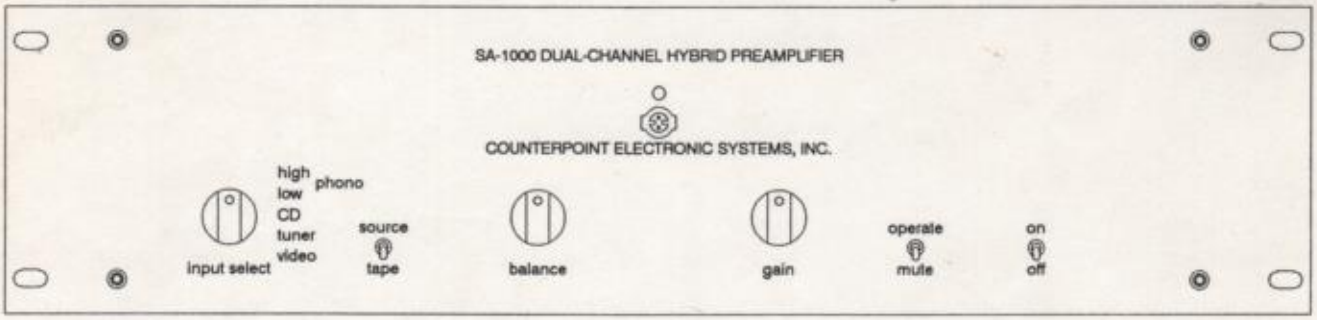
COUNTERPOINT
PREAMPLIFIER
MODEL SA1000
SERVICE
MANUAL



SA-1000 Front Panel

REV	DESCRIPTION	DATE
A	VALUES REVISED PER PRODUCTION ITEMS	11/08/88

NORMAL OPERATING VOLTAGES FOR THE SA-1000.
SEE NOTE 1

REF.	DC VOLTAGE	NOTES
A	-0.57 30%	
B	104 10%	
C	-0.33 45%	
D	108 5%	
E	0	
F	0	
G	2.5 5%	
H	72 10%	
I	219 3%	
J	232 3%	
K	0	
L	426 1%	
M	350 1%	
N	350 1%	SEE NOTE 3
O	348 1%	
P	348 1%	
Q	348 1%	
R	348 1%	
S	22.3 1%	
T	12.6 1%	

NOTES:
1. ALL VOLTAGES WITH AC MAINS AT NOMINAL VOLTAGES, ALL TUBES INSTALLED AND SA-1000 SWITCHED ON.
2. VOLTAGE ACROSS R203 = 0.09V (9mA) ±5% FOR NORMAL SA-1000.

DRAWN	JME	REVISION	A
ON DATE	11/08/99	PRODUCT:	SA-1000

COUNTERPOINT
VOLTAGES

CAD FILE: 70021.DWG	DWG: 7002.1

REV	DESCRIPTION	DATE
A	VALUES REVISED PER PRODUCTION PIECES	11/08/88

AC SIGNAL LEVELS FOR THE SA-1000
SEE NOTE 1

REF.	SIGNAL LEVEL	NOTES
A	1mV 0dBr	
B	42mV +33dBr	
C	6mV +16dBr	
D	180mV +45dBr	SEE NOTE 4
E	180mV +45dBr	
F	171mV +45dBr	
G	40mV +32dBr	
H	3.1V +70dBr	
I	3.1V +70dBr	
J	4.3V +73dBr	
K	4.3V +73dBr	

NOTES:

1. CAUTION: VOLTAGES AT SOME OF THESE TEST POINTS MAY EXCEED MAXIMUM DC VOLTAGE OF SOME AUDIO TEST EQUIPMENT. REFER TO DRAWING # 7002.1 "VOLTAGES, SA-1000" FOR TYPICAL DC VOLTAGES. IN DOUBT, CONTACT THE MANUFACTURER OF YOUR TEST EQUIPMENT.

2. TEST CONDITIONS:

   GENERAL:
   ALL VOLTAGES WITH AC MAINS AT NOMINAL VOLTAGE, ALL TUBES INSTALLED, AND SA-1000 SWITCHED "ON." VOLUME CONTROLS AT MAXIMUM, BALANCE CONTROL CENTERED, PHONO 'HIGH' SELECTED, 'SOURCE' SELECTED, UNIT UN-MUTED, NO "MC LOAD" RESISTORS, GAIN JUMPERS SET TO SHUNT PINS "3" TO PINS "4" ONLY.

   INPUT SIGNAL:
   1mV RMS, 1kHZ SINE WAVE APPLIED TO PHONO INPUT JACK.

