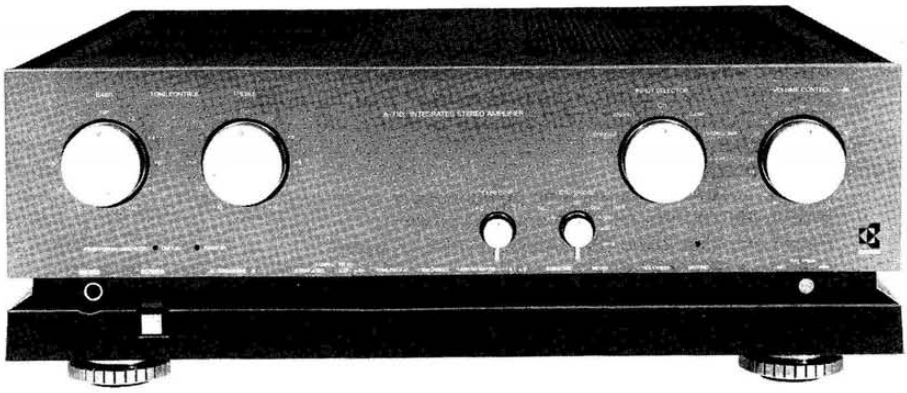
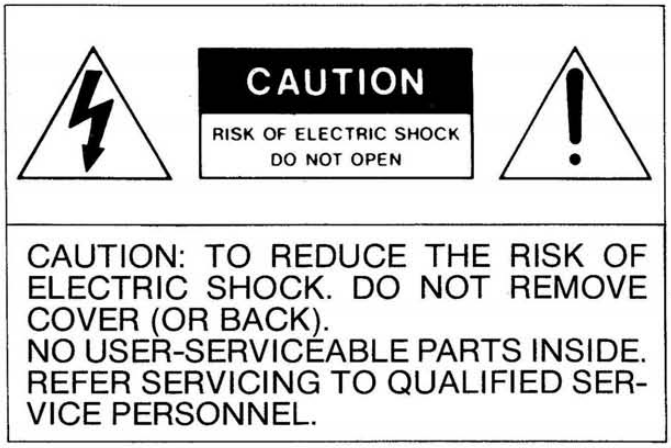
Service Manual

A-710 INTEGRATED STEREO AMPLIFIER



KYOCERA

Contents



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK. DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol is intended to alert users of the presence of uninsulated dangerous voltage within the unit's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert users of the presence of important operating and maintenance instructions in the literature accompanying the unit.

General Information

Scope

This technical manual includes servicing and adjustment instructions for the Kyocera A-710 INTEGRATED STEREO AMPLIFIER. Also information on the replacement parts is included.

Product Feature

The Kyocera A-710 Integrated Stereo Amplifier stops vibration with unique ceramic technology—Kyocera's innovative method of ensuring very high quality stereo sound reproduction—immune to vibrations. The bottom line is the total purity of sound.

Ceramics are rigid and inert, so they provide uncommon stability and resistance to mechanical vibrations from audio feedback. They are non-ferrous, so there are no chassis eddy currents to cause electrical hum.

The handsome ceramic-compound base of the A-710 is actually the chassis-supporting and housing of all components and isolating vibration. Resonance from the cabinet is almost non-existent.

The A-710 also features the following:

- High density, non resonant ceramic compound resin (CCR) chassis for the effective rejection of vibration and microphonics. The CCR is an advanced development of Kyocera ceramic technologies.
- 100W + 100W final power amplifier stages, using high quality power transistors in parallel push-pull configuration.
- High input impedance MOSFET drivers.
- High instant current output capacity of 60 amperes.
- Single stage push-pull (SSP) circuitry to match digital program sources. This simplified push-pull circuit offers extremely smooth open loop response, wide dynamic range, and unsurpassed signal-to-noise ratio. The SSP circuitry is encapsulated in a fine ceramic linear-module (FCL) to further conquer vibrations and instability due to temperature variations.
- Direct speaker drive system (DSDS).
- Separate left and right channel PEAK POWER INDICATORs.
- Versatile phono preamps with impedance switching for the compatibility to MC and MM cartridges.
- TONE CONTROLs with 2-point turnover switching.
- TONE DEFEAT button to completely bypass the tone control circuits.
- LINE DIRECT button to bypass the TAPE MONITOR button, the BALANCE control, MONO button, and the SUBSONIC filter.
- PRE OUT and MAIN IN jacks.

Purchase of Parts

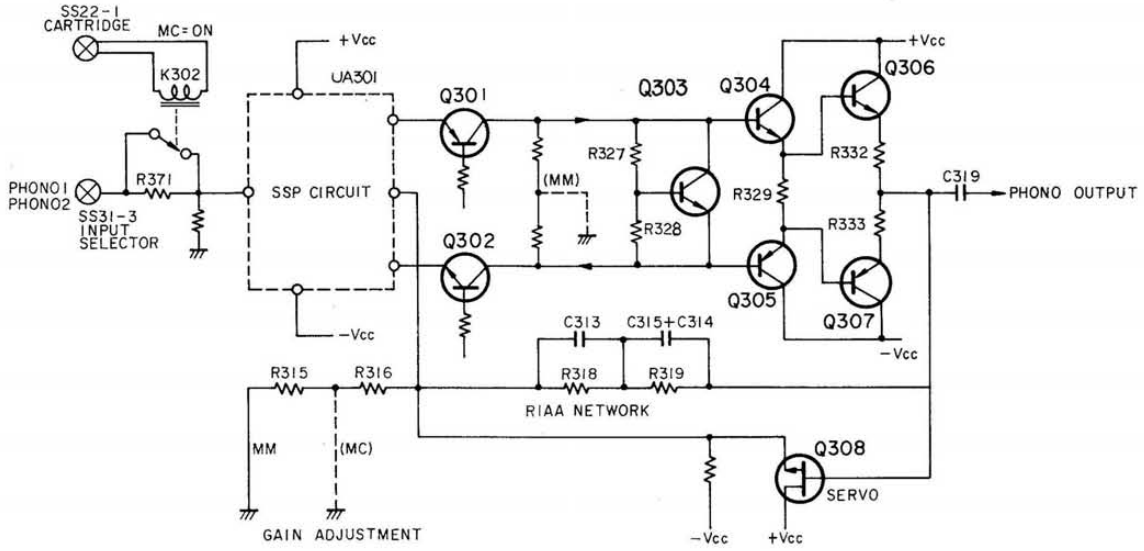
When ordering a part, please supply the following information:

1 Model number of the unit
2 Serial number of the unit
3 Description of the part
4 Part code (See the parts list in this manual.)

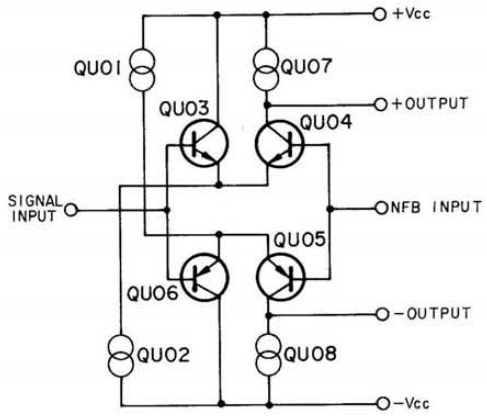
Circuit Description

1 Phono preamplifier (PSPA059C0X)

Two phono inputs are provided - PHONO 1 and PHONO 2. The phono input signals from the PHONO 1 and PHONO 2 input terminals (on the rear) come to switch SS31-3, the INPUT SELECTOR, on PSPA059C0X board. The resistor R371 provides the gain reduction when using MM type phono cartridges, and shorted when relay K302 closes by setting the CARTRIDGE selector to either MM50k, MM100k, or MM100.



FCL circuit: Encapsulated in FCL module UA301, which is to conquer vibrations and instability due to temperature variations, is a single-stage push-pull (SPP) circuit, consisting internally of QU03 through QU06. The emitters of both positive pair QU03/QU04, and negative pair QU05/QU06, are current-regulated by QU02 and QU01, respectively, to eliminate the effect from noise in power supply. Note that LEDs LDU01 and LDU02. QU07 and QU08 also have a LED at the base which is used to maintain a constant bias. The SSP circuitry is active loaded with transistors QU07 and QU08 to maintain a very high output impedance. Thus the FCL circuit offers extremely smooth open-loop response, wide dynamic range, and extremely low noise.

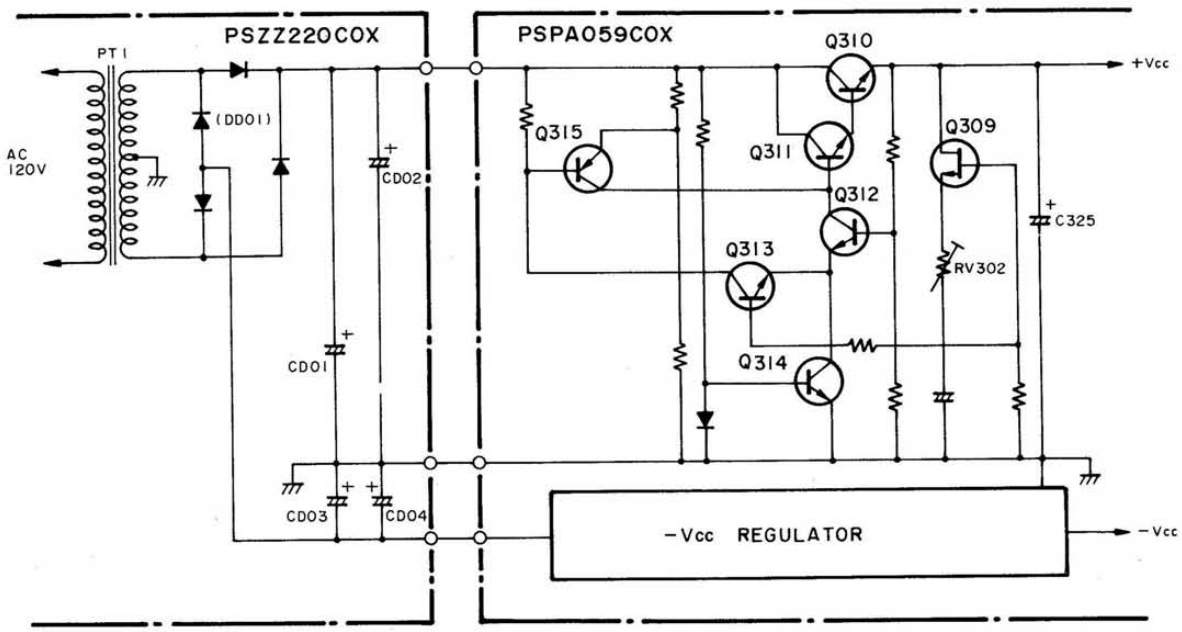


The output from the FCL module is voltage-amplified in the common base amps, Q301 and Q302, and the output is from their collectors, then fed to the buffer amplifier stage, consisting of Q303 through Q307, the single-ended push-pull (SEPP) configuration of a Darlington connection. The SEPP buffer is a kind of emitter-follower circuit with a very high impedance. (When selecting MM phono cartridges, the input impedance oif the buffer stage is lowered by connecting R325 for the positive, and R326 for the negative swing in parallel to the buffer input, to reduce the gain. The output stage bias is set by Q303, R327, and R328. The output signal is from the junction of R332 and R333, through C319 and sent to the program switching circuit.

Phono RIAA equalizer: The fraction of the output stage is fedback to the FCL input stage for gain adjustment and equalization. This negative feedback is provided by resistors R319, R318, and R317 and capacitors C314, C315, and C313 connected from the output stage to the NFB input of the FCL SSP circuit. Switching for the selection of cartridge type is made with SS22-3 (one for cartridge load selection, the other for gain adjustment).

The DC servo circuit, Q308, is to eliminate the DC component which is generated when the power supply voltage drifts and contained in the buffer output signal at 0V by feeding the DC component back to the input (NFB input).

Phono power supply: This circuit is also on PSPA059C0X board and consists of Q309 through Q322. Once the power voltage is adjusted specifically by RV302 for the plus and RV303 for the minus voltage, if the voltage drifts, Q312 and Q313 amplify and feedback it to restore the preset voltage. The primary DC power voltage for this circuit is supplied from diodes DD02 and DD03, and CD05 on the phono power supply board PSZZ220C0X, via Y301 terminal on PSPA059C0X board.

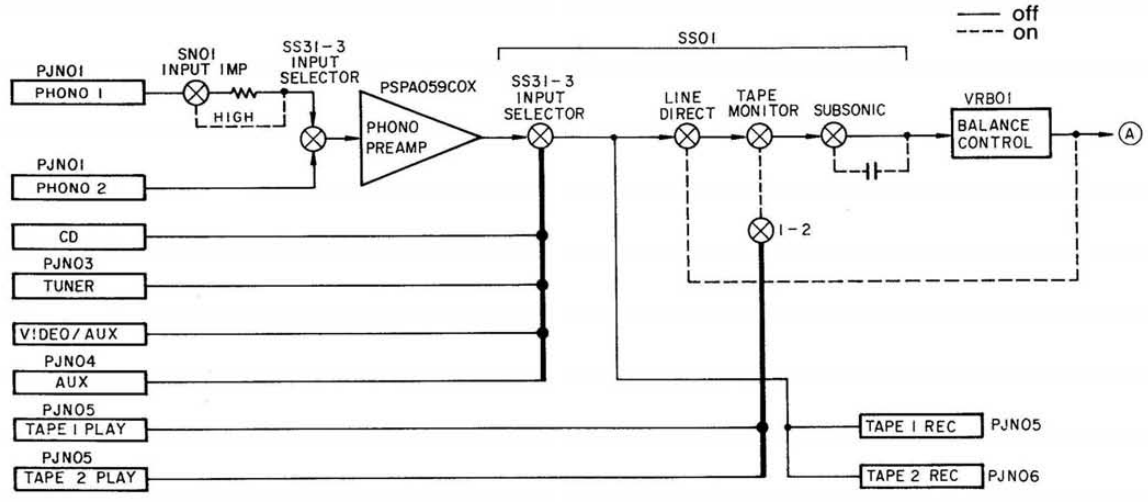


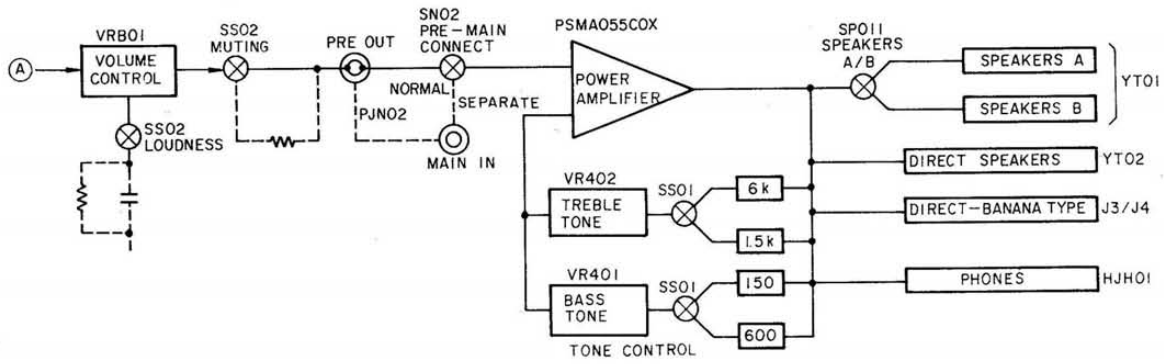
2 Input signal switching

The program signals from two phono inputs are first sent to the part of the INPUT SELECTOR, SS31-3, on PSPA059C0X board. If using the PHONO 1 input signals, switch SN01, the INPUT IMP, may be set to HIGH. This connects RN01 resistor in the circuit.

