First Revision

TC-560

USA Model

SPECIFICATIONS

Power Requirements: AC 117V, 60 Hz, 50W (maximum)
DC 12V

Track System: Four-track stereo and mono

Reel Size: 7" (18 cm) maximum

Tape Speeds: 7½ ips, 3¾ ips and 1⅞ ips (19 cm/s, 9.5 cm/s and 4.8 cm/s)

Recording Time: (with 1,800 ft tape)

Tape speed	4-track stereo	4-track mono
7½ ips (19 cm/s)	1.5 hrs	3 hrs
3¾ ips (9.5 cm/s)	3 hrs	6 hrs
1⅞ ips (4.8 cm/s)	6 hrs	12 hrs

Frequency Response:
30 - 18,000 Hz at 7½ ips (19 cm/s)
30 - 14,000 Hz at 3¾ ips (9.5 cm/s)
30 - 10,000 Hz at 1⅞ ips (4.8 cm/s)

Signal-to-Noise Ratio: 52 dB or better

Flutter and Wow:
Less than 0.07% at 7½ ips (19 cm/s)
Less than 0.1% at 3¾ ips (9.5 cm/s)
Less than 0.15% at 1⅞ ips (4.8 cm/s)

Recording Bias Frequency: 85 kHz

Inputs:
MIC inputs
Impedance; 250Ω
Maximum sensitivity; 0.2 mV (-72 dB)
AUX inputs
Impedance; 100kΩ
Maximum sensitivity; 25 mV (-30 dB)
TUNER inputs
Impedance; 100kΩ
Maximum sensitivity; 0.13V (-16 dB)
PHONO inputs
Impedance; 100kΩ
Maximum sensitivity; 2 mV (-52 dB)
REC/PB connector
Impedance; 7kΩ
Maximum sensitivity; 1.6 mV (-54 dB)

Outputs:
LINE outputs
Impedance; 7kΩ
Output level; 0.6V (-2 dB)
EXT SP outputs
Load impedance; 8Ω
REC/PB connector
Impedance; 10kΩ
Maximum sensitivity; 0.6V (-2 dB)
HEADPHONE output
Load impedance; 10kΩ or 8Ω

Power Output: 5W per channel (maximum)

Speaker: 5" (12.7 cm), 8Ω

Semiconductors: 56 transistors and 26 diodes

Dimensions: 20⅜ (W) x 11¼ (H) x 17⅛" (D) (520 x 286 x 435 mm)

Weight: 50 lb (23 kg)

SONY®

SERVICE MANUAL

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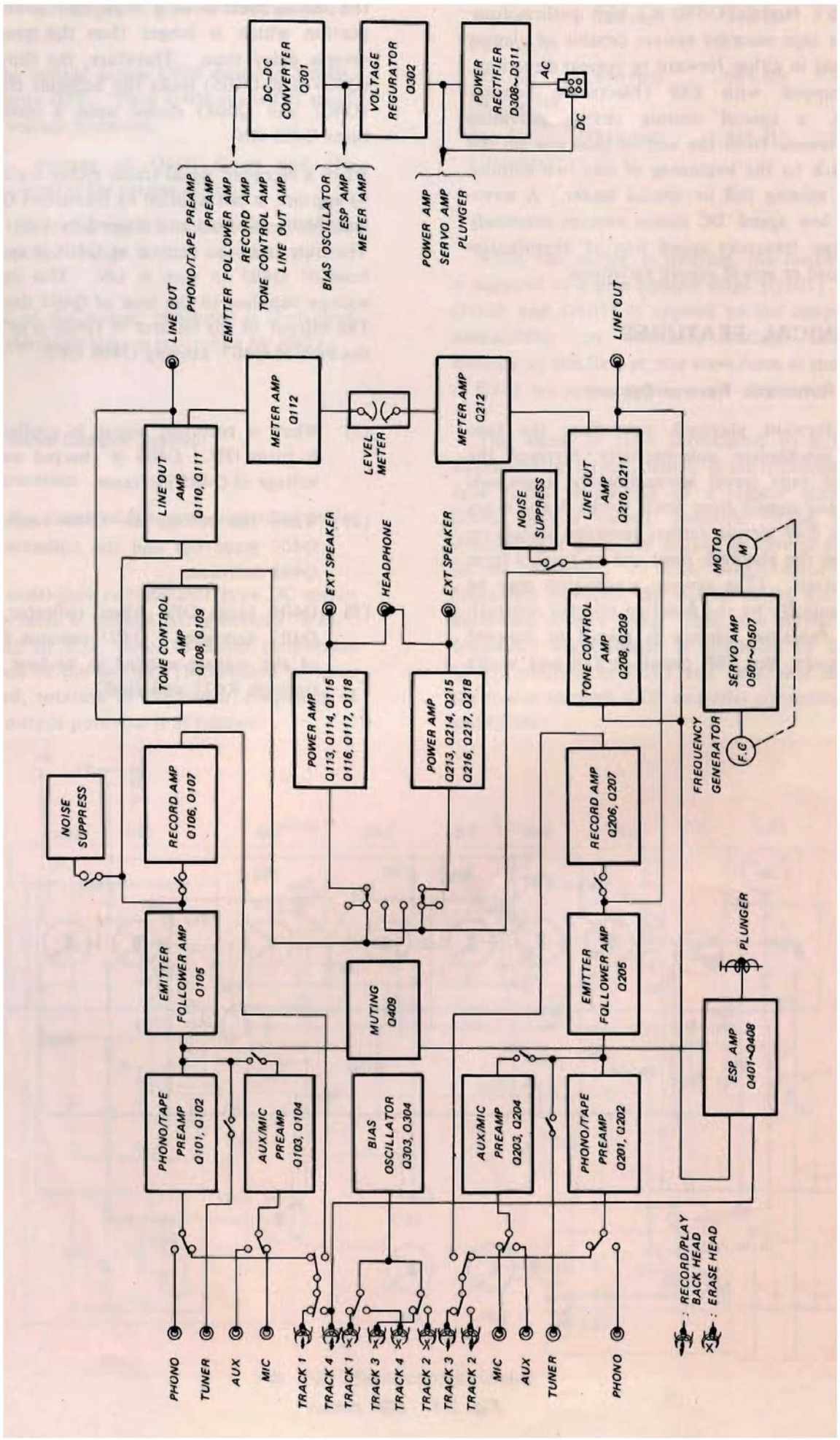
1. BLOCK DIAGRAM



2. GENERAL DESCRIPTION

The SONY Model TC-560 is a high quality, four-track stereo tape recorder system capable of playing and recording in either forward or reverse directions. It is equipped with ESP (Electronic Sensory Perception), a special sensing circuit providing automatic reverse from the end of side one on the tape playback to the beginning of side two without the use of sensing foil or special leader. A servo-controlled, low speed DC motor ensures extremely accurate tape transport speed free of irregularities caused by load or power supply variations.

3. TECHNICAL FEATURES

3-1. ESP Automatic Reverse System:

During forward playback operation, the tape transport mechanism automatically reverses the direction of tape travel approximately 8 seconds after recorded signals from both tracks 3 and 4 are silent. The ESP circuit detects recorded signals on track 4 from the playback head and on track 3 from the line output. (The reverse mechanism may be operated manually by the function selector control). When the function selector is placed in forward playback mode, the ESP circuit is ON and works as follows.

When the recorder is turned on and starts to play, the initial portion of a tape may contain a silent portion which is longer than the pre-determined reverse delay time. Therefore, the flip-flop circuit (Q404 and Q405) locks the Schmidt trigger circuit (Q407 and Q408) closed until a recorded signal turns Q405 ON.

When a recorded signal (from either track 3 or track 4) appears, it is amplified by transistors Q401, Q402, and Q403, rectified and clipped by D401 and Q406. The output at the emitter of Q406 is applied to the base of Q405 to turn it ON. This decreases the voltage supplied to the base of Q407 through R623. The output of the emitter of Q406 is in turn fed to the base of Q407, keeping Q408 OFF.

(1) When a recorded signal is applied to Q406, it turns ON. C409 is charged and the base voltage of Q405 increases.

(2) When the voltage on C409 reaches 4 volts, Q405 turns ON and the collector voltage of Q405 decreases.

(3) Q404 turns OFF when collector voltage of Q405 decreases. Q407 remains ON because of the voltage applied to its base from C409 through R622 and D402.

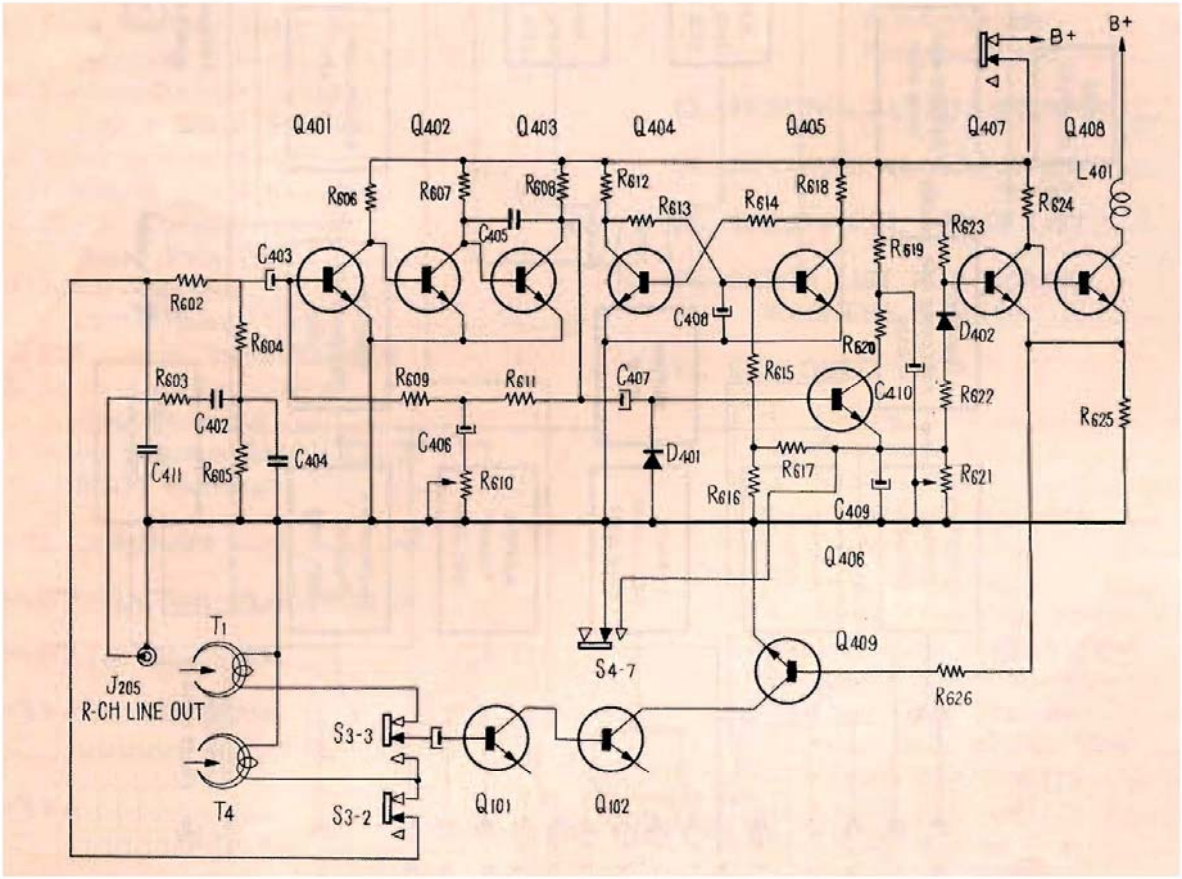


Fig. 3-1 ESP circuit

(4) If the input signal dies to zero, Q406 goes OFF and C409 discharges to ground through R621, R622 and R625.

(5) When the voltage across C409 drops to 2 volts, Q407 turns OFF. Then Q408 turns ON since its base voltage increases.

(6) Collector current of Q408 flows and the plunger operates for reverse action.

(7) The B+ supply of the ESP circuit is cut-off by the direction change switch operated by the plunger.

The threshold of the reverse triggering is controlled by R610 and the delay time is controlled by R621.

3-2. SONY Servo-Control System:

Theory of operation

Fig. 3-2 is the circuit of the servo-controlled motor system:

"M" is a multi-pole commutator type DC motor which incorporates a coaxial AC generator "F.G.". The frequency of F.G. varies in direct proportion to the rotation of the motor. The relation between the tape speed, rotation of the motor, frequency of F.G. and the output potential is as follows:

Tape Speed	Rotation	Frequency	Output
1⅞ ips (4.8 cm/s)	228rpm	342 Hz	1.5V p-p
3¾ ips (9.5 cm/s)	456rpm	684 Hz	3.0V p-p
7½ ips (19 cm/s)	912rpm	1,368 Hz	6.0V p-p

When the motor is rotating, the output of F.G. is supplied to a preamplifier stage (Q501). A limiter (D506 and Q507) is applied to the output of this preamplifier to eliminate voltage fluctuations. Because of this limiter, the wave form at the collector of Q501 is a square wave.

The signal is then introduced to a frequency discriminator circuit, which is independent for each tape speed, consisting of a regular time-constant circuit and a twin-T network. The frequency discriminator gives the output in inverse proportion to the frequency. In other words, when the input frequency increases, the output of the discriminator decreases, or vice versa. Then, the output from the frequency discriminator is amplified by Q502 and Q503, rectified by D501 and D502 and supplied to the motor through a DC amplifier consisting of Q504 and Q506.

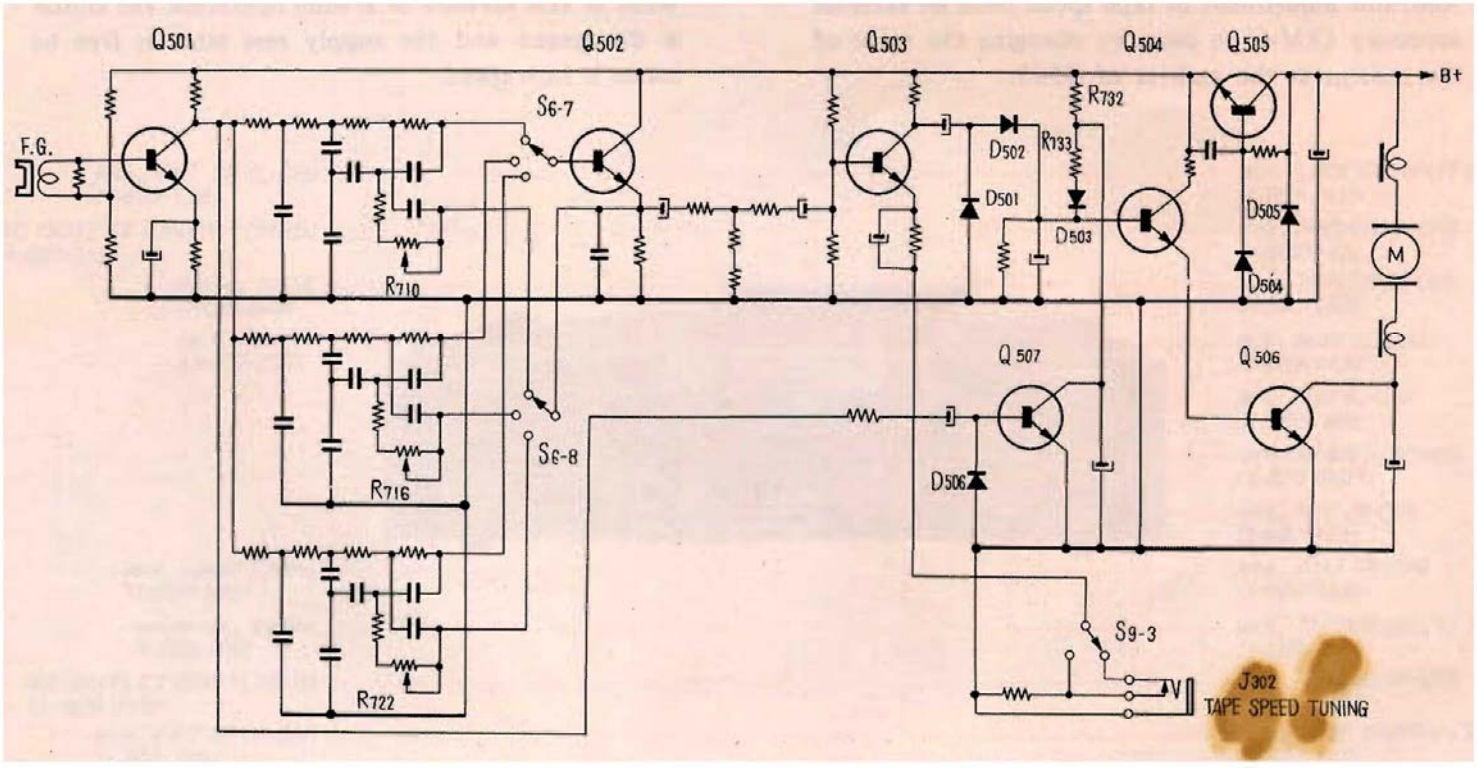


Fig. 3-2 Servo-control circuit

When the load to the motor causes the rotation of the motor to accelerate, the frequency of F.G. increases. The increase of the frequency causes a decrease of the DC voltage at the base of Q504, which will cause a decrease of potential at the base of Q506 to increase the impedance between collector and emitter of Q506 (2SD28) and decreases the current in the motor, thus decelerating the rotation of the motor to normal speed. When the rotation is decelerated, the entire operation is reversed.

Due to the fact that the output from the F.G. is not available when starting the motor, a separate starting circuit is provided. When the motor circuit is turned on, DC current flows into the base of Q504 through R732, R733 and D503, thus turning on the DC amplifier to start the motor. Once the motor starts to rotate, the output from F.G. is supplied to Q501. The signal amplified by Q501 is introduced to the frequency discriminator and also to D506 and Q507. The output voltage of Q501 is limited by D506 and Q507. The positive cycle of the signal at the base of Q507 induces current flow into collector of Q507 through R732. This increase of current in R732 results in decrease of voltage supplied to the base of Q504. When the voltage supplied through R732, R733, and D503, the entire system starts to function on the frequency supplied from the F.G.

Fine adjustment of speed for each individual tape speed is made by changing value R710, R716, or R722 variable resistors located in the twin-T circuit. And, fine adjustment of tape speed from an external accessory (RM-6) is done by changing the value of the resistor at the emitter of Q503.

Q505 and D505 (zener diode) function to stabilize the supply voltage to the servo-control circuit.

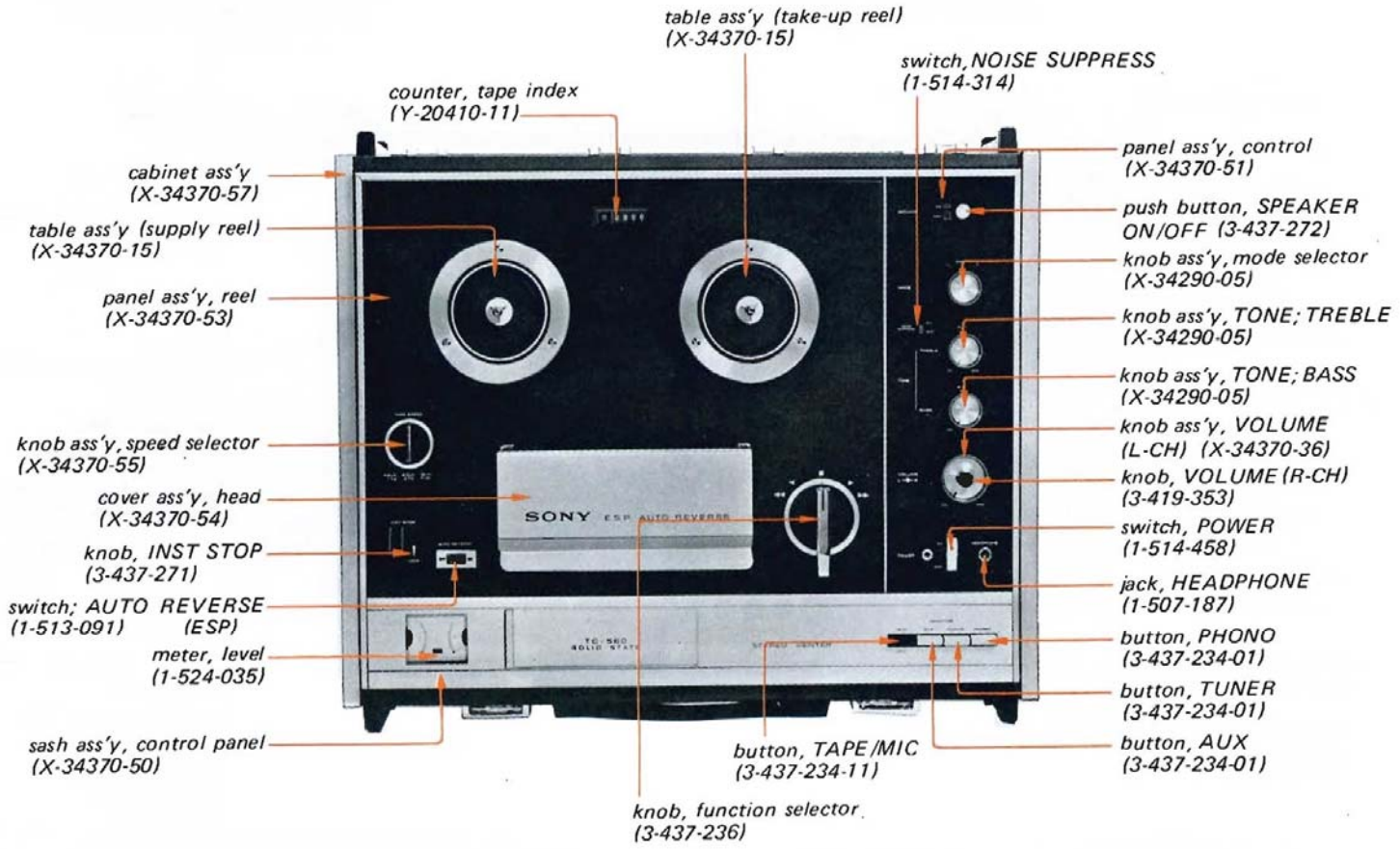
3-3. Motor:

The drive motor is a low-speed, DC operated motor equipped with a frequency generator. Pulses from this generator are constantly compared, through the servo circuitry, with the frequency of the servo-mechanism. The slightest deviation from frequency is detected and corrected instantly with great accuracy through the servo amplifier. In fast forward or rewind operation, the motor is isolated from the servo amplifier and runs freely at high speed. During playback modes, the speed may be varied from +5% to −10% by use of the accessory RM-6 Tape Speed Control.

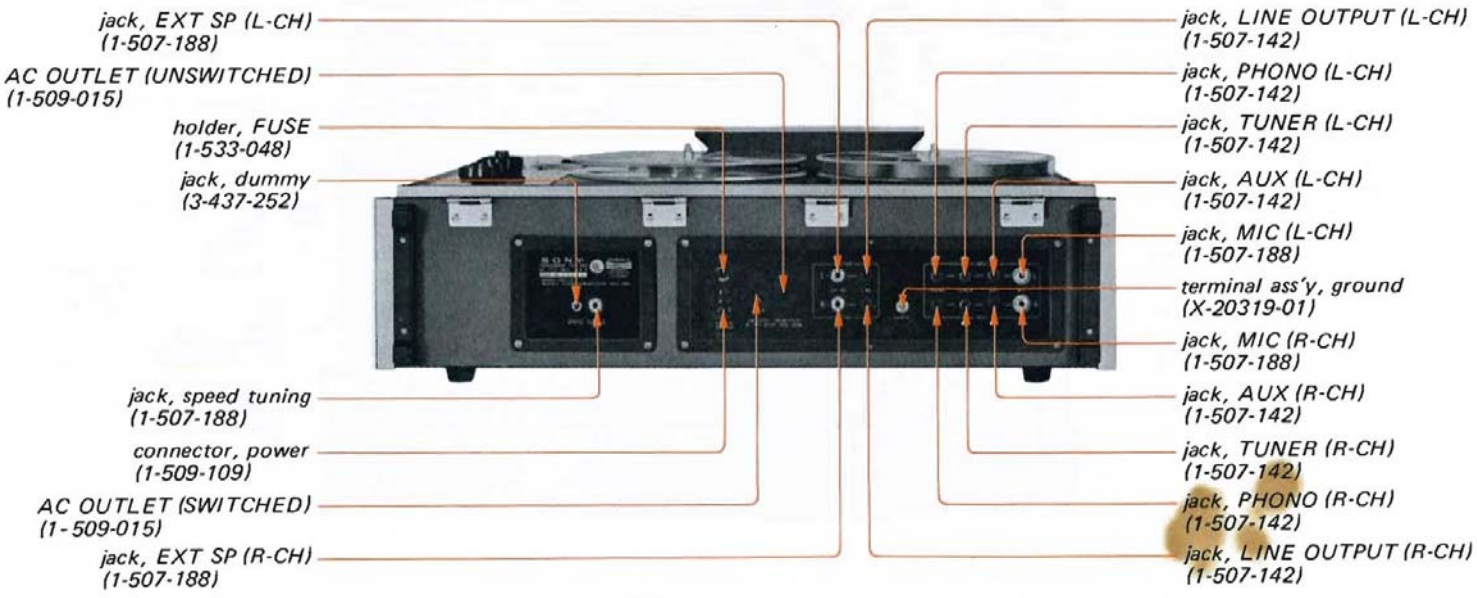
3-4. Tape Transport Mechanism:

The TC-560 employs TWO capstan-flywheel combinations, driven from the same belt but in opposite directions. One of two pinch rollers is moved against the appropriate capstan for drive in either direction. The reel tables are belt-driven and flywheel loaded for smooth operation. During forward (or reverse) mode, a felt friction-clutch applies correct back-tension to the supply reel table. When in fast forward or rewind operation, the clutch is disengaged and the supply reel table is free to rotate at high speed.

