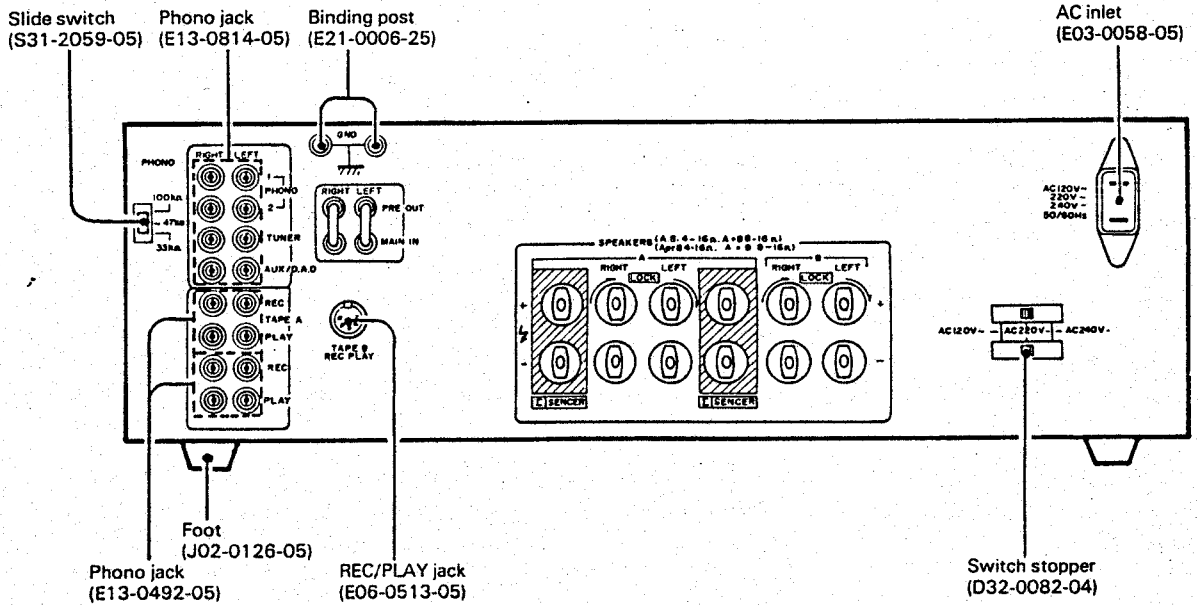
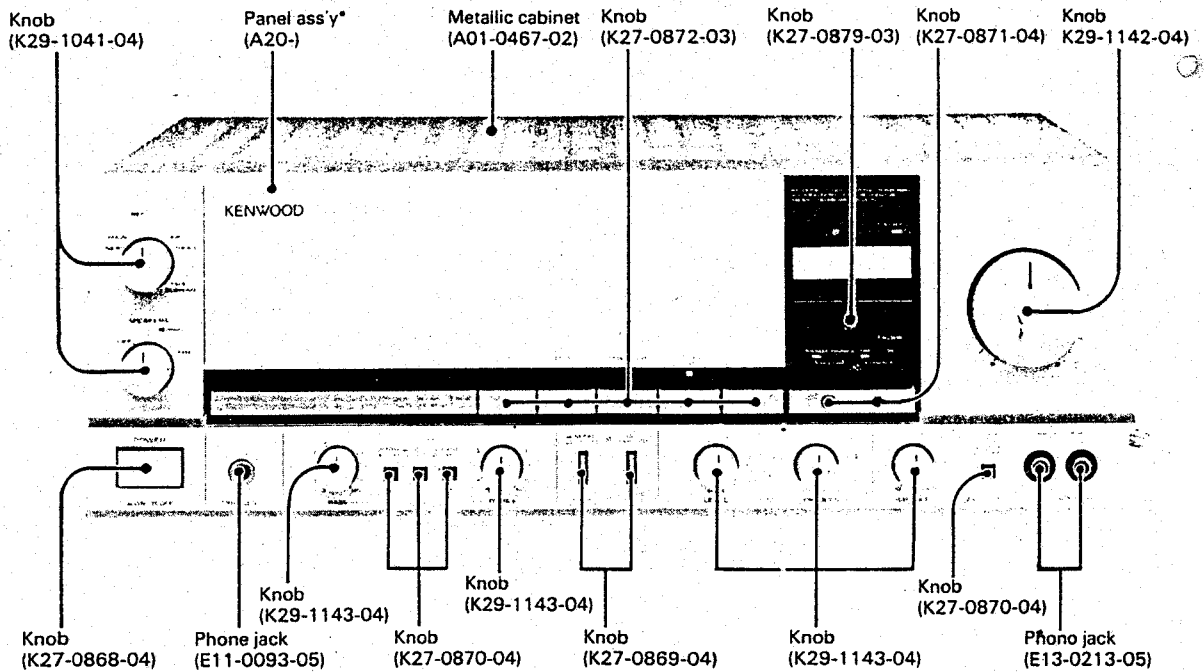


