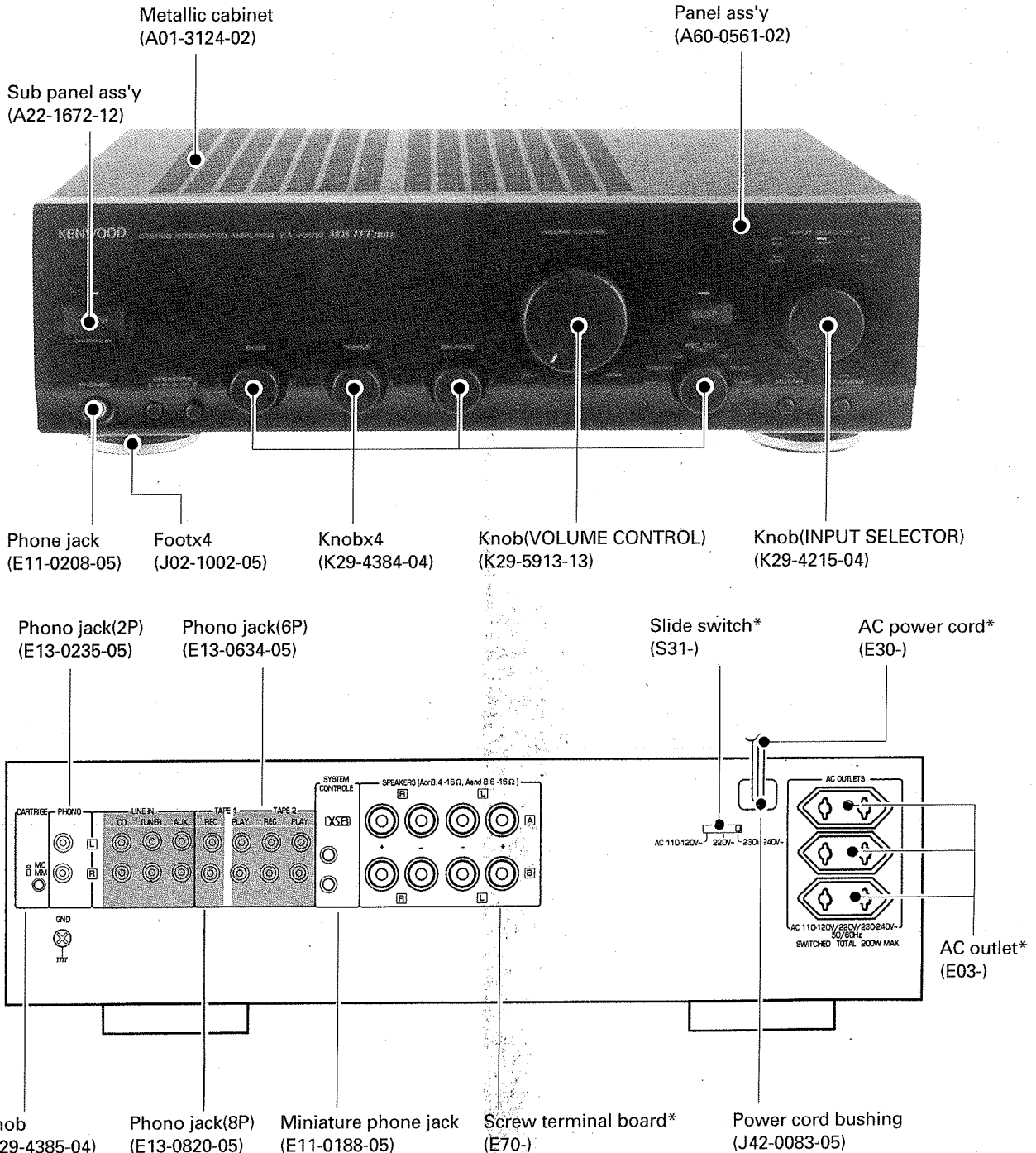


KA-4060R

SERVICE MANUAL



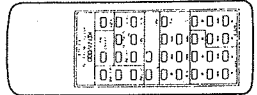
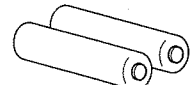
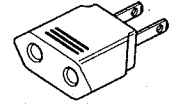
***Refer to parts list on page 22**

Caution : Signal ground floats from chassis ground. Please connect the cold lead of tester or oscilloscope to the cold terminal of speaker or input jack if check and/or measure the voltage.(Don't connect ground of unit.)

CONTENTS

ACCESSORIES	2	PC BOARD	9
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CIRCUIT DESCRIPTION	4	EXPLODED VIEW	21
ADJUSTMENT	7	PARTS LIST	22
WIRING DIAGRAM	8	SPECIFICATIONS	25

Accessories

<ul style="list-style-type: none"> Remote control unit (A70-0979-05) 1  <p>Battery cover:(A09-0159-08)</p> <ul style="list-style-type: none"> Batteries(R03/UM-4/"AAA") 2 	<ul style="list-style-type: none"> AC plug adaptor 1 <p>(Except for U.K., Australia and Europe) For the unit with a European AC plug in areas other than Europe. (E03-0115-05)</p> 
--	---

REMOTE CONTROL

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.

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 Deck B of a double-cassette deck or single-cassette deck.

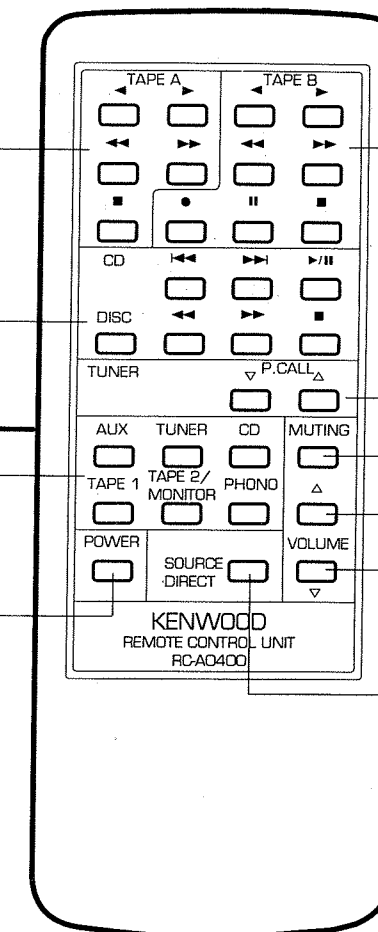
CD player operation keys

* The DISC key is only used for the Autochanger CD player.

INPUT SELECTOR keys

* MONITOR function is not available with this unit.

