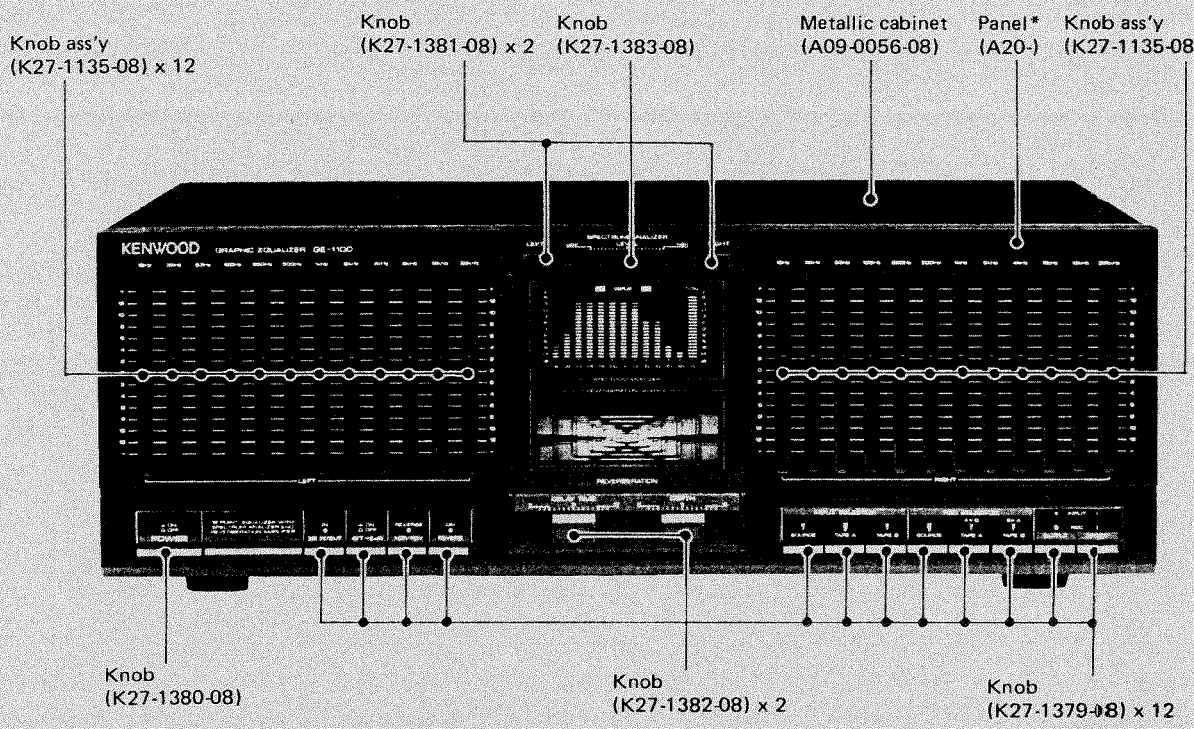
SERV.32075

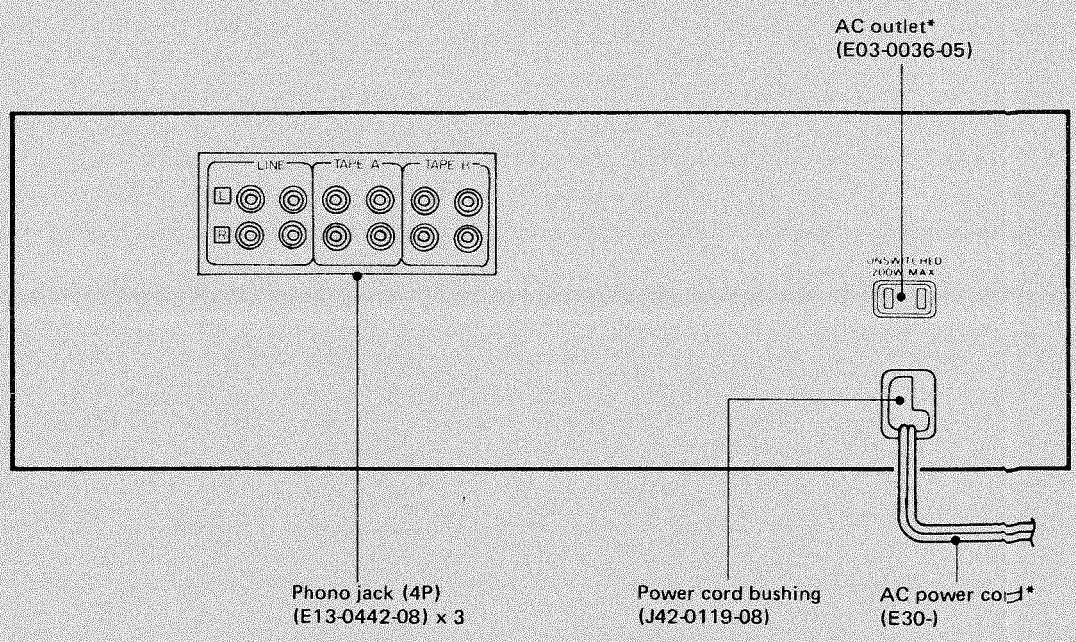
SERVICE MANUAL

KENWOOD

GE-1100

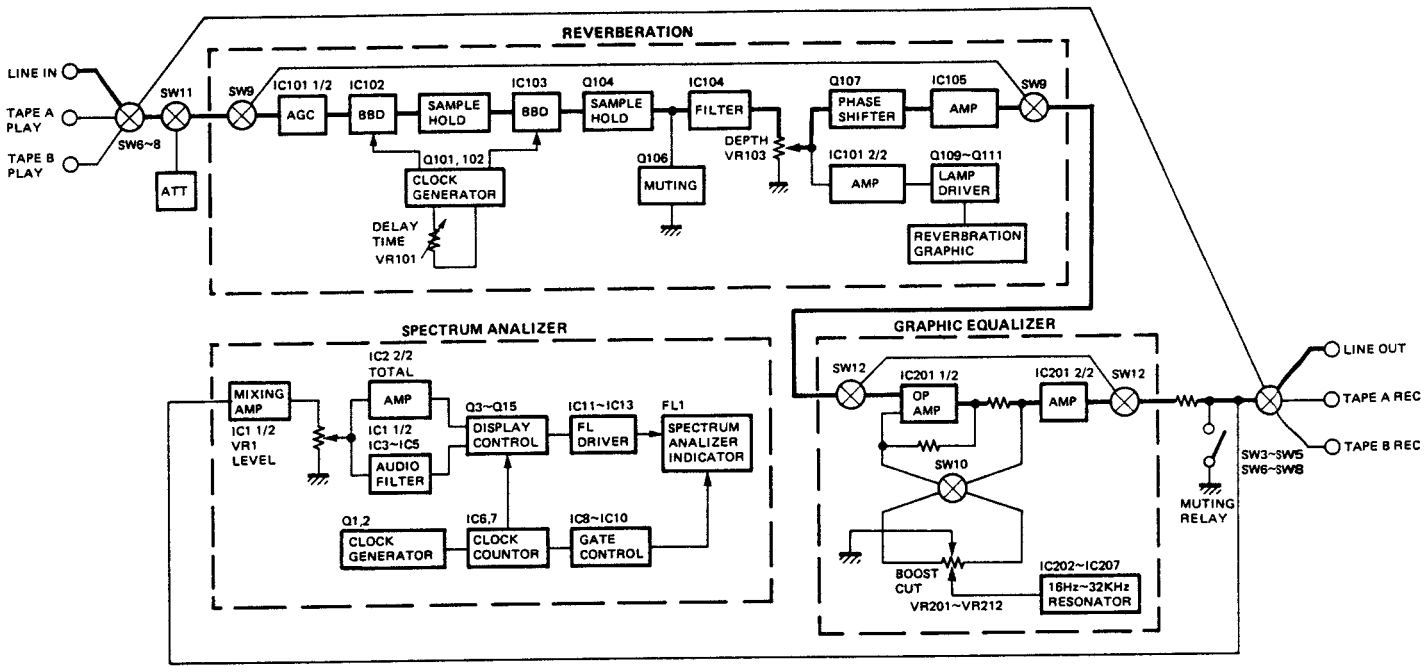
GRAPHIC EQUALIZER





*Refer to parts list on page 8.

BLOCK DIAGRAM/CIRCUIT DESCRIPTION



Name	Function	Description
Q1,2	Clock generator	
Q3~15	Spectrum analizer display control	Transistor switch for signal selection
Q101,102	Clock generator	
Q103,104	Sampling hold	
Q105	Buffer	
Q106	Muting	
Q107	Phase shifter	
Q108	Reverberation graphic lamp switch	
Q109~111	Reverberation graphic lamp driver	
Q501~504	AVR	
Q505,506	Muting relay driver	
IC1	Mixing amp, audio filter	
IC2	Total amp	For spectrum analizer total stage.
IC3~5	Spectrum analizer audio filter	16, 32, 64, 125, 250, 500, 1k, 2k, 4k, 8k, 16k and 32k filters.
IC6	Clock countor (4 bit binary countor)	Forms a scale of 13 counter together with IC7
IC7	Clock countor (4 to 16 line decoder)	Forms a scale of 13 counter together with IC6. Output 16 signals according to scale of 13 counter output.
IC8~10	Spectrum analizer gate control	Controls the fluorescent display tube gates according to IC7 output.
IC11~13	Spectrum analizer FL driver	Controls the grids of display tube according to the output level. (10 steps : −24, −18, −15, −12, −9, −6, −3, 0, 3, 6dB)
IC101	AGC amplifier of reverberation graphic	
IC102, 103	BBD	
IC104	Filter	
IC105	Amp	
IC201	OP Amp	
IC202~206	Frequency resonator	Resonating circuits for 12 frequencies between 16Hz and 32kHz.

