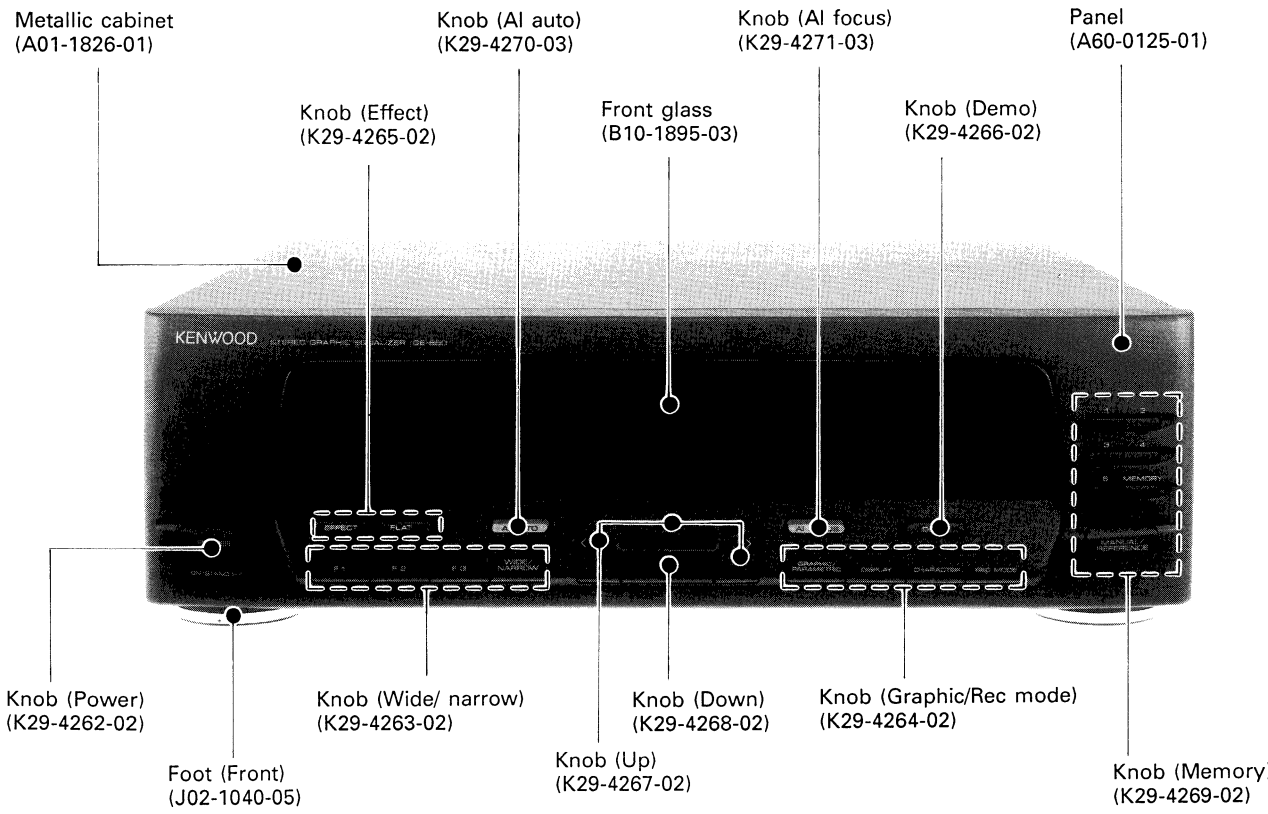
STEREO GRAPHIC EQUALIZER

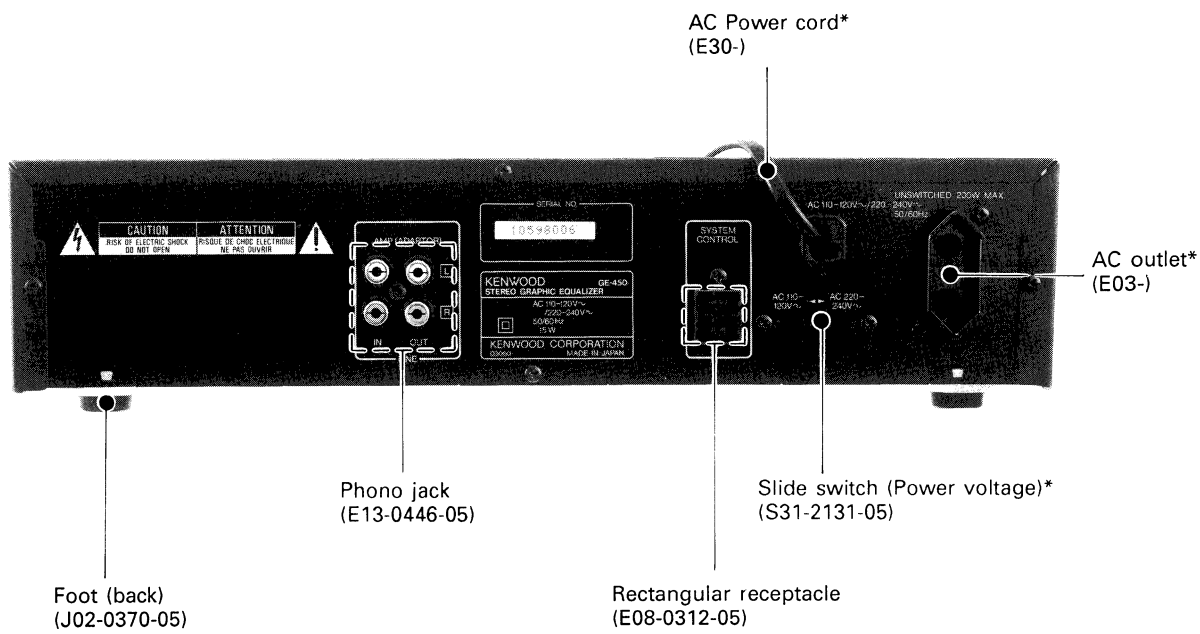
GE-850

SERVICE MANUAL

KENWOOD

B51-4349-00 (O) 1941





* Refer to parts list on page 24.

GE-850

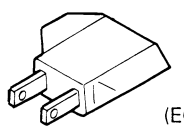
CONTENTS / ACCESSORIES

Contents

Accessories

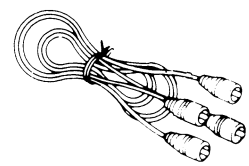
AC plug adaptor 1

(Except for some areas)
For the unit with a European AC plug in areas other than Europe.



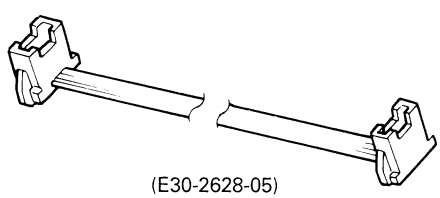
(E03-0115-05)

Audio cord 2



(E30-0505-05)

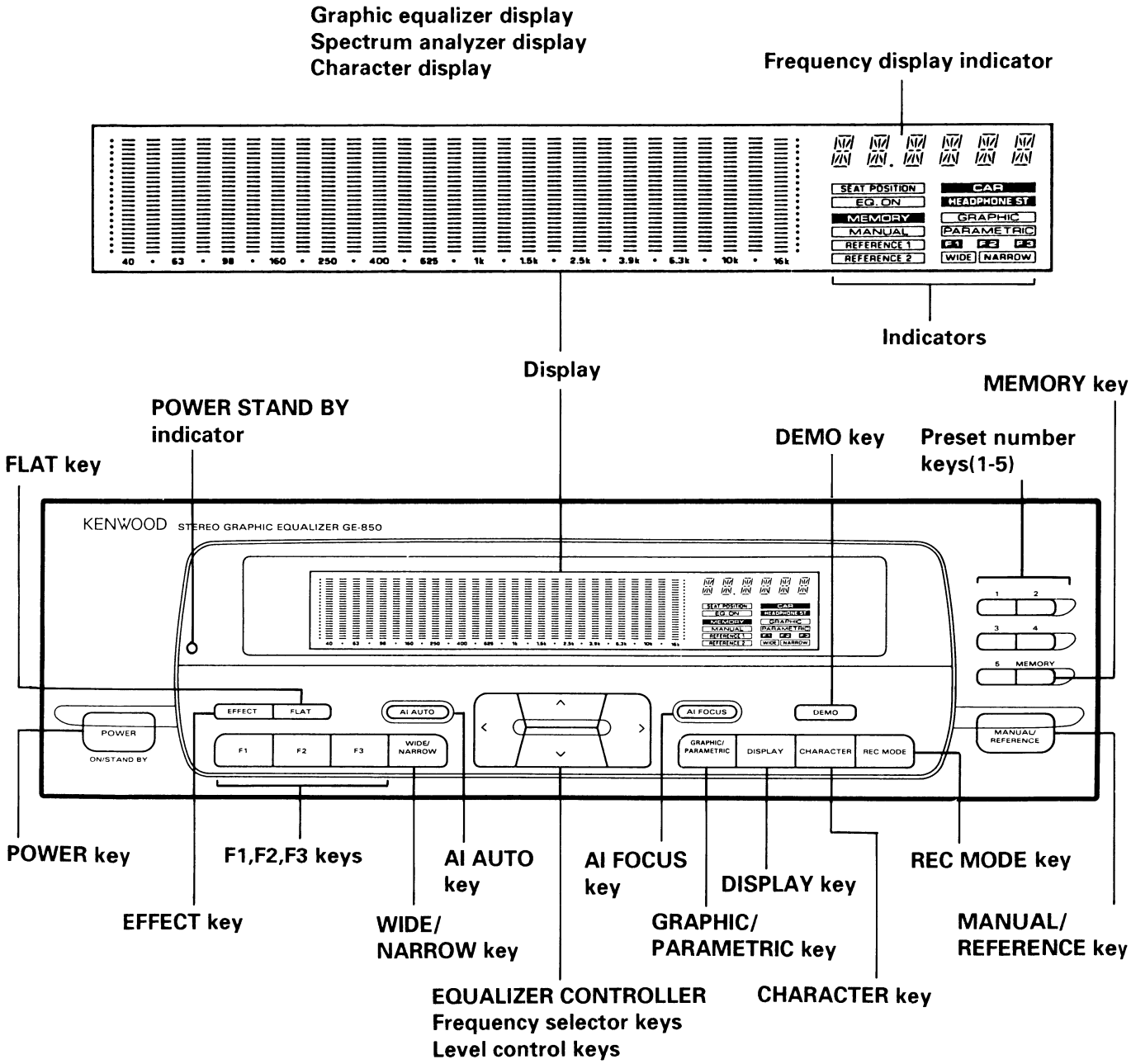
System control cord 1



(E30-2628-05)

CONTROLS / CAUTION

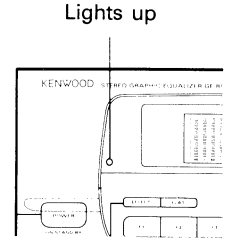
Controls



Caution

STAND BY mode of POWER switch

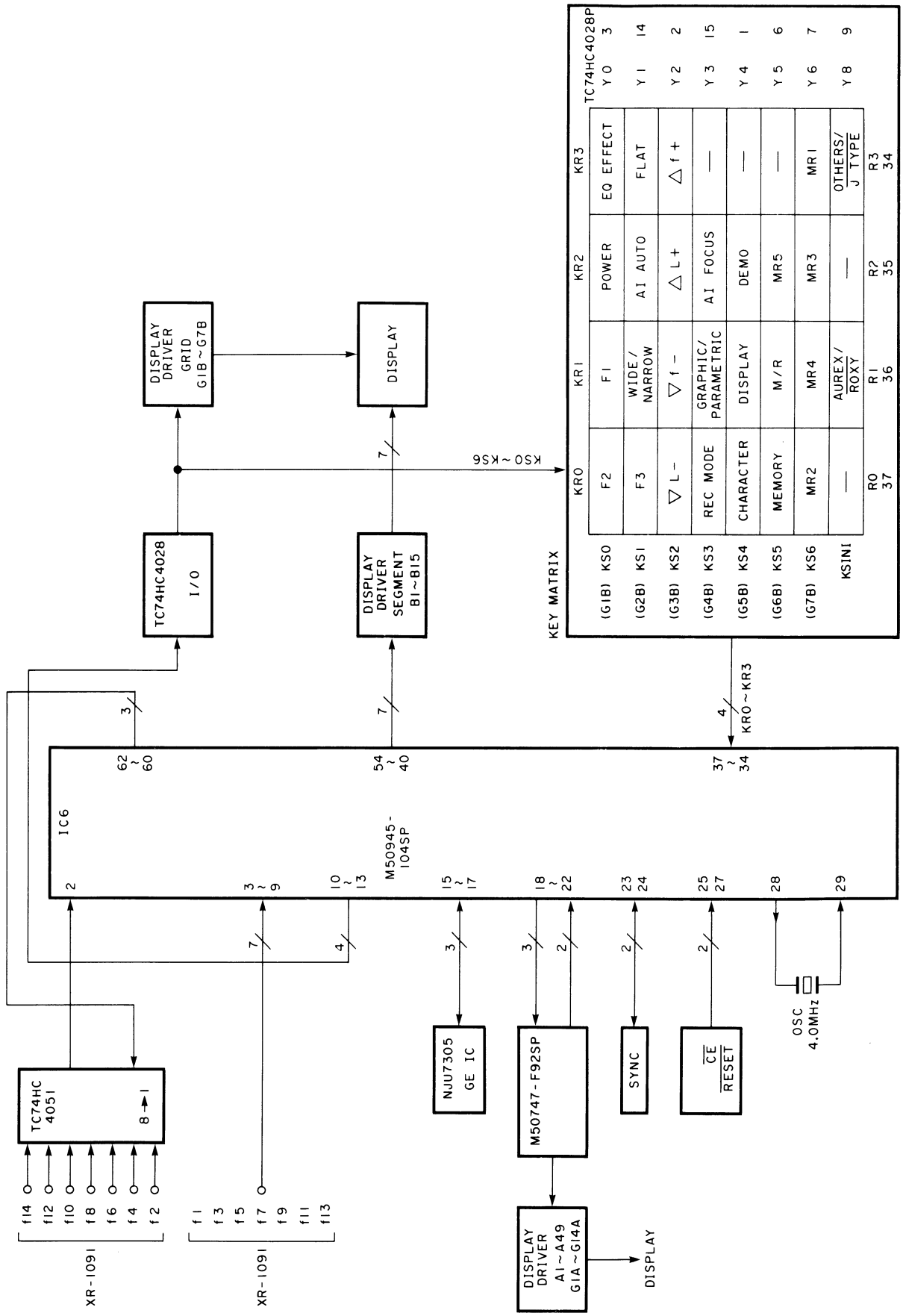
When the power cord of this system is plugged into an AC outlet, the STAND BY indicator lights up regardless of the ON/OFF setting of the POWER switch. This indicates that a small amount of current is being supplied to the unit to back up the memory contents. This mode is referred to as the Stand By mode.



