415

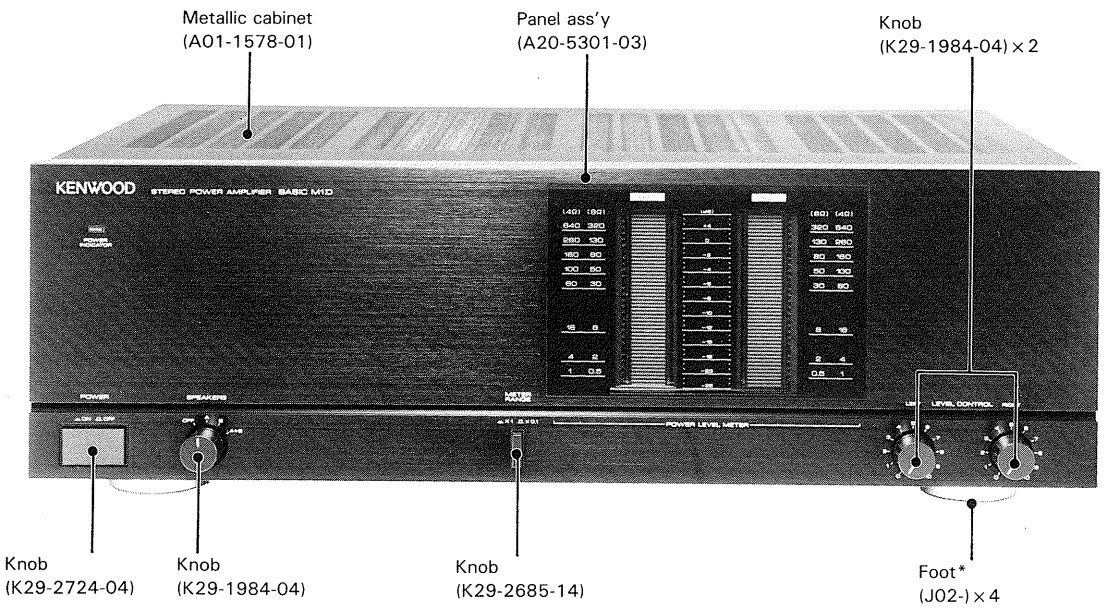
STEREO POWER AMPLIFIER

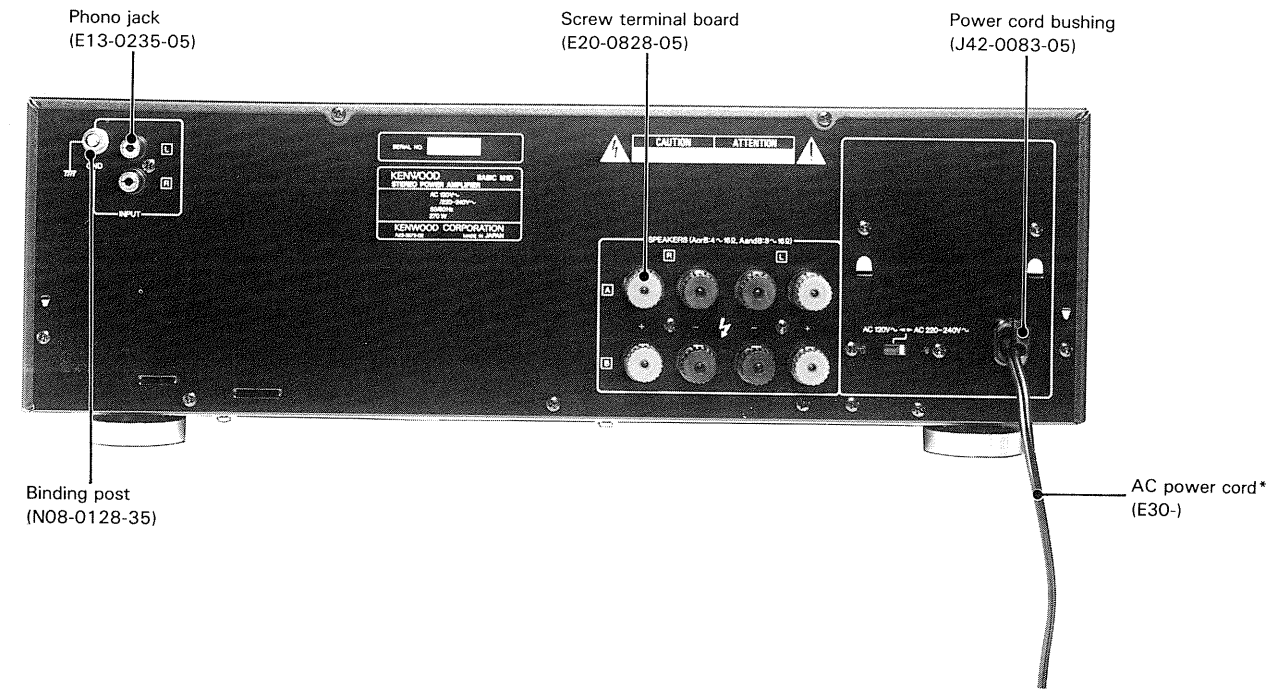
BASIC M1D

SERVICE MANUAL

KENWOOD

B50-3281-00(T)1584



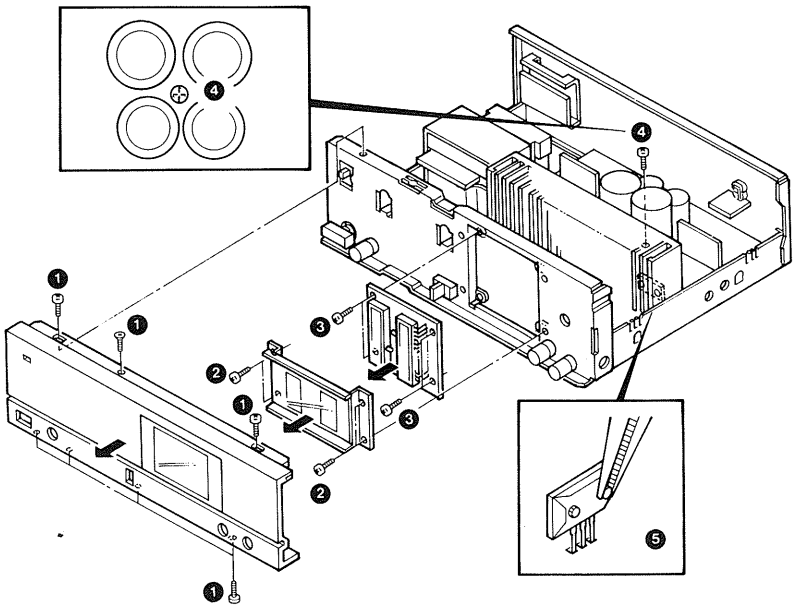


* Refer to parts list on page 22.

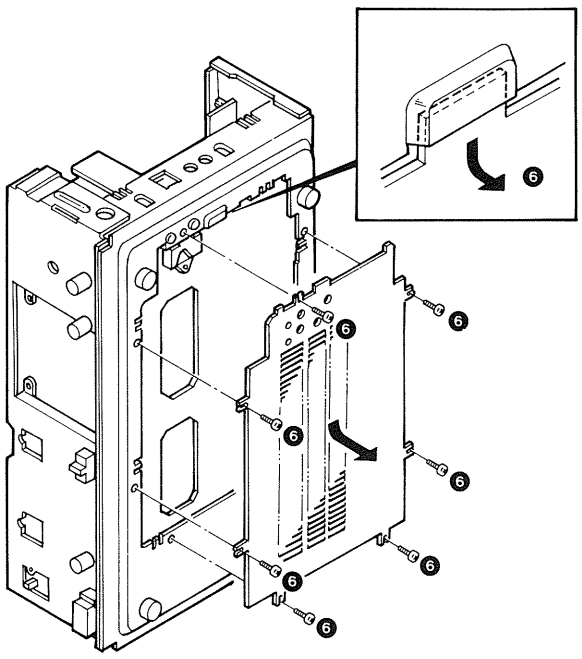
CONTENTS

DISASSEMBLY FOR REPAIR

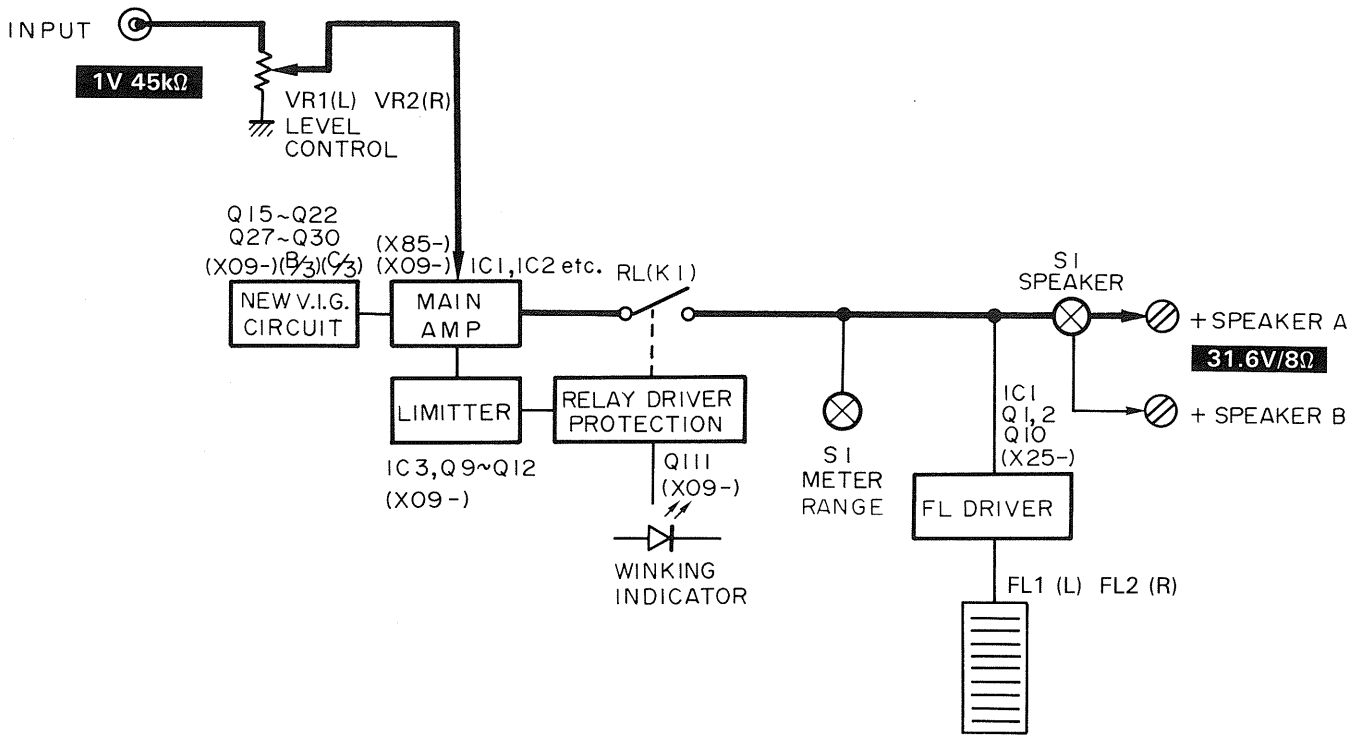
1. Remove the seven screws (❶) located on the upper and edges of the front panel.
2. Remove the four screws (❷) holding the FL display cover.
3. Remove the four screws (❸) holding the printed circuit board (X25- A/B).
4. Remove the screw (❹) located inside of the chemical capacitor.
5. Remove the screws (❺) holding the Power transistor, using pliers.



