

SD-5000

SERVICE HANDBOOK

Sansui SANSUI ELECTRIC COMPANY LIMITED

This handbook is designed for service engineers to repair, adjust, maintain and order the replacement parts of the SD-5000 correctly.

When ordering the parts, use the stock number and parts name specifically referring to the Exploded Views and Parts Locations.

For general usage and maintenance of the unit, please refer to the Operating Instructions which is on file at the end of this handbook.

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1. SPECIFICATIONS

TRACK

SYSTEM: 4-track 2-channel
 REEL SIZE: 7" maximum
 TAPE SPEEDS: 19 cm/sec. (7½ ips), 9.5 cm/sec. (3¾ ips)

TAPE SPEED

ACCURACY: ± 0.5 % at 7½ ips and 3¾ ips

HEADS:

Erase 4-track 2-channel
 Record 4-track 2-channel
 Forward playback 4-track 2-channel
 Reverse playback 4-track 2-channel

MOTORS:

One 4-pole/8-pole 2-speed hysteresis synchronous motor for capstan drive
 6-pole induction type for supply reel drive.
 6-pole eddy current type for take up reel drive.

FAST FORWARD/

REWIND TIME: Approx. 120 sec. for 1,800-foot tape

WOW AND

FLUTTER: 0.08 % WRMS at 7½ ips
 0.12 % WRMS at 3¾ ips

FREQUENCY

RESPONSE: 15 ~ 25,000 Hz (20 ~ 20,000 Hz within ± 3 dB) at 7½ ips
 15 ~ 15,000 Hz (30 ~ 12,000 Hz within ± 3 dB) at 3¾ ips

S/N RATIO: Better than 60 dB (3 % THD level to weighted noise level)

CROSSTALK: Better than 50 dB between channels at 1,000 Hz
 Better than 60 dB between tracks at 1,000 Hz

HARMONIC

DISTORTION: Playback preamp distortion less than 0.15 % (at 1,000 Hz and output of 1.2 V)
 Tape record/playback distortion less than 1.2 % (at 1,000 Hz and 0 VU), less than 3% (at 1,000 Hz and +6 VU)

ERASING

EFFICIENCY: Better than 60 dB

INPUT SENSITIVITY AND

IMPEDANCE: Microphone: 0.5 mV min., 50 kΩ
 LINE-1: 70 mV min., 100 kΩ
 LINE-2 (DIN): 14 mV min., 100 kΩ

OUTPUT

LEVEL: HIGH OUT: 1.2 V max.
 (0 VU = 0.775 V)
 LOW OUT: 0.35 V max.
 (0 VU = 0.225 V)
 DIN: 0.35 V max.
 (0 VU = 0.225 V)
 Headphones: 10 mW, 8 Ω

BIAS

FREQUENCY: 100 kHz

SWITCHES: Operating switches (REVERSE/REWIND/STOP/FAST FORWARD/FORWARD), Pause (OFF/ON/LOCK), Tape Speed (7½ ips/3¾ ips) (19 cm/sec./9.5 cm/sec.)
 Record Selector (STAND-BY, STEREO,L,R), Rec. Bias (STANDARD, HIGH), Monitor (SOURCE, PLAYBACK)

SEMI-

CONDUCTORS: Transistors: 20
 Diodes: 14

POWER RE-

QUIREMENTS: 100/110/117/200/220/240 V AC, 50/60 Hz

POWER CON-

SUMPTION: 110 W (120 VA)

DIMENSIONS: 420mm(W) x 486mm(H) x 253mm(D)
 (16 1/2") (19 1/8") (10")

WEIGHT: 20.2 kg (44.4 lbs)

*Manufacturer reserves right to change design and/or specifications without notice for purpose of improvement.

ACCESSORIES: 1. EMPTY REEL (RSM-7) ... 1
 2. CLEANER (SHC-1) 1
 3. OIL (MOBIL DTE-24) 1
 4. SPLICING TAPE 1
 5. SENSING FOIL 15
 6. PIN PLUG CORDS..... 2
 7. ECHO RECORDING
 PLUG 1
 8. SPARE FUSES 2
 9. REEL SPACERS..... 2
 10. SILICON CLOTH 1
 11. OPERATING
 INSTRUCTIONS 1
 12. INSTRUCTION SHEET ... 1

2. OPERATION OF RELAYS

2-1. Stop Button Operation (See Fig. 2-1. Stop Button Operation)

- 1) When the power switch S1 is pushed, the capstan motor MT-701 rotates clockwise by 100 V AC.
As 80 V DC rectified by D801 is supplied to the lifter solenoid PS704 from terminal ① of G-1103B to actuate PS704, the lifter goes down. The shut-off switch S2 linked with the right tension arm is then turned on and 80 V DC is supplied to pins (terminals) 2 and 5 of J702 through S2 and S3.
- 2) When the stop button “■” S3 is pushed, the relay-drive current is cut off and the unit returns to the starting state as in step 1). When the stop button is pushed in the reverse play mode, the unit starts in the same mode.

2-2. Forward Operation (See Fig. 2-2. Forward Operation)

The relay RL806 is actuated by pushing the forward button “▶” S4.

- 1) RL806 is self-held, as the relay voltage is applied through terminal ⑦ of G-1103B by closing the contact RL806-1.
The brakes of left and right reel motors are released, and then the pinch roller bears against the capstan by actuating the relays RL804 and RL805, the pinch roller solenoid PS703 and the brake solenoids (PS701 for left and PS702 for right).
- 2) When RL804 is actuated and the contact RL804-1 is opened, the lifter solenoid PS704 is cut off and the lifter goes up to press the tape to the head.
When the brake solenoids PS701 and PS702 are actuated, the linked microswitch S13 closes the reel motor grounding circuit and S14 holds PS701 and PS702.
- 3) Even when the contact RL806-2 is switched, RL803 is not actuated as C805 is not charged.
- 4) When the contact RL806-4 is switched, the left reel motor MT-702 rotates clockwise in a weak torque by the current supplied through terminals 1 and 3 of the left torque adjusting resistor R702.

When the contact RL806-3 is switched, the right reel motor rotates counterclockwise by the current supplied through terminals 7 and 8 of the right torque adjusting resistor R703 in slightly greater torque as the resistance is lower than R702.

- 5) The tape on the left reel is moved to the right reel by capstan driving as the capstan motor MT-701 is rotating clockwise.
In this case the left motor torque works as a back tension.

2-3. Reverse Operation (See Fig. 2-3. Reverse Operation)

When the reverse button “◀” S5 is pushed, the relays RL801, RL802, RL806, RL803 and RL808 are actuated.

- 1) When the contacts RL801-1 and RL801-2 are switched, the capstan motor MT-701 rotates counterclockwise.
- 2) Relay RL806 operates in the same way as in Section 2-2. Forward Operation.
- 3) When the contact RL801-4 is switched, the delay relay RL803 is actuated by the current supplied from C805.
The contact RL803-1 opens for about 2 seconds and the pinch roller, lifter and brake solenoids are cut off as the currents are not supplied. The contact RL802-3 makes RL801, RL802 and RL808 self-hold.
- 4) The direction indicating lamp is switched to the mark “◀”, when the contact RL802-2 is switched.
When the contact RL802-2 is opened, the power to the record relay RL401 of G-1100C is cut off and recording can not be made.
- 5) When the contact RL802-1, RL806-3 and RL804 are switched, current flows to the left reel motor MT-702 through terminals 1 and 2 of the left torque adjusting resistor R702. MT-702 rotates clockwise in a strong torque. To the right reel motor, current flows through terminals 6 and 8 of the right torque adjusting resistor R703. The right reel motor MT-703 rotates counterclockwise in weaker torque than the left reel motor, as the resistance is higher than R702.
- 6) The tape on the right reel is wound to the left by the rotation of the capstan, as the capstan motor MT-701 rotates counterclockwise.

Here the right reel motor torque works as a back tension.

- 7) When the relay RL808 is actuated, the contact RL808-1 is closed and the relay RL101 of G-1111A is actuated. The contacts RL101-1 and RL101-2 are switched and the connection is switched from the forward head to the reverse head.

2-4. Fast Forward Operation (See Fig. 2-4. Fast Forward Operation)

The brake solenoids PS701 and PS702 are actuated, when the fast forward button “▶▶” S6 is pushed.

- 1) When the brake solenoids PS701 and PS702 are actuated, the linked microswitches S13 and S14 are turned on. S14 holds PS701 and PS702.
- 2) When S13 is closed, current flows to the left reel motor MT-702 through terminals 9 and 10 of the torque adjusting resistor R701. The left reel motor rotates clockwise in a weak torque. Tape is wound to the right reel as a full power (110 V AC) is supplied to the right reel motor MT-703 and the motor rotates counterclockwise in a strong torque. Here the left reel motor torque works as a weak back tension.

2-5. Rewind Operation (See Fig. 2-5. Rewind Operation)

When the rewind button “◀◀” S7 is pushed, the relay RL807 is actuated.

- 1) When the contact RL807-2 is closed, the relay RL807 is self-held.
- 2) When the contact RL807-3 is closed, the brake solenoids PS701 and PS702 are actuated and the microswitches S13 and S14 linked with the brake solenoids are turned on. S14 holds the brake solenoids.
- 3) When S13 is closed and the contact RL807-1 is switched, a full power (110 V AC) is applied to the left reel motor MT-702 and the motor rotates clockwise in a strong torque. To the right reel motor MT-703, current flows through terminals 9 and 10 of the torque adjusting resistor R701. MT-703 rotates counterclockwise in a weak torque, and the tape on the right reel is wound to the left reel. Here the right reel motor torque works as a weak back tension.

2-6. Automatic Reverse Operation

This circuit operates with a sensing foil used in the forward play mode.

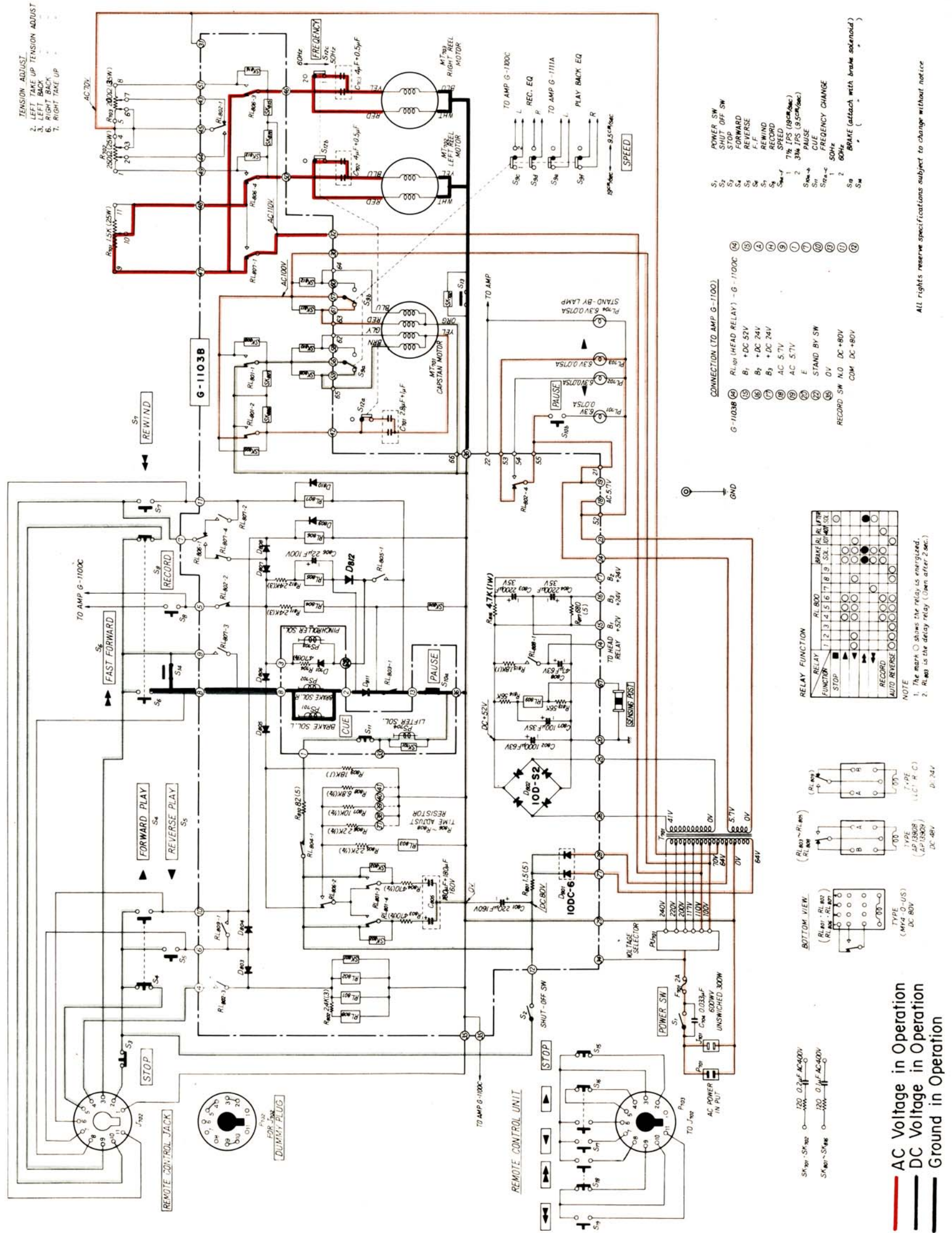
- 1) When the sensing foil shorts the contacts of the sensing post, the relay RL809 is actuated.
- 2) When the contact RL809-1 is closed, the relays RL801, RL802 and RL808 are actuated.
- 3) When the contact RL801-4 is switched and capacitor C805 is discharged, the delay relay RL803 is actuated and the contact RL803-1 opens. It cuts off RL804 for about 2 seconds. The contact RL804-1 is closed and the lifter solenoid PS704 lowers the lifter. Even when the contact RL803-1 is open, the brake solenoids PS701 and PS702 and the pinch roller solenoid PS703 are held in the same state as the RL805 is actuated.
- 4) When the delay relay RL803 is cut off, the contact RL803-1 is closed and RL804 is actuated. The contact RL804-1 opens and the lifter goes up, as the lifter solenoid PS704 is cut off. As the relays RL801, RL802, RL806 and RL808 are actuated, the unit operates in the reverse mode.
- 5) For the operation of RL801, RL802, RL806 and RL808, see Section 2-3. Reverse Operation.

2-7. Record Button Operation

The relay RL401 of G-1100C is actuated when both the record button S8 and the forward button “▶” S4 are pushed simultaneously. See Section 2-2. Forward Operation for relay movements in the forward operation.

- 1) The contact RL401-4 makes the relay RL401 self-hold.
- 2) The contact RL401-3 is switched. The bias oscillating circuit starts operation and supplies bias current to the record head. The erasing current is supplied to the erase head.
- 3) The record lamps light as the contacts RL401-1 and RL401-2 are switched.

Fig. 2-4. Fast Forward Operation



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3. MECHANISM ADJUSTMENTS

3-1. Brake Torque Adjustment (See Fig. 3-1)

- Set the power switch to OFF.
- 1) Place an empty reel (with 10 cm hub diameter with about 80 cm length of string to the reel anchor) and a spring scale on the left reel table as shown in Fig. 3-1.
- 2) Wind several turns of string counterclockwise around the hub, pull the spring scale slowly at a constant speed (tape speed) in the direction of the arrow.
Loosen the adjusting screw and adjust the brake lever (left) for the spring scale reading between 120 g and 150 g.
- 3) For adjustment of right reel brake torque, place the reel and spring scale on the right reel table in the reverse way, repeat all steps as described for the left reel. Adjust the brake lever (right)

for proper left brake torque, between 120 g and 150 g.

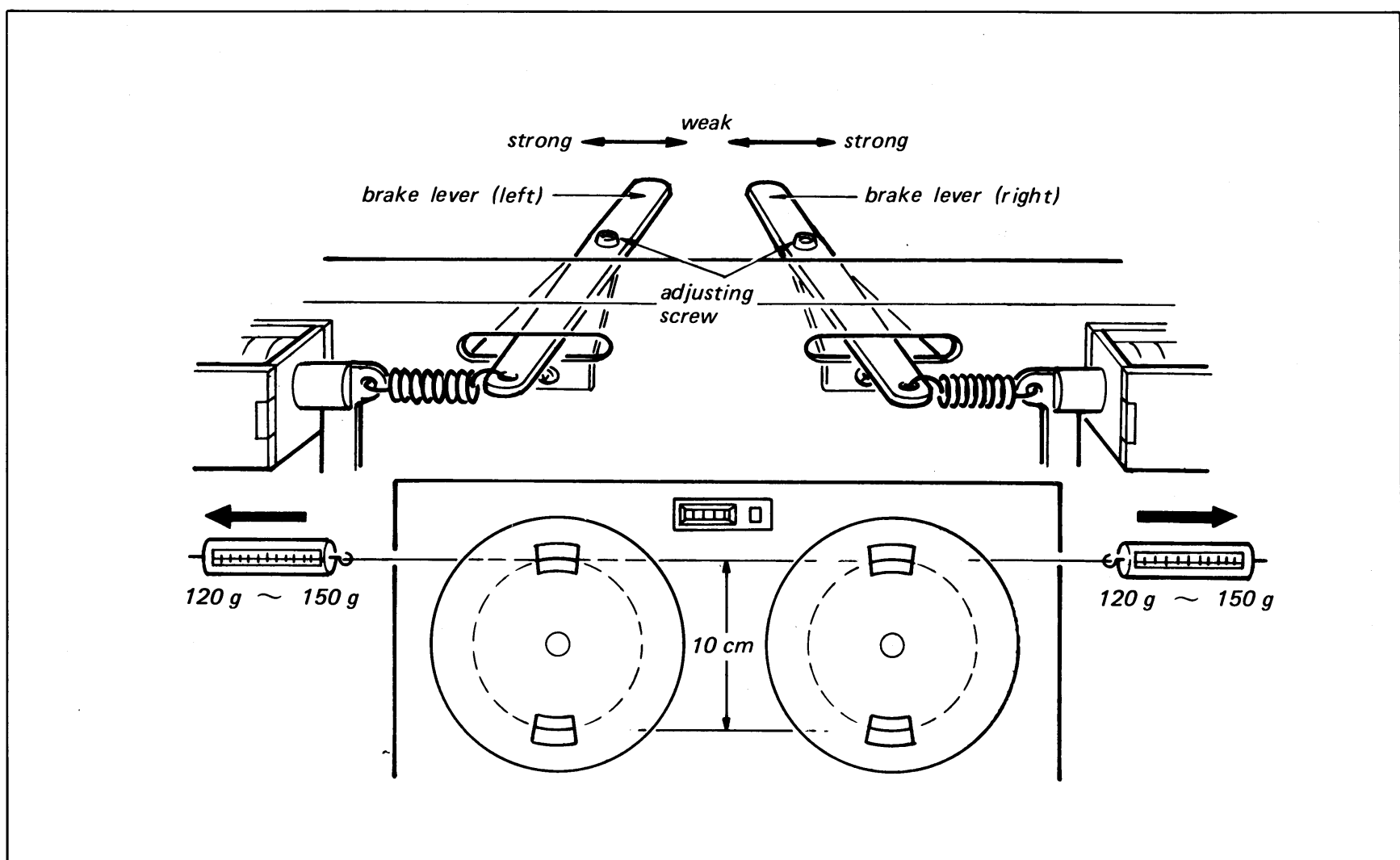


Fig. 3-1. Brake torque adjustment

3-2. Reel Motor Torque Adjustment (See Figs. 3-2 and 3-3)

- Tape speed should be 19 cm/sec (7½ ips)
- Turn on the shut-off switch linked with the tension arm.
- Set the reel hub and spring scale as shown in Fig. 3-2.

3-2-1. Back-Tension Torque Adjustment

① Left Back-Tension Torque Adjustment

- 1) Place the reel and spring scale on the left reel table.
- 2) Push the FORWARD button “▶”.
- 3) Pull the spring scale in the direction of A at a constant speed (tape speed).
- 4) Adjust a slider band 3 of the left torque adjusting resistor R702 (shown in Fig. 3-3) for a reading of 70 g.

② Right Back-Tension Torque Adjustment

- 1) Place the reel and spring scale on the right reel table.
- 2) Push the REVERSE button “◀”.
- 3) Pull the spring scale in the direction of D at a constant speed (tape speed).
- 4) Adjust a slider band 6 of the right torque adjusting resistor R703 (shown in Fig. 3-3) for a spring scale reading of 70 g.

3-2-2. Take-up Torque Adjustment

① Left Take-up Torque Adjustment

- 1) Place the reel and spring scale on the left reel table.

- 2) Push the REVERSE button “◀”.
- 3) The spring scale pulled in the direction of B at a constant speed (tape speed).
- 4) Adjust a slider band 2 of the left torque adjusting resistor R702 (shown in Fig. 3-3) for a spring scale reading of 90 g.

② Right Take-up Torque Adjustment

- 1) Place the reel and spring scale on the right reel table.
- 2) Push the FORWARD button “▶”.
- 3) The spring scale pulled in the direction of C at a constant speed (tape speed).
- 4) Adjust a slider band 7 of the right torque adjusting resistor R703 (shown in Fig. 3-3) for a spring scale reading of 70 g.

3-3. Reel Motor Torque Adjustment in Rewind Mode (See Figs. 3-2 and 3-3)

- Set the SHUT-OFF switch linked to the right tension arm to ON position.
 - Place the reel and spring scale on the right reel table as shown in Fig. 3-2.
- 1) Push the REWIND button “◀◀”, and pull the spring scale at a constant speed (tape speed) in the direction of D.
 - 2) Adjust the slider band 10 of torque adjusting resistor R701 (shown in Fig. 3-3) for a spring scale reading of 20 g.
 - 3) After the adjustments, run the tape several times both in FAST FORWARD and REWIND modes, and check if tape running starts quickly and smoothly.

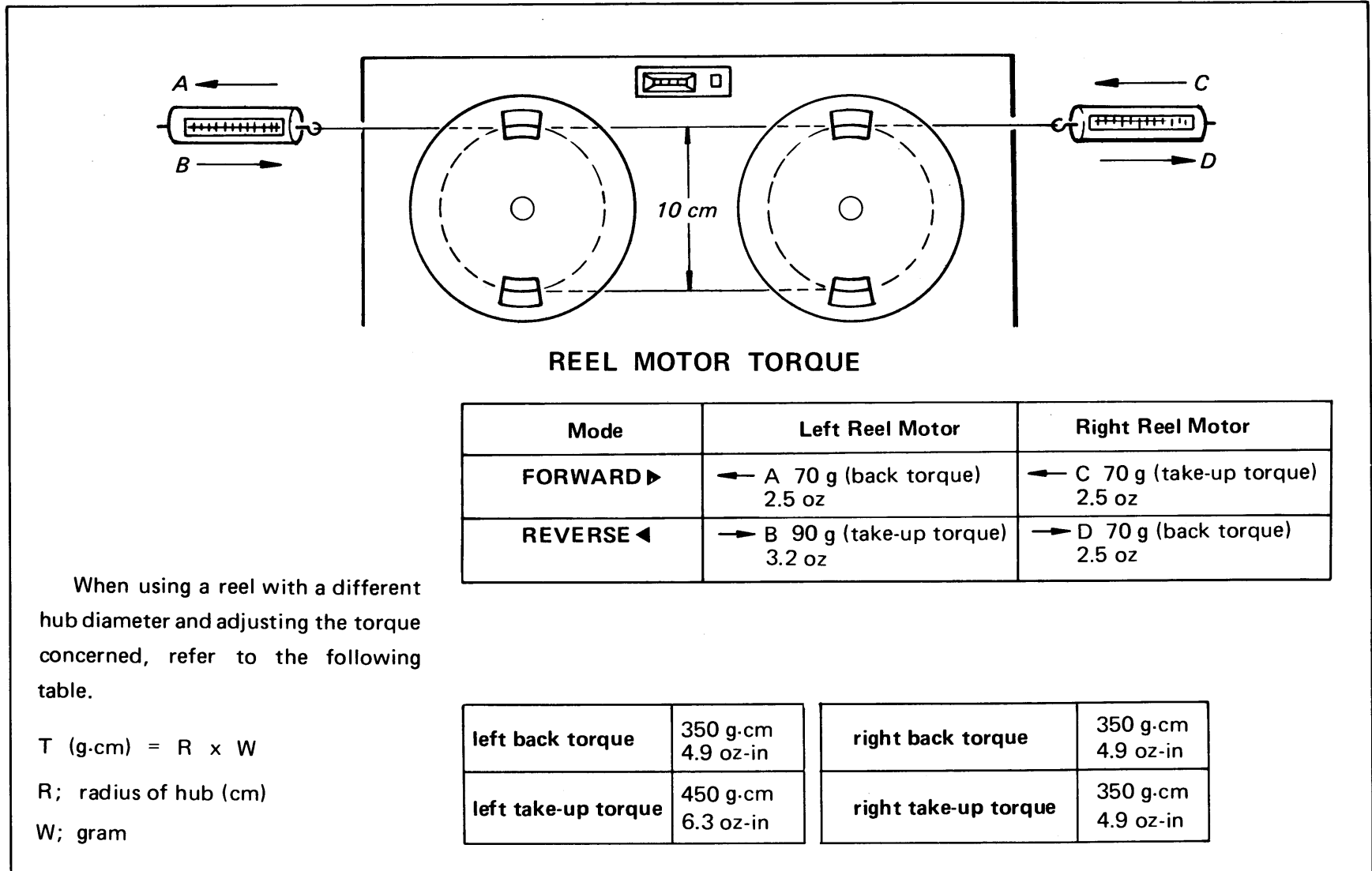


Fig. 3-2. Reel motor torque adjustment

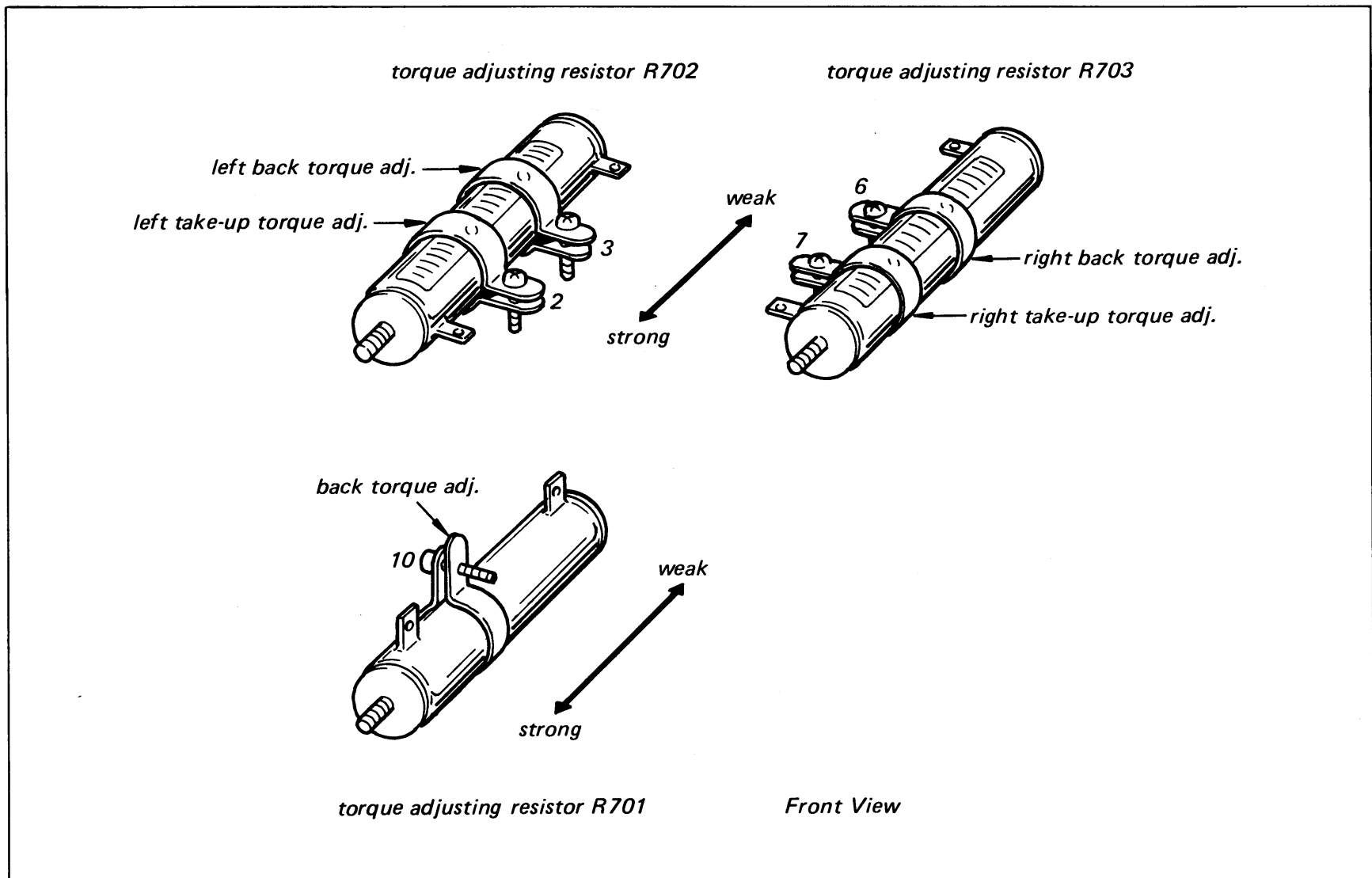


Fig. 3-3. Reel motor torque adjustment

3-4. Pinch Roller Pressure Adjustment (See Fig. 3-4)

- Pinch roller pressure adjustment is made with the power switch and shut-off switch (linked with the right tension arm) are ON.
- 1) Loosen the locking nuts A and D, and adjusting nuts B and C.
- 2) Set the spring scale to the pinch roller as shown in Fig. 3-4. Push the FORWARD button "▶".
- 3) With the pinch roller being contact with the capstan, pull the spring scale slowly in the direction of arrow. Check the moment of the pinch

roller stops rotating at the instant and adjust the adjusting nut C (see Fig. 3-4) of the pinch roller solenoid for a spring scale reading between 1.3 and 1.5 kg.

