

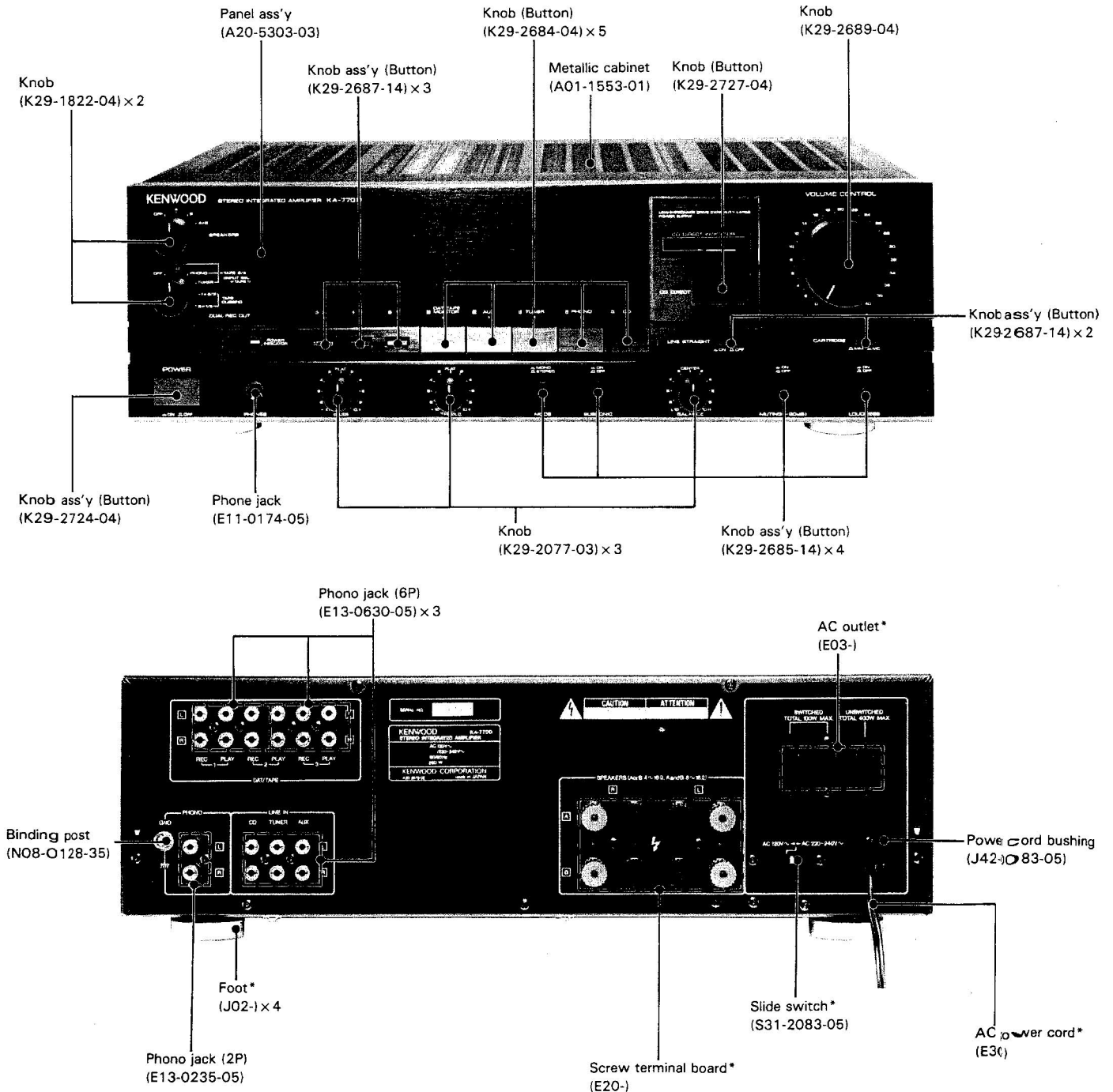
STEREO INTEGRATED AMPLIFIER

# KA-770D

## SERVICE MANUAL

# KENWOOD

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B51-3275-00(T)2227



\* Refer to parts list on page 26.

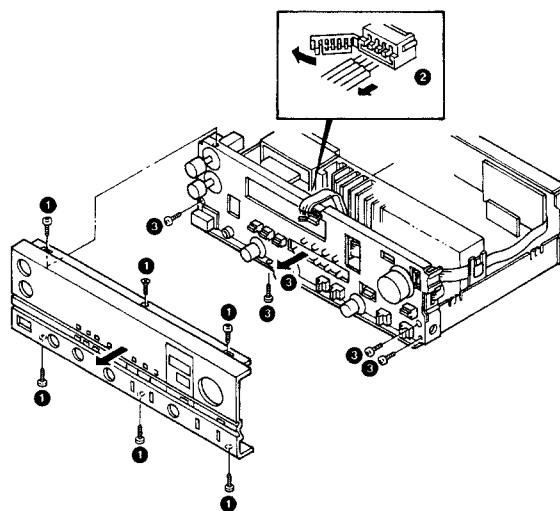
## CONTENTS

DISASSEMBLY FOR REPAIR .....	2	PC BOARD .....	9
BLOCK & LEVEL DIAGRAM .....	4	CIRCUIT DIAGRAM .....	17
CIRCUIT DESCRIPTION .....	5	EXPLODED VIEW .....	25
ADJUSTMENT/REGLAGES/ABGLEICH .....	7	PARTS LIST .....	26
VOLTAGE TABLES .....	8	SPECIFICATIONS .....	Back cover

## DISASSEMBLY FOR REPAIR

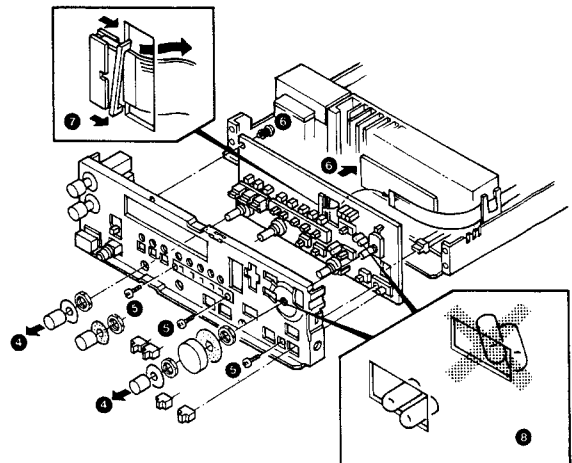
(Remove the metallic cabinet before performing the following operations.)

1. Remove the 6 screws (upper side : 3, lower side : 3) fixing the front panel to the sub panel (①).
2. Remove the cord from the connector CN3 on the Tone Unit (X11-2390-00) as shown in the diagram (②).
3. Remove the 4 screws fixing the sub panel to the chassis, and pull the sub panel slightly outward in the direction of the arrow (③).



## DISASSEMBLY FOR REPAIR

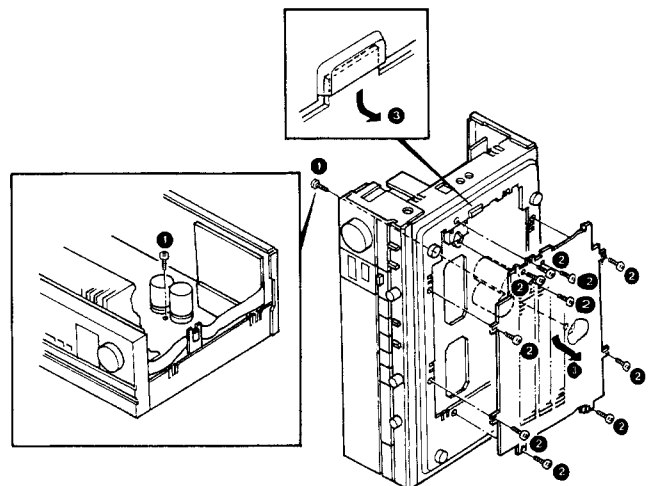
4. Pull out the 8 knobs of the BASS, TREBLE, MODE, SUB-SONIC, BALANCE, MUTING, LOUDNESS and VOLUME CONTROL from the shafts, and remove the shield and hex nuts from the BASS, TREBLE, BALANCE and VOLUME CONTROL (4).
5. Remove the 3 screws fixing the sub panel to the Tone Unit (X11-) (5).
6. Remove the push rivet fixing the Tone Unit (X11-) to the sub panel, and remove the Tone Unit (X11-) in the direction of the arrow (6).
7. Remove the flexible cord from the connector CN1 on the Tone Unit (X11-) as shown in the diagram (7).
8. When installing the Tone Unit (X11-) in the sub panel, take care not to bend the aluminum capacitors (8).



### Removing the bottom plate

(Remove the metallic cabinet before performing the following operations.)

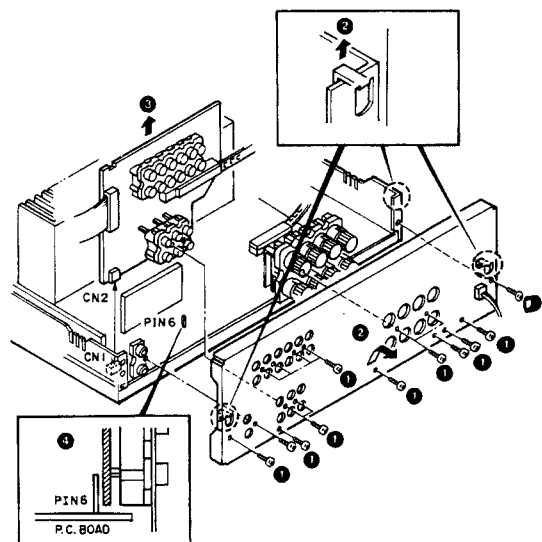
1. Remove the screw fixing the Audio Unit (X09-2520-10) (A/3) to the bottom plate (1).
2. Remove the 10 screws fixing the bottom plate to the chassis (2).
3. Paying attention to the claw of the bottom plate, take out the bottom plate in the direction of the arrow (3).



