

MONO POWER AMPLIFIER

# KAC-X401M/PS401M

## SERVICE MANUAL

# KENWOOD

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B51-7448-00 (4) 3279

Accessory  
(W01-0747-05)

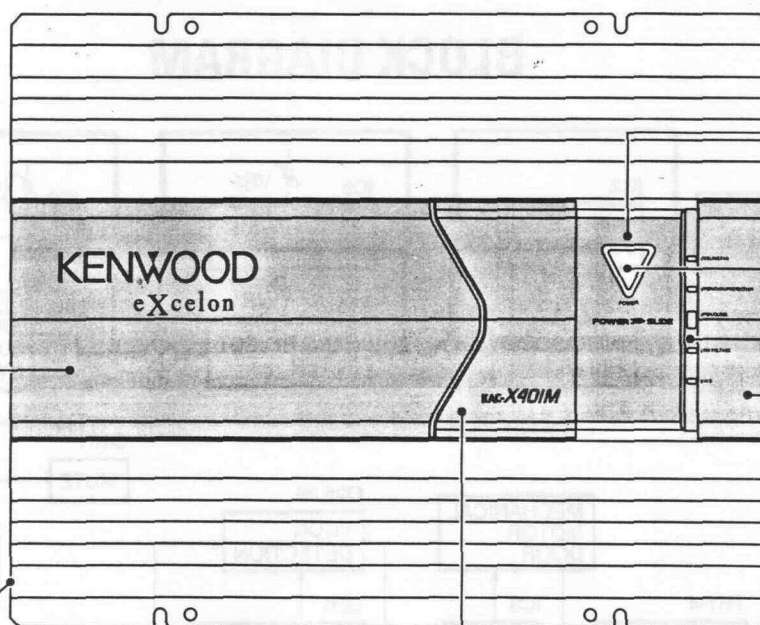


Panel  
(A64-1771-02)

Heat sink  
(F01-1607-01)

Panel  
(A64-1828-02)

Screw set  
(N99-1577-15)



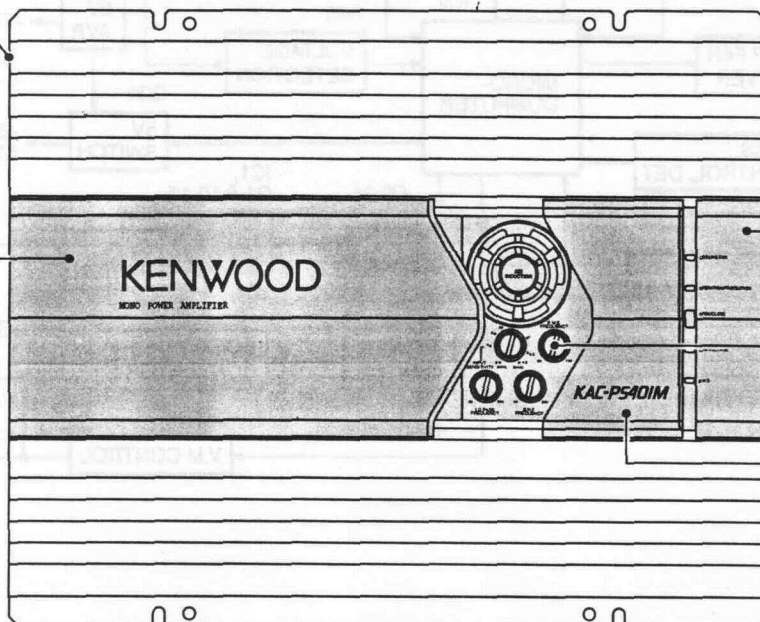
Panel  
(A64-1768-01)

Lighting board  
(B19-1188-04)

Knob  
(K24-1992-04)

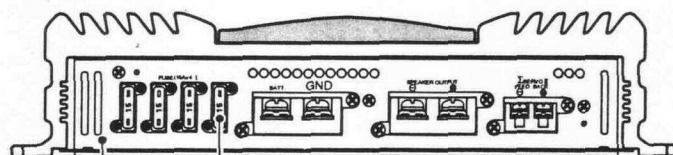
Panel  
(A64-1769-03)