Switching for the selection of the desired phono preamp equalization is made with switch SS22-3. The output from the phono preamp (at the junction of Q306 and Q307) is sent to switch SS31-3, the INPUT SLECTOR. The signal from CD, TUNER, VIDEO/AUX, AUX, TAPE 1 PLAY, and TAPE 2 PLAY inputs are sent to the SS31-3 directly. Now, the selected signal leaves PSPA059C0X board via CN302 and reaches the switch board PSSW309C0X. The signal goes through in order LINE DIRECT - TAPE MONITOR -VOLUME CONTROL (VRV01 on PSVR046C0X) - MUTING - PRE MAIN CONNECT switch (SN02 on PSZZ203C0X board), finally to PSMA055C0X board.

To avoid noise and phono signal leakage (when turning the INPUT SELECTOR), the phono preamp output is muted by relay K301 which closes each time the INPUT SELECTOR is switched from one position to the other. (Transistors Q811, Q812, and Q813 on power supply board PSPW074C0X serve for energizing K301.)





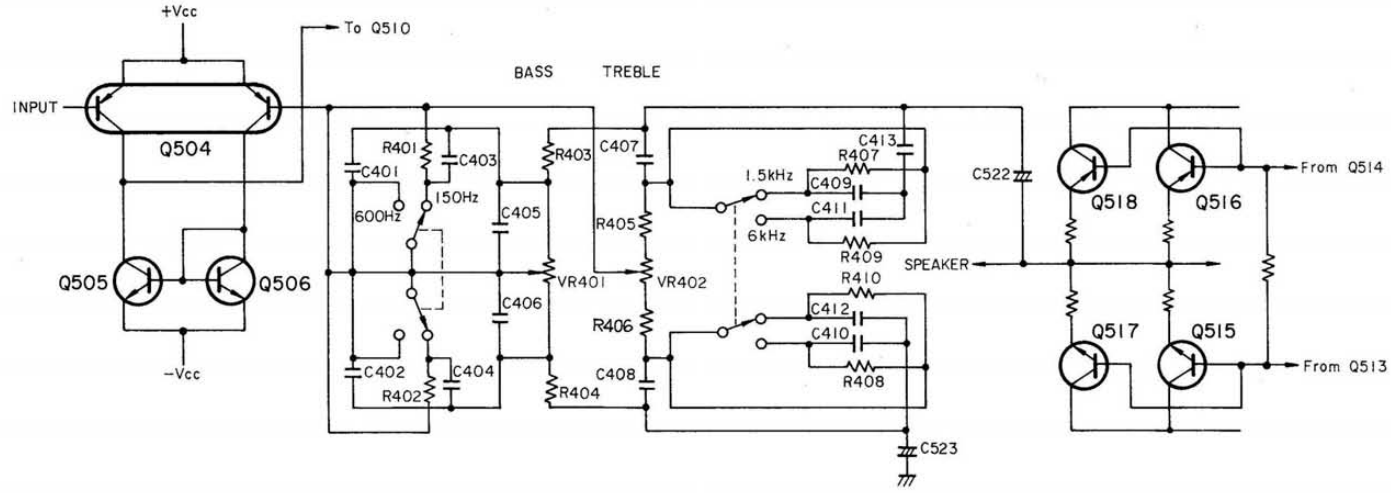
3 Tone Control (PSTC051C0X board)

The tone control circuit is a negative feedback type which utilizes the power amplifier (PSMA055C0X) itself as the active element. That is, the negative feedback is made from the power amp (speaker) output to the NFB input of the differential amp Q504. The tone contrl board PSTC051C0X is connected to the power amp via connector CN503.

At 1 kHz the BASS and TREBLE controls have little effect on the amplifier gain, as the impedance of C407 and C408 is high, removing VR402, the TREBEL TONE CONTROL, from the circuit, and the impedance of C405+C401 or C405 + C401 is low, effectively short-circuiting VR401, the BASS TONE CONTRL.

TREBLE: At high frequencies, BASS contrl VR401 is effectively short-circuited. At those frequencies, however, C407/C413/C409 or C411 impedances decrease so that VR402 becomes the main control of the tone control negative feedback. Rotating VR402 towards R405 will boost the treble, while turning it towards R406 will cut the treble response. The frequency band over which the TREBLE TONE CONTROLL operates is selectable by changing C409 or C411, alternatively. (With C409,, 1.5 to 20 kHz; with C411, 6 to 20 kHz.)

BASS: As the frequency decreases below 1 kHz, the impedance of C405 and C406 increases proportionally. At very low frequencies, C407/C413/C409 or C411 are effectively open, removing VR402 from the circuit. Thus at low frequencies, the gain is mainly determined by the position of VR401. Rotating towards R403 will boost the low frequencies, while rotating it towards R404 will cut the bass. The frequency band over which the BASS TONE CONTROL operates is selectable by changing C401/C402 or C403/C404, alternatively.



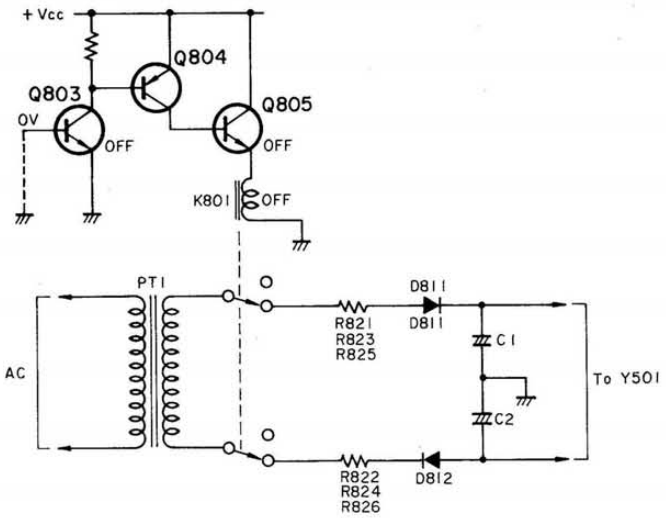
4 Power Amplifier (PSMA055C0X)

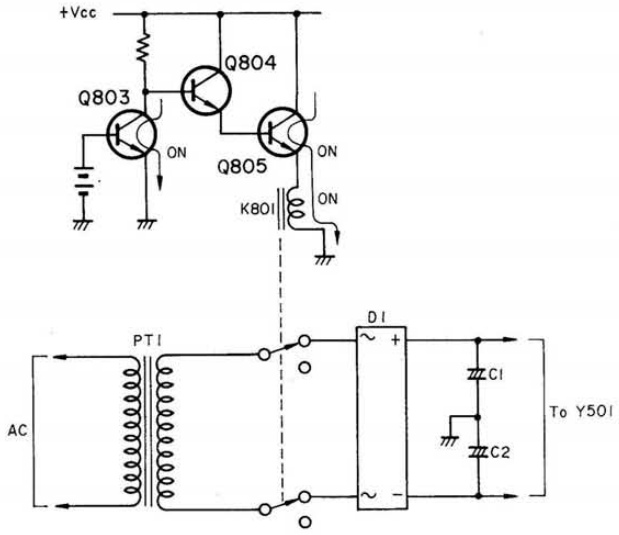
This circuit is an OCL, fully complementary amplifier. The input stage consists of a current-mirror loaded low noise differential amplifier, where Q505 and Q506 are connected to provide an active load to the differential amplifier Q504, to further minimize distortion products. The voltage amps Q509 and Q510 provide voltage swing to nearly full plus and minus supply. Current gain is provided by the fully complementary Darlington sets of Q511, Q513, Q515, and Q517 for the positive swing; Q512, Q514, Q516, and Q518 for the negative swing. The output stage bias is set by D505 and RV501.

The output stage is protected from short-circuit and overload by transistors Q519 through Q522, which short out the driving signal when current through the output transistors reaches an excessive level.

5 Power Supply (PSPW074C0X board)

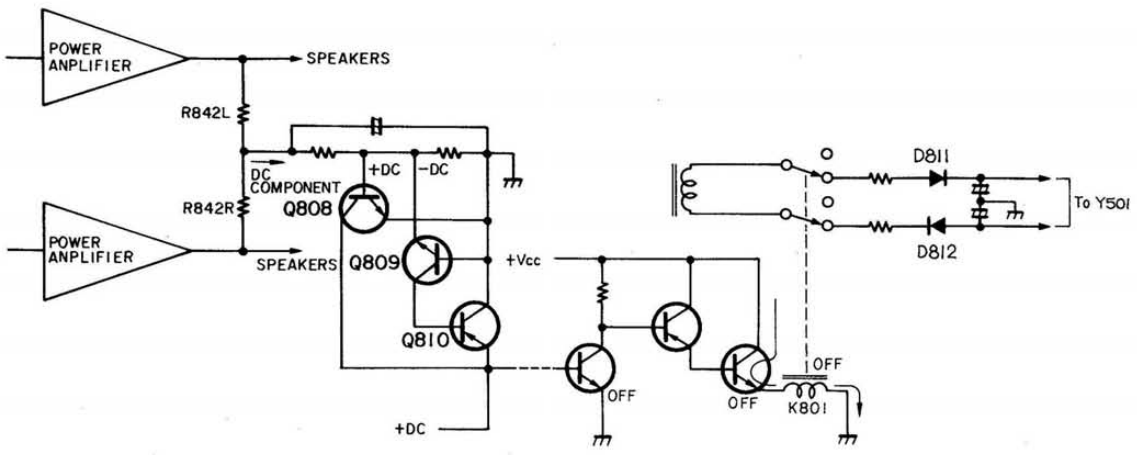
For the power amplifier stage (PSMA055C0X boards), two rectifier circuits are provided which are switched by relay K801. At power turning-on, the rectifier circuit consisting of D803, C803, C804, Q801, Q802, etc. feeds power to Q803, Q804, and Q805 (and to the peak power indicator circuits of Q821 through Q826). However, the bias voltage for Q803 is delayed by the rectifier circuit consisting of D801 and D802, etc., as determined by the charging time of C802 through R803. Thus, after approximately 2 seconds of the charging, Q803 through Q805 turn on to energize relay K801 and the secondary output of PT1 is switched to the normal rectifier D1 (out board), giving the normal power voltage to the power amp via connector Y501. In this way, the amplifier does not operate until the power supply voltages stabilize.





6 Speaker Protection Circuit (PSPW074C0X board)

Q808, Q809, and Q810 are to protect speakers from the possibility of DC potential at the amplifier output. When excessive plus or minus DC appears at R842L or R842R, Q808 turns on, which activates Q809 and Q810, and turns off Q803 in turn. Now, relay K801 is de-energized to lower the suply voltage. Note that protection against short-circuit and overload is made with Q519 through Q522, as previously stated.

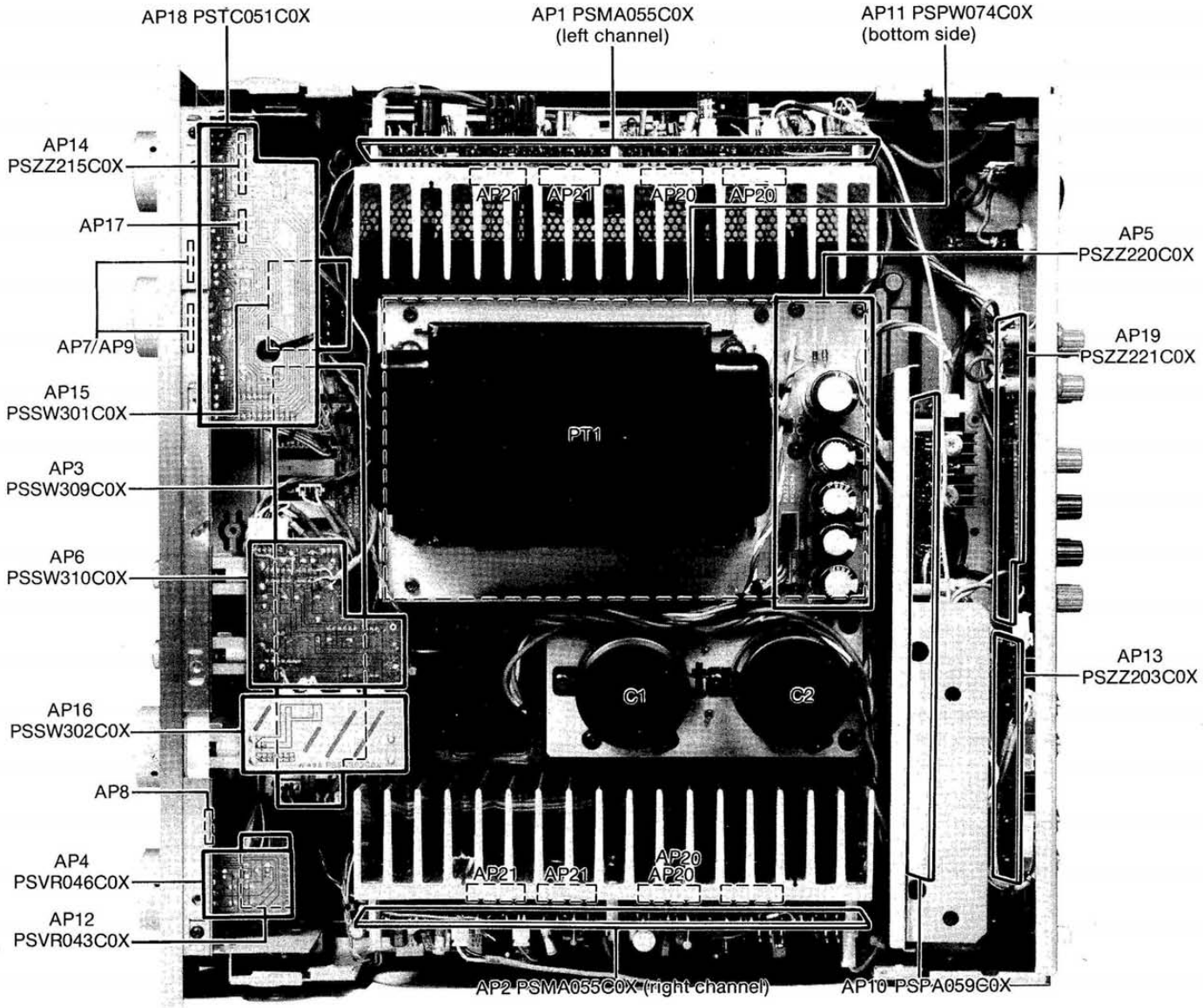


7 PEAK POWER INDICATOR circuit (PSPW074C0X)

This circuit consists of Q821 through Q826 and a LED (per channel) which is illuminated when the power peaks of the program material are approaching the limits of the non-distortion performance area of the amplifier. Peaks in the power amplfier output is detected by Q826 for the positive input and Q825 for the negative input, which then turn on Q821 to activate the LED on PSLD187C0X. The level to determine the indicator threshold is adjusted by RV801.

PC Board Location

[**Figure 1—PC Board Location**]



Adjustment Procedure

AC power
For the AC power, use 120V (±1%) 60Hz with distortion less than 2%.

RIAA equalizer amp power supply (PSPA059C0X)
1 Locate TP301 terminals on PSPA059C0X board and connect DC voltmeter to the terminals as shown. Use range of around 50V DC.
2 Using a Philips head (or a small flat blade) screwdriver, turn RV302 to 33V ±0.5V.

Note
This adjusts +B voltage power to the equalizer amplifier.

3 Now connect DC voltmeter to the terminals as shown and turn RV303 to 33V ±0.5V.

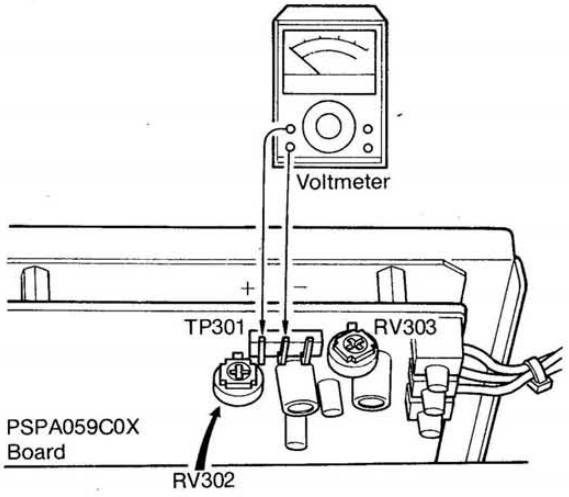
Note
This adjusts −B voltage power to the equalizer amplifier.
The regulator power supply on PSPA059C0X board affords both the left and right channel euqlizer amplifier power.

