A-711/711L

SPECIFICATIONS

Receiver unit (A-711/L)

Amplifier section

Rated power output

35 watts per channel minimum RMS, both channels driven, at 6 Ω from 40 Hz to 20,000 Hz with no more than 0.09% total harmonic distortion (FTC)

(IEC/NF)	From 63 to 12,500 Hz, 0.7% T.H.D. at 6 Ω	40 W + 40 W
(DIN)	1 kHz, at 6 Ω	43 W + 43 W
(IHF'66)	From 40 to 20 kHz, 0.09% T.H.D. at 6 Ω	39 W + 39 W
(EIAJ)	Maximum useful power output at 6 Ω	50 W + 50 W
Total harmonic distortion		0.09% at rated power 0.04% at 1 kHz, 1/2 rated power
Frequency response		
CD, TUNER, AUX, TAPE		40 Hz ~ 70 kHz, +1.5 dB, −3 dB
Signal to noise ratio (IHF'66)		
DAT INPUT		85 dB
Input sensitivity/Impedance		
DAT INPUT		150 mV/47 kΩ
N.B.circuit (−30 dB VOLUME level)		−20 dB (at 60 Hz)
Output level/Impedance		
SUB WOOFER OUT		1.0 V/3.6 kΩ
Power consumption		200 W (IEC) 1.5 A (for U.S.A. and Canada)
Dimensions		W: 270 mm (10-5/8") H: 120 mm (4-3/4") D: 292 mm (11-1/2")
Weight (Net)		5.4 kg (11.88 lb)

A-711L FM tuner section

Tuning frequency range	87.5 MHz ~ 108 MHz
Usable sensitivity (DIN at 75 Ω)	
MONO	0.8 μV
STEREO	29 μV
Total harmonic distortion (DIN at 1 kHz)	
MONO	0.2% (65.2 dBf input)
STEREO	0.3% (65.2 dBf input)
Signal to noise ratio (DIN weighted at 1 kHz)	
MONO	68 dB (65.2 dBf input)
STEREO	63 dB (65.2 dBf input)
Stereo separation (DIN) 1 kHz	35 dB
Frequency response	30 Hz ~ 15 kHz, +0.5 dB, −3.5 dB

MW tuner section

Tuning frequency range	531 kHz ~ 1,602 kHz
Usable sensitivity	1 mV (300 μV/m)
Signal to noise ratio (at 30% mod. 1 mV input)	50 dB

LW tuner section

Tuning frequency range	153 kHz ~ 281 kHz
Usable sensitivity	25 μV (1,000 μV/m)
Signal to noise ratio (at 30% mod. 1 mV input)	47 dB

A-711 FM tuner section

Tuning frequency range	87.5 MHz ~ 108 MHz
Usable sensitivity (MONO at 75 Ω)	0.95 μV (10.8 dBf)
Total harmonic distortion (at 1 kHz)	
MONO	0.2% (65 dBf input)
STEREO	0.3% (65 dBf input)
Signal to noise ratio (at 1 kHz)	
MONO	76 dB (65 dBf input)
STEREO	70 dB (65 dBf input)
Stereo separation 1 kHz	45 dB
Frequency response	30 Hz ~ 15 kHz, +0.5 dB, −3.5 dB

AM tuner section

Tuning frequency range	
9 kHz step	531 kHz ~ 1,602 kHz
10 kHz step	530 kHz ~ 1,610 kHz
Usable sensitivity	14 μV (500 μV/m)
Signal to noise ratio (at 30% mod. 1 mV input)	50 dB

Note:

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

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

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

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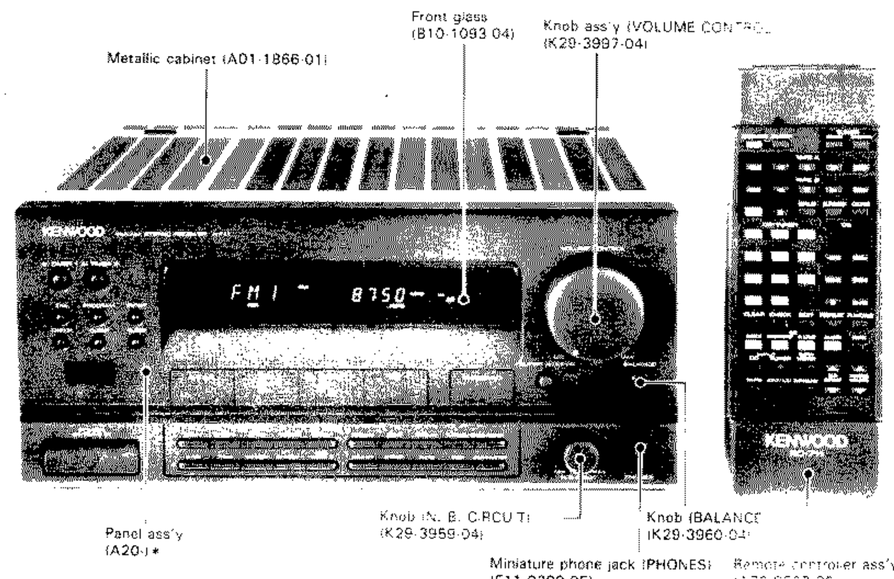
FM/AM STEREO RECEIVER

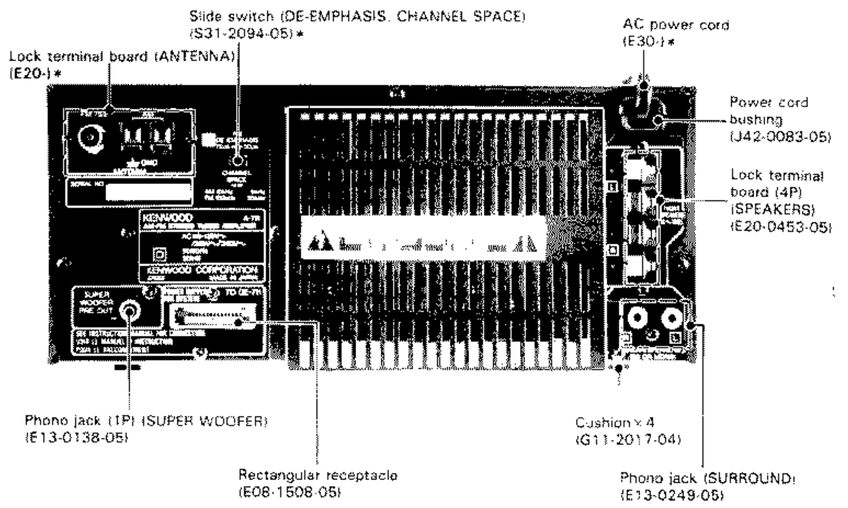
A-711/711L
SERVICE MANUAL

(COMPACT HIFI SYSTEM
UD COMPONENT SYSTEM **UD-7**)

KENWOOD

B51-4166-00(T)3452





[A-711 : K, P, Y, M, X type
A-711L: T, E type]

***Refer to parts list on page 46.**
Photo is A-711.

A-711/711L

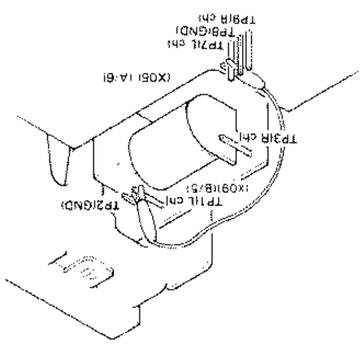
CONTENTS

NOTES REGARDING SERVICES OF THIS UNIT AND FEATURES OF SYSTEM

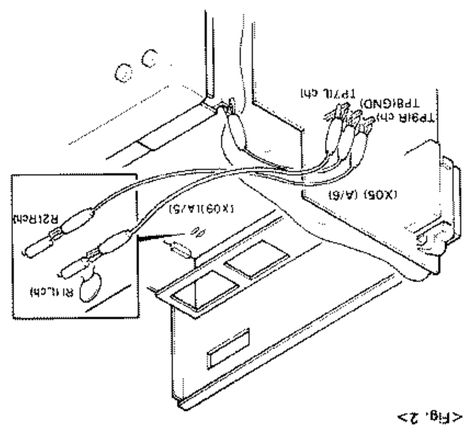
1. Be sure to refer to the instruction manual of UD-7 of this system for the operation.
2. This unit is the receiver that is mounted with tuner and amplifier. However, as INPUT SELECTOR IC is incorporated into the graphic equalizer (GE-711), signal system goes through the graphic equalizer. Therefore, radio waves cannot be received with this unit alone.
   When you listen to radio waves with this unit alone, connection must be made by the following method:
   a) Facilitated connection method, or b) Regular connection method.
   (Instead of tuner output, AG output can also be connected to X09 side)

   a) Facilitated connection method (It can be connected at once after case is opened)
   Connect the output pin TP7(Lch) and TP9(Rch) of the tuner board (X05, A/6) with the test pin TP1(Lch) and TP3(Rch) of main board (X09) (B/5). <Fig. 1> (Output decreases partly because of the relation with input impedance)

   b) Regular connection method (Refer to disassembling method for repair)
   Connect the output pin TP7(Lch) and TP9(Rch) of the tuner board (X05. A/6) which stands against the rear wall with lead wire (for input) of R1(Lch) and R2(Rch) of main board (X09) (A/5) which is installed below the tuner board. With this operation, action of the surround circuit which cannot be checked with procedures of a) for output can be checked. <Fig. 2> (Be sure to connect the GND of tuner board (X05. A/6) for activating the microprocessor normally with GND of chassis this time)
3. The small radiator cover is attached to this unit. Use it to check power transistors and so on by removing it. In addition, the main board can be checked by removing the bottom board after detaching the case from the unit. (For further detail, refer to the disassembly method for repair)
4. As a new function, one pattern of graphic equalizer has become able to be selected and stored into memory at each INPUT SELECTOR. The memory can be conducted by GE microprocessor. The REC level set by CRLS at each INPUT SELECTOR (excluding TAPE) can also be stored into memory. The memory can be conducted by DECK microprocessor.



<Fig. 1>



<Fig. 2>

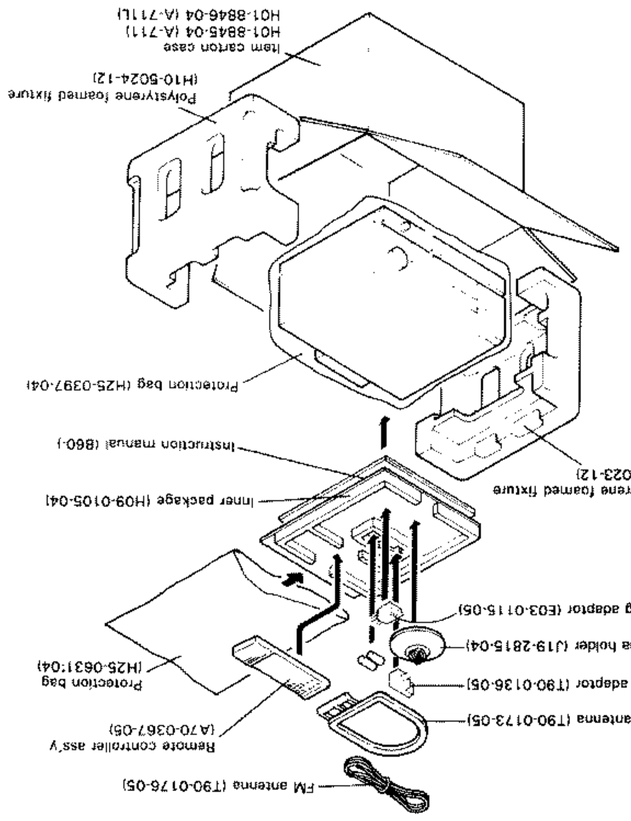
PACKING

- At TIMER1, timer for wake-up, increases its volume every 30 seconds at three stages. Although its main microprocessor is the GE microprocessor, it functions in connection with the tuner and amplifier of unit. (This time, At LOUDNESS of GE is not subject to operation)
- At TIMER2, timer for wake-up, playbacks the first and second track of CD, then receives the radio broadcasting automatically.

5. The A1, sensor for remote-control light receptor, of X05 uses initially W02-1049-05 and uses W02-1048-05 thereafter. They can be installed on printed board even though their shapes and the location of terminals are different from each other.

6. LED for VOLUME (Part number: B30-1284-08)
   It is basically the LED for volume, which serves as one part of master VOL ass'y (R29-5042-05). However, the LED can be easily removed with tweezers after removing the volume thumbscrew when LED malfunctions.

7. Exchange the fuse resistance mounted on the printed board of power-source transformer for a new one after removing the transformer and putting it on the side of the set.

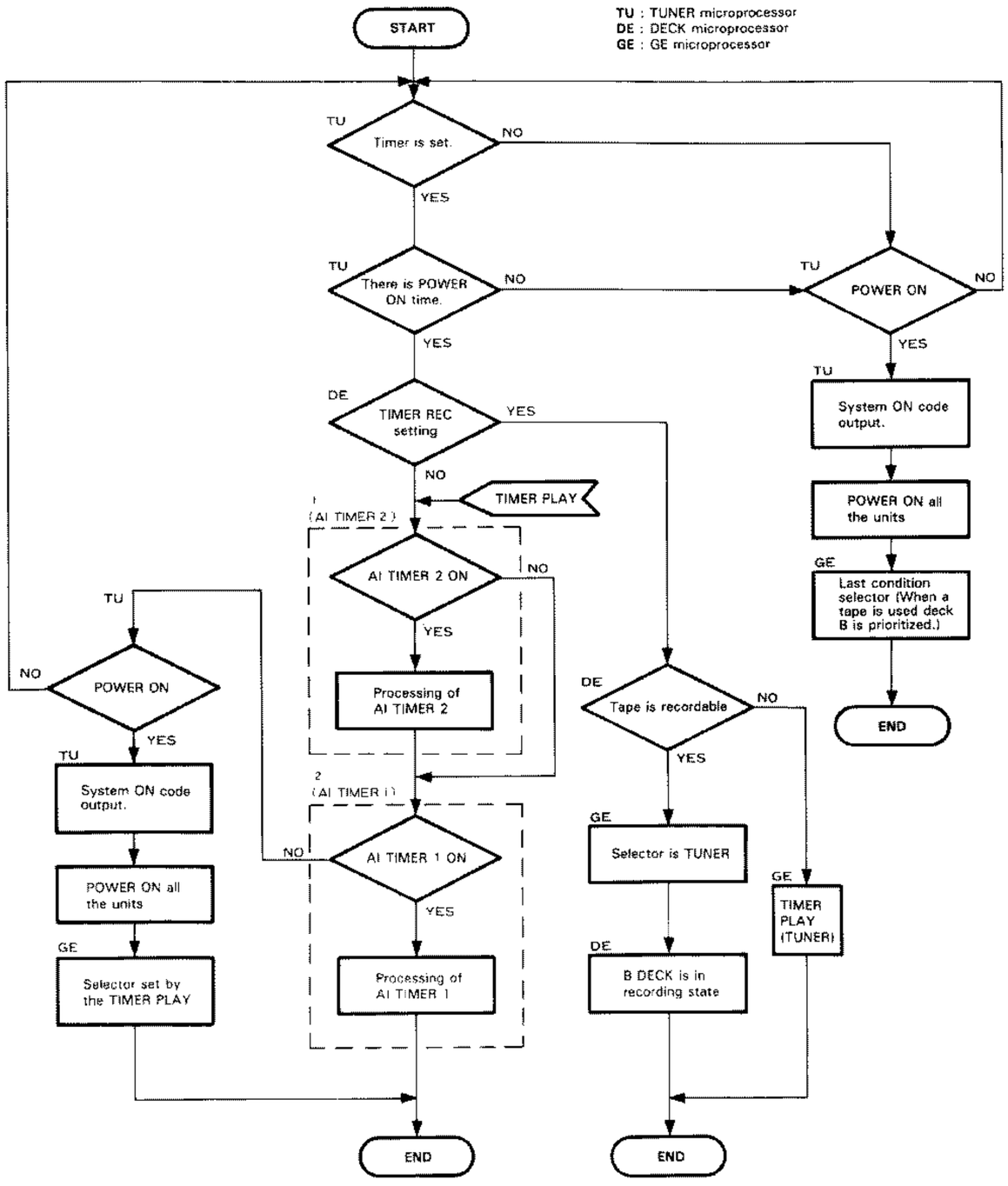


NOTES REGARDING SERVICES OF THIS UNIT AND FEATURES OF SYSTEM

CIRCUIT DESCRIPTION

Operation of UD-7 system

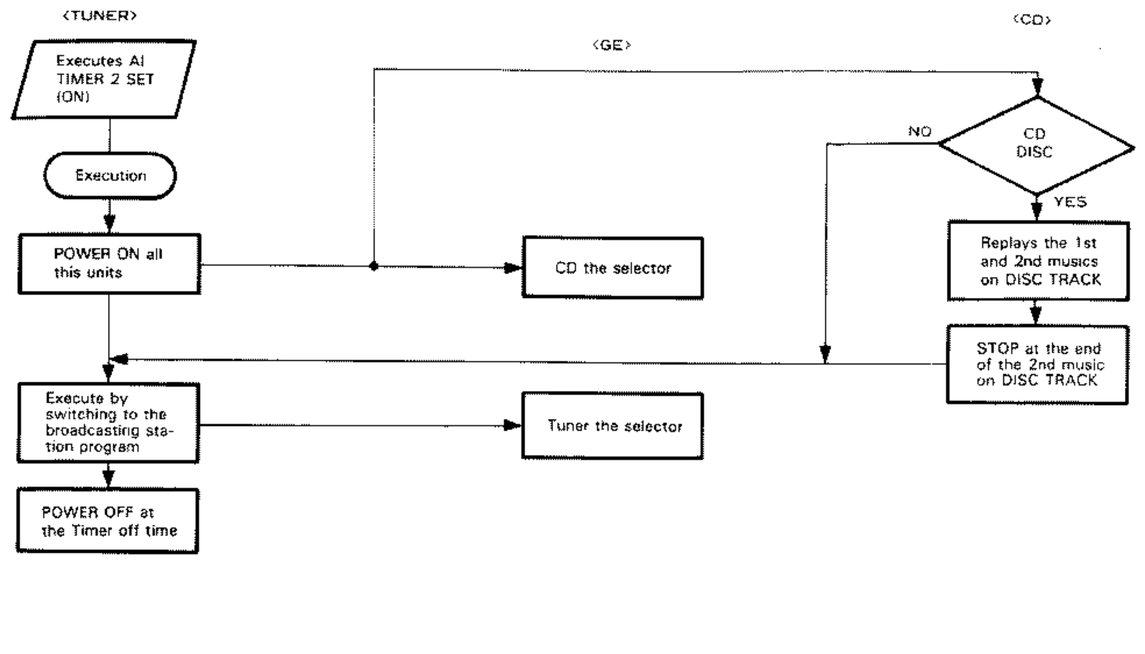
The flow chart from power on through sound generation



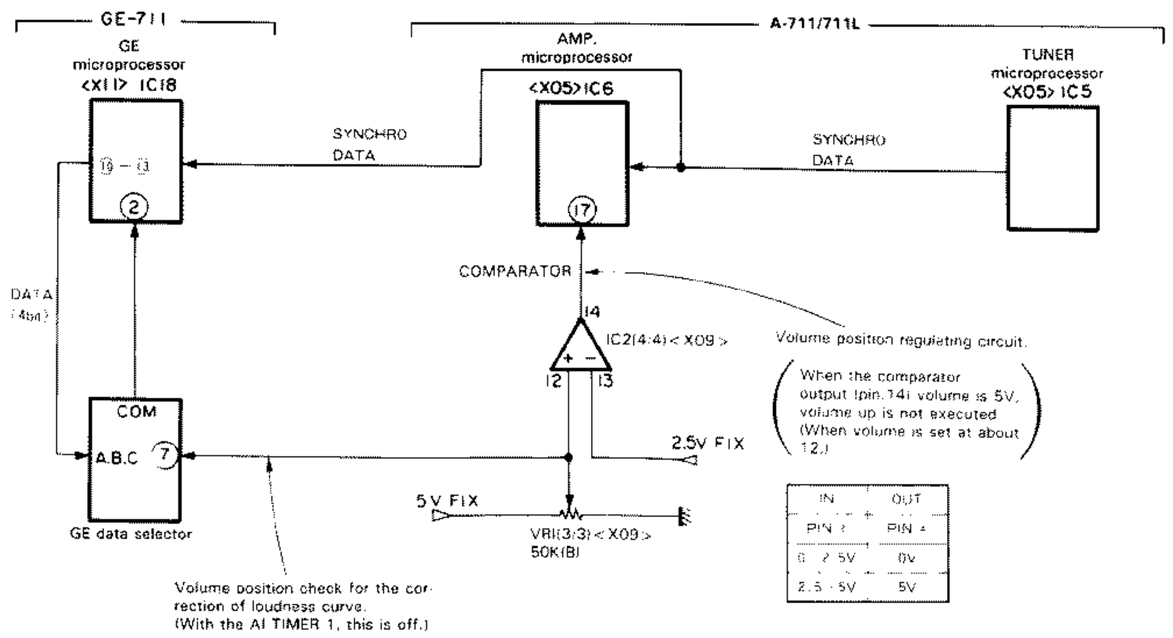
A-711/711L

CIRCUIT DESCRIPTION

① Flow chart of AI TIMER 2



Operation of AI TIMER 2

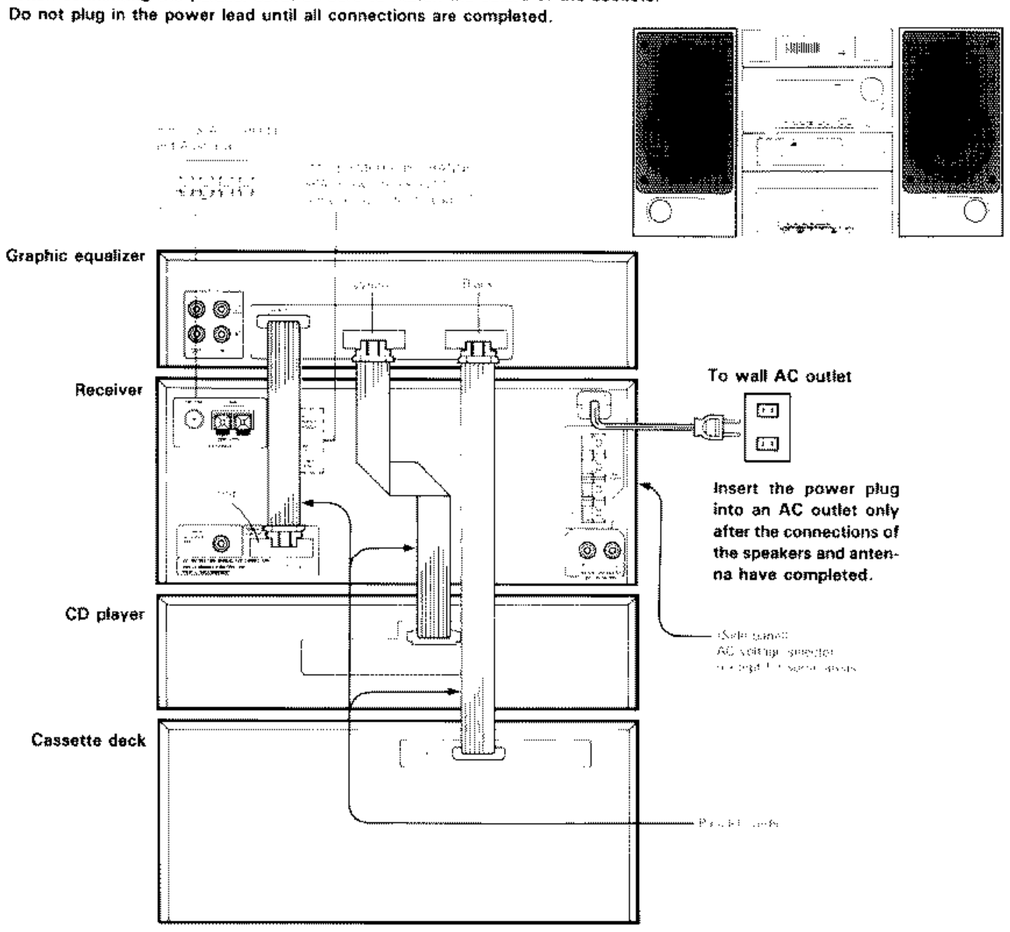


A-711/711L

A-711/711L

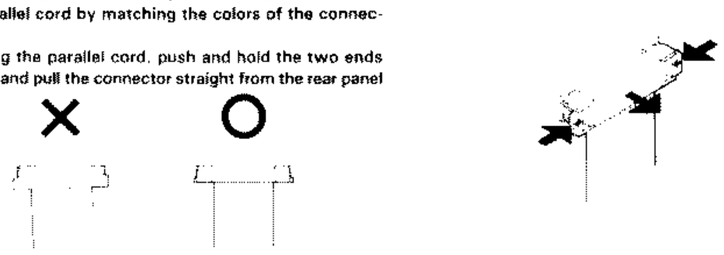
System connections

Make connection as shown below. When connecting the related system components, refer also to the instruction manuals of the related components.
When connecting the parallel cord, be sure to match the colors of the sockets.
Do not plug in the power lead until all connections are completed.