CIRCUIT DESCRIPTION

HD14520B

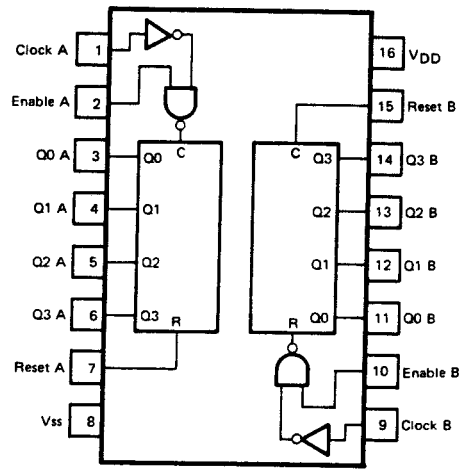
The HD14520B dual binary counter is constructed with MOS P-channel and N-channel enhancement mode devices in a single monolithic structure.

Each consits of two identical, independent, internally synchronous 4-stage counters.

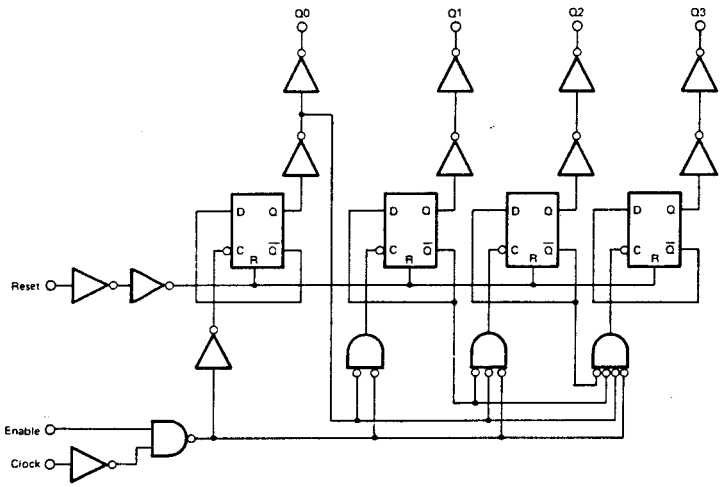
The counter stages are type D flip-flops, with interchangeable clock and Enable lines for incrementing on either the positive-going or negative-going transition as required when cascading multiple stages.

Each counter can be cleared by applying a high level on the reset line.

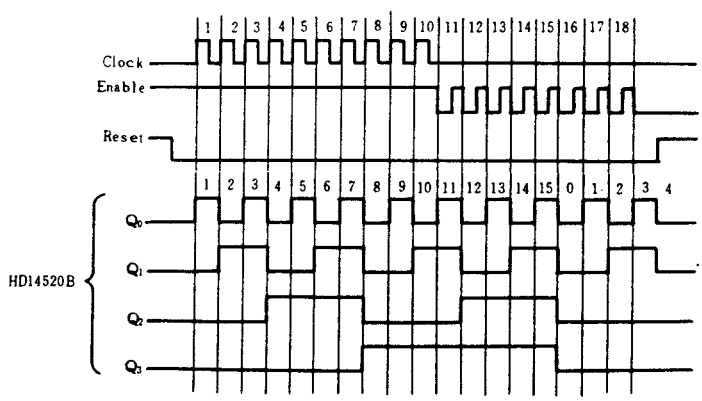
Pin connection



(Top View)



HD14520B (1/2)



Timing diagram

Truth table

Clock	Enable	Reset	Action
↗	1	0	Increment counter
0	↘	0	Increment counter
↘	X	0	No change
X	↗	0	No change
↗	0	0	No change
1	↘	0	No change
X	X	1	Q0~Q3 = 1

X : Don't care

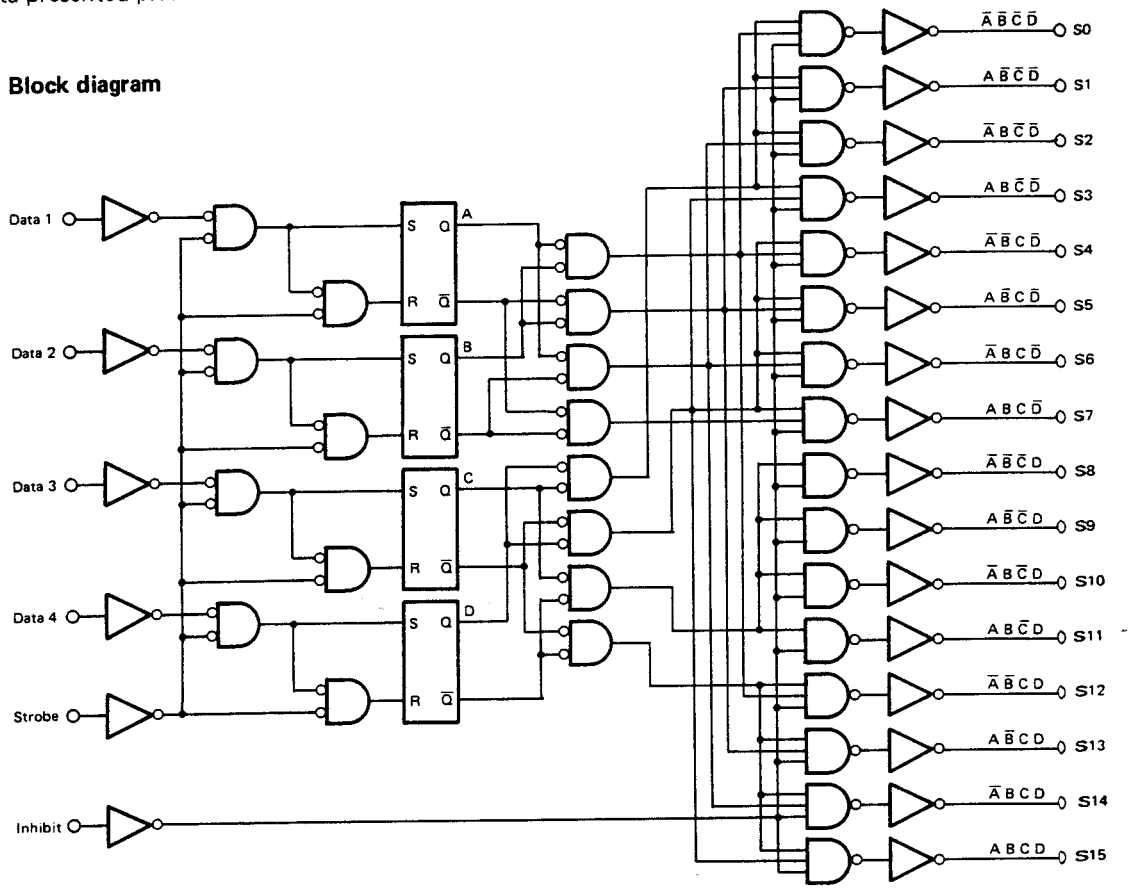
CIRCUIT DESCRIPTION

HD14514B

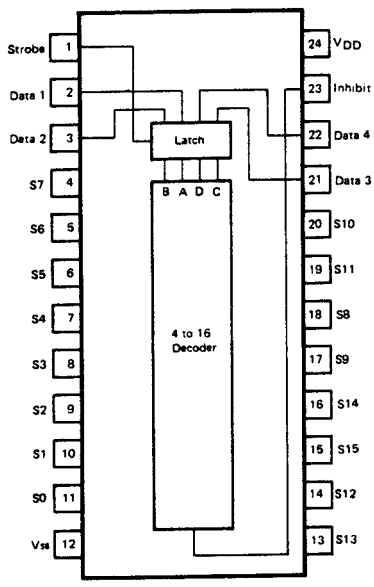
HD14514B is a 4 to 16 line decoder with latched inputs.

The HD14514B presents a logical "1" at the selected outputs, the latches are R-S type flip-flops which hold the last input data presented prior to the strobe transition from "1" to "0".

