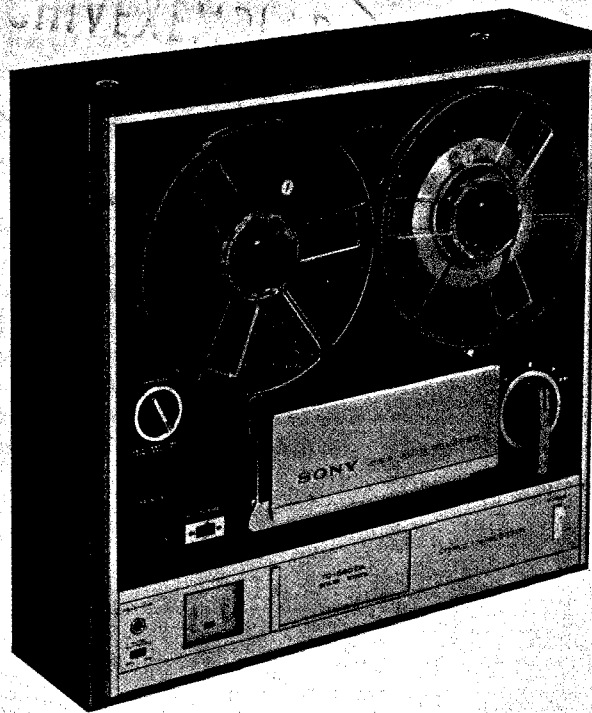


Except for USA and Canada

TC-560DA



SPECIFICATIONS

Power Requirements:

16W
AC 100, 110, 117, 125, 220 or 240 V
(Voltage selector provided in the set), 50/60 Hz
DC 12 V

Track System: Four-track stereo or monaural

Reel Size: 7" (18 cm) maximum

Tape Speeds: 7 1/2 ips, 3 3/4 ips and 1 7/8 ips
(19 cm/s, 9.5 cm/s and 4.8 cm/s)

Recording Time: Tape speed 4-track stereo 4-track mono
(with 1800 ft. tape) 7 1/2 ips 1.5 hrs. 3 hrs.
(19 cm/s)

3 3/4 ips 3 hrs. 6 hrs.
(9.5 cm/s)
1 7/8 ips 6 hrs. 12 hrs.
(4.8 cm/s)

Frequency Response: 30~18,000 Hz at 7 1/2 ips (19 cm/s)
30~14,000 Hz at 3 3/4 ips (9.5 cm/s)
30~10,000 Hz at 1 7/8 ips (4.8 cm/s)

Signal-to-Noise Ratio: 52 dB

Flutter and Wow: 0.07 % at 7 1/2 ips (19 cm/s)

Recording Bias Frequency: Approx. 85 kHz

Inputs: Two MIC inputs

Impedance : 600Ω
Maximum sensitivity: 0.2 mV (-72 dB)

Two AUX INPUTS

Impedance : 100 kΩ
Maximum sensitivity: 61 mV (-22 dB)

REC/PB connector

Impedance : 86 kΩ
Maximum sensitivity: 30mV (-28 dB)

Outputs: Two LINE OUTPUTS

Impedance : 100 kΩ
Output level : 0.775 V (0 dB)

REC/PB connector

Impedance : 10 kΩ
Output level : 0.775 V (0 dB)

HEADPHONE output

Impedance : 8 Ω load or more
Output level : 30mV (-28 dB)
with 10 kΩ load

Semiconductors: 31 transistors and 18 diodes

Dimensions: 16 3/8 (W) × 6 11/16 (H) × 15 7/16 (D)
(415 × 170 × 392 mm)

Weight: 28 lb 11 oz (13 kg)

SONY®

SERVICE MANUAL

1867

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1. BLOCK DIAGRAM

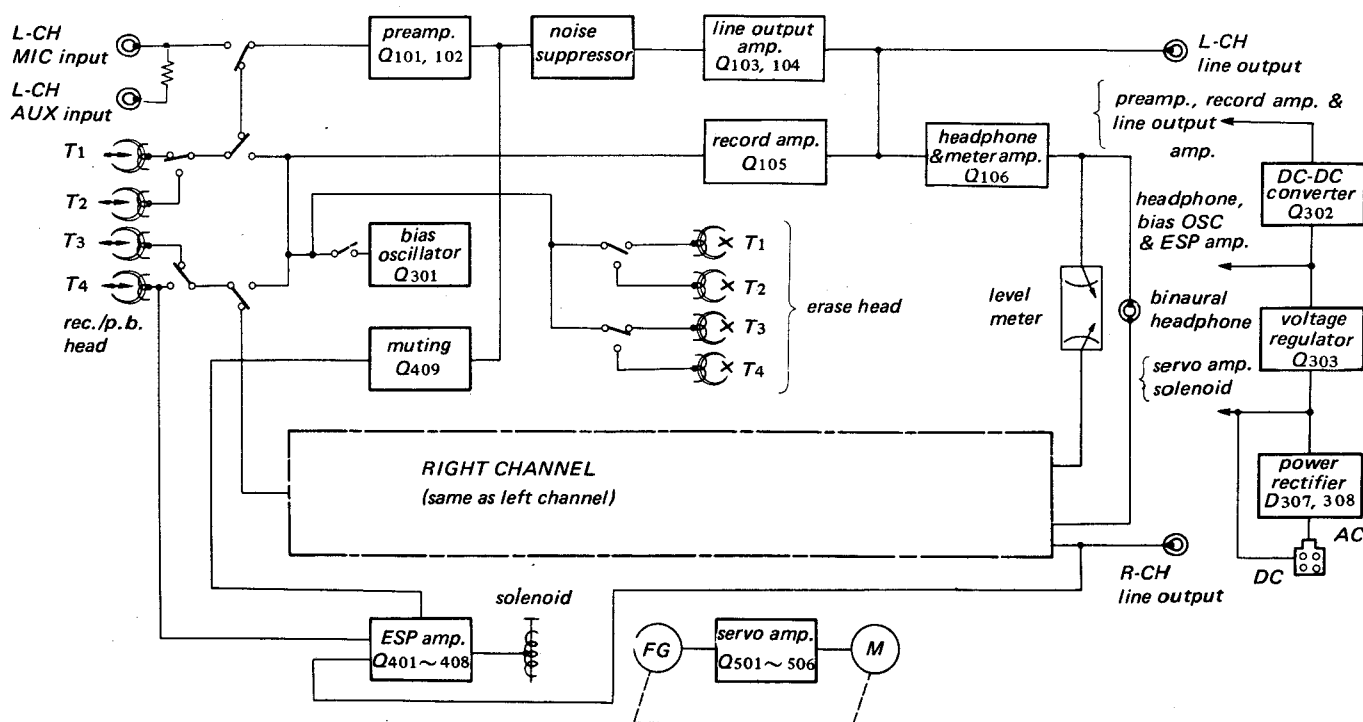


Fig. 1-1 Block Diagram

2. GENERAL DESCRIPTION

SONY Model TC-560DA which is the deck type of TC-560 is a high quality four-track stereo tape recorder equipped with ESP (Electronic Sensory Perception) automatic reverse system and servo-controlled low speed DC motor.

This machine can be operated on either AC power source or DC-12 volt battery.

3. TECHNICAL FEATURES

3-1. Tape Transport Mechanism

This machine has two capstans with flywheels which rotate in just opposite directions each other by a drive belt, and one of the two pinch rollers is pressed against the respective capstan.

Reel tables rotate smoothly with belts driven by flywheels. In forward (reverse) mode, felt friction gives proper back tension to supply reel table.

While feeding the tape in fast forward (fast reverse) mode, the supply reel table is free from the tension and motor rotates at high speed.

3-2. Motor

Drive motor is a low speed DC motor equipped with F.G. (frequency generator) which keeps the speed of the motor constant through the servo mechanism. If the speed of the motor is changed by any phenomenon, the servo amplifier circuit detects the frequency deviation and restores the speed with accuracy and that at once.

In fast forward (fast reverse) mode, the motor runs freely by being isolated from the servo amplifier. The deviation between +5% and -10% for each speed is also available by using TAPE SPEED CONTROL (SONY optional accessory, model RM-6).

3-3. ESP Automatic Reverse System

In forward playback mode, the tape transport reverses automatically at 8 seconds after both of signals recorded on tracks 3 and 4 are over.

ESP circuit detects the signal recorded on track 4 from the playback head and also detects the signal on track 3 from Line Output of right channel.

Tape reverse can be operated by this ESP automatic system or by function selector knob.

When function selector is placed in playback forward mode, ESP circuit is powered ON and acts as follows:

- (1) When reproduced signal is applied to Q406, it turns ON.
- (2) C408 is charged and base voltage of Q405 increases.
- (3) When the voltage of C408 amounts to 4 volts, Q405 turns ON and collector voltage of Q405 decreases.
- (4) Q404 turns OFF since collector voltage of Q405 decreases.
- (5) Q407 keeps ON because the charged voltage of C408 is applied to base of Q407 through R421 and D402.
- (6) Although, if input signal dies away to zero, Q406 becomes OFF and C408 discharges through R420, R421 and R424 to ground.
- (7) When voltage of C408 falls to 2 volts, Q407 turns OFF.
- (8) Then Q408 turns ON since base voltage of Q408 increases.
- (9) Collector current of Q408 flows and Plunger operates for reverse action.
- (10) + B voltage of ESP circuit is cut-off by direction-change switch operated by plunger.