Panel  
(A64-1759-02)



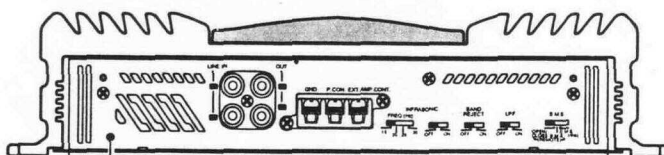
Knob  
(K24-1993-04)

Panel  
(A64-1770-03)



Rear panel  
(A84-0201-02)

Fuse  
(F05-1537-05)

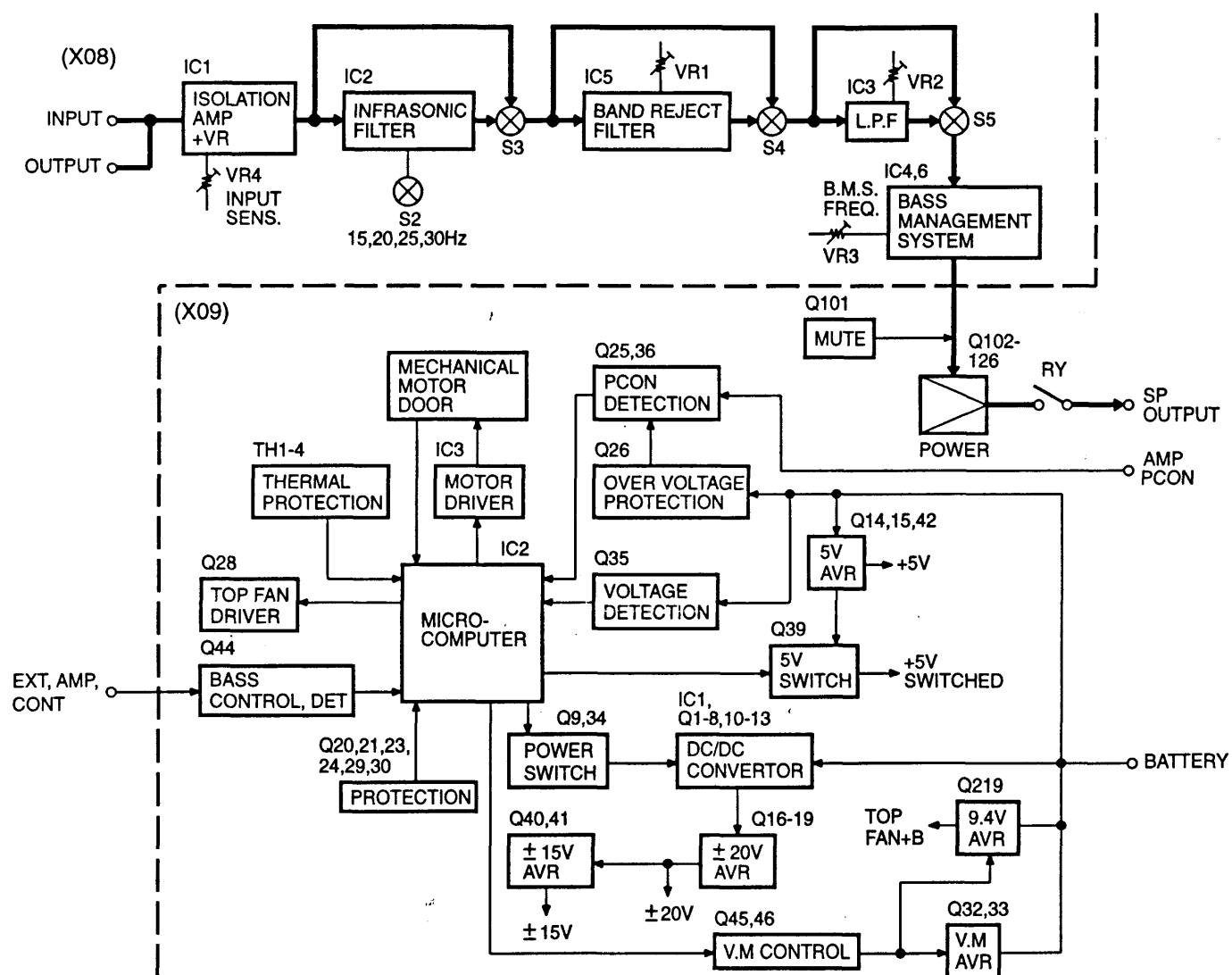


Panel  
(A64-1755-02)