Block diagram



Pin connection



(Top View)

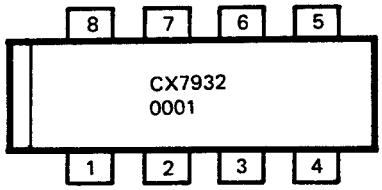
Truth table

Inhibit	Data inputs				Selected output (HD14514B = logic "1")
	D	C	B	A	
0	0	0	0	0	S0
0	0	0	0	1	S1
0	0	0	1	0	S2
0	0	0	1	1	S3
0	0	1	0	0	S4
0	0	1	0	1	S5
0	0	1	1	0	S6
0	0	1	1	1	S7
0	1	0	0	0	S8
0	1	0	0	1	S9
0	1	0	1	0	S10
0	1	0	1	1	S11
0	1	1	0	0	S12
0	1	1	0	1	S13
0	1	1	1	0	S14
0	1	1	1	1	S15
1	X	X	X	X	All inputs = 0

X : Don't care

CIRCUIT DESCRIPTION

IC102,103 : CX7932 Pin connection

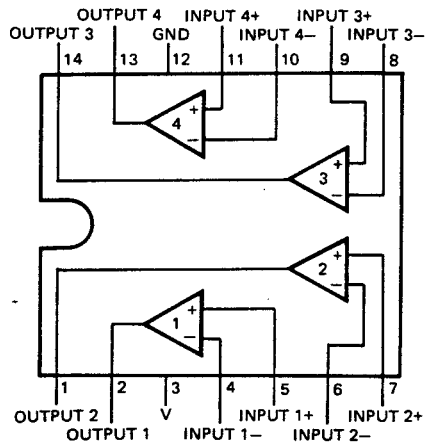


(Top View)

Terminal Function

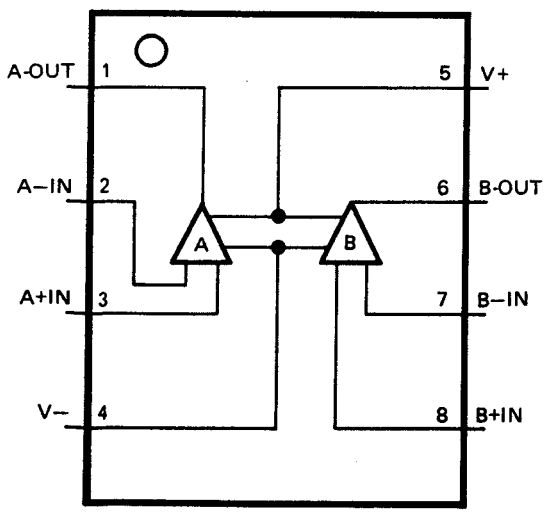
Terminal No.	Input/Output	Symbol	Function
1	OUT	OUT	Signal output terminal (512 bits)
2		V_{DD}	Source terminal
3	IN		Clock inter terminal 1
4		V_{DD}	Source terminal
5	IN	V_{in}	Signal input terminal
6	IN		Clock input terminal 2
7			N.C
8		GND	Substrate terminal

IC8~13 : LM339N
Pin connection and Block diagram



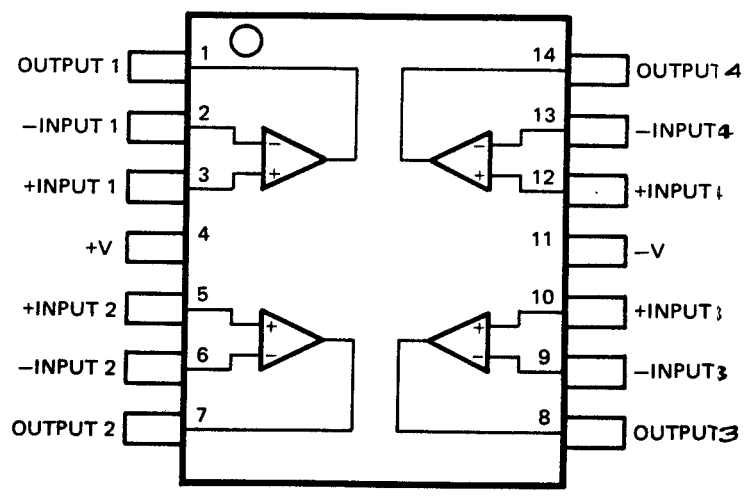
IC1,2,101,104,105,202~205,207 : NJM4558D-X
Pin connection and Block diagram

IC201,206 : NJM4559D-D
Pin connection and Block diagram



(Top View)

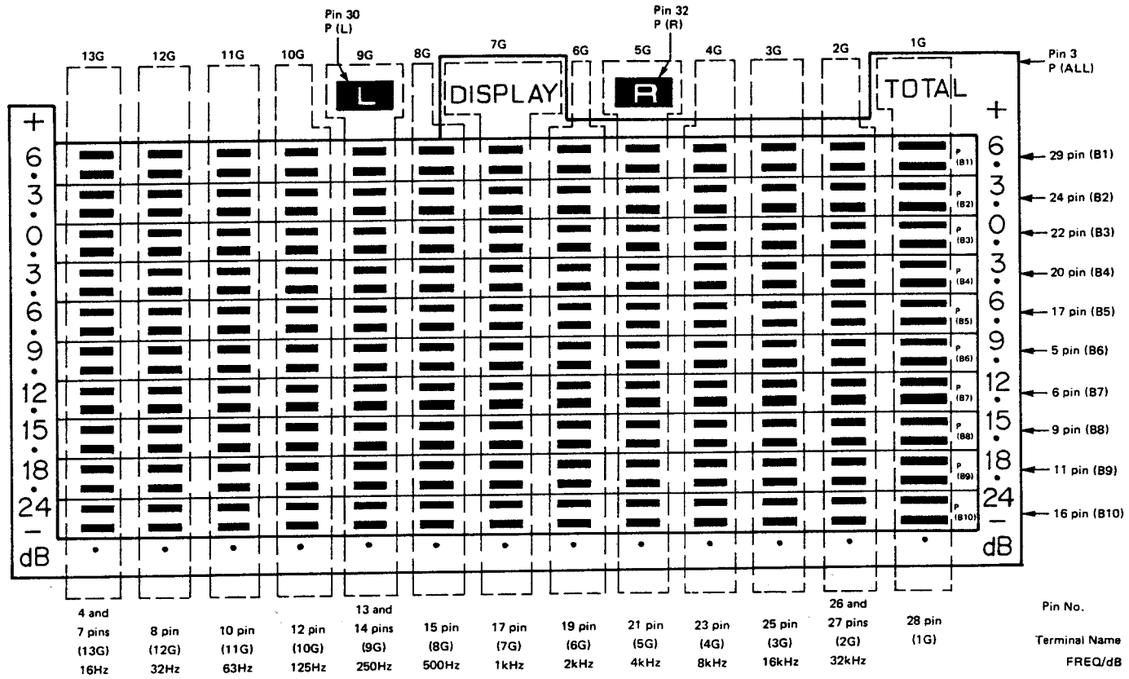
IC3~5 : NJM2058D Pin connection and Block diagram



(Top View)

CIRCUIT DESCRIPTION

SPECTRUM ANALIZER TUBE GRID PLATE DIVIDING CHART (FL1)



ADJUSTMENT/REGLAGE/ABGLEICH

ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	AMPLIFIER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
1	REVERBERATION TIME	400.0 Hz, 150 mV to L channel of LINE IN.	R channel of LINE OUT.	EQ: OUT REVERB: ON INPUT SELECTOR: SOURCE REC SELECTOR: SOURCE DELAY TIME: 10 DEPTH: 10	VR102	Short circuit Ⓧ and Ⓨ terminals (R165) of W02-0611-08 and adjust VR102. 140mV	(a)

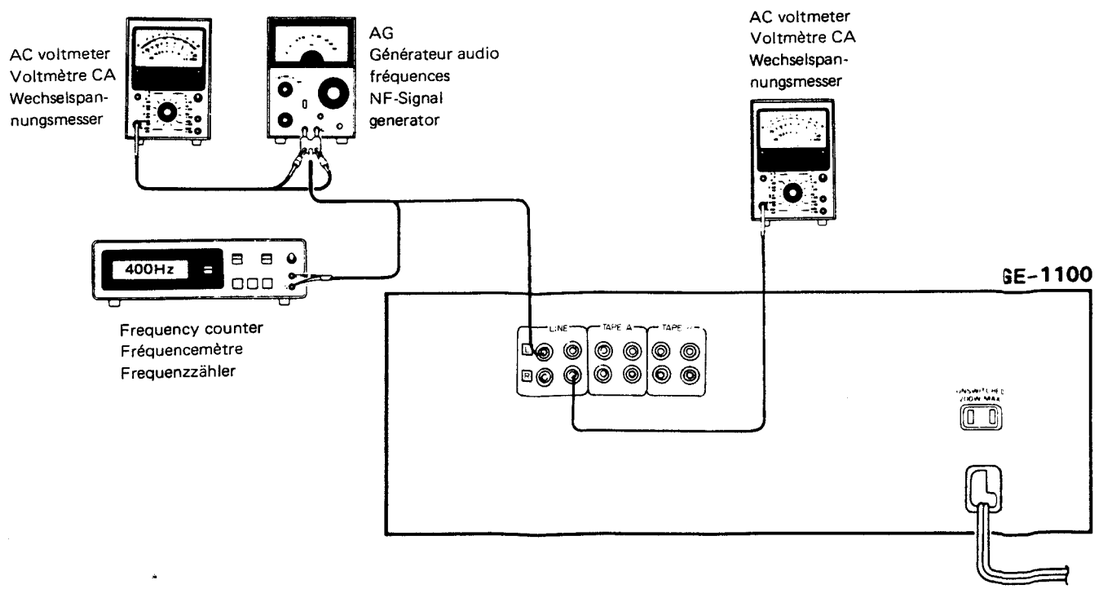
REGLAGE

N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DE L'AMPLIFICATEUR	POINTS DE L'ALIGNEMENT	ALIGNER POUR	FIG.
1	TEMPS DE REVERBERATION	400,0 Hz, 150 mV au canal gauche de la prise phons LINE IN.	Le canal droit de la prise phons LINE OUT.	EQ: OUT REVERB: ON INPUT SELECTOR: SOURCE REC SELECTOR: SOURCE DELAY TIME: 10 DEPTH: 10	VR102	Court-circuiter les borres Ⓧ et Ⓨ (R165) de W02-0611-08 et agir sur VR102. 140mV	(a)