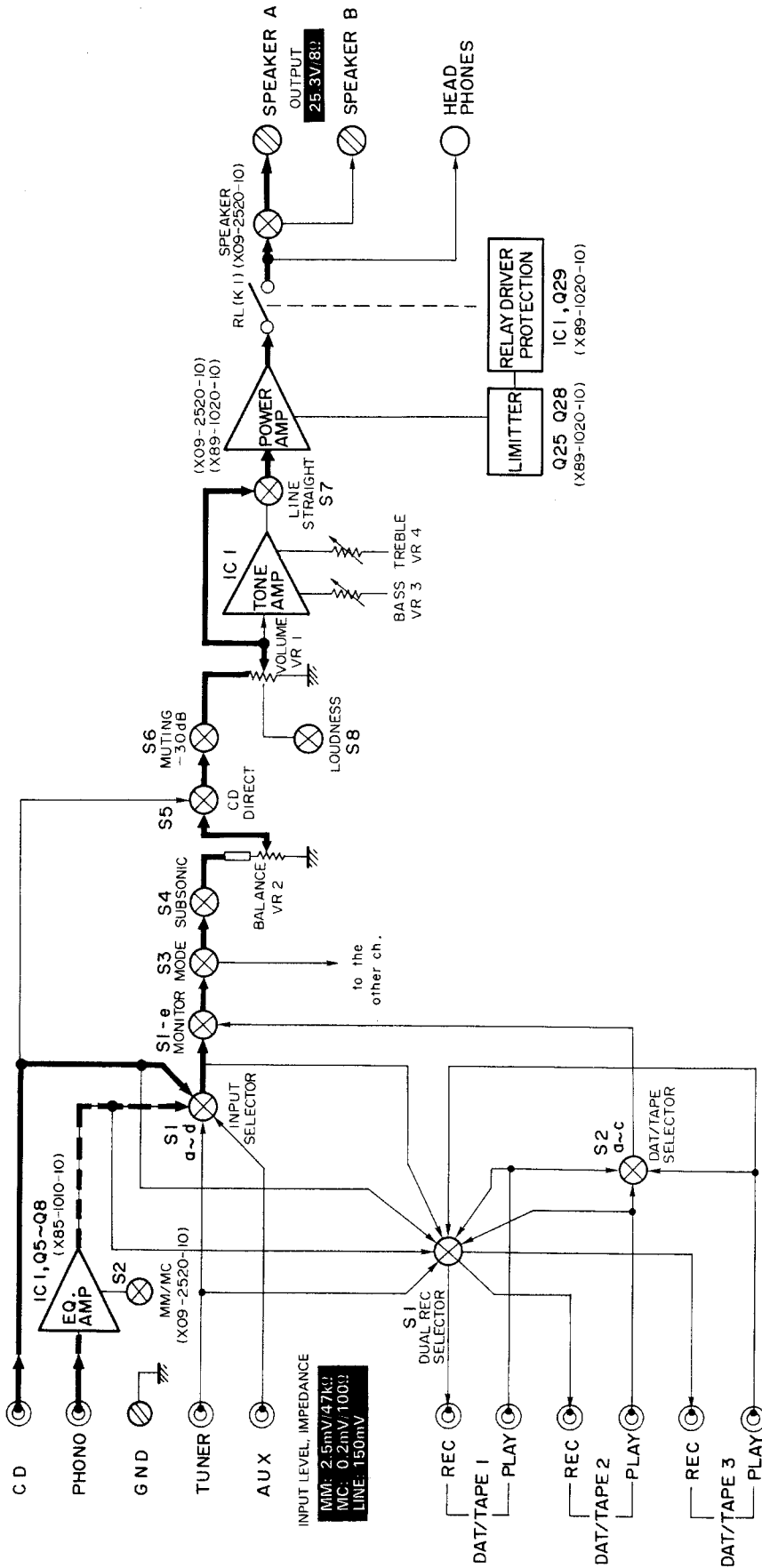
### Removing the rear panel and Sub-Circuit Unit

(Remove the metallic cabinet before performing the following operations.)

1. Remove the 16 screws retaining the rear panel (1).
2. Paying attention to the claws of the rear panel, take out the rear panel in the direction of the arrow (2).
3. Disconnect the connector CN2 from the Sub-Circuit Unit (X13-5632-71) and connector CN1 from the Audio Unit (X09-) (A/3), then remove the Sub-Circuit Unit (X13-) (3).
4. When installing, pay attention to the positions of the Sub-Circuit Unit (X13-) and Test Pin 6 (4).



## BLOCK & LEVEL DIAGRAM





## CIRCUIT DESCRIPTION

### Function of components

#### Audio unit (X09-2520-10)

Component	Use/Function	Operation/Condition/Interchangeability
Q1,2	For temperature compensation	Bias circuit. Compensates for the temperature of the final transistor.
Q3~6	Final transistor	
Q7,8	For constant current to the EQ power supply section	
Q9,10	For the shock noise countermeasure of the EQ power supply	
Q11,12	For the EQ power supply	
Q13,14	For constant current to the EQ power supply	
D1	For protection of relay's counterelectromotive force	
D2,3	A class 1st-stage constant voltage regulated power supply	
D4,5	For the power supply to the tone control circuit; constant voltage	
D6	For protection	
D7	For the LED power supply	
D8~11	For rectification to the power supply	
D12,13	For protection against static electricity	
D14	For the EQ power supply	
D15,16	For constant voltage to the EQ power supply	
D17	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 $\pm 6.2$ V power supply, to which the Zener effect is applied by X09.

#### Pre-amplifier unit (X85-1010-10)

Component	Use/Function	Operation/Condition/Interchangeability
Q5~8	EQ circuit 1st-stage differential amplifier	
IC1	EQ circuit op amplifier IC	

#### Main amplifier unit (X89-1020-10)

Component	Use/Function	Operation/Condition/Interchangeability
Q1~4	Class A 1st-stage differential amplifier circuit	
Q5~8	Class A 1st-stage cascode circuit	
Q9~12	Class A 2nd-stage differential amplifier circuit	
Q13~16	Class A 3rd-stage differential amplifier circuit	
Q17,18	Class A cascode circuit	
Q19,20	Class A current Miller circuit	
Q21~24	Predriver	
Q25~28	Current limiter	In case of overload drive, limits the current at final Tr.
Q29	Protection driver	When current limiter operates, transmits the signal to protection IC (IC1).
IC1	Protection IC	
D1,2	Cascode base current assurance diodes	
D3,4	Current Miller V <sub>BE</sub> compensation diodes	
D5~8	Reverse-current prevention diodes	

## CIRCUIT DESCRIPTION

### Dual REC OUT switch [X13-5632-71 (A/2)]

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	REC 1	REC 2	REC 3
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	PLAY 1	PLAY 1
TAPE 2 → 1, 3	PLAY 2	SOURCE	PLAY 2

Note: Signal selected by the SOURCE INPUT SEL.

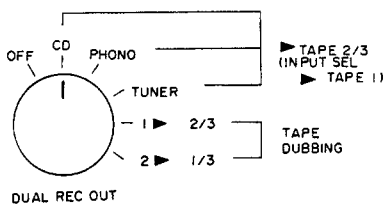
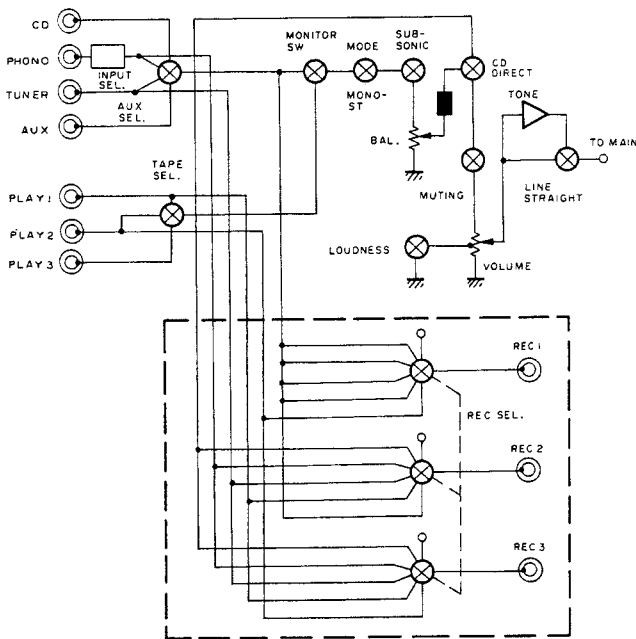


Fig. 1

### Headphone circuit [X09-2520-10 (B/3)]

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, R59 is placed between HOT and GND. (See Fig. 3)
- 2) When the phone jack is not inserted, the R59 circuit located between HOT and GND is open. (See Fig. 4)

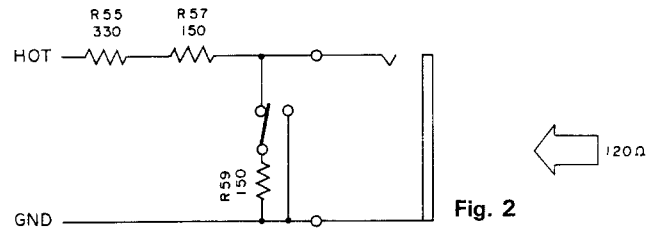


Fig. 2

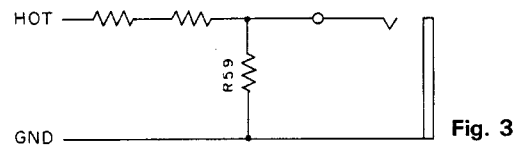


Fig. 3

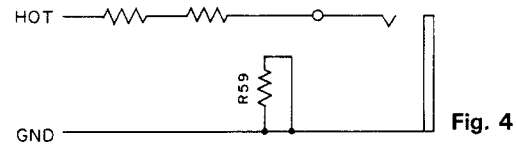


Fig. 4

## ADJUSTMENT/REGLAGES/ABGLEICH

### ADJUSTMENT

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) (X09-)	VOLUME: 0	VR1 (L) VR2 (R) (X89-)	13mV	(a)

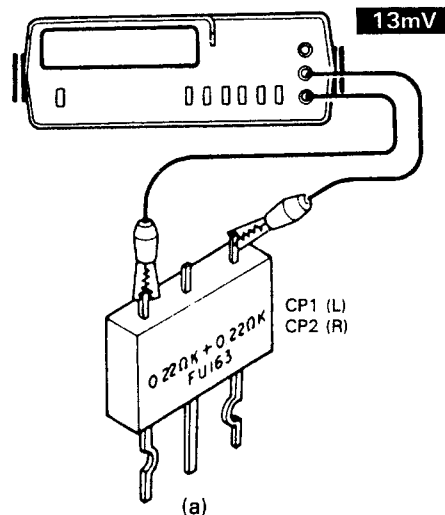
### REGLAGES

N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DE L'AMPLIFICATEUR	POINT L'ALIGNEMENT	ALIGNER POUR	
1	COURANT DE POLARISATION	-	Connecter un voltmètre de CC sur CP1 (G) CP2 (D) (X09-)	VOLUME: 0	VR1 (G) VR2 (D) (X89-)	13mV	(a)

### ABGLEICH

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	VERSTÄRKER EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
1	LEERLAUFSTROM	-	Einen Gleichspannungsmesser über CP1 (L) CP2 (R) anschließen. (X09-)	VOLUME: 0	VR1 (L) VR2 (R) (X89-)	13mV	(a)

