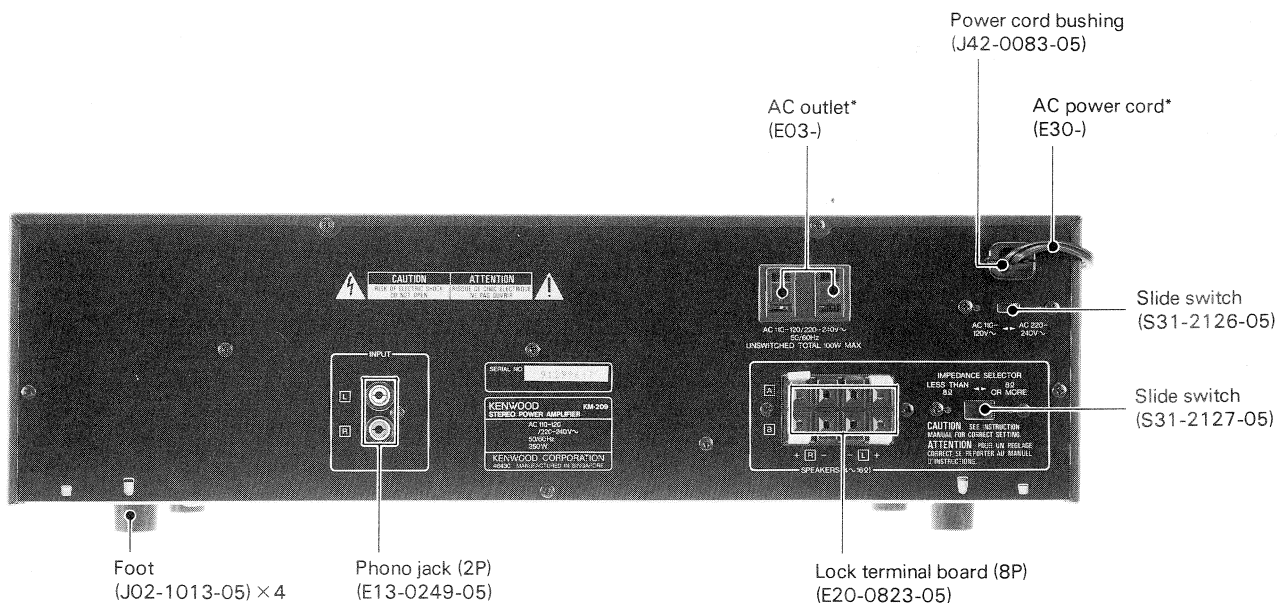
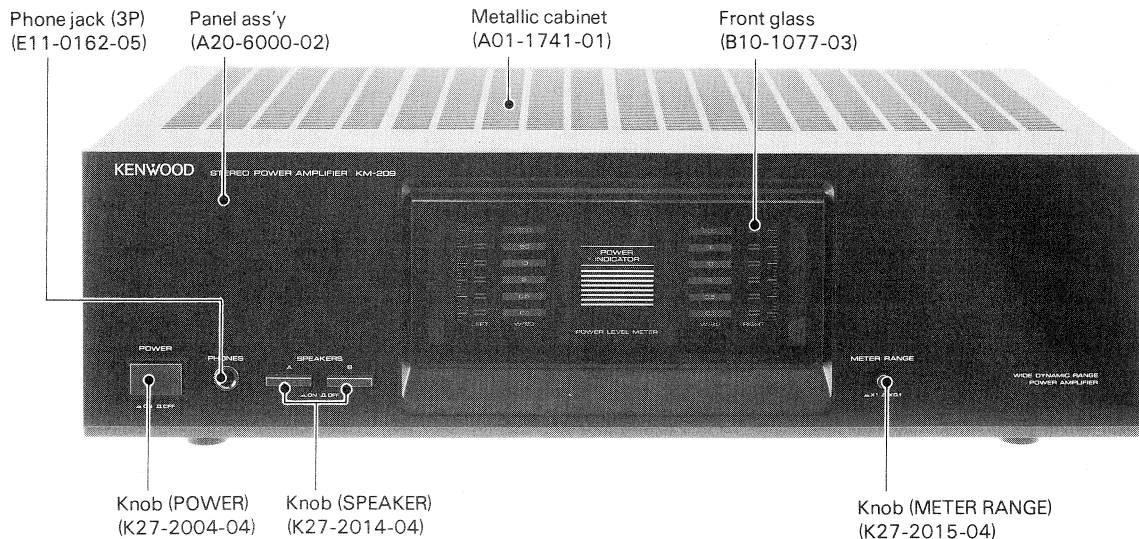


KM-209

SERVICE MANUAL

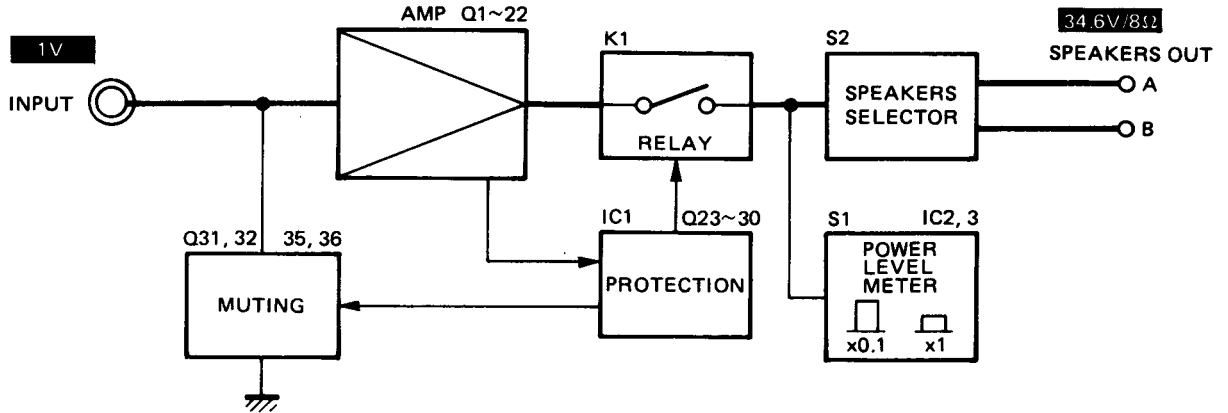


* Refer to parts list on page 11.

