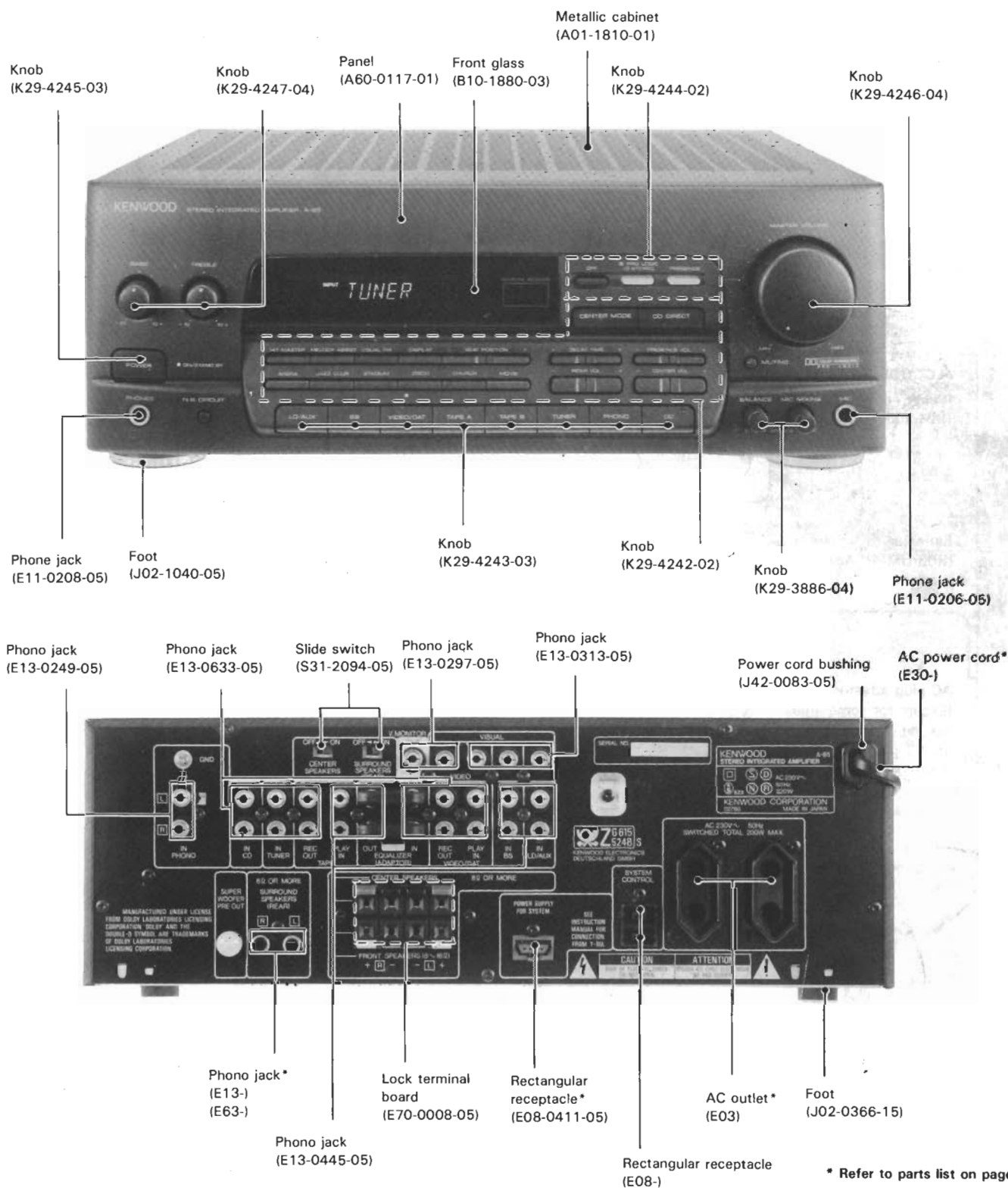


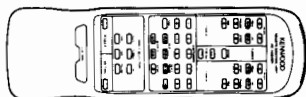


CONTENTS

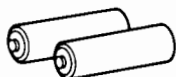
DISASSEMBLY FOR REPAIR.....	2	PC BOARD.....	11
REMOTE CONTROL OPERATION	3	SCHEMATIC DIAGRAM.....	19
BLOCK DIAGRAM	4	EXPLODED VIEW	27
CIRCUIT DESCRIPTION.....	5	PARTS LIST	28
WIRING DIAGRAM.....	10	SPECIFICATIONS	BACK COVER

Accessories

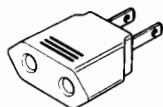
Remote control unit 1
(X94-1000-11)



Batteries
(R03/UM-4/"AAA")..... 2



AC plug adaptor..... 1
(Except for some areas.)
For the unit with a European AC plug in areas other than Europe.



Instruction manual

B60-0608-00	ENGLISH	
B60-0609-00	FRENCH	E
B60-0610-00	GERMAN	E
B60-0611-00	DUTCH	E
B60-0612-00	ITALIANO	E
B60-0613-00	SPANISH	M
B60-0652-00	CHINESE	M

Item carton case

H50-0145-04

Polystyrene foamed fixture

H10-5184-02 L
H10-5185-02 R

When the protection circuitry is enabled , the output power ceases and the message, "P. OFF" is displayed.

Remote control operation keys

Operation keys for KENWOOD components connected by System Control cords

TAPE A operation keys

These keys perform the same operations as the corresponding keys on the cassette deck. However, operations requiring simultaneous pressing of two keys are not possible. These keys are used for operating Deck A of a double-cassette deck.

CD player operation keys

INPUT SELECTOR keys

POWER key

MUTING key

VOLUME UP Δ , DOWN ∇ keys

A-85 Operation keys

These keys have the same function as the corresponding keys on the main unit.

TUNER operation keys

TAPE B operation keys

These keys perform the same operations as the corresponding keys on the cassette deck. However, operations requiring simultaneous pressing of two keys are not possible. These keys are used for operating a single-cassette deck or Deck B of a double-cassette deck.

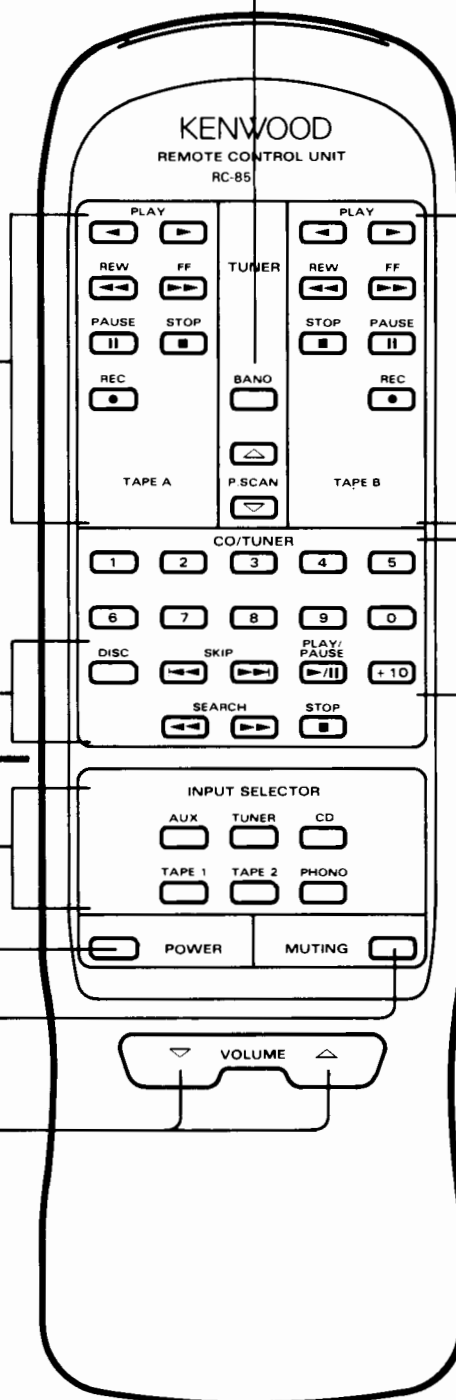
Numeric keys

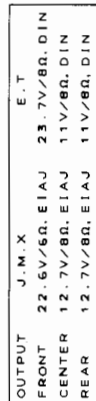
When the INPUT SELECTOR is set to TUNER:

These keys are used for specifying preset station numbers.

When the INPUT SELECTOR is set to CD:

These keys are used for direct tune selection.





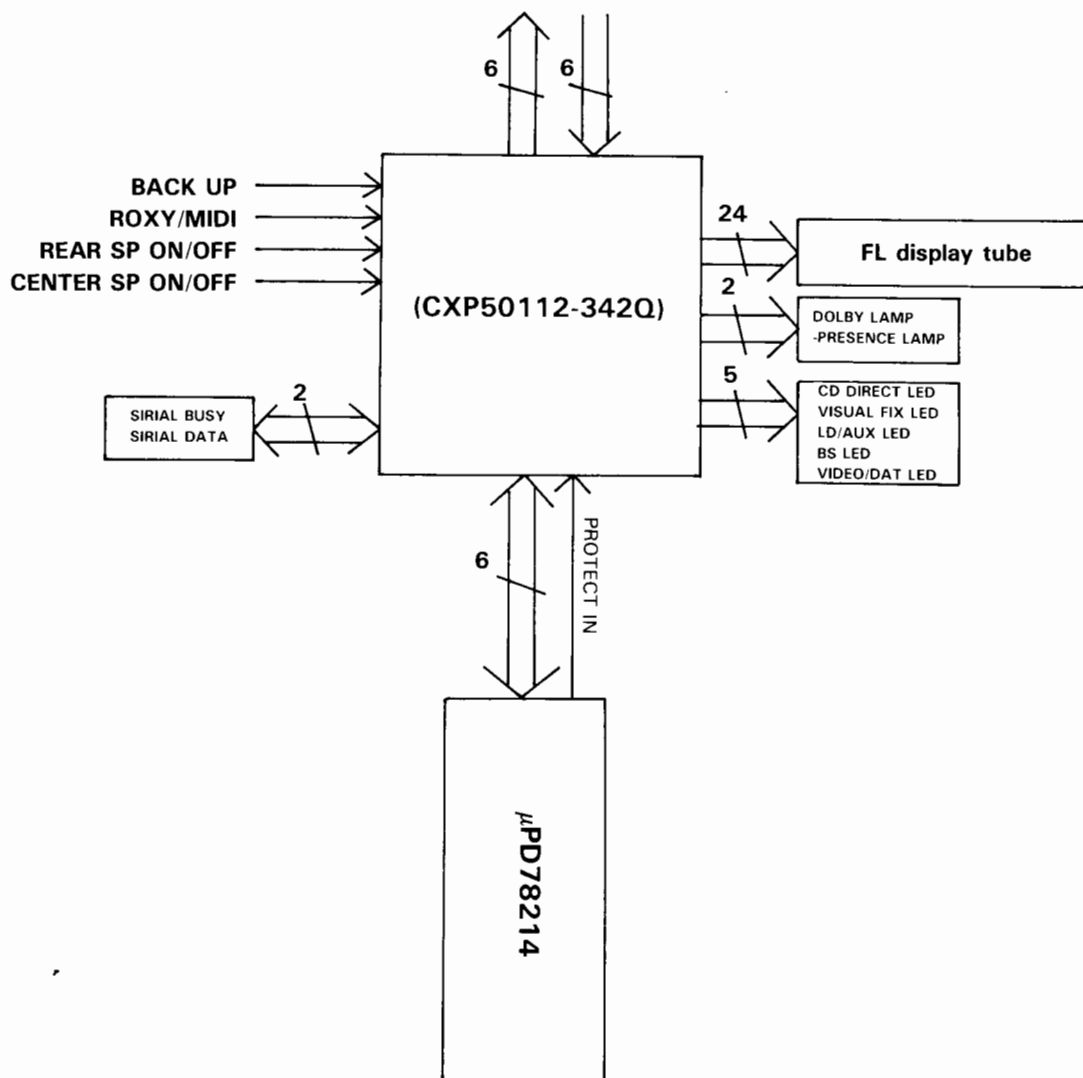
CIRCUIT DESCRIPTION

Microprocessor

Block diagram of microcomputer's peripheral equipment

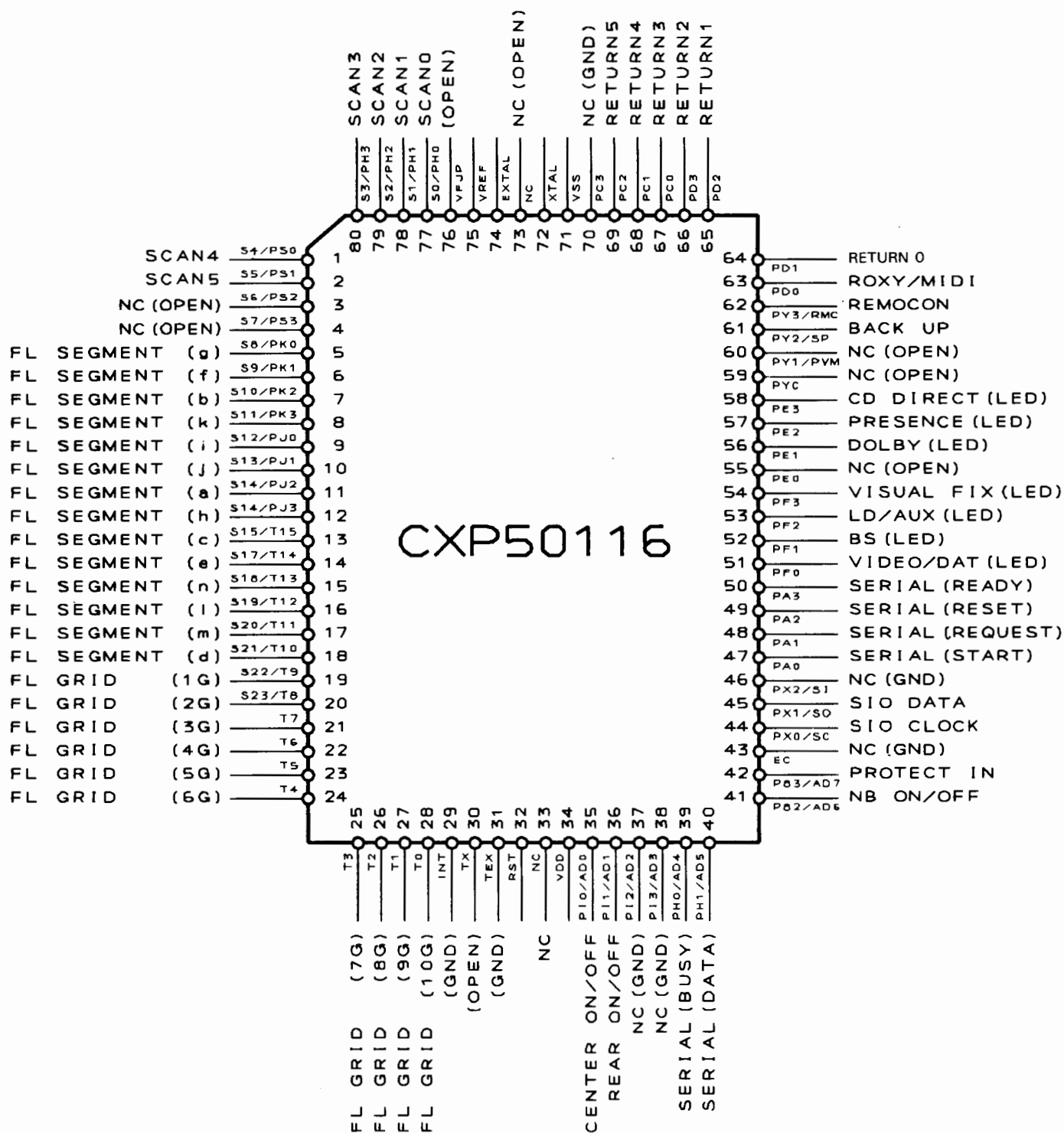
SCAN 5	OFF	PRESENCE	3STEREO	CD DIRECT	MUTE	CENTER MODE
SCAN 4	HIT MASTER	POWER	MELODY ASSIST	JAZZ CLUB	NB CIRCUIT	ARENA
SCAN 3	DISCO	LD/AUX	VISUAL FIX	STADIUM	BS	DISPLAY
SCAN 2	CHURCH	VIDEO DAT	TAPE A	MOVIE	SEAT-P FRONT	SEAT-P REAR
SCAN 1	DELAY DOWN	TAPE B	TUNER	REAR UP	DELAY UP	REAR DOWN
SCAN 0	PHONO	P-VOL. UP	CENTER UP	CD	P-VOL. DOWN	CENTER DOWN

RETURN 0 RETURN 1 RETURN 2 RETURN 3 RETURN 4 RETURN 5



CIRCUIT DESCRIPTION

Pin Connection



CIRCUIT DESCRIPTION

Pin Functions

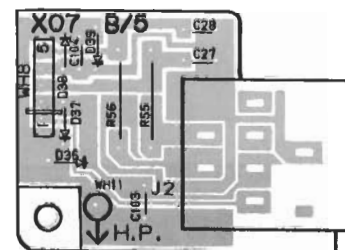
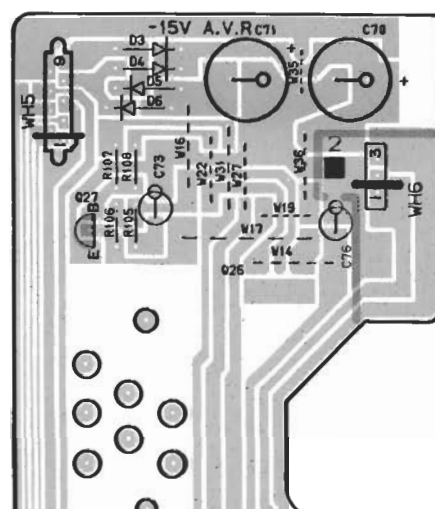
Pin No.	Pin name	I/O	Name	Description
1	S4/PG0	O	SCAN 4	Key scan 4
2	S5/PG1	O	SCAN 5	Key scan 5
3	S6/PG2	—	NC (OPEN)	
4	S7/PG3	—	NC (OPEN)	
5	S8/PK0	O	FL SEGMENT (g)	FL segment (g)
6	S9/PK1	O	FL SEGMENT (f)	FL segment (f)
7	S10/PK2	O	FL SEGMENT (b)	FL segment (b)
8	S11/PK3	O	FL SEGMENT (k)	FL segment (k)
9	S12/PJ0	O	FL SEGMENT (i)	FL segment (i)
10	S13/PJ1	O	FL SEGMENT (j)	FL segment (j)
11	S14/PJ2	O	FL SEGMENT (a)	FL segment (a)
12	S15/PJ3	O	FL SEGMENT (h)	FL segment (h)
13	S16/T15	O	FL SEGMENT (c)	FL segment (c)
14	S17/T14	O	FL SEGMENT (e)	FL segment (e)
15	S18/T13	O	FL SEGMENT (n)	FL segment (n)
16	S19/T12	O	FL SEGMENT (l)	FL segment (l)
17	S20/T11	O	FL SEGMENT (m)	FL segment (m)
18	S21/T10	O	FL SEGMENT (d)	FL segment (d)
19	S22/T9	O	FL GRID (1G)	FL grid (1G)
20	S23/T8	O	FL GRID (2G)	FL grid (2G)
21	T7	O	FL GRID (3G)	FL grid (3G)
22	T6	O	FL GRID (4G)	FL grid (4G)
23	T5	O	FL GRID (5G)	FL grid (5G)
24	T4	O	FL GRID (6G)	FL grid (6G)
25	T3	O	FL GRID (7G)	FL grid (7G)
26	T2	O	FL GRID (8G)	FL grid (8G)
27	T1	O	FL GRID (9G)	FL grid (9G)
28	T0	O	FL GRID (10G)	FL grid (10G)
29	INT	I	NC (GND)	External interrupt (unused)
30	TX	—	NC (OPEN)	32 kHz T/C clock output (unused)
31	TEX	I	NC (GND)	32 kHz T/C clock input (unused)
32	RST	I/O		Microcomputer reset
33	NC	—		
34	VDD	—		Positive power supply
35	PI0/AD0	I	CENTER SP ON/OFF	Center speaker ON/OFF input
36	PI1/AD1	I	REAR SP ON/OFF	Rear speaker ON/OFF input
37	PI2/AD2	—	NC (GND)	
38	PI3/AD3	—	NC (GND)	
39	PB0/AD4	I/O	SERIAL (BUSY)	Serial BUSY line
40	PB1/AD5	I/O	SERIAL (DATA)	Serial DATA line
41	PB2/AD6	O	NB CIRCUIT ON/OFF	NB circuit ON/OFF output
42	PB3/AD7	I	PROTECT IN	Protection input
43	EC	—	NC (GND)	
44	PX0/SC	O	SIO CLOCK	SIO CLOCK (for communication)
45	PX1/SO	O	SIO DATA	SIO DATA (for communication)
46	PX2/SI	—	NC (GND)	

CIRCUIT DESCRIPTION

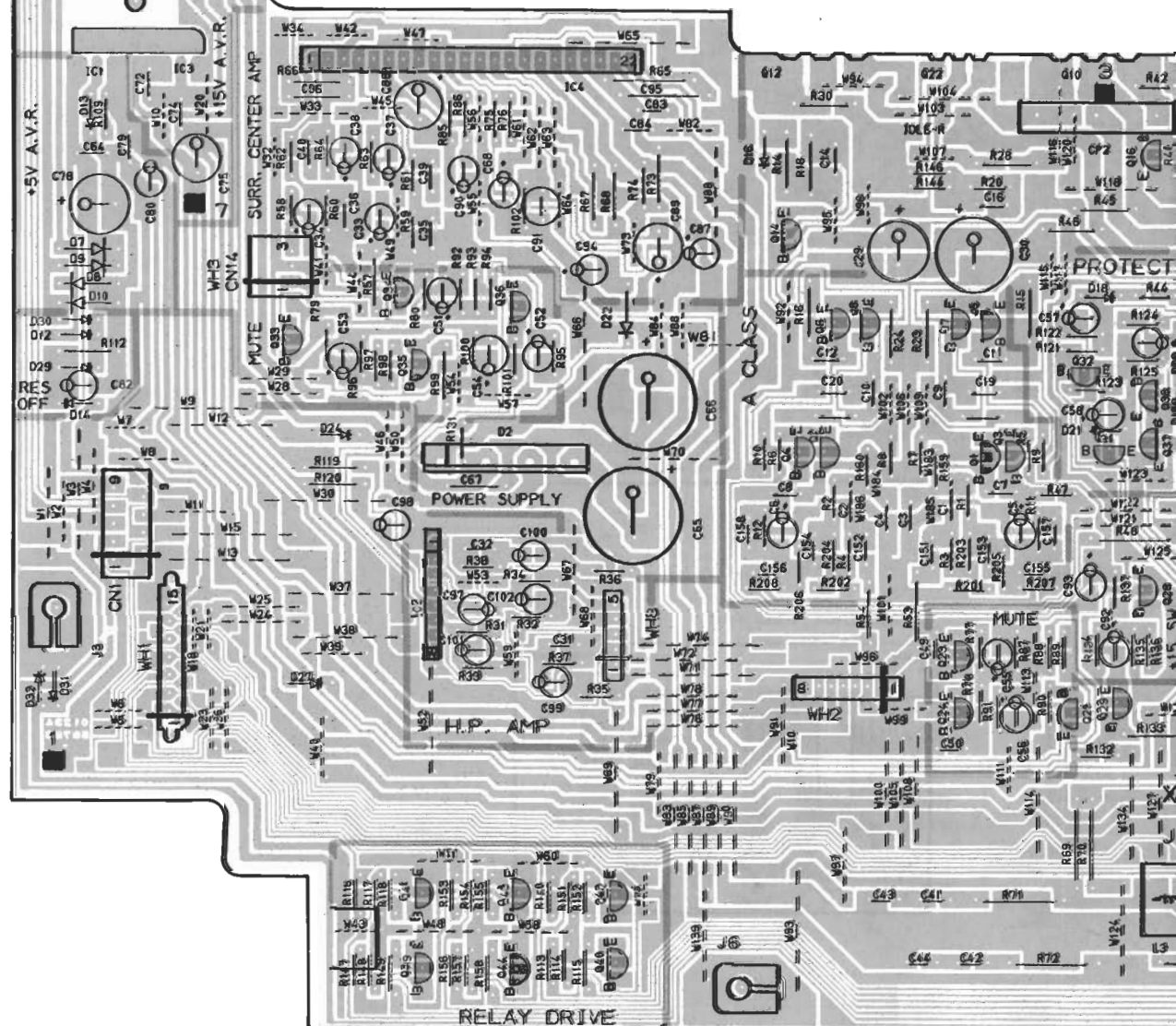
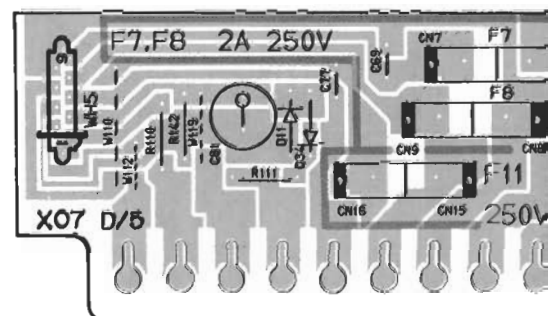
Pin No.	Pin name	I/O	Name	Description
47	PA0	O	SERIAL (START)	Serial START (for communication)
48	PA1	O	SERIAL (REQUEST)	Serial REQUEST (for communication)
49	PA2	O	SERIAL (RESET)	Serial RESET (for communication)
50	PA3	I	SERIAL (READY)	Serial READY (for communication)
51	PF0	I	VIDEO/DAT (LED)	LED
52	PF1	I	BS (LED)	LED
53	PF2	I	LD/AUX (LED)	LED
54	PF3	I	VISUAL FIX (LED)	LED
55	PE0	I	NC (OPEN)	
56	PE1	I	DOLBY (LED)	LAMP
57	PE2	I	RPESENCE (LED)	LAMP
58	PE3	I	CD DIRECT (LED)	LAMP
59	PY0	I	NC (OPEN)	
60	PY1/PWM	I	NC (OPEN)	
61	PY2/WP	I	BACK UP	Backup input
62	PY3/RMC	I	REMOCON	Remote control input
63	PDO	I	ROXY/MIDI	Type discrimination input
64	PD1	I	RETURN0	Key return 0
65	PD2	I	RETURN1	Key return 1
66	PD3	I	RETURN2	Key return 2
67	PC0	I	RETURN3	Key return 3
68	PC1	I	RETURN4	Key return 4
69	PC2	I	RETURN5	Key return 5
70	PC3	I	NC (OPEN)	
71	Vss	—		GND pin
72	XTAL	—		Clock output
73	CN	—	NC (OPEN)	
74	EXTAL	I		Clock input
75	VREF	—		Reference voltage pin for voltage detection (unused)
76	VFDP	—		FL load power supply pin
77	S0/PH0	O	SCAN0	Key scan 0
78	S1/PH1	O	SCAN1	Key scan 1
79	S2/PH2	O	SCAN2	Key scan 2
80	S3/PH3	O	SCAN3	Key scan 3



