

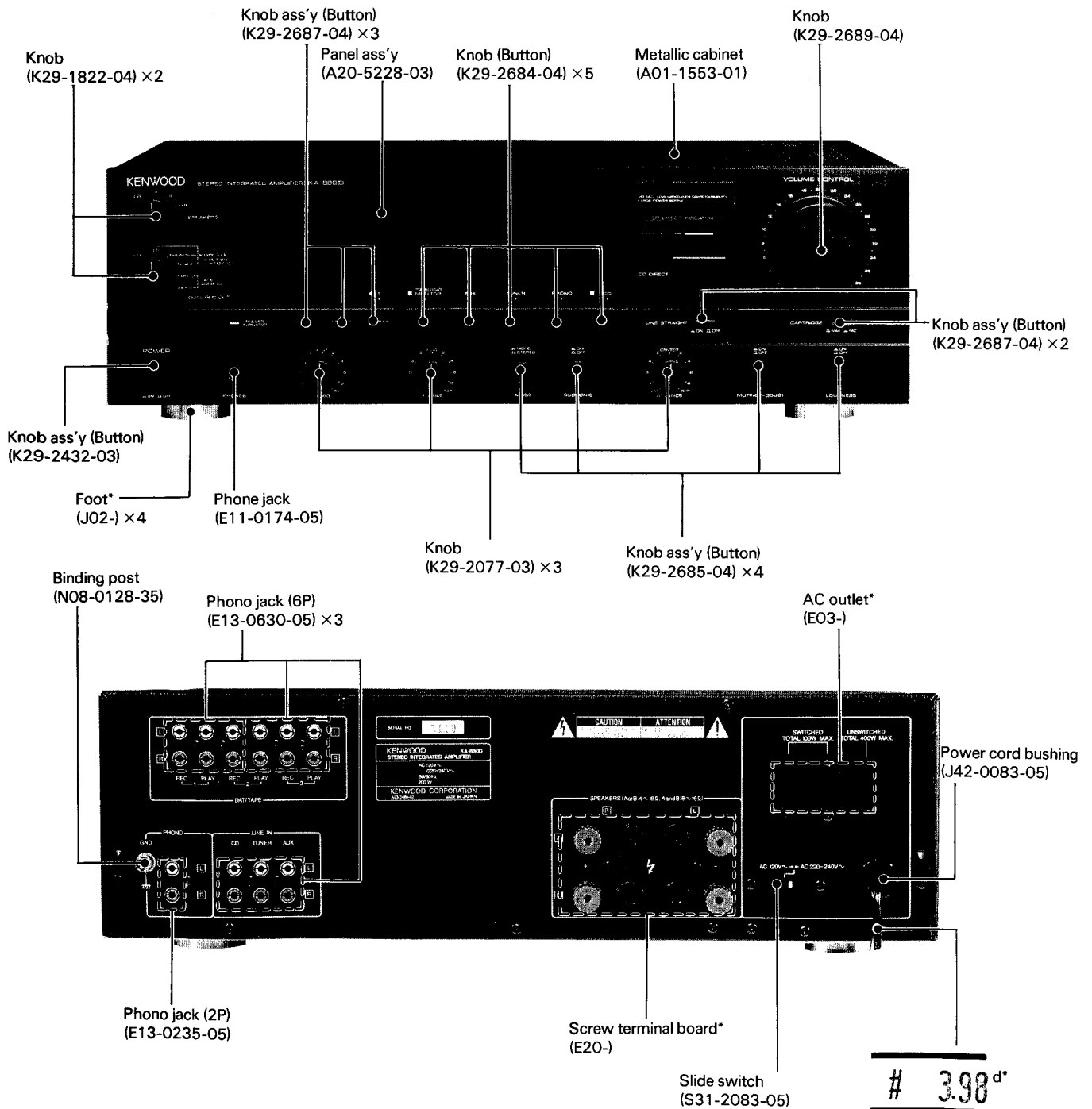
STEREO INTEGRATED AMPLIFIER

KA-880D

SERVICE MANUAL

KENWOOD

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B51-3186-00(B) 2289



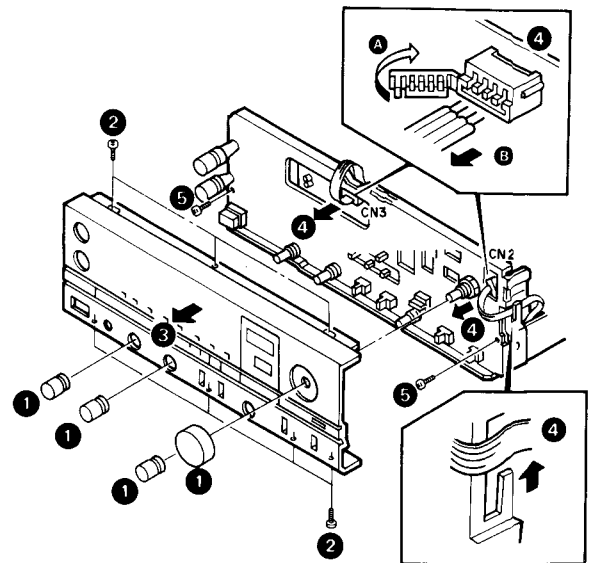
* Refer to parts list on page 26.

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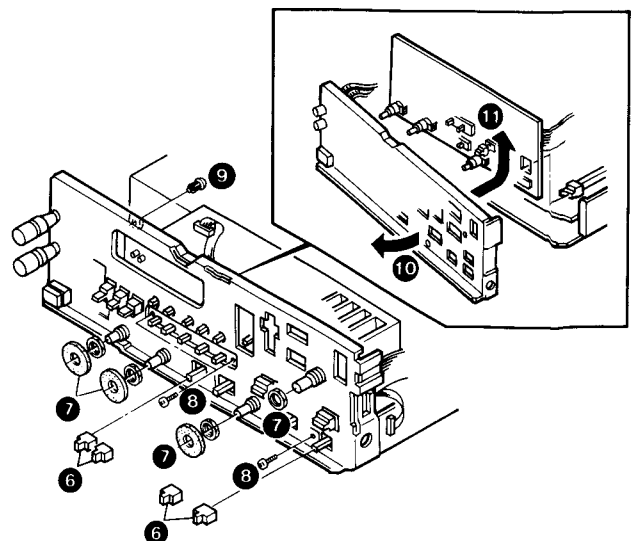
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DISASSEMBLY FOR REPAIR

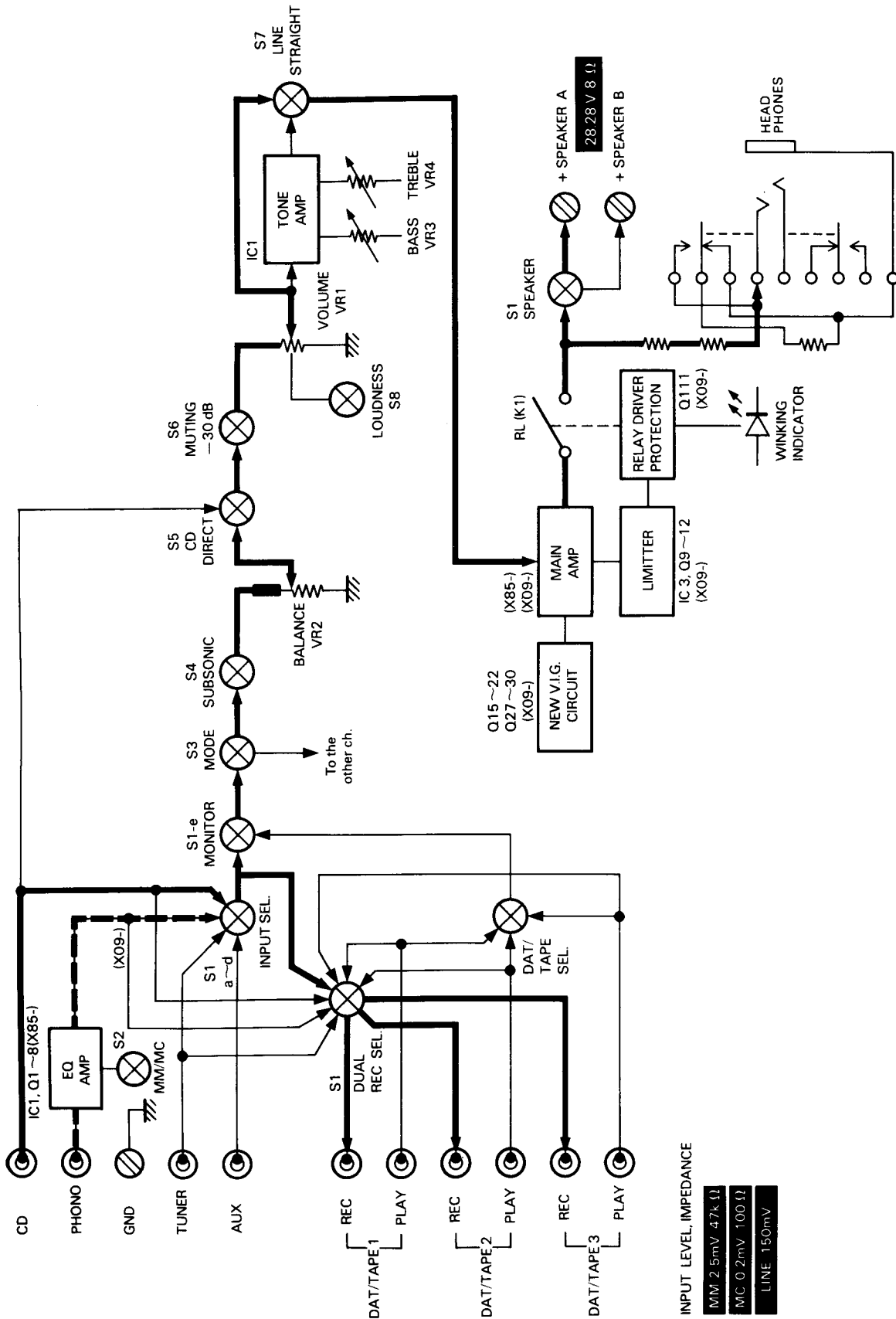
1. Remove the metallic cabinet before performing the following operations.
2. Pull out the 4 knobs of the BASS, TREBLE, BALANCE and VOLUME CONTROL from the shafts (1).
3. Remove the 7 screws (upper side: 3, lower side: 4) fixing the front panel to the sub panel (2).
4. Remove the front panel in the direction of the arrow (3).
5. Remove the cords from connectors CN2 and CN3 on the Tone Unit (X11-2390-00) as shown in the diagram (4).
6. Remove the 2 screws fixing the sub panel to the chassis (5).



7. Pull out the 4 buttons of the MODE, SUBSONIC, MUTING and LOUDNESS from the shafts (6).
8. Remove the shield and hex. nuts from the BASS, TREBLE, BALANCE and VOLUME CONTROL (7).
9. Remove the 3 screws fixing the sub panel to the Tone Unit (X11-) (8).
10. Remove the push rivet fixing the Tone Unit (X11-) to the sub panel (9).
11. Remove the sub panel in the direction of the arrow (10).
12. Remove the Tone Unit (X11-) from the sub panel in the direction of the arrow (11).



BLOCK LEVEL DIAGRAM



CIRCUIT DESCRIPTION

Function of components

AUDIO UNIT (X09-2430-11)

Component	Use/Function	Operation/Condition/Interchangeability
Q1~4	Final transistor at High side	
Q5~8	Final transistor at Low side	
Q9~12	For protection	Current limiter. Limits the current to the final transistor when an overload condition occurs.
Q13, 14	For temperature compensation	Bias circuit. Compensates for the temperature of the final transistor.
Q15~22 Q27~30	For the VIG circuit	Consists of the cascode boot-strap circuit. The Cascode circuit is connected to the constant current circuit by Q15 to Q18 and to base ground by Q27 to Q30.
Q23, 24	For the driver	
Q25, 26	For the driver	
Q31, 32	For the driver	
Q33, 34	For the driver	
Q101, 102	For constant current to the EQ power supply section	Supplies a 2 to 6 mA current to the EQ power supply. An FET, having an I_{dss} of 2~6 mA, can be used as a replacement part.
Q103, 104	For the EQ power supply	
Q105, 106	For the shock noise countermeasure of the EQ power supply	
Q107, 108	For constant current to the EQ power supply	
Q109, 110	For the class-A power supply	
Q111	For protection	Transmits the operation signal of the current limiters consisting of Q9 and Q10, to the protection IC (IC3).
Q112, 113	For blinking indicators	LED lights to indicate power, if the set is functioning correctly, when power is turned ON, the LED blinks until the amplifier is functioning correctly (for approx. 5 seconds). When the protection circuit functions due to the occurrence of an abnormal phenomenon in the power amplifier section the LED also blinks.
IC1, 2	For selection of the DLD circuit	Low/High select circuit for the DLD circuit.
IC3	For protection	μ PC1237H.
D1, 2	For temperature compensation	
D3~6	For the VIG circuit	
D7~10	For the VIG circuit	
D11~14	For the power supply to the Low side of the DLD	
D15~18	For protection	
D51, 52	For the power supply to the tone control circuit; constant voltage	
D53, 54	For the EQ power supply; constant voltage	
D55	For the EQ power supply	
D56, 57	For the static electricity countermeasure	
D58	For the LED power supply	W06B.
D59, 60	For protection	
D61, 62	For the class-A power supply	
D63, 64	For the class-A power supply	
D65	For blinking indicators	
D66	For the power supply to the High side	
D67	For the power supply to the Low side	
D68	LED for the power indicator	

TONE UNIT (X11-2390-00)

Component	Use/Function	Operation/Condition/Interchangeability
IC1	For the tone control circuit	Function for the ± 6.2 V power supply, to which the Zener effect is applied by X09.

CIRCUIT DESCRIPTION

New VIG DLD circuit

1. Features

As the successor model to the KA-1100D, the KA-880D retains the rich array of functions available on the KA-1100D, making the KA-880D the perfect amplifier for a sophisticated model like the KA-880SD. The KA-880D incorporates new technology appropriate for an up-market integrated amplifier, such as:

1. A new VIG DLD (Dynamic Linear Drive) circuit
2. A dual REC OUT switch

2. A New VIG DLD Circuit (X09-2430-11)

Refer to the KA-990V new-product data for an explanation of the principle on which VIG operates.

The configuration of the VIG circuit incorporated in the current KA-990V is depicted in Fig. 1.

In addition to preventing the influx of undesirable power source components (such as ripples) into the Q1 driver transistor, the VIG circuit also applies a bootstrap to the output as shown in Fig. 1 (A). The output from the VIG then follows the output from the amplifier in a constant voltage shift pattern. The input signal is no longer absorbed by the power source according to the potential which exists between the input and the power, and high-frequency characteristics and distortion rates are improved.