KM-209

BLOCK DIAGRAM

BLOCK LEVEL DIAGRAM



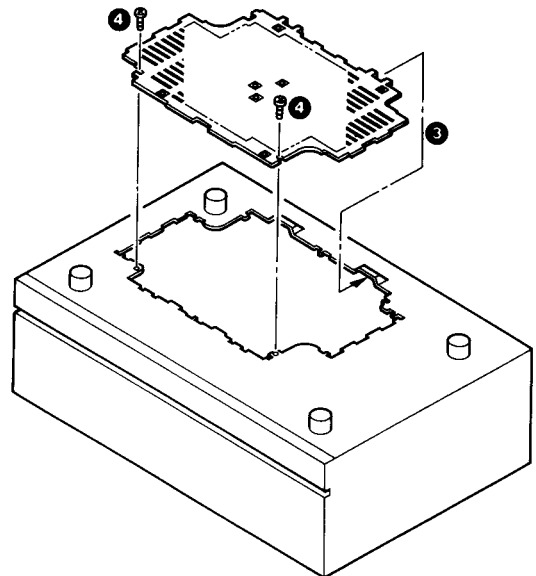
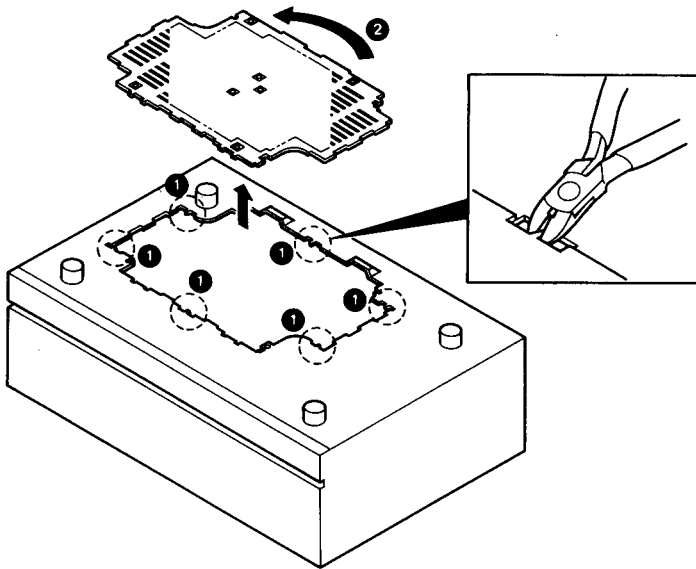
DISASSEMBLY FOR REPAIR

How to remove the repairing chassis

- 1 Cut the 6 parts ❶ of the repairing chassis. Remove the repairing chassis from main chassis.

After repair

- 2 Turn the repairing chassis 180 degrees in the arrow direction ❷.
- 3 Insert the 2 claws ❸ into main chassis.
- 4 Lock to the main chassis by 2 screws (M3 x 6) ❹.



CIRCUIT DESCRIPTION

CIRCUIT DESCRIPTION

Description of Components

POWER AMPLIFIER UNIT (X07-2430-XX, X07-2460-XX)

Components	Application/Function	Operation/Condition/Compatibility
Q1 ~ 4	Initial stage differential amplifier	Low noise.
Q5 ~ 8	2nd stage differential amplifier	
Q9, 10	3rd stage amplifier	Class A cascade current amplifier.
Q11, 12	3rd stage amplifier	Class A cascade voltage amplifier.
Q13, 14	Bias temperature compensation	
Q15 ~ 18	Class B driver	
Q19 ~ 22	Power amplifier	
Q23 ~ 30	Current protection	
Q31, 32	Input muting	
Q33	Driver for relay driver IC	Current protection.
Q34	Constant voltage control	
Q35, 36	Muting driver	
Q37	AVR	For meter driver.
IC1	Relay driver IC	
IC2, 3	Meter driver	

ADJUSTMENT/REGLAGE/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)	VOLUME: 0	VR1 (L) VR2 (R)	9~18mV	(a)

