

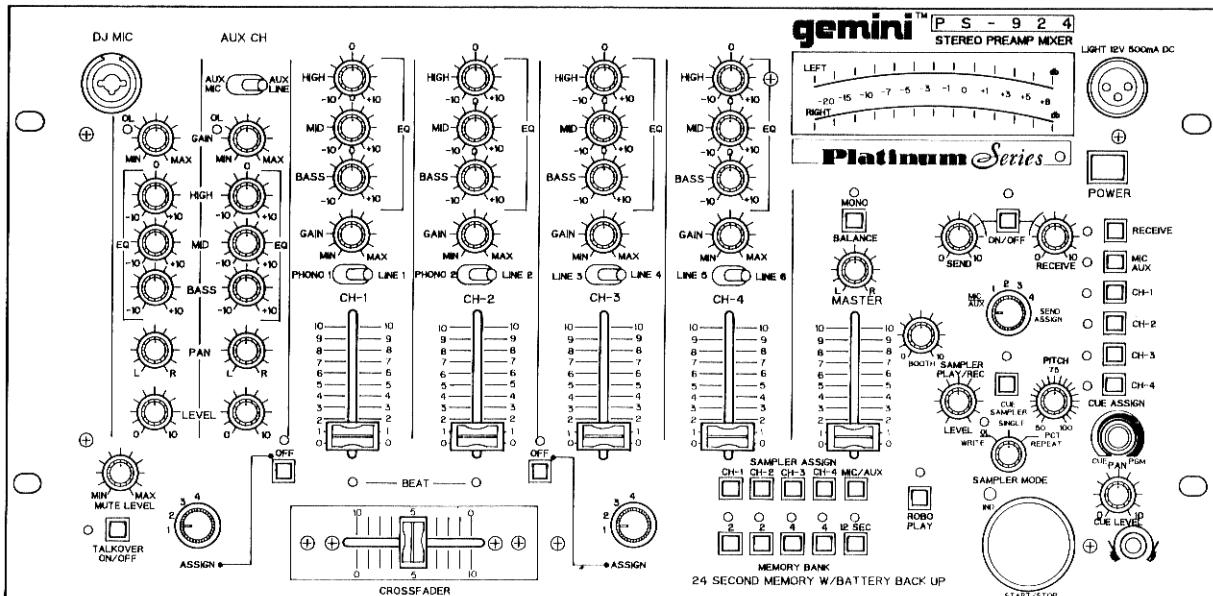


SERVICE MANUAL

STEREO PRE-AMP

DIGITAL SAMPLING MIXER

MODEL PS-812/PS-924



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GEMINI SOUND PRODUCTS CORP.

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SPECIFICATIONS

PS-812/PS-924

INPUTS:

DJ Mic:	1.5mV 3Kohm balanced/unbalanced
Aux Mic unbalanced only:	1.5mV 10Kohm
Aux Line:	150mV 27Kohm
DJ Loop:	150mV 10Kohm
Phono:	3mV 47Kohm
Line:	150mV 27Kohm
Receive:	75mV 27Kohm

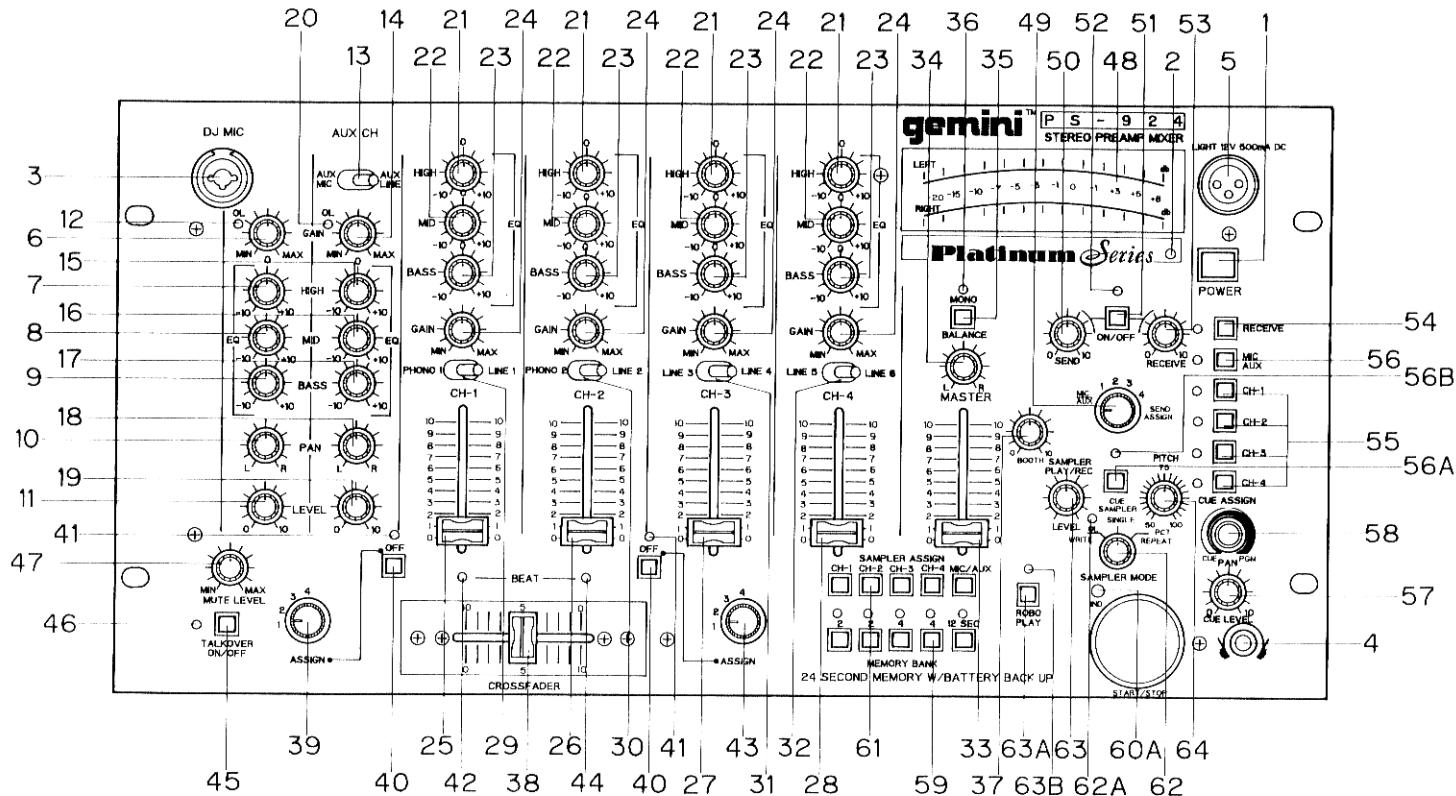
OUTPUTS:

Amp/Booth:	0 dB 775mV400ohm
Max:	24V Peak to Peak
Rec:	225mV 5Kohm
DJ Loop	150mV 220Kohm
Send:	150mV 300Kohm

GENERAL:

Bass:	+/- 12dB
Mid:	+/- 9dB
Treble:	+/- 12dB
Gain(Mic/Aux):	0 to -40dB
Gain/(Chnis 1-4):	0 to -20dB
Frequency:	
Response:	20Hz-20Hz +/- 2dB
Distortion:	0.02%
S/N Ratio:	better than 80dB
Talkover Attenuation:	-6 to-36dB
Headphone Impedance:	16ohm
Sampler System:	12 Bit Sampling
Maximum Sample Length:	12 Seconds
Total Memory Capacity:	24 Seconds(PS-924)
Total Memory Capacity:	12 Seconds(PS-812)
Power Source:	115/230V 50/60Hz 15W
Dimension:	482mmX240mmX110mm 19"X9 1/2"X4 1/4"
Weight:	11lbs(5Kg)

CONNECTION ,OPERATING AND SAMPLER INSTRUCTIONS



INSTRUCTIONS FOR CONNECTIONS

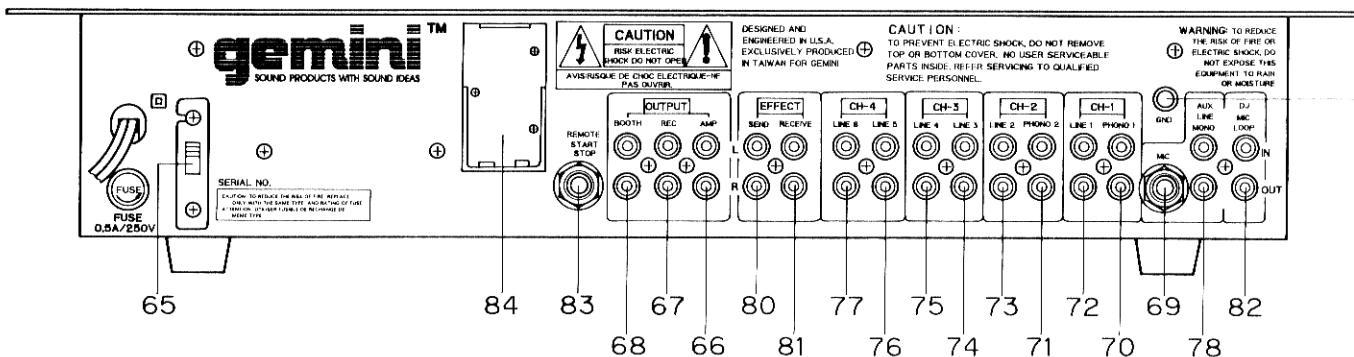
1. Before plugging in the power cord, make sure that the VOLTAGE SELECTOR (65) switch is set to the correct voltage.
2. Make sure that the POWER(I) switch is in the off position. The POWER LED (2) will be off.
3. The unit is supplied with 3 sets of output jacks. The OUTPUT AMP (66) jacks are used to connect to your main amplifier. The OUTPUT REC (67) jacks can be used to connect the mixer to the record input of your recorder enabling you to record your mix. The OUTPUT BOOTH (68) jacks allow you to hook up an additional amplifier.
4. The Unit is equipped with 2 microphone inputs. The DJ MIC (3) input (found on the front panel) accepts 1/4" or XLR connectors and suitable for balanced or unbalanced microphones. The AUX MIC (69) input (found on the rear panel) is a 1/4" jack for an unbalanced microphone.
5. On the rear panel are 2 stereo PHONO (70,71) inputs, 6 stereo LINE (72, 73, 74, 75, 76, 77) inputs and 1 mono AUX LINE (78) input. The stereo phono inputs will accept only turntables with a magnetic cartridge. A GROUND (79) screw for you to ground your turntables is located on the rear panel. The stereo line inputs

will accept any line level input such as a CD player, a cassette player, etc.

NOTE

The AUX LINE (78) input is composed of 2 RCA jacks. When connecting a mono line level source, either jack can be used. By connecting a stereo line level device to both jacks, the input will be combined to one mono signal.

6. Headphones can be plugged into the front panel mounted HEADPHONE (4) jack.
7. The unit comes with a front panel XLR LIGHT (5) jack. This jack is for use with a gooseneck light like the Gemini GNL-500. NEVER plug a microphone into this jack.
8. If you are using an off board signal enhancer, you can use the SEND(80) output to send the signal to the device and the RECEIVE (81) input jacks to bring the signal back in to the Unit.
9. The unit is supplied with DJ MIC LOOP (82) jacks that can be used to add an audio enhancer such as a key controller to the mic circuit. There must be a connection to these jacks. If no device is being used in the DJ mic loop, then the jumper wire, (included), must be in place.



OPERATING INSTRUCTIONS

1. POWER ON

Once you have made all the equipment connections to your mixer, press the POWER SWITCH (1). The power will turn on and the POWER LED (2) will glow RED.

2. DJ MIC SECTION

The GAIN (6), TREBLE (7), MID (8), BASS (9), PAN (10) and LEVEL (11) controls allow full adjustment of the DJ mic that is plugged into the DJ MIC (3) input.

NOTE

The OVERLOAD LED (12) glows red when the DJ mic is being over driven. To correct the setting, turn down the GAIN (6) control until the LED goes off.

3. AUXCI-1ANNEL

By using the AUX MIC/LINE (13) switch, you can choose between an additional mic or an additional mono line input. The GAIN (14), TREBLE (15), MID (16), BASS (17), PAN (18) and LEVEL (19) controls fully adjust the Aux Channel input you selected with the AUX MIC I LINE (13) switch.

NOTE

The OVERLOAD LED (20) glows red when the Aux Channel is being over driven. To correct the setting, turn down the GAIN (14) control until the LED goes off.

HINT

Like The DJ Mic, The Auxchannel is always Live. Hooking up another mic or a mono line device such as a sound effects generator or a drum machine, will allow you to play the selected source at any time,

4. MAINCHANNELSECTION

To assign an input source to a channel ,set the PHONO /LINE (29,30) and the LINE/LINE(31, 32)switches to their appropriate positions. To make the proper adjustments to your music, set the TREBLE (21), MID (22), BASS (23) and GAIN (24) controls and the CHANNEL (25, 26, 27, 28) slides.

5. CROSSFADER SECTION

The CROSSFADER (38) allows the mixing of one source into another. The PS-924 features an assignable crossfader. The ASSIGN (39,43) switches allow you to select which channel will play through each side of the crossfader. ASSIGN (39) switch allows you to select channel 1, 2, 3 or 4 to play through the left side of the crossfader. ASSIGN (43) switch does the right same of the crossfader. Each assign switch has its own OFF (40) switch and OFF INDICATOR (41) LED. With the OFF (40) switch in the off position (the OFF INDICATOR (41) glows red), that side of the CROSSFADER (38) will be inactive.

