Service Manual

CASSETTE TAPE DECK

CT-F700

PIONEER

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MODEL CT-F700 COMES IN FIVE VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
KU	120V only	U.S.A. model
KC	120V only	Canada model
HG	220V and 240V (Switchable)	Europe or Oceania model
D	120V, 220V and 240V (Switchable)	General export model
D/G	120V, 220V and 240V (Switchable)	U.S. Military model

- **This service manual is applicable to the CT-F700/D, D/G.**
- **The CT-F700/KU, KC service manual is issued as appendix. For further details about the CT-F700/KU and KC, refer to the supplementary material on page 61.**
  During repairs, and ordering of spare parts, take special note of the type (i.e. CT-F700/D, D/G, KC, KU).

CONTENTS

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 0.05% (WRMS)
No more than ±0.17% (DIN)
Frequency Response . . . . . Standard, LH tapes: 25 to 15,000Hz (30 to 14,000Hz ±3dB), (40 to 13,000Hz DIN)
Ferrichrome tape: 25 to 17,000Hz (30 to 16,000Hz ±3dB)
Chromium dioxide tape: 25 to 17,000Hz (30 to 16,000Hz ±3dB), (40 to 14,000Hz DIN)
Signal-to-Noise Ratio . . . . Dolby NR OFF: More than 54dB
Dolby NR ON: More than 64dB (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 58dB (DIN)
Harmonic Distortion . . . . . No more than 1.5% (0dB)
Inputs (*Sensitivity/Maximum allowable input/Impedance*)
MIC (L, R); 0.3mmV/100mV/10 kilohms, 6mm diam. jacks (Reference MIC impedance; 250 ohms to 10 kilohms)
LINE (2-channel stereo); 64mV/25V/100 kilohms
REC/PLAY x 1; Input & output, 14mV/4.5V/1.8 kilohms
5p jack (DIN standard)
Outputs (Reference level/Maximum level/Load impedance)
LINE (2-channel stereo); 450mV/710mV/50 kilohms
REC/PLAY x 1; 450mV/710mV/50 kilohms 5p jack (DIN standard)
Headphones x 1; 60mV/100mV/8 ohms, 6mm diam. jack
Semiconductors
Amplifier Section . . . . . *Transistors* x 35 ICs x 4
Diodes x 51
Motor control section . . . Transistors x 3, Diodes x 1
Subfunctions
- Meter
  - Dynamic level meter: for recording
  - Bias meter: for recording
  - Peak meter: for playback
- Bias adjustment system
- Input selector (LINE/MIC-DIN)
- Memory stop (ON/OFF)
- Dolby system (ON-OFF) with indicator lamp
- Tape Selector (STD/FeCr/CrO_2)
  Automatic tape selector for CrO_2 tape, and Manual tape selector of independently BIAS/EQ
- Cassette compartment illumination

Power Requirements . . . . . AC 120V, 220V, 240V (switchable) 50/60Hz

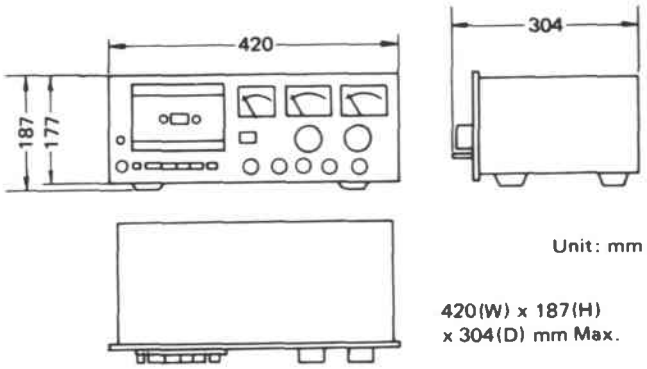
Power Consumption . . . . . 21 watts
Dimensions . . . . . 420(W) x 187(H) x 304(D) mm Max.
16-9/16 x 7-3/8 x 12 in
Weight . . . . . 8.5kg (18 lb 12oz)
10.2kg (22lb 8oz)

Furnished parts . . . . . *Stereo connecting cord* with pin plugs x 2
Head cleaning kit x 1
Fuse
(120V; 1A or 220, 240V 500mA)
Operating instruction x 1

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

NOTES:

1. Reference Tapes: Standard & LH: DIN 45513/BLATT6 or *equiv.*
   : CrO_2: DIN 45513/BLATT7 (CrO_2) or equiv.
2. Reference Recording Level: Meter 0dB indicating level (160 nwb/m magnetic level = Philips cassette reference level)
3. Reference Signal: 333Hz
4. Wow & Flutter: • JIS [3kHz, with acoustic compensation (weighted), rms value] • DIN [3150Hz, with acoustic compensation (weighted) PEAK value]; DIN 45507
5. Frequency Response: • Measured at −20dB level, DOLBY NR OFF, level deviation is ±6dB without indication • DIN is DIN 45500
6. Signal-to-Noise Ratio: • Measured at +4dB level (250nwb/m magnetic level = DIN 45513 specified reference level), IEC A curve with acoustic compensation (weighted) • DIN is DIN 45500
7. Sensitivity: Input level (mV) required for reference recording level with input (REC) controls set to maximum.
8. 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.
9. Reference Output Level: Playback output level when meter indicates 0dB.
10. Maximum Output Level: Playback output level with respect to reference recording level when output (PLAY) level controls are set to maximum.



Unit: mm

420(W) x 187(H) x 304(D) mm Max.

3. DISASSEMBLY

Exterior Parts

1. Remove screws ❶ thru ❻, and remove the bonnet.
2. Remove knobs A and B, remove screws ❼ thru ⓫ fastening the front panel to the chassis, and remove the front panel. Be sure to unhook the door spring from the adjusting hole; otherwise, the front panel cannot be separated from the chassis.
3. Remove screws ⓬ thru ⓮, and remove the bottom plate.