ABGLEICH

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	ABGLEICHE PUNKTE	ABGLEICHEN FÜR	ABB.
1	NACHHALL-DAUER	400,0 Hz, 150 mV auf linken Kanal von Phono-Buchse LINE IN.	Rechten Kanal von Phono-Buchse LINE OUT.	EQ: OUT REVERB: ON INPUT SELECTOR: SOURCE REC SELECTOR: SOURCE DELAY TIME: 10 DEPTH: 10	VR102	Die Klemmen Ⓧ und Ⓨ (R165) von W02-0611-08 kurzschließen und VR102 so einstellen. 140mV	(a)

System connections



GE-1100 GE-1100

EQUALIZER (W02-0612-08)

IC201	1	0V
	2	0V
	3	0V
	4	–
	5	0V
	6	0V
	7	–
	8	–
IC202	5	0V
	6	0V

MAIN (W02-0611-08)

Q1	E	–
	C	13.5V
	B	18.6V
Q2	E	16.8V
	C	13.5V
	B	18.6V
Q3	E	0.2V
	C	1V
	B	0.1V
IC1	1	0V
	2	0V
	3	0V
	4	–
IC2	1	0V
	2	0V
	3	0V
IC5	1	0.5V
	2	0.6V
IC10	6	0.4V
IC11	4	3V
	6	1.7V
IC12	1	–17V
	4	4.5V
	6	0.08V
	8	0.53V
	10	1V
IC13	4	13V
	6	11.3V
	8	9.3V
	10	6.3V

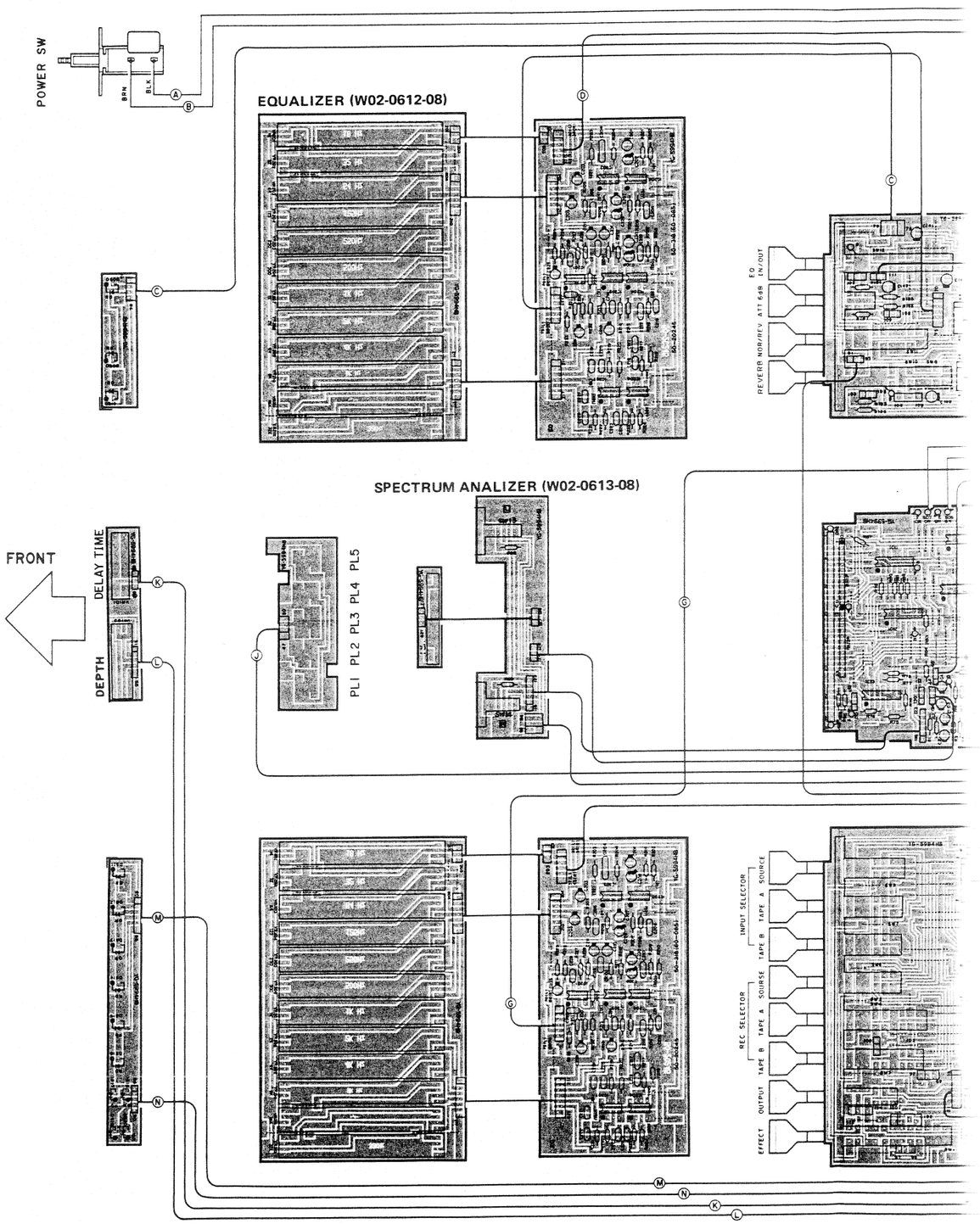
SPECTRUM ANALIZER (W02-0613-08)

Q101	E	4.7V
	C	1.8V
	B	–5.7V
Q102	E	–
	C	–0.5V
	B	–5.7V
Q103	E	–
	C	–
	B	–5.2V

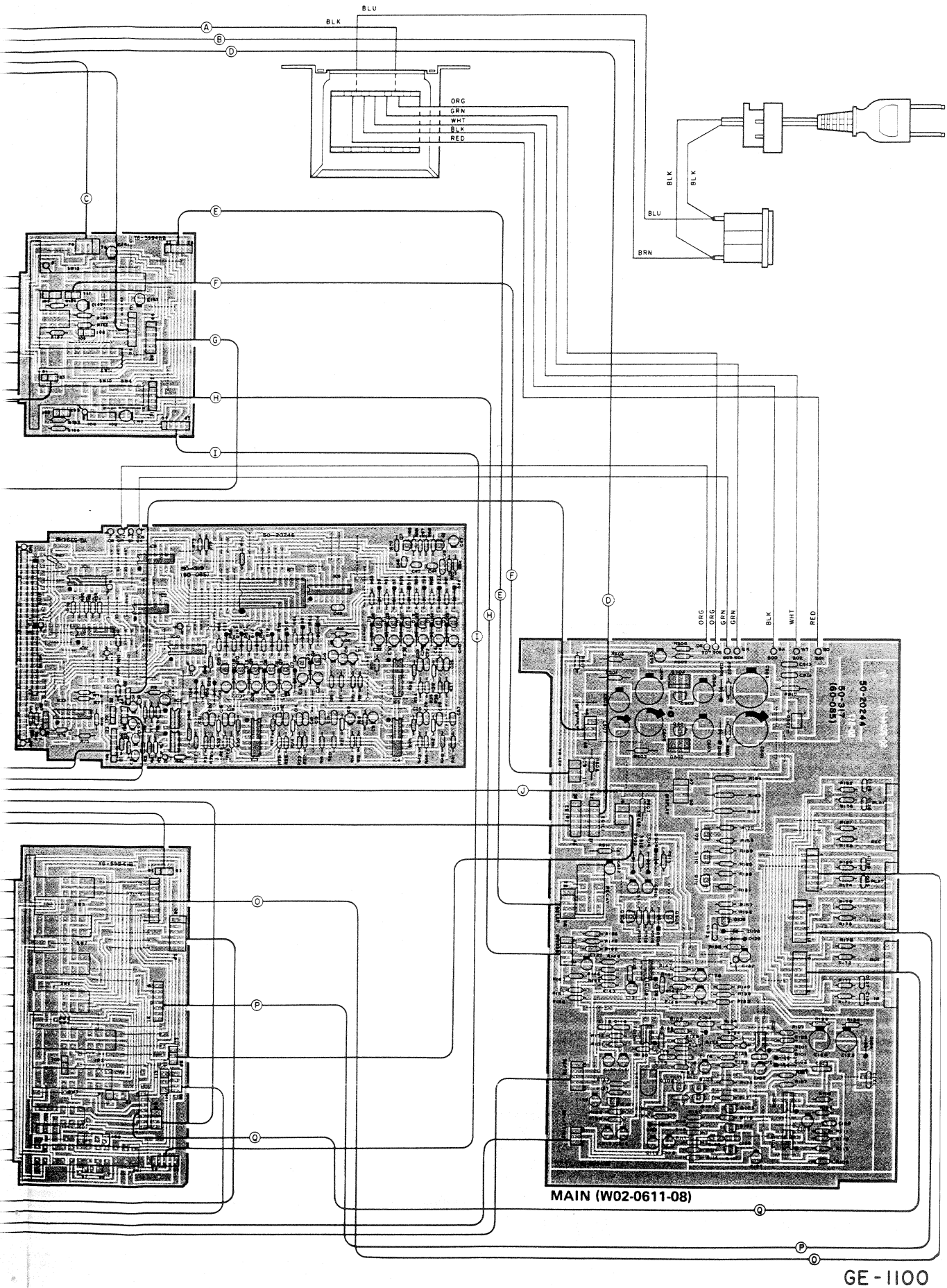
Q104	E	–
	C	–4.2V
	B	–
Q105	E	–5.9V
	C	–
	B	–
Q106	E	–
	C	–5.9V
	B	–5.9V
Q108	E	–
	C	22V (20.6V)
	B	–
Q109	E	–
	C	22.1V
	B	–21V
Q110	E	–
	C	22.1V
	B	–2.1V
Q111	E	–
	C	22.1V
	B	–2.1V
Q501	E	17.8V
	C	22.1V
	B	18.6V
Q502	E	–
	C	–
	B	17.8V
Q503	E	–17.8V
	C	–22.1V
	B	–18.6V
Q504	E	–
	C	–22.1V
	B	–17.8V
Q505	E	8.6V
	C	3.9V
	B	8.5V
Q506	E	0V
	C	0.1V
	B	–
IC101	1	0V
	2	0V
	3	0V
	4	–
	5	0V
	6	0V
	7	0V
	8	0V
IC102	1	–0.3V
	5	1.8V
	6	1.8V
IC103	1	1.0V
	5	1.5V
IC104	1	–
	2	0V
	3	0V
	4	–