- 4) After fixing the adjusting nut C and locking nut D, the adjusting nut B is tightened slowly while keeping pressure constant, and fix the locking nut A completely.
- 5) Thread a tape on the set, and make sure that the pinch roller pressure does not change by repeating FORWARD to STOP process several times.

Note: Apply the locking paint to all of the adjusting nuts.

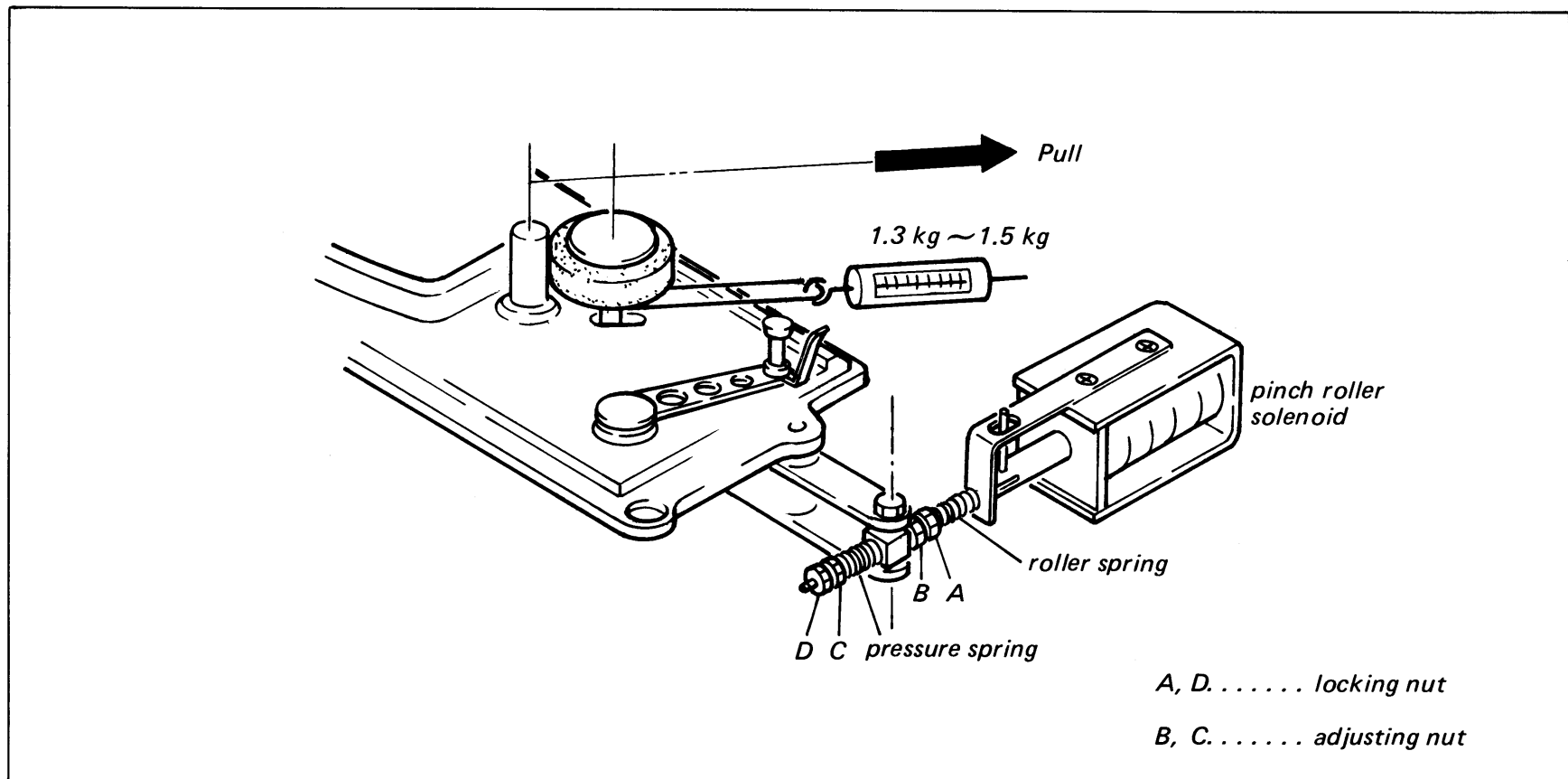


Fig. 3-4. Pinch roller pressure adjustment

4. ELECTRICAL ADJUSTMENTS

- Before any adjustments, perform the preliminary set-up as follows;
 1. TAPE SPEED 19 cm/sec (7½ ips)
 2. LINE-1, MIC/LINE-2 (DIN) volume control. . . Maximum
 3. PLAYBACK volume control Thread the test tape (AMPEX standard tape 01-31321-04), and set the unit to the forward playback mode. Adjust the PLAYBACK volume control for 0 dB (0.775 V) at the LINE OUT (HIGH) on the playback of 700 Hz signal. Make sure the VU meter indicates the "0" position.
 4. TAPE MONITOR switch PLAYBACK
 5. RECORD SELECTOR STEREO

4-1. VU Meter Adjustment (See Fig. 4-2)

- 1) Connect a V.T.V.M. to the LINE OUT (HIGH) of L and R-channels.
- 2) Set the TAPE MONITOR switch to SOURCE. Supply 1,000 Hz sine wave from an audio signal generator to the LINE-1 terminals, and adjust output level of the audio signal generator so that the V.T.V.M. reads 0 dB (0.775 V).
- 3) Adjust VR301 (semi-variable resistor 100 kΩ-B for L-channel) and VR302 (semi-variable resistor 100 kΩ-B for R-channel) on G-1100C for a reading of OVU at the VU meter.

4-2. Playback Frequency Responce Adjustment (See Fig. 4-1)

- 4-2-1. Set the unit in the 19 cm/sec (7½ ips) forward playback mode.
- Connect a V.T.V.M. to the LINE OUT (HIGH) of L and R-channels.

- 1) Thread the test tape (AMPEX standard tape 01-31321-04) and play back the 50 Hz, 100 Hz, 1,000 Hz, 7.5 kHz and 15 kHz test signals.
- 2) Adjust VR101 (semi-variable resistor 10 kΩ-B for L-channel) and VR102 (semi-variable resistor 10 kΩ-B for R-channel) on G-1111A for the output level difference within ± 2 dB. In this case, adjust the 15 kHz output level equal to that of the 1,000 Hz.
- 3) In the reverse playback mode, the output level adjustment is not necessary if it is previously performed in the forward playback mode.

4-2-2. Set the unit in the 9.5 cm/sec (3¾ ips) forward playback mode.

- Connect a V.T.V.M. to the LINE OUT (HIGH) of L and R-channels.
 - 1) Thread the test tape and play back the 50 Hz, 100 Hz, 1,000 Hz, 2.5 kHz, and 7.5 kHz test signals.
 - 2) Adjust VR103 (semi-variable resistor 20 kΩ-B for L-channel) and VR104 (semi-variable resistor 20 kΩ-B for R-channel) on G-1111A for the output level difference within ± 2 dB. In this case, adjust the 7.5 kHz output level equal to that of the 1,000 Hz.
 - 3) In the reverse playback mode, the output level adjustment is not necessary if it is previously performed in the forward playback mode.

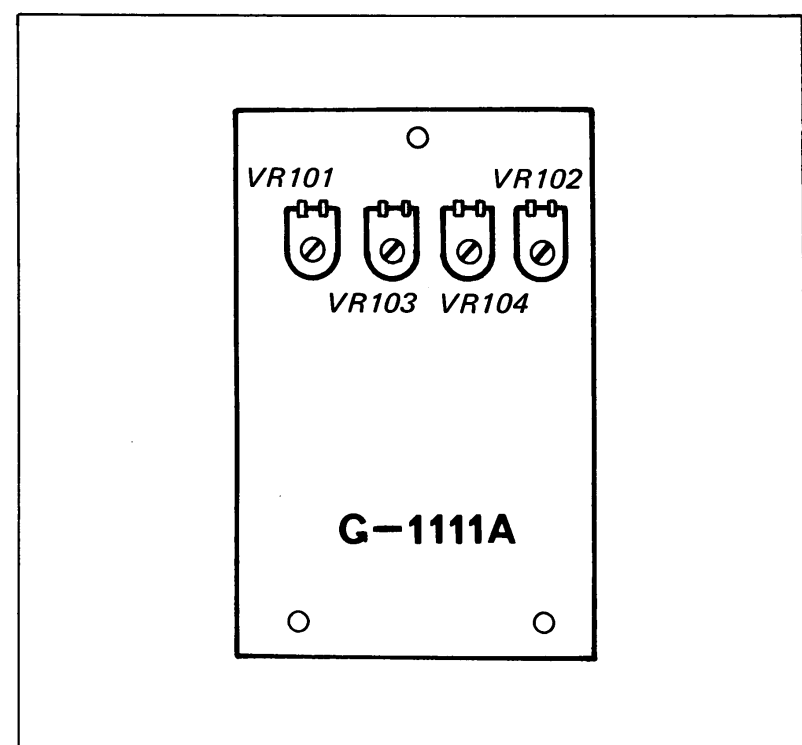


Fig. 4-1

**4-3. 100kHz Bias Filter Adjustment
(See Figs. 4-2 and 4-3)**

- 1) Set the REC BIAS switch to HIGH, and thread a demagnetized low-noise (high-output) tape. Set the unit in the record mode without feeding input signal.
- 2) Connect an oscilloscope (or a V.T.V.M.) to the test points (TP401, TP402) on G-1100C.
- 3) Adjust L403 (L-channel) and L404 (R-channel) for the minimum level on the oscilloscope.
- 4) Set the R-channel in the record mode. Connect the oscilloscope to the TP402 on G-1100C.
- 5) Adjust L501 on G-1110 for the minimum level on the oscilloscope.
- 6) Connect the oscilloscope to the LINE OUT (HIGH) of L and R-channels. Set the unit in the record mode and the TAPE MONITOR switch to SOURCE.
- 7) Adjust L301 (L-channel) and L302 (R-channel) on G-1100C for the minimum level on the oscilloscope.

**4-4. Bias Current Adjustment
(See Fig. 4-2)**

- Connect a V.T.V.M. to the LINE OUT (HIGH) of L and R-channels.

4-4-1. Low-noise (High-output) Tape

- 1) Thread the low-noise (high-output) tape. Set the REC BIAS switch to HIGH.
- 2) Connect 1,000 Hz 70 mV output from an audio signal generator to the LINE-1 terminals. Set the unit in the record mode.
- 3) By gradually turning clockwise, adjust VR407 (semi-variable resistor 50 kΩ - B for L-channel) and VR408 (semi-variable resistor 50 kΩ - B for R-channel) on G-1100C for a maximum reading of the output level.
- 4) Then, turn the VR407 and VR408 clockwise until a decrease of 0.5 dB is obtained.

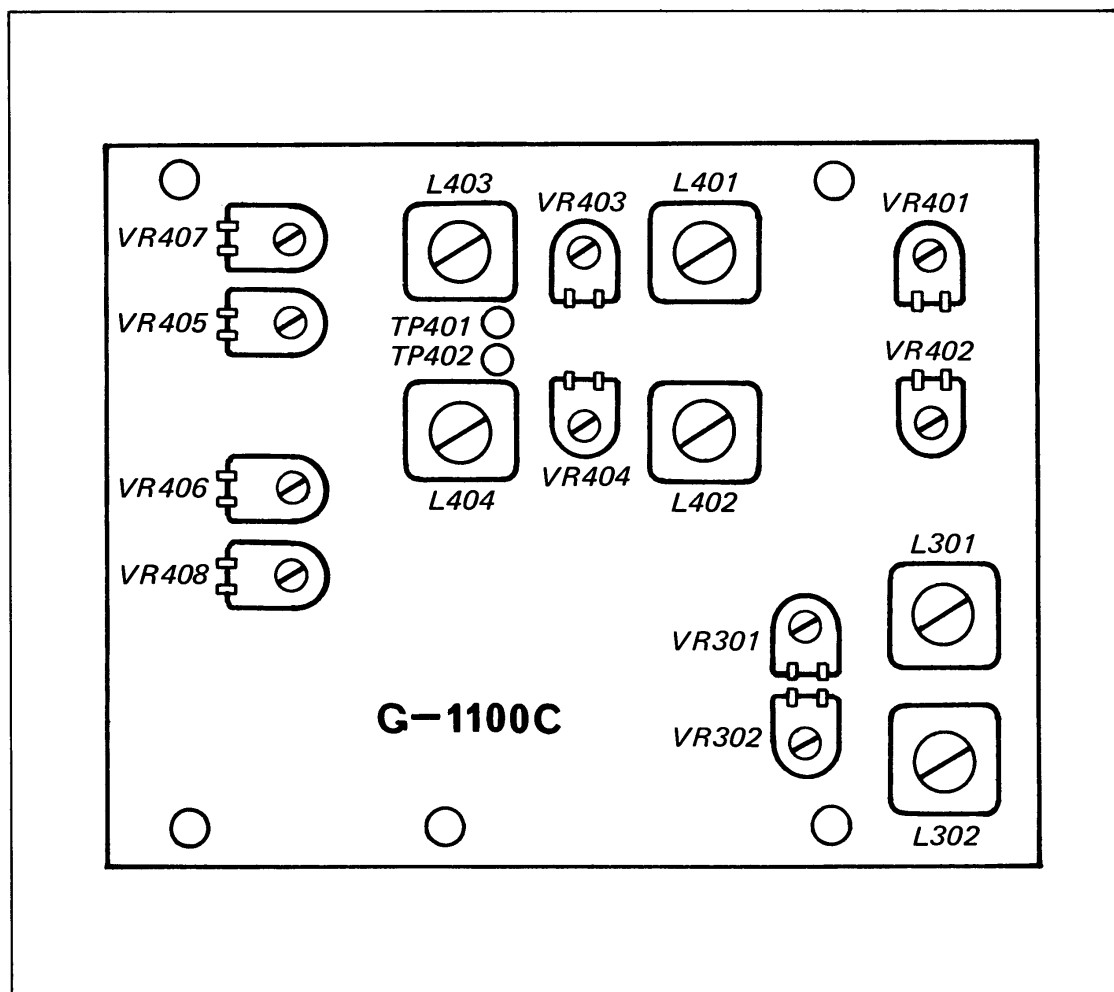


Fig. 4-2

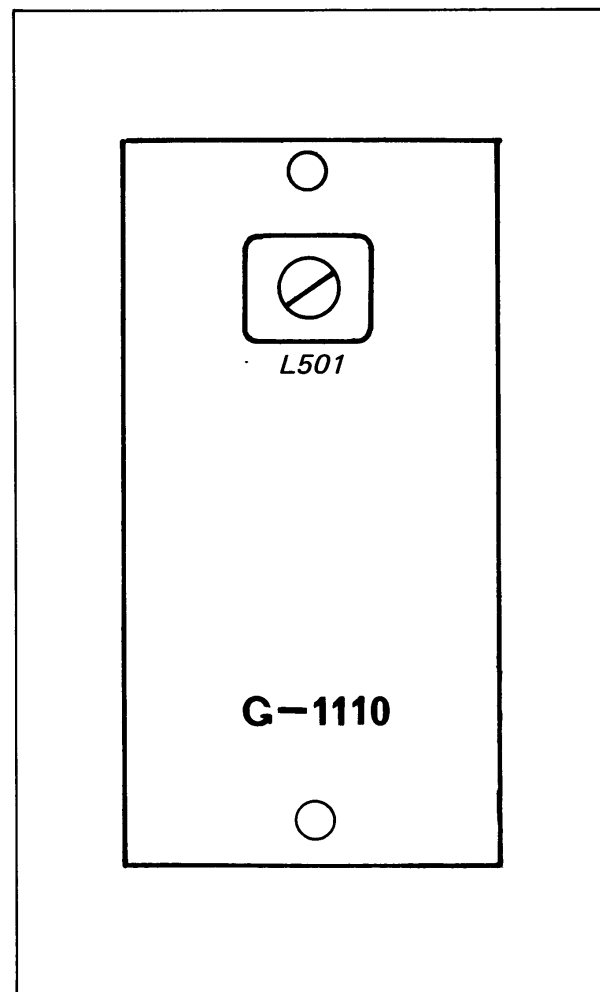


Fig. 4-3

4-4-2. Standard Tape

- 1) Thread the standard tape. Set the REC BIAS switch to STANDARD.
- 2) Connect 1,000 Hz 70 mV output from an audio signal generator to the LINE-1 terminals. Set the unit in the record mode.
- 3) By gradually turning clockwise, adjust VR405 (semi-variable resistor 50 k Ω - B for L-channel) and VR406 (semi-variable resistor 50 k Ω - B for R-channel) on G-1100C for a flat frequency response.

4-5. Record Input Level Adjustment (See Fig. 4-2)

- 1) Connect a V. T. V. M. to the LINE OUT (HIGH) of L and R-channels. Set the REC BIAS switch to HIGH, and thread the low-noise (high-output) tape.
- 2) Supply 1,000 Hz 70 mV output from an audio signal generator to the LINE-1 terminals, and set the TAPE MONITOR switch to SOURCE.
- 3) Adjust LINE-1 volume for a reading of 0 dB (0.775 V) at the V. T. V. M. Set the unit in the record mode.
- 4) Set the TAPE MONITOR switch to PLAYBACK. Adjust VR401 (semi-variable resistor 100 k Ω - B for L-channel), and VR402 (semi-variable resistor 100 k Ω - B for R-channel) on G-1100C for + 3 dB at the V. T. V. M.

4-6. Recording/Playback Equalizing Adjustment (See Fig. 4-2)

4-6-1. 19 cm/sec (7 1/2 ips)

- Connect a V. T. V. M. to the LINE OUT (HIGH) of L and R-channels. Set the REC BIAS switch to HIGH, and thread the low-noise (high-output) tape.
- 1) Turn VR403 (semi-variable resistor 5 k Ω -B for L-channel) and VR404 (semi-variable resistor 5 k Ω -B for R-channel) on G-1100C full clockwise.
 - 2) Supply 22 kHz 7 mV output from an audio signal generator to the LINE-1 terminals. Set the unit in the record mode.

- 3) Adjust L401 (L-channel) and L402 (R-channel) on G-1100C for the maximum output level.
- 4) Supply 1,000 Hz 7 mV output from the audio signal generator to the LINE-1 terminals and read the output level of 1,000 Hz.
- 5) Change the frequency from 1,000 Hz to the 20 kHz and adjust VR403 (L-channel) and VR404 (R-channel) so that the 20 kHz output level equal to that of 1,000 Hz.
- 6) Set the output level from the audio signal generator to 7 mV, select the frequency to 20 Hz, 50 Hz, 100 Hz, 1,000 Hz, 5 kHz, 10 kHz, 15 kHz, and 20 kHz. Make sure the V. T. V. M. reading at each frequency point is within ± 2 dB, as compared with the level at 1,000 Hz.

4-6-2. 9.5 cm/sec (3 3/4 ips)

- 1) Set the output level from an audio signal generator to 7 mV, select the frequency to 30 Hz, 100 Hz, 1,000 Hz, 5 kHz, and 10 kHz. Make sure the reading at each frequency point is within ± 2 dB, as compared with the level at 1,000 Hz.

4-7. Head Adjustment

The quality of the unit depends upon the very critical adjustment of heads. When the heads are replaced as an assembly, "4-7-1. Preliminary Adjustment" is not necessary to be performed, because the head assembly is factory adjusted.

4-7-1. Preliminary Adjustment (See Fig. 4-4)

Run a tape in the forward direction at 9.5 cm/sec (3 3/4 ips), adjust the screws as shown in Fig. 4-4 for the followings.

- 1) The surface of tape should contact closely in parallel with that of head.
- 2) After adjustment, make sure that the surfaces of heads are parallel with that of tape guides, viewed from the side.

4-7-2. Forward Playback Head Adjustment (See Fig. 4-4)

- Clean and demagnetize the heads before adjustment.
- Tape Speed 19 cm/sec (7 1/2 ips)

- Connect a V. T. V. M. to the LINE OUT (HIGH) of L and R-channels.
- Thread the test tape (AMPEX standard tape 0131321-04) recorded 700 Hz and 15 kHz. Set the unit in the forward playback mode.

1. Tracking Adjustment

In the playback of 700 Hz, adjust M, O, P, of Fig. 4-4 for the maximum indication at the V. T. V. M.

2. Azimuth Adjustment

In the playback of 15 kHz, adjust P of Fig. 4-4 for the maximum indication at the V. T. V. M.

- * Within ± 1.5 dB of the maximum output difference.
- * Apply locking paint to the adjusting screws after adjustment.

**4-7-3. Reverse Playback Head Adjustment
(See Fig. 4-4)**

- Set the unit as in "4-7-2. Forward Playback Adjustment", except the unit in the reverse playback mode.
- 1. Perform the adjustment as in "Forward Playback Head Adjustment". Adjust I, K, L, of Fig. 4-4 for tracking adjustment, and L of Fig. 4-4 for azimuth adjustment.
- * Within ± 1.5 dB of the maximum output difference.
- * Apply locking paint to the adjusting screws after adjustment.

4-7-4. Recording Head Adjustment (See Fig. 4-4)

- Tape Speed 19 cm/sec (7½ ips)
- Connect a V.T.V.M. to the LINE OUT (HIGH) of L and R-channels.
- 1) Supply 1,000 Hz 7 mV output from an audio signal generator to the LINE-1 terminals. Set the unit in the record mode.
- 2) Tracking Adjustment
Adjust E, G, H, of Fig. 4-4 for the maximum indication at the V.T.V.M.
- 3) Azimuth Adjustment
Change the output frequency to 15 kHz. Adjust H of Fig. 4-4 for the maximum indication at the V.T.V.M.
- * Within ± 1.5 dB of the maximum output difference.
- * Apply locking paint to the adjusting screws after adjustment.

4-7-5. Erase Head Adjustment (See Fig. 4-4)

- Connect a V.T.V.M. to the LINE OUT (HIGH) of L and R-channels.
- 1) Set the tape counter to "0000". Supply 1,000 Hz 7 V signal to the LINE-1 terminals, also the unit in the record mode. When the tape counter reads "0015", push the STOP button, and then push the REVERSE button to obtain the tape counter "0000".
- 2) Disconnect the input signal from LINE-1 terminals, and set the unit in the record mode until the tape counter reads "0015", or more.
- 3) Adjust A, C, D, of Fig. 4-4 for the minimum indication at the V.T.V.M.
- * Apply locking paint to the adjusting screws after adjustment.

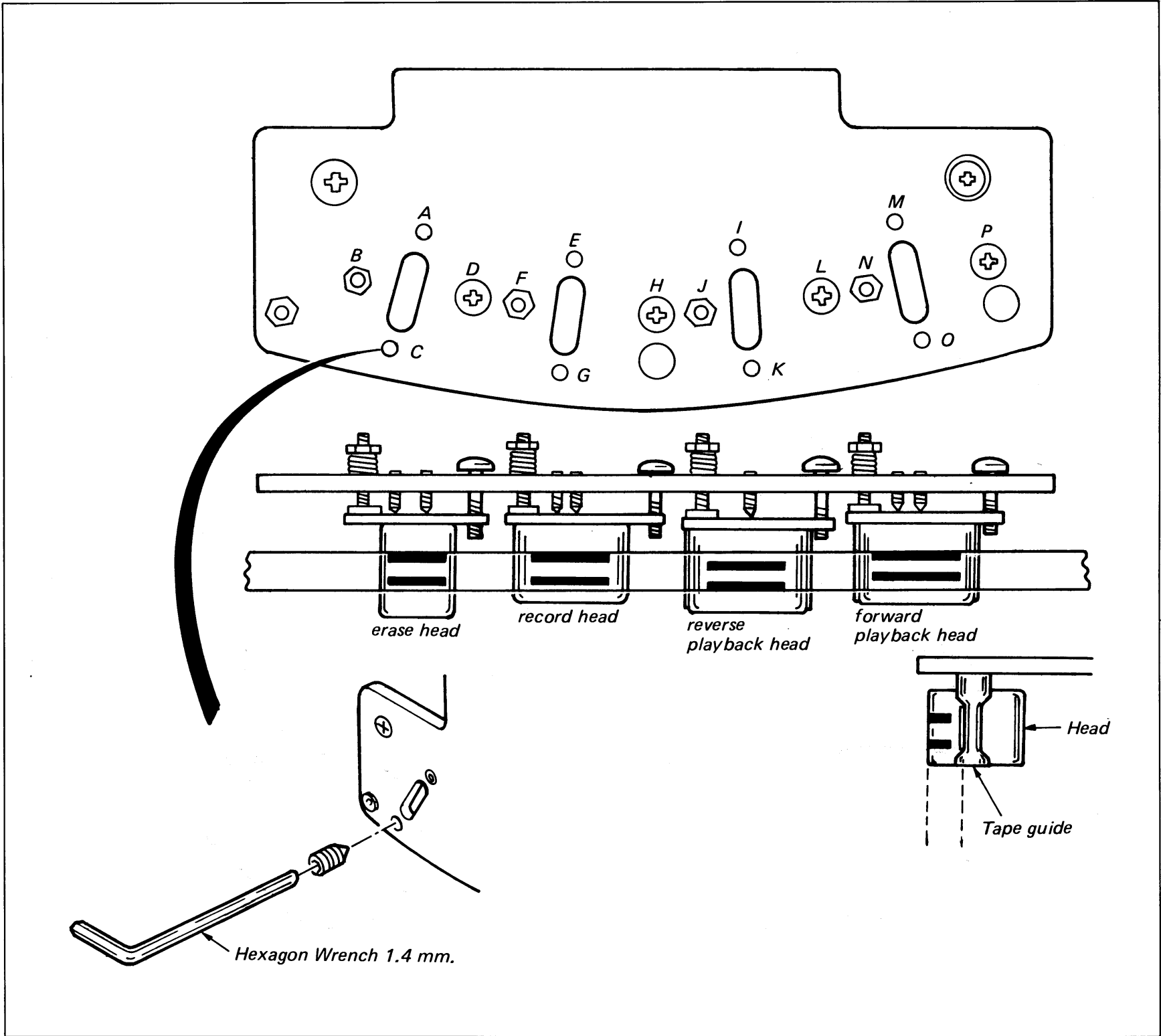


Fig. 4-4

5. OPERATION OF MECHANISM

- 1) In STOP Mode Pinch roller, lifter and left and right reel motor brakes are set as shown in black line.
- 2) In FORWARD (REVERSE) Mode . By pinch roller solenoid PS703, the roller arm is moved as shown in green line, and the pinch roller is moved to contact the capstan. By lifter solenoid PS704, the lifter arm is moved as shown in green

line, and the lifter is lifted up to contact the tape to the heads. By brake solenoids PS701 and PS702, the brake arms are moved as shown in green line to release the left and right reel motor brakes. Also, S13 and S14 are turned ON.