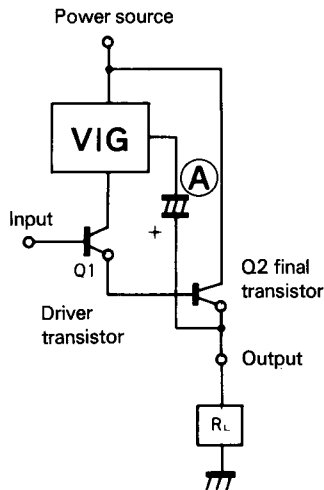


Figure 1 Configuration of a Conventional VIG Circuit

As a result, the voltage across the output of Q1 (the emitter) and the power source (the collector) is held constant whether or not there is a signal (see Fig. 2).

This insertion of a VIG circuit in the initial stage of a Darlington connection circuit means that undesirable power source components do not undergo current amplification at Q2, the final transistor. In other words, large-capacity power sources free of ripples become the norm.

Upon further investigation, however, doubts arose concerning operation of the Q2 driver transistor at the above-mentioned constant voltage. That is, the voltage across the transistor base and emitter could be thought of as normally about 0.6 volts, but the final transistor voltage shifted between 0.6 to about 2.0 volts in keeping with the output current (see Fig. 3). In the conventional configuration depicted in Fig. 1, this shift caused the voltage applied to the driver transistor Q1 to shift as well. It became clear that with the conventional configuration undesirable power source components were suppressed, but this in turn produced new voltage shift components.

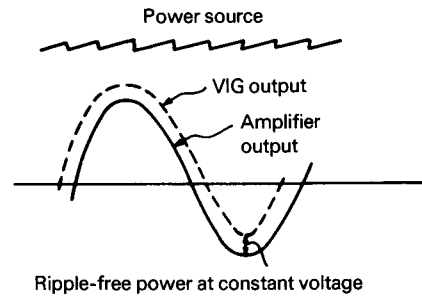


Figure 2 VIG Output and Amplifier Output

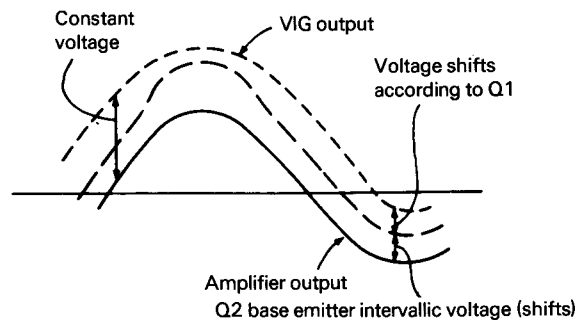


Figure 3 VB-E and VIG Output

CIRCUIT DESCRIPTION

The new VIG circuit applies a bootstrap to the Q2 final transistor base as shown in Fig. 4. In addition, a buffer has been inserted so that any undesirable power source components which may leak through the bootstrap do not undergo current amplification at Q2.

With this configuration, the new VIG circuit permits capacities to be utilized to the fullest extent.

Undesirable power source components can be suppressed, as can the shift component produced by operation of the circuit itself, for effectiveness 25 times greater than that of conventional circuit configurations. This permits Q1 to operate at an ideal constant voltage and allows only very pure signals to be input to the final transistor, making possible "cleaner" overall amplification.

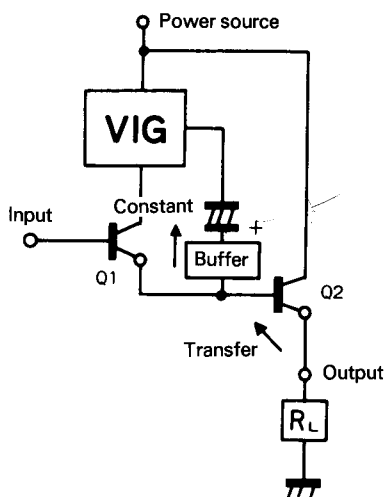


Figure 4 Configuration of the New VIG Circuit

3. Effects of the New VIG Circuit

1. Effects on the amplifier of ripples and signal components caused by the power source, as well as the cross modulation distortion to which they give rise, are drastically reduced for clear, sharp audio.
2. Power can be boosted accordingly (over 10 times conventional levels) for brilliant audio.
3. Improves raw effects at the pre-negative feedback voltage amplification stage for broad band, low-distortion sound.
4. Reduces dynamic crosstalk and other power source-induced interference.

4. Dual REC OUT Switch (X13-5632-71)

REC 1, 2, 3 output the signals indicated in the chart at right.

REC 1 functions as the source selector, while REC 2 and REC 3 functions as the REC selector.

During tape dubbing, the source signal is output at the playback TAPE REC-OUT.

POSITION	REC1	REC2	REC3
OFF	OFF	OFF	OFF
CD → 2, 3	SOURCE	CD	CD
PHONO → 2, 3	SOURCE	PHONO	PHONO
TUNER → 2, 3	SOURCE	TUNER	TUNER
TAPE 1 → 2, 3	SOURCE	PLAY1	PLAY1
TAPE 2 → 1, 3	PLAY2	SOURCE	PLAY2

Note: Signal selected by the SOURCE INPUT SEL.

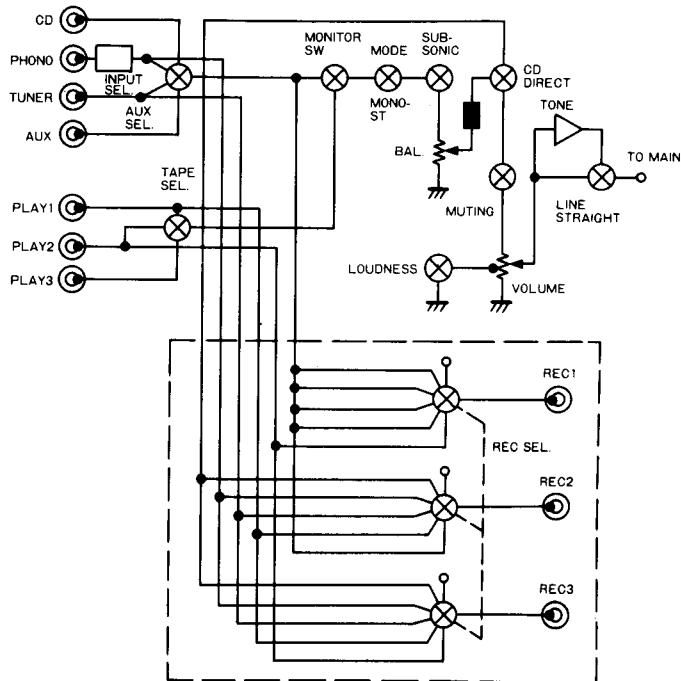
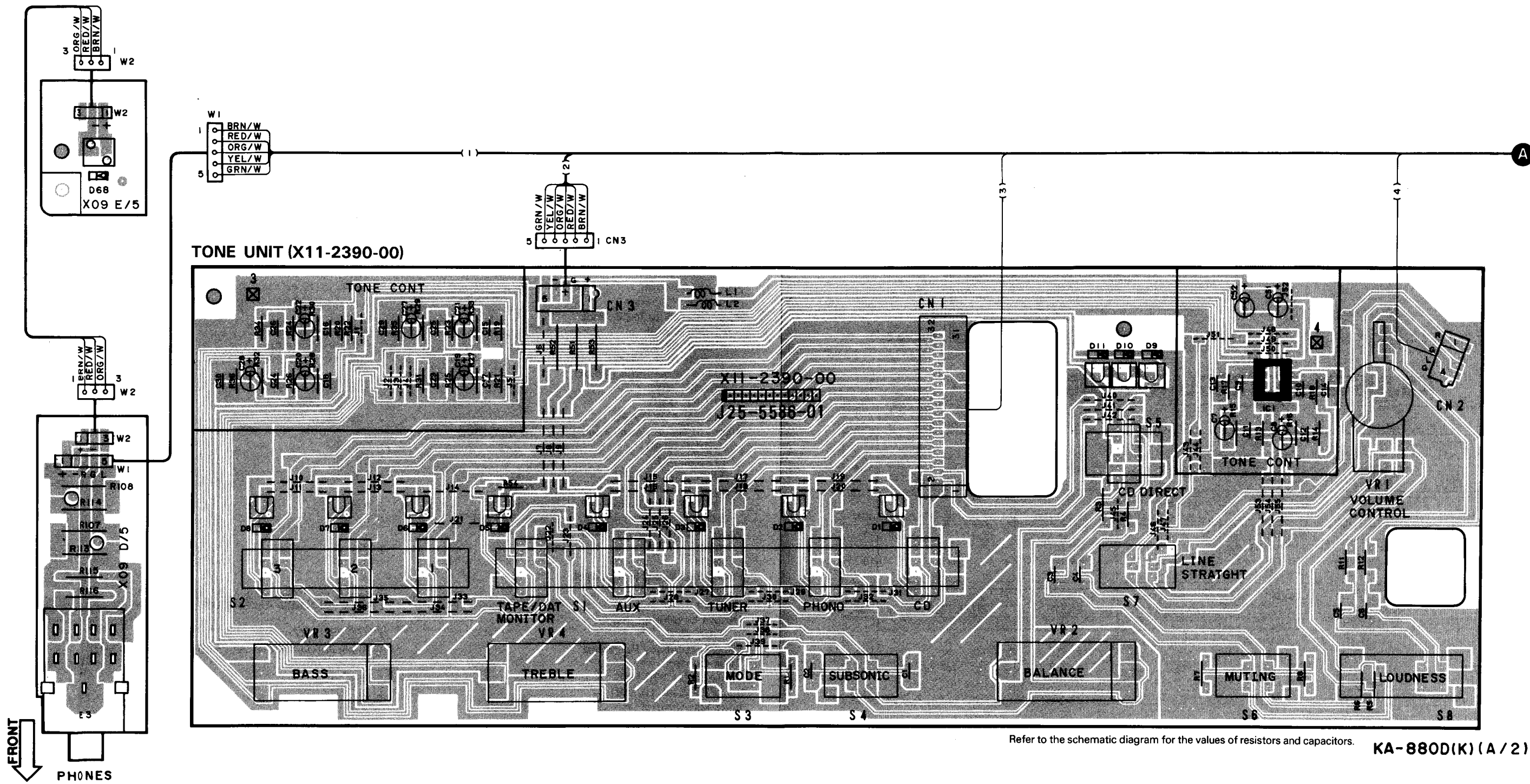


Figure 5

PC BOARD (COMPONENT SIDE)



Refer to the schematic diagram for the values of resistors and capacitors. KA-880D(K) (A / 2)

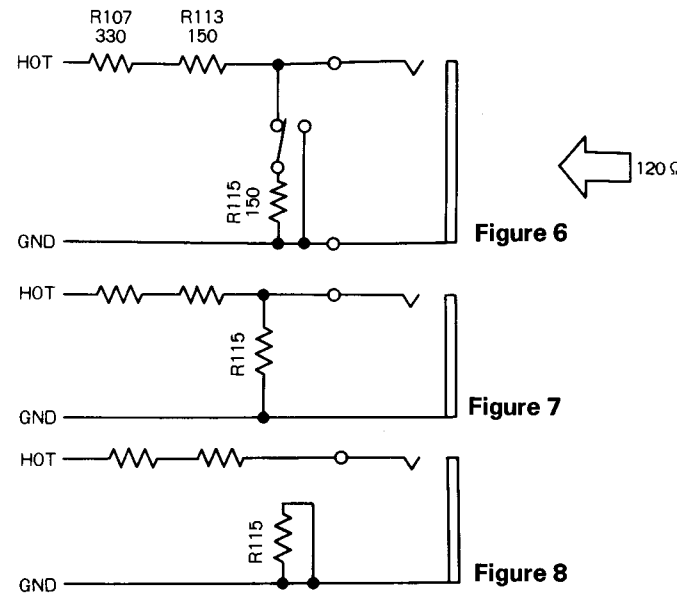
KA-880D KA-880D

CIRCUIT DESCRIPTION

Headphone circuit (X09-2430-11)

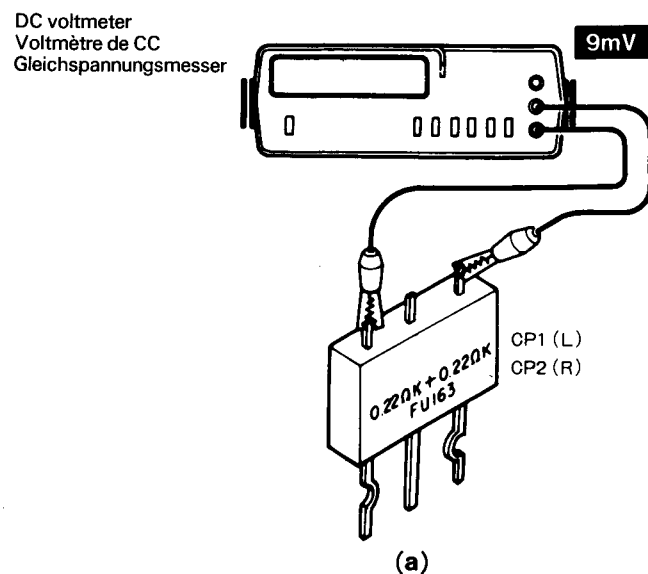
In the headphone circuit, the following points are different from the conventional circuit used with headphones having a higher impedance.