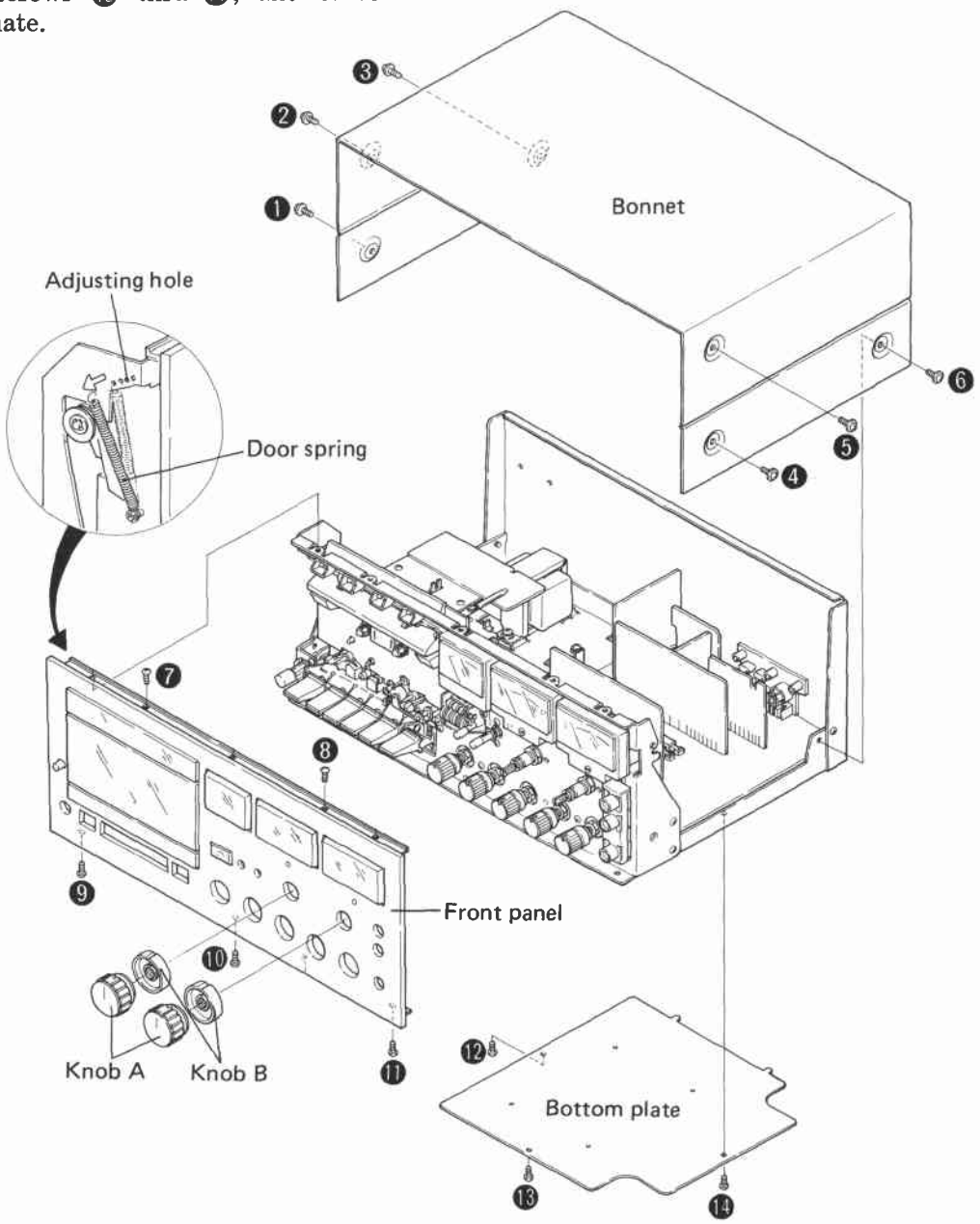


Fig. 1 Disassembly of exterior parts

2. FRONT PANEL FACILITIES

POWER SWITCH

The power comes on when the POWER switch is depressed. The level meters and the remaining tape display light will then light up. To turn off the power, release the switch by depressing it again.

CASSETTE DOOR OPEN BUTTON

Depress this button to open the cassette door. To close the door, press it lightly and close.

CASSETTE DOOR

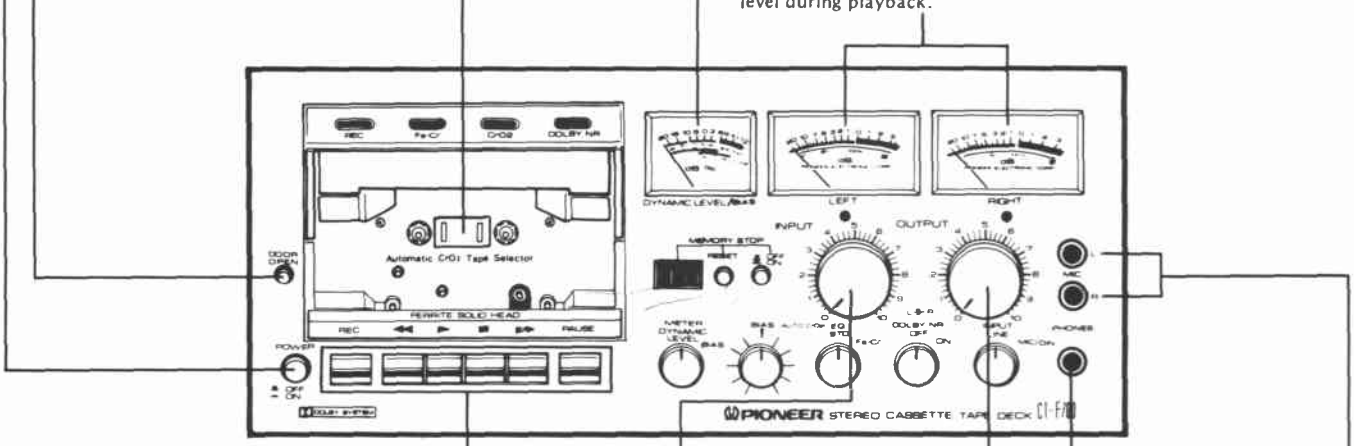
Always keep this door closed to prevent dirt and dust from adhering to the head section and rotating parts.

DYNAMIC LEVEL/BIAS METER

Dynamic level meter: When setting the recording level, you will be able to record any program source at the correct recording level if you adjust this meter so that the pointer does not deflect more than +6dB with respect to a peak signal of the program source even if the level meter pointer deflects up to +3dB.
This meter serves at a peak meter during playback.
Bias meter: Use this meter to adjust the bias in accordance with the characteristics of the tape being used. Meter indication is in percent.

LEVEL METERS

These indicate the input level during recording and the output level during playback.



