SERVICE MANUAL

SANYO

STEREO CASSETTE TAPEDECK

RD 5600
(AUSTRALIA)

SPECIFICATIONS

Tape:	CrO_2 tape, FeCr tape and Normal tape
Recording System:	AC bias, 1/4 track stereo
Erasing System:	AC erasing, 1/2 track
Tape Speed	1-7/8 ips. (4.75 cm/sec.)
Recording Time:	60 min. (C–60)
Rewind & Fast Forward Time:	90 sec. (C–60)
Wow & Flutter:	0.06% WRMS
Frequency Response:	30 – 17,000Hz (CrO_2 tape) 30 – 17,000Hz (FeCr tape) 30 – 13,000Hz (Normal tape)
Signal to Noise Ratio:	62 dB (Dolby switch ON) 54 dB (Dolby switch OFF)
Input:	MIC: 10K ohms (0.3mV) REC/PLAY: 10K ohms (1mV) LINE IN: 60K ohms (50mV)
Output:	REC/PLAY: 3K ohms (0.7V) LINE OUT: 3K ohms (0.7V) HEADPHONES: 8 ohms to 10K ohms (30mV)
Power Source:	AC: 240V, 50Hz
Power Consumption:	13W
Dimensions:	16-13/16"(W) x 11-7/16"(D) x 6-1/4"(H) (426 x 290 x 158mm)
Weight:	Approx. 15 lbs. 15 ozs. (7.2 kg)

*Specifications subject to change without notice.

REMOVAL OF CABINET

(1) Removal of cabinet

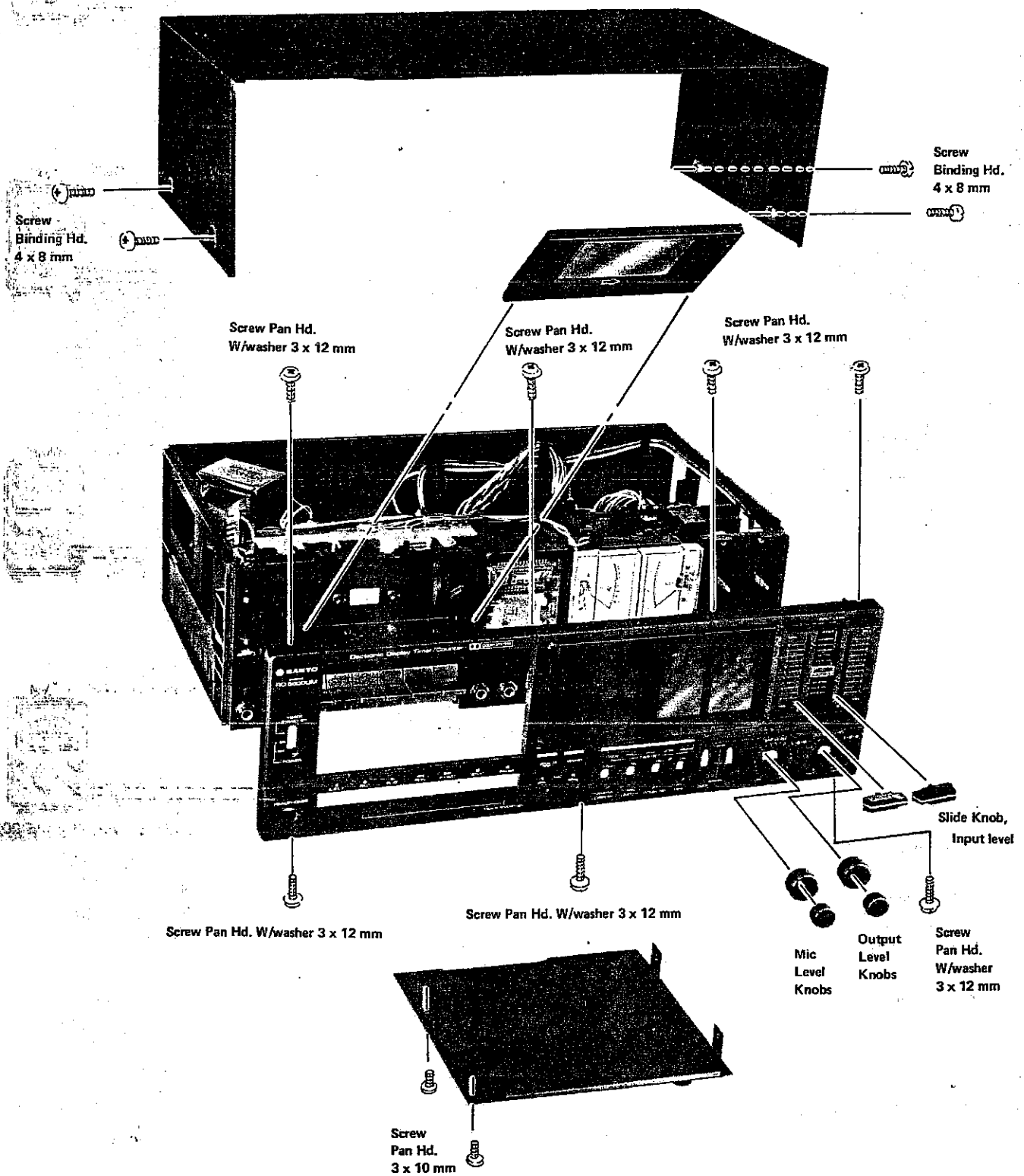
Remove the cabinet (112) by unfastening the four screws (Bind Hd., 4 x 8 mm) fixing the cabinet.

(2) Removal of front panel

Remove the six knobs (two for external input control, two for microphone level control, and two for output level control) on the front panel of the unit, then remove the front panel (101) by unfastening the seven screws (Pan Hd., tapping, w/washer, 3 x 12 mm) fixing the front panel.

(3) Removal of bottom lid

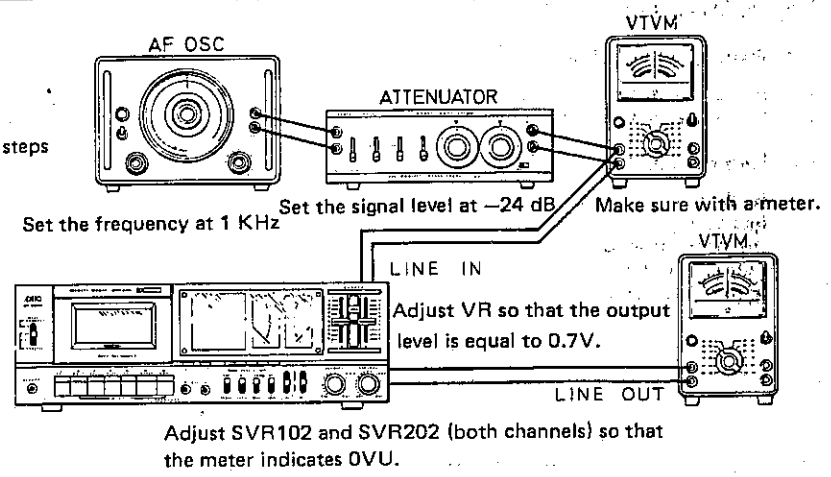
- Remove the bottom lid (113) at the bottom of the unit by unfastening the two screws (Pan Hd., tapping, 3 x 10 mm) fixing the bottom lid.



AMPLIFIER ADJUSTMENTS

(1) Adjustment of meter

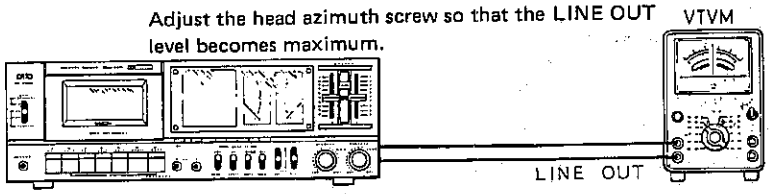
Dolby switch: OFF
Limiter switch: OFF
Output switch: OFF
Output level control: maximum (also for adjustments in steps 2 through 6 below)



Adjust SVR102 and SVR202 (both channels) so that the meter indicates 0VU.

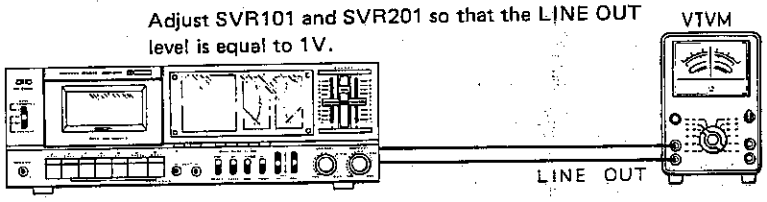
(2) Adjustment of angle

Equalizer switch: NORMAL
Dolby switch: OFF
Tape to be used: VTT – 658



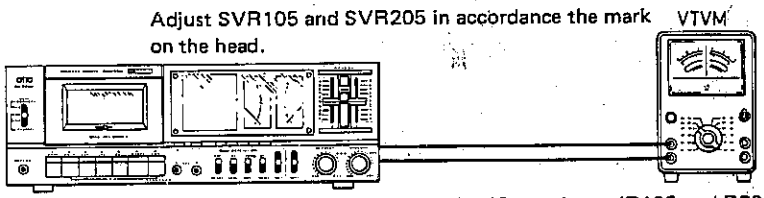
(3) Adjustment of playback output

Equalizer switch: NORMAL
Dolby switch: OFF
Tape to be used: MTT – 150



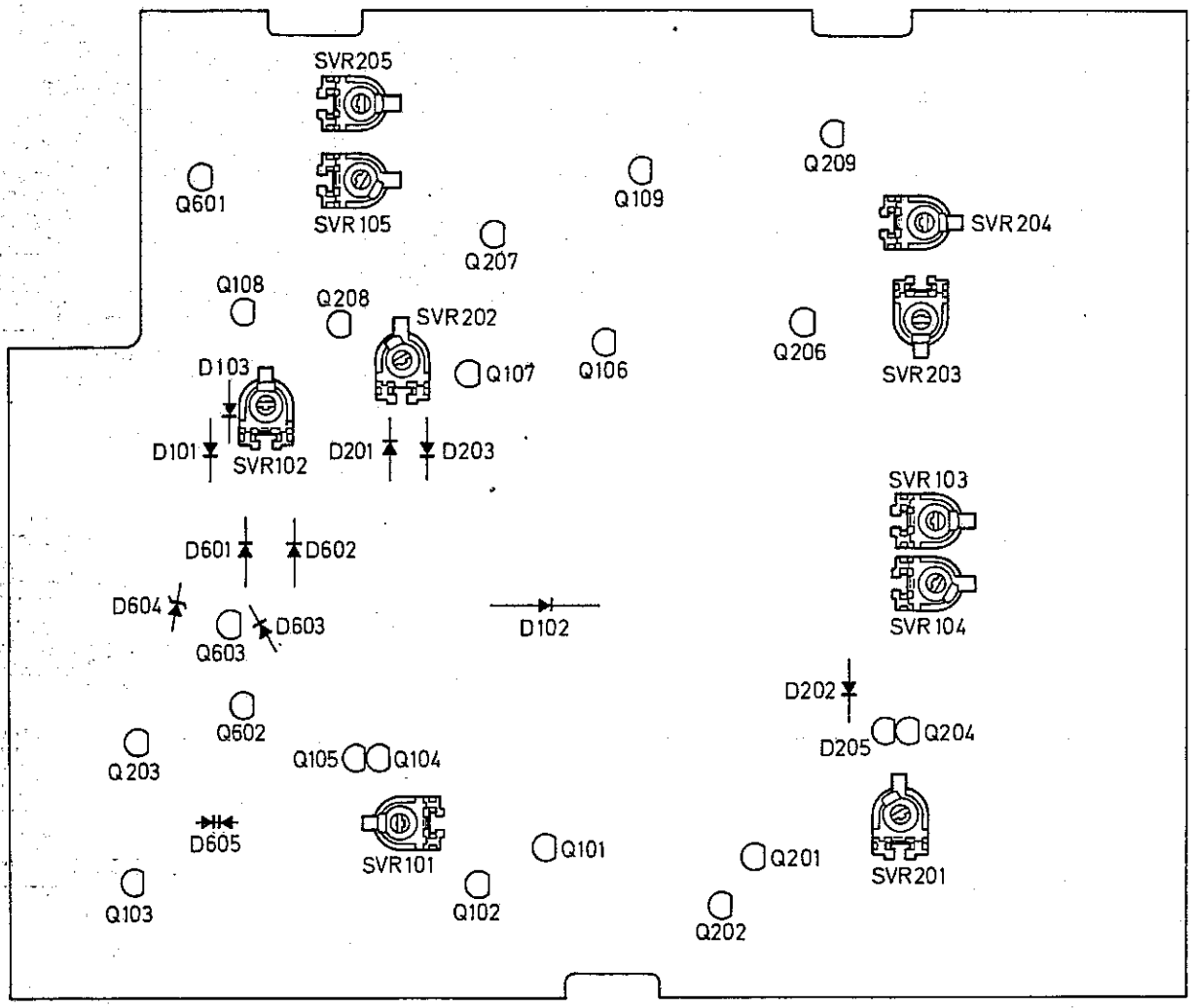
(4) Adjustment of bias

Equalizer switch: NORMAL
Bias switch: NORMAL



Across the ends of the 10Ω resistors (R102 and R202) of the head.

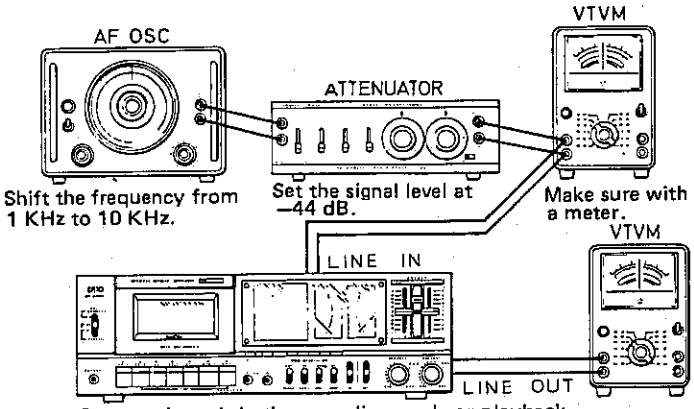
PARTS LOCATION



Items of adjustment and checking	Tapes to be used	Points of measurement	Input terminal	Frequency	Input level	Equalizer SW	Bias SW
Adjustment of meter	Sanyo measurement tape	LINE OUT	LINE IN	1KHz	−24db		
Adjustment of angle	VTT-658 10KHz, −15db	LINE OUT				NORMAL	
Adjustment of playback output	MTT-150 DOLBY-TAPE	LINE OUT				NORMAL	
Adjustment of bias	Sanyo measurement tape	Across the ends of the 10Ω resistors of the head, R102, R202				NORMAL	NORMAL
Adjustment of recording/playback frequency characteristics	Sanyo measurement tape	LINE OUT	LINE IN	1KHz 10KHz	−44db	NORMAL	NORMAL
Adjustment of outputs	Sanyo measurement tape	LINE OUT	LINE IN	1KHz	−24db	NORMAL	NORMAL

(5) Adjust of the record/playback frequency characteristics

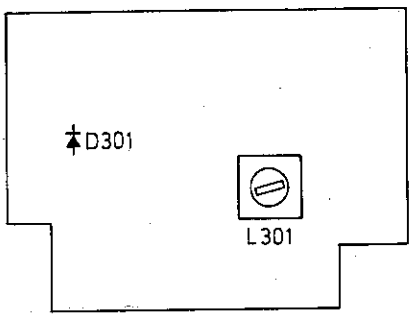
Equalizer switch: NORMAL
Bias switch: NORMAL
Dolby switch: OFF
Limiter switch: OFF



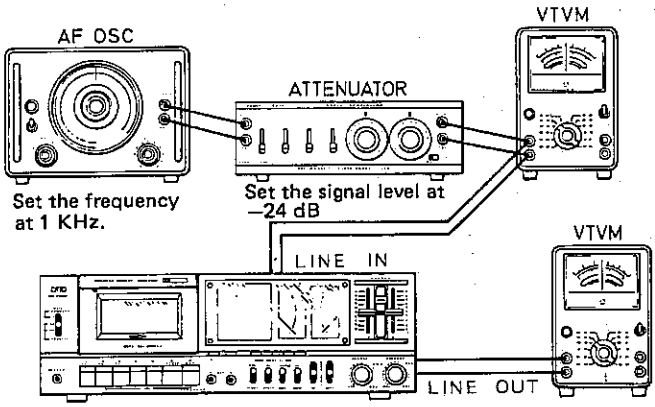
Operate the unit in the recording mode or playback mode, and adjust SVR105 and SVR205 so that the meter indication for the 10KHz signal is within a range from +1 dB to +2 dB (with the 1 KHz response as the 0 dB reference)

(6) Adjustment of outputs

Euqalizer switch: NORMAL
Bias switch: NORMAL
Dolby switch: OFF
Limiter switch: OFF



DOLBY BLOCK



Adjust SVR103, SVR104, SVR203, and SVR204 so that the monitor output at the time of recording is equal to the playback output.

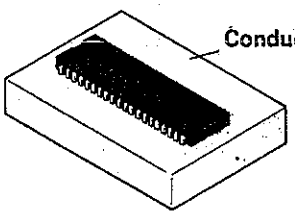
Dolby SW	Limiter SW	REC SW	Places of adjustment	Methods of adjustment
OFF	OFF	Adjustment	SVR 102 SVR 202	Set the unit to the REC. PAUSE state. Adjust REC VR so that the LINE OUT level is equal to 0.7V, then adjust SVR 192 and SVR 202 to obtain 0VU indication of the meter.
OFF			Re-adjustment of head	Adjust the head azimuth screw so that the 10 KHz output is maximum for both R and L channels.
OFF			SVR 101 SVR 201	Adjust SVR 101 and SVR 201 so that the LINE OUT level is equal to 1V.
			SVR 105 SVR 205	Head marks red . . . . . 180μA blue . . . . 200μA white . . . . 230μA yellow . . . 250μA black 280μA
OFF	OFF	The position of meter adjustment	SVR 105 SVR 205	Operate the unit in the recording mode or playback mode, and adjust SVR 105 and SVR 205 so that the meter indication for the 10 KHz signal is within a range from +1 dB to +2 dB (with the 1 KHz response as the 0 dB reference).
OFF	OFF	The position of meter adjustment	SVR 103, 104 203, 204	Adjust SVR 103, SVR 104, SVR 203, and SVR 204 so that the monitor output at the time of recording is equal to the record/playback output.