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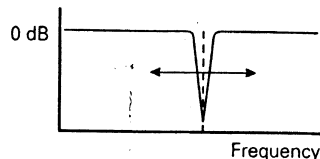
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## BLOCK DIAGRAM



## Band reject

The acoustic properties of vehicle compartment tend to cause oscillation due to resonance or unclearness of sound due to standing waves at certain frequencies. The band reject filter can solve the problems of resonance or unclear sound with minimum influence on the sound quality because it eliminates only the frequencies causing resonance or standing waves.



### ■ Adjustment method:

The band reject filter cuts only the limited frequencies to minimize influence on the sound quality. Therefore, its effect cannot be obtained unless the cutoff frequencies are set accurately to the frequencies causing resonance and standing waves. The band reject filter can be adjusted according to what you feel through your ears, but we recommend the use of a signal generator or a spectrum analyzer with a fine frequency measurement capability for the adjustment.

#### • Adjustment using a signal generator:

Output a sine wave, vary its frequency to find the frequencies at which the vehicle compartment resonates or volume increases (standing waves occur), and set the BAND REJECT FREQUENCY control to the position with which the resonance and standing waves disappear.

#### • Adjustment using a spectrum analyzer:

Output white noise (sound in which all frequencies are at a certain level), find the peak frequency observed on the spectrum analyzer, and set the BAND REJECT FREQUENCY control to the position with which the peak observed on the spectrum analyzer disappears.

What might appear to be a malfunction in your unit may just be the result of slight misoperation or miswiring. Before calling service, first check the following table for possible problems.

PROBLEM	POSSIBLE CAUSE	SOLUTION
<b>No sound. (No sound from one side.)</b>	<ul style="list-style-type: none"> <li>Input (or output) cables are disconnected.</li> <li>Protection circuit may be activated.</li> <li>The fuse may be blown because the volume was too high.</li> </ul>	<ul style="list-style-type: none"> <li>Connect the input (or output) cables.</li> <li>Check connections by referring to "Controls".</li> <li>Replace the fuse with a new fuse and use a lower volume.</li> </ul>
<b>The output level is too small (or too large).</b>	The input sensitivity adjusting control is not set to the correct position.	Adjust the control correctly referring to "Controls".
<b>The sound quality is bad. (The sound is distorted.)</b>	<ul style="list-style-type: none"> <li>The speakers cable are connected with wrong <math>\oplus / \ominus</math> polarity.</li> <li>A speaker cable is pinched by a screw in the car body.</li> <li>The switches may be set improperly.</li> </ul>	<ul style="list-style-type: none"> <li>Connect them properly checking the <math>\oplus / \ominus</math> of the terminals and cables well.</li> <li>Connect the speaker cable again so that it is not pinched by anything.</li> <li>Set switches properly by referring to "Controls".</li> </ul>
<b>If the slide panel moves of its own accord.</b>	<ul style="list-style-type: none"> <li>The system is in DEMO mode.</li> <li>The slide panel has gone into remote operation mode.</li> </ul>	<ul style="list-style-type: none"> <li>Cancel DEMO mode by pressing the OPEN/CLOSE button.</li> <li>Check the B.M.S. and operate the slide panel remotely or manually.</li> </ul>
<b>The external amplifier controller (B.M.S.) will not work.</b>	<ul style="list-style-type: none"> <li>The B.M.S. switch is set to "B.M.S. (+6)".</li> <li>The external amplifier control cable has come loose.</li> </ul>	<ul style="list-style-type: none"> <li>The B.M.S. switch is set to "(REMOTE)".</li> <li>Check that the external amplifier control cable is properly connected.</li> </ul>