OPERATING LEVERS

REC lever: To record, depress this lever and the play lever together.
This lever will not work when a cassette is not loaded or when the erasure prevention tabs of a loaded cassette have been broken off.
Rewind lever (◀◀): Depress this lever to rewind the tape (the tape will travel from right to left at high speed).
Play lever (▶): Depress this lever when playing back a tape. Depress it together with the REC lever for recording (the tape will travel from left to right).
Stop lever (■): When this lever is depressed during tape play, the operating levers in use will be released and the tape will stop.
Fast forward lever (▶▶): Depress this lever to send the tape forward at top speed (the tape will travel from left to right).
PAUSE lever: Depress this lever to stop the tape temporarily during recording or playback. When it is released, the tape will continue to travel as before. This lever is also depressed for unattended recording when the cassette deck is being used together with a timer.

NOTES:
1. *Apart from the play and REC levers. Do not depress any of the levers simultaneously.*
2. *The operating levers will not return to their original positions even when the power is switched OFF.*

PHONES JACK

This is the output jack for stereo headphones. Use it when you want to monitor the quality of a recording or if you want to listen to a tape privately.

NOTES:
- *Use low-impedance headphones. If you use a high-impedance model, you will not be able to obtain sufficient volume.*
- *You can damage the microphone if you plug it into the PHONES jack mistakenly.*

MIC JACKS

These are the input jacks for microphone recording. Plug the left channel microphone into L and the right channel microphone into R.

OUTPUT LEVEL CONTROLS

Use them to adjust the output signal level during playback. Turning the control to the right increases the level. The controls are coupled when turned but it is also possible to adjust the right channel (rear) and left channel (front) independently.

INPUT LEVEL CONTROLS

Use them to adjust the input signal from the MIC jacks and the rear panel INPUT jacks, and DIN connector.
Turning the control to the right increases the level. The controls are coupled to the left and right channels although you can also use them to adjust the right channel (rear) and the left channel (front) independently.

REC INDICATOR

This light comes on when the play and REC levers are depressed together to indicate that the cassette deck is now set to the recording mode.

DOLBY NR INDICATOR

This light comes on when the DOLBY NR switch is set to ON to indicate that the cassette deck is now set up for Dolby recording or Dolby playback.

CrO_2 INDICATOR

This light comes on when a chrome tape is being used. It will come on when a cassette is not loaded but this does not indicate a failure.

Fe-Cr INDICATOR

This light comes on when the EQ switch is set to Fe-Cr.

TAPE COUNTER

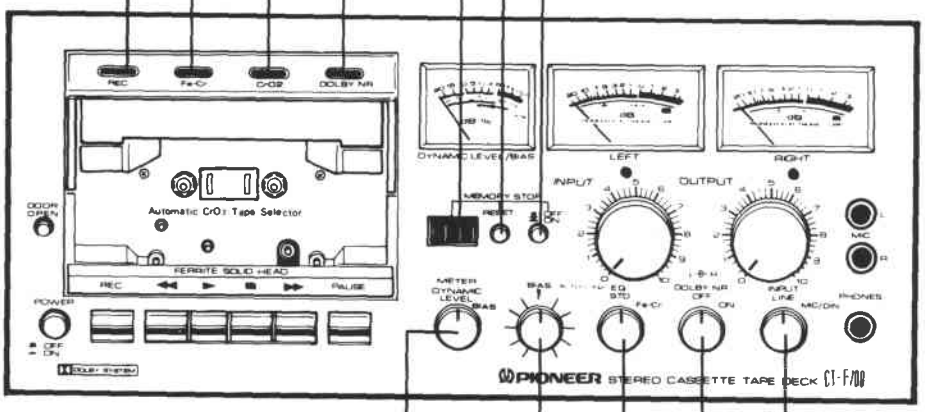
This indicates the position of the tape run.

COUNTER RESET BUTTON

Depress this button to reset the tape counter display to '000'.

MEMORY STOP SWITCH

When this switch is depressed to the ON position, the position the tape counter is set to '000' is memorized during recording and playback, and the tape can be stopped with this memory.



METER SELECTOR SWITCH

Set this switch to DYNAMIC LEVEL when you want to make use of the dynamic level meter, and to BIAS when you want to use the bias meter.

BIAS CONTROL

Use this control to adjust the bias in accordance with the characteristics of the tape being used. It is set so that the center position (center click) corresponds to the standard bias.

EQ SWITCH

Use this switch to select the recording and playback equalization characteristics in accordance with the type of tape being used.

STD: For ordinary tapes and low-noise/high-output tapes.

Fe-Cr: For ferrichrome tapes.

NOTE:

There is no need to operate this switch if you are using a chrome tape since the bias and equalizer are selected automatically by the built-in mechanisms. Make sure that your chrome tape has detection holes. The chrome tape detector will not work with chrome tapes which are not equipped with these detection holes, and so this type of tape cannot be used.

DOLBY NR SWITCH

Set this switch to ON for recording with the built-in Dolby noise reduction system and for the playback of tapes which have been Dolby-recorded.

INPUT SELECTOR SWITCH

Use this switch to select the program source which you intend to record.

LINE: Set to this position for recording a program source which is connected to the rear panel INPUT jacks.

MIC/DIN: Set to this position for recording signals from a microphone which is connected to the MIC jack or rear panel DIN connector.

