

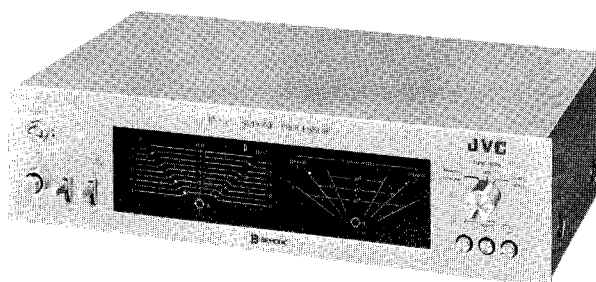
JVC

SERVICE MANUAL

MODEL

BN-5A/B/C/E/J/U

BIPHONIC PROCESSOR

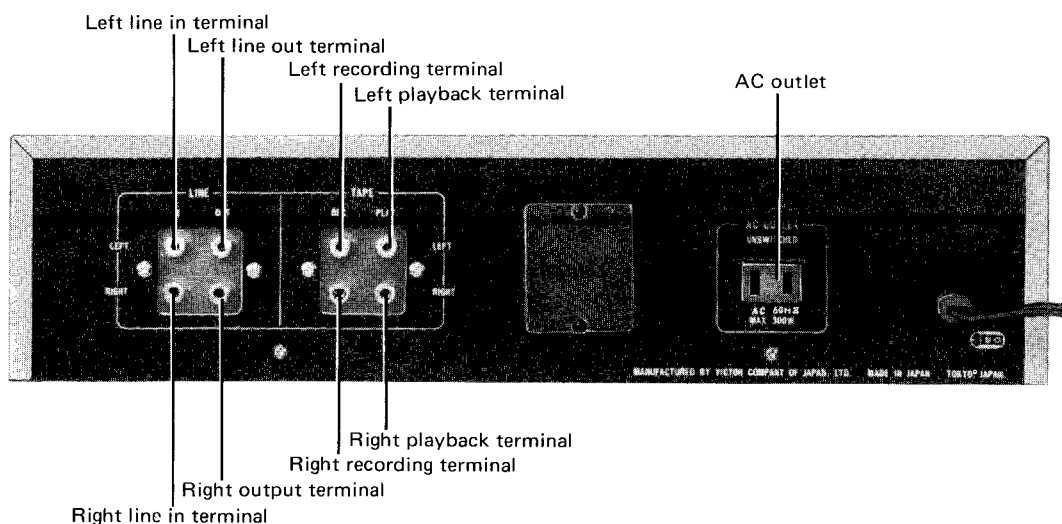
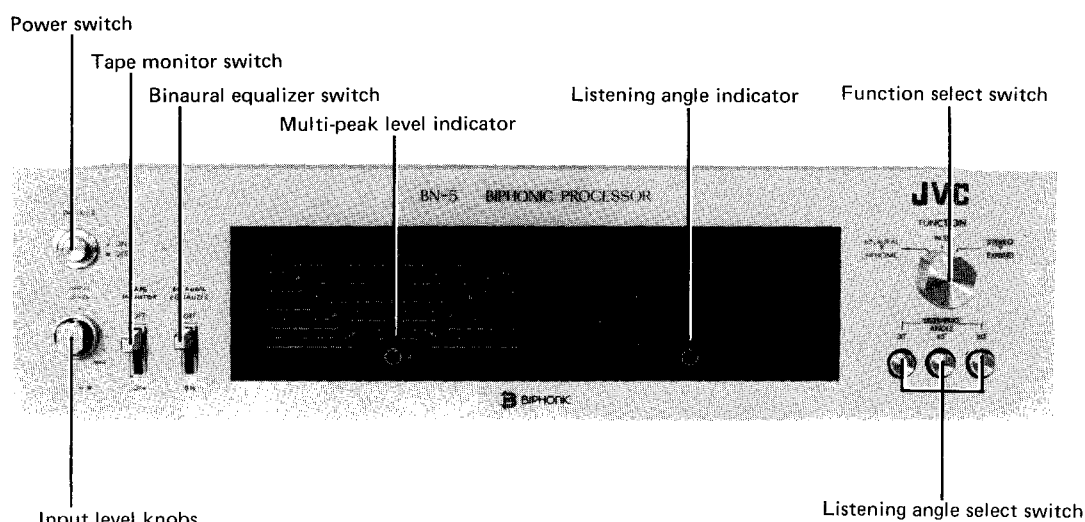


Features

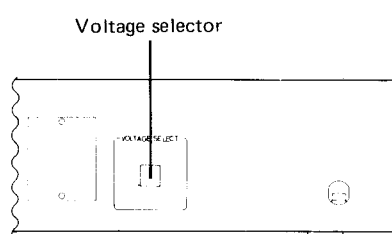
- ## Specifications

– 2 –

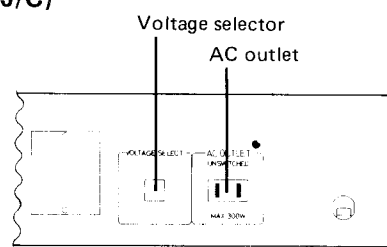
Controls and Connections



(This model is BN-5J/C)



(BN-5A/B/E)



(BN-5U)

New Technique Information

Introduction

Binaural sources (discs recorded with the dummy head or tapes recorded by the HM-200E Binaural Headphone/Microphones) necessitated playback through headphones to achieve that same feeling of direction and distance associated with the originating sound.

There has been a desire to duplicate, through speakers also, that natural sound field reproduction from binaural record-

ings. In coping with this desire, JVC has developed the Biphonic Processor.

The BN-5 permits speaker reproduction of binaural recordings having that full feeling of presence with a more distinct sound localization. Furthermore, ordinary stereo recordings can be reproduced with the added effect of expansion when played back through the processor.

Principle

1. Reproduction of binaural sources through speakers (BINAURAL ► BIPHONIC)

When a binaural recording is reproduced through headphones, the left channel signal is heard only by the left ear, and vice versa, with a negligible leakage to the opposite ear. However, when it is reproduced through speakers, the sound coming from the left speaker enters both ears. The same applies to the right speaker sound. This is called crosstalk. The Biphonic Processor acoustically eliminates this crosstalk to create the same sound field as in headphone reproduction.

However, some reflections from walls, floor and ceiling are encountered in speaker listening and these components of the sound cannot completely be eliminated by the Biphonic Processor. Because of this we recommend that biphonic playback be performed in rooms having minimal reflections.

In Fig. 1, (A) is the sound emitted from the left speaker and entering the left ear and (a) is the sound also emitted from the left speaker and entering the right ear with a slight delay. These two sounds differ in frequency response. If a signal corresponding to (a) and having an opposite phase, i.e. a signal of $(-a)$ could be emitted from the right speaker, the signal (a) would be cancelled out.

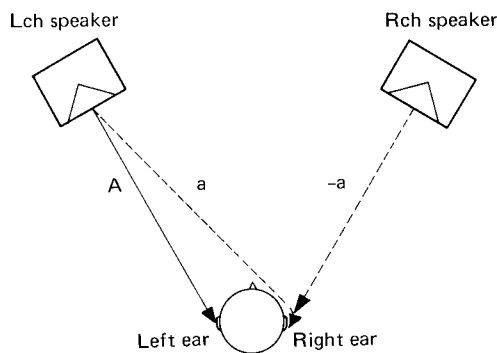


Fig. 1

Fig. 2 illustrates a block diagram of the basic circuit which embodies this principle.

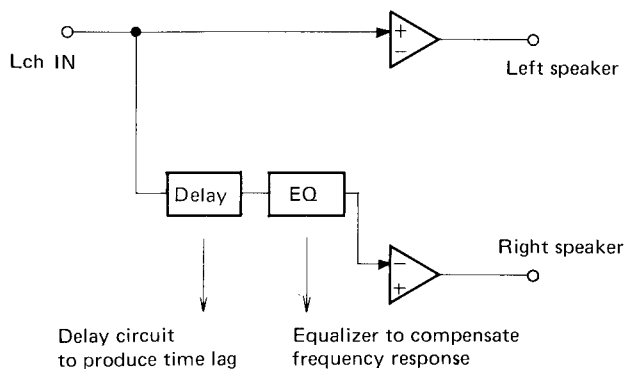


Fig. 2

In practice, the right channel signal $(-a)$ for cancelling the crosstalk (a) also reaches the left ear and this secondary signal must also be cancelled out from the left channel signal. Therefore, the circuit actually employed is based on the block diagram shown in Fig. 3, resulting in a cancellation of every secondary component of the signal.

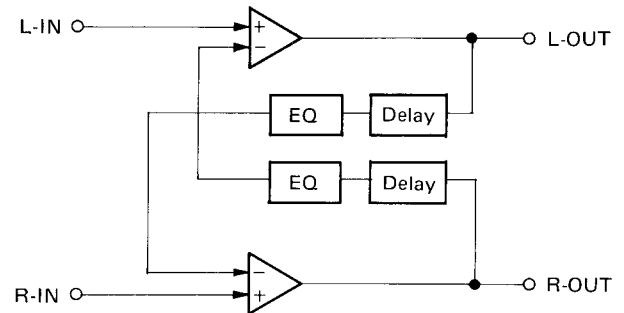


Fig. 3

Since low frequencies do not contribute to directional localization of sound sources, the processor is so designed that they bypass the processor circuit, thereby suppressing an impression of oppositely phased sound and preventing low frequencies from being boosted.

