

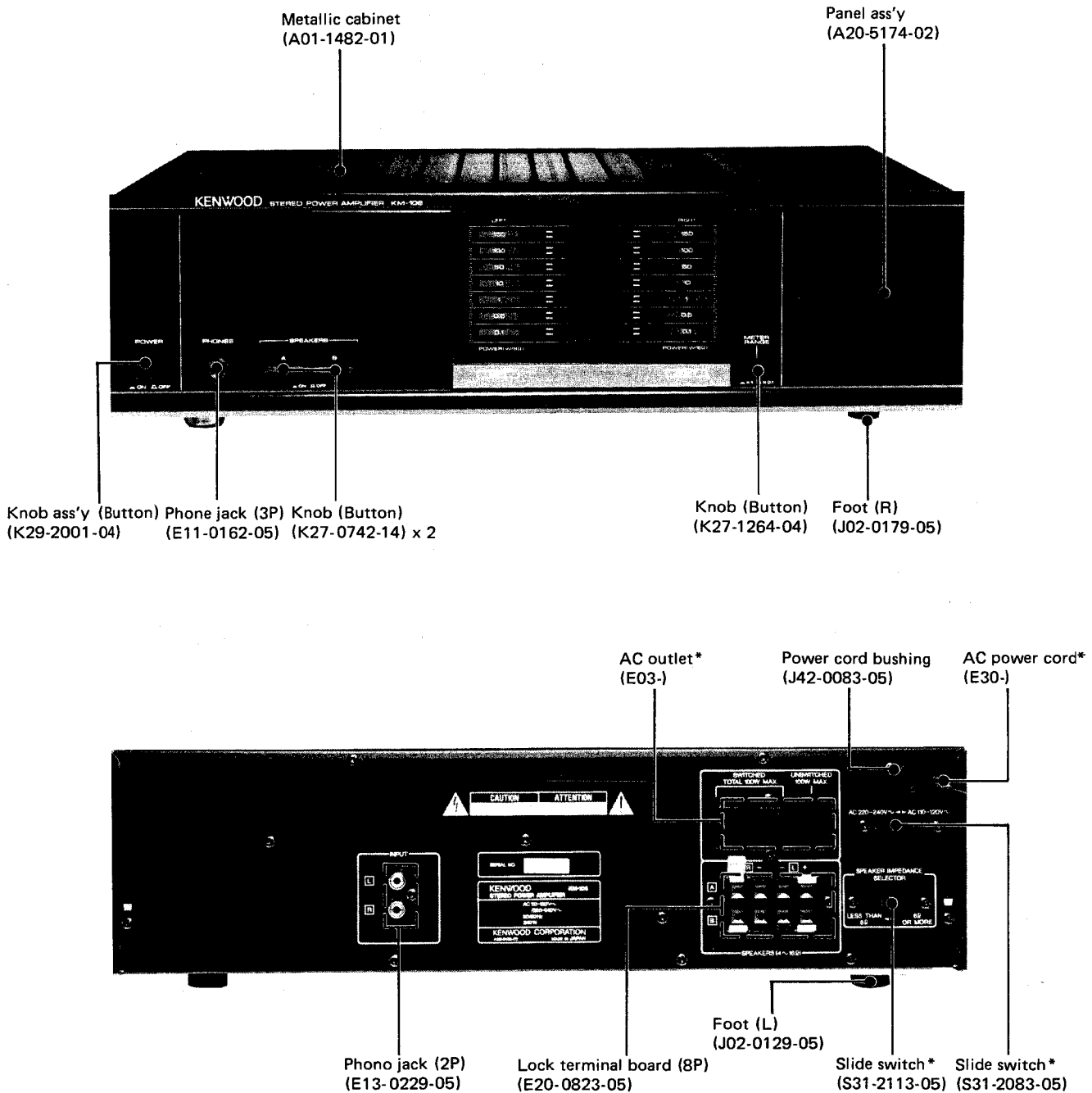
STEREO POWER AMPLIFIER

# KM-106

## SERVICE MANUAL

# KENWOOD

©1987-2 PRINTED IN JAPAN  
B51-3151-00 (O)1606

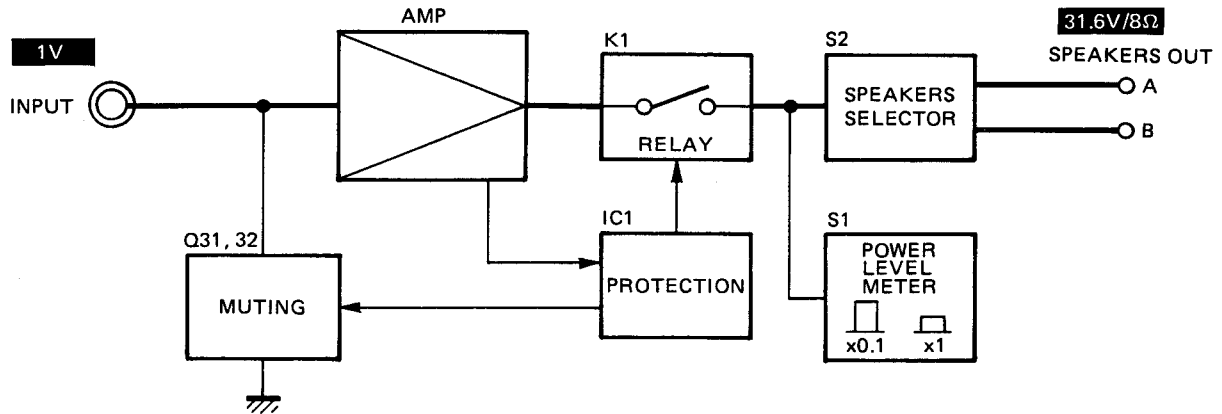


\*Refer to parts list on page 10.

Note : Specifications is written on page 4.

## BLOCK DIAGRAM/CIRCUIT DESCRIPTION

### BLOCK LEVEL DIAGRAM



### CIRCUIT DESCRIPTION

#### Description of Components

##### POWER AMPLIFIER (X07-227X-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	Relay driver IC	Current protection.
Q34	Constant voltage control	
Q35, 36	Muting driver	
Q37~40	LED driver	

# KM-106 KM-106

## ADJUSTMENT/REGLAGE/ABGLEICH

## SPECIFICATIONS

### 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)

### Rated 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 0.03% total harmonic distortion.**

**Both channels driven (Except U.S.A. and Canada)**  
 (8 ohms, 1 kHz).....135 W + 135 W  
 (4 ohms, 1 kHz).....110 W + 110 W