SUGGESTIONS FOR HANDLING LSI AND C MOS

(1) In the case of transit or storage

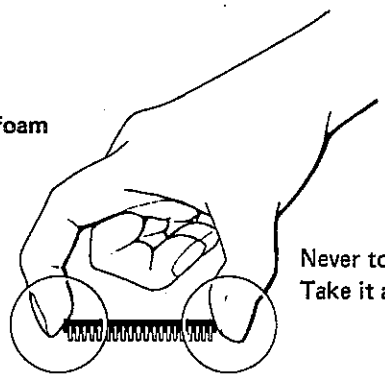
LSI (large-scale integrated circuit) is extremely sensitive and vulnerable to static electricity, and may be damaged if it is exposed to a strong electrostatic field. So, be careful to avoid such a possibility when carrying or storing LSI's. Similar care is necessary in handling C MOS's.

(a) To store the LSI



Be sure to keep the LSI inserted in the conductive urethane foam until it is put to use. (This is for keeping the potential at each terminal equal.)

(b) How to handle the LSI



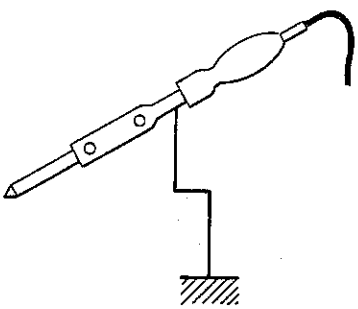
Never touch the LSI terminals. Take it at both ends of the package.

(C) To store the LSI, avoid places where temperature or humidity is high, or where there is a strong magnetic field.

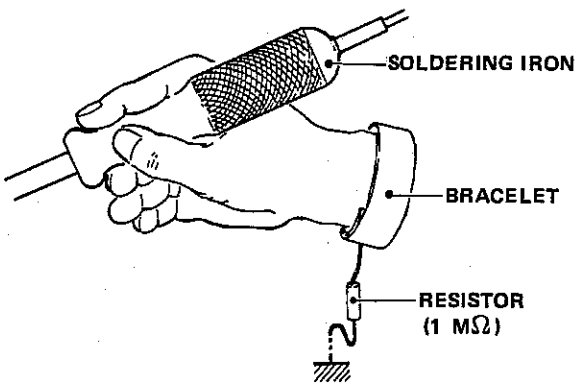
(2) Suggestions for repairing

(a) Before replacing the LSI, be sure to pull out the power plug. Also, be sure to short-circuit the designated electrolytic condensers (C716, C751, and C752) and discharge them.

(b) All the equipment, measuring instruments, and tools should be grounded.
Ground the work table by covering it a conductive sheet.



Ground the soldering iron in order to prevent the AC leakage.



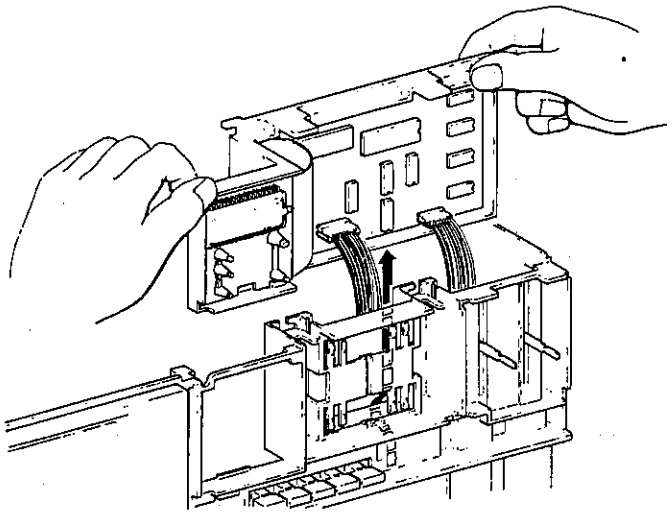
The repairman should ground his body electrically by touching the ground line with his hand before he handles the LSI.

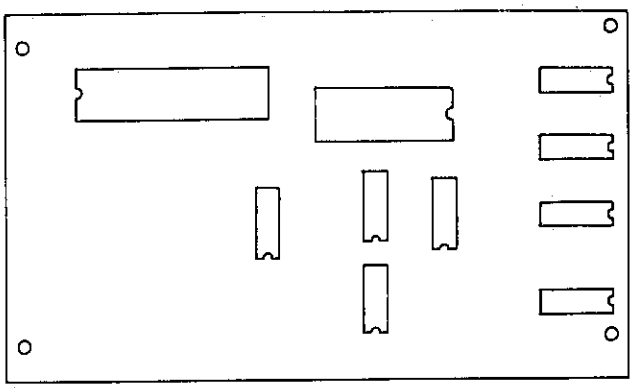
(3) Suggestions for replacement of LSI

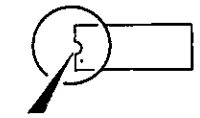
(a) There is a mark on one side of the LSI. This is for preventing you from inserting the LSI in a wrong way.

(b) If power is supplied to the unit with the LSI inserted in a wrong way, the LSI must be discarded. (The LSI may still be good immediately after, but it will break down in the course of use.)

(c) When removing the digital section from the unit, hold the section as shown in the figure below.

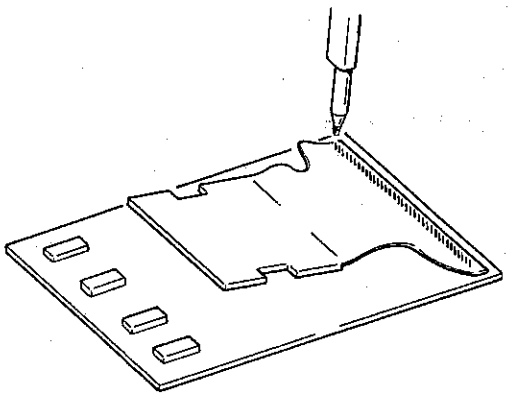






(4) Other suggestions

(a) Never clean the unit with a dry cloth. (Use one containing antistatics.)
(b) A tester may be used to measure voltage or current, but not resistance.

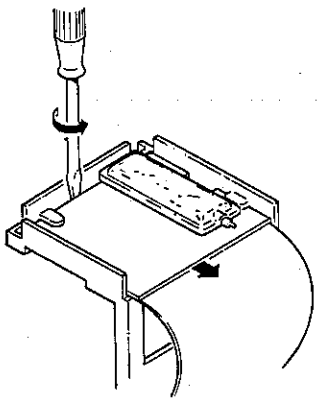


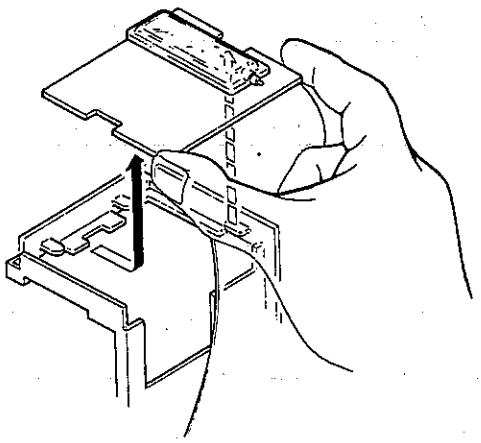
F.P.C. (FLEXIBLE PRINTED CIRCUIT)

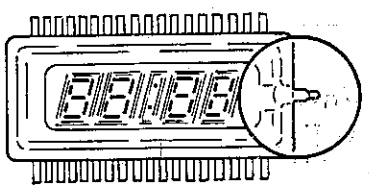
(1) Soldering iron should never touch the film, or anywhere except the pattern face.
(2) Use a soldering iron of less than 30W (with temperature lower than 270°C). Soldering must be done speedily within three seconds.

HOW TO HANDLE THE FLUORESCENT DISPLAY TUBE

(1) The display tube is made of glass. Do not drop it, or give a shock.
(2) The protruding portion of the display tube very easy to break. Be careful in handling the tube.
(3) The fluorescent display tube is connected to the ISI. So, carefully read the suggestions in P (2) before replacing the display tube.







DESCRIPTION OF THE DIGITAL CONTROL SYSTEM

The model RD5600 employs digital techniques in a large measure.
Figure 1 shows a block diagram of the main sections.
Roughly speaking, the circuit is composed of the mechanism section having the auto-stop function, the record/playback circuit with two power-supply circuits, and the digital circuit with the tape counter and the clock.

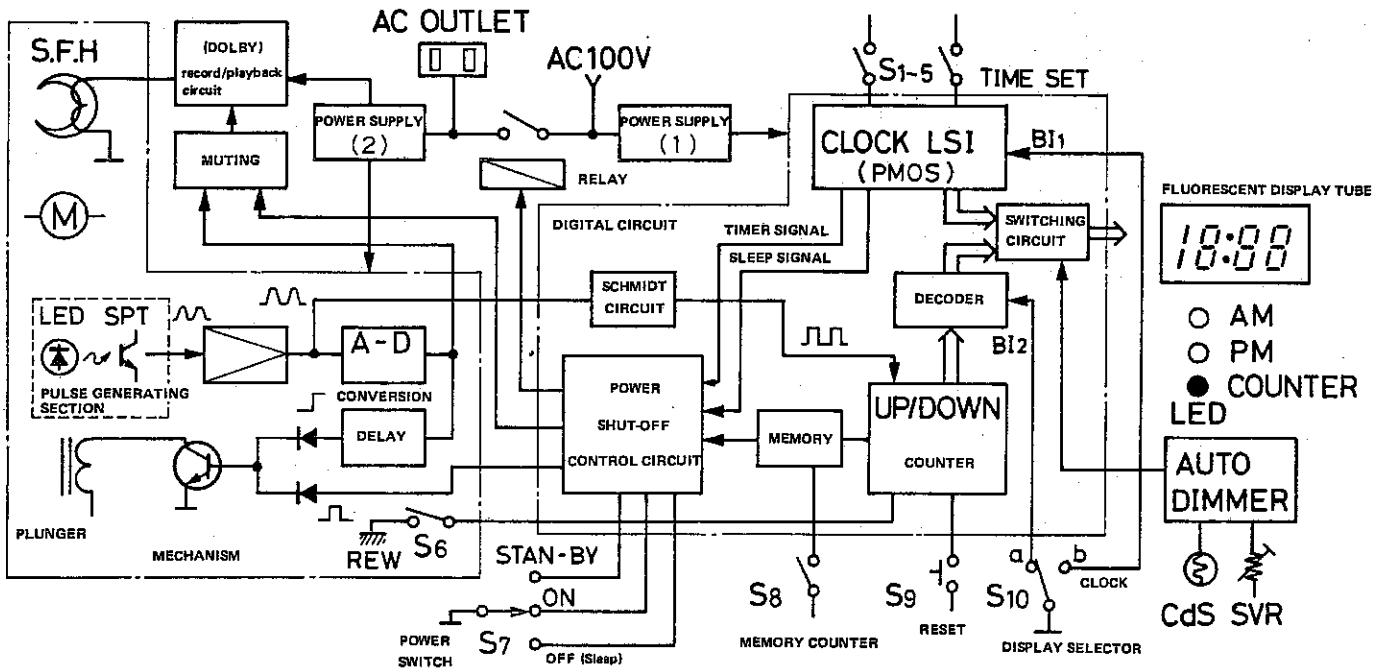


Fig. 1

(1) Generation of count pulse

The source of the count pulse is a hexagonal reflector attached to the supply reel. Light rays generated from an LED are reflected by this reflector. The reflected light is then directed to a photo-transistor, and amplified by a transistor to become a pulse signal. (See Fig. 2) In order to prevent erroneous operation due to noise, the pulse is put through a wave-shaping circuit shown in Fig. 3, where the noise components are eliminated. The pulse signal is then supplied to the counter circuit board.

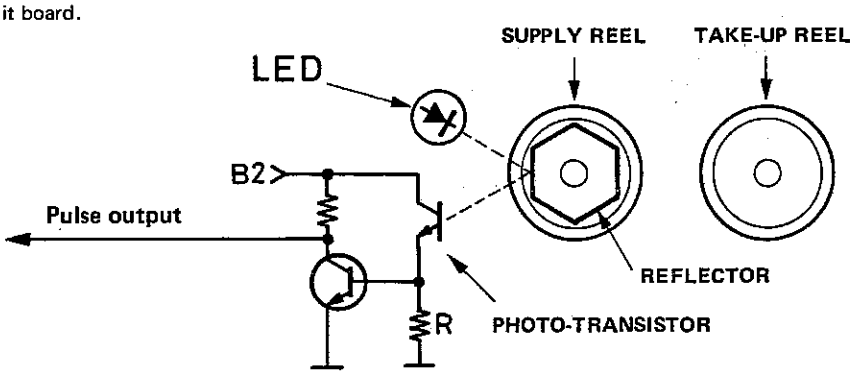


Fig. 2

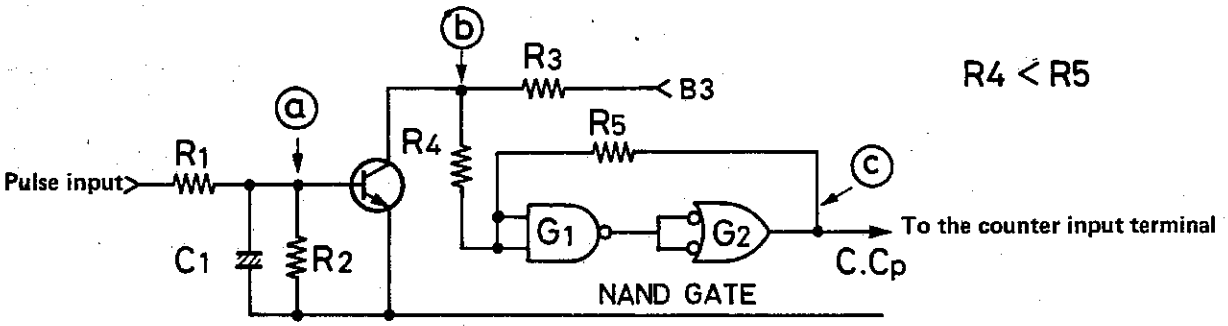


Fig. 3

The pulse frequency is, even in the case of F. FWD operation, only 150 per second, or equivalent to a period of 6.7 ms. So, the magnitudes of R, and C, are so chosen that the time constant determined by them is equal to 5ms. The pulse signal integrated by R, and C, switches transistor Q ON and OFF. But, the output waveform is not sharp enough, so this pulse signal is put through a Schmidt circuit, of MOS NAND gate (G, G2) to make the leading and trailing edges sharper. (See Fig. 4)

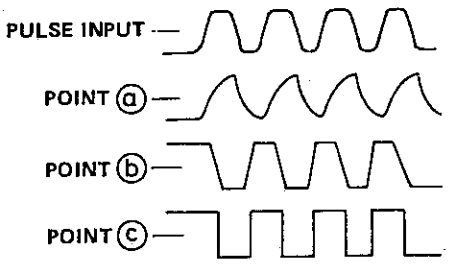


Fig. 4

(2) Method of tape counting

As shown in Fig. 5, the tape counter consists of a 4-digit up/down counter using an MOS IC, a c MOC decoder driver for driving a 7-segment display device with the BCD signal, and other auxiliary circuits.

The maximum count of the tape counter is 1999. The pulse frequency and the frequency division ratio are so designed that the tape counter counts about 950 if a C-60 type cassette tape is used, and about 1850 if a C-120 type tape is used.

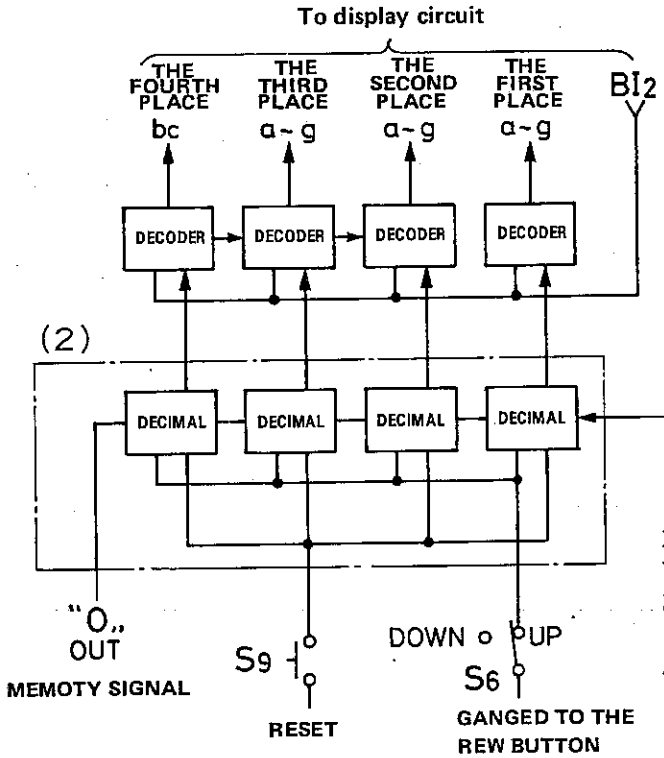
The output signal from the Schmidt circuit enters the quinary section. This quinary section is determined by the relationship between the maximum count indication and the pulse generating section.

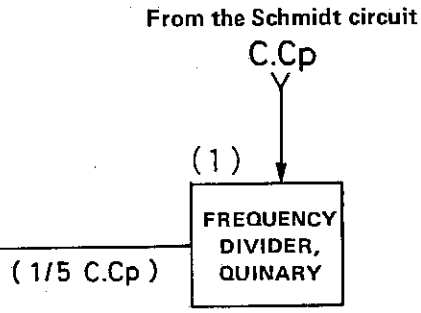
The maximum indication is given by

$$\text{Maximum indication} = \frac{\text{Total number of pulses}}{X}$$

where total number of pulses depends on the type of tape used and the method of pulse generation. In the present unit, the total number of pulses is 9250, assuming the use of the C-120 type cassette tape and a hexagonal reflector. If we assume the maximum indication to be 1999, then the total number of pulses that can be counted will be 9995 with X equal to 5. (Note: Number of reel revolutions is about 1550 with the C-120 type tape, and about 800 with the C-60 type tape.)

The decoder employs the leading zeros in the upper positions are suppressed for ease of reading.





