HiFi ENGINE®

For more Hi-Fi manuals and set-up information
please visit www.hifiengine.com

CASSETTE TAPE DECK

CT-F2121

KCU, DV, NB, DP

<ART-144-0>

Service Manual

PIONEER®

CONTENTS

1. SPECIFICATIONS 3
2. FRONT PANEL FACILITIES 4
3. CONNECTION DIAGRAM 6
4. BLOCK DIAGRAM 7
5. LEVEL DIAGRAM 9
6. CIRCUIT DESCRIPTIONS
   - 6.1 Recording and Playback Circuit 10
   - 6.2 Auto Stop Circuit 12
   - 6.3 Power Supply Circuit 13
   - 6.4 Muting Circuit 13
7. DISASSEMBLY
   - Part 1 14
   - Part 2 15
   - Part 3 16
8. PARTS LOCATIONS
   - 8.1 Front View 17
   - 8.2 Front View with Panel Removed 18
   - 8.3 Top View 19
   - 8.4 Rear Panel View (NB, KCU model) 20
   - 8.5 Rear Panel View (DV, DP model) 21
   - 8.6 Bottom View 22
9. MECHANICAL ADJUSTMENTS
   - 9.1 Pinch Roller Pressure 23
   - 9.2 Tape Speed 23
   - 9.3 Reel Hab Torque 24
   - 9.4 Muting Switch 25
   - 9.5 Solenoid Operation 25
   - 9.6 Play Switch 26
   - 9.7 Rec Actuating Lever 26
10. ELECTRICAL ADJUSTMENTS
   - 10.1 Head Azimuth 27
   - 10.2 Playback Equalizer 27
   - 10.3 Playback Level 27
   - 10.4 Level Meter Calibration 27
   - 10.5 Recording Current 27

10.6 Recording Bias 27
10.7 Bias Trap 28
10.8 Recording/Playback Frequency Response 28
10.9 Recording Level 28
10.10 Dolby Processor 28

11. SCHEMATIC DIAGRAMS, P.C. BOARD PATTERNS AND PART LISTS
11.1 Schematic Diagrams and Miscellaneous Parts 31
11.2 Power Supply and O.S.C. Assembly (RWR-027) 34
11.3 REC/PB Amplifier Assembly (RWF-043) 37
11.4 Fuse Board Assembly
1. KCU Model (RWX-089) 45
2. DV, DP Model (RWX-090) 45
3. NB Model (RWX-092) 46
11.5 Indicator Assembly (RWX-087) 47
11.6 Lamp Assembly (RWX-052) 47
11.7 Control Assembly (RWG-049) 48

12. EXPLODED VIEW 51
12.1 Panel Stay 53
12.2 Rear Panel 53
12.3 Main Chassis 54

13. EXPLODED VIEW TRANSPORT 55
13.1 Head 57
13.2 Idler A 57
13.3 Sensing Switch 58
13.4 Transport Chassis 59
13.5 Play, Muting Switch 60
13.6 Operating Button Assembly (RXA-498) 61
13.7 Tape Counter 62
13.8 Eject Bracket 62

14. PACKING 63

1. SPECIFICATIONS

Systems . . . . . Compact cassette, 2-channel stereo
Recording . . . . AC bias system (bias frequency: 85kHz)
Erasing . . . . . AC push-pull system
Heads . . . "Permalloy Solid" recording/playback head x 1
Ferritte erasing head x 1
Motor . . . . . Electronically-controlled DC motor
Fast Winding Time . . . . . Approximately 80 seconds
(C-60 tape)
Wow and Flutter . . . . . No more than 0.12% (WRMS)
Frequency Response . . . . . Standard, LH tapes;
30 to 13,000Hz (40 to 11,000Hz, ±3dB)
Chromium dioxide tape; 30 to 16,000Hz
(40 to 12,000Hz, ±3dB)
Signal-to-Noise Ratio . . . . . Dolby OFF; 48dB
(standard and LH tapes)
Dolby ON; 58dB
(over 5kHz, standard and LH tapes)
(When chromium dioxide tape is used, signal-to-noise ratio is further improved by 4.5dB over 5kHz)
Inputs (Sensitivity/Maximum allowable input/Impedance)
MIC x 2; 0.3mV/63mV/20kΩ, 6mmϕ jacks
(Reference Mic impedance; 600Ω to 20kΩ)
LINE x 2; 63mV/12V/50kΩ, Pin jacks
REC/PB x 1; 10mV/2V/10kΩ, 5P jack
(DIN standard)
Outputs (Reference level/Load impedance)
LINE x 2; 450mV/50kΩ, Pin jacks
HEADPHONE x 1; 80mV/8Ω, 6mmϕ, stereo jack
REC/PB x 1; 450mV/50kΩ, 5P jack
(DIN standard)
Semiconductors . . . . . Amplifier section; 41 transistors
(including 2 FETs)
28 diodes (including 3 zener diodes, 1 LED)
Motor control section; 2 transistors, 1 diode

Subfunctions . . . . . •Dolby system (ON-OFF) with indicator lamp
•Tape selector (STD/CrO_2) Independently switchable bias and equalizer
•Full-auto stop mechanism
(in all modes of PLAY/REC/FF/REW)
•Cassette compartment illumination
Power Requirements . . . . AC120V, 60Hz (KCU model)
AC220V, 50/60Hz (NB model)
AC120V, 220V and 240V (switchable) 50–60Hz
(DV, DP model)
Power Comsumption . . . . . 15 watts (max.)
Dimensions . . . . . 350(W) x 142(H) x 282(D) mm.
13-3/4(W) x 5-5/8(H) x 11-1/8 in.
Weight . . . . . 14 lb 9 oz (6.6 kg) (without package)
Accessories . . . . . Stereo connecting cord with pin plugs x 2
Head cleaning kit x 1
Operating instructions x 1

NOTE:
Specifications and design subject to possible modification without notice due to improvement.

Test Conditions:
1. *Reference tape: standard, LH tapes are DIN no. 45513 chrome tape is DIN no. 45513 (CrO_2)*
2. *Reference recording level is meter 0dB level (equivalent to 160 pwb/mm).*
3. *Reference signal is 333Hz.*
4. *Wow & Flutter: at 3kHz weighted rms.*
5. *Frequency response is measured at −20dB level, DOLBY OFF.*
   Level deviation is ±6dB without indication.
6. *Signal-to-Noise ratio is measured at 4dB level (equivalent to 250 pwb/mm), with IEC A curve on weighted.*
7. *Sensitivity: Input level (mV) for reference recording level measured with input (recording) level control set at maximum position.*
8. *Maximum allowable input level is measured at the point where the output signal wave is clipped while gradually turning the input level control.*
9. *Output (playback) level: Output level to reference recording level.*

2. FRONT PANEL FACILITIES

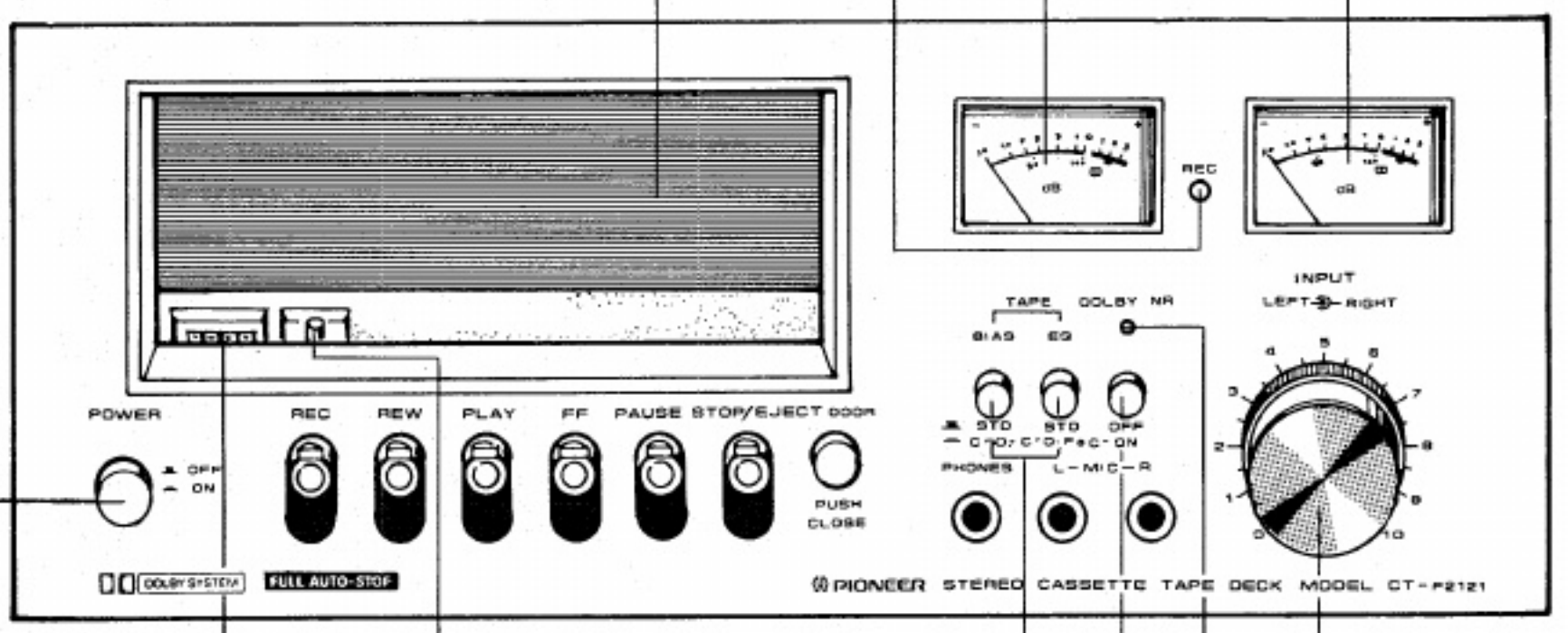
POWER BUTTON
Depress to turn AC power ON (illuminating lamp will light); depress again to turn power OFF.

CASSETTE DOOR
Keep door closed to protect the transport mechanism and head assembly from dust.

REC INDICATOR LAMP
Lights to indicate recording mode.

NOTE:
Be sure to confirm REC indicator lighting before proceeding with recording.

LEVEL METERS
Indicate input level during recording and output level during playback. During recording, adjust recording level while observing meter deflection.



TAPE COUNTER
Indicates tape running position.

COUNTER RESET BUTTON
Press button to reset counter to 000.

BIAS & EQ SELECTOR BUTTONS
BIAS: employ during recording according to tape. Depress when using chrome tape.
EQ: Employ during recording and playback according to tape. Depress when using chrome or ferri-chrome tape.
Do not depress when using earlier specification (120μs) chrome tape for recording.

INPUT CONTROLS
Adjust recording input from INPUT (REC) jacks, MIC jacks and DIN REC/PB jack. The outer knob adjusts the right (R) channel, while the inner adjusts the left (L) channel. Observe LEVEL meter deflection when adjusting the recording level.

DOLBY NR LAMP
Lights when DOLBY NR button is depressed. Indicates recording or playback via Dolby mode.

DOLBY NR BUTTON
Depress to employ built-in Dolby system for recording, or to play Dolby encoded tape.

PHONES JACK

Plug stereo headphones into this jack for private listening or to monitor conditions during recording.

CAUTION:
Do not plug microphone into this jack. Microphone can be damaged.

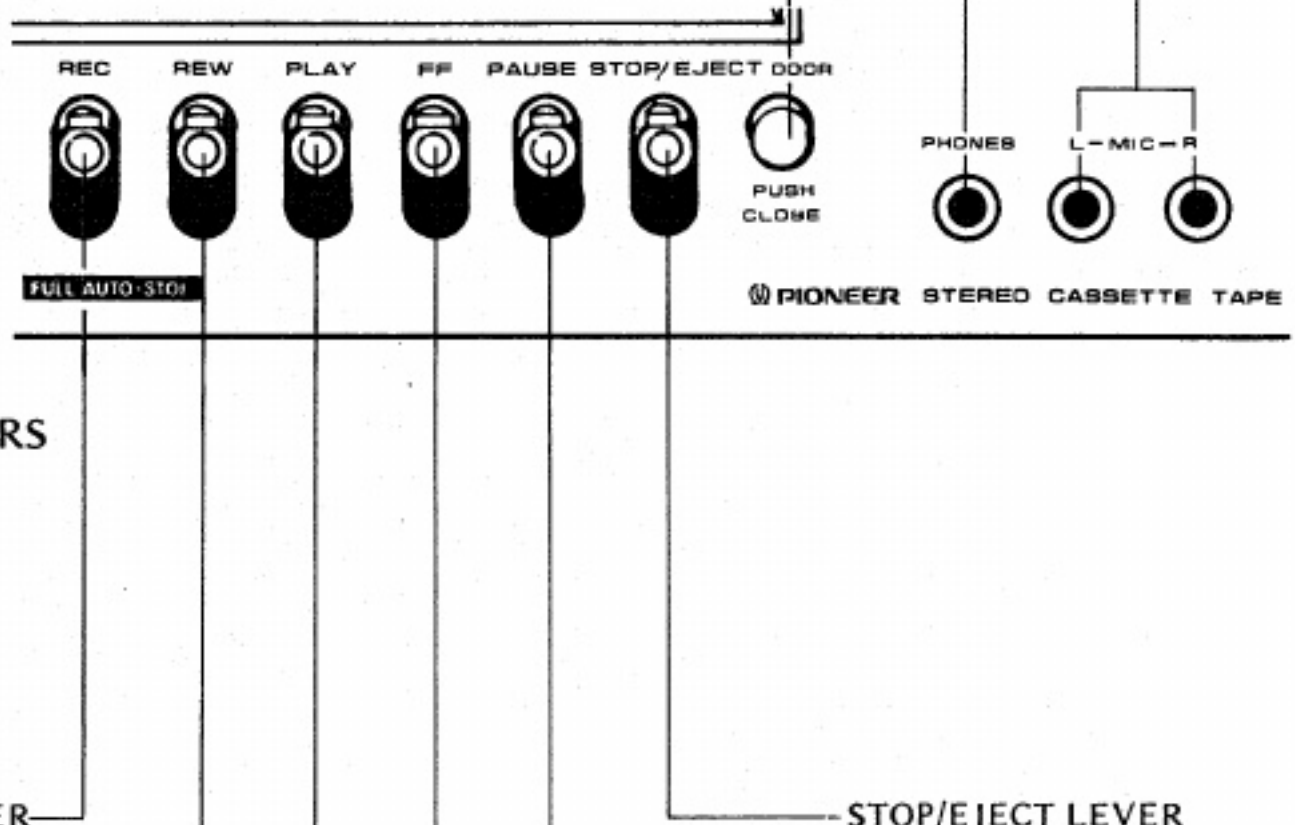
DOOR BUTTON

Press to close cassette door. To open door, raise it gently by hand until it clicks open.

MIC JACKS

Plug microphones into these jacks for live recording. Use one microphone in each jack for stereo, or one microphone in either jack for mono recording.

NOTE:
Be sure to unplug microphones when not employing them. If left connected, recording cannot be performed from source connected to INPUT (REC) or DIN REC/PB jacks.



OPERATING LEVERS

REC (RECORD) LEVER

Press downward together with PLAY lever for recording.

REW (REWIND) LEVER

Press downward to rewind tape (tape travels from right to left).

PLAY LEVER

Press downward to play tape. To record, press simultaneously with REC lever. (Tape travels from left to right.)

STOP/EJECT LEVER

Press downward to stop tape motion and release other operating levers. After stopping, open cassette door and press lever again to eject cassette.

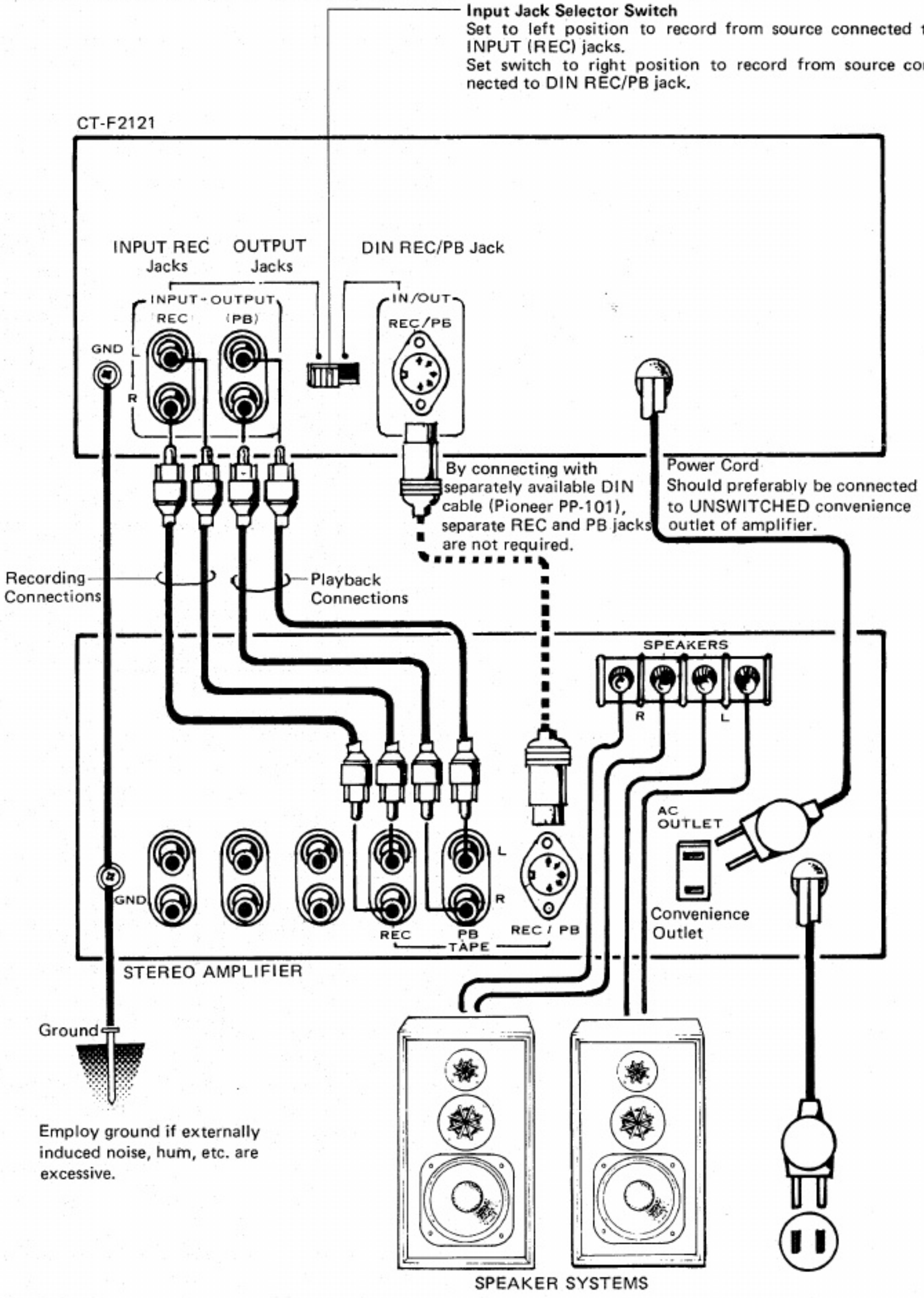
PAUSE LEVER

Press downward to temporarily stop tape motion during recording or playback. Press again to resume tape motion.

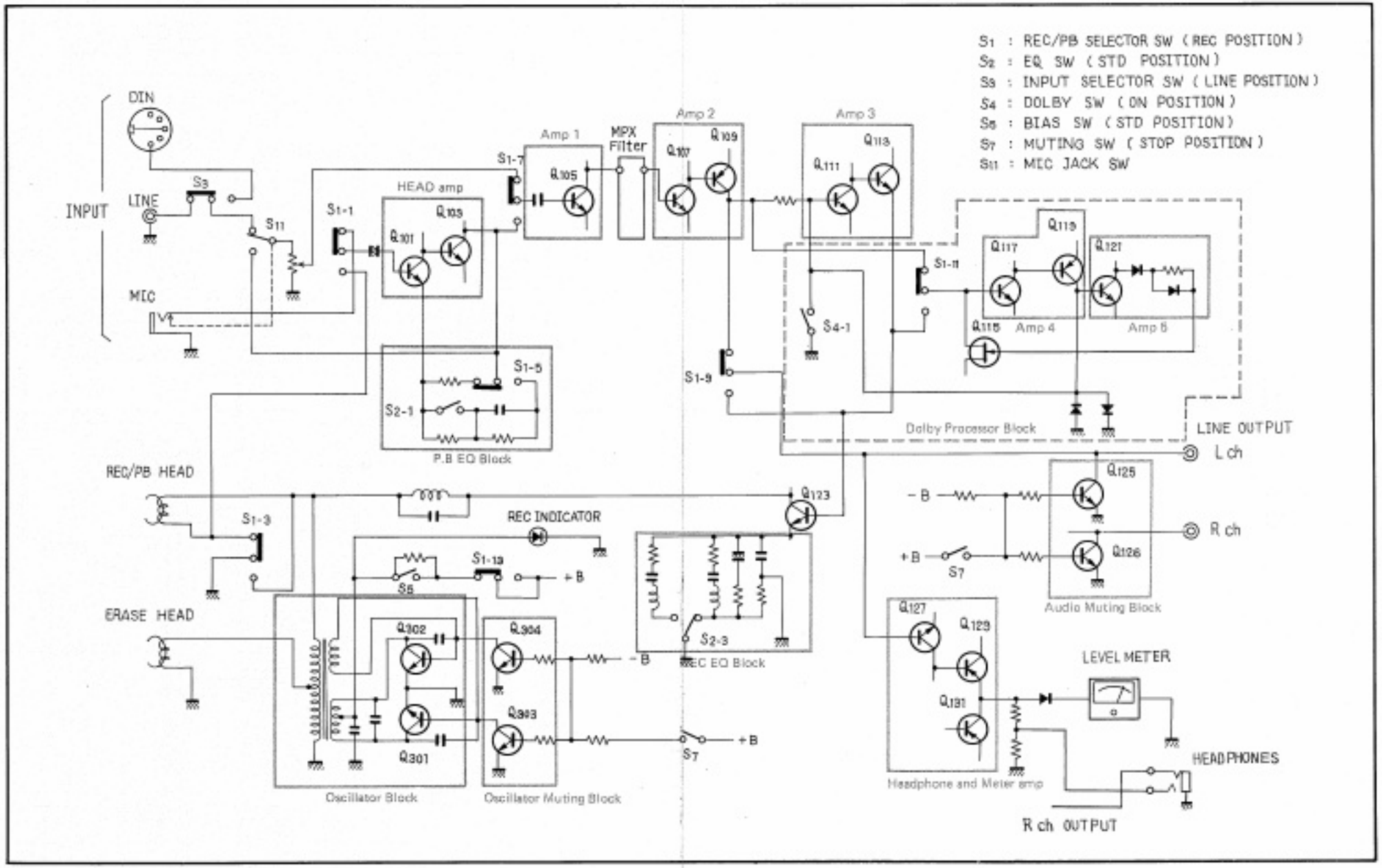
FF (FAST FORWARD) LEVER

Press downward for tape fast forward (tape travels from left to right).

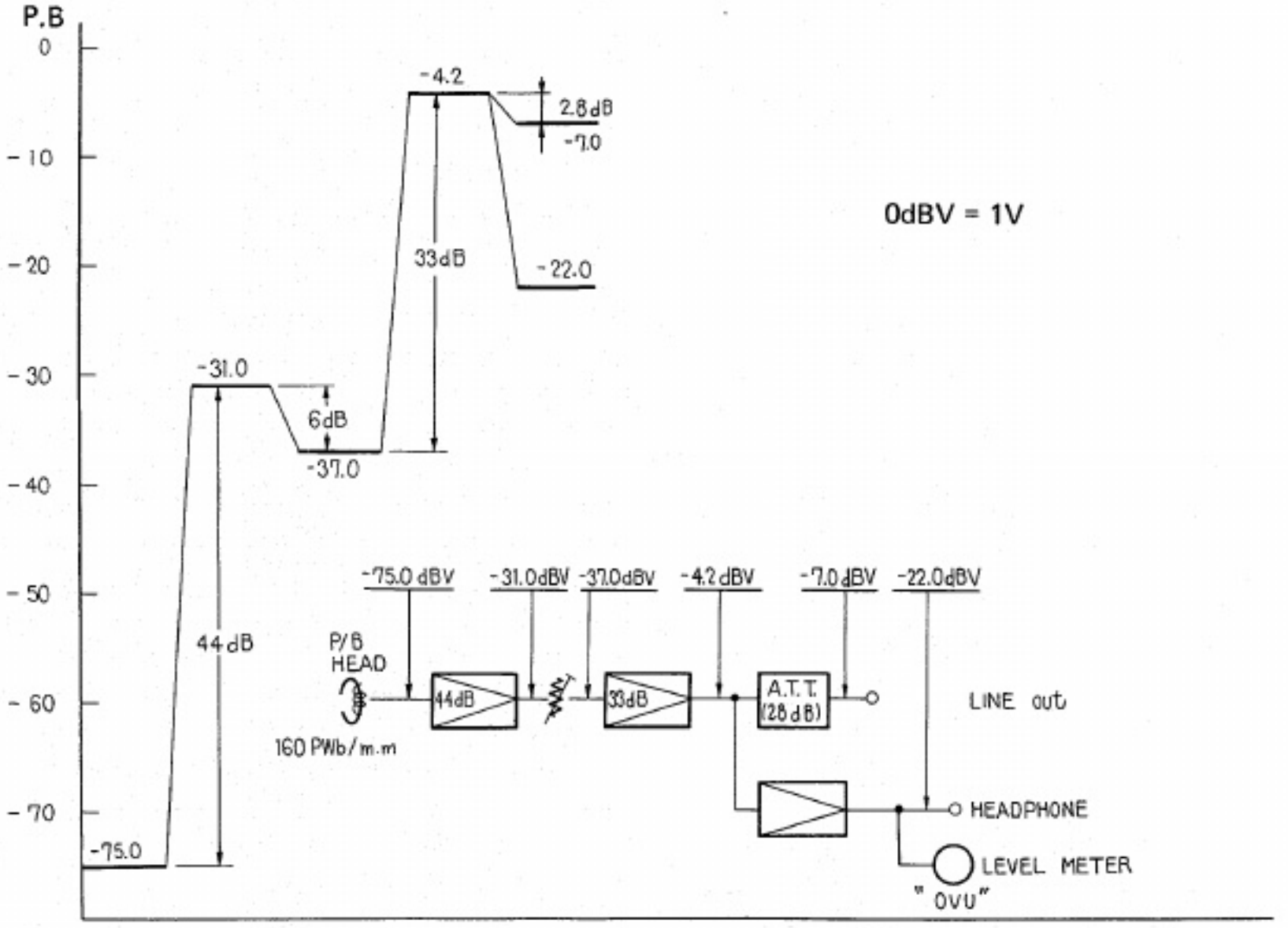
3. CONNECTION DIAGRAM

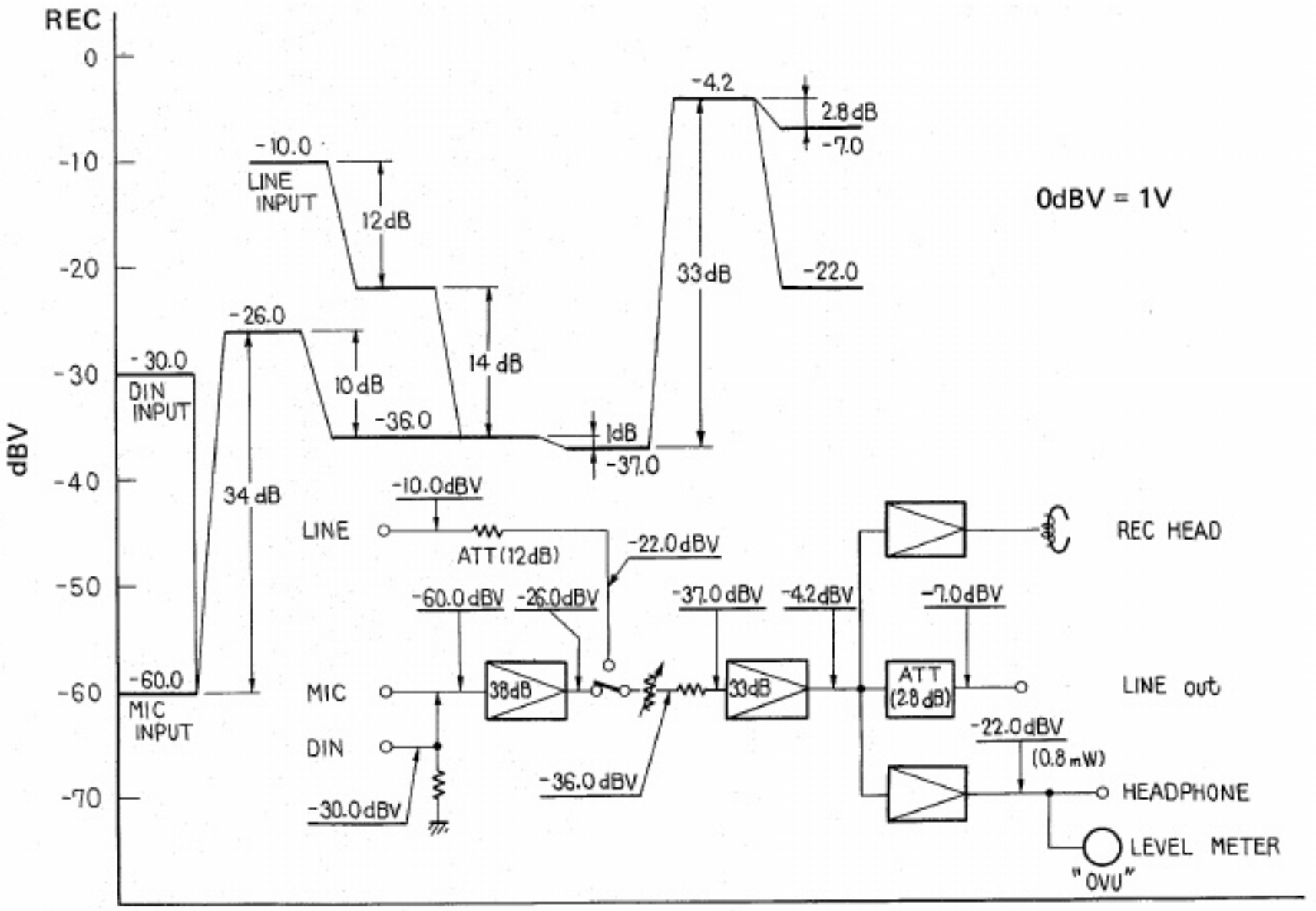


4. BLOCK DIAGRAM



5. LEVEL DIAGRAM





6. CIRCUIT DESCRIPTIONS

6.1 RECORDING AND PLAYBACK CIRCUITS

Fig. 1 shows the block diagram of the recording and playback system (L ch). The main common circuitry is used for both recording and playback.

Tape Selector

2-step selection for normal and chrome.

* EQ (Equalizer) Selector

Selects high band peaking frequency and low band equalization during recording. During playback equalization is selected.

* Tape Bias Selector

Changes bias oscillator supply voltage during recording to determine oscillation amplitude.

EQ Amplifier

2-stage direct coupled NPN transistor circuit functions as an equalizer amplifier during playback and as a flat frequency response amplifier during recording.

REC Amplifier

Composed of 1 PNP transistor. Low frequency compensation is performed by CR circuitry, high frequency compensation by LC, and STD and chrome level compensation by CR.

Dolby Processor (Fig. 2, Fig. 3)

A Dolby B-type Switchable Processor is built into this set, with which the Dolby effect is obtained only in the middle and high frequencies. The most objectionable tape hiss noise can thus be reduced during playback.
When the input at middle and high frequencies falls below a specified level (Dolby level) the recording level is automatically raised, while the level is automatically returned to normal during playback. This operation is performed by adding (or subtracting) the compressor output signal and the direct signal.
During recording, the compressor input is taken from the Amp. 3 input, while the compressor output is added in Amp. 3 to the direct signal in order to obtain the required characteristics. The compressor input is taken from the Amp. 3 output side during playback. Amp. 3 is designed so that its input and output sides are in opposite phase, causing the signal to be reversed. This addition of a reversed phase signal is equivalent to subtraction, thus reversing the process during playback and recording.