HINT

Try using the OFF (40) switches when you are changing the ASSIGN (39,43) switch settings. For Example: Assume that you have a turntable hooked up to channel 1, a tape deck hooked up to channel 2 and a CD player hooked up to channel 3. The left side ASSIGN (39) switch is set to 1, the right side ASSIGN (43) is set to 2. and fire CROSSFADER (38) Is all the way to the right. Under this set of circumstances, channel 2 will be playing your tape deck. Now suppose you want to change the left side ASS/GN (39) switch to #3 so that you can use your CD player. You must turn left the side ASSIGN (39) off by pressing the OFF (40) switch (the OFF INLIICATOR (41) glows red). Then you can make your changes to the setting. Re-activate the ASSIGN (39) switch by pressing the OFF (40) switch (fire OFF INDICATOR (41) goes off). Failure to do this will result in an audio glitch when the ASSIGN (39) switch setting is changed. The CROSSFADER (38) in your unit is REMOVABLE and if the need arises can be easily replaced. Crossfader units are available in two sizes. Part # RF-45 (which is identical to the crossfader supplied with the unit) has a 45 mm travel from side to side. Also available is part # RF-30 which has a 30 mm travel distance Just purchase either of these crossfader units from your Gemni dealer.

6. BEAT INDICATORS

Each side of the CROSSFADE (38) has its own BEAT INDICATOR (42,44). They flash at the low frequency peak level of each assigned source, allowing you to match the beats visually. BEAT INDICATOR (42) will effect the beat of the source assigned to the left side of the CROSSFADE (38) and BEAT INDICATOR (44) will do the same for the right side.

NOTE

The flashing level can be fine tuned by increasing or decreasing the gain and bass controls of the assigned channel.

7. OUTPUT CONTROL SECTION

The level of the AMP OUT (66) is controlled by the MASTER (33) slide. The BALANCE (34) control will allow the Amp Out signal to be balanced between the left and right speakers. The MONO(35) switch, when depressed (the MONO LED (36)will glow), will make the Amp Out signal a mono signal. The BOOTH (37) control adjusts the level of the BOOTH OUTPUT(68)

NOTE

The LED DISPLAY (48) indicates the AMP OUT (66) signal only and is not affected by the BOOTH OUTPUT (68) signal.

HINT

The booth output is used by some DJs to run monitor speakers in their DJ booth. You can also use it as a second zone or amp output.

NOTE

The RECORD OUT (67) has no level control. The level is set by the channel slides and the gain control of the selected channel. The tonal qualities are set by the bass, treble and mid controls of that same channel.

8. TALKOVER SECTION

The purpose of the talkover section is to allow the program playing to be muted so that the mic can be heard above the music. When the TALKOVER ON/OFF (45) button is pushed (the TALKOVER INDICATOR (Q6) will glow), the volume of all sources except the DJ Mic and the Aux channel are reduced. The amount of reduction can be set between -6 dB and -36dB by using the MUTE LEVEL (47)control.

9. SEND AND RECEIVE SECTION

By using the SEND ASSIGN (49) switch, you can send the selected signal to some sort of audio enhancement device (like a digital sampler or key controller). The level of the signal being sent can be adjusted by the SEND (50) control. To receive the signal back into the PS-924 you must first turn on the RCV ON (51) switch (LED (52) will light). The level of the signal being received can be adjusted with the RECEIVE (53) control.

NOTE

The signal being received back into the PS-924 can be monitored by using the headphones and by pressing the RECEIVE (54) cue control. If the RCV ON (51) switch is in the off position (LED (52) is off), the level of the signal can be monitored and adjusted prior to its playing through the output. Turning the RCV ON (51) switch to the on position connects the received signal to the output section.

HINT

The RECEIVE (81) Input can be used as an additional stereo line level input controlled by the RECEIVE (53) and activated by the RCV ON (51) Switch.

10. CUE SECTION

By connecting a set of headphones to the HEADPHONE (4) jack, you can monitor any or all of the channels. CUE ASSIGN (55) buttons are for the channels 1 -4 and the CUE ASSIGN (56) button is for the Aux Mic / Line Mono channel and the DJ Mic.

HINT

When you are using the DJ Mic and have a device connected to the DJ Mic Loop, the singnal you here in the headphones includes the device in the loop.

Select the correct Cue assign button or buttons and their respective LED indicators will glow. Use the HEADPHONE LEVEL (57) control to adjust the headphone volume without effecting the overall mix. By rotating the CUE PGM PAN (58) control to the left you will be able to monitor the assigned cue signal. Rotating to the right will monitor the PGM (program) output.

SAMPLER OPERATION

SAMPLE RECORDING

1. Put the MODE SELECTOR (62) switch into the WRITE position.
2. Select the source you want to sample from by pressing the appropriate ASSIGN BUTTON (61).
3. Select the memory bank you want to record into by pressing the proper MEMORY BANK (59) button.
4. The unit is equipped with a SAMPLER REC/PLAY LEVEL (63) control. When the MODE SELECTOR (62) is in the WRITE mode, this control acts as a Record Level Control. If the OVERLOAD INDICATOR(62A) is blinking, it means that the input signal you are going to sample, is too strong and will cause the sample to be distorted. Lower the sample signal intensity by turning the SAMPLER RECIPACAY LEVEL (63) control counter clockwise, If the OVERLOAD INDICATOR (62A) is off, turn the SAMPLER REC/PLAY LEVEL(63) control clockwise until the OVERLOAD INDICATOR(62A) begins to blink and then turn the SAMPLER REC/PLAY LEVEL(63) control counter clockwise until the OVERLOAD INDICATOR(62A) goes off.
5. Tapping the START/STOP (60) button begins the sampling process (the SAMPLER INDICATOR (60A) will illuminate RED). Tapping the START/STOP (60) button a second time ends the sample (the SAMPLER INDICATOR (60A) will turn off). If you do not tap the START/STOP (60) button a second time sampling process will stop automatically after 2,4 or 12 seconds depending on which MEMORY BANK(59) was selected.

SAMPLE PLAYBACK

1. Put the MODE SELECTOR (62) switch into the SINGLE or REPEAT position.
2. Select the memory bank you wish to play by pressing the proper MEMORY BANK (59) button.
3. When the MODE SELECTOR (62) is in the SINGLE or REPEAT mode, the SAMPLER REC/PLAY LEVEL (63) control acts as a Sampler Level Control.
4. Tapping the START/STOP (60) button with the MODE SELECTOR (62) switch in the SINGLE position will cause the sampler to playback one time (the SAMPLER INDICATOR (60A) will illuminate GREEN). Every push of the START/STOP (60) button will restart the sample from the beginning. Rapid pressing of the START/STOP(60) button will cause a stuttering effect. Once the sample has started playback and the START/STOP (60) button is not pushed a second time, the sample will play to the end and then stop (the SAMPLER INDICATOR (60A) will turn off).
5. Tapping the START/STOP(60) button with the MODE SELECTOR (62) switch in the REPEAT position will cause the sample to continuously play over and over (the SAMPLER INDICATOR (60A) will illuminate GREEN). The START/STOP(60) button will act as an on/off switch. The first push will start the sample ,the second push will stop it.

ROBO PLAY

1. With the ROBO PLAY(63A)button in the OFF position (the ROBO PLAY INDICATOR (63B) will be OFF) and the MODE SELECTOR switch in either the SINGLE or REPEAT mode, pressing the START/STOP (60) button will cause the sample to play along with the selected source.
2. When the ROBO PLAY(63A) button is in the ON position (the ROBO PLAY INDICATOR (63B) illuminates RED), starting the sample mutes the selected source. When the sample ends, the source automatically turns back on.

PITCH CONTROL

1. The unit comes equipped with a sampler PITCH (64) control. To get a perfect sample, set the control to its center position and record the sample.
2. During playback, raising or lowering the control will raise or lower the pitch of the sample playback. The center position will remain as normal pitch.

HINT

You can record a sample with the PITCH (64) control in any position. Whatever that position is will become normal sound, if you start to record a sample with the PITCH (64) control set at minimum(this now becomes your normal pitch), by increasing the pitch to maximum, the pitch effect will double. In speed, Recording at maximum and lowering to minimum will do exactly the opposite.

REMOTE START/STOP

1. Plug a momentary normally open footswitch with a 1/4" plug into the REMOTE START/STOP(83) jack on the rear panel.
2. This allows you to trigger the sampling process with the footswitch free to do other things.

BATTERY BACKUP (PS-924 ONLY)

The PS-924 is equipped with battery backup to retain samples. To activate this feature, a 9 volt battery(not included) needs to be connected to the BATTERY HOLDER (84) located on the rear panel. This will enable you to store samples in memory and when the unit is unplugged, the battery backup will retain the samples for future use. If the unit is unplugged with no battery attached, all the samples will be lost.

LOW BATTERY INDICATOR

A low battery indicator is included with the PS-924. when changing the battery, make sure the unit is plugged in and the power is ON. Failure to adhere to this will result in lost memory. The low battery indicator is ON when the selected memory bank LED blinks. The LED will also blink if no battery is connected to the unit.

DISASSEMBLY PROCEDURES

1. Removal of Top Case

- (a) Remove 4 screw (A). (Fig.1)
- (b) Remove 3 screws (B). (Fig.1)
- (c) Remove 2 screws (C). (Fig.1)

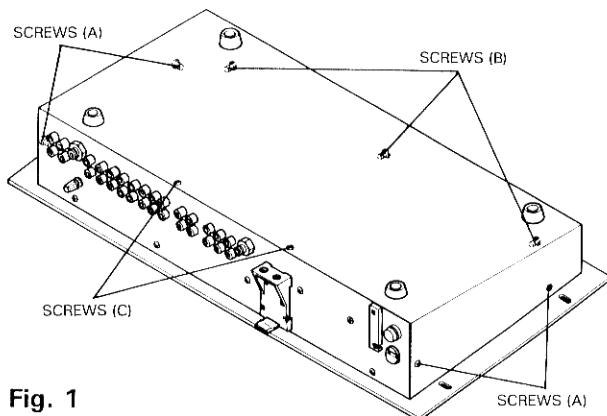


Fig. 1

2. Removal of Front Panel

- (a) Remove 42 knobs (D). (Fig.2)
- (b) Remove 6 knobs (E). (Fig.2)
- (c) Remove 6 socket screws (F). (Fig.2)
- (d) Remove 2 socket screws (G). (Fig.2)
- (e) Remove 1 knob(H). (Fig.2)

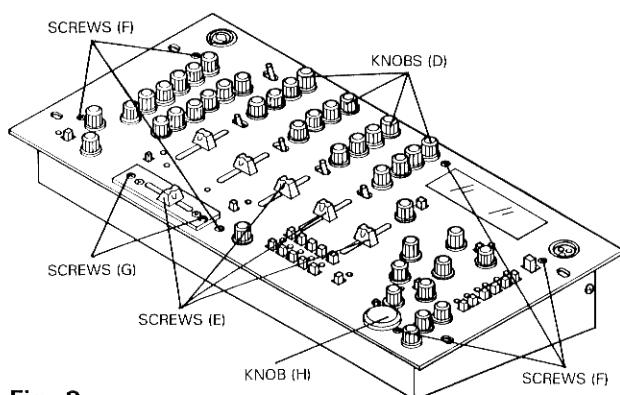


Fig. 2

3. Removal of Chassis

- (a) Remove 4 screws(I). (Fig.3)

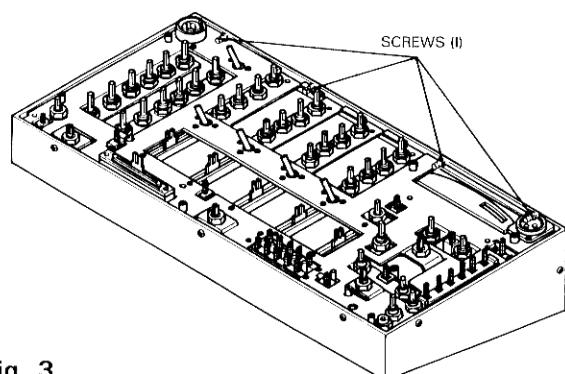


Fig. 3

4. Removal of each P.C.B.

- (a) Removal of main P.C.B. (Fig.4)
Remove 27 nuts(J).
Remove 14 screws(K).
- (b) Removal of Sampling Control P.C.B.. (Fig.4)
Remove 14 nuts(L).
Remove 12 screws(M).
- (c) Removal of DJ MIC P.C.B (Fig.4)
Remove 2 screws (N).
- (d) Removal of Light P.C.B (Fig.4)
Remove 2 screws (O).
- (e) Removal of Power Switch P.C.B (Fig.4)
Remove 2 screws(P).
- (f) Removal of Phone Jack P.C.B (Fig.4)
Remove 1 nut(Q).