X: Frequency division ratio

Y: Total number of pulses generated

Zn: Number of revolutions of the reel (depending on the length of tape used)

A: Number of pulses generated for every revolution of the reel

$$X = \frac{Y}{\text{Maximum indication}}$$

$Y = A.Z$

$Z_1 \fallingdotseq 1550$ (C-120)

$Z_2 \fallingdotseq 800$ (C-60)

Fig. 5

(3) Method of display for counter and clock

Figure 6 shows a unique method of connecting a single display device to outputs of two different circuits. This is one of distinguished features of this unit.
This display tube is called "fluorescent display, "which was specially developed for this unit. It operates on 12V, lighting in green of high luminance.

Since the output from the clock LSI is at a level of 22V to 24V, and that from the decoder IC is 12V, these two outputs can not be directly connected.
In this unique circuit, an AUTO DIMMER is employed in order to solve this probelm.

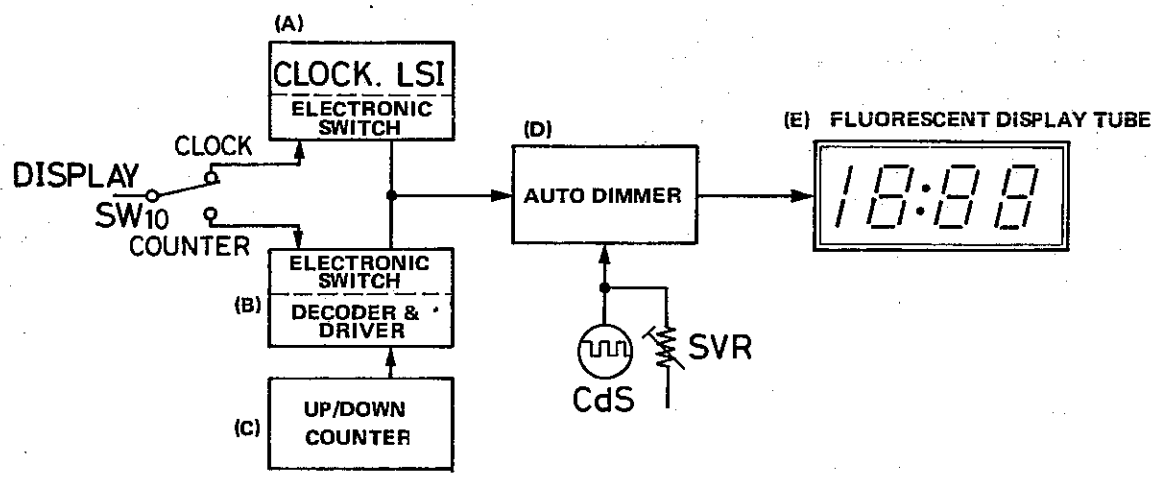


Fig. 6

As is clear from Fig. 7, the output from the decoder IC is connected to the LSE output through a diode (Dp), and then both outputs are supplied to each of the segment plates (P) of the display tube.
Switching of display is done by the switch S10a, which closes, alternatively, on the clock side and the counter side, and supplies a voltage of 24V to the blanking (B1) terminal of each IC.
The output of the clock LSI is turned ON when 24V is applied to the BI_1 terminal, and the clock LSI will present a high impedance when BI_1 is at a potential of 0V.

The output of the decoder IC is turned OFF when half as great the voltage (since R1 is equal to R2) is applied to the BI_2 terminal, and is turned ON when BI_2 is at a potential of 0V. Consequently, it is possible to select, by means of the switching operation of S10a, an output to be applied to the plate of the display tube. But, with this circuit construction, the brightness of the display tube is different for counter display and clock display since the voltage supplied to the display tube differs by a large margin in these two cases. Thus, some device must be contrived in order to compensate for this difference in lightness.

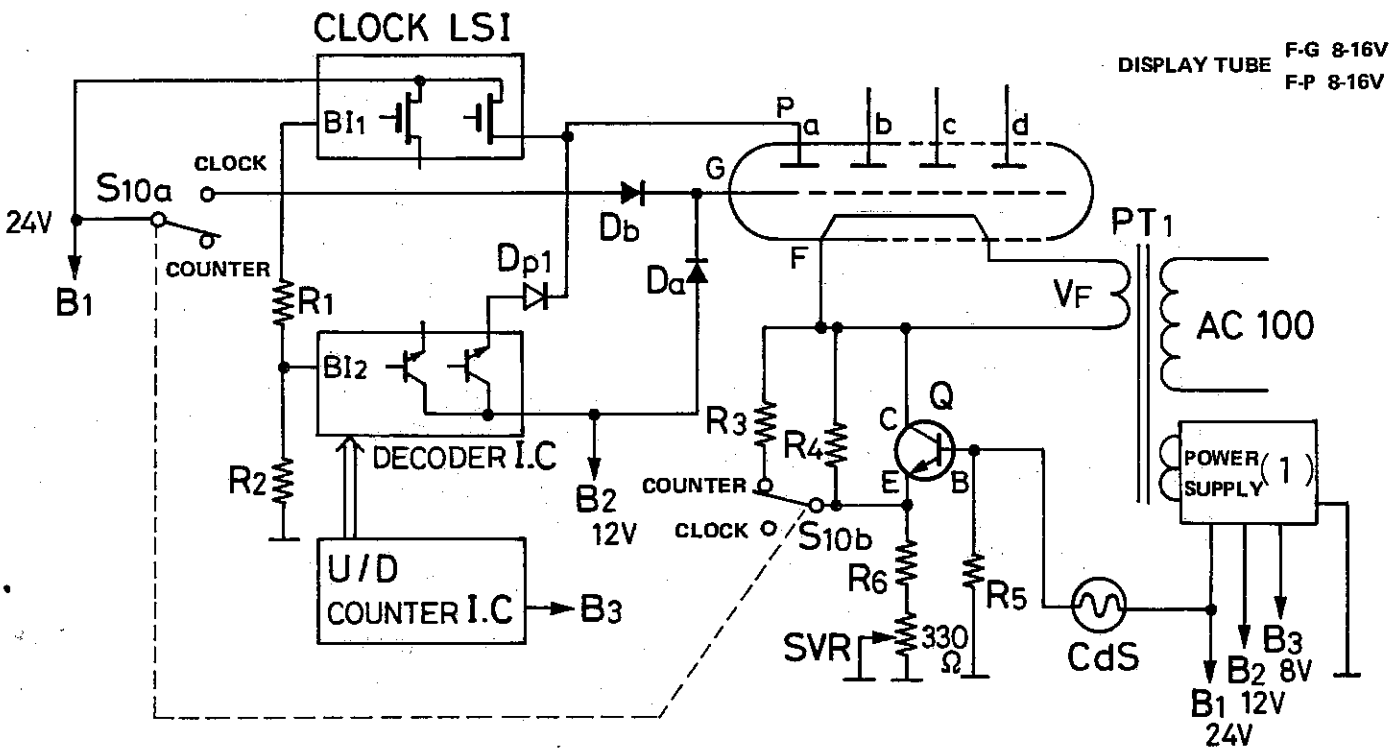


Fig. 7

Our present unit employs a voltage absorber circuit consisting of a CdS and a transistor. This circuit also functions as an automatic dimmer for easy reading of the display.
In Fig. 7, the switch S10b is interlocked with S10a. When the switch is closed on the counter side, R3 will be grounded, and the 330Ω resistance of SVR will be connected in series with the transistor Q. This causes a voltage of about 10V to be applied between P and F of the display tube, and makes it operate in a normal way. At this time, +B1 is applied to Q through CdS, so that the working resistance across C and E of the transistor can be varied with the base voltage, that is, with the amount of photo-resistance presented by CdS. This working resistance across C and E, as a composite resistance in parallel with R3, will change the voltage between P and F of the display tube to vary its brightness. When S10b is closed on the clock side, all the voltage will be applied across the transistor Q, and the voltage between P and F of the display tube will be reduced to somewhere between 10V and 12V, thus making the tube operate in a normal way. Of course, this voltage varies between 3V and 14V depending on the brightness of the environment. R4 is inserted in the circuit in order to ensure a minimum amount of brightness even when the CdS receives no light.

(4) Digital control circuit

One of the distinguished features of this unit is that a digital IC is used to constitute all the necessary control circuits.
Figure 8 shows the block diagram of the control circuits, and figures 9 through 11 show the time chart for each of the control circuits. The timer signal and the sleep signal in Fig. 8 are singals from the clock LSI, each generated at the time of the respective operation. The switch S7 is used for selecting "timer stand-by", "sleep shut-off," etc.
The control signals are generated by various combinations of monostable multivibrator I, monostable multivibrator II, selector circuit, and various gates.

a ---- Figure 9 shows the time chart for the timer stand-by operation. When the timer signal is generated at the set time of the timer, the monostable multivibrator I will be triggered to generate the muting signal (MUT) for about three seconds. Near the end of this period, the monostable multivibrator II will be triggered to generate the plunger driging signal (PCS), and start the stand-by operation. Before this happens, the relay driving signal (RYS) is generated at the same time with the generation of the timer signal, and turns the power ON. The timer signal will last for 59 minutes. At the end of this period, as at the beginning, the muting signal (MUT) will be generated, followed by generation of the plunger driving signal (PSC). This causes the mechanism to stop. The relay will be turned OFF immediately after.

b ---- Figure 10 shows the time chart for the sleep timer operation. During the sleep operation in which the sleep signal is present, neither the muting signal (MUT) nor the plunger driving signal (PCS) will be generated. Only at the end of the sleep operation will the muting signal be generated. At the same time with the generation of the muting signal, the plunger driving signal will also be generated, which drives the plunger to stop the mechanism. Near the end of the muting operation, the plunger driving signal will be generated again. If, instead of using the sleep timer, the switch S7 is turned ON and OFF, the time chart for the operation will be the same as Fig. 10.

c ---- Figure 11 shows the time chart for the case of setting S7 at the stand-by position and using the sleep timer. This chart differs from Figs. 9 and 10 in that neither the muting signal nor the plunger driving signal is generated at the time of generation of the sleep signal.

By combining the above operations, from a through c, various control operations such as unattended recording, sleep timer, alarm timer, etc.

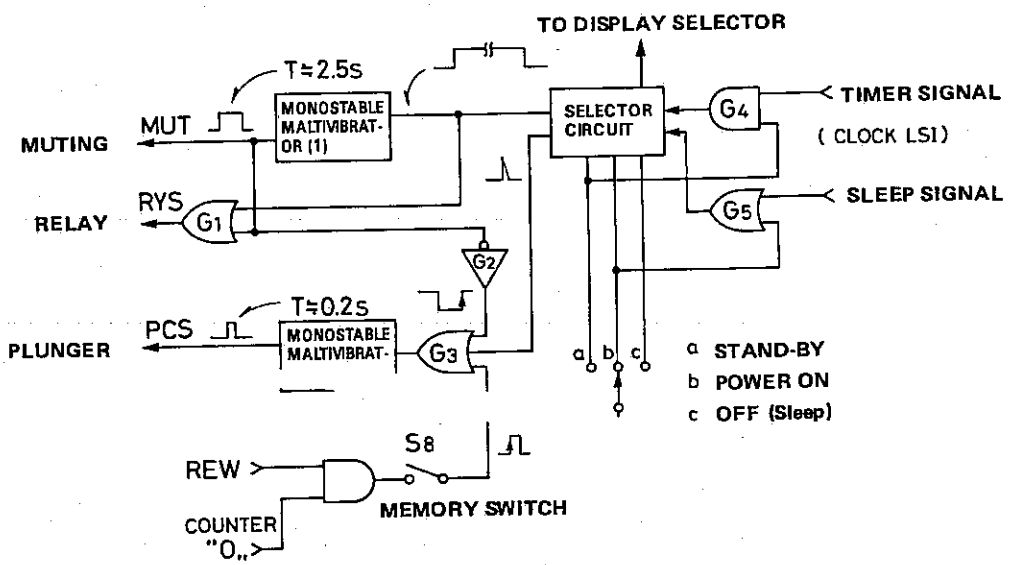


Fig. 8

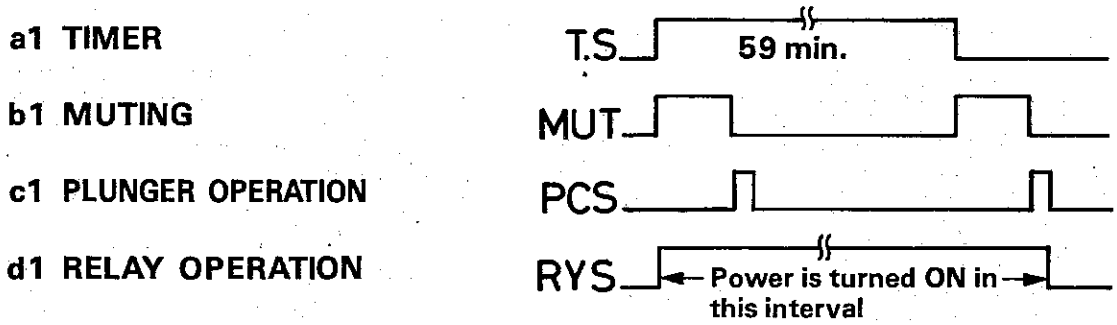


Fig. 9

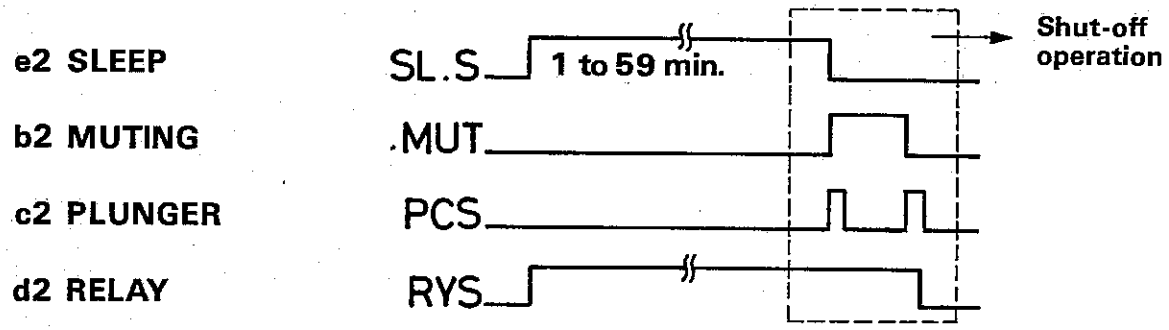


Fig. 10

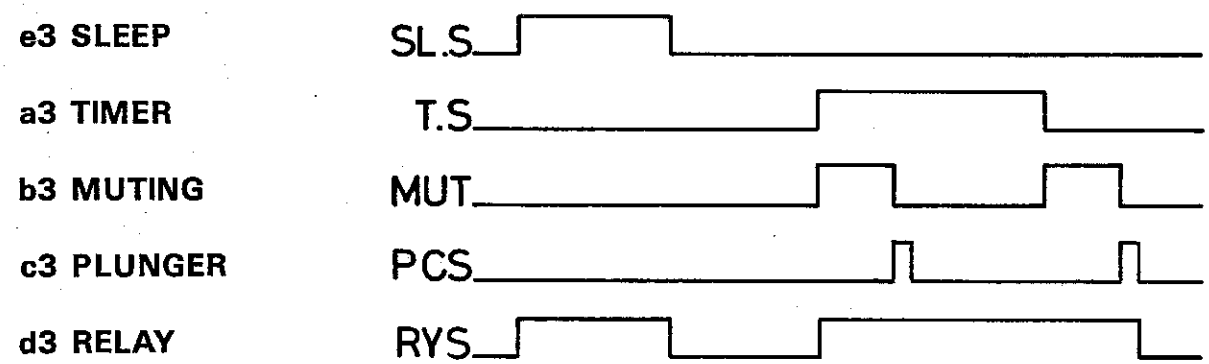


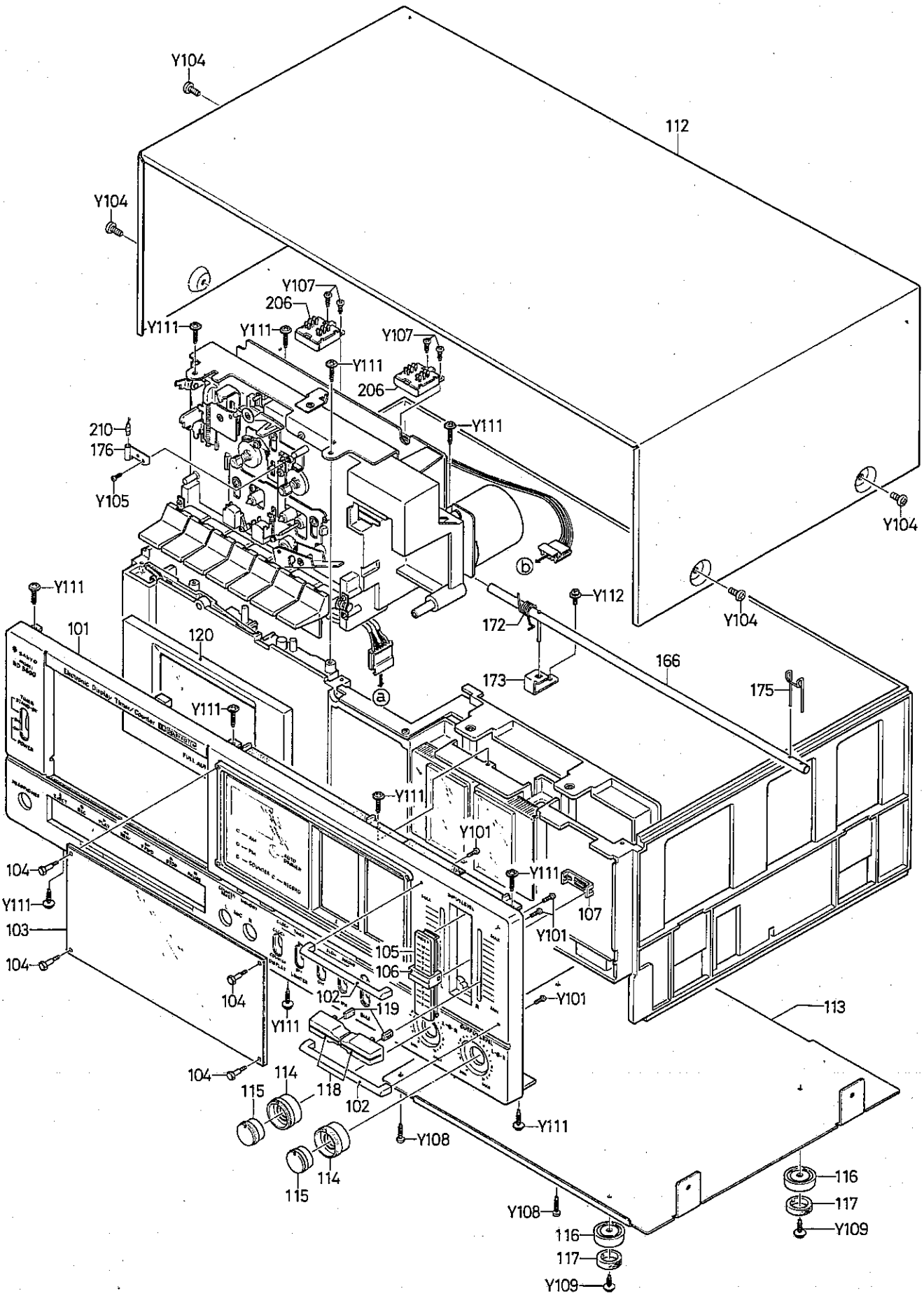
Fig. 11

(5) Other Functions

Memory counter

The memory counter will start counting down when the switch S6, which is interlocked with the REW button, is turned OFF. When the counter counts down to zero, a detector circuit will the zero count and generate a signal. This signal is supplied, through the switch S8, to the monostable multivibrator II to generate the plunger driving signal, which stops the mechanism to attain the purpose.