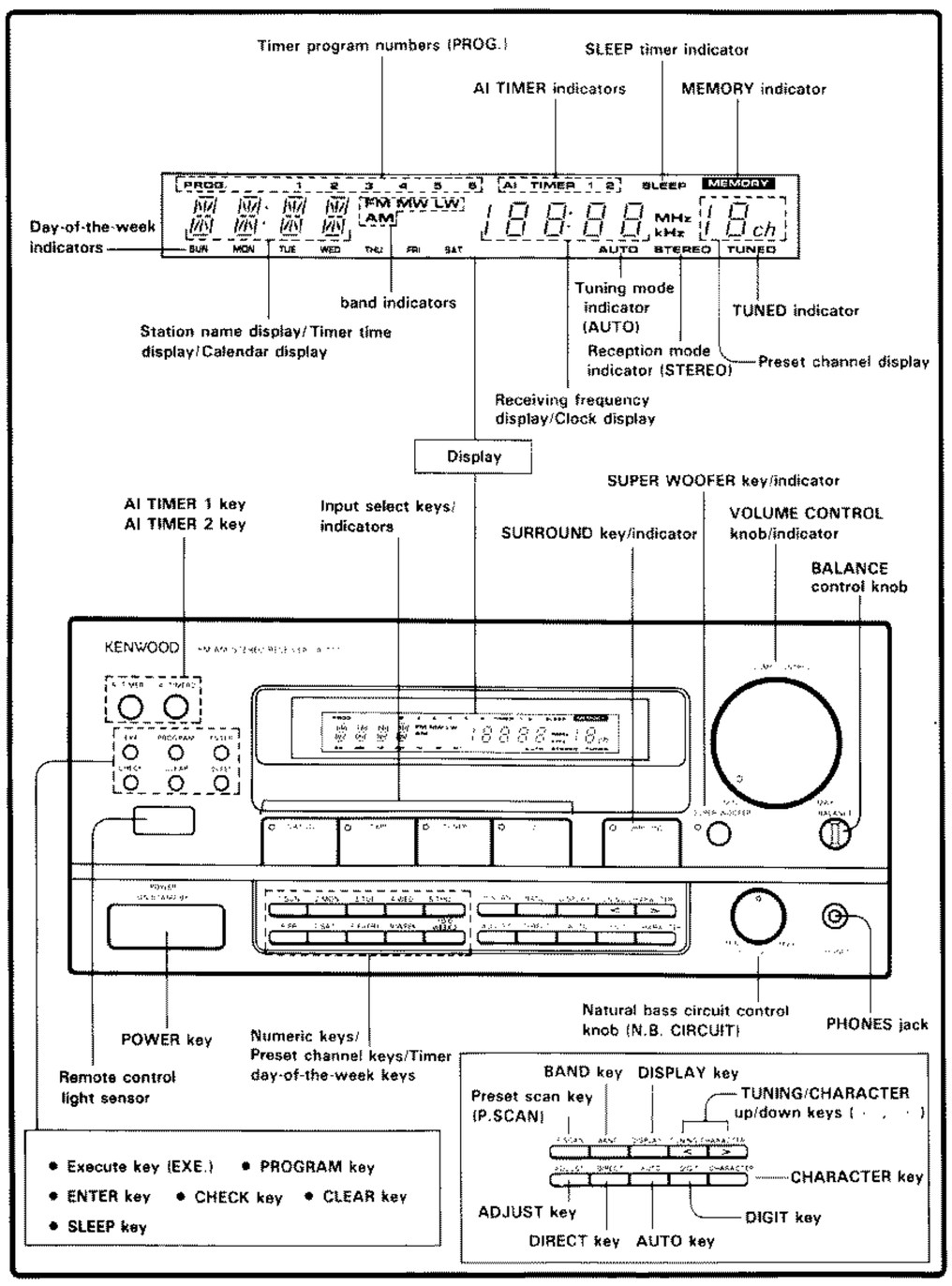
■ Connection of parallel cord

- Hold the connector of the parallel cord in parallel with the socket on the rear panel, and insert securely until it clicks.
- Connect the parallel cord by matching the colors of the connector and socket.
- When unplugging the parallel cord, push and hold the two ends of the connector and pull the connector straight from the rear panel socket.

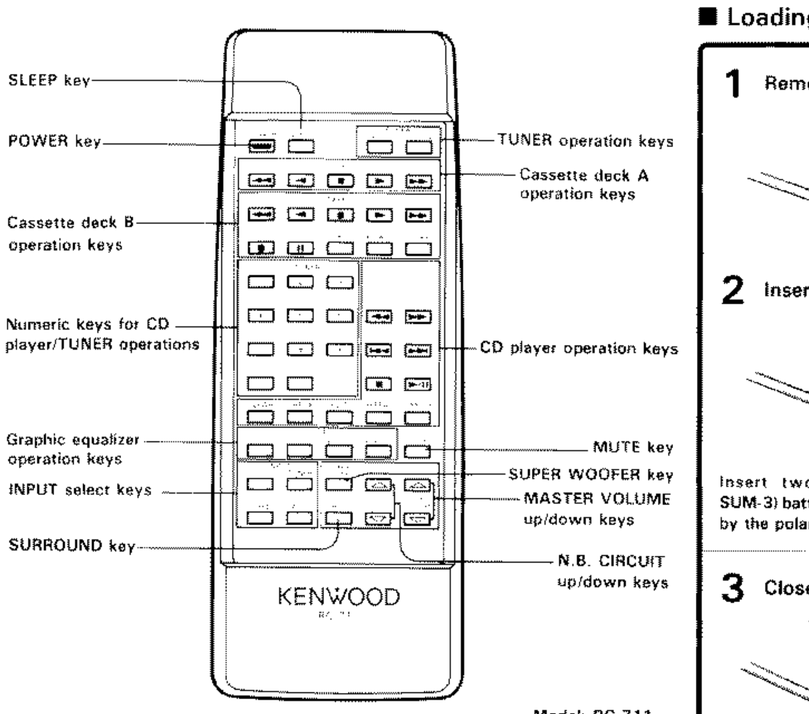


Controls and indicators

■ Receiver



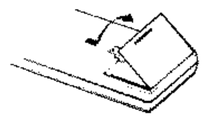
Operation of remote control unit



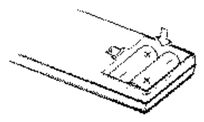
Model: RC-711 infrared system

■ Loading batteries

1 Remove the cover.

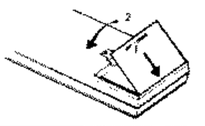


2 Insert batteries.



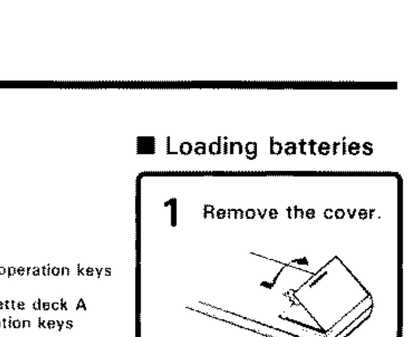
Insert two AA-size (R6/SUM-3) batteries as indicated by the polarity marking.

3 Close the cover.



■ Operation procedure

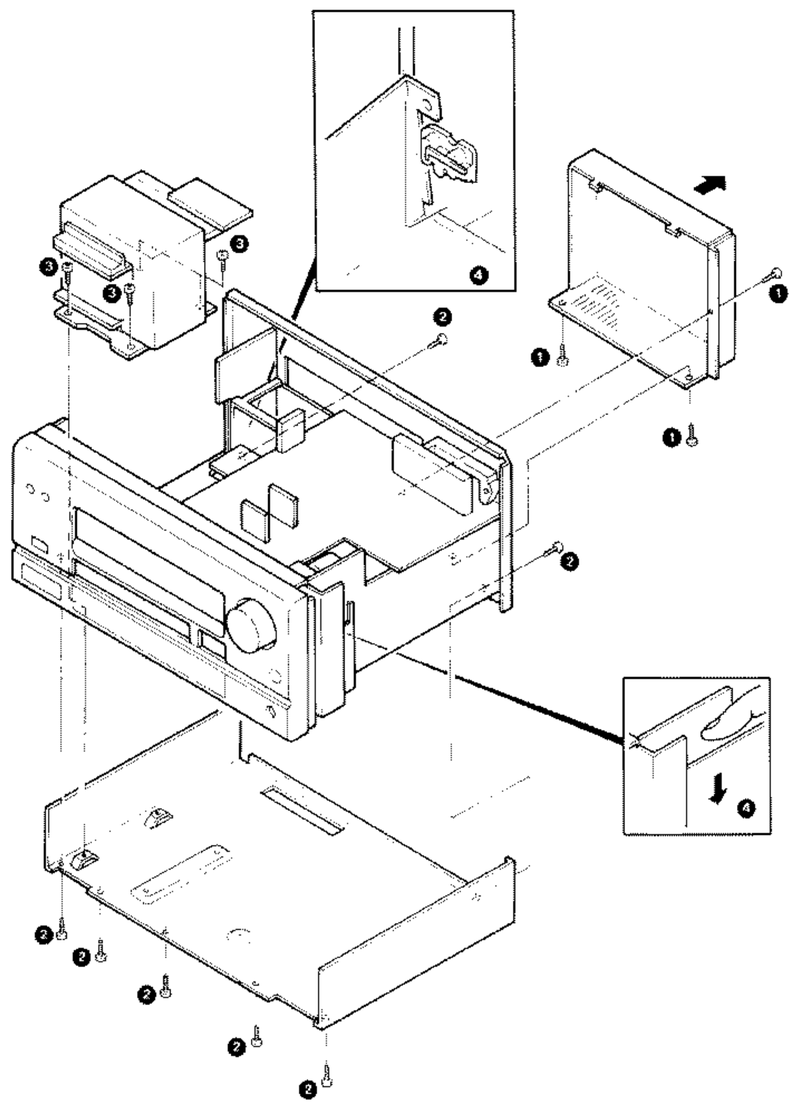
Plug the power cord of the system into an AC wall outlet, and press the POWER key on the remote control unit to turn the power on.
When the power is turned on, press the key of the source component to be operated.



DISASSEMBLY FOR REPAIR

How to remove the chassis of bottom board

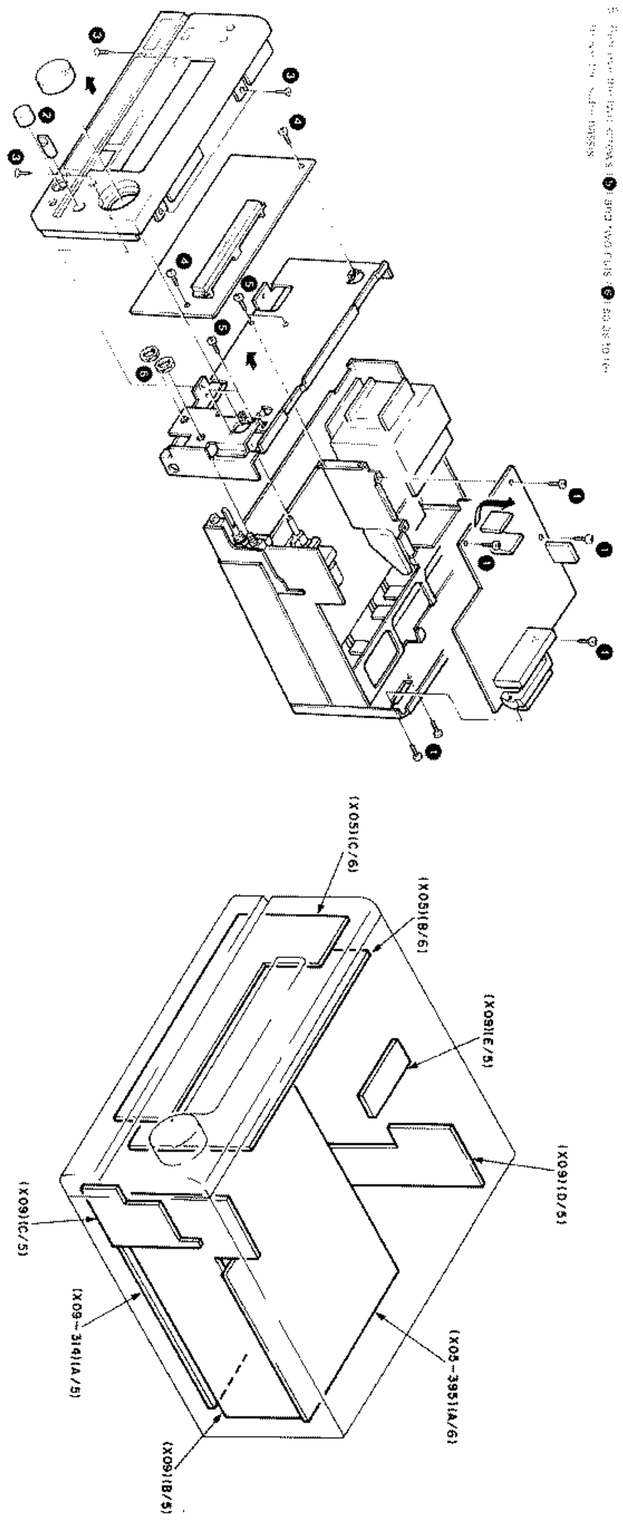
1. Detach the radiator cover by removing the three screws (❶) from the cover of rear side. It is used for check and so on of power transistor.
2. Remove seven screws (❷) of chassis of added bottom board.
3. Remove four screws (❸) of the transformer.
4. Remove the chassis of bottom board from the right side of front panel by paying attention not to hook it with surround terminals (❹).



DISASSEMBLY FOR REPAIR

How to remove tuner board and front panel

1. Remove the 4 screws (❶). Then detach the lamp holder from the front panel.
2. Remove the two screws (❷) to remove the rear panel.
3. Remove the two screws (❸) to remove the rear panel.
4. Remove the two screws (❹) to remove the rear panel.
5. Remove the two screws (❺) and two nuts (❻) to remove the tuner board.



PARTS LIST

✳ 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.

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
Q7 -10			2SC1845(F,E)	TRANSISTOR		
Q11 ,12			2SC4137F19(V,W)	TRANSISTOR		
⚠ Q13 ,14		*	2SD2255BT*5	TRANSISTOR		
⚠ Q15 ,16		*	2SB1493BT*5	TRANSISTOR		
Q17 ,18			2SC2631(R,S)	TRANSISTOR		
Q51			2SC2878(B)	TRANSISTOR		
Q52 ,53			2SA733(A)(Q,P)	TRANSISTOR		
Q52 ,53			2SA933S(Q,R)	TRANSISTOR		
Q54			2SA992(F,E)	TRANSISTOR		
Q55			2SC3666	TRANSISTOR		
Q56			2SC1740S(Q,R)	TRANSISTOR		
Q56			2SC945(A)(Q,P)	TRANSISTOR		
Q57			2SD1266(Q,P)	TRANSISTOR		

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

⚠ indicates safety critical components.

DISASSEMBLY FOR REPAIR

CIRCUIT DESCRIPTION

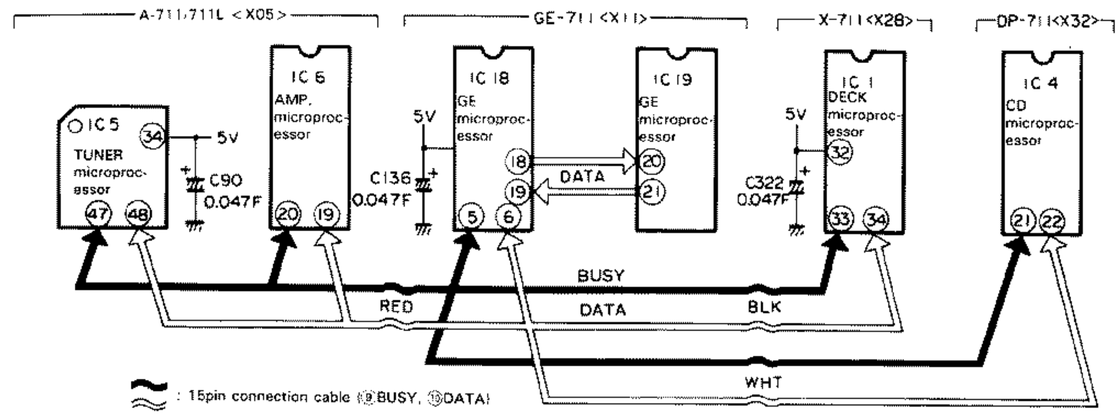
Function of components

Audio unit (X09-3142-71)

Ref No.	Components	Use/Function	Operation/Condition
IC1	NJM2058D	Surround	Surround buffer
IC2	NJM2058D	Headphone amplifier, Super woofer buffer, VR detecting comparator	IC2 (1/4) (2/4) headphone amplifier, IC2 (3/4) super-woofer buffer, IC2 (4/4) comparator
IC3	TC9215P	Surround selector	Surround is turned ON/OFF with the pin No. 23 of IC6 <X05>. H: ON, L: OFF
		Mute	MUTE is turned ON/OFF with the pin No. 13 of IC6 <X05>. H: ON, L: OFF
IC4	μPC1237HA	Protection	
IC5	TA8409S	Main volume drive	MAIN VOL. is turned DOWN/UP with the pin Nos. 6 and 7 of IC6 <X05>.
IC6	TA8409S	N.B.C. volume drive	N.B.C. VOL is turned DOWN/UP with the pin Nos. 10 and 11 of IC6 <X05>.
IC7	μPC7915HF	– 15V stabilizing power source	3-terminal regulator
Q1 – 4	2SA992(F,E)	For the 1st stage A class	
Q5, 6	2SA992(F,E)	For the 2nd stage A class	
Q7 – 10	2SC1845(F,E)	For the 2nd stage A class	
Q11,12	2SC4137F19(V,W)	For temperature compensation	
Q13,14	2SD2255BT*5	Final Tr.	
Q15,16	2SB1493BT*5	Final Tr.	
Q17,18	2SC2631(R,S)	For detecting overloading	
Q51	2SC2878(B)	For super woofer muting	It is turned ON by turning on Q52.
Q52	2SA733(A)(Q,P) or 2SA933S(Q,R)	Super woofer muting drive	It is turned ON by lowering pin No. 9 of IC6 (X05).
Q53	2SA733(A)(Q,P) or 2SA933S(Q,R)	Ripple filter	
Q54	2SA992(F,E)	For protection	
Q55	2SC3666	AC relay drive	It drive AC relay K1, 2 with the pin No.14 of IC6 (X05).
Q56	2SC1740S(Q,R) or 2SC945(A)(Q,P)	Speaker relay drive	It drives the SP relay K3 with the pin No.16 of IC6 (X05).
Q57	2SD1266(Q,P)	+ 15V stabilizing, power source	
D1,2	HSS104 or 1SS133	For A class	
D3,4	HSS104A or 1SS131	For protection	
D11	RBV-602LFA	For rectification	
D12	HZS15S(B) or RD15JS(B)	+ 15V stabilizing, power source	
D13	HZS15S(B) or RD15JS(B)	For + 15V stabilizing power source A class	
D14,15	HZS5.1N(B2) or RD5.1ES(B2)	For VR detection	
D16	HZS4.7N(B) or RD4.7ES(B)	For muting	
D17 – 22, 34,35	HSS104 or 1SS133	For protection of static electricity	
D23	HSS104 or 1SS133	For removing headphone shock noise	
D24	HSS104 or 1SS133	For removing selector shock noise	
D25,26	HSS104 or 1SS133	For relay	
D27	HSS104A or 1SS131	For relay	
D28	HSS104A or 1SS131	For detecting protection AC	
D29	S5566B	For rectifying AC relay power source	
D32	HSS104 or 1SS133	For mute	
D33	HSS104 or 1SS133	For VR LED	
D34 or35	HSS104 or 1SS133	For protection of static electricity	

CIRCUIT DESCRIPTION

Microprocessor and back-up condenser of this unit



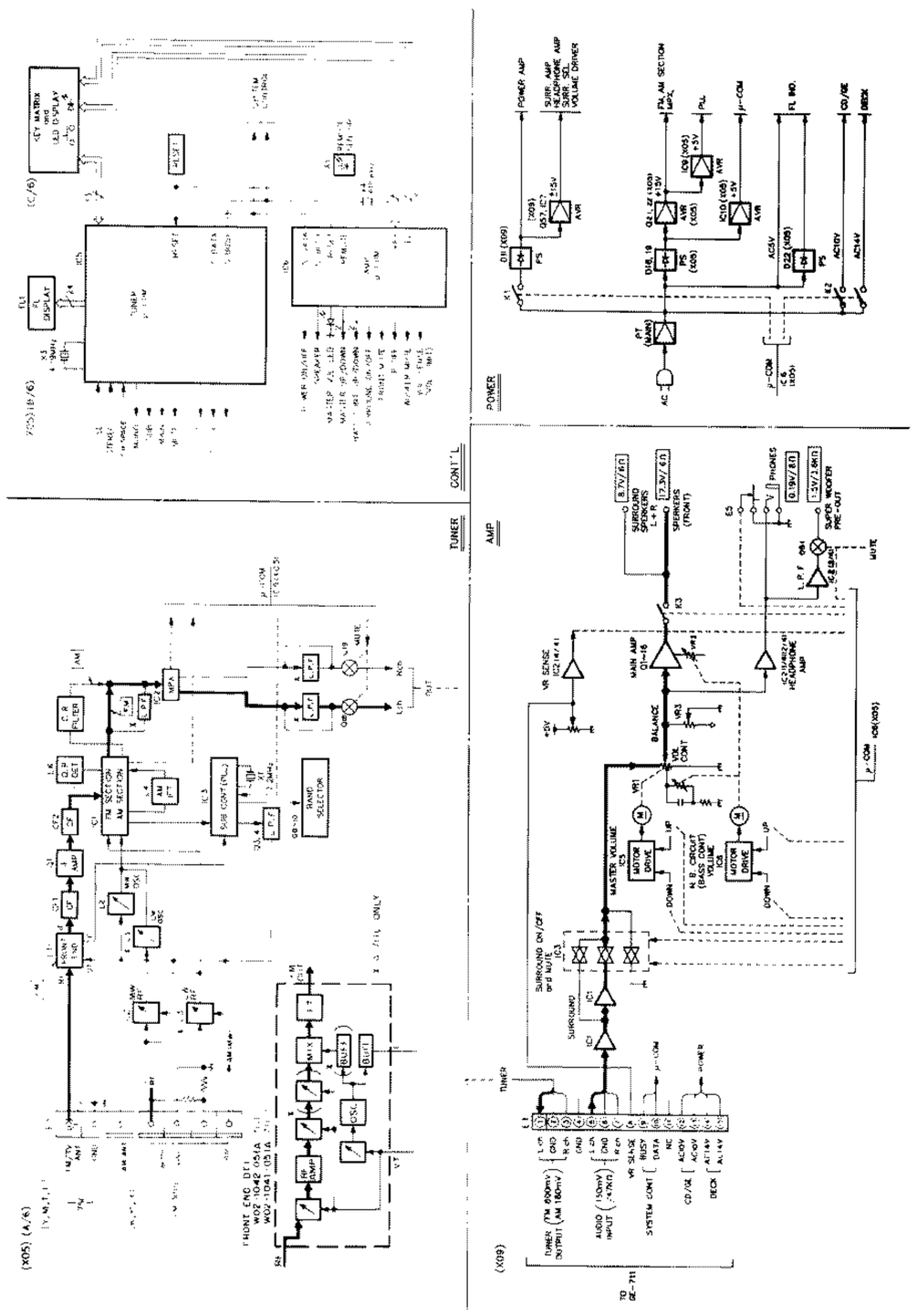
Reference number

CXP50112 –127Q	μPD7358ACU –232	M50955 –239SP	M50941 –351SP	μPD75112CW –071	μPD75212ACW –207

Initialization (reset) of each microprocessor and test mode

		A-711/711L		GE-711	X-711	DP-711
		TUNER microprocessor IC5 (X05)	AMP. microprocessor IC6 (X05)	GE microprocessor IC18, 19 (X11)	DECK microprocessor IC1 (X28)	CD microprocessor IC4 (X32)
Back-up Condenser		(X05) C90 0.047F 5.5V	None	(X11) C136 0.047F 5V	(X28) C322 0.047F 6.3V	None
Initialization (Reset)		Insert the AC plug to the outlet while pressing the "ENTER" key	Pull out the AC plug from the outlet and then insert again	Turn on AC while pressing the "ENTER" and "MEMO" keys of GE.	Keep pressing the "CRLS" key for more than three seconds per selector (turns out to be – 15 dB)	Turn AC off once.
Test mode	Operation	While simultaneously pressing the selector "CD" and tuning "DOWN" keys, insert AC plug into the outlet and simultaneously touch off the keys		(1) Turn on AC while pressing the "FLAT" key. (2) There is also the selector test mode.	For details, see the service manual of X-711	There is the adjustment test mode. For details, see the service manual of DP-711
	Release	Press either one of ten keys, "BAND" or "UP/DOWN" keys.		Turn AC on and off without pressing any key		
	Contents	(1) Turns on all the FL tubes. For details, see the service manuals of various equipment			No FL tube	

