

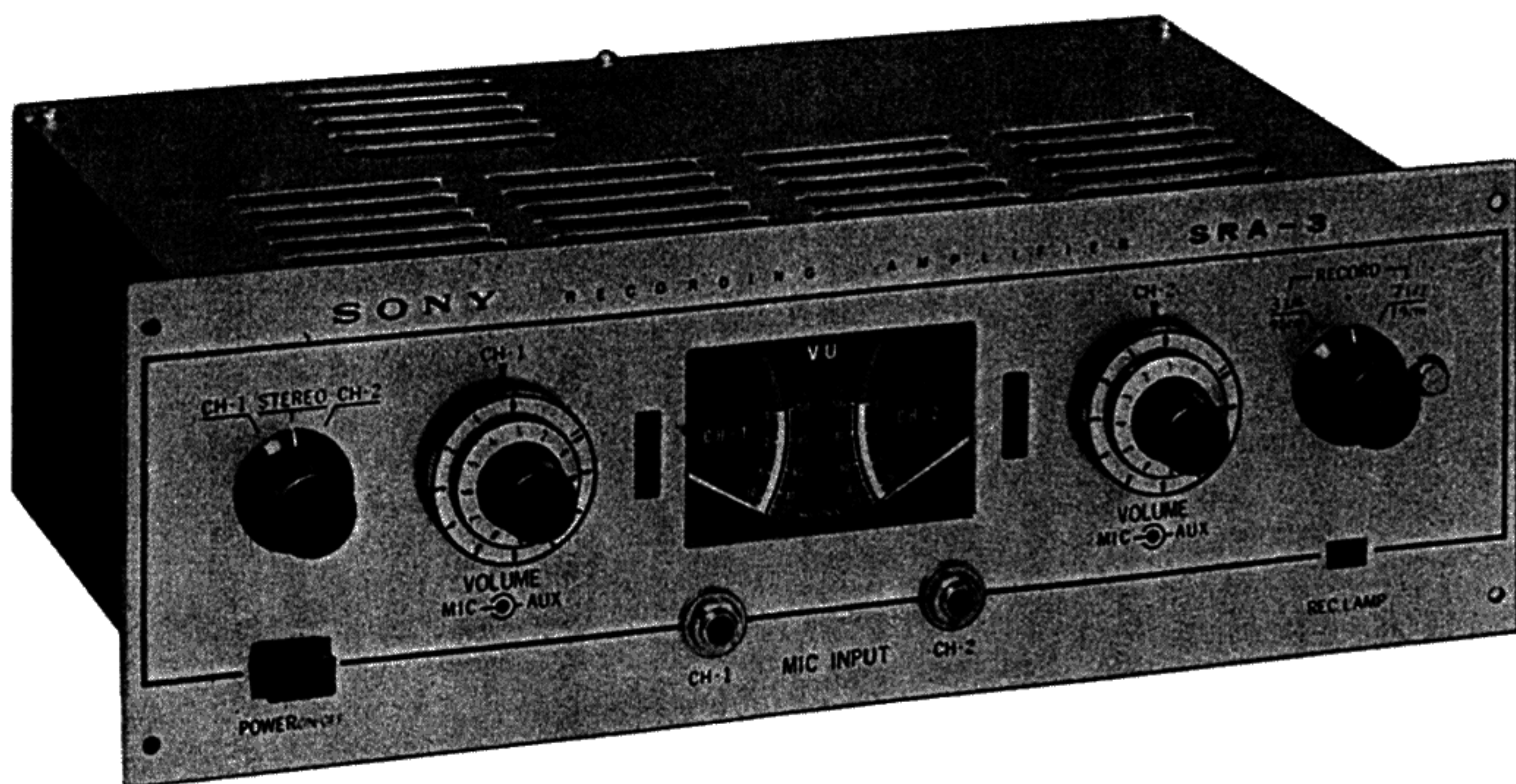
SONY



SUPERSCOPE *The Tapeway to Stereo*

8150 VINELAND AVENUE, SUN VALLEY, CALIFORNIA

MODEL **SRA-3** SERVICE GUIDE



MODEL SRA-3-----

Specifications:

<i>Power Requirements:</i>	<i>115 volts 50-60 cycles, 40 watts</i>
<i>Bias Frequency:</i>	<i>100kc</i>
<i>Level Indications:</i>	<i>2 VU meters, calibrated to NAB standards</i>
<i>Level Controls:</i>	<i>Separate controls for MIC/AUX inputs per channel.</i>
<i>Mode Selection:</i>	<i>CH-1, CH-2 or Stereo</i>
<i>Record Equalization:</i>	<i>7-1/2 or 3-3/4 selected by record switch</i>
<i>Inputs (per channel):</i>	<i>Microphone, high impedance Auxiliary, 100k ohms Magnetic Phono, compensated to RIAA standards</i>
<i>Outputs (per channel):</i>	<i>Monitor, 5k ohms Record Head Erase Head Playback amplifier for connection of a combination record/play head.</i>
<i>Recommended Head:</i>	<i>High Impedance (Model 262-D) Record PP 15-2902 Erase EF 13-2902 Low Impedance (Model 263-D or 263-E) Record RP 30-2902 Erase EF 18-2902</i>
<i>Tube Complement:</i>	<i>2-6AU6, 2-12AT7, 1-12BH7, 1-6X4</i>
<i>Transistor Complement:</i>	<i>2-TX-128</i>

The Model SRA-3 is a highly versatile recording amplifier for use with Sony Models 262-D, 263-D, and 263-E Tape Transports. A slide switch located on the chassis under the perforated top cover and to the right of the oscillator coil provides selection of bias and constant current networks for high (262-D) or low (263-D or 263-E) impedance heads.

Provision has been made to switch the Record head connections to an additional set of jacks when the record switch is placed to "off". This allows the SRA-3 to be used with a Sony Model 262-D.

A magnetic phono cartridge can be directly connected to the SRA-3. The magnetic phono and microphone inputs cannot be simultaneously used. Connection of a microphone automatically disconnects the magnetic phono input.