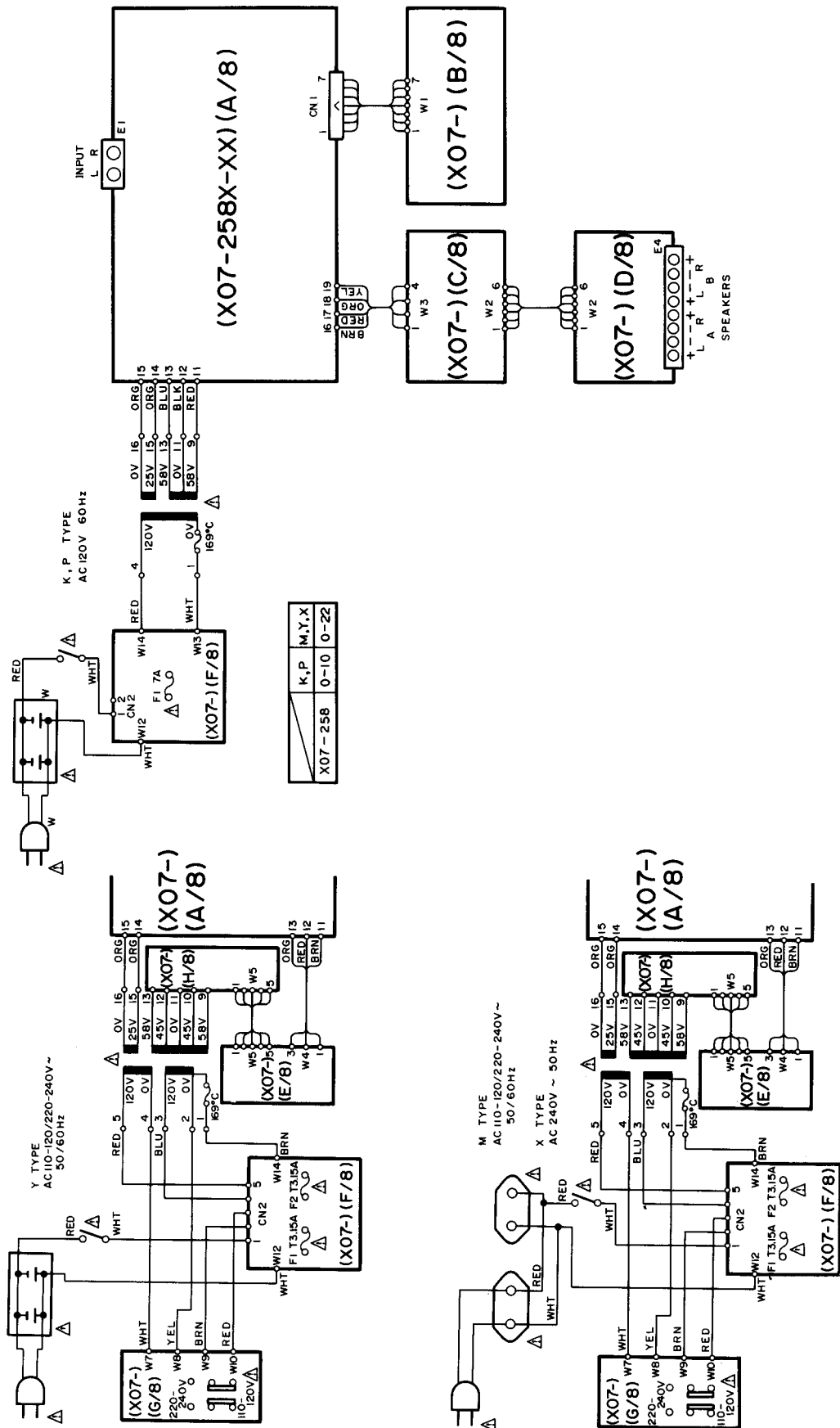
REGLAGE

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)	9~18mV	(a)

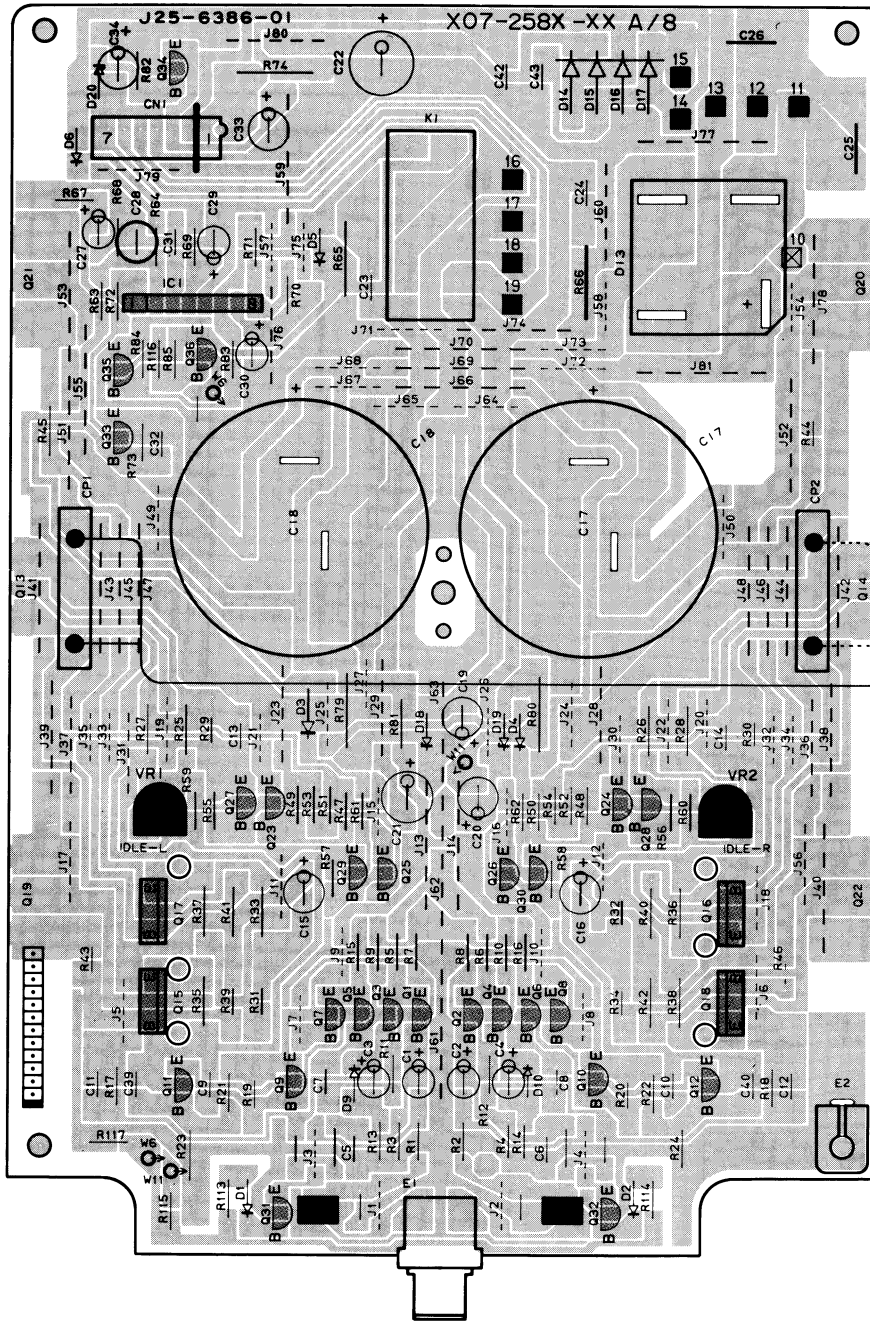
ABGLEICH

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	VORSTARKER EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
1	LEERLAUFSTROM		Einen Gleichspannungsmesser über CP1 (L) CP2 (R) anschließen.	VOLUME: 0	VR1 (L) VR2 (R)	9~18mV	(a)

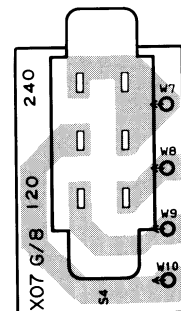
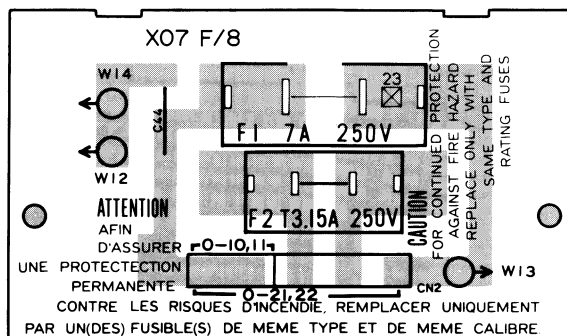
WIRING DIAGRAM



PC BOARD (Component Side View)

