno		C21	1uF/200v PPMF	
R45	10K, MK, dno		C22	1uF/200v PPMF	
R46	1 Meg, MK		C23	1000uF/6.3v 'lytic, Radial	
R47	1 Meg, MK		TC1	33pF MICA	
R48	10K, MK		TC3	33pF MICA	
R49	10K, MK				
R50	47K, MK				

<u>REF</u>	<u>DESG</u>	<u>DESCRIPTION</u>
• Q1	2N3440	
• Q2	eliminate	
• Q3	2N3440 + Heatsink	
• Q4	DTS 410 + Heatsink	
. D1-D4	1N5400	
. D5-D8	1N4007	
. D9-D12	1N5368B	
. D13	1N4007 (board underside)	
• C24	100pF/160v WIMA FKC	
C25	See C24	
IC1	LM317T	
MJ	Microjacks, CONCORD (4)	
SP	Solderposts, CONCORD (18)	
SW1	Minitoggle, SPDT	
SW2	" DPDT	
SW3	" "	
SW4	2P4position Rotary, LORLIN	
SW5	"	
VR1	100K Pot, Prepped	
VR2	100K Pot, dual, ALPS	
J1-J11	Jumper, Buss wire, 20AWG	
	Bracket, #626 (2)	
	Grommet, #91114 (4)	
	Screw, 4-40 X 1/4 Pan, Phil, Black (2)	
	Nut, Kep, 4-40 (2)	
	Wire and Cable, see attached wiring specification	



TIMER CIRCUIT FOR MUTING  
 USED ON SA-3, SA-5, SA-7, SA-12, SA-20

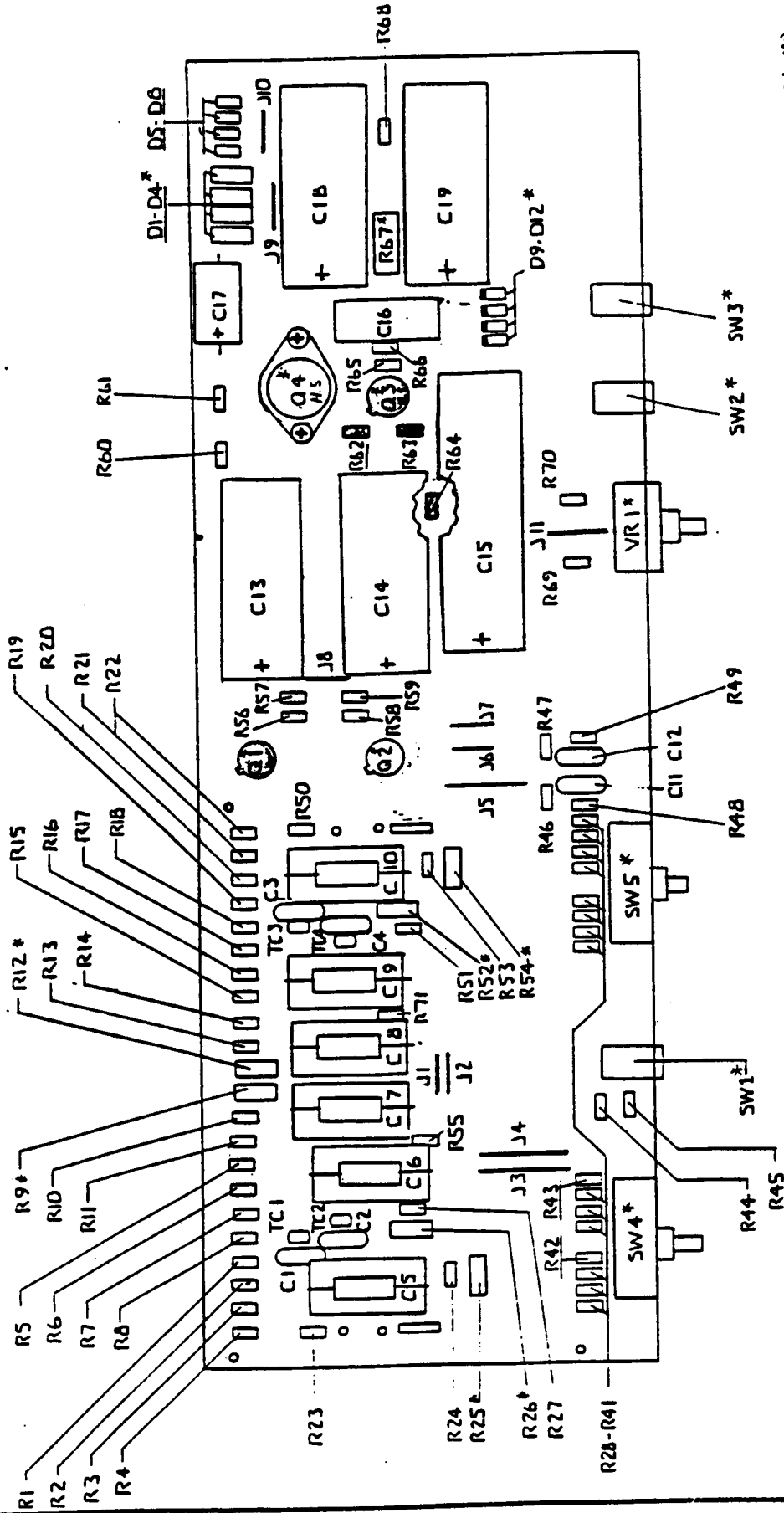
TIME TO UNMUTE IS EQUAL TO  $1.1RtCt$   
 WHEN VOLTAGE IS APPLIED TO THE CIRCUIT,  $Ct$  BEGINS TO  
 CHARGE THROUGH  $Rt$ . WHEN  $2/3$  VOLTAGE IS REACHED  
 TIMER OUTPUT (PIN 3) GOES LOW, PULLING CURRENT  
 THROUGH THE RELAY COIL.  
 D1 ALLOWS QUICK DISCHARGE OF  $Ct$  WHEN POWER IS REMOVED,  
 D2 PROTECTS THE 555 FROM BACK-EMF FROM THE RELAY.

