

MONO POWER AMPLIFIER

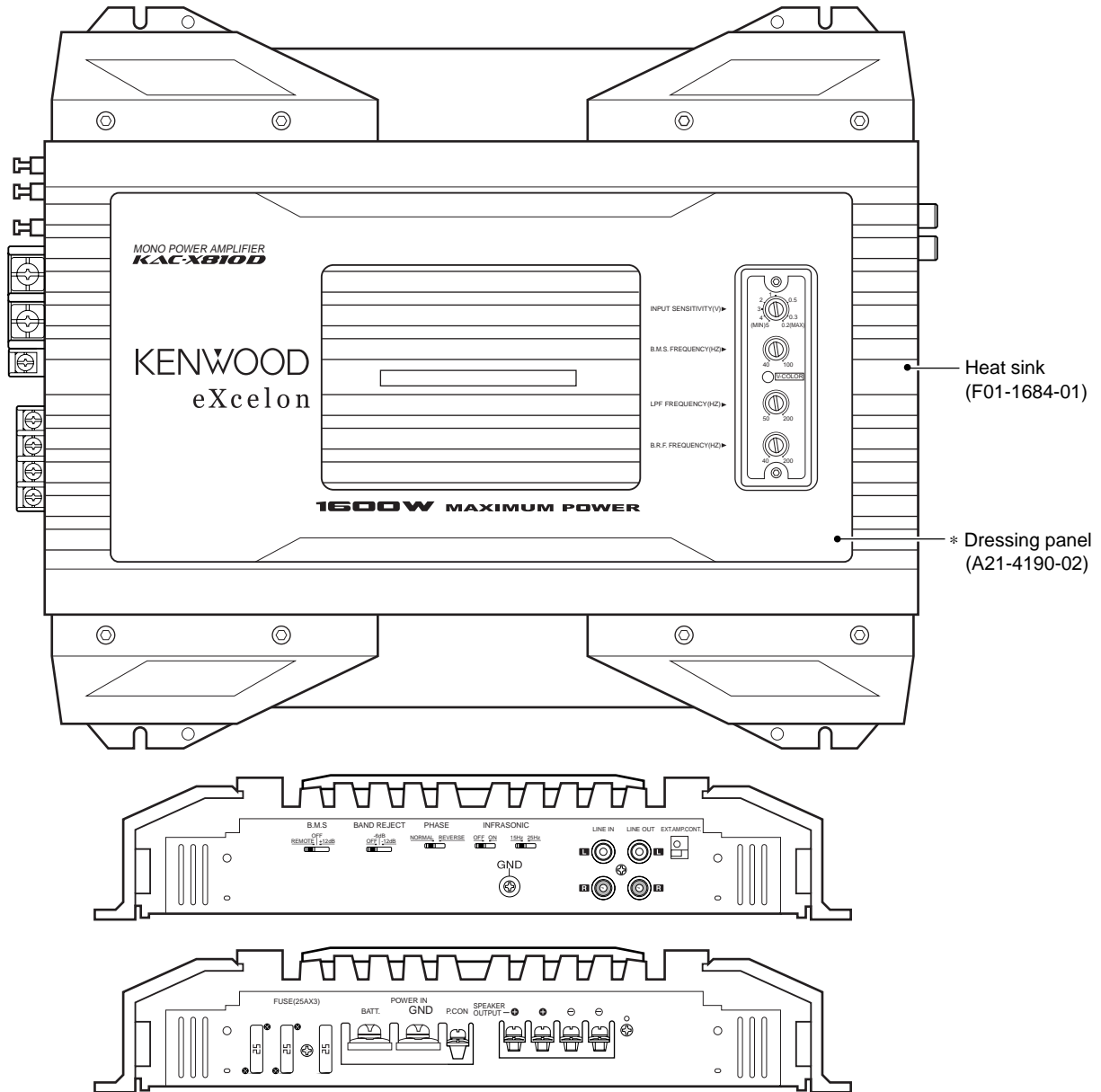
# KAC-X810D/PS810D

# KENWOOD

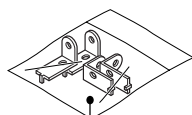
## SERVICE MANUAL

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B51-7897-00 (S) 3404

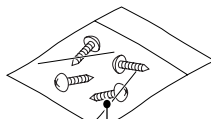
### ● KAC-X810D



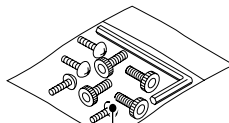
\* Refer to the PARTS LIST



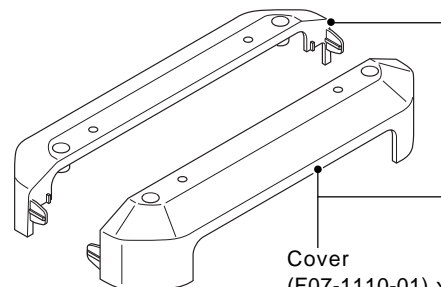
Mounting hardware (J21-9864-04) x 4



Screw set (N99-1577-15)



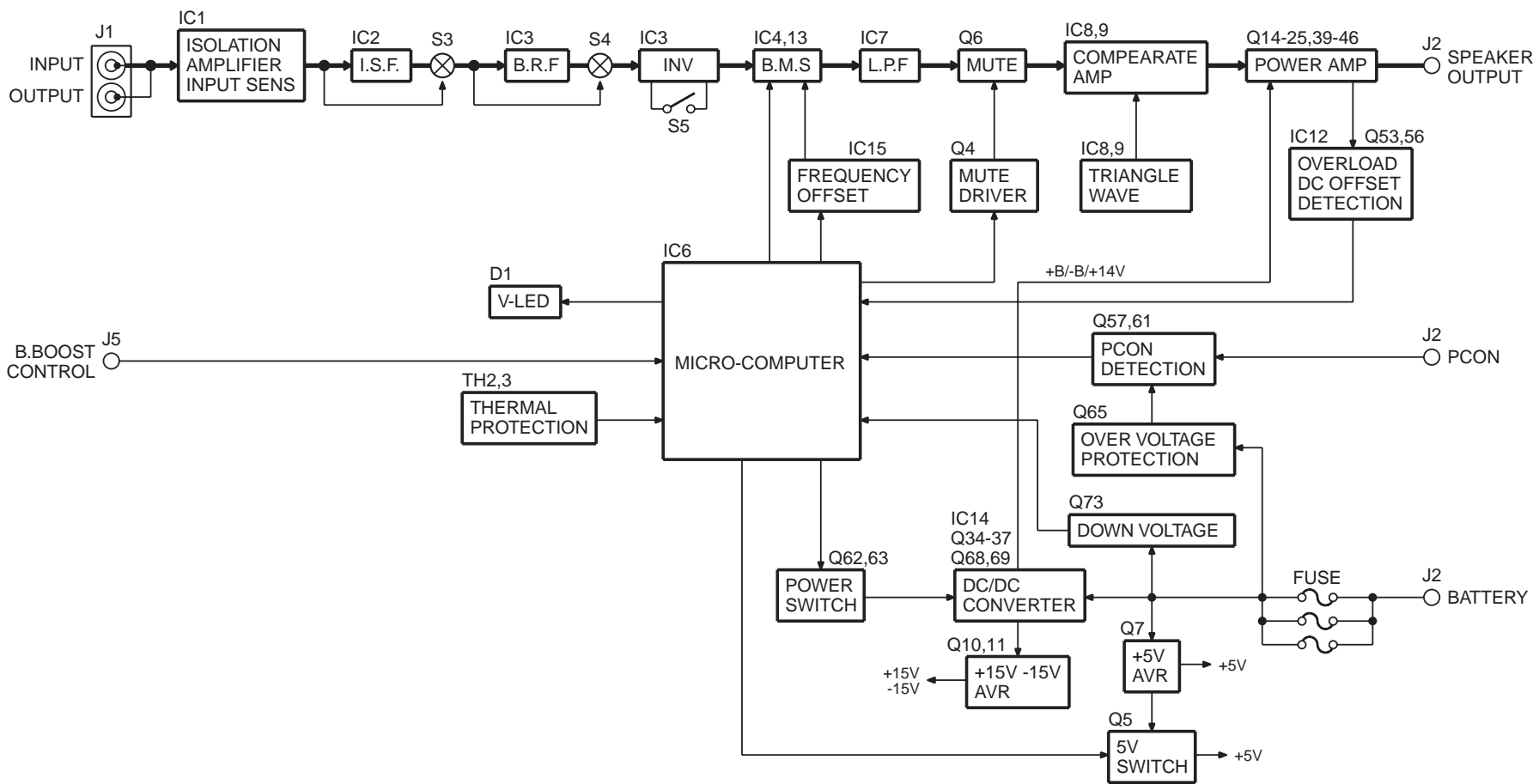
Accessory (W01-1586-05)



Cover (F07-1110-01) x 2



## BLOCK DIAGRAM



## COMPONENT DESCRIPTION

### ● AUDIO UNIT (X09-5440-10)

Component	Purpose • Function
IC1	Isolation AMP
IC2	Infrasonic AMP
IC3 (1/4-3/4)	Band rejection AMP
IC3 (4/4)	Inverter
IC4,13	Bus boost AMP
IC5	Recet IC
IC6	Microcomputer
IC7	Low-pass filter AMP
IC8 (1/2) IC9 (1/2)	Chopping wave generator circuit
IC8 (2/2)	Summing AMP
IC9 (2/2)	PWM waveform generator circuit
IC10,11	Dead time generator circuit
IC12	Used for overcurrent detection
IC14	DC/DC converter IC
IC15 Q59,60	Used for B.M.S frequency offset
Q1-3	Used for LED driver
Q4,6 D6,7	Used for MUTE
Q5	Used for SW +5V
Q7,9 D11	Used for +5V AVR
Q10,12 D14	Used for +15V AVR
Q11,13 D15	Used for -15V AVR
Q14,16-19	Used for VI conversion
Q15,D20	Used for +15V AVR
Q20,21	Used for cascade
Q22,24 D27	Gate failure prevention circuit
Q23,25	Used for D-AMP ON/OFF
Q26-29 Q34-37 Q68,69	MOS FET for DC/DC
Q30-33 Q39-42	MOS FET Driver Tr
Q38,58,64 D32,42,45,46	Overcurrent Detector Circuit
Q43-46	MOS FET (Power FET)
Q47-50	MOS FET Driver Tr
Q51,52 Q54,55	Used for output current VI conversion
Q53,56	DC detection
Q57,61 D33	Used for P-CON
Q62,63	Power ON
Q65,D34	Used for overvoltage detection
Q66	Used for B.M.S
Q70,71	Used for Pulling -15V
Q73,D37	Used for reduced voltage detection
D1	Variable color LED
D2-5	Used for static electricity prevention