BLOCK DIAGRAM



CIRCUIT DESCRIPTION

Function of components

Tuner unit (X05-3992-71)

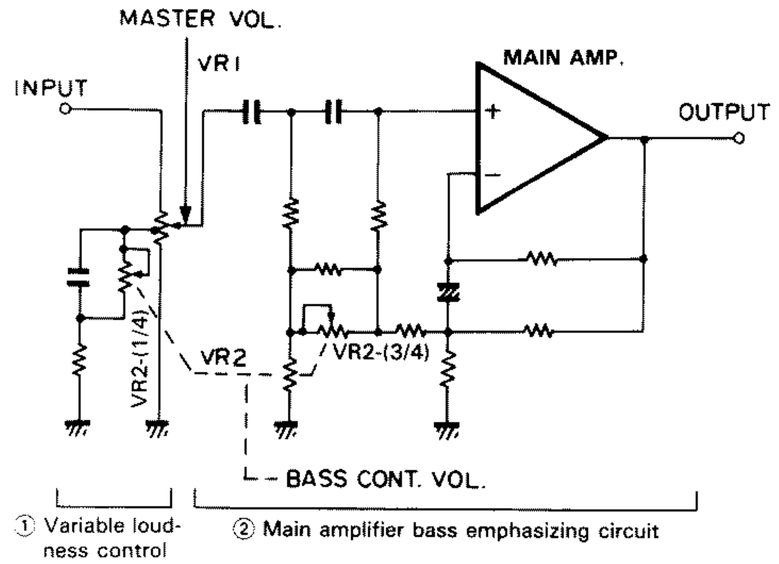
Ref No.	Components	Use/Function	Operation/Condition
IC1	LA1265	FM/AM system IC	FM IF amplification, FM detection, AM MIX, AM IF amplification and AM detection
IC2	AN7470	Audio demodulation (AM, FM)	FM stereo multiplex
IC3	LM7001	PLL IC	PLL
IC5	CXP50112-127Q	Tuner microprocessor	Tuner control, timer operation and control of others
IC6	μPD7538ACU-232	Amplifier microprocessor	Amplifier control.
IC7	PST529D	Reset IC	Generates the reset power source.
IC9	μPC7805HF or AN7805F	+ 5V 3-terminal regulator	+ 5V rectification
IC10	μPC7805HF or AN7805F	+ 5V 3-terminal regulator	+ 5V rectification
Q1	2SC1923(R,O)	IF amplification	IF amplification of FM
Q2	2SK163(L,M)	PLL time constant conversion SW	At the time of LW reception: OFF
Q3	2SC945(A)(Q,P) or 2SC1740S(Q,R)	L.P.F.	L.P.F. for PLL (integration type)
Q4	2SC1845(F,E)	L.P.F.	L.P.F. for PLL (integration type)
Q5	2SC945(A)(Q,P) or 2SC1740S(Q,R)	MW/LW conversion	At the time of MW: ON
Q6	2SC945(A)(Q,P) or 2SC1740S(Q,R)	MW/LW conversion	At the time of LW: ON
Q7	2SC945(A)(Q,P) or 2SC1740S(Q,R)	Buffer	Buffer for FM detecting output (for L.P.F matching)
Q8	2SA733(A)(Q,P) or 2SA933S(Q,R)	FM + B conversion	At the time of receiving FM: ON
Q9	2SA733(A)(Q,P) or 2SA933S(Q,R)	LW + B conversion	At the time of receiving LW: ON
Q10	2SA733(A)(Q,P) or 2SA933S(Q,R)	MW + B conversion	At the time of receiving MW: ON
Q11	2SC945(A)(Q,P) or 2SC1740S(Q,R)	Deemphasis conversion	(50 μsec. ↔ 75 μsec. At the time of Tr. ON: 75 μsec.)
Q12	2SC945(A)(Q,P) or 2SC1740S(Q,R)	Deemphasis conversion	
Q13	2SC945(A)(Q,P) or 2SA1740S(Q,R)	Reversing circuit	Controls reset circuit (Tuner μ-COM)
Q14	2SA733(A)(Q,P) or 2SA933S(Q,R)	Reversing circuit	Controls reset circuit (Amplifier μ-COM)
Q15	2SA733(A)(Q,P) or 2SA933S(Q,R)	Reversing circuit	Reverses the mute signal from the amplifier microprocessor
Q16	2SA733(A)(Q,P) or 2SA933S(Q,R)	Reversing circuit	Reverses the mute signal from the tuner microprocessor.
Q17	2SA733(A)(Q,P) or 2SA933S(Q,R)	Destination Conversion SW	Converts deemphasis and channel space
Q18	2SD1302(S,T)	Mute	Mute SW of Lch
Q19	2SD1302(S,T)	Mute	Mute SW of Rch.
Q21	2SD1266(Q,P)	+ 14V rectification	Generates the stabilized power source for 14V
Q22	2SC945(A)(Q,P) or 2SC1740S(Q,R)		
Q23	2SC945(A)(Q,P) or 2SC1740S(Q,R)		

CIRCUIT DESCRIPTION

N.B. CIRCUIT (X09-3142-71 (B/5))

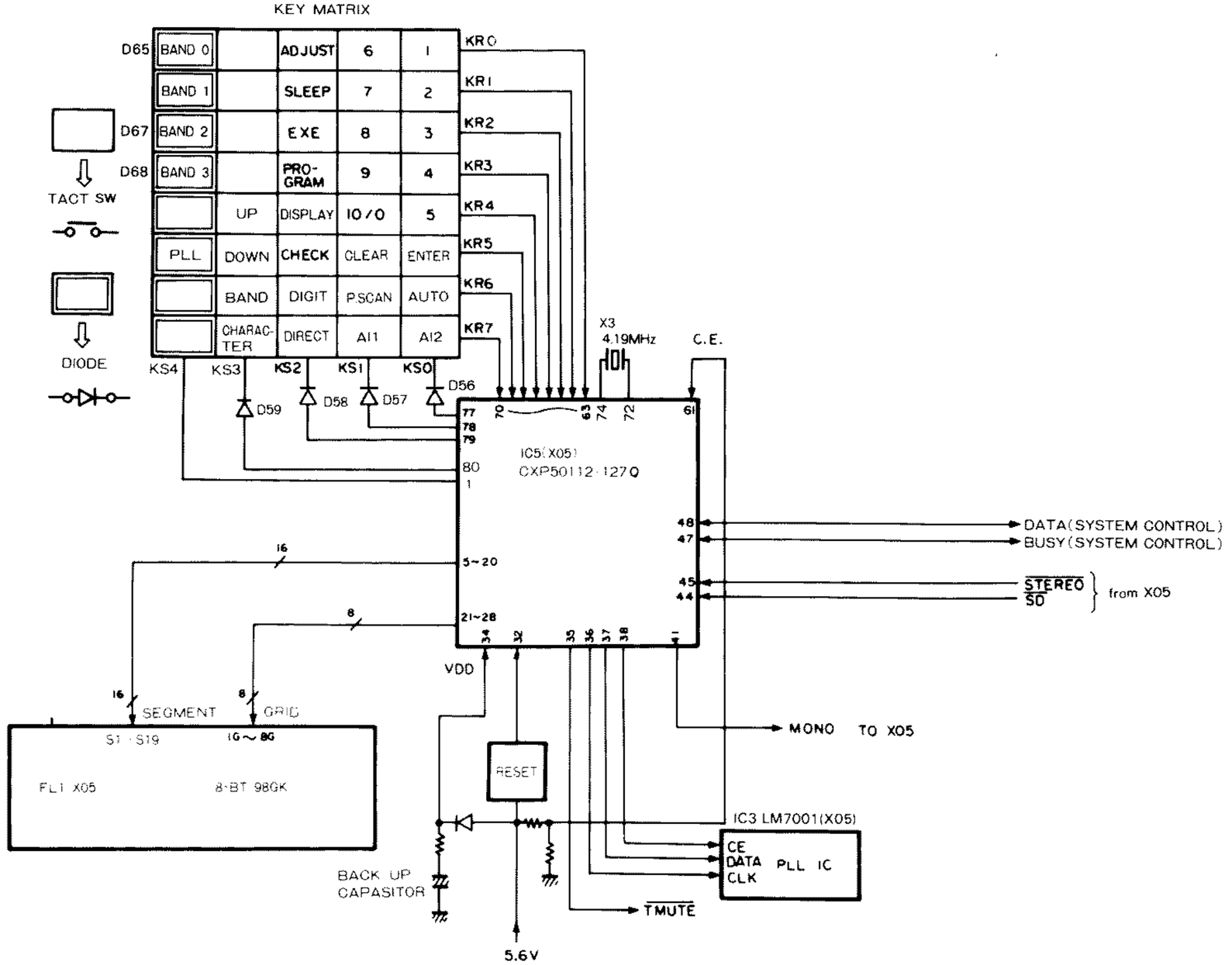
The N.B. of N.B. CIRCUIT stands for Natural Bass, and it is the circuit to create further natural bass sound.
It is roughly composed of ① Variable loudness control and ② Main amplifier bass emphasizing circuit showed in the chart.
The ① Variable loudness control in the chart has become able to vary the level of loudness control by mounting the traditional loudness control variable VR (VR2,1/4) onto itself.
The ② main amplifier bass emphasizing circuit can boost up the desired frequency with the fixed number of C.R. parts for input and returning C.R. parts of main amplifier. It has also become able to vary these boost levels by mounting VR2,(3/4) onto it. The fixed number of this A-711/711L has been set so as to boost up 60 Hz.

The action of this circuit results from the combination of aforementioned ① and ②, which also can vary the boost level of bass sound at the same time.



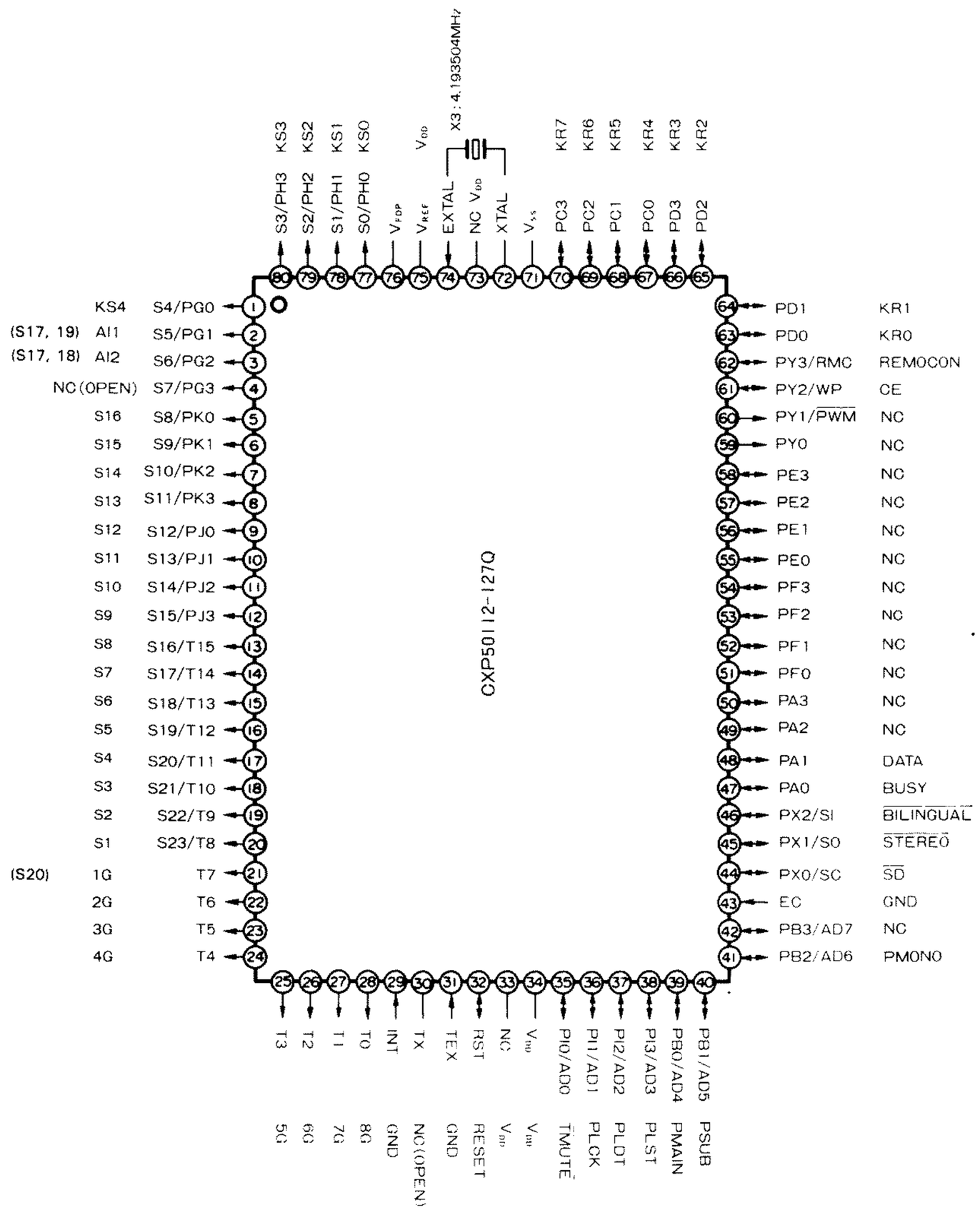
IC5: CXP50112-127Q (X05-3992-71) TUNER microprocessor

Terminal connection diagram & key matrix connection



CIRCUIT DESCRIPTION

Pin connections



CIRCUIT DESCRIPTION

Pin functions

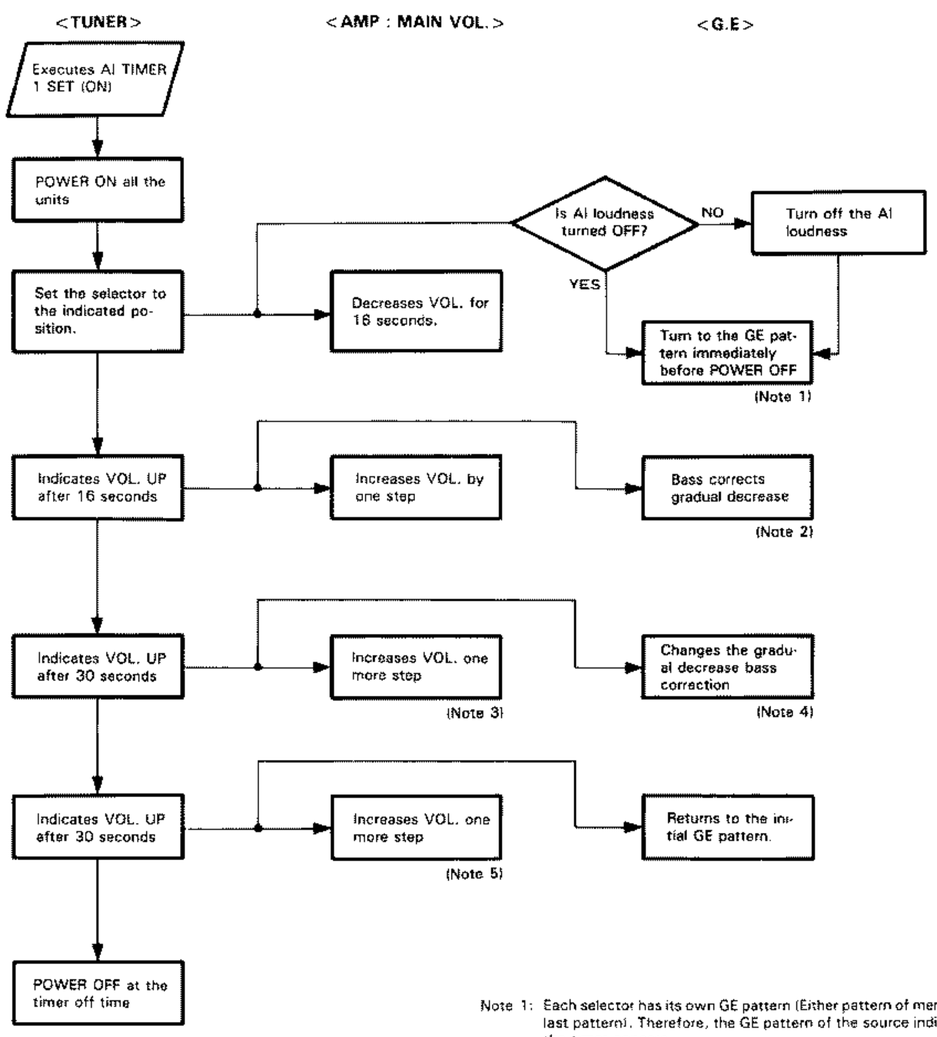
Pin No.	Pin name	I/O	Symbol	Description		
1	S4/PG0	O	KS4	Key scan output		H: ON L: OFF
2	S5/PG1	O	AI1	AI1 ON/OFF FL segment output	(S17,19)	H: ON L: OFF
3	S6/PG2	O	AI2	AI2 ON/OFF FL segment output	(S17,18)	H: ON L: OFF
4	S7/PG3		NC			
5	S8/PK0	O	S8	FL segment output	S16	H: ON L: OFF
6	S9/PK1	O	S9	FL segment output	S15	H: ON L: OFF
7	S10/PK2	O	S10	FL segment output	S14	H: ON L: OFF
8	S11/PK3	O	S11	FL segment output	S13	H: ON L: OFF
9	S12/PJ0	O	S12	FL segment output	S12	H: ON L: OFF
10	S13/PJ1	O	S13	FL segment output	S11	H: ON L: OFF
11	S14/PJ2	O	S14	FL segment output	S10	H: ON L: OFF
12	S15/PJ3	O	S15	FL segment output	S9	H: ON L: OFF
13	S16/T15	O	S16	FL segment output	S8	H: ON L: OFF
14	S17/T14	O	S17	FL segment output	S7	H: ON L: OFF
15	S18/T13	O	S18	FL segment output	S6	H: ON L: OFF
16	S19/T12	O	S19	FL segment output	S5	H: ON L: OFF
17	S20/T11	O	S20	FL segment output	S4	H: ON L: OFF
18	S21/T10	O	S21	FL segment output	S3	H: ON L: OFF
19	S22/T9	O	S22	FL segment output	S2	H: ON L: OFF
20	S23/T8	O	S23	FL segment output	S1	H: ON L: OFF
21	T7	O	T7	FL grid output	1G(S20)	H: ON L: OFF
22	T6	O	T6	FL grid output	2G	H: ON L: OFF
23	T5	O	T5	FL grid output	3G	H: ON L: OFF
24	T4	O	T4	FL grid output	4G	H: ON L: OFF
25	T3	O	T3	FL grid output	5G	H: ON L: OFF
26	T2	O	T2	FL grid output	6G	H: ON L: OFF
27	T1	O	T1	FL grid output	7G	H: ON L: OFF
28	T0	O	T0	FL grid output	8G	H: ON L: OFF
29	INT	I	INT	External interrupt pin ... unused		
30	TX	O	TX	Timer oscillation pin ... unused		
31	TEX	I	TEX	Timer oscillation pin ... unused		
32	$\overline{RST}$	I	$\overline{RESET}$	Reset input		H: NORMAL L: RESET
33	NC		NC			
34	VDD			Power supply pin		
35	PI0/AD0	O	TMUTE	Mute output		H: MUTE OFF L: MUTE ON
36	PI1/AD1	O	PLCK	Clock to PLL or extension IC		
37	PI2/AD2	O	PLDT	Data output to PLL or extension IC		
38	PI3/AD3	O	PLST	Chip enable output for PLL		
39	PB0/AD4	O	PMAIN	TV sound MPX selection output		
40	PB1/AD5	O	PSUB	TV sound MPX selection output		
41	PB2/AD6	O	PMONO	Stereo/monaural selection		H: MONO L: STEREO
42	PB3/AD7	O	NC			
43	$\overline{EC}$	I	$\overline{EC}$	Event counter input ... unused		
44	PX0/$\overline{SC}$	I	$\overline{SD}$	Tuning signal input		H: OFF L: TUNED
45	PX1/SO	I	$\overline{ST}$	Stereo signal input		H: MONO L: STEREO

CIRCUIT DESCRIPTION

Pin No.	Pin name	I/O	Symbol	Description	
46	PX2/SI	I	$\overline{BIL}$	Bilingual signal input	H: NORMAL L: BILINGUAL
47	PA0	I/O	BUSY	System control busy	
48	PA1	I/O	DATA	System control data	
49	PA2	O	NC		
50	PA3	O	NC		
51	PF0	O	NC		
52	PF1	O	NC		
53	PF2	O	NC		
54	PF3	O	NC		
55	PE0	O	NC		
56	PE1	O	NC		
57	PE2	O	NC		
58	PE3	O	NC		
59	PY0	O	NC		
60	PY1/PWM	O	NC		
61	PY2/WP	I	CE	AC ON/OFF detection input	H: ON L: OFF
62	PY3/RMC	I	RMCN	Remote control input	
63	PD0	I	KR0	Key return input	H: With input L: Without input
64	PD1	I	KR1	Key return input	H: With input L: Without input
65	PD2	I	KR2	Key return input	H: With input L: Without input
66	PD3	I	KR3	Key return input	H: With input L: Without input
67	PC0	I	KR4	Key return input	H: With input L: Without input
68	PC1	I	KR5	Key return input	H: With input L: Without input
69	PC2	I	KR6	Key return input	H: With input L: Without input
70	PC3	I	KR7	Key return input	H: With input L: Without input
71	Vss			GND pin	
72	XTAL	O	XTAL	For oscillator	
73	NC				
74	EXTAL	I	EXTAL	For oscillator	
75	VREF			For voltage detection reset... unused	
76	VFDP		VFDP	FL terminal pull-down resistor power supply	
77	S0/PH0	O	KS0	Key scan output	H: ON L: OFF
78	S1/PH1	O	KS1	Key scan output	H: ON L: OFF
79	S2/PH2	O	KS2	Key scan output	H: ON L: OFF
80	S3/PH3	O	KS3	Key scan output	H: ON L: OFF

CIRCUIT DESCRIPTION

② Indication flow of AI TIMER 1



Note 1: Each selector has its own GE pattern (Either pattern of memory and last pattern). Therefore, the GE pattern of the source indicated by the timer appears.
Note 2: Shifts to the pattern which has the loudness effect (There are two patterns of the gradual decrease bass correction of AI TIMER 1).
Note 3: The three steps of increase volume can be selected.
Note 4: Decrease correction volume is lowered in accordance with VR UP.
Note 5: Same as Note 3. However, the VR position is limited at the position of 12.

CIRCUIT DESCRIPTION

Function description

a) AI TIMER 1

- With the program timer mode set to PLAY, when the timer is turned ON, the setting contents for the AI TIMER 1 is activated if the AI TIMER 1 is set to ON (the FL indicator is lit).
- When the AI TIMER 1 is turned ON, first playback starts with the minimum volume level, then the volume level is increased in three steps.
- The third-step volume level (the maximum volume level) can be selected among the three types of the volume levels (VOL. 1-3). Each time the AI TIMER 1 key is pressed, the maximum volume level is changed in order from VOL. 1 to VOL. 3 and TIMER OFF setting cyclically.

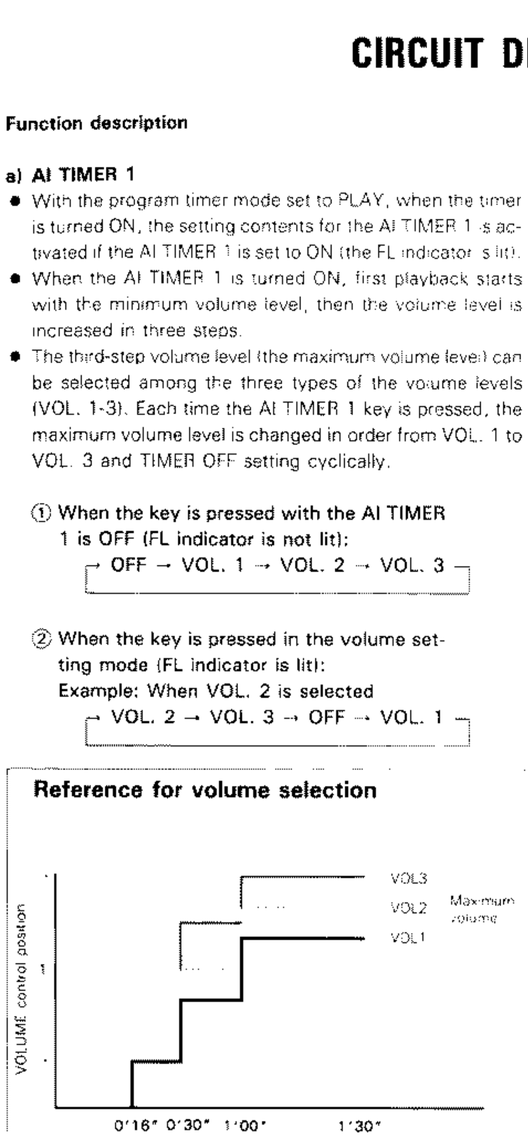
① When the key is pressed with the AI TIMER 1 is OFF (FL indicator is not lit):

OFF → VOL. 1 → VOL. 2 → VOL. 3

② When the key is pressed in the volume setting mode (FL indicator is lit):
Example: When VOL. 2 is selected

VOL. 2 → VOL. 3 → OFF → VOL. 1

Reference for volume selection



- The VOLUME control rotates as the volume changes.
- The graphic equalizer curve also varies accordingly.

b) AI TIMER 2

- With the program timer mode set to PLAY, when the timer is turned ON, the setting contents for the AI TIMER 2 is activated if the AI TIMER 2 is set to ON (FL indicator is lit).
- When the AI TIMER 2 is turned ON, if the disc is loaded in the CD player, the two tracks on the disc is played regardless whether the other source is set for play.
  Then, the playback source is changed to tuner automatically.
- Each time the AI TIMER 2 key is pressed, the timer setting is changed alternately.