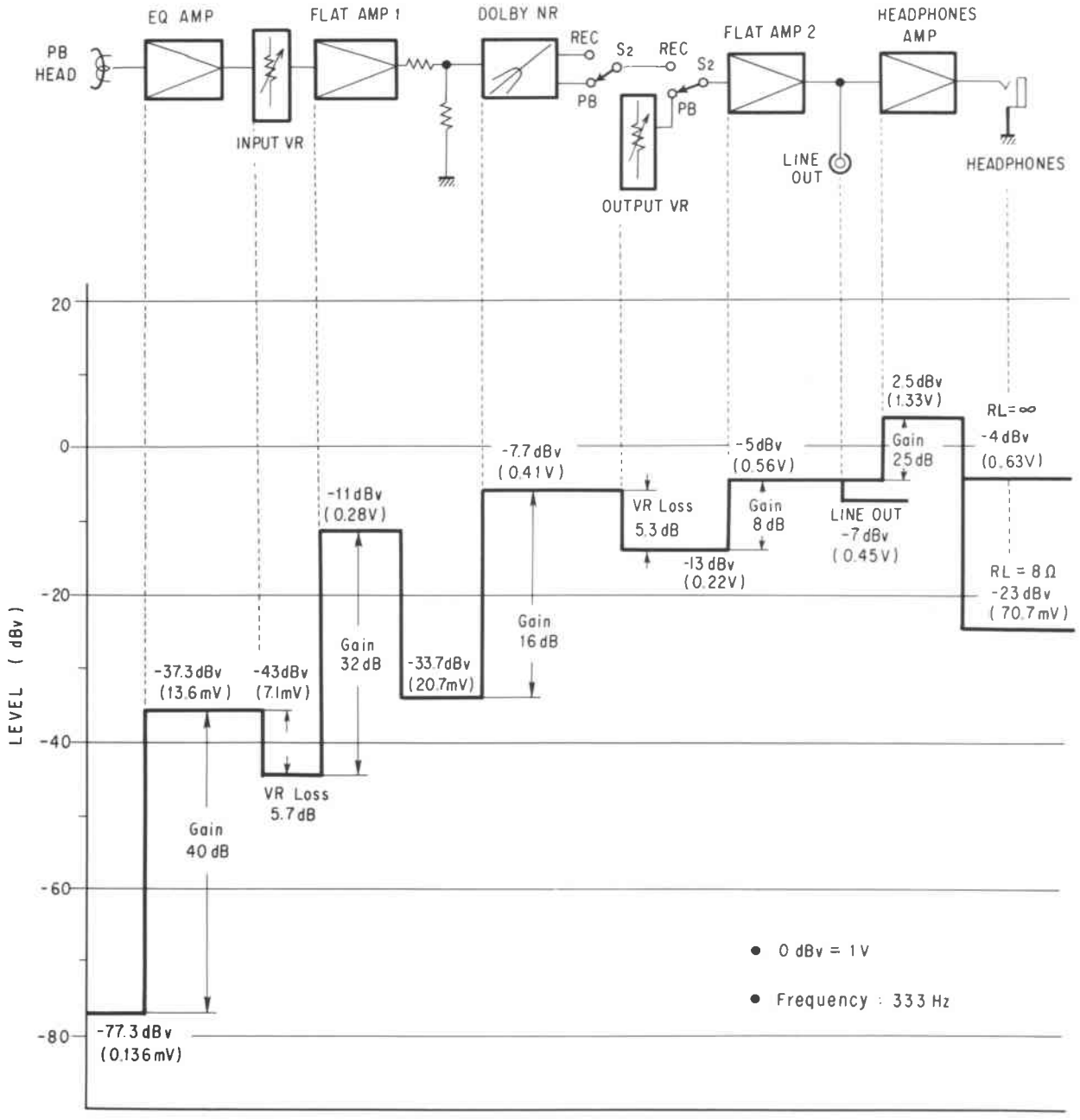
NOTE:

If microphones are connected to front panel MIC jacks, a source connected to DIN connector cannot be recorded.

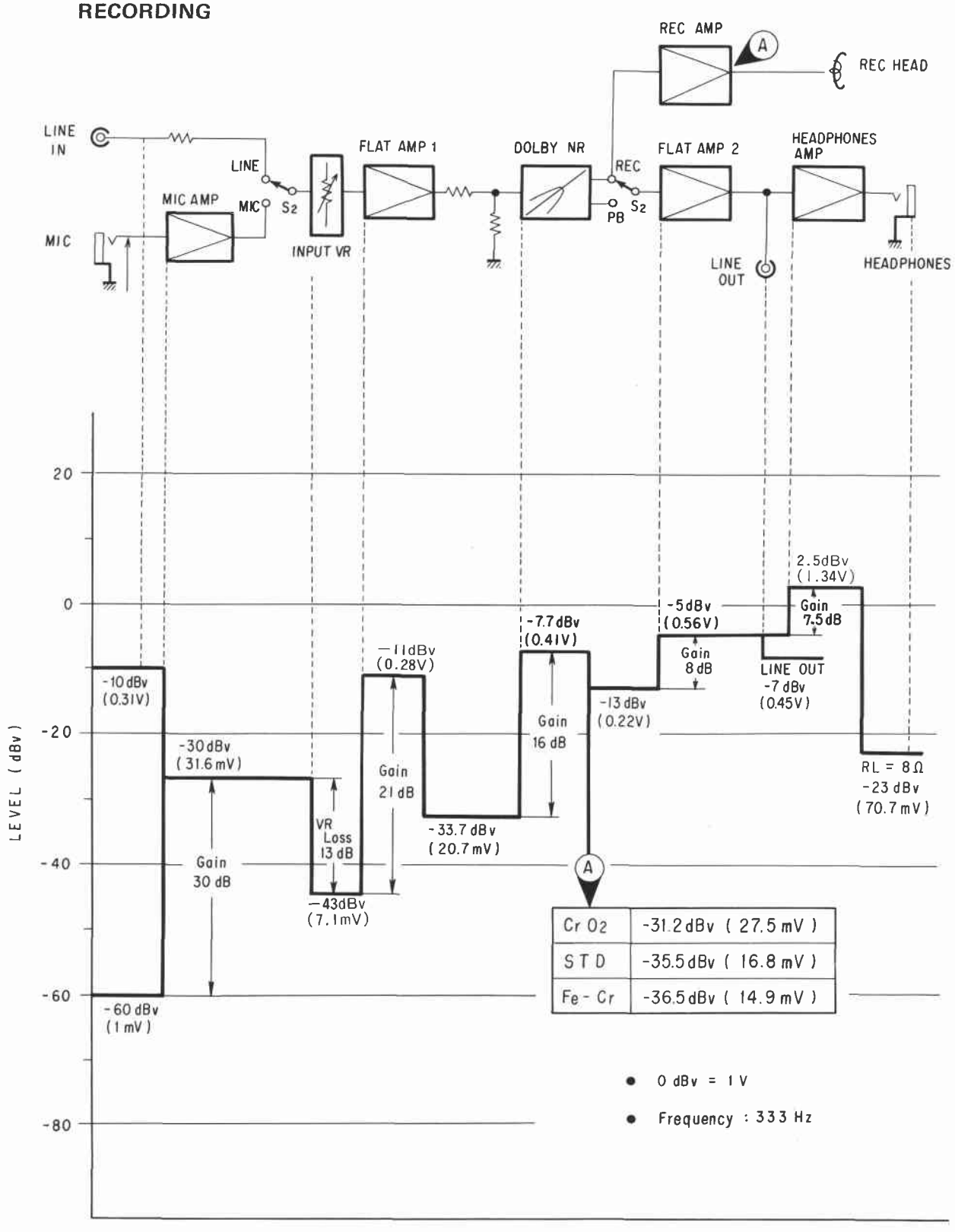
* Dolby and ⊡ are trademarks of Dolby Laboratories.