IC104	5	0V
	6	0V
	7	0V
	8	–
IC105	1	–
	2	0V
	3	0V
	4	–
	5	0V
	6	0V
	7	0V
	8	–

PC BOARD

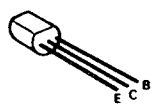


Refer to the schmatic diagram for the values of resistors and capacitors.
The PC board drawing is viewing from the side easy to check.

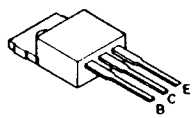

BLU
BLK
A
B
D
ORG
GRN
WHT
BLK
RED
BLK
BLK
BLU
BRN
C
E
F
G
H
I
J
O
P
Q
ORG
ORG
GRN
GRN
BLK
WHT
RED
50-30246
50-20444
(SB0-08)
50-31A
MAIN (W02-0611-08)

KENWOOD

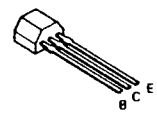
2SA1015
2SC1815
2SC2062B
2SD1153



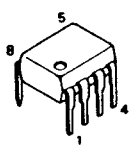
2SB703
2SD743



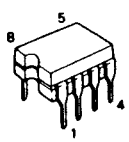
2SA1048
2SC2458



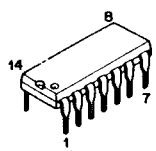
NJM4558-DX
NJM4559D-D



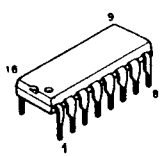
CX7932



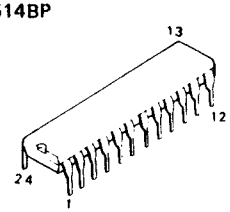
NJM2058D



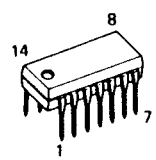
HD14520BP



HD14514BP



LM339N



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

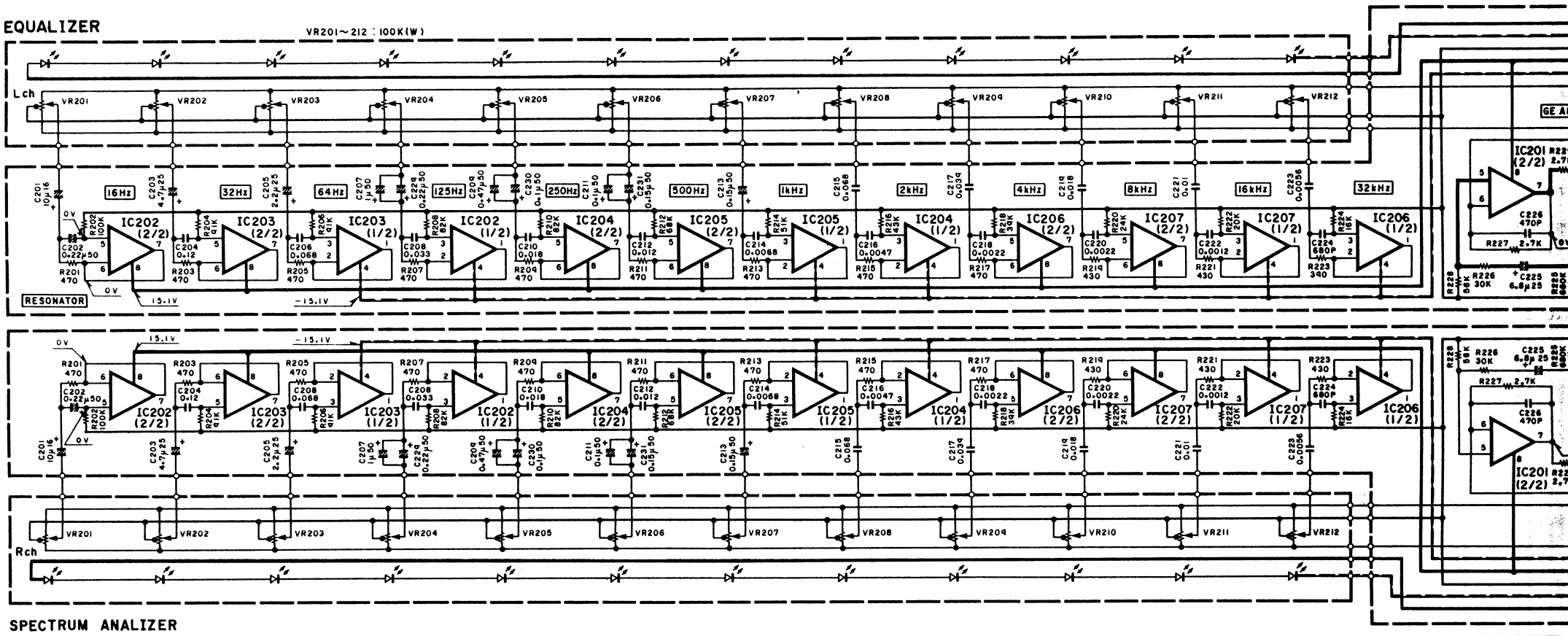
Kenwood poursuit une politique de progrès constants en ce qui doncerne le développement. Pour cette raison, les spécifications sont sujettes à modifications sans préavis.

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

- DC voltages are as measured with a high impedance voltmeter. 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. 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. Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen instrumenten oder Geraten 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.