   TEST POINT VOLTAGE:
   VALUE SHOWN IS RMS, dBR REFERRED TO INPUT SIGNAL LEVEL.

3. SIGNAL LEVELS MAY VARY APPRECIABLY FROM THE VALUES SHOWN DUE TO VARIATIONS IN TUBES. BOTH CHANNELS SHOULD USE SAME BRAND OF TUBE (VISUALLY INSPECT INTERNAL CONSTRUCTION OF TUBE TO CONFIRM. DO NOT ASSUME SIMILARLY MARKED TUBES ARE FROM THE SAME MANUFACTURER.

4. SIGNAL LEVELS FROM TEST POINT D TO OUTPUT ARE VARIABLE AS A FUNCTION OF INTERNAL 'GAIN TRIM' CONTROLS, WHICH ARE USED TO ASSURE EQUAL SIGNAL GAIN FROM THE TWO PHONO STAGES.

5. INPUT Z OF AUDIO VOLTMETER ASSUMED TO BE 100K OHMS.

DRAWN	JME	REVISION	A
ON DATE	11/08/88	PRODUCT:	SA-1000

COUNTERPOINT
SIGNAL LEVELS

CAD FILE: 70024.DWG | DWG: 7002.4

REV	DESCRIPTION	DATE
A	REVISED PER PRODUCTION ITEMS	11/08/88

NORMAL NOISE, HUM AND RIPPLE VOLTAGES FOR THE SA-1000
SEE NOTE 1.

REF.	NOISE VOLTAGE SEE NOTE 2	HUM VOLTAGE	RIPPLE VOLTAGE	NOTES
A	1.3uV	8uV		
B	26uV	38uV		
C	2.3uV	12uV		
D	56uV	600uV		
E	56uV	460uV		
F	1.6uV	16uV		
G	1.6uV	16uV		
H	22uV	34uV		
I	22uV	37uV		
J	39mV	72mV		
K	38uV	65uV		
L	24mV	350mV	1.2V	
M	3mV	7mV	43mV	
N	3mV	7mV	43mV	
O	8uV	65uV		
P	8uV	65uV	<2mV	
Q	8uV	65uV		
R	8uV	65uV		
S	70mV	1.2V	3.6V	
T	30uV	80uV	<2mV	

DEFINITION OF TERMS.

1. NOISE: FOR THE PURPOSES OF THIS DOCUMENT, "NOISE" IS DEFINED AS THE RMS VALUE OF THE VOLTAGE MEASURED, BANDWIDTH LIMITED TO BETWEEN 400-22kHz AT 18dB/OCTAVE.
2. HUM: "HUM" IS DEFINED AS THE RMS VALUE OF THE VOLTAGE MEASURED, BANDWIDTH LIMITED TO BETWEEN 22 TO 22kHz AT 18dB/OCTAVE.
3. RIPPLE: "RIPPLE" IS DEFINED AS THE PEAK-TO-PEAK VALUE OF THE VOLTAGE MEASURED AS OBSERVED ON AN OSCILLOSCOPE.

NOTES:

1. CAUTION: DC VOLTAGES AT SOME OF THESE TEST POINTS MAY EXCEED MAXIMUM DC VOLTAGE RATING OF SOME AUDIO TEST EQUIPMENT. REFER TO DRAWING # 7002.1 "VOLTAGES, SA-1000" FOR TYPICAL DC VOLTAGES. IF IN DOUBT, CONTACT THE MANUFACTURER OF YOUR TEST EQUIPMENT.

2. NOISE LEVELS SHOWN ARE WITH AVERAGE-GRADE VACUUM TUBES INSTALLED.

TEST CONDITIONS.

GENERAL.

ALL VOLTAGES TAKEN WITH AC MAINS AT NOMINAL VOLTAGE, 60Hz, ALL TUBES INSTALLED, SA-1000 SWITCHED TO "ON" POSITION AND UNMUTED, SELECTOR SWITCH SET TO "PHONO-HIGH" INPUT, VOLUME CONTROL AT MINIMUM, BOTH GAIN JUMPERS SET TO CONNECT PIN "3" TO PIN "4" ONLY, SHORTING PINS INSERTED INTO PHONO INPUTS.

USE SA-1000 CHASSIS GROUND POST FOR REFERENCE FOR NOISE MEASUREMENT PROBE.

INPUT IMPEDANCE OF VOLTMETER ASSUMED TO BE 100 000 OHMS.