5. LEVEL DIAGRAM

PLAYBACK

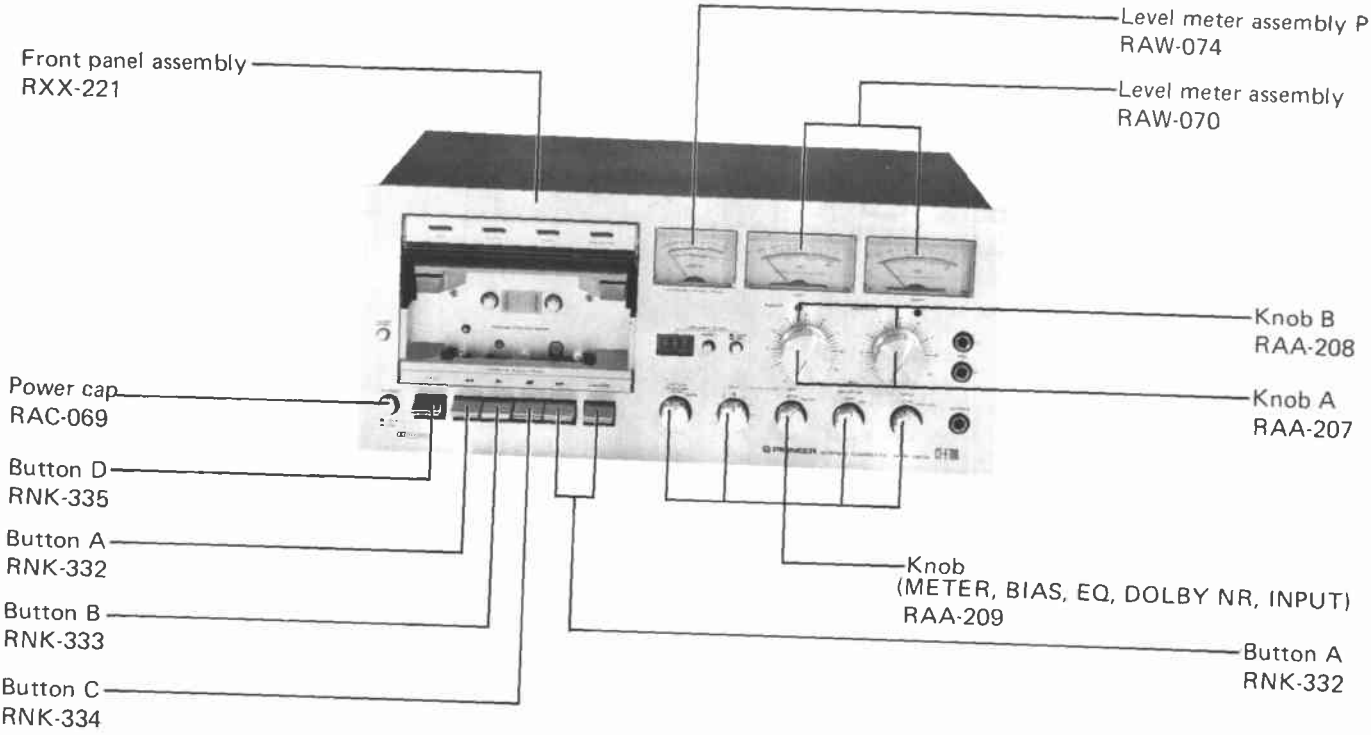


RECORDING

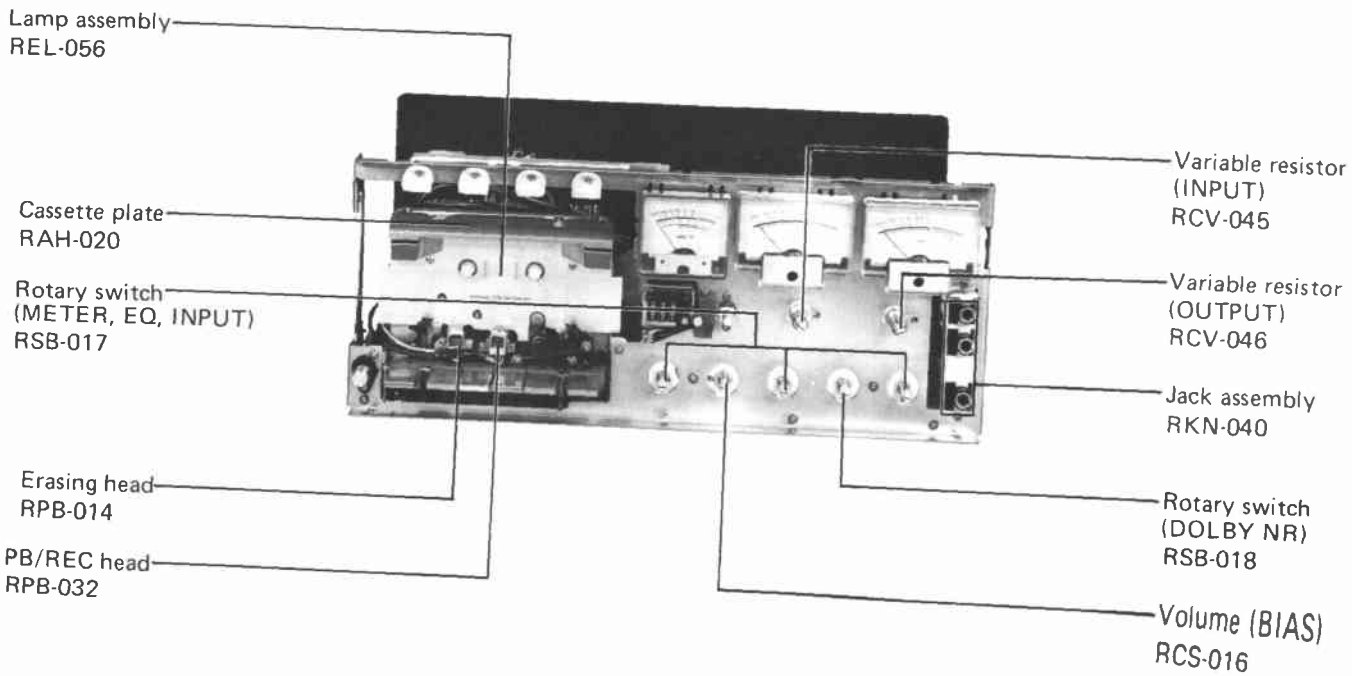

REC AMP
A
REC HEAD
LINE IN
MIC
MIC AMP
LINE
MIC
S2
INPUT VR
FLAT AMP 1
DOLBY NR
REC
PB
S2
FLAT AMP 2
HEADPHONES AMP
LINE OUT
HEADPHONES
LEVEL (dBv)
20
0
-20
-40
-60
-80
-10 dBv (0.31V)
-30 dBv (31.6 mV)
Gain 30 dB
-60 dBv (1 mV)
VR Loss 13 dB
-43dBv (7.1mV)
-11dBv (0.28V)
Gain 21 dB
-33.7 dBv (20.7 mV)
-7.7dBv (0.41V)
Gain 16 dB
-13 dBv (0.22V)
-5dBv (0.56V)
Gain 8 dB
LINE OUT -7 dBv (0.45V)
2.5dBv (1.34V)
Gain 7.5dB
RL = 8Ω -23 dBv (70.7 mV)
A
Cr O2 -31.2dBv (27.5 mV)
STD -35.5dBv (16.8 mV)
Fe - Cr -36.5dBv (14.9 mV)
0 dBv = 1 V
Frequency : 333 Hz

4. PARTS LOCATIONS

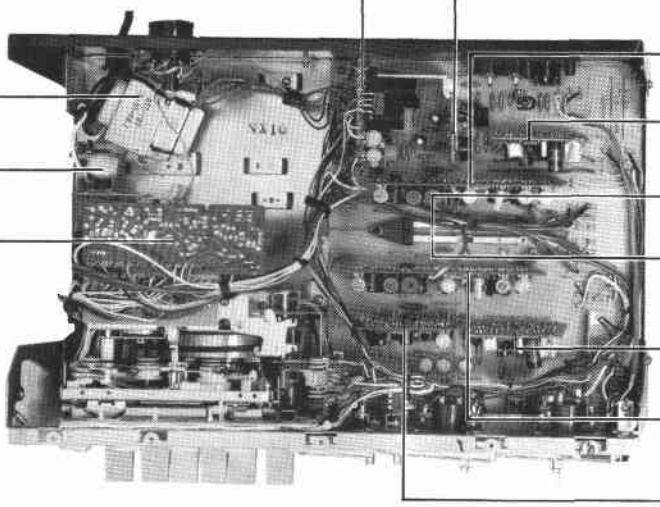
Front Panel View



Front View with Front Panel Removed

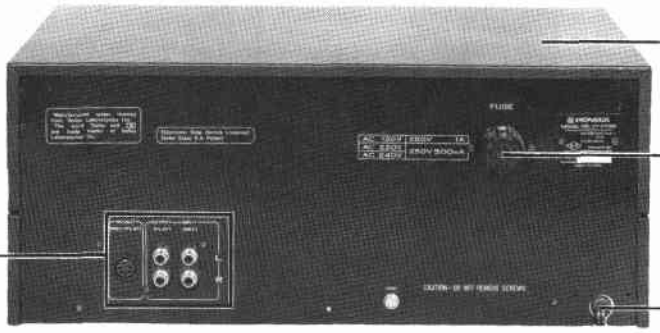


op View with Bonnet Removed



- Power and oscillation assembly RWR-061
- Muting assembly RWX-192
- Amplifier assembly RWF-084
- Dolby assembly RWX-191
- Slide switch M RSH-030
- Slide switch RSH-027
- Dolby assembly RWX-191
- Amplifier assembly RWF-084
- Meter amplifier RWX-195
- ıwer transformer TT-132
- Capacitor 0.01μF 243-003
- Control assembly WG-085

ear Panel View