**Music Power Output (8 ohms)**  
 (Except USA and Canada) .....250 W + 250 W

**Total Harmonic Distortion**  
 20 Hz to 20,000 Hz.....0.03% at rated power into 8 ohms  
 0.015% at 1/2 rated power into 8 ohms  
 1 kHz.....0.002% at 1/2 rated power into 8 ohms

**Intermodulation Distortion (60 Hz:7 kHz = 4:1)**.....0.002% at rated power into 8 ohms

**Frequency Response**.....5 Hz to 200 kHz, +0, -3 dB

**Power Bandwidth (0.2 % THD, 8 ohms)**.....10 Hz to 50 kHz

**Signal-to-Noise Ratio**.....120 dB

**Damping Factor**.....35 at 50 Hz

### General

**Power Consumption** .....4 A (USA and Canada)  
 240 W (Others)

**AC Outlets**.....Switched 2, Unswitched 1  
 (Except some area)

**Dimensions** .....W 420 mm (16-9/16")  
 H 123 mm (4-13/16")  
 D 269 mm (10-9/16")

**Weight (Net)** .....7.9 kg (17.4 lb)

### Note :

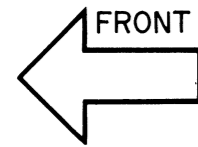
We follow a policy of continuous advancements in developments. For this reason specifications may be changed without notice.