Component	Purpose • Function
D8-10,12,13	Used for the limitation of a chopping wave voltage
D21,22,40,41	Used for rectification ( $\pm B$ )
D23-26	Used for rectification (+15V)
D28,29	Used for $\pm 8.2V$ AVR
D30,31	Used for MOS FET Drive
D35,36,38	Protection circuit (error connection) for the prevention of reverse connection
D39	Used for 5.1V AVR
D43,44	$\pm 10V$ AVR

# KAC-X810D/PS810D

## MICROCOMPUTER'S TERMINAL DESCRIPTION

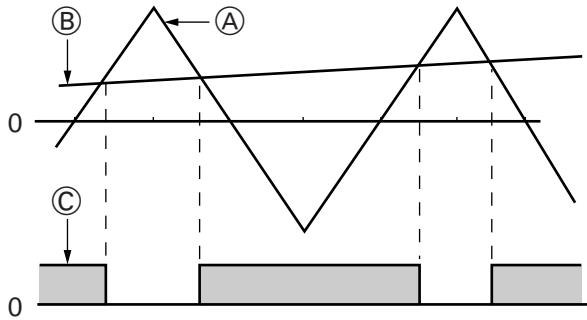
### ● IC6 (AUDIO UNIT : X09-5440-10)

Pin No.	Pin Name	I/O	Description	Processing Operation
1	+5V_SW	O	Low-current control	Lo: SW 5V ON
2	N.C.	-	Not used	
3	FAN	-	Not used	
4	N.C.	-	Not used	
5	D_VOLTAGE	I	D-class overvoltage detection	Lo: Overvoltage detection
6	V_DOWN	I	Reduced voltage detection	Hi: Reduced voltage detection
7	D_CURRENT	I	D-class overcurrent detection	Lo: Overcurrent detection when D power ON
8	AB_VOLTAGE	I	AB-class overvoltage detection	Lo: Overvoltage detection
9	AB_CURRENT	I	AB-class overcurrent detection	Hi: Overcurrent detection
10	BLUE	O	Blue control of variable illumination	Hi: Illumination lighting
11	GREEN	O	Green control of variable illumination	Hi: Illumination lighting
12	RED	O	Red control of variable illumination	Hi: Illumination lighting
13	TEST	-		
14	RST	-	Reset signal input	Lo: Reset operation
15	XIN	-	High-frequency oscillating connection pin	
16	XOUT	-	High-frequency oscillating connection pin	
17	VSS	-	0V (GND)	
18	VAREF	-	A/D reference voltage	
19	ADIN_1	I	Temperature detection 1 (A/D input)	Hi: Abnormal temperature detection
20	ADIN_2	I	Temperature detection 2 (A/D input)	Hi: Abnormal temperature detection
21	ADIN_3	I	Temperature detection 3 (A/D input)	Hi: Abnormal temperature detection
22	ADIN_4	I	Temperature detection 4 (A/D input)	Hi: Abnormal temperature detection
23	N.C.	-	Not used	
24	BASS 12dB	I	B.M.S +12dB fixed	Hi: B.M.S fixed +12dB
25	BASS REMO	I	B.M.S switched from H/U	Hi: B.M.S switched from H/U
26	BASS OFF	I	BOOST OFF	Hi: BOOST OFF
27	D_POWER	O	D-class Amp block control	Hi: D-class Amp block ON
28	N.C.	-	Not used	
29	N.C.	-	Not used	
30	POWER	O	AMP power control	Hi: SW 14.4V ON
31	COM_HU	I	Pulse measurement of H/U communication	
32	OFFSET CON	O	Offset control of BASS BOOST frequency	Hi: OFFSET ON
33	BASS_CON_A	O	BASS BOOST control A	
34	BASS_CON_B	O	BASS BOOST control B	
35	N.C.	-	Not used	
36	N.C.	-	Not used	
37	STANBY	I	Stop mode canceled by Pcon ON	Lo: Pcon ON or BUP overvoltage detection
38	N.C.	-	Not used	
39	N.C.	-	Not used	
40	VDD	-	Positive potential	
41	TACT SW	I	Switch input for color determination	Hi: SW ON
42	MUTE2	O	Mute control in driver stage	Lo: MUTE2 ON
43	MUTE1	O	Mute control in amplifier block input stage	Lo: MUTE1 ON
44	N.C.	-	Not used	

## CIRCUIT DESCRIPTION

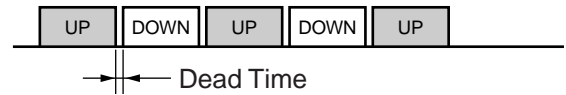
### 1. PWM Signal Waveform Generation

Ⓐ and Ⓑ are sent to the comparator so as to generate the PWM waveform of Ⓒ. (A clock of 50% in duty ratio is obtained when Ⓑ is 0.)

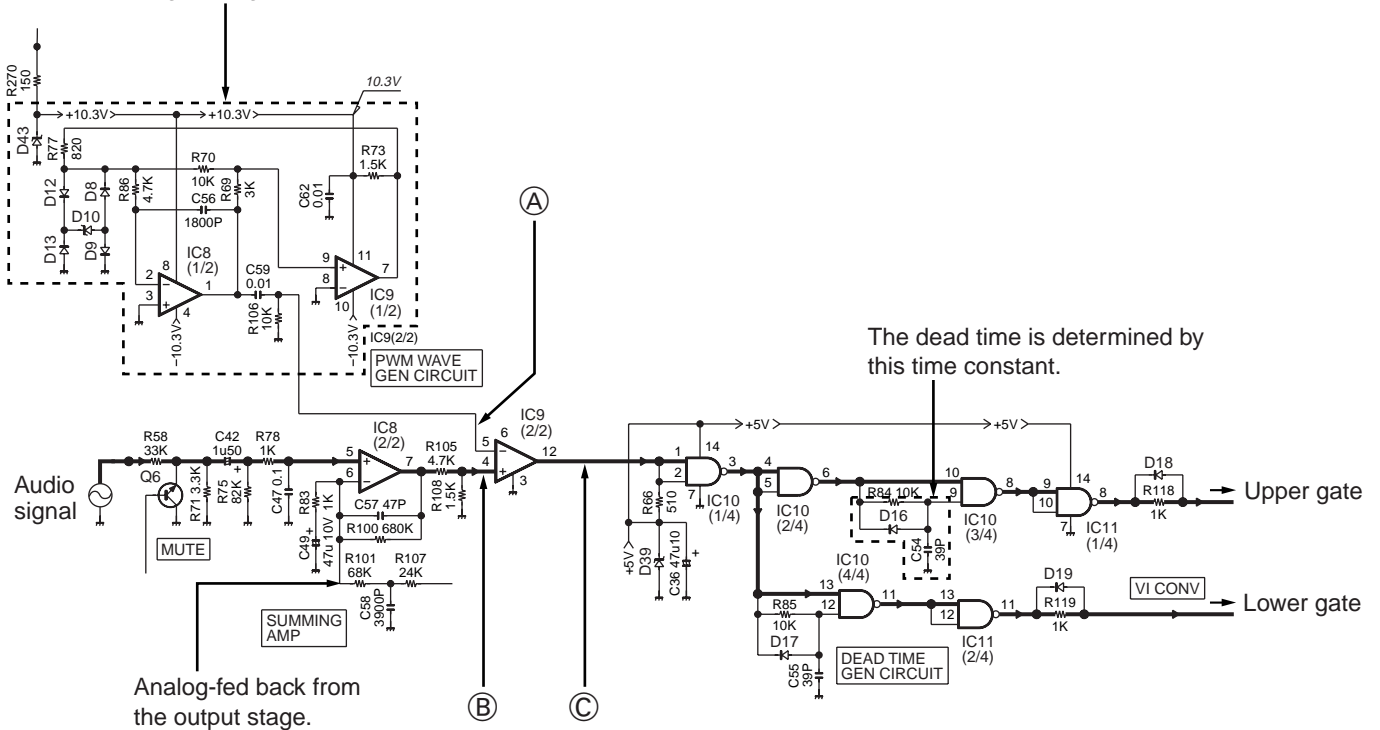


- Ⓐ: Chopping wave
- Ⓑ: Analog input
- Ⓒ: PWM Signal

The waveform of Ⓒ is divided into upper and lower gate waveforms. An OFF section is created so that the upper gate waveform is not turned on simultaneously with the lower gate waveform.