Phono RIAA amp DC offset (PSPA059C0X)
1 Set the INPUT SELECTOR to phono 1 and set the INPUT IMP switch on the rear panel to normal.

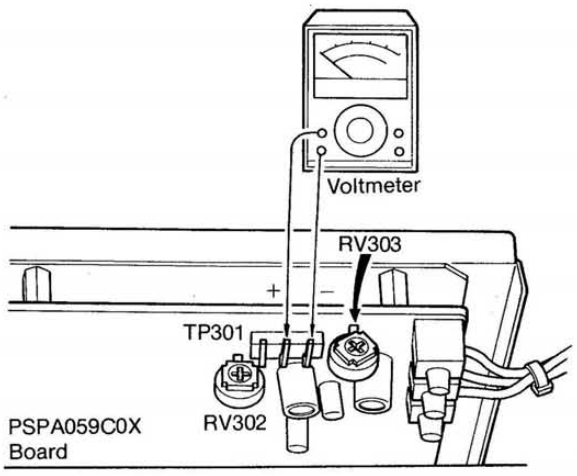
Left channel
2 Connect DC voltmeter to the **left** channel **PHONO1** input jack and to ground.
3 Turn RV301L to 0V ±0.01mV.

Right channel
4 Connect DC voltmeter to the **right** channel **PHONO1** input jack and to ground.
5 Turn RV301R to 0V ±0.01mV.

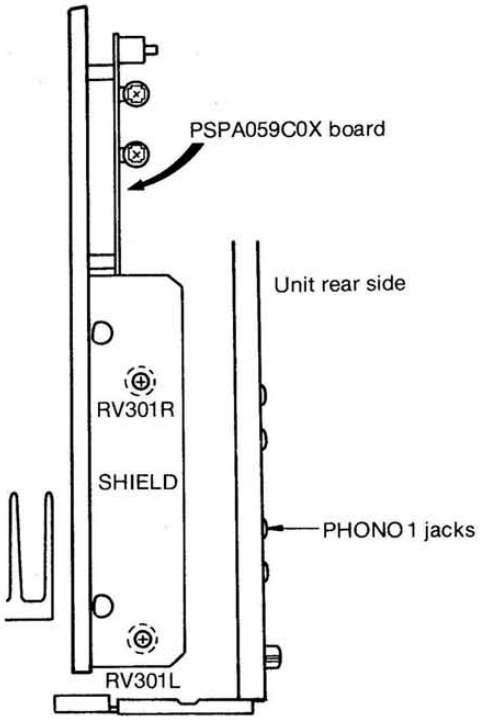
[**Figure 2—Depicting step 2 above**]



[**Figure 3—Depicting step 3 above**]



[**Figure 4—RV301 L/R Location**]



Power amplifier idling (PSMA055C0X)

The A-710 uses the same PC board for both the left and right channels.

1 Connect 8 ohm dummy load to the LEFT SPEAKERS terminals.
2 Connect DC voltmeter across TP501 on the left channel PSMA055C0X board.

Note

The DC voltmeter used here should preferably be measurable of as low as 1mV.

3 Turn VR501 on the left channel PSMA055C0X board to 10mV.

Note

This relates approximately 45mA source current for the 2SA1301/ 2SC3280 pair.

4 Connect 8 ohm dummy load to the RIGHT SPEAKERS output terminals.
5 Connect DC voltmeter across TP501 on the right channel PSMA055C0X.
6 Turn VR 501 on the right channel PSMA055C0X board to 10mV.

PEAK power indicators (PSPW074C0X)

1 Remove speaker dummy load from the speaker terminals but connect VTVM across the speaker terminals

Note

During this adjustment, the speaker terminals should be open (non loaded).

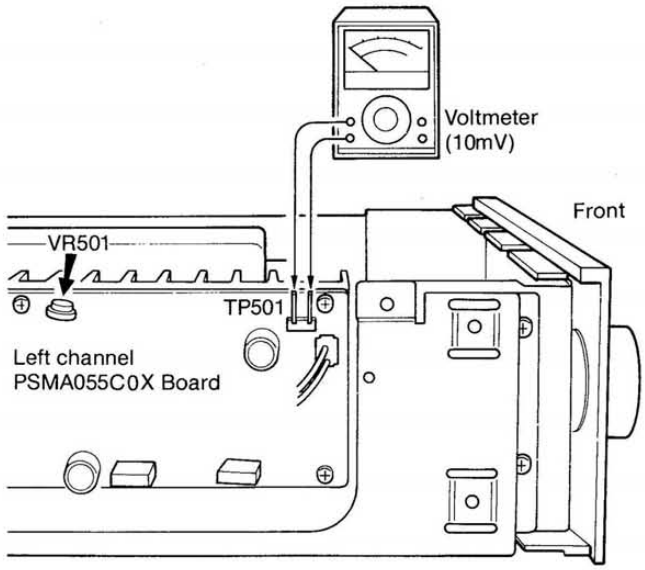
Left channel

2 Connect audio signal generator to the **left** channel AUX input jack. Adjust the generator to 1kHz audio output.
Select AUX on the INPUT SELECTOR and set the VOLUME CONTROL to fully clockwise position.
3 Slowly increase the signal generator output level by turning the generator's attenuator control until VTVM reads 33.5V (rms).
4 Turn RV801L to illuminate the PEAK power indicator and stop turning at that point.

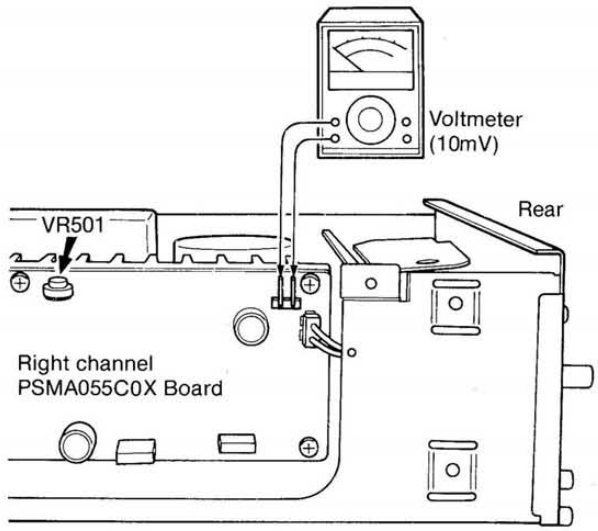
Right channel

5 Connect audio signal generator to the **right** channel AUX input jack. Adjust the generator to 1kHz audio output.
6 Turn RV801R to illuminate the PEAK power indicator and stop turning at that point.

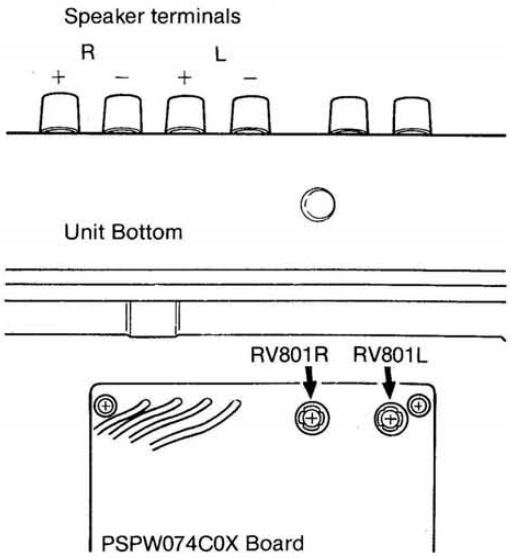
[**Figure 5—Depicting steps 2 and 3 above**]



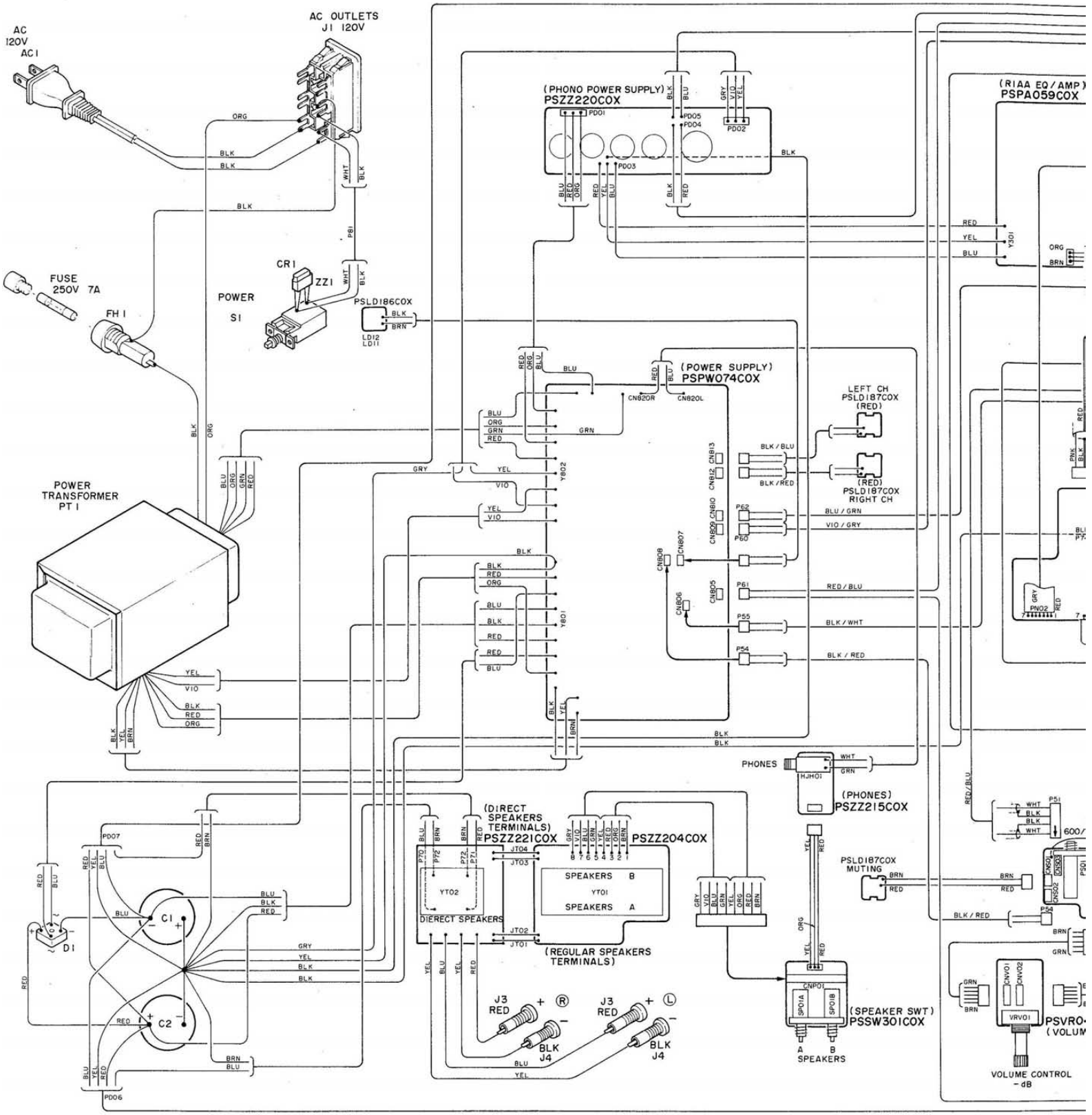
[**Figure 6—Depicting steps 5 and 6**]

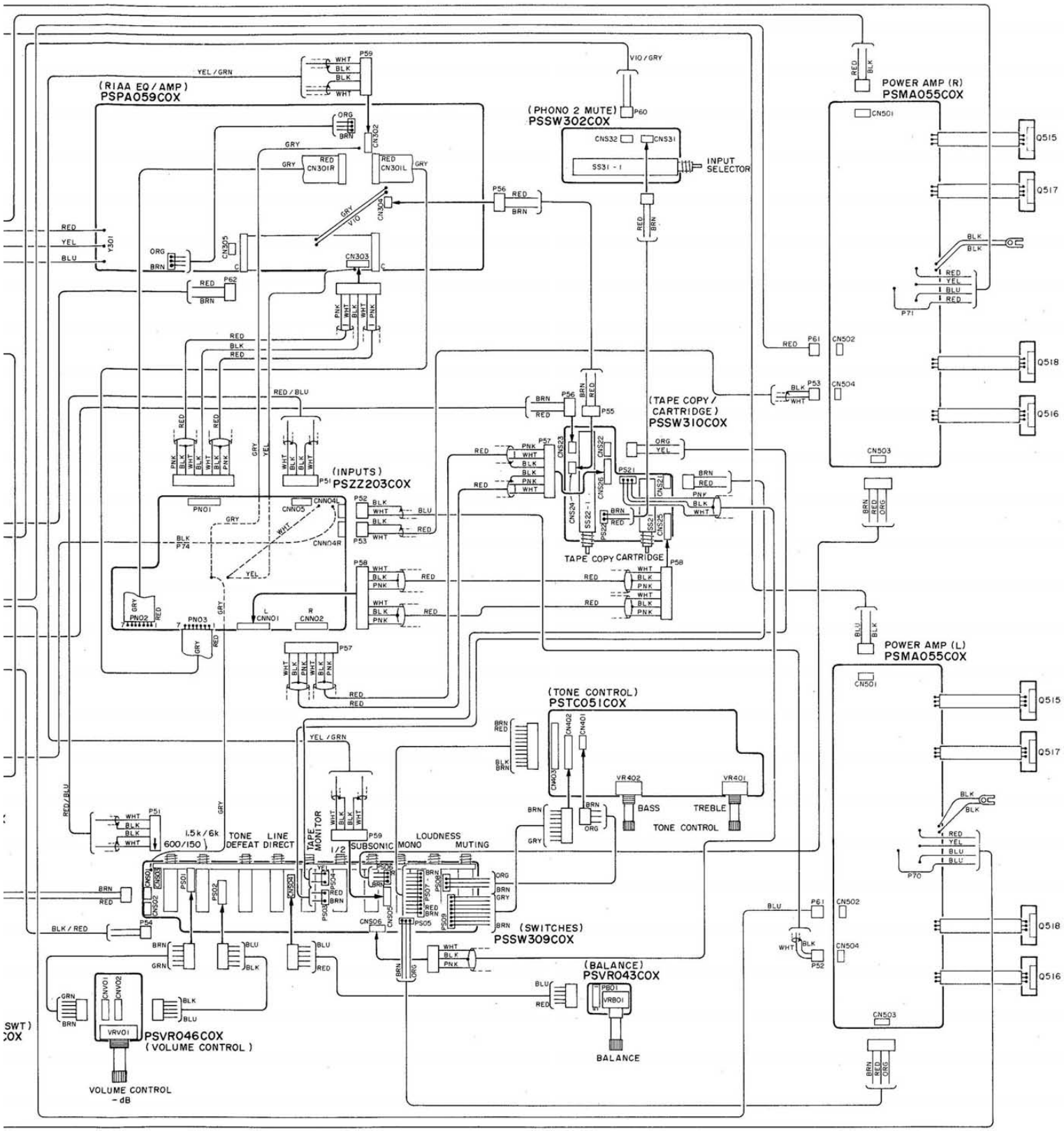


[**Figure 7—RV801L/R Location**]