# PC BOARD

A B C D E F G H I J

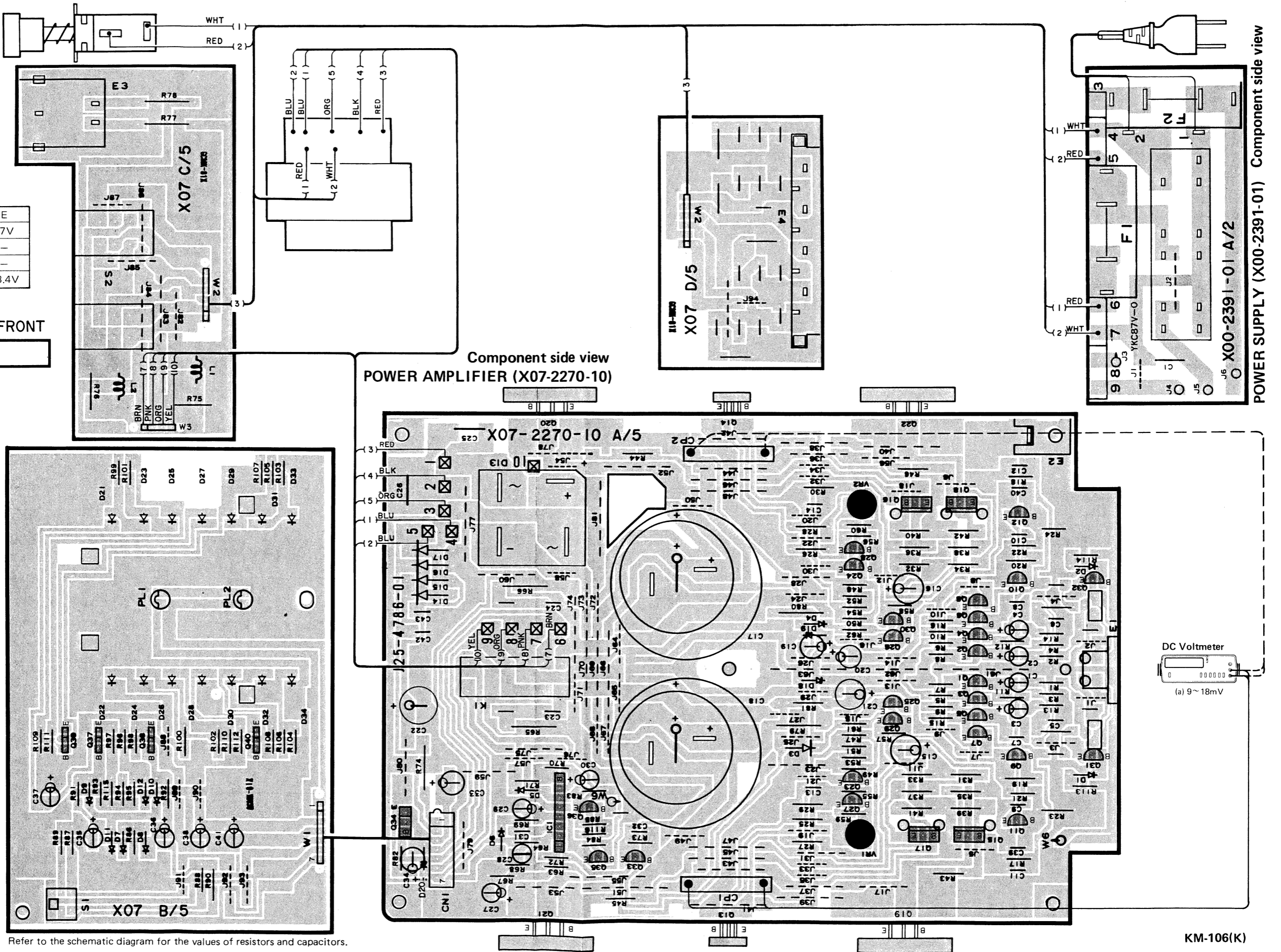
(X07-2270-10)