Installation

The SRA-3 can be operated in any position. It is necessary to provide air circulation around the amplifier.

Use short shielded wire for all connections. Sony cables RK-56 are ideal for this use. If longer cables are used, it is recommended that capacities of 100 pfd or less be used. A five foot length of RG-59 co-axial cable provides this capacitance.

Adjustments

The SRA-3 is adjusted at the factory for use under average conditions. For optimum performance, it is necessary to make slight adjustments to the bias settings. These adjustments should be made with the SRA-3 and Tape Transport connected as they will be installed.

Test Equipment Required

- (a) Audio Oscillator--Hewlett-Packard Model 200CD or equivalent.
- (b) Vacuum Tube Voltmeter--Hewlett-Packard Model 400D or equivalent.
- (c) Head Demagnetizer.
- (d) Suitable playback pre-amplifier.
- (e) Alignment Tape--Ampex Catalog #31321-01 or equivalent. *
This tape is recorded at 10db below the maximum recommended recording level to play back a range of frequencies from 15kc to 50 cycles at a constant voltage output. The first tone establishes the reference level. The last tone of 750 cps is recorded at standard operating level and is 10db higher in level than all others.
Always demagnetize heads before using an alignment tape.

Magnetized heads will cause partial erasure of the high frequencies recorded on the tape, rendering the tape useless as a standard.

** A suitable alignment tape is available from Superscope, Inc., at a cost of \$7.50.*

NOTE: Prior to attempting any electrical adjustments, the azimuth alignment must be standardized on both record play heads. Details of the procedure are contained in the appropriate Service Guides.

262-D Bias Adjustments

- 1. Temporarily attach an additional playback head to the Model 262-D. Connect the head output to a suitable pre-amplifier and monitor the pre-amplifier output with an AC VTVM. Set impedance selector to "HiZ" position.*
- 2. Place the SRA-3 in record, and feed a 1kc signal into the AUX inputs. Adjust both record level controls and signal level to obtain a "0" level indication on the VU meters.*
- 3. Place transport in forward mode and adjust the bias trimmers C7, C8 for maximum signal on VTVM, then increase bias until level drops 1/2db.*
- 4. Remove the auxiliary head from the Model 262-D. This completes the bias adjustment.*

262-D Alternate Bias Adjustment

- 1. Connect a suitable playback pre-amplifier to the playback amplifier jacks on the SRA-3. These are indicated by a star.*
- 2. Connect an AC VTVM to the pre-amp output, set the impedance selector of the SRA-3 to "HiZ" and place in record mode. Connect a 1kc signal to AUX input and adjust controls for a "0" indication on VU meters.*
- 3. Place the transport in forward mode and increase the setting of the bias capacitors in small steps. Rewind the tape and play it back. Note the bias setting which produced maximum response; increase the capacitor setting until the output decreases 1/2db.*
- 4. This completes the bias adjustment.*

263-D Bias Adjustment

- 1. Connect a suitable pre-amplifier to the playback head jacks of the Model 263-D, and the SRA-3 to the record head and erase head jacks. Connect an AC VTVM to the pre-amp output.*
- 2. Supply a 1kc signal to the input of the SRA-3, select the "LowZ" impedance switch position and adjust the AUX input controls for a "0" indication of the VU meters.*
- 3. Place the transport in forward mode and adjust the bias capacitors for maximum indication on the AC VTVM. Increase the bias setting until the output drops 1/2db.*
- 4. This completes the bias adjustment.*

263-E Bias Adjustment

- 1. Connect an AC VTVM to the playback terminals, and the SRA-3 to erase and record head jacks. Set the SRA-3 impedance selector switch to "LowZ".*
- 2. Connect a 1kc source to the AUX input of the SRA-3 and adjust level controls for a "0"db indication on the VU meters.*
- 3. Place the transport in forward mode, adjust bias capacitors for maximum indication on the VTVM. Increase the bias setting until the VTVM indication decreases 1/2db.*
- 4. This completes the bias adjustment.*

NOTE: Optimum bias requirements vary greatly with different brands of tape. It is suggested that bias be set for the particular brand of tape the customer uses.

Record Level Indicator Adjustments establishes the electrical signal recorded on the tape to the standard operating level.

Model 262-D

- 1. Mount an auxiliary head on the 262-D and connect it to the playback pre-amplifier. Connect an AC VTVM to the output of the pre-amplifier.*
- 2. Play the 750 cycle normal operating level section of the standard alignment tape. If the amplifier gain is adjustable, set it for a convenient meter indication. If it is not adjustable, note the exact meter indication. Remove the tape.*