When the power switch S7 is turned OFF, the display will automatically changed into the clock mode to prevent misinterpretation of the display.


Y104
112
Y104
Y107
206
Y111
Y111
Y107
Y111
206
Y111
210
176
Y105
Y104
Y111
101
120
172
Y112
Y104
166
173
175
Y111
Y111
Y101
104
Y111
103
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Y111
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Y101
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Y101
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Y111
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Y109
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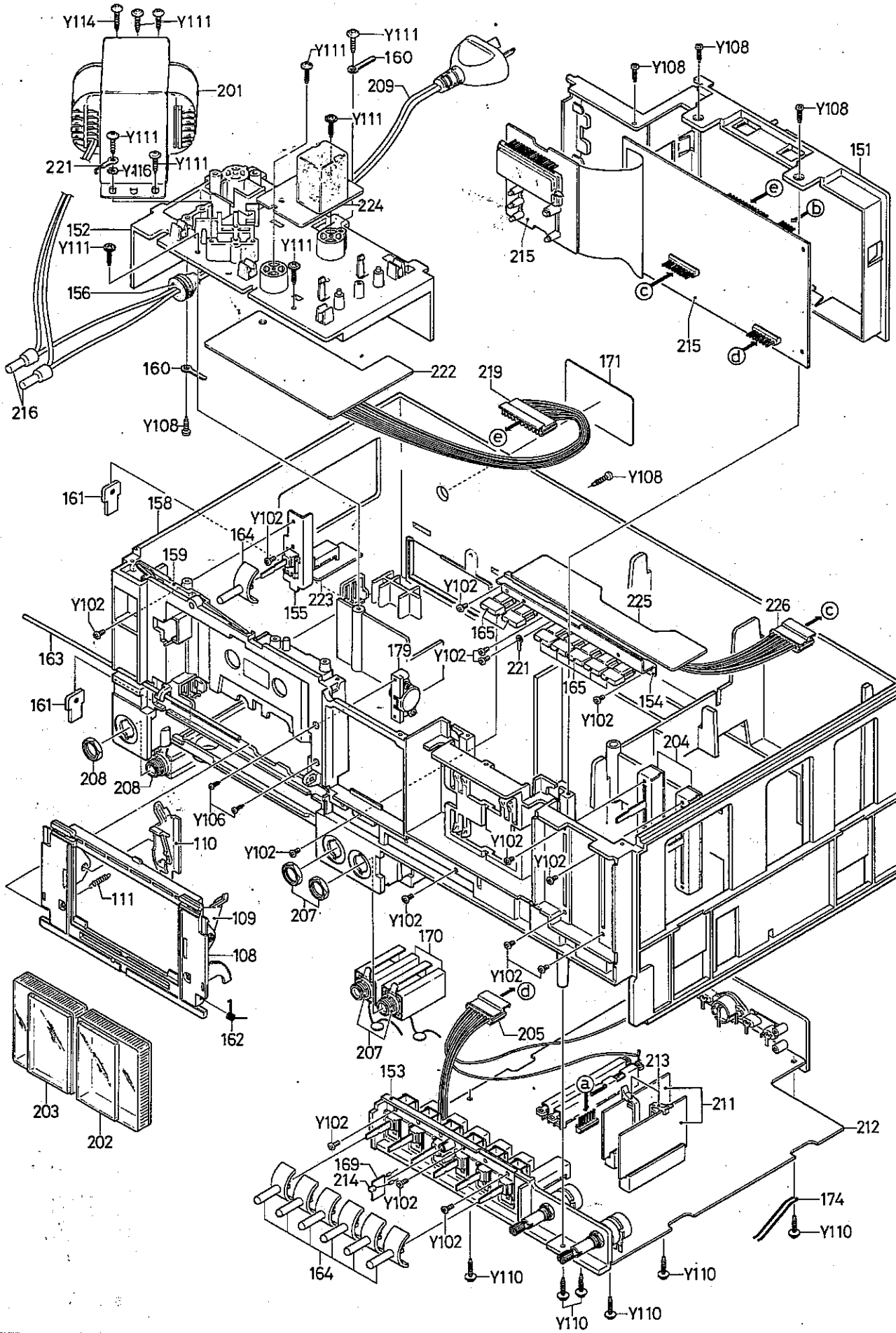
Y109

CHASSIS EXPLODED VIEW



PARTS LIST

Ref. No.	Part No.	Description	Q'ty
	MECHANISM		
1	141-2-311T-22302 or 141-2-311T-22303	Chassis, Mechanism	1
2	141-2-411T-02601	Plate Nut, Flywheel Bearing (133) Mtg.	1
3	141-2-472T-06000	Lug, Flywheel (24) Earth	1
4	141-9-731T-53100	Slide Assembly, Brake	1
5	141-2-852T-40900	Wire Spring, Brake Slide (4) Pressure	1
6	141-2-365T-34000	Bracket, Switch	1
7	141-2-315T-12701	Reinforcement, Chassis	1
8	4-527T-10300	DC Motor	1
9	141-2-445T-11801	Rubber Cushion, Motor Mtg.	3
10	141-2-421T-16000	Order Screw, Motor Mtg.	2
11	141-2-461T-26200	Pipe, Motor Mtg.	1
12	141-0-661T-71491	Pulley Assembly, Motor	1
13	123-2-472R-00401	Lug, Motor Earth	2
14	141-0-741T-95791	Lever Assembly, Play Push Up	1
15	141-2-851T-79800	Coil Spring, Lever (14) Mtg.	1
16	141-0-741T-18500	Lever Assembly, Lever (14) Drive	1
17	141-2-683T-29800	Ring, Lever (16) Mtg.	1
18	141-2-851T-73500	Coil Spring, Play Pressure	1
19	141-2-731T-46600	Slide, Stop	1
20	141-2-851T-87700	Coil Spring, Slide (19) Restore	1
21	141-0-545T-03300	Lever Assembly, Pinch Roller	1
22	141-2-457T-11100	Special Washer, Motor Mtg.	1
23	141-2-322T-37600	Shield Plate, Motor Noise Schield	1
24	141-0-521T-07400	Flywheel Assembly	1
25	141-2-457T-04300	Special Washer, Flywheel (24) Mtg.	1
26	141-2-577T-05000	Bracket, Bearing	1
27	141-2-524T-07401	Bracket, Flywheel (24) Mtg.	1
28	141-2-411T-07300	Plate Nut, Bracket (26)(27) Mtg.	1
29	141-2-573T-06900	Bearing, Flywheel Thrust Hold	1
30	141-2-855T-02100	Coil Spring, Flywheel Thrust Hold	1
31	141-2-561T-03800	Flat Belt, Main	1
32	141-2-472T-01200	Lug, Flywheel Bracket (27) Earth	1
33	141-2-472T-01201	Lug, Lead Wire Dressing	2
34	141-0-531T-05100	Reel Plate Assembly, Take Up Reel	1
35	141-2-661T-16103	Pulley, F.FWD	1
36	141-2-452T-01200	Felt Washer, PLAY Slip	1
37	141-2-661T-15201	Pulley, PLAY	1
38	141-2-457T-06200	Special Washer, Reel Thrust	2
39	141-2-562T-03300	Round Belt	1
40	141-0-531T-05200	Reel Plate, Supply Reel	1
41	141-2-851T-62900	Coil Spring, Back Tension	1
42	141-0-622T-02500	Roller Assembly, REW Roller	1
43	141-2-374T-09901	Bracket, Photo Transistor Holder	1
44	141-2-374T-10001	Bracket, Photo Transistor Holder	1
45	141-0-731T-14200	Slide Assembly, Head Slide	1
46	141-2-855T-02201	Coil Spring, PLAY Slide (S7) Connect	1
47	141-2-852T-37600	Wire Spring, Pinch Roller Pressure	1
48	4-242T-20500	Magnetic Head, R/P Head	1
49	4-242T-16800	Magnetic Head, E Head	1
50	141-2-851T-49700	Coil Spring, R/P Head Mtg.	1
51	123-2-472R-00200	Lug, Head Earth	1
52	141-2-462T-41200	Boss, E Head	2
53	141-2-472T-02400	Lug, Head Lead Wire Dressing	3
54	141-2-821T-10200	Tape Guide	1
55	141-2-853T-45401	Plate Spring, Head Slide Hold	1
56	141-2-855T-14000	Coil Spring, Play Slide (57) Restore	1
57	141-2-731T-46300	Slide, PLAY Slide	1
58	141-2-853T-41400	Plate Spring, Head Slide (45) Hold	1
59	141-0-731T-14300	Slide Assembly, F.FWD Slide	1
60	141-2-851T-61300	Coil Spring, Slide (59) Restore	1
61	141-2-731T-46400	Slide, REW Slide	1
62	141-2-731T-23401	Slide, REW Turn Over	1
63	141-2-851T-31500	Coil Spring, Slide (61)(76)(80) Restore	3
64	141-2-741T-43001	Lever, F.FWD Pressure	1
65	141-2-462T-41300	Boss, Slide (67) Mtg.	1
66	141-2-421T-19400	Order Screw, P.C.B. Mtg.	1
67	141-0-731T-14400	Slide Assembly, F.FWD Pressure	1
68	141-2-741T-43102	Lever, REW Turn Over	1
69	141-0-662T-02200	Roller Assembly, F. FWD & REW	1
70	141-2-851T-47802	Coil Spring, Slide (67) Mtg.	1
71	141-2-855T-10400	Coil Spring, Lever (64) Mtg.	1
72	141-0-741T-18700	Lever Assembly, REW Lever	1
73	141-2-661T-14902	Pulley, REW Pulley	1
74	141-2-457T-04100	Special Washer, Lever (72) Mtg.	1
75	141-2-851T-31600	Coil Spring, Lever (72) Restore	1
76	141-2-731T-46200	Slide, REC Slide	1
77	141-2-741T-93100	Lever, Safety Recording	1
78	141-2-855T-05000	Coil Spring, Lever (77)Restore	1
79	141-2-731T-45200	Slide, Miss Recording Detector	1
80	141-0-731T-14800	Slide Assembly, Eject Slide	1
81	141-0-741T-18600	Lever Assembly, Eject Lever	1
82	141-2-741T-93300	Lever, Cam Lever	1
83	141-2-731T-46900	Slide, Stopper	1
84	141-2-855T-05100	Coil Spring, Slide (83) Mtg.	1
85	141-2-741T-93400	Lever, Slide (80) Mtg.	1
86	141-2-731T-47200	Slide, Lever (87) Drive	1
87	141-2-741T-94200	Lever, Cassette Hold	1
89	141-0-731T-14500	Slide Assembly, Auto Shut-Off	1
90	141-2-855T-04900	Coil Spring, Slide (89) Lever Restore	1
91	141-2-462T-41000	Boss, Lever (16) Mtg.	1
92	141-2-737T-04700	Bracket, Button Slide Hold	1
93	141-0-731T-14600	Slide Assembly, Lock Slide	1
94	141-2-851T-74000	Coil Spring, Slide (93) Restore	1
95	141-2-851T-31600	Coil Spring, Slide (93) Lever Restore	1
96	141-2-611T-09100	Lever Push Button, EJECT Button	1
97	141-2-611T-09101	Lever Push Button, REC Button	1
98	141-2-611T-09102	Lever Push Button, PLAY, REW, F.FWD Button	3
99	141-2-612T-03600	Shaft, Push Button Mtg.	1
100	141-2-853T-45200	Plate Spring, Shaft (99) Mtg.	2
101	141-2-855T-04800	Coil Spring, Push Button Restore	7
102	4-235T-34573	Socket 6 pin, R/P Head	1
103	4-235T-34600	Socket 1 pin, E Head	2
105	141-2-731T-45600	Slide, STOP Slide	1
106	141-2-735T-10400	Rod, Coil Spring Hook	1
107	141-2-611T-09200	Push Button Lever, PAUSE Button	1
108	141-2-611T-09300	Push Button Lever, STOP Button	1
109	141-2-731T-45800	Slide, F.FWD PLAY Lock	1
110	141-2-731T-47400	Slide, F.FWD PLAY Lock	1
111	141-2-852T-37000	Wire Spring, F.FWD PLAY Lock	1
112	141-2-731T-45700	Slide, REC Slide	1
113	141-2-731T-45500	Slide, Safety Lock on PLAY	1
114	141-2-851T-59700	Coil Spring, Slide (113) Restore	1
115	141-2-737T-04600	Bracket, Slide Hold (Lower)	1
116	141-2-737T-04800	Bracket, Slide Hold (Upper)	1
117	141-2-853T-46601	Plate Spring, Button Earth	1
118	141-0-731T-14701	Slide Assembly, PAUSE Slide	1
119	141-2-851T-73800	Coil Spring, Slide (118) Restore	1
120	141-0-369T-00300	Bracket Assembly, Solenoid Mtg.	1
121	141-2-614T-05300	Lock Lever, PAUSE Lock	1
122	141-2-852T-35600	Wire Spring, Lock Lever (121) Restore	1
123	4-264T-06800	Magnetic Coil, Solenoid	1
124	141-2-741T-93702	Lever, PAUSE Lock Release	1
127	4-231T-60200	Switch	1
128	123-2-472R-00401	Lug, PL Lead Wire Dressing	1
129	141-2-378T-08700	Bracket, Motor (8) Mtg.	1
130	141-2-462T-43900	Boss, Motor Bracket (129) Mtg.	3
131	141-2-445T-19400	Rubber Cushion, Motor Bracket Mtg.	3
132	123-2-472R-00800	Lug, Motor Bracket Earth	1
133	141-0-573T-02100	Bearing Assembly, Flywheel (24) Shaft	1
134	141-2-457T-10200	Special Wahser, Reel Thrust	1
135	141-2-329T-04200	Reflector, Tape End Detector	1
136	4-231T-59700	Switch, REW Count Down	1
137	141-2-365T-36400	Bracket, Switch (136) Mtg.	1
138	141-2-852T-41000	Wire Spring, Lever (87) Pressure	1
139	141-2-462T-44200	Boss, Lever (87) Mtg.	1
140	141-2-855T-14900	Coil Spring, Slide (141) Restore	1

PARTS LIST

Ref. No.	Part No.	Description	Q'ty
		MECHANISM	
141	141-2-731T-55200	Slide, PLAY Slide	1
142	141-2-461T-17600	Pipe	1
143	141-9-226T-93373	Printed Circuit Board Assembly, Mechanism	1
	4-231T-50271	Switch	1
	4-237T-00100	Terminal, Wrapping	14
	4-235T-38800	Socket 5 pin	1
D501		Light Emitting Diode SLP114A01B	1
PHTr501		Photo Transistor PH101L	1
Q501,502, 503		Transistor 2SC945P,Q or 2SC536F,G	3
Q504		Transistor 2SA659E	1
Q505		Transistor 2SD438E	1
D502,503, 504,508		Diode 1S2473	4
D505		Diode 1N4001	1
D506		Diode DS-17 or DS-131	1
D507		Diode DS-18 or DS-132	1
D509		Diode 1S2472	1
		CAPACITORS	
C502		Electrolytic 10μF 16WV	1
C503		Electrolytic 47μF 25WV	1
C504,505		Electrolytic 100μF 16WV	2
C506		Electrolytic 10μF 25WV	1
C507		Electrolytic 1000μF 25WV	1
C508		Electrolytic 470μF 25WV	1
		RESISTORS	
All resistors are Carbon P type ±10% 1/4W unless otherwise noted.			
R501,505		1.2K ohm	2
R502,504, 510,521, 523,524		10K ohm	6
R503		82K ohm	1
R507		3.9K ohm	1
R508,512		47K ohm	2
R509		Solid 1.2K ohm ±10% 1/2W	1
R511		33K ohm	1
R513		1K ohm	1
R514		2.2K ohm	
R515		18K ohm	1
R516		4.7K ohm	1
R517		Solid 560 ohm ±10% 1/2W	1
R518		100 ohm	1
R519		Metal Oxide Film 39 ohm ±10% 2W	1
R520		Metal Oxide Film 18 ohm ±10% 1W	1
R522		5.6K ohm	1
144	141-2-445T-17400	Rubber Cushion, REC Slide Spacer	1
145	141-2-445T-18500	Rubber Cushion, PLAY Slide Spacer	1
		MECHANISM SCREWS	
Y1		Pan Head Screw 3 x 2mm	1
Y2		Pan Head Screw 2 x 8mm	2
Y3		Pan Head Screw 2 x 12mm	2
Y4		Pan Head Screw 2 x 6mm	2
Y5		Pan Head Screw 2.6 x 12mm	1
Y6		Pan Head Screw 3 x 4mm	2
Y7		Flat Head Screw 3 x 6mm	1
Y8		Pan Head Screw 3 x 8mm	4
Y9		Pan Head Screw 3 x 10mm	1
Y10		Tapping Screw 2.3 x 6mm	7
Y11		Tapping Screw 2.3 x 8mm	1
Y12		Tapping Screw 3 x 6mm	1
Y13		Tapping Screw 3 x 8mm	12
Y14		Tapping Screw 3 x 14mm	1
Y15		Flat Head Tapping Screw 3 x 6mm	3
Y16		Flat Head Tapping Screw 3x8mm	