POWER key



TUNER operation keys

MUTING key

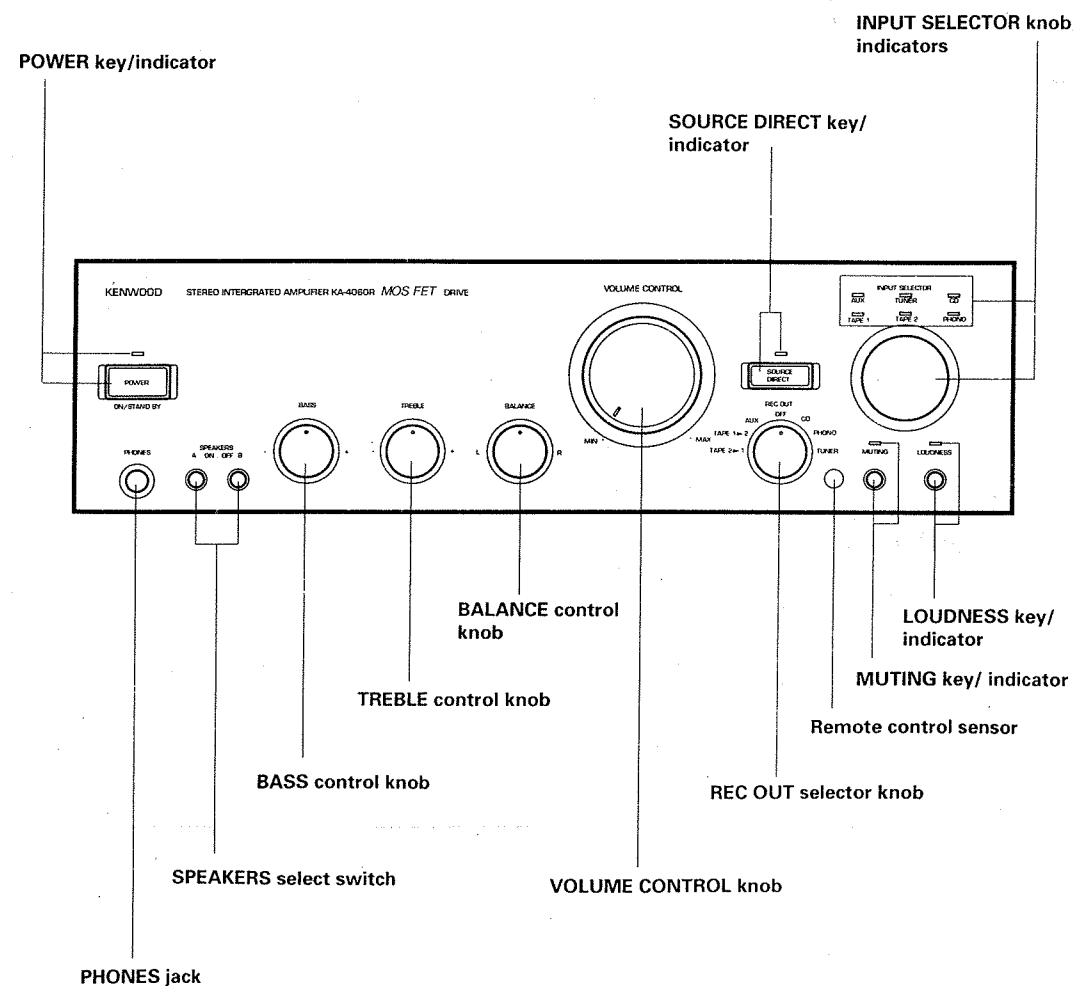
VOLUME UP (Δ), DOWN (∇) keys

SOURCE DIRECT key

Model: RC-A0400
infrared system

KA-4060R operation keys

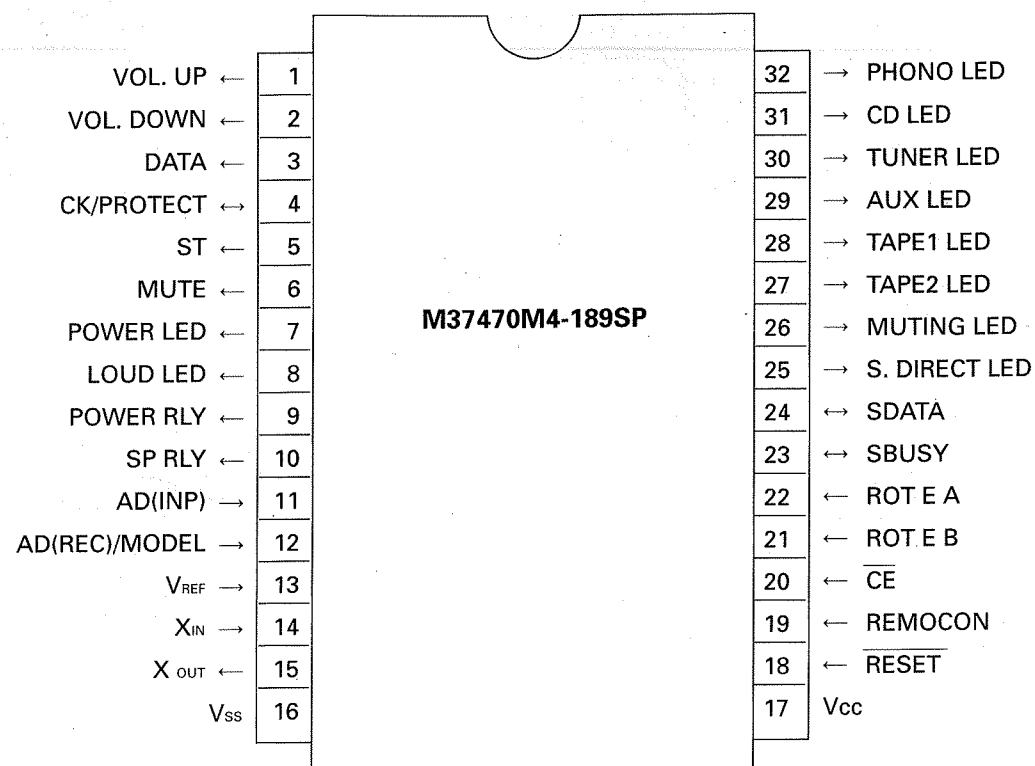
These keys have the same function as the corresponding keys on the main unit.



CIRCUIT DESCRIPTION

Microprocessor M37470M4-189SP(X09:IC5)

Pin connection



CIRCUIT DESCRIPTION

Pin function

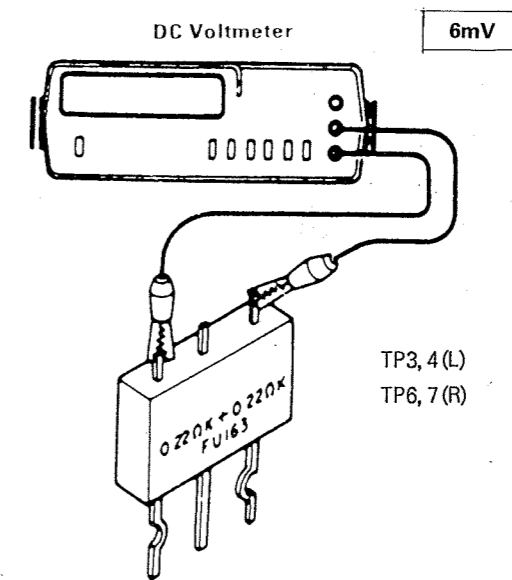
Pin NO.	Pin name	I/O	Name	Description
1	P17/Srdy	O	VOL.UP	Output of UP signal for control of electronic volume Electronic volume UP:HIGH Electronic volume except UP:LOW Back - up mode:LOW
2	P16/CLK	O	VOL.DOWN	Output of DOWN signal for control of electronic volume Electronic volume DOWN:HIGH Electronic volume except DOWN:LOW Back - up mode:LOW
3	P15/Sout	O	DATA	Output of DATA signal for control of selector IC(NJU7313, NJU7311)
4	P14/Sin	I/O	PROTECTION/CLK	Normally:input CLOCK output:output Protect ON:HIGH, Protect OFF:LOW Output of CLOCK signal for control of selector IC Back - up mode:input
5	P13/T1	O	ST	Output of ST signal for control of selector IC Normally:LOW Back - up mode:LOW
6	P12/T0	O	MAIN MUTE	Output of MUTE signal MUTE ON:HIGH, MUTE OFF:LOW Back - up mode:input
7	P11	O	POWER LED	Control of POWER LED LOW:ON, HIGH:OFF Back - up mode:input
8	P10	O	LOUDNESS LED	Control of LOUDNESS LED LOW:ON, HIGH:OFF Back - up mode:input
9	P23/IN3	O	POWER RELAY	Control of POWER RELAY POWER ON:HIGH, POWER OFF:LOW Back-up mode:LOW
10	P22/IN2	O	SPEAKER RELAY	Control of SPEAKER RELAY SPEAKER ON:HIGH, SPEAKER OFF:LOW Back - up mode:LOW
11	P21/IN1	I	INPUT SEL	Input of INPUT SEL analog signal Back - up mode:input
12	P20/IN0	I	REC SEL/ Model switching	Input of REC SEL analog signal Input of model switching analog signal More than 0.5V:KA - 4060R Less than 0.5V:KA 2060R/3060R Back - up mode:input
13	Vref	I	Vref	Standard voltage of A/D
14	Xin	I	Xin	Connection of crystal oscillator(8MHz)
15	Xout	O	Xout	Connection of crystal oscillator(8MHz)

CIRCUIT DESCRIPTION

16	Vss		Vss	GND
17	Vcc		Vcc	+5V
18	RESET	I	RESET	Reset
19	P30/INT0	I	REMOCON	Input of remote control signal
20	P31/INT1	I	CE	Back - up detection
21	P32/CNTR	I	ROTARY E A	Input of rotary encoder A signal HIGH:clockwise Back - up mode:input
22	P33/CNTR1	I	ROTARY E B	Input of rotary encoder B signal LOW:counterclockwise Back - up mode:input
23	P40	I/O	S BUSY	System serial BUSY signal input/output Back - up mode:input
24	P41	I/O	S DATA	System serial DATA signal input/output Back - up mode:input
25	P00	O	S.DIRECT LED	Control of SOURCE DIRECT LED LOW:ON, HIGH:OFF Back - up mode:input
26	P01	O	MUTING LED	Control of MUTING LED LOW:ON, HIGH:OFF Back - up mode:input
27	P02	O	TAPE 2 LED	Control of TAPE 2 LED LOW:ON, HIGH:OFF Back - up mode:input
28	P03	O	TAPE 1 LED	Control of TAPE 1 LED LOW:ON, HIGH:OFF Back - up mode:input
29	P04	O	AUX LED	Control of AUX LED LOW:ON, HIGH:OFF Back - up mode:input
30	P05	O	TUNER LED	Control of TUNER LED LOW:ON, HIGH:OFF Back - up mode:input
31	P06	O	CD LED	Control of CD LED LOW:ON, HIGH:OFF Back - up mode:input
32	P07	O	PHONO LED	Control of PHONO LED LOW:ON, HIGH:OFF Back - up mode:input

