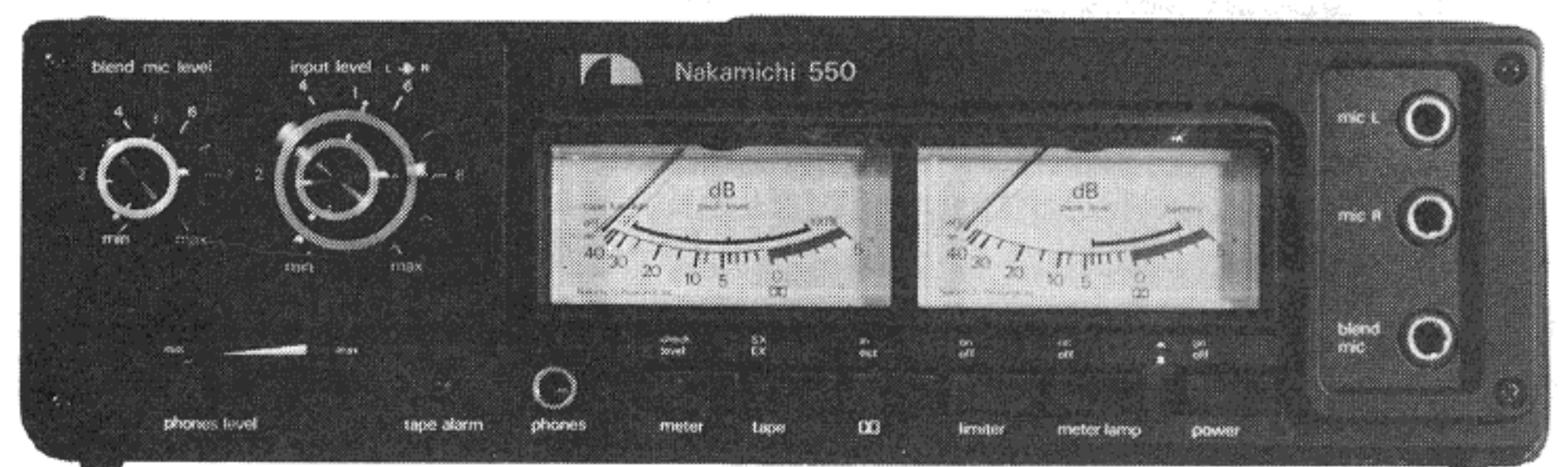
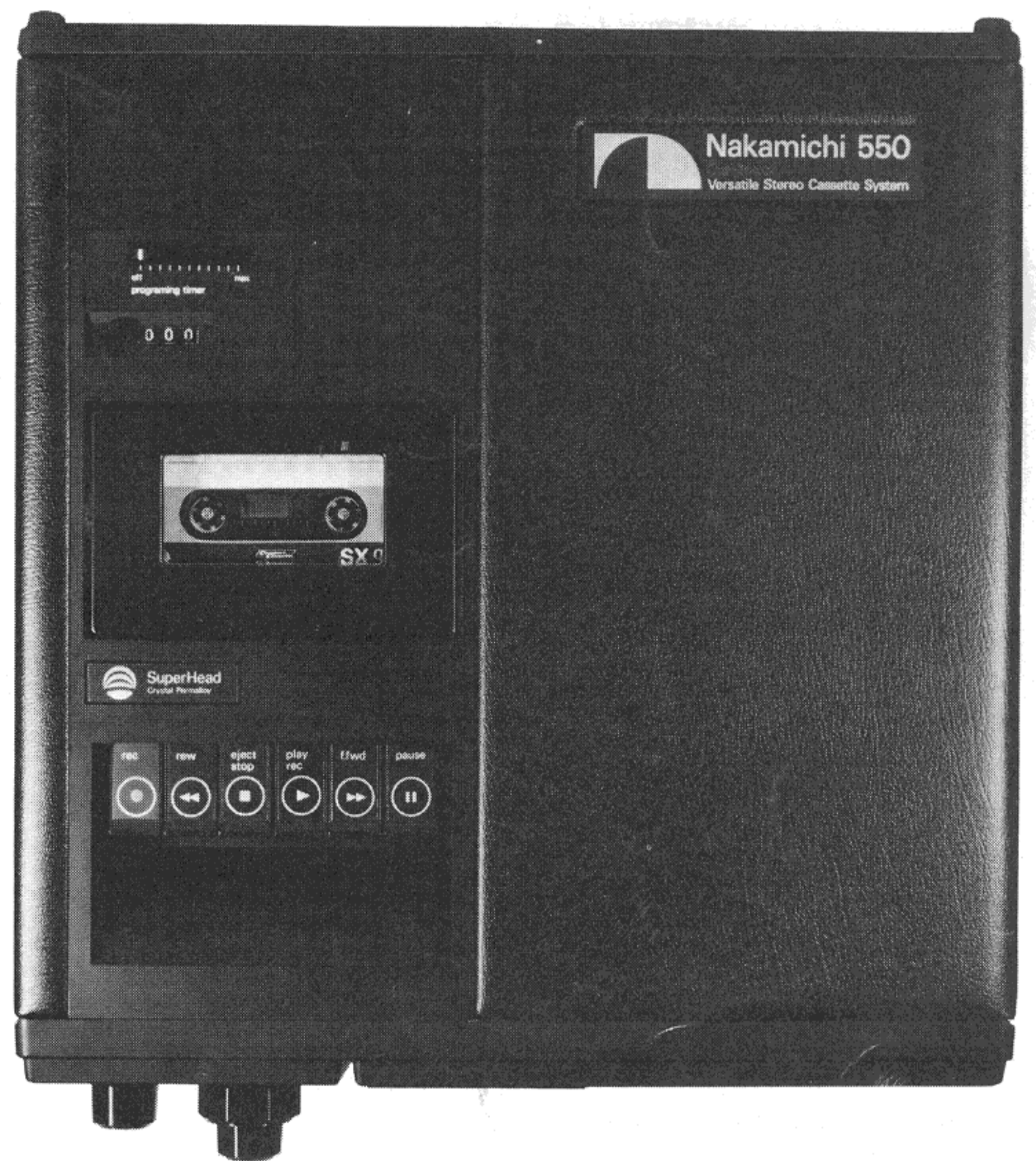




Service Manual

Nakamichi 550

2 Head Cassette System



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1. GENERAL

This is the second issue of the Nakamichi 550 Service Manual and applies to the Models bearing serial Nos. 3659471 and greater (for SX tape). Refer to chapter 12 "History on 550" for the Models bearing serial Nos. 3659470 and smaller for (CrO2 tape).

2. PRINCIPLE OF OPERATION

2.1. Tape Alarm and Shut-off Circuit

Refer to Fig. 2.1 circuit diagram.

This circuit has functions of shut-off detection, tape alarm indication, and a footage meter drive. The shut-off detection functions when the tape reaches an end during Play, F.F., or REW. The tape alarm LED displays intermittently when the tape residue reduces the volume set by the 550 Program Timer Knob. The footage meter indicates the tape residue.

During Play, F.F., or REW., the counter pulley linked to a take-up reel turns and switches a reed switch ON/OFF repeatedly by means of two magnets mounted in the pulley.

Since the tape speed is constant, the take-up tape diameter (tape residue) is directly proportional to the period of the reed switch ON/OFF operation as shown in Fig. 2.2.

Therefore, if a voltage in proportion to the reed switch ON/OFF period is obtained, the voltages at the beginning and end of tape, V_{BOT} and V_{EOT} , are respectively constant. Accordingly, the residue of a tape during its winding can always be determined by the voltage.

Each time the reed switch turns from ON to OFF, a positive differentiated pulse is impressed on the base of transistor Q906 through the capacitor C905, bringing Q906 to ON.

On the other hand, when Q906 is OFF, C906 and C907 will be charged from the current source Q905 with a

constant current linearly according to $V = \frac{1}{C} It$. Although C906 will discharge with the Q906 turned ON, C907 is prevented from discharging by the diode D905. Namely, D905 and C907 constitute a peak detector circuit, which serves to hold the voltage (V_{in}) corresponding to the reed switch ON/OFF period.

Q907, 908, and 909 make up a current amplifier which generates the voltage V_{out} corresponding to V_{in} .

Corresponding on V_{out} , the circuits function as follows:
Tape Alarm:

When V_{out} exceeds the voltage determined by the position of the Program Timer Knob (SV901 100 Kohm), Q911 and Q910 turn ON, thus illuminating the tape alarm LED display. With the reed switch turned ON, however, the display become intermittent, since the Q910, pulled to the GND side through diode D907, is turned OFF.

Footage Meter:

This meter indicates a tape residue, in response to the V_{out} .

Shut-off:

When ON/OFF operation of the reed switch stops at a tape end, V_{in} , i.e., V_{out} , increases beyond the shut-off threshold voltage (approximately 13.5V) that is determined by R926 and R927. Thus the Q912 is turned ON, and the shut-off signal is transmitted to the solenoid driver circuit.

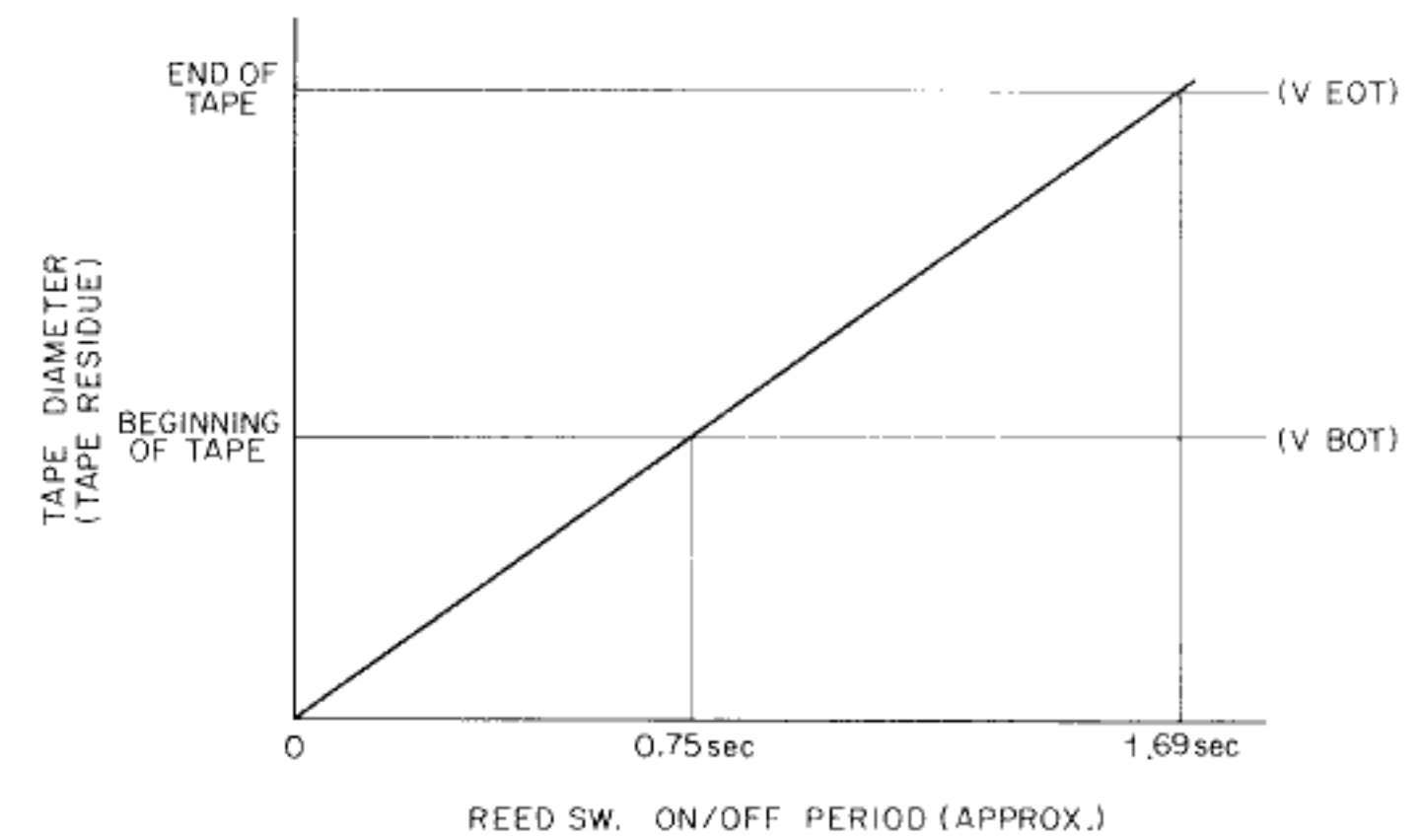


Fig. 2.2

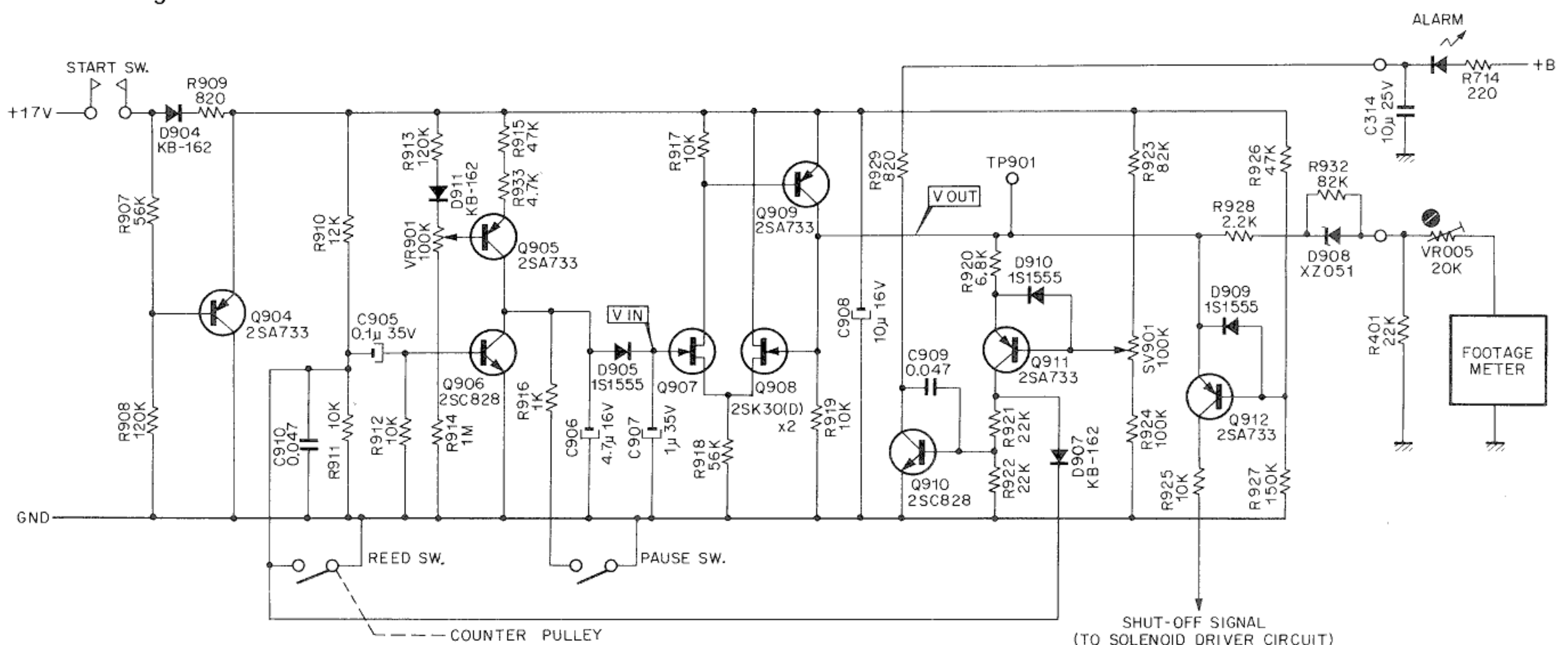


Fig. 2.1

2.2. Solenoid Driver Circuit

Refer to Fig. 2.3. circuit diagram.

Tape End

When Q912 in the shut-off circuit goes ON at a tape end, a positive differentiated pulse is impressed on the Q903 base through the C914, thus bringing Q903 to ON. Q903 causes the base current of Q902 to flow, turning Q902 ON, while supplied with the base current by Q902. Namely, Q903 and Q902, composing a memory circuit, are turned ON by a trigger of the shut-off signal.

With the Q902 turned ON, the charge of C902 (1000 μF) is discharged through the solenoid coil, and thus the solenoid is driven, releasing the Play, F.F., or REW. buttons. As a result, the start switch is released, cutting off the DC power supply to all mechanism, and stopping the motor.

Power Off

When the AC power supply of 550 is turned OFF, the shut-off operation is automatically performed.

C902 (1000 μF) is slow to discharge because of the diode D901.

On the other hand, since the power source is quick to discharge, the R901 is pulled toward GND side equivalently, leading the Q901 to ON.

Accordingly, the Q902 is turned ON, and the discharge current of the C902 actuates the solenoid to perform the shut-off operation.

2.3. DC-to-DC Converter

Refer to Fig. 2.4 circuit diagram.

Based on the input on the primary from the 6–12V DC cell, a secondary regulated 17V DC voltage can be obtained. The conversion efficiency is approximately 90%.

When a pulse input is impressed on the base of a transistor Q in the basic DC-to-DC converter circuit diagram as given Fig. 2.5, the Q repeats an ON/OFF operation. With the Q turned ON, a current flows through the coil L, and some electromagnetic energy is stored in it. When the Q is turned OFF, this energy is discharged through the diode D to the secondary side (R,C).

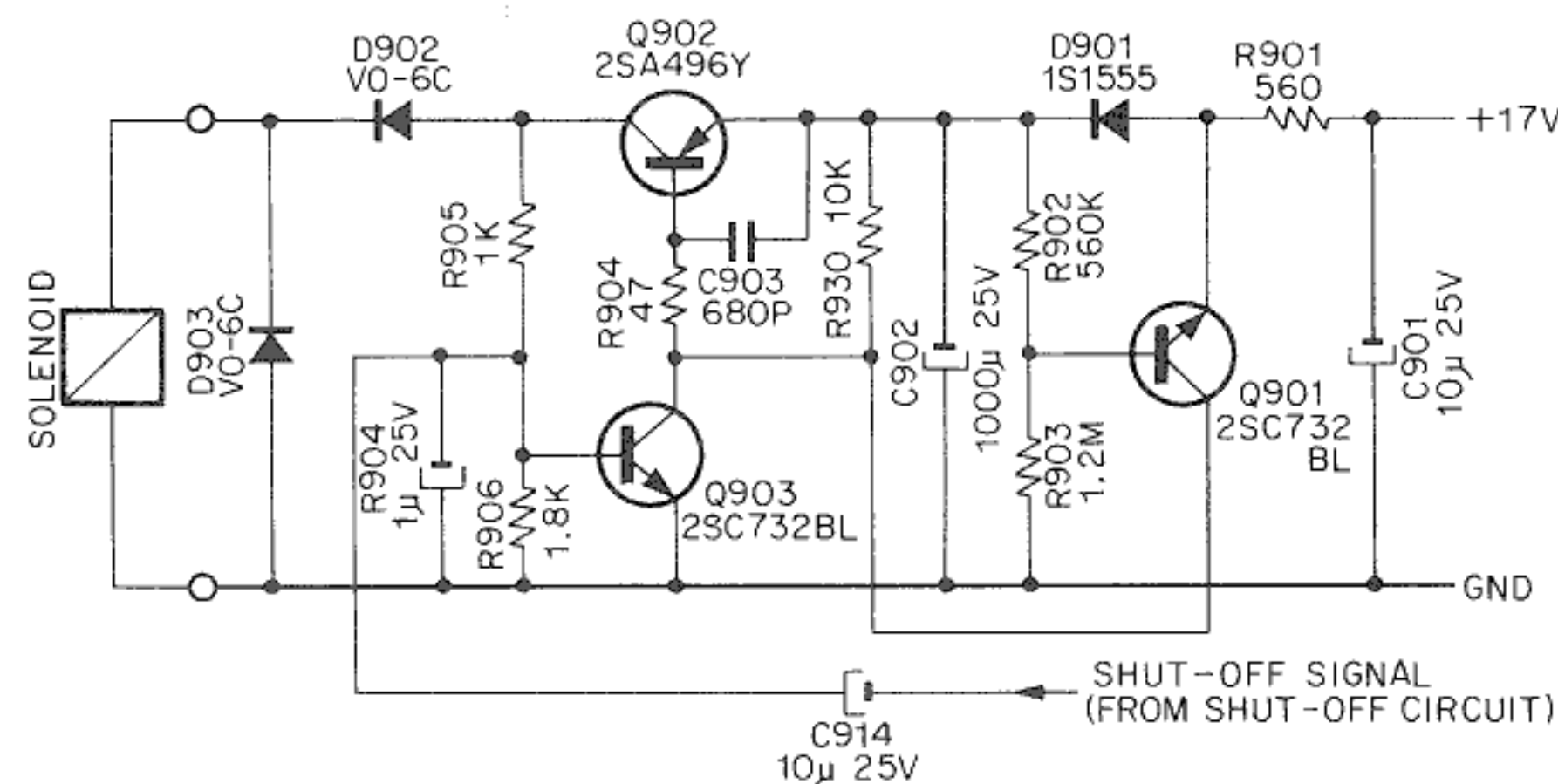


Fig. 2.3

In this way, the secondary voltage is kept at a higher value than the primary voltage. Moreover, when the pulse frequency input to the Q is changed, the amount of energy stored in the L will be changed and thus the secondary voltage can be varied, (the voltage decreases with the increasing frequency).

In the circuit diagram, Q301-Q302 constitutes a non-stable multivibrator, in which Q302 will be turned ON/OFF with a certain frequency. On the other hand, the zener diode D304 and the transistor Q303 serve to feedback the secondary voltage fluctuation to the primary side (Q301 base) and change the frequency of the multivibrator in order to maintain the secondary voltage constant.

The following are the descriptions on the principle of the Nakamichi's unique system which permits a higher conversion efficiency (about 90%) against the conventional system (70–75%). The key point involved in this system is the use of a current transformer CT301.

Conventional System without CT:

If the peak value of the current flowing through the coil (i.e. Q302 collector current), is taken as I_p under the condition of Q302 turned ON and if the current amplification degree of the Q302 is h_{FE} , a larger base current than I_p/h_{FE} will be required for the Q302 to reach its saturation. Therefore, the base resistor R303 must be small, and the power loss in the R303, during ON-period of the Q302 is equal to $I_p^2/R303$, resulting in reduction of the conversion efficiency due to the increase of loss on the primary side.

On the other hand, Q302 arranged in a Darlington connection allows a smaller base current; however, with Q302 turned ON, this connection produces a collector-emitter voltage of around 1V – equivalent to the reduction of the effective primary voltage – thus reducing the conversion efficiency.

New System with CT:

CT301 is connected between the collector and base of Q302, with a turn ratio in the almost same degree as the Q302's h_{FE} .

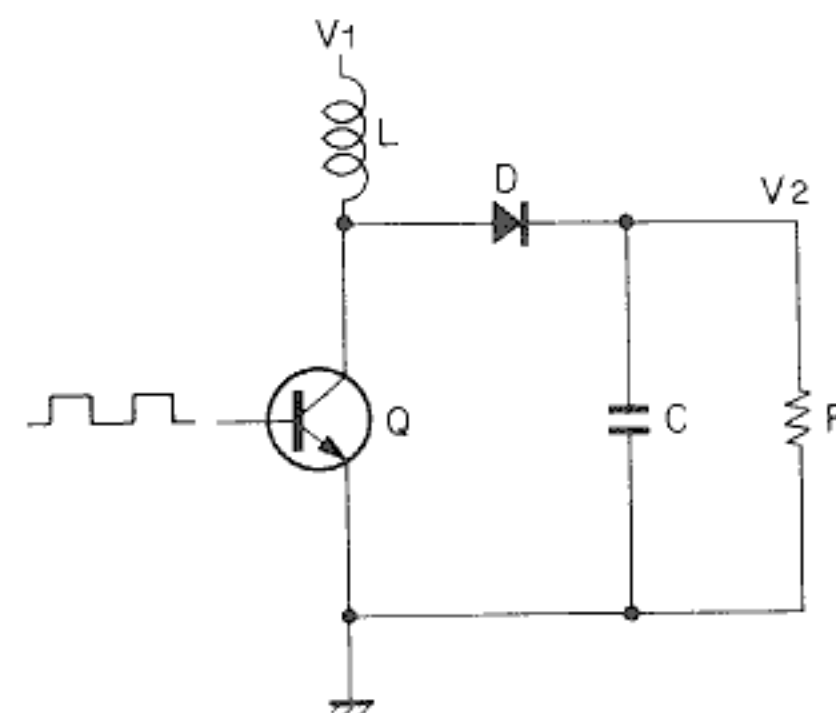


Fig. 2.5

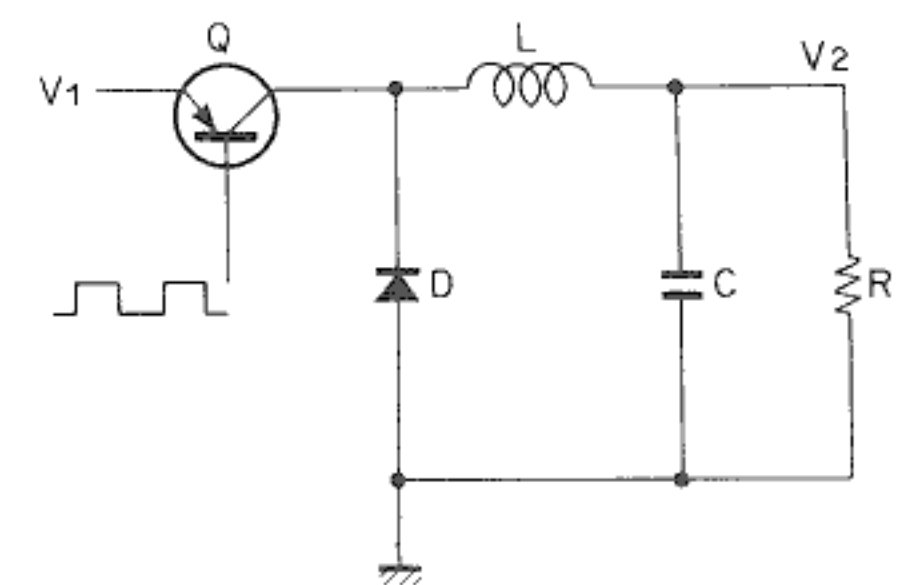


Fig. 2.6

When Q302 is ON, the current flowing in the coil and the primary side of CT301 (i.e. Q302 collector current : I_c) increases gradually from 0.

On the other hand, a current of $1/h_{FE}$ of the primary current (I_c) flows through the secondary side of CT301, and into the Q302 base. Therefore, Q302 is given via CT301 a sufficient base current for saturation. The small base current flowing through the Q302-base-resistor R303 leads to the very small power loss in R303.

The ON/OFF repetition frequency of Q302 is several-ten kHz.

2.4. Motor Governor

Refer to Fig. 2.4 circuit diagram.

For F.F. or REW. operation, the voltage of the PP301 terminal No. 1 is supplied to the motor and for playing operation, the voltage of the terminal No. 2 is supplied through the governor shown in the lower part of the drawing.

During Play, a feedback signal proportional to the motor revolution is input from the terminal No. 0 to the Q308 base. This signal is fed to the Q316 base of the differential amplifier (Q316-Q317) through the monostable multivibrators (Q309-Q310, Q311-Q312).

On the other hand, the Q317 base is connected to the motor supply voltage and the collector current controls the frequency of the non-stable multivibrator in the descending-voltage-type DC-to-DC converter, which determines the voltage fed to the motor.

The following is an explanation on the descending-voltage-type DC-to-DC converter employing the current transformer CT302.

To control the motor speed, it is necessary to supply a proper voltage to the motor. In the conventional system where the supply voltage is controlled by connecting a power transistor in series with the motor, there is a power loss in the form of thermal energy dissipated by the transistor, the amount of which is equal to the product of the collector current and the voltage difference between the power source and the motor terminals.

The 550 descending-voltage-type DC-to-DC converter performs a voltage conversion with very small power loss.

When in the basic circuit as given Fig. 2.6 the Q is turned ON, the voltage V_1 minus V_2 applied between both ends of the coil L leads to a current flow through the coil and some electromagnetic energy is stored in it.

When the Q is turned OFF, the energy stored in the L is supplied to the secondary side (R,C) through the diode D. Namely, on the secondary, the current increases in amount that corresponds to the voltage drop. Theoretically, this signifies a voltage conversion without power loss. CT302 functions in the same manner as described above and permits an extremely small power loss dissipated by the base resistor R345.

The ON/OFF frequency of Q321 varies with supply voltage to the motor in the range of 60 kHz – 150 kHz.

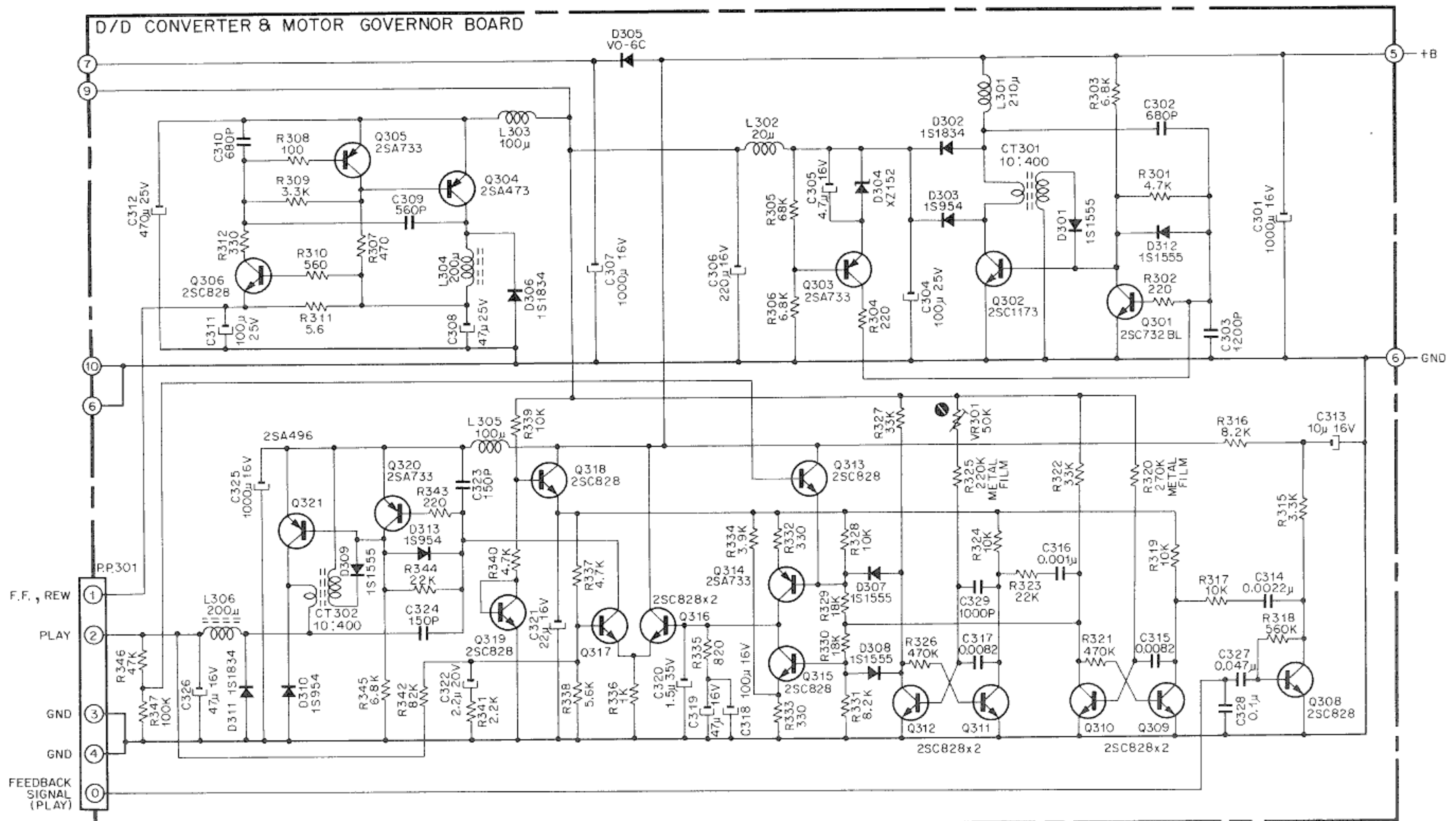


Fig. 2.4

3. CABINET DISASSEMBLY INSTRUCTIONS

Refer to Fig. 3.

- (1) Remove 4 screws from the upper Case 3.
- (2) Remove the Upper Case 3.
- (3) Remove 8 screws from the Bottom Case 6.
- (4) Remove the Bottom Case 6 and the Case Spacer 7.
- (5) Remove 6 screws from the Rear Panel 10.
- (6) Remove the Rear Panel 10.
- (7) Remove control Knobs 11 through 15 from the Front Panel 17.
- (8) Remove 4 screws from the Front Panel 17.
- (9) Remove the Front Panel 17.
- (10) Remove Program Timer Knob 18 from the Deck Panel 21.
- (11) Remove 4 screws from the Deck Panel 21.
- (12) Remove the Deck Panel 21.

