



KENWOOD®
HI/FI STEREO COMPONENTS

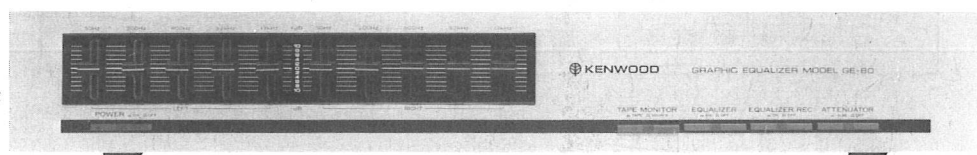
SERVICE MANUAL

GE-80/PM-80/RA-80

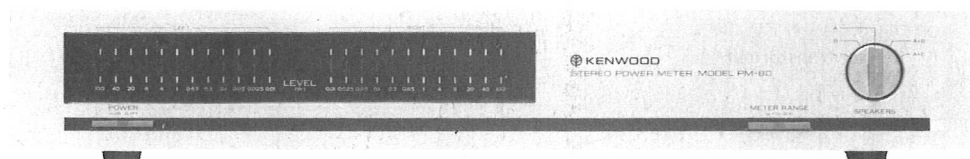
An item of adjustment is written in three languages — English, French and German.

Un article sur réglages est écrit en trois langues, Anglais, Français et Allemand.

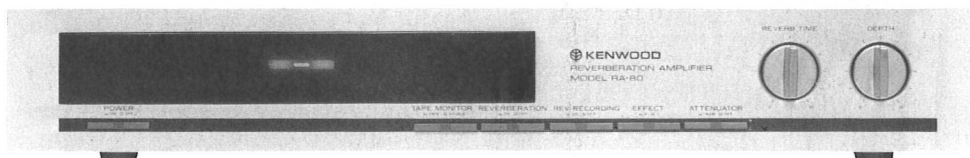
Ein Artikel der Abgleich wird auf drei Sprachen, Englische, Französisch und Deutsch geschrieben.



GE-80



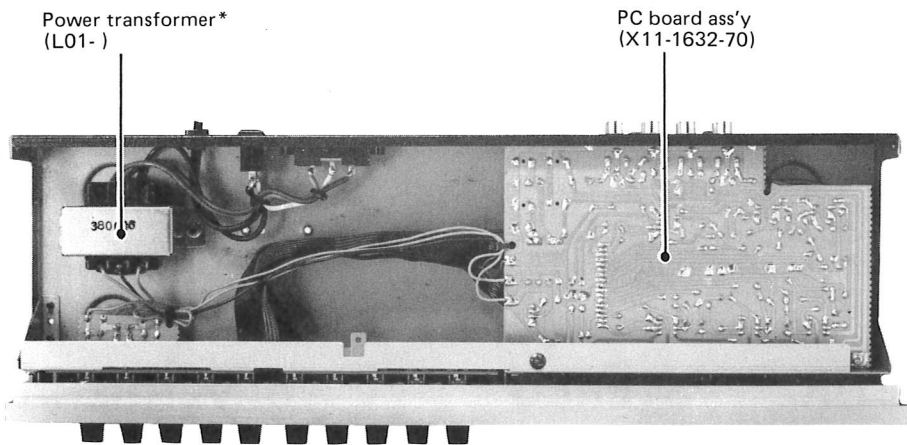
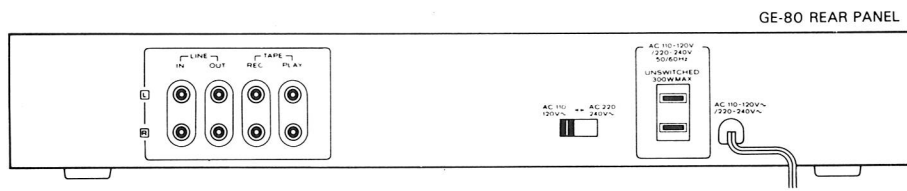
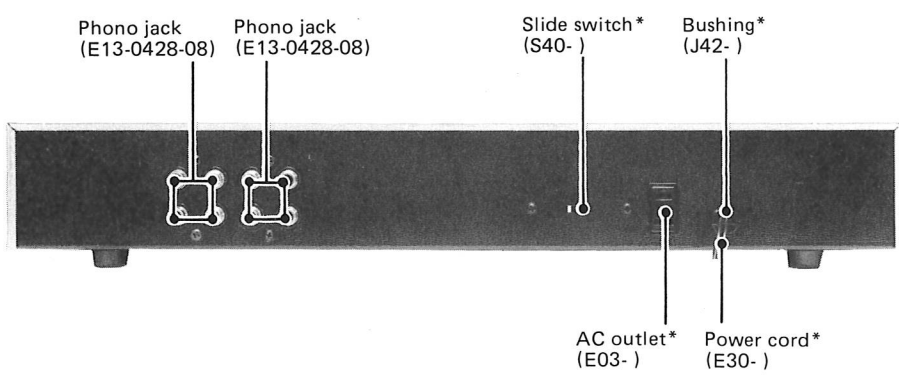
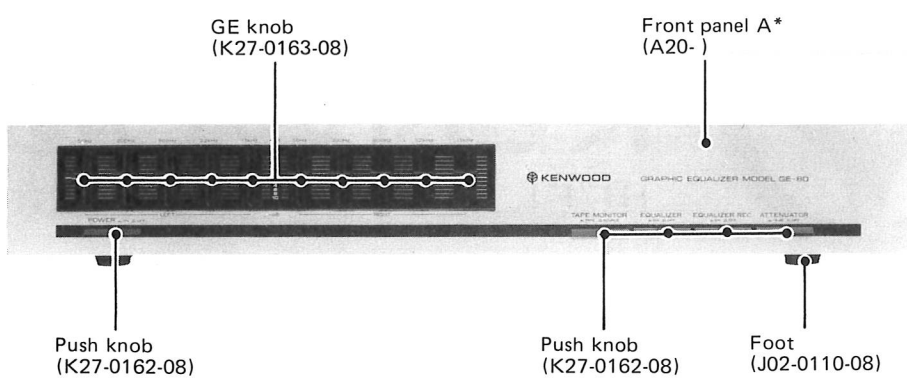
PM-80