Wiring Diagram

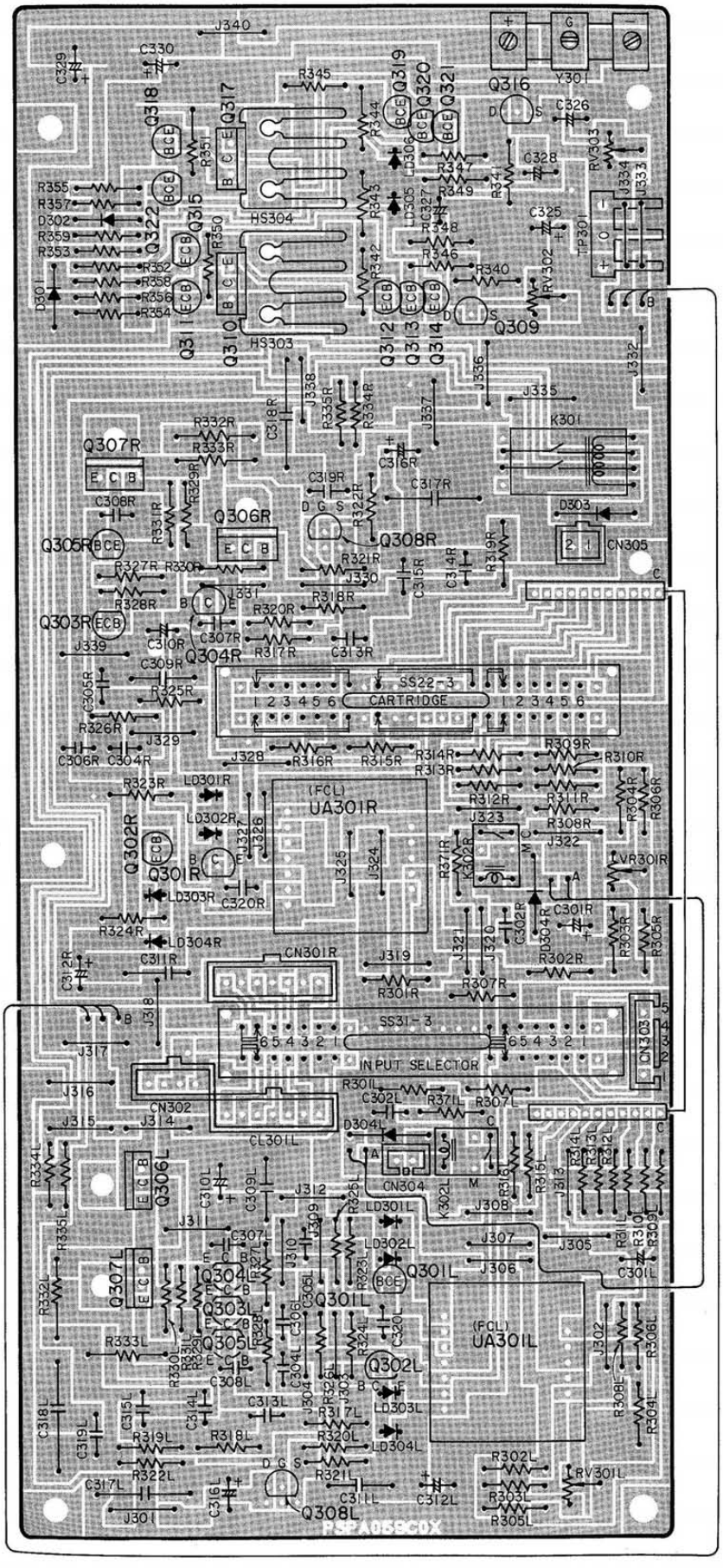


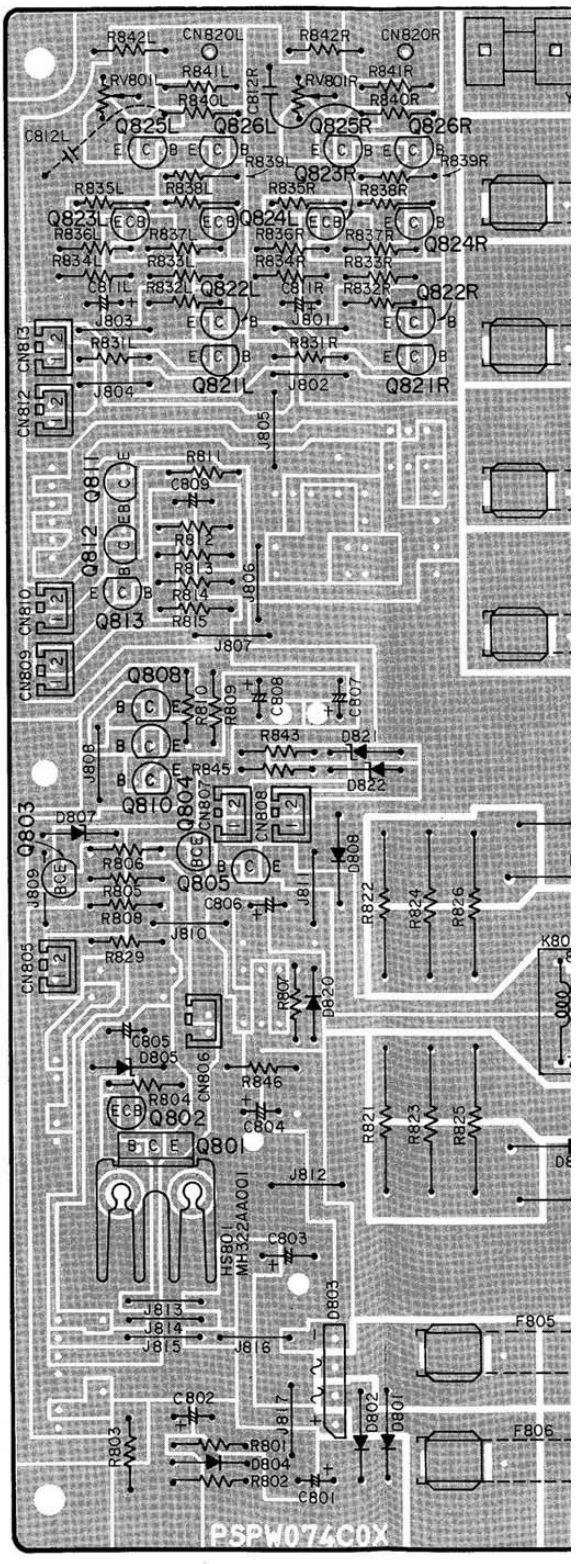

(RIAA EQ/AMP)
PSPA059COX
(PHONO 2 MUTE)
PSSW302COX
INPUT SELECTOR
POWER AMP (R)
PSMA055COX
(TAPE COPY/CARTRIDGE)
PSSW310COX
(INPUTS)
PSZZ203COX
TAPE COPY CARTRIDGE
(TONE CONTROL)
PSTC051COX
BASS
TREBLE
TONE CONTROL
POWER AMP (L)
PSMA055COX
TONE DEFEAT
LINE DIRECT
TAPE MONITOR
SUBSONIC
LOUDNESS
MONO
MUTING
(SWITCHES)
PSSW309COX
(BALANCE)
PSVR043COX
BALANCE
PSVR046COX
(VOLUME CONTROL)
VOLUME CONTROL
- dB

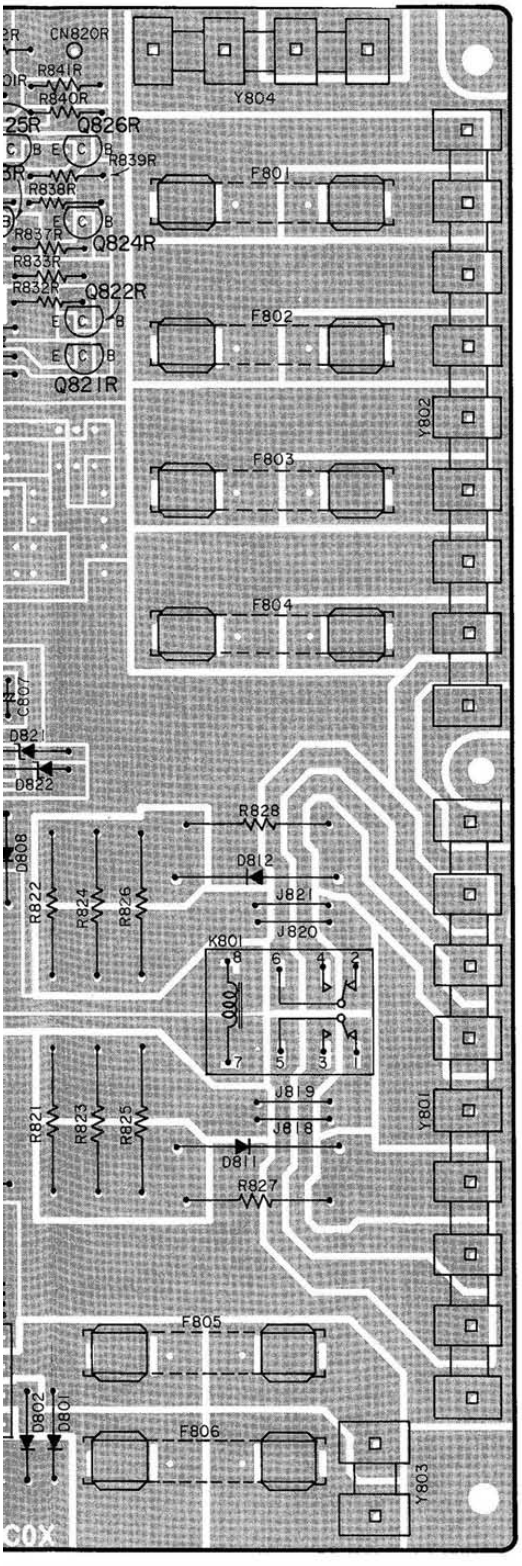
PC Board Layout #1

Each page number shows the page of the corresponding part list.

RIAA EQ/Amp PSPA059C0X page 16 Power Supply PSPW074C0X






CN820R
R841R
R840R
Q826R
R839R
R838R
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R832R
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Y804
F801
F802
F803
F804
Y802
C807
D821
D822
D808
R828
D812
J821
R822
R824
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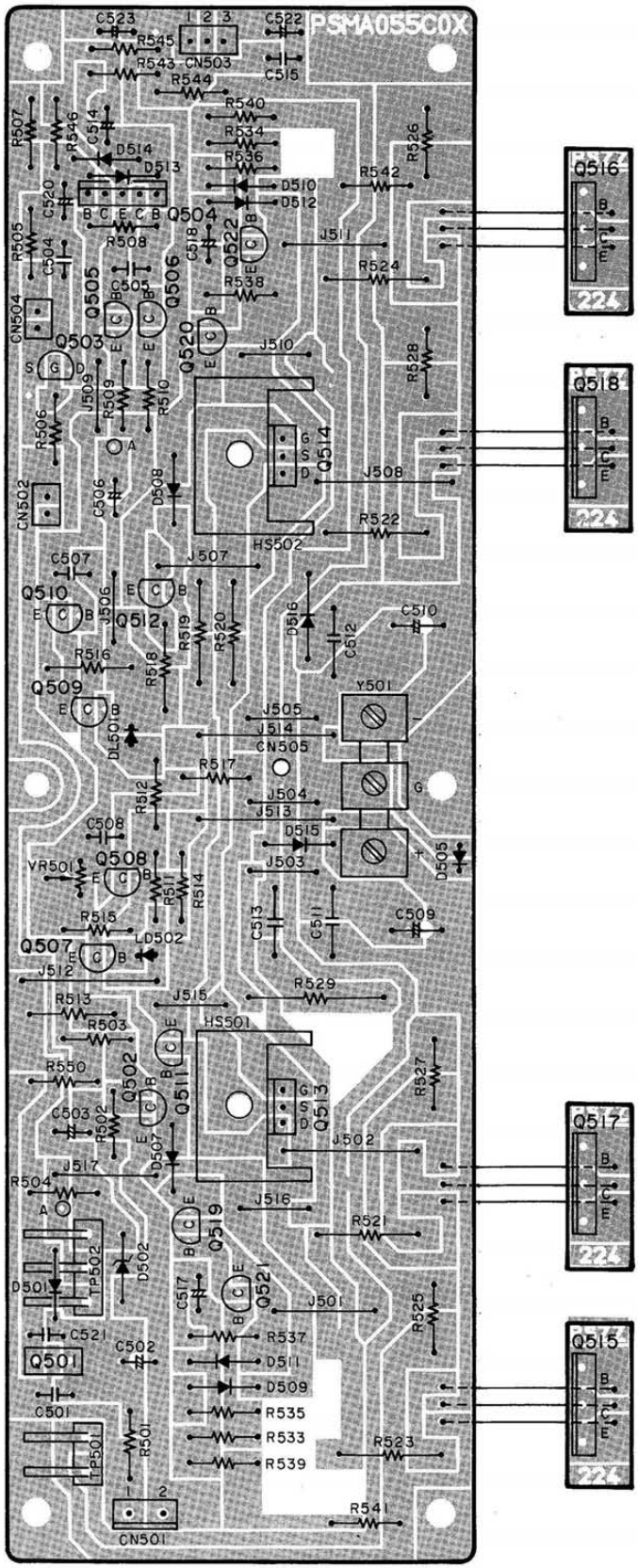
C0X


PSMA055C0X
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R543
CN503
C522
C515
R544
R540
R534
R536
R542
R526
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C514
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Q501
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D511
D509
C501
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R533
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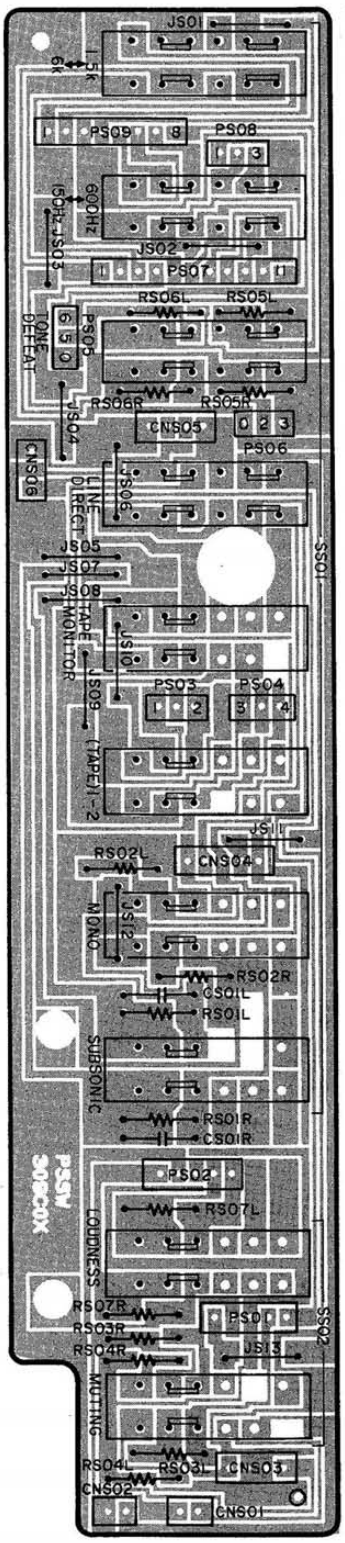
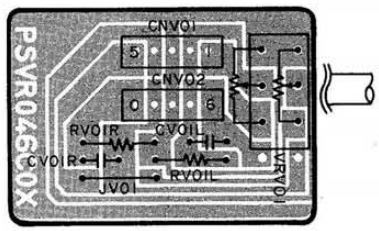
R523
Q515
CN501
R541