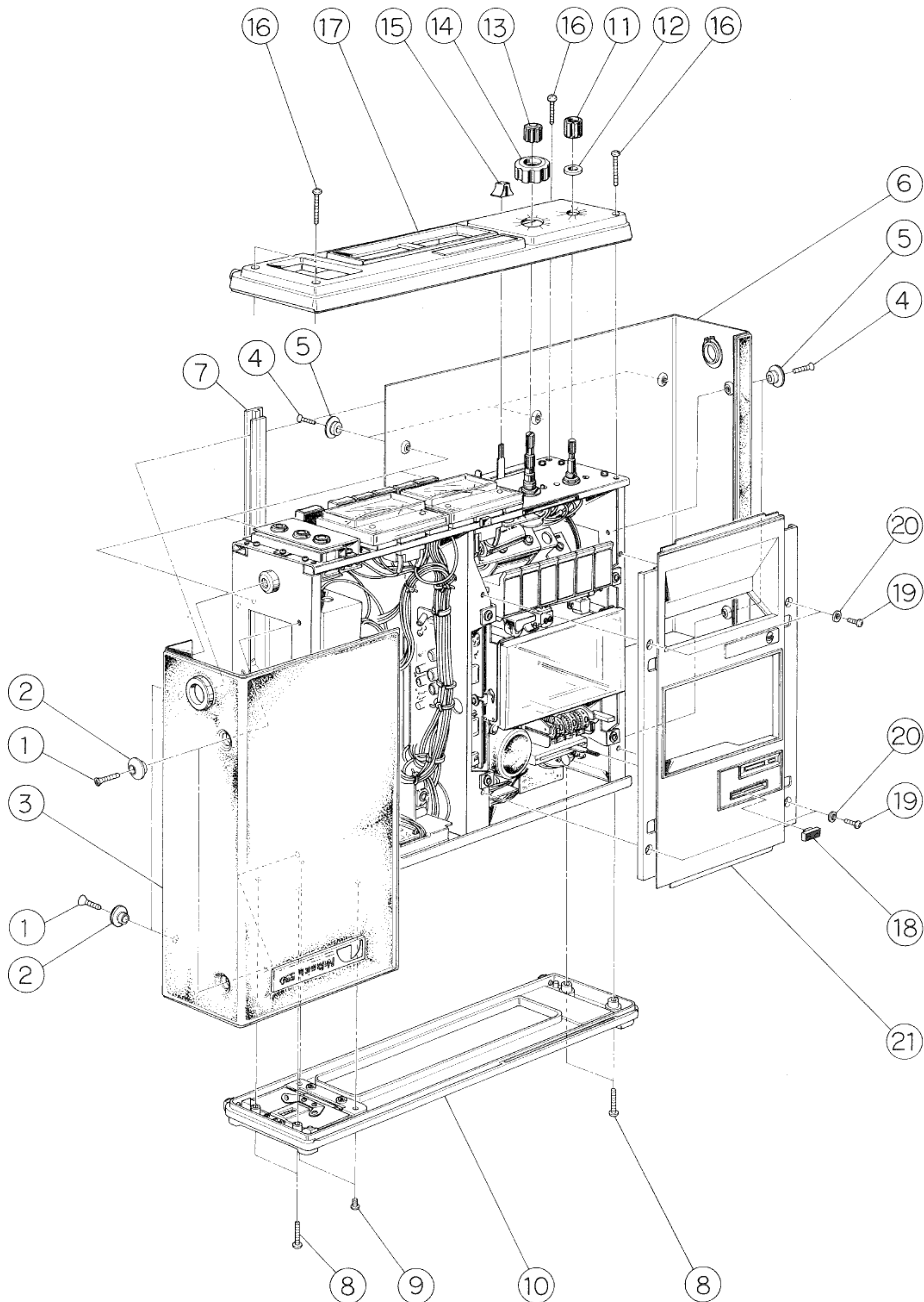


Fig. 3

4. MECHANICAL ADJUSTMENTS

4.1. Take-up Torque and Rewind Torque Adjustment

Refer to Fig. 4.1.

- (1) Remove top and bottom cabinets of the cassette recorder.
- (2) Remove cassette case.
- (3) To adjust torque, move Torque Plate as shown in the figure.
- (4) The Take-up Torque should be 45 ± 10 g-cm.
- (5) The Supply Torque should be 35 to 60g-cm.

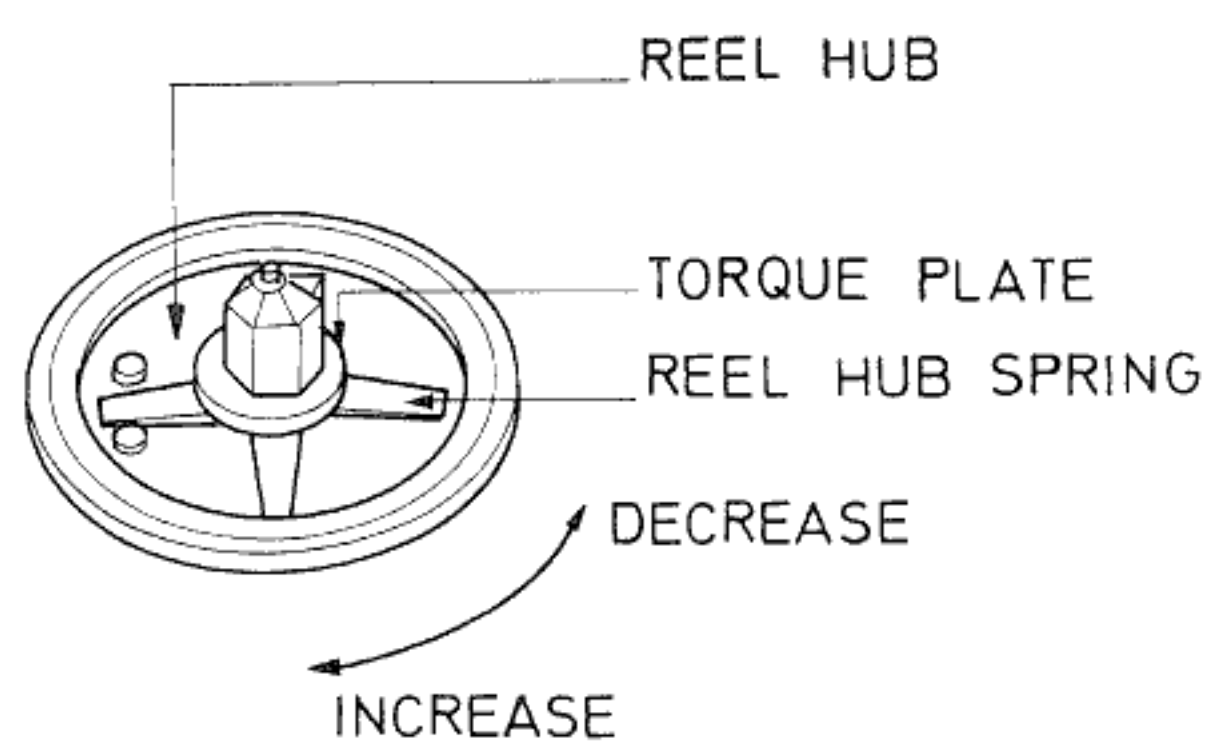


Fig. 4.1

4.2. Record/Playback Head Height Adjustment and Azimuth Alignment

Refer to Fig. 4.2.

- (1) Connect a VTVM to PLAYBACK output jack.
- (2) Load the 1KHz Track Alignment Tape (DA09007A) for adjusting the head height.
- (3) Insert the Tape Guide Adjuster (0D09001A) into each hole of the tape guide beside the head. Adjust the jig for minimizing each output signal of the right and left channels.
- (4) Load the 15KHz Azimuth Tape (DA09004A) for azimuth alignment.
- (5) Adjust the azimuth alignment screw for maximizing each output signal of the right and left channels.

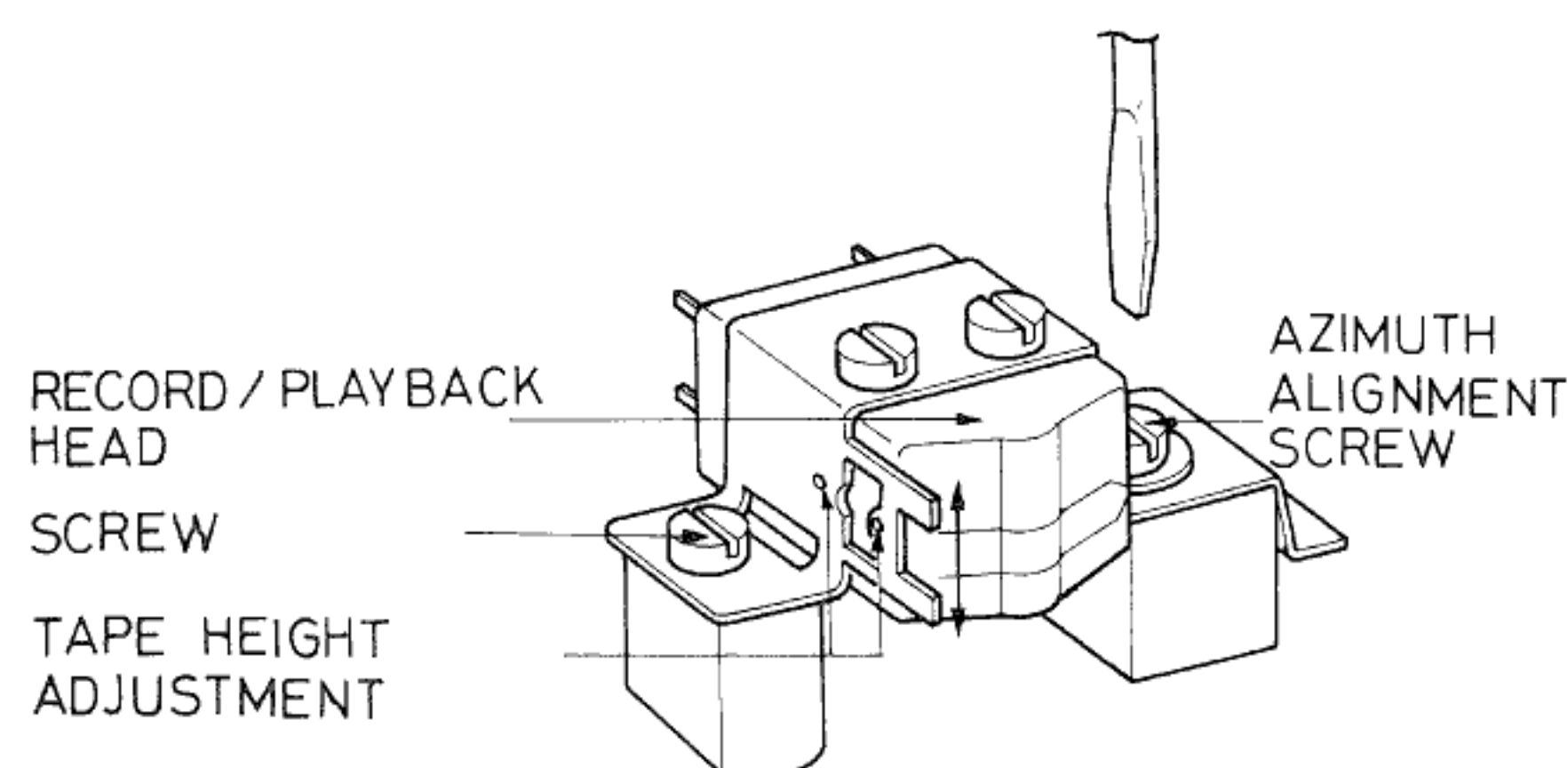


Fig. 4.2

4.3. Tape Speed Adjustment

Refer to Fig. 4.3.

- (1) Connect a frequency counter either to the left or right PLAYBACK output jack.
- (2) Load the 3KHz Speed Wow Flutter Tape (DA09006A) and play it back.
- (3) Adjust the Tape Speed Adjust potentiometer (accessible from the rear apron of the cassette recorder) for an average reading of 3KHz on the frequency counter.

Caution: The above procedures require the use of a frequency counter to accurately set the tape speed. Any other methods used for speed determination may result in an appreciable significant speed error.

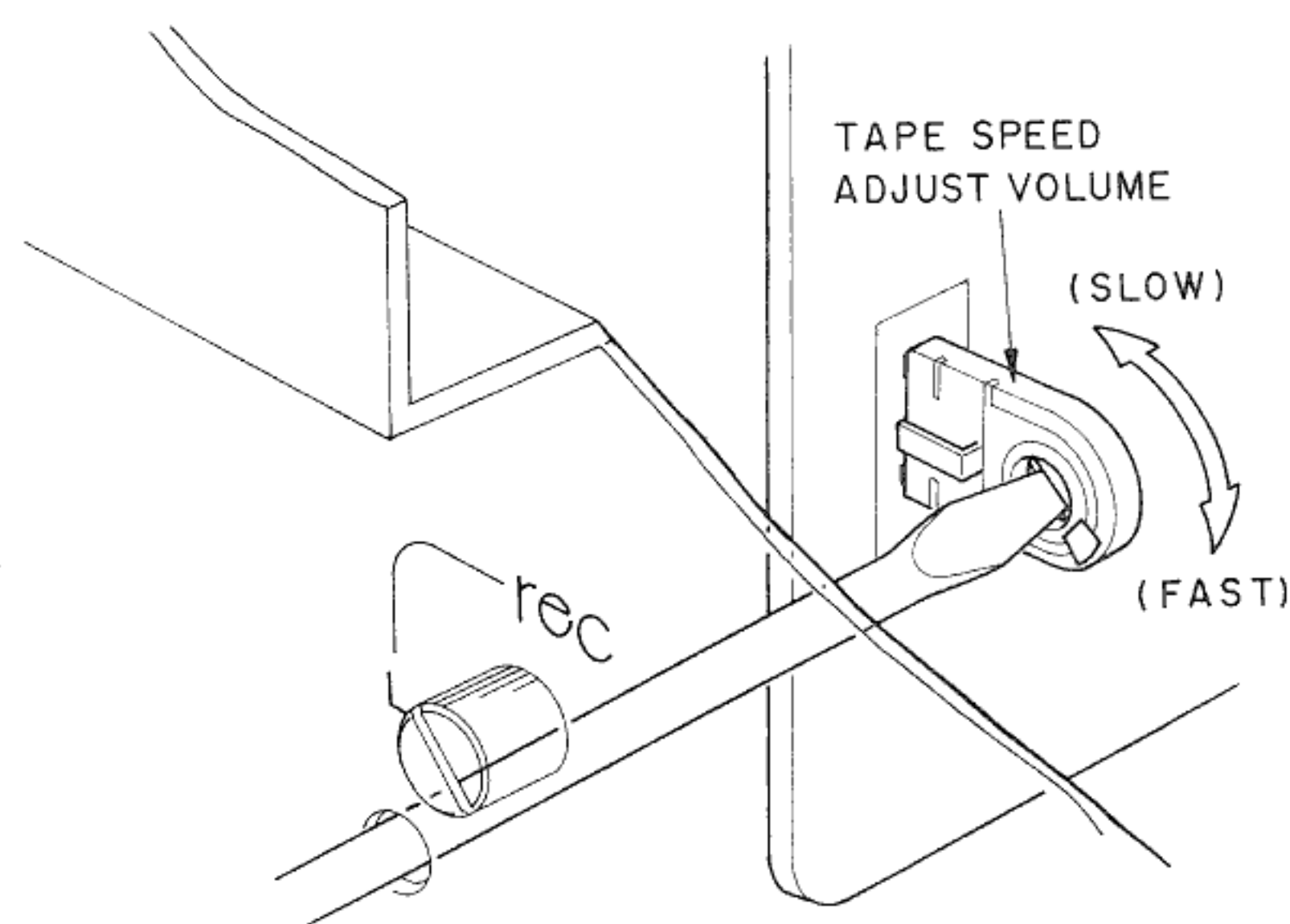


Fig. 4.3

4.4. Automatic Push Button Release Adjustment

Refer to Fig. 4.4

Adjust the location of the solenoid with the screw so that the Push Button key can automatically be released when the tape comes to an end in RECORD mode.

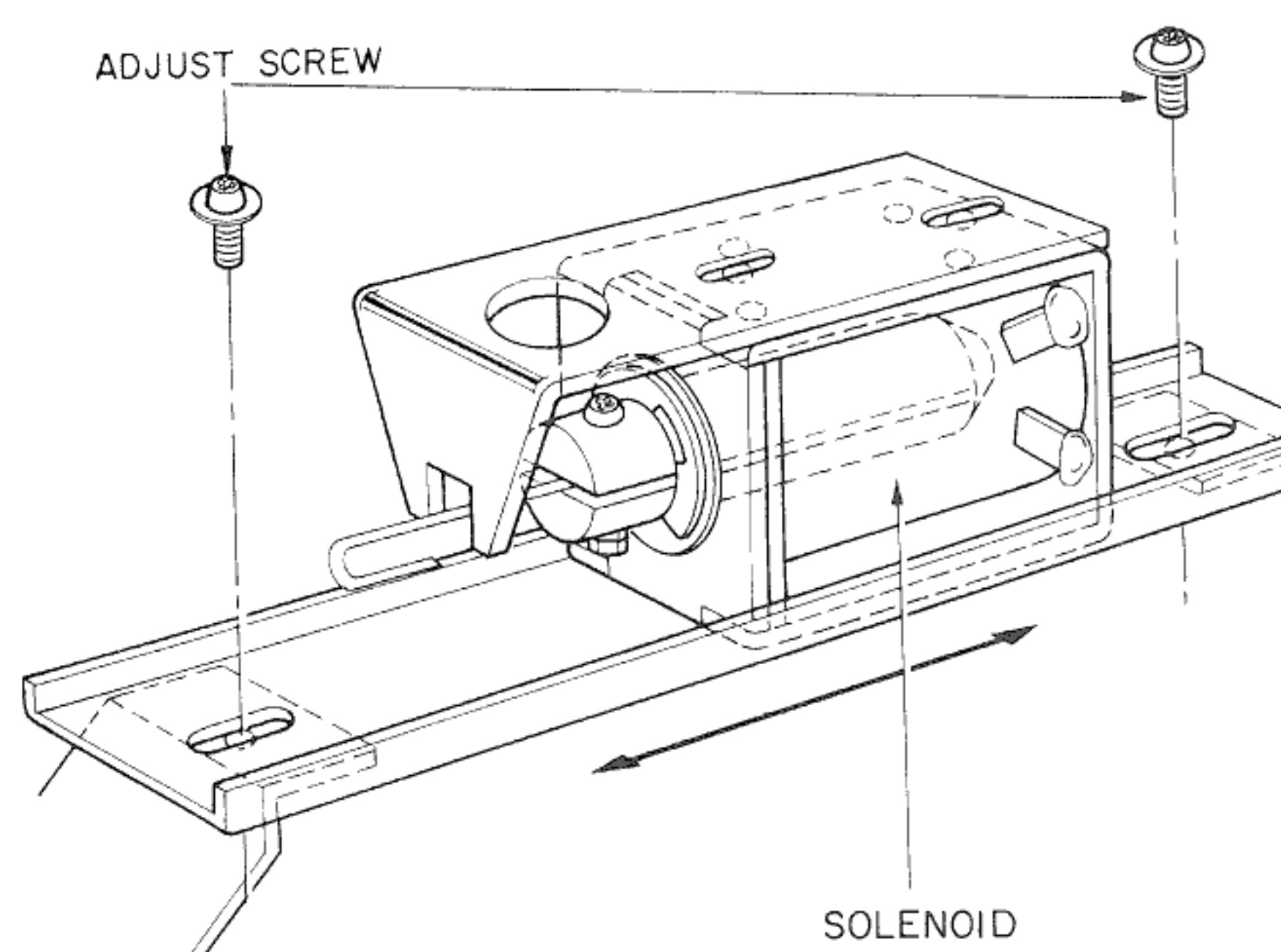


Fig. 4.4

4.5. Belt Travelling Adjustment

Refer to Fig. 4.5.

- (1) Adjust the motor pulley position, then check to insure whether the drive belt is travelling along the correct position and also staying at the correct position, i.e. the center part of the motor pulley and idler pulley without contacting the belt guide at the following modes.
Playback, F.F., REW, F.F. to Stop, REW to Stop
- (2) In case motor pulley is tilting, insert spacers into A, B (when belt slips upward on the motor pulley) or C (when belt slips downward).

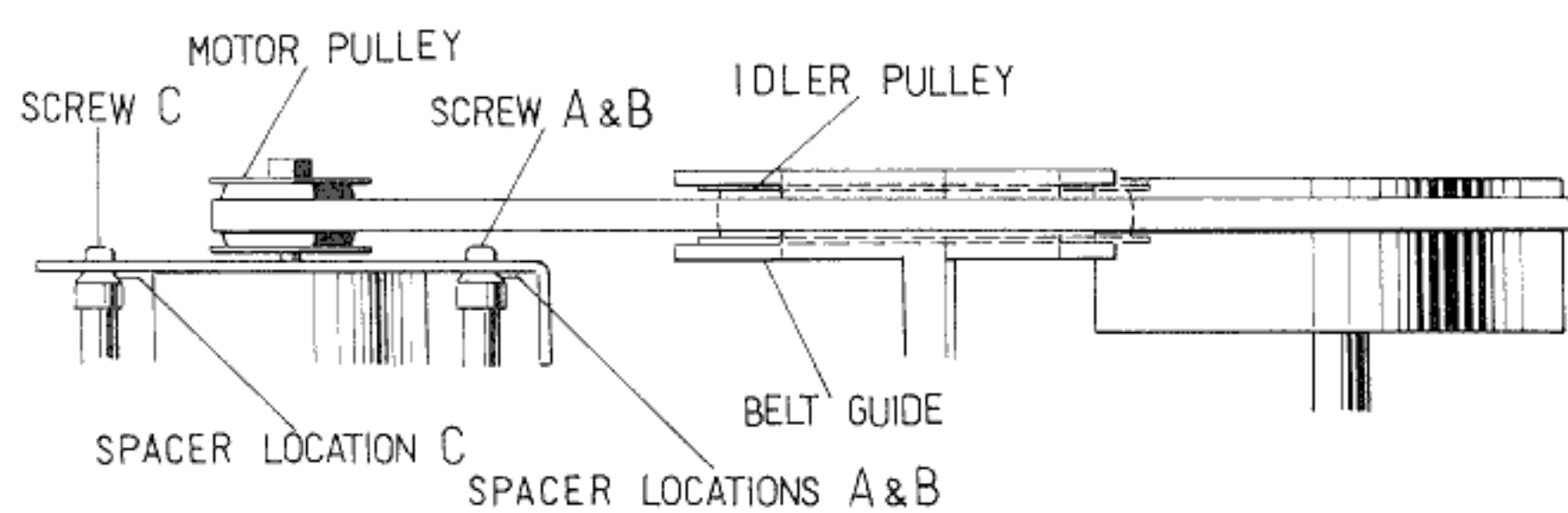


Fig. 4.5

4.7. Lubrication

Refer to Fig. 4.7.

After 500 hours of use apply a few drops of light machine oil (LAUNA No. 40) between capstan and capstan bearing and to the pressure roller.

Note: If oil is applied to the capstan shaft and other drive mechanisms, clean it off with an alcohol-dipped cloth. When flywheel or flywheel holder is replaced apply a few drops of grease to the flywheel holder.

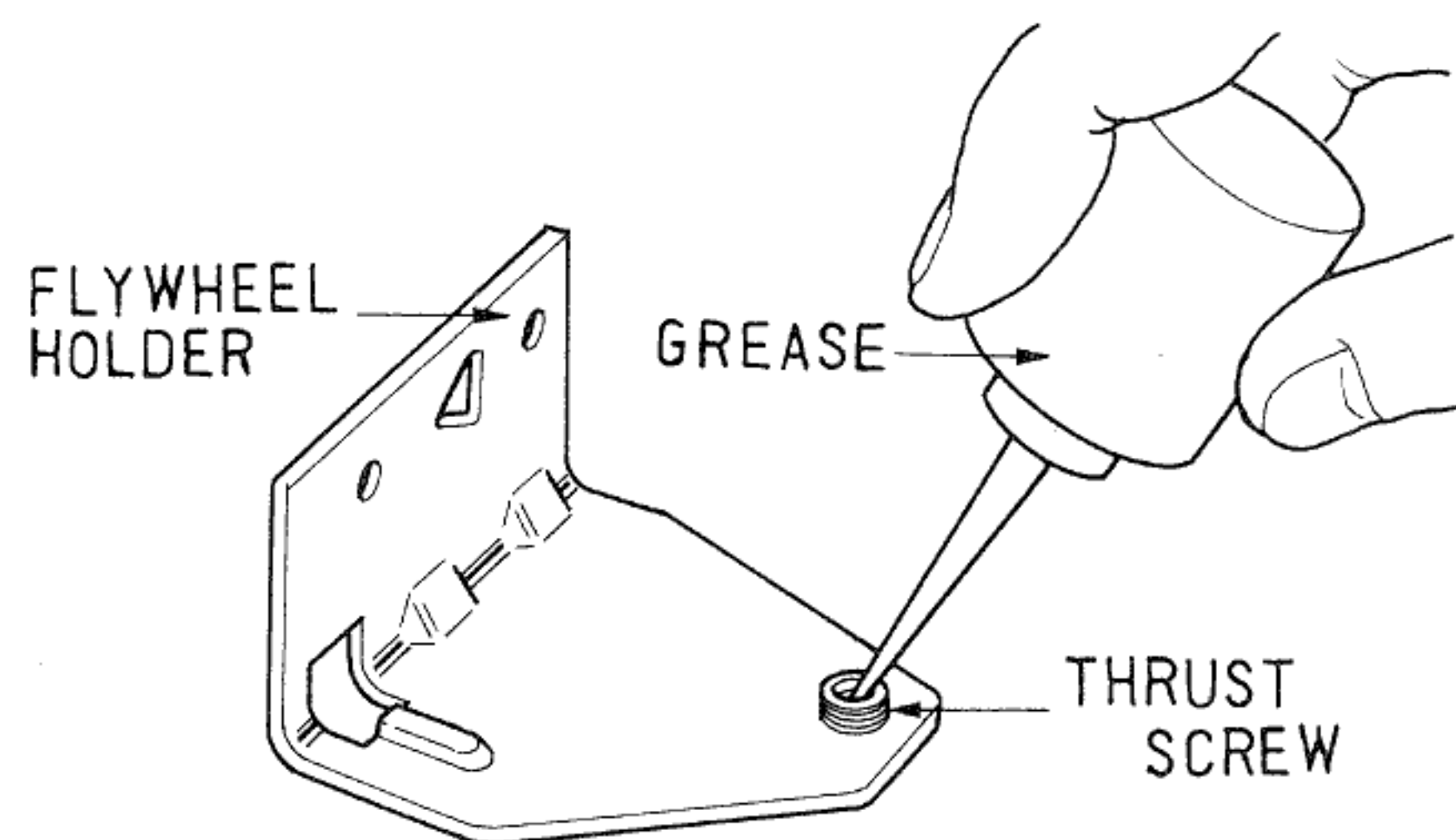
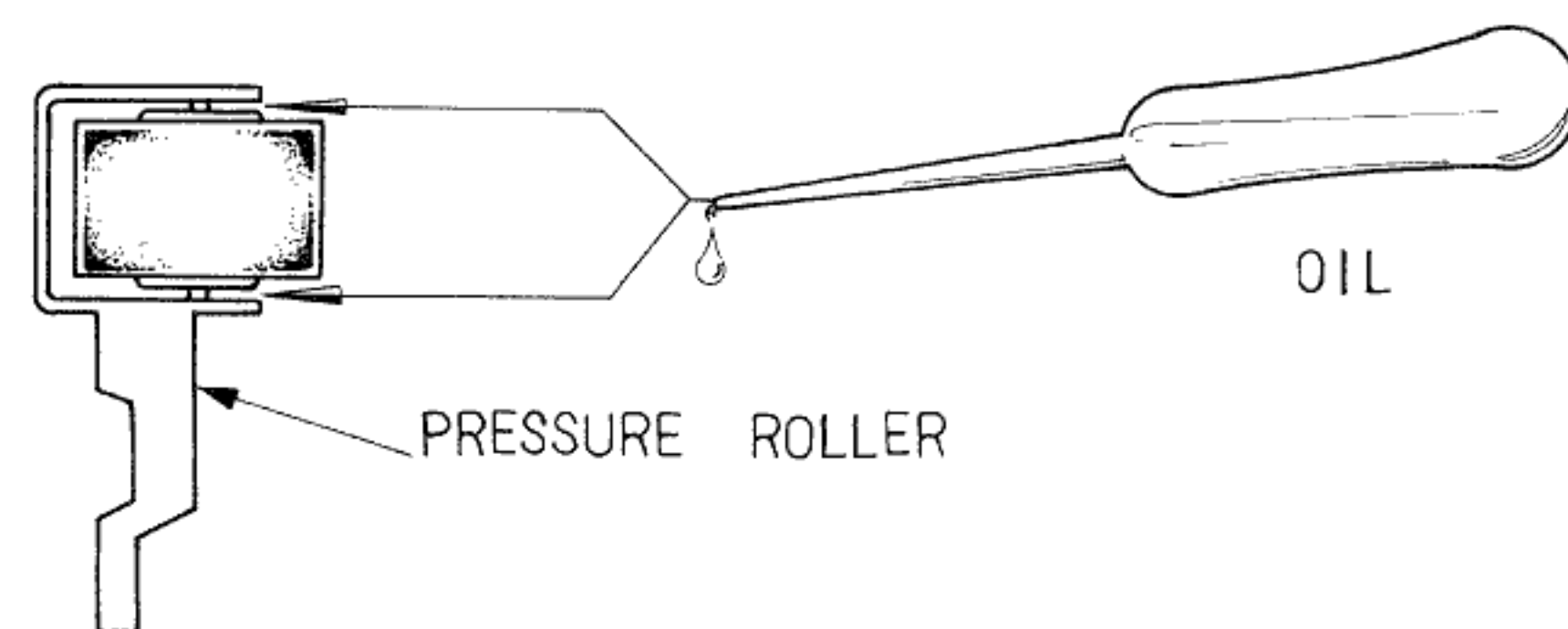
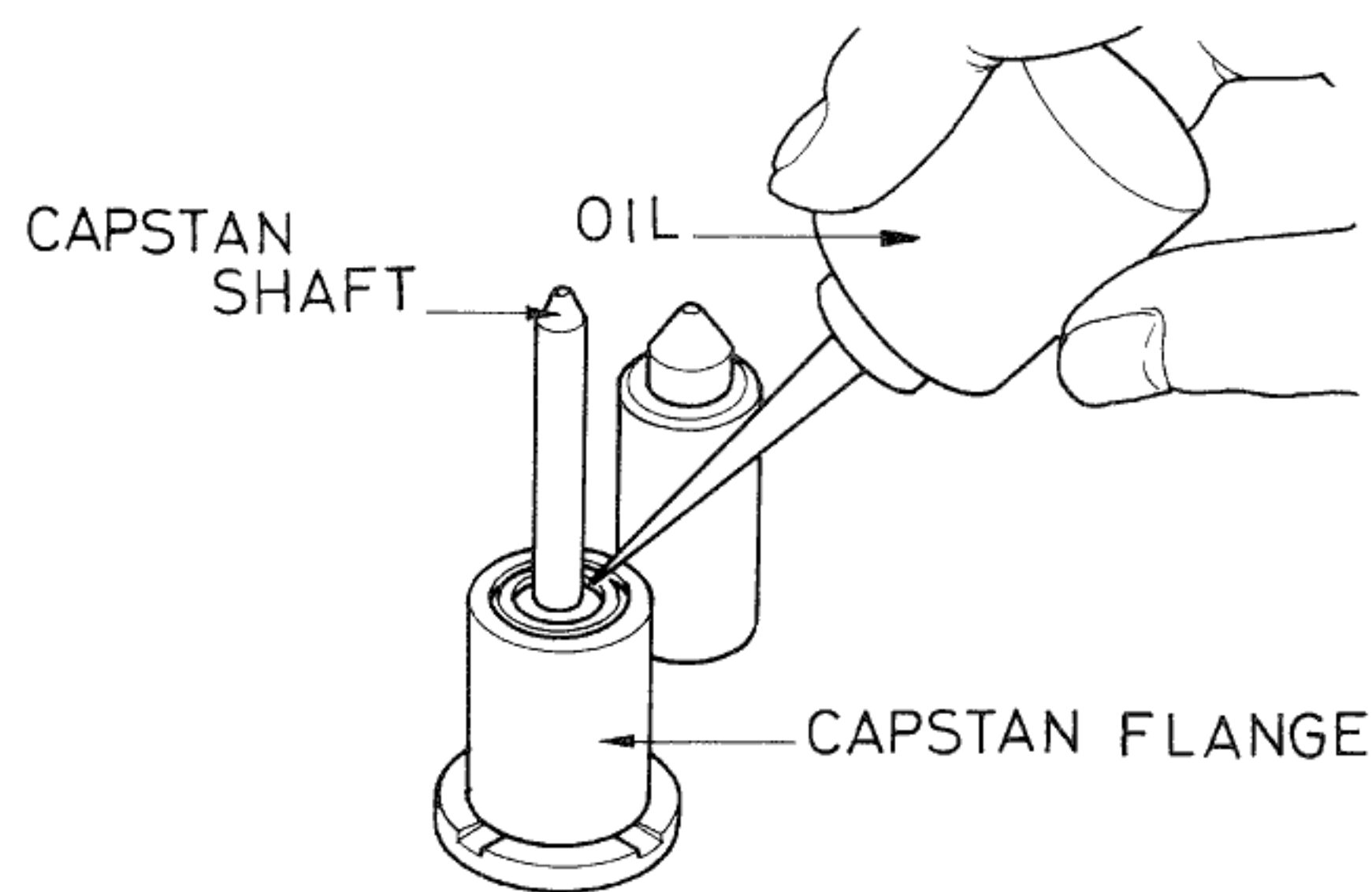


Fig. 4.7

4.6. Flywheel Adjustment

Refer to Fig. 4.6. Adjust the flywheel clearances should be 0.05 to 0.1mm. After adjustment, lock the lock nut.