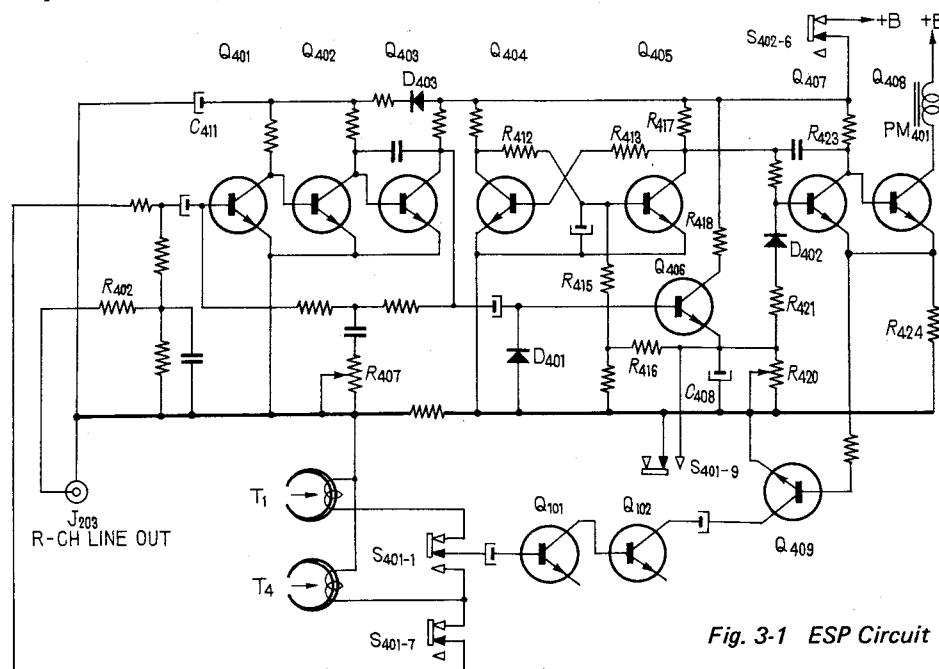


Fig. 3-1 ESP Circuit

4. CABINET - TOP VIEW

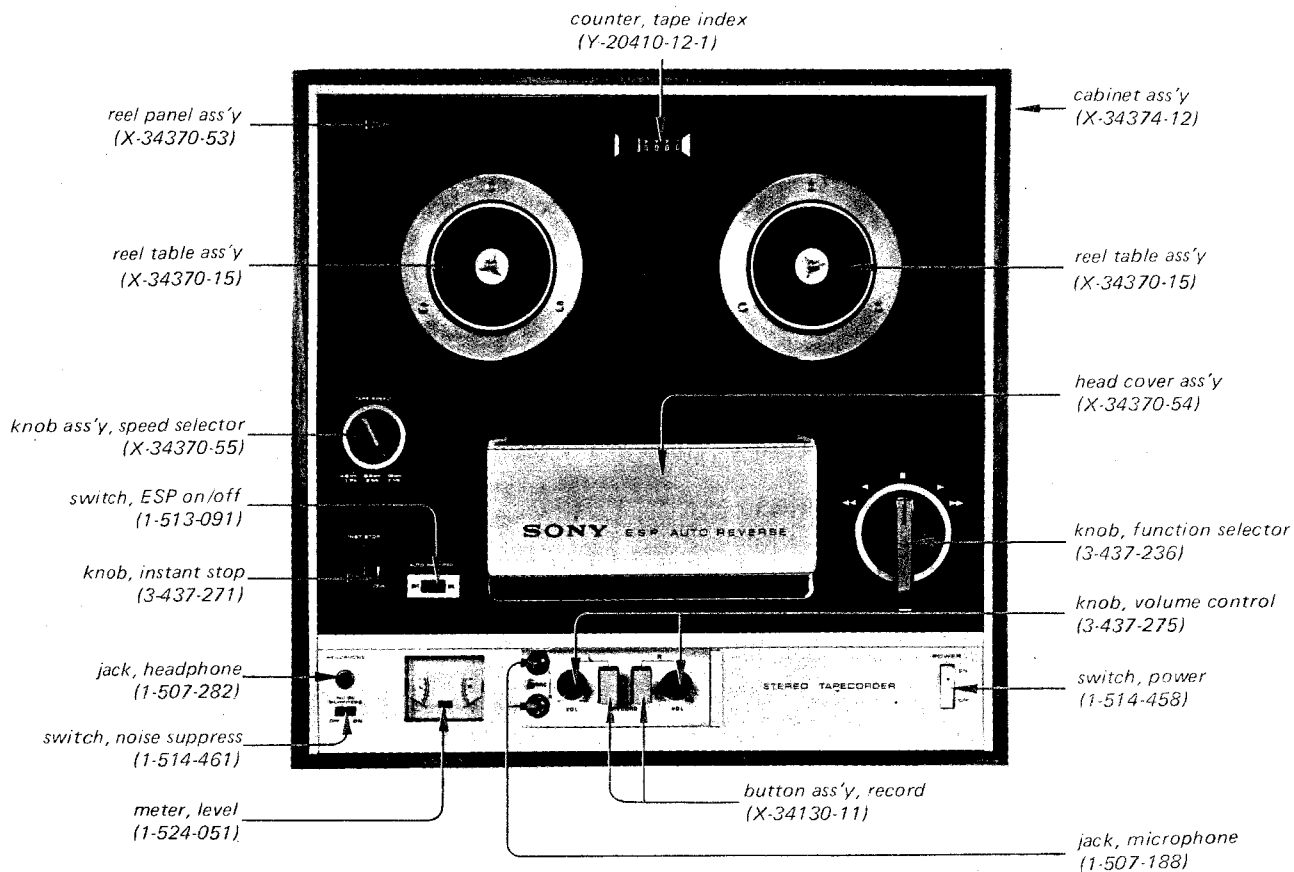


Fig. 4-1 Cabinet-Top View

5. CABINET - SIDE VIEW

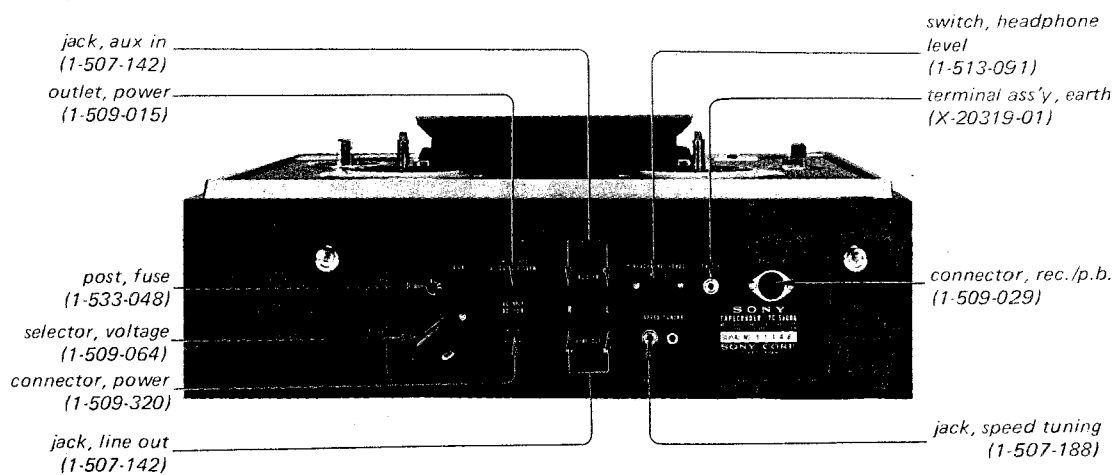


Fig. 5-1 Cabinet-Side View

6. CHASSIS - TOP VIEW

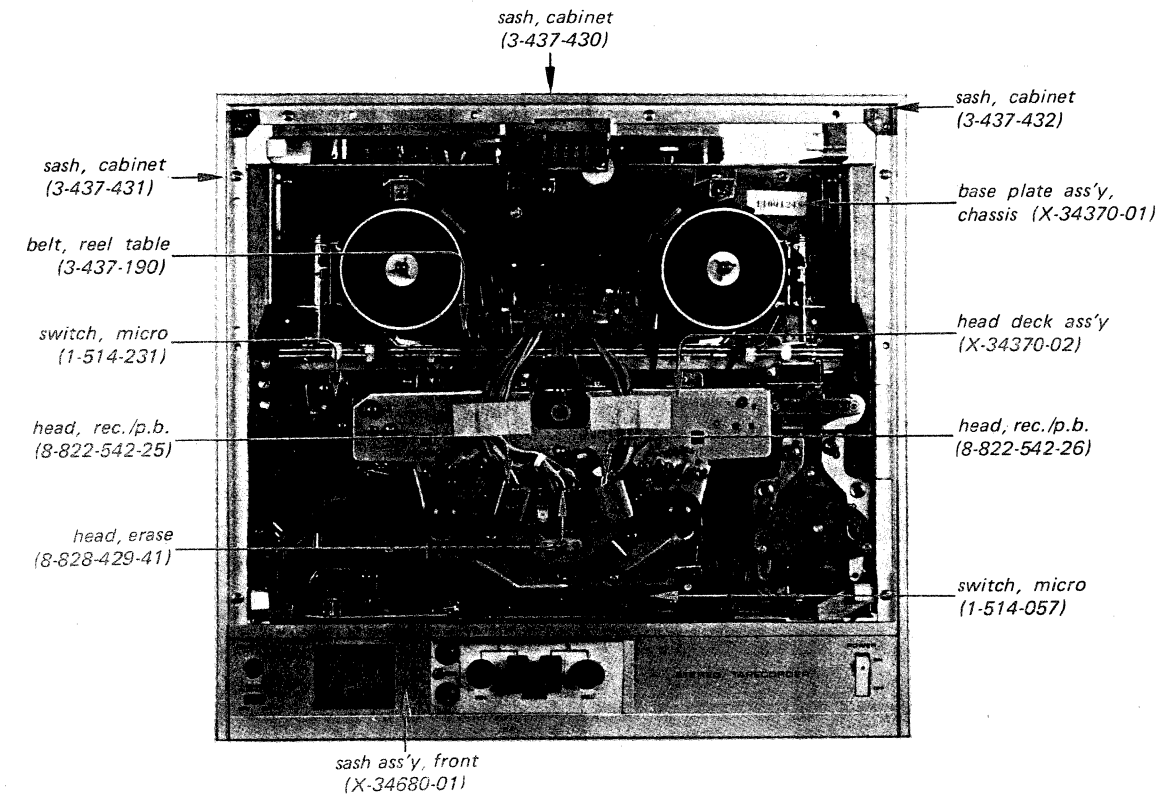


Fig. 6-1 Chassis-Top View

7. CHASSIS - BOTTOM VIEW

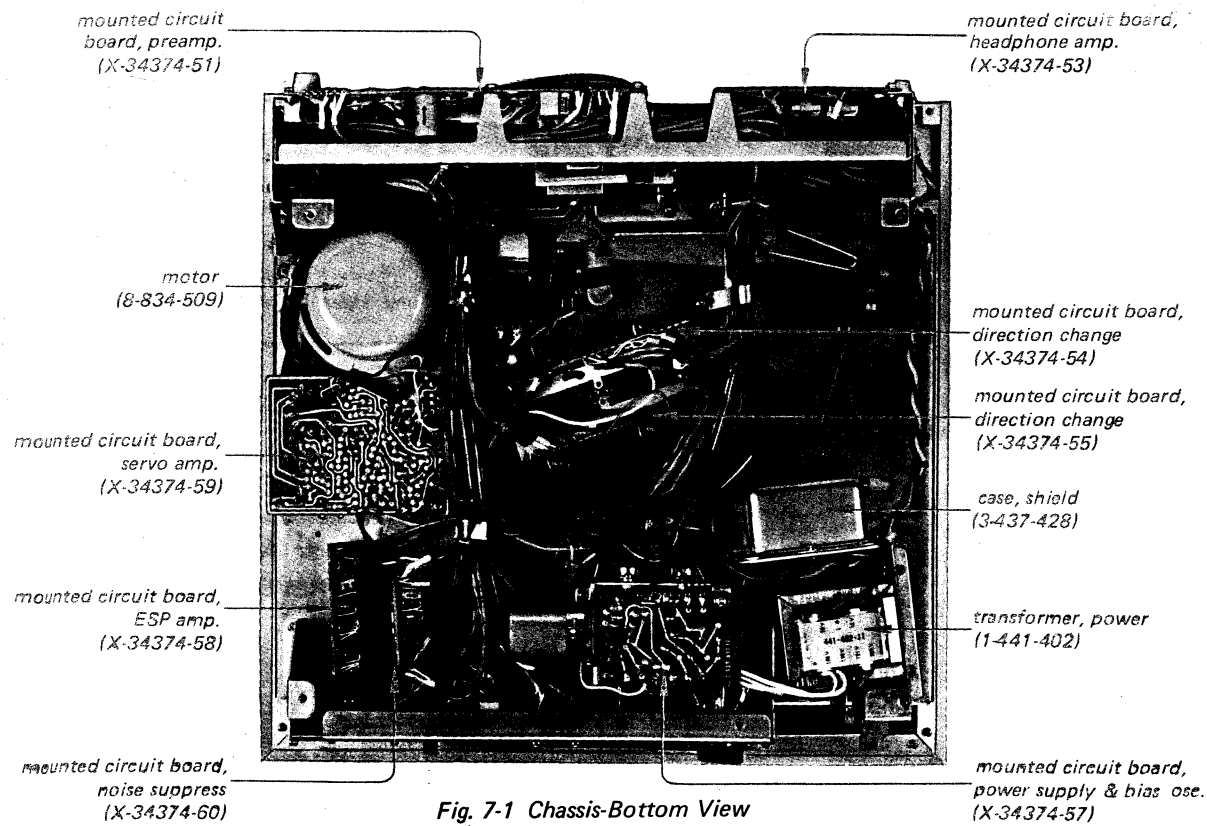


Fig. 7-1 Chassis-Bottom View

8. DISASSEMBLY

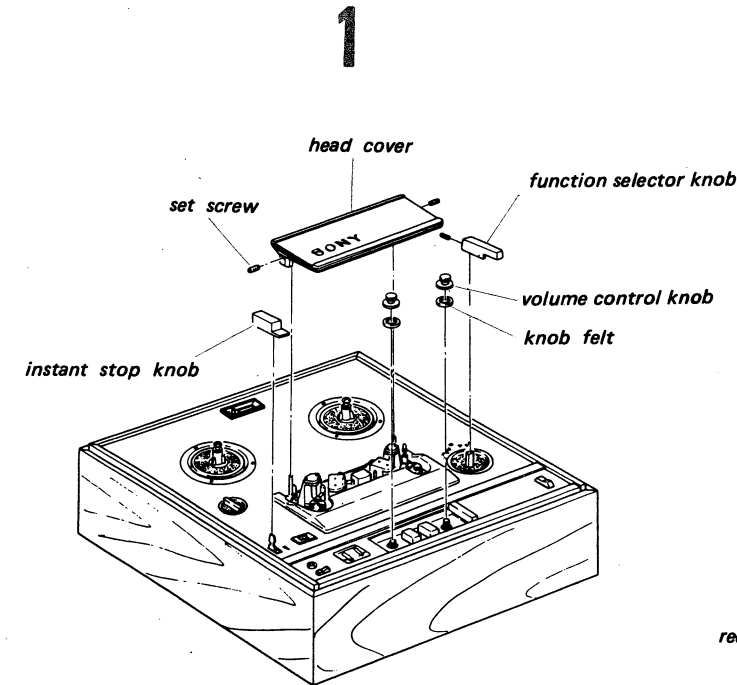


Fig. 8-1 Head Cover & Knob Removal

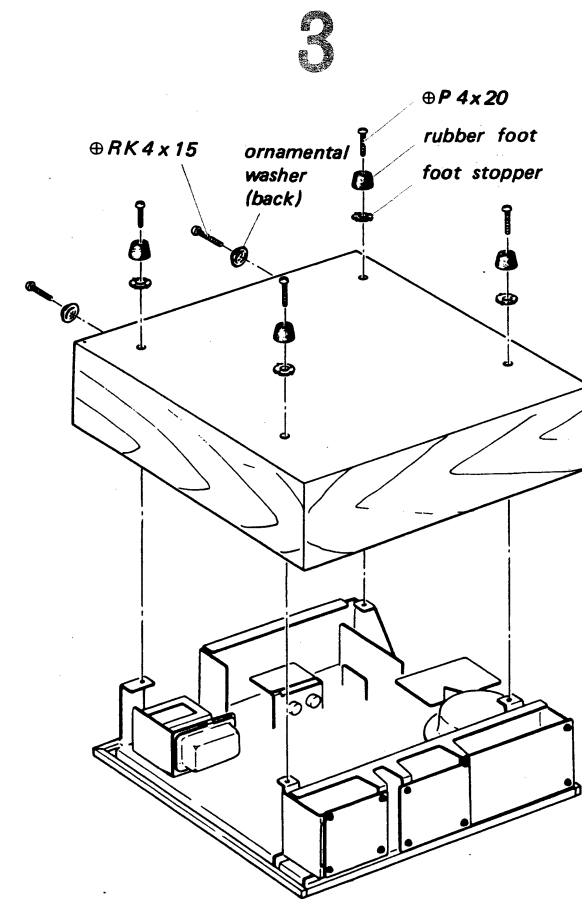


Fig. 8-3 Chassis Removal

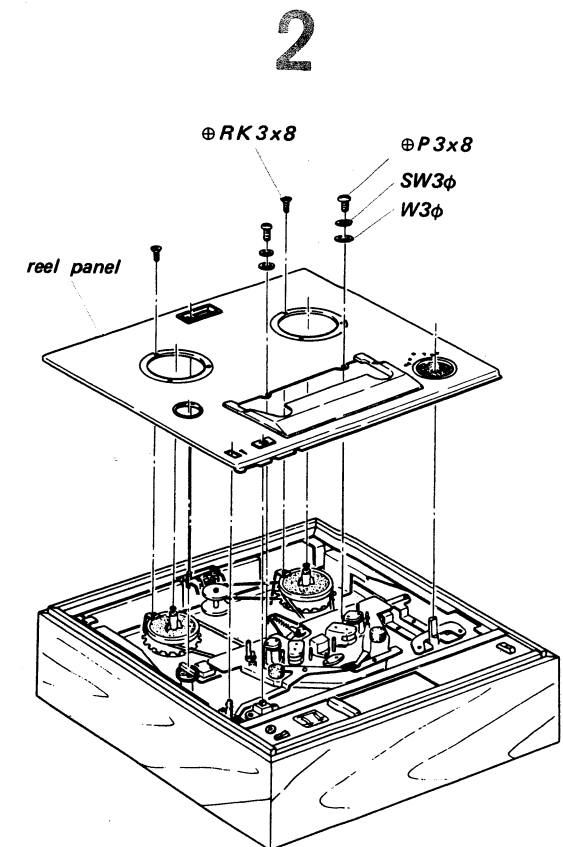


Fig. 8-2 Reel Panel Removal

9. MECHANICAL ADJUSTMENT

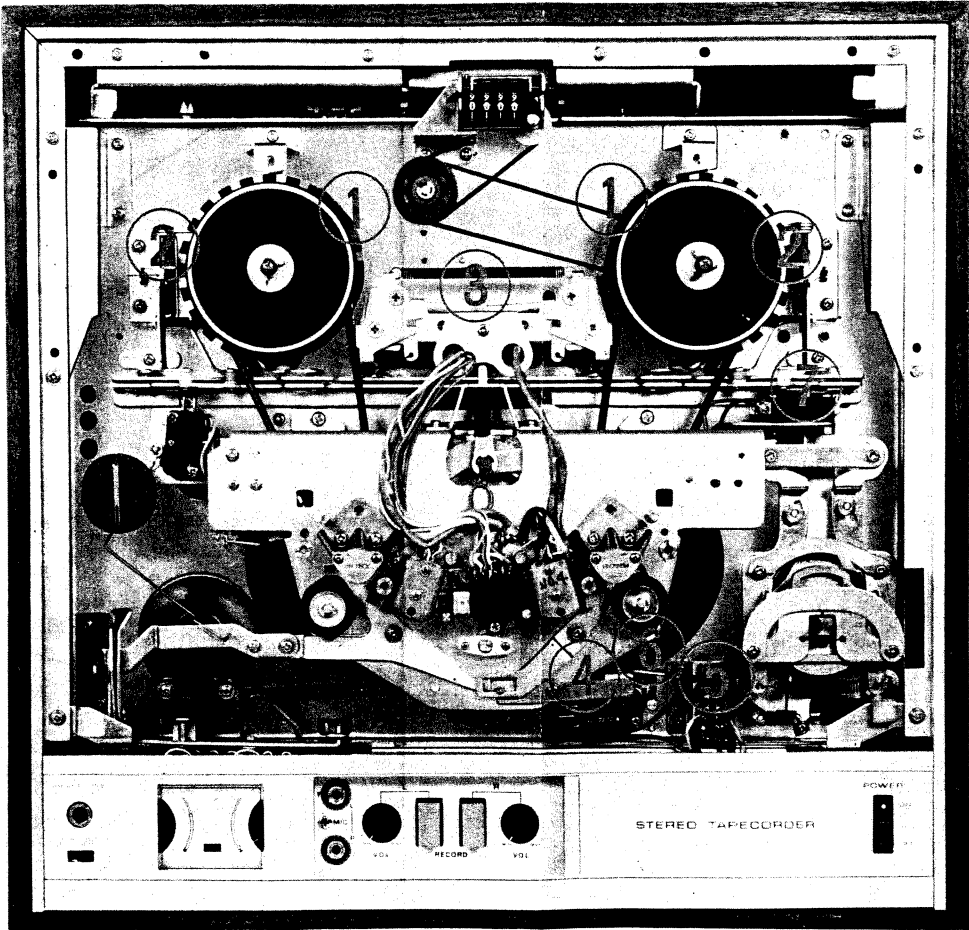
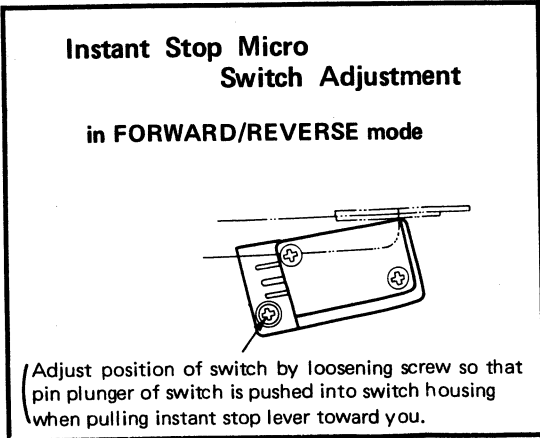
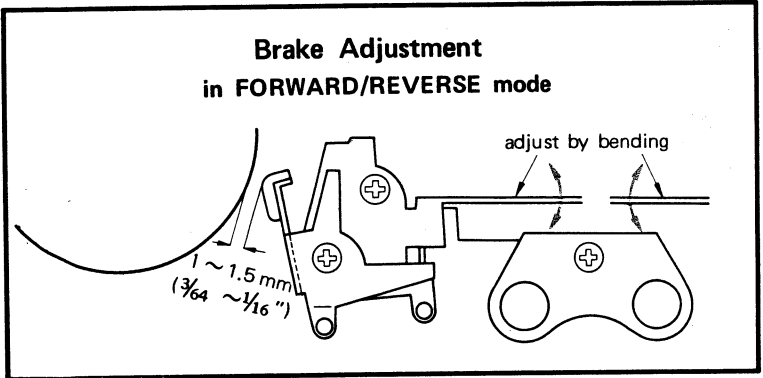
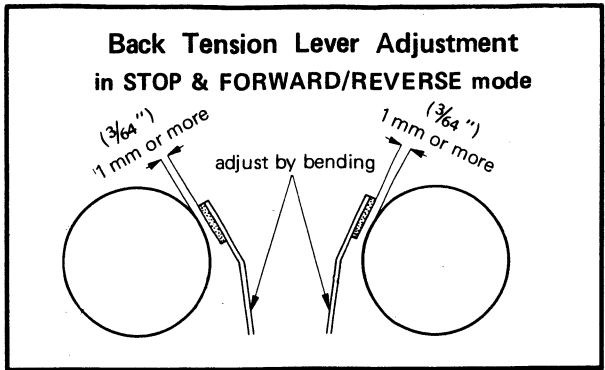
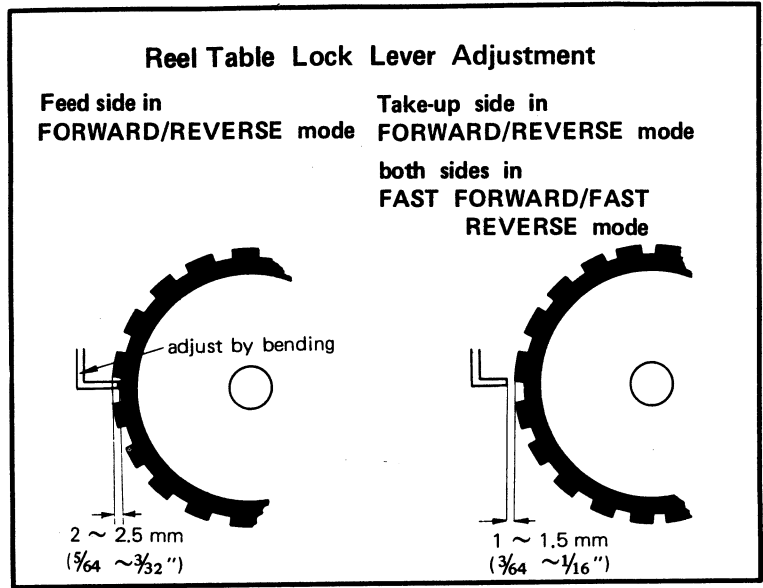
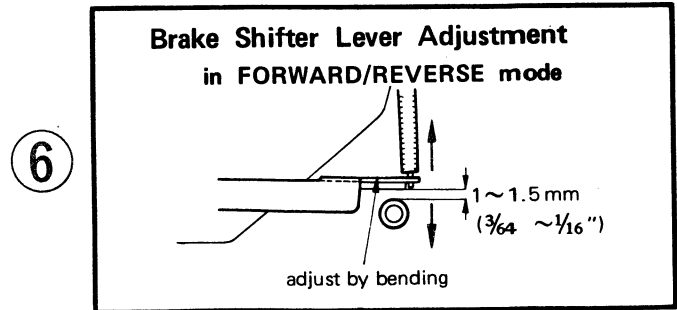
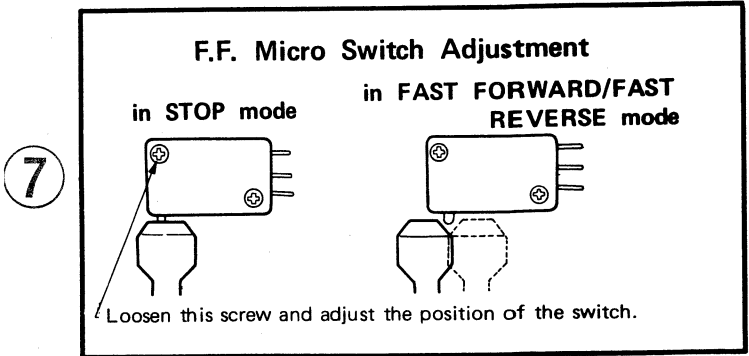
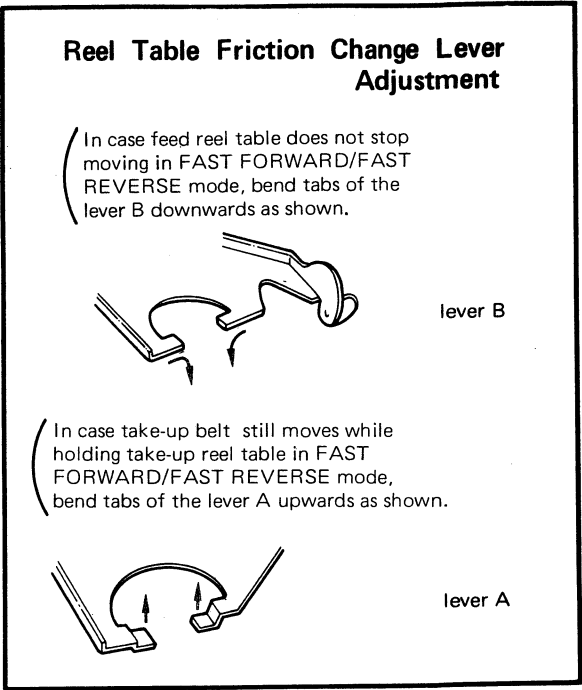
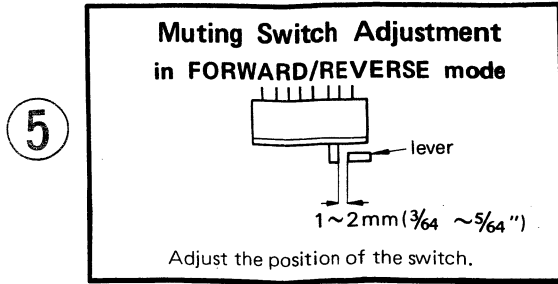
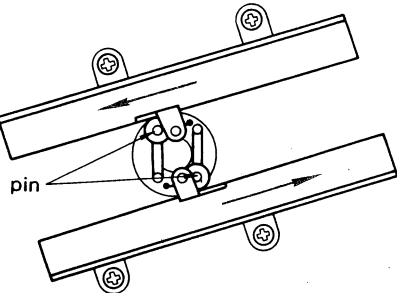


Fig. 10-1 Adjusting Positions



— Continued —

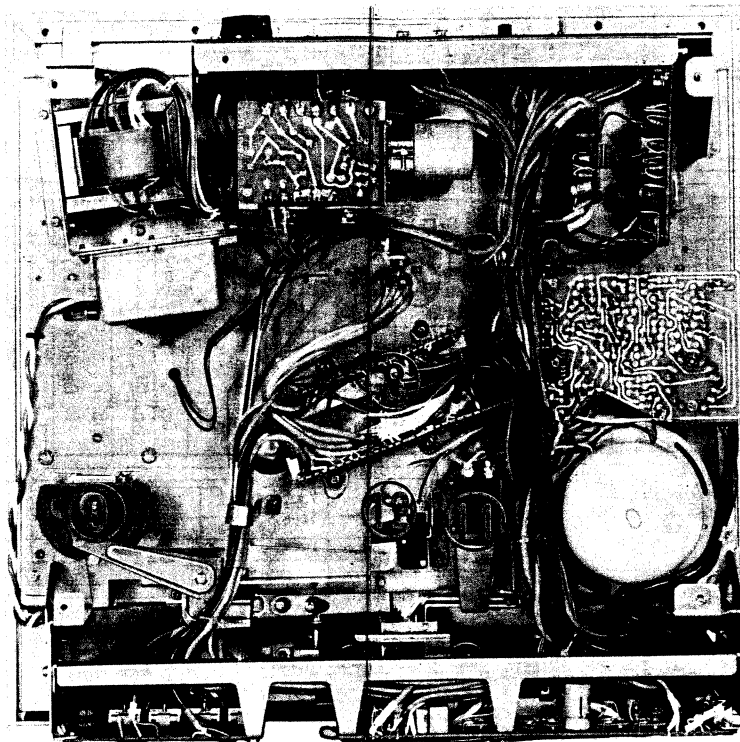
**Forward/Reverse Selector
Switch Adjustment
in FORWARD mode**



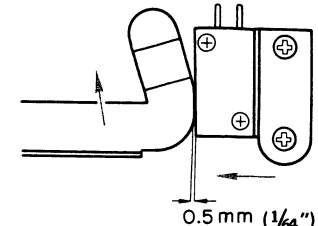
pin

Loosen four screws. Slide the switch boards in the direction shown by each arrow to the limit and tighten the screws.