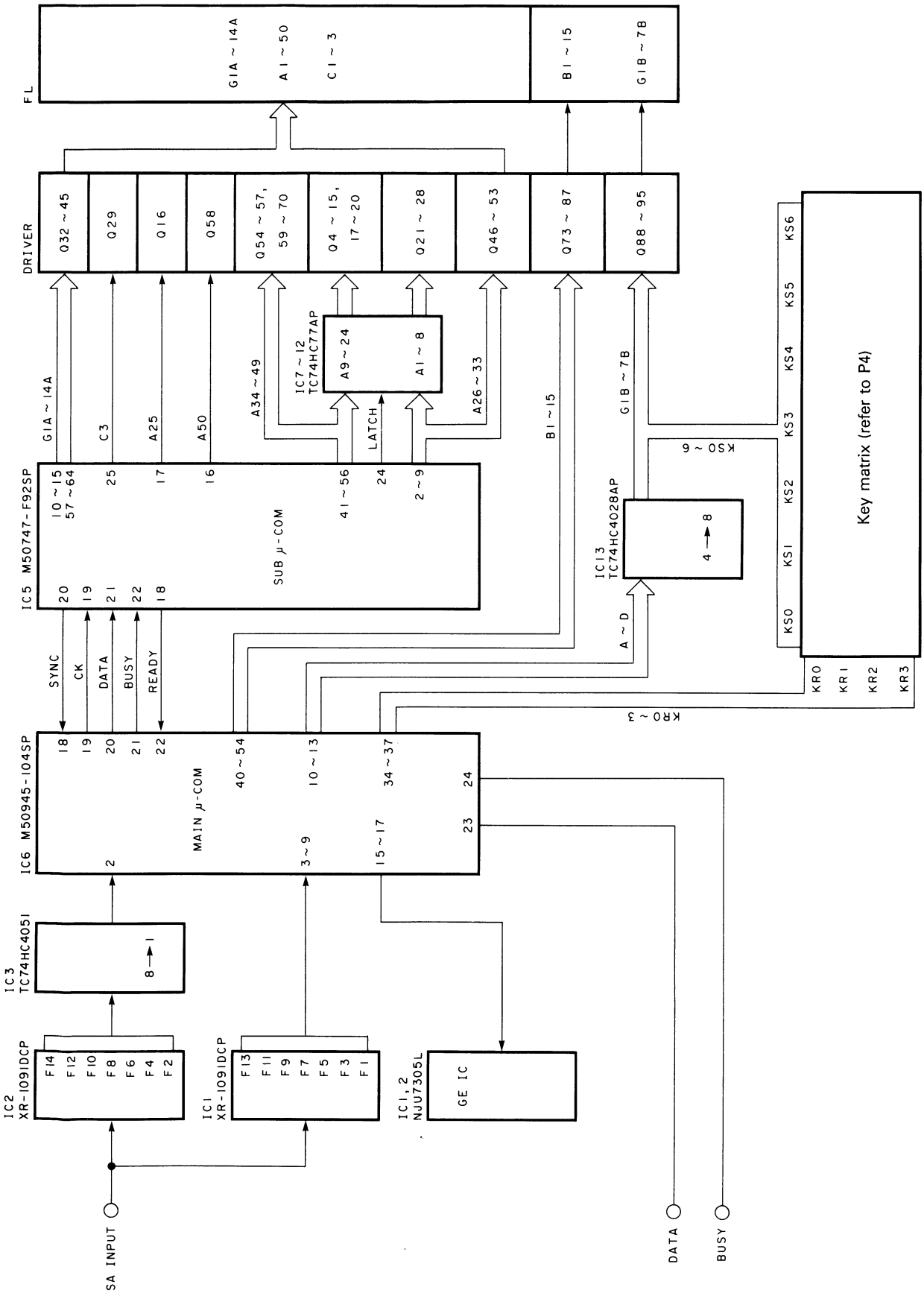
GE-850

CIRCUIT DESCRIPTION

1. Microprocessor Block Diagram and Key Matrix



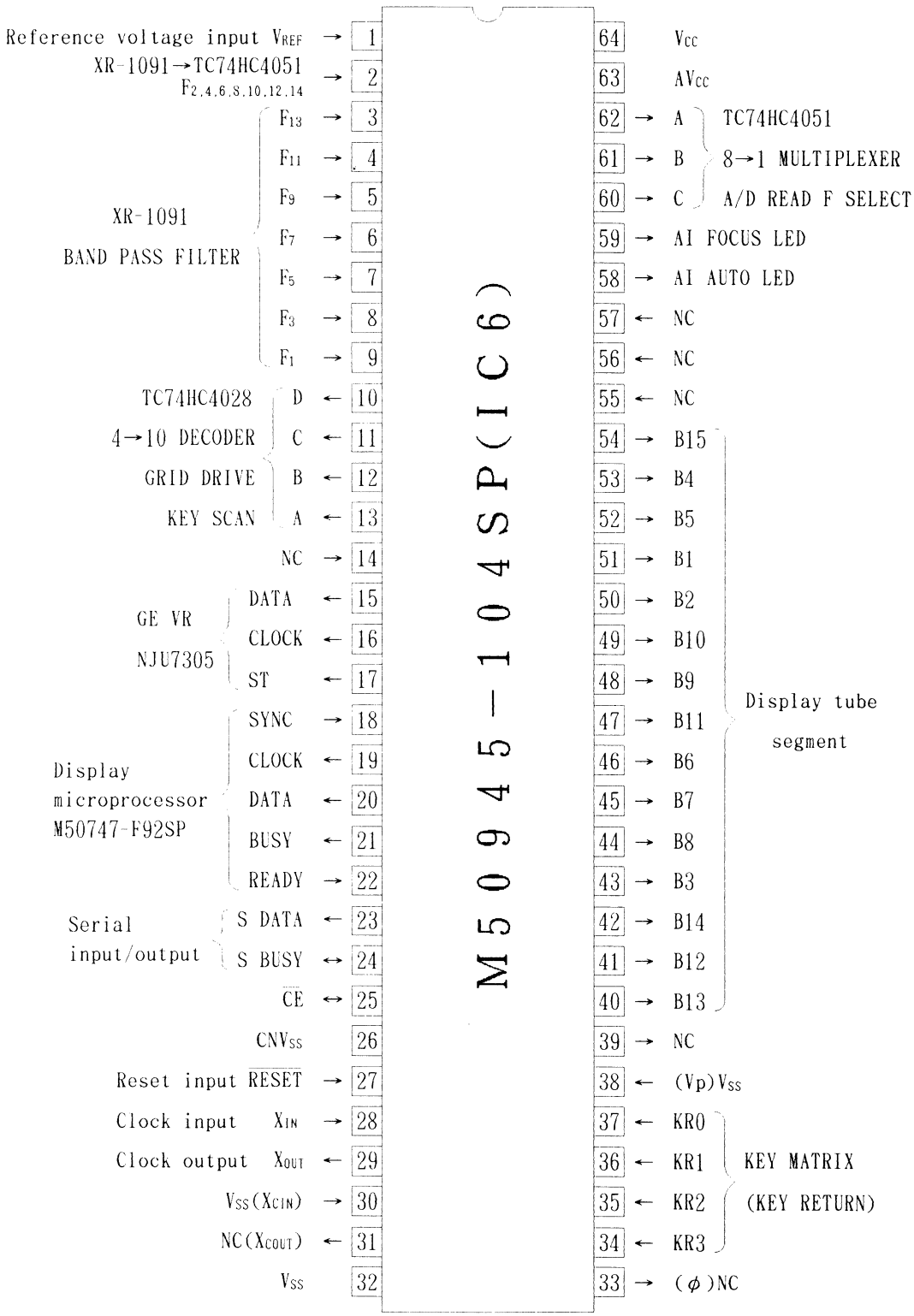
CIRCUIT DESCRIPTION



CIRCUIT DESCRIPTION

2. Main Microprocessor : M50945-104SP (IC6 : X14-3240-21)

2-1. Terminal connection diagram



CIRCUIT DESCRIPTION

2-2. Description of terminals

Pin No.	Pin Name	I/O	Name	Description
1	VREF	–	VREF	Reference voltage input for A/D converter.
2	IN7	I	F8~F14	Analog signal input for 1kHz~16kHz and AMP VR position detection. (For inputting signal coming in by way of Multiplexer TC74HC4051.)
3	IN6	I	F13	10kHz analog signal input. (For inputting signals coming in directly from filter circuit.)
4	IN5	I	F11	3.9kHz analog signal input. (For inputting signals coming in directly from filter circuit.)
5	IN4	I	F9	1.5kHz analog signal input. (For inputting signals coming in directly from filter circuit.)
6	IN3	I	F7	625Hz analog signal input. (For inputting signals coming in directly from filter circuit.)
7	IN2	I	F5	250Hz analog signal input. (For inputting signals coming in directly from filter circuit.)
8	IN1	I	F3	98Hz analog signal input. (For inputting signals coming in directly from filter circuit.)
9	IN0	I	F1	40Hz analog signal input. (For inputting signals coming in directly from filter circuit.)
10~13	P47~P44	O	D~A	Control signal output for Multiplexer TC74HC4028 (4 → 10)
14	P43	O	NC	Unused.
15	P42	O	DATA	Output of NJU7305 CONTROL DATA signals for electronic VR of graphic equalizer.
16	P41	O	CLOCK	Output of NJU7305 CONTROL CLOCK signals for electronic VR of graphic equalizer.
17	P40	O	ST	Output of NJU7305 CONTROL ST signals for electronic VR of graphic equalizer.
18	P37	I	SYNC	Input for transfer display data indication signals. H : DISPLAY MODE data L : LEVEL or POINT data
19	P36 (CLK)	O	CLOCK	CLOCK signal output for DISPLAY data transfer.
20	P35 (SOUT)	O	DATA	DATA signal output for display.
21	P34	O	BUSY	Output for DISPLAY DATA TRANSFERRING signals. H : Data transferring L : Others
22	P33	I	READY	Input for DISPLAY DATA TRANSFERRABLE signal. H : Not transferrable L : Transferrable
23	P32	I/O	SDATA	Input/Output for SYSTEM SERIAL DATA signal.
24	P31	I/O	SBUSY	Input/Output for SYSTEM SERIAL BUSY signal.
25	P30	I	$\overline{CE}$	BACK UP detection. H : Others L : Backing up
26	CNVss	–	Vss	Unused.
27	$\overline{RESET}$	I	$\overline{RESET}$	RESET signal detection. H : Others L : Reset
28	XIN	I	XIN	System clock input (4.0MHz).
29	XOUT	O	XOUT	System clock output.
30	XCIN	I	Vss	Unused. (Clock input terminal for timer.)
31	XCOUT	O	NC	Unused. (Clock output terminal for timer.)
32	VSS	–		GND.
33	ø	O	NC	Unused. (Output terminal for system clock 1/4 divided frequencies.)
34~37	R3~R0	I	KR3~KR0	KEY RETURN signal input.
38	VP	–	Vss	Pull down input.
39	P17	O	NC	Unused.
40~54	P16~P00	O	B1~B15	Output for DISPLAY TUBE SEGMENT DRIVE. H : ON L : OFF
55~57	P27~25	I	NC	Unused.
58	P24	O	AI AUTO LED	LED ON–OFF Control H : ON L : OFF
59	P23	O	AI FOCUS LED	LED ON–OFF Control H : ON L : OFF
60~62	P22~P20	O	A~C	Control signal for multiplexer TC74HC4051.
63	AVcc	–	AVcc	Power supply for A/D converter (+5V).
64	Vcc	–	Vcc	Power supply for microprocessor (+5V).