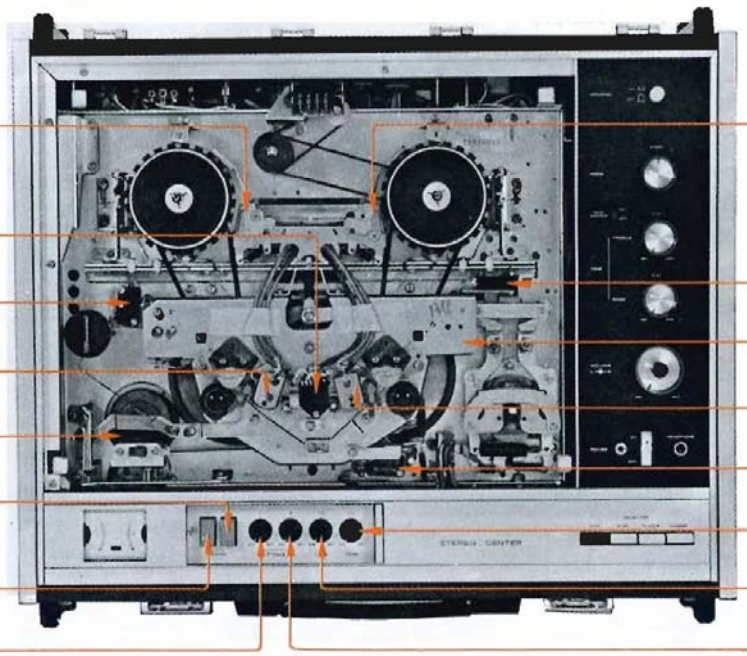
4. CABINET – TOP VIEW –



5. CABINET – BACK VIEW –



6. CHASSIS – TOP VIEW –



brake ass'y, supply table (X-34250-23)

head, erase (8-828-429) EF72-2904H

switch, automatic shut-off (1-514-231)

head, rec./p.b. (reverse) (8-822-542-25) PP77-4202A

motor pulley ass'y (X-34370-84)

button ass'y, RECORD; R-CH (X-34130-11)

button ass'y, RECORD L-CH (X-34130-11)

knob, MIC/AUX rec. level (L-CH) (3-437-275)

brake ass'y, take-up table (X-34250-24)

switch, fast forward/rewind (1-514-057)

deck ass'y, head (X-34370-02)

head, rec./p.b. (forward) (8-822-542-26) PP77-4202B

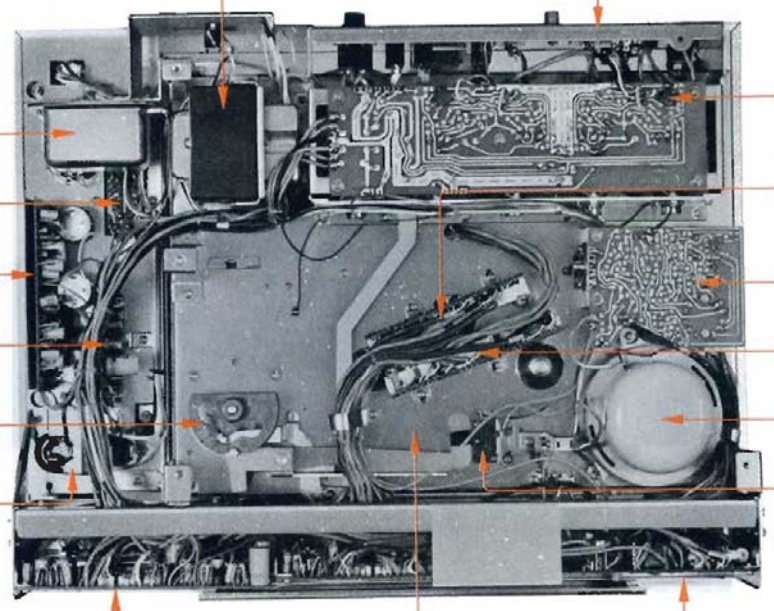
switch, instant stop (1-513-057)

knob, PHONO rec. level (3-437-275)

knob, TUNER rec. level (3-437-275)

knob, MIC/AUX rec. level (R-CH) (3-437-275)

7. CHASSIS – BOTTOM VIEW –



transformer, power (1-441-340-13S)

chassis, power supply (3-437-211)

case, shield (3-437-215)

noise suppress switch circuit board (P_{11}) (X-34370-83)

tone control circuit board (P_3) (X-34370-75)

ESP circuit board (P_9) (X-34370-81)

cam, selector (3-437-198)

chassis, amplifier mounting (3-437-216)

power amp. circuit board (P_8) (X-34370-80)

forward/reverse switch circuit board (P_5) (X-34370-77)

servo amp. circuit board (P_{10}) (X-34370-82)

forward/reverse switch circuit board (P_4) (X-34370-76)

servo motor (8-834-509)

servo switch (1-514-231)

record amplifier circuit board (P_2) (X-34370-73)

plate ass'y, base (X-34370-01)

preamplifier & bias OSC circuit board (P_1) (X-34370-71)

8. DISASSEMBLY

8-1. Reel Panel Removal

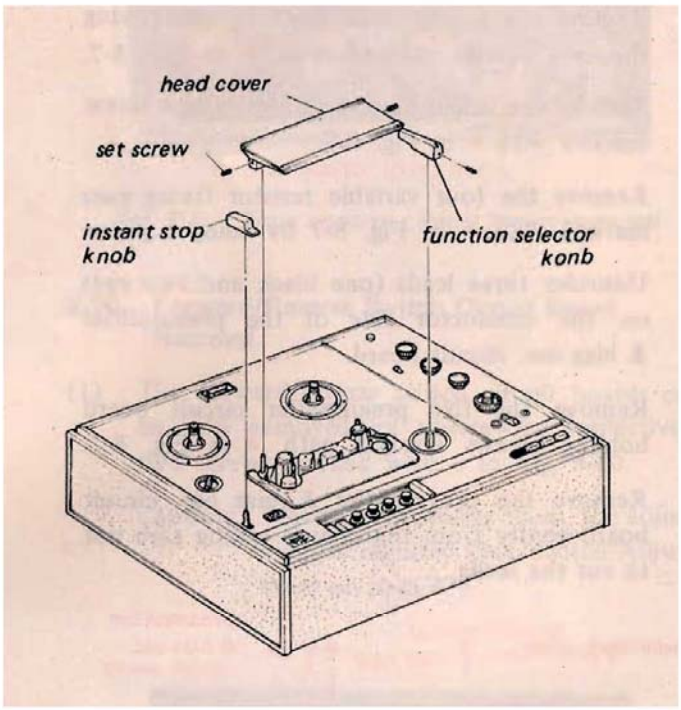


Fig. 8-1-1 Reel panel removal

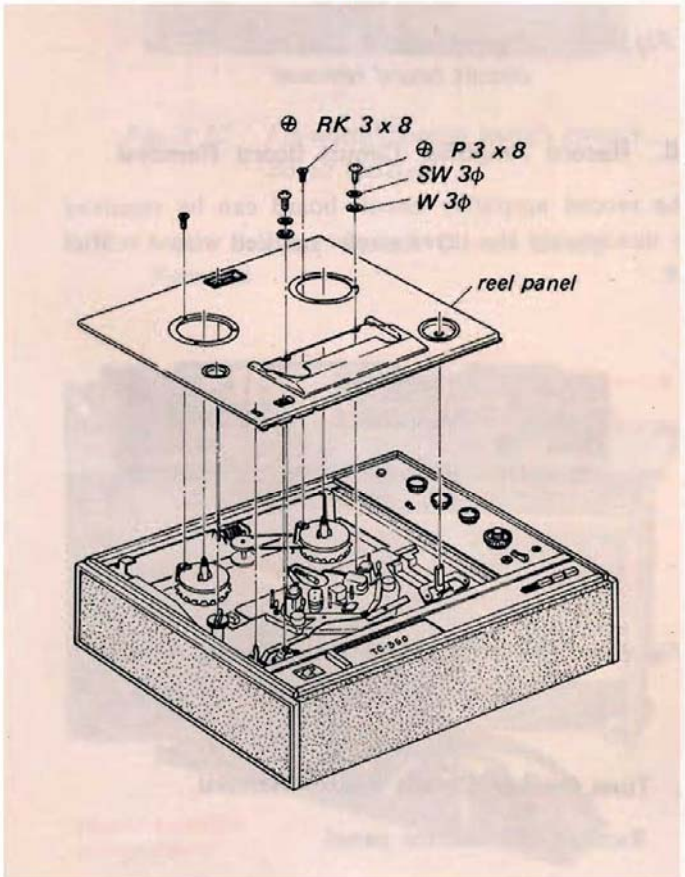


Fig. 8-1-2 Reel panel removal

8-2. Knob Removal

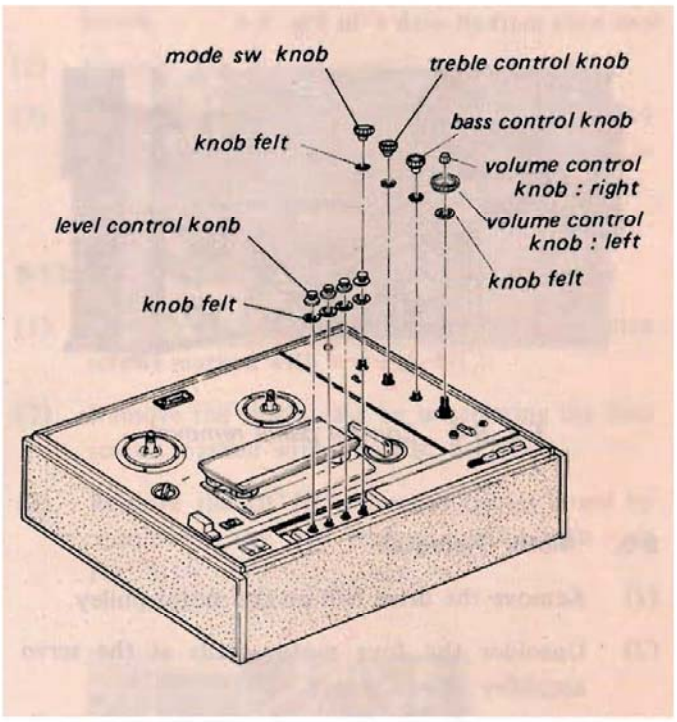


Fig. 8-2 Knob removal

8-3. Cabinet Removal

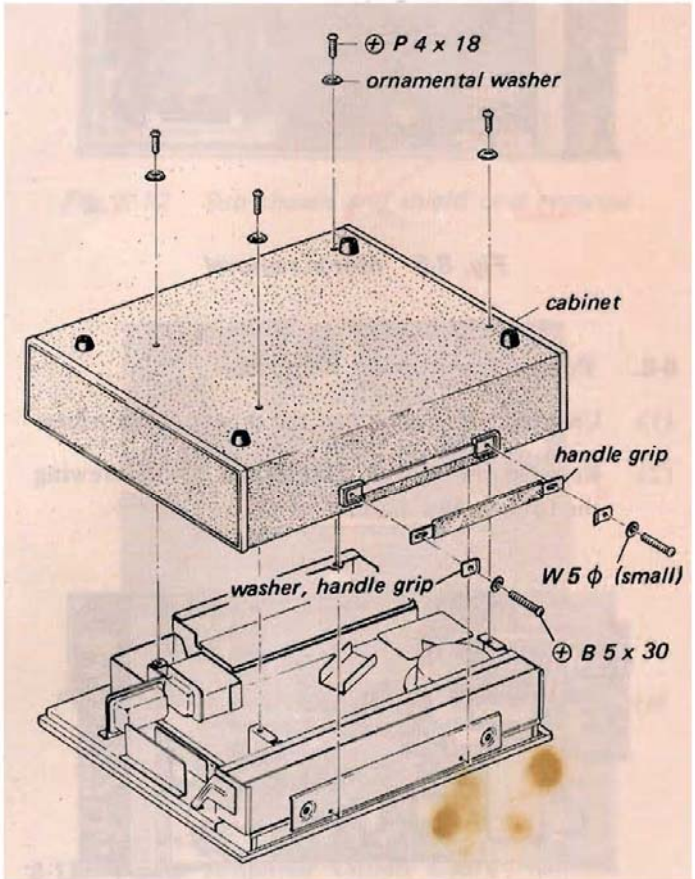


Fig. 8-3 Cabinet removal

8-4. Control Panel Removal

The control panel can be removed by removing the four nuts marked with ▲ in Fig. 8-4.

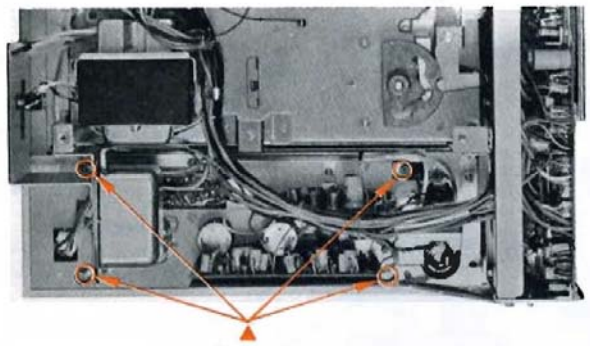


Fig. 8-4 Control panel removal

8-5. Motor Removal

(1) Remove the drive belt on the motor pulley.

(2) Unsolder the four motor leads at the servo amplifier circuit board.

(3) Remove the three screws marked with ● in Fig. 8-5 , and the motor can be removed completely from the chassis.

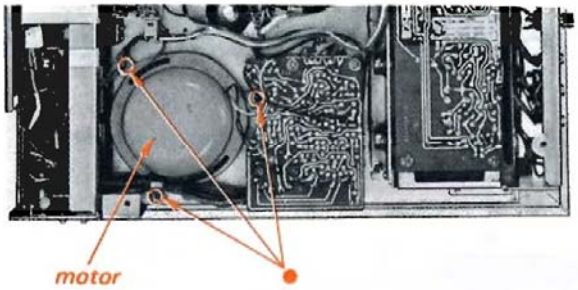


Fig. 8-5 Motor removal

8-6. Power Transformer Removal

(1) Unsolder all the leads of the power transformer.

(2) Remove the power transformer by unscrewing the four screws marked with ▲ in Fig. 8-6.

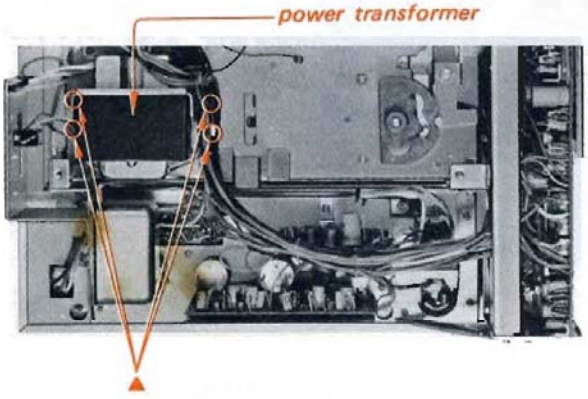


Fig. 8-6 Power transformer removal

8-7. Preamplifier & Bias OSC Circuit Board Removal

(1) Remove the handle back plate by unscrewing the two screws marked with ● in Fig. 8-7.

(2) Remove the shield plate by unscrewing a screw marked with ■ in Fig. 8-7.

(3) Remove the four variable resistor fixing nuts marked with ▲ in Fig. 8-7 by using a pliers.

(4) Unsolder three leads (one black and two red) on the conductor side of the preamplifier & bias osc. circuit board.

(5) Remove the five preamplifier circuit board holding screws marked with ★ in Fig. 8-7.

(6) Remove the preamplifier & bias osc. circuit board gently from the chassis taking care not to cut the leads.

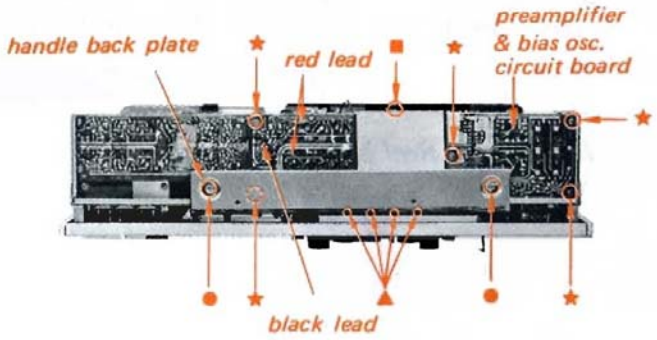


Fig. 8-7 Preamplifier & bias osc. circuit board removal

8-8. Record Amplifier Circuit Board Removal

The record amplifier circuit board can be removed by unscrewing the three screws marked with ▲ in Fig. 8-8.

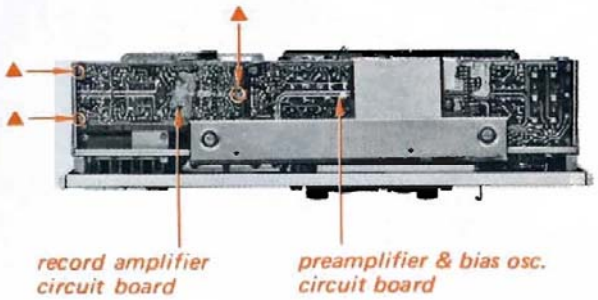


Fig. 8-8 Record amplifier circuit board removal

8-9. Tone Control Circuit Board Removal

(1) Remove the control panel.

(2) Remove the three nuts securing the three variable resistors to the amplifier mounting chassis, taking care not to cut the leads.

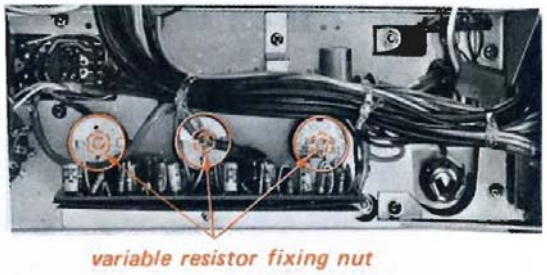


Fig. 8-9 Tone control circuit board removal

8-10. Forward/Reverse Switch Circuit Board Removal

(1) The forward/reverse switch circuit boards can be now removed by unscrewing respectively two screws marked with ● in Fig. 8-10.

Caution: When re-assembling them, the adjustment is required (See Switch Adjustment on page 37).

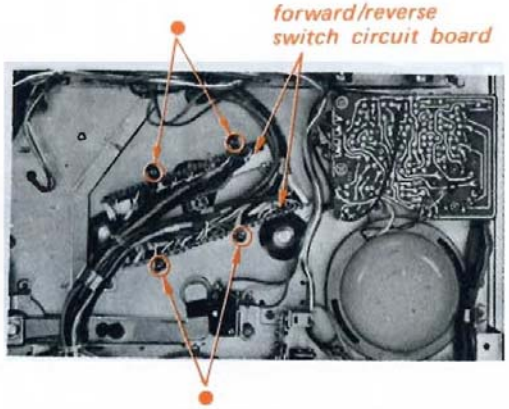


Fig. 8-10 Forward/Reverse switch circuit board removal

8-11. Input Selector Switch Circuit Board Removal

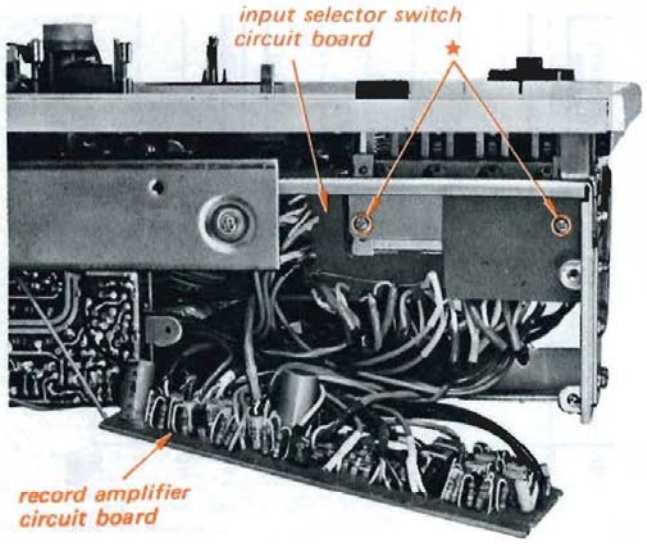


Fig. 8-11 Input selector switch circuit board removal

(1) Unsolder the black lead, coming from the preamplifier & bias osc. circuit board on the conductor side of input selector switch circuit board.

(2) Remove the record amplifier circuit board.

(3) Remove the input selector switch circuit board by unscrewing two screws marked with ★ in Fig. 8-11, taking care not to cut the leads.

8-12. DC-DC Converter Circuit Board Removal

(1) Remove the sub chassis by unscrewing the three screws marked with ● in Fig. 8-12.

(2) Remove the shield case by unscrewing the four screws marked with ▲ in Fig. 8-12.

(3) Remove the DC-DC converter circuit board by unscrewing the two screws marked with ■ in Fig. 8-13.

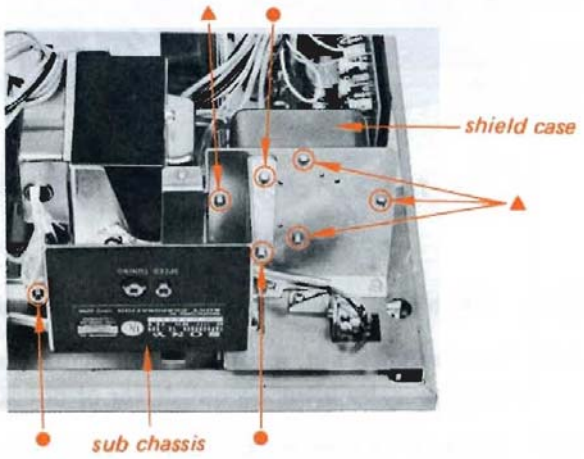


Fig. 8-12 Sub chassis and shield case removal

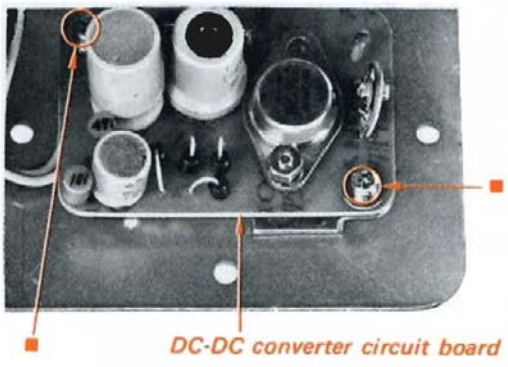


Fig. 8-13 DC-DC converter circuit board removal

8-13. Power Amplifier Circuit Board Removal

The power amplifier circuit board can be removed by unscrewing the five screws marked with ● in Fig. 8-14.

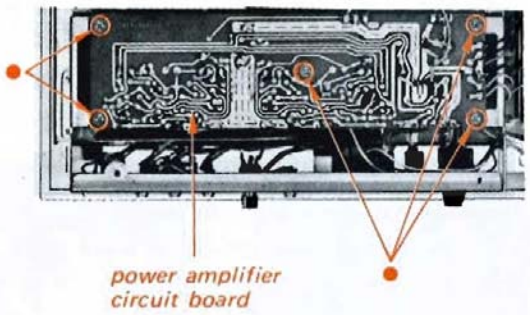


Fig. 14 Power amplifier circuit board removal

8-14. ESP Circuit Board Removal

The ESP circuit board can be removed by unscrewing a screw marked with ● in Fig. 8-15.

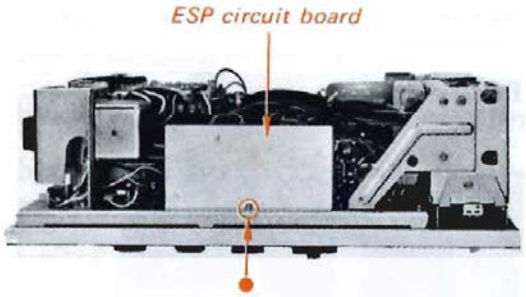


Fig. 15 ESP circuit board removal

8-15. Servo Amplifier Circuit Board Removal

(1) Remove the nut securing the equalizer switch to chassis, by using 6ϕ nut driver or pliers.

(2) Remove the servo amplifier circuit board by unscrewing the two screws marked with ■ in Fig. 8-16, taking care not to cut the leads.

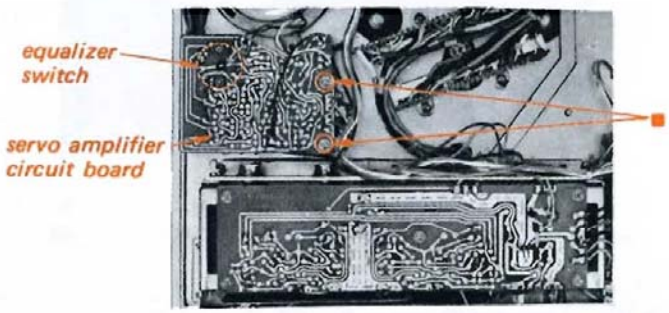


Fig. 8-16 Servo amplifier circuit board removal

8-16. Noise Suppress Switch Circuit Board Removal

The noise suppress circuit board can be removed by unscrewing the two screws marked with ★ in Fig. 8-17.

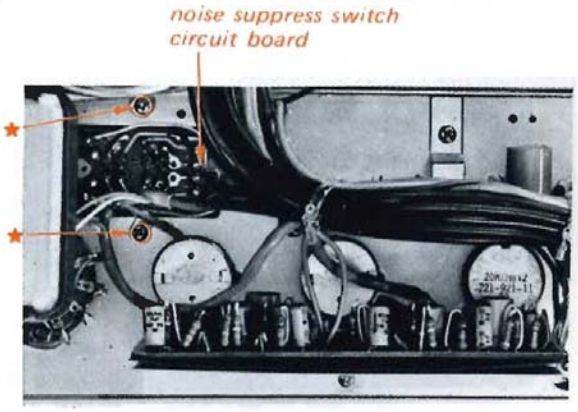
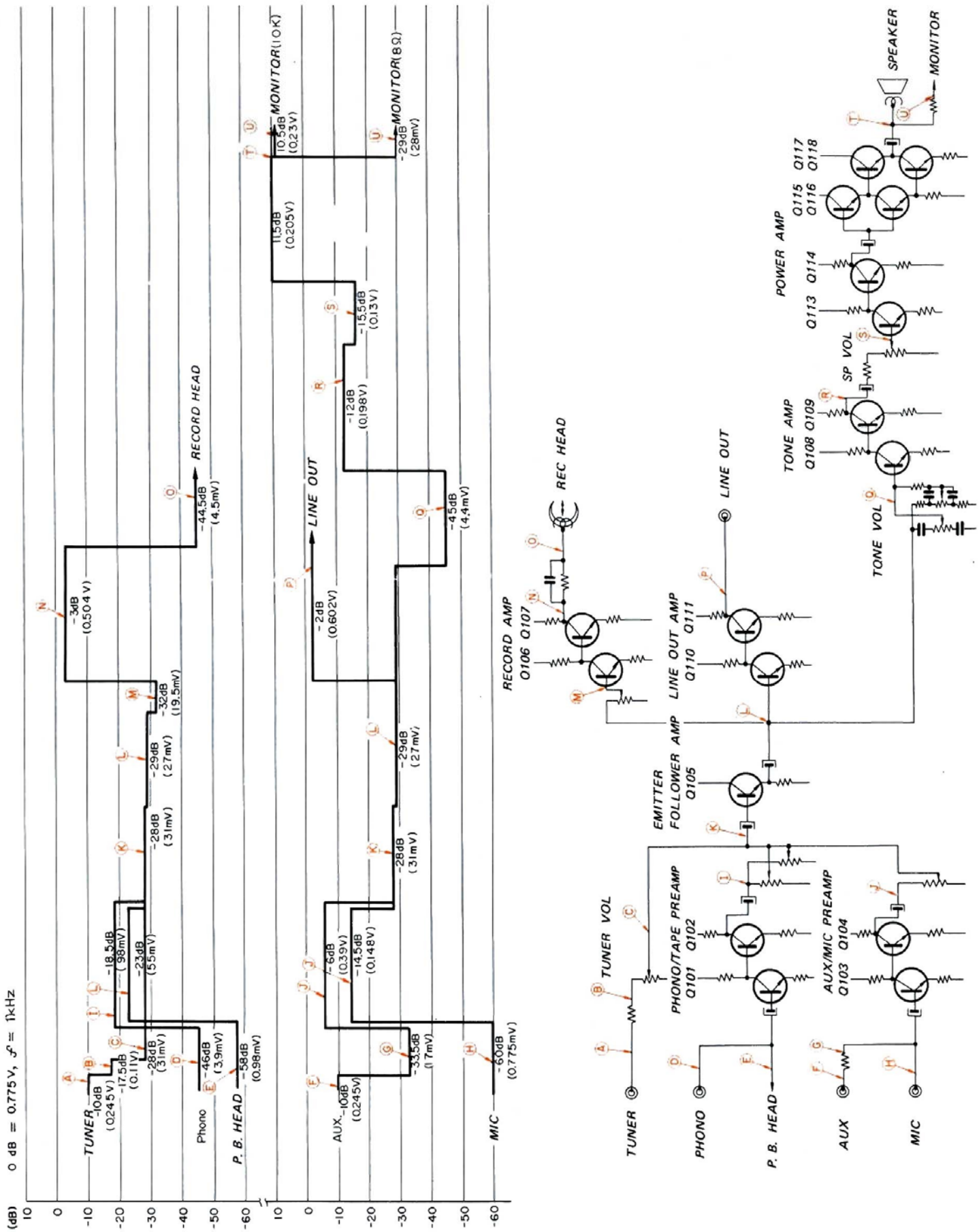
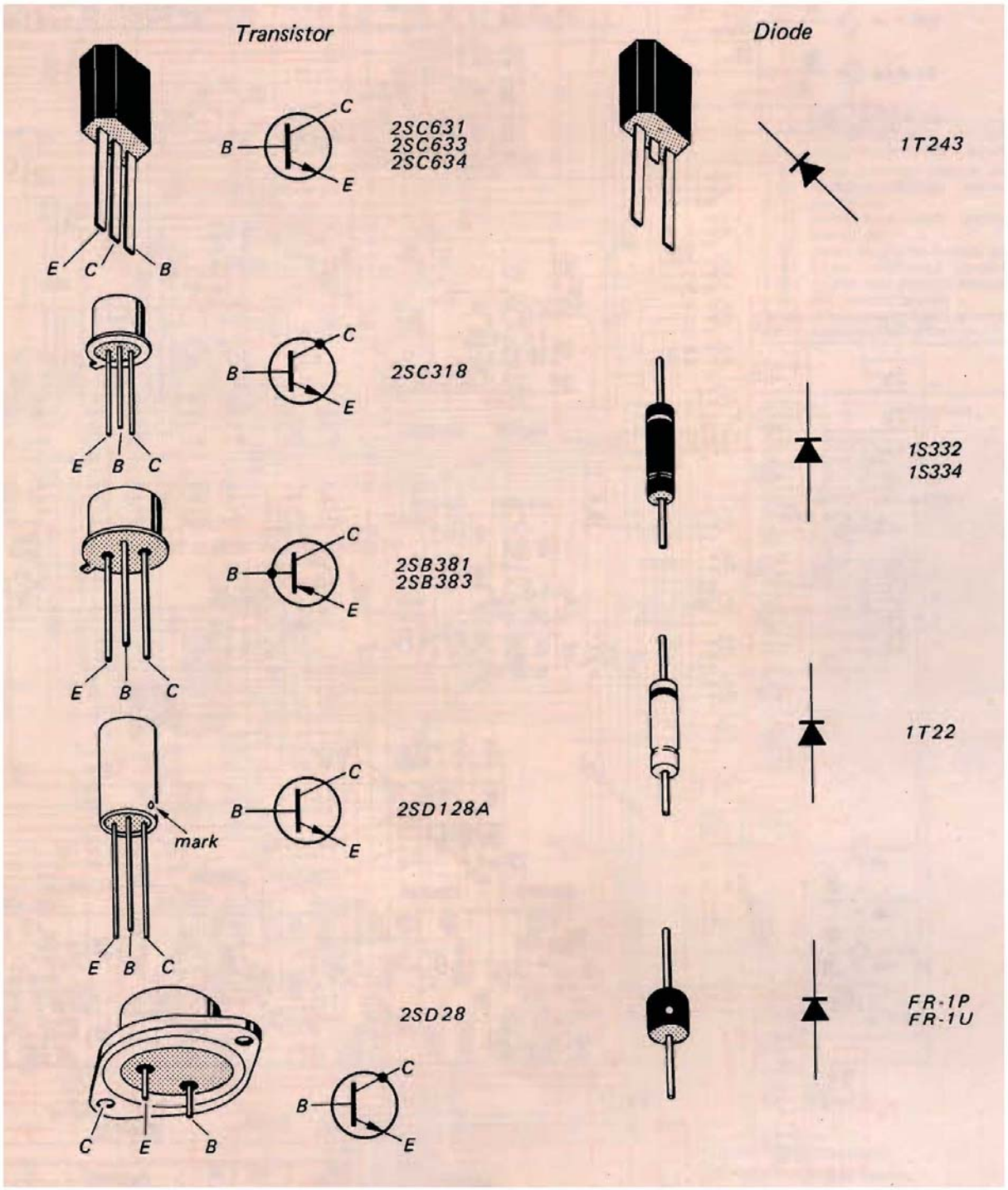