6. Remove the seven screws (❻) holding the bottom plate in the direction of the arrow, then remove the bottom plate in the direction of the arrow.



BLOCK & LEVEL DIAGRAM



CIRCUIT DESCRIPTION

Power amplifier unit (X09-2540-10)

Components	Use & Function	Operation, Condition & Compatibility
IC1, 2	For selection of the DLD circuit	
IC3	For protection	
Q1, 2, 3, 4	Final transistor at High side	
Q5, 6, 7, 8	Final transistor at Low side	
Q9, 10	For protection	
Q11, 12	Fot protection	
Q13, 14	For temperature compensation	
Q15, 16	For the VIG circuit	
Q17, 18	For the VIG circuit	
Q19, 20	For the VIG circuit	
Q21, 22	For the VIG circuit	
Q23, 24	For the driver	
Q25, 26	For the driver	
Q27, 28	For the VIG circuit	
Q29, 30	For the VIG circuit	
Q31, 32	For the driver	
Q33, 34	For the driver	
Q109, 110	For the A class power supply	
Q111	For protection	
Q112, 113	For the winking indicator	

CIRCUIT DESCRIPTION

Components	Use & Function	Operation, Condition & Compatibility
D1, 2	For temperature compensation	
D3, 4, 5, 6	For the VIG circuit	
D7, 8, 9, 10	For the VIG circuit	
D11, 12, 13, 14	For the power supply at the final low side	
D15, 16, 17, 18	For protection	
D19, 20	For the VIG circuit	
D58	For the power supply of the winking indicator	
D59	For the power supply of the protection circuit	
D60	For relay operation	
D61, 62	For the power supply of the A class constant-voltage supply	
D63, 64	For the power supply of the A class constant-current supply	
D65	For the winking indicator	
D66	For rectification (Low side)	
D67	For rectification (High side)	

Display unit (X25-3080-10)

Components	Use & Function	Operation, Condition & Compatibility
IC1	For the level meter	Wide range, 32 dB log scale indication. For indicating 12 points per channel.
Q1, 2	For the FL luminance adjustment	
Q10	For power supply	
D1, 2	For static electricity protection	
D3	For rectification	W06B
D4	For constant-voltage supply	
D5	For power supply	
D6	For the power indicator	

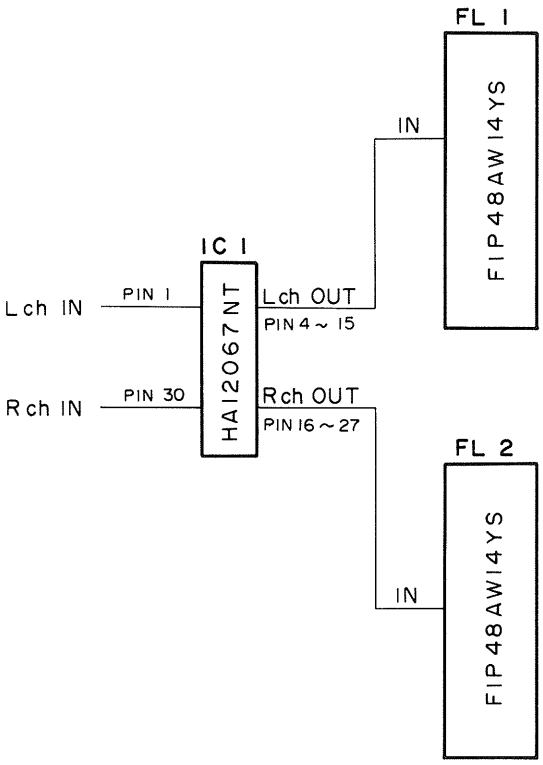
CIRCUIT DESCRIPTION

Operation description (Level Meter Circuit)

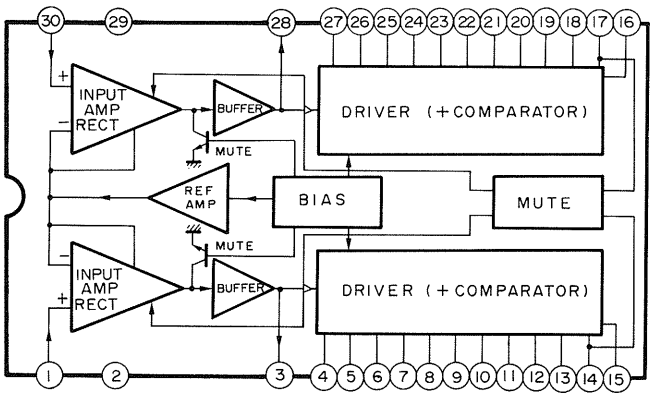
IC1 +14 V operation, wide range, 32 dB log scale display

FL1, FL2 AC 1.6 V (filament)
Grid current adjustment with the luminance adjustment VRs (VR5, VR6)

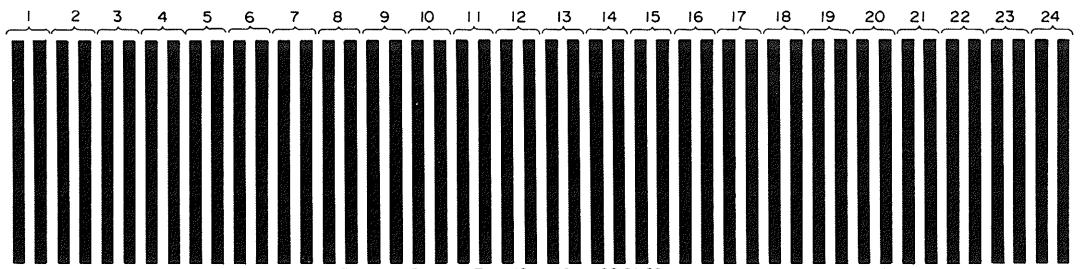
The L-ch and R-ch signals are input to IC1 from the output of power amplifier X09. These allow FL1 and FL2 to light the 0 to 12 point indicators (32 dB wide range log scale indication) according to the input level of IC1.



- **Block diagram (HA12067NT)**



- **FL display (FIP48AW14YS)**



Terminal No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Electrode	F	F	NP	NP	P	P	P	P	P	NP	P	P	P	P	NP	P	P	P	P	P	G	P	P	P	P	NP	P	P	P	P	P	NP	P	F	F

Notes F: Filament P: Anode
G: Grid NP: No pin

CIRCUIT DESCRIPTION

1. A New VIG DLD Circuit (X09-2540-10)

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.

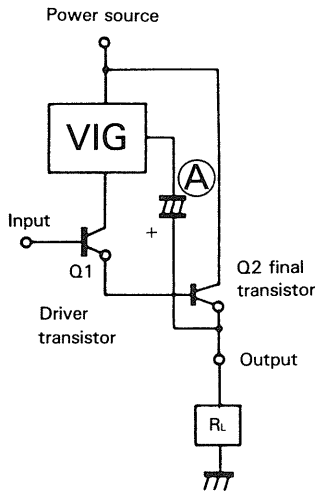


Fig. 1 Configuration of a Conventional VIG Circuit

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 abovementioned 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.

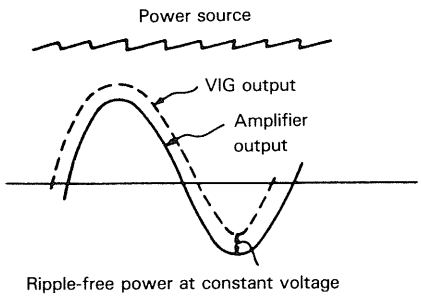


Fig. 2 VIG Output and Amplifier Output

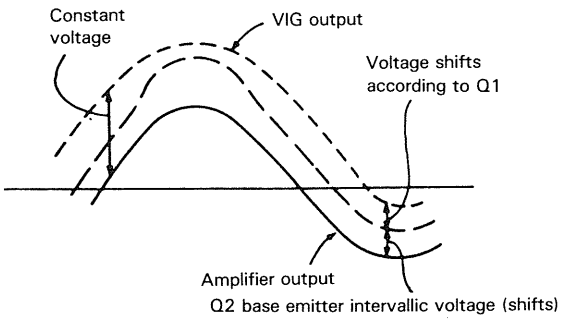


Fig. 3 VB-E and VIG Output

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.

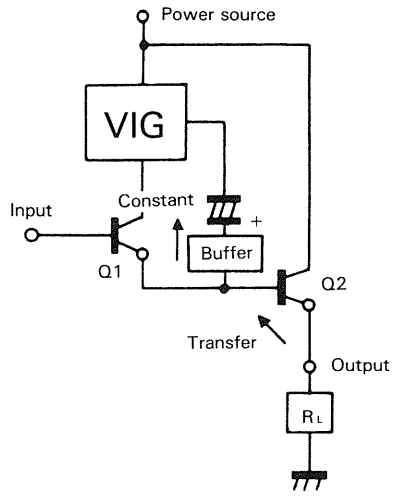


Fig. 4 Configuration of the New VIG Circuit

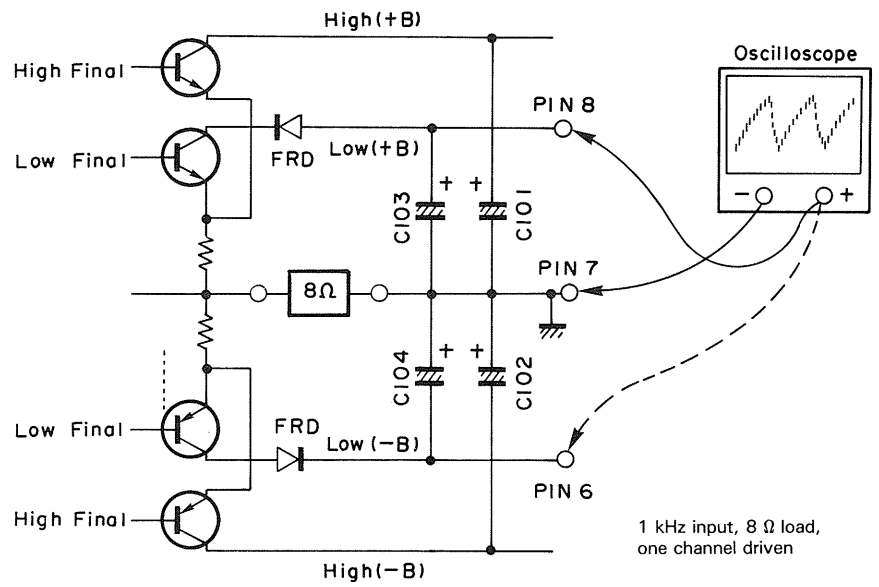
2. Effects of the New VIG Circuit

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.

