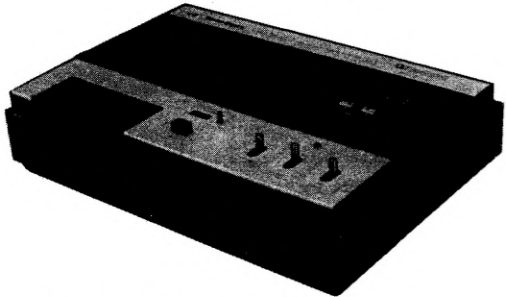




SERVICE MANUAL CD-100 STEREO CASSETTE DECK with DOLBY



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This manual is valid from serial No. 2001 onward.

1 DISASSEMBLY (See exploded view)

Before voltage setting or repairing the tape recorder, disassemble the unit as follows:
Pull off the knobs from the level controls, then remove 6 pcs of (A) screws at the bottom and 2 pcs of (B) screws at the top.
Before removing the cover completely, remove the Dolby N.R. Indicator lamp from its holder.

2 ALIGNMENT

Prior to the following alignment azimuth adjustment of the recording/playback head should be performed as follows:
Prepare a standard tape for azimuth adjustment (with 10 kHz signal) and adjust the screw for azimuth adjustment for maximum output at playback function.

2-1 ALIGNMENT PROCEDURES OF MPX FILTER

- (1) Removal of Dolby N.R. Amp. PCB
Take off the holder-volume & meter (No. 129) by removing 4 pcs of (C) screw being fixed to the bottom cabinet as shown in the exploded view. Then remove 4 pcs of (D) screws fixing the Dolby N.R. Amp. PCB as shown in the exploded view.
- (2) Set the Dolby N.R. switch to the OFF position also connect MP (See circuit diagram/Dolby N.R. Amp. PCB view) to ground in order to keep the gate of the FET (2SK30D) in off condition. Set the volume control to max.
- (3) Disconnect lead wire from MP (L IN, R IN) on Dolby N.R. Amp. PCB.
- (4) Supply an external 400 Hz signal from an audio generator through a 3.3k Ohm resistor (to be prepared) to MP.
- (5) The output signal is to be measured by VTVM across PIN 3 L CH out (PIN 5 R CH out) and PIN 2 (ground) of the DIN jack.
- (6) Set the input signal level by adjusting the attenuator of generator so that the output signal reaches around 700 mV to 1 V.
- (7) Change generator frequency to 19 kHz without changing the level or any control.
- (8) Adjust (Low pass filter) until the output is decreased by more than -30 dB.
- (9) Change generator frequency to 38 kHz.
- (10) Adjust (Low pass filter) until the output is decreased by more than -25 dB.
- (11) Check that the attenuation effect does not exceed 2 dB at 15 kHz.

TYPICAL AVERAGE VALUES 19 kHz -35 dB
38 kHz -30 dB

NOTE: Adjustment shall start with (Low pass filter) otherwise this adjustment may become difficult.

2-2 ALIGNMENT PROCEDURES OF DOLBY NOISE REDUCTION

- (1) (a) Switch the set in recording condition by depressing the record and play button simultaneously (without tape).
(b) Set the Dolby N.R. switch to "off" position.
(c) Keep the gate of FET (2SK30D) in OFF condition same as the procedure of Low pass filter adjustment point 2-1 (2).
(d) Set the "Gain VR" (VR 104,204) as well as the "Low VR" (VR 103,203) to the maximum position.
- (2) (a) Supply 5 kHz signal to PIN 1 L CH IN (PIN 4 R CH) of DIN jack from an audio generator.
(b) Connect resistors 27 k and 5.6 k Ohm in series across test point MP and ground.
(c) Set recording level control of the unit to the maximum position.
(d) Set the input signal level by adjusting the attenuator of generator until the VTVM which is connected across the 5.6 k Ohm resistor indicates 3 mV.
- (3) Measure the level of MP with VTVM and note the resulting level as "Reference level" then turn Dolby N.R. switch to the ON position.
- (4) Adjust the "Gain VR" (VR 104,204) until the level of MP is increased by 10 dB from the above "Reference level."