RA-80

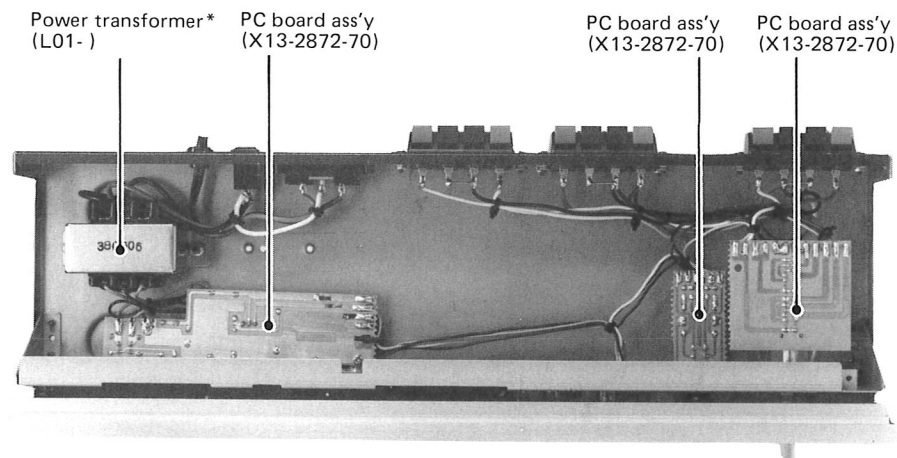
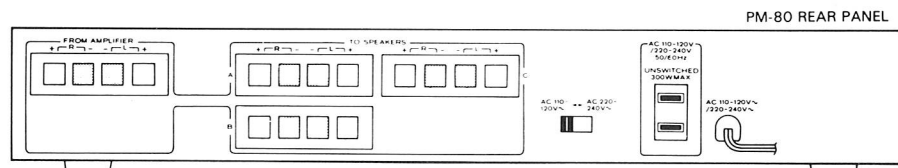
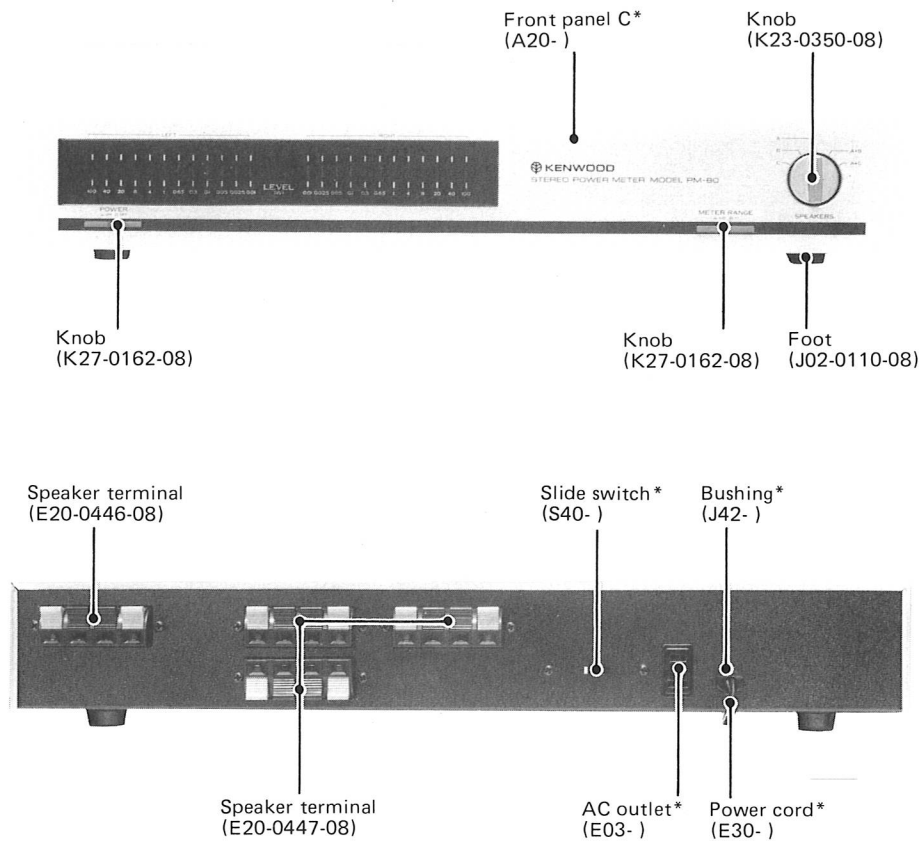
**GRAPHIC / STEREO / REVERBERATION
EQUALIZER / POWER METER / AMPLIFIER**

GE-80 EXTERNAL & INTERNAL VIEWS



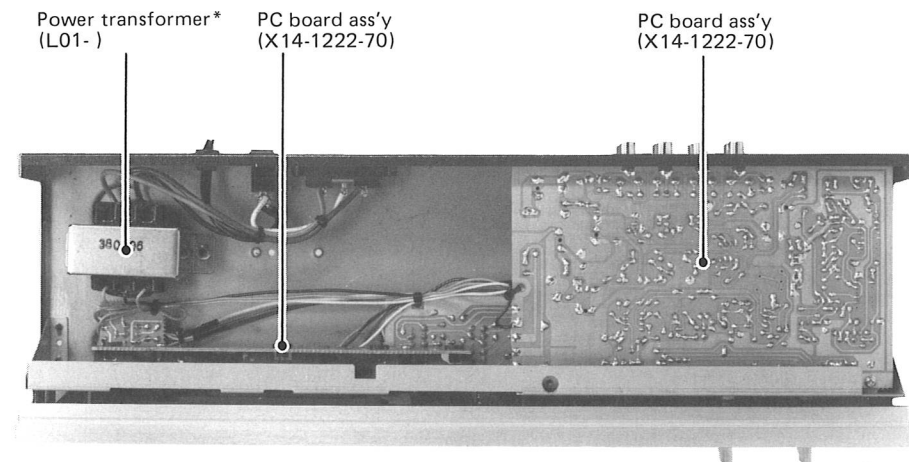
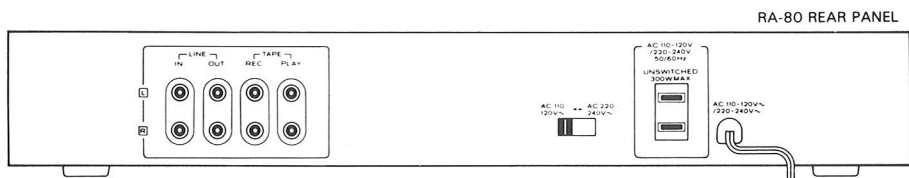
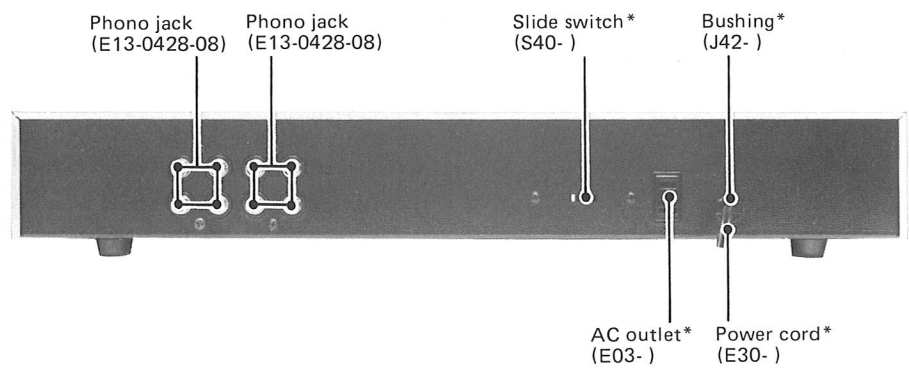
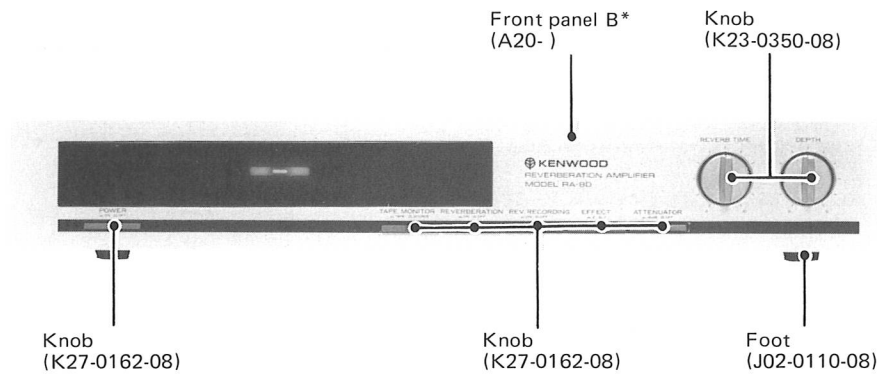
* Refer to Parts List.

PM-80 EXTERNAL & INTERNAL VIEWS



* Refer to Parts List.