EXAMPLE OF LED DRIVER CIRCUIT  
 (REFERENCE DESIGNATORS ARE AS USED ON SA-12)

MUTING CIRCUIT  
 USED ON SA3, SA5, SA7, SA12, SA20

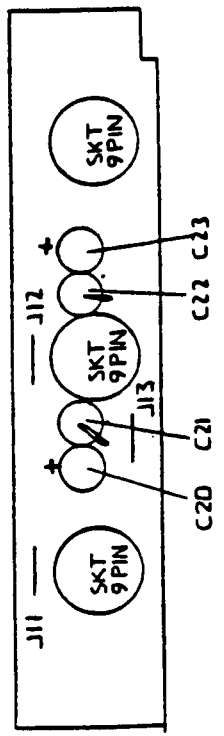
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Q1  
C: Q3  
Q2



\*: DO NOT LAYE 14001

DATE	DATE	DATE	DATE
DESIGN	DESIGN	DESIGN	DESIGN
CHKD	CHKD	CHKD	CHKD
APPV	APPV	APPV	APPV
NET ASST	NET ASST	NET ASST	NET ASST
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	C	6003	
COMPONENT GUIDE SA-3 PCB			



NOTES: UNLESS OTHERWISE SPECIFIED

3-4-TRN Specification, AC Power Transformer, Page 1, November 7, 1986  
Rev A

1. 3-4-TRN Specification
2. Electrical Schematic--please see separate page of this date. Contains coil schematic, input and output voltages, and lead color assignments
3. Construction details--please see separate pages of this date. Contains wire sizes and type, winding and tap information, wire breakouts, terminations, assembly notes, mechanical details, test procedures and general shop notes.
4. Notes
  - 4.1. General
    - 4.1.1. This specification is for an AC power transformer, for use in a consumer audio preamplifier. We are concerned with safe operation, adequate capacity, low acoustic noise and reasonable costs.
  - 4.2. Approval Requirements
    - 4.2.1. Insulation and construction to conform to UL/CSA standards.
  - 4.3. Primary Section
    - 4.3.1. Pri Termination: Please refer to the Mechanical Specification detail pages for construction required.
    - 4.3.2. Advise Counterpoint if termination details conflict with routine production procedures.
    - 4.3.3. Series-Parallel primary for operation at the following voltages:  
Parallel: 100V, 50Hz; 120V, 60Hz; 130V, 60Hz.  
Series: 240V, 50/60Hz; 260V, 50/60Hz.  
Be sure to match the number of turns in the primary section for parallel operation.
    - 4.3.4. Primary Inductance. The primary shall be designed for maximum safe flux level at 10% high line with regard to 100V, 50Hz.



4.4. Secondary Section.

- 4.4.1. Sec: Secondary windings shall be terminated as shown on detail page of this same date. Please advise Counterpoint if this requirement conflicts with routine production procedures.
- 4.4.2. All secondary voltages shown are at no-load.

4.5. Power Capacity.

- 4.5.1. Power transformers used in audio preamplifiers are subject to continuous-duty operation. However, the ability to withstand occasional high-temperatures is desired.

4.6. Mechanical Specifications.

- 4.6.1. Core steel shall be 29GA, M19 or equivalent.
- 4.6.2. Mechanical Dimensions shown on separate sheet, of same date as this spec.
- 4.6.3. Flux bands: none required.
- 4.6.4. Intercoil insulation. We are concerned with voltage breakdown of Intercoil insulation, and have had transformers fail for this reason in the past. Therefore, unless otherwise stated, where unloaded coil voltages exceed 200 VAC r.m.s., we require a minimum of two layers of Mylar or Kapton tape or equivalent.
- 4.6.5. Construction to 105C temperatures standards is allowed for regulatory purposes; we would desire as high a functional temperature insulation as possible to withstand overloads. Please see section 'E', above.
- 4.6.6. Due to the high voltages and our desire for very high reliability, all magnet wire shall be Heavy Poly Nyleze ( or equivalent ) insulated.

4.6.7. In keeping with our concern with reasonable cost, bobbin construction is preferred over layer-type construction. Our experience has been that, even at the voltages specified, reliability has not been a problem with bobbin construction as long as high quality magnet wire is employed (H.P.N.). If this specification conflicts with your design experience, or presents a problem with your standard production practices, please contact Counterpoint.

5. Noise Specifications.

5.1. The transformer shall meet our specification 'RADIATED NOISE SPECIFICATION, Power Transformers'. Because the majority of these preamplifiers are sold in Japan with 100V, 50Hz operation, solid construction and thorough encapsulating is essential.

5.1.1. Load conditions for noise test shown on separate sheet of same date as this spec.

5.2. FLUX DENSITY

In keeping with our concern for quiet operation, we desire a design with low flux density. Please use a target flux density of 13kGauss with 48Hz, 110 volts into the 100 V primaries.

Power Transformer Schematic

Transformer Part Number 3-4-TRN Rev A

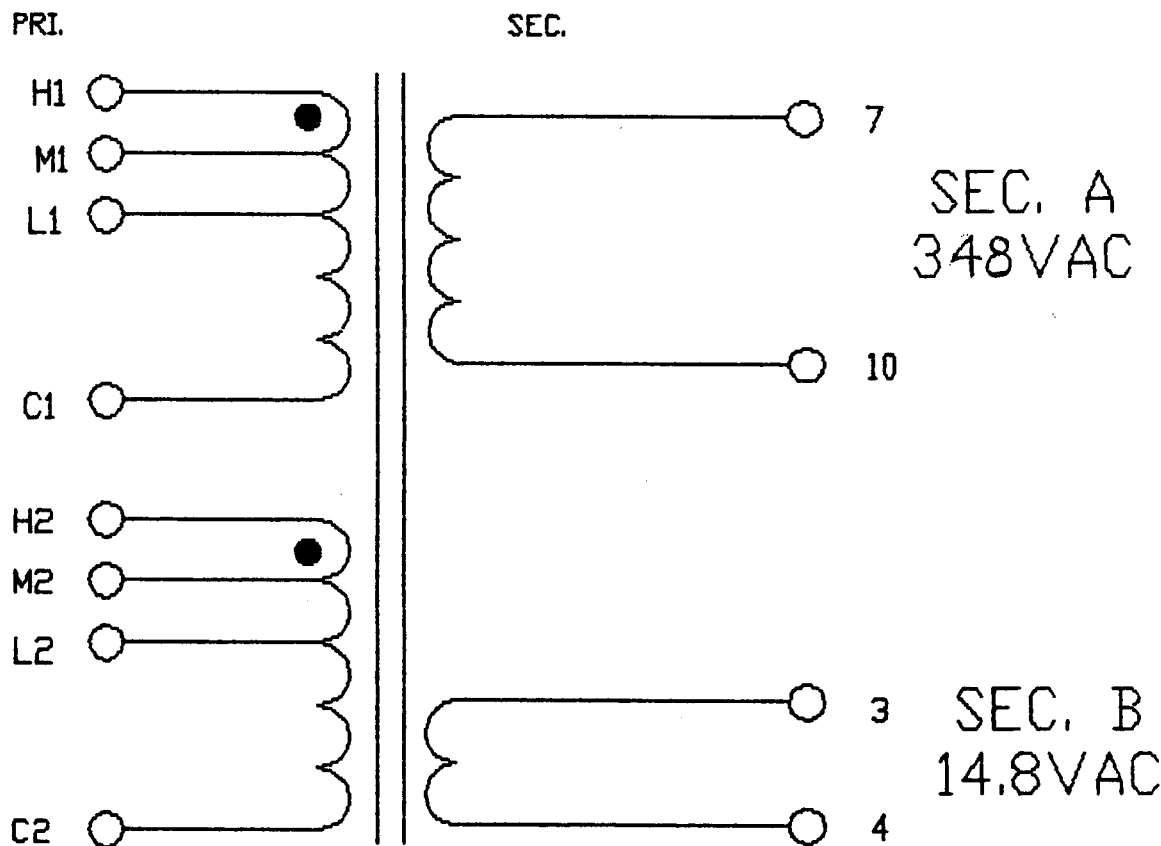
Date: 2/24/85

Rev Date: November 7, 1986

Rev Notes: Sec 'A' dropped 5% for increased reliability.