CIRCUIT DESCRIPTION

CHECKING METHOD OF SUPER DLD CIRCUIT OPERATION

1. Connect an oscilloscope to LOW (+B) and GND.
   Set the oscilloscope input coupling mode to AC.



2. Continuously change the output voltage and monitor the ripple waveform at high and low switching.

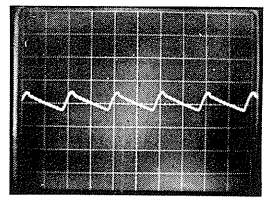


Photo 1
Volume: 0

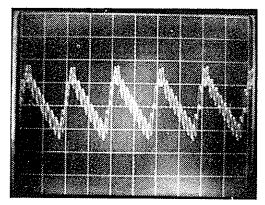


Photo 2
Just before switching

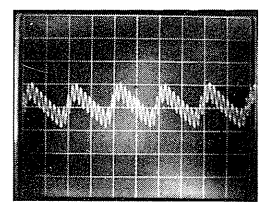


Photo 3
Just after switching

3. Connect the oscilloscope to LOW (−B) and GND.
   Set the oscilloscope input coupling mode to AC.

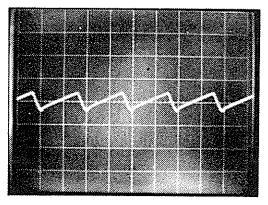


Photo 4
Volume: 0

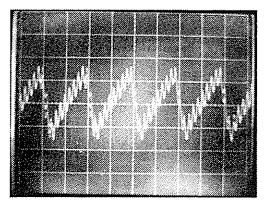


Photo 5
Just before switching

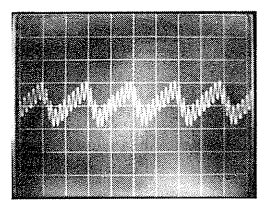


Photo 6
Just after switching

4. Check on the opposite channel's LOW (+B) and LOW (−B) line in the same way.

BASIC M1D

ADJUSTMENT/REGLAGES/ABGLEICH

ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	AMPLIFIER SETTING	ALIGNMENT POINTS	ALIGN FOR	FIG.
Unless otherwise specified, the individual switches shoud be set as follows: POWER:ON SPEAKER:B REC OUT:OFF SELECTOR:PHONO							
1	IDLE CURRENT	–	Connect a DC voltmeter across CP1 (L) CP2 (R)	VOLUME: 0	(X09) VR1 (L) VR2 (R)	15mV	(a)
2	FL LUMINANCE ADJUSTMENT	(A) Connect the AG output (1kHz) to the INPUT jacks(L,R)	–	LEVEL CONTROL VR MAX(L) (R)	(X25) VR5 (L) VR6 (R)	(1) Adjust so that all of the indicators in the FL level meter light, and set the luminance level for the L and R channels so that the level meter indicator of each level lights equally. (2) If the VR variable level is lowered and one channel becomes darker, adjust the brighter FL indicators before adjusting the FL luminance.	

REGLAGES

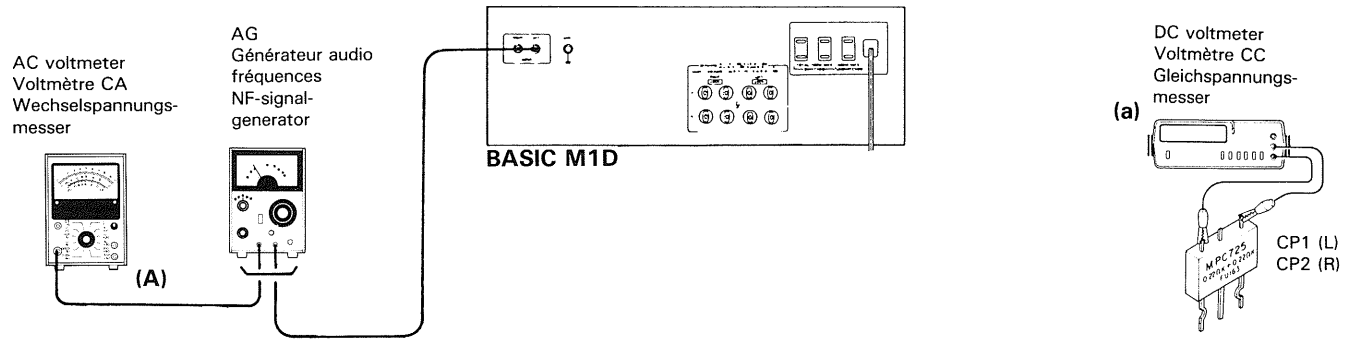
N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DE L'AMPLIFICATEUR	POINTS DE L'ALIGNMENT	ALIGNER POUR	FIG.
Sauf en cas d'indications spéciales, régler chaque commutaeur comme suit: POWER:ON SPEAKER: B REC OUT: OFF SELECTOR:PHONO							
1	COURANT DE POLARISATION	–	Connecter un voltmètre de CC SUR CP1 (G) CP2 (D)	VOLUME: 0	(X09) VR1 (G) VR2 (D)	15mV	(a)
2	AUSTEMENT D'ILLUMINATION FLUORESCENTE	(A) Connecter la sortie AG (1kHz)aux prises INPUT(G,D)	–	LEVEL CONTROL VR MAX (G) (D)	(X25) VR5 (G) VR6 (D)	(1) Ajuster pour que tous les indicateurs dans le compteur de niveau fluorescent s'allume et régler le niveau d'illumination pour les canaux de gauche et de droite pour que l'indicateur de compteur de niveau de chaque niveau s'allume également. (2) Si le niveau variable VR est baissé et qu'un canal devienne plus sombre, ajuster les indicateurs fluorescents plus clairs avant d'ajuster l'illumination fluorescente.	

ADJUSTMENT/REGLAGES/ABGLEICH

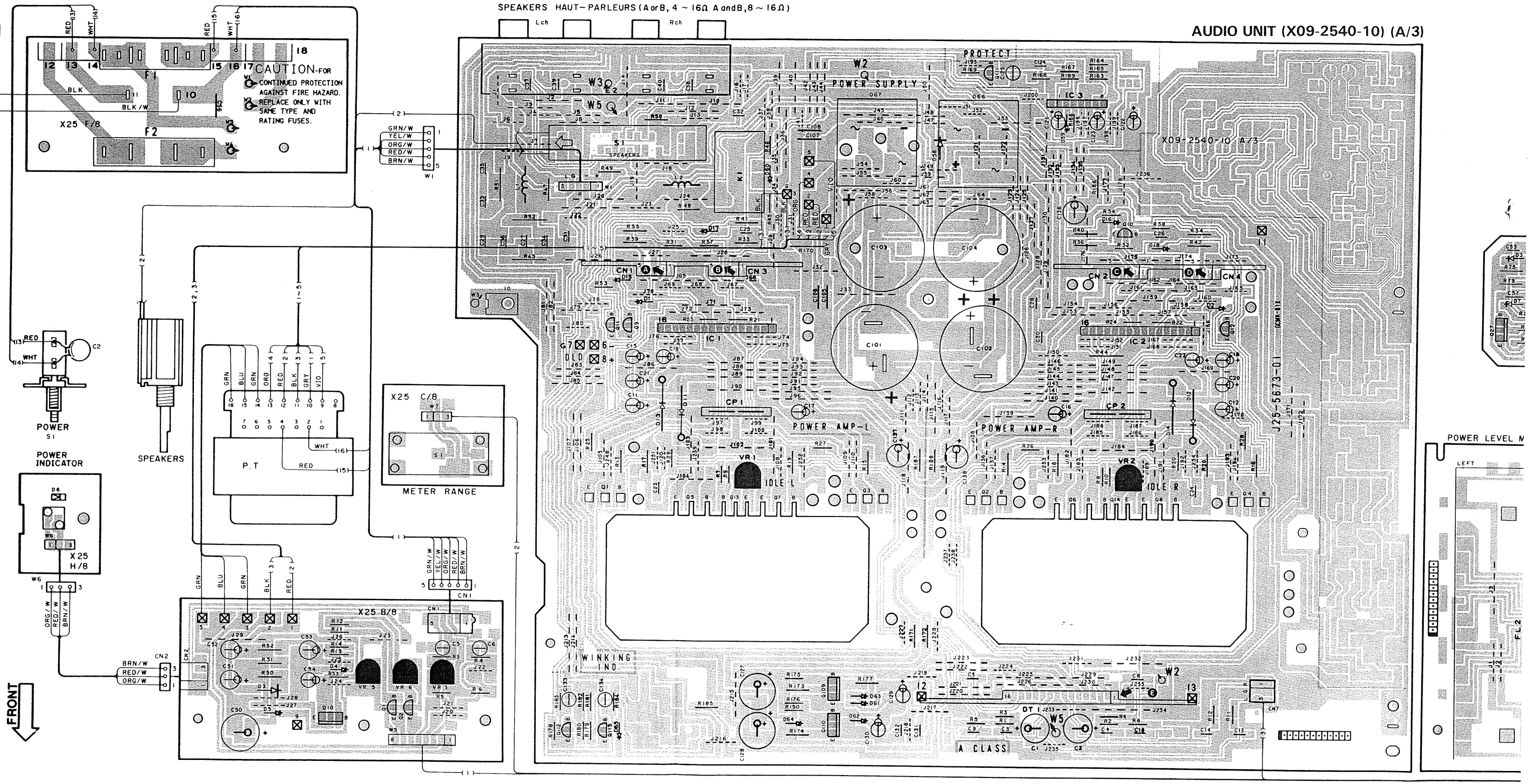
ABGLEICH

NR.	GENGENSTAND	EINGANGS-EINSTELLUNG	AUSANG-EINSTELLUNG	VORSTÄRKER-EINSTELLUNG	ABGLEICHE-PUNKTE	ABGLEICHEN FÜR	ABB.
Außer wenn anders angegeben, die verschiedenen Schalter wie folgt einstellen: POWER: ON SPEAKER: B REC OUT: OFF SELECTER: PHONO							
1	LEERLAUF-STROM	–	Einen Gleichspannungs-messer über CP1 (L) CP2 (R) anschließen.	VOLUME: 0	(X09) VR1 (L) VR2 (R)	15mV	(a)
2	FL-LUMINANZ-EINSTELLUNG	(A) Den AG-Ausgang (1kHz) an die INPUT-Buchsen (L,R) anschließen.	–	LEVEL CONTROL VR MAX (L) (R)	(X25) VR5 (L) VR6 (R)	(1) So einstellen, daß alle Anzeigen des FL-Pegelmeters-leuchten, und den Luminanzpegel für den linken und rechten Kanal so einstellen, daß die Pegelmeter-Anzeige für jeden Pegel gleich leuchtet. (2) Wenn der einstellbare VR-Pegel gesenkt wird und ein Kanal dunkler wird, die helleren FL-Anzeigen vor Einstellung der FL-Luminanz einstellen.	