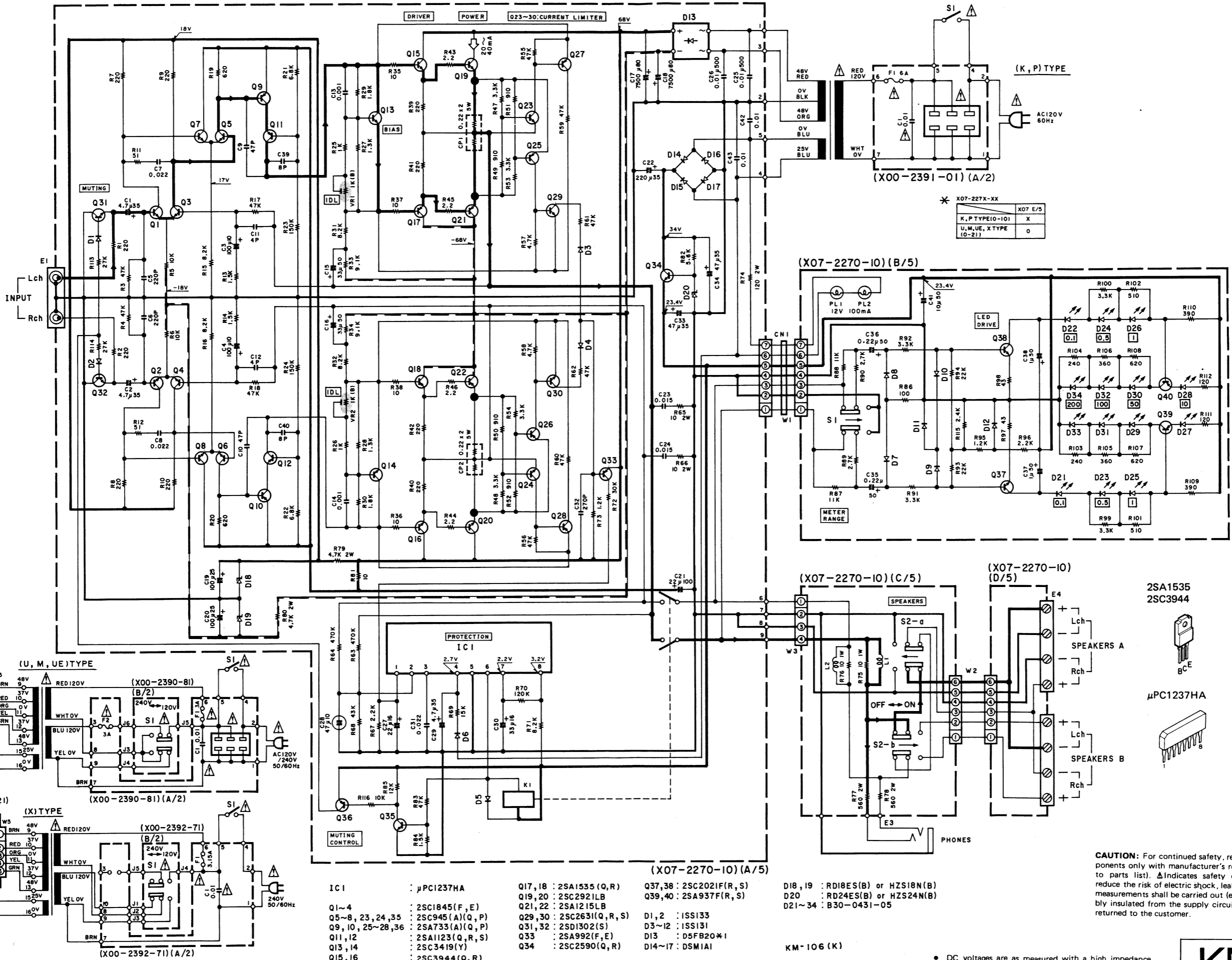
	B	C	E
Q5,Q7	-	-	17V
Q17,Q18	-	-68V	-
Q21,Q22	-	-68V	-
Q34	-	34V	23.4V



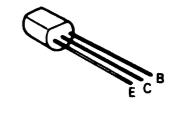
IC1

4	2.7V
7	2.2V
8	3.2V

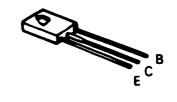




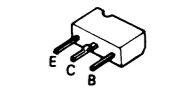
- 2SA1123
- 2SA733(A)
- 2SA992
- 2SC1845
- 2SC2631
- 2SC945(A)
- 2SD1302



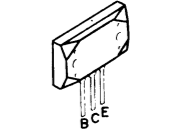
- 2SC2590



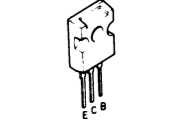
- 2SA937F
- 2SC2021F



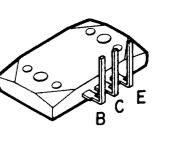
- 2SA1215LB



- 2SC3419



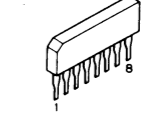
- 2SA1535
- 2SC3944



- 2SC2921LB



μPC1237HA



(X07-2270-10) (A/5)