Ref. No.	Part No.	Description	Q'ty
		MECHANISM SCREWS	
Y18		Nut 3mm	1
Y19		Washer 2.3 x 4.3 x 0.4mm	2
Y20		Washer 2.3 x 6 x 0.4mm	1
Y21		Washer 3 x 8 x 0.5mm	8
Y22		Washer 3 x 13 x 1mm	1
Y23		Spring Washer 2mm	3
Y24		Spring Washer 3mm	2
Y25		Internal Tooth Lock Washer 2.6mm	1
Y26		External Tooth Lock Washer 2.6mm	1
Y27		External Tooth Lock Washer 3mm	3
Y28		External "E" Ring 1.2mm	2
Y29		External "E" Ring 1.5mm	4
Y30		External "E" Ring 2mm	2
Y32		Graphite Nylon Washer 2.1 x 4 x 0.25mm	5
Y33		Fiber Washer 2.1 x 5 x 0.3mm	1
Y34		Graphite Nylon Washer 2.1 x 8.5 x 0.25mm	2
Y35		Graphite Nylon Washer 2.6 x 4.7 x 0.5mm	1
Y37		Graphite Nylon Washer 5.2 x 8.5 x 0.25mm	1
Y38		Fiber Washer 3 x 8 x 0.5mm	1
Y39		Steel Ball 2φ	5
Y40		Tapping Screw with Washer 3 x 6mm	10
Y41		Tapping Screw with Washer 3 x 8mm	1
Y42		Tapping Screw with Washer 3 x 10mm	4
Y43		Tapping Screw with Washer 3 x 12mm	3
Y44		Flat Head Screw 3 x 5mm	2
Y45		Spring Pin 2φ x 14mm	1
Y46		Graphite Nylon Washer 5.2 x 8 x 0.13mm	1
Y47		Cushion 3 x 4 x 1mm	1
Y48		Cushion 5.5 x 5.5 x 1mm	1
Y49		Vinyl Tube 4φ x 12mm	8

Ref. No.	Part No.	Description	Q'ty
PACKING			
	141-6-132T-75102	Individual Carton	1
	141-6-313T-03300	Side Pad	2
	141-6-411T-91802	Instruction Booklet	1
	123-6-453R-00100	Inspection Sheet	2
	141-6-231T-50705	Inner Polyethylene Bag, Set	1
	141-6-231T-20300	Inner Polyethylene Bag, Instruction Booklet	1
	141-6-231T-10300	Inner Polyethylene Bag, Power Cord	1
	141-6-231T-10200	Inner Polyethylene Bag, Lead Assembly	1
	141-6-479T-25600	Label, Dolby Label	1
	141-6-479T-26000	Label, Cabinet	1
ACCESSORIES			
	4-243T-13301	Lead Assembly	1
	4-241T-10282	Magnetic Tape, C-12	1
CABINET			
101	141-9-122T-07900	Front Panel Assembly	1
102	141-2-171T-11900	Handle	2
103	141-2-151T-14100	Decorative Panel, Clock Cover	1
104	141-2-421T-21800	Order Screw, (103) Mtg.	4
105	141-2-153T-26200	Escutcheon, Input Level Index	1
106	141-2-145T-02700	Index Knob, Input Level Index	1
107	141-2-262T-03800	Bracket Knob, Index Knob Mtg.	1
108	141-2-224T-08100	Bracket Lid, Top Lid	1
109	141-2-331T-02900	Holder, Cassette Right Side Hold	1
110	141-2-331T-03000	Holder, Cassette Left Side Hold	1
111	141-2-851T-99800	Coil Spring, Holder (109) (110) Mtg.	2
112	141-2-111T-30701	Cabinet	1
113	141-2-125T-10100	Bottom Lid	1
114	141-9-163T-00300	Rotary Knob Assembly, Mic & Output Level	2
115	141-9-163T-00400	Rotary Knob Assembly, Mic & Output Level	2
116	141-2-174T-05100	Stand, Bottom Lid Mtg.	2
117	141-2-441T-05000	Felt Cushion, Bottom Lid & Chassis Mtg.	4
118	141-2-164T-14900	Slide Knob, Input Level	2
119	141-2-352T-16200	Spacer, Slide Knob (118) Inside	2
120	141-0-124T-05300	Top Lid Assembly	1
CHASSIS			
151	141-2-312T-14700	Sub Chassis, Clock	1
152	141-2-312T-14801	Sub Chassis, Power Supply & PCB	1
153	141-2-210T-03600	Bracket, AMP P.C.B Mtg.	1
154	141-2-365T-36100	Switch Bracket, Push Switch Mtg.	1
155	141-2-365T-36200	Switch Bracket, Power Switch	1
156	141-2-445T-16200	Rubber Cushion, Power Cord	1
157	141-2-447T-35100	Cushion, 10x10x2mm, Sub Chassis	1
158	141-9-311T-00202	Chassis Assembly	1
159	141-2-741T-92700	Lever, Top Lid Lock	1
160	141-2-472T-01201	Lug, Lead Wire Dressing	2
161	141-2-411T-07600	Plate Nut, Cabinet Mtg.	2
162	141-2-851T-99700	Coil Spring, Top Lid Opener	1
163	141-2-753T-07400	Shaft, Top Lid	1
164	141-9-262T-00100	Bracket Knob Assembly, Switch Knob	7
165	141-2-161T-35300	Push Button, Clock Switch	7
166	141-9-753T-00100	Shaft Assembly, REC/PLAY Select	1
168	141-2-472T-06400	Lug, VR Earth	1
169	141-2-352T-24600	Spacer, LED Mtg.	1
170	141-2-322T-37800	Shield Plate, MIC Socket	2
171	141-2-141T-48500	Rating Plate	1
172	141-2-852T-35800	Wire Spring, REC/PLAY Select	1
173	141-2-731T-46000	Slide, REC/PLAY Select	1
174	141-2-852T-36600	Wire Spring, AMP P.C.B Earth	1
175	141-2-852T-37700	Wire Spring, REC/PLAY Select	1
176	141-2-374T-11300	PL Bracket, Pilot Lamp Mtg.	1
178	141-2-464T-08700	Fixer, Lead Wire Dressing	12
179	141-0-581T-00600	Gear Assembly	1

Ref. No.	Part No.	Description	Q'ty
ELECTRICAL PARTS			
201	4-251T-68400	Power Transformer	1
202	4-511T-07379	Meter, Right Side	1
203	4-511T-07380	Meter, Left Side	1
204	4-222T-49171	Slide Valiable Resistor, Line In	2
205	4-235T-39000	Socket, AMP & Clock Connect	1
206	4-231T-43000	Switch, Muting	2
207	4-235T-30600	Socket, MIC	2
208	4-235T-30500	Socket, Head Phone	1
209	4-243T-76600	Power Cord	1
210	4-612T-06494	Pilot Lamp, Cassette Light	1
213	141-2-464T-22800	Fixer, Dolby P.C.B	2
214	141-0-382T-00200	Terminal Assembly, Dolby ON/OFF Indicator	1
	141-2-382T-05300	Terminal SLP114B Lead Wire Extend	2
		Diode SLP114B Red	1
216	141-2-382T-07100	Terminal, Power Cord	2
219	4-235T-42300	Socket, From Power Supply P.C.B	1
221	141-2-472R-00401	Lug, P.C.B (225) & P.T Earth	2
226	4-235T-38900	Socket 7 pin	1
	4-230T-09900	Printed Circuit Board, Display	1
	4-985T-00100	Fluorescent Display	1
	141-2-352T-22800	Spacer, REC Indicator	1
	141-2-352T-22900	Spacer, Counter Indicator	1
	4-980T-00100	CDSS	1
CDS1 LED81 ~ 84		LED SLP114B, REC & Counter Indicator	4
D81,82 83		Diode 1S2473 or 1S1555	3
DOLBY PCB ASSY			
211	140-9-230T-06000	Printed Circuit Board Assembly, Dolby	2
L301,401	4-252T-02800	Choke Coil 23mH	2
L302,402	4-252T-05600	Choke Coil 36mH	2
IC301,401		IC NE545B	2
D301,401		Diode 1S188	2
		CAPACITORS	
C317,417		Ceramic 90pF ±20% 50WV	2
C318,418		Ceramic 220pF ±20% 50WV	2
C314,414		Mylar 0.0022μF ±10% 50WV	2
C315,415		Mylar 0.0027μF ±10% 50WV	2
C311,411		Mylar 0.0047μF ±5% 50WV	2
C312,412		Mylar 0.0056μF ±5% 50WV	2
C313,413		Mylar 0.027μF ±5% 50WV	2
C319,419		Mylar 0.047μF ±10% 50WV	2
C305,405, 308,408		Aluminum Electrolytic 0.1μF +150—10% 16WV	4
C309,409		Aluminum Electrolytic 0.33μF +150—10% 16WV	2
C301,401, 302,402		Electrolytic 1μF 25WV	4
C303,403, 306,406, 307,407		Electrolytic 10μF 16WV	6
C310,410		Electrolytic 220μF 16WV	2
		RESISTORS	
R311,411		Carbon 120 ohm ±10% 1/4W	2
R306,406		Carbon 180 ohm ±10% 1/4W	2
R301,401, 302,402		Carbon 1K ohm ±10% 1/4W	4
R304,404		Carbon 3.3K ohm ±10% 1/4W	2
R305,405		Carbon 47K ohm ±10% 1/4W	2
R303,403		Carbon 100K ohm ±10% 1/4W	2
R310,410		Carbon 150K ohm ±10% 1/4W	2
R308,408		Carbon 270K ohm ±10% 1/4W	2
R309,409		Carbon 680K ohm ±10% 1/4W	2
R307,407		Carbon 1M ohm ±10% 1/4W	2

PARTS LIST

Ref. No.	Part No.	Description	Q'ty
	AMP PCB ASSY		
212	140-9-230T-57900	Printed Circuit Board Assembly, AMP	1
S103	4-231T-62400	Switch, Equalizer Select	1
S104	4-231T-62300	Switch, Bias Select	1
	141-2-472T-06100	Lug, Volume Earth	1
	141-2-322T-37000	Shield Plate	1
S106	4-231T-58972	Switch, Dolby	1
S105,107,108	4-231T-59072	Switch, Limiter & MPX & Display	3
	4-235T-36471	Socket, Dolby	2
	4-235T-33800	Socket, Line In & Line Out & DIN	1
S101	4-231T-45600	Switch, REC/PLAY Select	1
S102	4-231T-45672	Switch, REC/PLAY Select	1
	4-236T-10273	Plug 6pin, REC/PLAY Head	1
	4-237T-00100	Terminal, Wrapping Pin	44
	4-222T-53100	Variable Resistor, MIC & Line Out	2
SVR101, 103, 104, 201, 203, 204	4-222T-39475	Semi Variable Resistor, REC & PLAY Gain	6
SVR102, 202	4-222T-39476	Semi Variable Resistor, Meter Adjust	2
SVR105,205	4-222T-39478	Semi Variable Resistor, Bias Adjust	2
	4-258T-12800	OSC Coil	1
L101,201	4-253T-01019	Choke Coil	2
L102,202	4-252T-05600	Choke Coil 36mH	2
L203	4-252T-06700	Choke Coil	1
		TRANSISTORS	
Q101,102, 103,201, 202,203		Transistor 2SC1571G	6
Q105,107, 108,109, 205,207, 208,209, 601,603		Transistor 2SC536G AUD	10
Q104,106, 204,206		Transistor 2SC945P	4
Q602		Transistor 2SD400F	1
		DIODES	
D101,103, 201,203		Diode 1S188AM	4
D102,202, 601,602, 603		Diode 1S2473	5
D604		Diode WZ172	1
		CAPACITORS	
C136,234		Ceramic 33pF ±20% 50WV	2
C112,212		Ceramic 68pF ±20% 50WV	2
C130,230		Ceramic 100pF ±10% 50WV	2
C105,110, 205,210, 235		Ceramic 100pF ±20% 50WV	5
C104,204, 131,231, 132		Ceramic 220pF ±10% 50WV	5
C617		Ceramic 330pF ±10% 50WV	1
C137		Ceramic 330pF ±20% 50WV	1
C101,201, 129,229, 232		Ceramic 470pF ±10% 50WV	5
C133,233		Ceramic 0.022μF+80–20% 50WV	2
C140		Mylar 0.001μF ±10% 50WV	1
C126,226, 614		Mylar 0.0022μF ±10% 50WV	3
C125,225, 139,239		Mylar 0.0033μF ±10% 50WV	4
C113,213		Mylar 0.0039μF ±10% 50WV	2
C108,208		Mylar 0.0068μF ±10% 50WV	2
C124,224		Mylar 0.015μF ±10% 50WV	2
C128,228		Mylar 0.022μF ±10% 50WV	2
C612,613		Mylar 0.022μF ±20% 50WV	2
C616		Mylar 0.033μF ±20% 50WV	1
C127,227		Mylar 0.047μF ±10% 50WV	2
C138,238		Aluminum Electrolytic 0.33μF 10WV	2

Ref. No.	Part No.	Description	Q'ty
	AMP PCB ASSY		
C107,207, 109,209, 111,211, 114,214, 115,215, 117,217, 122,222, 123,223, 606		Electrolytic 1μF 25WV	17
C103,203		Electrolytic 2.2μF 25WV	2
C611		Aluminum Electrolytic 4.7μF +40–20% 16WV	1
C102,202, 116,216, 118,218, 120,220, 121,221, 621		Electrolytic 4.7μF 25WV	11
C119,219		Electrolytic 22μF 16WV	2
C106,206		Electrolytic 47μF 6.3WV	2
C604		Electrolytic 47μF 16WV	1
C605		Electrolytic 47μF 25WV	1
C602,603, 609,610, 615		Electrolytic 220μF 16WV	5
C608		Electrolytic 220μF 25WV	1
C607		Electrolytic 1000μF 25WV	1
		RESISTORS	
R615		Solid 8.2 ohm ±10% 1/2W	1
R619		Carbon 8.2 ohm ±10% 1/4W	1
R102,202, 623		Carbon 10 ohm ±10% 1/4W	3
R621		Carbon 15 ohm ±10% 1/4W	1
R616		Carbon 27 ohm ±10% 1/4W	1
R604		Carbon 39 ohm ±10% 1/4W	1
R609		Carbon 100 ohm ±10% 1/4W	1
R107,207		Carbon 180 ohm ±10% 1/4W	2
R137,237, 618		Carbon 220 ohm ±10% 1/4W	3
R603		Carbon 330 ohm ±10% 1/4W	1
R155		Carbon 390 ohm ±10% 1/4W	1
R255		Carbon 390 ohm ±10% 1/4W	1
R148,248, 622		Carbon 470 ohm ±10% 1/4W	3
R118,218, 133,233		Carbon 560 ohm ±10% 1/4W	4
R129,229, 617		Carbon 680 ohm ±10% 1/4W	3
R136,236		Solid 680 ohm ±10% 1/2W	2
R602		Carbon 820 ohm ±10% 1/4W	1
R151		Carbon 1K ohm ±10% 1/4W	1
R110,210, 123,223, 251,606, 608		Carbon 1K ohm ±10% 1/4W	7
R147,247		Carbon 1.2K ohm ±10% 1/4W	1
R245		Carbon 1.5K ohm ±10% 1/4W	1
R144,244, 145		Carbon 1.5K ohm ±10% 1/4W	3
R130,230, 131,231		Carbon 1.8K ohm ±10% 1/4W	4
R116,216, 614		Carbon 2.2K ohm ±10% 1/4W	3
R122,222, 127,227		Carbon 2.2K ohm ±10% 1/4W	4
R119,219		Carbon 2.7K ohm ±10% 1/4W	2
R605,607		Carbon 3.3K ohm ±10% 1/4W	2
R146,246		Carbon 3.9K ohm ±10% 1/4W	2
R140,240		Carbon 4.7K ohm ±10% 1/4W	2
R103,203, 126,226, 139,239, 611		Carbon 5.6K ohm ±10% 1/4W	7
R109,209, 135,235, 612		Carbon 6.8K ohm ±10% 1/4W	5
R153,253		Carbon 8.2K ohm ±10% 1/4W	2
R104		Carbon 10K ohm ±10% 1/4W	1
R101,201, 138,238, 204		Carbon 10K ohm ±10% 1/4W	5
R106,206		Carbon 12K ohm ±10% 1/4W	2
R113,213		Carbon 15K ohm ±10% 1/4W	2

