

CASSETTE TAPE DECK

CT-F7272

CT-F7070

SERVICE MANUAL



 PIONEER®

MODEL CT-F7272 COMES IN TWO VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
KCU	120V only	CSA (Canada) and UL (U.S.A.) approved.
D	120V, 220V, 240V (switchable)	General export model.

MODEL CT-F7070 COMES IN TWO VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
D	120V, 220V, 240V (switchable)	General export model.
HG	220V, 240V (switchable)	SEMKO (Sweden), NEMKO (Norway), DEMKO (Denmark) and EI (Finland) approved.

This service manual is applicable to the MODEL CT-F7272/KCU.

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1. SPECIFICATIONS

Systems	Compact cassette, 2-channel stereo
Motor	Electronically-controlled DC motor (built-in generator) x 1
Heads	"Ferrite Solid" recording/playback head x 1 Ferrite erasing head x 1
Fast Winding Time	Approximately 85 seconds (C-60 tape)
Wow and Flutter	No more than 0.07% WRMS (JIS), No more than $\pm 0.19\%$ WRMS (DIN)
Frequency Response	Standard, LH tapes: 30 to 14,000Hz (40 to 13,000Hz ± 3 dB), (30 to 13,000Hz, DIN) Chromium dioxide tape: 30 to 17,000Hz (40 to 15,000Hz ± 3 dB), (30 to 14,000Hz, DIN) Ferri-chrome tape: 30 to 16,000Hz (40 to 15,000Hz ± 3 dB)
Signal-to-Noise Ratio	Dolby OFF: More than 52dB Dolby ON: More than 62dB (over 5kHz, standard, LH tapes) (When chromium dioxide tape is used, signal-to-noise ratio is further improved by 4.5dB over 5kHz) More than 57dB (DIN)
Harmonic Distortion	No more than 1.7%
Inputs (Reference level/Maximum allowable input/Impedance)	MIC x 2; 0.23mV/80mV/23k Ω , 6 ϕ mm jack (Reference MIC impedance; 600 Ω to 50k Ω) LINE x 2 (2-channel stereo); 64mV/25V/100k Ω DIN (REC/PLAY) x 1; Input & Output, 10mV/3.6V/2.2k Ω , 5p jack (DIN standard)
Outputs (Reference level/Maximum level/Load impedance)	LINE x 2 (2-channel stereo); 450mV/800mV/50k Ω HEADPHONE x 1; 60mV/100mV/8 Ω DIN (REC/PLAY) x 1; 450mV/800mV/50k Ω (DIN standard) ● With output level controls
Semiconductors	
Amplifier Section	Transistors; 35, Diodes; 22 Zener Diode; 1, FETs; 2; LEDs; 2, Dolby module; 2
Motor Control Section	Transistors; 3, Diode; 1
Subfunctions	● Dolby system (ON-OFF) with indicator lamp ● Tape selector (STD/FeCr/CrO ₂) with CrO ₂ , Fe-Cr indicator lamp and chrome tape Auto-switchable mechanism ● Cassette compartment illumination ● Memory stop mechanism (ON/OFF)

Power Requirements	AC 120V, 50Hz/60Hz
Power Consumption	18 watts.
Dimensions	453(W) x 177(H) x 343(D)mm. Max. 17-13/16 x 6-15/16 x 13-1/2 in.
Weight (without package)	9.5kg (20 lb 15 oz)
Furnished parts	Stereo connecting cord with pin plugs; 2 Head cleaning kit; 1 Operating instructions; 1

NOTES:

- Reference Tapes: Standard & LH: DIN 45513/BLATT6
or equiv.
CrO₂: DIN 45513/BLATT7 (CrO₂)
or equiv.
- Reference Recording Level: Meter 0dB indicating level
(160 mwb/m magnetic level = Philips cassette reference
level)
- Reference Signal: 333Hz
- Wow & Flutter: ● JIS [3kHz, with acoustic compen-
sation (weighted) rms value] ● DIN [3150Hz, with
acoustic compensation (weighted) PEAK value]; DIN
45507
- Frequency Response: ● Measured at -20dB level,
DOLBY OFF, level deviation is ± 6 dB without indication
● DIN is DIN 45500
- Signal-to-Noise Ratio: ● Measured at +4dB level (250
nwb/m magnetic level = DIN 45513 specified reference
level), IEC A curve with acoustic compensation
(weighted) ● DIN is DIN 45500
- Sensitivity: Input level (mV) required for reference
recording level with input (REC) controls set to maxi-
mum.
- Maximum Allowable Input: While decreasing settings of
input (REC) level controls and increasing level at input
jacks, this is the maximum input level (mV) at the point
where recording amplifier output waveform becomes
clipped.
- Reference Output Level: Playback output level when
meter indicates 0dB.
- Maximum Output Level: Playback output level with
respect to reference recording level when output (PLAY)
level controls are set to maximum.

NOTE:

*Specifications and the design subject to possible modifi-
cation without notice due to improvements.*

2. FRONT PANEL FACILITIES

POWER SWITCH

Press to turn power ON. Level meters and internal illuminating lamp will light. To turn power OFF, again press the button to release it.

CASSETTE DOOR

Open and close door gently by hand. To protect tape and transport from dust, keep door closed whenever possible.

TAPE COUNTER

Indicates tape running position.

RESET BUTTON

Press to reset tape counter digits to "000".

CrO₂ INDICATOR LAMP

Lights when chrome tape is being used. Also lights when there is no cassette in the cassette compartment.

Fe-Cr INDICATOR LAMP

Lights when TAPE selector switch is set to Fe-Cr (for ferri-chrome tape).

LEVEL METERS

Display input level during recording and output level during playback.

REC INDICATOR

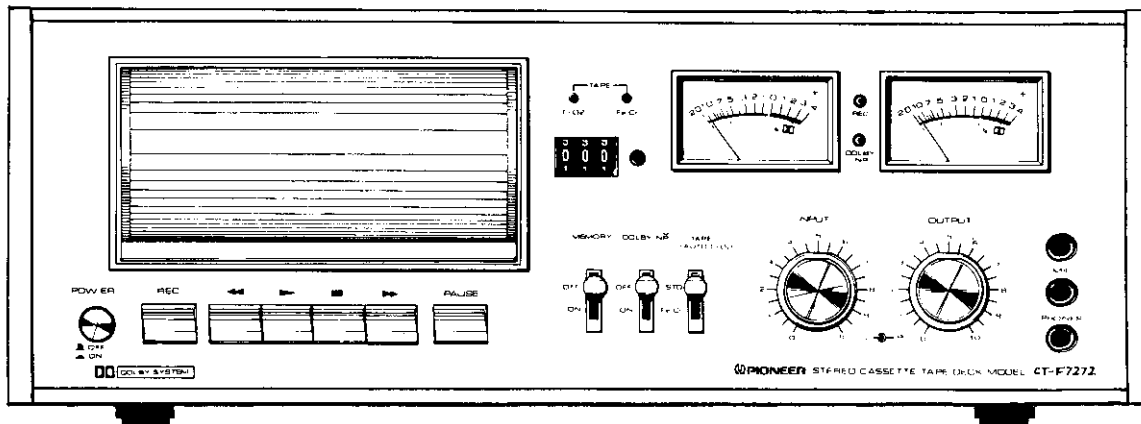
Lights red during recording.

NOTE:

Be sure to confirm REC indicator lighting before proceeding to record.

DOLBY INDICATOR LAMP

Lights to indicate Dolby recording or Dolby playback.



MEMORY STOP SWITCH

When set to ON, the tape running position during record or playback corresponding to "000" counter indication becomes registered. Employ in such situations as when desiring to again listen to the same program.

DOLBY NR SWITCH

Set to ON position to use the built-in Dolby system to perform Dolby recording or to playback Dolby recorded tape.

TAPE SELECTOR SWITCH

Selects bias and equalization according to type of tape.

STD: When using standard and LH tape

Fe-Cr: When using ferri-chrome tape

Bias and equalization become automatically selected when chrome tape equipped with extra detecting holes is used. When using chrome tape, be sure that it is provided with these holes since the automatic selector mechanism will not function if the holes are absent.

OUTPUT LEVEL CONTROLS

Adjust the output signal level during playback. The outer knob controls the right (R) channel, while the inner knob controls the left (L) channel.

INPUT LEVEL CONTROLS

Adjust recording signal input level from LINE INPUT (REC), DIN REC/PLAY and MIC jacks. The outer knob controls the right (R) channel, while the inner knob controls the left (L) channel. Observe level meters when adjusting.

PHONES JACK

Output jack for stereo headphones. These can be used for monitoring recording conditions or private listening.

CAUTION:

Do not connect a microphone to this jack, as the microphone may be damaged.

OPERATING LEVERS

RECORD (REC)

Press simultaneously with Play (▶) lever to perform recording.

PLAY (▶)

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

REWIND (◀◀)

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

STOP (■)

Press to stop tape and release other operating levers.

FAST FORWARD (▶▶)

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



MIC JACKS

To employ microphones for recording, connect them to these jacks. Connect the left channel microphone to the L jack and the right channel microphone to the R jack.

NOTE:

Be sure to disconnect microphones when not employing them. If they remain connected, recording cannot be performed from a source connected to the LINE (INPUT) or DIN jacks.

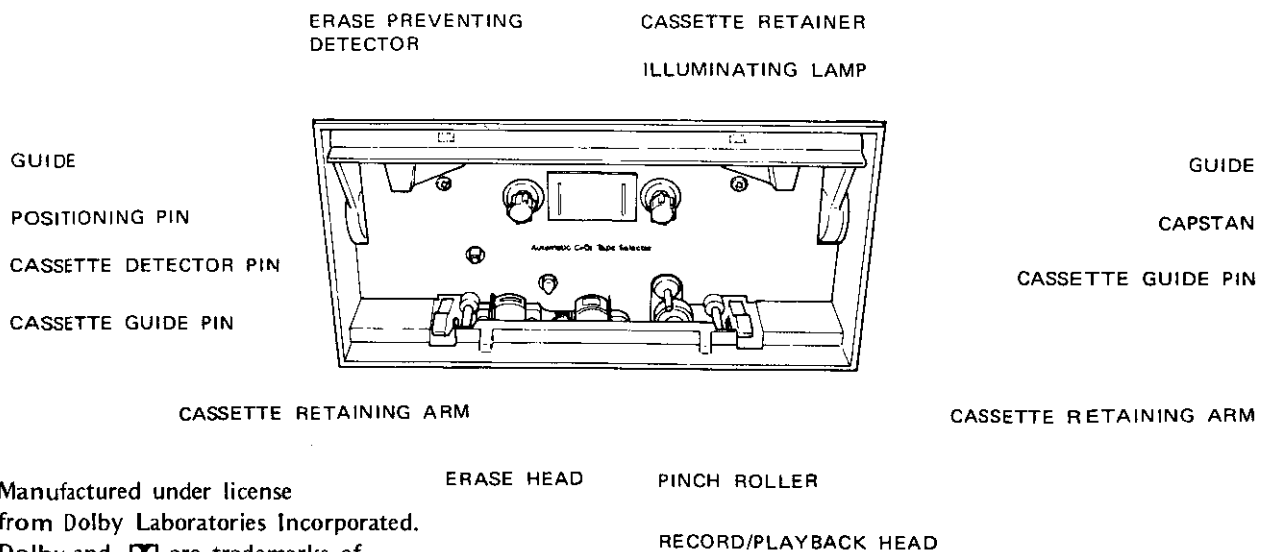
PAUSE LEVER


Depress this lever during recording or playback to temporarily stop tape motion. Press and release the lever to resume tape motion.

NOTES:

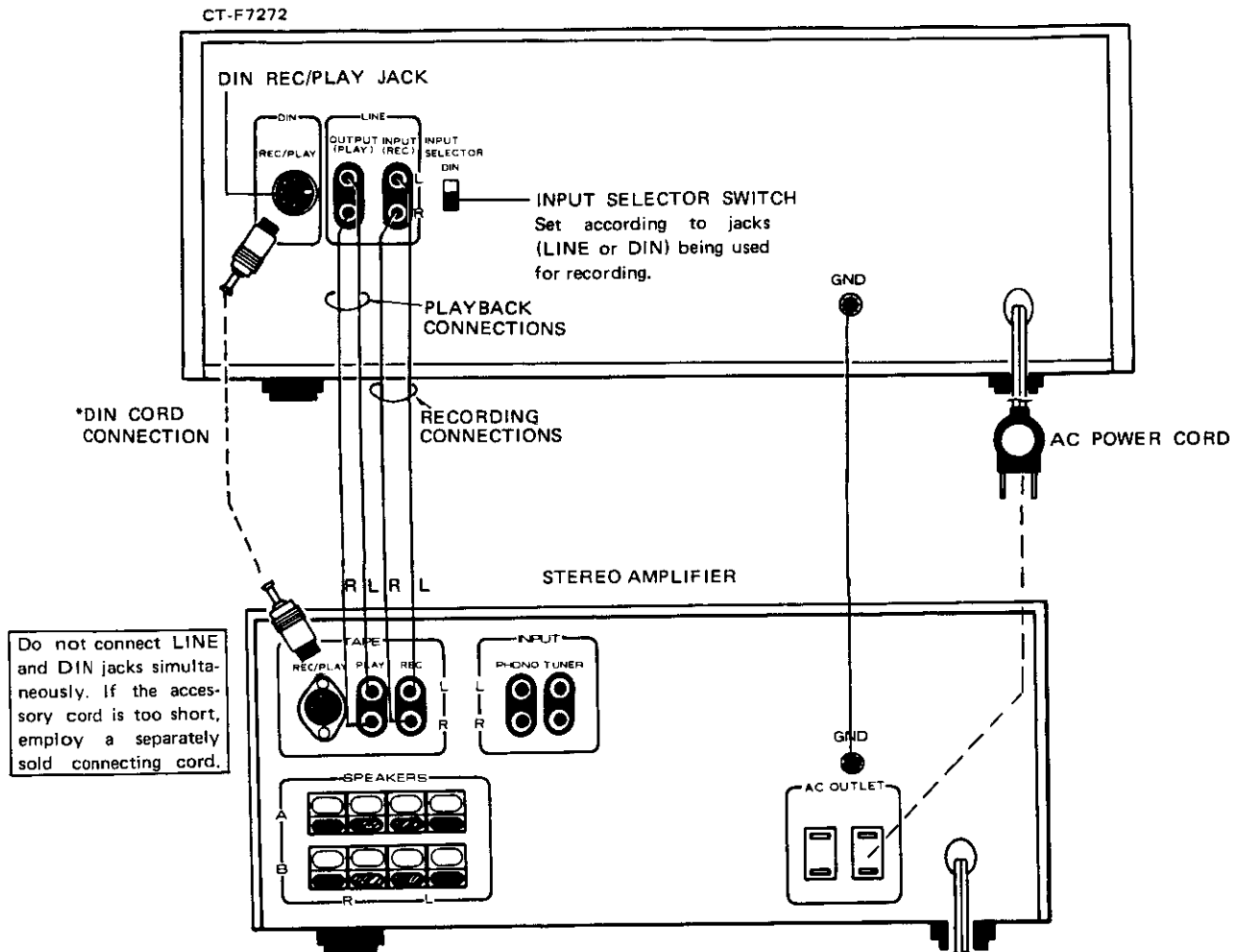
1. Do not press two or more levers simultaneously, except for the play and REC levers during recording.
2. It is not necessary to first press the stop lever when switching between modes.

MAIN SECTIONS OF TAPE TRANSPORT



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3. CONNECTION DIAGRAM



INPUT SELECTOR SWITCH OPERATION

Set switch according to program source to be recorded (Fig. 1).

LINEUse accessory cords to connect LINE (INPUT) jacks of CT-F7272 to recording output (TAPE REC) jacks of a stereo receiver (or amplifier), then set switch to this position for recording.

DINUse separately sold DIN record/play cord to connect DIN REC/PLAY jack of CT-F7272 to the same type jack (if provided) on a stereo receiver (or amplifier). Then set switch to this position for recording.

NOTE:

If microphones are connected to front panel MIC jacks, a source connected to the LINE (INPUT) or DIN REC/PLAY jacks cannot be recorded.

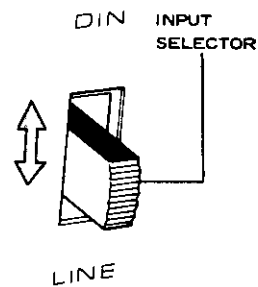
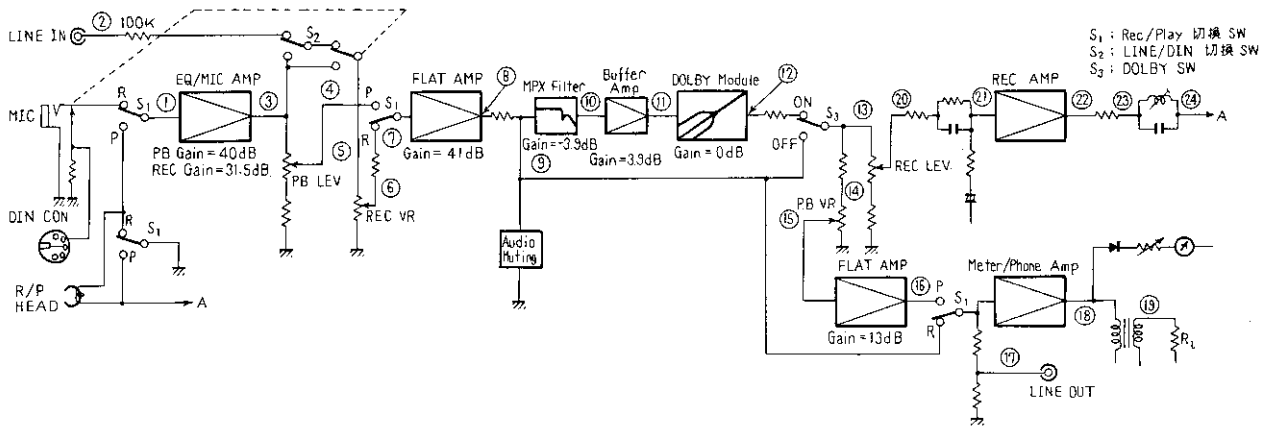
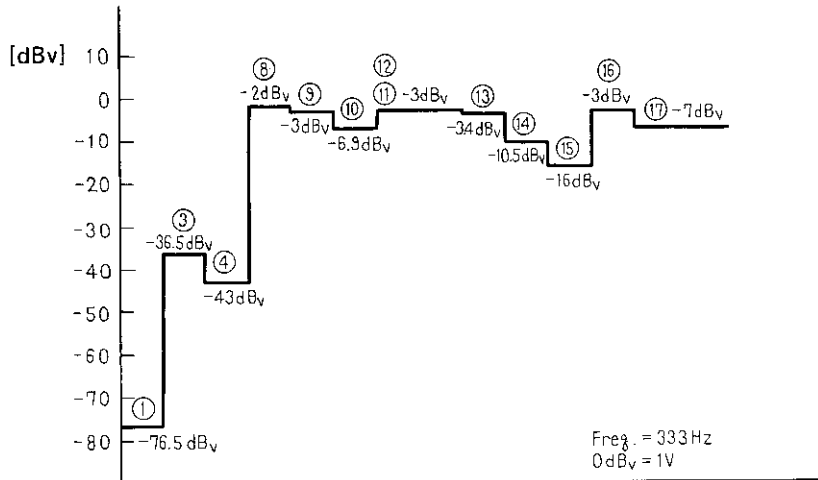


Fig. 1

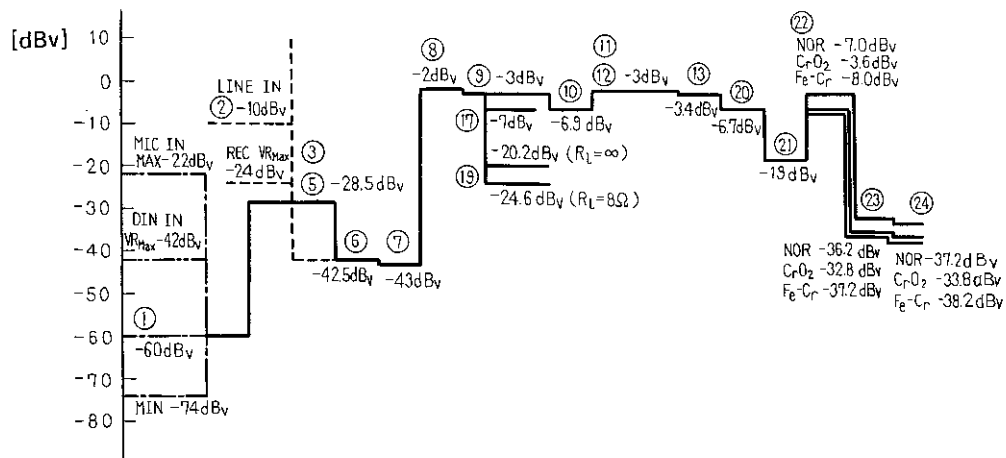
4. LEVEL DIAGRAMS



PLAYBACK



RECORDING



5. CIRCUIT DESCRIPTIONS

RECORD AND PLAYBACK CIRCUITS

The block diagram see page 13 shows the circuitry for record/playback (L.ch.). Except for a few sections, record and playback employ the same circuitry.

TAPE SELECTOR

A three-way switch: automatic chrome (CrO_2), Fe-Cr, and normal (STD).

Equalizer Circuit Switching

The low frequency compensation characteristics and the high frequency peaking frequencies of the REC amplifier are switched for recording by the TAPE SELECTOR SW, or the Automatic CrO_2 Tape Selector.

For playback, the playback equalizer compensation characteristics are switched.

Tape Bias Switching

The action of the automatic CrO_2 tape selector changes the voltage level applied to the bias oscillation circuit when recording. This then results in a change of oscillator output, and consequently a change in tape bias.

EQ AMPLIFIER

This 2-stage direct coupled amplifier employing NPN transistors, acts as an equalizer amplifier during playback. During recording, it acts as an ordinary amplifier with flat frequency characteristics.

REC AMPLIFIER

Composed of 4 NPN transistors, with CR-produced compensation in the low frequency region, and electronically switched compensation (by LC) in the high frequency region.

DOLBY MODULE

The CT-F7272 is equipped with the Dolby B-type switchable processor which provides the Dolby effect in the medium and high frequency regions only. The most troublesome tape hiss in tape playback is thus diminished.

When the input signals in the medium and high frequency ranges are below the prescribed level (Dolby level), the recording level is automatically increased, and then automatically reduced again back to the original level during playback. This is accomplished by adding (or subtracting) the output signal of the compressor to the direct signal. During recording, the compressor input is obtained from the input side of amp. 3, while the output is added to the direct signal at amp. 3, producing the required effect.

During playback, the signal is applied to the compressor from the output side of amp. 3, and this signal is of the opposite phase to that applied during recording. Therefore, the compressor output signal will also be of the opposite phase. Consequently, a signal of opposite phase is added to the direct signal, thus resulting in subtraction. The operation is just the opposite to that during recording. (Fig. 2).

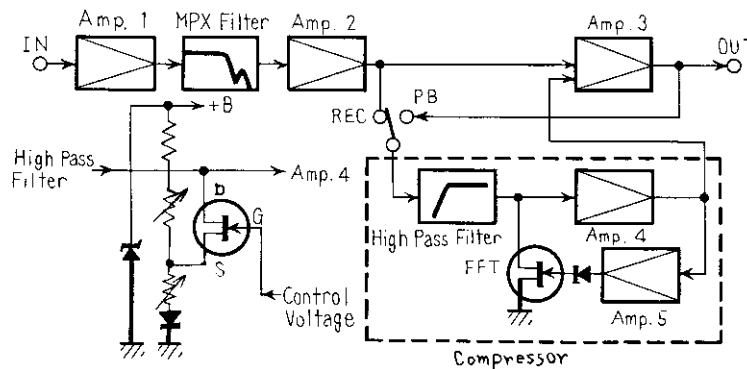


Fig. 2 Block Diagram of the Dolby Module

Compressor

The input signal is first passed through a high-pass filter. Between this filter and amp. 4 is an electronic attenuator which employs an FET. By changing the gate bias of the FET, the impedance between the drain and source can be changed. It is this change in impedance that the FET employs. The potential applied to the FET source is made positive in the first place, so the potential difference between the gate and source will equal the pinch-off potential, thus making the FET impedance extremely high. The control voltage, which is rectified upon return of the signal, can then be applied to the FET gate.

If the input signal is weak, the control voltage applied to the FET gate is reduced, thus maintaining the high impedance between the drain and source. Consequently, the amount of attenuation at the electronic attenuator is small, making the compressor output large.

When the input signal is strong, however, a high control voltage is produced, and the impedance between the FET drain and source is reduced almost to zero. Therefore, the electronic attenuator produces a high attenuation, making the compressor output small.

AUTO STOP

During tape transport, the S8-2 switch (PLAY) is ON, the S9 switch (MUTING) is OFF and the S13 switch (PAUSE) is OFF.

The action of the tape transport also rotates the hole sensing switch which consequently supplies the base of Q601 with a signal shown in Fig. 3-C. Therefore, Q601 is repeatedly turned ON and OFF, supplying a base bias via C604, D602, D603, and R607, to Q602 which is also turned ON and OFF repeatedly. The voltage difference between the collector and emitter of Q602 varies during this period in a fashion shown in Fig. 3-D.

If the tape transport then stops, the voltage shown in Fig. 3-C will cease, cutting off the base bias to Q602. Q602 is thus turned OFF. C606 will charge up in the same way as for auto start due to +B2. When its potential reaches a particular level (see Fig. 3-E), Q603 will be turned ON, followed by Q604 and Q605.

When Q605 is thus turned ON, +B2 flows through S8-2, S9, S13, D608, P601 and Q605, activating the auto stop solenoid (P601), and bringing the tape transport to a halt.

MEMORY REWIND

S12 comes ON when the MEMORY switch is turned ON.

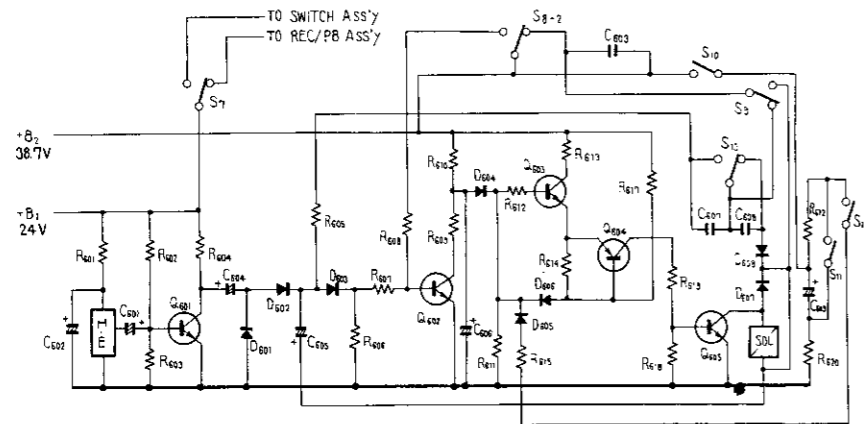
S11 comes ON when the REW lever is depressed. S10 is the counter switch, and comes ON when the tape counter indicates "999".

When the MEMORY switch is turned ON, and the transport mode put into rewind, S10 will come on immediately when the tape counter reaches "999". In the same instant, there is a sudden change of polarity produced on C609. This rapid change is differentiated, and applied as a trigger pulse to the base of Q603 in the auto stop circuit, thus turning Q604 and Q605 ON as well. A current then flows through the solenoid, releasing the rewind lever, and bringing tape transport to a halt again.

POWER SUPPLY CIRCUIT

The CT-F7272 employs a DC motor which requires a power supply independent from the amplifier. This is supplied by separate coils in the transformer. In the amplifier the ripple component is eliminated, and the stability of the supply improved, by a transistor and zener diode combination.

S8-1 can only be turned ON by depressing the FF, REW, or PLAY levers.



- S7 CHROME TAPE DETECTOR (NO HOLE - HOLE)
- S8 PLAY (OFF - ON)
- S9 MUTING (OFF - ON)
- S10 COUNTER (OFF - ON)
- S11 REW (OFF - ON)
- S12 MEMORY (OFF - ON)
- S13 PAUSE (OFF - ON)

Fig. 3-A



Fig. 3-B

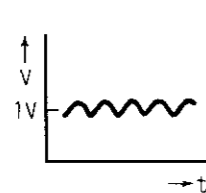


Fig. 3-C

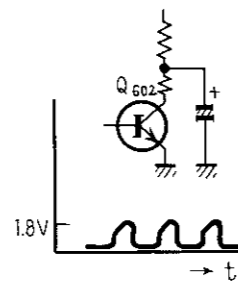


Fig. 3-D

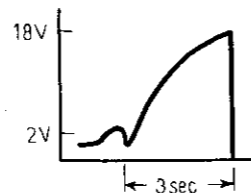


Fig. 3-E

Fig. 3

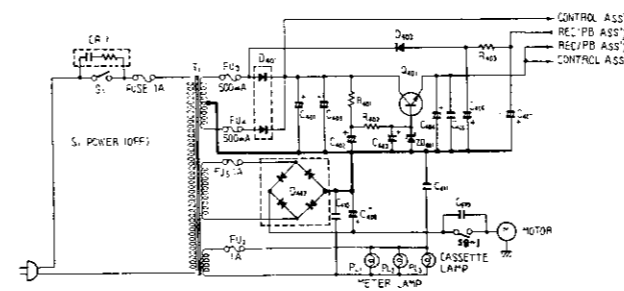
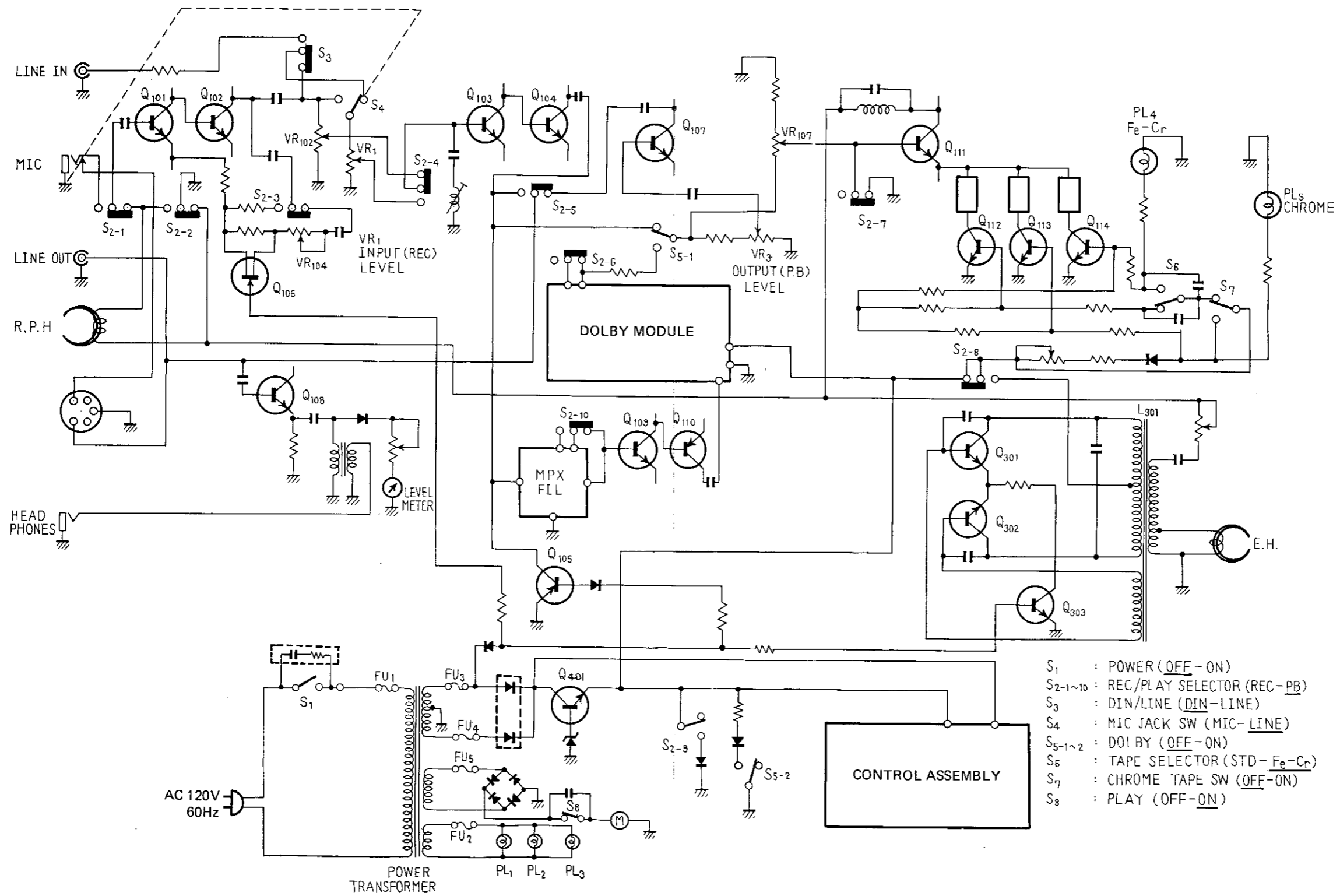


Fig. 4

6. BLOCK DIAGRAM

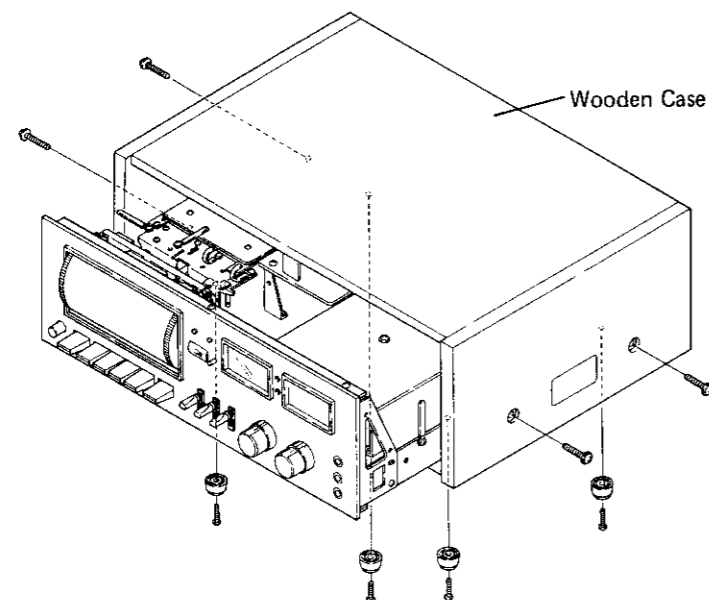


- S₁ : POWER (OFF-ON)
- S_{2-1~10} : REC/PLAY SELECTOR (REC-PB)
- S₃ : DIN/LINE (DIN-LINE)
- S₄ : MIC JACK SW (MIC-LINE)
- S_{5-1~2} : DOLBY (OFF-ON)
- S₆ : TAPE SELECTOR (STD-Fe-Cr)
- S₇ : CHROME TAPE SW (OFF-ON)
- S₈ : PLAY (OFF-ON)

7. DISASSEMBLY

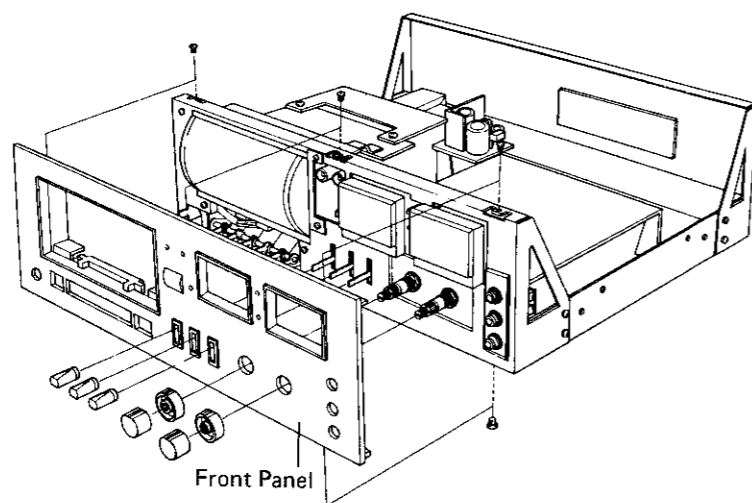
CABINET

The cabinet can be removed by taking out 4 cabinet retaining screws and the 4 foot pad retaining screws on the bottom plate. When reattaching it, ensure that there is no gap between the cabinet and the front panel.



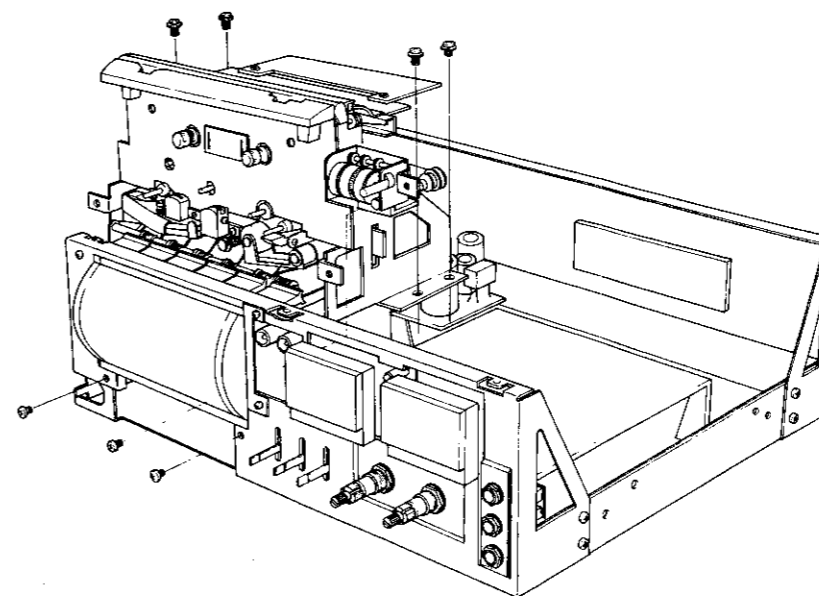
FRONT PANEL

1. Remove the knobs and switches as shown in the diagram.
2. Remove the 6 screws securing the front panel.
3. Gently remove the front panel, taking care not to scratch or damage it.