8

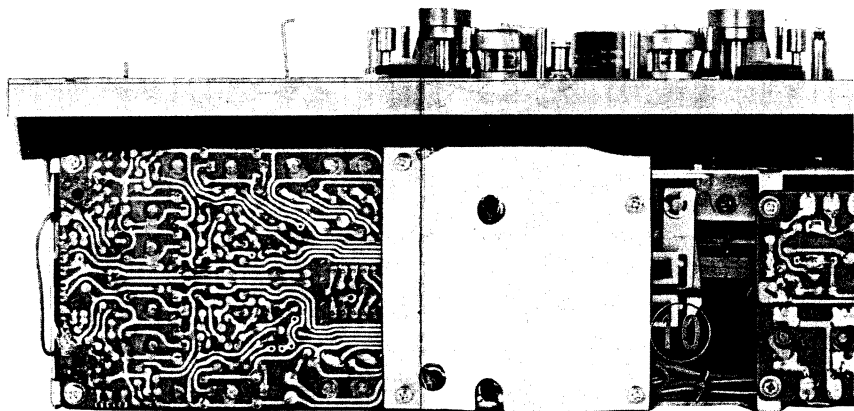


**Power ON/OFF Micro
Switch Adjustment
in STOP mode**



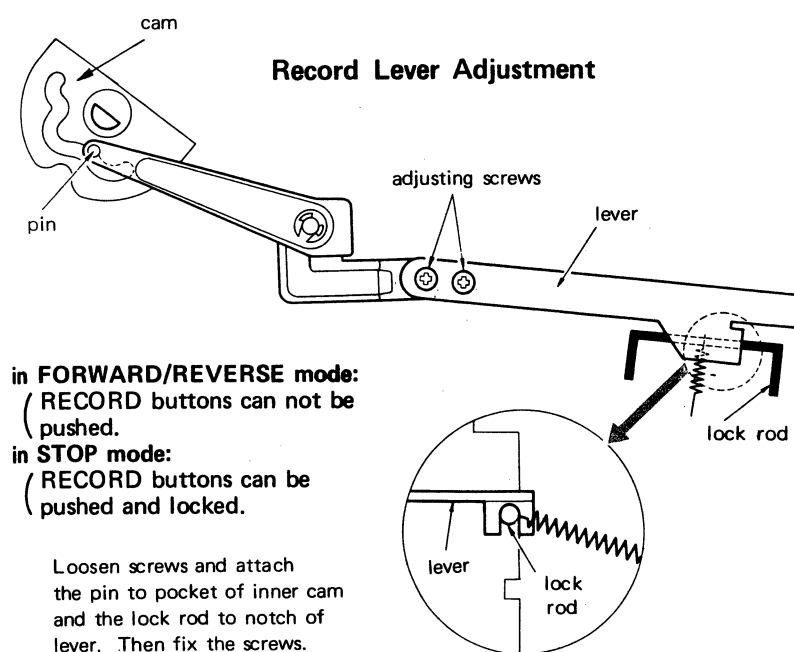
0.5 mm (1/64")

12



10

Record Lever Adjustment



cam

pin

adjusting screws

lever

lock rod

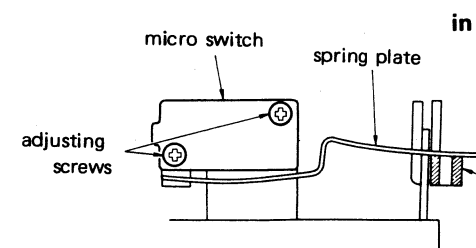
in FORWARD/REVERSE mode:
(RECORD buttons can not be pushed.)

in STOP mode:
(RECORD buttons can be pushed and locked.)

Loosen screws and attach the pin to pocket of inner cam and the lock rod to notch of lever. Then fix the screws.

9

**Micro Switch Adjustment
in RECORD mode**



micro switch

spring plate

adjusting screws

record lock plate

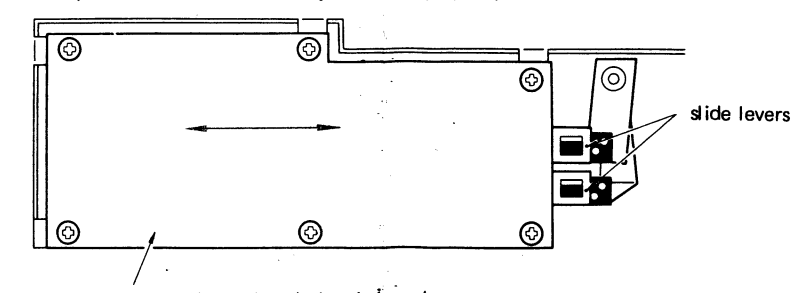
Loosen the screws and set two micro switches at switch-on position.

11

Record Slide Switch Adjustment

in STOP mode
Lock RECORD buttons, and slide levers are in pulled-out position.

Unlock RECORD buttons, and slide levers are in pushed-in position.
If not, loosen six screws and adjust to the proper position.

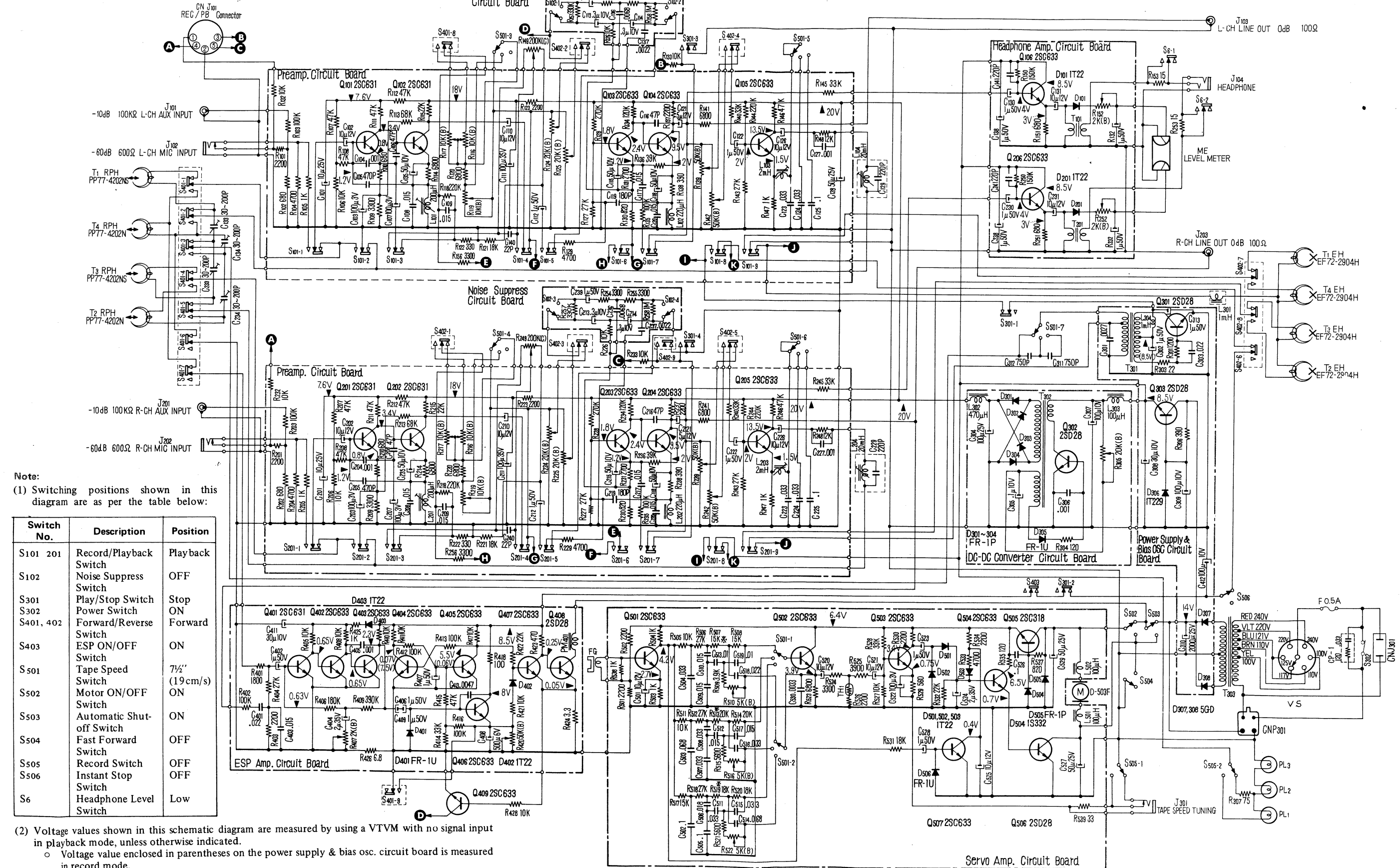


slide levers

preamplifier printed circuit board

TC-560DA TC-560DA

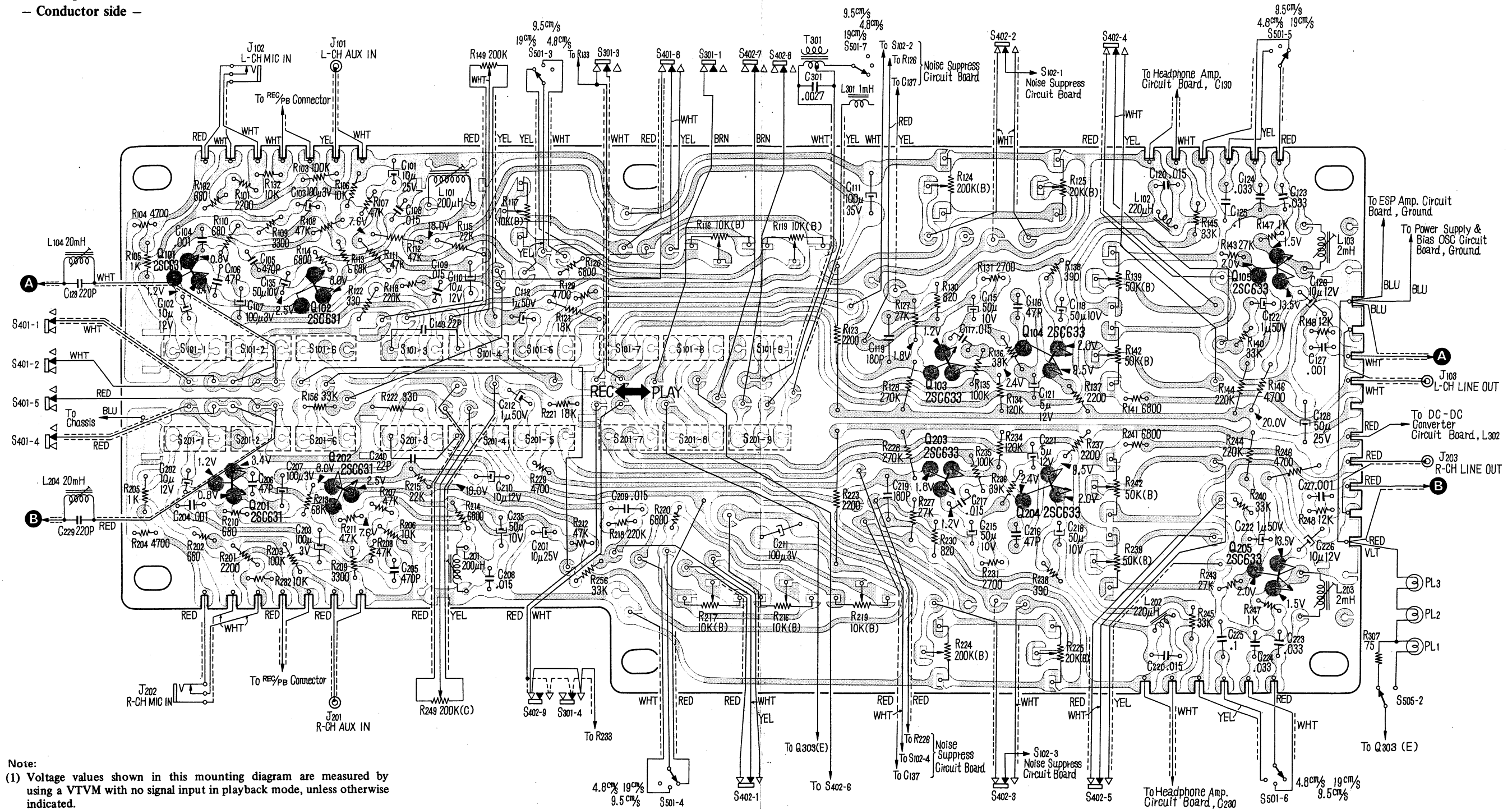
10. SCHEMATIC DIAGRAM



11. MOUNTING DIAGRAM

11-1. Preamplifier Circuit Board

— Conductor side —



Note:

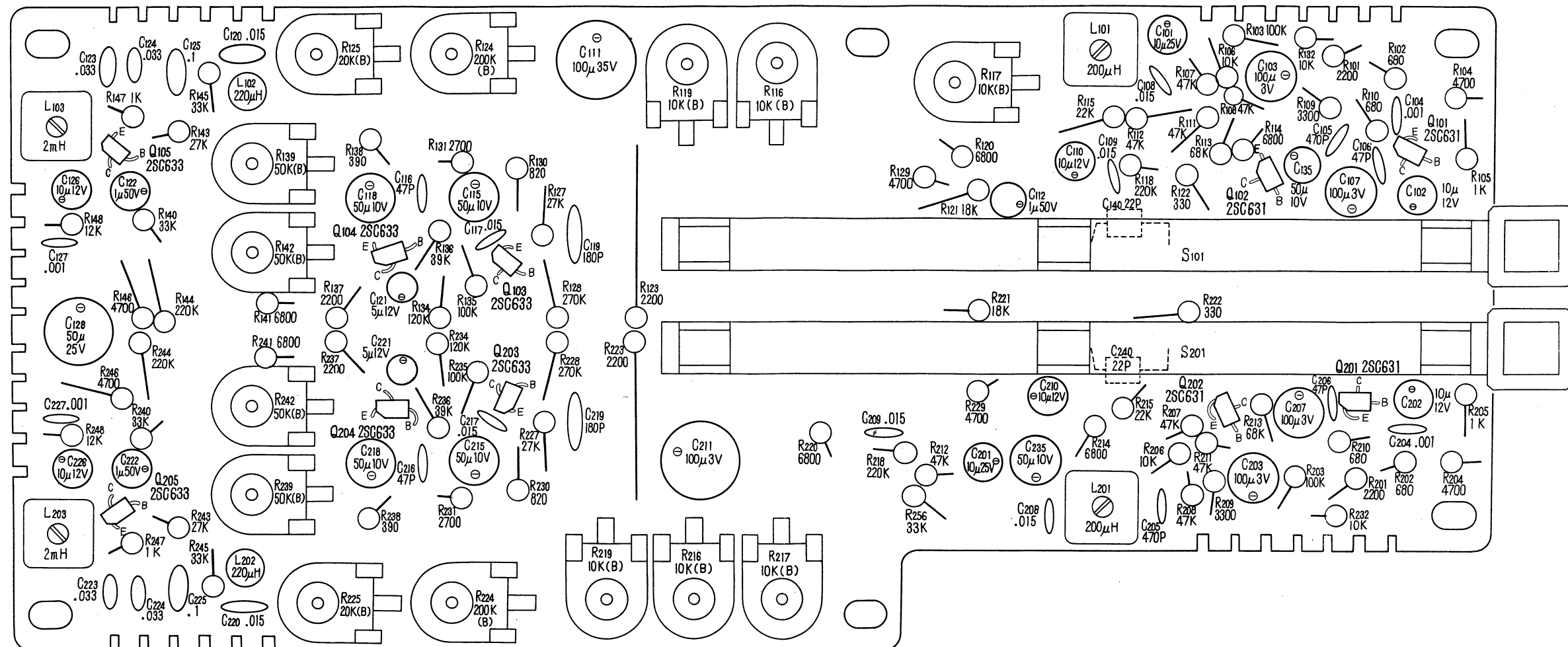
- (1) Voltage values shown in this mounting diagram are measured by using a VTVM with no signal input in playback mode, unless otherwise indicated.
 - o Variations may be noted because of normal production tolerances.
- (2) All resistors and capacitors are rated in Ω and μF respectively unless otherwise indicated.