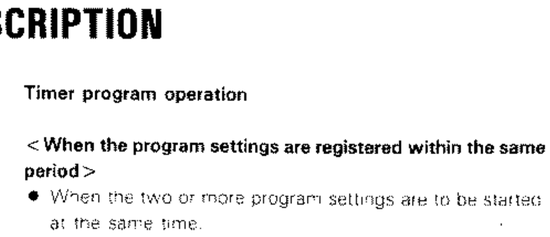
Timer program operation

<When the program settings are registered within the same period>

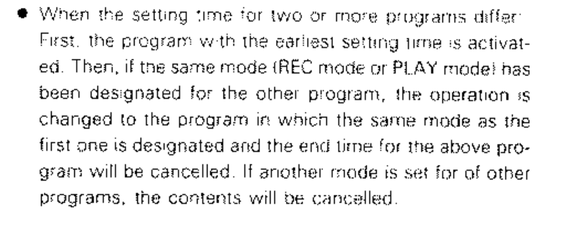
- When the two or more program settings are to be started at the same time.
  The program having the least number is activated and others will be cancelled.
- When the setting time for two or more programs differ:
  First, the program with the earliest setting time is activated. Then, if the same mode (REC mode or PLAY mode) has been designated for the other program, the operation is changed to the program in which the same mode as the first one is designated and the end time for the above program will be cancelled. If another mode is set for of other programs, the contents will be cancelled.

Example 1: When the operation modes for all three programs are set to PLAY:

Example 2: When the operation modes for programs ②, ③ are set to PLAY and that for the program ① is set to REC:



Example 3: When the operation mode for programs ①, ② are set to REC and that for program ③ is set to PLAY:



The program end is determined by the OFF time of the program which is activated at the last.

CIRCUIT DESCRIPTION

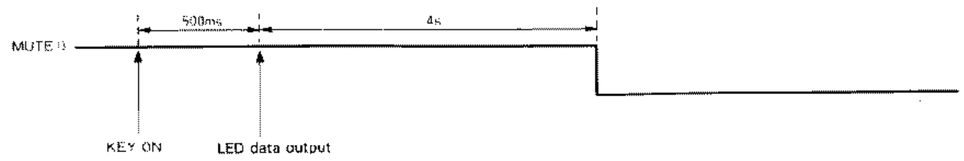
Pin functions

Pin No.	Pin name	I/O	Symbol	Description
1	RESET	I	RESET	Reset input (H: Reset)
2	CL1	—	—	System clock terminal
3	CL2	—	—	System clock terminal
4	V_{PRE}	—	—	No use. (GND)
5	V_{LOAD}	—	—	No use. (GND)
6	P53	O	VOL. DOWN	Motor volume down drive
7	P52	O	VOL. UP	Motor volume up drive
8	P51	O	VOL. LED	Volume indicator LED drive
9	P50	O	S.WOOFER	Super woofer mute (H: ON, L: OFF)
10	P23	O	BASS UP	N.B. circuit volume up drive
11	P22	O	BASS DOWN	N.B. circuit volume down drive
12	P21/PTOUT	—	—	No use. (OPEN)
13	P103	O	MUTE	Mute (H: ON, L: OFF)
14	P102	O	POWER	Power relay drive
15	P101	—	—	No use. (GND)
16	P100	O	SP ON/OFF	Speaker ON/OFF conversion (H: ON, L: OFF)
17	P113	I	VOL LIMIT IN	Volume position detection input
18	P112	I	REMOCON IN	Remote control input
19	P111	I/O	DATA	Serial data input/output
20	P110	I/O	BUSY	Serial busy input/output
21	V_{DD}	—	—	Power supply pin
22	P93	O	S WOOFER	Super woofer LED drive
23	P92	O	SURROUND	Surround ON/OFF and LED drive (H: ON, L: OFF)
24	P91	—	—	No use. (OPEN)
25	P90	O	TAPE	TAPE LED drive
26	P83	O	DAT/LD	DAT/LD LED drive
27	P82	O	TUNER	TUNER LED drive
28	P81	O	CD	CD LED drive
29	P80	—	—	No use. (OPEN)
30	P43	I	SP OFF	Speaker OFF detection input (Turn SP OFF when "L" signal is input.)
31	P42	—	—	No use. (GND)
32	P41	—	—	No use. (GND)
33	P40	—	—	No use. (GND)
34	P33	—	—	No use. (OPEN)
35	P32	—	—	No use. (OPEN)
36	P31	O	KS1	Key scan output signal 1
37	P30	O	KS0	Key scan output signal 0
38	P03/SI	I	KR3	Key return input signal 3
39	P02 SO	I	KR2	Key return input signal 2
40	P01 SCK	I	KR1	Key return input signal 1
41	P00/INTO	I	KR0	Key return input signal 0
42	Vss	—		GND pin

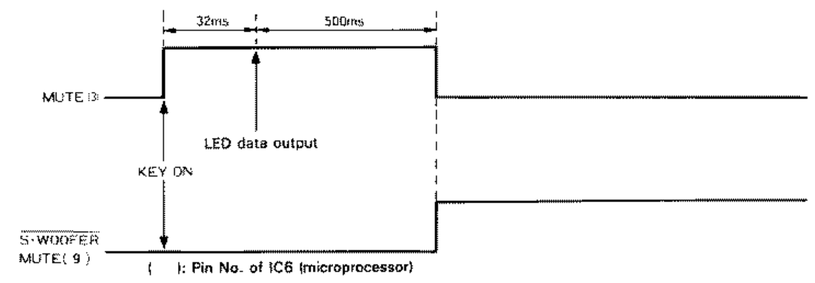
CIRCUIT DESCRIPTION

Timing chart

(1) POWER KEY ON



(2) SELECTOR, SURROUND, SUPER WOOFER KEY ON



* When the switching of POWER ON/OFF or selector is executed in the condition of SUPER WOOFER ON, S. WOOFER MUTE will have the same timing as MUTE (The logic is reverse).

Test mode

a) Setting method

While pressing the "CD" key and tuning "DOWN" key, insert the AC plug into the outlet and simultaneously touch off the key; then the amplifier and tuner simultaneously enter the TEST MODE. When you wish to enter only the amplifier into the TEST MODE, pull out the AC plug from the outlet in the POWER ON condition and insert the AC plug into the outlet while pressing the "CD" key.

b) Clearing method

In order to simultaneously clear the amplifier and tuner, press either the ten keys, "BAND" key or "UP/DOWN" key.
In order to clear the amplifier, press either "TUNER" key or pull out the AC from the outlet. In order to clear the tuner, refer to the tuner microprocessor (page. 22).

c) Contents of operation

① POWER is turned ON and all the LEDs are lit on
② By pressing "S-WOOFER", both the VOLUME and N.B. CIRCUIT are simultaneously up, and remain to be UP for 12 seconds. Then, they go DOWN and STOPS after about 12 seconds.
③ Even if the "CD", "TAPE", "DAT LD", "SURROUND" and "POWER" keys are pressed, they are not accepted

Initial status

Item	Condition
INPUT	TUNER
SURROUND	OFF
SUPER WOOFER	OFF
POWER	OFF (STAND BY)
MUTE	ON
MOTOR VOLUME CONTROL	OFF
LED	OUT LIGHTS

Initialization: Pull the AC plug from the outlet and then insert again.

CIRCUIT DESCRIPTION

Test mode

(1)Setting method

Insert the AC plug into an outlet and remove your fingers from DOWN key at the same time while pressing DOWN key.

(2)Contents

POWER ON
All the FLs turned on
Test Frequency Setting (Table 1)

(3)Clearing method

All the turned on FLs can be cleared with ten keys, BAND key, UP/DOWN key or POWER key.

Setting of initial conditions (reset)

(1)Method

While pressing ENTER key, turn the AC ON.

(2)Contents

Clears all the memory and returns to the initial conditions. However, the test frequency is newly memorized in the preset memory at this time. (The same as when the back-up data is NG.)

Band	Pch	J	K,P,Y,M,X	T,E
FM (FM1)	1	76.0 MHz	87.5 MHz	87.5 MHz
	2	78.0 MHz	89.1 MHz	89.1 MHz
	3	80.0 MHz	90.0 MHz	90.0 MHz
	4	82.0 MHz	92.0 MHz	92.0 MHz
	5	83.0 MHz	94.0 MHz	94.0 MHz
	6	83.5 MHz	98.0 MHz	98.0 MHz
	7	86.0 MHz	100.1 MHz	100.1 MHz
	8	88.0 MHz	102.0 MHz	102.0 MHz
	9	89.1 MHz	106.0 MHz	106.0 MHz
	10	90.0 MHz	108.0 MHz	108.0 MHz
AM	1	531 kHz	530 kHz	531 kHz
	2	630 kHz	630 kHz	630 kHz
	3	990 kHz	990 kHz	990 kHz
	4	1440 kHz	1440 kHz	1440 kHz
	5	1602 kHz	1610 kHz	1602 kHz
	6	—	(1700 kHz)	—
TV/LW	1	1ch	—	153 kHz
	2	3ch	—	162 kHz
	3	4ch	—	216 kHz
	4	8ch	—	270 kHz
	5	12ch	—	281 kHz
	6	13ch	—	—
	7	35ch	—	—
	8	62ch	—	—

(Table 1)

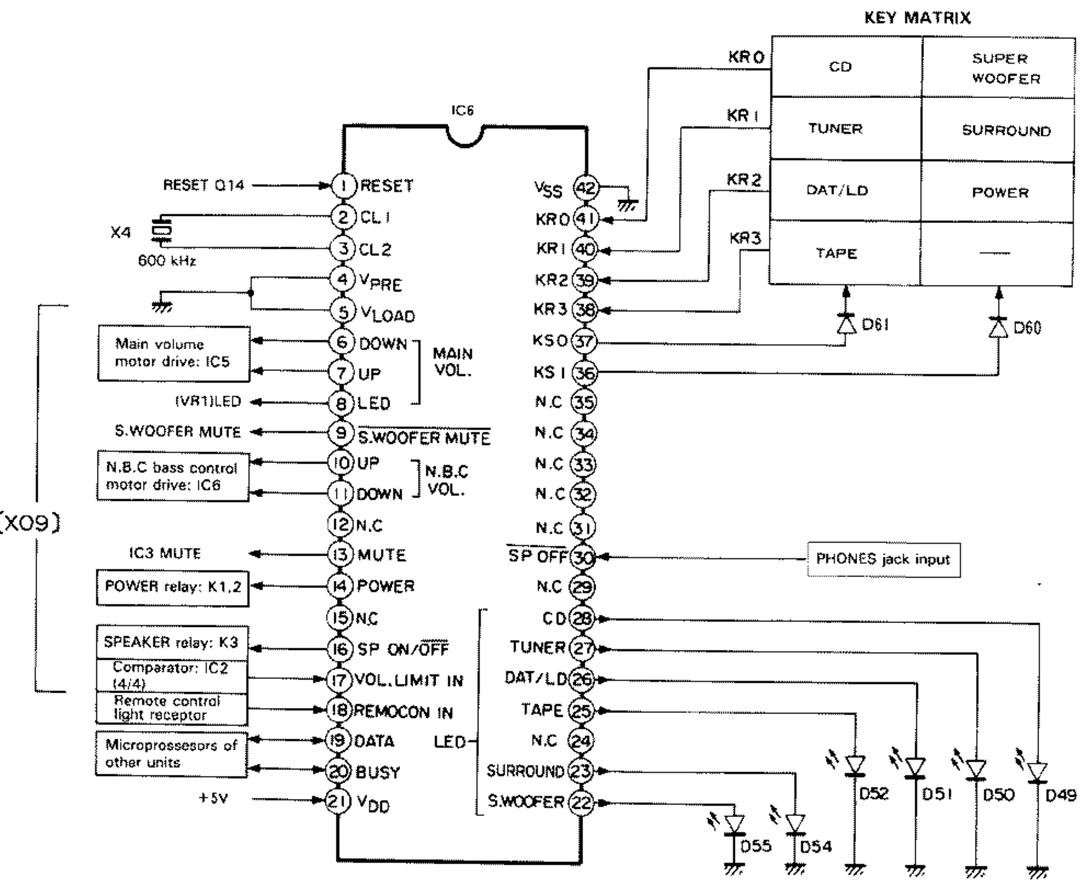
Conditions by destination

Destination type	Destination switches B3	B2	B1	B0	Band	Receiving frequency range	Inter-channel space	Intermediate frequency	PLL reference frequency
J	0	0	0	0	FM	76.0 ~ 90.0 MHz	100 kHz	– 10.75 MHz	25 kHz
					AM	531 ~ 1602 kHz	9 kHz	+ 450 kHz	9 kHz
					TV	1 ~ 62ch	6 MHz	– 10.75 MHz	25 kHz
M,Y	1	1 or 0	0	0	FM	87.5 ~ 108.0 MHz	100 kHz / 50 kHz	– 10.7 MHz	50 kHz / (25 kHz)
					AM	531 ~ 1602 kHz / 530 ~ 1610 kHz	9 kHz / 10 kHz	– 450 kHz	10 kHz
K,P	1	0	0	0	FM	87.5 ~ 108.0 MHz	100 kHz	+ 10.7 MHz	50 kHz (25kHz)
					AM	530 ~ 1610 kHz	10 kHz	– 450 kHz	10 kHz
X	1	1	0	0	FM	87.5 ~ 108.0 MHz	50 kHz	+ 10.7 MHz	50 kHz (25kHz)
					AM	531 ~ 1602 kHz	9 kHz	+ 450 kHz	9 kHz
T,E	1	1	0	1	FM	87.5 ~ 108.0 MHz	50 kHz	+ 10.7 MHz	50 kHz (25kHz)
					MW	531 ~ 1602 kHz	9 kHz	+ 450 kHz	9 kHz
					LW	153 ~ 281 kHz	1 kHz	+ 450 kHz	1 kHz

CIRCUIT DESCRIPTION

IC6: μPD7538ACU-232 (X05-3992-71)
AMP. microprocessor

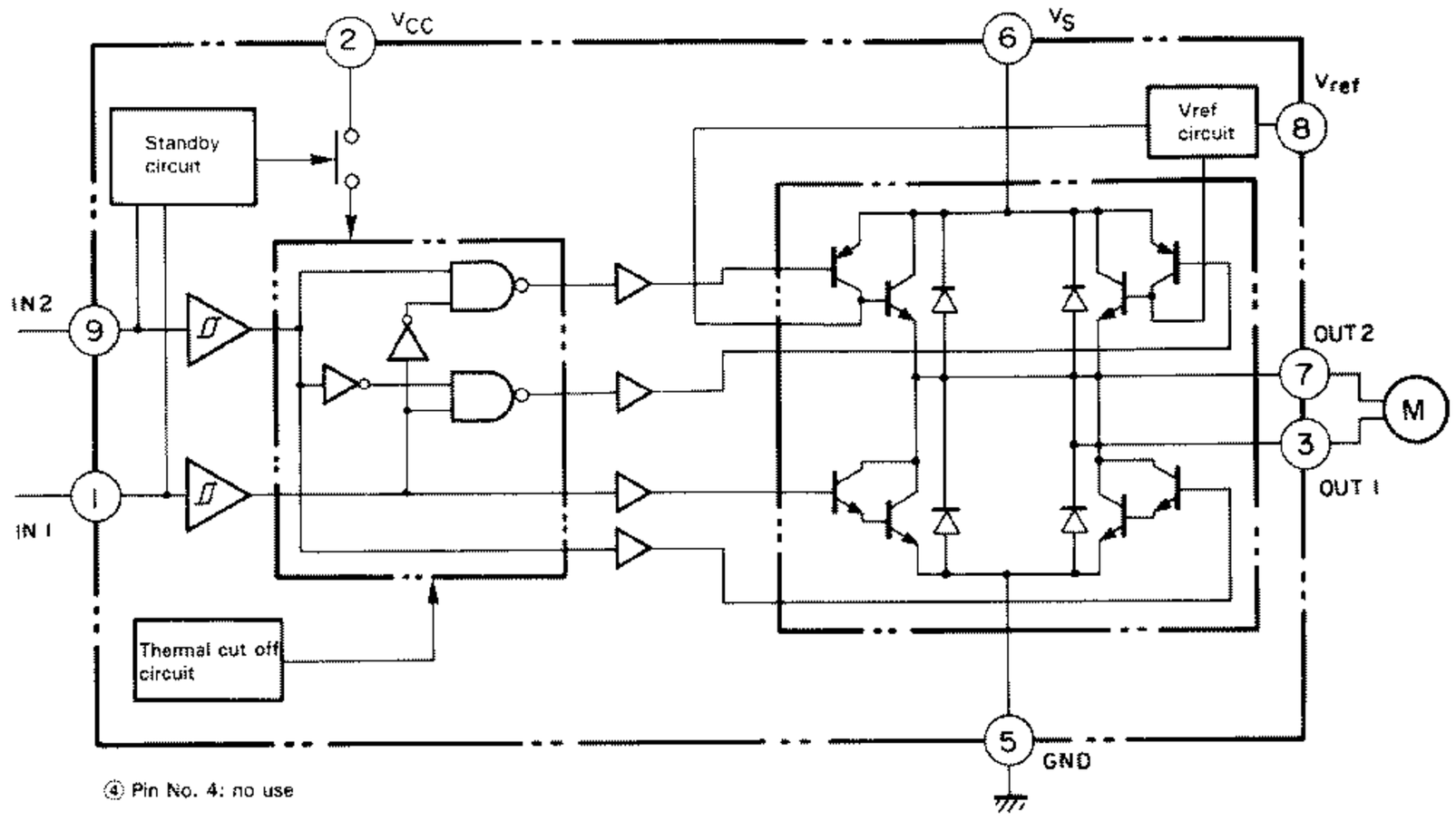
Terminal connection diagram & key matrix connection



CIRCUIT DESCRIPTION

IC5, 6: TA8409S (X09-3142-71)
Volume motor drive IC

Block diagram



④ Pin No. 4: no use

Truth table

INPUT		OUTPUT		MODE
①	⑨	③	⑦	Pin No. of IC5, 6
IN 1	IN 2	OUT 1	OUT 2	Motor mode
0	0	∞	∞	STOP
H	L	L	H	CW
L	H	H	L	CCW
H	H	L	L	BRAKE

∞: High impedance
Input "H": active

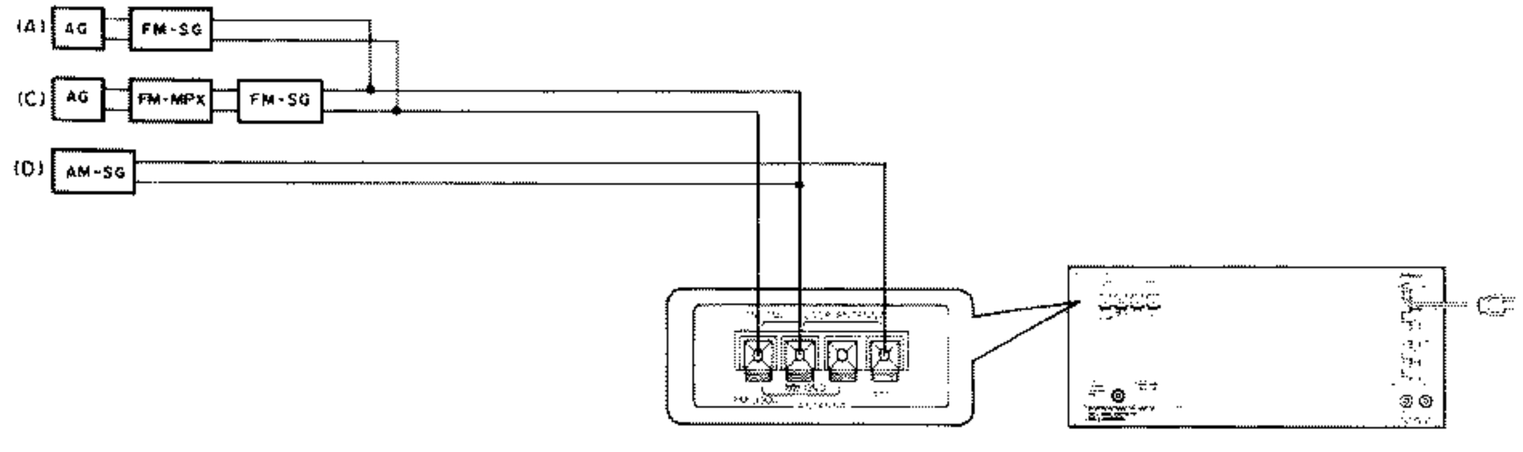
ADJUSTMENT

Tuner unit

If alignment point is "-", Confirm the value.
If not, replace the frontend pack and IC3(X05:Pu1)

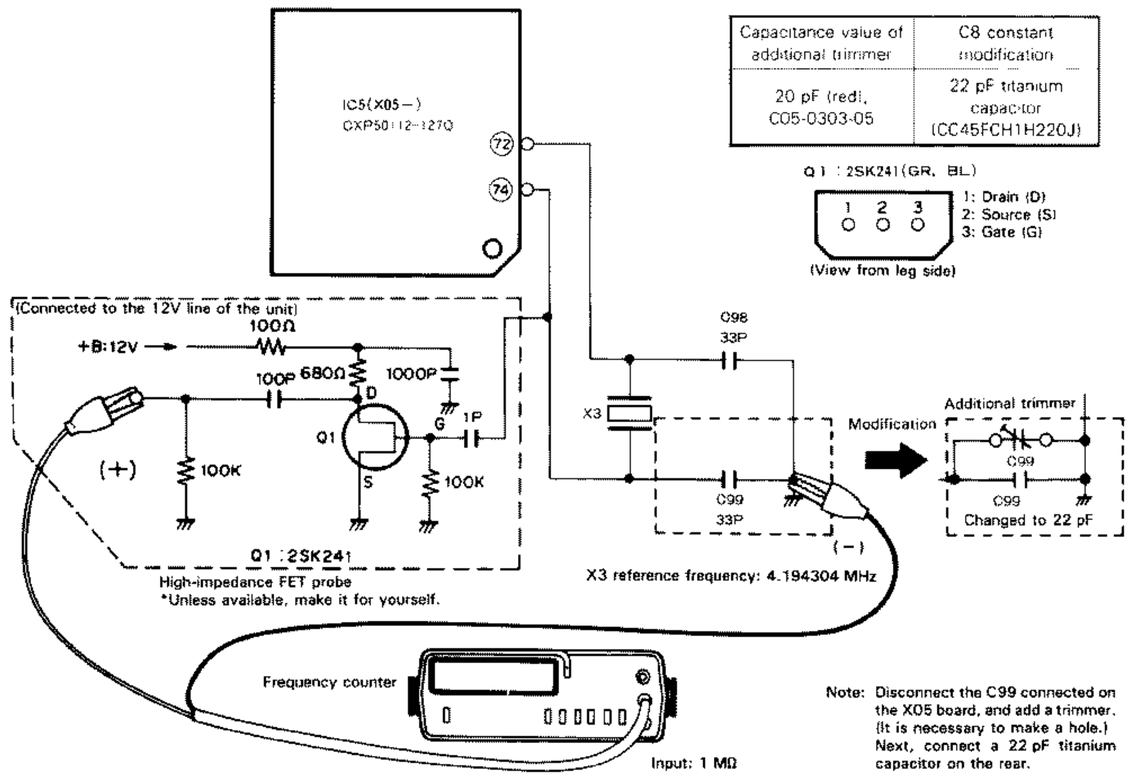
No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	TUNER SETTINGS	ALIGNMENT POINTS	ALIGNMENT	FIG
FM SECTION			SELECTOR: FM				
1	BAND EDGE (1)	-	Connect a DC voltmeter between TP10(VT) and TP13(GND)	87.5MHz	-	1.6V	(a)
2	BAND EDGE (2)	-	Connect a DC voltmeter between TP10(VT) and TP13(GND)	108.0MHz		8.0V	(a)
3	DISCRIMINATOR	(A) 98.0MHz 1kHz, ±75kHz dev 60dBμ(ANT input)	Connect a DC voltmeter between TP11 and TP12.	AUTO or MONO 98.0MHz	L6 (X05-)	0V	(b)
4	VCO	(A) 98.0MHz 0 dev 100dBμ(ANT input)	Connect a frequency counter between TP6 and GND.	AUTO 95MHz	VR2 (X05-)	19.00kHz	(c)
5	DISTORTION (STEREO)	(C) 98.0MHz 1kHz, ±68.25kHz dev Selector: L or R Pilot: ±6.75kHz dev 60dBμ(ANT input)	(d)	98.0MHz	IFT (X02-)	Minimum distortion.	
6	SEPARATION (E,T type only)	(C) 98.0MHz Stereo signal 60dBμ(ANT input)	(d)	AUTO 98.0MHz	VR3 (X05-)	Minimum crosstalk.	
7	TUNING LEVEL	(A) 98.0MHz 0 dev 14dBμ(ANT input) 75Ω	(d)	AUTO or MONO 98.0MHz	VR1 (X05-)	Adjust VR1 and stop at the point where FL1(TUNED) goes on.	
AM-MW SECTION		Keep the AM loop antenna installed.		SELECTOR: AM or MW			
(1)	BAND EDGE (1)	-	Connect a DC voltmeter between TP10(VT) and TP13(GND)	530kHz (531kHz)	-	1.3V	(a)
(2)	BAND EDGE (2)	-	Connect a DC voltmeter between TP10(VT) and TP13(GND)	1610kHz (1602kHz)	-	7.0V	(a)
(3)	RF ALIGNMENT	(D) 990kHz 400Hz, 30% mod 24dBμ(ANT input)	(d)	990kHz	L2 BLACK (X05-)	Maximum amplitude and symmetry of the oscilloscope display.	
AM-LW SECTION (E,T type only)		Keep the AM loop antenna installed.		SELECTOR: LW			
(4)	BAND EDGE (1)	-	Connect a DC voltmeter between TP10(VT) and TP13(GND)	153kHz	-	2.3V	(a)
(5)	BAND EDGE (2)	-	Connect a DC voltmeter between TP10(VT) and TP13(GND)	281kHz	-	7.0V	(a)
Repeat alignments (4) and (5) several times.							
(6)	RF ALIGNMENT	(D) 216kHz 400Hz, 30% mod 32dBμ(ANT input)	(d)	216kHz	L3 BLACK (X05-)	Maximum amplitude and symmetry of the oscilloscope display.	