DC voltmeter  
Voltmètre de CC  
Gleichspannungsmesser



## VOLTAGE TABLES

### X11-2390-00

#### IC1

4	-6.2V
B	6.2V

### X89-1020-10 X89-1022-71

#### Q1.3

E	-0.7V
C	3.3V
B	0V

#### Q2.4

E	-0.7V
C	3.4V
B	0V

#### Q5.7

E	3.3V
C	14.8V
B	4V

#### Q6.8

E	3.4V
C	14.8V
B	4V

#### Q9.10

E	-
C	48.3V
B	14.8V

#### Q11.12

E	-
C	48.2V
B	14.8V

#### Q13

E	48.5V
C	2.1V
B	48.3V

#### Q15

E	48.5V
C	1V
B	48.2V

#### Q16

E	48.6V
C	1V
B	48.2V

#### Q14

E	48.6V
C	2.1V
B	48.3V

#### Q17

E	-
C	-48.2V
B	-

#### Q18

E	0.6V
C	-48.1V
B	-

#### Q19

E	-48.6V
C	-
B	-48.2V

#### Q20

E	-48.5V
C	-1.3V
B	-48.1V

#### Q21.22

E	0.5V
C	50V
B	1V

#### Q23.24

E	-0.7V
C	-50V
B	-1.3V

### X85-1010-10

#### IC1

1	0V
2	3.8V
3	3.8V
4	-20.1V
8	19.7V

#### Q5

G	0.5V
D	3.8V
S	-

#### Q6

G	0V
D	3.8V
S	-

### X09-2520-10

#### Q3.4

E	-
C	50V
B	0.5V

#### Q5.6

E	-
C	-50V
B	-0.7V

#### Q7

E	-
C	-7.5V
B	-15.1V

#### Q8

E	-
C	-7.6V
B	-15.1V

#### Q9

E	19.7V
C	-
B	-

#### Q10

E	-
C	-20.5V
B	3.8V

#### Q11

E	19.7V
C	47.5V
B	20.2V

#### Q12

E	-20.1V
C	-47.5V
B	-20.5V

#### Q13

G	20.2V
S	-
D	20.2V

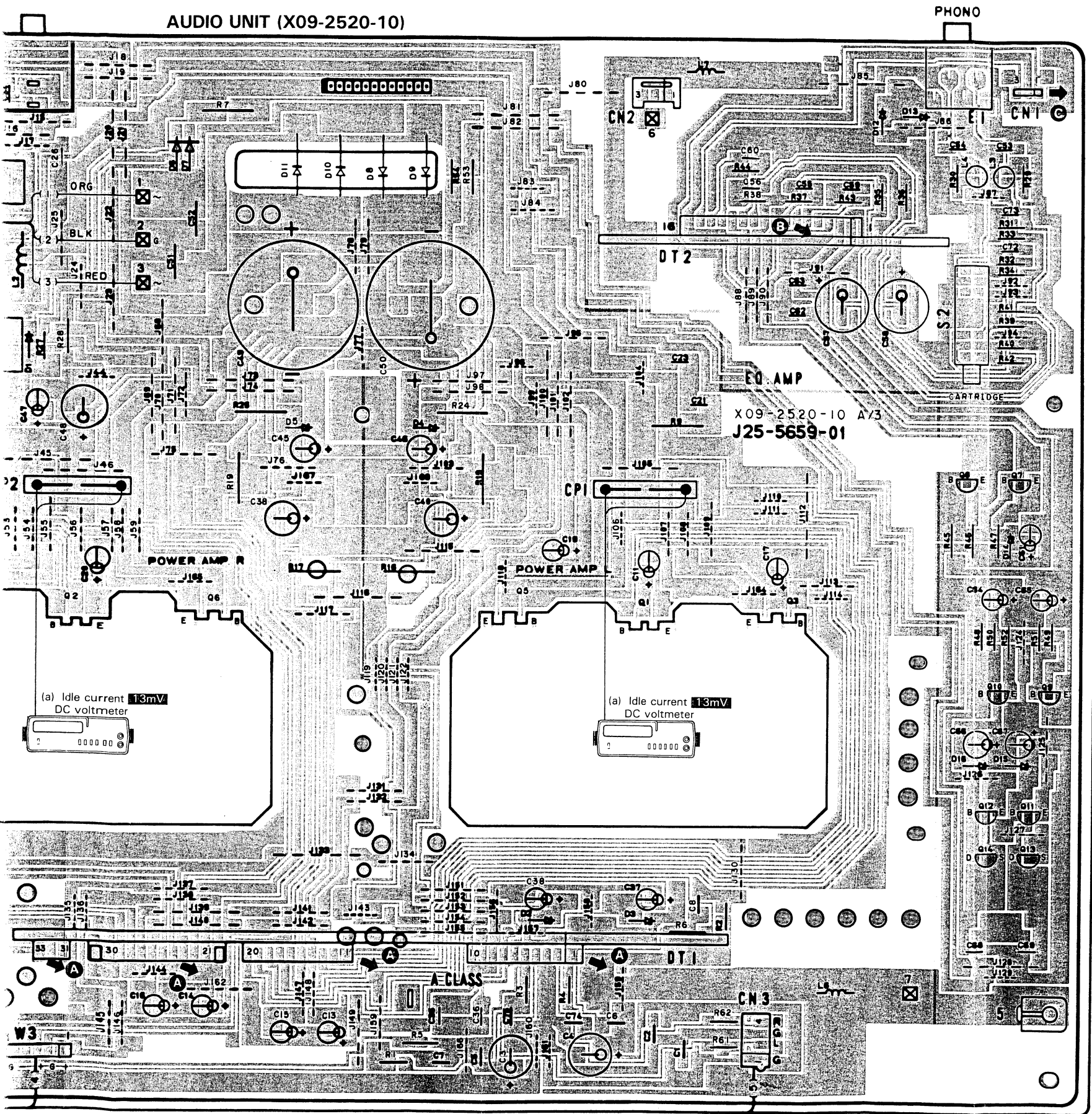
#### Q14

G	-47.5V
S	-
D	-47.5V





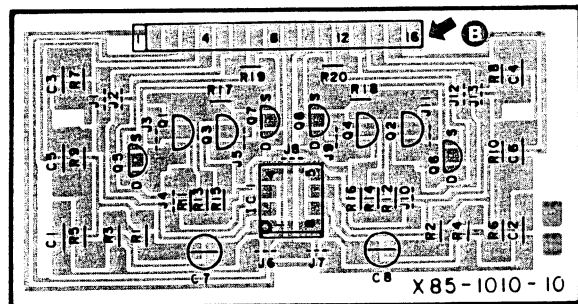
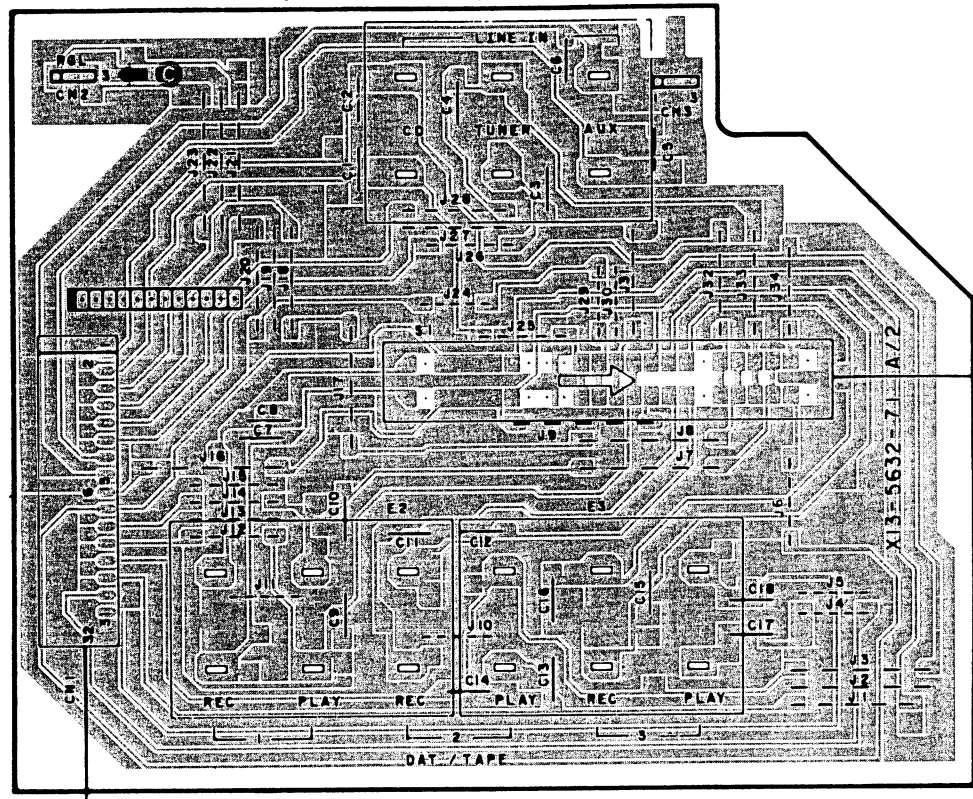
16Ω)





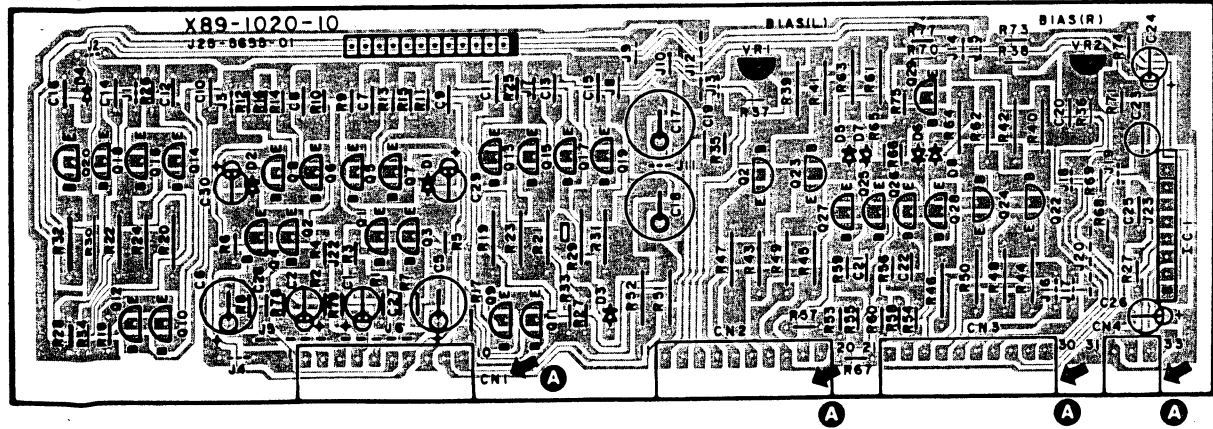
PC BOARD (Foil side view)

SUB-CIRCUIT UNIT (X13-5632-71)



PRE AMPLIFIER UNIT (X85-1010-10)