SCHEMATIC.

Shows coil schematic and lead color assignments.  
Please see Mechanical Dwg for lead lengths, exits, and terminations.



NOTES:

1. CONDITIONS: 120VAC INTO DOMESTIC (M1,M2)  
PRIMARYS. NO LOAD.

3-4-TRN normal operating loads

Transformer Part Number 3-4-TRN Rev A

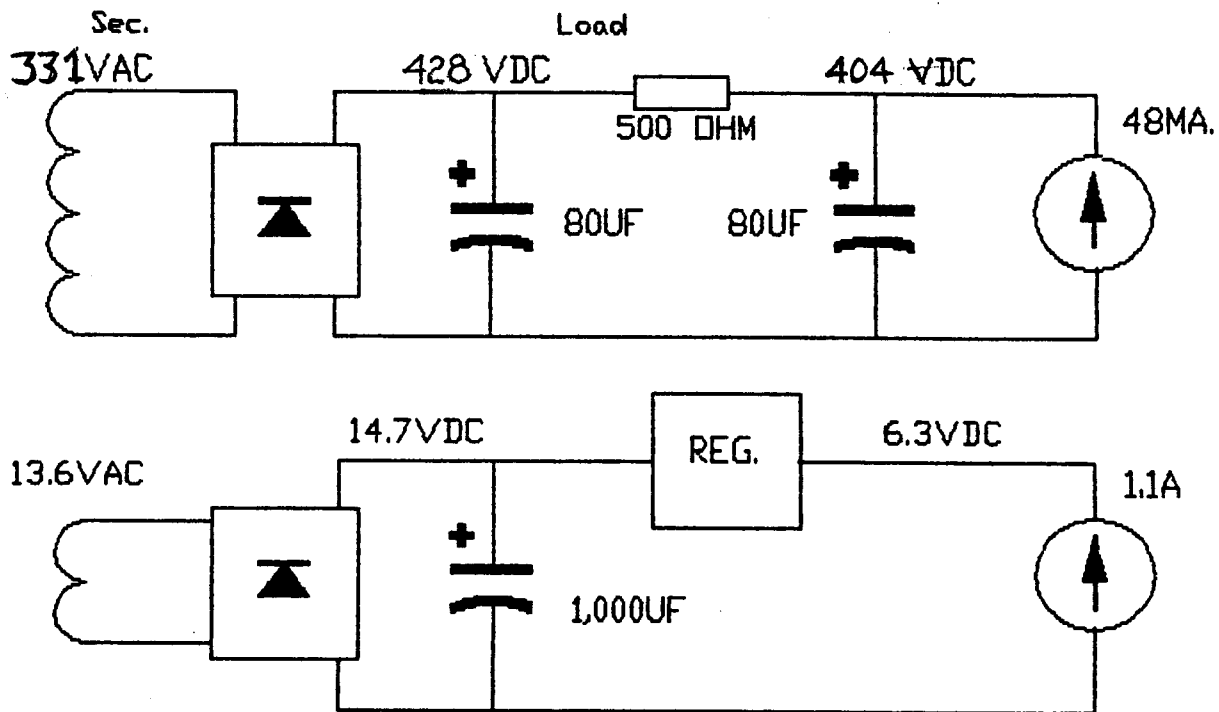
Date: 2/24/85

Rev Date: November 7, 1986

Rev Notes: Sec 'A' voltage dropped 5% for increased reliability.

LOADS.

Shows power supply circuit into which the secondaries are loaded, expected DC voltages and DC currents.



NOTES:

1. CONDITIONS: 120VAC/60HZ INTO DOMESTIC PRIMARIES.

3-4-TRN Mechanical Dwg.

---

Transformer Part Number 3-4-TRN Rev A

Date: 2/24/85

Rev Date: November 7, 1986

Rev Notes:

G: SHIELD REMOVED.

---

MECHANICAL NOTES:

1. 1.25" STACK, EI-100, INTERLEAVE 2 X 2 OR BETTER.
2. VENDOR TO STAMP DATE CODE AND "3-4-TRN" ON UNIT.
3. TERMINATIONS: SOLDER LUG. FIRM ANCHORING REQUIRED. PLACE PRIMARY TERMINATIONS ON ONE SIDE, SECONDARY TERMINATIONS ON THE OTHER.
4. USE OVERSIZE CORE AREA TO DROP FLUX DENSITY AS SPECIFIED IN SEPARATE PAGE OF THIS DOCUMENT.
5. USE 1" X 1-1/4" HORIZONTAL FRAME, BAHR'S STYLE 1 OR EQUIVALENT.
6. MOUNTING HOLES TO BE ON 3.562" CENTERS.
7. STAMP OR MARK TERMINATION DESIGNATIONS AS DESCRIBED ON SEPARATE PAGE OF THIS DOCUMENT. LABELING MAY BE DONE ON OUTER WRAPPING OF COIL.

Load Conditions for noise test

---

Transformer Part Number 3-4-TRN Rev A

Date: 2/24/85

Rev Date: November 7, 1986

Rev Notes:

LOAD CONDITIONS.

Shows secondary loading.

SEC.

LOAD

LOAD CONDITIONS FOR NOISE TEST  
AS SHOWN ON "NORMAL OPERATING  
LOADS" PAGE.

NOTES:

noise spec: 40dB, "A" weighted, Simpson meter, measured  
8" above sounding board (4" above former).

# COUNTERPOINT

CORE: EI-100

STACK: 1.25

DATE: 11-10-87

PART NUMBER: 3-4-TRN

GAUGE: 29

GAP:

REVISION LEVEL: A

GRADE: M6X

INTERLEAVE: 2 X 2 OR BETTER

WINDING	MARGIN	TURNS	TURNS PER LAYER	WIRE SIZE	WIRE TYPE	TAPS	SHIELD	LAYER INS.	WRAP	LEADS	TERMINATE
PR 1 & 2	Ø	521	RANDOM LAY	29	HPN	400T "L" 480T "M"			HP		C-L-M-H (1 & 2)
SHIELD		1					1 MIL COPPER				
A	.10	1395	279	34	HPN			LP	HP		7-10
B	.10	59		21	HPN				HP		3-4

BOBBIN:

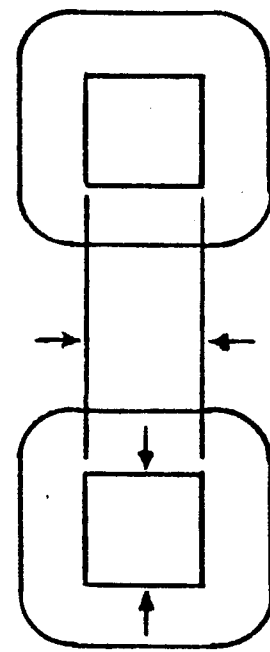
TUBE SIZE:

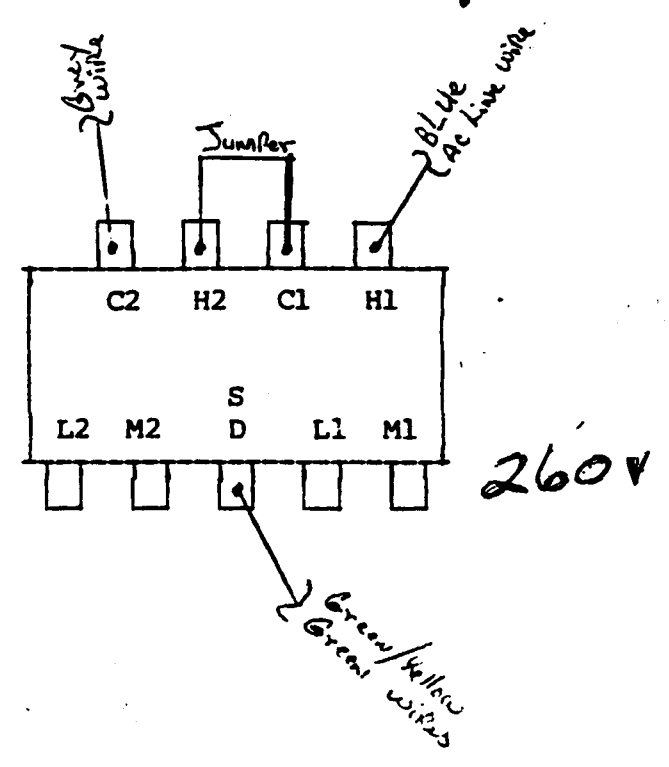
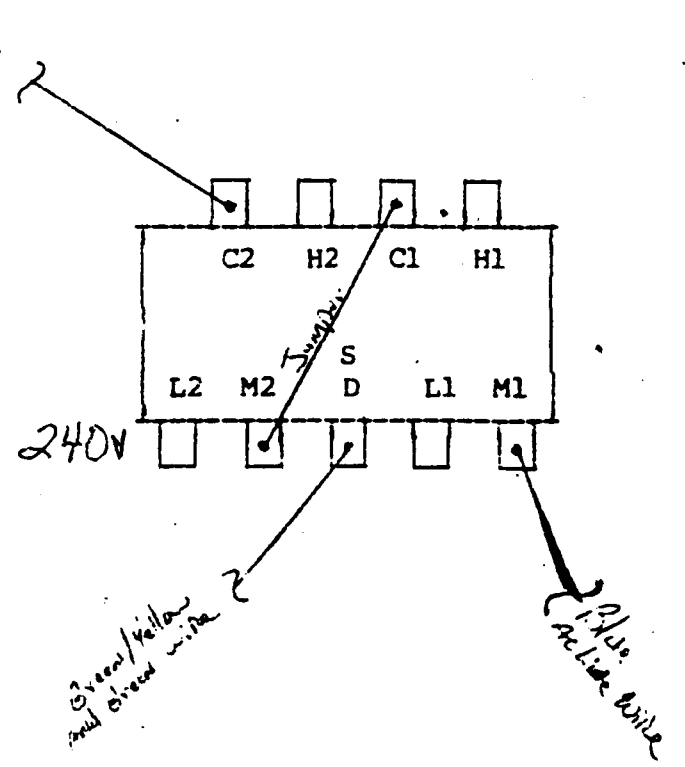
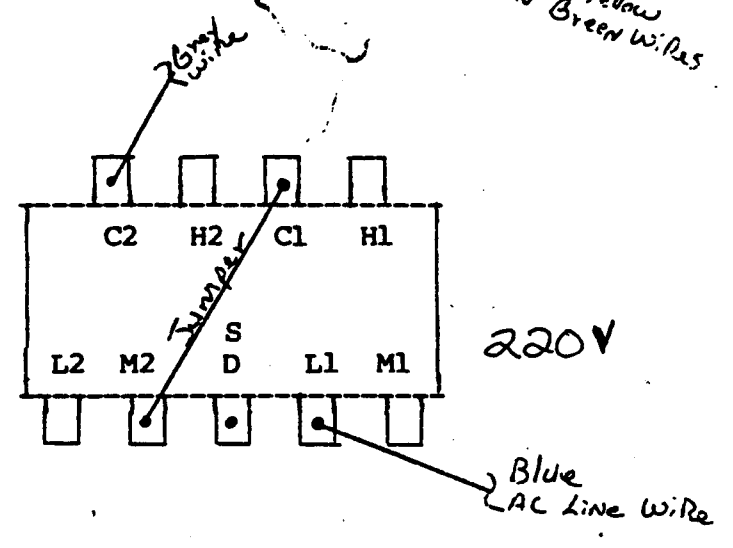
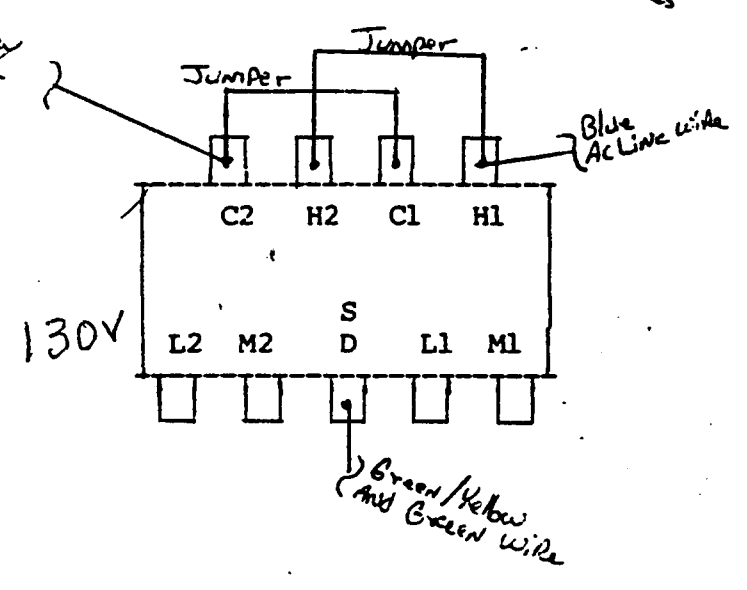
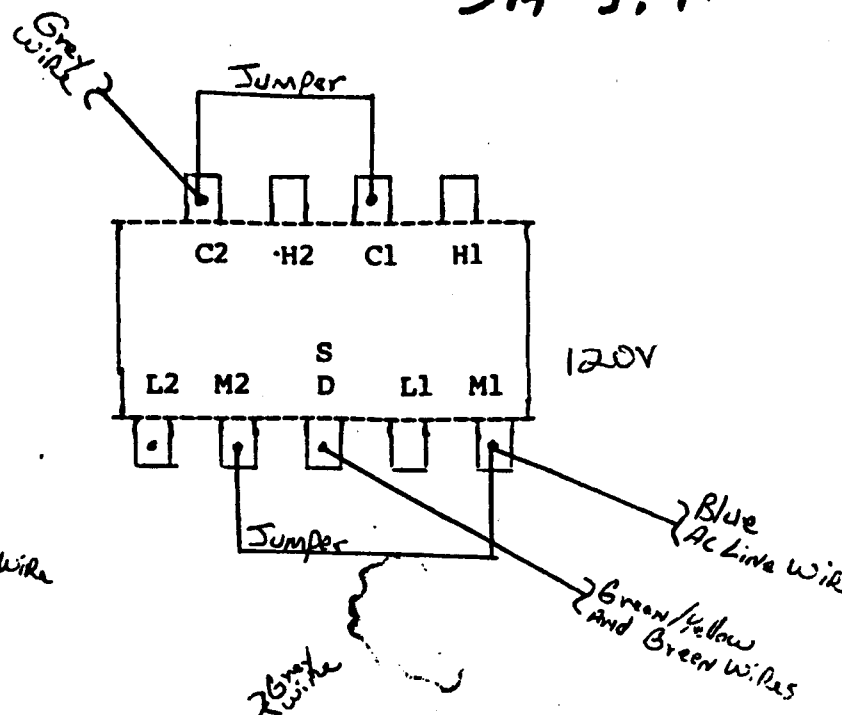
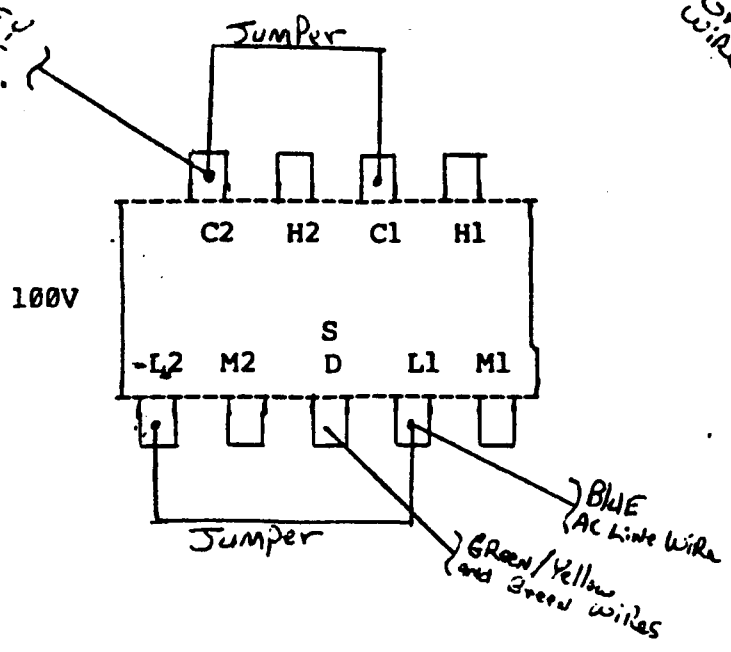
VARNISH: VACUUM AIR DRY