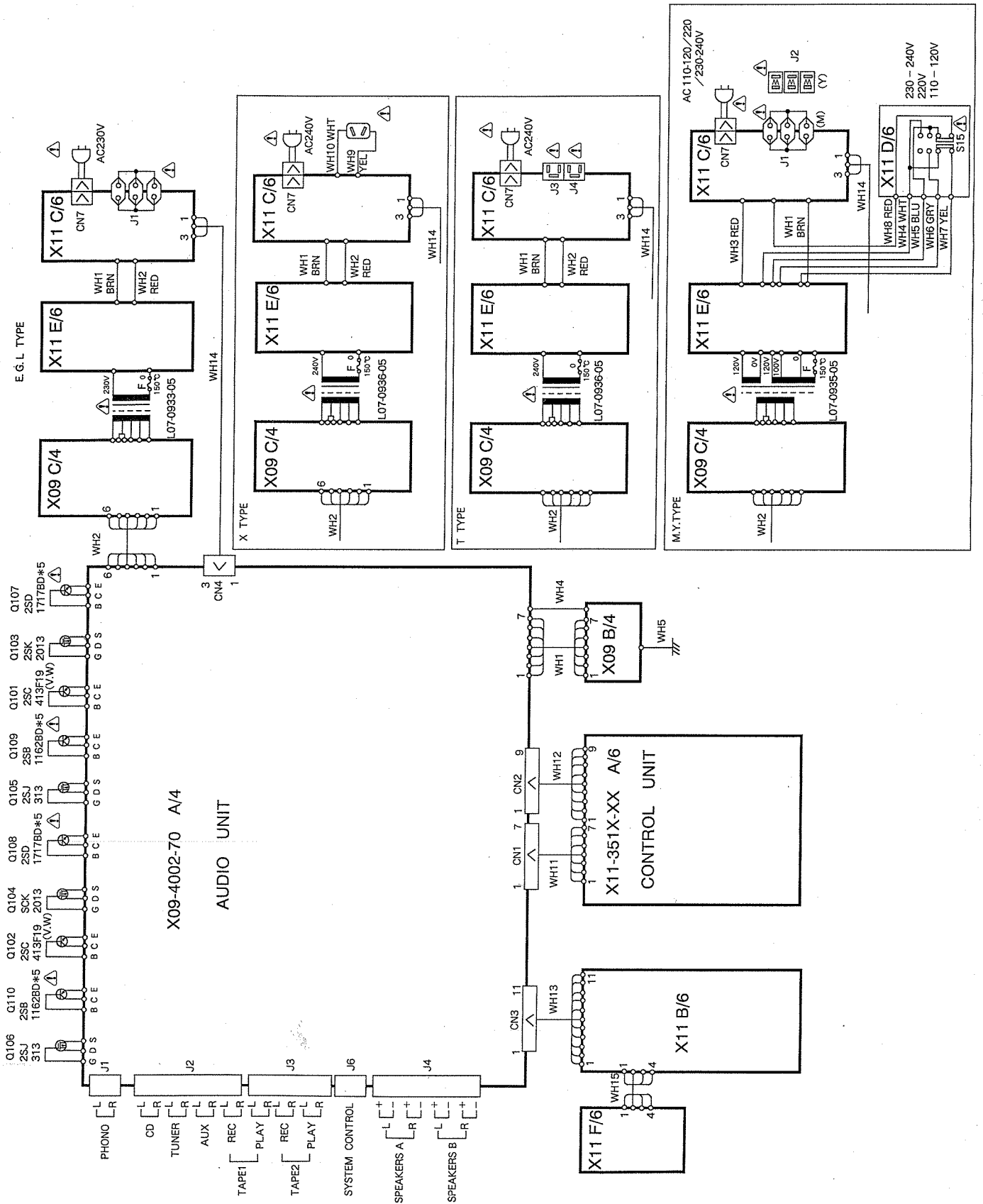
ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	AMPLIFIER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
Unless otherwise specified, set the respective switches as follows : POWER : ON SPEAKER : B REC OUT : OFF SELECTOR : PHONO							
1	IDLE CURRENT	-	Connect a DC voltmeter across TP 3,4 TP 6,7	VOLUME : 0	VR 3,5(L) VR 4,6(R)	6mV (30mA)	(a)



Caution : Signal ground floats from chassis ground. Please connect the cold lead of tester or oscilloscope to the cold terminal of speaker or input jack if check and/or measure the voltage.(Don't connect ground of unit.)

WIRING DIAGRAM

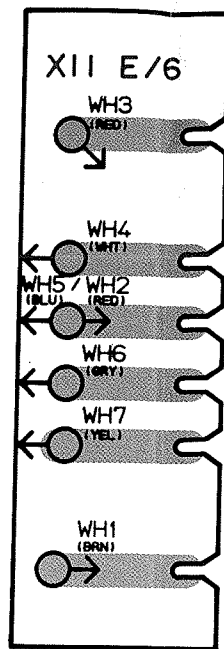
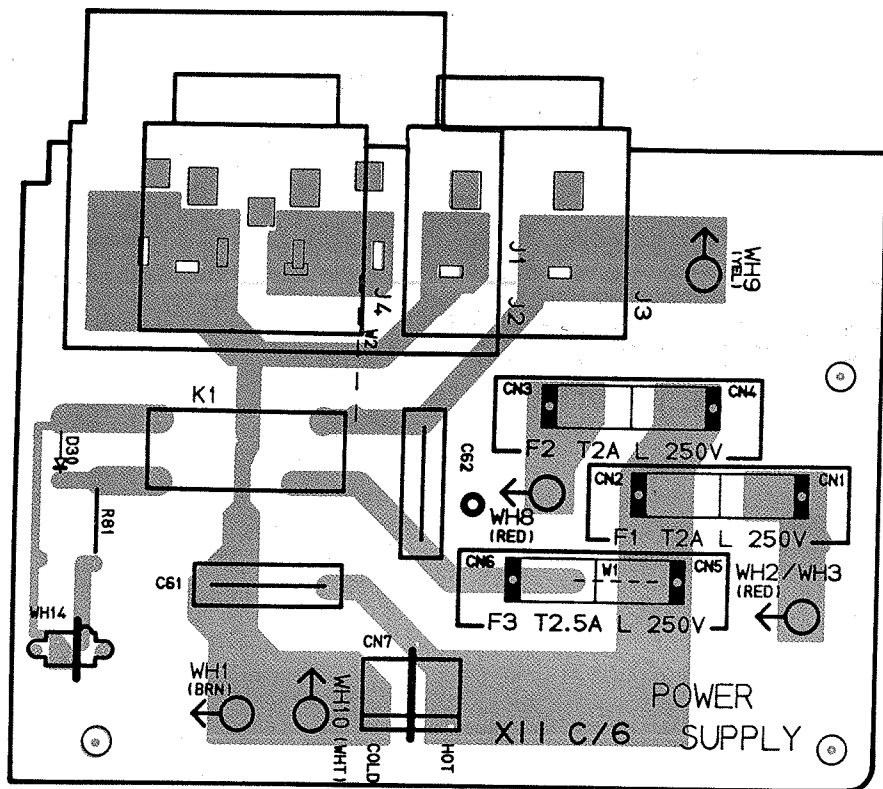


PC BOARD(Component side view) CONTROL UNIT(X11-351X-XX)

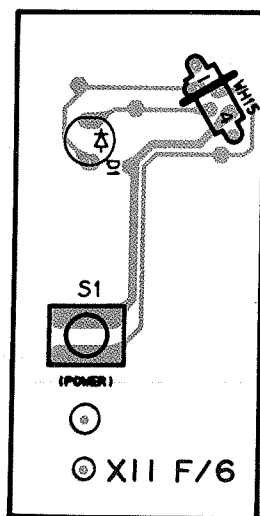
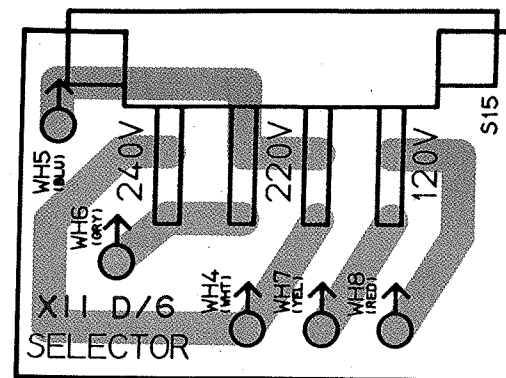
AC OUTLETS

AC100V 50/60Hz

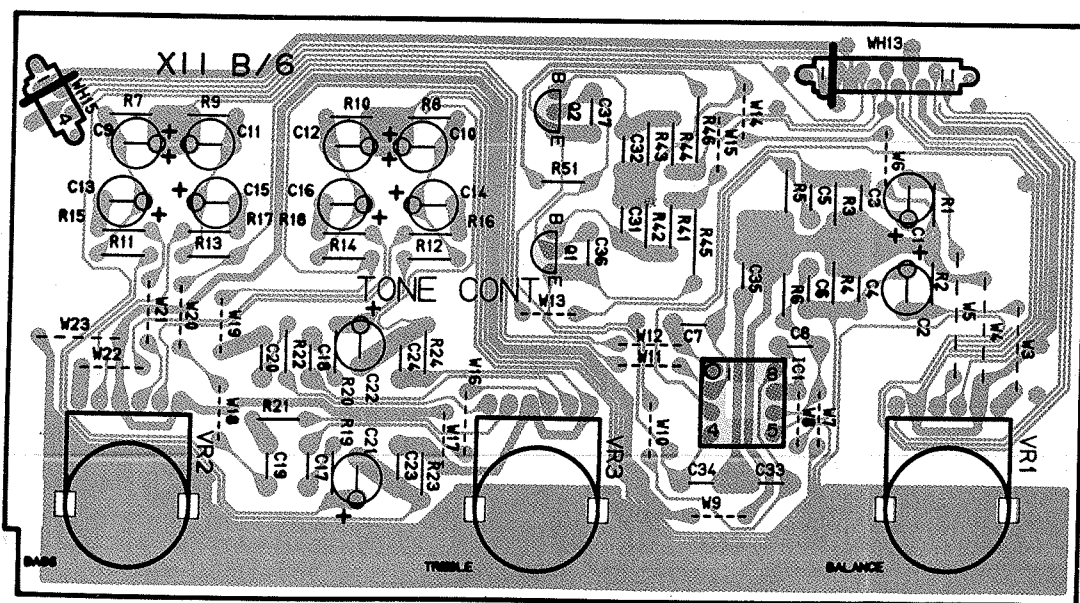
SWITCHED TOTAL 200W MAX.