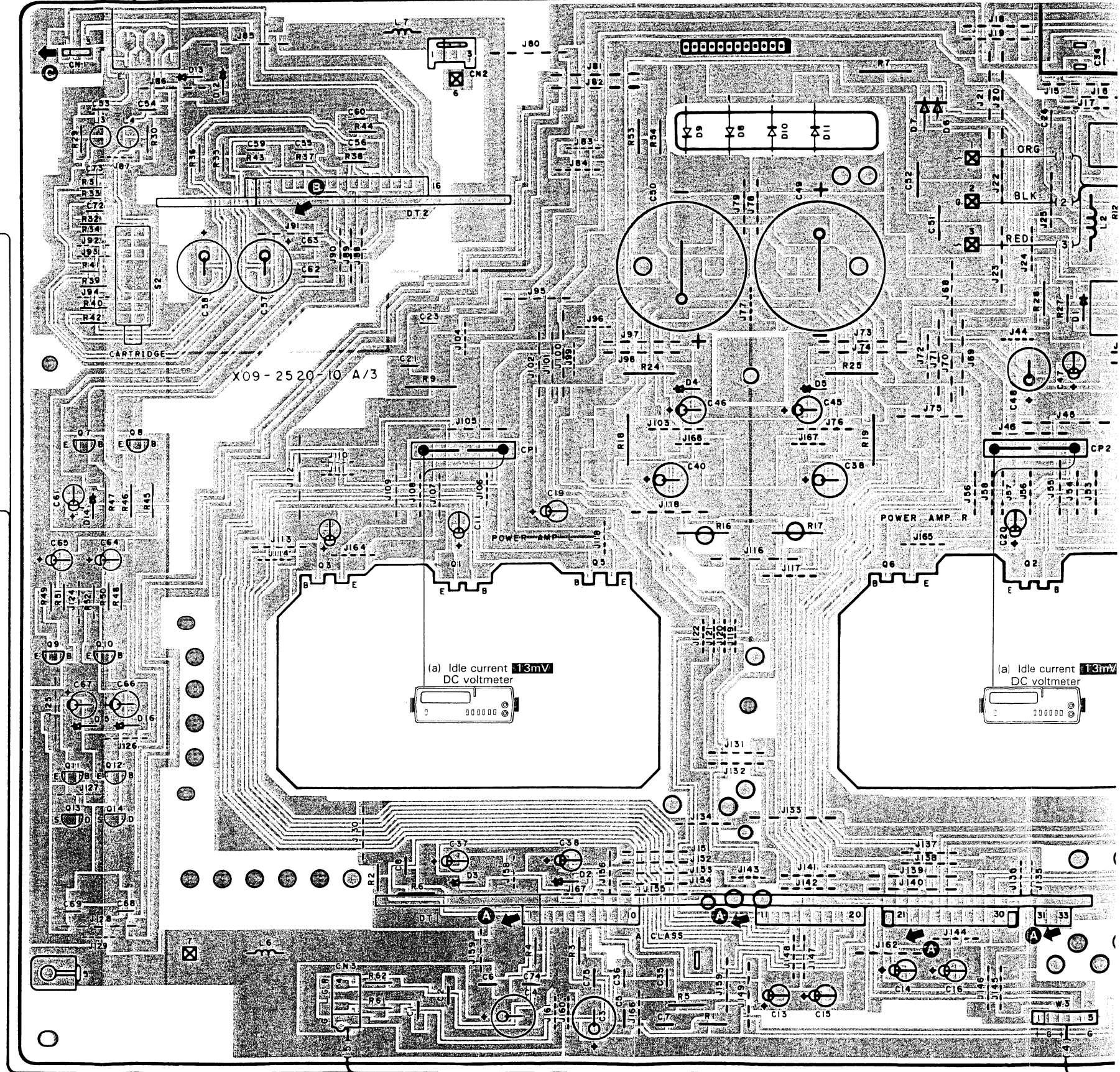
MAIN AMPLIFIER UNIT (X89-1020-10)



PHONO

AUDIO UNIT (X09-2520-10)

SPEAK



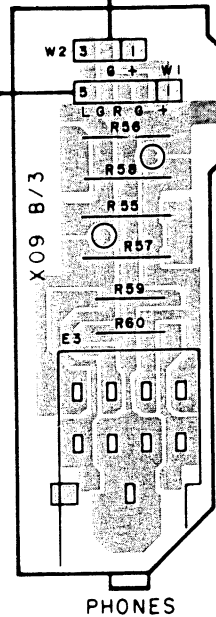
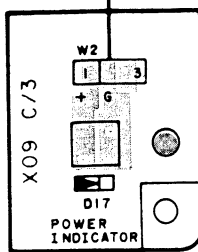
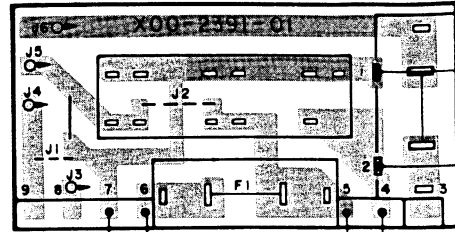


SPEAKERS (A, B: 4~16Ω, A+B: 8~16Ω)

POWER SUPPLY UNIT (X00-2391-01)

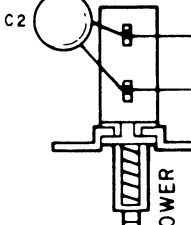
UNSWITCHED SWITCHED  
400W MAX. TOTAL 100W MAX.

AC 120V 60HZ



DUAL REC OUT

SPEAKERS

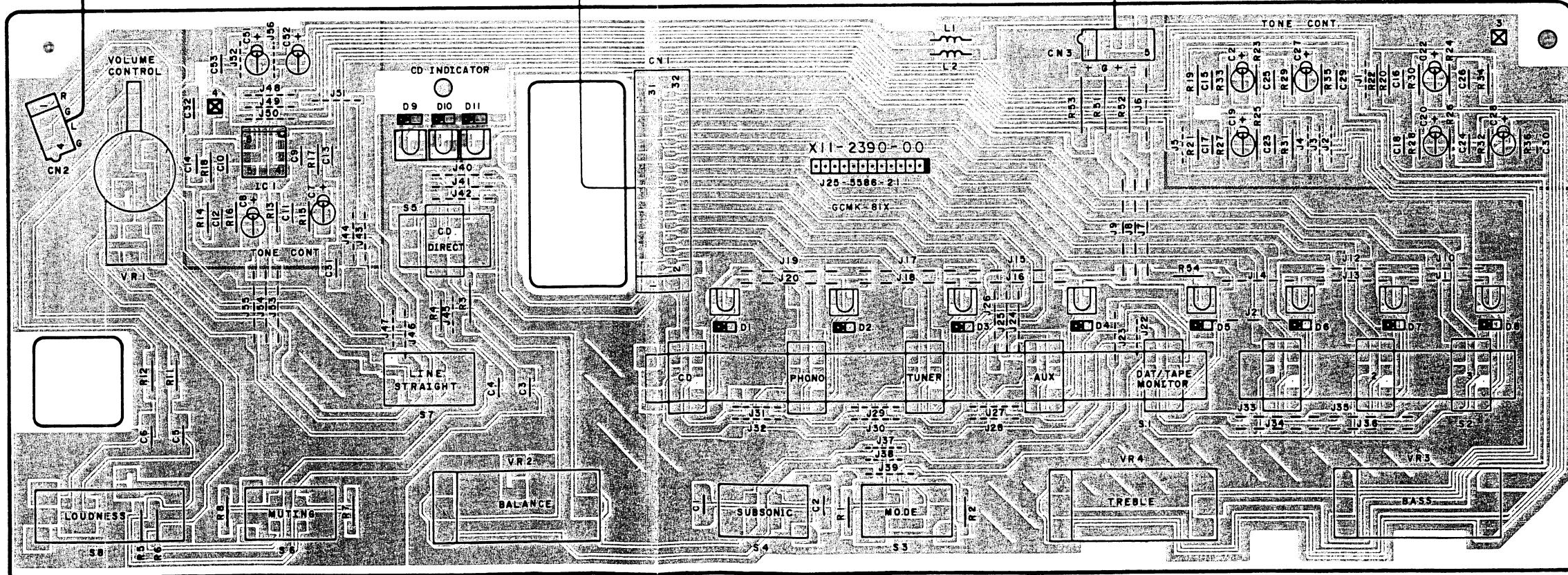


TONE UNIT (X11-2390-00)