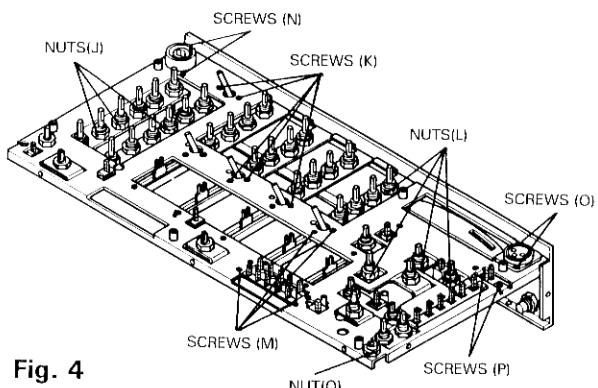


Fig. 4

5. Removal of IN/OUT P.C.B. and Transformer

- (a) Removal of Battery Holder (Fig.5)
Remove 3 screws(R).
- (b) Removal of IN/OUT P.C.B (Fig.5)
Remove 2 nuts(S).
Remove 8 screws(T).
- (c) Removal of Transformer (Fig.5)
Remove 2 screws (U).
- (d) Removal of Voltage Selector (Fig.5)
Remove 2 screws (V).
- (e) Removal of Sampling Filter P.C.B (Fig.5)
Press 2 supports(X)
Remove 1 screws(Y)

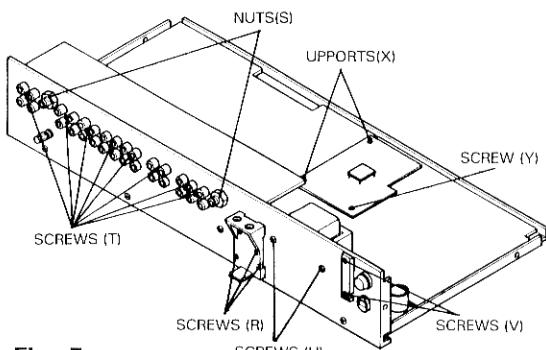
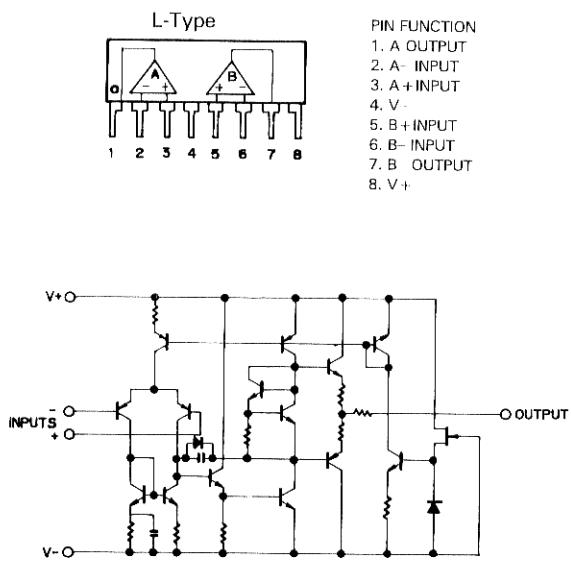


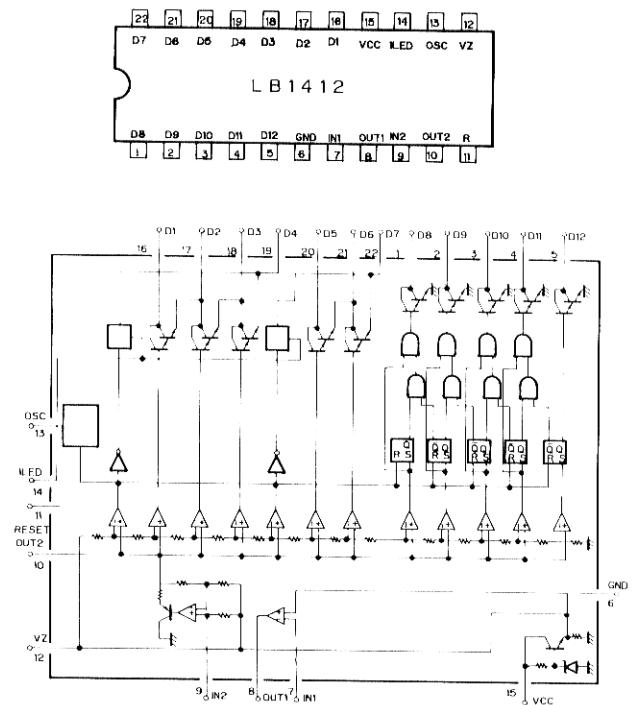
Fig. 5

INTERNAL DIAGRAMS AND PINOUT OF EQUIVALENT CIRCUITS

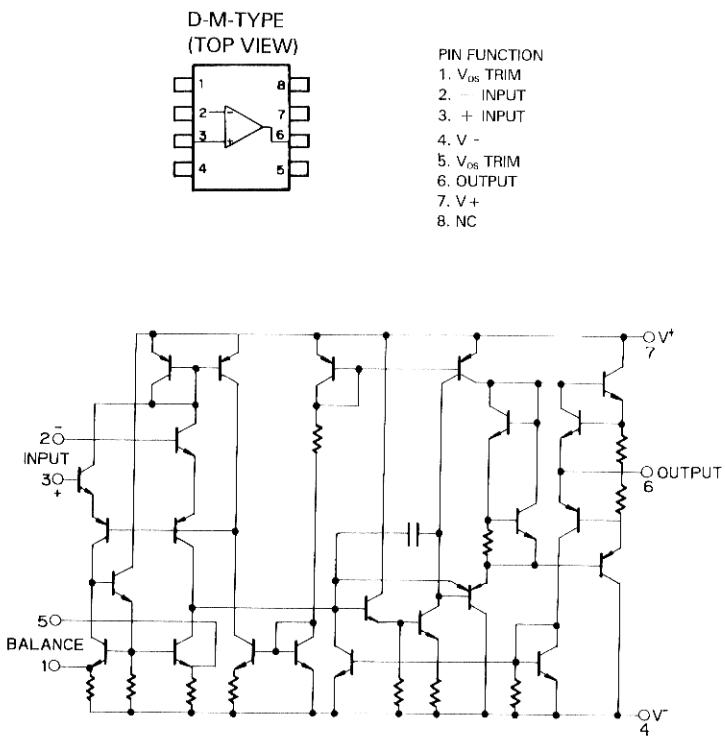
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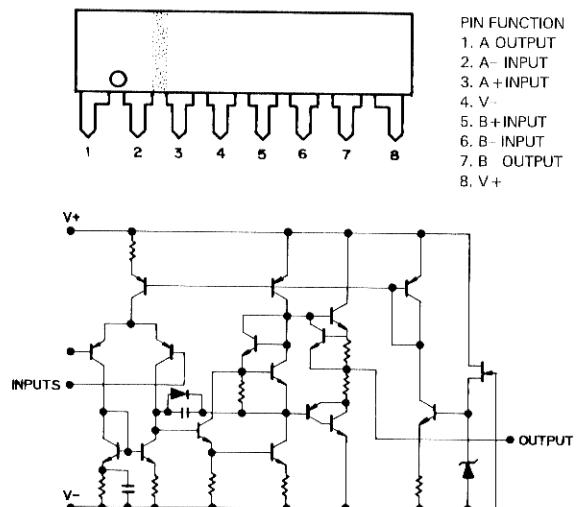
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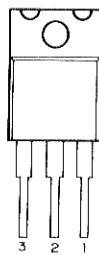
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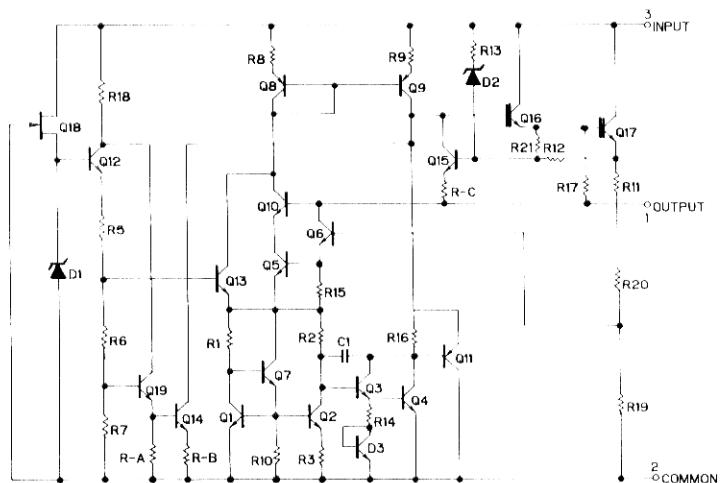
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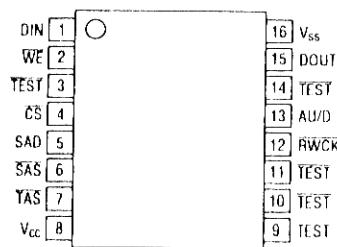
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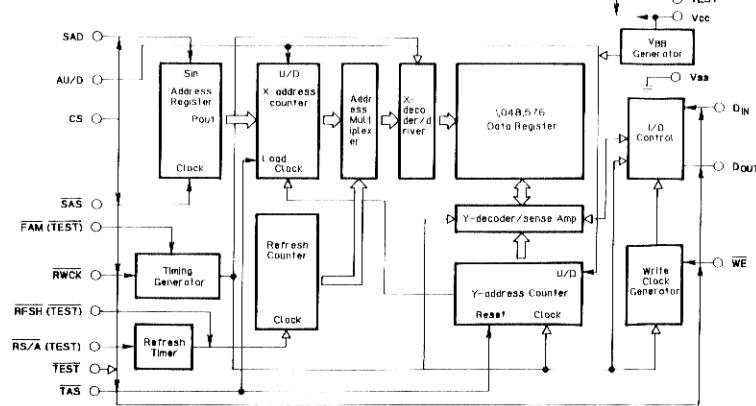
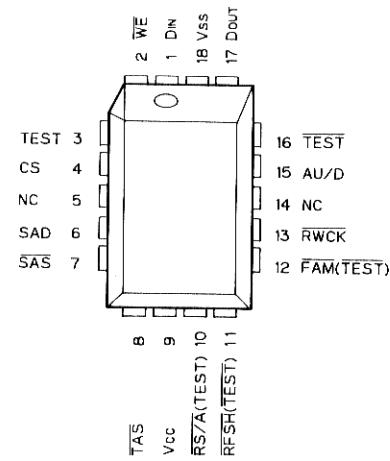
1. OUT
2. COMMON
3. IN



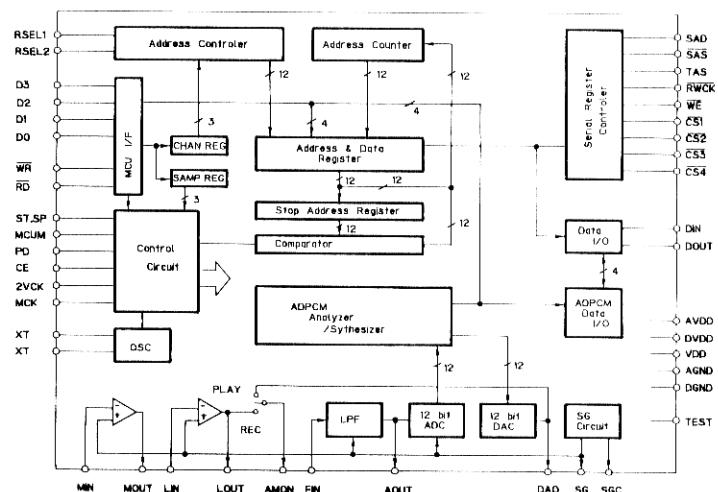
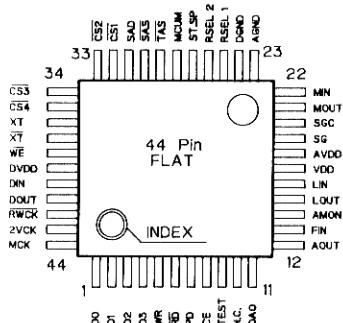
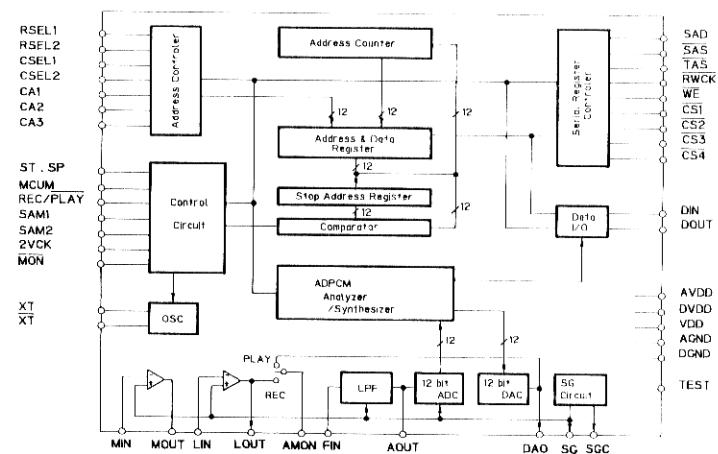
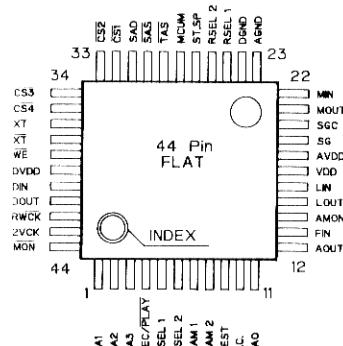
MSM6389RS (PS-812)



MSM6389 (PS-924)

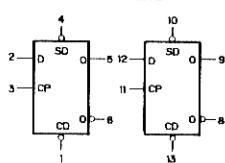


MSM6388GS-V1K/V2K



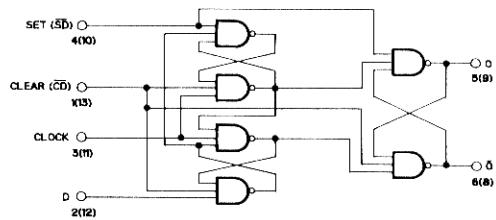
SN4/74LS74A

LOGIC SYMBOL

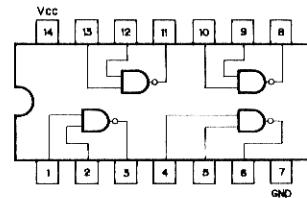


Vcc = Pin 14
GND = Pin 7

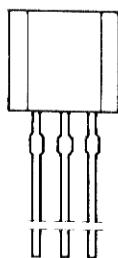
LOGIC DIAGRAM
(EACH FLIP-FLOP)



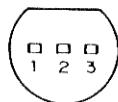
SN4/74LS00



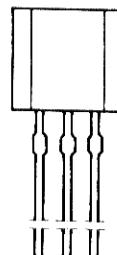
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2SA733



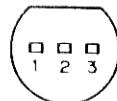
1. Emitter
2. Collector
3. Base



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2SC2240
2SC1815
2SC945

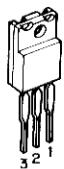


1. Emitter
2. Collector
3. Base



NJM7800FA

(TO-220F)



1. GRD
2. OUT
3. IN

NJM7900FA

(TO-220F)