AC220V~
AC230V-240V~ | AC110V-120V~



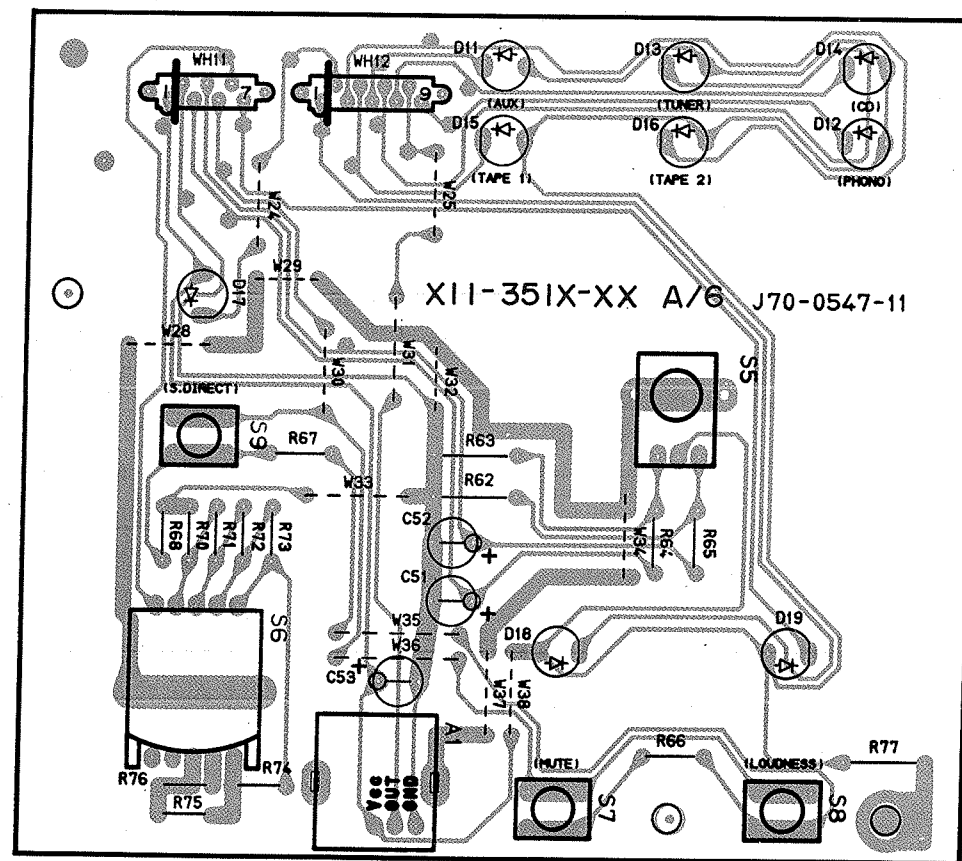
POWER



BASS

TREBLE

BALANCE



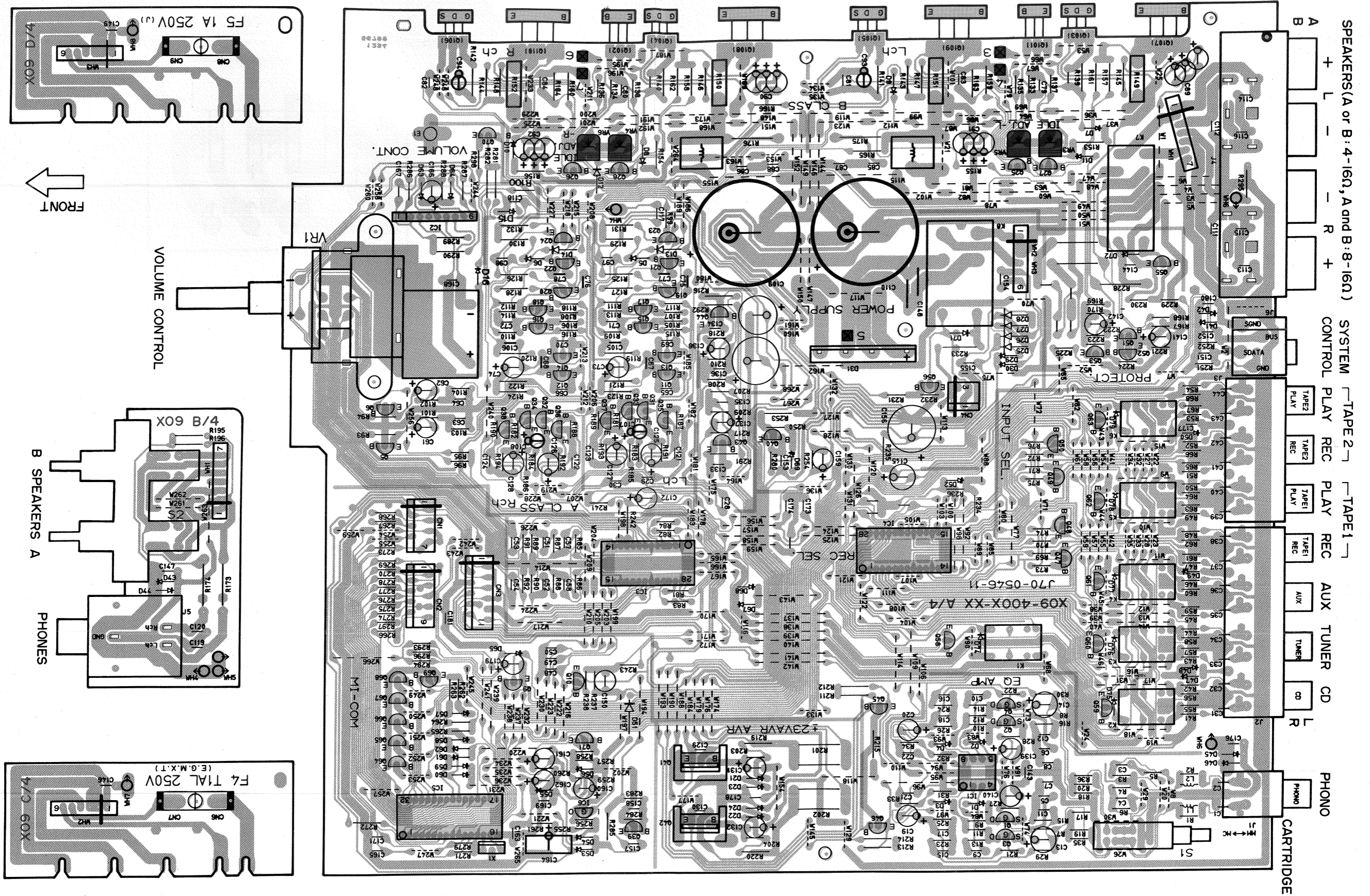
MUTING

LOUDNESS

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

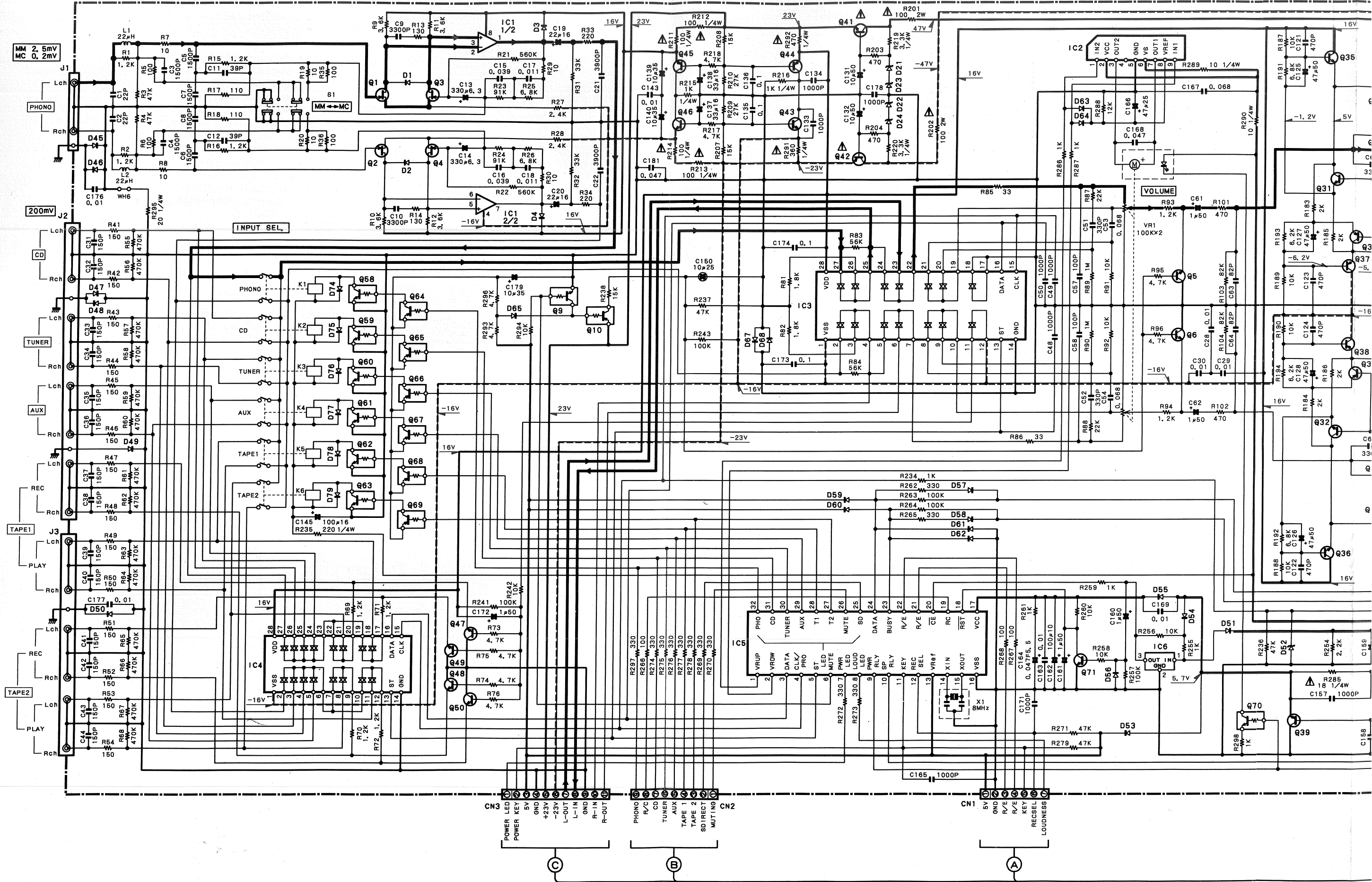
PC BOARD(Component side view)