- (5) Restore the gate of FET (2SK30D) in "ON" condition by disconnecting MP from ground.
Then adjust "Low VR" (VR 103,203) so that the output level is decreased 2 dB from the level of above (4) that means 8 dB above "Reference level."

NOTE: Alignment procedures should be followed in order of the above (1) to (5).

2-3 ALIGNMENT PROCEDURES OF PLAYBACK AND RECORDING AMPLIFIER

Remove 3 pcs of (E) screws, 1 pc of (F) screw and 3 pcs of (G) screws fixing the cassette mechanism as shown in the exploded view. Then after dismounting the mech chassis from the bottom cabinet remove 2 pcs of (H) screws fixing the switching amp PCB as shown in the exploded view.

- (1) PLAYBACK
 - (a) Insert the Dolby level calibration tape (200 mWb/m).
 - (b) Connect VTVM across PIN 3 L CH out (PIN 5 R CH out) and PIN 2 (ground).
 - (c) Depress the play-button.
 - (d) Adjust VR 202 L CH (VR 102 R CH) so that the output signal reaches 580 mV.
- (2) RECORDING
 - (a) Set the recording level control (VR101 R ch, VR201 L ch) of the unit to maximum position.
 - (b) Connect DIN jack PIN 1 (L CH IN), PIN 4 (R CH IN) and PIN 2 (ground) to an audio generator.
 - (c) Adjust the signal level of the generator to 70 mV output.
 - (d) Connect DIN jack PIN 3 (L CH OUT), 5 (R CH OUT) and PIN 2 (ground) to V.T.V.M.
 - (e) Adjust VR 101, 201 to 580 mV output.
 - (f) Adjust VR 109, 209 so that the level meter of the unit indicates zero level. (O VU=Standard Level)

Note: Input signal level for both L/R CH should be the same.

2-4 ADJUSTMENT OF RECORDING CURRENT AND BIAS CURRENT

(A) NORMAL TAPE

Recording Current

- 1 Prepare 100 Ohm resistor.
- 2 Connect the 100 Ohm resistor between the upper terminal of R/P head (R CH), (Lower terminal for L CH) and the red wire which is being connected to the respective terminal, by disconnecting from the terminal as shown in Fig 1.
- 3 Connect VTVM across the 100 Ohm. (Fig. 1)
- 4 Disconnect the yellow wire MP from recording amplifier PCB.
- 5 Set the tape selector switch to the NORMAL position.
- 6 Keep the unit in recording condition.
- 7 Adjust VR 105 L CH (VR 205 R CH) so that the VTVM indicates 5.2mV (52µA). See "List 1"

Bias Current

- 1 Connect 100 Ohm resistor same as in the above procedure (A) 2.
- 2 Restore the yellow lead wire MP to the original position.
- 3 Be sure that the tape selector switch is in NORMAL position.
- 4 Keep the unit in recording condition.
- 5 Adjust VR 107 L CH (VR 207 R CH) so that the VTVM indicates 30mV (300 µA). See "List 1".
- 6 Disconnect the 100 Ohm from the R/P head and solder the red wire as original.

Confirmation of adjustment.

- 1 Insert a normal tape into the deck.
- 2 Supply external 1 kHz signal from an audio generator to the input of the unit.
- 3 Record the signal at the standard level (O VU) and reproduce the recorded signal in order to confirm if the playback level indicates the Standard Level (O VU).
- 4 If the playback level does not indicate the Standard Level than the above adjustments should be repeated from the beginning until the level is indicated correctly.

(B) SPECIAL TAPE

- 1 Follow the same alignment procedures as that of the NORMAL TAPE by setting the tape selector switch to SPECIAL Position.
- 2 Adjust VR 106 (R CH), VR 206 (L CH) for recording current (6.7mV 67 µA) MP VR 108 (L CH), VR 208 (R CH) for bias current (43mV 430 µA) as per "List 1".
- 3 Confirmation of adjustments following the same procedures as at the NORMAL TAPE by using a SPECIAL TAPE.