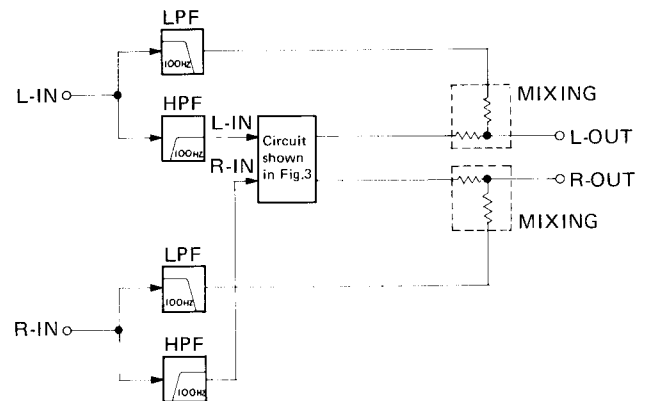


Fig. 4

As illustrated in Fig. 4, signals above 100Hz are processed by the circuit shown in Fig. 3, called B-circuit hereinafter. The output signal from the B-circuit and low frequency components below 100Hz are mixed by a separate circuit to produce the output. In brief, the task of the B-circuit is to deliver the left speaker sound only to the left ear and the right speaker sound only to the right ear, thereby producing the sound field equivalent to headphone listening. Human hearing can sense the direction from which the sound is coming due to the differences between the sound pressures and phases of the sound impressed upon both ears. When the left ear catches the sound only from the left speaker and the right ear catches the sound only from the right speaker, the ears cannot sense the position of the speaker. It can be said, therefore, that the B-circuit eradicates speaker presence.

2. Reproduction of ordinary stereo sources with expanded sound localization range (STEREO ► EXPAND)

As mentioned before, the B-circuit makes the speaker position unnoticeable and produces the same listening condition as with headphones. With the addition of another circuit, it also can place the illusive speaker at any given position.

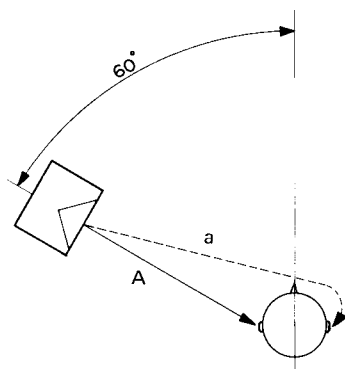


Fig. 5

Assuming that the speaker is located at 60° as in Fig. 5, the sound emitted from the left speaker reaches the left ear as shown by the solid line (A) and also enters the right ear as shown by the dotted line (a). These two signals let the listener sense the direction of the speaker as 60° . Signal (a) is delayed with relation to (A) and differs in frequency response.

Therefore, if the signal corresponding to (a) could be produced and both (A) and (a) signals processed by the biphonic processor, the speaker position would be apparently situated at 60° from the listener.

The circuit introducing this possibility is called A-circuit.

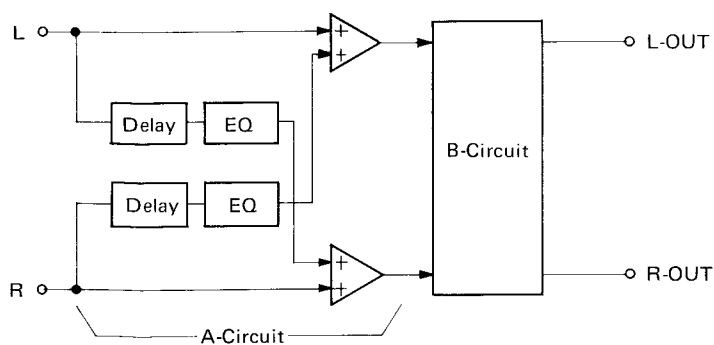


Fig. 6

Fig. 6 shows the stereo expansion circuit, consisting of the B-circuit and the additional A-circuit.

In practice, the circuit constants are determined to produce such a delay and frequency response necessary for extending the speaker distance to 120° (60° one side).

3. Binaural equalizer

Binaural recordings made by the dummy head or the HM-200E headphone/microphones have a frequency response in which the signals around 4kHz are boosted about 10dB.

This is attributed to the influence of the auricles. During playback with hermetically enclosed headphones, the auricles have no effect, resulting in a flat overall frequency response. On the other hand, when the binaural recording is reproduced through speakers, frequency components of about 4kHz are heard further boosted due to the influence of the auricles. To compensate for this, the BN-5 employs an equalizer which functions only when the binaural recording is reproduced through speakers. For this purpose, set the binaural equalizer switch to the BINAURAL-BIPHONIC position.

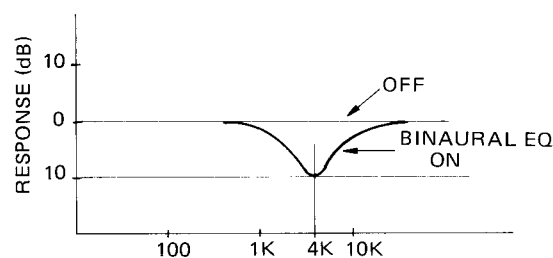


Fig. 7

Fig. 7 shows the frequency response of the binaural equalizer.

Binaural discs available on the market have already been subjected to equalization to prevent any possible unnaturalness when they are played on an ordinary stereo system. To play these discs, set the binaural equalizer switch to the OFF position.

Adjustments Procedure

1. Preparation

Setting of the semi-fixed resistors:

VR101(201) A-ADJ } Fully turn in the direction
 ...opposite to that printed on
 VR102(202) B-ADJ } the circuit board (clockwise).
 VR103(203) MIX, GAINCenter
 VR301-305 (401-405) PEAK. . .Center

2. B-circuit adjustment

Setting of the switches:

FUNCTIONBIPHONIC
 LISTENING ANGLE30°
 BINAURAL EQOFF
 TAPE MONITOROFF
 INPUT LEVELMaximum for both
 channels

- (1) Apply a 500Hz/-20dBs signal to the left channel LINE IN terminal.
- (2) Connect a dual-indicator valve voltmeter to TP102 and TP202 and adjust VR102 (left channel B-ADJ) to obtain a 4.0dB difference between the left and right channel output levels (until the left channel level is 4.0dB higher than the right channel.)
- (3) Perform the same adjustment for the right channel.

Caution: The highest possible accuracy is required for this adjustment.

3. A-circuit adjustment

Setting of the switches:

FUNCTIONEXPAND
 LISTENING ANGLE }
 BINAURAL EQ } Same as for B-circuit
 TAPE MONITOR } adjustment.
 INPUT LEVEL }

- (1) Apply a 100Hz/-20dBs signal to the left channel LINE IN terminal.
- (2) With the dual-indicator valve voltmeter connected to TP101 and TP201, adjust VR101 (left channel A-ADJ) to obtain a 1.0dB difference between the left and right channel output levels (so that the left channel level is 1.0dB higher than the right channel.)
- (3) Confirm that the output is 7dB \pm 3dB at 1kHz and 16.5dB \pm 3dB at 5kHz.
- (4) Perform the same adjustment for the right channel.

4. MIX GAIN adjustment

Switch settings are the same as for the A-circuit adjustment.

- (1) Apply a 100Hz/-20dBs signal to both the left and right channel LINE IN terminals.
- (2) Connect a valve voltmeter to the LINE OUT terminals and adjust R103 (left channel MIX GAIN) and R203 (right channel MIX GAIN) until a 2.0dB increase output is obtained when the FUNCTION switch is set to EXPAND than when it is set to PASS.

5. Peak level indicator lighting level adjustment

Setting of the Switches:

FUNCTIONPASS
 Other controlsAny position

Output level from LINE OUT	Lighting LED	Items to be adjusted
-18dBs	-10	VR305, 405
-13dBs	- 5	VR304, 404
- 8dBs	0	VR303, 403
- 5dBs	+ 3	VR302, 402
- 2dBs	+ 6	VR301, 401

All the LED's should extinguish at -1dB.

Note: Before adjustment, set the semi-fixed resistors around the center positions. Begin with the lower level LED.

Performance Check

1. B-circuit

(1) Listening angle check

Set the BINAURAL EQ switch to OFF.

Apply the same signal (500Hz) to the left and right LINE IN terminals and adjust the oscillator output or INPUT LEVEL control until an output of -8dBs is available from the left and right LINE OUT terminals with the FUNCTION switch at PASS. Then shift the switch to BIPHONIC and locate peaks.

Listening angle	Frequency	Level
30°	4.1kHz±800Hz	- 5dBs±3dB
45°	2.9kHz±600Hz	-4.5dBs±3dB
60°	2.2kHz±400Hz	-4.5dBs±3dB

The frequency at which the peak level is obtained should decrease as the listening angle switch is shifted from 30° through 45° to 60°

(2) Binaural equalizer check

Apply a signal of 4kHz separately to the left and right channel inputs and confirm that the output level is -10dB ± 3dB when the BINAURAL EQ switch is set to ON.

2. A-circuit

LISTENING ANGLE 30°

Apply the same signal (100 – 500Hz) to the left and right LINE IN terminals and adjust the INPUT LEVEL control until an output of -8dBs is available from the left and right LINE OUT terminals with the FUNCTION switch at PASS. Then shift the switch to EXPAND and locate dips.