- 1) The constants are determined using a standard phone jack with switch, so that the output impedance of the headphones is 120 ohms. When the phone jack is inserted, R115 is placed between HOT and GND. (See Fig. 7)
- 2) When the phone jack is not inserted, the R115 circuit located between HOT and GND, is open. (See Fig. 8)



ADJUSTMENT/REGLAGE/ABGLEICH

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	AMPLIFIER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
1	IDLE CURRENT	-	Connect a DC voltmeter across CP1 (L) CP2 (R)	VOLUME: 0	VR1 (L) VR2 (R)	9mV	(a)
N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DE L'AMPLIFICATEUR	POINS L'ALIGNEMENT	ALIGNER POUR	FIG.
1	COURANT DE POLARISATION	-	Connecter un voltmètre de CC sur CP1 (G) CP2 (D)	VOLUME: 0	VR1 (G) VR2 (D)	9mV	(a)
NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	VERSTÄRKER EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
1	LEERLAUFSTROM	-	Einen Gleichspannungsmesser über CP1 (L) CP2 (R) anschließen.	VOLUME: 0	VR1 (L) VR2 (R)	9mV	(a)



(a)

SPECIFICATIONS

Power Output

100 watts per channel minimum RMS, both channels driven at 8 ohms from 20 Hz to 20,000 Hz with no more than 0.008% total harmonic distortion

Maximum Continuous Power Output (DIN) 1 kHz at 4 ohms	145 W
Maximum Continuous Power Output (DIN) 1 kHz at 8 ohms	120 W
Maximum Continuous Power Output (IEC/NF) from 63 Hz to 12,500 Hz 0.7%	
Total Harmonic Distortion at 8 ohms	120 W + 120 W
Dynamic Power	165 W per channel at 8 ohms 235 W per channel at 4 ohms 265 W per channel at 2 ohms

Total Harmonic Distortion

AUX input to SPEAKER output (20 Hz-20,000 Hz)	: 0.008% at 100 W into 8 ohms
Intermodulation Distortion (60 Hz:7 kHz = 4:1)	: 0.008% at 100 W into 8 ohms
Damping Factor	: 1,000 (50 Hz into 8 ohms)
Power Bandwidth	: 10 Hz to 45 kHz at 0.04% T.H.D.
Frequency Response	: 5 Hz to 100 kHz/ +0 dB, -3 dB
Input Sensitivity/Impedance	
PHONO (MM)	: 2.5 mV/ 47 kohms
PHONO (MC)	: 0.2 mV/100 ohms
TUNER/AUX/TAPE	: 150 mV/ 47 kohms
Signal to Noise Ratio (IHF-A)	
PHONO (MM)	: 86 dB (2.5 mV)
PHONO (MC)	: 67 dB (250 μV)
TUNER/AUX/TAPE	: 108 dB
Signal to Noise Ratio Unweighted: 50 mW (DIN)	
PHONO (MM)	: 58 dB
PHONO (MC)	: 58 dB
TAPE/AUX/TUNER	: 59 dB
Channel Separation (at 1,000 Hz) (DIN)	
PHONO (Terminated with 2.2 kohms)	: 67 dB
AUX (Terminated with 47 kohms + 250 pF)	: 56 dB
Phono Input Capacity (DIN)	
(MM)	: 320 pF
(MC)	: 320 pF
Phono Maximum Input Level	
(MM)	: 200 mV, (RMS) T.H.D. 0.008% at 1 kHz
(MC)	: 15 mV, (RMS) T.H.D. 0.008% at 1 kHz
Output Level/Impedance	
TAPE REC	: 150 mV/330 ohms
Phono Frequency Response	: RIAA standard curve ±0.3 dB (20 Hz to 20 kHz)
Tone Control	
BASS (at 100 Hz)	: ±10 dB
TREBLE (at 10 kHz)	: ±10 dB
Loudness Control (at -30 dB Volume Level)	: 9 dB at 100 Hz
Subsonic Filter (at -3 dB)	: 6 dB/Oct. at 18 Hz

GENERAL

Power Requirements	: 120 V, 60 Hz U.S.A. and Canada Model 220 V, 50 Hz European Model 240 V, 50 Hz U.K. Model 120/220-240 V, 50/60 Hz switchable Other Countries
Power Consumption	: 5.5 A at rated output power into 8 ohms (U.S.A. and Canada Model) 200 W at rated output power into 8 ohms (Other Countries)
Dimensions	: W 440 mm (17-5/16") H 144 mm (5-11/16") D 343 mm (13-1/2")
Weight (Net)	: 10.0 kg (22.0 lb)

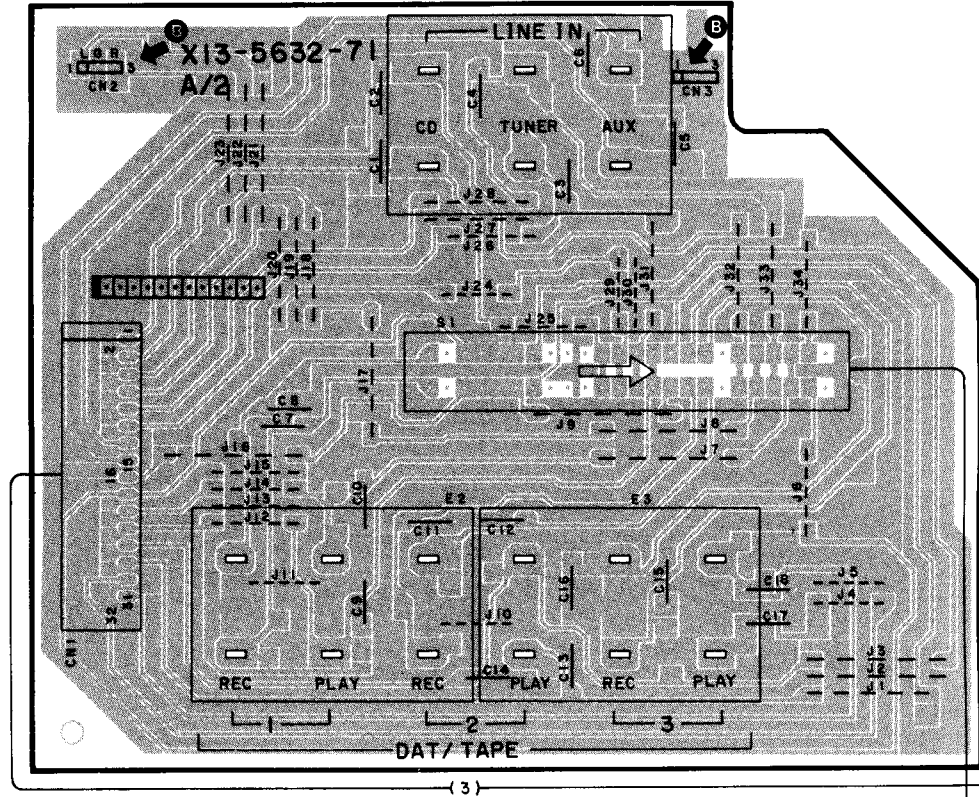
(IHF'66)

Note:

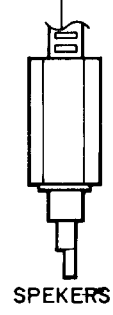
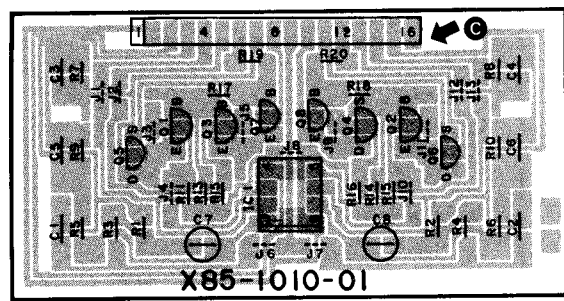
We follow a policy of continuous advancements in development. For this reason specifications may be changed without notice.

AUDIO UNIT (X09-2430-11)

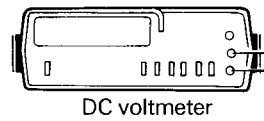
SUB-CIRCUIT UNIT (X13-5632-71)



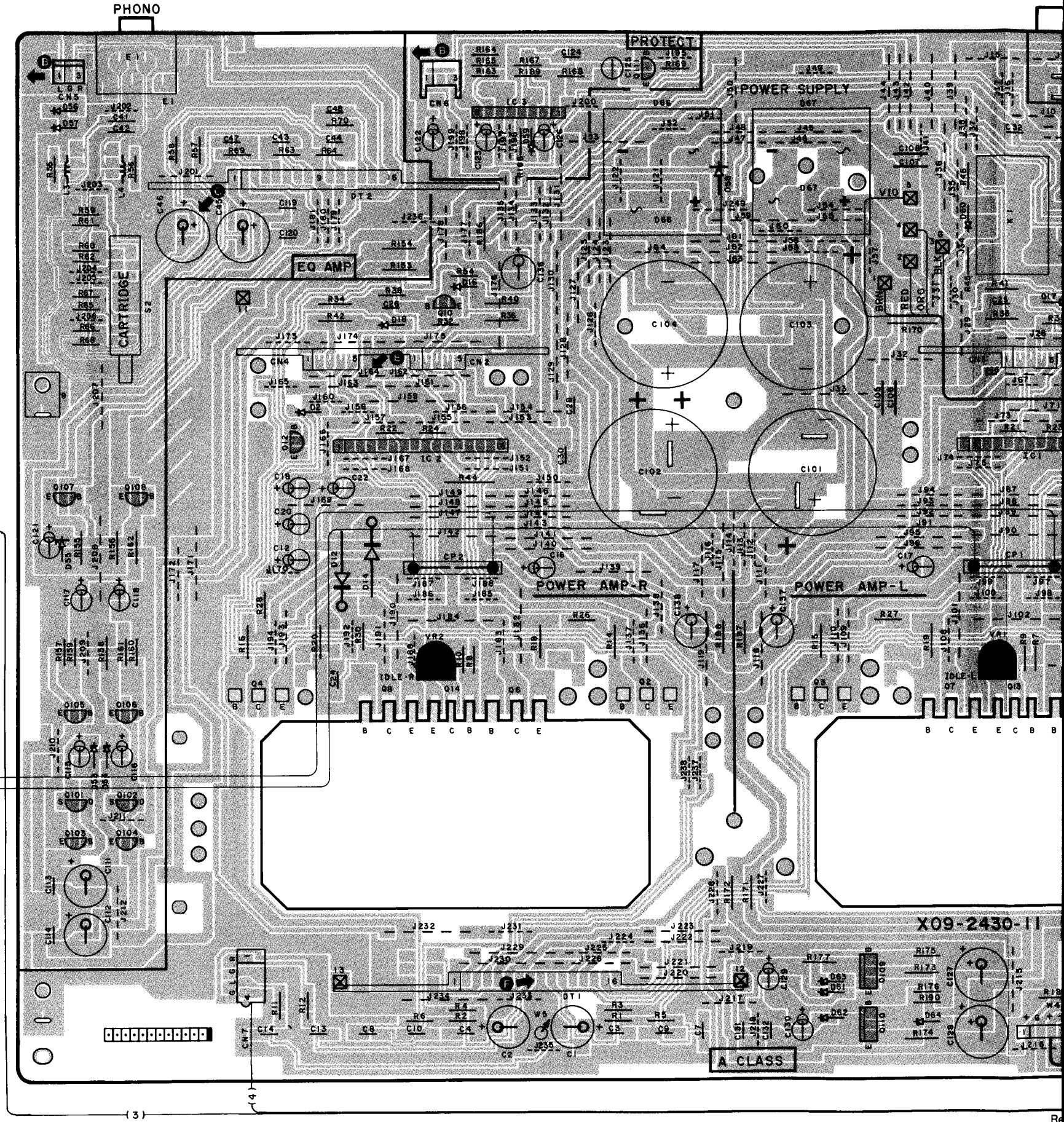
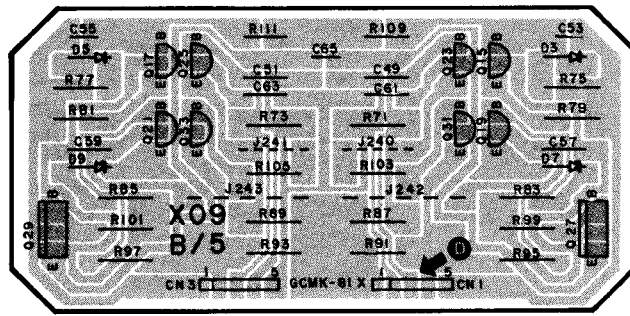
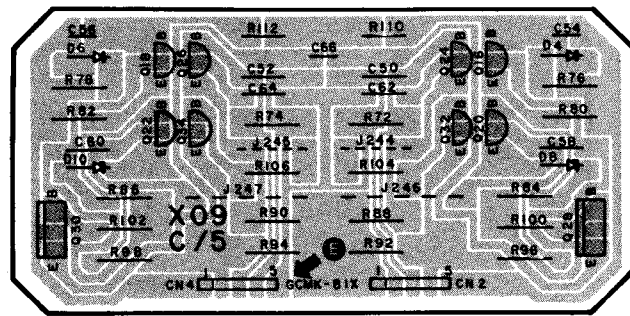
PREAMPLIFIER UNIT (X85-1010-01)



(a) 9 mV



AUDIO UNIT (X09-2430-11)



2

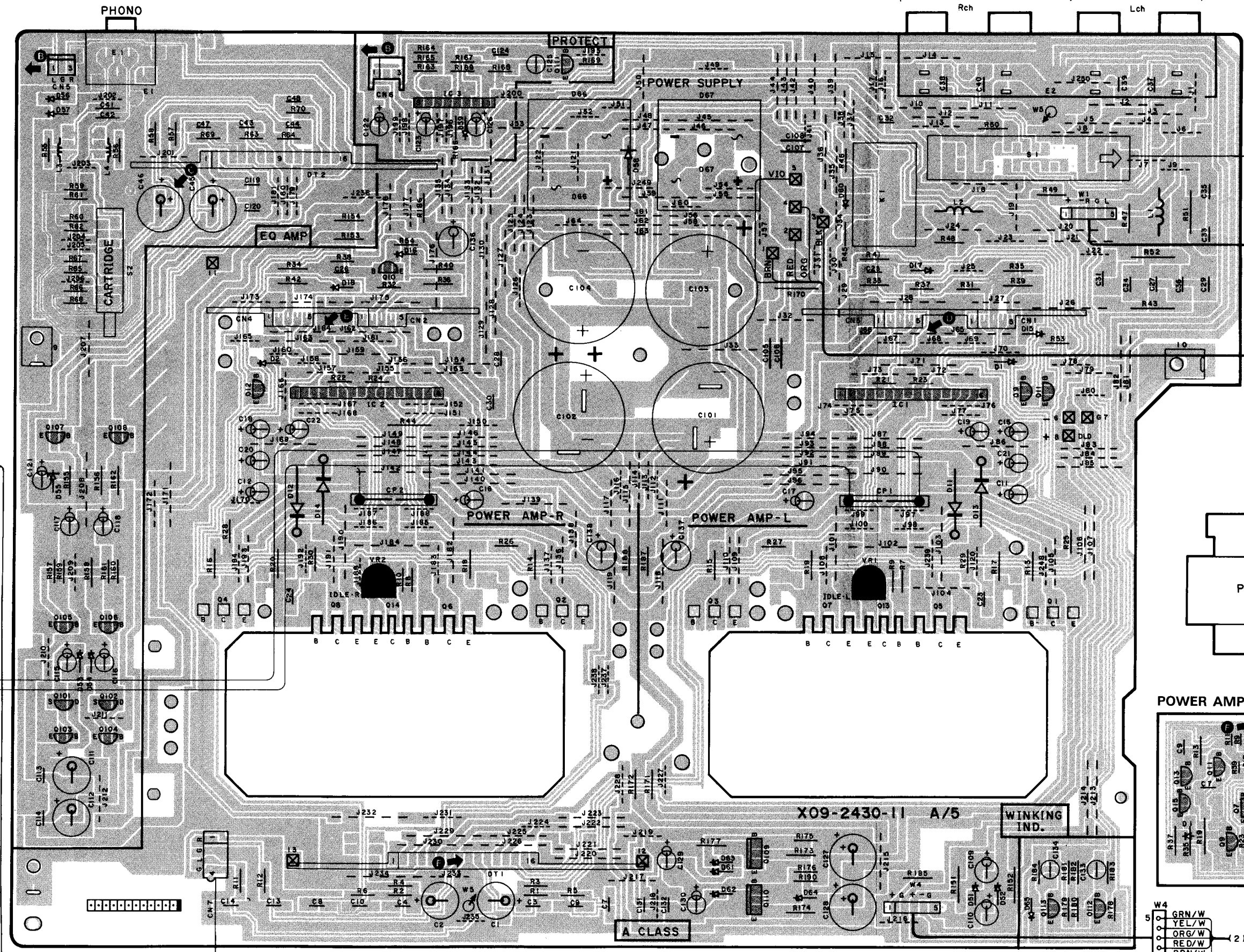
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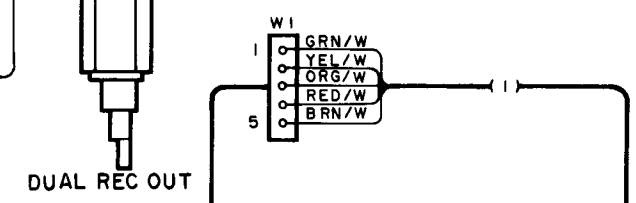
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7