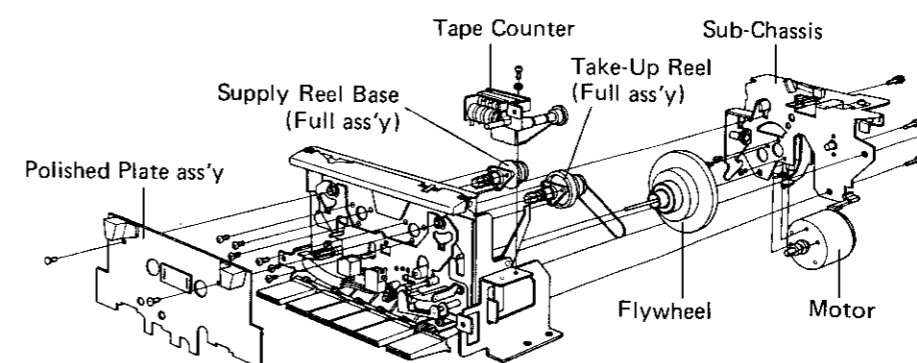


TRANSPORT MECHANISM CHASSIS

1. The lead wire from the head has been soldered on, but should not be disconnected except when exchanging heads.
2. Remove the 7 screws securing the chassis, and then gently lift out.



TRANSPORT MECHANISM



8. PARTS LOCATIONS

8.1 FRONT VIEW

Wooden case
RMM-032

Front panel
RAH-161

Level meter
RAW-047



Knob
RAA-092

Knob (D)
RNK-283

Knob (A)
RNK-280

Knob (B)
RNK-281

Knob (C)
RNK-282

Knob (A)
RNK-280

Knob (A)
RNK-280

Knob
RAA-154

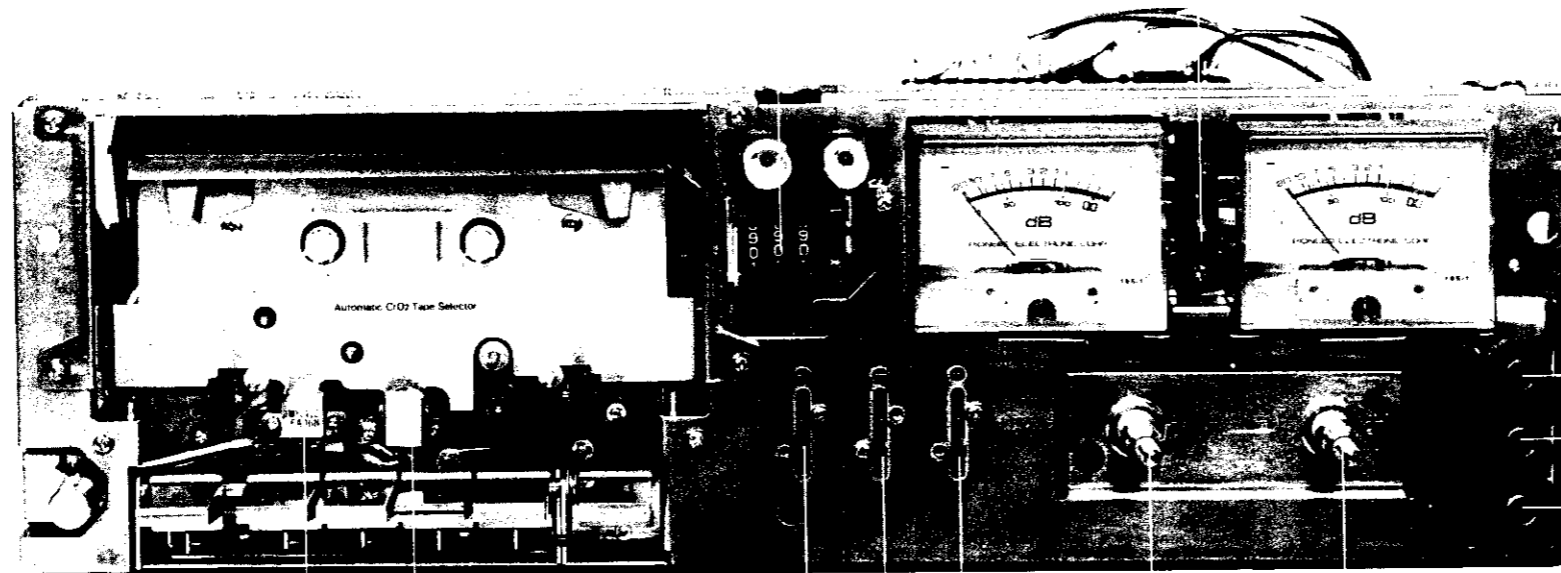
Knob
RAA-153

Knob
RAA-157

8.2 FRONT VIEW WITH PANEL REMOVED

Counter
RAW-045

Indicator assembly
RWX-130



Power switch
RSA-016

Phone jack (MIC)
RKN-031

Phone jack (HEADPHONES)
RKN-032

Erase head
RPB-014

REC/PB head
RPB-037

Variable resistor (OUTPUT)
RCV-030

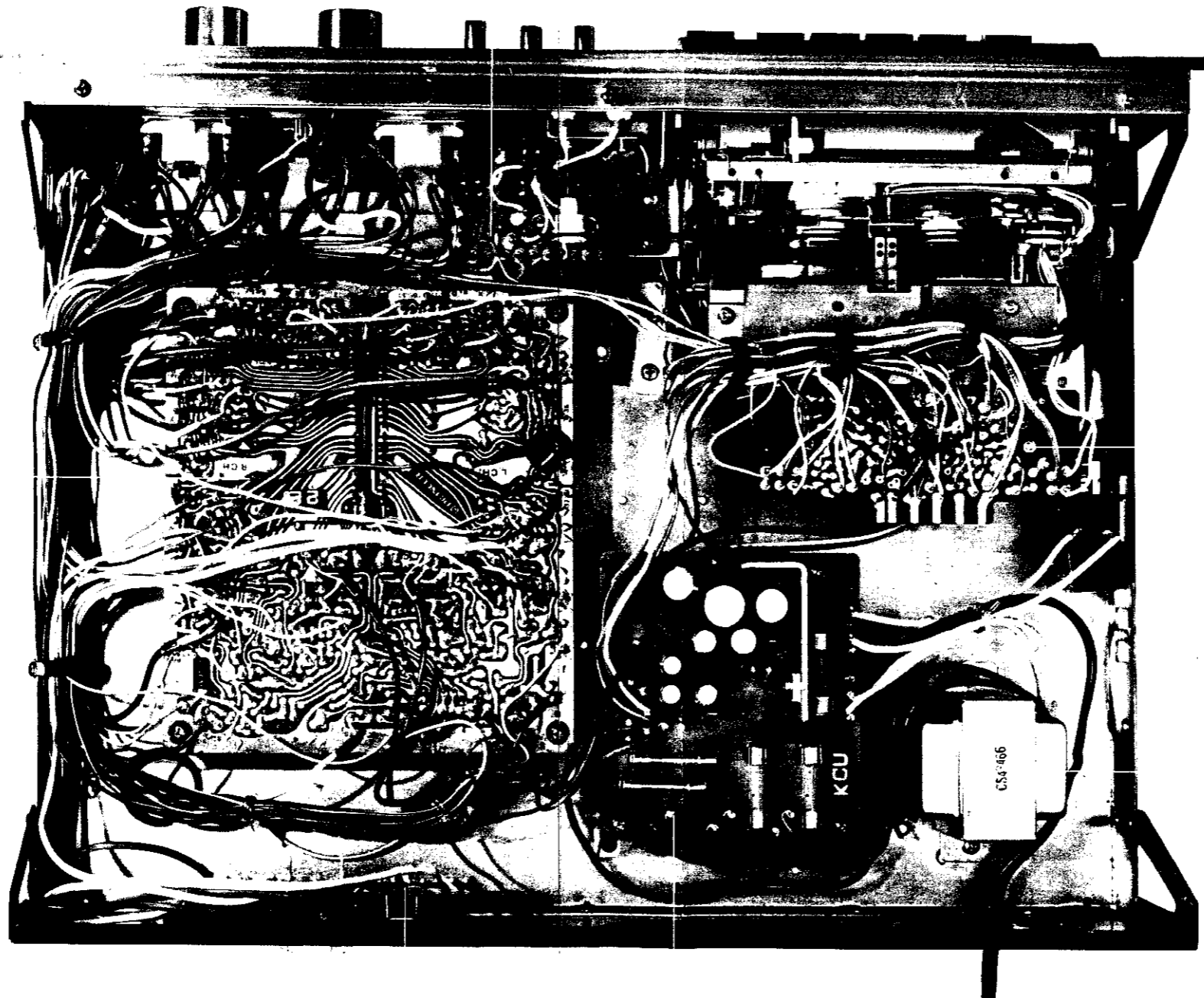
Variable resistor (INPUT)
RCV-029

Switch assembly
RWS-044

8.3 TOP VIEW

Switch assembly
RWS-044

REC/PB amplifier assembly
RWF-056



Control assembly
RWG-062

Power transformer
RTT-097

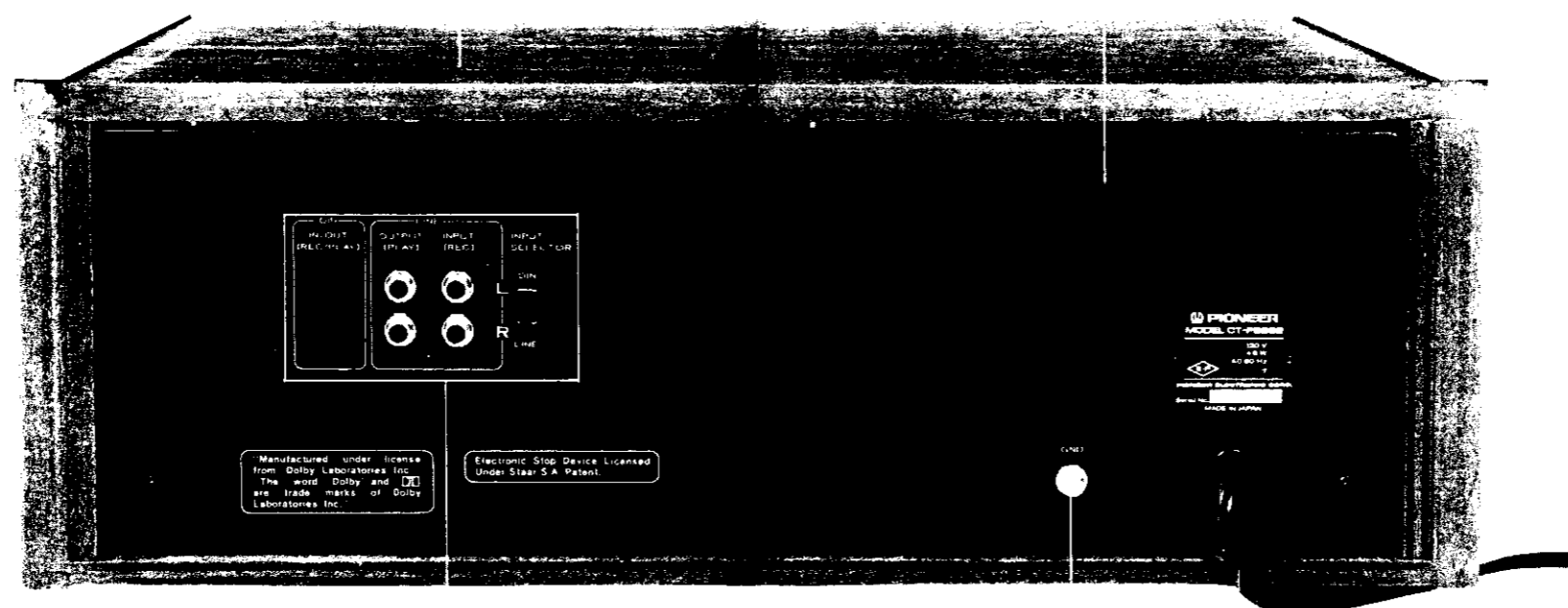
Jack Assembly
RWX-128

Power supply assembly
RWR-035

8.4 REAR VIEW

Wooden case
RMM-032

Rear panel assembly



Jack assembly
RWX-128

Power cord
RDG-013

Binding post
B11-012

9. ELECTRICAL ADJUSTMENTS

Use STD-341 as the test tape for adjustments, and STD-331 for checking frequency characteristics.

PLAYBACK SYSTEM

ADJUSTMENT OF HEAD AZIMUTH

1. Turn the output level control VR3, VR4 up to maximum level, and connect a millivoltmeter to the OUTPUT terminals.
2. Set the tape selector switch to the STD position. Playback the 10kHz signal of the STD-341 tape with the output of both L and R channels set to the maximum level. Then find the optimum head azimuth.
3. Be sure to fasten the screw with locktight after completing this adjustments.

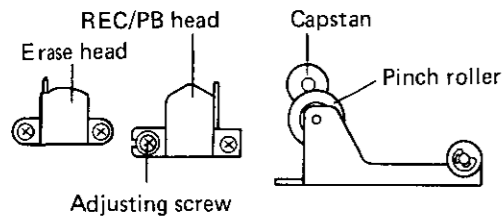


Fig. 5

ADJUSTMENT OF PLAYBACK EQUALIZER CIRCUIT

1. Set the tape selector switch to the STD position. Set the semi-fixed potentiometers VR101, VR201 for playback level adjustment to more or less a central position.
2. Playback 333Hz/-20dB from the STD-341 tape, with the output level control VR3, VR4 adjusted so that the output at the OUTPUT terminals is -30dBv (31.6mV).
3. Then playback 6.3kHz/-20dB from the STD-341 tape, and adjust the EQ adjustment potentiometers VR102, VR202, so that the OUTPUT level is -29.5dBv (33.5mV).
4. Now set the tape selector switch to Fe-Cr, and playback the same 6.3kHz/-20dB. In this condition the output level should be 18mV \pm 3mV.

ADJUSTMENT OF PLAYBACK LEVEL

1. Connect a millivoltmeter to output terminals Nos. 57 and 58 of the REC/P.B. amplifier assembly.
2. Set the DOLBY NR switch to ON. Playback 333Hz/0dB from the STD-341 tape, and adjust VR101, VR201 to give a reading of 0.6dBv (1.07V) on the millivoltmeter.

Note: This is a very important adjustment since it determines the playback Dolby level.

RECORDING SYSTEM

ADJUSTMENT OF LEVEL METERS

1. Apply the 333Hz/-10dBv (316mV) signal at the INPUT terminals, and set the deck at recording mode.
2. Adjust the input level control VR1, VR2 so that the output level at the output terminals Nos. 57 and 58 of the REC/P.B. amplifier assembly is -3.4dBv (676mV).
3. Then adjust VR103, VR203 so that the level meter reads 0VU.

ROUGH ADJUSTMENT OF RECORDING CURRENT

1. Apply the 333Hz/-10dBv (316mV) signal at the INPUT terminals, and set the deck at recording mode.
2. Adjust the input level control to give -7dBv (447mV) at the OUTPUT terminals.
3. Connect a millivoltmeter across No. 1 - No. 3 and No. 2 - No. 4 of the REC/P.B. amplifier assembly.
4. Set the tape selector switch to the STD position, and then adjust VR104, VR204 to give a 0.48mV reading in the millivoltmeter.

NOTE: Connect the set by depressing the record lever and jumpering No. 51 of the REC/P.B. amplifier assembly to ground.

ROUGH ADJUSTMENT OF RECORDING BIAS

1. Put the deck into the recording mode, and turn the input level control down to the minimum position.
2. Set the tape selector switch to the STD position.

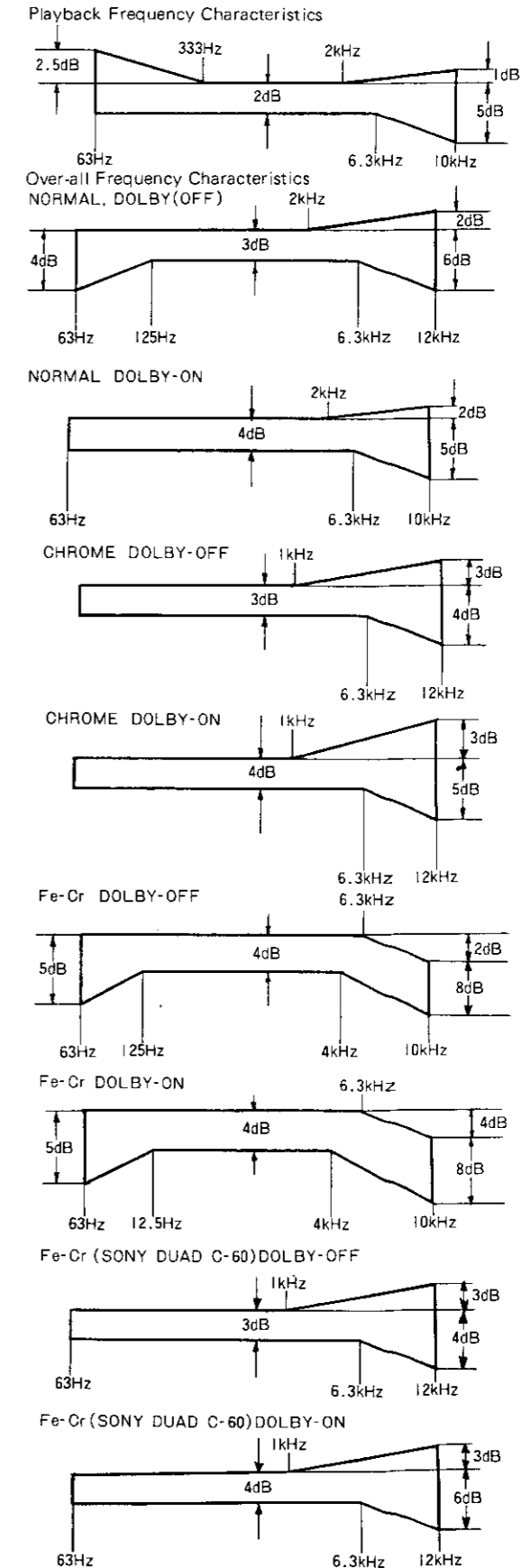
3. Connect a millivoltmeter across No. 1 - No. 3 and No. 2 - No. 4 of the REC/P.B. amplifier assembly, and adjust VR105, VR205 to give a millivoltmeter reading of 1.5mV.

ADJUSTMENT OF BIAS TRAP

1. Put the deck into the recording mode, and turn the input level control up to its maximum position (no signal input). Connect a millivoltmeter and an oscilloscope across test points No. 83 and No. 84 of the REC/P.B. amplifier assembly, and adjust L104, L204 to produce a wave form of the smallest possible amplitude.
2. Connect the millivoltmeter across the OUTPUT terminals.
3. Adjust L101, L201 to give the smallest bias leakage level. Then switch the input level control from minimum to maximum positions and check that the leakage level is less than -45dBv (5.6mV).
4. Switch the recording input to DIN, and recheck as described above.

ADJUSTMENT OF FREQUENCY CHARACTERISTICS FOR RECORDING AND PLAYBACK

1. Set the tape selector switch to the STD position, and the DOLBY NR switch to OFF.
2. Apply the 333Hz/-30dBv (31.6mV) signal to the INPUT terminals, and put the deck into the recording mode. Adjust the input level control to give -27dBv (44.7mV) at the OUTPUT terminals.
3. Record the 333Hz signal on the STD-601 tape.
4. Then record the 6.3kHz signal, and adjust VR105, VR205 so that the playback output level deviation from the 333Hz signal is +0.5dB.
5. Now record up to 12kHz, and check that each playback level conforms with the specifications. If levels do not conform, readjust VR105, VR205 to within 0dB \pm 0.5 dB.
6. Use the STD-602 (CrO₂) tape, and record the 333Hz and 6.3kHz signals. Adjust VR301 so that playback output level of the 6.3kHz signal deviates from the 333Hz signal by +0.5 \pm 1dB.
7. Set the tape select switch to the Fe-Cr position, and record the various frequencies on the STD-601 tape. Check that all playback levels conform to the specifications.
8. Set the DOLBY NR switch ON, and recheck as described in the preceding paragraphs.

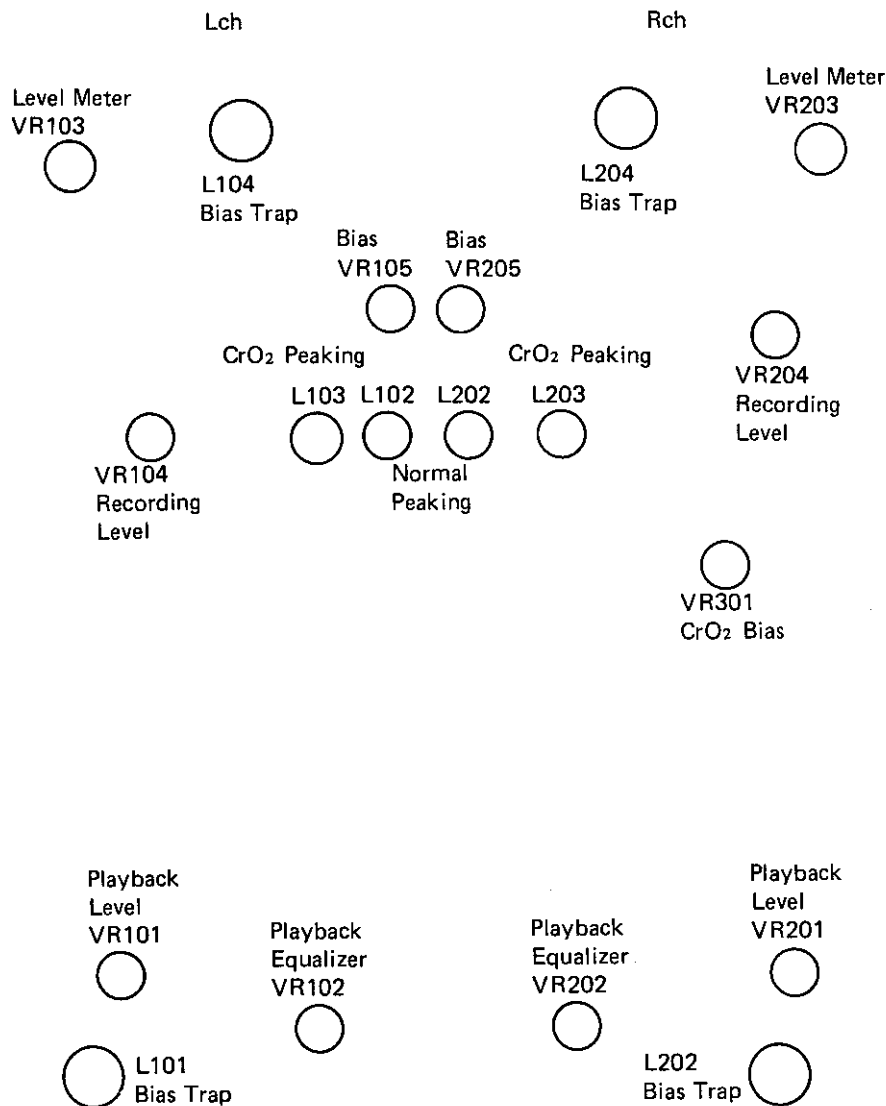


ADJUSTMENT OF RECORDING LEVEL

1. Set the tape selector switch to the STD position, and the DOLBY NR switch to ON.
2. Apply the 333Hz/−10dBv (316mV) signal to the INPUT terminals, and connect a millivoltmeter across output terminals No. 57 and No. 58 of the REC/P.B. amplifier assembly. Adjust input level control. So that the output level at the output terminals is −3.4dBv (676mV).

3. Record the 333Hz/−10dBv (316mV) signal on the STD-601 tape. Adjust VR104, VR204 so that the playback output level reads −3.4dBv (676mV) between the output terminals No. 57 and No. 58 of the REC/P.B. amplifier assembly.
4. Then record the 333Hz/−10dBv (316mV) signal on the STD-602 tape, and check that the playback level reads −1.9dBv to −4.9dBv (569mV to 804mV) across the output terminals No. 57 and No. 58.

The Location of Adjustment Points



10. MECHANICAL ADJUSTMENTS

PINCH ROLLER PRESSURE

1. Refer to page 15 for the method of disassembly of the various parts, and remove the mechanism chassis assembly.
2. Set the deck into the play mode. Press a 500g tension gauge against the measuring position, and disengage the pinch roller by 1 or 2mm from the capstan. When the pinch roller is then allowed to re-engage the capstan, and the pinch roller commences to rotate, the value should be between 280 to 360g.
3. If the measured value does not lie within this range, readjust the tension in the pinch arm spring.

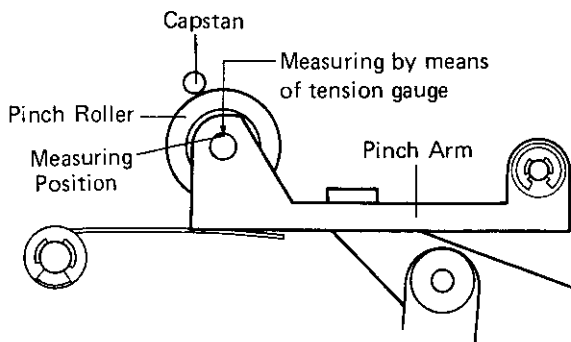


Fig. 6

REEL BASE TORQUE

If the torque values lie outside the allowable ranges shown in the table, clean all contacting parts such as idler, reel bases, and other rollers, and remeasure the torque.

If the results are still outside the allowable range, replace the supply reel base or the take-up reel base.

Torque Values for Each Reel Base

Take-up Reel Base	
PLAY take-up torque	40 ~ 65g.cm.
FF take-up torque	75 ~ 130g.cm.
REW back tension torque	less than 5g.cm.
Supply Reel Base	
PLAY back tension torque	less than 6g.cm.
REW take-up torque	75 ~ 130g.cm.

ADJUSTMENT OF TAPE SPEED

1. Insert a flat-bladed screw driver into the hole at the rear of the capstan motor, and adjust the semi-fixed resistor.
2. Tape speed is increased by turning the screw anti-clockwise, and decreased by turning clockwise. (See Fig. 7).

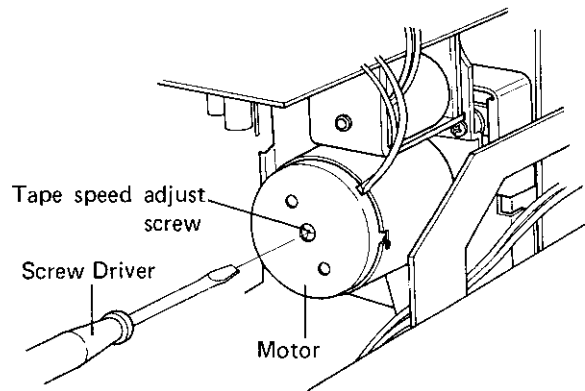


Fig. 7

ADJUSTMENT OF PLAY TIMING

1. Depress the PAUSE lever when the deck is in up reel base starts to rotate, the gap between the pinch roller and capstan should be no more than 0.5mm. (See Fig. 8).
2. If the gap is larger, insert a flat-bladed screwdriver, shown in the diagram, and bend the part in contact with the pinch arm of the head base up and down.

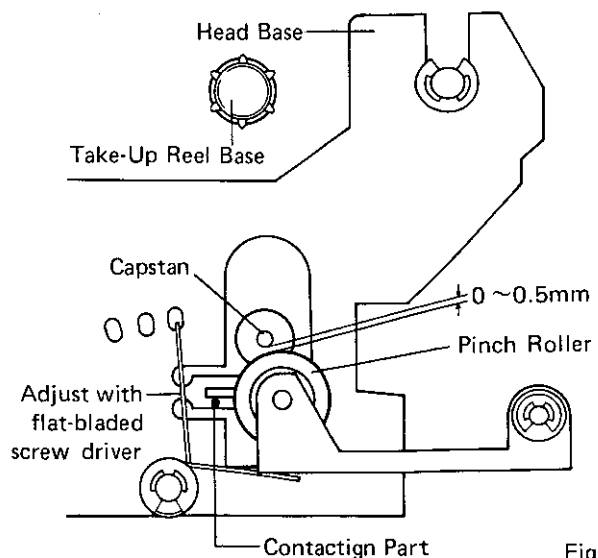


Fig. 8

WOW AND FLUTTER

Uneven rotation can be caused by any of the following items. Check each item, and clean, or readjust, or replace as is deemed necessary.

1. Bending, vibration, or soiling of the capstan.
2. Flywheel thrust axial play.
3. Soiling or deterioration of capstan belt.
4. Soiled pinch roller, or incorrect engage pressure.
5. Soiled take-up idler, or incorrect engage pressure or eccentricity.
6. Unstable take-up reel base torque.
7. Unstable or incorrect back tension torque.
8. Unstable torque in sensing switch or counter.
9. Faulty or inferior cassette tape.

ADJUSTMENT OF PAUSE TIMING

1. Depress the PAUSE lever when the deck is in the play mode, and then gently release it. The gap between the pinch roller and capstan should be no wider than 0.1mm when the reel base commences to rotate. (See Fig. 9).
2. If the gap is larger, adjust by bending the part in contact with the pause arm of the pause action plate, in the direction which the pause action plate moves.
3. After making this adjustment, put the deck into the play mode again, and check that there is gap either between the pinch arm 3R part and the bent-over part of the pause arm, or between the pause action plate and the contact part of the pause arm when the bent-over part of the pause arm makes contact with the pinch arm 3R part.

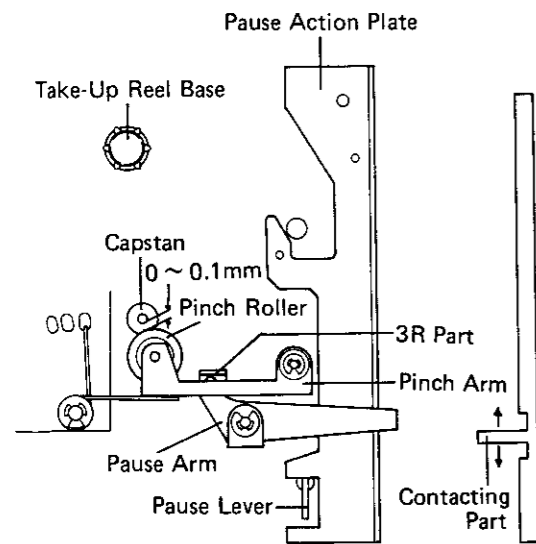


Fig. 9

ADJUSTMENT OF MOTOR SWITCH ACTION

1. Put the deck into the stationary condition (and with the brake action plate in the off position).
2. There should be a small gap (g) between the bent-over part of the brake action plate and the motor switch separator (usually about 0.05 ~ 0.15mm).
3. If the gap is too large or too small, insert a flat-bladed screw driver into the groove in the motor switch bracket, and swing it back and forth a few times (see Fig. 10).

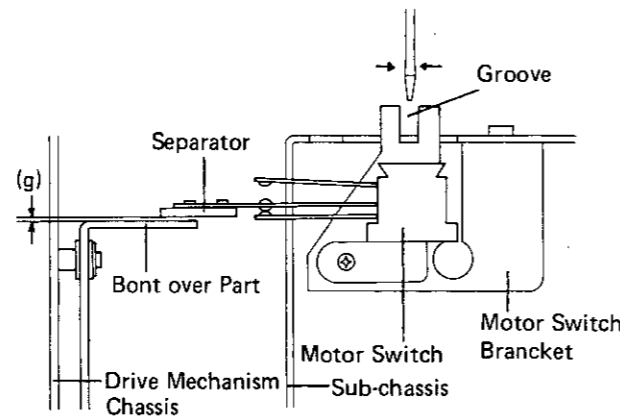


Fig. 10

ADJUSTMENT OF MUTING SWITCH ACTION

1. Set the deck into the PLAY mode (with the muting switch operation completed).
2. When the PLAY lever is depressed, the action will also depress the muting switch separator. As a result, the separator should have moved the fixed side B by 1 ± 0.5 mm (See Fig. 11).
3. If the movement is greater or smaller, insert a screwdriver into the groove in the switch holder, and swing it up and down several times.

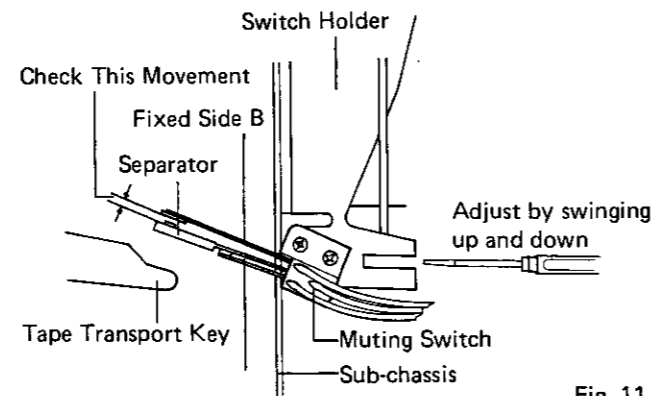


Fig. 11

REPLACEMENT OF TAPE TRANSPORT KEYS

1. Remove the front panel as shown in section 7.
2. Using a drier or any other suitable heating apparatus, heat the lever to be replaced, taking care to avoid heating other levers as much as possible.
3. The bonding agent starts to soften under heat, so pull firmly on the relevant lever after sufficient heating.
4. Paste a suitable amount of Bond 575 (or equivalent material) onto the replacement lever, and reinsert as firmly as possible.

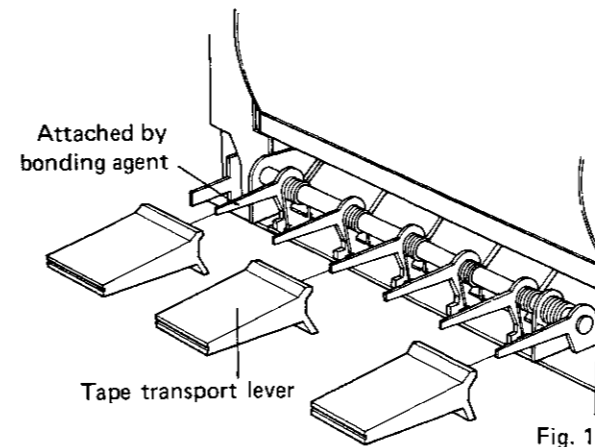
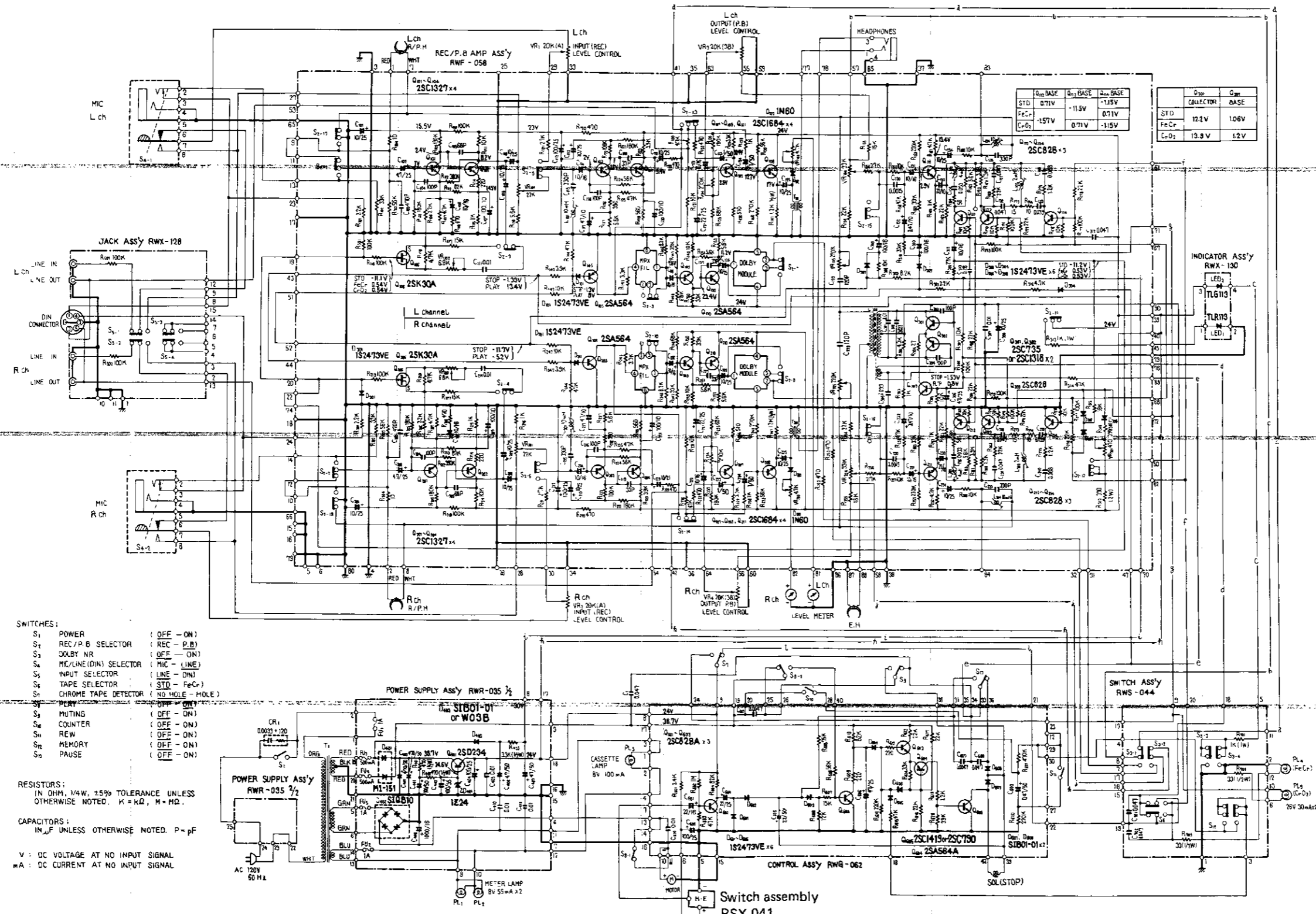


Fig. 12

11. SCHEMATIC DIAGRAMS P.C.BOARD PATTERNS AND PARTS LIST

11.1 SCHEMATIC DIAGRAM



- SWITCHES:**
- S₁ POWER (OFF - ON)
 - S₂ REC/P.B SELECTOR (REC - P.B)
 - S₃ DOLBY NR (OFF - ON)
 - S₄ MIC/LINE(DIN) SELECTOR (MIC - LINE)
 - S₅ INPUT SELECTOR (LINE - DIN)
 - S₆ TAPE SELECTOR (STD - FeCr)
 - S₇ CHROME TAPE DETECTOR (NO HOLE - HOLE)
 - S₈ REW (OFF - ON)
 - S₉ MUTING (OFF - ON)
 - S₁₀ COUNTER (OFF - ON)
 - S₁₁ REW (OFF - ON)
 - S₁₂ MEMORY (OFF - ON)
 - S₁₃ PAUSE (OFF - ON)

RESISTORS:
 IN OHM, 1/4W, ±5% TOLERANCE UNLESS OTHERWISE NOTED. K = KΩ, M = MΩ.