Chopping wave generator circuit



# KAC-X810D/PS810D

## CIRCUIT DESCRIPTION

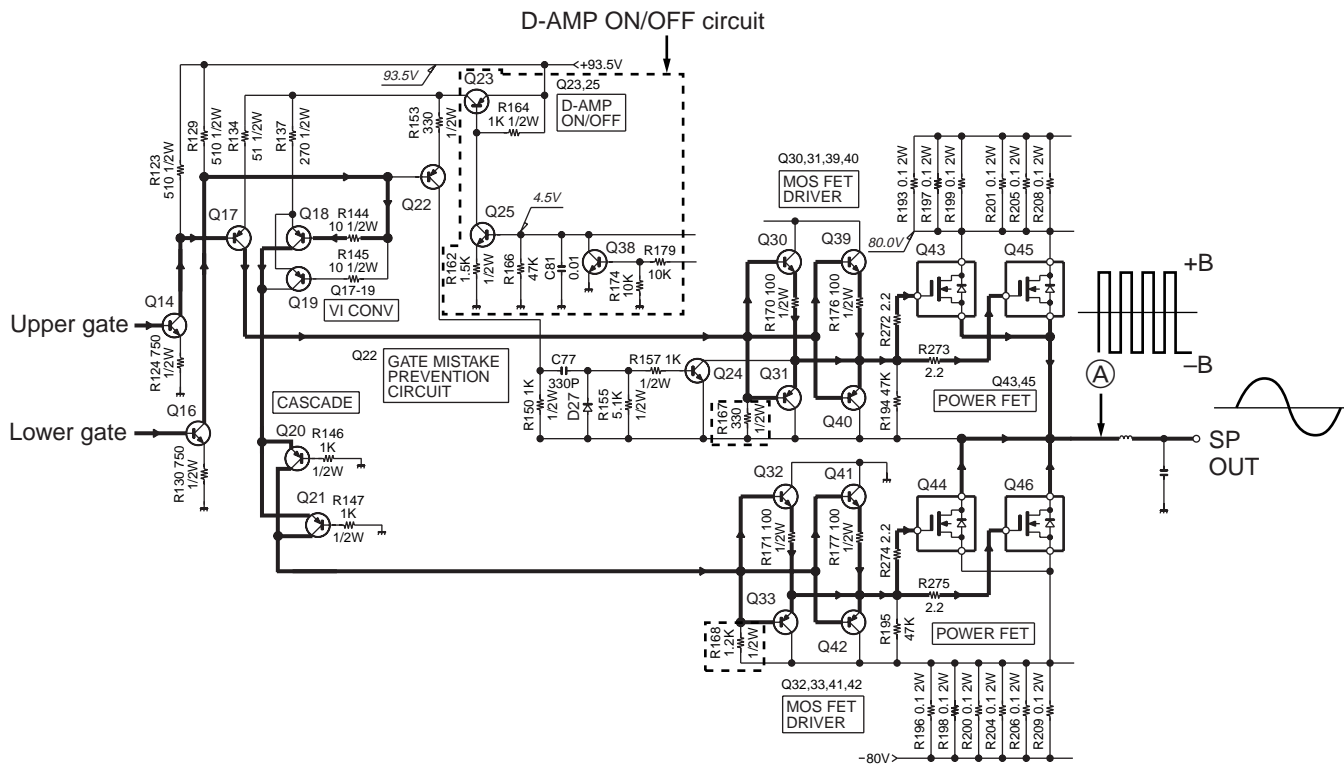
### 2. D-AMP Block

The voltages at the upper and lower gates are current-converted using Q14 and Q16 to Q19.

The converted current is returned to a voltage using R167 and R168 to drive MOSFET by Q30 to Q33 and Q39 to Q42 (push-pull operation).

The PWM waveform swung up to  $\pm B$  is output to  $\textcircled{A}$  and converted into analog using an LC filter.

**Note:** Q24 turns off the upper gate voltage when the lower gate voltage is turned on. (It prevents the voltages from being turned on simultaneously.)



## CIRCUIT DESCRIPTION

### 3. Overcurrent Detector Circuit

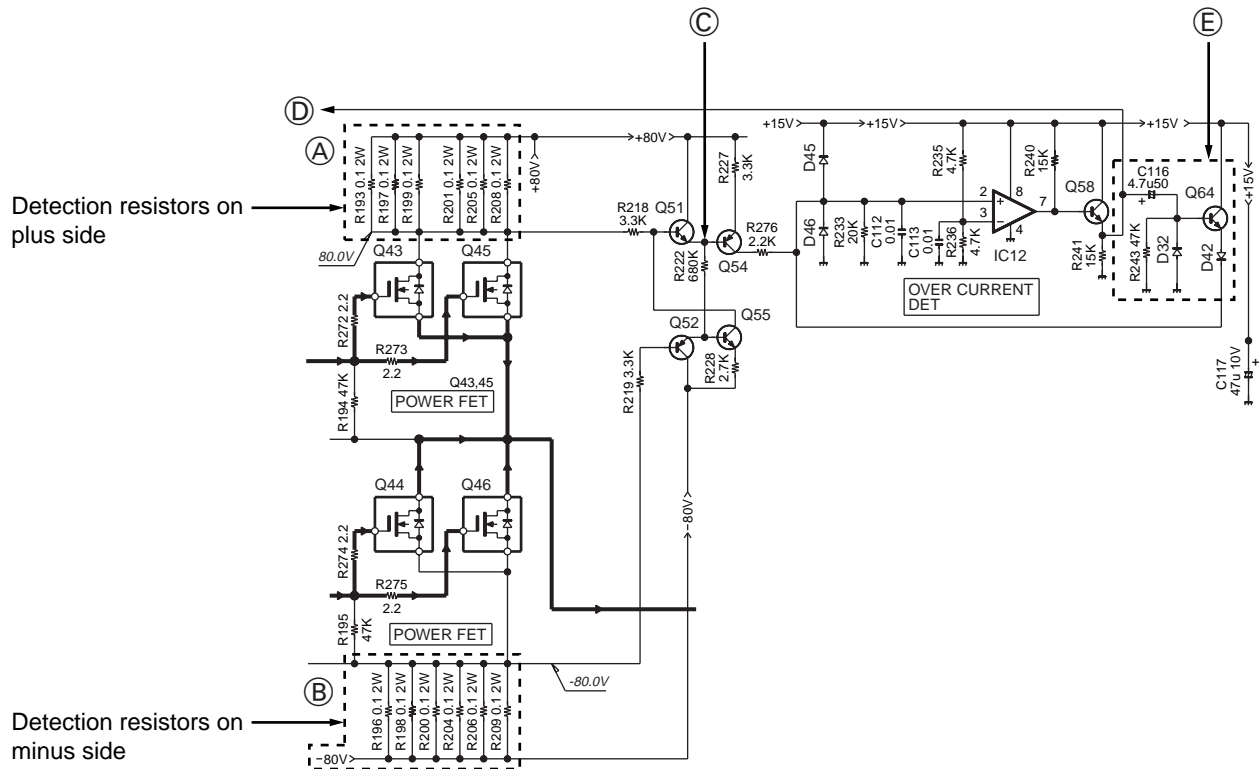
The signal level detected in (A) and (B) appears in (C), and the signal is current-converted using Q54 and R227.

The converted current is voltage-converted using R233, and the output signal of IC12 is set "high" when the voltage becomes more than +7.5 V.

The power of the D-amp is turned off when (D) is set "high".

The information is sent to a microcomputer.

(E) establishes a positive feedback for a fixed time to stabilize the operation.

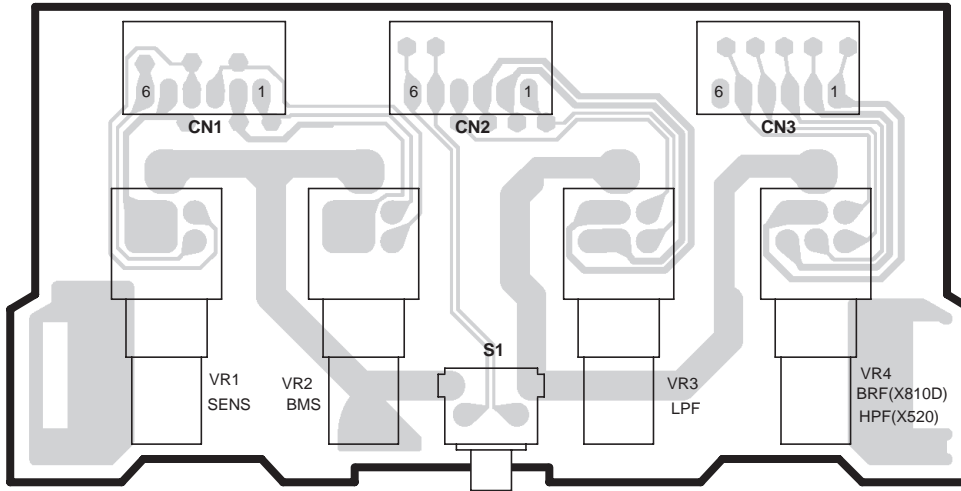


# PC BOARD

## Component Side View

### PREAMPLIFIER UNIT

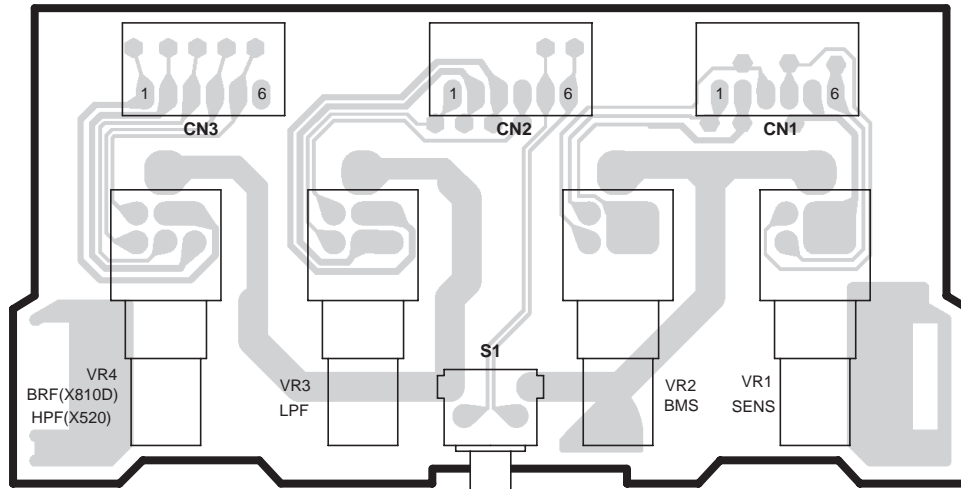
X08-4090-10 (J74-1362-11)



## Foil Side View

### PREAMPLIFIER UNIT

X08-4090-10 (J74-1362-11)