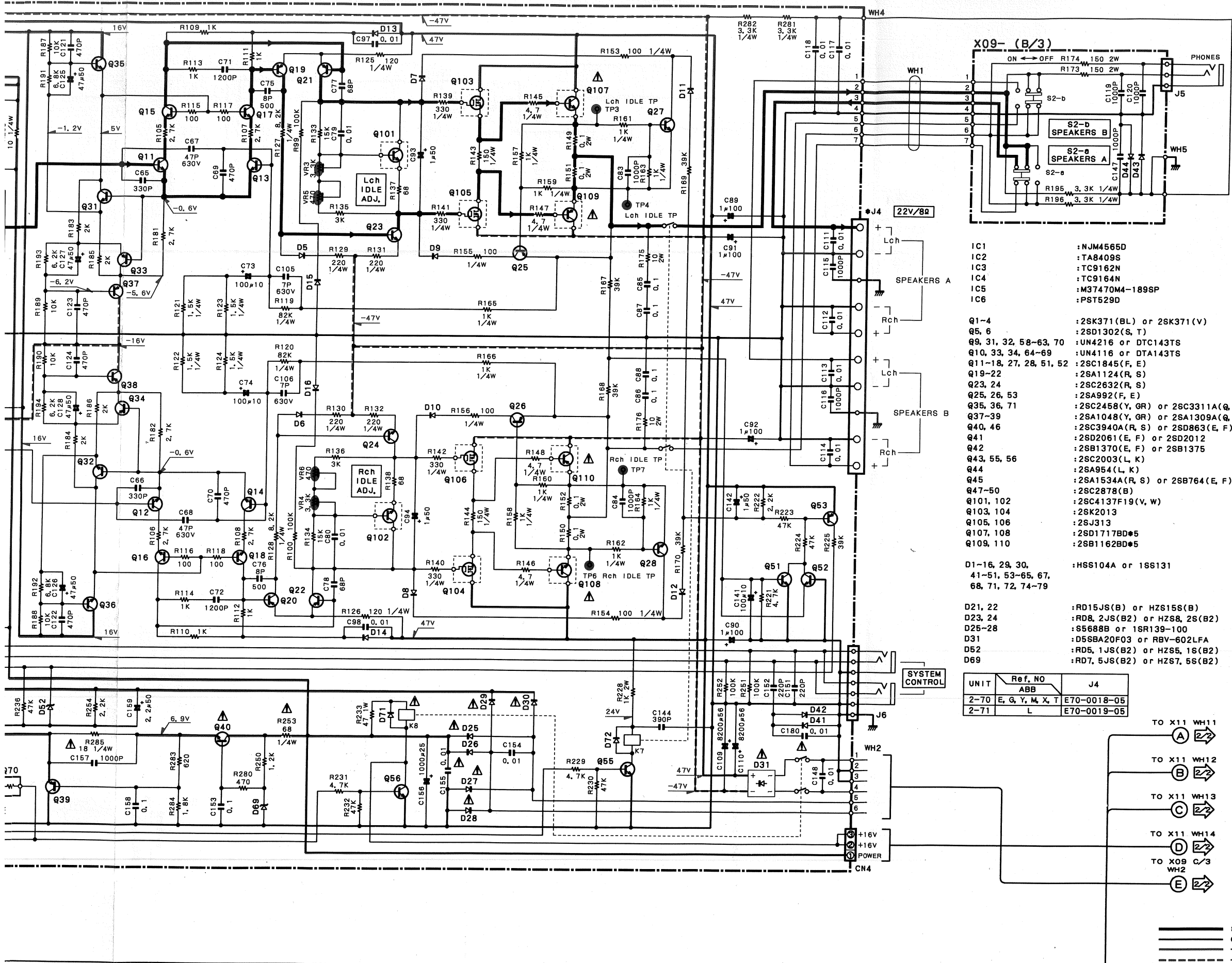
AUDIO UNIT(X09-400X-XX)



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

X09-400X-XX (A/3) AUDIO UNIT





- IC1 : NJM4565D
- IC2 : TA8409S
- IC3 : TC9162N
- IC4 : TC9164N
- IC5 : M37470M4-189SP
- IC6 : PST529D

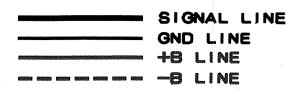
- Q1-4 : 2SK371(BL) or 2SK371(V)
- Q5, 6 : 2SD1302(S, T)
- Q9, 31, 32, 58-63, 70 : UN4216 or DTC143TS
- Q10, 33, 34, 64-69 : UN4116 or DTA143TS
- Q11-18, 27, 28, 51, 52 : 2SC1845(F, E)
- Q19-22 : 2SA1124(R, S)
- Q23, 24 : 2SC2632(R, S)
- Q25, 26, 53 : 2SA992(F, E)
- Q35, 36, 71 : 2SC2458(Y, GR) or 2SC3311A(Q, R)
- Q37-39 : 2SA1048(Y, GR) or 2SA1309A(Q, R)
- Q40, 46 : 2SC3940A(R, S) or 2SD863(E, F)
- Q41 : 2SD2061(E, F) or 2SD2012
- Q42 : 2SB1370(E, F) or 2SB1375
- Q43, 55, 56 : 2SC2003(L, K)
- Q44 : 2SA954(L, K)
- Q45 : 2SA1534A(R, S) or 2SB764(E, F)
- Q47-50 : 2SC2878(B)
- Q101, 102 : 2SC4137F19(V, W)
- Q103, 104 : 2SK2013
- Q105, 106 : 2SJ313
- Q107, 108 : 2SD1717BD*5
- Q109, 110 : 2SB1162BD*5

- D1-16, 29, 30, 41-51, 53-65, 67, 68, 71, 72, 74-79 : HSS104A or 16S131

- D21, 22 : RD15JS(B) or HZS15S(B)
- D23, 24 : RD8, 2JS(B2) or HZS8, 2S(B2)
- D25-28 : S5688B or 16R139-100
- D31 : D58BA20F03 or RBV-602LFA
- D52 : RD5, 1JS(B2) or HZS5, 1S(B2)
- D69 : RD7, 5JS(B2) or HZS7, 5S(B2)

UNIT	Ref. NO	J4
2-70	E, G, Y, M, X, T	E70-0018-05
2-71	L	E70-0019-05

- TO X11 WH11 (A)
- TO X11 WH12 (B)
- TO X11 WH13 (C)
- TO X11 WH14 (D)
- TO X09 C/3 WH2 (E)



Signal ground floats from chassis ground. please connect the cold lead of tester or oscilloscope to the cold terminal of speaker or input jack if check and / or measure the voltage. (Don't connect ground of unit.)

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

CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). Δ 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.