PC Board Layout #2

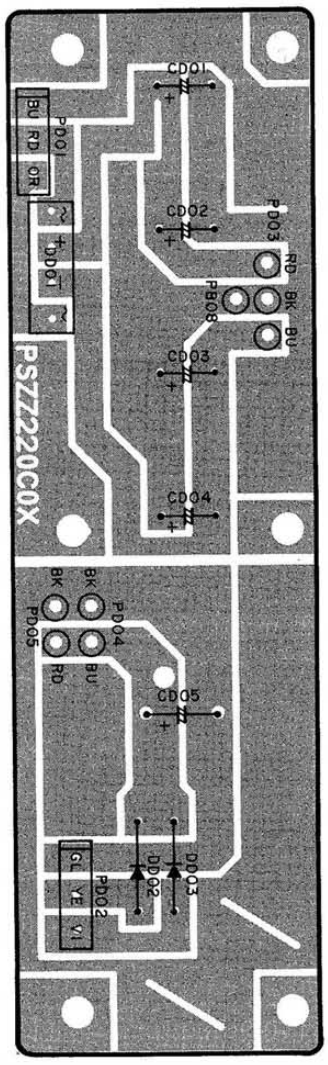
Switches PSSW309C0X page 17



Volume Control PSVR046C0X page 17

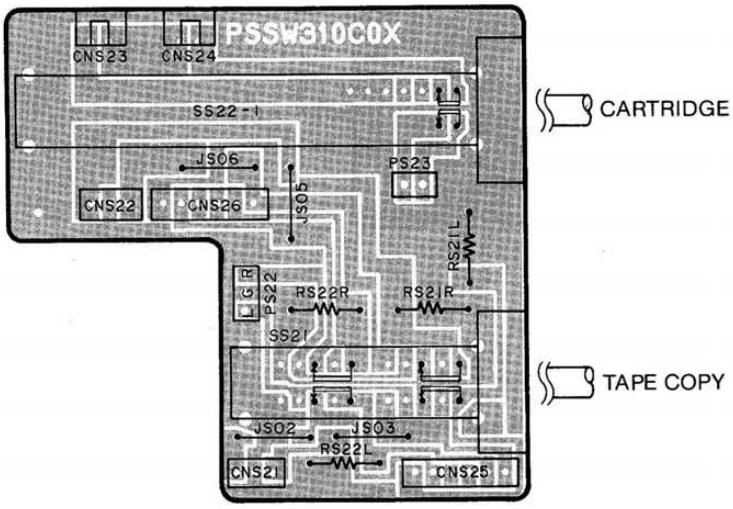


Phono Power Supply PSZZ220C0X page 17



PC Board Layout #3

Tape Copy/Cartridge PSSW310C0X page 17



PSLD187C0X

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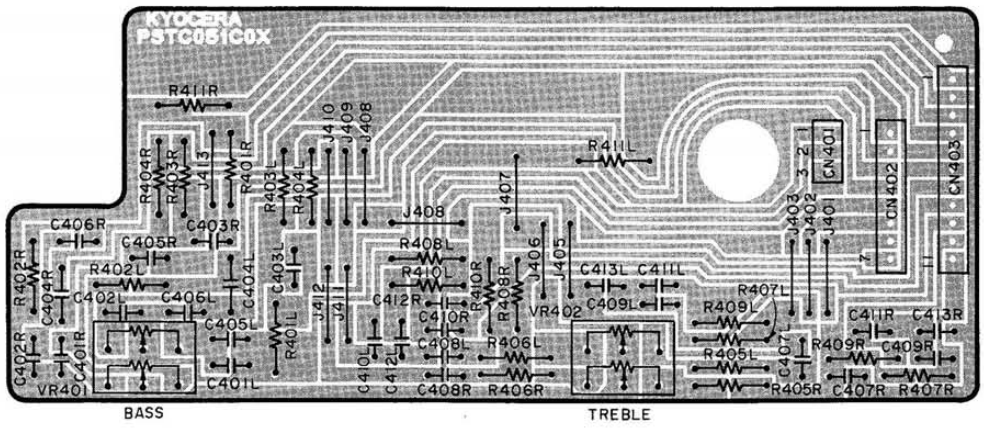
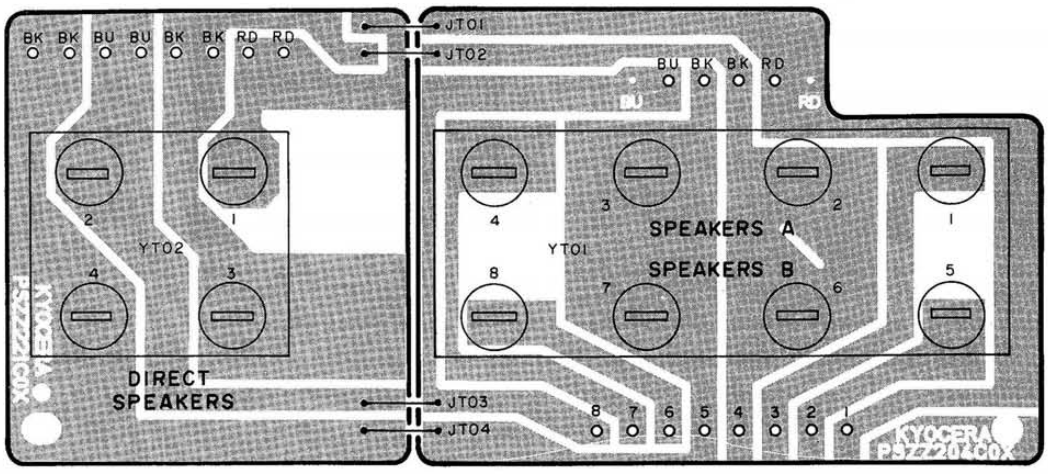
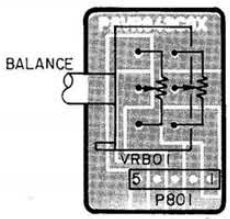
Tone Control PSTC051C0X page 18



Speakers Terminal PSZZ221C0X page 18



Balance PSVR043C0X



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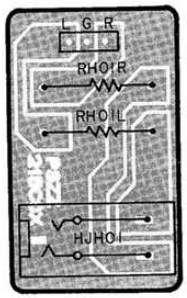
Phones PSZZ215C0X



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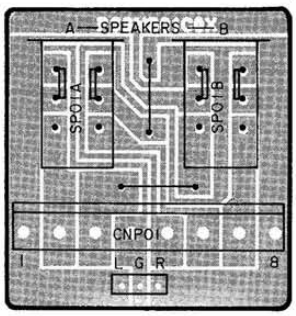
Speakers Swt PSSW301C0X



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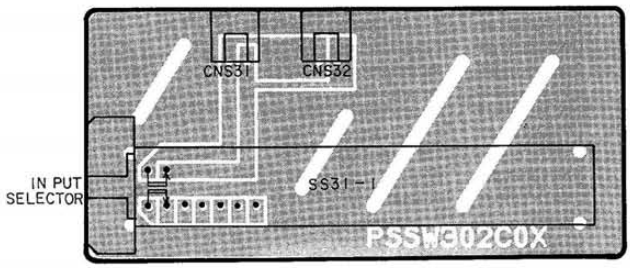
Switching Mute PSSW302C0X



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Inputs PSZZ203C0X

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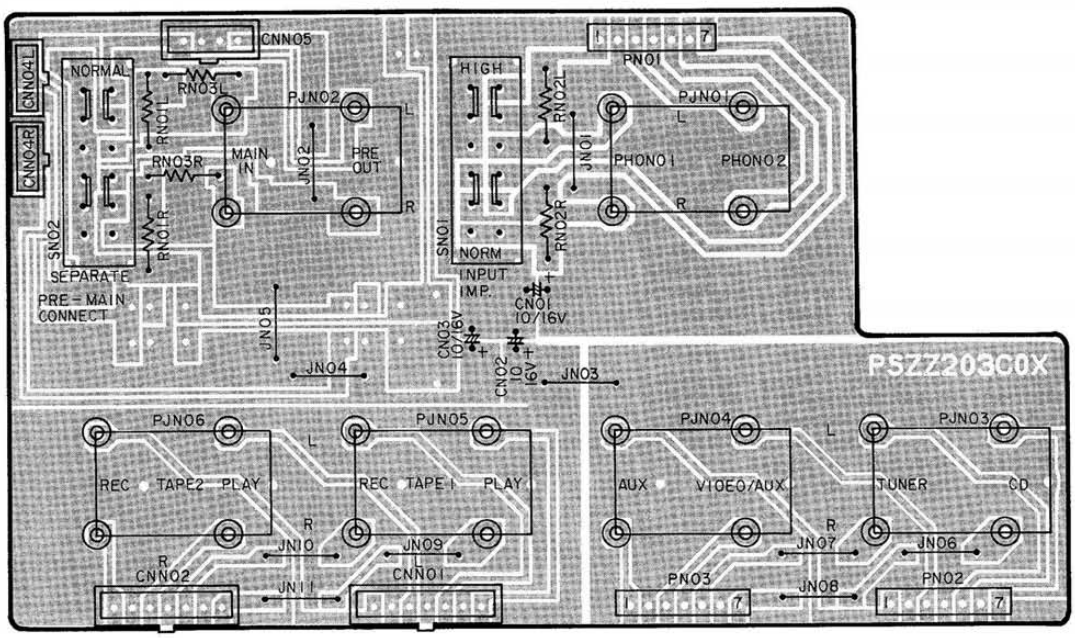


Part List -Electrical

RIAA EQ/Amp PSPA059C0X

Ref. No.	Part code	Description
-	PSPA059C0X	PC board, unassembled
UA301L/R	APSAZ055AA	FCL, FCL module #5
K301	ZRA231301Z	Relay, FRL644D12/2AK
SS22-2	SWR340A01A	Cable, remote, for SS22-3
SS22-3	SS0606032A	Switch, CARTRIDGE
SS31-2	SWR340A01A	Cable, remote, for SS31-2
SS31-3	SS0606032A	Switch, INPUT SELECTOR
CN301L/R	YJF07S004Z	Multi connector, female, 7p
CN302	YJF04S004Z	Multi connector, female, 4p
CN303	YJF05S091Z	Multi connector, female, 5p
CN304	YJF02S041Z	Multi connector, female, 2p
CN305	YJF02S041Z	Multi connector, female, 2p
K302L/R	ZRA133107Z	Relay, FBR22D12-P
Q301L/R	QTB0716AAB	Transistor, 2SB716A
Q302L/R	QTD0756AAB	Transistor, 2SD756A
Q303L/R	QTC1815XCT	Transistor, 2SC1815
Q304L/R	QTC1775AAB	Transistor, 2SC1775A
Q305L/R	QTA0872AAB	Transistor, 2SA872A
Q306L/R	QTC3298XAT	Transistor, 2SC3298
Q307L/R	QTA1306XAT	Transistor, 2SC1306
Q308L/R	QTK0147XAT	FET, 2SK147
Q309	QTK030TMAT	FET, 2SK30TM
Q310	QTC3298XAT	Transistor, 2SC3298
Q311	QTC1815XCT	Transistor, 2SC1815
Q312	QTC1815XCT	Transistor, 2SC1815
Q313	QTC1815XCT	Transistor, 2SC1815
Q314	QTC1815XCT	Transistor, 2SC1815
Q315	QTA1015XCT	Transistor, 2SA1015
Q316	QTK030TMAT	FET, 2SK30TM
Q317	QTA1306XAT	Transistor, 2SA1306
Q318	QTA1015XCT	Transistor, 2SA1015
Q319	QTA1015XCT	Transistor, 2SA1015
Q320	QTA1015XCT	Transistor, 2SA1015
Q321	QTA1015XCT	Transistor, 2SA1015
Q322	QTC1815XCT	Transistor, 2SC1815
D301	QDS1SS41XX	Diode, silicon, 1SS41
D302	QDS1SS41XX	Diode, silicon, 1SS41
LD301L/R	QLAS1110SD	LED, SEL1110S
LD302L/R	QLAS1110SD	LED, SEL1110S
LD303L/R	QLAS1110SD	LED, SEL1110S
LD304L/R	QLAS1110SD	LED, SEL1110S
LD305	QLAS1110SD	LED, SEL1110S
LD306	QLAS1110SD	LED, SEL1110S
HS303	MH322AA001	Heatsink, IC1625-ST
HS304	MH322AA001	Heatsink, IC1625-ST
RV301L/R	RPJNB10212	Resistor, trimming, 1k-B
RV302L/R	RPJNB47212	Resistor, trimming, 4.7k-B
D303	QDSN4002XG	Diode, silicon, 1N4002
D304L/R	QDSN4002XG	Diode, silicon, 1N4002
Y301	YTD03S004U	Terminal, 3p, GSK801
C301L/R	CEAB471ALX	Capacitor, elect., 470/6.3V
C302L/R	CMFD330JXS	Capacitor, film, 33p/500
C304L/R	CQTC221JEB	Capacitor, film, 220p/125V
C305L/R	CQTC101JEB	Capacitor, film, 100p/125V
C306L/R	CQTC101JEB	Capacitor, film, 100p/125V
C307L/R	CMFD560JXS	Capacitor, film, 56p/500V
C308L/R	CMFD560JXS	Capacitor, film, 56p/500V
C310L/R	CEAF101*MC	Capacitor, elect., 100/35V
C312L/R	CEAF101*MC	Capacitor, elect., 100/35V
C313L/R	CQTC562JEB	Capacitor, elect., 5600p/125V
C314L/R	CQTC103JEB	Capacitor, elect., 10000p/125V
C315L/R	CQTC103JEB	Capacitor, elect., 10000p/125V
C316L/R	CEAG2R2N*E	Capacitor, elect., 2.2/50V
C319L/R	CEAG4R7N*E	Capacitor, elect., 4.7/50V
C320L/R	CMFD390JXS	Capacitor, elect., 39p/50V
C325	CEAG470*MC	Capacitor, elect., 47/50V
C326	CEAG470*MC	Capacitor, elect., 47/50V
C327	CEAG4R7*MC	Capacitor, elect., 4.7/50V
C328	CEAG4R7*MC	Capacitor, elect., 4.7/50V
C329	CEAG101*MC	Capacitor, elect., 100/50V
C330	CEAG101*MC	Capacitor, elect., 100/50V
R332L/R	RX1ATJ100B	Resistor, metal-oxi., 10/1W
R333L/R	RX1ATJ100B	Resistor, metal-oxi., 10/1W
TP301	YZA1500002	Terminal, 3p

Power Supply PSPW074C0X

Ref. No.	Part code	Description
-	PSPW074C0X	PC board, unassembled
Q801	QTD0880XAT	Transistor, 2SD880
Q802	QTC1815XAT	Transistor, 2SC1815
Q803	QTC1815XAT	Transistor, 2SC1815
Q804	QTA1015XAT	Transistor, 2SA1015
Q805	QTC2235XBT	Transistor, 2SC2235
Q808	QTC1815XAT	Transistor, 2SC1815
Q809	QTC1815XAT	Transistor, 2SC1815
Q810	QTA1015XAT	Transistor, 2SA1015
Q811	QTC1815XAT	Transistor, 2SC1815
Q812	QTC1815XAT	Transistor, 2SC1815
Q813	QTC1815XAT	Transistor, 2SC1815
Q821L/R	QTC1815XAT	Transistor, 2SC1815
Q822L/R	QTC1815XAT	Transistor, 2SC1815
Q823L/R	QTC1815XAT	Transistor, 2SC1815
Q824L/R	QTA1015XAT	Transistor, 2SA1015
Q825L/R	QTC1815XAT	Transistor, 2SC1815
Q826L/R	QTC1815XAT	Transistor, 2SC1815
D801	QDSN4002XG	Diode, silicon, 1N4002
D802	QDSN4002XG	Diode, silicon, 1N4002
D803 ⚠	QDS1VB10XK	Diode, silicon, S1VB10
D804	QDS1SS41XX	Diode, silicon, 1SS41
D805	QDZHZ12A2B	Diode, Zener, 1SS41
D807	QDZHZ6CX1B	Diode, Zener, HZ6C-1
D808	QDSN4002XG	Diode, silicon, 1N4002
D811	QDSGP25GXG	Diode, silicon, GP25G
D812	QDSGP25GXG	Diode, silicon, GP25G
D820	QDS1SS41XX	Diode, Zener, 1SS41
RV801L/R	RPJNB10211	Resistor, trimming, 1k-B
R821	RG3ATJ331B	Resistor, metal-oxi., 330/3W
R822	RG3ATJ331B	Resistor, metal-oxi., 330/3W
R828	RG3ATJ331B	Resistor, metal-oxi., 330/3W
R824	RG3ATJ331B	Resistor, metal-oxi., 330/3W
R825	RG3ATJ331B	Resistor, metal-oxi., 330/3W
R826	RG3ATJ331B	Resistor, metal-oxi., 330/3W
R827	RG3ATJ472B	Resistor, metal-oxi., 4.7/3W
R828	RG3ATJ472B	Resistor, metal-oxi., 4.7/3W
C801	CEAE4R7ALX	Capacitor, elect., 4.7/25V
C802	CEAE220ALX	Capacitor, elect., 22/25V
C803 ⚠	CEAE220ALX	Capacitor, elect., 22/25V
C804 ⚠	CEAE220ALX	Capacitor, elect., 22/25V
C805	CEAE470ALX	Capacitor, elect., 47/25V
C806	CEAE101ALX	Capacitor, elect., 100/25V
C807	CEAD221ALX	Capacitor, elect., 220/25V
C808	CEAD221ALX	Capacitor, elect., 220/25V
C809	CEAE220ALX	Capacitor, elect., 22/25V
C811L/R	CEAGR47ALX	Capacitor, elect., 0.47/25V
C812L/R	CQ4B222KEH	Capacitor, film, 0.0022
C813	CQ4B102KEH	Capacitor, film, 0.001
K801 ⚠	ZRA235301Z	Relay, FRL264D012/02CV
D821	QDZA1051LN	Diode, Zener, MA1051
D822	QDZA1051LN	Diode, Zener, MA1051
J801-806	YHF0P0012Z	Fuse holder
F801-806	ZFBQ20201U	Fuse, 2.0A/250V⚠
HS801	MH322AA001	Heatsink
CN805	YJF02S041Z	Connector, 2p
CN806	YJF02S041Z	Connector, 2p
CN807	YJF02S041Z	Connector, 2p
CN808	YJF02S041Z	Connector, 2p
CN809	YJF02S041Z	Connector, 2p
CN810	YJF02S041Z	Connector, 2p
CN811	YJF02S041Z	Connector, 2p
CN812	YJF02S041Z	Connector, 2p
CN813	YJF02S041Z	Connector, 2p
CN820L/R	YTS01S070Z	Connector, 1p