Printed circuit board
Part No. 1-538-693-11

TC-560DA TC-560DA

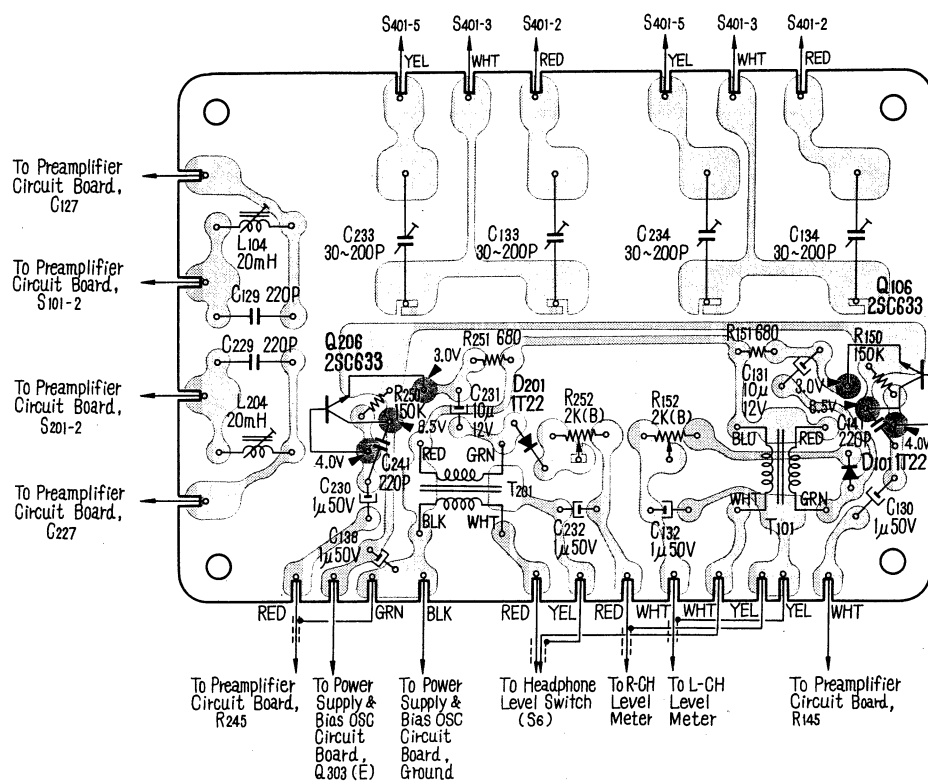
11-1. Preamplifier Circuit Board

– Component side –



11-2. Headphone Amplifier Circuit Board

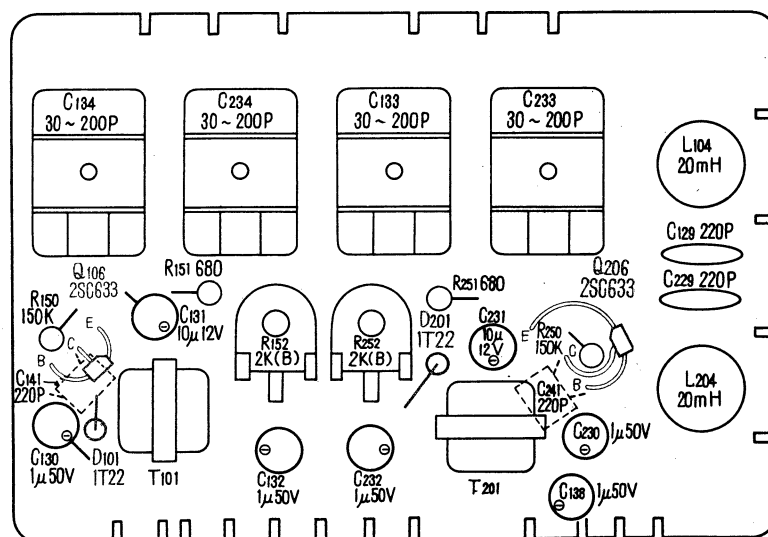
– Conductor side –



Printed circuit board

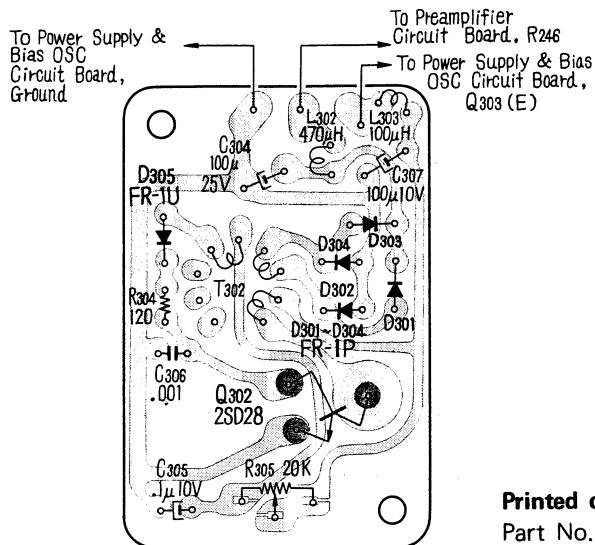
Part No. 1-538-692-11

– Component side –



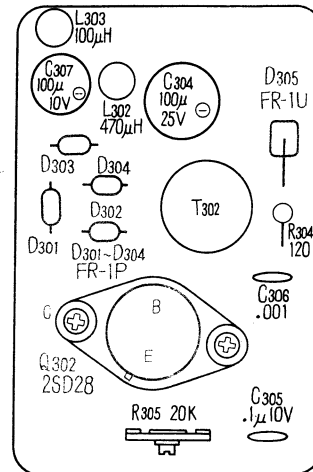
11-3. DC-DC Converter Circuit Board

— Conductor side —



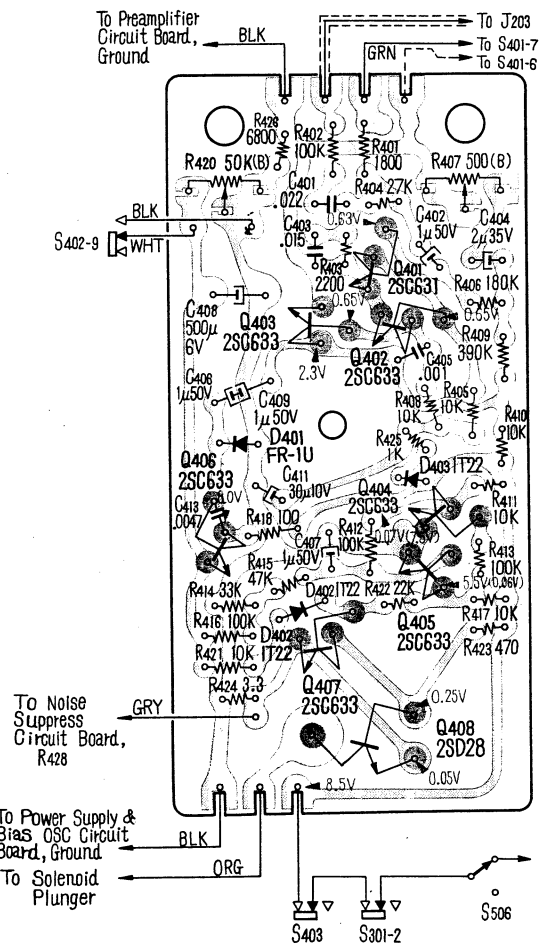
Printed circuit board
Part No. 1-538-657-11

— **Component side** —



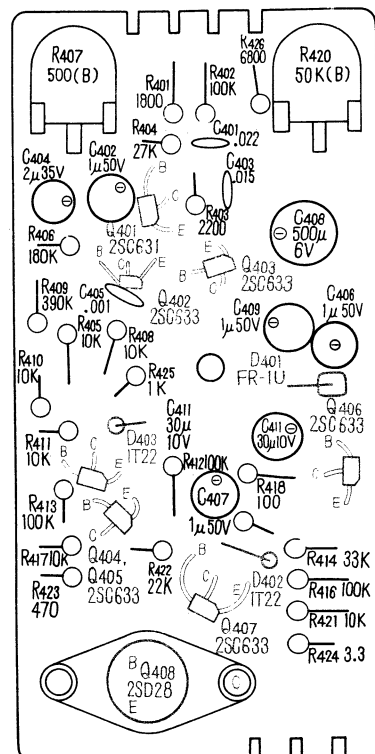
11-4. ESP Amplifier Circuit Board

— Conductor side —



Printed circuit board
Part No. 1-538-659-13

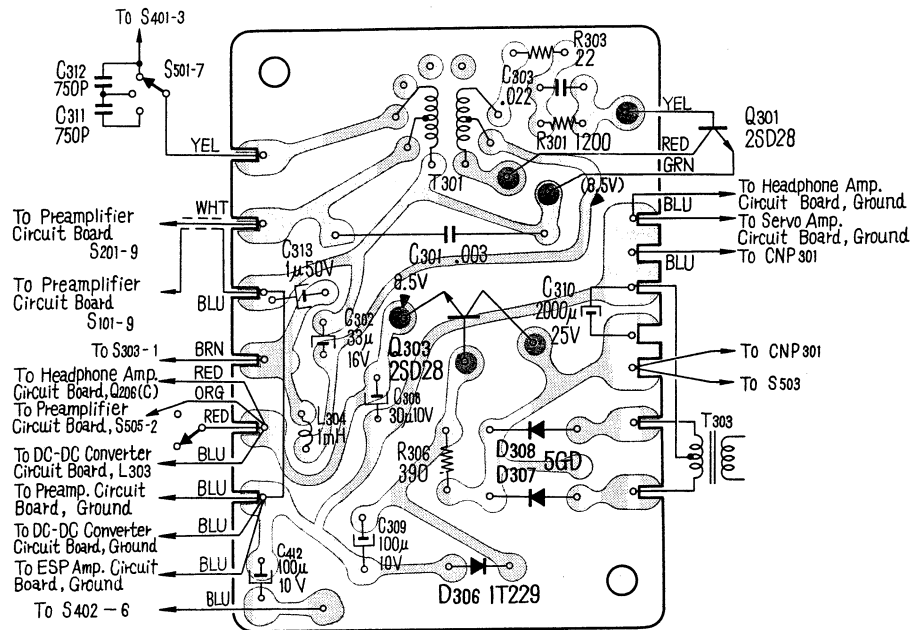
— Component side —



- Voltage values enclosed in parentheses on the ESP amplifier circuit board are measured with signal input.

11-5. Power Supply & Bias OSC Circuit Board

— Conductor side —

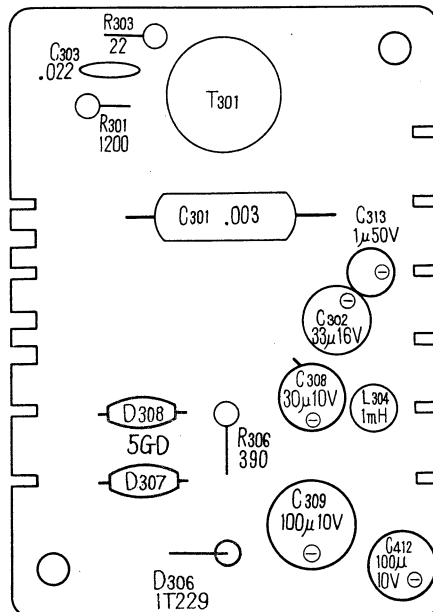


Printed circuit board

Part No. 1-538-691-12

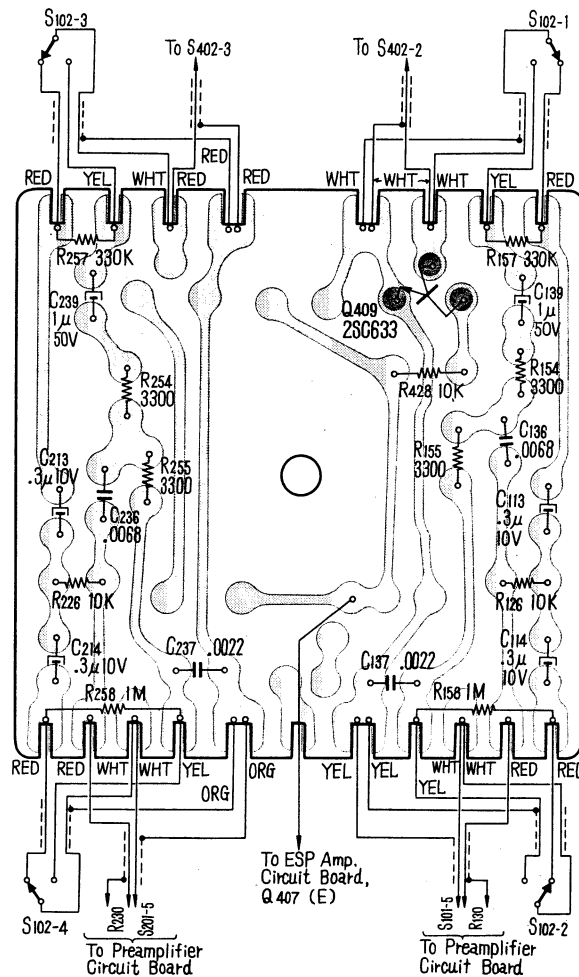
○ Voltage value enclosed in parentheses is measured in record mode.

— Component side —



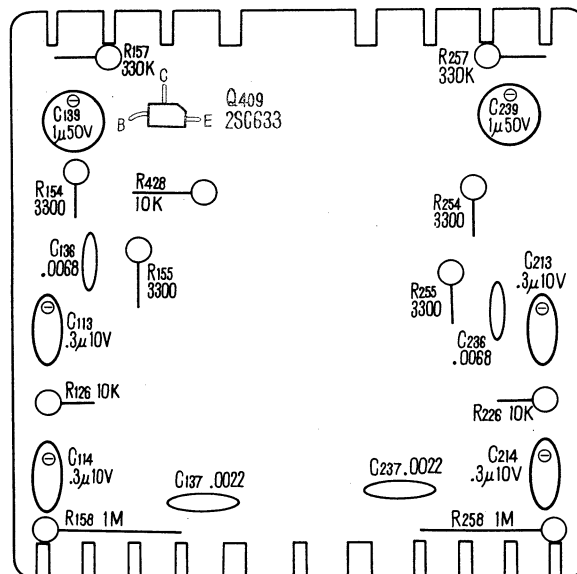
11-6. Noise Suppress Circuit Board

— Conductor side —



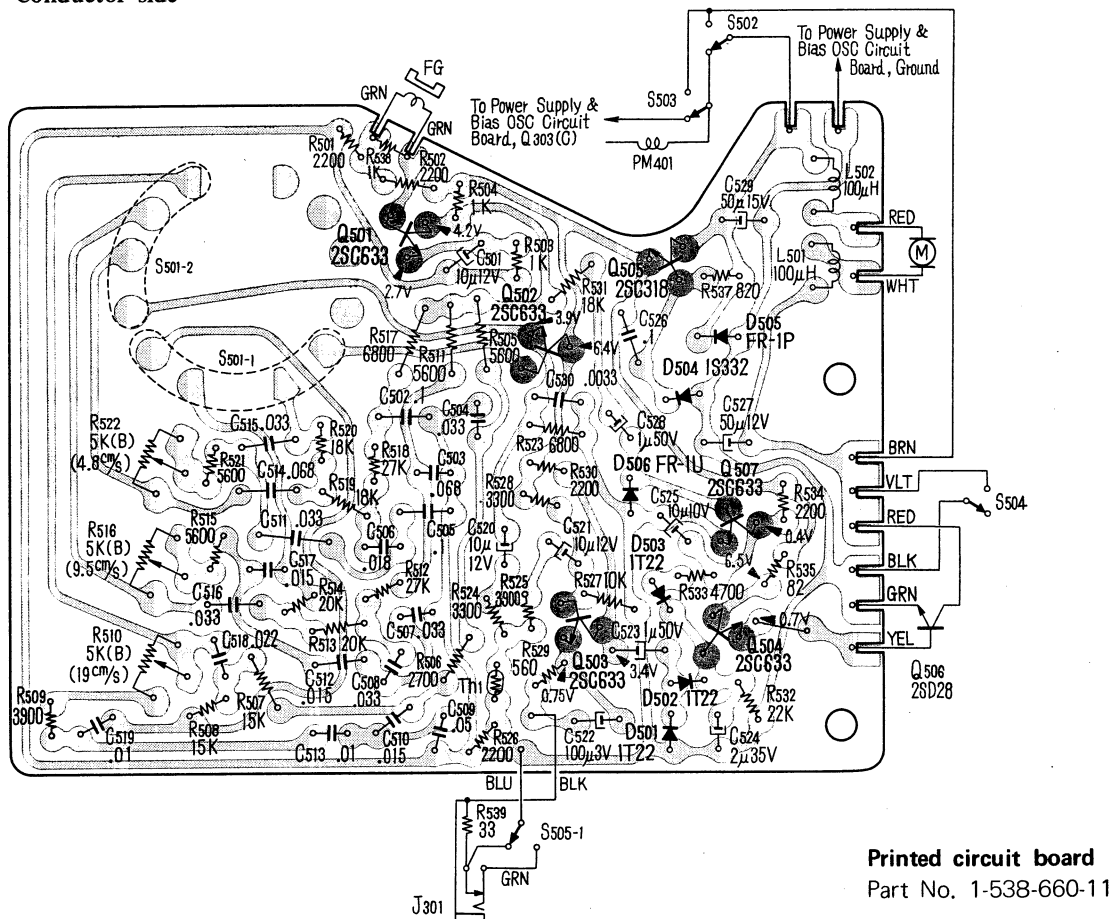
Printed circuit board
Part No. 1-538-697-12