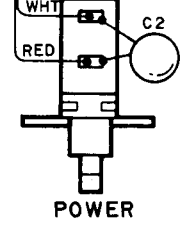
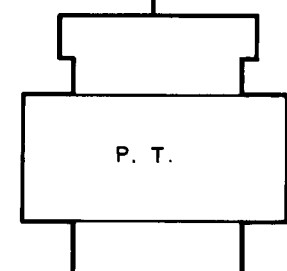
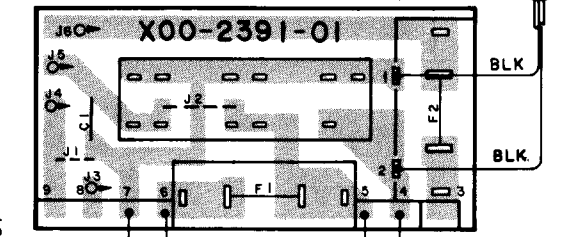


SPEKERS (A or B : 4~16Ω , A and B : 8~16Ω)

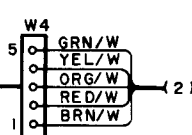
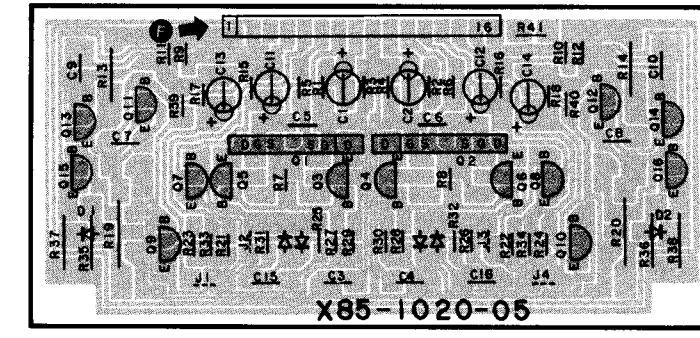
PC BOARD FOIL SIDE



POWER SUPPLY UNIT (X00-2391-01) SWITCHED UNSWITCHED TOTAL 100W MAX. 400W MAX.



POWER AMPLIFIER UNIT (X85-1020-05)



KA-880D(K)(B/2)

Refer to the schematic diagram for the values of resistors and capacitors.

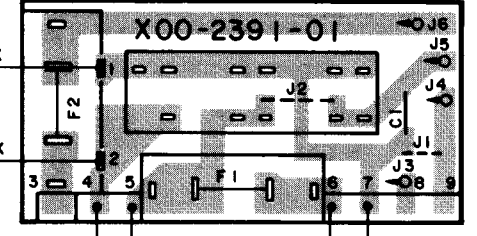
FRONT

SPEKERS (A or B: 4 ~ 16Ω, A and B: 8 ~ 16Ω)

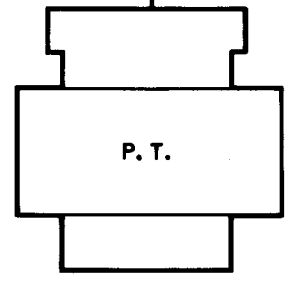
AUDIO UNIT (X09-2430-11)

PHONO

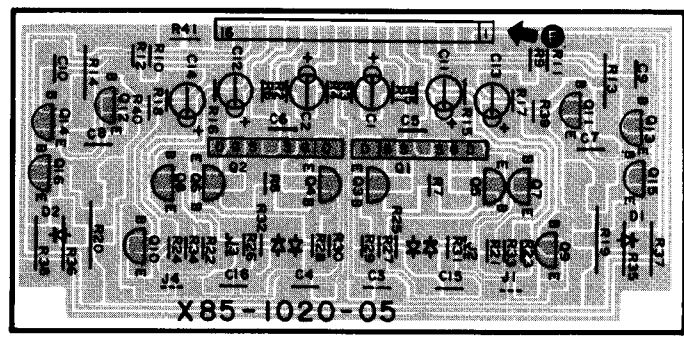
POWER SUPPLY UNIT (X00-2391-01)
UNSWITCHED SWITCHED
400W MAX. TOTAL 100W MAX.



DUAL REC OUT



POWER AMPLIFIER UNIT (X85-1020-05)

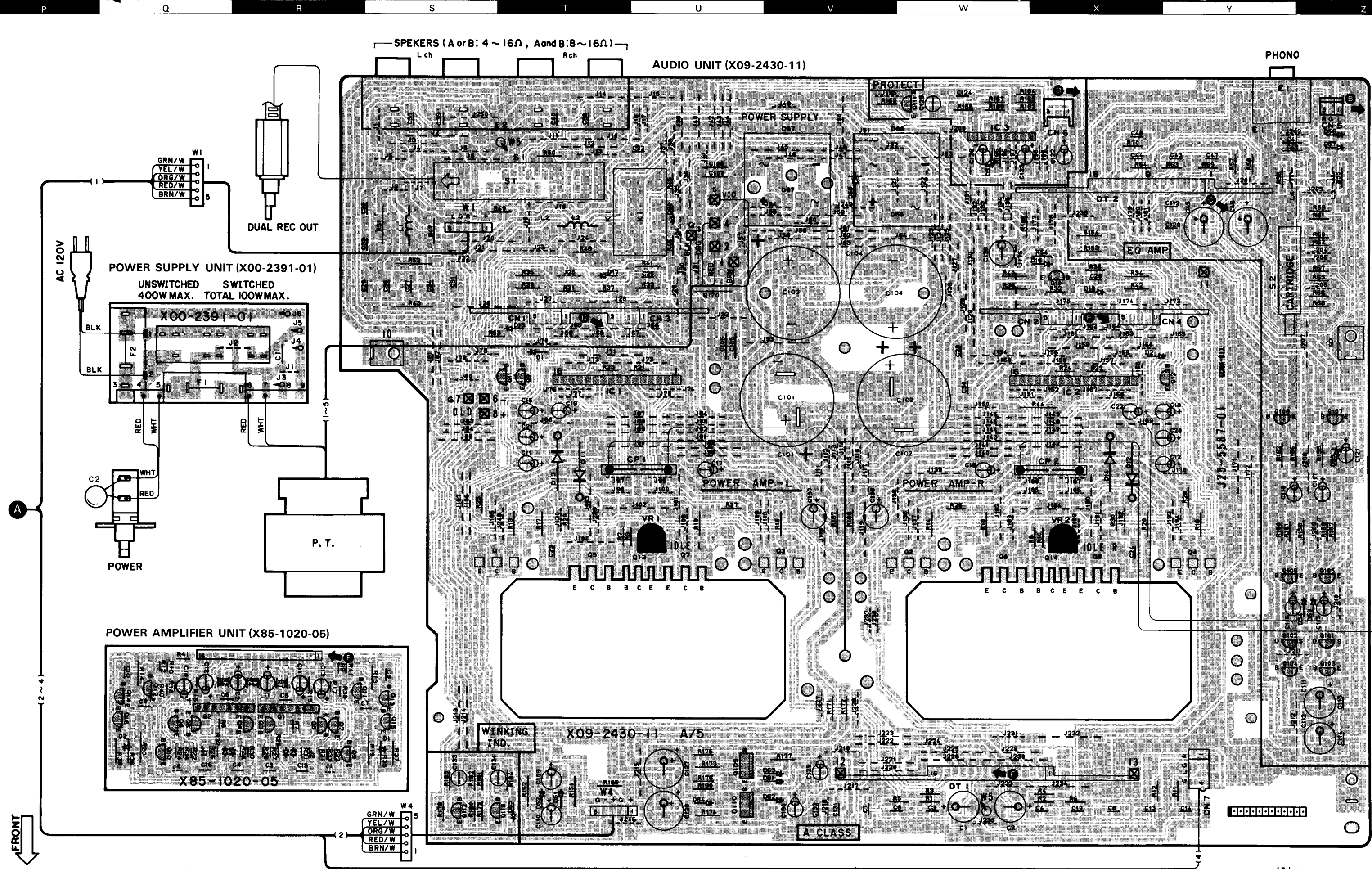


WINKING IND. X09-2430-11 A/5

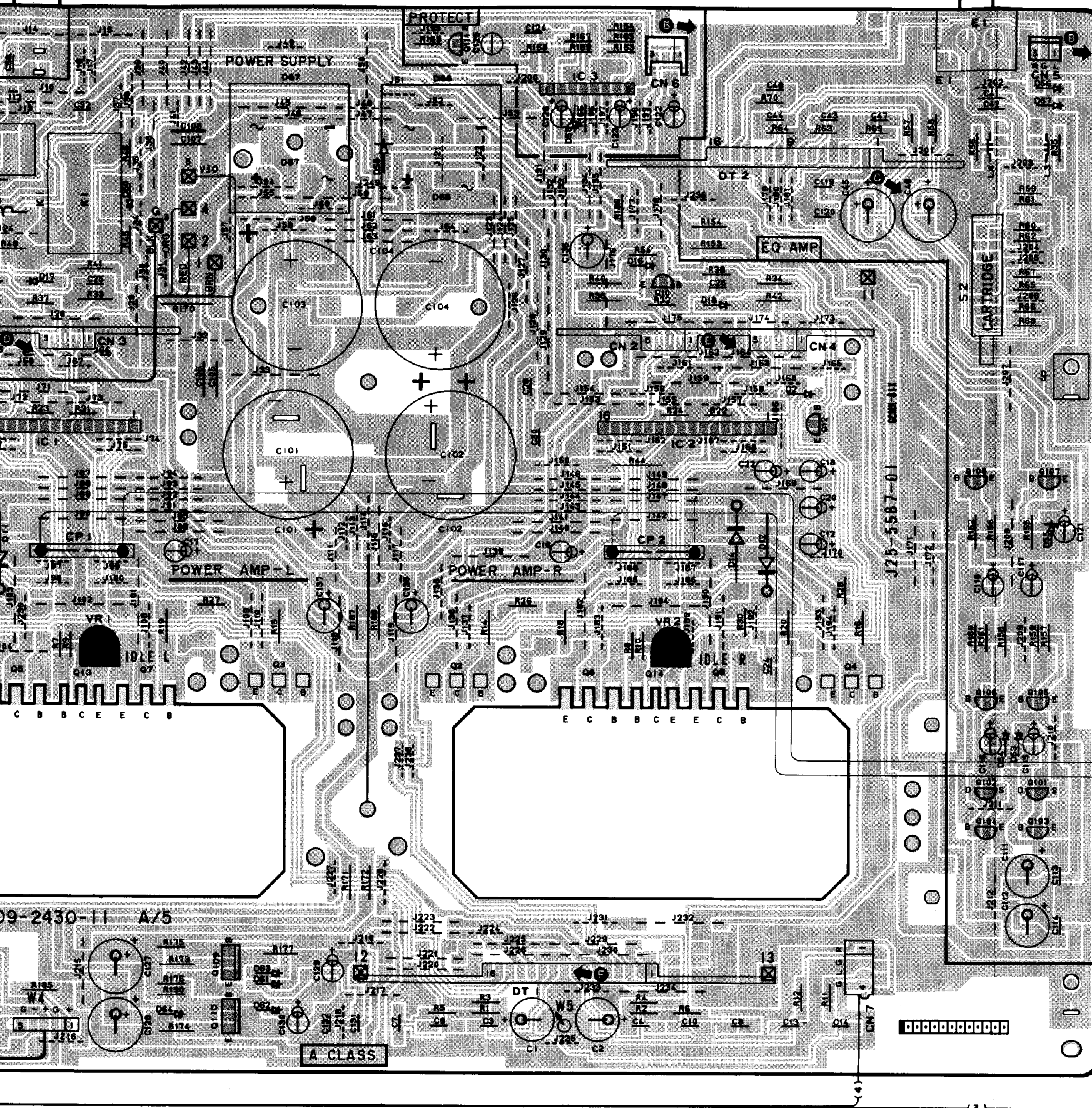
A CLASS

FRONT

(3)

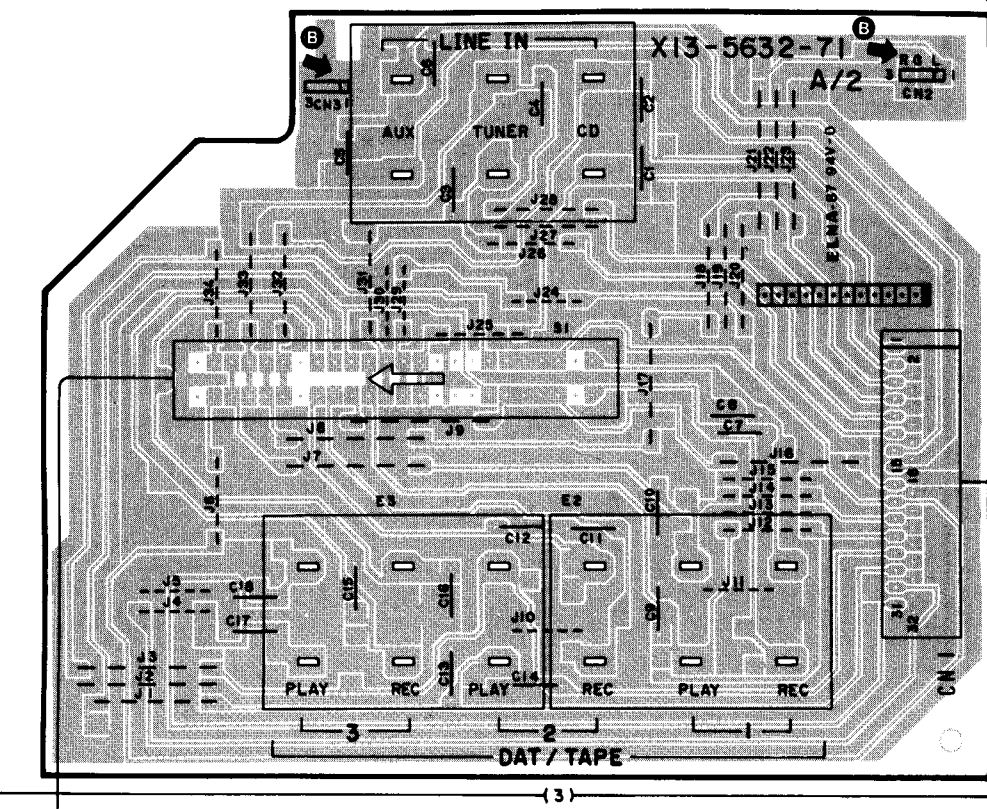


AUDIO UNIT (X09-2430-11)