WIRE BREAKOUT:

SHOP NOTES:

- INSULATE ALL LEAD CROSSOVERS WITH 10-MIL NOMEMX PAPER.
- LP = LIGHT PAPER, HP = HEAVY PAPER.
- HI-POT AT 1500V AT 1 MA BETWEEN ALL COILS.







COUNTERPOINT  
ELECTRONIC  
SYSTEMS, INC.

## SERVICE BULLETIN

BULLETIN No.  
SA3-002

Page No.  
1

Approved  
*EME*

Rev.

Date  
7.5.83

DESCRIPTION Update procedure, SA-3.

1. SCOPE This procedure establishes the modification of the SA-3 to current standards.
2. PURPOSE To improve sound quality. ie. Deeper, tighter bass, more extended highs, added clarity and coherence top to bottom, more natural harmonic balance.
3. UNITS AFFECTED All four digit serial numbered units with serial numbers beginning with four or five.
4. APPLICABLE MATERIALS Resistor-30k 2W M.O., Capacitor-8ufd 200v Rel-Cap, 2-Capacitor-3pf dipped mica, 2-Resistor-250 ohm resista, Fish paper.
5. TOOLS REQUIRED
  - 5.1 Soldering Iron, WELER WTCP or equivalent
  - 5.2 Solder, 60/40 or 63/37, electronic grade
  - 5.3 Phillips screwdriver, #1
  - 5.4 Wire cutters
  - 5.5 Silicon RTV or similiar adhesive
6. TIME REQUIRED 45 minutes, est.
7. PROCEDURE
  - 7.1 Remove the top and bottom cover
  - 7.2 Remove R-3 and R-21. This is easiest done by cutting them out at the top of the board and removing the rest of the lead from the underside; See diagram #1.
  - 7.3 Install the two 250 ohm resistors where R-3 and R-21 were.
  - 7.4 Cut C-16 loose from th top side of the board and remove. It is held down with silicon RTV and will require force to remove.
  - 7.5 Install the 8ufd Rel-Cap in place of the old C-16. Check to be certain that its leads don't short against R-68 or R-66. Put fish paper between cap and tube board, securing against the Rel-Cap with glue or silicon RTV.
  - 7.6 Cut R-66 out. Cut the leads close to the resistor body so that the leads remain protruding from the boards top side. Solder the 30k resistor to the leads.
  - 7.7 Locate R-9 and R-12. On the bottom side of the main board locate the circuit trace where R-9 and R-12 connect closest to the tube board. On this trace solder one end of the 3pf caps. Solder the other end to the spot where coax cable connects to the the points labeled C and D. See Diagram #2.
  - 7.8 Clean flux from board, reinstall top and bottom covers.