- 3) In FAST FORWARD (REWIND) Mode . . Both reel motor brakes act the same operation as in FORWARD (REVERSE) mode, and the pinch roller and the lifter are in the same position as STOP.

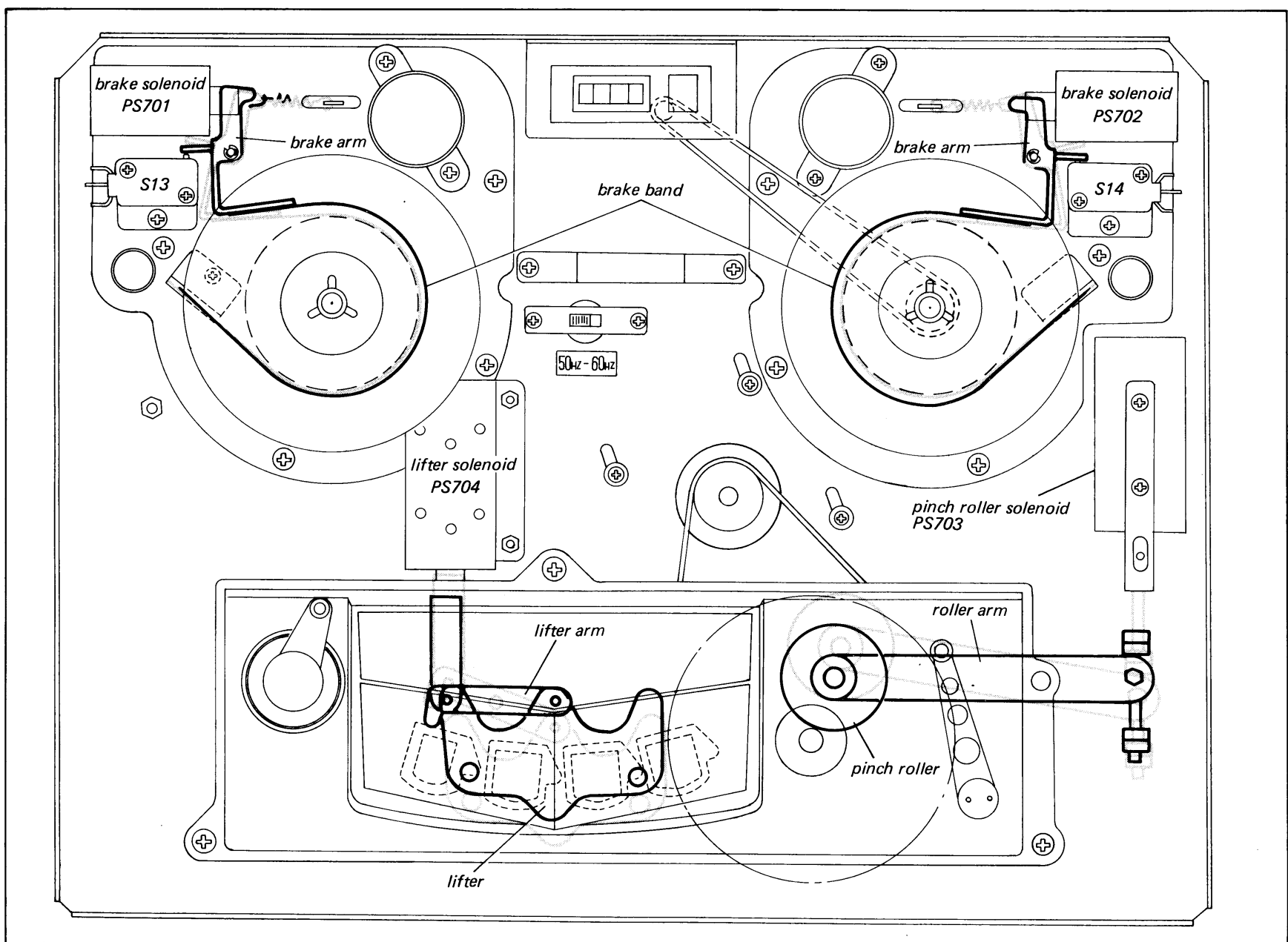
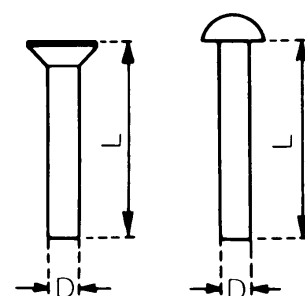
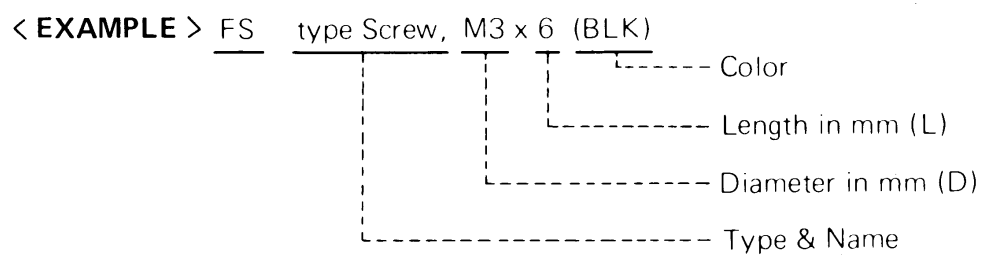


Fig. 5-1.

6. DISASSEMBLY WITH EXPLODED VIEWS AND PARTS LIST

Hardware Nomenclature

	Name	Abbreviation	Type	
SCREW	Pan Head Screw	P		
	Binding Head Screw	B		
	Binding Head Screw (Dog Point)	BD		
	Round Head Screw	R		
	Flat Countersunk Head Screw	F		
	Flat Countersunk Head SEMS Screw (E-Type)	FSE		
	Oval Countersunk Head Screw	O		
	Flat Fillister Screw	FS		
	Binding Head SEMS Screw (A Type)	BSA		
	Binding Head SEMS Screw (B Type)	BSB		
	Binding Head SEMS Screw (C Type)	BSC		
	Pan Head Tapping Screw	PT		
	Oval Countersunk Wood Screw	OC		(JIS)
	Flat Countersunk Wood Screw	FC		(JIS)
	Round Head Wood Screw	RH		(JIS)
SETSCREW	Hex Socket Setscrew (Flat Point)	SF		
	Hex Socket Setscrew (Cone Point)	SC		
	Slot Type Setscrew	SS		
WASHER	Retaining Ring (E Washer)	E		
	Plane Washer	P		
	Spring Washer	S		
	Corrugated Washer	C		
	Toothed Lock Washer (Internal)	TLI		
	Toothed Lock Washer (External)	TLE		



All screws conform to ISO standards, unless otherwise noted.

6-1. Removal of Mechanism and Electrical Section

Parts No.	Stock No.	Description	Parts No.	Stock No.	Description
1	5104367	O Type Screw, M 4 x 18 (BLK)	38	5120161	P Type Washer, 4 ϕ
2	5123160	C Type Washer, 4 ϕ (BLK)	39		Mechanism Section
3	5104367	O Type Screw, M 4 x 18 (BLK)	40	5140049	RH Type Screw, M 3.8 x 20
4	5123160	C Type Washer, 4 ϕ (BLK)	41	5516130	Rubber Foot
5	5104367	O Type Screw, M 4 x 18 (BLK)	42	5140049	RH Type Screw, M 3.8 x 20
6	5123160	C Type Washer, 4 ϕ	43	5516130	Rubber Foot
7		Electrical Section	44	5140049	RH Type Screw, M 3.8 x 20
8	5104344	O Type Screw, M 3 x 8 (BLK)	45	5516130	Rubber Foot
9	5123140	C Type Washer, 3 ϕ (BLK)	46	5140049	RH Type Screw, M 3.8 x 20
10	5180080	P Type Washer, 3 ϕ (Mylar)	47	5516130	Rubber Foot
11	5104344	O Type Screw, M 3 x 8 (BLK)	48	5140218	RH Type Screw, M 2.7 x 13
12	5123140	C Type Washer, 3 ϕ (BLK)	49	5140218	RH Type Screw, M 2.7 x 13
13	5180080	P Type Washer, 3 ϕ (Mylar)	50	5140218	RH Type Screw, M 2.7 x 13
14	5104344	O Type Screw, M 3 x 8 (BLK)	51	5140218	RH Type Screw, M 2.7 x 13
15	5123140	C Type Washer, 3 ϕ (BLK)	52	5140218	RH Type Screw, M 2.7 x 13
16	5180080	P Type Washer, 3 ϕ (Mylar)	53	5140218	RH Type Screw, M 2.7 x 13
17	5104344	O Type Screw, M 3 x 8 (BLK)	54	5101143	B Type Screw, M 3 x 6 (BLK)
18	5123140	C Type Washer, 3 ϕ (BLK)	55	5101143	B Type Screw, M 3 x 6 (BLK)
19	5180080	P Type Washer, 3 ϕ (Mylar)	56	5101143	B Type Screw, M 3 x 6 (BLK)
20	5170070	Speed Nut, 3 ϕ	57	5920020	Pipe Duct (B)
21	5426140	Indicator	58	5740092	Rear Cover
22	5186131	Indicator Ring	59	5140049	RH Type Screw, M 3.8 x 20
23	5170070	Speed Nut, 3 ϕ	60	5506023	Rubber Foot
24	5426140	Indicator	61	5140049	RH Type Screw, M 3.8 x 20
25	5186131	Indicator Ring	62	5506023	Rubber Foot
26	6600021	Dress Panel	63	5140049	RH Type Screw, M 3.8 x 20
27	5101669	BD Type Screw, M 4 x 25 (Dog Point 5)	64	5506023	Rubber Foot
28	5121360	S Type Washer, 4 ϕ	65	5140049	RH Type Screw, M 3.8 x 20
29	5120161	P Type Washer, 4 ϕ	66	5506023	Rubber Foot
30	5101669	BD Type Screw, M 4 x 25 (Dog Point 5)	67	5140203	RH Type Screw, M 2.1 x 13
31	5121360	S Type Washer, 4 ϕ	68	5140203	RH Type Screw, M 2.1 x 13
32	5120161	P Type Washer, 4 ϕ	69	5140203	RH Type Screw, M 2.1 x 13
33	5101669	BD Type Screw, M 4 x 25 (Dog Point 5)	70	5140203	RH Type Screw, M 2.1 x 13
34	5121360	S Type Washer, 4 ϕ	71	5140203	RH Type Screw, M 2.1 x 13
35	5120161	P Type Washer, 4 ϕ	72	5140203	RH Type Screw, M 2.1 x 13
36	5101669	BD Type Screw, M 4 x 25 (Dog Point 5)	73	5050092	Sash
37	5121360	S Type Washer, 4 ϕ	74	5740083	Cabinet

Fig. 6-1

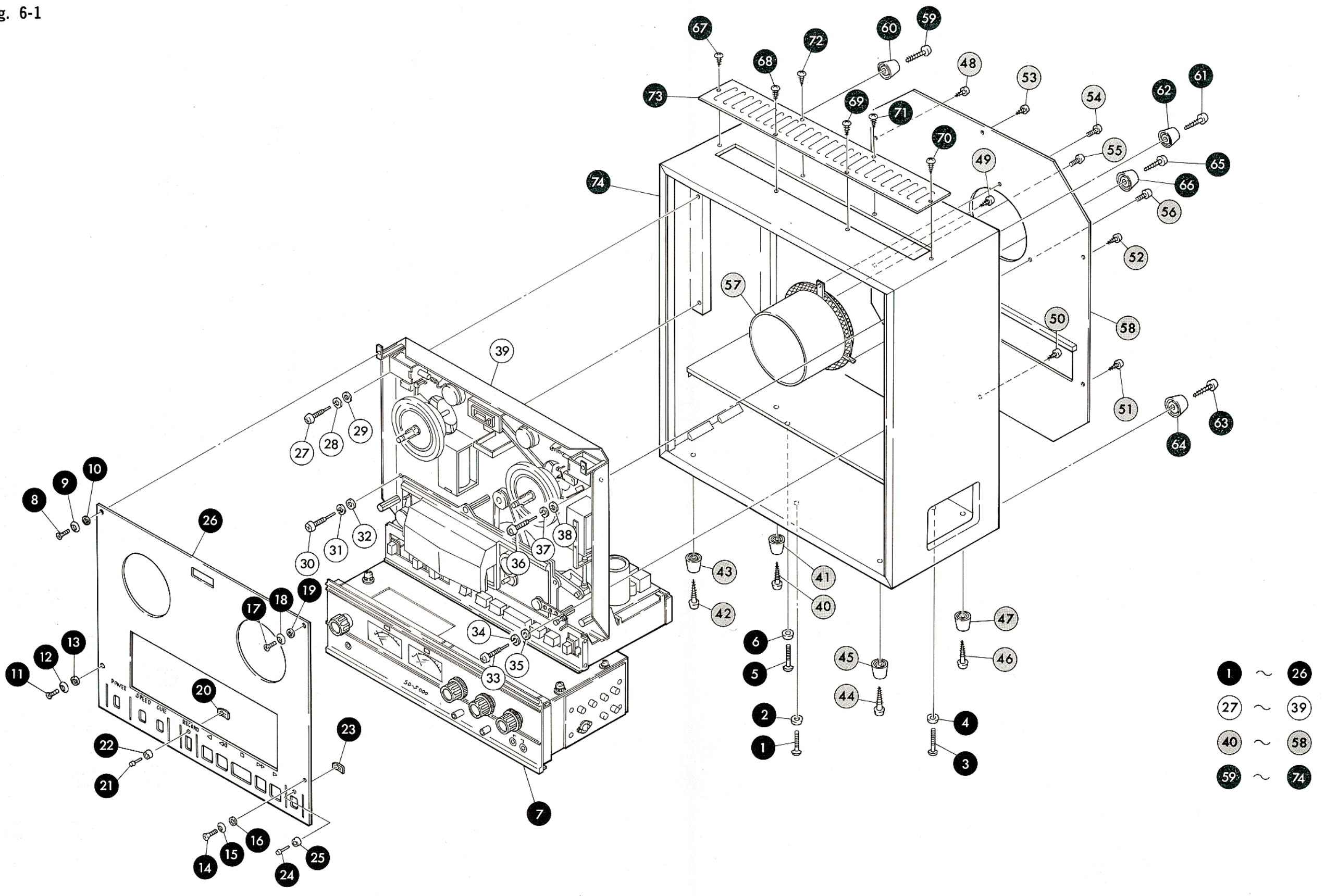
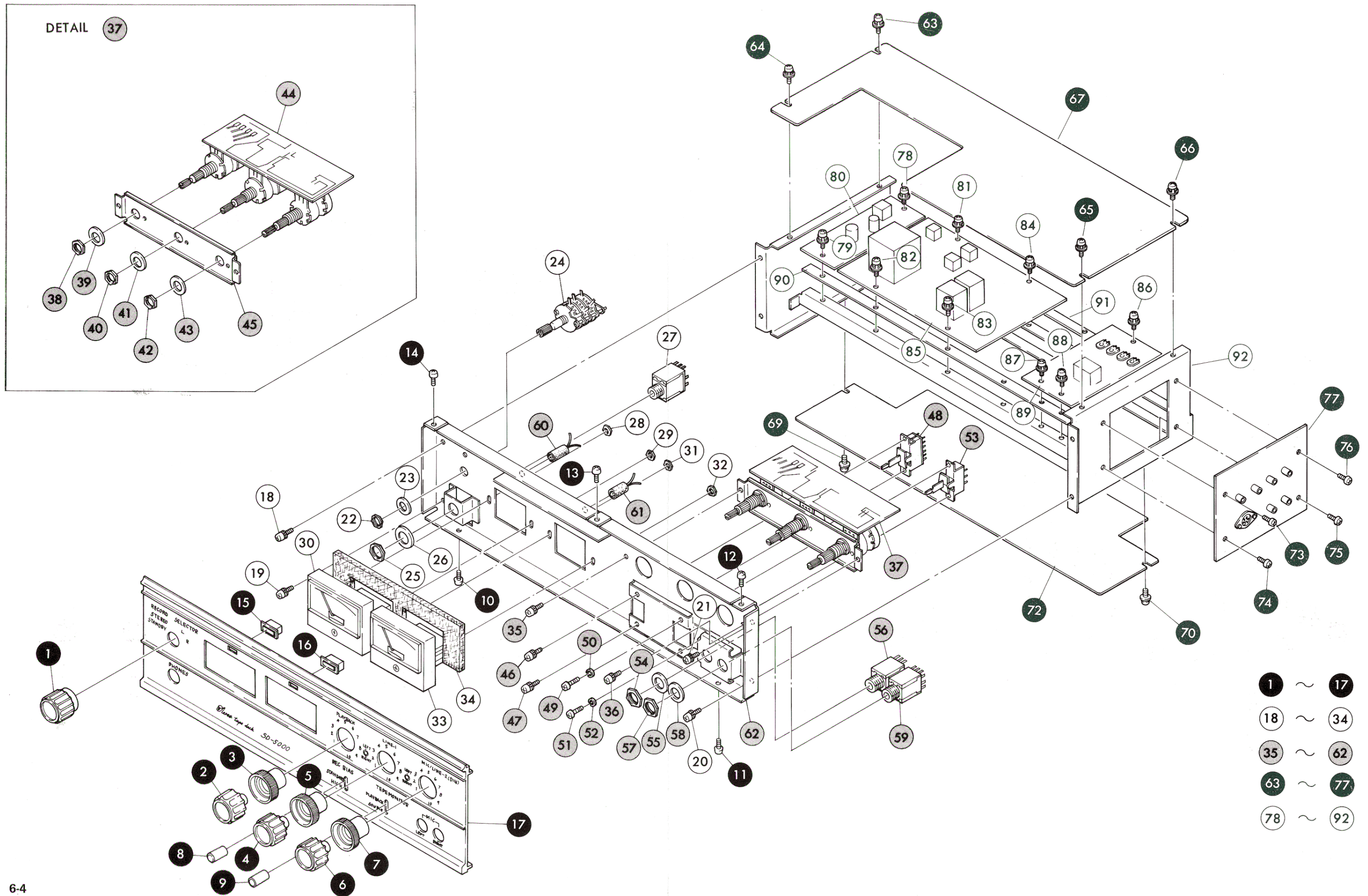


Fig. 6-2



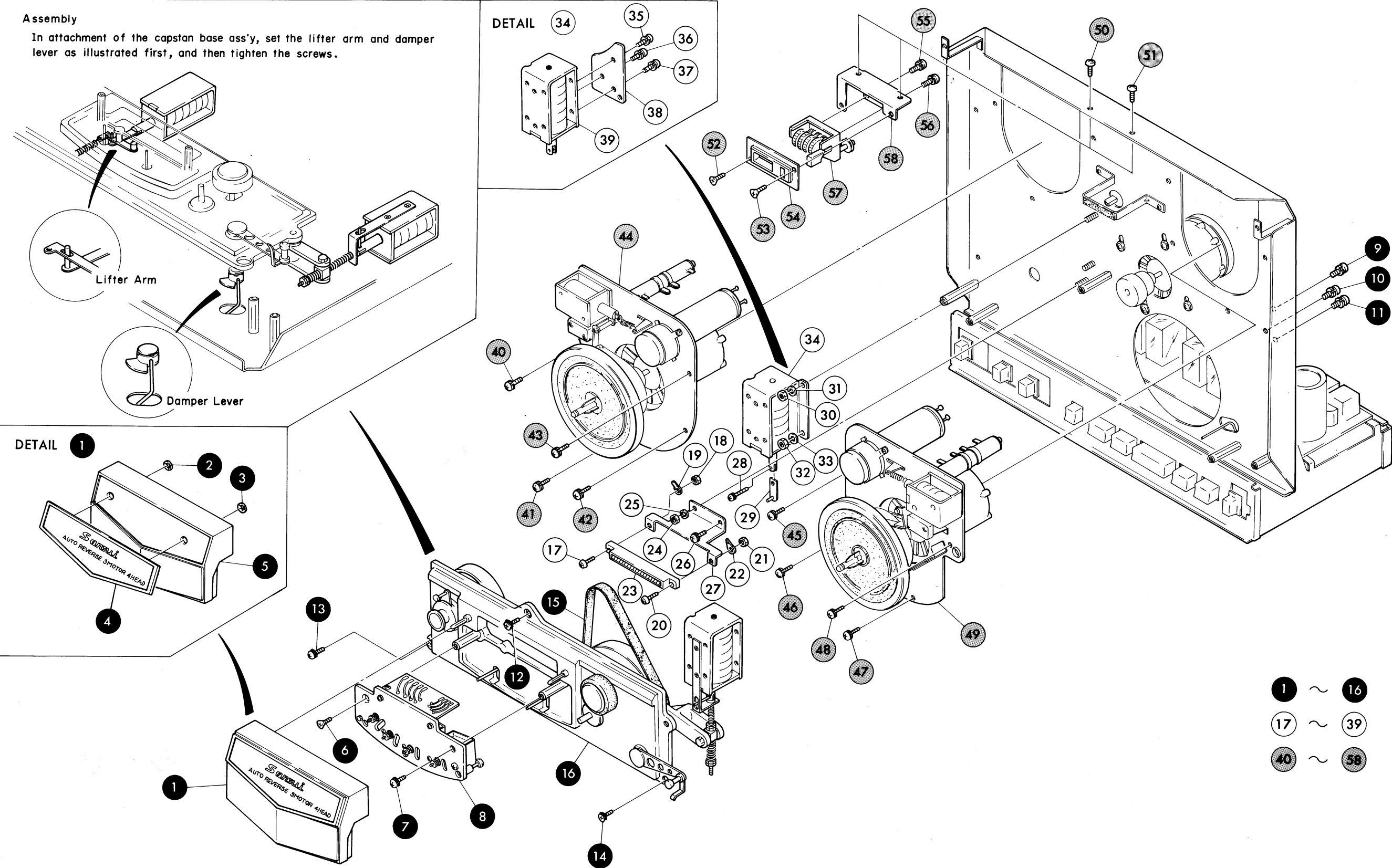
6-2. Disassembly of Electrical Section

Parts No.	Stock No.	Description	Parts No.	Stock No.	Description
1	5310112	006 Type Knob, record selector	47	5101843	BSA Type Screw, M 3 x 6
2	5310091	004 Type Knob, playback volume	48	1170210	Lever Switch, rec bias
3	5310102	005 Type Knob, playback volume	49	5101043	B Type Screw, M 3 x 6
4	5310091	004 Type Knob, line volume	50	5121340	S Type Washer, 3 ϕ
5	5310102	005 Type Knob, line volume	51	5101043	B Type Screw, M 3 x 6
6	5310091	004 Type Knob, mic/line volume	52	5121340	S Type Washer, 3 ϕ
7	5310102	005 Type Knob, mic/line volume	53	1170170	Lever Switch, tape monitor
8	7106072	Lever Switch Knob, rec bias	54		Hex. Nut, mic jack M 12
9	7106072	Lever Switch Knob, tape monitor	55		P Type Washer, mic jack 12 ϕ
10	5101043	B Type Screw, M 3 x 6	56	2430170	Jack, microphone (Left)
11	5101043	B Type Screw, M 3 x 6	57		Hex. Nut, mic jack M12
12	5101043	B Type Screw, M 3 x 6	58		P Type Washer, mic jack 12 ϕ
13	5101043	B Type Screw, M 3 x 6	59	2430170	Jack, microphone (Right)
14	5101043	B Type Screw, M 3 x 6	60	0400210	Pilot Lamp, lead type (6.3 V 75 mA)
15	5420040	Recording Indicator	61	0400210	Pilot Lamp, lead type (6.3 V 75 mA)
16	5420040	Recording Indicator	62	5270012	Back Panel, amplifier
17	6600030	Front Panel, amplifier	63	5101943	BSB Type Screw, M 3 x 6
18	5101862	BSA Type Screw, M 4 x 8	64	5101943	BSB Type Screw, M 3 x 6
19	5101862	BSA Type Screw, M 4 x 8	65	5101943	BSB Type Screw, M 3 x 6
20	5101862	BSA Type Screw, M 4 x 8	66	5101943	BSB Type Screw, M 3 x 6
21	5101862	BSA Type Screw, M 4 x 8	67	5030073	Shield Plate (A), fiber
22		Hex. Nut, record selector M 6	69	5101943	BSB Type Screw, M 3 x 6
23		P Type Washer, record selector 6 ϕ	70	5101943	BSB Type Screw, M 3 x 6
24	1103460	Rotary Switch, record selector	72	5030083	Shield Plate (B), fiber
25		Hex. Nut, phone jack M 12	73	5101143	B Type Screw, M 3 x 6 (BLK)
26		P Type Washer, phone jack 12 ϕ	74	5101143	B Type Screw, M 3 x 6 (BLK)
27	2430170	Jack, head phones	75	5101143	B Type Screw, M 3 x 6 (BLK)
28	5110241	Hex. Nut, M 3	76	5101143	B Type Screw, M 3 x 6 (BLK)
29	5110241	Hex. Nut, M 3	77	7710024	Terminal Board Ass'y
30	4300480	VU Meter	78	5101943	BSB Type Screw, M 3 x 6
31	5110241	Hex. Nut, M 3	79	5101943	BSB Type Screw, M 3 x 6
32	5110241	Hex. Nut, M 3	80	7600020	Oscillator P. C. Board G-1110
33	4300480	VU Meter	81	5101943	BSB Type Screw, M 3 x 6
34	5500240	Cushion, VU meter	82	5101943	BSB Type Screw, M 3 x 6
35	5101843	BSA Type Screw, M 3 x 6	83	5101943	BSB Type Screw, M 3 x 6
36	5101843	BSA Type Screw, M 3 x 6	84	5101943	BSB Type Screw, M 3 x 6
37		Volume Circuit Board Ass'y	85	7620010	Recording/Line Amp. P. C. Board G-1100C
38		Hex. Nut, playback volume M11	86	5101943	BSB Type Screw, M 3 x 6
39		P Type Washer, playback volume 11 ϕ	87	5101943	BSB Type Screw, M 3 x 6
40		Hex. Nut, line volume M 11	88	5101943	BSB Type Screw, M 3 x 6
41		P Type Washer, line volume 11 ϕ	89	7250290	Equalizer P. C. Board G-1111A
42		Hex. Nut, mic/line volume M 11	90	5620040	Insulating Fiber
43		P Type Washer, mic/line volume 11 ϕ	91	5620040	Insulating Fiber
44	7560480	Volume P. C. Board G-1099B	92		Chassis Ass'y, amplifier
45	5240502	Mounting Plate, volume p. c. board			
46	5101843	BSA Type Screw, M 3 x 6			