- |                   |                     |         |                     |         |                   |
|-------------------|---------------------|---------|---------------------|---------|-------------------|
| IC 1              | : μPC1237HA         | Q17, 18 | : 2SA1535 (Q, R)    | Q37, 38 | : 2SC2021F (R, S) |
| Q1~4              | : 2SC1845 (F, E)    | Q19, 20 | : 2SC2921LB         | Q39, 40 | : 2SA937F (R, S)  |
| Q5~8, 23, 24, 35  | : 2SC945 (A) (Q, P) | Q21, 22 | : 2SA1215LB         | D1, 2   | : 1SS133          |
| Q9, 10, 25~28, 36 | : 2SA1123 (Q, R, S) | Q29, 30 | : 2SC2631 (Q, R, S) | D3~12   | : 1SS131          |
| Q11, 12           | : 2SA1123 (Q, R, S) | Q31, 32 | : 2SD1302 (S)       | D13     | : D5FB20 *1       |
| Q13, 14           | : 2SC3419 (Y)       | Q33     | : 2SA992 (F, E)     | D14~17  | : DSM1A1          |
| Q15, 16           | : 2SC3944 (Q, R)    | Q34     | : 2SC2590 (Q, R)    |         |                   |

- D18, 19 : RD18ES(B) or HZS18N(B)
- D20 : RD24ES(B) or HZS24N(B)
- D21~34 : B30-0431-05

KM-106 (K)

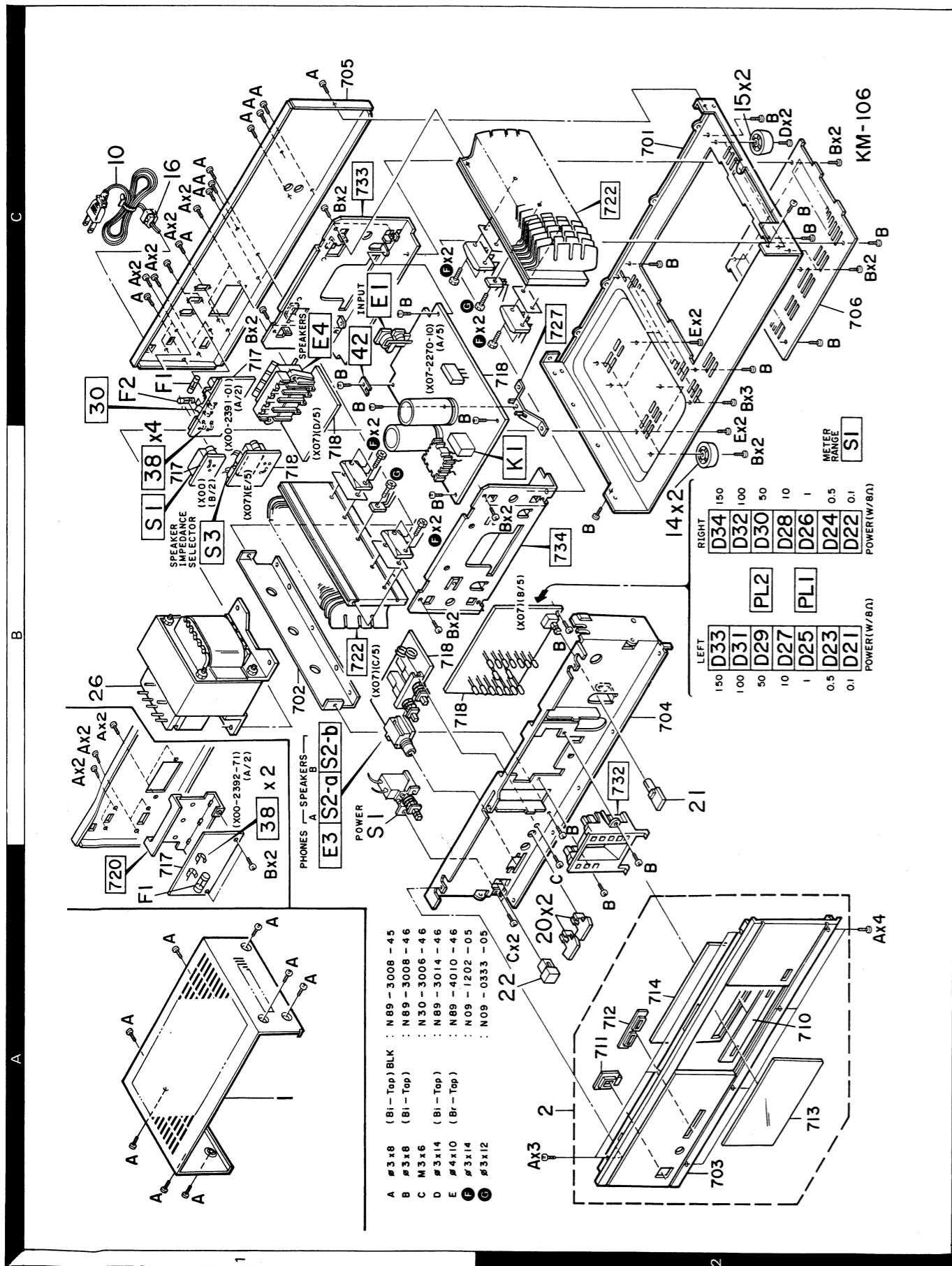
**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). Δ indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably 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.