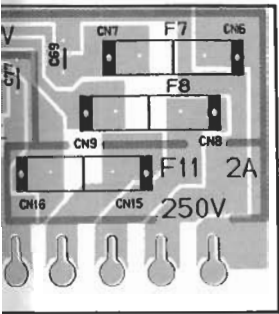
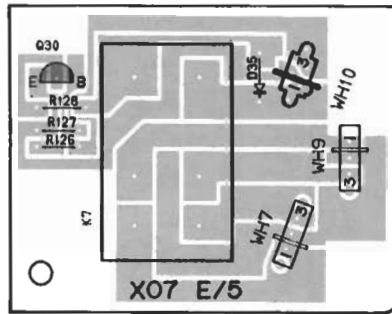
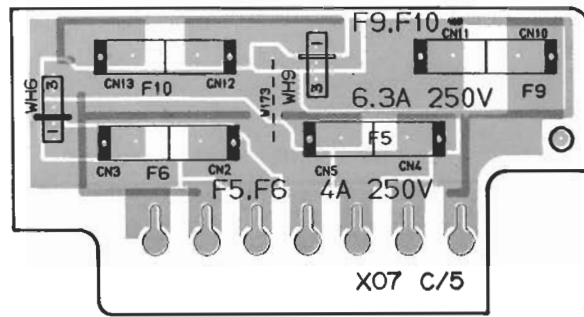
MAIN AMP UNIT



PHONES



PHONES



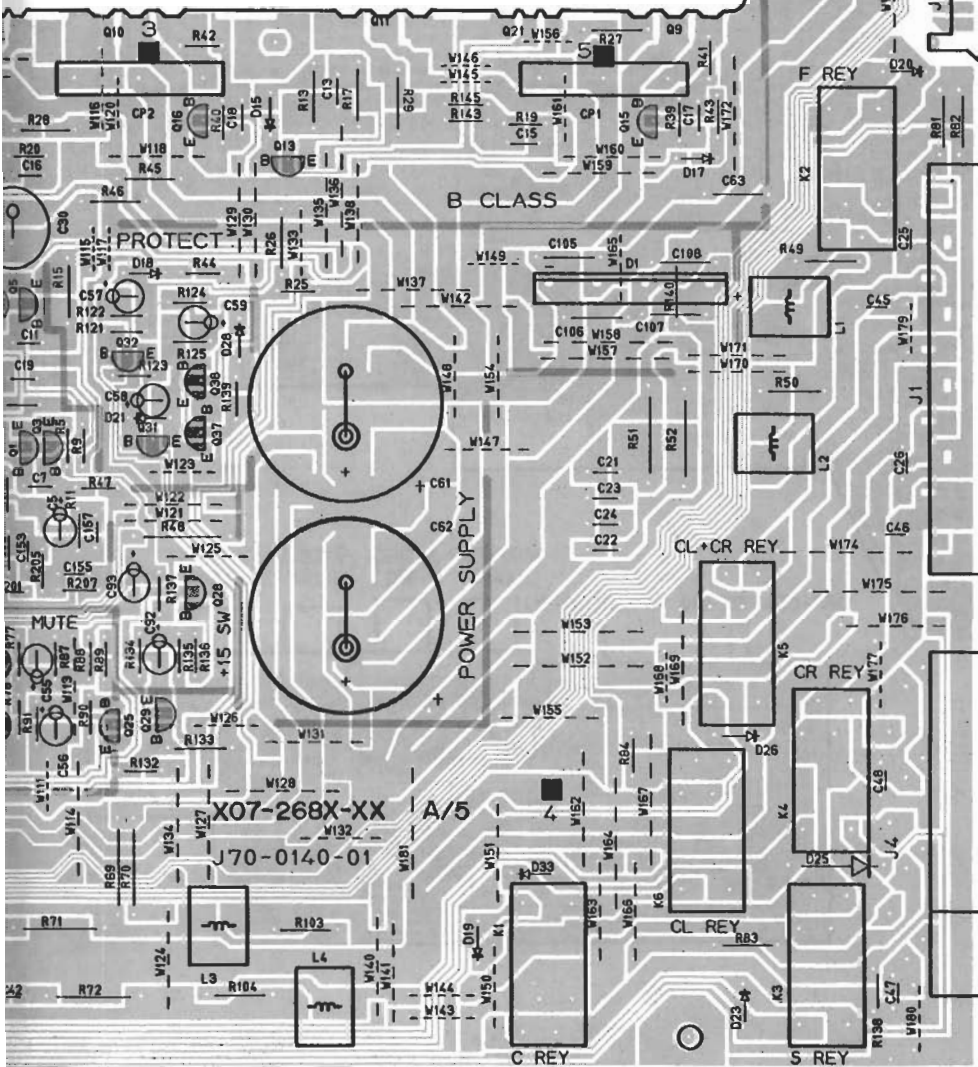
POWER SUPPLY
FOR SYSTEM

FRONT SP
CENTER SP

SURROUND SP

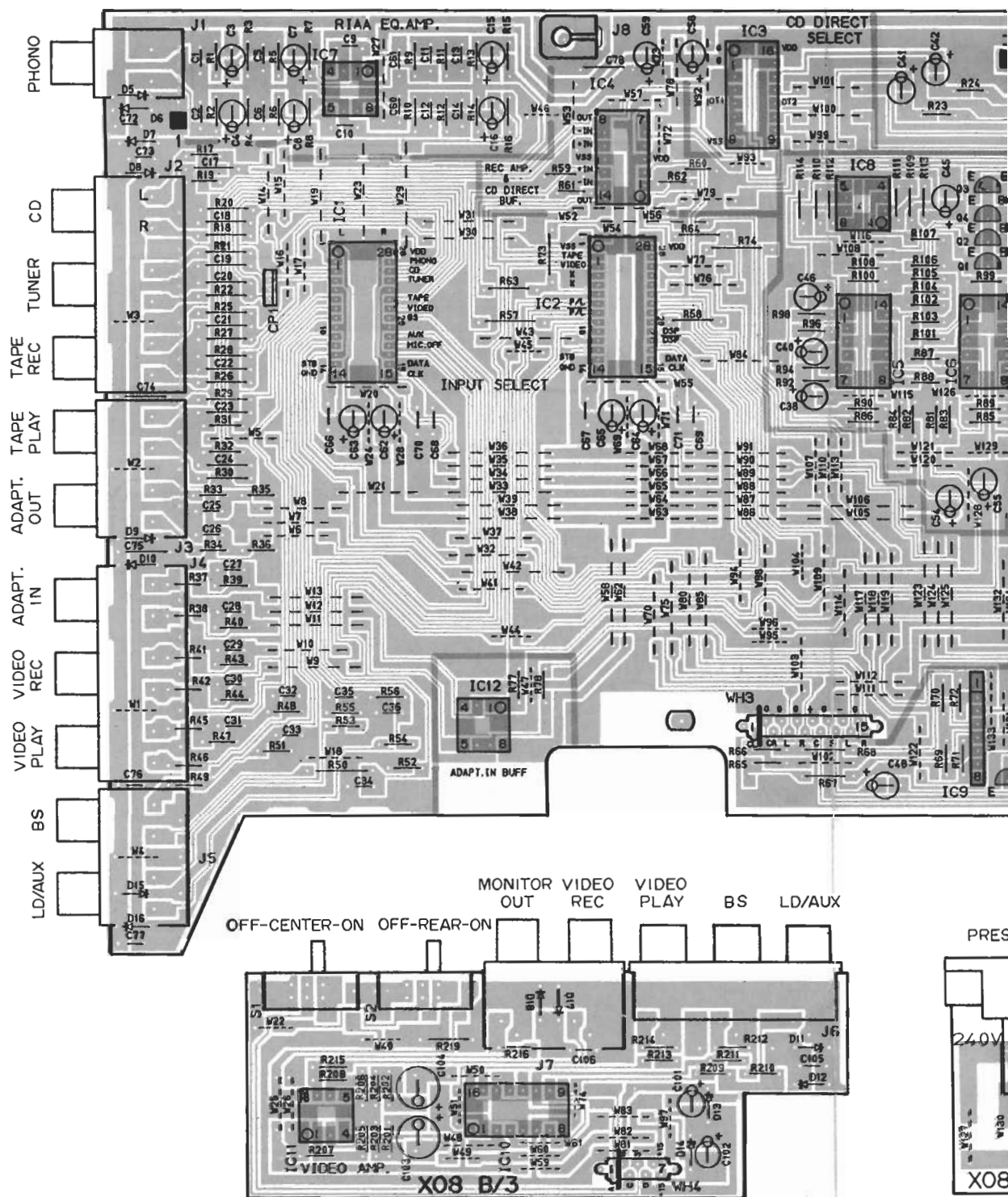
SUPER WOOFER PREOUT

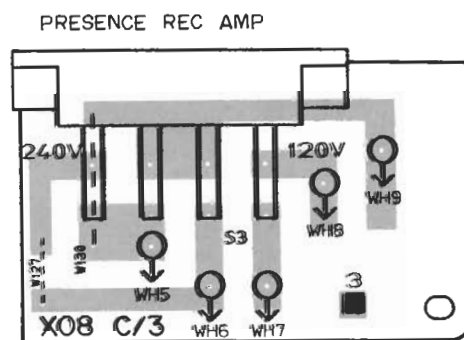
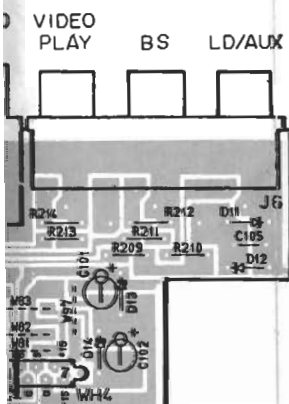
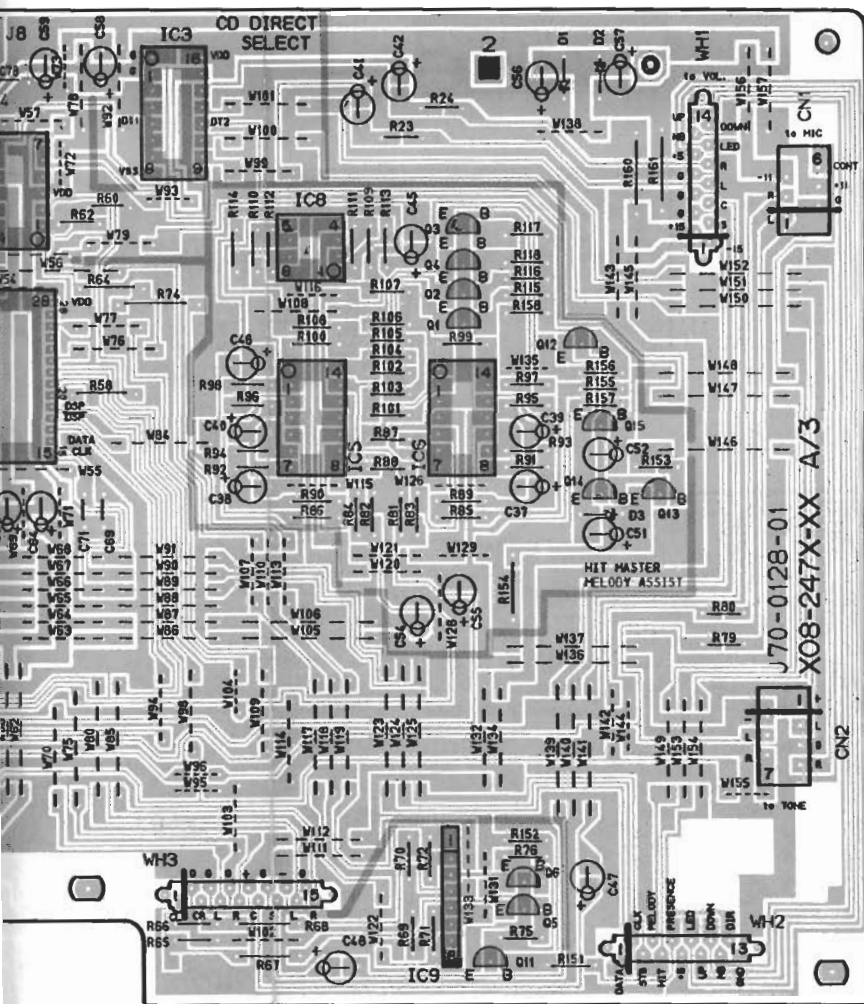
CENTER SP



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

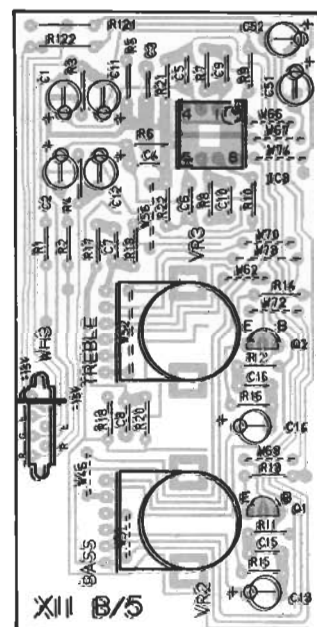
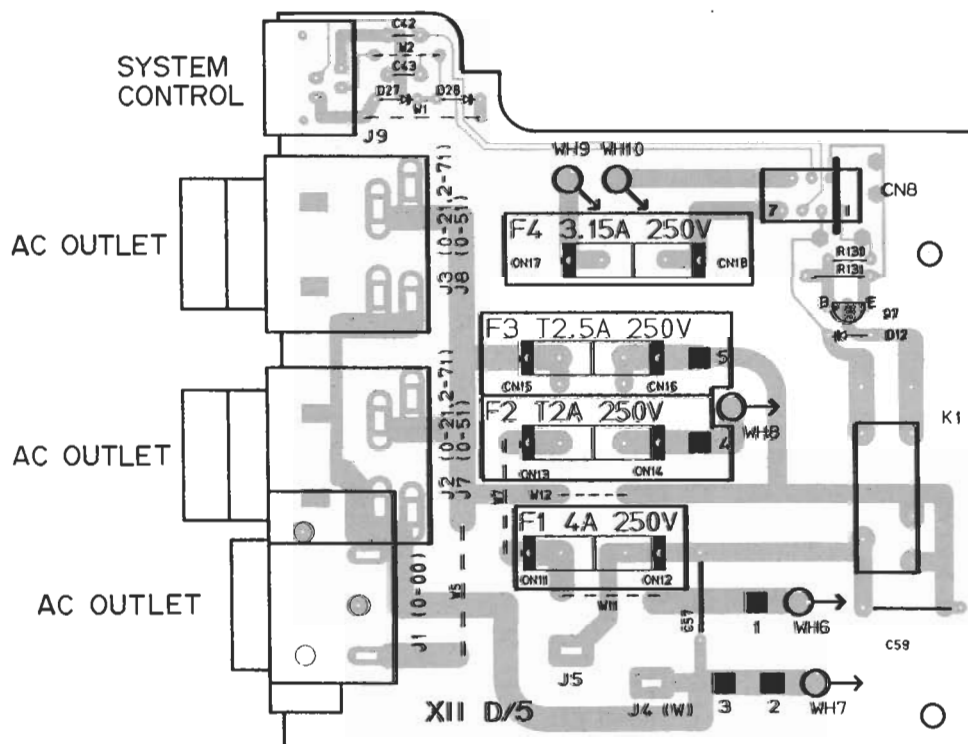
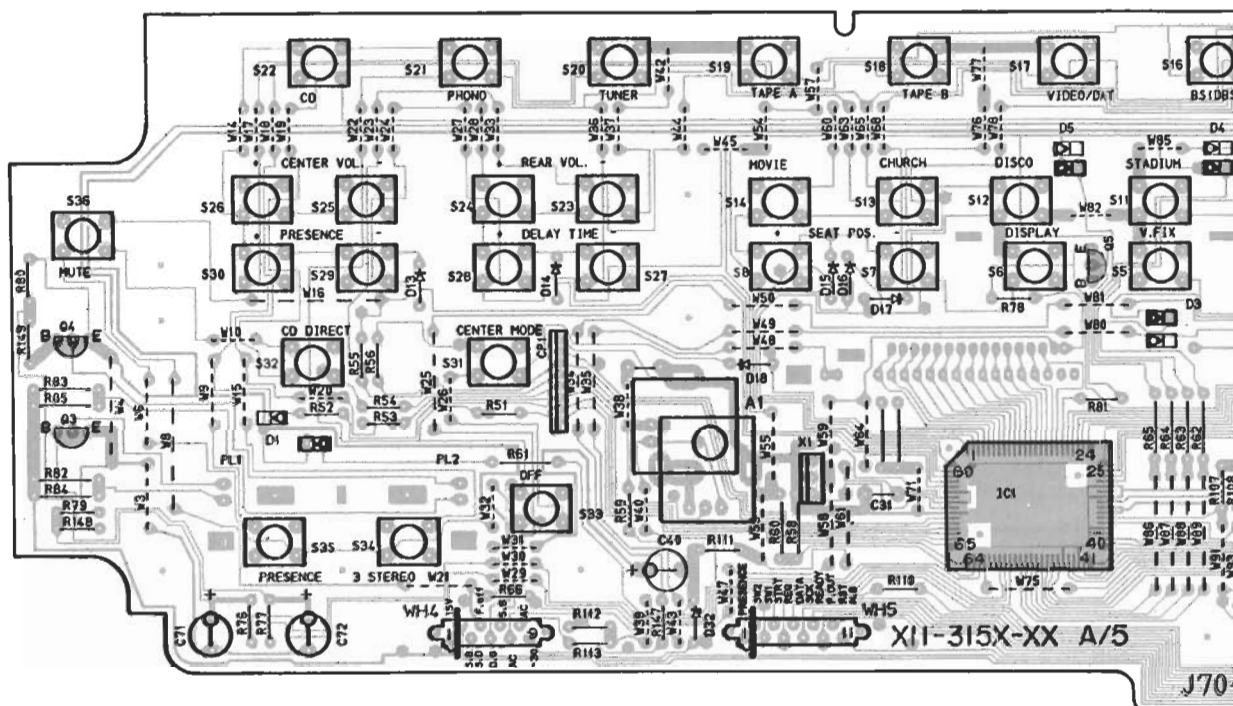
PRE AMPLIFIER UNIT

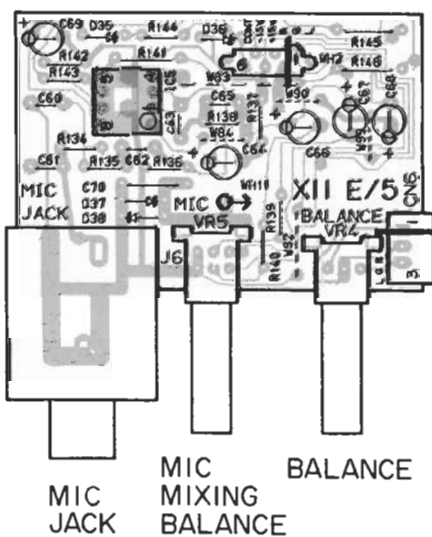
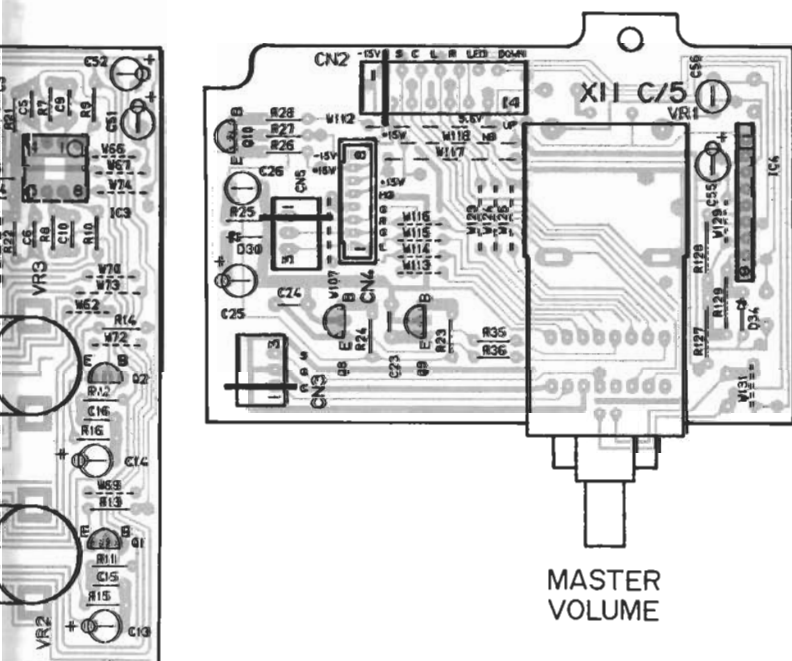
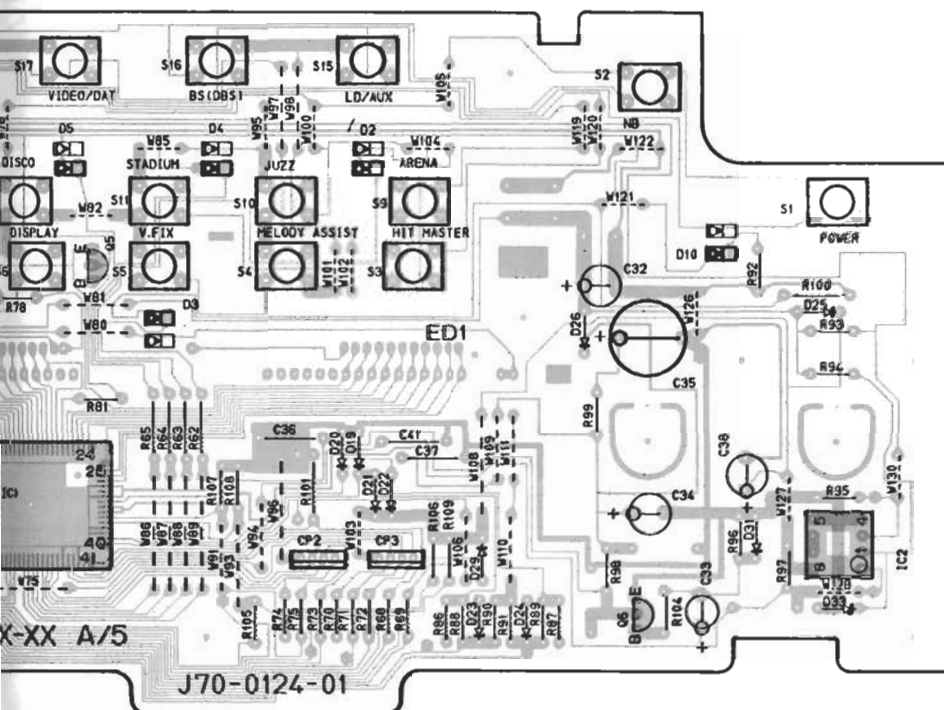