1. OUT
2. IN
3. COMMON

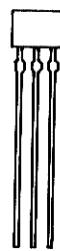
DTC144WS



1. GRD
2. OUT
3. IN



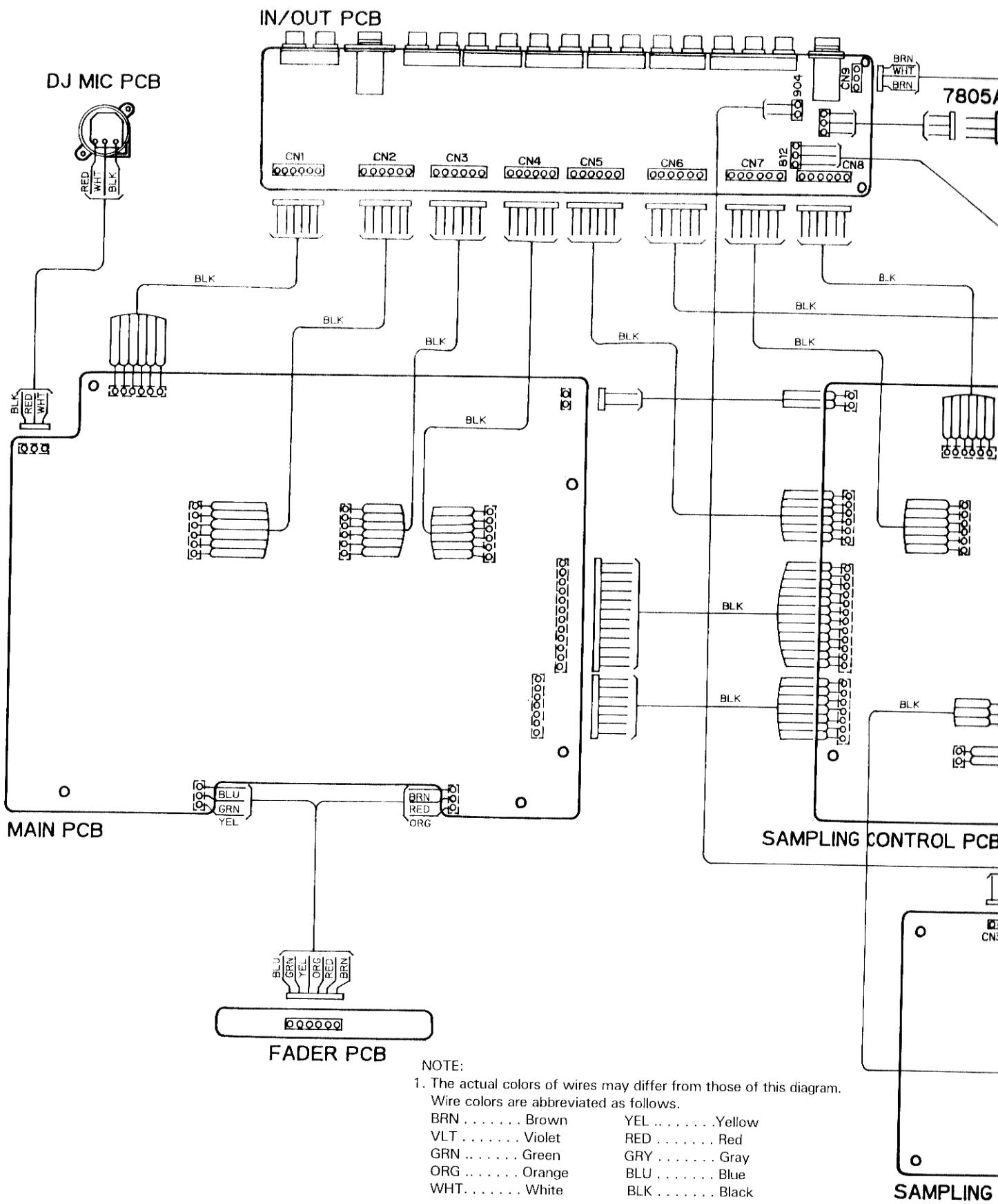
2SA1048
2SA1317



1. Emitter
2. Collector
3. Base



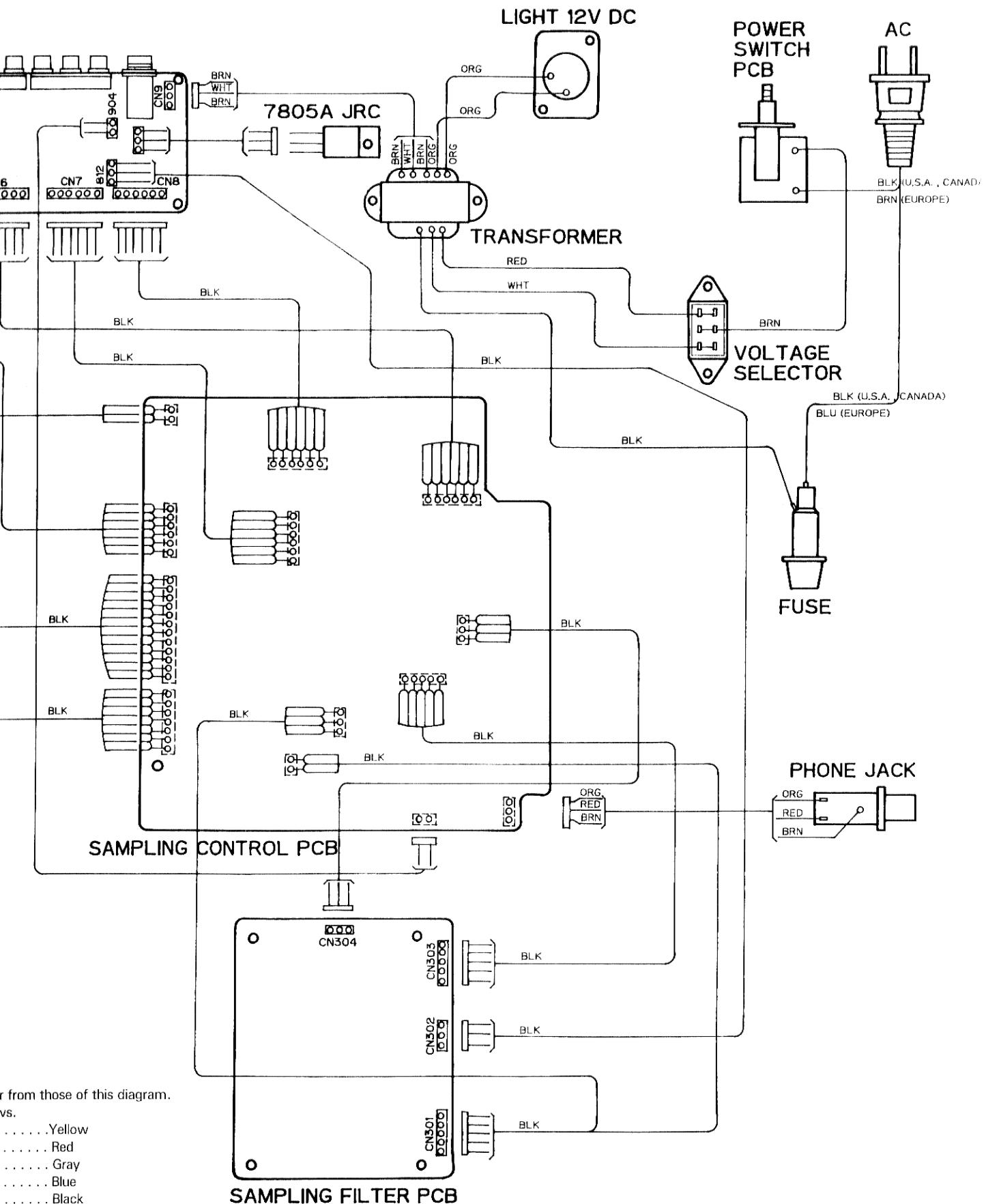
WIRING DIAGRAM
PS-812



NOTE:

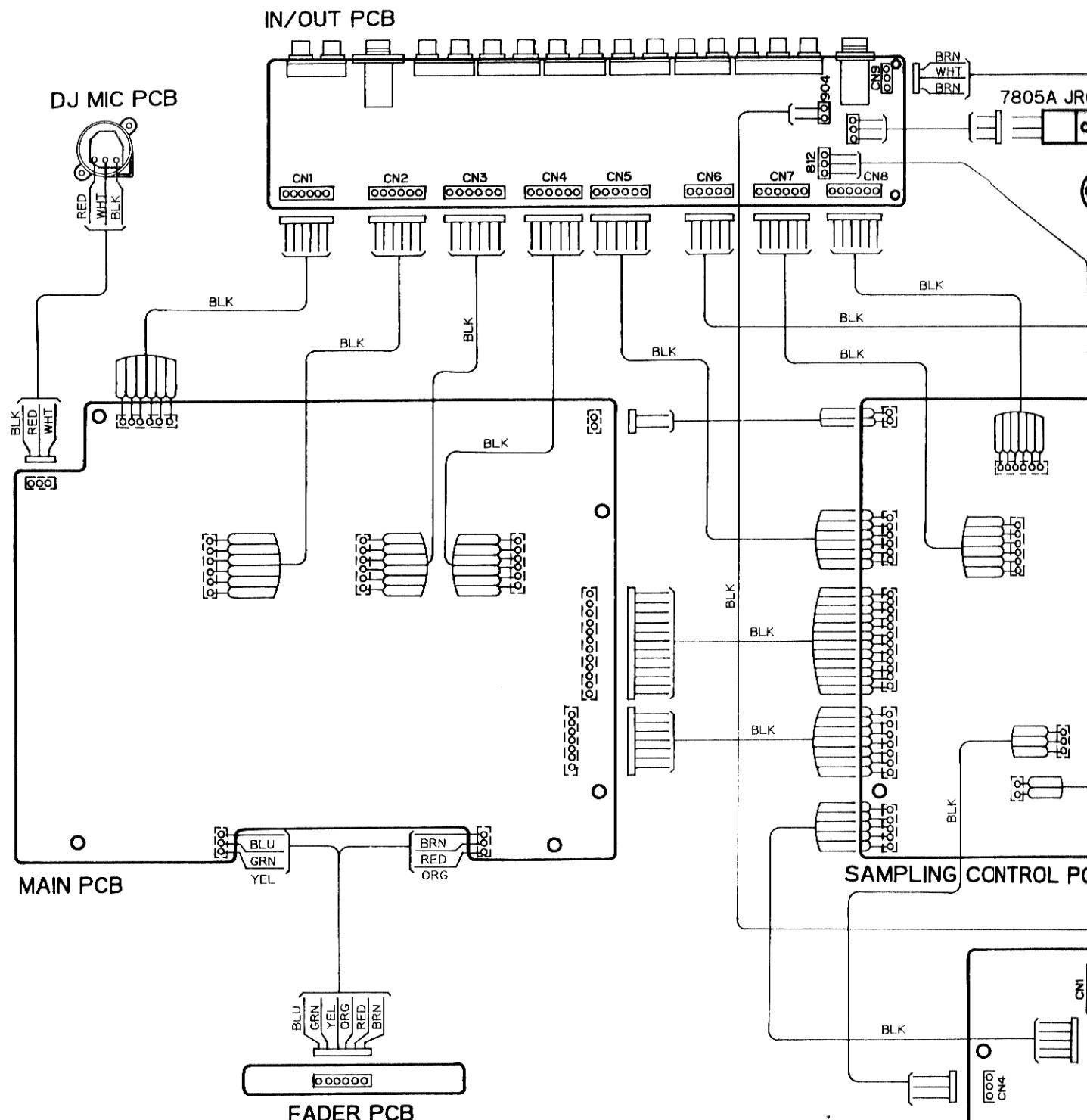
1. The actual colors of wires may differ from those of this diagram.
Wire colors are abbreviated as follows.

BRN	..... Brown	YEL	..... Yellow
VLT	..... Violet	RED	..... Red
GRN	..... Green	GRY	..... Gray
ORG	..... Orange	BLU	..... Blue
WHT	..... White	BLK	..... Black



er from those of this diagram.

- vs.
 Yellow
 Red
 Gray
 Blue
 Black

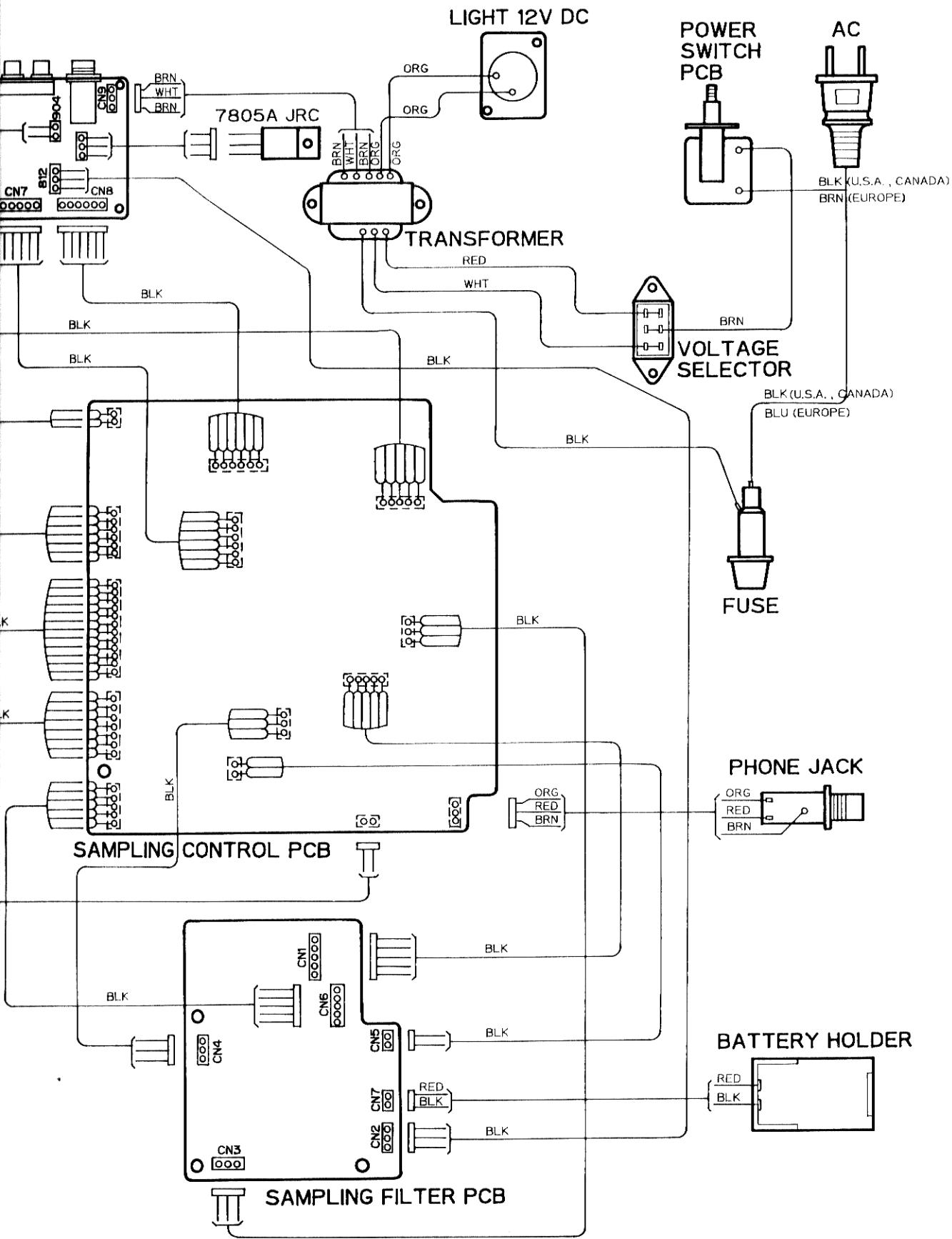


NOTE:

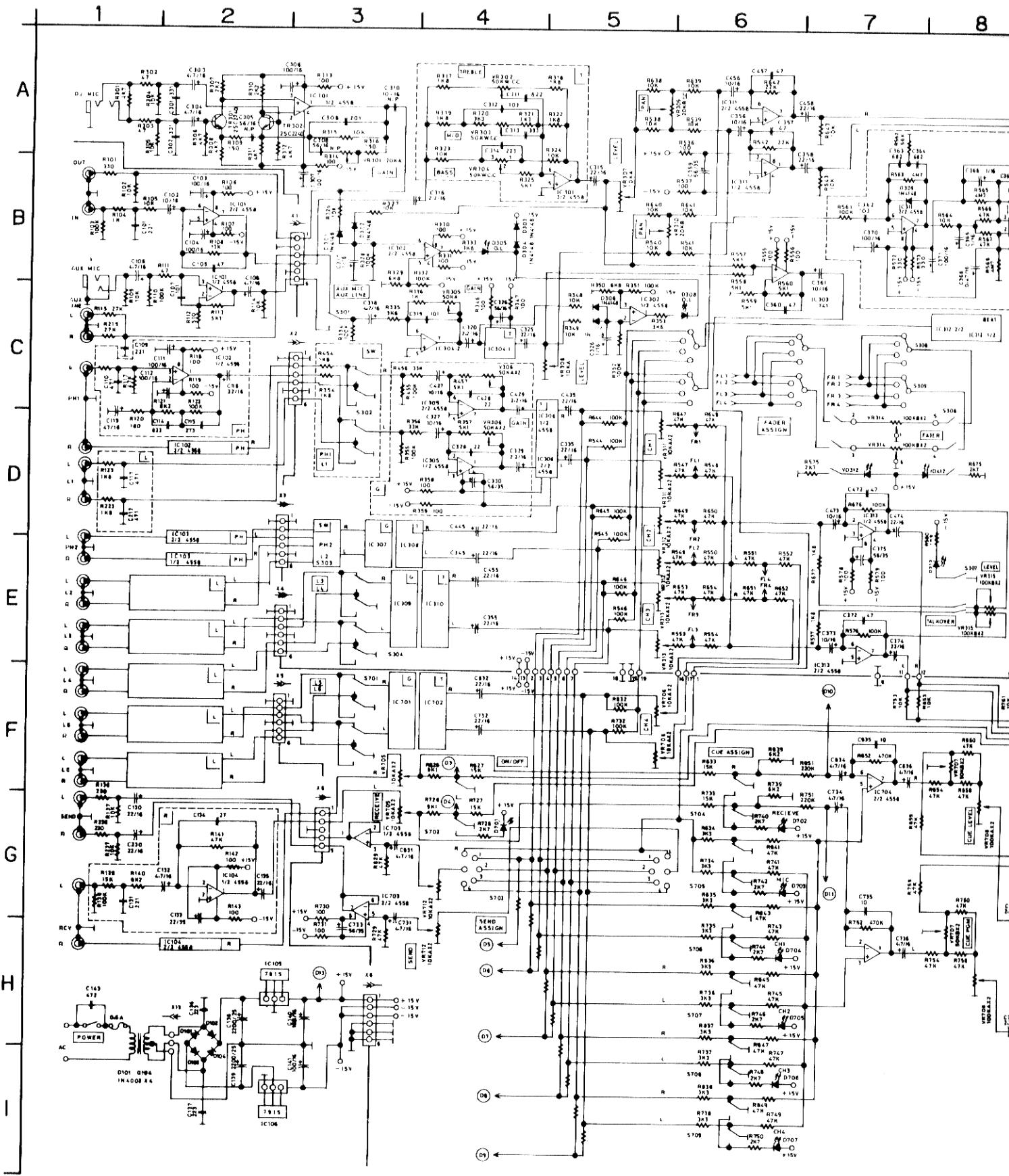
1. The actual colors of wires may differ from those of this diagram.

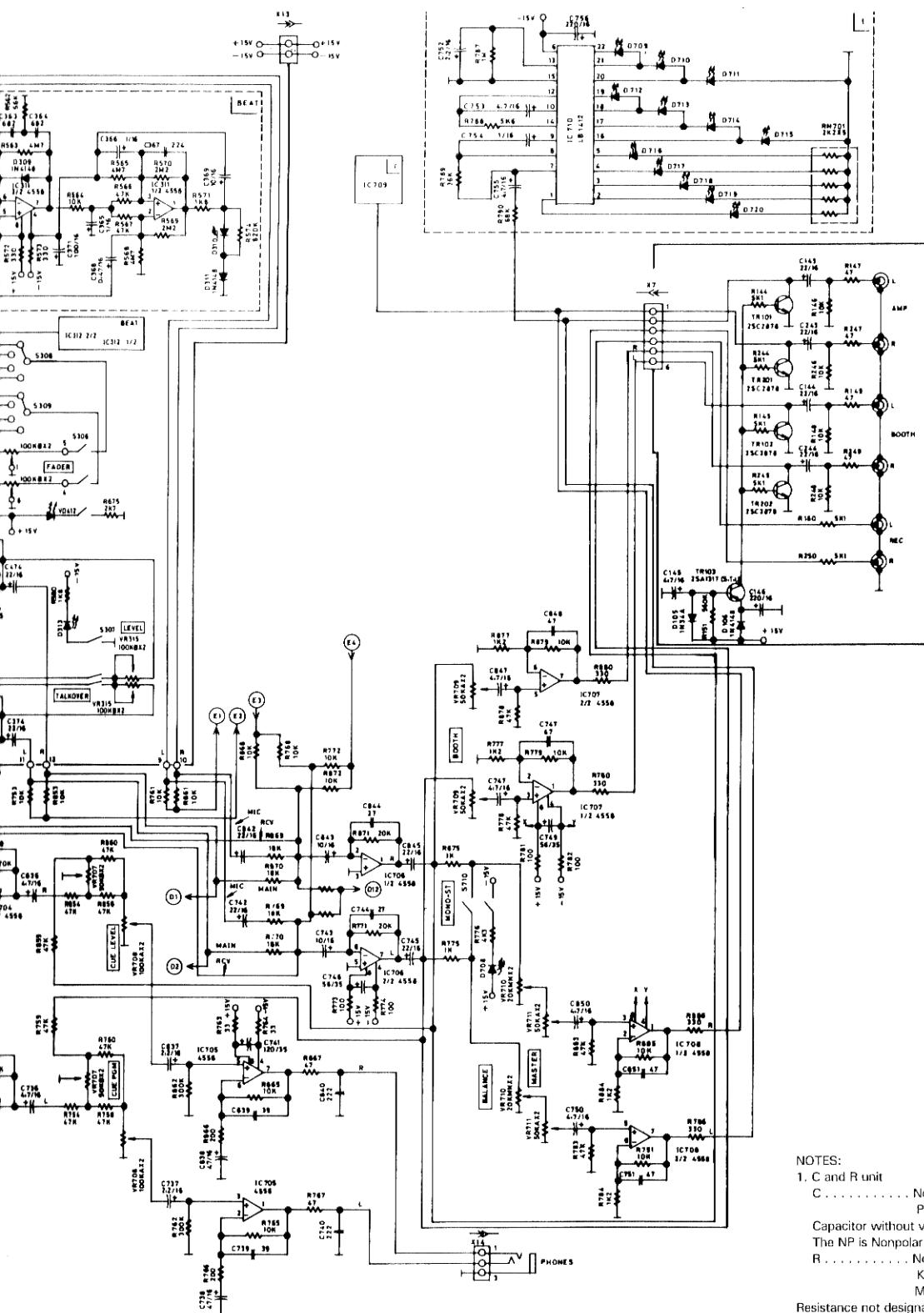
Wire colors are abbreviated as follows.

BRN	Brown	YEL	Yellow
VLT	Violet	RED	Red
GRN	Green	GRY	Gray
ORG	Orange	BLU	Blue
WHT	White	BLK	Black