- 2SA1124 2SB764 2SC2878
- 2SA1534A 2SC1845 2SC3940A
- 2SA954 2SC2003 2SD1302
- 2SA992 2SC2632 2SD863

- DTA143TS 2SC2458
- DTC143TS
- UN4116
- 2SA1048

- 2SB1162BD*5
- 2SD1717BD*5

- UN4216
- 2SA1309A
- 2SC3311A

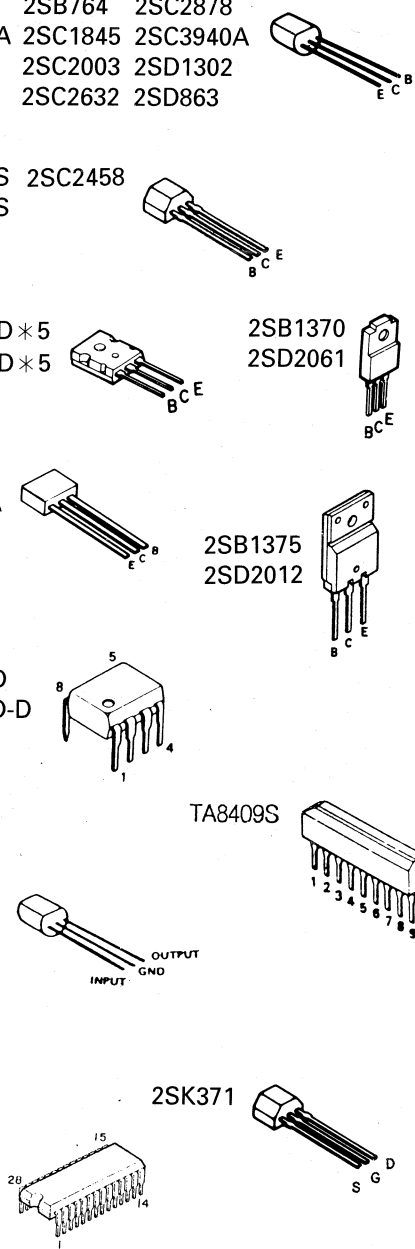
- NJM4565D
- NJM4565D-D

- TA8409S

- PST529D

- TC9162N
- TC9164N

- 2SK371

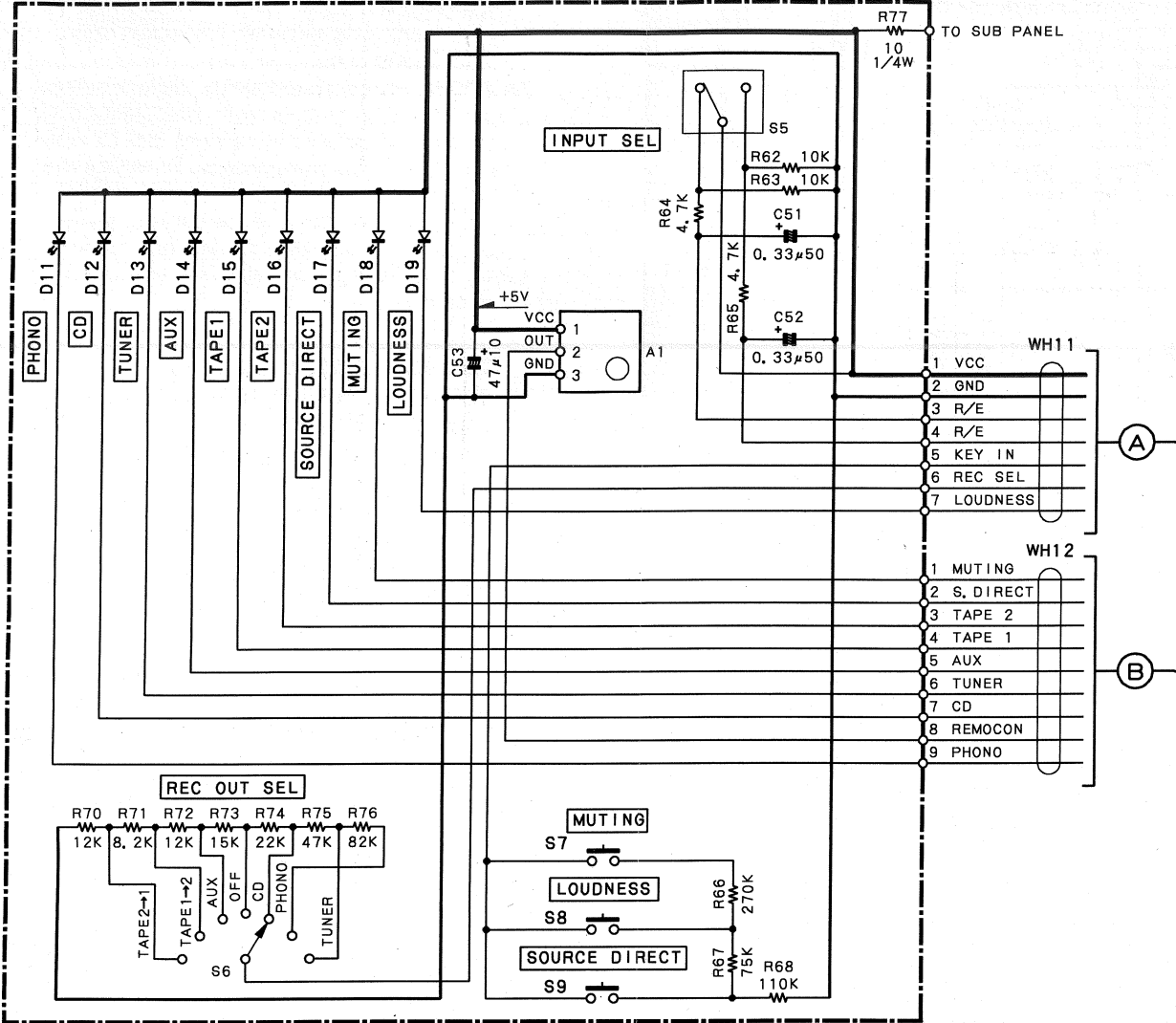


KA-4060R

Y08-5042-70

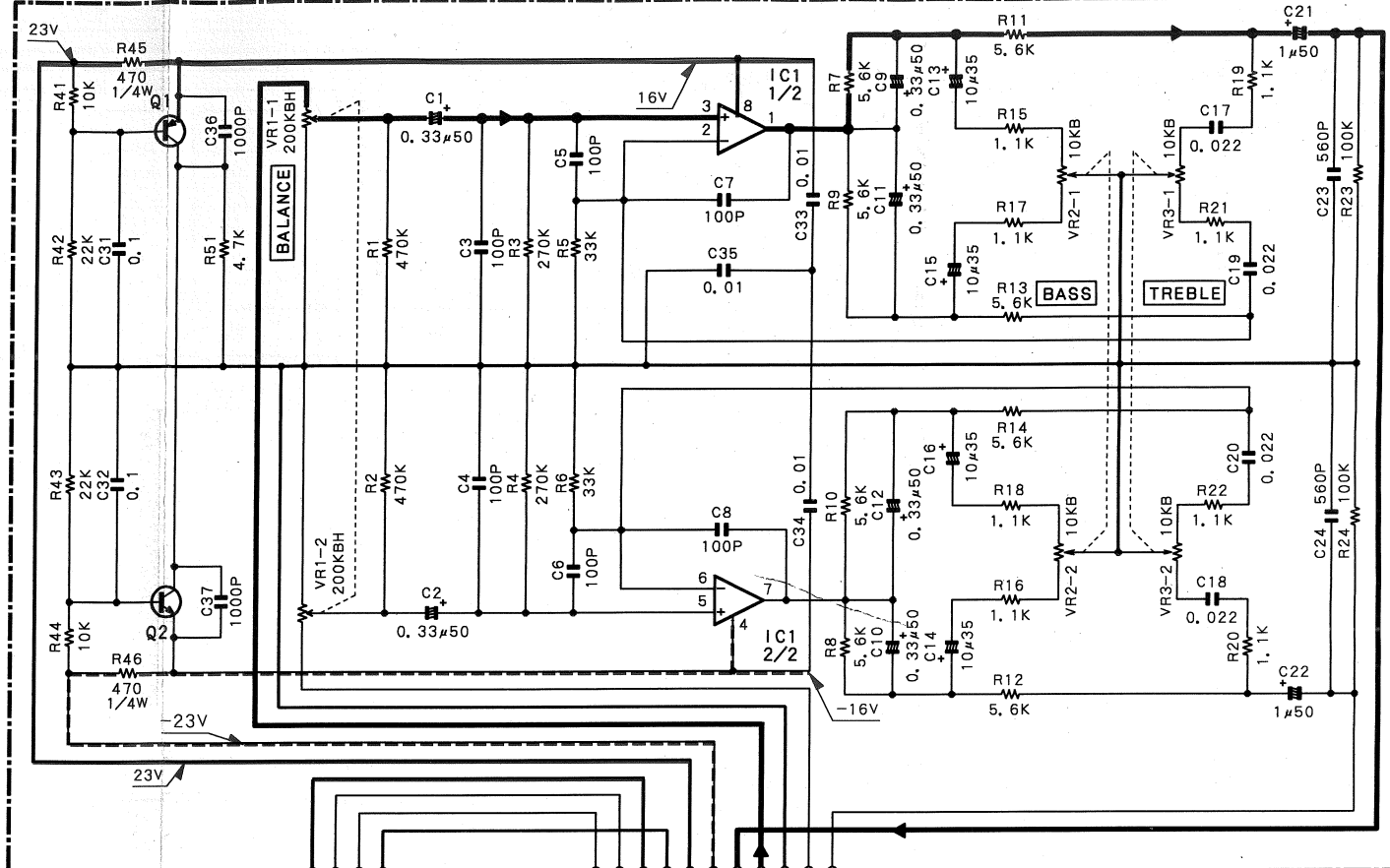
KENWOOD

X11-351X-XX (A/6) CONTROL UNIT

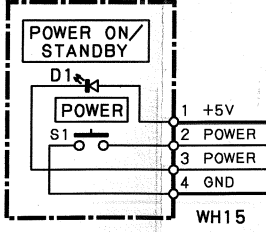


- TO X09 CN1 (A)
- TO X09 CN2 (B)
- TO X09 CN3 (C)
- TO X09 CN4 (D)
- TO X09 A/3 WH2 (E)

X11-(B/6)