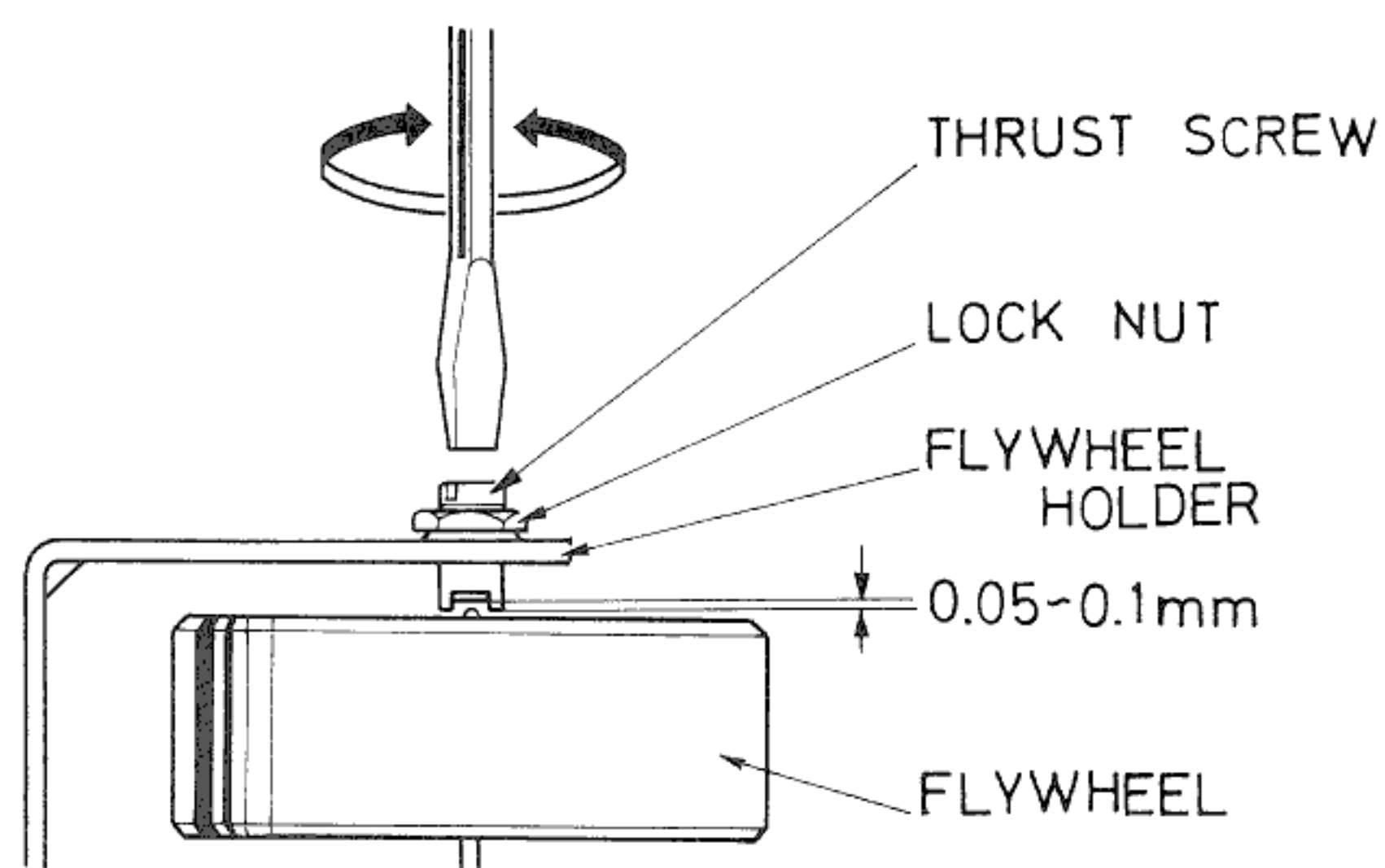


Fig. 4.6

5. ELECTRICAL ADJUSTMENTS

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUST	REMARKS
1	Tape Speed	3 KHz Speed & Wow/Flutter Tape (DA09006A)	Wow/Flutter Meter or Frequency Counter to OUTPUT Jack	Playback	Motor Governor PCB VR301	Adjust VR301 to obtain 3 KHz
2	Head Azimuth Alignment	15 KHz Azimuth Tape (DA09004A)	VTVM to OUTPUT Jack	Playback	Azimuth Alignment Screw	Adjust the Screw to obtain maximum reading on the VTVM
3	Playback Output Level	400 Hz Level Tape (DA09005A)	Same as above	Playback	Main PCB VR101 VR201	Adjust the VR101,201 to obtain 580mV on the VTVM
4	Meter Level	400Hz, test tone SW601 : ON	Same as above	Record Pause	400Hz OSC, PCB VR601 Main PCB VR103 VR203	1. Adjust VR601 to obtain 580 mV on the VTVM 2. Adjust VR 103, 203 to obtain 0 dB on the level meters
5	MPX Filter	19 KHz to INPUT Jack	VTVM to OUTPUT Jack	Record Pause	Main Board L102 L202 MPXSW;ON	Adjust the Coils to obtain minimum reading on the VTVM
6	Record Amplifier Equalizer	17 KHz to INPUT Jack	VTVM across Q106, 206 Collector & Ground	Record Pause	Main PCB L103 L203	Adjust the Coils to obtain peak readings at 17 KHz~19 KHz Note: Stop Bias Oscillation
7	Bias Frequency	105 KHz Generator Signal to Oscilloscope Horizontal Terminal	Bias Oscillator Signal at Erase Head to the Scope Vertical Terminal	Record Pause	Main PCB L302	Adjust the Coil until a circle pattern appears on the Oscilloscope
			Coupling Erase Head to Frequency Counter	Record Pause	Main PCB L302	Adjust the Coil to obtain 105 KHz on the Frequency Counter
8	Bias Trap		VTVM across Q106, 206 Collector & Ground	Record Pause	Main PCB L104 L204	Adjust the Coils to obtain minimum reading on the VTVM
9	Recording Bias Current	Test tone OR 400Hz to INPUT Jack	VTVM to OUTPUT Jack	Record & Playback	Main PCB VR301 VR302 VR303 VR304	1. Adjust VOL001, 002 Record Input Level Controls to obtain 0 dB on the Level Meters 2. Record the signal on blank tape and palyback 3. Repeating Step 2 adjust VR 303, 304 to obtain maximum output on the VTVM (EX) 4. Repeating Step 2 adjust VR301 302 to obtain maximum output on the VTVM (SX)

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUST	REMARKS
10	Record/ Playback Output Level	Test tone or 400Hz to INPUT Jack	VTVM to OUTPUT Jack	Record & Playback	REC. CAL. PCB VR001 VR002 VR003 VR004	<ol style="list-style-type: none"> 1. Adjust VOL001, 002 Record input Level Controls to obtain 0dB on the Level Meters 2. Record the signal on blank tape and playback it 3. Repeating Step 2 Adjust VR003, 004 to obtain 580mV on the VTVM (EX) 4. Repeating Step 2 Adjust VR001, 002 to obtain 580mV on the VTVM (SX)
11	Limiter Level	1KHz, 0.5V to INPUT Jack	VTVM to OUTPUT Jack	Record Pause	Main PCB VR102 VR202	<ol style="list-style-type: none"> 1. Adjust VOL001, 002 Record Level Controls to obtain +4dB on the Level Meters. 2. Set Limiter SW to ON position. 3. Adjust VR102, 202, so that the Output Level may be decreased by 1dB.
12	Tape Alarm	C-60 Tape	DC Level Meter to Test Point TP901 (Alarm B PCB)	Playback	Alarm B PCB VR901	<ol style="list-style-type: none"> 1. Rewind the tape until it reaches the beginning of winding. 2. Playback the tape. 3. Adjust VR901 to obtain 3.4V DC at the Test Point.
13	Tape Footage	C-60 Tape		Playback & Meter SW. to CHECK	Tape Footage VR005	<ol style="list-style-type: none"> 1. Push the meter SW. to CHECK side 2. Playback the tape 3. Adjust VR005 to obtain 100% on the left channel meter before 5 ~ 10 seconds the C-60 tape taken supply fully.

DOLBY CIRCUIT ALIGNMENT PROCEDURE

- (1) Turn LAW Control VR101, 201 fully counterclockwise.
- (2) Turn GAIN Controls VR102 and VR202 fully counterclockwise.
- (3) Set Dolby Switch (IN-OUT) to OUT position and ground FET Gate Terminal with a jumper wire.
- (4) Connect an AC VTVM to METERING Terminal 3 for the Right channel or 12 for the Left channel.
- (5) Apply 5KHz signals having a proper level to INPUT Terminal 2 for the Right channel or 13 for the Left channel, so that the VTVM reads 17.5mV in each channel.
- (6) Remove the VTVM from Terminal 3 or 12 and reconnect it to OUTPUT Terminal 6 or 9. Note the output voltage on VTVM.
- (7) Set DOLBY Switch to IN position and adjust GAIN Controls VR102 and 202, so that the VTVM indicates 10dB over the noted voltage in Step (6).
- (8) Set DOLBY Switch to IN position. Note the voltage at OUTPUT Terminal 6 for the Right channel or 9 for the Left channel.
- (9) Remove the jumper wire from the FET Gate Terminal. Adjust the LAW Controls VR101 and VR201, so that the voltage at OUTPUT Terminals 6 and 9 read 2dB below the noted voltage in Step (8).

6. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT

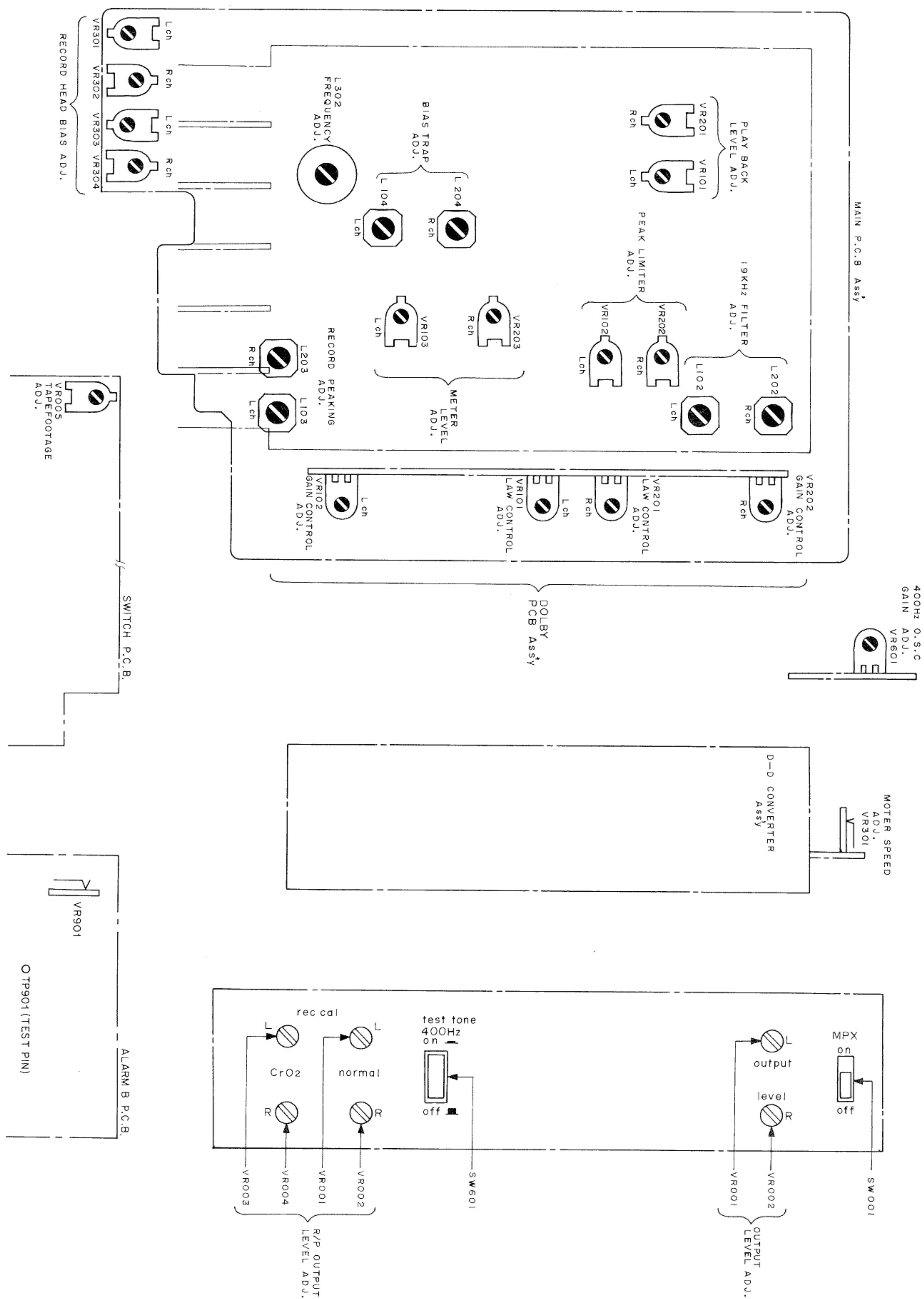


Fig. 6

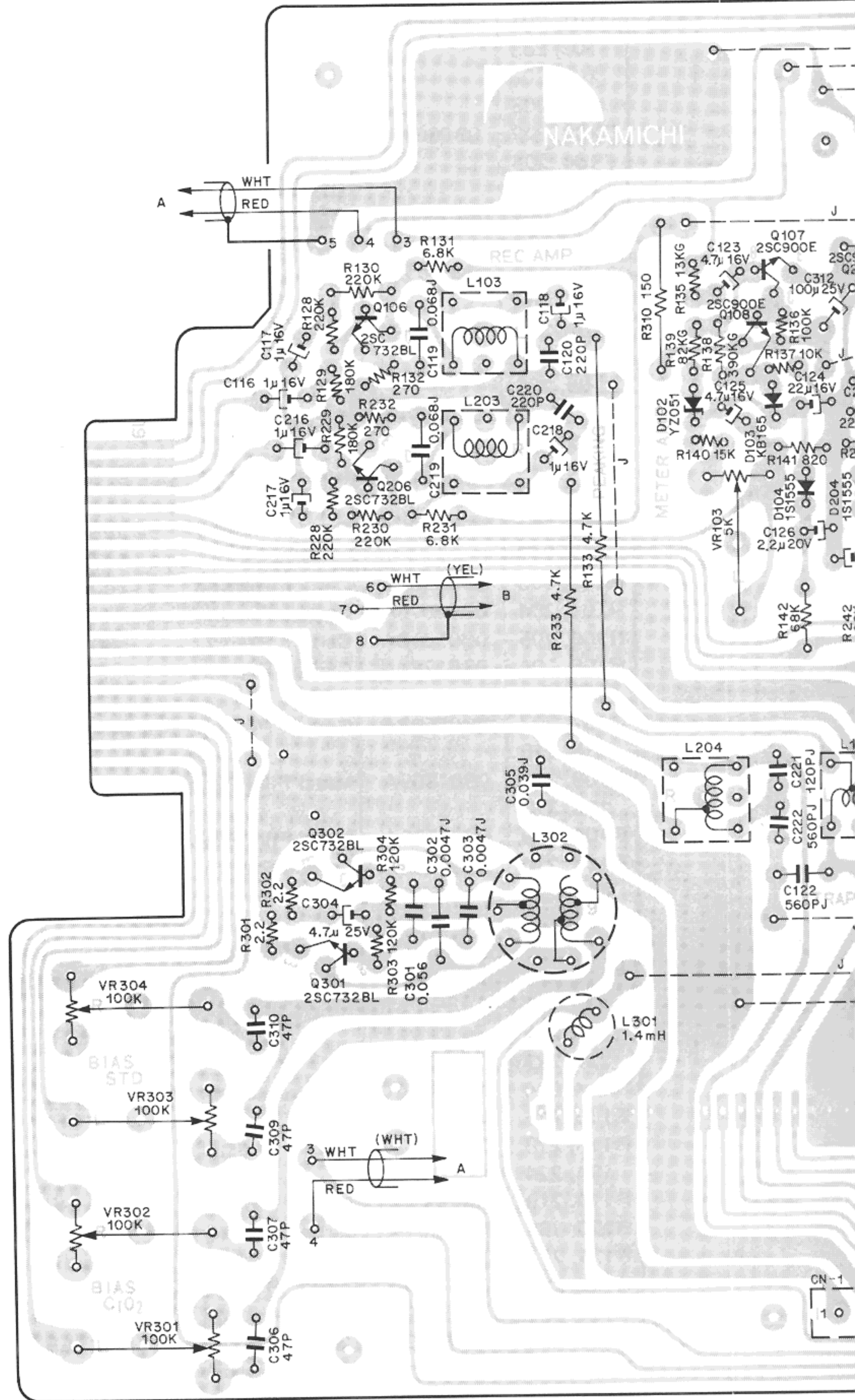
Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA03669A	Main P.C.B. Ass'y (SX)			— REC. AMP. —
		— P.B. EQ. AMP. —	Q106, 206	OB01910A	Transistor 2SC900 (E)
Q101, 201	OB06003A	Transistor 2SC1000 (BL)	L103, 203	OB03858A	Peaking Coil
Q102, 202	OB01910A	Transistor 2SC900 (E)	L104, 204	OB03859A	Bias Trap Coil
R102, 202	OB05593A	Carbon Resistor 150K ELR¼, J	R128, 228	OB05596A	Carbon Resistor 220K ELR¼, J
R103, 203	OB05786A	Carbon Resistor 22(N) ELR¼, J	130, 230		
R104, 204	OB05596A	Carbon Resistor 220K ELR¼, J	R129, 229	OB05669A	Carbon Resistor 180K ELR¼, J
R105, 205	OB05664A	Carbon Resistor 3.9K ELR¼, J	R131, 231	OB01877A	Carbon Resistor 6.8K ELR¼, J
R106, 206	OB01902A	Carbon Resistor 68K ELR¼, J	R132, 232	OB05651A	Carbon Resistor 270 ELR¼, J
R107, 207	OB01833A	Carbon Resistor 10K ELR¼, J	R133, 233	OB01846A	Carbon Resistor 4.7K R¼, J
R108, 208	OB01781A	Carbon Resistor 1K ELR¼, J	C116, 216	OB01405A	Electrolytic Capacitor 1µ 16V
R109, 209	OB01920A	Carbon Resistor 100K ELR¼, J	117, 217		
R110, 210	OB01878A	Carbon Resistor 8.2K ELR¼, J	118, 218		
R111, 211	OB05591A	Carbon Resistor 15K ELR¼, J	C119, 219	OB05682A	Mylar Capacitor 0.068µ 50V, J
R112, 212	OB05669A	Carbon Resistor 180K ELR¼, J	C120, 220	OB01289A	Ceramic Capacitor 220P 50V, M
C101, 201	OB01412A	Electrolytic Capacitor 10µ 16V	C121, 221	OB05787A	SP Capacitor 120P 50V, J
C102, 202	OB01288A	Ceramic Capacitor 100P 50V	C122, 222	OB05788A	SP Capacitor 560P 50V, J
C103, 203	OB05744A	Ceramic Capacitor 33P 50V			— METER AMP. —
C104, 204	OB01862A	Electrolytic Capacitor 22µ 16V	Q107, 207	OB01910A	Transistor 2SC900 (E)
C105, 205	OB05583A	Mylar Capacitor 0.033µ 50V, J	108, 208		
C106, 206	OB05657A	Tantalum Capacitor 4.7µ 16V	D102, 202	OB06058A	Zener Diode YZ-051
C127, 227	OB01716A	Ceramic Capacitor 470P 50V	D103, 203	OB06007A	Silicon Diode KB-165
VR101, 201	OB01923A	Semi-fixed Volume 20K	D104, 204	OB01909A	Silicon Diode 1S1555
		— Peak Limiter —	R135, 235	OB05767A	Metal Film Resistor 13K ER0-25VK,G
Q103, 203	OB01600A	FET 2SK30 (Y)	R136, 236	OB01920A	Carbon Resistor 100K ELR¼, J
D101, 201	OB01599A	Silicon Varistor KB162	R137, 237	OB01833A	Carbon Resistor 10K ELR¼, J
R113, 213	OB05600A	Carbon Resistor 270K ELR¼, J	R138, 238	OB05544A	Metal Film Resistor 390K ER0-14VK,G
R114, 214	OB01879A	Carbon Resistor 33K ELR¼, J	R139, 239	OB05766A	Metal Film Resistor 82K ER0-25VK,G
R115, 215	OB01921A	Carbon Resistor 330K ELR¼, J	R140, 240	OB05591A	Carbon Resistor 15K ELR¼, J
118, 218			R141, 241	OB05511A	Carbon Resistor 820 ELR¼, J
R116, 216	OB05596A	Carbon Resistor 220K ELR¼, J	R142, 242	OB01902A	Carbon Resistor 68K ELR¼, J
R117, 217	OB05601A	Carbon Resistor 1.5M ELR¼, J	C123, 223	OB01389A	Electrolytic Capacitor 4.7µ 16V
R119, 219	OB05564A	Carbon Resistor 1M ELR¼, J	C124, 224	OB05636A	Tantalum Capacitor 22µ 16V, M
C107, 207	OB01412A	Electrolytic Capacitor 10µ 16V	C125, 225	OB05657A	Tantalum Capacitor 4.7µ 16V, M
C108, 208	OB05598A	Tantalum Capacitor 2.2µ 20V	C126, 226	OB05598A	Tantalum Capacitor 2.2µ 20V, M
VR102, 202	OB01807A	Semi-fixed Volume 50K	VR103, 203	OB01805A	Semi-fixed Volume 5K
		— MIX. & L.P.F. AMP. —			— BIAS OSC. —
Q104, 204	OB06003A	Transistor 2SC1000 (BL)	Q301, 302	OB01910A	Transistor 2SC900 (E)
105, 205			L301	OB03861A	Bias Trap Coil 1.4mH
L101, 201	OB06535A	Inductor B 36mH	L302	OB06536A	550 OSC. Coil
L102, 202	OB03857A	19KHz Coil 23mH	R301, 302	OB05605A	Carbon Resistor 2.2 ELR¼, J
R120, 220	OB01846A	Carbon Resistor 4.7K R¼, J	R303, 304	OB05568A	Carbon Resistor 120K ELR¼, J
R121, 221	OB05665A	Carbon Resistor 560K ELR¼, J	C301	OB05778A	Mylar Capacitor 0.056µ 50V, K
R122, 222	OB05591A	Carbon Resistor 15K ELR¼, J	C302, 303	OB05652A	Mylar Capacitor 0.0047µ 50V, J
R123, 223	OB05927A	Metal Film Resistor 8.2M ER0-50CD, G	C304	OB01402A	Electrolytic Capacitor 4.7µ 25V
R124, 224	OB05564A	Carbon Resistor 1M ELR¼, J	C305	OB05799A	SP Capacitor 0.039µ 50V, J
R125, 225	OB01782A	Carbon Resistor 2.7K ELR¼, J	C306, 307	OB01456A	Ceramic Capacitor 47P 50V, M
R126, 226	OB05672A	Carbon Resistor 2.2M ELR¼, J	309, 310		
R127, 227	OB01920A	Carbon Resistor 100K ELR¼, J	VR301, 302	OB01812A	Semi-fixed Volume 100K
C109, 209	OB01412A	Electrolytic Capacitor 10µ 16V	303, 304		
110, 210					— MUTE —
C111, 211	OB05789A	SP Capacitor 47P 50V, J	Q303	OB01824A	Transistor 2SC828
C112, 212	OB01804A	Mylar Capacitor 3900P 50V, J	D301	OB01909A	Silicon Diode 1S1555
C113, 213	OB05790A	SP Capacitor 1200P 50V, J	R305, 306	OB05564A	Carbon Resistor 1M ELR¼, J
C114, 214	OB05791A	SP Capacitor 1800P 50V, J	R307	OB05596A	Carbon Resistor 220K ELR¼, J
C115, 215	OB01802A	Mylar Capacitor 2200P 50V, J	R313	OB01885A	Carbon Resistor 39K ELR¼, J
	JA03136A	Noise Shield Ass'y A (2 pcs.)	C310	OB01405A	Electrolytic Capacitor 1µ 16V
	JA03137A	Noise Shield Ass'y B (2 pcs.)			

7. MOUNTING DIAGRAMS AND PARTS LIST

Notes: 1. Mounting diagram shows a dip side view of the printed circuit board.
 2. Diode 1S1555, transistor 2SC900 are compatible with diode FDH and transistor 2SC732.

7.1. Main P.C.B. Ass'y (SX)

Schematic Ref. No.	Part No.	Description
— Miscellaneous —		
R308	OB01857A	Carbon Resistor 1K R $\frac{1}{4}$, J
R309	OB05631A	Carbon Resistor 82 R $\frac{1}{4}$, J
R310	OB05795A	Carbon Resistor 150 R $\frac{1}{4}$, J
R311	OB05575A	Carbon Resistor 560 R $\frac{1}{4}$, J
R312	OB01781A	Carbon Resistor 1K ELR $\frac{1}{4}$, J
C309	OB01401A	Electrolytic Capacitor 470 μ 25V
C310	OB05793A	Electrolytic Capacitor 330 μ 25V
C311, 312	OB01272A	Electrolytic Capacitor 100 μ 25V
C313	OB01400A	Electrolytic Capacitor 100 μ 16V
C314	OB01674A	Electrolytic Capacitor 10 μ 25V
C315	OB01602A	Mylar Capacitor 0.33 μ 50V, K
	OB07608B	Main Board
	OB07036A	Record Switch (1 pce.)
	OB08129A	Record Switch Spring DT (1 pce.)
	OB01814A	14P Connector (2 pcs.)
	OB01797B	19P Connector (1 pce.)
	OB01800A	Connector Pin (47 pcs.)
	OE00176A	Nut Hex. M2 (2 pcs.)
	OE00185A	Screw M2 x 6 Cylinder Head (2 pcs.)
	OE00025A	Washer 2mm Spring (2 pcs.)



CIRCUIT DIAGRAMS AND PARTS LIST

The circuit diagram shows a dip side view of the printed circuit board. 1S1555, transistor 2SC900 are compatible with diode FDH-999 and transistor 2SC732.

Ass'y (SX)