X11-2390-00

J25-5588-21

GCMK-81X

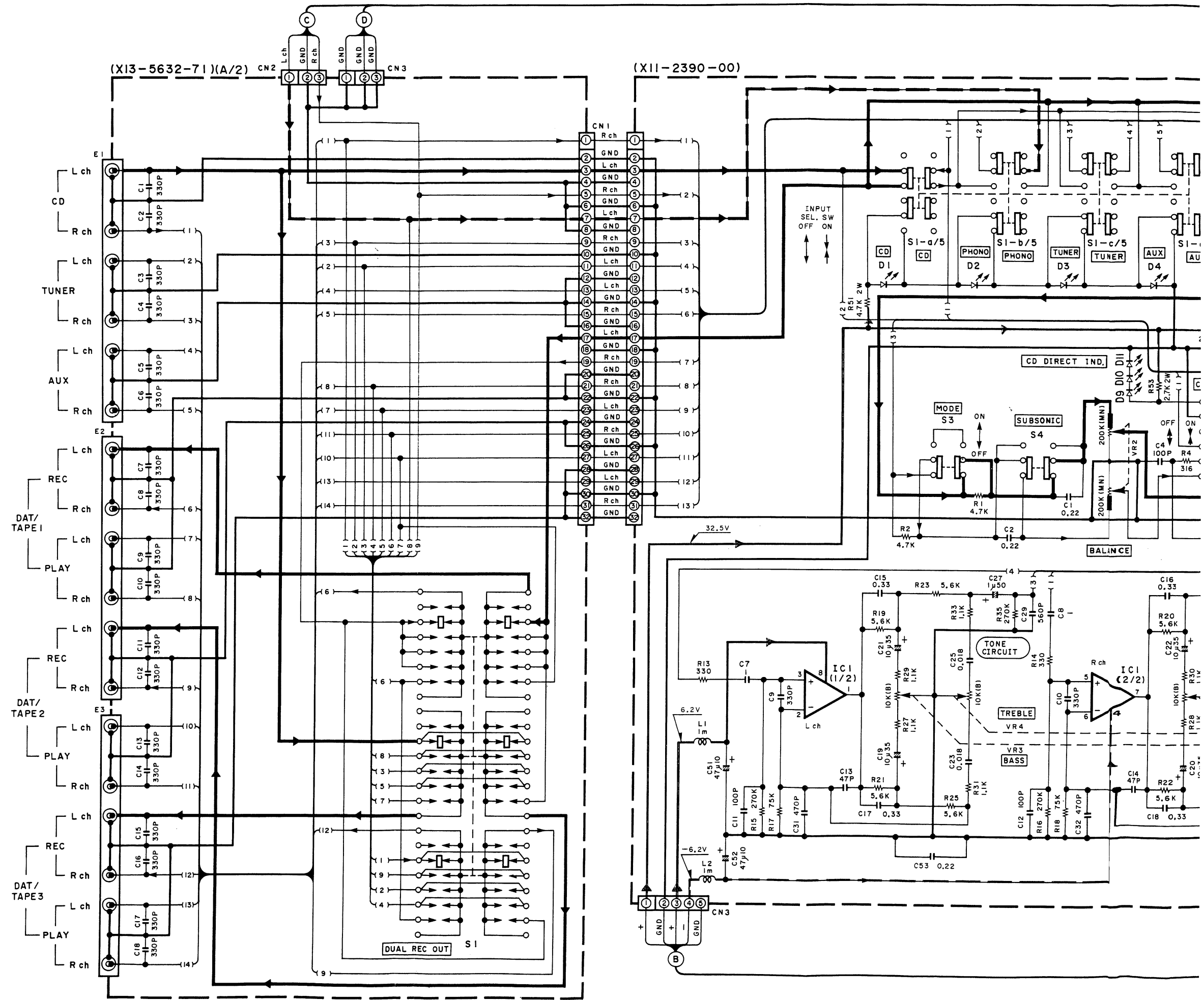


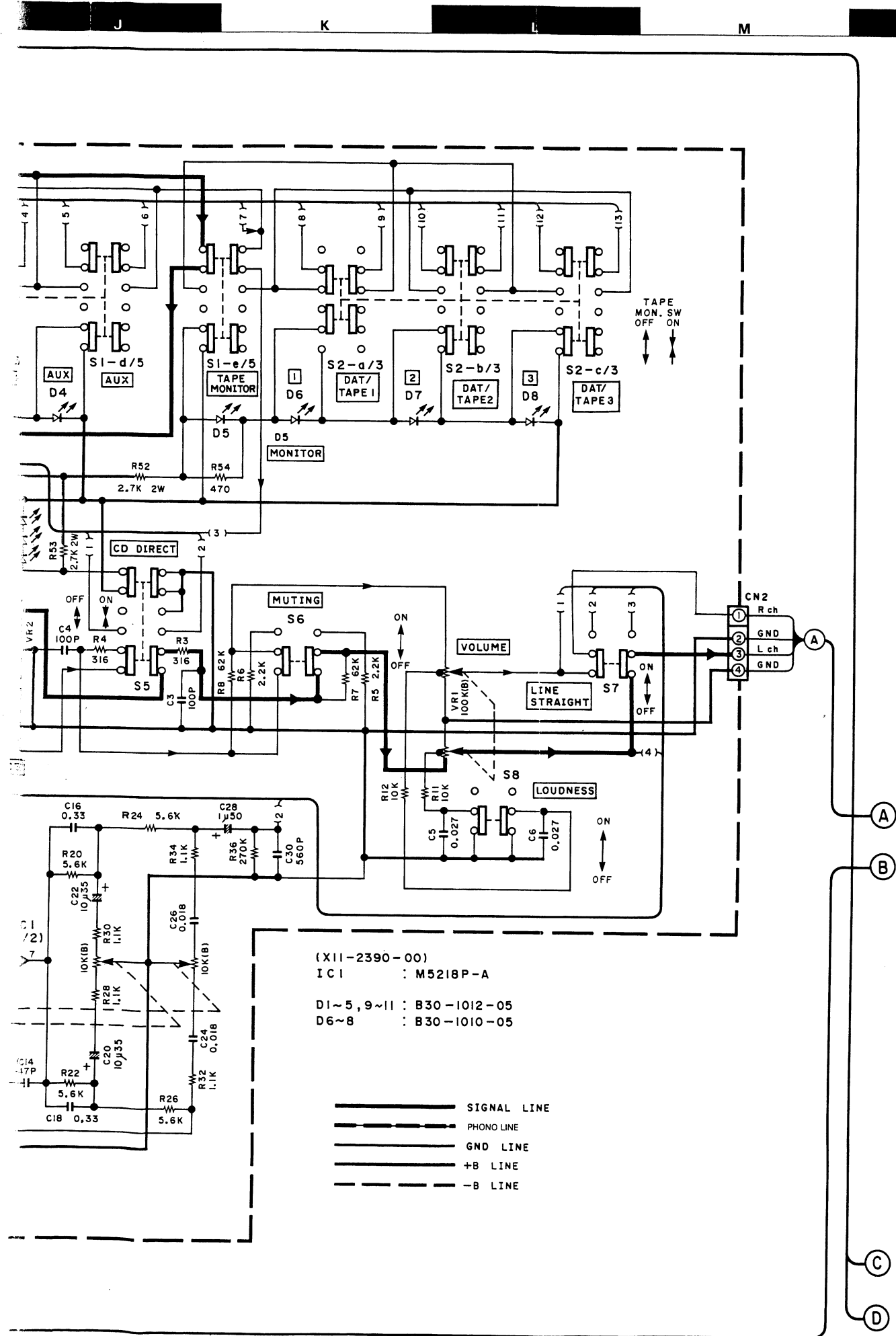
KA-770D (K)

(a) Idle current 1.3mV  
DC voltmeter

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

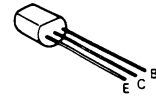




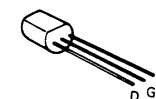


KA-770D(K) (1/2)

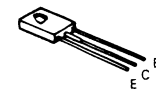
2SA1123  
 2SA733(A)  
 2SA992  
 2SA999  
 2SC1845  
 2SC2320  
 2SC2631  
 2SC945(A)



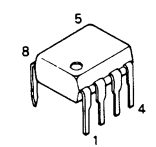
2SK105  
 2SK170  
 2SK301



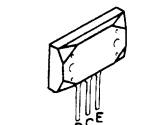
2SB772  
 2SD882



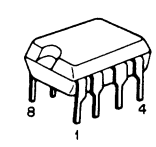
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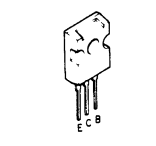
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 2SC2921\*5



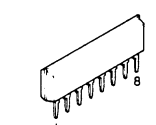
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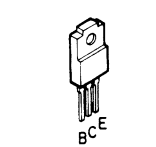
2SC3419



UPC1237HA



2SA1535  
 2SC3944

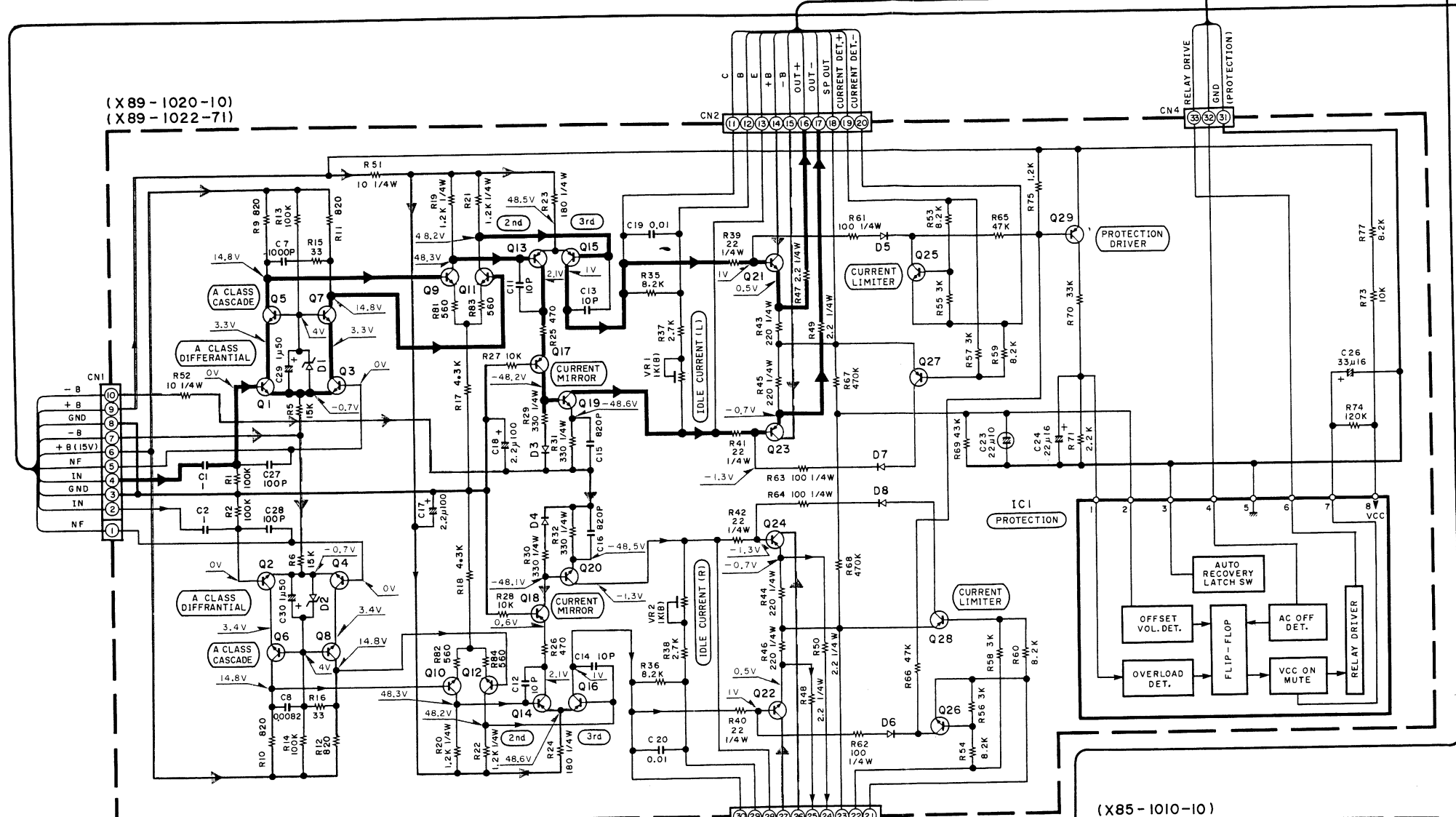


DC voltages are as measured with a high impedance voltmeter with no signal input. Values may vary slightly due to variations between individual instruments or/and units.

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 schwanden 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.