## TROUBLESHOOTING GUIDE

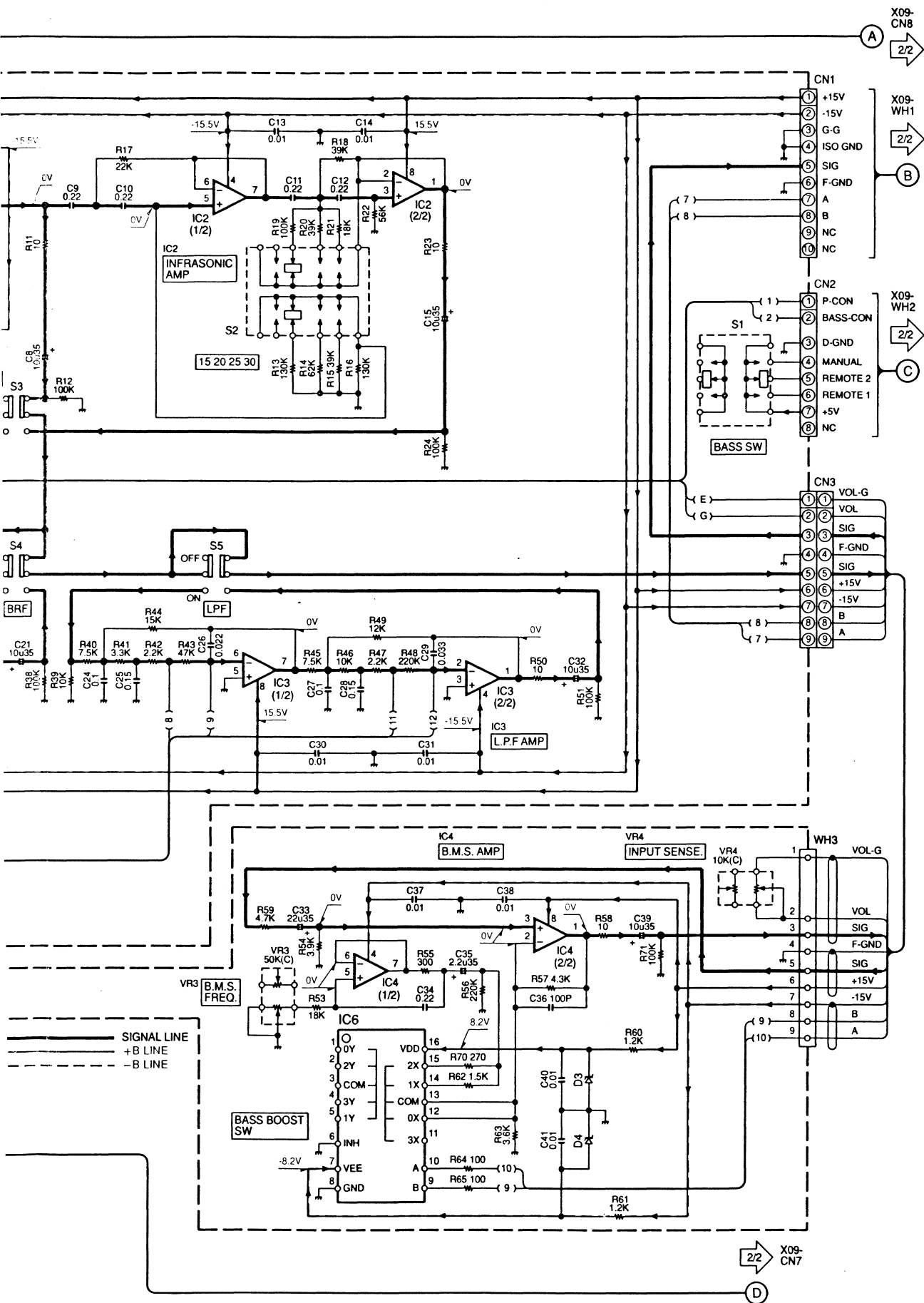
KAC-X401M/PS401M

## MICROCOMPUTER'S TERMINAL DESCRIPTION

SYSTEM u-com: TMP87C847U4C84 (X09- : IC2)