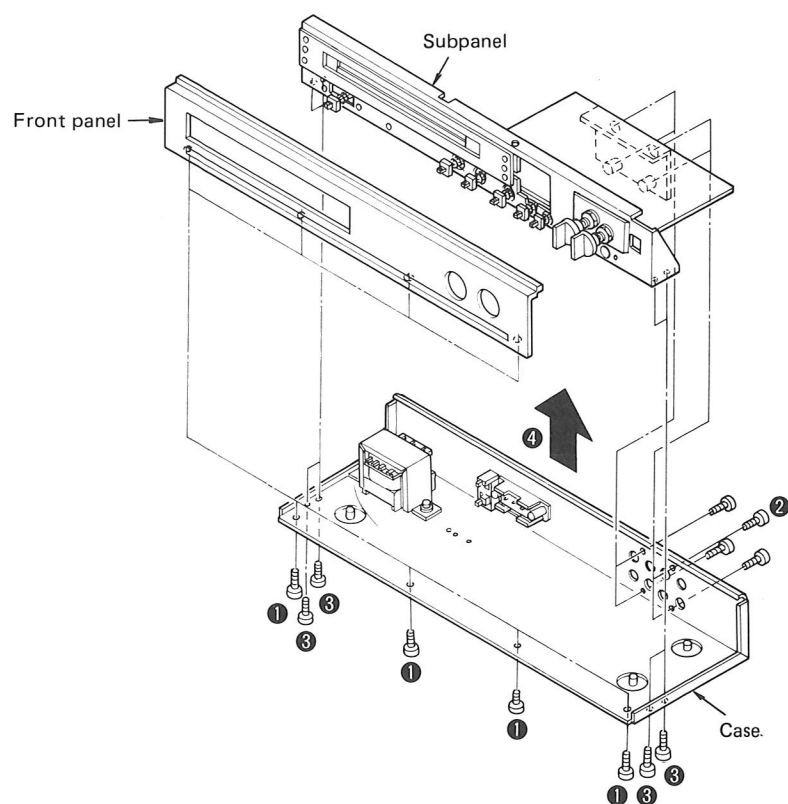
RA-80 EXTERNAL & INTERNAL VIEWS



* Refer to Parts List.

DISASSEMBLY FOR REPAIR

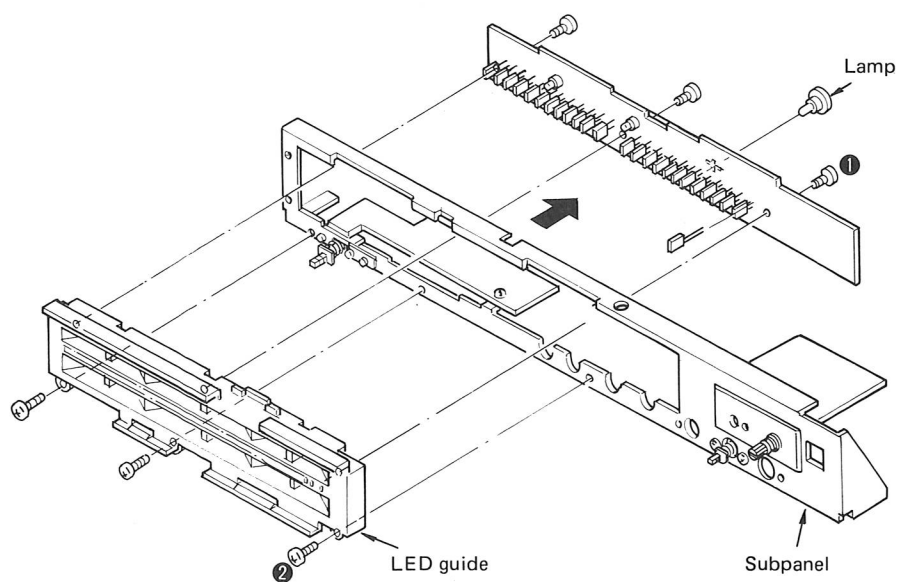
GE-80, RA-80 PCB ASS'Y DETACHMENT



- ① Remove the screws from the front panel.
- ② Remove the screws from the phono jacks.
- ③ Remove the screws from the case.
- ④ Separate the subpanel ass'y from the case.

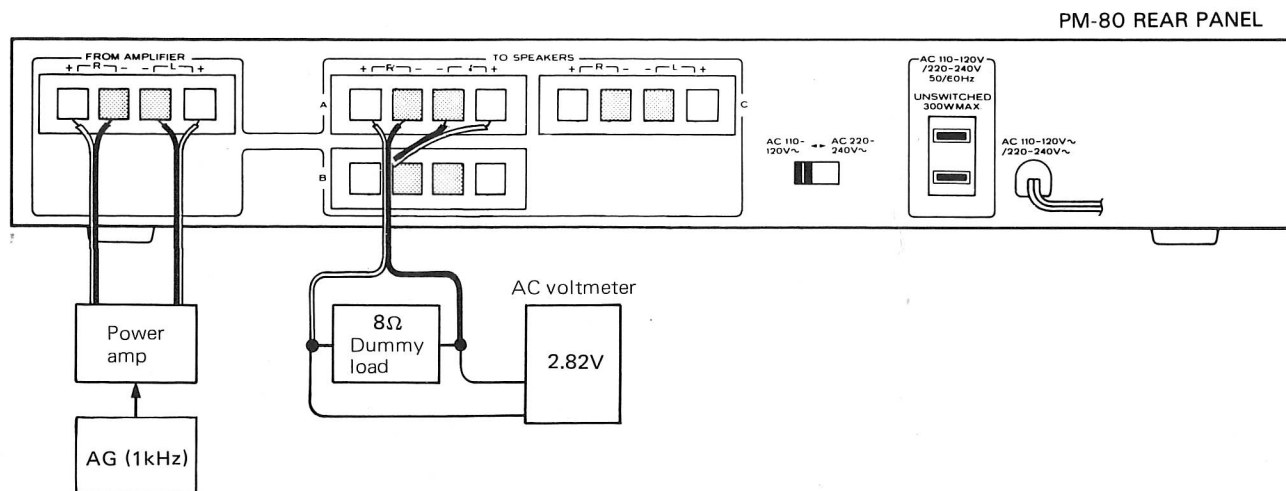
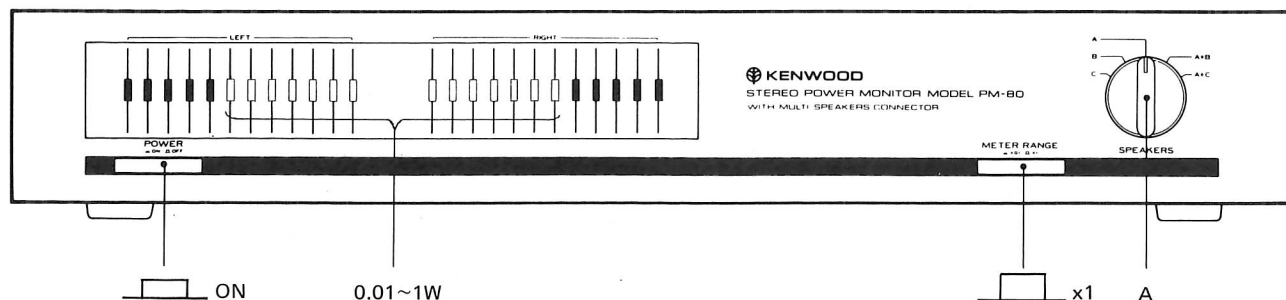
Note: Illustration is in case of the RA-80.

PM-80 PCB ASS'Y DETACHMENT



- ① When replacing LEDs on the PC board, remove the screws from the PC board.
- ② When replacing LED's guide, remove the screws from the subpanel.

PM-80 ADJUSTMENT/RÉGLAGES/ABGLEICH



TEST INSTRUMENTS

Power amp
 Audio generator
 AC voltmeter
 Dummy load

APPAREILLAGE

Ampli
 Générateur audio fréquences
 Voltmètre CA
 Fausse charge (resistance)

PRÜFINSTRUMENTE

Leistungsverstärker
 NF-Signalgenerator
 Wechselspannungsmesser
 Belastungsnachbildung

POWER METER LEVEL ADJUSTMENT

1. Connect an AG (via a power amp) and a dummy load to "FROM AMPLIFIER" and "TO SPEAKERS" terminals respectively.
2. Connect an AC voltmeter across the dummy load.
3. Set the AG to 1kHz and its output for a 2.82V reading of the AC voltmeter.
4. Adjust the trimming pot. VR1 (VR21) for 1W reading of the power meter.