Fig. 8-17 Noise suppress switch circuit board removal

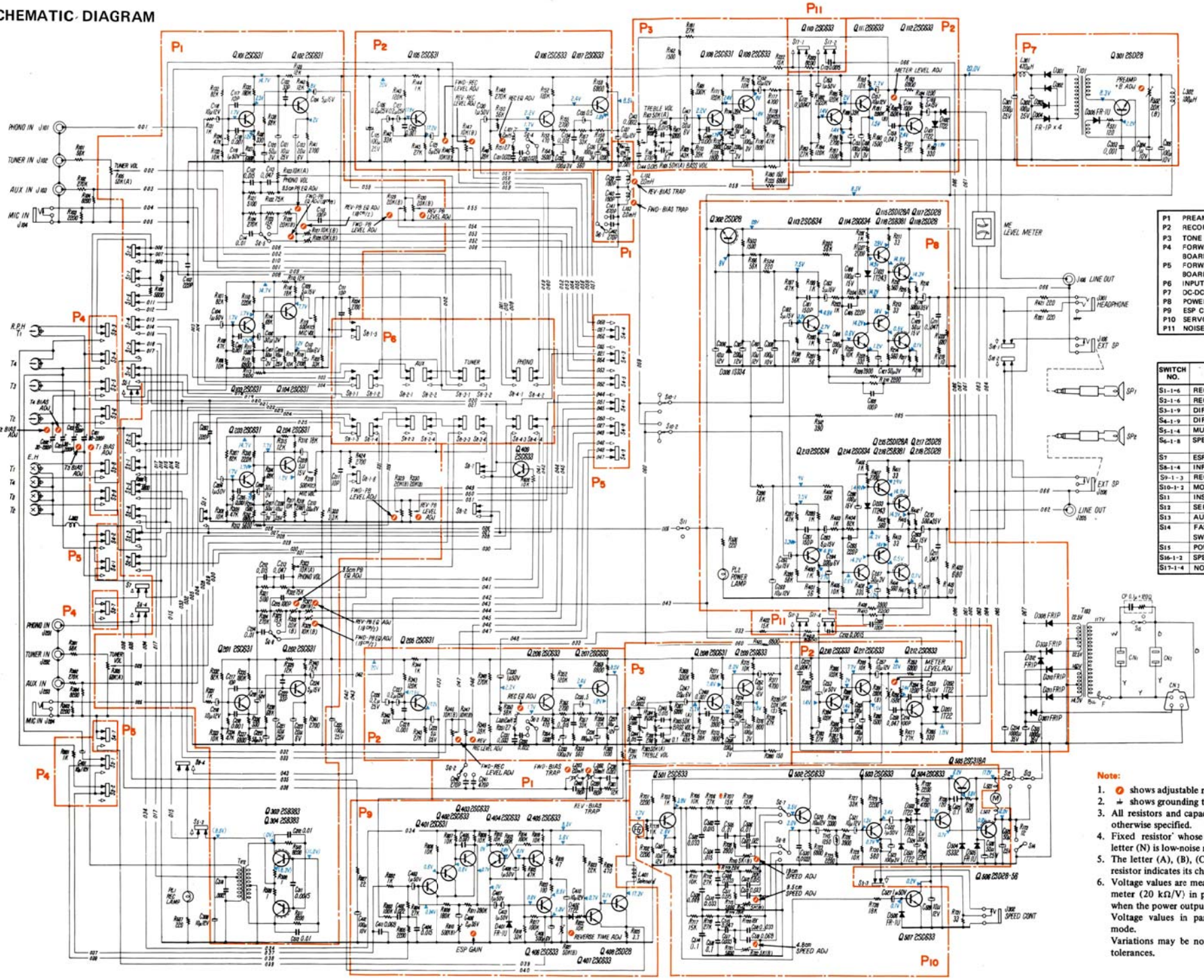
9. LEVEL DIAGRAM



10. SEMICONDUCTOR ELECTRODES



11. SCHEMATIC DIAGRAM



P1	PREAMP AND BIAS OSC CIRCUIT BOARD
P2	RECORD AMP CIRCUIT BOARD
P3	TONE CONTROL CIRCUIT BOARD
P4	FORWARD/REVERSE SWITCH CIRCUIT BOARD (A)
P5	FORWARD/REVERSE SWITCH CIRCUIT BOARD (B)
P6	INPUT SELECTOR SWITCH CIRCUIT BOARD
P7	DC-DC CONVERTER CIRCUIT BOARD
P8	POWER AMP CIRCUIT BOARD
P9	ESP CIRCUIT BOARD
P10	SERVO AMP CIRCUIT BOARD
P11	NOISE SUPPRESS SWITCH CIRCUIT BOARD

SWITCH NO.	DESCRIPTION	POSITION
S1-1-6	RECORD/PLAYBACK SWITCH	PLAYBACK
S2-1-6	RECORD/PLAYBACK SWITCH	PLAYBACK
S3-1-9	DIRECTION SWITCH	FORWARD
S4-1-9	DIRECTION SWITCH	FORWARD
S5-1-4	MUTING, BIAS & ESP SWITCH	PLAY
S6-1-8	SPEED & EQUALIZER SWITCH	19 cm/sec (7½ ips)
S7	ESP SWITCH	ON
S8-1-4	INPUT SELECTOR SWITCH	TAPE/MIC
S9-1-3	RECORD/PLAYBACK SWITCH	PLAYBACK
S10-1-2	MODE SWITCH	STEREO
S11	INSTANT STOP SWITCH	OFF
S12	SERVO SWITCH	ON
S13	AUTO SHUT-OFF SWITCH	ON
S14	FAST FORWARD/REWIND SWITCH	OFF
S15	POWER SWITCH	ON
S16-1-2	SPEAKER ON/OFF SWITCH	ON
S17-1-4	NOISE SUPPRESS SWITCH	OFF

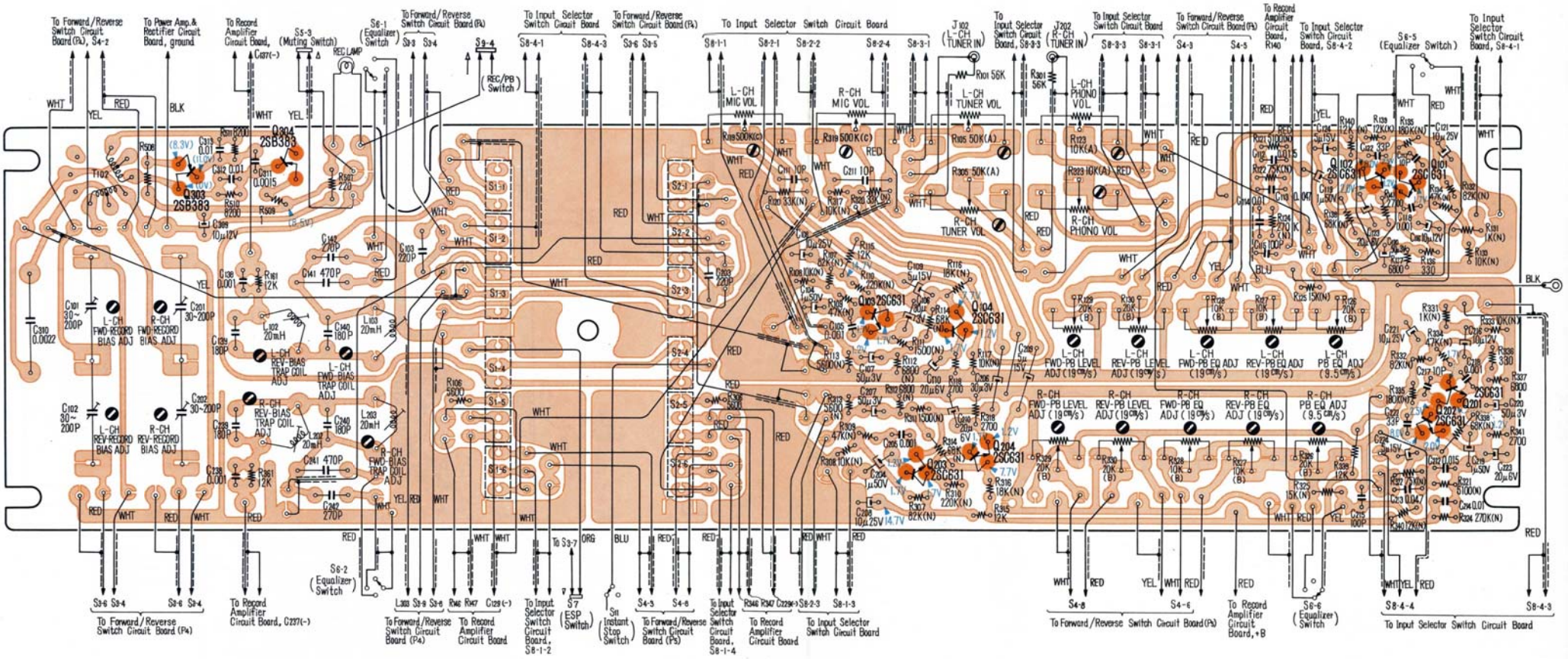
Note:

1. ⓪ shows adjustable resistor.
2. ⏚ shows grounding to chassis.
3. All resistors and capacitors are rated in Ω and μF unless otherwise specified.
4. Fixed resistor whose rating value is suffixed with the letter (N) is low-noise resistor.
5. The letter (A), (B), (C) or (S) suffixed to rating value of resistor indicates its characteristics.
6. Voltage values are measured to ground circuit with a voltmeter (20 kΩ/V) in playback mode at 7½ ips (19 cm/s) when the power output is 1 watt without input signal.
   Voltage values in parentheses are measured in record mode.
   Variations may be noted because of normal production tolerances.

12. MOUNTING DIAGRAM

12-1. Preamplifier & Bias OSC Circuit Board (P1)

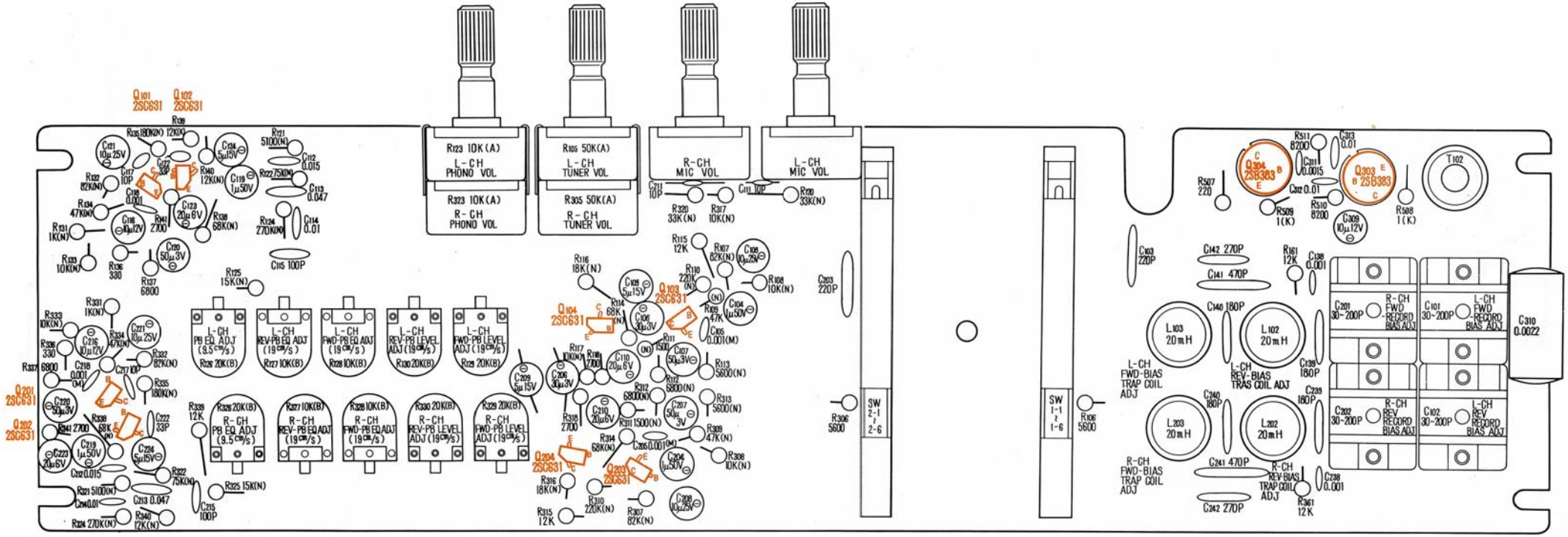
– Conductor side –



Printed circuit board
Part No.: 1-538-651-11

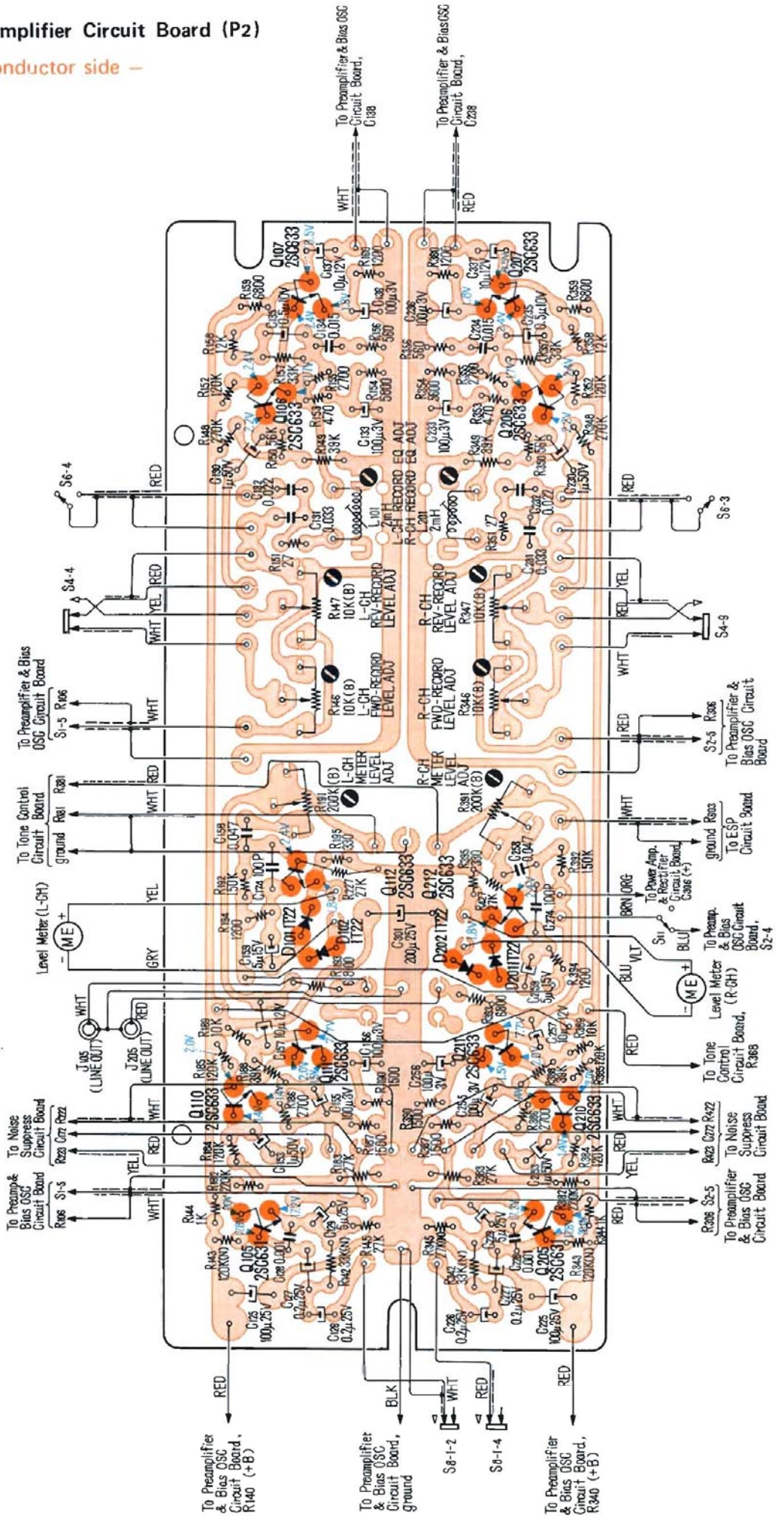
12-1. Preamplifier & Bias OSC Circuit Board (P1)

— Component side —



12-2. Record Amplifier Circuit Board (P2)

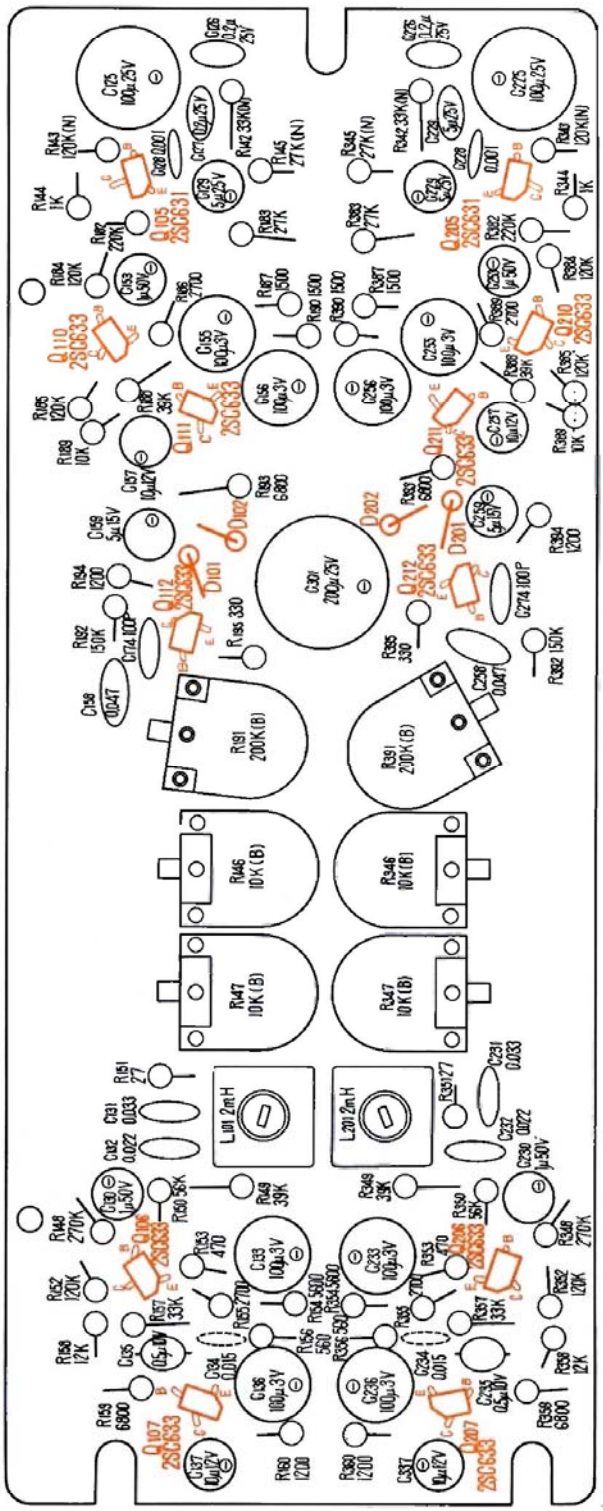
– Conductor side –



Printed circuit board
Part No.: 1-538-652-13

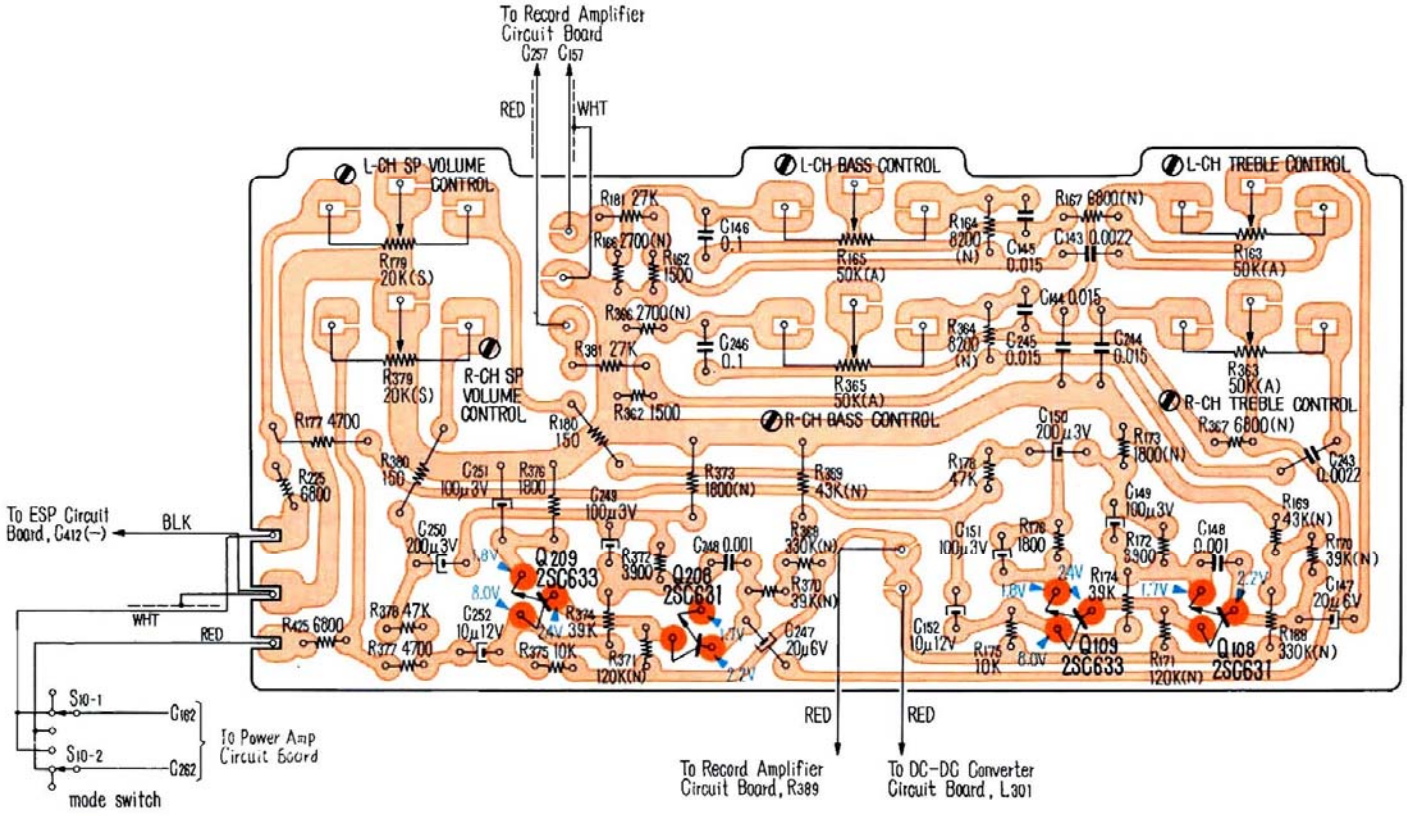
12-2. Record Amplifier Circuit Board (P2)

– Component side –



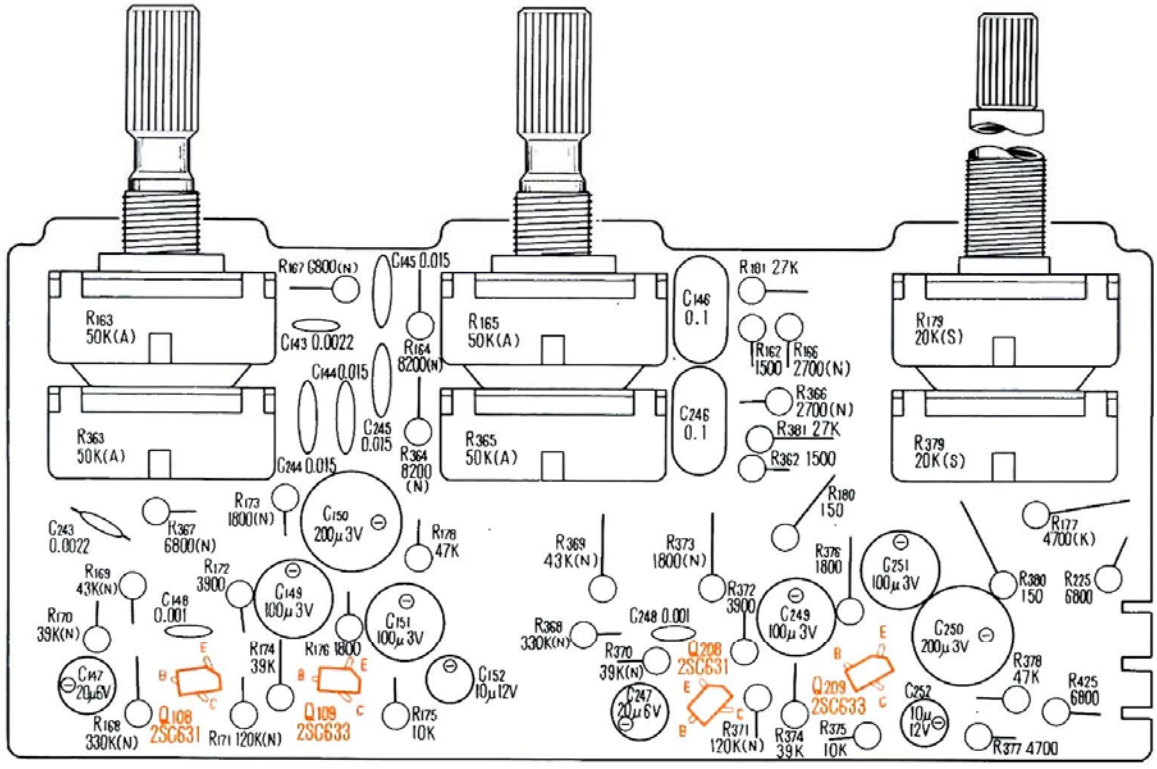
12-3. Tone Control Circuit Board (P3)