6-3. Disassembly of Mechanism Section (Front)

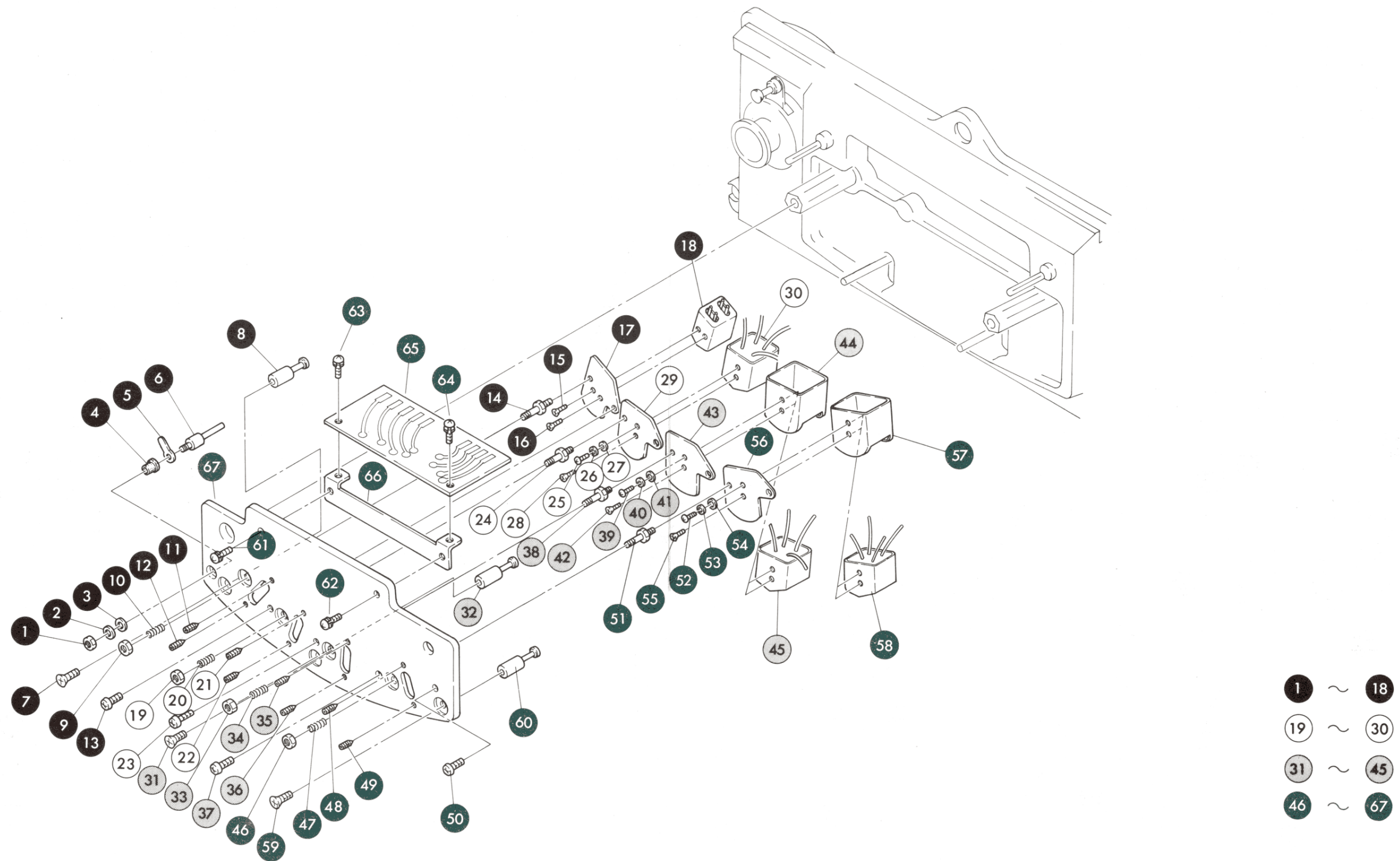
Parts No.	Stock No.	Description	Parts No.	Stock No.	Description
1	7010040	Head Housing Ass'y	30	5110241	Hex. Nut, M 3
2	5170060	Push Nut, 2.4 ϕ	31	5121340	S Type Washer, 3 ϕ
3	5170060	Push Nut, 2.4 ϕ	32	5110241	Hex. Nut, M 3
4	5330042	Housing Plate	33	5121340	S Type Washer, 3 ϕ
5	5060122	Head Housing	34		Plunger Ass'y, lifter
6	5102861	F Type Screw, M 4 x 6	35	5101843	BSA Type Screw, M 3 x 6
7	5101460	BSC Type Screw, M 4 x 8	36	5101843	BSA Type Screw, M 3 x 6
8		Head Ass'y	37	5101843	BSA Type Screw, M 3 x 6
9	5101843	BSA Type Screw, M 3 x 6	38	5240381	Mounting Plate, lifter plunger
10	5101843	BSA Type Screw, M 3 x 6	39	4340060	Plunger Solenoid, lifter
11	5101843	BSA Type Screw, M 3 x 6	40	5101862	BSA Type Screw, M 4 x 8
12	5102963	FSE Type Screw, M 4 x 8	41	5101862	BSA Type Screw, M 4 x 8
13	5101460	BSC Type Screw, M 4 x 8	42	5101862	BSA Type Screw, M 4 x 8
14	5102963	FSE Type Screw, M 4 x 8	43	5101862	BSA Type Screw, M 4 x 8
15	6030060	Capstan Belt	44		Left Reel Motor Ass'y
16		Capstan Base Ass'y	45	5101862	BSA Type Screw, M 4 x 8
17	5101226	B Type Screw, M 2.6 x 12	46	5101862	BSA Type Screw, M 4 x 8
18	5110120	Hex. Nut, M 2.6	47	5101862	BSA Type Screw, M 4 x 8
19		Lug Terminal	48	5101862	BSA Type Screw, M 4 x 8
20	5101226	B Type Screw, M 2.6 x 12	49		Right Reel Motor Ass'y
21	5110120	Hex. Nut, M 2.6	50	5101044	B Type Screw, M 3 x 4
22		Lug Terminal	51	5101044	B Type Screw, M 3 x 4
23	2420110	15 P Multiple Connector	52	5102843	F Type Screw, M 3 x 6
24	5110241	Hex. Nut, M 3	53	5102843	F Type Screw, M 3 x 6
25	5121340	S Type Washer, 3 ϕ	54	6630032	Counter Base
26	5101843	BSA Type Screw, M 3 x 6	55	5101843	BSA Type Screw, M 3 x 6
27	5240391	Holder, 15 P connector	56	5101843	BSA Type Screw, M 3 x 6
28	5101845	BSA Type Screw, M 3 x 10	57	5430040	Tape Counter
29	5240420	Lifter Plate, plunger	58	5240521	Counter Retainer

Fig. 6-3



- 1 ~ 16
- 17 ~ 39
- 40 ~ 58

Fig. 6-4



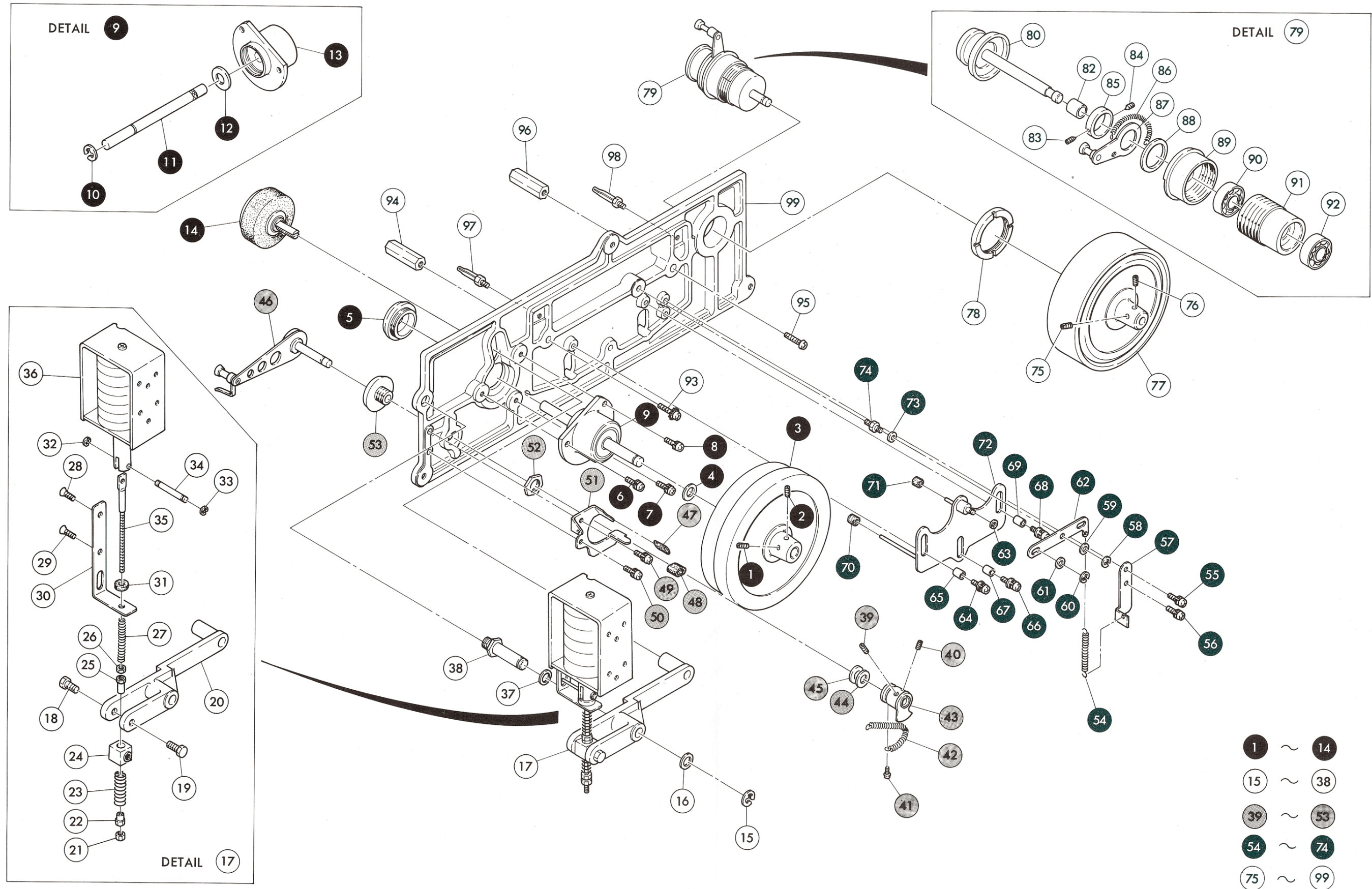
6-4. Disassembly of Head Assembly

Parts No.	Stock No.	Description	Parts No.	Stock No.	Description
1	5110121	Hex. Nut, M 2.6	35	5106145	SC Type Screw, M 3 x 10
2	5180200	P Type Washer, 2.6 x 5 x 0.5 (fiber)	36	5106145	SC Type Screw, M 3 x 10
3	5180200	P Type Washer, 2.6 x 5 x 0.5 (fiber)	37	5101046	B Type Screw, M 3 x 12
4	5630030	Isolating Bush, sensing pole	38	5160170	Head Stud
5		Lug Terminal	39	5101203	B Type Screw, M 2 x 5
6	5950141	Sensing Pole	40	5121001	S Type Washer, 2 ϕ
7	5102843	F Type Screw, M 3 x 6	41	5120302	P Type Washer, 2 ϕ
8	5230313	Tape Guide	42	5102702	F Type Screw, M 2 x 4
9	5110240	Hex. Nut, M 3	43	5240451	Mounting Plate, playback head
10	6900432	Head Spring	44	5030051	Shield Cover
11	5106144	SC Type Screw, M 3 x 8	45	4503020	Playback Head PS-302
12	5106144	SC Type Screw, M 3 x 8	46	5110240	Hex. Nut, M 3
13	5101045	B Type Screw, M 3 x 10	47	6900432	Head Spring
14	5160170	Head Stud	48	5106144	SC Type Screw, M 3 x 8
15	5102701	F Type Screw, M 2 x 3	49	5106144	SC Type Screw, M 3 x 8
16	5102701	F Type Screw, M 2 x 3	50	5101045	B Type Screw, M 3 x 10
17	5240441	Mounting Plate, erase head	51	5160170	Head Stud
18	4523010	Erase Head ES-301	52	5101203	B Type Screw, M 2 x 5
19	5110240	Hex. Nut, M 3	53	5121001	S Type Washer, 2 ϕ
20	6900432	Head Spring	54	5120302	P Type Washer, 2 ϕ
21	5106144	SC Type Screw, M 3 x 8	55	5102702	F Type Screw, M 2 x 4
22	5106144	SC Type Screw, M 3 x 8	56	5240451	Mounting Plate, playback head
23	5101045	B Type Screw, M 3 x 10	57	5030051	Shield Cover
24	5160170	Head Stud	58	4503020	Playback Head PS-302
25	5101203	B Type Screw, M 2 x 5	59	5102843	F Type Screw, M 3 x 6
26	5121001	S Type Washer, 2 ϕ	60	5230313	Tape Guide
27	5180020	P Type Washer, 2.0 x 6.0 x 1.0	61	5101843	BSA Type Screw, M 3 x 6
28	5102701	F Type Screw, M 2 x 3	62	5101843	BSA Type Screw, M 3 x 6
29	5240451	Mounting Plate, record head	63	5101843	BSA Type Screw, M 3 x 6
30	4513010	Record Head RS-301	64	5101843	BSA Type Screw, M 3 x 6
31	5102843	F Type Screw, M 3 x 6	65	2640030	Head P. C. Board G-1114
32	5230313	Tape Guide	66	5240430	Holder, p. c. board
33	5110240	Hex. Nut, M 3	67	6630041	Head Base
34	6900432	Head Spring			

6-5. Disassembly of Capstan Base Assembly

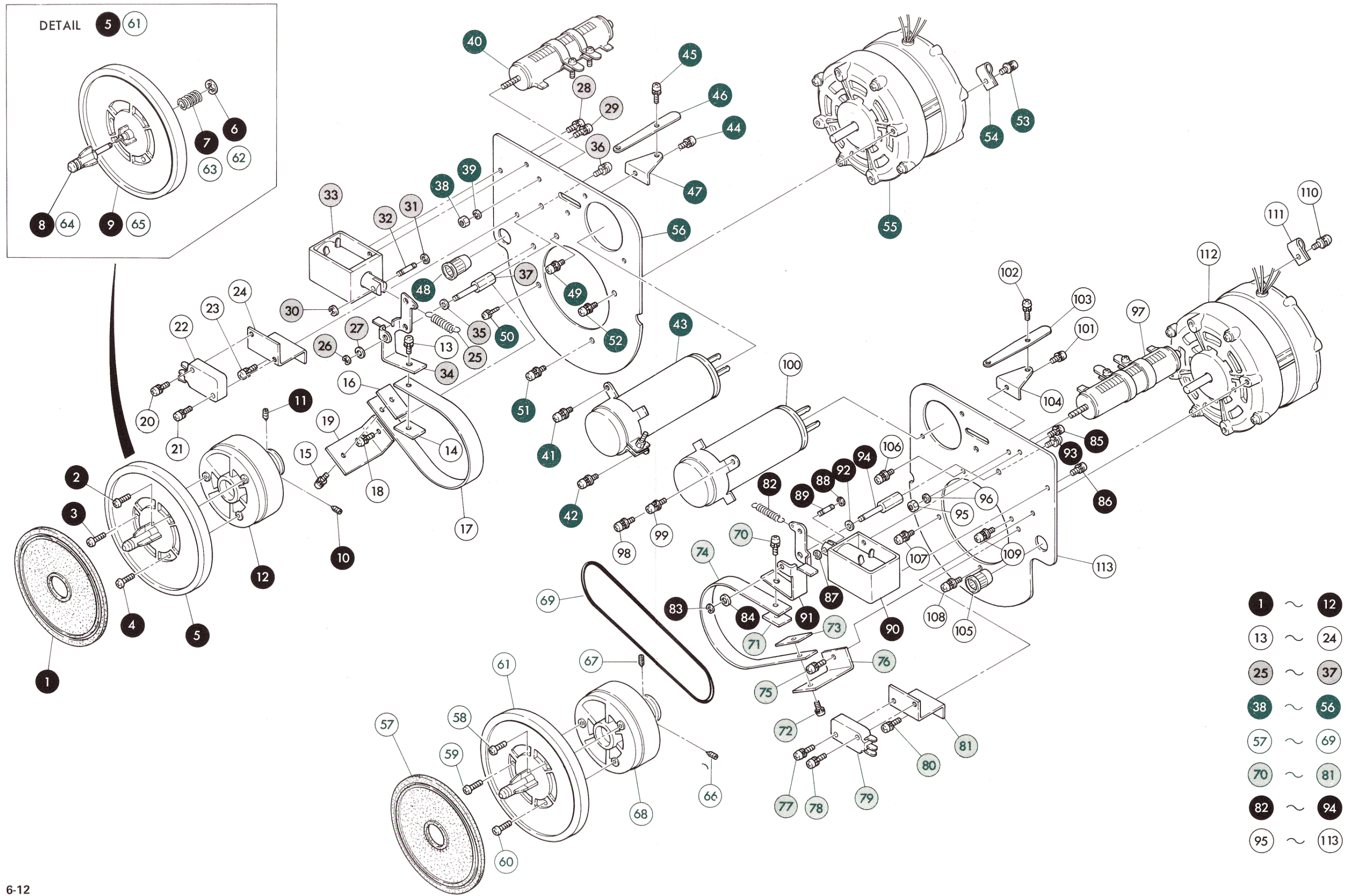
Parts No.	Stock No.	Description	Parts No.	Stock No.	Description
1	5106062	SF Type Screw, M 4 x 5	51	5240540	Tension Arm Stopper
2	5106062	SF Type Screw, M 4 x 5	52	5170080	Hex. Nut, M 10
3	6100031	Capstan Wheel	53	5260061	Tension Arm Holder
4	5180150	Thrust Washer, 8.0 x 0.25	54	6900423	Lifter Spring
5	5370010	Dust Cap	55	5101843	BSA Type Screw, M 3 x 6
6	5101862	BSA Type Screw, M 4 x 8	56	5101843	BSA Type Screw, M 3 x 6
7	5101862	BSA Type Screw, M 4 x 8	57	5220241	Bracket, lifter spring
8	5101862	BSA Type Screw, M 4 x 8	58	5151004	E Type Washer, 3 ϕ
9	7040100	Capstan Sub Ass'y	59	5180120	Thrust Washer, 4.0 x 0.25
10		E Type Washer, grinded	60	5151004	E Type Washer, 3 ϕ
11	6200071	Capstan Shaft	61	5180120	Thrust Washer, 4.0 x 0.25
12	5180110	Thrust Washer, 8.0 x 0.8	62	6500241	Lifter Arm
13	7040050	Capstan Metal	63	5180120	Thrust Washer, 4.0 x 0.25
14	7060041	Pinch Roller Ass'y	64	5101943	BSB Type Screw, M 3 x 6
15	5151007	E Type Washer, 6 ϕ	65	5230280	Lifter Collar
16	5180140	Thrust Washer, 7.0 x 0.25	66	5101943	BSB Type Screw, M 3 x 6
17		Roller Arm Ass'y	67	5230280	Lifter Collar
18	5160120	Adjusting Bolt	68	5101943	BSB Type Screw, M 3 x 6
19	5160120	Adjusting Bolt	69	5230280	Lifter Collar
20	6500251	Roller Arm	70	5500100	Rubber Bushing (B)
21	5110261	Hex. Nut, M 4	71	5500100	Rubber Bushing (B)
22	5170030	Adjusting Nut (L = 7.5 mm)	72	6510092	Lifter
23	6900442	Pressure Spring	73	5180120	Thrust Washer, 4.0 x 0.25
24	5160150	Attachment Metal	74	6210160	Lifter Spindle
25	5170040	Adjusting Nut (L = 17 mm)	75	5106062	SF Type Screw, M 4 x 5
26	5110261	Hex. Nut, M 4	76	5106062	SF Type Screw, M 4 x 5
27	6900452	Roller Spring	77	6100040	Stabilizer Wheel
28	5102843	F Type Screw, M 3 x 6	78	5170050	Nut, stabilizer
29	5102843	F Type Screw, M 3 x 6	79	7040110	Stabilizer Sub-Ass'y
30	5220250	Stopper Angle, plunger	80	6130050	Stabilizer Roller
31	5500270	Rubber Bushing (A), plunger	82	5230310	Stabilizer Collar
32	5151002	E Type Washer, 2 ϕ	83		SS Type Screw, M 1.7 x 5
33	5151002	E Type Washer, 2 ϕ	84		SS Type Screw, M 1.7 x 2
34	5160161	Pin B, plunger	85	6300070	Spring Holder
35	5160131	Pressure Adjusting Screw	86	6900510	Compliance Arm Spring
36	4340060	Plunger Solenoid, pinch roller	87	6500300	Compliance Arm
37	5180140	Thrust Washer, 7.0 x 0.25	88	5180170	Thrust Washer
38	6210151	Roller Arm Spindle	89	6300060	Compliance Arm Holder
39	5106062	SF Type Screw, M 4 x 5	90	6320030	Ball-Bearing
40	5106062	SF Type Screw, M 4 x 5	91	6300050	Bearing Case
41	5101204	B Type Screw, M 2 x 6	92	6320030	Ball-Bearing
42	6900480	Tension Arm Spring	93		BSC Type Screw, M 4 x 18
43	6010020	Shut Off Drum	94	5230271	Head Base Prop
44	5180130	Thrust Washer, 5.0 x 0.25	95		B Type Screw, M 4 x 18
45	5180130	Thrust Washer, 5.0 x 0.25	96	5230271	Head Base Prop
46	7050030	Tension Arm	97	2410440	Banana Tip
47	5500100	Rubber Bushing (B)	98	2410440	Banana Tip
48	5500100	Rubber Bushing (B)	99	6630084	Capstan Base
49	5101843	BSA Type Screw, M 3 x 6			
50	5101843	BSA Type Screw, M 3 x 6			