# KM-106 KM-106

## EXPLODED VIEW



## 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
<b>KM-106</b>						
1	1A		A01-1482-01	METALLIC CABINET		
2	2A	*	A20-5174-02	PANEL ASSY		
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0094-03	WARRANTY CARD	UE	
-			B46-0095-03	WARRANTY CARD	UE	
-			B46-0096-13	WARRANTY CARD	X	
-			B46-0121-03	WARRANTY CARD	P	
-		*	B50-6831-00	INSTRUCTION MANUAL (ENGLISH)		
-		*	B50-6832-00	INSTRUCTION MANUAL (FRENCH)	PMX	
-		*	B50-6833-00	INSTRUCTION MANUAL (SPANISH)	M	
-		*	B50-6834-00	INSTRUCTION MANUAL (ARABIC)	M	
-			B58-0223-04	CAUTION CARD (PRE-SET 120V)	U	
-			B58-0269-04	CAUTION CARD	K	
-			B58-0513-04	CAUTION CARD (PRESET220-240)	UE	
-			B59-0092-00	SERVICE DIRECTORY	UE	
△	10		E30-0812-05	AC POWER CORD	UMUE	
△	10		E30-0974-05	AC POWER CORD	KP	
△	10		E30-1341-05	AC POWER CORD	X	
△	F1		F05-3121-05	FUSE (SEMΚ0) (250V T3.15A)	X	
△	F1		F05-6027-05	FUSE (UL) (250V 6A)	KP	
△	F1	.2	F05-3022-05	FUSE (250V 3A)	UMUE	
-		*	H01-7565-04	ITEM CARTON CASE		
-			H10-1892-02	POLYSTYRENE FOAMED FIXTURE		
-			H10-1893-02	POLYSTYRENE FOAMED FIXTURE		
-			H25-0223-04	PROTECTION BAG (750X350X0.03)		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
△	14		J02-0129-05	FOOT (L)		
△	15		J02-0179-05	FOOT (R)		
△	16		J42-0083-05	POWER CORD BUSHING		
-			J61-0307-05	WIRE BAND		
△	20		K27-0742-14	KNØB (BUTTON) SPEAKERS		
△	21		K27-1264-04	KNØB (BUTTON) METER RANGE		
△	22		K29-2001-04	KNØB ASSY (BUTTON) POWER		
△	26		L01-7911-05	POWER TRANSFORMER	KP	
△	26	*	L01-7915-05	POWER TRANSFORMER	UMUEX	
△	S1		S40-1094-05	PUSH SWITCH (POWER TYPE)		
<b>POWER SUPPLY UNIT (X00-239X-XX) 1-01: K,P 0-81: U,M,UE 2-71: X</b>						
△	C1		C91-0023-05	CERAMIC 0.01UF AC250V	UMUE	
△	C1		C91-0647-05	CERAMIC 0.01UF P	KPX	
△	30		E03-0077-05	AC ØUTLET	UMUE	
△	30	*	E03-0078-05	AC ØUTLET	KP	
△	38		J13-0041-05	FUSE CLIP	KPUMUE	
△	38		J13-0054-05	FUSE CLIP	X	
△	-		J61-0307-05	WIRE BAND	X	
△	S1		S31-2083-05	SLIDE SWITCH (POWER TYPE)	UMUEX	
<b>POWER AMPLIFIER UNIT (X07-2270-XX) 0-10: K,P 0-21: U,M,UE,X</b>						
D21 -34	2B		B30-0431-05	LED(LN21CPH) METER		
PL1 ,2	2B	*	B30-1140-05	LAMP (12V,0.1A)		