PC BOARD (Component Side View)

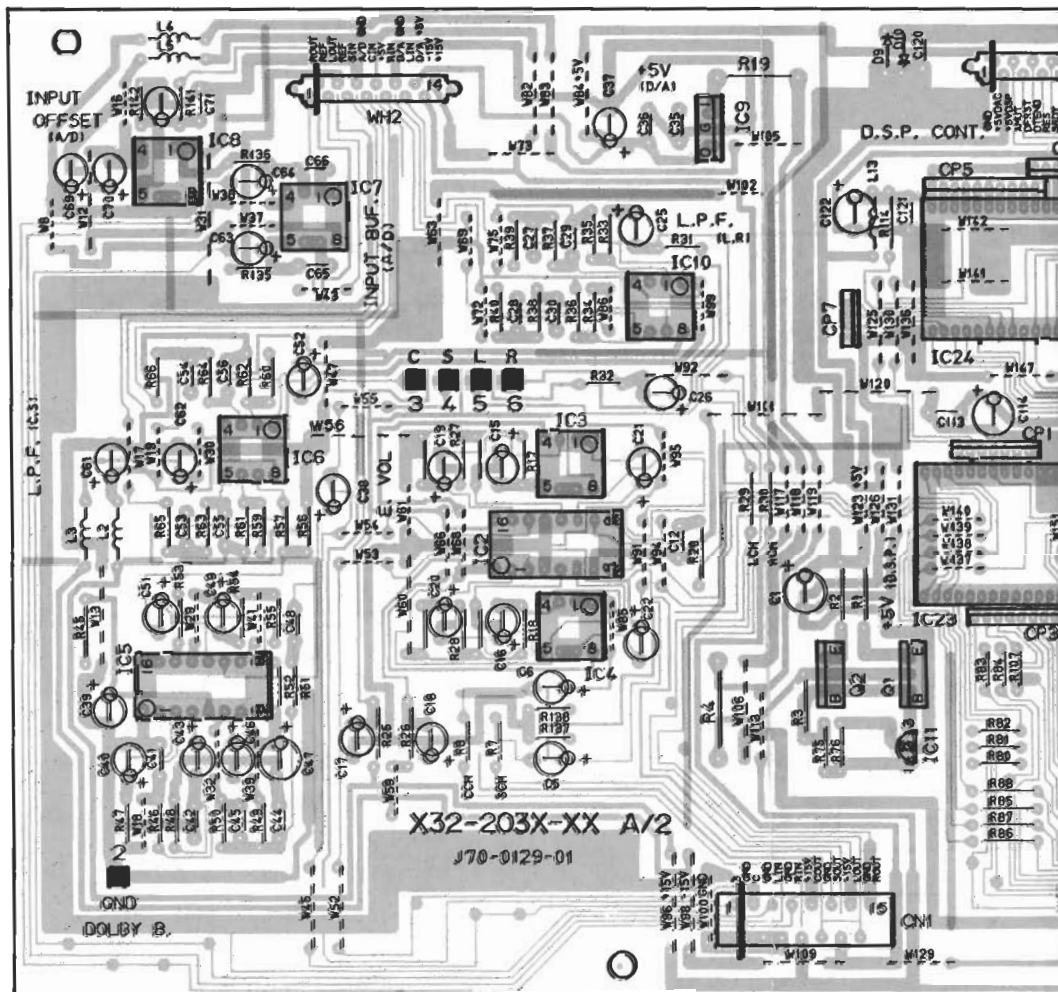
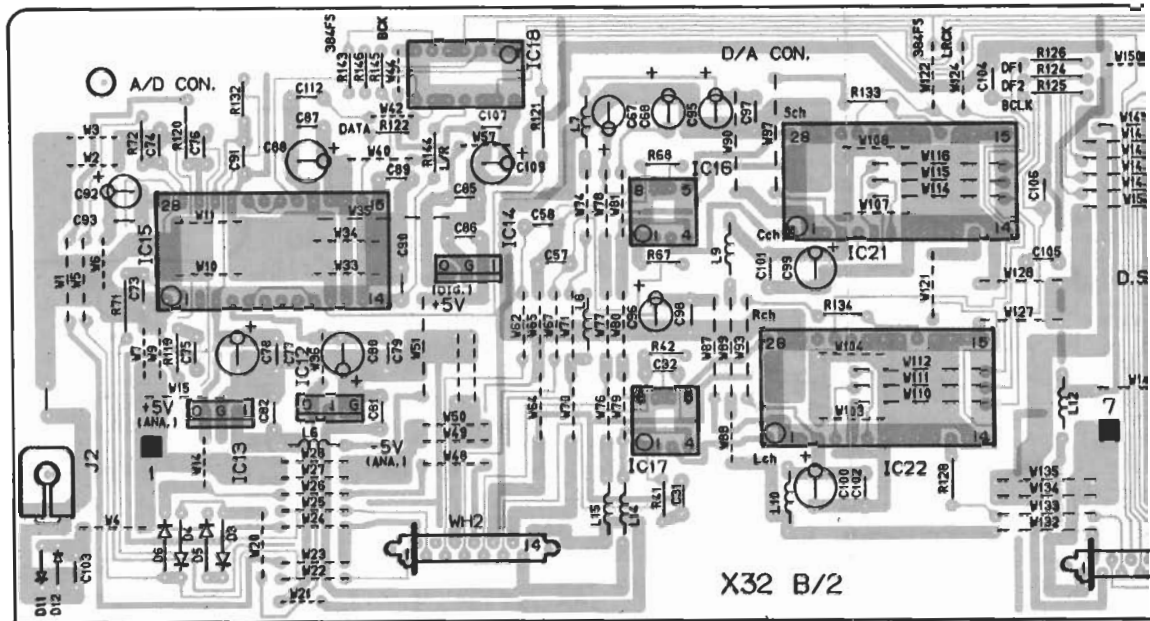
CONTROL UNIT



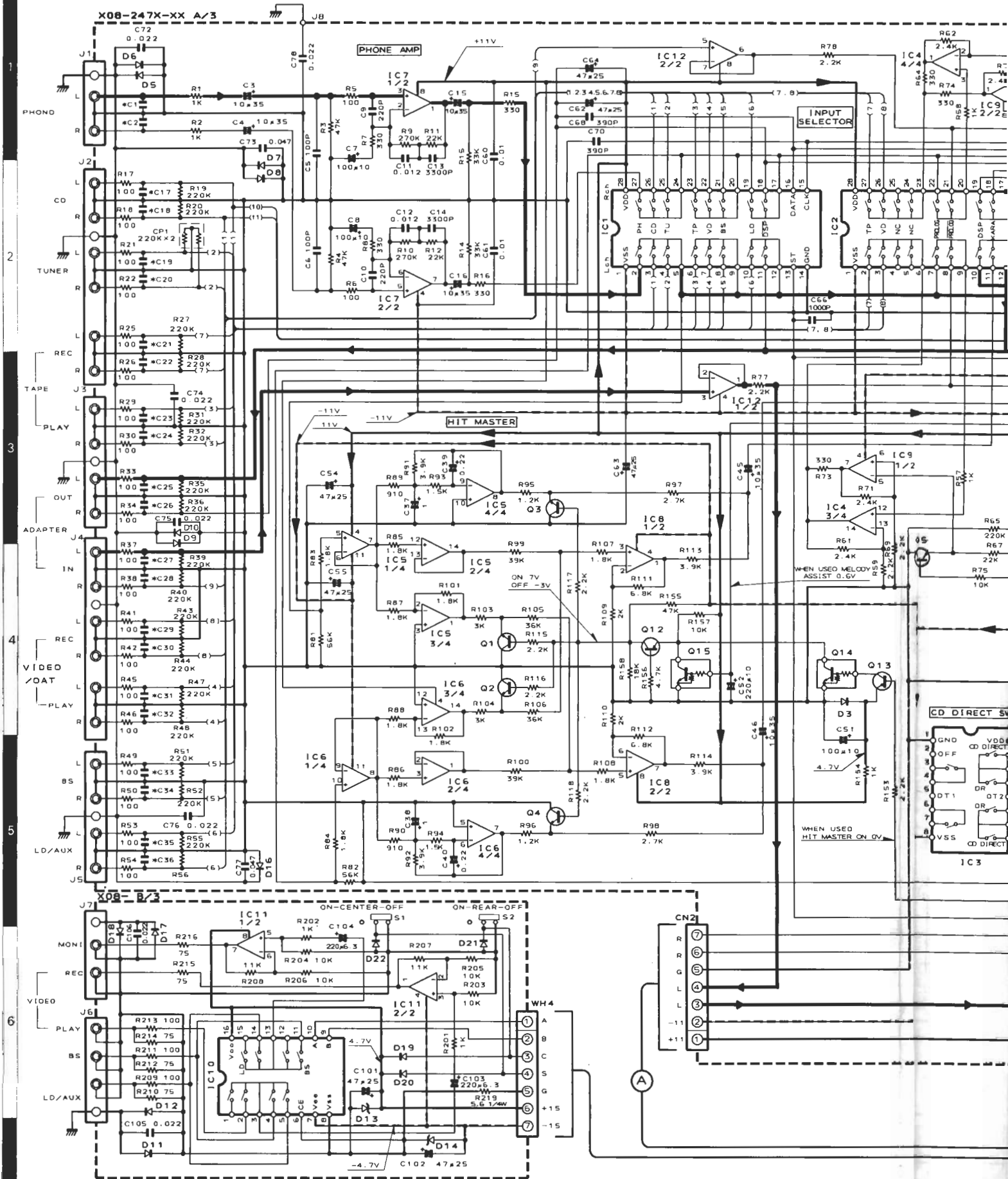


Refer to the schematic diagram for the values of resistors and capacitors.

SIGNAL PROCESSOR UNIT







2SA1123 2SC1923
2SA733 (A) 2SC2003
2SA992 2SC2878
2SC1845 2SC945 (A)

2SD1266

X08-247X-XX A/3

PHONE AMP

+11V

IC12

2/2

INPUT SELECTOR

HIT MASTER

-11V

-11V

ON TV OFF -3V

WHEN USED MELODY ASSIST 0.6V

WHEN USED HIT MASTER ON TV

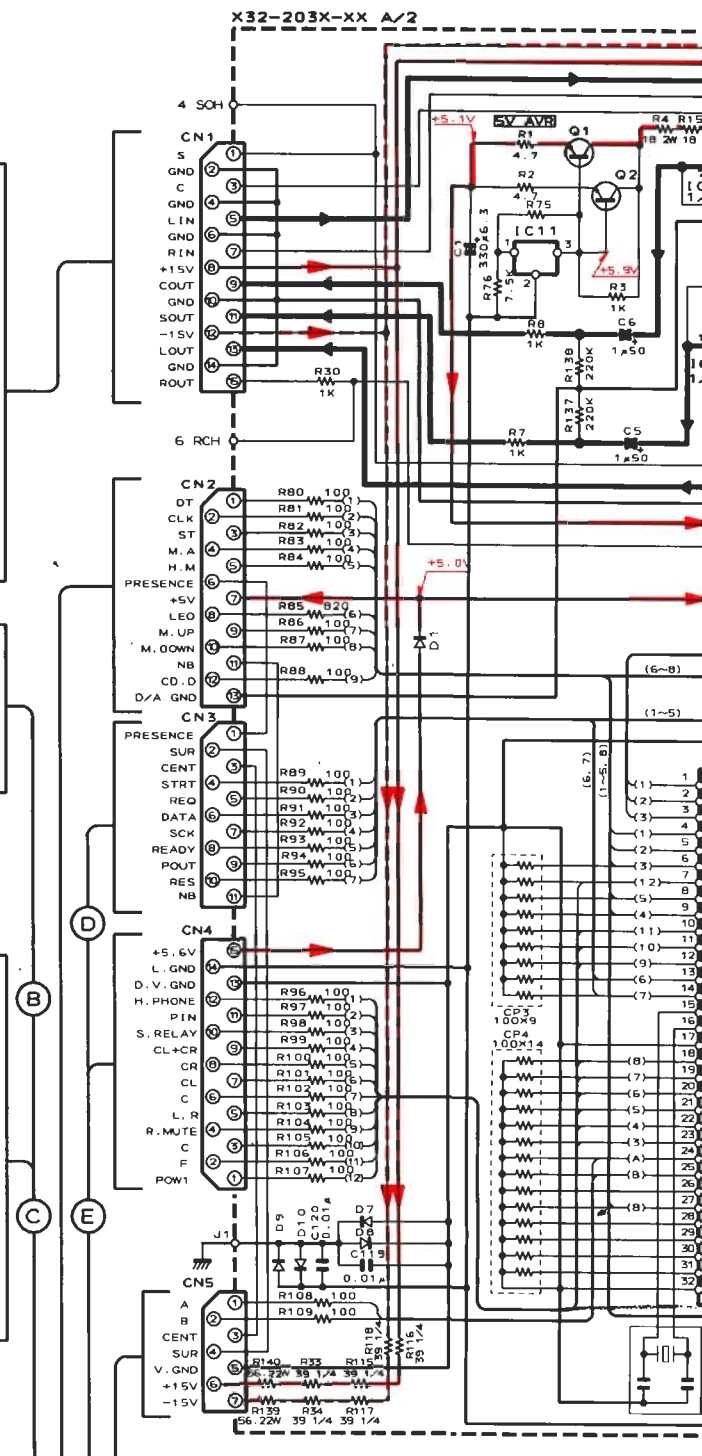
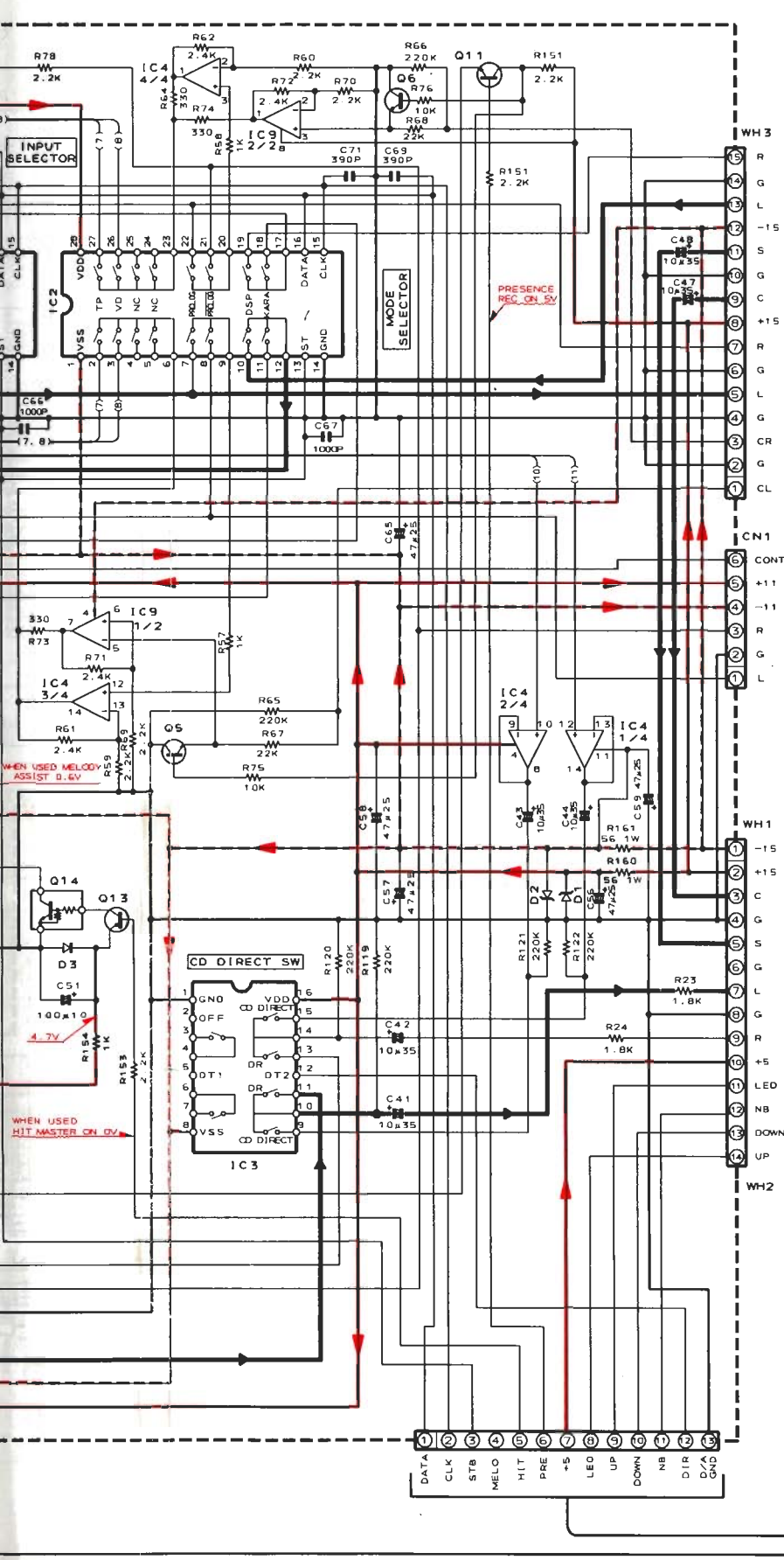
X08-B/3

ON-CENTER-OFF

ON-REAR-OFF

2SA1123 2SC1923
 2SA733 (A) 2SC2003
 2SA992 2SC2878
 2SC1845 2SC945 (A)

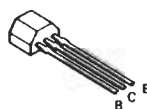
2SD1266



X08-247X-XX

IC1	: TC9163N	Q12, 13	: 2SA13
IC2	: TC9164N		or 2SA
IC3	: TC9215P	Q14, 15	: UN421
IC4~6	: μ PC4574C		DTC
	or NJM2058D		
IC7, 8, 12	: NJM4565D-D		
IC9	: NJM4565L		
IC10	: TC40528P		
IC11	: MC14577A		
Q1~6, 11	: 2SC3311A (Q, R)		
	or 2SC1740S (Q, R)		

COUNTRY
GENERAL MARK
ENGLAND
AUSTRALIA
EUROPE



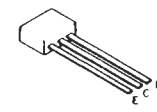
DTC124ES
2SA933S
2SC1740S



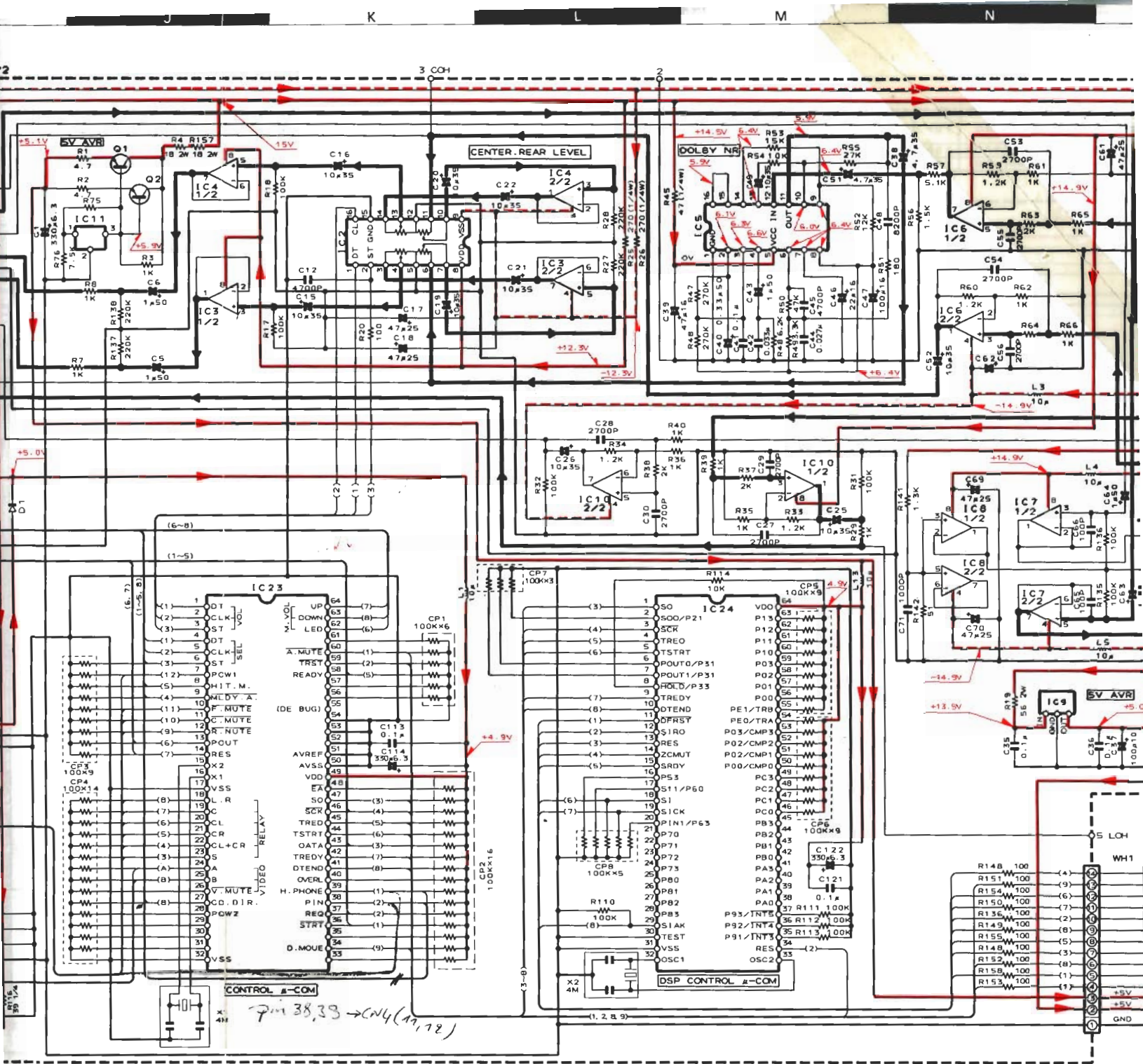
2SC4137



2SB941

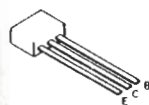


UN421
2SA13
2SC3311A

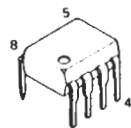


163N	Q12, 13	2SA1309A (Q, R)	D1, 2	RD11ES (B2)	X32-203X-XX	IC3, 4,	IC3, 4,	LM33464G-12	
164N		or 2SA9335 (Q, R)		or HZS11N (B2)		6, 10		or HM50464RP-12	
215P	Q14, 15	UN4212 or	D3, 13, 14	RD4.7ES (B)		IC2	NJM4565D-D	IC21, 22	LC7883K
4574C		DTC124ES		or HZS4.7N (B)		IC5	LA2730	IC23	UPD78214CW-770
UM2058D			D5-12	1SS133 or HSS104		IC7, 8	UPC4072C	IC24	LC66516B-4733
4565D-D						IC11	TL431CLP or NJM431L	IC25	LC83010N
4565L						IC12	UPC7905HF	Q1, 2	2SD1266
0528P						IC9, 13, 14	UPC7805HF	Q3	UN4212 or DTC124ES
4577A						IC15	CS5339-KP	Q4	2SC1923 (R, O)
311A (Q, R)						IC16, 17	NJM4558D	Q5	2SA1309A (Q, R)
IC1740S (Q, R)						IC18	UPD74HC08C		or 2SA9335 (Q, R)
							or HM50464RP-12	D1, 3-10	1SS133 or HSS104

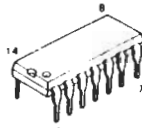
COUNTRY	ABB	UNIT NAME	AREP. NO	WHS-9	C1, 2, 17-36
GENERAL MARKET	M	0-21	YES	NO	
ENGLAND	T				
AUSTRALIA	X	2-71	NO		220P
EUROPE	E				