RÉGLAGE DU LED MÈTRE

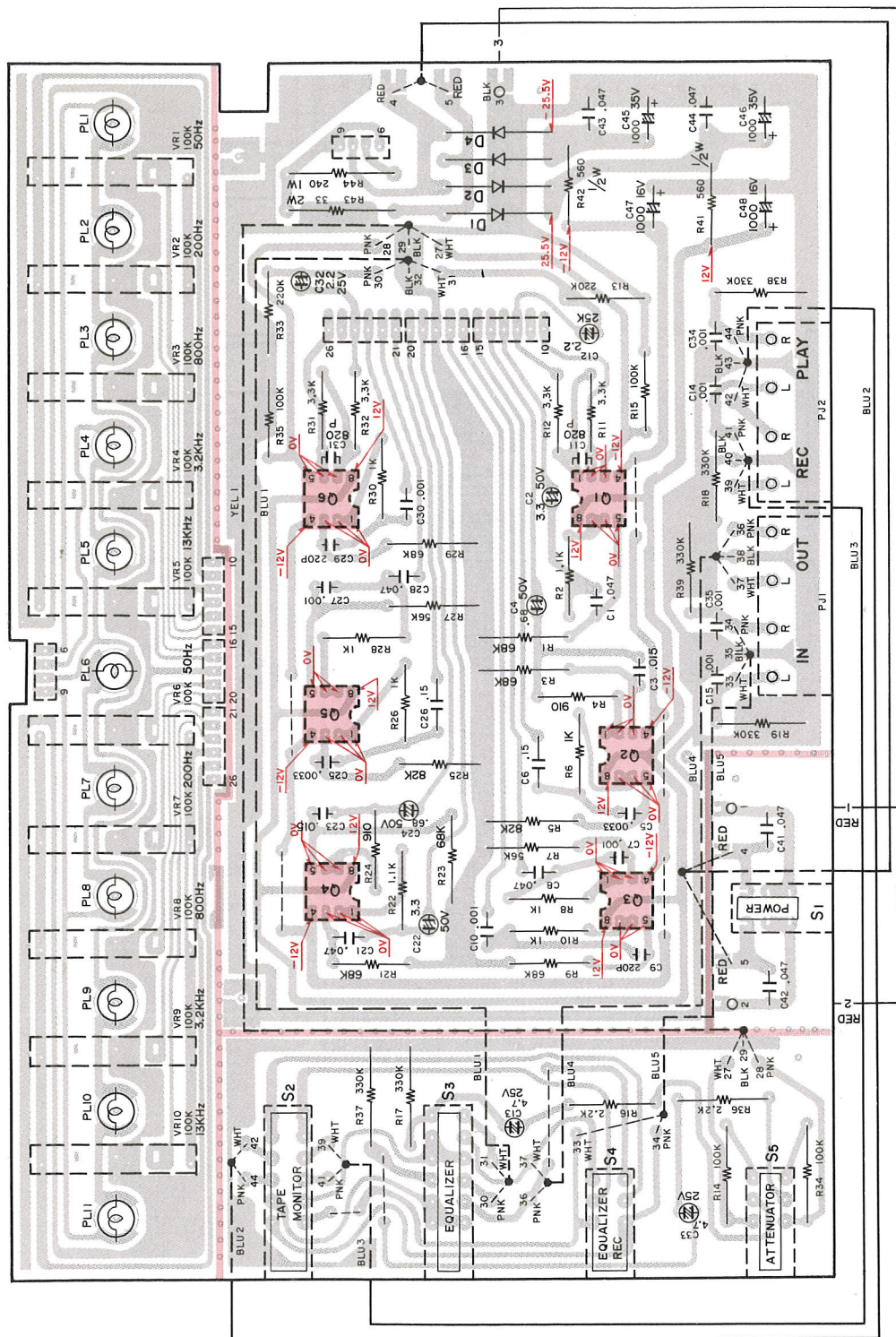
1. Relier un AG (par un ampli) sur les prises "FROM AMPLIFIER" et une fausse charge (resistance) sur les bornes de "TO SPEAKERS".
2. Relier un voltmètre de C.A. aux deux extrémités de la resistance (ou aux borne de sortie + et -).
3. Régler le potentiomètre ajustable VR1 (VR21) en sorte que le LED's mètre indique 1W lorsque le voltmètre indique 2.82V/8Ω.

ABGLEICH DER LEISTUNGSMESSE (POWER METER)

1. Einen AG (via eine Leistungsverstärker) an die "FROM AMPLIFIER" und eine Belastungsnachbildung (8Ω, 10W oder mehr) an die "TO SPEAKERS" anschließen.
2. Einen Wechselspannungsmesser über die Belastungsnachbildung anschließen.
3. Den AG auf 1kHz einstellen.
4. Die Lautstärkereger (und/order den AG-Ausgang) so einstellen, daß die Wechselspannungsmesser-Ablesung 2,82V ist.
5. Das Trimm-Potentiometer VR1 (VR21) so einstellen, daß die Leistungsmesser-Ablesung 1W ist.

GE-80 PC BOARD

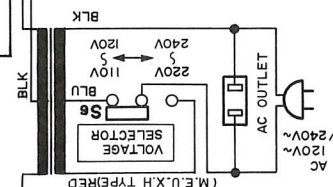
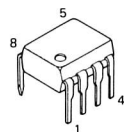
▼ PC BOARD ASS'Y (X11-1632-70) Foil side view



Q1~6: NJM4558DX

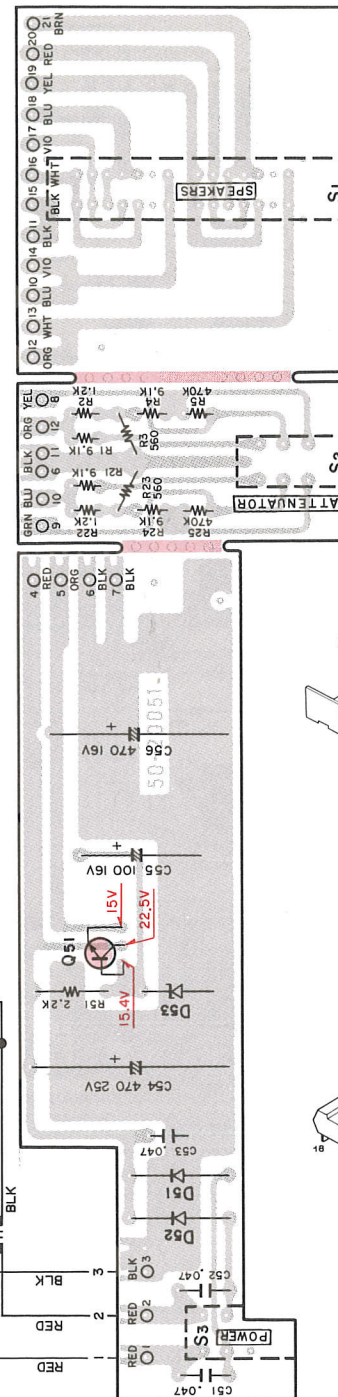
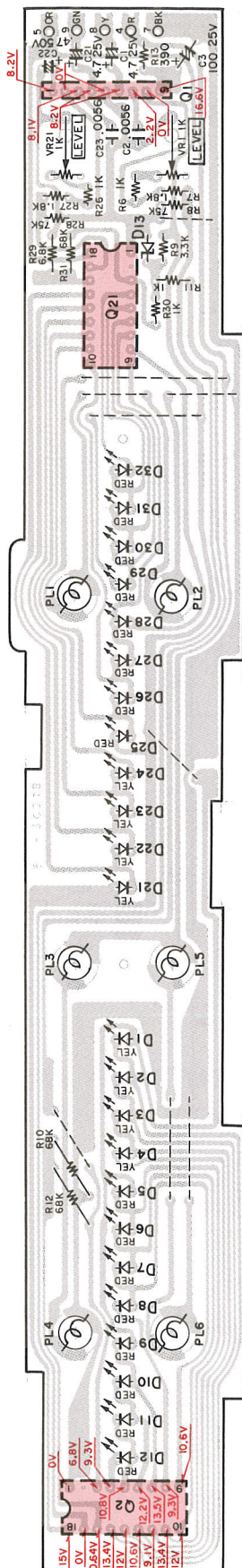
D1~4: 1SR35-100