E: Scandinavia & Europe K: USA P: Canada W: Europe

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

UE: AAFES(Europe) X: Australia

△ indicates safety critical components.

## 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
C1 ,2			CE04KW1V4R7M	ELECTR0 4.7UF 35WV		
C3 ,4			CE04KW1A101M	ELECTR0 100UF 10WV		
C5 ,6			CC45FSL1H221J	CERAMIC 220PF J		
C7 ,8			CF92FV1H223J	MF 0.022UF J		
C9 ,10			CC45FSL1H470J	CERAMIC 47PF J		
C11 ,12			CC45FSL1H040C	CERAMIC 4.0PF C		
C13 ,14			CF92FV1H102J	MF 1000PF J		
C15 ,16		*	CE04KW1H330M	ELECTR0 33UF 50WV		
C17 ,18			C90-1318-05	ELECTR0 7500UF 80WV		
C19 ,20			CE04KW1E101M	ELECTR0 100UF 25WV		
C21		*	CE04KW2A220M	ELECTR0 22UF 100WV		
C22			CE04KW1V221M	ELECTR0 220UF 35WV		
C23 ,24			CF92FV1H153J	MF 0.015UF J		
C25 ,26			CK45FE2H103P	CERAMIC 0.010UF P		
C27			CE04KW1C220M	ELECTR0 22UF 16WV		
C28		*	C90-1334-05	NP-ELEC 47UF 10WV		
C29			CE04KW1V4R7M	ELECTR0 4.7UF 35WV		
C30			CE04KW1C330M	ELECTR0 33UF 16WV		
C31			CF92FV1H223J	MF 0.022UF J		
C32			CC45FSL1H271J	CERAMIC 270PF J		
C33 ,34			CE04KW1V470M	ELECTR0 47UF 35WV		
C35 ,36			CE04KW1HR22M	ELECTR0 0.22UF 50WV		
C37 ,38			CE04KW1H010M	ELECTR0 1.0UF 50WV		
C39 ,40			CC45FSL1H080D	CERAMIC 8.0PF D		
C41			CE04KW1H100M	ELECTR0 10UF 50WV		
C42 ,43			CK45FF1H103Z	CERAMIC 0.010UF Z		
42	1C		E23-0125-05	TERMINAL		
E1	1C		E13-0229-05	PHONE JACK(2P) INPUT		
E3	1A		E11-0162-05	PHONE JACK(3P)		
E4	1C		E20-0823-05	LOCK TERMINAL BOARD(8P)SPKRS		
L1 ,2			L39-0085-05	PHASE-COMPENSATION COIL		
F	1B,1C		N09-1202-05	TAPPING SCREW (Ø3X14)		
G	1B,1C		N09-0333-05	TAPPING SCREW (Ø3X12)		
CP1 ,2			R90-0187-05	MULTI-COMP 0.22X2 K 5W		
R19 ,20			RD14AB2E621J	FL-PROOF RD 620 J 1/4W		
R25 ,26			RD14AB2E102J	FL-PROOF RD 1.0K J 1/4W		
R27 ,28			RD14AB2E132J	FL-PROOF RD 1.3K J 1/4W		
R29 ,30			RD14AB2E182J	FL-PROOF RD 1.8K J 1/4W		
R31 ,32			RD14AB2E822J	FL-PROOF RD 8.2K J 1/4W		
R33 ,34		*	RD14AB2E912J	FL-PROOF RD 9.1K J 1/4W		
R35 -38			RD14AB2E100J	FL-PROOF RD 10 J 1/4W		
R39 -42			RD14AB2E221J	FL-PROOF RD 220 J 1/4W		
R43 -46			RD14AB2E2R2J	FL-PROOF RD 2.2 J 1/4W		
R65			RS14DB3D100J	FL-PROOF RS 10 J 2W		
R66			RS14KB3D100J	FL-PROOF RS 10 J 2W		
R74			RS14DB3D121J	FL-PROOF RS 120 J 2W		
R75			RS14KB3A100J	FL-PROOF RS 10 J 1W		
R76			RS14DB3A100J	FL-PROOF RS 10 J 1W		
R77 ,78			RS14DB3D561J	FL-PROOF RS 560 J 2W		
R79 ,80		*	RS14DB3D472J	FL-PROOF RS 4.7K J 2W		
RB1			RD14GB2E100J	FL-PROOF RD 10 J 1/4W		
VR1 ,2			R12-1066-05	TRIMMING P0T. (1K) IDLE		