## ●Terminal description

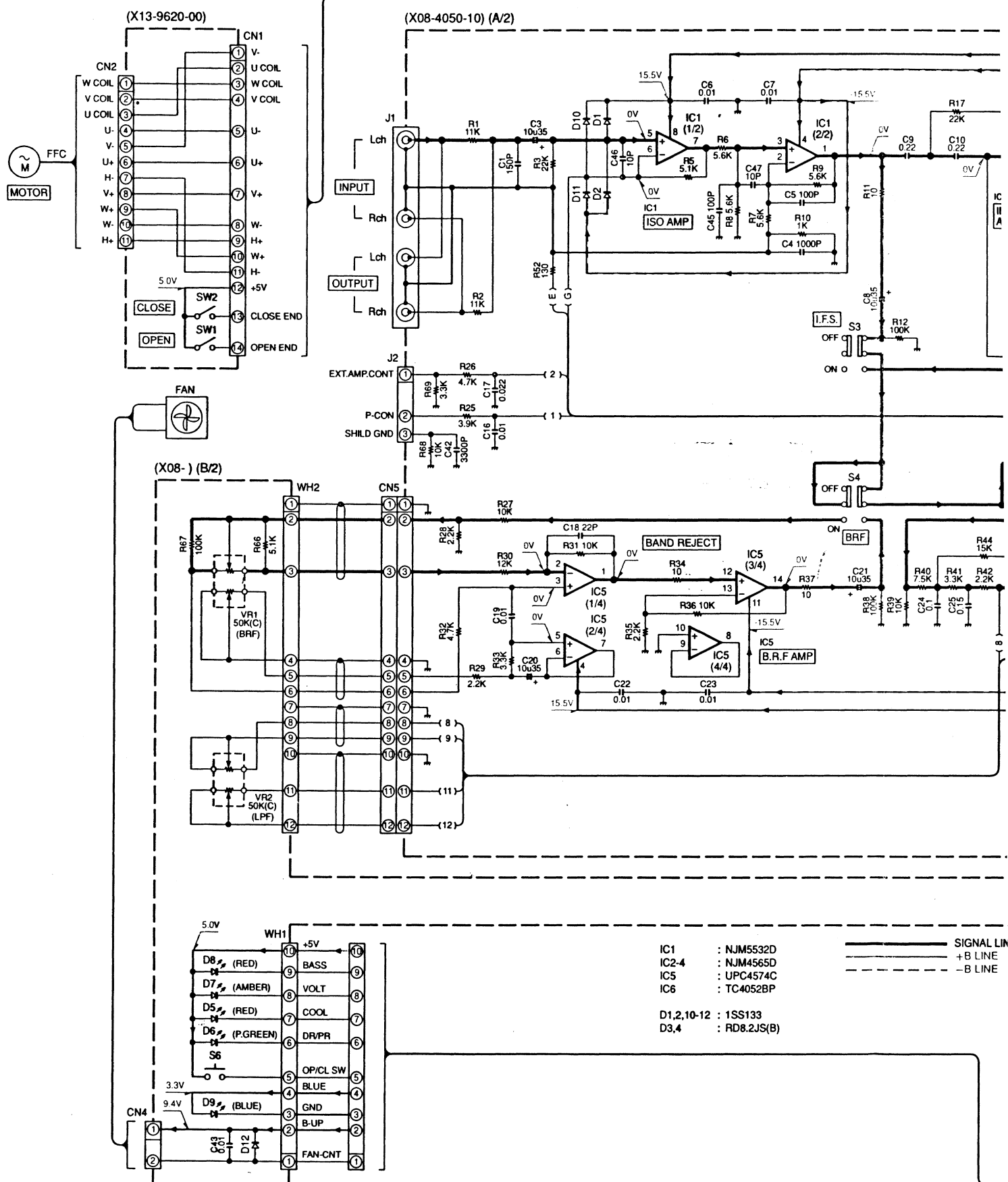
Pin	Pin name	Function	I/O	Description	Processing operation
1	SCK/P73	MOTOR_2	O	Panel motor control 2 (M2)	Stop when M1 and M2 are "L". Forward when M1 is "L" and M2 is "H". Reverse when M1 and M2 are "H".
2	PDO/PWM/P72	MOTOR_1	O	Panel motor control 1 (M1)	
3	INT4/P71	SIDE_FAN	O	Side fan rotation control	Active "H"
4	INT3/TC3/P70	TOP_FAN	O	Cooling fan rotation control	Active "H"
5	P07	PROTECT	I	Protection detection	Active "H"
6	P06	V_DOWN	I	Voltage down detection	Active "H"
7	P05	SIGMA	I	$\Sigma$ drive protection	Active "H"
8	P04	VM_POWER	O	Panel motor power supply	Active "H"
9	P03	LED_COOL	O	LED indicator output (cooling fan)	Active "L"
10	P02	LED_DRPR	O	LED indicator output (drive protection)	Active "L"
11	P01	LED_VOLT	O	LED indicator output (voltage down)	Active "L"
12	P00	LED_BASS	O	LED indicator output (bass boost)	Active "L"
13	TEST	test			
14	RESET			Reset pin	
15	XIN	xin		Oscillator pin	
16	XOUT	xout		Oscillator pin	
17	VSS(VASS)	gnd		GND	
18	VAREF			A/D reference	
19	AIN0/P60	ADIN_1	I	Temperature detection 1 (A/D input)	
20	AIN1/P61	ADIN_2	I	Temperature detection 2 (A/D input)	
21	AIN2/P62	ADIN_3	I	Temperature detection 3 (A/D input)	
22	AIN3/P63	ADIN_4	I	Temperature detection 4 (A/D input)	
23	AIN4/P64	MUTE_CON	O	Mute control	Active "L"