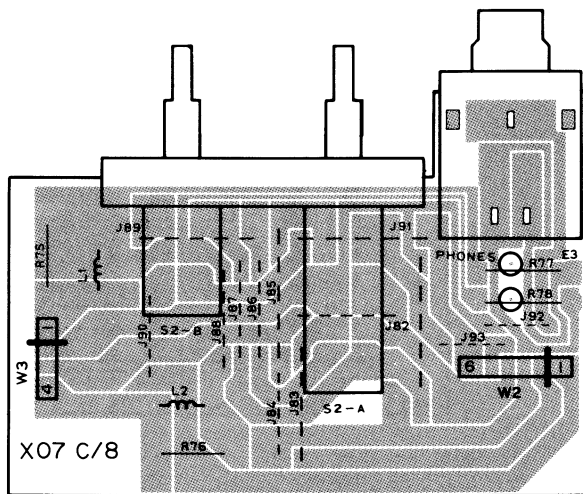
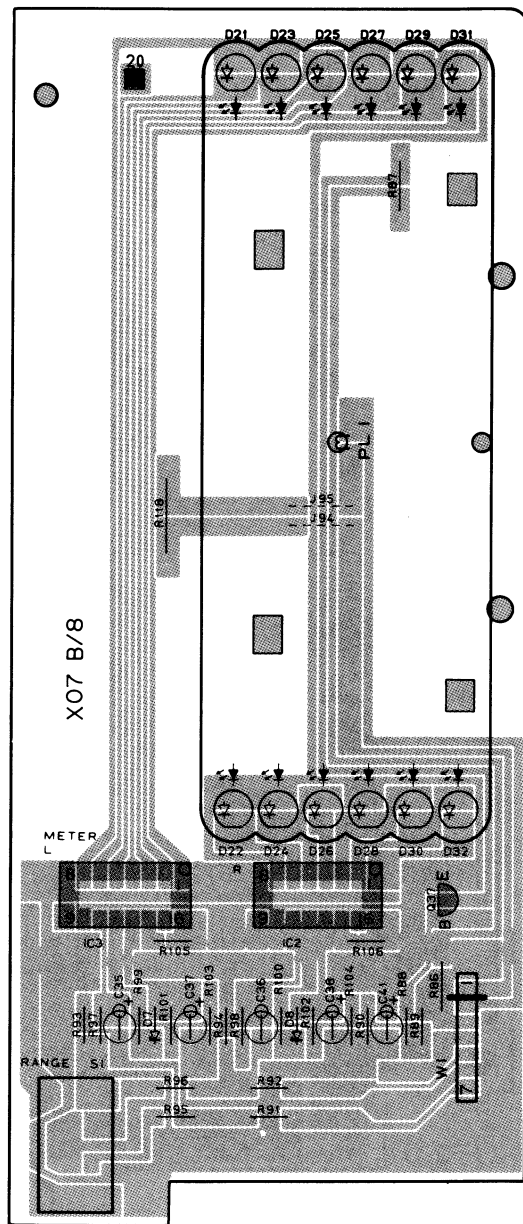
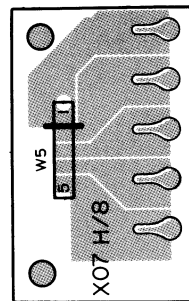
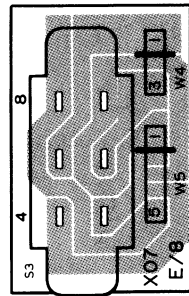
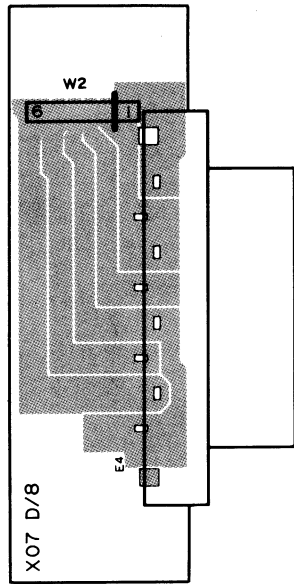


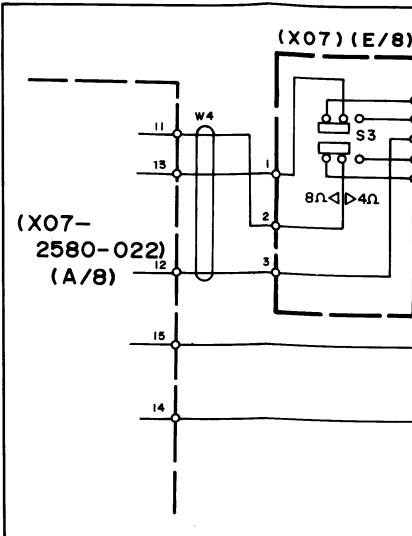
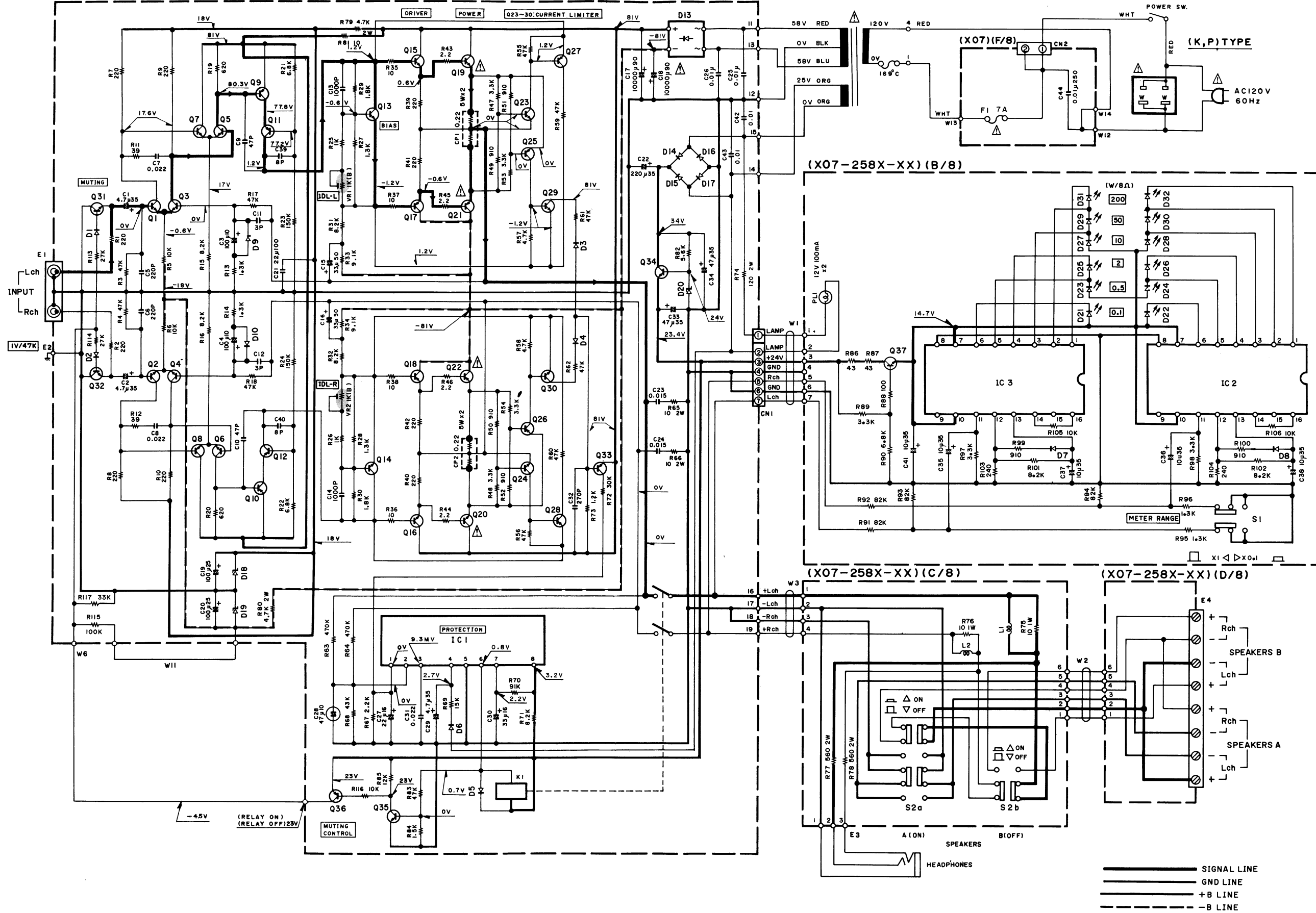
DC Voltmeter
 (a) Idle current: 9~18 mV