Listening angle	Frequency	Level
30°	820kHz±200Hz	-20dBs±4dB

3. Other

(1) Noise level

0.5mV or less for PASS output,
0.5mV or less for BIPHONIC output, } and
0.5mV or less for EXPAND output
with LISTENING ANGLE at 30°, BINAURAL EQ at OFF, INPUT LEVEL turned to maximum and with input terminal idle.

Note: Place a metal plate under the unit for grounding.

(2) Harmonic distortion

LISTENING ANGLE 30°

BINAURAL EQ OFF

Adjust so that a -8dBs output is available from the LINE OUT terminals with an input signal of 1kHz for both channels and the FUNCTION switch at PASS. The harmonic distortion should be less than 0.1% for PASS output, less than 0.5% for BIPHONIC output and less than 0.5% for EXPAND output.

(3) Maximum output

After adjustment for obtaining the -8dBs PASS output from the LINE OUT terminals, boost the oscillator output by 10dB and confirm that there is no abnormalities in waveforms of the PASS, BIPHONIC and EXPAND outputs. (Distortion should be within 3%.)

Main P.W. Board Parts List

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
	TAA358203-01	P. W. Board	Don't supply as parts ass'y	1
R101,201,106,206	QRD142K-224	C. Resistor	220k Ω $\frac{1}{4}$ W	4
R101,202	" -471	"	470 Ω "	2
R103,203	" -184	"	180k Ω "	2
R104,204	" -681	"	680 Ω "	2
R105,205,120,220	" -223	"	22k Ω "	10
124,224,131,231				
135,235				
R107,207	" -472	"	4.7k Ω "	2
R108,208	" -391	"	390 Ω "	2
R109,209	" -101	"	100 Ω "	2
R110,210	" -102	"	1k Ω "	2
R111,211	" -822	"	8.2k Ω "	2
R112,212	" -562	"	5.6k Ω "	2
R113,213,148,248	" -103	"	10k Ω "	4
R114,214	" -122	"	1.2k Ω "	2
R115,215	" -331	"	330 Ω "	2
R116,216	" -474	"	470k Ω "	2
R117,217,121,221	" -472	"	4.7k Ω "	4
R119,219,144,244	" -682	"	6.8k Ω "	10
154,254,157,257				
158,258				
R122,222	" -822	"	8.2k Ω "	2
R123,223	" -563	"	56k Ω "	2
R125,225,126,226	" -332	"	3.3k Ω "	6
128,228		"		
R127,227,140,240	" -153	"	15k Ω "	10
141,241,146,246				
147,247				
R130,230,136,236	" -824	"	820k Ω "	10
137,237,138,238				
139,239				
R132,232	" -183	"	18k Ω "	2
R133,233	" -123	"	12k Ω "	2
R134,234	" -0R0	"	0 Ω "	2
R150,250,153,253	" -104	"	100k Ω "	4
R151,251,155,255	" -561	"	560 Ω "	4
R152,252	" -273	"	27k Ω "	2
R156,256	" -122	"	1.2k Ω "	2
R145,245	QRD146K-331	"	330 Ω "	2
C101,201	QEB41EM-475	E. Capacitor (Low Leak)	47 μ F 25V	2
C102,202,155,255	QCS11HK-151	C. Capacitor	150PF 50V	4
C103,203,156,256	" -470	"	47PF "	4
C104,204,157,257	QEW41AA-107	E. Capacitor	100 μ F 10V	4
C105,205	QEW41CA-106	"	10 μ F 16V	2
C106,206,159,259	QEW41EA-476	"	47 μ F 25V	4
C107,207	QFM41HK-473	Mylar Capacitor	0.047 μ F	2
C108,208	QEW41HA-105	E. Capacitor	1 μ F 50V	2
C109,209,110,210	QEW41AA-476	E. Capacitor	47 μ F 10V	6
112,212				
C111,211	QFM41HK-333	Mylar Capacitor	0.033 μ F	2
C113,213,114,214	QFM41HK-392	"	0.0039 μ F	12
115,215,116,216				
117,217,118,218				
C119,219,121,221	QEW41HA-105	E. Capacitor	1 μ F 50V	4
C120,220	QEW41AA-476	"	47 μ F 10V	2

Main P. W. Board Parts

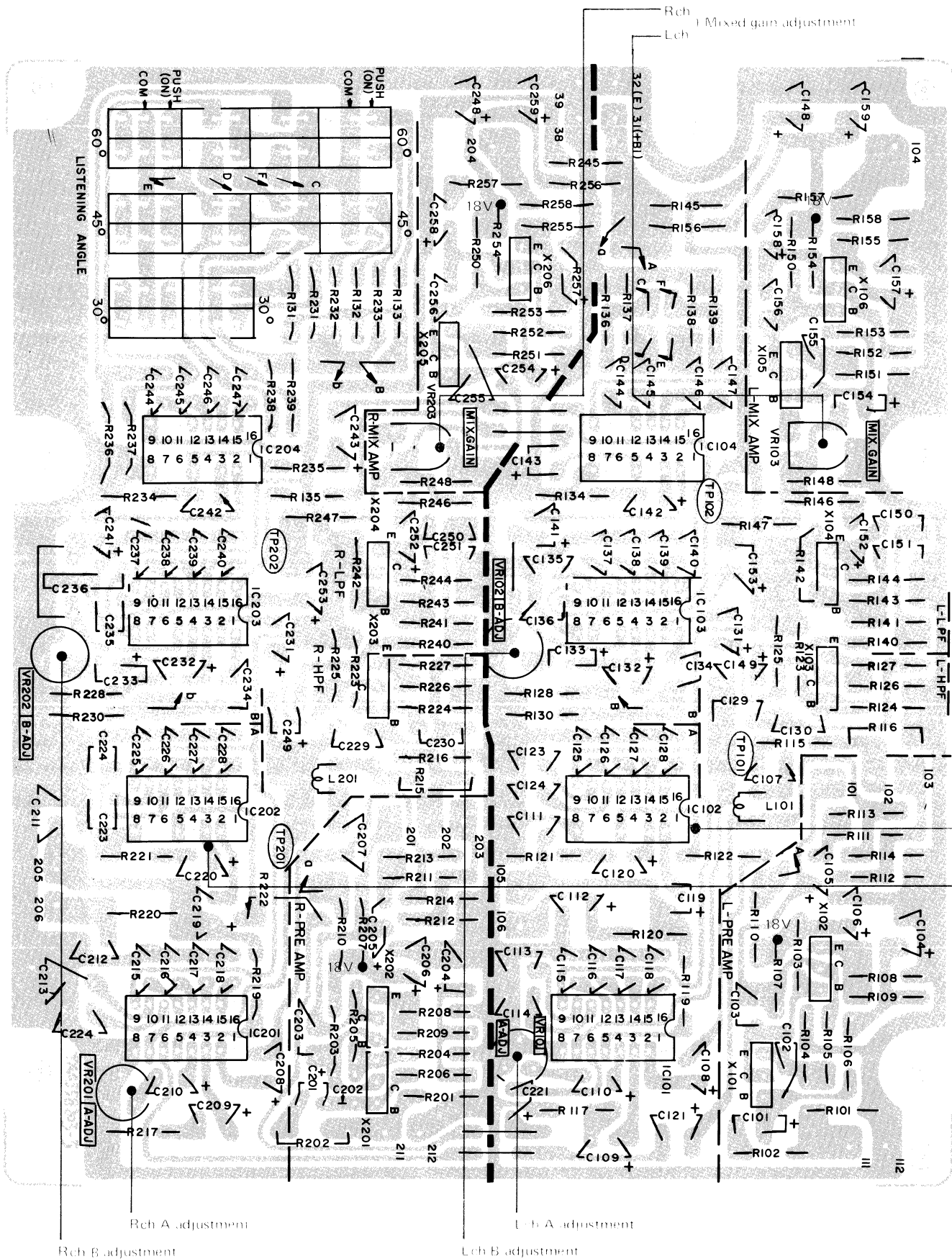


Fig. 8

Notes

Voltages (=V) are measured by DC VTVM or circuit tester without Input signal. (Red prints are shown value by DC VTVM as same as by circuit tester.)
When you measure the voltage by circuit tester, we recomend you to use 20kΩ/V inpedance.