CIRCUIT DESCRIPTION

3. Data of MEMORY EQ CURVE

(1) REFERENCE I x 5
SOFT • CLEAR • HEAVY • SCALE • NR

(2) REFERENCE II x 5 (Double-speed REC curve)
SOFT • CLEAR • HEAVY • SCALE • NR

(3) MANUAL x 5 (RESET curve at initialized)
DSP PRESENCE MODE ARENA : POPULAR or ROCK CONCERT
DSP PRESENCE MODE STADIUM : POPULAR or ROCK CONCERT
DSP PRESENCE MODE ARENA or STADIUM or CHURCH : CLASSIC CONCERT
CAR STEREO
HEAD PHONE STEREO

4) AI AUTO x 25

(I) 1 (1) : L1-H1	(II) 6 (6) : L2-H1	(III) 11 (a) : L3-H1	(IV) 16 (f) : L4-H1	(V) 21 (k) : L5-H1
2 (2) : L1-H2	7 (7) : L2-H2	12 (b) : L3-H2	17 (g) : L4-H2	22 (l) : L5-H2
3 (3) : L1-H3	8 (8) : L2-H3	13 (c) : L3-H3	18 (h) : L4-H3	23 (m) : L5-H3
4 (4) : L1-H4	9 (9) : L2-H4	14 (d) : L3-H4	19 (i) : L4-H4	24 (n) : L5-H4
5 (5) : L1-H5	10 (0) : L2-H5	15 (e) : L3-H5	20 (j) : L4-H5	25 (o) : L5-H5

(5) AI FOCUS 6 x 5
(I) ARENA x 5 (II) JAZZ CLUB x 5 (III) STADIUM x 5 (IV) DISCO x 5 (V) CHRCH x 5 (VI) MOVIE x 5

(6) AI LINK x 6
ARENA • JAZZ CLUB • STADIUM • DISCO • CHURCH • MOVIE

(7) AI TIMER1 x 2
STEP1 • STEP2

4. Test Mode

4-1. Test mode with key switch

• Setting method

1. Press the M/R key switch, connect the AC plug to an outlet. (SEGMENT Check mode)
2. Pressing the FALT key switch, connect the AC plug to an outlet. (All segments light-up mode)

• Contents of operation

1-1. If the mode is selected, the short check of the segment terminals is indicated. If any key switch is pressed, the device returns to the normal indication but it is kept in the test mode.

1-2. If the short check of the segment terminals is indicated, the bars of all the bands light up by five segments, and the lighting bars move up at the interval of 256msec. The 14-segment indicator and mode indicator on the right continue lighting in order of B15, B4, B5, B1, B2, B10, B9, B11, B6, B7, B8, B3, B14, B12, B13, B15, B4 ..

1-3. Set the contents of the MANUAL PRESET MEMORY as follows.
M1 : FLAT (ALL 0dB)
M2 : ALL MAX (ALL +12dB)
M3 : ALL MIN (ALL -12dB)

1-4. The EQ LEVEL UP/DOWN operation is set to three points of +12dB, 0dB, and -12dB at all the frequencies.

2-1. If the system is set to the test mode, all the indicator elements light up. If any key switch is pressed, the system returns to the normal indicating condition, but it is still in the test mode. The operation in the test mode is the same as 1-3, and 1-4.

• Resetting method of test mode and intialization

In either the key switch test mode or the serial test mode, if the AC plug is disconnected from the outlet and connected again to the outlet, the microprocessor is initialized and the power is turned off. At the same time, the test mode is reset.

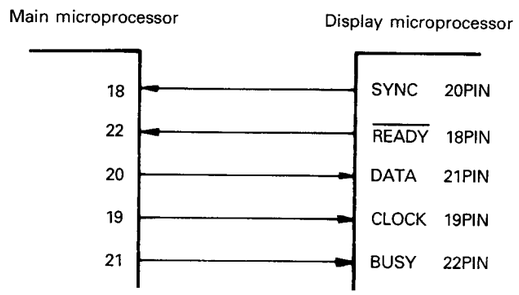
CIRCUIT DESCRIPTION

5. Transfer Method

Data are transferred by the unit of 8-bits in the LSB first mode.

- SYNC is raised at the header to clearly show the divisions of the transferred data (including the header).
- $\overline{\text{READY}}$ is raised at the head of each 8-bit datum to clearly shows each division of the data.
- If any mistake is made in the transfer of data, the highest priority is given to SYNC to modify the synchronization of data.
- Data are taken in at the rise of the clock.
- BUSY is raised when data are transferred.
- Transfer is started when READY is raised.
- DATA are sent with LSB at head.

6-1. Connection

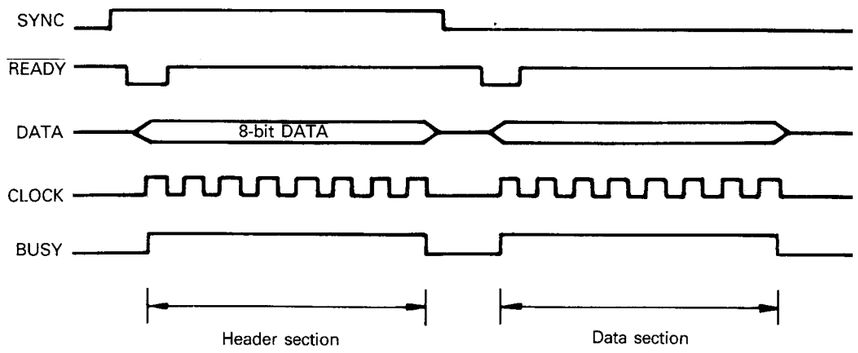


5-2. Transfer method

First, the display microprocessor notifies the transmission of the header to the main microprocessor by setting SYNC to "H". Then, it set $\overline{\text{READY}}$ to "L" to notify that it can receive data.

When the $\overline{\text{READY}}$ is set to "L", the main microprocessor checks SYNC. If SYNC is "H", the main microprocessor sends the header signal to the displayr microprocessor ($\overline{\text{READY}}$ returns to "H" at the first rise of the clock).

If the display microprocessor receives an 8-bit data and confirms that it is a header, it turns SYNC to "L" and also turns $\overline{\text{READY}}$ to "L" again, then demands the data from the main microprocessor.



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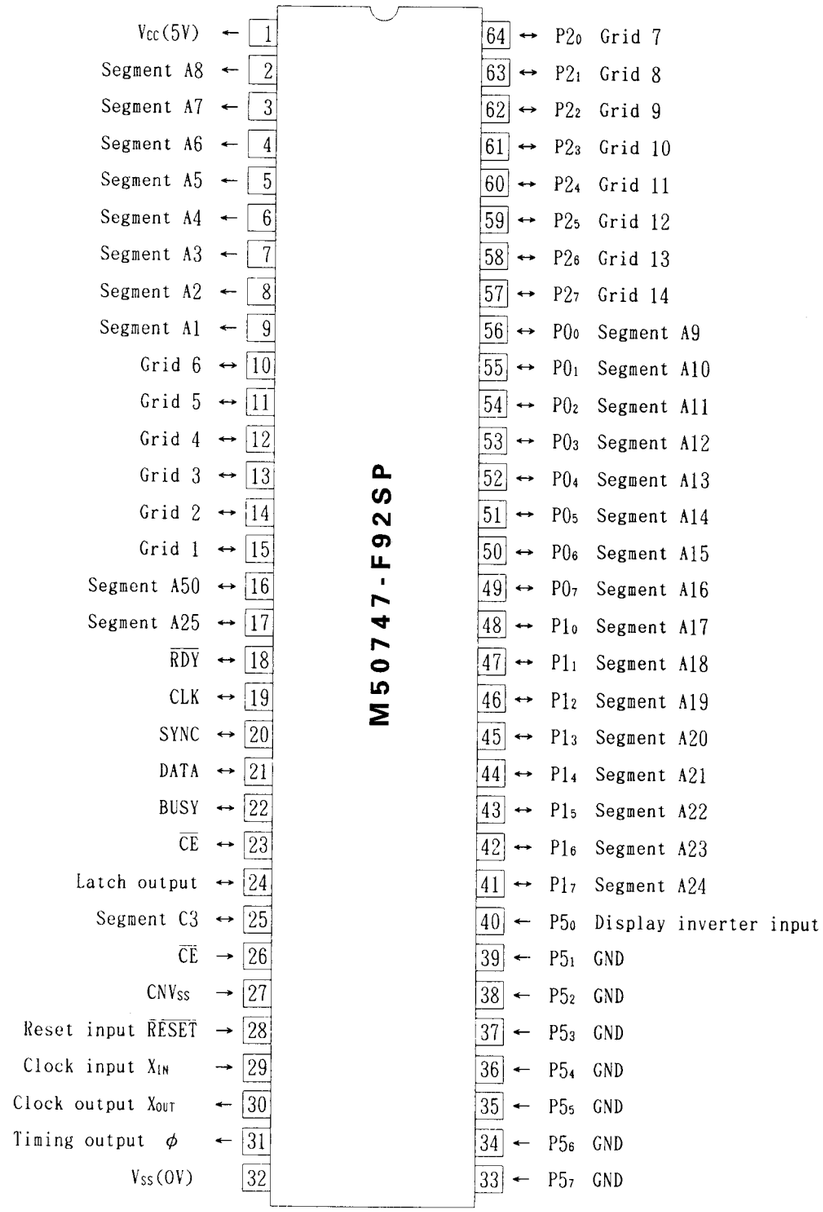
CIRCUIT DESCRIPTION

6. Display Microprocessor : M50747-F92SP (IC5 : X14-3240-21)

6-1. Terminal connection diagram



6-2. Descr

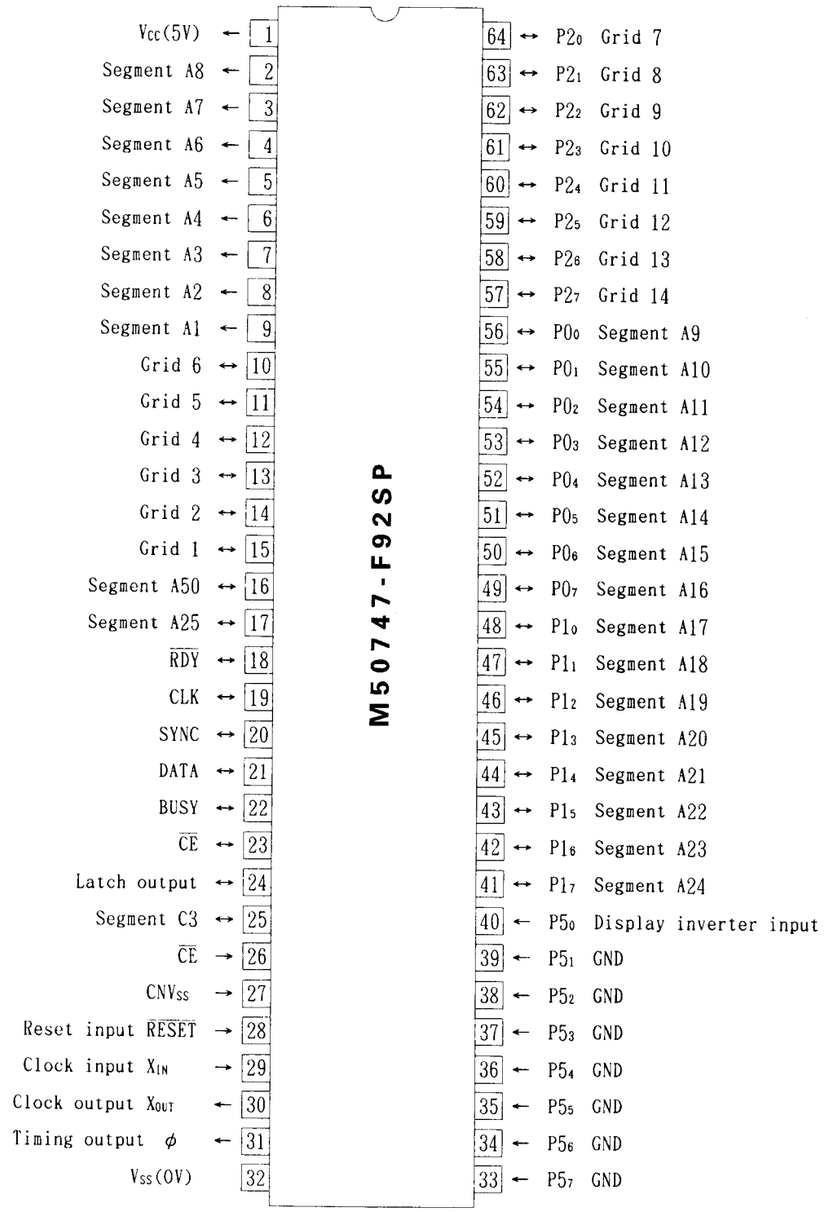
Pin No.	Pi
1	Vc
2	P6
3	P6
4	P6
5	P6
6	P6
7	P6
8	P6
9	P6
10	P4
11	P4
12	P4
13	P4
14	P4
15	P4
16	P4
17	P4
18	P3
19	P3
20	P3
21	P3
22	P3
23	P3
24	P3
25	P3
26	IN
27	CN
28	RE
29	X
30	Xc
31	φ
32	Vs