# KENWOOD KA-2200

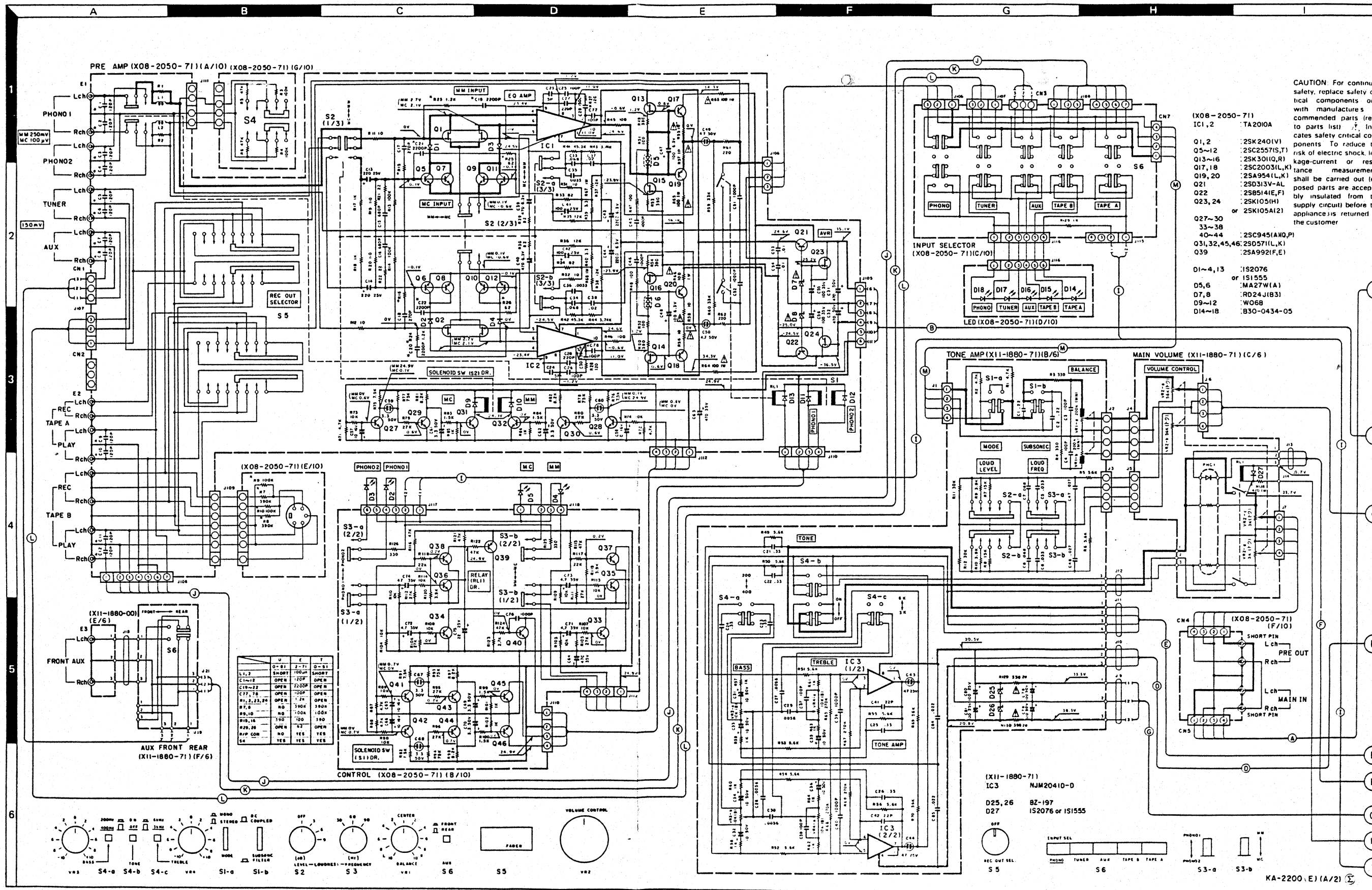
## NEW HIGH SPEED STEREO INTEGRATED AMPLIFIER

SERVISE MANUAL



\*Refer to Parts List on page 11.  
Photo is E type.

500



2SA954  
2SA992  
2SC2003  
2SC945

2SD571

2SB514  
2SC2557  
2SD313V-AL

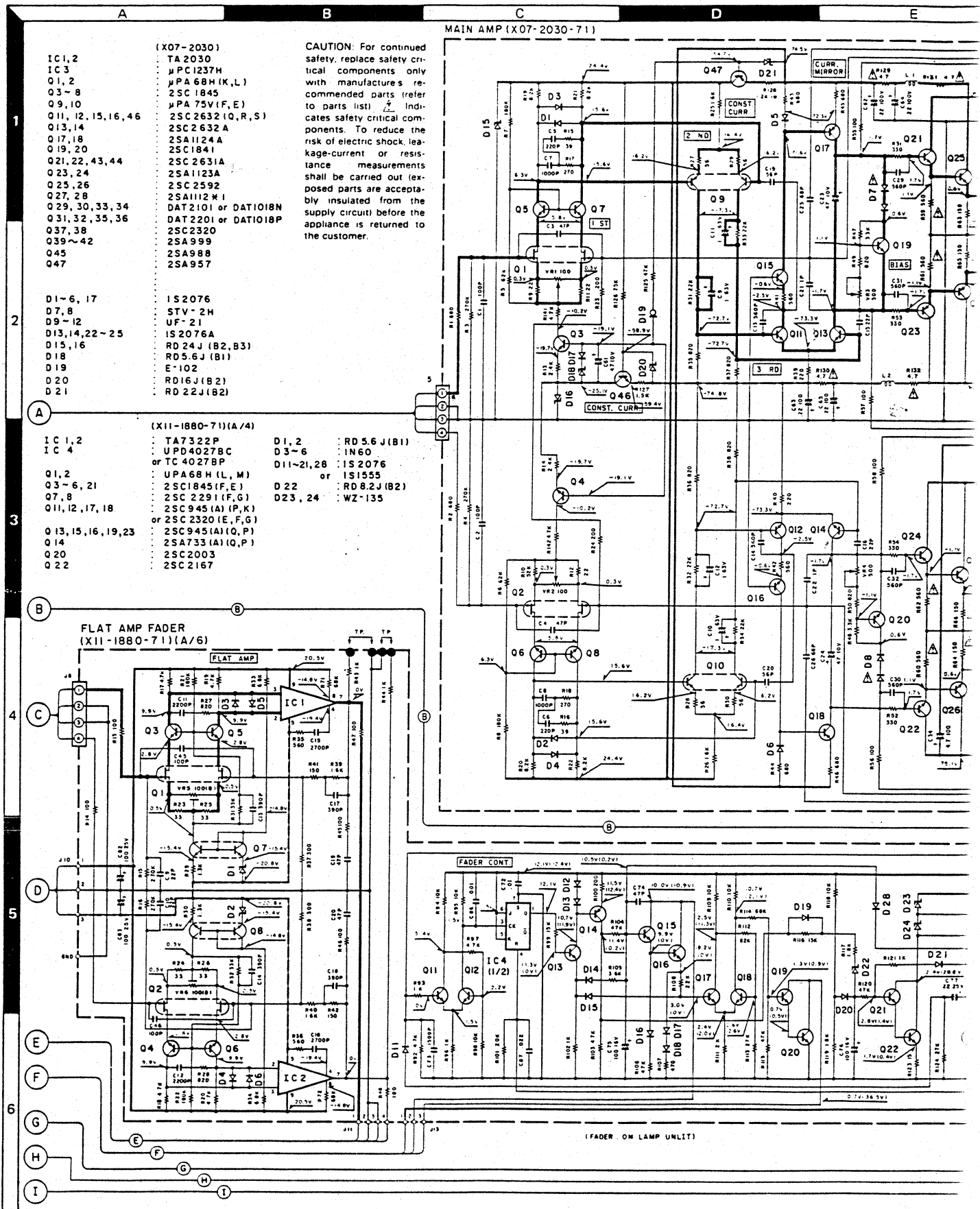
2SK105  
2SK105A  
2SK301

2SK240

NJM2041D-D

TA2010A

DC voltages are as measured with a high impedance voltmeter with no signal input. Values may vary slightly due to variations between individual instruments or/and units.