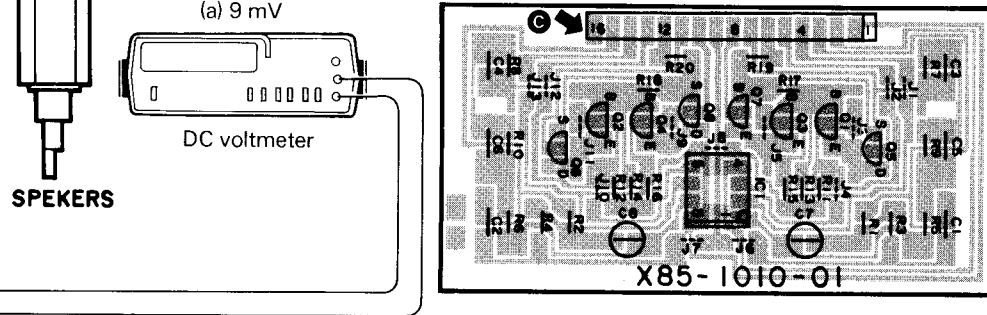


PHONO

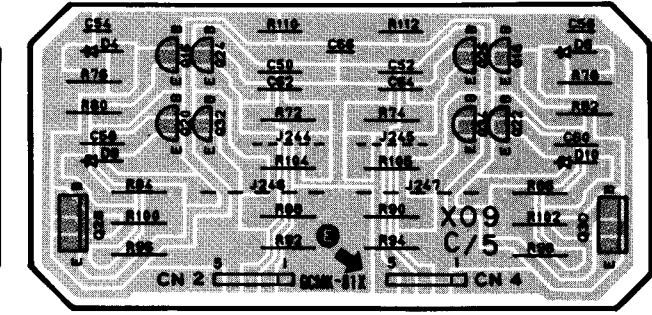
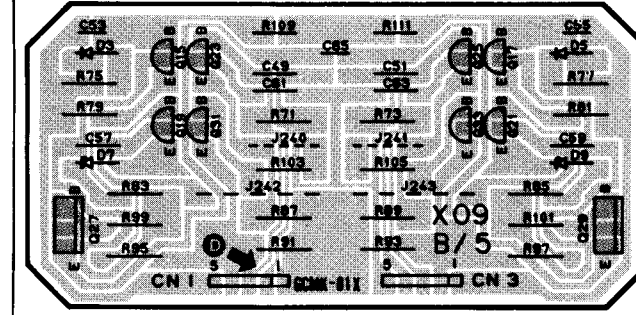
SUB-CIRCUIT UNIT (X13-5632-71)



PREAMPLIFIER UNIT (X85-1010-01)



AUDIO UNIT (X09-2430-11)

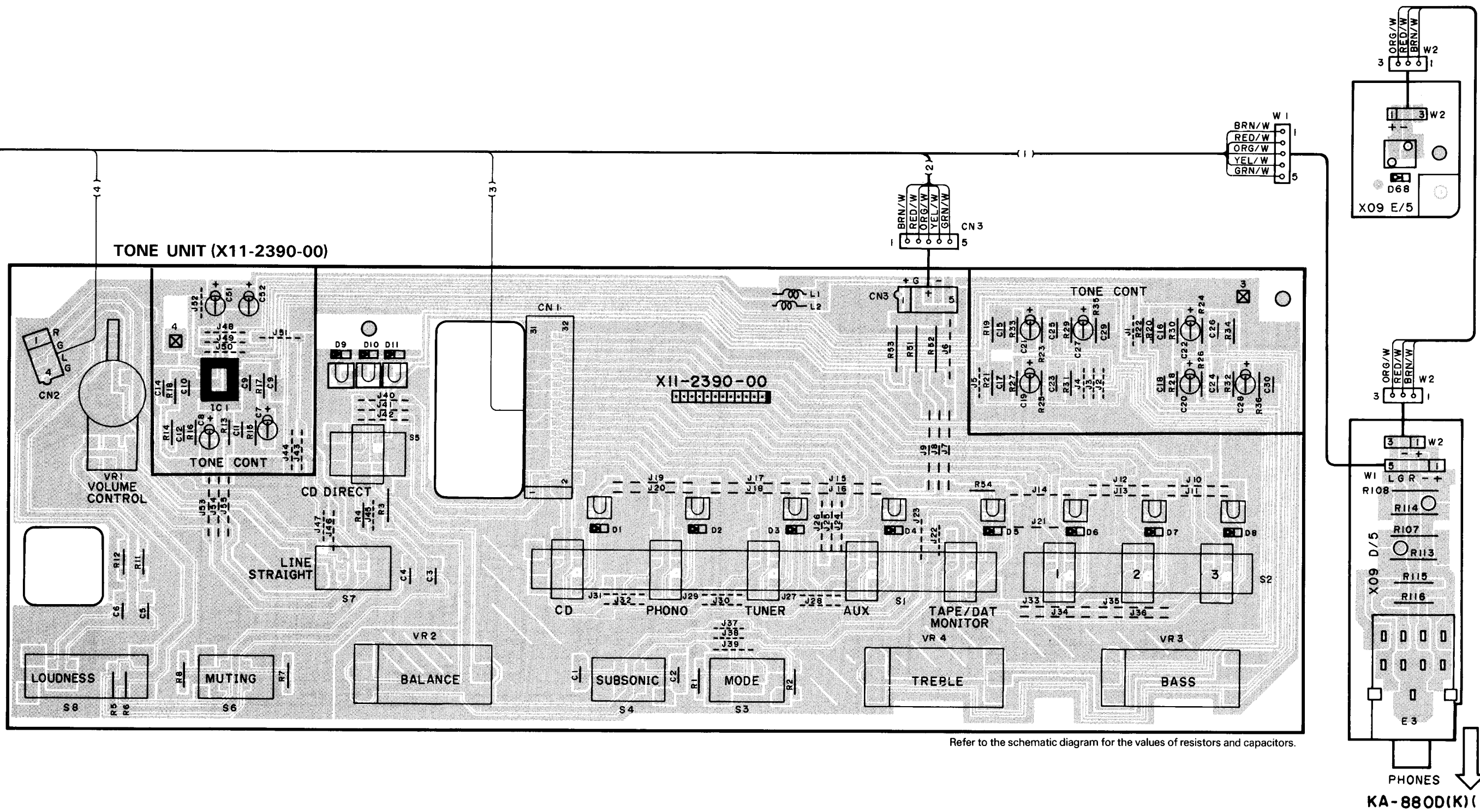


Refer to the schematic diagram for the values of resistors and capacitors.

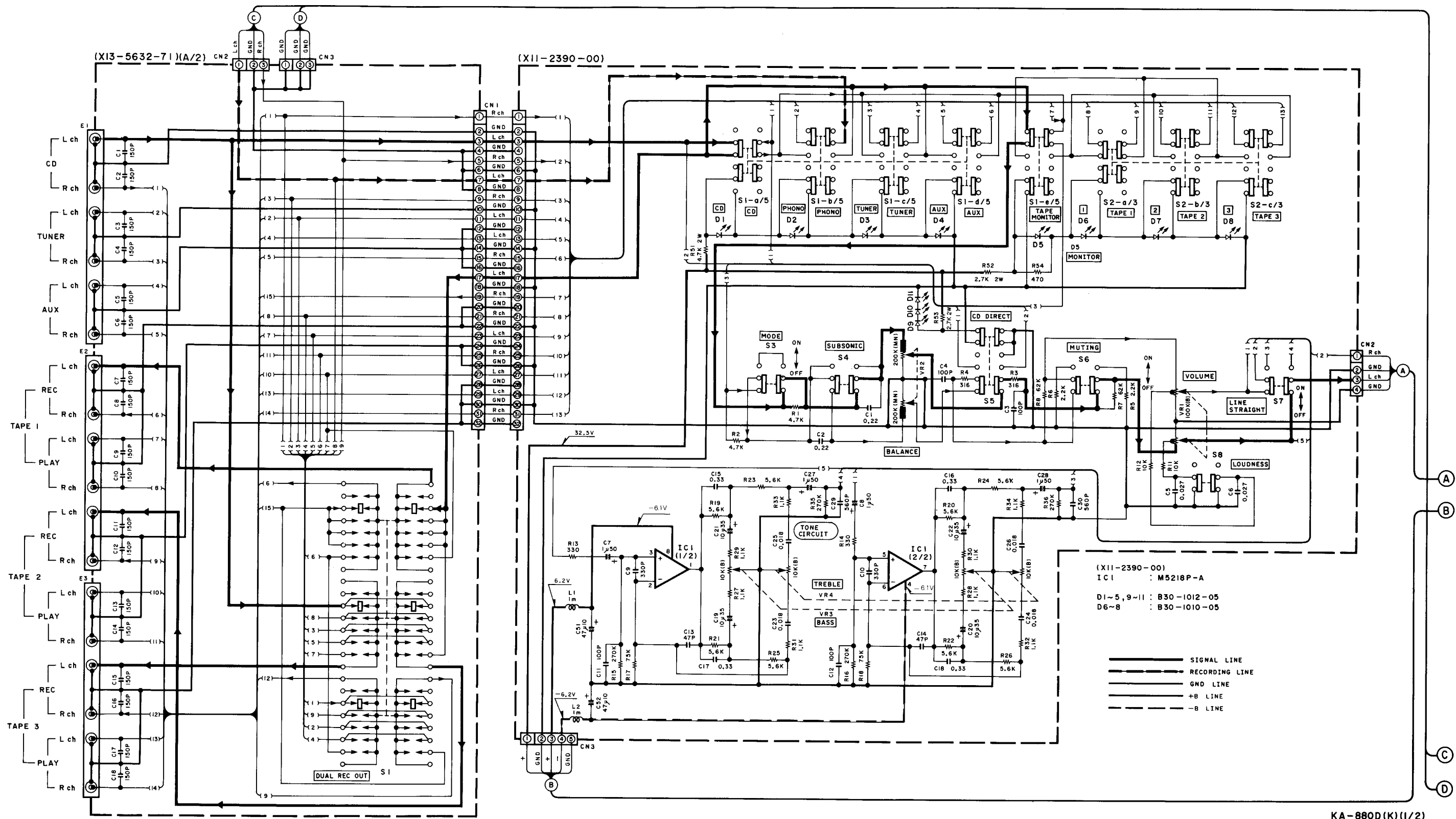
PC BOARD COMPONENT SIDE

KA-880D(K)(B/2)

PC BOARD (FOIL SIDE)



FRONT
PHONES
KA-880D(K)(A/2)



KA-880D(K)(1/2)

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.

Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance sans signal d'entrée. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

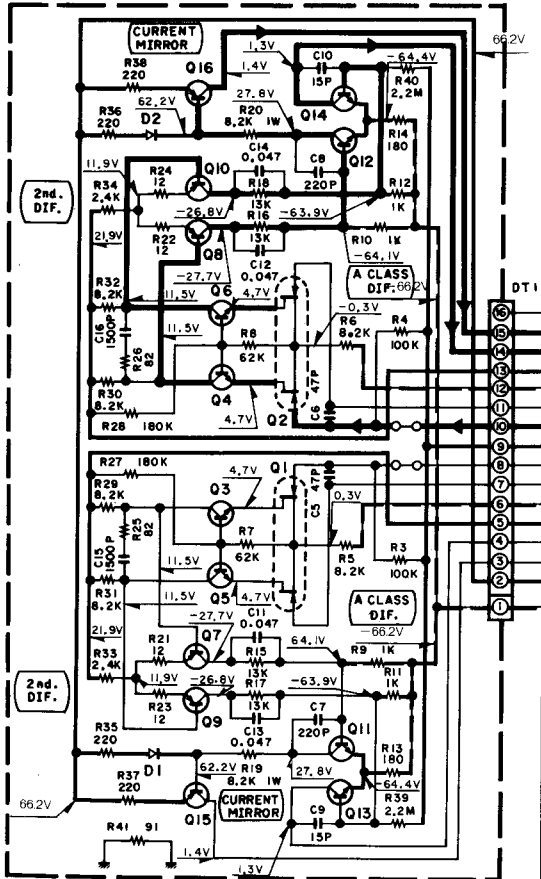
Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser ohne Eingangssignal gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig.

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.