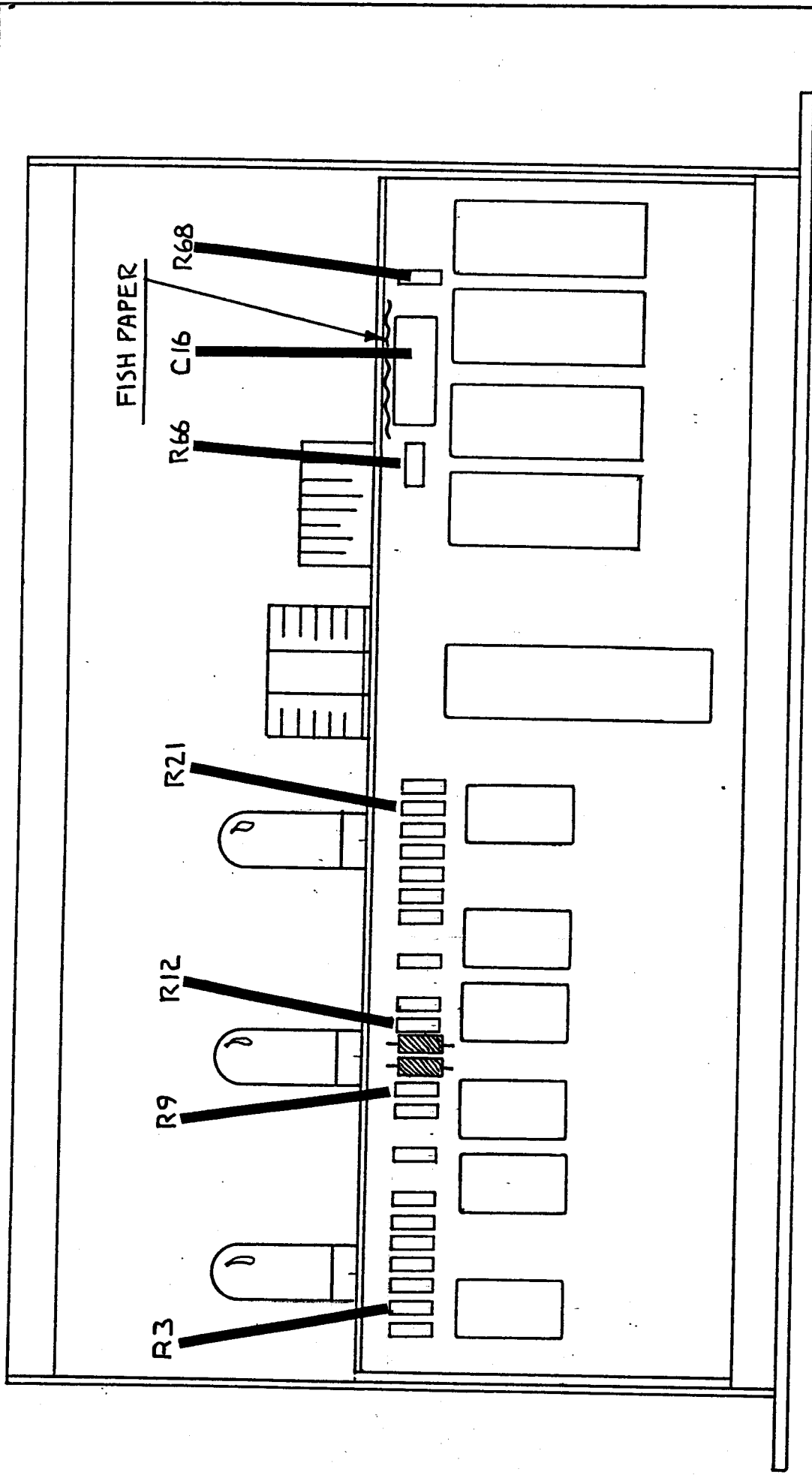


DIAGRAM 1  
SA3-002

DATE	SCALE	REV
PIECE	C	DRAWING NUMBER
PHYS		
ENGL		
APPL		
NET WT	UNIT IN	
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COUNTERPOINT  
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SA3-002-1

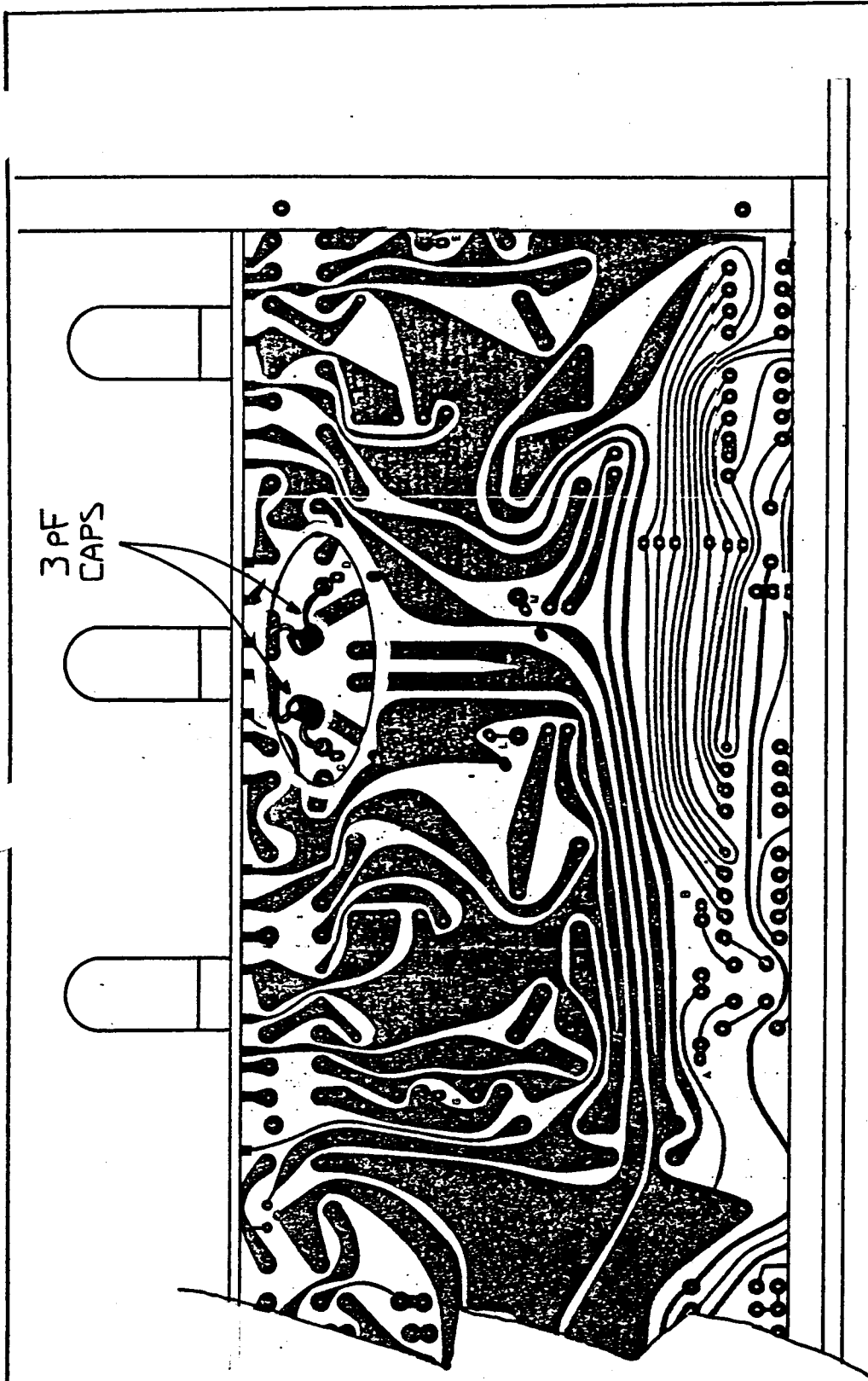


DIAGRAM 2

DATE																	
TOLERANCE																	
THIS DRAWING CONTAINS INFORMATION	SIZE	DRAWING NUMBER	REV														
ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES	SCALE	C															
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SA-3 UPDATE