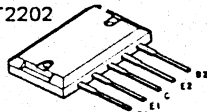
- (X07-2030)
- IC1,2 TA 2030
  - IC3  $\mu$ PC1237H
  - Q1,2  $\mu$ PA 68H(K,L)
  - Q3-8 2SC1845
  - Q9,10  $\mu$ PA 75V(F,E)
  - Q11, 12, 15, 16, 46 2SC2632(Q,R,S)
  - Q13,14 2SC2632A
  - Q17,18 2SA1124A
  - Q19,20 2SC1841
  - Q21,22,43,44 2SC2631A
  - Q23,24 2SA1123A
  - Q25,26 2SC2592
  - Q27,28 2SA1112 \*1
  - Q29,30,33,34 DAT2101 or DAT1018N
  - Q31,32,35,36 DAT2201 or DAT1018P
  - Q37,38 2SC2320
  - Q39~42 2SA999
  - Q45 2SA988
  - Q47 2SA957

- D1~6, 17 IS2076
- D7,8 STV-2H
- D9-12 UF-21
- D13,14,22~25 IS2076A
- D15,16 RD24J(B2,B3)
- D18 RD5.6J(B1)
- D19 E-102
- D20 RD16J(B2)
- D21 RD22J(B2)

- (X11-1880-71)(A/G)
- IC1,2 TA7322P
  - IC4 UPD40278C or TC40278P
  - Q1,2 UPA68H(L,M)
  - Q3-6,21 2SC1845(F,E)
  - Q7,8 2SC2291(F,G)
  - Q11,12,17,18 2SC945(A)(P,K) or 2SC2320(E,F,G)
  - Q13,15,16,19,23 2SC945(A)(Q,P)
  - Q14 2SA733(A)(Q,P)
  - Q20 2SC2003
  - Q22 2SC2167
  - D1,2 RD5.6J(B1)
  - D3-6 1N60
  - D11-21,28 IS2076 or IS1555
  - D22 RD8.2J(B2)
  - D23,24 WZ-135

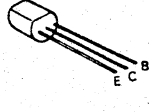
DAT1015N  
DAT1015P  
DAT1018N  
DAT1018P  
DAT2101  
DAT2102

DAT2201  
DAT2202

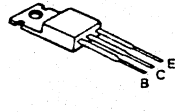


2SA1123A  
2SA1124A  
2SA733  
2SA988  
2SA999  
2SC1841

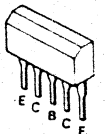
2SC1845  
2SC2320  
2SC2631A  
2SC2632A  
2SC945  
2SC2003



2SA1112  
2SA957  
2SC2167  
2SC2592  
2SC2632  
2SD313V-AL

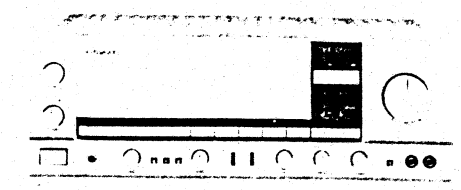
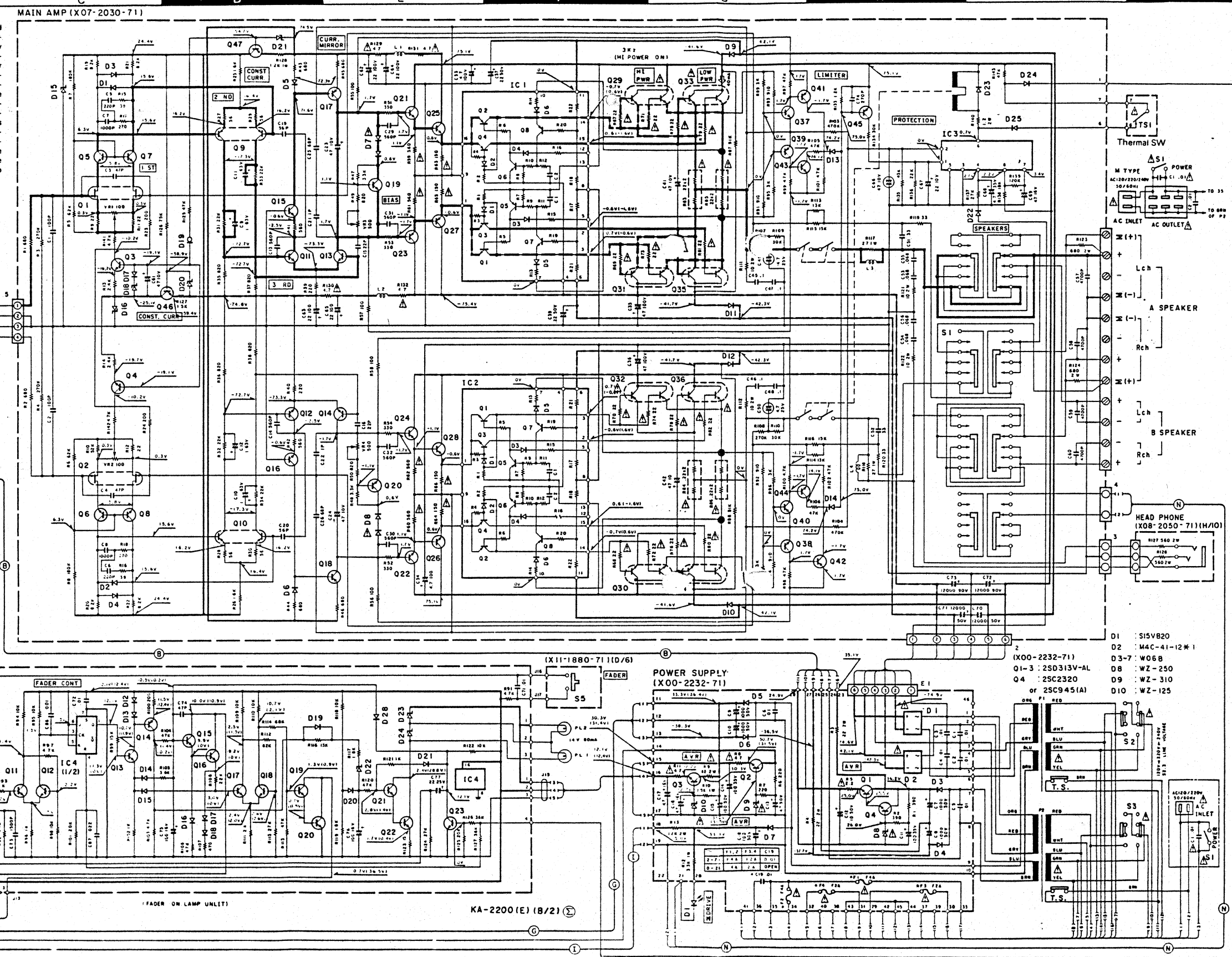