List 1 ADJUSTMENT TABLE

	NO.	NORMAL TAPE		NO.	SPECIAL TAPE	
		L	R		L	R
REC CURR	12	VR105	VR205	14	VR106	VR206
BIAS CURR	13	VR107	VR207	15	VR108	VR208

TARGET VALUE OF EACH ADJUSTMENT		
1. Recording current		
Normal tape	52 µA	±16 µA
Special tape	67 µA	±20 µA
2. Bias Current		
Normal tape	300 µA	±90 µA
Special Tape	430 µA	±130 µA

*The tape to be used for this adjustment :
Normal tape BASF TP-18 C60
Special tape BASF SM C60

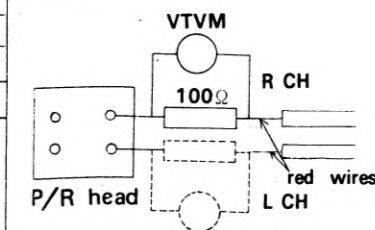
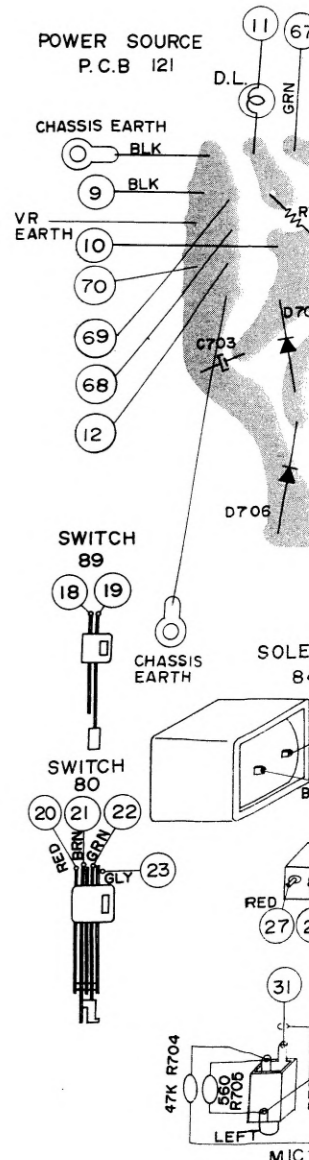
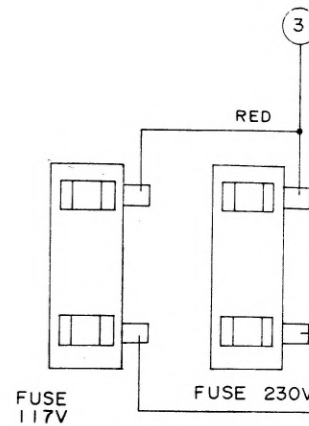


Fig 1

2-5 ADJUSTMENT OF

- (1) To be followed the sam
- (2) Same adjustment Proce
- (3) Note the resulting of th
- (4) Adjust the LA301 above level of 3.