— Component side —

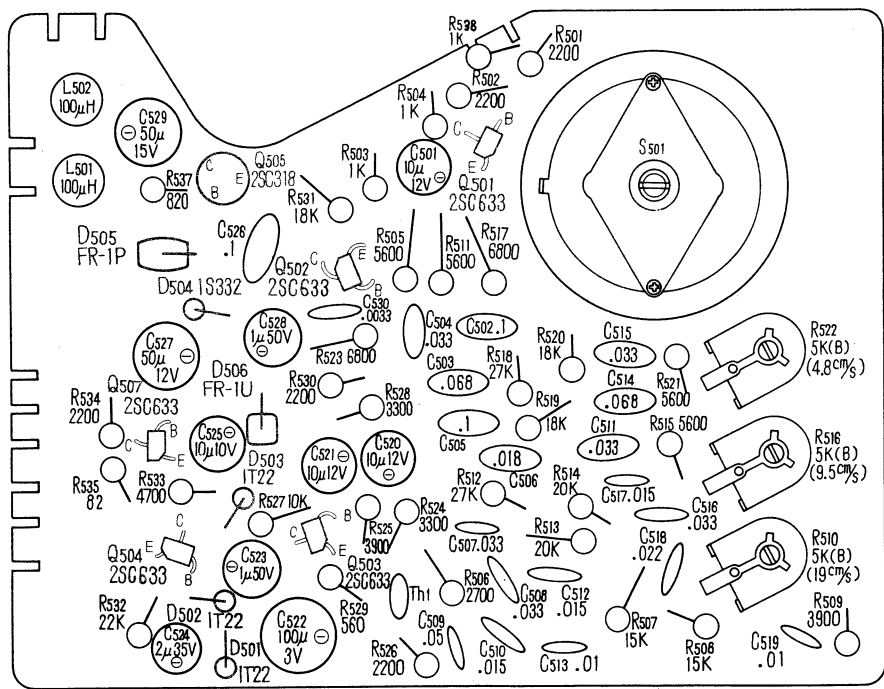


11-7. Servo Amplifier Circuit Board

– Conductor side –

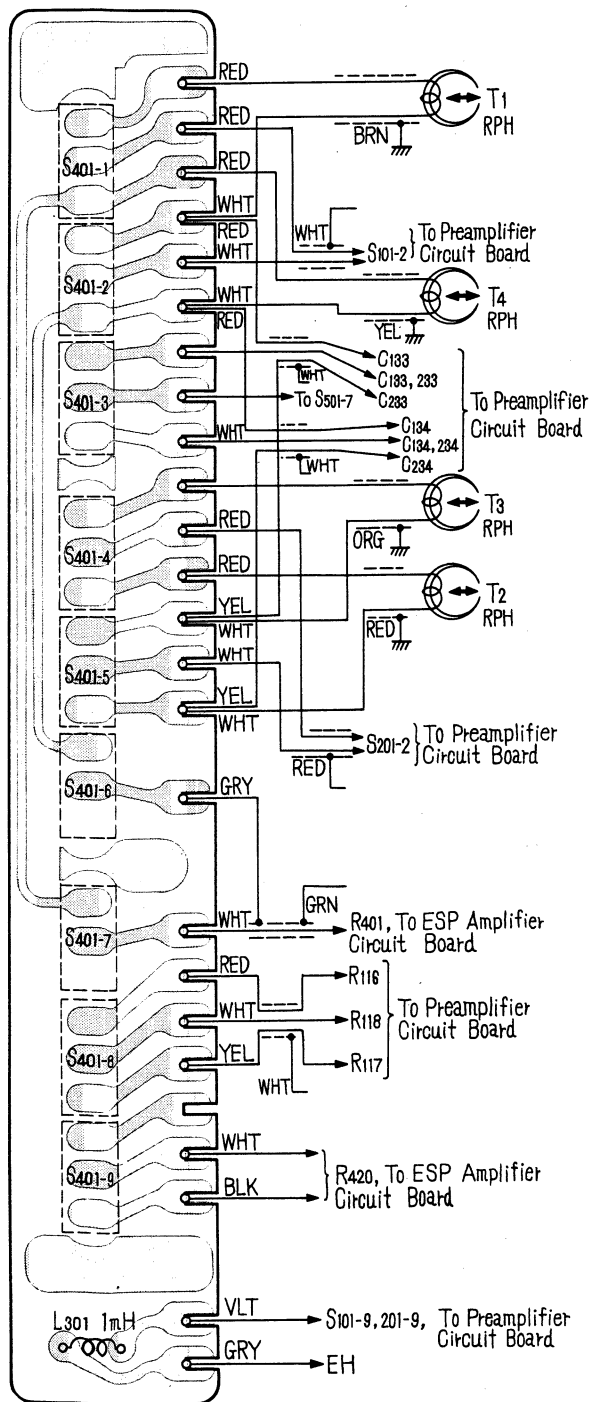


– Component side –



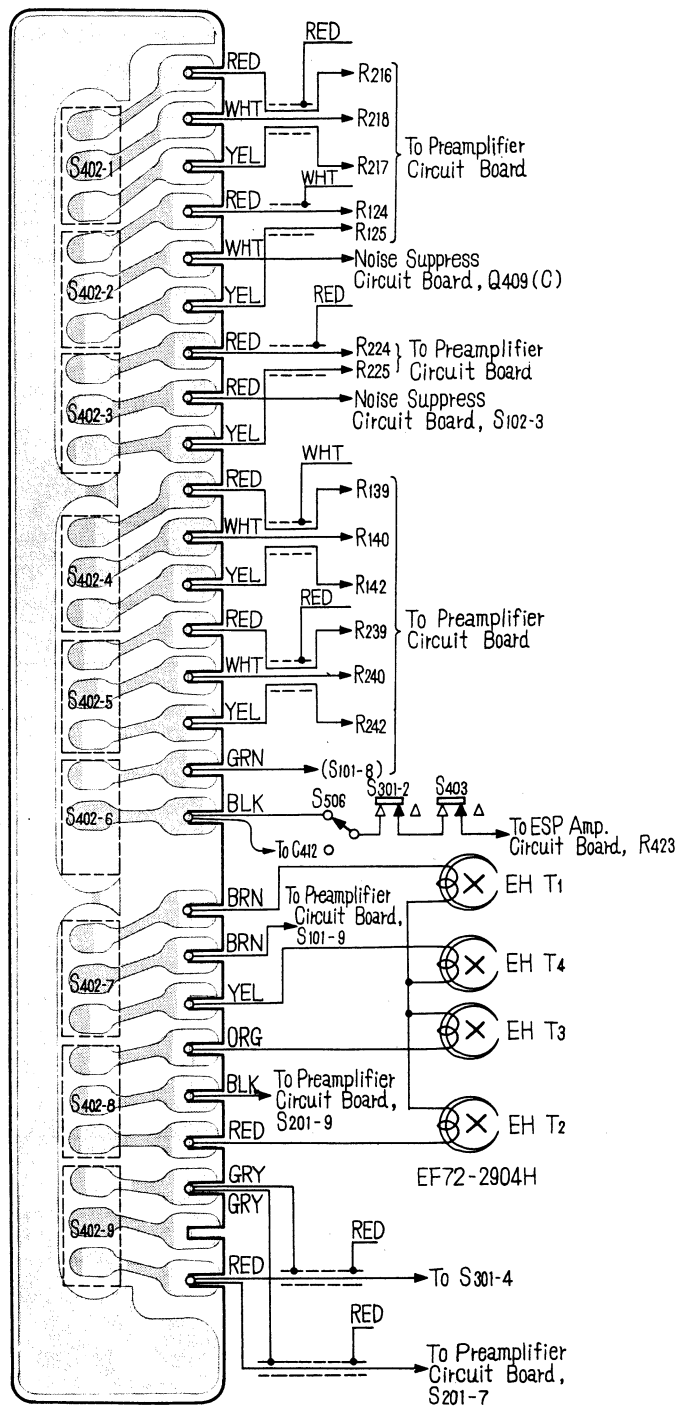
11-8. Forward/Reverse Selector Circuit Board - Conductor side -

(A)



Printed circuit board
Part No. 1-538-689-11

(B)



Printed circuit board
Part No. 1-538-690-11

12. ELECTRICAL PARTS LIST

Symbol	Part No.	Description	Symbol	Part No.	Description
Q101,201		Transistor 2SC631	S403	1-513-091-06	Switch, ESP on/off
Q102,202		" 2SC631	S501	-362-	" tape speed
Q103,203		" 2SC633	S502	1-514-231-	" motor on/off
Q104,204		" 2SC633	S503	-231-	" automatic shut-off
Q105,205		" 2SC633	S504	-057-	" fast forward
Q106,206		" 2SC633	S505-1	-057-	" record
Q301		" 2SD28	S505-2	-057-	" "
Q302		" 2SD28	S506	-057-	" instant stop
Q303		" 2SD28	S6	1-513-091-06	" headphone level
Q401		" 2SC631			
Q402		" 2SC633	J101,201	1-507-142-13	Jack, auxiliary input
Q403		" 2SC633	J102,202	-188-12	" microphone
Q404		" 2SC633	J103,203	-142-13	" line output
Q405		" 2SC633	J104	-282-21	" binaural headphone
Q406		" 2SC633	J301	-188-12	" speed tuning
Q407		" 2SC633			"
Q408		" 2SD28	CNP301	1-509-015-	Connector, AC/DC
Q409		" 2SC633			
Q501		" 2SC633	CNJ101	1-509-029-	Connector, rec./p.b.
Q502		" 2SC633	CNJ301	-320-	" , AC/DC
Q503		" 2SC633			
Q504		" 2SC633	PM401	1-452-021-	Solenoid, reverse
Q505		" 2SC318			
Q506		" 2SD28	PL1	1-518-051-11	Lamp, pilot
Q507		" 2SC633	PL2	-051-11	" "
			PL3	-051-11	" "
D101,201		Diode 1T22	VS	1-509-064-12	Selector, voltage
D301		" FR-1P			
D302		" FR-1P	ME	1-509-064-13S	Meter, level
D303		" FR-1P			
D304		" FR-1P	M	8-834-509-01	Motor
D305		" FR-1U			
D306		" 1T229	F	1-532-094-	Fuse
D307		" 5GD			
D308		" 5GD	CP-1	1-231-057-	Component, encapsulated
D401		" FR-1U			
D402		" 1T22			
D403		" 1T22	T101,201	1-427-217-	Transformer, headphone
D501		" 1T22	T301	1-433-116-	" oscillator
D502		" 1T22	T302	1-441-339-	" converter
D503		" 1T22	T303	-402-	" power
D504		" 1S332			
D505		" FR-1P	L101,201	1-409-083-	Coil, trap; 200 μ H
D506		" FR-1U	L102,202	1-407-173-	Inductor, micro; 220 μ H
			L103,203	1-409-130-	Coil, trap; 2mH
TH1		Thermistor S-1250	L104,204	-094-13	" " ; 16~24mH
RPH _{T2}	8-822-542-25	Head, rec/p.b.; PP77-4202A	L301	1-431-038-	" , dummy; 1mH
RPH _{T4}	-542-26	" ; PP77-4202B	L302	1-407-125-	Inductor, micro; 470 μ H
RPH _{T3}			L303	-120-	" " ; 100 μ H
EH _{T1~4}	8-828-429-41	" , ERASE; EF72-2904H	L501	-098-	" " ; 100 μ H
			L502	-098-	" " ; 100 μ H
S101,201	1-513-220-	Switch, rec./p.b.	R101,201	1-242-681-	Resistor 2.2 k Ω 1/4W, carbon
S102	1-514-461-	" noise suppress	R102,202	-669-	" 680 Ω " "
S301	-232-	" play/stop	R103,203	-721-	" 100k Ω " "
S302	-458-15S	" power	R104,204	-689-	" 4.7k Ω " "
S401	1-513-220-	" forward/reverse	R105,205	-673-	" 1k Ω " "
S402	-220-	" "			

— Continued —

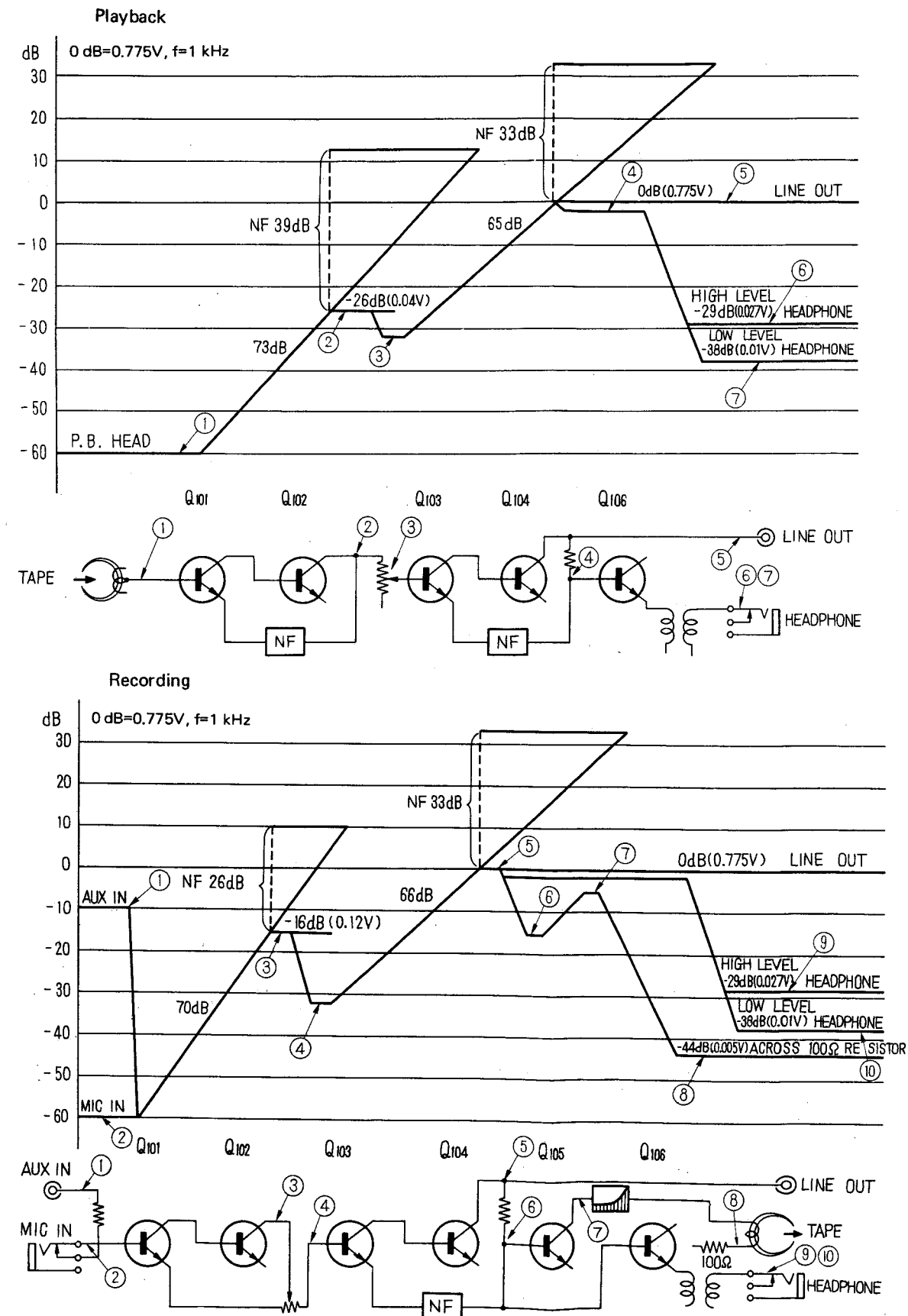
Symbol	Part No.	Description	Symbol	Part No.	Description
R106,206	1-242-697-	Resistor 10k Ω ¼W, carbon	R305	1-221-630-	Resistor 20k Ω (B), adjustable
R107,207	-713-	" 47k Ω " "	R306	1-202-563-	" 390 Ω ½W, composition
R108,208	-713-	" 47k Ω " "	R307	1-244-646-	" 75 Ω ¼W, carbon
R109,209	-685-	" 3.3k Ω " "	R401	1-242-679-	" 1.8k Ω " "
R110,210	-669-	" 680 Ω " "	R402	-721-	" 100k Ω " " "
R111,211	-713-	" 47k Ω " "	R403	-681-	" 2.2k Ω " " "
R112,212	-713-	" 47k Ω " "	R404	-707-	" 27k Ω " " "
R113,213	-717-	" 68k Ω " "	R405	-697-	" 10k Ω " " "
R114,214	-693-	" 6.8k Ω " "	R406	-727-	" 180k Ω " "
R115,215	-705-	" 22k Ω " "	R407	1-221-465-	" 500 Ω (B), adjustable
R116,216	1-221-401-	" 10k Ω (B), adjustable	R408	1-242-697-	" 10k Ω ¼W, carbon
R117,217	-401-	" 10k Ω (B), "	R409	-735-	" 390k Ω " "
R118,218	1-242-729-	" 220k Ω ¼W, carbon	R410	-697-	" 10k Ω " "
R119,219	1-221-401-	" 10k Ω (B), adjustable	R411	-697-	" 10k Ω " "
R120,220	1-242-693-	" 6.8k Ω ¼W, carbon	R412	-721-	" 100k Ω " "
R121,221	-703-	" 18k Ω " "	R413	-721-	" 100k Ω " "
R122,222	-661-	" 330 Ω " "	R414	-709-	" 33k Ω " "
R123,223	1-244-681-	" 2.2k Ω " "	R415	-713-	" 47k Ω " "
R124,224	1-221-952-	" 20k Ω (B), adjustable	R416	-721-	" 100k Ω " "
R125,225	-952-	" 20k Ω (B), "	R417	-697-	" 10k Ω " "
R126,226	1-242-697-	" 10k Ω ¼W, carbon	R418	-649-	" 100 Ω " "
R127,227	-707-	" 27k Ω " "	R419		— deleted —
R128,228	-731-	" 270k Ω " "	R420	1-221-953-	Resistor 500 Ω (B), adjustable
R129,229	-689-	" 4.7k Ω " "	R421	1-242-697-	" 10k Ω ¼W, carbon
R130,230	-671-	" 820 Ω " "	R422	-705-	" 22k Ω " "
R131,231	-683-	" 2.7k Ω " "	R423	-665-	" 470 Ω " "
R132,232	-697-	" 10k Ω " "	R424	-613-	" 3.3 Ω " "
R133,233	1-244-697-	" 10k Ω " "	R425	-673-	" 1k Ω " "
R134,234	1-242-723-	" 120k Ω " "	R426	-621-	" 6.8 Ω " "
R135,235	-721-	" 100k Ω " "	R427		— deleted —
R136,236	-711-	" 39k Ω " "	R428	1-242-697-	Resistor 10k Ω ¼W, carbon
R137,237	-681-	" 2.2k Ω " "	R501	-681-	" 2.2k Ω " "
R138,238	-663-	" 390 Ω " "	R502	-681-	" 2.2k Ω " "
R139,239	1-221-953-	" 50k Ω (B), adjustable	R503	-673-	" 1k Ω " "
R140,240	1-242-709-	" 33k Ω ¼W, carbon	R504	-673-	" 1k Ω " "
R141,241	-693-	" 6.8k Ω " "	R505	-697-	" 10k Ω " "
R142,242	1-221-953-	" 50k Ω (B), adjustable	R506	-707-	" 27k Ω " "
R143,243	1-242-707-	" 27k Ω ¼W, carbon	R507*	-701-	" 15k Ω " "
R144,244	-729-	" 220k Ω " "	R508	-701-	" 15k Ω " "
R145,245	-709-	" 33k Ω " "	R509	-687-	" 3.9k Ω " "
R146,246	-689-	" 4.7k Ω " "	R510	1-221-371-	" 5k Ω (B), adjustable
R147,247	-673-	" 1k Ω " "	R511	1-242-697-	" 10k Ω ¼W, carbon
R148,248	-699-	" 12k Ω " "	R512	-707-	" 27k Ω " "
R149,249	1-221-923-	" 200k Ω (C), potentiometer	R513*	-704-	" 20k Ω " "
R150,250	1-242-725-	" 150k Ω ¼W, carbon	R514	-703-	" 18k Ω " "
R151,251	-669-	" 680 Ω " "	R515	-691-	" 5.6k Ω " "
R152,252	1-221-962-	" 2k Ω (B), adjustable	R516	1-221-371-	" 5k Ω (B), adjustable
R153,253	1-244-629-	" 15 Ω ¼W, carbon	R517	1-242-701-	" 15k Ω ¼W, carbon
R154,254	1-242-685-	" 3.3k Ω " "	R518	-707-	" 27k Ω " "
R155,255	-685-	" 3.3k Ω " "	R519*	-703-	" 18k Ω " "
R156,256	-685-	" 3.3k Ω " "	R520	-703-	" 18k Ω " "
R157,257	1-242-733-	" 330k Ω " "	R521	-691-	" 5.6k Ω " "
R158,258	-745-	" 1M Ω " "	R522	1-221-371-	" 5k Ω (B), adjustable
R301	-675-	" 1.2k Ω " "	R523	1-242-693-	" 6.8k Ω ¼W, carbon
R302		— deleted —	R524	-685-	" 3.3k Ω " "
R303	1-242-633-	Resistor 22 Ω ¼W, carbon	R525	-687-	" 3.9k Ω " "
R304	-651-	" 120 Ω " "	R526	-681-	" 2.2k Ω " "