2SC2291



# STEREO INTEGRATED AMPLIFIER

**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). \* Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

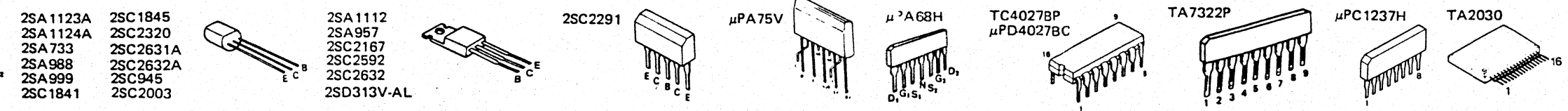


### SPECIFICATIONS

<b>Total Harmonic Distortion</b> (20 Hz to 20,000 Hz)	0.003% at rated power into 8 ohms
<b>AUX input to SPEAKER output</b>	0.003% at 1/2 rated power into 8 ohms
<b>PHONO input to SPEAKER output</b>	0.005% at rated power with VOLUME -20 dB
<b>Intermodulation Distortion</b> (60 Hz: 7 kHz = 4:1)	0.003% at rated power into 8 ohms
<b>Damping Factor</b>	1.000 at 100 Hz
<b>Transient Response</b>	
Rise Time	1.7 μs
Slew Rate	= 100 V/μs
<b>Frequency Response</b> (DC COUPLED at ON)	DC to 200 kHz, +0 dB, -3 dB
(DC COUPLED at OFF)	DC to 200 kHz, +0 dB, -3 dB
<b>Speaker Impedance</b>	Accept 4 ohms to 16 ohms
<b>Input Sensitivity/Impedance</b>	
Phono (MM)	2.5 mV/33 kohms, 47 kohms and 100 kohms
Phono (MC)	0.1 mV/100 kohms
Tuner, AUX, Tape A, B	150 mV/47 kohms
<b>Signal to Noise Ratio (IHF.A)</b>	
Phono (MM)	88 dB for 2.5 mV input 94 dB for 5.0 mV input 100 dB for 10 mV input
Phono (MC)	70 dB for 0.1 mV input 76 dB for 0.2 mV input 110 dB for 150 mV input
Tuner, AUX, Tape A, B	
<b>Maximum Input Level</b>	
Phono (MM)	260 mV (RMS), T.H.D. 0.003% at 1,000 Hz
Phono (MC)	10 mV (RMS), T.H.D. 0.003% at 1,000 Hz
<b>Output Level/Impedance</b>	
Tape REC (Pin)	150 mV/220 ohms
(DIN)	30 mV/80 kohms
<b>Phono Frequency Response</b>	RIAA standard curve ± 0.2 dB (20 Hz to 20 kHz)
<b>Tape Control</b>	
Bass Turnover Freq.	
200 Hz	= 10 dB at 50 Hz
400 Hz	= 10 dB at 100 Hz
Treble Turnover Freq.	
3 kHz	= 10 dB at 10 kHz
6 kHz	= 10 dB at 20 kHz
<b>Loudness Control</b> (at -40 dB VOLUME Level)	
30 Hz	+3/6/9 dB
60 Hz	+3/6/9 dB
90 Hz	+3/6/9 dB
<b>Subsonic Filter</b>	18 Hz, 6 dB/oct
<b>GENERAL</b>	
<b>Power Requirements</b>	50 Hz 220V European Model, or 50/60 Hz 240V UK Model, or 110/120/220-240V (switchable)
<b>Power Consumption</b>	90W at Rated Output at 8 ohms
<b>A.C. Outlet</b>	Switched 2, Unswitched 1
<b>Dimensions</b>	W 440 mm (17.5/16") H 158 mm (6.7/32") D 383 mm (15.3/32")

- D1, 2 : RD 56 J(B1)
- D3-6 : IN60
- D11-21, 28 : S2076
- or : S1555
- D22 : RD 82 J(B2)
- D23, 24 : WZ-135

- D1 : S15V820
- D2 : M4C-41-12\*1
- (X00-2232-71) D3-7 : W068
- Q1-3 : 2SD313V-AL D8 : WZ-250
- Q4 : 2SC2320 D9 : WZ-310
- or 2SC945(A) D10 : WZ-125

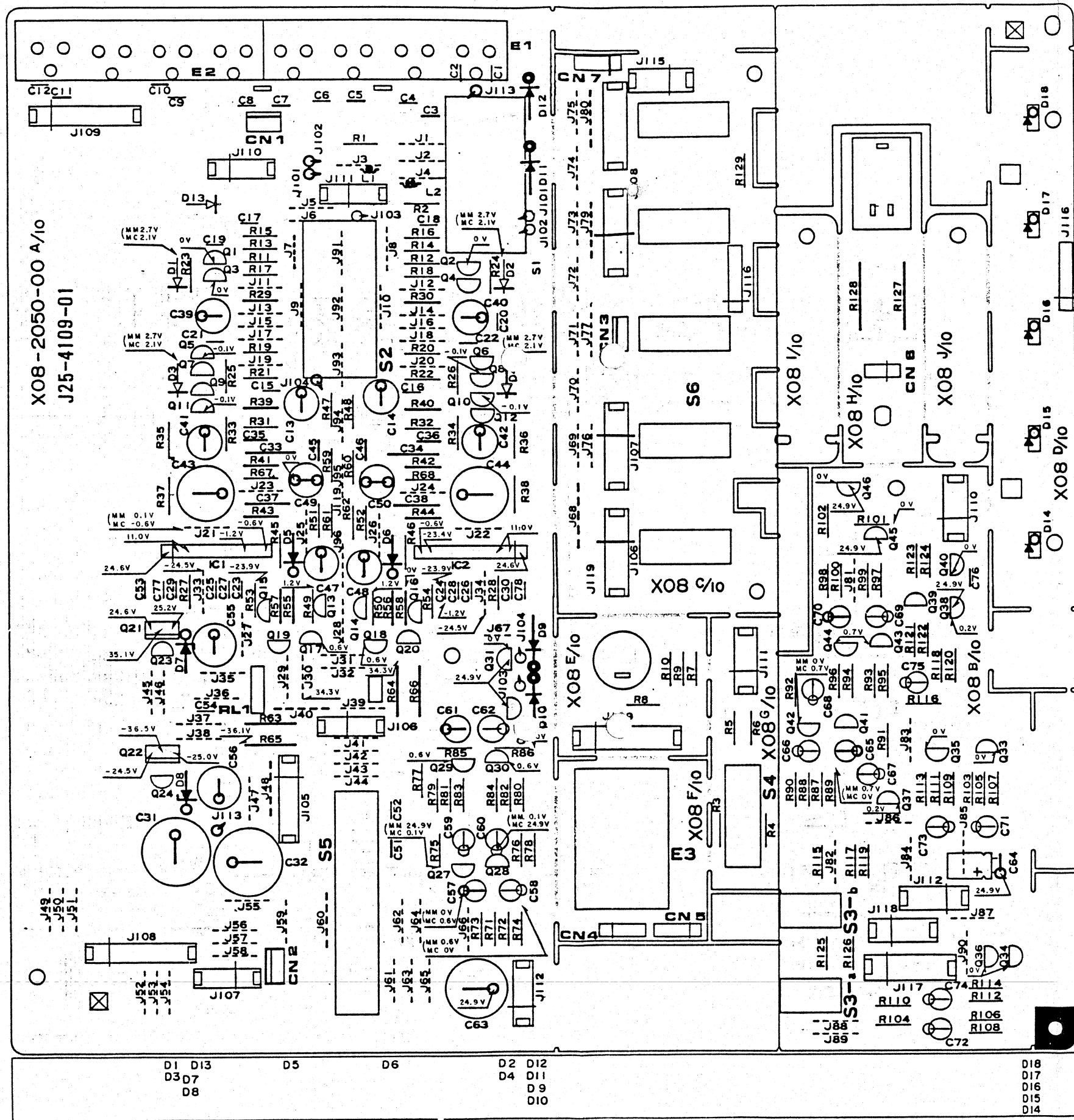
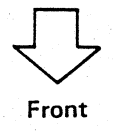