Connection



ADJUSTMENT

Timer accuracy improvement method



Note: Disconnect the C99 connected on the X05 board, and add a trimmer. (It is necessary to make a hole.) Next, connect a 22 pF titanium capacitor on the rear.

The timer accuracy is within ±40 seconds for one month as a standard. For improved timer accuracy, perform the following procedure:

(1) If the timer accuracy is without the standard, replace X3 (L77-1175-05) near the microprocessor IC on a printed board (X05-).

(2) Even if within the standard, for further improved accuracy, change the constant of C99 in the crystal oscillation circuit of microprocessor IC5 and add a trimmer.

Adjustment method (Use a high-impedance buffer to avoid frequency deviation.)
Connect a high-accuracy frequency counter to pin 74 by way of the FET probe shown above, and adjust the frequency fully up to the first digit of the X3 reference frequency 4,194,304 Hz. (Connect the negative (−) side of the frequency counter to the GND side of C99.)

Note (a) As regards the positive (+) side of the frequency counter, arrange as short a distance as possible between pin 74 of IC5 and 1P of the input stage of the FET probe.

Note (b) Perform the trimmer adjustment after energization of around 10 minutes at normal temperature.

(3) Monthly error calculation method
For example, when the result of measurement at pin 74 by the frequency counter is fx = 4,194,275 Hz...
(Reference frequency fo = 4,194,304 [Hz])

$$\text{Monthly error [sec]} = \frac{fx - fo}{fo} \times \text{the number of seconds taken for one month}$$

$$= \frac{4{,}194{,}275 - 4{,}194{,}304}{4{,}194{,}304} \times (60 \times 60 \times 24 \times 30)$$

$$= -17.9 \text{ [sec]}$$

*A minus value as the monthly error means a loss.

VOLTAGE TABLES

TUNER UNIT (X05-399X-XX)

Ref. No. IC	Ref. No. Q	Address
1		4G
2		4E
3		3D
4		4B
5		5C
6		6B
7		4D
9		7E
10		3F
	1	3E
	2	3D
	3	3D
	4	4E
	5	4E
	6	5F
	7	3E
	8	3E
	9	3E
	10	5F
	11	5F
	12	5B
	13	5C
	14	4B
	15	6B
	16	5B
	17	6E
	18	5E
	19	6E
	21	6E
	22	6F
	23	

TUNER UNIT (X05-399X-XX)

IC1

1	2.3V
2	2.3V
3	2.3V
4	0V
5	10.7V
6	11.0V
7	11.4V
8	0V
9	3.6V
10	3.0V
11	1.5V
12	1.6V
13	1.5V
14	1.5V
15	2.3V
16	1.5V
17	0V
18	0V
19	0V
20	3.9V
21	2.2V
22	1.4V

IC2

1	11.5V
2	2.6V
3	5.9V
4	9.3V
5	9.3V
6	4.7V
7	4.7V
8	0V
9	0V
10	2.6V
11	2.6V
12	2.6V
13	2.6V
14	2.6V
15	2.6V
16	0V

IC3

1	1.6V
2	1.6V
3	—
4	—
5	—
6	—
7	11.5V
8	11.5V
9	0.2V
10	0V
11	2.9V
12	5.2V
13	5.2V
14	—
15	1.1V
16	0V

IC5

1 - 32	—
33	4.9V
34	4.9V
35 - 72	—
73	4.9V
74	—
75	—
76 - 80	—

IC6

1 - 20	—
21	4.9V
22 - 42	—

IC7

IN	5.6V
GND	—
OUT	5.4V

IC9

IN	—
GND	—
OUT	5.2V

IC10

IN	—
GND	—
OUT	8.6V

Q1

E	1.5V
C	11.3V
B	2.2V

Q2

S	—
D	—
G	—

Q3

E	—
C	3.2V
B	0.6V

Q4

E	0.6V
C	3.2V
B	1.6V

Q5

E	MW, LW: 6.0V
C	MW, LW: 10.4V
B	MW: 6.6V

Q8

E	LW: 6.0V
C	MW, LW: 10.4V
B	LW: 6.8V

Q7

E	2.6V
C	11.4V
B	3.0V

Q8

E	13.5V
C	FM: 13.5V
B	FM: 12.8V

Q9

E	13.5V
C	LW: 13.5V
B	LW: 12.9V

Q10

E	13.5V
C	MW: 13.5V
B	MW: 12.9V

Q11

E	—
C	0V
B	0.1V (S1 : 50µ) 0.6V (S1 : 75µ)

Q12

E	—
C	0V
B	0.1V (S1 : 50µ) 0.6V (S1 : 75µ)

AUDIO UNIT (X09-314X-XX)

Q13

E	—
C	4.8V
B	0V

Q14

E	4.9V
C	0V
B	4.8V

Q15

E	3.7V
C	- 1.3V
B	3.2V

Q16

E	3.1V
C	0V
B	4.9V

Q17

E	—
C	—
B	—

Q18

E	—
C	—
B	—

Q19

E	—
C	—
B	—

Q20

E	—
C	0.8V
B	—

Q21

E	13.5V
C	—
B	—

Q22

E	—
C	—
B	—

Q23

E	—
C	—
B	—

IC1

1 - 3	—
4	13.9V
5 - 10	—
11	- 15.1V
12 - 14	—

IC2

1 - 3	—
4	13.9V
5 - 10	—
11	- 14.5V
12	—
13	2.5V
14	- 12V

IC3

1	—
2	0.2V
3,4	—
5	MUTE ON: 5V OFF: 0V
6,7	—
8	15.1V
9 - 11	—
12	0.1V
13 - 15	—
16	13.4V

IC4

1 - 3	0V
4	7.7V
5,6	—
7	2.1V
8	3.3V

IC5

1	0.3V
2	13.9V
3	DOWN: 5.4V
4,5	—
6	14V
7	UP: 5.4V
8	4.6V
9	0.3V

IC6

1	0.4V
2	14V
3	DOWN: 5.4V
4,5	—
6	14V
7	UP: 5.4V
8	4.7V
9	0.6V

IC7

1	0V
2	- 25.1V
3	- 15.2V

Q1

E	—
C	- 31.2V
B	0.1V

Q2

E	0.7V
C	31.2V
B	0.1V

Q3

E	—
C	- 31.2V
B	0.1V

Q4

E	0.7V
C	- 31.2V
B	0.1V

Q5

E	33.1V
C	1.2V
B	32.5V

Q6

E	33.1V
C	—
B	32.5V

Q7

E	- 31.8V
C	27.5V
B	- 31.2V

Q8

E	—
C	- 27.3V
B	- 31.2V

Q9

E	- 31.8V
C	1.2V
B	- 31.2V

Q10

E	—
C	1.2V
B	- 31.2V

Q11

E	1.2V
C	1.2V
B	0.6V

Q12

E	1.2V
C	1.2V
B	0.6V

Q13

E	0V
C	34.2V
B	1.1V

Q14

E	0V
C	34.2V
B	1.1V

Q15

E	0V
C	34.2V
B	- 1.2V

Q16

E	0V
C	- 34.2V
B	—

Q17

E	0V
C	33.7V
B	0V

Q18

E	0V
C	33.7V
B	0V

Q51

E	0V
C	—
B	OFF: - 15V ON: 0.7V

Q52

E	4.4V
C	OFF: - 15V ON: 4.3V
B	3.7V

Q53

E	33.4V
C	- 34.2V
B	- 34.1V

Q54

E	34.2V
C	0V
B	34.2V

Q55

E	0V
C	0.1V
B	0.7V

Q56

E	0.7V
C	0.8V
B	1.4V

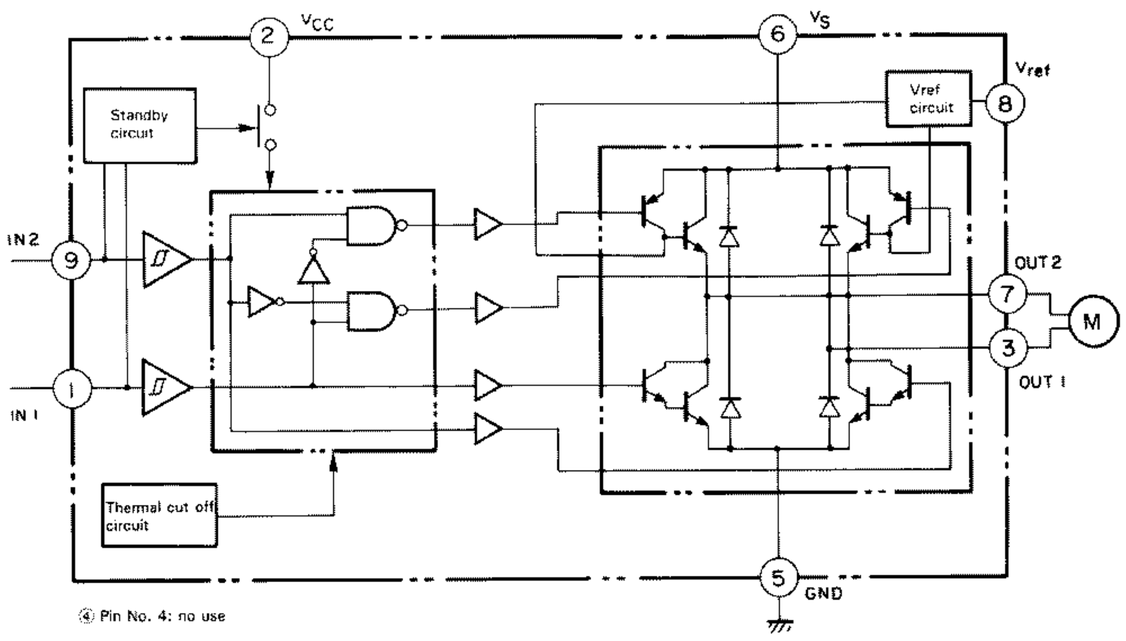
Q57

E	14V
C	32.5V
B	14.6V

CIRCUIT DESCRIPTION

IC5, 6: TA8409S (X09-3142-71)
Volume motor drive IC

Block diagram



④ Pin No. 4: no use

Truth table

INPUT		OUTPUT		MODE
①	⑨	③	⑦	Pin No. of IC5, 6
IN 1	IN 2	OUT 1	OUT 2	Motor mode
0	0	∞	∞	STOP
0	1	L	H	CW
1	0	H	L	CCW
1	1	L	L	BRAKE

∞: High impedance
Input "H" active

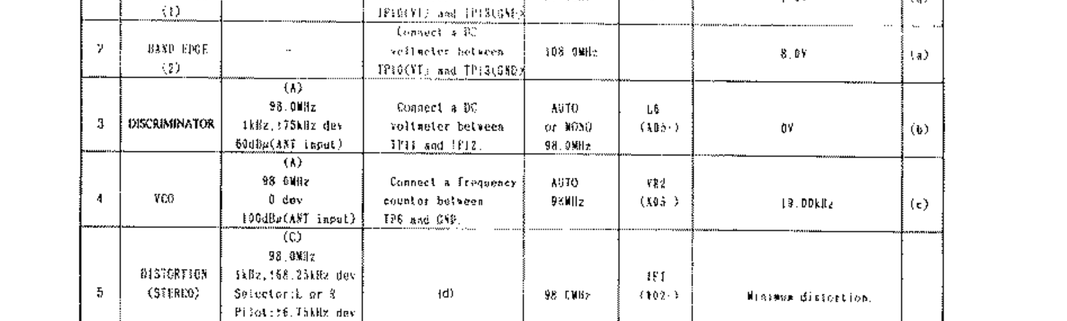
ADJUSTMENT

Tuner unit

If alignment point is "-" Confirm the value
If not, replace the frontend pack and IC3(X05:PLL)

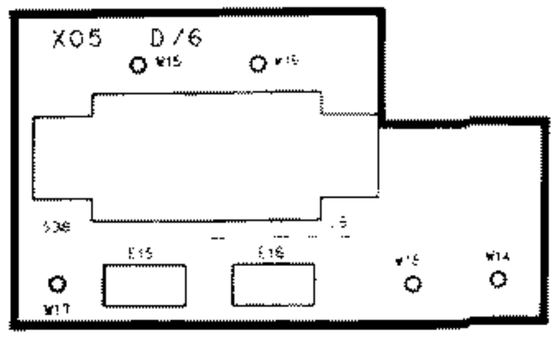
No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	TUNER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG
FM SECTION			SELECTOR: FM				
1	BAND EDGE (1)	-	Connect a DC voltmeter between TP10(VT) and TP13(GND)	87.5MHz	-	1.6V	(a)
2	BAND EDGE (2)	-	Connect a DC voltmeter between TP10(VT) and TP13(GND)	108.0MHz		8.0V	(a)
3	DISCRIMINATOR	(A) 98.0MHz 1kHz, ±75kHz dev 60dBµ(ANT input)	Connect a DC voltmeter between TP11 and TP12.	AUTO or MONO 98.0MHz	L6 (X05-)	0V	(b)
4	VCO	(A) 98.6MHz 0 dev 100dBµ(ANT input)	Connect a frequency counter between TP6 and GND.	AUTO 98MHz	VR2 (X05-)	10.000kHz	(c)
5	DISTORTION (STEREO)	(C) 98.0MHz 1kHz, ±68.25kHz dev Selector: L or R Pilot: ±6.75kHz dev 50dBµ(ANT input)	(d)	98.0MHz	VR1 (X02-)	Minimum distortion.	
6	SEPARATION (E,T type only)	(C) 98.0MHz Stereo signal 60dBµ(ANT input)	(d)	AUTO 98.0MHz	VR3 (X05-)	Minimum crosstalk.	
7	TUNING LEVEL	(A) 98.0MHz 0 dev 84dBµ(ANT input) 75Ω	(d)	AUTO or MONO 98.0MHz	VR1 (X05-)	Adjust VR1 and stop at the point where FL1(TUNED) goes on.	
AM-MW SECTION		Keep the AM loop antenna installed.		SELECTOR: AM or MW			
(1)	BAND EDGE (1)	-	Connect a DC voltmeter between TP10(VT) and TP13(GND)	530kHz (531kHz)	-	1.3V	(a)
(2)	BAND EDGE (2)	-	Connect a DC voltmeter between TP10(VT) and TP13(GND)	1610kHz (1602kHz)	-	7.0V	(a)
(3)	RF ALIGNMENT	(D) 990kHz 400Hz, 30% mod 84dBµ(ANT input)	(d)	990kHz	L2 BLACK (X05-)	Maximum amplitude and symmetry of the oscilloscope display.	
AM-LW SECTION (E,T type only)		Keep the AM loop antenna installed.		SELECTOR: LW			
(4)	BAND EDGE (1)	-	Connect a DC voltmeter between TP10(VT) and TP13(GND)	153kHz	-	2.3V	(a)
(5)	BAND EDGE (2)	-	Connect a DC voltmeter between TP10(VT) and TP13(GND)	281kHz	-	7.0V	(a)
		Repeat alignments (4) and (5) several times.					
(6)	RF ALIGNMENT	(D) 216kHz 400Hz, 30% mod 32dBµ(ANT input)	(d)	216kHz	L3 BLACK (X05-)	Maximum amplitude and symmetry of the oscilloscope display.	

Connection

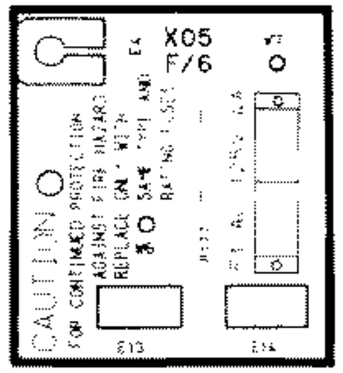


PC BOARD (Component side view)