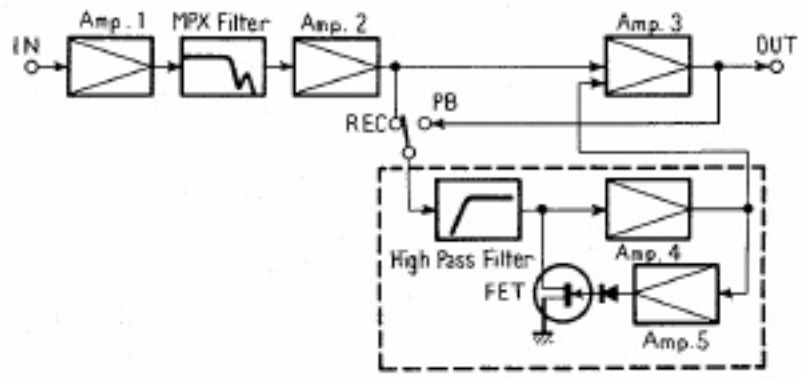


Fig. 2

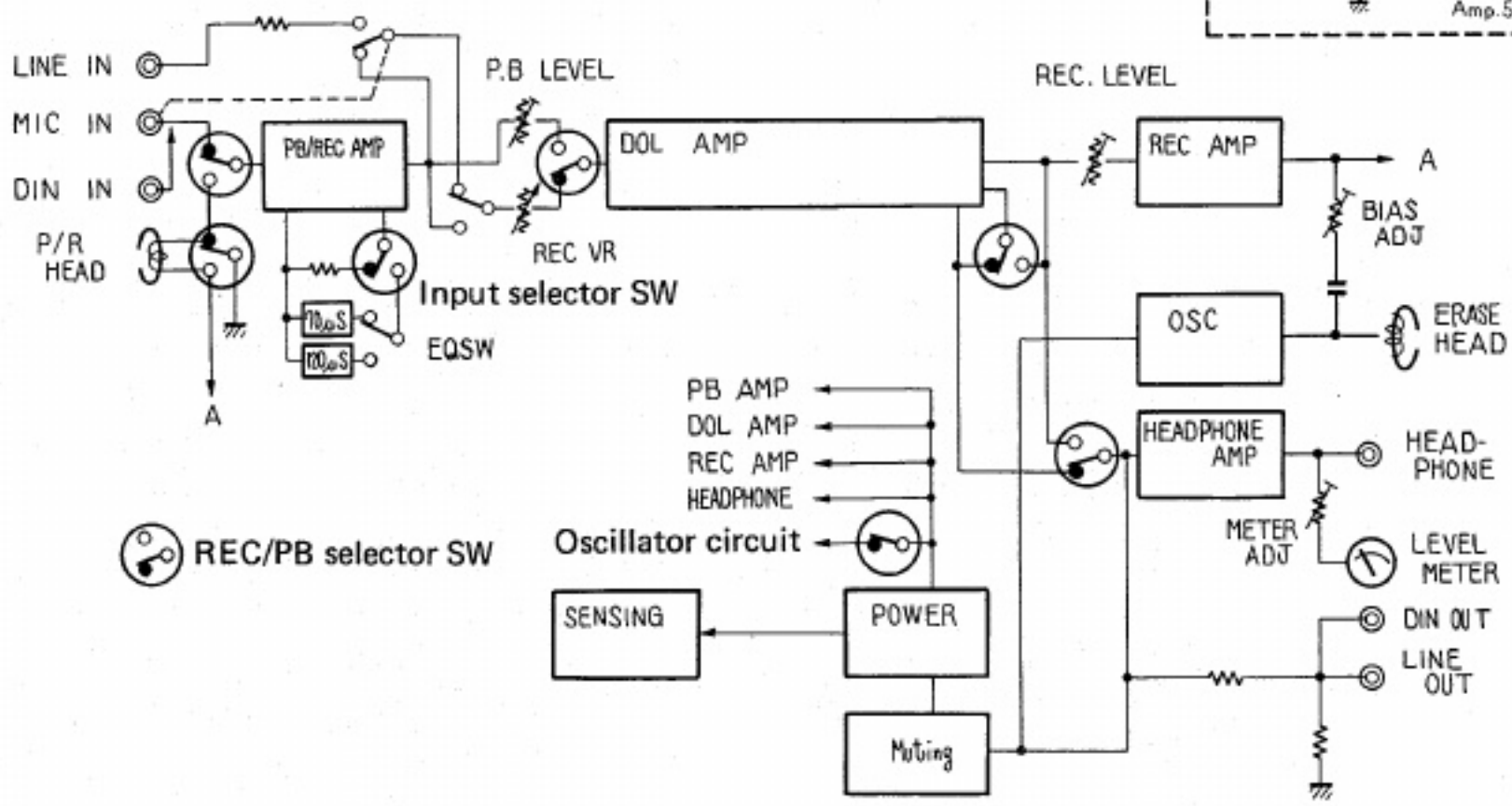
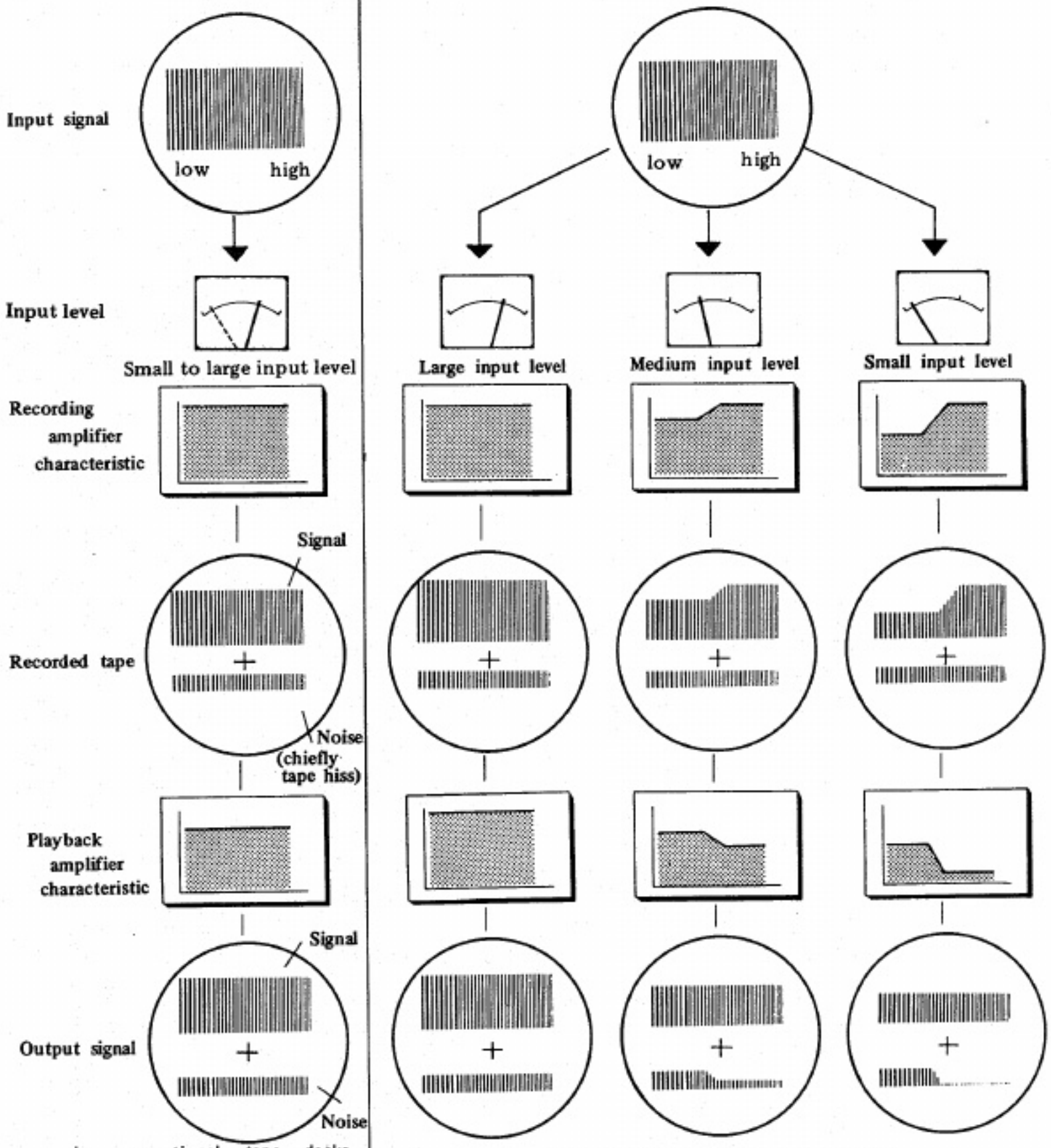


Fig. 1

***Compressor**

The input signal passes through a high pass filter and an FET electronic attenuator, and goes to Amp. 4. By varying the FET gate bias, the impedance between the drain and source also varies. This effect is produced by applying a voltage to the FET source, making the voltage between the gate and source equal to the pinch off voltage. The FET impedance thus becomes extremely high, while the rectified feedback signal forms the control voltage applied to the FET gate.

With a small signal, the control voltage is reduced and the impedance between drain and source remains high. The electronic attenuation is thus small, resulting in a large compressor output. A large input signal produces a high control voltage. Impedance between drain and source declines and approaches zero, increasing the attenuation and reducing the compressor output voltage.



In conventional tape decks, recording and playback characteristics remain constant, regardless of high or low signal levels. Therefore, when the signal level is low, the signal-to-noise ratio in playback drops, meaning that noise is more noticeable.

In the Dolby system, recording and playback amplifier characteristics change in accordance with the treble signal level. Noise reduction is effective at low signal levels where noise would otherwise be particularly irritating.

Fig. 3

6.2 AUTO STOP CIRCUIT

The playback mode is indicated in Fig. 4. In this mode, S6 (sensing switch) repeatedly opens and closes with take up reel rotation. The resulting pulse voltage is applied to Q351 base, producing a waveform between collector and ground as shown in Fig. 5. Voltage is applied to Q352 and Q353 via R363 and D355 — D354, R359, cutting them off. Since no current flows to Q354, the autostop solenoid P1 does not operate.

When tape running stops, S6 stops in either an open or closed position. Since Q351 base is at 0 potential, it is cut off. In this state, internal resistance between emitter and collector increases and the voltage waveform shown in Fig. 6 appears between collector and ground. Q352 base potential begins to rise and when the potential reaches point A in Fig. 6, Q352 switches ON. Q353 next switches ON and current flows to Q354. The autostop solenoid then operates.

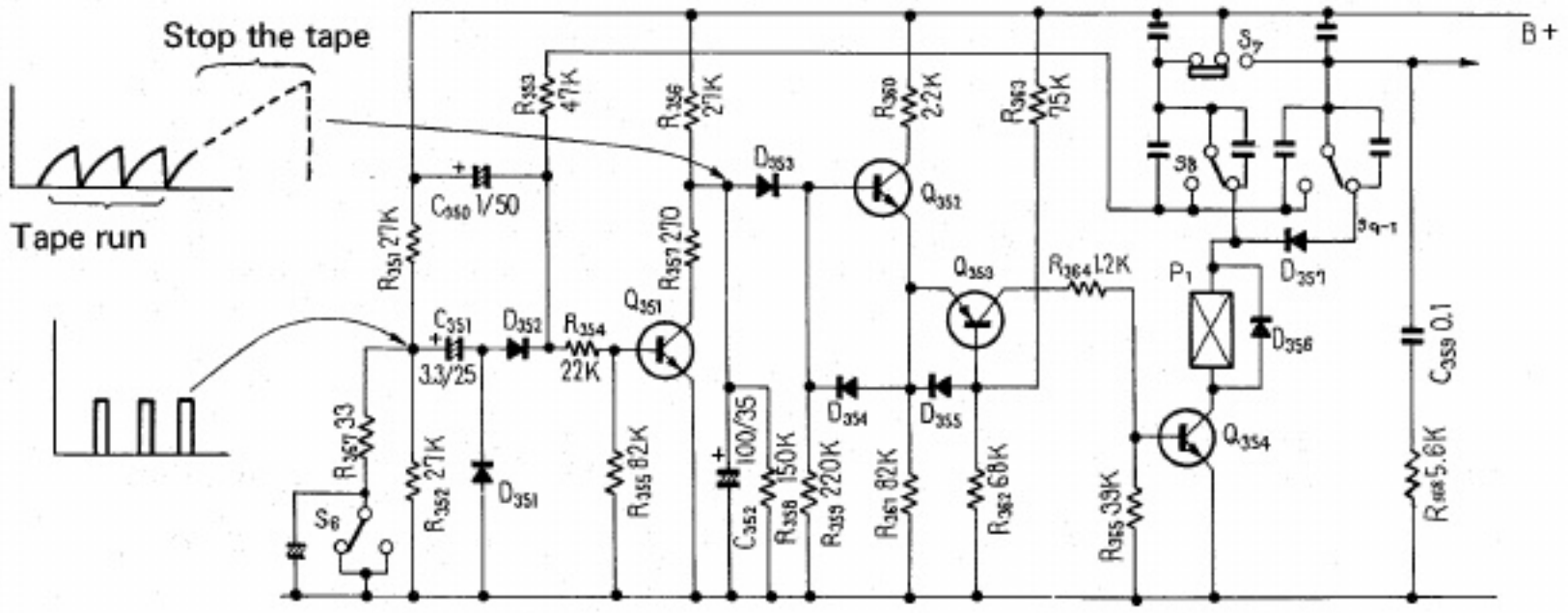


Fig. 4

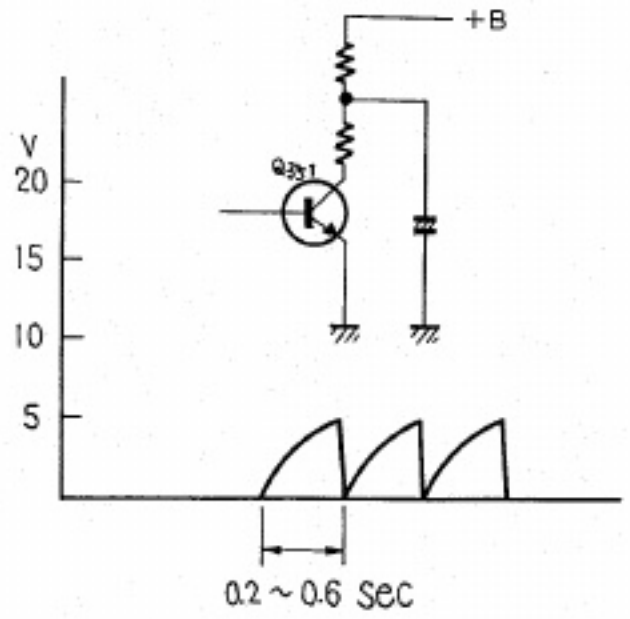


Fig. 5

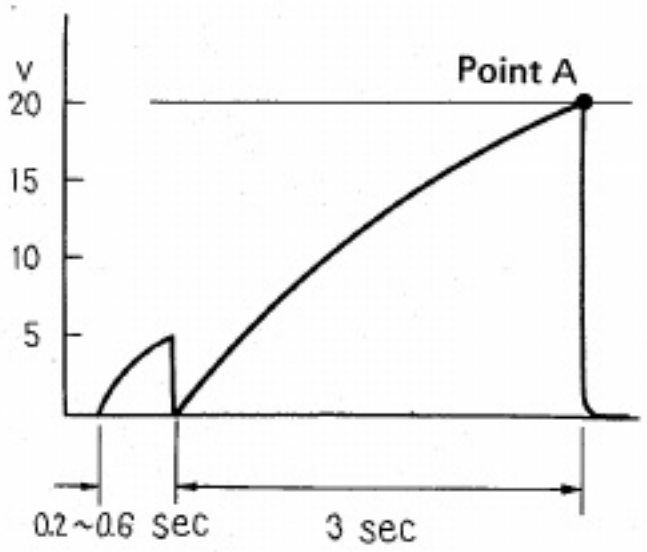


Fig. 6

6.3 POWER SUPPLY CIRCUIT (Fig. 7)

Independent power supplies are provided for the DC motor and amplifier sections. They incorporate separate transformer windings and bridge rectifiers in a stabilized design which eliminates ripple components. S_{9-2} is closed and the motor rotates only when the FF, REW or Play lever is pressed.

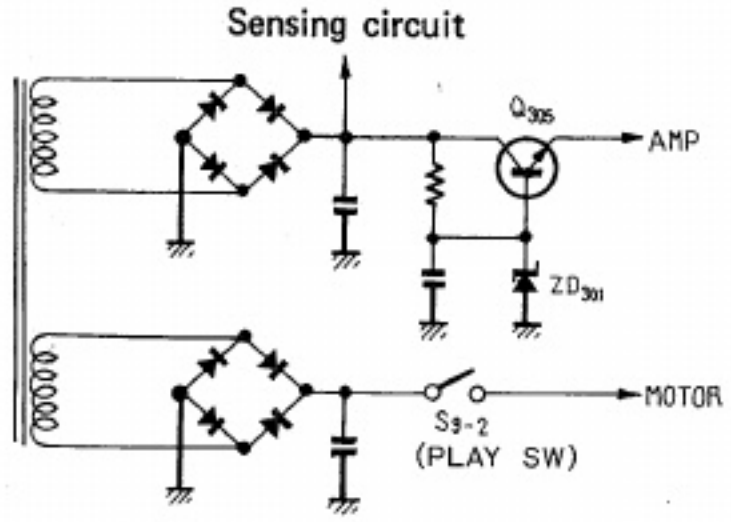


Fig. 7

6.4 MUTING CIRCUIT

*Osc Circuit

As shown in Fig. 8, +B is applied to the bases of Q303 and Q304 through S7 during stop mode, switching them ON. This causes Q301 and Q302 base to ground impedance to decline, and oscillation stops. S7 is OFF during recording, switching Q303 and Q304 OFF. Q301 and Q302 base to ground impedance then rises, allowing the oscillator circuit to operate.

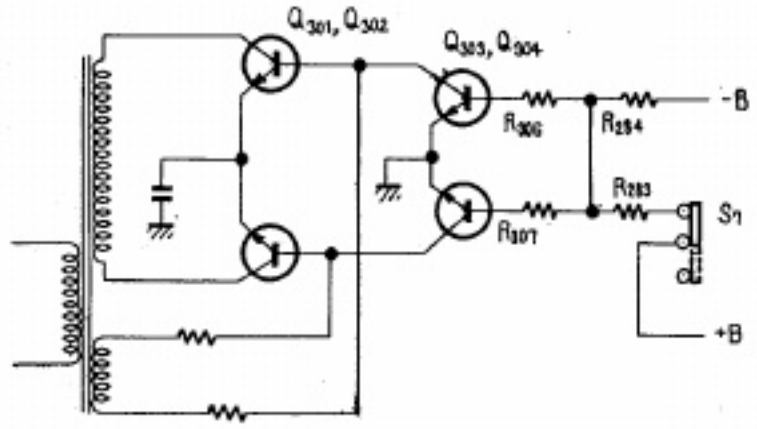


Fig. 8

*Audio Circuit

During the stop mode, as shown in Fig. 9, +B is applied by S7 to the bases of Q125 and Q126, switching them ON. Collector to emitter impedance of these transistors declines and the signal to LINE OUT becomes shorted. S7 is switched OFF during recording and playback, and the two transistors also switch OFF. Since a negative voltage is applied, LINE OUT becomes open and a signal is obtained.

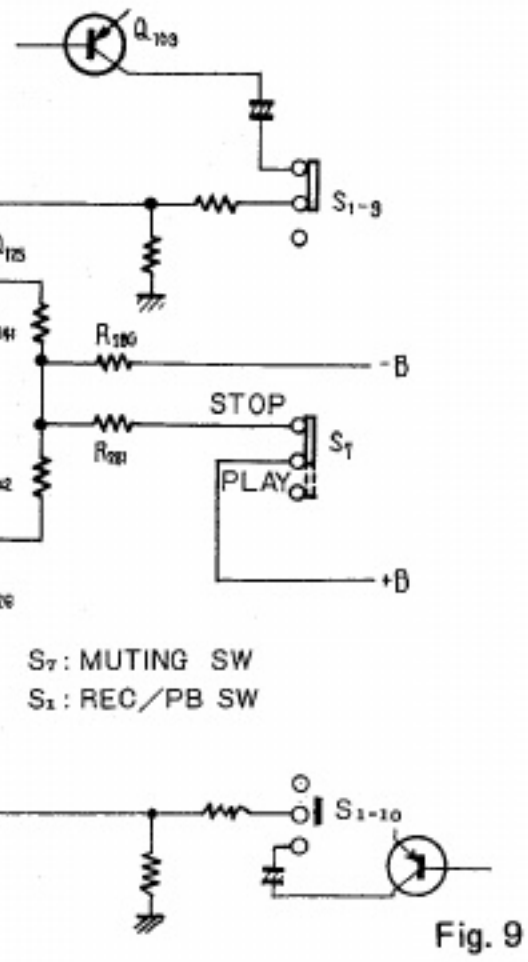
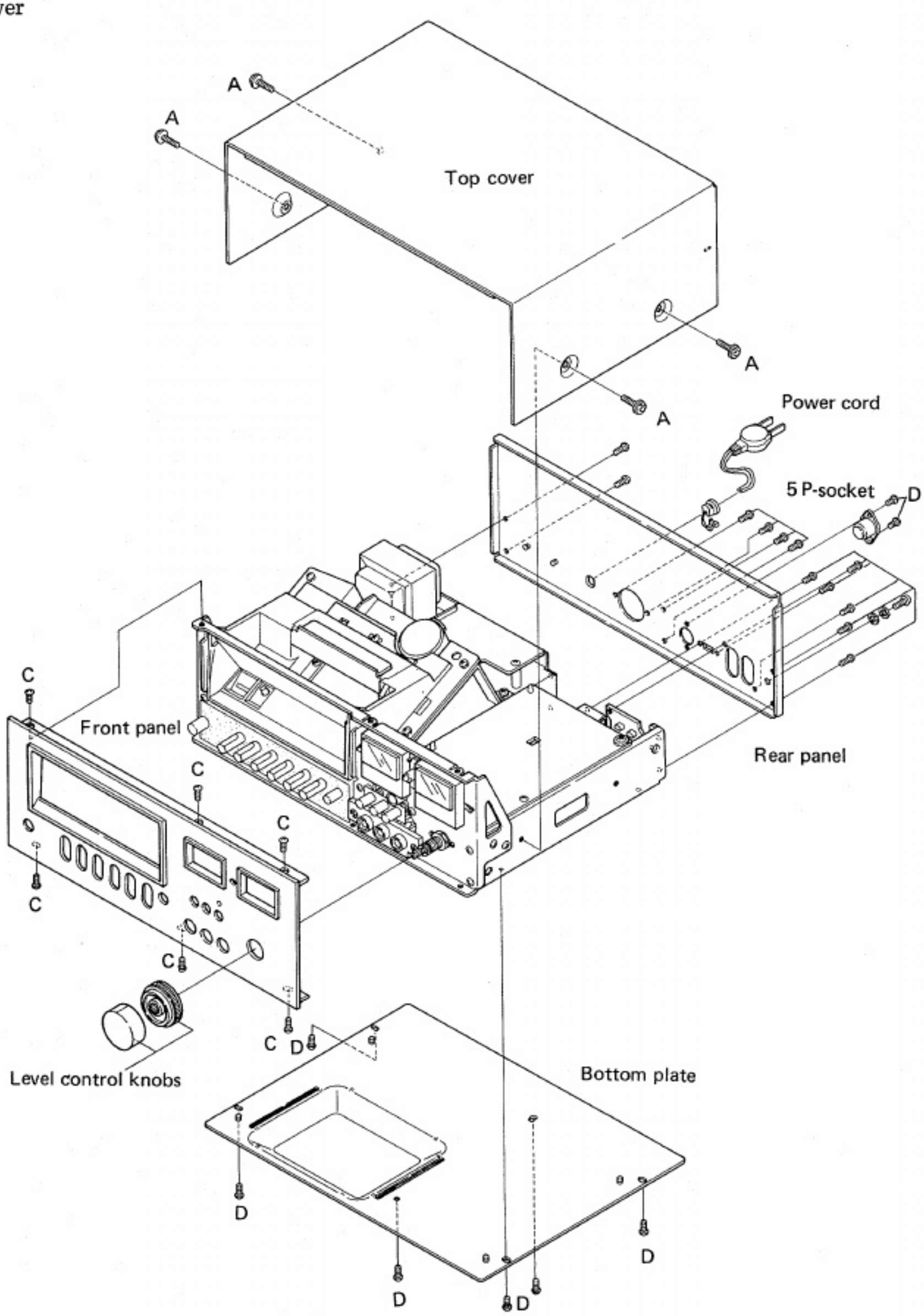


Fig. 9

7. DISASSEMBLY

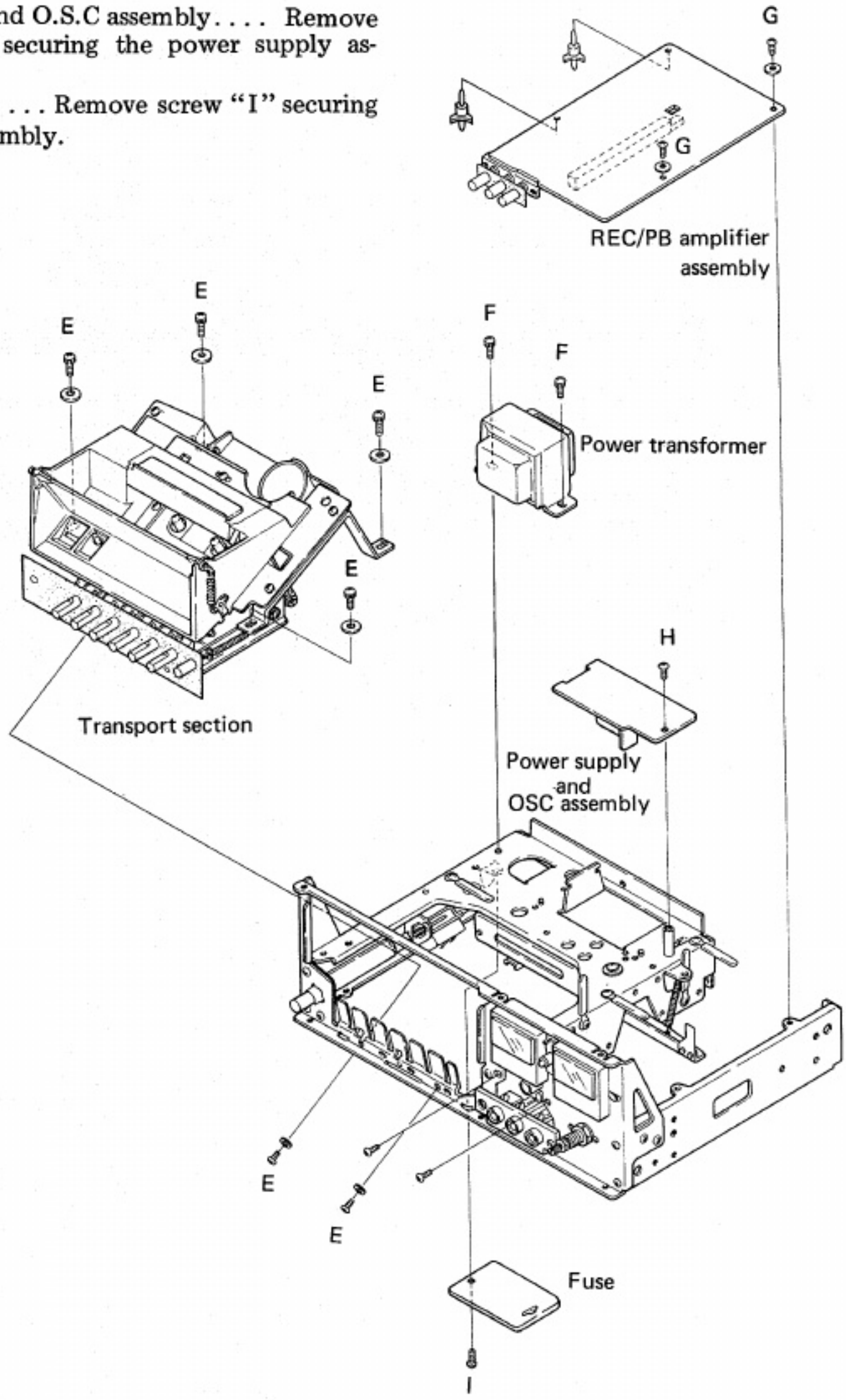
PART 1

- Top cover . . . . Remove 4 "A" screws securing the top cover
- Front panel . . . . Remove 6 screws "C" securing the front panel and the level control knobs.
- Bottom plate . . . . Remove 6 screws "D" securing the bottom plate.



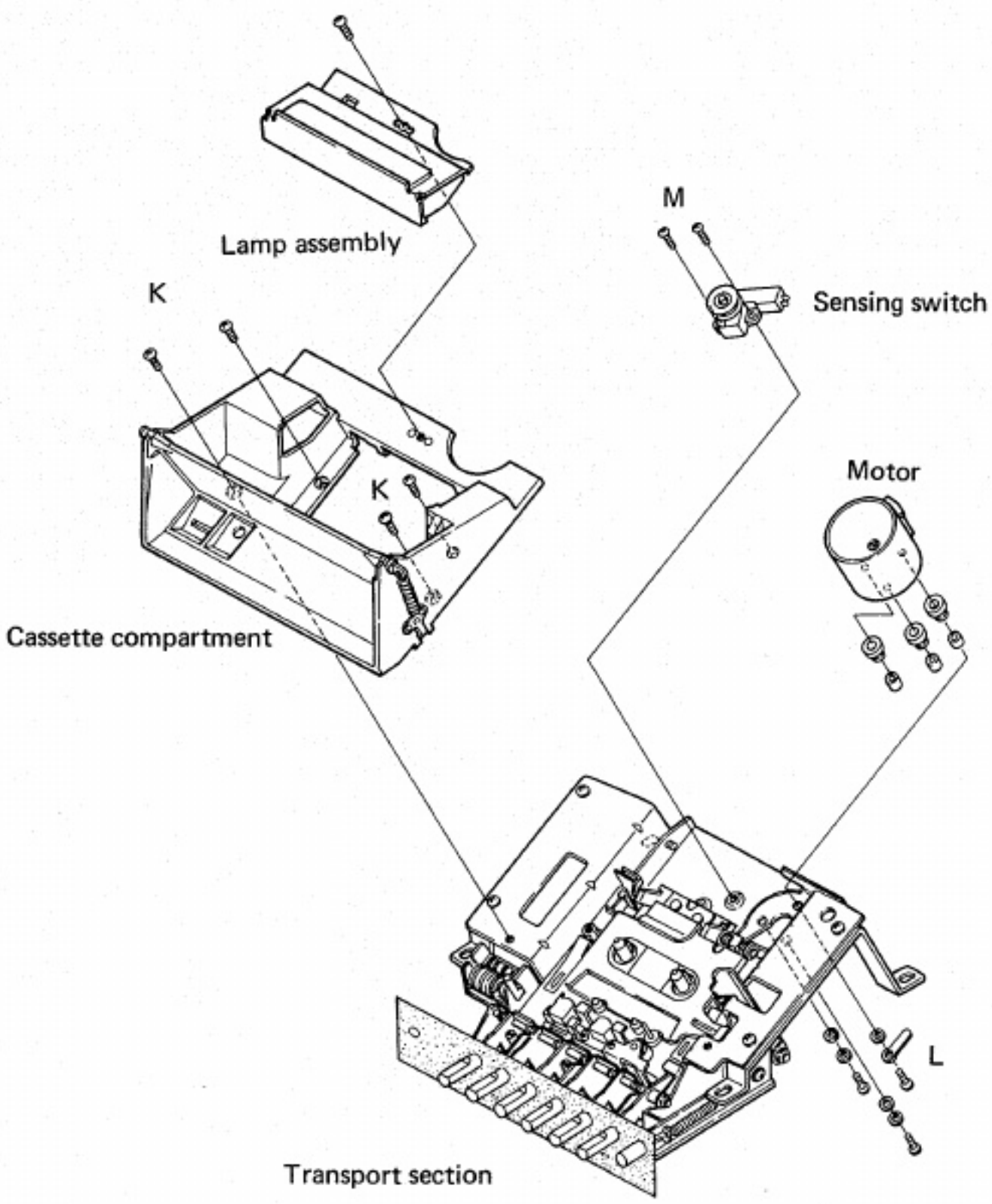
PART 2

- Transport section . . . . Remove 6 screws "E" securing the transport section.
- Power transformer. . . . Remove 2 screws "F" securing the power transformer.
- REC/PB amplifier assembly . . . . Remove 2 screws "G" securing the REC/PB amplifier assembly.
- Power supply and O.S.C assembly. . . . Remove screw "H" securing the power supply assembly.
- Fuse assembly . . . . Remove screw "I" securing the fuse assembly.