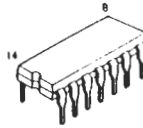
UN4212
2SA1309A
2SC3311A



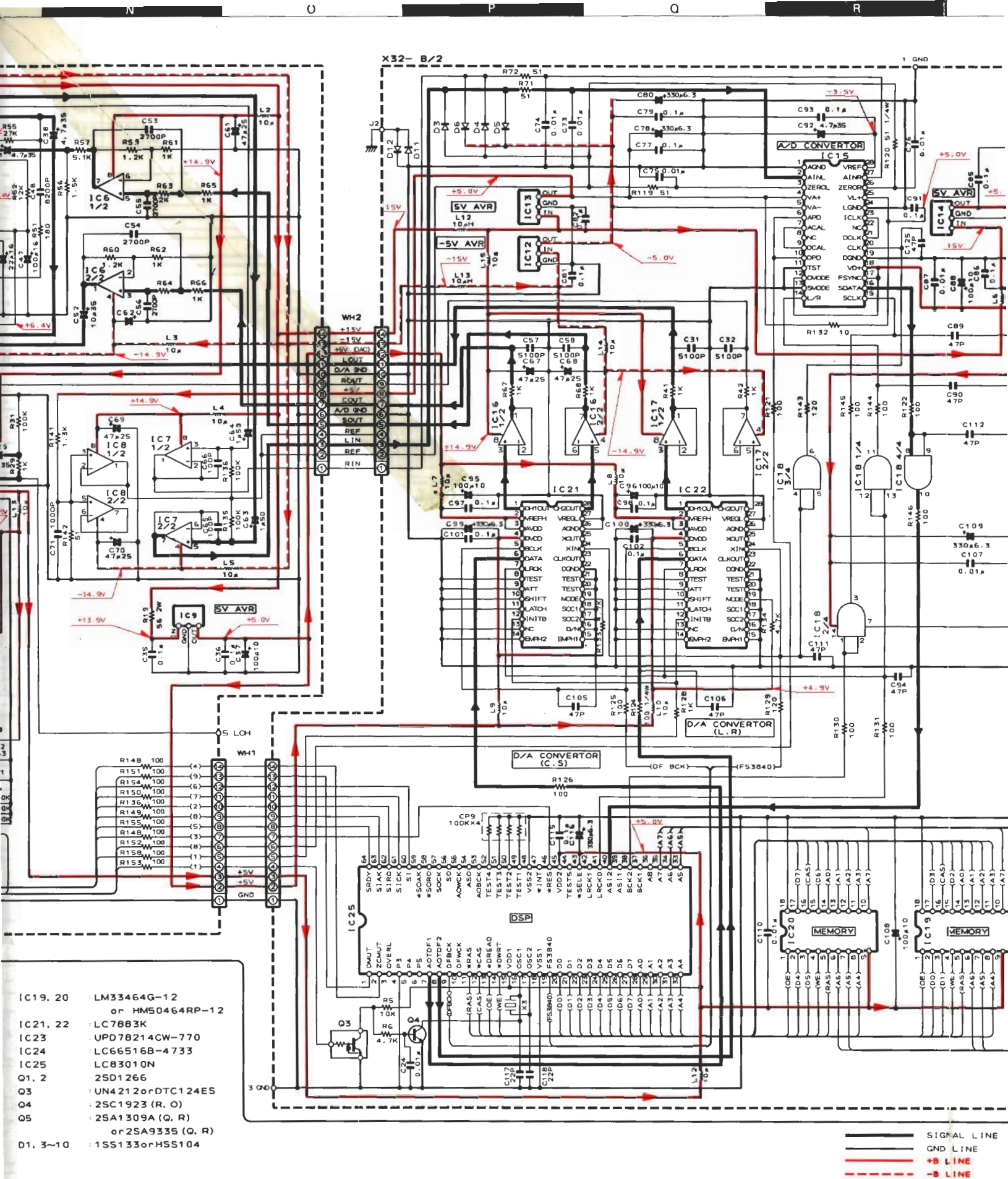
NJM4558D
NJM4565D-D



NJM2058D

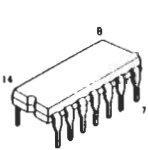


UPC4
UPD7

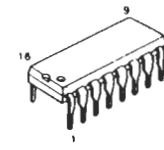


- IC19, 20 : LM3346G-12
or HM50464RP-12
- IC21, 22 : LC7883K
- IC23 : UPD78214CW-770
- IC24 : LC66516B-4733
- IC25 : LC83010N
- Q1, 2 : 2SD1266
- Q3 : UN42120rDTC124ES
- Q4 : 2SC1923 (R, O)
- Q5 : 2SA1309A (Q, R)
or 2SA9335 (Q, R)
- D1, 3-10 : 1SS133 or HSS104

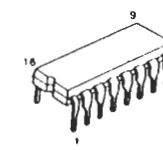
058D



UPC4574C
UPD74HC08C

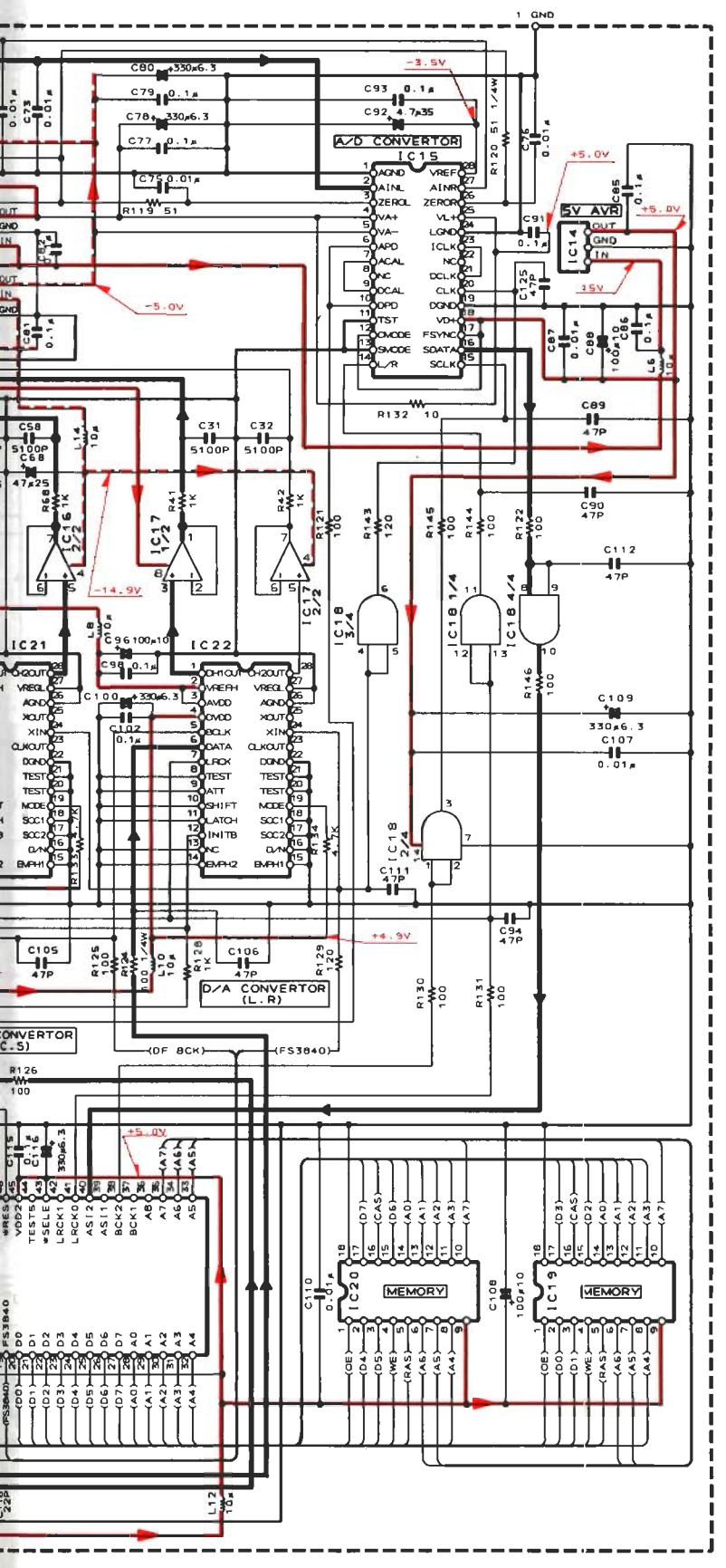


LA2730



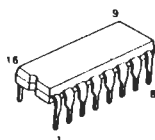
TC4052BP
TC9213P
TC9215P

SIGNAL LINE
GND LINE
+B LINE
-B LINE



— SIGNAL LINE
— GND LINE
— +B LINE
- - -B LINE

LA2730



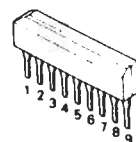
TC4052BP
TC9213P
TC9215P

DC voltages are as measured with a high impedance voltmeter with no signal input. Values may vary slightly due to variations between individual instruments or/and units.

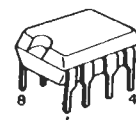
Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance sans signal d'entrée. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser ohne Eingangssignal gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig.

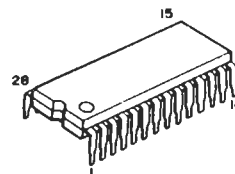
CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). **⚠** Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.



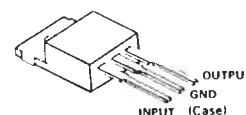
TA8409S



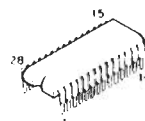
BA10393
UPC4072C



LC7883K



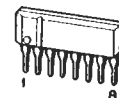
UPC7805HF
UPC7815HF



TC9163N
TC9164N



UPC7905HF



NJM4565L

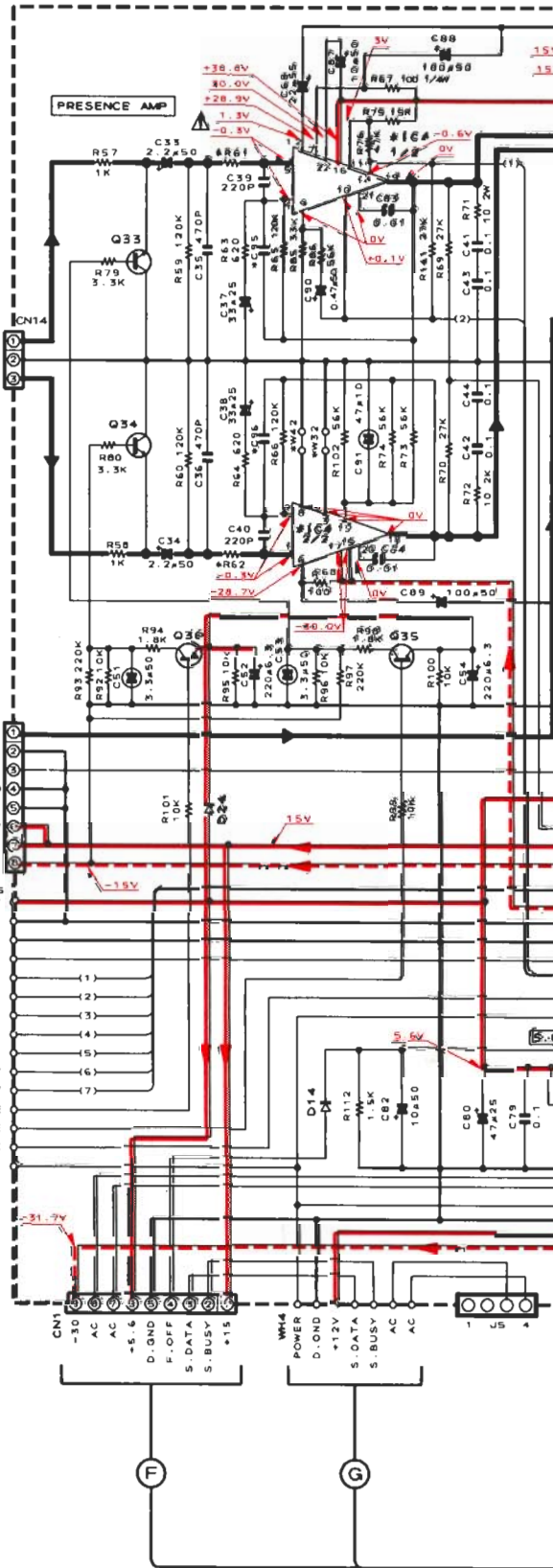
Y08-4460-21

A-85
KENWOOD

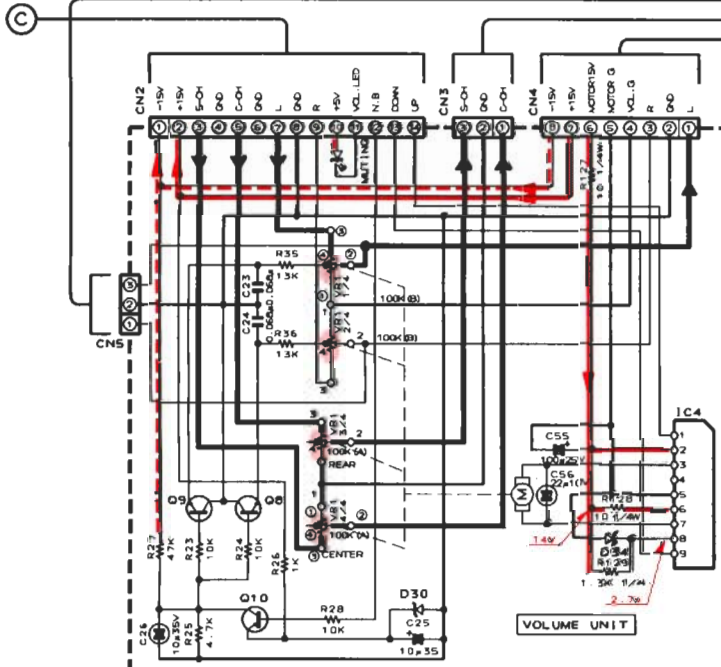
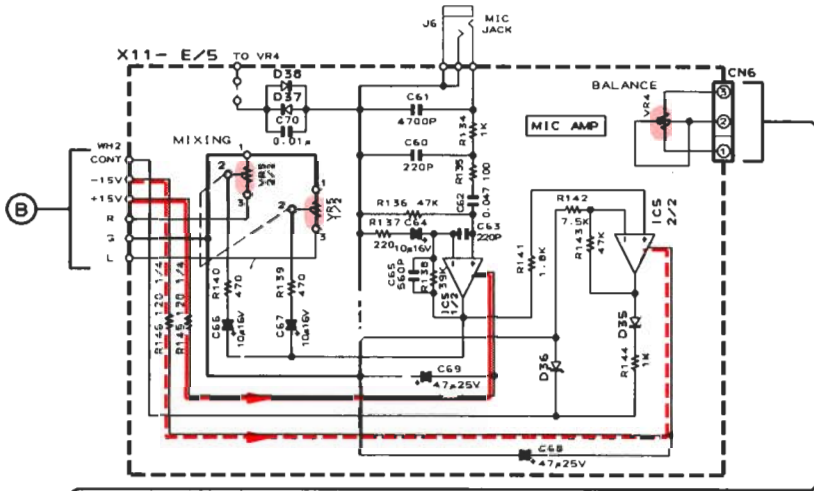
X07-268X-XX

COUNTRY	ABB	UNIT NAME	REF. NO	R3, 4	R61, 62	R203, 204	R205, 206
GENERAL MARKET	M	0-21	10K	1K	1.5K	1.2	
AUSTRALIA	X	0-21	10K	1K	1.5K	1.2	
EUROPE	E	2-71	NO	2.7K	6.2K	NO	
ENGLAND	T	0-51	NO	1K	6.2K	NO	

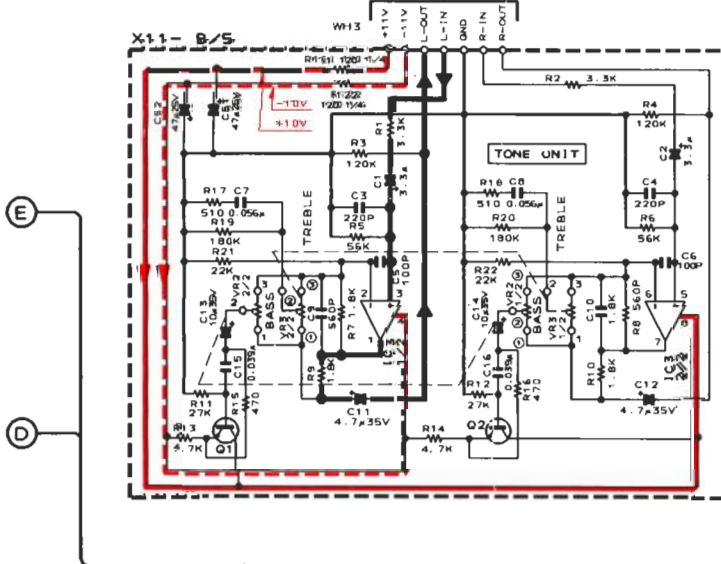
X07-268X-XX A/5



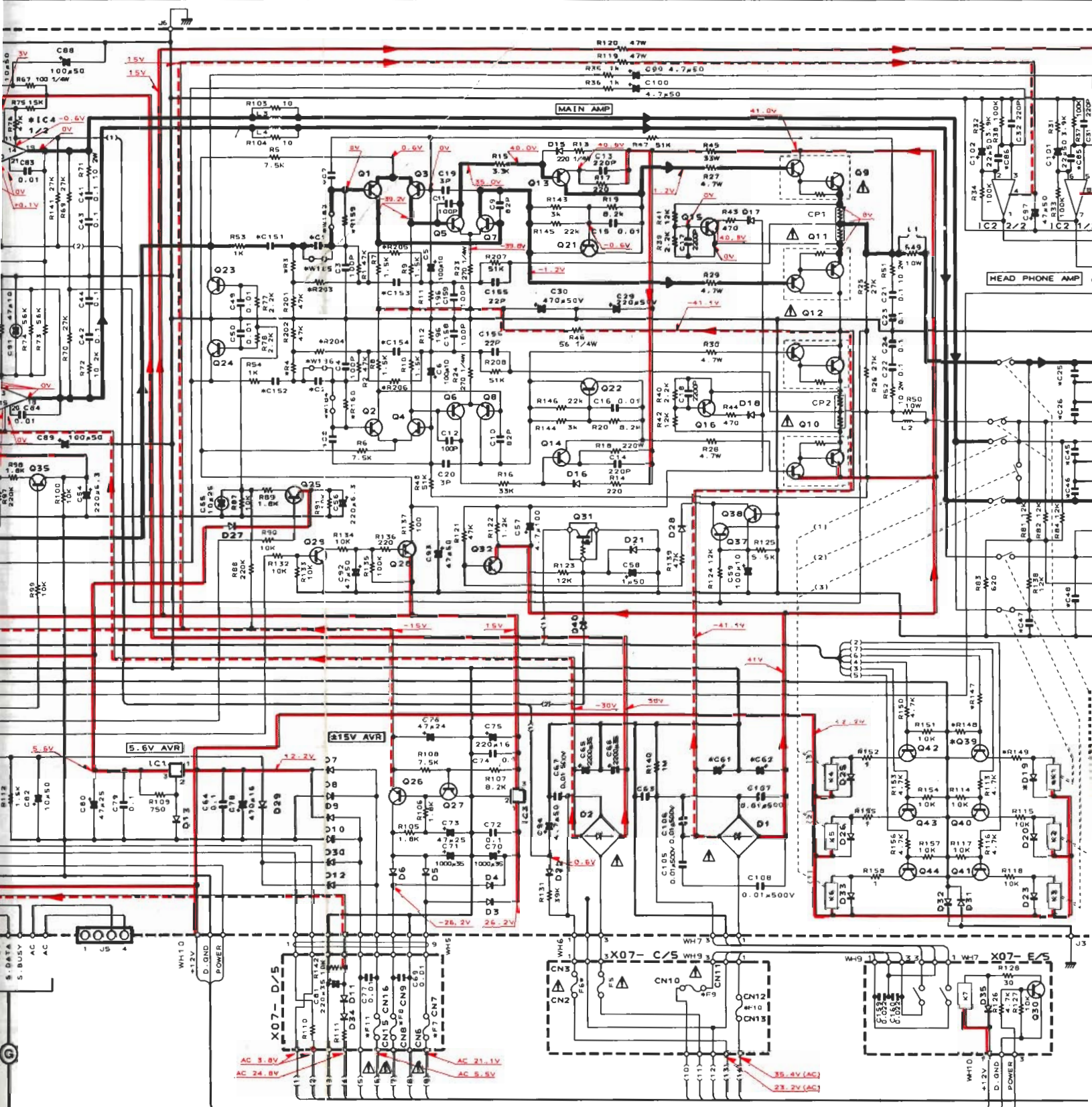
X11- E/5 TO VR4



X11- B/5

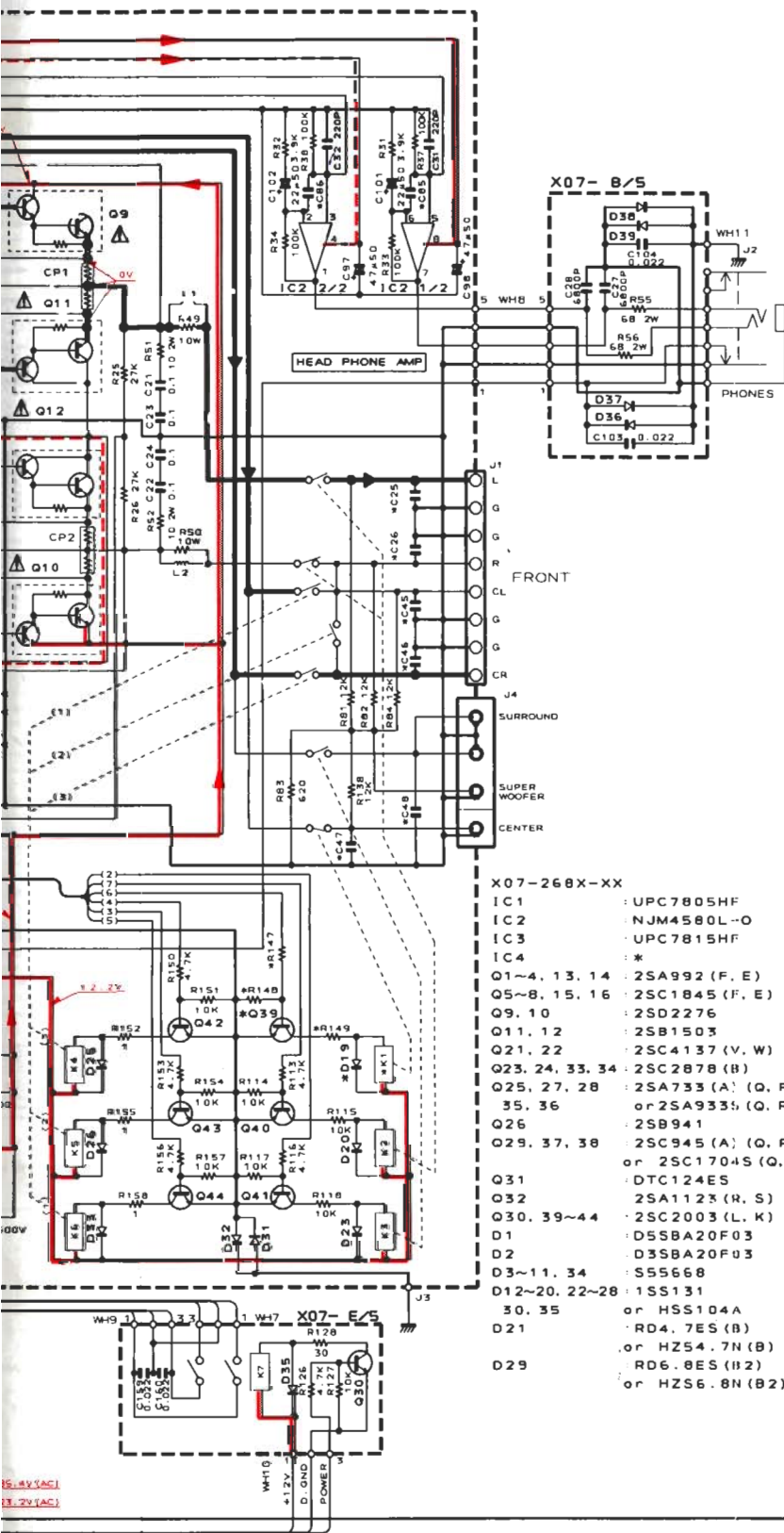


REF. 62	R203, 204	R205, 206	R159, 160	R147	R148	R149	C1, 2	C7, 8	C25, 26	C45-48	C61, 62	C85, 86	C95, 96	C151, 152	C153, 154	D19	D39	F5, 6	F7, 8	F9, 10	F11	J4	K1	W32	W
1K	1.5K	1.2K	NO	4.7K	10K	1	0.1	100P	NO	NO	6800μ50	NO	10P	0.024	0.1	YES	YES	T4A	T2A	T6, 3A	T2A	E13-1403	YES	YES	N
2.7K	6.2K	NO	1K	NO	NO	NO	NO	470P	4700P	2200P	6800μ63	220P	10P	10μ35	NO	NO	NO	T4A	T2A	T6, 3A	T2A	F62-0078	NO	NO	Y
1K	6.2K	NO	NO	NO	NO	NO	NO	100P	NO	NO	6800μ63	NO	10P	10μ35	NO	NO	NO	T4A	T2A		T2A	E63-0028	NO	YES	N