NJM4558DX

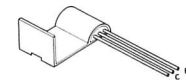


PM-80 PC BOARD

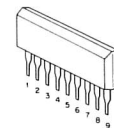
▼ PC BOARD ASS'Y (X13-2872-70) Foil side view



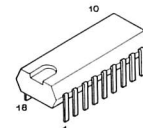
2SC2655(Y)



TA7318P-1



UAA-180



- Q1 : TA7318P-1
 Q2, 21 : UAA-180
 Q51 : 2SC2655 (Y)
 D13 : HZ7A-1
 D51, 52 : 1SR35-100 (100V, 1A)
 D53 : HZ16-1

RA-80 PC BOARD

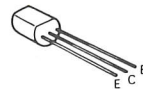
▼ PC BOARD ASS'Y (X14-1222-70) Foil side view

Q1~3 : NJM4558DX
 Q6~11 : 2SC536 (F)
 Q12 : 2SA1015 (GR)
 Q13, 14 : 2SC1815 (GR)
 Q15, 16 : 2SC2655 (Y)
 Q17, 18 : CX-766
 Q101 : 2SC2120 (Y)
 Q102 : 2SA950 (Y)
 D41, 42 : HZ3A-1
 D43, 44 : 1S188AM or
 1N60 or
 1K60

D101~104 : 1SR35-100
 D105~107 : HZ16-1

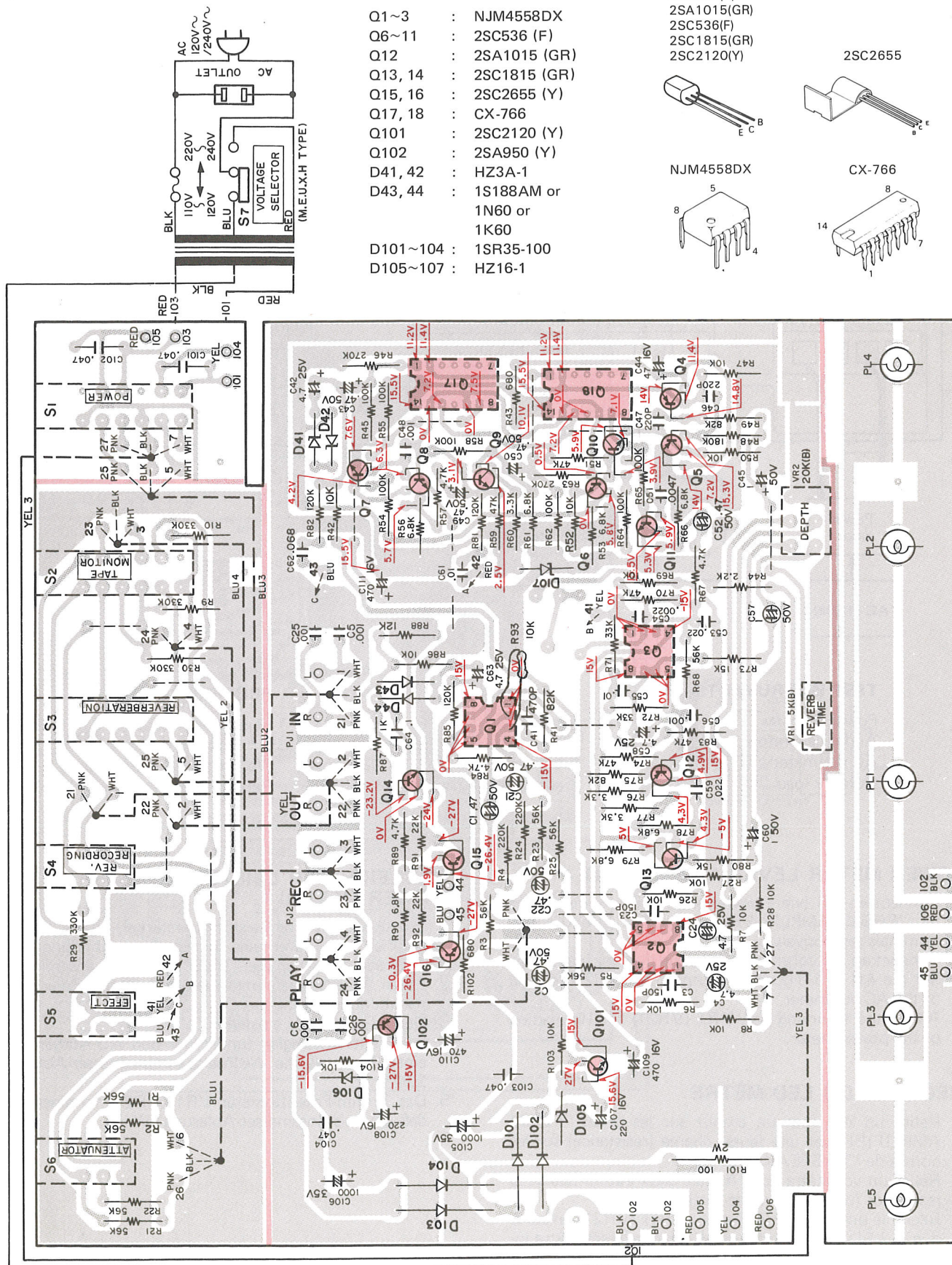
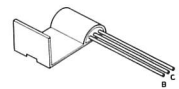
2SA950(Y)
 2SA1015(GR)
 2SC536(F)
 2SC1815(GR)
 2SC2120(Y)

2SC2655



NJM4558DX

CX-766





SPECIFICATIONS

Equalizer characteristic
 Variable range ± 10 dB (L & R independently adjustable)
 Center frequencies 50 Hz, 200 Hz, 800 Hz, 3.2 kHz, 13 kHz
 Attenuation -6 dB at 1 kHz
 Frequency response 10 Hz - 60 kHz ± 0 dB, -1 dB
 Harmonic distortion Less than 0.006% (20 Hz - 20 kHz, all controls flat, output 1 V)
 Maximum output 5 V (1 kHz, THD 0.01%, PL 47 kohms)
 S/N ratio 110 dB (Short-circuited IHF-A network)
 Input impedance 47 kohms
 Gain 0 dB ± 10 dB
 Power consumption 12 W
 Dimensions 440(W) $\times$ 74(H) $\times$ 160(D) mm
 Weight 2.7 kg (net), 3.1 kg (gross)

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

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

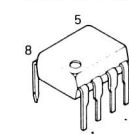
Kenwood poursuit une politique de progrès constants en ce qui concerne le développement. Pour cette raison, les spécifications sont sujettes à modifications sans préavis.

- S1 : POWER
 ON $\leftarrow$ OFF
 S2 : TAPE MONITOR
 TAPE $\leftarrow$ SOURCE
 S3 : EQUALIZER
 ON $\leftarrow$ OFF
 S4 : EQUALIZER REC
 ON $\leftarrow$ OFF
 S5 : ATTENUATOR
 -6 dB $\leftarrow$ OFF
 S6 : VOLTAGE SELECTOR
 240V $\leftrightarrow$ 120V

Q1~6 : NJM4558DX
 D1~4 : 1SR35-100

GE-80(E)

NJM4558DX



DC voltages are measured by a VOM with 20 k Ω /V input impedance.