PART 3

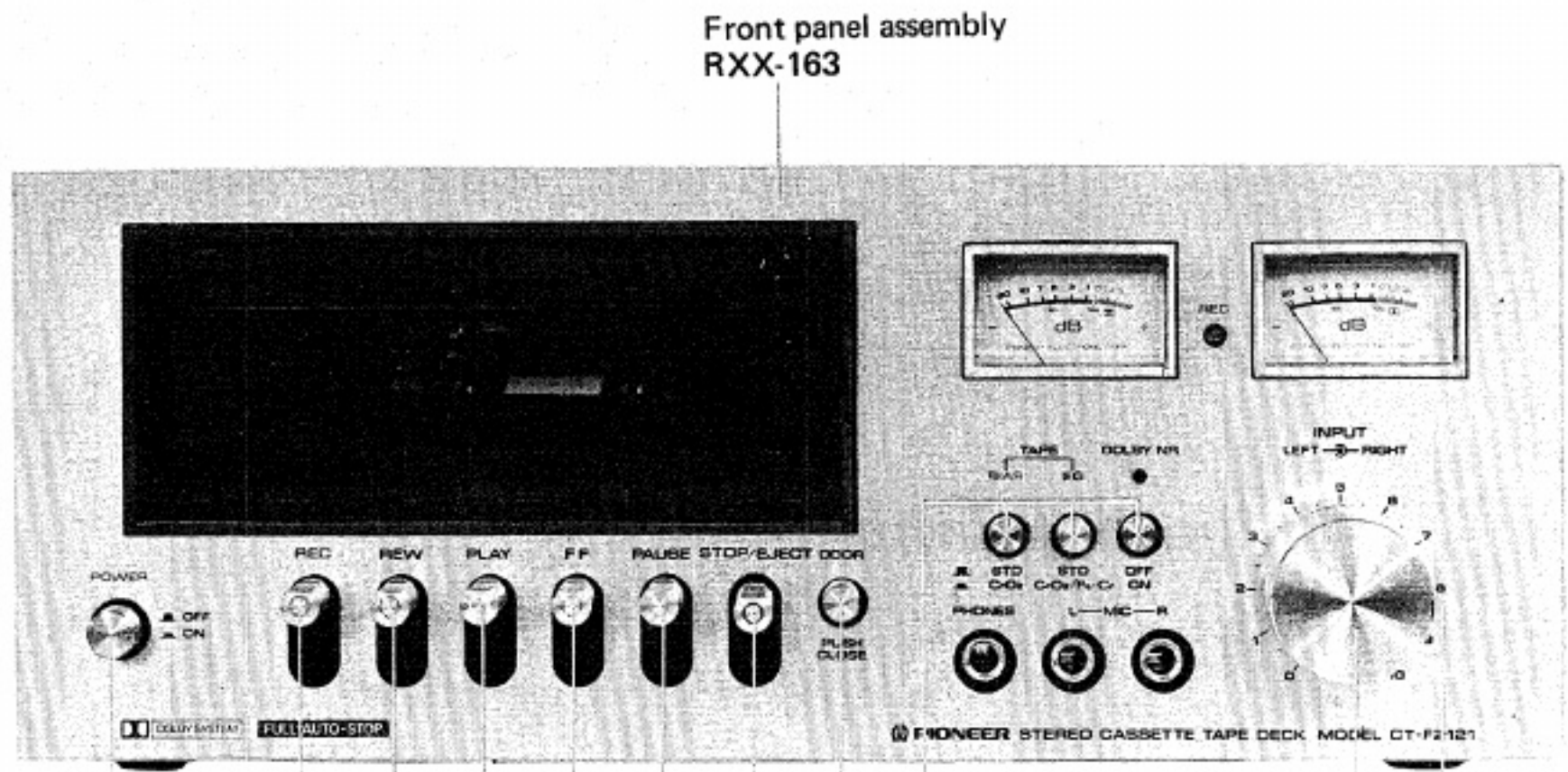
- Lamp assembly . . . Remove screw "J" securing the lamp assembly.
- Cassette compartment . . . Remove 4 screws "K" securing the cassette compartment.
- Motor . . . Remove 3 screws "L" securing the motor.
- Sensing switch . . . Remove 2 screws "M" securing sensing switch.



Transport section

8. PARTS LOCATIONS

8.1 FRONT VIEW



Front panel assembly
RXX-163

Inner knob
RAA-117

Outer knob
RAA-118

Knob (BIAS, EQ, DOLBY)
RAA-093

Knob (DOOR)
RAA-094

Knob (STOP/EJECT)
RXA-537

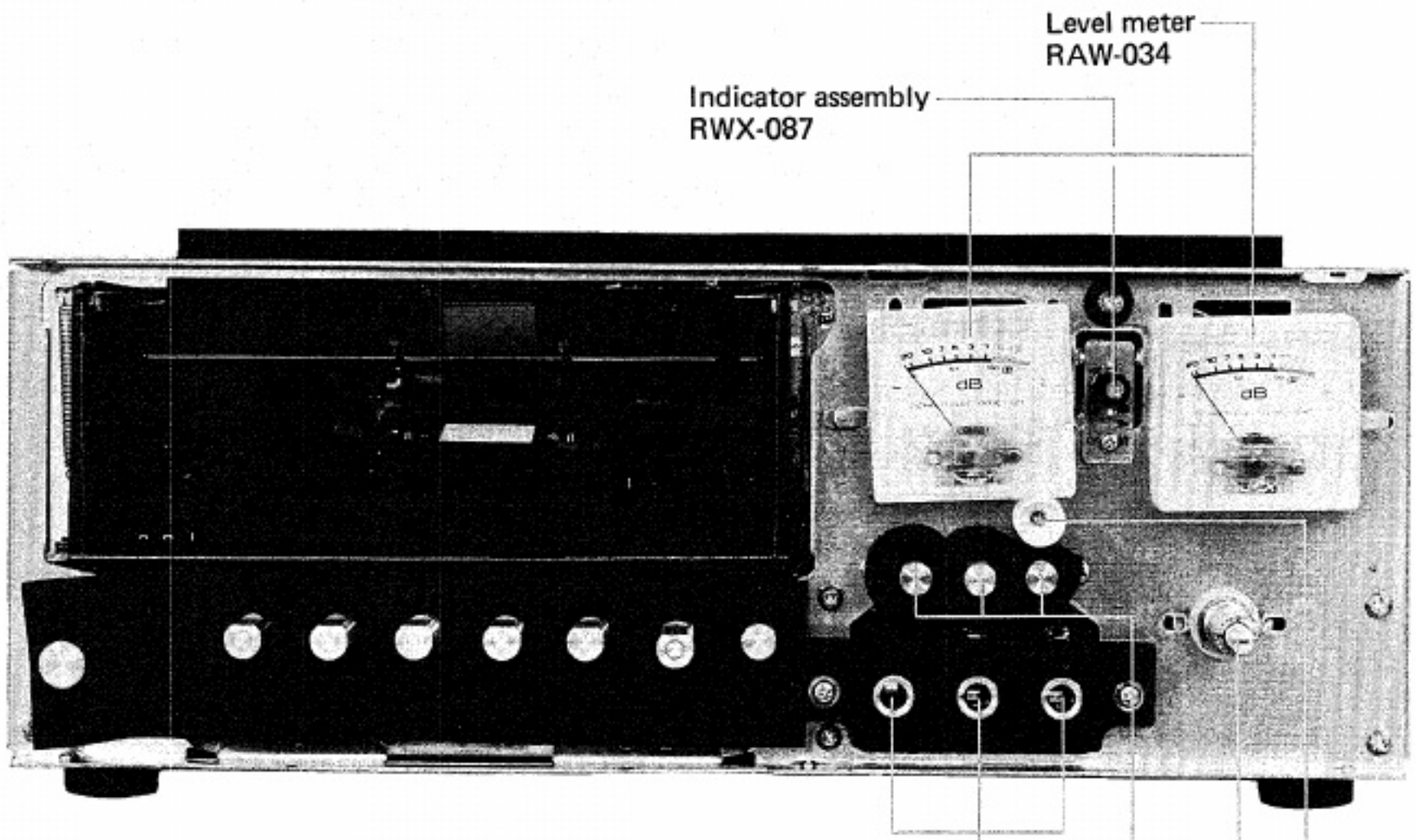
Knob (FF, REW, PAUSE)
RXA-539

Knob (PLAY)
RXA-538

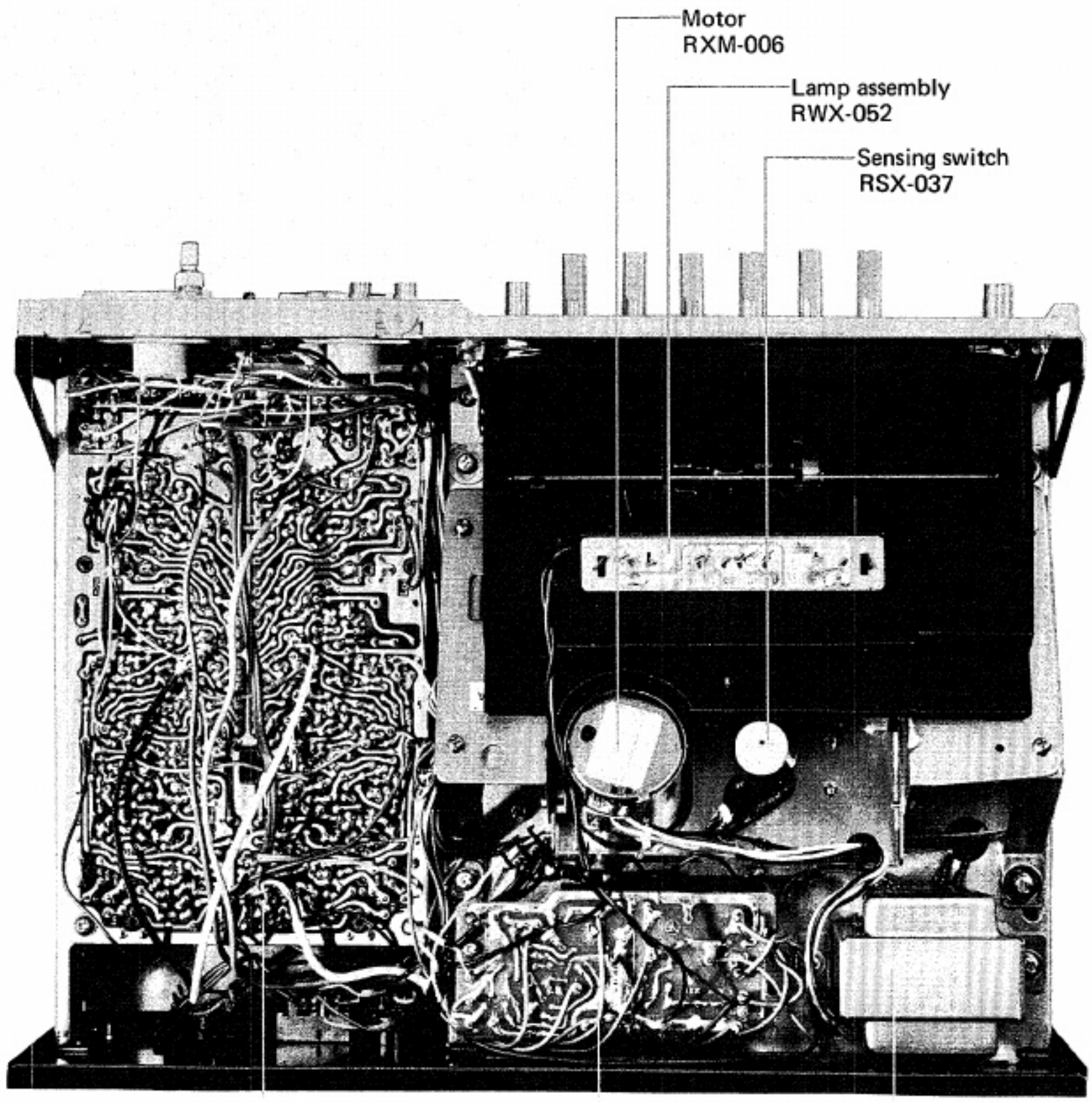
Knob (REC)
RXA-536

Knob (POWER)
RAA-092

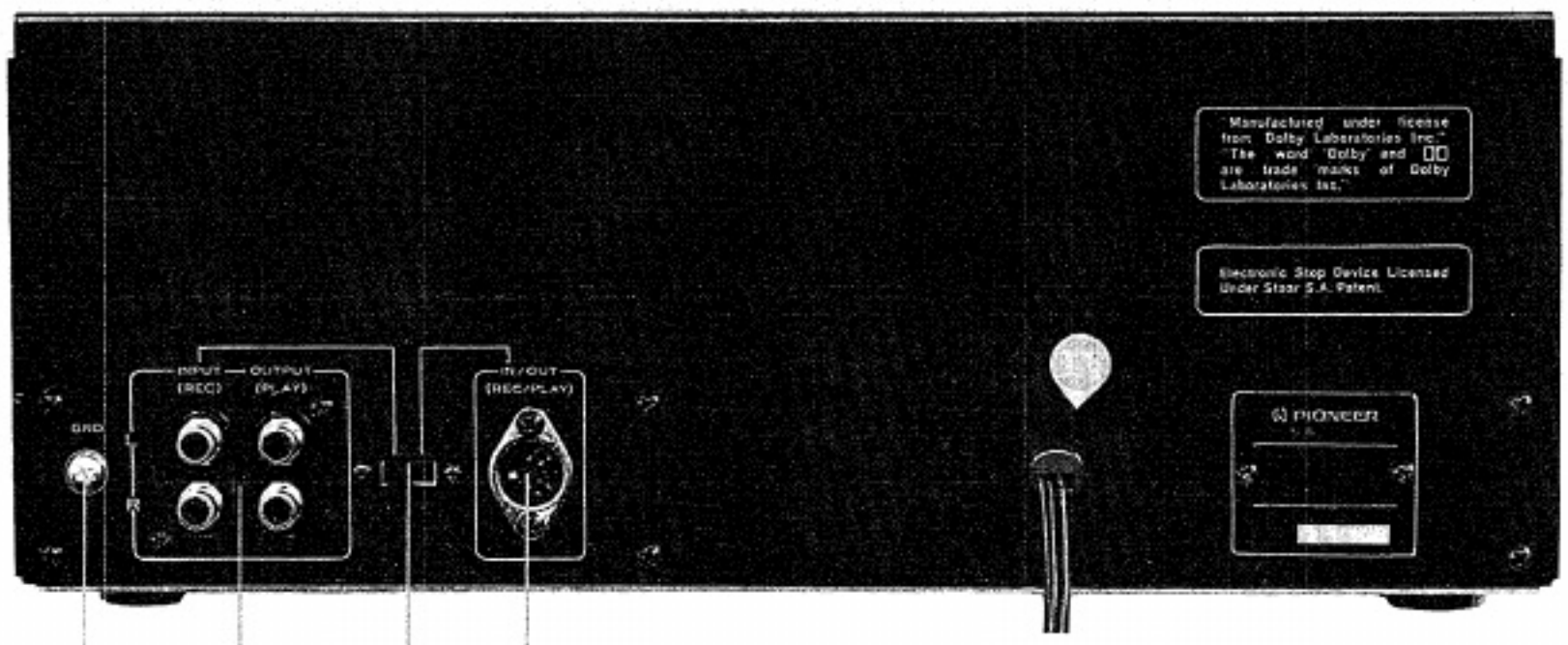
8.2 FRONT VIEW WITH PANEL REMOVED



8.3 TOP VIEW


Motor
RXM-006
Lamp assembly
RWX-052
Sensing switch
RSX-037
Power transformer
DV, DP model RTT-068
NB model RTT -071
KCU model RTT-067
Power supply and OSC assembly
RWR-027
REC/PB amplifier assembly
RWF-043

8.4 REAR PANEL VIEW (NB, KCU MODEL)



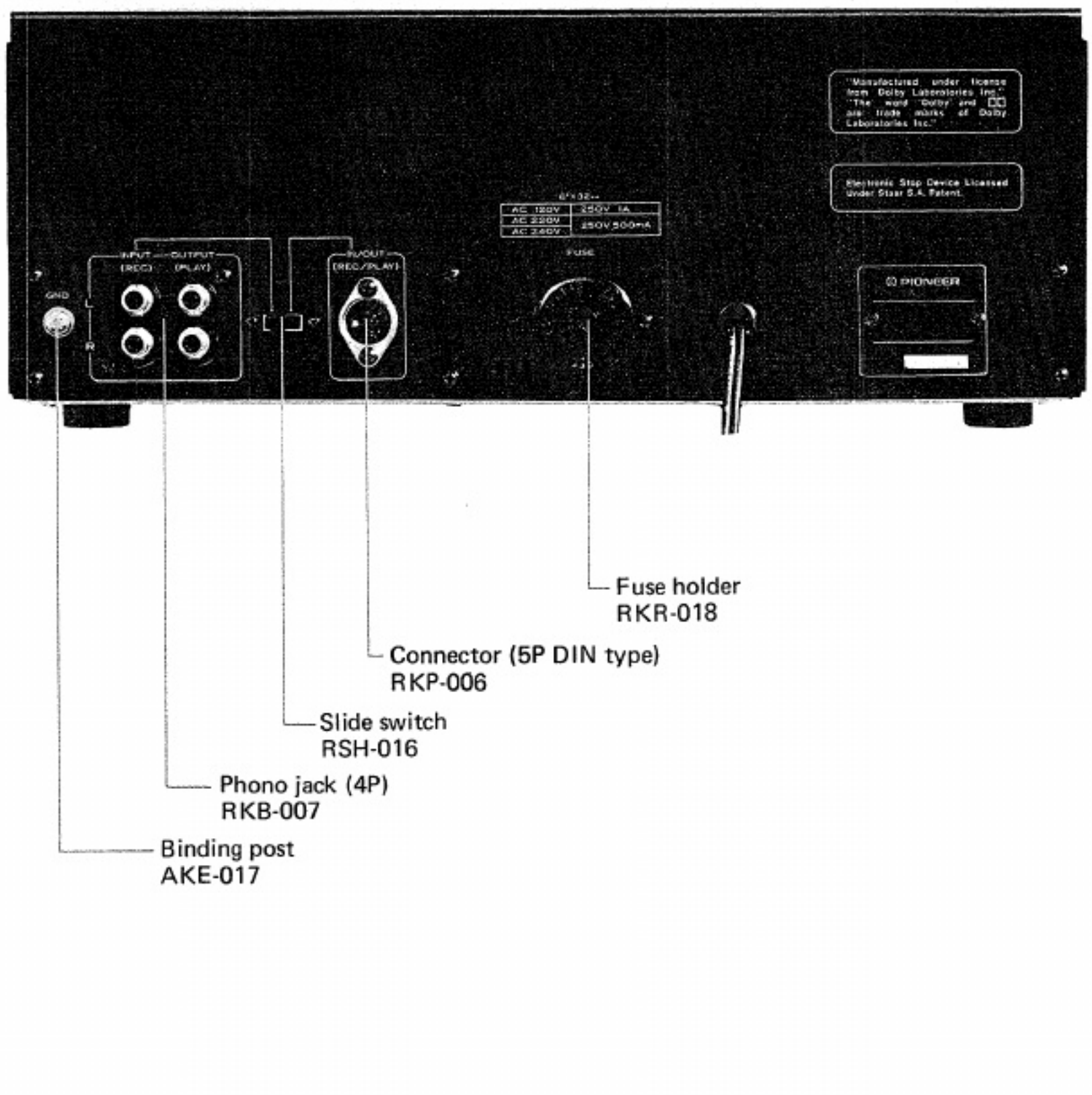
Connector (5P DIN type)
RKP-006

Slide switch
RSH-016

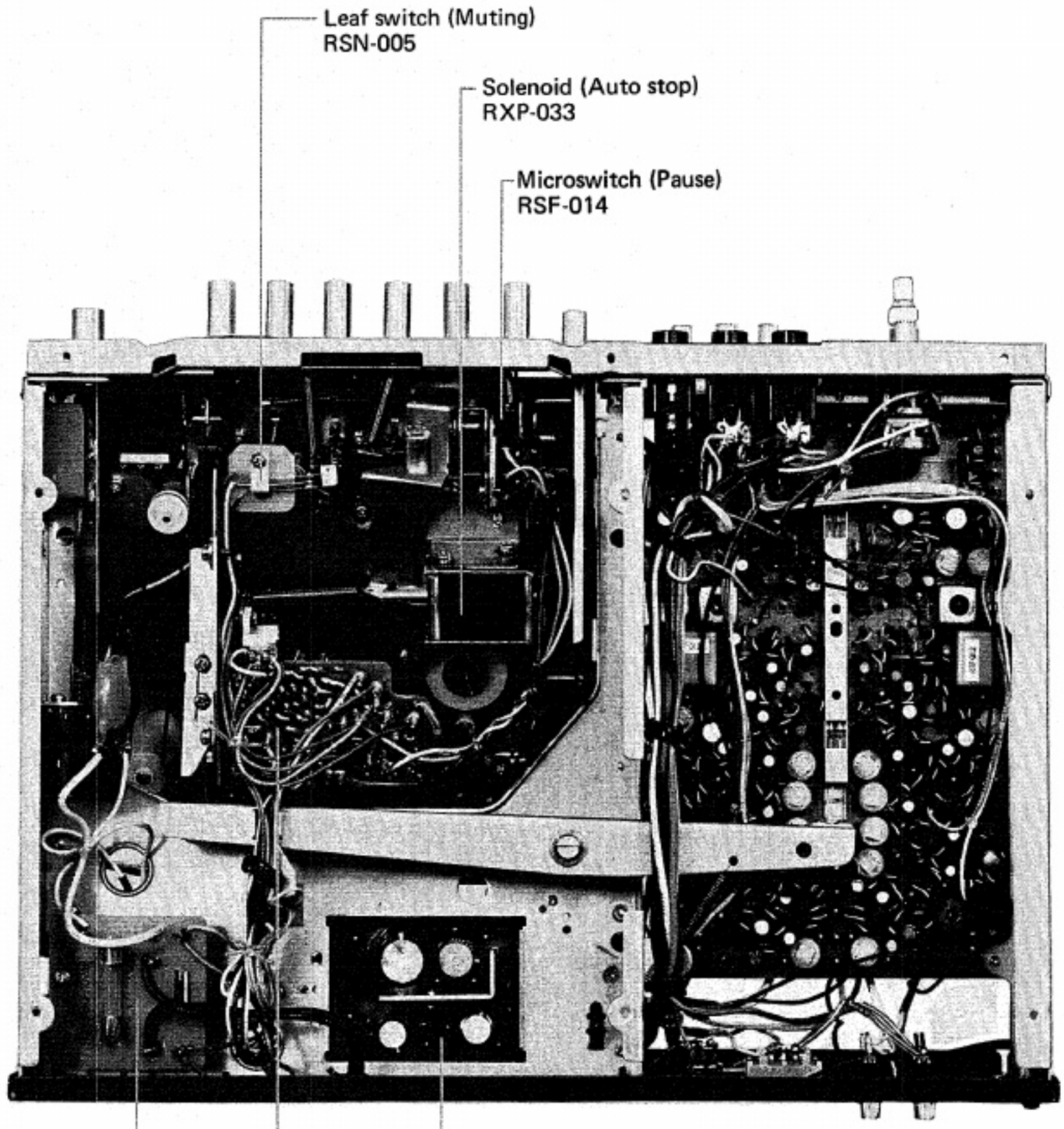
Phono jack (4P)
RKB-007

Binding post
AKE-017

8.5 REAR PANEL VIEW (DV, DP MODEL)



8.6 BOTTOM VIEW



9. MECHANICAL ADJUSTMENTS

9.1 PINCH ROLLER PRESSURE

1. Remove cassette compartment (See P. 16) and press Play lever.
2. Use a spring compression gauge to push the pinch arm, as shown in Fig. 10.
3. Confirm that the force required to separate the pinch roller from the capstan is 300 — 400 grams.
4. If beyond of this range, unhook the pinch roller spring from its anchor hole and check for easy pinch arm movement.
5. Attempt to adjust by attaching the spring to different anchor holes.
6. If this is unsuccessful, replace the pinch roller spring.

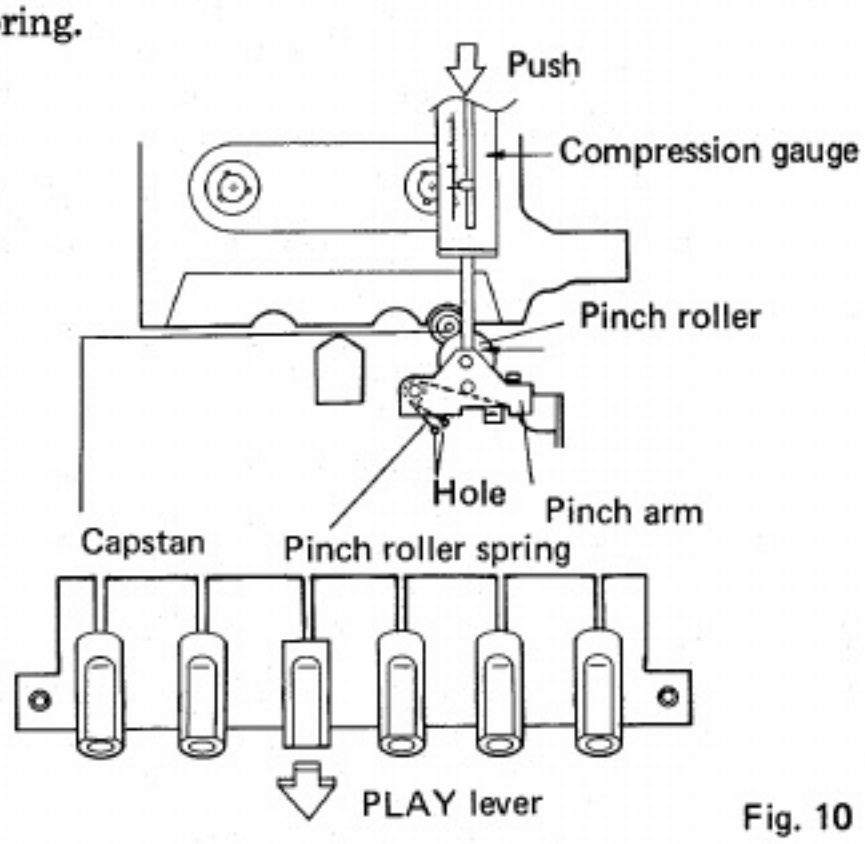


Fig. 10

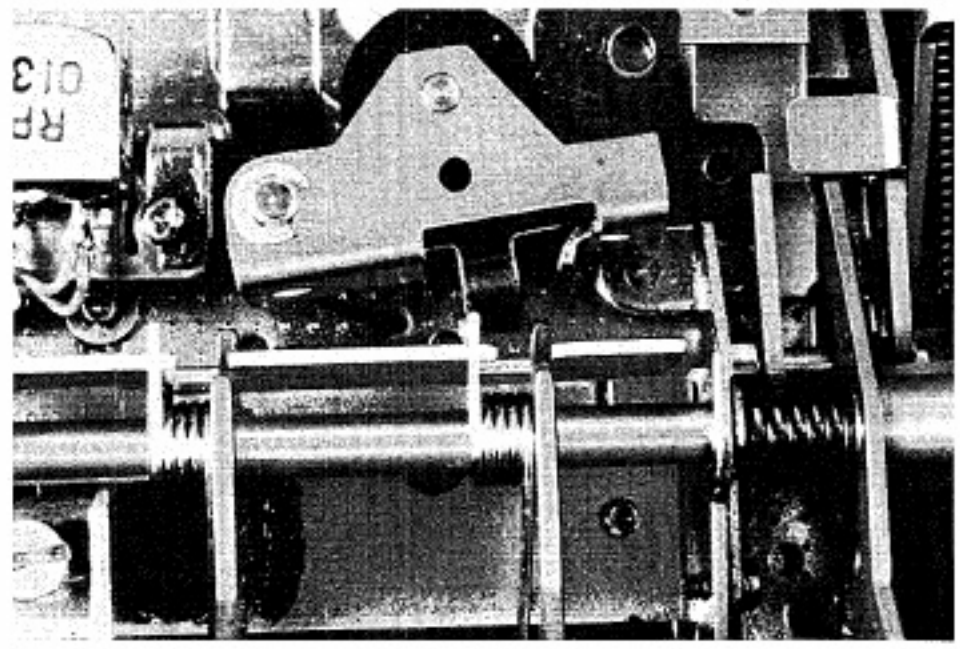


Photo 1

9.2 TAPE SPEED (Fig. 11)

Inserting small screwdriver into the adjusting hole, turn the trimmer resistor inside the motor.

Speed slow: turn clockwise (speed increases)
Speed fast: turn counter-clockwise (speed decreases)

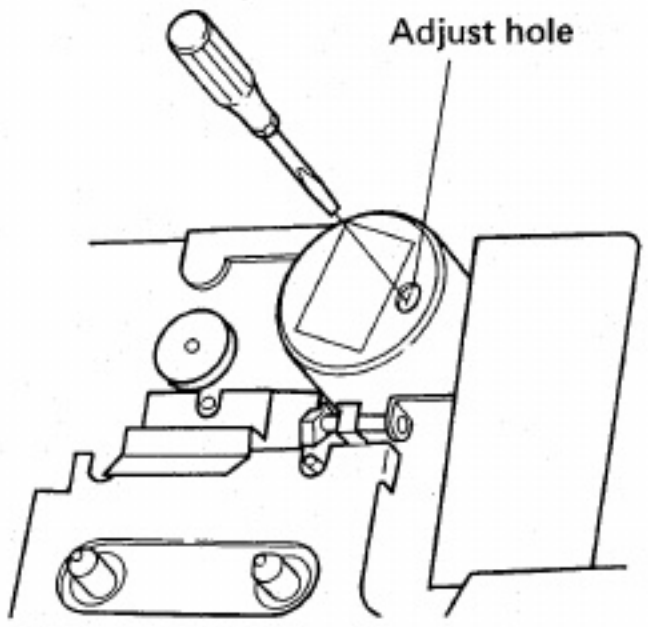


Fig. 11

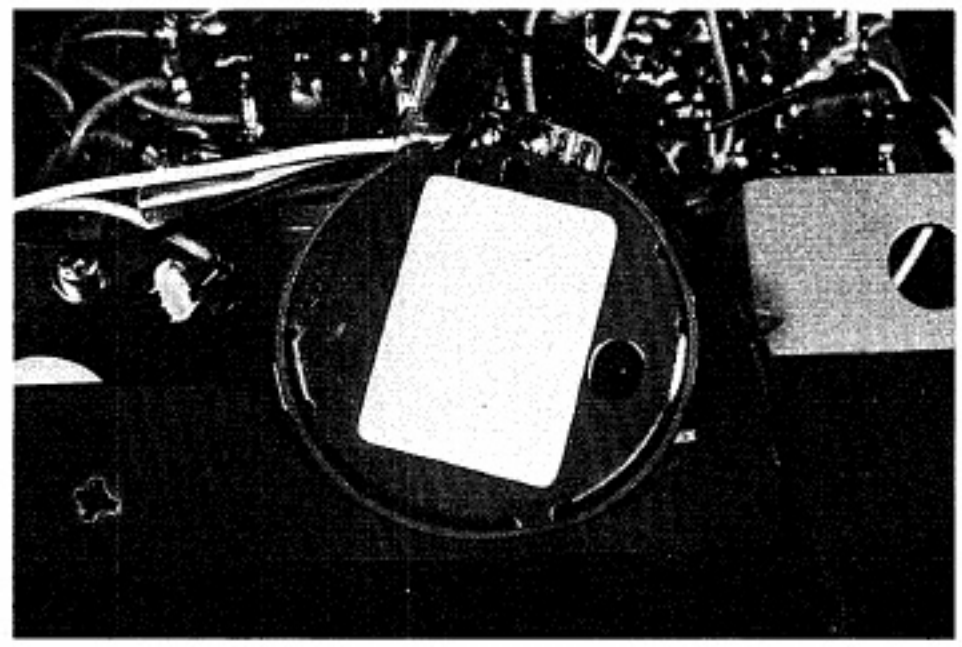


Photo 2

9.3 REEL HUB TORQUE

Measure by means of a torque gauge (Fig. 12).

*Acceptable torque ranges

Take up reel hub	play:	40 — 65 g.cm
	fast forward:	70 — 130 g.cm
Supply reel hub	Rewind:	70 — 130 g.cm

*Adjustments

Take Up Reel Hub, During Play (Figs. 13 & 14)

1. Check that the take up pulley is properly engaged with the rubber ring of the take up reel hub.
2. If pressure is incorrect, adjust drive roller arm spring.
3. If pressure is correct, but the torque out of acceptable range, replace tension arm assembly.

Take Up Reel Hub, During Fast Forward (Fig. 15)

When torque is outside the acceptable range, adjust by bending leaf spring of FF drive lever.

Supply Reel Hub, During Rewind (Fig. 16)

If torque is not within acceptable range, adjust REW lever spring.