24	AIN5/P65	BASS_SW1	I	Amp. bass boost switch input 1	Active "H"
25	AIN6/P66	BASS_SW2	I	Amp. bass boost switch input 2	Active "H"
26	AIN7/P67	BASS_SW3	I	Amp. bass boost switch input 3	Active "H"
27	P50				
28	P51	+5V_SW	O	Low current control	Active "L"
29	INT0/P10	RELAY_CON	O	Relay control	Active "H"
30	INT1/P11	POWER	O	Amp. power control	Active "H"
31	INT2/TC1/P12	COM_HU	I	Pulse measurement from H/U communications	
32	DVO/P13	MOTOR_END	O	Motor voltage control	"H" at high speed, "L" at low speed
33	PPG/P14	BASS_CON1	O	Bass boost control 1 (C1)	Boost off when C1 and C2 are "L". Boost low when C1 is "H" and C2 is "L". Boost high when C1 is "L" and C2 is "H".
34	TC2/P15	BASS_CON2	O	Bass boost control 2 (C2)	
35	P16	FUSE_1	I	Fuse 1 detection	Active "L"
36	P17	FUSE_2	I	Fuse 2 detection	Active "L"
37	INT5/STOP/P20	STANDBY	I	Release of stop mode by P. CON. on (external interruption)	P. CON turns on when "H". P. CON turns off when "L".
38	XTIN/P21	xtin		External clock input	
39	XTOUT/P22	xtout		External clock output	
40	VDD	Vdd		Power supply	
41	HSO/P77	CLOSE END	I	Panel closing completed detection	Active "H"
42	HSCK/P76	OPEN END	I	Panel opening completed detection	Active "H"
43	SO/P75	OPEN/CLOSE_SW	I	Open/close switch	Active "H"
44	SI/P74	A_CLASS	O	A class control	A class on when "H". A class off when "L".