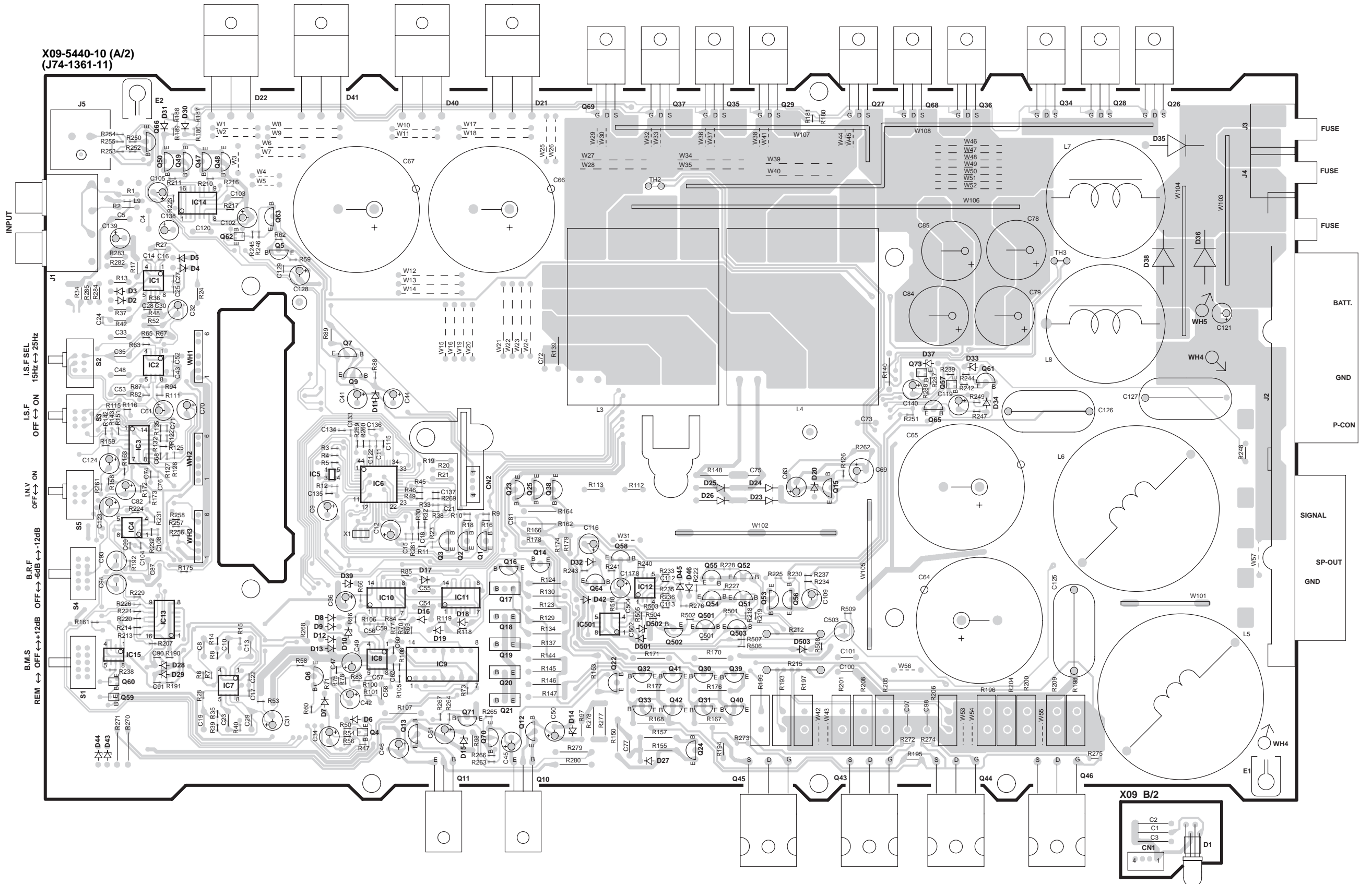


# PC BOARD (Component Side View)

## AUDIO UNIT

AUDIO UNIT (A/2)  
(X09-5440-10)

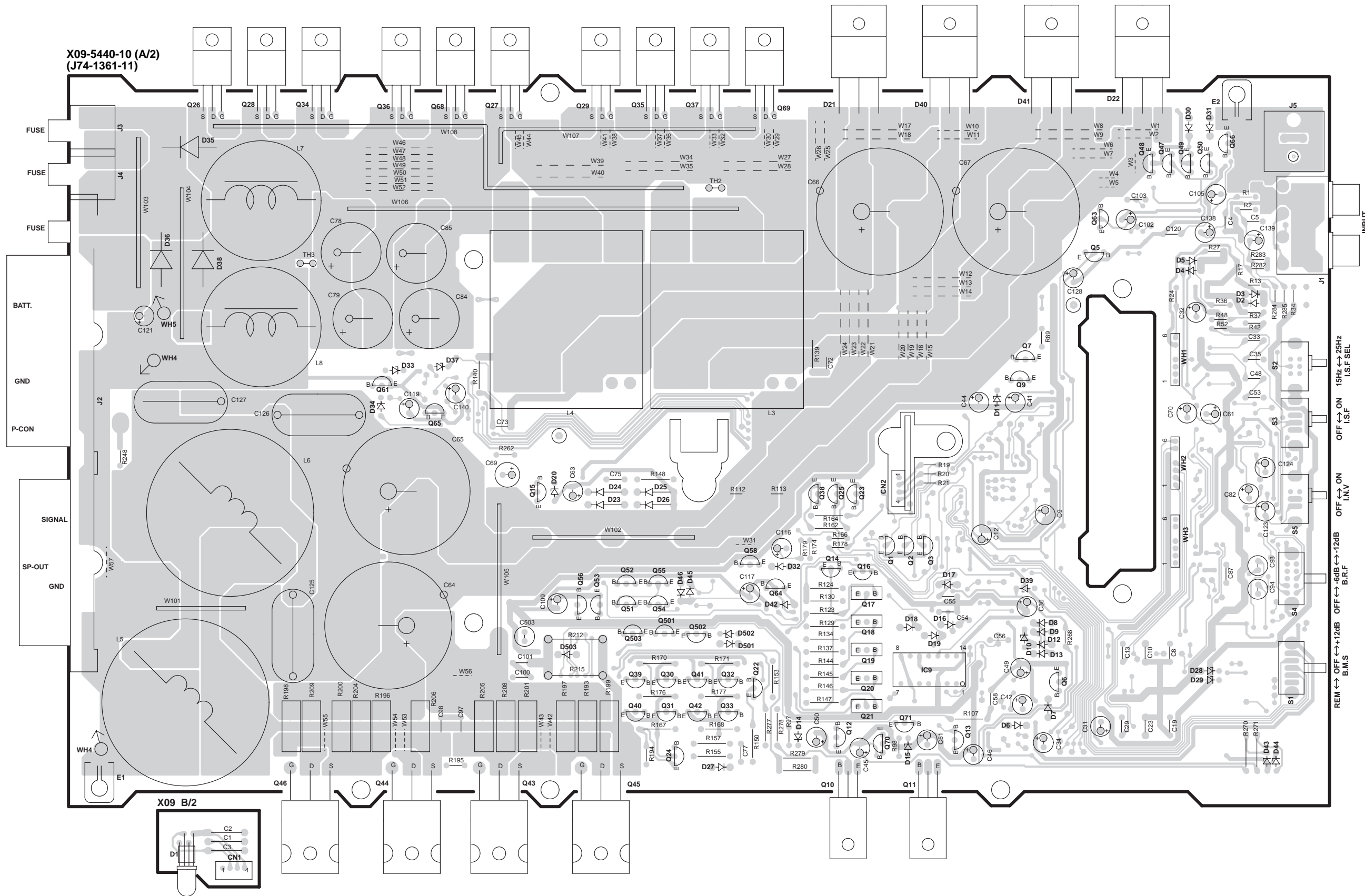
Ref. NO.	IC	Q	Address
1	3F		
2	4F		
3	4F		
4	5F		
5	4G		
6	4H		
7	6G		
8	6H		
9	6H		
10	5H		
11	5H		
12	5I		
13	5F		
14	3G		
15	5F		
1	5H		
2	5H		
3	5H		
4	6H		
5	3G		
6	6G		
7	4H		
9	4H		
10	6I		
11	6H		
12	6I		
13	6H		
14	5I		
15	4K		
16	5I		
17	5I		
18	5I		
19	5I		
20	6I		
21	6I		
22	6I		
23	4I		
24	6J		
25	4I		
26	2M		
27	2K		
28	2L		
29	2J		
30	6J		
31	6J		
32	6I		
33	6I		
34	2L		
35	2J		
36	2K		
37	2J		
38	4I		
39	6J		
40	6J		
41	6J		
42	6J		
43	6K		
44	6L		
45	6J		
46	6L		
47	2G		
48	2G		
49	2G		
50	2F		
51	5J		
52	5J		
53	5J		
54	5J		
55	5J		
56	5J		
57	4K		
58	5I		
59	6F		
60	6F		
61	4L		
62	3G		
63	3G		
64	5I		
65	4K		
66	2F		
68	2K		
69	2I		
70	6H		
71	6H		
73	4K		