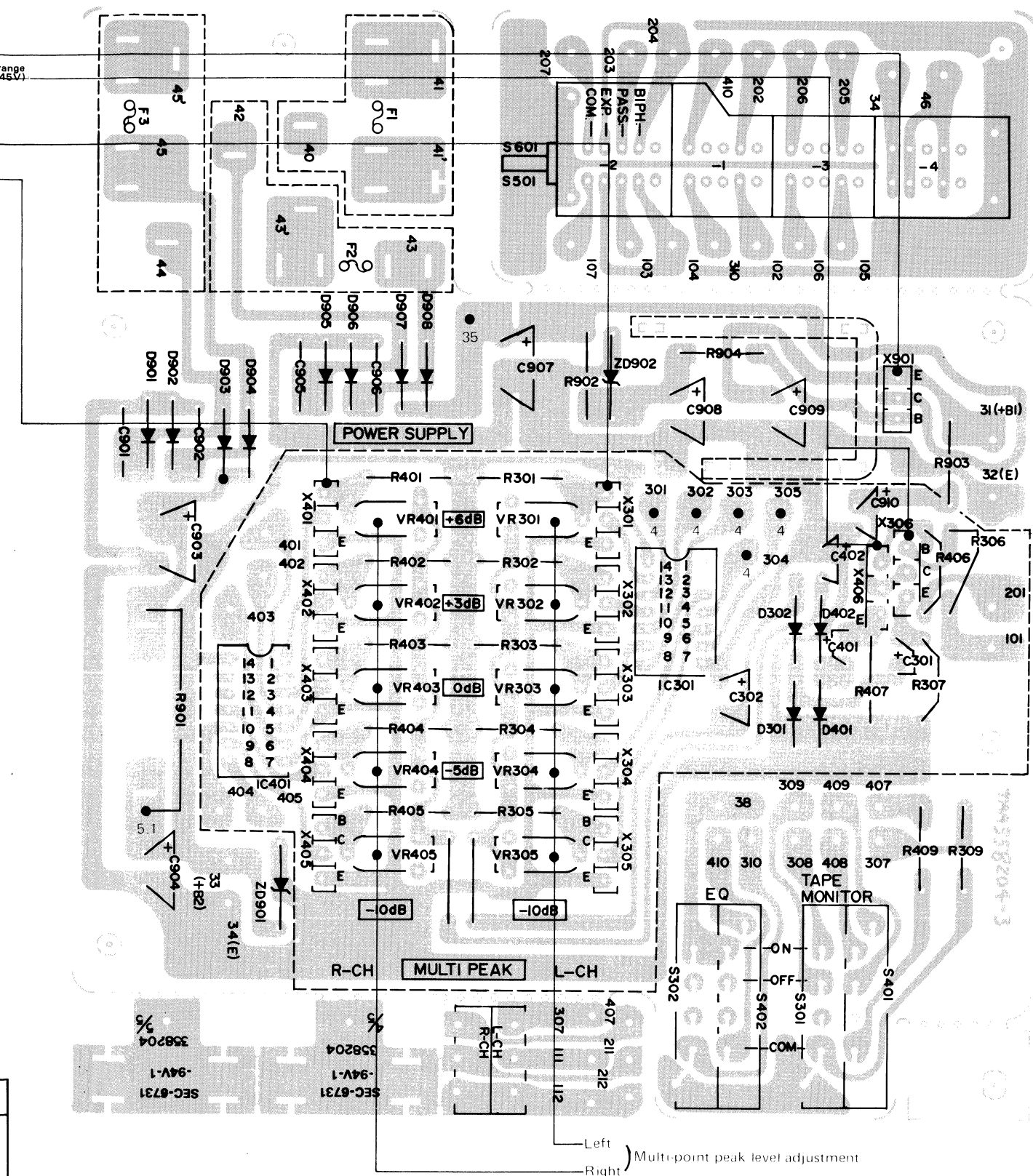
Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
C123,223,124,224 125,225,126,226 127,227,128,228	QFM41HK-392	Mylar Capacitor	0.0039μF	12
C129,229,130,230 150,250,151,251	QFM41HK-104	"	0.1μF	8
C131,231	QEW41HA-105	E. Capacitor	1μF 50V	2
C132,232,133,233	QEW41AA-476	"	47μF 10V	4
C134,234	QFM41HK-393	Mylar Capacitor	0.039μF	2
C135,235,136,236 137,237,138,238 139,239,140,240	" -182	"	0.0018μF	12
C141,241,143,143 C142,242	QEW41EA-475 QEW41AA-476	E. Capacitor	4.7μF 10V	4 2
C144,244,145,145	QFM41HK-562	Mylar Capacitor	0.0056μF	4
C146,246,147,247	" -222	"	0.0022μF	4
C148,248	QEW41CA-227	E. Capacitor	220μF 16V	2
C149,249 152,252,153,253	QEW41HA-105	"	1μF 50V	2
C154,254,158,258	QEW41EA-475	"	4.7μF 25V	4
VR101,201,102,202	QVP4A0B-473A	V. Resistor		4
VR103,203	QVP8A0B-024	"		2
L101,201	TAC000324-05	Inductor	33mH	2
IC101~104 IC201~204	VUC0001-001	Integrated Circuit		8
X101~106 X201~206	2SC828(RS)	Transistor		12
	QSP0239-003 E43727-003	Push Switch Tab	4-8-8 for Lapping	1 24

	VTVM	Circuit tester	
		10V range	2.5V range
1	2.16	2.1	1.9
2	1.44	1.25	0.95
3	1.48	1.45	1.32
4	1.10	1.1	1.1
5	6.77	6.7	—
6	4.28	4.1	—
7	2.04	2.1	2.05
8	0	0	0
9	10.0	10.0	—
10	2.65	2.65	2.43
11	2.84	2.8	—
12	2.66	2.8	2.43
13	2.84	2.8	—
14	2.68	2.7	2.45
15	2.82	2.8	—
16	4.27	4.1	—

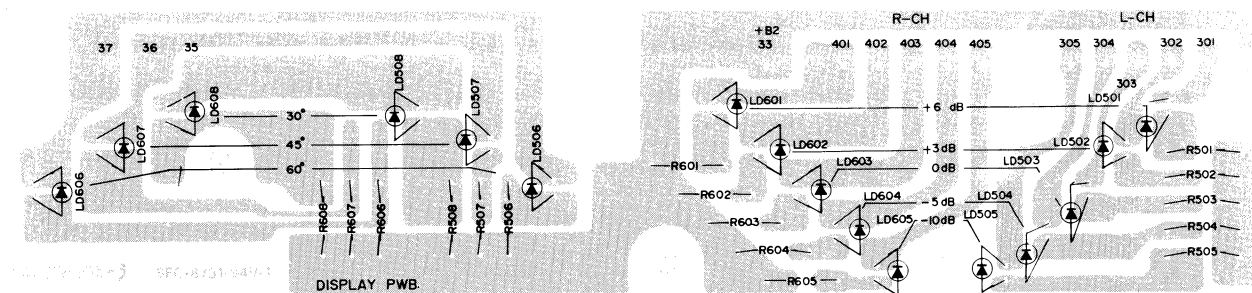
	VTVM			Circuit tester						
	E	C	B	E	C	B				
						0.25V (range)	1V	2.5V	10V	
X102 201	0.2	1.6	0.81	0.2	2.5V range 1.55 10V range 1.6	0.03	0.055	0.25	0.6	
X102 202	0.9	5.6	1.6	0.9	5.6			1.55	1.6	
X103 203	2.2	8.0	2.8	2.2	8.0			2.1	2.6	
X104 204	3.9	10.0	4.5	3.9	10.0	0.125	0.47	1.05	2.45	
X105 205	0.21	1.5	0.81	0.21	1.5	0.065	0.23	0.45	0.75	
X106 206	0.9	5.9	1.5	0.9	5.9			1.5	1.5	

Power Supply P. W. Board Parts

	E Emitter	C Corector	B Base
X901	20.4	35	21
X306 X406	4.9	17	5.5
X301 X401	0	0.16	0.63
X302 X402	0	0.16	0.63
X303 X403	0	0.16	0.63
X304 X404	0	0.16	0.63
X305 X405	0	0.16	0.63



Display P. W. Board Parts



Display P.W. Board List

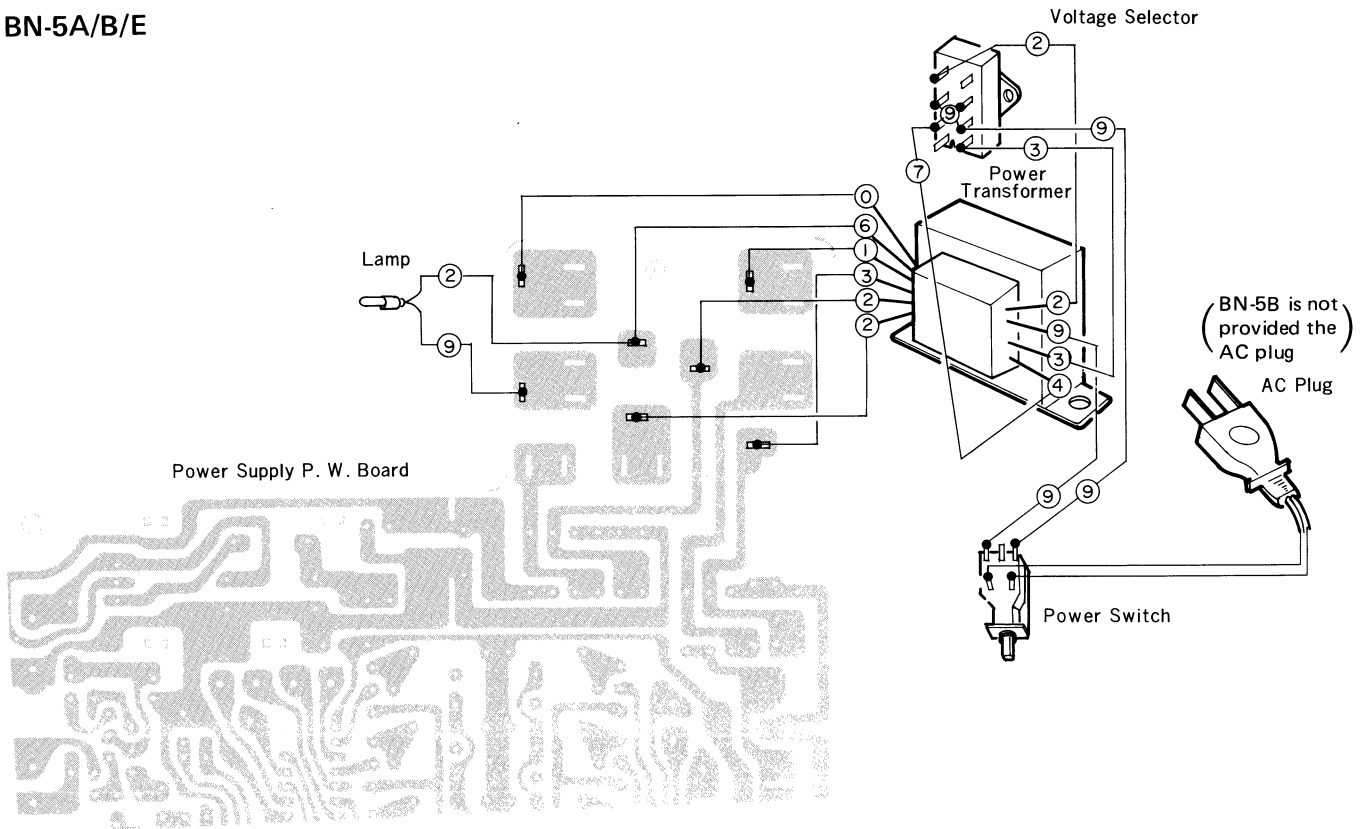
Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
R501~508 R601~608 LD501~508 LD601~608	TAA358205-01 QRD142K-331	P.W. Board C. Resistor	Don't supply as parts ass'y 330Ω ¼W	1 16
	TLR102 TER305427-01 E43727-003	LED Spacer Tab	for LED Lapping	16 16 14