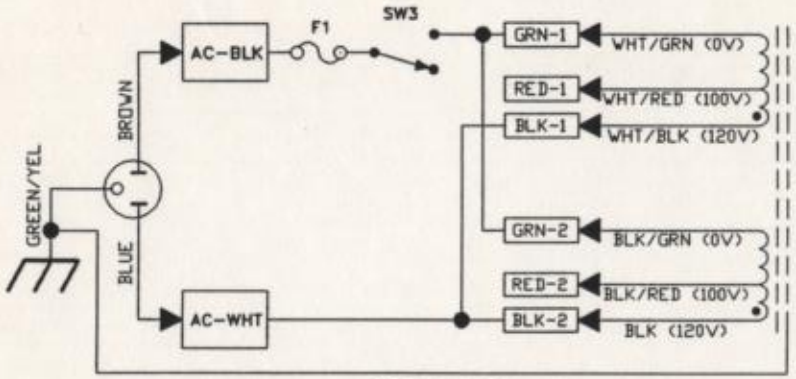
DRAWN	JME	REVISION	A
ON DATE	11/08/88	PRODUCT:	SA-1000

COUNTERPOINT

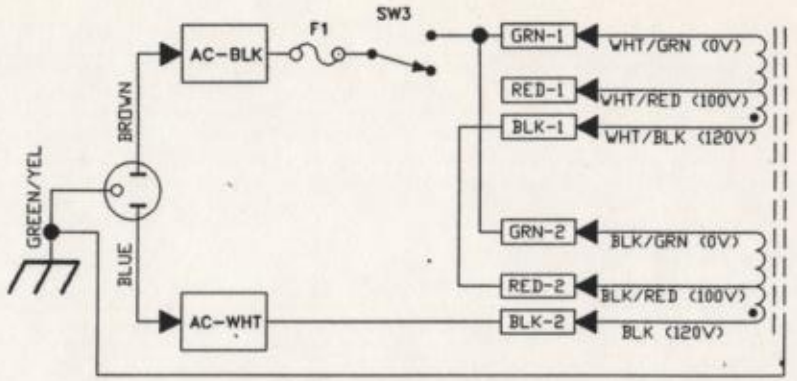
NOISE AND HUM
SA-1000

CAD FILE: 70029 | DWG: 7002.9

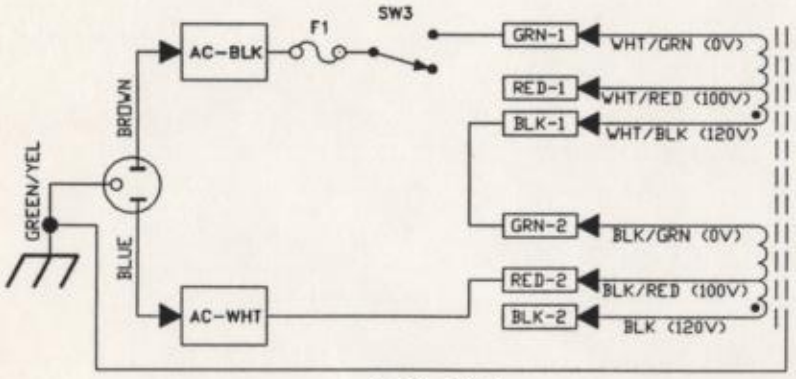
REV	DESCRIPTION	DATE



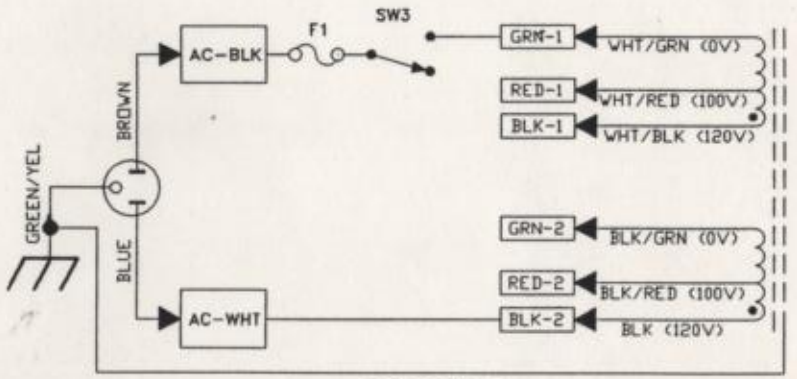
120 VAC



130 VAC



220 VAC



240 VAC

NOTES: UNLESS OTHERWISE SPECIFIED

1. DRAWING SHOWS PRIMARY CIRCUIT WIRING FOR SA-1000 TRANSFORMER. CPTP/N : 1K-4-TRN.
   DRAWING SHOWS TRANSFORMER PRIMARY LEADS, LEAD DESIGNATIONS, AC CORDSET, POWER SWITCH, FUSE AND WIRE COLORS.
2. NOTE THAT AC CORDSET GREEN/YELLOW ("EARTH" OR "GROUND") WIRE REQUIRES GOOD LOW RESISTANCE CONNECTION TO PRODUCT CHASSIS.
3. FOUR AC MAINS VOLTAGE WIRINGS SHOWN.