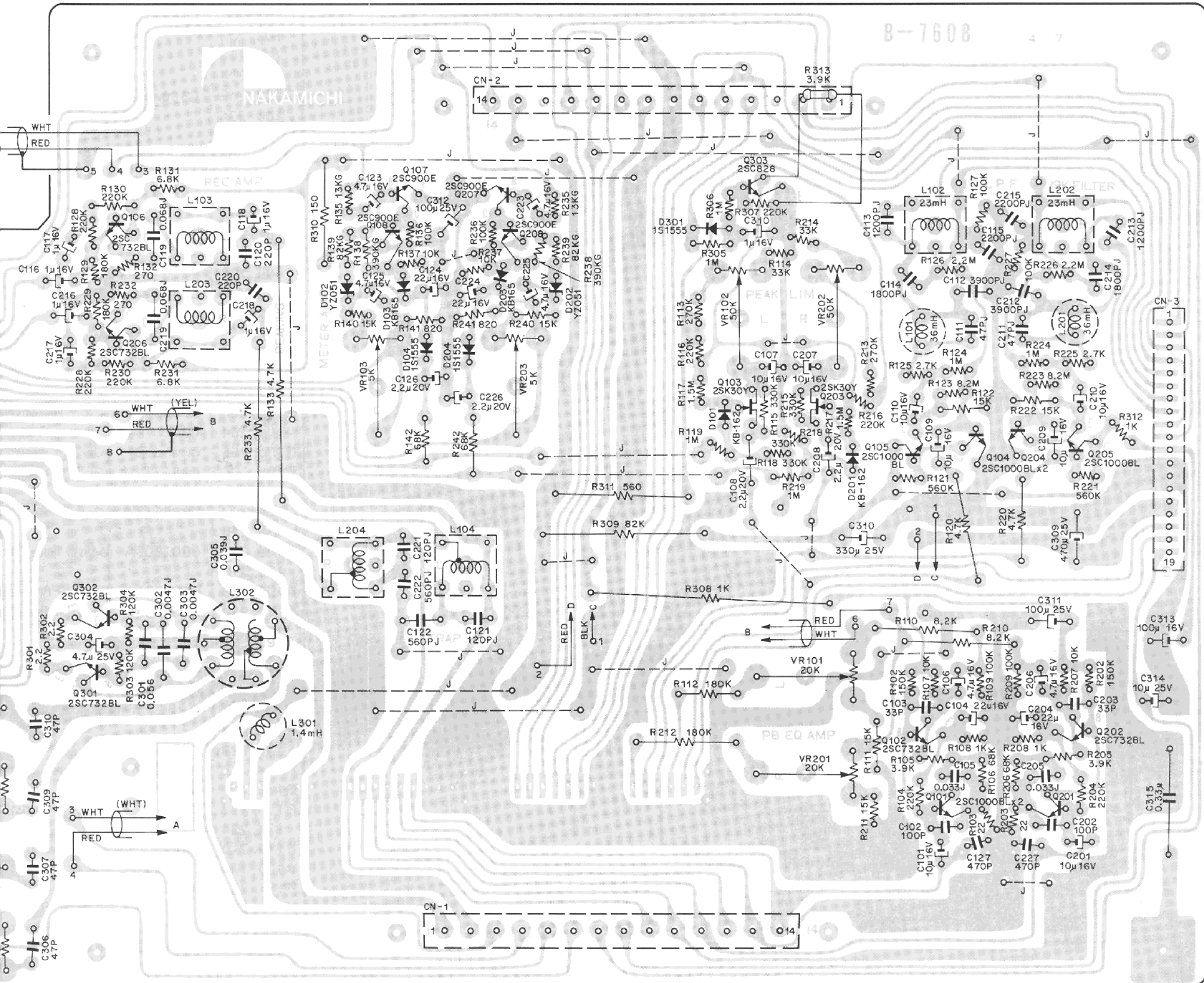


Fig. 7.1

7.2. Dolby P.C.B. Ass'y

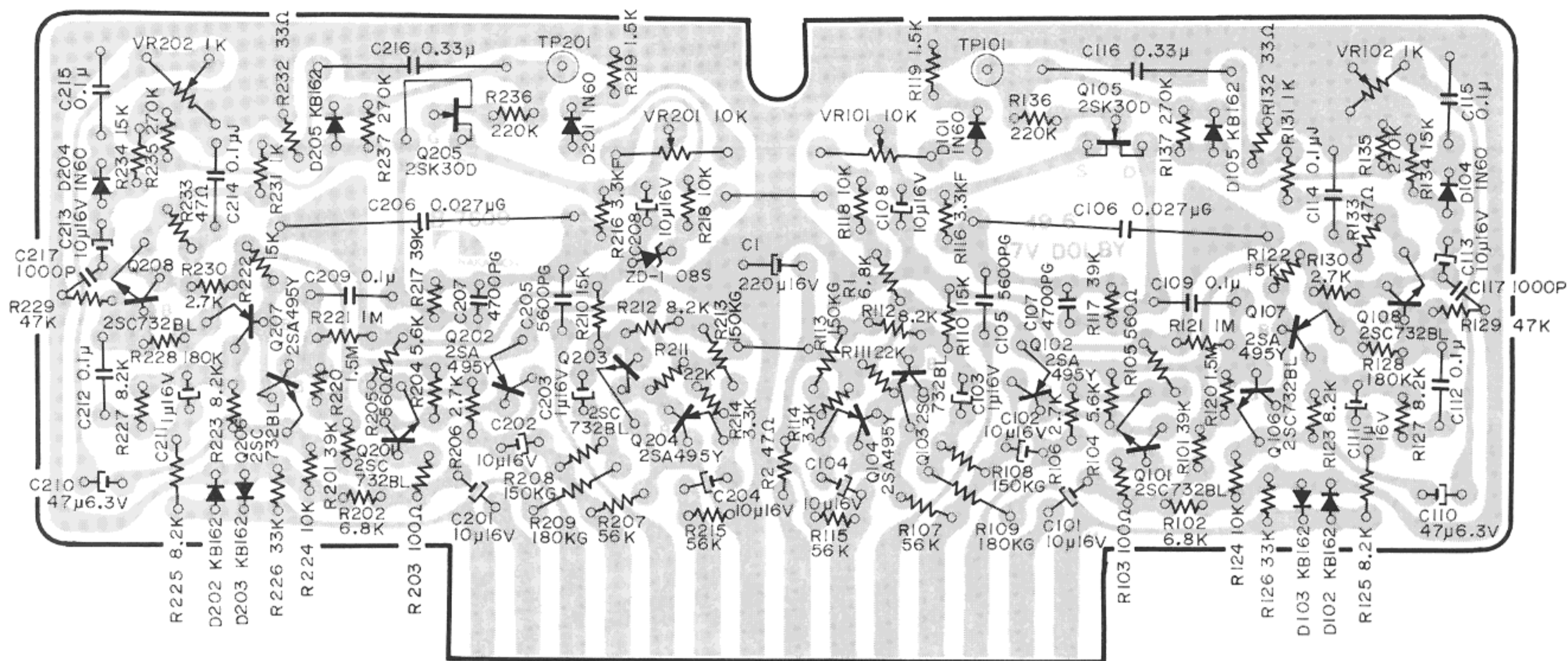


Fig. 7.2

7.3. Rec. Cal. P.C.B. Ass'y

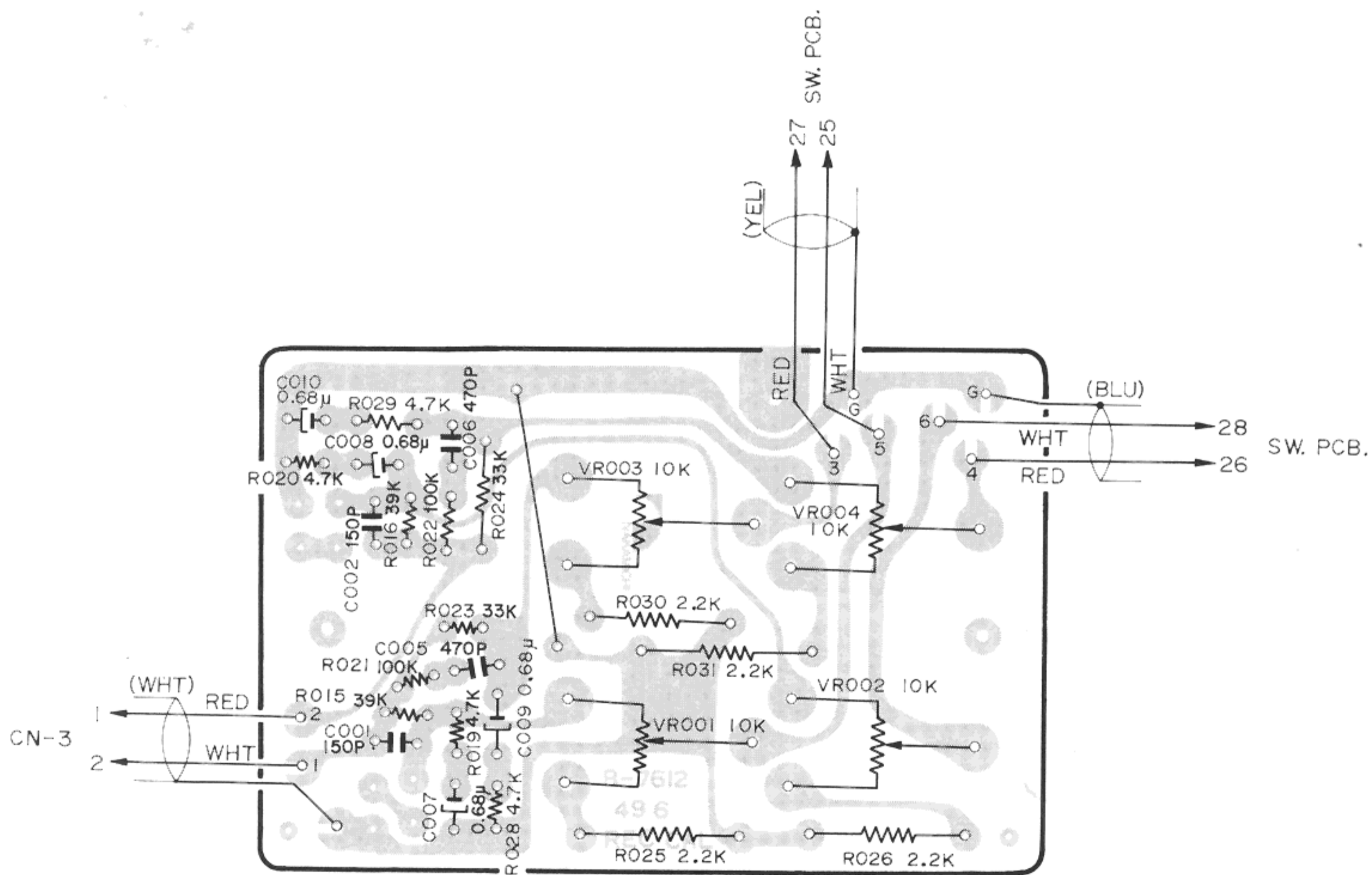


Fig. 7.3

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA03670A	Dolby P.C.B. Ass'y	C103, 203 111, 211	OB01405A	Electrolytic Capacitor 1 μ 16V
Q101, 201 103, 203 106, 206 108, 208	OB07609B OB01910A	Dolby P.C. Board Transistor 2SC900 (E)	C105, 205 C106, 206 C107, 207 C109, 209 112, 212 115, 215	OB01864A OB01892A OB01608A OB01603A	P.P. Capacitor 5600P 50V, G P.P. Capacitor 0.027 μ 50V, G P.P. Capacitor 4700P 50V, G Mylar Capacitor 0.1 μ 50V, K
Q102, 202 104, 204 107, 207	OB06013A	Transistor 2SA733	C110, 210 C114, 214 C116, 216 C117, 217	OB01404A OB01780A OB01602A OB04059A	Electrolytic Capacitor 47 μ 6.3V Mylar Capacitor 0.1 μ 50V, J Mylar Capacitor 0.33 μ 50V, K Mylar Capacitor 1000P 50V, K
Q105, 205 ZD1	OB06001A OB06004A	FET 2SK30 (D) Zener Diode 08S	VR101, 201 VR102, 202 TP101, 201	OB01458A OB01428A OB03924A	Semi-fixed Volume 10K Semi-fixed Volume 1K FET Gate Pin
D101, 201 104, 204	OB00030A	Germanium Diode 1N60 (P)		BA03764A	Rec. Cal. P.C.B. Ass'y
D102, 202 103, 203 105, 205	OB01599A	Silicon Varistor KB-162		OB07612B OB07077A	Rec. Cal. P.C. Board Semi-fixed Volume 10K
R1 102, 202	OB01877A	Carbon Resistor 6.8K ELR $\frac{1}{4}$, J	VR001, 002 003, 004	OB01885A OB01795A	Carbon Resistor 39K ELR $\frac{1}{4}$, J Carbon Resistor 4.7K ELR $\frac{1}{4}$, J
R2 133, 233	OB05569A	Carbon Resistor 47 ELR $\frac{1}{4}$, J	R015, 016 R019, 020 028, 029	OB01920A OB01879A OB05622A	Carbon Resistor 100K ELR $\frac{1}{4}$, J Carbon Resistor 33K ELR $\frac{1}{4}$, J Carbon Resistor 2.2K R $\frac{1}{4}$, J
R101, 201 117, 217	OB01885A	Carbon Resistor 39K ELR $\frac{1}{4}$, J	R021, 022 R023, 024 R025, 026 030, 031	OB05599A OB01716A OB05773A	Ceramic Capacitor 150P 50V, M Ceramic Capacitor 470P 50V, M Tantalum Capacitor 0.68 μ 35V, M
R103, 203 R104, 204 R105, 205 R106, 206 130, 230	OB05558A OB05673A OB05678A OB01782A	Carbon Resistor 100 ELR $\frac{1}{4}$, J Carbon Resistor 5.6K ELR $\frac{1}{4}$, J Carbon Resistor 560 ELR $\frac{1}{4}$, J Carbon Resistor 2.7K ELR $\frac{1}{4}$, J	C001, 002 C005, 006 C007, 008 009, 010		
R107, 207 115, 215	OB05563A	Carbon Resistor 56K ELR $\frac{1}{4}$, J			
R108, 208 113, 213	OB01859A	Metal Film Resistor 150K ER0-25VK,G			
R109, 209 R110, 210 122, 222 134, 234	OB01590A OB05591A	Metal Film Resistor 180K ER0-25VK,G Carbon Resistor 15K ELR $\frac{1}{4}$, J			
R111, 211 R112, 212 123, 223 125, 225 127, 227	OB05661A OB01878A	Carbon Resistor 22K ELR $\frac{1}{4}$, J Carbon Resistor 8.2K ELR $\frac{1}{4}$, J			
R114, 214 R116, 216 R118, 218 124, 224	OB01793A OB01585A OB01833A	Carbon Resistor 3.3K ELR $\frac{1}{4}$, J Metal Film Resistor 3.3K ER0-25VK,F Carbon Resistor 10K ELR $\frac{1}{4}$, J			
R119, 219 R120, 220 R121, 221 R126, 226 R128, 228 R129, 229 R131, 231 R132, 232 R135, 235 137, 237	OB05505A OB05601A OB05564A OB01879A OB05669A OB05562A OB01781A OB05567A OB05600A	Carbon Resistor 1.5K ELR $\frac{1}{4}$, J Carbon Resistor 1.5M ELR $\frac{1}{4}$, J Carbon Resistor 1M ELR $\frac{1}{4}$, J Carbon Resistor 33K ELR $\frac{1}{4}$, J Carbon Resistor 180K ELR $\frac{1}{4}$, J Carbon Resistor 47K ELR $\frac{1}{4}$, J Carbon Resistor 1K ELR $\frac{1}{4}$, J Carbon Resistor 33 ELR $\frac{1}{4}$, J Carbon Resistor 270K ELR $\frac{1}{4}$, J			
R136, 236 C1	OB05596A OB01398A	Carbon Resistor 220K ELR $\frac{1}{4}$, J Electrolytic Capacitor 220 μ 16V			
C101, 201 102, 202 104, 204 108, 208 113, 213	OB01412A	Electrolytic Capacitor 10 μ 16V			

7.4. Switch P.C.B. Ass'y

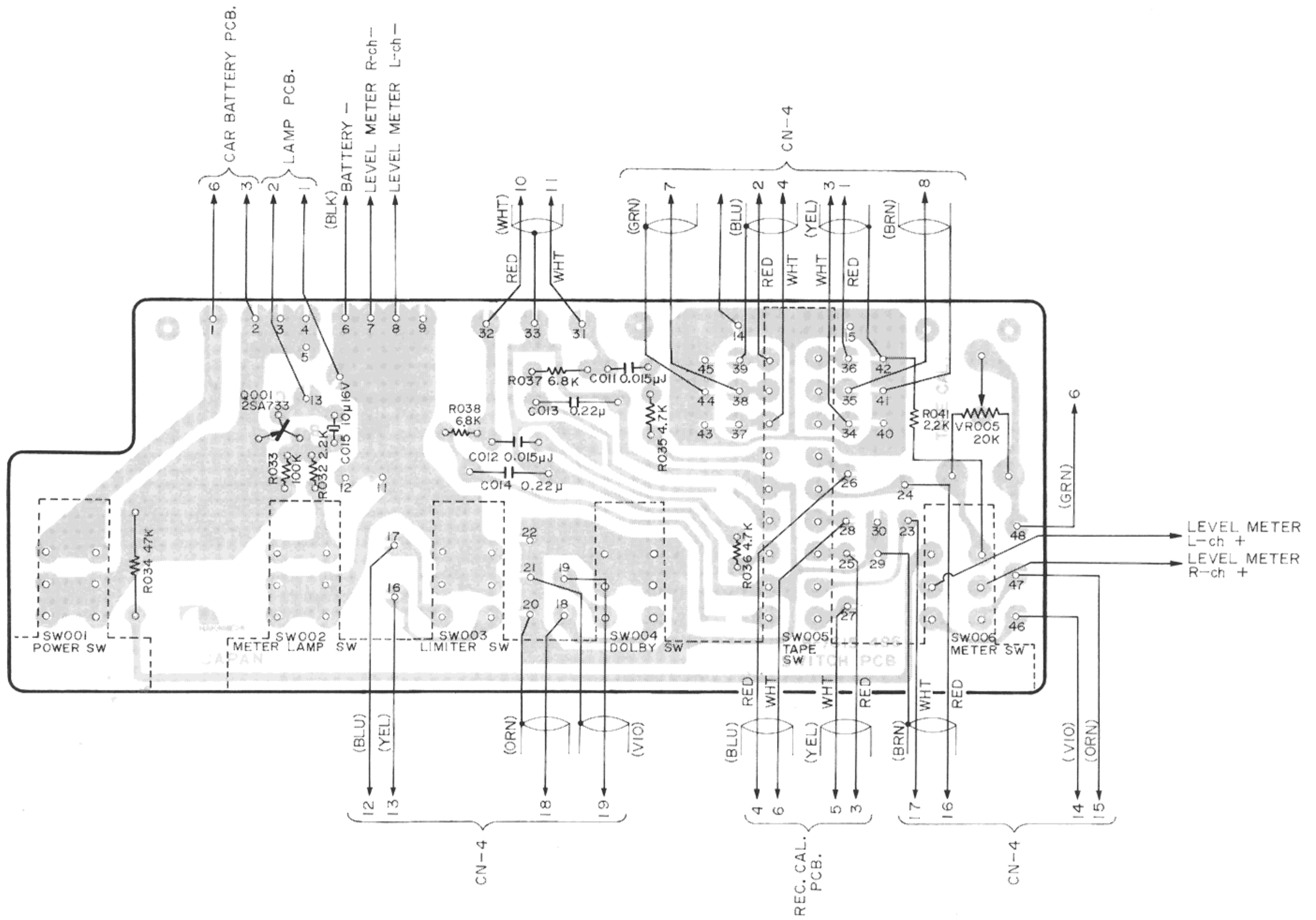


Fig. 7.4

Schematic Ref. No.	Part No.	Description
	BA03676A	Switch P.C.B. Ass'y
	0B07615A	Switch P.C. Board
Q001	0B06013A	Transistor 2SA733
R032, 041	0B05566A	Carbon Resistor 2.2K ELR¼, J
R033	0B01920A	Carbon Resistor 100K ELR¼, J
R034	0B05641A	Carbon Resistor 47K R¼, J
R035, 036	0B01795A	Carbon Resistor 4.7K ELR¼, J
R037, 038	0B01877A	Carbon Resistor 6.8K ELR¼, J
C011, 012	0B05557A	Mylar Capacitor 0.015µ 50V, J
C013, 014	0B05785A	Mylar Capacitor 0.22µ 50V, K
C015	0B01412A	Electrolytic Capacitor 10µ 16V
VR005	0B01923A	Semi-fixed Volume 20K
SW001	0B03870A	Power SW. 550
SW002, 003 004, 005 006	0B07079A	550 Switch Ass'y B
	0E00071A	Washer 3mm Fiber (2 pcs.)

7.5. Volume P.C.B. Ass'y

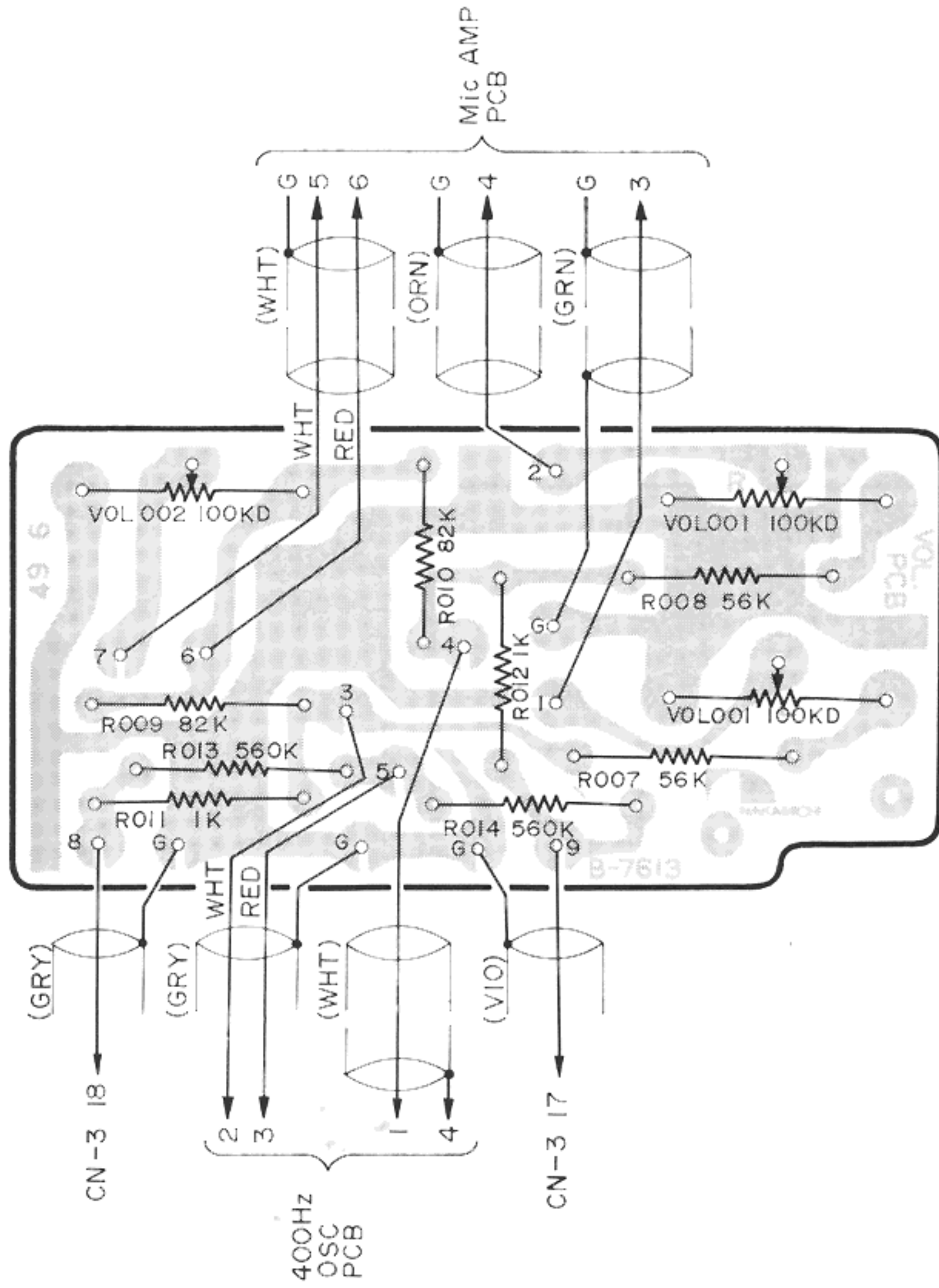


Fig. 7.5

7.6. 400 Hz OSC. P.C.B. Ass'y

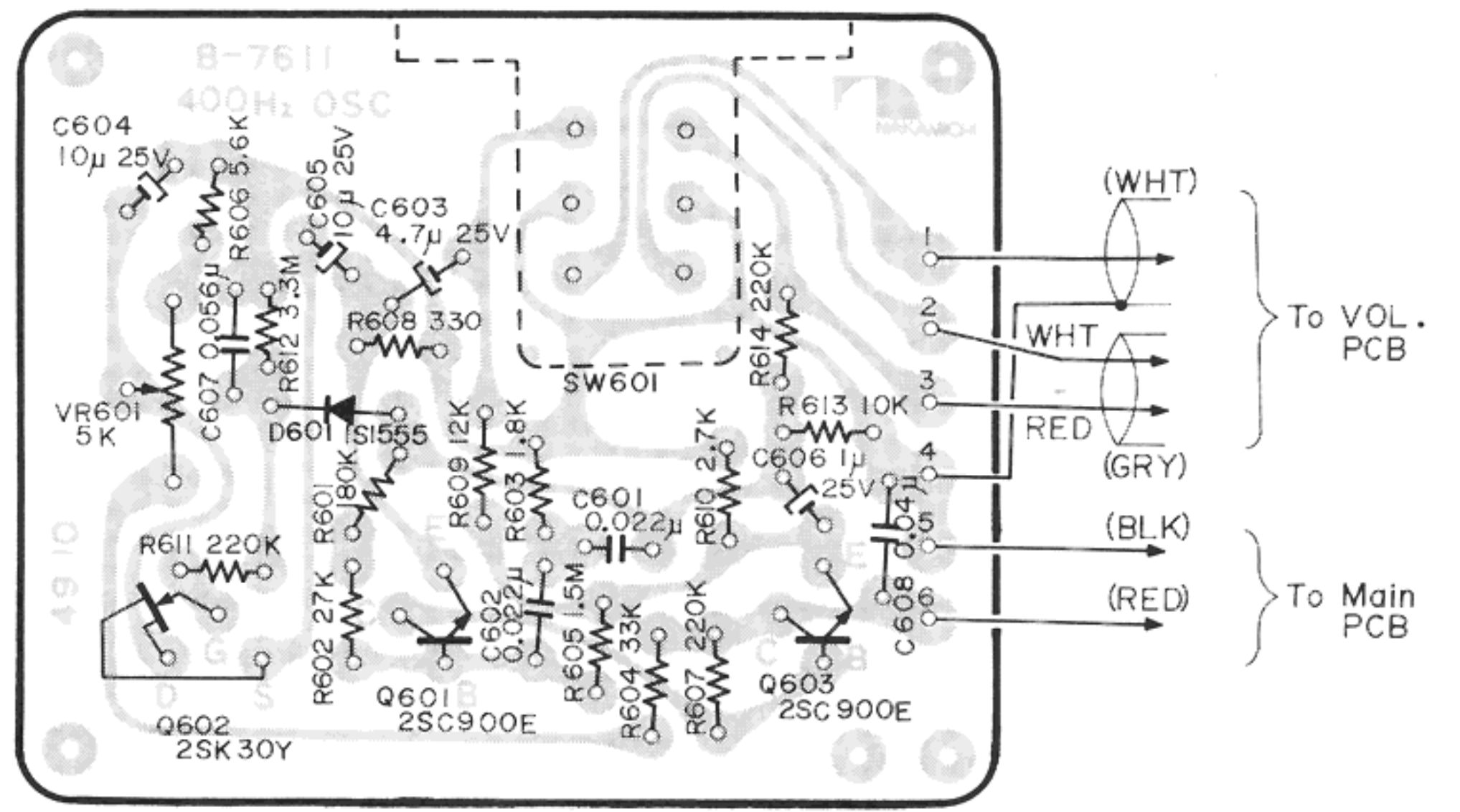


Fig. 7.6

7.7. Headphone AMP. P.C.B. Ass'y

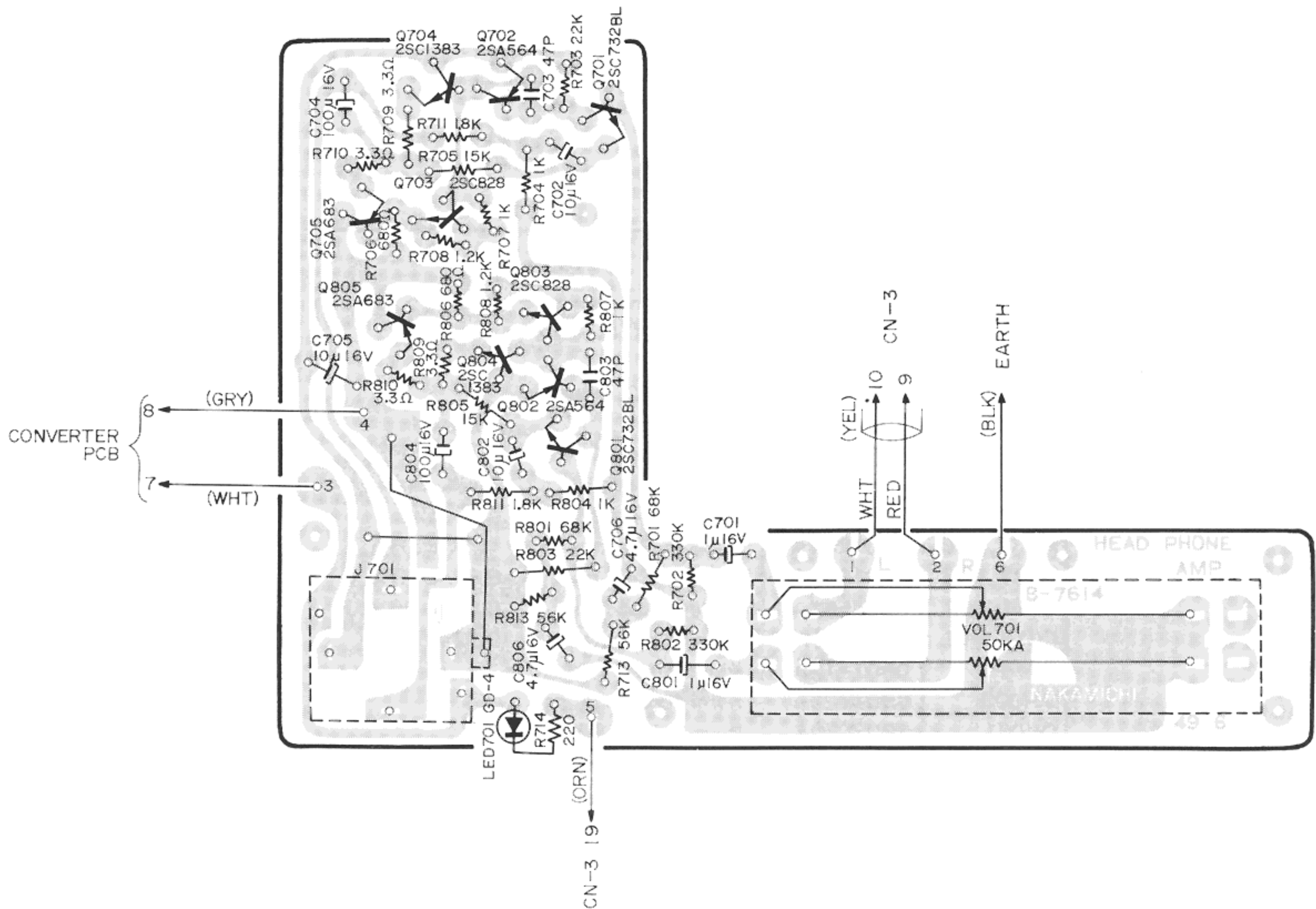


Fig. 7.7

7.8. Solenoid Driver P.C.B. Ass'y

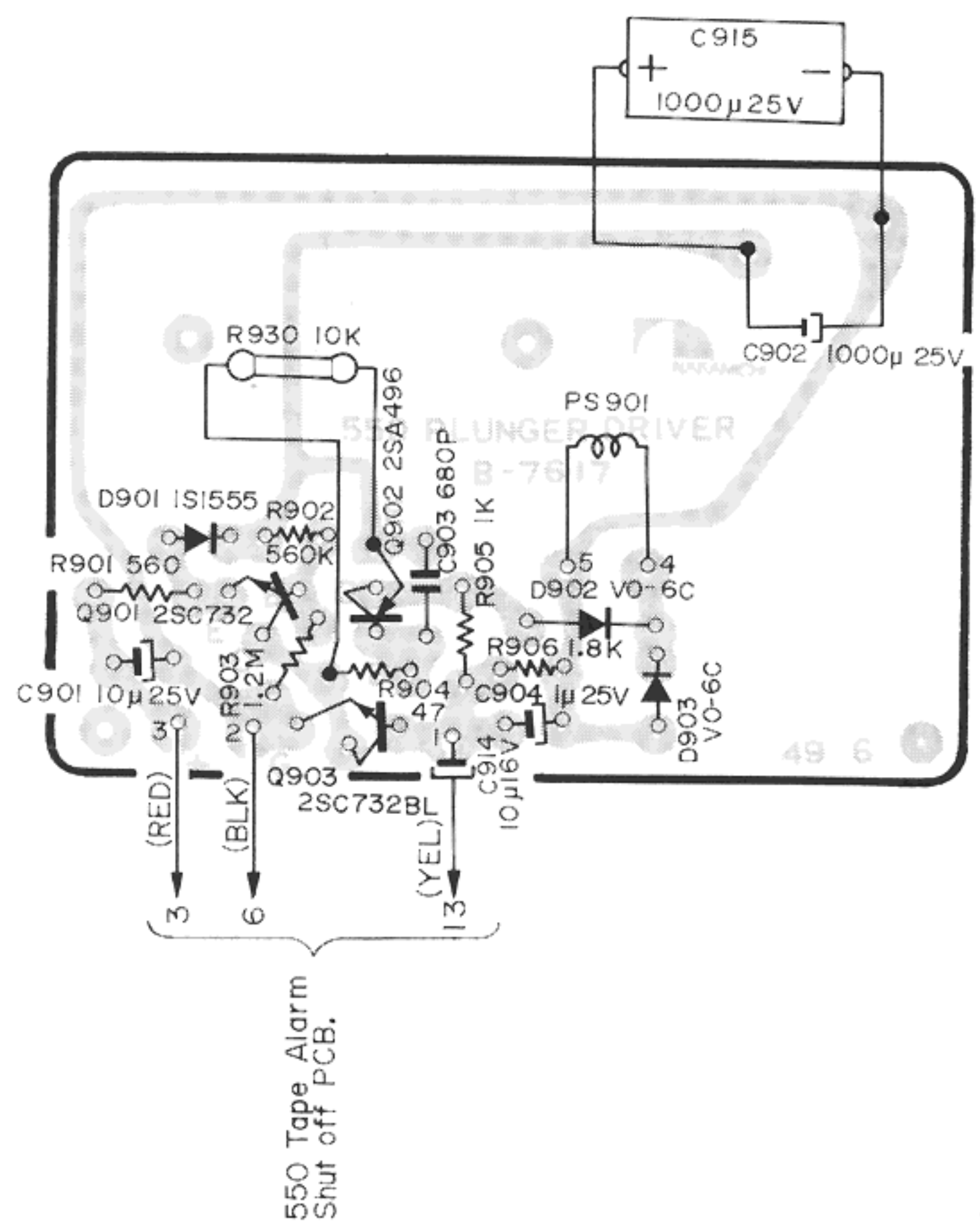


Fig. 7.8

Schematic Ref. No.	Part No.	Description
	BA03674A	Volume P.C.B. Ass'y
	OB07613A	Volume P.C. Board
R007, 008	OB05508A	Carbon Resistor 56K R¼, J
R009, 010	OB05668A	Carbon Resistor 82K R¼, J
R011, 012	OB01857A	Carbon Resistor 1K R¼, J
R013, 014	OB05784A	Carbon Resistor 560K R¼, J
VOL 001	OB07074A	Volume 100K (D)
VOL 002	OB07075A	Volume 100K (D)
	BA03672A	400Hz OSC. P.C.B. Ass'y
	OB07611B	400Hz OSC P.C. Board
Q601, 603	OB01910A	Transistor 2SC900 (E)
Q602	OB01600A	FET 2SK30 (Y)
D601	OB01909A	Silicon Diode 1S1555
R601	OB05669A	Carbon Resistor 180K ELR¼, J
R602	OB05538A	Carbon Resistor 27K ELR¼, J
R603	OB01830A	Carbon Resistor 1.8K ELR¼, J
R604	OB01879A	Carbon Resistor 33K ELR¼, J
R605	OB05601A	Carbon Resistor 1.5M ELR¼, J
R606	OB05673A	Carbon Resistor 5.6K ELR¼, J
R607, 611, 614	OB05596A	Carbon Resistor 220K ELR¼, J
R608	OB01789A	Carbon Resistor 330 ELR¼, J
R609	OB05650A	Carbon Resistor 12K ELR¼, J
R610	OB01782A	Carbon Resistor 2.7K ELR¼, J
R612	OB05775A	Carbon Resistor 3.3M ELR¼, J
R613	OB01833A	Carbon Resistor 10K ELR¼, J

Schematic Ref. No.	Part No.	Description
C601, 602	OB01916A	Mylar Capacitor 0.022µ 50V, J
C603	OB01402A	Electrolytic Capacitor 4.7µ 25V
C604, 605	OB01674A	Electrolytic Capacitor 10µ 25V
C606	OB01173A	Electrolytic Capacitor 1µ 25V
C607	OB05778A	Mylar Capacitor 0.056µ 50V, K
C608	OB05797A	Ceramic Capacitor 0.047µ 50V
VR601	OB01470A	Semi-fixed Volume 5K
SW601	OB07078A	400Hz OSC. Switch
	BA03675A	Headphone AMP. P.C.B. Ass'y
	OB07614C	Headphone AMP. P.C. Board
Q701, 801	OB01910A	Transistor 2SC900(E)
Q702, 802	OB06053A	Transistor 2SA 564(S)
Q703, 803	OB01824A	Transistor 2SC828
Q704, 804	OB06052A	Transistor 2SC 1383
Q705, 805	OB06051A	Transistor 2SA683
LED701	OB06050A	LED GD-4
R701, 801	OB01902A	Carbon Resistor 68K ELR¼, J
R702, 802	OB01921A	Carbon Resistor 330K ELR¼, J
R703, 803	OB05661A	Carbon Resistor 22K ELR¼, J
R704, 804	OB01781A	Carbon Resistor 1K ELR¼, J
707, 807		
R705, 805	OB05591A	Carbon Resistor 15K ELR¼, J
R706, 806	OB05559A	Carbon Resistor 680 ELR¼, J
R708, 808	OB05565A	Carbon Resistor 1.2K ELR¼, J
R709, 809	OB05779A	Carbon Resistor 3.3 ELR¼, J
710, 810		
R711, 811	OB01830A	Carbon Resistor 1.8K ELR¼, J
R713, 813	OB05563A	Carbon Resistor 56K ELR¼, J
R714	OB01933A	Carbon Resistor 220 R¼, J
C701, 801	OB01405A	Electrolytic Capacitor 1µ 16V
C702, 802	OB01412A	Electrolytic Capacitor 10µ 16V
705		
C703, 803	OB01456A	Ceramic Capacitor 47P 50V
C704, 804	OB01400A	Electrolytic Capacitor 100µ 16V
C706, 806	OB01389A	Electrolytic Capacitor 4.7µ 16V
VR701	OB07071A	Slide Volume 50K (A)
	OB03881A	MIC. Jack (1 pce.)
	OJ03341A	Headphone Jack Holder (1 pce.)
	OE00120A	Screw M2.6 x 3 Philips Pan Head (2 pcs.)
	CA03212A	Solenoid Driver P.C.B. Ass'y
	OB07617A	Solenoid Driver P.C. Board
Q901, 903	OB01910A	Transistor 2SC900 (E)
Q902	OB01695A	Transistor 2SA496 (Y)
D901	OB01909A	Silicon Diode 1S1555
D902, 903	OB01501U	Silicon Diode V0-6C
R901	OB05678A	Carbon Resistor 560 ELR¼, J
R902	OB05665A	Carbon Resistor 560K ELR¼, J
R903	OB05537A	Carbon Resistor 1.2M ELR¼, J
R904	OB05569A	Carbon Resistor 47 ELR¼, J
R905	OB01781A	Carbon Resistor 1K ELR¼, J
R906	OB01830A	Carbon Resistor 1.8K ELR¼, J
R930	OB01888A	Carbon Resistor 10K R¼, J
C901, 914	OB01674A	Electrolytic Capacitor 10µ 25V
C902, 915	OB01870A	Electrolytic Capacitor 1000µ 25V
C903	OT04027A	Ceramic Capacitor 680P 50V
C904	OB01173A	Electrolytic Capacitor 1µ 25V