DC voltages are as measured with a high impedance voltmeter with no signal input. Values may vary slightly due to variations between individual instruments or/and units.



PC BOARD

PREAMP  
(X08-2052-71)  
Component side view



In this model, there are separated pc boards which were originally one. These separated pc boards can't be supplied independently.

Ex.	Part No. of pc board	Separated portion No.
	X09-1230-00	(A/3)
	X09-1230-00	(B/3)
	X09-1230-00	(C/3)

In the example shown above, separated portion can't be ordered independently. In case only A/3 was ordered, pc board ass'y of X09-1230-00, which all A/3, B/3, C/3 included, will be shipped.

Refer to the schematic diagram for the values of capacitors and resistors.  
The PC board drawing is viewed from the side easy to check.

## DISASSEMBLY FOR REPAIR

1. Fader pc board (X11 A/6) can be removed without removing the panel ass'y. When replacing the components on the pc boards, it is recommended to remove the panel ass'y before disassembly. The other pc boards can be removed, all attached to the sub panel, by the following procedures.

In the figure below, the panel ass'y is kept on to show that disassembly can be done without removing panel ass'y.

2. Pull the remote switch shaft of SPEAKER selector S1 and REC OUT selector S5 up to disengage them from the switches (①, ②).

**NOTE:** Do not change the position of the selector knobs after removing the remote switch shaft. If changed, either the remote switch shaft can not be plugged in or the position of the switch and the selected indication on the panel ass'y will not match. Also, be careful of the remote switch shaft. If the covering of the remote switch shaft (the blue plastic part) breaks, the switch can not be operated.

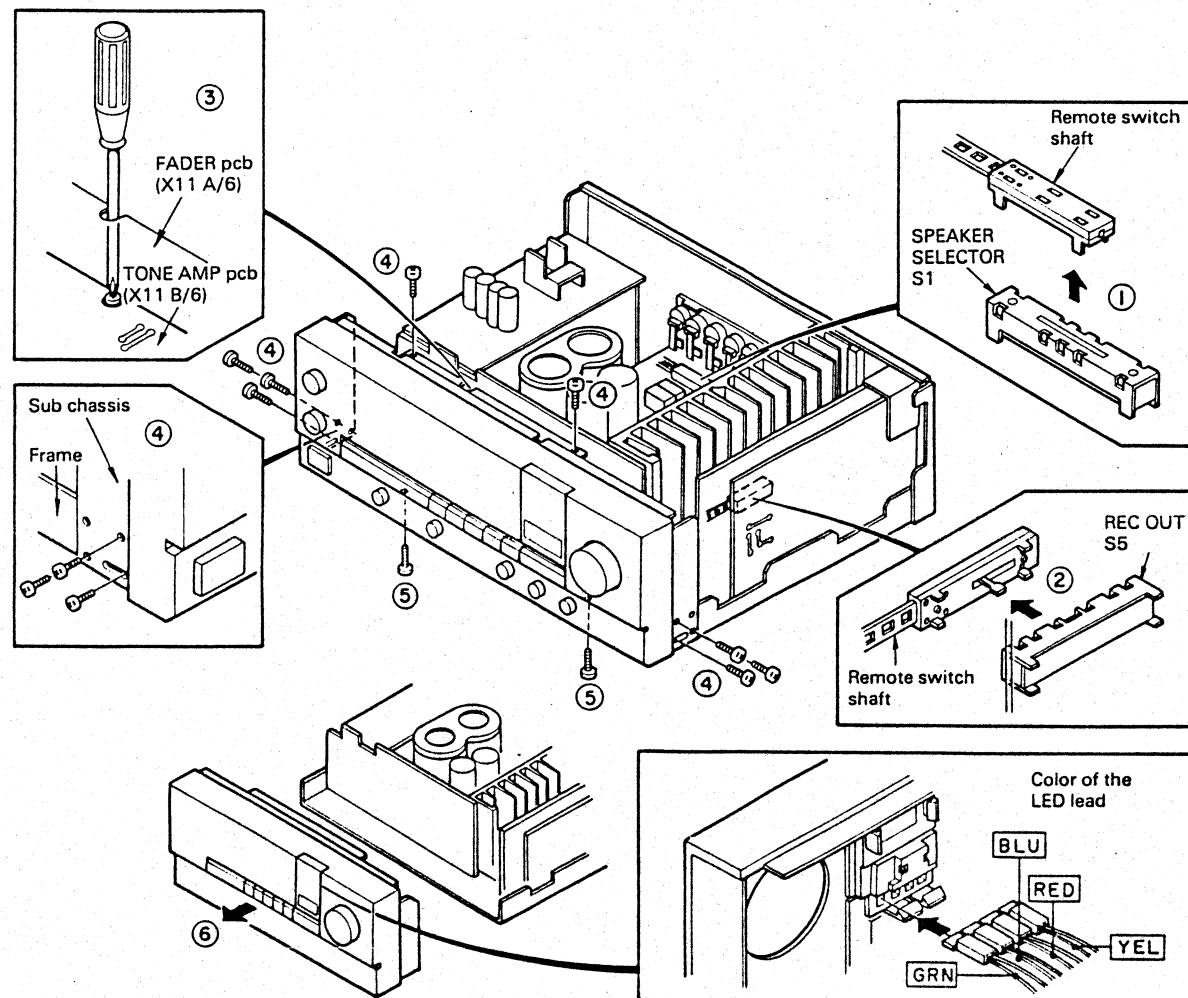
3. Insert a screw driver through the round cutting of FADER pc board (X11 A/6) and remove the screw on the TONE AMP pc board (X11 B/6) (③).