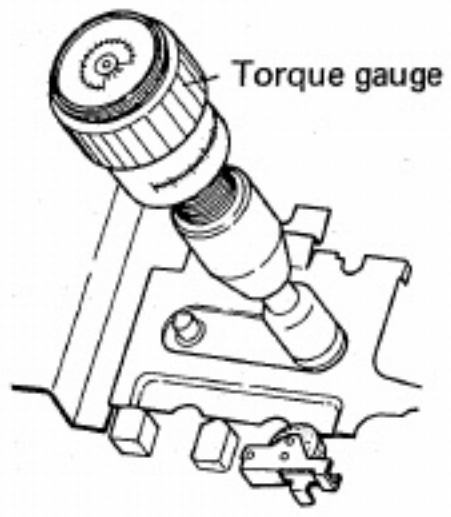


Fig. 12

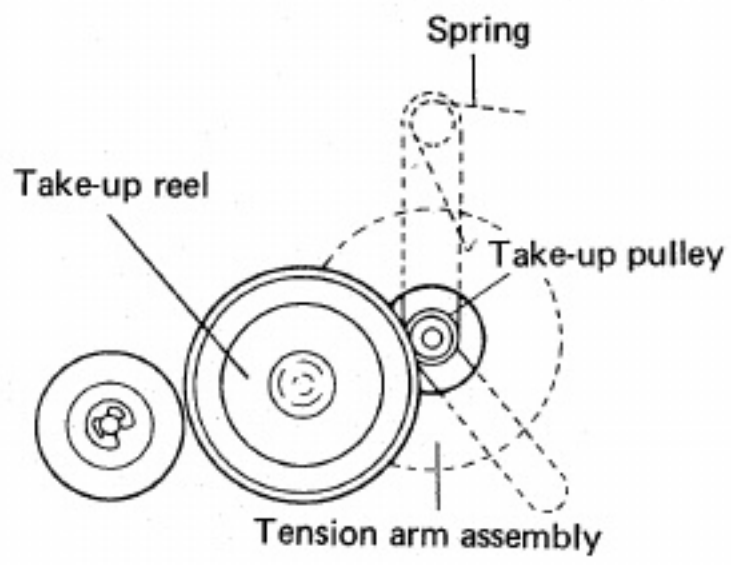


Fig. 13

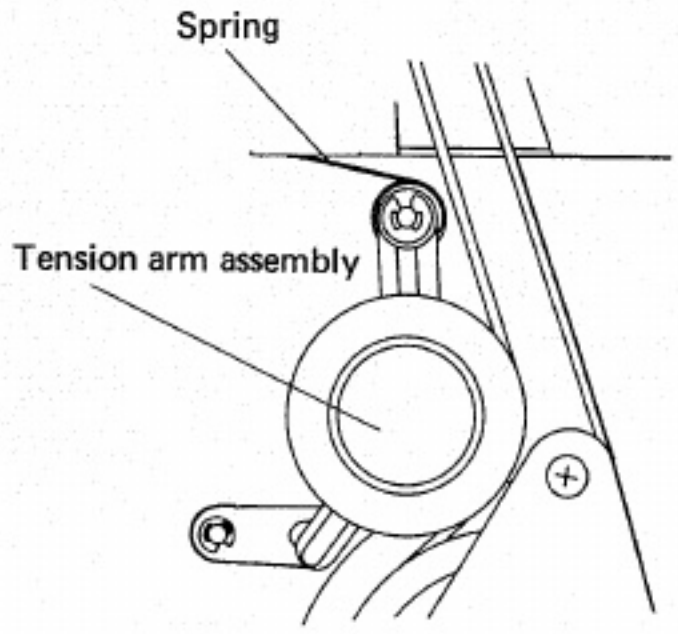


Fig. 14

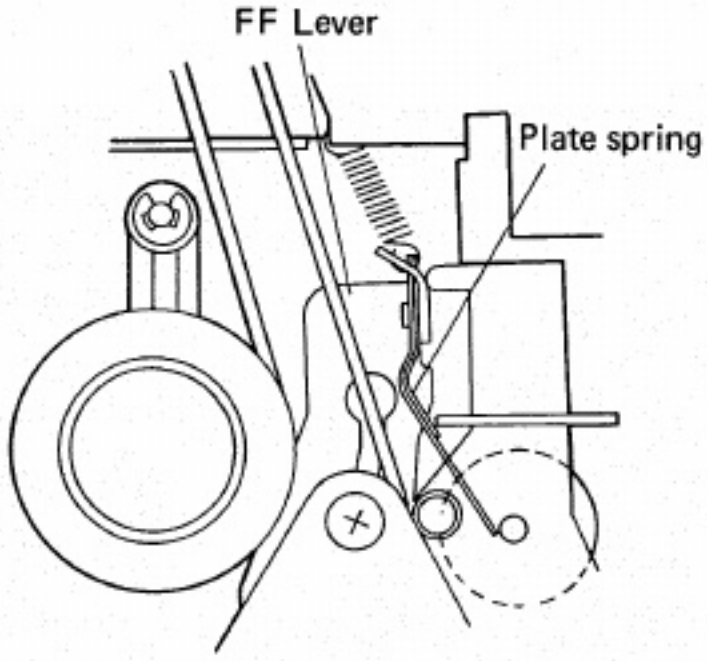


Fig. 15

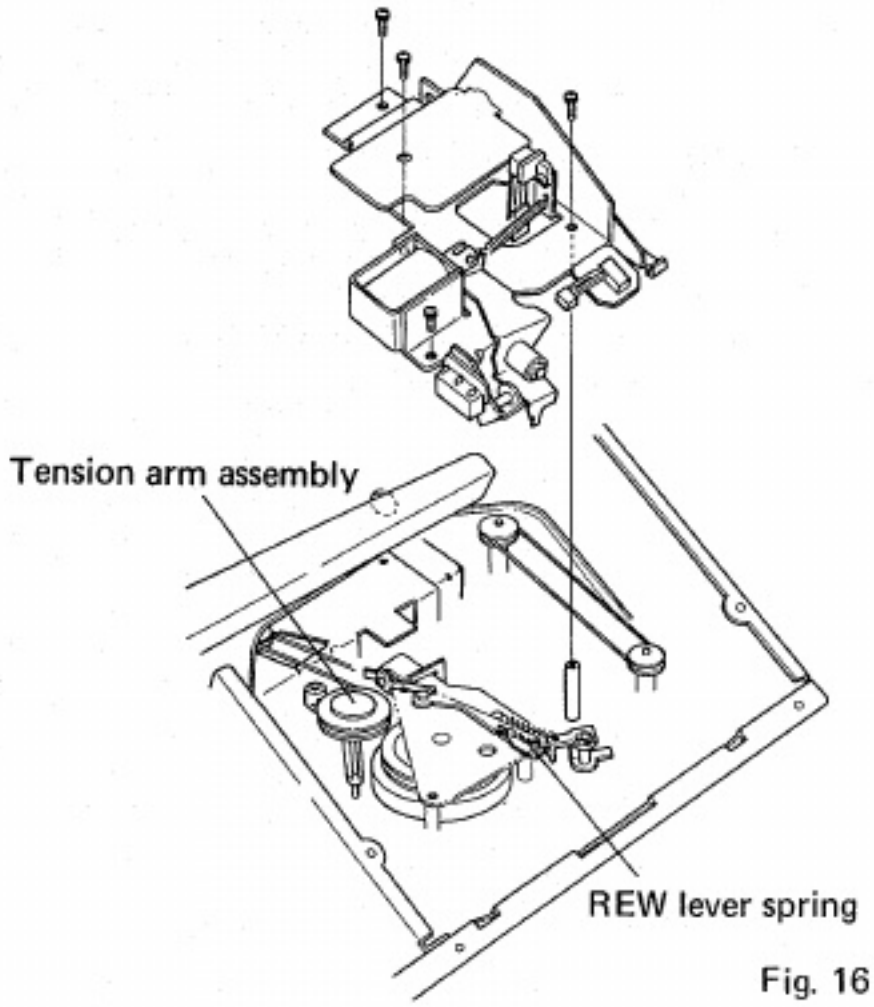


Fig. 16

9.4 MUTING SWITCH (Fig. 17)

Adjustment Specifications

In Play mode, muting switch operation shall be fully completed. Switch timing shall be delayed from Stop to Play, but fast from Play to Stop.

In Stop mode, muting switch shall be completely reset.

Adjustment

Loosen adjusting screw and, by changing the switch mounting position, adjust so that separator moves 0.5 — 1.0 mm after contacts A and B close.

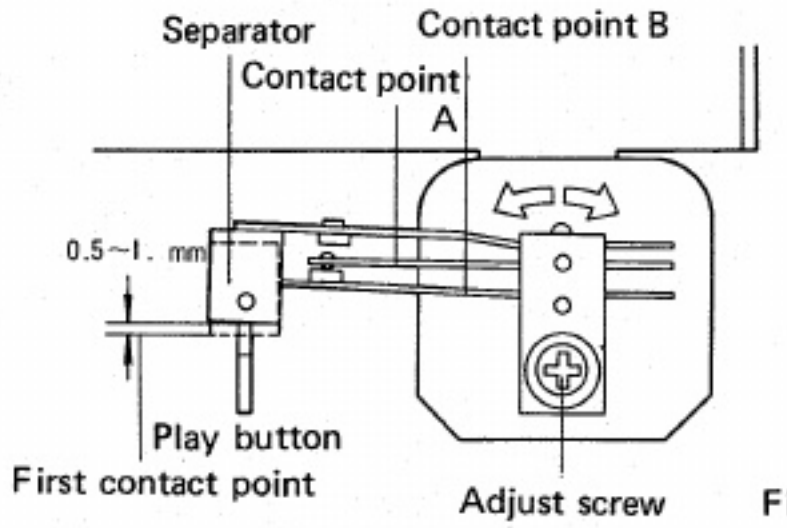


Fig. 17

9.5 SOLENOID OPERATION (Fig. 18)

1. Place mechanism in Stop mode.
2. Push plunger ① until points ② and ③ contact.
3. Adjust for 1.6mm gap at G by loosening the screws ⑤ and moving the solenoid.
4. Lock REC and Play levers, then confirm that locks release when plunger is pulled in.

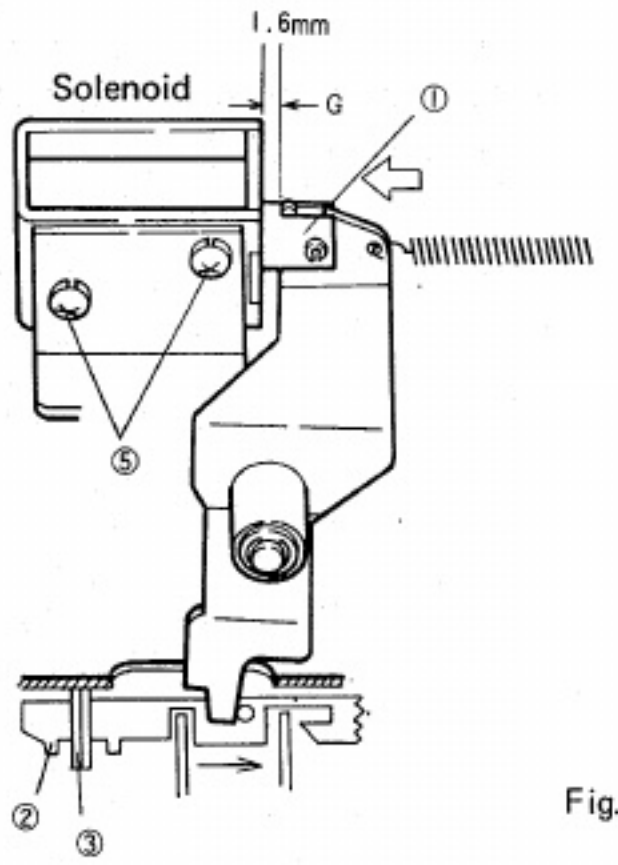


Fig. 18

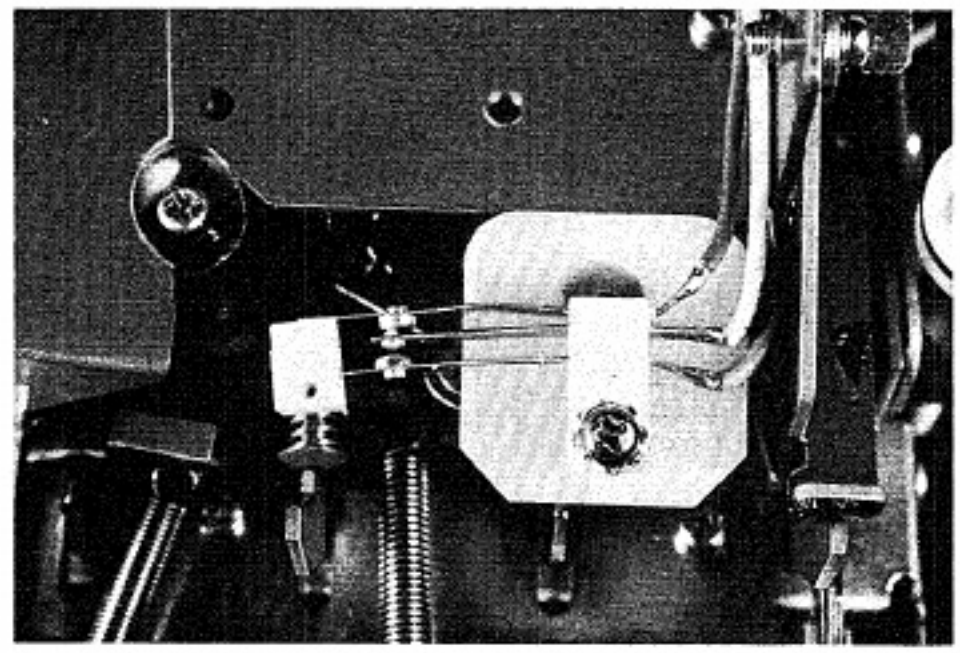


Photo 3

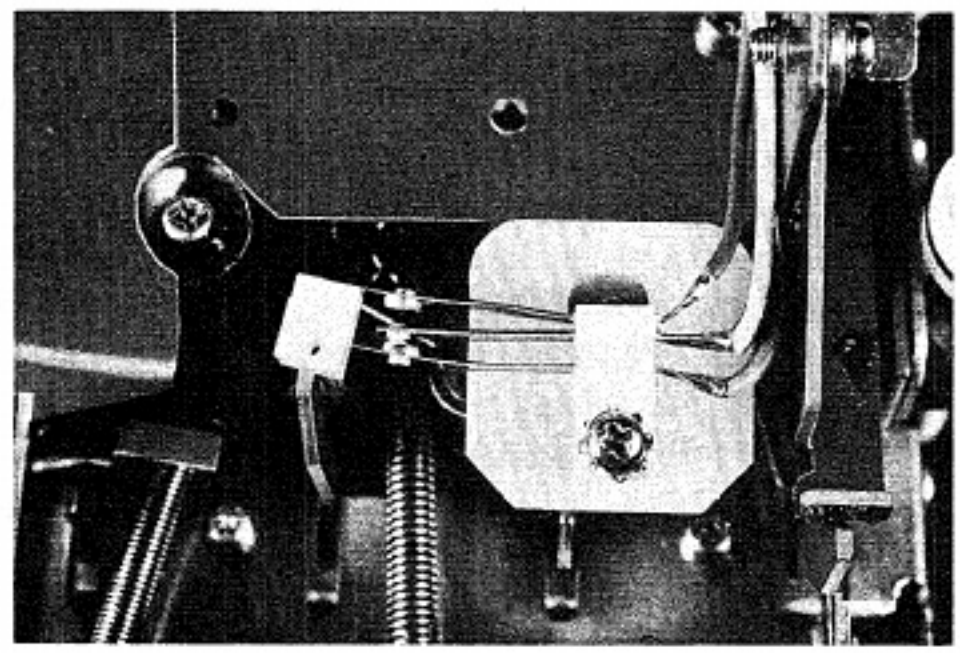


Photo 4

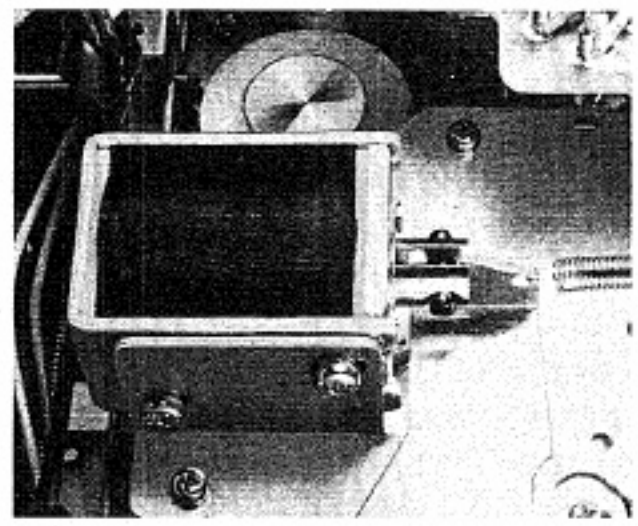


Photo 5

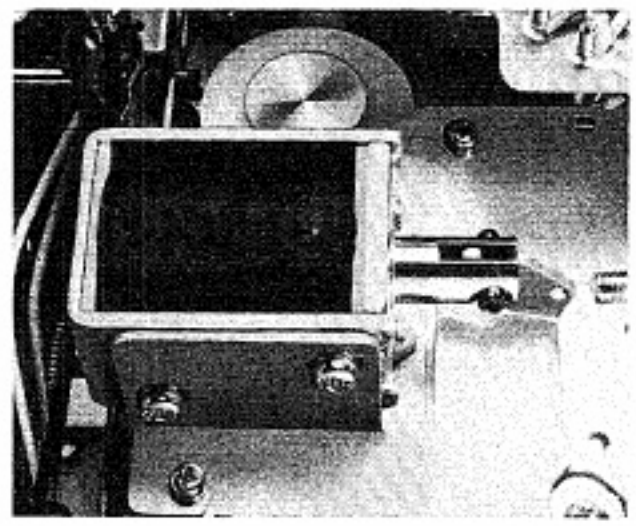


Photo 6

9.6 PLAY SWITCH (Fig. 19)

1. Place mechanism in Stop mode.
2. Loosen screw ③ and adjust so that space G between①and②becomes 0.1mm (±0.05mm).
3. Confirm switch operation in FF, Play and REW.

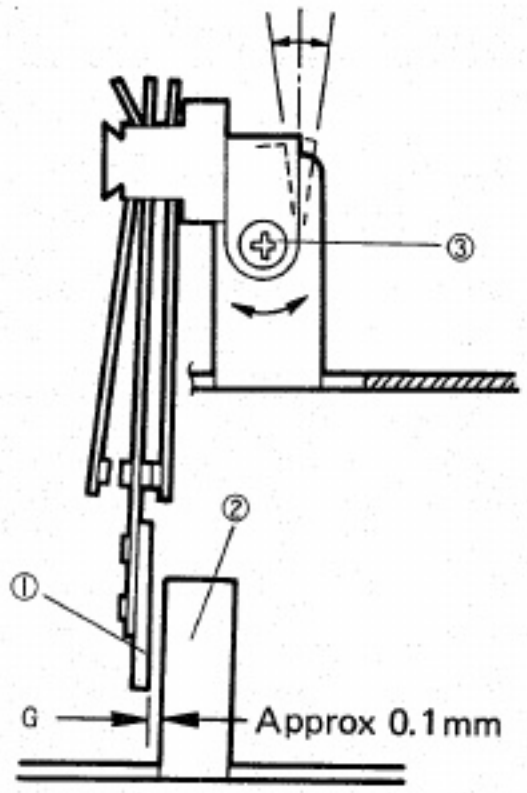


Fig. 19

9.7 REC ACTUATING LEVER (Fig. 20)

Loosen adjusting screws and position adjusting plate for 1 — 2 mm gap between REC lever and REC/PB selector switch.

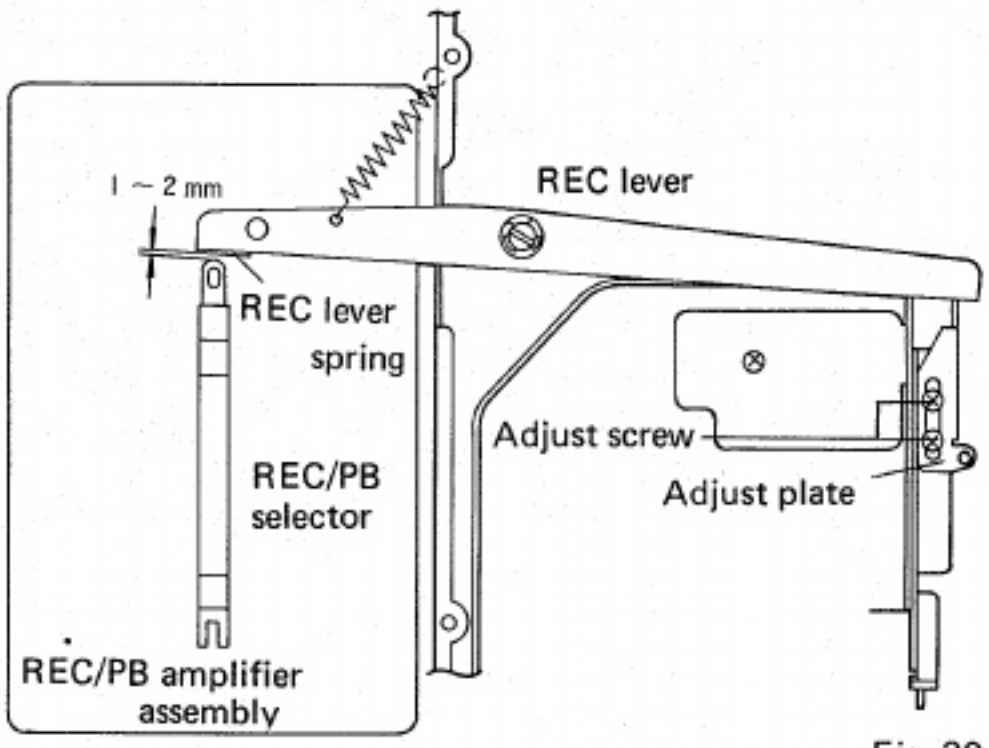


Fig. 20

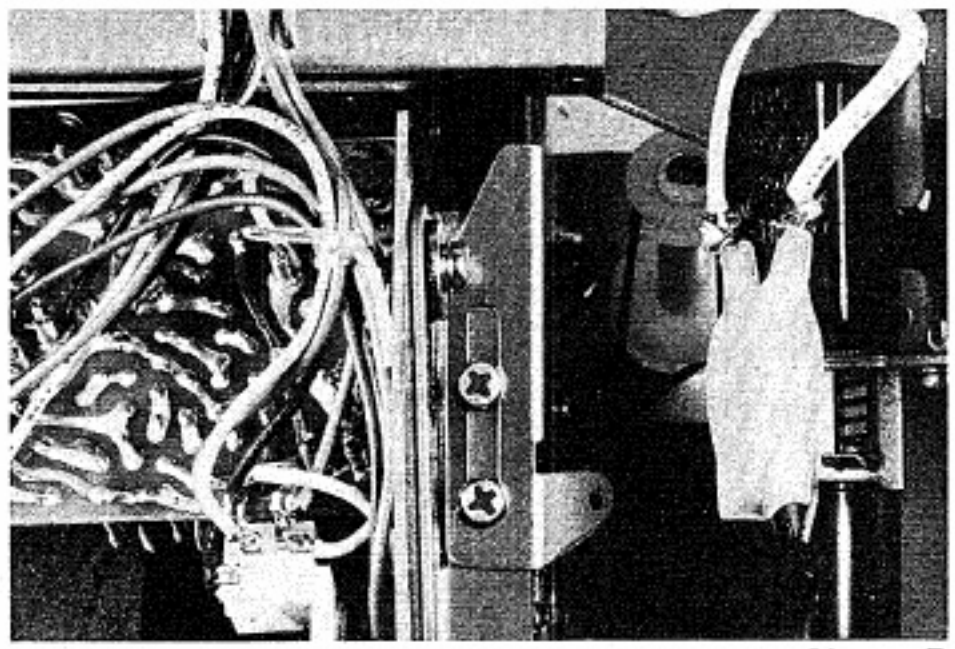


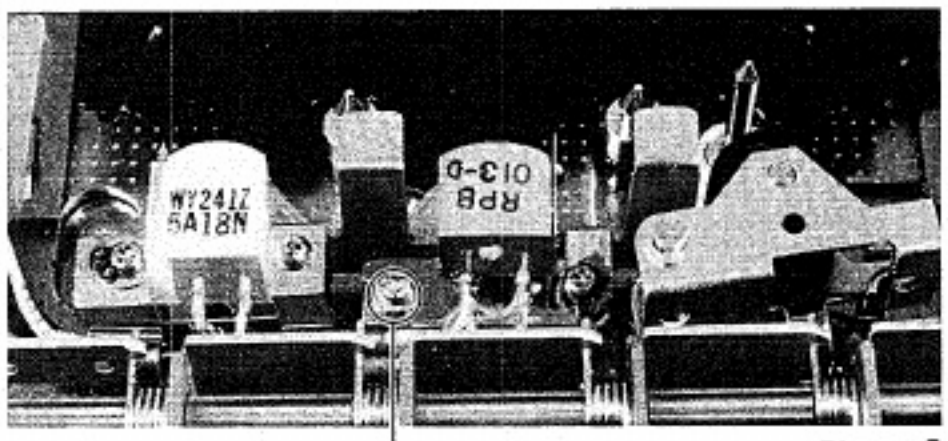
Photo 7

10. ELECTRICAL ADJUSTMENTS

The following test equipment is required for adjustments.
*mV meter (high sensitivity AC voltmeter)
*Low frequency oscillator
*Attenuator
*Oscilloscope
0 dBv = 1V Connect 50 kΩ resistor to Output jacks.

10.1 HEAD AZIMUTH

1. Set EQ selector to STD.
2. Connect mV meter to Output jacks.
3. Play test tape STD-334 10 kHz −10dB signal.
4. Adjust screw 1 for maximum mV meter indication for both left and right channels.
5. After adjusting, apply sealing compound to screw ① to prevent loosening.



① Adjusting screw

Photo 8

10.2 PLAYBACK EQUALIZER (Fig. 22)

1. Set EQ selector to Chrome.
2. Connect mV meter to Output jacks.
3. Set VR101 and VR102 of rec/play amplifier board to maximum.
4. Play test tape STD-334 333Hz −20dB signal.
5. Adjust VR115 and VR116 for −20dBv indication on mV meter.
6. Play 6.3kHz −20dB signal of test tape.
7. Adjust VR103 (L ch) and VR104 (R ch) for −24.5dBv indication on mV meter.
8. Set EQ selector to STD.
9. In the same manner as Steps 4 and 6, play 333Hz and 6.3kHz.
10. Confirm that when 6.3kHz is played, the mV meter indicates −20dBv ±1dB. If not within this rating, adjust by changing the connection of the printed circuit board marked A, B. (in Fig. 22). After adjusting, set VR115 and VR116 to maximum (clockwise as viewed from pattern surface).

10.3 PLAYBACK LEVEL

1. Connect mV meter to TP_1 (L) and TP_1 (R) of rec/play amplifier board.
2. Set Dolby NR switch to ON.
3. Play test tape STD-334 333Hz 0dB signal.
4. Adjust VR101 (L ch) and VR102 (R ch) for −0.2dBv indication on mV meter.

10.4 LEVEL METER CALIBRATION

1. Connect mV meter to TP_1 (Lch) and TP_1 (R ch) of rec/play amplifier board.
2. Apply 333Hz −10dBv signal to Input jacks and set in recording mode.
3. Adjust Input Level controls (VR1 & VR2) for Perform −4.2dBv indication on mV meter.
4. Adjust VR111 (L ch) and VR112 (R ch) for 0 indication on level meters.

10.5 RECORDING CURRENT

*This adjustment is performed with the tape bias current cut-off. By opening the solder connection in the copper foil (shown * in Fig. 21), power is not supplied to the oscillator circuit, thus interrupting the bias current.

1. Select recording mode, and apply 333Hz −10dBv signal to Input jacks.
2. Adjust Input Level controls for −7dBv level at the monitor output (Output jacks).
3. Connect mV meter between terminals 3 & 5 (L ch) and 4 & 6 (R ch) of rec/play amplifier board.
4. Set EQ selector to STD.
5. Adjust VR109 (L ch) and VR110 (R ch) for 0.35mV (=35μA) indication on mV meter.

10.6 RECORDING BIAS

1. Select recording mode, and turn Input level controls to minimum.
2. Set bias Selector to STD.
3. Connect mV meter between rec/play amplifier board terminals 3 & 5 (L ch) and 4 & 6 (R ch).
4. Adjust VR113 (L ch) and VR114 (R ch) for 6.5mV (=650μA) indication on mV meter.

CONTENTS

1. SPECIFICATIONS 3
2. FRONT PANEL FACILITIES 4
3. CONNECTION DIAGRAM 6
4. BLOCK DIAGRAM 7
5. LEVEL DIAGRAM 9
6. CIRCUIT DESCRIPTIONS
   - 6.1 Recording and Playback Circuit 10
   - 6.2 Auto Stop Circuit 12
   - 6.3 Power Supply Circuit 13
   - 6.4 Muting Circuit 13
7. DISASSEMBLY
   - Part 1 14
   - Part 2 15
   - Part 3 16
8. PARTS LOCATIONS
   - 8.1 Front View 17
   - 8.2 Front View with Panel Removed 18
   - 8.3 Top View 19
   - 8.4 Rear Panel View (NB, KCU model) 20
   - 8.5 Rear Panel View (DV, DP model) 21
   - 8.6 Bottom View 22
9. MECHANICAL ADJUSTMENTS
   - 9.1 Pinch Roller Pressure 23
   - 9.2 Tape Speed 23
   - 9.3 Reel Hab Torque 24
   - 9.4 Muting Switch 25
   - 9.5 Solenoid Operation 25
   - 9.6 Play Switch 26
   - 9.7 Rec Actuating Lever 26
10. ELECTRICAL ADJUSTMENTS
   - 10.1 Head Azimuth 27
   - 10.2 Playback Equalizer 27
   - 10.3 Playback Level 27
   - 10.4 Level Meter Calibration 27
   - 10.5 Recording Current 27

10.7 BIAS TRAP

1. Select recording mode, and turn Input Level controls to minimum.
2. Connect mV meter and oscilloscope to rec/play amplifier board terminals TP_3 (L ch) and TP_3 (R ch).
3. Adjust L107 (L ch) and L108 (R ch) for minimum bias waveform amplitude.
4. Set Bias selector to Chrome.
5. Connect mV meter to TP2
6. Adjust L101 (L ch) and L102 (R ch) for minimum indication on mV meter.

10.8 RECORD/PLAYBACK FREQUENCY RESPONSE

*Perform by fine adjustment of bias current.

1. Set EQ selector to STD.
2. Select recording mode, and apply 333Hz −30dBv signal to Input jacks.
3. Adjust Input Level controls for −27dBv at monitor output (output jacks).
4. Record with STD-601 tape.
5. Record 6.3kHz at the same level.
6. Play tape and adjust VR113 (L ch) and VR114 (R ch) to obtain the same level at both 333Hz and 6.3kHz.
7. Record and play back up to 12kHz and confirm that frequency response is within specifications.
8. Set EQ and Bias selectors to Chrome.
9. Employ STD-602 tape and confirm that recording and playback frequency response is within specifications.
10. With Dolby NR switch ON, confirm that specifications are met at each tape position.
11. Check distortion and confirm that bias is not shallow.

*Recording Equalizer

Peaking coils (L103 — L106) normally do not require adjustment. However, if frequency response is not improved by bias adjustment, measure recording amplifier frequency response and confirm that peak is in the vicinity of 12.5kHz with STD and 15kHz with Chrome. Adjust the peaking coils only if the frequency deviation is large.

10.9 RECORDING LEVEL

1. Set EQ and Bias selectors to STD.
2. Connect mV meter to TP_1 (L) and TP_1 (R) of REC/PB amplifier assembly.
3. Select recording mode, and apply 333Hz −10dBv signal to Input jacks.
4. Adjust Input Level controls for −4.2dBv indication on mV meter.
5. Record with STD-601.
6. Record and playback several times. Adjust VR109 (L) and VR110 (R) for −4.2dBv indication on mV meter.
7. Set EQ and Bias selectors to Chrome.
8. In the same manner as for STD, record on STD-602A tape.
9. Play tape and confirm mV meter indication of −4.2dBv ±1.5dB.

10.10 DOLBY PROCESSOR

1. Connect mV meter to TP_1 (L) and TP_1 (R) of rec/play amplifier board.
2. Set Dolby NR switch to ON.
3. Set VR105 (L) and VR106 (R) of REC/PB amplifier assembly to maximum.
4. In recording mode, apply 5kHz signal to Input jacks.
5. Adjust Input Level controls for −2.2dBv indication on mV meter.
6. Reduce Input level by 40dB (with respect to Step 4).
7. Adjust VR107 (L) and VR108 (R) for −32.2dBv indication on mV meter.
8. Reduce input level by 30dB with respect to Step 4.
9. Adjust VR105 (L) and VR106 (R) for −28.2dBv indication on mV meter.