CAPACITORS:
 IN μF UNLESS OTHERWISE NOTED. P = pF

V = DC VOLTAGE AT NO INPUT SIGNAL
 mA = DC CURRENT AT NO INPUT SIGNAL

Q ₁ BASE	Q ₂ BASE	Q ₃ BASE
STD 0.71V	-1.15V	-1.15V
FeCr 1.57V	0.71V	-1.15V

Q ₁₀ COLLECTOR	Q ₁₀ BASE
STD 12.1V	1.06V
FeCr 13.3V	1.2V

11.2 MISCELLANEOUS-PARTS

NOTE:

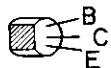
Capacitors: in μF unless otherwise noted p : pF

Resistors: in Ω , 1/4W unless otherwise noted k : k Ω , M : M Ω

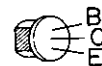
Symbol	Description	Part No.
T1	Power transformer	RTT-097
C1	Mylar 0.047 50V	CQMA 473K 50
CR1	Spark killer	RWX-109
VR1	Variable resistor (INPUT)	RCV-029
VR3	Variable resistor (OUTPUT)	RCV-030
PL1	Lamp (METER) 8V 55mA	
PL2	Lamp (METER) 8V 55mA	
PL3	Lamp (CASSETTE) 8V 100mA	
PL4	Lamp (FeCr) 26V 30mA	REL-026
PL5	Lamp (CrO ₂) 26V 30mA	REL-026
S1	Power switch	RSA-010
S7	CHROME TAPE DETECTOR Switch	RSN-010
S8	PLAY Switch	RSN-011
S9	MUTING Switch	RSN-006
S11	REW Switch	RSN-019
S13	PAUSE Switch	RSN-006
H.E.	Erase head	RPB-014
R/PH	REC/PB head	RPB-037
SOL	STOP SOL Level meter	RXP-036 RAW-047
	MIC jack	RKN-031
	Headphone jack	RKN-032
	Power cord	RDG-013
	Motor	RXM-027
	Control assembly	RWG-062
	REC/PB amplifier assembly	RWF-056
	Indicator assembly	RWX-130
	Switch assembly	RWS-044
	Jack assembly	RWX-128
	Power supply assembly	RWR-035
	Switch assembly	RSX-041

External Appearance of Transistors

- 2SA564
- 2SA564A
- 2SC828
- 2SC828A
- 2SC1327
- 2SC1684



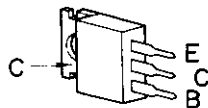
2SC735



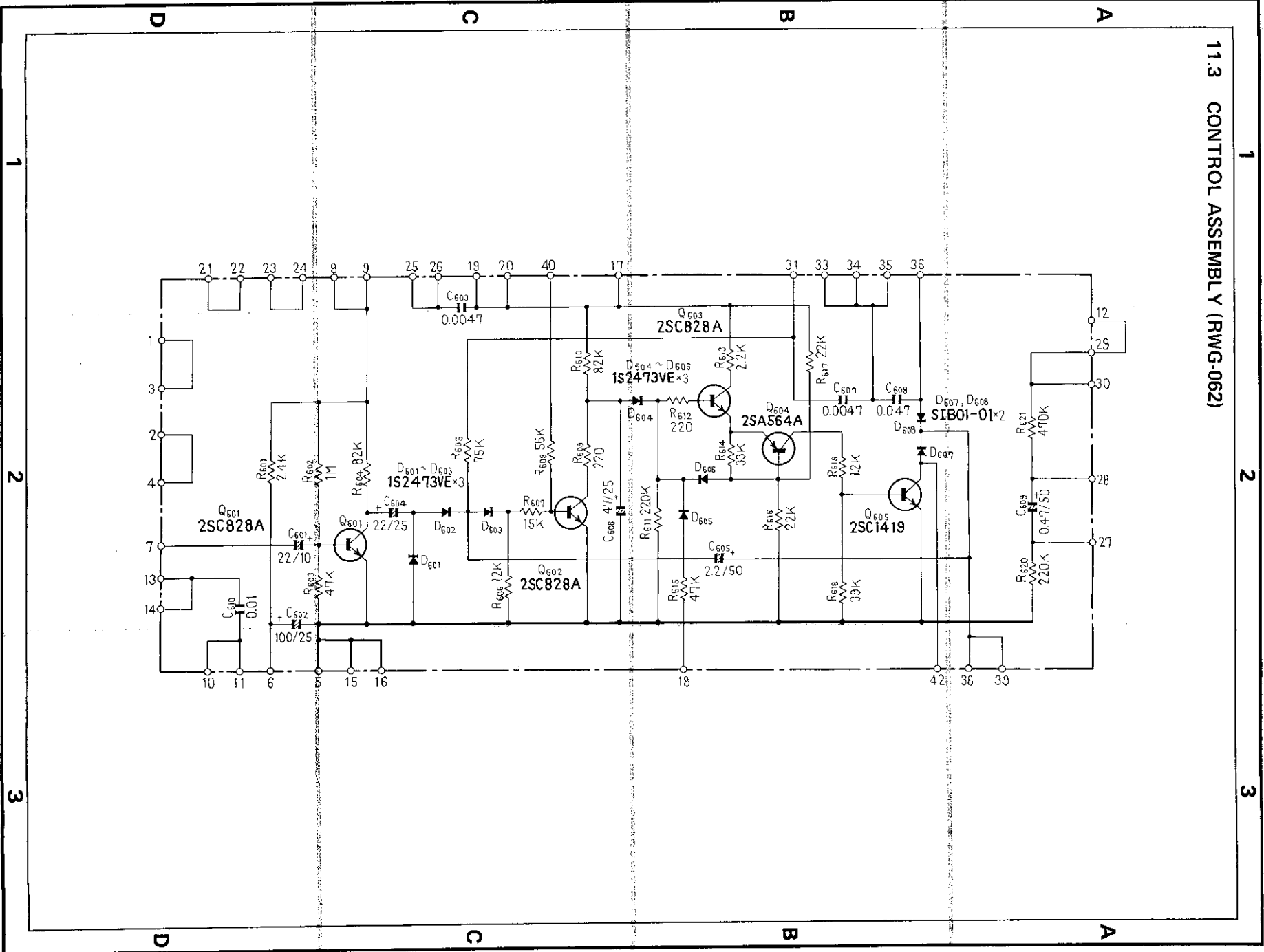
2SK30A

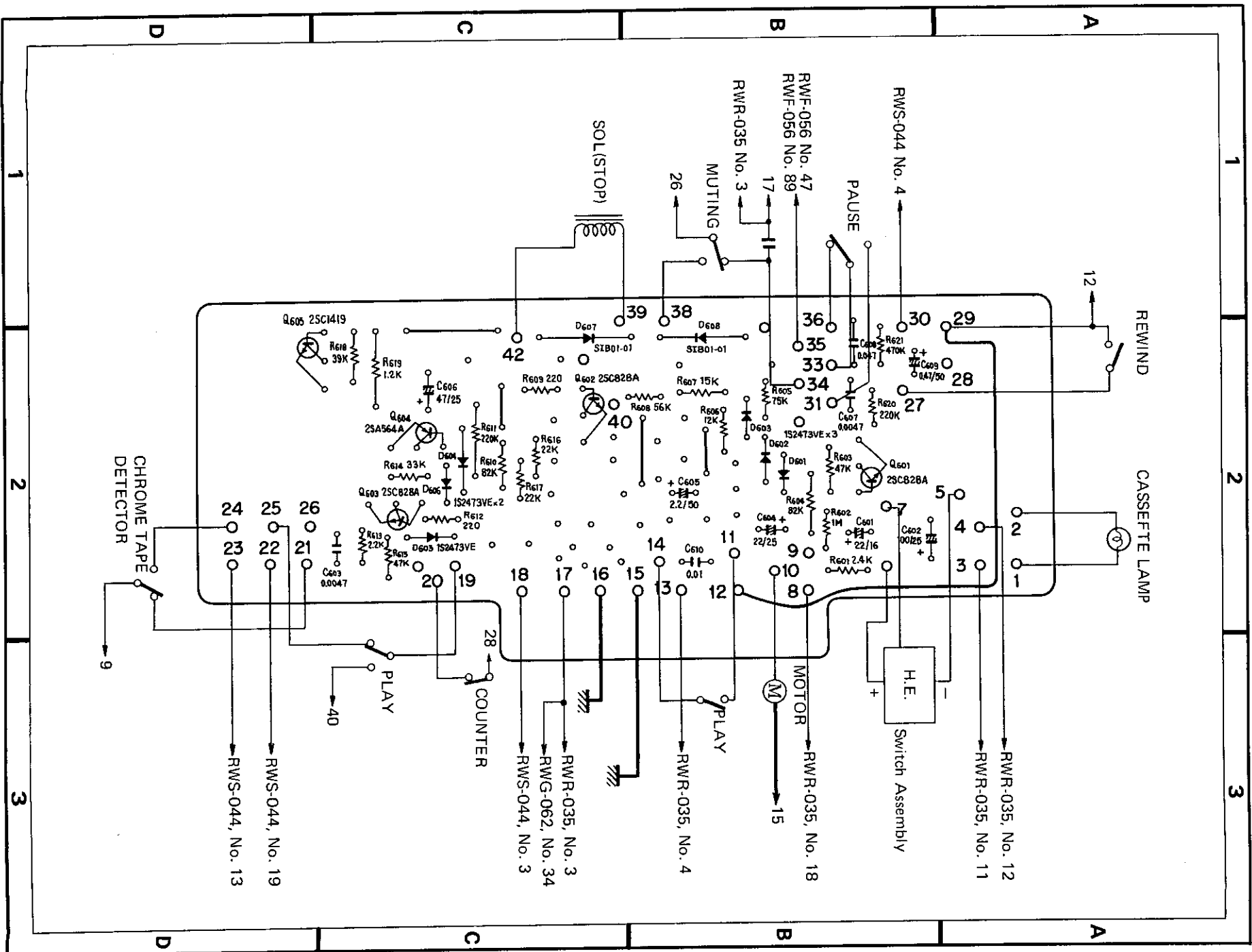


- 2SD234
- 2SC1419



11.3 CONTROL ASSEMBLY (RWG-062)





CHROME TAPE
DETECTOR

9

24 25 26
23 22 21
20 19
RWS-044, No. 19
RWS-044, No. 13

PLAY
40

COUNTER
28

RWR-035, No. 3
RWG-062, No. 34
RWS-044, No. 3

PLAY
15

MOTOR
RWR-035, No. 18
15

H.E.
Switch Assembly

RWR-035, No. 12
RWR-035, No. 11

REWIND
CASSETTE LAMP

2

3

Parts List of Control Assembly (RWG-062)

SEMICONDUCTORS

Symbol	Description	Part No.
Q601	Transistor	2SC828A-R (S)
Q602	Transistor	2SC828A-R (S)
Q603	Transistor	2SC828A-R (S)
Q604	Transistor	2SA564A-R (S)
Q605	Transistor	2SC1419-C (2SC790-Y)
D601	Diode	1S2473VE
D602	Diode	1S2473VE
D603	Diode	1S2473VE
D604	Diode	1S2473VE
D605	Diode	1S2473VE
D606	Diode	1S2473VE
D607	Diode	SIB01-01 or (SIB01-02) (W03B) (W03C)
D608	Diode	SIB01-01 or (SIB01-02) (W03B) (W03C)

RESISTORS

Symbol	Description	Part No.
R601	Carbon film 2.4k	RD¼VS 242J
R602	Carbon film 1M	RD¼VS 105J
R603	Carbon film 47k	RD¼VS 473J
R604	Carbon film 82k	RD¼VS 823J
R605	Carbon film 75k	RD¼VS 753J
R606	Carbon film 12k	RD¼VS 123J
R607	Carbon film 15k	RD¼VS 153J
R608	Carbon film 56k	RD¼VS 563J
R609	Carbon film 220	RD¼VS 221J
R610	Carbon film 82k	RD¼VS 823J
R611	Carbon film 220k	RD¼VS 224J
R612	Carbon film 220	RD¼VS 221J
R613	Carbon film 2.2k	RD¼VS 222J
R614	Carbon film 33k	RD¼VS 333J
R615	Carbon film 47k	RD¼VS 473J
R616	Carbon film 22k	RD¼VS 223J
R617	Carbon film 22k	RD¼VS 223J
R618	Carbon film 39k	RD¼VS 393J
R619	Carbon film 1.2k	RD¼VS 122J
R620	Carbon film 220k	RD¼VS 224J
R621	Carbon film 470k	RD¼VS 474J

CAPACITORS

Symbol	Description	Part No.
C601	Electrolytic 22 10V	CEA 220P 16
C602	Electrolytic 100 25V	CEA 101P 25
C603	Mylar 4700p 50V	CQMA 472K 50
C604	Electrolytic 22 25V	CEA 220P 25
C605	Electrolytic 2.2 50V	CEA 2R2P 50
C606	Electrolytic 47 25V	CEA 470P 25
C607	Mylar 4700p 50V	CQMA 472K 50
C608	Mylar 0.047 50V	CQMA 473K 50
C609	Electrolytic 0.47 50V	CEA 0R47P 50
C610	Mylar 0.01 50V	CQMA 103K 50

Symbol	Description	Part No.
R126	Carbon film 390	RD%VS 391J
R127	Carbon film 5.6k	RD%VS 562J
R128	Carbon film 560	RD%VS 561J
R129	Carbon film 470	RD%VS 471J
R130	Carbon film 4.7k	RD%VS 472J
R131	Carbon film 10k	RD%VS 103J
R132	Carbon film 470	RD%VS 471J
R133	Carbon film 180k	RD%VS 184J
R134	Carbon film 270k	RD%VS 274J
R135	Carbon film 68k	RD%VS 683J
R136	Carbon film 510	RD%VS 511J
R137	Carbon film 3.3k	RD%VS 332J
R138	Carbon film 1k	TD%VS 102J
R139	Carbon film 56k	TD%VS 563J
R140	Carbon film 270k	RD%VS 274J
R141	Carbon film 1.2k $\frac{1}{2}W$	RD%PS 122J
R142	Carbon film 3.9k	RD%VS 392J
R143	Carbon film 10k	RD%VS 103J
R144	Carbon film 47k	RD%VS 473J
R145	Carbon film 3.3k	RD%VS 332J
R146	Carbon film 8.2k	RD%VS 822J
R147	Carbon film 33k	RD%VS 333J
R148	Carbon film 68k	RD%VS 683J
R149	Carbon film 10k	RD%VS 103J
R150	Carbon film 33k	RD%VS 333J
R151	Carbon film 5.6k	RD%VS 562J
R152	Carbon film 5.6k	RD%VS 562J
R153	Carbon film 470	RD%VS 471J
R154	Carbon film 22k	RD%VS 223J
R155	Carbon film 18k	RD%VS 183J
R156	Carbon film 2.7k	RD%VS 272J
R157	Carbon film 10k	RD%VS 103J
R158	Carbon film 4.7k	RD%VS 472J
R159	Carbon film 220k	RD%VS 224J
R160	Carbon film 33k	RD%VS 333J
R161	Carbon film 4.7k	RD%VS 472J
R162	Carbon film 1k	RD%VS 102J
R163	Carbon film 22k	RD%VS 223J
R164	Carbon film 56	RD%VS 560J
R165	Carbon film 5.6k	RD%VS 562J
R166	Carbon film 10k	RD%VS 103J
R167	Carbon film 10k	RD%VS 103J
R168	Carbon film 1.3k	RD%VS 132J
R169	Carbon film 2.2k	RD%VS 222J
R170	Carbon film 10k	RD%VS 103J
R171	Carbon film 100k	RD%VS 104J
R172	Carbon film 22k	RD%VS 223J
R173	Carbon film 15	RD%VS 150J
R174	Carbon film 10	RD%VS 100J
R175	Carbon film 1.2k	RD%VS 122J
R176	Carbon film 10k	RD%VS 103J
R177	Carbon film 100k	RD%VS 104J
R178	Carbon film 22k	RD%VS 223J

Symbol	Description	Part No.
R179	Carbon film 100k	RD%VS 104J
R180	Carbon film 22k	RD%VS 223J
R181	Carbon film 2.7k	RD%VS 272J
R182	Carbon film 3.9k	RD%VS 392J
R201	Carbon film 2.2k	RD%VS 222J
R202	Carbon film 33k	RD%VS 333J
R203	Carbon film 56k	RD%VS 563J
R204	Carbon film 10	RD%VS 100J
R205	Carbon film 180k	RD%VS 184J
R206	Carbon film 2.2k	RD%VS 222J
R207	Carbon film 4.7k	RD%VS 472J
R208	Carbon film 470	RD%VS 471J
R209	Carbon film 180k	RD%VS 184J
R210	Carbon film 100k	RD%VS 104J
R211	Carbon film 10k	RD%VS 103J
R212	Carbon film 390k	RD%VS 394J
R213	Carbon film 82k	RD%VS 823J
R214	Carbon film 220	RD%VS 221J
R215	Carbon film 1k	RD%VS 102J
R216	Carbon film 5.6k	RD%VS 562J
R217	Carbon film 15k	RD%VS 153J
R218	Carbon film 4.7	RD%VS 472J
R219	Carbon film 100k	RD%VS 104J
R220	Carbon film 470	RD%VS 471J
R221	Carbon film 180k	RD%VS 184J
R222	Carbon film 100k	RD%VS 104J
R223	Carbon film 3.9k	RD%VS 392J
R224	Carbon film 56k	RD%VS 563J
R225	Carbon film 47k	RD%VS 473J
R226	Carbon film 390	RD%VS 391J
R227	Carbon film 5.6k	RD%VS 562J
R228	Carbon film 560	RD%VS 561J
R229	Carbon film 470	RD%VS 471J
R230	Carbon film 4.7k	RD%VS 472J
R231	Carbon film 10k	RD%VS 103J
R232	Carbon film 470	RD%VS 471J
R233	Carbon film 180k	RD%VS 184J
R234	Carbon film 270k	RD%VS 274J
R235	Carbon film 68k	RD%VS 683J
R236	Carbon film 510	RD%VS 511J
R237	Carbon film 3.3k	RD%VS 332J
R238	Carbon film 1k	RD%VS 102J
R239	Carbon film 56k	RD%VS 563J
R240	Carbon film 270k	RD%VS 274J
R241	Carbon film 1.2k $\frac{1}{2}W$	RD%PS 122J
R242	Carbon film 3.9k	RD%VS 392J
R243	Carbon film 10k	RD%VS 103J
R244	Carbon film 47k	RD%VS 473J
R245	Carbon film 3.3k	RD%VS 332J
R246	Carbon film 8.2k	RD%VS 822J
R247	Carbon film 33k	RD%VS 333J
R248	Carbon film 68k	RD%VS 683J

Symbol	Description	Part No.
R249	Carbon film 10k	RD%VS 103J
R250	Carbon film 33k	RD%VS 333J
R251	Carbon film 5.6k	RD%VS 562J
R252	Carbon film 5.6k	RD%VS 562J
R253	Carbon film 470	RD%VS 471J
R254	Carbon film 22k	RD%VS 223J
R255	Carbon film 18k	RD%VS 183J
R256	Carbon film 2.7k	RD%VS 272J
R257	Carbon film 10k	RD%VS 103J
R258	Carbon film 4.7k	RD%VS 472J
R259	Carbon film 220k	RD%VS 224J
R260	Carbon film 33k	RD%VS 333J
R261	Carbon film 4.7k	RD%VS 472J
R262	Carbon film 1k	RD%VS 102J
R263	Carbon film 22k	RD%VS 223J
R264	Carbon film 56	RD%VS 560J
R265	Carbon film 5.6k	RD%VS 562J
R266	Carbon film 10k	RD%VS 103J
R267	Carbon film 10k	RD%VS 103J
R268	Carbon film 1.3k	RD%VS 132J
R269	Carbon film 2.2k	RD%VS 222J
R270	Carbon film 10k	RD%VS 103J
R271	Carbon film 100k	RD%VS 104J
R272	Carbon film 22k	RD%VS 223J
R273	Carbon film 15	RD%VS 150J
R274	Carbon film 10	RD%VS 100J
R275	Carbon film 1.2k	RD%VS 122J
R276	Carbon film 10k	RD%VS 103J
R277	Carbon film 100k	RD%VS 104J
R278	Carbon film 22k	RD%VS 223J
R279	Carbon film 100k	RD%VS 104J
R280	Carbon film 22k	RD%VS 223J
R281	Carbon film 2.7k	RD%VS 272J
R282	Carbon film 3.9k	RD%VS 392J
R301	Carbon film 100k	RD%VS 104J
R302	Carbon film 4.3k	RD%VS 432J
R303	Carbon film 1k	RD%VS 102J
R304	Carbon film 27	RD%VS 270J
R305	Carbon film 10k	RD%VS 103J
R306	Carbon film 100k	RD%VS 104J
R307	Carbon film 10k	RD%VS 103J
R308	Carbon film 10k	RD%VS 103J
R309	Carbon film 8.2k	RE%VS 822J
R310	Carbon film 27k	RD%VS 273J
R311	Carbon film 2.2k	RD%VS 222J
R312	Carbon film 4.7k	RD%VS 472J
R313	Metal oxide film 1k 1W	RS1P 102J
R314	Carbon film 47k	RD%VS 473J
R315	Carbon film 18k	RD%VS 183J
R316	Metal oxide film 390 2W	RS2P 391J
R317	Metal oxide film 330 2W	RS2P 331J
R318	Carbon film 33k	RD%VS 333J

OTHERS

Symbol	Description	Part No.
S2	Shield case Dolby module Slide switch	M15-414 RYY-003 RSH-011

REC/PB Amplifier Assembly (RWF-056)

A

A

B

B

C

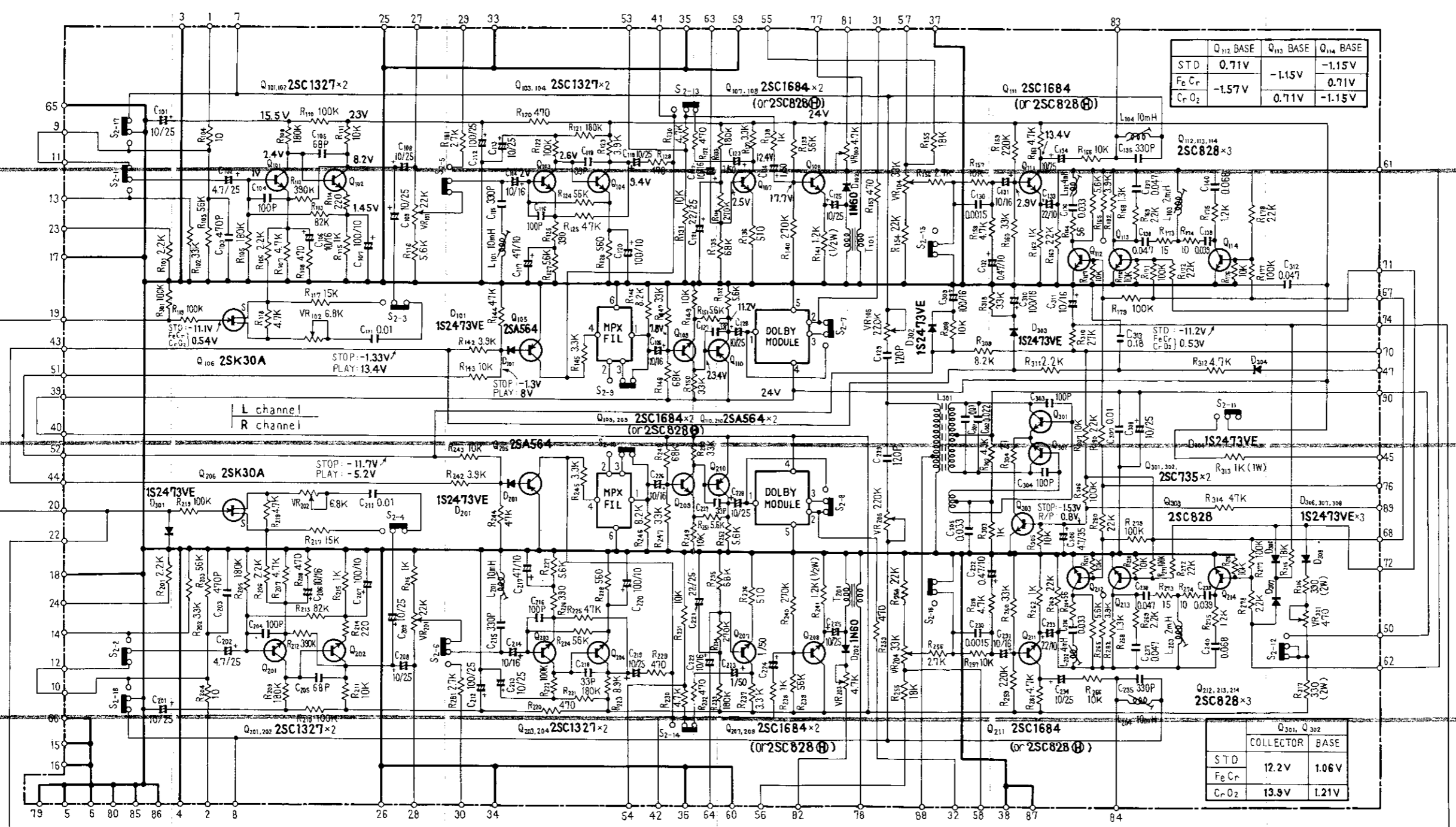
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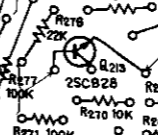
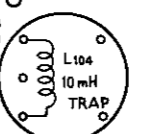
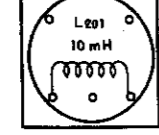
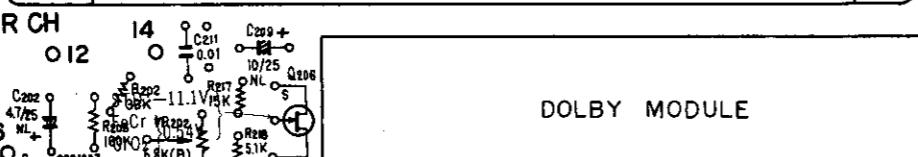
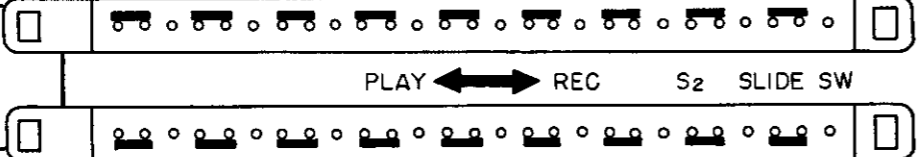
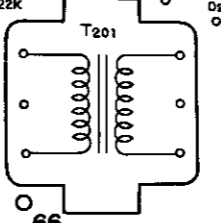
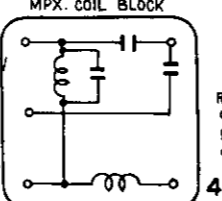
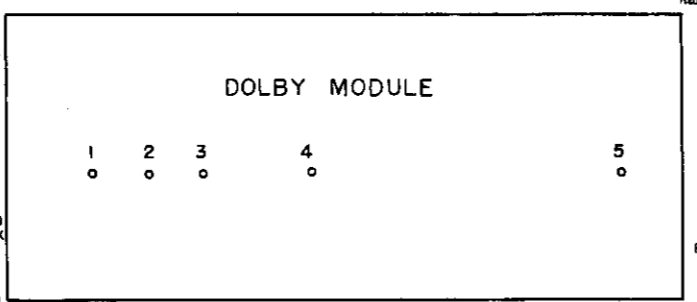
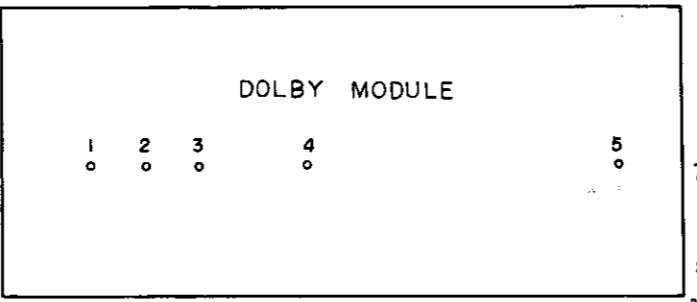
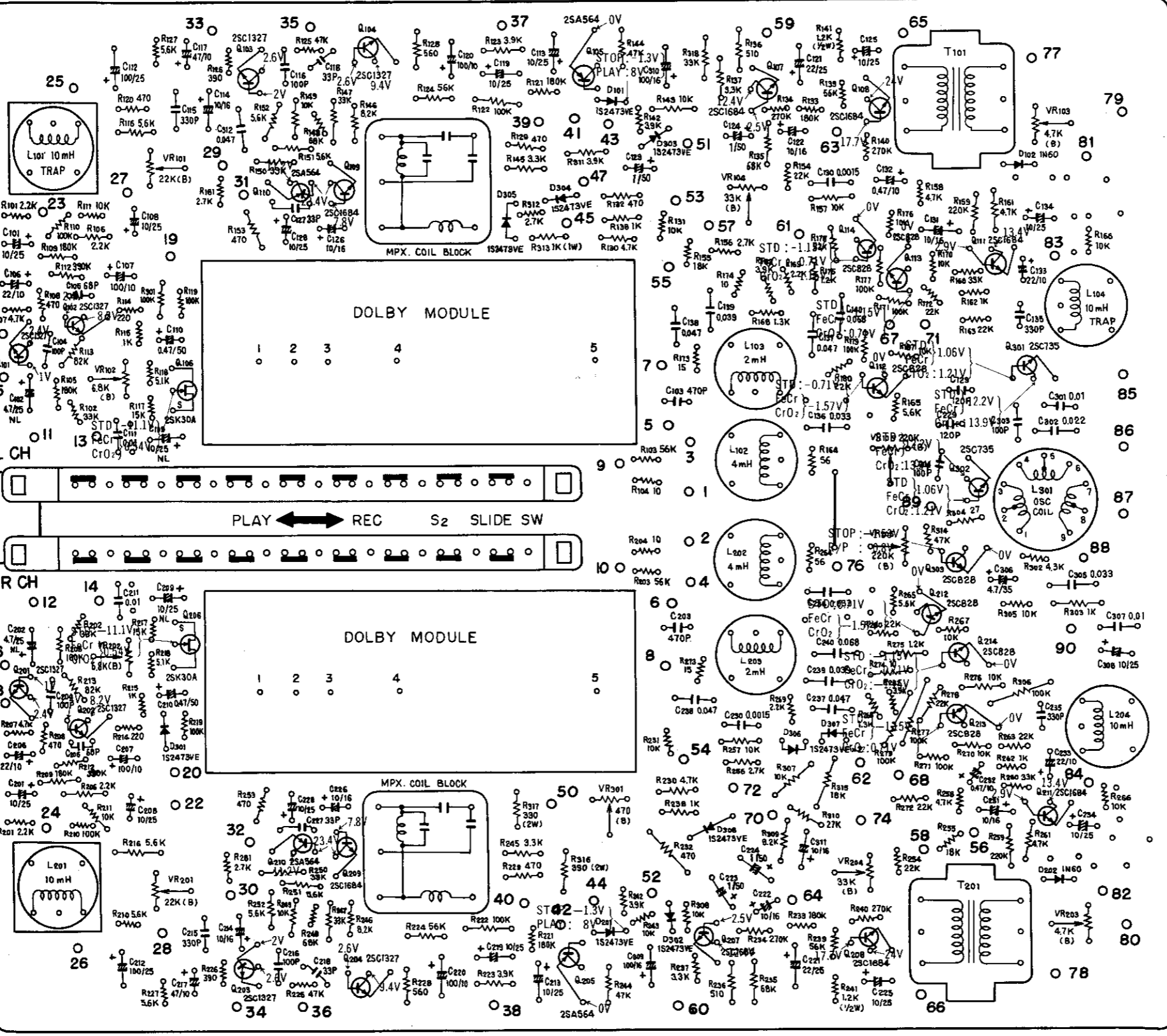
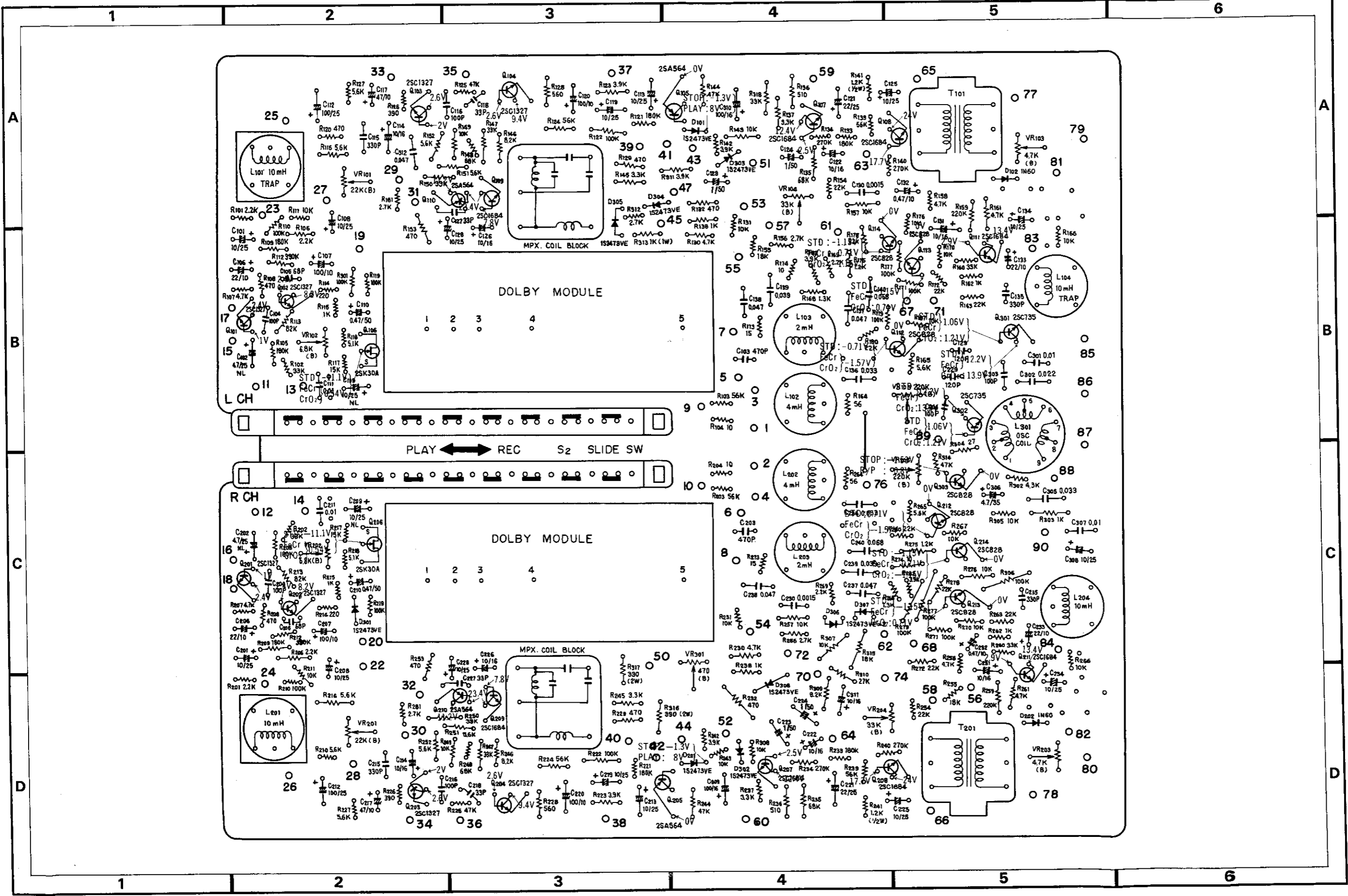
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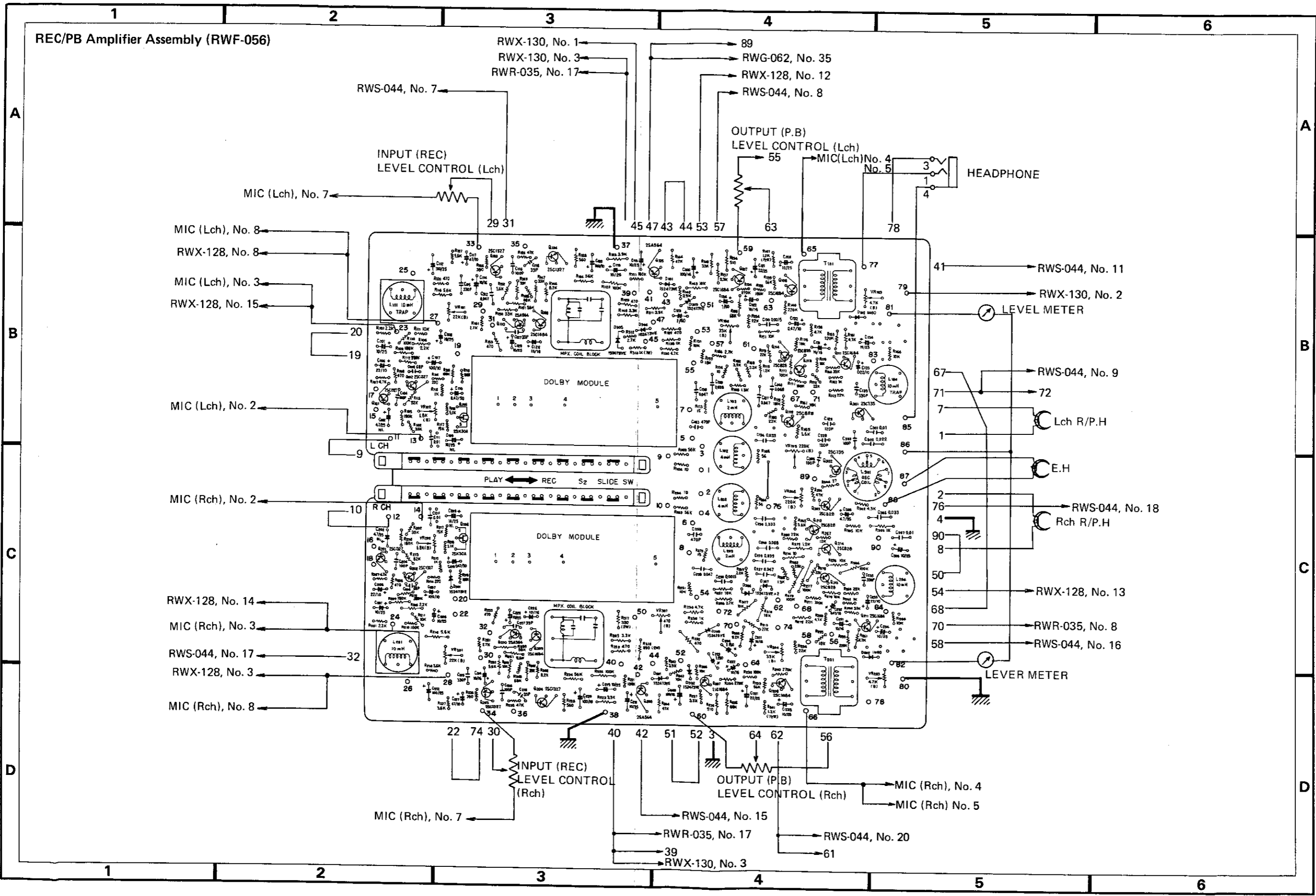
	Q ₁₁₂ BASE	Q ₁₁₃ BASE	Q ₁₁₄ BASE
STD	0.71V	-1.15V	-1.15V
F _e C _r	-1.57V	0.71V	-1.15V
C _r O ₂			

	Q ₃₀₁ , Q ₃₀₂ COLLECTOR	Q ₃₀₁ , Q ₃₀₂ BASE
STD	12.2V	1.06V
F _e C _r	13.9V	1.21V
C _r O ₂		



S₂ REC/PB SELECTOR SW. (PB POSI.)