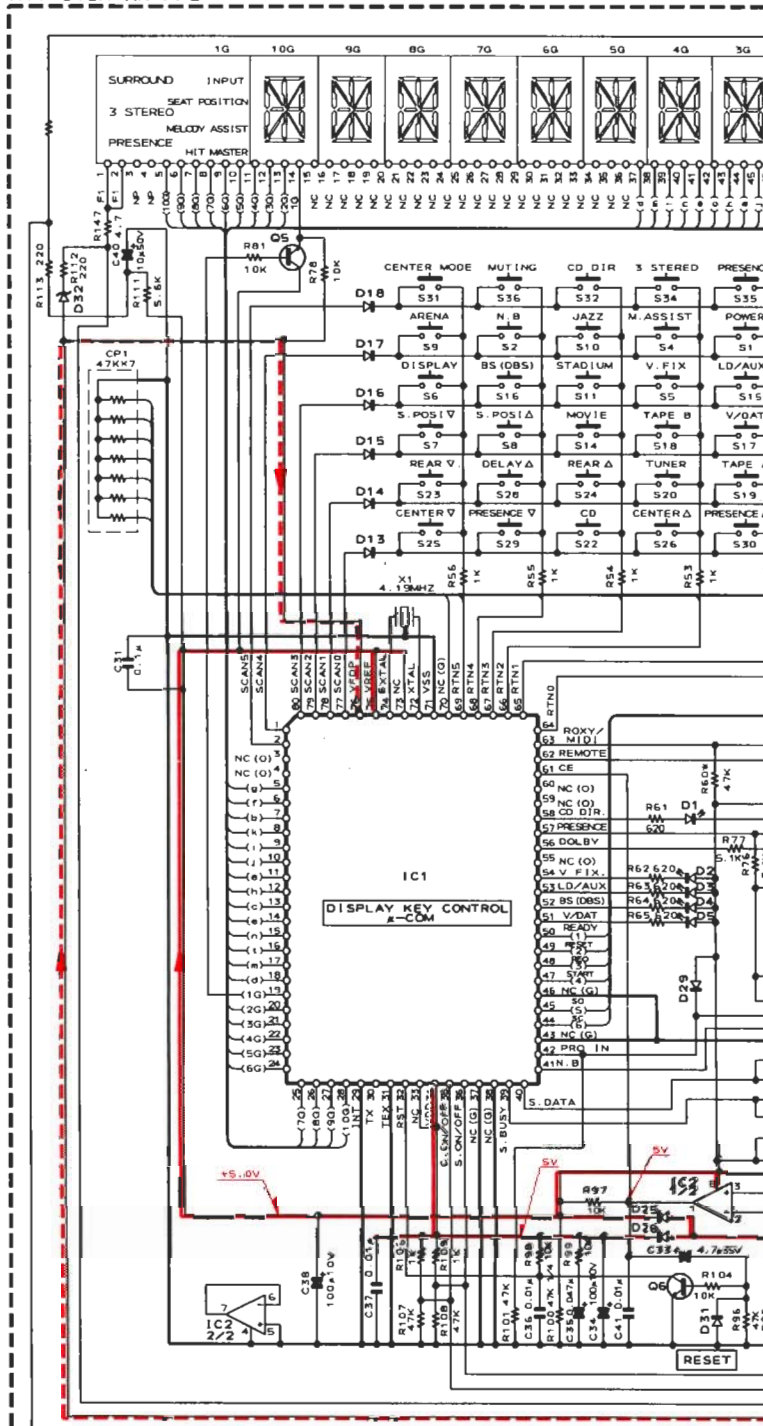


X11-315X-XX

COUNTRY	ASB	UNIT NAME	ASFP, NO		R5B	R60	F1	F2	F3	FA	CN13, 14
GENERAL MARKET	M	0-21			47K	NO	T4A	T2A	NO	T3, 15A	YES
ENGLAND	T	0-51			NO	47K	T2A	NO	NO	T3, 15A	NO
AUSTRALIA	X	0-71			47K	NO	T2A	NO	NO	T3, 15A	NO
EUROPE	E	2-71			NO	47K	T2A	NO	T2, 5A	T3, 15A	NO

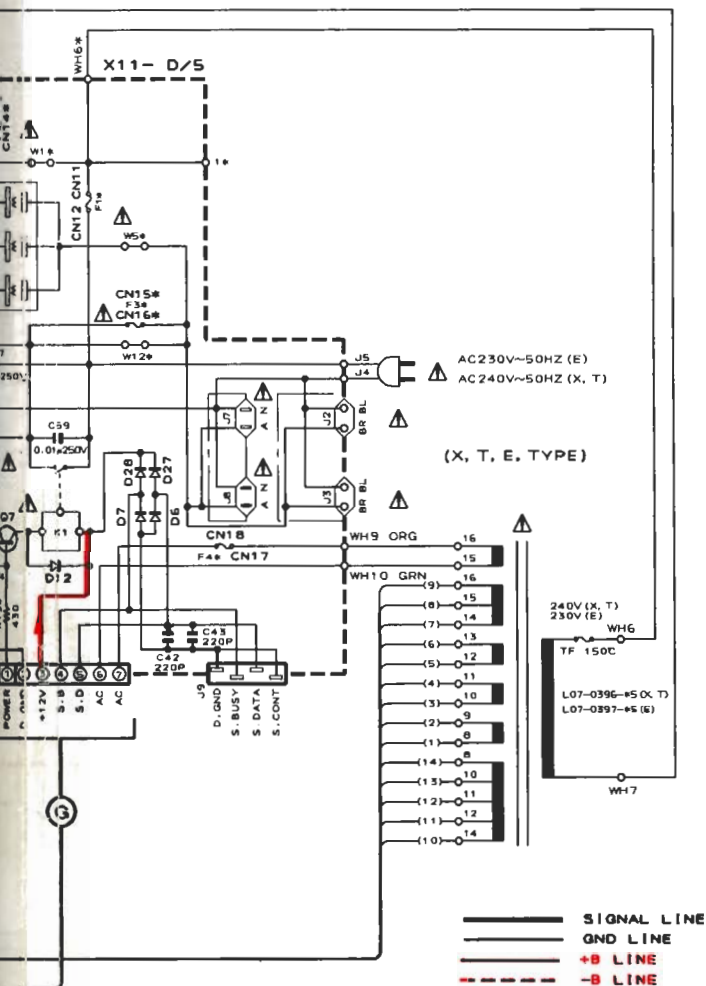


X11-315X-XX A/S



X11-315X-XX

IC1	: KXP50112-3420	Q7	: 2SC2003 (L. K)
IC2	: BA10393	D1~S, 10	: 830-1012-05
IC3, 5	: NJM4580D-D	D12	: 1S5131 or HSS104A
IC4	: TAB409S	D13~29, 31	: 1SS133 or HSS104
Q10	: 2SA933S (Q. R)	35, 37, 38	
	or 2SA1309A (Q. R)	D30	: RD3, 3ES (B2)
Q1, 2, 3, 4,	: 2SC1740S (Q. R)		or HZS3.3N (B2)
5, 6, 8, 9	or 2SC3311A (Q. R)		



DC voltages are as measured with a high impedance voltmeter with no signal input. Values may vary slightly due to variations between individual instruments or/and units.

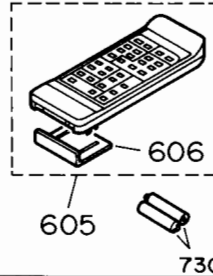
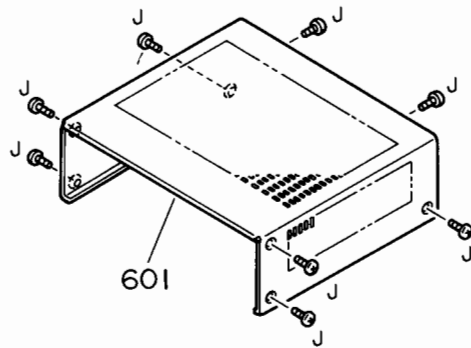
Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance sans signal d'entrée. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser ohne Eingangssignal gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig.

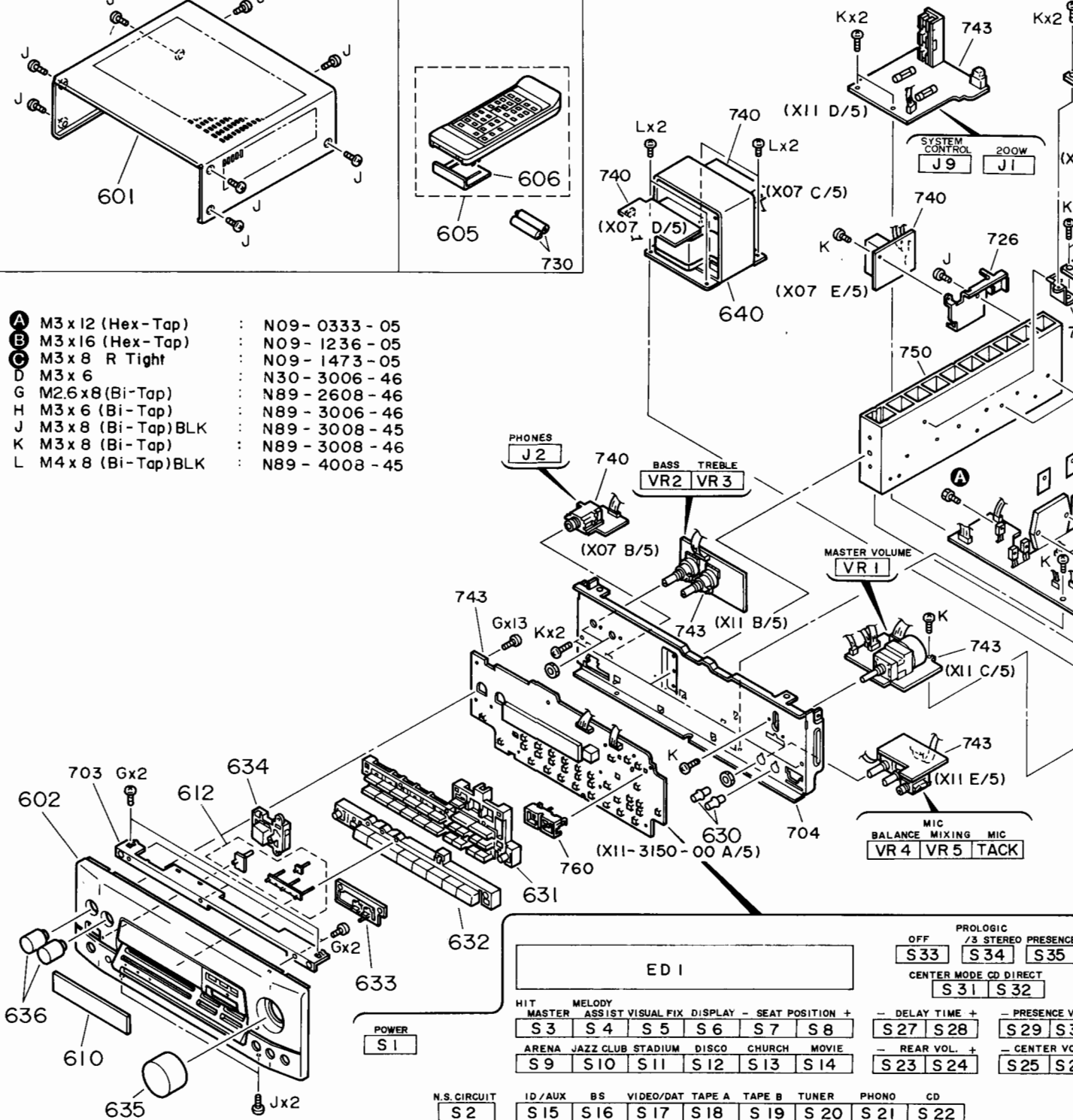
CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

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EXPLODED VIEW

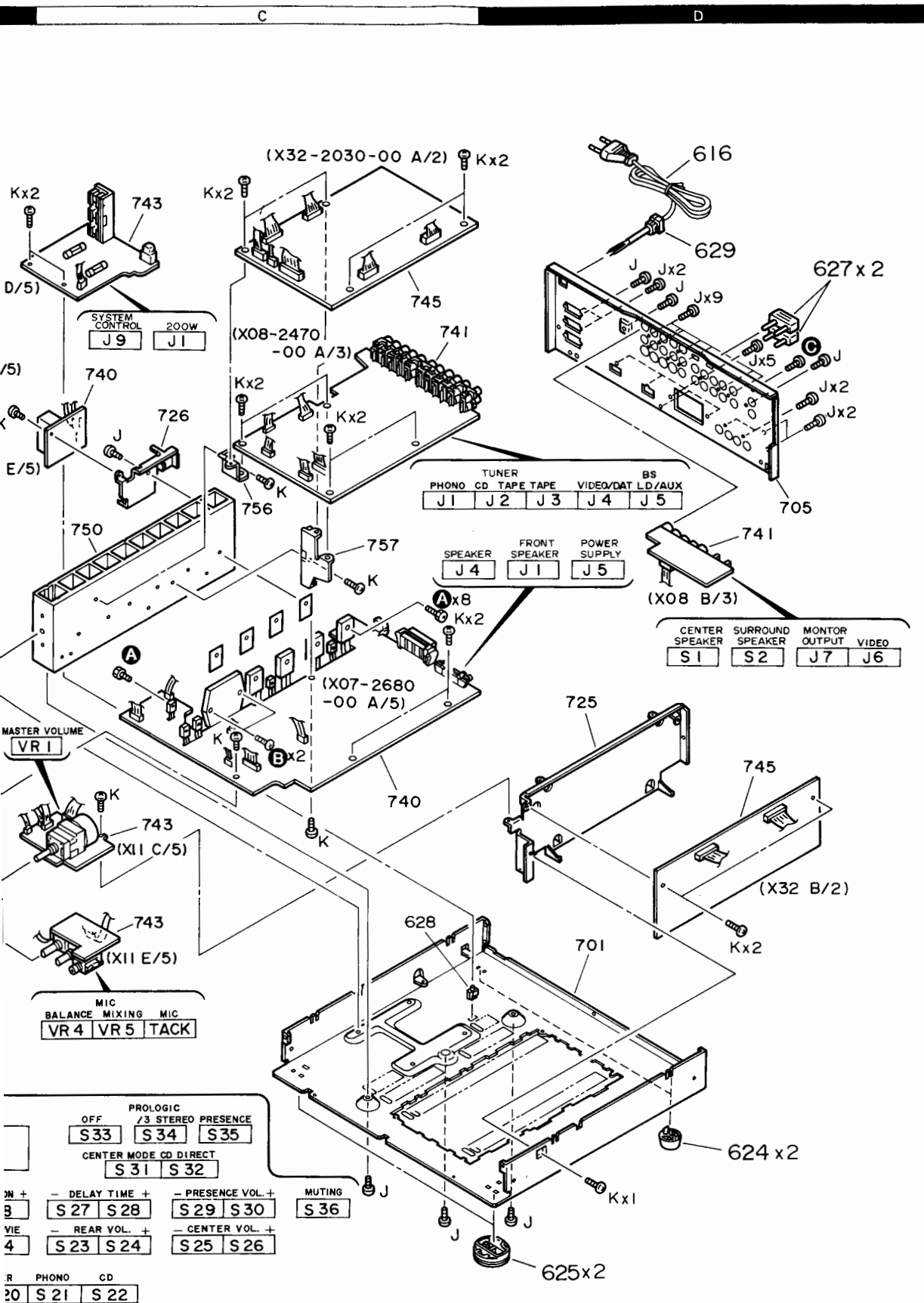


- A** M3 x 12 (Hex-Tap) : N09-0333-05
B M3 x 16 (Hex-Tap) : N09-1236-05
C M3 x 8 R Tight : N09-1473-05
D M3 x 6 : N30-3006-46
G M2.6 x 8 (Bi-Tap) : N89-2608-46
H M3 x 6 (Bi-Tap) : N89-3006-46
J M3 x 8 (Bi-Tap) BLK : N89-3008-45
K M3 x 8 (Bi-Tap) : N89-3008-46
L M4 x 8 (Bi-Tap) BLK : N89-4008-45



A-85 A-85

EXPLODED VIEW



PARTS LIST

A-85

A-

* 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.

NO. 2

Ref. No. 参照番号	Address 位置	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向備考
L	1B	N89-4008-46	BINDING HEAD TAPITTE SCREW	
MAIN AMP UNIT (X07-2680-21: M, X, 00-51: T, 2-71: E)				
C1	.2	CF92FV1H104J	MF	MX
C3	.4	CC45FSL1H101J	CERAMIC	
C5	.6	CE04KW1A101M	ELECTRØ	10WV
C7	.8	CC45FSL1H101J	CERAMIC	
C9	.10	CC45FSL1H820J	CERAMIC	82PF J
C11	.12	CC45FSL1H101J	CERAMIC	
C13	.14	CC45FSL1H221J	CERAMIC	
C15	.16	CK45FF1H103Z	CERAMIC	0.010UF Z
C17	.18	CF92FV1H221J	MF	220PF J
C19	.20	CC45FSL1H030C	CERAMIC	3.0PF C
C21	.24	CF92FV1H104J	MF	0.10UF J
C23	.26	CF92FV1H472J	MF	4700PF J
C25	.28	CF92FV1H482J	MF	6800PF J
C27	.30	CE04KW1H221M	ELECTRØ	50WV
C29	.32	CE04KW1H471M	ELECTRØ	50WV
C31	.34	CC45FSL1H221J	CERAMIC	
C33	.36	CC45FSL1H221J	CERAMIC	220PF J
C35	.38	CF92FV1H471J	MF	2.2UF 50WV
C37	.40	CE04KW1E330M	ELECTRØ	470PF J
C39	.42	CC45FSL1H221J	CERAMIC	33UF 25WV
C41	.44	CF92FV1H104J	MF	220PF J
C43	.46	CF92FV1H221J	MF	0.10UF Z
C45	.48	CK45FF1H103Z	CERAMIC	0.010UF Z
C47	.50	C90-1351-05	NP-ELEC	3.3UF 50WV
C49	.52	CE04KW0J221M	ELECTRØ	220UF 6.3WV
C51	.54	C90-1351-05	NP-ELEC	3.3UF 50WV
C53	.56	C90-1351-05	NP-ELEC	3.3UF 50WV
C55	.58	CE04KW0J221M	ELECTRØ	220UF 6.3WV
C57	.60	CE04KW2A47M	ELECTRØ	4.7UF 100WV
C59	.62	CE04KW1H101M	ELECTRØ	1.0UF 50WV
C61	.64	CK45FF1H223Z	CERAMIC	0.022UF Z
C63	.66	C90-1828-05	ELECTRØ	6800UF 50WV
C65	.68	C90-1829-05	ELECTRØ	6800UF 63WV
C67	.70	CK45FE2H103P	CERAMIC	0.010UF P
C69	.72	CF92FV1H104J	MF	0.10UF J
C71	.74	CE04KW1V221M	ELECTRØ	220UF 35WV
C73	.76	CK45FE2H103P	CERAMIC	0.010UF P
C75	.78	CE04KW1H220H	ELECTRØ	22UF 50WV
C77	.80	CK45FF1H103Z	CERAMIC	0.010UF Z
C79	.82	CF92FV1H104J	MF	47UF 25WV
C81	.84	CE04KW1E470M	ELECTRØ	47UF 25WV
C83	.86	CE04KW1V221M	ELECTRØ	220UF 35WV

△ indicates safety critical components

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NO. 1

Ref. No. 参照番号	Address 位置	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向備考
A-85				
601	1A	A01-1810-01	METALLIC CABINET	
602	3A	A06-0117-01	PANEL	
605	1B	X94-1000-11	REMOTE CONTROL ASSY	
606		A09-0115-13	BATTERY COVER	
610	3A	B10-1880-03	FRONT GLASS	E
612	3A	B12-0178-03	INDICATOR	X
-		B09-0068-05	CAP	X
-		B46-0098-23	WARRANTY CARD	E
-		B46-0122-13	WARRANTY CARD	E
-		B46-0143-13	WARRANTY CARD	T
-		B52-0399-00	CONNECTING DIAGRAM	MX
-		B52-0400-00	INSTRUCTION MANUAL (ENGLISH)	TE
-		B60-0608-00	INSTRUCTION MANUAL (FRENCH)	E
-		B60-0609-00	INSTRUCTION MANUAL (GERMAN)	E
-		B60-0610-00	INSTRUCTION MANUAL (DUTCH)	E
-		B60-0611-00	INSTRUCTION MANUAL (ITALIANO)	E
-		B60-0612-00	INSTRUCTION MANUAL (SPANISH)	M
-		B60-0613-00	INSTRUCTION MANUAL (CHINESE)	M
-		B60-0652-00	INSTRUCTION MANUAL (CHINESE)	M
616	1D	E30-0459-05	AC POWER CORD	ME
616	1D	E30-1341-05	AC POWER CORD	X
616	1D	E30-1416-05	AC POWER CORD	T
616	1D	E03-0114-05	AC OUTLET	X
-		H50-0145-04	ITEM CARTON CASE	
-		H10-5184-02	POLYSTYRENE FOAMED FIXTURE (L)	
-		H10-5185-02	POLYSTYRENE FOAMED FIXTURE (R)	
-		H25-0232-04	PROTECTION BAG (235X350X0.03)	MNE
-		H25-0391-04	PROTECTION BAG	
-		H25-0651-04	PROTECTION BAG (0232 PRINTED)	T
624	3D	J02-0366-15	FOOT	
625	3D	J02-1040-05	FOOT	
627	1D	J12-0091-05	PIN	
628	3C	J16-3180-05	UNIT HOLDER	
629	1D	J42-0083-05	POWER CORD BUSHING	
-		J61-0307-05	WIRE BAND	
630	3B	K29-3886-04	KNØB BALANCE, MIC MIXING	
631	3B	K29-4242-02	KNØB SURROUND SELECTOR	
632	3B	K29-4243-03	KNØB INPUT SELECTOR	
633	3A	K29-4244-04	KNØB PROLOGIC/STEREO, PRESENCE	
634	3A	K29-4245-03	KNØB POWER	
635	3A	K29-4246-04	KNØB MASTER VOLUME	
636	3A	K29-4247-04	KNØB BASS, TREBLE	
640	1B	L07-0395-05	POWER TRANSFORMER	M
640	1B	L07-0396-05	POWER TRANSFORMER	XT
640	1B	L07-0397-05	POWER TRANSFORMER	E
C	1D	N09-1473-05	TAPPING SCREW (M3X8)	
H	3A, 2B	N89-2608-46	BINDING HEAD TAPITTE SCREW	
G	2B	N89-3006-46	BINDING HEAD TAPITTE SCREW	
J	1A, 1D	N89-3008-45	BINDING HEAD TAPITTE SCREW	
K	1B, 2B	N89-3008-46	BINDING HEAD TAPITTE SCREW	

△ indicates safety critical components

PARTS LIST

NO. 4

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Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕
K1 -6	*	S76-0008-05	MAGNETIC RELAY	MX
K2 -6	*	S76-0008-05	MAGNETIC RELAY	TE
K7	*	S76-0015-05	MAGNETIC RELAY	
D1		D5SBA20F03	DIODE	
D2		D3SBA20F03	DIODE	
D3 -11		S55668	DIODE	
D12 -18		HSS104A	DIODE	
D12 -18		HSS131	DIODE	
D12 -20		HSS104A	DIODE	
D12 -20		HSS131	DIODE	
D20		HSS104A	DIODE	
D20		HSS131	DIODE	
D21		H2S4.7N(B)	ZENER DIODE	
D21		RD4.7ES(B)	ZENER DIODE	
D22 -28		HSS104A	DIODE	
D22 -28		HSS131	DIODE	
D29		H2S6.2N(B2)	ZENER DIODE	
D29		RD6.2ES(B2)	ZENER DIODE	
D30 -33		HSS104A	DIODE	
D30 -33		HSS131	DIODE	
D34		S35680	DIODE	
D35		HSS104A	DIODE	
D35		HSS131	DIODE	
D36 -37		HSS104A	DIODE	
D36 -37		HSS131	DIODE	
D38 -42		HSS104A	DIODE	
D38 -42		HSS131	DIODE	
IC1		UPC7805HF	IC(VOLTAGE REGULATOR/ +5V)	
IC2		NJM4580L-D	IC(OP AMP)	
IC3		UPC7815HF	IC(VOLTAGE REGULATOR/ +15V)	
IC4	*	STK4145MK2	IC(CAF POWER AMP)	MX
IC4	*	STK4145MK5	IC(CAF POWER AMP)	E
Q1 -4		2SA992(F,E)	TRANSISTOR	
Q5 -8		2SC1845(F,E)	TRANSISTOR	
Q9 -10		2SB1503	TRANSISTOR	
Q11 -12		2SD2276	TRANSISTOR	
Q13 -14		2SA992(F,E)	TRANSISTOR	
Q15 -16		2SC1845(F,E)	TRANSISTOR	
Q21 -22		2SC4137(V,W)	TRANSISTOR	
Q23 -24		2SC2878(B)	TRANSISTOR	
Q25		2SA733(A)(Q,P)	TRANSISTOR	
Q25		2SA933S(Q,R)	TRANSISTOR	
Q26		2SB941	TRANSISTOR	
Q27 -28		2SA733(A)(Q,P)	TRANSISTOR	
Q27 -28		2SA933S(Q,R)	TRANSISTOR	
Q29		2SC1710S(Q,R)	TRANSISTOR	
Q29		2SC945(A)(Q,P)	TRANSISTOR	
Q30		2SC2003(L,K)	TRANSISTOR	
Q31		DT124ES	DIGITAL TRANSISTOR	
Q32		2SA1123(R,S)	TRANSISTOR	
Q33 -34		2SC2878(B)	TRANSISTOR	
Q33 -34		2SA733(A)(Q,P)	TRANSISTOR	
Q35 -36		2SA933S(Q,R)	TRANSISTOR	
Q37 -38		2SC1740S(Q,R)	TRANSISTOR	

△ indicates safety critical components.