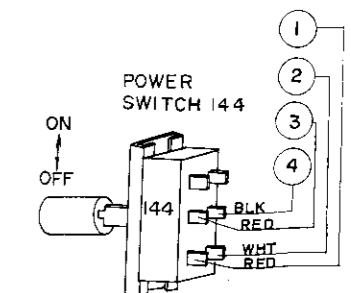
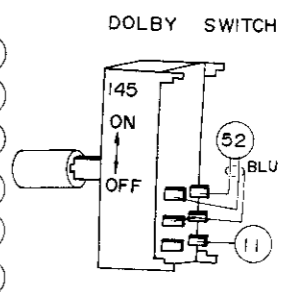
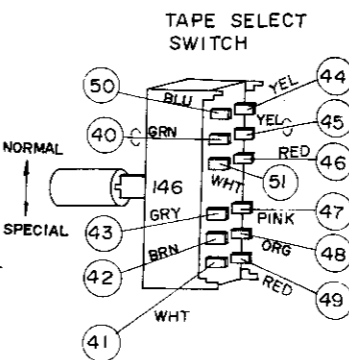
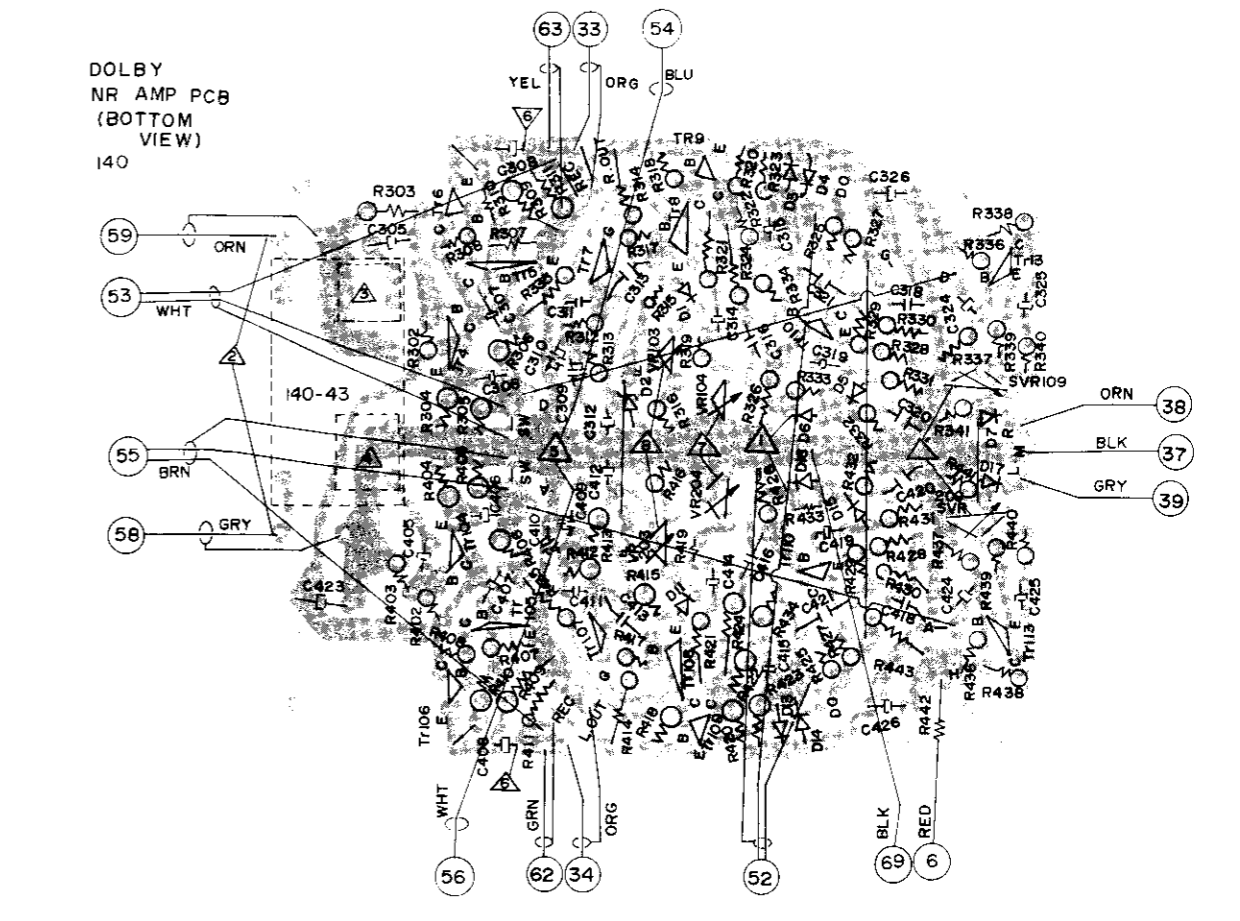