7.9. Alarm B P.C.B. Ass'y

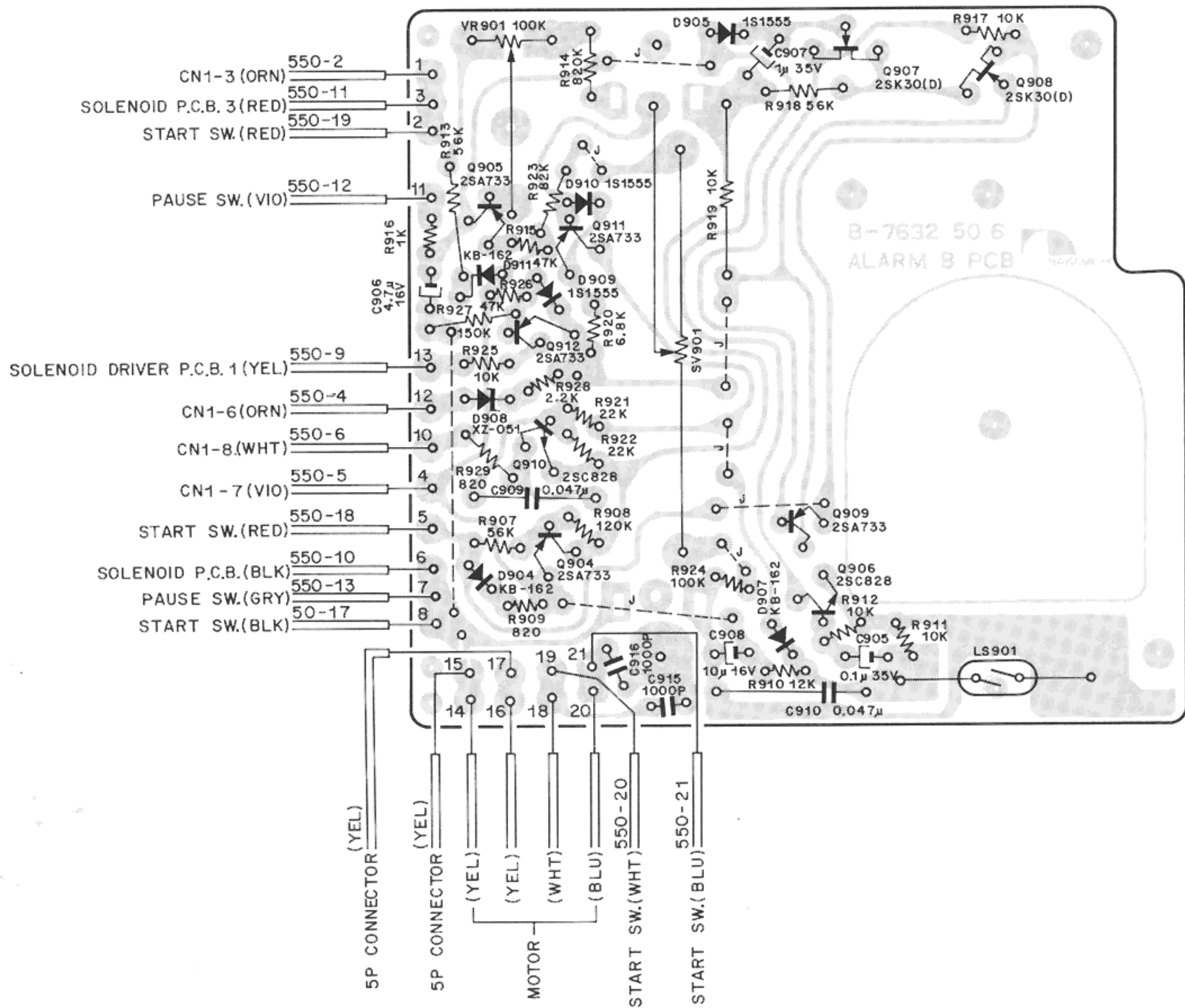


Fig. 7.9

7.10. Mic. AMP. P.C.B. Ass'y

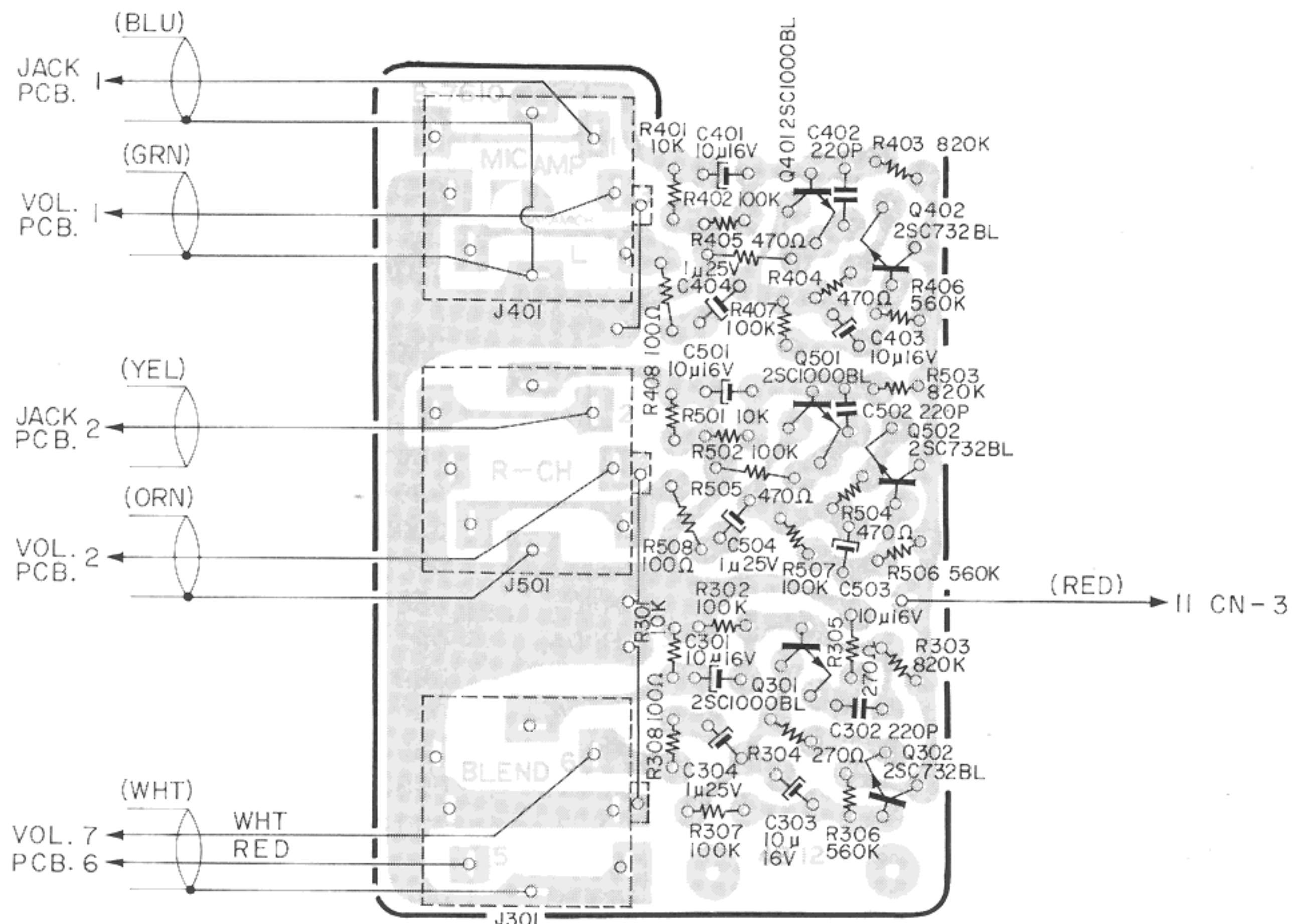


Fig. 7.10

7.11. Jack P.C.B. Ass'y

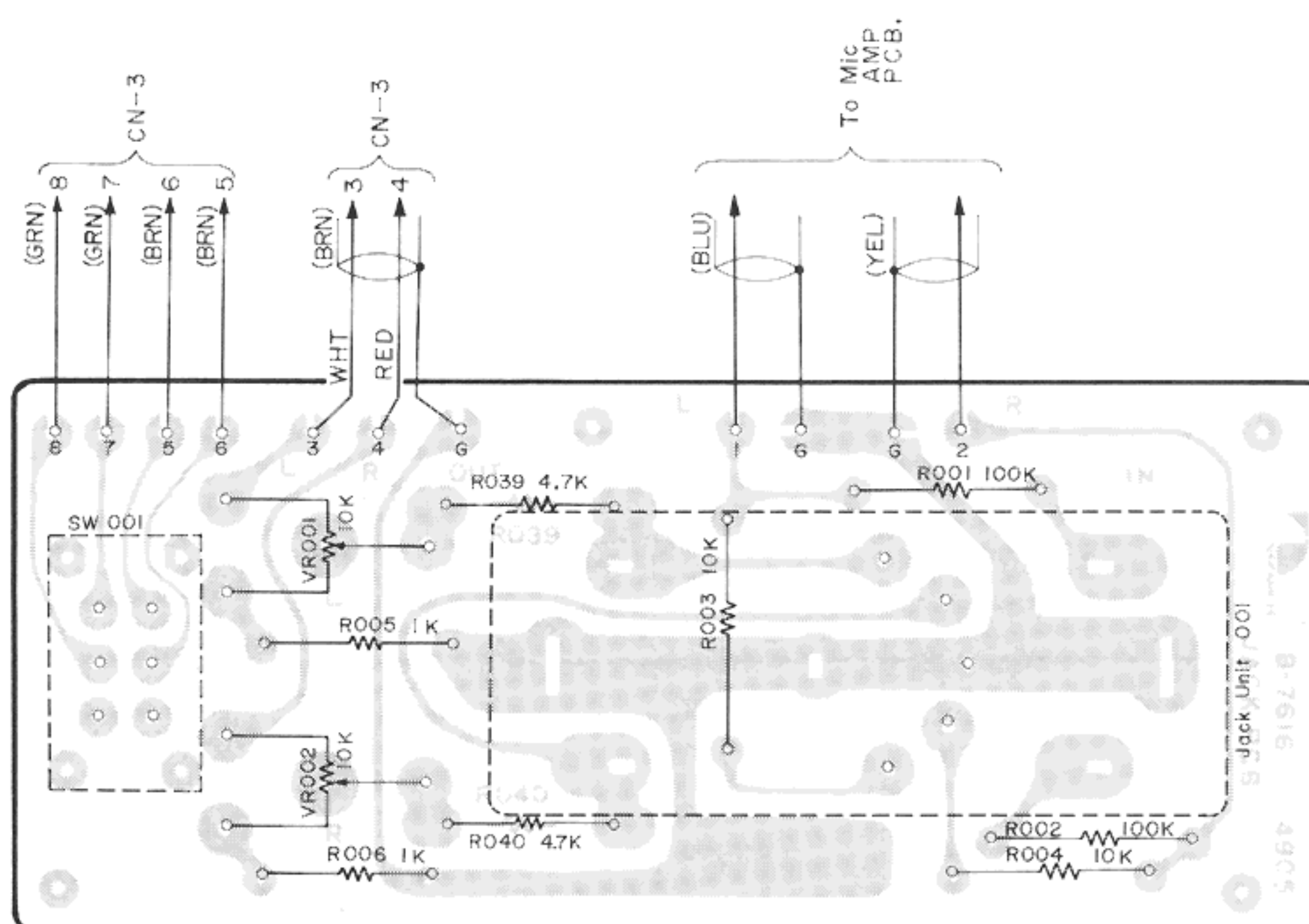


Fig. 7.11

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	CA03248B	Alarm B P.C.B. Ass'y			
Q904, 905, 909, 911, 912	0B07632A	Alarm B P.C.B.	Q301, 401	0B07610B	MIC. AMP. P.C. Board
Q906, 910	0B06013A	Transistor 2SA733	Q501	0B06003A	Transistor 2SC 1000(BL)
Q907, 908	0B01824A	Transistor 2SC828	Q302, 402	0B01910A	Transistor 2SC 900(E)
D904, 907, 911	0B06001A	FET 2SK30A (D)	502		
D905, 909, 910	0B01599A	Silicon Varistor KB-162	R301, 401	0B01833A	Carbon Resistor 10K ELR 1/4, J
D908	0B01909A	Silicon Diode 1S1555	501		
VR901	0B06048A	Zener Diode XZ051	R302, 402	0B01920A	Carbon Resistor 100K ELR 1/4, J
SV901	0B01812A	Semi-fixed Volume 100K	502, 307		
R907, 913, 918	0B07081A	Slide Volume 100K (B)	407, 507		
R908	0B05563A	Carbon Resistor 56K ELR 1/4, J	R303, 403	0B05674A	Carbon Resistor 820K ELR 1/4, J
R909, 929	0B05568A	Carbon Resistor 120K ELR 1/4, J	503		
R910	0B06048A	Carbon Resistor 820 ELR 1/4, J	R304	0B05651A	Carbon Resistor 270 ELR 1/4, J
R911, 912, 917, 925	0B05511A	Carbon Resistor 12K ELR 1/4, J	R404, 504	0B01792A	Carbon Resistor 470 ELR 1/4, J
R914	0B01833A	Carbon Resistor 10K ELR 1/4, J	R305	0B05780A	Carbon Resistor 270(N) ELR 1/4, J
R915, 926	0B05674A	Carbon Resistor 820K ELR 1/4, J	R405, 505	0B05812A	Carbon Resistor 470(N) ELR 1/4, J
R916	0B05562A	Carbon Resistor 47K ELR 1/4, J	R306, 406	0B05665A	Carbon Resistor 560K ELR 1/4, J
R919	0B01781A	Carbon Resistor 1K ELR 1/4, J	506		
R920	0B01888A	Carbon Resistor 10K R 1/4, J	R308, 408	0B05558A	Carbon Resistor 100 ELR 1/4, J
R921, 922	0B01877A	Carbon Resistor 6.8K ELR 1/4, J	508		
R923	0B05661A	Carbon Resistor 22K ELR 1/4, J	C301, 401	0B01412A	Electrolytic Capacitor 10μ 16V
R924	0B01564A	Carbon Resistor 82K ELR 1/4, J	501, 303		
R927	0B01920A	Carbon Resistor 100K ELR 1/4, J	403, 503		
R928	0B05593A	Carbon Resistor 150K ELR 1/4, J	C302, 402	0B01289A	Ceramic Capacitor 220P 50V
C905	0B05566A	Carbon Resistor 2.2K ELR 1/4, J	502		
C906	0B05781A	Tantalum Capacitor 0.1μ 35V, M	C304, 404	0B01173A	Electrolytic Capacitor 1μ 25V
C907	0B05657A	Tantalum Capacitor 4.7μ 16V, M	504		
C908	0B05638A	Tantalum Capacitor 1μ 35V, M	J301, 401	0B03881A	MIC. Jack
C909, 910	0B01412A	Electrolytic Capacitor 10μ 16V	501		
C911, 912	0B05797A	Ceramic Capacitor 0.047μ		0J03342A	MIC. Jack Bracket (1 pce.)
TP901	0T04025A	Ceramic Capacitor 1000P			
	0B03924A	FET Gate Pin			
	BA03671A	MIC. AMP. P.C.B. Ass'y			
			R001, 002	0B01889A	Carbon Resistor 100K R 1/4, J
			R003, 004	0B01888A	Carbon Resistor 10K R 1/4, J
			R005, 006	0B01857A	Carbon Resistor 1K R 1/4, J
			R039, 040	0B01846A	Carbon Resistor 4.7K R 1/4, J
			VR001, 002	0B07077A	Semi-fixed Volume 10K
			SW001	0B07053A	Filter Switch
				0B08097A	Jack Unit (1 pce.)

7.12. Lamp P.C.B. Ass'y

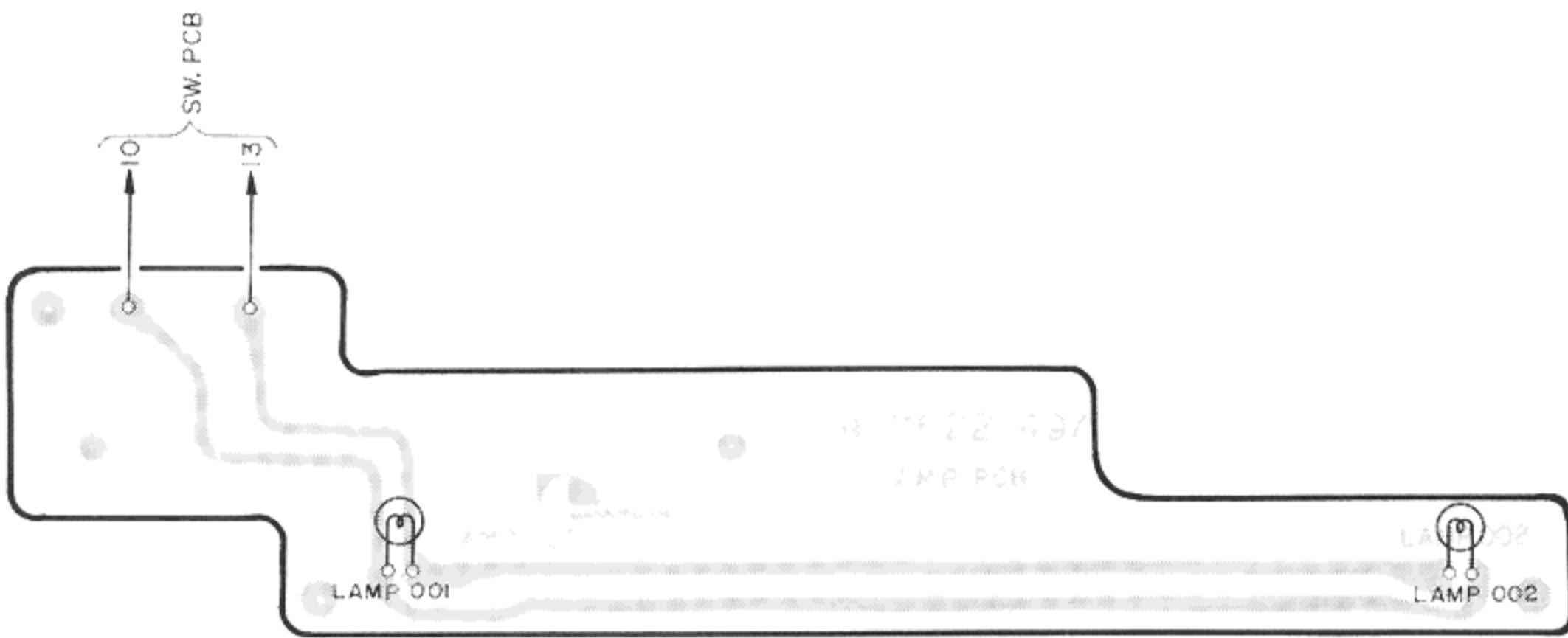


Fig. 7.12

7.13. Car Battery P.C.B. Ass'y

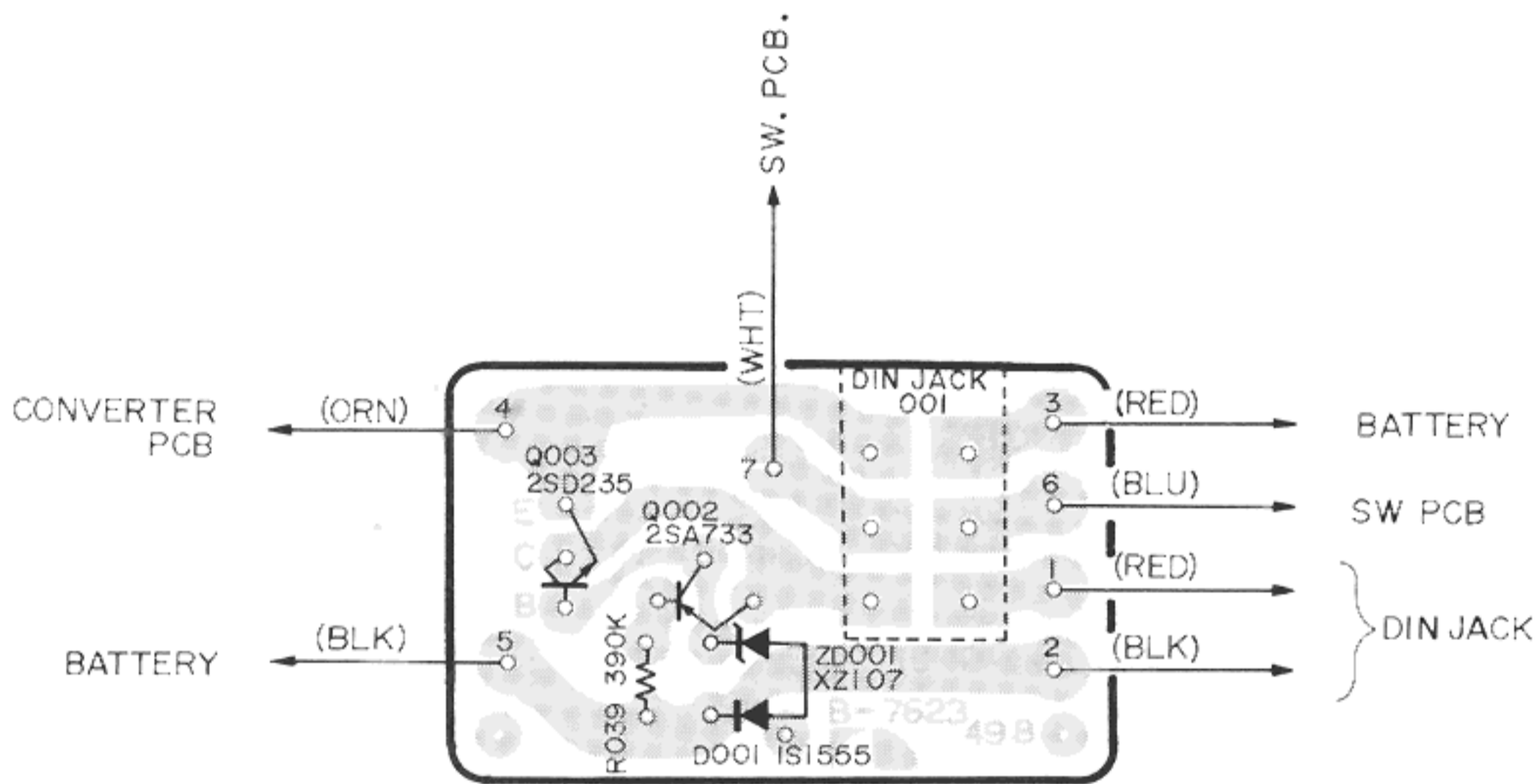


Fig. 7.13

7.14. D-D, MHX P.C.B. Ass'y

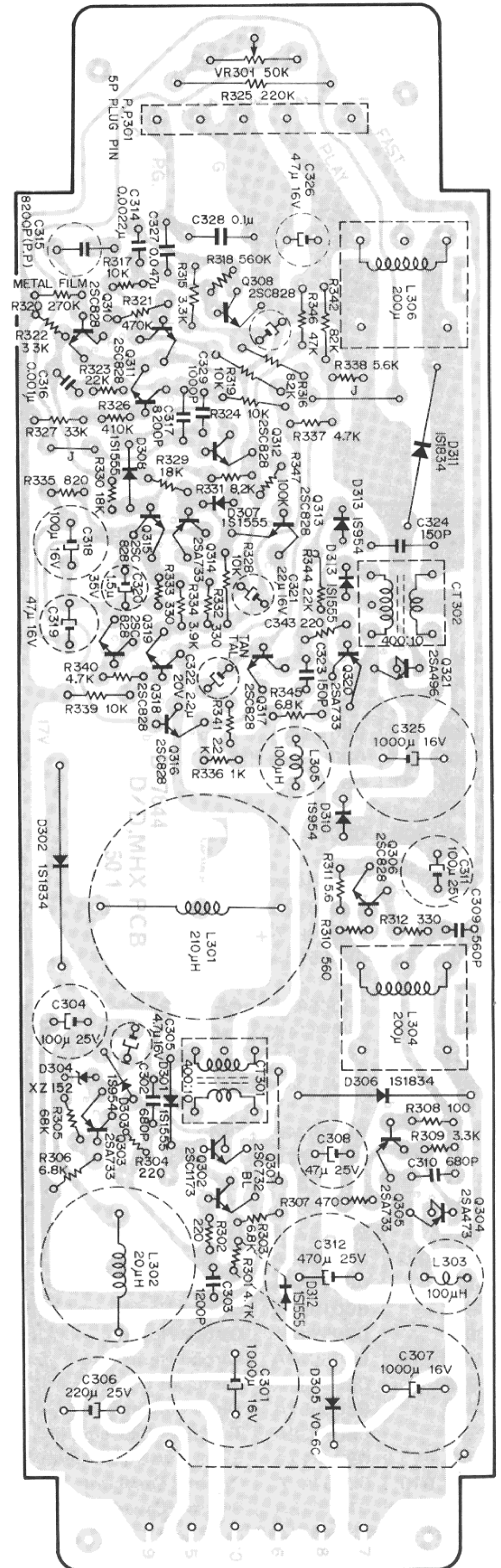


Fig. 7.14

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA03683A	Lamp P.C.B. Ass'y	R317, 319 324, 328 339	0B01833A	Carbon Resistor 10K ELR $\frac{1}{4}$, J
	0B07622A 0B08126A	Lamp P.C. Board Meter Lamp 14V, 40mA (2 pcs.)	R318 R320	0B05665A 0B05809A	Carbon Resistor 560K ELR $\frac{1}{4}$, J Metal Film Resistor 270K CRA $\frac{1}{4}$, FX
	BA03686A	Car Battery P.C.B. Ass'y	R321, 326 R322, 327 R323, 344	0B05700A 0B01879A 0B05661A	Carbon Resistor 470K ELR $\frac{1}{4}$, J Carbon Resistor 33K ELR $\frac{1}{4}$, J Carbon Resistor 22K ELR $\frac{1}{4}$, J
Q002	0B07623B	Car Battery P.C. Board	R325	0B05808A	Metal Film Resistor 220K CRA $\frac{1}{4}$, FX
Q003	0B06013A	Transistor 2SA733	R329, 330	0B05561A	Carbon Resistor 18K ELR $\frac{1}{4}$, J
ZD001	0B01823A	Transistor 2SD235	R333	0B05688A	Carbon Resistor 390 ELR $\frac{1}{4}$, J
D001	0B06057A	Zener Diode XZ-107	R334	0B05664A	Carbon Resistor 3.9K ELR $\frac{1}{4}$, J
R039	0B01909A	Silicon Diode 1S1555	R335	0B05511A	Carbon Resistor 820 ELR $\frac{1}{4}$, J
	0B05669A	Carbon Resistor 180K ELR $\frac{1}{4}$, J	R336	0B01781A	Carbon Resistor 1K ELR $\frac{1}{4}$, J
	0J03371B	Car Battery Heat Sink (1 pce.)	R338	0B05673A	Carbon Resistor 5.6K ELR $\frac{1}{4}$, J
	0B08135A	DIN Socket (4P) (1 pce.)	R341	0B05566A	Carbon Resistor 2.2K ELR $\frac{1}{4}$, J
	0E00503A	Screw M3 x 10 Philips Pan Head (1 pce.)	R342	0B01564A	Carbon Resistor 82K ELR $\frac{1}{4}$, J
	0E00507A	Nut Hex. M3 (1 pce.)	R346	0B05562A	Carbon Resistor 47K ELR $\frac{1}{4}$, J
	0E00581A	Washer 3mm Spring (1 pce.)	R347	0B01920A	Carbon Resistor 100K ELR $\frac{1}{4}$, J
	0E00030A	Washer 3mm Steel (1 pce.)	C301, 307 325	0B01397A	Electrolytic Capacitor 1000 μ 16V
	BA03730A	D-D, MHX P.C.B. Ass'y	C302, 310	0T04027A	Ceramic Capacitor 680P
	0B07644A	D-D, MHX P.C.B.	C303	0B05750A	Mylar Capacitor 1200P 50V, K
Q301	0B06005A	Transistor 2SC732 (BL)	C304, 311	0B01272A	Electrolytic Capacitor 100 μ 25V
Q302	0B06054A	Transistor 2SC1173 (Y)	C305	0B01389A	Electrolytic Capacitor 4.7 μ 16V
Q303, 305 314, 320	0B06013A	Transistor 2SA733	C306	0B01391A	Electrolytic Capacitor 220 μ 25V
Q304	0B06060A	Transistor 2SA473 (Y)	C308	0B01409A	Electrolytic Capacitor 47 μ 25V
Q306, 308 309, 310 311, 312 313, 315 316, 317 318, 319	0B01824A	Transistor 2SC828	C309	0B05783A	Ceramic Capacitor 560P
Q321	0B01695A	Transistor 2SA496	C312	0B01401A	Electrolytic Capacitor 470 μ 25V
D301, 307 308, 309 312	0B01909A	Silicon Diode 1S1555	C313	0B01412A	Electrolytic Capacitor 10 μ 16V
D302, 306 311	0B06056A	Silicon Diode 1S1834	C314	0B04060A	Mylar Capacitor 2200P 50V, K
D303, 310 313	0B06055A	Silicon Diode 1S954	C315	0B05859A	P.P. Capacitor 8200P 50V, J
D304	0B06057A	Zener Diode XZ-152	C316, 329	0B05550A	Mylar Capacitor 1000P 50V, J
D305	0B01501U	Silicon Diode V0-6C	C317	0B05814A	Mylar Capacitor 8200P 50V, J
CT301, 302	0B06527A	Converter OSC. Coil (400 : 10)	C318	0B01400A	Electrolytic Capacitor 100 μ 16V
L301	BA03761A	D-D Converter Coil Ass'y 210 μ H	C319, 326	0B01403A	Electrolytic Capacitor 47 μ 16V
L302	BA03760A	Converter Trap Coil Ass'y 20 μ H	C320	0B05639A	Tantalum Capacitor 1.5 μ 35V
L303, 305	0B06533A	Motor Trap Coil 100 μ H	C321	0B01862A	Electrolytic Capacitor 22 μ 16V
L304, 306	0B06532A	D-FAST Converter Coil 200 μ H	C322	0B05598A	Tantalum Capacitor 2.2 μ 20V
VR301	0B07017A	Semi-fixed Volume 50K	C323, 324	0B05599A	Ceramic Capacitor 150P 50V, K
R301, 337 340	0B01795A	Carbon Resistor 4.7K ELR $\frac{1}{4}$, J	C327	0B05811A	Mylar Capacitor 0.047 μ 50V, K
R302, 304 343	0B05608A	Carbon Resistor 220 ELR $\frac{1}{4}$, J	C328	0B01603A	Mylar Capacitor 0.1 μ 50V, K
R303, 306 345	0B01877A	Carbon Resistor 6.8K ELR $\frac{1}{4}$, J	PP301	0B08140A	5P Plug Pin
R305	0B01902A	Carbon Resistor 68K ELR $\frac{1}{4}$, J		0E00166A	Screw M2 x 4 Cylinder Head (2 pcs.)
R307	0B01792A	Carbon Resistor 470 ELR $\frac{1}{4}$, J			
R308	0B05558A	Carbon Resistor 100 ELR $\frac{1}{4}$, J			
R309, 315	0B01793A	Carbon Resistor 3.3K ELR $\frac{1}{4}$, J			
R310	0B05678A	Carbon Resistor 560 ELR $\frac{1}{4}$, J			
R311	0B05818A	Carbon Resistor 5.6 ELR $\frac{1}{4}$, J			
R312, 332	0B01789A	Carbon Resistor 330 ELR $\frac{1}{4}$, J			
R316, 331	0B01878A	Carbon Resistor 8.2K ELR $\frac{1}{4}$, J			