11.4 REC/PB AMPLIFIER ASSEMBLY (RWF-056)

SEMICONDUCTORS

Symbol	Description	Part No.
Q101	Transistor	2SC1327-T(U)
Q102	Transistor	2SC1327-T(U)
Q103	Transistor	2SC1327-T(U)
Q104	Transistor	2SC1327-T(U)
Q105	Transistor	2SA564-R(S)
Q106	FET	2SK30A-0(Y)
Q107	Transistor	2SC828(H)-R(S) (2SC1684-R or S)
Q108	Transistor	2SC828(H)-R (2SC1684-R or S)
Q109	Transistor	2SC828(H)-R (2SC1684-R or S)
Q110	Transistor	2SA564-R
Q111	Transistor	2SC828-R(S) (2SC1684-R or S)
Q112	Transistor	2SC828-R(S, Q)
Q113	Transistor	2SC828-R(S, Q)
Q114	Transistor	2SC828-R(S, Q)
Q201	Transistor	2SC1327-T(U)
Q202	Transistor	2SC1327-T(U)
Q203	Transistor	2SC1327-T(U)
Q204	Transistor	2SC1327-T(U)
Q205	Transistor	2SA564-R(S)
Q206	FET	2SK30A-0(Y)
Q207	Transistor	2SC828(H)-R(S) (2SC1684-R or S)
Q208	Transistor	2SC828(H)-R(S) (2SC1684-R or S)
Q209	Transistor	2SC828(H)-R(S) (2SC1684-R or S)
Q210	Transistor	2SA564-R(S)
Q211	Transistor	2SC828(H)-R(S) (2SC1684-R or S)
Q212	Transistor	2SC828-R(S, Q)
Q213	Transistor	2SC828-R(S, Q)
Q214	Transistor	2SC828-R(S, Q)
Q301	Transistor	2SC735-Y(GR) (2SC1318-R or S)
Q302	Transistor	2SC735-Y (2SC1318-R or S)
Q303	Transistor	2SC828-R(S)
D101	Diode	1S2473VE
D102	Diode	1N60
D201	Diode	1S2473VE
D202	Diode	1N60
D301	Diode	1S2473VE
D302	Diode	1S2473VE
D303	Diode	1S2473VE
D304	Diode	1S2473VE
D306	Diode	1S2473VE
D307	Diode	1S2473VE
D308	Diode	1S2473VE

TRANSFORMERS AND COILS

Symbol	Description	Part No.
T101	Matching transformer	RTV-006
T201	Matching transformer	RTV-006
L101	Trap coil	T84-401
L102	Peaking coil	RTF-001
L103	Peaking coil	RTF-007
L104	Trap coil	T84-401
L201	Trap coil	T84-401
L202	Peaking coil	RTF-001
L203	Peaking coil	RTF-007
L204	Trap coil	T84-401
L301	OSC coil	T64-001
	MPX coil block	RTF-012

CAPACITORS

Symbol	Description	Part No.
C101	Electrolytic 10 25V	CEA 100P 25
C102	Electrolytic 4.7 25V	CEANL 4R7P 25
C103	Polystyrene film 470p 50V	CQSA 471K 50
C104	Ceramic 100p 50V	CCDSL 101K 50
C105	Ceramic 68p 50V	CCDSL 680K 50
C106	Electrolytic 10 16V	CEA 100P 16
C107	Electrolytic 100 10V	CEA 101P 10
C108	Electrolytic 10 25V	CEA 100P 25
C109	Electrolytic 10 25V	CEANL 100P 25
C110	.....
C111	Mylar 0.01 50V	CQMA 103K 50
C112	Electrolytic 100 25V	CEA 101P 25
C113	Electrolytic 10 25V	CEA 100P 25
C114	Electrolytic 10 16V	CEA 100P 16
C115	Polystyrene film 330p 50V	CQSA 331K 50
C116	Ceramic 100p 50V	CCDSL 101K 50
C117	Electrolytic 47 10V	CEA 470P 10
C118	Ceramic 33p 50V	CCDSL 330K 50
C119	Electrolytic 10 25V	CEA 100P 25
C120	Electrolytic 100 10V	CEA 101P 10
C121	Electrolytic 22 25V	CEA 220P 25
C122	Electrolytic 10 16V	CEA 100P 16
C123	Electrolytic 1 50V	CEA 010P 50
C124	Electrolytic 1 50V	CEA 010P 50
C125	Electrolytic 10 25V	CEA 100P 25
C126	Electrolytic 10 16V	CEA 100P 16
C127	Ceramic 33p 50V	CCDSL 330K 50
C128	Electrolytic 10 25V	CEA 100P 25
C129	Polystyrene film 120p 50V	CQSA 121K 50
C130	Mylar 1500p 50V	CQMA 152K 50

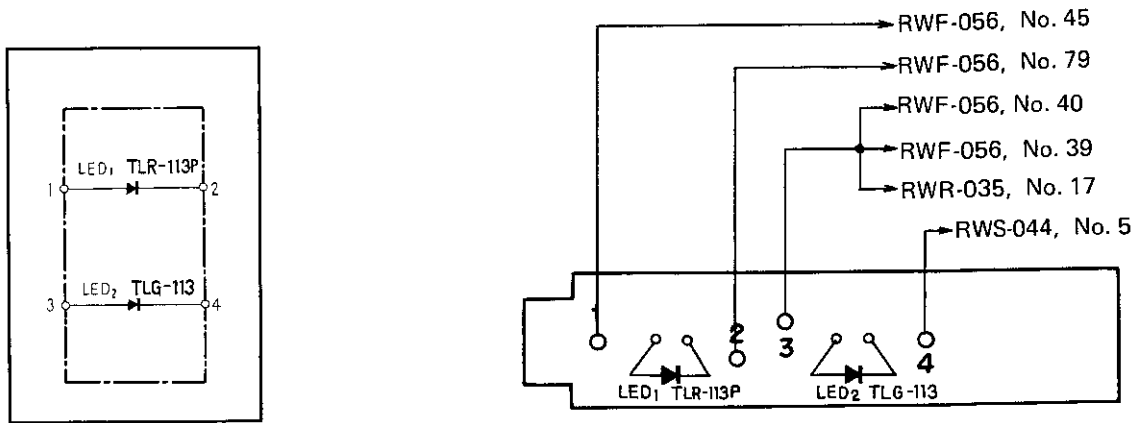
Symbol	Description			Part No.
C131	Electrolytic	10	16V	CEA 100P 16
C132	Electrolytic	0.47	10V	CSSA 0R47M 10
C133	Electrolytic	22	10V	CEA 220P 10
C134	Electrolytic	10	25V	CEA 100P 25
C135	Polystyrene film	330p	50V	CQSA 331K 50
C136	Mylar	0.033	50V	CQMA 333K 50
C137	Mylar	0.047	50V	CQMA 473K 50
C138	Mylar	0.047	50V	CQMA 473K 50
C139	Mylar	0.039	50V	CQMA 393K 50
C140	Mylar	0.068	50V	CQMA 683K 50
C201	Electrolytic	10	25V	CEA 100P 25
C202	Electrolytic	4.7	25V	CEANL 4R7P 25
C203	Polystyrene film	470p	50V	CQSA 471K 50
C204	Ceramic	100p	50V	CCDSL 101K 50
C205	Ceramic	68p	50V	CCDSL 680K 50
C206	Electrolytic	10	16V	CEA 100P 16
C207	Electrolytic	100	10V	CEA 101P 10
C208	Electrolytic	10	25V	CEA 100P 25
C209	Electrolytic	10	25V	CEANL 100P 25
C210	.....		
C211	Mylar	0.01	50V	CQMA 103K 50
C212	Electrolytic	100	25V	CEA 101P 25
C213	Electrolytic	10	25V	CEA 100P 25
C214	Electrolytic	10	16V	CEA 100P 16
C215	Polystyrene film	330p	50V	CQSA 331K 50
C216	Ceramic	100p	50V	CCDSL 101K 50
C217	Electrolytic	47	10V	CEA 470P 10
C218	Ceramic	33p	50V	CCDSL 330K 50
C219	Electrolytic	10	25V	CEA 100P 25
C220	Electrolytic	100	10V	CEA 101P 10
C221	Electrolytic	22	25V	CEA 220P 25
C222	Electrolytic	10	16V	CEA 100P 16
C223	Electrolytic	1	50V	CEA 010P 50
C224	Electrolytic	1	50V	CEA 010P 50
C225	Electrolytic	10	25V	CEA 100P 25
C226	Electrolytic	10	16V	CEA 100P 16
C227	Ceramic	33p	50V	CCDSL 330K 50
C228	Electrolytic	10	25V	CEA 100P 25
C229	Polystyrene film	120p	50V	CQSA 121K 50
C230	Mylar	1500p	50V	CQMA 152K 50
C231	Electrolytic	10	16V	CEA 100P 16
C232	Electrolytic	0.47	10V	CSSA 0R47M 10
C233	Electrolytic	22	10V	CEA 220P 10
C234	Electrolytic	10	25V	CEA 100P 25
C235	Polystyrene film	330p	50V	CQSA 331K 50
C236	Mylar	0.033	50V	CQMA 333K 50
C237	Mylar	0.047	50V	CQMA 473K 50
C238	Mylar	0.047	50V	CQMA 473K 50
C239	Mylar	0.039	50V	CQMA 393K 50
C240	Mylar	0.068	50V	CQMA 683K 50
C301	Mylar	0.01	50V	CQMA 103K 50
C302		0.022	50V	CQPA 223K 50
C303	Ceramic	100p	50V	CCDSL 101K 50

Symbol	Description			Part No.
C304	Ceramic	100p	50V	CCDSL 101K 50
C305	Mylar	0.33	50V	CQMA 333K 50
C306	Electrolytic	4.7	35V	CEA 4R7P 35
C307	Mylar	0.01	50V	CQMA 103K 50
C308	Electrolytic	10	25V	CEA 100P 25
C309	Electrolytic	100	16V	CEA 101P 16
C310	Electrolytic	100	16V	CEA 101P 16
C311	Electrolytic	10	16V	CEA 100P 16
C312	Mylar	0.047	50V	CQMA 473K 50
C313	Mylar	0.18	50V	CQMA 184K 50

RESISTORS

Symbol	Description			Part No.
VR101	Variable (Semi-fixed)	22k-B		C92-857
VR102	Variable (Semi-fixed)	6.8k-B		RCP-001
VR103	Variable (Solid Semi-fixed)	4.7k-B		C92-051
VR104	Variable (Solid Semi-fixed)	33k-B		C81-426
VR105	Variable (Semi-fixed)	220k-B		RCP-005
VR201	Variable (Semi-fixed)	22k-B		C92-857
VR202	Variable (Semi-fixed)	6.8k-B		RCP-001
VR203	Variable (Solid Semi-fixed)	4.7k-B		C92-051
VR204	Variable (Solid Semi-fixed)	33k-B		C81-426
VR205	Variable (Semi-fixed)	220k-B		RCP-005
VR301	Variable (Semi-fixed)	470		RCP-022
R101	Carbon film	2.2k		RD%VS 222J
R102	Carbon film	33k		RD%VS 333J
R103	Carbon film	56k		RD%VS 563J
R104	Carbon film	10		RD%VS 100J
R105	Carbon film	180k		RD%VS 184J
R106	Carbon film	2.2k		RD%VS 222J
R107	Carbon film	4.7k		RD%VS 472J
R108	Carbon film	470		RD%VS 471J
R109	Carbon iflm	180k		RD%VS 184J
R110	Carbon film	100k		RD%VS 104J
R111	Carbon film	10k		RD%VS 103J
R112	Carbon film	390k		RD%VS 394J
R113	Carbon film	82k		RD%VS 823J
R114	Carbon film	220		RD%VS 221J
R115	Carbon film	1k		RD%VS 102J
R116	Carbon film	5.6k		RD%VS 562J
R117	Carbon film	15k		RD%VS 153J
R118	Carbon film	4.7k		RD%VS 472J
R119	Carbon film	100k		RD%VS 104J
R120	Carbon film	470		RD%VS 471J
R121	Carbon film	180k		RD%VS 184J
R122	Carbon film	100k		RD%VS 104J
R123	Carbon film	3.9k		RD%VS 392J
R124	Carbon film	56k		RD%VS 563J
R125	Carbon iflm	47k		RD%VS 473J

11.5 INDICATOR ASSEMBLY (RWX-130)

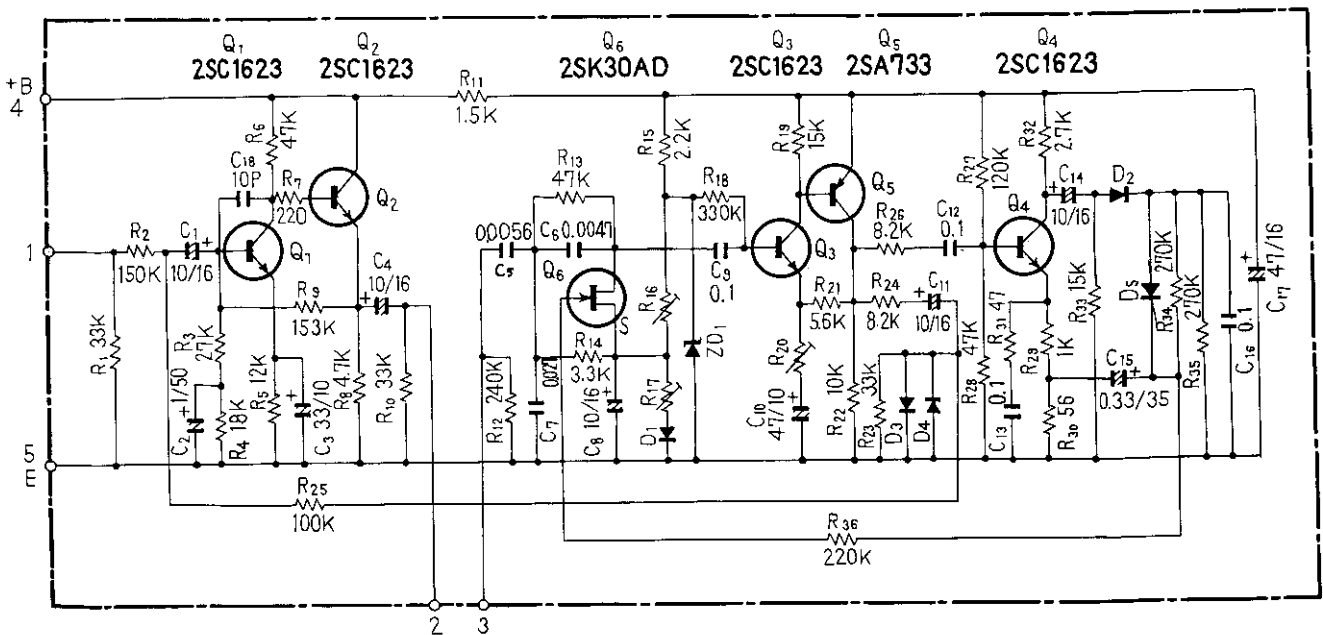


Parts List

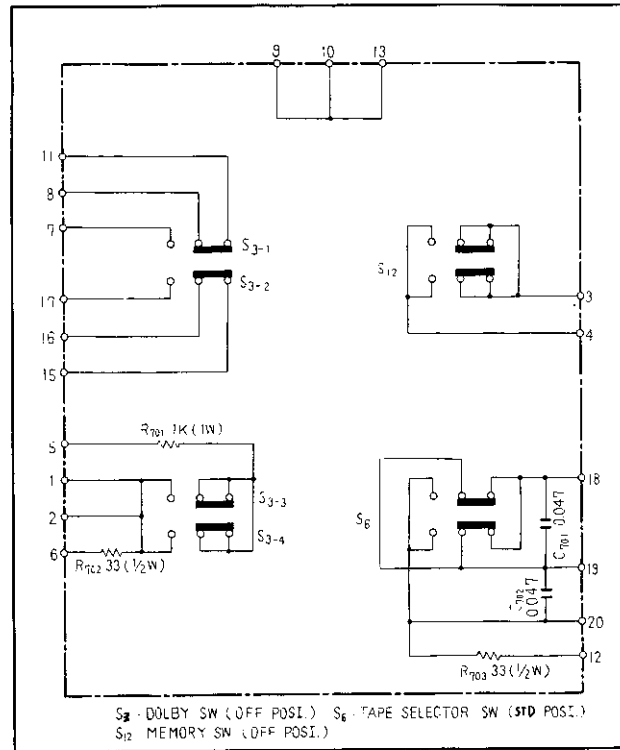
SEMICONDUCTORS AND OTHERS

Symbol	Description	Part No.
LED1	LED (Red)	TLR-113P
LED2	LED (Green)	TLG-113
	Diode holder	REB-179

11.6 DOLBY MODULE



11.7 SWITCH ASSEMBLY (RWS-044)



Parts List

SWITCHES

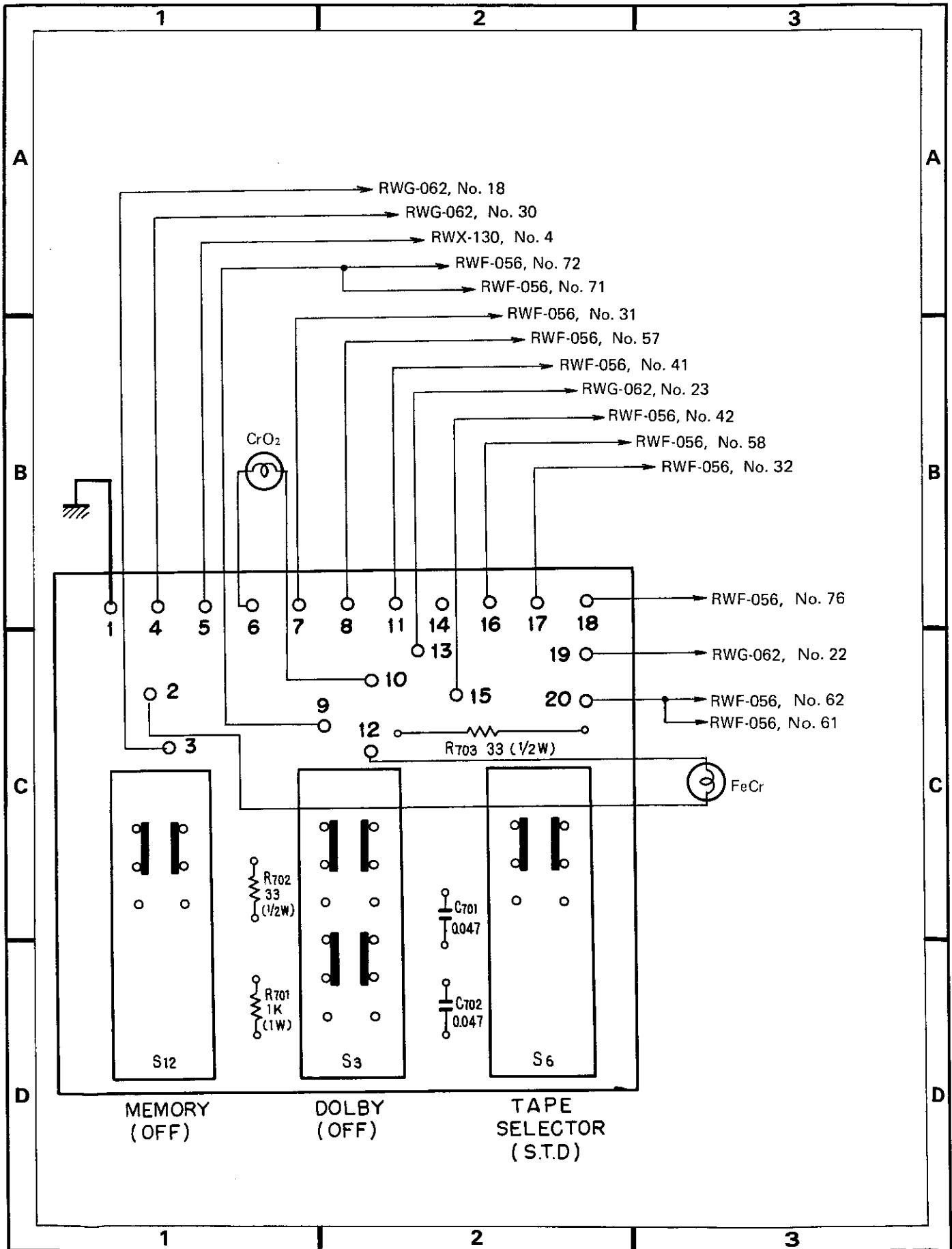
Symbol	Description	Part No.
S3	Lever switch	RSK-031
S6	Lever switch	RSK-032
S12	Lever switch	RSK-032

RESISTORS

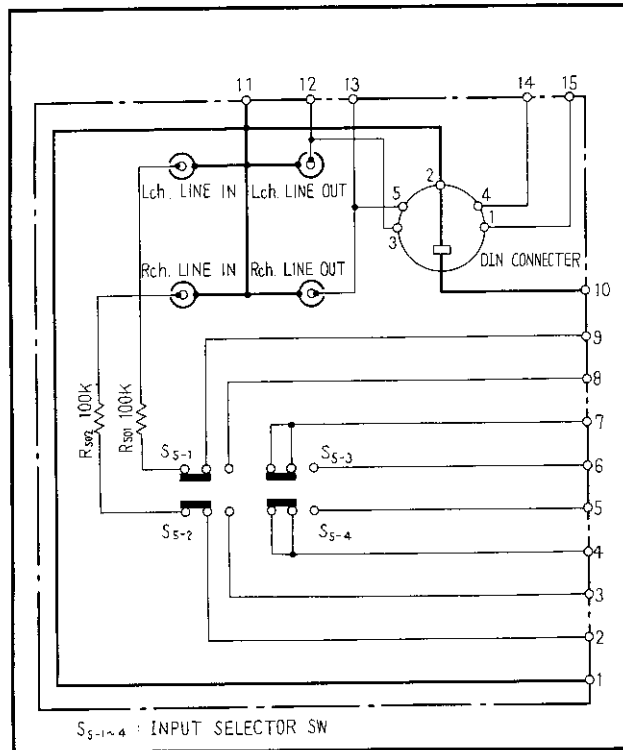
Symbol	Description	Part No.
R701	Metal oxide film 1k 1W	RS1PSF 102J
R702	Carbon film 33 ½W	RD½PSF 330J
R703	Carbon film 33 ½W	RD½PSF 330J

CAPACITORS

Symbol	Description	Part No.
C701	Mylar 0.047 50V	CQMA 473K 50
C702	Mylar 0.047 50V	CQMA 473K 50



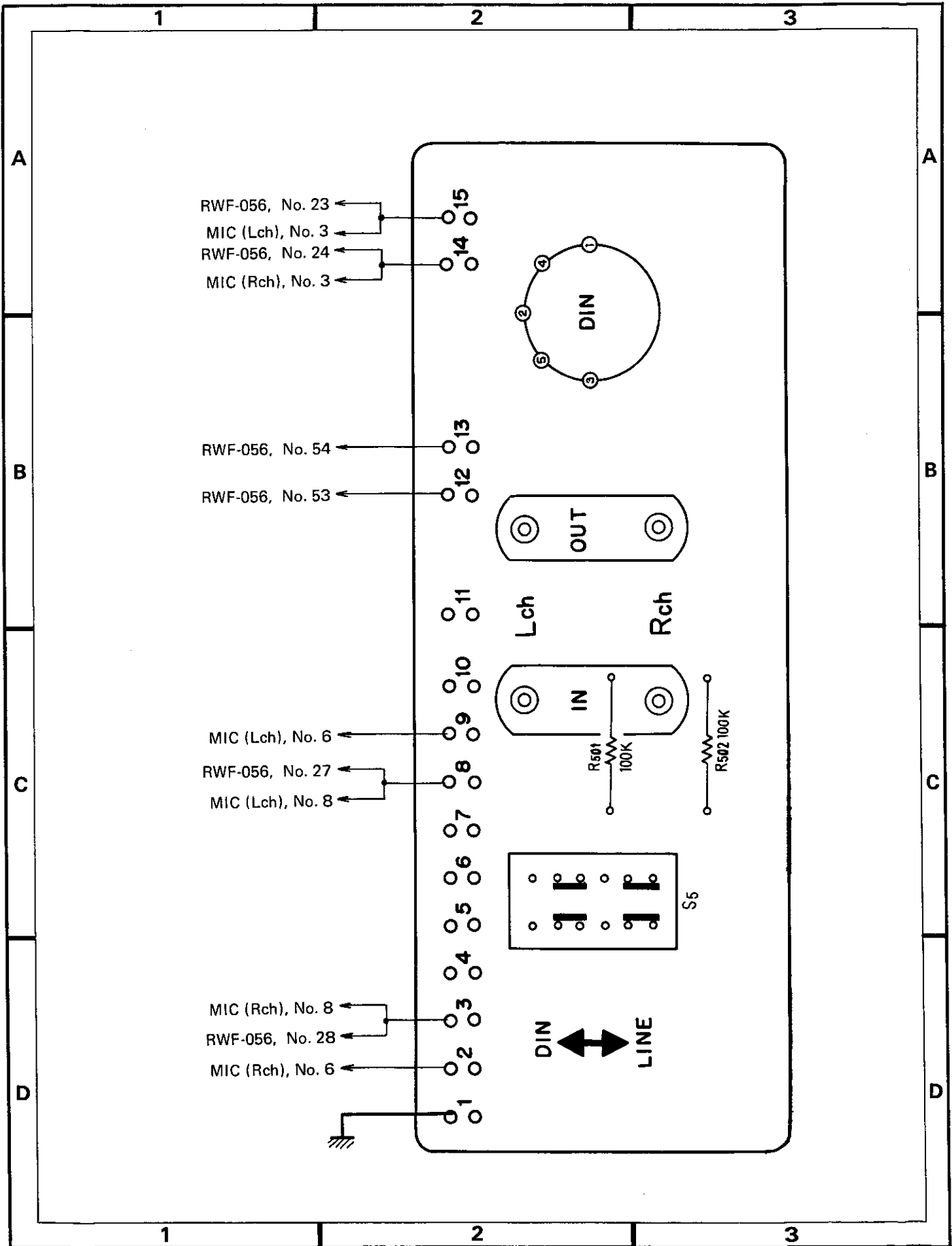
11.8 JACK ASSEMBLY (RWX-128)



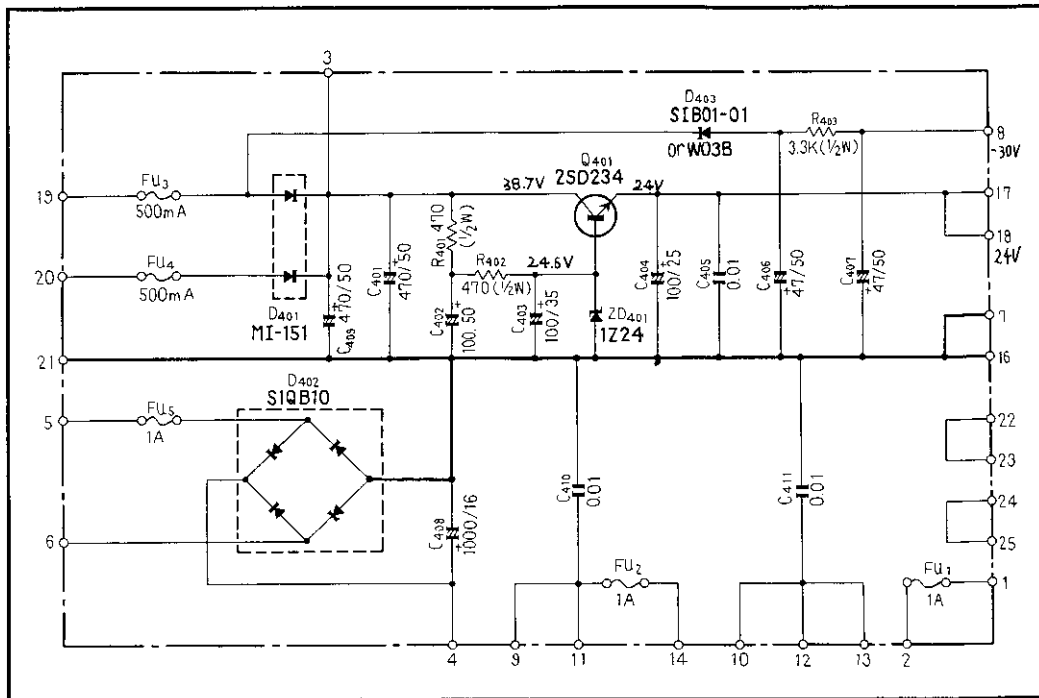
Parts List

RESISTORS

Symbol	Description	Part No.
R501	Carbon film 100k	RD%PS 104J
R502	Carbon film 100k	RD%PS 104J
	Pin jack assembly	RKB-010
	Switch (INPUT SELECTOR)	RSH-021



11.9 POWER SUPPLY ASSEMBLY (RWR-035)



Parts List

SEMICONDUCTORS

Symbol	Description	Part No.
Q401	Transistor	2SD234-0 or Y
D401	Diode	MI-151
D402	Diode	SIQB10
D403	Diode	SIB01-01 or (SIB01-02) (W03B) (W03C)
ZD401	Zener diode	1Z24

RESISTORS

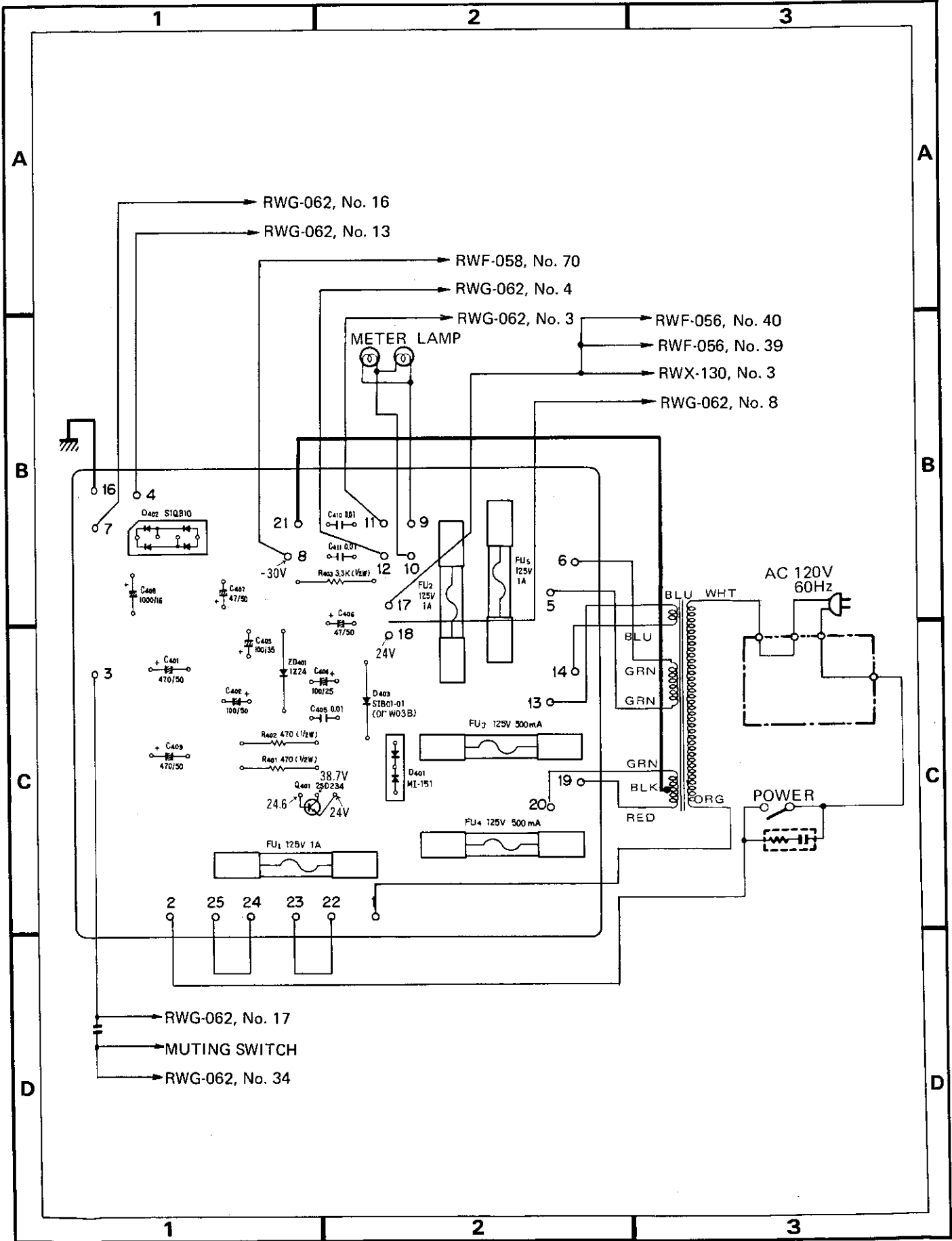
Symbol	Description	Part No.
R401	Carbon film 470 $\frac{1}{2}$ W	RD $\frac{1}{2}$ PSF 471J
R402	Carbon film 470 $\frac{1}{2}$ W	RD $\frac{1}{2}$ PSF 471J
R403	Carbon film 3.3k $\frac{1}{2}$ W	RD $\frac{1}{2}$ PS 332J

OTHERS

Symbol	Description	Part No.
FU1	Fuse 1A	REK-051
FU2	Fuse 1A	REK-051
FU3	Fuse 500mA	REK-048
FU4	Fuse 500mA	REK-048
FU5	Fuse 1A	REK-051
	Fuse holder	RKR-017

CAPACITORS

Symbol	Description	Part No.
C401	Electrolytic 470 50V	CEA 471P 50
C402	Electrolytic 100 50V	CEA 101P 50
C403	Electrolytic 100 35V	CEA 101P 35
C404	Electrolytic 100 25V	CEA 101P 25
C405	Ceramic 0.01 50V	CKDYF 103Z 50
C406	Electrolytic 47 50V	CEA 470P 50
C407	Electrolytic 47 50V	CEA 470P 50
C408	Electrolytic 1000 16V	CEA 102P 16
C409	Electrolytic 470 50V	CEA 471P 50
C410	Ceramic 0.01 50V	CKDYF 103Z 50
C411	Ceramic 0.01 50V	CKDYF 103Z 50



RWG-062, No. 16

RWG-062, No. 13

RWF-058, No. 70

RWG-062, No. 4

RWG-062, No. 3

RWF-056, No. 40

RWF-056, No. 39

RWX-130, No. 3

RWG-062, No. 8

METER LAMP

AC 120V
60Hz

POWER

RWG-062, No. 17

MUTING SWITCH

RWG-062, No. 34

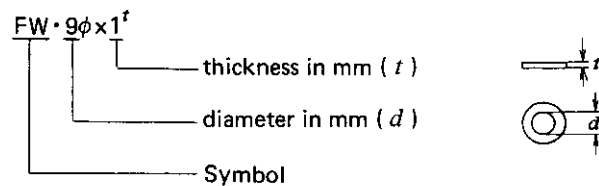
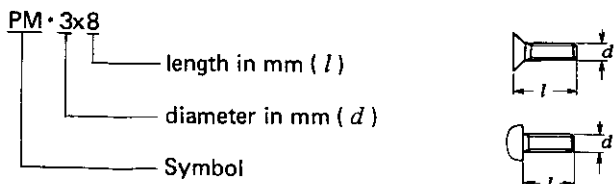
12. EXPLODED VIEWS