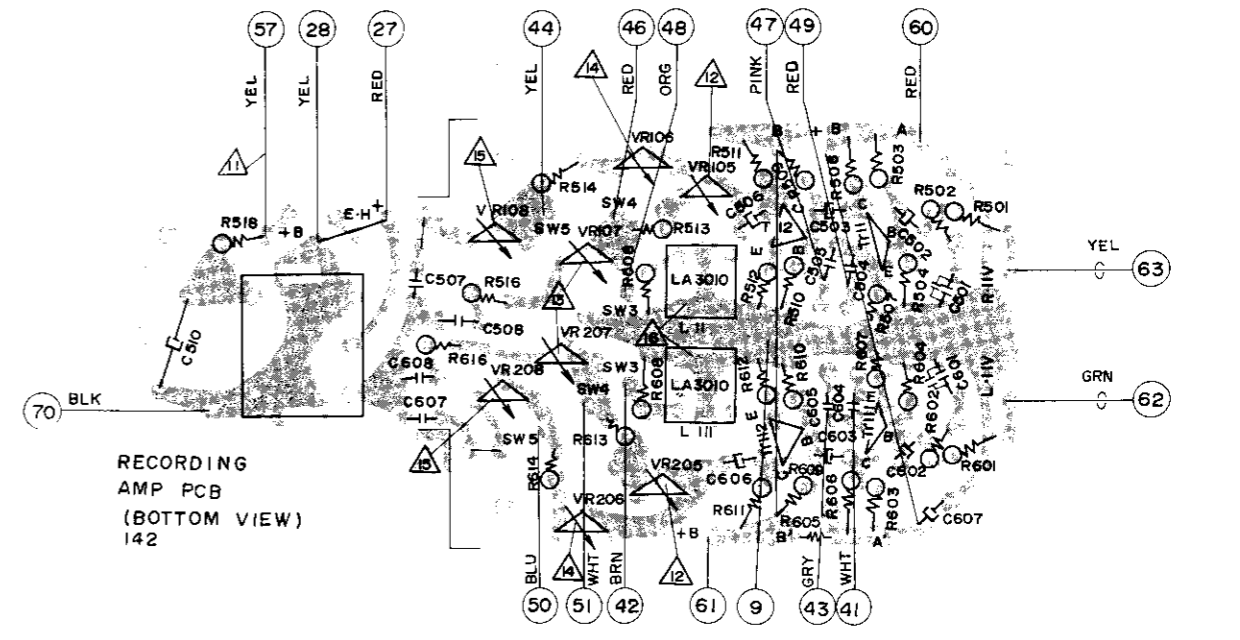
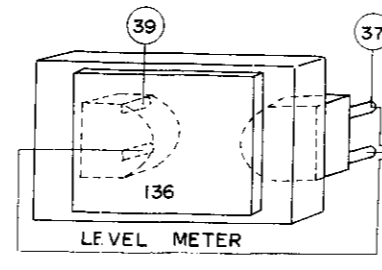
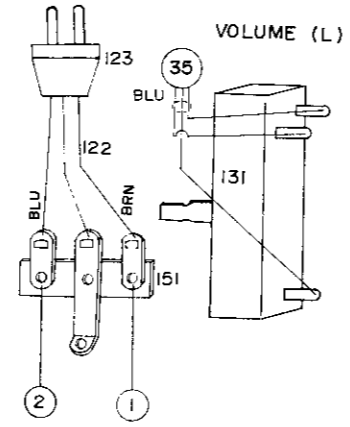