CIRCUIT DESCRIPTION

6. Display Microprocessor : M50747-F92SP (IC5 : X14-3240-21)

6-1. Terminal connection diagram

cessor
—
PIN
PIN
PIN
PIN
PIN



GE-850

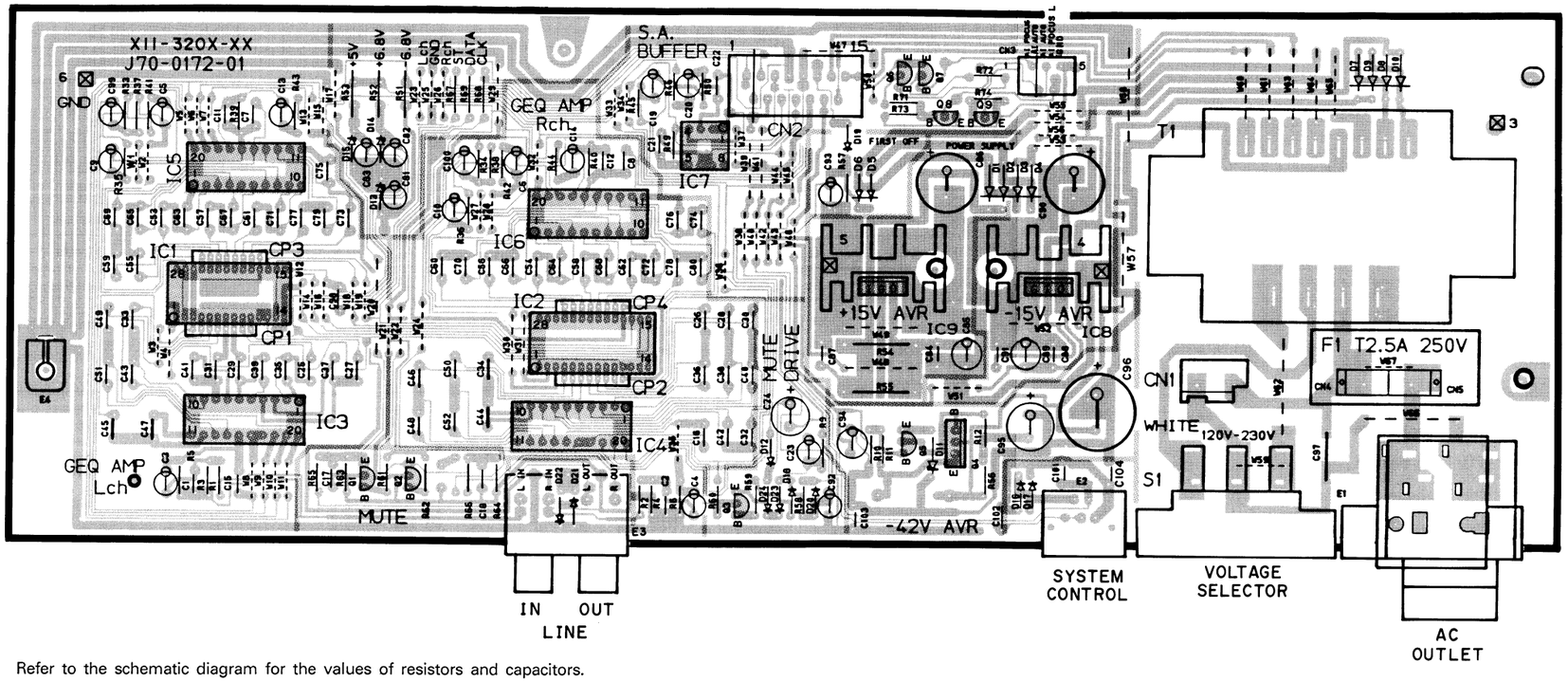
CIRCUIT DESCRIPTION

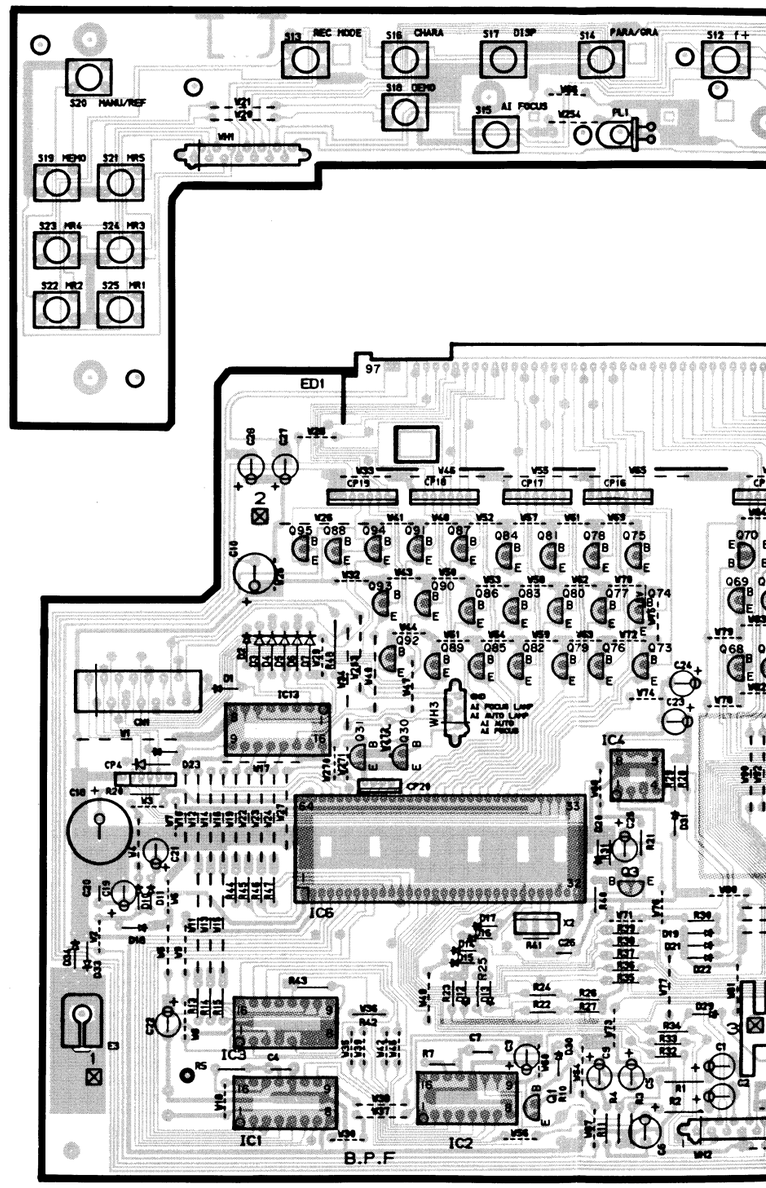
6-2. Description of terminals

Pin No.	Pin name	I/O	Name	Description
1	Vcc	I	5V	Power supply
2	P67	O	Segment A8	Segment
3	P66	O	Segment A7	Segment
4	P65	O	Segment A6	Segment
5	P64	O	Segment A5	Segment
6	P63	O	Segment A4	Segment
7	P62	O	Segment A3	Segment
8	P61	O	Segment A2	Segment
9	P60	O	Segment A1	Segment
10	P47	O	Grid 6	Grid
11	P46	O	Grid 5	Grid
12	P45	O	Grid 4	Grid
13	P44	O	Grid 3	Grid
14	P43	O	Grid 2	Grid
15	P42	O	Grid 1	Grid
16	P41	O	Segment A50	Segment
17	P40	O	Segment A25	Segment
18	P37	O	$\overline{RDY}$	Serial $\overline{RDY}$
19	P36	I	CLK	Serial CLK
20	P35	O	SYNC	Serial SYNC
21	P34	I	DATA	Serial DATA
22	P33	I	BUSY	Serial BUSY
23	P32	I	$\overline{CE}$	Chip inable
24	P31	O	LATCH OUT	74HC77 latch control
25	P30	O	Segment C3	Segment
26	$\overline{INT1}$	O	$\overline{CE}$	Chip inable
27	CNVss	I	CNVss	GND
28	$\overline{RESET}$	I	$\overline{RESET}$	$\overline{RESET}$
29	XIN	I	XIN	Clock
30	XOUT	O	XOUT	Clock
31	φ	O	φ	Timing signal φ output
32	Vss	I	Vss	GND

Pin No.	Pin name	I/O	Name	Description
33	P57	I	P57	GND
34	P56	I	P56	GND
35	P55	I	P55	GND
36	P54	I	P54	GND
37	P53	I	P53	GND
38	P52	I	P52	GND
39	P51	I	P51	GND
40	P50	I	Invert	Display invert input
41	P17	O	Segment A24	Segment
42	P16	O	Segment A23	Segment
43	P15	O	Segment A22	Segment
44	P14	O	Segment A21	Segment
45	P13	O	Segment A20	Segment
46	P12	O	Segment A19	Segment
47	P11	O	Segment A18	Segment
48	P10	O	Segment A17	Segment
49	P07	O	Segment A16	Segment
50	P06	O	Segment A15	Segment
51	P05	O	Segment A14	Segment
52	P04	O	Segment A13	Segment
53	P03	O	Segment A12	Segment
54	P02	O	Segment A11	Segment
55	P01	O	Segment A10	Segment
56	P00	O	Segment A9	Segment
57	P27	O	Grid 14	Grid
58	P26	O	Grid 13	Grid
59	P25	O	Grid 12	Grid
60	P24	O	Grid 11	Grid
61	P23	O	Grid 10	Grid
62	P22	O	Grid 9	Grid
63	P21	O	Grid 8	Grid
64	P20	O	Grid 7	Grid

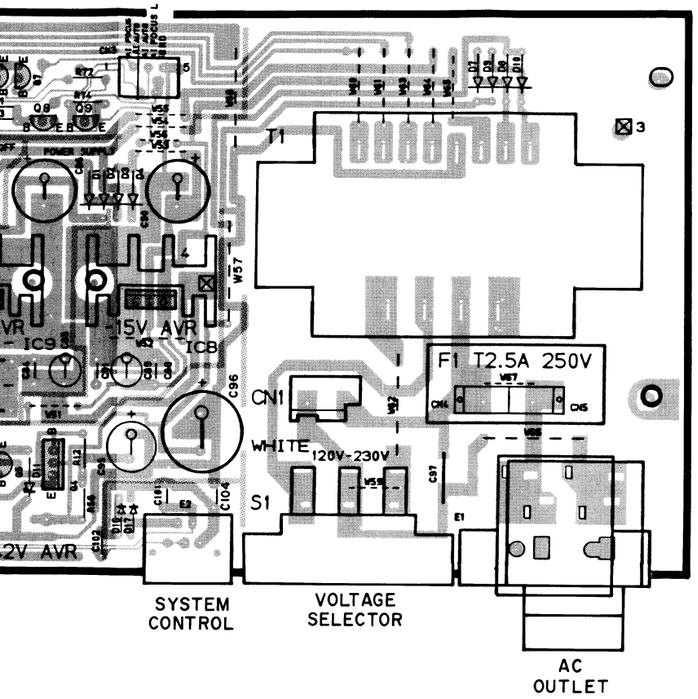
PC BOARD (COMPONENT SIDE VIEW)