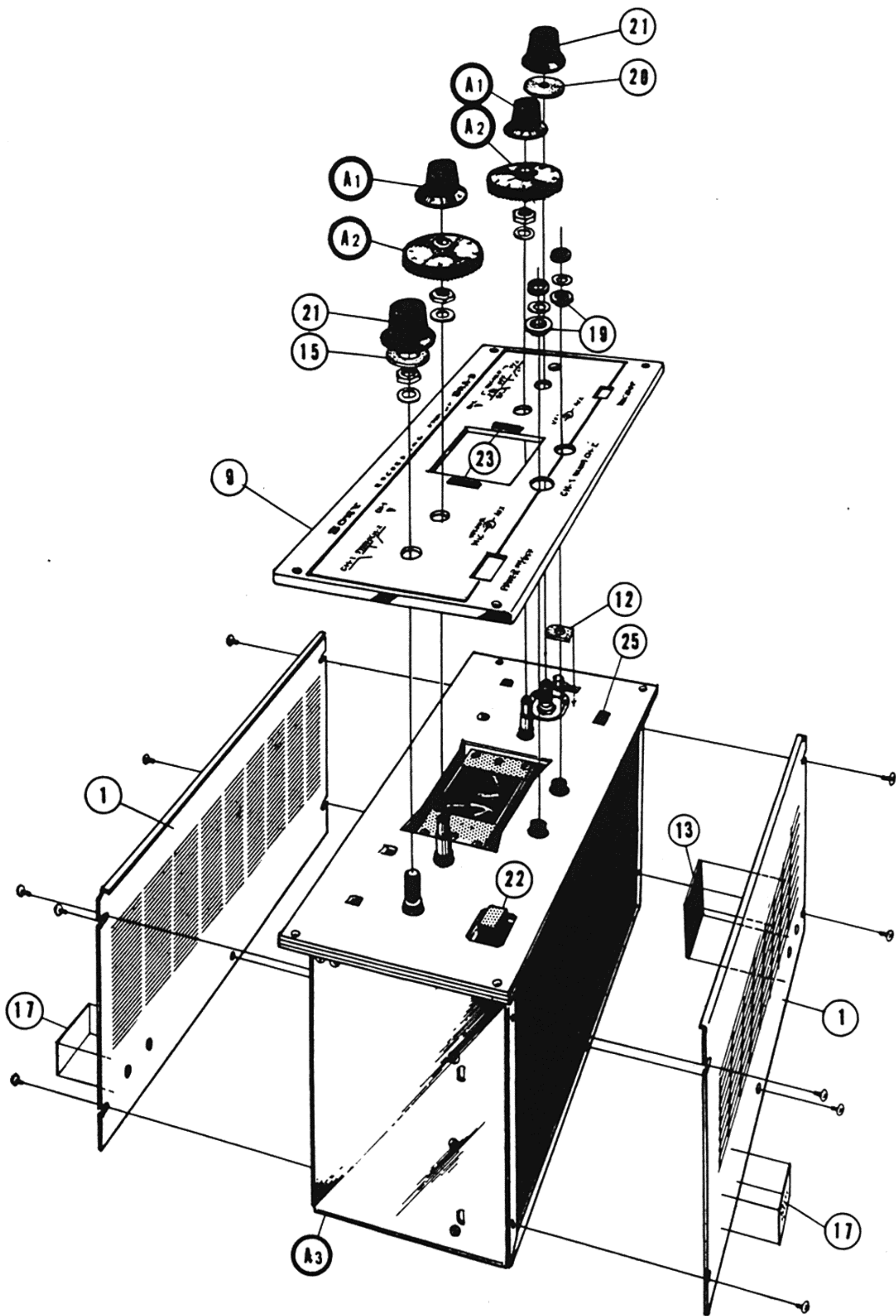
3. *Connect the SRA-3 to the 262-D, supply a 750 cycle 100 millivolt signal to the AUX input and place the SRA-3 in Record Mode. Adjust the level control until the AC VTVM indicates the reference level. Disregard the SRA-3 VU meters when setting this level.*
4. *Note the VU meter indication of the SRA-3, they should indicate 100% or "0"db; if not, adjust R121, CH-1, R221, CH-2 until the "0"db indication is achieved.*
5. *Remove the auxiliary head; the calibration is now complete.*