– Conductor side –



Printed circuit board
Part No.: 1-538-653-13

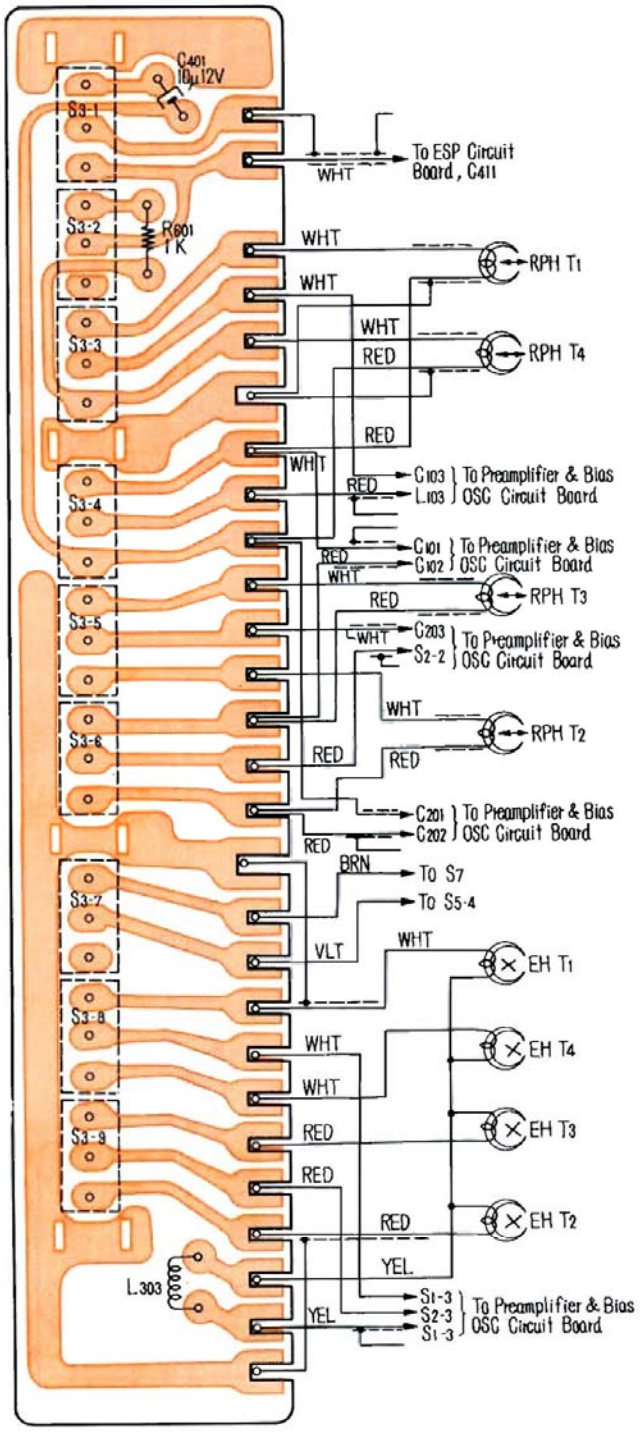
– Component side –



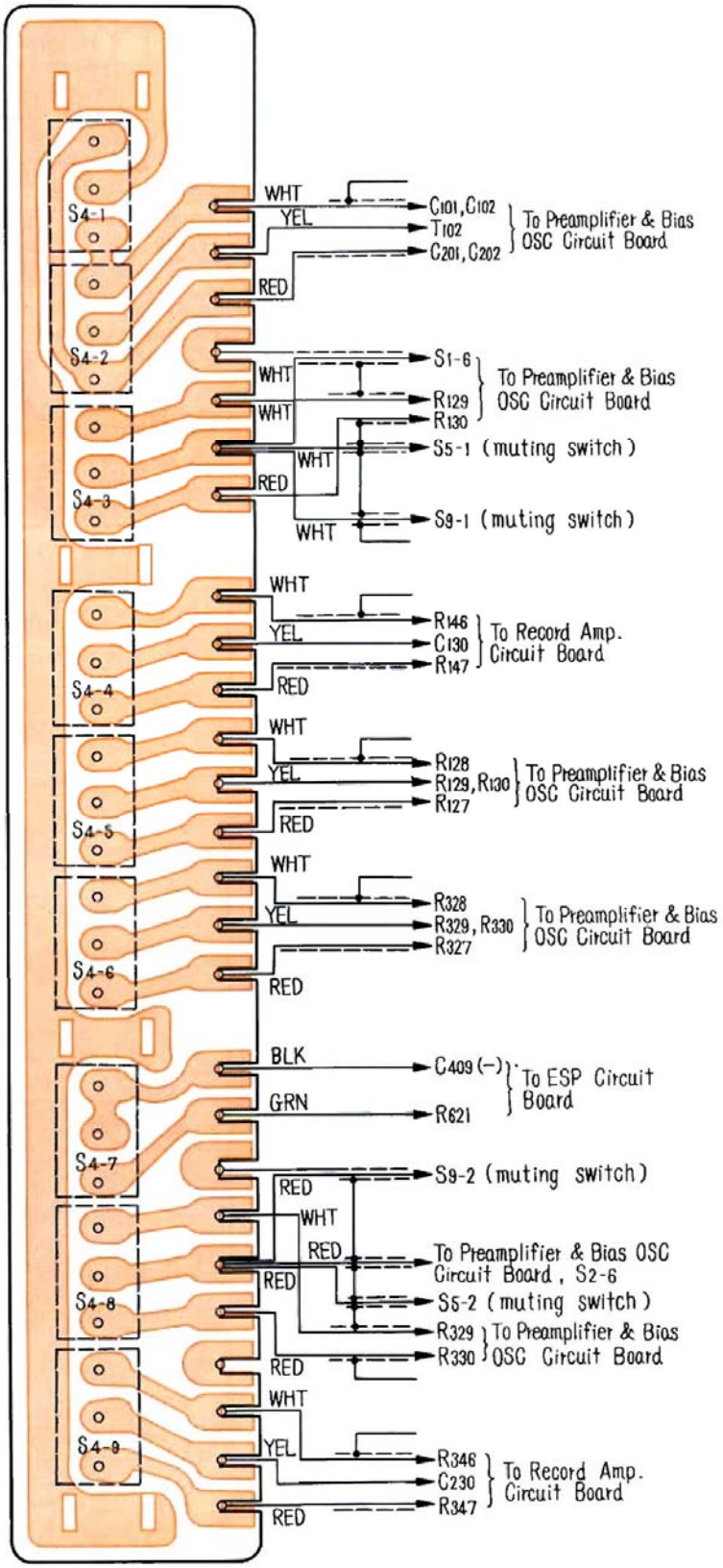
12-4. Forward/Reverse Switch Circuit Boards (P4, P5)

– Conductor side –

(P4)



(P5)

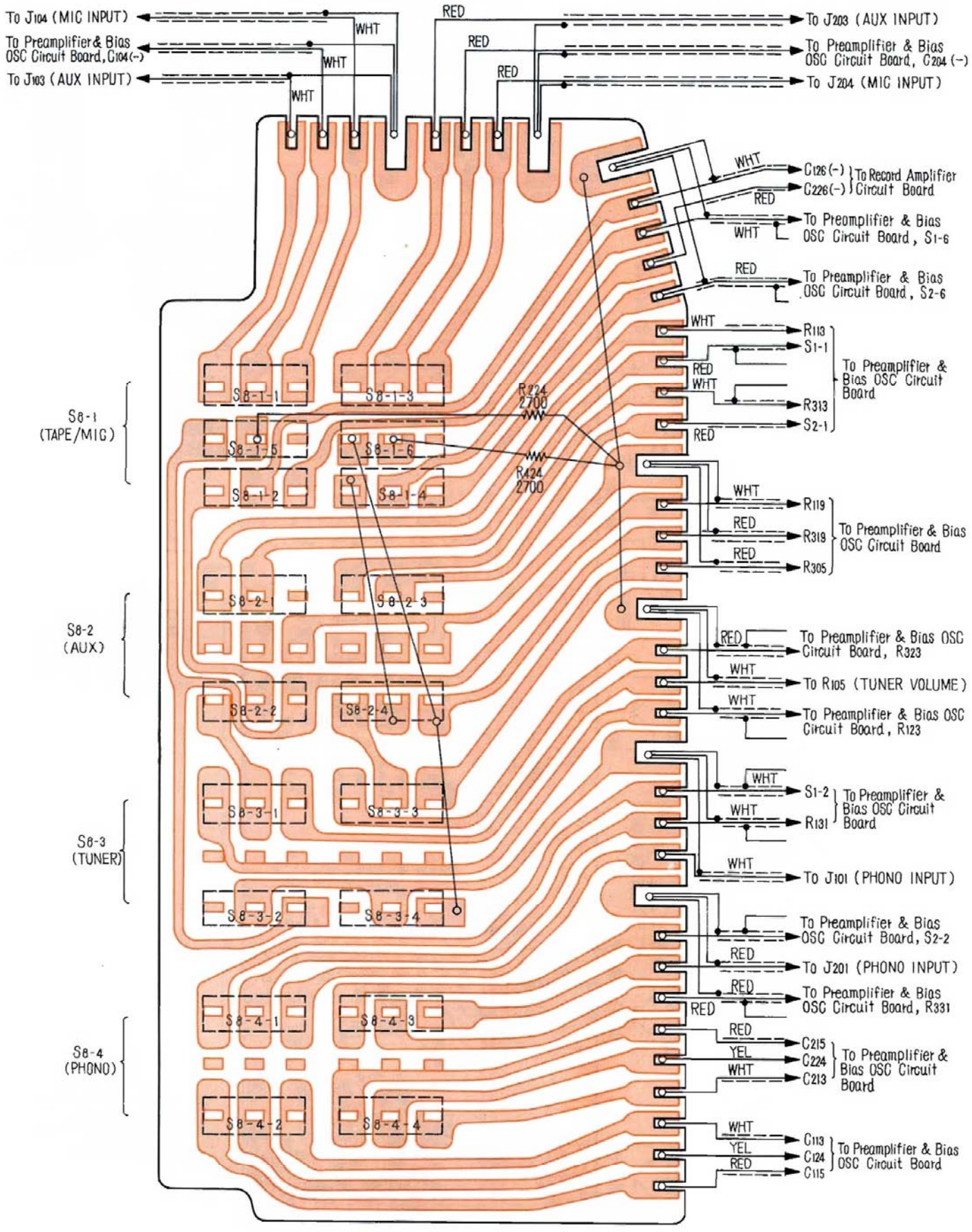


Printed circuit board
Part No.: 1-538-654-11

Printed circuit board
Part No.: 1-538-655-11

12-5. Input Selector Switch Circuit Board (P6)

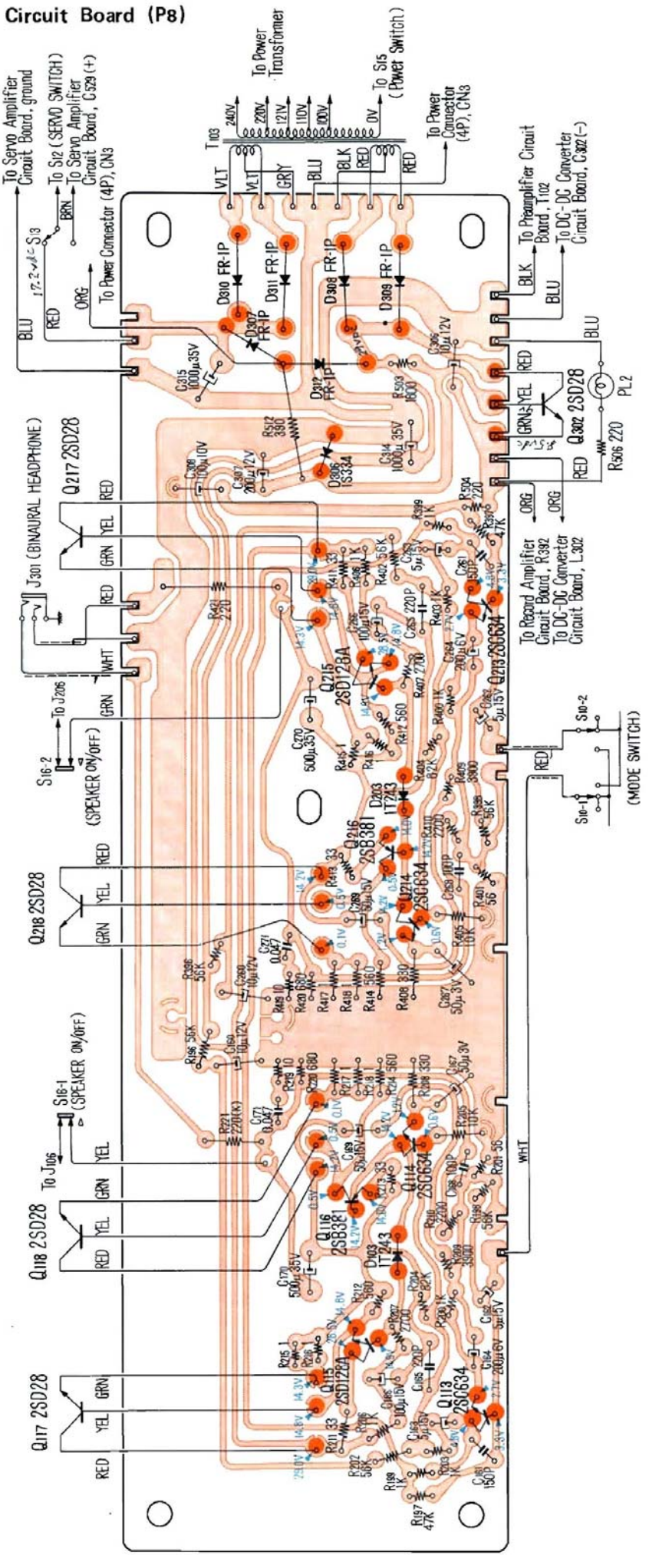
– Conductor side –



Printed circuit board
Part No.: 1-538-656-12

12-6. Power Amplifier Circuit Board (P8)

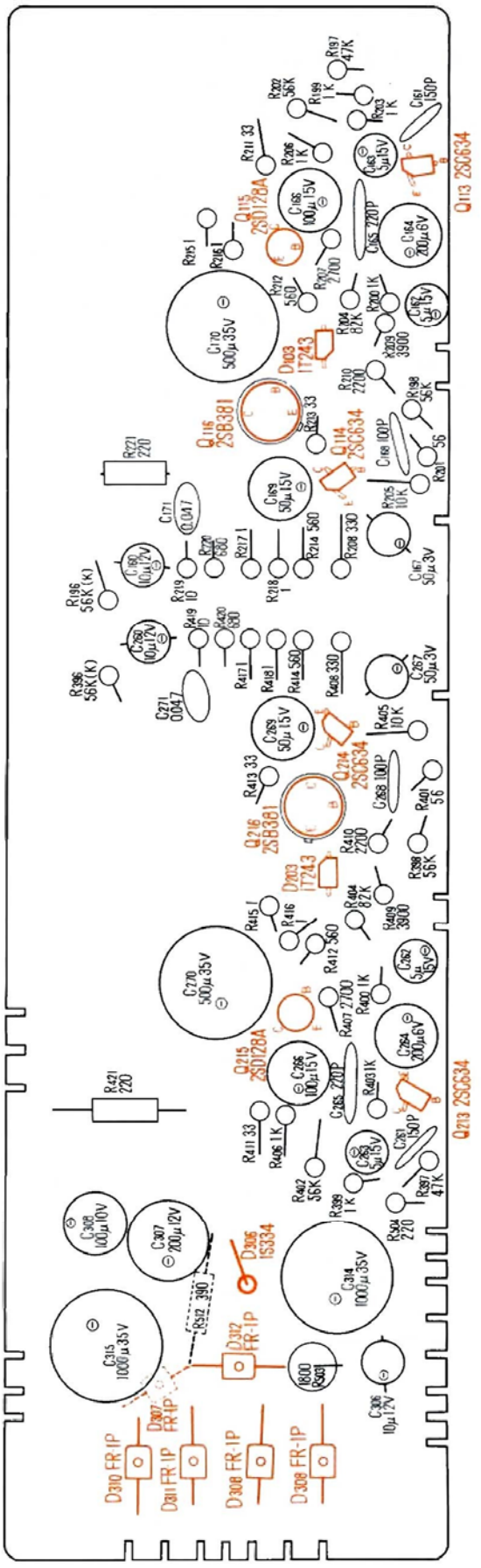
– Conductor side –



Printed circuit board
Part No.: 1-538-658-12

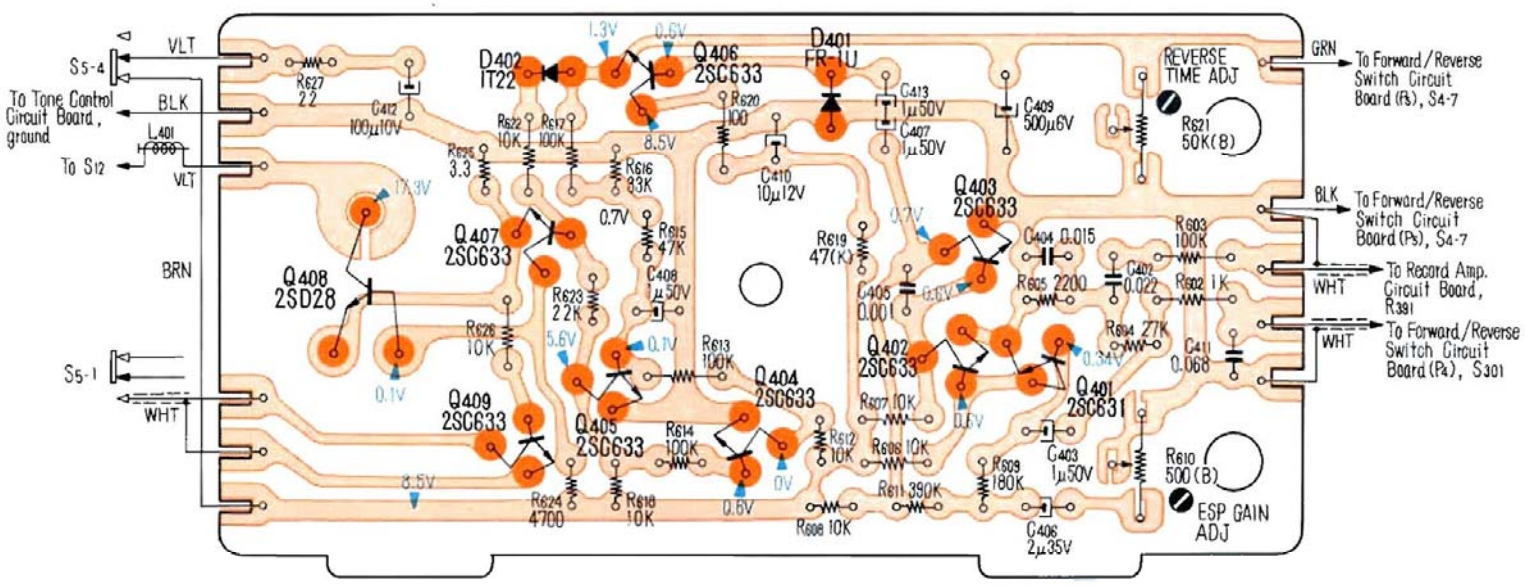
12-6. Power Amplifier Circuit Board (P8)

– Component side –



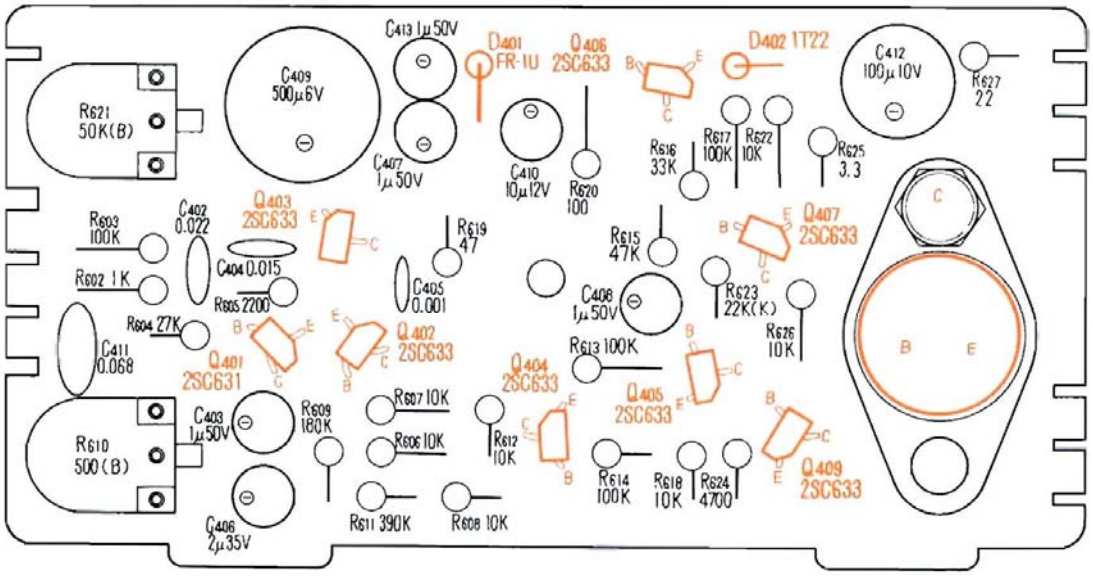
12-7. ESP Circuit Board (P9)

– Conductor side –



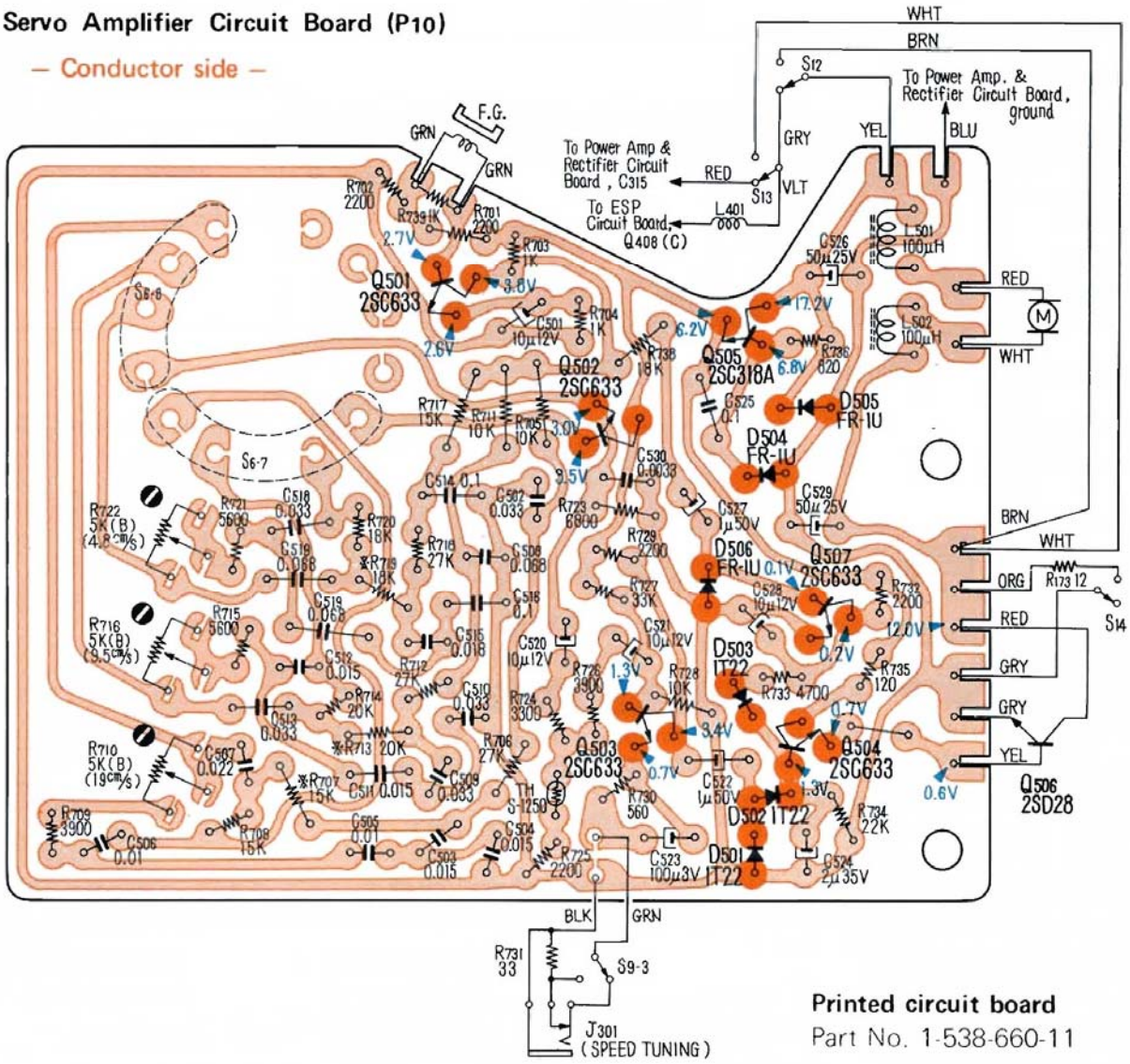
Printed circuit board
Part No.: 1-538-832-11

– Component side –



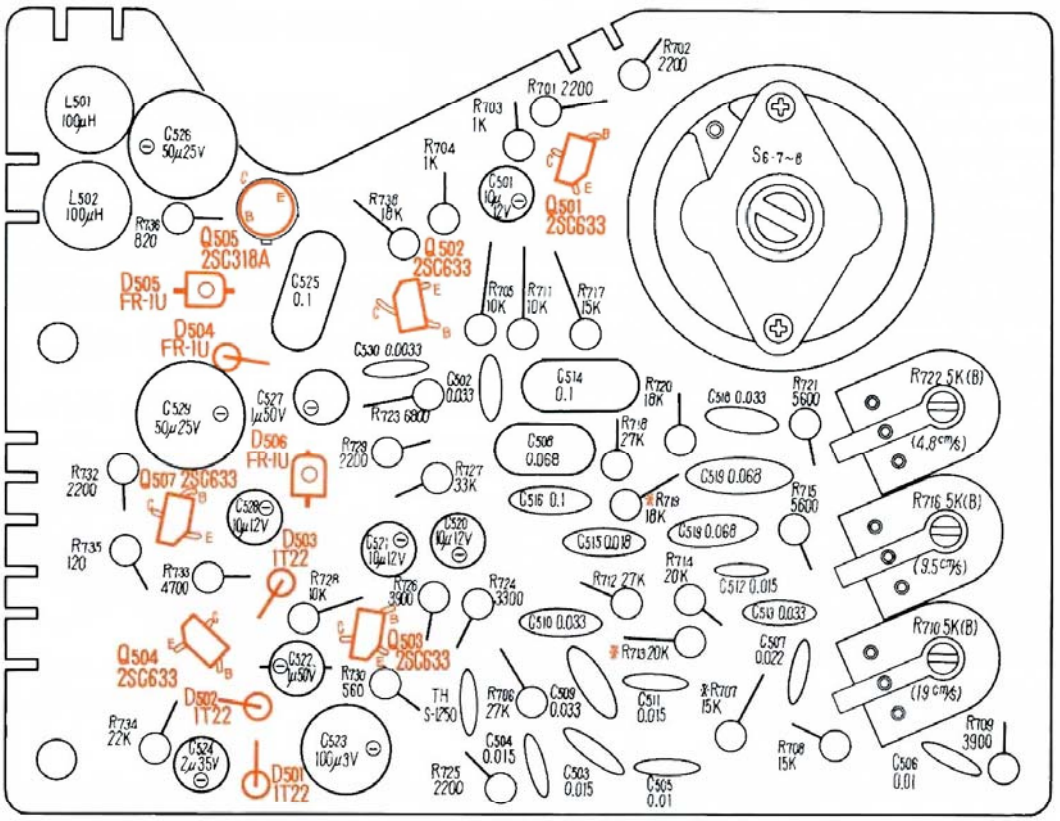
12-8. Servo Amplifier Circuit Board (P10)

— Conductor side —



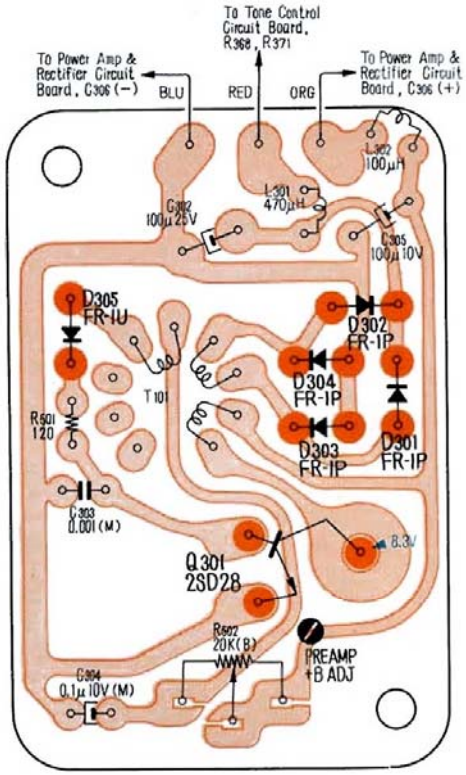
Printed circuit board
Part No. 1-538-660-11