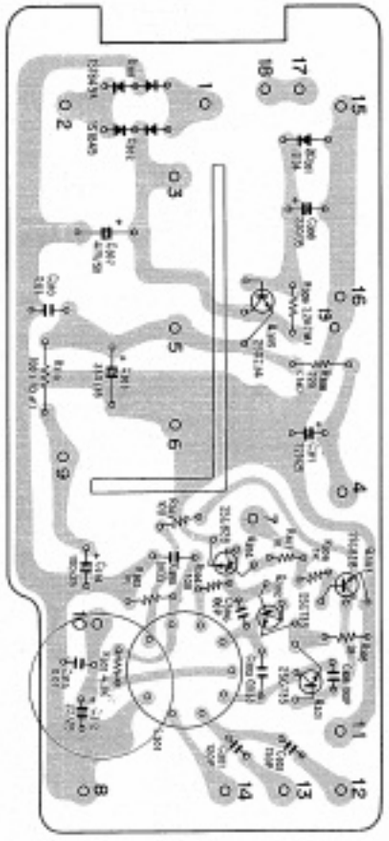


Fig. 21

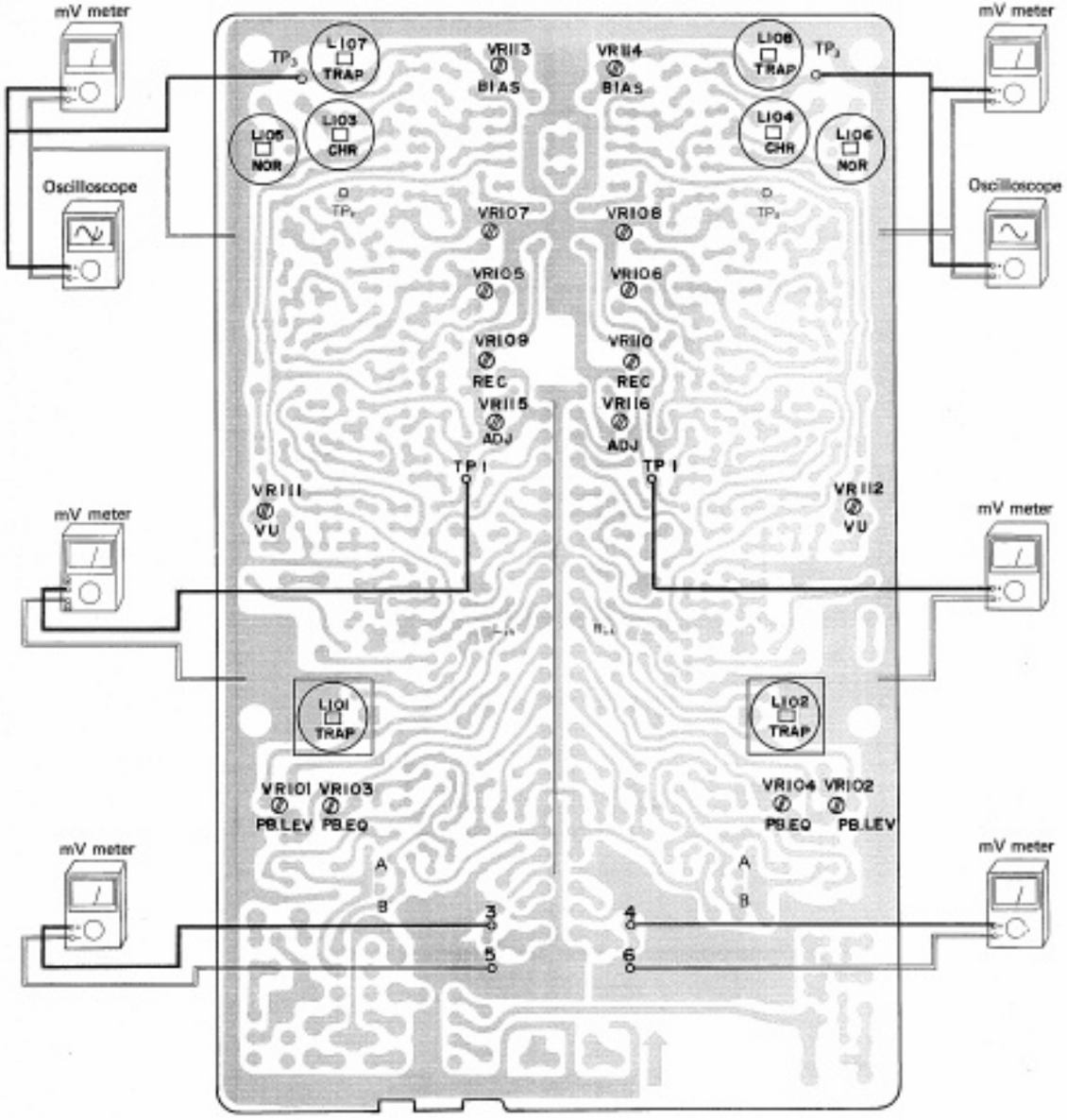
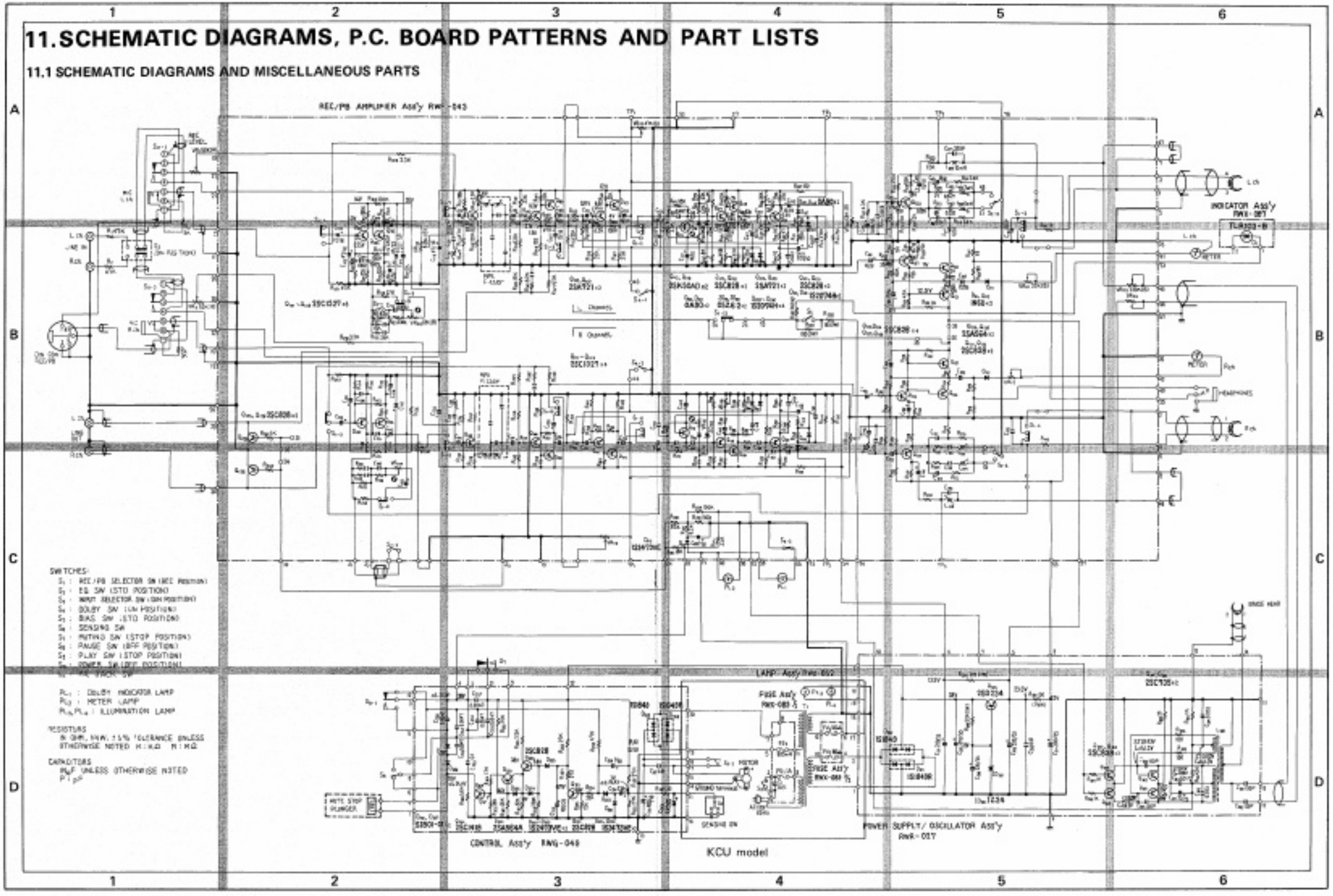

mV meter
mV meter
Oscilloscope
Oscilloscope
mV meter
mV meter
mV meter
mV meter
L107 TRAP
L103 CHR
L105 NOR
L108 TRAP
L104 CHR
L106 NOR
L101 TRAP
L102 TRAP
TP3
TP1
VR113 BIAS
VR114 BIAS
VR107
VR108
VR105
VR106
VR109 REC
VR110 REC
VR115 ADJ
VR116 ADJ
VR111 VU
VR112 VU
VR101 VR103 PB.LEV PB.EQ
VR104 VR102 PB.EQ PB.LEV
A
B
3
5
4
6

Fig. 22

11. SCHEMATIC DIAGRAMS, P.C. BOARD PATTERNS AND PART LISTS

11.1 SCHEMATIC DIAGRAMS AND MISCELLANEOUS PARTS



NOTE:
- *Capacitors: in μF unless otherwise noted p:pF*
- *Resistors: in Ω, ¼W unless otherwise noted k:kΩ, M:MΩ*

MAIN PARTS

Symbol	Description	Part No.
	Solenoid (auto stop)	RXP-033
	Power transformer (KCU model)	RTT-067
	(NB model)	RTT-071
	(DV, DP model)	RTT-068

SWITCHES

Symbol	Description	Part No.
S1	Switch (REC/PB selector)	RSH-017
S2,S4,S5	Switch	RSG-031
S3	Switch (input selector)	RSH-016
S6	Switch (sensing switch)	RSX-037
S7	Muting switch	RSN-005
S8	Switch (PAUSE switch)	RSF-014
S9	Switch (play)	RSN-002
S10	Switch (power) KCU model	RSA-010
S11	Switch (power) DV, NB, DP model	RSA-015

PILOT LAMP

Symbol	Description	Part No.
PL1	Lamp (Dolby)	REL-030
PL2	Lamp (meter)	REL-030
PL3, PL4	Cassette compartment	REL-007

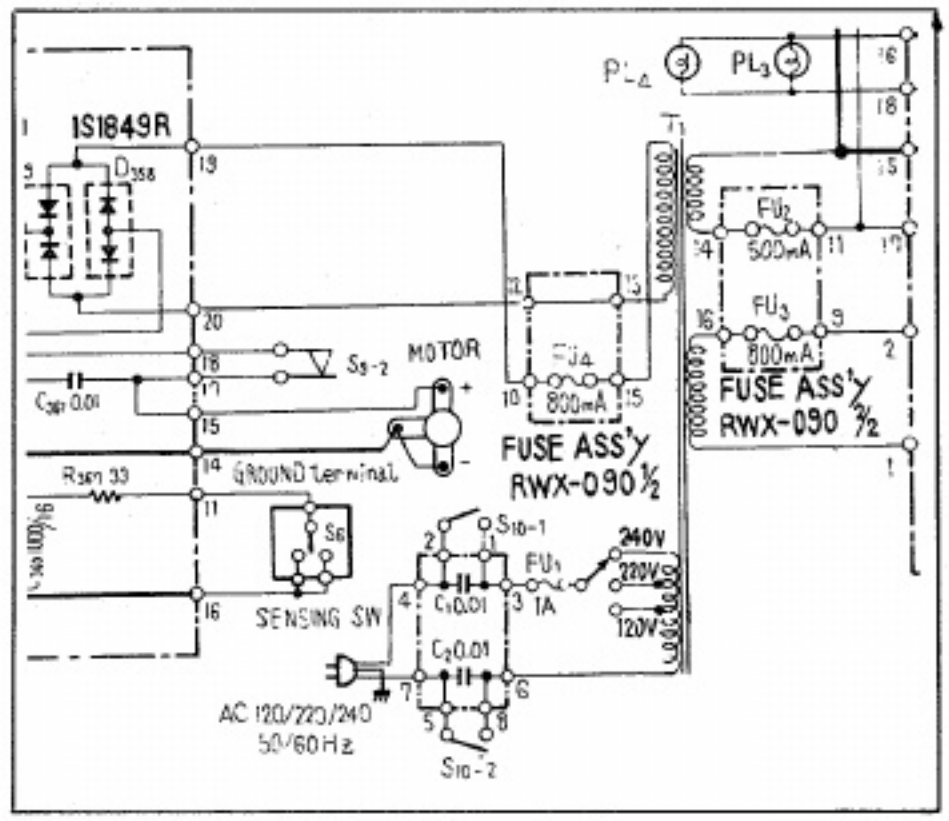
RESISTORS

Symbol	Description	Part No.
R1	Carbon film 47k	RD¼PS 473J
R2	Carbon film 47k	RD¼PS 473J
R3	Carbon film 3k	RD¼PS 302K
R4	Carbon film 3k	RD¼PS 302K
VR1,VR2	Variable resistor (input)	RCV-022

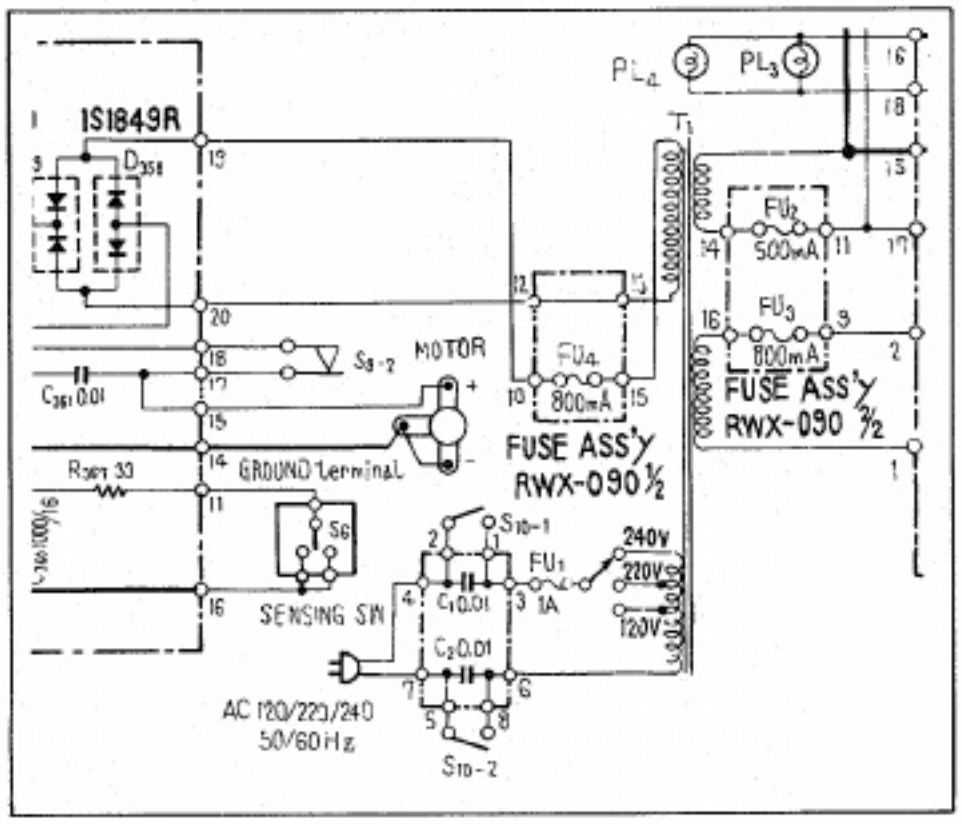
CAPACITORS

Symbol	Description	Part No.
C1	Ceramic 0.01	C43-003

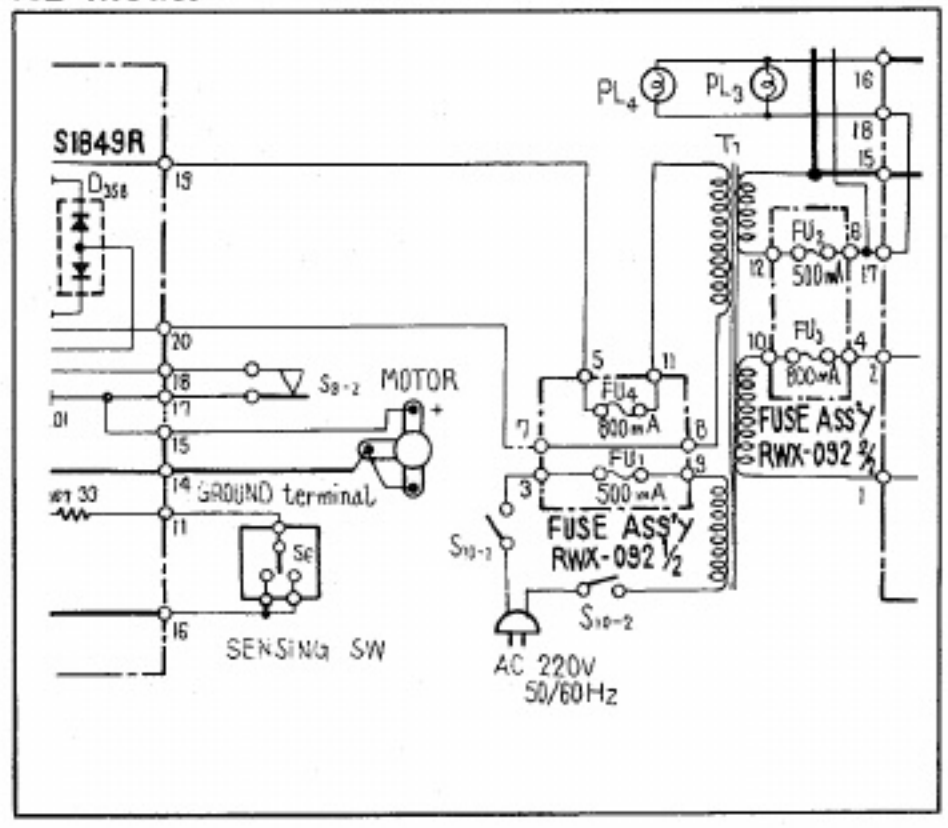
DP model



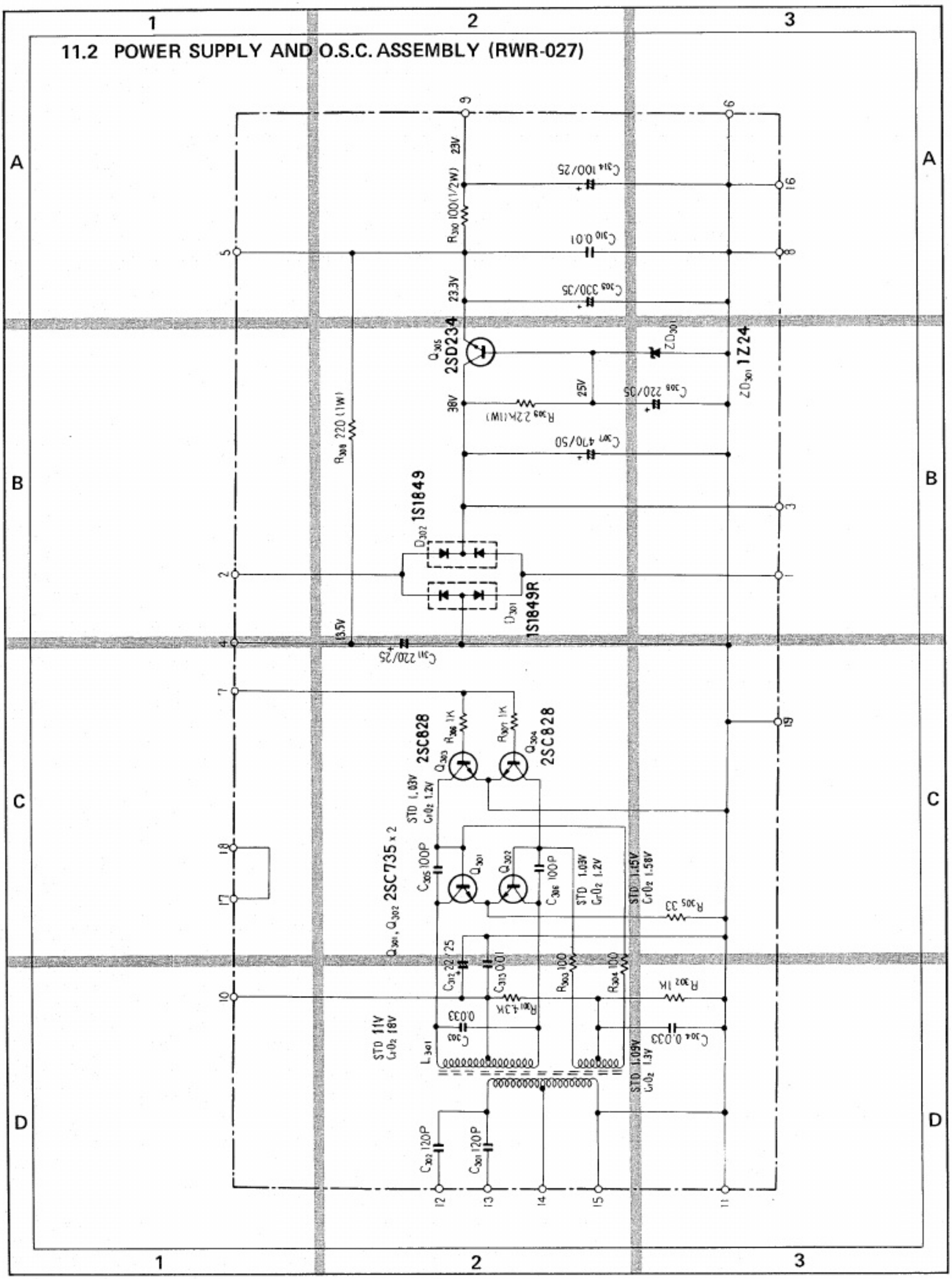
DV model

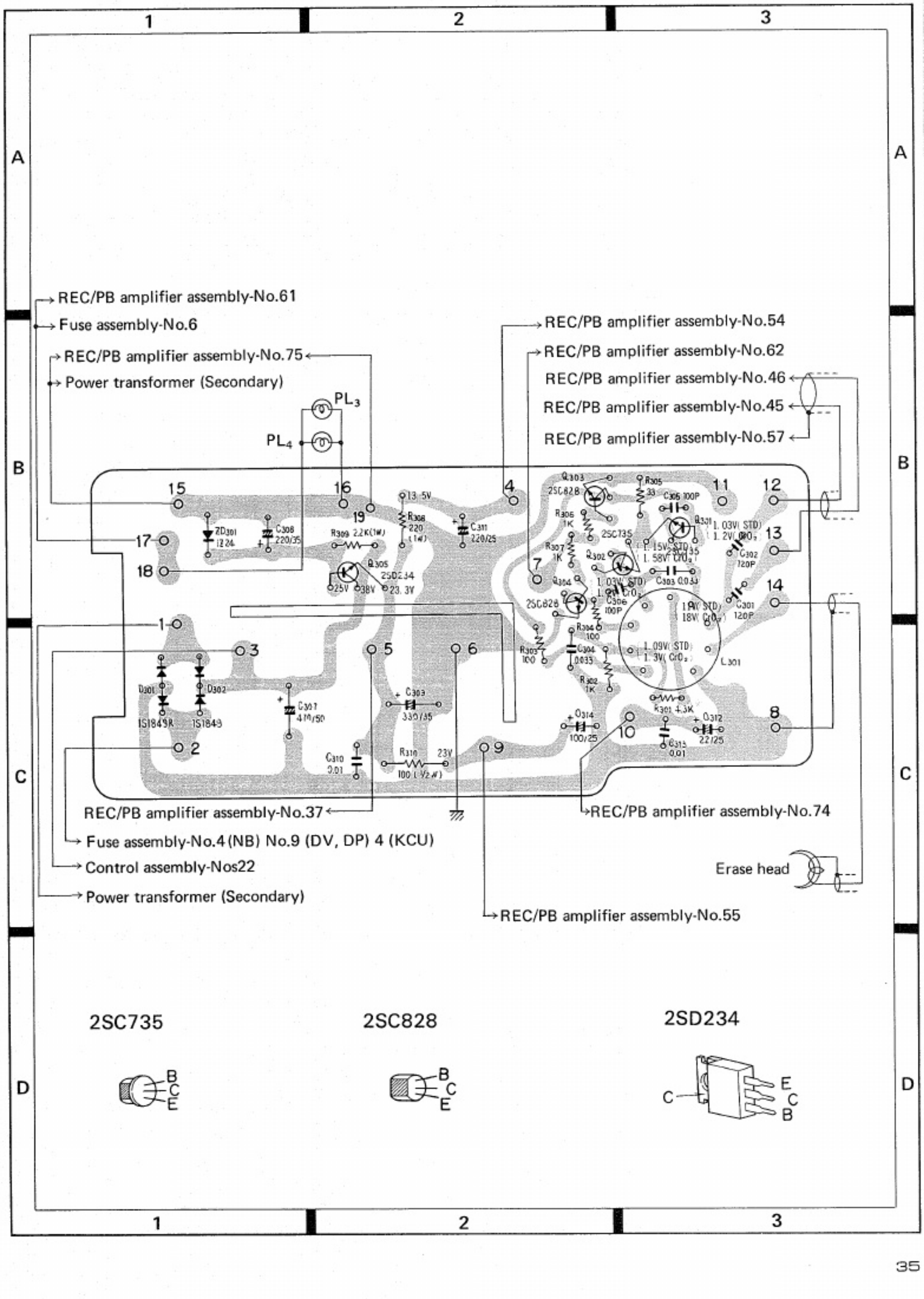


NB model



11.2 POWER SUPPLY AND O.S.C. ASSEMBLY (RWR-027)




1
2
3
A
B
C
D
REC/PB amplifier assembly-No.61
Fuse assembly-No.6
REC/PB amplifier assembly-No.75
Power transformer (Secondary)
PL3
PL4
REC/PB amplifier assembly-No.54
REC/PB amplifier assembly-No.62
REC/PB amplifier assembly-No.46
REC/PB amplifier assembly-No.45
REC/PB amplifier assembly-No.57
ZD301 12Z4
C308 220/35
R309 2.2K(1W)
R308 220 (1W)
13.5V
C311 220/25
Q305 2SD234
25V
38V
23.3V
Q303 2SC828
R305 33
C305 100P
R306 1K
Q301 2SC735
1.03V(STD)
1.2V(CrO2)
R307 1K
Q302
1.15V(STD)
1.58V(CrO2)
C302 120P
Q304 2SC828
C303 0.033
C306 100P
1.03V(STD)
1.2V(CrO2)
C301 120P
1.09V(STD)
1.3V(CrO2)
L301
R304 100
R303 100
C304 0.033
R302 1K
R301 4.3K
C314 100/25
C312 22/25
C315 0.01
D301 IS1849R
D302 IS1849
C307 470/50
C309 330/35
C310 0.01
R310 100 (1/2W)
23V
REC/PB amplifier assembly-No.37
Fuse assembly-No.4 (NB) No.9 (DV, DP) 4 (KCU)
Control assembly-Nos22
Power transformer (Secondary)
REC/PB amplifier assembly-No.74
Erase head
REC/PB amplifier assembly-No.55
2SC735
2SC828
2SD234
B
C
E
C
E
B
C
E
C
B

Parts List of Power Supply and O.S.C. Assembly (RWR-027)

CAPACITORS

Symbol	Description			Part No.
C301	Styrol	120p	50V	RCE-009-0
C302	Styrol	120p	50V	RCE-009-0
C303	Mylar	0.033	50V	CQMA 333K 50
C304	Mylar	0.033	50V	CQMA 333K 50
C305	Ceramic	100p	50V	CCDSL 101K 50
C306	Ceramic	100p	50V	CCDSL 101K 50
C307	Electrolytic	470	50V	CEA 471P 50
C308	Electrolytic	220	35V	CEA 221P 35
C309	Electrolytic	330	35V	CEA 331P 35
C310	Mylar	0.01	50V	CQMA 103K 50
C311	Electrolytic	220	25V	CEA 221P 25
C312	Electrolytic	22	25V	CEA 220P 25
C313	Mylar	0.01	50V	CQMA 103K 50
C314	Electrolytic	100	25V	CEA 101P 25

RESISTORS

Symbol	Description			Part No.
R301	Carbon film	4.3k		RD¼VS 432J
R302	Carbon film	1k		RD¼VS 102J
R303	Carbon film	100		RD¼VS 101J
R304	Carbon film	100		RD¼VS 101J
R305	Carbon film	33		RD¼VS 330J
R306	Carbon film	1k		RD¼VS 102J
R307	Carbon film	1k		RD¼VS 102J
R308	Metal oxide	220	1W	RS1PSF 221K
R309	Metal oxide	2.2k	1W	RS1PSF 222K
R310	Metal oxide	100	½W	RS½PSF 101K

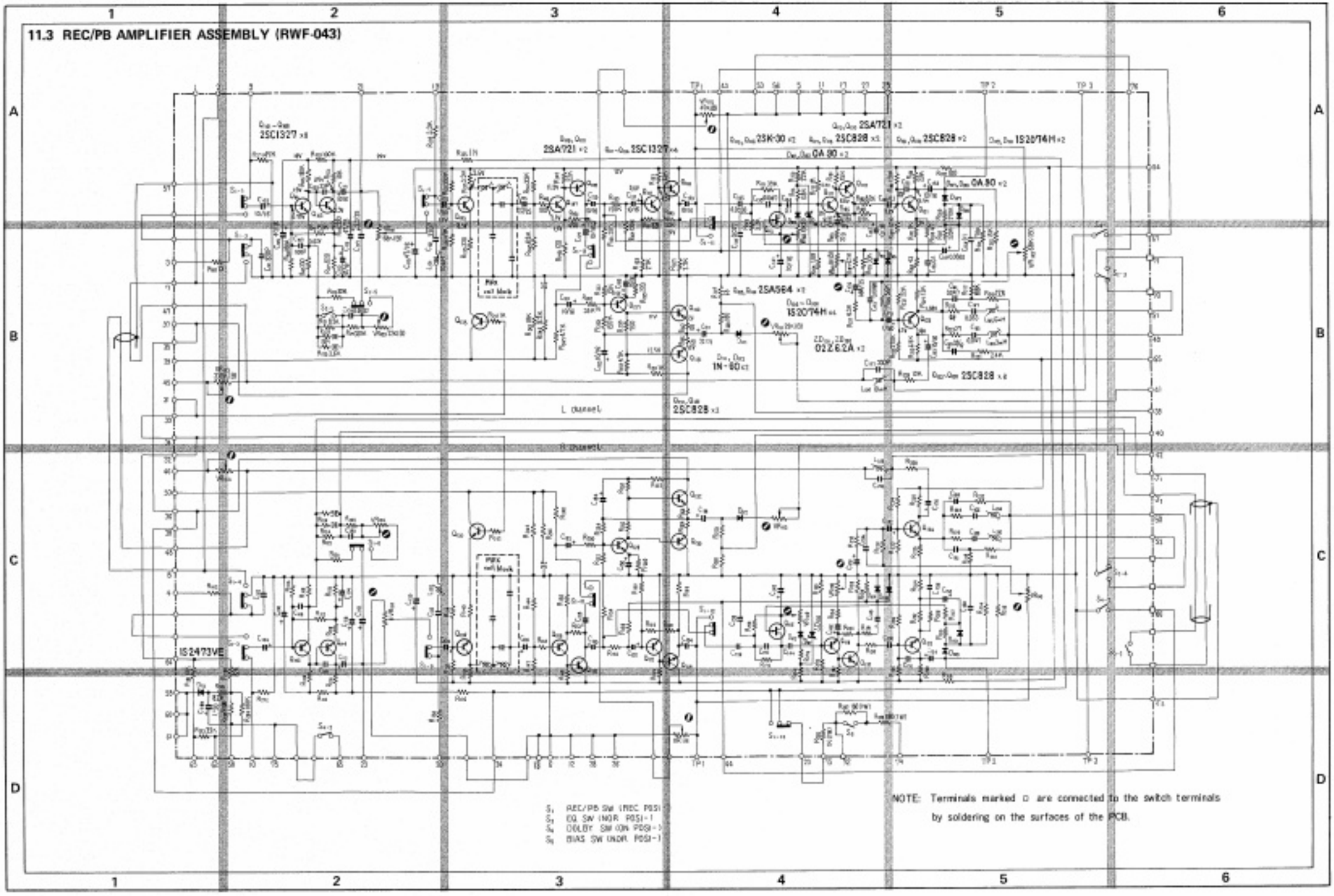
SEMICONDUCTORS

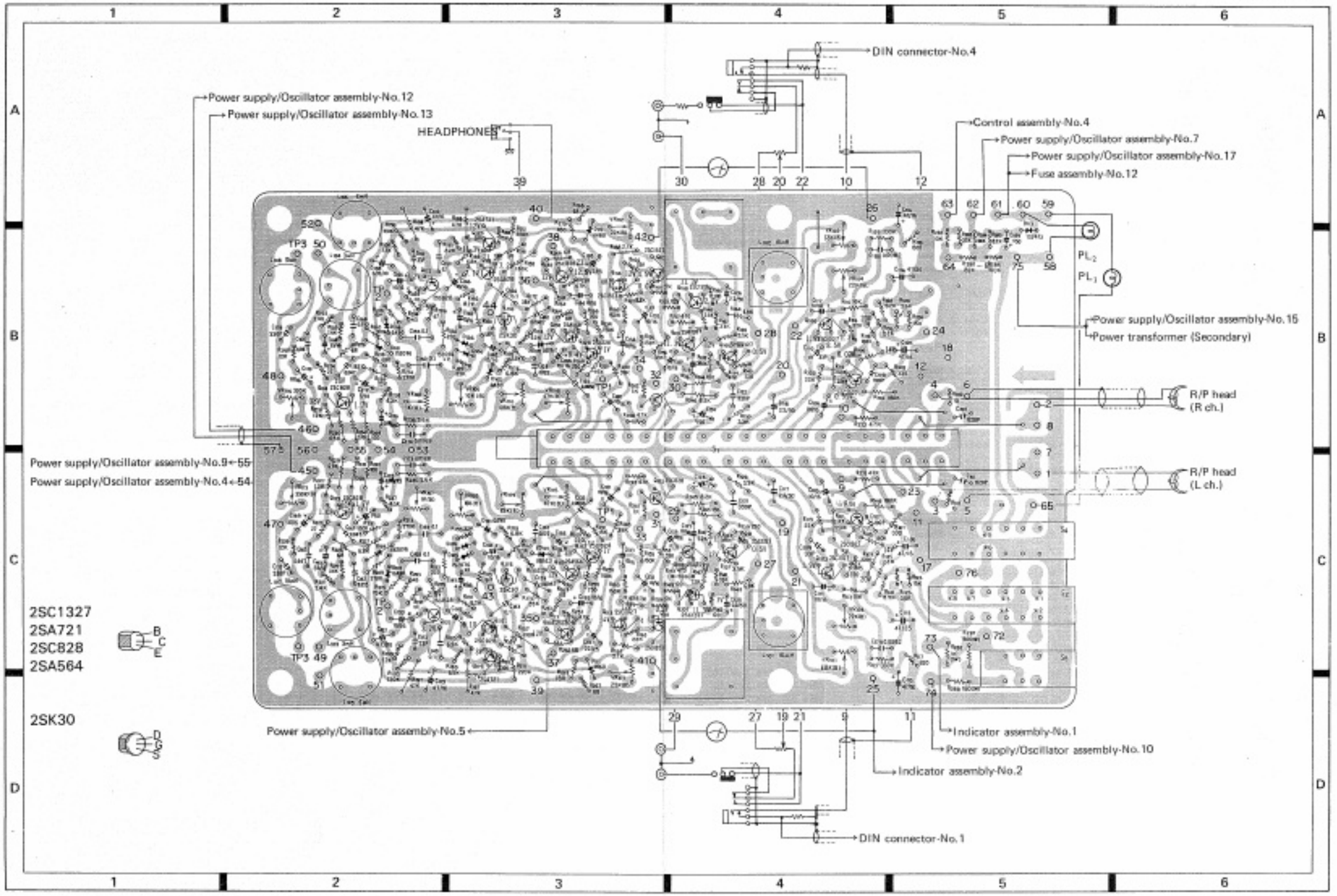
Symbol	Description	Part No.
Q301	Transistor	2SC735-Y
Q302	Transistor	2SC735-Y
Q303	Transistor	2SC828-R
Q304	Transistor	2SC828-R
Q305	Transistor	2SD234-O
D301	Diode	1S1849R
D302	Diode	1S1849
ZD301	Zener	1Z24