* To be selected

13. LEVEL DIAGRAM

— Continued —

Symbol	Part No.	Description	Symbol	Part No.	Description
R527	1-242-697-	Resistor 10k Ω 1/4W, carbon	C301	1-129-335-	Capacitor 0.003 μ F, polyethylene
R528	-709-	" 33k Ω " "	C302	1-121-350-	" 33 μ F 16V, electrolytic
R529	-667-	" 560 Ω " "	C303	1-106-090-12	" 0.022 μ F, mylar
R530	-681-	" 2.2k Ω " "	C304	1-121-377-	" 100 μ F 25V, electrolytic
R531	-707-	" 18k Ω " "	C305	1-127-019-	" 0.1 μ F 10V, "
R532	-705-	" 22k Ω " "	C306	1-106-115-12	" 0.001 μ F, mylar
R533	-689-	" 4.7k Ω " "	C307	1-121-339-	" 100 μ F 10V, electrolytic
R534	-681-	" 2.2k Ω " "	C308	-483-	" 30 μ F 10V, "
R535	-651-	" 120 Ω " "	C309	-339-	" 100 μ F 10V, "
R536		— deleted —	C310	-586-	" 2000 μ F 25V, "
R537	1-242-671-	Resistor 820 Ω 1/4W, carbon	C311	1-129-181-	" 750pF, polyethylene
R538	1-244-673-	" 1k Ω " "	C312	-181-	" 750pF, "
R539	-637-	" 33 Ω " "	C313	1-121-442-	" 1 μ F 50V, electrolytic
C101,201	1-121-283-	Capacitor 10 μ F 25V, electrolytic	C401	1-105-677-12	" 0.022 μ F, mylar
C102,202	-282-	" 10 μ F 12V, "	C402	1-121-442-	" 1 μ F 50V, electrolytic
C103,203	-290-	" 100 μ F 3V, "	C403	1-105-675-12	" 0.015 μ F, mylar
C104,204	1-105-661-12	" 0.001 μ F, mylar	C404	1-121-449-	" 2 μ F 35V, electrolytic
C105,205	1-129-123-	" 470pF, polyethylene	C405	1-105-661-12	" 0.001 μ F, mylar
C106,206	1-107-015-	" 47pF, mica	C406	1-121-442-	" 1 μ F 50V, electrolytic
C107,207	1-121-290-	" 100 μ F 3V, electrolytic	C407	-442-	" 1 μ F 50V, "
C108,208	1-105-675-12	" 0.015 μ F, mylar	C408	-342-	" 500 μ F 6V, "
C109,209	-675-12	" 0.015 μ F, "	C409	-442-	" 1 μ F 50V, "
C110,210	1-121-282-	" 10 μ F 12V, electrolytic	C410		— deleted —
C111,211	-357-	" 100 μ F 35V, "	C411	1-121-483-	Capacitor 30 μ F 10V, electrolytic
C112,212	-343-	" 1 μ F 50V, "	C412	-339-	" 100 μ F 10V, "
C113,213	1-127-021-	" 0.3 μ F 10V, "	C413	1-105-829-12	" 0.0047 μ F, mylar
C114,214	-021-	" 0.3 μ F 10V, "	C501	1-121-307-	" 10 μ F 12V, electrolytic
C115,215	1-121-352-	" 50 μ F 10V, "	C502	1-106-106-12	" 0.1 μ F, mylar
C116,216	1-107-015-	" 47pF, mica	C503	-102-12	" 0.068 μ F, "
C117,217	1-105-675-12	" 0.015 μ F, mylar	C504	-094-12	" 0.033 μ F, "
C118,218	1-121-352-	" 50 μ F 10V, electrolytic	C505	-106-12	" 0.1 μ F, "
C119,219	1-107-059-	" 180pF, mica	C506	-088-12	" 0.018 μ F, "
C120,220	1-105-675-12	" 0.015 μ F, mylar	C507	-094-12	" 0.033 μ F, "
C121,221	1-121-280-	" 5 μ F 12V, electrolytic	C508	-094-12	" 0.033 μ F, "
C122,222	-343-	" 1 μ F 50V, "	C509	-086-12	" 0.015 μ F, "
C123,223	1-105-679-12	" 0.033 μ F, mylar	C510	-086-12	" 0.015 μ F, "
C124,224	-679-12	" 0.033 μ F, "	C511	-094-12	" 0.033 μ F, "
C125,225	-685-12	" 0.1 μ F, "	C512	-086-12	" 0.015 μ F, "
C126,226	1-121-282-	" 10 μ F 12V, electrolytic	C513	-082-12	" 0.01 μ F, "
C127,227	1-105-661-12	" 0.001 μ F, mylar	C514	-102-12	" 0.068 μ F, "
C128	1-121-354-	" 50 μ F 25V, electrolytic	C515	-094-12	" 0.033 μ F, "
C129,229	1-107-005-	" 220pF, mica	C516	-094-12	" 0.033 μ F, "
C130,230	1-121-442-	" 1 μ F 50V, electrolytic	C517	-086-12	" 0.015 μ F, "
C131,231	-470-	" 10 μ F 12V, "	C518	-090-12	" 0.022 μ F, "
C132,232	-442-	" 1 μ F 50V, "	C519	-082-12	" 0.01 μ F, "
C133,233	1-141-034-	" 30~200pF, trimmer	C520	1-121-307-	" 10 μ F 12V, electrolytic
C134,234	-034-	" 30~200pF, "	C521	-307-	" 10 μ F 12V, "
C135,235	1-121-352-	" 50 μ F 10V, electrolytic	C522	-490-	" 100 μ F 3V, "
C136,236	1-105-671-12	" 0.0068 μ F, mylar	C523	-442-	" 1 μ F 50V, "
C137,237	-665-12	" 0.0022 μ F, "	C524	-449-	" 2 μ F 35V, "
C138	1-121-442-	" 1 μ F 50V, electrolytic	C525	-307-	" 10 μ F 12V, "
C139,239	-442-	" 1 μ F 50V, "	C526	1-106-163-12	" 0.1 μ F, mylar
C140,240	1-107-052-	" 22pF, mica	C527	1-121-410-	" 50 μ F 25V, electrolytic
C141,241	-005-	" 220pF, "	C528	-442-	" 1 μ F 50V, "
			C529	-410-	" 50 μ F 25V, "
			C530	1-106-013-12	" 0.0033 μ F, mylar



14. ELECTRICAL ADJUSTMENT

Item	Signal Source	Output Connection	Mode	Adjust	Remarks																								
1. playback azimuth alignment	3rd section (10 kHz) of SONY alignment tape, J-19-F2	VTVM and 100kΩ resistor in parallel to line output	playback (forward & reverse)	azimuth alignment screws See Fig. 14-2	Adjust to obtain maximum reading on VTVM.																								
2. tape speed adjustment	SONY speed check tape, SPC-47	frequency counter & 100 kΩ resistor in parallel to line output	playback (forward & reverse)	R522... for 1 7/8 ips (4.8cm/s) R516... for 3 3/4 ips (9.5cm/s) R510... for 7 1/2 ips (19cm/s) See Fig.14-2	Adjust to obtain the frequency shown below. <table><tr><td>tape speed</td><td>reading</td></tr><tr><td>1-7/8 ips</td><td>1000⁺⁵₋₃ Hz</td></tr><tr><td>3-3/4 ips</td><td>2000±8 Hz</td></tr><tr><td>7-1/2 ips</td><td>4000±15 Hz</td></tr></table> Note: Each speed adjustment should be performed after 30 sec. from starting .	tape speed	reading	1-7/8 ips	1000 ⁺⁵ ₋₃ Hz	3-3/4 ips	2000±8 Hz	7-1/2 ips	4000±15 Hz																
tape speed	reading																												
1-7/8 ips	1000 ⁺⁵ ₋₃ Hz																												
3-3/4 ips	2000±8 Hz																												
7-1/2 ips	4000±15 Hz																												
3. playback level adjustment	1st section (1 kHz) of SONY alignment tape, J-19-F2	VTVM and 100kΩ resistor in parallel to line output	playback (forward & reverse)	R124(L), R224(R) ... forward R125(L), R225(R) ... reverse See Fig. 14-3	Adjust to obtain 0 dB (0.775 V) on VTVM.																								
4. playback equalizer adjustment	SONY alignment tape, J-19-F2	VTVM and 100kΩ resistor in parallel to line output	playback (forward & reverse)	R116(L), R216(R) ... forward R117(L), R217(R) ... reverse See Fig. 14-3	Deviation against 1 kHz of 2nd section. <table><tr><td>tape section</td><td>3rd</td><td>4th</td><td>5th</td><td>6th</td><td>7th</td></tr><tr><td>frequency</td><td>10 kHz</td><td>12.5 kHz</td><td>7 kHz</td><td>100 Hz</td><td>50 Hz</td></tr><tr><td>L-CH</td><td>1 ± 2 dB</td><td>0 ± 2 dB</td><td>0 ± 2 dB</td><td>+2±2 dB</td><td>+3±2 dB</td></tr><tr><td>R-CH</td><td></td><td></td><td></td><td>+3.5±2 dB</td><td>+5.5±2 dB</td></tr></table> 1. Adjust to obtain the response shown above. 2. Repeat playback level adjustment again.	tape section	3rd	4th	5th	6th	7th	frequency	10 kHz	12.5 kHz	7 kHz	100 Hz	50 Hz	L-CH	1 ± 2 dB	0 ± 2 dB	0 ± 2 dB	+2±2 dB	+3±2 dB	R-CH				+3.5±2 dB	+5.5±2 dB
tape section	3rd	4th	5th	6th	7th																								
frequency	10 kHz	12.5 kHz	7 kHz	100 Hz	50 Hz																								
L-CH	1 ± 2 dB	0 ± 2 dB	0 ± 2 dB	+2±2 dB	+3±2 dB																								
R-CH				+3.5±2 dB	+5.5±2 dB																								
5. meter level adjustment	1,000 Hz, -60 dB (0.78 mV) to mic. input	VTVM and 100kΩ resistor in parallel to line output	record (forward)	R152(L), R252(R) See Fig. 14-3	1. Set headphone level switch to "HIGH" 2. Adjust mic. volume control (R149 & R249) to obtain 0 dB (0.775 V) on VTVM. 3. Adjust R152 & R252 so that pointer of level meter indicates 100 on the scale.																								
6. trap coil adjustment		VTVM and 100kΩ resistor in parallel to line output and VTVM between collector of Q105 (Q205) and ground	record (forward & reverse)	L104(L), L204(R) L101(L), L201(R) See Fig. 14-3	1. Turn trimmer capacitor C133(C233) clockwise to the full and return it by approx. one turn. 2. Set machine in forward stereo record mode and rec. volume control to minimum. 3. Adjust L104(L204) to obtain minimum reading on VTVM connected to collector of Q105 (Q205). 4. Set rec. volume control to maximum and adjust L101(L201) to obtain minimum reading on VTVM connected to line output jack. 5. Turn trimmer capacitor C134(C234) clockwise to the full and return it by approx. one turn. 6. Set machine in reverse stereo mode and rec. volume control to minimum. 7. Make sure that collector output of Q105(Q205) is less than 0 dB (0.775V). 8. Set rec. volume control to maximum and make sure that line output is less than -20 dB (77.5 mV). 9. In case these values are not obtained in reverse mode, take a middle of minimum values obtained in both modes.																								
7. recording bias adjustment	1 kHz, -60 dB (0.78 mV) to mic. input	VTVM and 100kΩ resistor in parallel to line output	record & playback (forward & reverse)	C133(L), C233(R) ... forward C134(L), C234(R) ... reverse See Fig. 14-3	1. Set mic. volume control R149(R249) so that pointer of level meter indicates 100 on the scale. 2. Record the signal on a blank tape and playback it. 3. Repeating step 2, adjust trimmer capacitors to obtain maximum playback output level on VTVM.																								
8. recording level adjustment	1 kHz, -60 dB (0.78 mV) to mic. input	VTVM and 100kΩ resistor in parallel to line output	record & playback (forward & reverse)	R139(L), R239(R) ... forward R142(L), R242(R) ... reverse See Fig. 14-3	1. Set mic. volume control R149(R249) so that pointer of level meter indicates 100 on the scale. 2. Record the signal on a blank tape and playback it. 3. Repeating step 2, adjust the adjustable resistors to obtain +1 dB (0.83 V) on VTVM in playback mode.																								
9. ESP gain adjustment	1 kHz, -37.5 dB (1mV) to R-CH line output		playback (forward) auto reverse switch : ON	R407 See Fig.14-4	1. Turn R407 clockwise to the full and set R420 (time adj.) to mechanical mid position. 2. Deliver -37.5 dB (1.0 mV) of 1 kHz signal to line output. 3. Place machine in forward playback mode. 4. After 5 seconds, feed off the input signal. 5. At 12 seconds after that, turn R407 counter-clockwise slowly until machine reverses.																								
10. reverse time adjustment	1 kHz, -8 dB (0.31V) to R-CH line output		playback (forward) auto reverse switch: ON	R420 See Fig. 14-4	1. Deliver -8 dB (0.31V) of 1 kHz signal to line output. 2. Place machine in forward playback mode. 3. After 5 seconds, feed off the input signal. 4. Adjust R420 so that machine reverses at 8 seconds after the input signal feeds off.																								

Notes:

- (1) The adjustments should be made in numerical order.
- (2) The adjustments should be performed at the tape speed of 19 cm/sec (7-1/2 ips), unless otherwise specified.
- (3) After adjustments, apply lock paint to the adjusted parts.
- (4) The following test equipment is to be provided for these adjustments.

Audio Generator, Attenuator (600Ω), VTVM
100kΩ Resistor, SONY Alignment Tape J-19-F2,
SONY Speed Check Tape SPC-47, Digital Frequency
Counter, Blank Tape.

- (5) Bias voltage across heads shall be measured with the following values on VTVM.

Rec./P.B. Head: approx. 40 volts
Erase Head: approx. 120 volts

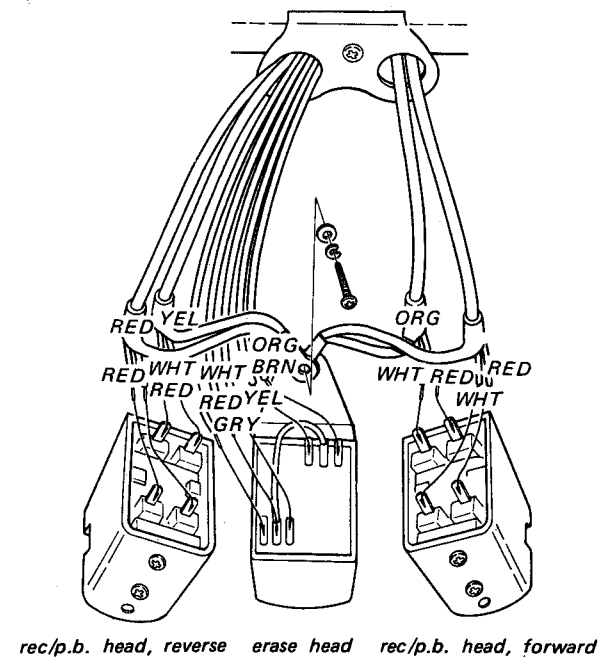


Fig. 14-1 Head Wiring

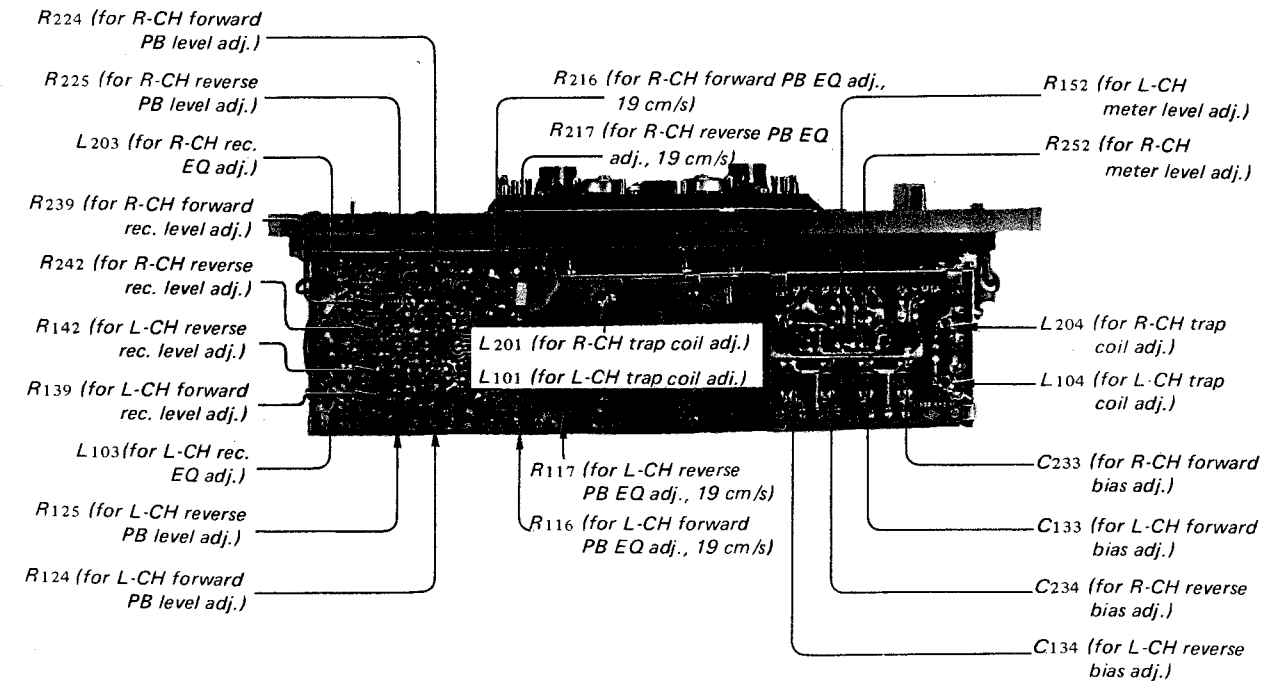
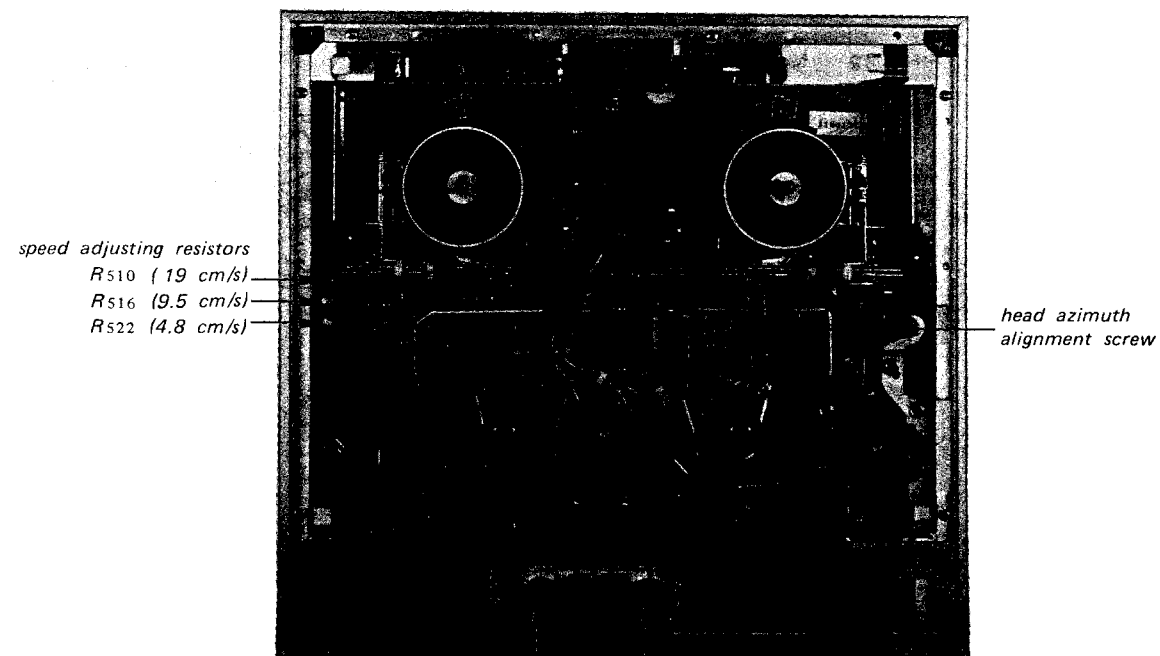


Fig. 14-3 Adjusting Positions



R149 R249
mic. volume control

Fig. 14-2 Adjusting Positions

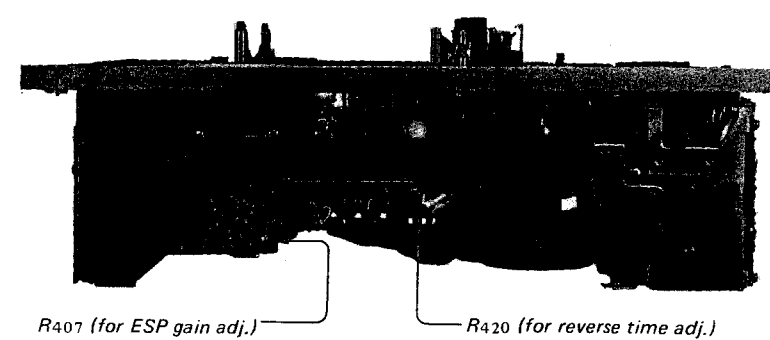
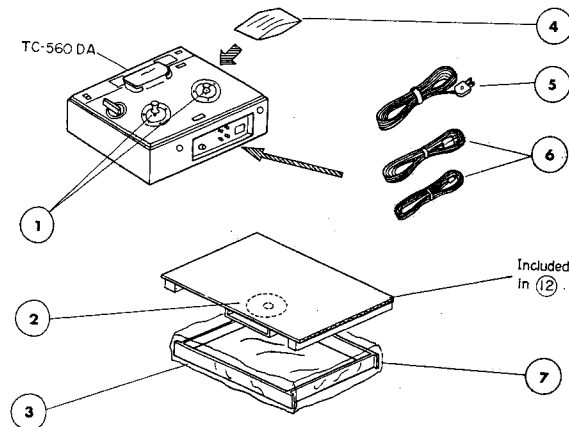