EQUALIZER

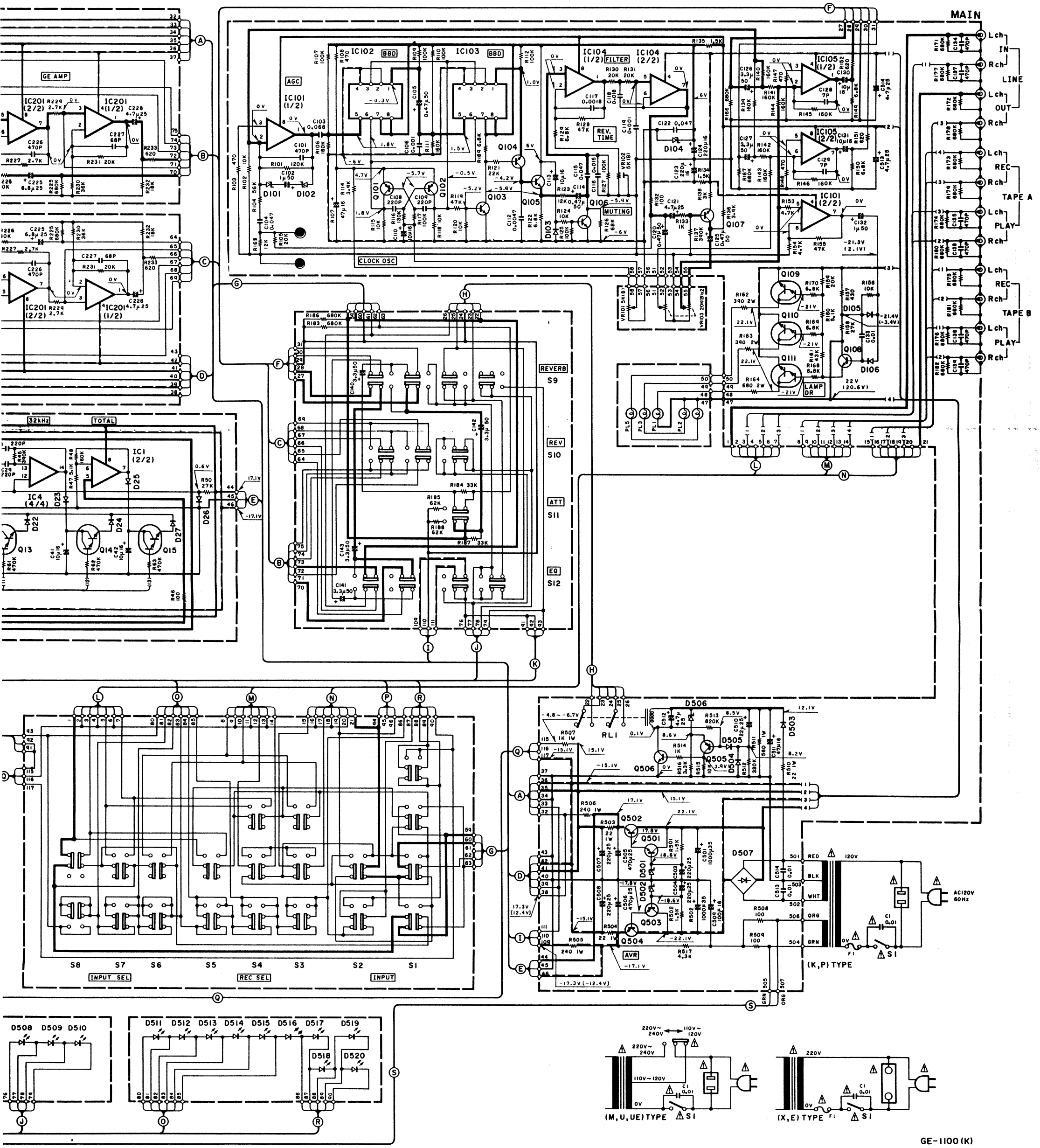


SPECTRUM ANALIZER

IC1,2,101,104,105,202~205,207	:NJM4558D-X
IC3~5	:NJM2058D
IC6	:HD14520BP
IC7	:HD14514BP
IC8~13	:LM339N
IC102,103	:CX7932
IC201,206	:NJM4559D-D

Q3~15	:2SC2062
Q101,102	:2SA1048
Q103~108	:2SC2458
Q109~111	:2SD1153
Q501,506	:2SC1815
Q502	:2SD743
Q503,505	:2SA1015
Q504	:2SB703

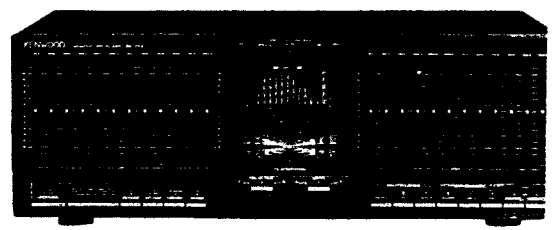
D1~27,103,105,106,504,505	:1S1588
D101,102	:HZ3A-1
D104	:HZ12A-2
D501,502	:HZ18-3
D503	:IN4002
D506	:HZ3C-1



⚠ Indicates safety critical component.

GRAPHIC EQUALIZER

GE-1100



SPECIFICATIONS

[Equalizer Section]

Equalizer Characteristics

Variable Range ..... ± 12 dB

Individual Channel Adjust ..... 16 Hz, 32 Hz, 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, 16 kHz, 32 kHz

Total Harmonic Distortion ..... All controls defeated
0.005% (1 V output at 20 Hz-20 kHz)
0.003% (1 V output at 1 kHz)

Maximum Output Voltage ..... 9 V at 1 kHz, 0.01% THD

Frequency Response ..... 10 Hz to 50 kHz, +0 dB, −1.0 dB

Signal to Noise Ratio (IHF-A) ..... 105 dB at 1 V

[Spectrum Analyzer Section]

Input Impedance ..... 50 kohms

Output Impedance ..... 600 ohms

Signal Level (Volume Max.)

Both Channel Driven ..... 140 mV at 0 dB (Total)

[Reverberation Amplifier Section]

Delay Time ..... Variable from 30 msec to 100 msec

Reverberation Time ..... Variable from 0 sec to 3 sec

[General]

Power Requirements ..... AC 120 V, 60 Hz: U.S.A. models
AC 240 V, 50/60 Hz: U.K. models
AC 240 V, 50 Hz: Australia models
AC 220-240 V, 50 Hz: Europe models
AC 110-120 V/220-240 V (Switchable), 50/60 Hz: Ot countries

Power Consumption ..... 0.28 A (UL: U.S.A. models)
30 watts (Other countries)

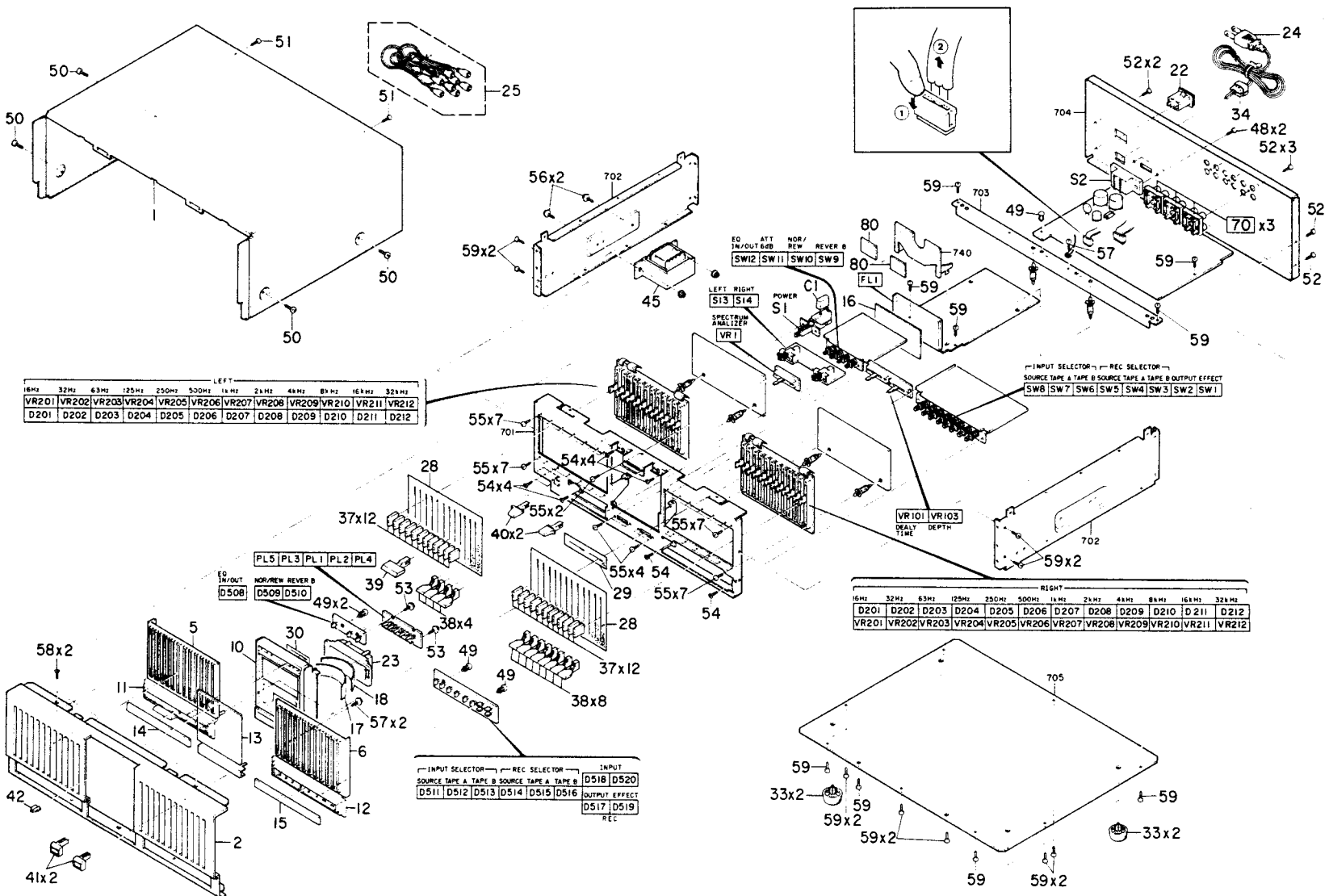
AC Outlet ..... Unswitched x 1

Dimensions ..... W 440 mm (17-5/16")
H 163 mm (6-7/16")
D 350 mm (13-3/4")

Weight (Net) ..... 6.2 kg (13.6 lb)