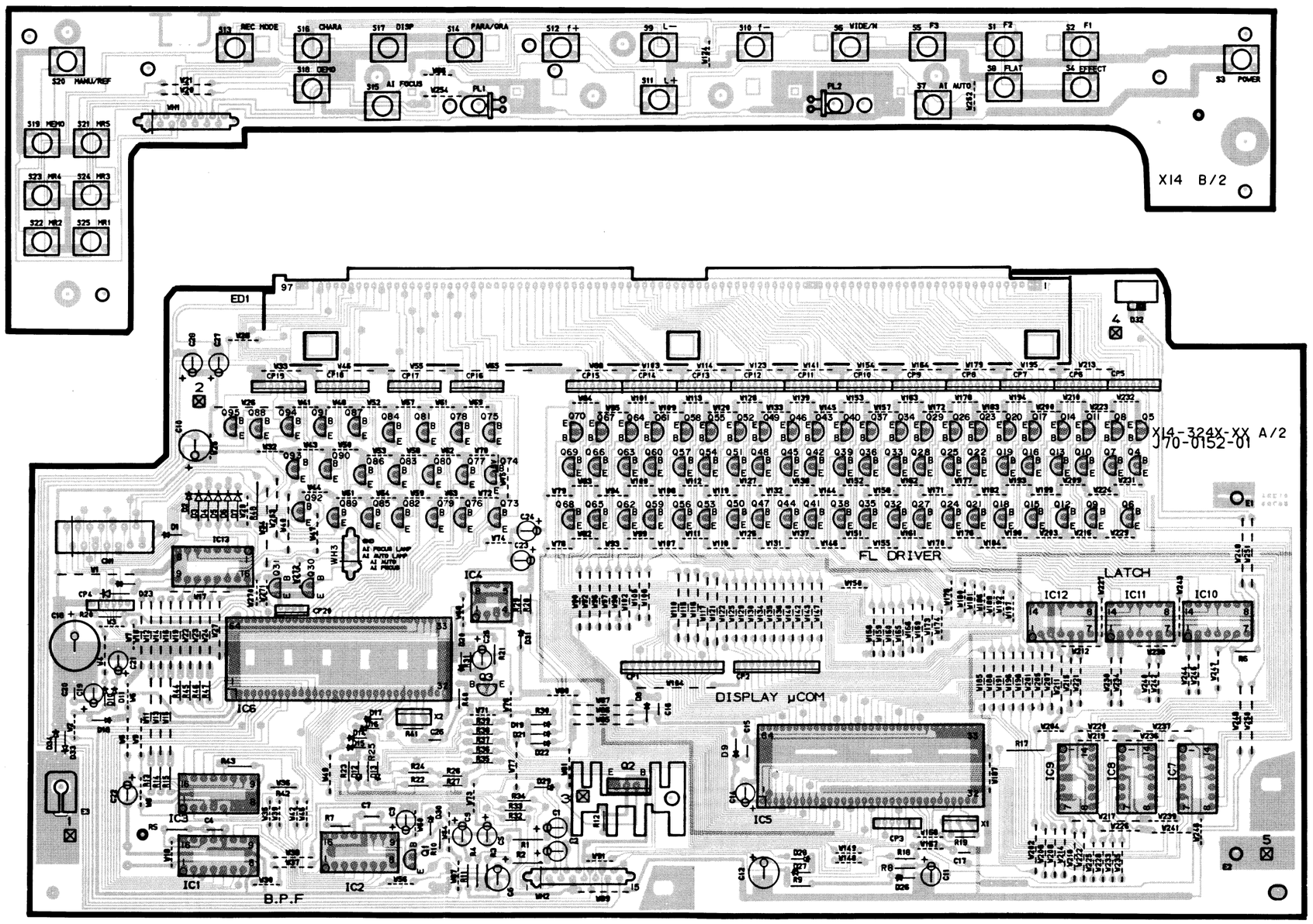


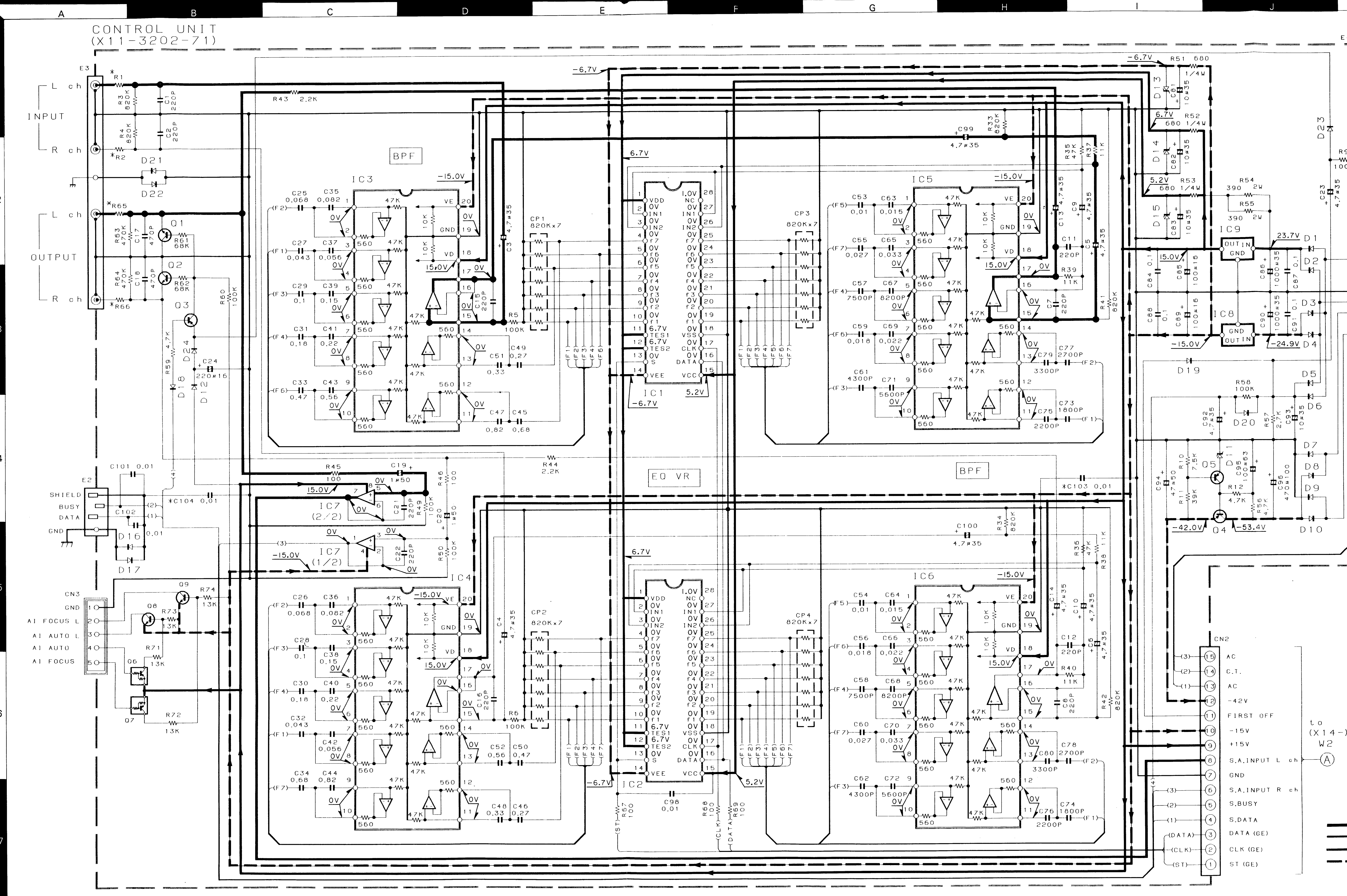


Refer to the schematic diagram for the values of resistors and capacitors.

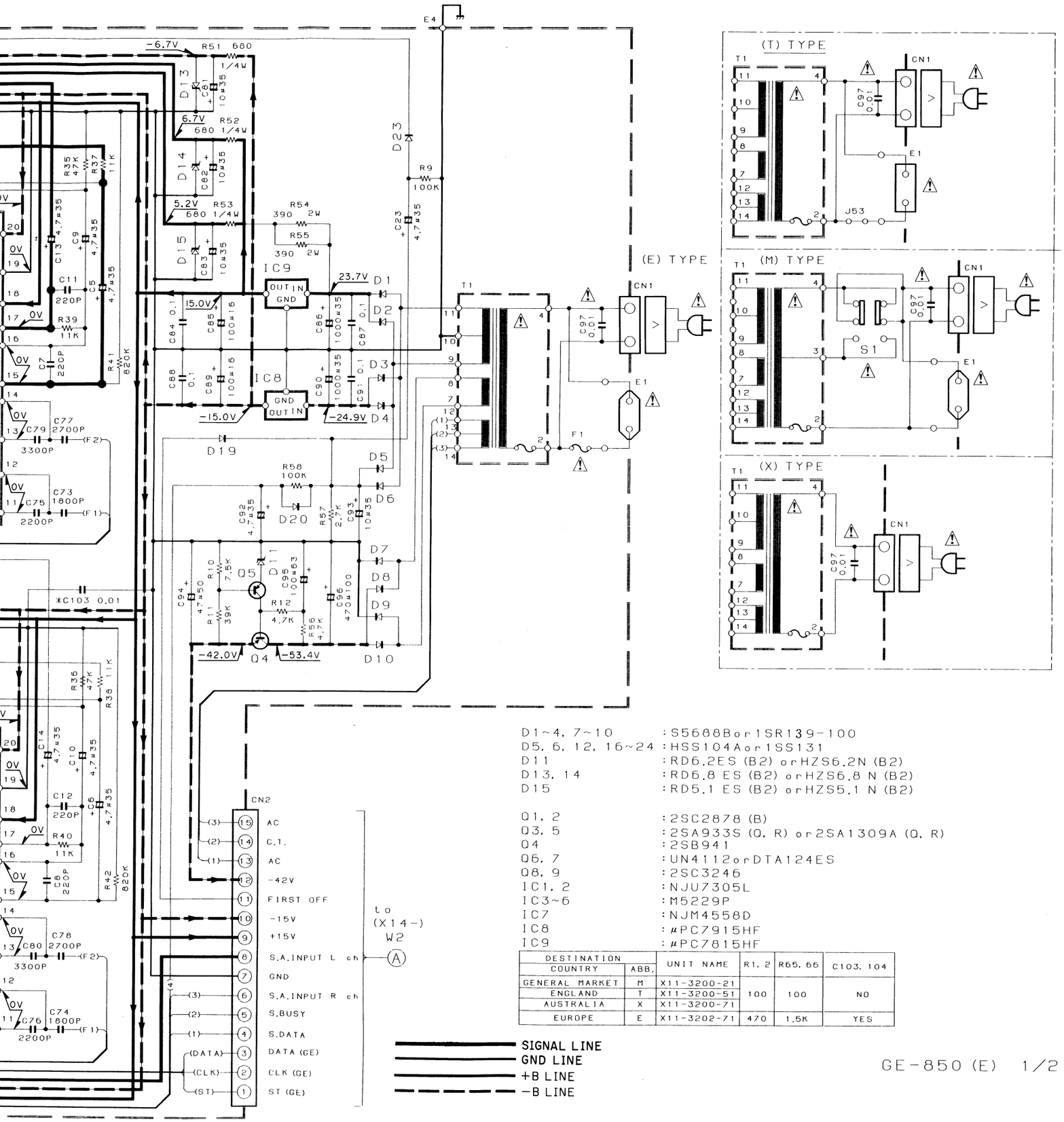
F G H I J K L M N O


T1
F1 T2.5A 250V
CN1
WHITE
120V-230V
S1
SYSTEM CONTROL
VOLTAGE SELECTOR
AC OUTLET


X14 B/2
X14-324X-XX A/2
J70-0152-01
FL DRIVER
DISPLAY µCOM
LATCH
B.P.F



CONTROL UNIT
(X11-3202-71)
INPUT
L ch
R ch
OUTPUT
BPF
EQ VR
IC1
IC2
IC3
IC4
IC5
IC6
IC7 (2/2)
IC7 (1/2)
IC8
IC9
CP1 820K×7
CP2 820K×7
CP3 820K×7
CP4 820K×7
SHIELD
BUSY
DATA
GND
CN3
GND
AI FOCUS L
AI AUTO L
AI AUTO
AI FOCUS
CN2
AC
C.T.
AC
-42V
FIRST OFF
-15V
+15V
S.A.INPUT L ch
GND
S.A.INPUT R ch
S.BUSY
S.DATA
DATA (GE)
CLK (GE)
ST (GE)



D1~4, 7~10 : S5688B or 1SR139-100
D5, 6, 12, 16~24 : HSS104A or 1SS131
D11 : RD6.2ES (B2) or HZS6.2N (B2)
D13, 14 : RD6.8 ES (B2) or HZS6.8 N (B2)
D15 : RD5.1 ES (B2) or HZS5.1 N (B2)

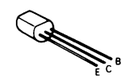
Q1, 2 : 2SC2878 (B)
Q3, 5 : 2SA933S (Q, R) or 2SA1309A (Q, R)
Q4 : 2SB941
Q6, 7 : UN4112 or DTA124ES
Q8, 9 : 2SC3246
IC1, 2 : NJU7305L
IC3~6 : M5229P
IC7 : NJM4558D
IC8 : μPC7915HF
IC9 : μPC7815HF

DESTINATION		UNIT NAME	R1, 2	R65, 66	C103, 104
COUNTRY	ABB.				
GENERAL MARKET	M	X11-3200-21	100	100	NO
ENGLAND	T	X11-3200-51			
AUSTRALIA	X	X11-3200-71			
EUROPE	E	X11-3202-71	470	1.5K	YES