ety, replace safety critical components only with manufacturer's recommended  
 ndicates safety critical components. To reduce the risk of electric shock, leakage-  
 rements shall be carried out (exposed parts are acceptably insulated from the  
 liance is returned to the customer.

# KAC-X401M/PS401M

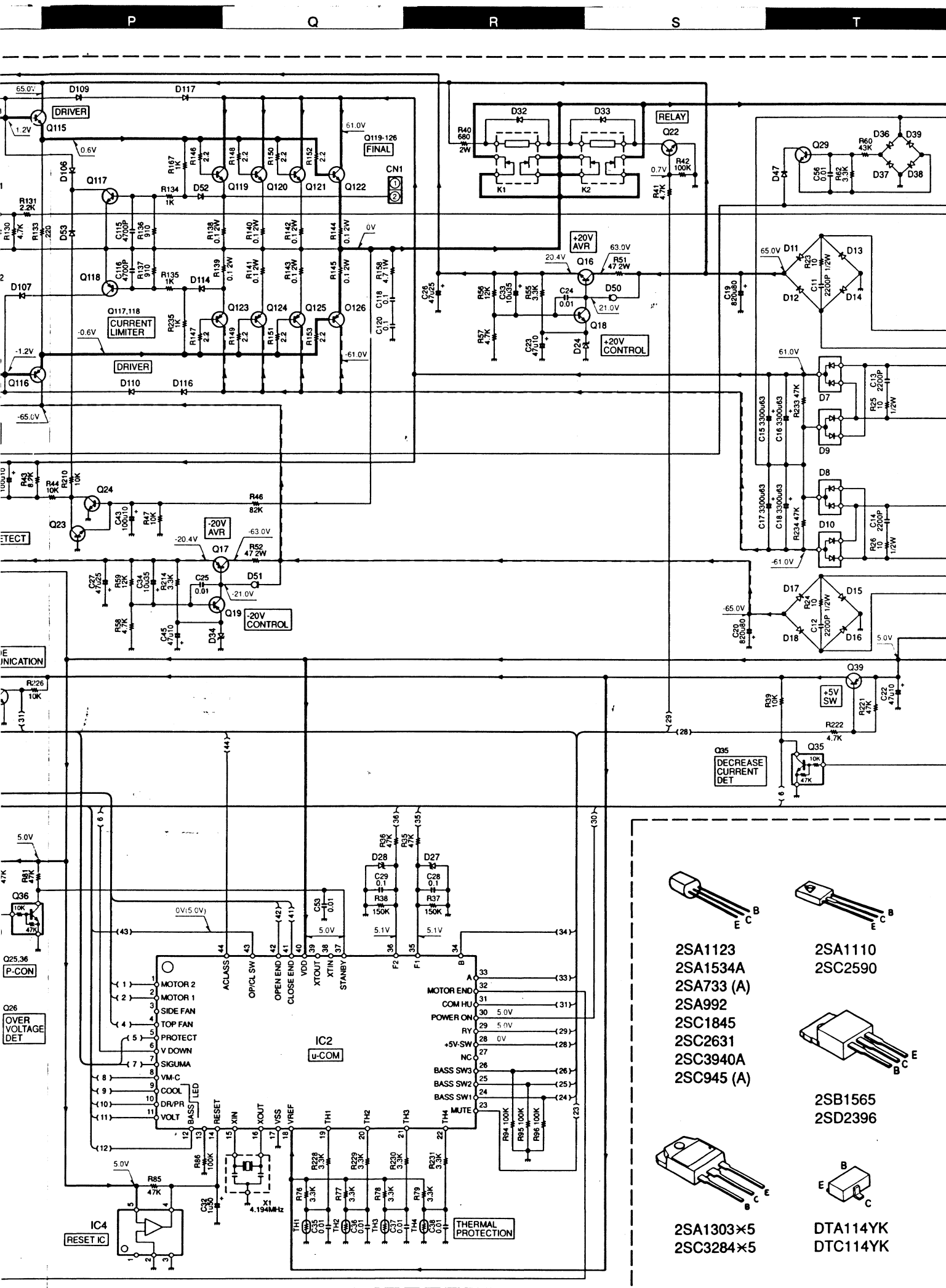
## KENWOOD



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 parts (refer to parts list). ⚠ Indicates safety critical components. Current or resistance measurements shall be carried out on the supply circuit before the appliance is returned to the customer.