(X89-1020-10)  
(X89-1022-71)

- (X89-1020-10) (X89-1022-71)  
 IC1 :  $\mu$ PC1237HA  
 Q1~4 : 2SC1845(E)  
 Q9~12,19,20 : 2SC1845(F,E)  
 Q7,8 : 2SC945(A)(Q,P)  
 or 2SC2320(E,F)  
 Q13~18,29 : 2SA992(F,E)  
 Q21,22 : 2SC3944(Q,R)  
 Q23,24 : 2SA1535(Q,R)  
 Q25,26 : 2SC2631(R,S)  
 Q27,28 : 2SA1123(R,S)  
 D1,2 : RD5.1JS(B2)  
 or HZ55.1S(B2)  
 D3,4 : ISS133 or ISS176  
 D5~8 : ISS131 or ISS178

- (X09-2520-10)  
 Q1,2 : 2SC3419  
 Q3,4 : 2SC2921 \*5  
 Q5,6 : 2SA1215 \*5  
 Q7,8 : 2SC945(A)(Q,P)  
 or 2SC2320(E,F)  
 Q9,10 : 2SA733(A)(Q,P)  
 or 2SA999(E,F)  
 Q11 : 2SD882(Q,P)  
 Q12 : 2SB772(Q,P)  
 Q13,14 : 2SK105(H)  
 or 2SK301(Q)  
 D1 : ISS131 or ISS178  
 D2,3 : RD15JS(B)  
 or HZ515S(B)  
 D4,5 : RD1IES(B2)  
 or HZ51IN(B2)  
 D6,7 : DSM1A1  
 D8~11 : S3V20  
 D12,13 : ISS133 or ISS176  
 D14 : RD5.1JS(B2)  
 or HZ55.1S(B2)  
 D15,16 : RD20JS(B)  
 or HZ520S(B)  
 D17 : B30-1012-05

- (X85-1010-10)  
 IC1 : NJM4560D-N  
 Q5~8 : 2SK170(BL,V)

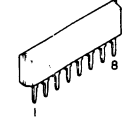
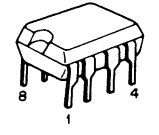
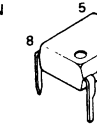
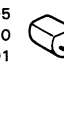
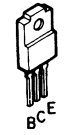
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2SK105  
2SK170  
2SK301

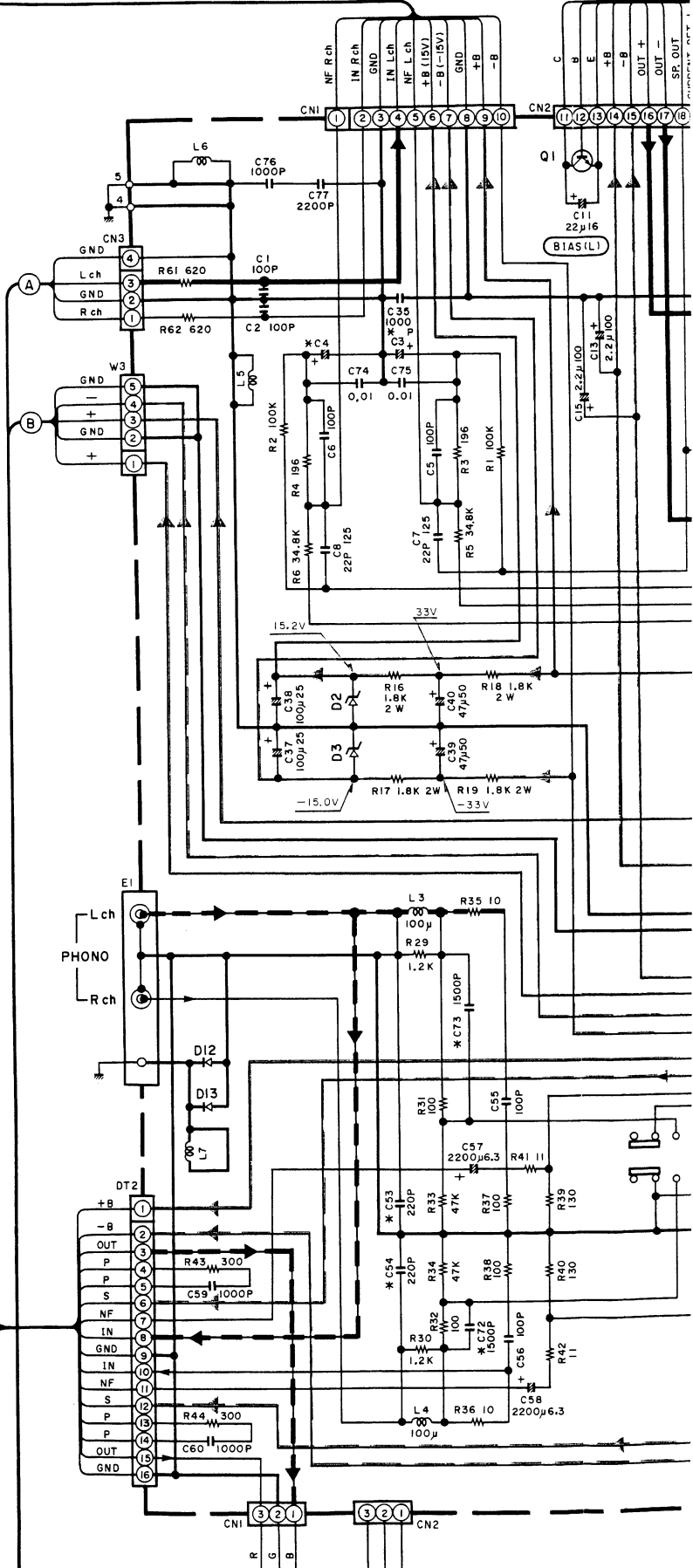
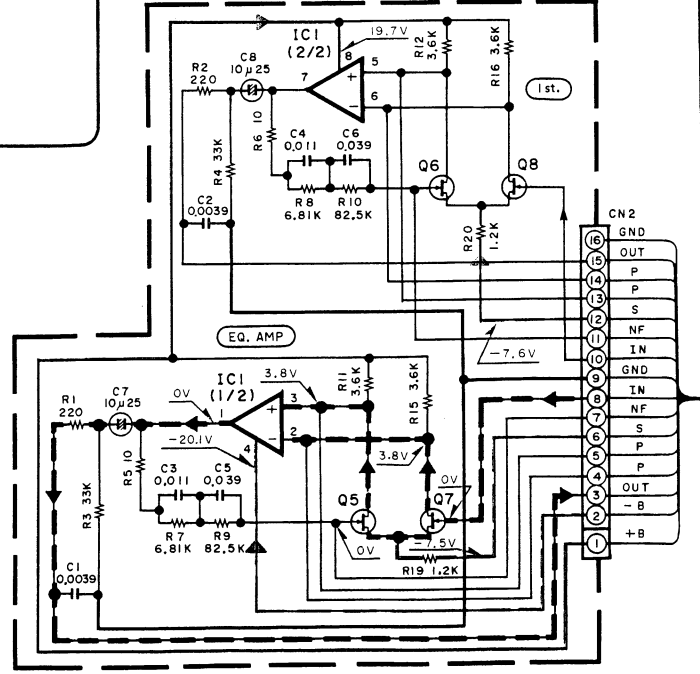
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M5218P-A

UPC1237HA

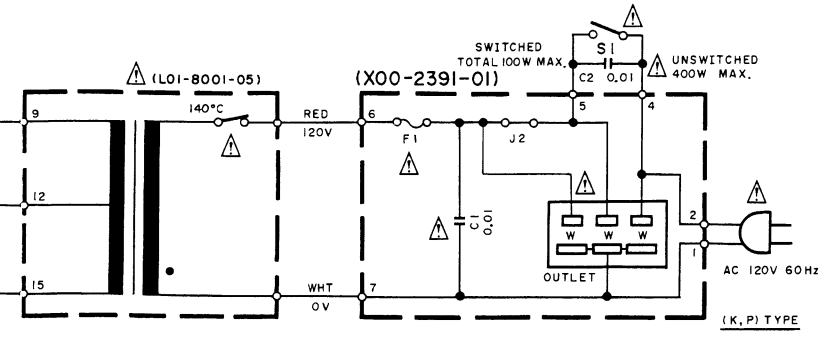
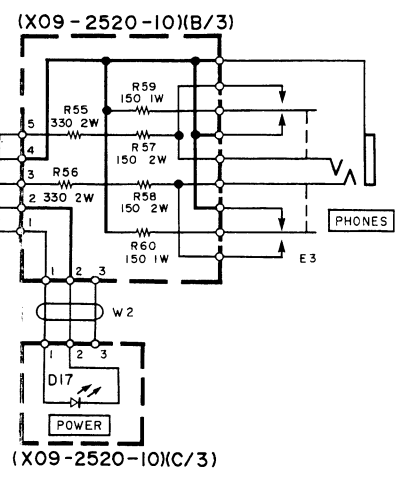
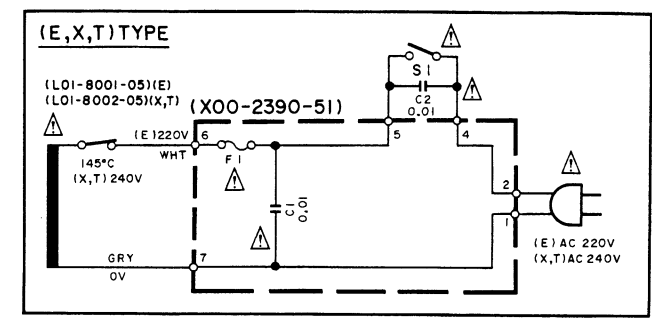
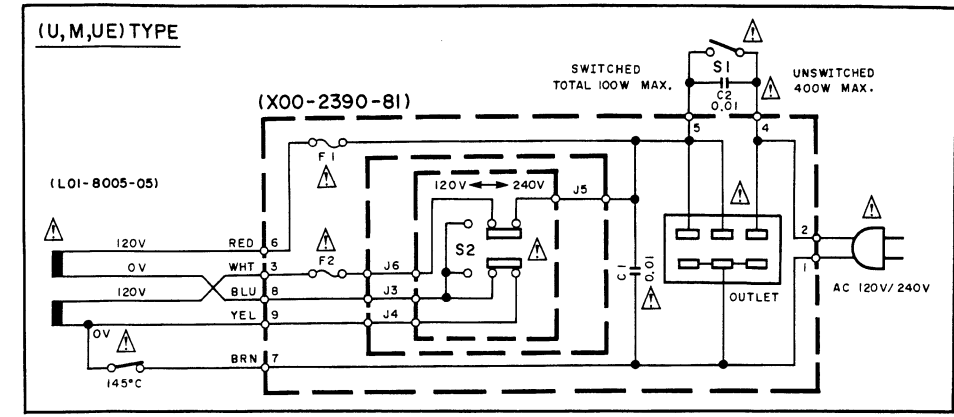
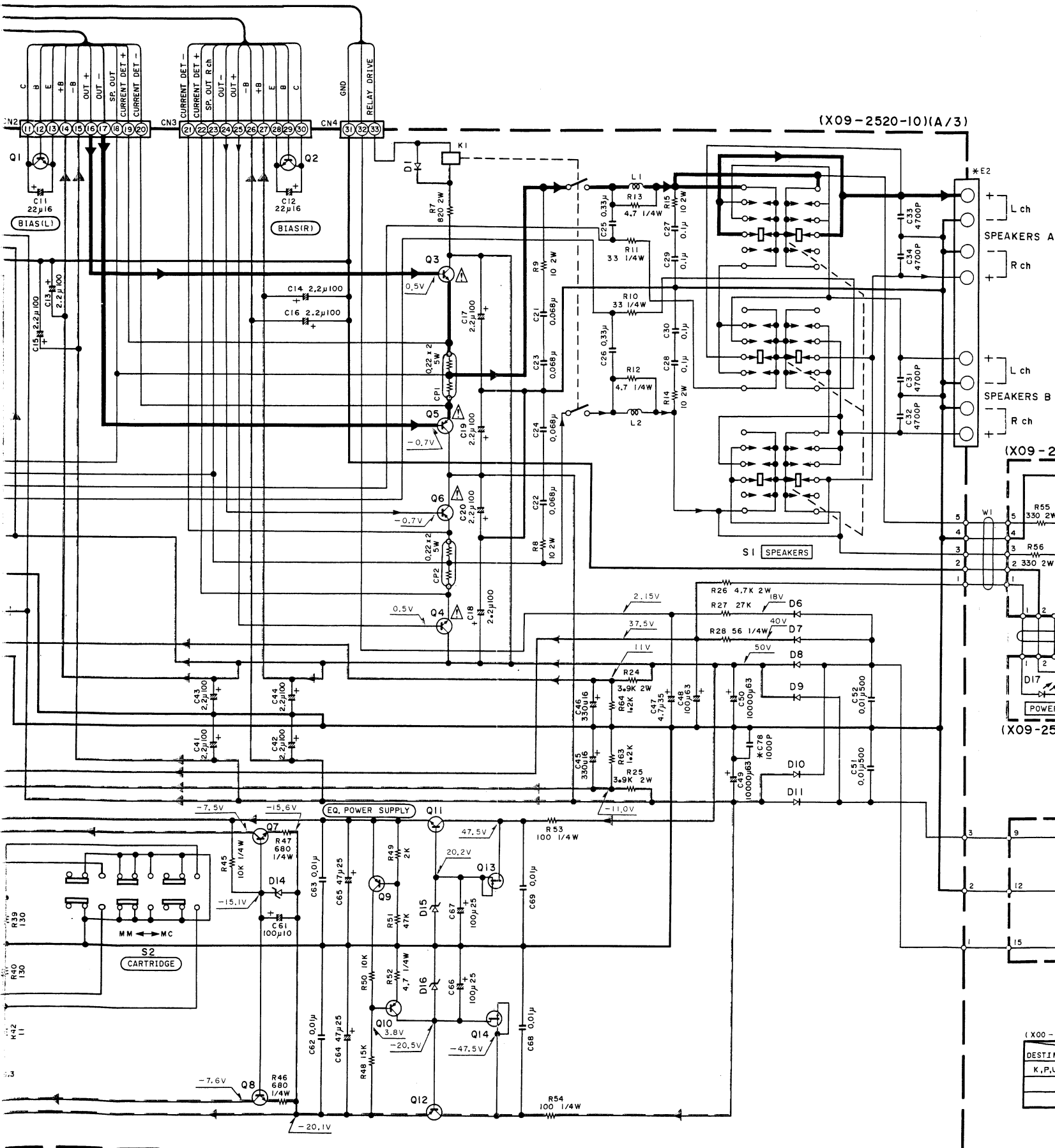