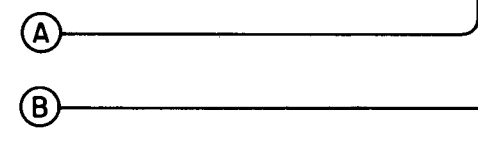


(X85-1020-05)

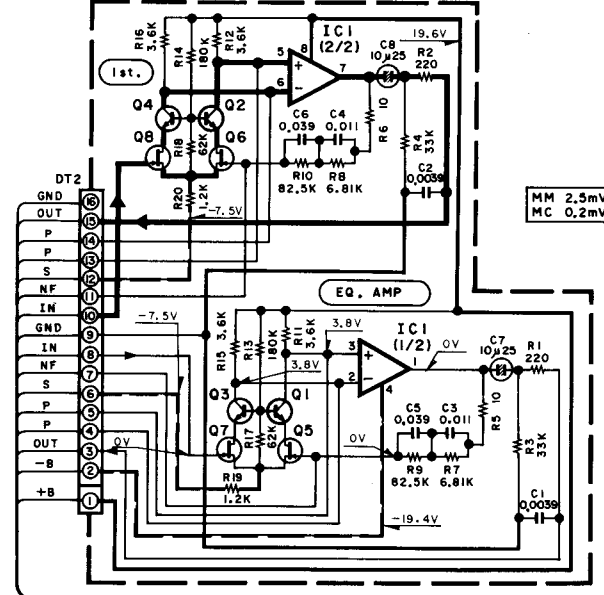
(X09-2430-11)(A/5)



- (X85-1020-05)
 Q1, 2 : μ PA68HA (K, L)
 Q3-6 : 2SC945(A) (Q, P) or 2SC2320 (E, F)
 Q7-10 : 2SA733(A) (Q, P) or 2SA999 (E, F)
 Q11-14 : 2SC2632 (Q, R, S)
 Q15, 16 : 2SA1124 (Q, R, S)
 DI, 2 : ISS176 or ISS133



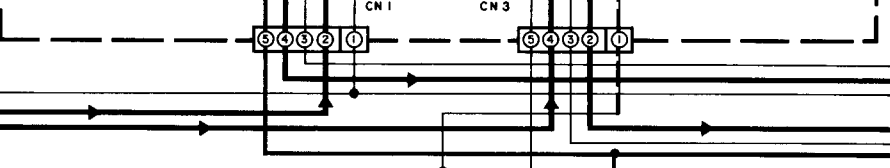
(X85-1010-01)



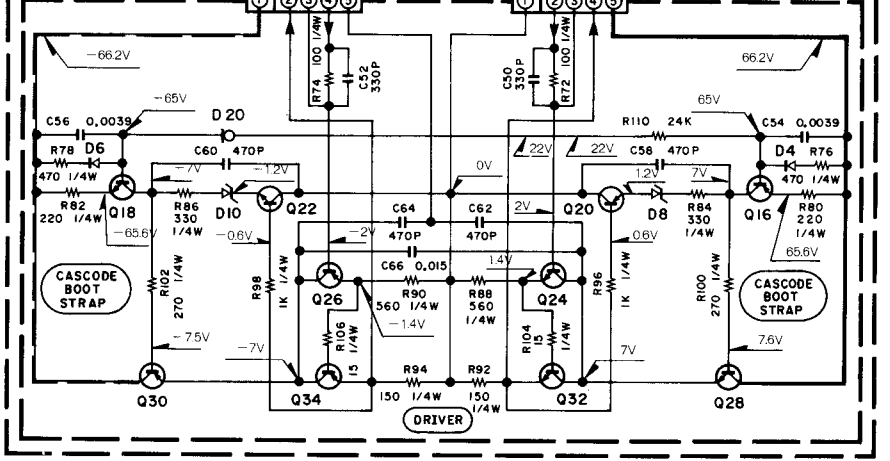
- (X85-1010-01)
 IC1 : NJM4560D-N
 Q1-4 : 2SC945(A) (Q, P) or 2SC2320 (E, F)
 Q5-8 : 2SK170 (B, L, V)



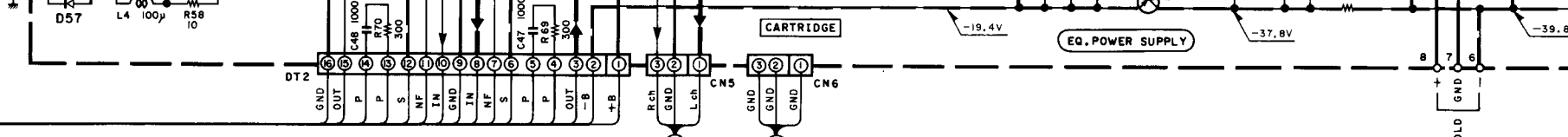
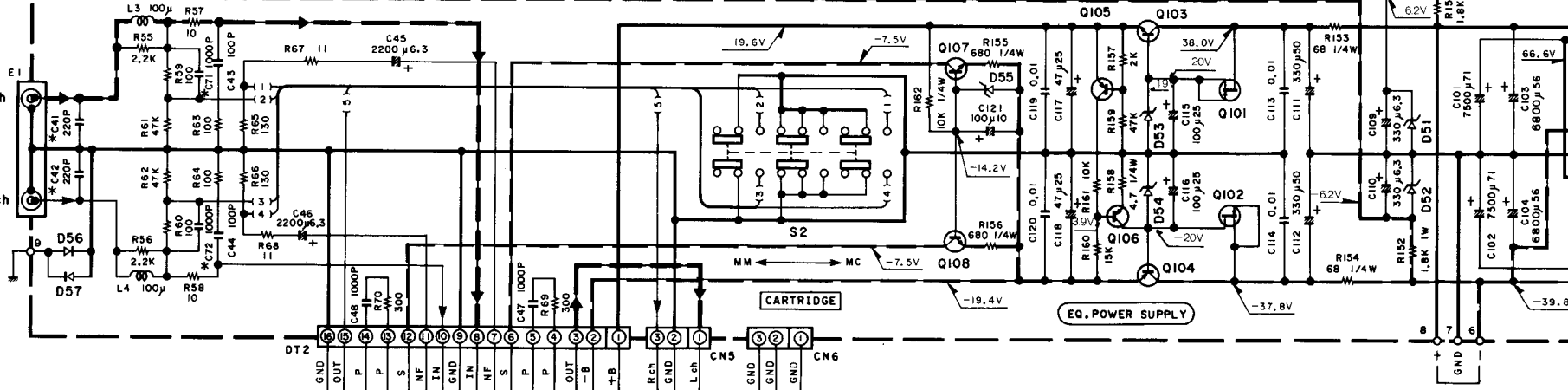
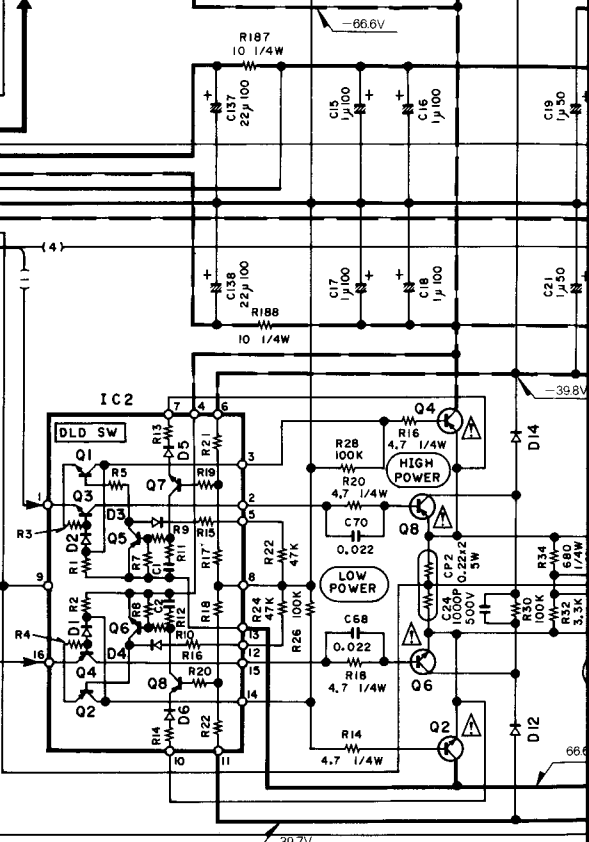
(X09-2430-11)(B/5)

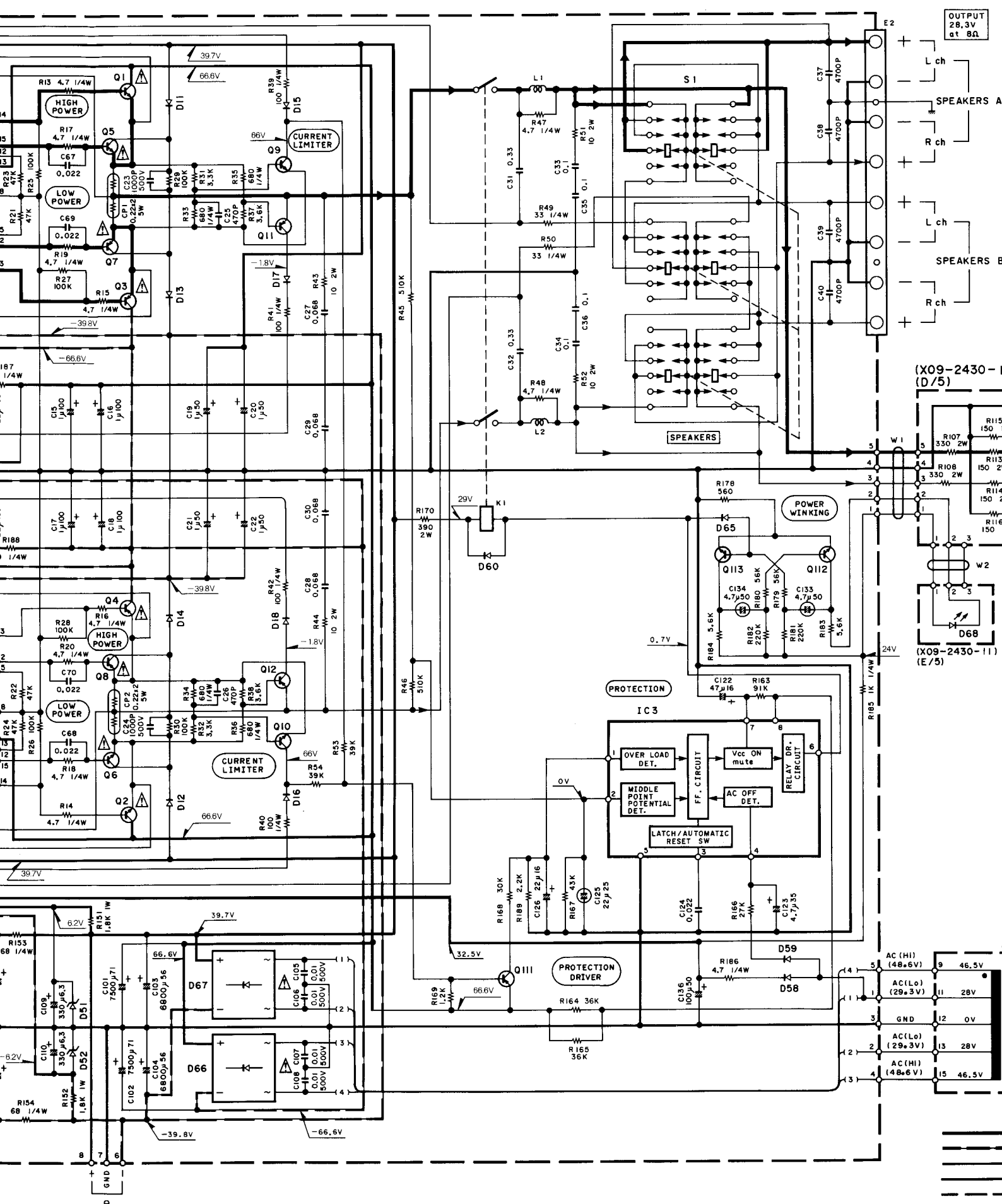


(X09-2430-11)(C/5)



(X09-2430-11)(D/5)



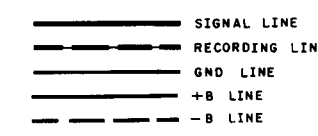
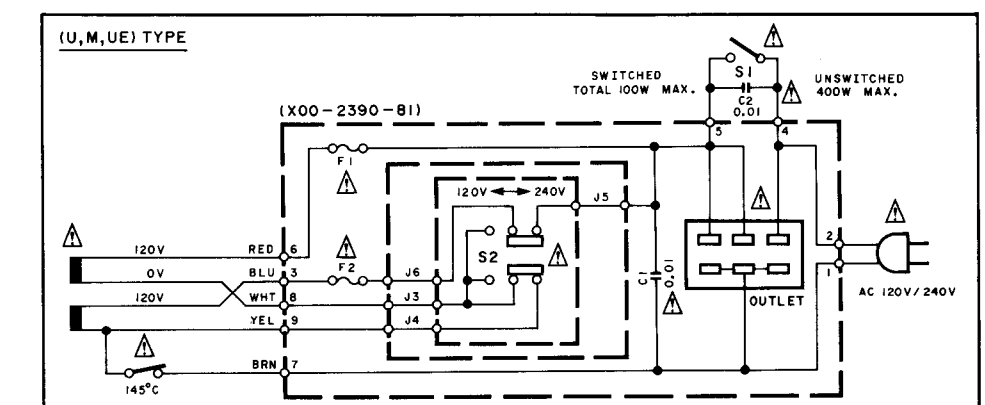
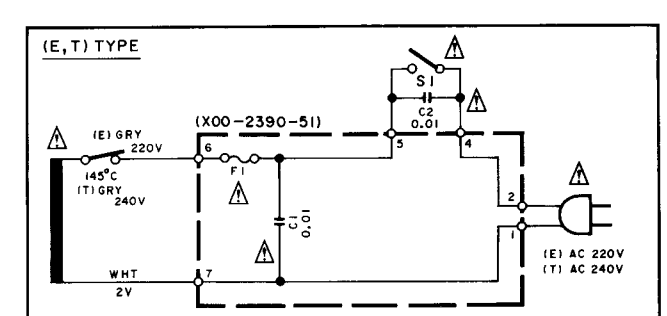


- (X09-2430-11)
 IC 1, 2 : TA2030
 IC 3 : μ PC1237HA
- Q 1, 2 : 2SD1718*5
 Q 3, 4 : 2SB1163*5
 Q 5, 6 : 2SC3854*5
 Q 7, 8 : 2SA1490*5
 Q 9, 10 : 2SC2631(R,S)
 Q 11, 12 : 2SA1123(R,S)
 Q 13, 14 : 2SC3419(Y)
 Q 15, 16, 111 : 2SA992(F,E)
 Q 17, 18 : 2SC1845(F,E)
 Q 19, 20, 25, 26 : 2SA733(A)(Q,P)
 Q 21~24 : 2SC945(A)(Q,P)
 Q 27, 28 : 2SC3944(R,S)
 Q 29, 30 : 2SA1535(R,S)
 Q 31, 32 : 2SC3940A(R,S)
 Q 33, 34 : 2SA1534A(R,S)
 Q 101, 102 : 2SK105(H) or 2SK301(Q)
 Q 103 : 2SD882(Q,P)
 Q 104 : 2SB772(Q,P)
 Q 105, 106 : 2SA733(A)(Q,P) or 2SA999(E,F)
 Q 107, 108, 112, 113 : 2SC945(A)(Q,P) or 2SC2320(E,F)
 Q 109, 110 : 2SC2167

- D 1, 2 : MA27Q(A)
 D 3~6, 15~18, 56, 57 : ISS133 or ISS176
 D 7~10, 55, 63, 64 : RD5.1JS(B2) or HZ55.1S(B2)
 D 11~14 : RU4Z
 D 19, 20 : E-202
 D 51, 52 : RD6.2ES(B) or HZ56.2N(B)
 D 53, 54 : RD20JS(B) or HZ520S(B)
 D 58 : DSM1A1
 D 59, 60, 65 : ISS131 or ISS178
 D 61, 62 : RD22JS(B) or HZ522S(B)
 D 66, 67 : D5FB20*1
 D 68 : B30-1012-05

(X09-243)

DESTINATION	No.	C1,2	C41,42	C71,72	R5,6	R171,172
K, P, U, M, UE	0-11	1000 μ 6.3	NO	NO	1/6W	10 1/4W
T	0-51	330 μ 16	NO	NO	1/4W	3.9 1/4W
E	2-71	330 μ 16	YES	YES	1/4W	3.9 1/4W



KA-880D(K)(2/2)

CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). Δ 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.