4. Remove 2 backmost screws on the FADER pc board and 6 screws on the sides of the sub panel (④).

5. Remove 2 screws right behind the panel ass'y on the bottom plate (⑤).

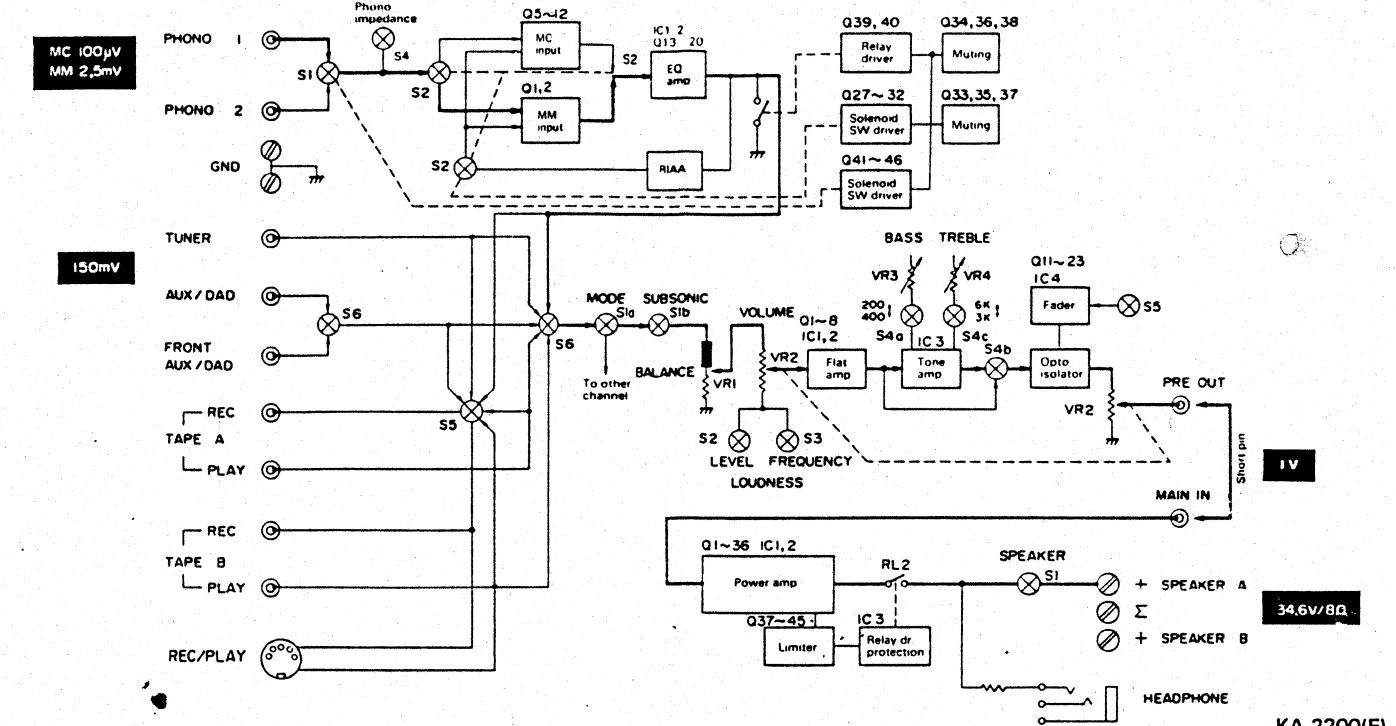
6. In this condition, the following pc boards will be separated all attached to the sub panel.

The pc boards are, FADER (X11 A/6), FADER SWITCH (X11 D/6), VOLUME (X11 C/6), PHONO 1/2, MM/MC SWITCH (X08 B/10), SELECTOR (X08 C/10), TONE AMP (X11 B/6), HEADPHONE (X08 H/10), FRONT/REAR AUX/DAD (X11 E/6, F/6).



## BLOCK/LEVEL DIAGRAM/ADJUSTMENT

### BLOCK/LEVEL DIAGRAM



### ADJUSTMENT

NO.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	AMPLIFIER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
Unless otherwise specified, the individual switches should be set as follows: SPEAKER: B    REC OUT: OUT    SELECTOR: PHONO							
1	OFFSET (X11-1882-71)	-	Connect a DC voltmeter to TP of X11 A/6.	MM/MC: MM	VR5 (L) VR6 (R)	0V	(a)
2	OFFSET (X07-2032-71)	-	Connect a DC voltmeter to SPEAKER B terminal.	VOLUME: 0	VR1 (L) VR2 (R)	0V	(b)
3	IDLE CURRENT (X07-2032-71)	-	Connect a DC voltmeter across R85 (L) R86 (R)	VOLUME: 0	VR3 (L) VR4 (R)	9 mV	(c)