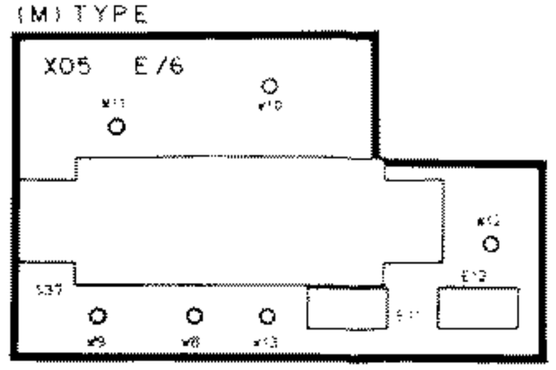
(Y) TYPE

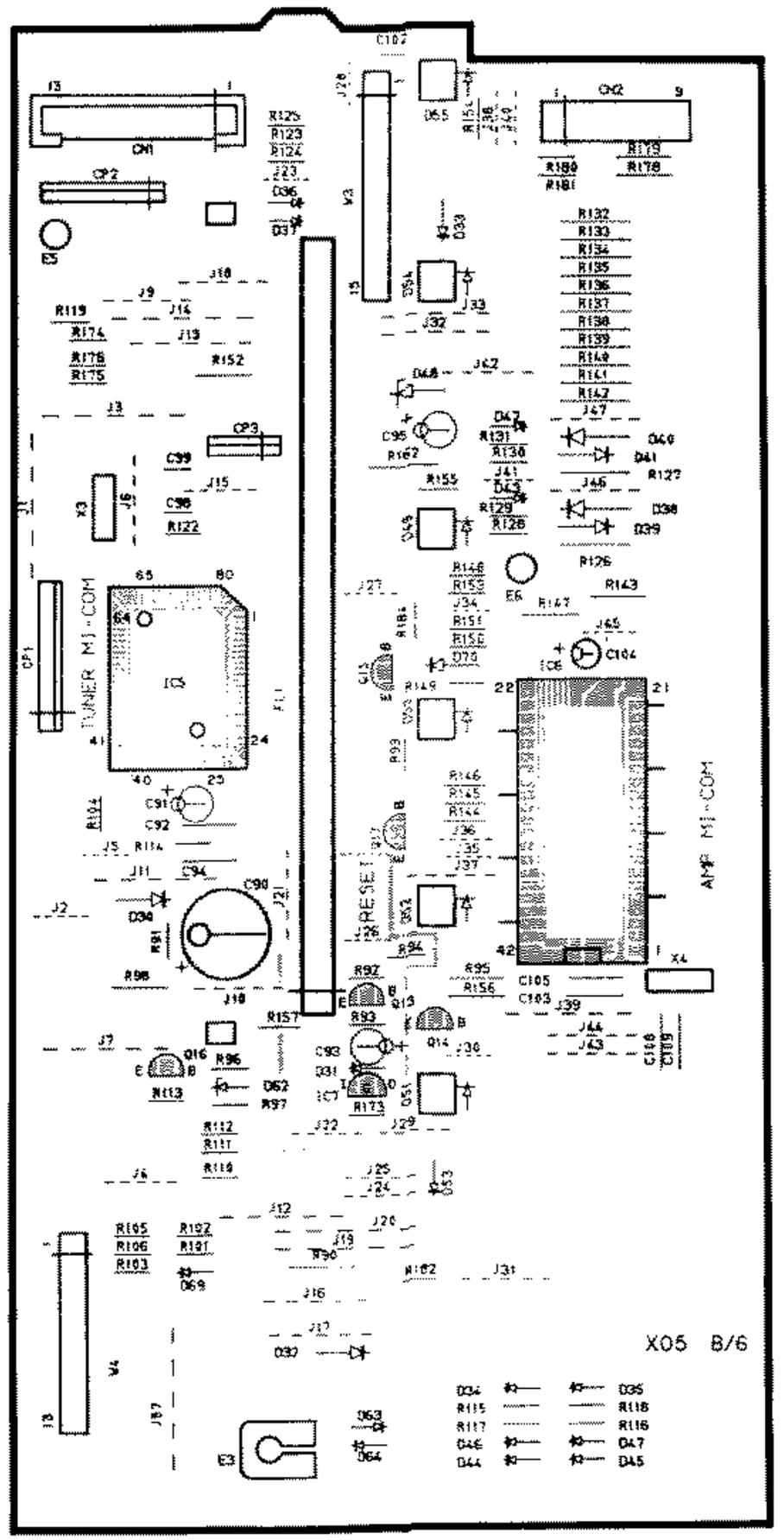


(K, P) TYPE

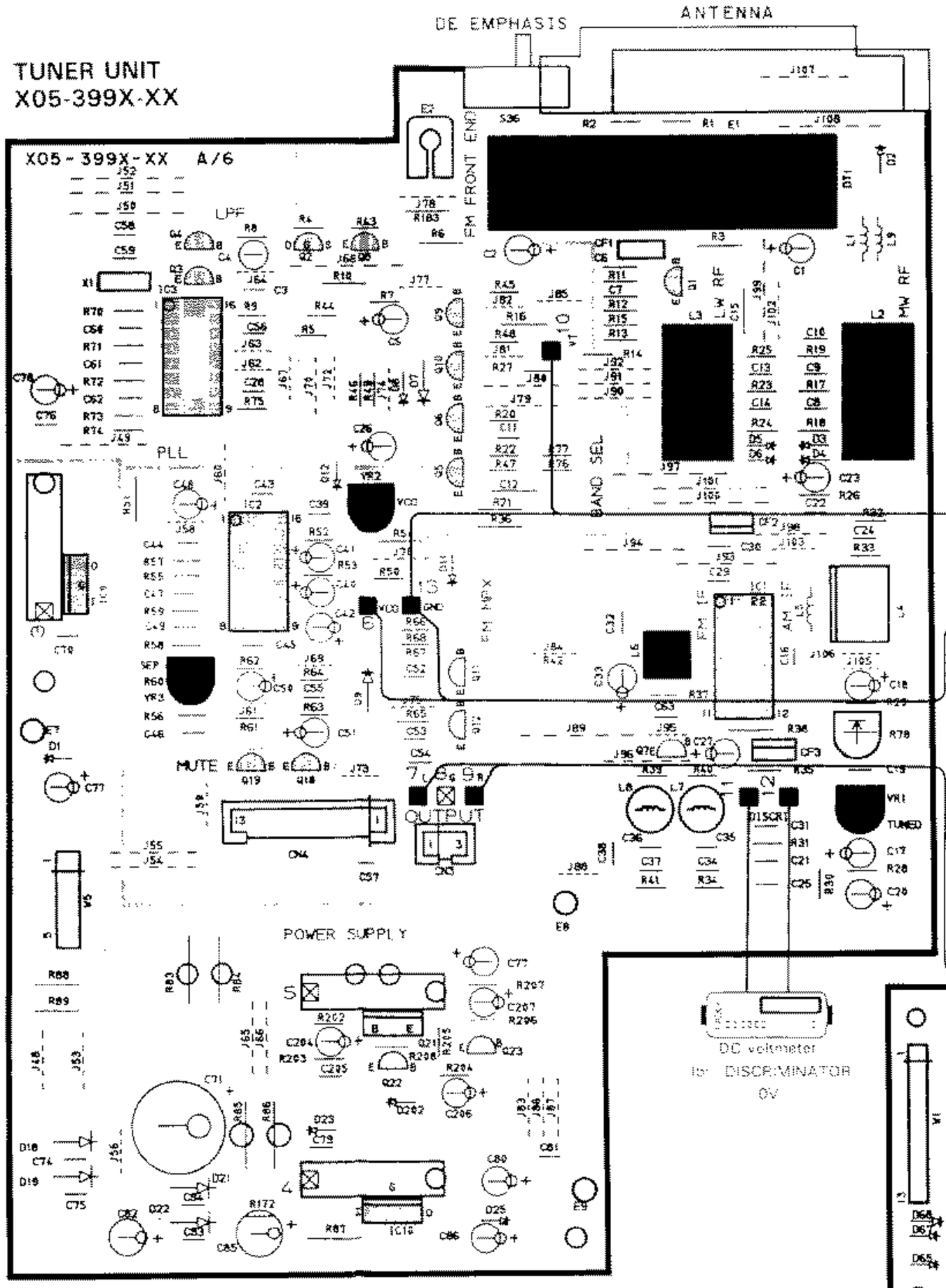


(M) TYPE





TUNER UNIT
X05-399X-XX



(a) BAND EDGE
FM (1) 1.6V
(2) 8.0V
AM (MW) (1) 1.3V
(2) 7.0V
LW (1) 2.3V
(2) 7.0V

DC voltmeter

(c) VCC 19.00kHz

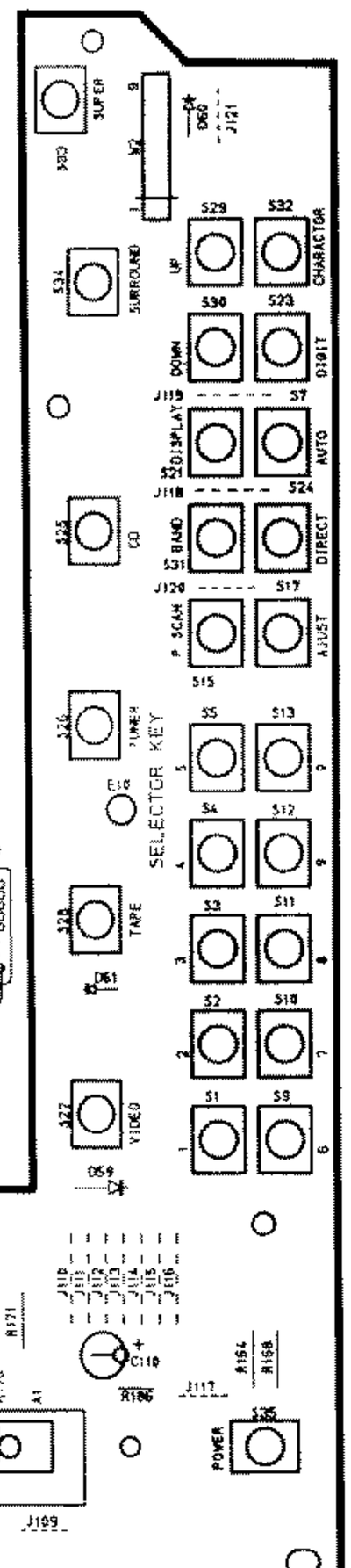
Frequency counter

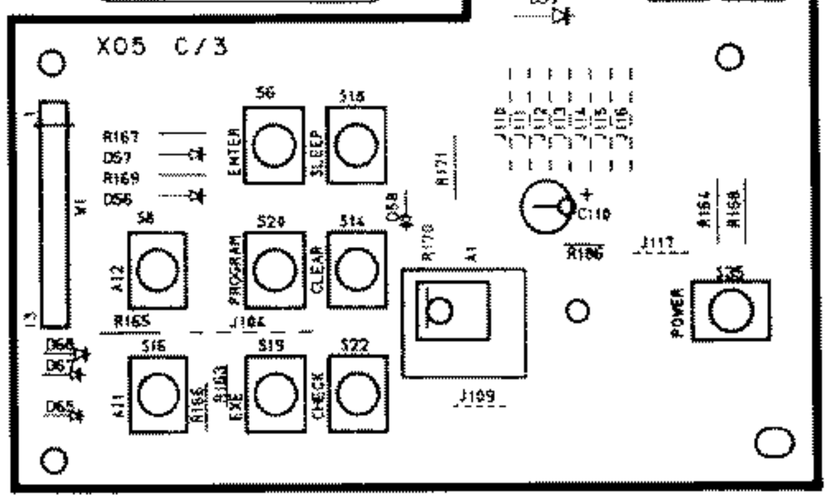
AC voltmeter

Oscilloscope

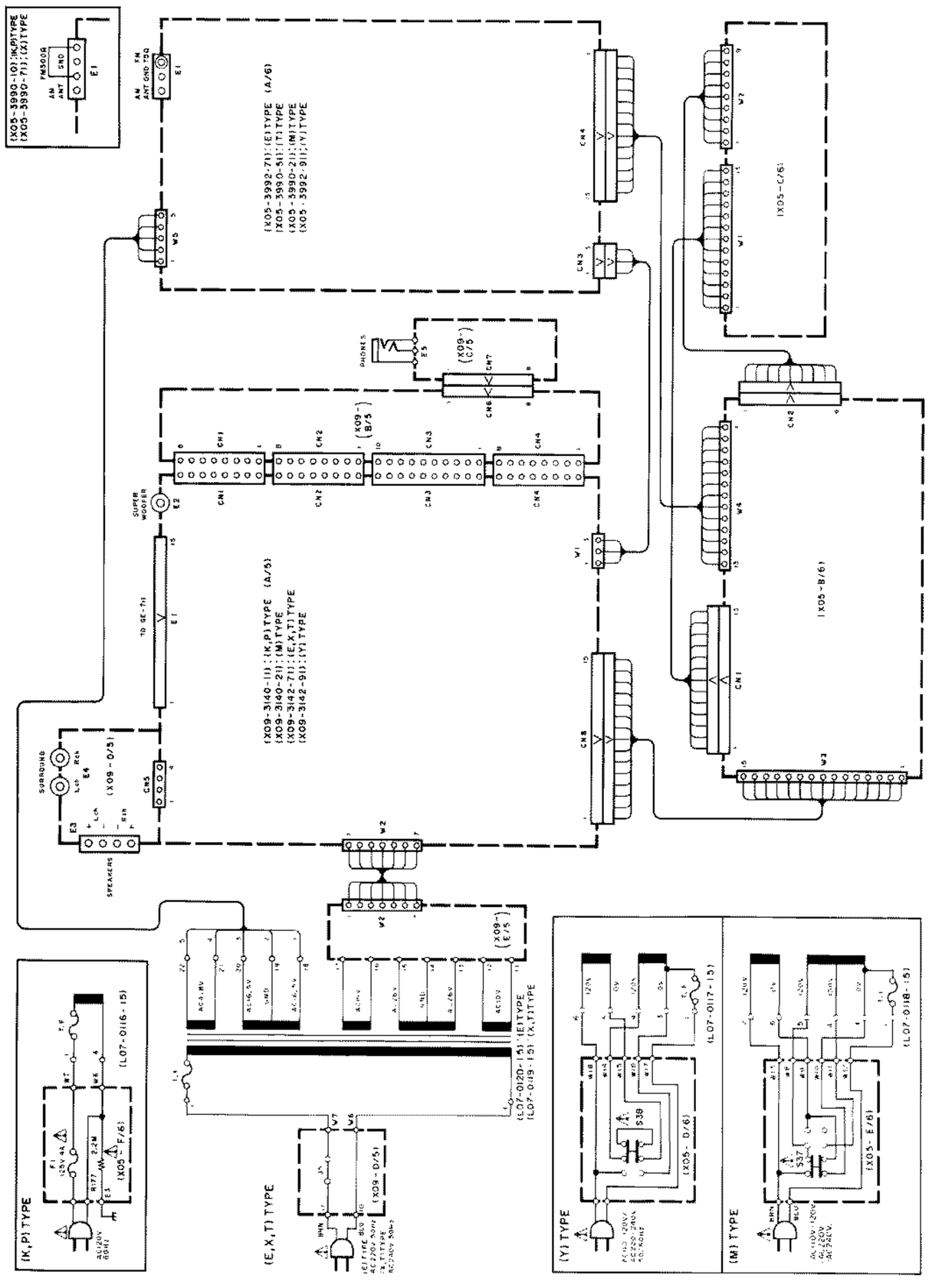
(d) Distortion meter

DC voltmeter
for DISCRIMINATOR
0V





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



A-711/711L

PARTS LIST

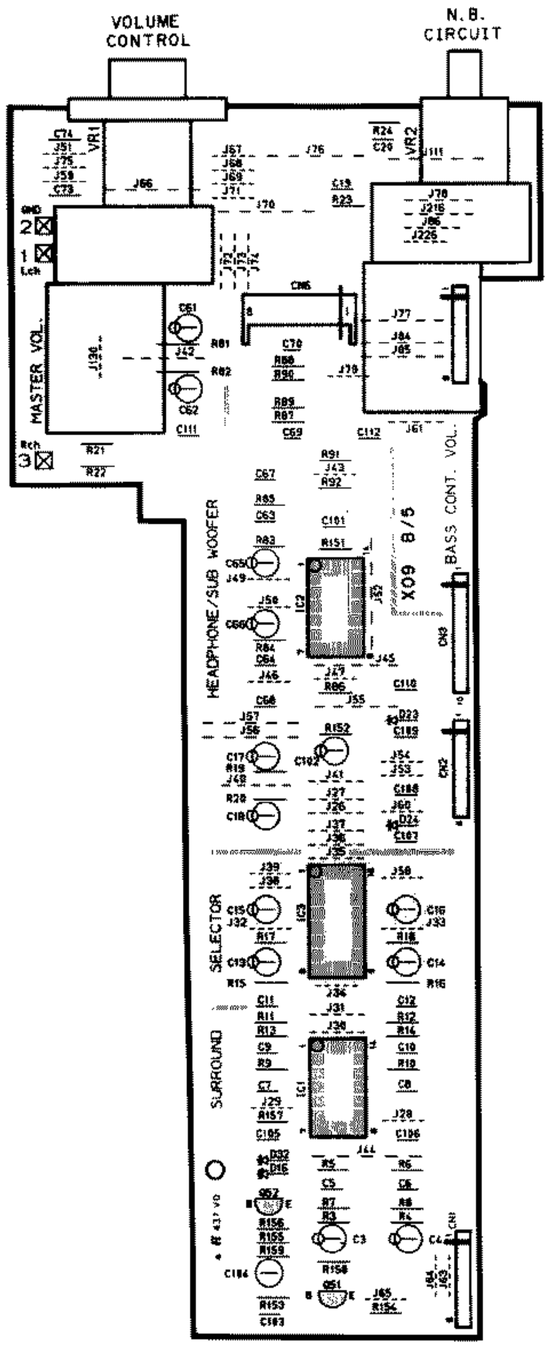
* New Parts
Parts without Parts No. are not supplied.
Les articles non mentionnes dans le Parts No. ne sont pas fournis.
Teile ohne Parts No. werden nicht geliefert.

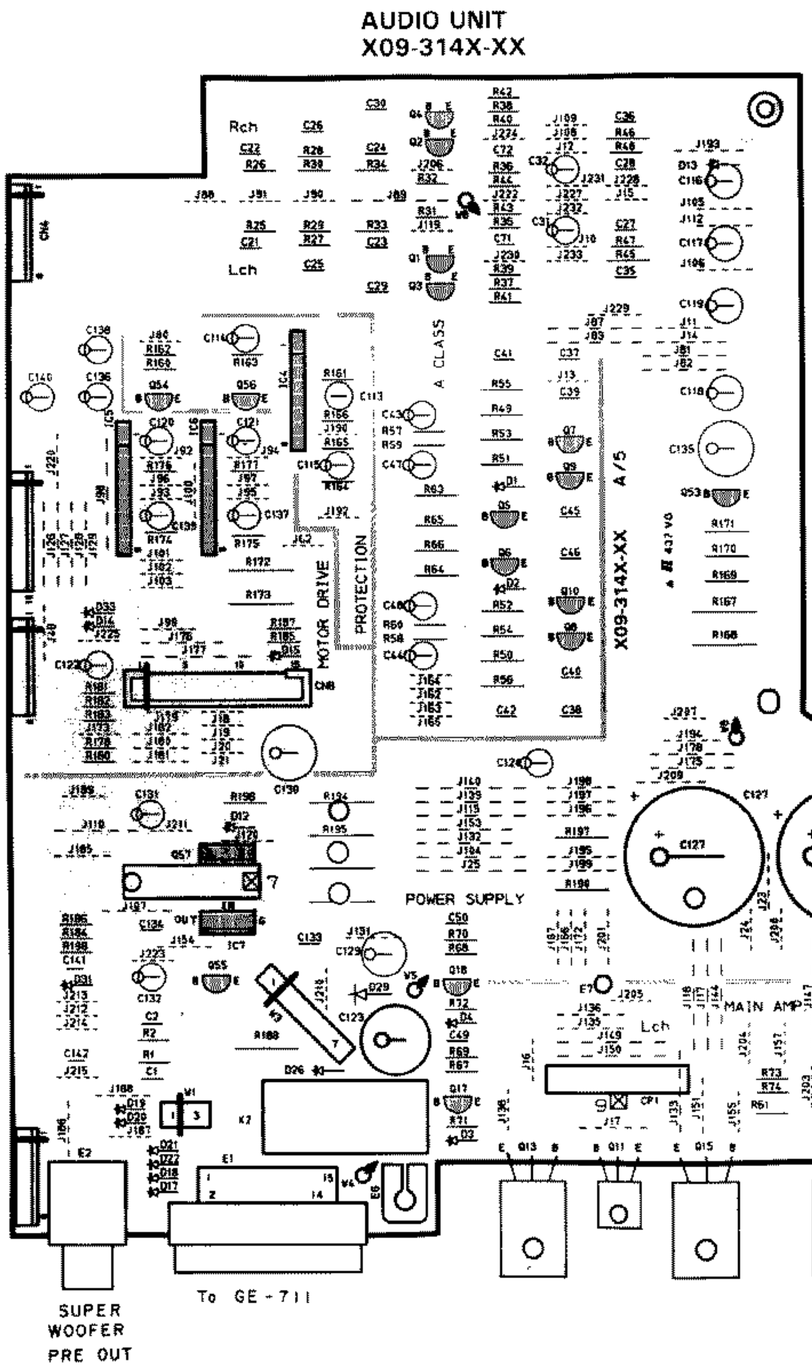
Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格			Destination 仕向	Remarks 備考
C54 ,55			CF92FV1H153J	MF	0.015UF	J	YMXTE	
C54 ,55			CF92FV1H223J	MF	0.022UF	J	KP	
C56 ,57			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C58 ,59			CC45FCH1H220J	CERAMIC	22PF	J		
C60 -62			CC45FSL1H101J	CERAMIC	100PF	J		
C63 -65			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C70			CF92FV1H223J	MF	0.022UF	J		
C71			CE04KW1E332M	ELECTRO	3300UF	25WV		
C74 ,75			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C76			CF92FV1H223J	MF	0.022UF	J		
C77 ,78			CE04KW1E470M	ELECTRO	47UF	25WV		
C79			CF92FV1H223J	MF	0.022UF	J		
C80			CE04KW1A470M	ELECTRO	47UF	10WV		
C81			CF92FV1H223J	MF	0.022UF	J		
C82			CE04KW1E101M	ELECTRO	100UF	25WV		
C83 ,84			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C85			CE04KW1H101M	ELECTRO	100UF	50WV		
C86			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C90			C90-1827-05	BACKUP	0.047F	5.5WV		
C91			CE04JW1A101M	ELECTRO	100UF	10WV		
C92			C91-0769-05	CERAMIC	0.01UF	K		
C93			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C94			C91-0769-05	CERAMIC	0.01UF	K		
C95			CE04KW1C470M	ELECTRO	47UF	16WV		
C98 ,99			CC45FCH1H330J	CERAMIC	33PF	J		
C102			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C103			C91-0769-05	CERAMIC	0.01UF	K		
C104			CE04JW0J100M	ELECTRO	10UF	6.3WV		
C105			C91-0769-05	CERAMIC	0.01UF	K		
C108,109			C91-0749-05	CERAMIC	220PF	K		
C110			CE04JW1A101M	ELECTRO	100UF	10WV		
C204			CE04KW1V220M	ELECTRO	22UF	35WV		
C205			CF92FV1H102J	MF	1000PF	J		
C206			CE04KW1V100M	ELECTRO	10UF	35WV		
C207			CE04KW1H010M	ELECTRO	1.0UF	50WV		
E1	1C		E20-0321-05	LOCK TERMINAL BOARD(ANTENNA)			YMTE	
E1	1C		E20-0476-05	LOCK TERMINAL BOARD(ANTENNA)			KPX	
⚠ F1			F05-4028-05	FUSE (UL)(125V,4A)			KP	
-			J13-0075-05	FUSE CLIP			KP	
CF1 ,2			L72-0531-05	CERAMIC FILTER			KPYMX	
CF1 ,2			L72-0536-05	CERAMIC FILTER			TE	
CF3			L72-0096-05	CERAMIC FILTER				
L1			L40-1091-17	SMALL FIXED INDUCTOR(1UH)			TE	
L2			L39-0192-05	COMBINATION COIL				
L3			L39-0193-05	COMBINATION COIL			TE	
L4			L30-0454-15	AM IFT				
L5			L40-1021-14	SMALL FIXED INDUCTOR(1.0mH,K)				
L6			L30-0439-25	FM IFT(10.7MHz)				
L7			L40-5625-29	SMALL FIXED INDUCTOR(5.6mH,J)			TE	
L8			L40-6825-29	SMALL FIXED INDUCTOR(6.8mH,J)			TE	
L9			L40-1091-17	SMALL FIXED INDUCTOR(1UH)			KPYMX	
L10			L40-1001-17	SMALL FIXED INDUCTOR(10UH)				
X1			L77-1122-05	CRYSTAL RESONATOR(7.2MHz)				

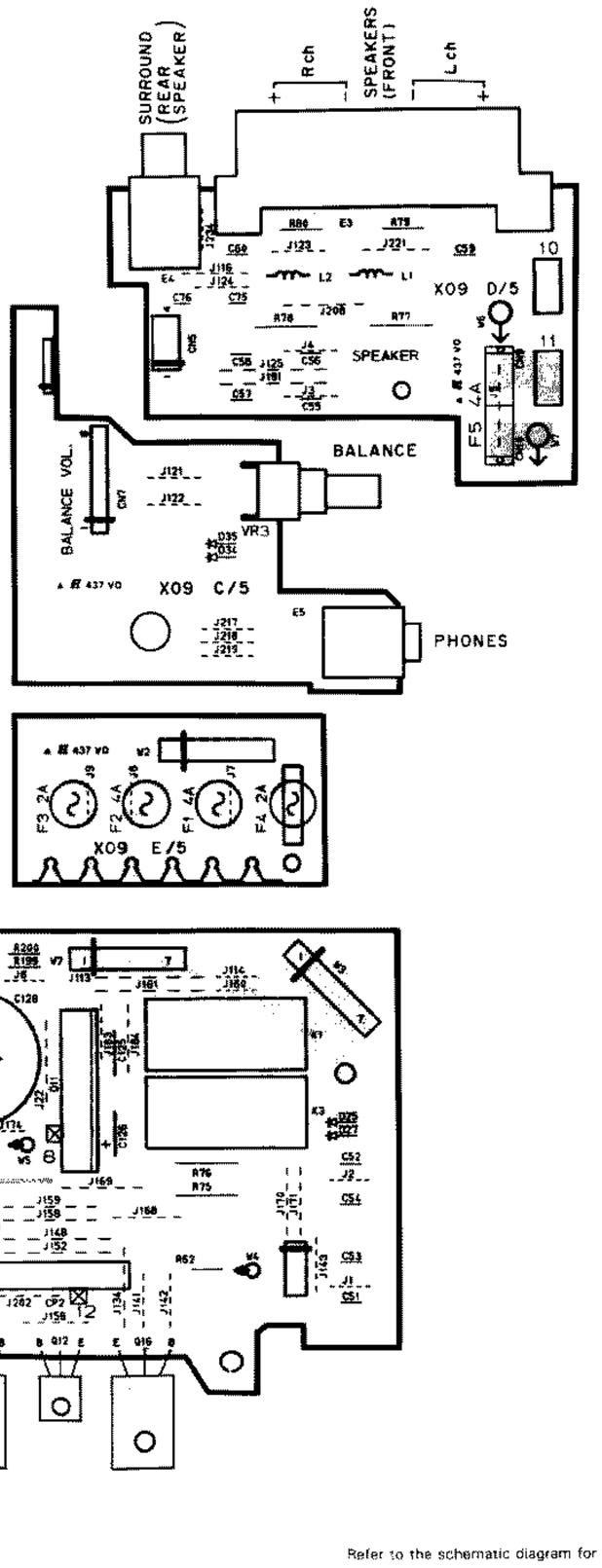
E: Scandinavia & Europe K: USA P: Canada W:Europe
Y: PX(Far East, Hawaii) T: England M: Other Areas
Y: AAFES(Europe) X: Australia

⚠ indicates safety critical components.

PC BOARD (Component side view)



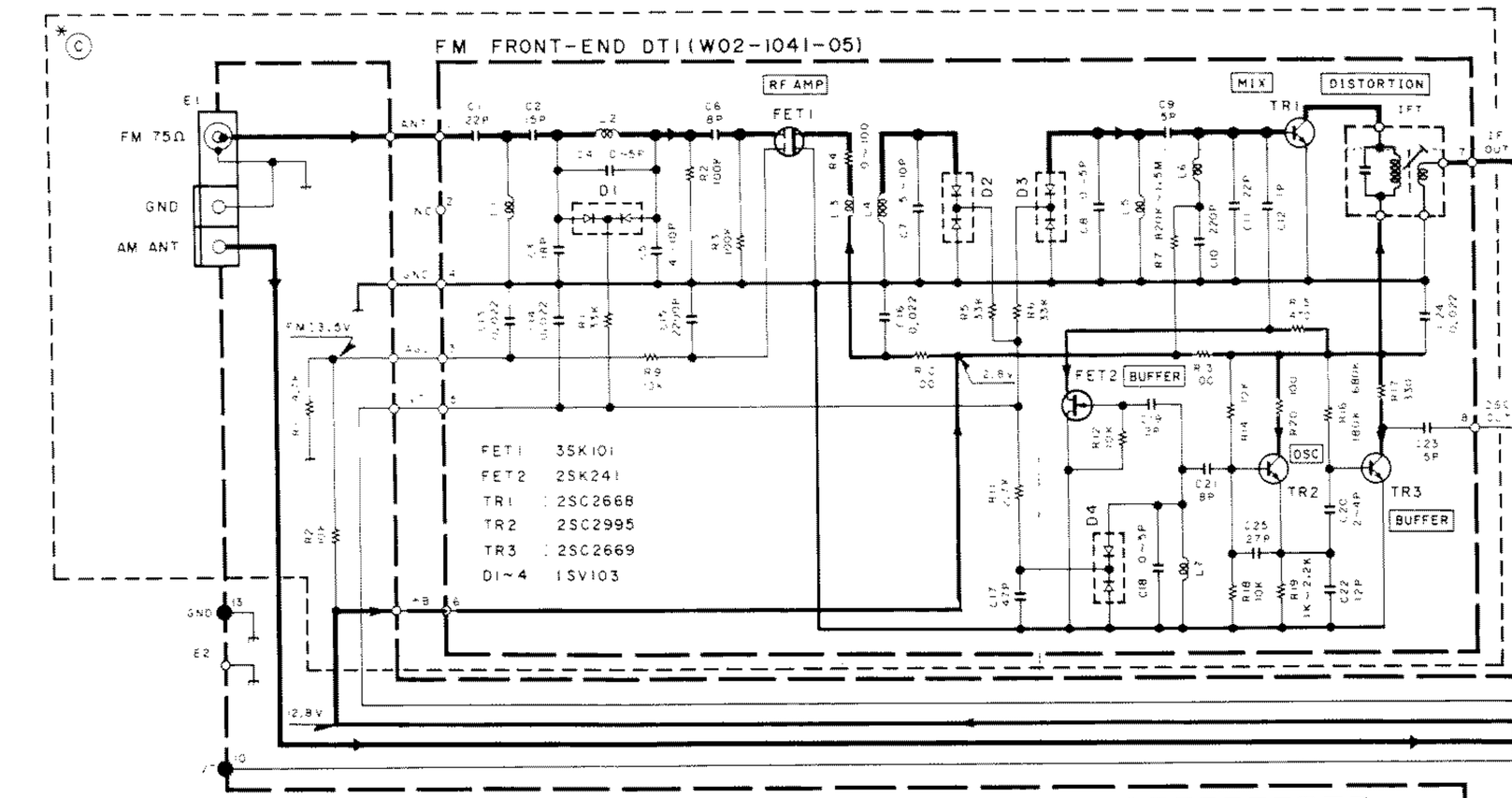


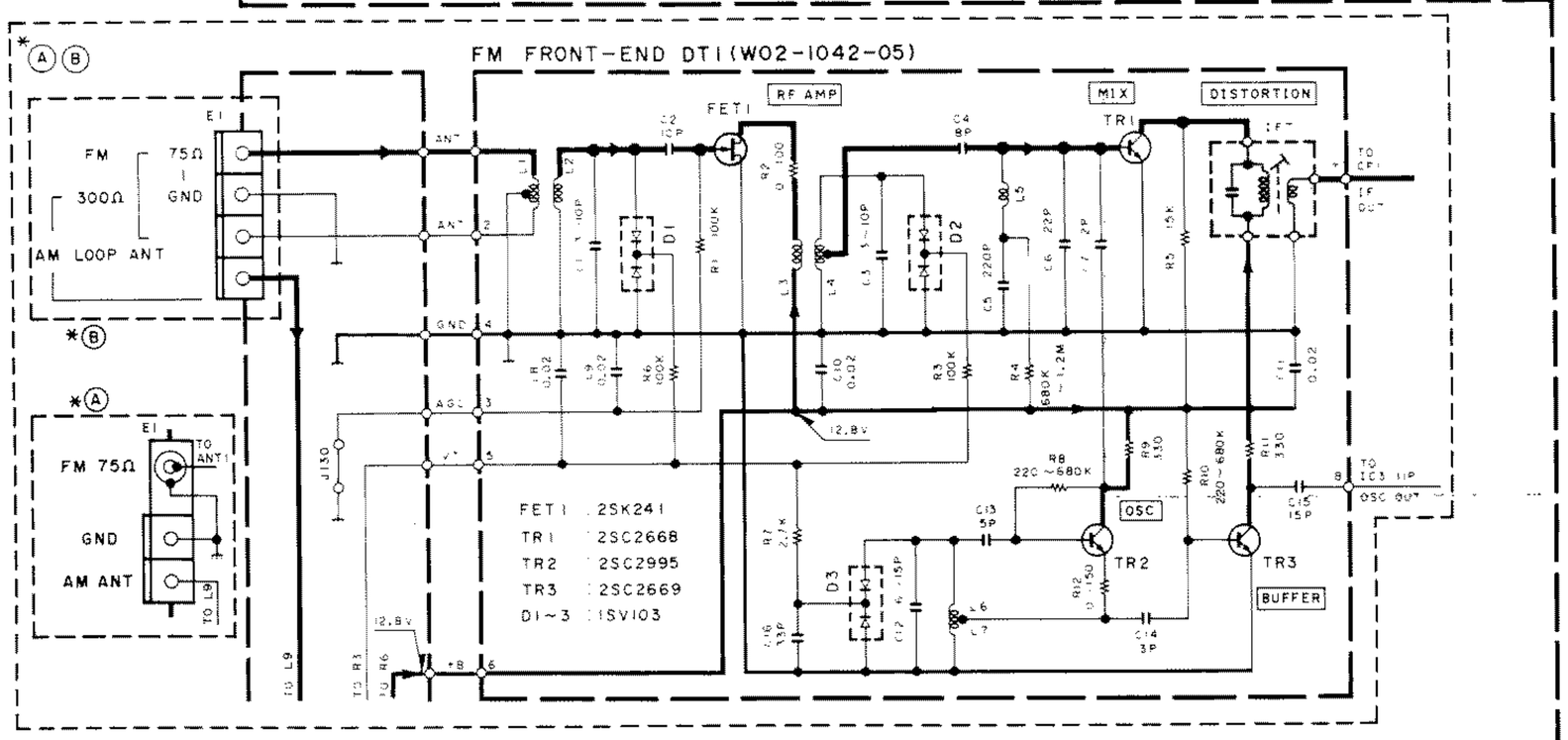


AUDIO UNIT
(X09-314X-XX)