- Bonnet RNA-321
- Line voltage selector (switchable 3 positions) RKR-020
- Power cord RDG-019
- njack assembly KB-013

Button Replacement

The buttons are bonded to the switches. To remove the buttons, heat the lever of the button to be removed, with a hair dryer or other similar device, and then pull the button off.

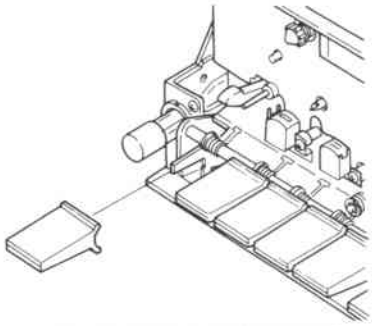


Fig. 2 Button replacement

Tape-Indicator Lamp, Reel Turntable and Belt Replacement

1. To replace the tape indicator lamp, first loosen screws ❶ and ❷, and remove the cassette plate.
2. Then unsolder the lamp leads with a soldering iron, and replace the lamp.
3. Remove screws ❸ thru ❺, and remove the supply reel turntable full ass'y.
   Then, remove screws ❻ thru ❽, and remove the take-up reel turntable full ass'y. Both the supply and take-up reel turntables are supplied as assembly.
4. Remove the flywheel ass'y to remove the capstan belt, being careful not to lose the oil washer. Never get any oil on the capstan. Both sides of the belt are polished, and either side can be the front or back.

Mechanism Ass'y

After removing the front panel, remove screws ❶ thru ❸ at the front and screws ❹ and ❺ at the top, and remove the mechanism ass'y.