COIL

Symbol	Description	Part No.
L301	Oscillator coil	T64-001

11.3 REC/PB AMPLIFIER ASSEMBLY (RWF-043)




DIN connector-No.4
Power supply/Oscillator assembly-No.12
Power supply/Oscillator assembly-No.13
HEADPHONES
Control assembly-No.4
Power supply/Oscillator assembly-No.7
Power supply/Oscillator assembly-No.17
Fuse assembly-No.12
PL2
PL1
Power supply/Oscillator assembly-No.16
Power transformer (Secondary)
R/P head (R ch.)
R/P head (L ch.)
Power supply/Oscillator assembly-No.9←55
Power supply/Oscillator assembly-No.4←54
Power supply/Oscillator assembly-No.5←
Indicator assembly-No.1
Power supply/Oscillator assembly-No.10
Indicator assembly-No.2
DIN connector-No.1
2SC1327
2SA721
2SC828
2SA564
2SK30
B
C
E
D
G
S

Parts List of REC/PB Amplifier Assembly (RWF-043)

CAPACITORS

Symbol	Description			Part No.
C101	Styrol	820p	50V	RCE-022
C102	Styrol	820p	50V	RCE-022
C103	Electrolytic	10	16V	RCH-018
C104	Electrolytic	10	16V	RCH-018
C105	Electrolytic	47	16V	CEA 470P 16
C106	Electrolytic	47	16V	CEA 470P 16
C107	Styrol	100p	50V	RCE-003
C108	Styrol	100p	50V	RCE-003
C109	Styrol	33p	50V	RCE-016
C110	Styrol	33p	50V	RCE-016
C111	Electrolytic	10	16V	CEA 100P 16
C112	Electrolytic	10	16V	CEA 100P 16
C113	Electrolytic	47	16V	CEA 470P 16
C114	Electrolytic	47	16V	CEA 470P 16
C115	Electrolytic	47	25V	CEA 470P 25
C116	Electrolytic	47	25V	CEA 470P 25
C117	Electrolytic	2.2	50V	RCH-024
C118	Electrolytic	2.2	50V	RCH-024
C119	Electrolytic	47	16V	CEA 470P 16
C120	Electrolytic	47	16V	CEA 470P 16
C121	Styrol	330p	50V	RCE-008
C122	Styrol	330p	50V	RCE-008
C123	Electrolytic	1	50V	CEA 010P 50
C124	Electrolytic	1	50V	CEA 010P 50
C125	Electrolytic	2.2	50V	CEA 2R2P 50
C126	Electrolytic	2.2	50	CEA 2R2P 50
C127	Electrolytic	10	16	CEA 100P 16
C128	Electrolytic	10	16	CEA 100P 16
C129	Electrolytic	10	16	CEA 100P 16
C130	Electrolytic	10	16	CEA 100P 16
C131	Electrolytic	10	16	CEA 100P 16
C132	Electrolytic	10	16	CEA 100P 16
C133	Electrolytic	10	16	CEA 100P 16
C134	Electrolytic	10	16	CEA 100P 16
C135	Mylar	0.0056	50V	CQMA 562K 50
C136	Mylar	0.0056	50V	CQMA 562K 50
C137	Mylar	0.027	50V	CQMA 273K 50
C138	Mylar	0.027	50V	CQMA 273K 50
C139	Mylar	0.0047	50V	CQMA 472K 50
C140	Mylar	0.0047	50V	CQMA 472K 50
C141	Electrolytic	10	16V	CEA 100P 16
C142	Electrolytic	10	16V	CEA 100P 16
C143	Mylar	0.1	50V	CQMA 104K 50
C144	Mylar	0.1	50V	CQMA 104K 50
C145	Electrolytic	10	16V	CEA 100P 16
C146	Electrolytic	10	16V	CEA 100P 16
C147	Electrolytic	10	16V	CEA 100P 16
C148	Electrolytic	10	16V	CEA 100P 16
C149	Mylar	0.1	50V	CQMA 104K 50
C150	Mylar	0.1	50V	CQMA 104K 50
C151	Styrol			RCE-016
C152	Styrol			RCE-016
C153	Electrolytic	10	16V	CEA 100P 16
C154	Electrolytic	10	16V	CEA 100P 16
C155	Mylar	0.1	50V	CQMA 104K 50
C156	Mylar	0.1	50V	CQMA 104K 50
C157	Electrolytic	0.33	10V	CSSA R33M 10
C158	Electrolytic	0.33	10V	CSSA R33M 10
C159	Mylar	0.1	50V	CQMA 104K 50
C160	Mylar	0.1	50V	CQMA 104K 50
C161	Mylar	0.047	50V	CQMA 473K 50
C162	Mylar	0.047	50V	CQMA 473K 50
C163	Electrolytic	33	16V	CEA 330P 16
C164	Electrolytic	33	16V	CEA 330P 16
C165	Mylar	0.047	50V	CQMA 473K 50
C166	Mylar	0.047	50V	CQMA 473K 50
C167	Mylar	0.033	50V	CQMA 333K 50
C168	Mylar	0.033	50V	CQMA 333K 50
C169	Electrolytic	10	16V	CEA 100P 16
C170	Electrolytic	10	16V	CEA 100P 16
C171	Electrolytic	1	50V	CEA 010P 50
C172	Electrolytic	1	50V	CEA 010P 50
C173	Mylar	0.0068	50V	CQMA 682K 50
C174	Mylar	0.0068	50V	CQMA 682K 50
C175	Electrolytic	0.68	25V	CSSA R68M 25
C176	Electrolytic	0.68	25V	CSSA R68M 25
C177	Styrol	330	50V	RCE-008
C178	Styrol	330	50V	RCE-008
C179	Mylar	0.0082	50V	CQMA 822K 50
C180	Mylar	0.0082	50V	CQMA 822K 50
C181	Electrolytic	10	16V	CEA 100P 16
C182	Electrolytic	10	16V	CEA 100P 16
C183	Electrolytic	10	16V	CEA 100P 16
C184	Electrolytic	10	16V	CEA 100P 16
C185	Electrolytic	10	16V	CEA 100P 16
C186	Electrolytic	10	16V	CEA 100P 16
C187	Electrolytic	22	25V	CEA 220P 25
C188	Electrolytic	22	25V	CEA 220P 25
C189	Electrolytic	1	50V	CEA 010P 50

RESISTORS

Symbol	Description		Part No.
VR101	Semi-fixed	68kΩ	RCP-013
VR102	Semi-fixed	68kΩ	RCP-013
VR103	Semi-fixed	22kΩ-B	C92-857
VR104	Semi-fixed	22kΩ-B	C92-857
VR105	Semi-fixed	10k-B	C92-049

Symbol	Description		Part No.
VR106	Semi-fixed	10k-B	C92-049
VR107	Semi-fixed	1kΩ	C92-404
VR108	Semi-fixed	1kΩ	C92-404
VR109	Semi-fixed	68k	RCP-013
VR110	Semi-fixed	68k	RCP-013
VR111	Semi-fixed	22k-B	C92-857
VR112	Semi-fixed	22k-B	C92-857
VR113	Semi-fixed	330k-B	RCP-021
VR114	Semi-fixed	330k-B	RCP-021
VR115	Semi-fixed		C92-048
VR116	Semi-fixed		C92-048
R101	Carbon film	10	RD¼VS 100J
R102	Carbon film	10	RD¼VS 100J
R103	Carbon film	180k	RD¼VS 184J
R104	Carbon film	180k	RD¼VS 184J
R105	Carbon film	180k	RD¼VS 184J
R106	Carbon film	180k	RD¼VS 184J
R107	Carbon film	330	RD¼VS 331J
R108	Carbon film	330	RD¼VS 331J
R109	Carbon film	100k	RD¼VS 104J
R110	Carbon film	100k	RD¼VS 104J
R111	Carbon film	150k	RD¼VS 154J
R112	Carbon film	150k	RD¼VS 154J
R113	Carbon film	10k	RD¼VS 103J
R114	Carbon film	10k	RD¼VS 103J
R115	Carbon film	220	RD¼VS 221J
R116	Carbon film	220	RD¼VS 221J
R117	Carbon film	820	RD¼VS 821J
R118	Carbon film	820	RD¼VS 821J
R119	Carbon film	22k	RD¼VS 223J
R120	Carbon film	22k	RD¼VS 223J
R121	Carbon film	8.2k	RD¼VS 822J
R122	Carbon film	8.2k	RD¼VS 822J
R123	Carbon film	15k	RD¼VS 153J
R124	Carbon film	15k	RD¼VS 153J
R125	Carbon film	3.6k	RD¼VS 362J
R126	Carbon film	3.6k	RD¼VS 362J
R127	Carbon film	330k	RD¼VS 334J
R128	Carbon film	330k	RD¼VS 334J
R129	Carbon film	3.3k	RD¼VS 332J
R130	Carbon film	3.3k	RD¼VS 332J
R131	Carbon film	390k	RD¼VS 394J
R132	Carbon film	390k	RD¼VS 394J
R133	Carbon film	47k	RD¼VS 473J
R134	Carbon film	47k	RD¼VS 473J
R135	Carbon film	1k	RD¼VS 102J
R136	Carbon film	1k	RD¼VS 102J
R137	Carbon film	3.3k	RD¼VS 332J
R138	Carbon film	3.3k	RD¼VS 332J
R139	Carbon film	220	RD¼VS 221J
R140	Carbon film	220	RD¼VS 221J

Symbol	Description		Part No.
R141	Carbon film	33k	RD¼VS 333J
R142	Carbon film	33k	RD¼VS 333J
R143	Carbon film	6.8k	RD¼VS 682J
R144	Carbon film	6.8k	RD¼VS 682J
R145	Carbon film	100	RD¼VS 101J
R146	Carbon film	100	RD¼VS 101J
R147	Carbon film	2.2k	RD¼VS 222J
R148	Carbon film	2.2k	RD¼VS 222J
R149	Carbon film	120	RD¼VS 121J
R150	Carbon film	120	RD¼VS 121J
R151	Carbon film	470	RD¼VS 471J
R152	Carbon film	470	RD¼VS 471J
R153	Carbon film	33k	RD¼VS 333J
R154	Carbon film	33k	RD¼VS 333J
R155	Carbon film	150k	RD¼VS 154J
R156	Carbon film	150k	RD¼VS 154J
R157	Carbon film	130k	RD¼VS 134J
R158	Carbon film	130k	RD¼VS 134J
R159	Carbon film	27k	RD¼VS 273J
R160	Carbon film	27k	RD¼VS 273J
R161	Carbon film	8.2k	RD¼VS 822J
R162	Carbon film	8.2k	RD¼VS 822J
R163	Carbon film	22k	RD¼VS 223J
R164	Carbon film	22k	RD¼VS 223J
R165	Carbon film	150k	RD¼VS 154J
R166	Carbon film	150k	RD¼VS 154J
R167	Carbon film	2.2k	RD¼VS 222J
R168	Carbon film	2.2k	RD¼VS 222J
R169	Carbon film	3.3k	RD¼VS 332J
R170	Carbon film	3.3k	RD¼VS 332J
R171	Carbon film	39k	RD¼VS 393J
R172	Carbon film	39k	RD¼VS 393J
R173	Carbon film	2.2k	RD¼VS 222J
R174	Carbon film	2.2k	RD¼VS 222J
R175	Carbon film	6.8k	RD¼VS 682J
R176	Carbon film	6.8k	RD¼VS 682J
R177	Carbon film	1M	RD¼VS 105J
R178	Carbon film	1M	RD¼VS 105J
R179	Carbon film	1.8M	RD¼VS 185J
R180	Carbon film	1.8M	RD¼VS 185J
R181	Carbon film	15k	RD¼VS 153J
R182	Carbon film	15k	RD¼VS 153J
R183	Carbon film	220	RD¼VS 221J
R184	Carbon film	220	RD¼VS 221J
R185	Carbon film	6.8k	RD¼VS 682J
R186	Carbon film	6.8k	RD¼VS 682J
R187	Carbon film	4.7k	RD¼VS 472J
R188	Carbon film	4.7k	RD¼VS 472J
R189	Carbon film	8.2k	RD¼VS 822J
R190	Carbon film	8.2k	RD¼VS 822J
R191	Carbon film	8.2k	RD¼VS 822J

Symbol	Description		Part No.
R192	Carbon film	8.2k	RD¼VS 822J
R193	Carbon film	33k	RD¼VS 333J
R194	Carbon film	33k	RD¼VS 333J
R195	Carbon film	120k	RD¼VS 124J
R196	Carbon film	120k	RD¼VS 124J
R197	Carbon film	47k	RD¼VS 473J
R198	Carbon film	47k	RD¼VS 473J
R199	Carbon film	2.7k	RD¼VS 272J
R200	Carbon film	2.7k	RD¼VS 272J
R201	Carbon film	1k	RD¼VS 102J
R202	Carbon film	1k	RD¼VS 102J
R203	Carbon film	43	RD¼VS 430J
R204	Carbon film	43	RD¼VS 430J
R205	Carbon film	47	RD¼VS 470J
R206	Carbon film	47	RD¼VS 470J
R207	Metal oxide	100	RS¼PSF 101K
R208	Metal oxide	100	RS¼PSF 101K
R209	Carbon film	270k	RD¼VS 274J
R210	Carbon film	270k	RD¼VS 274J
R211	Carbon film	220k	RD¼VS 224J
R212	Carbon film	220k	RD¼VS 224J
R213	Carbon film	270k	RD¼VS 274J
R214	Carbon film	270k	RD¼VS 274J
R215	Carbon film	15k	RD¼VS 153J
R216	Carbon film	15k	RD¼VS 153J
R217	Carbon film	6.8k	RD¼VS 682J
R218	Carbon film	6.8k	RD¼VS 682J
R219	Carbon film	2.2k	RD¼VS 222J
R220	Carbon film	2.2k	RD¼VS 222J
R221	Carbon film	2.4k	RD¼VS 242J
R222	Carbon film	2.4k	RD¼VS 242J
R223	Carbon film	27	RD¼VS 270J
R224	Carbon film	27	RD¼VS 270J
R225	Carbon film	68	RD¼VS 680J
R226	Carbon film	68	RD¼VS 680J
R227	Carbon film	1.2k	RD¼VS 122J
R228	Carbon film	1.2k	RD¼VS 122J
R229	Carbon film	6.8k	RD¼VS 682J
R230	Carbon film	6.8k	RD¼VS 682J
R231	Carbon film	22k	RD¼VS 223J
R232	Carbon film	22k	RD¼VS 223J
R233	Carbon film	270k	RD¼VS 274J
R234	Carbon film	270k	RD¼VS 274J
R235	Carbon film	5.6k	RD¼VS 562J
R236	Carbon film	5.6k	RD¼VS 562J
R237	Carbon film	4.3k	RD¼VS 432J
R238	Carbon film	4.3k	RD¼VS 432J
R239	Carbon film	12k	RD¼VS 123J
R240	Carbon film	12k	RD¼VS 123J
R241	Carbon film	1k	RD¼VS 102J
R242	Carbon film	1k	RD¼VS 102J

Symbol	Description			Part No.
R243	Carbon film	18k		RD¼VS 183J
R244	Carbon film	18k		RD¼VS 183J
R245	Carbon film	8.2k		RD¼VS 822J
R246	Carbon film	8.2k		RD¼VS 822J
R247	Carbon film	4.7k		RD¼VS 472J
R248	Carbon film	4.7k		RD¼VS 472J
R249	Carbon film	39k		RD¼VS 393J
R250	Carbon film	39k		RD¼VS 393J
R251	Carbon film	15k		RD¼VS 153J
R152	Carbon film	15k		RD¼VS 153J
R153	Carbon film	150k		RD¼VS 154J
R154	Carbon film	150k		RD¼VS 154J
R155	Carbon film	750		RD¼VS 751J
R156	Carbon film	750		RD¼VS 751J
R157	Carbon film	4.7k		RD¼VS 472J
R158	Carbon film	4.7k		RD¼VS 472J
R159	Carbon film	220		RD¼VS 221J
R160	Carbon film	220		RD¼VS 221J
R261	Carbon film	1k		RD¼VS 102J
R262	Carbon film	1k		RD¼VS 102J
R263	Carbon film	68		RD¼VS 680J
R264	Carbon film	68		RD¼VS 680J
R265	Carbon film	68		RD¼VS 680J
R266	Carbon film	68		RD¼VS 680J
R267	Carbon film	68		RD¼VS 680J
R268	Carbon film	68		RD¼VS 680J
R269	Carbon film	180		RD¼VS 181J
R270	Carbon film	180		RD¼VS 181J
R271	Carbon film	47k		RD¼VS 473J
R272	Carbon film	47k		RD¼VS 473J
R280	Carbon film	82k		RD¼VS 823J
R281	Carbon film	10k		RD¼VS 103J
R282	Metal oxide	1k	1W	RS1PSF 102K
R283	Carbon film	33k		RD¼VS 333J
R284	Carbon film	100k		RD¼VS 104J
R285	Carbon film	8.2k		RD¼VS 822J
R286	Carbon film	910k		RD¼VS 914J
R287	Metal oxide	180	1W	RS1PSF 181K
R288	Metal oxide	180	1W	RS1PSF 181K

SEMICONDUCTORS

Symbol	Description	Part No.
Q101	Transistor	2SC1327-T
Q102	Transistor	2SC1327-T
Q103	Transistor	2SC1327-T
Q104	Transistor	2SC1327-T
Q105	Transistor	2SC1327-T
Q106	Transistor	2SC1327-T
Q107	Transistor	2SC1327-T
Q108	Transistor	2SC1327-T

Symbol	Description	Part No.
Q109	Transistor	2SA721-S
Q110	Transistor	2SA721-S
Q111	Transistor	2SC1327-T
Q112	Transistor	2SC1327-T
Q113	Transistor	2SC1327-T
Q114	Transistor	2SC1327-T
Q115	FET	2SK30-D
Q116	FET	2SK30-D
Q117	Transistor	2SC828-S
Q118	Transistor	2SC828-S
Q119	Transistor	2SA721-S
Q120	Transistor	2SA721-S
Q121	Transistor	2SC828-S
Q122	Transistor	2SC828-S
Q123	Transistor	2SC828-S
Q124	Transistor	2SC828-S
Q125	Transistor	2SC828-S
Q126	Transistor	2SC828-S
Q127	Transistor	2SC828-S
Q128	Transistor	2SC828-S
Q129	Transistor	2SA564-S
Q130	Transistor	2SA564-S
Q131	Transistor	2SC828-S
Q132	Transistor	2SC828-S
D101	Diode	OA90
D102	Diode	OA90
D103	Diode	1S2074H
D104	Diode	1S2074H
D105	Diode	1S2074H
D106	Diode	1S2074H
D107	Diode	OA90
D108	Diode	OA90
D109	Diode	1S2074H
D110	Diode	1S2074H
D111	Diode	1N60
D112	Diode	1N60
D113	Diode	1S2473VE
ZD101	Zener diode	05Z6.2
ZD102	Zener diode	05Z6.2

COILS

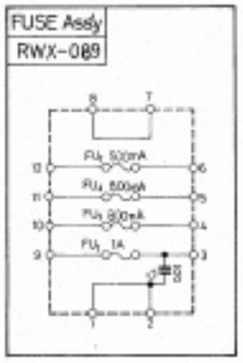
Symbol	Description	Part No.
L101	Trap coil	T84-401
L102	Trap coil	T84-401
L103	Peaking coil	RTF-010
L104	Peaking coil	RTF-010
L105	Peaking coil	RTF-002
L106	Peaking coil	RTF-002
L107	Trap coil	T84-401
L108	Trap coil	T84-401
	MPX coil block	RTF-012
	MPX coil block	RTF-012

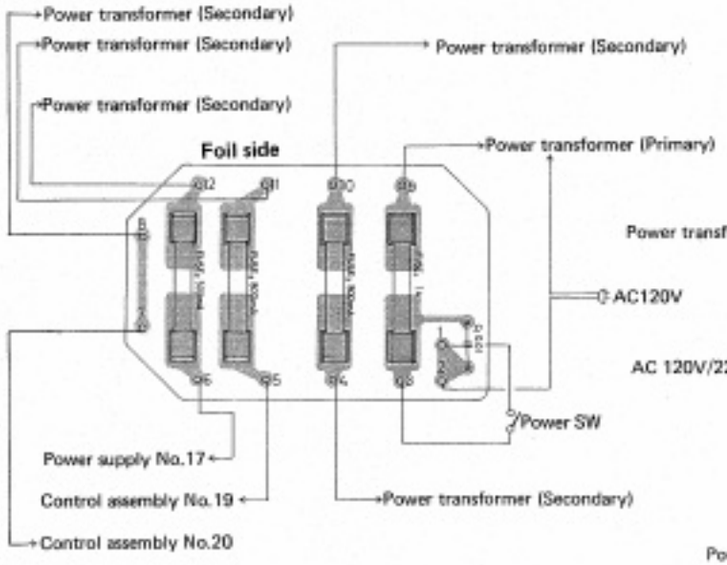
SWITCHES

Symbol	Description	Part No.
	Slide switch (S_2, S_4, S_5)	RSG-031
	Slide switch (S_1)	RSH-017

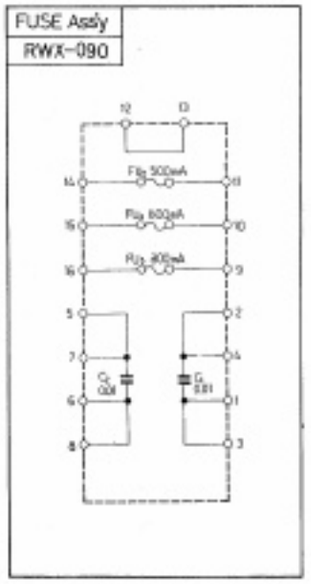
11.4 FUSE BOARD ASSEMBLY

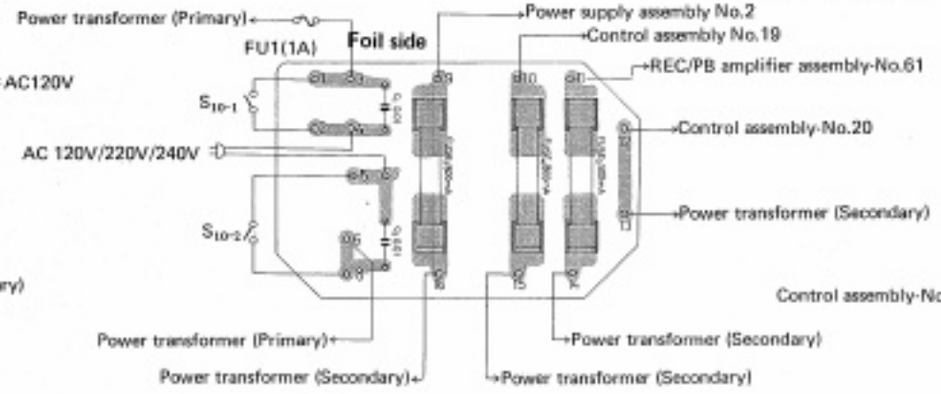
1, KCU model



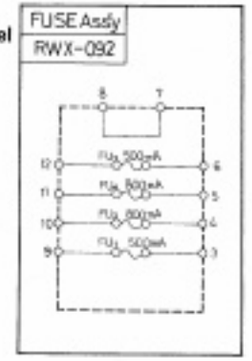


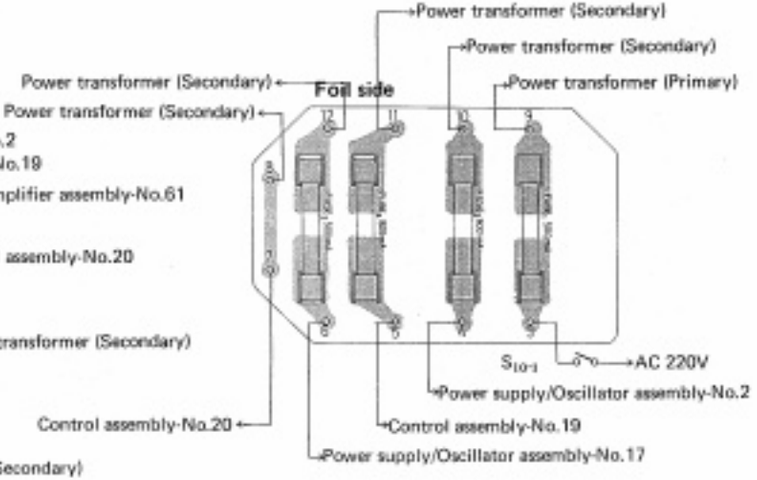
2. DV, DP model





3. NB model





Parts List of Fuse Board Assembly KCU model (RWX-089)

Symbol	Description			Part No.
	Fuse clip			RKR-017
F1	Fuse	1A		REK-033
F2	Fuse	500mA		REK-031
F3	Fuse	800mA		REK-032
F4	Fuse	800mA		REK-032
C1	Ceramic	0.01	1.4kV	C43-003

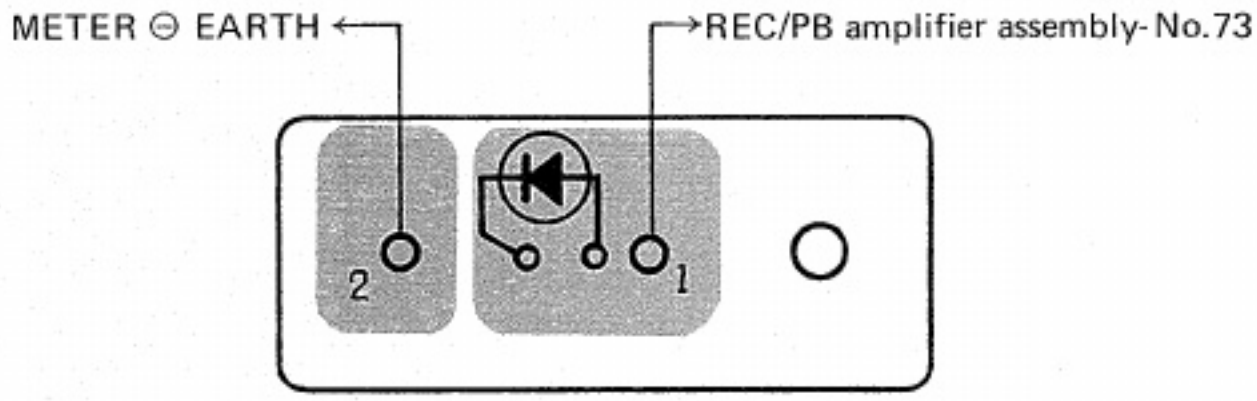
Parts List of Fuse Board Assembly DV , DP model (RWX-090)

Symbol	Description			Part No.
C1	Ceramic	0.01	1.4kV	C43-003
C2	Ceramic	0.01	1.4kV	C43-003
	Capacitor cover			REC-150
	Fuse clip			RKR-017
F2	Fuse	500mA		REK-031
F3, F4	Fuse	800mA		REK-032

Parts List of Fuse Board Assembly NB model (RWX-092)

Symbol	Description		Part No.
	Fuse clip		RKR-013
F1, F2	Fuse	500mA	REK-023
F3, F4	Fuse	800mA	REK-043

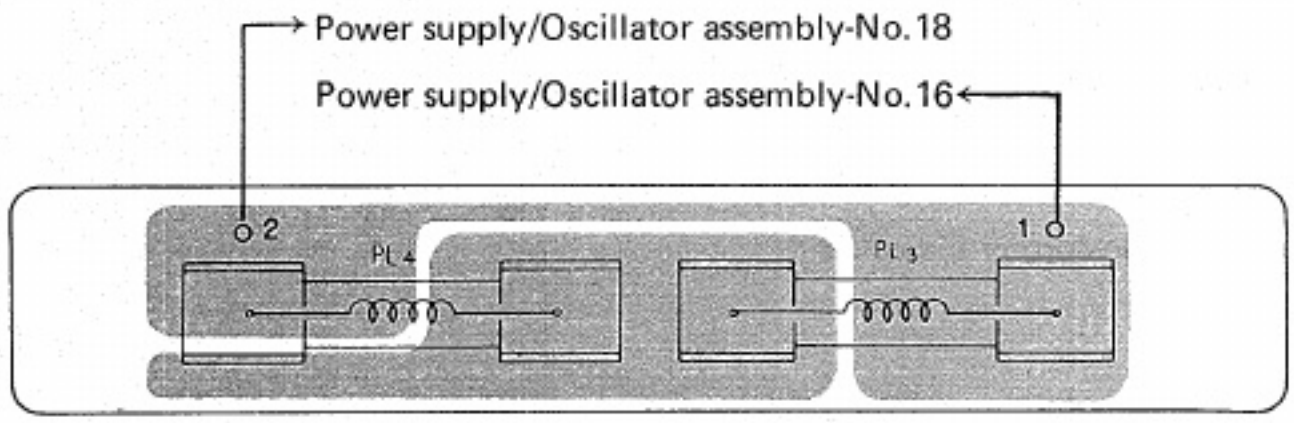
11.5 INDICATOR ASSEMBLY (RWX-087)



Parts List of Indicator Assembly (RWX-087)

Symbol	Description	Part No.
D502	Light emitting Diode TLR-103	TLR-103

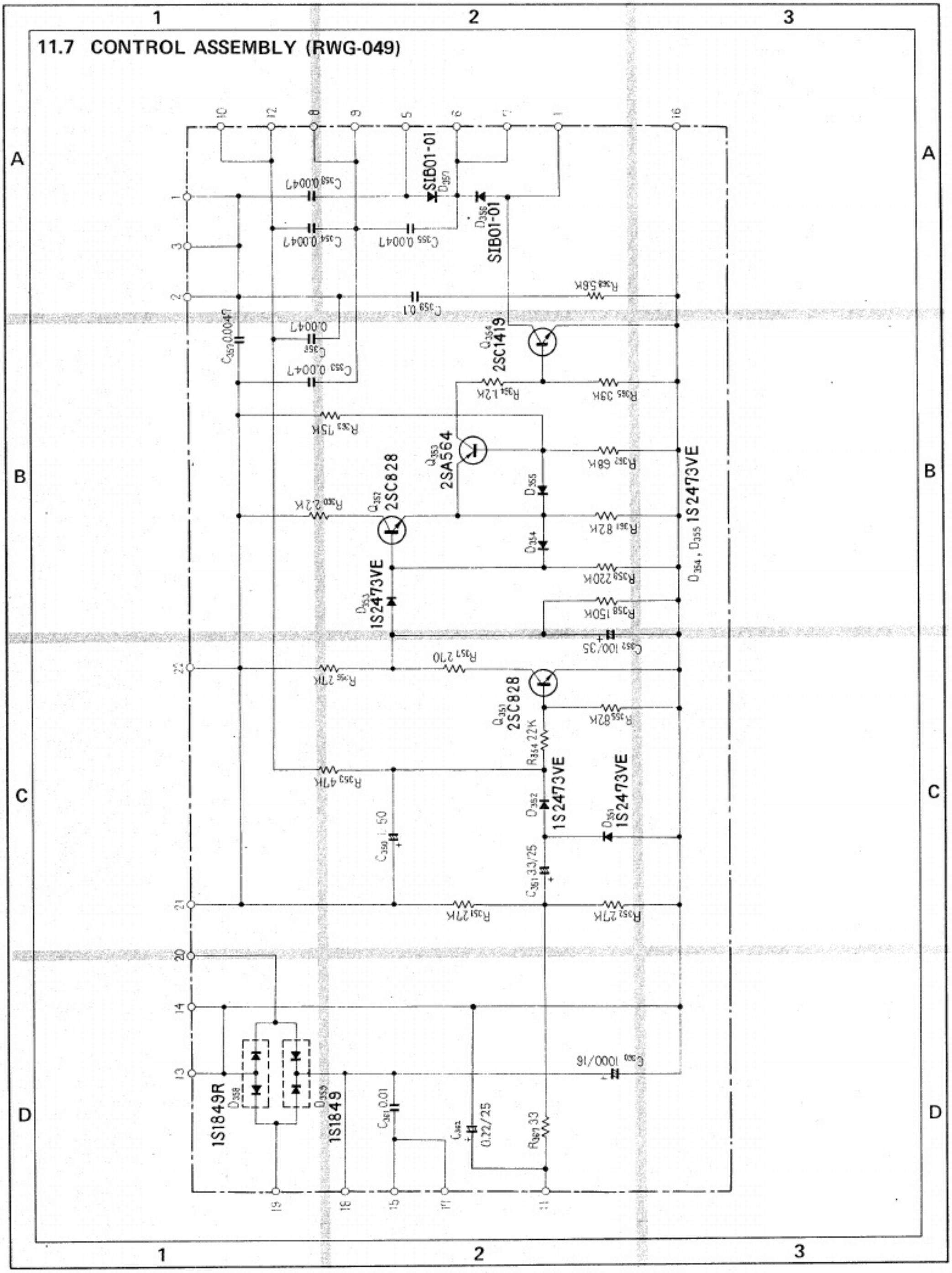
11.6 LAMP ASSEMBLY (RWX-052)