— Component side —

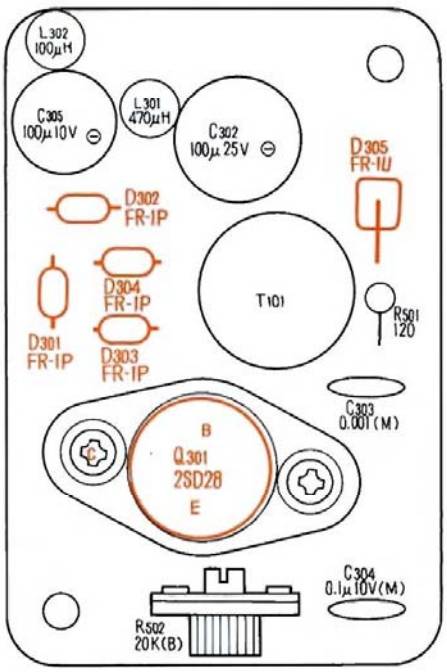


12-9. DC-DC Converter Circuit Board (P7)

– Conductor side –



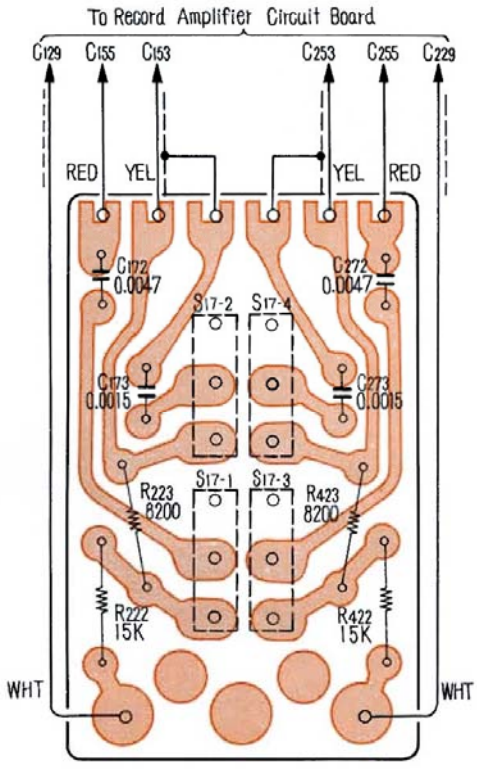
– Component side –



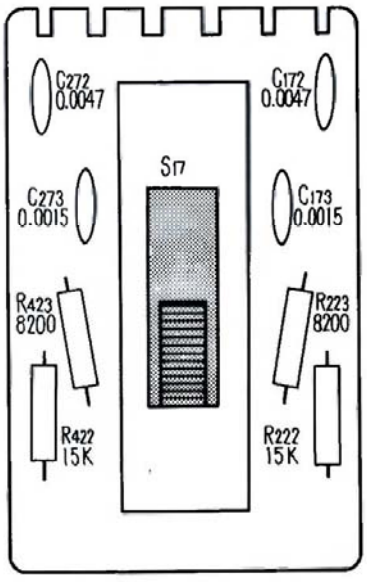
Printed circuit board
Part No.: 1-538-657-11

12-10. Noise Suppress Switch Circuit Board (P11)

– Conductor side –



– Component side –



Printed circuit board
Part No.: 1-538-679-13

13. ELECTRICAL ADJUSTMENT

<table>
<tr><th>Item</th><th>Signal Source</th><th>Output Connection</th><th>Mode</th><th>Adjust</th><th>Remarks</th></tr>
<tr><td>1. playback azimuth alignment</td><td>3rd section (10 kHz) of SONY alignment tape, J-19-F2</td><td>VTVM and 100 kΩ resistor in parallel to line output</td><td>playback (forward & reverse)</td><td>azimuth alignment screws
See Fig. 13-3</td><td>Adjust to obtain maximum reading on VTVM.</td></tr>
<tr><td>2. tape speed adjustment</td><td>SONY speed check tape, SPC-47</td><td>frequency counter & 100 kΩ resistor in parallel to line output</td><td>playback (forward & reverse)</td><td>R_{722} ... for 1⅞ ips (4.8cm/s)
R_{716} ... for 3¾ ips (9.5cm/s)
R_{710} ... for 7½ ips (19cm/s)
See Fig. 13-3</td><td>Adjust to obtain the frequency shown below.
tape speed / reading
1⅞ ips (4.8 cm/s) / 1000^{+5}_{-3} Hz
3¾ ips (9.5 cm/s) / 2000 ± 8 Hz
7½ ips (19 cm/s) / 4000 ± 15 Hz
Note: Each speed adjustment should be performed after 30 sec. from starting.</td></tr>
<tr><td>3. playback level adjustment</td><td>1st section (1 kHz) of SONY alignment tape, J-19-F2</td><td>VTVM and 100 kΩ resistor in parallel to line output</td><td>playback (forward & reverse)</td><td>R_{129}(L), R_{329}(R) ...forward
R_{130}(L), R_{330}(R) ...reverse
See Fig. 13-4</td><td>Adjust to obtain -2 dB (0.6 V) on VTVM.</td></tr>
<tr><td>4. playback equalizer adjustment</td><td>SONY alignment tape, J-19-F2</td><td>VTVM and 100 kΩ resistor in parallel to line output</td><td>playback (forward & reverse)</td><td>R_{128}(L), R_{328}(R) ...forward
R_{127}(L), R_{327}(R) ...reverse
See Fig. 13-4</td><td>Deviation against 1 kHz of 2nd section
tape section / 3rd / 4th / 5th / 6th / 7th
frequency / 10 kHz / 12.5 kHz / 7 kHz / 100 Hz / 50 Hz
L-CH / 0 ± 2 dB / 0 ± 2 dB / 0 ± 2 dB / 1.5±2 dB / 0±2 dB
R-CH / 2±2 dB / 0±2 dB
1. Adjust to obtain the response shown above.
2. Repeat playback level adjustment again.</td></tr>
<tr><td>5. meter level adjustment</td><td>1 kHz, -60 dB (0.78 mV) to mic. input</td><td>VTVM and 100 kΩ resistor in parallel to line output</td><td>record (forward)</td><td>R_{191}(L), R_{391}(R)
See Fig. 13-4</td><td>1. Set headphone level switch to "HIGH".
2. Adjust mic. volume control (R_{119} & R_{319}) to obtain -2 dB (0.6 V) on VTVM.
3. Adjust R_{191} & R_{391} so that the pointers of level meter indicate 100 on the scale.</td></tr>
<tr><td>6. trap coil adjustment</td><td>no signal input (input selector: tuner)</td><td>VTVM between collector of Q_{107} (Q_{207}) and ground</td><td>record (forward & reverse)</td><td>L_{103}(L), L_{203}(R) ...forward
L_{102}(L), L_{202}(R) ...reverse
See Fig. 13-4</td><td>1. Set tuner volume controls to minimum position.
2. Connect VTVM across forward rec. head.
3. Set the machine in forward mode.
4. Adjust C_{101} (C_{201}) to obtain 50 V on VTVM across forward rec. head.
5. Adjust L_{103} (L_{203}) to obtain minimum reading on VTVM connected to collector of Q_{107} (Q_{207}).
6. Connect VTVM across reverse rec. head.
7. Set the machine in reverse mode.
8. Adjust C_{102} (C_{202}) to obtain 50 V on VTVM across reverse rec. head.
9. Adjust L_{102} (L_{202}) to obtain minimum reading on VTVM connected to collector of Q_{107} (Q_{207}).</td></tr>
<tr><td>7. record bias adjustment</td><td>1 kHz, - 60 dB (0.78 mV) to mic. input</td><td>VTVM and 100 kΩ resistor in parallel to line output of another tape recorder</td><td>record
(forward & reverse)</td><td>C_{101}(L), C_{201}(R) ...forward
C_{102}(L), C_{202}(R) ...reverse
See Fig. 13-4</td><td>1. In making adjustment, it is recommendable to use another tape recorder besides TC-560.
2. Make height of their reel panels even and thread a blank tape. (See Fig. 13-1)
3. Deliver 1 kHz signal of -60 dB to mic. jack of TC-560.
4. Adjust mic. volume controls R_{119} (R_{319}) so that the pointers of level meters indicate 100 on the scale.
5. Set TC-560 in forward-record mode and other in playback mode.
6. Set both channels to 7½ ips (19 cm/s) or 3¾ ips (9.5 cm/s).
7. Adjust trimmer capacitors C_{101} (C_{201}) by turning it slowly so that reading on VTVM is maximum.
8. Change places of machine and thread a blank tape as shown in Fig. 13-2.
9. Set TC-560 to reverse mode.
10. Adjust by turning trimmer capacitors C_{102} (C_{202}) in the same way as forward direction.
If you do not have any other tape recorder, adjust trimmer capacitors to obtain 40V on VTVM connected across rec./p.b. head.</td></tr>
<tr><td>8. record level adjustment</td><td>1 kHz, - 60 dB (0.78 mV) to mic. input (input selector: tuner)</td><td>VTVM and 100 kΩ resistor to line output</td><td>record & playback (forward & reverse)</td><td>R_{146}(L), R_{346}(R) ...forward
R_{147}(L), R_{347}(R) ...reverse
See Fig. 13-4</td><td>1. Set mic. volume controls R_{119} (R_{319}) so that the pointers of level meters indicate 100 on the scale.
2. Record signal on blank tape and playback it.
3. Repeating step 2, adjust adjustable resistors in record mode to obtain -2dB (0.6V) on VTVM in playback mode.</td></tr>
<tr><td>9. ESP gain adjustment</td><td>1 kHz, -47.5 dB (1.32 mV) to tuner input (input selector: tuner)</td><td></td><td>playback (forward)</td><td>R_{610}
See Fig. 13-5</td><td>1. Deliver 1 kHz signal of -10 dB (0.25V) to tuner input of R-CH and turn tuner volume control so that the pointer of level meter (R) indicates 100 on the scale.
2. Turn adjustable resistor R_{610} fully clockwise and adjustable resistor R_{621} to mechanical mid position.
3. Deliver 1 kHz signal of -47.5 dB (1.32 mV) to tuner input.
4. Place the machine in forward-playback mode.
5. After 5 seconds, feed off input signal.
6. At 12 seconds after that, turn R_{610} counterclockwise extremely slowly until machine reverses.</td></tr>
<tr><td>10. reverse time adjustment</td><td>1 kHz, - 20 dB (0.078 V) to tuner input of R-CH (input selector: tuner)</td><td></td><td>playback (forward) auto-reverse switch: ON</td><td>R_{621}</td><td>1. Deliver 1 kHz signal of -20 dB (0.078V) to tuner input of R-CH (tuner volume control: same as Item 9).
2. Place the machine in forward-playback mode.
3. After 5 seconds, feed off input signal.
4. Adjust adjustable resistor R_{621} so that the machine reverses at 8 seconds after input signal feeds off.</td></tr>
</table>

Notes:

(1) The adjustments should be made in numerical order.

(2) The adjustments should be performed in the tape speed of 19 cm/sec. (7½ ips), unless otherwise specified.

(3) After adjustments, apply lock paint to the adjusted parts.

(4) The following test equipments are to be provided for these adjustments.
Audio Generator, Attenuator (600Ω), VTVM, 100 kΩ 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 in RECORD mode.
Rec./P.B. Head approx. 40 volts
Erase Head: approx. 120 volts

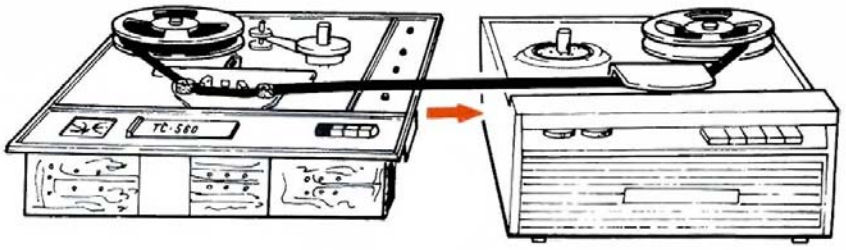


Fig. 13-1

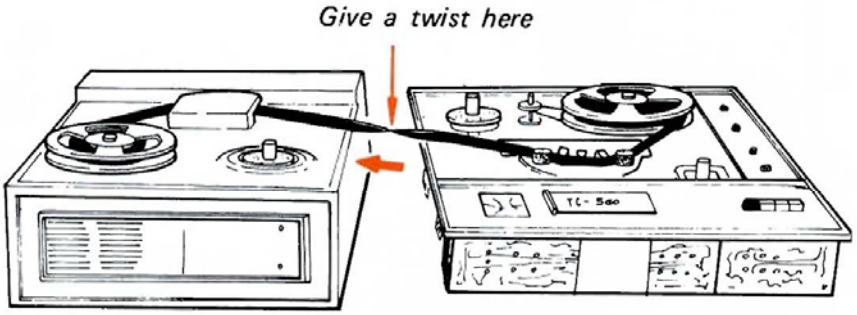


Fig. 13-2

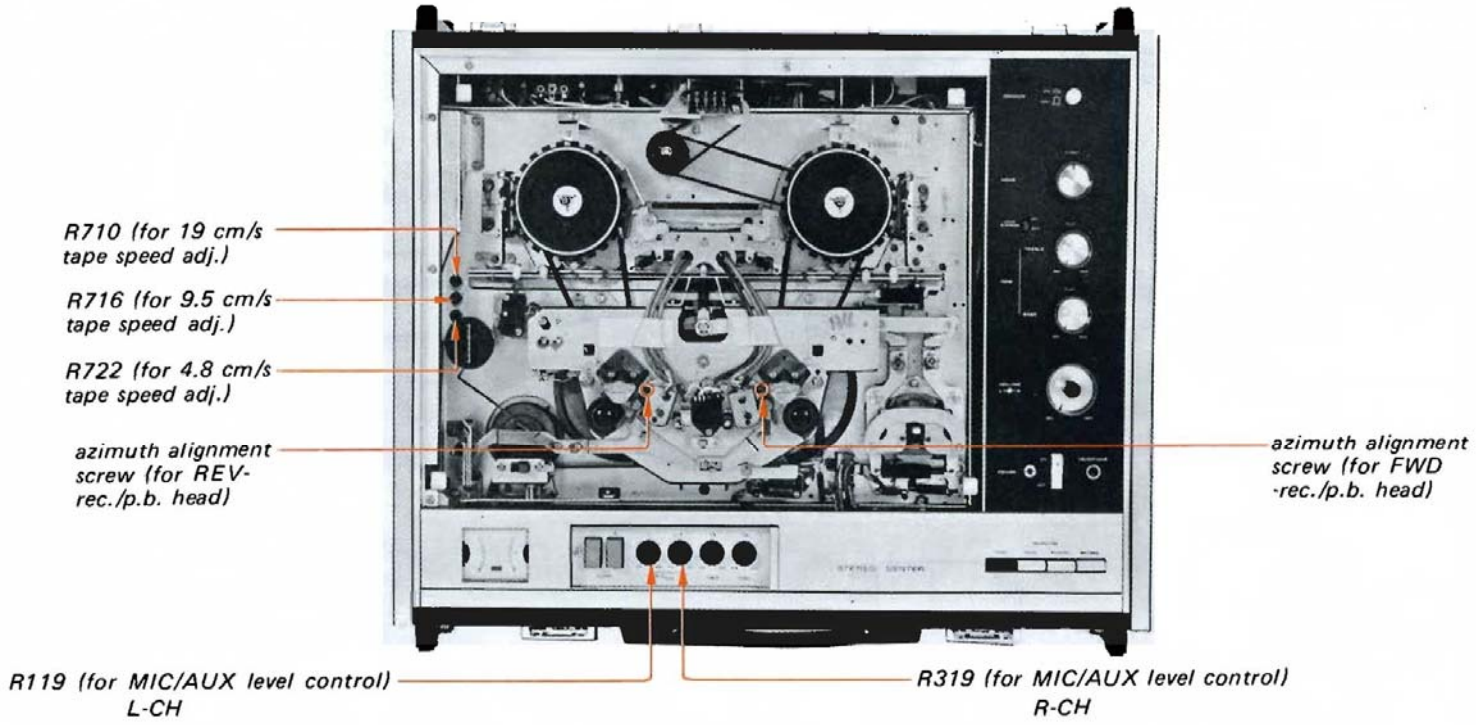


Fig. 13-3 Adjusting parts locations

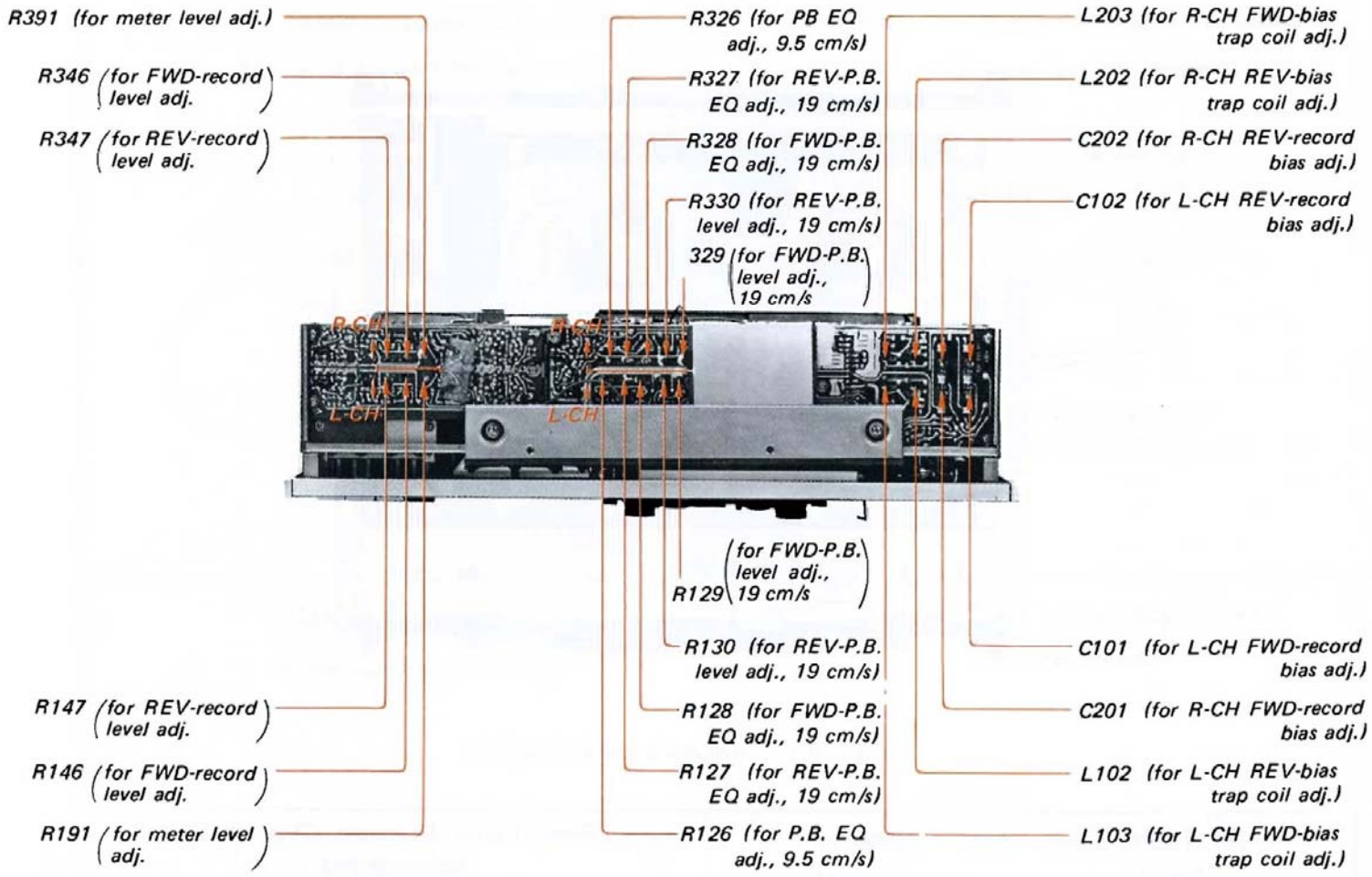


Fig. 13-4 Adjusting parts locations

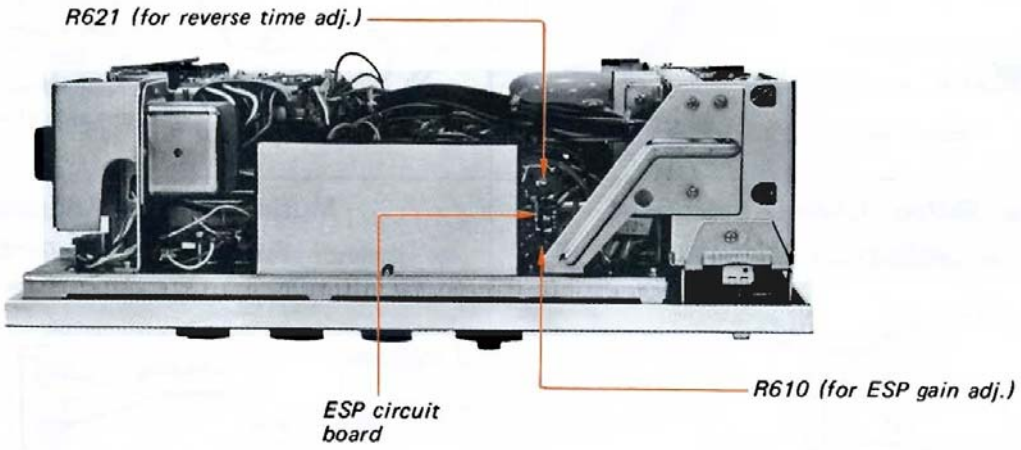


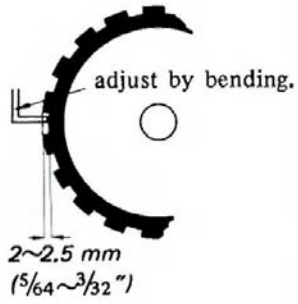
Fig. 13-5 Adjusting parts locations

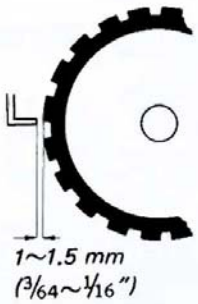
14. MECHANICAL ADJUSTMENT

Fig. 14-1 Adjusting parts locations

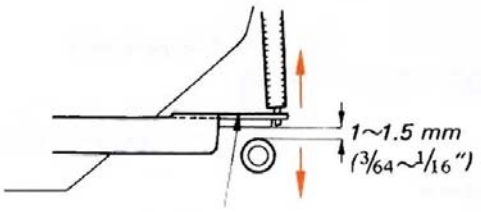
① Reel Table Lock Lever Adjustment

- supply side in forward mode
- take-up side in forward mode
- both sides in fast forward/fast reverse mode



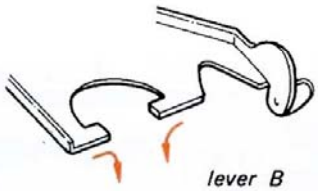


② Brake Shifter Lever Adjustment in forward/reverse mode

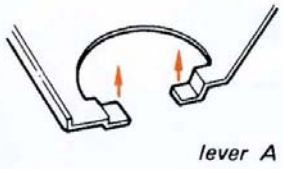


Adjust by bending.

③ Reel Table Friction Change Lever Adjustment

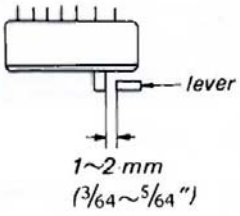


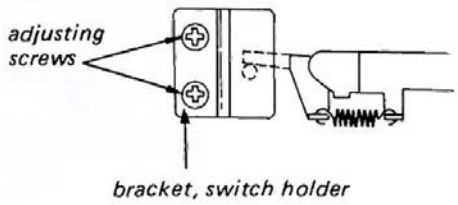
In case supply reel table does not stop moving in fast forward/fast reverse mode, bend tabs of the lever B downwards as shown.



In case take-up belt still moves while holding take-up reel table in fast forward/fast reverse mode, bend tabs of the lever A upwards as shown.

④ Muting Switch Adjustment in forward/reverse mode

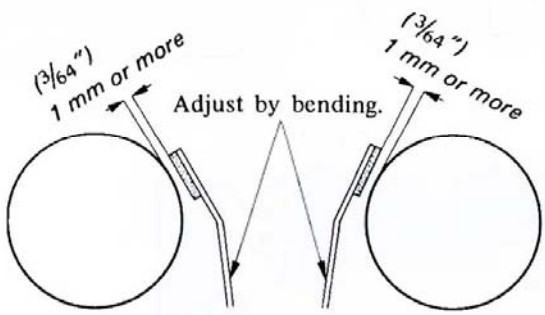




Loosen the screws and adjust the position of the muting switch.

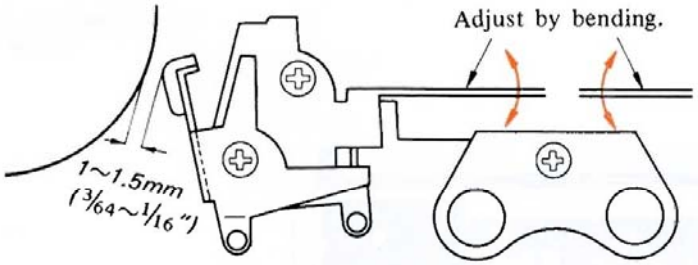
⑤ Back Tension Lever Adjustment

in stop & forward/reverse mode



⑥ Brake Adjustment

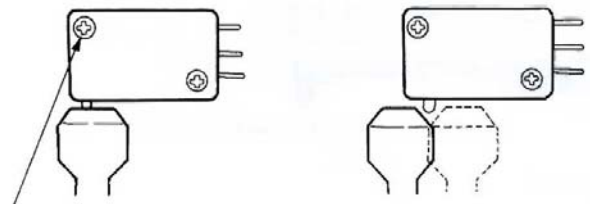
in forward/reverse mode



⑦ F.F. Microswitch Adjustment

in stop mode

in fast forward/fast reverse mode

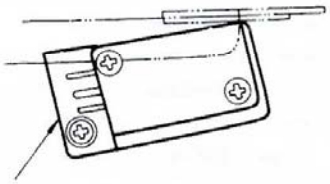


Loosen the screws and adjust the position of the switch.

⑧ Instant Stop Microswitch Adjustment

in forward/reverse mode

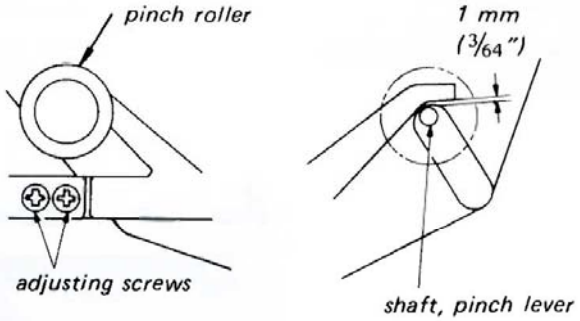
When INST STOP lever pulls, the microswitch is pushed.



Loosen this screw and adjust the position of the switch.

⑨ Instant Stop Lever Adjustment

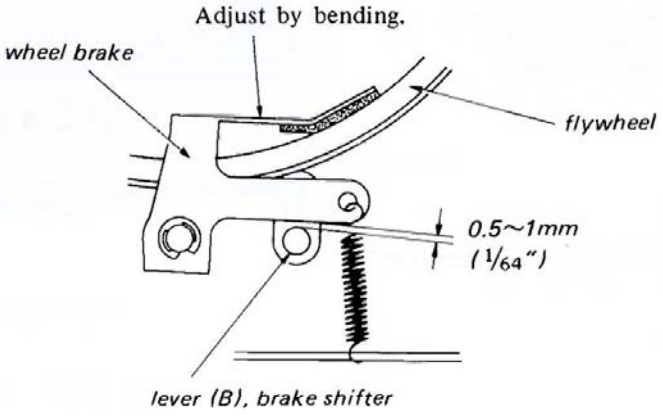
in forward mode



Loosen the screws and adjust so that the clearance is 3/64" (1 mm).