DRAWN JME	REVISION
ON DATE 2/18/91	PRODUCT: SA-1000

COUNTERPOINT

TRANSFORMER PRIMARY WIRING DETAILS

CAD FILE: 70027	DWG: 70027

LIST OF MATERIALS

DRAWING NUMBER: 7002.3 PAGE 1 OF 4
PRODUCT: SA-1000
ASSEMBLY LEVEL: ALL

REFERENCE	PART VALUE	DESCRIPTION
D201,202,203,204, 300,301	1N4007	DIODE, RECTIFIER
D1, 101,2,102	1N4740A	ZDIODE, 10V, 1W
D205	1N5368B	ZDIODE, 47V, 5W
D206	1N5377B	ZDIODE, 91V, 5W
D207,208	1N5378B	ZDIODE, 100V, 5W
D209,210,211,212	1N5400	DIODE, RECTIFIER, 100V
Q201	2N3440	NPN TRANSISTOR, TO-5
NONE	~~7-4-TRN~~ 1K-4-TRN	SA-1000 TRANSFORMER
BP	BALANCE POT 1	CENTRALAB SA-3 TYPE
C5,C105	C.0206/630V	.0202/630V 1%
C301	C.01/100 CD	.01/100V CD
C1,101,3,103,9,109	C.47/250 MKP-10	WIMA, .47/250 MKP-10 (OR UK .47/210)
C8,108	C1/250	CAP. 1UF/250V MKP10
C6,C106	C1/250	1UF/250V MKP10
C300	C10/50 RL	CAP. 10UF/50V RL
C202,203,204,205	C100/400 SNAP	CAP. 100UF/400V SNAP IN.
C206	C1000/25 RL	CAP. 1000UF/25V RL

DISK FILE:	TITLE:	DRAWING NUMBER:	REV
1000LM1.DWG	MATERIALS, SA-1000	7002.3	C

LIST OF MATERIALS

DRAWING NUMBER: 7002.3 PAGE 2 OF 4
PRODUCT: SA-1000
ASSEMBLY LEVEL: ALL

REFERENCE	PART VALUE	DESCRIPTION
C207	C22/16 TANT	CAP. 22UF/16V TANTALUM
C208	C2200/16 RL	CAP. 2200UF/16V RL
C2,C102,7,107	C3PF DM	
C201	C47/450 (SEE NOTE 4)	CAP. 47UF/450V AL
C4,C104	C7000PF	.007/630V 1%
F1	FUSE 1	1 AMP FAST-BLO
F1	FUSE CLIP	KEYSTONE 3529 PC-MOUNT
HIGH GAIN SHUNTS	HEADER2	3M APTRONICS 929647-01-36
LED	LEDGREEN	
U201	LM350K	VOLTAGE REG., TO-3
U300	LM555	I.C. TIMER
MC LOAD	MICROJACKS	
Q1,101	MOSFET BSS101	MOSFET, SIEMENS P/N BSS101
VP	POTENTIOMETER	SA-1000
R9,109,204,205,206, 207,208	R1.00K	
R201	R1.00M	
R10,110	R1.50K	

DISK FILE:	TITLE:	DRAWING NUMBER:	REV
1000LM2.DWG	MATERIALS, SA-1000	7002.3	C

LIST OF MATERIALS

DRAWING NUMBER: 7002.3 PAGE 3 OF 4
PRODUCT: SA-1000
ASSEMBLY LEVEL: ALL

REFERENCE	PART VALUE	DESCRIPTION
R203	R10.0R	
R14,114,20,120, 21,121,22,122	R100R	
R8B,108B	R10.0K	
R209	R110R	
R5,105	R15.4K	
R15,115	R2.7M	2.7 MEG MK3
R13,113	R200K	
R402	R20R BT6W	20 OHMS BATHTUB 6W
R3,103,7,107	R301K	
R11A,11B,111A,111B	R332K	
R210	R332R	
R2,102,6,106,12, 112,300	R4.02M	
R1,R101	R47.5K	
R202	R47K MO2W	
R17,117	R499R	
R400,401	R5.11K	