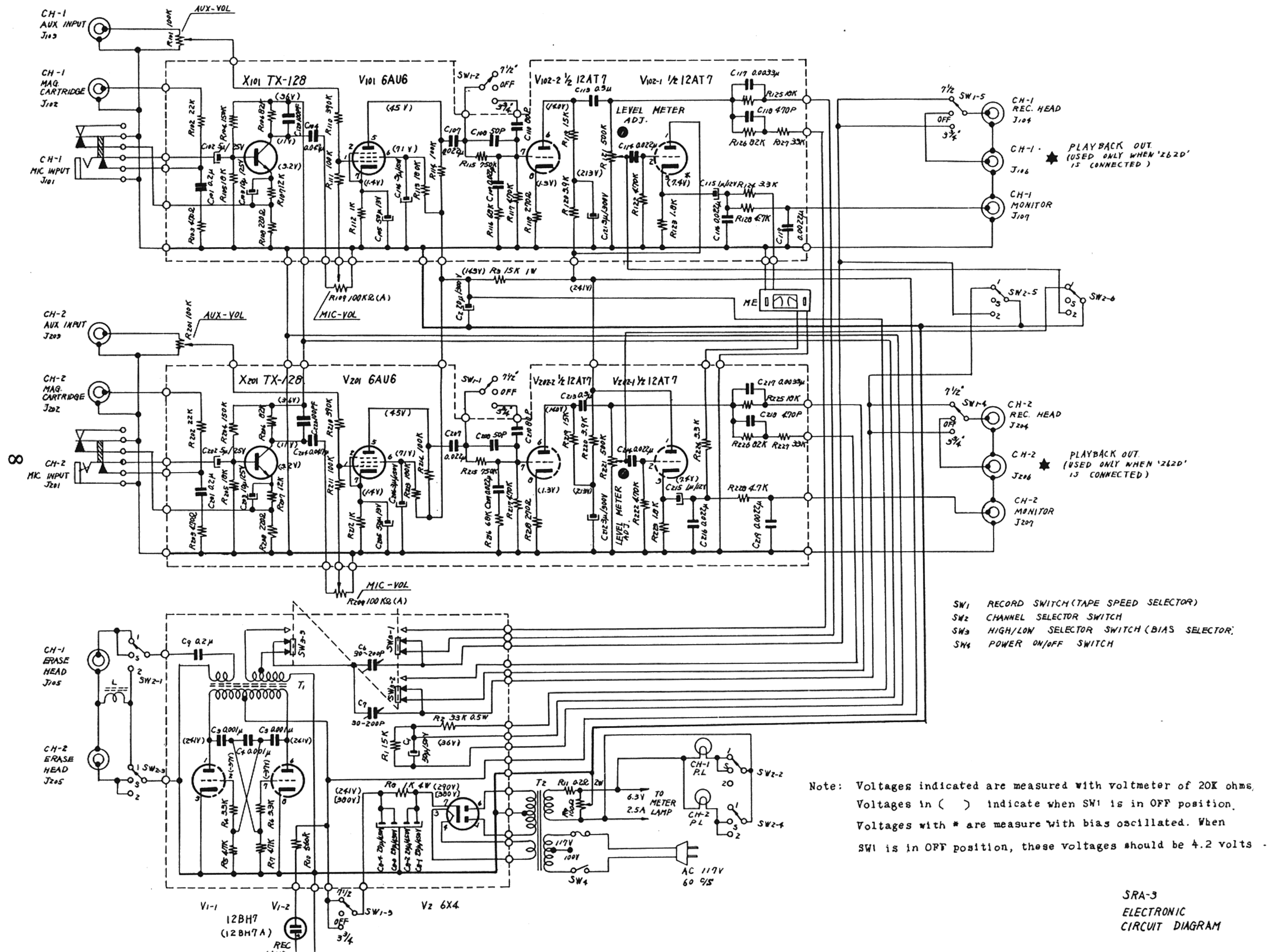
263-D

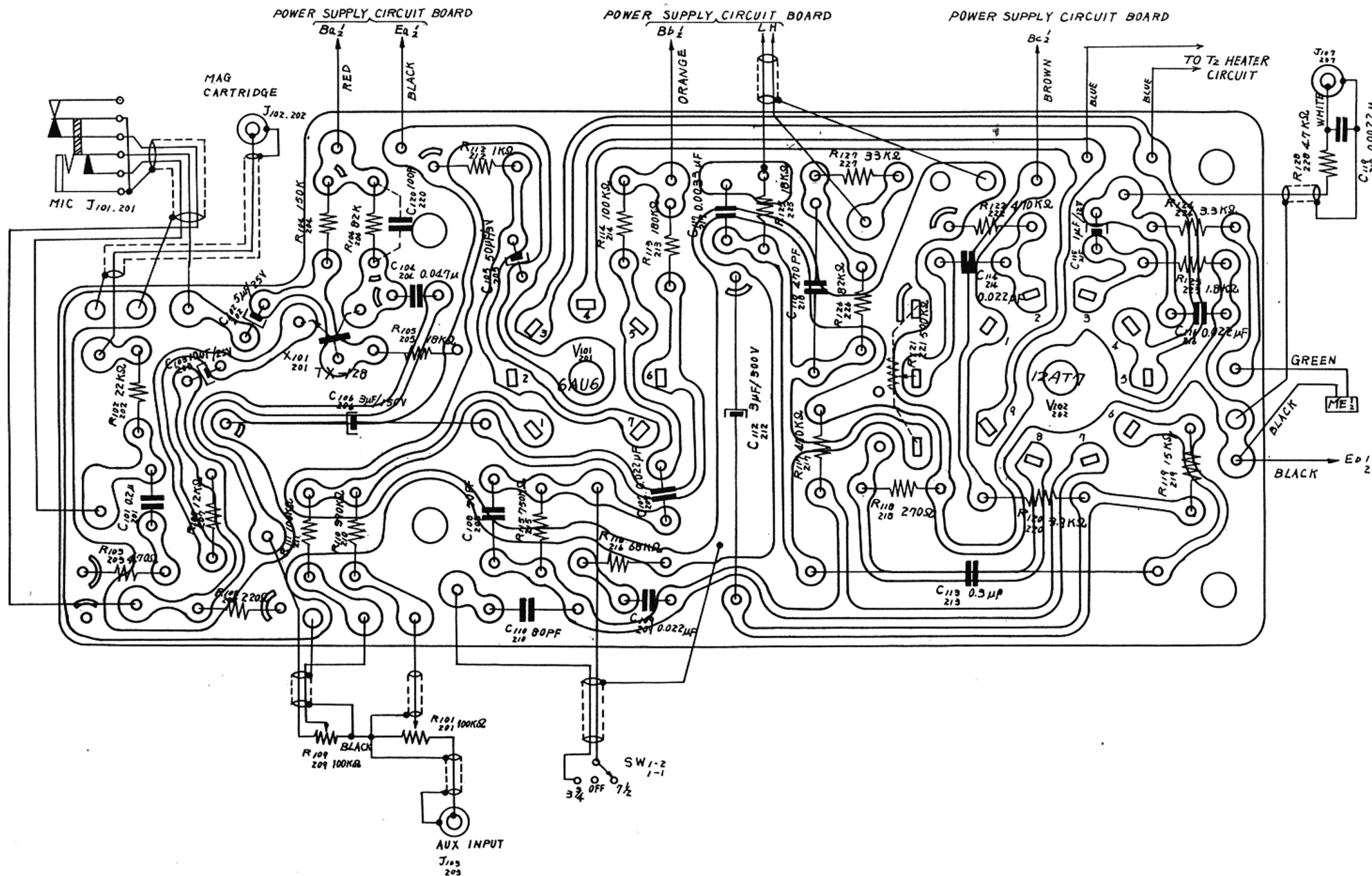
1. *Connect a playback pre-amplifier to the 263-D play head and an AC VTVM to the pre-amplifier output. Connect the erase and record head jacks to the respective jacks on the SRA-3.*
2. *Play the 750 cycle normal operating level section of the alignment tape and note the VTVM indication. Remove the standard tape.*
3. *Place a blank tape on the 263-D and feed a 750 cycle signal to the SRA-3 AUX input. Place the SRA-3 in record and adjust level controls until the VTVM indicates the reference level.*
4. *The SRA-3 VU meters should indicate "0"db; if they do not, adjust R121, CH-1, and R221, CH-2, for the "0" indication.*
5. *This completes the adjustment.*

263-E

1. *Repeat the above procedure omitting the playback pre-amp connection. The AC VTVM is connected to the playback jacks of the 263-E, which contains a solid-state playback pre-amplifier.*