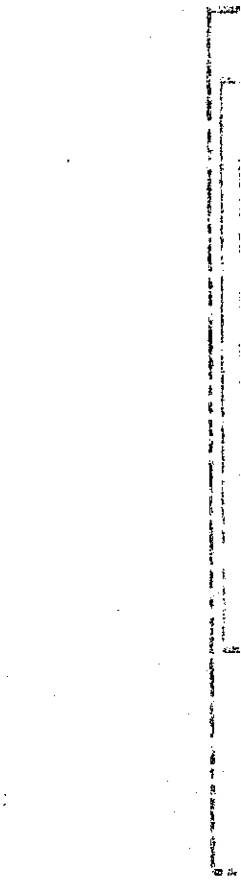
PARTS LIST

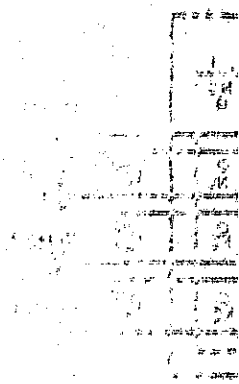
Ref. No.	Part No.	Description	Q'ty
AMP PCB ASSY			
R114,214, 143,243, 620		Carbon 18K ohm ±10% 1/4W	5
R121,221, 141,241		Carbon 22K ohm ±10% 1/4W	4
R124,224		Carbon 27K ohm ±10% 1/4W	2
R112,212, 115,215		Carbon 33K ohm ±10% 1/4W	4
R205,615		Carbon 47K ohm ±10% 1/4W	2
R150,250		Carbon 47K ohm ±10% 1/4W	2
R120,220		Carbon 56K ohm ±10% 1/4W	2
R132,232, 105,610		Carbon 100K ohm ±10% 1/4W	4
R125,225		Carbon 150K ohm ±10% 1/4W	2
R108,208, 134,234		Carbon 180K ohm ±10% 1/4W	4
R142,242		Carbon 220K ohm ±10% 1/4W	2
R613		Carbon 680K ohm ±10% 1/4W	1
R128,228		Carbon 820K ohm ±10% 1/4W	2
R149,249, 117		Carbon 1M ohm ±10% 1/4W	3
R217		Carbon 1M ohm ±10% 1/4W	1
R154,254		Carbon 1.8M ohm ±10% 1/4W	2
COUNTER & DISPLAY PCB ASSY			
215	140-9-230T-80600	Printed Circuit Board Assembly, Counter & Display	1
RA-1	4-221T-01500	Resistor	1
CN-P2	4-236T-10272	Plug 5pin, For Socket from Mechanism	1
CN-P3	4-236T-10275	Plug 8pin, For Socket (205)	1
CN-P4	4-236T-10276	Plug 9pin, For Socket (226)	1
CN-P1	4-236T-10280	Plug 13pin, For Socket (219)	1
CN-P5	4-236T-11980	Plug 10pin, For Flexible P.C.B	1
CN-P5	4-236T-11995	Plug 25pin, For Flexible P.C.B	1
	4-237T-00100	Terminal, Wrapping Pin	1
		TRANSISTOR	
Q1,2,3		Transistor 2SC536E or F or G	3
Q4		Transistor 2SC536F	1
Q5,6,7		Transistor 2SC945P or Q	3
		DIODE	
D1		Diode MV11T	1
D2~27		Diode 1S2473 or 1S1555	26
		IC	
IC1,3,5		IC TC4011P, NAND Gate	3
IC2		IC TC4049P, Inverter	1
IC4		IC TC4001P, NOR Gate	1
IC6		IC TC5010P, U/D Counter	1
IC7,8,9		IC TC5002P, Decorder	3
IC10		LSI MM5316N, Clock	1
		CAPACITOR	
C10,11, 12,15		Ceramic 330pF ±10% 50WV	4
C4,5,6 16,19		Ceramic 0.01μF $^{+80}_{-20}$% 50WV	5
C14,17		Mylar 0.01μF ±20% 50WV	2
C1		Mylar 0.022μF ±20% 50WV	1
C9,13		Aluminum Electrolytic 0.47μF $^{+40}_{-20}$% 16WV	2
C2		Aluminum Electrolytic 1μF $^{+40}_{-20}$% 16WV	1
C8		Aluminum Electrolytic 2.2μF $^{+40}_{-20}$% 16WV	1
C3,7		Electrolytic 10μF 16WV	2
		RESISTOR	
R1		Carbon 330 ohm ±5% 1/4W	1
R49		Carbon 560 ohm ±5% 1/4W	1
R2,24		Carbon 1K ohm ±5% 1/4W	2
R4,10		Carbon 1K ohm ±5% 1/4W	2
R28,29		Carbon 2.2K ohm ±5% 1/4W	2
R50		Carbon 3.3K ohm ±5% 1/4W	1
R6,19, 51		Carbon 4.7K ohm ±5% 1/4W	3
R8,9		Carbon 8.2K ohm ±5% 1/4W	1
R22		Carbon 8.2K ohm ±5% 1/4W	1

Ref. No.	Part No.	Description	Q'ty
COUNTER & DISPLAY PCB ASSY			
R15,16, 17,18, 31,33, 39,45		Carbon 10K ohm ±5% 1/4W	8
R14		Carbon 10K ohm ±5% 1/4W	1
R20		Carbon 12K ohm ±5% 1/4W	1
R7		Carbon 15K ohm ±5% 1/4W	1
R12		Carbon 15K ohm ±5% 1/4W	1
R11		Carbon 33K ohm ±5% 1/4W	1
R21		Carbon 33K ohm ±5% 1/4W	1
R13		Carbon 47K ohm ±5% 1/4W	1
R34~38, 40,43, 44,46, 47,5		Carbon 100K ohm ±5% 1/4W	11
R23,25,26,27,52		Carbon 100K ohm ±5% 1/4W	5
R3		Carbon 220K ohm ±5% 1/4W	1
R32		Carbon 560K ohm ±5% 1/4W	1
R30		Carbon 1.5M ohm ±5% 1/4W	1
POWER SUPPLY PCB ASSY			
222	140-9-230T-58700	Printed Circuit Board Assembly, Power Supply	1
R66	4-222T-32571	Semi Valiable Resistor	1
	4-237T-00100	Terminal, Wrapping Pin	17
Q8		Transistor 2SC945P or Q	1
Q9		Transistor 2SD330E	1
D63		Diode DS17	1
D64		Diode DS18	1
D60		Diode 1S2473 or 1S1555	1
D62		Diode WZ230	1
		CAPACITORS	
C62		Electrolytic 4.7μF 35WV	1
C65		Electrolytic 10μF 25WV	1
C63		Electrolytic 22μF 35WV	1
C64		Electrolytic 33μF 16WV	1
C61		Electrolytic 330μF 35WV	1
		RESISTORS	
R70		Carbon 10 ohm ±5% 1/4W	1
R65,67		Carbon 100 ohm ±5% 1/4W	2
R61		Metal Oxide Film 220 ohm ±5% 1W	1
R69		Solid 560 ohm ±10% 1/2W	1
R62,68		Carbon 1K ohm ±5% 1/4W	2
R63		Carbon 2.2K ohm ±5% 1/4W	1
R64		Carbon 15K ohm ±5% 1/4W	1
POWER SWITCH PCB ASSY			
223	140-9-230T-34400	Printed Circuit Board Assembly, Power Switch	1
	4-231T-62300	Switch, Power ON/OFF & Timer STAND-BY	1
RELAY PCB ASSY			
224	140-9-230T-59100	Printed Circuit Board Assembly Relay	1
	4-232T-04800	Relay	1
		Diode 1N4001	1
D90	4-237T-00100	Terminal, Wrapping Pin	7
D91		Diode DS17	1
CLOCK CONTROL SW PCB ASSY			
225	140-9-230T-34200	Printed Circuit Board Assembly, Clock Control Switch	1
S1,2	4-231T-62200	Switch	1
S3~7	4-231T-62100	Switch	1
R71		Carbon P 1K ohm ±5% 1/4W	1
SCREW MOUNTING			
Y101		Pan Head Screw 2.6 x 8mm	4
Y102		Pan Head Screw 3 x 6mm	16
Y104		Binding Head Screw 4 x 8mm	4
Y105		Tapping Screw 2.3 x 6mm	1
Y106		Tapping Screw 2.6 x 8mm	2
Y107		Tapping Screw 3 x 8mm	4
Y108		Tapping Screw 3 x 10mm	5
Y109		Tapping Screw with Washer 3 x 8mm	2

PARTS LIST

Ref. No.	Part No.	Description	Q'ty
SCREW MOUNTING			
Y110		Tapping Screw with Washer 3 x 10mm	6
Y111		Tapping Screw with Washer 3 x 12mm	19
Y112		Pre-assembled Screw with Washer & Spring Washer 3 x 6mm	1
Y114		Tapping Screw with Washer 3 x 16mm	1
Y115		Washer 4 x 8.5 x 0.45mm	2
Y116		External Tooth Lock Washer 3 x 6.5 x 0.45mm	1





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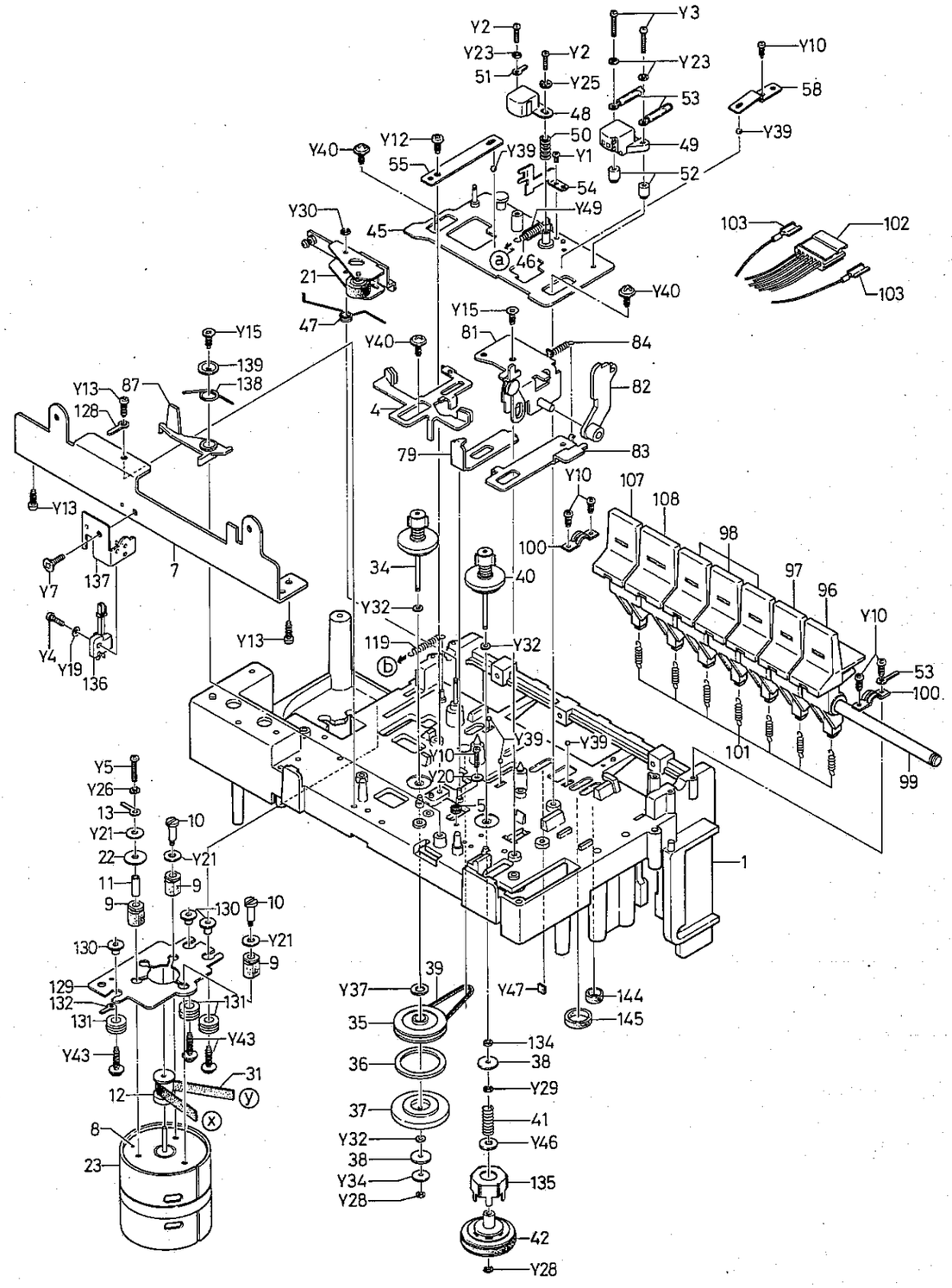
Y2
Y23
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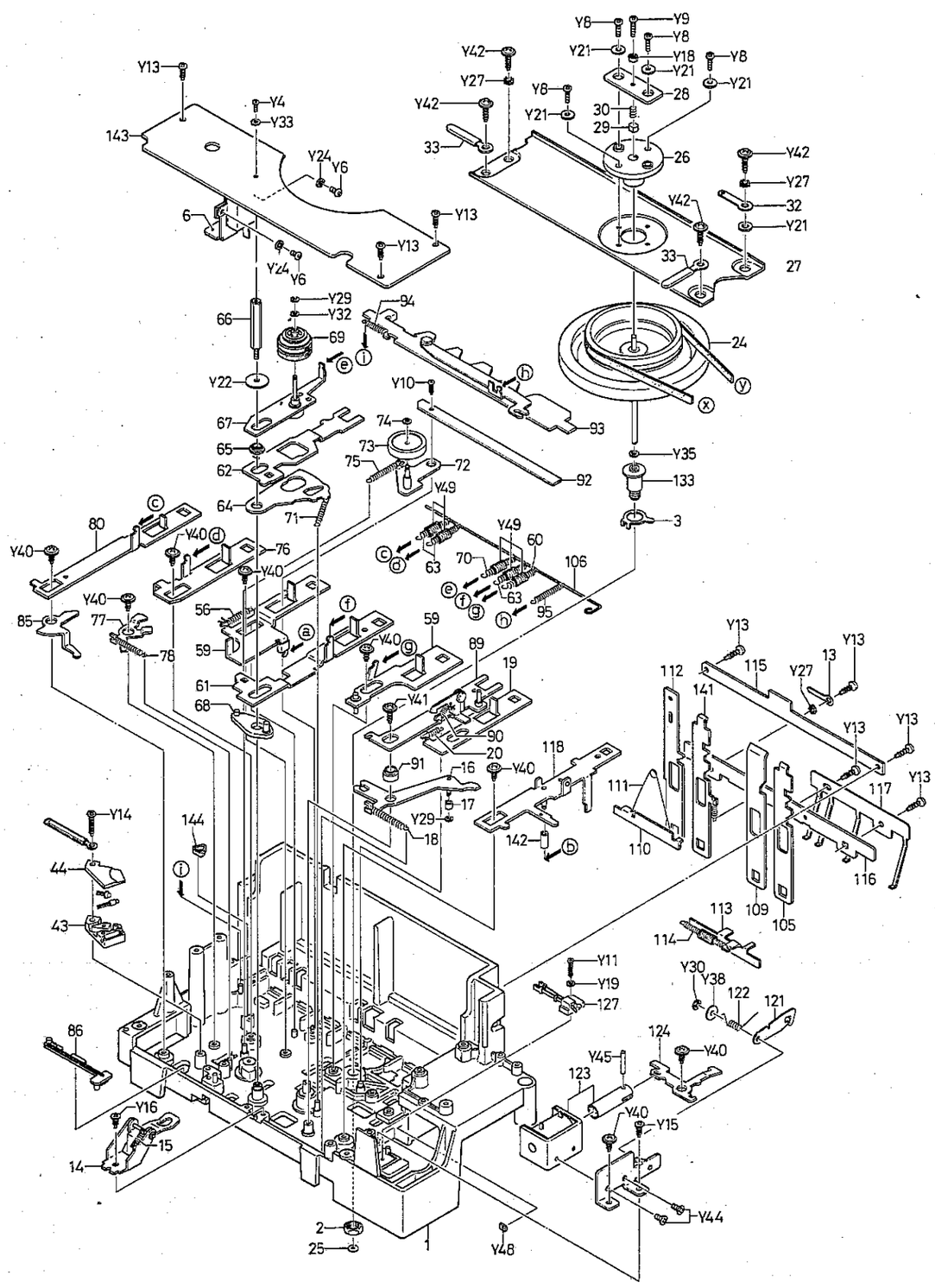
Y28