8. MECHANISM ASS'Y AND PARTS LIST

8.1. Solenoid Holder Ass'y (10)

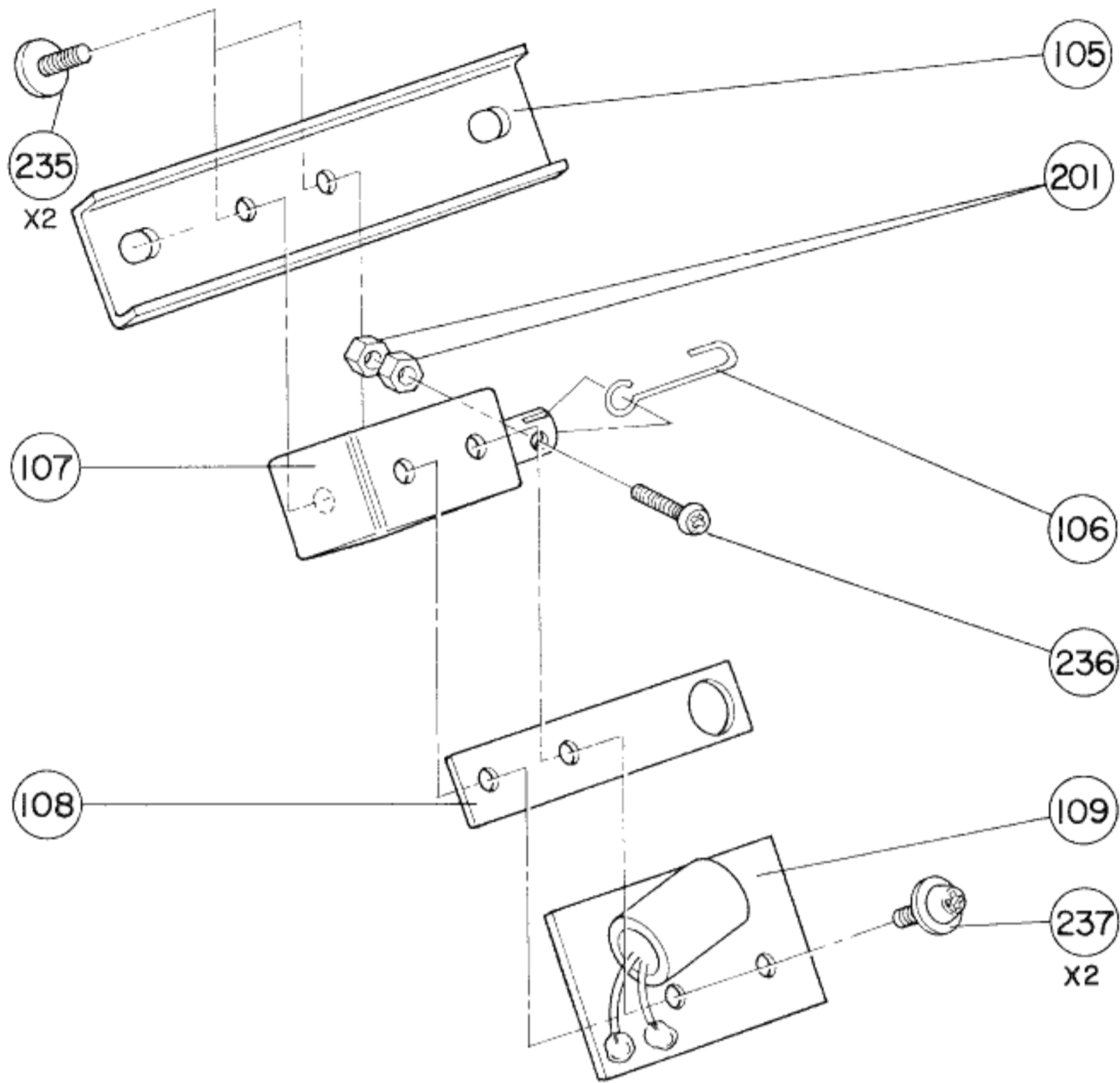


Fig. 8.1

8.2. Head Base B Ass'y (12)

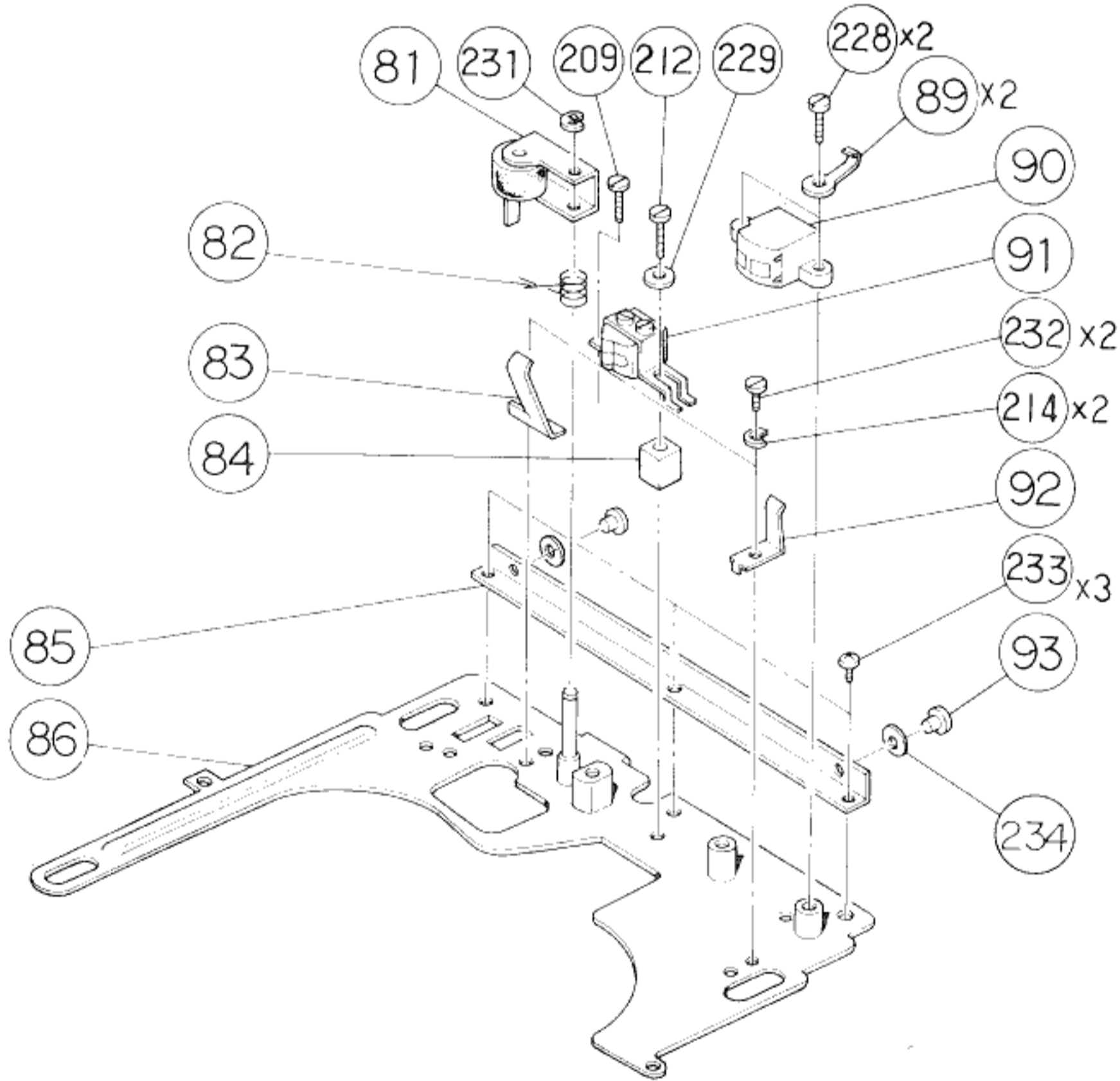


Fig. 8.2

8.3. Mechanism Bracket L Ass'y and Mechanism Bracket R Ass'y (14, 24)

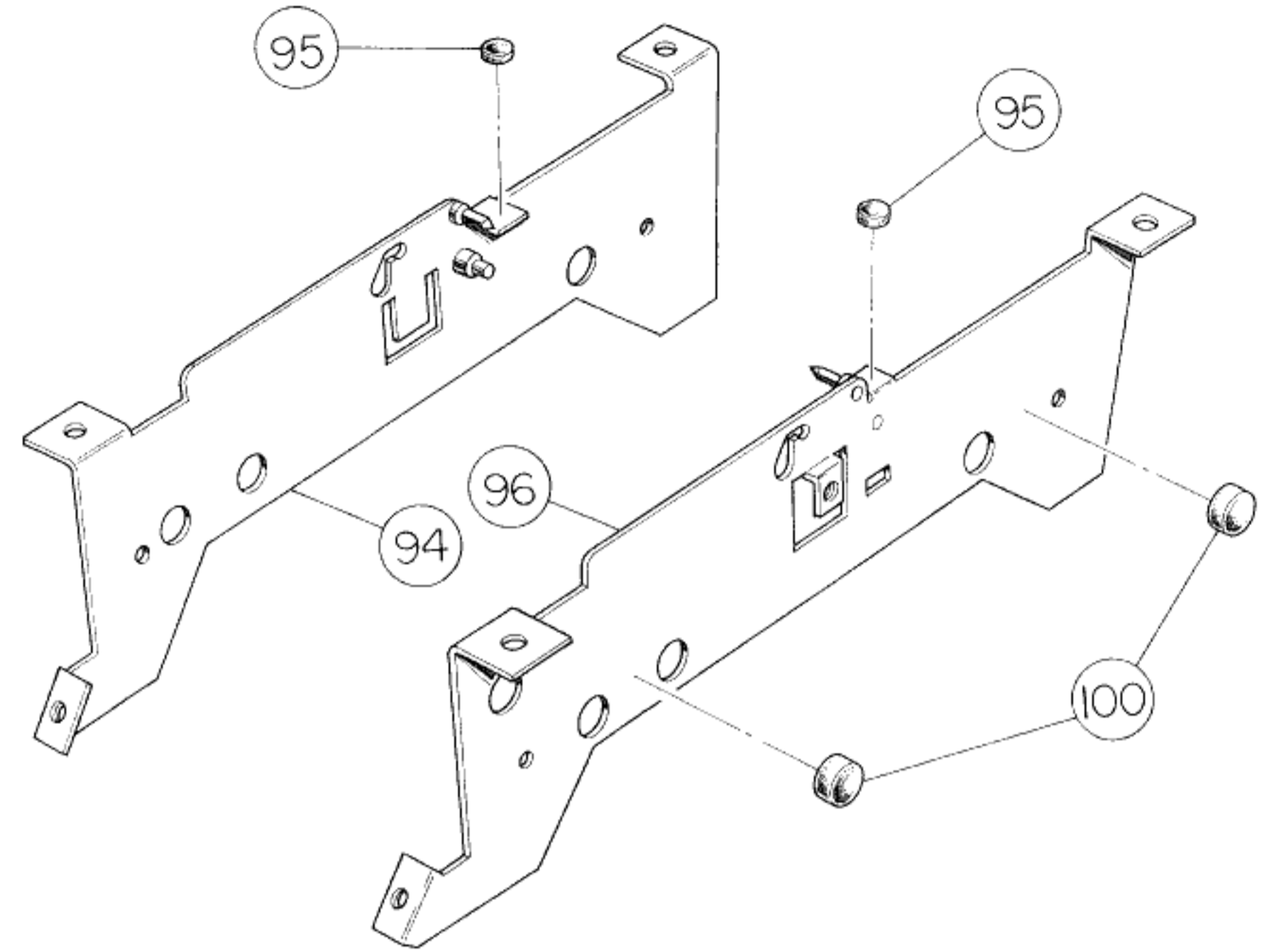


Fig. 8.3

8.4. Auto Shut-off Ass'y (4)

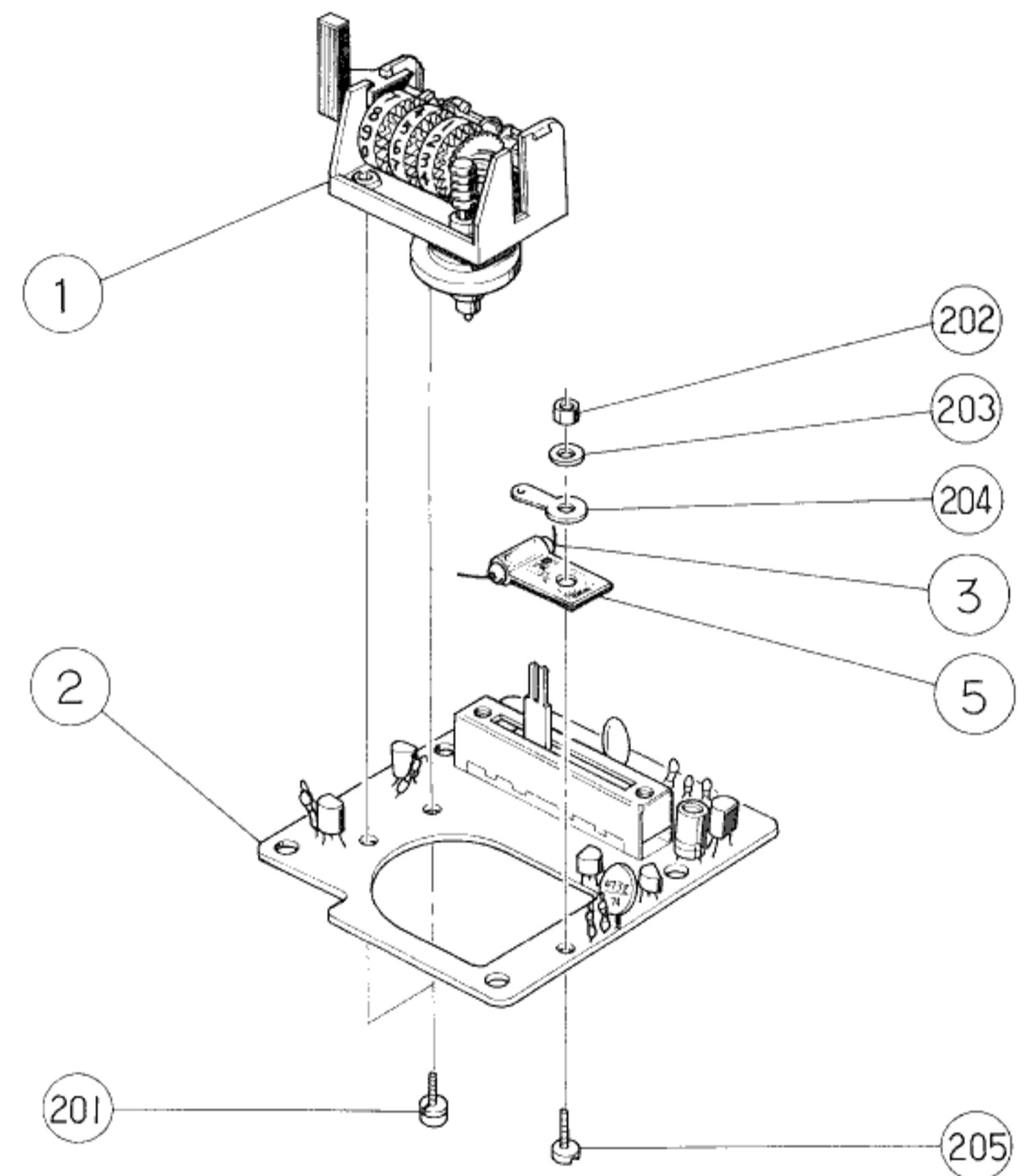


Fig. 8.4

8.5. MHX Motor Ass'y (55)

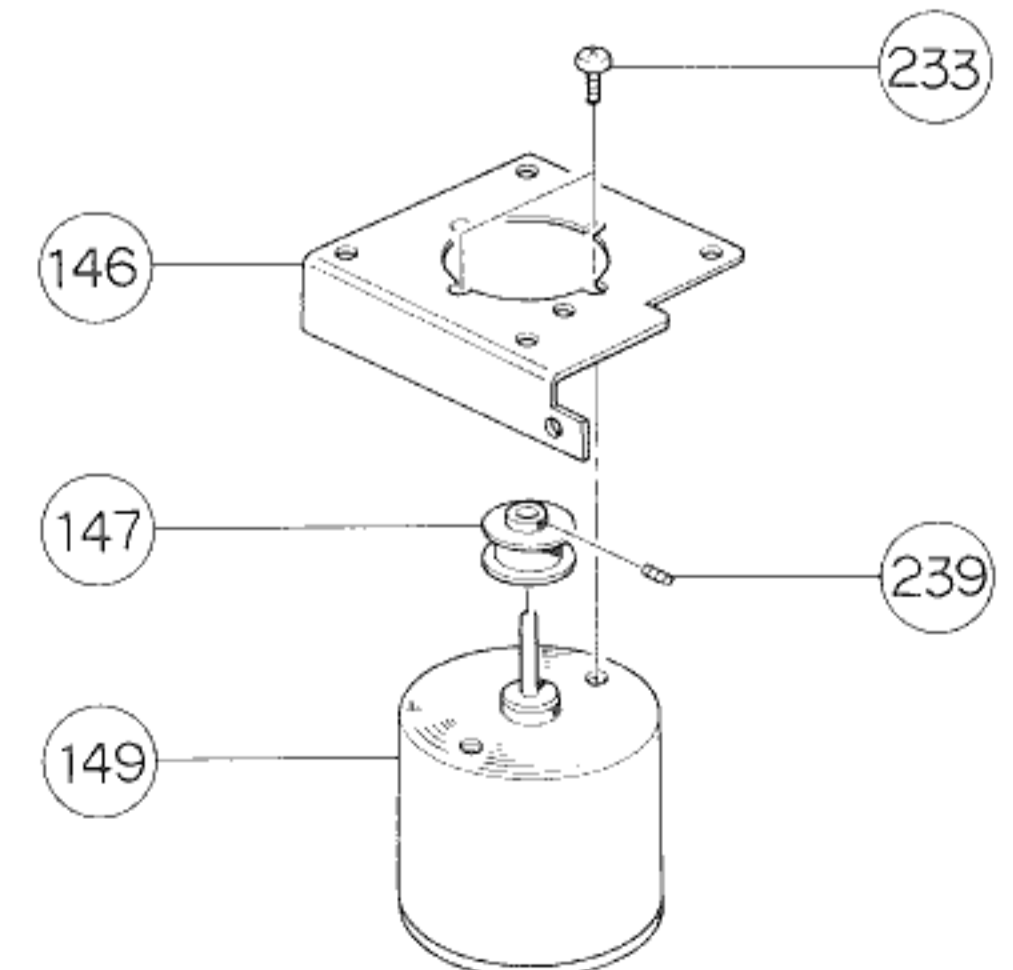


Fig. 8.5

8.6. Flywheel Holder Ass'y C (28)

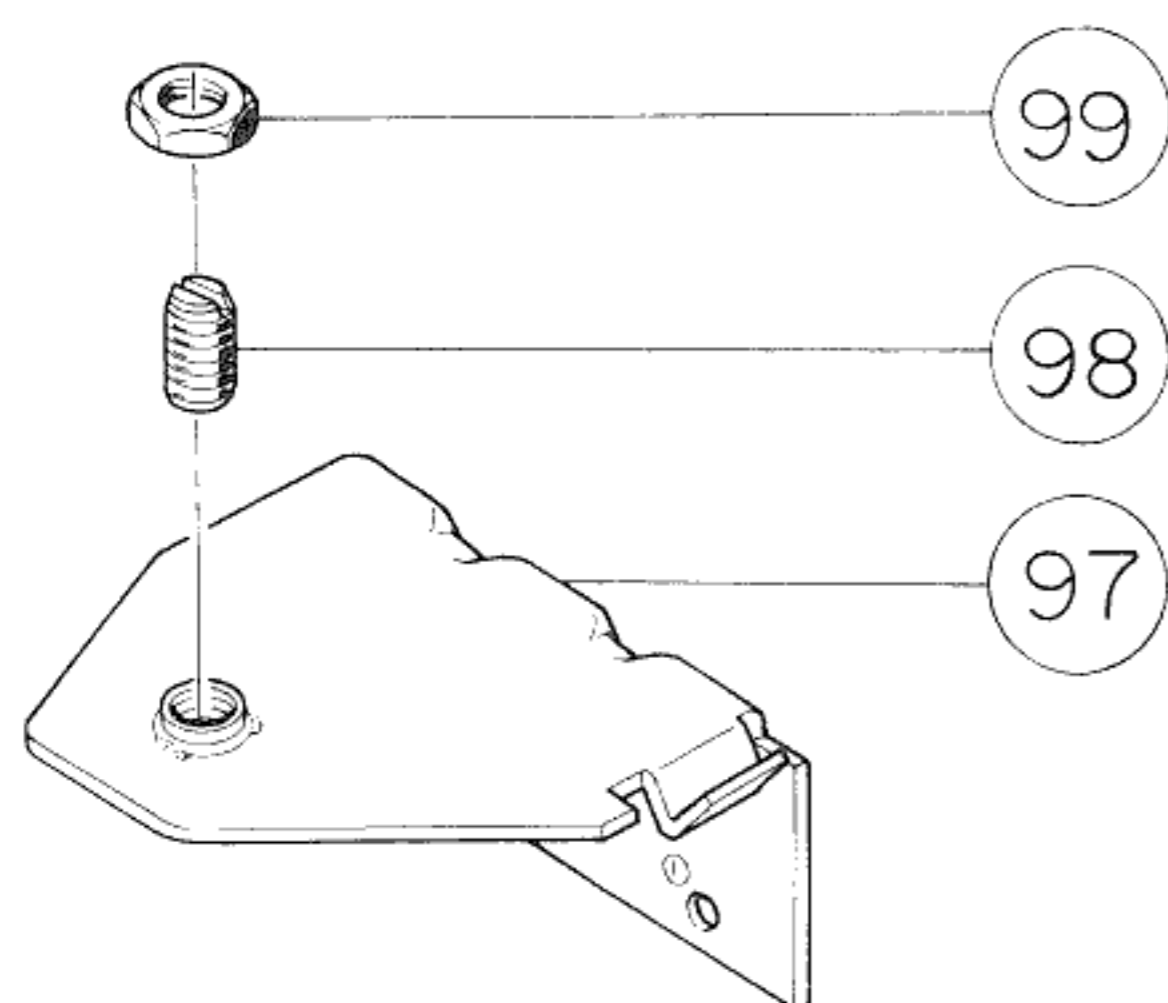


Fig. 8.6

8.7. Motor Cover Ass'y C (68)

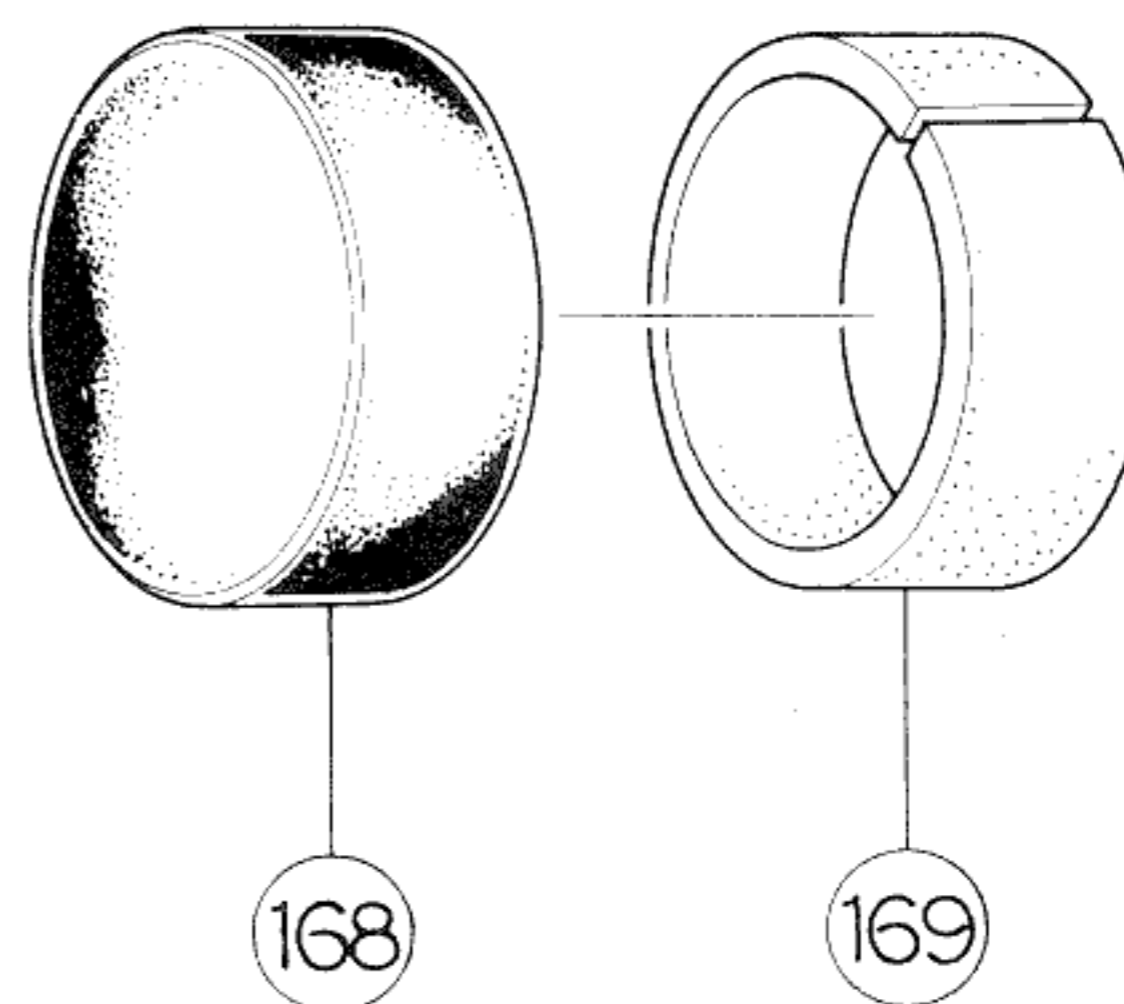


Fig. 8.7

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
10	CA03209A	Solenoid Holder Ass'y	24	CA03211A	Mechanism Bracket R Ass'y
105	OC03840A	Solenoid Holder	96	CA03246A	Mechanism Bracket R Sub Ass'y
106	OC03843A	Solenoid Connection Wire E	95	OC03767A	Base Stopper Rubber
107	OB08092A	Solenoid		OC03764B	Well Stopper Rubber
108	OC03850B	Pole Stopper	100	OB03671A	Board Stopper B
109	CA03212A	Solenoid Driver P.C.B. Ass'y	4	CA03238A	Auto Shut-off Ass'y
201	OE00507A	Nut Hex. M3	2	CA03248B	Alarm B P.C.B. Ass'y
235	OE00618A	Screw M3 x 4 Philips Pan Head (Triple)	3	OB03803A	Reed Switch ORD222
236	OE00514A	Screw M3 x 15 Philips Pan Head	5	OC03763A	Reed Switch Holder
237	OE00613A	Screw M3 x 5 Philips Pan Head (Triple)	1	CA03247A	Tape Counter
	OB08099A	Solenoid Mylar	202	OE00176A	Nut Hex. M2
12	CA03216A	Head Base B Ass'y	205	OE00185A	Screw M2 x 6 Cylinder Head
81	CA03159B	Pressure Roller Ass'y B	203	OE00149A	Washer 2.3mm Steel
82	OC03758B	Pressure Roller Spring B	204	OE00037A	Earth Lug B-5
83	OC03691A	Cassette Retainer Spring R	201	OE00612A	Screw M3 x 6 Philips Pan Head (2A)
84	OC03588A	Azimuth Adjust Rubber	55	CA03253B	MHX Motor Ass'y
85	OC03692D	Base Angle	146	OC03976A	Motor Bracket C
86	CA03217A	Head Base C Sub Ass'y	147	OC03770B	Motor Pulley JA
89	OC03591B	Cord Holder	149	OC03950A	MHX B Motor
90	OC03862B	Erase Head (E-50S)	233	OE00120A	Screw M2.6 x 4 Philips Pan Head
91	CA03207B	Record/Playback Head Ass'y (RP-52)	239	OE00224A	Screw M2 x 3 Cup Point
92	OC03690A	Cassette Retainer Spring L	28	CA03226B	Flywheel Holder Ass'y C
93	OC03767A	Base Stopper Rubber	97	CA03280A	Flywheel Holder Sub Ass'y C
209	OE00166A	Screw M2 x 4 Cylinder Head	98	CA03281A	Thrust Screw Ass'y
212	OE00218A	Screw M2 x 10 Cylinder Head	99	OC03857A	Lock Nut
214	OE00025A	Washer 2mm Spring	68	CA03232A	Motor Cover Ass'y C
228	OE00185A	Screw M2 x 6 Cylinder Head	168	OC03796A	Motor Cap
229	OE00149A	Washer 2.3mm Steel	169	OC03794A	Motor Cover A
231	OE00042A	E-Ring 1.5mm			
232	OE00002A	Screw M2 x 3 Cylinder Head			
233	OE00120A	Screw M2.6 x 3 Philips Pan Head			
234	OE00030A	Washer 3mm Steel			
14	CA03210A	Mechanism Bracket L Ass'y			
94	CA03245A	Mechanism Bracket L Sub Ass'y			
95	OC03767A	Base Stopper Rubber			

8.8. Transport Mechanism 1

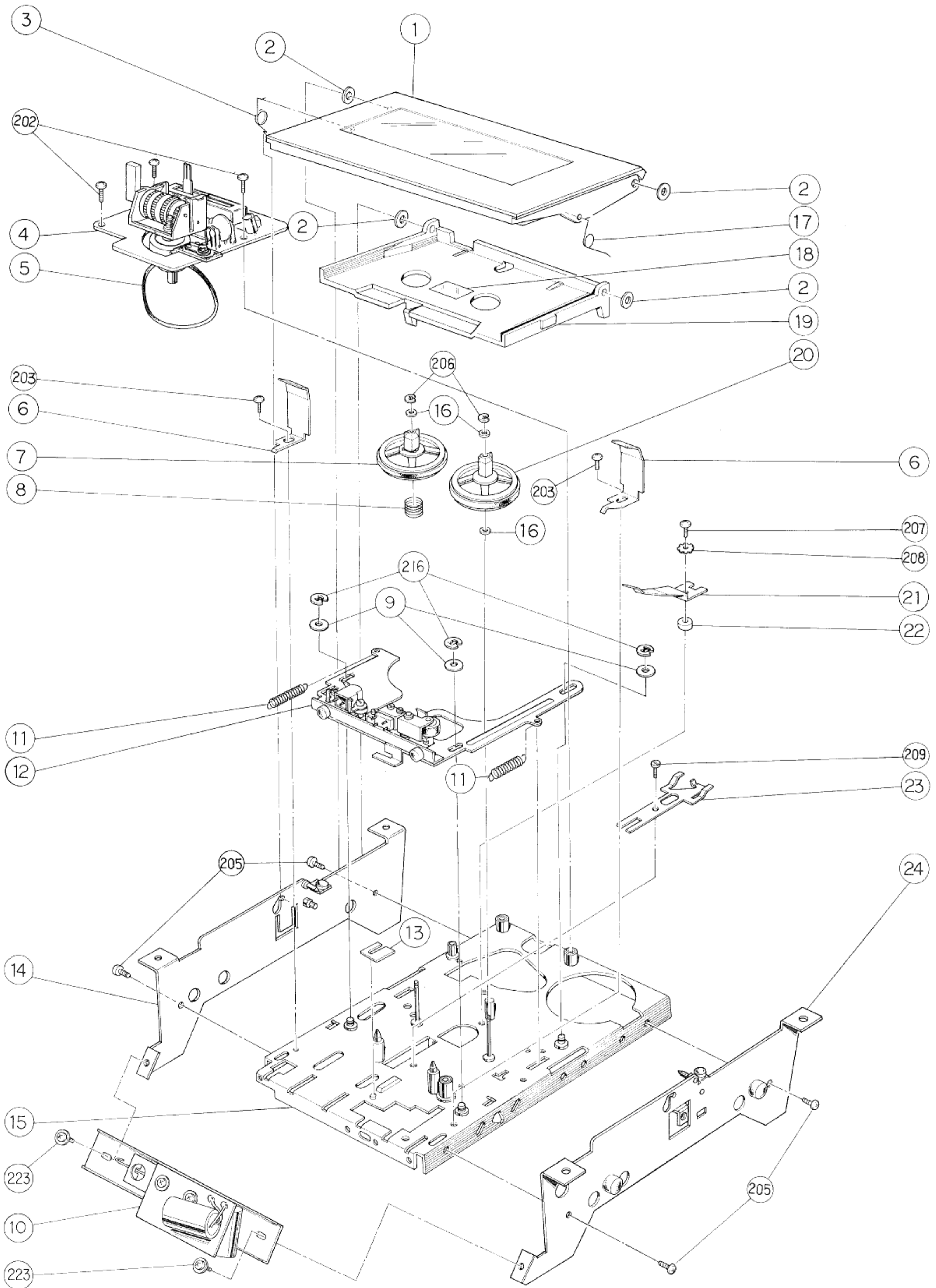


Fig. 8.8

Schematic Ref. No.	Part No.	Description
1	CA03283A	Cassette Lid Ass'y
2	0E00254A	Washer 3.1mm Plastics
3	0C03759D	Lid Spring Left
4	CA03238A	Auto shut-off Ass'y
5	0C03651A	Counter Belt E
6	0C03975A	Cassette Guide C
7	CA03192A	Reel Hub Ass'y (Supply)
8	0C03612C	Back Tension Spring
9	0C06243A	W4 x 8 x 0.2F
10	CA03209A	Solenoid Holder Ass'y
11	0C03694B	Base Return Spring
12	CA03216A	Head Base B Ass'y
14	CA03210A	Mechanism Bracket L Ass'y
15	CA03229C	Mechanism Chassis Ass'y (C)
16	0C03613A	Washer 1.6mm Plastics
17	0C03760D	Lid Spring Right
18	0M03167A	Silver Seal B
19	0C03699K	Cassette Well
20	CA03193A	Reel Hub Ass'y (Take-up)
21	0C03973A	Cassette Well Spring D
22	0C03706A	Cassette Well Spring Stud
23	CA03140A	Brake Ass'y
24	CA03211A	Mechanism Bracket R Ass'y
202	0E00219A	Screw M2.6 x 5 Philips Pan Head
203	0E00226A	Screw M2.6 x 4 Philips Pan Head
205	0E00502A	Screw M3 x 5 Philips Pan Head
206	0E00165A	E-Ring 1.2mm
207	0E00231A	Screw M2.6 x 8 Philips Pan Head (FT)
208	0E00233A	Washer 2.6mm Toothed Lock
209	0E00166A	Screw M2 x 4 Cylinder Head
210	0E00004A	Screw M2 x 8 Cylinder Head
211	0E00222A	E-Ring 2mm
223	0E00606A	Screw M3 x 6 Philips Pan Head (3A)

8.9. Transport Mechanism 2

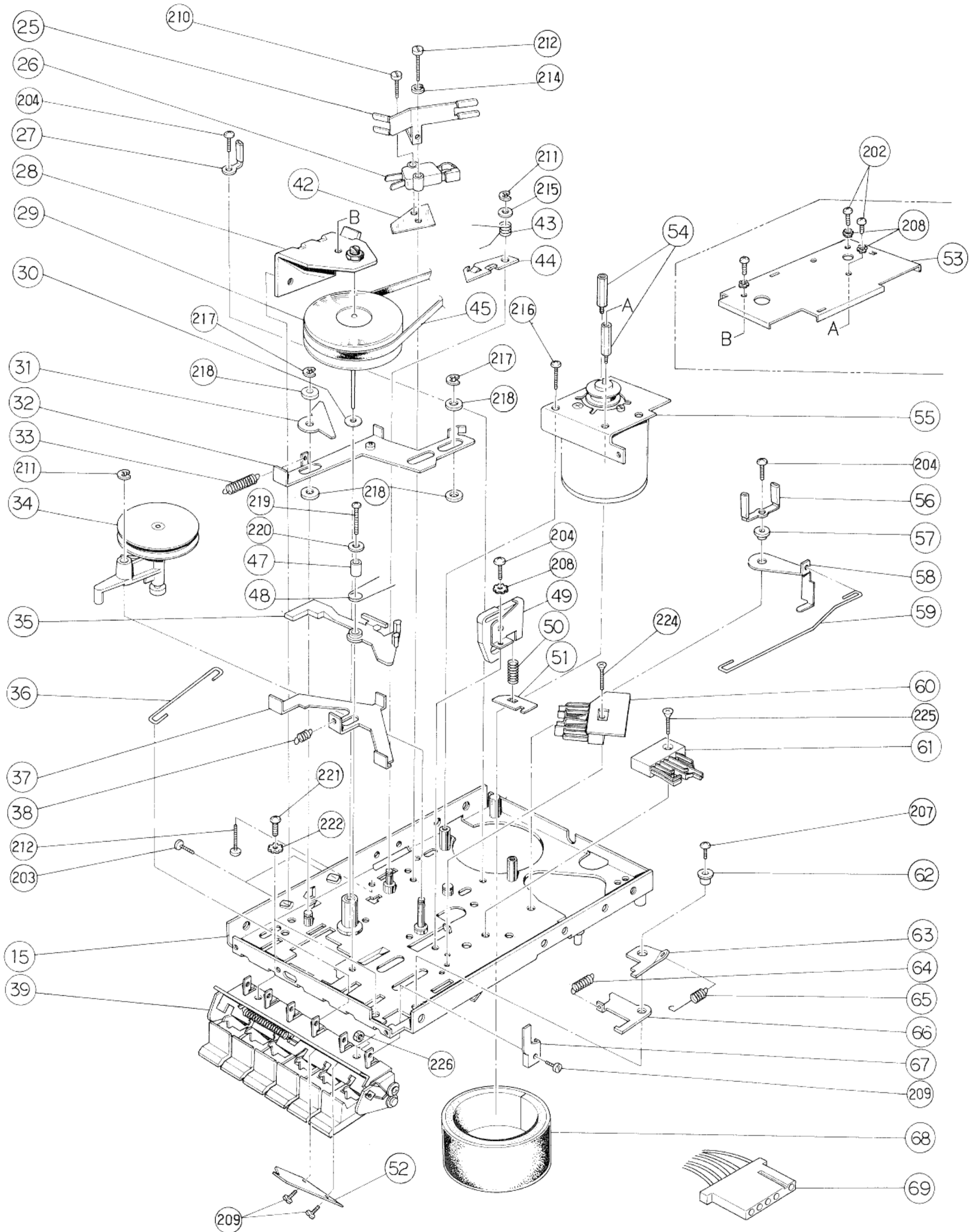


Fig. 8.9

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
25	0C03799E	Belt Guide	39	CA03230A	Deck Button Ass'y (B)
26	0C03743A	Pause Switch		0C03752E	Deck Button SS
27	0C03591B	Cord Holder		0C03609A	Lock Spring A
28	CA03226B	Flywheel Holder Ass'y C		0C03677A	Lock Plate Stopper
29	CA03225B	Flywheel B Ass'y		0C03560A	Button Shaft
30	0C03174A	Washer 2.1mm Plastics		0C03558C	Cam Spring
31	0C03746C	Pause Bar		0C03554E	Button Bracket
32	CA03167A	Slide Plate Ass'y		0C03555D	Button Cam
33	0C03748A	Slide Plate Spring		0C03735D	Cam Spring B
34	CA03301B	Idler Pulley Ass'y		CA03168A	Lock Plate Ass'y
35	0C03646B	FRP Lever B		0C03783A	Stud B
36	0C03553B	Eject Linkage Wire		0C03861A	Button Cam B
37	0C03647B	See-Saw Arm		0E00166A	Screw M2 x 4 Cylinder Head
38	0C03649A	See-Saw Arm Spring		0E00181A	E-Ring 3mm
39	CA03230A	Button Bracket Ass'y B		0E00184A	Screw M2.6 x 6 Flat Head
42	0C03800A	Pause Switch Mylar		0E00030A	Washer 3mm Steel
43	0C03747A	Lock Lever Spring			
44	0C03084A	Pause Lock Lever			
45	0C03668B	Driving Belt			
47	0C03648A	See-Saw Arm Pipe			
48	0C03650B	Lever Spring			
49	CA03118A	Eject Arm Ass'y			
50	0C03873B	Eject Spring			
51	0C03644C	Spring Stopper			
52	0C03839B	Solenoid Connection Plate E			
53	0C03970B	Shield Cover			
54	0C03971B	Shield Cover Stud			
55	CA03253B	MHX Motor Ass'y			
56	0B03067A	Bind Holder			
57	0C03546A	Record Lock Shaft			
58	0C03703B	Record Sensor B			
59	0C03704A	Record Sensor Linkage B			
60	CA03231A	Start Switch Ass'y (C)			
61	CA03141A	Mute Switch Ass'y (C)			
62	0C03775C	Base Cam Shaft			
63	0C03652C	Record Lock B			
64	0C03774A	Base Cam Spring			
65	0C03791A	Record Lock Spring B			
66	0C03773C	Base Cam			
67	0C03792A	Record Cam Link B			
68	CA03232A	Motor Cover Ass'y C			
69	0B08141A	5P Connector Ass'y			
202	0E00219A	Screw M2.6 x 5 Philips Pan Head			
203	0E00226A	Screw M2.6 x 4 Philips Pan Head			
204	0E00228A	Screw M2.6 x 6 Philips Pan Head (FT)			
207	0E00231A	Screw M2.6 x 8 Philips Pan Head (FT)			
208	0E00233A	Washer 2.6mm Toothed Lock			
209	0E00166A	Screw M2 x 4 Cylinder Head			
210	0E00004A	Screw M2 x 8 Cylinder Head			
211	0E00222A	E-Ring 2mm			
212	0E00218A	Screw M2 x 10 Cylinder Head			
213	0E00030A	Washer 3mm Steel			
214	0E00025A	Washer 2mm Spring			
215	0E00253A	Washer 3.3mm Steel			
216	0E00220A	Screw M2.6 x 8 Philips Pan Head			
217	0E00181A	E-Ring 3mm			
218	0E00031A	Washer 4mm Steel			
219	0E00229A	Screw M2.6 x 10 Philips Pan Head			
220	0E00142A	Washer 2.6mm Steel			
221	0E00509A	Screw M3 x 6 Philips Pan Head			
222	0E00172A	Washer 3mm Toothed Lock			
224	0E00223A	Screw M2 x 10 Flat Head			
225	0E00008A	Screw M2.6 x 8 Flat Head			
226	0E00176A	Nut Hex. M2			