Fig. 6-5



- 1 ~ 14
- 15 ~ 38
- 39 ~ 53
- 54 ~ 74
- 75 ~ 99

Fig. 6-6



- 1 ~ 12
- 13 ~ 24
- 25 ~ 37
- 38 ~ 56
- 57 ~ 69
- 70 ~ 81
- 82 ~ 94
- 95 ~ 113

6-6. Disassembly of Reel Motor Assembly

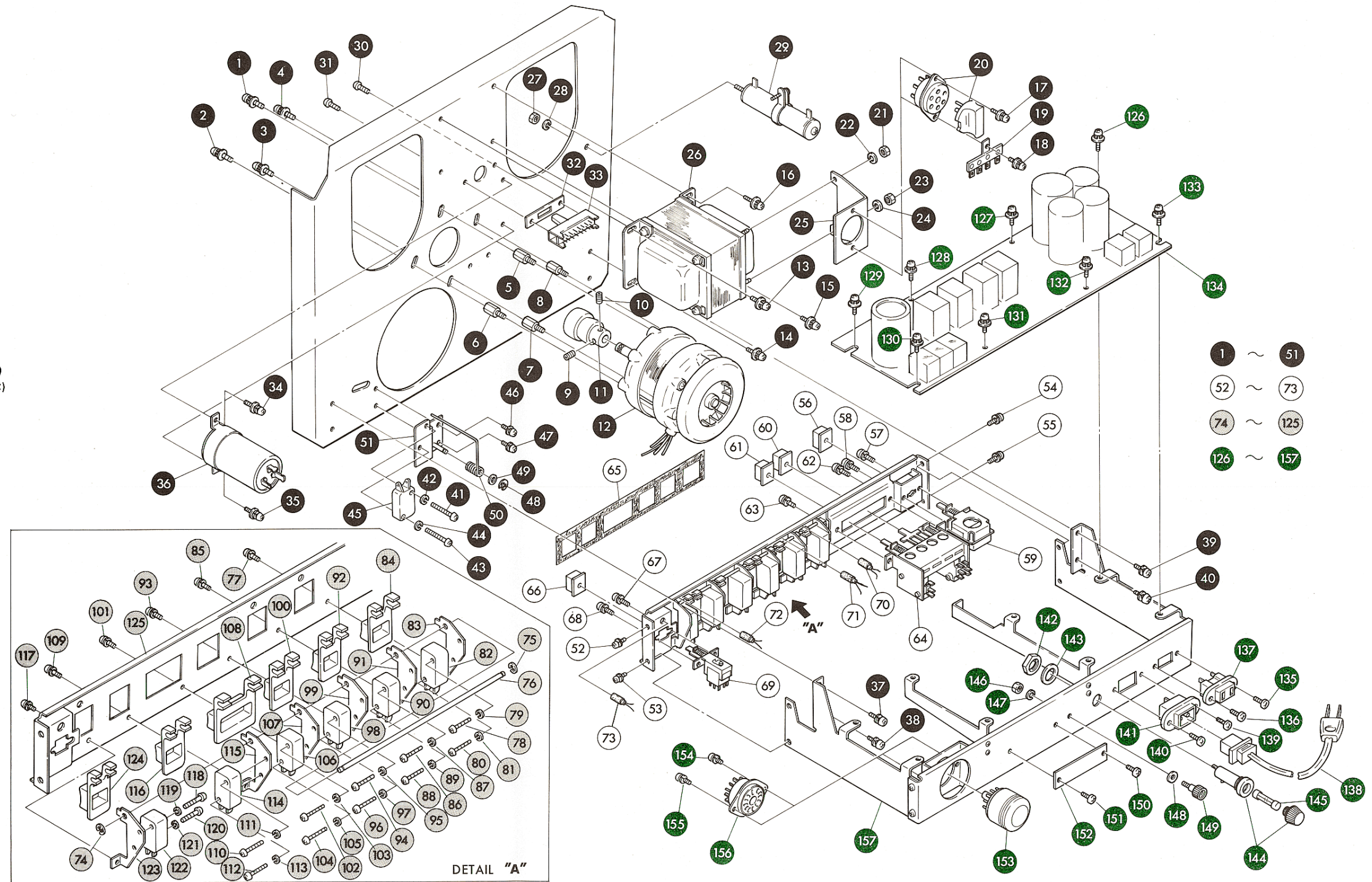
Parts No.	Stock No.	Description	Parts No.	Stock No.	Description
1	5500043	Table Sheet	58	5101244	B Type Screw, M 3 x 8
2	5101244	B Type Screw, M 3 x 8	59	5101244	B Type Screw, M 3 x 8
3	5101244	B Type Screw, M 3 x 8	60	5101244	B Type Screw, M 3 x 8
4	5101244	B Type Screw, M 3 x 8	61	7060050	Reel Table Ass'y
5	7060050	Reel Table Ass'y	62	5151004	E Type Washer, 3 ϕ
6	5151004	E Type Washer, 3 ϕ	63	6900490	Cramp Spring
7	6900490	Cramp Spring	64	6410061	Reel Cramper
8	6410061	Reel Cramper	65	6110021	Reel Table
9	6110021	Reel Table	66	5106062	SF Type Screw, M 4 x 5
10	5106062	SF Type Screw, M 4 x 5	67	5106062	SF Type Screw, M 4 x 5
11	5106062	SF Type Screw, M 4 x 5	68	7070040	Brake Drum
12	7070040	Brake Drum	69	6030050	Counter Belt
13	5101843	BSA Type Screw, M 3 x 6	70	5101843	BSA Type Screw, M 3 x 6
14	5240531	Supporter Plate, brake band	71	5240531	Supporter Plate, brake band
15	5101843	BSA Type Screw, M 3 x 6	72	5101843	BSA Type Screw, M 3 x 6
16	5240531	Supporter Plate, brake band	73	5240531	Supporter Plate, brake band
17	6400070	Brake Band	74	6400070	Brake Band
18	5101843	BSA Type Screw, M 3 x 6	75	5101843	BSA Type Screw, M 3 x 6
19	5240461	Brake Band Bracket	76	5240461	Brake Band Bracket
20	5101845	BSA Type Screw, M 3 x 10	77	5101845	BSA Type Screw, M 3 x 10
21	5101845	BSA Type Screw, M 3 x 10	78	5101845	BSA Type Screw, M 3 x 10
22	1160120	Micro Switch MT-100	79	1160120	Micro Switch MT-100
23	5101843	BSA Type Screw, M 3 x 6	80	5101843	BSA Type Screw, M 3 x 6
24	5240472	Micro Switch Retainer (A)	81	5240472	Micro Switch Retainer (A)
25	6900462	Brake Spring	82	6900461	Brake Spring
26	5151004	E Type Washer, 3 ϕ	83	5151004	E Type Washer, 3 ϕ
27	5180120	Thrust Washer, 4.0 x 0.25	84	5180120	Thrust Washer, 4.0 x 0.25
28	5101843	BSA Type Screw, M 3 x 6	85	5101843	BSA Type Screw, M 3 x 6
29	5101843	BSA Type Screw, M 3 x 6	86	5101843	BSA Type Screw, M 3 x 6
30	5151002	E Type Washer, 2 ϕ	87	5151002	E Type Washer, 2 ϕ
31	5151002	E Type Washer, 2 ϕ	88	5151002	E Type Washer, 2 ϕ
32	6210012	Pin (A), plunger	89	6210012	Pin (A), plunger
33	4340050	Plunger Solenoid, brake	90	4340040	Plunger Solenoid, brake
34	6500270	Brake Arm (B), left	91	6500260	Brake Arm (A), right
35	5180120	Thrust Washer, 4.0 x 0.25	92	5180120	Thrust Washer, 4.0 x 0.25
36	5101843	BSA Type Screw, M 3 x 6	93	5101843	BSA Type Screw, M 3 x 6
37	6210170	Brake Arm Prop	94	6210170	Brake Arm Prop
38	5110261	Hex. Nut, M 4	95	5110261	Hex. Nut, M 4
39	5121360	S Type Washer, 4 ϕ	96	5121360	S Type Washer, 4 ϕ
40	0125320	Enameled Wire-wound Resistor, 250 Ω 25 W	97	0125340	Enameled Wire-wound Resistor 200 Ω 35 W
41	5101943	BSB Type Screw, M 3 x 6	98	5101943	BSB Type Screw, M 3 x 6
42	5101943	BSB Type Screw, M 3 x 6	99	5101943	BSB Type Screw, M 3 x 6
43	0599003	MP Capacitor (Block Type), 4 + 0.5 μ F 250 V AC	100	0599005	MP Capacitor (Block Type), 4 + 0.5 μ F AC300V
44	5101843	BSA Type Screw, M 3 x 6	101	5101843	BSA Type Screw, M 3 x 6
45	5101843	BSA Type Screw, M 3 x 6	102	5101843	BSA Type Screw, M 3 x 6
46	6500261	Brake Lever	103	6500261	Brake Lever
47	5240481	Brake Lever Bracket	104	5240481	Brake Lever Bracket
48		Nylon Bushing	105		Nylon Bushing
49	5101962	BSB Type Screw, M 4 x 8	106	5101962	BSB Type Screw, M 4 x 8
50	5101862	BSA Type Screw, M 4 x 8	107	5101962	BSB Type Screw, M 4 x 8
51	5101962	BSB Type Screw, M 4 x 8	108	5101962	BSB Type Screw, M 4 x 8
52	5101962	BSB Type Screw, M 4 x 8	109	5101962	BSB Type Screw, M 4 x 8
53	5101962	BSB Type Screw, M 4 x 8	110	5101962	BSB Type Screw, M 4 x 8
54		Cord Clip	111		Cord Clip
55	4320120	Left Reel Motor	112	4320130	Right Reel Motor
56	6630051	Motor Base (B)	113	6630061	Motor Base (A)
57	5500043	Table Sheet			

6-7. Disassembly of Mechanism Section (Rear) and Control Chassis

Parts No.	Stock No.	Description	Parts No.	Stock No.	Description
1	5101962	BSB Type Screw, M 4 x 8	58	5101843	BSA Type Screw, M 3 x 6
2	5101962	BSB Type Screw, M 4 x 8	59	1130520	Power Switch
3	5101962	BSB Type Screw, M 4 x 8	60	5320150	Knob (Gray), speed
4	5101962	BSB Type Screw, M 4 x 8	61	5320191	Knob (White), cue
5	5230261	Motor Prop	62	5101843	BSA Type Screw, M 3 x 6
6	5230261	Motor Prop	63	5101843	BSA Type Screw, M 3 x 6
7	5230261	Motor Prop	64	1130590	Push Switch (2 unit), speed & cue
8	5230261	Motor Prop	65	5040111	Masking, operating button
9	5106062	SF Type Screw, M 4 x 5	66	5320150	Knob (Gray), pause
10	5106062	SF Type Screw, M 4 x 5	67	5101843	BSA Type Screw, M 3 x 6
11	6140042	Motor Pulley	68	5101843	BSA Type Screw, M 3 x 6
12	4320020	Capstan Motor	69	1130500	Pause Switch
13	5101962	BSB Type Screw, M 4 x 8	70	0400210	Pilot Lamp, lead type (6.3 V 75 mA)
14	5101962	BSB Type Screw, M 4 x 8	71	0400210	Pilot Lamp, lead type (6.3 V 75 mA)
15	5101962	BSB Type Screw, M 4 x 8	72	0400210	Pilot Lamp, lead type (6.3 V 75 mA)
16	5101962	BSB Type Screw, M 4 x 8	73	0400210	Pilot Lamp, lead type (6.3 V 75 mA)
17	5101943	BSB Type Screw, M 3 x 6	74	5151004	E Type Washer, 3 φ
18	5101943	BSB Type Screw, M 3 x 6	75	5151004	E Type Washer, 3 φ
19	2110120	Terminal Strip 2L1A	76	6200092	Shaft, operating button
20	2410400	Voltage Selector, complete	77	5101843	BSA Type Screw, M 3 x 6
21	5110261	Hex. Nut, M4	78	5101048	B Type Screw, M 3 x 15
22	5121360	S Type Washer, 4 φ	79	5121340	S Type Washer, 3 φ
23	5110261	Hex. Nut, M4	80	5101048	B Type Screw, M 3 x 15
24	5121360	S Type Washer, 4 φ	81	5121340	S Type Washer, 3 φ
25	5240400	Voltage Selector Retainer	82	1160060	Micro Switch V-1A10
26	4001070	Power Transformer	83	5240492	Micro Switch Retainer (B)
27	5110261	Hex. Nut, M4	84	5320182	Record Button (Red)
28	5121360	S Type Washer, 4 φ	85	5101843	BSA Type Screw, M 3 x 6
29	0125330	Enameled Wire-wound Resistor, 1.5 kΩ 25W	86	5101048	B Type Screw, M 3 x 15
30	5106522	B Type Screw (Polycarbonate), M 2.6 x 6	87	5121340	S Type Washer, 3 φ
31	5106522	B Type Screw (Polycarbonate), M 2.6 x 6	88	5101048	B Type Screw, M 3 x 15
32	5620011	Fiber Sheet	89	5121340	S Type Washer, 3 φ
33	1110180	Freq. Conversion Slide Switch	90	1160060	Micro Switch V-1A10
34	5101945	BSB Type Screw, M 3 x 10	91	5240492	Micro Switch Retainer (B)
35	5101945	BSB Type Screw, M 3 x 10	92	5320162	Button (A), direction
36	0599004	MP Capacitor (Block Type), 2.8 + 1 μF AC 250 V	93	5101843	BSA Type Screw, M 3 x 6
37	5101862	BSA Type Screw, M 4 x 8	94	5101048	B Type Screw, M 3 x 15
38	5101862	BSA Type Screw, M 4 x 8	95	5121340	S Type Washer, 3 φ
39	5101862	BSA Type Screw, M 4 x 8	96	5101048	B Type Screw, M 3 x 15
40	5101862	BSA Type Screw, M 4 x 8	97	5121340	S Type Washer, 3 φ
41	5101048	B Type Screw, M 3 x 15	98	1160060	Micro Switch V-1A10
42	5121340	S Type Washer, 3 φ	99	5240492	Micro Switch Retainer (B)
43	5101048	B Type Screw, M 3 x 15	100	5320162	Button (A), rewind
44	5121340	S Type Washer, 3 φ	101	5101843	BSA Type Screw, M 3 x 6
45	1160050	Micro Switch V-1A44	102	5101048	B Type Screw, M 3 x 15
46	5101943	BSB Type Screw, M 3 x 6	103	5121340	S Type Washer, 3 φ
47	5101843	BSA Type Screw, M 3 x 6	104	5101048	B Type Screw, M 3 x 15
48	5151004	E Type Washer, 3 φ	105	5121340	S Type Washer, 3 φ
49	5120341	P Type Washer, 3 φ	106	1160060	Micro Switch V-1A10
50	6500283	Damper Lever	107	5240492	Micro Switch Retainer (B)
51	5240552	Damper Bracket	108	5320172	Button (B), stop
52	5101843	BSA Type Screw, M 3 x 6	109	5101843	BSA Type Screw, M 3 x 6
53	5101843	BSA Type Screw, M 3 x 6	110	5101048	B Type Screw, M 3 x 15
54	5101843	BSA Type Screw, M 3 x 6	111	5121340	S Type Washer, 3 φ
55	5101843	BSA Type Screw, M 3 x 6	112	5101048	B Type Screw, M 3 x 15
56	5320191	Knob (White), power	113	5121340	S Type Washer, 3 φ
57	5101843	BSA Type Screw, M 3 x 6	114	1160060	Micro Switch V-1A10
			115	5240492	Micro Switch Retainer (B)
			116	5320162	Button (A), fast forward
			117	5101843	BSA Type Screw, M 3 x 6
			118	5101048	B Type Screw, M 3 x 15

Fig. 6-7

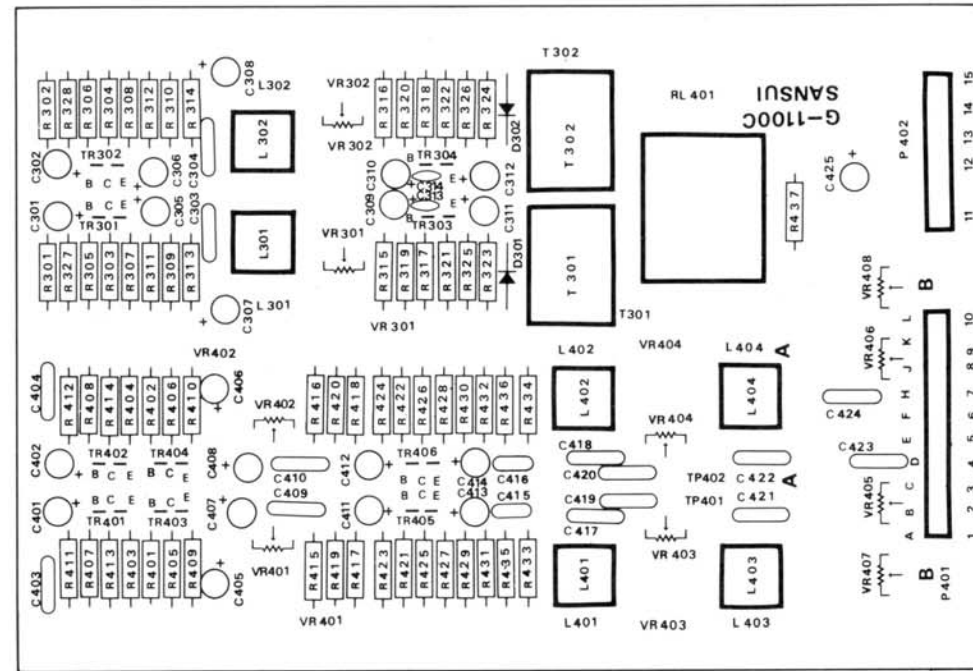
Parts No.	Stock No.	Description
119	5121340	S Type Washer, 3 φ
120	5101048	B Type Screw, M 3 x 15
121	5121340	S Type Washer, 3 φ
122	1160060	Micro Switch V-1A10
123	5240492	Micro Switch Retainer (B)
124	5320162	Button (A), direction
125	5270022	Back Panel, control chassis
126	5101943	BSB Type Screw, M 3 x 6
127	5101943	BSB Type Screw, M 3 x 6
128	5101943	BSB Type Screw, M 3 x 6
129	5101943	BSB Type Screw, M 3 x 6
130	5101943	BSB Type Screw, M 3 x 6
131	5101943	BSB Type Screw, M 3 x 6
132	5101943	BSB Type Screw, M 3 x 6
133	5101943	BSB Type Screw, M 3 x 6
134	7630050	Control P.C. Board G-1103B
135	5101143	B Type Screw, M 3 x 6 (BLK)
136	5101143	B Type Screw, M 3 x 6 (BLK)
137	2450010	AC Outlet
138	3800130	Power Supply Cord
139	5101143	B Type Screw, M 3 x 6 (BLK)
140	5101143	B Type Screw, M 3 x 6 (BLK)
141	2410310	AC Connector Socket (2 P)
142		Hex. Nut, M5
143		Fiber Washer, 5 φ
144	2300020	Fuse Holder, complete
145	0431242	Power Fuse 2A (100 ~ 117 V AC)
145	0431222	Power Fuse 1A (200 ~ 240 V AC)
146	5110241	Hex. Nut, M3
147	5121340	S Type Washer, 3 φ
148	5120341	P Type Washer, 3 φ
149	2230010	Ground Terminal
150	5101223	B Type Screw, M 2.6 x 6
151	5101223	B Type Screw, M 2.6 x 6
152	5360110	Name Plate
153	2410410	Dummy Plug
154	5101843	BSA Type Screw, M 3 x 6
155	5101843	BSA Type Screw, M 3 x 6
156	2040010	11 P Socket, remote control
157		Control Chassis Ass'y



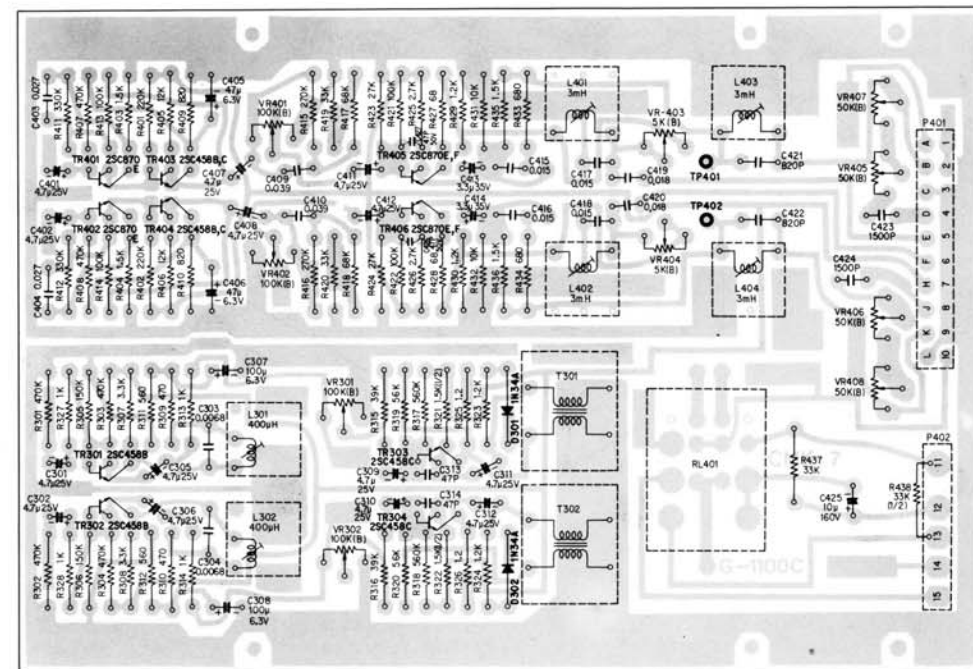
7. PARTS LOCATIONS AND PARTS LIST

7-1. G-1100C Recording Line Amplifier Circuit Board (Stock No. 7620010 Complete Circuit Board G-1100C)

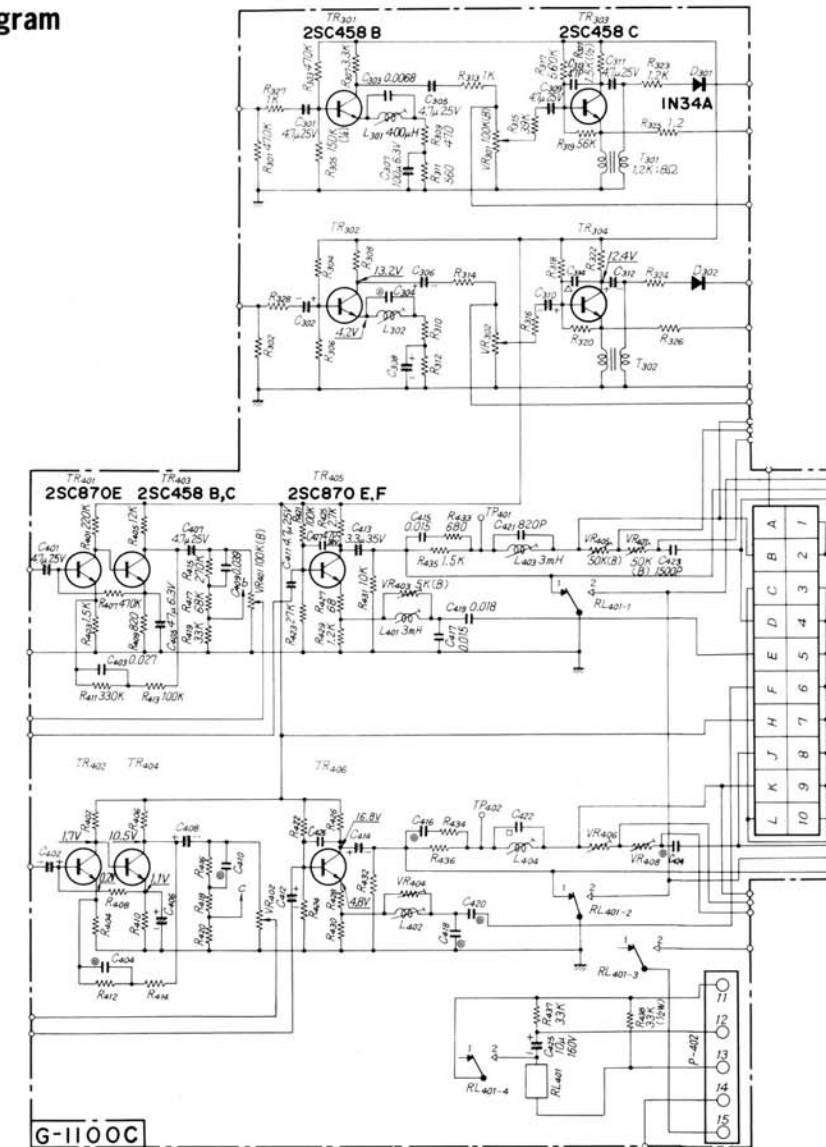
Component Side



Conductor Side



Schematic Diagram



Parts List

Part No.	Stock No.	Description	Part No.	Stock No.	Description
	2620010	Recording Line Amplifier Circuit Board G-1100C			
R301	0101474	470 kΩ ¼W C. Resistor	R315	0101393	39 kΩ ¼W C. Resistor
R302	0101474	470 kΩ ¼W C. Resistor	R316	0101393	39 kΩ ¼W C. Resistor
R303	0101474	470 kΩ ¼W C. Resistor	R317	0101564	560 kΩ ¼W C. Resistor
R304	0101474	470 kΩ ¼W C. Resistor	R318	0101564	560 kΩ ¼W C. Resistor
R305	0101154	150 kΩ ¼W C. Resistor	R319	0101563	56 kΩ ¼W C. Resistor
R306	0101154	150 kΩ ¼W C. Resistor	R320	0101563	56 kΩ ¼W C. Resistor
R307	0101332	3.3 kΩ ¼W C. Resistor	R321	0103152	1.5 kΩ ¼W C. Resistor
R308	0101332	3.3 kΩ ¼W C. Resistor	R322	0103152	1.5 kΩ ¼W C. Resistor
R309	0101471	470 Ω ¼W C. Resistor	R323	0101122	1.2 kΩ ¼W C. Resistor
R310	0101471	470 Ω ¼W C. Resistor	R324	0101122	1.2 kΩ ¼W C. Resistor
R311	0101561	560 Ω ¼W C. Resistor	R325	0101129	1.2 Ω ¼W C. Resistor
R312	0101561	560 Ω ¼W C. Resistor	R326	0101129	1.2 Ω ¼W C. Resistor
R313	0101102	1 kΩ ¼W C. Resistor	R327	0101102	1 kΩ ¼W C. Resistor
R314	0101102	1 kΩ ¼W C. Resistor	R328	0101102	1 kΩ ¼W C. Resistor
			C301	0513479	4.7 μF 25 V El. Capacitor

Resistor: Carbon Resistor C. Resistor
 Capacitor: Electrolytic Capacitor . . . El. Capacitor