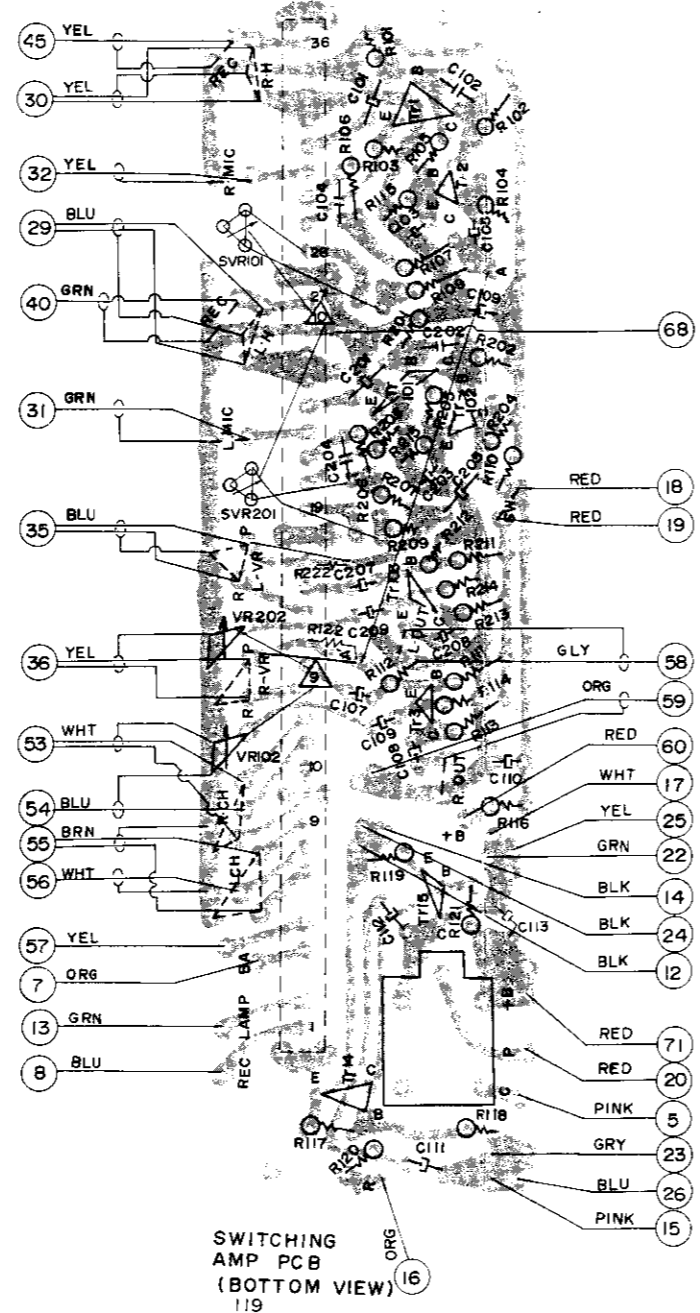
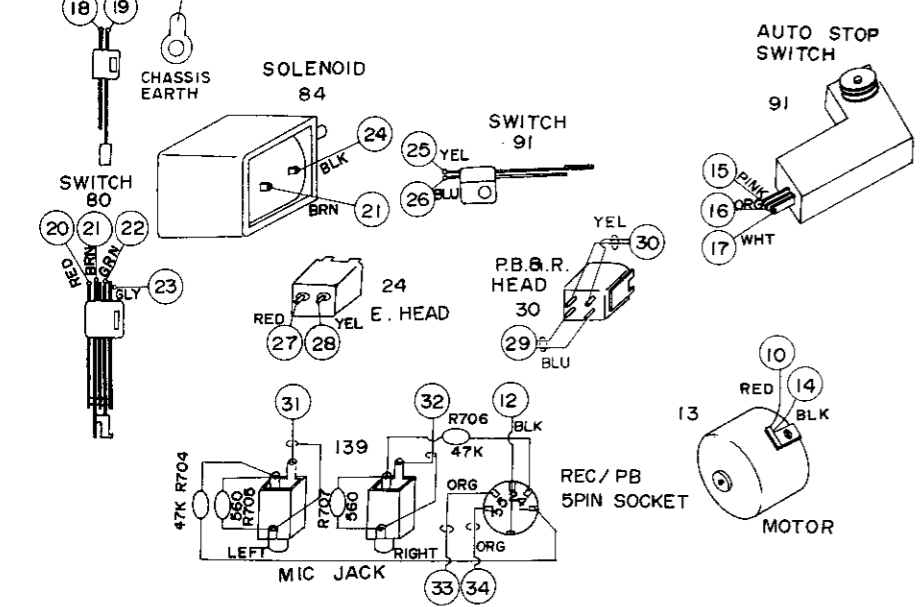
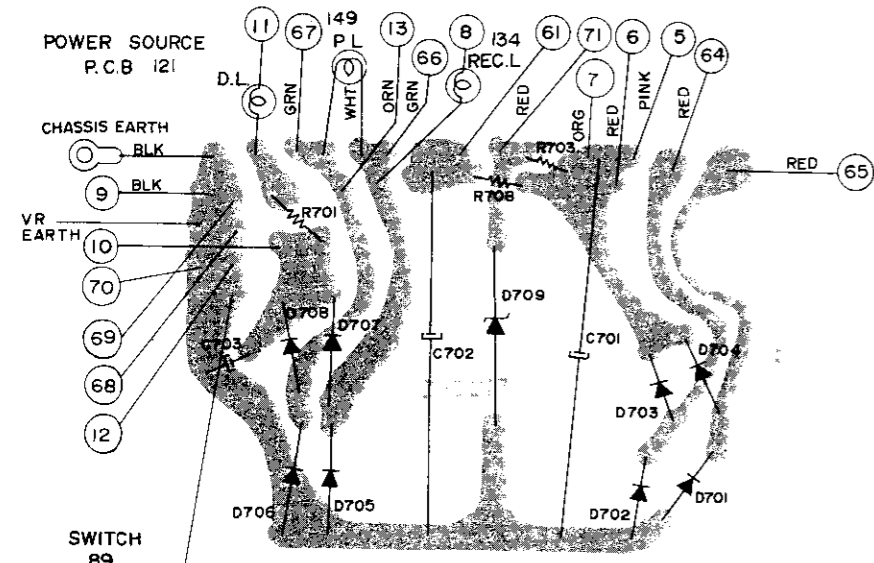
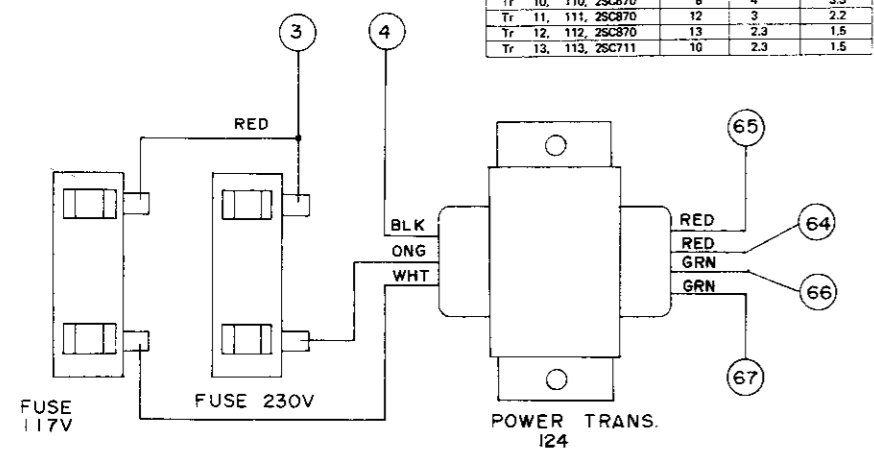