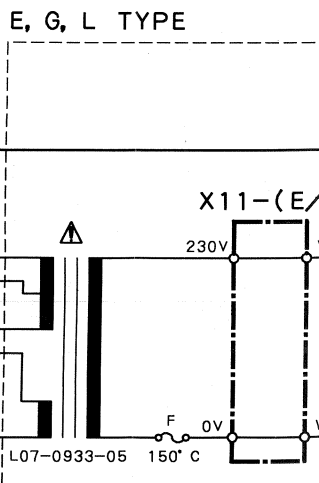
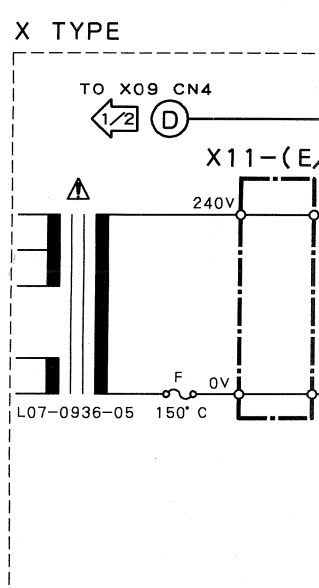
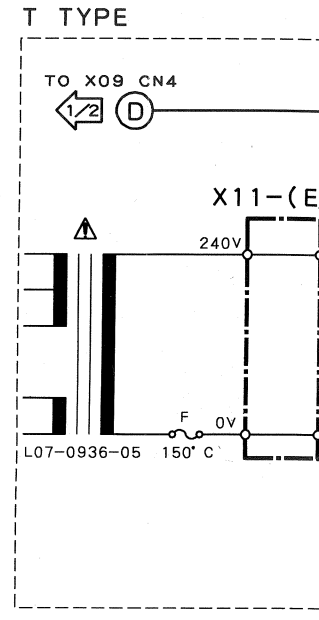
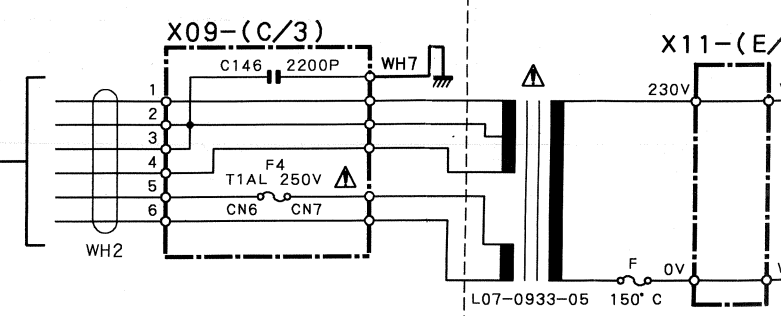


X11-(F/6)

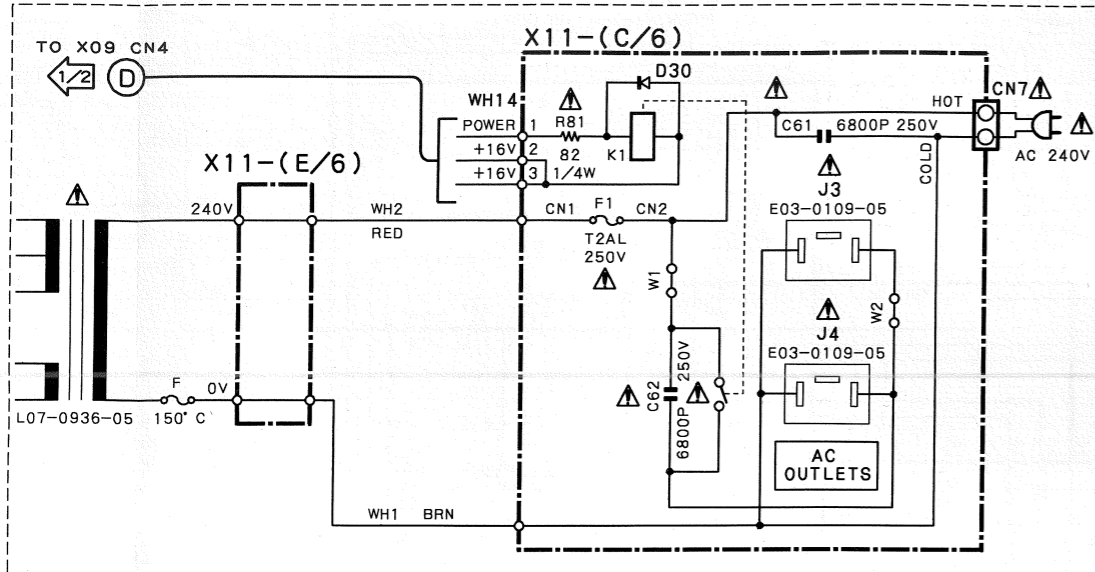


- X11-351X-XX
- IC1 : NJM4565D-D
 - Q1 : 2SA954 (L, K)
 - Q2 : 2SC2003 (L, K)
 - D1, 11-19 : B30-1291-05
 - D30 : 1SS133 or HSS104

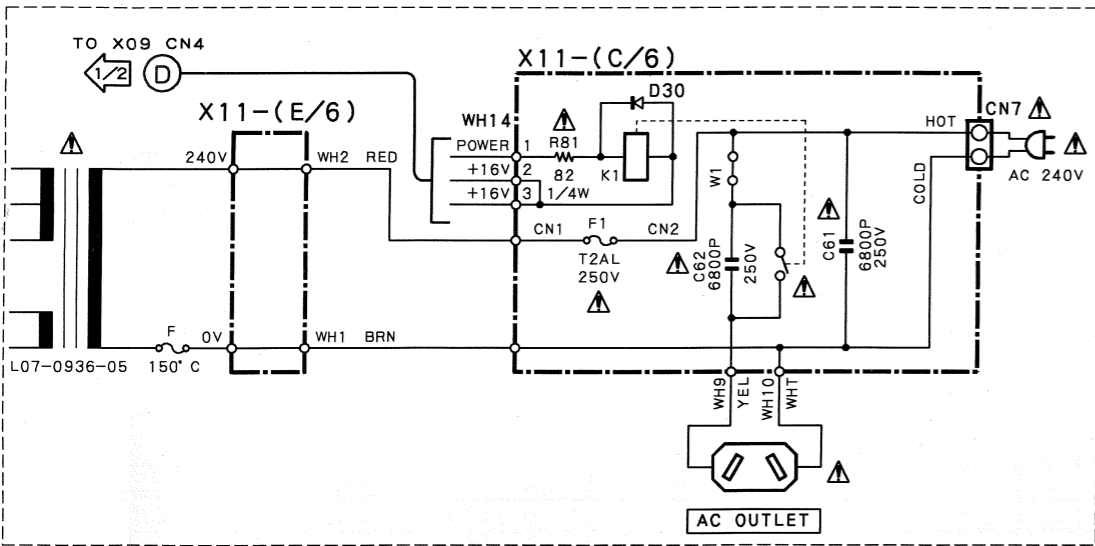
UNIT NAME	ABB
X11-3512-70	E, G, L
X11-3512-91	Y
X11-3510-21	M
X11-3510-71	X
X11-3510-51	T