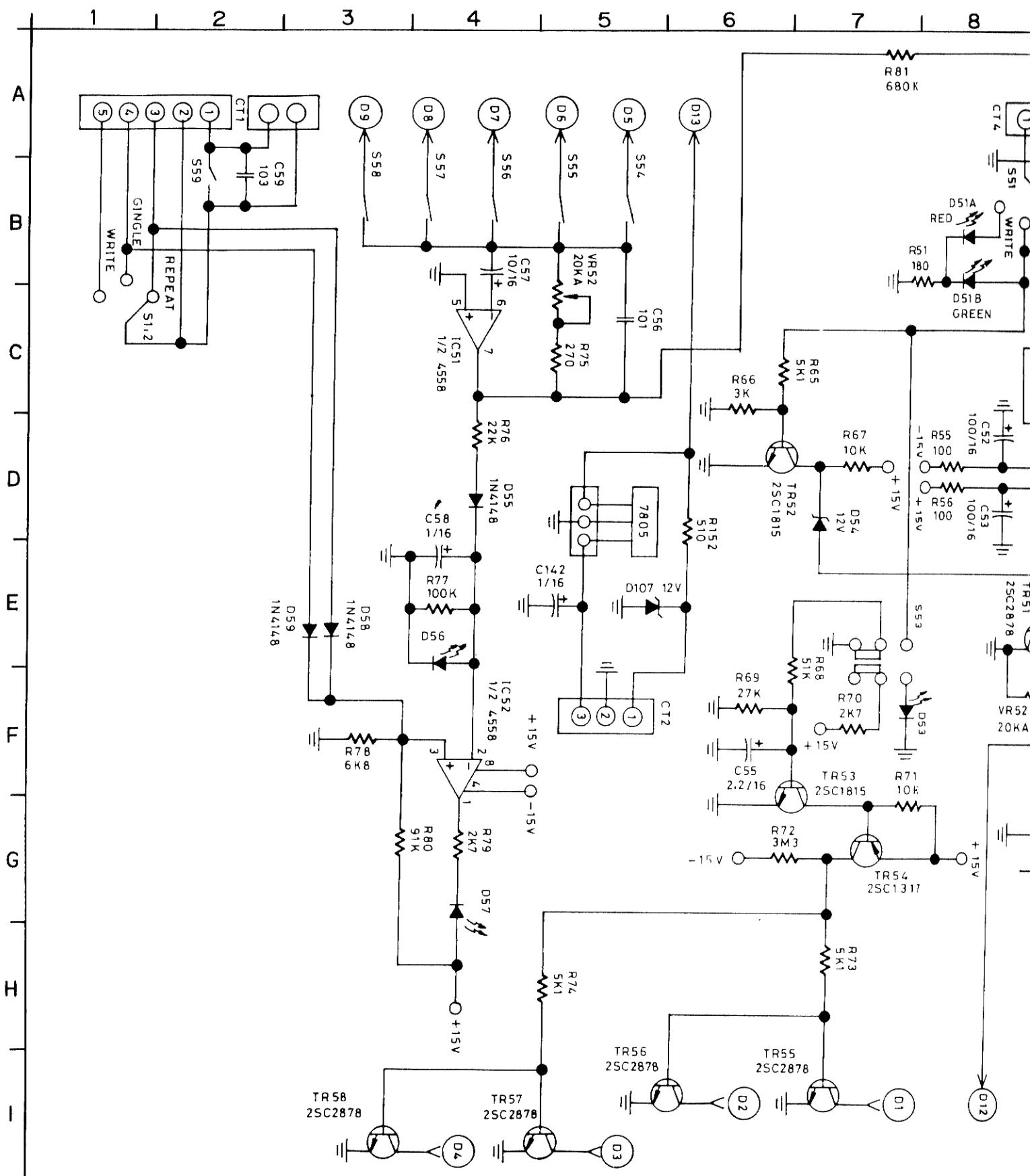
**SCHEMATIC DIAGRAM
PS-812/PS-924**



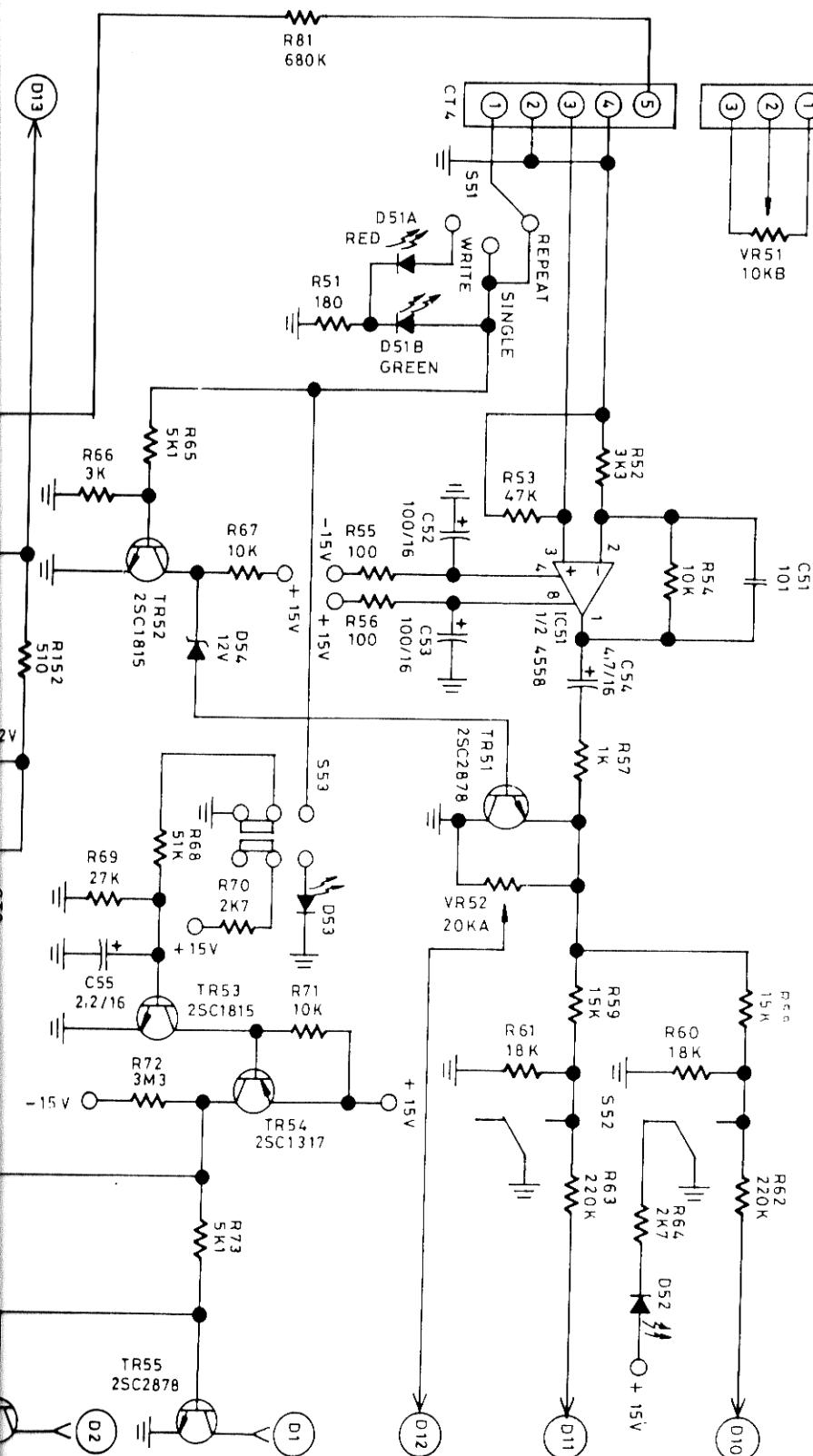


NOTES:

1. C and R unit
C No symbol : μF
P symbol : pF
Capacitor without voltage display has work voltage of 50Volts
The NP is Nonpolar Capacitor .
 2. Resistance for all parts are measured in terms of DC 1MΩ digital voltmeter.
 3. All resistance values are in ohms, unless otherwise specified. 1K = 1000
 4. All capacitance values are in farads, unless otherwise specified.
- $\mu = 10^{-6}$ $P = 10^{-12}$
- Resistance not designated is 1/4W.J ($\pm 5\%$)



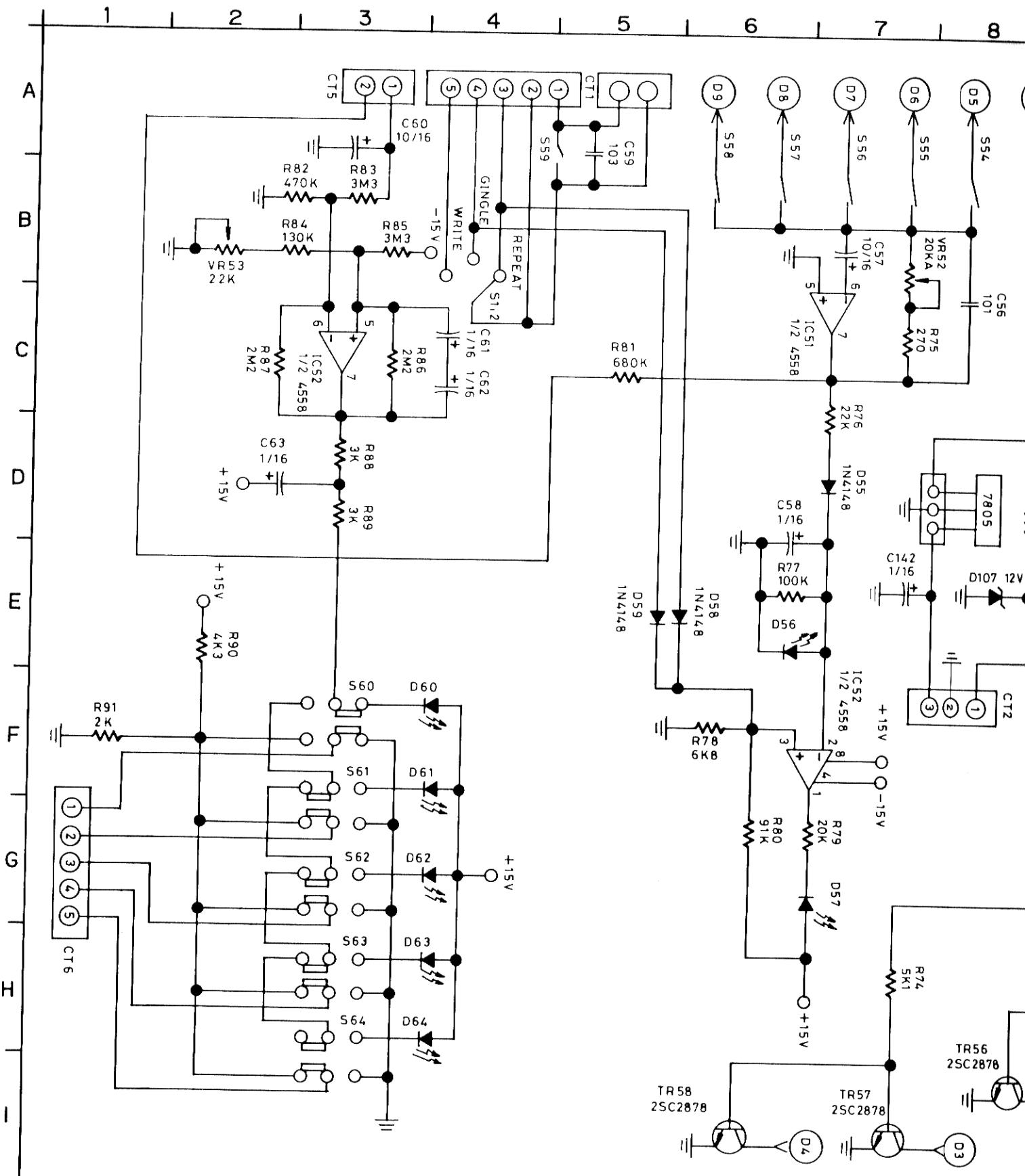
6 | 7 | 8 | 9 | 10 |

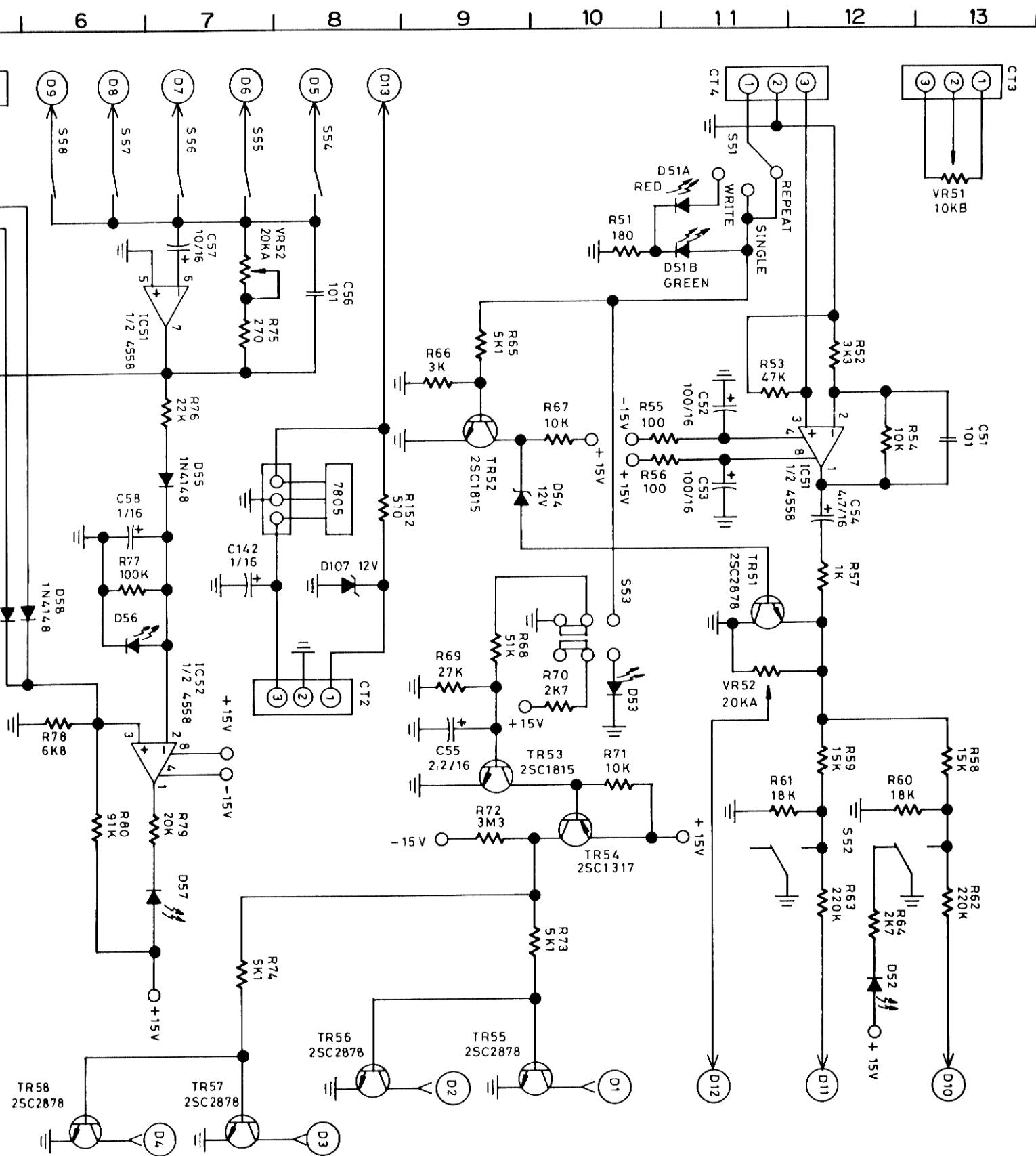


NOTES:

1. C and R unit
C No symbol : μF
P symbol : pF
 2. Capacitor without voltage display has work voltage of 50Volts
 3. The NP is Nonpolar Capacitor .
 4. R No symbol : Ω
K symbol : $\text{K}\Omega$
M symbol : $\text{M}\Omega$
- Resistance not designated is $1/4\text{W.J} (\pm 5\%)$