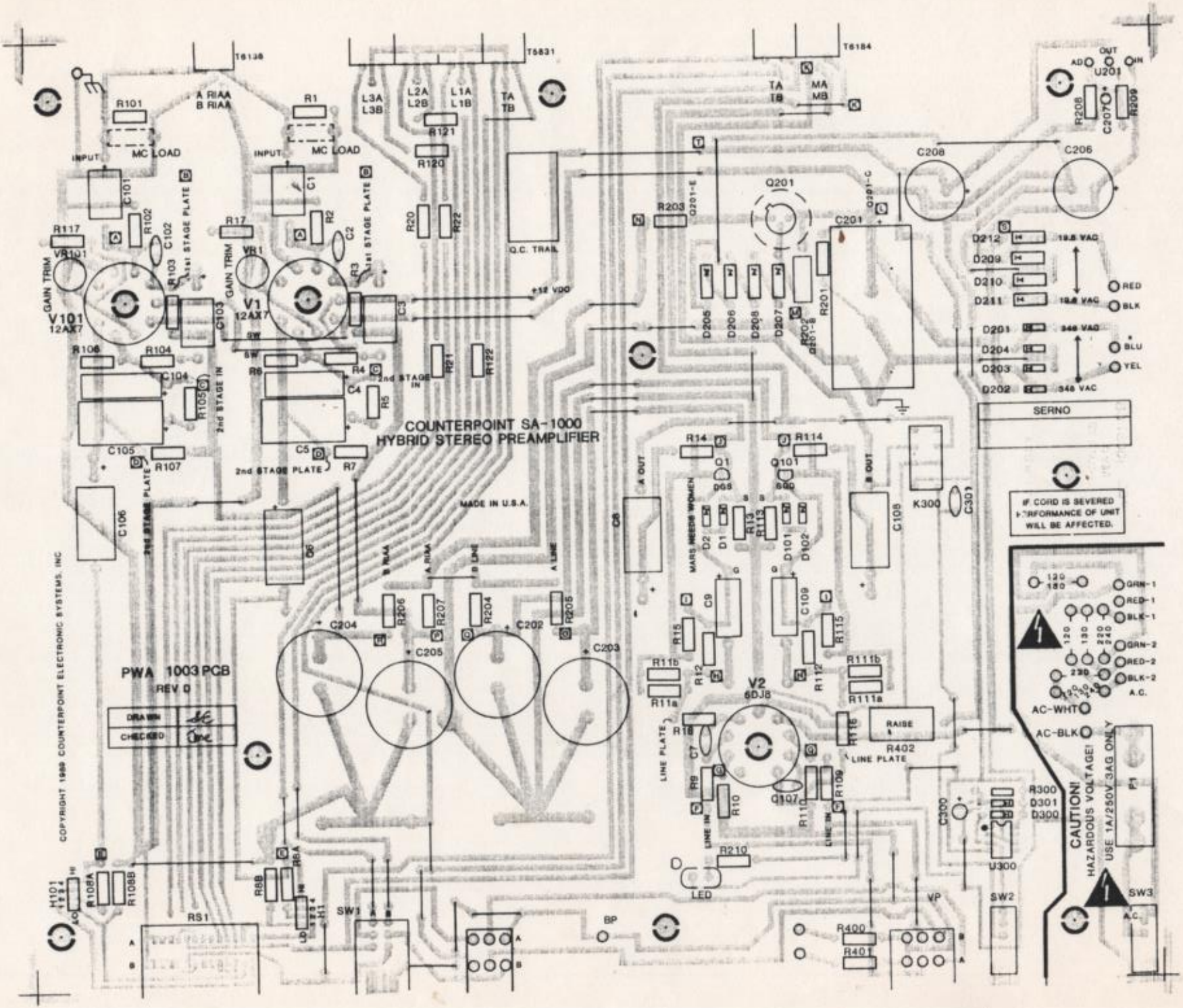
DISK FILE:	TITLE:	DRAWING NUMBER:	REV
1000LM3.DWG	MATERIALS, SA-1000	7002.3	C

LIST OF MATERIALS

DRAWING NUMBER: 7002.3 PAGE 4 OF 4
PRODUCT: SA-1000
ASSEMBLY LEVEL: ALL

REFERENCE	PART VALUE	DESCRIPTION
R16,116	R51.1R	
R8A,108A	R40.2K	
R4,104	R86.6K	
K300	RELAY 12V	ANY
NONE	SHORTING JUMPER	3M APTRONICS 929955-06
NONE	SKT 8 PIN DIP	8-PIN DIP SOCKET
SW1	SW-DPDT-RA	SWITCH, DPDT, RT. ANGLE
RS1	RSCTS	ROTARY SELECTOR SWITCH, CTS 212
SW2,3	SW-SPDT-RA	SWITCH, SPDT, RT. ANGLE
NONE	TUBSOC9	9 PIN TUBE SOCKET
V2	V6DJ8	6DJ8 TUBE
V1,101	V12AX7	12AX7 TUBE
VR1,101	VR1KPT10V	TRIMPOT, 1K, VERT ADJUST