Fig. 14-4 Adjusting Positions

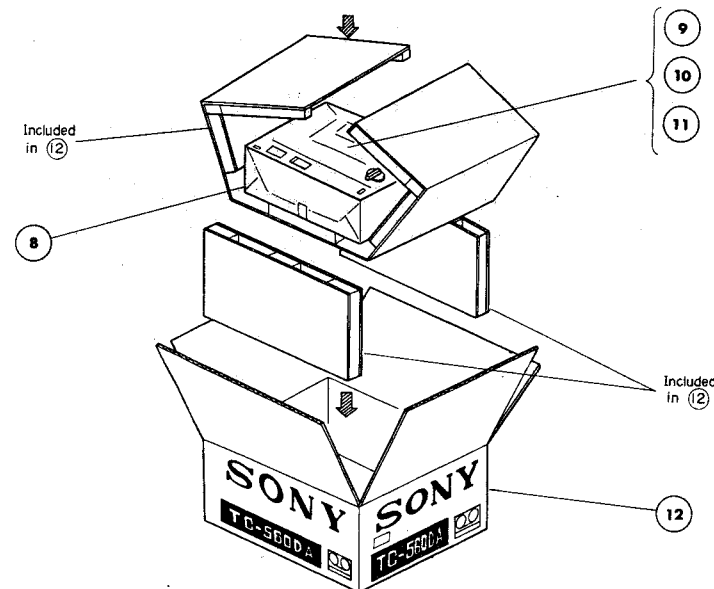
TC-560DA TC-560DA

15. EXPLODED VIEW

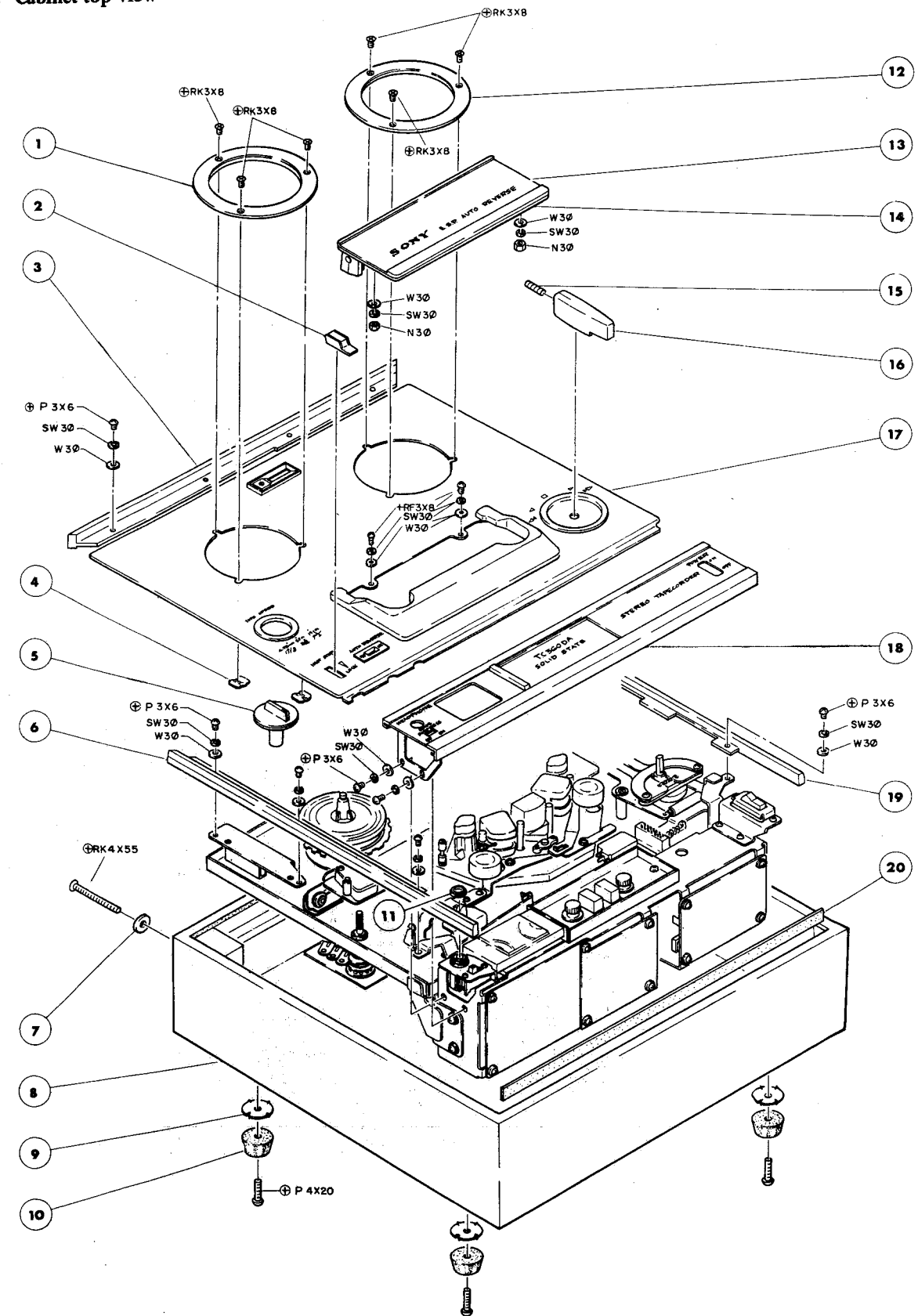
15-1. Packing



Ref.No.	Part No.	Description
1	X-34090-35	Reel Cap Ass'y
2	8-860-107	Reel, empty; R-7A
3	2-045-404	Bag, polyethylene
4	7-491-001	Desiccant
5	1-534-518	Cord, power
6	-049	Cord, connection
7	2-045-401	Protector, dust; DP-560D
8	3-437-459	Bag, polyethylene
9	3-790-301-12	Manual, instruction
10	3-793-710	Booklet, tape talk
11	X-37010-18	Pen Ass'y, head cleaning
12	X-34378-01	Carton Ass'y



15-2. Cabinet-top view



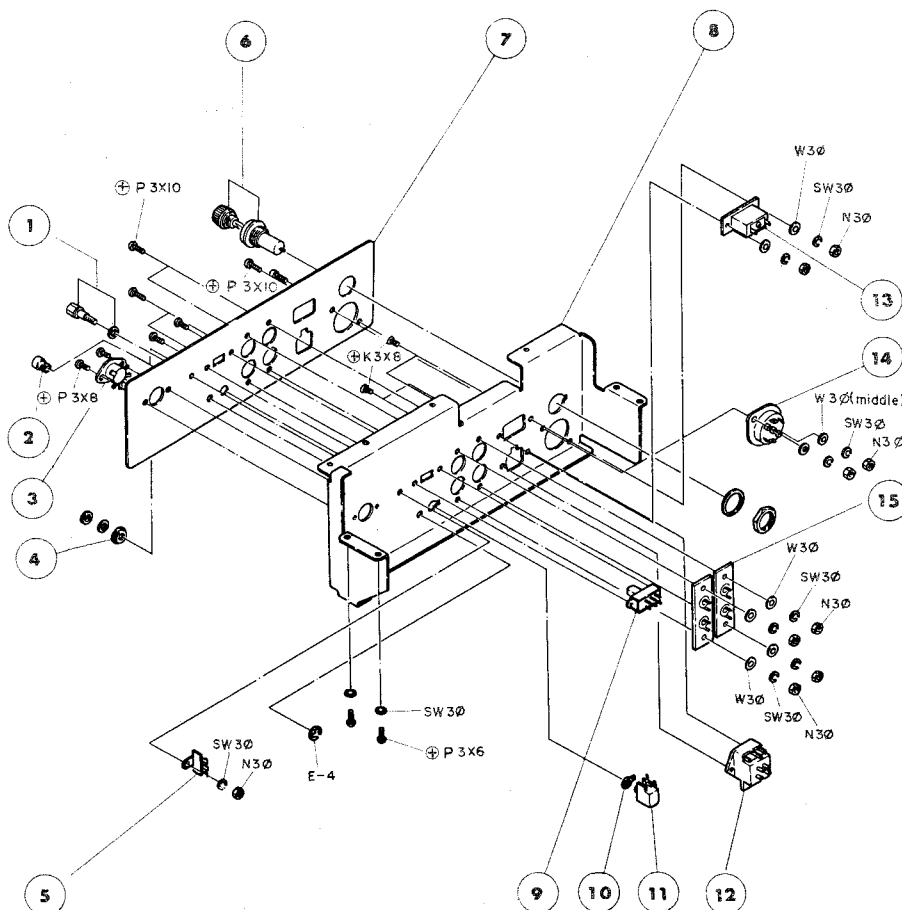
— Parts List for Cabinet-top view —

Ref. No.	Part No.	Description
1	3-437-235	Ring, ornamental; reel panel
2	-271	Knob, instant stop
3	-430	Sash (A), cabinet
4	3-819-519	Nut, special
5	X-34370-55	Knob Ass'y, speed selector
6	3-437-431	Sash (B), cabinet
7	3-103-206	Washer, retainer
8	X-34374-12	Cabinet Ass'y
9	3-403-724	Stopper, rubber foot
10	0-051-263	Foot, rubber
11	3-437-436	Insulator, binaural jack
12	-235	Ring, ornamental; reel panel
13	-242	Name Plate, head cover
14	X-34370-54	Head Cover Ass'y
15	3-437-325	Set Screw, 4φ × 10
16	-236	Knob, function selector
17	X-34370-53	Reel Panel Ass'y
18	X-34680-01	Sash Ass'y, front
19	3-437-432	Sash (C), cabinet
20	3-437-463	Felt, cabinet

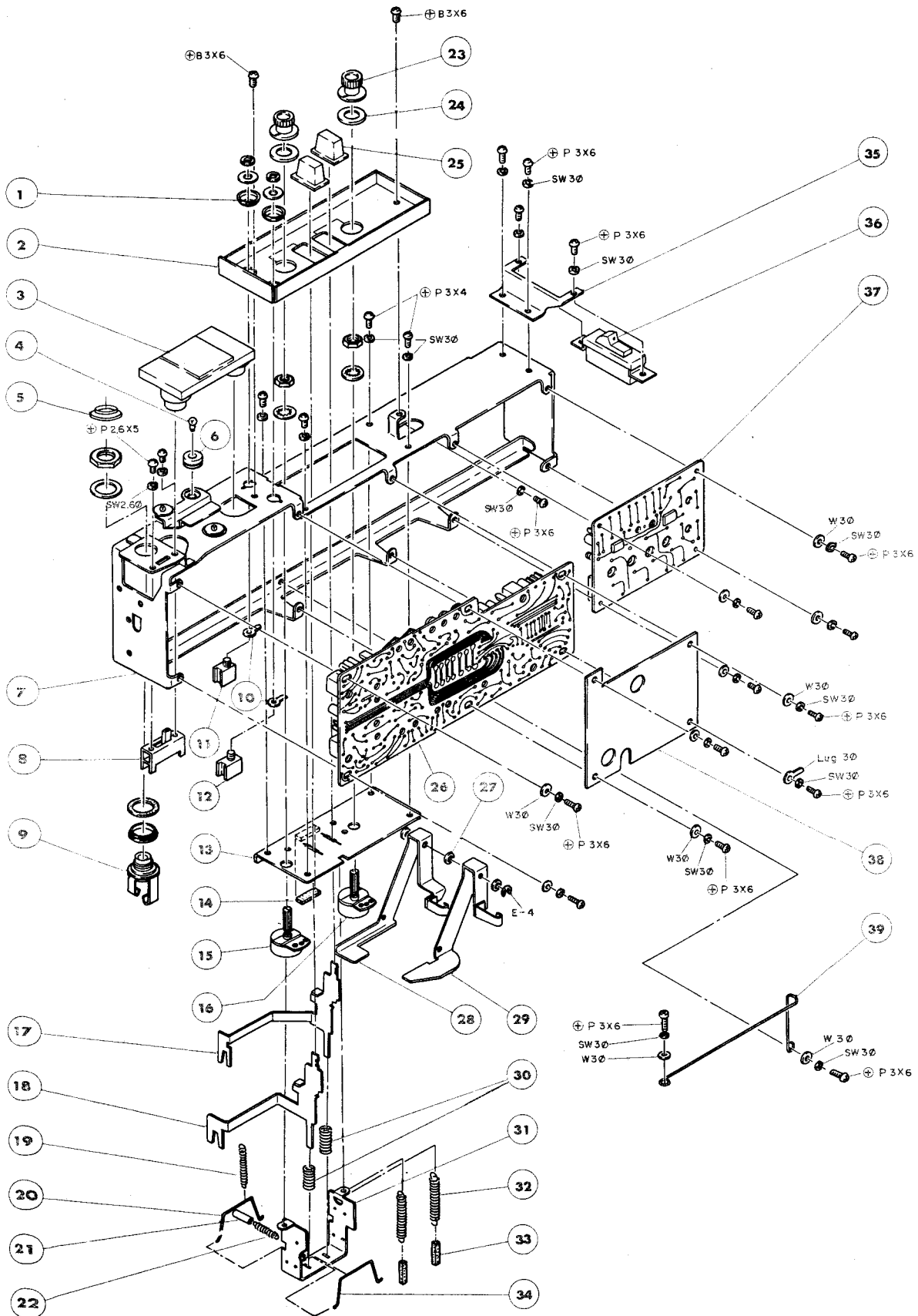
— Parts List for Jack Panel-top view —

Ref. No.	Part No.	Description
1	X-20319-01	Terminal Ass'y, ground
2	3-437-252	Jack, dummy
3	1-509-029	Connector, rec./p.b.
4	3-437-229	Insulator, miniature jack
5	1-536-181	Terminal Strips (2L1)
6	1-533-048	Post, fuse
7	3-437-701	Plate, ornamental; power chassis
8	-434	Chassis, panel
9	1-513-091	Switch, slide; S6
10	3-437-228	Insulator, miniature jack
11	1-507-188	Jack, speed tuning; J301
12	1-509-320	Connector w/switch, power; CNJ301
13	-015	Outlet, power; CNP301
14	1-509-064-13S	Selector, voltage
15	1-507-142	Jack, 2P pin

15-3. Jack Panel-top view



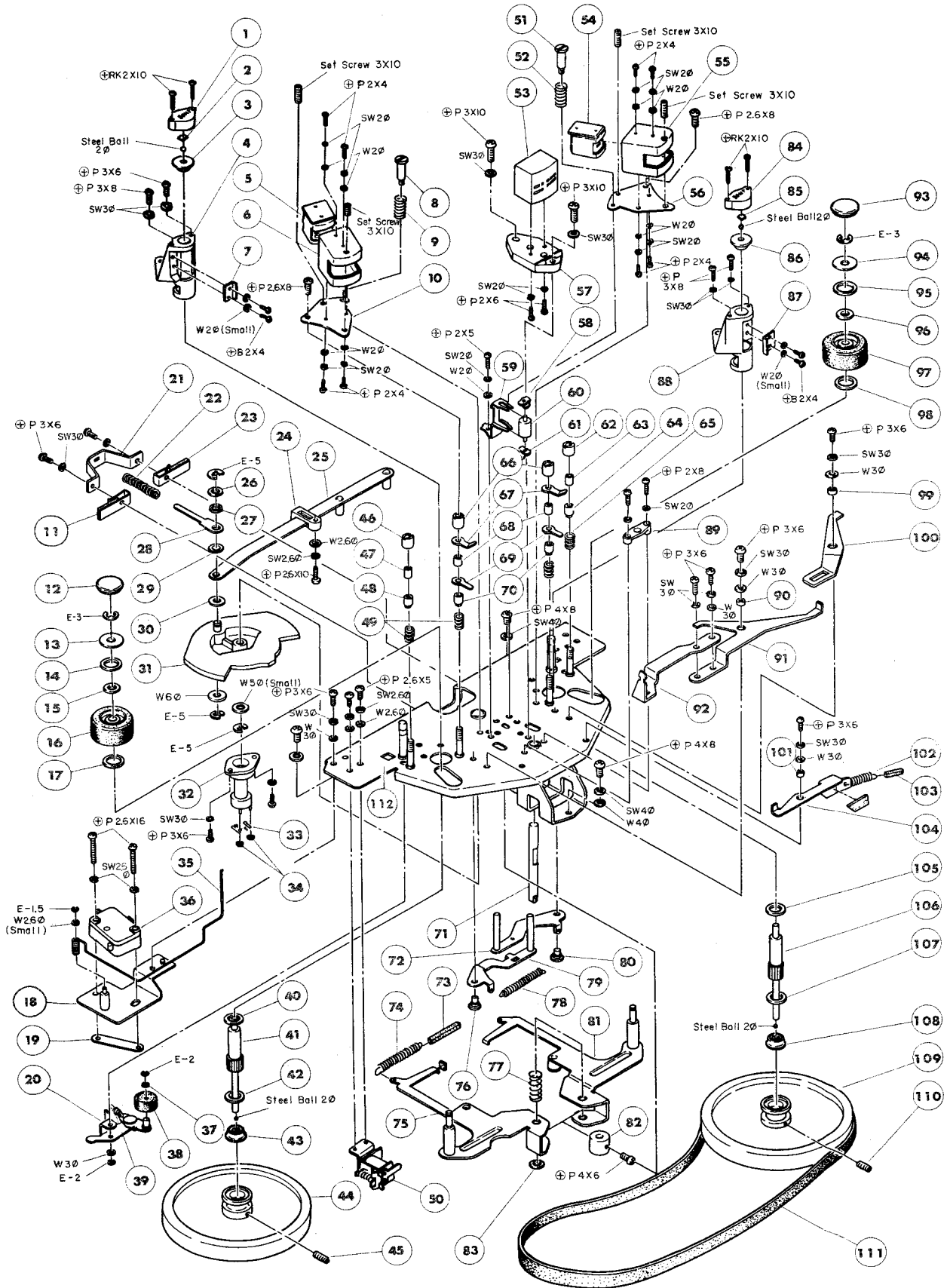
15-4. Control Deck-top view



— Parts List for Control Deck-top view —

Ref. No.	Part No.	Description
1	3-437-229-11	Insulator, miniature jack
2	-433	Plate, ornamental; record
3	1-524-051	Meter, level
4	1-518-051	Lamp, pilot
5	3-437-436	Insulator, binaural jack
6	0-214-123	Cushion, rubber; pilot lamp
7	3-437-446	Chassis, amplifier
8	1-514-461	Switch, noise suppress
9	1-507-282-21	Jack, headphone
10	3-437-228	Insulator, miniature jack
11	1-507-188	Jack, miniature
12	-188	Jack, miniature
13	X-34374-04	Bracket Ass'y, record holder
14	3-437-441	Damper
15	1-221-923	Potentiometer; R149
16	-923	Potentiometer; R249
17	3-437-442	Plate (A), lock; record
18	-443	Plate (B), lock; record
19	3-432-150	Spring
20	3-430-212	Rod, lock
21	3-437-439	Collar, record lock rod
22	-284	Spring
23	-275	Knob, volume control
24	3-408-069	Felt, volume control knob
25	X-34130-11	Button Ass'y, record
26	X-34374-51-1	Mounted Circuit Board, preamplifier
27	3-409-163	Washer, thrust; idler
28	X-34374-05	Lever Ass'y, record; large
29	-06	Lever Ass'y, record; small
30	3-430-213	Spring
31	3-437-444	Holder, record
32	3-428-133	Spring
33	3-420-076	Absorber, vibration
34	3-430-212	Rod, lock
35	3-437-422	Bracket, power switch
36	1-514-458-15S	Switch, power
37	X-34374-53-1	Mounted Circuit Board, headphone amp.
38	3-437-447	Paper, shield
39	-450	Guide, wire