1. SCOPE- THIS PROCEDURE ESTABLISHES THE MODIFICATION OF THE SA-3 CURRENT STENDARDS.
  2. PURPOSE- TO IMPROVE SOUND QUALITY. ie. DEEPER, TIGHTER BASS, MORE EXTENDED HIGHS, ADDED CLARITY AND COHERENCE TOP TO BOTTOM, MORE NATURAL HARMONIC BALANCE.
  3. UNITS AFFECTED- ALL THE HALF TUBE BOARD.
  4. APPLICABLE MATERIALS- RESISTORS {2} 27K 2W M.O.; 30K 2W M.O.; {6} 250 ohm MK; {3} 500 ohm MK3; 15K MK; 1N5368B DIODE; 200uf/200V 'LYTIC CAPACITOR; 1uf/200V RELCAP; {2} 3 PF DIPPED MICA; 8uf/200V RELCAP; {2} FISH PAPER;
  5. TOOLS REQUIRED-
    - 5.1 SOLDERING IRON
    - 5.2 SOLDER, 60/40 OR 63/37, ELECTONIC GRADE
    - 5.3 PHILLIPS SCREWDRIVER, #1
    - 5.4 WIRE CUTTERS
    - 5.5 SILICONE RTV OR SIMILIAR ADHESIVE
  6. TIME REQUIRED- STEP 1 45 MINUTES, EST.; STEP 2 15 MINUTES.
- \* NOTE \* DIAGRAM 1, WILL HAVE THE REPLACEMENTS MARKED IN ORANGE & THE REMOVEL PARTS WILL BE MARKED IN RED.

7. PROCEDURE- STEP 1

- 7.1). REMOVE TOP AND BOTTOM COVERS
- B.2). REMOVE D13 FROM BOTTOM OF BOARD
- 7.3). CHANGE R25 & 54 TO 27K 2W M.O. (OR ADD IN PARRALL A 47K 2W M.O.)
- 7.4). REMOVE JUMPERS ON CIRCUIT SIDE OF TUBE BOARD
- 7.5). REMOVE R3,5,7,15,17,21. AND REPLACE THEM WITH A 250 ohm MK RESISTOR.
- 7.6). REMOVE THE FRONT END OF D-9, BEND IT BACK UPRIGHT. THEN INSTALL A 1N5368B IN THE FRONT HOLE OF D-9, AND ATTACH THE TWO DIODES TOGETHER. BE SURE THE POLARITY OF THE TWO DIODES ARE GOING THE SAME DIRECTION.
- 7.7). REMOVE R62,63,64,Q1,Q3 & C15
- 7.8). INSTALL A JUMPER IN THE TWO HOLES OF Q1 & Q3. (see diagram 2).
- 7.9). REMOVE R65,57 & REPLACE IT WITH A JUMPER.
- 7.10).REMOVE R56, REPLACE IT WITH A 500 ohm RESISTOR MK3
- 7.11).REMOVE THE JUMPER IN FRONT OF R56, REPLACE IT WITH A 500 ohm MK3 RES.
- 7.12).SILICONE A 200uf/250V ELECTOLYLIC CAP WHERE C-15 WAS. ATTACH THE (+) END TO THE JUMPER IMMEDIATLY TO THE LEFT OF C-14, (see diagram 3). ATTACH THE (-) END TO THE (-) END OF C-14.
- 7.13).ADD A 1uf/200V RELCAP BYPASSER TO THE NEW C-15.
- 7.14).REPLACE R69 & 70 WITH A 15K MK RESISTOR.

STEP 2

- 7.15).REPLACE R66 WITH A 30 K 2W M.O. RESISTOR.
- 7.16).LOCATE R-9 AND R-12 ON THE BOTTOM SIDE OF THE MAIN BOARD, LOCATE THE CIRCUIT TRACE WHERE R-9 AND R-12 CONNECT CLOSEST TO THE TUBE BOARD. SOLDER ONE END OF THE TWO 3 PF CAPACITOR TO THE TWO TRACES, SOLDER THE OTHER END TO THE SPOT WHERE THE COAX CABLE CONNECTS TO THE POINTS LABELED C AND D. {see diagram 4}.
- 7.17).REMOVE C-16, REPLACE IT WITH A 8uf/200V RELCAP CAPACITOR. SOLDER THE CAPACITOR LEAD CLOSEST TO D9-12, TO THE CAPACITOR LEAD C-19. THEN SOLDER THE OTHER IN IT RIGHT PLACE. THE CAPACITOR WILL NOT BE SITTING ON THE BOARD IT WILL BE UP IN THE AIR. SLIP A PIECE OF FISH PAPER BETWEEN THE CAPACITOR AND THE HEATSINK OF Q4. ALSO PLACE FISH PAPER BETWEEN THE CAPACITOR AND THE DIODES.
- 7.18).CLEAN FLUX FROM BOARD, REINSTALL TOP AND BOTTOM COVERS.