8.10. Chassis

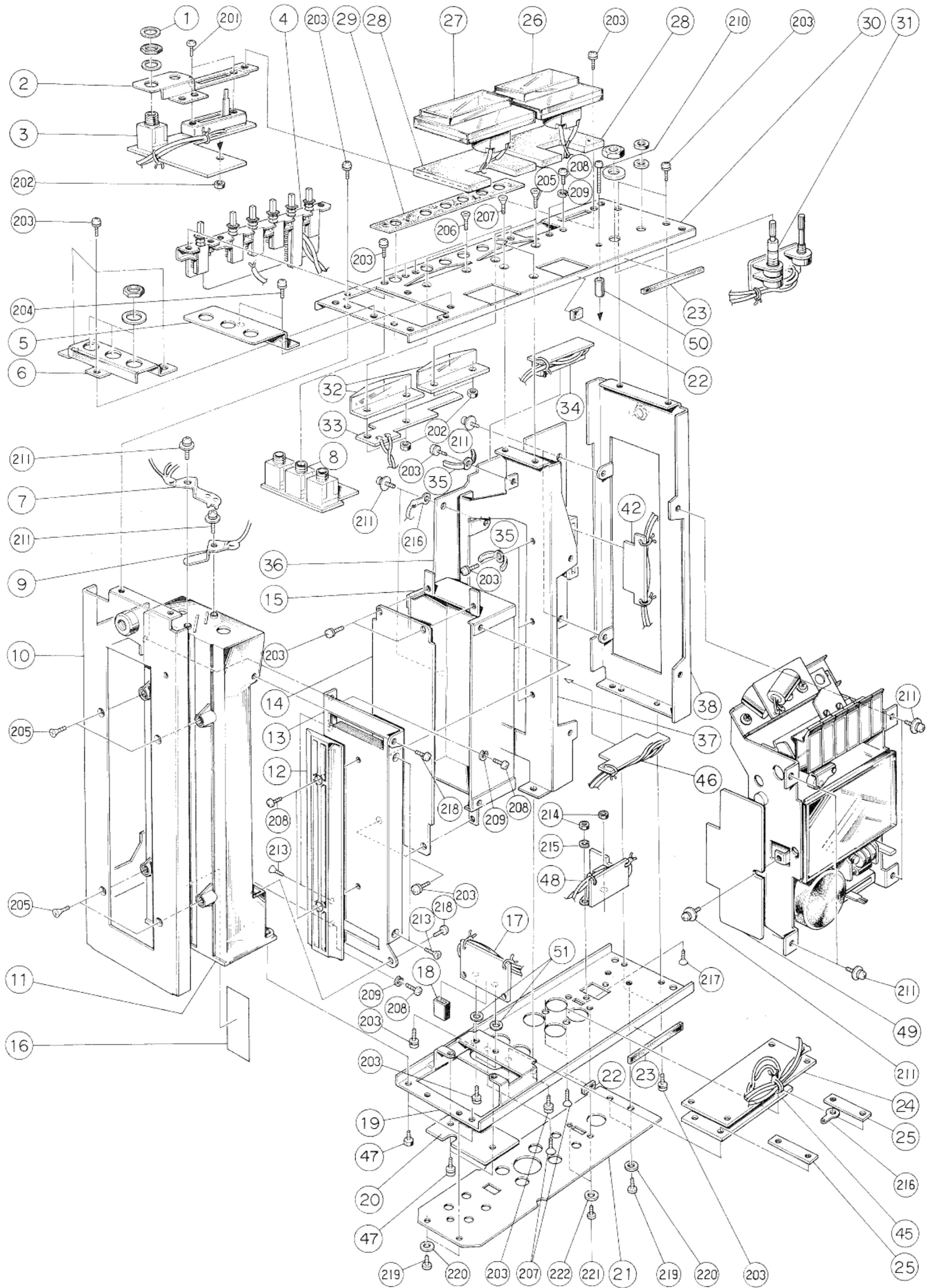


Fig. 8.10

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
1	OJ03236B	Jack Cover	219	0E00589A	Screw M3 x 6 Philips Pan Head
2	OJ03341A	Headphone Jack Holder	220	0E00157A	Washer 3mm Plastics
3	BA03675A	Headphone AMP. P.C.B. Ass'y	221	0E00592A	Screw M2.6 x 4 Philips Pan Head
4	BA03676A	Switch P.C.B. Ass'y	222	0E00651A	Washer 2.6mm Plastics
5	OM03533A	Jack Name Plate			
6	OJ03342A	Jack Bracket			
7	JA03021A	Contact Plate D Ass'y			
8	BA03671A	Mic. AMP. P.C.B. Ass'y			
9	OJ03354A	Contact Plate B			
10	JA03022A	Slide Plate R Ass'y			
11	OJ03347A	Battery Case			
12	OJ03349A	Battery Slide Guide			
13	OJ03352A	Converter Case Cover			
14	BA03730A	D-D, MHX P.C.B. Ass'y			
15	OJ03351C	Converter Case			
16	OM03531A	Battery Indication Label			
17	BA03672A	400Hz OSC. P.C.B. Ass'y			
18	OH03104A	Push Button			
19	JA03023A	Rear Chassis Ass'y			
20	BA03764A	Rec. Cal. P.C.B. Ass'y			
21	OM03664B	Rear Name Plate			
22	OB03939A	Cushion			
23	OJ03370A	Stopper Rubber			
24	BA03677A	Jack P.C.B. Ass'y			
25	OJ03277A	Bolt Receptacle Plate			
26	OB08143C	Meter (L)			
27	OB08142C	Meter (R)			
28	OJ03344B	Meter Cushion			
29	OH03373A	Push Switch Cover			
30	OJ03365B	Front Chassis			
31	BA03674A	Volume P.C.B. Ass'y			
32	OJ03345B	Lamp House			
33	BA03683A	Lamp P.C.B. Ass'y			
34	BA03694A	19P Sub Board Ass'y			
35	OB03067A	Bind Holder			
36	BA03669A	Main P.C.B. Ass'y (SX)			
37	OJ03355C	Center Chassis			
38	JA03024A	Slide Plate L Ass'y			
42	OB01651B	14P Plug Board			
45	OB08097A	Jack Unit			
46	OB01798C	19P Plug Board			
47	OJ03358B	Rear Chassis Stud			
48	BA03686A	Car Battery P.C.B. Ass'y			
49	BA03670A	Dolby P.C.B. Ass'y			
50	OJ03375A	Headphone AMP. Stud			
51	OB03053B	Switch Stud			
201	0E00120A	Screw M2.6 x 3 Philips Pan Head			
202	0E00507A	Nut Hex. M3			
203	0E00612A	Screw M3 x 6 Philips Pan Head (2A)			
204	0E00622A	Screw M3 x 5 Philips Pan Head (2A)			
205	0E00518A	Screw M3 x 8 Flat Head			
206	0E00524A	Screw M3 x 10 Flat Head			
207	0E00505A	Screw M3 x 6 Flat Head			
208	0E00522A	Screw M3 x 4 Philips Pan Head			
209	0E00581A	Washer 3mm Spring			
210	0E00519A	Screw M3 x 25 Philips Pan Head			
211	0E00606A	Screw M3 x 6 Philips Pan Head (3A)			
213	0E00076A	Screw M2.6 x 4 Flat Head			
214	0E00021A	Nut Hex. M2.6			
215	0E00026A	Washer 2.6mm Spring			
216	0E00037A	B5 Earth Lug			
217	0E00184A	Screw M2.6 x 6 Flat Head			
218	0E00121A	Screw M2.6 x 6 Philips Pan Head			

8.11. Cabinet

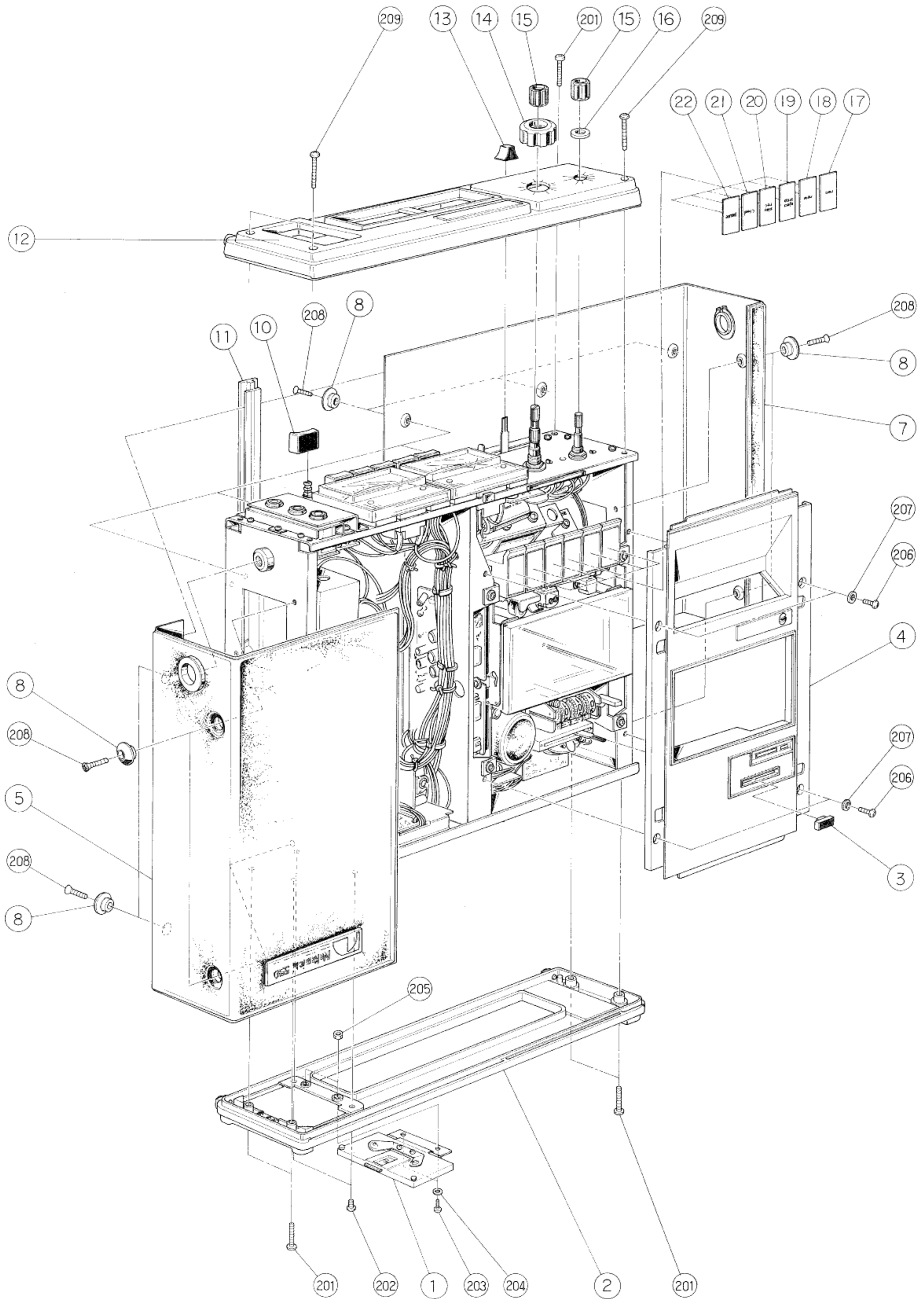


Fig. 8.11

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
1	HA03613B	Battery Door Ass'y	12	HA03637A	Front Panel Ass'y
2	HA03614A	Rear Panel Ass'y		0A03237A	Front Panel
3	0H03394A	Program Timer Knob		0M03663A	Front Name Plate
4	HA03615A	Deck Panel Ass'y		0M03535A	Brand Name Plate
5	HA03616A	Upper Case Ass'y		0A03240B	Rubber Foot
7	HA03617A	Bottom Case Ass'y		0H03294A	Volume Shade
8	0H03390A	Wave Washer (B)			
10	0H03371A	Push Button 550			
11	0H03367A	Case Spacer			
12	HA03637A	Front Panel Ass'y			
13	0H03375C	Slide Volume Knob 550			
14	0H03370D	Volume Knob B			
15	0H03369C	Volume Knob A			
16	0H03386A	Volume Knob Felt			
17	0M03563A	Record Name Plate			
18	0M03564A	Rewind Name Plate			
19	0M03565A	Stop Name Plate			
20	0M03566A	Play Name Plate			
21	0M03567A	FF Name Plate			
22	0M03568A	Pause Name Plate			
201	0E00604A	Screw M3 x 15 Philips Pan Head			
202	0E00661A	Screw M3 x 4 Philips Pan Head			
203	0E00685A	Screw M2.6 x 5 Philips Pan Head			
204	0E00651A	Washer 2.6mm Plastics			
205	0E00681A	Nut Hex. M2.6			
206	0E00589A	Screw M3 x 6 Philips Pan Head			
207	0E00183A	Washer (3.5 x 7 x 0.5) Steel			
208	0E00659A	Screw M3 x 10 Oval Countersunk Head			
209	0E00683A	Screw M3 x 22 Philips Pan Head			
1	HA03613B	Battery Door Ass'y			
	HA03626A	Case Knob Ass'y			
	0A03239D	Battery Case Cover			
	0J03360B	Contact Plate C			
	0J03364A	Hinge Shaft			
	0J03363C	Hinge			
	0J03649A	Battery Cover Slide Cover B			
	0J03650A	Lock Spring			
	0J03651A	Battery Cover Spring			
	0M03537B	Model Name Plate			
	0E00076A	Screw M2.6 x 4 Philips Countersunk Head			
	0E00219A	Screw M2.6 x 5 Philips Pan Head			
	0E00681A	Nut Hex. M2.6			
2	HA03614A	Rear Panel Ass'y			
	0A03238B	Rear Panel			
	0M03538C	Dolby Name Plate			
	0A03240B	Rubber Foot			
	0J03362A	Battery Cover Stopper			
	0E00612A	Screw M3 x 6 Philips Pan Head (2A)			
4	HA03615A	Deck Panel Ass'y			
	0J03370A	Stopper Rubber			
	0A03236A	Deck Panel			
	0H03099A	Counter Lens V			
	0M03532A	Tape Alarm Name Plate			
	0M03840B	SH Badge			

9. BLOCK DIAGRAM

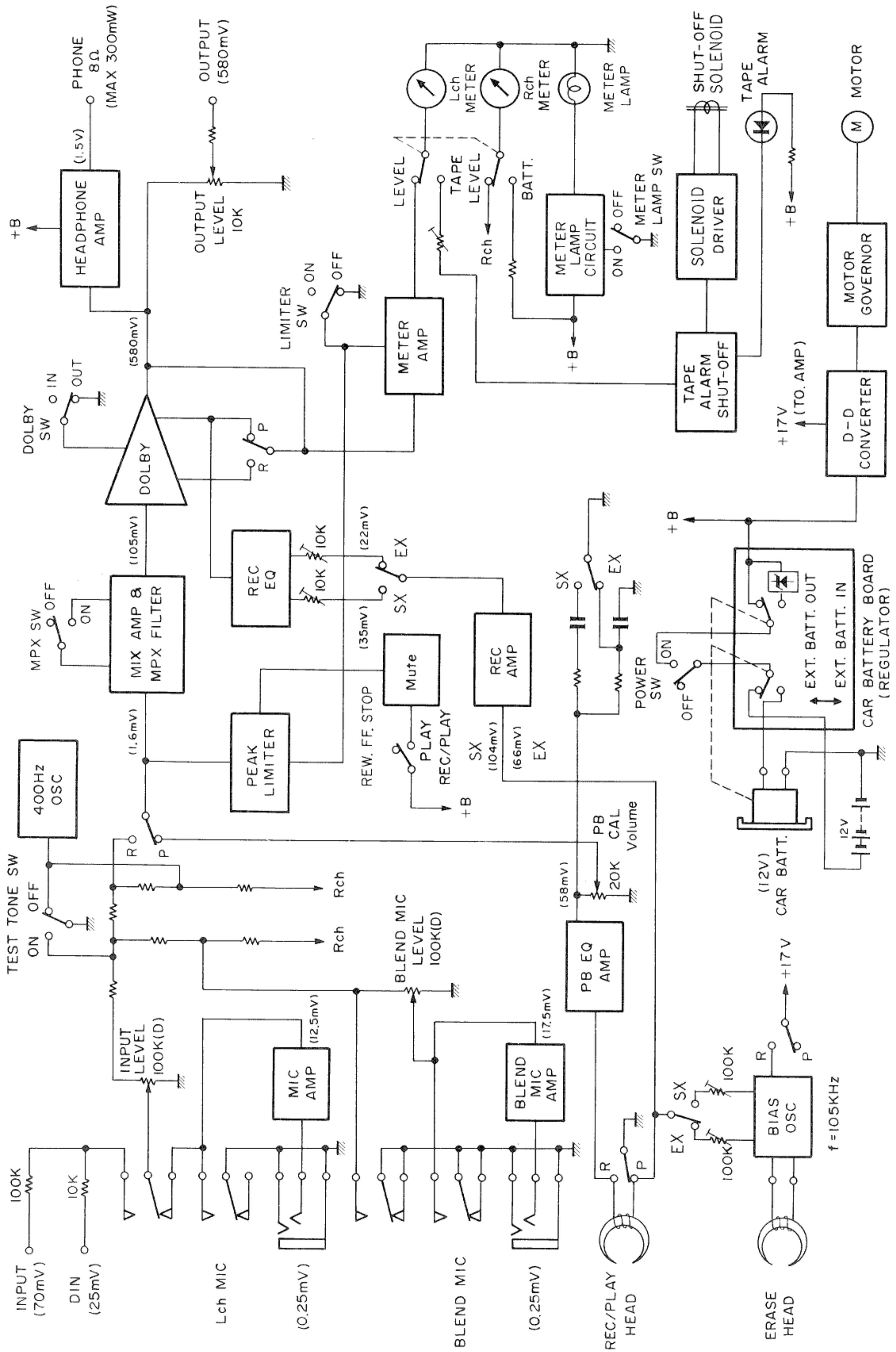


Fig. 9

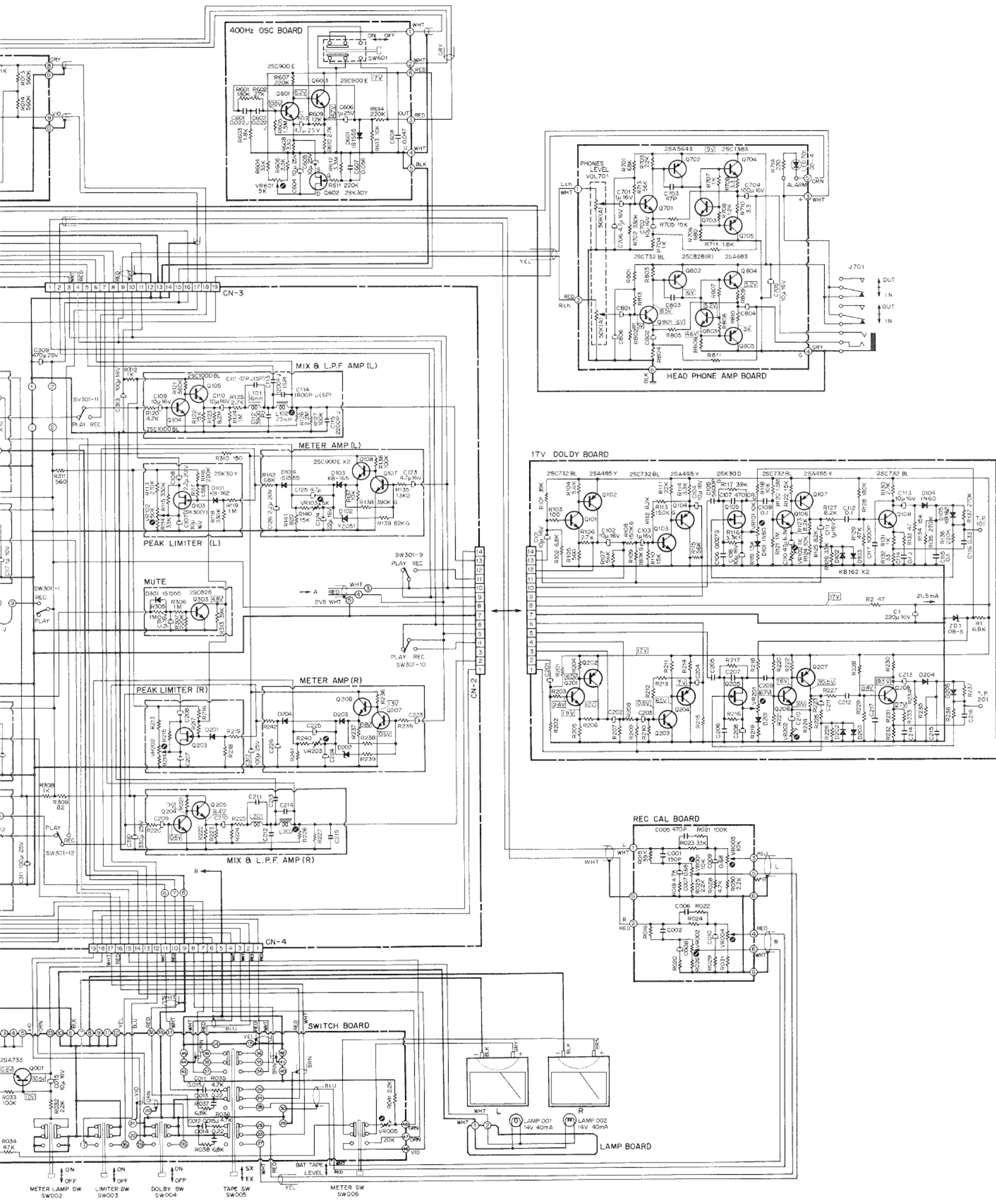


fig. 10.1

10.2. Mechanism

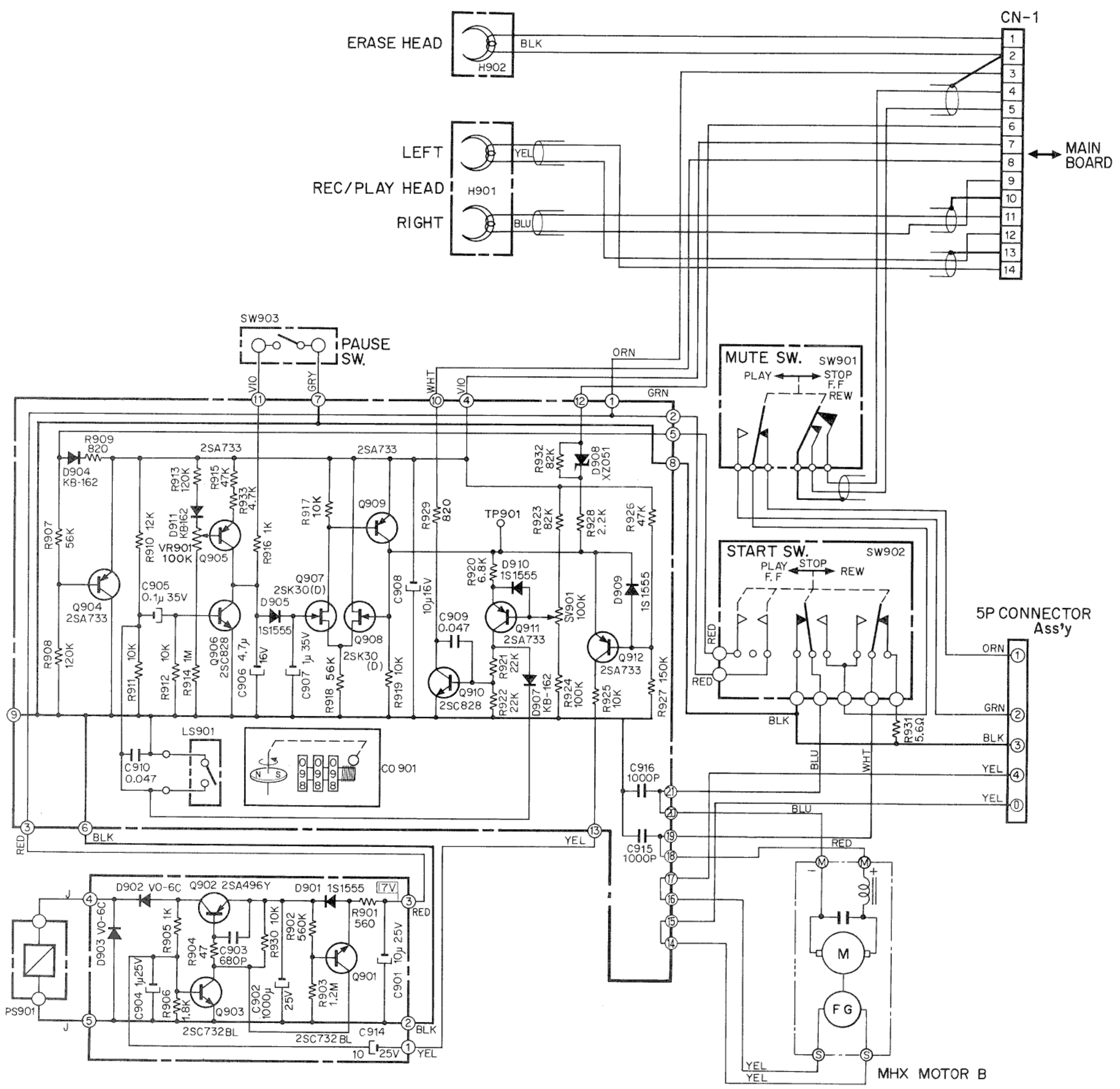


Fig. 10.2

11. SPECIFICATIONS

Power Supply	DC 12V (D Size Dry Battery x 8, Car Battery, AC with AC pack)
Tape Speed	1-7/8 ips \pm 1.5%
Wow Flutter	0.13% WTD Peak
Frequency Response	40-17,000Hz \pm 3 dB (SX or EXII tape)
Signal to Noise Ratio	Better than 65 dB (Dolby NR In, Wrms, CCITT, 400 Hz, 3% Distortion)
Total Harmonic Distortion	Less than 1.5% (400 Hz 0 dB)
Erase	Better than 60 dB (1 KHz 0 dB)
Channel Separation	Better than 35 dB (1 KHz 0 dB)
Cross Talk	Better than 60 dB (1 KHz 0 dB)
Bias Frequency	105 KHz
Input	Mic 0.2 mV 10 K ohm (-72 dBm)
	Line 70 mV 150 K ohm
Output	Line 580 mV
	Headphone 100 mW (1 KHz 0 dB)
Battery Life	15 Hrs (Continuous use)
Size	12-1/4" (W) x 3-1/2 (H) x 13-3/4 (D) 311 m/m (W) x 89 m/m (H) x 350 m/m (D)
Weight	11-1/4 lbs (5.1 Kg) (Without Batteries)

- Specifications and appearance design are subject to change for further improvement without notice.
- Dolby System under license from Dolby Laboratories Inc.
- The word "DOLBY" and the Double-Symbol are trademarks of Dolby Laboratories Inc.

12. HISTORY ON 550

12.1. Major Modifications

(1) Tape and Time Constants

S/N 3659471

Tape: NORMAL, CrO ₂ Time Constants: NORMAL: 1590 μ s+120 μ s CrO ₂ : 3180 μ s+70 μ s	Tape: EX, SX Time Constants: EX: 3180 μ s+120 μ s SX: 3180 μ s+70 μ s
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(2) Motor and Governor

S/N 54666

S/N 3661871

JA Motor and Governor	NE Motor and Governor	MHXB Motor and Governor
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12.2. Modification (details)

Following shows each of the revised history of P.C.B., mounting diagrams and schematic diagrams.

12.2.1. Main P.C.B. Ass'y

- (1) S/N – 3659470 (for CrO₂ tape)
Part No.: BA-3669
Same as the latest one except capacitor C316 (C316 has been removed in the latest one).
- (2) S/N 3659471 – (for SX tape)
Latest one
(Including the modification of resistors R303,304 from 470K to 120K).

12.2.2. Dolby P.C.B. Ass'y

Stays the same.

12.2.3. Rec. Cal. P.C.B. Ass'y

- (1) S/N – 3659470 (for CrO₂ tape)
Part No.: BA-3673
See Figs. 12.1 and 12.7.
- (2) S/N 3659471 – (for SX tape)
Latest one

12.2.4. Switch P.C.B. Ass'y

- (1) S/N – 3659470 (for CrO₂ tape)
Part No.: BA-3676
See Figs. 12.2 and 12.7.
Only patterns are different from the latest one (patterns connected to the Tape Switch have been cut in the latest one).
- (2) S/N 3659471 –
Latest one

12.2.5. Volume P.C.B. Ass'y

Stays the same.

12.2.6. Solenoid Driver P.C.B. Ass'y

Stays the same.

12.2.7. 400 Hz OSC. P.C.B. Ass'y

Stays the same except resistor R606 (changed from 3.3K to 5.6K).

12.2.8. Headphone AMP. P.C.B. Ass'y

Stays the same.

12.2.9. Tape Alarm Shut-off P.C.B. Ass'y

- (1) S/N – 57670
Part No.: CA-3213
See Figs. 12.3 and 12.6.
- (2) S/N 57671 –
Latest one (Alarm B P.C.B. Ass'y)

12.2.10. Mic. AMP. P.C.B. Ass'y

Stays the same except for resistors R301, 401 and 501 (changed from 680-ohm to 10K).

12.2.11. Jack P.C.B. Ass'y

Stays the same.

12.2.12. D-D Converter and Motor Governor P.C.B. Ass'y

- (1) S/N – 54665 (for JA Motor)
Part No.: BA-3679
See Figs. 12.4 and 12.7.
- (2) S/N 54666-3661870 (for NE Motor)
Part No.: BA-3699 (D-D, D-Fast Converter and Motor Governor P.C.B. Ass'y)
See Figs. 12.5 and 12.8.
- (3) S/N 3661871 – (for MHXB Motor)
Latest one (D-D, MHX P.C.B. Ass'y)
(Including the modification of the R301 from 10K to 4.7K).

12.2.13. Lamp P.C.B. Ass'y

Stays the same.

12.2.14. Car Battery P.C.B. Ass'y

Stays the same.