(X85-1010-10)



A  
B  
C  
D

1  
2  
3  
4  
5  
6  
7



(X00-239\*-\*\*-\*)

DESTINATION	No	DT1	E2	C3,4	C53,54	C72,73	C78
K,P,U,M,UE,X	0-10	X89-1020-10	E20-0825-05	1000µ6,3	NO	NO	NO
T	0-51	X89-1022-71	E20-0829-05	330µ25	NO	NO	NO
E	2-71	X89-1022-71	E20-0828-05	330µ25	YES	YES	YES

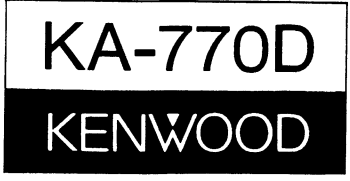
- SIGNAL LINE
- PHONO LINE
- GND LINE
- +B LINE
- -B LINE

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 schwanden 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.





# KA-770D

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<b>KA-770D</b>						
1	1A		A01-1553-01	METALLIC CABINET		
2	2A	*	A20-5303-03	PANEL ASSY		
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0094-03	WARRANTY CARD	UUE	
-			B46-0095-03	WARRANTY CARD	UUE	
-			B46-0096-13	WARRANTY CARD	X	
-			B46-0121-03	WARRANTY CARD	P	
-			B46-0122-13	WARRANTY CARD	E	
-			B46-0143-03	WARRANTY CARD	T	
-		*	B50-6947-00	INSTRUCTION MANUAL (ENGLISH)		
-		*	B50-6948-00	INSTRUCTION MANUAL (FRENCH)	PMXE	
-		*	B50-6949-00	INSTRUCTION MANUAL (SPANISH)	M	
-		*	B50-6951-00	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	
-			B58-0862-00	CAUTION CARD	TE	
-			B59-0092-00	SERVICE DIRECTORY	UUE	
△ C2			C91-0023-05	CERAMIC 0.01UF AC250V	UMUE	
△ C2			C91-0647-05	CERAMIC 0.01UF P	KPXTE	
10	1B		D21-1104-03	EXTENSION SHAFT		
△ 14	1C		E30-0459-05	AC POWER CORD	E	
△ 14	1C		E30-0812-05	AC POWER CORD	UMUE	
△ 14	1C		E30-0978-05	AC POWER CORD	KP	
△ 14	1C		E30-1341-05	AC POWER CORD	X	
△ 14	1C		E30-1416-05	AC POWER CORD	T	
△ F1	1C		F05-2521-05	FUSE (250V 2.5A)	UMUE	
△ F1	1B		F05-2525-05	FUSE (SEMKN) (250V T2.5A)	XTE	
△ F1	1C		F06-5022-05	FUSE (UL) (250V 5A)	KP	
1B	2A		G01-1751-04	COMPRESSION SPRING(CD DIRECT)		
-		*	H01-7628-04	ITEM CARTON CASE		
-			H10-3416-02	POLYSTYRENE FOAMED FIXTURE		
-			H10-3417-02	POLYSTYRENE FOAMED FIXTURE		
-			H25-0225-04	PROTECTION BAG (850X450XD.03)		
-			H25-0232-04	PROTECTION BAG (235X350XD.03)		
22	2B,2C		J02-0127-05	FOOT	K	
22	2B,2C		J02-0156-05	FOOT (Ø40X12.5)	PUMUE	
22	2B,2C		J02-0156-05	FOOT (Ø40X12.5)	TE	
24	2C		J11-0096-05	WIRE CLAMPER		
△ 25	1C		J42-0083-05	POWER CORD BUSHING		
-			J61-0307-05	WIRE BAND		
29	2A		K29-1822-04	KNØB (SPEAKERS,DUAL REC OUT)		
30	2A		K29-2077-03	KNØB (BASS,TREBLE,BALANCE)		
31	2A		K29-2684-04	KNØB (MONI,AUX,TUN,PHONE,CD)		
32	2B		K29-2685-14	KNØB ASSY(BUTTON)MØ,SUBS,MU,LØ		
33	2A,2B		K29-2687-14	KNØB ASSY(BUTTON)1-3,LINE ST		
34	2A		K29-2689-04	KNØB (VOLUME CONTROL)		
35	2A		K29-2724-04	KNØB ASSY(BUTTON)POWER		

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36	2A	*	K29-2727-04	KNØB (BUTTON) CD DIRECT		
△ 40	1B	*	L01-8001-15	POWER TRANSFORMER	KP	
△ 40	1B	*	L01-8002-15	POWER TRANSFORMER	XT	
△ 40	1B	*	L01-8005-15	POWER TRANSFORMER	UMUE	
△ 40	1B	*	L01-8007-15	POWER TRANSFORMER	E	
44	1C		N08-0128-35	BINDING POST (GND)		
E	2A		N09-1445-05	SET SCREW (M3X8)		
F	2A		N29-0035-05	PUSH RIVET (3.5X5.5)		
48	1B		S90-0102-05	REMOTE WIRE (SPEAKERS)		
49	1B		S90-0103-05	REMOTE WIRE (DUAL REC OUT)		
△ S1	1B		S40-1073-05	PUSH SWITCH (POWER)		
<b>POWER SUPPLY UNIT (X00-2391-01)</b>						
△ C1			C91-0023-05	CERAMIC 0.01UF AC250V	UMUE	
△ C1			C91-0647-05	CERAMIC 0.01UF P	KPXTE	
△ 53	1C	*	E03-0077-05	AC OUTLET	UMUE	
△ 57	1C	*	E03-0078-05	AC OUTLET	KP	
61	1C		J13-0041-05	FUSE CLIP	KPUMUE	
61	1B		J13-0054-05	FUSE CLIP	XTE	
△ S1	1C		S31-2083-05	SLIDE SWITCH (POWER TYPE)	UMUE	
<b>AUDIO UNIT (X09-2520-10)</b>						
D17	1B		B30-1012-05	LED(SLP-981C-50) POWER IND.		
C1 ,2			C009FS1H101JZS	POLYSTY 100PF J		
C3 ,4			CE04KW0J102M	ELECTRØ 1000UF 6.3WV	KPUMUE	
C3 ,4			CE04KW0J102M	ELECTRØ 1000UF 6.3WV	X	
C3 ,4			CE04KW1E331M	ELECTRØ 330UF 25WV	TE	
C5 ,6			C009FS1H101JZS	POLYSTY 100PF J		
C7 ,8			C91-0170-05	POLYSTY 22PF K		
C11 ,12			CE04KW1C220M	ELECTRØ 22UF 16WV		
C13 -20		*	CE04KW2A2R2M	ELECTRØ 2.2UF 100WV		
C21 -24			CF92FV1H683J	MF 0.068UF J		
C25 ,26			CF92FV1H334J	MF 0.33UF J		
C27 -30			CF92FV1H104J	MF 0.10UF J		
C31 -34			CK45FF1H472Z	CERAMIC 4700PF Z		
C35			CF92FV1H102J	MF 1000PF J		
C37 ,38			CE04KW1E101M	ELECTRØ 100UF 25WV		
C39 ,40			CE04KW1H470M	ELECTRØ 47UF 50WV		
C41 -44		*	CE04KW2A2R2M	ELECTRØ 2.2UF 100WV		
C45 ,46			CE04KW1E101M	ELECTRØ 100UF 25WV		
C47			CE04KW1V4R7M	ELECTRØ 4.7UF 35WV		
C48			CE04KW1J101M	ELECTRØ 100UF 63WV		
C49 ,50		*	C90-1578-05	ELECTRØ 10000UF 63WV		
C51 ,52			CK45FE2H103P	CERAMIC 0.010UF P		
C53 ,54			CC45FSL1H221J	CERAMIC 220PF J	E	
C55 ,56			CC45FSL1H101J	CERAMIC 100PF J		
C57 ,58			CE04KW0J222M	ELECTRØ 2200UF 6.3WV		
C59 ,60			CK45FB1H102K	CERAMIC 1000PF K		
C61			CE04KW1A101M	ELECTRØ 100UF 10WV		
C62 ,63			CF92FV1H103J	MF 0.010UF J		
C64 ,65			CE04KW1E470M	ELECTRØ 47UF 25WV		
C66 ,67			CE04KW1E101M	ELECTRØ 100UF 25WV		
C68 ,69			CF92FV1H103J	MF 0.010UF J		