SYSTEM CONNECTION



PC BOARD (Component side view)



X85-1090-10

Q16	
E	–
C	1.4V
B	62.2V

Q14	
E	–64.4V
C	1.3V
B	–63.9V

Q8	
E	–
C	–
B	11.5V

Q4	
E	4.7V
C	11.5V
B	–

Q10	
E	–
C	–
B	11.5V

Q12	
E	–64.4V
C	27.8V
B	–64.1V

Q6	
E	4.7V
C	11.5V
B	–

X09-2540-10

Q5	
E	44.7V
C	–
B	0.6V

Q13	
E	1.3V
C	–
B	–

Q8	
E	0V
C	–
B	–0.6V

Q3	
E	–
C	–69V
B	0.7V

Q4	
E	0V
C	–69V
B	0.6V

Q7	
E	–
C	–
B	–0.6V

Q109	
E	27.2V
C	51.3V
B	27.6V

Q111	
E	68.9V
C	–
B	–

Q110	
E	–63.6V
C	–22.3V
B	–63.8V

Q2	
E	0V
C	68.9V
B	–0.7V

Q27	
E	–
C	68.9V
B	–

Q16	
E	67.7V
C	7.5V
B	67.2V

Q28	
E	7V
C	68.8V
B	7.5V

Q20	
E	1.2V
C	–
B	0.6V

Q24	
E	1.2V
C	7V
B	1.8V

Q32	
E	–
C	7V
B	–

IC1	
4	–69V
6	–44.8V
11	44.7V
13	68.9V

IC2	
4	–69V
6	–44.8V
7	0V
10	0V
11	44.7V
13	68.9V

Q6	
E	0V
C	–
B	0.6V

Q1	
E	44.7V
C	68.9V
B	–0.7V

Q29	
E	–
C	–69V
B	–

Q26	
E	–1.2V
C	–7V
B	–1.8V

Q34	
E	–
C	–7V
B	–

Q30	
E	–7V
C	–69V
B	–7.6V

Q18	
E	–68V
C	–7.6V
B	–67.4V

Q22	
E	–1.2V
C	–
B	–0.6V

IC3	
2	0V
6	0.7V

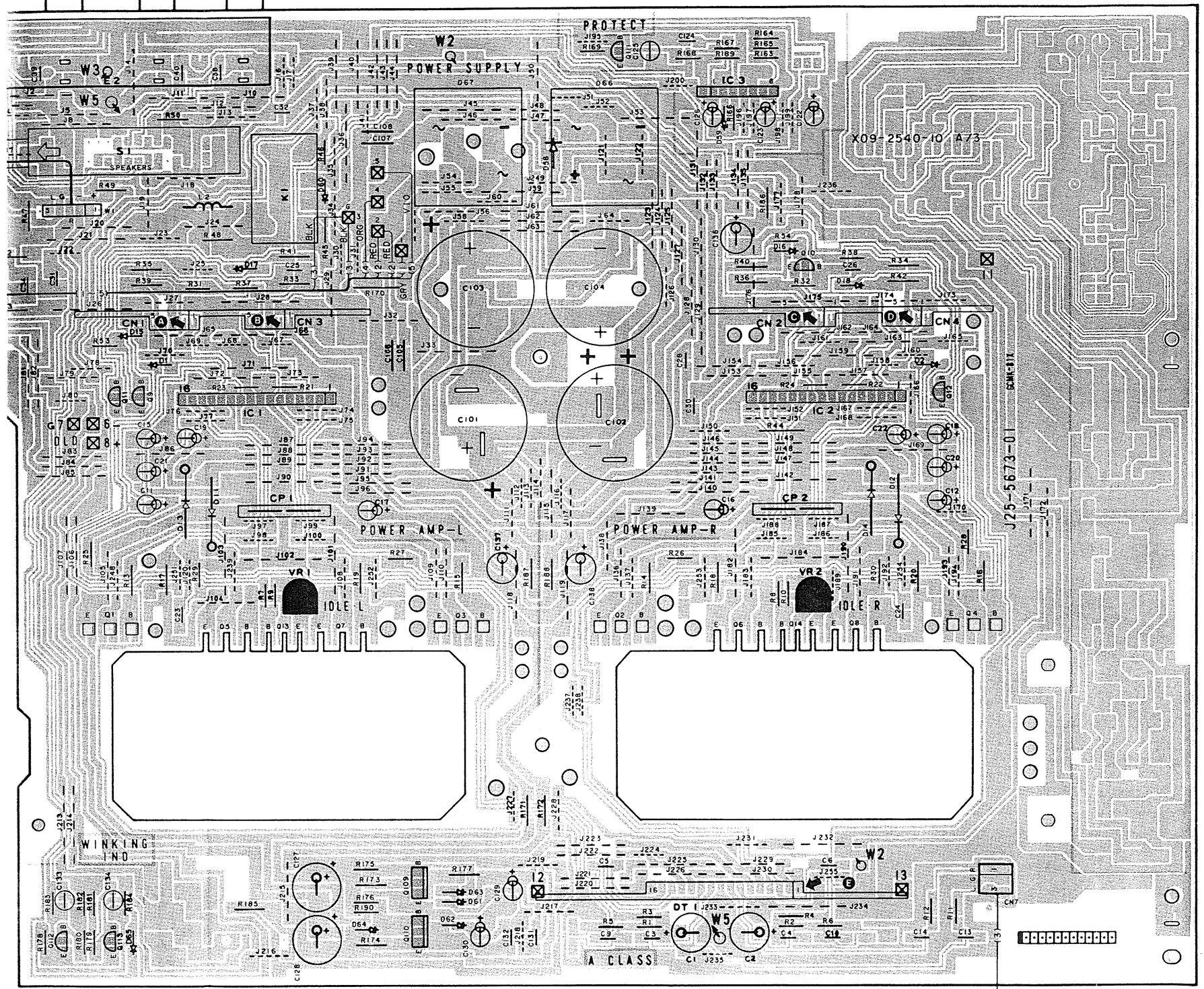
Q1	
E	
C	
B	

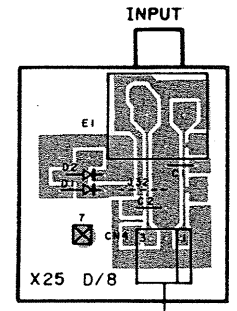
Q10	
E	14.1V
C	–
B	–

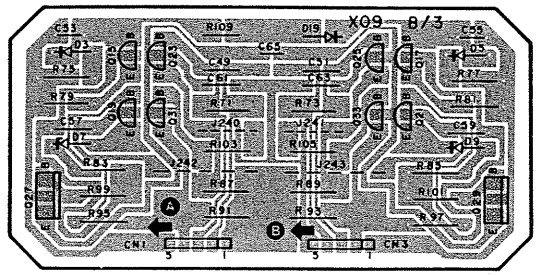
Q2	
E	
C	
B	

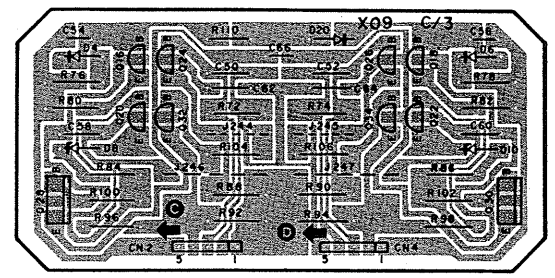
RS HAUT－PARLEURS (A or B, 4 ～ 16Ω A and B, 8 ～ 16Ω)

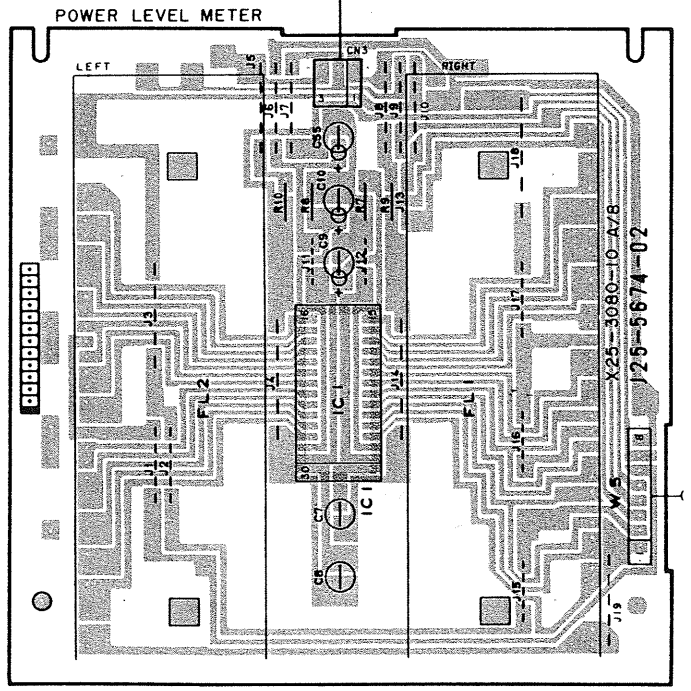
AUDIO UNIT (X09-2540-10) (A/3)



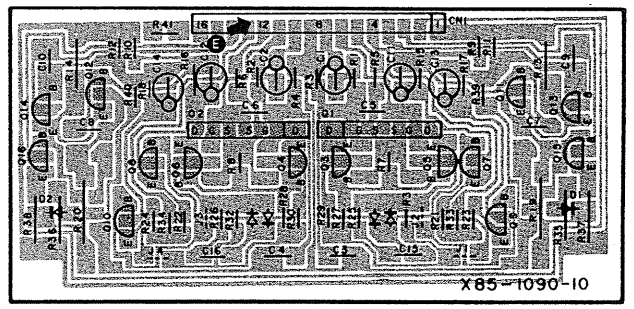


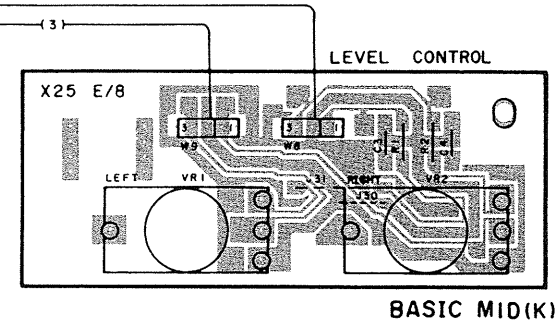






POWER AMPLIFIER UNIT (X85-1090-10)





BASIC MID(K)

DISPLAY UNIT (X25-3080-10)

–
-69V
0.7V

8.9V
–
–

Q110

E	-63.6V
C	-22.3V
B	-63.8V

Q2

E	0V
C	68.9V
B	-0.7V

Q27

E	–
C	68.9V
B	–

Q16

E	67.7V
C	7.5V
B	67.2V

Q28

E	7V
C	68.8V
B	7.5V

Q20

E	1.2V
C	–
B	0.6V

Q24

E	1.2V
C	7V
B	1.8V

Q32

E	–
C	7V
B	–

IC1

4	-69V
6	-44.8V
11	44.7V
13	68.9V

IC2

4	-69V
6	-44.8V
7	0V
10	0V
11	44.7V
13	68.9V

Q6

E	0V
C	–
B	0.6V

Q1

E	44.7V
C	68.9V
B	-0.7V

Q29

E	–
C	-69V
B	–

Q26

E	-1.2V
C	-7V
B	-1.8V

Q34

E	–
C	-7V
B	–

Q30

E	-7V
C	-69V
B	-7.6V

Q18

E	-68V
C	-7.6V
B	-67.4V

Q22

E	-1.2V
C	–
B	-0.6V

IC3

2	0V
6	0.7V

Q1

E	11.6V
C	14.1V
B	–

IC1

29	14.1V

Q10

E	14.1V
C	–
B	–

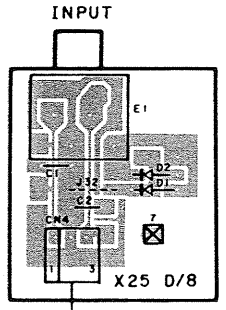
Q2

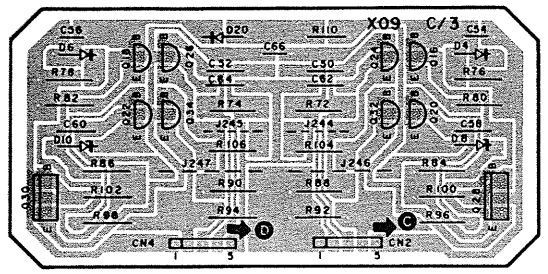
E	11.8V
C	14.1V
B	–

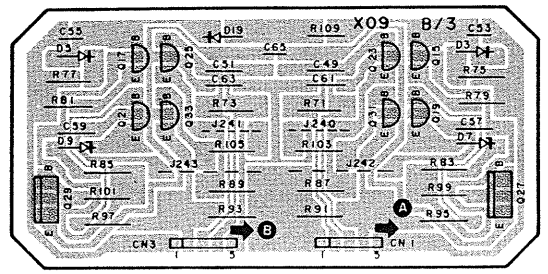
Refer to the schematic diagram for the values of resistors and capacitors.