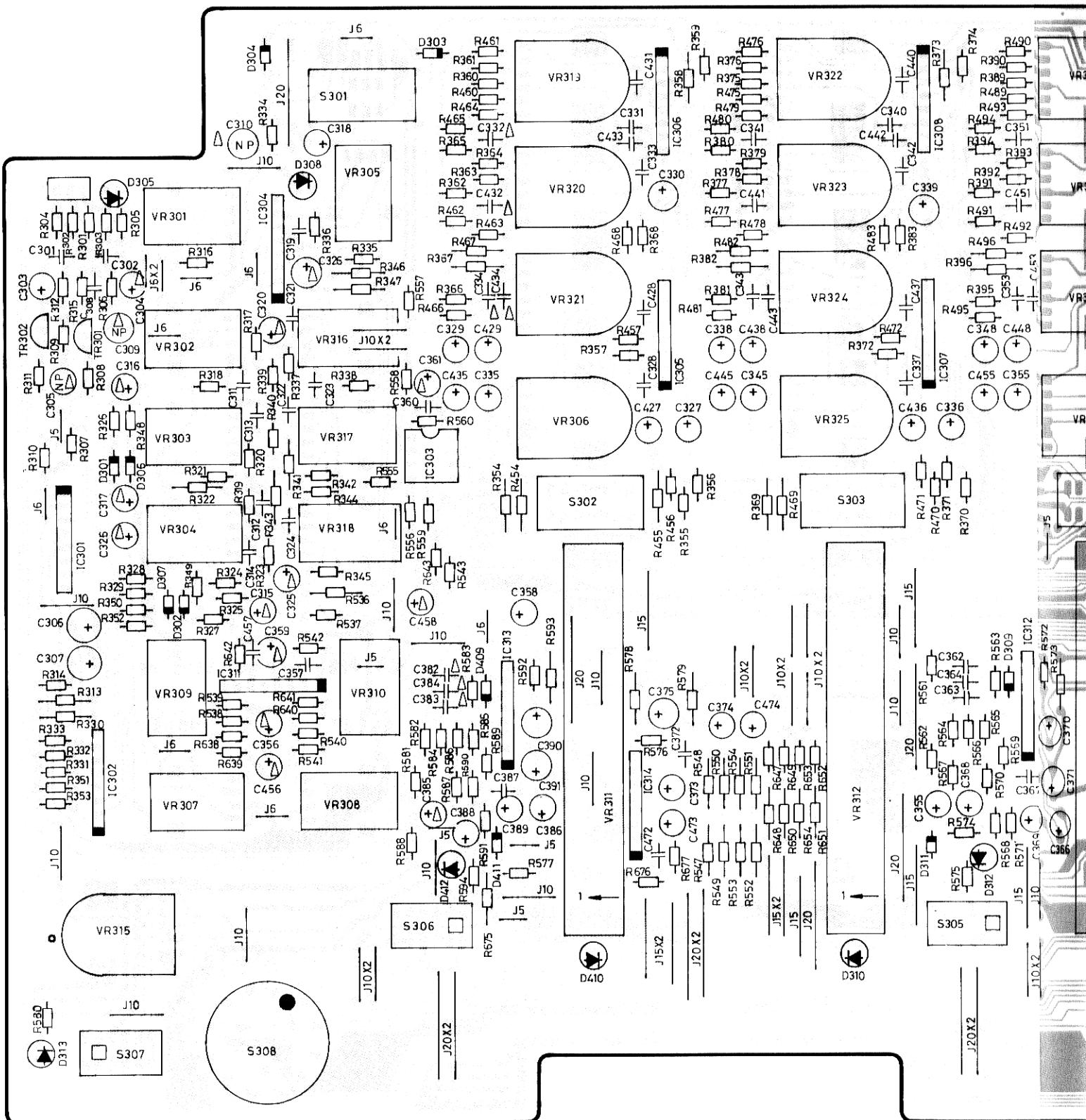
2. Voltage for all parts are measured in terms of DC 1M Ω digital voltmeter.
3. All resistance values are in ohms, unless otherwise specified. 1K = 1000
4. All capacitance values are in farads, unless otherwise specified.
 $\mu = 10^{-6}$ $\text{P} = 10^{-12}$