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 screw	
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	

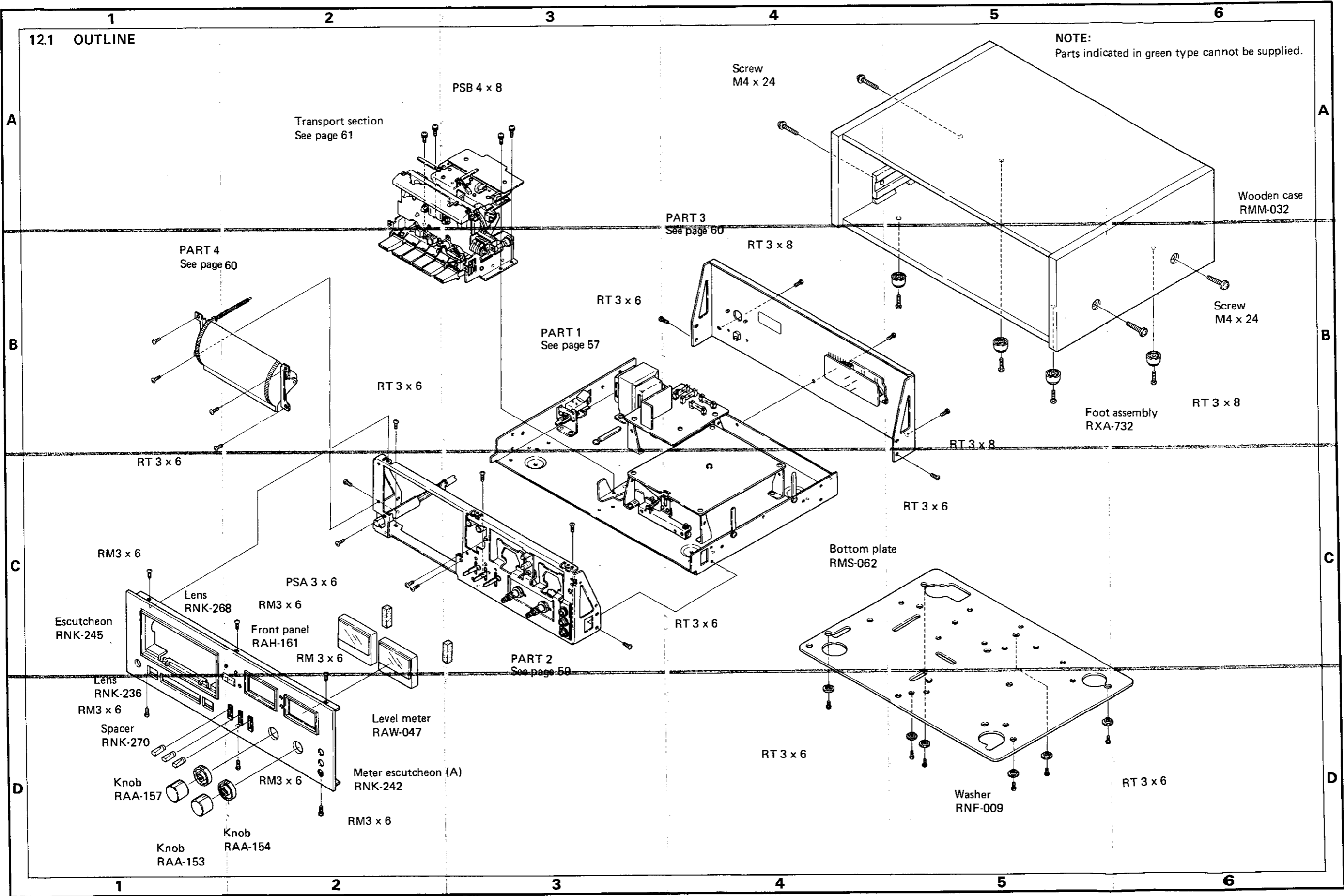
Symbol	Description	Shape
EW	E type washer	
FW	Flat washer	
SW	Spring lock washer	
N	Nut	
WN	Washer faced nut	
ITW	Internal toothed lock washer	
OTW	Outernal toothed lock washer	
SC	Slotted set screw (Cone point)	
SF	Slotted set screw (Flat point)	
HS	Hexagon socket headless set screw	
OCW	Oval countersunk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

EXAMPLE



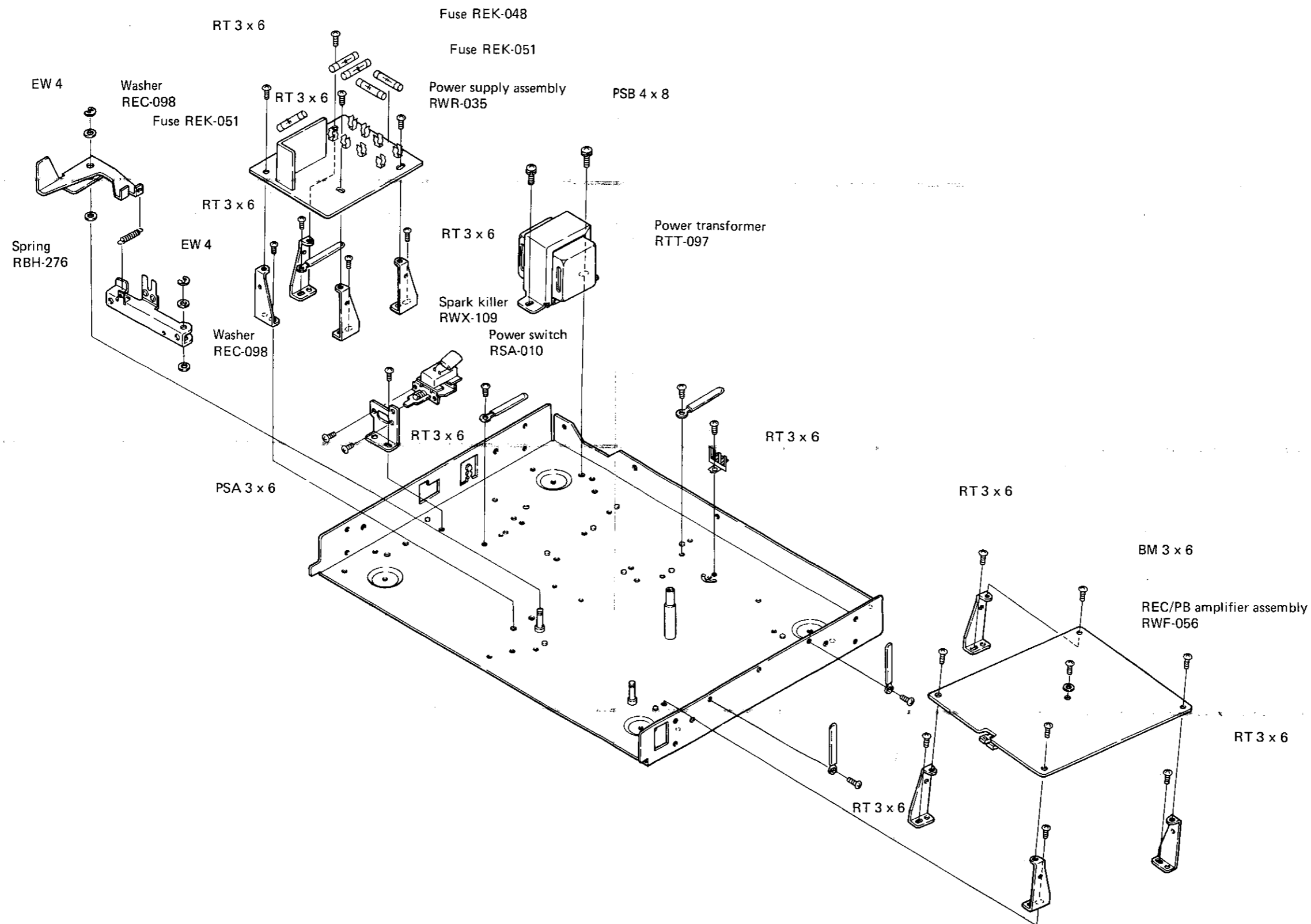
12.1 OUTLINE

NOTE:
Parts indicated in green type cannot be supplied.



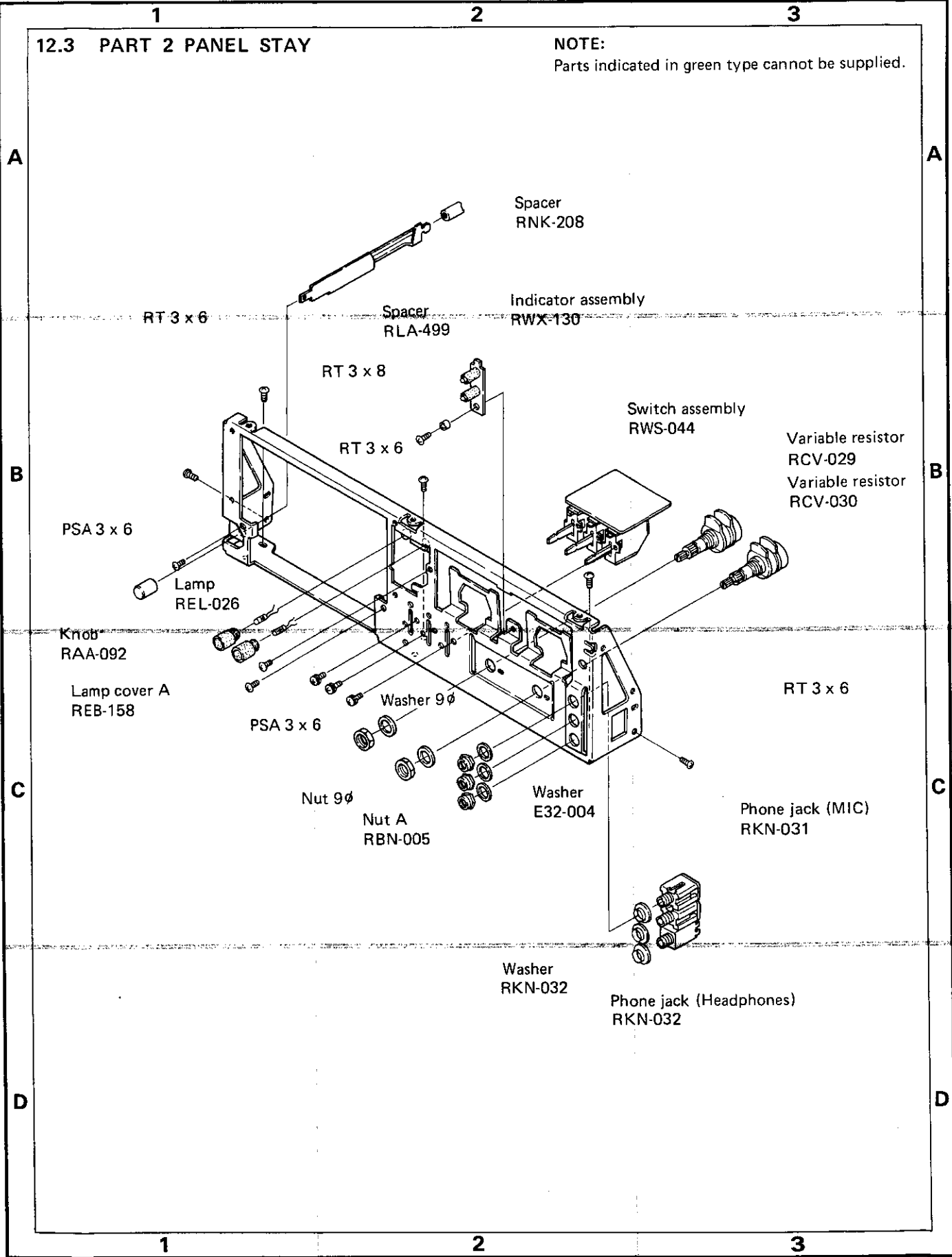
12.2 PART 1 MAIN CHASSIS

NOTE:
Parts indicated in green type cannot be supplied.

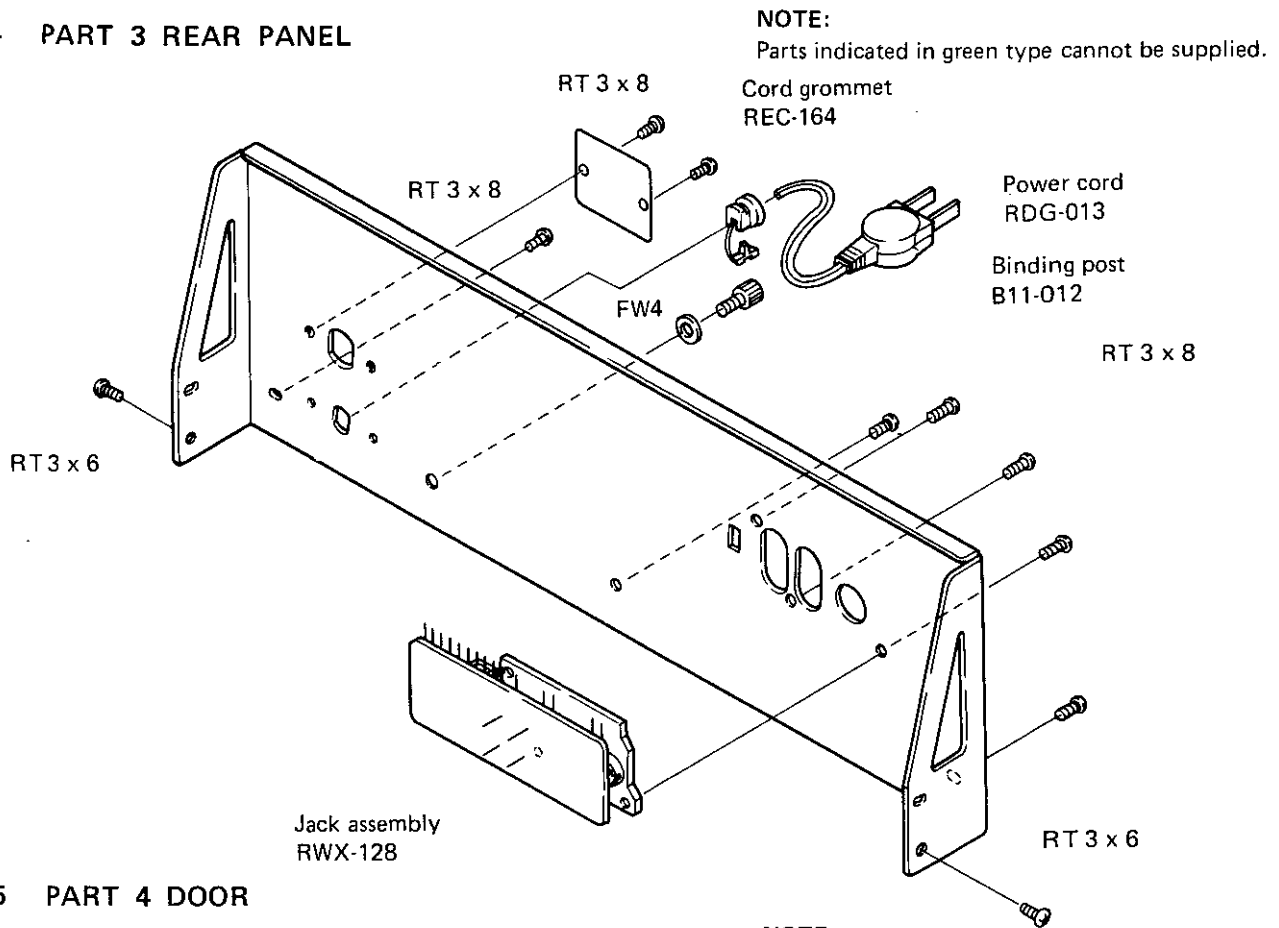


12.3 PART 2 PANEL STAY

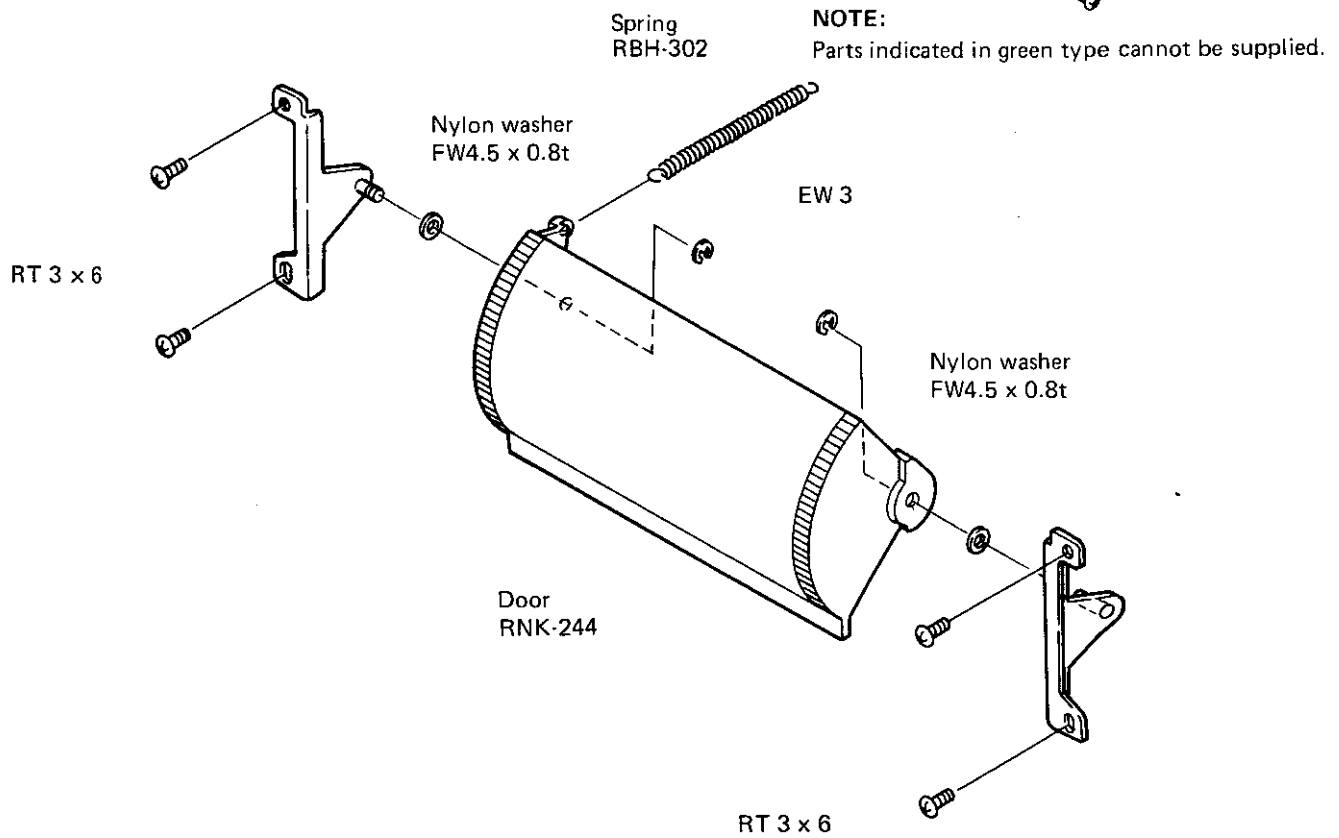
NOTE:
Parts indicated in green type cannot be supplied.



12.4 PART 3 REAR PANEL

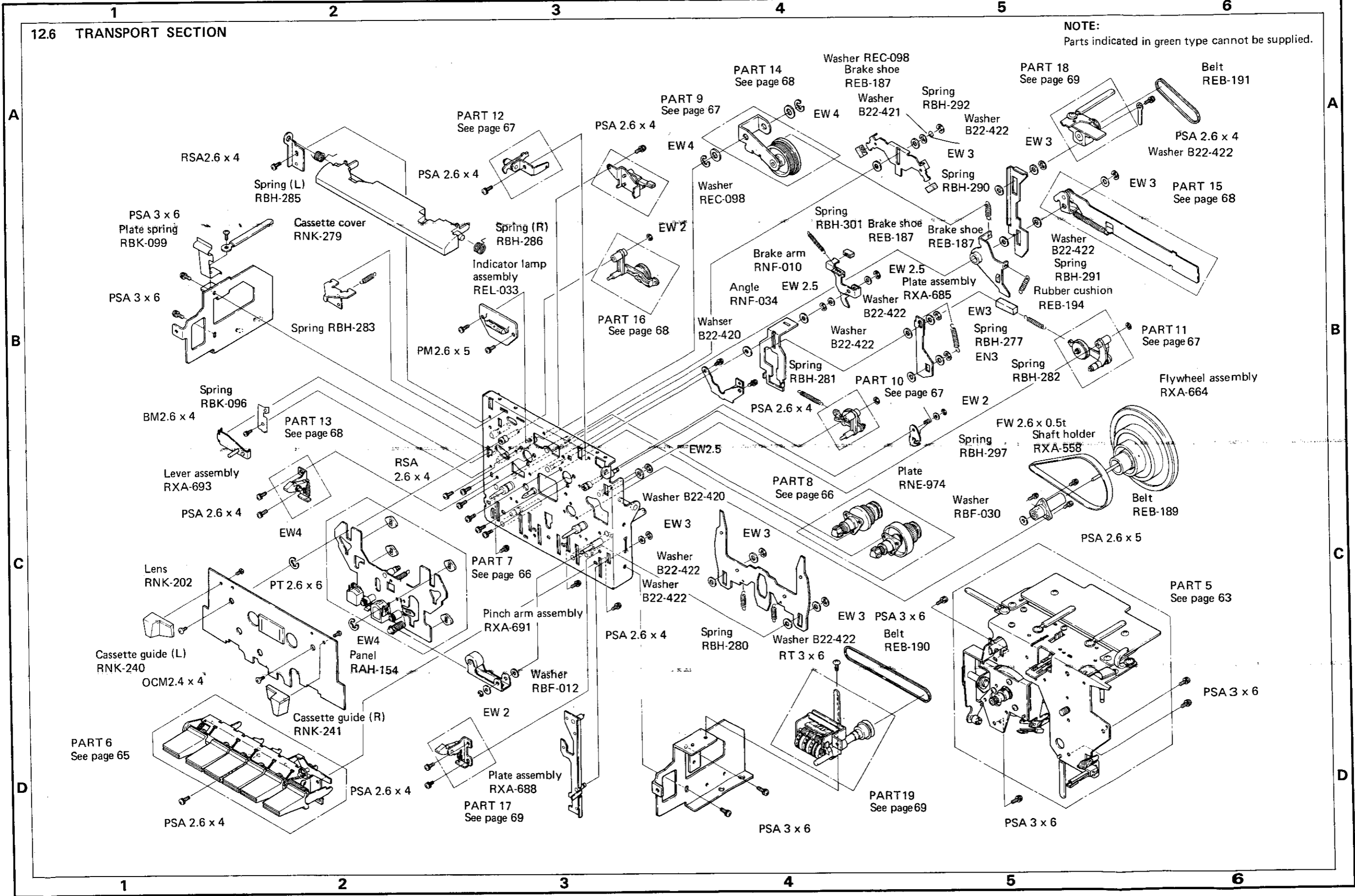


12.5 PART 4 DOOR



12.6 TRANSPORT SECTION

NOTE:
Parts indicated in green type cannot be supplied.



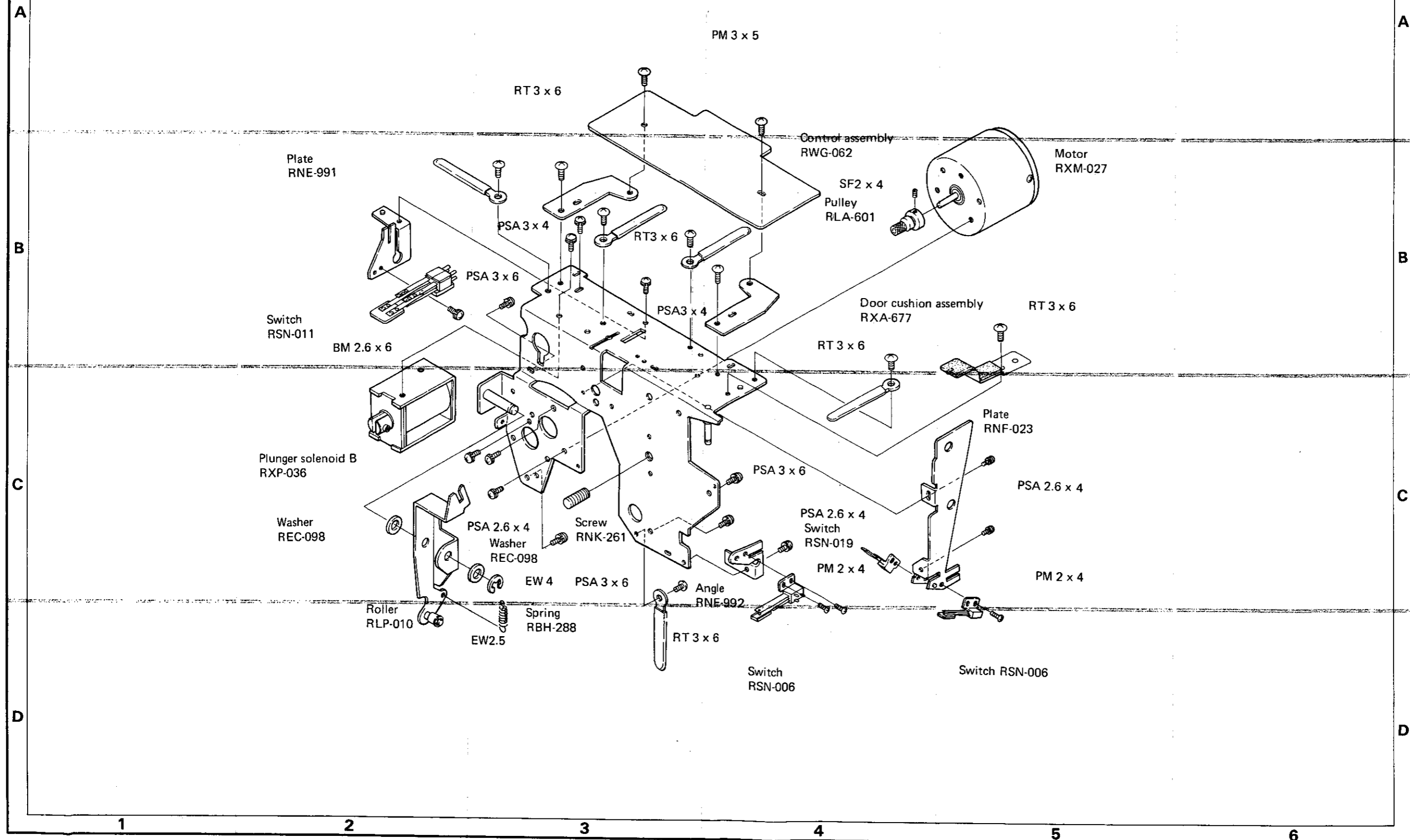
1 2 3 4 5 6

A
B
C
D

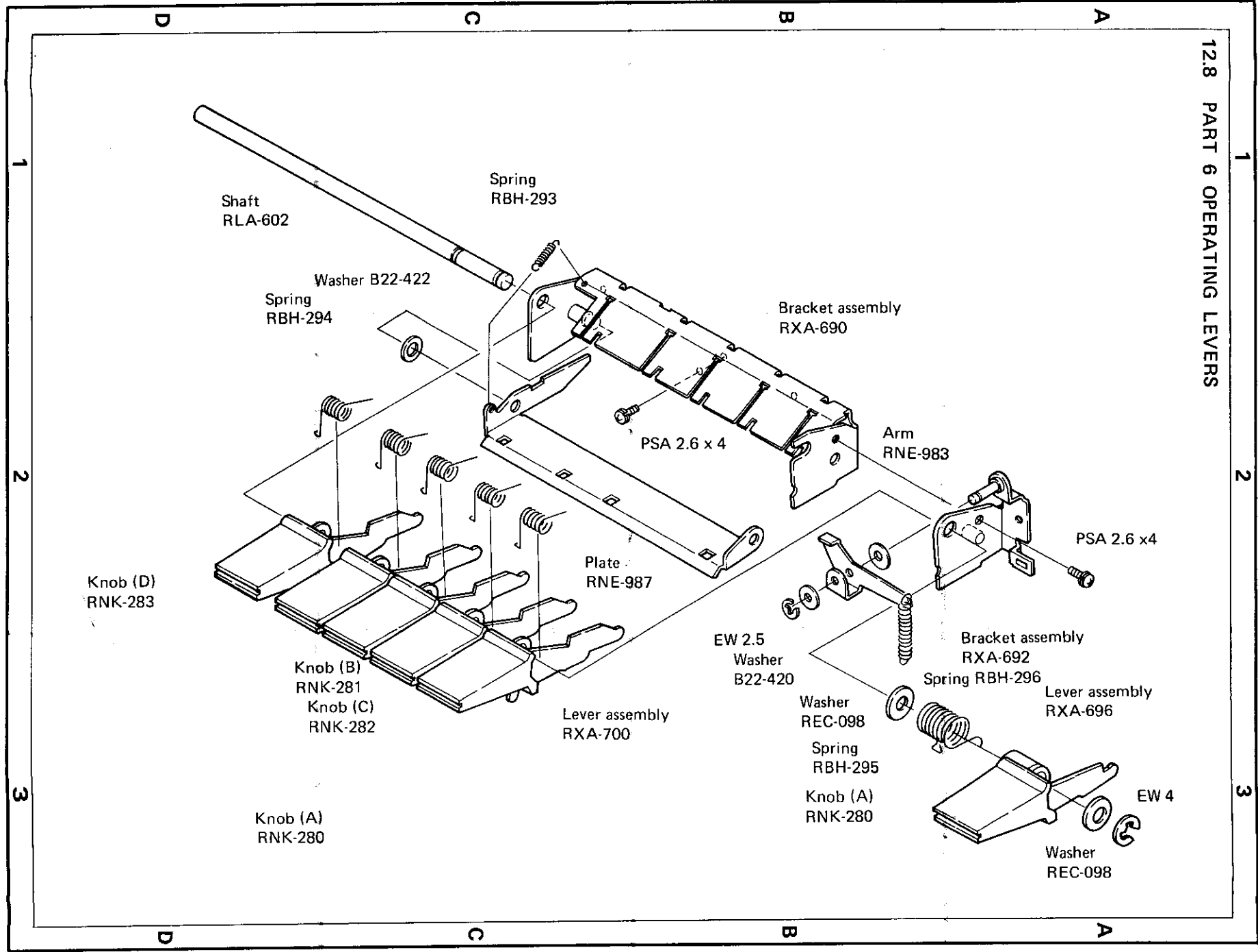
A
B
C
D

12.7 PART 5 TRANSPORT CHASSIS

NOTE:
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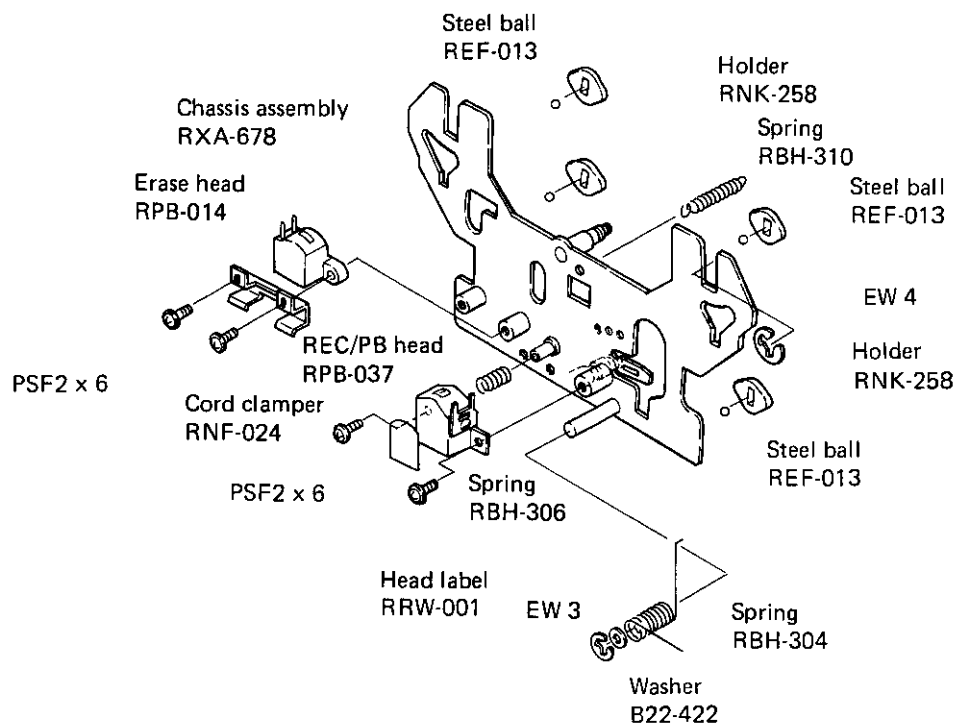


12.8 PART 6 OPERATING LEVERS

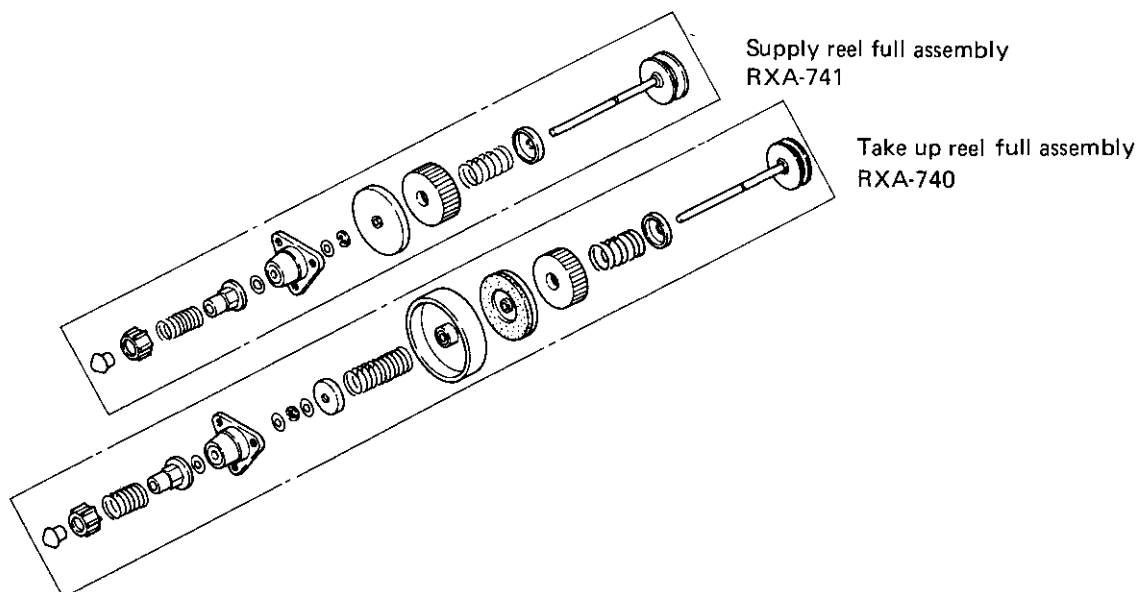


CT-F7272

12.9 PART 7 SUB-CHASSIS



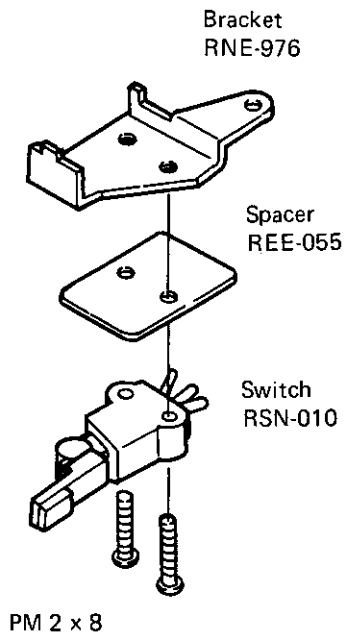
12.10 PART 8 REEL ASSEMBLY



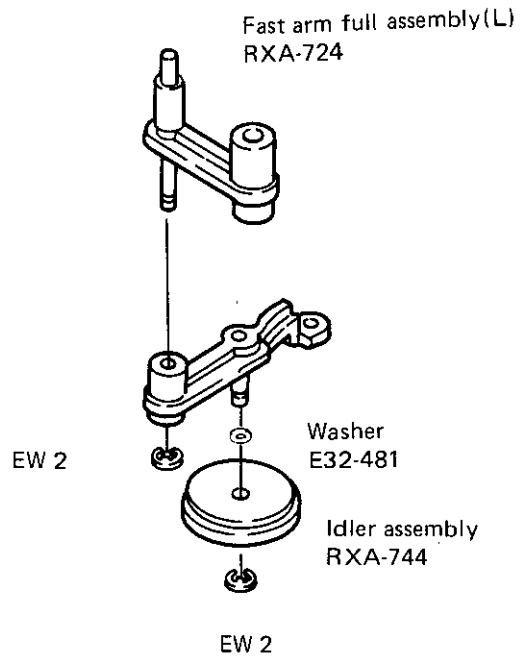
NOTE:

Parts indicated in green type cannot be supplied.