Fig. 10

Power Supply P.W. Board Parts List

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
	TAA358204-01	P.W. Board	Don't supply as part ass'y	1
R301,401	QRD142K-334	C. Resistor	330k Ω ¼W	2
R302,402	" -394	"	390k Ω "	2
R303,403	" -474	"	470k Ω "	2
R304,404	" -564	"	560k Ω "	2
R305,405	" -684	"	680k Ω "	2
R306,406	" -473	"	47k Ω "	2
R307,407	" -392	"	3.9k Ω "	2
R309,409	" -823	"	82k Ω "	2
R903	" -152	"	1.5k Ω "	1
R902	" -332	"	3.3k Ω "	1
R901	QRG036J-680	OMF Resistor	68 Ω	1
R904	QRD146K-330	C. Resistor	33 Ω ¼W	1
C301,401	QEW41HA-105	E. Capacitor	1 μ F	4
C901,902,905,906	QCF12HP-103	C. Capacitor	0.01 μ F 50V	4
C903	QEW41EA-477	E. Capacitor	470 μ F 25V	1
C904	QEW41AA-477	"	470 μ F 10V	1
C907	QEW41HA-477	"	470 μ F 50V	1
C908,909	QEW41EA-227	"	220 μ F 25V	2
C910	QEW41CA-476	"	47 μ F 16V	1
C912	QCF41EZ-104	C. Capacitor	0.1 μ F 25V	1
VR301~305	QVP8A0B-055A	V. Resistor	500k Ω	10
VR401~405				
D901~904	T30155-001	Si. Diode		8
D905~908				
D301,401,302,402	1S188FM	Ge. Diode		4
ZD901	1N4733T5	Zener Diode		1
ZD902	RD20EE	"		1
X306,406	2SC828(RS)	Transistor		2
X301~305	2SC828(ST)	Transistor		10
X401~405				
X901	2SC1847(Q)			1
IC301,401	TD3404AP	Integrated Circuit		2
	QMF51A2-R50LBS	Fuse	500mAT BN-5B	2
	QMF51A2-R50	"	" BN-5A/E	2
	" -R315LBS	"	315mAT BN-5B	1
	" -R315	"	315mAT BN-5A/E	1
	TAZ000331-02	Fuse Holder		6
	TAR272448-01	Heat Sink	for X901	1
S301,401,302,402	QSL2212-005	Lever Switch		4
	E40130-001	Tab	for P.T. Wire BN-5A/B/E BN-5C/J/U	7 6
	E43727-003	Tab	for Lapping	25
	A43596-001	"	for R901	2
	DPSP3008ZS	Screw	for X901	1
PL901	T48188-002	Pilot Lamp		1