DISK FILE:	TITLE:	DRAWING NUMBER:	REV
1000LM4.DWG	MATERIALS, SA-1000	7002.3	C


COUNTERPOINT SA-1000
HYBRID STEREO PREAMPLIFIER
PWA 1003 PCB
REV D
MADE IN U.S.A.
COPYRIGHT 1980 COUNTERPOINT ELECTRONIC SYSTEMS, INC
V101
12AX7
V1
12AX7
V2
6DJ8
SERNO
CAUTION!
HAZARDOUS VOLTAGE!
USE 1A/250V 3AG ONLY
IF CORD IS SEVERED PERFORMANCE OF UNIT WILL BE AFFECTED.
INPUT
MC LOAD
GAIN TRIM
1st STAGE PLATE
2nd STAGE PLATE
2nd STAGE IN
Q.C. TRAIL
+12 VDC
A RIAA
B RIAA
A LINE
B LINE
A OUT
B OUT
LINE PLATE
LINE IN
RAISE
LED
BP
VP
SW1
SW2
SW3
RS1
K300
U300
U201
Q201
Q1
Q101
D212
D209
D210
D211
D201
D204
D203
D202
19.8 VAC
348 VAC
RED
BLK
BLU
YEL
GRN-1
RED-1
BLK-1
GRN-2
RED-2
BLK-2
AC-WHT
AC-BLK
A.C.

Alta Vista Audio

COUNTERPOINT REPAIR CENTER

SA-1000 Upgrades

There are a lot of upgrades possible with the SA-1000. Just because it was the least expensive "thousand-series" Counterpoint preamp doesn't mean that you can't get fantastic sound. After all, like the more expensive preamps, it has a chassis, some knobs and a power supply. All we need to do is upgrade some of the circuitry and components and it will outperform preamps costing five times as much.

Upgrade: SA-1000 "LSP" (Line Stage Passives). Replace audio stage grid build-in, plate load, and buildout resistors with Caddock Tetrinox film resistors and Mills Non-inductive wirewound resistors, upgrade input and output caps to TRT SETI caps. I then bypass output MOSFET buffer, and shunt more current through the line stage tube, lowering its output impedance so it can directly drive your power amplifier. Upgrading the resistors and capacitors gives the tube the kind of support circuitry it needs to speak with exceptional clarity and purity; bypassing the output buffer eliminates solid-state colorations and lets you hear the tube. The whole effect is a richer, livelier more detailed sound with more precise focus and timbreal accuracy.

Price for SA-1000 "LSP" Upgrade: $360

SA-1000 "Purity" Mod. The high voltage power supply in the SA-1000 uses a few Zener diodes, a transistor and some $2.00 aluminum electrolytic to provide the power the tube uses to amplify the signal. It accomplishes the job of regulating the voltage, but sounds substantially better, with more bass, transparent upper mids and treble and better imaging when I rebuild it with Black Gate WKZ capacitors and a FET-referenced regulator.

Price for SA-1000 "HV Purity" Upgrade:

For Line Stage Only: $240

For Phono Stage and Line Stage: $480

(add $100 to these prices if not done with a "LSP" upgrade)

SA-1000 "Power" mod. The power transformer in the SA-1000 can be upgraded to an extremely nice toroid. Counterpoint built their own transformers, which made sense from a business perspective, but as a designer I always wished we could use **Plitron** toroidal transformers. I don't know how they do it, but Plitron toroids sound great. No one else comes close. All other transformers make the SA-1000 sound sluggish and thick; a Plitron brings the sound to life:

delicate and vibrant with a dead-quiet background. These transformers are custom-built to my specifications.

Price to Upgrade to Plitron Transformer: $225.

Better RCA Jacks. The jacks on the SA-1000 can be upgraded to use jacks with much better metallurgy. This can be done selectively: you might wish to only do your CD and phono inputs, and the main outputs. I can replace some or all of your jacks with direct-gold over copper CM1F-OFC from Sound Connections.

Price to Upgrade RCA Jacks: $60 for first stereo pair, $25 for each pair thereafter.

(add $100 to this price if not done with a "LSP" upgrade)

Upgraded Volume and Balance Controls. TKD makes excellent feeling and sounding volume and balance controls. Once you've heard (and felt) the difference between a $7.00 volume control and a $70.00 control you'll understand why people go to such lengths to get cheap controls out of their signal path. For the "he-men" (and she-women) out there, why not have the balance control bypassed altogether? You know you don't use it, why run the signal through it?