12.2.15. Schematic Diagrams (Mechanism)

- (1) S/N – 57670
See Fig. 12.6.
- (2) S/N 57671 –
Latest one

12.2.16. Schematic Diagrams (Amplifier)

- (1) S/N – 3659470 (for CrO₂ tape)
See Fig. 12.7.
- (2) S/N 3659471 – (for SX tape)
Latest one

D-D Converter and Motor Governor P.C.B. Ass'y

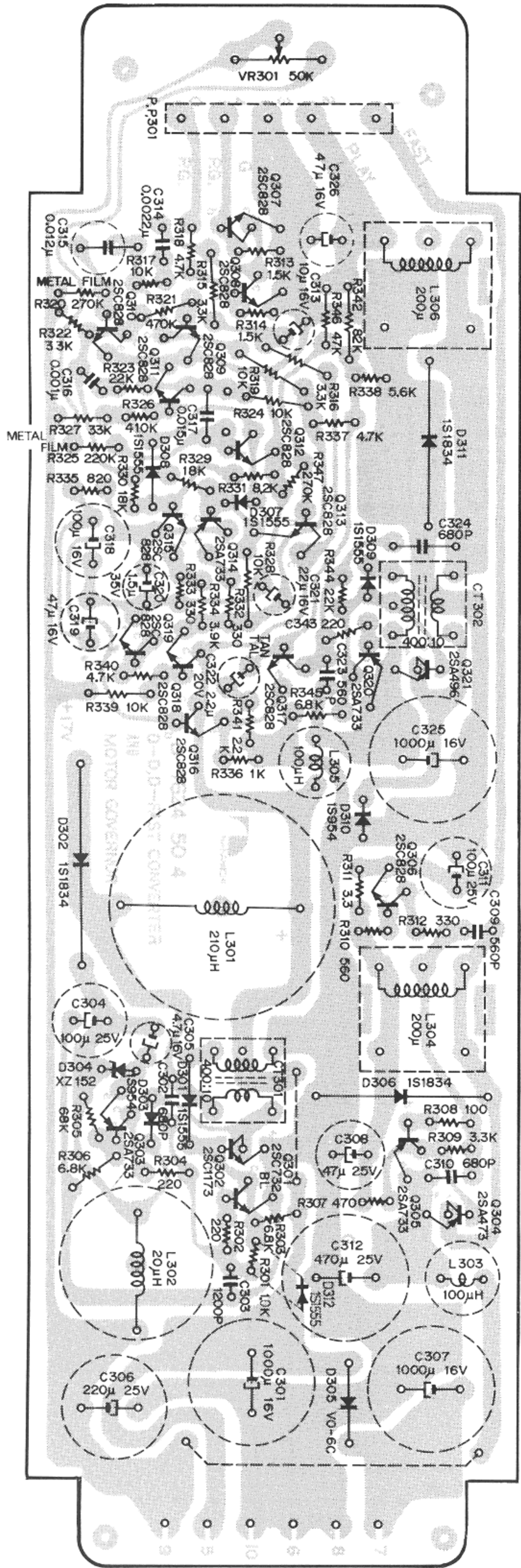


Fig. 12.5 S/N 54666-3661870 (for NE Motor)

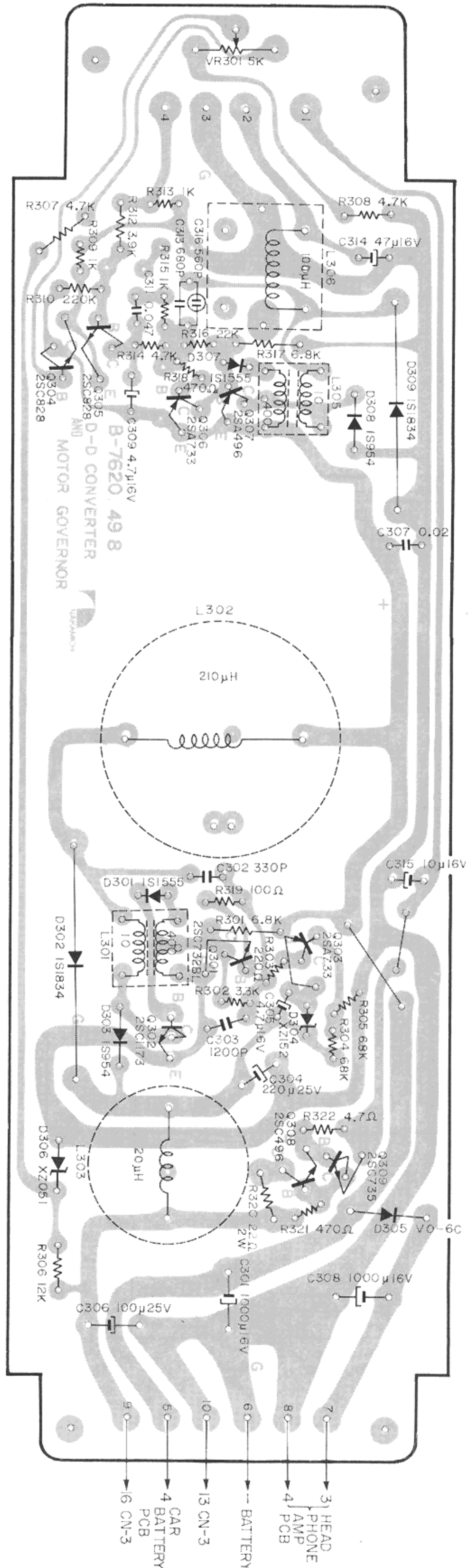


Fig. 12.4 S/N -54665 (for JA Motor)

Schematic Diagram (Mechanism)

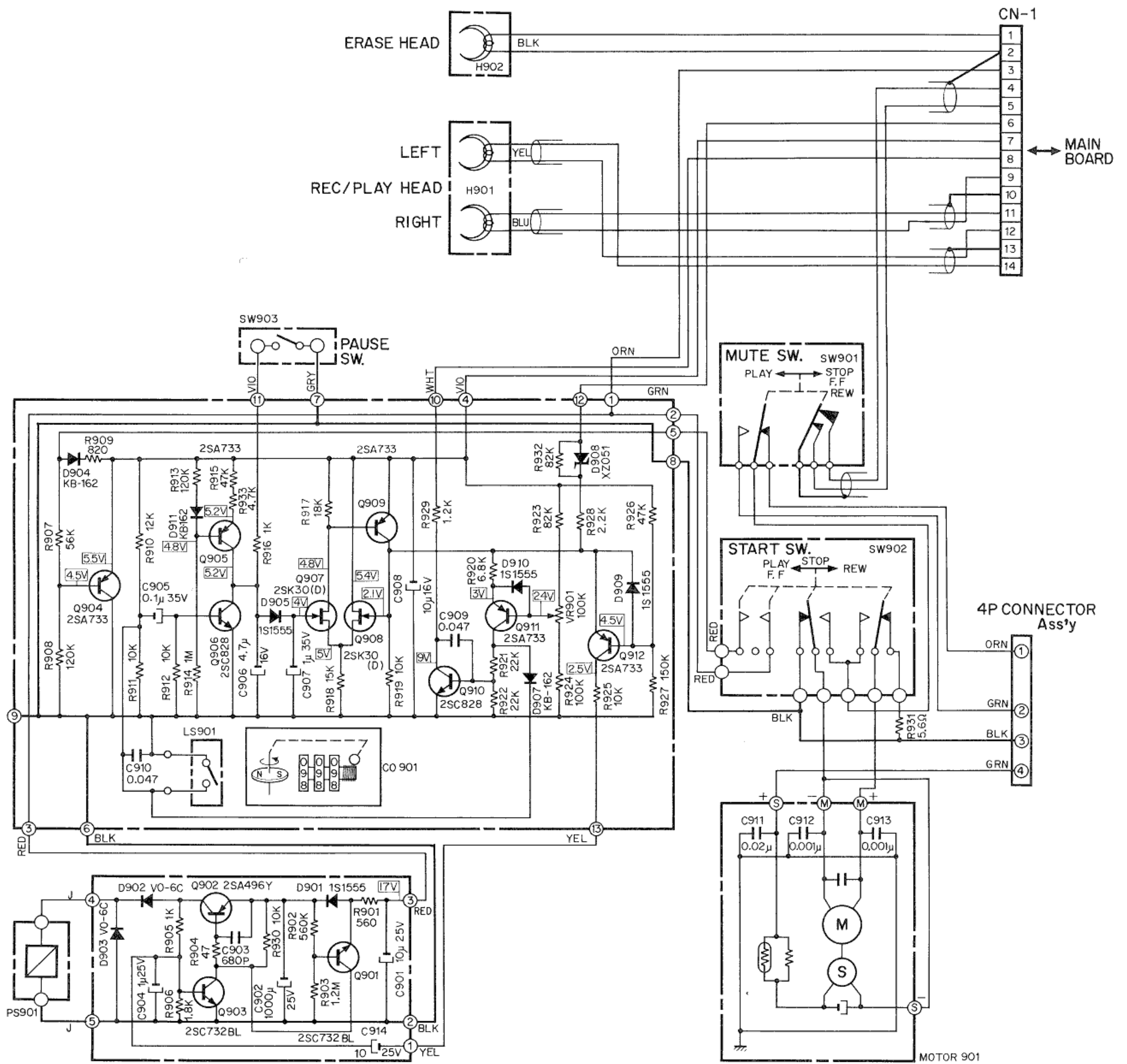


Fig. 12.6 S/N -57670

Schematic Diagram (Amplifier)

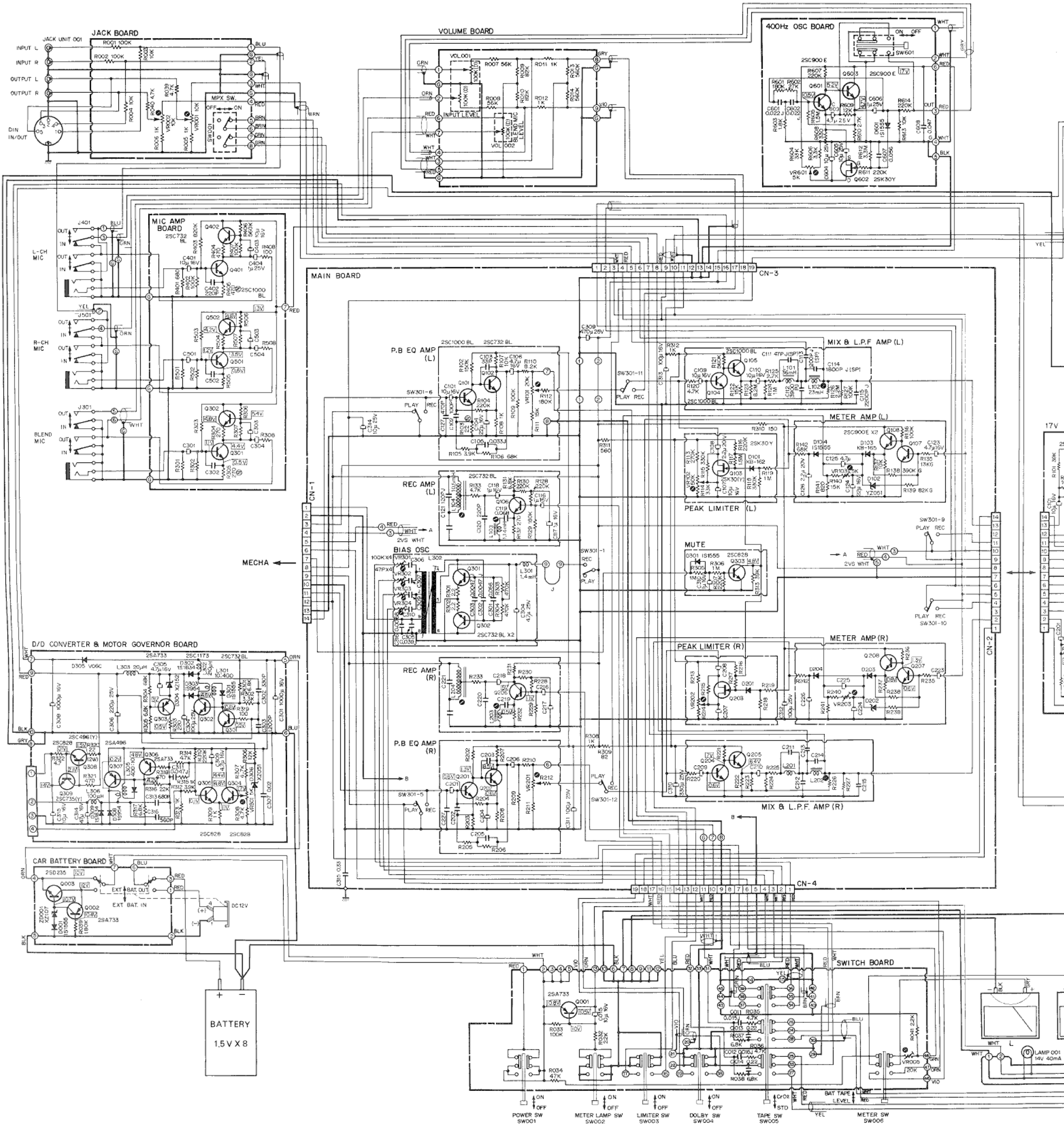
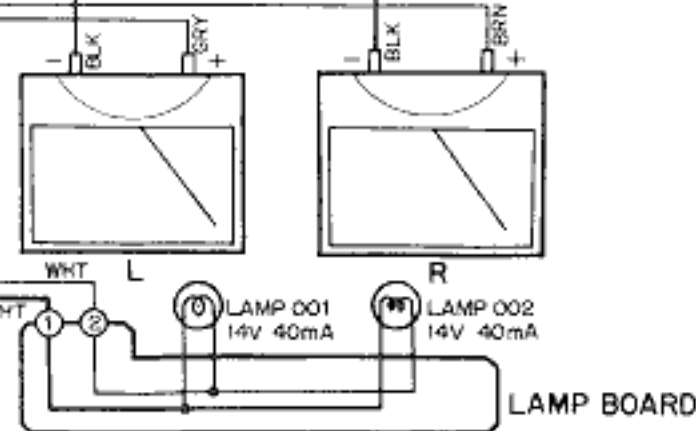
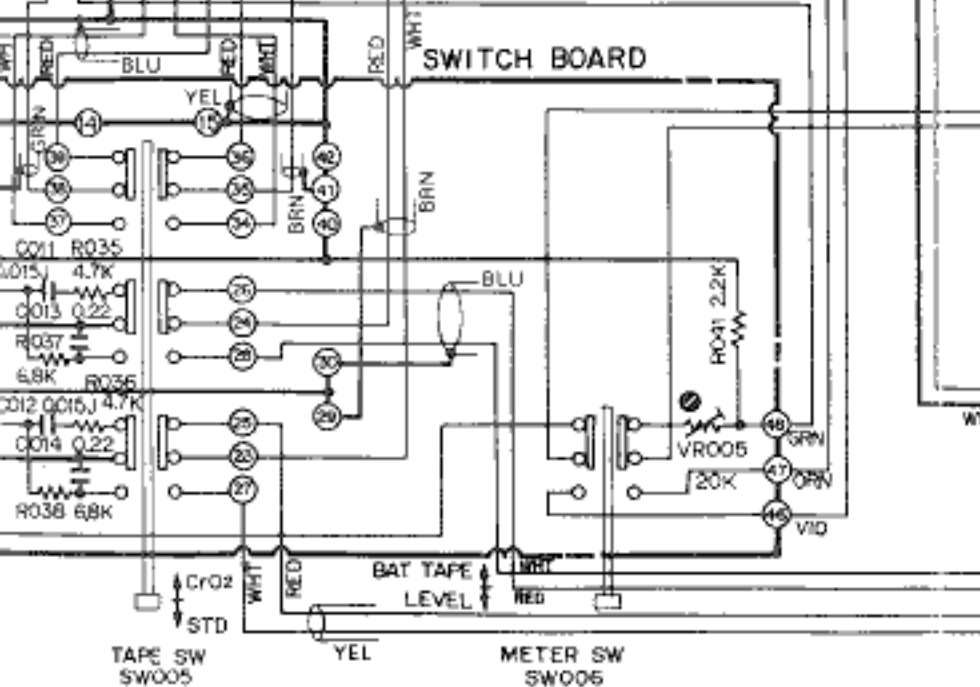
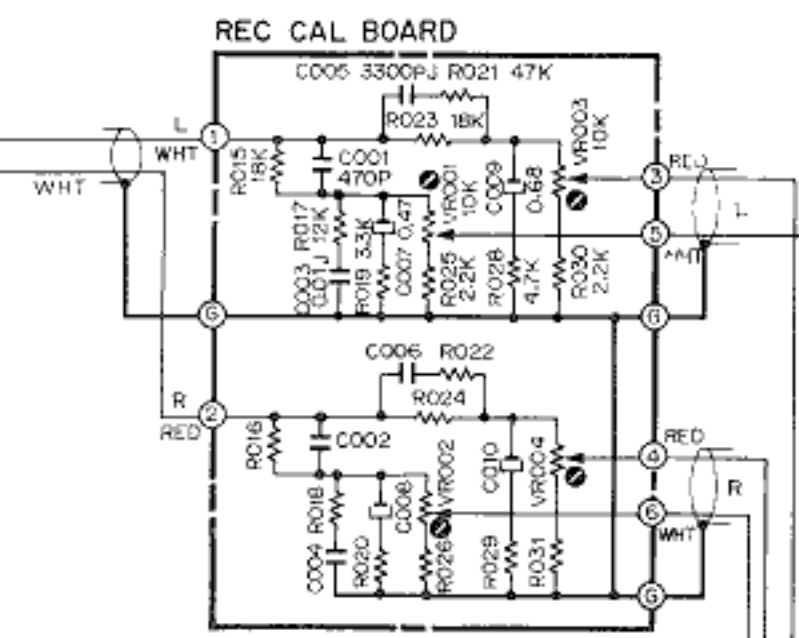
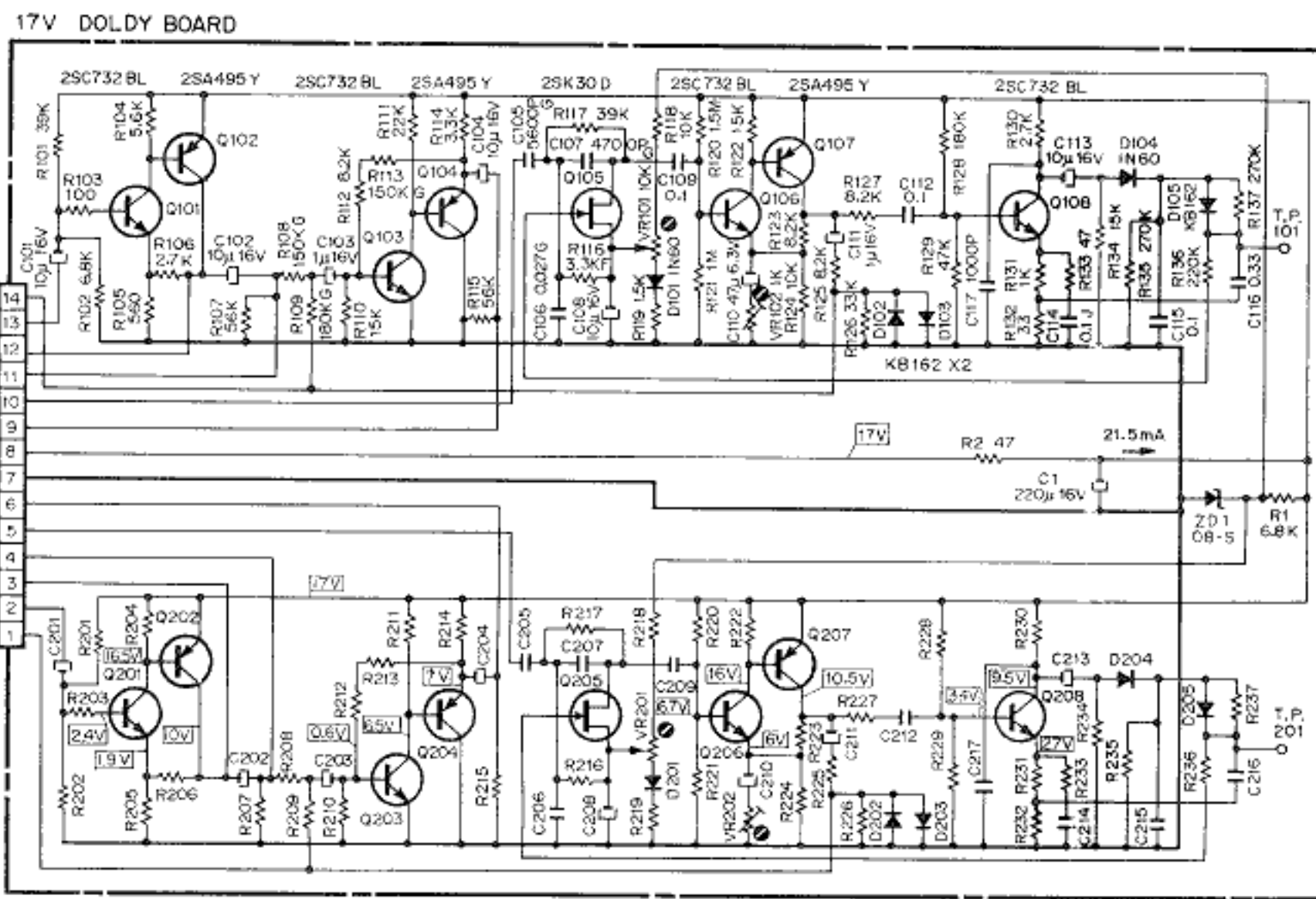
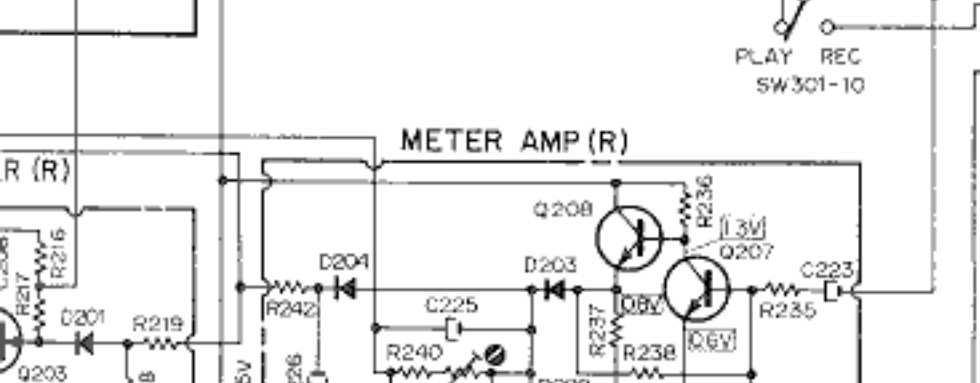
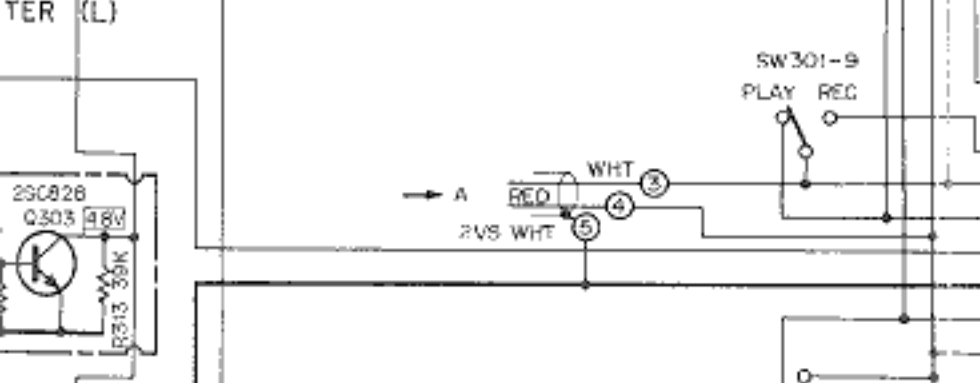
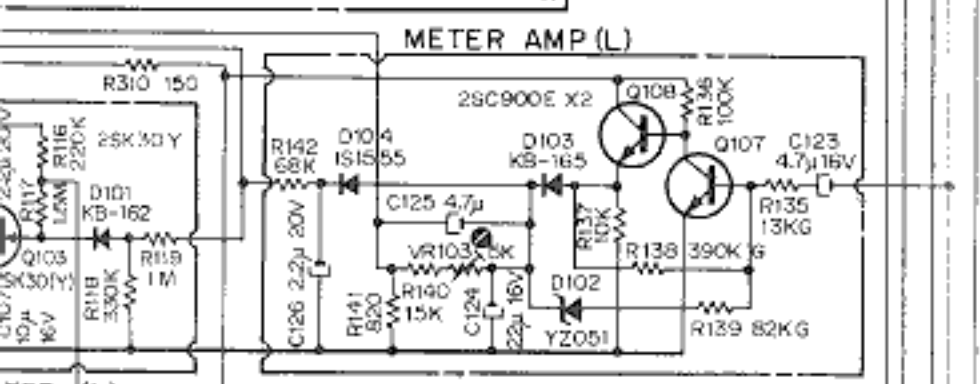
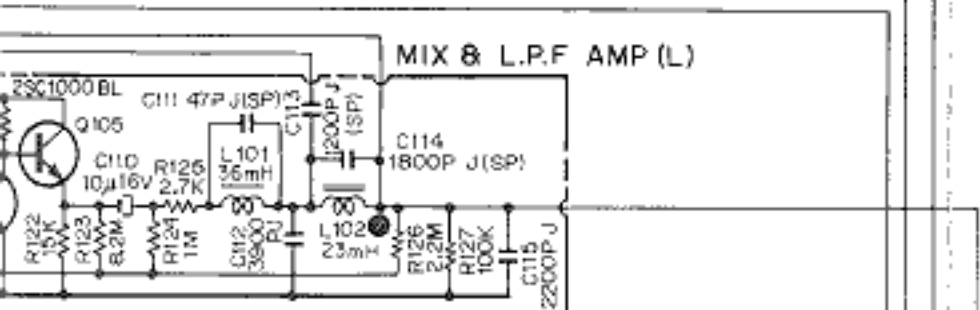
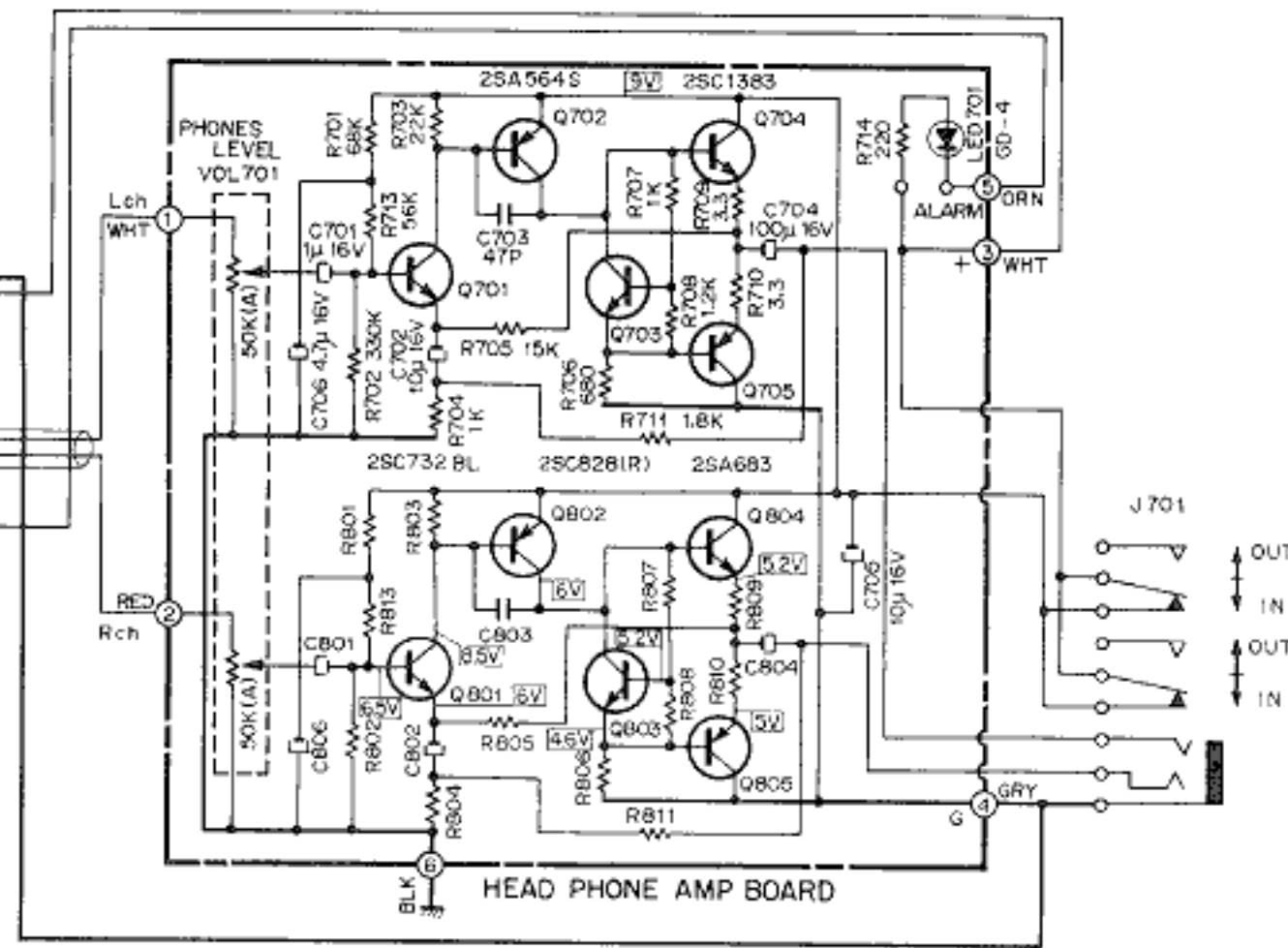
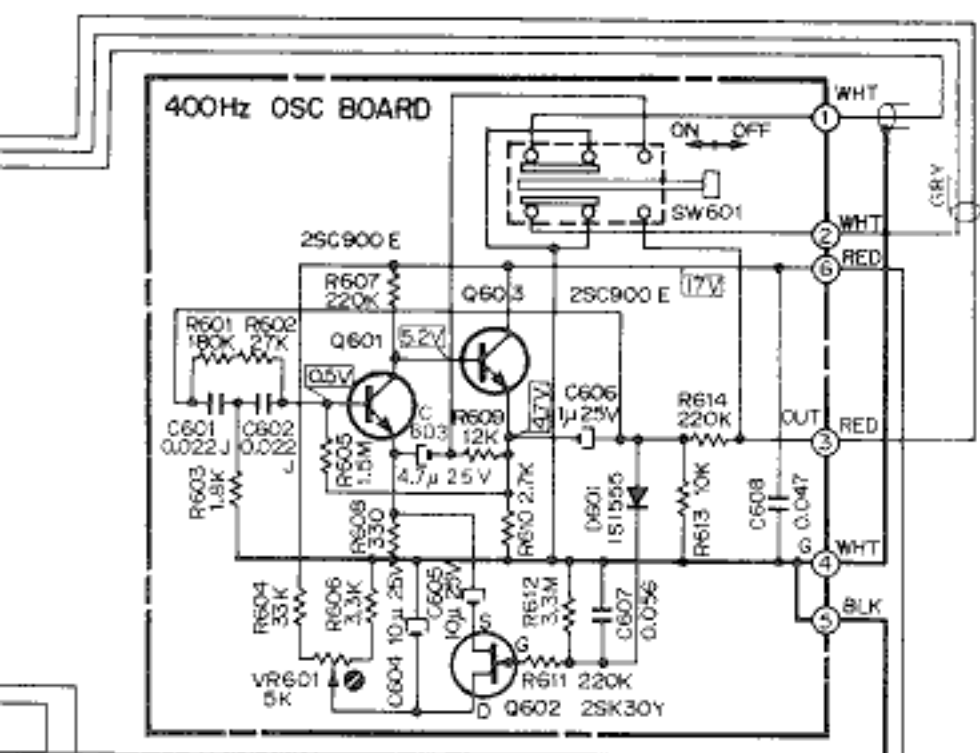


Fig. 12.7 S/N -3659470 (for CrO2 tape)



Schematic Diagram (D-D Converter and Motor Governor)

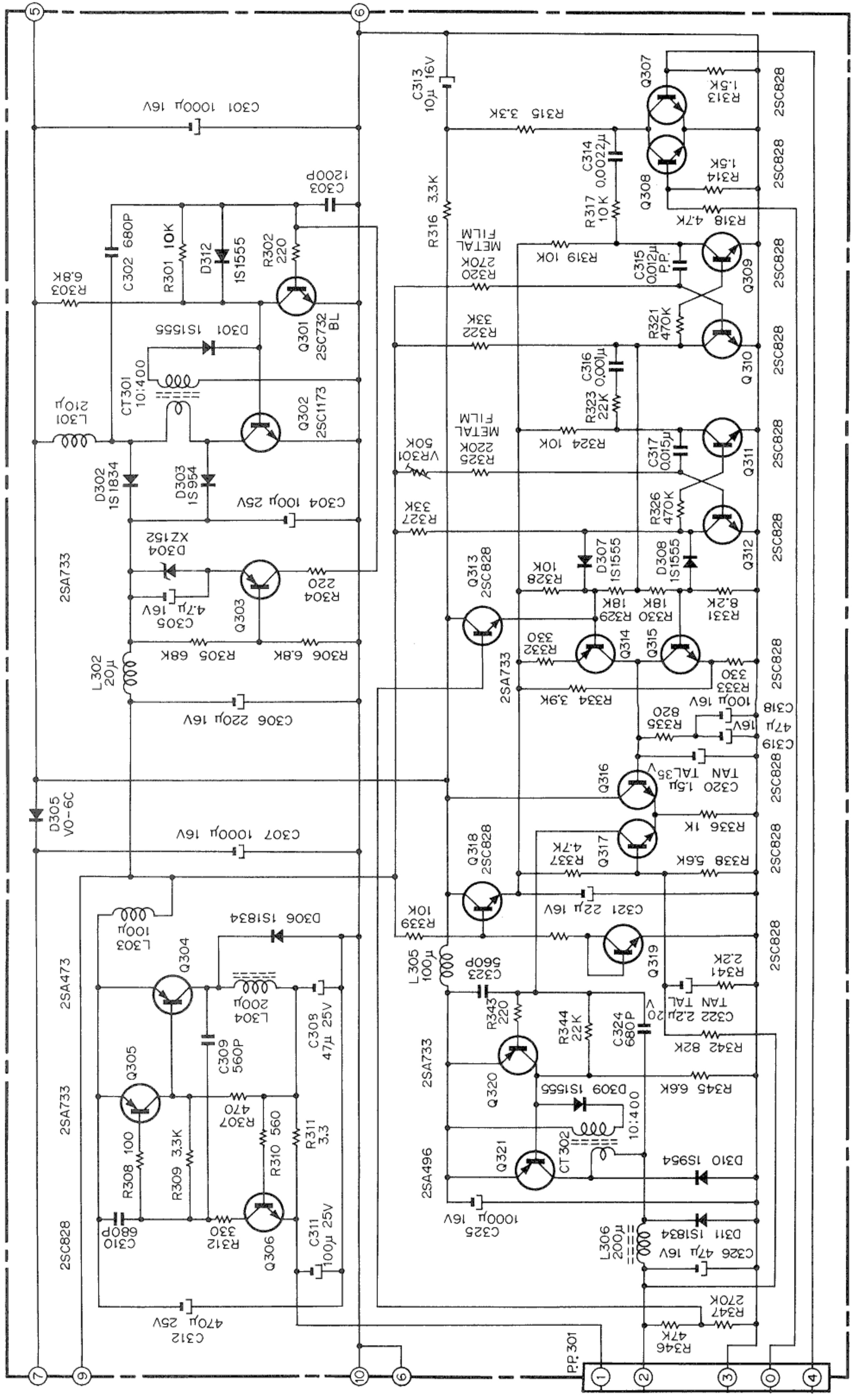


Fig. 12.8 S/N 54666-3661870

Service Manual

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