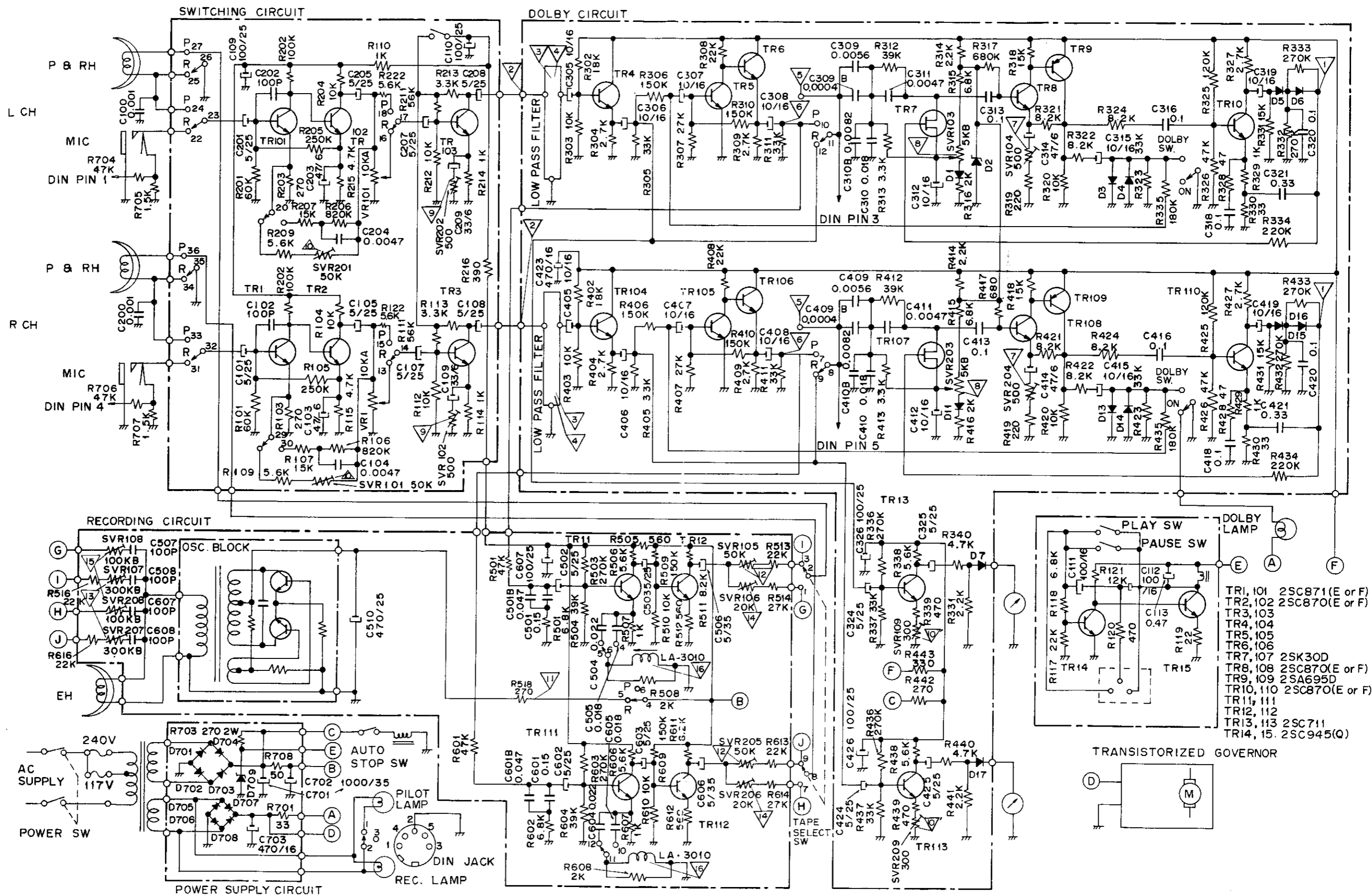
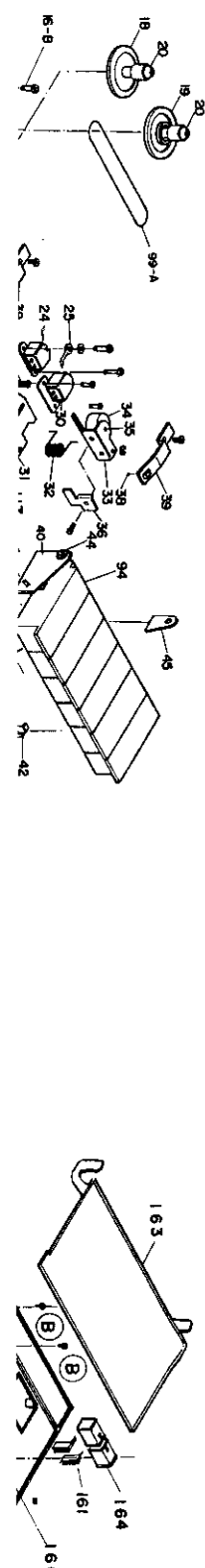
2-5 ADJUSTMENT OF RECORDING EQUALIZER