Price to Upgrade Volume Control: $100

Price to Upgrade Balance Control: $112

Price to Bypass Balance Control Altogether: No Charge

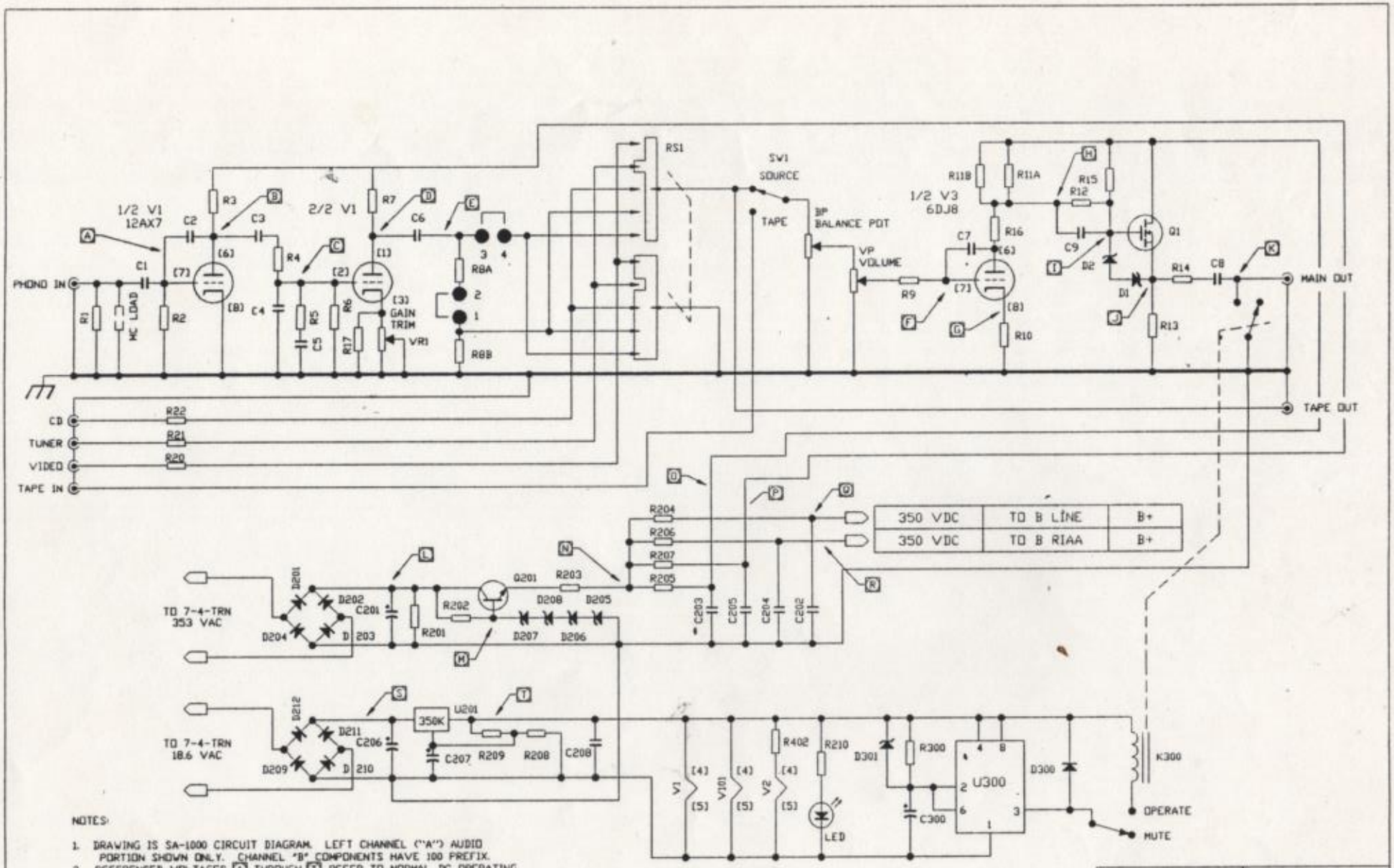
(add $100 to these prices if not done with an "LSP" upgrade)

Tubes. For the line stage section, I've found two tubes that work very well. Sovtek 6922s offer consistently excellent performance in terms of musical involvement, transient "punch," bass impact, warmth and freedom from glare and "hash." They sound far better than 6DJ8's in every aspect. Amperex 7308 tubes offer more top-end energy, giving you extended, detailed high-frequency response without edginess. The ultimate in "airiness."

Upgrade Line Stage Tube to Sovtek 6922: $35
Upgrade Line Stage Tube to Amperex 7308: $75

If I can be of any further assistance, do not hesitate to contact me.