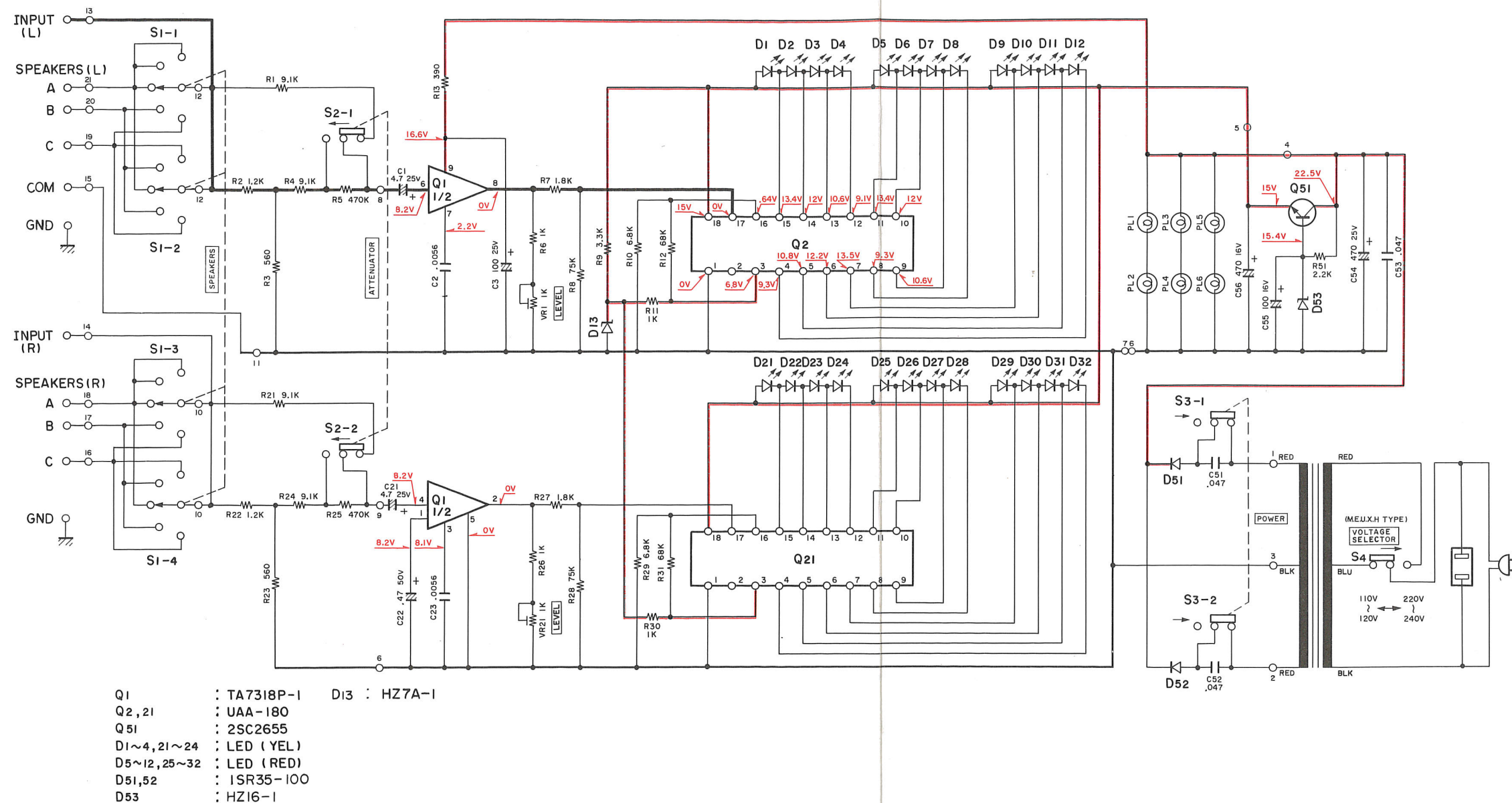
SPECIFICATIONS

Power meter indication range	0.001 - 10W ($\times 0.1$) 0.01 - 100W ($\times 1$)
Power meter accuracy	± 1 dB ($\times 0.1$) ± 1 dB ($\times 1$)
Frequency response	20Hz - 20kHz ± 1 dB
Response time	7 msec. (1 kHz)
Speaker switch	Selects any of 3 sets of speaker systems, A, B, C plus A + B and A + C
Power consumption	13W
Dimensions	440(W) $\times$ 74(H) $\times$ 160(D) mm
Weight	2.7 kg (net), 3.1 kg (gross)

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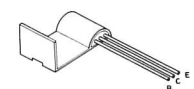


- Q1 : TA7318P-1 D13 : HZ7A-1
 Q2, 21 : UAA-180
 Q51 : 2SC2655
 D1~4, 21~24 : LED (YEL)
 D5~12, 25~32 : LED (RED)
 D51, 52 : 1SR35-100
 D53 : HZ16-1

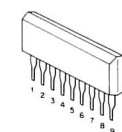
Q1	Q2, 21	Q51
VR1, 21	D1~4 D21~24 D5~8 D25~28 D9~12 D29~32	D51, 52 D53

PM-80(E)

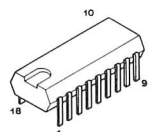
2SC2655(Y)



TA7318P-1



UAA-180



DC voltages are measured by a VOM with 20 k Ω /V input impedance.



SPECIFICATIONS

Reverberation time	Effect 1.....0-2.5 sec.
	Effect 2.....30-80 msec.
Frequency response	15 Hz-60 kHz, +0 dB, -1 dB
Harmonic distortion	Less than 0.008% (20 Hz-20 kHz, output 1 V)
S/N ratio	100 dB (Short-circuited IHF-A network)
Input impedance	47 kohms
Attenuation	-6 dB at 1 kHz
Power consumption	12 W
Dimensions	440(W) x 74(H) x 160(D) mm
Weight	2.7 kg (net), 3.1 kg (gross)

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

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

- Q1~3 : NJM4558DX
 Q4,5 : 2SA1015(GR)
 Q6~11 : 2SC536(F)
 Q12 : 2SA1015(GR)
 Q13,14 : 2SC1815(GR)
 Q15,16 : 2SC2655(Y)
 Q17,18 : CX-766
 Q101 : 2SC2120(Y)
 Q102 : 2SA950(Y)
 D41,42 : HZ3A-1
 D43,44 : 1S188(AM) or IN60 or IK60
 D101~104 : 1SR35-100
 D105~107 : HZ16-1

2SA950(Y)
 2SA1015(GR)
 2SC536(F)
 2SC1815(GR)
 2SC2120(Y)

2SC2655

NJM4558DX

CX-766

RA-80(E)

- S1 : POWER ON ↔ OFF
 S2 : TAPE MONITOR TAPE ↔ SOURCE
 S3 : REVERBERATION ON ↔ OFF
 S4 : REV. RECORDING ON ↔ OFF
 S5 : EFFECT 2 ↔ 1
 S6 : ATTENUATOR -6dB ↔ OFF
 S7 : VOLTAGE SELECTOR 220V ↔ 120V

Q1	D41,42	Q4	Q17	Q5	Q7	Q6	Q8	Q12	Q9	Q1,2	Q13	Q14	Q2	Q10,11	Q15,16	Q3	Q101,102	Q3
	VR1							D43,44								D107	D105,106	D101~104
																		VR2

DC voltages are measured by a VOM with 20 kΩ/V input impedance.

PARTS LIST

Note:

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

Region	Code
U.S.A.	K
Canada	P
PX(Far East)	U
PX(Europe)	UE
Australia	X
Europe	E
England	T
South Africa	S
Other Areas	M
Audio Club	H

There is no plan for producing units of P and S types.