- 2SA1123
 2SA1124
 2SA1534A
 2SA733(A)
 2SA992
 2SA999
 2SC1845
 2SC2320
 2SC2631
 2SC2632
 2SC3940A
 2SC945(A)
- 2SK105
 2SK170
 2SK301
- NJM456D-N
- M5218P-A
- UPC1237HA
- TA2030
- 2SB772
 2SD882
- 2SC2167
- 2SA1490*5
 2SC3854*5
- 2SC3419
- 2SA1535
 2SC3944

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.

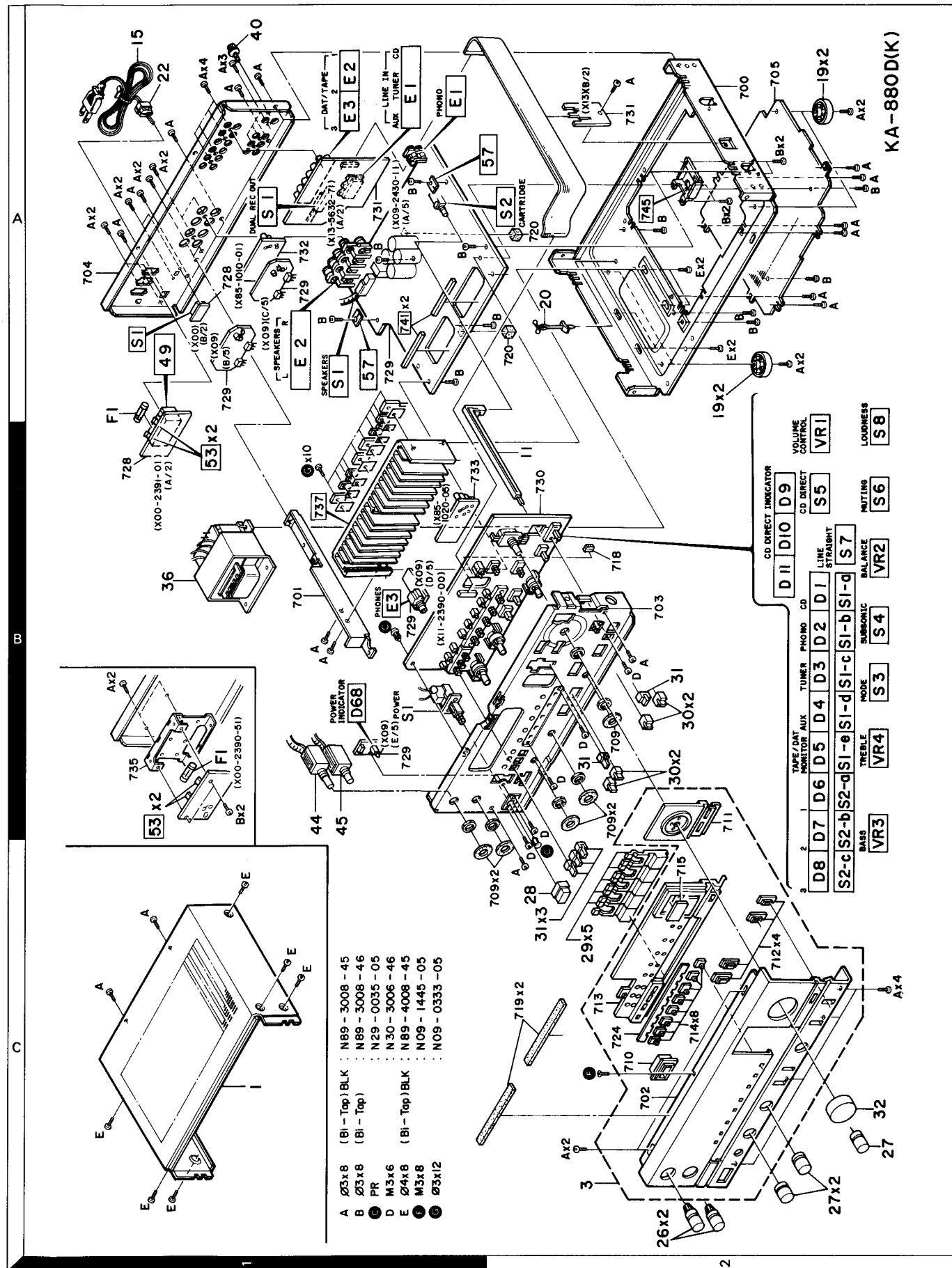
Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance sans signal d'entrée. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser ohne Eingangssignal gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig.



KA-880D KA-880D

EXPLODED VIEW



Parts with the exploded numbers larger than 700 are not supplied.

PARTS LIST

× New Parts
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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名/規格	Desti- nation 仕向	Re- marks 備考
KA-880D						
1	1A	*	A01-1553-01	METALLIC CABINET		
3	2A	*	A20-5228-03	PANEL ASSY		
-	-	-	B46-0092-03	WARRANTY CARD	K	
-	-	-	B46-0094-03	WARRANTY CARD	UUE	
-	-	-	B46-0095-03	WARRANTY CARD	UUE	
-	-	-	B46-0121-03	WARRANTY CARD	P	
-	-	-	B46-0122-13	WARRANTY CARD	E	
-	-	-	B46-0143-03	WARRANTY CARD	T	
-	-	*	B50-6732-00	INSTRUCTION MANUAL (ENGLISH)		
-	-	*	B50-6733-00	INSTRUCTION MANUAL (FRENCH)	PME	
-	-	*	B50-6734-00	INSTRUCTION MANUAL (SPANISH)	M	
-	-	*	B50-6735-00	INSTRUCTION MANUAL (ARABIC)	M	
-	-	*	B50-6736-00	INSTRUCTION MANUAL (G,D,I)	E	
-	-	-	B58-0223-04	CAUTION CARD (PRE-SET 120V)	U	
-	-	-	B58-0269-04	CAUTION CARD	K	
-	-	-	B58-0513-04	CAUTION CARD (PRESET220-240)	UUE	
-	-	-	B58-0803-03	CAUTION CARD	E	
-	-	-	B59-0092-00	SERVICE DIRECTORY	UUE	
Δ	C2	-	C91-0023-05	CERAMIC 0.01UF AC250V	UMUE	
Δ	C2	-	C91-0647-05	CERAMIC 0.01UF P	KPTE	
-	11	-	D21-1104-03	EXTENSION SHAFT		
Δ	15	-	E30-0459-05	AC POWER CORD	E	
Δ	15	-	E30-0812-05	AC POWER CORD	UMUE	
Δ	15	-	E30-0978-05	AC POWER CORD	KP	
Δ	15	-	E30-1416-05	AC POWER CORD	T	
Δ	F1	-	F05-3022-05	FUSE (250V 3A)	UMUE	
Δ	F1	-	F05-3121-05	FUSE (SEMKO) (250V T3.15A)	TE	
Δ	F1	-	F05-6027-05	FUSE (UL) (250V 6A)	KP	
-	-	*	H01-7519-04	ITEM CARTON CASE		
-	-	*	H10-3416-02	POLYSTYRENE FOAMED FIXTURE		
-	-	*	H10-3417-02	POLYSTYRENE FOAMED FIXTURE		
-	-	-	H25-0225-04	PROTECTION BAG (850X450X0.03)		
-	-	-	H25-0232-04	PROTECTION BAG (235X350X0.03)		
-	19	-	J02-0127-05	FOOT	KP	
-	19	-	J02-0156-05	FOOT (Ø40X12.5)	UMUETE	
-	20	-	J11-0096-05	WIRE CLAMPER		
Δ	22	*	J42-0083-05	POWER CORD BUSHING		
-	-	-	J61-0307-05	WIRE BAND		
-	26	-	K29-1822-04	KNOB (SPEAKERS,DUAL REC OUT)		
-	27	-	K29-2077-03	KNOB (BASS,TREBLE,BALANCE)		
-	28	-	K29-2432-03	KNOB ASSY (BUTTON) POWER		
-	29	-	K29-2684-04	KNOB (BUTTON) INPUT		
-	30	*	K29-2685-04	KNOB ASSY (BTN) MUTE, SUBS, MUTE, LO		
-	31	*	K29-2687-04	KNOB ASSY (BUTTON) 1-3, LINE		
-	32	*	K29-2689-04	KNOB (VOLUME CONTROL)		
Δ	36	*	L01-7801-05	POWER TRANSFORMER	KP	
Δ	36	*	L01-7802-05	POWER TRANSFORMER	T	
Δ	36	*	L01-7804-05	POWER TRANSFORMER	UMUE	
Δ	36	*	L01-7807-05	POWER TRANSFORMER	E	

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40 C F	1C 2A, 1B 2A		N08-0128-35 N29-0035-05 N09-1445-05	BINDING POST (GND) PUSH RIVET (3.5X5.5) SET SCREW (M3X8)PANEL		
44 45	1B 1B	*	S90-0102-05 S90-0103-05	REMOTE WIRE (SPEAKERS) REMOTE WIRE (SELECTOR)		
- - S1	- - 1B		S59-1083-05 S59-1084-05 S40-1073-05	THERMAL SWITCH THERMAL SWITCH PUSH SWITCH (POWER)	UMUETE KP UMUETE	
S1	1B		S40-1094-05	PUSH SWITCH (POWER TYPE)	KP	
POWER SUPPLY UNIT (X00-2391-01)						
C1 C1			C91-0023-05 C91-0647-05	CERAMIC 0.01UF AC250V CERAMIC 0.01UF P	UMUE KPTE	
49 49	1C 1C	*	E03-0077-05 E03-0078-05	AC OUTLET AC OUTLET	UMUE KP	
53 53	1B 1B		J13-0041-05 J13-0054-05	FUSE CLIP FUSE CLIP	KPUMUE TE	
S1	1C		S31-2083-05	SLIDE SWITCH (POWER TYPE)	UMUE	
AUDIO UNIT (X09-2430-11)						
D68	1B		B30-1012-05	LED(SLP-981C-50)POWER IND.		
C1 ,2 C1 ,2 C3 ,4 C5 ,6 C9 ,10			CE04KWOJ102M CE04KW1C331M CQ09FS1H101JZS CC45FSL1H010C C91-0170-05	ELECTRO 1000UF 6.3WV ELECTRO 330UF 16WV POLYSTY 100PF J CERAMIC 1.0PF C POLYSTY 22PF K	KPUMUE TE	
C11 ,12 C13 ,14 C15 -18 C19 -22 C23 ,24			CE04KW1C220M CQ09FS1H101JZS CE04KW2A010M CE04KW1H010M CK45FB2H102K	ELECTRO 22UF 16WV POLYSTY 100PF J ELECTRO 1.0UF 100WV ELECTRO 1.0UF 50WV CERAMIC 1000PF K		
C25 ,26 C27 -30 C31 ,32 C33 -36 C37 -40			CK45FB1H471K CF92FV1H683J CF92FV1H334J CF92FV1H104J CK45FF1H472Z	CERAMIC 470PF K MF 0.068UF J MF 0.33UF J MF 0.10UF J CERAMIC 4700PF Z		
C41 ,42 C43 ,44 C45 ,46 C47 ,48 C49 -52			C91-0749-05 CC45FSL1H101J CE04KWOJ222M CK45FB1H102K C91-0751-05	CERAMIC 220PF K CERAMIC 100PF J ELECTRO 2200UF 6.3WV CERAMIC 1000PF K CERAMIC 330PF K	E	
C53 -56 C57 -64 C65 ,66 C67 -70 C71 ,72			CF92FV1H392J C91-0753-05 CF92FV1H153J CF92FV1H223J CK45FB1H102K	MF 3900PF J CHIP C 470PF K MF 0.015UF J MF 0.022UF J CERAMIC 1000PF K		E
C101,102 C101,102 C103,104 C103,104 C105-108		*	C90-1498-05 C90-1513-05 C90-1497-05 C90-1512-05 CK45FE2H103P	ELECTRO 7500UF 71WV ELECTRO 7500UF 71WV ELECTRO 6800UF 56WV ELECTRO 6800UF 56WV CERAMIC 0.010UF P	KPUMUE TE KPUMUE TE	
C109,110 C111,112			CE04KWOJ331M CE04KW1H331M	ELECTRO 330UF 6.3WV ELECTRO 330UF 50WV		

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C113,114 C115,116 C117,118 C119,120 C121			CF92FV1H103J CE04KW1E101M CE04KW1E470M CF92FV1H103J CE04KW1A101M	MF 0.010UF J ELECTRO 100UF 25WV ELECTRO 47UF 25WV MF 0.010UF J ELECTRO 100UF 10WV		
C122 C123 C124 C125 C126			CE04KW1C470M CE04KW1V4R7M CF92FV1H223J C90-1353-05 CE04KW1C220M	ELECTRO 47UF 16WV ELECTRO 4.7UF 35WV MF 0.022UF J NP-ELEC 10UF 25WV ELECTRO 22UF 16WV		
C127,128 C129,130 C131,132 C133,134 C136			CE04KW2A101M CE04KW1V100M CF92FV1H103J C90-1335-05 CE04KW1H101M	ELECTRO 100UF 100WV ELECTRO 10UF 35WV MF 0.010UF J NP-ELEC 4.7UF 50WV ELECTRO 100UF 50WV		
C137,138			CE04KW2A220M	ELECTRO 22UF 100WV		
57 E1 E2 E2 E2	1C 1C 1C 1C 1C		E23-0149-05 E13-0235-05 E20-0828-05 E20-0828-05 E20-0829-05	TERMINAL PHONE JACK (2P) SCREW TERMINAL BOARD SCREW TERMINAL BOARD SCREW TERMINAL BOARD		KPUMUE E T
E3	1B	*	E11-0174-05	PHONE JACK		
L1 ,2 L3 ,4			L39-0080-15 L40-1011-47	PHASE-COMPENSATION COIL SMALL FIXED INDUCTOR(100UH,K)		
6	1B		N09-0333-05	TAPPING SCREW (/3X12)TR		
CP1 ,2 R1 ,2 R5 ,6 R5 ,6 R13 -20		*	R90-0187-05 RN14BK2C1960F RN14BK2C3832F RN14BK2E3832FTS RD14AB2E4R7JTS	MULTI-COMP 0.22X2 K 5W RN 196.0 F 1/6W RN 38.3K F 1/6W RN 38.3K F 1/4W FL-PROOF RD 4.7 J 1/4W		KPUMUE TE
R33 -36 R39 -42 R43 ,44 R47 ,48 R49 ,50			RD14AB2E681JTS RD14AB2E101JTS RS14DB3D100JTE RD14AB2E4R7JTS RD14AB2E330JTS	FL-PROOF RD 680 J 1/4W FL-PROOF RD 100 J 1/4W FL-PROOF RS 10 J 2W FL-PROOF RD 4.7 J 1/4W FL-PROOF RD 33 J 1/4W		
R51 ,52 R71 -74 R75 -78 R79 -82 R83 -86			RS14DB3D100JTE RD14AB2E101JTS RD14AB2E471JTS RD14AB2E221JTS RD14AB2E331JTS	FL-PROOF RS 10 J 2W FL-PROOF RD 100 J 1/4W FL-PROOF RD 470 J 1/4W FL-PROOF RD 220 J 1/4W FL-PROOF RD 330 J 1/4W		
R87 -90 R91 -94 R95 -98 R99 -102 R103-106		*	RD14AB2E561JTS RD14AB2E151JTS RD14AB2E102JTS RD14AB2E271JTS RD14AB2E150JTS	FL-PROOF RD 560 J 1/4W FL-PROOF RD 150 J 1/4W FL-PROOF RD 1.0K J 1/4W FL-PROOF RD 270 J 1/4W FL-PROOF RD 15 J 1/4W		
R107,108 R113,114 R115,116 R151,152 R153,154		*	RS14DB3D331JTE RS14DB3D151JTE RS14DB3A151JTE RS14DB3A182JTE RD14AB2E680JTS	FL-PROOF RS 330 J 2W FL-PROOF RS 150 J 2W FL-PROOF RS 150 J 1W FL-PROOF RS 1.8K J 1W FL-PROOF RD 68 J 1/4W		
R155,156 R158			RD14AB2E681JTS RD14AB2E4R7JTS	FL-PROOF RD 680 J 1/4W FL-PROOF RD 4.7 J 1/4W		