SD-5000

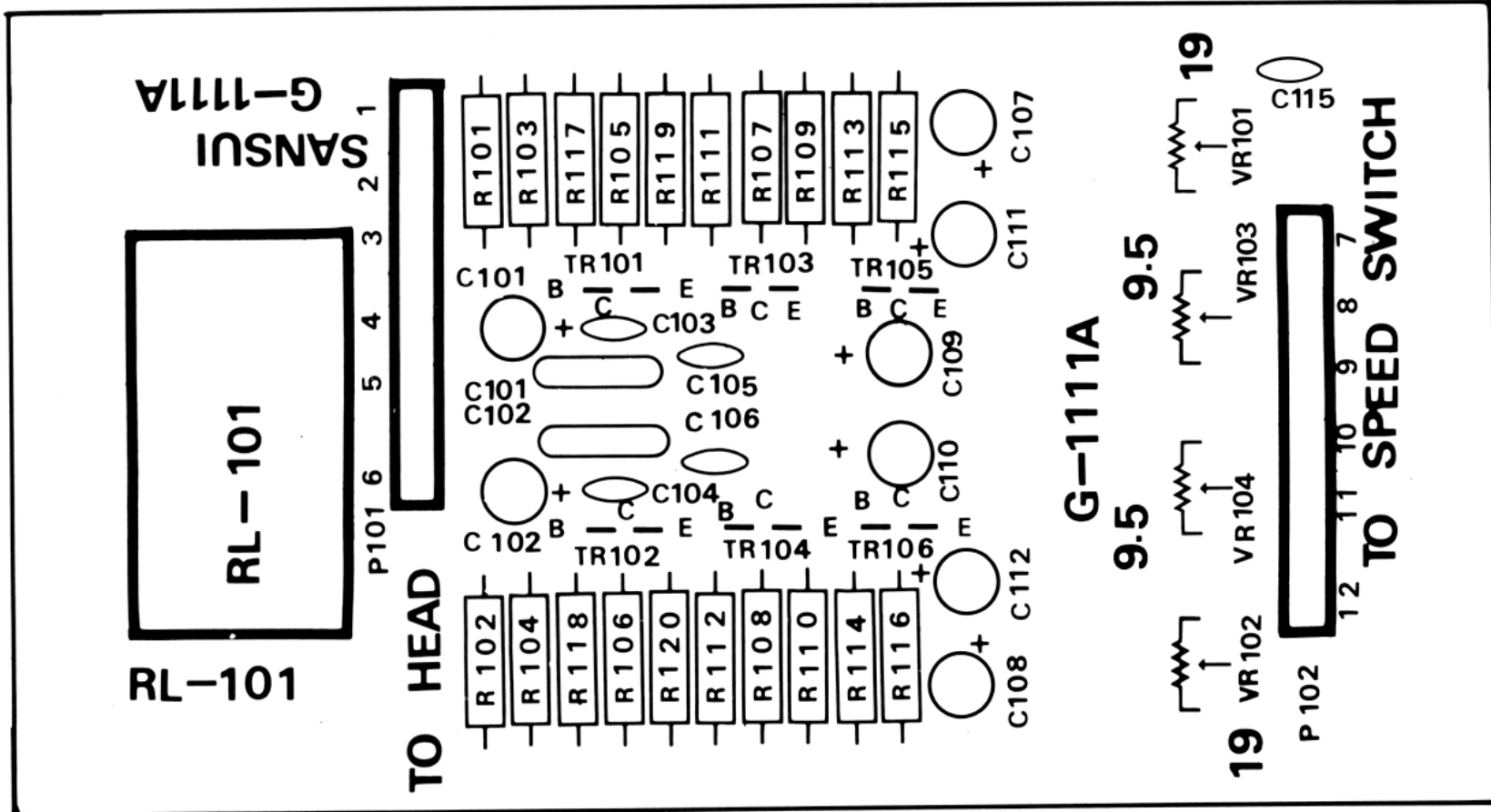


Parts No.	Stock No.	Description	Parts No.	Stock No.	Description
C302	0513479	4.7 μ F 25 V El. Capacitor	R429	0101122	1.2 k Ω 1/4 W C. Resistor
C303	0601686	0.0068 μ F 50 V Mylar Capacitor	R430	0101122	1.2 k Ω 1/4 W C. Resistor
C304	0601686	0.0068 μ F 50 V Mylar Capacitor	R431	0101103	10 k Ω 1/4 W C. Resistor
C305	0513479	4.7 μ F 25 V El. Capacitor	R432	0101103	10 k Ω 1/4 W C. Resistor
C306	0513479	4.7 μ F 25 V El. Capacitor	R433	0101681	680 Ω 1/4 W C. Resistor
C307	0530101	100 μ F 6.3 V El. Capacitor	R434	0101681	680 Ω 1/4 W C. Resistor
C308	0530101	100 μ F 6.3 V El. Capacitor	R435	0101152	1.5 k Ω 1/4 W C. Resistor
C309	0513479	4.7 μ F 25 V El. Capacitor	R436	0101152	1.5 k Ω 1/4 W C. Resistor
C310	0513479	4.7 μ F 25 V El. Capacitor	R437	0101333	33 k Ω 1/4 W C. Resistor
C311	0513479	4.7 μ F 25 V El. Capacitor	R438	0103333	33 k Ω 1/2 W C. Resistor
C312	0513479	4.7 μ F 25 V El. Capacitor	C401	0513479	4.7 μ F 25 V El. Capacitor
C313	0660470	47 pF 50 V Ceramic Capacitor	C402	0513479	4.7 μ F 25 V El. Capacitor
C314	0660470	47 pF 50 V Ceramic Capacitor	C403	0601277	0.027 μ F 50 V Mylar Capacitor
TR301	0305111	2SC458 (B) Transistor	C404	0601277	0.027 μ F 50 V Mylar Capacitor
TR302	0305111	2SC458 (B) Transistor	C405	0513470	47 μ F 6.3 V El. Capacitor
TR303	0305112	2SC458 (C) Transistor	C406	0513470	47 μ F 6.3 V El. Capacitor
TR304	0305112	2SC458 (C) Transistor	C407	0513479	4.7 μ F 25 V El. Capacitor
D301	0310400	1N34A Diode	C408	0513479	4.7 μ F 25 V El. Capacitor
D302	0310400	1N34A Diode	C409	0601397	0.039 μ F 50 V Mylar Capacitor
L301	4290190	17SN-2587Y Trap Coil 400 μ H	C410	0601397	0.039 μ F 50 V Mylar Capacitor
L302	4290190	17SN-2587Y Trap Coil 400 μ H	C411	0513479	4.7 μ F 25 V El. Capacitor
T301	4100120	Headphone Transformer 1.2 k Ω : 8 Ω	C412	0513479	4.7 μ F 25 V El. Capacitor
T302	4100120	Headphone Transformer 1.2 k Ω : 8 Ω	C413	0514339	3.3 μ F 35 V El. Capacitor
VR301	1032142	100 k Ω (B) Semi-variable Resistor	C414	0514339	3.3 μ F 35 V El. Capacitor
VR302	1032142	100 k Ω (B) Semi-variable Resistor	C415	0601157	0.015 μ F 50 V Mylar Capacitor
R401	0101224	220 k Ω 1/4 W C. Resistor	C416	0601157	0.015 μ F 50 V Mylar Capacitor
R402	0101224	220 k Ω 1/4 W C. Resistor	C417	0601157	0.015 μ F 50 V Mylar Capacitor
R403	0101152	1.5 k Ω 1/4 W C. Resistor	C418	0601157	0.015 μ F 50 V Mylar Capacitor
R404	0101152	1.5 k Ω 1/4 W C. Resistor	C419	0601187	0.018 μ F 50 V Mylar Capacitor
R405	0101123	12 k Ω 1/4 W C. Resistor	C420	0601187	0.018 μ F 50 V Mylar Capacitor
R406	0101123	12 k Ω 1/4 W C. Resistor	C421	0641821	820 pF 50 V Mica Capacitor
R407	0101474	470 k Ω 1/4 W C. Resistor	C422	0641821	820 pF 50 V Mica Capacitor
R408	0101474	470 k Ω 1/4 W C. Resistor	C423	0601156	0.0015 μ F 50 V Mylar Capacitor
R409	0101821	820 Ω 1/4 W C. Resistor	C424	0601156	0.0015 μ F 50 V Mylar Capacitor
R410	0101821	820 Ω 1/4 W C. Resistor	C425	0518100	10 μ F 160 V El. Capacitor
R411	0101334	330 k Ω 1/4 W C. Resistor	C426	0660470	47 pF 50 V Ceramic Capacitor
R412	0101334	330 k Ω 1/4 W C. Resistor	C427	0660470	47 pF 50 V Ceramic Capacitor
R413	0101104	100 k Ω 1/4 W C. Resistor	VR401	1032142	100 k Ω (B) Semi-variable Resistor
R414	0101104	100 k Ω 1/4 W C. Resistor	VR402	1032142	100 k Ω (B) Semi-variable Resistor
R415	0101274	270 k Ω 1/4 W C. Resistor	VR403	1032092	5 k Ω (B) Semi-variable Resistor
R416	0101274	270 k Ω 1/4 W C. Resistor	VR404	1032092	5 k Ω (B) Semi-variable Resistor
R417	0101683	68 k Ω 1/4 W C. Resistor	VR405	1032132	50 k Ω (B) Semi-variable Resistor
R418	0101683	68 k Ω 1/4 W C. Resistor	VR406	1032132	50 k Ω (B) Semi-variable Resistor
R419	0101333	33 k Ω 1/4 W C. Resistor	VR407	1032132	50 k Ω (B) Semi-variable Resistor
R420	0101333	33 k Ω 1/4 W C. Resistor	VR408	1032132	50 k Ω (B) Semi-variable Resistor
R421	0101104	100 k Ω 1/4 W C. Resistor	TR401	0305510	2SC870E Transistor
R422	0101104	100 k Ω 1/4 W C. Resistor	TR402	0305510	2SC870E Transistor
R423	0101273	27 k Ω 1/4 W C. Resistor	TR403	0305111, 2	2SC458 (B, C) Transistor
R424	0101273	27 k Ω 1/4 W C. Resistor	TR404	0305111, 2	2SC458 (B, C) Transistor
R425	0101272	2.7 k Ω 1/4 W C. Resistor	TR405	0305510, 1	2SC870 (E, F) Transistor
R426	0101272	2.7 k Ω 1/4 W C. Resistor	TR406	0305510, 1	2SC870 (E, F) Transistor
R427	0101680	68 Ω 1/4 W C. Resistor	L401	4010050	TL-30 3 mH
R428	0101680	68 Ω 1/4 W C. Resistor	L402	4010050	TL-30 3 mH
			L403	4010050	TL-30 3 mH
			L404	4010050	TL-30 3 mH
			RL401	1150160	MY-4-OUS DC80 V Relay
			P401	2420080	10 P Multiple Connector
			P402	2410450	Mini-Connector (5 P)
				2260010	A4-01775-1 TP Pin

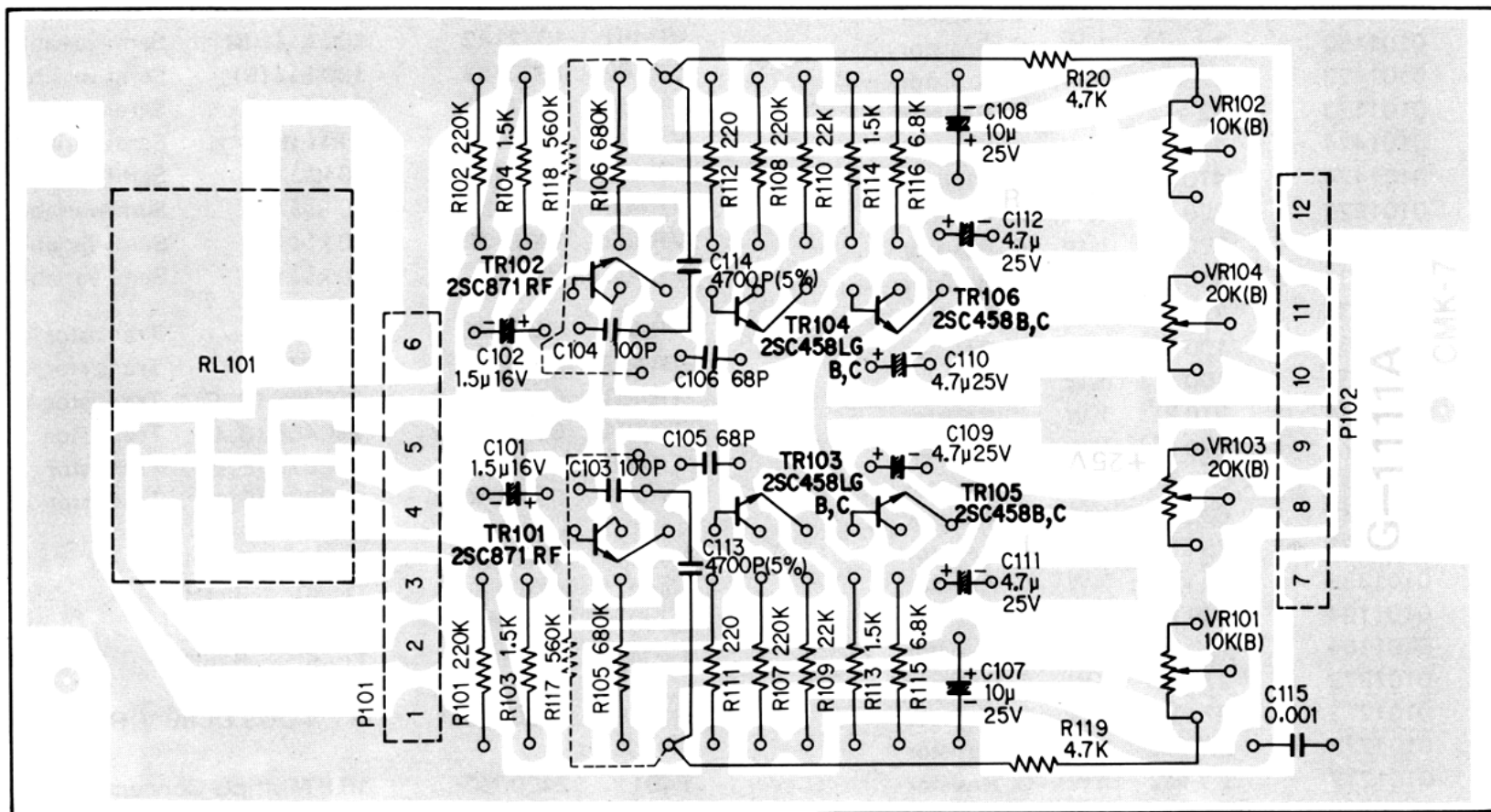
7-2. G-1111A Equalizer Circuit Board

(Stock No. 7250290 Complete Circuit Board G-1111A)

Component Side



Conductor Side

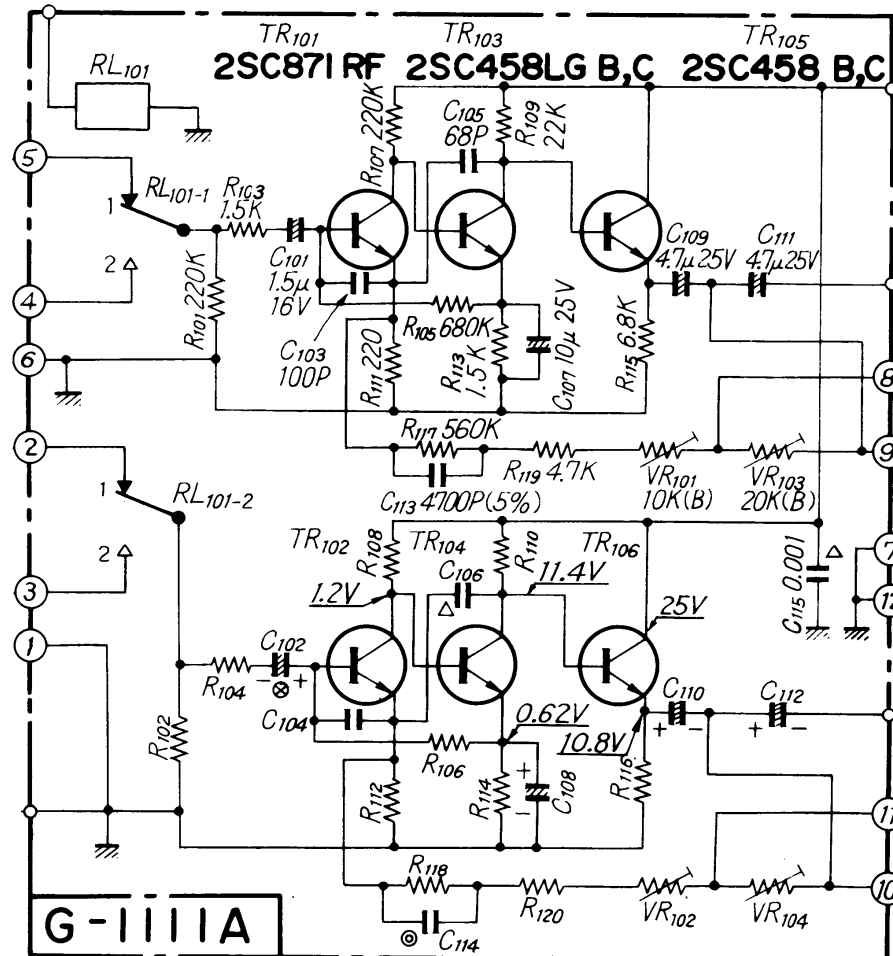


Resistor: Carbon Resistor C. Resistor
 Capacitor Electrolytic Capacitor . . . El. Capacitor

SD-5000



Schematic Diagram

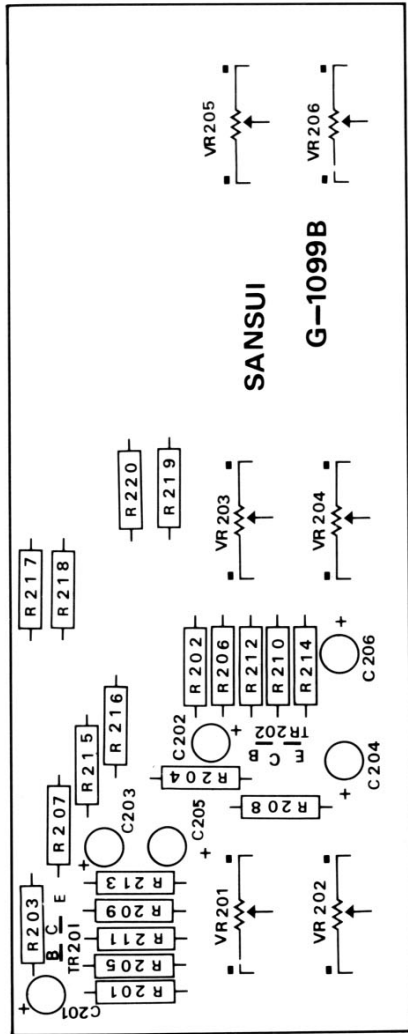


Parts List

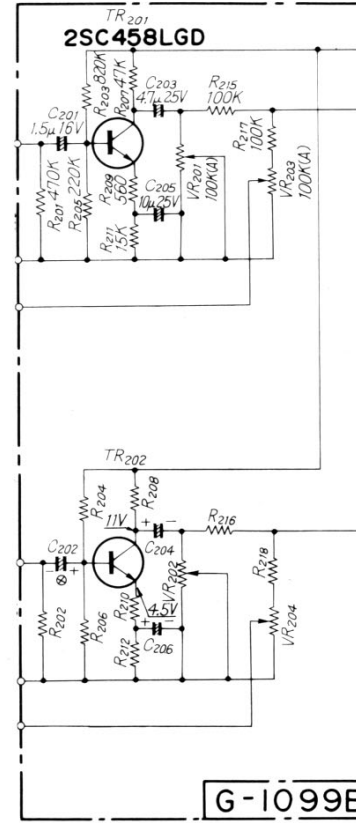
Parts No.	Stock No.	Description	Parts No.	Stock No.	Description
	2250290	Equalizer Circuit Board G-1111A			
R101	0101224	220 k Ω 1/4 W C. Resistor	C107	0513100	10 μ F 25 V El. Capacitor
R102	0101224	220 k Ω 1/4 W C. Resistor	C108	0513100	10 μ F 25 V El. Capacitor
R103	0101152	1.5 k Ω 1/4 W C. Resistor	C109	0513479	4.7 μ F 25 V El. Capacitor
R104	0101152	1.5 k Ω 1/4 W C. Resistor	C110	0513479	4.7 μ F 25 V El. Capacitor
R105	0101684	680 k Ω 1/4 W C. Resistor	C111	0513479	4.7 μ F 25 V El. Capacitor
R106	0101684	680 k Ω 1/4 W C. Resistor	C112	0513479	4.7 μ F 25 V El. Capacitor
R107	0101224	220 k Ω 1/4 W C. Resistor	C113	0600476	4700 pF (5%) 50 V Mylar Capacitor
R108	0101224	220 k Ω 1/4 W C. Resistor	C114	0600476	4700 pF (5%) 50 V Mylar Capacitor
R109	0101223	22 k Ω 1/4 W C. Resistor	C115	0601106	0.001 μ F 50 V Mylar Capacitor
R110	0101223	22 k Ω 1/4 W C. Resistor	TR101	0305475	2SC871R (F) Transistor
R111	0101221	220 Ω 1/4 W C. Resistor	TR102	0305475	2SC871R (F) Transistor
R112	0101221	220 Ω 1/4 W C. Resistor	TR103	0305310, 1	2SC458LG (B, C) Transistor
R113	0101152	1.5 k Ω 1/4 W C. Resistor	TR104	0305310, 1	2SC458LG (B, C) Transistor
R114	0101152	1.5 k Ω 1/4 W C. Resistor	TR105	0305111, 2	2SC458 (B, C) Transistor
R115	0101682	6.8 k Ω 1/4 W C. Resistor	TR106	0305111, 2	2SC458 (B, C) Transistor
R116	0101682	6.8 k Ω 1/4 W C. Resistor	VR101	1032102	10 k Ω (B) Semi-variable Resistor
R117	0101564	560 k Ω 1/4 W C. Resistor	VR102	1032102	10 k Ω (B) Semi-variable Resistor
R118	0101564	560 k Ω 1/4 W C. Resistor	VR103	1032122	20 k Ω (B) Semi-variable Resistor
R119	0101472	4.7 k Ω 1/4 W C. Resistor	VR104	1032122	20 k Ω (B) Semi-variable Resistor
R120	0101472	4.7 k Ω 1/4 W C. Resistor	RL101	1150180	AE3122-70 DC30 V Relay
C101	0572159	1.5 μ F 16 V Tantalum Capacitor	P101	2410430	Mini-Connector (6 P)
C102	0572159	1.5 μ F 16 V Tantalum Capacitor	P102	2410430	Mini-Connector (6 P)
C103	0660101	100 pF 50 V Ceramic Capacitor			
C104	0660101	100 pF 50 V Ceramic Capacitor			
C105	0660680	68 pF 50 V Ceramic Capacitor			
C106	0660680	68 pF 50 V Ceramic Capacitor			

**7-3. G-1099B Volume Circuit Board
 (Stock No. 7560480 Complete Circuit Board G-1099B)**

Component Side



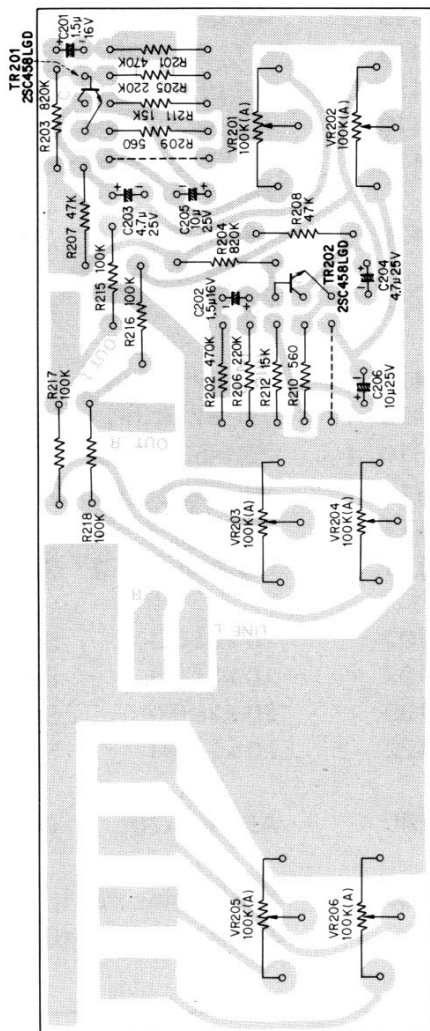
Schematic Diagram



Parts List

Parts No.	Stock No.	Description
	2560480	Volume Circuit Board G-1099B
R201	0101474	470 kΩ ¼W C. Resistor
R202	0101474	470 kΩ ¼W C. Resistor
R203	0101824	820 kΩ ¼W C. Resistor
R204	0101824	820 kΩ ¼W C. Resistor
R205	0101224	220 kΩ ¼W C. Resistor
R206	0101224	220 kΩ ¼W C. Resistor
R207	0101473	47 kΩ ¼W C. Resistor
R208	0101473	47 kΩ ¼W C. Resistor
R209	0101561	560 Ω ¼W C. Resistor
R210	0101561	560 Ω ¼W C. Resistor
R211	0101153	15 kΩ ¼W C. Resistor
R212	0101153	15 kΩ ¼W C. Resistor
R215	0101104	100 kΩ ¼W C. Resistor
R216	0101104	100 kΩ ¼W C. Resistor
R217	0101104	100 kΩ ¼W C. Resistor
R218	0101104	100 kΩ ¼W C. Resistor
C201	0572159	1.5 μF 16 V Tantalum Capacitor
C202	0572159	1.5 μF 16 V Tantalum Capacitor
C203	0513479	4.7 μF 25 V El. Capacitor
C204	0513479	4.7 μF 25 V El. Capacitor
C205	0513100	10 μF 25 V El. Capacitor
C206	0513100	10 μF 25 V El. Capacitor
TR201	0305312	2SC458LG (D) Transistor
TR202	0305312	2SC458LG (D) Transistor
VR201-2	1020140	100 kΩ (A) x 2 LINE-1 Volume
VR203-4	1020140	100 kΩ (A) x 2 MIC/LINE-2 (DIN) Volume
VR205-6	1020140	100 kΩ (A) x 2 PLAYBACK Volume

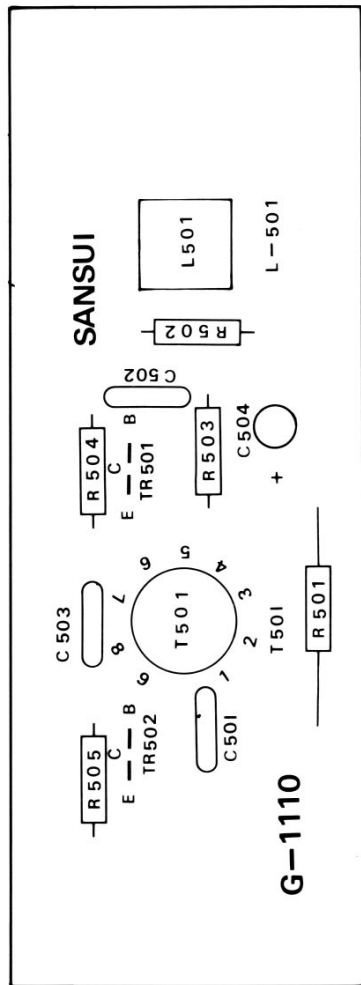
Conductor Side



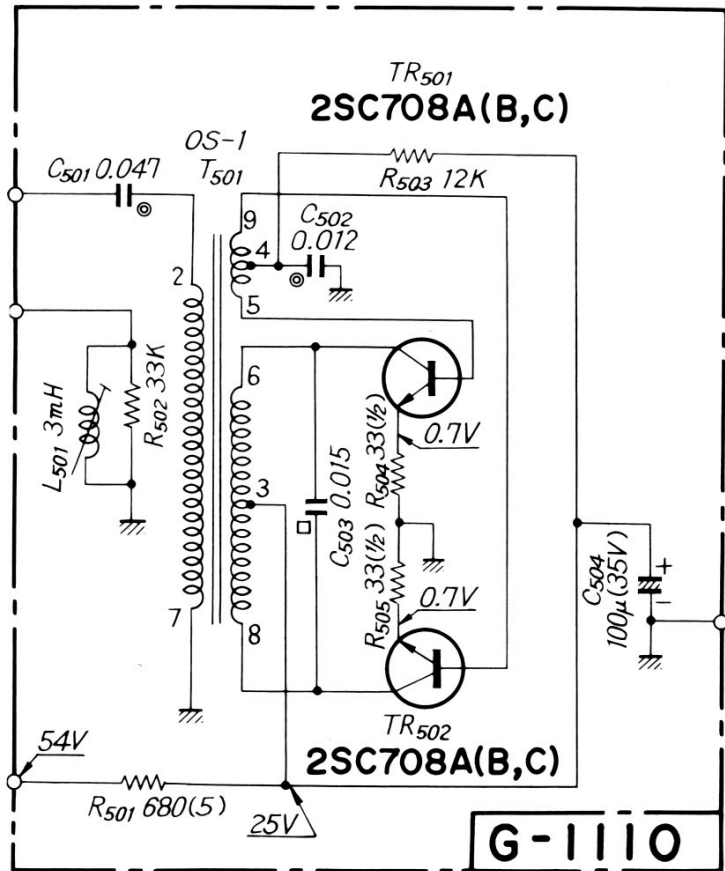
Resistor: Carbon Resistor C. Resistor
 Capacitor: Electrolytic Capacitor . . . El. Capacitor

7-4. G-1110 Oscillator Circuit Board (Stock No. 7600020 Complete Circuit Board G-1110)