LS:Scandinavia
Y:PX(Far East, Hawaii)
Y:AA(FES)(Europe)
K:USA
P:Canada
T:England
X:Australia
M:Other Areas

NO. 3

* New Parts
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Ref. No. 参照番号	Address 位置	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕
C82		CE04KW1H100M	ELECTRO	
C83 ,84		CF92FV1H473J	100UF J 50WV	
C87		CE04KW1H100M	ELECTRO	
C88 ,89		CE04KW1H100M	100UF J 50WV	
C90		CE04KW1H100M	ELECTRO	
C91		NP-ELEC	47UF 10WV	
C92 ,93		CE04KW1H470M	ELECTRO	
C94		CE04KW1H470M	47UF 50WV	
C95 ,96		C91-0721-05	CERAMIC	
C97 ,98		CE04KW1H470M	ELECTRO	
C99 ,100		CE04KW1H470M	47UF 50WV	
C101 ,102		CE04KW1H220M	ELECTRO	
C103		CK45FF1H223Z	CERAMIC	
C104		CK45FF1H223Z	CERAMIC	
C105-108		CK45FE2H103P	CERAMIC	
C151 ,152		CE04KW1V100M	ELECTRO	
C151 ,152		CF92FV1H243J	10UF J 35WV	TE
C153 ,154		CF92FV1H104J	0.024UF J	MX
C155 ,156		CC45FSL1H220J	0.10UF J	MX
J1		E70-0008-05	LOCK TERMINAL BOARD SPEAKERS	
J2	*	E11-0208-05	PHONE JACK PHONES	
J3	*	E13-1403-05	PHONE JACK SURROUND SPEAKERS	MX
J4	*	E63-0028-05	PHONE JACK SURROUND SPEAKERS	TE
J5		E08-0411-05	RECTANGULAR RECEPTACLE POWER	
F5 ,6		F05-0025-05	FUSE (SEMKO) (250V T4A)	
F7 ,8		F06-0021-05	FUSE (SEMKO) (250V T2A)	
F9 ,10		F05-0321-05	FUSE (SEMKO) (250V T3A)	
F11		F06-0021-05	FUSE (SEMKO) (250V T2A)	
CN2 -13		J13-0075-05	FUSE CLIP	
CN15 ,16		J13-0075-05	FUSE CLIP	
L1 -4		L39-0085-05	PHASE-COMPENSATION COIL	
A	2C	N09-0333-05	TAPPING SCREW (3X12)	
B	2C	N09-1236-05	TAPPING SCREW (3X16)	
J	1C,2C	N89-3008-45	BINDING HEAD TAPITITE SCREW	
K	1C,2C	N89-3008-46	BINDING HEAD TAPITITE SCREW	
CP1 ,2		R90-0187-05	MULTI-COMP	
R11 ,12		RN14BK2C1960F	RN 196.0 F 1/6W	
R13 ,14		RD14AB2E221J	FL-PR00F RD 220 J 1/4W	
R15 ,16		RD14AB2E332J	FL-PR00F RD 3.3K J 1/4W	
R17 ,18		RD14AB2E221J	FL-PR00F RD 220 J 1/4W	
R23 ,24		RD14AB2E271J	FL-PR00F RD 270 J 1/4W	
R27 -30		RD14AB2E47J	FL-PR00F RD 4.7 J 1/4W	
R45		RD14AB2E330J	FL-PR00F RD 33 J 1/4W	
R46		RD14AB2E560J	FL-PR00F RD 56 J 1/4W	
R49 ,50		RD14AB2E100J	FL-PR00F RD 10 J 1/4W	
R51 ,52		RS140B3D100J	FL-PR00F RS 10 J 2W	
R55 ,56		RS140B3D680J	FL-PR00F RS 68 J 2W	
R67 ,68		RD14AB2E101J	FL-PR00F RD 100 J 1/4W	
R71 ,72		RS140B3D100J	FL-PR00F RS 10 J 2W	
R103 ,104		RD14AB2E100J	FL-PR00F RD 10 J 1/4W	
R110 ,111		RD14AB2E1R0J	FL-PR00F RD 1.0 J 1/4W	
R112		RD14AB2E1S2J	FL-PR00F RD 1.5K J 1/4W	
R142		RD14AB2E103J	FL-PR00F RD 10K J 1/4W	

△ indicates safety critical components

LS:Scandinavia
Y:PX(Far East, Hawaii)
Y:AA(FES)(Europe)
K:USA
P:Canada
T:England
X:Australia
M:Other Areas

PARTS LIST

NO. 6

✕ New Parts
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Ref. No. 参照番号	Address 位置	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
IC1		TC9163N	IC(BILATERAL SWITCH X16)		
IC2		TC9164N	IC(16CH BILATERAL SELECTOR SW)		
IC3		TC9215P	IC(ANALOG SWITCH X 6)		
IC4 -6		NJM5050D	IC(OP AMP X4)		
IC4 -6		UPC4574C	IC(OP AMP X4)		
IC7 ,8		NJM565D-D	IC(OP AMP X2)		
IC9		NJM565SL	IC(4CH MPX/DE-MPX)		
IC10		TC4052BP	IC		
IC11		MC14577A	IC		
IC12		NJM565D-D	IC(OP AMP X2)		
Q1 -6		2SC1740S(Q,R)	TRANSISTOR		
Q11		2SC3311A(Q,R)	TRANSISTOR		
Q11		2SC1740S(Q,R)	TRANSISTOR		
Q12 ,13		2SC3311A(Q,R)	TRANSISTOR		
Q12 ,13		2SA1309A(Q,R)	TRANSISTOR		
Q14 ,15		2SA933S(Q,R)	TRANSISTOR		
Q14 ,15		DTC124ES	DIGITAL TRANSISTOR		
		UN4212	TRANSISTOR		
CONTROL UNIT (X11-3150-21: M, 0-71: X, 0-51: T, 2-71: E)					
D1 -5		B30-1012-05	LED(SLP-981C-S0)		
P11 ,2		B30-1012-05	LED(SLP-981C-S0)		
P11 ,2		B30-2407-05	LAMP		
C1 ,2		CE04KWIH3R3M	ELECTRØ		50WV
C3 ,4		CC45FSL1H221J	CERAMIC		220PF J
C5 ,6		CC45FSL1H101J	CERAMIC		100PF J
C7 ,8		CF92FV1H563J	MF		0.056UF J
C9 ,10		CK45FB1H561K	CERAMIC		560PF K
C11 ,12		CE04KWIH4R7M	ELECTRØ		4.7UF 35WV
C13 ,14		CE04KWIH100M	ELECTRØ		10UF 35WV
C15 ,16		CF92FV1H393J	MF		0.039UF J
C23 ,24		CF92FV1H683J	MF		0.068UF J
C25		CE04KWIH100M	ELECTRØ		10UF 35WV
C26		C90-1332-05	NP-ELEC		10UF 25WV
C31		CF92FV1H104J	MF		0.10UF J
C32		C90-3222-05	ALUMINIUM ELECTROLYTIC C.		220UF 25WV
C33		C90-3222-05	ALUMINIUM ELECTROLYTIC C.		220UF 25WV
C34		C90-3222-05	ALUMINIUM ELECTROLYTIC C.		220UF 25WV
C35		C90-1827-05	BACKUP		0.047F 5.5WV
C36 ,37		C91-0769-05	CERAMIC		0.01UF K
C38		C90-3222-05	ALUMINIUM ELECTROLYTIC C.		220UF 25WV
C40		C90-3222-05	ALUMINIUM ELECTROLYTIC C.		220UF 25WV
C41		C91-0769-05	CERAMIC		0.01UF K
C42 ,43		CC45FSL1H221J	CERAMIC		220PF J
C51 ,52		CE04KWIH470M	ELECTRØ		47UF 25WV
C55		CE04KWIH101M	ELECTRØ		100UF 25WV
C56		C90-1333-05	NP-ELEC		10UF 25WV
C57		C91-0971-05	FILM		0.01UF 250WV
C59		C91-1421-05	FILM		0.01UF 250AC
C60		CQ92FV1H472J	MYLAR		4700PF J
C61		CC45FSL1H221J	CERAMIC		220PF J
C62		CF92FV1H473J	MF		0.047UF J
C63		CC45FSL1H221J	CERAMIC		220PF J
C64		CE04KWIH100M	ELECTRØ		10UF 35WV
C65		CK45FB1H561K	CERAMIC		560PF K

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NO. 5

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Ref. No. 参照番号	Address 位置	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
Q37 ,38		2SC945(A)(Q,P)	TRANSISTOR		
Q39 -44		2SC2003(L,K)	TRANSISTOR		
Q40 -44		2SC2003(L,K)	TRANSISTOR		
PRE AMPLIFIER UNIT (X08-2470-21: M, 2-71: X, T, E)					
C1 ,2		CC45FSL1H221J	CERAMIC		220PF J
C3 ,4		CE04KWIH100M	ELECTRØ		10UF 35WV
C5 ,6		CC45FSL1H101J	CERAMIC		100PF J
C7 ,8		CE04KWIH101M	ELECTRØ		100UF 10WV
C9 ,10		CC45FSL1H221J	CERAMIC		220PF J
C11 ,12		CF92FV1H123J	MF		0.012UF J
C13 ,14		CF92FV1H332J	MF		3300PF J
C15 ,16		CE04KWIH100M	ELECTRØ		10UF 35WV
C17 -24		C91-0749-05	CERAMIC		220PF J
C25 -36		CC45FSL1H221J	CERAMIC		220PF J
C37 ,38		CE04KWIH101M	ELECTRØ		1.0UF 50WV
C39 ,40		CE04KWIH222M	ELECTRØ		0.22UF 50WV
C41 -48		CE04KWIH100M	ELECTRØ		10UF 35WV
C51 ,52		CE04KWIH101M	ELECTRØ		100UF 10WV
C54 -59		CE04KWIH470M	ELECTRØ		47UF 25WV
C60 ,61		CF92FV1H103J	MF		0.010UF J
C62 -65		CE04KWIH470M	ELECTRØ		47UF 25WV
C66 ,67		CK45FB1H102K	CERAMIC		1000PF K
C68 ,69		CK45FB1H391K	CERAMIC		390PF K
C72 ,73		CK45FF1H223Z	CERAMIC		0.022UF Z
C74 ,75		C91-0085-05	CERAMIC		0.022UF N
C76 ,77		CK45FF1H223Z	CERAMIC		0.022UF Z
C78		C91-0085-05	CERAMIC		0.022UF N
C101 ,102		CE04KWIH470M	ELECTRØ		47UF 25WV
C103 ,104		CE04KWIH221M	ELECTRØ		220UF 6.3WV
C105 ,106		CK45FF1H223Z	CERAMIC		0.022UF Z
J1		E13-0249-05	PHONO JACK PHONO		
J2		E13-0633-05	PHONO JACK CD, TUNER, TAPE REC		
J3		E13-0445-05	PHONO JACK TAPE PLAY, ADAPTER		
J4		E13-0633-05	PHONO JACK ADAPTER, VIDEO/DAT		
J5		E13-0445-05	PHONO JACK BS, LD/AUX		
J6		E13-0313-05	PHONO JACK PLAY, BS, LD/AUX		
J7		E13-0297-05	PHONO JACK MONITOR, REC		
CP1		R90-0490-05	MULTI-COMP		220KX2 J 1/6W
R160 ,161		RS14KB3A560J	FL-PROOF RS 56		J 1W
R219		R014GB2ESR6J	FL-PROOF RD 5.6		J 1/4W
S1 ,2		S31-2094-05	SLIDE SWITCH CENTER SP/REAR SP		
S3		S31-2322-05	SLIDE SWITCH VOLTAGE SELECTOR		
D1 ,2		HZS11N(B2)	ZENER DIODE		
D1 ,2		R011ES(B2)	ZENER DIODE		
D3		HZS4-7N(B)	ZENER DIODE		
D3		R04-7ES(B)	ZENER DIODE		
D5 -12		HSS104	DIODE		
D5 -12		1SS133	DIODE		
D13 ,14		HZS4-7N(B)	ZENER DIODE		
D13 ,14		R04-7ES(B)	ZENER DIODE		
D15 -16		HSS104	DIODE		
D15 -16		1SS133	DIODE		

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PARTS LIST

NO. 8

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Ref. No. 参照番号	Address 位置	Parts No. 部品番号	Description 部品名 / 規格	Re- marks 備考
E01		10-BT-86GK	FLUORESCENT INDICATOR TUBE	
IC1		CXP50112-342Q	IC (DUAL COMPALATOR)	
IC2		BA10393	IC	
IC3		UM4580D-D	IC (MOTOR CONTROL)	
IC4		T84809S	IC	
IC5		UM4580D-D	IC	
Q1 -6		2SC1740S(Q,R)	TRANSISTOR	
Q1 -6		2SC3311A(Q,R)	TRANSISTOR	
Q7		2SC2003(L,R)	TRANSISTOR	
Q8 ,9		2SC1740S(Q,R)	TRANSISTOR	
Q8 ,9		2SC3311A(Q,R)	TRANSISTOR	
Q10		2SA1309A(Q,R)	TRANSISTOR	
Q10		2SA933S(Q,R)	TRANSISTOR	
A1		W02-0776-05	ELECTRIC CIRCUIT MODULE	
A1		W02-1046-05	ELECTRIC CIRCUIT MODULE	
SIGNAL PROCESSOR UNIT (X32-2030-00)				
C1		CE04KWJ331M	ELECTRO 330UF	
C5		CE04KWJH010M	ELECTRO 1.0UF	
C12		CK45F1H472Z	CERAMIC 4700PF	
C15 ,16		CE04KW1V100M	ELECTRO 10UF	
C17 ,18		CE04KW1E470M	ELECTRO 47UF	
C19 -22		CE04KW1V100M	ELECTRO 10UF	
C25 ,26		CE04KW1V100M	ELECTRO 10UF	
C27 -30		C992FM1H272J	MYLAR 2700PF	
C31 ,32		C992FM1H512J	MYLAR 5100PF	
C35 ,36		CF92FV1H104J	MF 0.10UF	
C37		CE04KW1A101M	ELECTRO 100UF	
C38		CE04KW1V4R7M	ELECTRO 4.7UF	
C39		CE04KW1C470M	ELECTRO 47UF	
C40		CE04KW1HR33M	ELECTRO 0.33UF	
C41		CF92FV1H104J	MF 0.10UF	
C42		CF92FV1H333J	MF 0.033UF	
C43		CE04KW1H010M	ELECTRO 1.0UF	
C44		CF92FV1H272J	MF 0.027UF	
C45		CE04KW1H472J	MYLAR 4700PF	
C46		CE04KW1C220M	ELECTRO 22UF	
C47		CE04KW1C101M	ELECTRO 100UF	
C48		C992FM1H822J	MYLAR 8200PF	
C49		CE04KW1V100M	ELECTRO 10UF	
C51		CE04KW1V4R7M	ELECTRO 4.7UF	
C52		CE04KW1V100M	ELECTRO 10UF	
C53 -56		C992FM1H272J	MYLAR 2700PF	
C57 ,58		C992FM1H512J	MYLAR 5100PF	
C61 ,62		CE04KW1E470M	ELECTRO 47UF	
C63 ,64		CE04KW1H010M	ELECTRO 1.0UF	
C65 ,66		CC45FSL1H101J	CERAMIC 100PF	
C67 -70		CE04KW1E470M	ELECTRO 47UF	
C71		CK45F1H102K	CERAMIC 1000PF	
C73 -76		C992FM1H104J	MYLAR 0.010UF	
C77		CF92FV1H104J	MF 0.10UF	
C78		CE04KW1V100M	ELECTRO 10UF	
C79		CF92FV1H104J	MF 0.10UF	
C80		CE04KW1V100M	ELECTRO 10UF	
C81 -86		CF92FV1H104J	MF 0.10UF	

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NO. 7

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Ref. No. 参照番号	Address 位置	Parts No. 部品番号	Description 部品名 / 規格	Re- marks 備考
C66 ,67		CE04KW1V100M	ELECTRO 10UF	
C68 ,69		CE04KW1E470M	ELECTRO 47UF	
C70		C91-0789-05	CERAMIC 0.01UF	
C71 ,72		CE04KWJ221M	ELECTRO 220UF	
△ J2 ,3		E03-0108-05	AC OUTLET	
J6		E11-0206-05	PHONE JACK	
△ J7 ,8		E03-0109-05	AC OUTLET	
J9		E08-0311-05	RECTANGULAR RECEPTACLE SYSTEM	
△ F1		E08-0312-05	RECTANGULAR RECEPTACLE SYSTEM	
△ F2		F05-4025-05	FUSE (SEMKO) (250V T4A)	
△ F3		F06-2021-05	FUSE (SEMKO) (250V T2A)	
△ F4		F05-2525-05	FUSE (SEMKO) (250V T2.5A)	
△ F4		F05-3121-05	FUSE (SEMKO) (250V T3.15A)	
-		J19-3433-03	HOLDER	
CN11-14		J13-0075-05	FUSE CLIP	
CN11,12		J13-0075-05	FUSE CLIP	
CN15-18		J13-0075-05	FUSE CLIP	
CN17,18		J13-0075-05	FUSE CLIP	
X1		L78-0267-05	RESONATOR	
CP1		R90-0816-05	MULTIPLE RESISTOR	
CP2 ,3		R90-0850-05	MULTIPLE RESISTOR	
R121,122		R014GB2E121J	FL-PROOF RD 120	
R127,128		R014GB2E100J	FL-PROOF RD 10	
R145,146		R014GB2E121J	FL-PROOF RD 120	
VR1		R29-5057-05	POTENTIOMETER MASTER VOLUME	
VR2 ,3		R06-5183-05	POTENTIOMETER BASS TREBLE	
VR4		R05-5037-05	POTENTIOMETER BALANCE	
VHS		R10-5042-05	POTENTIOMETER MIC MIXING	
K1		S76-0009-05	MAGNETIC RELAY	
S1 -36		S40-1064-05	PUSH SWITCH SELECTOR	
D12		HSS104A	DIODE	
D13		LS131	DIODE	
D13 -26		HSS104	DIODE	
D13 -26		LS133	DIODE	
D29		HSS104	DIODE	
D29		LS133	DIODE	
D30		HZ53.3N(82)	ZENER DIODE	
D30		RD3.3ES(82)	ZENER DIODE	
D31		HSS104	DIODE	
D31		LS133	DIODE	
D32		HZ56.8N(82)	ZENER DIODE	
D32		RD6.8ES(82)	ZENER DIODE	
D33		HZ52.7N(82)	ZENER DIODE	
D33		RD2.7ES(82)	ZENER DIODE	
D34		HZ54.7N(82)	ZENER DIODE	
D34		RD4.7ES(82)	ZENER DIODE	
D35		HSS104	DIODE	
D35		LS133	DIODE	
D36		HZ52.7N(82)	ZENER DIODE	
D36		RD2.7ES(82)	ZENER DIODE	
D37 ,38		HSS104	DIODE	
D37 ,38		LS133	DIODE	

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PARTS LIST

NO. 10

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Ref. No. 参照番号	Address 位置	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕
IC16, 17		NJM4558D	IC(OP AMP X2)	
IC18		TC74HC08AP	IC	
IC19, 20		UPD74HC08C	IC(AND GATE)	
IC19, 20		HMS0464RP-12	IC(RAM)	
IC21, 22		LM33464G-12	IC(D RAM)	
IC23		LC7883K	IC(DIGITAL FILTER & D/A CONVER	
IC24		UP078214CW-770	IC	
IC25		LC66516B-4733	IC	
Q1, 2		LC83010N	IC(DIGITAL SIGNAL PROCESSOR)	
Q3		2SD1266	TRANSISTOR	
Q3		DT124ES	DIGITAL TRANSISTOR	
Q4		UN4212	TRANSISTOR	
		2SC1923(R, 0)	TRANSISTOR	

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NO. 9

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Ref. No. 参照番号	Address 位置	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕
C87		CK45FF1H103Z	CERAMIC	
C88		CE04KW1A101M	ELECTR0	
C91		CF92RV1H104J	MF	
C92		CE04KW1V4R7M	ELECTR0	
C93		CK45FF1H102K	CERAMIC	
C95, 96		CE04KW1A101M	ELECTR0	
C97, 98		CF92RV1H104J	MF	
C99, 100		CE04KW1A101M	ELECTR0	
C101, 102		CF92RV1H104J	MF	
C103		CK45FF1H103Z	CERAMIC	
C107		CK45FF1H103Z	CERAMIC	
C108		CE04KW1V100M	ELECTR0	
C109		CE04KW1A101M	ELECTR0	
C110		C91-0769-05	CERAMIC	
C113		CF92RV1H104J	MF	
C114		CE04KW1A101M	ELECTR0	
C115		CF92RV1H104J	MF	
C116		CE04KW1A101M	ELECTR0	
C117, 118		CC45FCH1H220J	CERAMIC	
C119, 120		CK45FF1H103Z	CERAMIC	
C121		CF92RV1H104J	MF	
C122		CE04KW1A101M	ELECTR0	
L1 -15		L40-1001-17	SMALL FIXED INDUCTOR(10UH, K)	
X1		L78-0277-05	RESONATOR	
X2		L78-0244-05	RESONATOR	
X3		L77-1199-05	CRYSTAL RESONATOR	
CP1		R90-0500-05	MULTI-COMP 100KX6	
CP2		R90-0653-05	MULTI-COMP 100KX6	
CP3		R90-0493-05	MULTI-COMP 100KX9	
CP4		R90-0864-05	MULTI-COMP 100KX9	
CP5, 6		R90-0493-05	MULTI-COMP 100KX9	
CP7		R90-0850-05	MULTI-COMP 100KX5	
CP8		R90-0853-05	MULTI-COMP 100KX4	
CP9		R90-0482-05	FL-PROOF RS 33	
R4		RS14KB30330J	FL-PROOF RS 2.2	
R19		RS14KB3A220J	FL-PROOF RS 180	
R139, 140		RS14KB3D181J	FL-PROOF RS 180	
D1		HSS104	DIODE	
D1		LSS133	DIODE	
D3 -10		HSS104	DIODE	
D3 -10		LSS133	DIODE	
IC2		TC9213P	IC(2CH ELECTRONIC VOLUME)	
IC3, 4		NJM45650-D	IC(OP AMP X2)	
IC5		LA2730	IC(DOLBY SYSTEM)	
IC6		NJM45650-D	IC(OP AMP X2)	
IC7, 8		UPC4072C	IC(OP AMP X2)	
IC9		UPC7805HF	IC(VOLTAGE REGULATOR/ +5V)	
IC10		NJM45650-D	IC(OP AMP X2)	
IC11		NJM431L	IC(REGULATOR)	
IC11		TL431CLP	IC	
IC12		UPC7805HF	IC(VOLTAGE REGULATOR/ -5V)	
IC13, 14		UPC7805HF	IC(VOLTAGE REGULATOR/ +5V)	
IC15		CS5339-XP	IC(A/D CONVERTER)	

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SPECIFICATIONS

Rated power output

Front

(IEC/NF) from 63Hz to 12,500Hz, 0.7% T.H.D.

at 8 Ω 70W + 70W

(DIN) 1,000Hz at 8 Ω 70W + 70W

Center

(DIN) 1,000Hz, 0.9% T.H.D. at 8 Ω 15W + 15W

Rear

(DIN) 1,000Hz, 0.9% T.H.D. at 8 Ω 15W + 15W

Total harmonic distortion(1kHz, 8 Ω)..... 0.02% at 35W

Frequency response

CD..... 20Hz~ 70kHz +0dB, -3dB

Signal to noise ratio (IHF - A)

PHONO (MM)..... 75dB for 2.5mV input

CD,TAPE,VIDEO..... 95dB for 200mV input

Signal to noise ratio (DIN weighted at 50mW output)

PHONO (MM)..... 58dB

CD,TAPE,VIDEO..... 59dB

Input sensitivity/Impedance

PHONO(MM)..... 2.5 mV/47k Ω

CD,TAPE, VIDEO..... 200mV/47k Ω

MIC 1.5mV/47k Ω

Tone controls

BASS..... ± 10 dB (at 100Hz)

TREBLE..... ± 10 dB (at 10kHz)

N.B.circuit (-30dB Volume level)..... + 12 dB (at 55Hz)

Output

SUPER WOOFER OUT..... 1.8 V/600 Ω

General

Power consumption..... 220 W

Dimensions..... W: 360 mm

H: 129 mm

D: 380 mm

Weight (net)..... 9.3 kg

AC outlets(switched) 2 (Total 200W max)

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 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.