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KA-880D KA-880D

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R162 R170 R171,172 R171,172 R173			RD14AB2E103JTS RS14DB3D391JTE RD14AB2E100JTS RD14AB2E3R9JTS RD14AB2E102JTS	FL-PROOF RD 10K J 1/4W FL-PROOF RS 390 J 2W FL-PROOF RD 10 J 1/4W FL-PROOF RD 3.9 J 1/4W FL-PROOF RD 1.0K J 1/4W	KPMUE TE	
R174 R177 R185 R186 R187,188		*	RD14AB2E621JTS RD14AB2E271JTS RD14AB2E102JTS RD14AB2E4R7JTS RD14AB2E100JTS	FL-PROOF RD 620 J 1/4W FL-PROOF RD 270 J 1/4W FL-PROOF RD 1.0K J 1/4W FL-PROOF RD 4.7 J 1/4W FL-PROOF RD 10 J 1/4W		
VR1 ,2			R12-0094-05	TRIMMING POT. (470) IDLE CURR		
K1 S1 S2	1C 2C		S51-2045-05 S90-0062-05 S40-6033-05	MAGNETIC RELAY SLIDE SWITCH (SPEAKERS) PUSH SWITCH (CARTRIDGE)		
D1 ,2 D3 -6 D3 -6 D7 -10 D7 -10			MA27Q(A) 1SS133 1SS176 HZS5.1S(B2) RDS.1JS(B2)	VARISTOR DIODE DIODE ZENER DIODE ZENER DIODE		
D11 -14 D15 -18 D15 -18 D19 ,20 D51 ,52			RU4Z 1SS133 1SS176 E-202 HZS6.2N(B)	DIODE DIODE DIODE CONSTANT CURRENT DIODE ZENER DIODE		
D51 ,52 D53 ,54 D53 ,54 D55 D55		*	RD6.2ES(B) HZS20S(B) RD20JS(B) HZS5.1S(B2) RDS.1JS(B2)	ZENER DIODE ZENER DIODE ZENER DIODE ZENER DIODE ZENER DIODE		
D56 ,57 D56 ,57 D58 D59 ,60 D59 ,60			1SS133 1SS176 DSM1A1 1SS131 1SS178	DIODE DIODE DIODE DIODE DIODE		
D61 ,62 D61 ,62 D63 ,64 D63 ,64 D65		*	HZS22S(B) RD22JS(B) HZS5.1S(B2) RDS.1JS(B2) 1SS131	ZENER DIODE ZENER DIODE ZENER DIODE ZENER DIODE DIODE		
D65 D66 ,67 IC1 ,2 IC3 Q1 ,2			1SS178 D5FB20*1 TA2030 UPC1237HA 2SD171B*5	DIODE DIODE IC (LQ/HI SWITCHING) IC (POWER AMP) TRANSISTOR		
Q3 ,4 Q5 ,6 Q7 ,8 Q9 ,10 Q11 ,12		*	2SB1163*5 2SC3854*5 2SA1490*5 2SC2631(R,S) 2SA1123(R,S)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q13 ,14 Q15 ,16 Q17 ,18 Q19 ,20 Q21 -24			2SC3419(Y) 2SA992(F,E) 2SC1845(F,E) 2SA733(A)(Q,P) 2SC945(A)(Q,P)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		

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Q25 ,26 Q27 ,28 Q29 ,30 Q31 ,32 Q33 ,34			2SA733(A)(Q,P) 2SC3944(R,S) 2SA1535(R,S) 2SC3940A(R,S) 2SA1534A(R,S)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q101,102 Q101,102 Q103 Q104 Q105,106			2SK105(H) 2SK301(Q) 2SD882(Q,P) 2SB772(Q,P) 2SA733(A)(Q,P)	FET FET TRANSISTOR TRANSISTOR TRANSISTOR		
Q105,106 Q107,108 Q107,108 Q109,110 Q111			2SA999(E,F) 2SC2320(E,F) 2SC945(A)(Q,P) 2SC2167 2SA992(F,E)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q112,113 Q112,113			2SC2320(E,F) 2SC945(A)(Q,P)	TRANSISTOR TRANSISTOR		
tone unit (X11-2390-00)						
D1 -5 D6 -8 D9 -11	2B 2A,2B 2B		B30-1012-05 B30-1010-05 B30-1012-05	LED(SLP-981C-50) CD,PHONE,ETC LED(SLP-281F-50U)1-3 LED(SLP-981C-50) CD DIRECT IND		
C1 ,2 C3 ,4 C5 ,6 C7 ,8 C9 ,10			CF92FV1H224J CQ09FS1H101JZS CF92FV1H273J CE04KW1H010M CC45FSL1H331J	MF 0.22UF J POLYSTY 100PF J MF 0.027UF J ELECTRO 1.0UF 50WV CERAMIC 330PF J		
C11 ,12 C13 ,14 C15 -18 C19 -22 C23 -26			CQ09FS1H101JZS CC45FSL1H470J CF92FV1H334J CE04KW1V100M CF92FV1H183J	POLYSTY 100PF J CERAMIC 47PF J MF 0.33UF J ELECTRO 10UF 35WV MF 0.018UF J		
C27 ,28 C29 ,30 C51 ,52			CE04KW1H010M CK45FB1H561K CE04KW1A470M	ELECTRO 1.0UF 50WV CERAMIC 560PF K ELECTRO 47UF 10WV		
L1 ,2			L40-1021-14	SMALL FIXED INDUCTOR(1.0MH,K)		
R3 ,4 R51 R52 ,53 VR1 VR2		*	RN14BK2C3160F RS14KB3D472JTE RS14KB3D272JTE R06-5152-05 R06-5161-05	RN 316.0 F 1/6W FL-PROOF RS 4.7K J 2W FL-PROOF RS 2.7K J 2W POTENTIOMETER(100K)VOL CONT POTENTIOMETER(200K)BALANCE		
VR3 ,4	2B	*	R06-3053-05	POTENTIOMETER(10KB)BASS,TREBLE		
S1 S2 S3 ,4 S5 S6 ,7	2B 2A,2B 2B 2B 2B	*	S42-5050-05 S42-3106-05 S40-2351-05 S40-4062-05 S40-2351-05	MULTIPLE PUSH SWITCH(CD,TUN) MULTIPLE PUSH SWITCH(1-3) PUSH SWITCH(MODE,SUBSONIC) PUSH SWITCH(CD DIRECT) PUSH SWITCH(MITE,LINE STRAIGHT)		
S8	2B	*	S40-2361-05	PUSH SWITCH(LOUDNESS)		
IC1			M5218P-A	IC(OP AMP X2)		
SUB-CIRCUIT UNIT (X13-5632-71)						
C1 -18			C91-0747-05	CERAMIC 150PF K		

E: Scandinavia & Europe K: USA P: Canada
U: PX(Far East, Hawaii) T: England M: Other Areas
UE: AAFES(Europe) X: Australia

⚠ indicates safety critical components.

KA-880D KA-880D

PARTS LIST

* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

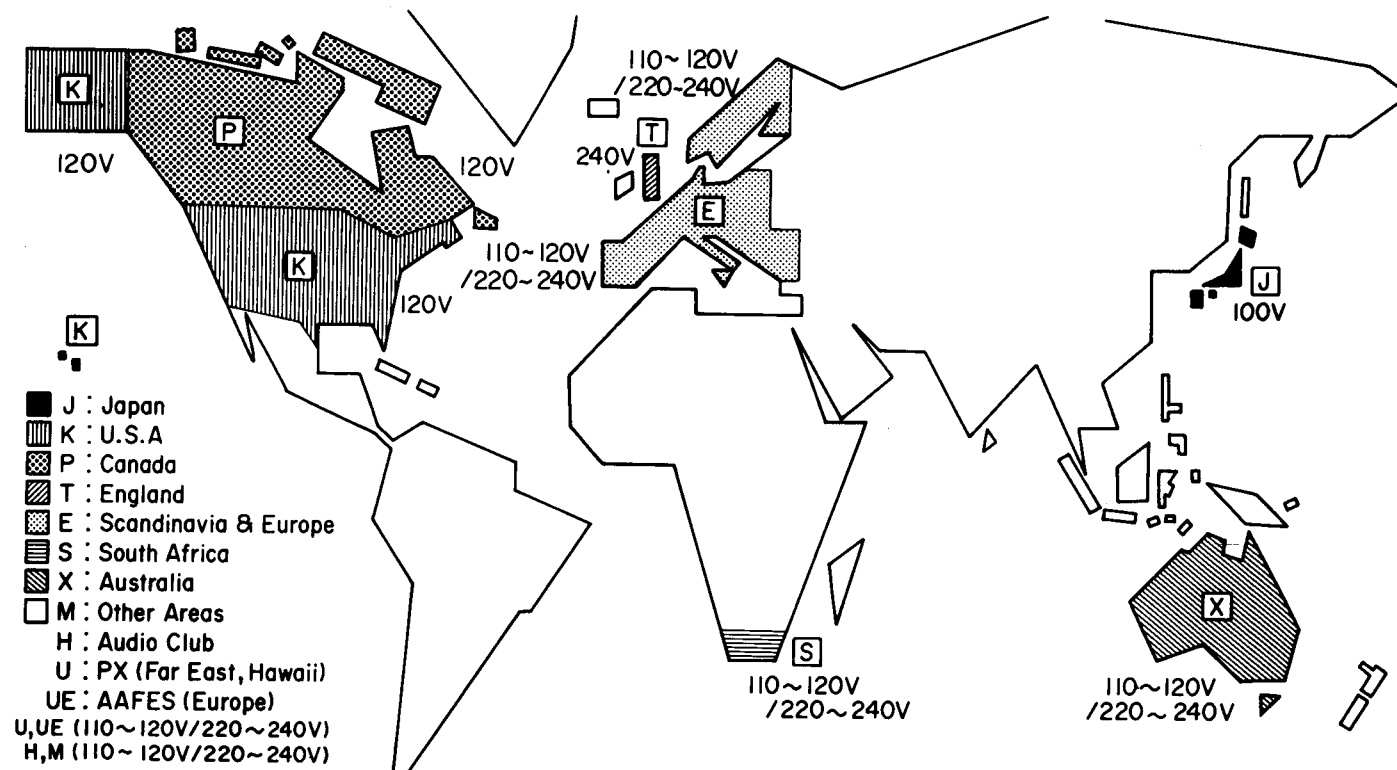
Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名/規格	Desti- nation 仕向	Re- marks 備考
E1 -3	1C	*	E13-0630-05	PHONE JACK (DAT/TAPE,LINE)		
S1	1C		S9D-0078-05	SLIDE SWITCH (DUAL REC OUT)		
PREAMPLIFIER UNIT (X85-1010-01)						
C1 ,2			CF92FV1H392J	MF 3900PF J		
C3 ,4			CF92FV1H113J	MF 0.011UF J		
C5 ,6			CF92FV1H393J	MF 0.039UF J		
C7 ,8			CE04HW1E100MEL	NP-ELEC 10UF 25WV		
R7 ,8		*	RN14BK2C6811F5	RN 6.81K F 1/6W		
R9 ,10		*	RN14BK2C8252F5	RN 82.5K F 1/6W		
IC1			NJM4560D-N	IC(OP AMP X2)		
Q1 -4			2SC2320(E,F)	TRANSISTOR		
Q1 -4			2SC945(A)(Q,P)	TRANSISTOR		
Q5 -8			2SK170(BL)	FET		
Q5 -8			2SK170(V)	FET		
POWER AMPLIFIER UNIT (X85-1020-05)						
C5 ,6			CC45FSL1H470J	CERAMIC 47PF J		
C7 ,8			CC45FSL1H221J	CERAMIC 220PF J		
C9 ,10			CC45FSL1H150J	CERAMIC 15PF J		
C11 -14			CK45FF1H473Z	CERAMIC 0.047UF Z		
C15 ,16			CK45FB1H152K	CERAMIC 1500PF K		
R13 ,14		*	RD14AB2E181JTS	FL-PROOF RD 180 J 1/4W		
R19 ,20			RS14DB3AB22JTE	FL-PROOF RS 8.2K J 1W		
R35 -38			RD14AB2E221JTS	FL-PROOF RD 220 J 1/4W		
D1 ,2			1SS133	DIODE		
D1 ,2			1SS176	DIODE		
Q1 ,2			UPA68HA(K,L)	DUAL FET		
Q3 -6			2SC2320(E,F)	TRANSISTOR		
Q3 -6			2SC945(A)(Q,P)	TRANSISTOR		
Q7 -10			2SA733(A)(Q,P)	TRANSISTOR		
Q7 -10			2SA999(E,F)	TRANSISTOR		
Q11 -14			2SC2632(Q,R,S)	TRANSISTOR		
Q15 ,16			2SA1124(Q,R,S)	TRANSISTOR		

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⚠ indicates safety critical components.

WORLD MAP & AREA CORD



Note:

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on the U.S. (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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