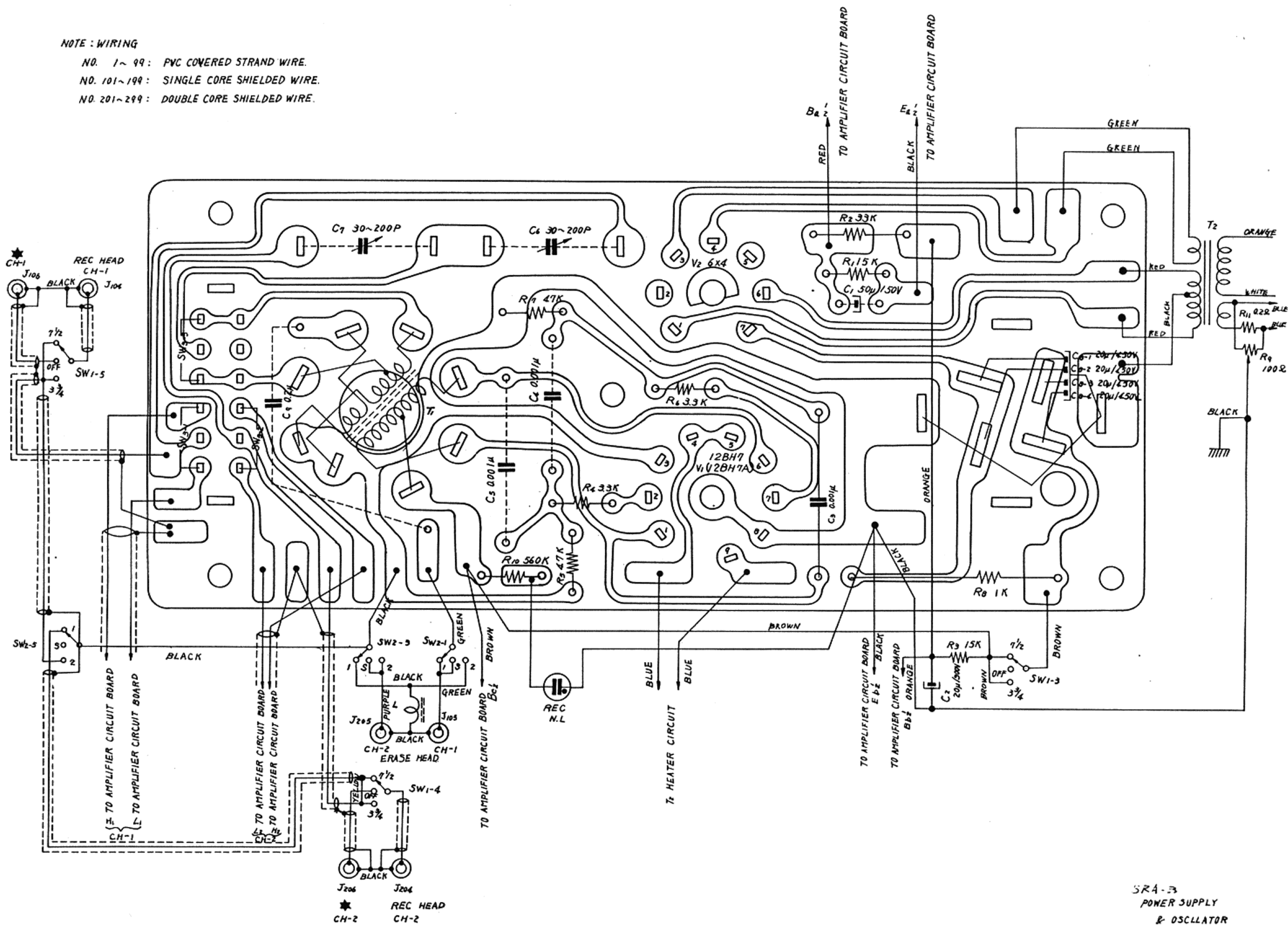


NOTE: PARTS WRITTEN IN DOTTED LINE ARE MOUNTED ON METAL CLAD SIDE

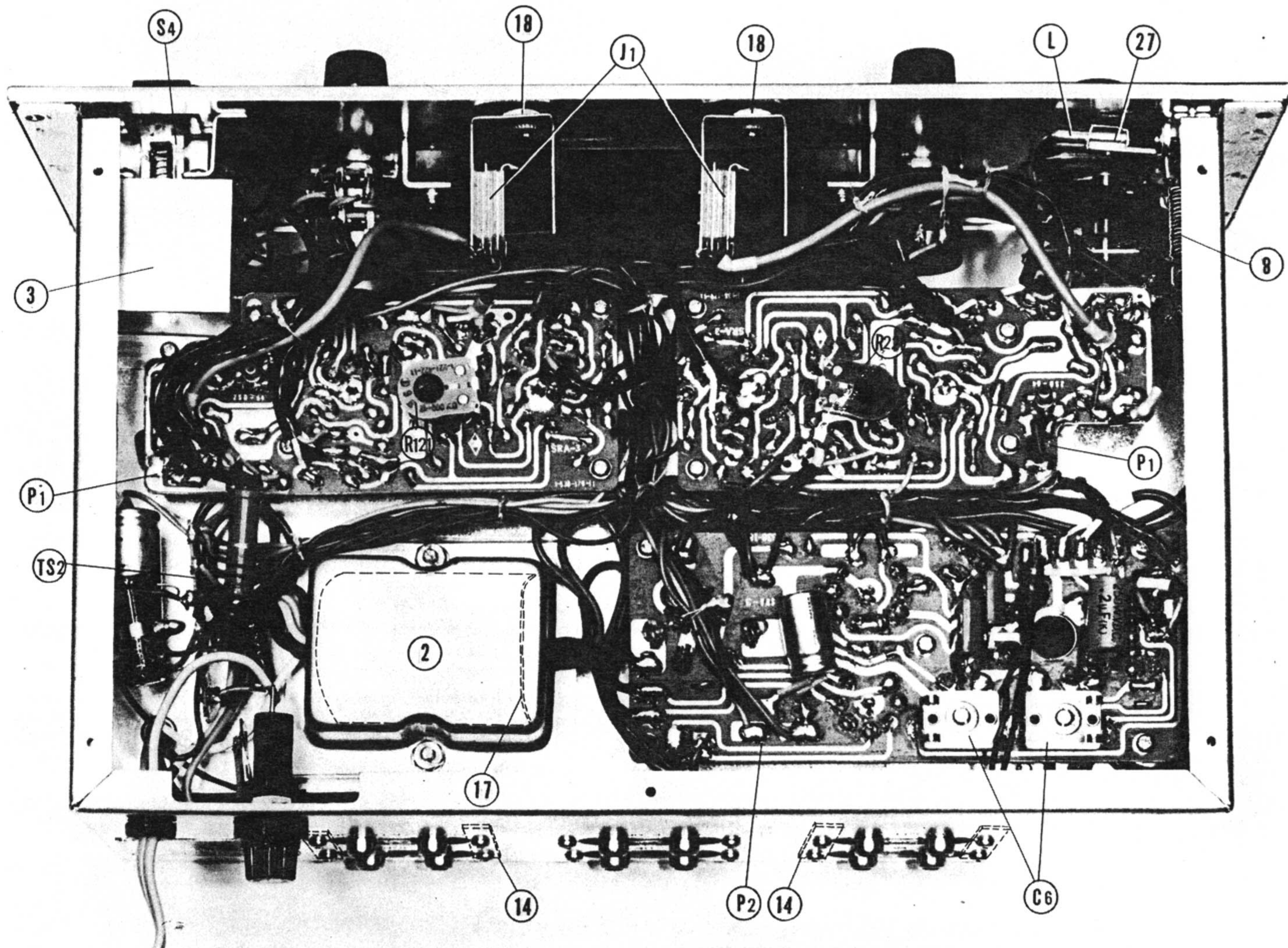
MODEL SRA-3
PRINTED WIRING BOARD