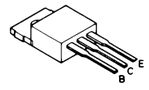
SIGNAL LINE
GND LINE
+B LINE
−B LINE

GE-850 (E) 1/2

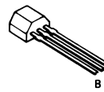
2SC2003
2SC2878
2SC3246



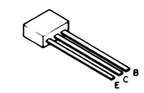
2SD1266



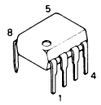
DTA124ES 2SA
DTC124ES 2SC
UN4112



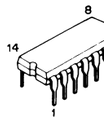
UN4212
2SA1309A
2SC3311A



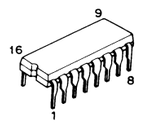
NJM4558D



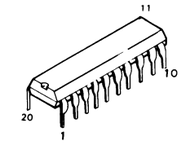
TC74HC77AP



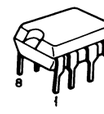
TC74HC4051AP



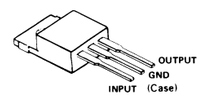
M5229P



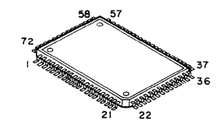
BA10393



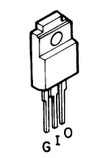
μPC7815HF



M50747-F92SP

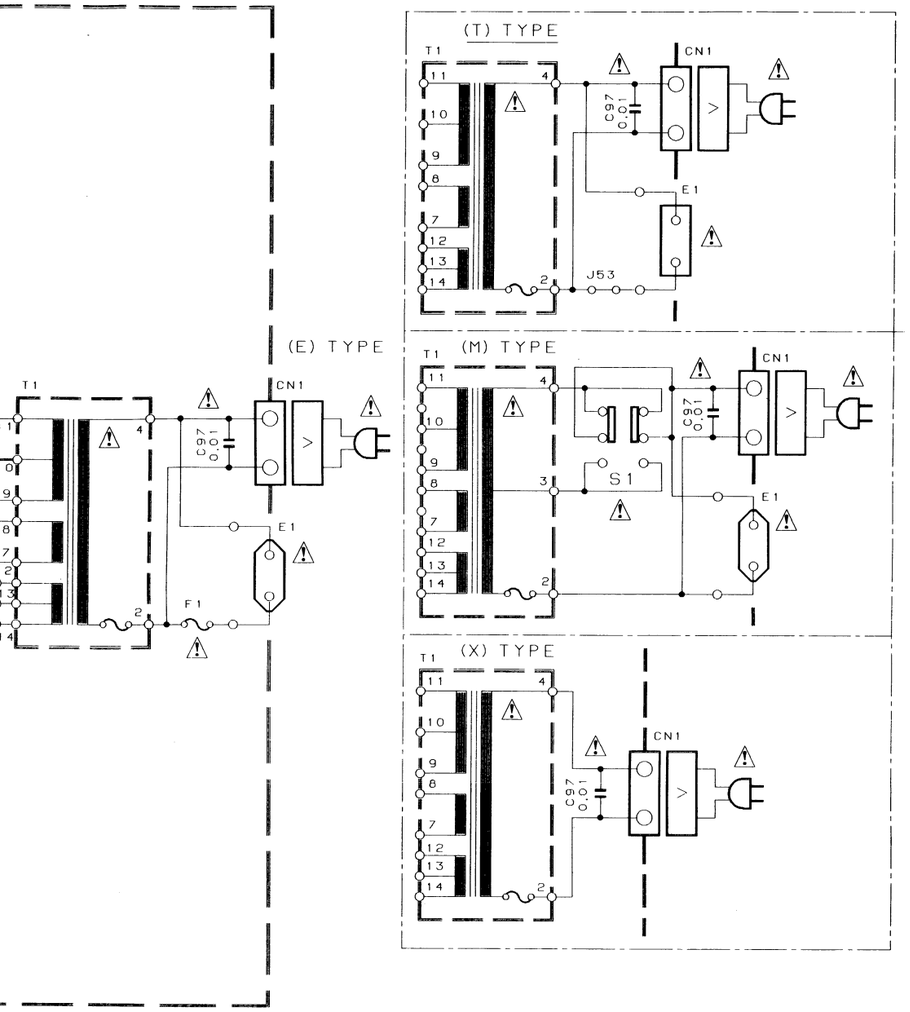


μPC7915HF



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
voltmeter. V
between ind



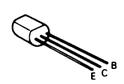
D1~4, 7~10 : S5688B or 1SR139-100
D5, 6, 12, 16~24 : HSS104A or 1SS131
D11 : RD6.2ES (B2) or HZS6.2N (B2)
D13, 14 : RD6.8 ES (B2) or HZS6.8 N (B2)
D15 : RD5.1 ES (B2) or HZS5.1 N (B2)

Q1, 2 : 2SC2878 (B)
Q3, 5 : 2SA933S (Q, R) or 2SA1309A (Q, R)
Q4 : 2SB941
Q6, 7 : UN4112 or DTA124ES
Q8, 9 : 2SC3246
IC1, 2 : NJU7305L
IC3~6 : M5229P
IC7 : NJM4558D
IC8 : μPC7915HF
IC9 : μPC7815HF

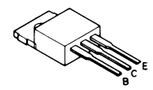
DESTINATION		UNIT NAME	R1, 2	R65, 66	C103, 104
COUNTRY	ABB.				
GENERAL MARKET	M	X11-3200-21	100	100	NO
ENGLAND	T	X11-3200-51			
AUSTRALIA	X	X11-3200-71			
EUROPE	E	X11-3202-71	470	1.5K	YES

SIGNAL LINE
GND LINE
+B LINE
−B LINE

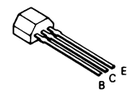
2SC2003
2SC2878
2SC3246



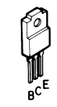
2SD1266



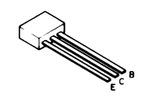
DTA124ES 2SA933S
DTC124ES 2SC1740S
UN4112



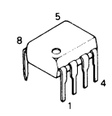
2SB941



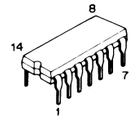
UN4212
2SA1309A
2SC3311A



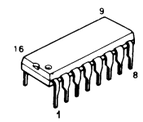
NJM4558D



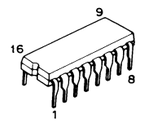
TC74HC77AP



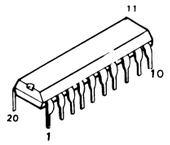
XR-1091DCP



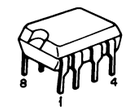
TC74HC4051AP



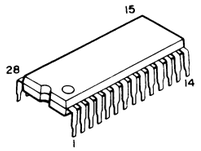
M5229P



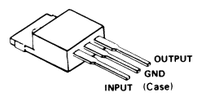
BA10393



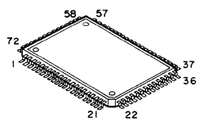
NJU7305L



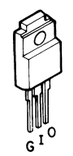
μPC7815HF



M50747-F92SP



μPC7915HF



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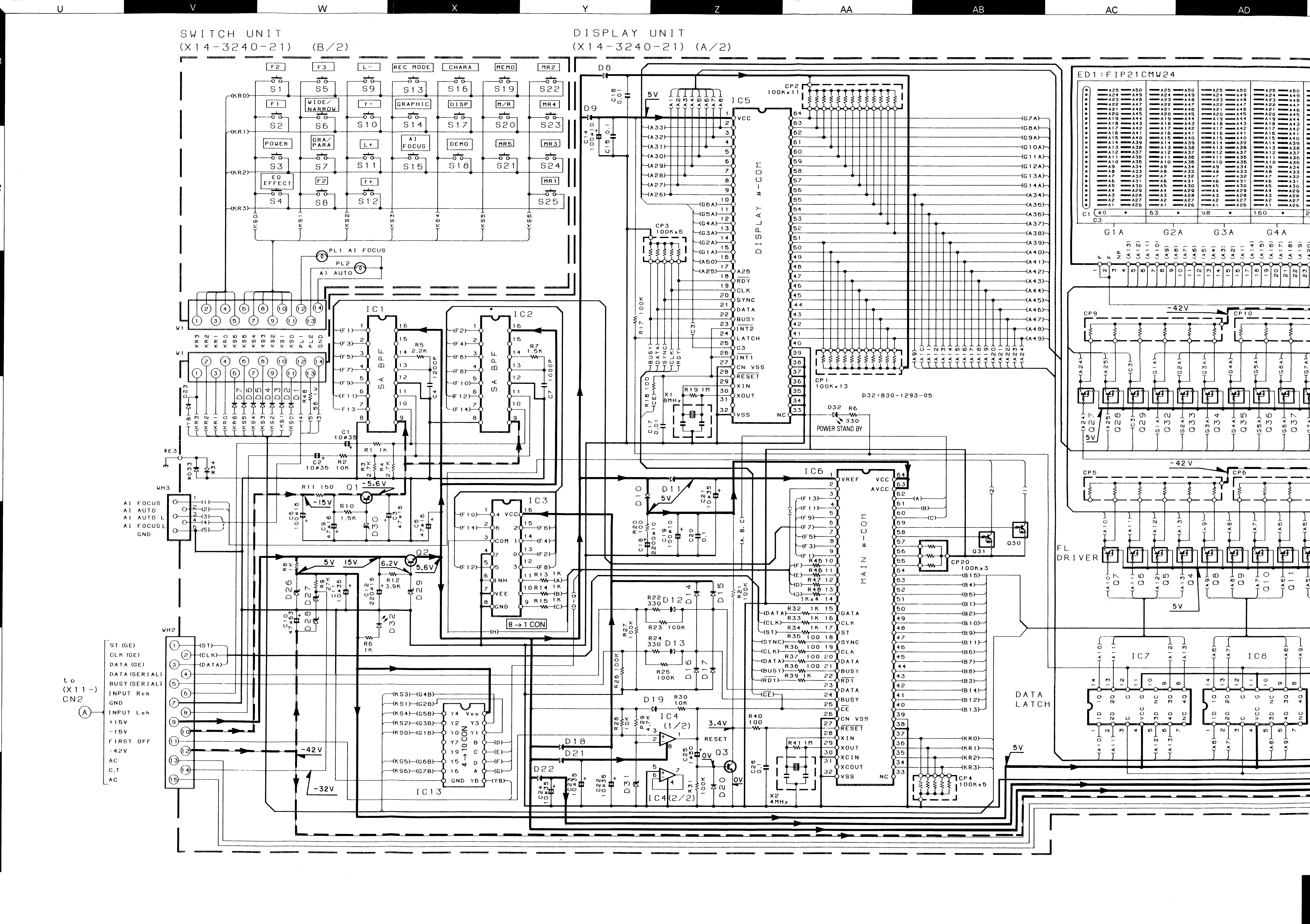
- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

Y09-3880-21

GE-850
KENWOOD



U
V
W
X
Y
Z
AA
AB
AC
AD
SWITCH UNIT
(X14-3240-21) (B/2)
DISPLAY UNIT
(X14-3240-21) (A/2)
ED1:FIP21CMW24
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC13
SA BPF
DISPLAY μ-COM
MAIN μ-COM
8→1 CON
4→10 CON
DATA LATCH
FL DRIVER
POWER STAND BY
PL1 AI FOCUS
PL2 AI AUTO
AI FOCUS
AI AUTO
AI AUTO L
AI FOCUSL
GND
to (X11-) CN2
ST (GE)
CLK (GE)
DATA (GE)
DATA (SERIAL)
BUSY (SERIAL)
INPUT Rch
GND
INPUT Lch
+15V
-15V
FIRST OFF
-42V
AC
C.T
AC
D32:B30-1293-05

ED1:FIP21CMW24

C1 40 63 98 160 250 400 625 1K 1.5K 2.5K 3.9K 6.3K 10K 16K C2
C3

G1A G2A G3A G4A G5A G6A G7A G8A G9A G10A G11A G12A G13A G14A G7B

G1B G2B G3B G4B G5B G6B

B15 AI AUTO
B4 AI MANUAL
B5 EQ.ON
B13 MEMORY
B12 MANUAL
B14 REFERENCE
AI CCRS B3
AI LINK B8
GRAPHIC B7
PARAMETRIC B6
F1 B11 F2 B9 F3 B10
WIDE B1 NARROW B2

04~29, 32~7
:UN4112 o

D32:B30-1293-05

MAIN μ-COM

VCC AVCC (A) (B) (C) Q31 Q30 CP20 100K×3 (B15) (B4) (B5) (B1) (B2) (B10) (B9) (B11) (B6) (B7) (B8) (B3) (B14) (B12) (B13) (KR0) (KR1) (KR2) (KR3) CP4 100K×5

DATA LATCH

-42V CP9 CP10 CP11 CP12 CP13 CP14 CP15

5V Q27 Q28 Q29 Q32 Q33 Q34 Q35 Q36 Q37 Q38 Q39 Q40 Q41 Q42 Q43 Q44 Q45 Q46 Q47 Q48 Q49 Q50 Q51 Q52 Q53 Q54 Q55 Q56 Q57 Q58 Q59 Q60 Q61 Q62 Q63 Q64 Q65 Q66 Q67 Q68 Q69 Q70