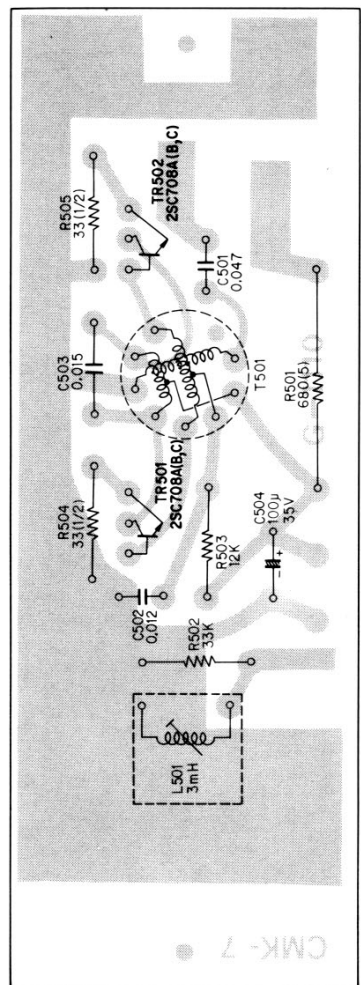
Component Side



Schematic Diagram



Conductor Side

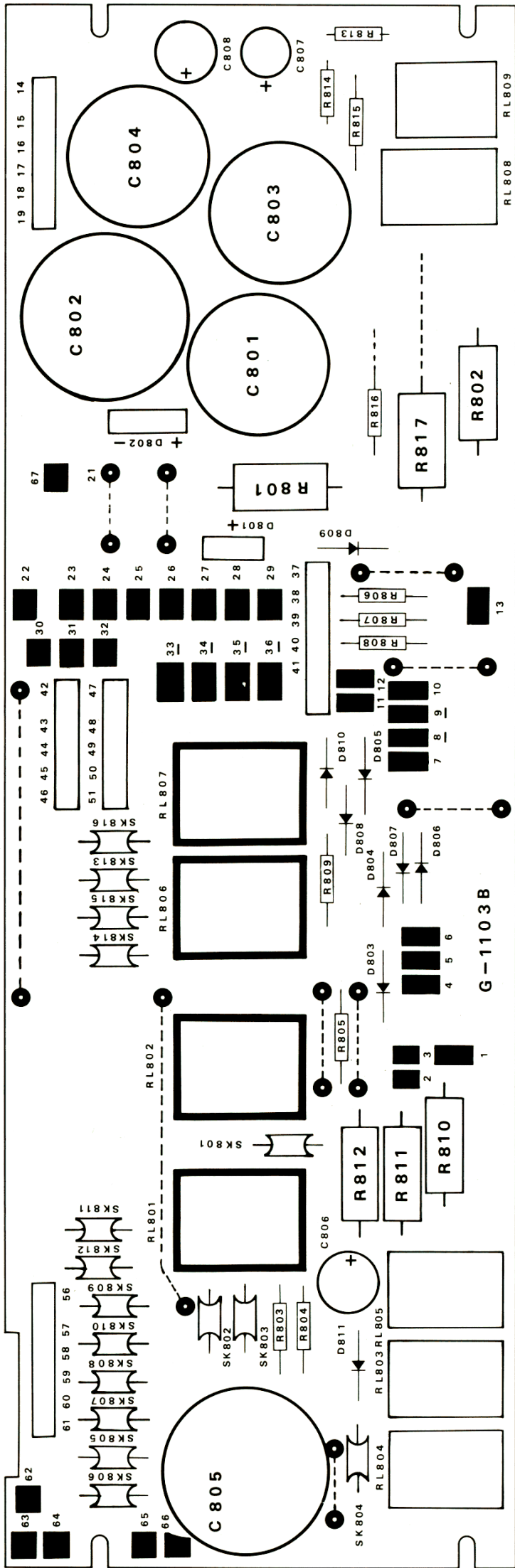


Parts List

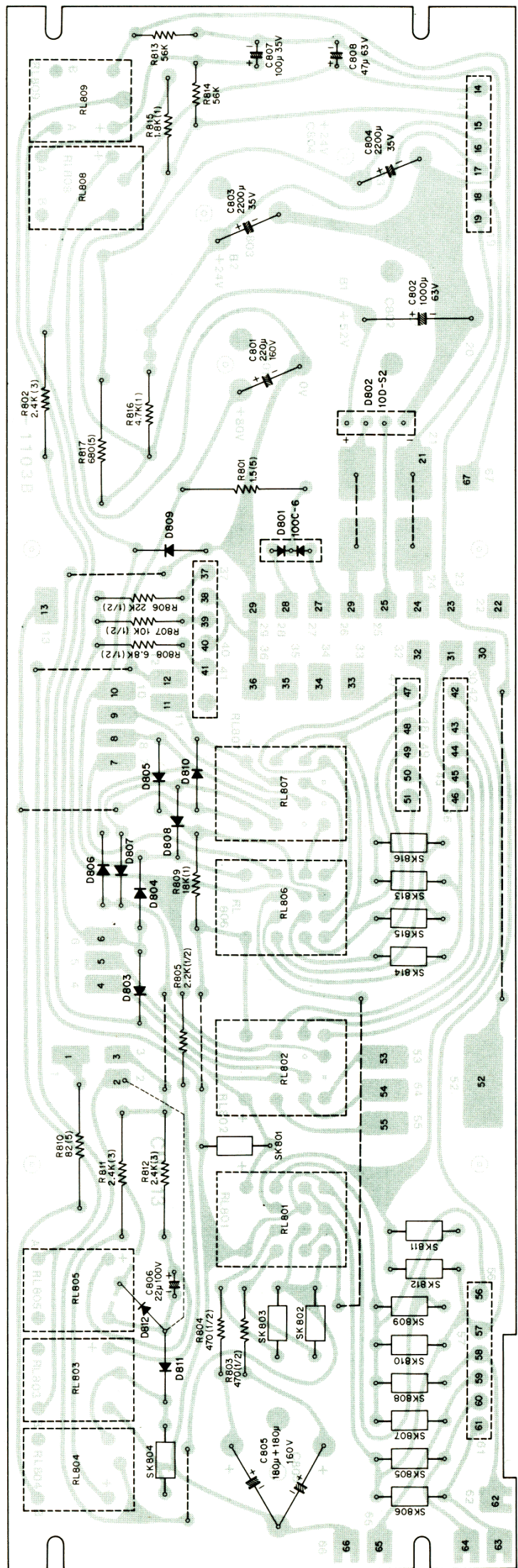
Parts No.	Stock No.	Description
	260020	Oscillator Circuit Board G-1110
R501	0105681	680 Ω 5 W C. Resistor
R502	0101333	33 kΩ ¼ W C. Resistor
R503	0101123	12 kΩ ¼ W C. Resistor
R504	0103330	33 Ω ½ W C. Resistor
R505	0103330	33 Ω ½ W C. Resistor
C501	0600477	0.047 μF 50 V Mylar Capacitor
C502	0600127	0.012 μF 50 V Mylar Capacitor
C503	0642053	0.015 μF 150 V Mica Capacitor
C504	0514101	100 μF 35 V El. Capacitor
TR501	0305481, 2	2SC708A (B, C)
TR502	0305481, 2	2SC708A (B, C)
L501	4010050	TL-30 3 mH Coil
T501	4220240	OS-1 Oscillator Transformer

7-5. G-1103B Control Circuit Board
(Stock No. 7630050 Complete Circuit Board G-1103B)

Component Side

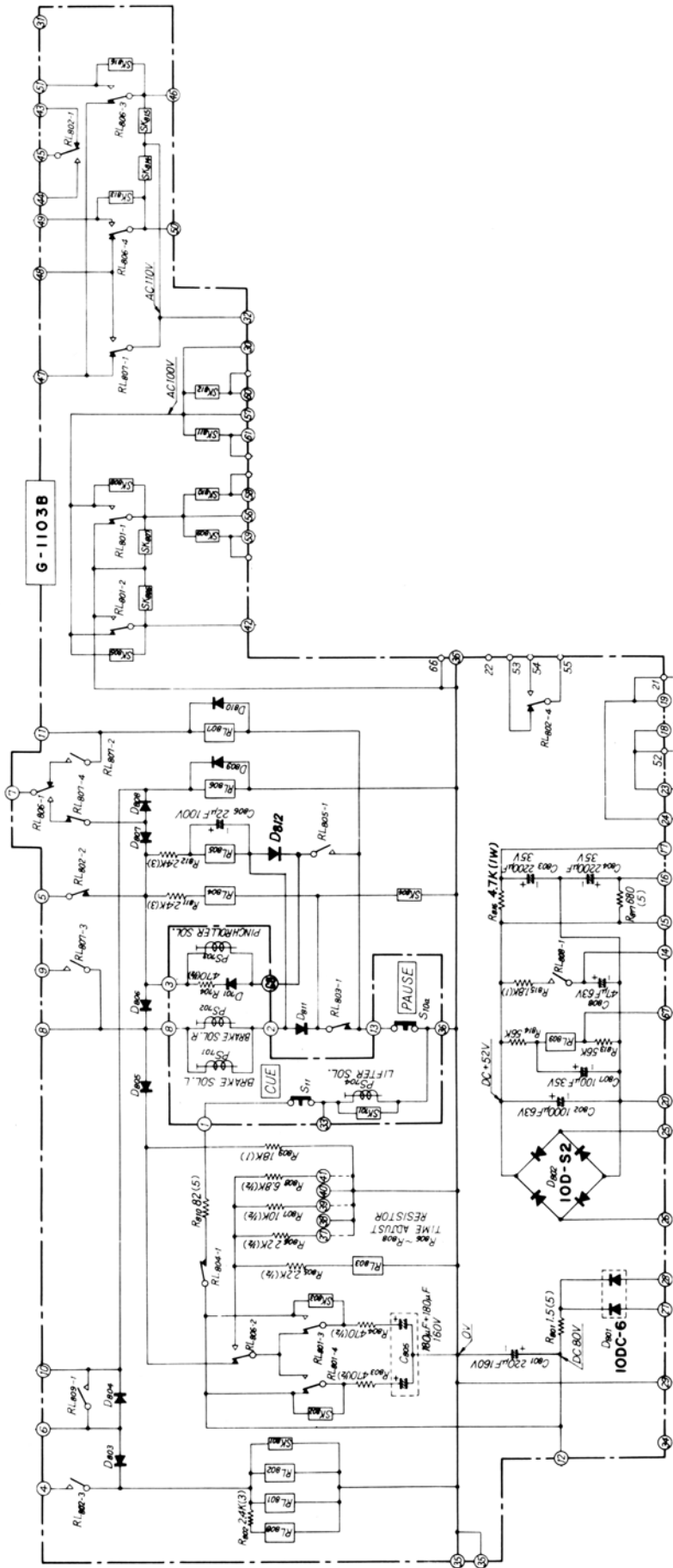


Conductor Side



Resistor: Carbon Resistor C. Resistor
 Capacitor: Electrolytic Capacitor . . . El. Capacitor

Schematic Diagram



Parts List

Parts No.	Stock No.	Description
	2630050	Control Circuit Board G-1103B
R801	0155159	1.5 Ω 5 W Cement Resistor
R802	0163240	2.4 kΩ 3 W Cement Resistor
R803	0103471	470 Ω ½W C. Resistor
R804	0103471	470 Ω ½W C. Resistor
R805	0103222	2.2 kΩ ½W C. Resistor
R806	0103223	22 kΩ ½W C. Resistor
R807	0103103	10 kΩ ½W C. Resistor
R808	0103682	6.8 kΩ ½W C. Resistor
R809	0104183	1 kΩ 1 W C. Resistor
R810	0155820	82 Ω 5 W Cement Resistor
R811	0163240	2.4 kΩ 3 W Cement Resistor
R812	0163240	2.4 kΩ 3 W Cement Resistor
R813	0101563	56 kΩ ¼W C. Resistor
R814	0101563	56 kΩ ¼W C. Resistor
R815	0104182	1.8 kΩ 1 W C. Resistor
R816	0104472	4.7 kΩ 1 W C. Resistor
R817	0165681	680 Ω 5 W Cement Resistor
C801	0549502	220 μF 160 V El. Capacitor
C802	0549203	1000 μF 63 V El. Capacitor
C803	0549005	2200 μF 35 V El. Capacitor
C804	0549005	2200 μF 35 V El. Capacitor
C805	0549503	180 μF + 180 μF 160 V E I. Capacitor
C806	0519401	22 μF 100 V El. Capacitor
C807	0514101	100 μF 35 V El. Capacitor
C808	0516470	47 μF 63 V El. Capacitor
D801	0310990	10DC-6 Diode
D802	0310896	10D-S2 Diode
D803	0310360	10D-4 Diode
D804	0310360	10D-4 Diode
D805	0310360	10D-4 Diode
D806	0310360	10D-4 Diode
D807	0310360	10D-4 Diode
D808	0310360	10D-4 Diode
D809	0310360	10D-4 Diode
D810	0310360	10D-4 Diode
D811	0310360	10D-4 Diode
D812	0310360	10D-4 Diode
RL801	1150610	MY4-0-US DC80 V Relay
RL802	1150610	MY4-0-US DC80 V Relay
RL803	1150130	AP13908 DC48 V Relay
RL804	1150130	AP13908 DC48 V Relay
RL805	1150130	AP13908 DC48 V Relay
RL806	1150610	MY4-0-US DC80 V Relay
RL807	1150610	MY4-0-US DC80 V Relay
RL808	1150140	AP13909 DC48 V Relay
RL809	1150150	LC1-C DC24 V Relay
	2410430	Mini-Connector (6P)
	2410450	Mini-Connector (5P)
	2250010	Fasten Receptacle
	2250020	2701 Fasten Tab A
	2250030	2703 Fasten Tab B
	2250050	Fasten Tab
SK801~ SK816	0800190	0.1 μF + 120 Ω AC 400 V Spark Killer



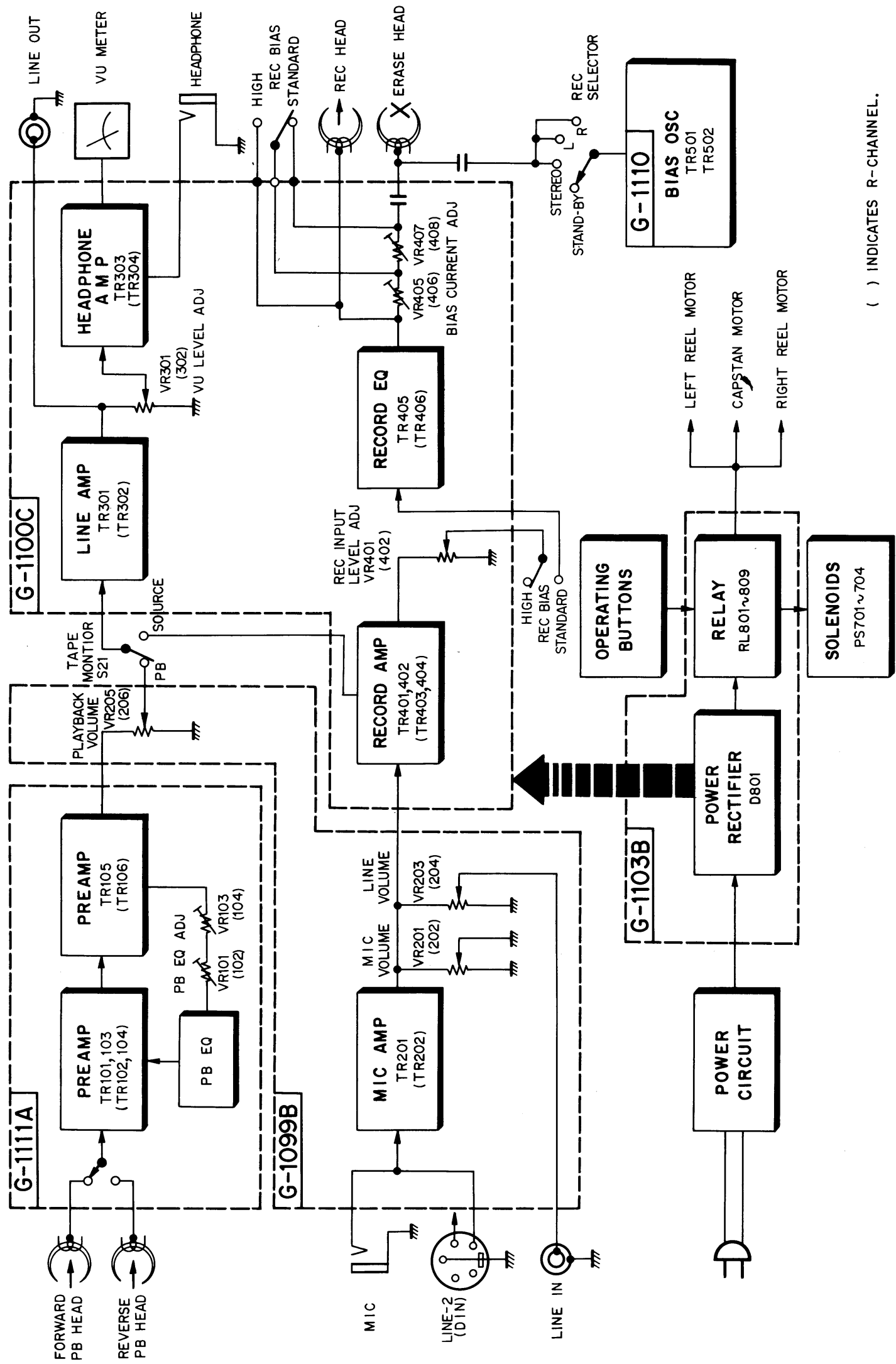
SD-5000

Resistor: Carbon Resistor C. Resistor
Capacitor: Electrolytic Capacitor . . . El. Capacitor

7-6. Other Parts

Parts No.	Stock No.	Description	Parts No.	Stock No.	Description
R001	0101104	100 kΩ ¼W C. Resistor	C704	0591337	0.033 μF 600 WV Oil Capacitor
R002	0101104	100 kΩ ¼W C. Resistor	D701	0310360	10D-4 Diode
R003	0101392	3.9 kΩ ¼W C. Resistor	S1	1130520	Push Switch, UEH-22U
R004	0101392	3.9 kΩ ¼W C. Resistor	S2	1160050	Micro Switch, V1A44
R005	0101153	15 kΩ ¼W C. Resistor	S3	1160060	Micro Switch, V1A10
R006	0101153	15 kΩ ¼W C. Resistor	S4	1160060	Micro Switch, V1A10
R007	0101682	6.8 kΩ ¼W C. Resistor	S5	1160060	Micro Switch, V1A10
R008	0101682	6.8 kΩ ¼W C. Resistor	S6	1160060	Micro Switch, V1A10
R009	0101829	8.2 Ω ¼W C. Resistor	S7	1160060	Micro Switch, V1A10
R010	0101829	8.2 Ω ¼W C. Resistor	S8	1160060	Micro Switch, V1A10
R011	0101104	100 kΩ ¼W C. Resistor	S9a~f	1130590	Push Switch, KJ-4145A
R012	0101104	100 kΩ ¼W C. Resistor	S10a~b	1130500	Push Switch, SJ-4164-01
R013	0101333	33 kΩ ¼W C. Resistor	S11	1130590	Push Switch, KJ-4145A
R014	0101333	33 kΩ ¼W C. Resistor	S12a~c	1110180	Slide Switch, SL-262B4
J001	2430170	Jack, microphone (left)	S13	1160120	Micro Switch, MT-100
J002	2430170	Jack, microphone (right)	S14	1160120	Micro Switch, MT-100
J006	2430170	Jack, headphones	SK701	0800200	0.2 μF + 120 Ω AC400 V Spark Killer
J003~ J005	7710024	Terminal Board Ass'y	SK702	0800200	0.2 μF + 120 Ω AC400 V Spark Killer
J007~ J008			PL701	0400210	Lamp, lead type (6.3 V 75 mA)
S21a~b	1170170	Lever Switch SJ-1885	PL702	0400210	Lamp, lead type (6.3 V 75 mA)
S22a~g	1103460	Rotary Switch F-3-5-4	PL703	0400210	Lamp, lead type (6.3 V 75 mA)
S23a~d	1170210	Lever Switch SSC-04254	PL704	0400210	Lamp, lead type (6.3 V 75 mA)
VU	4300480	VU Meter	T701	4001070	Power Transformer
PL001	0400210	Lamp, lead type (6.3 V 75 mA)	J701	2450010	AC Outlet
PL002	0400210	Lamp, lead type (6.3 V 75 mA)	J702	2040010	11 P Socket, SA-602B-00
R701	0125330	1.5 kΩ 25 W Enameled Wirewound Resistor	P701	2410310	AC Connector Socket (2P)
R702	0125320	250 Ω 25 W Enameled Wirewound Resistor	P702	2410410	Dummy Plug
R703	0125340	200 Ω 35 W Enameled Wirewound Resistor	PU701	2410400	Voltage Selector
R704	0103471	470 Ω ½ W C. Resistor	F701	0431242	Power Fuse 2A (100 ~ 117 V AC)
C701	0599004	2.8 μF + 1 μF 250 WV MP Capacitor		0431222	Power Fuse 1A (200 ~ 240 V AC)
C702	0599003	4 μF + 0.5 μF 250 WV MP Capacitor		3800130	Power Supply Cord
C703	0599005	4 μF + 0.5 μF 300 WV MP Capacitor			

8. BLOCK DIAGRAM

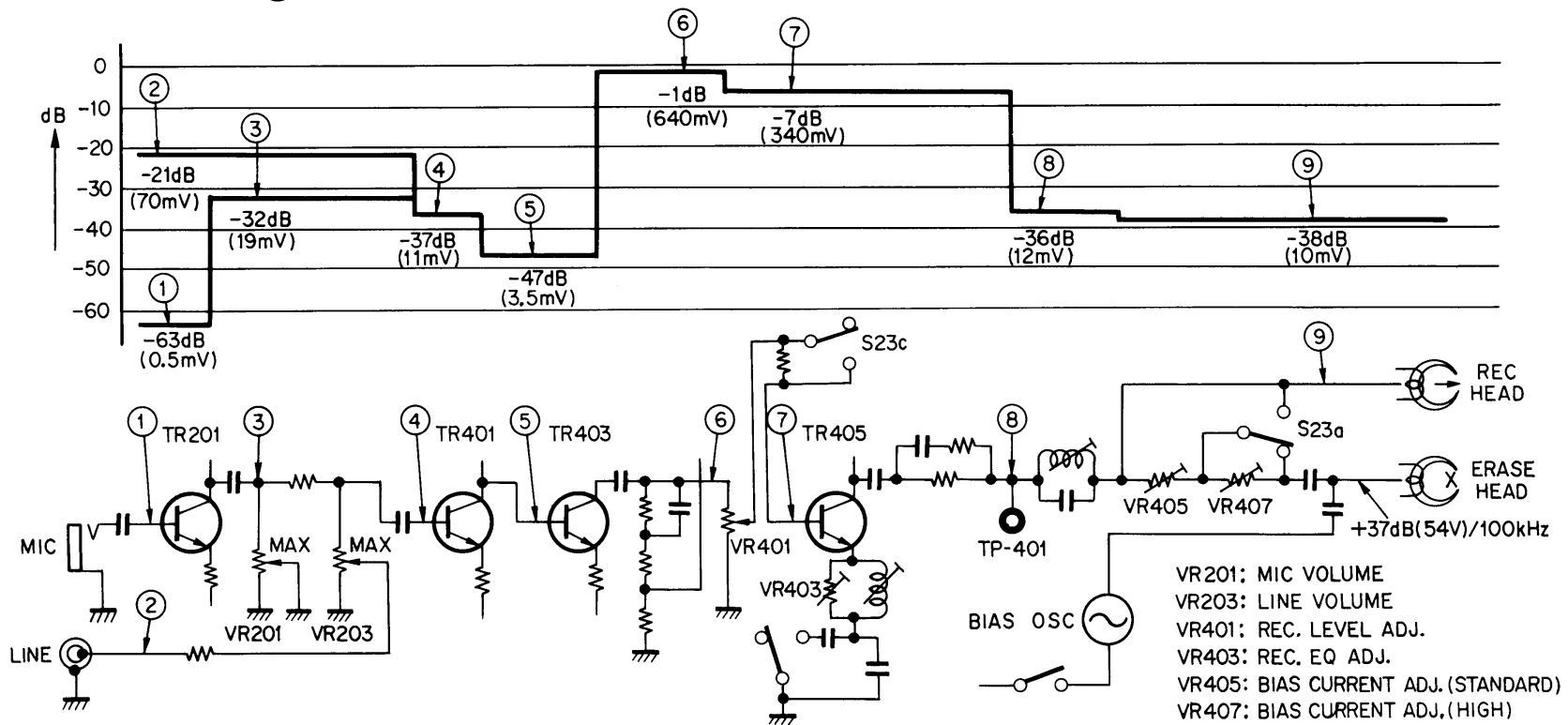


() INDICATES R-CHANNEL.

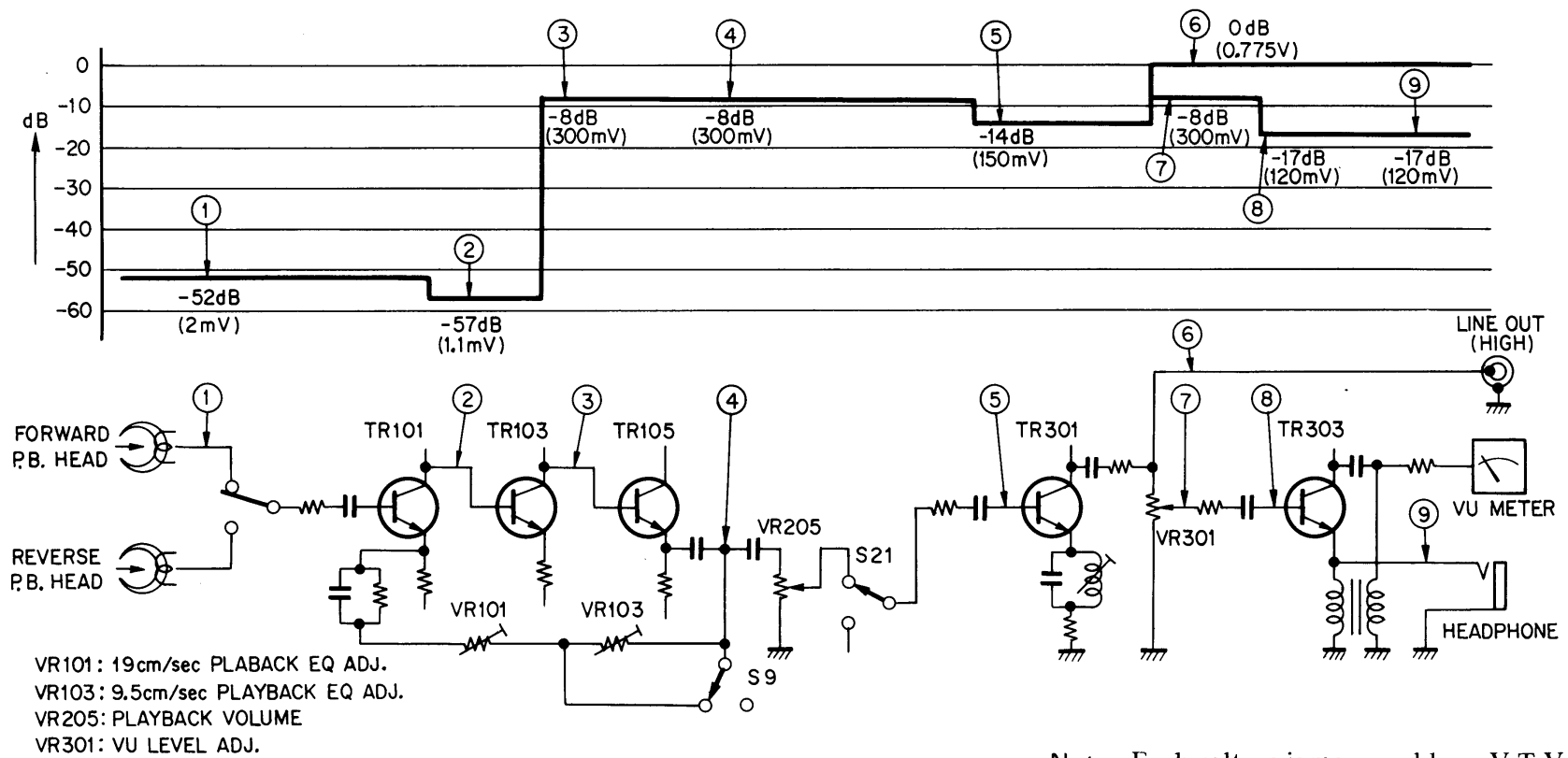
9. LEVEL DIAGRAMS

1. LINE-1, MIC/LINE-2 (DIN) volume control - - - - Maximum
2. Input - - - - 1 kHz sine wave (output impedance of 600Ω at an audio signal generator)
3. Playback volume control - - - - - Adjust for 0 dB (0.775 V) at LINE OUT (HIGH)

9-1. Recording



9-2. Playback



Note: Each voltage is measured by a V.T.V.M. Each voltage value is for reference and in some recorders. The actual voltage value is in minor difference from the reference value.