BN-5A/B/E



BN-5U

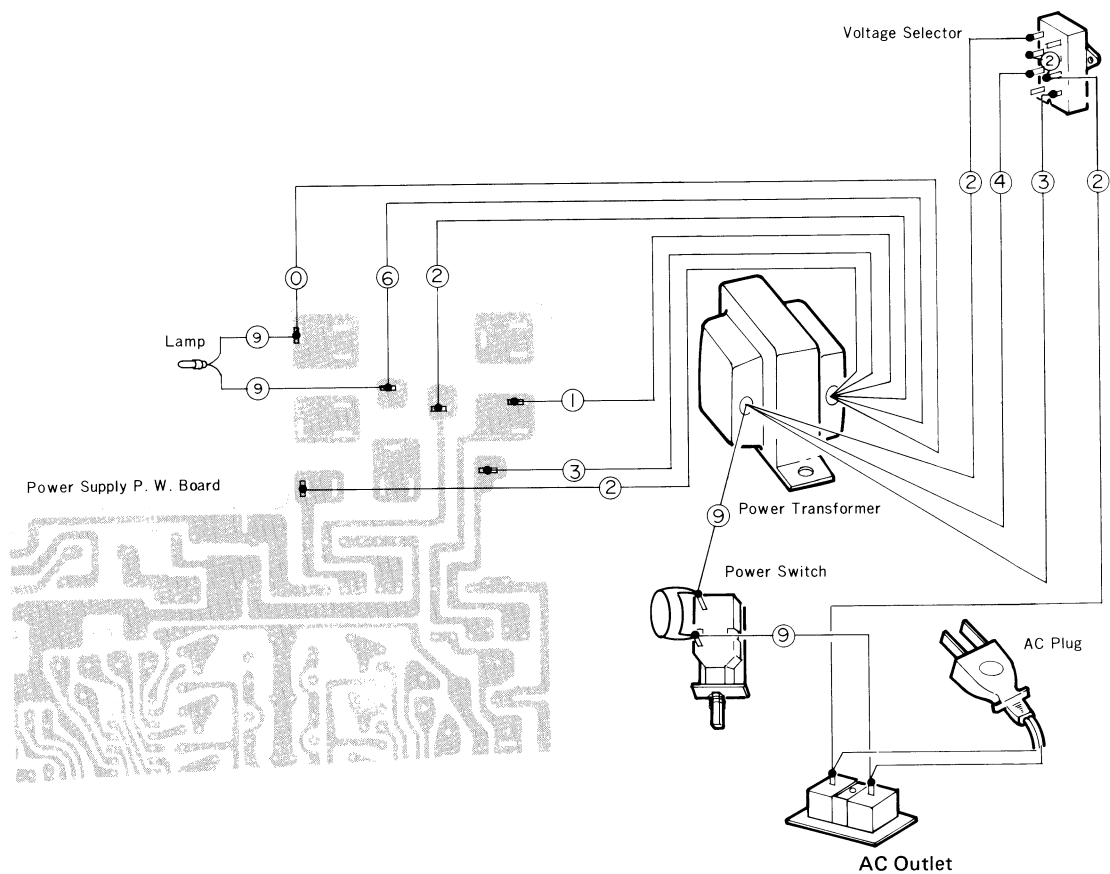


Fig. 11

Wiring of BN-5 J/C

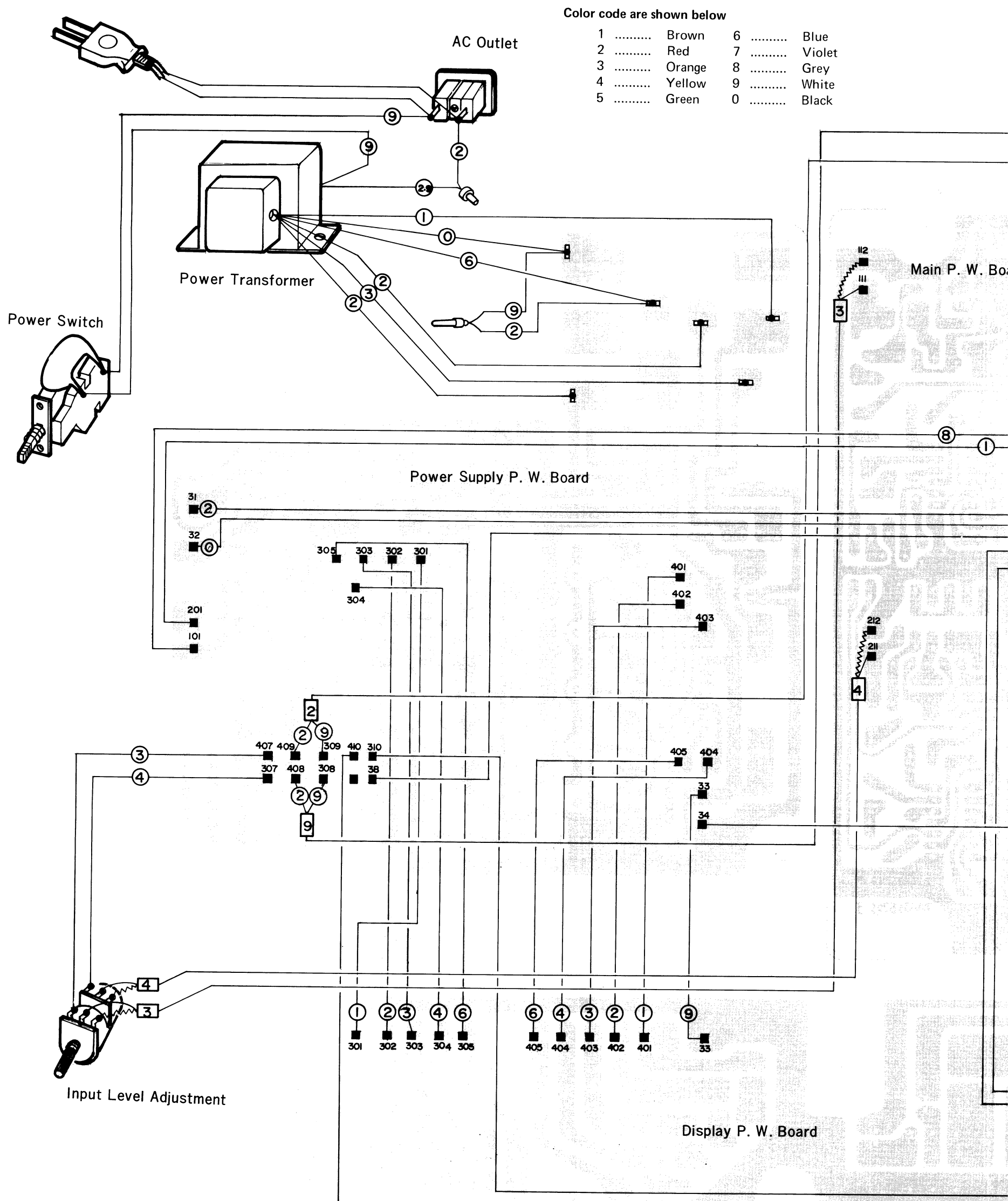


Fig. 12

own below

Brown	6	.....	Blue
Red	7	.....	Violet
Orange	8	.....	Grey
Yellow	9	.....	White
Green	0	.....	Black

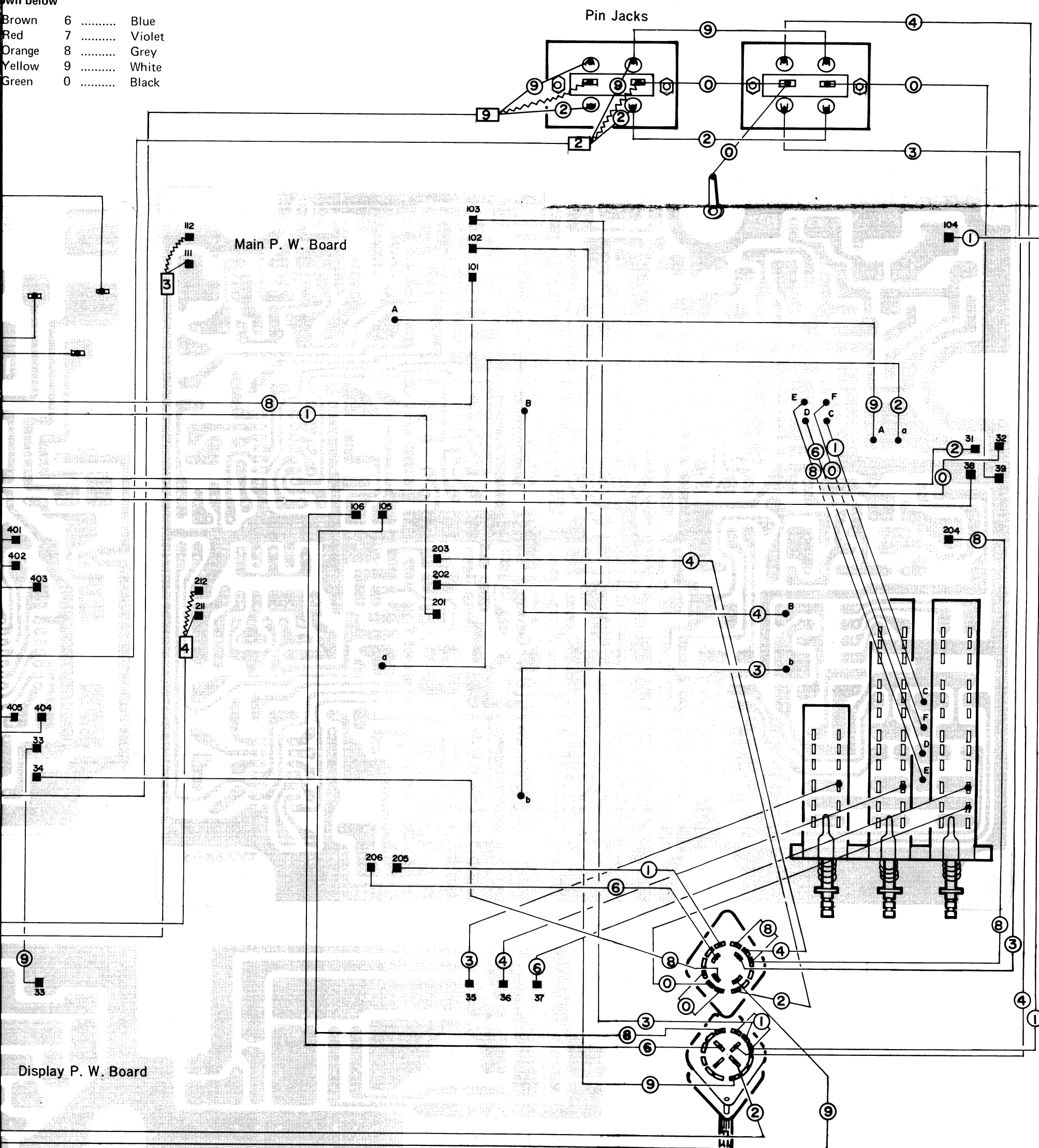
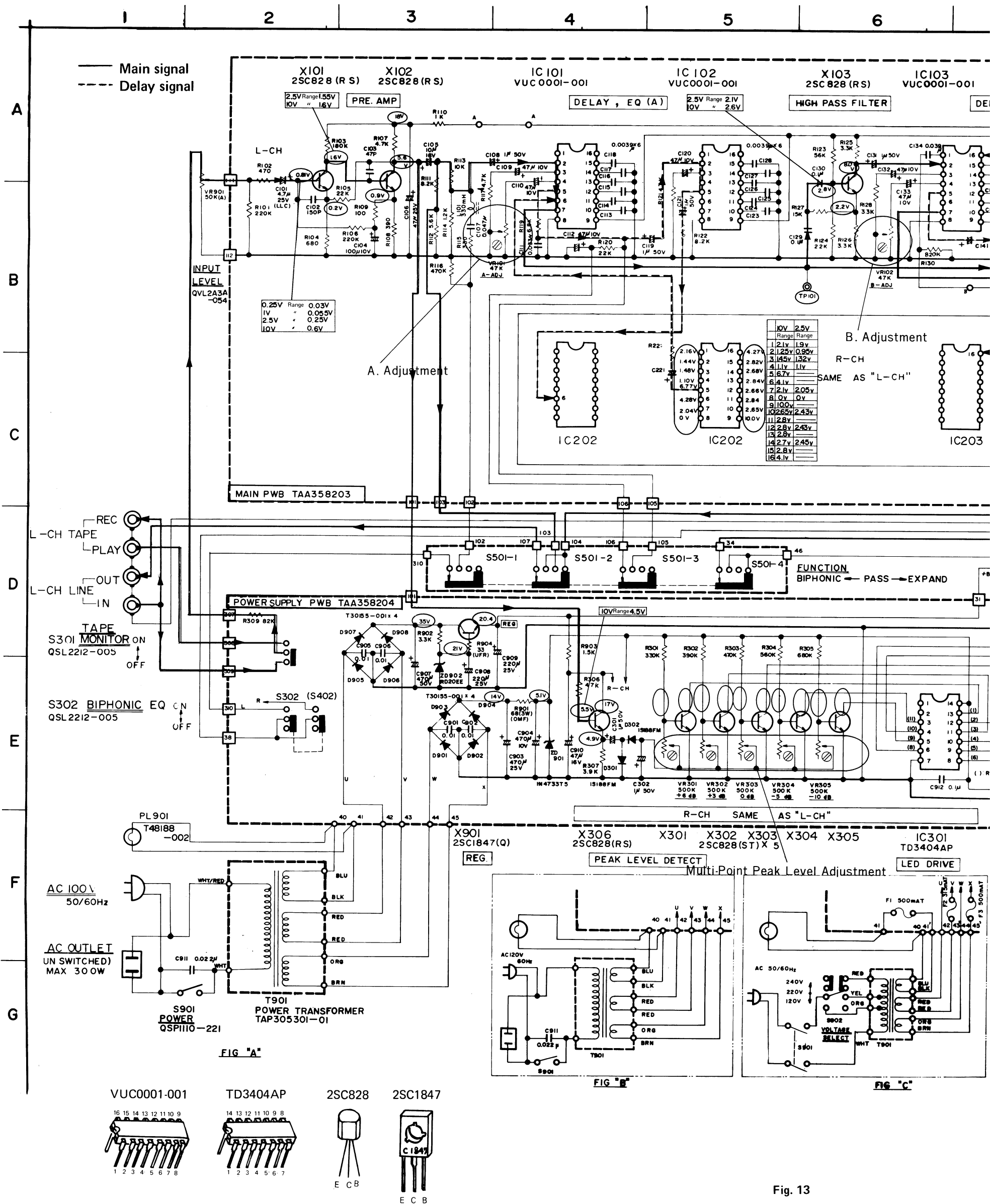