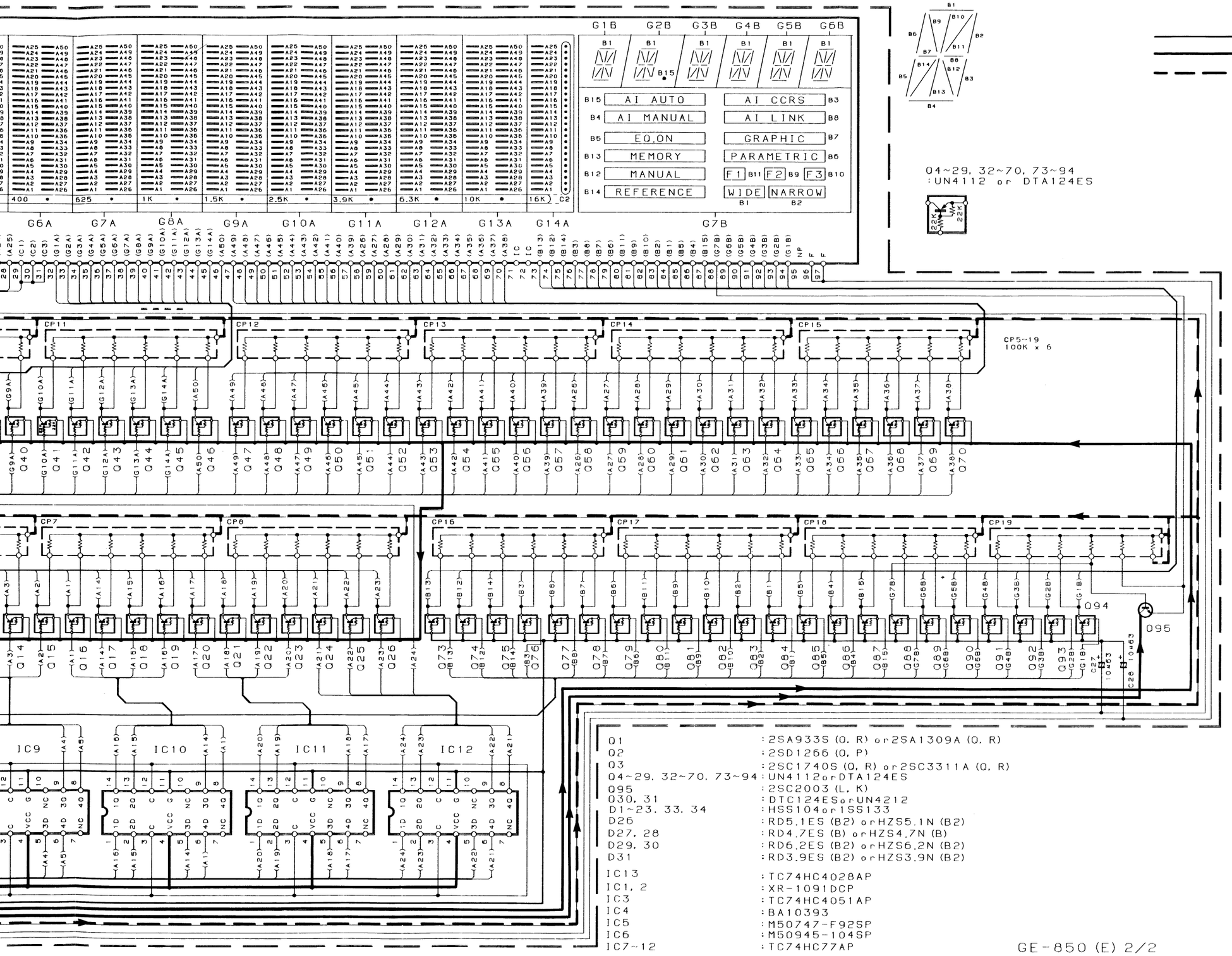
-42V CP5 CP6 CP7 CP8 CP16 CP17 CP18 CP19

FL DRIVER

5V Q7 Q6 Q5 Q4 Q8 Q9 Q10 Q11 Q12 Q13 Q14 Q15 Q16 Q17 Q18 Q19 Q20 Q21 Q22 Q23 Q24 Q25 Q26 Q73 Q74 Q75 Q76 Q77 Q78 Q79 Q80 Q81 Q82 Q83 Q84 Q85 Q86 Q87 Q88 Q89 Q90 Q91

IC7 IC8 IC9 IC10 IC11 IC12

Q1	: 2SA933S (Q, R) or 2SA1309A (Q, R)
Q2	: 2SD1266 (Q, P)
Q3	: 2SC1740S (Q, R) or 2SC3311A (Q, R)
Q4~29, 32~70, 73~94	: UN4112 or DTA124ES
Q95	: 2SC2003 (L, K)
Q30, 31	: DTC124ES or UN4212
D1~23, 33, 34	: HSS104 or 1SS133
D26	: RD5.1ES (B2) or HZS5.1N (B2)
D27, 28	: RD4.7ES (B) or HZS4.7N (B)
D29, 30	: RD6.2ES (B2) or HZS6.2N (B2)
D31	: RD3.9ES (B2) or HZS3.9N (B2)
IC13	: TC74HC4028AP
IC1, 2	: XR-1091DCP
IC3	: TC74HC4051AP
IC4	: BA10393
IC5	: M50747-F92SP
IC6	: M50945-104SP
IC7~12	: TC74HC77AP



GND LINE
+B LINE
-B LINE

04~29, 32~70, 73~94
: UN4112 or DTA124ES

Q1	: 2SA933S (Q, R) or 2SA1309A (Q, R)
Q2	: 2SD1266 (Q, P)
Q3	: 2SC1740S (Q, R) or 2SC3311A (Q, R)
Q4~29, 32~70, 73~94	: UN4112 or DTA124ES
Q95	: 2SC2003 (L, K)
Q30, 31	: DTC124ES or UN4212
D1~23, 33, 34	: HSS104 or 1SS133
D26	: RD5.1ES (B2) or HZS5.1N (B2)
D27, 28	: RD4.7ES (B) or HZS4.7N (B)
D29, 30	: RD6.2ES (B2) or HZS6.2N (B2)
D31	: RD3.9ES (B2) or HZS3.9N (B2)
IC13	: TC74HC4028AP
IC1, 2	: XR-1091DCP
IC3	: TC74HC4051AP
IC4	: BA10393
IC5	: M50747-F92SP
IC6	: M50945-104SP
IC7~12	: TC74HC77AP

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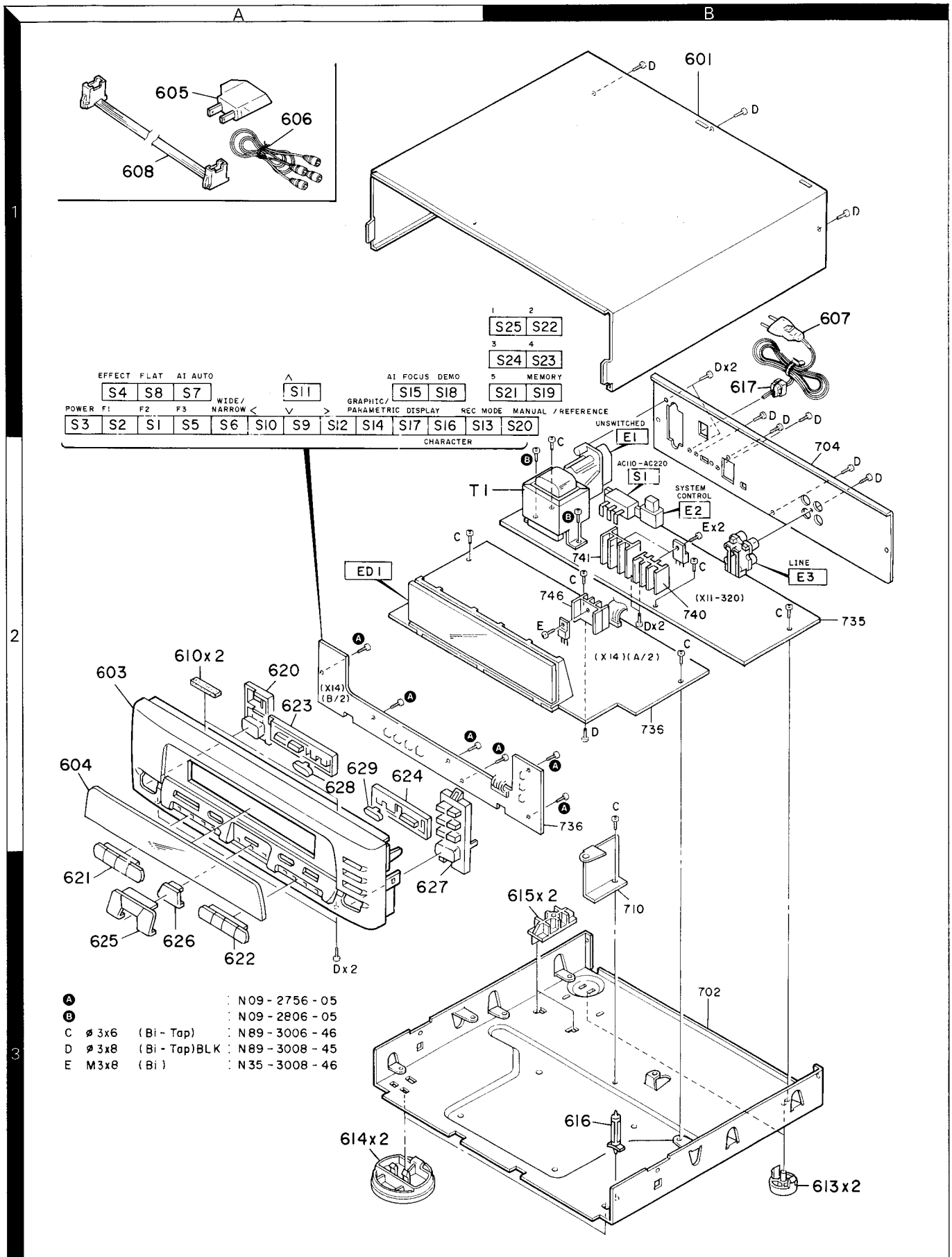
Y09-3880-21

GE-850
KENWOOD

EXPLODED VIEW



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

＊ New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Teile ohne **Parts No.** werden nicht geliefert.

❶

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
			GE-850			
601	1B		A01-1826-01	METALLIC CABINET		
603	2A	＊	A60-0125-01	PANEL		
604	2A	＊	B10-1895-03	FRONT GLASS		
-			B46-0096-23	WARRANTY CARD	X	
-			B46-0122-13	WARRANTY CARD	E	
-			B46-0143-13	WARRANTY CARD	T	
-		＊	B60-0588-00	INSTRUCTION MANUAL (ENGLISH)		
-		＊	B60-0589-00	INSTRUCTION MANUAL (F/G/D/I)	E	
-		＊	B60-0590-00	INSTRUCTION MANUAL (SPANISH)	M	
-		＊	B60-0591-00	INSTRUCTION MANUAL (CHINESE)	M	
⚠ 605	1A		E03-0115-05	AC PLUG ADAPTER	M	
606	1A		E30-0505-05	AUDIO CORD		
⚠ 607	1B		E30-2592-15	AC POWER CORD	ME	
⚠ 607	1B		E30-2594-15	AC POWER CORD	X	
⚠ 607	1B	＊	E30-2602-05	AC POWER CORD	T	
608	1A		E30-2628-05	CORD WITH CONNECTOR		
610	2A		G11-0191-04	SOFT TAPE (90X5X2.5)		
-		＊	H10-5210-02	POLYSTYRENE FOAMED FIXTURE(L)		
-		＊	H10-5211-02	POLYSTYRENE FOAMED FIXTURE(R)		
-			H25-0224-04	PROTECTION BAG (800X400X0.03)		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
-		＊	H50-0159-04	ITEM CARTON CASE		
613	3B		J02-0370-05	FOOT (BACK)		
614	3A		J02-1040-05	FOOT (FRONT)		
615	3B		J19-3314-04	HOLDER		
616	3B		J19-3331-05	UNIT HOLDER		
⚠ 617	1B		J42-0083-05	POWER CORD BUSHING		
620	2A	＊	K29-4262-02	KNOB (POWER)		
621	3A	＊	K29-4263-02	KNOB (F1-WIDE/NARROW)		
622	3A	＊	K29-4264-02	KNOB (GRAPHIC/REC MODE)		
623	2A	＊	K29-4265-02	KNOB (EFFECT/FLAT)		
624	2A	＊	K29-4266-02	KNOB (DEMO)		
625	3A	＊	K29-4267-02	KNOB (UP)		
626	3A	＊	K29-4268-02	KNOB (DOWN)		
627	3A	＊	K29-4269-02	KNOB (1-5/MEMORY)		
628	2A	＊	K29-4270-03	KNOB (AI AUTO)		
629	2A	＊	K29-4271-03	KNOB (AI FOCUS)		
⚠ T1	2A		L07-0184-05	POWER TRANSFORMER		
A			N09-2756-05	TAPTITE SCREW (2.6X10)		
B			N09-2805-05	TAPTITE SCREW		
C			N89-3006-46	BINDING HEAD TAPTITE SCREW		
D			N89-3008-45	BINDING HEAD TAPTITE SCREW		
			CONTROL (X11-3202-71)			
C1 ,2			CC45FSL1H221J	CERAMIC 220PF J		
C3 -6			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C7 ,8			CC45FSL1H221J	CERAMIC 220PF J		
C9 ,10			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C11 ,12			CC45FSL1H221J	CERAMIC 220PF J		
C13 ,14			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C15 ,16			CC45FSL1H221J	CERAMIC 220PF J		

L:Scandinavia **K:**USA **P:**Canada
Y:PX(Far East, Hawaii) **T:**England **E:**Europe
Y:AAFES(Europe) **X:**Australia **M:**Other Areas

⚠ indicates safety critical components.