Payment Terms and Policies
Home Page



NOTES:

1. DRAWING IS SA-1000 CIRCUIT DIAGRAM. LEFT CHANNEL ("A") AUDIO PORTION SHOWN ONLY. CHANNEL "B" COMPONENTS HAVE 100 PREFIX.
2. REFERENCED VOLTAGES [A] THROUGH [T] REFER TO NORMAL DC OPERATING VOLTAGES AS SHOWN ON DRAWING # 7002.1 "VOLTAGES, SA-1000."
3. FOR LIST OF MATERIALS, REFER TO DRAWING # 7002.3 "MATERIALS, SA-1000."
4. FOR DESCRIPTION OF CIRCUIT, REFER TO DRAWING # 7002.2 "CIRCUIT, SA-1000."
5. FOR TRANSFORMER PRIMARY CIRCUIT DETAILS, REFER TO DRAWING # 7002.7 "TRANSFORMER PRIMARY, SA-1000."
6. FOR AC SIGNAL LEVELS AT REFERENCED POINTS [A] THROUGH [K] REFER TO DRAWING # 7002.4 "SIGNALS, SA-1000."
7. FOR TYPICAL NOISE AND HUM LEVELS AT REFERENCED POINTS [A] THROUGH [T] REFER TO DRAWING # 7002.9 "NOISE AND HUM, SA-1000."

DRAWN	APPROVED
JME	

COUNTERPOINT

CIRCUIT DIAGRAM SA-1000

FILE:	DWG:
1000CKT	7002

COUNTERPOINT
ELECTRONIC SYSTEMS, INC.
10635 Roselle St.
San Diego, CA 92121-1399

COUNTERPOINT
AUDIO COMPONENTS
TUBE REPLACEMENT FORM

PLACE
STAMP
HERE

COUNTERPOINT
ELECTRONIC SYSTEMS, INC.
10635 Roselle St.
San Diego, CA 92121-1399

Selecting Tubes for Counterpoint Products.

Counterpoint vacuum tubes are aged, pre-tested, and hand selected. Every tube is burned in (aged) for over 180 Hours in order to screen out failures. This also allows it to settle to its final values prior to testing. Noise, distortion and tendency toward microphonics are all measured. Approximately 60% of all the tubes we purchase fail these tests. They are simply not good enough to use in Counterpoint equipment.

Before a tube is shipped, it is tested *once again in the actual product for which it is intended.* **A tube for an SA-5 is tested in an SA-5.** This careful hand-selection process assures a perfect match between a Counterpoint product and the tubes within it.

When selecting a source for your replacement tubes, consider who has the most familiarity with your Counterpoint product: **The People Who Made It.**

U.S.A. RETAIL PRICE — TUBES —

Tubes — Match Sets:

SA-2	V1 thru V4	6DJ8	80.00	☐
	V5 thru V8	Power Supply	54.00	☐
SA-3	V1 thru V3	6DJ8	46.00	☐
SA-4	V1 thru V8	6LF6	320.00	☐
	V9 thru V10	6FS5	30.00	☐
SA-5	V1 thru V4	6DJ8	74.00	☐
	V5 thru V8	Power Supply	64.00	☐
SA-6	V1 thru V2	12AX7	34.00	☐
SA-7	V1 thru V4	12AX7/6DJ8	44.00	☐
SA-12	V1 thru V4	6DJ8	48.00	☐
SA-20	V1 thru V5	6DJ8	84.00	☐
	V6	Voltage Rectifier	14.00	☐

COUNTERPOINT AUDIO CLUB — CLOTHING —

T-Shirts:

Medium	(32-34) ☐	Quantity_____	10.00 each
Large	(36-38) ☐	Quantity_____	10.00 each
X-Large	(38-40) ☐	Quantity_____	10.00 each

Sweat Shirts:

Medium	(32-34) ☐	Quantity_____	20.00 each
Large	(36-38) ☐	Quantity_____	20.00 each
X-Large	(38-40) ☐	Quantity_____	20.00 each

4 Color — 50/50 Blend; Made In U.S.A.

*** Include $5.00 for shipping and handling ***

PLEASE FILL OUT ALL OF THE FOLLOWING:

NAME _____

ADDRESS: _____

_____

PHONE NUMBER: ( )_____-_____

PAYMENT ENCLOSED:
BANK CHECK ☐ MC ☐ VISA ☐ AMX ☐

CARD NUMBER:_____

EXPIRATION DATE: _____

DRIVER'S LICENSE #: _____

PLEASE PRESENT THIS TUBE ORDER FORM TO YOUR AUTHORIZED COUNTERPOINT DEALER
OR
MAIL DIRECTLY TO COUNTERPOINT