MOUNTING DIAGRAM

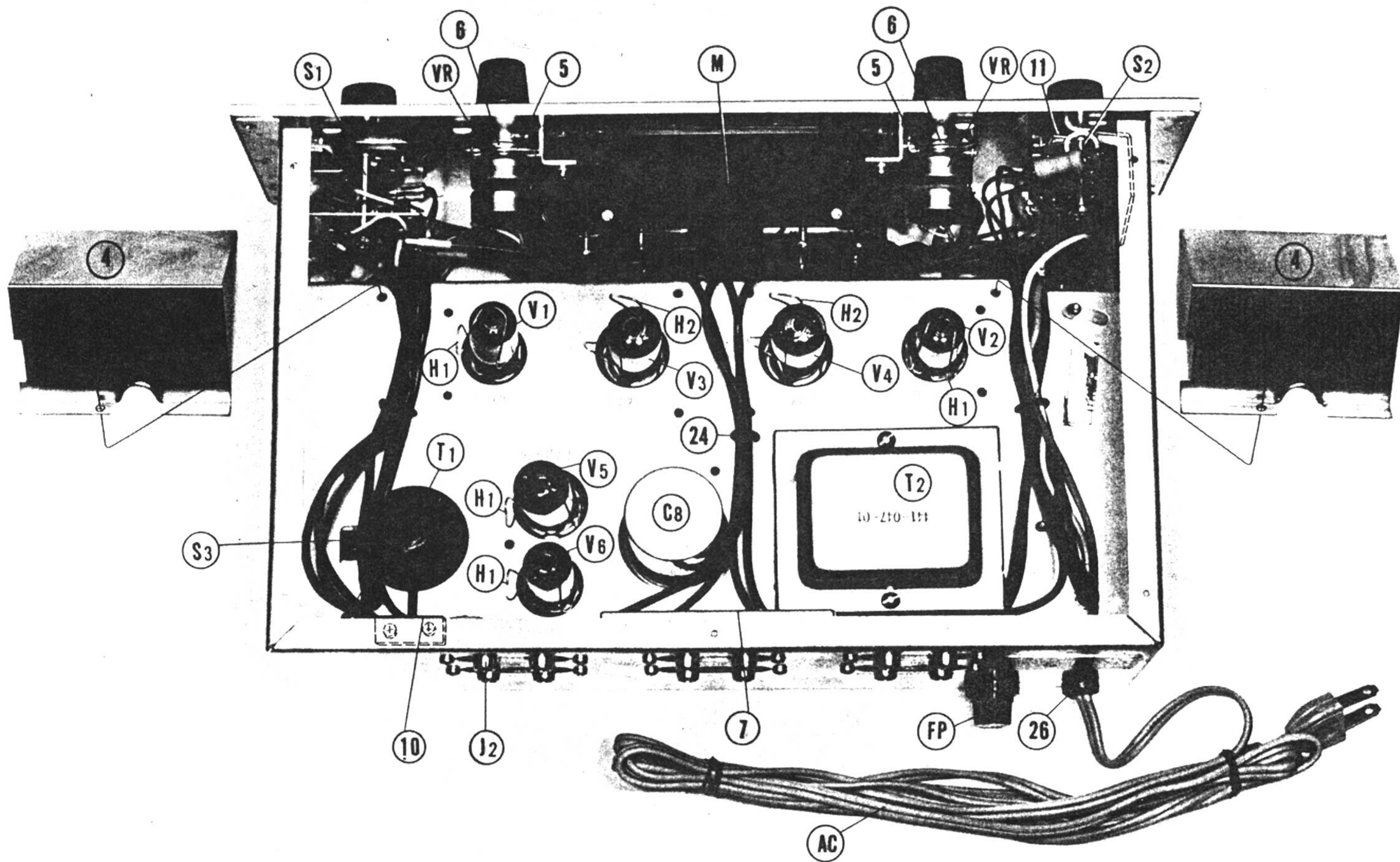
NOTE: WIRING

- NO. 1~99: PVC COVERED STRAND WIRE.
 NO. 101~199: SINGLE CORE SHIELDED WIRE.
 NO. 201~299: DOUBLE CORE SHIELDED WIRE.