PC BOARD (Foil side view)

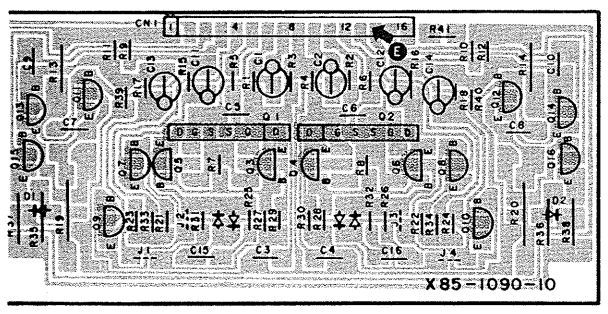
INPUT



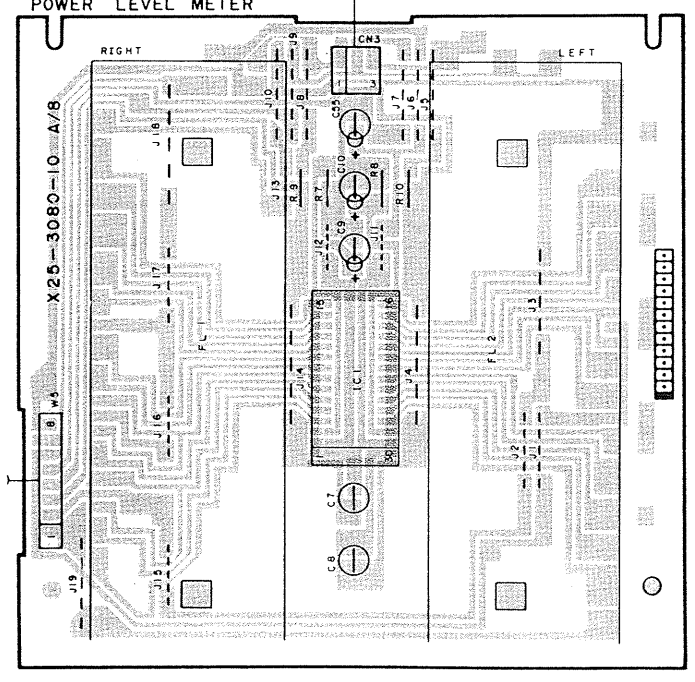




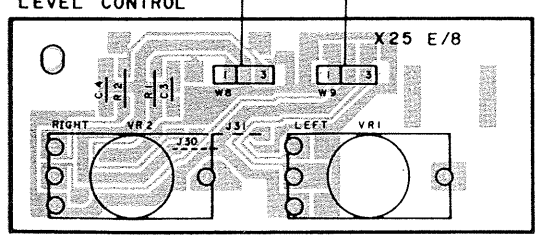
POWER AMPLIFIER UNIT (X85-1090-10)



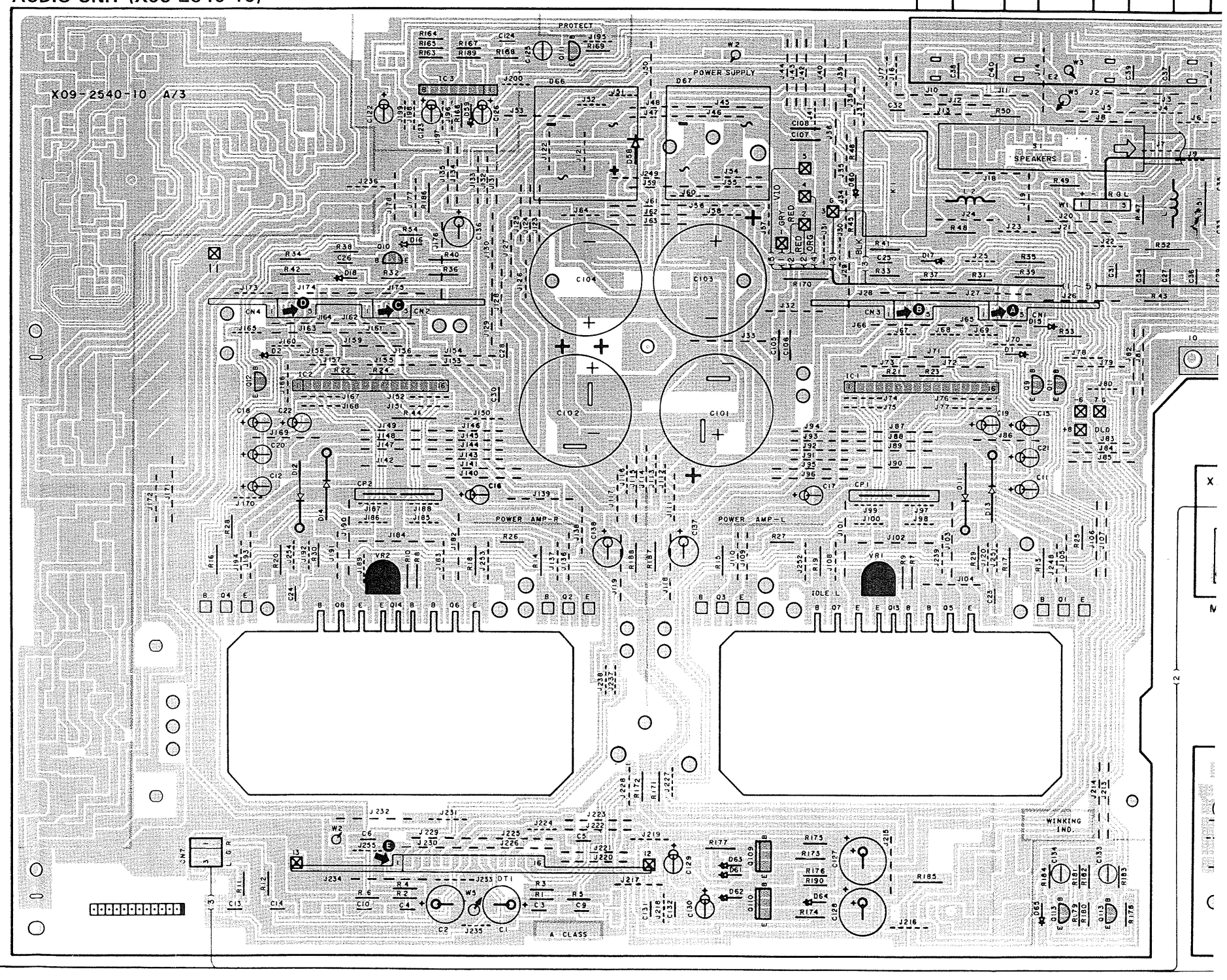
POWER LEVEL METER



LEVEL CONTROL



AUDIO UNIT (X09-2540-10)



DISPLAY UNIT (X25-3280-10)