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KENWOOD LINEAR S.p.A.

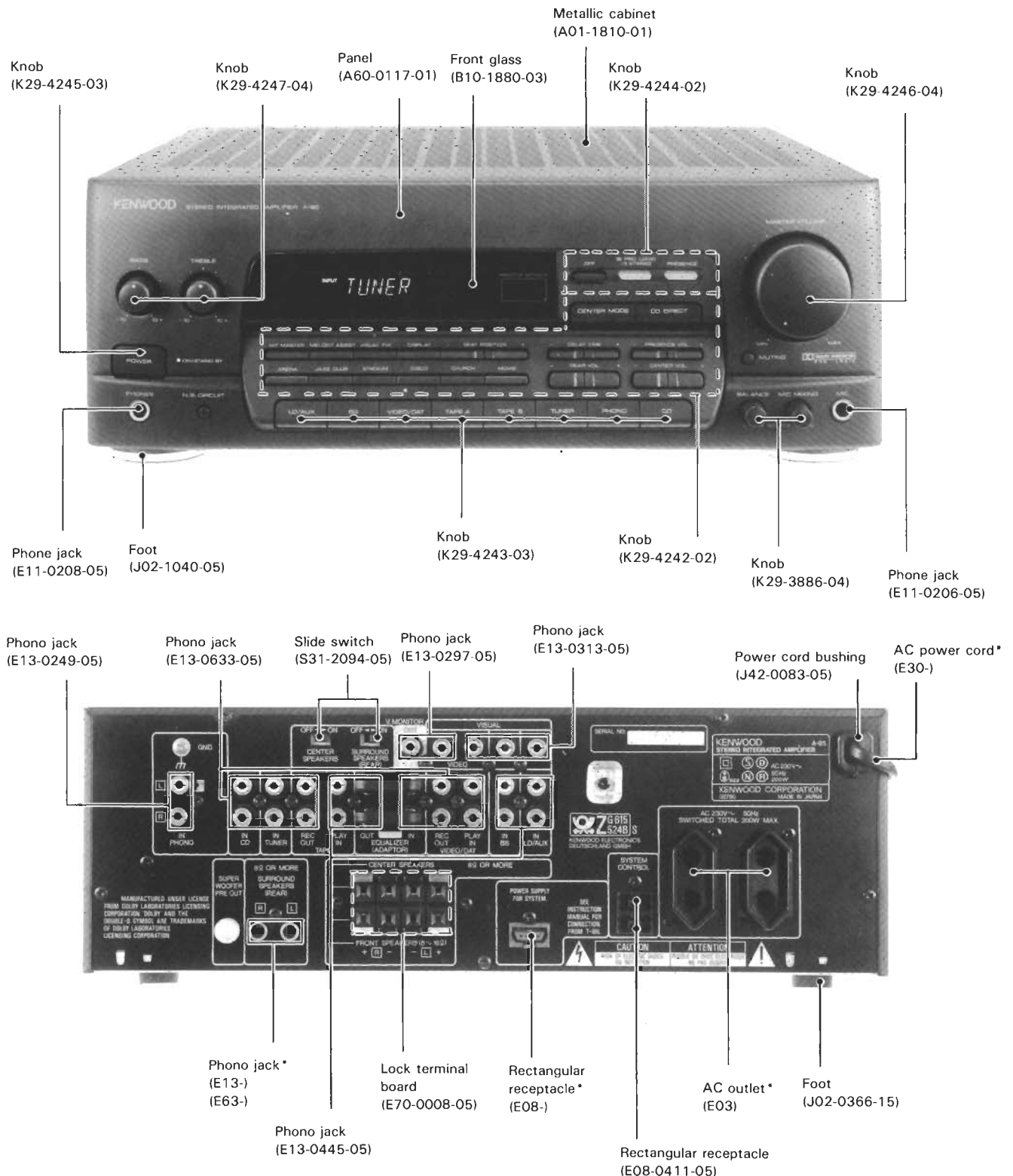
20125, MILANO-VIA ARBE, 50, ITALY

KENWOOD ELECTRONICS AUSTRALIA PTY. LTD. (INCORPORATED IN NSW)

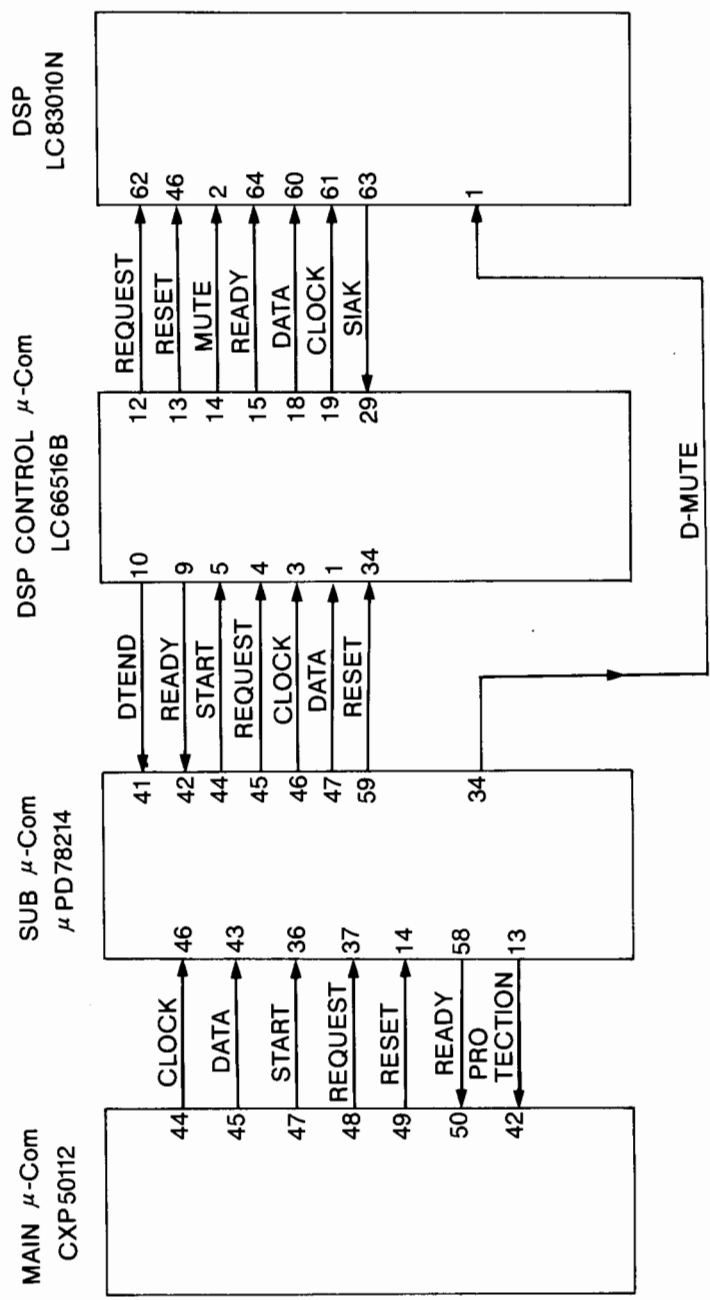
P.O. Box 504, 8 Figtree Drive, Australia Centre, Homebush, N.S.W. 2140, Australia

KENWOOD & LEE ELECTRONICS, LTD.

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

**SERVICE MANUAL
MICROPROCESSOR EDITION**

Micro processor



CIRCUIT DESCRIPTION

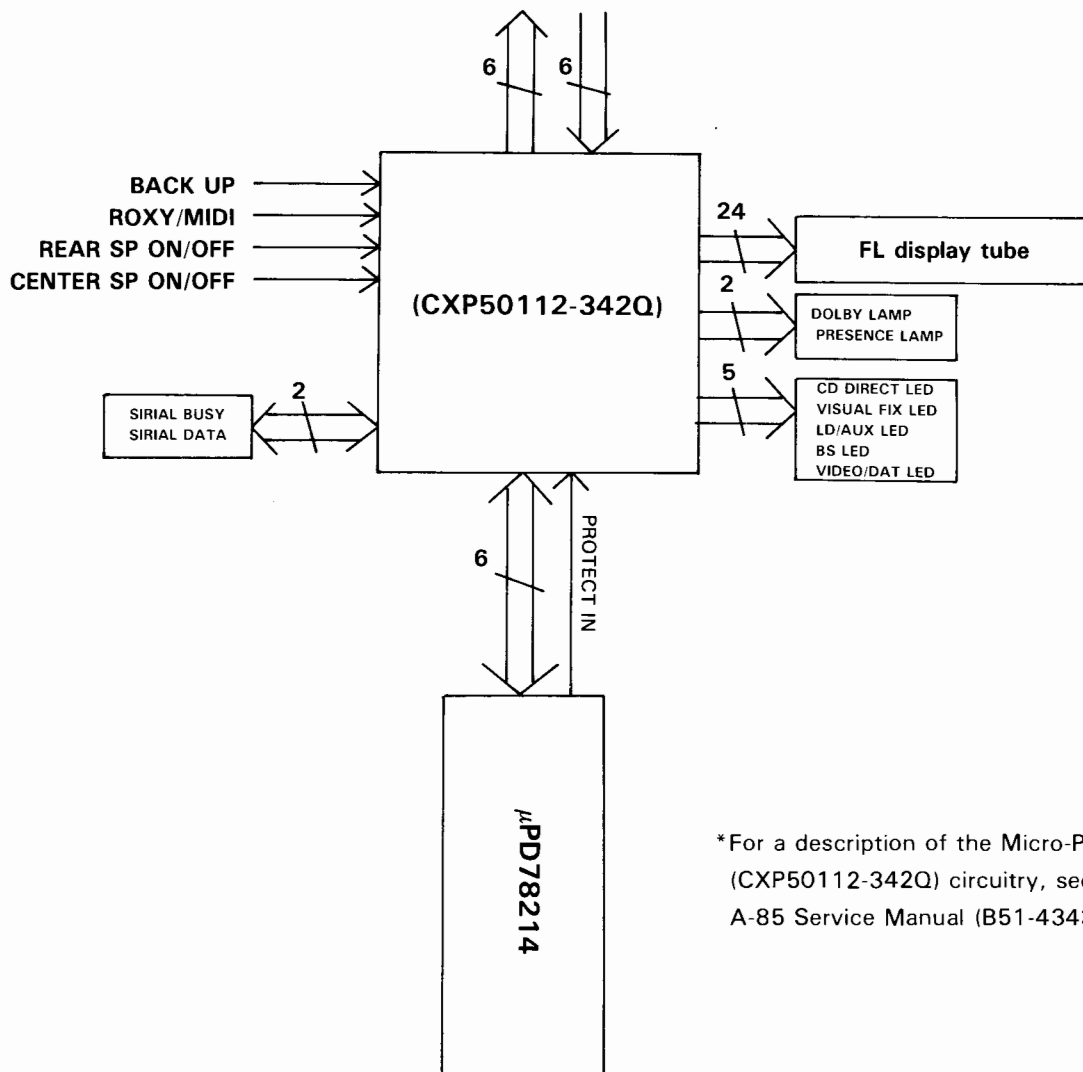
A-85

Microprocessor

Block diagram of microcomputer's peripheral equipment

SCAN 5	OFF	PRESENCE	3STEREO	CD DIRECT	MUTE	CENTER MODE
SCAN 4	HIT MASTER	POWER	MELODY ASSIST	JAZZ CLUB	NB CIRCUIT	ARENA
SCAN 3	DISCO	LD/AUX	VISUAL FIX	STADIUM	BS	DISPLAY
SCAN 2	CHURCH	VIDEO DAT	TAPE A	MOVIE	SEAT-P FRONT	SEAT-P REAR
SCAN 1	DELAY DOWN	TAPE B	TUNER	REAR UP	DELAY UP	REAR DOWN
SCAN 0	PHONO	P-VOL. UP	CENTER UP	CD	P-VOL. DOWN	CENTER DOWN

RETURN 0 RETURN 1 RETURN 2 RETURN 3 RETURN 4 RETURN 5

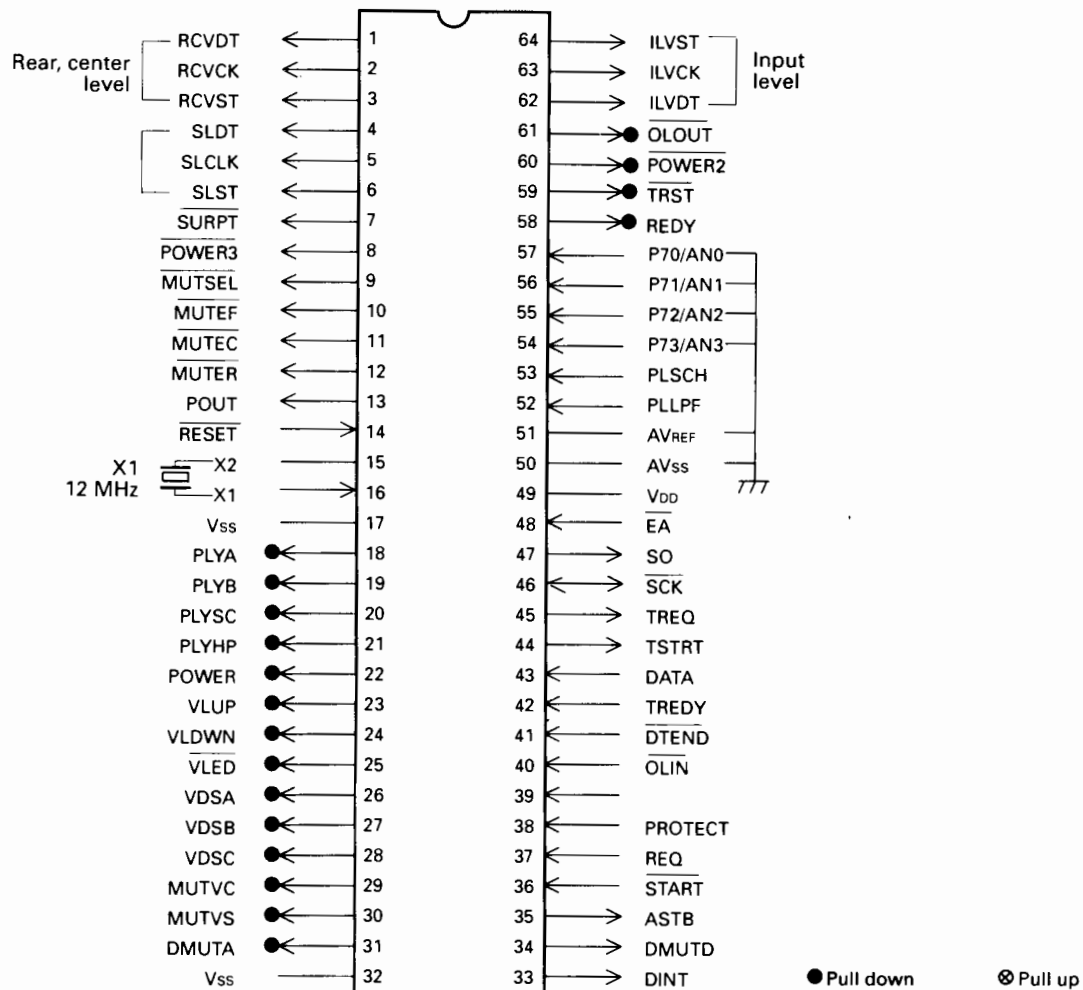


*For a description of the Micro-Processor (CXP50112-342Q) circuitry, see page 6 of the A-85 Service Manual (B51-4343-00).

CIRCUIT DESCRIPTION

System control microprocessor : μ PD78214CW

Terminal connection diagram



Pin function

Pin No.	Pin name	I/O	Name	Description
1	P03	O	RCVDT	Rear, center electric volume
2	P04	O	RCVCK	TC9213P control pin CK signal
3	P05	O	RCVST	STB signal
4	P06	O	SLDT	Switch array IC DATA signal
5	P07	O	SLCLK	TC9162N, 9163N CK signal
6	P67	O	SLST	TC9164N control pin ST signal
7	P66	O	SURPT	Surround (DSP IC) oscillate control H: Stop L: Oscillate
8	P65	O	POWER3	Port used to synchronize with the timing of the power up of the D/A converter
9	P64	O	MUTSEL	Selector mute pin H: MUTE OFF L: MUTE ON
10	P63	O	MUTEF	Front signal mute pin H: MUTE OFF L: MUTE ON
11	P62	O	MUTECL	Center signal mute pin H: MUTE OFF L: MUTE ON
12	P61	O	MUTER	Rear signal mute pin H: MUTE OFF L: MUTE ON
13	P60	O	POUT	Pin that notifies the main μ -com of protection detection
14	RESET	I		Reset pin

CIRCUIT DESCRIPTION

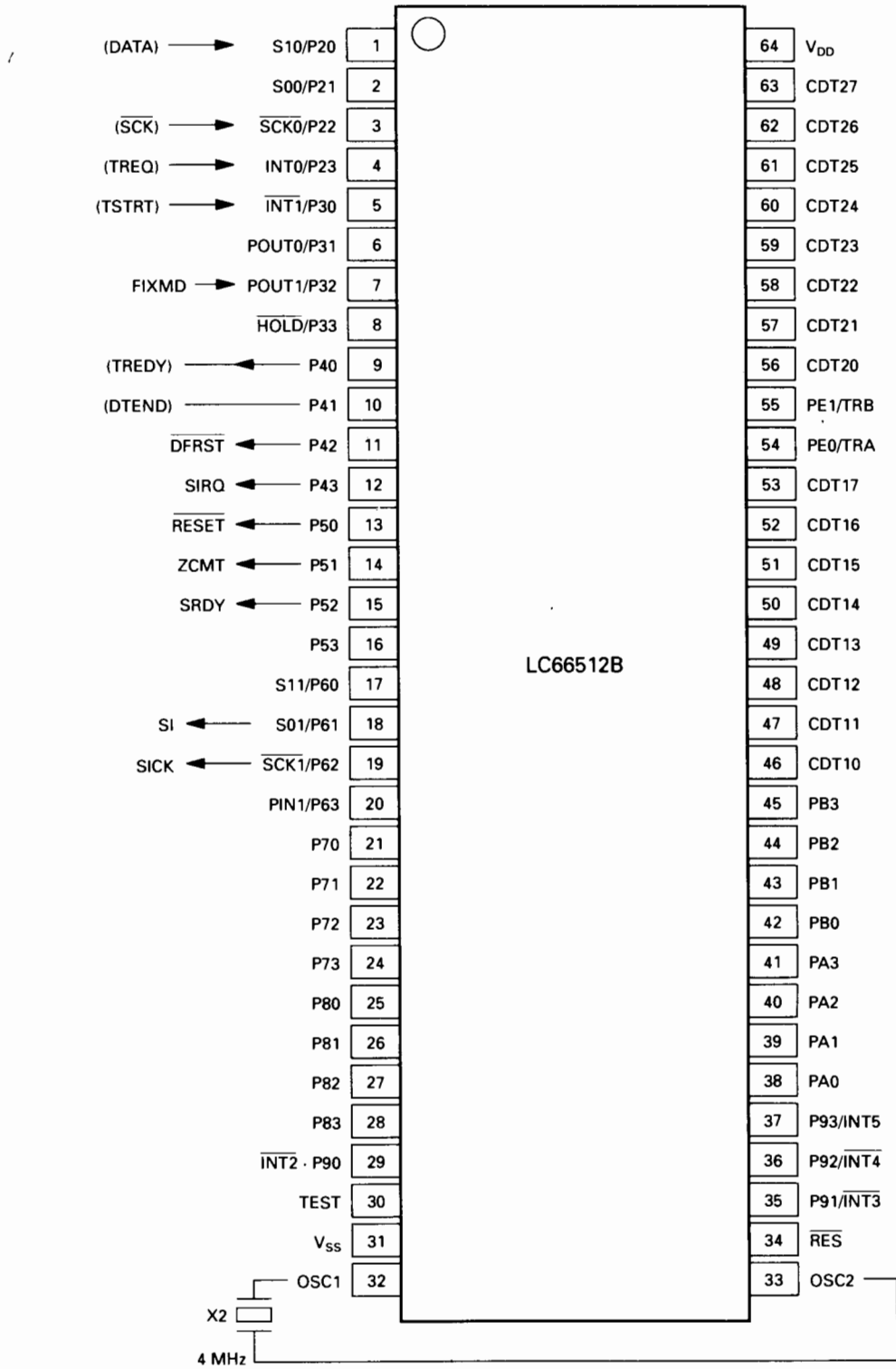
A-85

Pin function

Pin No.	Pin name	I/O	Name	Description
15	X2			System clock oscillator connect pin
16	X1 /	I		
17	V _{SS}	O		Gnd
18	P57	O	RLYA	Speaker A relay control pin L: Power OFF H: Power ON
19	P56	O	RLYB	Speaker B relay control pin L: Power OFF H: Power ON
20	P55	O	RLYSC	Speaker (SURROUND CENTER) relay control pin L: Power OFF H: Power ON
21	P54	O	RLYHP	Headphone relay control pin L: Power OFF H: Power ON
22	P53	O	POWER	Powersupply control pin L: POWER OFF H: POWER ON
23	P52	O	VLUP	Master volume UP control pin
24	P51	O	VLDWN	Master volume DOWN control pin
25	P50	O	VLED	Master volume LED control pin L: LED ON H: LED OFF
26	P47	O	VDSA	Video selection control pin
27	P46	O	VDSB	
28	P45	O	VDSC	
29	P44	O	MUTVC	
30	P43	O	MUTVS	S ch video mute control pin MUTE is OFF only entered the VIDEO 3 mode
31	P42	O	DMUTA	DSP analog mute control pin SURROUND ON: MUTE OFF SURROUND OFF: MUTE ON When switched : MUTE ON
32	V _{SS}			Gnd
33	P41	O	DINT	No used
34	P40	O	DMUTD	DSP digital mute control pin
35	ASTB			No used
36	P20/NMI	I	START	START signal input pin for communicating to main μ -com
37	P21	I	REQ	REQ signal input pin for communicating to main μ -com
38	P22	I	PROTECT	Protection signal detection pin
39	P23			No used
40	P24	I	OLIN	Over level signal detection pin
41	P25	I	DTEND	DTEND signal input pin for communicating to DSP IC control μ -com
42	P26	I	TREDY	TREDY signal input pin for communicating to DSP IC control μ -com
43	P27/SI	I	DATA	DATA signal input SI port of communicating to main μ -com
44	P30	O	TSTRT	START signal output pin for communicating to DSP IC control μ -com
45	P31	O	TREQ	REQ signal output pin for communicating to DSP IC control μ -com
46	P32/SCK	I/O	SCK	SCK I/O pin for communicating to main μ -com and DSP IC control μ -com
47	P33/SO	O	SO	SO signal output pin for communicating to DSP IC control μ -com
48	EA			No used
49	V _{DD}			Power supply pin
50,51	AV _{SS} , AV _{REF}			No used
52 ~57	P75 ~ P70	I		No used
58	P34	O	REDY	REDY signal output pin for communicating to main μ -com
59	P35	O	TRST	DSP IC control μ -com reset pin
60	P36	O	POWER2	Port used to synchronize with the timing of the power up of the D/A converter
61	P37	O	OLOUT	Over level output pin L: FL light H: FL not light
62	P00	O	ILVDT	Input level electric volume DATA signal
63	P01	O	ILVCK	CK signal
64	P02	O	ILVST	ST signal