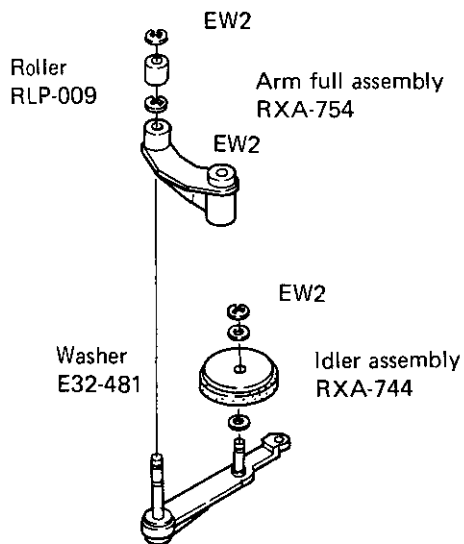
12.11 PART 9



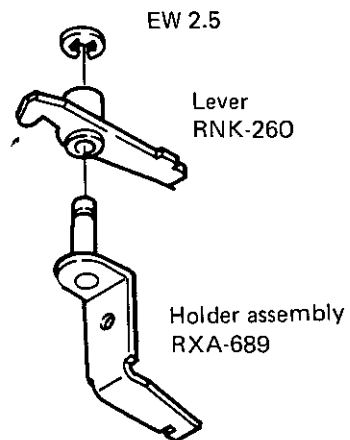
12.12 PART 10



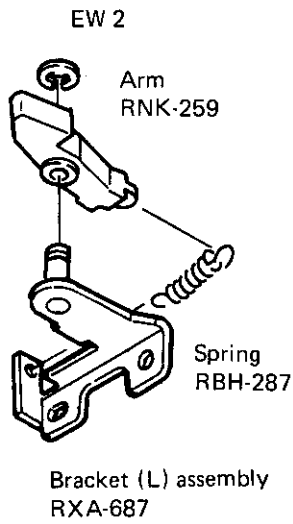
12.13 PART 11



12.14 PART 12



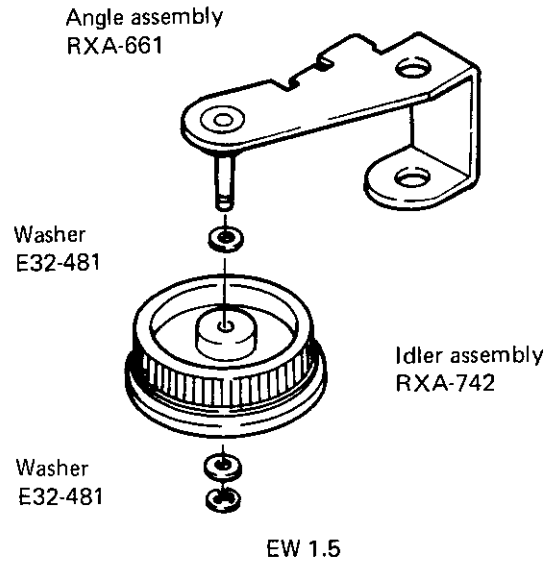
12.15 PART 13



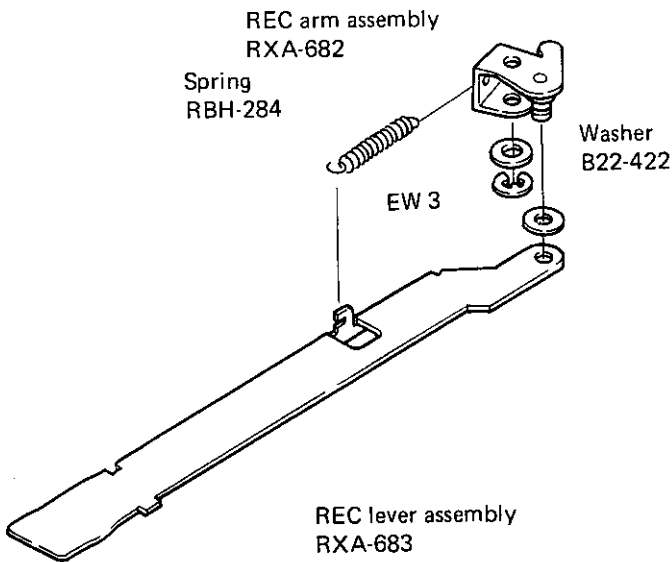
12.16 PART 14

NOTE:

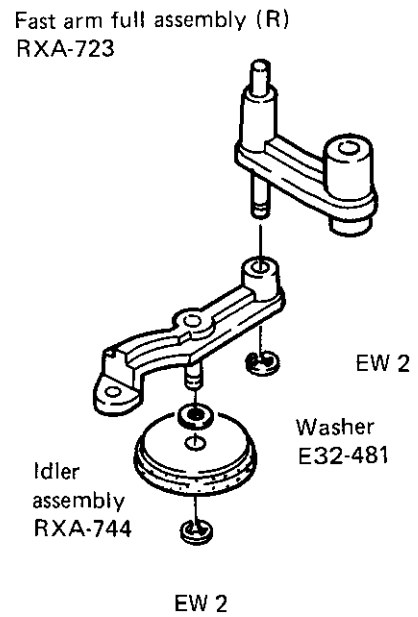
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12.17 PART 15

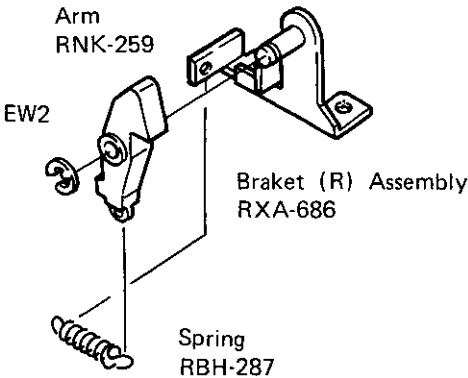


12.18 PART 16

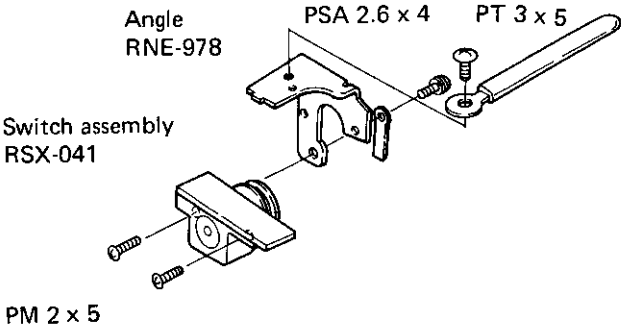


NOTE:
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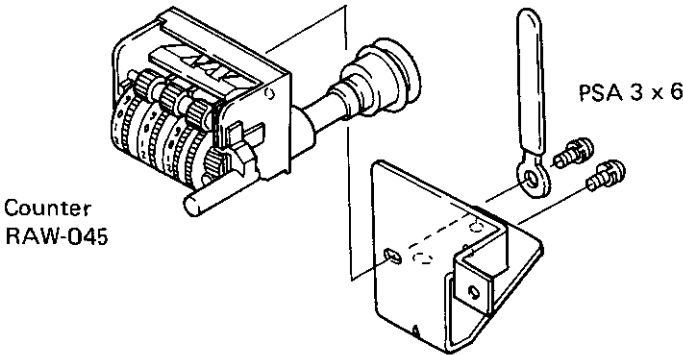
12.19 PART 17



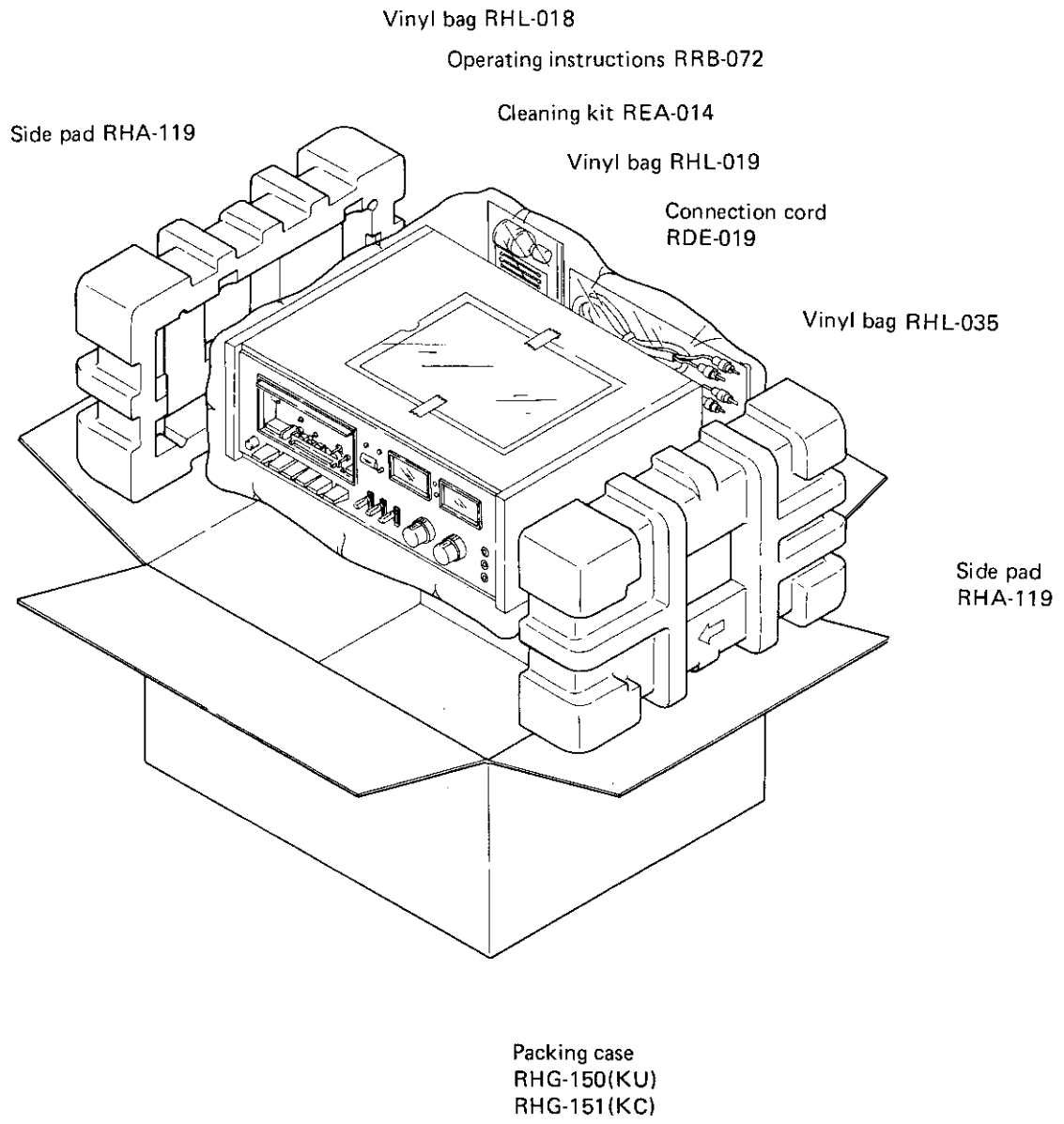
12.20 PART 18



12.21 PART 19



13. PACKING



CASSETTE TAPE DECK
CT-F7272
D
CT-F7070
HG D

Additional

Service Manual

NOTE:

This leaflet provides the description of the parts applies only to the CT-F7272/D, CT-F7070/D and CT-F7070/HG model.

For detailed please refer to the Service Manual of CT-7272/KCU.

1. SPECIFICATIONS

MODEL CT-F7272/KCU

Power Requirements AC 120V, 60Hz
Power Consumption 17 Watts, max.
Dimensions 453(W) x 177(H) x 343(D)mm. max.
17-13/16(W) x 6-15/16(H) x 13-1/2(D) in.
Weight Without package: 9.5kg 21 lb

MODEL CT-F7272/D

Power Requirements AC 120V, 220V, 240V,
50Hz/60Hz
Power Consumption 18 Watts, max.
Dimensions 453(W) x 177(H) x 350(D)mm. max.
17-13/16(W) x 6-15/16(H) x 13-3/4(D) in.
Weight Without package: 9.5kg 21 lb

MODEL CT-F7070/HG

Power Requirements AC 220V, 240V, 50Hz/60Hz
Power Consumption 18 Watts, max.
Dimensions 420(W) x 150(H) x 350(D)mm. max.
16-1/2(W) x 5-15/16(H) x 13-3/4(D) in.
Weight Without package: 8.5kg 18 lb 11 oz

MODEL CT-F7070/D

Power Requirements AC 120V, 220V, 240V,
50Hz/60Hz
Power Consumption 18 Watts, max.
Dimensions 420(W) x 150(H) x 350(D)mm. max.
16-1/2(W) x 5-15/16(H) x 13-3/4(D) in.
Weight Without package: 8.5kg 18 lb 11 oz

 **PIONEER®**

2. CONTRAST OF MISCELLANEOUS PARTS

ASSEMBLY

Part Name	Part No.				Remarks
	CT-F7272/KCU	CT-F7272/D	CT-F7070/HG	CT-F7070/D	
Power supply assembly	RWR-035	RWR-039	RWR-036	RWR-039	

TRANSFORMER

Symbol	Part Name	Part No.				Remarks
		CT-F7272/KCU	CT-F7272/D	CT-F7070/HG	CT-F7070/D	
T1	Power Transformer	RTT-097	RTT-099	RTT-098	RTT-099	

SWITCHES

Symbol	Part Name	Part No.				Remarks
		CT-F7272/KCU	CT-F7272/D	CT-F7070/HG	CT-F7070/D	
	Power switch	RSA-010	RSA-009	RSA-015	RSA-009	
	Plugin selector (Line voltage selector)	.....	RKR-020	RKR-019	RKR-020	

FUSES (PRIMARY SIDE)

Symbol	Part Name	Part No.				Remarks
		CT-F7272/KCU	CT-F7272/D	CT-F7070/HG	CT-7070/D	
	0.5A	.....	REK-048	REK-049	REK-048	
	1A	.....	REK-051	.....	REK-051	

OTHERS

Part Name	Part No.				Remarks
	CT-F7272/KCU	CT-F7272/D	CT-F7070/HG	CT-F7070/D	
Spark killer C2 capacitor	RWX-109	C43-003	.....	C43-003	
AC power cord	RDG-013	ADG-004	.....	ADG-004	
AC socket (INLET)	.....	.....	RKP-014	.....
Front panel	RAH-161	RAH-161	RAH-162	RAH-162	
Cabinet case	RMM-032	RMM-032	RXA-676	RXA-676	
Operating instructions	RRB-072	RRB-067	RRB-074 RRD-021	RRB-074	English German/French
Packing case	RHG-150(KU) RHG-151(KC)	RHG-152	RHG-161	RHG-153	

3. MODEL CT-F7272/D

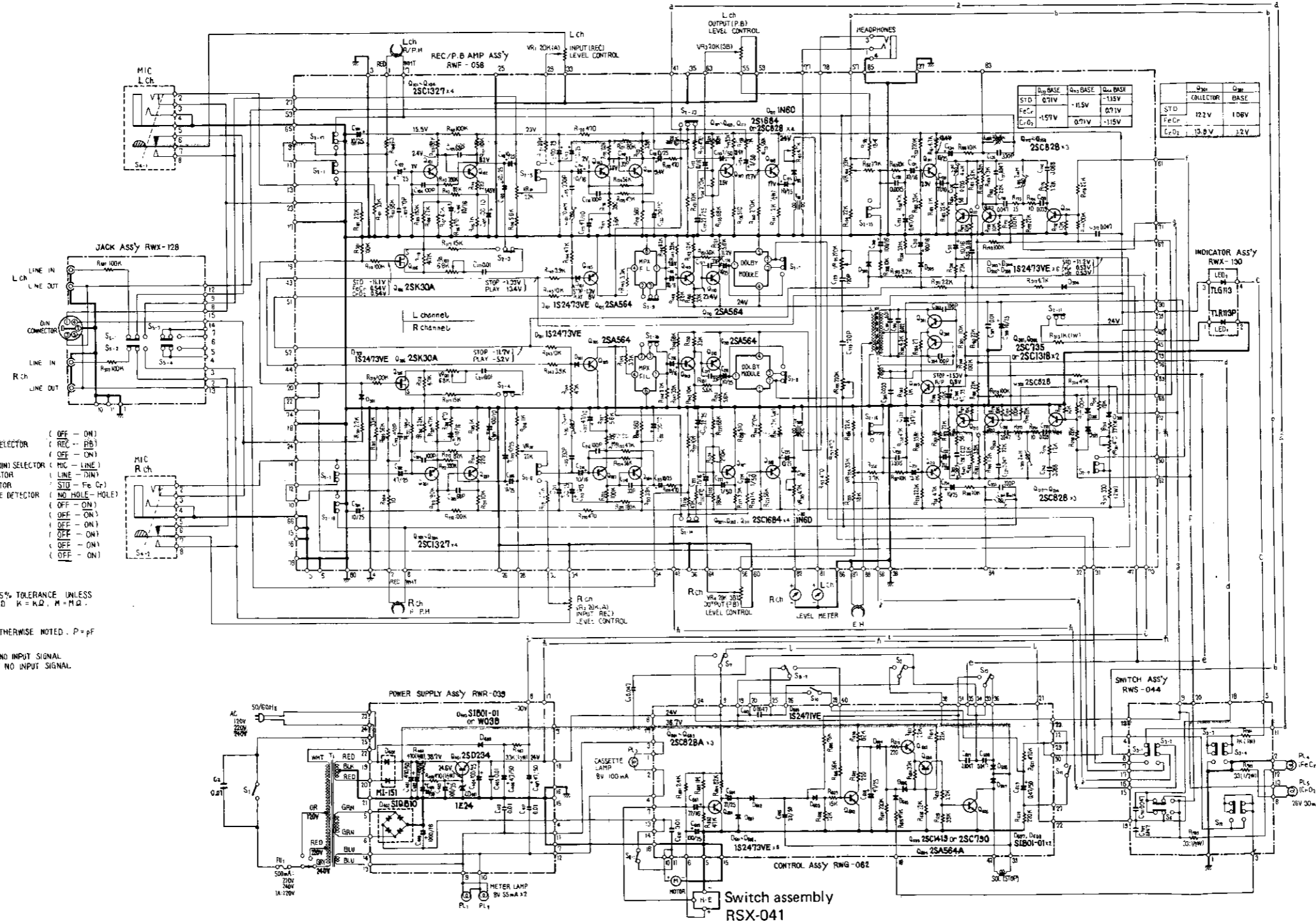
3.1 SCHEMATIC DIAGRAM

- SWITCHES:
- S₁ POWER (OFF - ON)
 - S₂ REC./P.B. SELECTOR (REC. - P.B.)
 - S₃ DOLBY NR (OFF - ON)
 - S₄ MIC/LINE (DM) SELECTOR (MIC - LINE)
 - S₅ INPUT SELECTOR (LINE - TUN)
 - S₆ TAPE SELECTOR (STD - Fb Cr)
 - S₇ CHROME TAPE DETECTOR (NO HOLE - HOLE)
 - S₈ PLAY (OFF - ON)
 - S₉ MUTING (OFF - ON)
 - S₁₀ COUNTDOWN (OFF - ON)
 - S₁₁ RSW (OFF - ON)
 - S₁₂ MEMORY (OFF - ON)
 - S₁₃ PAUSE (OFF - ON)

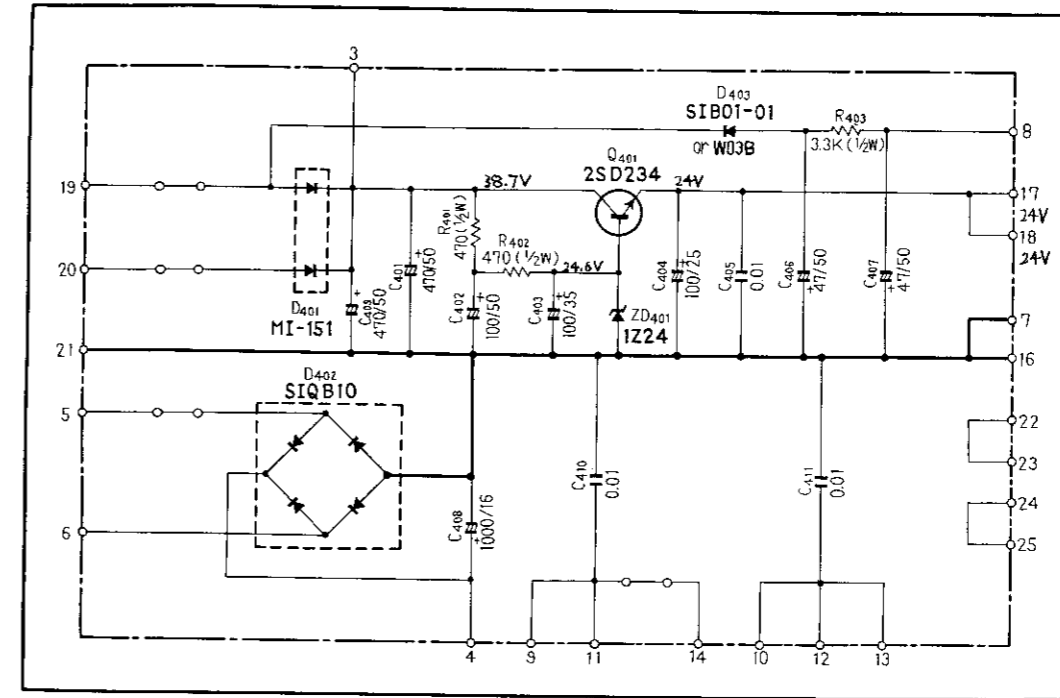
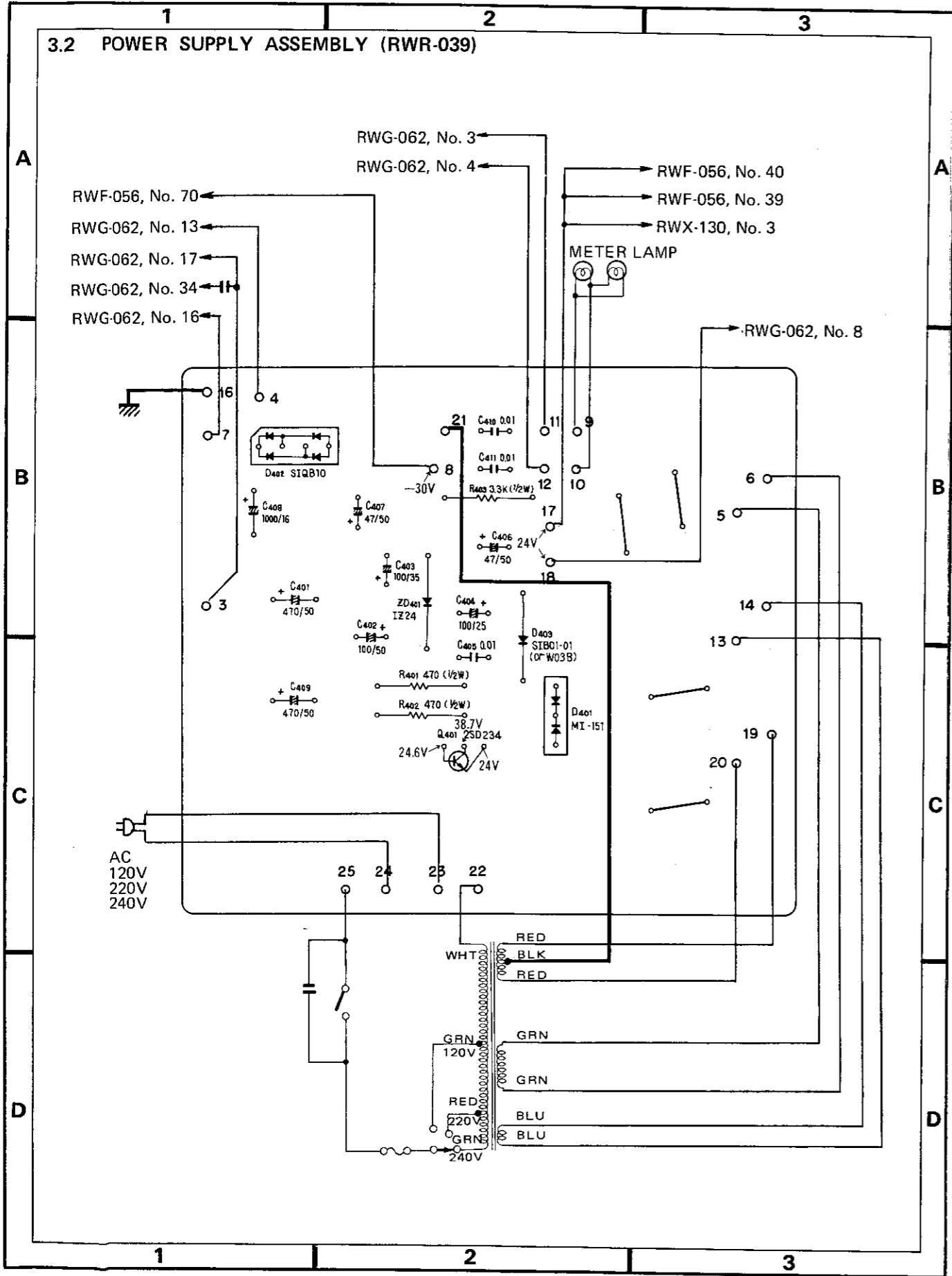
RESISTORS:
IN OHM, 1/4W, ±5% TOLERANCE UNLESS OTHERWISE NOTED. K = KΩ, M = MΩ.

CAPACITORS:
IN μF UNLESS OTHERWISE NOTED. P = pF

V = DC VOLTAGE AT NO INPUT SIGNAL
MA = DC CURRENT AT NO INPUT SIGNAL



3.2 POWER SUPPLY ASSEMBLY (RWR-039)



Parts List

SEMICONDUCTORS

Symbol	Description	Part No.
Q401	Transistor	2SD234-0 (or 2SD234-Y)
ZD401	Zener diode	1Z24
D401	Diode	MI-151
D402	Diode	SIQB10
D403	Diode	SIB01-01 or (SIB01-02) (W03B) (W03C)

RESISTORS

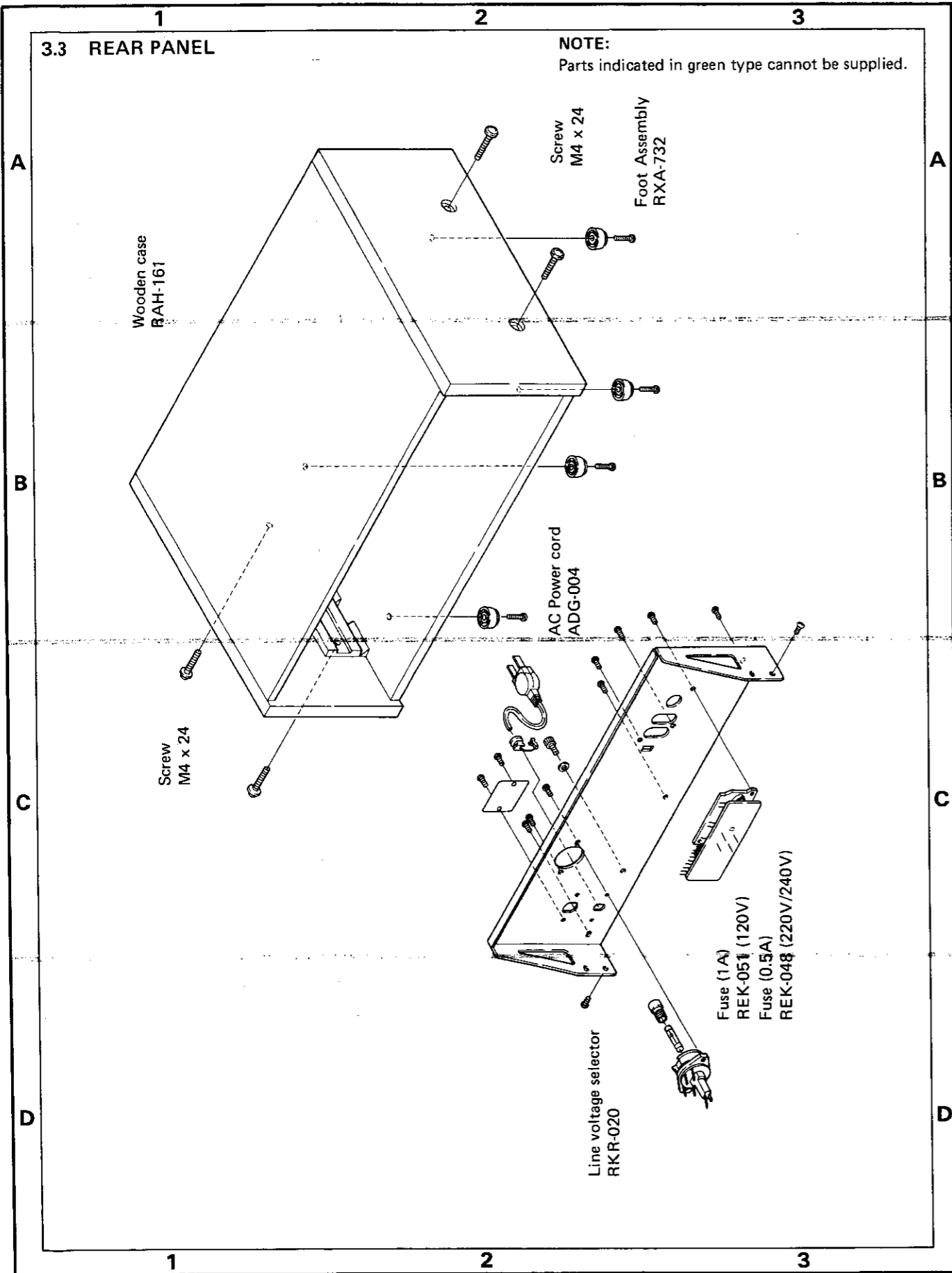
Symbol	Description	Part No.
R401	Carbon film 470 1/2W	RD1/2PSF 471J
R402	Carbon film 470 1/2W	RD1/2PSF 471J
R403	Carbon film 3.3k 1/2W	RD1/2PS 332J

CAPACITORS

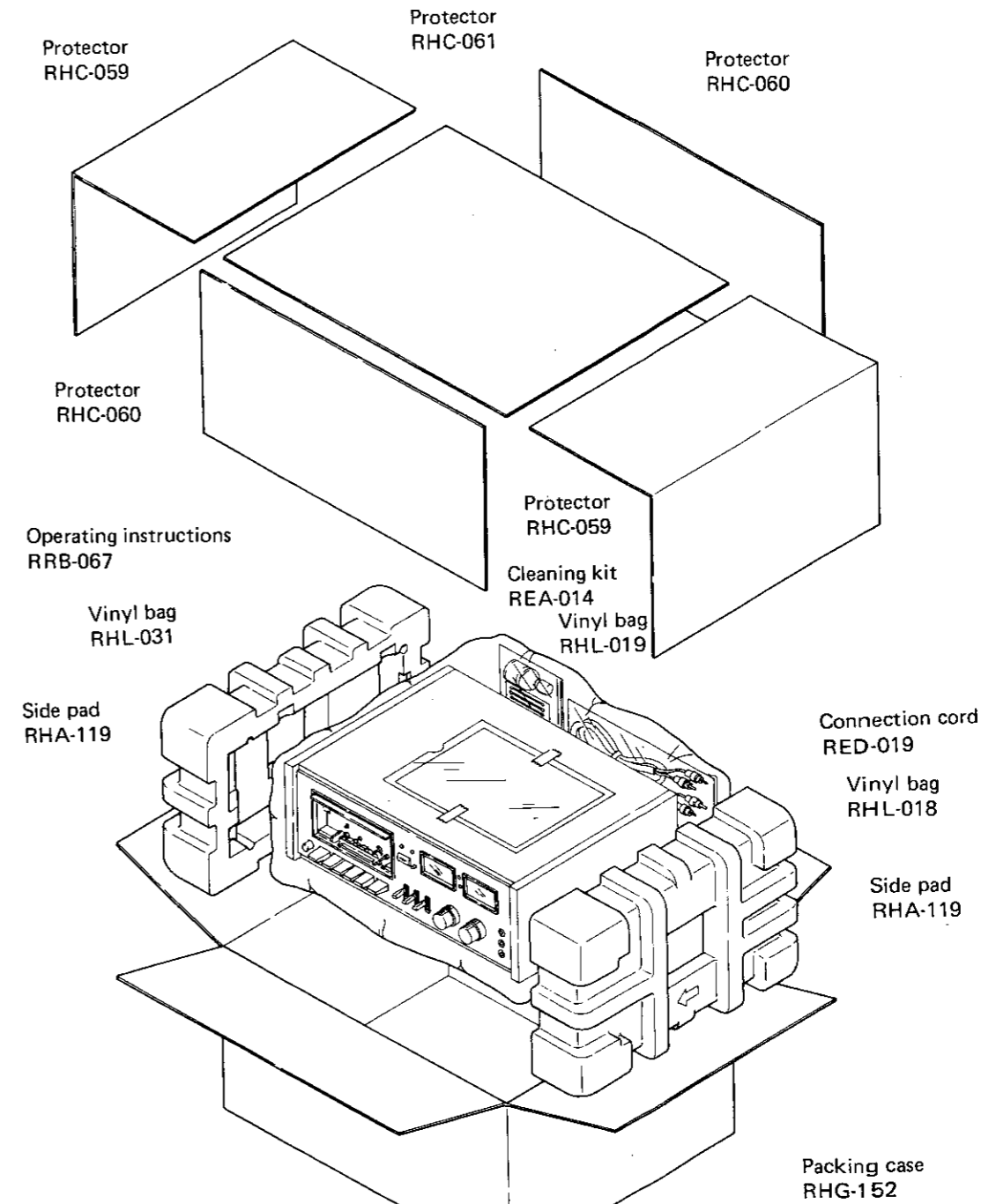
Symbol	Description	Part No.
C401	Electrolytic 470 50V	CEA 471P 50
C402	Electrolytic 100 50V	CEA 101P 50
C403	Electrolytic 100 35V	CEA 101P 35
C404	Electrolytic 100 25V	CEA 101P 25
C405	Ceramic 0.01 50V	CKDYF 103Z 50
C406	Electrolytic 47 50V	CEA 470P 50
C407	Electrolytic 47 50V	CEA 470P 50
C408	Electrolytic 1000 16V	CEA 102P 16
C409	Electrolytic 470 50V	CEA 471P 50
C410	Ceramic 0.01 50V	CKDYF 103Z 50
C411	Ceramic 0.01 50V	CKDYF 103Z 50

3.3 REAR PANEL

NOTE:
Parts indicated in green type cannot be supplied.