Power Amp PSMA055C0X

Ref. No.	Part code	Description
-	PSMA055C0X	PC board, unassembled
HS501	MH332AA002	Heatsink, IC-2425-ST
HS502	MH332AA002	Heatsink, IC-2425-ST
Q501	QTC3424XAT	Transistor, 2SC3423
Q502	QTC2240XBT	Transistor, 2SC2240
Q503	QTK0367XAT	FET, 2SK367
Q504	QTA0979XCE	Transistor, 2SA979
Q505	QTC2240XBT	Transistor, 2SC2240
Q506	QTC2240XBT	Transistor, 2SC2240
Q507	QTA1145XAT	Transistor, 2SA1145
Q508	QTC2240XBT	Transistor, 2SC2240
Q509	QTC2705XAT	Transistor, 2SC2705
Q510	QTC2240XBT	Transistor, 2SC2240
Q511	QTD0756AAB	Transistor, 2SD756A
Q512	QTB0716AAB	Transistor, 2SB716A
Q513	QTK0214XAB	FET, MOS, 2SK214
Q514	QTJ0077XAB	FET, MOS, 2SJ77
D501	QDS1SS41XX	Diode, silicon, 1SS41
D502	QDZHZ36X2B	Diode, Zener, HZ36-2
D505	QVCSTV2HAD	Resistor, temperature-variable
D507	QDS1SS41XX	Diode, silicon, 1SS41
D508	QDS1SS41XX	Diode, silicon, 1SS41
D509	QDS1SS41XX	Diode, silicon, 1SS41
D510	QDS1SS41XX	Diode, silicon, 1SS41
D511	QDS1SS41XX	Diode, silicon, 1SS41
D512	QDS1SS41XX	Diode, silicon, 1SS41
LD501	QLAS1110SD	LED, SEL1110S, red
LD502	QLAS1110SD	LED, QLAS1110SD, red
Q519	QTA0872AAB	Transistor, 2SA872A
Q520	QTC1775AAB	Transistor, 2SC1775A
Q521	QTC1815XCT	Transistor, 2SC1815
Q522	QTA1015XCT	Transistor, 2SA1015
C522	CEAD470ALX	Capacitor, 47/16V
C523	CEAD220ALX	Capacitor, electr., 22/16V
D513	QDS1S131XX	Diode, silicon, 1SS131
D514	QDS1S131XX	Diode, silicon, 1SS131
D515	QDSN4002XG	Diode, silicon, 1N4002
D516	QDSN4002XG	Diode, silicon, 1N4002
R513	RG1ATJ331B	Resistor, metal-oxi., 330/1W
R516	RX1ATJ100B	Resistor, metal-oxi., 10/1W
R518	RG1ATJ470B	Resistor, metal-oxi., 47/1W
R519	RG2ATJ391B	Reistor, metal-oxi., 390/2W
R520	RG2ATJ680B	Rresistor, metal-oxi., 68/2W
R521	RX2ATJ4R7B	Resistor, metal-oxi., 4.7/2W
R522	RX2ATJ4R7B	Resistor, metal-oxi., 4.7/2W
R523	RX2ATJ4R7B	Resistor, metal-oxi., 4.7/2W
R524	RX2ATJ4R7B	Resistor, metal-oxi., 4.7/2W
R525	RF05PJR22B	Resistor, cement, 0.22/5W
R526	RF05PJR22B	Resistor, cement, 0.22/5W
R527	RF05PJR22B	Resistor, cement, 0.22/5W
R528	RF05PJR22B	Resistor, cement, 0.22/5W
R529	RX3ATJ150B	Resistor, metal-oxi., 15/3W
RV501	RPJNB10212	Resistor, trimming, 1k-B
CN505	YZC1000001	Terminal, RT-01N-2.3A
CN501	YJF02S014Z	Connector, 2p
CN502	YJF02S041Z	Connector, 2p
CN503	YJF03S020Z	Connector, 3p
CN504	YJF02S041Z	Connector, 2p
Y501	YTD03S004U	Terminal, 3p
TP501	YZA1000003	Terminal, 2p
TP502	YZA1500002	Terminal, 2p
C501	CQTC221JEB	Capacitor, film, 220p/125V
C502	CEAK101*MC	Capacitor, electr., 100/100V
C503	CEAG470*MC	Capacitor, electr., 47/50V
C504	CQTC101JEB	Capacitor, film, 100p/125V
C505	CQTC272JEB	Capacitor, film, 2700p/125V
C506	CEAH101*MC	Capacitor, electr., 100/63V
C507	CMFD330JXS	Capacitor, 33p/500V
C509	CEAK101*MC	Capacitor, electr., 100/100V
C510	CEAK101*MC	Capacitor, electr., 100/100V
C511	CQ2C474KEN	Capacitor, 0.47/100V
C512	CQ2C474KEN	Capacitor, film, 0.47/100V
C513	CQ2D333KEN	Capacitor, film, 0.033/250V
C514	CEAC101A*E	Capacitor, electr., 100/10V
C515	CMFD050DXS	Capacitor, 5p/500V
C522	CQ4B473KEH	Capacitor, film, 0.047/50V
C517	CEAD220ALX	Capacitor, 22/16V
C518	CEAD220ALX	Capacitor, electr., 22/16V
C521	CQ4B103KEH	Capacitor, film, 0.01/50V
C520	CEAG010A*E	Capacitor, electr., 1/50V

Switches PSSW309C0X

Ref. No.	Part code	Description
-	PSSW309C0X	PC board, unassembled
CS01L/R	CQ2C334KEN	Capacitor, film, 0.33/100V
SS01/02	SP08EFX02A	Switch, push, 1.5k-6k
SS02	SP02EAX13A	Switch, push, LOUDNESS
CNS01	YJF02S041Z	Connector, 2p
CNS02	YJF02S041Z	Connector, 2p
CNS03	YJF04S004Z	Connector, 4p
CNS04	YJF05S004Z	Connector, 5p
CNS05	YJF04S043Z	Connector, 4p
CNS06	YJF03S020Z	Connector, 3p
PS01	ACCNM93ULA	Cable set, 5p
PS02	ACCNM92ULA	Cable set, 5p
PS03	ACCNN51ULA	Cable set, 3p
PS04	ACCNN52ULA	Cable set, 3p
PS07	ACCNM87ULA	Cable set, 11p
PS05	ACCNG51ULA	Cable set, 3p
PS06	ACCNQ52ULA	Cable set, 3p
PS08	ACCNM86ULA	Cable set, 3p
PS09	ACCNM85ULA	Cable set, 8p

Volume Control PSVR046C0X

Ref. No.	Part code	Description
-	PSVR046C0X	PC board, unassembled
CNV01	YJF05S004Z	Connector, 5p
CNV02	YJF05S004Z	Connector, 5p
VRV01	RVQA503A03	Resistor, var., 50k-B, VOLUME
CV01L/R	CQ4B683KEH	Capacitor, film, 0.068/50V

Phono Power Supply PSZZ220C0X

Ref. No.	Part code	Description
-	PSZZ220C0X	PC board, unassembled
CD01-04	CEAG102ZSC	Capacitor, electr., 1000/50V
CD05	CEAJ471ZSC	Capacitor, electr., 470/80V
DD01	QDSRB152XD	Diode, silicon, RB-152
DD02/03	QDSN4002XG	Diode, silicon. 1N4002
PD01	ACCNP88ULA	Cable set, 3p
PD02	ACCNP89ULA	Cable set, 3p
PD03	ACCNQ59ULA	Cable set, 3p
PD04	ACCNN57ULA	Cable set, 2p
PD05	ACCNN58ULA	Cable set, 2p

Tape Copy/Cartridge PSSW310C0X

Ref. No.	Part code	Description
-	PSSW310C0X	PC board, unassemmmbled
SS22-1	SH0206022A	Switch, CARTRIDGE
SS21	SH0403092A	Switch, TAPE COPY
PS22	ACCNM98ULA	Cable set, 2p
PS21	ACCNN13ULA	Cable set, 2p
CNS21	YJF03S021Z	Connector, 3p
CNS22	YJF03S021Z	Connector, 3p
CNS23	YJF02S044Z	Connector, 2p
CNS24	YJF02S044Z	Connector, 2p
CNS25	YJF06S019Z	Connector, 6p
CNS26	YJF06S003Z	Connector, 6p

Indicator PSLD187C0X

Ref. No.	Part code	Description
-	PSLD187C0X	PC board, unassembled
LDL11	QLBLN222RN	LED
PL13	ACCNM84ULA	Cable set, 2p

Tone Control PSTC051C0X

Ref. No.	Part code	Description
-	PSTC051C0X	PC board, unassembled
VR401	RVQA503C06	Resistor, trimming, 50K-B
VR402	RVQA503C06	Resistor, trimming, 50K-B
C401L/R	CQ4B123KEH	Capacitor, Film, 0.012/50V
C402L/R	CQ4B563KEH	Capacitor, Film, 0.056/50V
C403L/R	CQ4B823KEH	Capacitor, Film, 0.082/50V
C404L/R	CQVB334JSN	Capacitor, Film, 0.033/50V
C405L/R	CQ4B822KEH	Capacitor, Film, 0.0082/50V
C406L/R	CQ4B823KEH	Capacitor, Film, 0.082/50V
C407L/R	CQ4B152KEH	Capacitor, Film, 0.0015/50V
C408L/R	CQ4B682KEH	Capacitor, Film, 0.0068/50V
C409L/R	CQ4B122KEH	Capacitor, Film, 0.0012/50V
C410L/R	CQ4B473KEH	Capacitor, Film, 0.0047/50V
C411L/R	CQ4B103KEH	Capacitor, Film, 0.01/50V
C412L/R	CQ4B123KEH	Capacitor, Film, 0.012/50V
C413L/R	CQ4B153KEH	Capacitor, Film, 0.015/50V
CN401	YJF03S020Z	Multi connector, female, 3P
CN402	YJF08S003Z	Multi connector, female, 8P
CN403	YJF11S016Z	Multi connector, female, 11P

Speakers Terminal PSZZ221C0X

Ref. No.	Part code	Description
-	PSZZ221C0X	PC board, unassembled
YT01	YTD08S003Z	Terminal, 8p, SPEAKERS A/B
YT02	YTD04S013Z	Terminal, 4p, DIRECT SPEAKERS
PT01	ACCNQ49ULA	Cable set

Balance PSVR043C0X

Ref. No.	Part code	Description
-	PSVR043C0X	PC board, unassembled
PB01	ACCNP62ULA	Cable set
VRB01	RVQA254X06	VR, 250k-MN, BALANCE

Phones PSZZ215C0X

Ref. No.	Part code	Description
-	PSZZ215C0X	PC board, unassembled
PH01L/R	RG2ATJ271B	Resistor, metal-oxi., 270/2W
HJH01	YJS03S033Z	Jack, 3p, PHONES

Speakers Swt PSSW301C0X

Ref. No.	Part code	Description
-	PSSW301C0X	PC board, unassembled
SP011	SP02EAX12A	Switch, push, SPEAKERS A/B
CNP01	YJF08S013Z	Terminal, 8p

Switching Mute PSSW302C0X

Ref. No.	Part code	Description
-	PSSW302C0X	PC board, unassembled
SS31-1	SH020601ZA	Switch, slide, INPUT SELECTOR
CNS31	YJF02S044Z	Terminal, 2p
CNS32	YJF02S044Z	Terminal, 2p

Power Indicator PSLD186C0X

Ref. No.	Part code	Description
-	PSLD186C0X	PC board, unassembled
LDL01	QLBLN442YN	LED, LN442YP
LDL02	QLBLN442YN	LED, LN442YP