E: Scandinavia & Europe K: USA P: Canada W: Europe

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

UE: AAFES(Europe) X: Australia

▲ indicates safety critical components.

## PARTS LIST

× New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés 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	Desti- nation 仕向	Re- marks 備考
K1	2B		S51-2078-05	MAGNETIC RELAY		
S1	2B		S40-2323-05	PUSH SWITCH (METER RANGE)		
S2	1B		S42-2138-05	MULTIPLE PUSH SWITCH(SPEAKERS)		
S3	1B	*	S31-2113-05	SLIDE SWITCH (SPKR IMP SEL)	UMU <u>X</u>	
D1 ,2			1SS133	DIODE		
D3 -12			1SS131	DIODE		
D13			DSFB20*1	DIODE		
D14 -17			DSM1A1	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)		
Q1 -4			2SC1845(F,E)	TRANSISTOR		
Q5 -8			2SC945(A)(Q,P)	TRANSISTOR		
Q9 ,10			2SA733(A)(Q,P)	TRANSISTOR		
Q11 ,12			2SA1123(Q,R,S)	TRANSISTOR		
Q13 ,14			2SC3419(Y)	TRANSISTOR		
Q15 ,16		*	2SC3944(Q,R)	TRANSISTOR		
Q17 ,18		*	2SA1535(Q,R)	TRANSISTOR		
Q19 ,20		*	2SC2921LB	TRANSISTOR		
Q21 ,22		*	2SA1215LB	TRANSISTOR		
Q23			2SC945(A)(Q,P)	TRANSISTOR		
Q24			2SC945(A)(Q,P)	TRANSISTOR		
Q25 ,26			2SA733(A)(Q,P)	TRANSISTOR		
Q27			2SA733(A)(Q,P)	TRANSISTOR		
Q28			2SA733(A)(Q,P)	TRANSISTOR		
Q29 ,30			2SC2631(Q,R,S)	TRANSISTOR		
Q31 ,32			2SD1302(S)	TRANSISTOR		
Q33			2SA992(F,E)	TRANSISTOR		
Q34			2SC2590(Q,R)	TRANSISTOR		
Q35			2SC945(A)(Q,P)	TRANSISTOR		
Q36			2SA733(A)(Q,P)	TRANSISTOR		
Q37 ,38		*	2SC2021F(R,S)	TRANSISTOR		
Q39 ,40		*	2SA937F(R,S)	TRANSISTOR		

E: Scandinavia & Europe K: USA P: Canada W: Europe


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

UE: AAFES(Europe) X: Australia

**Note : Specifications is written on page 4.**

**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.

 indicates safety critical components.

### KENWOOD CORPORATION

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

**KENWOOD ELECTRONICS**

1315 E. Watsoncenter Rd, Carson, California 90745;  
75 Seaview Drive, Secaucus, New Jersey 07094, U.S.A.

**KENWOOD ELECTRONICS CANADA INC.**

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

**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.**

Hi-Fi-VIDEO-CAR Hi-Fi  
13, Boulevard Ney, 75018 Paris, France

**TRIO-KENWOOD U.K. LTD.**

17 Bristol Road, The Metropolitan Centre, Greenford, Middx. UB6 8LP England

**KENWOOD ELECTRONICS AUSTRALIA PTY. LTD.**

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

**KENWOOD & LEE ELECTRONICS, LTD.**

Wang Kee Building, 5th Floor, 34-37, Connaught Road, Central, Hong Kong