X85-1090-10

Q16	
E	–
C	1.4V
B	62.2V

Q14	
E	−64.4V
C	1.3V
B	−63.9V

Q8	
E	–
C	–
B	11.6V

Q4	
E	4.7V
C	11.5V
B	–

Q10	
E	–
C	–
B	11.5V

Q12	
E	−64.4V
C	27.8V
B	−64.1V

Q6	
E	4.7V
C	11.5V
B	–

X09-2540-10

Q5	
E	44.7V
C	–
B	0.6V

Q13	
E	1.3V
C	–
B	–

Q8	
E	0V
C	–
B	−0.6V

Q3	
E	–
C	−69V
B	0.7V

Q110	
E	−63.6V
C	−22.3V
B	−63.8V

Q4	
E	0V
C	−69V
B	0.6V

Q7	
E	–
C	–
B	−0.6V

Q109	
E	27.2V
C	51.3V
B	27.6V

Q111	
E	68.9V
C	–
B	–

Q6	
E	0V
C	–
B	0.6V

Q2	
E	0V
C	68.9V
B	−0.7V

Q27	
E	–
C	68.9V
B	–

Q16	
E	67.7V
C	7.5V
B	67.2V

Q28	
E	7V
C	68.8V
B	7.5V

Q20	
E	1.2V
C	–
B	0.6V

Q24	
E	1.2V
C	7V
B	1.8V

Q32	
E	–
C	7V
B	–

IC1	
4	−69V
6	−44.8V
11	44.7V
13	68.9V

IC2	
4	−69V
6	−44.8V
7	0V
10	0V
11	44.7V
13	68.9V

IC3	
2	0V
6	0.7V

Q10	
E	14.1V
C	–
B	–

Q1	
E	11.6V
C	14.1V
B	–

Q2	
E	11.8V
C	14.1V
B	–

Q1	
E	44.7V
C	68.9V
B	−0.7V

Q29	
E	–
C	−69V
B	–

Q26	
E	−1.2V
C	−7V
B	−1.8V

Q34	
E	–
C	−7V
B	–

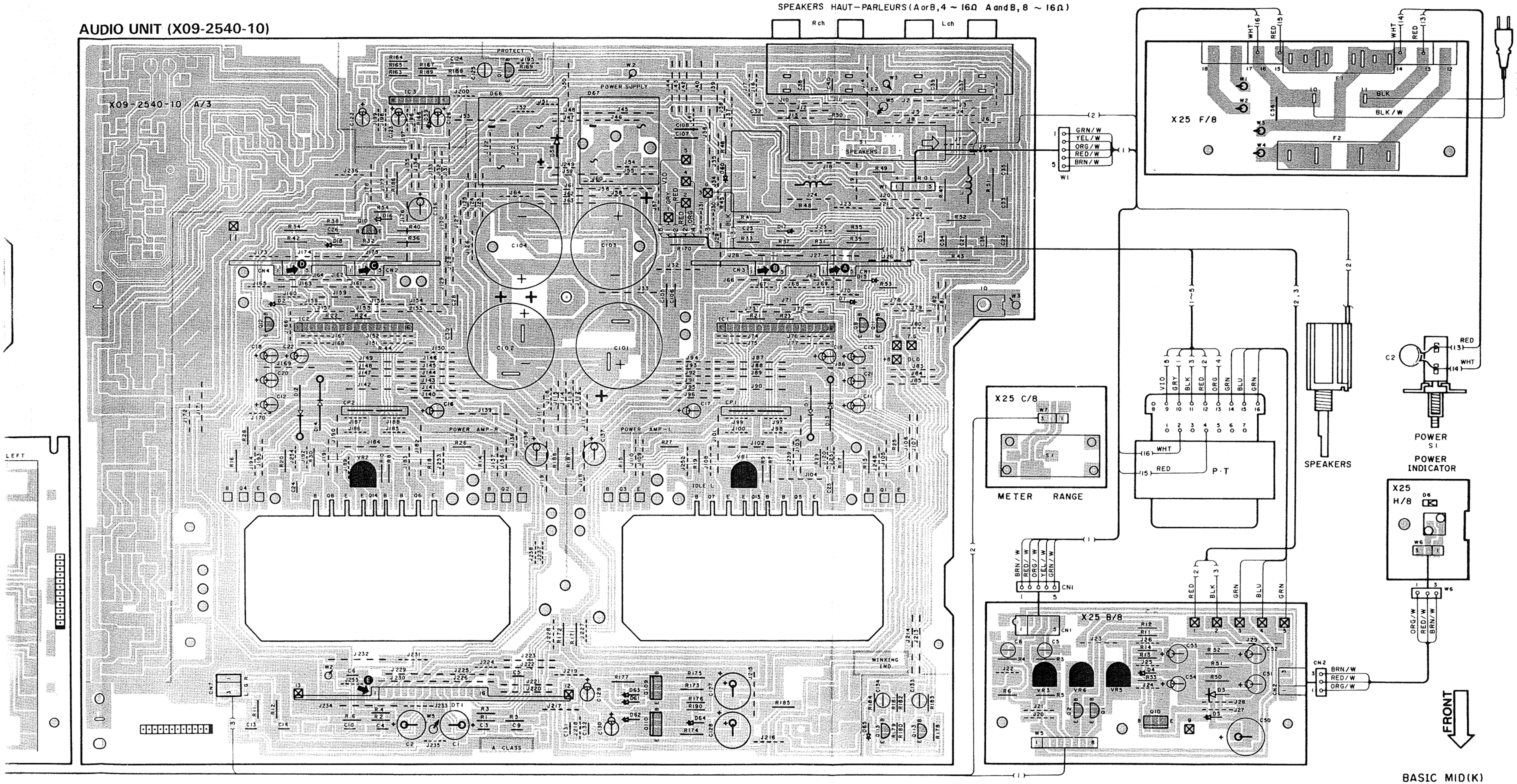
Q30	
E	−7V
C	−69V
B	−7.6V

Q18	
E	−68V
C	−7.6V
B	−67.4V

Q22	
E	−1.2V
C	–
B	−0.6V

IC1 29

AUDIO UNIT (X09-2540-10)



Q3	
E	−63.6V
C	−22.3V
B	−63.8V

Q4	
E	0V
C	—
B	0.6V

Q2	
E	0V
C	68.9V
B	−0.7V

Q27	
E	—
C	68.9V
B	—

Q16	
E	67.7V
C	7.5V
B	67.2V

Q28	
E	7V
C	68.8V
B	7.5V

Q20	
E	1.2V
C	—
B	0.6V

Q24	
E	1.2V
C	7V
B	1.8V

Q32	
E	—
C	7V
B	—

IC1	
4	−69V
6	−44.8V
11	44.7V
13	68.9V

IC2	
4	−69V
6	−44.8V
7	0V
10	0V
11	44.7V
13	68.9V

IC3	
2	0V
6	0.7V

Q10	
E	14.1V
C	—
B	—

Q1	
E	44.7V
C	68.9V
B	−0.7V

Q29	
E	—
C	−69V
B	—

Q26	
E	−1.2V
C	−7V
B	−1.8V

Q34	
E	—
C	−7V
B	—

Q30	
E	−7V
C	−69V
B	−7.6V

Q18	
E	−68V
C	−7.6V
B	−67.4V

Q22	
E	−1.2V
C	—
B	−0.6V

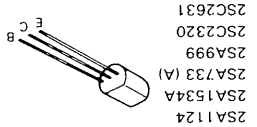
Q1	
E	11.6V
C	14.1V
B	—

Q2	
E	11.8V
C	14.1V
B	—

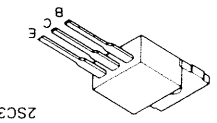
IC1	
29	14.1V

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

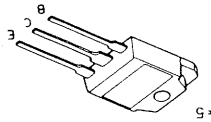
2SA1123
2SA1124
2SA1534A
2SA733 (A)
2SA999
2SC2320
2SC2631
2SC2632
2SC3940A
2SC945 (A)