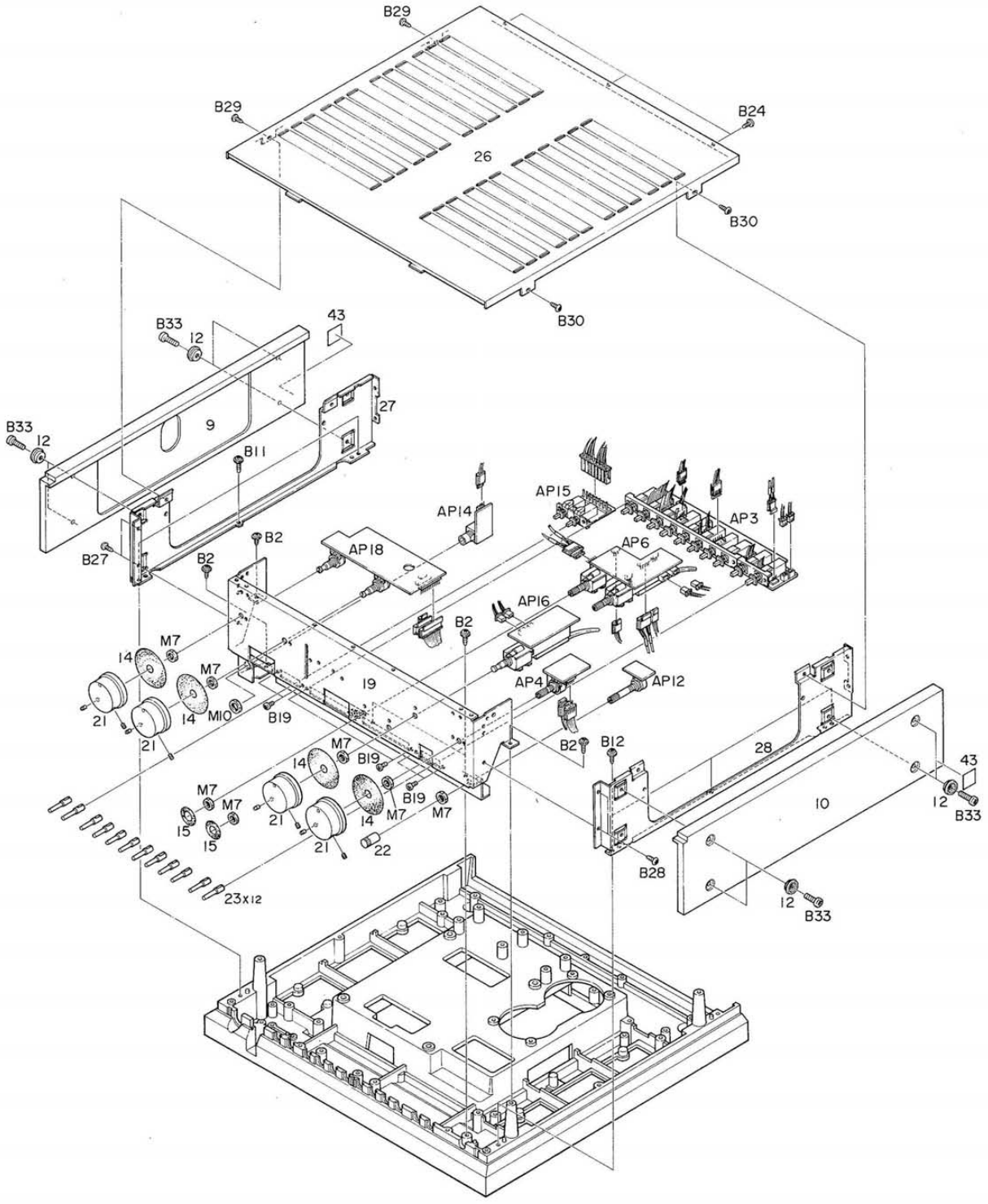
Inputs PSZZ203C0X

Ref. No.	Part code	Description
-	PSZZ203C0X	PC board, unassembled
PJN01	YJP04S028U	Jack, RCA-type, 4p
PJN02	YJP04S029U	Jack, RCA-type, 4p
PJN03	YJP04S028U	Jack, RCA-type, 4p
PJN04	YJP04S029U	Jack, RCA-type, 4p
PJN05	YJP04S029U	Jack, RCA-type, 4p
PJN06	YJP04S029U	Jack, RCA-type, 4p
CN01	CEAD100*MC	Capacitor, Elect., 10/16V
CN02	CEAD100*MC	Capacitor, Elect., 10/16V
CN03	CEAD100*MC	Capacitor, Elect., 10/16V
SN01	SS040220ZA	Switch, slide, INPUT IMP
SN02	SS040220ZA	Switch, slide, PRE MAIN CONN.
PN02	ACCNK53ULA	Terminal
PN03	ACCNK52ULA	Terminal
PN01	ACCNK51ULA	Terminal
CNN01	YJF07S010Z	Terminal, 7p
CNN02	YJF07S010Z	Terminal, 7p
CNN04L	YJF03S021Z	Terminal, 3p
CNN04R	YJF03S021Z	Terminal, 3p
CNN05	YJF04S020Z	Terminal, 4p

Accessories

Ref. No.	Part code	Description
-	KTA710U*AX	Owner's manual, revision #1
-	KZ000125XX	Safety instructions
-	KPA710U*01	Carton
-	KBA910U*01	Cushioning, top
-	KBA910U*02	Cushioning, bottom

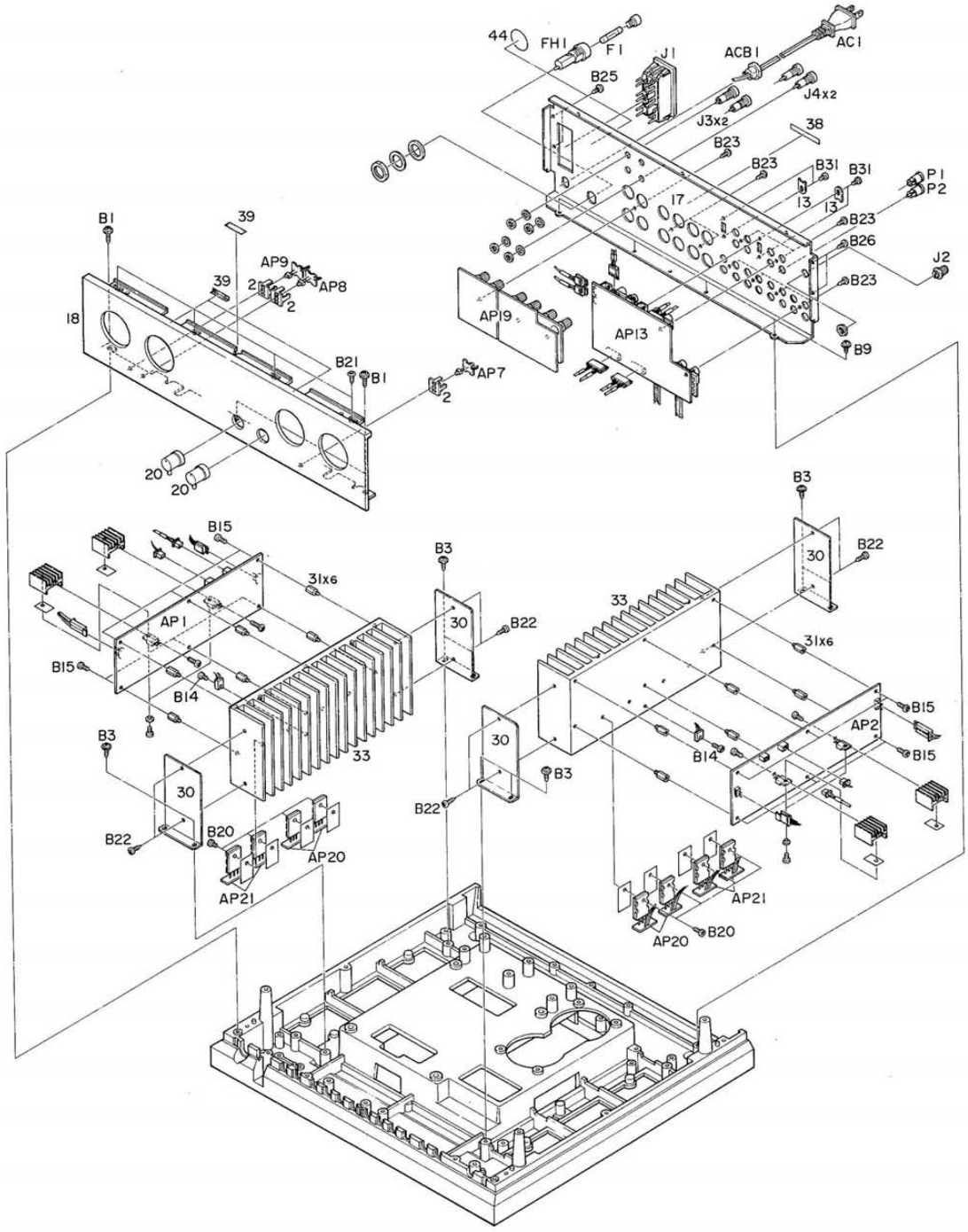
Exploded View #1



Part List #1

Ref. No.	Part code	Description
AP03	APSSW309AA	PCB assembly, switches
AP04	APSVR046AA	PCB assembly, VOLUME CONTROL
AP06	APSSW310AA	PCB assembly, TAPE COPY, CART.
AP12	APSVR043BA	PCB assembly, BALANCE
AP14	APSZZ215AA	PCB assembly, PHONES
AP15	APSSW301AA	PCB assembly, SPEAKERS A/B
AP16	APSSW302AA	PCB assembly, INPUT SELECTOR
AP18	APSTC051AA	PCB assembly, TONE CONTROL
09	VS869WM004	Panel, left side
10	VS869WM005	Panel, right side
12	VF122DB001	Base, for side screws B33
14	VS905YB003	Masking, for rotary controls
15	VS805YB006	Masking, for rotary controls
19	MX876SL001	Panel, front
21	MN386AA034	Knob, TONE CONTROL, INPUT, etc
22	MN266AA006	Knob, BALANCE
23	VN360SM001	Knob, push switches
26	MU983SM001	Cover, top
27	MB862SL003	Panel, left side
28	MB862SL005	Panel, right side
43	VVL221WN11	Decal, CAUTIONS
B02	BTP43012WB	Screw, 3/12 (5)
B11	BTP43012WB	Screw, 3/12 (3)
B12	BTP43012WB	Screw, 3/12 (3)
B24	BTPL3008BB	Screw, 3/8 (3)
B27	BTPL3008BB	Screw, 3/8 (2)
B28	BTPL3008BB	Screw, 3/8 (2)
B29	BTPL3008BB	Screw, 3/8 (2)
B30	BTPL3008BB	Screw, 3/8 (2)
B33	BSPB5016NB	Screw, 5/16 (8)

Exploded View #2

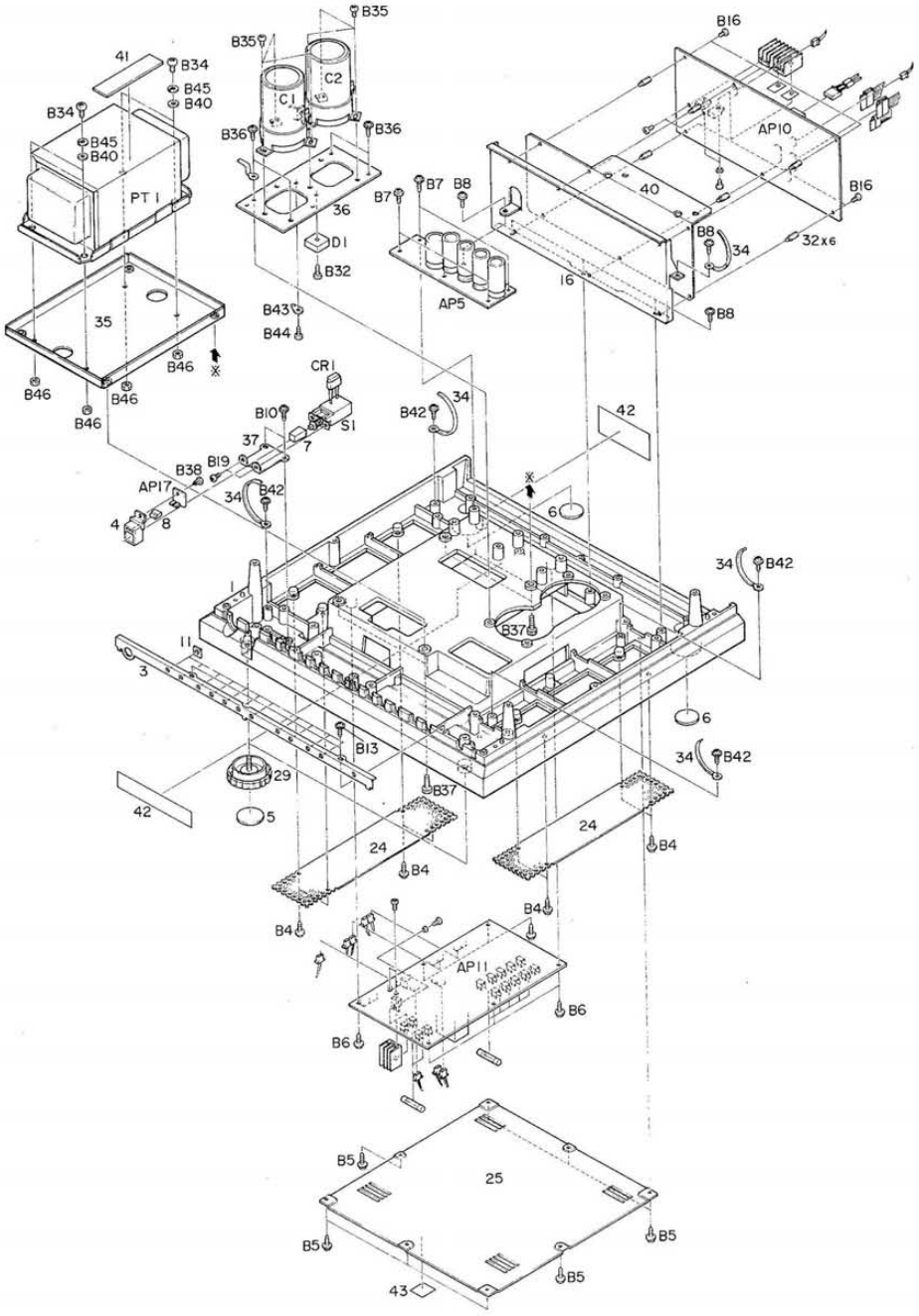


Part List #2

Ref. No.		Part code	Description
J2		YTD01S006Z	Terminal, GND
J3		YTS01S086Z	Terminal, banana, DIR SP, red
J4		YTS01S087Z	Terminal, banana, DIR SP, blk
ACB1		VM270NB015	Strain relief, SP5KN-4 HEYCO
AC1	⚠	ACAC213ULA	Cord+plug, AC power
J1	⚠	YJA06S002U	Outlet set, AC, 3-p
FH1	⚠	YHF1P3006U	Fuse holder
F1	⚠	ZFBQ70202U	Fuse, 7A, 250V, UL-listed
AP01/02		APSMA055AA	PCB assembly, power amps
AP07-09		APSLD187AA	PCB assembly, dot indicators
AP13		APSZZ203EA	PCB assembly, inputs
AP19		APSZZ221AA	PCB assembly, terminals, SPKR
AP20		APSZZ224AA	PCB, power transistors mount
AP21		APSZZ224BA	PCB, power transistors mount
02		VK226SB001	Shade, for AP7-9 boards
13		VS216VC001	Stopper, rear panel switches

Ref. No.	Part code	Description
17	MB974SM003	Panel, rear
18	ME96EAA081	Escutcheon
20	MN376AA024	Knob, push, TAPE, CARTRIDGE
30	ML662SL003	Bracket, for heatsinks
31	MT264BD012	Spacer
33	MX876AD001	Heatsink
38	VVL511GE08	Decal, SERIAL NO.
39	VS515YB006	Tape, escutcheon protecting
44	VVL801UL06	Decal, UL requirements
B01	BTP43012WB	Screw, 3/12
B03	BTP43012WB	Screw, 3/12
B09	BTP43012WB	Screw, 3/12
B14	BSPB3008NB	Screw, 3/8
B15	BSPB3006NB	Screw, 3/6
B20	BSPB3012NL	Screw, 3/12
B21	BTPL3008BB	Screw, 3/8
B22	BTPL3008PB	Screw, 3/8
B23	BTPL3008PB	Screw, 3/8
B25	BTPL3008BB	Screw, 3/8
B26	BTPL3008BB	Screw, 3/8
B31	BSPB2604NB	Screw, 2.6/4

Exploded View #3



Part List #3

Ref. No.		Part code	Description
PT1	⚠	TPE80U001V	Transformer, power, Ei-80
CR 1	⚠	CRA333A02H	Capacitor+resistor, 0.033+120
D 1		QDS10VB20K	diode, silicon, S10VB20
C 1		CEM1H20301	Capacitor, 20,000/63V
C 2		CEM1H20301	Capacitor, 20,000/63V
S 1	⚠	SP01AAU21N	Switch, POWER, ESB99315T
AP 5		APSZZ220AA	PCB assembly, phono power sply
AP10		APSPA059EA	PCB assembly, phono RIAA eqlz.
AP11		APSPW074EA	PCB assembly, power supply
AP17		APSLD186AA	PCB assembly, POWER indicator
01		VX886XM004	Chassis
03		ML822SM002	Plate, trim
04		VF222SM001	Guidirq, push knobs
05		VS809YB001	Protector, for pedestals (2)
06		VS809YB002	Protector, for pedestals (2)
07		VN210SM020	Knob, POWER
08		VQ211AC001	Illuminator, POWER indidicator
11		VF111SB005	Guiding, push knobs
16		MB871SL003	Bracket, rear
24		MS866SE002	Net, punched
25		MS887SE001	Cover, bottom
29		VF296SP001	Pedestal
32		MT264BD013	Spacer
34		MX615SX002	Clamp