3 PF  
CAPS

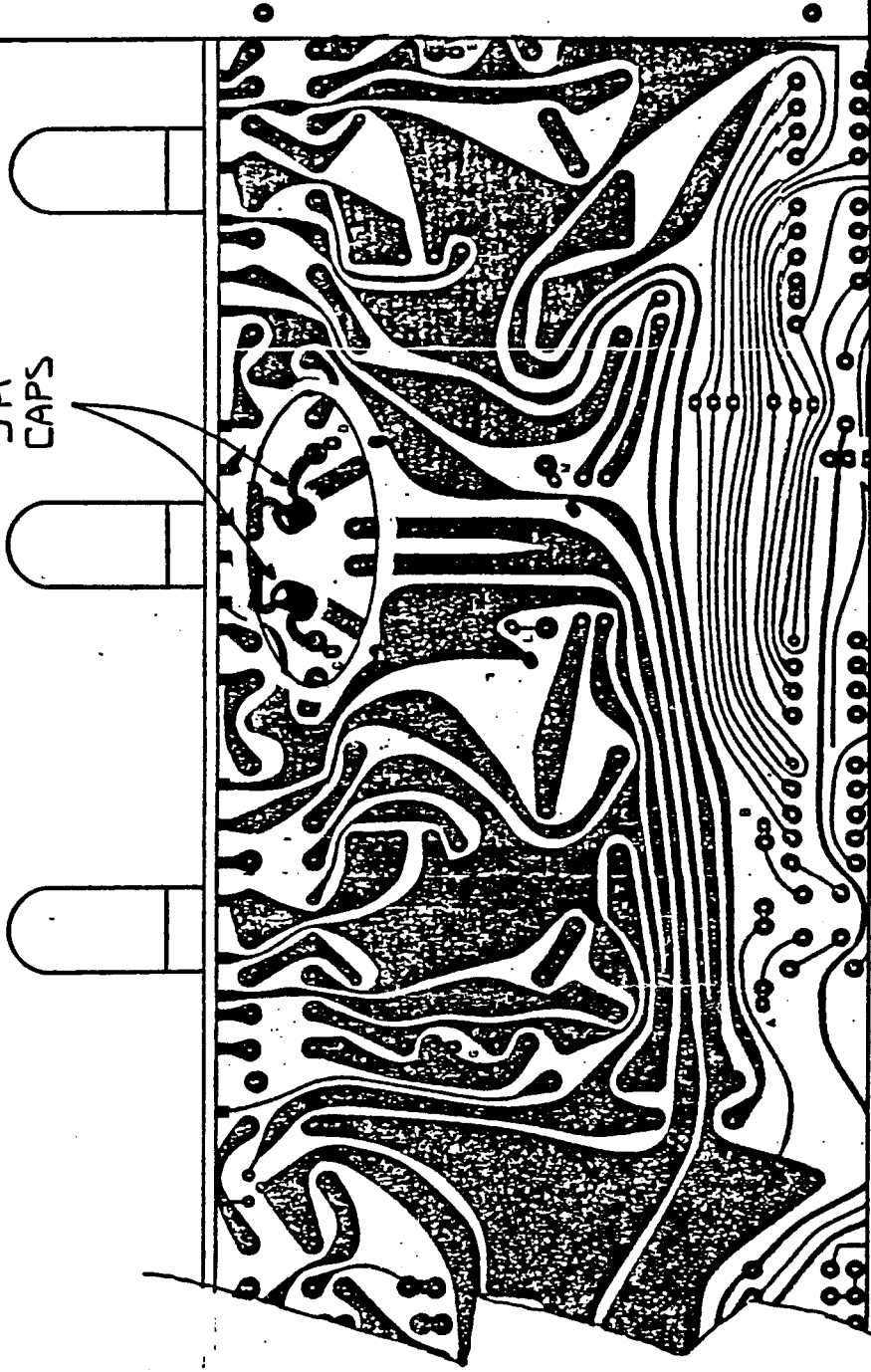
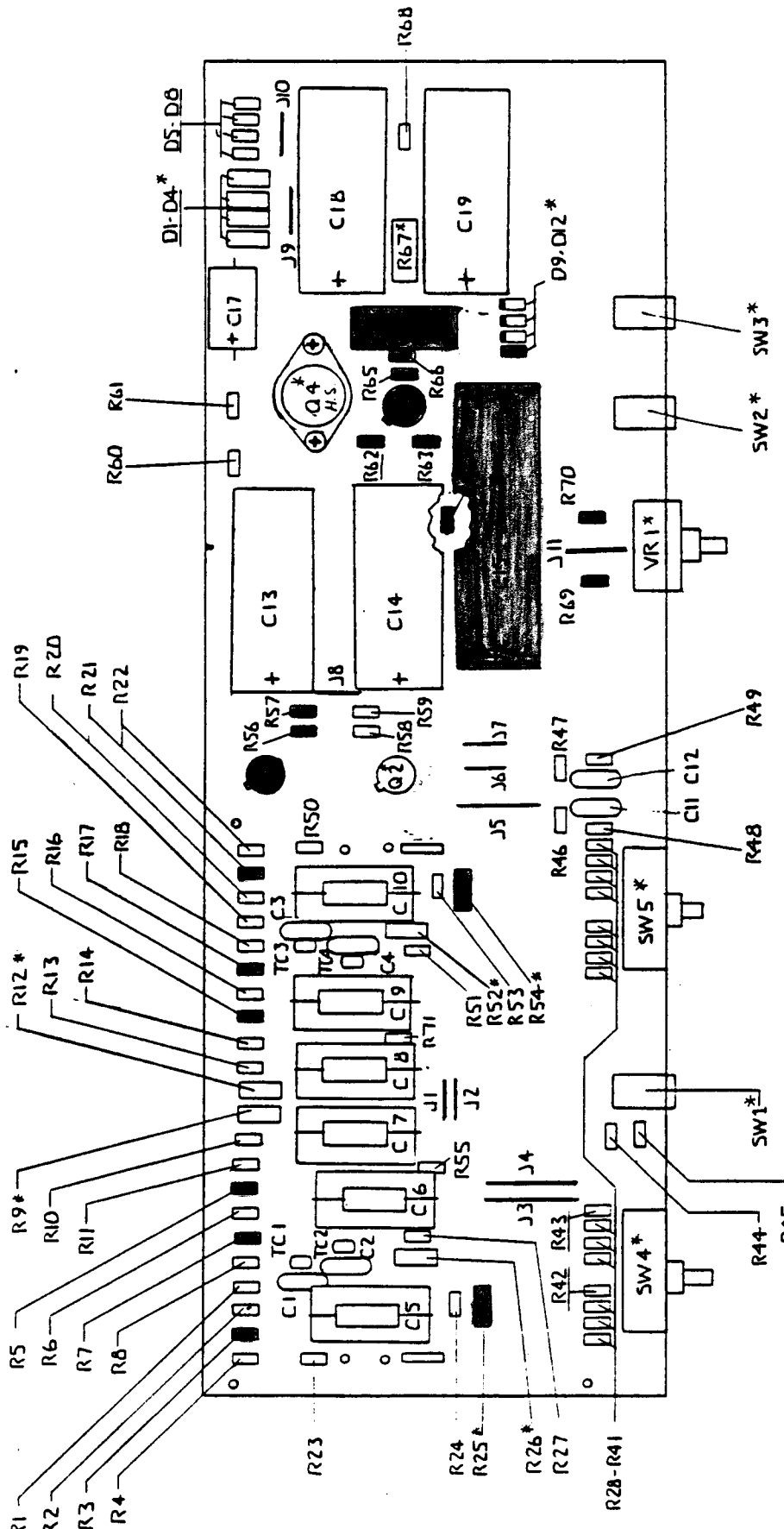


DIAGRAM 2

COUNTERPOINT ELECTRONIC SYSTEMS, INC.		SIZE C	DRAWING NUMBER	REV
SA3-002-Z		SCALE		
DATE	1963	1963		
DESIGNER				
CHECKED				
APPROVED				
<small>THIS DRAWING IS THE PROPERTY OF COUNTERPOINT ELECTRONIC SYSTEMS, INC. IT IS TO BE USED ONLY FOR THE PROJECT AND FOR WHICH IT WAS PREPARED. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF COUNTERPOINT ELECTRONIC SYSTEMS, INC.</small>				

REV.	DESCRIPTION	DATE	APP.

DRAWING NO.	REV.



\* = DO NOT LEAVE SOLDER

Q1  
Q2  
Q3

DATE	

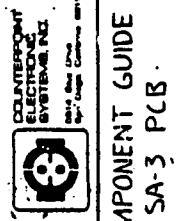
  

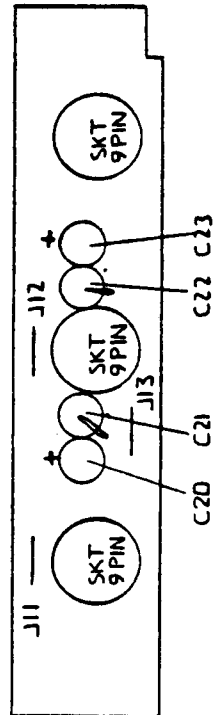
UNLESS OTHERWISE SPECIFIED  
INTERPRET DRAWING PER ANSI Y14  
ALL DIMENSIONS ARE IN INCHES AND APPLY  
UNLESS NOTED OTHERWISE.  
BREAK SHARP EDGES

COMPONENT GUIDE  
SA-3 PCB

REV	6003	DRAWING NUMBER



NOTES: UNLESS OTHERWISE SPECIFIED