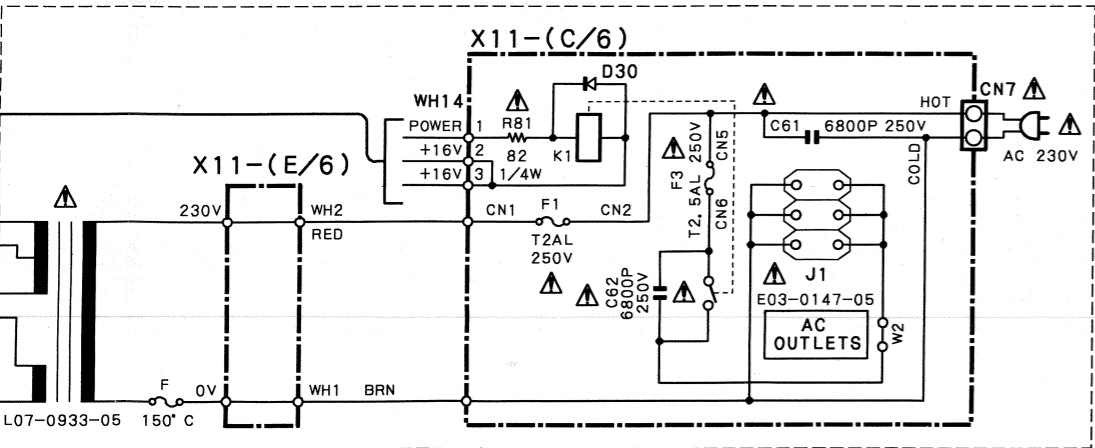
T TYPE



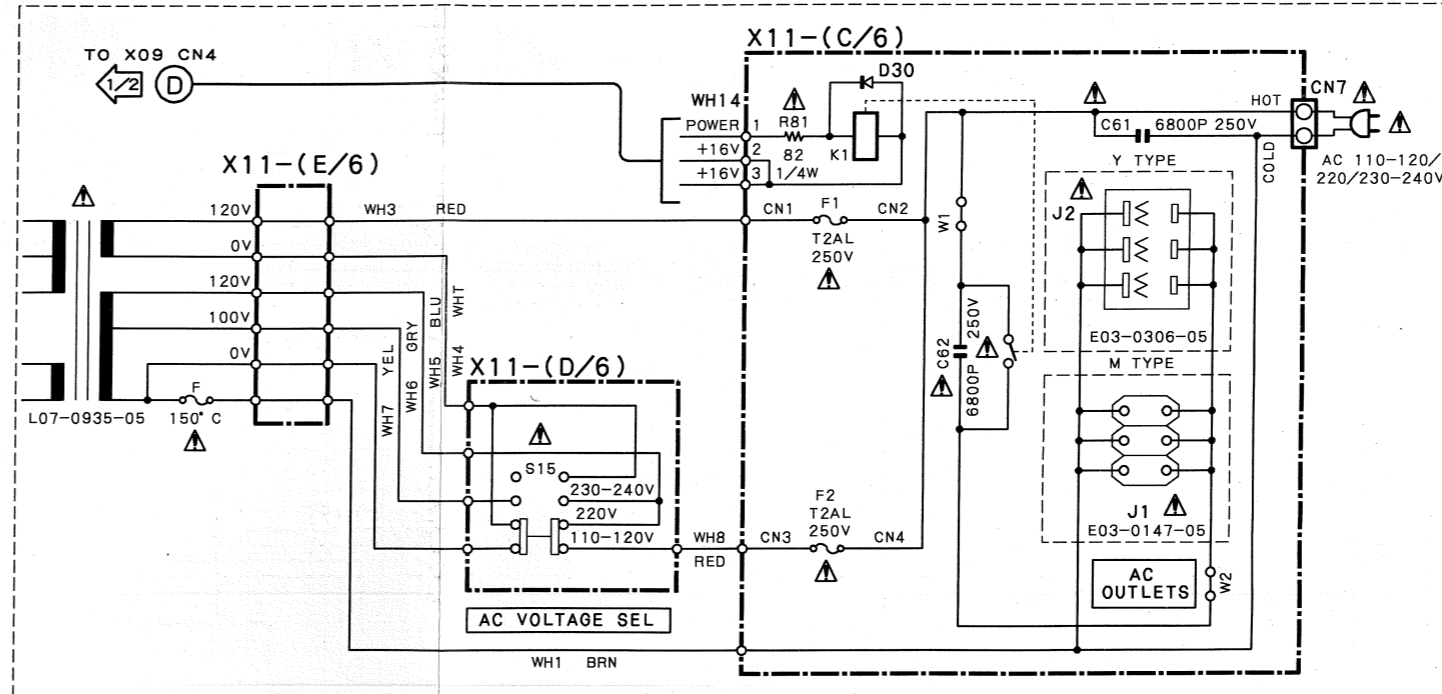
X TYPE



E, G, L TYPE



Y, M TYPE

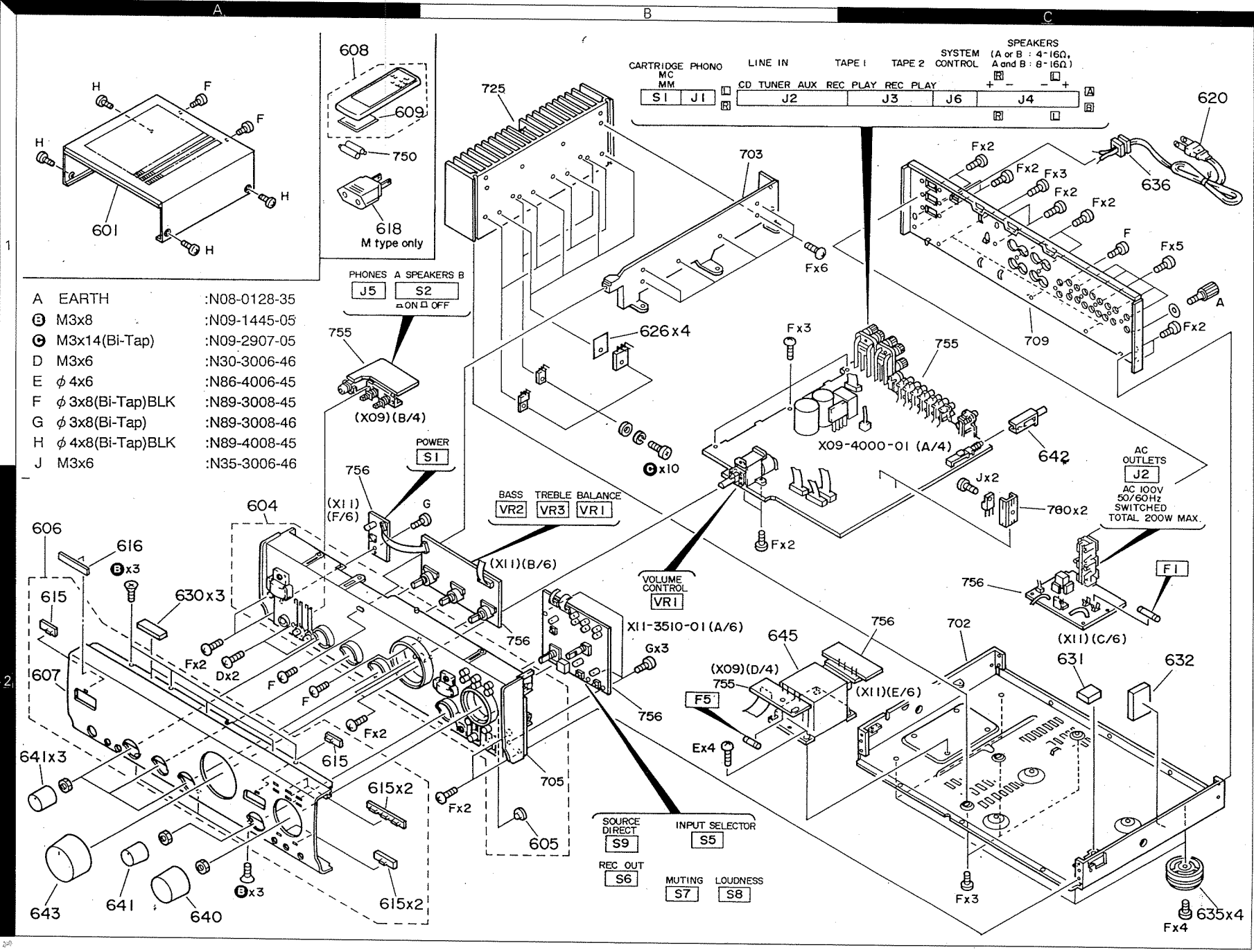


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• DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). Δ 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



EXPLODED VIEW

KA-4060R

PARTS LIST

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

Table with columns: Ref. No., Address, Parts No., Description, Re-mark. Includes sub-section 'AUDIO UNIT(X09-400X-XX)'.

L:Scandinavia, Y:PX(Far East, Hawaii), Y:AFES(Europe), K:USA, T:England, X:Australia, P:Canada, R:Mexico, G:Germany, M:Other Areas. Indicates safety critical components.

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PARTS LIST

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Telle ohne Parts No. werden nicht geliefert.

Table with columns: Ref. No., Address, Parts No., Description, Re-mark. Includes sub-section 'BINDING HD MACHINE SCREW M3X6'.

L:Scandinavia, Y:PX(Far East, Hawaii), Y:AFES(Europe), K:USA, T:England, X:Australia, P:Canada, R:Mexico, G:Germany, M:Other Areas. Indicates safety critical components.

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Table with columns: Ref. No., Address, Parts No., Description, Re-mark.

L:Scandinavia, Y:PX(Far East, Hawaii), Y:AFES(Europe), K:USA, T:England, X:Australia, P:Canada, R:Mexico, G:Germany, M:Other Areas. Indicates safety critical components.

SPECIFICATIONS

FOR OTHER COUNTRIES

Continuous rated power output

(IHF '66) From 20Hz to 20,000Hz 0.06% T.H.D.

at 8Ω 60W+60W

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

at 8Ω 70W+70W

at 4Ω 90W+90W

Dynamic power 85W(8Ω)

100W(6Ω)

120W(4Ω)

Or 40(50Hz)

distortion

..... 0.06%(20Hz~20,000Hz, 60W, 8Ω)

0.03%(1kHz, 60W, 8Ω)

1 distortion 0.03%(60W, 8Ω)

= 4:1)

nse(IHF '78)

X/TAPE1,2

..... 5Hz~90kHz, +0dB, -3dB

Response 20Hz~20kHz,

+0.3dB, -0.3dB

Level

..... 120mV, 0.3% T.H.D. at 1kHz

10mV, 0.3% T.H.D. at 1kHz

..... 88dB(IHF '66)

79dB(IHF '78)

..... 68dB(IHF '66)

75dB(IHF '78)

TAPE1,2 105dB(IHF '66)

81dB(IHF '78)

Input sensitivity/impedance

PHONO(MM) 2.5mV/47kΩ

PHONO(MC) 0.2mV/100Ω

CD/TUNER/AUX/TAPE1,2 200mV/47kΩ

Tone control

BASS ±10dB(at 100Hz)

TREBLE ±10dB(at 10kHz)

Loudness control

(VOLUME at -30dB level) +6dB(100Hz)

+3dB(10kHz)

Output level/impedance

TAPE REC 200mV/1.5kΩ

General

Power consumption 200W

AC outlet

For Australia

SWITCHED 1;(200W max.)

For other countries

SWITCHED 3;(Total 200W max.)

Dimensions W : 440mm (17-5/16")

H : 137mm (5-3/8")

D : 351mm(13-13/16")

Weight(net) 7.9kg(17.4lb)

* 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.

Ref. No. 参照番号	Address 位置	New Parts 新部品	Parts No. 部品番号	Description 部品名
864 -69			DTA143TS	ZENER DIODE
864 -69				ZENER DIODE
864 -69				DIODE
864 -69				DIODE
864 -69				DIODE
864 -69				DIODE
864 -69				ZENER

* 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.

Ref. No. 参照番号	Address 位置	New Parts 新部品	Parts No. 部品番号	Description 部品名 / 規格	Re- marks 備考
D52			R05.11S(B2)	ZENER DIODE	
D53 -65			HSS104A	DIODE	
D53 -65			1SS131	DIODE	
D53 -68			HSS104A	DIODE	
607, 68			1SS131	DIODE	
607, 68			HZ57.5S(B2)	ZENER	
607, 68			RD7.5JS(B2)	DIODE	
607, 68			HSS104A	DIODE	
607, 68			1SS131	DIODE	
607, 68			HSS104A	DIODE	
607, 68			1SS131	DIODE	

As a policy of continuous advancements in development. For this reason specifications may be change without notice.

KENWOOD CORPORATION

14-6, Dogenzaka 1-chome, Shibuya-ku, Tokyo, 150 Japan

KENWOOD SERVICE CORPORATION

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