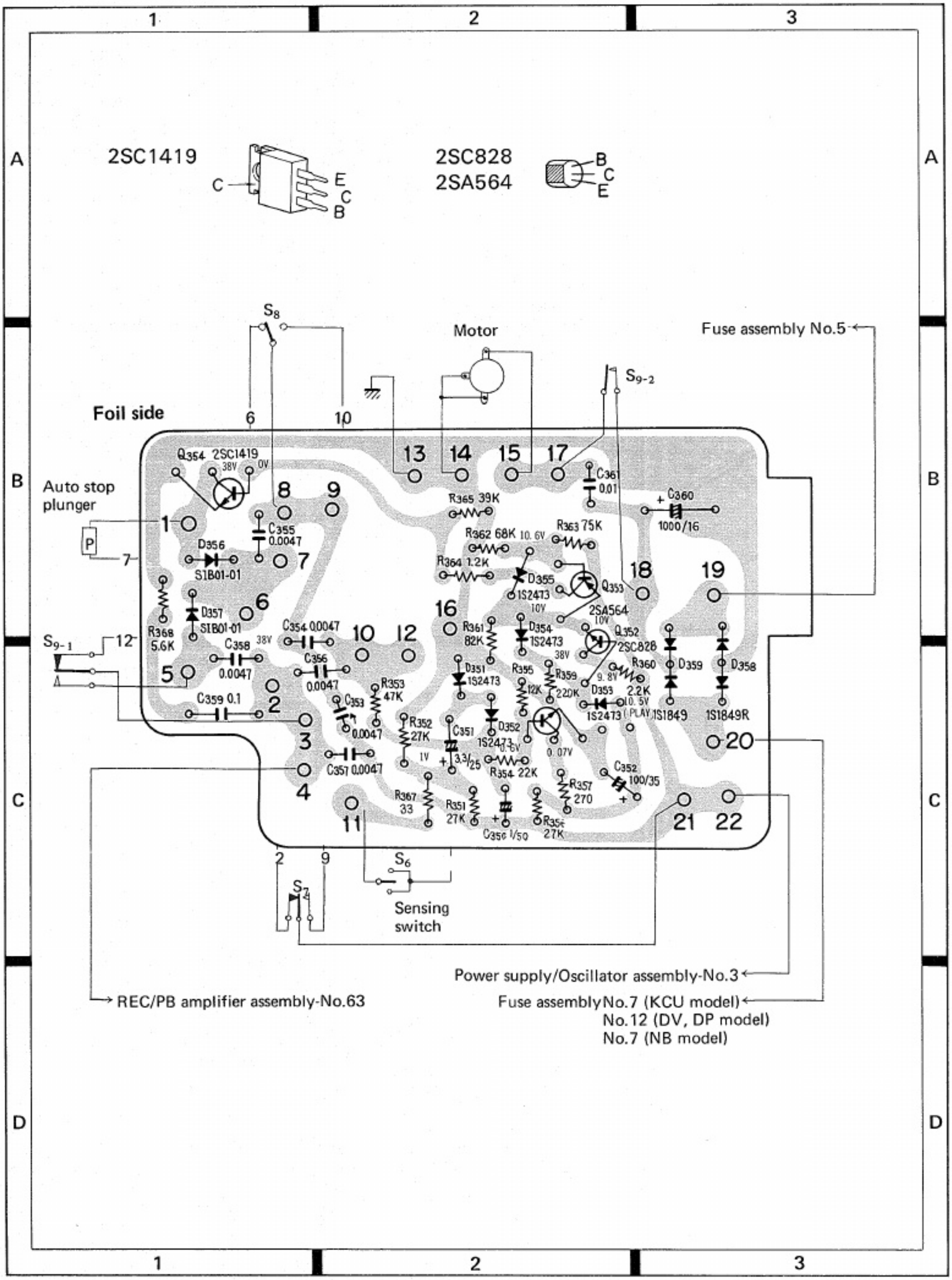


Parts List of Indicator Assembly (RWX-052)

Symbol	Description	Part No.
	Clip-in type fuse holder	K91-006-0
PL3	Pilot lamp 6V 100mA (compartment)	REL-007-0
PL4	Pilot lamp 6V 100mA (compartment)	REL-007-0

11.7 CONTROL ASSEMBLY (RWG-049)




2SC1419
C
E
C
B
2SC828
2SA564
B
C
E
Foil side
Auto stop plunger
P
Motor
Fuse assembly No.5
Power supply/Oscillator assembly-No.3
REC/PB amplifier assembly-No.63
Fuse assembly No.7 (KCU model)
No.12 (DV, DP model)
No.7 (NB model)
Sensing switch
Q354 2SC1419
D356 S1B01-01
D357 S1B01-01
R368 5.6K
C355 0.0047
C358 0.0047
C354 0.0047
C356 0.0047
C359 0.1
C353 0.0047
C357 0.0047
R353 47K
R352 27K
C351 3.3/25
D352 1S2473
R354 22K
R367 33
R351 27K
C350 1/50
R356 27K
R357 270
C352 100/35
R365 39K
R362 68K
R363 75K
R364 1.2K
D355 1S2473
Q353 2SA564
C361 0.01
C360 1000/16
R361 82K
D354 1S2473
Q352 2SC828
D351 1S2473
R355 12K
R359 220K
R360 2.2K
D353 1S2473
D359 1S1849
D358 1S1849R
S9-1
S9-2
S8
S6
S7

Parts List of Control Assembly (RWG-049)

CAPACITORS

Symbol	Description			Part No.
C350	Electrolytic	1	50V	CEA 010P 50
C351	Electrolytic	3.3	25V	CEA 3R3P 25
C352	Electrolytic	100	35V	CEA 101P 35
C353	Mylar	0.0047	50V	CQMA 472K 50
C354	Mylar	0.0047	50V	CQMA 472K 50
C355	Mylar	0.0047	50V	CQMA 472K 50
C356	Mylar	0.0047	50V	CQMA 472K 50
C357	Mylar	0.0047	50V	CQMA 472K 50
C358	Mylar	0.0047	50V	CQMA 472K 50
C359	Mylar	0.1	50V	CQMA 104K 50
C360	Electrolytic	1000	16V	CEA 102P 16
C361	Mylar	0.01	50V	CQMA 103K 50

RESISTORS

Symbol	Description		Part No.
R351	Carbon film	27k	RD¼VS 273J
R352	Carbon film	27k	RD¼VS 273J
R353	Carbon film	47k	RD¼VS 473J
R354	Carbon film	22k	RD¼VS 223J
R355	Carbon film	82k	RD¼VS 823J
R356	Carbon film	27k	RD¼VS 273J
R357	Carbon film	270	RD¼VS 271J
R358	Carbon film	150k	RD¼VS 154J
R359	Carbon film	220k	RD¼VS 224J
R360	Carbon film	2.2k	RD¼VS 222J
R361	Carbon film	82k	RD¼VS 823J
R362	Carbon film	68k	RD¼VS 683J
R363	Carbon film	75k	RD¼VS 753J
R364	Carbon film	1.2k	RD¼VS 122J
R365	Carbon film	39k	RD¼VS 393J
R367	Carbon film	33	RD¼VS 330J
R368	Carbon film	5.6k	RDPVS 562J

SEMICONDUCTORS

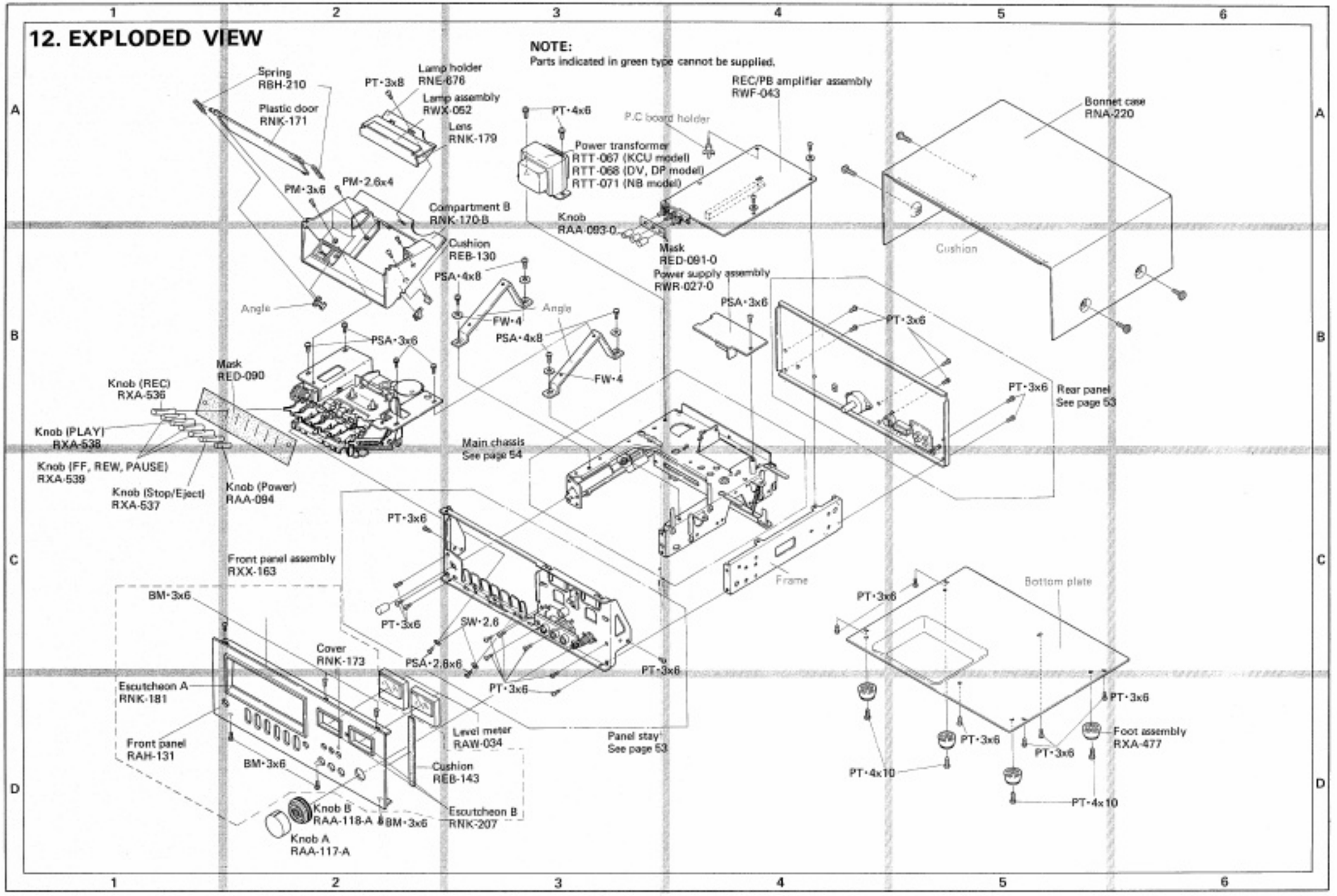
Symbol	Description	Part No.
Q351	Transistor	2SC828A-R
Q352	Transistor	2SC828A-R
Q353	Transistor	2SA564A-R
Q354	Transistor	2SC1419 -C
D351	Diode	1S2473VE
D352	Diode	1S2473VE
D353	Diode	1S2473VE
D354	Diode	1S2473VE
D355	Diode	1S2473VE
D356	Diode	S1B-01-01
D357	Diode	S1B-01-01
D358	Diode	1S1849R
D359	Diode	1S1849

OTHER

Symbol	Description	Part No.
	Transistor Spacer	RNK-212

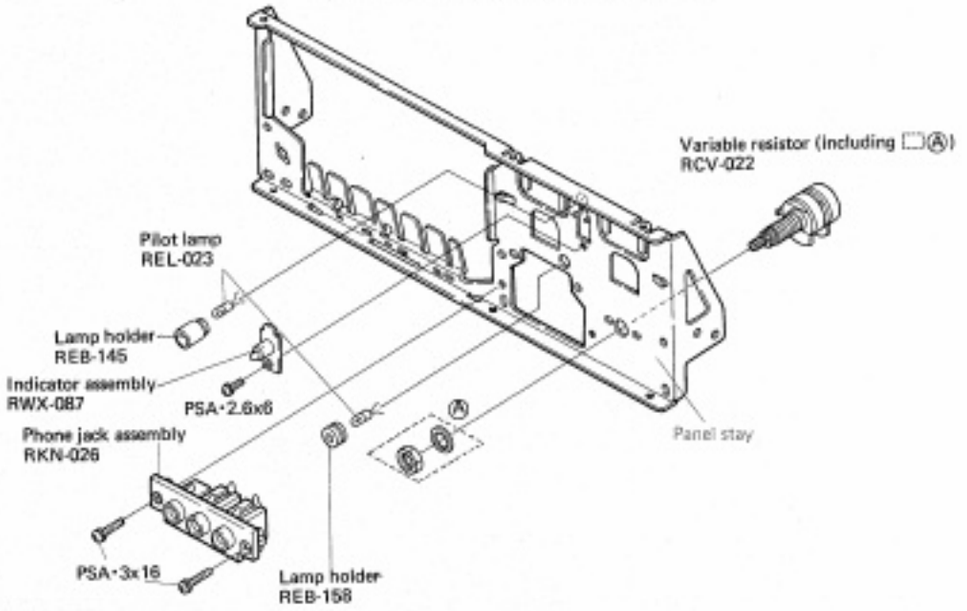
12. EXPLODED VIEW

NOTE:
Parts indicated in green type cannot be supplied.



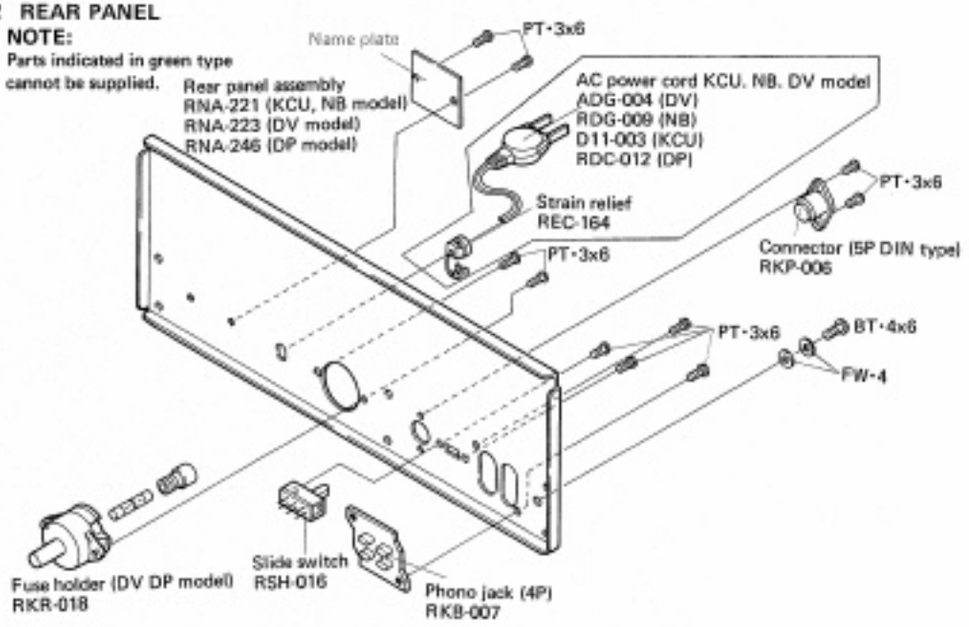
12.1 PANEL STAY

NOTE:
Parts indicated in green type cannot be supplied.



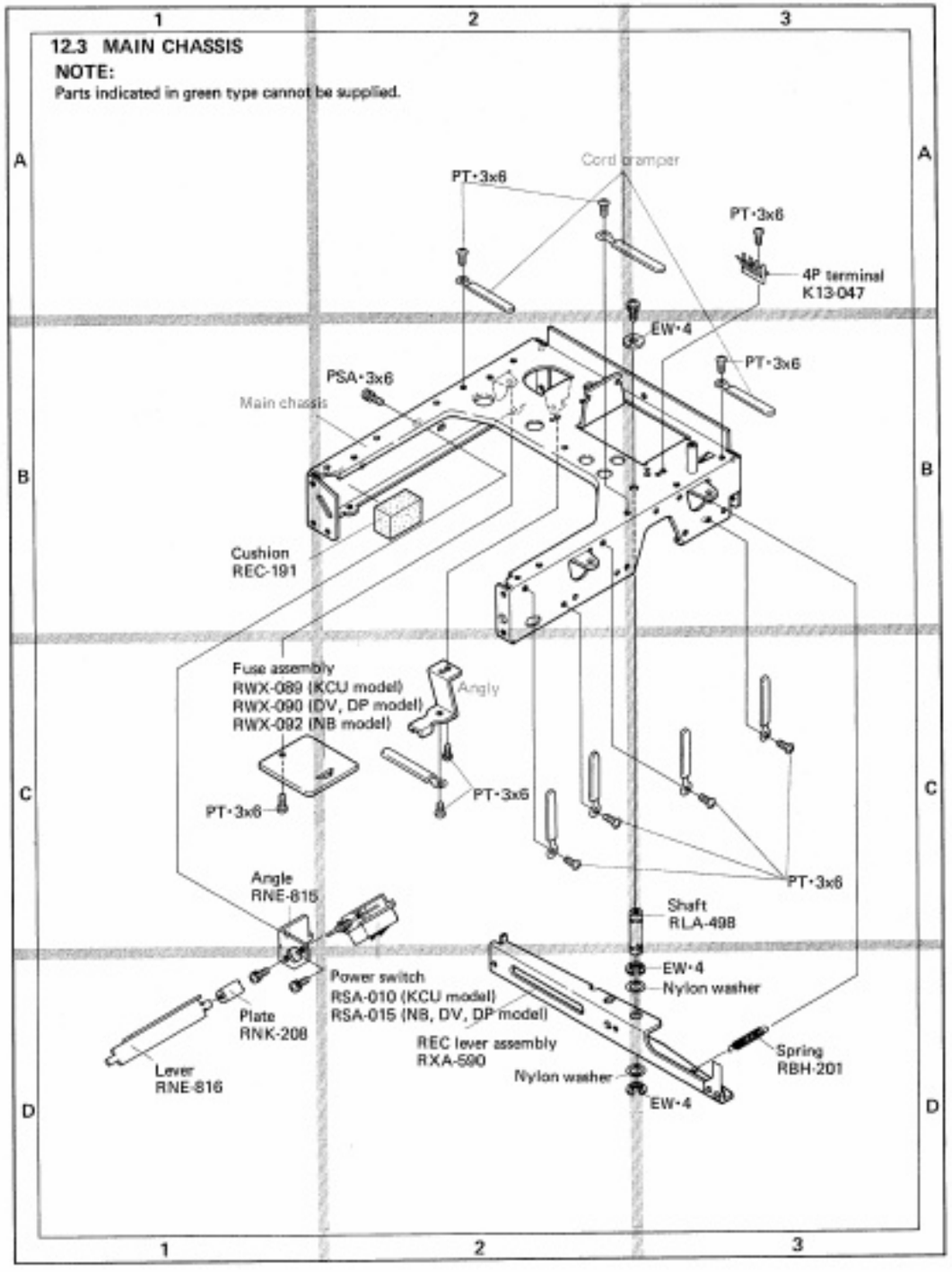
12.2 REAR PANEL

NOTE:
Parts indicated in green type cannot be supplied.



12.3 MAIN CHASSIS

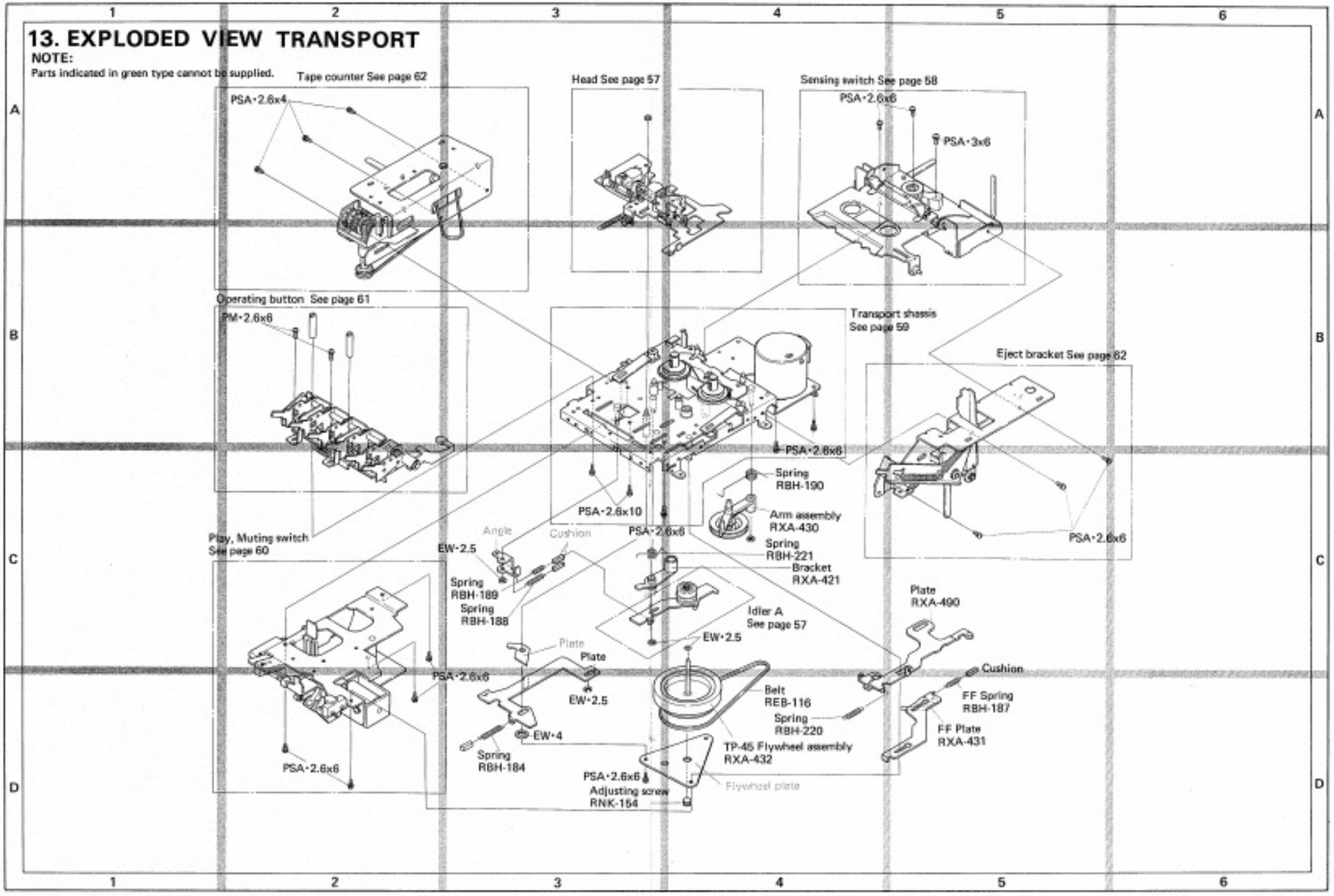
NOTE:
Parts indicated in green type cannot be supplied.



13. EXPLODED VIEW TRANSPORT

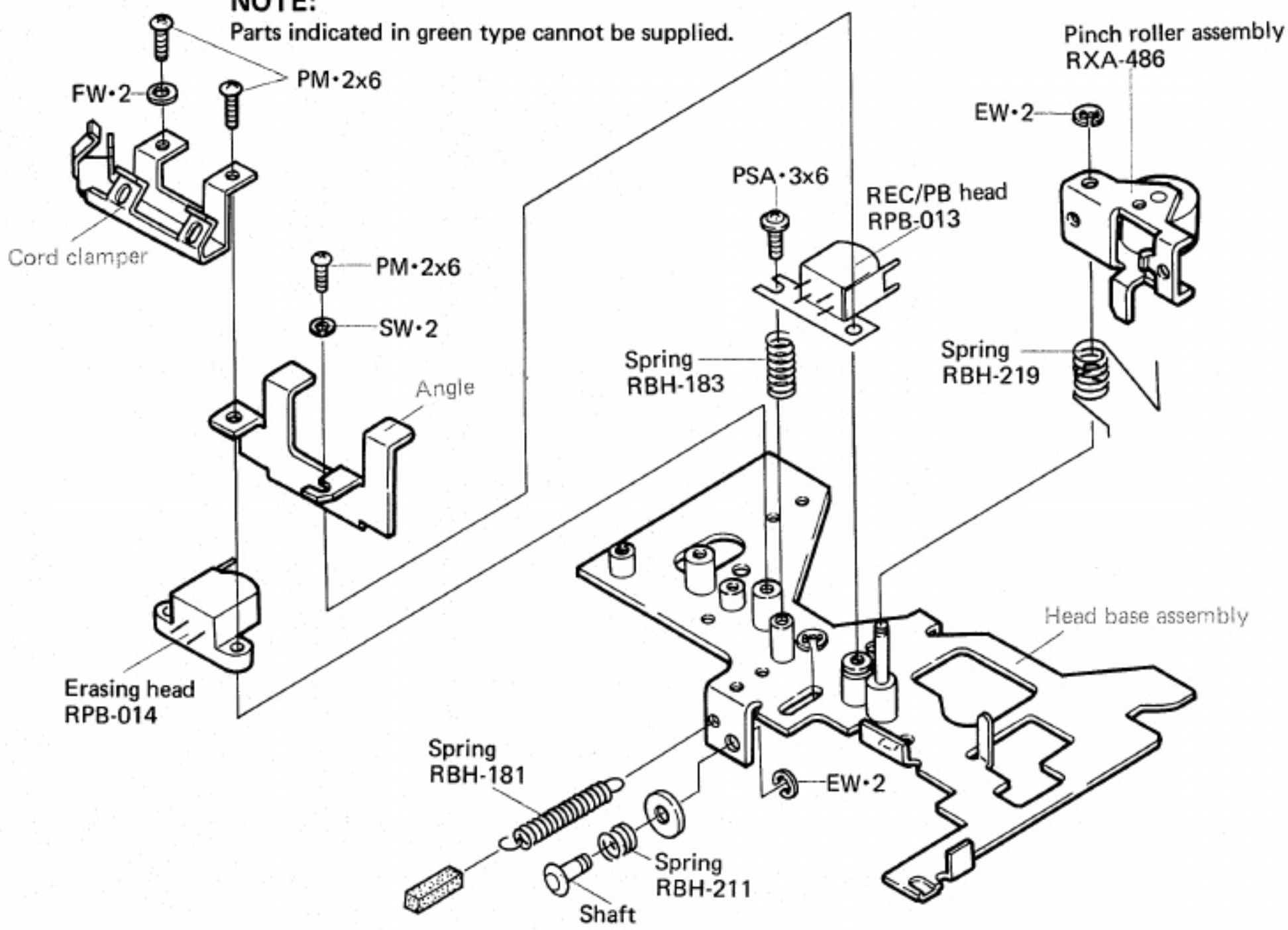
NOTE:

Parts indicated in green type cannot be supplied.



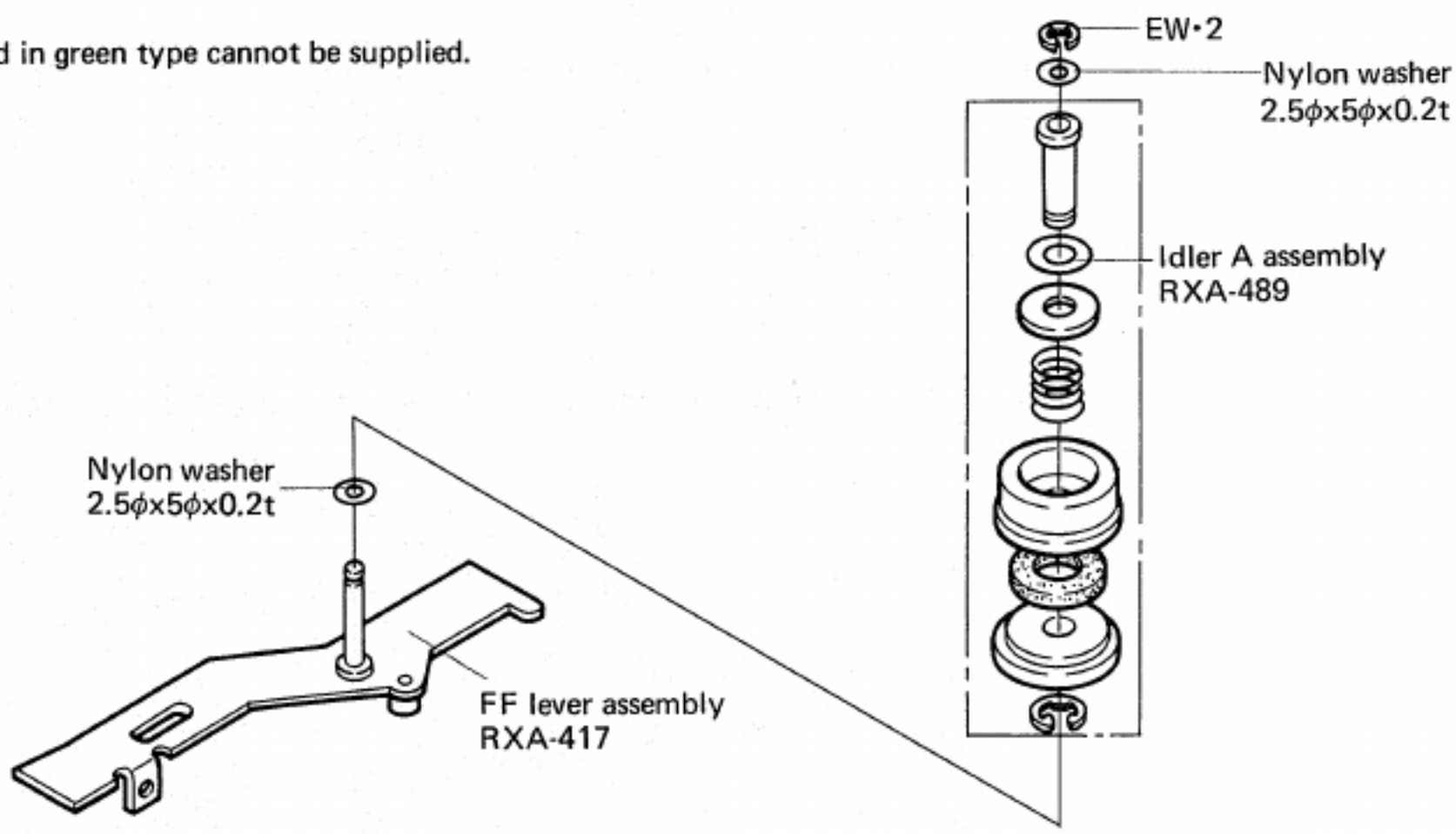
13.1 HEAD

NOTE:
Parts indicated in green type cannot be supplied.



13.2 IDLER A

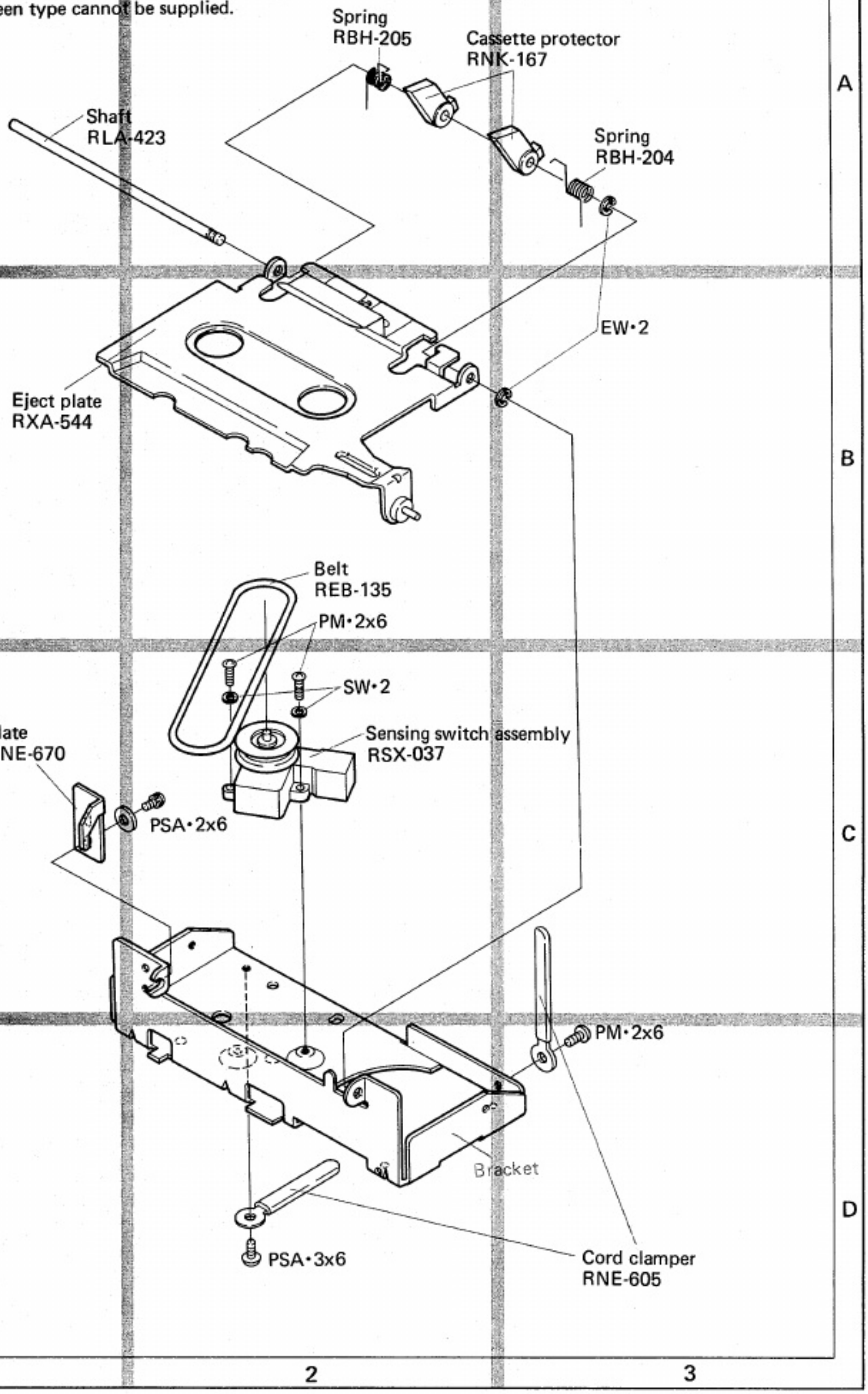
NOTE:
Parts indicated in green type cannot be supplied.