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

# PC BOARD (Foil Side View)

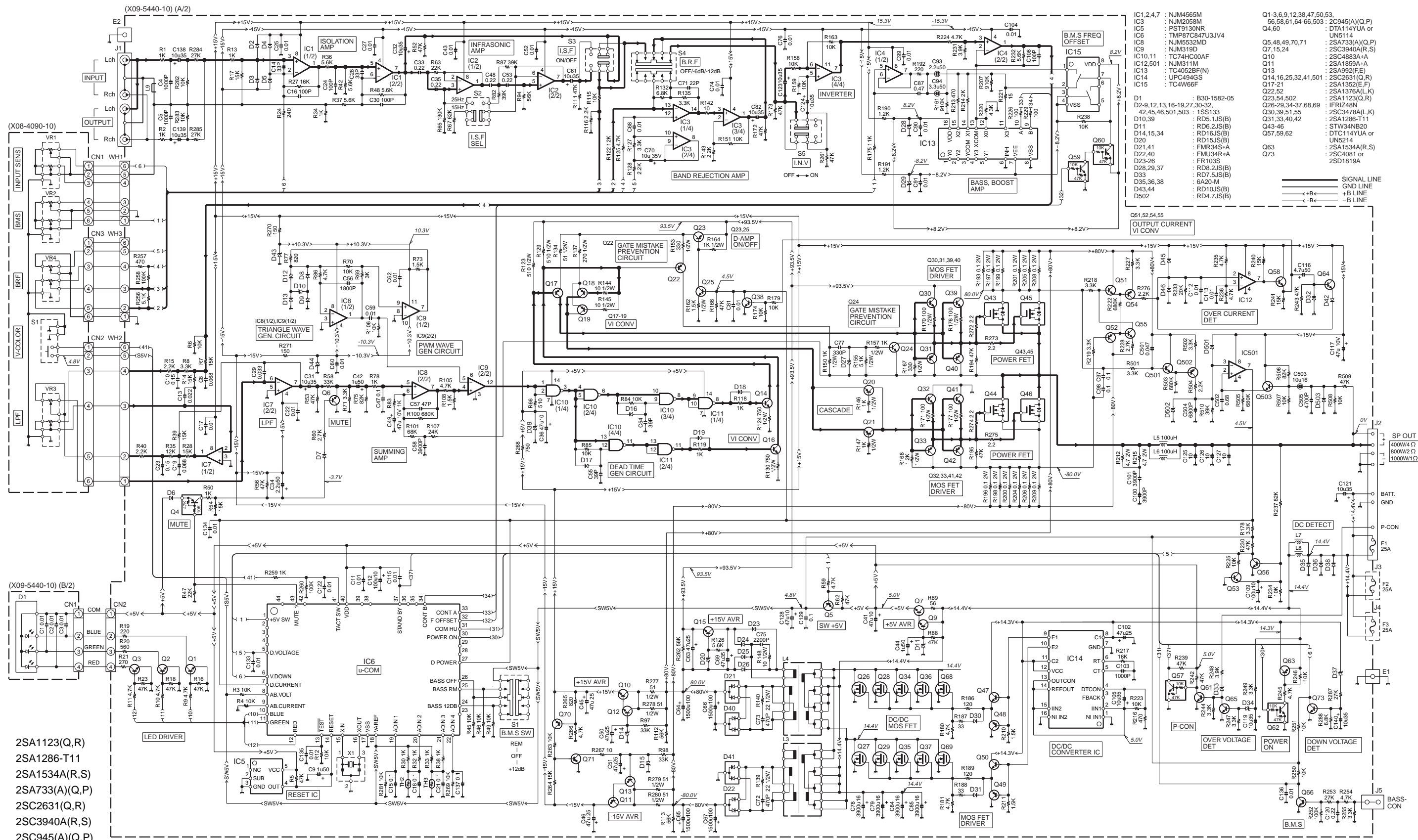
## AUDIO UNIT



AUDIO UNIT (A/2)  
(X09-5440-10)

Ref. NO	IC	Q	Address
9			
1			6S
2			5S
3			5S
5			3T
6			6T
7			4S
9			4S
10			6R
11			6S
12			6R
13			6S
14			5R
15			4P
16			5R
17			5R
18			5R
19			5R
20			6R
21			6R
22			6R
23			4R
24			6Q
25			4R
26			2N
27			2P
28			2P
29			2Q
30			6Q
31			6Q
32			6R
33			6R
34			2Q
35			2Q
36			2Q
37			2Q
38			4R
39			6Q
40			6Q
41			6Q
42			6Q
43			6P
44			6Q
45			6Q
46			6Q
47			2T
48			2T
49			2T
50			2U
51			5Q
52			5Q
53			5Q
54			5Q
55			5Q
56			5Q
58			5R
61			4Q
63			3T
64			5R
65			4P
66			2U
68			2P
69			2R
70			6S
71			6S

REM → OFF ↔ +12dB B.M.S. OFF ↔ -6dB ↔ -12dB B.R.F. OFF ↔ ON I.N.V. OFF ↔ ON I.S.F. 15Hz ↔ 25Hz I.S.F. SEL



- IC1,2,4,7 : NJM4565M  
 IC3 : NJM2058M  
 IC5 : PST9130NR  
 IC6 : TMP87C847U3J/V4  
 IC8 : NJM5532MD  
 IC9 : NJM319D  
 IC10,11 : TC74HC00AF  
 IC12,501 : NJM311M  
 IC13 : TC4052BF(N)  
 IC14 : UPC494GS  
 IC15 : TC4W66F
- D1 : B30-1582-05  
 D2-9,12,13,16-19,27,30-32, 42,45,46,501,503 : 1SS133  
 D10,39 : RD5.1JS(B)  
 D11 : RD7.2JS(B)  
 D14,15,34 : RD16JS(B)  
 D20 : RD15JS(B)  
 D21,41 : FMR34S-A  
 D22,40 : FMU34R-A  
 D23-26 : FR103S  
 D28,29,37 : RD8.2JS(B)  
 D33 : RD7.5JS(B)  
 D35,36,38 : 6A20M  
 D43,44 : RD10JS(B)  
 D502 : RD4.7JS(B)
- Q1-3,6,9,12,38,47,50,53, 56,58,61,64-66,503 : 2C945(A)(Q,P) Q4,60 : DTA114YUA or UN5114  
 Q5,48,49,70,71 : 2SA733(A)(Q,P) Q7,15,24 : 2SC3940A(R,S) Q10 : 2SC4883A=A  
 Q11 : 2SA1859A=A  
 Q12 : 2SA992(FE)  
 Q14 : 16,25,32,41,501 Q17-21 : 2SC2631(Q,R) Q22,52 : 2SA1376A(L,K) Q23,54,502 : 2SA1123(Q,R) Q26-29,34-37,68,69 : IFRZ148N Q30,39,51,55 : 2SC3478A(L,K) Q31,33,40,42 : 2SA1286-T11 Q43-46 : 2SC2631(Q,R) Q47,59,62 : DTC114YUA or UN5214  
 Q63 : 2SA1534A(R,S) Q73 : 2SC4081 or 2SD1819A
- D1 : B30-1582-05  
 D2-9,12,13,16-19,27,30-32, 42,45,46,501,503 : 1SS133  
 D10,39 : RD5.1JS(B)  
 D11 : RD7.2JS(B)  
 D14,15,34 : RD16JS(B)  
 D20 : RD15JS(B)  
 D21,41 : FMR34S-A  
 D22,40 : FMU34R-A  
 D23-26 : FR103S  
 D28,29,37 : RD8.2JS(B)  
 D33 : RD7.5JS(B)  
 D35,36,38 : 6A20M  
 D43,44 : RD10JS(B)  
 D502 : RD4.7JS(B)
- Q1-3,6,9,12,38,47,50,53, 56,58,61,64-66,503 : 2C945(A)(Q,P) Q4,60 : DTA114YUA or UN5114  
 Q5,48,49,70,71 : 2SA733(A)(Q,P) Q7,15,24 : 2SC3940A(R,S) Q10 : 2SC4883A=A  
 Q11 : 2SA1859A=A  
 Q12 : 2SA992(FE)  
 Q14 : 16,25,32,41,501 Q17-21 : 2SC2631(Q,R) Q22,52 : 2SA1376A(L,K) Q23,54,502 : 2SA1123(Q,R) Q26-29,34-37,68,69 : IFRZ148N Q30,39,51,55 : 2SC3478A(L,K) Q31,33,40,42 : 2SA1286-T11 Q43-46 : 2SC2631(Q,R) Q47,59,62 : DTC114YUA or UN5214  
 Q63 : 2SA1534A(R,S) Q73 : 2SC4081 or 2SD1819A

- 2SA1123(Q,R)  
 2SA1286-T11  
 2SA1534A(R,S)  
 2SA733(A)(Q,P)  
 2SC2631(Q,R)  
 2SC3940A(R,S)  
 2SC945(A)(Q,P)

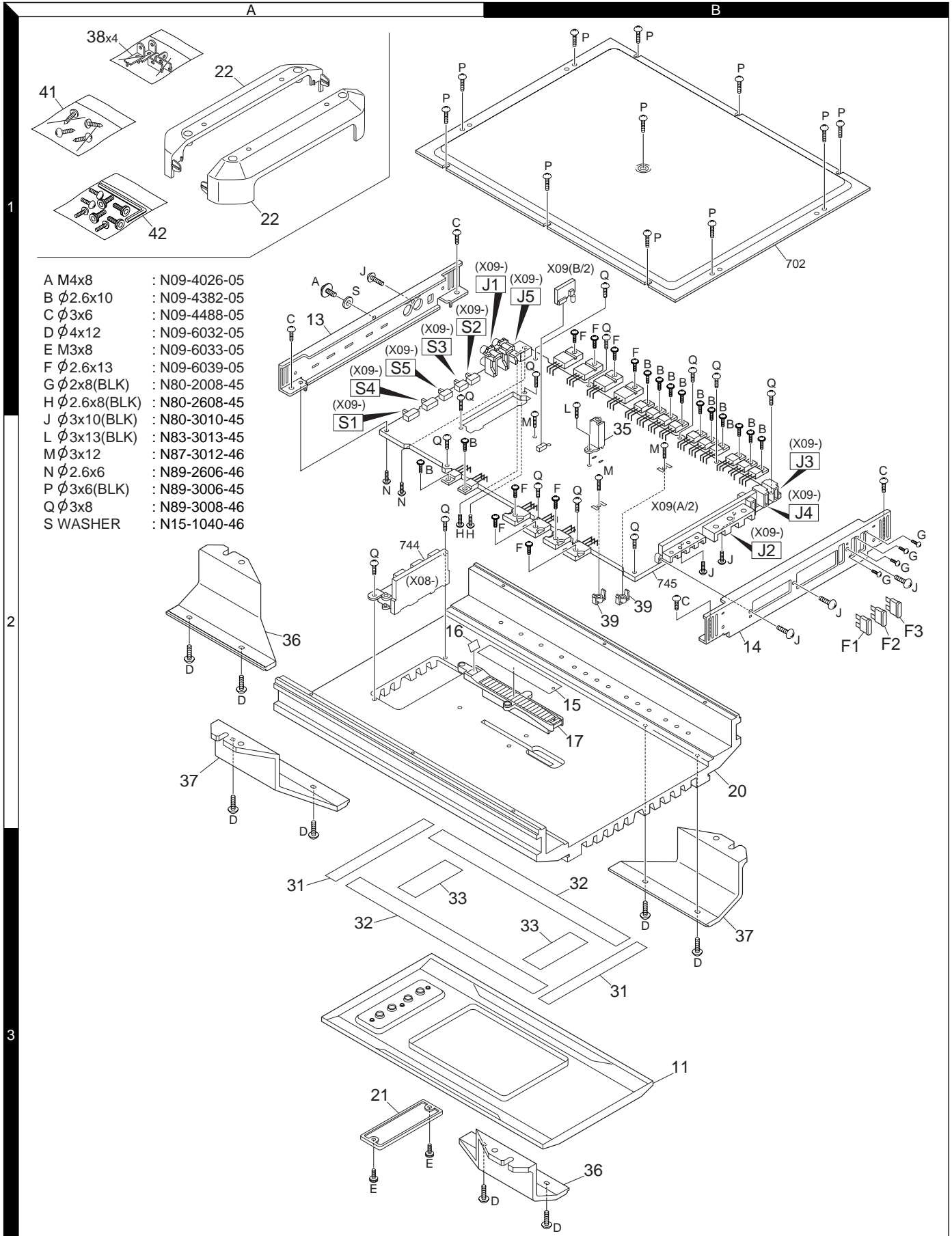
- DTC114YUA    2SB1548(P)    2SC4081    TC4052BF(N)    NJM4565M    DTA114YUA    UPC494GS    TC74HC00AF    NJM2058M    PST9130NR    TC4W66F
- UN5114    UN5214    2SD1819A