Y13
143
Y4
Y33
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117
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110
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105
Y14
144
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43
113
114
Y11
Y19
127
Y30
Y38
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Y45
Y40
123
Y40
Y15
Y16
15
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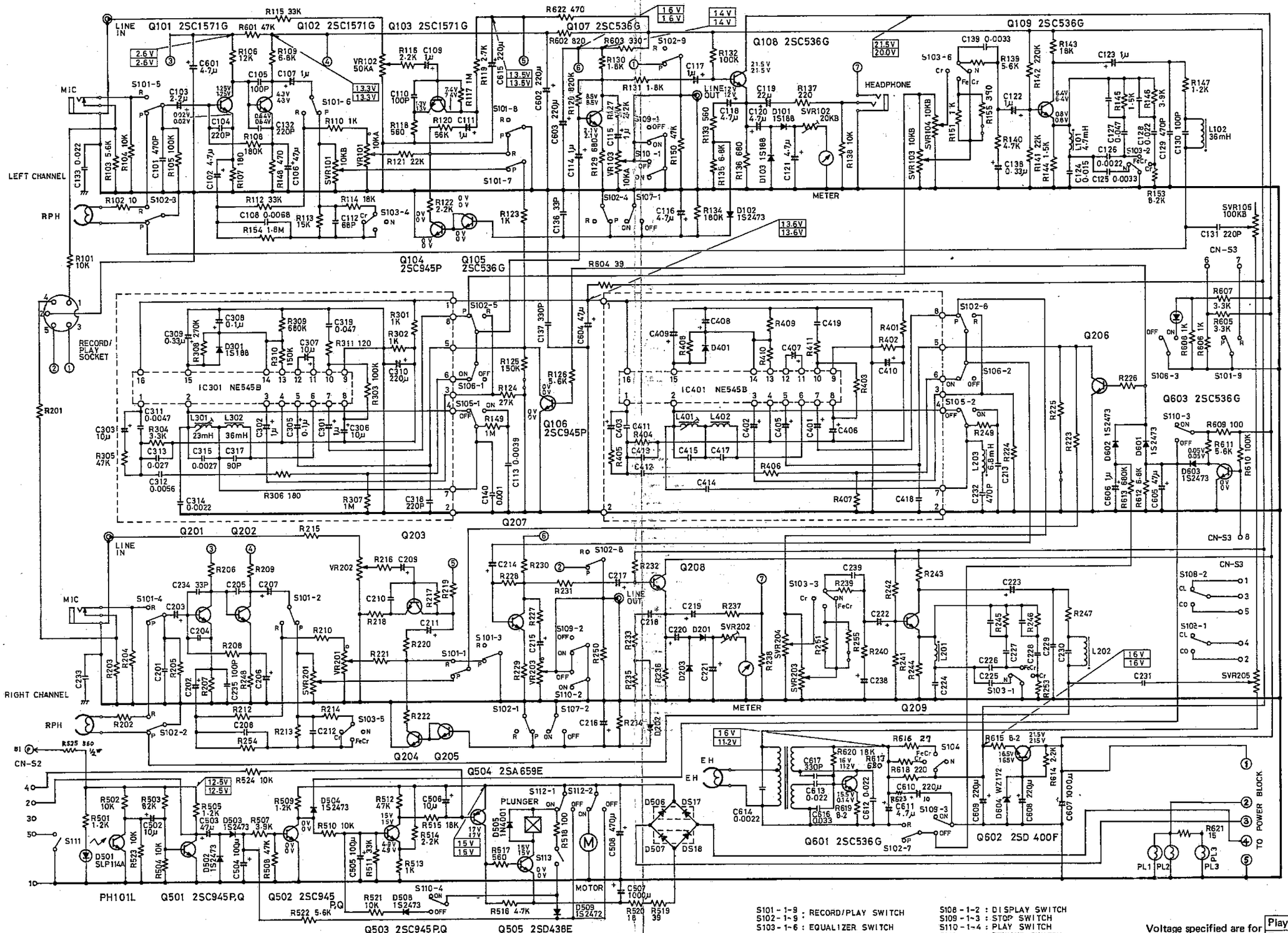
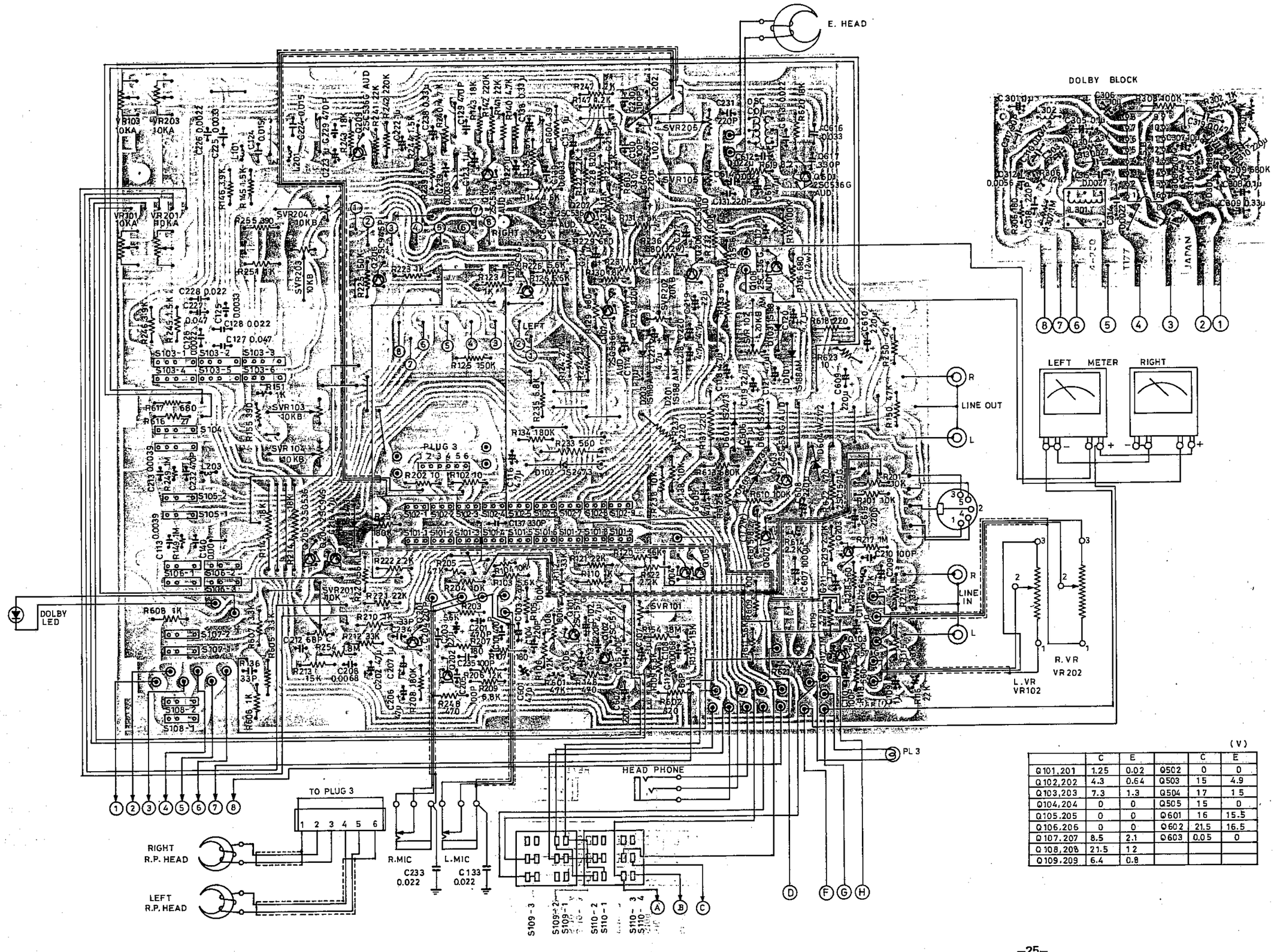
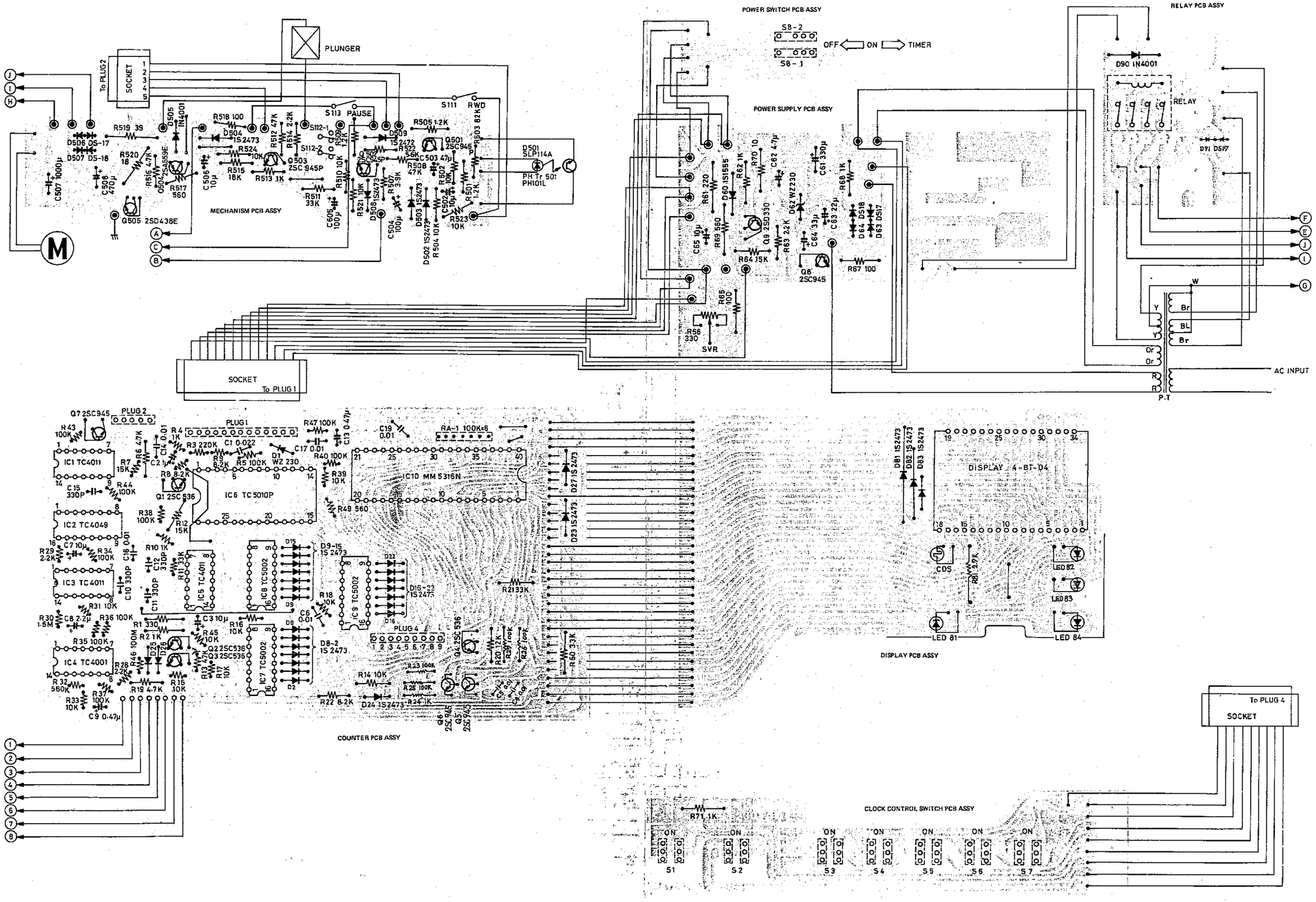
Y44
2
25
1
Y48

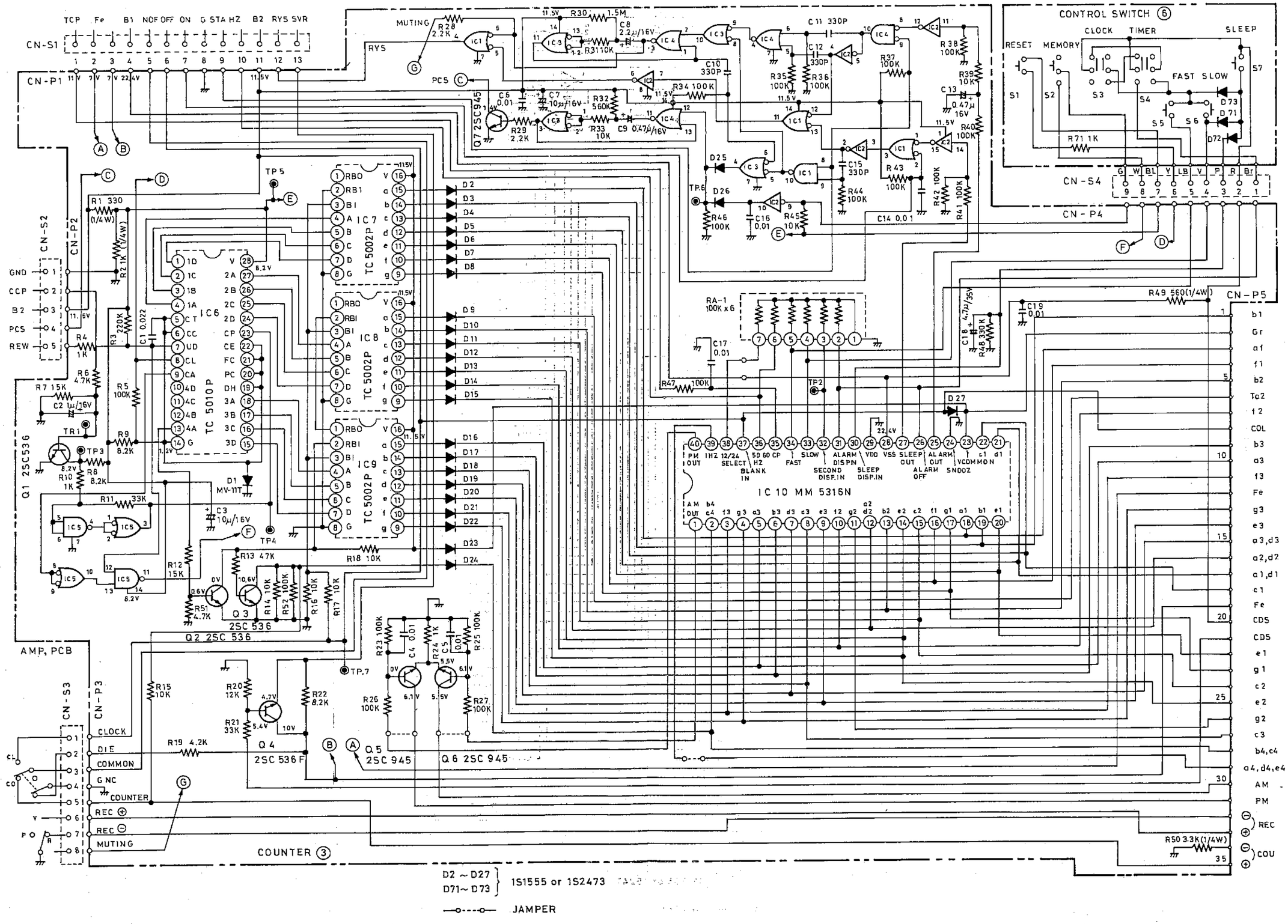

LINE IN
MIC
LEFT CHANNEL
RPH
RECORD/ PLAY SOCKET
RIGHT CHANNEL
EH
METER
HEADPHONE
LINE OUT
PLUNGER
MOTOR
TO POWER BLOCK
Q101 2SC1571G
Q102 2SC1571G
Q103 2SC1571G
Q104 2SC945P
Q105 2SC536G
Q106 2SC945P
Q107 2SC536G
Q108 2SC536G
Q109 2SC536G
Q201
Q202
Q203
Q204
Q205
Q206
Q207
Q208
Q209
Q501 2SC945P,Q
Q502 2SC945 P,Q
Q503 2SC945P,Q
Q504 2SA659E
Q505 2SD438E
Q601 2SC536G
Q602 2SD 400F
Q603 2SC536G
IC301 NE545B
IC401 NE545B
PH101L
D501 SLP114A
D601 1S2473
D602 1S2473
D603 1S2473
D102 1S2473
D103 1S188
D301 1S188
D401 1N4001
D506
D507
DS17
DS18
PL1
PL2
PL3
CN-S2
CN-S3
S101-1 ~ 9 : RECORD/PLAY SWITCH
S102-1 ~ 9 : STOP SWITCH
S103-1 ~ 6 : EQUALIZER SWITCH
S104 : BIAS SWITCH
S105-1 ~ 2 : MULCH SWITCH
S106-1 ~ 3 : DOLBY SWITCH
S107-1 ~ 2 : LIMITER SWITCH
S108-1 ~ 2 : DISPLAY SWITCH
S109-1 ~ 3 : STOP SWITCH
S110-1 ~ 4 : PLAY SWITCH
S111 : REWIND SWITCH
S112-1 ~ 2 : MECHANISM POWER SWITCH
S113 : PAUSE SWITCH
Voltage specified are for Playback Recording

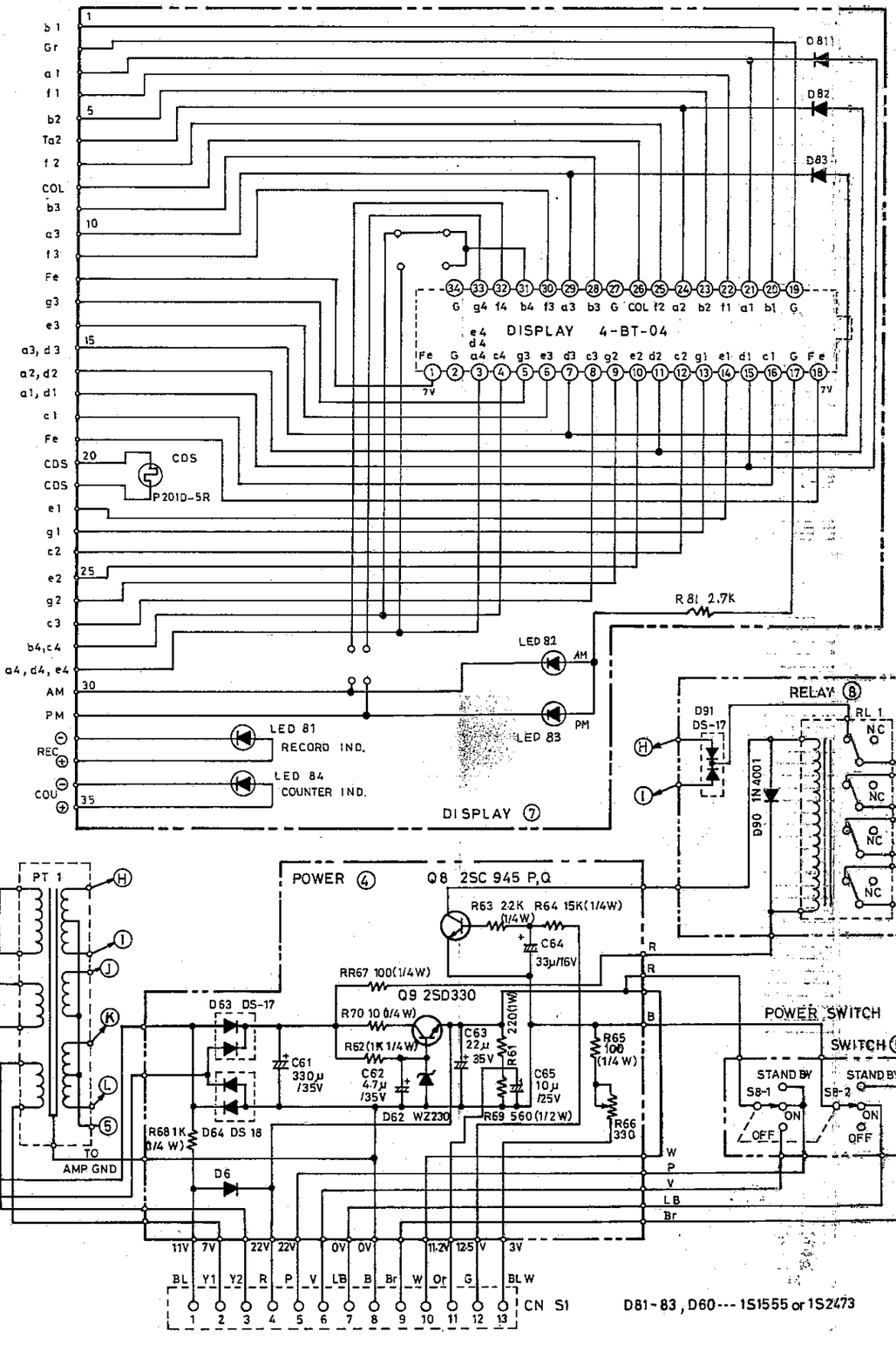


(V)

	C	E		C	E
Q101,201	1.25	0.02	Q502	0	0
Q102,202	4.3	0.64	Q503	15	4.9
Q103,203	7.3	1.3	Q504	17	15
Q104,204	0	0	Q505	15	0
Q105,205	0	0	Q601	16	15.5
Q106,206	0	0	Q602	21.5	16.5
Q107,207	8.5	2.1	Q603	0.05	0
Q108,208	21.5	12			
Q109,209	6.4	0.8			

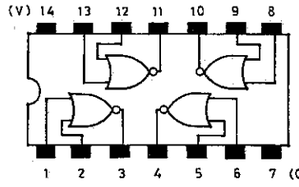

PLUNGER
SOCKET
To PLUG2
MECHANISM PCB ASSY
POWER SWITCH PCB ASSY
S8-2
S8-1
OFF
ON
TIMER
POWER SUPPLY PCB ASSY
RELAY PCB ASSY
D90 1N4001
RELAY
D91 DS17
SOCKET
To PLUG1
AC INPUT
P.T
PLUG2
PLUG1
PLUG4
IC1 TC4011
IC2 TC4049
IC3 TC4011
IC4 TC4001
IC5 TC4011
IC6 TC5010P
IC7 TC5002
IC8 TC5002
IC9 TC5002
IC10 MM5316N
COUNTER PCB ASSY
DISPLAY 4-BT-04
DISPLAY PCB ASSY
LED 81
LED 82
LED 83
LED 84
CDS
CLOCK CONTROL SWITCH PCB ASSY
To PLUG 4
SOCKET