⑩ Flywheel Brake Adjustment

in stop mode



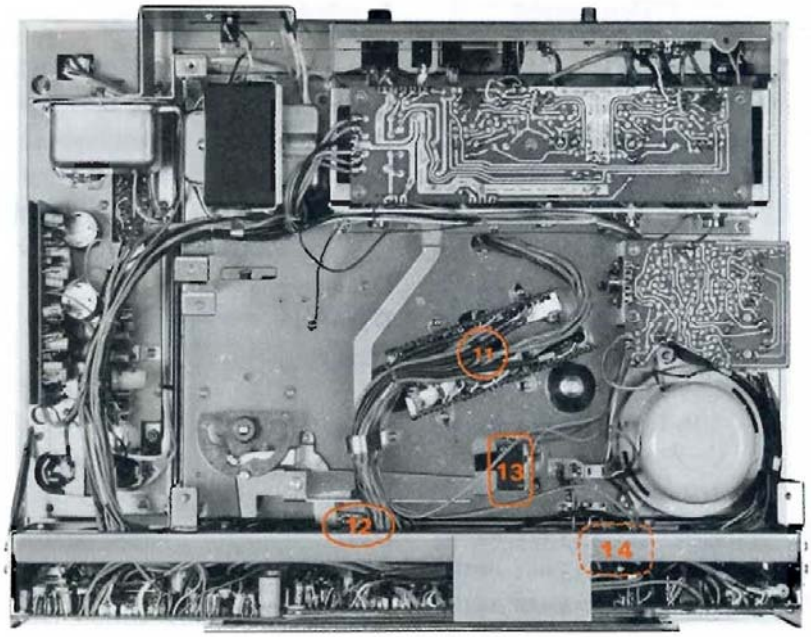
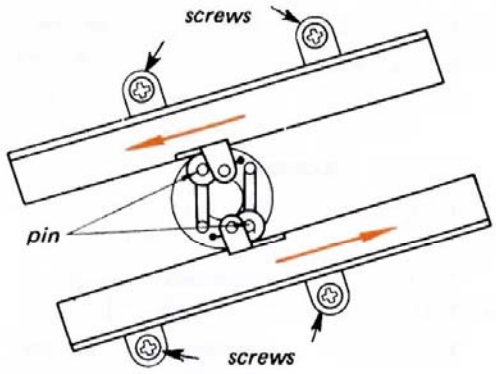


Fig. 14-2 Adjusting parts locations

(11) Forward/Reverse Switch Adjustment

in forward mode

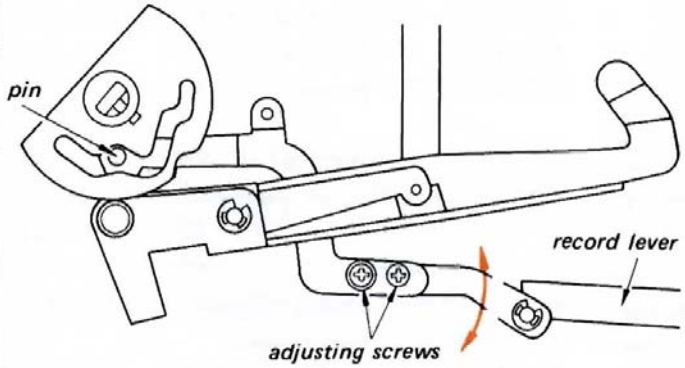


Loosen the screws, and pushing the switch boards in the directions shown with the arrows, fix the screws.

(12) Record Shifter Lever Adjustment

in forward/reverse mode:
Record buttons should not be pushed.

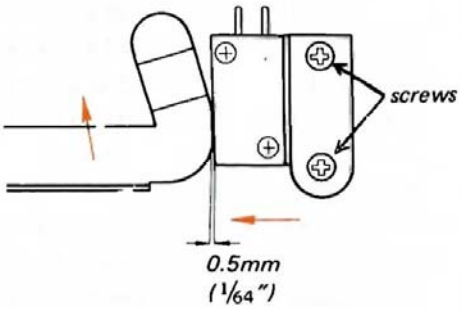
in stop mode:
Record buttons should be pushed and locked.



If not, adjust the adjusting screws shown above.

(13) Power ON/OFF Microswitch Adjustment

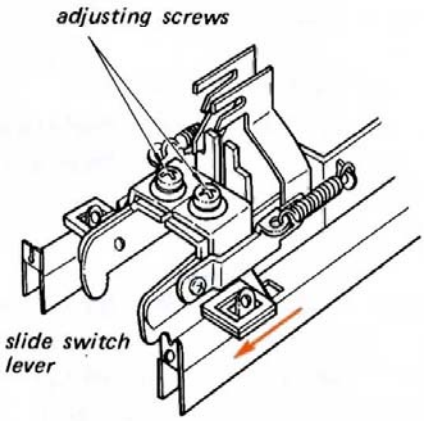
in stop mode



Loosen the screws shown and adjust the position of the switch.

(14) Record Slide Switch Adjustment

in record mode



Fix the screws so that slide switch levers are pushed in the direction shown with the arrow.

15. ELECTRICAL PARTS LIST

Symbol	Part No.	Description
		Transistors
$Q_{101, 201}$		2SC631
$Q_{102, 202}$		2SC631
$Q_{103, 203}$		2SC631
$Q_{104, 204}$		2SC631
$Q_{105, 205}$		2SC631
$Q_{106, 206}$		2SC633
$Q_{107, 207}$		2SC633
$Q_{108, 208}$		2SC631
$Q_{109, 209}$		2SC633
$Q_{110, 210}$		2SC633
$Q_{111, 211}$		2SC633
$Q_{112, 212}$		2SC633
$Q_{113, 213}$		2SC634
$Q_{114, 214}$		2SC634
$Q_{115, 215}$		2SD128A
$Q_{116, 216}$		2SB381
$Q_{117, 217}$		2SD28
$Q_{118, 218}$		2SD28
Q_{301}		2SD28
Q_{302}		2SD28
Q_{303}		2SB383
Q_{304}		2SB383
Q_{401}		2SC631
Q_{402}		2SC633
Q_{403}		2SC633
Q_{404}		2SC633
Q_{405}		2SC633
Q_{406}		2SC633
Q_{407}		2SC633
Q_{408}		2SD28
Q_{409}		2SC633
Q_{501}		2SC633
Q_{502}		2SC633
Q_{503}		2SC633
Q_{504}		2SC633
Q_{505}		2SC318A
Q_{506}		2SD28
Q_{507}		2SC633
		Diodes
$D_{101, 201}$		1T22
$D_{102, 202}$		1T22
$D_{103, 203}$		1T243
D_{301}		FR-1P
D_{302}		FR-1P
D_{303}		FR-1P
D_{304}		FR-1P
D_{305}		10D-05
D_{306}		1S334
D_{307}		FR-1P
D_{308}		FR-1P
D_{309}		FR-1P
D_{310}		FR-1P
D_{311}		FR-1P
D_{312}		FR-1P
D_{401}		FR-1U
D_{402}		1T22
D_{501}		1T22
D_{502}		1T22
D_{503}		1T22
D_{504}		1S332
D_{505}		10D-2
D_{506}		FR-1U
TH		Thermistor S-1250
$RPH_{T2, 4}$	8-822-542-25	Head, rec./p.b. ; PP77-4202A
$RPH_{T1, 3}$	8-822-542-26	" , " ; PP77-4202B
EH_{T1-4}	8-828-429-41	" , erase ; EF72-2904H
		Switches
S_{1-1-6}	1-513-231-	rec./p.b.
S_{2-1-6}	1-513-231-	"
S_{3-1-9}	1-513-220-	direction change
S_{4-1-9}	1-513-220-	"
S_{5-1-4}	1-514-232-	muting, bias & ESP
S_{6-1-8}	1-513-362-	speed & equalizer
S_7	1-513-091-	ESP
S_{8-1-4}	1-514-305-12S	input selector
S_{9-1-3}	1-514-232-	muting
S_{10-1-2}	1-514-227-	mode
S_{11}	1-514-057-	instant stop
S_{12}	1-514-231-	servo
S_{13}	1-514-231-	automatic shut-off
S_{14}	1-514-057-	f.f./rew.
S_{15}	1-514-458-25S	power
S_{16-1-2}	1-513-149-	speaker ON/OFF
S_{17-1-4}	1-514-314-	noise suppress
		Jacks
$J_{101, 201}$	1-507-142-13	phono input
$J_{102, 202}$	1-507-142-13	tuner input
$J_{103, 203}$	1-507-142-13	auxiliary input
$J_{104, 204}$	1-507-188-12	microphone

Symbol	Part No.	Description
J105, 205	1-507-142-13	line output
J106, 206	1-507-188-12	external speaker
J301	1-507-187-21	headphone
J302	1-507-188-12	speed tuning
		Miscellaneous
CN1	1-509-015-	Connector, ac outlet
CN2	1-509-015-	" , "
CN3	1-509-109-	" , power
SP1	1-502-175-	Speaker
SP2	1-502-175-	"
PL1	1-518-007-03	Lamp, record
PL2	1-518-007-03	" , power
ME	1-524-051-13	Meter, level
M	8-834-509-01	Motor (servo), D-509F
T101	1-441-339-	Transformer, converter
T102	1-433-116-	" , oscillator
T103	1-441-340-13	" , power
L101, 201	1-409-130-	Coil, equalizer ; 1.6~2.4mH
L102, 202	1-407-240-	" , trap ; 16~24mH
L103, 203	1-407-240-	" , " ; 16~24mH
L301	1-407-177-	Inductor, micro ; 470μH
L302	1-407-169-	" , " ; 100μH
L303	1-431-038-	Coil, dummy
L401	1-452-021-	Solenoid, plunger
L501	1-407-098-	Inductor, micro ; 100μH
L502	1-407-098-	" , " ; 100μH
CP	1-231-534-12	Component, encapsulated
		Resistors
R101, 301	1-244-715-	56kΩ (N) 1/4W , carbon
R102, 302	1-244-731-	270kΩ (N) " , "
R103, 303	1-244-681-	2200Ω (N) " , "
R104, 304	1-244-695-	8200Ω (N) " , "
R105, 305	1-221-916-	50kΩ (A) variable
R106, 306	1-242-691-	5600Ω 1/4W , carbon
R107, 307	1-242-719-	82kΩ (N) " , "
R108, 308	1-242-697-	10kΩ (N) " , "
R109, 309	1-242-713-	47kΩ (N) " , "
R110, 310	1-242-729-	220kΩ (N) " , "
R111, 311	1-242-677-	1500Ω (N) " , "
R112, 312	1-242-693-	6800Ω (N) " , "
R113, 313	1-242-691-	5600Ω (N) " , "
R114, 314	1-242-717-	68kΩ (N) " , "
R115, 315	1-242-699-	12kΩ " , "
R116, 316	1-242-703-	18kΩ (N) " , "
R117, 317	1-242-697-	10kΩ (N) " , "

Symbol	Part No.	Description
R118, 318	1-242-683-	2700Ω 1/4W , carbon
R119, 319	1-221-914-	500kΩ (C) variable
R120, 320	1-242-709-	33kΩ (N) 1/4W , carbon
R121, 321	1-242-690-	5100Ω (N) " , "
R122, 322	1-242-718-	75kΩ (N) " , "
R123, 323	1-221-915-	10kΩ (A) variable
R124, 324	1-242-731-	270kΩ (N) 1/4W , carbon
R125, 325	1-242-701-	15kΩ (N) " , "
R126, 326	1-221-952-	20kΩ (B) adjustable
R127, 327	1-221-401-	10kΩ (B) "
R128, 328	1-221-401-	10kΩ (B) "
R129, 329	1-221-952-	20kΩ (B) "
R130, 330	1-221-952-	20kΩ (B) "
R131, 331	1-242-673-	1 kΩ (N) 1/4W , carbon
R132, 332	1-242-719-	82kΩ (N) " , "
R133, 333	1-242-697-	10kΩ (N) " , "
R134, 334	1-242-713-	47kΩ (N) " , "
R135, 335	1-242-727-	180kΩ (N) " , "
R136, 336	1-242-661-	330Ω " , "
R137, 337	1-242-693-	6800Ω " , "
R138, 338	1-242-717-	68kΩ (N) " , "
R139, 339	1-242-699-	12kΩ " , "
R140, 340	1-242-699-	12kΩ (N) " , "
R141, 341	1-242-683-	2700Ω " , "
R142, 342	1-242-709-	33kΩ (N) " , "
R143, 343	1-242-723-	120kΩ (N) " , "
R144, 344	1-242-673-	1 kΩ " , "
R145, 345	1-242-707-	27kΩ (N) " , "
R146, 346	1-221-401-	10kΩ (B) adjustable
R147, 347	1-221-401-	10kΩ (B) "
R148, 348	1-242-731-	270kΩ 1/4W , carbon
R149, 349	1-242-711-	39kΩ " , "
R150, 350	1-242-715-	56kΩ " , "
R151, 351	1-242-635-	27Ω " , "
R152, 352	1-242-723-	120kΩ " , "
R153, 353	1-242-665-	470Ω " , "
R154, 354	1-242-691-	5600Ω " , "
R155, 355	1-242-683-	2700Ω " , "
R156, 356	1-242-667-	560Ω " , "
R157, 357	1-242-709-	33kΩ " , "
R158, 358	1-242-699-	12kΩ " , "
R159, 359	1-242-693-	6.8kΩ " , "
R160, 360	1-242-675-	1200Ω " , "
R161, 361	1-242-699-	12kΩ " , "
R162, 362	1-242-677-	1500Ω " , "
R163, 363	1-221-917-	50kΩ (A) variable

Symbol	Part No.	Description
R164, 364	1-242-615-	8200Ω (N) 1/4W , carbon
R165, 365	1-221-917-	50kΩ (A) variable
R166, 366	1-242-683-	2700Ω (N) 1/4W , carbon
R167, 367	1-242-693-	6800Ω (N) " , "
R168, 368	1-242-733-	330kΩ (N) " , "
R169, 369	1-242-712-	43kΩ (N) " , "
R170, 370	1-242-711-	39kΩ (N) " , "
R171, 371	1-242-723-	120kΩ (N) " , "
R172, 372	1-242-687-	3900Ω " , "
R173, 373	1-242-679-	1800Ω (N) " , "
R174, 374	1-242-711-	39kΩ " , "
R175, 375	1-242-697-	10kΩ " , "
R176, 376	1-242-679-	1800Ω " , "
R177, 377	1-242-689-	4700Ω " , "
R178, 378	1-242-713-	47kΩ " , "
R179, 379	1-221-921-	20kΩ (S) variable
R180, 380	1-242-653-	150Ω 1/4W , carbon
R181, 381	1-242-707-	27kΩ " , "
R182, 382	1-242-729-	220kΩ " , "
R183, 383	1-242-707-	27kΩ " , "
R184, 384	1-242-723-	120kΩ " , "
R185, 385	1-242-723-	120kΩ " , "
R186, 386	1-242-683-	2700Ω " , "
R187, 387	1-242-677-	1500Ω " , "
R188, 388	1-242-711-	39kΩ " , "
R189, 389	1-242-697-	10kΩ " , "
R190, 390	1-242-677-	1500Ω " , "
R191, 391	1-221-954-	200kΩ (B) adjustable
R192, 392	1-242-725-	150kΩ 1/4W , carbon
R193, 393	1-242-693-	6800Ω " , "
R194, 394	1-242-675-	1200Ω " , "
R195, 395	1-242-661-	330Ω " , "
R196, 396	1-242-715-	56kΩ " , "
R197, 397	1-242-713-	47kΩ " , "
R198, 398	1-242-715-	56kΩ " , "
R199, 399	1-242-673-	1 kΩ " , "
R200, 400	1-242-673-	1 kΩ " , "
R201, 401	1-242-643-	56Ω " , "
R202, 402	1-242-715-	56kΩ " , "
R203, 403	1-242-673-	1 kΩ " , "
R204, 404	1-242-719-	82kΩ " , "
R205, 405	1-242-697-	10kΩ " , "
R206, 406	1-242-673-	1 kΩ " , "
R207, 407	1-242-683-	2700Ω " , "
R208, 408	1-242-661-	330Ω " , "
R209, 409	1-242-687-	3900Ω " , "

Symbol	Part No.	Description
R210, 410	1-242-681-	2200Ω 1/4W , carbon
R211, 411	1-242-637-	33Ω " , "
R212, 412	1-242-667-	560Ω " , "
R213, 413	1-242-637-	33Ω " , "
R214, 414	1-242-667-	560Ω " , "
R215, 415	1-242-601-	1 Ω " , "
R216, 416	1-242-601-	1 Ω " , "
R217, 417	1-242-601-	1 Ω " , "
R218,,418	1-242-601-	1 Ω " , "
R219, 419	1-242-625-	10Ω " , "
R220, 420	1-242-669-	680Ω " , "
R221, 421	1-202-557-	220Ω 1/2W , composition
R222, 422	1-202-054-	15kΩ 1/8W , "
R223, 423	1-202-037-	8200Ω " , "
R224, 424	1-244-683-	2700Ω 1/4W , carbon
R225, 425	1-242-693-	6800Ω " , "
R226, 426		– deleted –
R227, 427	1-242-707-	27kΩ 1/4W , carbon
R501	1-242-651-	120Ω " , "
R502	1-221-630-	20kΩ (B) adjustable
R503	1-209-225-	1500Ω 1/4W , carbon
R504	1-242-657-	220Ω " , "
R505		– deleted –
R506	1-244-657-	220Ω 1/4W , carbon
R507	1-242-657-	220Ω " , "
R508	1-242-601-	1 Ω " , "
R509	1-242-601-	1 Ω " , "
R510	1-242-695-	8200Ω " , "
R511	1-242-695-	8200Ω " , "
R512	1-244-863-	390Ω 1/2W , "
R601	1-242-673-	1 kΩ 1/4W , "
R602	1-242-673-	1 kΩ " , "
R603	1-242-721-	100kΩ " , "
R604	1-242-707-	27kΩ " , "
R605	1-242-681-	2200Ω " , "
R606	1-242-697-	10kΩ " , "
R607	1-242-697-	10kΩ " , "
R608	1-242-697-	10kΩ " , "
R609	1-242-727-	180kΩ " , "
R610	1-221-465-	500Ω (B) adjustable
R611	1-242-735-	390kΩ 1/4W , carbon
R612	1-242-697-	10kΩ " , "
R613	1-242-721-	100kΩ " , "
R614	1-242-721-	100kΩ " , "
R615	1-242-713-	47kΩ " , "
R616	1-242-709-	33kΩ " , "

Symbol	Part No.	Description
R617	1-242-721-	100kΩ 1/4W , carbon
R618	1-242-697-	10kΩ " , "
R619	1-242-641-	47Ω " , "
R620	1-242-649-	100Ω " , "
R621	1-221-953-	50kΩ (B) adjustable
R622	1-242-697-	10kΩ 1/4W , carbon
R623	1-242-705-	22kΩ " , "
R624	1-242-665-	470Ω " , "
R625	1-242-613-	3.3Ω " , "
R626	1-242-697-	10kΩ " , "
R627	1-242-633-	22Ω " , "
R701	1-242-681-	2200Ω " , "
R702	1-242-681-	2200Ω " , "
R703	1-242-673-	1 kΩ " , "
R704	1-242-673-	1 kΩ " , "
R705	1-242-697-	10kΩ " , "
R706	1-242-707-	27kΩ " , "
R707 ※	1-242-703-	18kΩ " , "
R708	1-242-701-	15kΩ " , "
R709	1-242-687-	3900Ω " , "
R710	1-221-371-	5kΩ (B) adjustable
R711	1-242-697-	10kΩ 1/4W , carbon
R712	1-242-707-	27kΩ " , "
R713 ※	1-242-703-	20kΩ " , "
R714	1-242-703-	20kΩ " , "
R715	1-242-691-	5600Ω " , "
R716	1-221-371-	5kΩ (B) adjustable
R717	1-242-701-	15kΩ 1/4W , carbon
R718	1-242-707-	27kΩ " , "
R719 ※	1-242-703-	18kΩ " , "
R720	1-242-703-	18kΩ " , "
R721	1-242-691-	5600Ω " , "
R722	1-221-371-	5kΩ (B) adjustable
R723	1-242-693-	6800Ω 1/4W , carbon
R724	1-242-685-	3300Ω " , "
R725	1-242-681-	2200Ω " , "
R726	1-242-687-	3900Ω " , "
R727	1-242-709-	33kΩ " , "
R728	1-242-697-	10kΩ " , "
R729	1-242-681-	2200Ω " , "
R730	1-242-667-	560Ω " , "
R731	1-244-637-	33Ω " , "
R732	1-242-681-	2200Ω " , "
R733	1-242-689-	4700Ω " , "
R734	1-242-705-	22kΩ " , "
R735	1-242-651-	120Ω " , "
R736	1-242-671-	820Ω 1/4W , carbon
R737		– deleted –
R738	1-242-703-	18kΩ 1/4W , carbon
R739	1-244-673-	1 kΩ " , "
R740	1-207-175-	12Ω 3 W , wire wound

Capacitors

C101, 201	1-141-034-	30～200pF , trimmer
C102, 202	1-141-034-	30～200pF , "
C103, 203	1-107-005-	220pF , silvered mica
C104, 204	1-121-442-	1 μF 50V , electrolytic
C105, 205	1-106-115-12	0.001 μF , mylar
C106, 206	1-121-481-	30 μF 3V , electrolytic
C107, 207	1-121-486-	50 μF 3V , "
C108, 208	1-121-472-	10 μF 25V , "
C109, 209	1-121-463-	5 μF 15V , "
C110, 210	1-121-476-	20 μF 6V , "
C111, 211	1-107-027-	10pF , silvered mica
C112, 212	1-106-086-12	0.015 μF , mylar
C113, 213	1-106-098-12	0.047 μF , "
C114, 214	1-106-082-12	0.01 μF , "
C115, 215	1-107-004-	100pF , silvered mica
C116, 216	1-121-470-	10 μF 12V , electrolytic
C117, 217	1-107-027-	10pF , silvered mica
C118, 218	1-106-115-12	0.001 μF , mylar
C119, 219	1-121-442-	1 μF 50V , electrolytic
C120, 220	1-121-486-	50 μF 3V , "
C121, 221	1-121-472-	10 μF 25V , "
C122, 222	1-107-054-	33pF , silvered mica
C123, 223	1-121-476-	20 μF 6V , electrolytic
C124, 224	1-121-463-	5 μF 15V , "
C125, 225	1-121-377-	100 μF 25V , "
C126, 226	1-127-091-	0.2 μF 25V , "
C127, 227	1-127-091-	0.2 μF 25V , "
C128, 228	1-106-115-12	0.001 μF , mylar
C129, 229	1-121-464-	5 μF 25V , electrolytic
C130, 230	1-121-442-	1 μF 50V , "
C131, 231	1-106-094-12	0.033 μF , mylar
C132, 232	1-106-090-12	0.022 μF , "
C133, 233	1-121-314-	100 μF 3V , electrolytic
C134, 234	1-106-082-12	0.01 μF , mylar
C135, 235	1-127-022-	0.5 μF 10V , "
C136, 236	1-121-314-	100 μF 3V , "
C137, 237	1-121-470-	10 μF 12V , "
C138, 238	1-106-058-12	0.001 μF , mylar
C139, 239	1-107-059-	180pF , silvered mica
C140, 240	1-107-059-	180pF , "

※ To be selected

Symbol	Part No.	Description
C141, 241	1-107-016-	470pF , silvered mica
C142, 242	1-107-018-	270pF , "
C143, 243	1-106-066-12	0.0022μF , mylar
C144, 244	1-106-086-12	0.015μF , "
C145, 245	1-106-086-12	0.015μF , "
C146, 246	1-106-106-12	0.1μF , "
C147, 247	1-121-476-	20μF 6V , electrolytic
C148, 248	1-106-115-12	0.001μF , mylar
C149, 249	1-121-314-	100μF 3V , electrolytic
C150, 250	1-121-317-	200μF 3V , "
C151, 251	1-121-314-	100μF 3V , "
C152, 252	1-121-470-	10μF 12V , "
C153, 253	1-121-442-	1μF 50V , "
C154, 254		– deleted –
C155, 255	1-121-314-	100μF 3V , electrolytic
C156, 256	1-121-314-	100μF 3V , "
C157, 257	1-121-470-	10μF 12V , "
C158, 258	1-106-155-12	0.047μF , mylar
C159, 259	1-121-463-	5μF 15V , electrolytic
C160, 260	1-121-470-	10μF 12V , "
C161, 261	1-107-008-	150pF , silvered mica
C162, 262	1-121-463-	5μF 15V , electrolytic
C163, 263	1-121-463-	5μF 15V , "
C164, 264	1-121-318-	200μF 6V , "
C165, 265	1-107-005-	220pF , silvered mica
C166, 266	1-121-340-	100μF 15V , electrolytic
C167, 267	1-121-311-	50μF 3V , "
C168, 268	1-107-004-	100pF , silvered mica
C169, 269	1-121-338-	50μF 15V , electrolytic
C170, 270	1-121-361-	500μF 35V , "
C171, 271	1-106-155-12	0.047μF , mylar
C172, 272	1-106-074-12	0.0047μF , "
C173, 273	1-106-062-12	0.0015μF , "
C174, 274	1-107-004-	100pF , silvered mica
C301	1-121-379-	200μF 25V , electrolytic
C302	1-121-377-	100μF 25V , "
C303	1-106-115-12	0.001μF , mylar
C304	1-127-019-	0.1μF 10V , electrolytic
C305	1-121-339-	100μF 10V , "
C306	1-121-470-	10μF 12V , "
C307	1-121-319-	200μF 12V , "
C308	1-121-339-	100μF 10V , "
C309	1-121-470-	10μF 12V , "
C310	1-129-370-	0.0022μF , polyethylene
C311	1-106-062-12	0.0015μF , mylar
C312	1-106-082-12	0.01μF , "

Symbol	Part No.	Description
C313	1-106-082-12	0.01μF , mylar
C314	1-121-388-	1000μF 35V, electrolytic
C315	1-121-388-	1000μF 35V, "
C401	1-121-470-	10μF 12V, "
C402	1-106-090-12	0.022μF , mylar
C403	1-106-442-	1μF 50V , electrolytic
C404	1-106-086-12	0.015μF , mylar
C405	1-106-058-12	0.001μF , "
C406	1-121-449-	2μF 35V , electrolytic
C407	1-121-442-	1μF 50V , "
C408	1-121-442-	1μF 50V , "
C409	1-121-342-	500μF 6V , "
C410	1-121-470-	10μF 12V , "
C411	1-106-102-12	0.068μF , mylar
C412	1-121-339-	100μF 10V , electrolytic
C413	1-121-442-	1μF 50V , "
C501	1-121-307-	10μF 12V , "
C502	1-106-094-12	0.033μF , mylar
C503	1-106-086-12	0.015μF , "
C504	1-106-086-12	0.015μF , "
C505	1-106-082-12	0.01μF , "
C506	1-106-082-12	0.01μF , "
C507	1-106-090-12	0.022μF , "
C508	1-106-102-12	0.068μF , "
C509	1-106-094-12	0.033μF , "
C510	1-106-094-12	0.033μF , "
C511	1-106-086-12	0.015μF , "
C512	1-106-086-12	0.015μF , "
C513	1-106-094-12	0.033μF , "
C514	1-106-106-12	0.1μF , "
C515	1-106-088-12	0.018μF , "
C516	1-106-100-12	0.1μF , "
C517	1-106-094-12	0.033μF , "
C518	1-106-094-12	0.033μF , "
C519	1-106-102-12	0.068μF , "
C520	1-121-307-	10μF 12V , electrolytic
C521	1-121-307-	10μF 12V , " "
C522	1-121-442-	1μF 50V , "
C523	1-121-490-	100μF 3V , "
C524	1-121-449-	2μF 35V , "
C525	1-106-163-12	0.1μF , mylar
C526	1-121-410-	50μF 25V , electrolytic
C527	1-121-442-	1μF 50V , "
C528	1-121-307-	10μF 12V , "
C529	1-121-410-	50μF 25V , "
C530	1-106-013-12	0.0033μF , mylar

16. PARTS LIST FOR SCREWS, WASHERS & NUTS

Part No.	Description
Screws	
7-621-255-25	⊕ P 2 x 4
7-621-255-35	⊕ P 2 x 5
7-621-255-45	⊕ P 2 x 6
7-621-255-55	⊕ P 2 x 8
7-621-259-25	⊕ P 2.6 x 4
7-621-259-35	⊕ P 2.6 x 5
7-621-259-55	⊕ P 2.6 x 8
7-621-259-65	⊕ P 2.6 x 10
7-621-259-85	⊕ P 2.6 x 14
7-621-260-05	⊕ P 2.6 x 16
7-621-261-25	⊕ P 3 x 4
7-621-261-35	⊕ P 3 x 5
7-621-261-43	⊕ P 3 x 6
7-621-261-55	⊕ P 3 x 8
7-621-261-57	⊕ P 3 x 8
7-621-261-65	⊕ P 3 x 10
7-621-261-75	⊕ P 3 x 12
7-621-262-05	⊕ P 3 x 16
7-621-261-62	⊕ P 3 x 10
7-621-268-45	⊕ P 4 x 6
7-621-268-55	⊕ P 4 x 8
7-621-268-65	⊕ P 4 x 10
7-621-269-15	⊕ P 4 x 18
7-621-269-13	⊕ P 4 x 18
7-621-655-25	⊕ RK 2 x 4
7-621-655-65	⊕ RK 2 x 10
7-621-661-57	⊕ RK 3 x 8
7-621-559-45	⊕ K 2.6 x 6
7-621-561-55	⊕ K 3 x 8
7-621-770-37	⊕ B 2 x 4
7-621-773-62	⊕ B 3 x 5
7-621-773-63	⊕ B 5 x 30
7-621-459-15	⊕ T 2.6 x 3
7-621-459-25	⊕ T 2.6 x 4
Wood Screws	
7-621-852-30	⊕ K 2.7 x 10
7-621-843-56	⊕ R 3.1 x 20
Screws with Spring Washer	
7-628-251-25	⊕ PS 3 x 6
7-628-251-32	⊕ PS 3 x 8
7-628-254-02	⊕ PS 2.6 x 5
7-628-251-12	⊕ PS 3 x 5
7-628-251-42	⊕ PS 3 x 10
7-628-257-22	⊕ PS 4 x 8
Spring Washers	
7-623-205-22	SW 2φ
7-623-207-22	SW 2.6φ
7-623-208-22	SW 3φ
7-623-210-22	SW 4φ
Washers	
7-623-105-12	W 2φ
7-623-105-02	W 2φ (small)
7-623-107-12	W 2.6φ
7-623-107-02	W 2.6φ (small)
7-623-108-12	W 3φ
7-623-108-02	W 3φ (small)
7-623-110-12	W 4φ
7-623-110-02	W 4φ (small)
7-623-112-22	W 5φ (large)
7-623-112-02	W 5φ (small)
7-623-113-02	W 6φ (small)
Lock Washers	
7-623-407-05	LW 2.6φ
7-623-408-05	LW 3φ
Nuts	
7-622-108-02	N 3φ
7-622-308-02	LN 3φ
7-622-110-02	N 4φ
7-622-310-22	LN 4φ
Retaining Rings	
7-624-102-01	E-1.5
7-624-104-01	E-2
7-624-105-01	E-3
7-624-108-01	E-4
7-624-109-01	E-5
7-624-110-01	E-6
Set Screw	
7-621-713-65	SC 3 x 10
Lug	
7-623-508-01	3φ
Speed Nut	
7-622-408-21	3φ
Hexagon Bolt	
7-621-999-83	4 x 8
Steel Ball	
7-671-112-01	2φ

Hardware Nomenclature

P – Pan Head Screw .....