* Abbreviations of capacitors (Parts No. with initial letter "C")

ELECTRO	Electrolytic capacitor
LL-ELEC	Low leak electrolytic capacitor
NP-ELEC	Non-pole electrolytic capacitor
MICA	Mica capacitor
POLYSTY	Polystyrene capacitor
MYLAR	Mylar capacitor
CERAMIC	Ceramic capacitor
TANTAL	Tantalum capacitor
MF	Metallized film capacitor
OIL	Oil capacitor

The unit "UF" is used in lieu of "μF"

* Abbreviations of resistors (Parts No. with initial letters "R")

RC	Carbon composition resistor
RD	Carbon film resistor
FL-PROOF RD	Flame-proof carbon film resistor
RW	Wire wound power resistor
FL-PROOF RS	Flame-proof metal oxide film resistor
RN	Metal film resistor
2B	Rated wattage 1/8W
2E	Rated wattage 1/4W
2H	Rated wattage 1/2W
3A	Rated wattage 1W
3D	Rated wattage 2W
3F	Rated wattage 3W
3G	Rated wattage 4W
3H	Rated wattage 5W

All resistor values are indicated with the unit (Ω) omitted

* Abbreviations common to capacitors and resistors.

C	±0.25pF (Used for capacitors only)
D	±0.5pF (Used for capacitors only)
F	±1%
G	±2%
J	±5%
K	±10%
M	±20%
Z	+80%, -20% (Used for capacitors only)
P	+100%, -0% (Used for capacitors only)

Resistors RD (carbon composition resistors) are not listed in the parts list. For values, refer to the schematic diagram.

GE-80 PARTS LIST

☆ : New parts

Ref. No.	Parts No.	Description	Re-marks
TOTAL (GE-80)			
1 1A	A01-0386-08	Cabinet	E ☆
2 2A	A20-1685-08	Front panel A	K,M,U,X,H ☆
2 2B	A20-1690-08	Front panel A	T ☆
2 2B	A20-1691-08	Front panel A	☆
3 2A	B07-0342-08	Knob guide x5	☆
4 2A	B11-0010-08	Filter A	☆
—	B50-3165-00	Instruction manual UE,K,U,M,H,X	☆
—	B50-3166-00	Instruction manual	T ☆
—	B50-3167-00	Instruction manual (French)	E,M,X ☆
—	B50-3168-00	Instruction manual (Germany)	E ☆
—	B50-3169-00	Instruction manual (Dutch)	E ☆
—	B50-3170-00	Instruction manual (Swedish)	E ☆
5 3B	E03-0029-08	AC outlet	E ☆
5 3B	E03-0032-08	AC outlet	K ☆
5 3B	E03-0033-08	AC outlet	M,U,H ☆
—	E30-0652-08	Audio cord	☆
6 2B	E30-0651-08	Power cord	E ☆
6 2B	E30-0658-08	Power cord	M,U,H ☆
6 2B	E30-0659-08	Power cord	K ☆
6 2B	E30-0660-08	Power cord	T ☆
6 2B	E30-0661-08	Power cord	X ☆
—	H01-3183-08	Carton case	E ☆
—	H01-3200-08	Carton case	K,M,U,X,H ☆
—	H10-1554-08	Packing L	☆
—	H10-1555-08	Packing R	☆
—	H20-0461-08	Protection bag	☆
7 3B	J02-0110-08	Foot x4	☆
8 3B	J42-0088-08	Bushing	E,T ☆
8 3B	J42-0089-08	Bushing	U,M,H ☆
8 3B	J42-0090-08	Bushing	K ☆
8 3B	J42-0091-08	Bushing	X ☆
9 2A	K27-0162-08	Push knob x5	☆
10 2A	K27-0163-08	GE knob x10	☆
11 3A	L01-2124-08	Power transformer	K ☆
11 3A	L01-2126-08	Power transformer	M,E,T,U,X,H ☆
12 3A	S40-1026-08	Slide switch	M,E,U,X,H
13 1B	X11-1632-70	PC board ass'y	☆
PCB ASS'Y (X11-1632-70)			
101 2B	B30-0245-08	Lamp (0.05A)	☆
C1, 21	C46-1747-35	Mylar	0.047μF K
C2, 22	C26-1733-57	NP-Electrolytic	3.3μF 50WV
C3, 23	C46-1715-35	Mylar	0.015μF K
C4, 24	C26-1768-47	NP-Electrolytic	0.68μF 50WV
C5, 25	C46-1733-25	Mylar	0.0033μF K
C6, 26	C46-1715-46	Mylar	0.15μF K
C7, 27	C46-1710-26	Mylar	0.001μF K
C8, 28	C46-1747-35	Mylar	0.047μF K

PARTS LIST

Ref. No.	Parts No.	Description	Re- marks
C9, 29	C47-1722-15	Polystyrene 220pF J	
C10,30	C46-1710-26	Mylar 0.001μF K	
C11, 31	C52-1710-26	Ceramic 0.001μF K	
C12, 32	C26-1722-57	NP-Electrolytic 2.2μF 50WV	
C13, 33	C26-1447-57	NP-Electrolytic 4.7μF 25WV	
C14, 15	C52-1710-26	Ceramic 0.001μF K	
C34, 35	C52-1710-26	Ceramic 0.001μF K	
C41, 42	C53-1747-37	Ceramic 0.047μF M	
C43,44	C55-1747-38	Ceramic 0.047μF Z	
C45, 46	C24-6510-71	Electrolytic 100μF 35WV	
C47, 48	C24-1210-81	Electrolytic 1000μF 16WV	
102 1B	E13-0428-08	Phono jack (4P) x2	☆
R41, 42	R40-8356-15	FL-proof RC 560Ω J 2H	
R43	R47-5533-05	FL-proof RS 33Ω J 3D	
R44	R47-5424-05	FL-proof RS 240Ω J 3A	
VR1~10	R13-5025-08	Slide pot 100kΩ(B) Fig. 103	☆
S1	S40-4014-08	Pushbutton switch (POWER) Fig. 104	☆
S2~5	S42-4014-08	4 keys pushbutton switch Fig. 105	☆
Q1~6	V30-1020-26	IC NJM4558DX	
D1~4	V11-5101-50	Diode 1SR35-100	☆

Ref. No.	Parts No.	Description	Re- marks
—	H01-3184-08	Carton case E	☆
—	H01-3204-08	Carton case K,M,U,X,H	☆
—	H10-1554-08	Packing L	
—	H10-1555-08	Packing R	
—	H20-0461-08	Protection bag	
11 3B	J02-0110-08	Foot x4	
12 2B	J42-0088-08	Bushing E,T	
12 2B	J42-0089-08	Bushing U,M,H	
12 2B	J42-0090-08	Bushing K	
12 2B	J42-0091-08	Bushing X	
13 2A	K23-0350-08	Knob (rotary)	
14 2A	K27-0162-08	Knob (push) x2	
15 3A	L01-2124-08	Power transformer K	
15 3A	L01-2126-08	Power transformer M,E,T,U,X,H	
16 3A	S40-1026-08	Slide switch M,E,U,X,H	☆
17 1B	X13-2872-70	PC board ass'y	☆

PCB ASS'Y (X13-2872-70)

101 1B, 2B	B30-0244-08	Lamp (0.1A)	
D1~4	B30-0247-08	LED PY5531K (YEL)	
D21~24	B30-0247-08	LED PY5531K (YEL)	
D5~12	B30-0246-08	LED PR5531K (RED)	
D25~32	B30-0246-08	LED PR5531K (RED)	
C1	C24-1447-51	Electrolytic 4.7μF 25WV	
C2	C46-1756-24	Mylar 0.0056μF G	
C3	C24-1410-71	Electrolytic 100μF 25WV	
C21	C24-1447-51	Electrolytic 4.7μF 25WV	
C22	C24-1447-41	Electrolytic 0.47μF 25WV	
C23	C46-1756-24	Mylar 0.0056μF G	
C51, 52	C53-1747-37	Ceramic 0.047μF M	
C53	C55-1747-38	Ceramic 0.047μF Z	
C54	C24-1447-71	Electrolytic 470μF 25WV	
C55	C24-1210-71	Electrolytic 100μF 16WV	
C56	C24-1247-71	Electrolytic 470μF 16WV	
VR1, 21	R12-1049-08	Trimming pot 1kΩ (B)	
S1	S29-1128-08	Rotary-Slide switch Fig. 102	☆
S2	S40-1028-08	Pushbutton switch Fig. 103	☆
S3	S40-1029-01	Pushbutton switch Fig. 104	☆
Q1	V30-0292-10	IC TA7318P-1	
Q2, 21	V30-0502-10	IC UAA-180	☆
Q51	V03-2655-10	Transistor 2SC2655 (Y)	
D13	V11-2104-20	Zener diode HZ7A-1	☆
D51, 52	V11-5101-50	Diode 1SR35-100 (100V, 1A)	
D53	V11-2104-30	Zener diode HZ16-1	