CN-S1
TCP Fe B1 NOF OFF ON G STA HZ B2 RY5 SVR
CN-P1
MUTING
RY5
PCS
Q1 2SC536
Q2 2SC 536
Q3 2SC 536
Q4 2SC 536 F
Q5 2SC 945
Q6 2SC 945
Q72SC945
IC7 TC 5002P
IC8 TC 5002P
IC9 TC 5002P
IC6 TC 5010P
IC 10 MM 5316N
CONTROL SWITCH 6
CLOCK TIMER SLEEP
RESET MEMORY
FAST SLOW
CN-S4
CN-P4
CN-P5
CN-S2
CN-P2
CN-S3
CN-P3
AMP, PCB
COUNTER 3
CLOCK
DIE
COMMON
GNC
COUNTER
REC ⊕
REC ⊖
MUTING
RA-1 100K x 6
R49 560(1/4W)
R50 3.3K(1/4W)
D2 ~ D27
D71 ~ D73
1S1555 or 1S2473
JAMPER

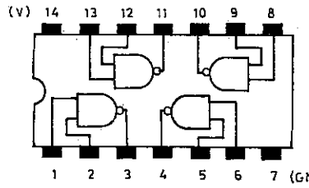


TOP VIEW

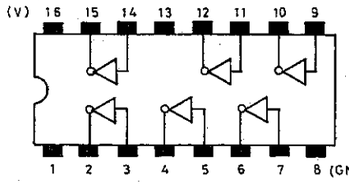
NOR GATE (IC 4)
TC 4001 P



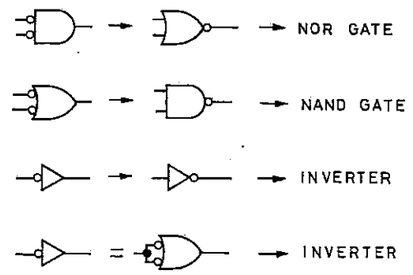
NAND GATE (IC 1,3,5)
TC 4011 P



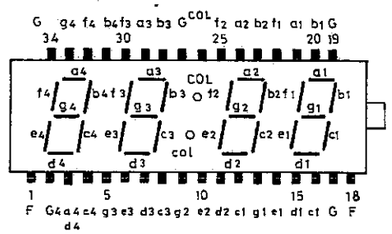
INVERTER (IC 2) TC4049P



NEGATIV POSITIV



FLUORESCENT DISPLAY 4-BT-04

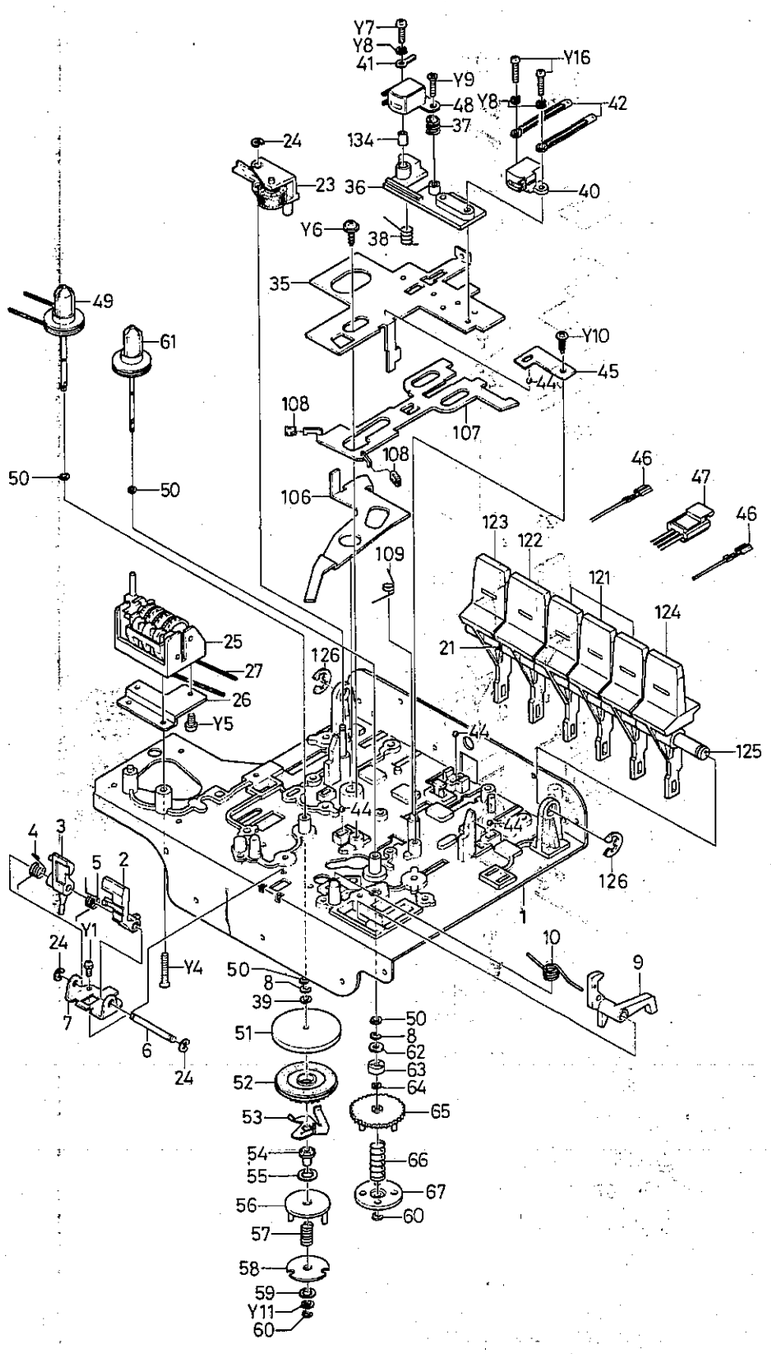


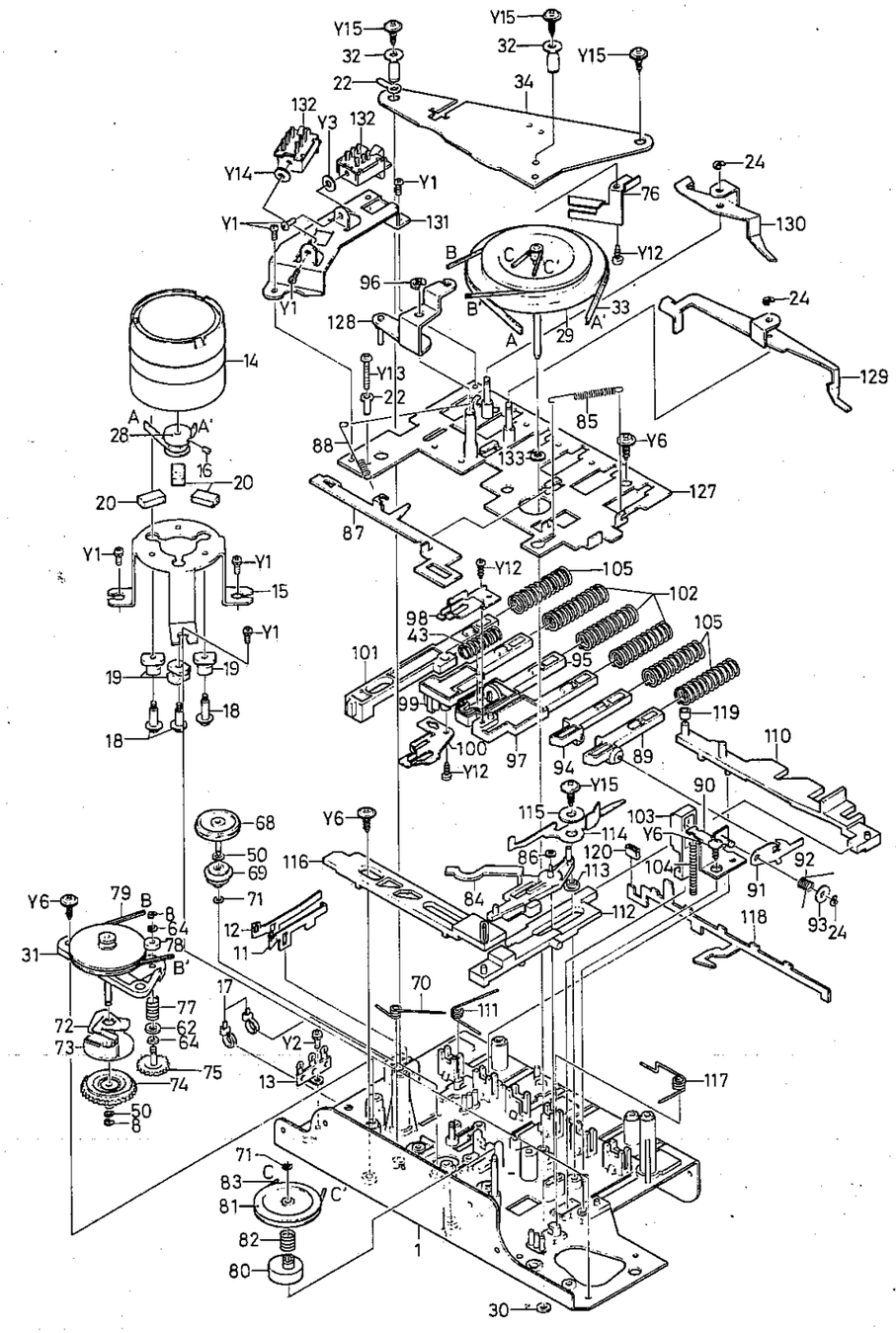
G------ INTERNAL CONNECTION

PARTS LIST

Ref. No.	Part No.	Description	Q'ty
SCREW MOUNTING (MECHANISM)			
Y1		Pan Head Screw with Spring Washer 2.6×4mm	9
Y2		Pan Head Screw with Spring Washer 3×4mm	1
Y3		Washer 3×8×0.5mm	1
Y4		Flat Head Screw 3×16mm	1
Y5		Pan Head Screw 3×6mm	2
Y6		Washer Head Tapping Screw 3×6mm	5
Y7		Pan Head Screw 2×10mm	1
Y8		Spring Washer 2mm	3
Y9		Flat Head Screw 2×11mm	1
Y10		Tapping Screw 3×6mm	1
Y11		Washer 2×6×0.4mm	1
Y12		Tapping Screw 2.3×6mm	2
Y13		Pan Head Screw 3×18mm	1
Y14		Washer 3×10×1mm	1
Y15		Washer Head Tapping Screw 3×8mm	3
Y16		Pan Head Screw 2×11mm	2

EXPLODED VIEW (MECHANISM)





IC501, IC551 LM1011N

NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PLAY	6.0V	6.2V	6.2V	6.2V	4.0V	6.2V	6.2V	6.2V	0 V	6.2V	6.2V	1.4V	1.45V	0.8V	0.38V
RECORD	5.7V	5.9V	5.9V	5.9V	3.8V	5.9V	5.9V	5.9V	0 V	6.0V	6.0V	1.4V	1.4V	0.8V	0.38V

2SC1571
2SC 536
2SC 945
2SD 545F

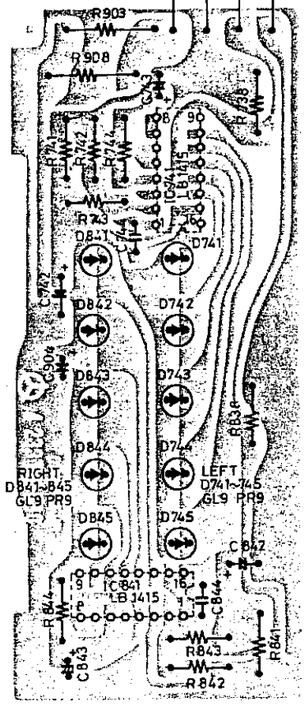
LB 1415

LM 1011 N

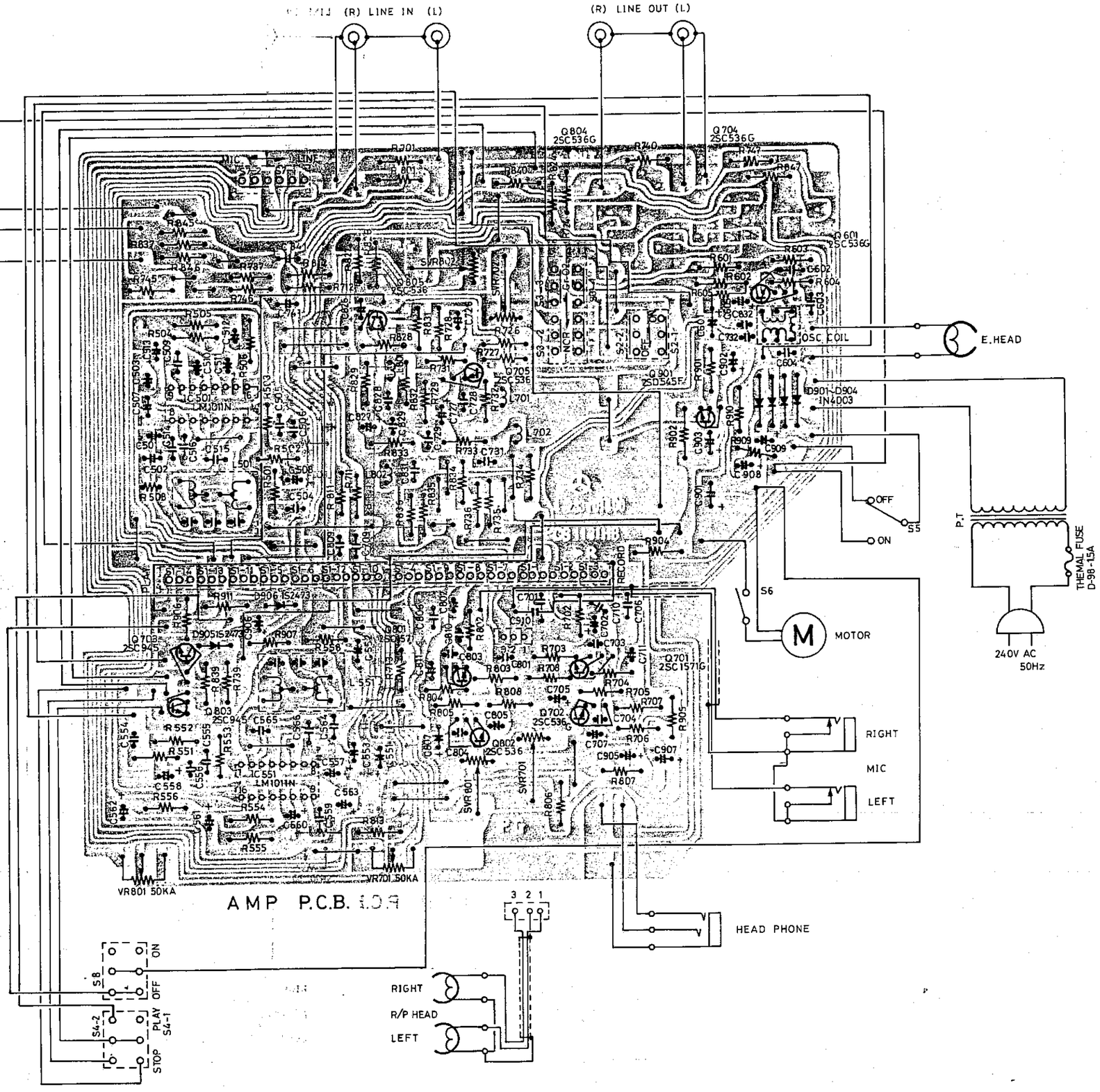
IC 741, 841 LB1415

NO.	PLAY	REC.	NO.	PLAY	REC.
1	0.66V	0.64V	9	—	—
2	—	—	10	9.4V	8.9V
3	—	—	11	9.4V	8.9V
4	11.0V	10.5V	12	9.4V	8.9V
5	2.8V	2.8V	13	9.4V	8.9V
6	2.8V	2.8V	14	9.4V	8.9V
7	0V	0V	15	—	—
8	0V	0V	16	—	—

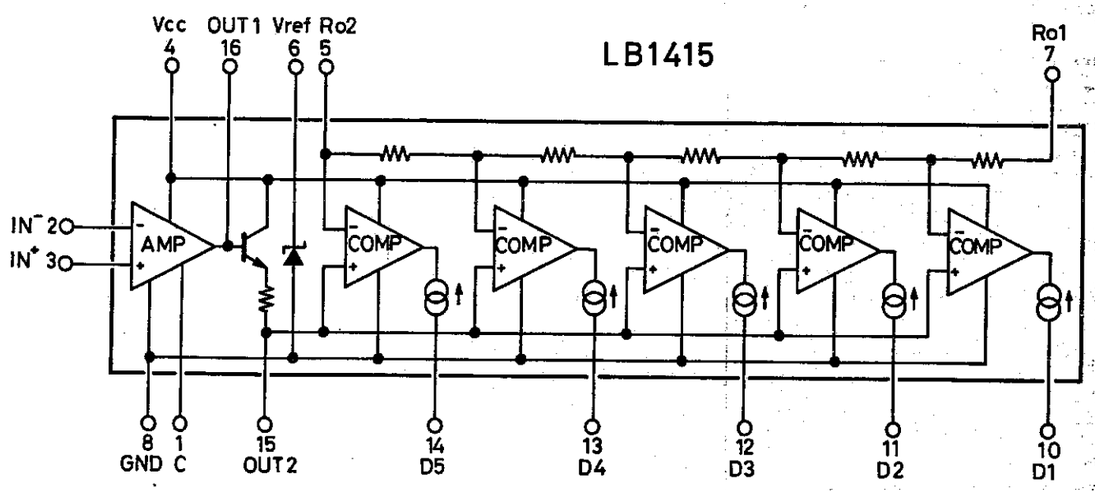
S1-1 ~ S1-14 .....R/P SWITCH
S2-1 ~ S2-2 .....DOLBY SWITCH
S3-1 ~ S3-3 .....TAPE SWITCH
S4-1 ~ S4-2 .....PLAY MUTE SWITCH
S5 .....POWER SWITCH
S6 .....MOTOR SWITCH
S7-1 ~ S7-2 .....INPUT SWITCH
S8 .....STOP MUTE SWITCH



VU INDICATOR P.C.B.



AMP P.C.B. ASS'Y



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