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

PC BOARD (Foil Side View)





(X07-258X-XX)

DESTINATION	Ref. No.	E/B	G/B	W
0-10	K, P	NO	NO	N
0-22	M, Y, X	YES	YES	Y

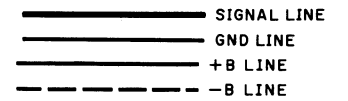
- IC1 : μPC1237HA
- IC2,3 : AN6882
- Q1~4 : 2SC1845(F,E)
- Q5~8,23,24,35 : 2SC945(A)(Q,P)
- Q9,10,25~28,36 : 2SA733(A)(Q,P)
- Q11,12 : 2SA1124(Q,R)
- Q13,14 : 2SC3419(Y)
- Q15,16 : 2SC3944A(Q,R)
- Q17,18 : 2SA1535A(Q,R)
- Q19,20 : 2SC2922LB
- Q21,22 : 2SA1216LB
- Q29,30 : 2SC2631(Q,R,S)
- Q31,32 : 2SD1302(S,T)
- Q33 : 2SA992(F,E)
- Q34 : 2SC2590(Q,R)
- Q37 : 2SC2003(L,K)
- D1,2,7~10 : ISS133 or HSS176
- D3~6 : ISS131 or HSS178
- D13 : S15VB20
- D14~17 : S5566B
- D18,19 : RD18ES(B) or HZS18N
- D20 : RD24ES(B) or HZS24N
- D21~32 : B30-1291-05