10. TROUBLESHOOTING CHART

10-1. Troubleshooting on Mechanism Section

Symptom	Check Point	Cause & What to Do
1. No power supply to each section		
1-1. Each lamp for FORWARD operation and VU meter not lighted.		1. Imperfect contact of power supply cord 2. Defective power cord 3. Defective power switch S1 4. Defective power fuse F701 5. Imperfect contact of voltage selector PU701 6. Defective power transformer T701
1-2. Each lamp for FORWARD and VU meter lighted	1) DC 80 V not supplied to terminal 2 of remote control jack J702. (Shut-off switch S2 in ON position) 2) DC 80 V not supplied to terminal ⑦ on G-1103B (DC voltage supplied to terminal 2 of J702).	7. Defective D801 on G-1103B 8. Defective R801 on G-1103B 9. Defective shut-off switch S2 10. Defective STOP switch S3 11. Imperfect contact of dummy plug P702 12. Defective FAST FORWARD switch S6
2. Lifter not operative	3) DC voltage not supplied to terminal ① on G-1103B 4) DC voltage supplied to terminal ① on G-1103B	13. See 7, 8 of Cause & What to Do 14. Defective relay RL804 (or imperfect contact of RL804-1) 15. Defective R810 on G-1103B 16. Defective CUE switch S11 17. Defective lifter solenoid PS704 18. Imperfect contact of terminal ③⑥ on G-1103B
3. Capstan not rotating	5) Capstan motor MT701 not rotating 6) Capstan motor MT701 rotating correctly 7) Capstan motor MT701 rotating incorrectly	19. Imperfect contact of terminals ③⑩ & ④② on G-1103B 20. Imperfect contact of terminals ⑤⑥ & ⑥⑥ on G-1103B 21. Defective SPEED switch S9 a, b 22. Defective relay RL801 (or imperfect contact of RL801-1, RL801-2) 23. Defective capacitor C701 24. Defective capstan motor MT701 25. Capstan belt off (or slipping) 26. Defective capstan ass'y 27. Voltage selector in wrong position 28. Frequency conversion slide switch S12 a, b, c in wrong position

Symptom	Check Point	Cause & What to Do
4. FORWARD playback inoperative	8) Pinch roller inoperative	29. Imperfect contact of terminal ③ on G-1103B 30. Defective pinch roller solenoid PS703 31. Defective pinch roller system 32. Incorrect pinch roller pressure 33. Defective relay RL805 (or imperfect contact of RL805-1) 34. Imperfect contact of terminal ⑬ on G-1103B
	9) Reel brakes not releasing	35. Defective D806 on G-1103B 36. Imperfect contact of terminal ⑧ on G-1103B 37. Defective brake solenoid PS701, PS702 38. Imperfect contact of terminal ② on G-1103B 39. Defective D811 on G-1103B 40. Defective relay RL803 (or imperfect contact of RL803-1) 41. Imperfect contact of terminal ⑬ on G-1103B
	10) Pinch roller inoperative and reel brakes not releasing	42. Imperfect contact of terminal ⑬ on G-1103B 43. Defective PAUSE switch S10a 44. Imperfect contact of terminal ③⑥ on G-1103B
	11) Incorrect pinch roller rotation	45. Defective pinch roller ass'y
	12) Left and right reel motors not rotating	46. Defective micro switch S13 47. Imperfect contact of terminal ③① on G-1103B 48. Imperfect contact of terminal ③⑥ on G-1103B
	13) Left reel motor not rotating	49. Defective left torque adjusting resistor R702 50. Imperfect contact of terminal ④⑨ or ⑤⑩ on G-1103B 51. Defective relay RL806 (or imperfect contact of RL806-4) 52. Defective capacitor C702 53. Defective left reel motor MT702
	14) Right reel motor not rotating	54. Defective right torque adjusting resistor R703 55. Imperfect contact of terminal ⑤① or ④⑥ on G-1103B 56. Defective relay RL806 (or imperfect contact of RL806-3) 57. Defective capacitor C703 58. Defective right reel motor MT703

Symptom	Check Point	Cause & What to Do
5. REVERSE play inoperative		
5-1. No tape movement in REVERSE	15) Capstan motor MT701 not rotating in REVERSE	59. Defective REVERSE playback switch S5 60. Defective D803 on G-1103B 61. Defective RL801 (or imperfect contact of RL801-1, RL801-2) 62. Defective RL802 (or imperfect contact of RL802-3)
	16) Left and right reel motors not rotating	63. See Check Point 12)
	17) Left reel motor not rotating (due to slack of tape)	64. See Check Point 13)
	18) Right reel motor not rotating	65. See Check Point 14)
	19) Pinch roller inoperative	66. See Check Points 8), 10)
	20) Reel brakes not releasing	67. See Check Points 9), 10)
5-2. REVERSE head inoperative	21) DC voltage not supplied to terminal (14) on G-1103B	68. Defective R802 on G-1103B 69. Defective relay RL808 (or imperfect contact of RL808-1) 70. Defective D802 on G-1103B 71. Defective R815 on G-1103B 72. Defective C808 on G-1103B
	22) DC voltage supplied to terminal (14) on G-1103B	73. Defective relay RL101 (or imperfect contact of RL101-1, RL101-2) 74. Imperfect contact of terminal 14 on J402, P402
5-3. Lamp for REVERSE operation not lighted		75. Defective lamp PL702 76. Defective relay RL802 (or imperfect contact of RL802-4)
6. FAST FORWARD inoperative		
6-1. No tape movement in FAST FORWARD	23) Reel brakes not releasing	77. Defective FAST FORWARD switch S6 78. Imperfect contact of terminal (8) on G-1103B 79. Defective brake solenoid PS701, PS702 80. Defective micro switch S14 81. See 35 to 44 of Cause & What to Do
	24) Right reel motor not rotating	82. Imperfect contact of terminal (46) on G-1103B 83. Defective relay RL807 (or imperfect contact of RL807-1) 84. See 57 to 58 of Cause & What to Do
	25) Left and right reel motors not rotating	85. Imperfect contact of terminals (32) & (36) on G-1103B 86. Defective micro switch S13

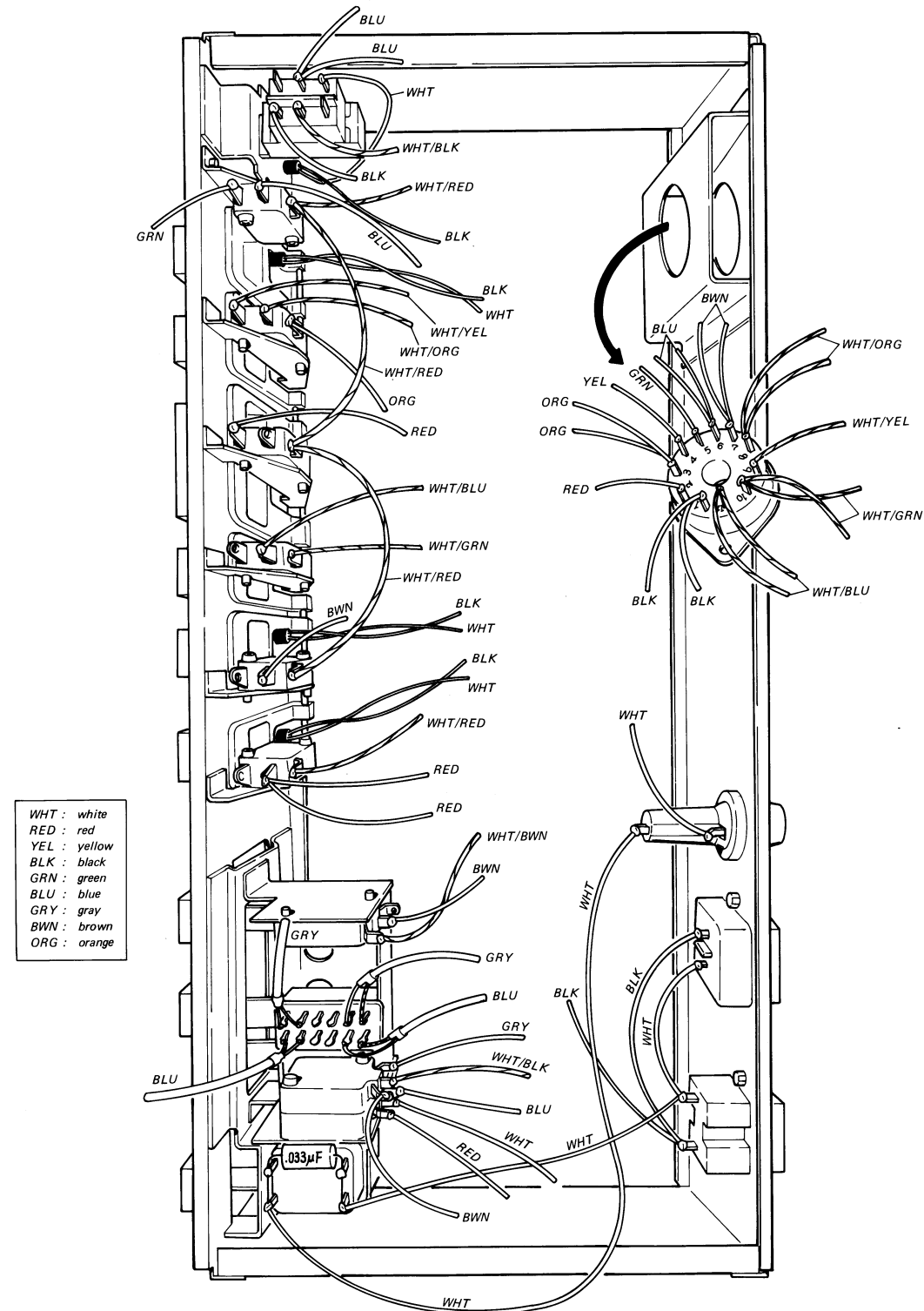
Symptom	Check Point	Cause & What to Do
7. REWIND inoperative		
7-1. No tape movement in REWIND	26) Reel brakes not releasing	87. Defective REWIND switch S7 88. Defective relay RL807 (or imperfect contact of RL807-3) 89. See 78 to 81 of Cause & What to Do
	27) Left reel motor not rotating	90. Imperfect contact of terminal (50) on G-1103B 91. See 52 to 53 of Cause & What to Do
	28) Left and right reel motors not rotating	92. See Check Point 25)
8. AUTO-REVERSE play inoperative		
8-1. AUTO-REVERSE play inoperative	29) REVERSE play inoperative	93. See Symptom 5. REVERSE play inoperative
	30) REVERSE playback inoperative	94. Defective or dirty sensing post 95. Defective or too short sensing foil 96. Defective relay RL809 (or imperfect contact of RL809-1) 97. Defective R814 on G-1103B

10-2. Troubleshooting on Electrical Section

1. Power supply troubles		
1-1. No power supply to electrical section	1) Correct voltage supplied to each terminal of J401, J402	1. Imperfect contact of J401 and P401 or J402 and P402
	2) Wrong voltage supplied to each terminal of J401, J402	2. See Symptom 10-1. Troubleshooting on Mechanism Section 3. Defective D802 on G-1103B 4. Defective R816, R817 on G-1103B
2. Playback system troubles		
2-1. Output 800 mV absent at LINE OUT (HIGH)	3) Output 300 mV absent at emitter of TR105 (106) on G-1111A	5. Defective or dirty Playback head 6. Imperfect contact of head connector P101 on G-1111A 7. Defective relay RL101 (or imperfect contact of RL101-1, RL101-2) 8. Defective transistor on G-1111A
	4) Output 150 mV absent to base of TR301 (302) on G-1100C	9. Defective PLAYBACK volume VR205 (206) on G-1099B 10. Defective TAPE MONITOR switch S21 a, b 11. Defective TR301 (302) on G-1100C 12. Defective LINE OUT terminal

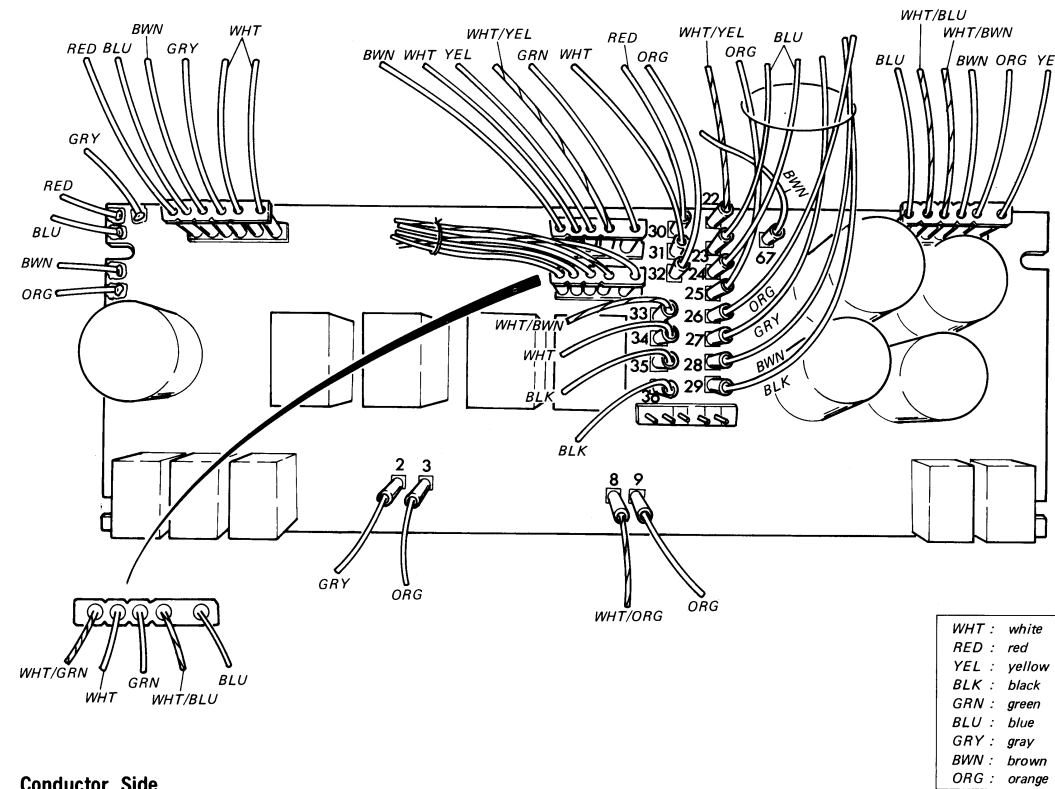
Symptom	Check Point	Cause & What to Do
3. VU meter inoperative	5) Output 800 mV present at LINE OUT (HIGH)	<ul style="list-style-type: none"> 13. Defective VR301 (302) on G-1100C 14. Defective TR303 (304) on G-1100C 15. Defective D301 (302) on G-1100C 16. Defective VU meter
4. Output absent at HEADPHONES	6) Output present at LINE OUT (HIGH)	<ul style="list-style-type: none"> 17. Defective headphone transformer T301 (302) on G-1100C 18. Defective headphone jack J006
5. Recording system troubles		<i>At LINE-1</i>
5-1. Output 800 mV absent at LINE OUT (HIGH)	7) Output 11 mV absent to base of TR401 (402) on G-1100C	<ul style="list-style-type: none"> 19. Defective VR203 (204) on G-1099B 20. Defective input terminal J003 (004)
	8) Output 340 mV absent to collector of TR405 (406) on G-1100C	<ul style="list-style-type: none"> 21. Defective VR201 (202) on G-1099B 22. Defective mic jack J001 (002) 23. Defective TR201 (202) on G-1099B 24. Defective DIN jack J005
		<i>At MIC/LINE-2 (DIN)</i>
		<ul style="list-style-type: none"> 25. Defective TR401 (402) on G-1100C 26. Defective TR403 (404) on G-1100C 27. Defective TR405 (406) on G-1100C
5-2. Incorrect recording	9) Oscillator circuit board G-1110 in operative (Record Selector in STEREO position)	<ul style="list-style-type: none"> 28. Defective relay RL401 (or imperfect contact of RL401-4) 29. Imperfect contact of J402 and P402 on G-1100C 30. Defective R501 on G-1110 31. Defective TR501, 502 on G-1110 32. Defective oscillator transformer T501 on G-1110
	10) Oscillator circuit board G-1110 operative	<ul style="list-style-type: none"> 33. Defective Record Selector S22 34. Imperfect contact of terminal B (K) on J401, P401 35. Defective or dirty Record head
5-3. No erasing	11) Recording operative	<ul style="list-style-type: none"> 36. Imperfect contact of terminal D (J) on J401, P401 37. Defective or dirty Erase head

11-4. Control Chassis (Bottom View)

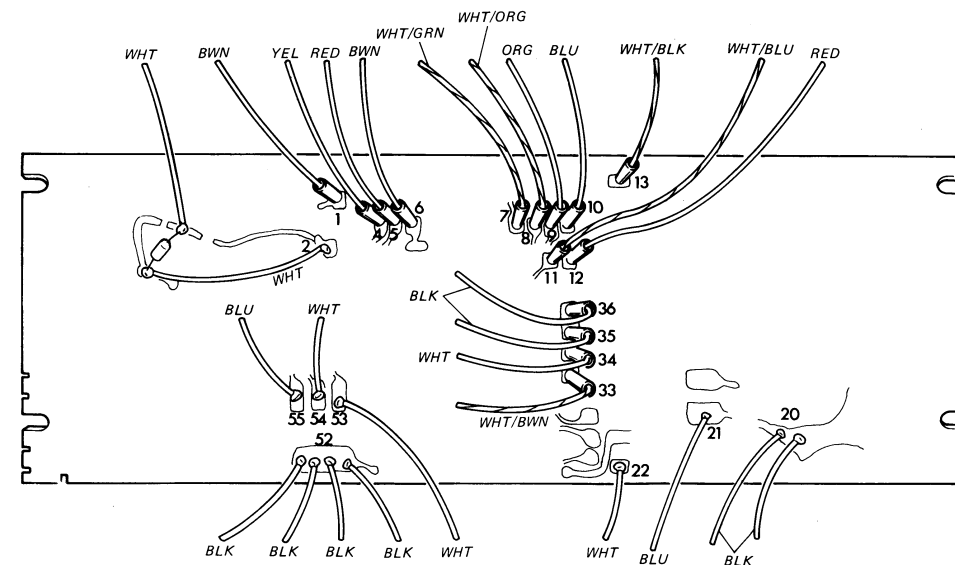


11-5. Control Circuit Board G-1103B

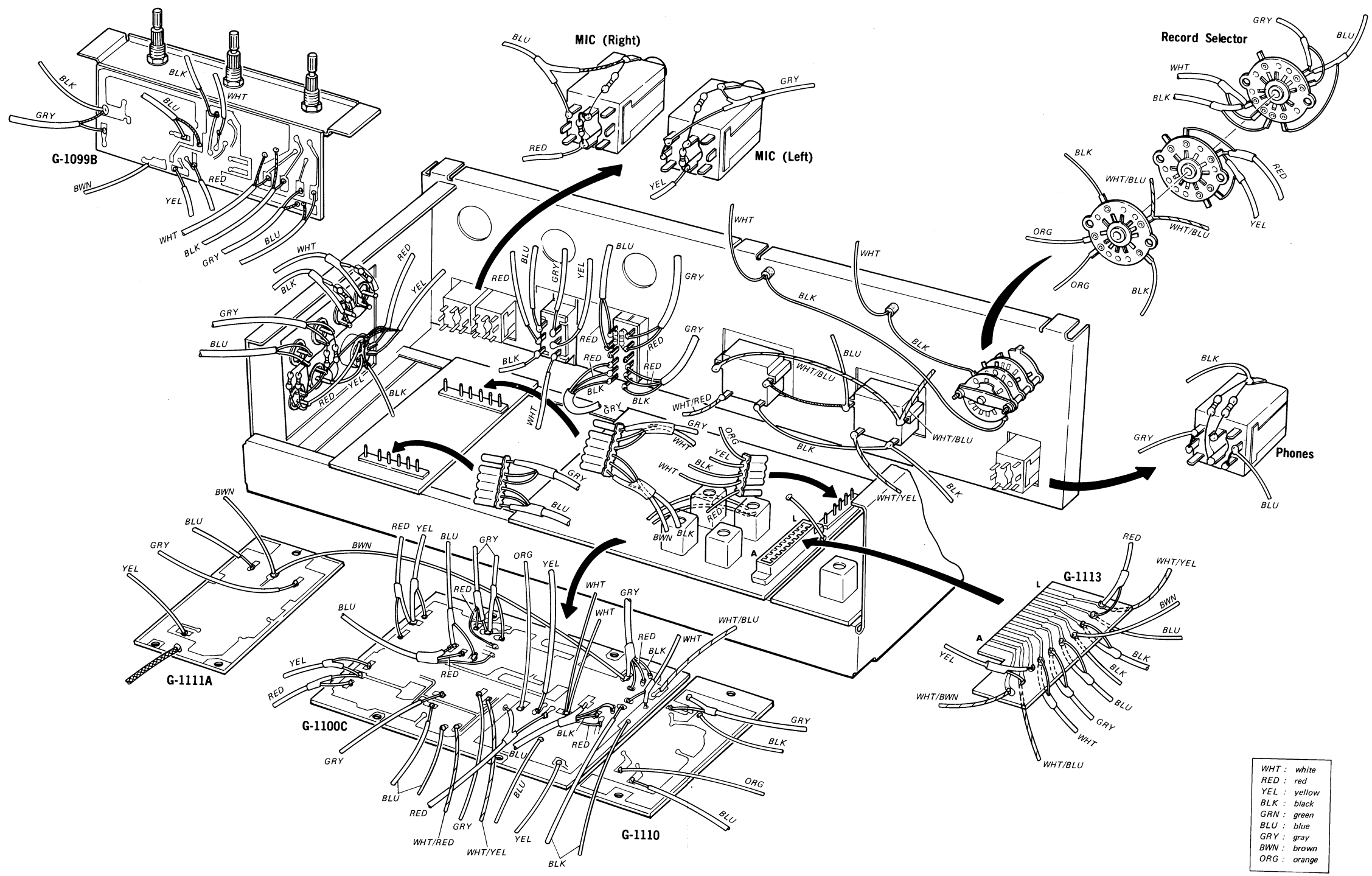
Component Side



Conductor Side



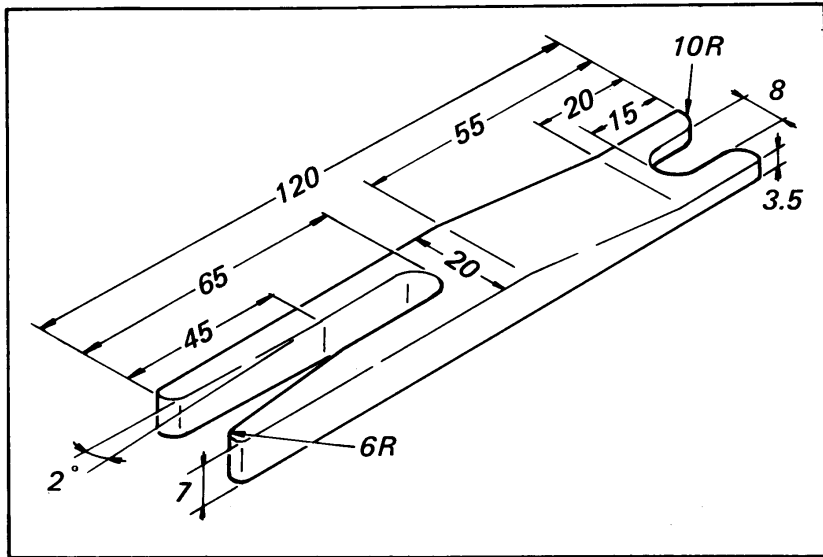
11-6. Amplifier Chassis



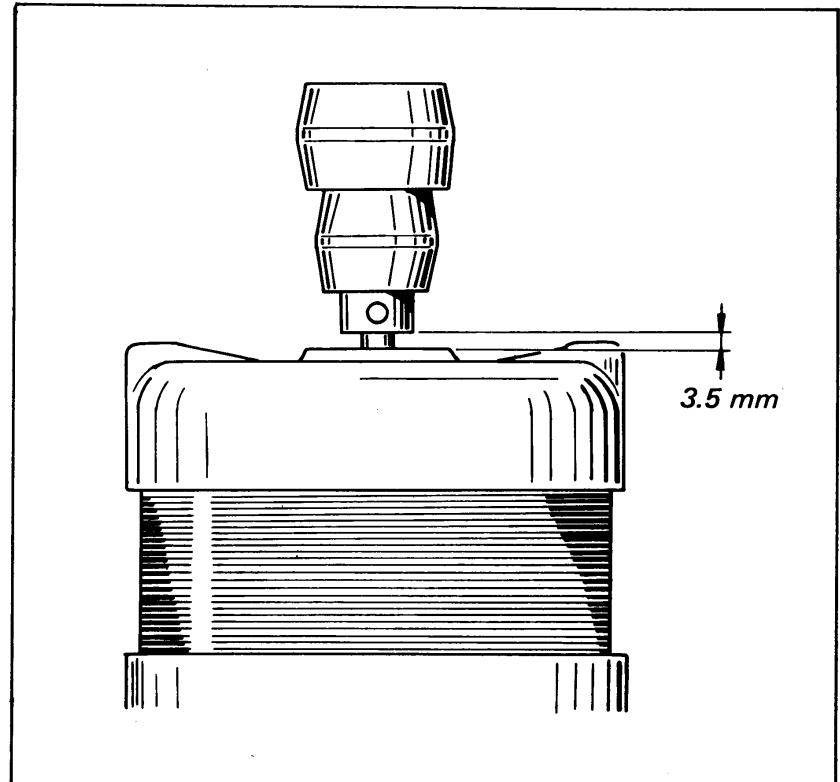
WHT : white
 RED : red
 YEL : yellow
 BLK : black
 GRN : green
 BLU : blue
 GRY : gray
 BWN : brown
 ORG : orange

12. SPECIAL TOOL

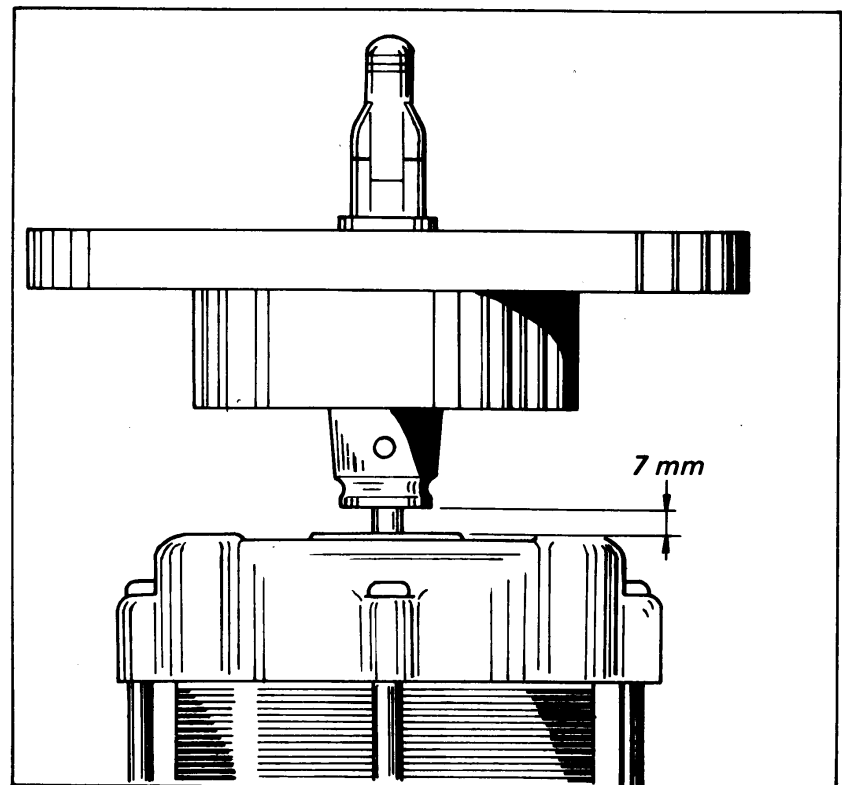
When replace the defective capstan motor or reel motor, or after 10,000 hours of normal operation, adjust the height of the motor pulley or brake drum, use such a handmade tool as illustrated for easily obtaining the proper clearance.



A handmade tool for obtaining to prper clearance



Proper clearance between the motor pulley and the capstan motor.



Proper clearance between the reel motor and the brake drum