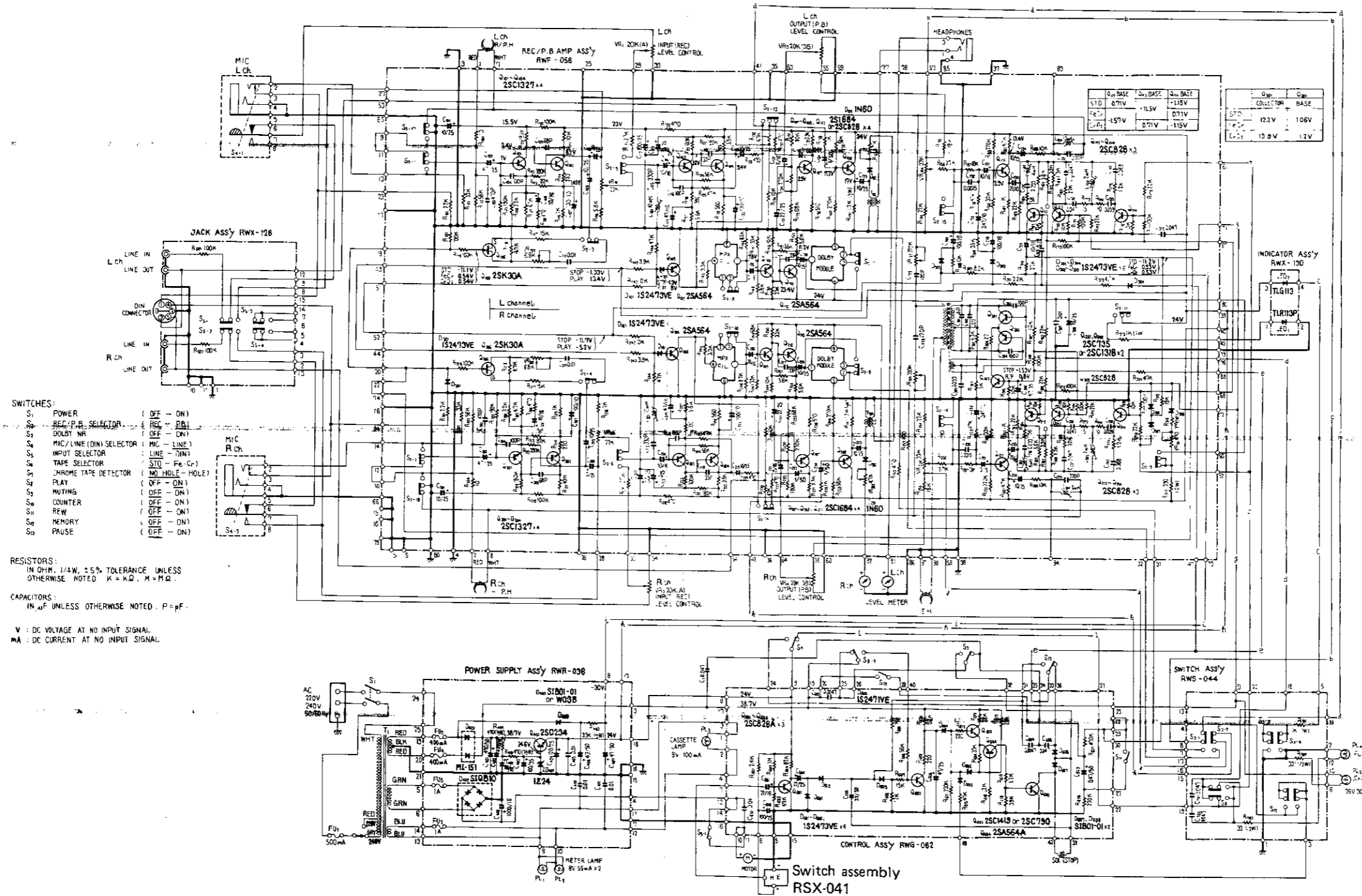
3.4 PACKING

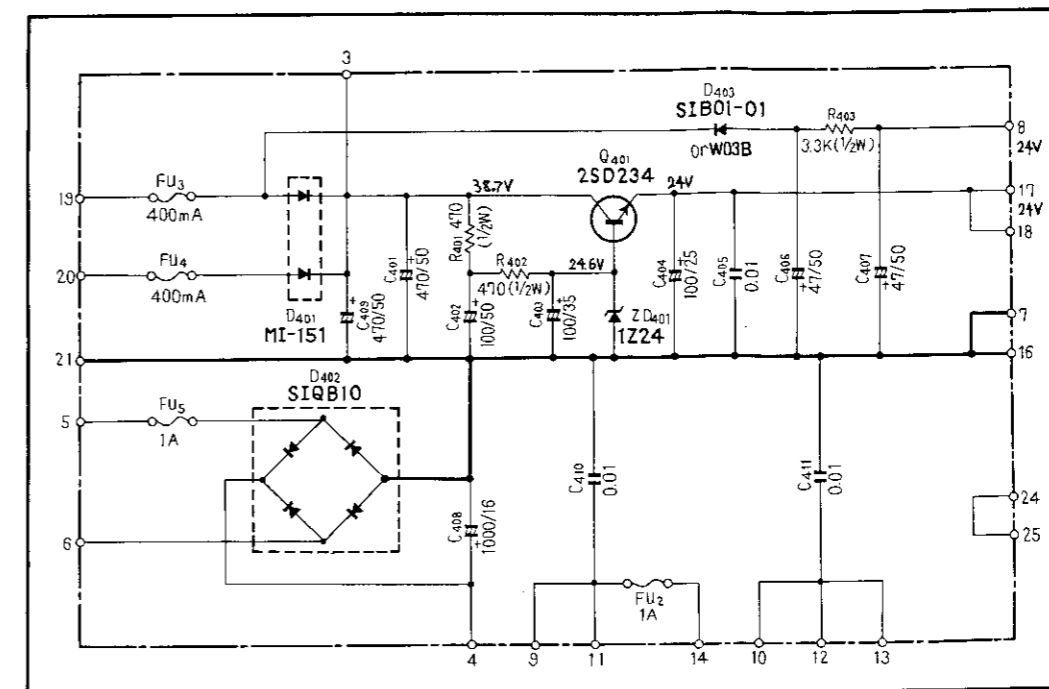
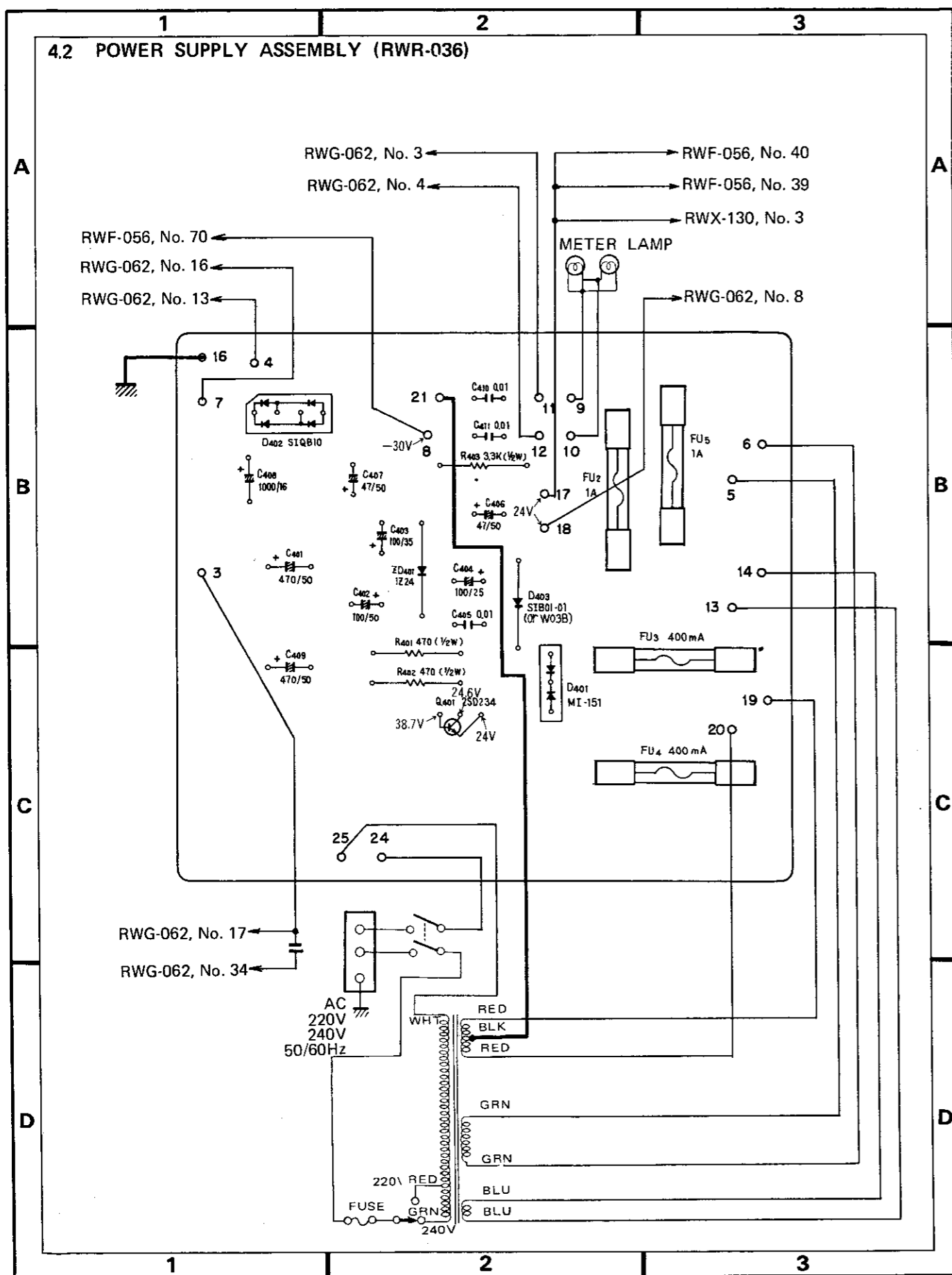


CT-F7070/HG

4. MODEL CT-F7070/HG

4.1 SCHEMATIC DIAGRAM





Parts List

SEMICONDUCTORS

Symbol	Description	Part No.
Q401	Transistor	2SD234-0 (or 2SD234-Y)
ZD401	Zener diode	1Z24
D401	Diode	MI-151
D402	Diode	SIQB10
D403	Diode	SIB01-01 or (SIB01-02) (W03B) (Wo3C)

RESISTORS

Symbol	Description	Part No.
R401	Carbon film 470 1/2W	RD1/2PSF 471J
R402	Carbon film 470 1/2W	RD1/2PSF 471J
R403	Carbon film 3.3k 1/2W	RD1/2PS 332J

OTHERS

Symbol	Description	Part No.
	Heat sink assembly	RNF-008

CAPACITORS

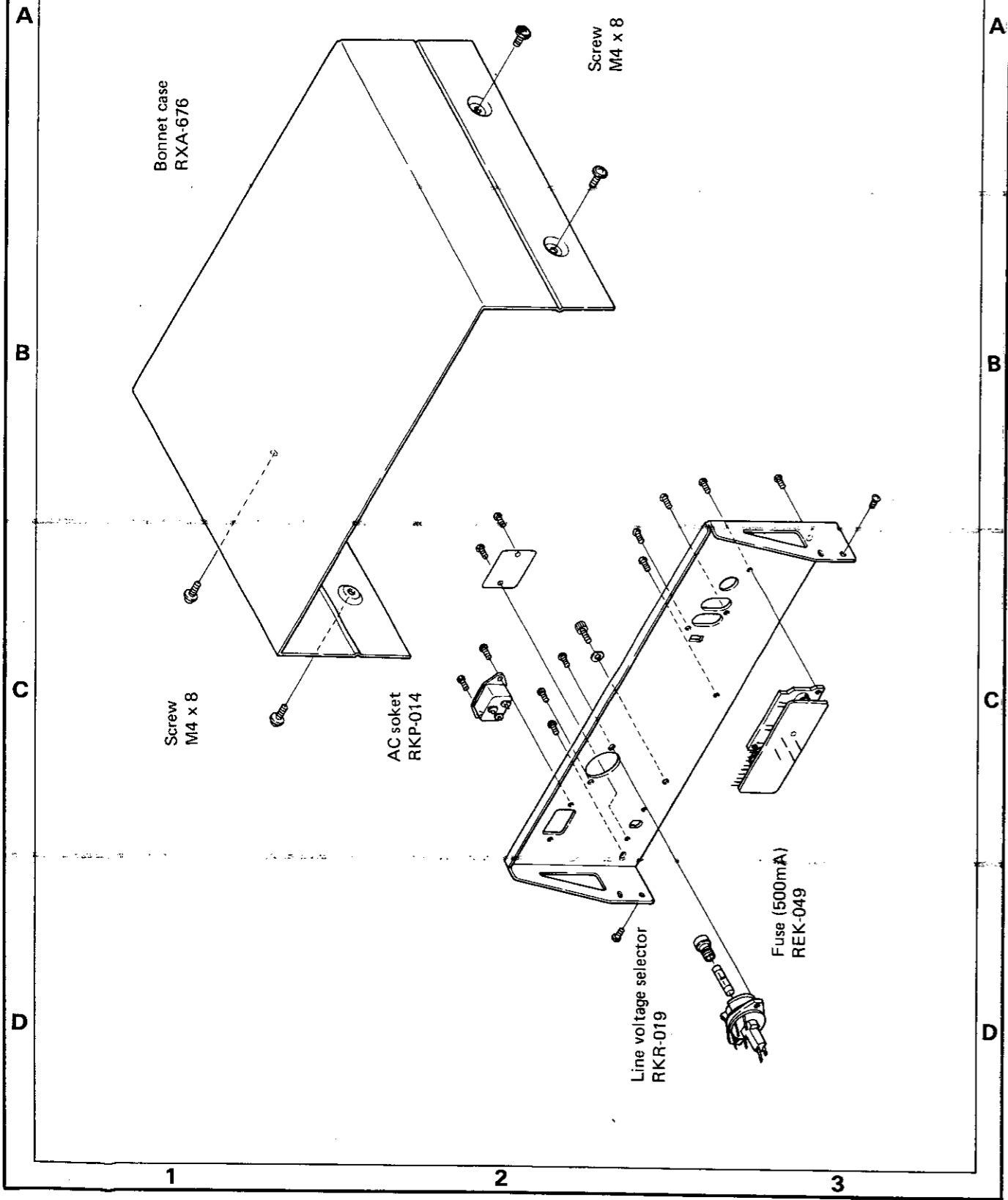
Symbol	Description	Part No.
C401	Electrolytic 470 50V	CEA 471P 50
C402	Electrolytic 100 50V	CEA 101P 50
C403	Electrolytic 100 35V	CEA 101P 35
C404	Electrolytic 100 25V	CEA 101P 25
C405	Ceramic 0.01 50V	CKDYF 103Z 50
C406	Electrolytic 47 50V	CEA 470P 50
C407	Electrolytic 47 50V	CEA 470P 50
C408	Electrolytic 1000 16V	CEA 102P 16
C409	Electrolytic 470 50V	CEA 471P 50
C410	Ceramic 0.01 50V	CKDYF 103Z 50
C411	Ceramic 0.01 50V	CKDYF 103Z 50

OTHERS

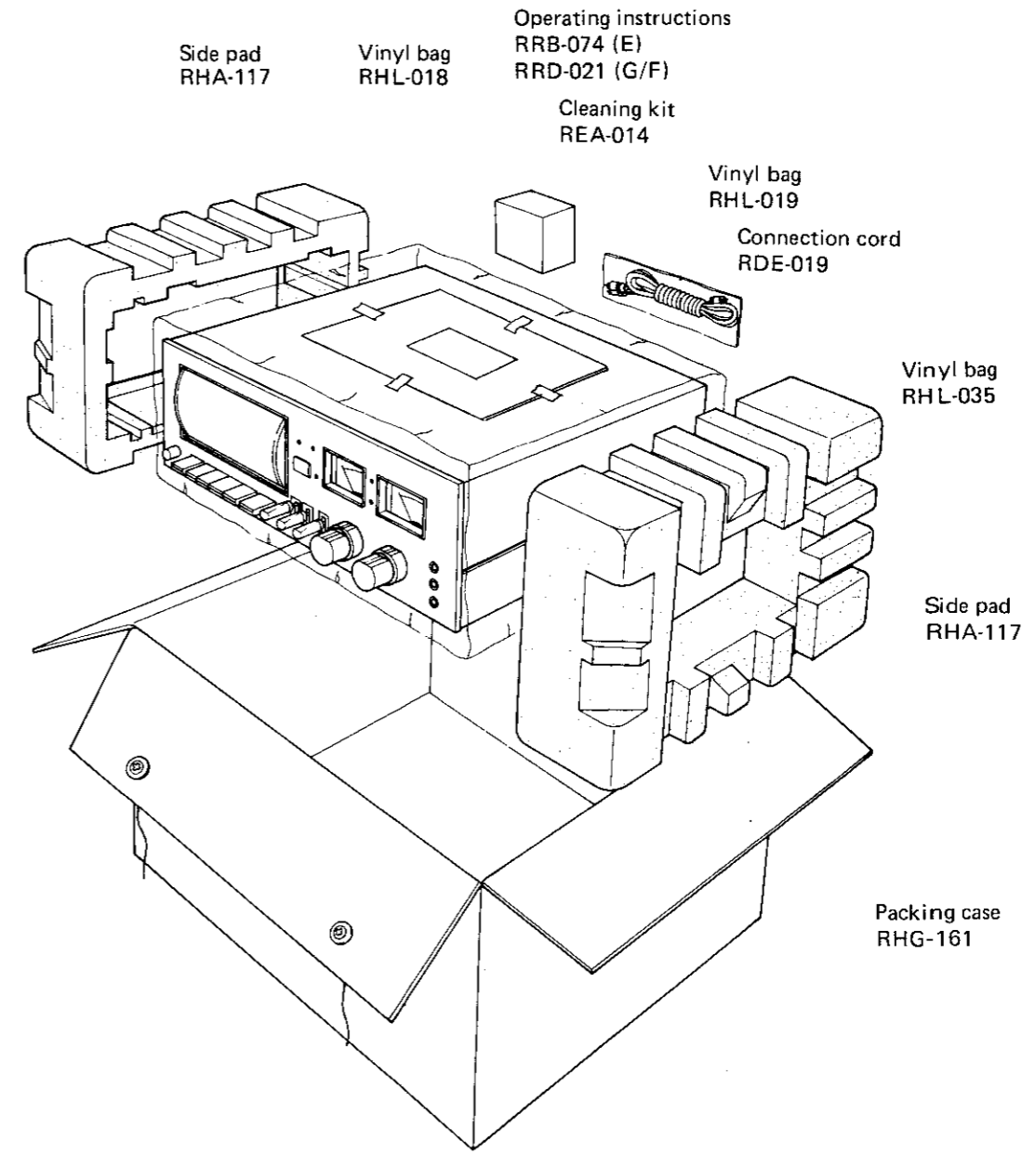
Symbol	Description	Part No.
FU2	Fuse 1A	REK-056
FU3	Fuse 400mA	REK-053
FU4	Fuse 400mA	REK-053
FU5	Fuse 1A	REK-056
	Fuse holder	RKR-013

4.3 REAR PANEL

NOTE:
Parts indicated in green type cannot be supplied.



4.4 PACKING



5. MODEL CT-F7070/D

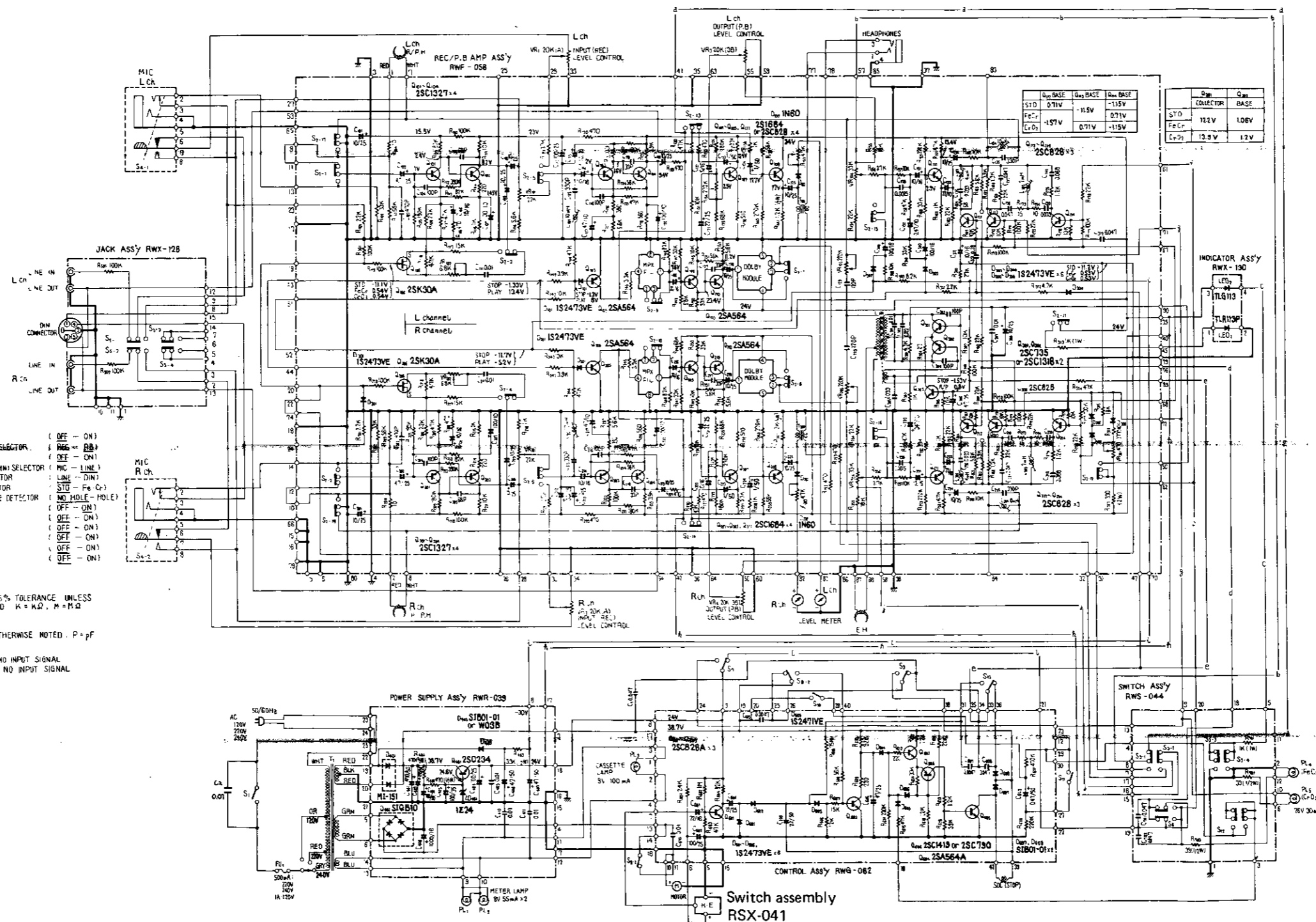
5.1 SCHEMATIC DIAGRAM

- SWITCHES:
- S₁ POWER (OFF - ON)
 - S₂ REC/P.B. SELECTOR (REG - BB)
 - S₃ DOLBY NR (OFF - ON)
 - S₄ MIC/LINE (DIN) SELECTOR (MIC - LINE)
 - S₅ INPUT SELECTOR (LINE - DIN)
 - S₆ TAPE SELECTOR (STD - Fe Cr)
 - S₇ HOME TAPE DETECTOR (NO HOLE - HOLE)
 - S₈ PLAY (OFF - ON)
 - S₉ MUTING (OFF - ON)
 - S₁₀ FASTER (OFF - ON)
 - S₁₁ REW (OFF - ON)
 - S₁₂ MEMORY (OFF - ON)
 - S₁₃ PAUSE (OFF - ON)

RESISTORS:
IN OHM, 1/4W, ±5% TOLERANCE UNLESS
OTHERWISE NOTED K = KΩ, M = MΩ

CAPACITORS:
IN μF UNLESS OTHERWISE NOTED P = pF

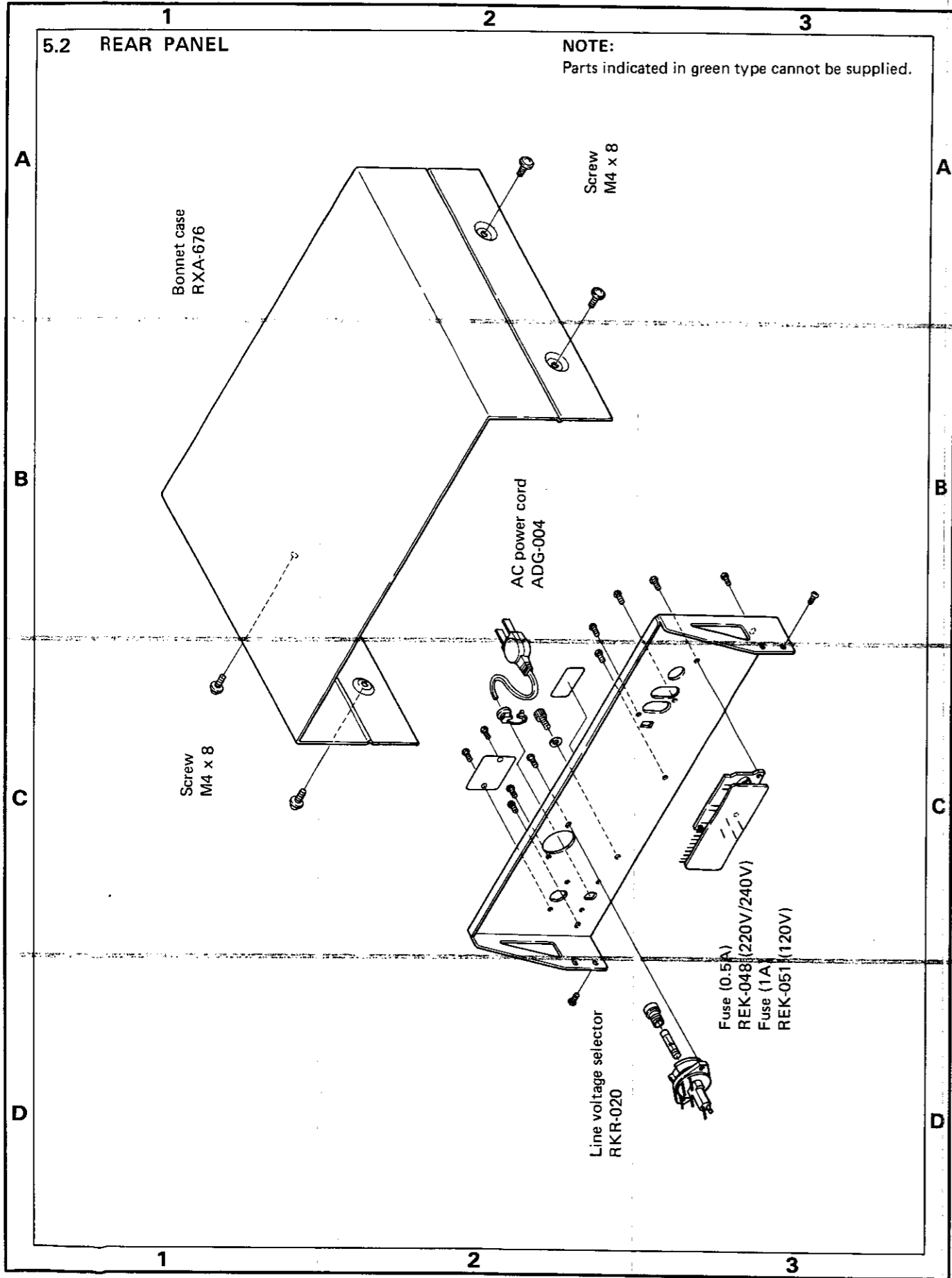
V = DC VOLTAGE AT NO INPUT SIGNAL
mA = DC CURRENT AT NO INPUT SIGNAL



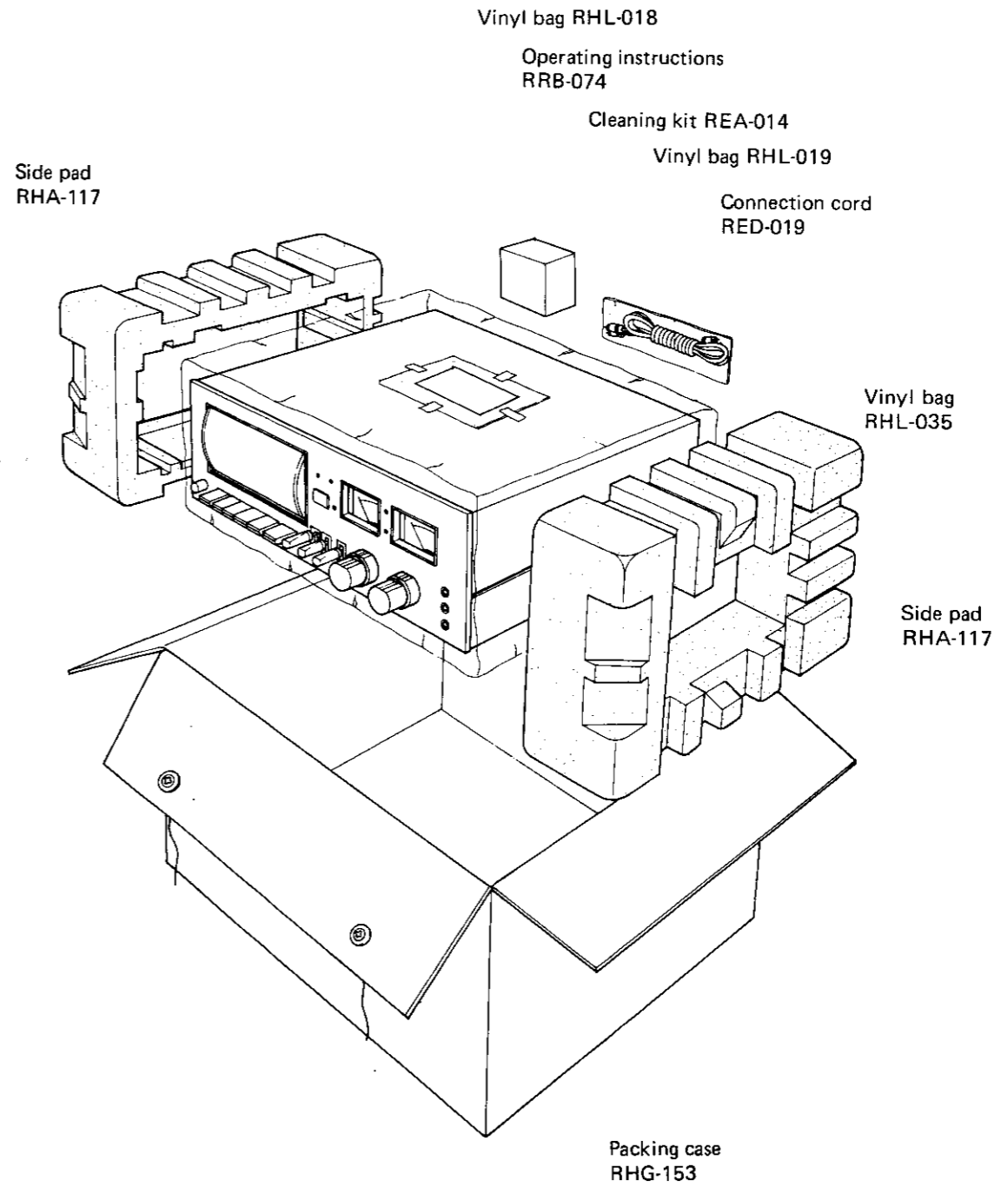
CT-F7070/D

5.2 REAR PANEL

NOTE:
Parts indicated in green type cannot be supplied.

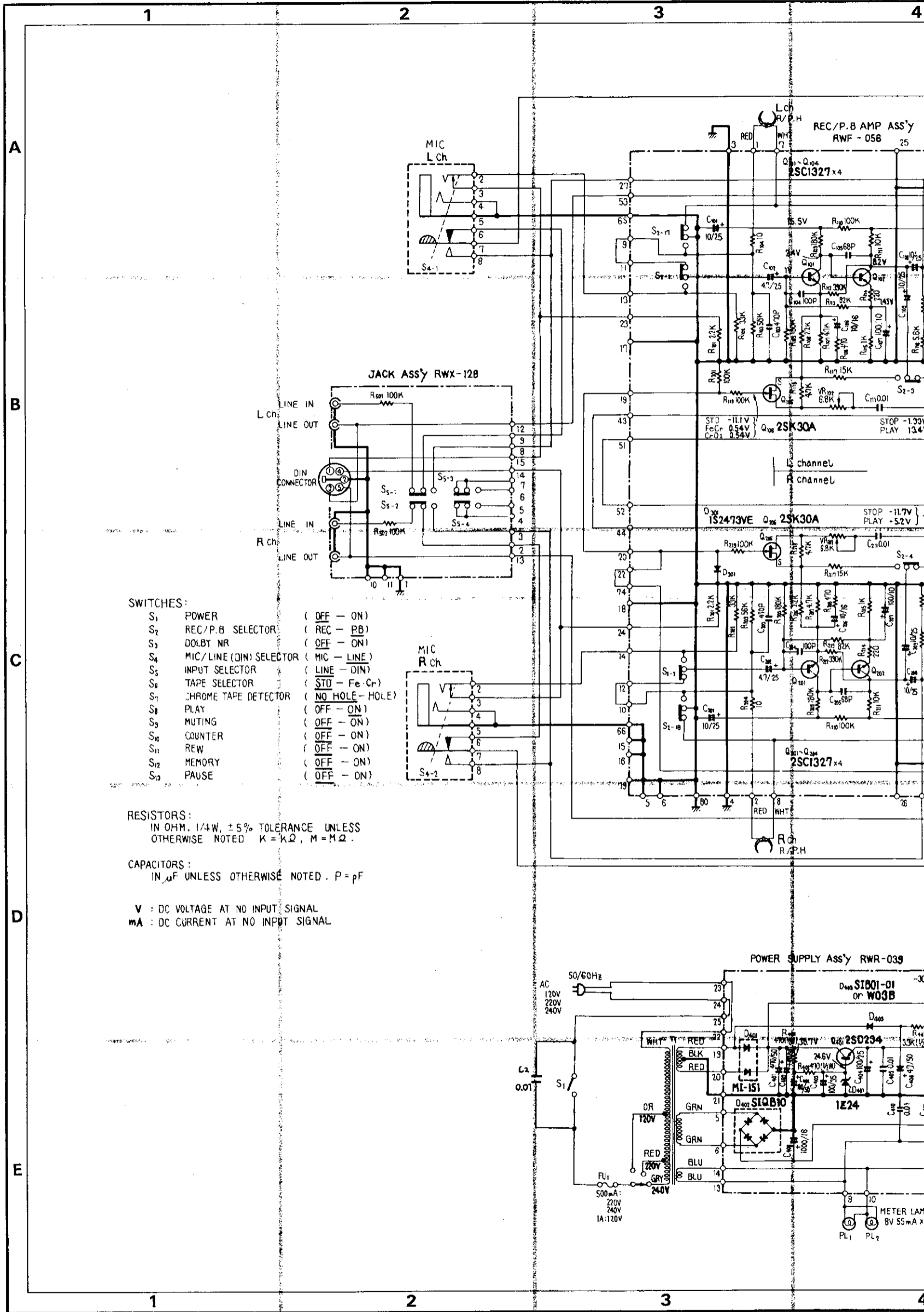


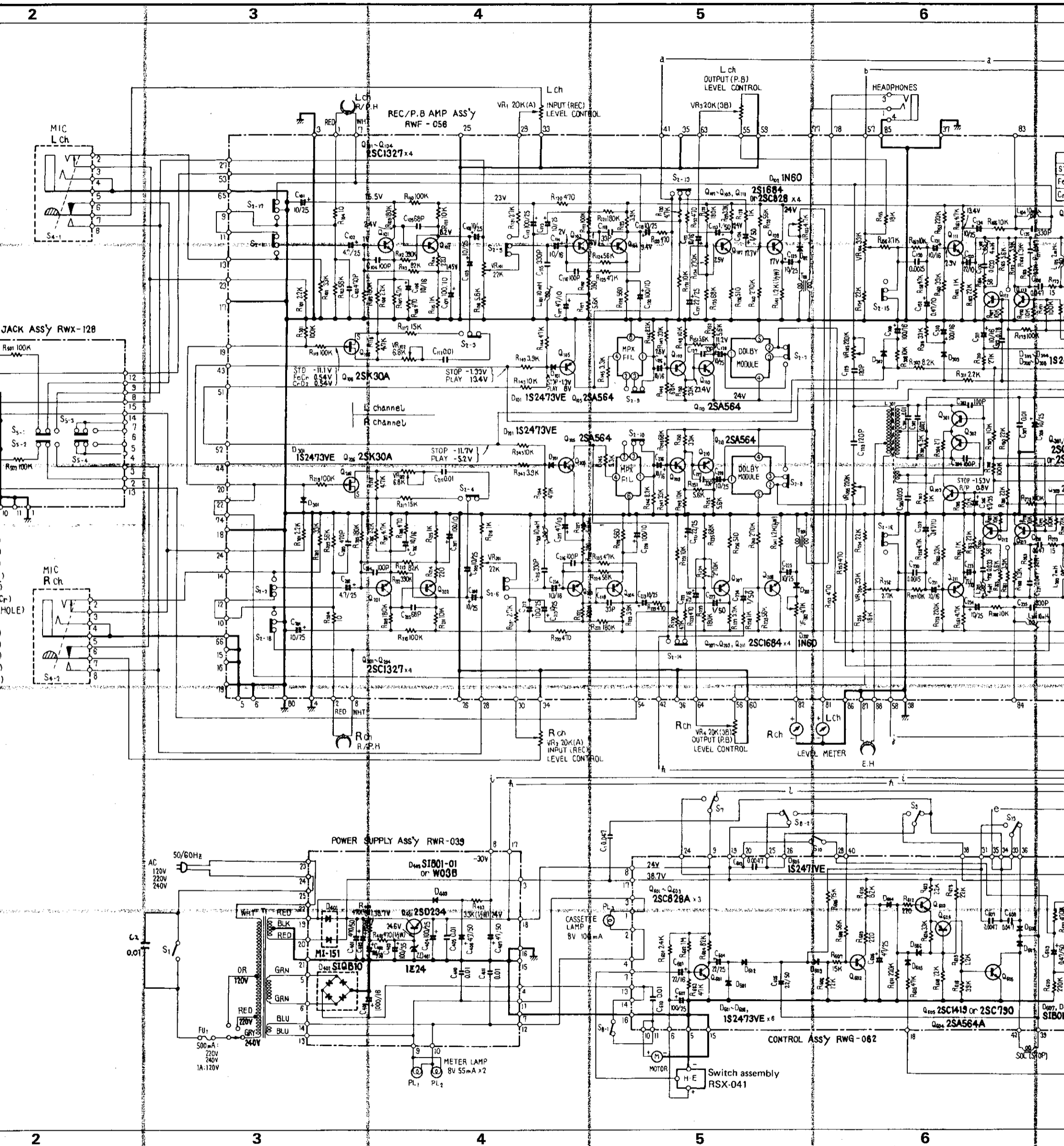
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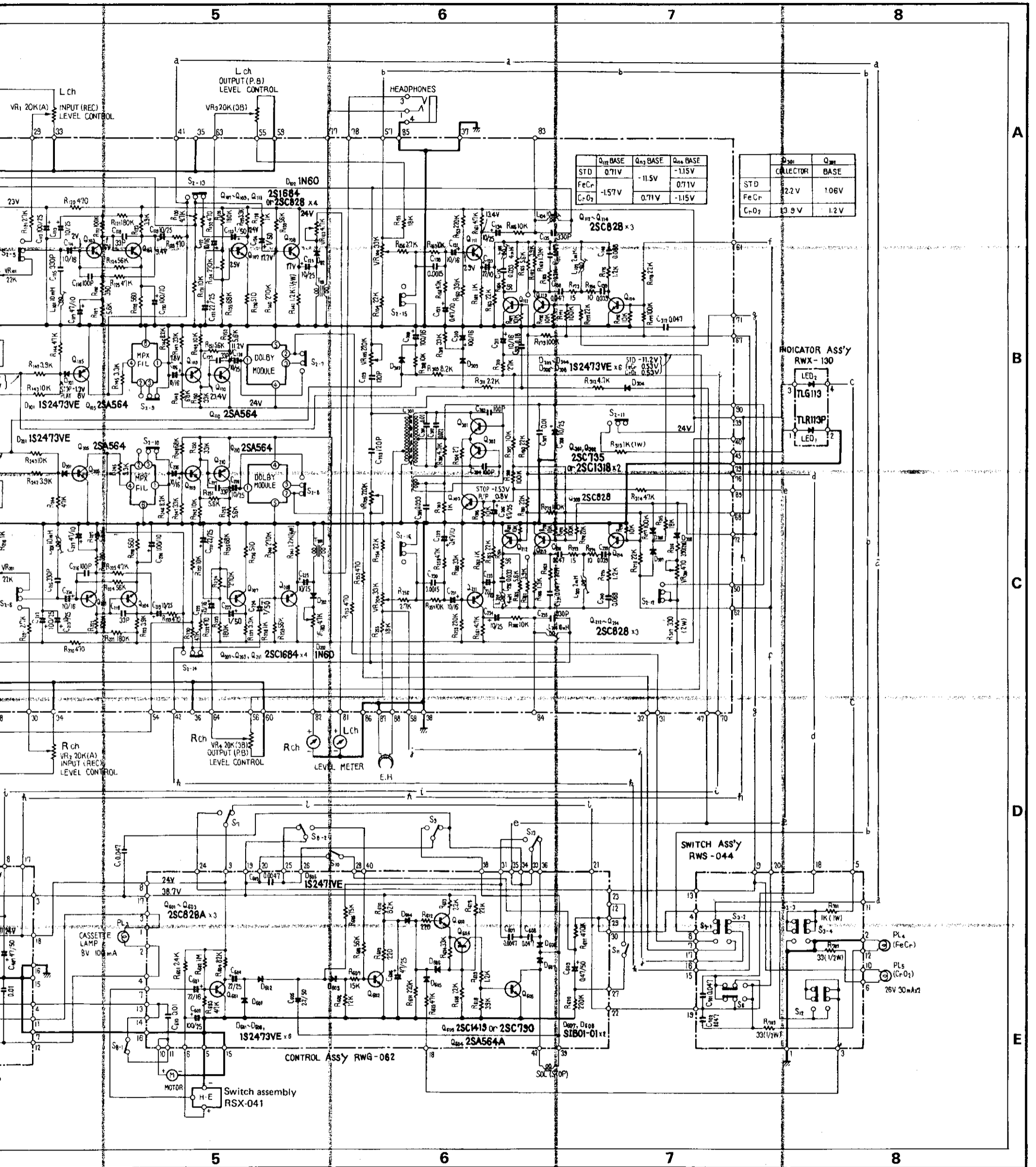