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

EXPLODED VIEW



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			GE-1100			
1	1A	*	A09-0056-08	METALLIC CABINET		
2	2A	*	A20-4170-08	PANEL	KMUUE	
2	2A	*	A20-4170-08	PANEL	EX	
2	2A	*	A20-4174-08	PANEL	T	
5	2A	*	A29-0052-08	GUIDE PANEL(L)		
6	2A	*	A29-0053-08	GUIDE PANEL(R)		
10	2A	*	B07-1362-08	ESCUTCHEON (FRONT)		
11	2A	*	B07-1363-08	ESCUTCHEON (L)		
12	2A	*	B07-1364-08	ESCUTCHEON (R)		
13	2A	*	B11-0074-08	FILTER (FRONT)		
14	2A	*	B11-0075-08	FILTER (L)		
15	2A	*	B11-0076-08	FILTER (R)		
16	1B	*	B11-0077-08	FILTER (COLOR)		
17	2A	*	B11-0078-08	FILTER (DISPLAY A)		
18	2A	*	B11-0079-08	FILTER (DISPLAY B)		
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0094-03	WARRANTY CARD	UUE	
-			B46-0095-03	WARRANTY CARD	UUE	
-			B46-0096-03	WARRANTY CARD	X	
-			B46-0097-03	WARRANTY CARD	T	
-			B46-0098-03	WARRANTY CARD	E	
-		*	B50-5346-00	INSTRUCTION MANUAL(ENGLISH)	KUMUE	
-		*	B50-5346-00	INSTRUCTION MANUAL(ENGLISH)	XE	
-		*	B50-5347-00	INSTRUCTION MANUAL(FRENCH)	MXE	
-		*	B50-5348-00	INSTRUCTION MANUAL(SPANISH)	M	
-		*	B50-5349-00	INSTRUCTION MANUAL(ARABIC)	M	
-		*	B50-5350-00	INSTRUCTION MANUAL(G,D,I)	E	
-		*	B50-5351-00	INSTRUCTION MANUAL(ENGLISH)	T	
-			B58-0222-14	CAUTION CARD(PRESET 220V)	UE	
-			B58-0223-04	CAUTION CARD(PRESET 120V)	U	
-			B58-0245-23	CAUTION CARD(FTZ)	E	
-			B58-0269-04	CAUTION CARD	K	
-			B59-0092-00	SUB-INSTRUCTION MANUAL	UUE	
⚠ C1	1B		CK45E2H103P	CERAMIC 0.01UF P		
⚠ 22	1C	*	E03-0036-05	AC OUTLET	KMUUE	
23	2A	*	E15-0059-08	LAMP CASE		
⚠ 24	1C		E30-0651-08	AC POWER CORD	E	
⚠ 24	1C		E30-0658-08	AC POWER CORD	MUUE	
⚠ 24	1C		E30-0659-08	AC POWER CORD	K	
⚠ 24	1C		E30-0660-08	AC POWER CORD	T	
⚠ 24	1C		E30-0661-08	AC POWER CORD	X	
25	1B	*	E30-0942-08	AUDIO CORD ASSY		
28	2B	*	F15-0260-08	SHADE(A)		
29	2B	*	F15-0261-08	SHADE(B)		
30	2A	*	F15-0262-08	SHADE(C)		
-		*	H01-5296-08	ITEM CARTON BOX		
-		*	H10-1761-08	POLYSTYRENE FOAMED FIXTURE		
-		*	H25-0078-04	PROTECTION BAG(235X315)	UUE	
-		*	H25-0227-08	PROTECTION BAG(650X600)		
33	2B,2C	*	J02-0160-08	FOOT		

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⚠ 34	1C	*	J42-0119-08	POWER CORD BUSHING		
37	2A,2B	*	K27-1135-08	KNOB ASSY (GE FREQ)		
38	2B	*	K27-1379-08	KNOB(BUTTON) (SELECTOR)		
39	2A	*	K27-1380-08	KNOB(BUTTON) (POWER)		
40	2B	*	K27-1381-08	KNOB(BUTTON) (LEFT,RIGHT)		
41	2A	*	K27-1382-08	KNOB(BUTTON)(DELAY TIME,DEPTH)		
42	2A	*	K27-1383-08	KNOB(BUTTON) (LEVEL)		
⚠ 45	1B	*	L01-3861-08	POWER TRANSFORMER	K	
⚠ 45	1B	*	L01-3862-08	POWER TRANSFORMER	EX	
⚠ 45	1B	*	L01-3864-08	POWER TRANSFORMER	MUUE	
⚠ 45	1B	*	L01-3867-08	POWER TRANSFORMER	T	
48	1C	*	N09-1346-08	SCREW(ø2.6XB)	MUUE	
49	1C,2B	*	N29-0083-08	PUSH RIVET		
50	1A	*	N09-1419-08	SCREW(ø4XB,BI-S TITE)BLK		
51	1A	*	N09-1420-08	SCREW(ø3XB,BI-TP)BLK		
52	1C	*	N09-1421-08	SCREW(ø3XB,PAN-TP)BLK		
53	2A,2B	*	N09-1422-08	SCREW(ø2.6XB,PAN-TP)		
54	2B	*	N09-1423-08	SCREW(M3X6,FLAT)		
55	1B,2B	*	N09-1424-08	SCREW(M2X3,PAN)		
56	1B	*	N09-1425-08	SCREW(M3XB,FLANGE)		
57	2A	*	N09-1426-08	SCREW(ø3XB,FLANGE-TP)BLK		
58	2A	*	N09-1427-08	SCREW(ø3XB,FLAT-TP)		
59	1C,2C	*	N09-1428-08	SCREW(ø3XB,PAN-TP)		
⚠ S1	1B	*	S40-2334-08	PUSH SWITCH(POWER)		
⚠ S2	1C		S31-2087-08	SLIDE SWITCH	MUUE	
			MAIN (W02-0611-08)			
D508-510	2A	*	B30-1059-08	LED(EQ I/O,NOR/REV,REVERB)		
D511-513	2B	*	B30-1060-08	LED(INPUT SELECTOR)		
D514-517	2B	*	B30-1059-08	LED(REC SELECTOR,OUTPUT REC)		
D518	2B	*	B30-1060-08	LED(OUTPUT INPUT)		
D519	2B	*	B30-1059-08	LED(EFFECT REC)		
D520	2B	*	B30-1060-08	LED(EFFECT INPUT)		
PL1 -5	2A	*	B30-1058-08	LAMP (REVERBERATION)		
C101		*	C91-0771-08	POLYPRO 470PF K		
C102			CE04W1H1ROM	ELECTRO 1.0UF 50WV		
C103			CQ92M1H683J	MYLAR 0.068UF J		
C104			CQ92M1H473J	MYLAR 0.047UF J		
C105			CE04W1HR47M	ELECTRO 0.47UF 50WV		
C106			CQ92M1H102J	MYLAR 1000PF J		
C107			CE04W1C470M	ELECTRO 47UF 16WV		
C108,109			CK45B1H221K	CERAMIC 220PF K		
C110			CE04W1C100M	ELECTRO 10UF 16WV		
C112			CQ92M1H472J	MYLAR 4700PF J		
C113			CE04W1C100M	ELECTRO 10UF 16WV		
C114			CE04W1HR47M	ELECTRO 0.47UF 50WV		
C115			CQ92M1H473J	MYLAR 0.047UF J		
C116			CQ92M1H153J	MYLAR 0.015UF J		
C117			CQ92M1H182J	MYLAR 1800PF J		
C118			CQ92M1H183J	MYLAR 0.018UF J		
C119			CQ92M1H102J	MYLAR 1000PF J		
C120			CE04W1HR47M	ELECTRO 0.47UF 50WV		
C121			CE04W1E4R7M	ELECTRO 4.7UF 25WV		