Ref. No. IC	Ref. No. Q	Address
1		6P
2		4P
3		5P
4		3R
5		4Q
6		4R
7		5R
	1	3R
	2	2R
	3	3R
	4	2R
	5	4S
	6	4S
	7	3S
	8	4S
	9	4S
	10	4S
	11	6S
	12	6T
	13	6S
	14	6T
	15	6T
	16	6U
	17	6S
	18	6S
	51	6P
	52	6P
	53	4T
	54	3Q
	55	6R
	56	3R
	57	5R

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



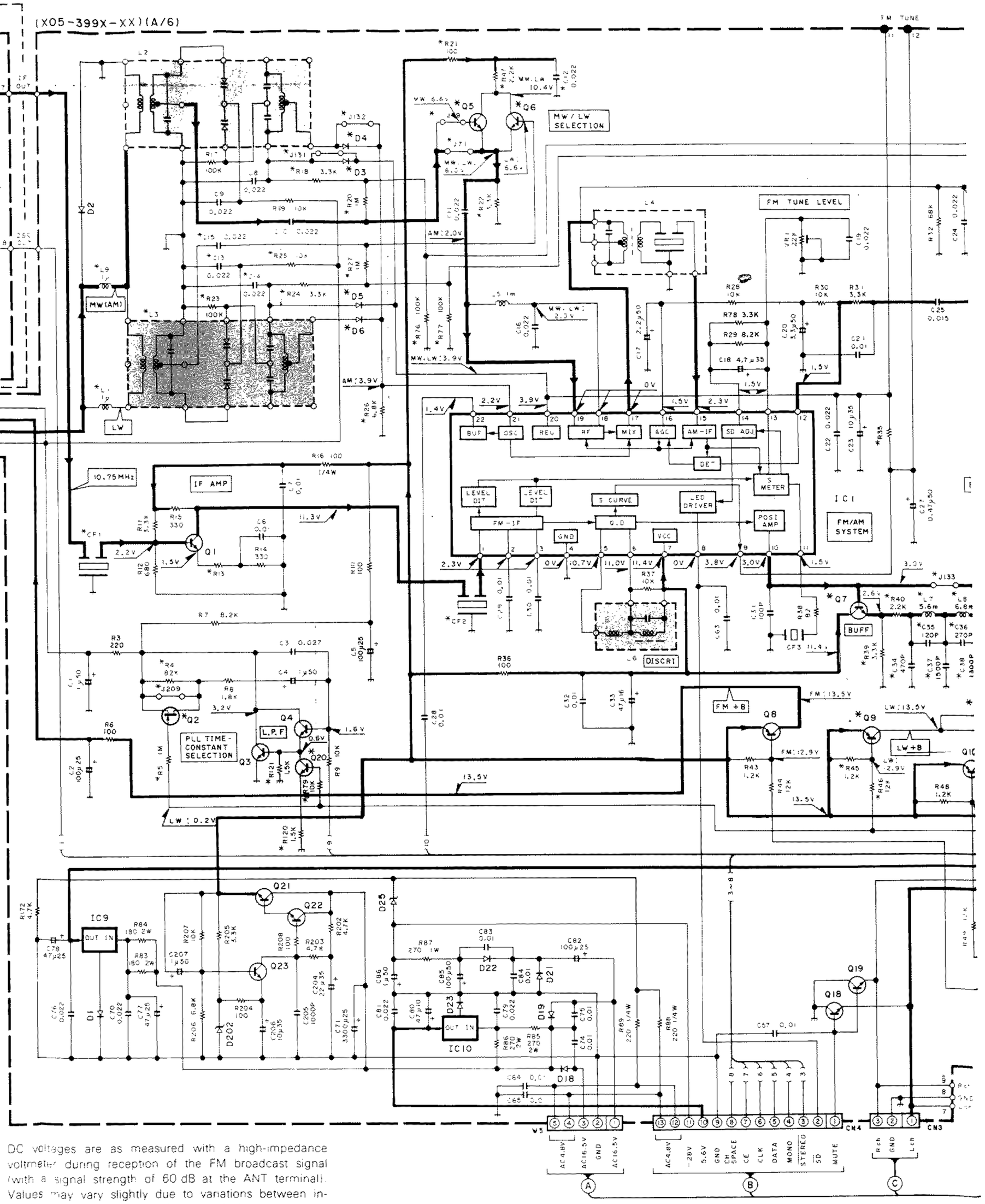


DESTINATION		UNIT NAME	Ⓐ	Ⓑ	Ⓒ	Ⓓ	R4	R5,8,20~27,39,41,45~47,59,73,76,77,79,120	R13	R33	R42	R60,121	C12~15,34~38,45	C54,55	L1,3,7,8	L9	Q2,20	Q3~7,9	D3	D4	D5~7	D8	R35
COUNTRY	ABB.																						
ENGLAND EUROPE	T E	X05-3992-71	NO	NO	YES	NO	82K	YES	22	3.3K	36K	NO	YES	0.015	YES	NO	YES	YES	YES	YES	YES	YES	36K
AUSTRALIA	K	X05-3990-71	NO	YES	NO	NO	120	NO	56	4.7K	39K	YES	NO	0.015	NO	YES	NO	NO	NO	NO	NO	NO	5K
GENERAL MARKET	M	X05-3990-21	YES	NO	NO	YES	120	NO	56	4.7K	39K	YES	NO	0.015	NO	YES	NO	NO	NO	NO	NO	NO	15K
PX	Y	X05-3992-91	YES	NO	NO	YES	120	NO	56	4.7K	39K	YES	NO	0.015	NO	YES	NO	NO	NO	NO	NO	NO	15K
U.S.A CANADA	K P	X05-3990-10	NO	YES	NO	NO	120	NO	56	4.7K	39K	YES	NO	0.022	NO	YES	NO	NO	NO	NO	NO	NO	5K

CF2	VP3	S36	J131, 133	J79, 132, 134
J72-0536-05	YES	NO	NO	YES
J72-0553-05	NO	NO	YES	NO
J72-0553-05	NO	YES	YES	NO
J72-0551-05	NO	YES	YES	NO
J72-0553-05	NO	NO	YES	NO

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.

SIGNAL LINE
GND LINE
+B LINE
−B LINE



DC voltages are as measured with a high-impedance voltmeter during reception of the FM broadcast signal (with a signal strength of 60 dB at the ANT terminal). Values may vary slightly due to variations between individual instruments or/and units. Values in parentheses are as measured during reception of the AM broadcast signal (with a signal strength of 60 dB at the ANT terminal).

(X05-399X-XX)(A/6)

DC voltages are as measured with a high-impedance voltmeter during reception of the FM broadcast signal (with a signal strength of 60 dB at the ANT terminal). Values may vary slightly due to variations between individual instruments or/and units. Values in parentheses are as measured during reception of the AM broadcast signal (with a signal strength of 60 dB at the ANT terminal).

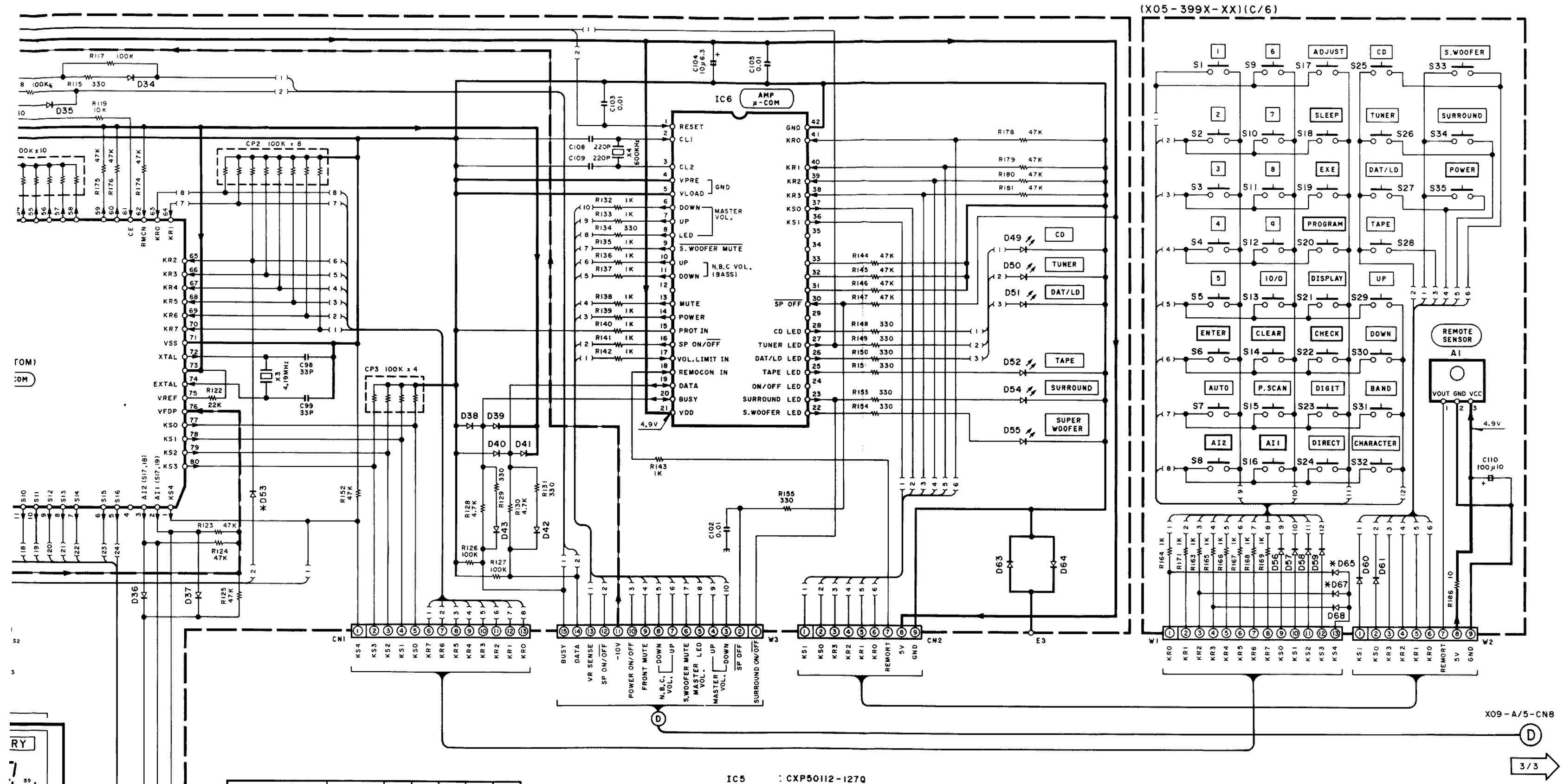
IC1	: LA1265
IC2	: AN7470
IC3	: LM7001
IC9,10	: AN7805F or μPC7805HF
Q1	: 2SC1923(R,O)
Q2	: 2SK163(L,M)
Q3,5~7,11,12,20,22,23	: 2SC945(A)(Q,P) or 2SC1740S(Q,R)
Q4	: 2SC1845(F,E)
Q8~10	: 2SA733(A)(Q,P) or 2SA933S(Q,R)
Q18,19	: 2SD1302(S,T)
Q21	: 2SD1266(Q,P)
D1~9,11,12,23	: 1SS133 or HSS104
D18,19,21,22	: S5566B
D25	: RD5.1ES(B2) or HZS5.1N(B2)
D202	: RD5.1JS(B2) or HZS5.1S(B2)

A-711/711L(E)(1/3)

Y05-2500-11

A-711/711L

KENWOOD



DESTINATION		UNIT NAME	R182, R183	D53	D65	D67	Q17
COUNTRY	ABB.						
ENGLAND EUROPE	T E	X05-3992-71	NO	NO	YES	YES	NO
AUSTRALIA	X	X05-3990-71	NO	NO	NO	YES	NO
GENERAL MARKET	M	X05-3990-21	YES	YES	NO	NO	YES
PX	Y	X05-3992-91	YES	YES	NO	NO	YES
U.S.A CANADA	K P	X05-3990-10	NO	NO	NO	NO	NO

IC5 : CXP50112-127Q
IC6 : μPD7538ACU-232
IC7 : PST529D

Q14~16,17 : 2SA733(A)(Q,P) or 2SA933S(Q,R)
Q13 : 2SC945(A)(Q,P) or 2SC1740S(Q,R)

D30~47,56~61,63~65,67~70 : 1SS133 or HSS104
D48 : RD10ES(B) or HZS10N(B)
D49~52,54,55 : B30-1012-05
D62 : RD3.3ES(B2) or HZS3.3N(B2)

A1 : W02-1049-05 or W02-1048-05
FL1 : 8-BT-98GK

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

GND LINE
+B LINE
-B LINE

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
μPC1237HA
AN7805F μPC7805HF
OUTPUT GND INPUT (Case)
PST529D
INPUT GND OUTPUT
2SK163
S D G
LA1265
μPC7915HF

2SA733(A)
2SA992
2SC1845
2SC1923
2SC2631
2SC2878
2SC945(A)
2SD1302

2SD1266

2SC3666

2SA933S
2SC1740S

NJM2058D

LM7001

AN7470
TC9215P

TA8409S

μPC1237HA

AN7805F
μPC7805HF
INPUT (Case)
GND
OUTPUT

PST529D
INPUT
GND
OUTPUT

2SK163

LA1265

μPC7915HF

DESTINATION		UNIT NAME	R182, R183	D53	D65	D67	Q17
COUNTRY	ABB.						
ENGLAND EUROPE	T E	XO5-3992-71	NO	NO	YES	YES	NO
AUSTRALIA	X	XO5-3990-71	NO	NO	NO	YES	NO
GENERAL MARKET	M	XO5-3990-21	YES	YES	NO	NO	YES
PX	Y	XO5-3992-91	YES	YES	NO	NO	YES
U.S.A CANADA	K E	XO5-3990-10	NO	NO	NO	NO	NO

IC5 : CXP50112-127Q
IC6 : μPD75388ACU-232
IC7 : PST529D

Q14~16,17 : 2SA733(A)(Q,P) or 2SA933S(Q,R)
Q13 : 2SC945(A)(Q,P) or 2SC1740S(Q,R)

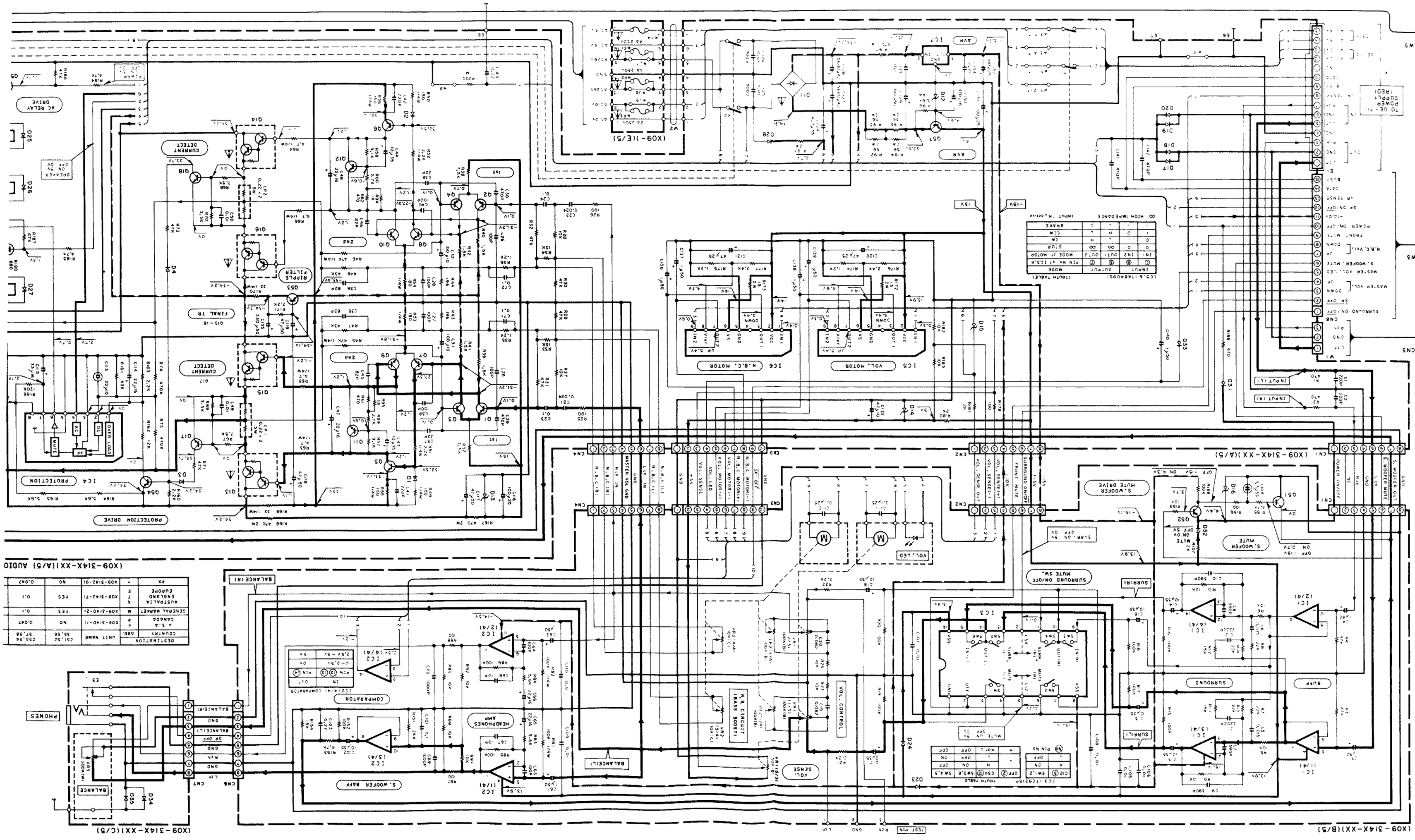
D30~47,56~61,63~65,67~70 : ISS133 or HSS104
D48 : RD10ES(B) or HZS10N(B)
D49~52,54,55 : B30-1012-05
D62 : RD3.3ES(B2) or HZS3.3N(B2)

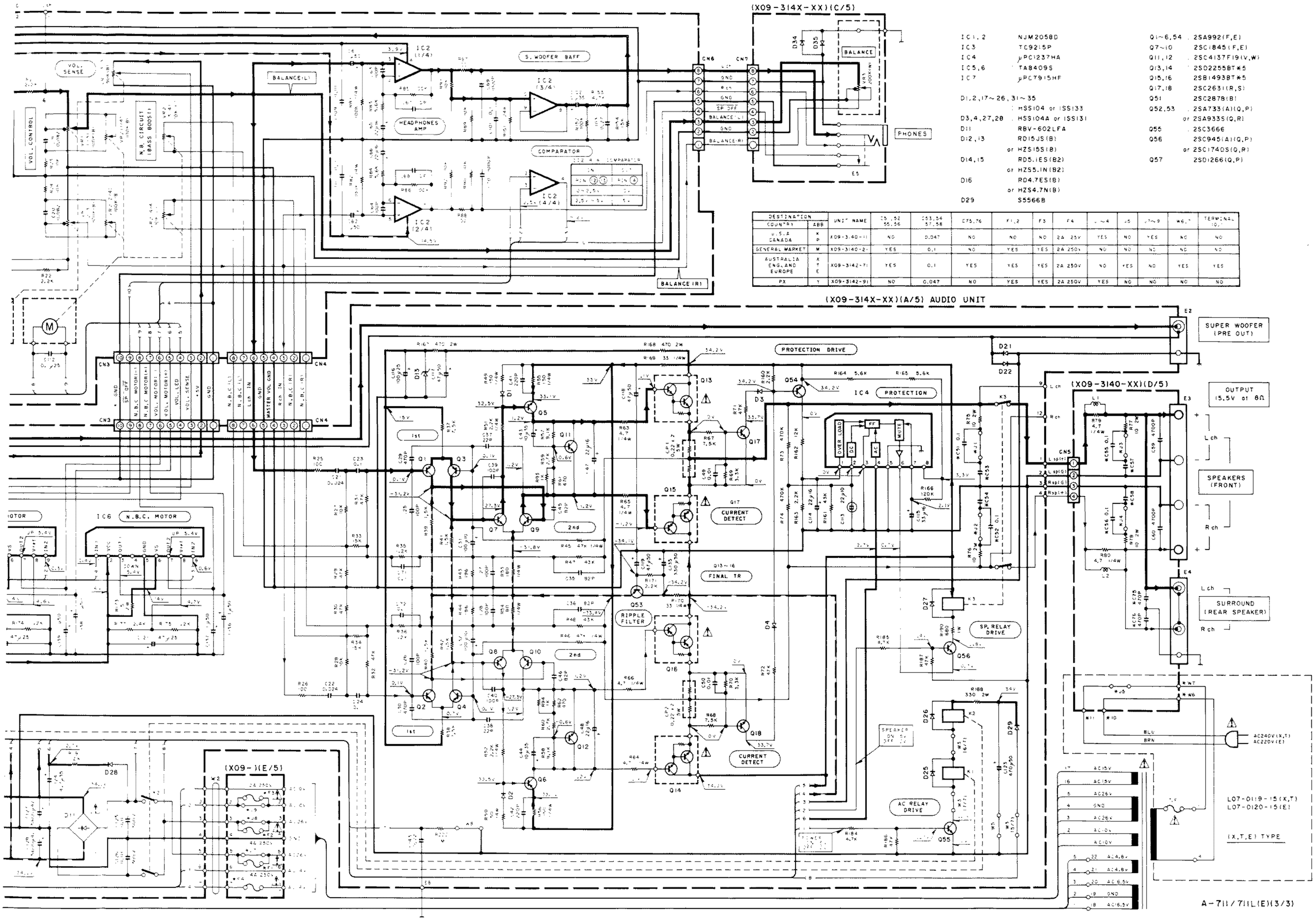
A1 : WO2-1049-05 or WO2-1048-05
FL1 : 8-BT-98GK