＊ New Parts
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Teile ohne **Parts No.** werden nicht geliefert.

❷

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
C17 ,18			CK45FB1H471K	CERAMIC 470PF K		
C19 ,20			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C21 ,22			CC45FSL1H221J	CERAMIC 220PF J		
C23			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C24			CE04KW1C221M	ELECTRO 220UF 16WV		
C25 ,26			CF92FV1H683J	MF 0.068UF J		
C27			CF92FV1H433J	MF 0.043UF J		
C28 ,29			CF92FV1H104J	MF 0.10UF J		
C30 ,31			CF92FV1H184J	MF 0.18UF J		
C32			CF92FV1H433J	MF 0.043UF J		
C33			CF92FV1H474J	MF 0.47UF J		
C34			CF92FV1H684J	MF 0.68UF J		
C35 ,36			CF92FV1H823J	MF 0.082UF J		
C37			CF92FV1H563J	MF 0.056UF J		
C38 ,39			CF92FV1H154J	MF 0.15UF J		
C40 ,41			CF92FV1H224J	MF 0.22UF J		
C42			CF92FV1H563J	MF 0.056UF J		
C43			CF92FV1H564J	MF 0.56UF J		
C44			CF92FV1H824J	MF 0.82UF J		
C45			CF92FV1H684J	MF 0.68UF J		
C46			CF92FV1H274J	MF 0.27UF J		
C47			CF92FV1H824J	MF 0.82UF J		
C48			CF92FV1H334J	MF 0.33UF J		
C49			CF92FV1H274J	MF 0.27UF J		
C50			CF92FV1H474J	MF 0.47UF J		
C51			CF92FV1H334J	MF 0.33UF J		
C52			CF92FV1H564J	MF 0.56UF J		
C53 ,54			C91-0676-05	CERAMIC 0.01UF K		
C55			CF92FV1H273J	MF 0.027UF J		
C56			C91-0682-05	CERAMIC 0.018UF K		
C57 ,58		＊	CQ92FM1H752J	MYLAR 7500PF J		
C59			C91-0682-05	CERAMIC 0.018UF K		
C60			CF92FV1H273J	MF 0.027UF J		
C61 ,62		＊	CQ92FM1H432J	MYLAR 4300PF J		
C63 ,64			C91-0680-05	CERAMIC 0.015UF K		
C65			CF92FV1H333J	MF 0.033UF J		
C66			C91-0684-05	CERAMIC 0.022UF K		
C67 ,68			CQ92FM1H822J	MYLAR 8200PF J		
C69			C91-0684-05	CERAMIC 0.022UF K		
C70			CF92FV1H333J	MF 0.033UF J		
C71 ,72			CQ92FM1H562J	MYLAR 5600PF J		
C73 ,74			C91-0658-05	CERAMIC 0.0018UF K		
C75 ,76			C91-0660-05	CERAMIC 0.0022UF K		
C77 ,78			C91-0662-05	CERAMIC 0.0027UF K		
C79 ,80			C91-0664-05	CERAMIC 3300UF K		
C81 -83			CE04KW1V100M	ELECTRO 10UF 35WV		
C84			CF92FV1H104J	MF 0.10UF J		
C85			CE04KW1C101M	ELECTRO 100UF 16WV		
C86			CE04KW1V102M	ELECTRO 1000UF 35WV		
C87 ,88			CF92FV1H104J	MF 0.10UF J		
C89			CE04KW1C101M	ELECTRO 100UF 16WV		
C90			CE04KW1V102M	ELECTRO 1000UF 35WV		
C91			CF92FV1H104J	MF 0.10UF J		
C92			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C93			CE04KW1V100M	ELECTRO 10UF 35WV		

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❸

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
C94			CE04KW1H470M	ELECTR@ 47UF 50WV		
C95			CE04DW1J101M	ELECTR@ 100UF 63WV		
C96			CE04KW2A471M	ELECTR@ 470UF 100WV		
⚠ C97			C91-0647-05	CERAMIC 0.01UF P		
C98			CK45FF1H103Z	CERAMIC 0.010UF Z		
C99 ,100			CE04KW1V4R7M	ELECTR@ 4.7UF 35WV		
C101-104			CK45FF1H103Z	CERAMIC 0.010UF Z	E	
C101,102			CK45FF1H103Z	CERAMIC 0.010UF Z	MTX	
⚠ E1	2B		E03-0108-05	AC @UTLET	ME	
⚠ E1	2B		E03-0109-05	AC @UTLET	T	
E2	2B		E08-0312-05	RECTANGULAR RECEPTACLE(SYSTEM)		
E3	2B		E13-0446-05	PH@N@ JACK (4P) (LINE INPUT)		
⚠ F1			F05-2525-05	FUSE (SEMK@) (250V T2.5A)	E	
CN4 ,5			J13-0075-05	FUSE CLIP	E	
D			N89-3008-45	BINDING HEAD TAPTITE SCREW		
E			N35-3008-46	BINDING HEAD MACHIN SCREW		
CP1 -4			R90-0491-05	MULTI-C@MP 820KX7 J 1/6W		
R51 -53			RD14NB2E681J	RD 680 J 1/4W		
R54 ,55			RS14KB3D391J	FL-PR@OF RS 390 J 2W		
⚠ S1	2B		S31-2131-05	SLIDE SWITCH (Power voltage)	M	
D1 -4			S5688B	DI@DE		
D1 -4			1SR139-100	DI@DE		
D5 ,6			HSS104A	DI@DE		
D5 ,6			1SS131	DI@DE		
D7 -10			S5688B	DI@DE		
D7 -10			1SR139-100	DI@DE		
D11			HZS6.2N(B2)	ZENER DI@DE		
D11			RD6.2ES(B2)	ZENER DI@DE		
D12			HSS104A	DI@DE		
D12			1SS131	DI@DE		
D13 ,14			HZS6.8N(B2)	ZENER DI@DE		
D13 ,14			RD6.8ES(B2)	ZENER DI@DE		
D15			HZS5.1N(B2)	ZENER DI@DE		
D15			RD5.1ES(B2)	ZENER DI@DE		
D16 -24			HSS104A	DI@DE		
D16 -24			1SS131	DI@DE		
IC1 ,2			NJU7305L	IC(ELECTRIC V@LUME)		
IC3 -6			M5229P	IC(7CH GRAPHIC EQUALIZER)		
IC7			NJM4558D	IC(@P AMP X2)		
IC8			UPC7915HF	IC(V@LTAGE REGULAT@R/ -15V)		
IC9			UPC7815HF	IC(V@LTAGE REGULAT@R/ +15V)		
Q1 ,2			2SC2878(B)	TRANSIST@R		
Q3			2SA1309A(Q,R)	TRANSIST@R		
Q3			2SA933S(Q,R)	TRANSIST@R		
Q4			2SB941	TRANSIST@R		
Q5			2SA1309A(Q,R)	TRANSIST@R		
Q5			2SA933S(Q,R)	TRANSIST@R		
Q6 ,7			DTA124ES	DIGITAL TRANSIST@R		
Q6 ,7			UN4112	TRANSIST@R		
Q8 ,9			2SC3246	TRANSIST@R		

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DISPLAY (X14-3240-21)						
D32			B30-1293-05	LED		
PL1 ,2		*	B30-2406-05	LAMP		
C1 ,2			CE04KW1V100M	ELECTR@ 10UF 35WV		
C3			CE04KW1C470M	ELECTR@ 47UF 16WV		
C4			CQ92FM1H122J	MYLAR 1200PF J		
C5			CE04KW1C470M	ELECTR@ 47UF 16WV		
C6			CE04KW1C101M	ELECTR@ 100UF 16WV		
C7			CQ92FM1H102J	MYLAR 1000PF J		
C9			CE04KW1C470M	ELECTR@ 47UF 16WV		
C10			CE04KW1J470M	ELECTR@ 47UF 63WV		
C11			CE04KW1V100M	ELECTR@ 10UF 35WV		
C12			CE04KW1C221M	ELECTR@ 220UF 16WV		
C14			CE04KW1A101M	ELECTR@ 100UF 10WV		
C15			CF92FV1H104J	MF 0.10UF J		
C16 ,17			CQ92FM1H103J	MYLAR 0.010UF J		
C18			CE04KW1A222M	ELECTR@ 2200UF 10WV		
C19			CE04KW1A101M	ELECTR@ 100UF 10WV		
C20			CF92FV1H104J	MF 0.10UF J		
C21 -24			CE04KW1V100M	ELECTR@ 10UF 35WV		
C25			CE04KW1H010M	ELECTR@ 1.0UF 50WV		
C26			CF92FV1H104J	MF 0.10UF J		
C27 ,28			CE04KW1J100M	ELECTR@ 10UF 63WV		
X1		*	L78-0290-05	RES@NAT@R (8MHz)		
X2			L78-0244-05	RES@NAT@R (4MHz)		
D			N89-3008-45	BINDING HEAD TAPTITE SCREW		
E			N35-3008-46	BINDING HEAD MACHIN SCREW		
CP1			R90-0483-05	MULTI-C@MP 100KX13 J 1/6W		
CP2			R90-0851-05	MULTI-C@MP 100KX11		
CP3 ,4			R90-0855-05	MULTI-C@MP 100KX5 J		
CP5 -19			R90-0500-05	MULTI-C@MP 100KX6 J 1/4W		
CP20			R90-0850-05	MULTIPLE RESIST@R 100KX3		
R48			RS14KB3A560J	FL-PR@OF RS 56 J 1W		
S1 -25	1A,1B		S40-1064-05	PUSH SWITCH		
D1 -23			HSS104	DI@DE		
D1 -23			1SS133	DI@DE		
D26			HZS5.1N(B2)	ZENER DI@DE		
D26			RD5.1ES(B2)	ZENER DI@DE		
D27 ,28			HZS4.7N(B)	ZENER DI@DE		
D27 ,28			RD4.7ES(B)	ZENER DI@DE		
D29 ,30			HZS6.2N(B2)	ZENER DI@DE		
D29 ,30			RD6.2ES(B2)	ZENER DI@DE		
D31			HZS3.9N(B2)	ZENER DI@DE		
D31			RD3.9ES(B2)	ZENER DI@DE		
D33 ,34			HSS104	DI@DE		
D33 ,34			1SS133	DI@DE		
ED1	2A	*	FIP21DMW24	FLU@RESCENT INDICAT@R TUBE		
IC1 ,2			XR-1091DCP	IC(GE DISPLAY FILTER)		
IC3			TC74HC4051AP	IC(ANAL@G MULTIPLEXER)		
IC4			BA10393	IC(DUAL C@MPALAT@R)		
IC5		*	M50747-F92SP	IC(MICR@PR@CESS@R)		

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PARTS LIST

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IC6		*	M50945-104SP	IC		
IC7 -12			TC74HC77AP	IC(D-TYPE LATCH)		
IC13			TC74HC4028AP	IC		
Q1			2SA1309A(Q,R)	TRANSISTOR		
Q1			2SA933S(Q,R)	TRANSISTOR		
Q2			2SD1266(Q,P)	TRANSISTOR		
Q3			2SC1740S(Q,R)	TRANSISTOR		
Q3			2SC3311A(Q,R)	TRANSISTOR		
Q4 -29			DTA124ES	DIGITAL TRANSISTOR		
Q4 -29			UN4112	TRANSISTOR		
Q30 ,31			DTC124ES	DIGITAL TRANSISTOR		
Q30 ,31			UN4212	TRANSISTOR		
Q32 -70			DTA124ES	DIGITAL TRANSISTOR		
Q32 -70			UN4112	TRANSISTOR		
Q73 -94			DTA124ES	DIGITAL TRANSISTOR		
Q73 -94			UN4112	TRANSISTOR		
Q95			2SC2003(L,K)	TRANSISTOR		

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GE-850

SPECIFICATIONS

[Performance]

Equalizer characteristic variable range ..... ±12dB
Center frequencies 40Hz, 63Hz, 98Hz, 160Hz, 250Hz, 400Hz, 625Hz, 1kHz, 1.5kHz, 2.5kHz, 3.9kHz, 6.3kHz, 10kHz, 16kHz
Total harmonic distortion (at 1kHz, flat) 0.006%
Gain 0dB
Frequency response ..... 10Hz to 70kHz, ±3dB
Maximum output voltage (at 1% T.H.D) 9V
Signal to noise ratio (IHF'66) 100dB
Input impedance 47kΩ
Output impedance 2.2kΩ

[General]

Power consumption 19W
AC outlets (except for Australia)
UNSWITCHED ..... 1(200W max.)
Dimensions ..... W : 360mm
H : 109mm
D : 353mm
Weight (Net) 3.4kg

Note:
KENWOOD follows a policy of continuous advancements in development. 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 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.

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