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

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

**KAC-X810D/PS810D**  
**KENWOOD**

## EXPLODED VIEW



- |                            |               |
|----------------------------|---------------|
| A M4x8                     | : N09-4026-05 |
| B $\varnothing$ 2.6x10     | : N09-4382-05 |
| C $\varnothing$ 3x6        | : N09-4488-05 |
| D $\varnothing$ 4x12       | : N09-6032-05 |
| E M3x8                     | : N09-6033-05 |
| F $\varnothing$ 2.6x13     | : N09-6039-05 |
| G $\varnothing$ 2x8(BLK)   | : N80-2008-45 |
| H $\varnothing$ 2.6x8(BLK) | : N80-2608-45 |
| J $\varnothing$ 3x10(BLK)  | : N80-3010-45 |
| L $\varnothing$ 3x13(BLK)  | : N83-3013-45 |
| M $\varnothing$ 3x12       | : N87-3012-46 |
| N $\varnothing$ 2.6x6      | : N89-2606-46 |
| P $\varnothing$ 3x6(BLK)   | : N89-3006-45 |
| Q $\varnothing$ 3x8        | : N89-3008-46 |
| S WASHER                   | : N15-1040-46 |

Parts with exploded numbers larger than 700 are not supplied.

# KAC-X810D/PS810D

## 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.

The language of an instruction manual.

E : ENG    F : FRE    P : POR    H : HUN    O : POL  
 T : CHI    G : GER    D : DUT    C : CRO    Z : CZE  
 A : ARA    S : SPA    I : ITA    R : RUS    L : SLO

Ref.No.	A d	N e w	Parts No.	Description	Dest inati on	
<b>KAC-X810D/PS810D</b>						
11	3B	*	A21-4190-02	DRESSING PANEL	K,M1 E1	
11	3B	*	A21-4191-02	DRESSING PANEL		
13	1A	*	A64-2697-02	PANEL		
14	2B	*	A84-0310-02	REAR PANEL		
15	2B	*	B11-1378-04	REFLECTION SHEET	K	
16	2A	*	B11-1379-04	REFLECTION SHEET		
17	2B	*	B19-2143-03	LIGHTING BOARD		
-			B46-0100-50	WARRANTY CARD		
-			B46-0648-03	USER CARD		
-		*	B64-2274-00	INSTRUCTION MANUAL E.F.S		K,E1 E1 M1
-		*	B64-2275-00	INSTRUCTION MANUAL G.D.I.P		
-		*	B64-2276-00	INSTRUCTION MANUAL E.T		
20	2B	*	F01-1684-01	HEAT SINK		
21	3A	*	F07-1109-04	COVER		K,M1 E1
22	1A	*	F07-1110-01	COVER		
F1-3	2B	*	F52-0014-05	FUSE (BLADE TYPE)		
31	3A	*	H30-0555-04	ADHESIVE DOUBLE-COATED TAPE		
32	3A	*	H30-0556-04	ADHESIVE DOUBLE-COATED TAPE		
33	3A	*	H30-0557-04	ADHESIVE DOUBLE-COATED TAPE		
-			H10-4805-02	POLYSTYRENE FOAMED FIXTURE		
-			H11-1529-04	POLYSTYRENE FOAMED BOARD		
-			H13-2022-04	CARTON BOARD		
-			H21-1117-04	PROTECTION SHEET		
-			H21-1141-04	PROTECTION SHEET		
-			H25-0336-04	PROTECTION BAG (170X250X0.03)		
-			H25-1179-04	PROTECTION BAG		
-		*	H30-0558-04	ADHESIVE DOUBLE-COATED TAPE	K,M1 E1	
-		*	H54-2520-04	ITEM CARTON CASE		
-		*	H54-2521-04	ITEM CARTON CASE		
35	2B	*	J21-9706-04	MOUNTING HARDWARE	K,M1 E1	
36	2A	*	J21-9853-03	MOUNTING HARDWARE		
37	2A	*	J21-9854-03	MOUNTING HARDWARE		
38	1A	*	J21-9864-04	MOUNTING HARDWARE		
39	2B	*	J30-1066-04	SPACER		
41	1A	*	N99-1577-15	SCREW SET	K,M1 E1	
A	1A	*	N09-4026-05	TAPPING SCREW (4X8,TP,S)		
B	1B	*	N09-4382-05	TAPTITE SCREW (2.6X10)		
C	1A	*	N09-4488-05	TAPTITE SCREW (3X6)		
D	3A	*	N09-6032-05	DRESSED SCREW (TORX,4X12)		
E	3A	*	N09-6033-05	DRESSED SCREW (M3X8)		
F	2A	*	N09-6039-05	TAPTITE SCREW (2.6X13)		
G	2B	*	N80-2008-45	PAN HEAD TAPTITE SCREW		
J	1A	*	N80-3010-45	PAN HEAD TAPTITE SCREW		
L	1B	*	N83-3013-45	PAN HEAD TAPTITE SCREW		
M	2B	*	N87-3012-46	BRAZIER HEAD TAPTITE SCREW	K,M1 E1	
N	2A	*	N89-2606-46	BINDING HEAD TAPTITE SCREW		
P	1A	*	N89-3006-45	BINDING HEAD TAPTITE SCREW		
Q	1A	*	N89-3008-46	BINDING HEAD TAPTITE SCREW		
S	1A	*	N15-1040-46	FLAT WASHER (4φ)		
42	1A	*	W01-1586-05	ACCESSORY		

Ref.No.	A d	N e w	Parts No.	Description	Dest inati on
<b>PREAMPLIFIER UNIT (X08-4090-10)</b>					
CN1-3		*	E41-0294-05	PIN ASSY	
VR1			R31-0235-05	VARIABLE RESISTOR	
VR2-4			R31-0236-05	VARIABLE RESISTOR	
S1			S68-0806-05	PUSH SWITCH	
<b>AUDIO UNIT (X09-5440-10)</b>					
D1			B30-1582-05	LED	
C1-3			C91-0769-05	CERAMIC	0.010UF K
C4,5			CF92FV1H102J	MF-C	1000PF J
C8			CF92FV1H683J	MF-C	0.068UF J
C9			CE04DW1H010M	ELECTRO	1.0UF 50WV
C10			CF92FV1H154J	MF-C	0.15UF J
C11			CK73GB1H103K	CHIP C	0.010UF K
C12			CE04DW1A101M	ELECTRO	100UF 10WV
C13			CF92FV1H223J	MF-C	0.022UF J
C14			CC73GCH1H330J	CHIP C	33PF J
C15			CK73GB1H104K	CHIP C	0.10UF K
C16			CC73GCH1H101J	CHIP C	100PF J
C17			CK73GB1H103K	CHIP C	0.010UF K
C18			CK73GB1H104K	CHIP C	0.10UF K
C19			CF92FV1H683J	MF-C	0.068UF J
C20			CK45FB1H102K	CERAMIC	1000PF K
C21			CK73GB1H104K	CHIP C	0.10UF K
C22			CK73GB1H103K	CHIP C	0.010UF K
C23			CF92FV1H154J	MF-C	0.15UF J
C24			CC73GCH1H101J	CHIP C	100PF J
C25			CK73GB1H103K	CHIP C	0.010UF K
C27			CK73GB1H103K	CHIP C	0.010UF K
C28			CC73GCH1H330J	CHIP C	33PF J
C29			CF92FV1H333J	MF-C	0.033UF J
C30			CC73GCH1H101J	CHIP C	100PF J
C31,32			CE04DW1V100M	ELECTRO	10UF 35WV
C33			CF92FV1H224J	MF-C	0.22UF J
C34			CE04DW1H2R2M	ELECTRO	2.2UF 50WV
C35			CF92FV1H224J	MF-C	0.22UF J
C36			CE04DW1A470M	ELECTRO	47UF 10WV
C41			CE04DW1A470M	ELECTRO	47UF 10WV
C42			CE04DW1H010M	ELECTRO	1.0UF 50WV
C43			CK73GB1H103K	CHIP C	0.010UF K
C44			CE04DW1H010M	ELECTRO	1.0UF 50WV
C45,46			CE04DW1E470M	ELECTRO	47UF 25WV
C47			CK73GB1H104K	CHIP C	0.10UF K
C48			CF92FV1H224J	MF-C	0.22UF J
C49			CE04DW1A470M	ELECTRO	47UF 10WV
C50,51			CE04DW1E470M	ELECTRO	47UF 25WV
C52			CK73GB1H103K	CHIP C	0.010UF K
C53			CF92FV1H224J	MF-C	0.22UF J
C54,55			CC45FCH1H390J	CERAMIC	39PF J
C56			CF92FV1H182J	MF-C	1800PF J
C57			CC73GCH1H470J	CHIP C	47PF J
C58			CF92FV1H392J	MF-C	3900PF J
C59,60			CK73GB1H103K	CHIP C	0.010UF K

K, M1: KAC-X810D  
 E1 : KAC-PS810D

⚠ indicates safety critical components.