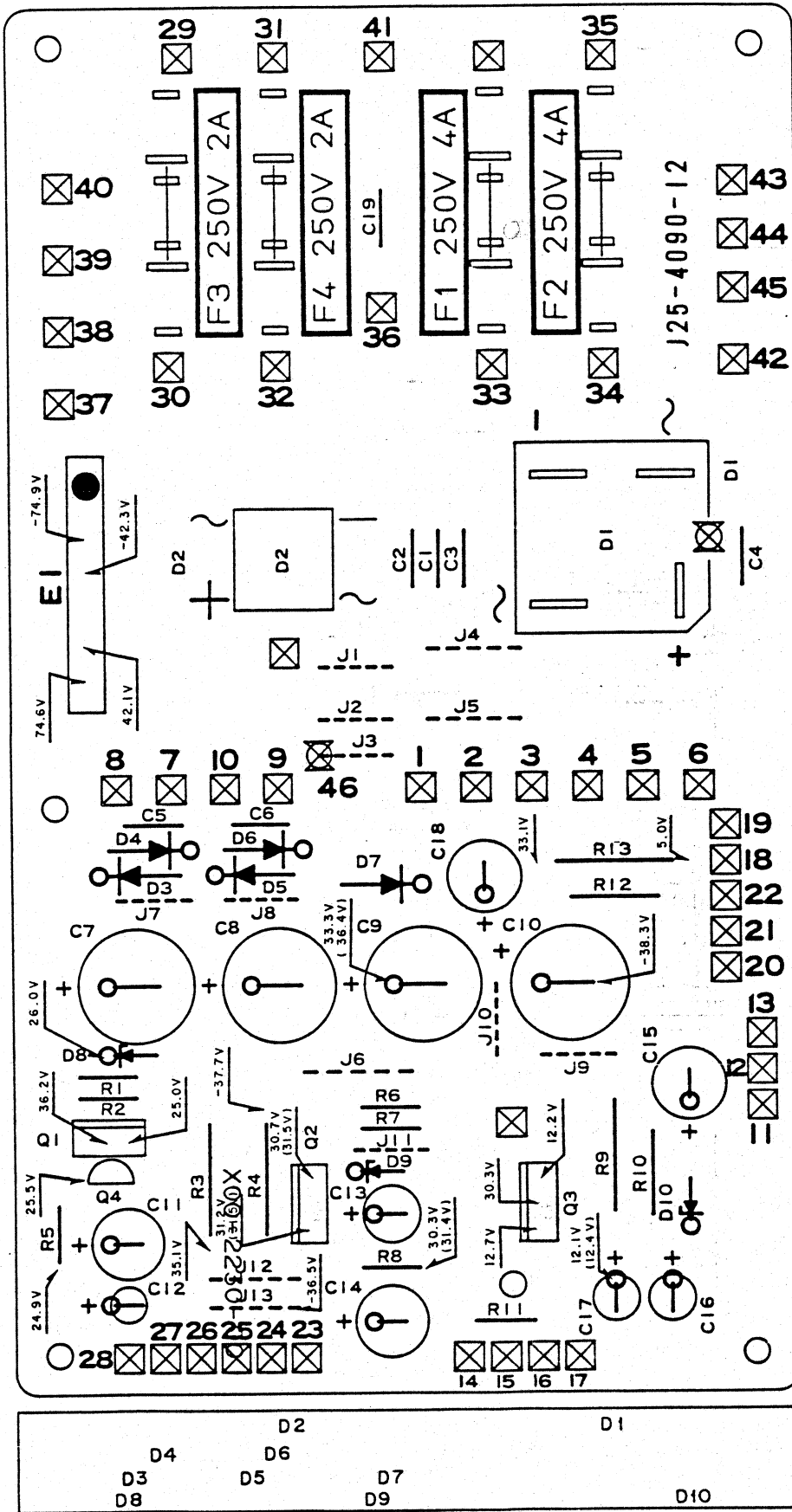
### REGLAGE

N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DE L'AMPLIFICATEUR	POINTS DE L'ALIGNMENT	ALIGNER POUR	FIG.
Sauf en cas d'indications spéciales, régler chaque commutateur comme suit: SPEAKER: B    REC OUT: OUT    SELECTOR: PHONO							
1	OFFSET (X11-1882-71)	-	Connecter un voltmètre de CC aux TP de X11 A/6.	MM/MC: MM	VR5 (L) VR6 (R)	0V	(a)
2	OFFSET (X07-2032-71)	-	Connecter un voltmètre de CC aux bornes de sortie + et - (SPEAKER B)	VOLUME: 0	VR1 (L) VR2 (R)	0V	(b)
3	COURANT DE POLARISATION	-	Connecter un voltmètre de CC SUR R85 (D) R86 (G)	VOLUME: 0	VR3 (L) VR4 (R)	9 mV	(c)

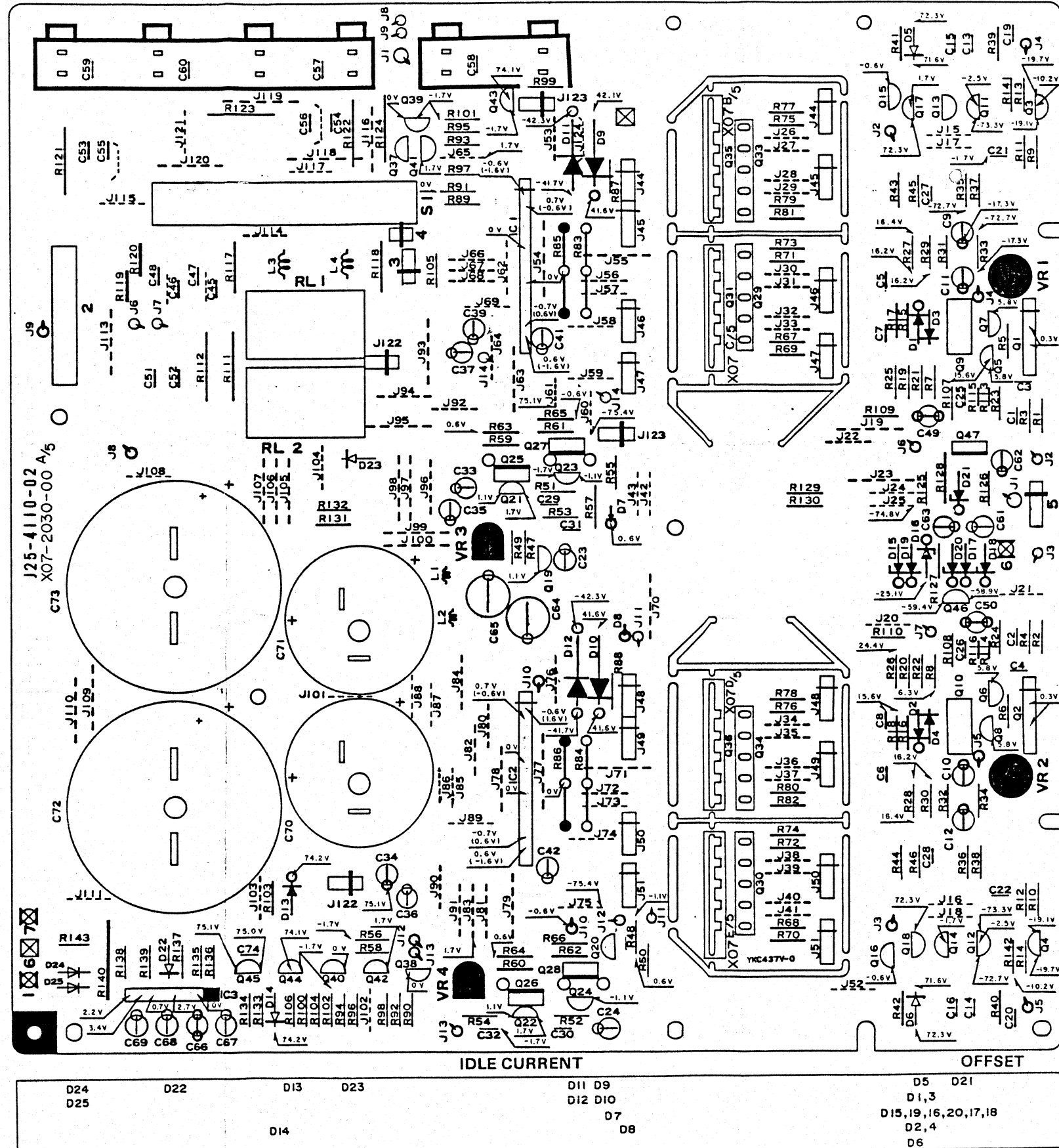
KA-2200(E)

PC BOARD

POWER (X00-2232-71) Component side view



POWER AMP (X07-2032-71) Component side view



In this model, there are separated pc boards which were originally one. These separated pc boards can't be supplied independently.