1/3

XO5-A/6-CN4

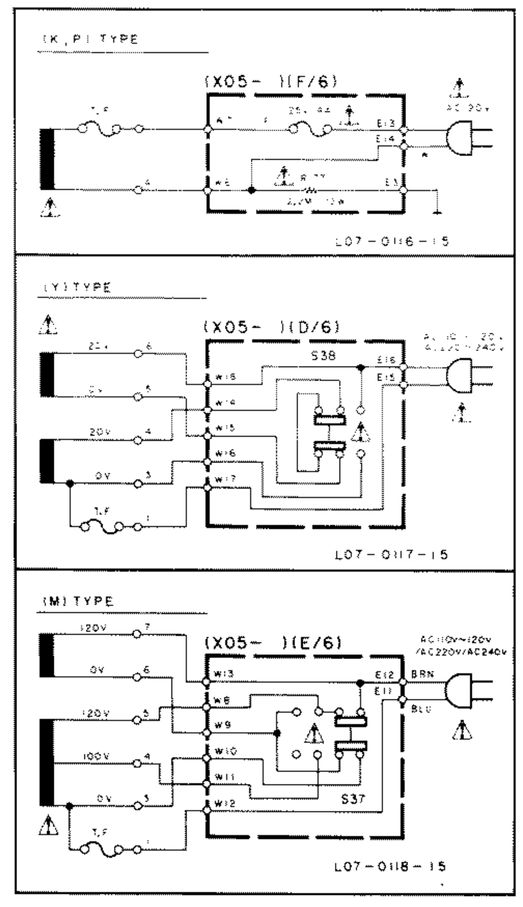
(XO5-399X-XX)(B/6)


(X09-314X-XX)(A/5)
(X09-314X-XX)(B/5)
(X09-314X-XX)(C/5)
(X09-314X-XX)(A/5) AUDIO
POWER SUPPLY (RED)
TO GE-711
PROTECTION
PROTECTION DRIVE
AC RELAY DRIVE
CURRENT DETECT
RIPPLE FILTER
FINAL TR
IC4
IC5 VOL. MOTOR
IC6 N.B.C. MOTOR
VOL. SENSE
VOL. CONTROL
N.B.C. CIRCUIT (BASS BOOST)
HEADPHONES AMP
COMPARATOR
S.WOOFER BUFF
S.WOOFER MUTE
SURROUND
SURROUND ON/OFF MUTE SW.
BUFF
PHONES
BALANCE
TEST PIN
DESTINATION
COUNTRY
UNIT NAME
AUSTRALIA ENGLAND EUROPE
GENERAL MARKET
U.S.A CANADA
PX
X09-3142-91
X09-3142-71
X09-3140-21
X09-3140-11
X09-314X-XX



IC1,2	NJM2058D
IC3	TC9215P
IC4	μPC1237HA
IC5,6	TA8409S
IC7	μPC7915HF
D1,2,17~26,31~35	: HSS104 or 1SS133
D3,4,27,28	: HSS104A or 1SS131
D11	RBV-602LFA
D12,13	RD15JS(B) or HZS15S1(B)
D14,15	RD5.1ES(B2) or HZS5.1N(B2)
D16	RD4.7ES(B) or HZS4.7N(B)
D29	S5566B
Q1~6,54	: 2SA992(F,E)
Q7~10	: 2SC1845(F,E)
Q11,12	: 2SC4137F19(V,W)
Q13,14	: 2SD2255BT★5
Q15,16	2SB1493BT★5
Q17,18	2SC2631(R,S)
Q51	2SC2878(B)
Q52,53	: 2SA733(A)(Q,P) or 2SA933S(Q,R)
Q55	: 2SC3666
Q56	: 2SC945(A)(Q,P) or 2SC1740S(Q,R)
Q57	2SD1266(Q,P)

DESTINATION		UNIT NAME	C5,52 55,56	C53,54 57,58	C75,76	F1,2	F3	F4	J~K	J5	J7~9	W6,7	TERMINAL (0)
COUNTRY	ABB												
U.S.A. CANADA	K P	X09-3140-11	NO	0.047	NO	NO	NO	2A 25V	YES	NO	YES	NO	NO
GENERAL MARKET	W	X09-3140-21	YES	0.1	NO	YES	YES	2A 250V	NO	NO	NO	NO	NO
AUSTRALIA ENGLAND EUROPE	X T E	X09-3142-71	YES	0.1	YES	YES	YES	2A 250V	NO	YES	NO	YES	YES
PX	Y	X09-3142-91	NO	0.047	NO	YES	YES	2A 250V	YES	NO	NO	NO	NO



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SIGNAL LINE
GND LINE
+B LINE
−B LINE

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.

A-711/711L(E)(3/3)

Y05-2500-11

A-711/711L

KENWOOD

A-711/711L

EXPLODED VIEW

EXPLODED VIEW

A	Ø4x6	(Bi-Tap) BLK	N86-4006-45
B	Ø3x8	(Bi-Tap)	N89-3008-46
C	Ø3x8	(Bi-Tap) BLK	N89-3008-45
D			N09-1445-05
E			N09-2804-05
F			N30-3006-46
G			N09-0333-05
H			N35-3008-46

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

PARTS LIST

* 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.

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
A-711/711L						
601	1A	*	A01-1866-01	METALLIC CABINET		
602	1B	*	A09-0106-08	BATTERY COVER		
604	2A	*	A20-6100-02	PANEL ASSY(A-711L)	TE	
604	2A	*	A20-6107-02	PANEL ASSY(A-711)	KPYMX	
608	1B	*	A70-0367-05	REMOTE CONTROLLER ASSY		
613	3A	*	B10-1093-04	FRONT GLASS		
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0094-03	WARRANTY CARD	Y	
-			B46-0095-03	WARRANTY CARD	Y	
-			B46-0096-13	WARRANTY CARD	X	
-			B46-0121-03	WARRANTY CARD	P	
-			B46-0122-13	WARRANTY CARD	E	
-			B46-0143-13	WARRANTY CARD	T	
-			B58-0513-04	CAUTION CARD (PRESET220-240)	Y	
-			B58-0803-13	CAUTION CARD	E	
-		*	B60-0155-00	INSTRUCTION MANUAL(ENGLISH)		
-		*	B60-0156-00	INSTRUCTION MANUAL(FRENCH)	PE	
-		*	B60-0157-00	INSTRUCTION MANUAL(GERMAN)	E	
-		*	B60-0158-00	INSTRUCTION MANUAL(DUTCH)	E	
-		*	B60-0159-00	INSTRUCTION MANUAL(ITALIAN)	E	
-		*	B60-0160-00	INSTRUCTION MANUAL(CHINESE)	M	
-		*	B60-0161-00	INSTRUCTION MANUAL(SPANISH)	M	
⚠ 615	1B		E03-0115-05	AC PLUG ADAPTER	M	
⚠ 620	1D		E30-0459-05	AC POWER CORD	ME	
⚠ 620	1D		E30-0812-05	AC POWER CORD	Y	
⚠ 620	1D		E30-0974-05	AC POWER CORD	KP	
⚠ 620	1D		E30-1341-05	AC POWER CORD	X	
⚠ 620	1D		E30-1416-05	AC POWER CORD	T	
628	3B,3D	*	G11-2017-04	CUSHION		
-		*	H01-8845-04	ITEM CARTON CASE(A-711)	KPYMX	
-		*	H01-8846-04	ITEM CARTON CASE(A-711L)	TE	
-		*	H09-0105-04	INNER PACKAGE		
-		*	H10-5023-12	POLYSTYRENE FOAMED FIXTURE		
-		*	H10-5024-12	POLYSTYRENE FOAMED FIXTURE		
-		*	H20-0566-04	PROTECTION COVER	M	
-		*	H25-0397-04	PROTECTION BAG	KPYXTE	
-		*	H25-0631-04	PROTECTION BAG		
633	2B		J19-2815-04	ANTENNA HOLDER		
634	3C	*	J19-3300-05	UNIT HOLDER		
⚠ 635	1C		J42-0083-05	POWER CORD BUSHING		
-		*	J11-0167-05	WIRE CLAMPER		
-			J61-0307-05	WIRE BAND		
644	3A	*	K29-3959-04	KNOB(N.B.CIRCUIT)		
645	3A	*	K29-3960-04	KNOB(BALANCE)		
647	3A	*	K29-3997-04	KNOB ASSY(VOLUME)		
⚠ 652	3C	*	L07-0116-15	POWER TRANSFORMER	KP	
⚠ 652	3C	*	L07-0117-15	POWER TRANSFORMER	Y	
⚠ 652	3C	*	L07-0118-15	POWER TRANSFORMER	M	
⚠ 652	3C	*	L07-0119-15	POWER TRANSFORMER	XT	
⚠ 652	3C	*	L07-0120-15	POWER TRANSFORMER	E	

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

⚠ indicates safety critical components.

A-711/711L

PARTS LIST

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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
A	3C		N86-4006-45	BINDING HEAD TAPTITE SCREW		
B	2B,3B		N89-3008-46	BINDING HEAD TAPTITE SCREW		
C	1A,1D		N89-3008-45	BINDING HEAD TAPTITE SCREW		
D	2A		N09-1445-05	SET SCREW (M3X8)		
E	2B,3B	*	N09-2804-05	TAPPING SCREW (2.6X6)		
655	1B		T90-0136-05	ANTENNA ADAPTOR	YMTE	
658	1B		T90-0176-05	FM ANTENNA		
659	2B		T90-0173-05	LOOP ANTENNA		
TUNER UNIT (X05-399X-XX, 0-10; K, P type, 0-21; M type, 0-71; X type, 2-71; T, E type, 2-91; Y type)						
D49 -52			B30-1012-05	LED(SLP-981C-50)		
D54 ,55			B30-1012-05	LED(SLP-981C-50)		
C1			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C2			CE04KW1E101M	ELECTRO 100UF 25WV		
C3			CF92FV1H273J	MF 0.027UF J		
C4			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C5			CE04KW1E101M	ELECTRO 100UF 25WV		
C6 ,7			C91-0769-05	CERAMIC 0.01UF K		
C8 -11			CK45FF1H223Z	CERAMIC 0.022UF Z		
C12			C91-0085-05	CERAMIC 0.022UF N	TE	
C13 ,14			CK45FF1H223Z	CERAMIC 0.022UF Z	TE	
C15			C91-0085-05	CERAMIC 0.022UF N	TE	
C16			CK45FF1H223Z	CERAMIC 0.022UF Z		
C17			CE04KW1H2R2M	ELECTRO 2.2UF 50WV		
C18			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C19			CK45FF1H223Z	CERAMIC 0.022UF Z		
C20			CE04KW1H3R3M	ELECTRO 3.3UF 50WV		
C21			CK45FF1H103Z	CERAMIC 0.010UF Z		
C22			CK45FF1H223Z	CERAMIC 0.022UF Z		
C23			CE04KW1V100M	ELECTRO 10UF 35WV		
C24			CK45FF1H223Z	CERAMIC 0.022UF Z		
C25			CF92FV1H153J	MF 0.015UF J		
C26			CE04KW1V100M	ELECTRO 10UF 35WV		
C27			CE04KW1HR47M	ELECTRO 0.47UF 50WV		
C28 -30			CK45FF1H103Z	CERAMIC 0.010UF Z		
C31			CC45FSL1H101J	CERAMIC 100PF J		
C32			CK45FF1H103Z	CERAMIC 0.010UF Z		
C33			CE04KW1C470M	ELECTRO 47UF 16WV		
C34			CK45FB1H471K	CERAMIC 470PF K	TE	
C35			CC45FSL1H121J	CERAMIC 120PF J	TE	
C36			CC45FSL1H271J	CERAMIC 270PF J	YTE	
C37			CF92FV1H152J	MF 1500PF J	TE	
C38			CF92FV1H132J	MF 1300PF J	TE	
C39			CK45FB1H471K	CERAMIC 470PF K		
C40			CE04KW1H2R2M	ELECTRO 2.2UF 50WV		
C41			CE04KW1H3R3M	ELECTRO 3.3UF 50WV		
C42			CE04KW1HR47M	ELECTRO 0.47UF 50WV		
C43			CF92FV1H473J	MF 0.047UF J		
C44			CC93FCH1H471J	CERAMIC 470PF J		
C45			CK45FF1H103Z	CERAMIC 0.010UF Z		
C46 ,47			CC45FSL1H221J	CERAMIC 220PF J		
C48			CE04KW1C101M	ELECTRO 100UF 16WV		
C49			CC45FSL1H680J	CERAMIC 68PF J	TE	
C50 ,51			CE04KW1H3R3M	ELECTRO 3.3UF 50WV		
C52 ,53			CF92FV1H752J	MF 7500PF J	YM	

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

⚠ indicates safety critical components.

PARTS LIST

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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
X3			L77-1175-05	CRYSTAL RESONATOR(4.19MHz)		
X4			L78-0274-05	RESONATOR(600kHz)		
C	1B		N30-3008-46	PAN HEAD MACHINE SCREW		
P	1B		N89-3008-45	BINDING HEAD TAPTITE SCREW		
CP1			R90-0802-05	MULTI-COMP 100KX10 J 1/4W		
CP2			R90-0492-05	MULTI-COMP 100KX8 J 1/6W		
CP3			R90-0482-05	MULTI-COMP 100KX4 J 1/6W		
R16			RD14AB2E101J	FL-PROOF RD 100 J 1/4W		
R21			RD14AB2E101J	FL-PROOF RD 100 J 1/4W	TE	
R51			RD14AB2E151J	FL-PROOF RD 150 J 1/4W		
R83 ,84			RS14KB3D181J	FL-PROOF RS 180 J 2W		
R85 ,86			RS14KB3D271J	FL-PROOF RS 270 J 2W		
R87			RS14KB3A271J	FL-PROOF RS 270 J 1W		
R162			RS14KB3A222J	FL-PROOF RS 2.2K J 1W		
R177			R92-0173-05	RC 2.2M M 1/2W	KP	
VR1			R12-3128-05	TRIMMING POT.(22K)TUNE LEVEL		
VR2			R12-1089-05	TRIMMING POT.(4.7K)VCO		
VR3			R12-5060-05	TRIMMING POT.(220K)SEPARATION	TE	
S1 -35	3B,3C		S40-1064-05	PUSH SWITCH		
S36			S31-2094-05	SLIDE SWITCH (CH.SPACE,DE-EM.)	YM	
⚠ S37			S31-2082-05	SLIDE SWITCH (POWER TYPE)	M	
⚠ S38			S31-2128-05	SLIDE SWITCH (POWER TYPE)	Y	
D1 -9			HSS104	DIODE	TE	
D1 -9			1SS133	DIODE	TE	
D1 ,2			HSS104	DIODE	KPYMX	
D1 ,2			1SS133	DIODE	KPYMX	
D9			HSS104	DIODE	KPYMX	
D9			1SS133	DIODE	KPYMX	
D11 ,12			HSS104	DIODE		
D11 ,12			1SS133	DIODE		
D18 ,19			S5566B	DIODE		
D21 ,22			S5566B	DIODE		
D23			HSS104	DIODE		
D23			1SS133	DIODE		
D25			HZS5.1N(B2)	ZENER DIODE		
D25			RD5.1ES(B2)	ZENER DIODE		
D30 -47			HSS104	DIODE		
D30 -47			1SS133	DIODE		
D48			HZS10N(B)	ZENER DIODE		
D48			RD10ES(B)	ZENER DIODE		
D53			HSS104	DIODE	YM	
D53			1SS133	DIODE	YM	
D56 -61			HSS104	DIODE		
D56 -61			1SS133	DIODE		
D62			HZS3.3N(B2)	ZENER DIODE		
D62			RD3.3ES(B2)	ZENER DIODE		
D63 ,64			HSS104	DIODE		
D63 ,64			1SS133	DIODE		
D65			HSS104	DIODE	TE	
D65			1SS133	DIODE	TE	
D67 -70			HSS104	DIODE	XTE	
D67 -70			1SS133	DIODE	XTE	
D68 -70			HSS104	DIODE	KPYM	

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D68 -70			1SS133	DIODE	KPYM	
D202			HZS5.1S(B2)	ZENER DIODE		
D202			RD5.1JS(B2)	ZENER DIODE		
FL1	2B	*	8-BT-98GK	FLUORESCENT INDICATOR TUBE		
IC1			LA1265	IC(FM/AM TUNER)		
IC2			AN7470	IC(FM MPX)		
IC3			LM7001	IC(PLL FREQUENCY SYNTHESIZER)		
IC5			CXP50112-127Q	IC(TUNER u-COM)		
IC6		*	UPD7538ACU-232	IC(AMP.u-COM)		
IC7			PST529D	IC(RESET)		
IC9 ,10			AN7805F	IC(VOLTAGE REGULATOR/ +5V)		
IC9 ,10			UPC7805HF	IC(VOLTAGE REGULATOR/ +5V)		
Q1			2SC1923(R,0)	TRANSISTOR		
Q2			2SK163(L,M)	FET	TE	
Q3			2SC1740S(Q,R)	TRANSISTOR		
Q3			2SC945(A)(Q,P)	TRANSISTOR		
Q4			2SC1845(F,E)	TRANSISTOR		
Q5 -7			2SC1740S(Q,R)	TRANSISTOR	TE	
Q5 -7			2SC945(A)(Q,P)	TRANSISTOR	TE	
Q8			2SA733(A)(Q,P)	TRANSISTOR	KPYMX	
Q8			2SA933S(Q,R)	TRANSISTOR	KPYMX	
Q8 -10			2SA733(A)(Q,P)	TRANSISTOR	TE	
Q8 -10			2SA933S(Q,R)	TRANSISTOR	TE	
Q10			2SA733(A)(Q,P)	TRANSISTOR	KPYMX	
Q10			2SA933S(Q,R)	TRANSISTOR	KPYMX	
Q11 -13			2SC1740S(Q,R)	TRANSISTOR	YM	
Q11 -13			2SC945(A)(Q,P)	TRANSISTOR	YM	
Q13			2SC1740S(Q,R)	TRANSISTOR	KPXTE	
Q13			2SC945(A)(Q,P)	TRANSISTOR	KPXTE	
Q14 -16			2SA733(A)(Q,P)	TRANSISTOR		
Q14 -16			2SA933S(Q,R)	TRANSISTOR		
Q17			2SC1740S(Q,R)	TRANSISTOR	YM	
Q17			2SC945(A)(Q,P)	TRANSISTOR	YM	
Q18 ,19			2SD1302(S,T)	TRANSISTOR		
Q20			2SC1740S(Q,R)	TRANSISTOR	TE	
Q20			2SC945(A)(Q,P)	TRANSISTOR	TE	
Q21			2SD1266(Q,P)	TRANSISTOR		
Q22 ,23			2SC1740S(Q,R)	TRANSISTOR		
Q22 ,23			2SC945(A)(Q,P)	TRANSISTOR		
A1	3B	*	W02-1048-05	ELECTRIC CIRCUIT MODULE		
A1	3B	*	W02-1049-05	ELECTRIC CIRCUIT MODULE		
DT1	1C		W02-1041-05	FM FRONT-END ASSY(A-711L)	TE	
DT1	1C		W02-1042-05	FM FRONT-END ASSY(A-711)	KPYMX	
AUDIO UNIT (X09-314X-XX, 0-11; K, P type, 0-21; M type, 2-71; X, T, E, type 2-91; Y type)						
C1 ,2			CC45FSL1H221J	CERAMIC 220PF J		
C3 ,4			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C5 ,6			CF92FV1H153J	MF 0.015UF J		
C7 -10			CK45FB1H391K	CERAMIC 390PF K		
C11 ,12			CK45FB1H222K	CERAMIC 2200PF K		
C13 -18			CE04KW1V100M	ELECTRO 10UF 35WV		
C19 ,20			CF92FV1H823J	MF 0.082UF J		
C21 ,22			CF92FV1H243J	MF 0.024UF J		
C23 ,24			CF92FV1H104J	MF 0.10UF J		
C25 -28			CC45FSL1H101J	CERAMIC 100PF J		

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⚠ F4		*	F53-0006-05	FUSE(125V 2A)	KP	
L1 ,2			L39-0085-05	PHASE-COMPENSATION COIL		
C	2C		N89-3008-45	BINDING HEAD TAPTITE SCREW		
G	2C		N09-0333-05	TAPPING SCREW (3X12)		
H	2C		N35-3008-46	BINDING HEAD MACHINE SCREW		
CP1 ,2			R90-0187-05	MULTI-COMP 0.22X2 K 5W		
R43 ,44			RN14BK2C1960F	RN 196.0 F 1/6W		
R49 ,50			RD14AB2E151JTS	FL-PROOF RD 150 J 1/4W		
R51 ,52			RD14AB2E222JTS	FL-PROOF RD 2.2K J 1/4W		
R53 ,54			RD14AB2E181JTS	FL-PROOF RD 180 J 1/4W		
R55 ,56			RD14AB2E151JTS	FL-PROOF RD 150 J 1/4W		
R63 -66			RD14AB2E4R7JTS	FL-PROOF RD 4.7 J 1/4W		
R75 -78			RS14DB3D100JTE	FL-PROOF RS 10 J 2W		
R79 ,80			RD14AB2E4R7JTS	FL-PROOF RD 4.7 J 1/4W		
R167,168			RS14DB3D471JTE	FL-PROOF RS 470 J 2W		
R169,170			RD14AB2E330JTS	FL-PROOF RD 33 J 1/4W		
R171			RD14AB2E222JTS	FL-PROOF RD 2.2K J 1/4W		
R172,173			RS14DB3D150J	FL-PROOF RS 15 J 2W		
R188			RS14DB3D331J	FL-PROOF RS 330 J 2W		
R190			RS14DB3A681J	FL-PROOF RS 680 J 1W		
R192-195		*	RS14DB3D560JTE	FL-PROOF RS 56 J 2W		
R196			RD14AB2E362JTS	FL-PROOF RD 3.6K J 1/4W		
R197			RS14DB3A471JTE	FL-PROOF RS 470 J 1W		
VR1	2C	*	R29-5042-05	POTENTIOMETER(VOLUME CONTROL)		
VR2	2C	*	R29-5043-05	POTENTIOMETER(N.B.CIRCUIT)		
VR3	2D	*	R05-3015-05	POTENTIOMETER(BALANCE)		
K1 ,2		*	S51-2094-05	MAGNETIC RELAY(AC ON/OFF)		
K3			S51-2092-05	MAGNETIC RELAY(SPEAKER ON/OFF)		
D1 ,2			HSS104	DIODE		
D1 ,2			1SS133	DIODE		
D3 ,4			HSS104A	DIODE		
D3 ,4			1SS131	DIODE		
⚠ D11			RBV-602LFA	DIODE		
D12 ,13			HZS15S(B)	ZENER DIODE		
D12 ,13			RD15JS(B)	ZENER DIODE		
D14 ,15			HZS5.1N(B2)	ZENER DIODE		
D14 ,15			RD5.1ES(B2)	ZENER DIODE		
D16			HZS4.7N(B)	ZENER DIODE		
D16			RD4.7ES(B)	ZENER DIODE		
D17 -26			HSS104	DIODE		
D17 -26			1SS133	DIODE		
D27 ,28			HSS104A	DIODE		
D27 ,28			1SS131	DIODE		
D29			S5566B	DIODE		
D31 -35			HSS104	DIODE		
D31 -35			1SS133	DIODE		
IC1 ,2			NJM2058D	IC(OP AMP X4)		
IC3			TC9215P	IC(ANALOG SWITCH X 6)		
IC4			UPC1237HA	IC(POWER AMP)		
IC5 ,6			TA8409S	IC(MOTOR CONTROL)		
IC7			UPC7915HF	IC(VOLTAGE REGULATOR/ -15V)		
Q1 -6			2SA992(F,E)	TRANSISTOR		

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Q7 -10			2SC1845(F,E)	TRANSISTOR		
Q11 ,12			2SC4137F19(V,W)	TRANSISTOR		
⚠ Q13 ,14		*	2SD2255BT*5	TRANSISTOR		
⚠ Q15 ,16		*	2SB1493BT*5	TRANSISTOR		
Q17 ,18			2SC2631(R,S)	TRANSISTOR		
Q51			2SC2878(B)	TRANSISTOR		
Q52 ,53			2SA733(A)(Q,P)	TRANSISTOR		
Q52 ,53			2SA933S(Q,R)	TRANSISTOR		
Q54			2SA992(F,E)	TRANSISTOR		
Q55			2SC3666	TRANSISTOR		
Q56			2SC1740S(Q,R)	TRANSISTOR		
Q56			2SC945(A)(Q,P)	TRANSISTOR		
Q57			2SD1266(Q,P)	TRANSISTOR		

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