PS – Pan Head Screw with Spring Washer .....

K – Flat Countersunk Head Screw ...

B – Binding Head Screw .....

RK – Oval Countersunk Head Screw ..

T – Truss Head Screw .....

R – Round Head Screw .....

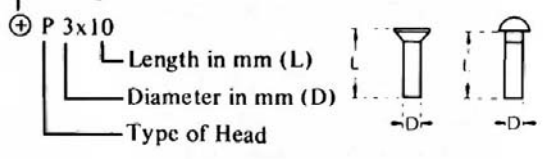
F – Flat Fillister Head Screw .....

SC – Set Screw .....

E – Retaining Ring (E Washer) .....

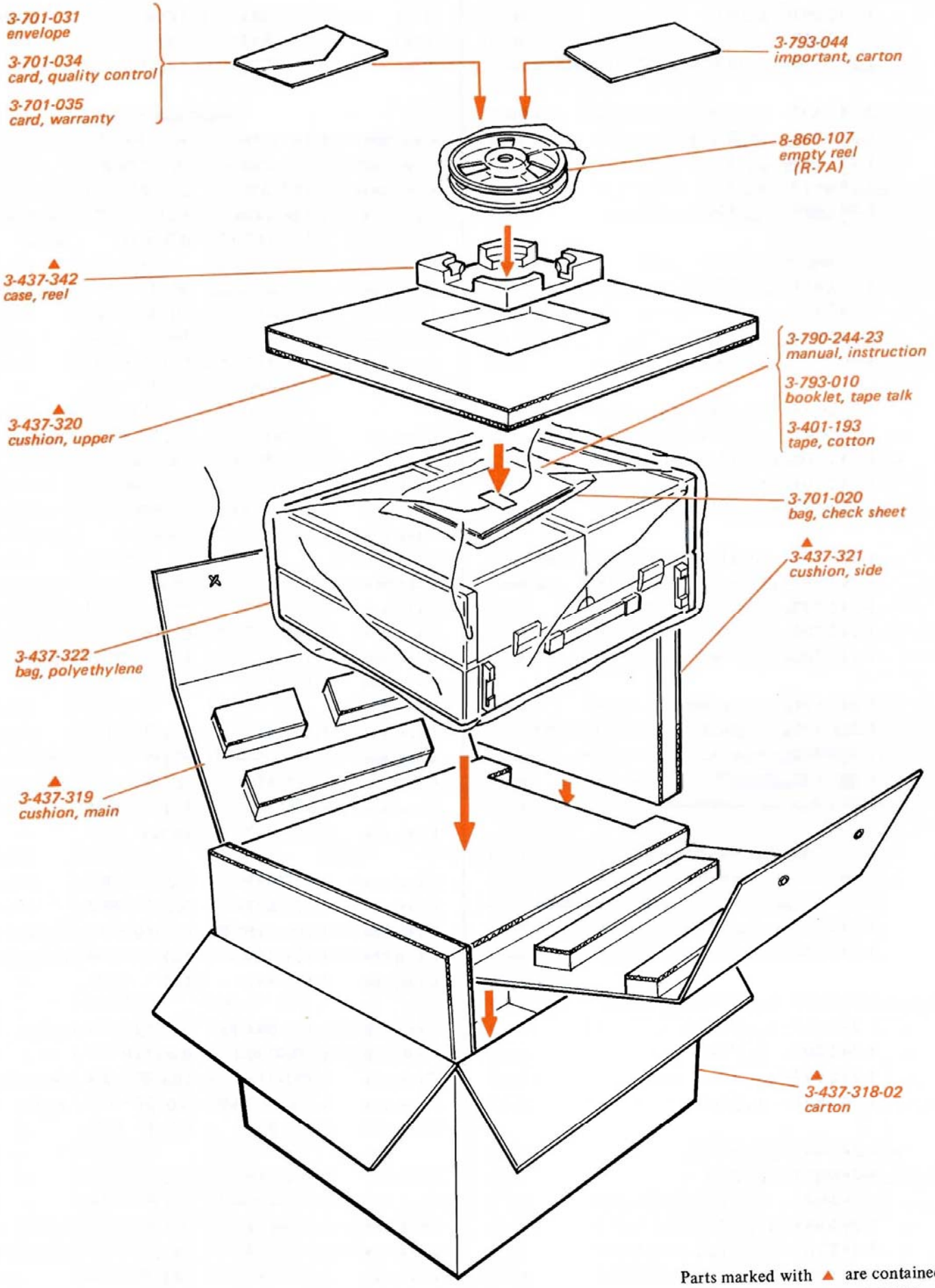
W – Washer
SW – Spring Washer
LW – Lock Washer
N – Nut

– Example –



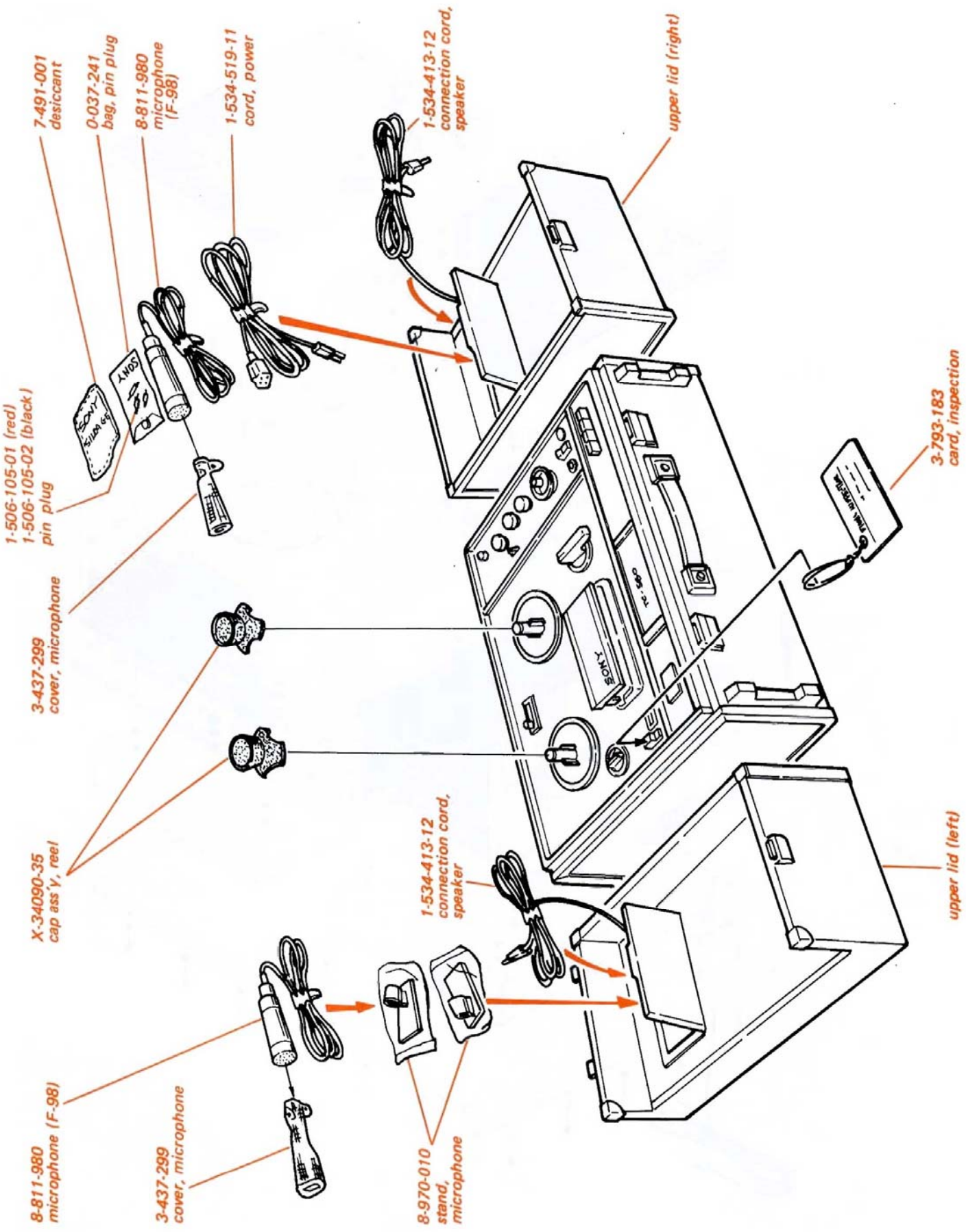
17. EXPLODED VIEW

17-1. Packing

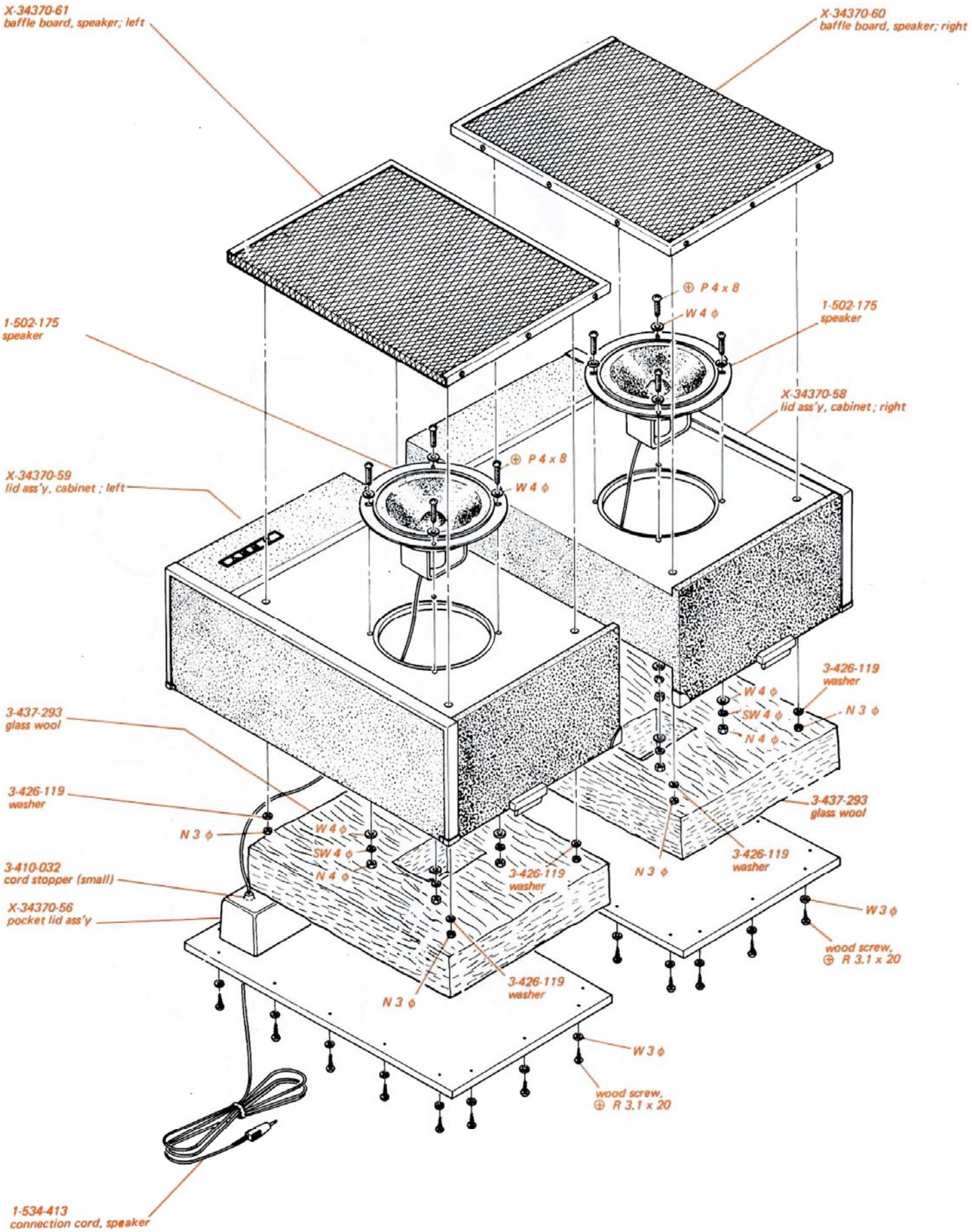


Parts marked with ▲ are contained in carton ass'y (X-34370-64-2).