Ref. No.	Part code	Description
35	MB771SL002	Bracket, power transformer mtg
36	MS757SL003	Bracket, C1/C2 mounting
37	ML542SL004	Base, POWER switch
40	ML874SX001	Shield
41	VS649MB001	Protector, for pwr transformr
42	VVL621UL06	Decal, FUSE REPLACEMENT warn.
43	VVL221WN11	Decal, CAUTIONS
B 4-8	BTP43012WB	Screw, 3X12
B 10	BTP43012WB	Screw, 3X12
B 13	BTP43012WB	Screw, 3X12
B 16	BSPB3006NB	Screw, 3X6
B 19	BSPB3006NB	Screw, 3X6
B 32	BSPB3016NB	Screw, 3X16
B 34	BSPB5012NB	Screw, 5X12
B 35	BSPB4006NB	Screw, 4X6
B 36	BTP44012WB	Screw, 4X12
B 37	BSHM6016NB	Bolt, hex
B 38	BRP3055QNB	Rivet
B 40	BWM60D0ASB	Washer, 6X13X0.8
B 42	BTP43012WB	Screw, 3X12
B 43	BWT30704BN	Washer, grounding
B 44	BTPL3008BB	Screw, 3X8
B 45	BWS5092DSB	Washer
B 46	BNHAH50NSZ	Nut

Specifications (Typical)

Power output, 20Hz to 20kHz, 8ohm, both channels driven, minimum RMS, rated THD	**100W + 100W**
Total harmonic distortion, 20Hz to 20kHz, 8ohm	0.03%
Total harmonic distortion, 20Hz to 20kHz, 4ohm	0.06%
MAIN IN sensitivity/impedance	200mV/45kohm
Frequency response, 10Hz to 100kHz @ 1W	±1.5dB
Slew rate	60V/μsec
Damping factor @ 50Hz	100
Dynamic headroom	0.7dB
FTC power output, 20Hz to 20kHz, 8ohm, 0.03% THD	100 + 100W
FTC power output, 20Hz to 20kHz, 4ohm, 0.06% THD	140W + 140W
Dynamic short term power	8ohm, 115W + 115W 4ohm, 170W + 170W 2ohm, 100W + 100W
Power bandwidth, −3dB	10Hz ~ 40kHz
Overall negative feedback @ 1kHz	43dB
Maximum instant current capacity	60A
Rise time, with square wave @ 10kHz, rated output	0.7μsecond
Tilt, with sqaure wave @20Hz, 1W output	10mV/msecond
Input sensitivity/impedance	phono MM, 2.2mV/47kohm phono MC, 0.15mV/100ohm others, 200mV/47kohm
PRE OUT/REC OUT output/ impedance	200mV/560ohm
Phono RIAA tolerance, 20Hz to 20kHz	±0.3dB
Phono maximum input, 1kHz, 0.5% THD	MM, 190mV MC, 12mV
TONE CONTROL range, BASS, 100Hz	±8dB
TONE CONTROL range, TREBLE, 10kHz	+8/−4dB
TONE CONTROL turnover frequencies	BASS, 150Hz/600Hz TREBLE, 1.5kHz/6kHz
Loudness contour, −30dB VOLUME, 100Hz	+8dB
Muting	−20dB
SUBSONIC filter	−6dB octave below 20Hz
Overall S/N, IHF A-weighted	AUX/VIDEO, 105dB phono MM, 85dB phono MC, 65dB
Overall intermodulation distortion, SMPTE, 60Hz : 7kHz=4 : 1	8ohm, 0.03% 4ohm, 0.06%
Power requirement	AC120V 60Hz
Power consumption	450W
Dimensions	
width	17″ (430mm)
height	6-1/8″ (155mm)
depth	17-1/4″ (438mm)
Weight	44lb. 1oz. (20kg)

Because KYOCERA continually strives to improve its products, specifications and features are subject to change without notice.

Servicing Information

For information regarding service, contact your authorized Kyocera dealer or the following directly.

KYOCERA International Inc.
Service Center:
7 Powder Horn Drive,
Warren NJ 07060-0227
Telephone: 201-560-0060

Schematic Diagram

Notes

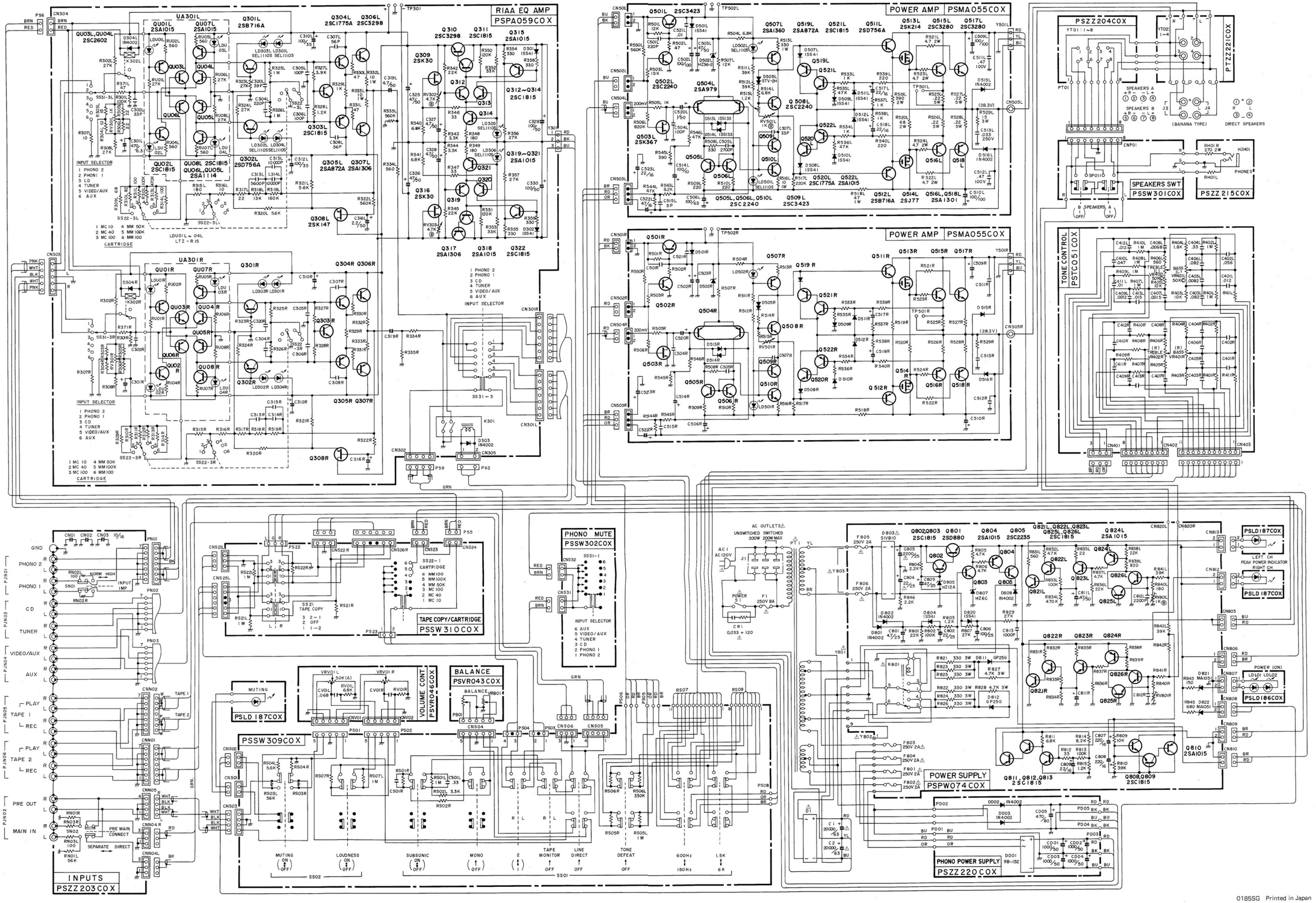
1 Components with suffix L are of the left channel; with suffix R are of the right channel. Only the left channel component values are specified. For the values for the right channel, refer to the left channel.

2 **Component symbol ID:**
CN, female (multi) connector,
PN, make (multi) connector,
PS/PD, non-detachable (multi) connector

3 All resistors are 1/4W unless otherwise noted. Resistor values are in ohm (1k=1,000 ohm, 1M=1,000,000 ohm).
All capacitor values are in micro farad (p=picofarad).

4 **Safety precautions to service personnel**

1 ⚠ Safety requirement components in accordance with present safety regulations. These components must only be replaced by original components listed in this manual. 2 To comply with present safety regulations, be sure to make leakage-current or resistance measurements before returning the appliance to customer.



Schematic Diagram

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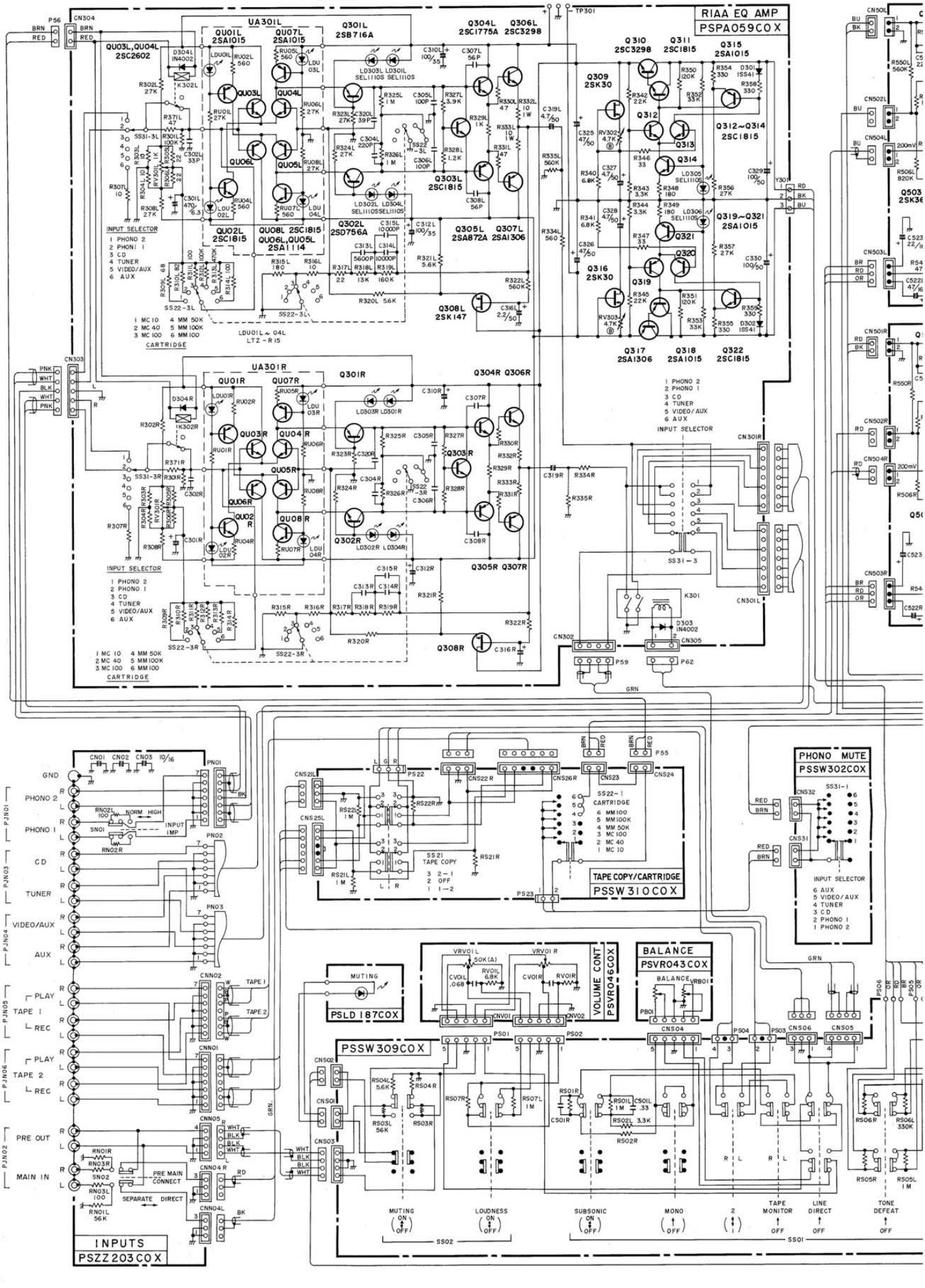

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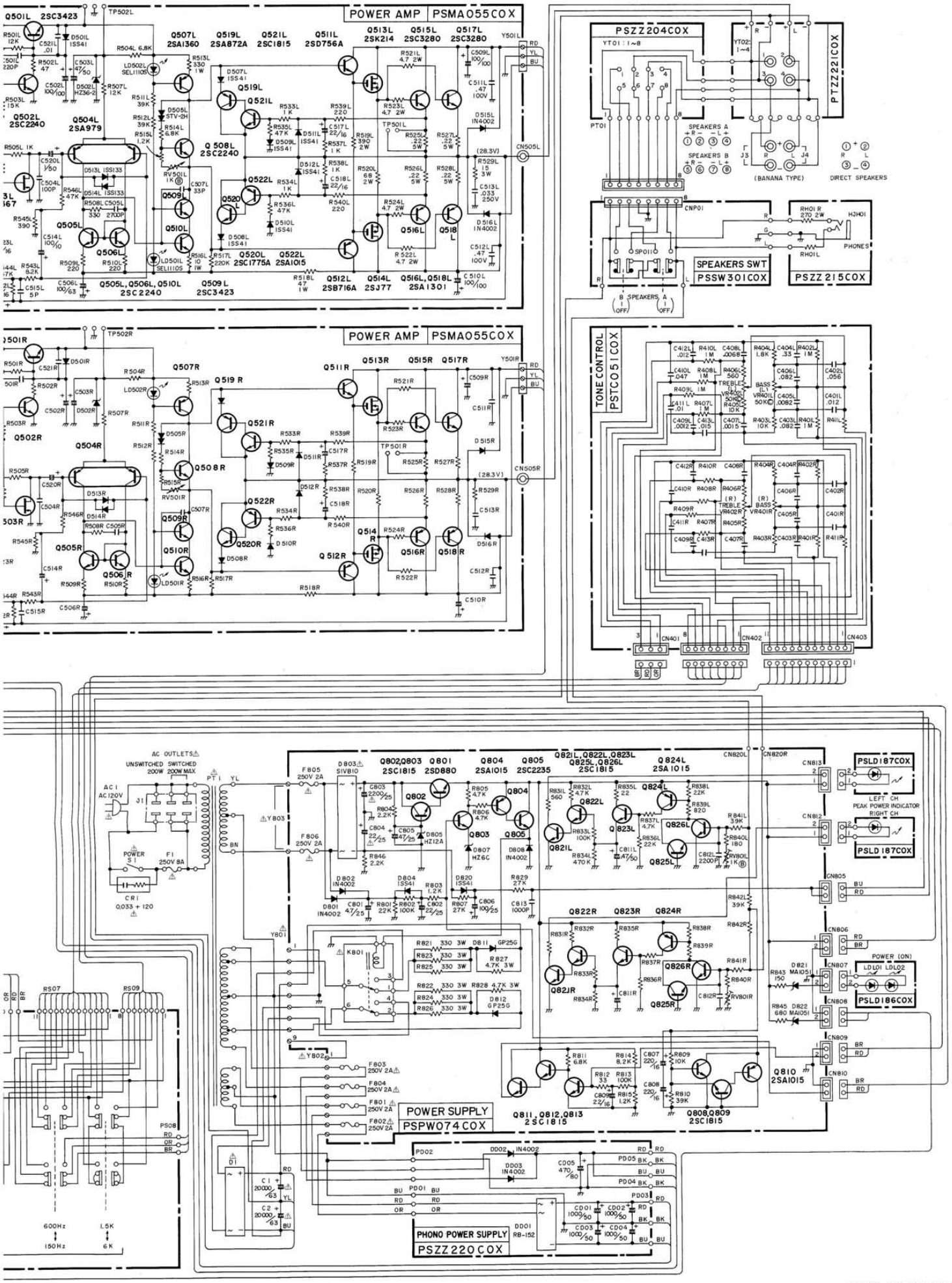

KYOCERA International Inc. 7 Powder Horn Drive, Warren, NJ 07060-0227 (201-560-0060)

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