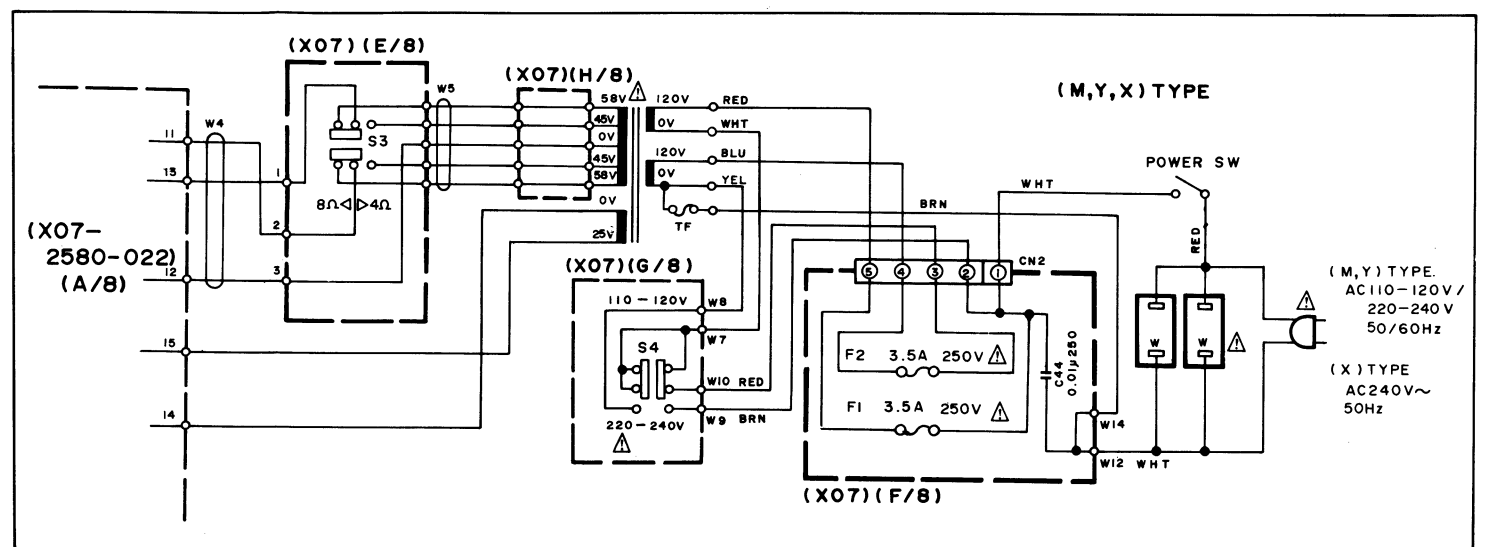
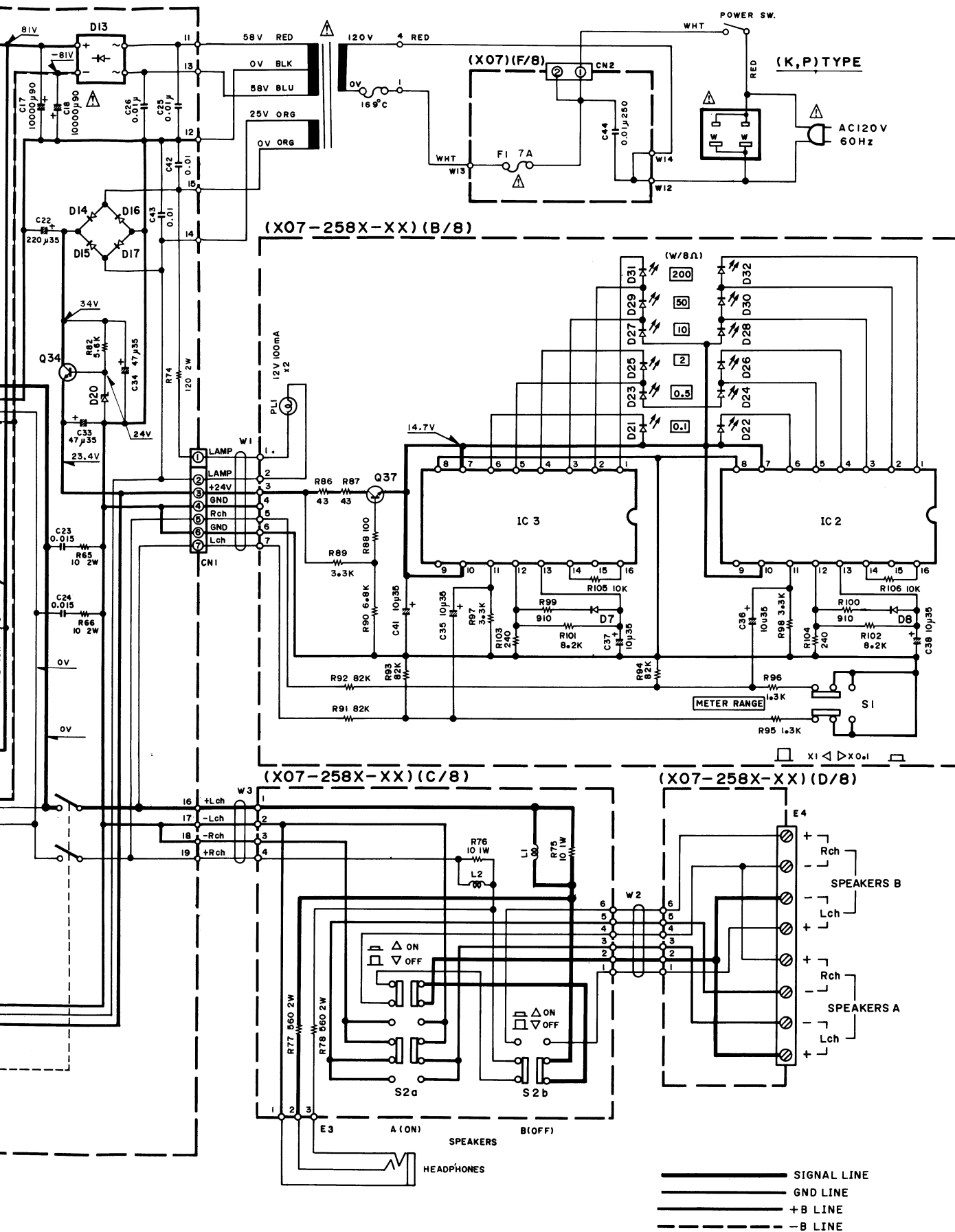
- 2SA1124
- 2SA733(A)
- 2SA992
- 2SC1845
- 2SC2003
- 2SC2631
- 2SC945(A)
- 2SD1302
- 2SC2590
- 2SA1216LB
- 2SC3419
- 2SA1535A
- 2SC3944A
- 2SC2922LB
- AN6882
- UPC1237HA

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.

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 haute impédance sans signal d'entrée. Les valeurs peuvent varier légèrement du fait des variations inhérentes à des instruments de mesure individuels.

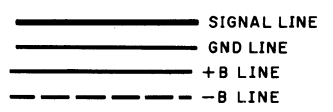




(X07-258X-XX)

DESTINATION	Ref. No.	E/B	G/B	W15	W7-W13	W13	F2
0-10	K, P	NO	NO	NO	NO	YES	NO
0-22	M, Y, X	YES	YES	YES	YES	NO	YES

- IC 1 : μ PC1237HA
- IC 2,3 : AN6882
- Q1~4 : 2SC1845(F, E)
- Q5~8, 23, 24, 35 : 2SC945(A)(Q, P)
- Q9, 10, 25~28, 36 : 2SA733(A)(Q, P)
- Q11, 12 : 2SA1124(Q, R)
- Q13, 14 : 2SC3419(Y)
- Q15, 16 : 2SC3944A(Q, R)
- Q17, 18 : 2SA1535A(Q, R)
- Q19, 20 : 2SC2922LB
- Q21, 22 : 2SA1216LB
- Q29, 30 : 2SC2631(Q, R, S)
- Q31, 32 : 2SD1302(S, T)
- Q33 : 2SA992(F, E)
- Q34 : 2SC2590(Q, R)
- Q37 : 2SC2003(L, K)
- D1, 2, 7~10 : ISS133 or HSS176
- D3~6 : ISS131 or HSS178
- D13 : S15VB20
- D14~17 : S5566B
- D18, 19 : RD18ES(B) or HZS18N(B)
- D20 : RD24ES(B) or HZS24N(B)
- D21~32 : B30-1291-05



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.

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.