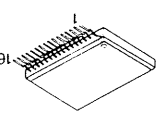
2SA1535
2SC3944



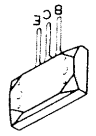
2SC2167



2SA1303*5
2SC3284*5



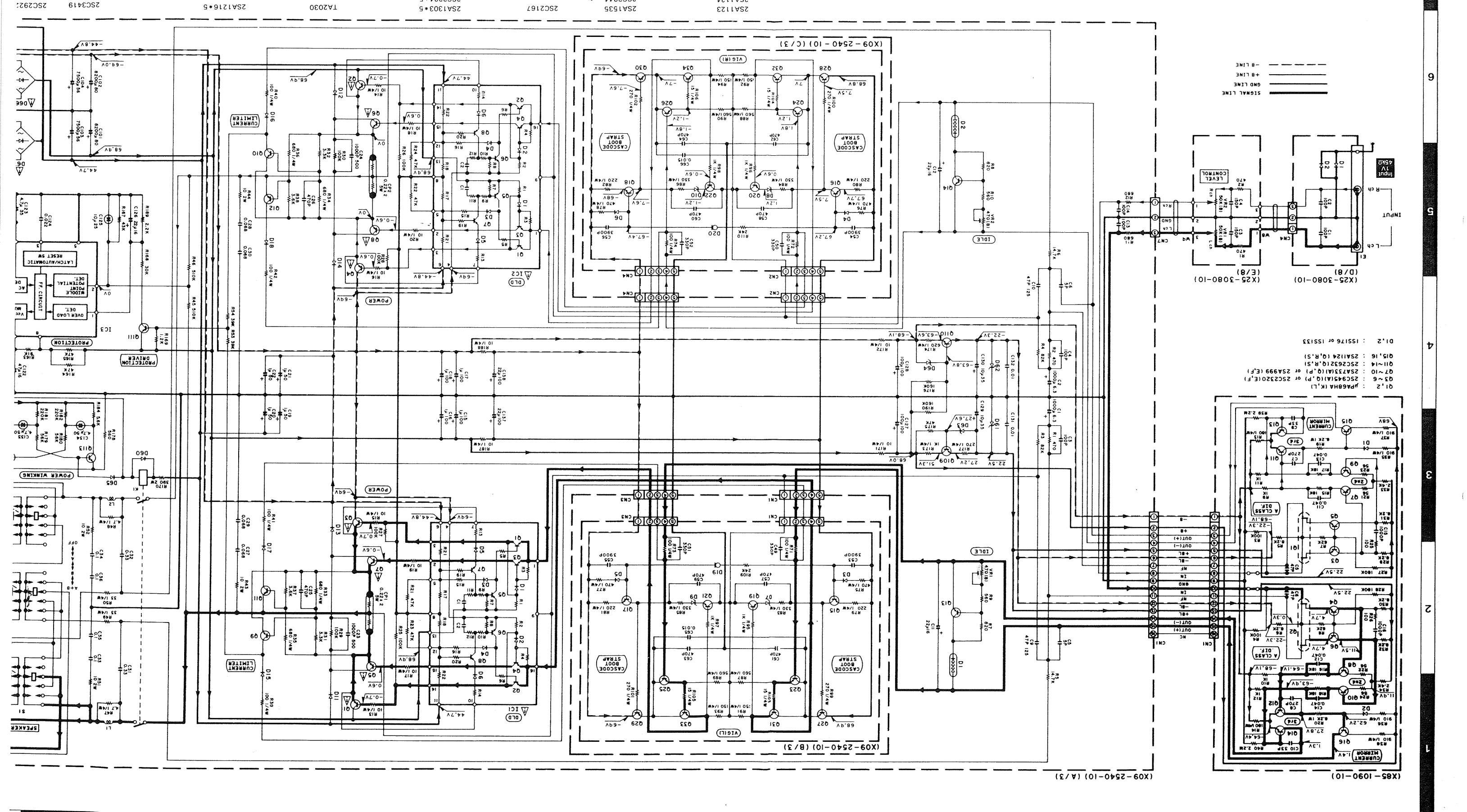
TA2030

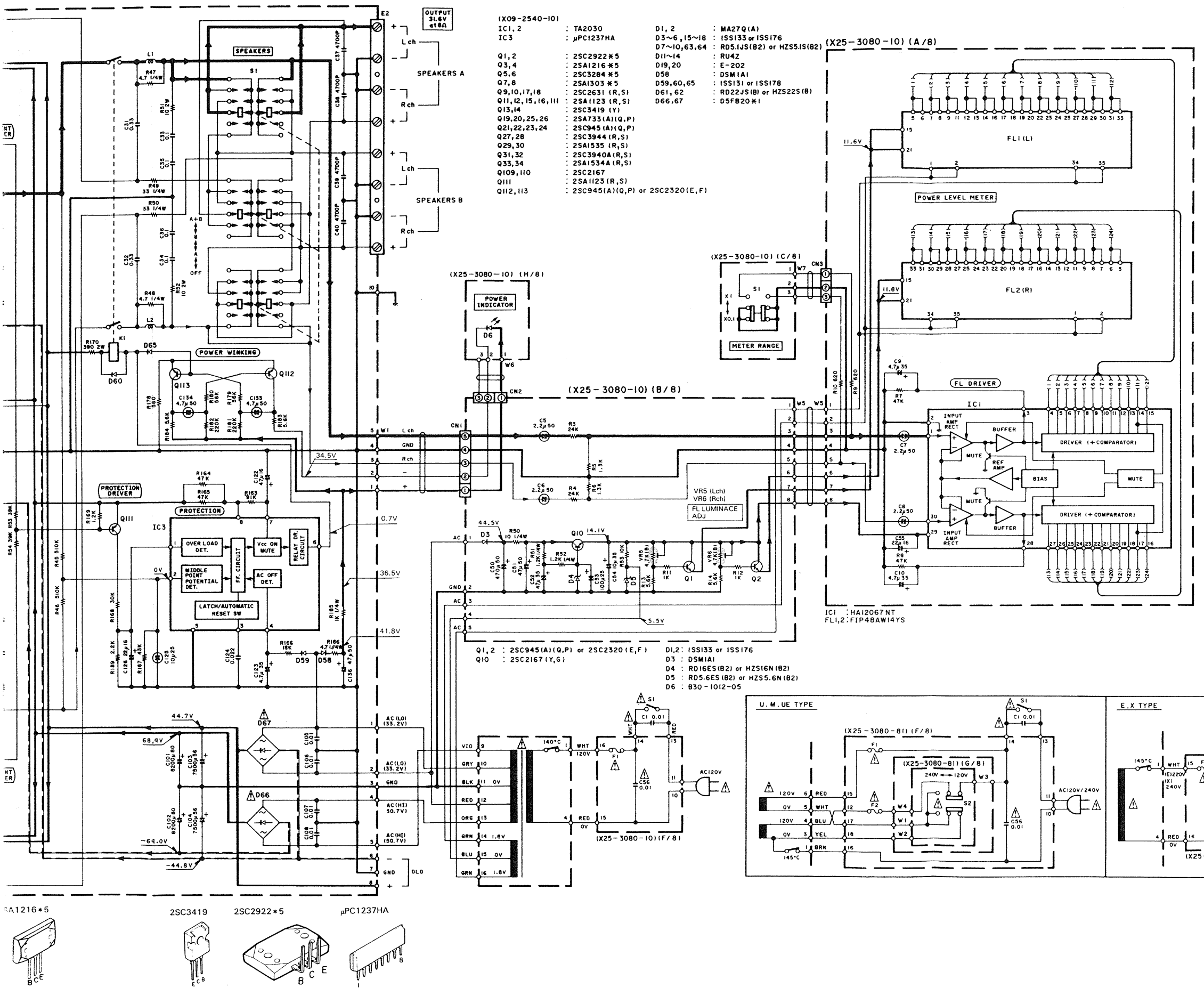


2SA1216*5

2SC3419

2SC2921





2SA1216*5 2SC3419 2SC2922*5 μPC1237HA

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.

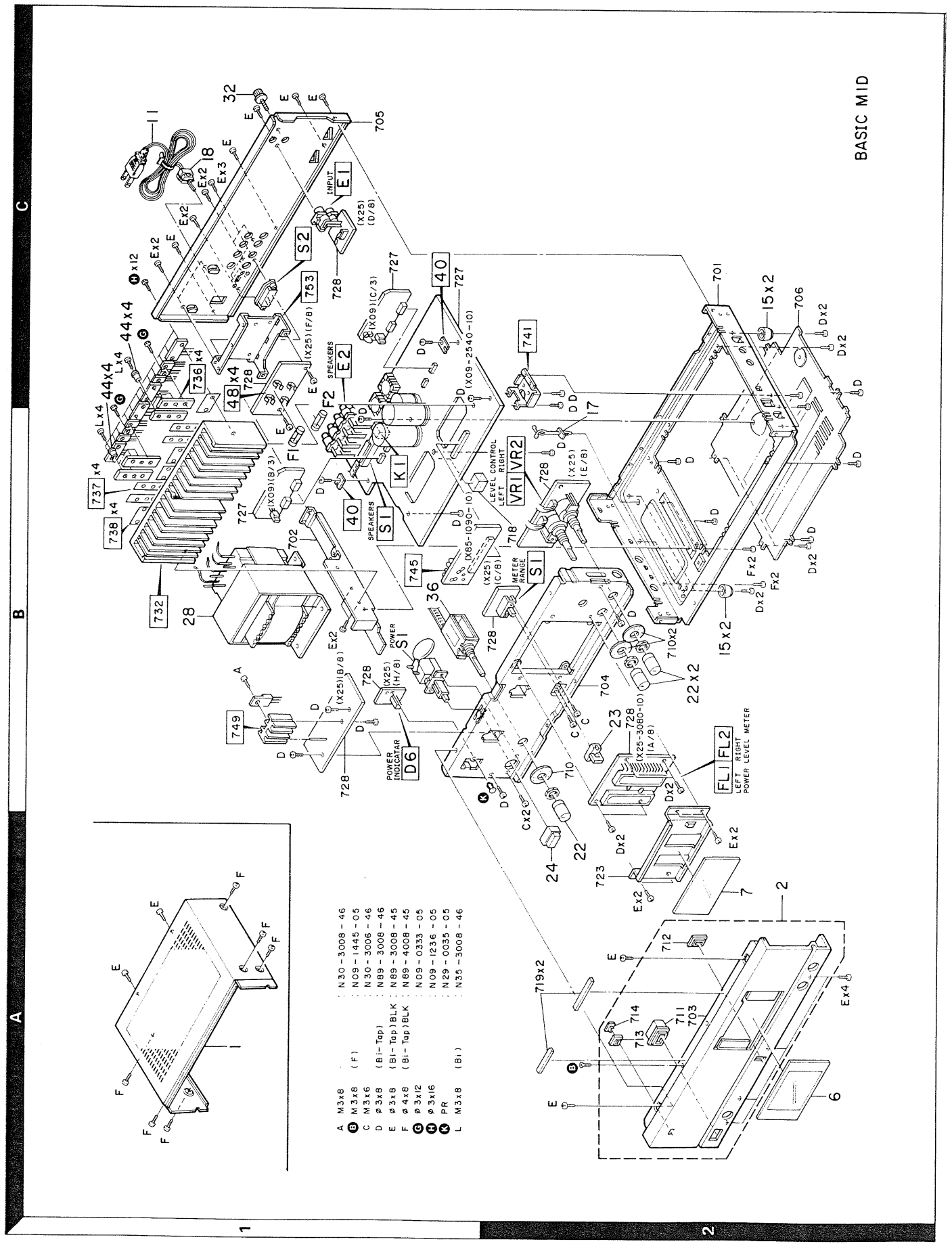
Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser ohne Eingangssignal gemessen. Dabei schwanden die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u.U. geringfügig.

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.

BASIC M1D (K)

BASIC M1D
KENWOOD

EXPLODED VIEW



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

PARTS LIST

* New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Telle 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	Destination 仕向	Remarks 備考
	BASIC M1D					
1	1A	*	A01-1578-01	METALLIC CABINET		
2	2A	*	A20-5301-03	PANEL ASSY		
6	2A	*	B10-0890-04	FRONT GLASS		
7	2A	*	B11-0155-04	COLOR FILTER		
..			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	
..		*	B50-6941-00	INSTRUCTION MANUAL(ENGLISH)		
..		*	B50-6942-00	INSTRUCTION MANUAL(FRENCH)	PMXE	
..		*	B50-6943-00	INSTRUCTION MANUAL(SPANISH)	M	
..		*	B50-6944-00	INSTRUCTION MANUAL(ARABIC)	M	
..		*	B50-6945-00	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)	UE	
..			B58-0803-03	CAUTION CARD	E	
..			B59-0092-00	SERVICE DIRECTORY	UUE	
⚠ C2			C91-0023-05	CERAMIC 0.01UF AC250V	UMUE	
⚠ C2			C91-0647-05	CERAMIC 0.01UF P	KPXE	
⚠ 11	1C		E30-0459-05	AC POWER CORD	E	
⚠ 11	1C		E30-0812-05	AC POWER CORD	UMUE	
⚠ 11	1C		E30-0978-05	AC POWER CORD	KP	
⚠ 11	1C		E30-1341-05	AC POWER CORD	X	
⚠ F1	1B		F05-3522-05	FUSE (SEMKA) (250V T3.5A)	XE	
⚠ C1	1B		F05-7026-05	FUSE (UL) (250V 7A)	KP	
⚠ F1 ,2	1B,1C		F05-3523-05	FUSE (250V 3.5A)	UMUE	
..		*	H01-7627-04	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)		
15	2B,2C		J02-0127-05	FOOT	K	
15	2B,2C		J02-0156-05	FOOT (Ø40X12.5)	PUMUEX	
15	2B,2C		J02-0156-05	FOOT (Ø40X12.5)	E	
17	2B		J11-0096-05	WIRE CLAMPER		
⚠ 18	1C		J42-0083-05	POWER CORD BUSHING		
..			J61-0307-05	WIRE BAND		
22	2A,2B		K29-1984-04	KNOB (SPEAKERS,LEVEL CONTROL)		
23	2B		K29-2685-14	KNOB ASSY(BUTTON)METER RANGE		
24	2A		K29-2724-04	KNOB ASSY(BUTTON)POWER		
⚠ 28	1B	*	L01-7991-05	POWER TRANSFORMER	KP	
⚠ 28	1B	*	L01-7992-05	POWER TRANSFORMER	X	
⚠ 28	1B	*	L01-7995-05	POWER TRANSFORMER	UMUE	
⚠ 28	1B	*	L01-7997-05	POWER TRANSFORMER	E	
32	1C		N08-0128-35	BINDING POST (GND)		
B	2A		N09-1445-05	SET SCREW (M3X8)		
L	2B		N29-0035-05	PUSH RIVET (3.5X5.5)		

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.

* New Parts
Parts without
Les articles no
Telle ohne Part

Ref. No. 参照番号
36
⚠ -
⚠ -
⚠ S1
⚠ S1
C1 ,2
C3 ,4
C5 ,6
C9 ,10
C11 ,12
C13 ,14
C15 -18
C19 -22
C23 ,24
C25 ,26
C27 -30
C31 ,32
C33 -36
C37 -40
C49 -52
C53 -56
C57 -64
C65 -,66
C101,102
C103,104
C105-108
C122
C123
C124
C125
C126
C127,128
C129,130
C131,132
C133,134
C136
C137,138
40
E2
44
L1 ,2
G
H
CP1 ,2
R5 ,6
R13 -20
R33 -36
R39 -42
R43 ,44
R47 ,48
R49 ,50