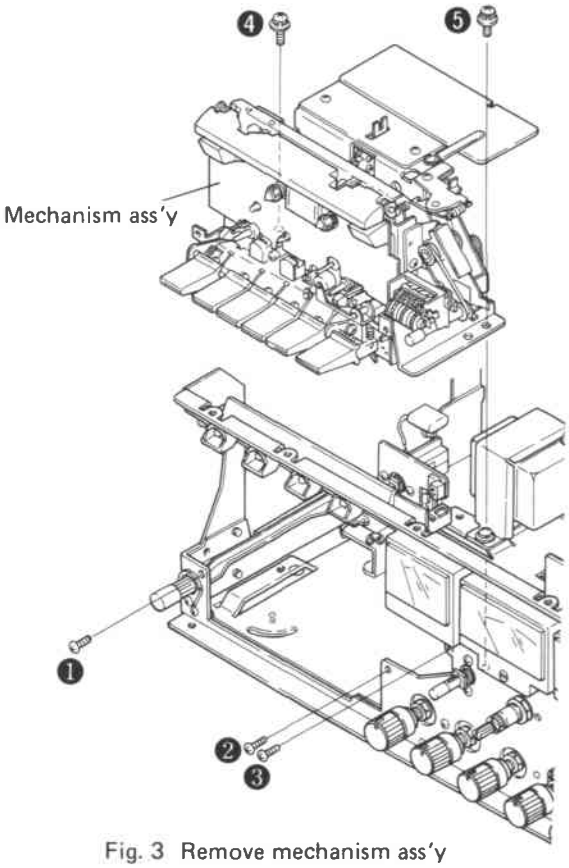


Fig. 3 Remove mechanism ass'y

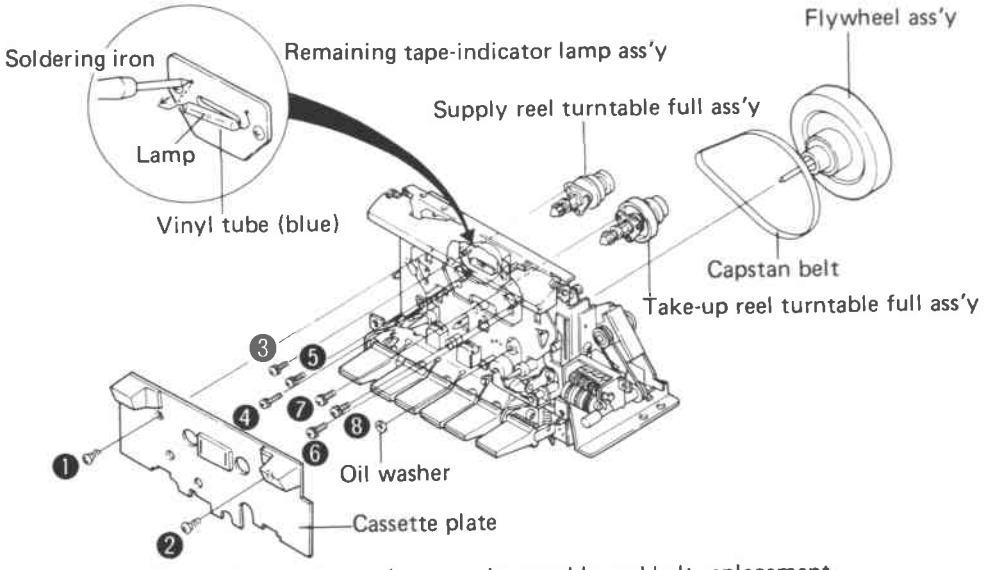


Fig. 4 Tape indicator lamp, reel turntable and belt replacement

Equalizer/microphone amp. (Fig. 11)

The microphone amp section of the PA4001 is used. Its input is a differential amplifier, and its output is an emitter follower type. When recording, this circuit is used as a flat frequency response microphone amp by switching the NFB circuit. At playback, it is used as a playback equalizer amp by making the NFB circuit a time constant circuit. The playback equalizer amp is switched between CrO_2, Fe-Cr and STD. At CrO_2, Fe-Cr, a CR series circuit is inserted at the output side of the equalizer amp by a transistor switch.

When a cassette half having a chrome tape detector hole is loaded (CrO_2 tape detector switch S_5 at the HOLE position), or the EQ switch S_4 is set to the Fe-Cr, CrO_2 position, +B is supplied through the route D_{206} or D_{208} → R_{221} → R_{313} → Q_{301}. Since Q_{301} is turned ON by cancelling of —B, the amp is made a CrO_2 (Fe-Cr) equalizer amp (time constant 70μsec at the high range) by C_{308} and R_{311}.

When a cassette half not having a chrome tape detector hole (S_5 at the NO HOLE position) and S_4 is set to the STD position, +B is not supplied to Q_{301} and Q_{301} is turned OFF by —B (time constant 120μsec at the high range).

Recording bias switching circuit (Fig. 12)

The recording bias is switched between CrO_2 and Fe-Cr, and STD. The bias current is switched by changing the oscillation width by changing the bias oscillator supply voltage. The bias current can be varied from —15% to +10% for CrO_2 and from —20% to +15% for Fe-Cr and STD, by adjusting the bias fine-adjustment semifixed resistor VR_{202}. At the center click position, the reference bias 0% of the set is indicated at the THIRD METER (BIAS meter).

When a cassette half without chrome tape detector hole is loaded (CrO_2 detector switch S_5 at the NO HOLE position), at recording power is supplied to the oscillator circuit through the route R_{223} and S_5 → D_{205} → R_{218} → VR_{202}. Since the series with R_{223} when a cassete half with detector hole is loaded (S_5 at the HOLE position), the voltage supplied to the oscillator circuit becomes high. When VR_{202} is at the center click position, the CrO_2 recording bias becomes approximately 20% to 30% deeper than for STD/Fe-Cr.

The recording bias is indicated on the bias meter by setting the THIRD METER switch S_{10} to the BIAS position. VR_{203} is for "0" adjustment of the STD/Fe-Cr bias indication, and VR_{204} is for "0" adjustment of the CrO_2 bias indication. Q_{201} acts as a switching transistor which mutes the THIRD METER when the REC/PB switch S_2 is set to the PB position and the MUTING switch S_7 is set to the ON position.