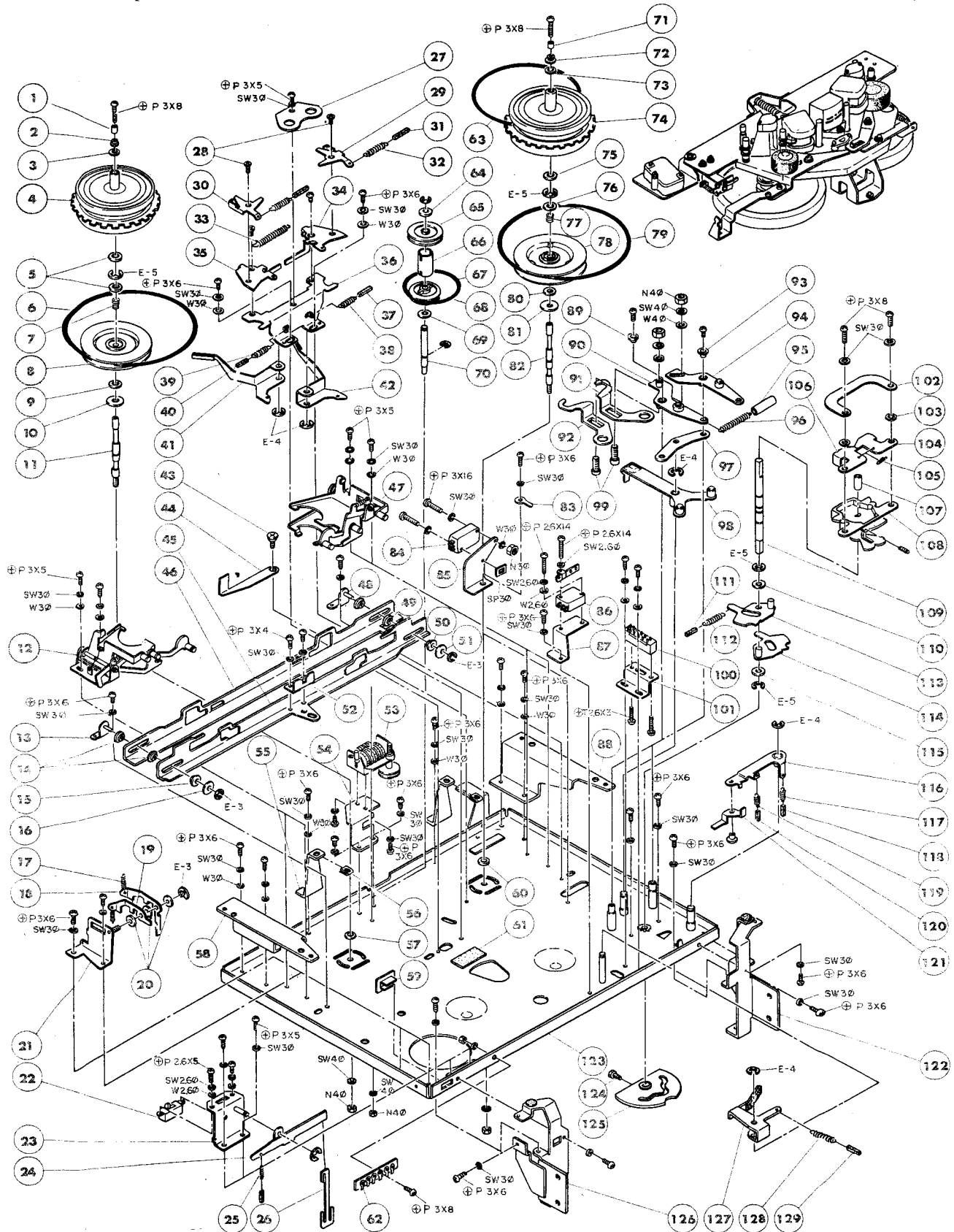
15-5. Head Deck-top view



— Parts List for Head Deck-top view —

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	3-437-157	Cover, capstan shaft holder	56	3-437-174	Bracket, head holder
2	-159	Washer, thrust adjusting	57	-244	Bracket, erase head holder
3	-158	Retainer, capstan	58	-171	Retainer, roller shaft
4	-155	Holder, capstan; left	59	-172	Bracket, roller holding
5	8-822-542-25	Head, rec./p.b. head; PP77-4202A	60	-170	Roller
6	3-437-294	Case, shield	61	-171	Retainer, roller shaft
7	-333	Guard, tape	62	-307	Guide (C), tape
8	-173	Screw, head adjusting	63	-306	Guide (B), tape
9	-352	Spring, head adjusting	64	-305	Guide (A), tape
10	-174	Bracket, head holder	65	3-103-238	Spring, tape guide
11	X-34370-63	Stopper Ass'y, direction change	66	3-437-307	Guide (C), tape
12	3-430-232	Cap, pinch roller	67	-309	Retainer, tape guide
13	-234	Washer, pinch roller	68	-306	Guide (B), tape
14	-231	Ring, oil; pinch roller	69	-310	Retainer, tape guide
15	-235	Washer, pinch roller	70	-305	Guide (A), tape
16	3-437-162	Roller, pinch	71	X-34370-23	Shaft Ass'y, pinch lever
17	3-425-197	Washer, thrust	72	-24	Arm Ass'y, shifter; right
18	X-34370-26	Bracket Ass'y, actuator	73	3-420-076	Absorber, vibration
19	3-437-264	Plate, micro switch retainer	74	3-437-280	Spring
20	X-34370-20	Lever Ass'y, reversing idler	75	X-34370-22	Lever Ass'y, pinch lever; right
21	3-437-245	Bracket, direction change arm	76	3-425-185	Shaft, brake shifter
22	-295	Spring, direction change	77	3-437-291	Spring, pinch lever shaft
23	X-34370-63	Stopper Ass'y, direction change	78	3-425-131	Spring
24	3-438-248	Guide, slider	79	X-34370-25	Arm Ass'y, shifter; left
25	X-34370-32	Slider Ass'y	80	3-425-185	Shaft, brake shifter
26	3-420-075	Washer, thrust; nylon	81	X-34370-21	Lever Ass'y, pinch lever; left
27	3-437-313	Collar, arm; direction change	82	3-437-163	Washer, pinch lever fitting
28	-246	Arm, direction change	83	-336	Cushion, pinch lever
29	3-416-147	Washer, slider	84	-157	Cover, capstan shaft holder
30	3-420-075	Washer, thrust; nylon	85	-159	Washer, thrust adjusting
31	3-437-237	Cam, direction change	86	-158	Retainer, capstan
32	-164	Shaft, head change	87	-333	Guard, tape
33	3-437-248	Spring, head change switch	88	-156	Holder, capstan; right
34	3-811-790	Retaining Ring, special CS type	89	-175	Guide, pinch lever shaft
35	3-437-168	Actuator	90	-312	Collar, control lever
36	1-514-231	Switch, micro; S503	91	-181	Shifter, pinch roller; long
37	3-405-458	Washer, idler thrust	92	-257	Lever, instant stop
38	3-437-161	Roller	93	3-430-232	Cap, pinch roller
39	-285	Spring	94	-234	Washer, pinch roller
40	-343	Felt, oil retainer	95	-231	Ring, oil; pinch roller
41	-153	Shaft, capstan	96	-235	Washer, pinch roller
42	-343	Felt, oil retainer	97	3-437-162	Roller, pinch
43	-158	Retainer, capstan	98	3-425-197	Washer, thrust
44	-154	Flywheel	99	3-437-312	Collar, cam claw
45	-301	Set Screw, 3φ × 6; flywheel	100	-180	Shifter, pinch roller; short
46	-307	Guide (C), tape	101	-312	Collar, cam claw
47	-306	Guide (B), tape	102	3-426-155	Spring
48	-305	Guide (A), tape	103	3-420-076	Absorber, vibration
49	3-103-238	Spring, tape guide	104	3-437-179	Lever, brake shifter
50	1-452-021	Magnet, plunger	105	-343	Felt, oil retainer
51	3-437-173	Screw, head adjusting	106	-153	Shaft, capstan
52	-352	Spring, head adjusting	107	-343	Felt, oil retainer
53	8-828-429	Head, erase	108	-158	Retainer, capstan
54	8-822-542-26	Head, rec./p.b. head; PP77-4202B	109	-154	Flywheel
55	3-437-294	Case, shield	110	-301	Set Screw 3φ × 6, flywheel
			111	-191	Belt, capstan
			112	X-34370-02	Head Deck Ass'y

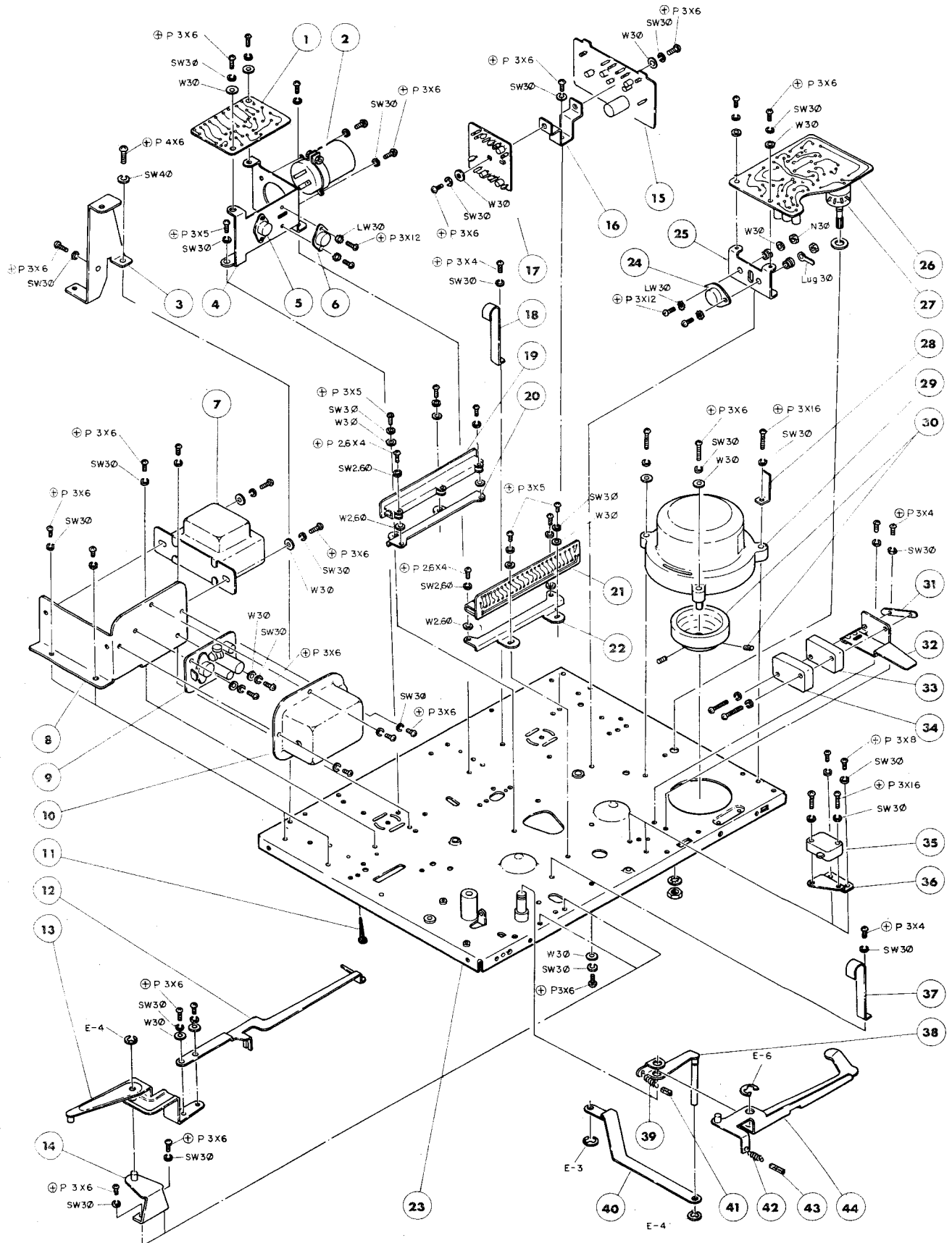
15-6. Chassis-top view



- Parts List for Chassis-top view -

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	3-409-202	Washer, reel cap; small	65	3-407-040	Pulley, tape index counter belt
2	-201	Washer, reel cap; large	66	3-437-189	Spacer, tape index counter; sleeve
3	3-419-096	Washer, reel shaft	67	3-407-042	Belt, tape index counter; small
4	X-34370-15	Reel Table Ass'y, feed	68	-040	Pulley, tape index counter belt
5	3-416-147	Washer, reel shaft,	69	3-425-197	Washer, thrust
6	3-437-190	Belt, reel table	70	3-437-188	Shaft, tape index counter holder
7	-292	Spring, reel shaft	71	3-409-202	Washer, reel cap. small
8	X-34370-18	Reel Spindle Drum Ass'y	72	-201	Washer, reel cap; large
9	3-416-147	Washer, reel shaft	73	3-419-096	Washer, reel shaft
10	3-437-152	Washer, spring holder	74	X-34370-15	Reel Table Ass'y, take-up
11	-149	Shaft, reel table	75	3-416-147	Washer, reel shaft
12	X-34370-11	Lever Ass'y, friction change; left	76	-147	Washer, reel shaft
13	X-34370-03	Bracket Ass'y, slider	77	3-437-151	Spring
14	3-437-148	Roller, slider fitting	78	X-34370-18	Reel Spindle Drum Ass'y
15	3-808-432	Washer	79	3-437-190	Belt, reel table
16	3-437-326	Washer	80	3-416-147	Washer, reel shaft
17	3-432-079	Spring	81	3-437-152	Washer, spring holder
18	3-437-262	Bracket (A), instant stop lock	82	-149	Shaft, reel table
19	-263	Bracket (B), instant stop lock	83	3-401-179	Holder, lead wire
20	3-430-234	Washer	84	1-514-057	Switch, micro; S504
21	X-34370-41	Bracket Ass'y, instant stop lock	85	3-437-186	Bracket, micro switch holder
22	1-513-091	Switch, slide; S403	86	1-514-057	Switch, micro; S506
23	X-34374-07	Bracket Ass'y, auto-reverse	87	3-437-192	Bracket, instant stop switch holder
24	3-437-440	Lever, instant stop release	88	-421	Bracket, cabinet sash
25	-452	Spring, instant stop lever	89	-311	Collar, control lever
26	-259	Lever, instant stop	90	X-34370-31	Lever Ass'y, slider control; left
27	-253	Retainer, lead wire	91	3-437-184	Bracket, slider adjusting; right
28	3-425-185	Shaft, brake shifter	92	-183	Bracket, slider adjusting; left
29	X-34250-24	Brake Ass'y, reel table (right)	93	-311	Collar, control lever
30	-23	Brake Ass'y, reel table (left)	94	X-34370-30	Lever Ass'y, slider control; right
31	3-420-076	Absorber, vibration	95	3-437-334	Stopper, pinch lever
32	3-436-076	Spring	96	3-418-074	Spring
33	3-437-283	Spring	97	3-437-182	Plate, slider operation lever shaft
34	-178	Brake, reel table; right	98	X-34370-87	Change Lever Ass'y, fast forward
35	-177	Brake, reel table; left	99	3-437-185	Screw, slider adjusting
36	X-34370-47	Bracket Ass'y, brake block	100	1-514-232	Switch, slide; S301
37	3-420-076	Absorber, vibration	101	3-437-195	Bracket, switch holder
38	3-426-141	Spring	102	-243	Plate, cam retainer
39	-141	Spring	103	-312	Collar, cam claw
40	3-420-076	Absorber, vibration	104	-194	Bracket
41	X-34370-43	Lever Ass'y, back tension; left	105	-284	Spring
42	-44	Lever Ass'y, back tension; right	106	-197	Bracket, cam operation; left
43	3-425-185	Shaft, brake shifter	107	-335	Cushion, cam
44	X-34370-28	Lever Ass'y, brake shifter; left	108	-198	Cam, selector
45	3-437-146	Slider, forward	109	-193	Shaft, cam
46	-147	Slider, fast forward	110	3-420-075	Washer, thrust; nylon
47	X-34370-10	Lever Ass'y, friction change; right	111	-076	Absorber, vibration
48	-03	Bracket Ass'y, slider	112	3-426-155	Spring, control lever rewind
49	3-437-148	Roller, slider fitting	113	X-34370-38	Cam Ass'y, stepper arm; left
50	3-808-432	Washer	114	-39	Cam Ass'y, stepper arm; right
51	3-437-326	Washer	115	3-420-075	Washer, thrust; nylon
52	-344	Guide, pinch lever	116	X-34370-34	Stepper Arm Ass'y
53	Y-20410-12	Counter, tape index; Z1 type	117	3-437-337	Spring
54	3-437-187	Bracket, tape index counter holder	118	3-420-076	Absorber, vibration
55	-225	Bracket, reel panel holder	119	3-437-282	Spring
56	-277	Nut, speed U type	120	3-420-076	Absorber, vibration
57	-150	Collar, reel shaft	121	3-437-199	Lever, switch movement
58	-233	Bracket, sash mounting	122	-424	Plate (A), leg
59	-451	Guide, lever	123	X-34370-01	Base Plate Ass'y, chassis
60	-150	Collar, reel shaft	124	3-419-080	Set Screw
61	-339	Supporter, slider	125	3-437-196	Bracket, selector cam
62	1-536-183	Terminal strips 2-L-3	126	-425	Plate (B), leg
63	3-425-143	Belt, tape index counter	127	X-34370-65	Brake Ass'y, flywheel
64	-197	Washer, thrust	128	3-426-506	Spring
			129	3-420-076	Absorber, vibration


















15-7. Chassis-bottom view





— Parts List for Chassis-bottom view —

Ref. No.	Part No.	Description
1	X-34374-57-1	Mounted Circuit Board, power supply & bias osc.
2	1-121-586	Capacitor, electrolytic; 200 μ F 25V
3	3-437-426	Plate (A), leg
4	-437	Bracket, power supply & bias osc.
5		Transistor, 2SD28; Q303
6		Transistor, 2SD28; Q301
7	1-441-402	Transformer, power
8	3-437-427	Bracket, power transformer
9	X-34374-56-1	Mounted Circuit Board, dc-dc converter
10	3-437-428	Case, shield
11	3-103-527	Binder
12	3-437-445	Lever, record control
13	X-34374-08	Bracket Ass'y, control lever
14	-09	Bracket Ass'y, record lever
15	-58-1	Mounted Circuit Board, ESP amplifier
16	3-437-449	Bracket, printed circuit board
17	X-34374-60-1	Mounted Circuit Board, noise suppress
18	3-437-266	Retainer, wire
19	X-34374-55-1	Mounted Circuit Board, forward/reverse selector (B)
20	3-437-165	Bracket, head change-over switch
21	X-34374-54-1	Mounted Circuit Board, forward/reverse selector (A)
22	3-437-165	Bracket, head change-over switch
23	X-34370-01	Base Plate Ass'y, chassis
24		Transistor, 2SD28; Q506
25	3-437-213	Heat Sink (B)
26	X-34374-59-1	Mounted Circuit Board, servo amplifier
27	1-513-362	Switch, rotary; S501
28	3-437-265	Retainer, wire
29	8-834-509	Motor
30	X-34370-84	Motor Pulley Ass'y
31	3-437-264	Plate, micro switch retainer
32	X-34374-10	Bracket Ass'y, switch
33	1-514-057	Switch, micro; S505-1
34	-057	Switch, micro; S505-2
35	-231	Switch, micro; S502
36	3-437-167	Bracket, micro switch holder
37	-266	Retainer, wire
38	X-34370-29	Lever Ass'y, brake shifter; right
39	3-437-279	Spring
40	-176	Joint, brake lever
41	3-420-076	Absorber, vibration
42	3-437-331	Spring
43	3-420-076	Absorber, vibration
44	X-34370-27	Lever Ass'y, retractive

Hardware Nomenclature

P - Pan Head Screw			E - Retaining Ring (E Washer)	
K - Flat Countersunk Head Screw			W - Washer	
B - Binding Head Screw			SW - Spring Washer	
RK - Oval Countersunk Head Screw			LW - Lock Washer	
T - Truss Head Screw			N - Nut	
R - Round Head Screw				
F - Flat Fillister Head Screw				
SC - Set Screw				

— Example —	
 P 3 x 10	
Type of Slit	Length in mm (L)
	Diameter in mm (D)
	Type of Head

When ordering replacement parts you should use **PART NUMBER** listed on the Parts Lists beside each exploded view.

The reference number or symbol number should not be used for ordering purposes.