13.3 SENSING SWITCH

NOTE:

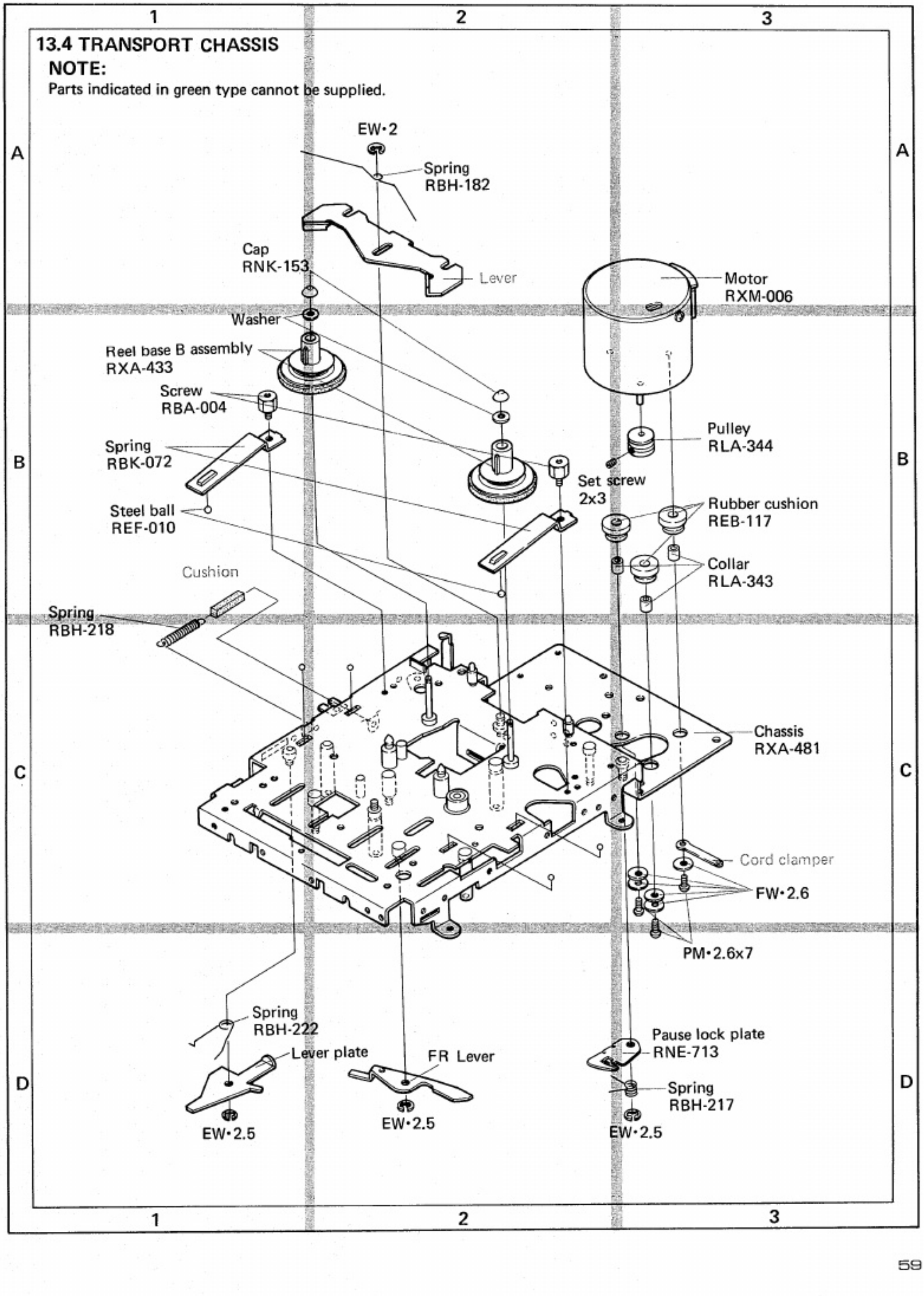
Parts indicated in green type cannot be supplied.



13.4 TRANSPORT CHASSIS

NOTE:

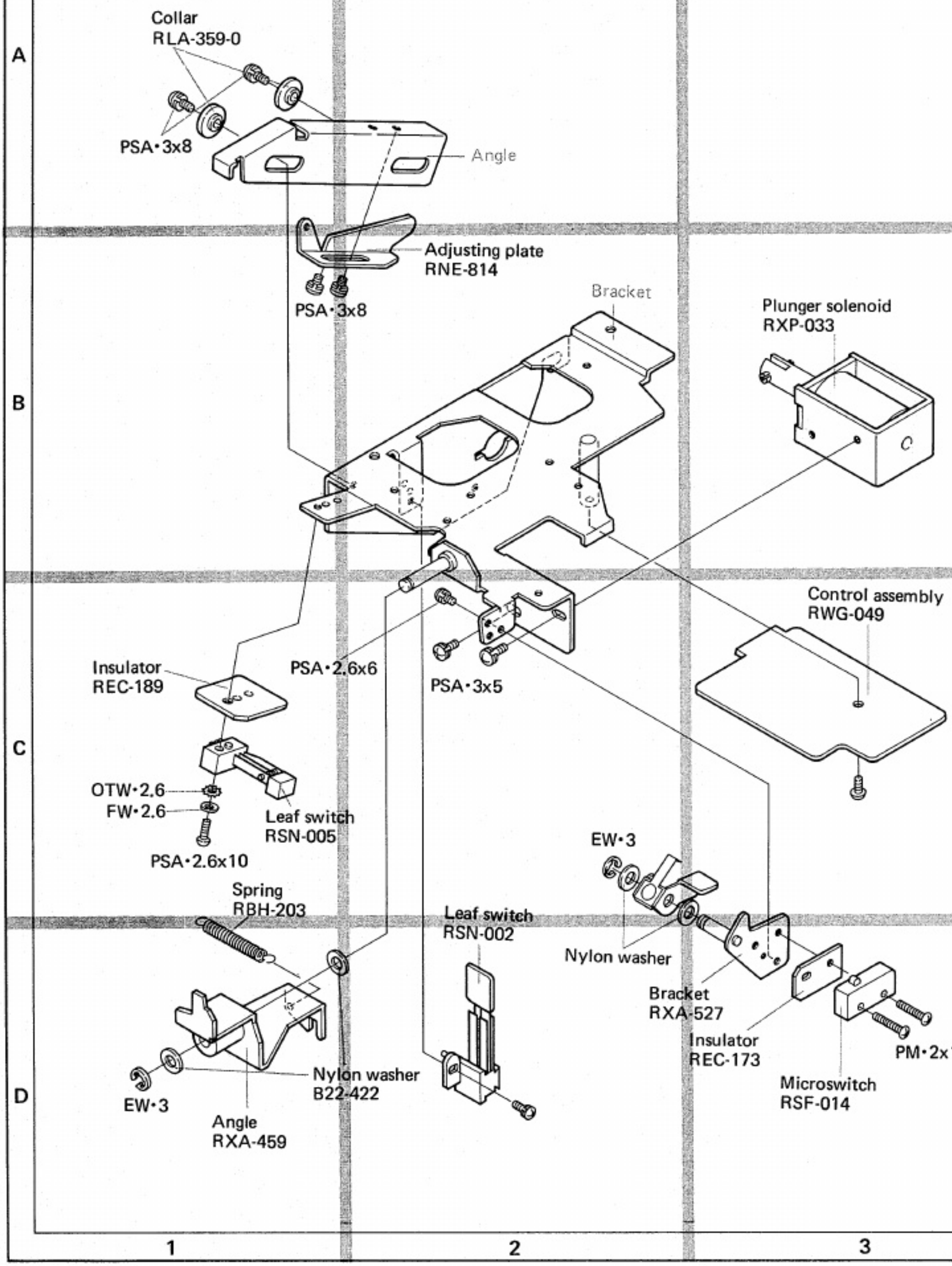
Parts indicated in green type cannot be supplied.



13.5 PLAY, MUTING SWITCH

NOTE:

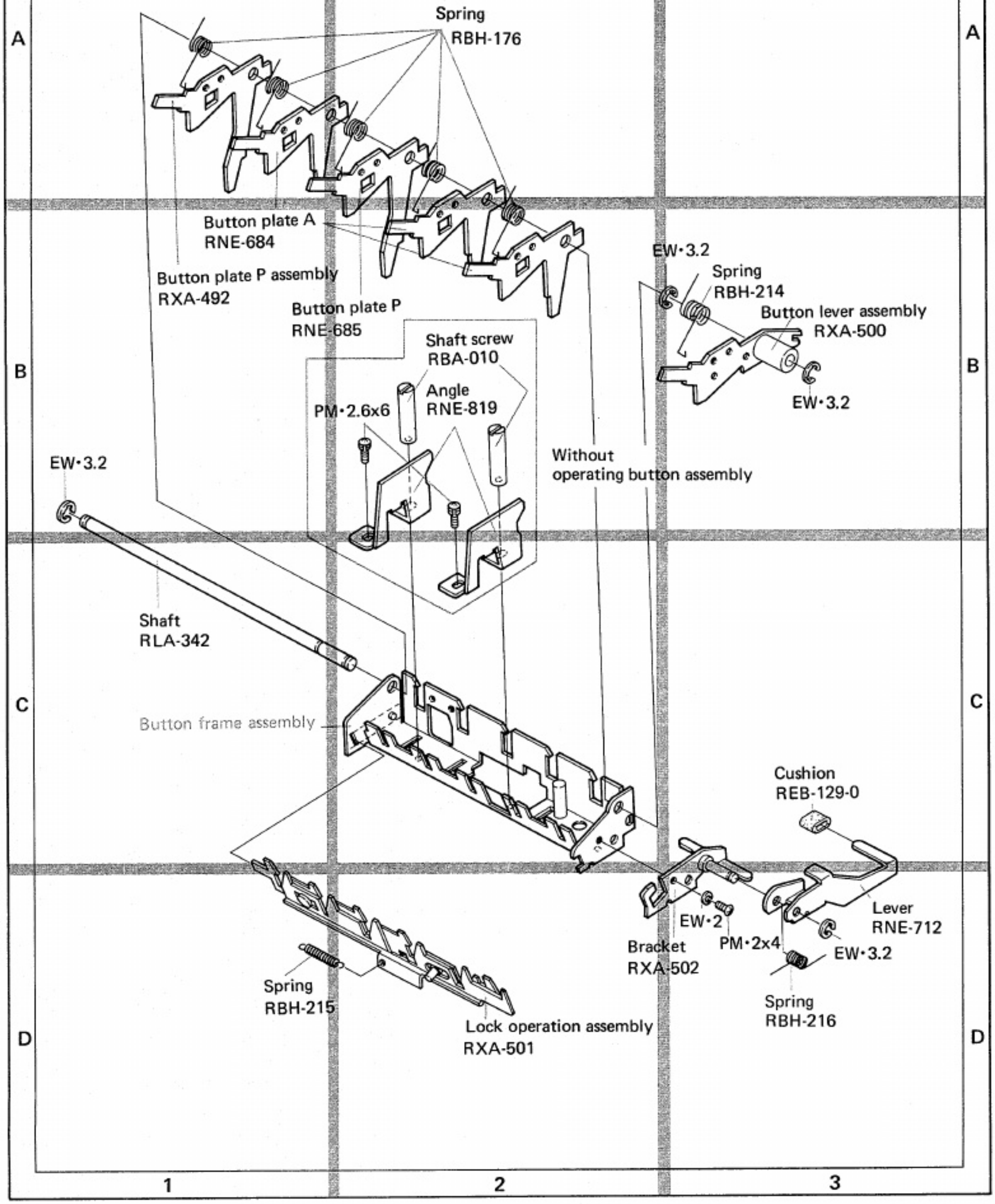
Parts indicated in green type cannot be supplied.



13.6 OPERATING BUTTON ASSEMBLY (RXA-498)

NOTE:

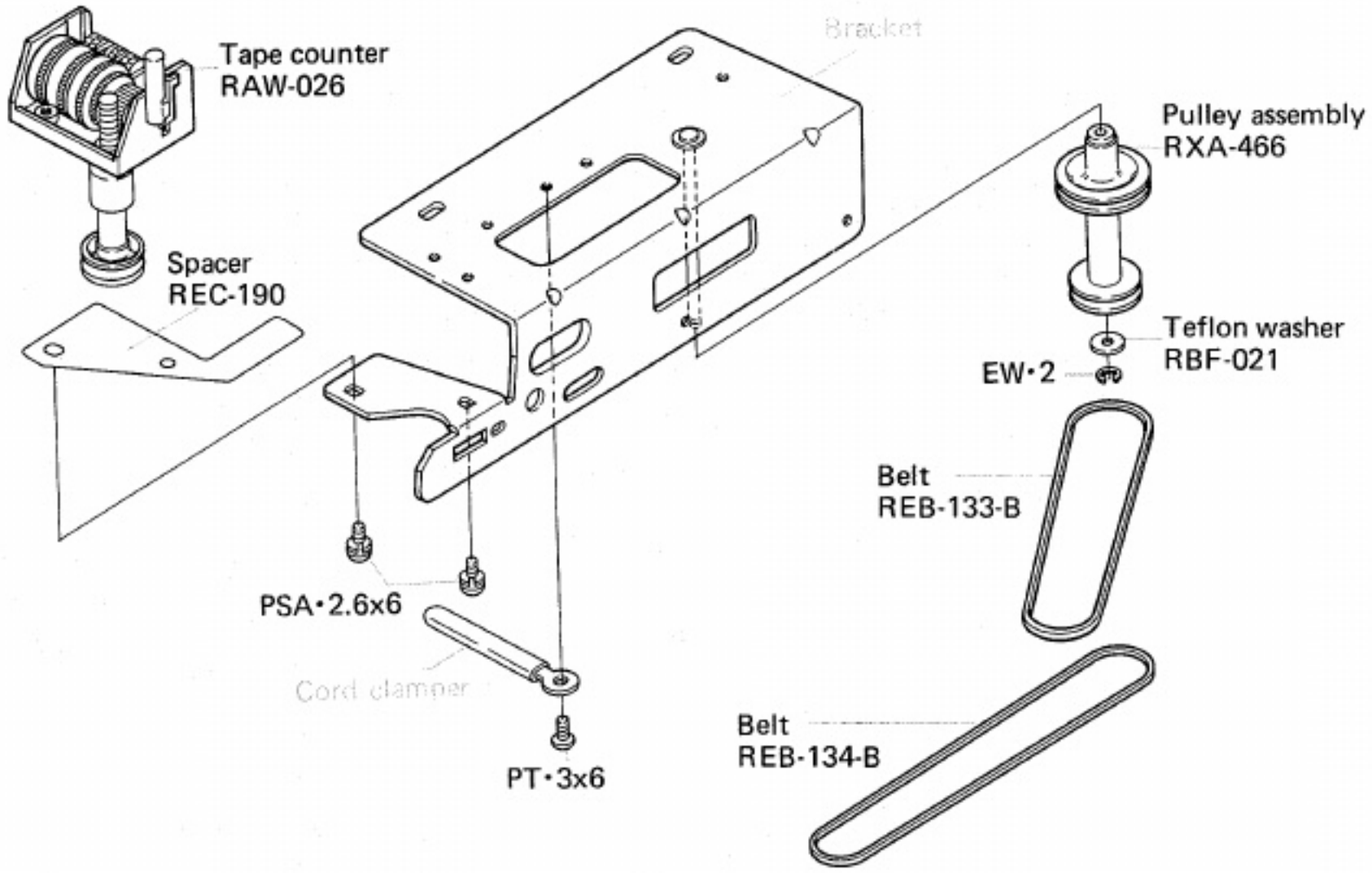
Part indicated in green type cannot be supplied.



13.7 TAPE COUNTER

NOTE:

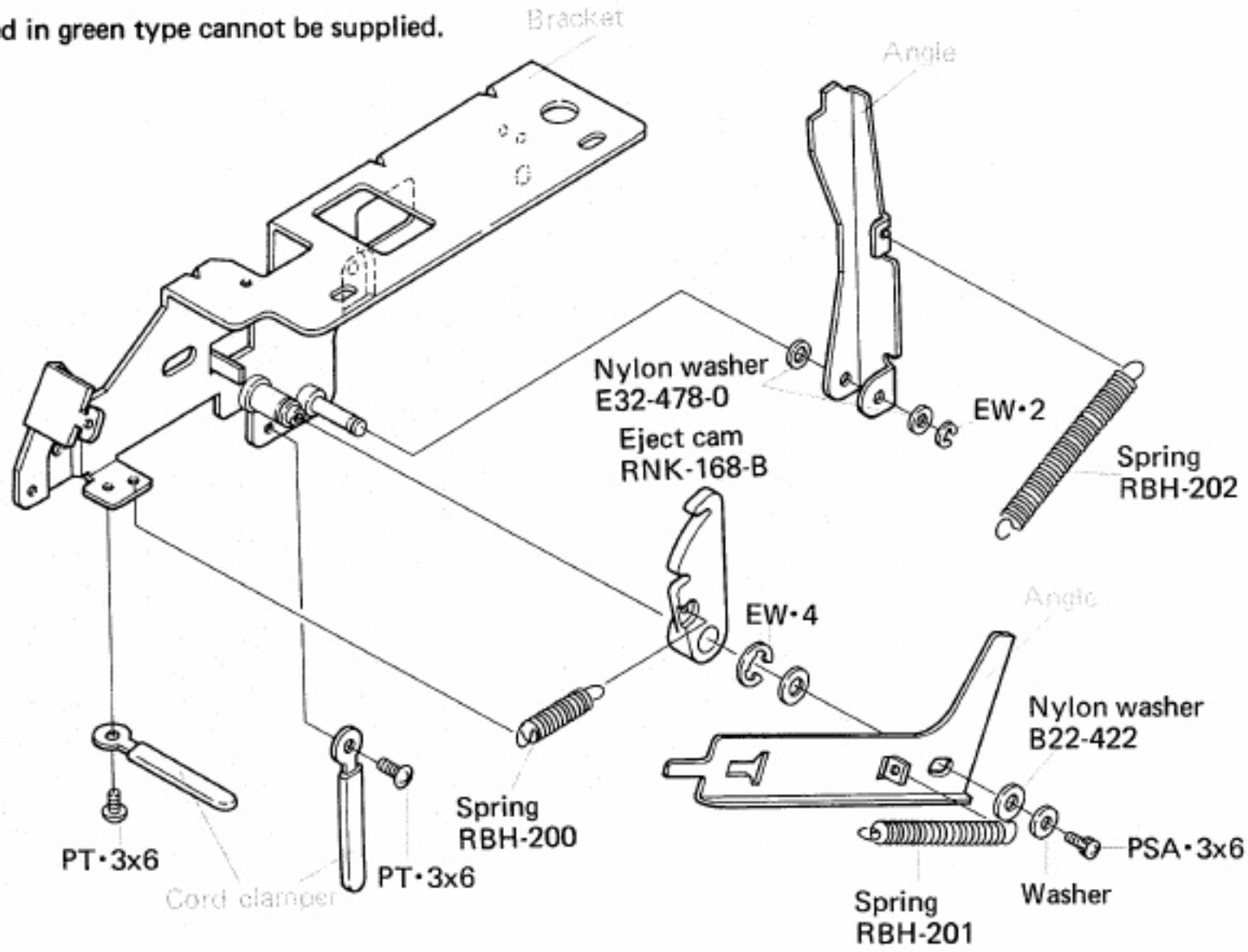
Parts indicated in green type cannot be supplied.



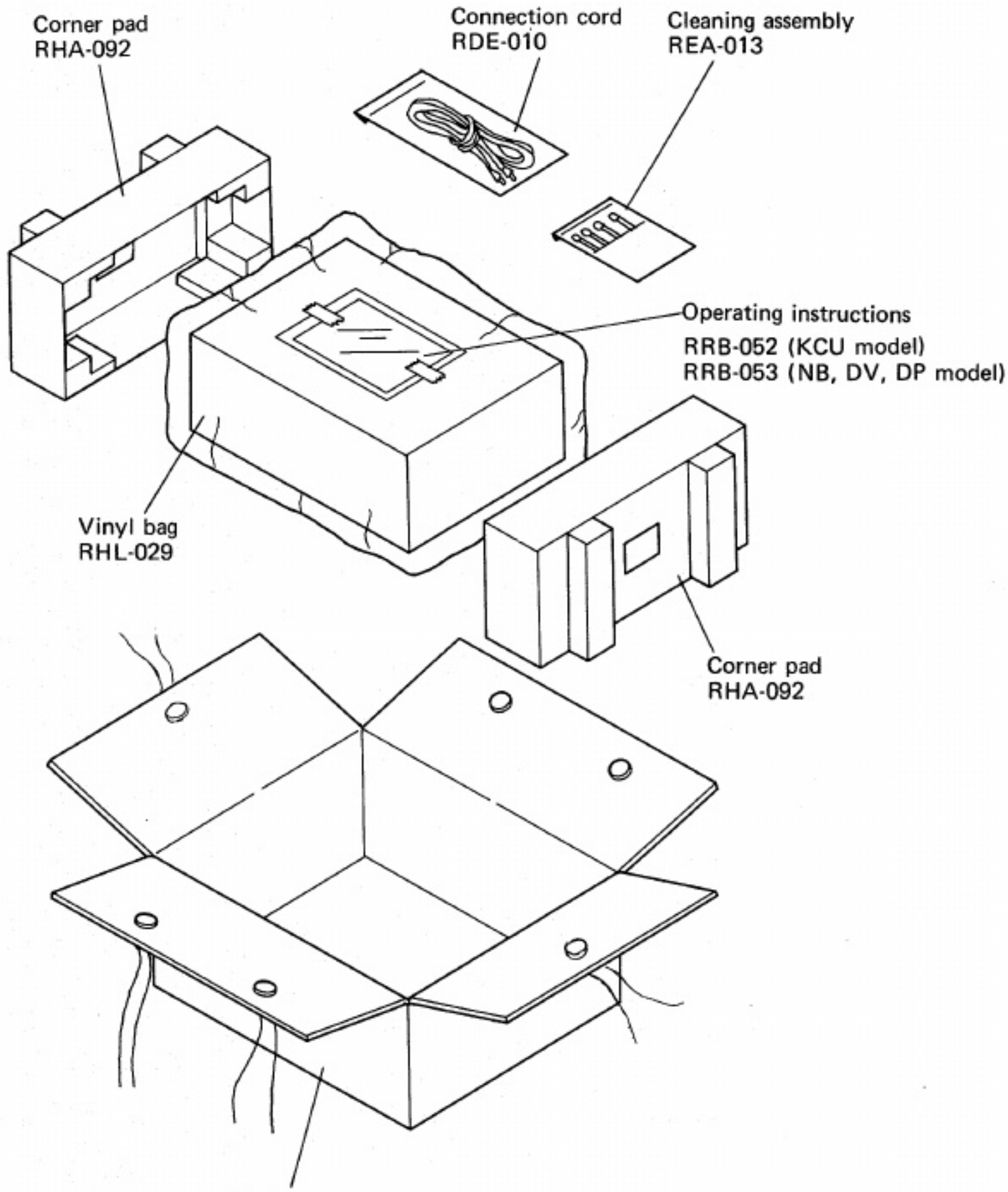
13.8 EJECT BRACKET

NOTE:

Parts indicated in green type cannot be supplied.

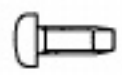
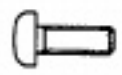
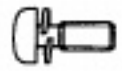


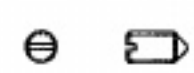
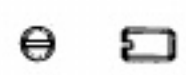
14. PACKING


Corner pad
RHA-092
Connection cord
RDE-010
Cleaning assembly
REA-013
Operating instructions
RRB-052 (KCU model)
RRB-053 (NB, DV, DP model)
Vinyl bag
RHL-029
Corner pad
RHA-092
Packing case
RHG-117
RHG-123 (CANADA only)

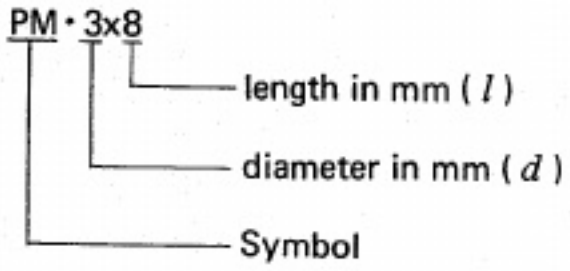
NOMENCLATURE OF SCREWS, WASHERS AND NUTS

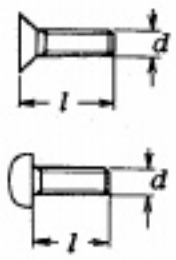
The following symbols stand for screws, washers and nuts as shown in exploded view.

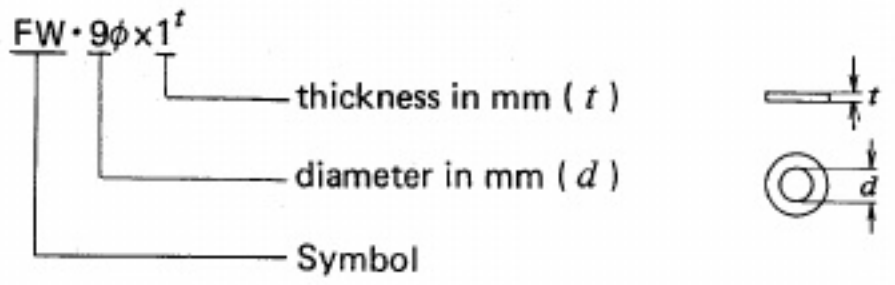
Symbol	Description	Shape
RT	Brazier head tapping screw	
PT	Pan head tapping screw	
BT	Binding head tapping screw	
CT	Countersunk head tapping screw	
TT	Truss head tapping screw	
OCT	Oval countersunk head tapping screw	
PM	Pan head machine screw	
CM	Countersunk head machine screw	
OCM	Oval countersunk head machine screw	
TM	Truss head machine serew	
BM	Binding head machine screw	
PSA	Pan head screw with spring lock washer	
PSB	Pan head screw with spring lock washer and flat washer	
PSF	Pan head screw with flat washer	

Symbol	Description	Shape
EW	E type washer	
FW	Flat washer	
SW	Spring lock washer	
N	Nut	
WN	Washer faced nut	
ITW	Internal toothed lock washer	
OTW	Outernal toothed lock washer	
SC	Slotted set screw (Cone point)	
SF	Slotted set screw (Flat point)	
HS	Hexagon socket headless set screw	
OCW	Oval countersunk head wood screw	
CW	Countersunk head wood screw	
RW	Round head wood screw	

EXAMPLE







15. PARTS LIST OF EXPLODED VIEW

Parts No.	Parts Name
ADG-004	AC Power Cord (KCU, NB, DV model)
AEB-019	P.C. Board Holder
AKE-017	Binding Post
RAA-092	Knob (POWER)
RAA-093	Knob (BIAS, EQ, DOLBY)
RAA-094	Knob (POWER)
RAA-117	Knob A
RAA-118	Knob B
RAW-026	Tape Counter
RAW-034	Level Meter
RBA-004	Screw
RBA-010	Shaft Screw
RBF-021	Teflon Washer
RBH-181	Spring
RBH-182	Spring
RBH-183	Spring
RBH-184	Spring
RBH-187	FF Spring
RBH-188	Spring
RBH-189	Spring
RBH-190	Spring
RBH-200	Spring
RBH-201	Spring
RBH-202	Spring
RBH-203	Spring
RBH-204	Spring
RBH-205	Spring
RBH-211	Spring
RBH-217	Spring
RBH-219	Spring
RBH-220	Spring
RBH-221	Spring
RBH-222	Spring
RBK-072	Spring
RBK-218	Spring
RCV-022	Variable Resistor (INPUT)
REB-116	Belt
REB-117	Rubber Cushion
REB-129	Eject Cam Lever
REB-133-B	Belt
REB-134-B	Belt
REB-135-B	Belt
REB-143	Cushion
REB-145	Lamp Holder
REB-158	Lamp Holder
REC-164	Strain Relief
REC-173	Insulator
REC-189	Insulator
REC-190	Spacer
REC-191	Cushion

Parts No.	Parts Name
RED-090	Mask
RED-090	Mask
REF-010	Steel Ball
REK-033	Fuse 1A
REL-030	Pilot Lamp (DOLBY)
RKB-007	Phono Jack 4P
RKN-026	Phono Jack Assembly
RKP-006	Connector (SP, DIN Type)
RKP-007	Phono Jack 4P
RKR-018	Fuse Holder (DV, DP model)
RLA-343	Coller
RLA-344	Pulley
RLA-359	Coller
RLA-423	Shaft
RLA-498	Shaft
RNA-220	Bonnet Case
RNE-578	Plate
RNE-605	Cord Clamper
RNE-670	Plate
RNE-676	Lamp Holder
RNE-713	Pause Lock Plate
RNE-814	Adjusting Plate
RNE-815	Angle
RNE-816	Bar
RNE-819	Angle
RNE-822	Angle
RBH-210	Spring
RNE-153	Cup
RNK-154	Adjusting Screw
RNK-167	Cassette Protector
RNK-168	Eject Cam
RNK-170	Compartment B
RNK-171	Plastic Door
RNK-173	Cover
RNK-179	Lens
RNK-208	Plate
RPB-013	REC/PB Head
RPB-014	Erasing Head
RSA-010	Power Switch (KCU model)
RSA-015	Power Switch (NB, DV, UP model)
RSF-014	Micro Switch
RSG-031	Switch Assembly
RSH-016	Slide Switch
RSN-002	Leaf Switch
RSN-005	Leaf Switch
RSX-037	Sensing Switch Assembly
RTT-067	Power Transformer (KCU MODEL)
RTT-068	Power Transformer (DV MODEL)
RTT-071	Power Transformer (NB MODEL)
RWF-043	REC/PB Amplifier Assembly
RWG-049	Control Assembly

Parts No.	Parts Name
RWR-027	Power Supply and OSC assembly
RWX-052	Lamp Assembly
RWX-087	Indicator Assembly
RXA-417	FF Lever Assembly
RXA-421	Bracket
RXA-430	Arm Assembly
RXA-431	FF Plate
RXA-432	TP-45 Flywheel Assembly
RXA-433	Reel Base B Assembly
RXA-459	Angle
RXA-466	Pulley Assembly
RXA-477	Foot Assembly
RXA-481	Chasis
RXA-486	Pinch Roller Assembly
RXA-489	Idler A Assembly
RXA-490	Plate
RXA-527	Bracket
RXA-536	Knob (REC)
RXA-537	Knob (STOP/EJECT)
RXA-538	Knob (PLAY)
RXA-539	Knob (FF, REW, PAUSE)
RXA-544	Eject Plate
RXA-590	REC Lever Assembly
RXM-006	Motor
RXP-033	Solenoid Plunger
RXX-163	Front Panel Assembly
B22-422	Nylon Washer
E32-478	Nylon Washer
K13-047	4P Terminal
REB-130	Cushion
RAH-131	Front panel
RNA-221	Rear Panel Assembly (KCU, NB model)
RNA-223	Rear Panel Assembly (DV model)
RNA-246	Rear Panel Assembly (DP model)
RWX-089	Fuse Assembly (KCU model)
RWX-090	Fuse Assembly (DV, DP model)
RWX-092	Fuse Assembly (NB model)
RXA-498	Operating Button Assembly
RBH-176	Spring
RNE-684	Button Plate A
RNE-685	Button Plate P
RXA-492	Button Plate P Assembly
RBH-214	Spring
RLA-342	Shaft
RBH-215	Spring
RXA-501	Lock Operation Assembly
RXA-502	Blacket
RBH-216	Spring
RNE-712	Lever
RXA-500	Button Lever Assembly
RHG-117	Packing Case
RHG-123	Packing Case (CANADA only)

PIONEER ELECTRONIC CORPORATION
4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
U.S. PIONEER ELECTRONICS CORPORATION
75 Oxford Drive, Moonachie, New Jersey 07074, U.S.A.
PIONEER ELECTRONIC (EUROPE) N.V.
Luithagensteenweg no. 9, 2030 Antwerp, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD.
178-184 Boundary Road, Braeside, Victoria 3195, Australia

Printed in Japan

<75H04Y61K>