CIRCUIT DESCRIPTION

DSP μ -Com: LC66516B



CIRCUIT DESCRIPTION

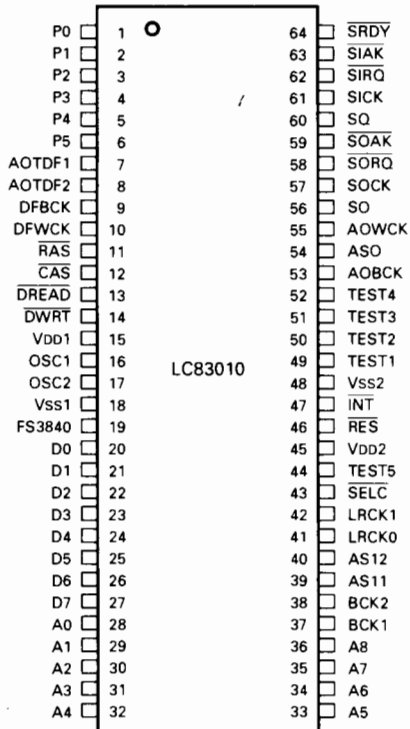
Pin function

Pin No.	Pin name	I/O	Name	Description
1	SI0/P20	I	DATA	DATA signal input pin from system control μ -com
2	SO0			No used
3	$\overline{\text{SCK}}$ /P22	I	$\overline{\text{SCK}}$	Clock signal input pin from system control μ -com
4	INT0/P23	I	TREQ	TREQ signal input pin from system control μ -com
5	INT1/P30	I	TSTRT	TSTRT signal input pin from system control μ -com
6	Pout0/P31	I		No used
7	Pout1/P32	I	FIXMD	Fixation terminal mode setting pin. Low: Normal mode High: Fixation terminal mode
8	$\overline{\text{HOLD}}$ /P33	I	TSTRT	HOLD mode control input
9	P40	O	TREDY	TREDY signal output pin to system control μ -com
10	P41	O	DTEND	At mode change (command 0 ~ 2) and during clear the DRAM, transfer the data to DSP IC.
11	P42	O	$\overline{\text{DFRST}}$	Digital filter reset signal output pin (Normally High)
12	P43	O	SIRQ	DSP IC LC83010 SIRQ signal output pin
13	P50	O	$\overline{\text{RES}}$	DSP IC LC83010 Reset signal output pin (Normally High)
14	P51	O	ZCMT	Zero cross mute control signal output pin
15	P52	O	SRDY	DSP IC LC83010 SRDY signal output pin
16, 17	P53, SU/P06			No used
18	SO1/P61	O	SI	DSP IC LC83010 SI signal output pin
19	$\overline{\text{SCK1}}$ /P62	O	SICK	DSP IC LC83010 SICK signal output pin
20 ~ 28	PIN1/P63 P70 ~ P73 P80 ~ P83	O		No used
29	$\overline{\text{INT2}}$ /P90			DSP IC LC83010 SIAK signal input pin
30	TEST			CPU test pin. Connected to V _{ss} .
31	V _{ss}			GND pin
32	OSC1	I		System clock oscillator pin
33	OSC2	O		System clock oscillator pin
34	$\overline{\text{RES}}$	I		System reset signal input pin
35 ~ 37	P91 ~ 93 $\overline{\text{INT3}}$ ~ $\overline{\text{INT5}}$			No used
38 ~ 45	PA0 ~ PA3 PB0 ~ PB3	I I		No used
46 ~ 53	PC0	I	CDT10 ~ 17	Correspond to bit 0 ~ 7 of data address 1 of command data in the fixed pin mode.
54	PE0/TRA	I		Correspond to 2 low-order bits of command data in the fixed pin mode. The fixed pin mode can be set to 00, 01, 02 or 03.
55	PE1/TRB	I		
56 ~ 63	P35	I	CDT20 ~ 27	Corresponds to bit 0 ~ 7 of data address 2 of command data in the fixed pin mode.
64	V _{DD}			Power supply

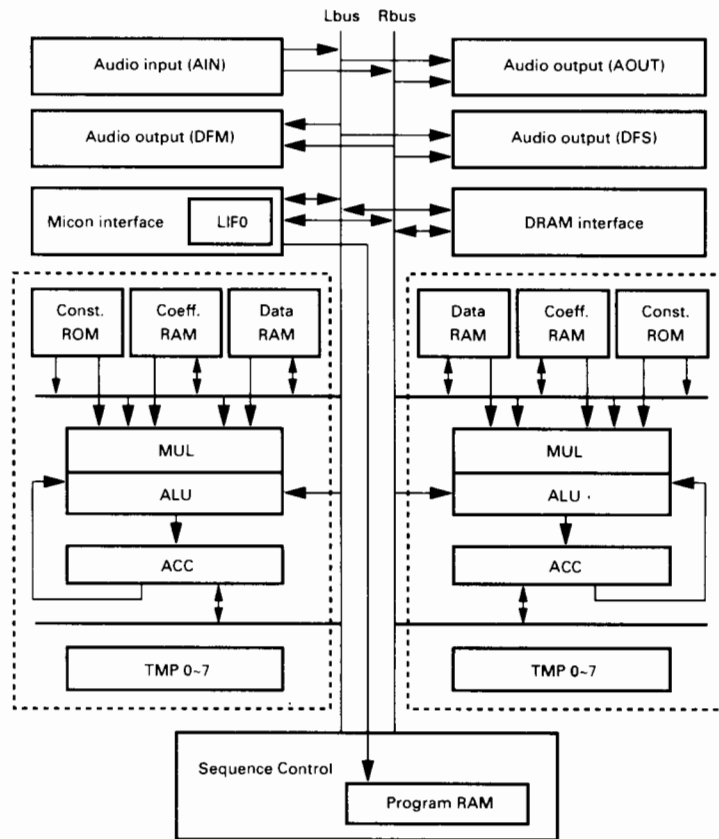
CIRCUIT DESCRIPTION

DSP IC : LC83010

Pin connection



Block diagram



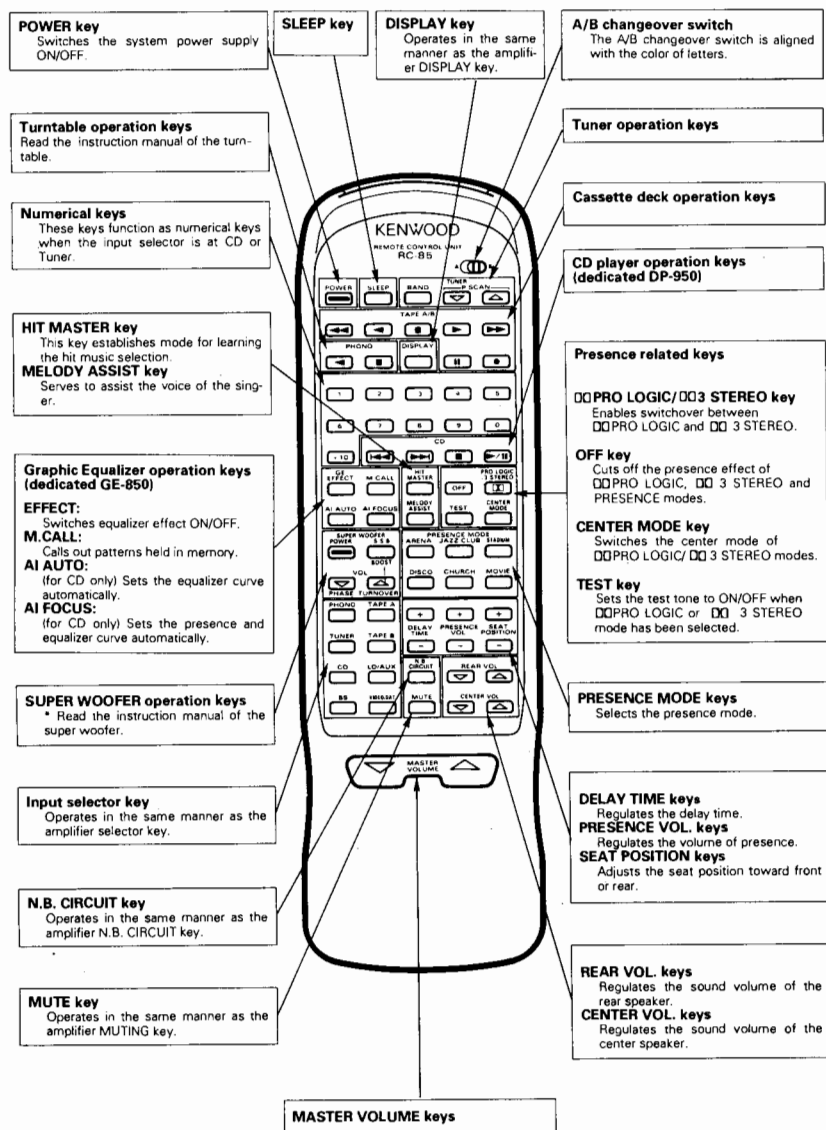
CIRCUIT DESCRIPTION

Pin function

Pin No.	Pin name	I/O	Description	
1	P0	I	Digital mute - High: mute; Low: unmute during DSP program	
2	P1	I	Soft muting - High during DSP program: Soft mute with time constant of 1 ms; Low: Unmute	
3	P2	O	Overflow detection If the input data from the A/D converter becomes the maximum positive or negative value a low signal is output, held for 100 ms, and goes high.	
4	P3	I	Phase shifter control The phase shifter is turned on and off during 3-channel sound field program. Low: on; High, off. Always used with "LOW".	
5	P4	I	Direct sound add control Control whether direct sound is added in the DSP during sound field program. High: Add; Low: Do not add. Always used with "LOW".	
6	P5	I/O	General input/output port No used (open)	
7	AOTDF2	O	Audio data output 1 C ch and S ch data is output during Dolby pro logic and 4-ch sound field. If 3 stereo and 3-CH are set, only C ch data is output.	
8	AOTDF2	O	Audio data output 2 Decoded L/R data is output for Dolby. The L/R sound field signal is output for sound field.	
9	DFBCK	O	Bit clock for AOTDF 1 and 2 48 fs bit clock is output.	
10	DFWCK	O	Word clock for AOTDF 1 and 2 No used	
11	RAS	O	For row address strobe DRAM access control	
12	CAS	O	For column address strobe DRAM access control	
13	DREAD	O	DRAM read control signal	
14	DWRT	O	DRAM write control signal	
15, 45	VDD1, 2	I	Power supply pin	
18, 48	VSS1, 2		GND pin	
16	OSC1	I	Crystal oscillator pin	
17	OSC2	O	Crystal oscillator pin	
19	FS3840	O	384fs output pin	
20 ~ 27	D0 ~ D7	I/O	DRAM data I/O pin	
28 ~ 36	A0 ~ A8	O	DRAM address output pin (A8 is no used)	
37	BCK1	I	No used	
38	BCK2	O	Bit clock output pin 32fs bit clock output for A/D	
39	ASI1	I	No used	
40	ASI2	I	Audio data input pin 2 Data input from A/D	
41	LRCKO	O	L/R clock output pin	
42	LRCKI	I	No used	
43	SELC	I	Self oscillation and external clock input switching	
44	TEST 5	O	Test pin Used by open	
46	RES	I	Reset pin	
47	INT	I	No used	
49 ~ 52	TEST 1 ~ 4	I	Test pin Connected to GND	
53	AOBCK	O	No used	
54	ASO	O	Audio data output (overflow detection) Used by the the KR-V9030 to detect overflow for Dolby.	
55 ~ 59	A0WCK etc.		No used	
60	SI	I	Serial data input from μ-com	DSP ↔ μ-com interface
61	SICK	I	Serial clock input of SI input	
62	SIRQ	I	SI request signal input	
63	SI AK	O	Output signal to indicate that the SI serial communication is executing	
64	SRDY	I	Input signal to indicate that the mail box communication is finished	

REMOTE CONTROLLER

The illustration for the Remote Controller depicted in the A-85 Service Manual (B51-4343-00) is NOT correct. Use the illustration shown below in it's place. The part numbers however, are the same.



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550 Clark Drive, Mount Olive, NJ 07828, U.S.A.

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TRIO-KENWOOD U.K. LIMITED

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

KENWOOD ELECTRONICS BENELUX N.V.

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KENWOOD & LEE ELECTRONICS, LTD

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

SERVICE TECHNICAL REPORT

KENWOOD
KENWOOD CORPORATION

☒ Home ☐ Car ☐ A.R. ☐ LMR/Marine

NO. E 1 1 - 9 1 - 0 0 9 1/

MODEL	A - 8 5	DATE	September 2nd, 1991
SUBJECT No output with the Dolby surround switch or DSP presence switch ON/OFF			
CONTENTS	REFERENCE: B 1 1 - 9 1 - 0 1 1		

[Symptom] If the dolby surround switch or the DSP presence switch is turned ON, OFF, then ON again, no sound is sometimes output.

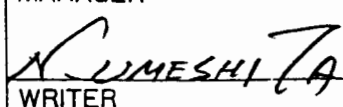
[Cause] SIAK (communication flag) of the DSP control μ -com (LC66516B) and DSP IC (LC83010N) interface is unstable when the DSP presence is turn ON and OFF. Consequently, DSP IC CLK ON $\leftrightarrow$ OFF switching becomes unstable.

[Countermeasure] To stabilize SIAK, retain the ON state of DSP IC CLK that currently changes from ON to OFF.

In other words, cut X32-2030-XX B/2 W155.

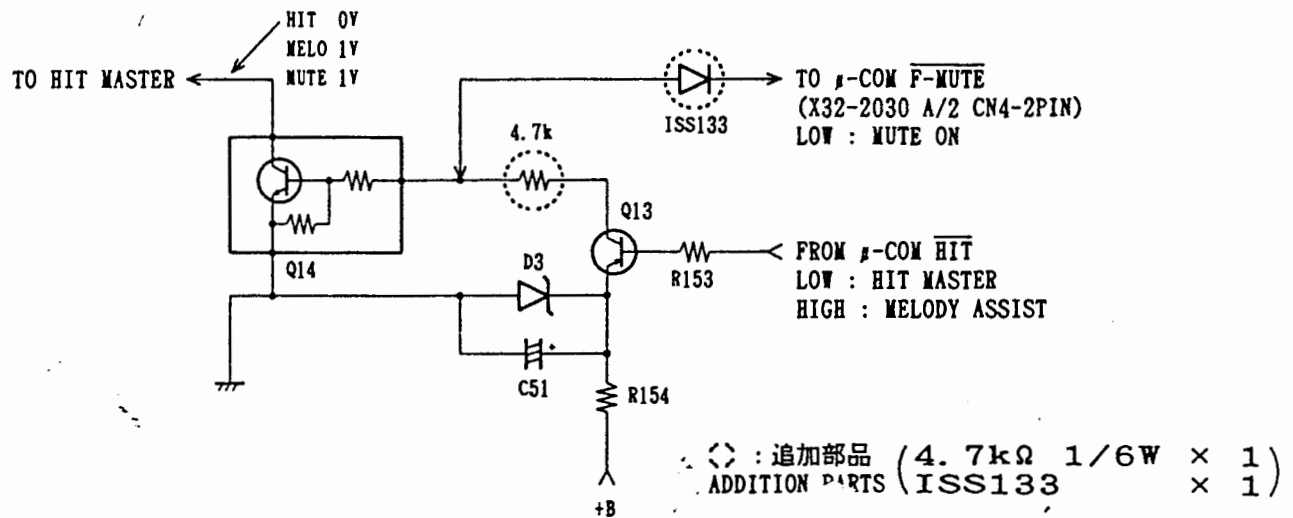
The above counter measure is already done in the latter sets of the August production lot. Countermeasure-applied sets are indicated by "1" stamped on the carton box. As a permanent countermeasure, the DSP control microcomputer will be modified. .

※ Parts stock: YES, NO, Delivery:

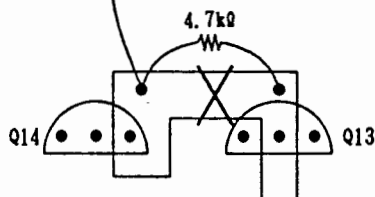
Remarks	Prod. change		S/N 109 xxxxx	
	Application ☐ All repair units ☒ Defectives only ☐			
	Parts included ☒ No ☐ Yes ☐ Mail			
	Service code A: 02 B: X32-2030 C: W155 D: 91			
Distribution	☒ U.S.A. (3ヶ所) ☒ U.K. ☒ ショールーム ☒ CANADA ☒ ITALY ☒ 相談室 ☒ GERMANY ☒ AUSTRALIA ☐ 部品S ☒ BELGIUM ☒ SINGAPORE ☐ 教育担当	☒ 第3課 ☒ 営業管理S ☐ 通、営業課 ☐	MANAGER  WRITER	
	サービス管理S	市場品質S		

[Circuit change]

X08-2470 A/3

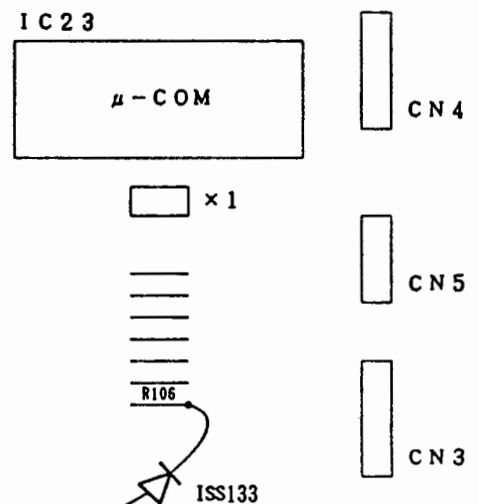


<X08 A/3>



- ① Cut the pattern connecting between Q13's collector and Q14's base, and connect them via 4.7 kΩ.
- ② Draw a thin lead from Q14's base and connect it via a diode to R106 of side near CN3 in upper part board (X32- A/2).

<X32 A/2>



SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

1/1

STR No. E11-92-006

REFERENCE. B11-92-006

☒ HOME ☐ GENERAL

MODEL : A-85

DATE. May 19, 1992

SUBJECT:

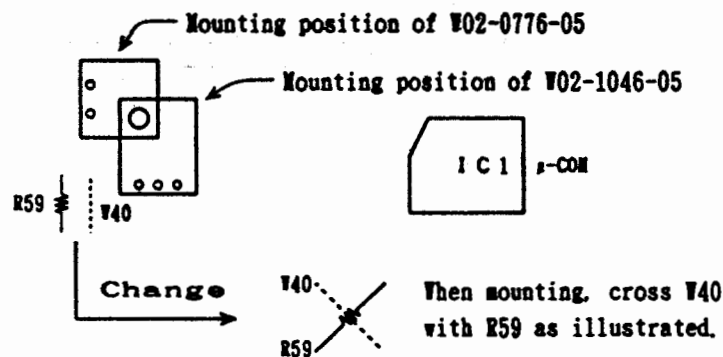
Choice of the remote control sensor

[Symptom] Either W02-0766-05 or W02-1046-05 is designated to be used for the remote control sensor (A1) of the A-85. But it was found that the remote controller does not work with W02-0766-05.

[Cause] The remote sensor W02-0766-05 has two terminals and the W02-1046-05 has three terminals. The patterns and silkscreens printed on the two sensors are such that the sensors are soldered 90° rotated about the light receiving hole relative to each other. No problem is caused by using W02-1046-05 since it is an original part. But the pattern for W02-0766-05 is incorrect; +B and out put are opposite.

[Countermeasure] Use W02-1046-05.

If it is unavailable by any means, change the pattern.



Parts included ☐ No ☐ Yes ☐ Mail

Service code

Parts stock ☒ Yes ☐ No ☐ Delivery ☐ Charge ☐ Free of charge

A(S) : 55 B : X11-315x

Prod. change Lot S/No.

C(P) : J70 D(C) : 91

Application ☐ All repair units ☒ Defectives only ☐

MANAGER

K. Nagashima

Distribution ☒ サービス部(相談室, 部品S, 教育S, テクニカルS) ☐ ショールーム
☒ IMD(第3課, 営業管理S, 通商, 計測)
☒ K-U.S.A. ☒ TK-P ☒ K-LEE ☒ General Market
☒ K-CANADA ☒ TK-U.K. ☒ K-PANAMA
☒ K-GmbH ☒ K-LINEAR ☒ K-S'pore
☒ K-N.V. ☒ K-AUST ☒ K-SPAIN

WRITER

K. Kato

SERVICE TECHNICAL REPORT

KENWOOD

KENWOOD CORPORATION

1/1

STR No. E11-92-007

REFERENCE. B11-92-008

☒ HOME ☐ GENERAL

MODEL : A-85

DATE. July 1st, 1992

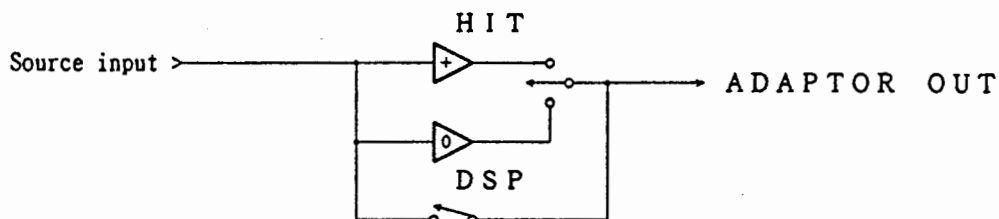
SUBJECT: Noise generated with activation
of AI AUTO when HIT MASTER is ON

[Symptom] When AI AUTO is activated in the GE-850 while the HIT MASTER is ON in the A-85, slight noise is heard only during CD sampling although MUTE is active.

[Cause] Usually, one of the HIT MASTER, DSP presence, and BYPASS modes is selected via the corresponding key switch. During AI AUTO sampling, however, we have found that the BYPASS switch is forced ON in HIT MASTER and DSP modes also.

As a result, there are two signal paths: (1) BYPASS and HIT MASTER, and (2) BYPASS and DSP.

DSP does not have a gain in itself, so it does not matter. However, the HIT MASTER circuit does have a gain, so that the two signal paths ~~from~~ form a loop, generating oscillation. The level of this oscillation is so high that it cannot completely be suppressed by MUTE and the unsuppressed sound is heard as noise.



[Countermeasure] The HIT MASTER circuit is shared by MERODY ASSIST. HIT MASTER has a gain, but MERODY ASSIST does not. For this reason, only during AI AUTO sampling using the MUTE signal, MERODY ASSIST is selected by force whether the A-85 is in either mode.

Parts included ☒ No ☐ Yes ☐ Mail		Service code	
Parts stock ☒ Yes ☐ No Delivery M D ☐ Charge ☐ Free of charge		A(S) : 09 B : X08-2470	
Prod. change Lot S/No.		C(P) : ADDR D(C) : 91	
Application ☐ All repair units ☒ Defectives only ☐		MANAGER	
Distribution ☒ サービス部(相談室, 部品S, 教育S, テクニカルS) ☒ ショールーム ☒ IMD(第3課, 営業管理S, 通信, 計測)		T. Kumagai	
☒ K-U.S.A. ☒ TK-F ☒ K-LEE ☒ General Market ☒ K-CANADA ☒ TK-U.K. ☒ K-PANAMA ☒ K-GmbH ☒ K-LINEAR ☒ K-S'pore ☒ K-N.V. ☒ K-AUST ☒ K-SPAIN		WRITER	
		X. Kato	