SRA-3
 POWER SUPPLY
 & OSCILLATOR
 MOUNTING DIAGRAM





PARTS LIST FOR SRA-3

<i>Ref. No.</i>	<i>Part No.</i>	<i>Description</i>	<i>Unit Price</i>
A1	X-31039-17-1	MIC Input Volume Control Assembly, Including: Knob, Face Plate	.36
A2	X-31030-24-1	Aux. Input Volume Control Assembly, Including: Knob, Face Plate	.24
A3	X-34104-03-0	Chassis Assembly	14.40
	3-410-431-00	Chassis	8.10
	3-410-413-00	Printed Circuit Board Mounting Stud	.18
	3-410-415-00	Eyelet 7ø	.05
	3-410-424-00	Record Lever Shaft	.12
	X-34104-04-0	Front Panel Mounter Assembly	.05
	3-410-432-00	Side Board	3.30
	X-34104-02-1	Record Lever Assembly	.27
	3-410-409-01	Record Lever	.12
	3-410-414-00	Record Button	.12
	X-34104-04-0	Front Panel Mounter Assembly	2.19
A4	X-31830-24-0	Knob	.27
1	3-410-403-01	Metal Lid for Chassis	1.44
2	3-410-406-01	Cover for Power Transformer (U.S.A. Only)	.45
3	3-410-407-00	Cover for Power Switch	.12
4	3-410-408-00	Cover for Channel and Speed Selector Switch (U.S.A. Only)	.24
5	3-410-410-00	Volume Stopper	.05
6	3-410-411-00	Spacer for Volume Control	.05
7	3-410-412-00	Pin Jack Cover (U.S.A. Only)	.15
8	3-410-416-00	Restoring Spring for Push Button	.06
9	3-410-417-01	Front Panel	4.20
10	3-410-419-00	Insulating Plate for Chassis	.05
11	3-410-421-00	Insulator for Rotary Switch	.05
12	3-410-425-00	Felt Cushion for Record Push Button	.05
13	3-410-427-00	Insulator for Back Cover	.05
14	3-410-428-00	Cover for Pin Jack	.05
15	3-410-429-00	Felt Spacer for Front Knob (Left)	.05
16	3-410-430-00	Caution Label (U.S.A. Only)	.05
17	3-410-437-00	Polyethylene Insulator for Power Transformer	.05
18	0-006-147-00	Insulator for Jacks (Red Fiber)	.05
19	0-041-223-00	Spacer for Jacks (white)	.05
20	0-041-086-00	Felt Spacer for Front Knob (right)	.05
21	2-011-316-03	Knob for Channel Selector and Record Switch	.33
22	3-103-255-02	ON-OFF Push Button	.10
23	3-103-525-03	Glass for Pilot Lamp (Green)	.06
24	3-103-527-00	Cable Clamps	.06
25	3-406-768-00	Glass for Pilot Lamp (Red)	.06

<i>Ref. No.</i>	<i>Parts No.</i>	<i>Description</i>	<i>Unit Price</i>
26	3-410-032-00	Cord Stopper	.05
27	4-002-649-00	Lamp Holder	.06
	8-723-650-00	Transistor TX-128 X101, 201	.51
V1, V2	1-525-047-01	Vacuum Tube 6AU6 (H) V101, 201	1.05
V3, V4	1-525-011-00	Vacuum Tube 12AT7 V102, 202	1.55
V5	1-525-033-00	Vacuum Tube 12BH7 V1-1, 1-2	1.55
V6	1-525-009-00	Vacuum Tube 6X4 V2	.85
T1	1-433-042-11	Bias Oscillator Transformer T1	1.59
T2	1-441-047-02	Power Transformer T2	7.50
	1-431-018-01	Dummy Coil	.39
J1	1-507-096-11	Phone Jack J101, 201	.93
J2	1-507-154-01	Phone Jack J101-107 J202-207	.30
S1	1-513-218-11	Rotary Switch for Recording	2.19
S2	1-513-144-00	Rotary Switch for Chammel Selection	2.04
S3	1-513-219-11	Slide Switch	1.00
S4	1-514-080-11	Power ON-OFF Switch	1.20
M	1-524-019-11	Level Indicator	18.40
L	1-519-007-15	Neon Lamp	.24
FP	1-533-012-01	Fuse Post	.54
	1-526-044-11	Tube Socket (9 pin)	.24
	1-526-043-00	Tube Socket (7 pin)	.18
	1-536-028-00	Terminal Strip 1L-2D	.05
P1	1-538-179-11	Printed Circuit Board (Amplifier Section)	.54
	1-532-006-00	Fuse 1A(for Standard Export Only)	.05
P2	1-538-180-11	Printed Circuit Board (Power and OSC Section)	.87
AC	1-534-073-11	AC Cord w/Plug (U. S. A. Only)	.75
H1	1-526-902-00	Clamp Pin (35 mm)	.06
H2	1-526-901-00	Clamp Pin (45 mm)	.06
VR	1-221-157-11	Variable Resistor (100K ohms x 2 Dual Type)	1.68
	1-221-422-11	Variable Resistor (Half Fixed 500K ohms)	.36
	1-223-003-00	Hum Balancer (100 ohms 3 Watt)	.27
TS2	1-536-041-00	Terminal Strip 1L-5P	.06
	1-204-901-11	Carbon Resistor 100K ohms $\pm 5\%$ 1/4 watt (Noiseless) R114, 214	.10
	1-203-975-00	Carbon Resistor 82K ohms $\pm 5\%$ 1/4 watt (Noiseless) R106, 206	.10
	1-204-907-11	Carbon Resistor 150K ohms $\pm 5\%$ 1/4 watt (Noiseless) R104, 204	.10
	1-204-906-11	Carbon Resistor 18K ohms $\pm 5\%$ 1/4 watt (Noiseless) R105, 205	.10
	1-203-937-00	Carbon Resistor 220 ohms $\pm 5\%$ 1/4 watt (Noiseless) R108, 208	.10
	1-204-905-11	Carbon Resistor 12K ohms $\pm 5\%$ 1/4 watt (Noiseless) R107, 207	.10
	1-203-116-00	Carbon Resistor 750K ohms $\pm 5\%$ 1/4 watt R115, 215	.10
	1-203-485-11	Carbon Resistor 560K ohms $\pm 5\%$ 1/4 watt R10	.10
	1-203-149-00	Carbon Resistor 470K ohms $\pm 5\%$ 1/4 watt R117, 122, 217, 222	.10