Y084070-10



PARTS LIST

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
KM-209						
601	1A		A01-1741-01	METALLIC CABINET		
602	2A	*	A20-6000-02	PANEL ASSY		
603	2A	*	B10-1077-03	FRONT GLASS		
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0094-03	WARRANTY CARD	Y	
-			B46-0095-03	WARRANTY CARD	Y	
-			B46-0096-13	WARRANTY CARD	X	
-			B46-0121-03	WARRANTY CARD	P	
-			B58-0513-04	CAUTION CARD (PRESET220-240)	Y	
-		*	B60-0018-00	INSTRUCTION MANUAL (ENGLISH)		
-		*	B60-0019-00	INSTRUCTION MANUAL (FRENCH)	PM	
-		*	B60-0020-00	INSTRUCTION MANUAL (S,A,C)	M	
△	608		E03-0055-05	AC OUTLET	M	
△	608		E03-0072-05	AC OUTLET	KPY	
△	608	1C	*	E03-0114-05	AC OUTLET	X
△	609	1A	*	E03-0115-05	AC PULG ADAPTOR	M
△	610	1C		E30-0459-05	AC POWER CORD	M
△	610	1C		E30-0812-05	AC POWER CORD	Y
△	610	1C		E30-1341-05	AC POWER CORD	X
△	610	1C		E30-2209-05	AC POWER CORD	KP
-		*	H01-8759-04	ITEM CARTON CASE		
-		*	H10-3979-02	POLYSTYRENE FOAMED FIXTURE		
-			H25-0223-04	PROTECTION BAG (750X350X0.03)		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
△	614	2B, 2C	J02-1013-05	FOOT		
△	616	1C	J42-0083-05	POWER CORD BUSHING		
-			J61-0307-05	WIRE BAND		
620	2A	*	K27-2014-04	KNØB (BUTTON) SPEAKER A,B		
621	2B	*	K27-2015-04	KNØB (BUTTON) METER RANGE		
622	2A		K27-2004-04	KNØB (BUTTON) POWER		
626	1B		L01-7901-05	POWER TRANSFORMER	KP	
626	1B		L01-7905-05	POWER TRANSFORMER	YMX	
A	1A, 2A		N89-3008-45	BINDING HEAD TAPTITE SCREW		
B	1B		N89-3008-46	BINDING HEAD TAPTITE SCREW		
C	2A, 2B		N30-3006-46	PAN HEAD MACHINE SCREW		
E	1B		N89-4010-46	BINDING HEAD TAPTITE SCREW		
S1	1A, 2A		S40-1094-05	PUSH SWITCH (POWER TYPE)		
MAIN AMPLIFIER UNIT (X07-2580-11:K, P, O-22: Y, M, X)						
D21 -32	2B	*	B30-1291-05	LED		
PL1	2B		B30-1140-05	LAMP (12V, 0.1A)		
C1 ,2			CE04LW1V4R7M	ELECTRØ 4.7UF 35WV		
C3 ,4			CE04LW1A101M	ELECTRØ 100UF 10WV		
C5 ,6			CC45FSL1H221J	CERAMIC 220PF J		
C7 ,8			CF92FV1H223J	MF 0.022UF J		
C9 ,10			CC45FSL1H470J	CERAMIC 47PF J		
C11 ,12			CC45FSL1H030C	CERAMIC 3.0PF C		
C13 ,14			CF92FV1H102J	MF 1000PF J		
C15 ,16		*	CE04LW1H330M	ELECTRØ 33UF 50WV		
C17 ,18			C90-1394-05	ELECTRØ 10000UF 90WV		
C19 ,20			CE04LW1E101M	ELECTRØ 100UF 25WV		

E: Scandinavia & Europe K: USA P: Canada

Y: PX(Far East, Hawaii) T: England M: Other Areas

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C21		*	CE04LW2A220M	ELECTRO 22UF 100WV		
C22			CE04LW1V221M	ELECTRO 220UF 35WV		
C23 ,24			CF92FV1H153J	MF 0.015UF J		
C25 ,26			CK45FE2H103P	CERAMIC 0.010UF P		
C27			CE04LW1C220M	ELECTRO 22UF 16WV		
C28			C90-1334-05	NP-ELEC 47UF 10WV		
C29			CE04LW1V4R7M	ELECTRO 4.7UF 35WV		
C30			CE04LW1C330M	ELECTRO 33UF 16WV		
C31			CF92FV1H223J	MF 0.022UF J		
C32			CC45FSL1H271J	CERAMIC 270PF J		
C33 ,34		*	CE04LW1V470M	ELECTRO 47UF 35WV		
C35 -38			CE04LW1V100M	ELECTRO 10UF 35WV		
C39 ,40			CC45FSL1H080D	CERAMIC 8.0PF D		
C41			CE04LW1V100M	ELECTRO 10UF 35WV		
C42 ,43			CK45FF1H103Z	CERAMIC 0.010UF Z		
△ C44			C91-0971-05	FILM 0.01UF 250WV	KPYM	
E1	1C		E13-0249-05	PHONE JACK (2P)		
E2	1C		E23-0077-05	TERMINAL	YM	
E2	1C		E23-0149-05	TERMINAL		
E3	1A		E11-0162-05	PHONE JACK (3P)		
E4	1C		E20-0823-05	LOCK TERMINAL BOARD(8P)		
△ F1	1C		F05-3522-05	FUSE (SEMKO) (250V T3.5A)	X	
△ F1	1C		F05-7026-05	FUSE (UL) (250V 7A)	KP	
△ F1 ,F2	1C		F05-3121-05	FUSE (250V 3.5A)	YMXM	
630	1A,1B		J13-0041-05	FUSE CLIP	KPYM	
L1 ,2			L39-0085-05	PHASE-COMPENSATION COIL		
B	1B		N89-3008-46	BINDING HEAD TAPTITE SCREW		
F	2B,3C		N09-1202-05	TAPPING SCREW (3X14)		
G	2B		N87-4020-46	BRAZIER HEAD TAPTITE SCREW		
H	2B,3C		N09-0333-05	TAPPING SCREW (3X12)		
J	1B		N09-1777-05	SEMS (TAPTITE SCREW)		
CP1 ,2			R90-0187-05	MULTI-COMP 0.22X2 K 5W		
R19 ,20			RD14GB2E621J	FL-PROOF RD 620 J 1/4W		
R25 ,26			RD14GB2E102J	FL-PROOF RD 1.0K J 1/4W		
R27 ,28			RD14GB2E132J	FL-PROOF RD 1.3K J 1/4W		
R29 ,30			RD14GB2E182J	FL-PROOF RD 1.8K J 1/4W		
R31 ,32			RD14GB2E822J	FL-PROOF RD 8.2K J 1/4W		
R33 ,34			RD14GB2E912J	FL-PROOF RD 9.1K J 1/4W		
R35 -38			RD14GB2E100J	FL-PROOF RD 10 J 1/4W		
R39 -42			RD14GB2E221J	FL-PROOF RD 220 J 1/4W		
R43 -46			RD14GB2E2R2J	FL-PROOF RD 2.2 J 1/4W		
R65			RS14KB3D100J	FL-PROOF RS 10 J 2W		
R66			RS14KB3D100J	FL-PROOF RS 10 J 2W		
R74			RS14KB3D121J	FL-PROOF RS 120 J 2W		
R75 ,76			RS14KB3A100J	FL-PROOF RS 10 J 1W		
R77 ,78			RS14KB3D561J	FL-PROOF RS 560 J 2W		
R79 ,80			RS14KB3D472J	FL-PROOF RS 4.7K J 2W		
R81			RD14GB2E100J	FL-PROOF RD 10 J 1/4W		
VR1 ,2			R12-1083-05	TRIM POT. 1K		
K1	2B		S51-2078-05	MAGNETIC RELAY		
S1	1B		S40-2351-05	PUSH SWITCH		
S2	1B		S42-2163-05	MULTIPLE PUSH SWITCH		