## PARTS LIST

\* New Parts

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**AUDIO UNIT (X09-5440-10)**

Ref.No.	A d d	N e w	Parts No.	Description	Dest inati on
C61			CE04DW1V100M	ELECTRO 10UF 35WV	
C62			CK73GB1H103K	CHIP C 0.010UF K	
C63			CE04DW1E470M	ELECTRO 47UF 25WV	
C64-67			C90-5427-05	ALUMINIUM ELECTROLYTIC C.	
C68			CK73GB1H103K	CHIP C 0.010UF K	
C69			CE04DW1V470M	ELECTRO 47UF 35WV	
C70			CE04DW1V100M	ELECTRO 10UF 35WV	
C71			CC73GCH1H220J	CHIP C 22PF J	
C72,73			CK45FB1H471K	CERAMIC 470PF K	
C74			CK73GB1H103K	CHIP C 0.010UF K	
C75			CK45FB1H222K	CERAMIC 2200PF K	
C76			CK73GB1H103K	CHIP C 0.010UF K	
C77			CC45FSL1H331J	CERAMIC 330PF J	
C78,79			C90-2921-05	ELECTRO 3900UF 16WV	
C81			CK73GB1H103K	CHIP C 0.010UF K	
C82			CE04DW1V100M	ELECTRO 10UF 35WV	
C84,85			C90-2921-05	ELECTRO 3900UF 16WV	
C87			CF92FV1H474J	MF-C 0.47UF J	
C90,91			CK73GB1H103K	CHIP C 0.010UF K	
C93			CE04HW1H2R2M	NP-ELEC 2.2UF 50WV	
C94			CE04HW1H3R3M	NP-ELEC 3.3UF 50WV	
C97,98			C90-5449-05	FILM CAPACITOR	
C99			CK73GB1H103K	CHIP C 0.010UF K	
C100,101			CF92FV1H392J	MF-C 3900PF J	
C102			CE04DW1E470M	ELECTRO 47UF 25WV	
C103			CF92FV1H102J	MF-C 1000PF J	
C104			CK73GB1H103K	CHIP C 0.010UF K	
C105			CE04DW1V100M	ELECTRO 10UF 35WV	
C108			CC73GCH1H101J	CHIP C 100PF J	
C109			CE04DW1A101M	ELECTRO 100UF 10WV	
C112,113			CK73GB1H103K	CHIP C 0.010UF K	
C115			CK73GB1H103K	CHIP C 0.010UF K	
C116			CE04DW1H4R7M	ELECTRO 4.7UF 50WV	
C117			CE04DW1A470M	ELECTRO 47UF 10WV	
C119			CE04DW1V100M	ELECTRO 10UF 35WV	
C120			CF92FV1H224J	MF-C 0.22UF J	
C121			CE04DW1V100M	ELECTRO 10UF 35WV	
C122			CK73GB1H103K	CHIP C 0.010UF K	
C123,124			CE04DW1V100M	ELECTRO 10UF 35WV	
C125-127			C91-2267-05	METALIZED POLYESTER FILM C.	
C128			CE04DW1A470M	ELECTRO 47UF 10WV	
C129			CK73GB1H104K	CHIP C 0.10UF K	
C133-136			CK73GB1H103K	CHIP C 0.010UF K	
C137			CK73GB1H104K	CHIP C 0.10UF K	
C138-140			CE04DW1V100M	ELECTRO 10UF 35WV	
C141			CK45FB1H331K	CERAMIC 330PF K	
C142			CF92FV1H152J	MF-C 1500PF J	
CN1			E40-9092-05	SOCKET FOR PIN ASSY	
CN2			E40-9073-05	PIN ASSY	
E1,2			E23-0149-05	TERMINAL	
J1			E63-0880-05	PIN JACK	
J2			E70-0832-05	SCREW TERMINAL BOARD	
J5			E70-0836-05	LOCK TERMINAL BOARD	
WH1-3			E39-0445-15	WIRING HARNESS	

Ref.No.	A d d	N e w	Parts No.	Description	Dest inati on
J3,4			J13-0602-05	FUSE HOLDER	
L3,4		*	L19-0722-15	TRANSFORMER FOR CONVERTER	
L5,6		*	L33-1872-15	CHOKE COIL	
L7,8			L33-1818-05	CHOKE COIL	
X1			L78-0867-05	RESONATOR	
H		2A	N80-2608-45	PAN HEAD TAPTITE SCREW	
J		2B	N80-3010-45	PAN HEAD TAPTITE SCREW	
R3,4			RK73GB2A103J	CHIP R 10K J 1/10W	
R5			RK73GB2A473J	CHIP R 47K J 1/10W	
R6			RK73GB2A103J	CHIP R 10K J 1/10W	
R7			RK73GB2A153J	CHIP R 15K J 1/10W	
R8			RK73GB2A332J	CHIP R 3.3K J 1/10W	
R9-11			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R12			RK73GB2A103J	CHIP R 10K J 1/10W	
R14			RK73GB2A153J	CHIP R 15K J 1/10W	
R15			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R16			RK73GB2A473J	CHIP R 47K J 1/10W	
R18			RK73GB2A473J	CHIP R 47K J 1/10W	
R23			RK73GB2A473J	CHIP R 47K J 1/10W	
R28			RK73GB2A153J	CHIP R 15K J 1/10W	
R30			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R32,33			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R35			RK73GB2A123J	CHIP R 12K J 1/10W	
R38			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R39			RK73GB2A153J	CHIP R 15K J 1/10W	
R40			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R45,46			RK73GB2A103J	CHIP R 10K J 1/10W	
R47			RK73GB2A223J	CHIP R 22K J 1/10W	
R49			RK73GB2A103J	CHIP R 10K J 1/10W	
R50			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R53			RK73GB2A473J	CHIP R 47K J 1/10W	
R54			RK73GB2A153J	CHIP R 15K J 1/10W	
R56			RK73GB2A473J	CHIP R 47K J 1/10W	
R58			RK73GB2A333J	CHIP R 33K J 1/10W	
R59			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R60			RK73GB2A272J	CHIP R 2.7K J 1/10W	
R62			RK73GB2A473J	CHIP R 47K J 1/10W	
R63			RK73GB2A223J	CHIP R 22K J 1/10W	
R65			RK73GB2A134J	CHIP R 130K J 1/10W	
R66			RK73GB2A511J	CHIP R 510 J 1/10W	
R67			RK73GB2A623J	CHIP R 62K J 1/10W	
R69			RK73GB2A302J	CHIP R 3.0K J 1/10W	
R70			RK73GB2A103J	CHIP R 10K J 1/10W	
R71			RK73GB2A332J	CHIP R 3.3K J 1/10W	
R73			RK73GB2A152J	CHIP R 1.5K J 1/10W	
R75			RK73GB2A823J	CHIP R 82K J 1/10W	
R77			RK73GB2A821J	CHIP R 820 J 1/10W	
R78			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R82			RK73GB2A393J	CHIP R 39K J 1/10W	
R83			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R84,85			RK73GB2A103J	CHIP R 10K J 1/10W	
R86			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R87			RK73GB2A393J	CHIP R 39K J 1/10W	

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△

**K, M1:** KAC-X810D  
**E1 :** KAC-PS810D

△ indicates safety critical components.

# KAC-X810D/PS810D

## PARTS LIST

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### AUDIO UNIT (X09-5440-10)

Ref.No.	A d d	N e w	Parts No.	Description	Dest inati on
R88			RK73GB2A473J	CHIP R 47K J 1/10W	
R94			RK73GB2A563J	CHIP R 56K J 1/10W	
R100			RK73GB2A684J	CHIP R 680K J 1/10W	
R101			RK73GB2A683J	CHIP R 68K J 1/10W	
R105			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R106			RK73GB2A103J	CHIP R 10K J 1/10W	
R108			RK73GB2A152J	CHIP R 1.5K J 1/10W	
R111			RK73GB2A473J	CHIP R 47K J 1/10W	
R115			RK73GB2A103J	CHIP R 10K J 1/10W	
R116			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R118,119			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R122			RK73GB2A123J	CHIP R 12K J 1/10W	
R123			RD14DB2H511J	SMALL-RD 510 J 1/2W	
R124			RD14DB2H751J	SMALL-RD 750 J 1/2W	
R125			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R126			RK73GB2A562J	CHIP R 5.6K J 1/10W	
R127			RK73GB2A332J	CHIP R 3.3K J 1/10W	
R128			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R129			RD14DB2H511J	SMALL-RD 510 J 1/2W	
R130			RD14DB2H751J	SMALL-RD 750 J 1/2W	
R132			RK73GB2A682J	CHIP R 6.8K J 1/10W	
R134			RD14DB2H510J	SMALL-RD 51 J 1/2W	
R135			RK73GB2A332J	CHIP R 3.3K J 1/10W	
R137			RD14DB2H271J	SMALL-RD 270 J 1/2W	
R139,140			RD14DB2H220J	SMALL-RD 22 J 1/2W	
R142			RK73GB2A100J	CHIP R 10 J 1/10W	
R143			RK73GB2A222J	CHIP R 2.2K J 1/10W	
R144,145			RD14DB2H100J	SMALL-RD 10 J 1/2W	
R146,147			RD14DB2H102J	SMALL-RD 1.0K J 1/2W	
R148			RD14DB2H100J	SMALL-RD 10 J 1/2W	
R150			RD14DB2H102J	SMALL-RD 1.0K J 1/2W	
R151			RK73GB2A103J	CHIP R 10K J 1/10W	
R153			RD14DB2H331J	SMALL-RD 330 J 1/2W	
R155			RD14DB2H512J	SMALL-RD 5.1K J 1/2W	
R157			RD14DB2H102J	SMALL-RD 1.0K J 1/2W	
R158,159			RK73GB2A103J	CHIP R 10K J 1/10W	
R161			RK73GB2A914J	CHIP R 910K J 1/10W	
R162			RD14DB2H152J	SMALL-RD 1.5K J 1/2W	
R163			RK73GB2A103J	CHIP R 10K J 1/10W	
R164			RD14DB2H102J	SMALL-RD 1.0K J 1/2W	
R167			RD14DB2H331J	SMALL-RD 330 J 1/2W	
R168			RD14DB2H122J	SMALL-RD 1.2K J 1/2W	
R170,171			RD14DB2H101J	SMALL-RD 100 J 1/2W	
R172,173			RK73GB2A473J	CHIP R 47K J 1/10W	
R175			RK73GB2A113J	CHIP R 11K J 1/10W	
R176,177			RD14DB2H101J	SMALL-RD 100 J 1/2W	
R180,181			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R186			RK73GB2A121J	CHIP R 120 J 1/10W	
R187,188			RK73GB2A4R7J	CHIP R 4.7 J 1/10W	
R189			RK73GB2A121J	CHIP R 120 J 1/10W	
R190,191			RK73GB2A122J	CHIP R 1.2K J 1/10W	
R192			RK73GB2A221J	CHIP R 220 J 1/10W	
R193			R92-0205-05	METAL-PLATE 0.1 K 2W	
R196-201			R92-0205-05	METAL-PLATE 0.1 K 2W	
R204-206			R92-0205-05	METAL-PLATE 0.1 K 2W	