<i>Ref. No.</i>	<i>Part No.</i>	<i>Description</i>	<i>Unit Price</i>
	1-203-752-00	Carbon Resistor 390K ohms $\pm 5\%$ 1/4 watt R110, 210	.10
	1-203-812-00	Carbon Resistor 180K ohms $\pm 5\%$ 1/4 watt R113, 213	.10
	1-203-100-00	Carbon Resistor 100K ohms $\pm 5\%$ 1/4 watt R111, 211	.10
	1-203-125-00	Carbon Resistor 82K ohms $\pm 5\%$ 1/4 watt R126, 226	.10
	1-203-099-00	Carbon Resistor 68K ohms $\pm 5\%$ 1/4 watt R116, 216	.10
	1-203-095-00	Carbon Resistor 47K ohms $\pm 5\%$ 1/4 watt R5, 7	.10
	1-203-089-00	Carbon Resistor 33K ohms $\pm 5\%$ 1/4 watt R127, 227	.10
	1-203-130-00	Carbon Resistor 18K ohms $\pm 5\%$ 1/4 watt R125, 225	.10
	1-203-075-00	Carbon Resistor 15K ohms $\pm 5\%$ 1/4 watt R1, 119, 219	.10
	1-203-031-00	Carbon Resistor 1K ohms $\pm 5\%$ 1/4 watt R112, 212	.10
	1-203-061-00	Carbon Resistor 3.9K ohms $\pm 5\%$ 1/4 watt R120, 220	.10
	1-203-058-00	Carbon Resistor 3.3K ohms $\pm 5\%$ 1/4 watt R4, 6, 124, 224	.10
	1-203-151-00	Carbon Resistor 1.8K ohms $\pm 5\%$ 1/4 watt R123, 223	.10
	1-203-026-00	Carbon Resistor 470 ohms $\pm 5\%$ 1/4 watt R103, 203	.10
	1-203-019-00	Carbon Resistor 270 ohms $\pm 5\%$ 1/4 watt R118, 218	.10
	1-203-083-00	Carbon Resistor 22K ohms $\pm 5\%$ 1/4 watt R101, 201	.10
	1-203-486-11	Carbon Resistor 33K ohms $\pm 5\%$ 1/2 watt R2	.10
	1-203-487-11	Carbon Resistor 15K ohms $\pm 5\%$ 1/2 watt R3	.10
	1-203-064-00	Carbon Resistor 4.7K ohms $\pm 5\%$ 1/4 watt R128, 228	.10
	1-207-046-00	Wire Wound Resistor 1K ohms $\pm 5\%$ 4 watt R8	.24
	1-207-065-11	Wire Wound Resistor 0.2 ohms $\pm 10\%$ $\frac{1}{2}$ W	.18
	1-103-195-11	Styrol Capacitor 50PF $\pm 10\%$ 125V C108, 208	.15
	1-103-214-11	Styrol Capacitor 80PF $\pm 10\%$ 125V C110, 210	.15
	1-107-004-11	Silvered Mica Capacitor 100PF $\pm 10\%$ 250V C120, 220	.15
	1-109-074-11	Mica Capacitor 470PF $\pm 10\%$ 400WV C118, 218	.15
	1-109-075-11	Mica Capacitor 0.001uF $\pm 10\%$ 400WV C3, 4, 5	.20
	1-105-225-12	Mylar Capacitor 0.2uF $\pm 20\%$ 50WV C101, 201	.33
	1-105-841-12	Mylar Capacitor 0.047uF $\pm 20\%$ 50WV C104, 204	.12
	1-105-677-12	Mylar Capacitor 0.022uF $\pm 10\%$ 50WV C109, 209, 114, 214, 116, 216.	.12
	1-105-667-12	Mylar Capacitor 0.0033uF $\pm 10\%$ 50WV C117, 217	.10
	1-105-877-12	Mylar Capacitor 0.022uF $\pm 20\%$ 100WV C107, 207	.10

<i>Ref. No.</i>	<i>Part No.</i>	<i>Description</i>	<i>Unit Price</i>
	1-105-665-12	Mylar Capacitor 0.0022uF $\pm 10\%$ 50WV C119, 219	.10
	1-113-033-11	MP Capacitor 0.3uF $\pm 20\%$ 250WV C113, 213	.33
	1-113-117-00	MP Capacitor 0.2uF $\pm 10\%$ 250WV C9	.33
	1-121-163-00	Electrolytic Capacitor 50uF 50WV C1	.30
	1-121-179-00	Electrolytic Capacitor 25WV 10uF C103, 203	.20
	1-121-150-00	Electrolytic Capacitor 5uF 25WV C102, 202	.20
	1-121-116-00	Electrolytic Capacitor 1uF 12WV C115, 215	.20
	1-121-124-00	Electrolytic Capacitor 50uF 3WV C105, 205	.20
	1-119-075-00	Electrolytic Capacitor 300WV 20uF C2	.33
	1-119-016-00	Electrolytic Capacitor 3uF 300WV C112, 212	.21
	1-119-015-00	Electrolytic Capacitor 3uF 150WV C106, 206	.20
C8	1-125-016-01	Electrolytic Capacitor 20uF x 4 450WV (Block Type) C8-1 - 4	1.85
C6	1-141-010-00	Timmer Capacitor C6, 7	.51

Prices contained in this Parts List are subject to change without notice. All items are available only in quantities necessary for replacement in Sony products. Any order for unduly large quantities will not be honored.