E: Scandina
U: PX(Far E
UE: AAFES(

PARTS LIST

* New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Telle 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	Destination 仕向	Remarks 備考
36	1B	*	S90-0104-05	REMOTE WIRE (SPEAKERS)		
⚠ -			S59-1083-05	THERMAL SWITCH	UMUE	
⚠ -			S59-1084-05	THERMAL SWITCH	KPXE	
⚠ S1	1B		S40-1073-05	PUSH SWITCH (POWER)	XE	
⚠ S1	1B		S40-1094-05	PUSH SWITCH (POWER)	KPUMUE	
AUDIO UNIT (X09-2540-10)						
C1 ,2			CE04KW0J102M	ELECTRO 1000UF 6.3WV		
C3 ,4			CQ09FS1H101JZS	POLYSTY 100PF J		
C5 ,6			CC45FSL1H050C	CERAMIC 5.0PF C		
C9 ,10			C91-0174-05	POLYSTY 47PF K		
C11 ,12			CE04KW1C220M	ELECTRO 22UF 16WV		
C13 ,14			CQ09FS1H101JZS	POLYSTY 100PF J		
C15 -18			CE04KW2A010M	ELECTRO 1.0UF 100WV		
C19 -22			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C23 ,24			CK45FB2H102K	CERAMIC 1000PF K		
C25 ,26			CK45FB1H471K	CERAMIC 470PF K		
C27 -30			CF92FV1H683J	MF 0.068UF J		
C31 ,32			CF92FV1H334J	MF 0.33UF J		
C33 -36			CF92FV1H104J	MF 0.10UF J		
C37 -40			CK45FF1H472Z	CERAMIC 4700PF Z		
C49 -52			C91-0751-05	CERAMIC 330PF K		
C53 -56			CF92FV1H392J	MF 3900PF J		
C57 -64			C91-0753-05	CHIP C 470PF K		
C65 ,66			CF92FV1H153J	MF 0.015UF J		
C101,102			C90-0572-05	ELECTRO 8200UF 80WV		
C103,104			C90-0538-05	ELECTRO 7500UF 56WV		
C105-108			CK45FE2H103P	CERAMIC 0.010UF P		
C122			CE04KW1C470M	ELECTRO 47UF 16WV		
C123			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C124			CF92FV1H223J	MF 0.022UF J		
C125			C90-1353-05	NP-ELEC 10UF 25WV		
C126			CE04KW1C220M	ELECTRO 22UF 16WV		
C127,128			CE04KW2A101M	ELECTRO 100UF 100WV		
C129,130			CE04KW1V100M	ELECTRO 10UF 35WV		
C131,132			CF92FV1H103J	MF 0.010UF J		
C133,134			C90-1335-05	NP-ELEC 4.7UF 50WV		
C136			CE04KW1H470M	ELECTRO 47UF 50WV		
C137,138			CE04KW2A220M	ELECTRO 22UF 100WV		
40	1B,1B		E23-0149-05	TERMINAL		
E2	1C		E20-0828-05	SCREW TERMINAL BOARD(SPEAKERS)		
44	1B,1C		F29-0042-05	INSULATING WASHER		
L1 ,2			L39-0080-15	PHASE-COMPENSATION COIL		
G	1C		N09-0333-05	TAPPING SCREW (Ø3X12)		
H	1C		N09-1236-05	TAPPING SCREW (Ø3X16)		
CP1 ,2			R90-0187-05	MULTI-COMP 0.22X2 K 5W		
R5 ,6		*	RN14BK2C1472FTS	RN 14.7K F 1/6W		
R13 -20			RD14AB2E100JTS	FL-PROOF RD 10 J 1/4W		
R33 -36			RD14AB2E681JTS	FL-PROOF RD 680 J 1/4W		
R39 -42			RD14AB2E101JTS	FL-PROOF RD 100 J 1/4W		
R43 ,44			RS14DB3D100JTE	FL-PROOF RS 10 J 2W		
R47 ,48			RD14AB2E4R7JTS	FL-PROOF RD 4.7 J 1/4W		
R49 ,50			RD14AB2E330JTS	FL-PROOF RD 33 J 1/4W		

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.

PARTS LIST

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Telle 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	Destination 仕向	Remarks 備考
R51 ,52			RS14DB3D100JTE	FL-PROOF RS 10 J 2W		
R71 -74			RD14AB2E101JTS	FL-PROOF RD 100 J 1/4W		
R75 -78			RD14AB2E471JTS	FL-PROOF RD 470 J 1/4W		
R79 -82			RD14AB2E221JTS	FL-PROOF RD 220 J 1/4W		
R83 -86			RD14AB2E331JTS	FL-PROOF RD 330 J 1/4W		
R87 -90			RD14AB2E561JTS	FL-PROOF RD 560 J 1/4W		
R91 -94			RD14AB2E151JTS	FL-PROOF RD 150 J 1/4W		
R95 -98			RD14AB2E102JTS	FL-PROOF RD 1.0K J 1/4W		
R99 -102			RD14AB2E271JTS	FL-PROOF RD 270 J 1/4W		
R103-106			RD14AB2E150JTS	FL-PROOF RD 15 J 1/4W		
R170			RS14DB3D391JTE	FL-PROOF RS 390 J 2W		
R171,172			RD14AB2E100JTS	FL-PROOF RD 10 J 1/4W		
R173			RD14AB2E102JTS	FL-PROOF RD 1.0K J 1/4W		
R174			RD14AB2E621JTS	FL-PROOF RD 620 J 1/4W		
R177			RD14AB2E271JTS	FL-PROOF RD 270 J 1/4W		
R185			RD14AB2E102JTS	FL-PROOF RD 1.0K J 1/4W		
R186			RD14AB2E4R7JTS	FL-PROOF RD 4.7 J 1/4W		
R187,188			RD14AB2E100JTS	FL-PROOF RD 10 J 1/4W		
VR1 ,2			R12-0108-05	TRIMMING POT. (IDLE)		
K1	1R		S51-2045-05	MAGNETIC RELAY		
S1	1R		S90-0062-05	SLIDE SWITCH (SPEAKERS)		
D1 ,2			MA270(A)	VARISTOR		
D3 -6			1SS133	DIODE		
D3 -6			1SS176	DIODE		
D7 -10			HZS5.1S(B2)	ZENER DIODE		
D7 -10			RD5.1JS(B2)	ZENER DIODE		
D11 -14			RU4Z	DIODE		
D15 -18			1SS133	DIODE		
D15 -18			1SS176	DIODE		
D19 ,20			E-202	CONSTANT CURRENT DIODE		
D58			DSM1A1	DIODE		
D59 ,60			1SS131	DIODE		
D59 ,60			1SS178	DIODE		
D61 ,62			HZS22S(B)	ZENER DIODE		
D61 ,62			RD22JS(B)	ZENER DIODE		
D63 ,64			HZS5.1S(B2)	ZENER DIODE		
D63 ,64			RD5.1JS(B2)	ZENER DIODE		
D65			1SS131	DIODE		
D65			1SS178	DIODE		
D66 ,67			D5FB20#1	DIODE		
IC1 ,2			TA2030	IC(LA/HI SWITCHING)		
IC3			UPC1237HA	IC(POWER AMP)		
Q1 ,2		*	2SC2922#5	TRANSISTOR		
Q3 ,4		*	2SA1216#5	TRANSISTOR		
Q5 ,6			2SC3284#5	TRANSISTOR		
Q7 ,8			2SA1303#5	TRANSISTOR		
Q9 ,10			2SC2631(R,S)	TRANSISTOR		
Q11 ,12			2SA1123(R,S)	TRANSISTOR		
Q13 ,14			2SC3419(Y)	TRANSISTOR		
Q15 ,16			2SA1123(R,S)	TRANSISTOR		
Q17 ,18			2SC2631(R,S)	TRANSISTOR		
Q19 ,20			2SA733(A)(Q,P)	TRANSISTOR		
Q21 -24			2SC945(A)(Q,P)	TRANSISTOR		
Q25 ,26			2SA733(A)(Q,P)	TRANSISTOR		

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PARTS LIST

* New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Telle 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	Destination 仕向	Remarks 備考
Q27 ,28			2SC3944(R,S)	TRANSISTOR		
Q29 ,30			2SA1535(R,S)	TRANSISTOR		
Q31 ,32			2SC3940A(R,S)	TRANSISTOR		
Q33 ,34			2SA1534A(R,S)	TRANSISTOR		
Q109,110			2SC2167	TRANSISTOR		
Q111			2SA1123(R,S)	TRANSISTOR		
Q112,113			2SC2320(E,F)	TRANSISTOR		
Q112,113			2SC945(A)(Q,P)	TRANSISTOR		
DISPLAY UNIT (X25-3080-10)						
D6	1B		R30-1012-05	LED(SLP-981C-50)POWER IND.		
C1 ,2			CC45FSL1H101J	CERAMIC 100PF J		
C3 ,4			CC45FSL1H151J	CERAMIC 150PF J		
C5 -8			C90-1350-05	NP-ELEC 2.2UF 50WV		
C9 ,10			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C50			CE04KW1H471M	ELECTRO 470UF 50WV		
C51			CE04KW1H470M	ELECTRO 47UF 50WV		
C52			CE04KW1V470M	ELECTRO 47UF 35WV		
C53			CE04KW1E101M	ELECTRO 100UF 25WV		
C54			CE04KW1V100M	ELECTRO 10UF 35WV		
C55			CE04KW1C220M	ELECTRO 22UF 16WV		
⚠ C56			C91-0023-05	CERAMIC 0.01UF AC250V	UMUE	
⚠ C56			C91-0647-05	CERAMIC 0.01UF P	KPXE	
E1	1C		E13-0235-05	PHONO JACK (2P) INPUT		
48	1C		J13-0041-05	FUSE CLIP	KPUMUE	
48	1C		J13-0054-05	FUSE CLIP	XE	
R50			RD14GB2E100JTS	FL-PROOF RD 10 J 1/4W		
R51 ,52		*	RD14GB2E122JTS	FL-PROOF RD 1.2K J 1/4W		
VR1 ,2	2B	*	RD01-4036-05	POTENTIOMETER(50KB)LEVEL		
VR5 ,6			R12-1089-05	TRIMMING POT.(4.7KB)		
S1	2B		S40-2361-05	PUSH SWITCH (METER RANGE)		
⚠ S2	1C		S31-2115-05	SLIDE SWITCH	UMUE	
D1 ,2			1SS133	DIODE		
D1 ,2			1SS176	DIODE		
D3			DSM1A1	DIODE		
D4			HZS16N(B2)	ZENER DIODE		
D4			RD16ES(B2)	ZENER DIODE		
D5			HZS5.6N(B2)	ZENER DIODE		
D5			RD5.6ES(B2)	ZENER DIODE		
FL1 ,2	2B		FIP48AW14YS	FLUORESCENT INDICATOR TUBE		
IC1			HA12067NT	IC(FL DRIVER)		
Q1 ,2			2SC2320(E,F)	TRANSISTOR		
Q1 ,2			2SC945(A)(Q,P)	TRANSISTOR		
Q10			2SC2167(Y,G)	TRANSISTOR		
POWER AMPLIFIER UNIT (X85-1090-10)						
C5 ,6			CC45FSL1H470J	CERAMIC 47PF J		
C7 ,8			CC45FSL1H271J	CERAMIC 270PF J		
C9 ,10			CC45FSL1H330J	CERAMIC 33PF J		
C11 -14			CK45FF1H473Z	CERAMIC 0.047UF Z		
C15 ,16			CK45FB1H102K	CERAMIC 1000PF K		
R13 ,14			RD14AB2E181JTS	FL-PROOF RD 180 J 1/4W		

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R19 ,20			RS14DB3A822JTE	FL-PROOF RS 8.2K J 1W		
R35 -38			RD14AB2E911JTS	FL-PROOF RD 910 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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SPECIFICATIONS

Power Output

125 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)
at 1 kHz into 4 ohms ..... 150 W
Dynamic Power
at 1 kHz into 4 ohms ..... 240 W
Damping Factor
at 50 Hz into 8 ohms 1,000
Power Bandwidth
at 0.08% T.H.D. into 8 ohms .. 10 Hz to 75 kHz
Total Harmonic Distortion
20 Hz to 20 kHz ..... 0.008% at rated power into 8 ohms
1 kHz ..... 0.0008% at rated power into 8 ohms
Frequency Response ..... 10 Hz to 100 kHz, +0, −3 dB
Signal-to-Noise Ratio ..... 120 dB
Input Sensitivity/Impedance
LINE IN ..... 1 V/47 kohms

General
Power Consumption ..... 4.5 A (U.S.A. and Canada)
270 W (Others)
Dimensions ..... W 440 mm (17-5/16″)
H 143 mm (5-5/8″)
D 338 mm (13-5/16″)
Weight (net) ..... 9.8 kg (21.6 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 doncerne 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 U.S.A. (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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