Ref.No.	A d d	N e w	Parts No.	Description	Dest inati on
R207			RK73GB2A914J	CHIP R 910K J 1/10W	
R208,209			R92-0205-05	METAL-PLATE 0.1 K 2W	
R210,211			RK73GB2A152J	CHIP R 1.5K J 1/10W	
R212			RS14KB3D4R7J	FL-PROOF RS 4.7 J 2W	
R213			RK73GB2A471J	CHIP R 470 J 1/10W	
R214			RK73GB2A202J	CHIP R 2.0K J 1/10W	
R215			RS14KB3D4R7J	FL-PROOF RS 4.7 J 2W	
R216			RK73GB2A471J	CHIP R 470 J 1/10W	
R217			RK73GB2A163J	CHIP R 16K J 1/10W	
R218,219			RK73GB2A332J	CHIP R 3.3K J 1/10W	
R220			RK73GB2A432J	CHIP R 4.3K J 1/10W	
R221			RK73GB2A150J	CHIP R 15 J 1/10W	
R222			RK73GB2A684J	CHIP R 680K J 1/10W	
R223			RK73GB2A103J	CHIP R 10K J 1/10W	
R224			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R225			RK73GB2A103J	CHIP R 10K J 1/10W	
R226			RK73GB2A101J	CHIP R 100 J 1/10W	
R227			RK73GB2A332J	CHIP R 3.3K J 1/10W	
R228			RK73GB2A272J	CHIP R 2.7K J 1/10W	
R229			RK73GB2A101J	CHIP R 100 J 1/10W	
R230			RK73GB2A473J	CHIP R 47K J 1/10W	
R231			RK73GB2A392J	CHIP R 3.9K J 1/10W	
R232			RK73GB2A562J	CHIP R 5.6K J 1/10W	
R233			RK73GB2A203J	CHIP R 20K J 1/10W	
R234			RK73GB2A103J	CHIP R 10K J 1/10W	
R235,236			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R237			RK73GB2A823J	CHIP R 82K J 1/10W	
R238			RK73GB2A103J	CHIP R 10K J 1/10W	
R239			RK73GB2A473J	CHIP R 47K J 1/10W	
R240,241			RK73GB2A153J	CHIP R 15K J 1/10W	
R242,243			RK73GB2A473J	CHIP R 47K J 1/10W	
R244			RK73GB2A332J	CHIP R 3.3K J 1/10W	
R245			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R246			RK73GB2A103J	CHIP R 10K J 1/10W	
R247			RK73GB2A332J	CHIP R 3.3K J 1/10W	
R249			RK73GB2A332J	CHIP R 3.3K J 1/10W	
R250,251			RK73GB2A103J	CHIP R 10K J 1/10W	
R252			RK73GB2A104J	CHIP R 100K J 1/10W	
R253			RK73GB2A273J	CHIP R 27K J 1/10W	
R254			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R255			RK73GB2A332J	CHIP R 3.3K J 1/10W	
R256			RK73GB2A512J	CHIP R 5.1K J 1/10W	
R257			RK73GB2A471J	CHIP R 470 J 1/10W	
R258			RK73GB2A104J	CHIP R 100K J 1/10W	
R259			RK73GB2A102J	CHIP R 1.0K J 1/10W	
R260			RK73GB2A104J	CHIP R 100K J 1/10W	
R261			RK73GB2A473J	CHIP R 47K J 1/10W	
R263			RK73GB2A103J	CHIP R 10K J 1/10W	
R264			RK73GB2A153J	CHIP R 15K J 1/10W	
R265			RK73GB2A821J	CHIP R 820 J 1/10W	
R266			RK73GB2A472J	CHIP R 4.7K J 1/10W	
R267			RK73GB2A100J	CHIP R 10 J 1/10W	
R269			RK73GB2A103J	CHIP R 10K J 1/10W	
R272-275			RK73EB2E2R2J	CHIP R 2.2 J 1/4W	
R276			RK73GB2A222J	CHIP R 2.2K J 1/10W	

K, M1: KAC-X810D  
E1 : KAC-PS810D

⚠ indicates safety critical components.

## PARTS LIST

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**AUDIO UNIT (X09-5440-10)**

Ref.No.	A d d	N e w	Parts No.	Description	Dest inati on
R277-280			RD14DB2H510J	SMALL-RD 51 J 1/2W	
R281			RK73GB2A103J	CHIP R 10K J 1/10W	
R286			RK73GB2A103J	CHIP R 10K J 1/10W	
R287			RK73GB2A273J	CHIP R 27K J 1/10W	
R288			RK73GB2A103J	CHIP R 10K J 1/10W	
R289			RK73GB2A101J	CHIP R 100 J 1/10W	
S1			S31-2630-05	SLIDE SWITCH	
S2,3			S62-0842-05	SLIDE SWITCH	
S4			S31-2630-05	SLIDE SWITCH	
S5			S62-0842-05	SLIDE SWITCH	
D2-9			1SS133	DIODE	
D10			RD5.1JS(B)	ZENER DIODE	
D11			RD6.2JS(B)	ZENER DIODE	
D12,13			1SS133	DIODE	
D14,15			RD16JS(B)	ZENER DIODE	
D16-19			1SS133	DIODE	
D20			RD15JS(B)	ZENER DIODE	
D21			FMU34S*A	DIODE	
D22			FMU34R*A	DIODE	
D23-26			FR103S	DIODE	
D27			1SS133	DIODE	
D28,29			RD8.2JS(B)	ZENER DIODE	
D30-32			1SS133	DIODE	
D33			RD7.5JS(B)	ZENER DIODE	
D34			RD16JS(B)	ZENER DIODE	
D35,36			6A20-M	DIODE	
D37			RD8.2JS(B)	ZENER DIODE	
D38			6A20-M	DIODE	
D39			RD5.1JS(B)	ZENER DIODE	
D40			FMU34R*A	DIODE	
D41			FMU34S*A	DIODE	
D42			1SS133	DIODE	
D43,44			RD10JS(B)	ZENER DIODE	
D45,46			1SS133	DIODE	
IC1,2			NJM4565M	ANALOGUE IC	
IC3			NJM2058M	IC (OP AMP)	
IC4			NJM4565M	ANALOGUE IC	
IC5			PST9130NR	ANALOGUE IC	
IC6		*	TMP87C847U3JV4	MI-COM IC	
IC7			NJM4565M	ANALOGUE IC	
IC8			NJM5532MD	IC (OP AMP)	
IC9			NJM319D	ANALOGUE IC	
IC10,11			TC74HC00AF	IC (2INPUT NAND GATE)	
IC12			NJM311M	ANALOGUE IC	
IC13			TC4052BF(N)	MOS-IC	
IC14			UPC494GS	ANALOGUE IC	
IC15			TC4W66F	IC	
Q1-3			2SC945(A)(Q,P)	TRANSISTOR	
Q4			DTA114YUA	DIGITAL TRANSISTOR	
Q4			UN5114	DIGITAL TRANSISTOR	
Q5			2SA733(A)(Q,P)	TRANSISTOR	
Q6			2SC945(A)(Q,P)	TRANSISTOR	
Q7			2SC3940A(R,S)	TRANSISTOR	
Q9			2SC945(A)(Q,P)	TRANSISTOR	

Ref.No.	A d d	N e w	Parts No.	Description	Dest inati on
Q10			2SD2375	TRANSISTOR	
Q11			2SB1548(P)	TRANSISTOR	
Q12			2SC945(A)(Q,P)	TRANSISTOR	
Q13			2SA733(A)(Q,P)	TRANSISTOR	
Q14			2SC2631(Q,R)	TRANSISTOR	
Q15			2SC3940A(R,S)	TRANSISTOR	
Q16			2SC2631(Q,R)	TRANSISTOR	
Q17-21			2SA1352(E,F)	TRANSISTOR	
Q22			2SA1376A(L,K)	TRANSISTOR	
Q23			2SA1123(Q,R)	TRANSISTOR	
Q24			2SC3940A(R,S)	TRANSISTOR	
Q25			2SC2631(Q,R)	TRANSISTOR	
Q26-29			IRFIZ48N	FET	
Q30			2SC3478A(L,K)	TRANSISTOR	
Q31			2SA1286-T11	TRANSISTOR	
Q32			2SC2631(Q,R)	TRANSISTOR	
Q33			2SA1286-T11	TRANSISTOR	
Q34-37			IRFIZ48N	FET	
Q38			2SC945(A)(Q,P)	TRANSISTOR	
Q39			2SC3478A(L,K)	TRANSISTOR	
Q40			2SA1286-T11	TRANSISTOR	
Q41			2SC2631(Q,R)	TRANSISTOR	
Q42			2SA1286-T11	TRANSISTOR	
Q43-46			STW34NB20	FET	
Q47			2SC945(A)(Q,P)	TRANSISTOR	
Q48,49			2SA733(A)(Q,P)	TRANSISTOR	
Q50			2SC945(A)(Q,P)	TRANSISTOR	
Q51			2SC3478A(L,K)	TRANSISTOR	
Q52			2SA1376A(L,K)	TRANSISTOR	
Q53			2SC945(A)(Q,P)	TRANSISTOR	
Q54			2SA1123(Q,R)	TRANSISTOR	
Q55			2SC3478A(L,K)	TRANSISTOR	
Q56			2SC945(A)(Q,P)	TRANSISTOR	
Q57			DTC114YUA	DIGITAL TRANSISTOR	
Q57			UN5214	DIGITAL TRANSISTOR	
Q58			2SC945(A)(Q,P)	TRANSISTOR	
Q59			DTC114YUA	DIGITAL TRANSISTOR	
Q59			UN5214	DIGITAL TRANSISTOR	
Q60			DTA114YUA	DIGITAL TRANSISTOR	
Q60			UN5114	DIGITAL TRANSISTOR	
Q61			2SC945(A)(Q,P)	TRANSISTOR	
Q62			DTC114YUA	DIGITAL TRANSISTOR	
Q62			UN5214	DIGITAL TRANSISTOR	
Q63			2SA1534A(R,S)	TRANSISTOR	
Q64-66			2SC945(A)(Q,P)	TRANSISTOR	
Q68,69			IRFIZ48N	FET	
Q70,71			2SA733(A)(Q,P)	TRANSISTOR	
Q73			2SC4081	TRANSISTOR	
Q73			2SD1819A	TRANSISTOR	
TH2,3			PTH9L04BE222TS	POSITIVE RESISTOR	

**K, M1:** KAC-X810D  
**E1 :** KAC-PS810D

△ indicates safety critical components.