PM-80 PARTS LIST

Ref. No.	Parts No.	Description	Re- marks
TOTAL (PM-80)			
1 1A	A01-0386-08	Cabinet	
2 2A	A20-1684-08	Front panel C E	☆
2 2A	A20-1694-08	Front panel C K,M,U,X,H	☆
2 2A	A20-1695-08	Front panel C T	☆
3 2A	B07-0342-08	Knob guide x2	
4 2A	B11-0009-08	Filter B	☆
—	B50-3165-00	Instruction manual UE,K,U,M,H,X	
—	B50-3166-00	Instruction manual T	
—	B50-3167-00	Instruction manual (French) E,M,X	
—	B50-3168-00	Instruction manual (Germany) E	
—	B50-3169-00	Instruction manual (Dutch) E	
—	B50-3170-00	Instruction manual (Swedish) E	
5 2B	E03-0029-08	AC outlet E	
5 2B	E03-0032-08	AC outlet K	
5 2B	E03-0033-08	AC outlet M,U,H	
6 3B	E20-0446-08	Speaker terminal	☆
7 3A	E20-0447-08	Speaker terminal x3	☆
—	E30-0650-08	Speaker cord ass'y M,E,T,U,X,H	☆
—	E30-0677-08	Speaker cord ass'y K	☆
9 2B	E30-0651-08	Power cord E	
9 2B	E30-0658-08	Power cord M,U,H	
9 2B	E30-0659-08	Power cord K	
9 2B	E30-0660-08	Power cord T	
9 2B	E30-0661-08	Power cord X	

PARTS LIST

RA-80 PARTS LIST

Ref. No.	Parts No.	Description	Re- marks
TOTAL (RA-80)			
1 1A	A01-0386-08	Cabinet	
2 2A	A20-1683-08	Front panel B	E
2 2A	A20-1692-08	Front panel B	K,M,U,X,H
2 2A	A20-1693-08	Front panel B	T
3 2A	B07-0342-08	Knob guide x6	
4 2A	B11-0008-08	Filter B	
—	B50-3165-00	Instruction manual	UE,K,U,M,H,X
—	B50-3166-00	Instruction manual	T
—	B50-3167-00	Instruction manual (French)	E,M,X
—	B50-3168-00	Instruction manual (Germany)	E
—	B50-3169-00	Instruction manual (Dutch)	E
—	B50-3170-00	Instruction manual (Swedish)	E
5 2B	E03-0029-08	AC outlet	E
5 2B	E03-0032-08	AC outlet	K
5 2B	E03-0033-08	AC outlet	M,U,H
—	E30-0652-08	Audio cord	M,T,U,X,H
—	E30-0669-08	Audio cord	K
6 2B	E30-0651-08	Power cord	E
6 2B	E30-0658-08	Power cord	M,U,H
6 2B	E30-0659-08	Power cord	K
6 2B	E30-0660-08	Power cord	T
6 2B	E30-0661-08	Power cord	X
—	H01-3182-08	Carton case	E ☆
—	H01-3202-08	Carton case	K,M,U,X,H ☆
—	H10-1554-08	Packing L	
—	H10-1555-08	Packing R	
—	H20-0461-08	Protection bag	
7 3B	J02-0110-08	Foot x4	
8 2B	J42-0088-08	Bushing	E,T
8 2B	J42-0089-08	Bushing	U,M,H
8 2B	J42-0090-08	Bushing	K
8 2B	J42-0091-08	Bushing	X
9 2A	K23-0350-08	Knob (rotary) x2	
10 2A	K27-0162-08	Knob (push) x6	
11 3A	L01-2124-08	Power transformer	K
11 3A	L01-2126-08	Power transformer	M,E,T,U,X,H
12 2A	N29-0052-08	CS ring x2	☆
13 3A	S40-1026-08	Slide switch	M,E,U,X,H
14 1B, 2B	X14-1222-70	PC board ass'y	☆

Ref. No.	Parts No.	Description	Re- marks
PCB ASS'Y (X14-1220-70, 2-70)			
101 1B	B30-0244-08	Lamp (0.1A)	☆
C1, 2	C26-1747-47	NP-electrolytic	0.47μF 50WV
C21, 22	C26-1747-47	NP-electrolytic	0.47μF 50WV
C3, 23	C71-1747-16	Ceramic	470pF K
C4, 24	C26-1747-57	NP-electrolytic	4.7μF 50WV
C5, 6	C52-1710-26	Ceramic	0.001μF K
C25, 26	C52-1710-26	Ceramic	0.001μF K
C41	C71-1747-16	Ceramic	470pF J
C42	C24-1447-51	Electrolytic	4.7μF 25WV
C43	C24-1747-41	Electrolytic	0.47μF 50WV
C44	C24-1247-61	Electrolytic	47μF 16WV
C45	C24-1710-51	Electrolytic	1μF 50WV
C46, 47	C47-1722-15	Polystyrene	220pF J
C48	C46-1710-26	Mylar	0.001μF K
C49, 50	C24-1747-41	Electrolytic	0.47μF 50WV
C51	C46-1747-25	Mylar	0.0047μF J
C52	C26-1747-47	NP-electrolytic	0.47μF 50WV
C53, 54	C46-1722-35	Mylar	0.022μF J
C55	C46-1710-35	Mylar	0.01μF J
C56	C46-1710-26	Mylar	0.001μF K
C57	C26-1710-57	NP-electrolytic	1μF 50WV
C58	C24-1447-51	Electrolytic	4.7μF 25WV
C59	C46-1722-35	Mylar	0.022μF J
C60	C24-1710-51	Electrolytic	1μF 50WV
C61	C46-1710-35	Mylar	0.01μF J
C62	C46-1768-35	Mylar	0.068μF J
C63	C24-1447-51	Electrolytic	4.7μF 25WV
C101~104	C53-1747-37	Ceramic	0.047μF M
C105,106	C24-6510-81	Electrolytic	1000μF 35WV
C107,108	C24-1222-71	Electrolytic	220μF 16WV
C109~111	C24-1247-71	Electrolytic	470μF 16WV
102 1B	E13-0428-08	Phono jack (4P) x2	
R101	R47-5410-15	FL-proof RS	100Ω J 3D
VR1	R01-2014-08	Potentiometer	5kΩ (B) Fig. 103 ☆
VR2	R06-3021-08	Potentiometer	20kΩ (B) Fig. 104 ☆
S1	S40-1027-08	Pushbutton switch (POWER)	☆
S2~6	S42-5018-08	5 keys pushbutton switch	☆
Q1~3	V30-1020-26	IC	NJM4558DX
Q6~11	V03-0339-05	Transistor	2SC536 (F)
Q12	V01-1015-20	Transistor	2SA1015 (GR) ☆
Q13, 14	V03-1815-10	Transistor	2SC1815 (GR)
Q15, 16	V03-2655-10	Transistor	2SC2655 (Y) ☆
Q17, 18	V30-0501-10	IC	CX-766 ☆
Q101	V03-2120-00	Transistor	2SC2120 (Y)
Q102	V01-0950-00	Transistor	2SA950 (Y) ☆
D41, 42	V11-2104-10	Zener diode	HZ3A-1 ☆
D43, 44	V11-9990-05	Diode	1S188AM or
	V11-0051-05		1N60 or ☆
	V11-9725-05		1K60 ☆
D101~104	V11-5101-50	Diode	1SR35-100 ☆
D105~107	V11-2104-30	Zener diode	HZ16-1 ☆

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