- (1) To be followed the same steps of "1 to 6" as that of the Recording Current Adjustment.
- (2) Same adjustment Procedures of R/L CH.
- (3) Note the resulting of the VTVM then switch signal frequency of the generator from 1 kHz to 10 kHz.
- (4) Adjust the 16 LA3010 so that the indicating level of VTVM is decreased until 11 - 12 dB basing on the above level of 3.

VOLTAGE CHART

Tr		Vc	Vb	Ve
1	101, 25C871	4	0.5	
2	102, 25C870	13	4	3.3
3	103, 25C870	13	3.3	2.6
4	104, 25C870	15	5	4.5
5	105, 25C870	5.5	0.65	
6	106, 25C870	15	5.5	5
8	108, 25C870	14	6	5.5
9	109, 25A896	5	14	15
10	110, 25C870	8	4	3.3
11	111, 25C870	12	3	2.2
12	112, 25C870	13	2.3	1.5
13	113, 25C711	10	2.3	1.5





- TRI, 101 2SC871(E or F)
- TR2, 102 2SC870(E or F)
- TR3, 103
- TR4, 104
- TR5, 105
- TR6, 106
- TR7, 107 2SK30D
- TR8, 108 2SC870(E or F)
- TR9, 109 2SA695D
- TR10, 110 2SC870(E or F)
- TR11, 111
- TR12, 112
- TR13, 113 2SC711
- TR14, 15. 2SC945(Q)