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C72 ,73 C74 ,75 C76 C77 C78			CK45FB1H152K CF92FV1H103J CF92FV1H102J CF92FV1H222J CK45FB1H102K	CERAMIC 1500PF K MF 0.010UF J MF 1000PF J MF 2200PF J CERAMIC 1000PF K	E    E	
65 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)PHONE SCREW TERMINAL BOARD(SPEAKERS) SCREW TERMINAL BOARD(SPEAKERS) SCREW TERMINAL BOARD(SPEAKERS)	  KPU ME XE T	
E3	1B		E11-0174-05	PHONE JACK		
68	1B	*	F29-0042-05	INSULATING WASHER		
L1 ,2 L3 ,4 L5 -7			L39-0080-15 L40-1011-47 L92-0017-05	PHASE-COMPENSATION COIL SMALL FIXED INDUCTOR(100UH,K) FERRITE CORE		
G H	1B 1B,1C		N09-0333-05 N09-1236-05	TAPPING SCREW (Ø3X12) TAPPING SCREW (Ø3X16)		
CP1 ,2 R3 ,4 R5 ,6 R7 R8 ,9			R90-0187-05 RN14BK2C1960F RN14BK2C3482F RS14DB3D821J RS14DB3D100JTE	MULTI-COMP 0.22X2 K 5W RN 196.0 F 1/6W RN 34.8K F 1/6W FL-PROOF RS 820 J 2W FL-PROOF RS 10 J 2W		
R10 ,11 R12 ,13 R14 ,15 R16 -19 R24 ,25			RD14AB2E330JTS RD14AB2E4R7JTS RS14DB3D100JTE RS14DB3D182JTE RS14DB3D332JTE	FL-PROOF RD 33 J 1/4W FL-PROOF RD 4.7 J 1/4W FL-PROOF RS 10 J 2W FL-PROOF RS 1.8K J 2W FL-PROOF RS 3.3K J 2W		
R26 R28 R45 R46 ,47 R52		*	RS14DB3D472J RD14AB2E560JTS RD14AB2E103JTS RD14AB2E681JTS RD14AB2E4R7JTS	FL-PROOF RS 4.7K J 2W FL-PROOF RD 56 J 1/4W FL-PROOF RD 10K J 1/4W FL-PROOF RD 680 J 1/4W FL-PROOF RD 4.7 J 1/4W		
R53 ,54 R55 ,56 R57 ,58 R59 ,60			RD14AB2E101JTS RS14DB3D331JTE RS14DB3D151JTE RS14DB3A151JTE	FL-PROOF RD 100 J 1/4W FL-PROOF RS 330 J 2W FL-PROOF RS 150 J 2W FL-PROOF RS 150 J 1W		
K1 S1 S2	2C 1C 1C		S51-2078-05 S90-0062-05 S40-6033-05	MAGNETIC RELAY SLIDE SWITCH (SPEAKERS) PUSH SWITCH (CARTRIDGE)		
D1 D1 D2 ,3 D2 ,3 D4 ,5		*	1SS131 1SS178 HZS15S(B) RD15JS(B) HZS11N(B2)	DIODE DIODE ZENER DIODE ZENER DIODE ZENER DIODE		
D4 ,5 D6 ,7 D8 -11 D12 ,13 D12 ,13			RD11ES(B2) DSM1A1 S3V20 1SS133 1SS176	ZENER DIODE DIODE DIODE DIODE DIODE		
D14 D14 D15 ,16			HZS5.1S(B2) RD5.1JS(B2) HZS20S(B)	ZENER DIODE ZENER DIODE ZENER DIODE		

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<b>PRE AMPLIFIER UNIT (X85-1010-10)</b>						
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		*	RN14BK2C6811FTS	RN 6.81K F 1/6W		
R9 ,10		*	RN14BK2C8252FTS	RN 82.5K F 1/6W		
IC1			NJM4560D-N	IC(OP AMP X2)		
Q5 -8			2SK170(BL)	FET		
Q5 -8			2SK170(V)	FET		
<b>MAIN AMPLIFIER UNIT (X89-1020-10)</b>						
C1 ,2			CF92FV1H105J	MF 1.0UF J		
C7 ,8			CF92FV1H822J	MF 8200PF J		
C9 ,10			CC45FSL1H220J	CERAMIC 22PF J		
C11 ,12			CC45FSL1H101J	CERAMIC 100PF J		
C13 ,14			CC45FSL1H220J	CERAMIC 22PF J		
C15 ,16			CK45FB1H821K	CERAMIC 820PF K		
C17 ,18		*	CE04KW2A2R2M	ELECTRO 2.2UF 100WV		
C19 ,20			CK45FF1H103Z	CERAMIC 0.010UF Z		
C23			C90-1333-05	NP-ELEC 22UF 10WV		
C24			CE04KW1C220M	ELECTRO 22UF 16WV		
C26			CE04KW1C330M	ELECTRO 33UF 16WV		
C27 ,28			CC45FSL1H101J	CERAMIC 100PF J		
C29 ,30			CE04KW1H010M	ELECTRO 1.0UF 50WV		
R1 ,2			RN14BK2C1003FTS	RN 100K F 1/6W	TE	
R19 -22			RD14AB2E122JTS	FL-PROOF RD 1.2K J 1/4W		
R23 ,24			RD14AB2E181JTS	FL-PROOF RD 180 J 1/4W		
R29 -32			RD14AB2E331JTS	FL-PROOF RD 330 J 1/4W		
R39 -42			RD14AB2E220JTS	FL-PROOF RD 22 J 1/4W		
R43 -46			RD14AB2E221JTS	FL-PROOF RD 220 J 1/4W		
R47 -50			RD14AB2E2R2JTS	FL-PROOF RD 2.2 J 1/4W		
R51 ,52			RD14AB2E100JTS	FL-PROOF RD 10 J 1/4W		
R61 -63			RD14AB2E101JTS	FL-PROOF RD 100 J 1/4W		
R64			RD14GB2E101JTS	FL-PROOF RD 100 J 1/4W		
VR1 ,2			R12-1070-05	TRIMMING POT. (1K) BIAS ADJ		
D1 ,2			HZ55.1S(B2)	ZENER DIODE		
D1 ,2			RD5.1JS(B2)	ZENER DIODE		
D3 ,4			1SS133	DIODE		
D3 ,4			1SS176	DIODE		
D5 -8			1SS131	DIODE		
D5 -8			1SS178	DIODE		
IC1			UPC1237HA	IC (POWER AMP)		
Q1 -4			2SC1845(F,E)	TRANSISTOR		
Q5 -8			2SC2320(E,F)	TRANSISTOR		
Q5 -8			2SC945(A)(Q,P)	TRANSISTOR		
Q9 -12			2SC1845(F,E)	TRANSISTOR		
Q13 -18			2SA992(F,E)	TRANSISTOR		
Q19 ,20			2SC1845(F,E)	TRANSISTOR		
Q21 ,22			2SC3944(Q,R)	TRANSISTOR		
Q23 ,24			2SA1535(Q,R)	TRANSISTOR		
Q25 ,26			2SC2631(R,S)	TRANSISTOR		
Q27 ,28			2SA1123(R,S)	TRANSISTOR		

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Q29			2SA992(F,E)	TRANSISTOR		

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# KA-770D

## SPECIFICATIONS

### Power Output

80 watts per channel minimum RMS, both channels driven at 8 ohms from 20 Hz to 20,000 Hz with no more than 0.055% total harmonic distortion

Maximum Continuous Power Output (DIN) 1 kHz at 4 ohms..... 120 W  
Maximum Continuous Power Output (IEC/NF) from 63 Hz to 12,500 Hz 0.7%  
Total Harmonic Distortion at  
8 ohms ..... 93 W + 93 W  
Dynamic Power..... 190 W per channel at 4 ohms

### Total Harmonic Distortion

#### AUX input to SPEAKER output

(20 Hz-20,000 Hz) : 0.055% at 80 W into 8 ohms

### Intermodulation Distortion

(60 Hz:7 kHz = 4:1) : 0.055% at 80 W into 8 ohms

Damping Factor : 500 (50 Hz into 8 ohms)

Power Bandwidth : 10 Hz to 45 kHz at 0.09% T.H.D. into 8 ohms

Frequency Response : 5 Hz to 60 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) : 66 dB (0.2 mV)

TUNER/AUX/TAPE : 108 dB (150 mV)

### Signal to Noise Ratio

#### Unweighted: 50 mW (DIN)

PHONO (MM) : 57 dB

TAPE/AUX/TUNER : 58 dB

### Phono Maximum Input Level

(MM) : 200 mV, (RMS) T.H.D. 0.055% at 1 kHz

(MC) : 15 mV, (RMS) T.H.D. 0.055% at 1 kHz

### Output Level/Impedance

TAPE REC : 150 mV/220 ohms

Phono Frequency Response : RIAA standard curve  $\pm 0.3$  dB (20 Hz to 20 kHz)

### Tone Control

BASS (at 100 Hz) :  $\pm 10$  dB

TREBLE (at 10 kHz) :  $\pm 10$  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 Consumption : 4.2 A (U.S.A. and Canada Model)

260 W (Other Countries)

Dimensions : W 440 mm (17-5/16")

H 143 mm (5-5/8")

D 343 mm (13-1/2")

Weight (Net) : 9.2 kg (20.24 lb)

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

Kenwood poursuit une politique de progrès constants en ce qui concerne le développement. Pour cette raison, les spécifications sont sujettes à modifications sans préavis.

Kenwood strebt ständige, Verbesserungen in der Entwicklung an. Daher bleiben Änderungen der technischen Daten jederzeit vorbehalten.

### Note:

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the PX (U) 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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