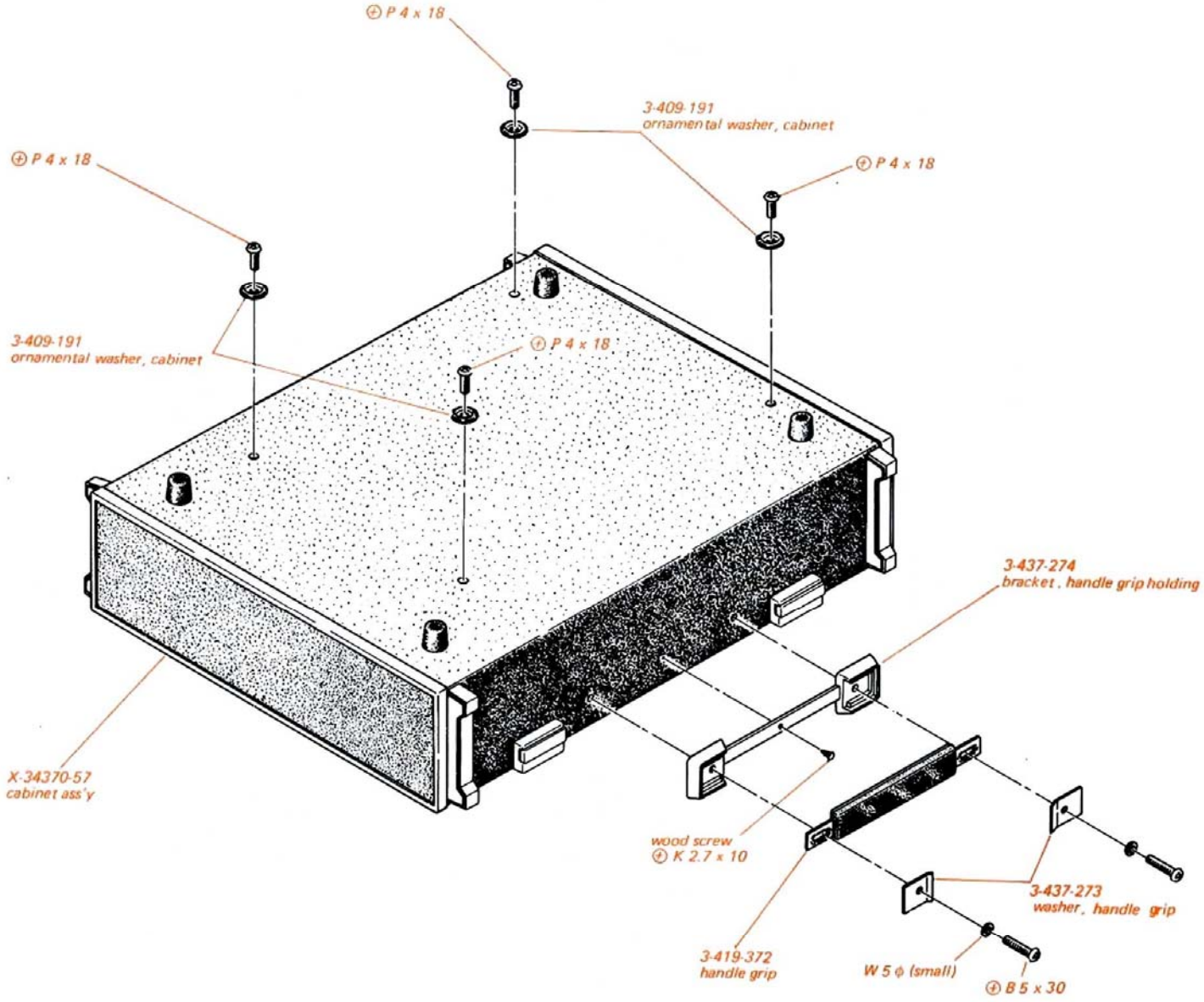
17-2. Accessories



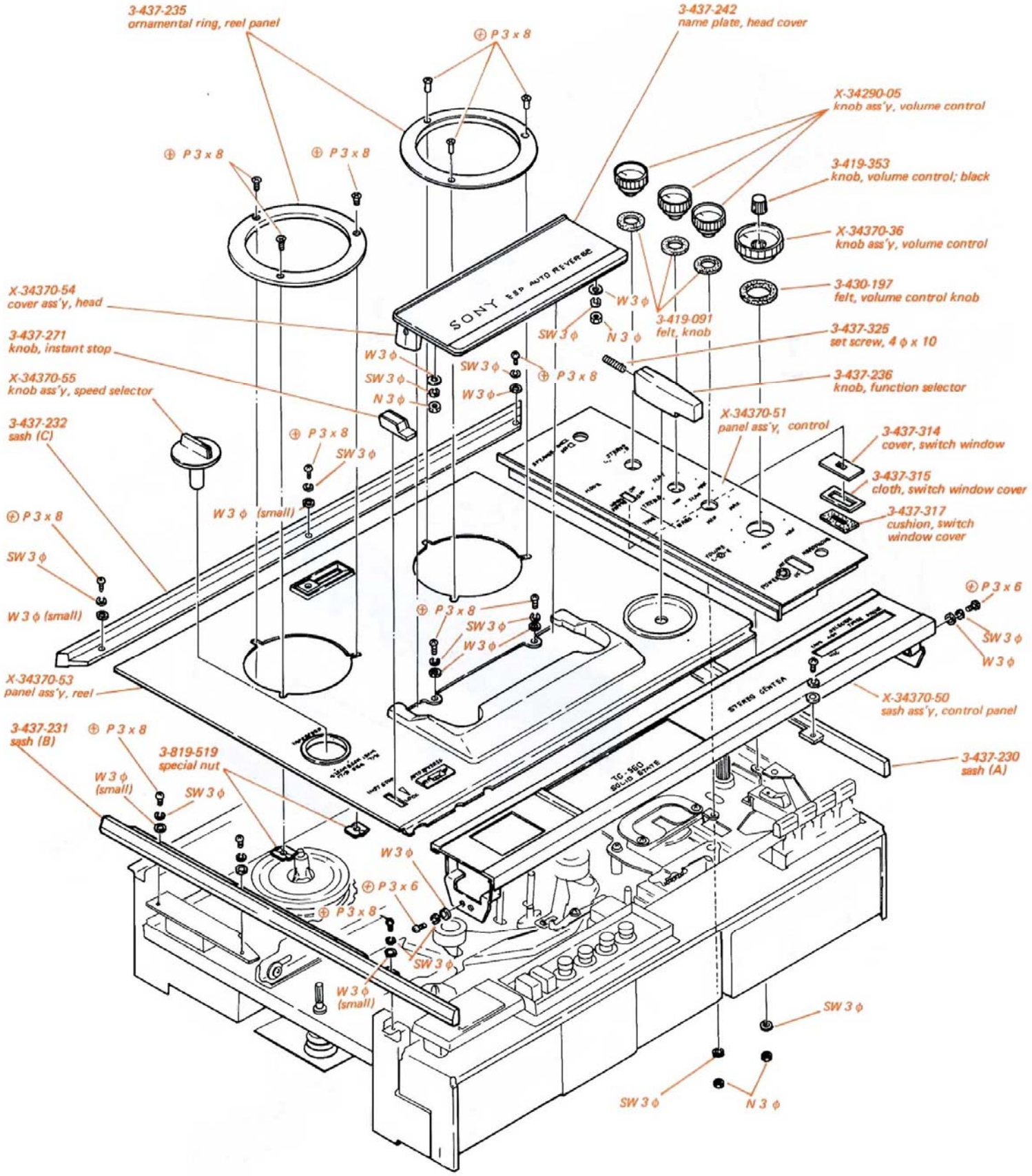
17-3. Speaker Box



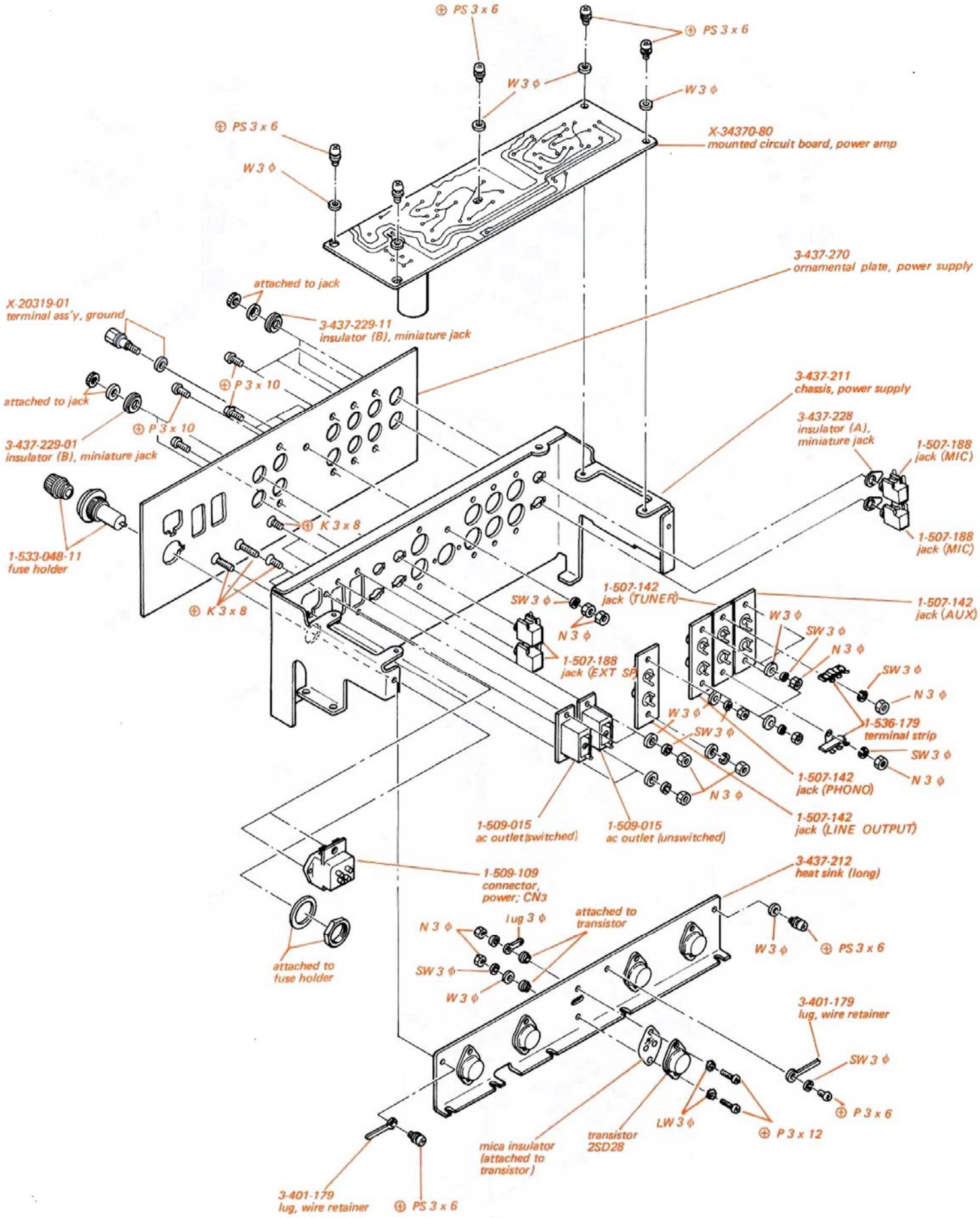
17-4. Cabinet — bottom view —



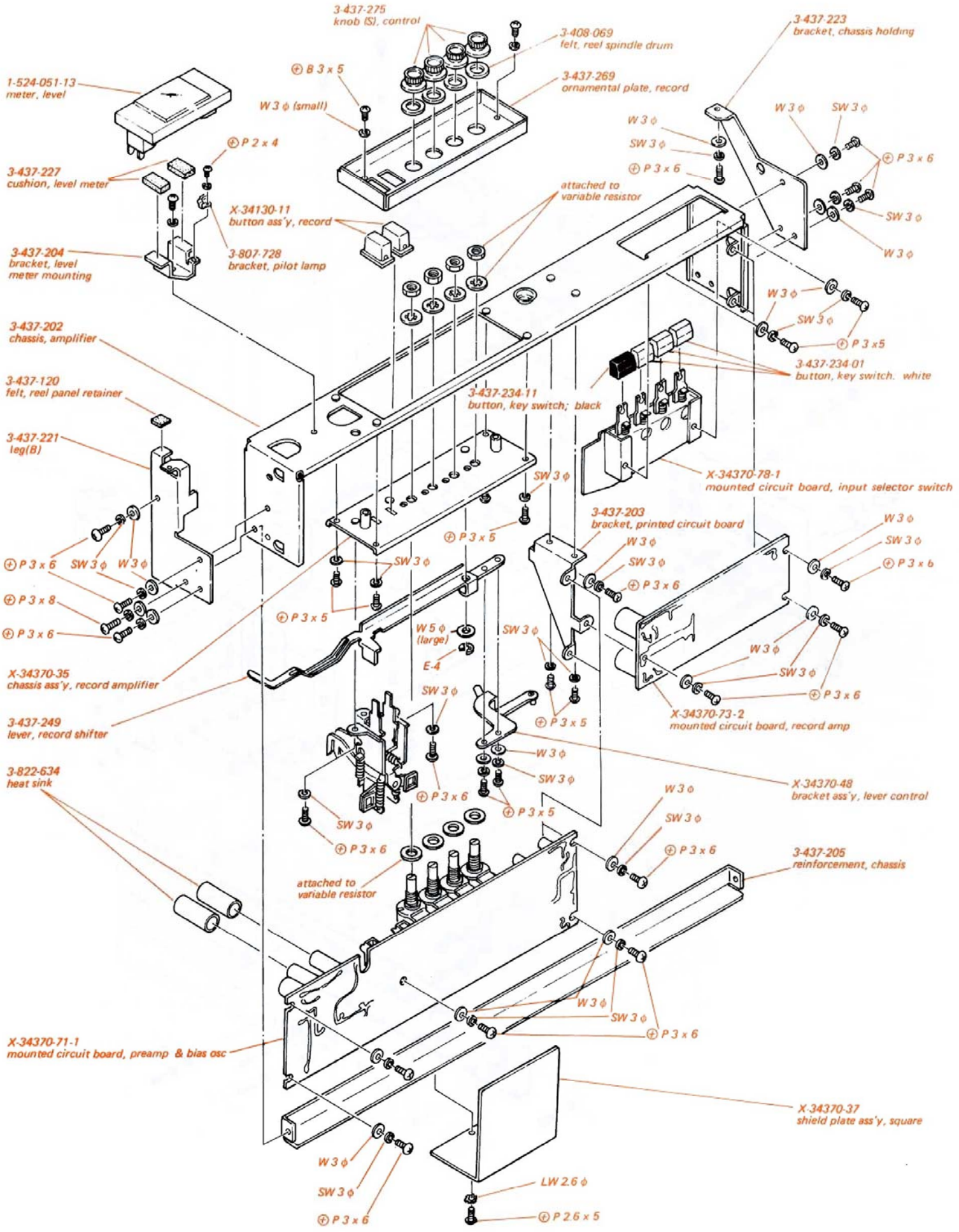
17-5. Cabinet — top view —



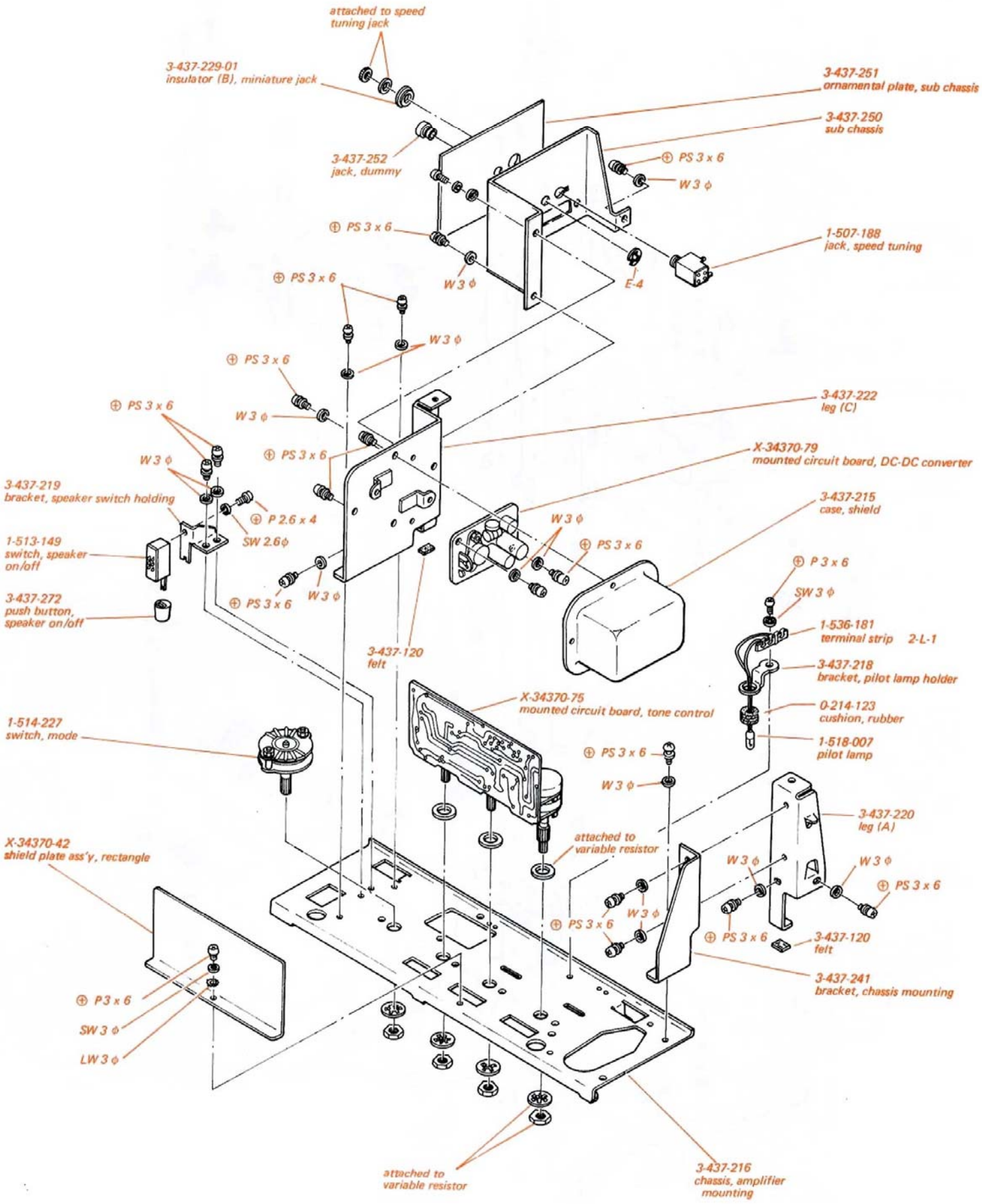
17-6. Jack Panel – top view –



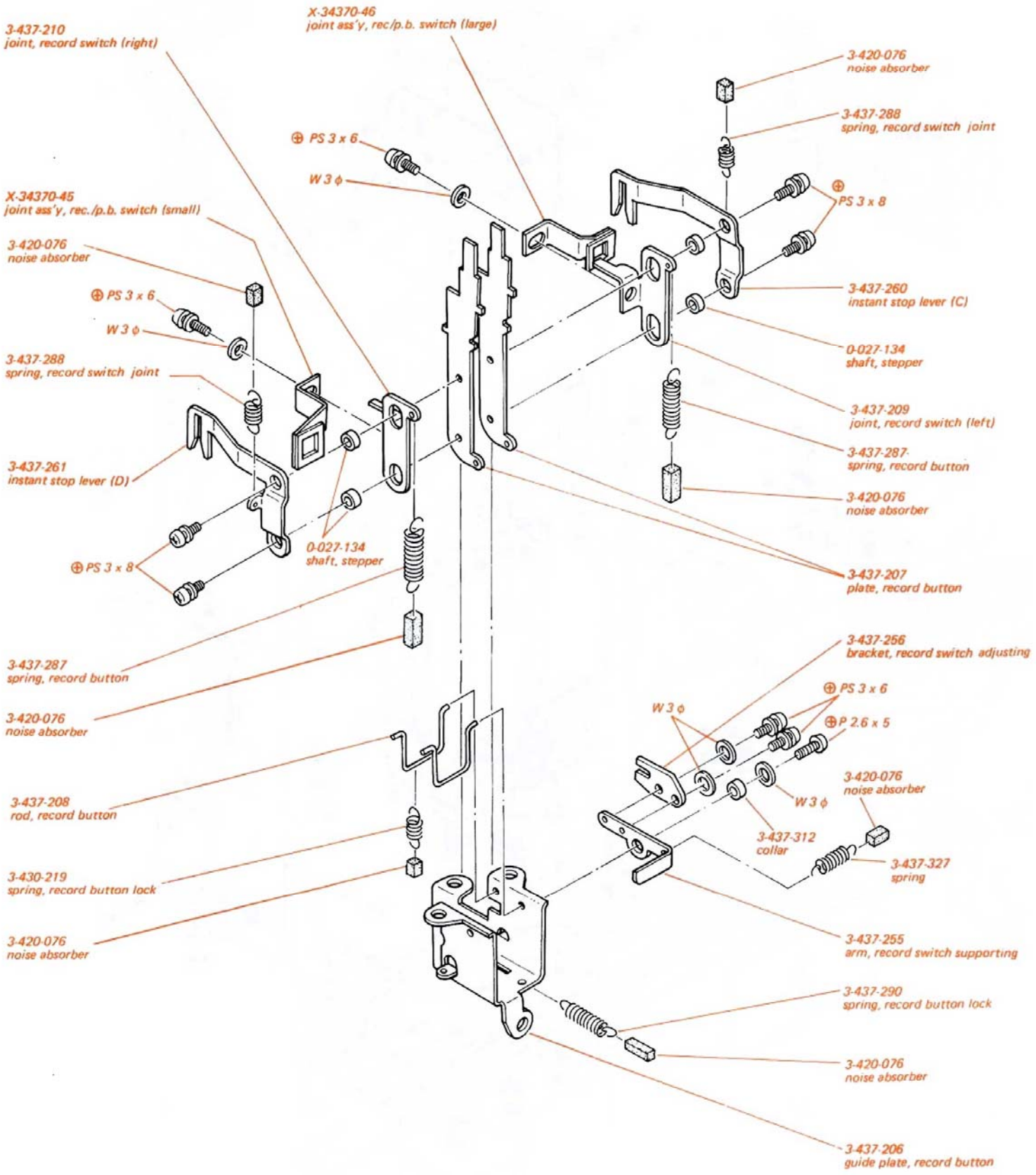
17-7. Front Panel – top view –



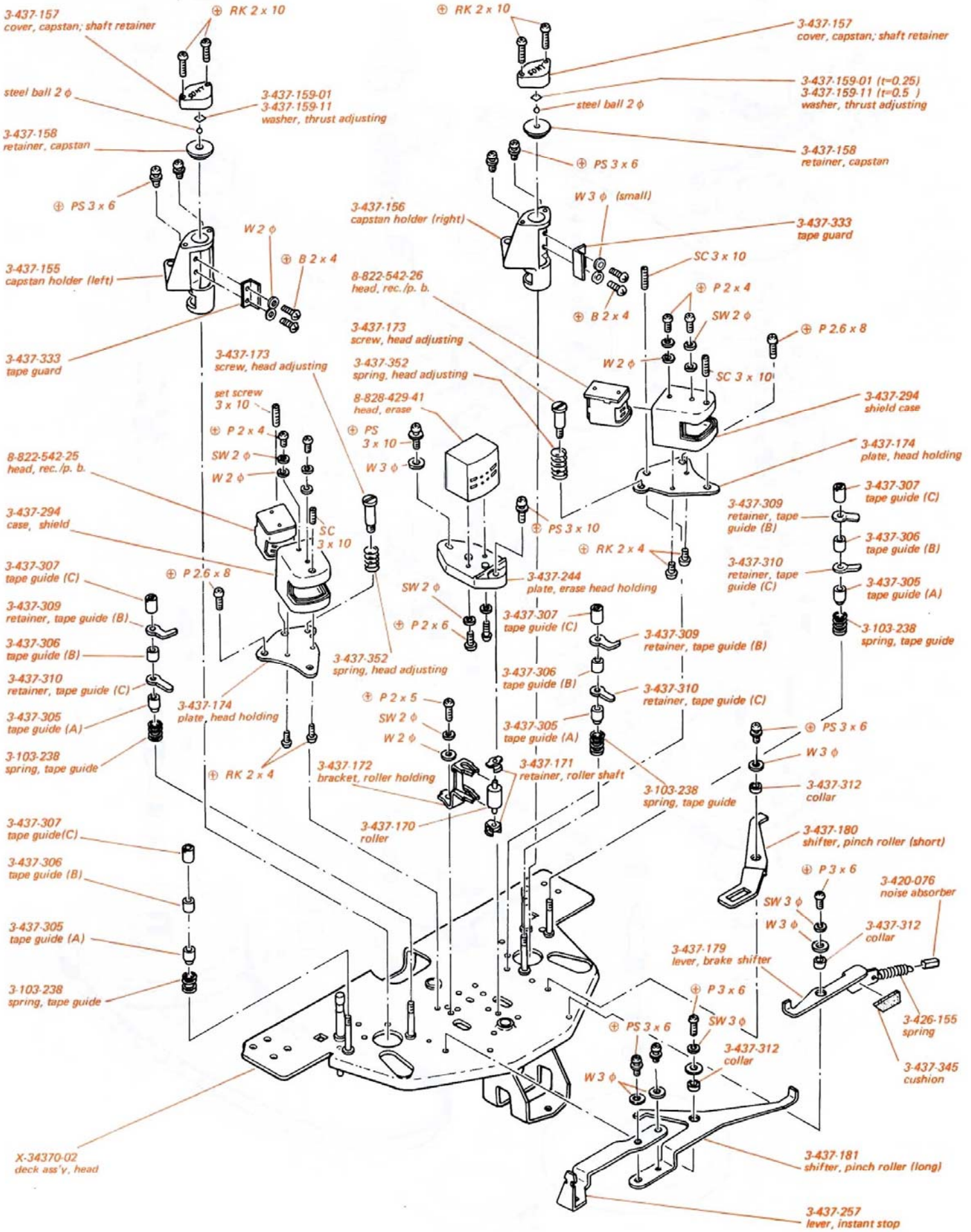
17-8. Side Panel – bottom view –



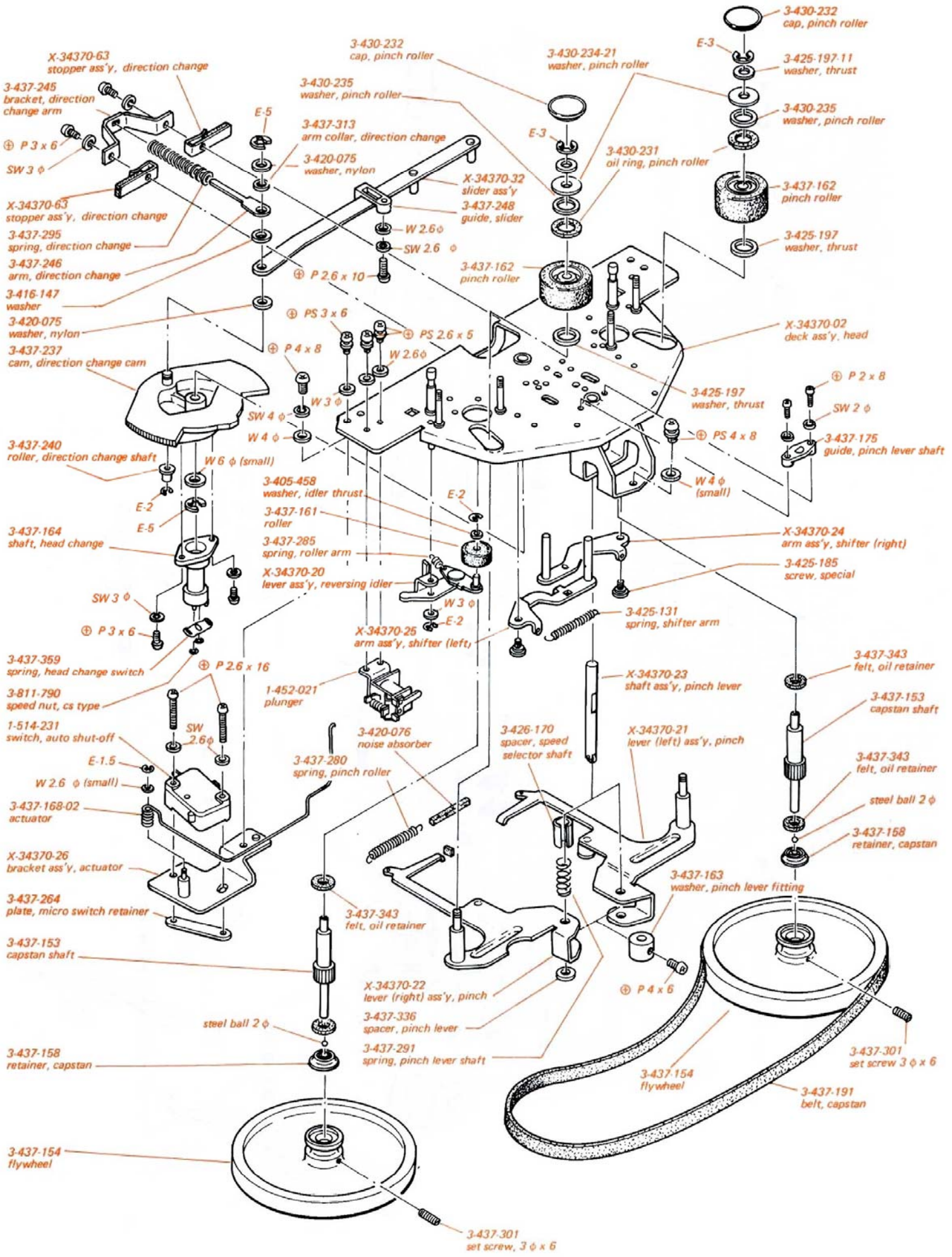
17-9. Record Switch – top view –



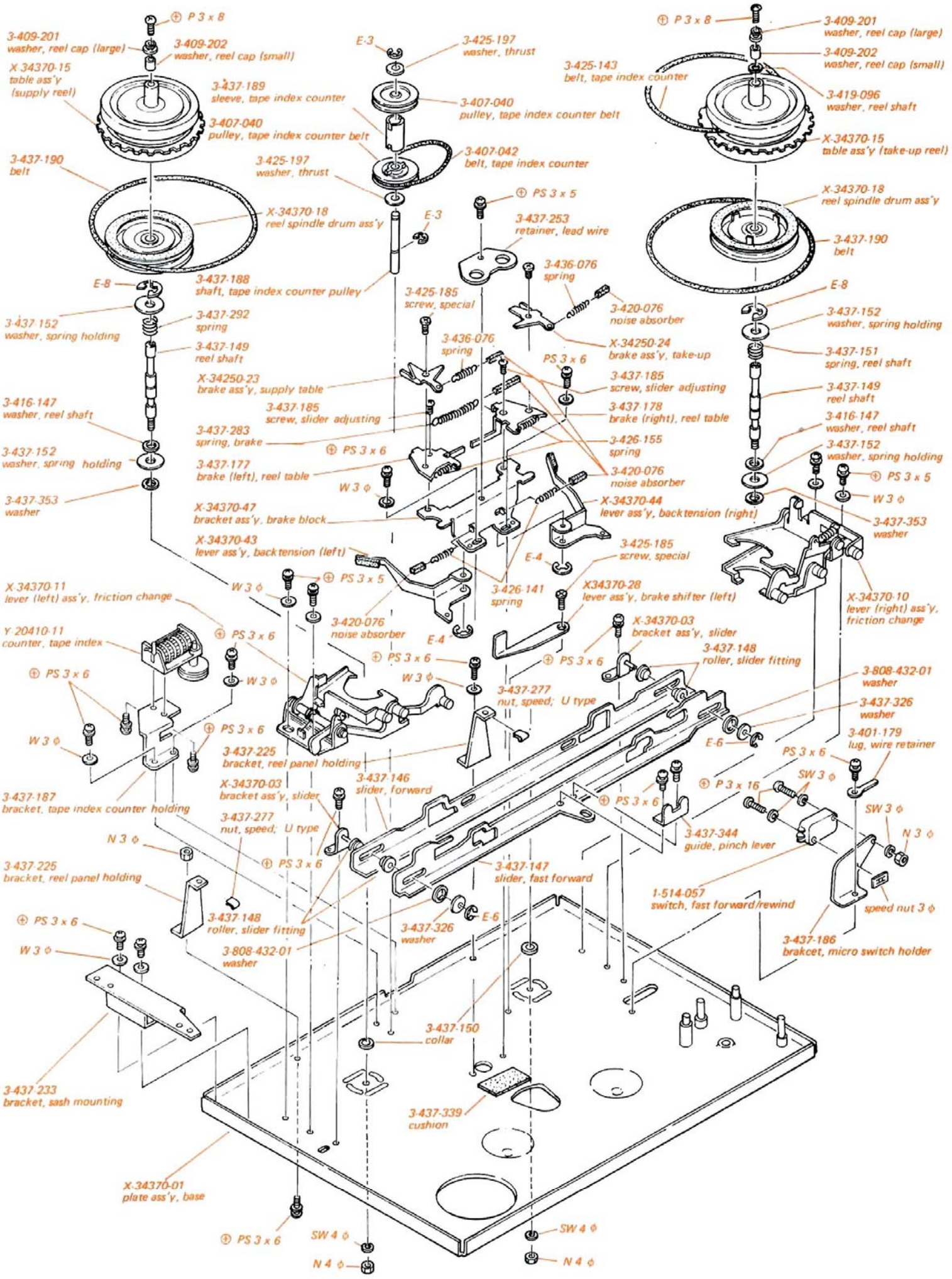
17-10. Head Deck – top view –



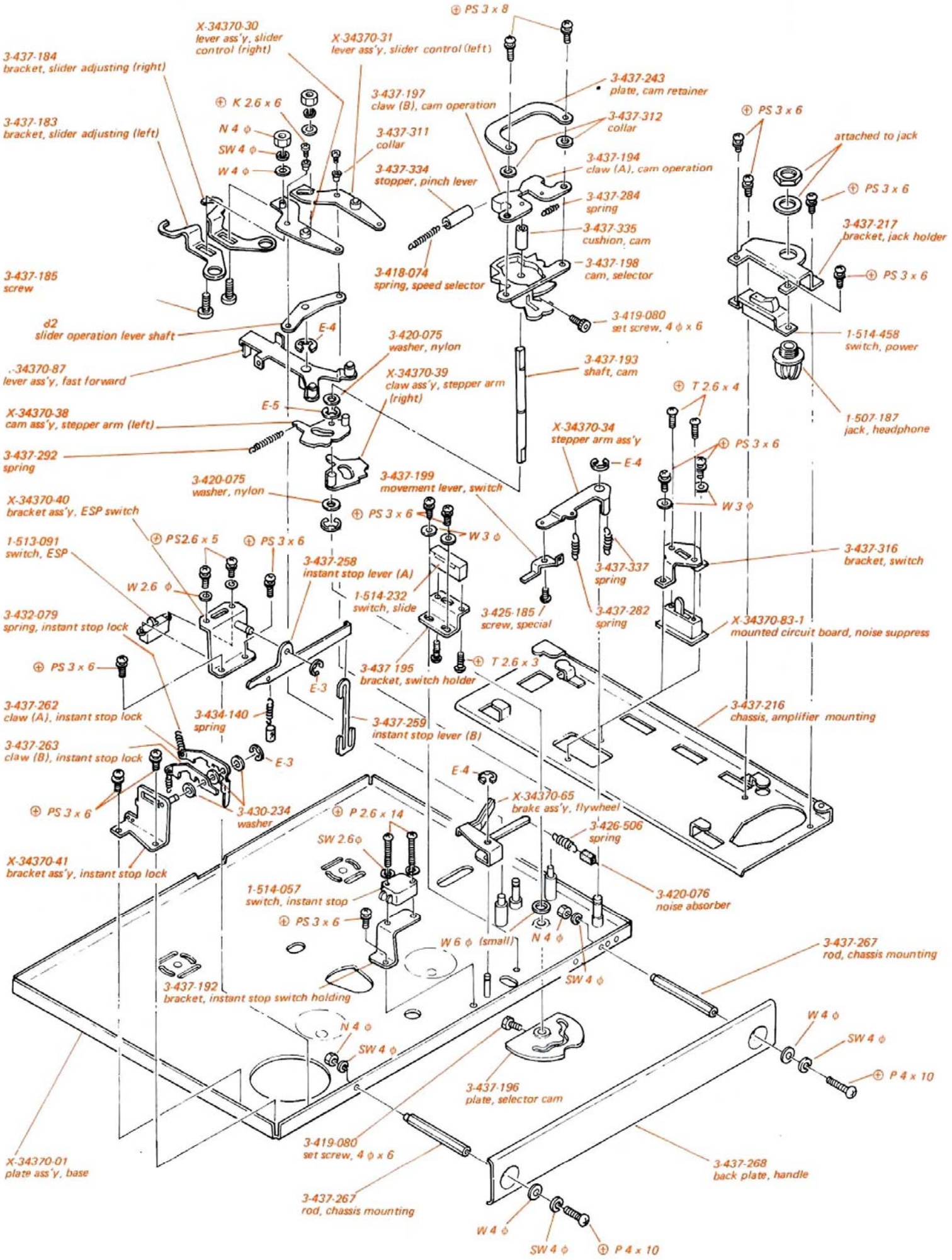
17-11. Head Deck — bottom view —



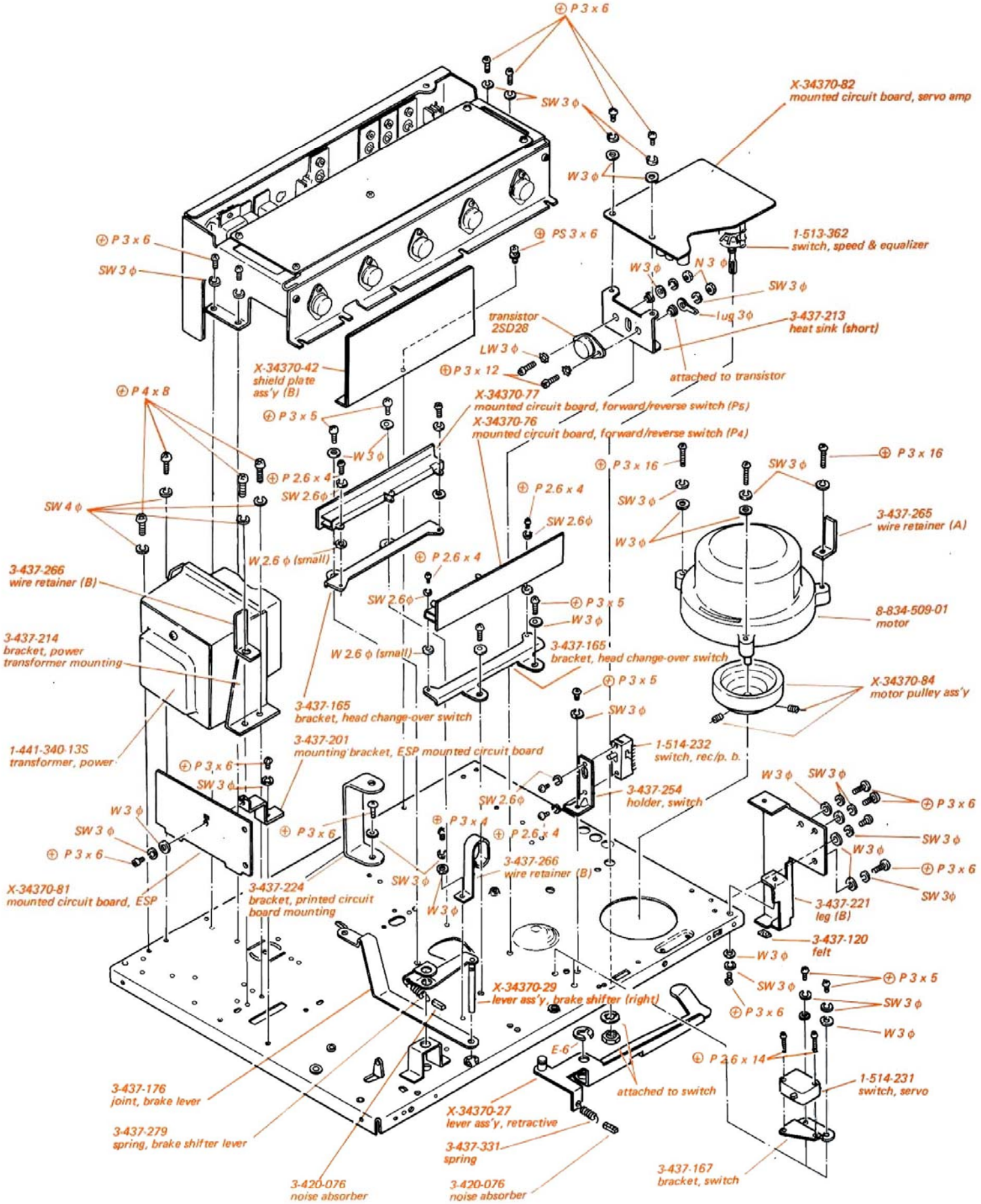
17-12. Chassis — top view — (1)



17-13. Chassis — top view — (2)



17-14. Chassis — bottom view —



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