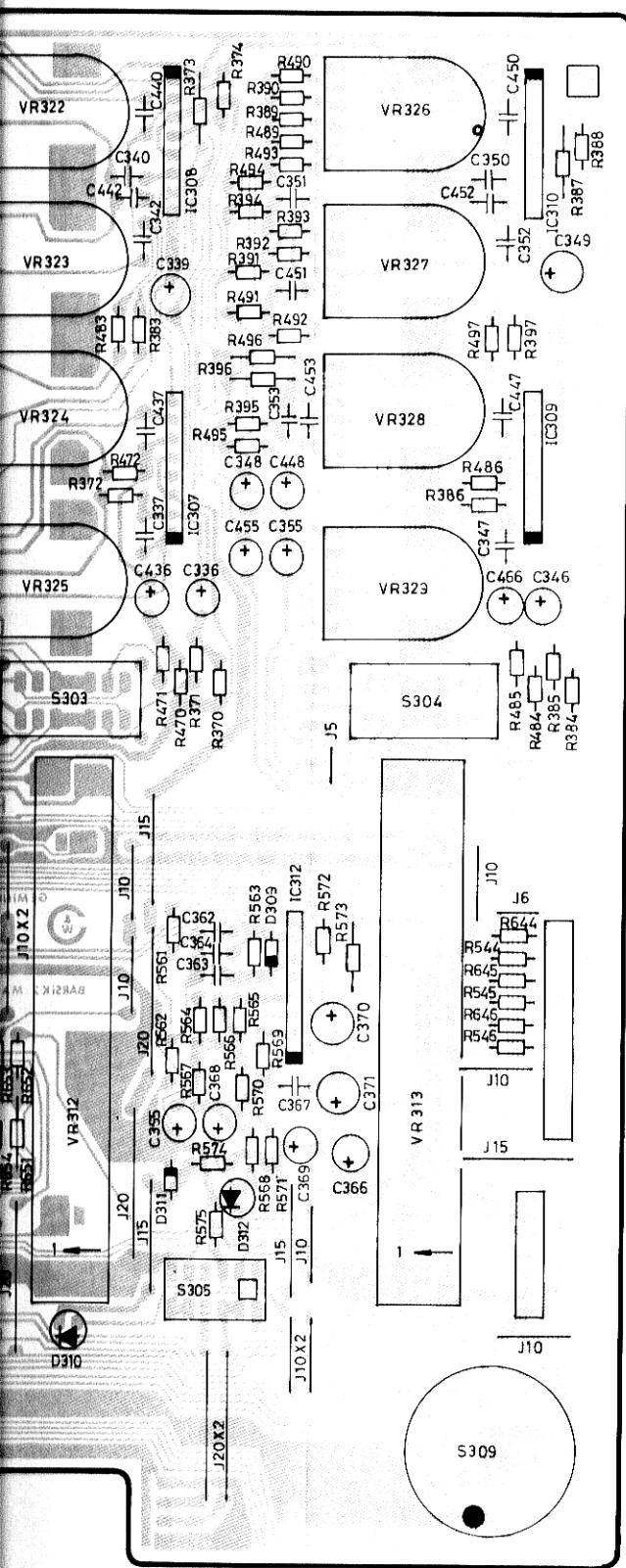




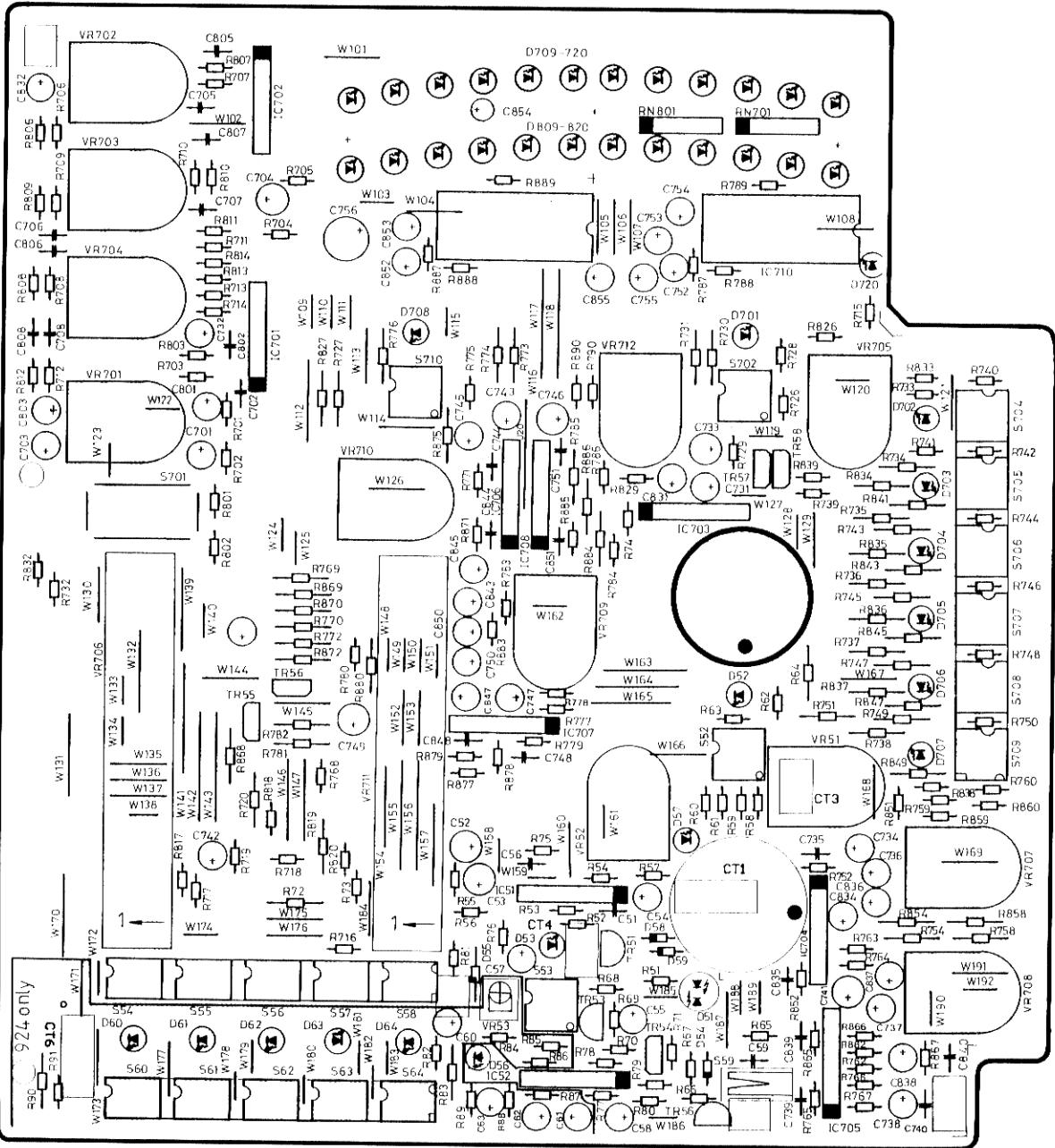
PRINTED CIRCUIT BOARDS

MAIN PCB

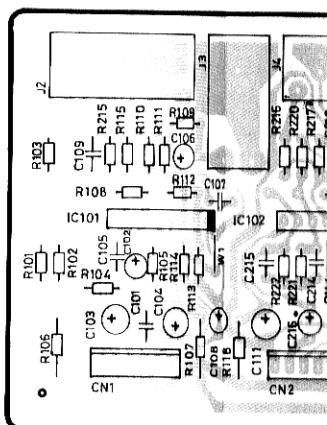




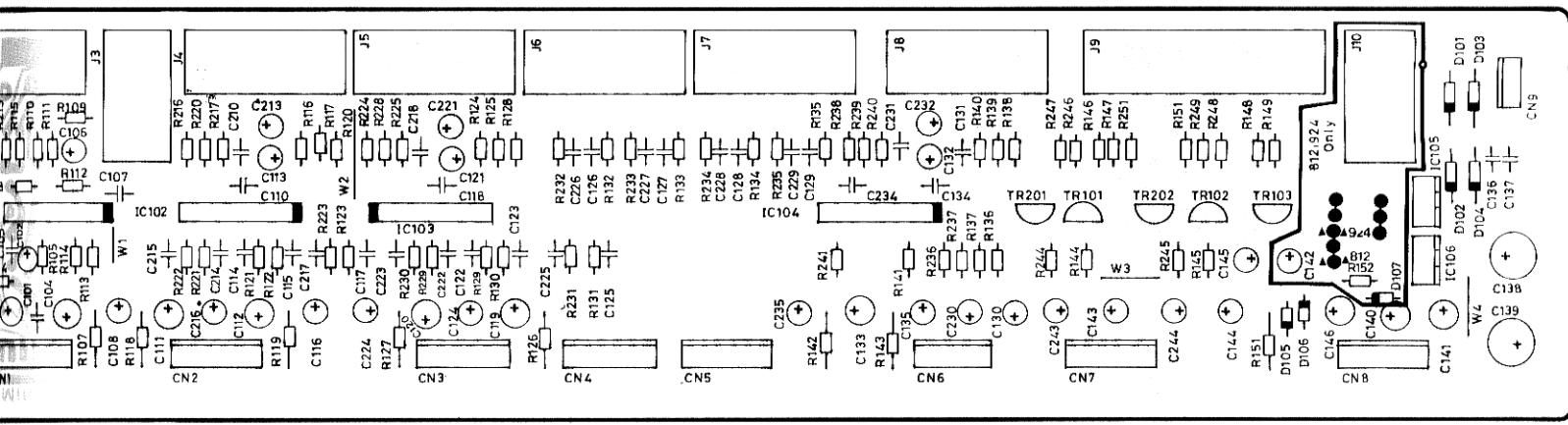
SAMPLING CONTROL PCB



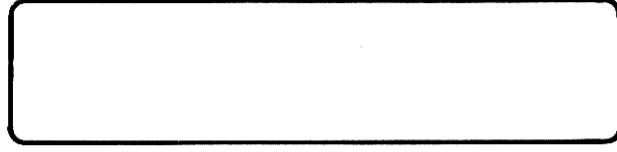
IN/OUT PCB



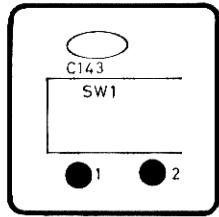
PCB



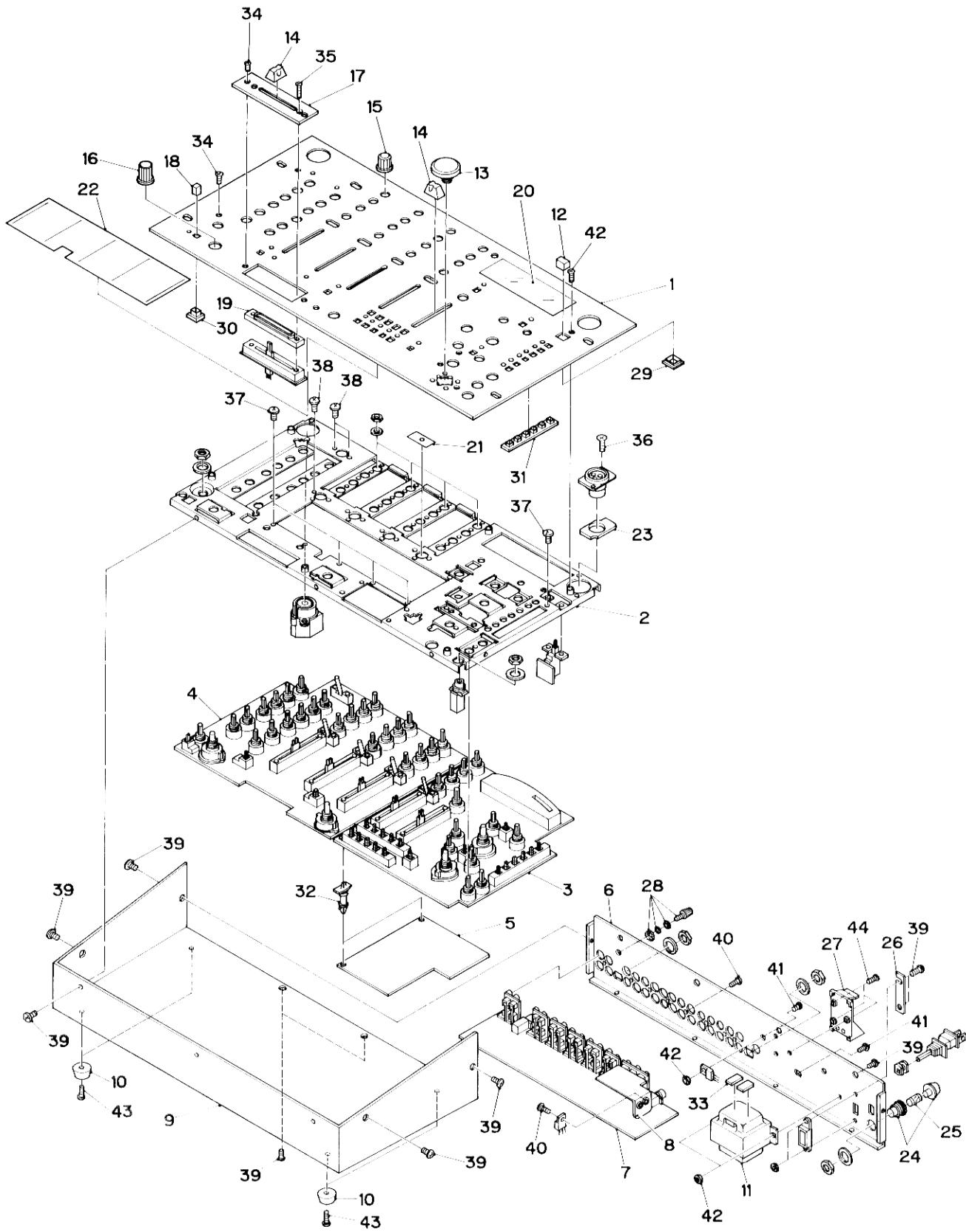
FADER PCB



POWER SWITCH PCB



EXPLODED VIEW OF CABINET



CABINET PARTS LIST
PARTS LIST

Symbol No.	Parts No.	Description
1	002-109	PANEL CONTROL(PS-812)
1	002-110	PANEL CONTROL(PS-924)
2	021-729	BRACKET VR
3	162-731	SAMPLING CONTROL PCB
4	162-725	MAIN PCB
5	161-702	SAMPLIHG PCB(PS-812)
5	161-707	SAMPLIHG PCB(PS-924)
6	021-838	PANEL REAR (PS-812)
6	021-836	PANEL REAR (PS-924)
7	162-724	IN/OUT PCB
8	041-035	PLATE HEAT SINK
9	021-230	COVER BOTTOM
10	049-189	PAD FOOT
11	058-135	POWER TRANSFORMER EI-48
12	002-533	KNOB PUSH(BIG)
13	002-545	KNOB SET(BIG)
14	002-704	KNOB SILDE(BIG)
15	003-109	KNOB ROTARY(A)
16	003-102	KNOB ROTARY
17	022-322	HOLDER FADER
18	002-531	KNOB PUSH (SMALL)
19	003-970	VR INLAY
20	003-355	PLATE LED
21	159-168	SWING DUST PROOF CLOTH
22	159-185	VR DUST PROOF CLOTH
23	003-564	WASHER XLR
24	047-527	FUSE HOLDER UL
25	049-162	AC BUSHING(CE)
25	049-194	AC BUSHING(ETL)
26	022-305	SWITCH PROTECT PLATE
27	022-844	BATTERY HOLDER BOTTOM(PS-924)
28	146-076	GND SCREW
29	002-535	KNOB BUSHING(BIG)
30	002-532	KNOB BUSHING(SMALL)
31	002-544	KNOB BUSHING(SIX)
32	047-468	PCB SUPPORT
33	049-188	PAD-RUBBER
34	111-043A	SCREW FTS-3 3X6(AB)
35	111-049A	SCREW FTS-3 3X12(AB)
36	111-050	SCREW FTS-3 3X12(Y)
37	107-004	SCREW BMS M 3X4(B)
38	102-025A	SCREW PMS M2.6X4(B)
39	111-046A	SCREW BTS-3 3X6(AB)
40	110-172A	SCREW BTS-2 3X8(AB)
41	111-044A	SCREW BTS-3 3X10(AB)
42	131-081	NUT/WASHER
43	110-168	SCREW PTSS-2 3X10(B)
44	102-016	PMS M2X8(B)(PS-924)

Symbol No.	Parts No.	Description
Diodes		
D705	080-091	LIGHTEMITTING DIODE(RED) 3.15φ
D706	080-091	LIGHTEMITTING DIODE(RED) 3.15φ
D707	080-091	LIGHTEMITTING DIODE(RED) 3.15φ
D708	080-091	LIGHTEMITTING DIODE(RED) 3.15φ
D709	080-079	LIGHT EMITTING DIODE(GREEN)
D710	080-079	LIGHT EMITTING DIODE(GREEN)
D711	080-079	LIGHT EMITTING DIODE(GREEN)
D712	080-079	LIGHT EMITTING DIODE(GREEN)
D713	080-079	LIGHT EMITTING DIODE(GREEN)
D714	080-079	LIGHT EMITTING DIODE(GREEN)
D715	080-079	LIGHT EMITTING DIODE(GREEN)
D716	080-080	LIGHT EMITTING DIODE(YELLOW)
D717	080-080	LIGHT EMITTING DIODE(YELLOW)
D719	080-078	LIGHT EMITTING DIODE(RED)
D720	080-078	LIGHT EMITTING DIODE(RED)
D721	080-091	LIGHT EMITTING DIODE(RED3.15φ)
ICs		
IC1	074-123	IC TC4077BP
IC2	074-121	IC DM74LS122N
IC3	074-121	IC DM74LS122N
IC4	074-122	IC DM74LS73N
IC5	074-120	IC DM74L193N
IC6	074-119	IC DM74LS00N
IC7	074-120	IC DM74L193N
IC8	074-125	IC N82S129AN
IC9	074-124	IC SN74LS148N
IC11	074-097	IC MSM6389RS
IC51	074-104	IC NJM4558L
IC52	074-104	IC NJM4558L
IC101	074-104	IC NJM4558L
IC102	074-104	IC NJM4558L
IC103	074-104	IC NJM4558L
IC104	074-104	IC NJM4558L
IC301	074-104	IC NJM4558L
IC302	074-104	IC NJM4558L
IC303	074-132	IC NJM741D
IC304	074-104	IC N82S192AN
IC305	074-104	IC NJM4558L
IC306	074-104	IC NJM4558L
IC307	074-104	IC NJM4558L
IC308	074-104	IC NJM4558L
IC309	074-104	IC NJM4558L
IC310	074-104	IC NJM4558L
IC311	074-104	IC NJM4558L
IC312	074-104	IC NJM4558L
IC313	074-104	IC NJM4558L
IC314	074-104	IC NJM4558L
IC701	074-104	IC NJM4558L
IC702	074-104	IC NJM4558L
IC703	074-104	IC NJM4558L
IC704	074-104	IC NJM4558L
IC705	074-113	IC NJM4556L
IC706	074-104	IC NJM4558L

Symbol No.	Parts No.	Description
IC707	074-104	IC NJM4558L
IC708	074-104	IC NJM4558L
IC709	074-111	IC LB1412
IC710	074-111	IC LB1412
Transistors		
Q1	076-020	TRANSISTOR 2SA733(P)
Q2	076-103	TRANSISTOR DTC144WS
Q3	076-020	TRANSISTOR 2SA733(P)
TR51	076-095	TRANSISTOR 2SC2878
TR53	076-002	TRANSISTOR 2SC945P
TR54	076-104	TRANSISTOR 2SA1048
TR55	076-095	TRANSISTOR 2SC2878
TR56	076-095	TRANSISTOR 2SC2878
TR57	076-095	TRANSISTOR 2SC2878
TR58	076-095	TRANSISTOR 2SC2878
TR101	076-095	TRANSISTOR 2SC2878
TR102	076-095	TRANSISTOR 2SC2878
TR103	076-104	TRANSISTOR 2SC1048
TR201	076-095	TRANSISTOR 2SC2878
TR202	076-095	TRANSISTOR 2SC2878
TR301	076-092	TRANSISTOR 2SC2240
TR302	076-092	TRANSISTOR 2SC2240
Electrical Parts		
	081-023	SILDE SWITCH 2SP
	083-019	POWER SWITCH UL
S301	082-018	LEVER SW 2P2C MIC/AUX
S302	082-019	LEVER SW 4P2C
S303	082-019	LEVER SW 4P2C
S304	082-019	LEVER SW 4P2C
S52	083-080	PUSH SWITCH 2P2C
S53	083-080	PUSH SWITCH 2P2C
S702	083-080	PUSH SWITCH 2P2C
S710	083-080	PUSH SWITCH 2P2C
S305	083-081	PUSH SWITCH 4P2C
S306	083-081	PUSH SWITCH 4P2C
S307	083-081	PUSH SWITCH 4P2C
S704	083-087	6 KEY PUSH SW 2P2C
S705	083-087	6 KEY PUSH SW 2P2C
S706	083-087	6 KEY PUSH SW 2P2C
S707	083-087	6 KEY PUSH SW 2P2C
S708	083-087	6 KEY PUSH SW 2P2C
S709	083-087	6 KEY PUSH SW 2P2C
S54	083-083	5 KEY PUSH SW 2P2C
S55	083-083	5 KEY PUSH SW 2P2C
S56	083-083	5 KEY PUSH SW 2P2C
S57	083-083	5 KEY PUSH SW 2P2C
S58	083-083	5 KEY PUSH SW 2P2C
S59	082-023	MICRO SWITCH START/STOP SAMPLER
S60	083-089	5 KEY PUSH SW 2P2C
S61	083-089	5 KEY PUSH SW 2P2C
S62	083-089	5 KEY PUSH SW 2P2C
S63	083-089	5 KEY PUSH SW 2P2C

Symbol No.	Parts No.	Description
S64	083-089	5 KEY PUSH SW 2P2C
S308	082-027	ROTARY SWITCH 1-3-4
S703	082-028	ROTARY SWITCH 1-2-5
S51	082-029	ROTARY SWITCH 1-2-3
VR311	072-091	SLIDE VR 45mm
VR314	072-081	SLIDE VR 45mm
VR301	071-110	ROTARY VR 20KA
VR302	071-111	ROTARY VR 50KW
VR309	071-112	ROTARY VR 20KB
VR307	071-113	ROTARY VR 10KA
VR305	071-114	ROTARY VR 50KA
VR315	071-117	ROTARY VR 100KBX2
VR306	071-119	ROTARY VR 50KAX2
VR710	071-120	ROTARY VR 20KMNX2
VR705	071-122	ROTARY VR 10KAX2
VR707	071-123	ROTARY VR 50KAX2
VR708	071-124	ROTARY VR 100KAX2
VR51	071-125	ROTARY VR 10KBX2
VR52	071-126	ROTARY VR 20KAX2
CN1	092-094	6P CONNECTOR BASE MOLEX
CN2	092-094	6P CONNECTOR BASE MOLEX
CN3	092-094	6P CONNECTOR BASE MOLEX
CN4	092-094	6P CONNECTOR BASE MOLEX
CN5	092-094	6P CONNECTOR BASE MOLEX
CN6	092-084	5P CONNECTOR BASE JST
CN7	092-094	6P CONNECTOR BASE MOLEX
CN8	092-094	6P CONNECTOR BASE MOLEX
CN9	092-021	3P CONNECTOR BASE MOLEX
CN1	092-042	5P CONNECTOR BASE JST
CN2	092-026	3P CONNECTOR BASE JST
CN3	092-026	3P CONNECTOR BASE JST
CN4	092-026	3P CONNECTOR BASE JST
CN5	092-030	2P CONNECTOR BASE JST
CN6	092-042	5P CONNECTOR BASE JST
CN7	092-094	2P CONNECTOR BASE MOLEX
CN	092-091	2P CONNECTOR BASE MOLEX
CN	092-091	2P CONNECTOR BASE MOLEX
CN	092-075	3P CONNECTOR BASE MOLEX
CN	092-075	3P CONNECTOR BASE MOLEX
CN	092-092	7P CONNECTOR BASE MOLEX
CN	092-093	12P CONNECTOR BASE MOLEX
CN	092-072	6P CONNECTOR BASE MOLEX
CN	091-934	2P CONNECTOR WITH WIRE 2510
CN	091-935	3P CONNECTOR WITH WIRE 2510
CN	091-937	5P CONNECTOR WITH WIRE 2510
CN	091-975	6P CONNECTOR WITH WIRE 2510
CN	091-938	6P CONNECTOR WITH WIRE 2510
CN	091-939	6P CONNECTOR WITH WIRE 2510
CN	091-940	7P CONNECTOR WITH WIRE 2510
CN	091-941	12P CONNECTOR WITH WIRE
CN	091-942	2P CONNECTOR WITH WIRE 2510
CN	091-943	3P CONNECTOR WITH WIRE 2510
CN	091-944	3P CONNECTOR WITH WIRE XHP
CN	091-959	3P CONNECTOR WITH WIRE XHP
CN	091-967	6P CONNECTOR WITH WIRE 2510
CN	091-945	5P CONNECTOR WITH WIRE XHP
CN	091-947	5P CONNECTOR WITH WIRE XHP
CN	091-946	2P CONNECTOR WITH WIRE XHP
J2	161-105	4P RCA JACK
J4	161-105	4P RCA JACK
J5	161-105	4P RCA JACK
J6	161-105	4P RCA JACK