K

L

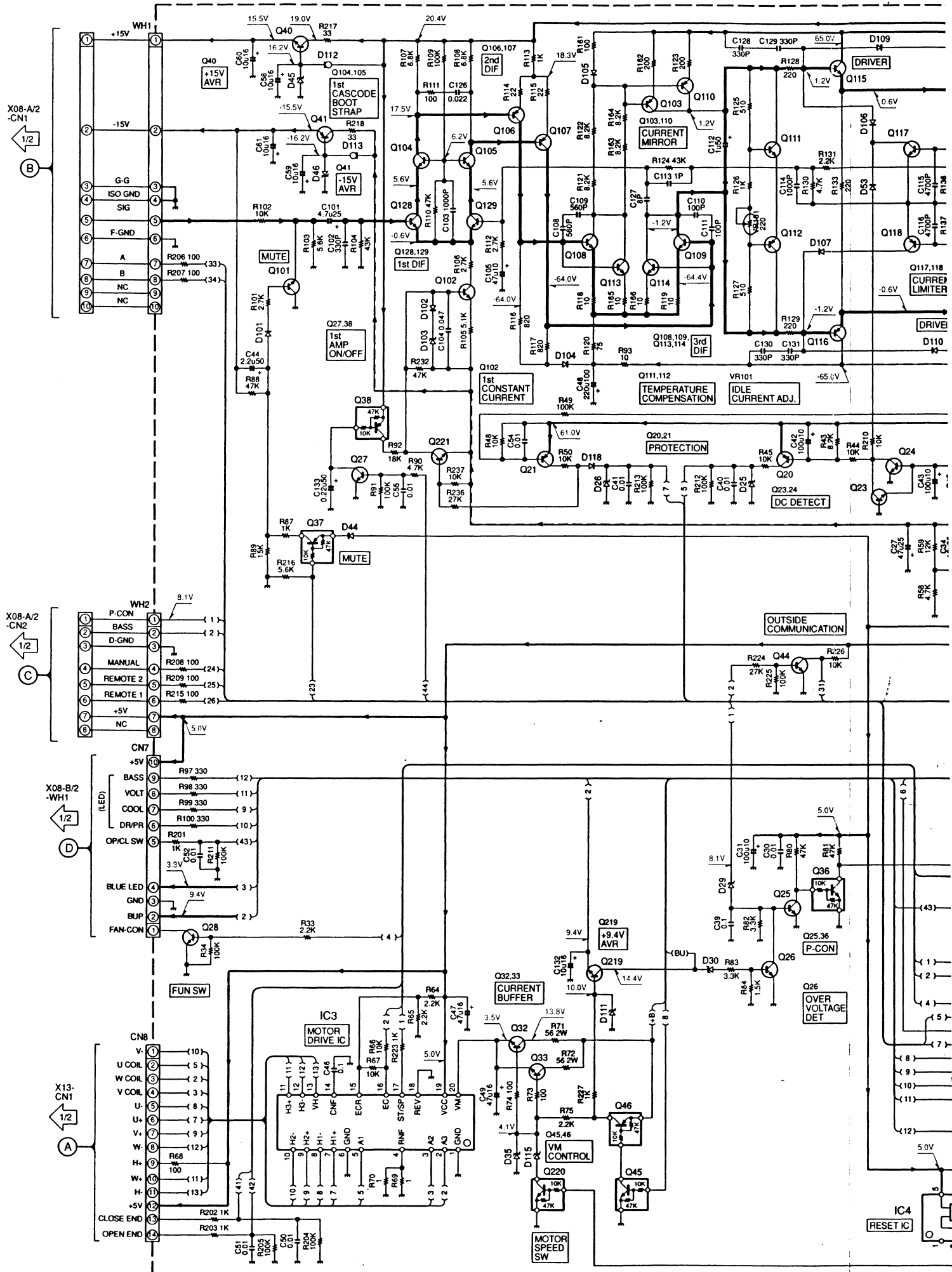
M

N

O

P

(X09-5280-10)



# KAC-X401M/PS401M

## ADJUSTMENT

### ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	CASSETTE RECEIVER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
1	IDLE CURRENT	—	Connect a DC voltmeter to CN1 and SP+	VOLUME: 0	VR101	2mV	(a)