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C122			CK45F1H473K	CERAMIC 0.047UF K		
C123,124			CE04W1C221M	ELECTRO 220UF 16WV		
C125			CE04W1HR47M	ELECTRO 0.47UF 50WV		
C126,127			CE04W1H3R3M	ELECTRO 3.3UF 50WV		
C128,129			CC45SL1H7R0J	CERAMIC 7.0PF J		
C130,131			CE04W1C100M	ELECTRO 10UF 16WV		
C132			CE04W1H1R0M	ELECTRO 1.0UF 50WV		
C133			CQ92M1H103J	MYLAR 0.010UF J		
C134-139		*	C91-0771-08	POLYPRO 470PF K		
C140-143			CE04W1H3R3M	ELECTRO 3.3UF 50WV		
C501,502			CE04W1V102M	ELECTRO 1000UF 35WV		
C503,504			CE04W1E221M	ELECTRO 220UF 25WV		
C505,506			CE04W1E471M	ELECTRO 470UF 25WV		
C507,508			CE04W1E221M	ELECTRO 220UF 25WV		
C509			CE04W1C101M	ELECTRO 100UF 16WV		
C510			CE04W1E220M	ELECTRO 22UF 25WV		
C511			CE04W1C470M	ELECTRO 47UF 16WV		
C512-514			CE04W1E4R7M	ELECTRO 4.7UF 25WV		
C513,514			CQ92M1H103J	MYLAR 0.010UF J		
70	1C	*	E13-0442-08	PHONO JACK(4P)		
R162			RS14GB3D681J	FL-PROOF RS 680 J 2W		
R163,164			RS14GB3D391J	FL-PROOF RS 390 J 2W		
R503,504			RS14GB3A220J	FL-PROOF RS 22 J 1W		
R505,506			RS14GB3A241J	FL-PROOF RS 240 J 1W		
R507			RS14GB3A102J	FL-PROOF RS 1K J 1W		
R510			RS14GB3A220J	FL-PROOF RS 22 J 1W		
R511			RS14GB3A561J	FL-PROOF RS 560 J 1W		
VR101	2C	*	R13-2004-08	POTENTIOMETER(5KB)DELAY TIME		
VR102		*	R13-2005-08	TRIMMING POT (5K) DELAY TIME		
VR103	2C	*	R13-3020-08	POTENTIOMETER(20KBX2)DEPTH		
RL1		*	S51-2076-08	RELAY		
SW1 -8	1C	*	S40-8007-08	PUSH SW (8KEY)SELECTOR(RIGHT)		
SW9 -12	1B	*	S40-4058-08	PUSH SW (4KEY)SELECTOR(LEFT)		
D101,102			HZ3A-1	ZENER DIODE		
D103			1S1588	DIODE		
D104			HZ12A-2	ZENER DIODE		
D105,106			1S1588	DIODE		
D501,502		*	HZ18-3	ZENER DIODE		
D503			1N4002	DIODE		
D504,505			1S1588	DIODE		
D506			HZ3C-1	ZENER DIODE		
D507		*	DF02M	DIODE		
IC101		*	NJM4558-DX	IC OP AMP		
IC102,103		*	CX7932	IC BBD		
IC104,105		*	NJM4558-DX	IC OP AMP		
Q101,102			2SA1048(GR)	TRANSISTOR		
Q103-108			2SC2458(GR)	TRANSISTOR		
Q109-111			2SD1153	TRANSISTOR		
Q501			2SC1815(GR)	TRANSISTOR		
Q502		*	2SD743(R)	TRANSISTOR		
Q503			2SA1015(GR)	TRANSISTOR		
Q504		*	2SB703(R)	TRANSISTOR		
Q505			2SA1015(GR)	TRANSISTOR		

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Q506			2SC1815(GR)	TRANSISTOR		
EQUALIZER (W02-0612-08)						
D201-212	1A,2C	*	B30-1061-08	LED(INCLUDED IN EQ VR)		
C201			CE04W1E100M	ELECTRO 10UF 25WV		
C202			CE04W1HR15M	ELECTRO 0.15UF 50WV		
C203			CE04W1E4R7M	ELECTRO 4.7UF 25WV		
C204			CQ92M1H124K	MYLAR 0.12UF K		
C205			CE04W1H2R2M	ELECTRO 2.2UF 50WV		
C206			CQ92M1H683K	MYLAR 0.068UF K		
C207			CE04W1HR47M	ELECTRO 0.47UF 50WV		
C208			CQ92M1H333K	MYLAR 0.033UF K		
C209			CE04W1HR22M	ELECTRO 0.22UF 50WV		
C210			CQ92M1H183K	MYLAR 0.018UF K		
C211			CE04W1HR12M	ELECTRO 0.12UF 50WV		
C212			CQ92M1H123K	MYLAR 0.012UF K		
C213			CE04W1H0R1M	ELECTRO 0.1UF 50WV		
C214			CQ92M1H682K	MYLAR 0.0068UF K		
C215			CQ92M1H683K	MYLAR 0.068UF K		
C216			CQ92M1H472K	MYLAR 0.0047UF K		
C217			CQ92M1H393K	MYLAR 0.039UF K		
C218			CQ92M1H222K	MYLAR 0.0022UF K		
C219			CQ92M1H183K	MYLAR 0.018UF K		
C220			CQ92M1H222K	MYLAR 0.0022UF K		
C221			CQ92M1H103K	MYLAR 0.01UF K		
C222			CQ92M1H122K	MYLAR 1200PF K		
C223			CQ92M1H562K	MYLAR 5600PF K		
C224			CQ92M1H681K	MYLAR 680PF K		
C225			CE04W1E6R8M	ELECTRO 6.8UF 25WV		
C226			CQ92M1H471K	MYLAR 470PF K		
C227			CC45SL1H680K	CERAMIC 68PF K		
C228			CE04W1E4R7M	ELECTRO 4.7UF 25WV		
C229			CE04W1HR15M	ELECTRO 0.15UF 50WV		
C230			CE04W1HR12M	ELECTRO 0.12UF 50WV		
C231			CE04W1H0R1M	ELECTRO 0.1UF 50WV		
VR201-212	1A,2C	*	R13-5054-08	POTENTIOMETER(100K)EQ(WITH LED		
IC201		*	NJM4559D-D	IC OP AMP		
IC202-205		*	NJM4558-DX	IC OP AMP		
IC206		*	NJM4559D-D	IC OP AMP		
IC207		*	NJM4558-DX	IC OP AMP		
SPECTRUM ANALIZER (W02-0613-08)						
FL1	1B	*	B31-0331-08	FLUORESCENT DISPLAY(SPECTRUM)		
C1 -5			CE04W1C100M	ELECTRO 10UF 16WV		
C6 ,7			CE04W1HR47M	ELECTRO 0.47UF 50WV		
C8 ,9			CE04W1HR33M	ELECTRO 0.33UF 50WV		
C10 ,11			CE04W1HR22M	ELECTRO 0.22UF 50WV		
C12 ,13			CQ92M1H823K	MYLAR 0.082UF K		
C14 ,15			CQ92M1H393K	MYLAR 0.039UF K		
C16 ,17			CQ92M1H223K	MYLAR 0.022UF K		
C18 ,19			CQ92M1H822K	MYLAR 8200PF K		
C20 ,21			CQ92M1H332K	MYLAR 0.0033UF K		
C22 ,23			CQ92M1H272K	MYLAR 0.0027UF K		

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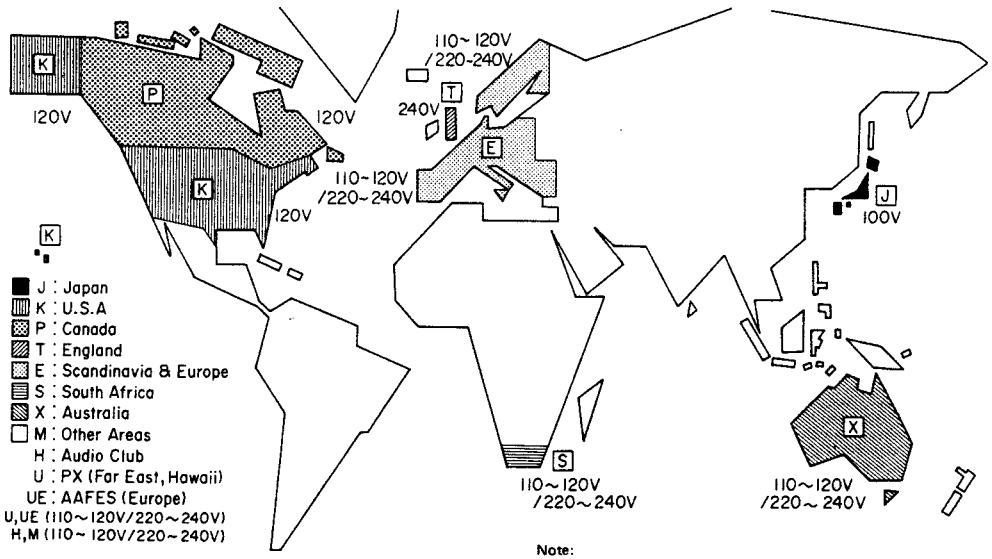
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C24 ,25			C092M1H122K	MYLAR 1200PF K		
C26 ,27			C092M1H681K	MYLAR 680PF K		
C28 ,29		*	C91-0772-08	POLYPRO 220PF K		
C30 -42			CE04W1C100M	ELECTRO 10UF 16WV		
C43			CK45F1H473K	CERAMIC 0.047UF K		
C44 ,45			C092M1H682K	MYLAR 0.0068UF K		
C46			CC45SL1D1K	CERAMIC 0.0068UF		
C47			CE04W1E100M	ELECTRO 10UF 25WV		
C48			CK45F1H473K	CERAMIC 0.047UF K		
80	1B	*	G13-0168-08	CUSHION (BEHIND FL1)		
RA11P		*	R90-0428-08	MULTI-COMP 10KX11		
RA12P		*	R90-0427-08	MULTI-COMP 10KX12		
VR1	1B	*	R13-5053-08	POTENTIOMETER(100KB)LEVEL		
S13 ,14	1B	*	S40-1091-08	PUSH SWITCH(1KEY)LEFT,RIGHT		
D1 -27			1S1588	DIODE		
IC1 ,2		*	NJM4558-DX	IC OP AMP		
IC3 -5		*	NJM2058D	IC OP AMP		
IC6		*	HD14520BP	IC DUAL BINARY UP COUNTER		
IC7		*	HD14514BP	IC 4-16 LINE DECODER		
IC8 -13		*	LM339N	IC QUAD COMPARATORS		
Q1 ,2			2SA1048(GR)	TRANSISTOR		
Q3 -15		*	2SC2062B	TRANSISTOR		

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WORLD MAP & AREA CORD



Note:

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