Fig. 12

Schematic Diagram of Model BN-5



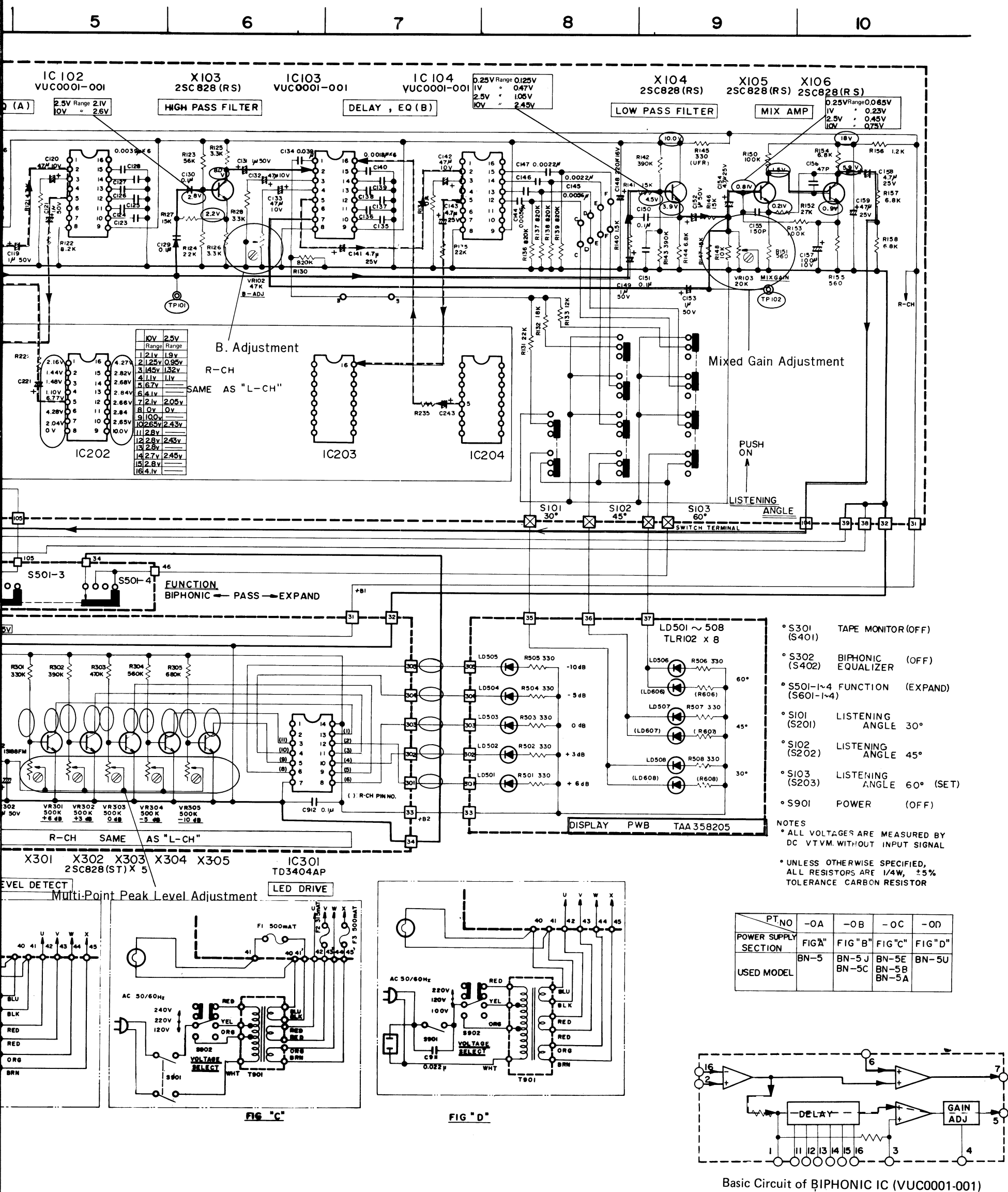


Fig. 13

Block Diagram

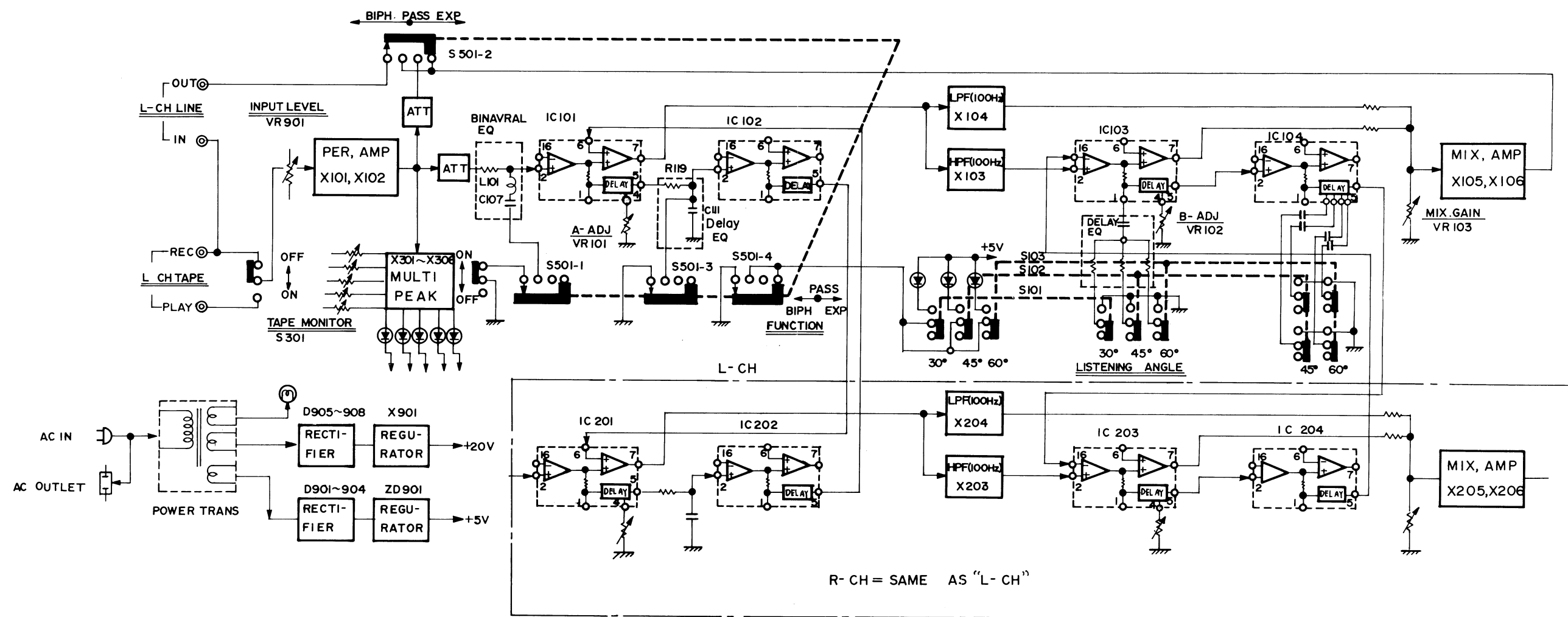


Fig. 14

Enclosure Assembly and Electrical Parts

(Except P.W. Board Parts)