E: Scandinavia & Europe K: USA P: Canada

Y: PX(Far East, Hawaii) T: England M: Other Areas

Y: AAFES(Europe) X: Australia

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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
⚠ S3 S4	2B		S31-2127-05	SLIDE SWITCH (POWER TYPE)	YMX YM	
			S31-2126-05	SLIDE SWITCH (POWER TYPE)		
D1 ,2			1SS133	DIODE		
D1 ,2			1SS176	DIODE		
D3 -6			1SS131	DIODE		
D3 -6			1SS178	DIODE		
D7 -10			1SS133	DIODE		
D7 -10			1SS176	DIODE		
D13			S15VB20	DIODE		
D14 -17			S5566B	DIODE		
D18 ,19			HZS18N(B)	ZENER DIODE		
D18 ,19			RD18ES(B)	ZENER DIODE		
D20			HZS24N(B)	ZENER DIODE		
D20			RD24ES(B)	ZENER DIODE		
IC1			UPC1237HA	IC(POWER AMP)		
IC2 ,3			AN6882	IC(7PT LED LEVEL METER DRIVER)		
Q1 -4			2SC1845(F,E)	TRANSISTOR		
Q5 -8			2SC945(A)(Q,P)	TRANSISTOR		
Q9 ,10			2SA733(A)(Q,P)	TRANSISTOR		
Q11 ,12			2SA1124(Q,R)	TRANSISTOR		
Q13 ,14			2SC3419(Y)	TRANSISTOR		
Q15 ,16			2SC3944A(Q,R)	TRANSISTOR		
Q17 ,18			2SA1535A(Q,R)	TRANSISTOR		
Q19 ,20			2SC2922LB	TRANSISTOR		
Q21 ,22			2SA1216LB	TRANSISTOR		
Q23 ,24			2SC945(A)(Q,P)	TRANSISTOR		
Q25 -28			2SA733(A)(Q,P)	TRANSISTOR		
Q29 ,30			2SC2631(Q,R,S)	TRANSISTOR		
Q31 ,32			2SD1302(S,T)	TRANSISTOR		
Q33			2SA992(F,E)	TRANSISTOR		
Q34			2SC2590(Q,R)	TRANSISTOR		
Q35			2SC945(A)(Q,P)	TRANSISTOR		
Q36			2SA733(A)(Q,P)	TRANSISTOR		
Q37			2SC2003(L,K)	TRANSISTOR		

E: Scandinavia & Europe K: USA

P: Canada

Y: PX(Far East, Hawaii) T: England

M: Other Areas

Y: AAFES(Europe)

X: Australia

⚠ indicates safety critical components.

SPECIFICATIONS

Rated Power Output

150 watts per channel minimum RMS, both channels driven, at 8 ohms from 20 Hz to 20,000 Hz with no more than 0.03% total harmonic distortion.

Both channels driven (8 ohms, 1 kHz).....	155 W + 155 W
Music Power (8 ohms)	310 W + 310 W
Total Harmonic Distortion 20 Hz to 20,000 Hz	0.015% at 1/2 rated power into 8 ohms
1 kHz.....	0.002% at 1/2 rated power into 8 ohms
Inter Modulation Distortion (60 Hz:7 kHz = 4:1).....	0.002% at rated power into 8 ohms
Frequency Response	5 Hz to 200 kHz, +0 dB, -3 dB
Power Bandwidth (0.2 % T.H.D., 8 ohms)	10 Hz to 50 kHz
Signal-to-Noise Ratio (IHF-A)	120 dB (MAIN IN)
Damping Factor	More than 35 at 50 Hz

General

Power Consumption	5 A (USA and Canada) 350 W (Others)
AC Outlets	Switched 2, Unswitched 1 (Except some area)
Dimensions	W 440 mm (17-5/16") H 133 mm (5-1/4") D 269 mm (10-9/16")
Weight (Net)	8.8 kg (19.4 lb)

Note :

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

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.

KENWOOD CORPORATION

Shionogi Shibuya Building, 17-5, 2-chome Shibuya, Shibuya-ku, Tokyo 150, Japan

KENWOOD U.S.A. CORPORATION

2201 East Dominguez Street, Long Beach, CA 90810;
550 Clark Drive, Mount Olive, NJ 07828, U.S.A.

KENWOOD ELECTRONICS CANADA INC.

P.O. BOX 1075, 959 Gana Court, Mississauga, Ontario, Canada L4T 4C2

TRIO-KENWOOD U.K. LIMITED

KENWOOD House, Dwight Road, Watford, Herts., WD1 8EB United Kingdom

KENWOOD ELECTRONICS BENELUX N.V.

Mechelsesteenweg 418 B-1930 Zaventem, Belgium

KENWOOD ELECTRONICS DEUTSCHLAND GMBH

Rembrücker-Str. 15, 6056 Heusenstamm, West Germany

TRIO-KENWOOD FRANCE S.A.

13 Boulevard Ney, 75018 Paris, France

KENWOOD LINEAR S.p.A.

20125, MILANO-VIA ARBE, 50, ITALY

KENWOOD ELECTRONICS AUSTRALIA PTY. LTD. (INCORPORATED IN N.S.W.)

4E Woodcock Place, Lane Cove, N.S.W. 2066, Australia

KENWOOD & LEE ELECTRONICS, LTD.

Wang Kee Building, 4th Floor, 34-37, Connaught Road, Central, Hong Kong