Ex.	Part No. of pc board	Separated portion No.
	X09-1230-00	(A/3)
	X09-1230-00	(B/3)
	X09-1230-00	(C/3)

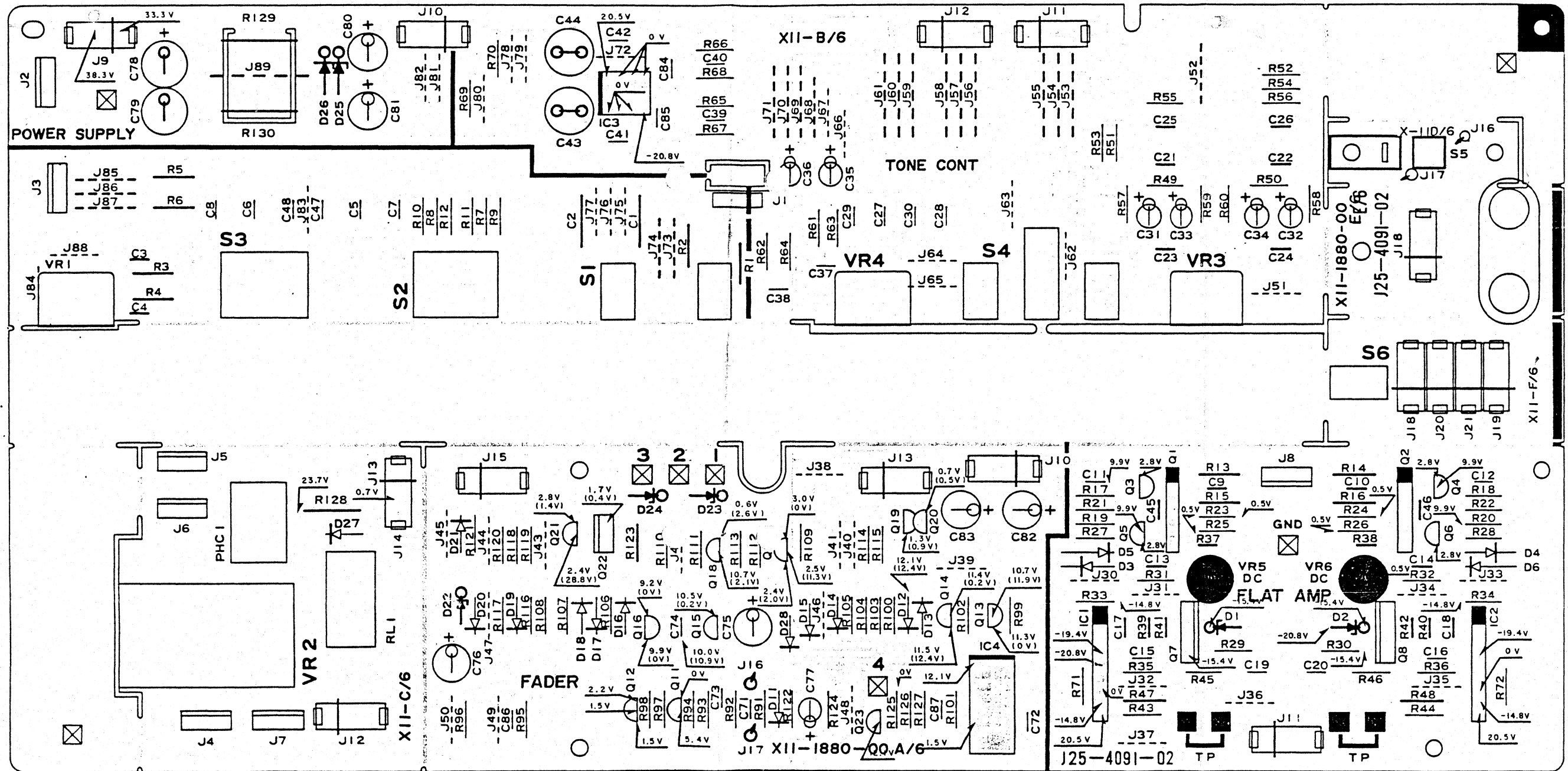
In the example shown above, separated portion can't be ordered independently. In case only A/3 was ordered, pc board ass'y of X09-1230-00, which all A/3, B/3, C/3 included, will be shipped.

Refer to the schematic diagram for the values of capacitors and resistors. The PC board drawing is viewed from the side easy to check.

# KA-2200 KA-2200

## PC BOARD

### CONTROL (X11-1882-71) Component side view



OFFSET (L)      OFFSET (R)

D26, 25	D21	D24	D23	D28, 15, 14	D12, 13	D5	D1	D2	D4
D27	D22, 20, 19	D18, 17, 16		D11		D3			D6



Refer to the schematic diagram for the values of capacitors and resistors.  
The PC board drawing is viewed from the side easy to check.

In this model, there are separated pc boards which were originally one. These separated pc boards can't be supplied independently.

Ex.	Part No. of pc board	Separated portion No.
	X09-1230-00	(A/3)
	X09-1230-00	(B/3)
	X09-1230-00	(C/3)

In the example shown above, separated portion can't be ordered independently. In case only A/3 was ordered, pc board ass'y of X09-1230-00, which all A/3, B/3, C/3 included, will be shipped.



## ABGLEICH

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANG-EINSTELLUNG	VORSTÄRKER-EINSTELLUNG	ABGLEICHE-PUNKTE	ABGLEICHEN FÜR	ABB.
Außer wenn anders angegeben, die verschiedenen Schalter wie folgt einstellen: SPEAKER: B    REC OUT: OUT    SELECTOR: PHONO							
1	OFFSET (X11-1882-71)	-	Einen Gleichspannungsmesser über TP von X11 A/6 anschließen.	MM/MC: MM	VR5 (L) VR6 (R)	0V	(a)
2	OFFSET (X07-2032-71)	-	Einen Gleichspannungsmesser über SPEAKER B anschließen.	VOLUME: 0	VR1 (L) VR2 (R)	0V	(b)
3	LEERLAUF-STROM	-	Einen Gleichspannungsmesser über R85 (L) R86 (R)	VOLUME: 0	VR3 (L) VR4 (R)	9 mV	(c)