BN-5C/J

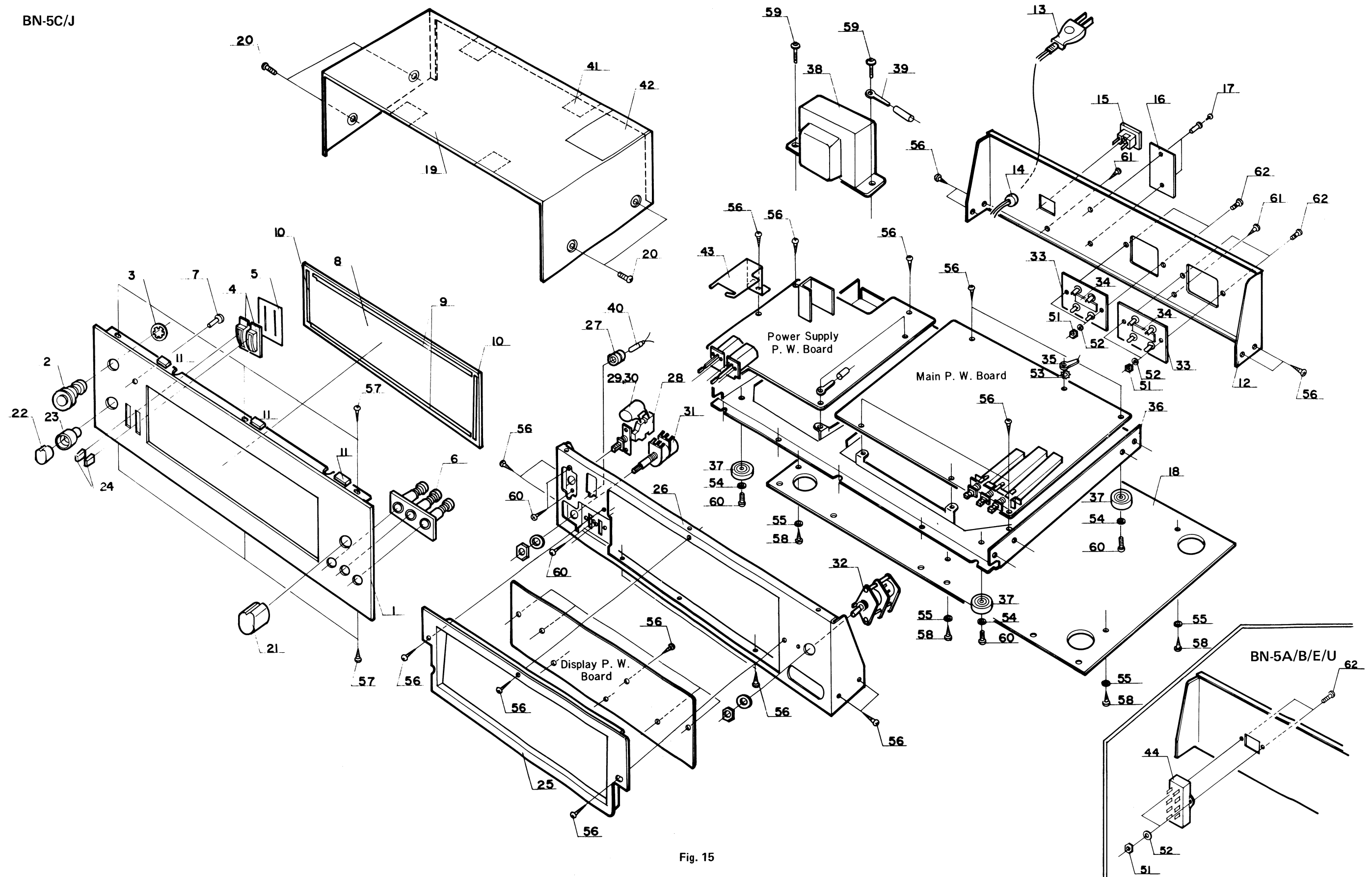


Fig. 15

Enclosure Assembly and Electrical Parts List

(Except P.W. Board Parts)

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
1~11	ZCBN5Y-CBF	Front Plate Ass'y		1 set
1	TJP358101-02	Front Plate		1
2	TJB342206-0B	Push SW. Button Ass'y	for Power	1
3	RDS12000Z	"CS" ring		1
4	TJE358402-01	Lever Escutcheon		2
5	TJN358403-01	Blind	for Lever SW	1
6	TJB358302-01	Push Button Ass'y		1
7	E49969-002	Rabbit Eye		1
8	TJE358301-01	Finder		1
9	T43595-012	Double Face		2
10	" -015	"		5
11	TJN265423-07	Cushion		3
12	*TFB358201-03	Rear Bracket	BN-5A/B/E	1
	*TFB358201-02	"	BN-5C/J	1
	*TFB358201-04	"	BN-5U	1
13	QMP2500-200	Power Cord with Plug	BN-5A	1
	QMP9017-007BS	Power Cord	BN-5B	1
	QMP1200-183	Power Cord with Plug	BN-5C/J	1
	QMP3900-183	"	BN-5E	1
	QMP7600-183	"	BN-5U	1
14	QHS3876-162	Cord Stopper	BN-5A/C/E/J/U	1
	QHS3876-162BS	"	BN-5B	1
15	QMC0235-002	AC. Socket Ass'y	BN-5C/J/U	1
16	VYN9018-003GA	Name Plate	BN-5A	1
	" -001GA	"	" B	1
	" -005GA	"	" C	1
	" -002GA	"	" E	1
	" -004GA	"	" J	1
	" -006GA	"	" U	1
17	E48729-002	Plastic Livet	for Name Plate	2
18	TJX358202-01	Bottom Cover		1
19	TJC358104-01	Top Cover		1
20	E60942-001	Screw Ass'y	for Side	4
21	TXKP020-3003-0A	Knob Ass'y	for Select SW.	1
22	TJK344489-02	Knob	for Input Level	1
23	TJK344491-02	"	"	1
24	TJK344492-02	Lever Knob	for Inp. & EQ.	2
25	TJE258105-01	Display Panel		1
26	TFB358102-0B	Front Bracket Ass'y		1 set
27	53492	Rubber Bushing	for P. Lamp	1
28	QSP2111-011	Power Switch	BN-5A/E	1
	QSP2111-011BS	"	BN-5B	1
	QSP1110-222	"	BN-5C/J	1
	QSP1110-221	"	BN-5U	1
29	QFA72BM-223	M.M. Capacitor	BN-5C/J	1
	QFH43AM-223	"	BN-5U	1
30	T47047-001	Condenser Cap	BN-5J/U	1
31	QVL2A3A-054	V. Resistor	VR101,201	1
32	QSR3183-202	Rotary Switch		1
33	TAJ331301-03	Jack Ass'y	4 Pin	2
34	TAA358204-04	Circuit Board	for Pin	2
35	50242-2	Lag		1
36	*TFC358103-02	Amp. Chassis		1
37	TJF000355-03	Foot		4
38	TAP330306-01	Power Transformer	BN-5A/E/U	1
	TAP330306-01BS	"	BN-5B	1
	TAP334301-01	"	BN-5C/J	1
39	S4709-002	Wire Clamp		5

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
40	T48188-002	Pilot Lamp	PL901	1
41	TJN000354-19	Cushion		4
42	VND4002-002	Seal	for Connection	1
43	VKL4107-001	Shield Plate		1
44	QSS2325-006	Voltage Select Switch	BN-5A/E	1
	QSS2325-006BS	"	BN-5B	1
	QSS2325-004	"	BN-5U	1
51	NNB3000	Nut	for Jack Ass'y	4
52	NLS3000	Lock Washer		4
53	WABS3000	"	for Pin Jack Ass'y	2
54	WNS3000Z	Washer	for Foot	4
55	Q03091-138	"	for Bottom Cover	6
56	SBSB3006Z	Tapping Screw	for Rear Bracket	30
			Main P.W. Board,	
			Power Supply P.W. Board	
			Display P.W. Board	
			Display Panel	
			Front Bracket Ass'y	
57	SBSB3008Z	Tapping Screw	for Front Panel	6
58	SBSB3010Z	"	for Bottom Cover	6
59	DPSP4006ZS	Screw	for Power Transformer	1
60	LPSP3006Z	"	for Lever Switch,	8
			Power Switch, Foot	
61	SDST3006R	Tapping Screw	for Rear Bracket	2
62	SDBP3008RS	Screw	for Jack Ass'y, BN5C/J	4
			BN-5A/B/E/U	6

Packing

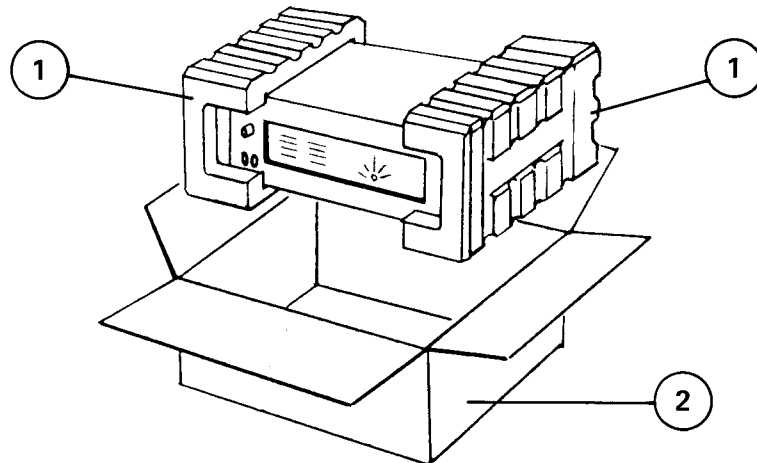


Fig. 16

Packing Material List

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
1	*TKC358106-01	Cushion		2
2	TKB358303-03	Case	BN-5A/B/E/J/U	1
2	"	Case	BN-5C	1
	QPGA055-04505	Envelope	for Unit	1
	AP4056A-036	Envelope	for PIN and Power Cord	2
	QPGA017-03005	Envelope	for Inst. Book	1
	TKS000501-02	Sheet	for Unit	1

Accessories

Parts No.	Parts Name	Remarks	Q'ty
T30046-00A	Pin Cord Ass'y		2
TJL000443-01	Seal	Made in Japan	1
TLT052401-01	Warning Label	Disconnect for Power Cord BN-5A/E	1
TLT052401-01BS	"	BN-5A/B	1
OZL1002-003BS	"	Power Cord, BN-5B	1
T46328-003	Caution Card	for V. Select BN-5A/B	1
" -004	"	BN-5E	1
" -001	"	BN-5U	1
BT20013	Guarantee Certificate	BN-5B	1
BT20029	Warranty Card	BN-5A	1
BT20025	"	BN-5C	1
VNN0002-301	Instruction Book		1
TLT000505-01	UL/CSA Caution Label	BN-5C/J	1
TLT000503-01	"	BN-5C/J	1
T44362-001	CSA Marker	BN-5C	1
TLT279401-01	Caution Card	for Frans, BN-5E	1
BT20032	Warranty Card	BN-5J	1
BT20023	Service Procedure	BN-5J	1
BT20024B	Special Reply Card	BN-5J	1
OZL1001-001	UL Label	BN-5J	1
BT20015B	Warranty Card	for PX (KANAZAWA) BN-5U	1
E7795-01	EP. Mark	BN-5U	1
E04056-001	Conti. Plug	for SANSEI, BN-5U	1