CASSETTE TAPE DECK

CT-F7070 D



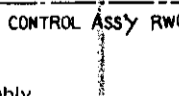
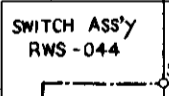
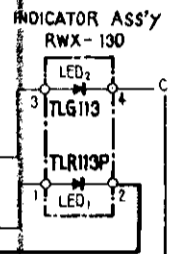




	Q ₁₂ BASE	Q ₁₃ BASE	Q ₁₄ BASE
STD	0.71V	-1.15V	-1.15V
FeCr	-1.57V	0.71V	0.71V
CrO ₂		0.71V	-1.15V

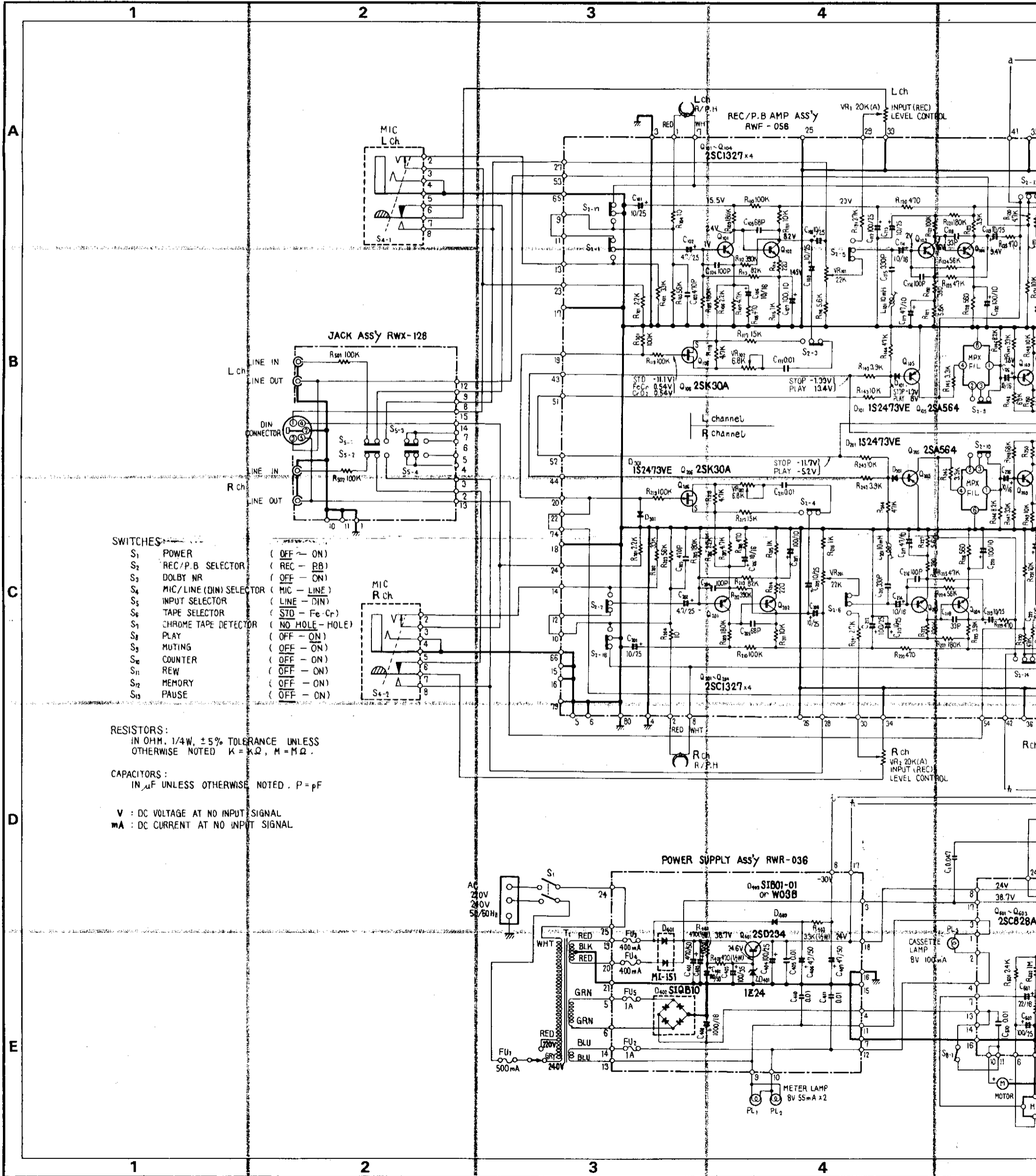
	Q ₁₂ COLLECTOR	Q ₁₃ BASE
STD	2.2V	1.06V
FeCr	3.9V	1.2V

	STD	FeCr	CrO ₂
Q ₁₂ BASE	-11.2V	0.53V	0.53V



CASSETTE TAPE DECK

CT-F7070 HG

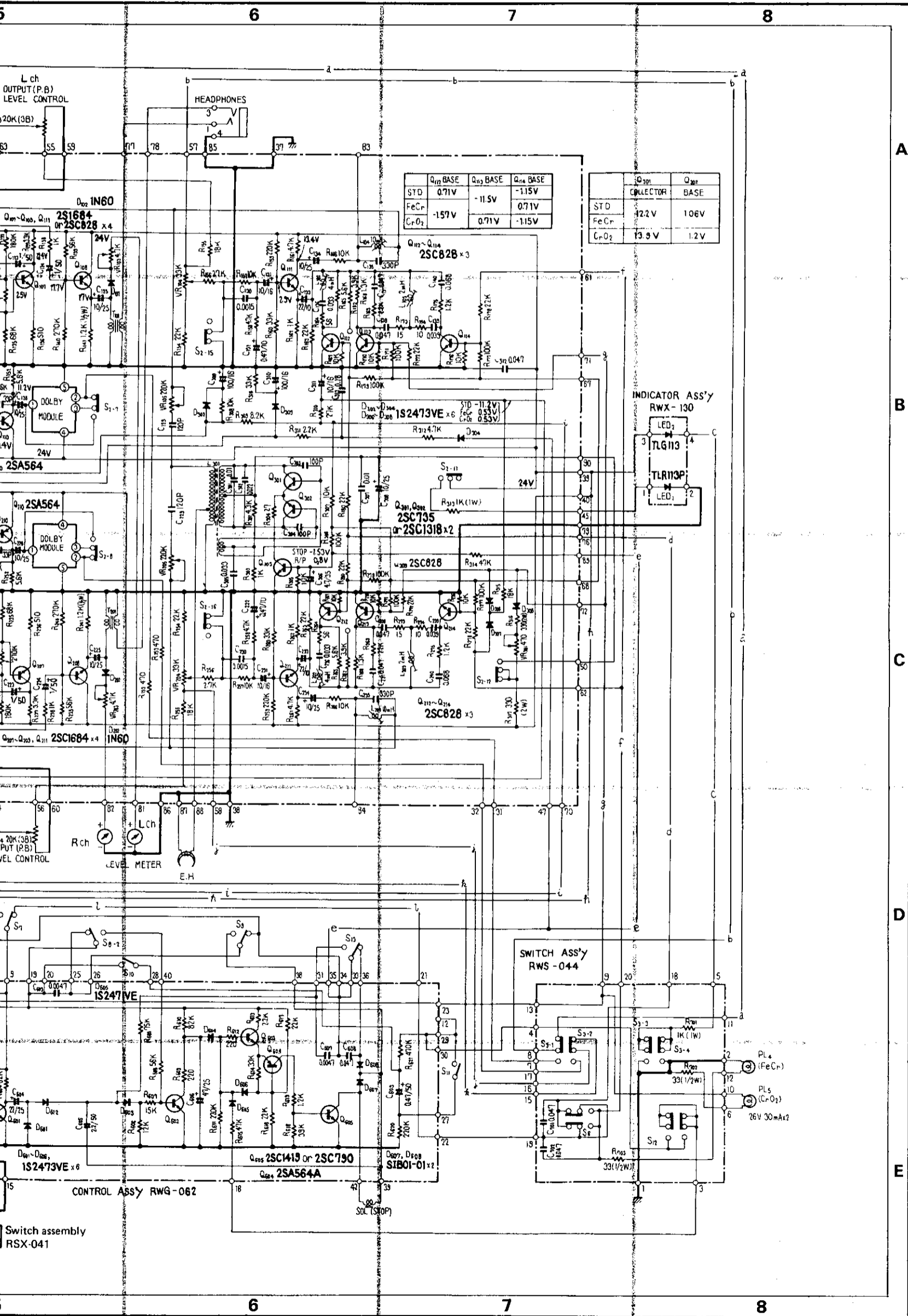


- SWITCHES:**
- S₁ POWER (OFF - ON)
 - S₂ REC/P.B SELECTOR (REC - RB)
 - S₃ DOLBY NR (OFF - ON)
 - S₄ MIC/LINE (DIN) SELECTOR (MIC - LINE)
 - S₅ INPUT SELECTOR (LINE - DIN)
 - S₆ TAPE SELECTOR (STD - Fe - Cr)
 - S₇ CHROME TAPE DETECTOR (NO HOLE - HOLE)
 - S₈ PLAY (OFF - ON)
 - S₉ MUTING (OFF - ON)
 - S₁₀ COUNTER (OFF - ON)
 - S₁₁ REW (OFF - ON)
 - S₁₂ MEMORY (OFF - ON)
 - S₁₃ PAUSE (OFF - ON)

RESISTORS:
IN OHM, 1/4W, ±5% TOLERANCE UNLESS OTHERWISE NOTED K = KΩ, M = MΩ.

CAPACITORS:
IN μF UNLESS OTHERWISE NOTED. P = pF

V : DC VOLTAGE AT NO INPUT SIGNAL
mA : DC CURRENT AT NO INPUT SIGNAL



Switch assembly RSX-041

CONTROL ASSY RWG-062

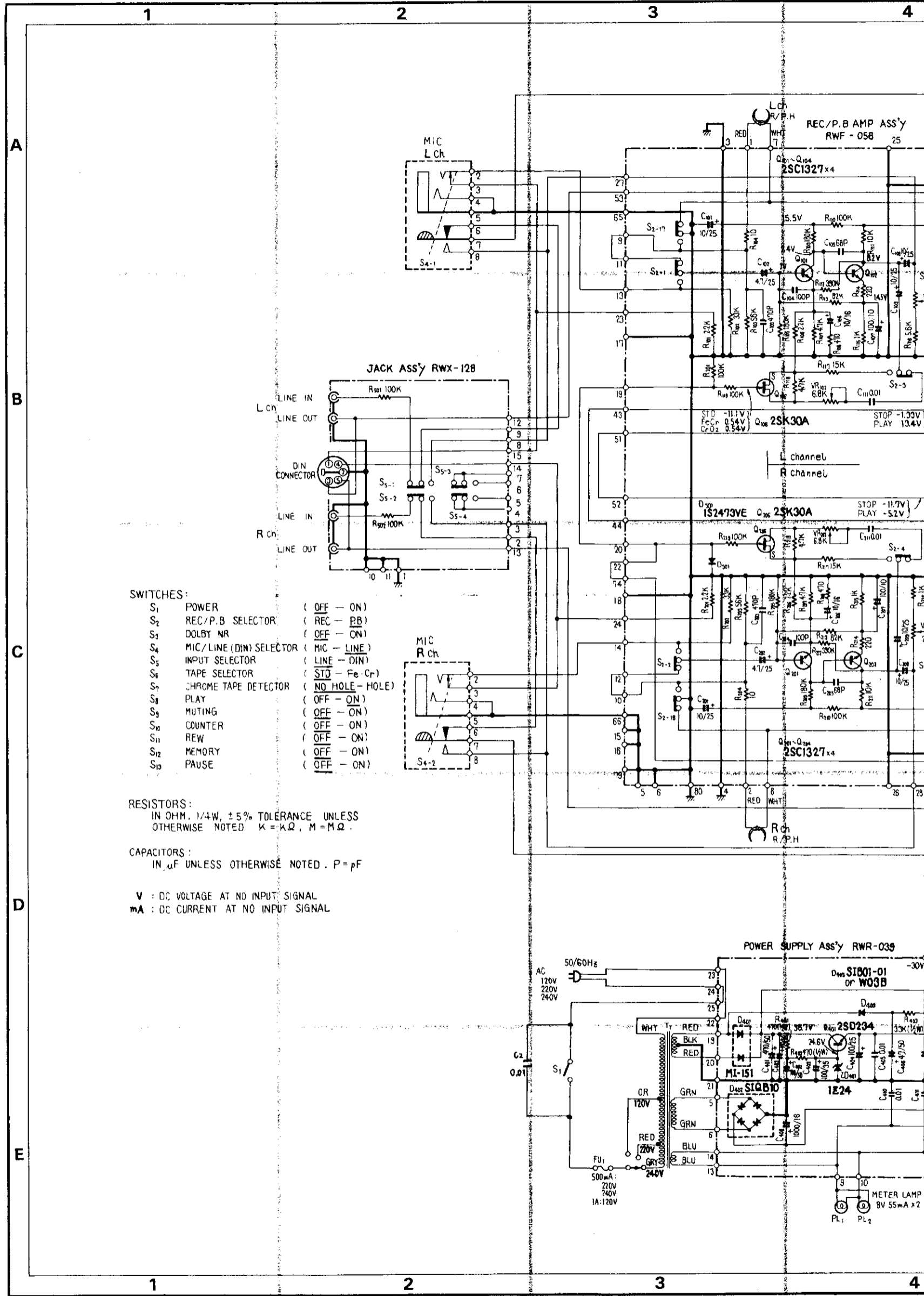
SWITCH ASSY RWS-044

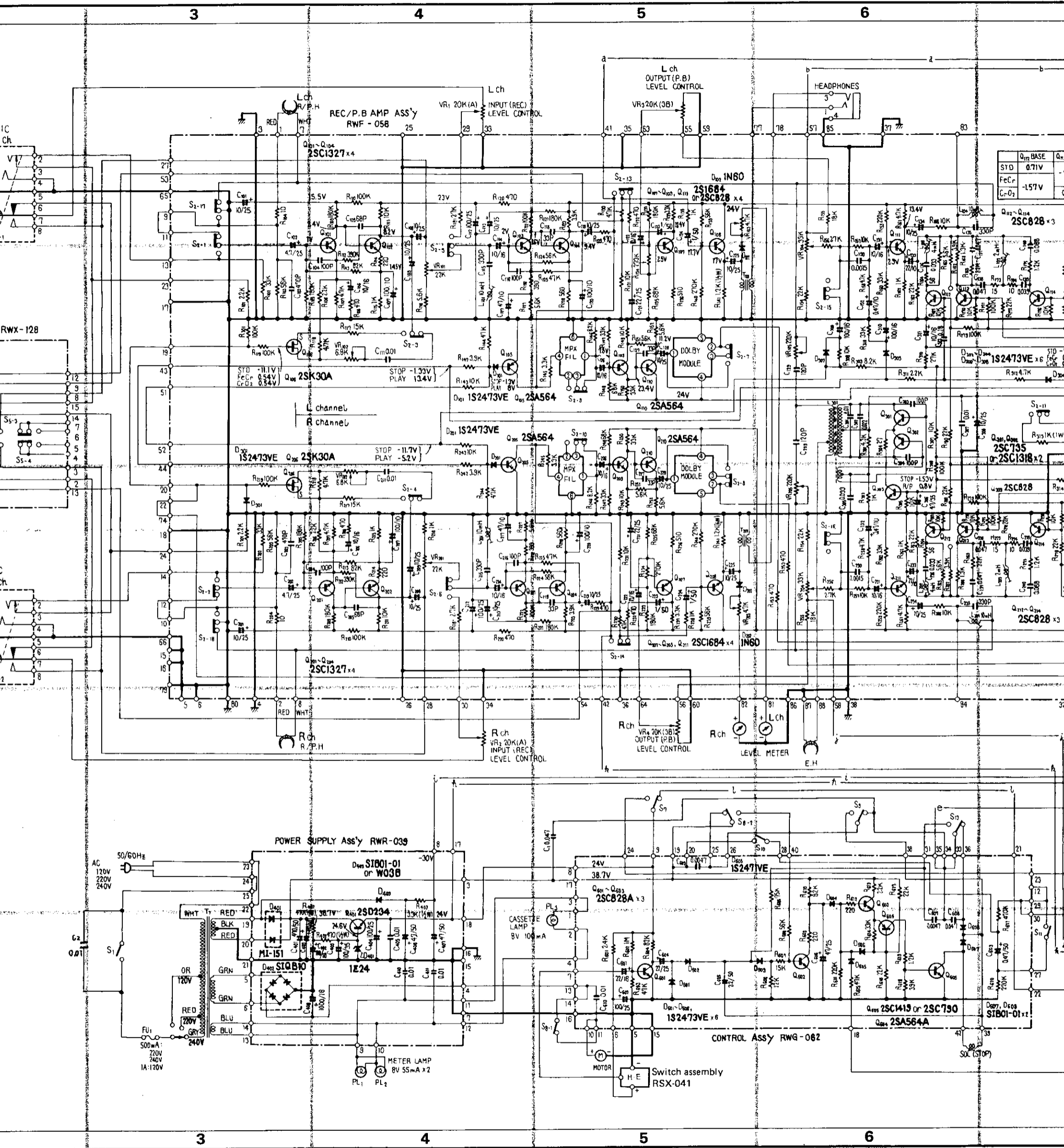
INDICATOR ASSY RWX-130

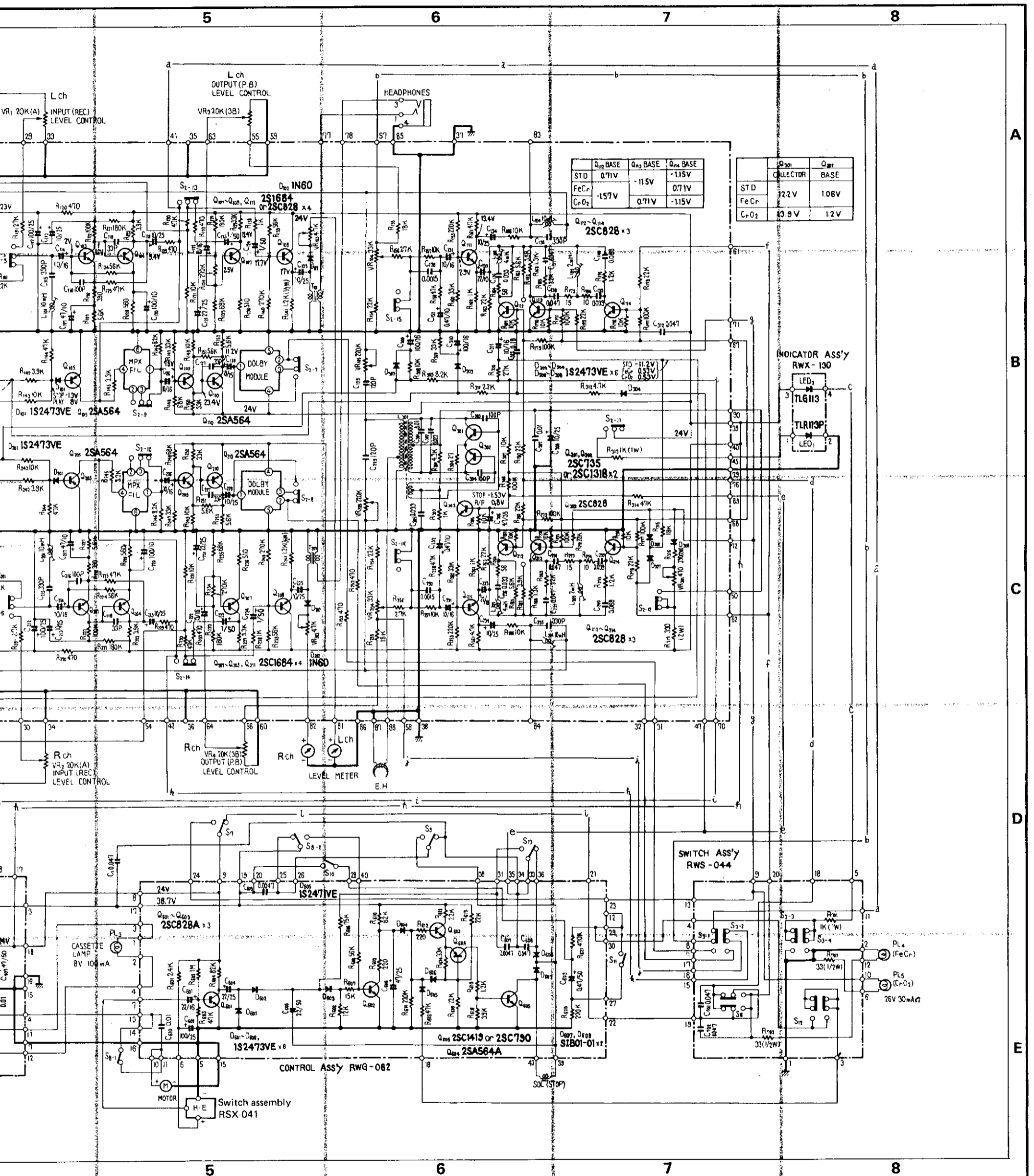
CASSETTE TAPE DECK

CT-F7272

D

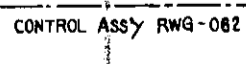
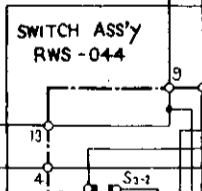
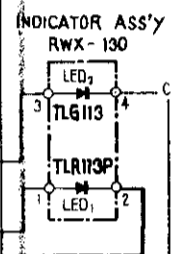






	Q ₁₁ BASE	Q ₁₂ BASE	Q ₁₃ BASE
STD	0.71V	-11.5V	-11.5V
FeCr	-15.7V	0.71V	-11.5V
Cr-O ₂			

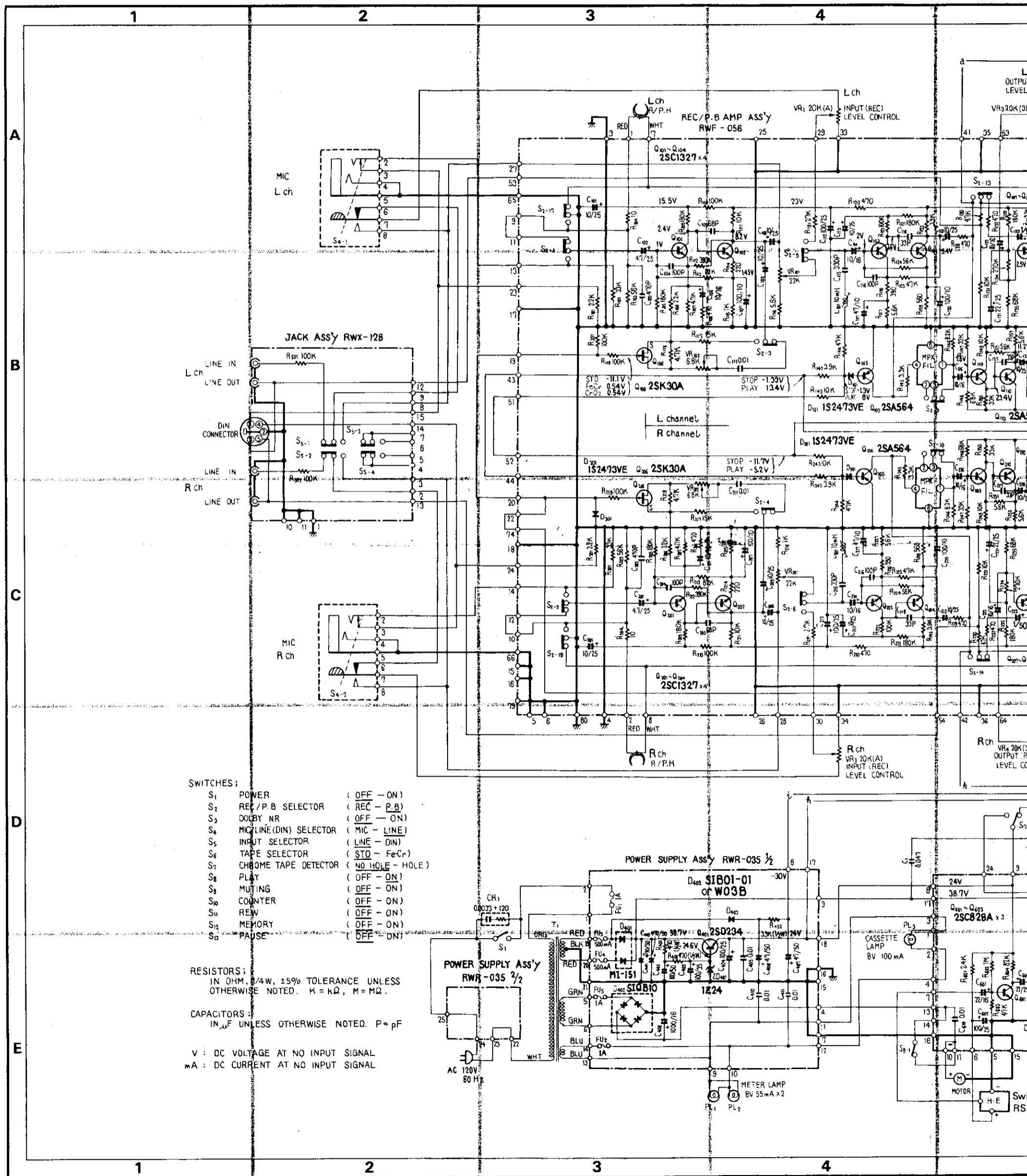
	Q ₁₄ COLLECTOR	Q ₁₅ BASE
STD	32.2V	1.06V
FeCr		
Cr-O ₂	33.9V	1.2V

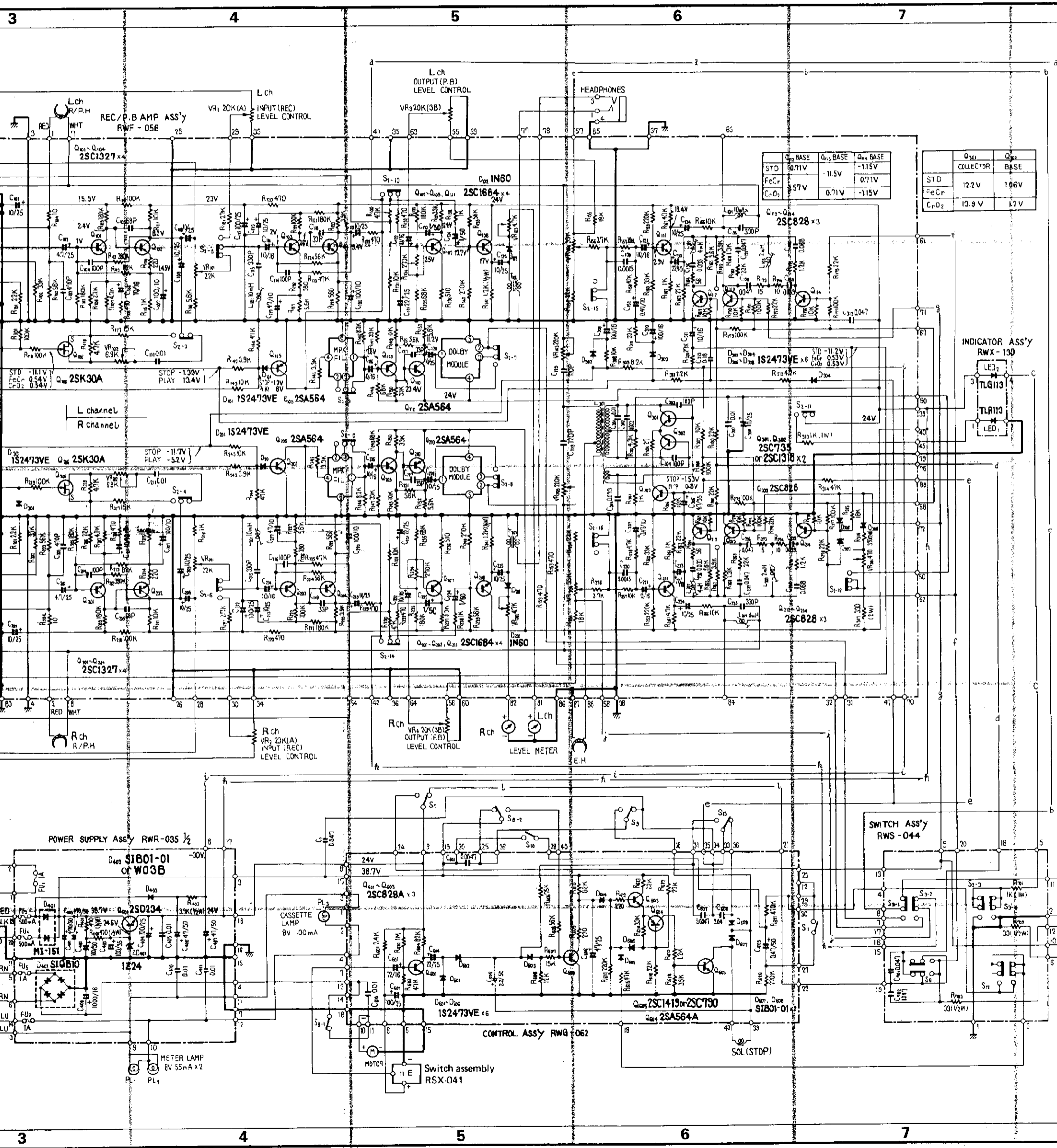


CASSETTE TAPE DECK

CT-F7272

KCU

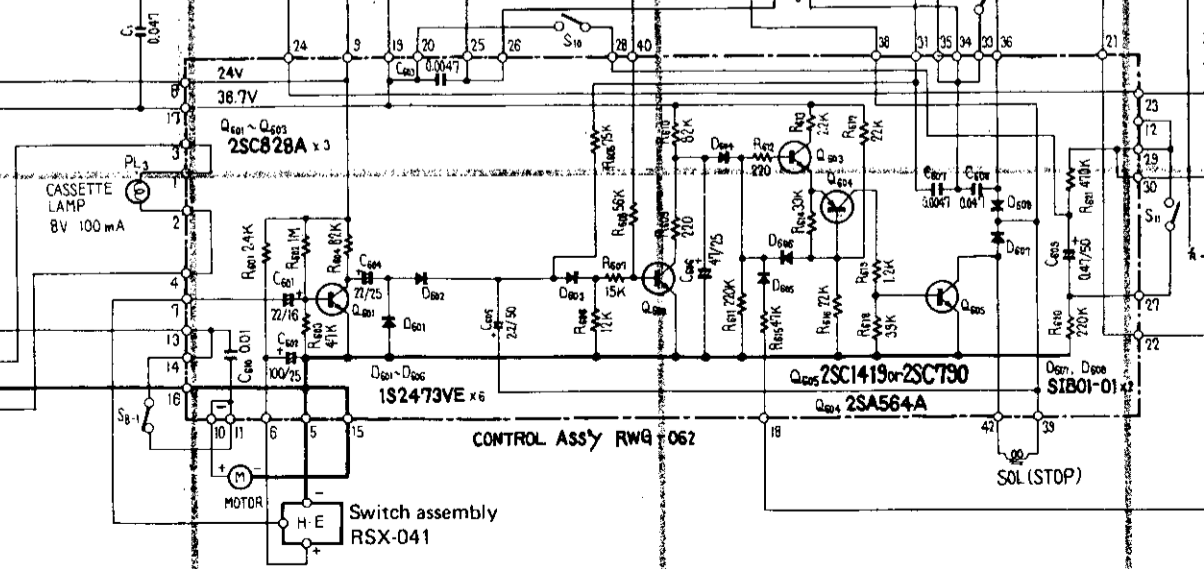
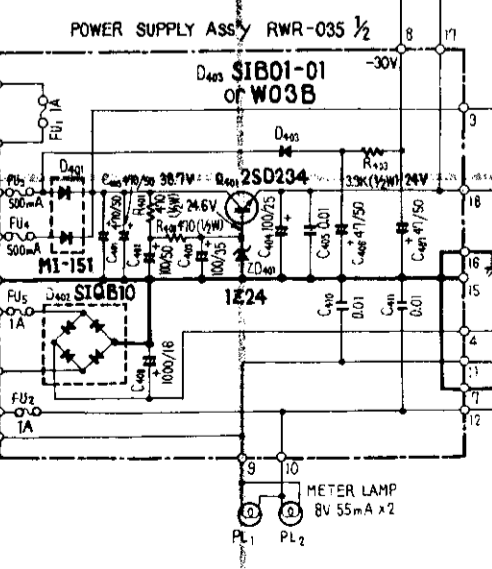
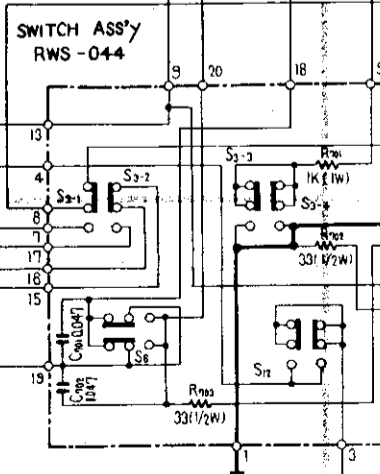
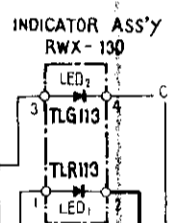


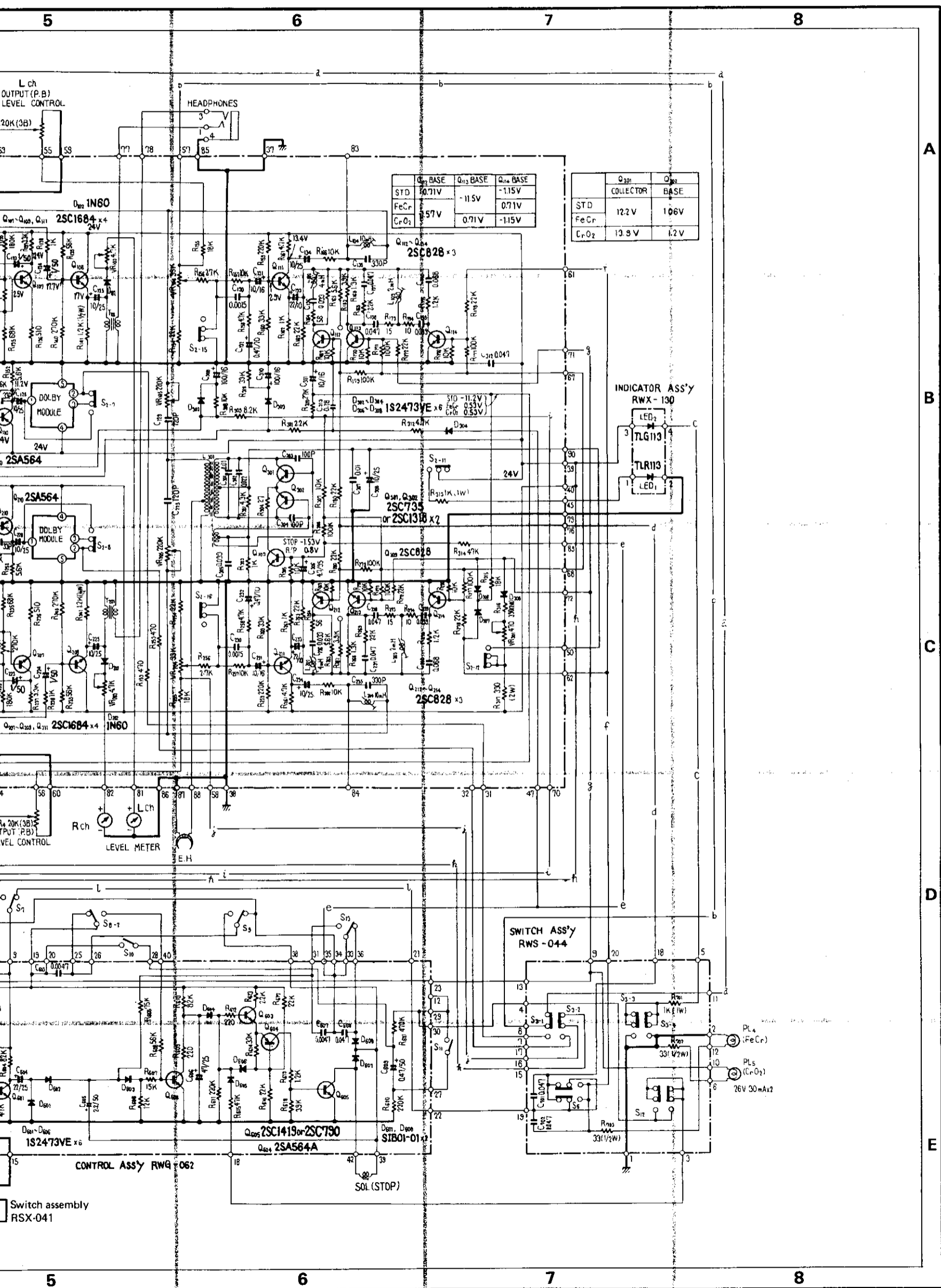


	Q ₁ BASE	Q ₁₃ BASE	Q ₁₄ BASE
STD	0.71V	-1.15V	-1.15V
FeCr	0.57V	0.71V	0.71V
CrO ₂	0.57V	0.71V	-1.15V

	Q ₃₀₁	Q ₃₁
STD	COLLECTOR	BASE
FeCr	12.2V	1.96V
CrO ₂	13.9V	1.2V

	STD	FeCr	CrO ₂
Q ₃₀₁	-11.2V	0.53V	0.53V
Q ₃₁	-11.2V	0.53V	0.53V





Switch assembly
RSX-041