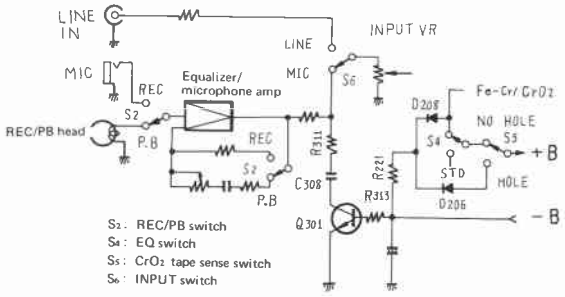


Fig. 11 Equalizer/microphone amp circuit

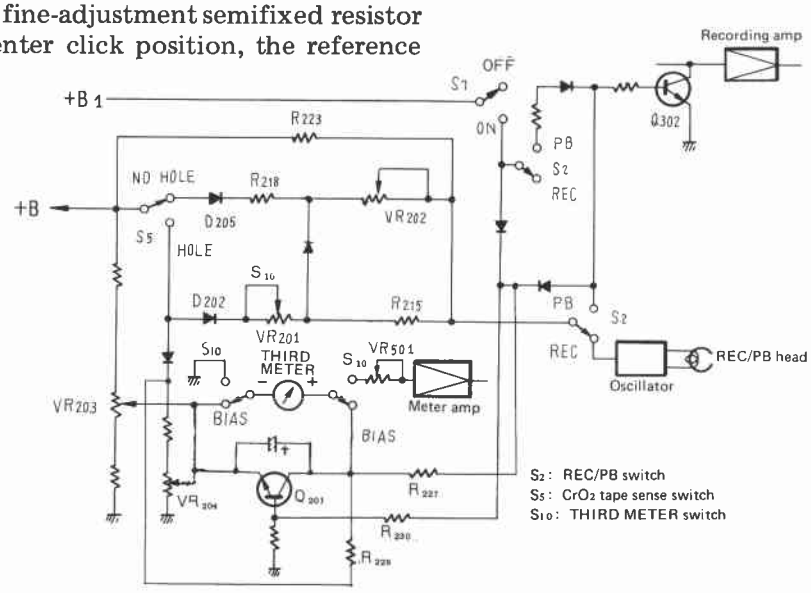


Fig. 12 Recording bias switching circuit

Head Replacement

PB/REC head

Remove screws ❶ and ❷, and disconnect the PB/REC head wiring, being careful not to lose the head adjusting spring. Be sure to adjust the head azimuth after replacing the PB/REC head. Refer to the electrical adjustment item on page 24 for details.

Erasing head

Remove screws ❸ and ❹, remove the lead clamp, and disconnect the erasing head wiring.

Pinch arm

Remove the E-washer and nylon washer, and remove the pinch arm, while pushing the pinch pressure spring downward.

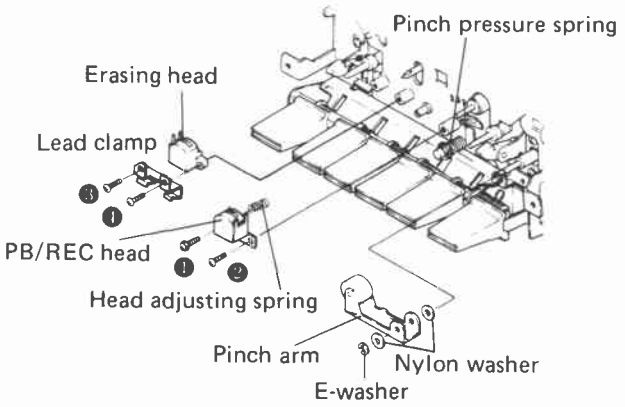


Fig. 5 Head replacement

Meter Lamp Replacement

1. Remove the tape and meter cover sealing tape.
2. Replace the meter lamp, using a soldering iron. Be careful not to touch the scale plate and pointer with the soldering iron when replacing the meter lamp.

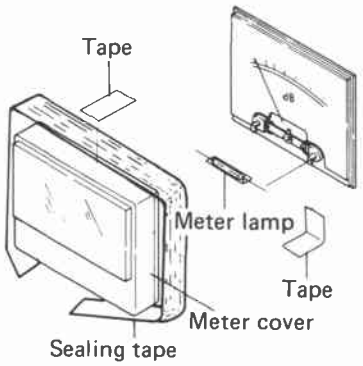


Fig. 6 Meter lamp replacement

Subchassis and Motor Bracket

When replacing the capstan motor, first remove the subchassis.

1. Remove screws ❶ thru ❸, and remove the subchassis.
2. Remove screw ❹, and remove the motor bracket.
3. Remove screws ❺ thru ❼, and remove the capstan motor.

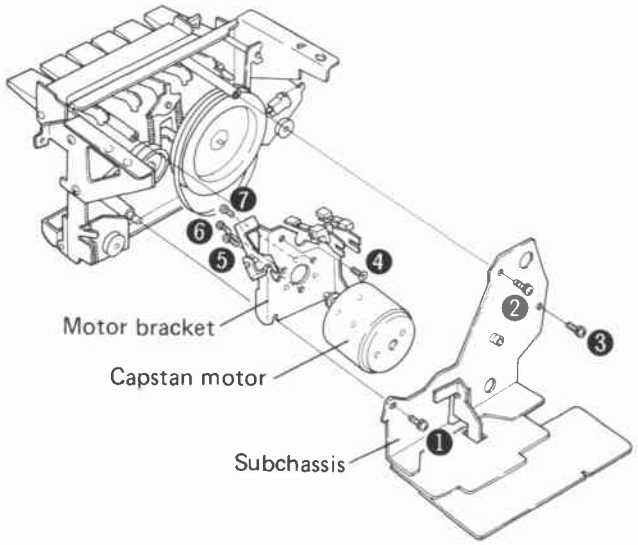


Fig. 7 Remove subchassis and motor bracket

Door

Remove the two door-shaft stoppers, and remove the door from the escutcheon. The front panel is attached to the escutcheon with double-sided adhesive tape.

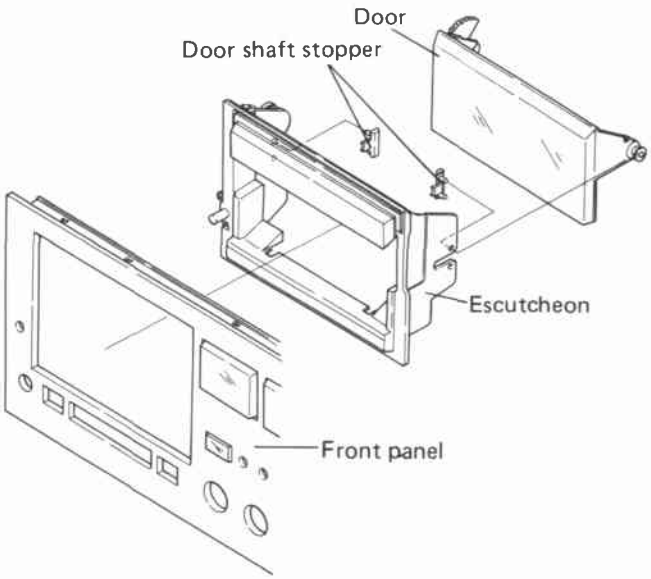


Fig. 8 Door replacement

6. CIRCUIT DESCRIPTIONS

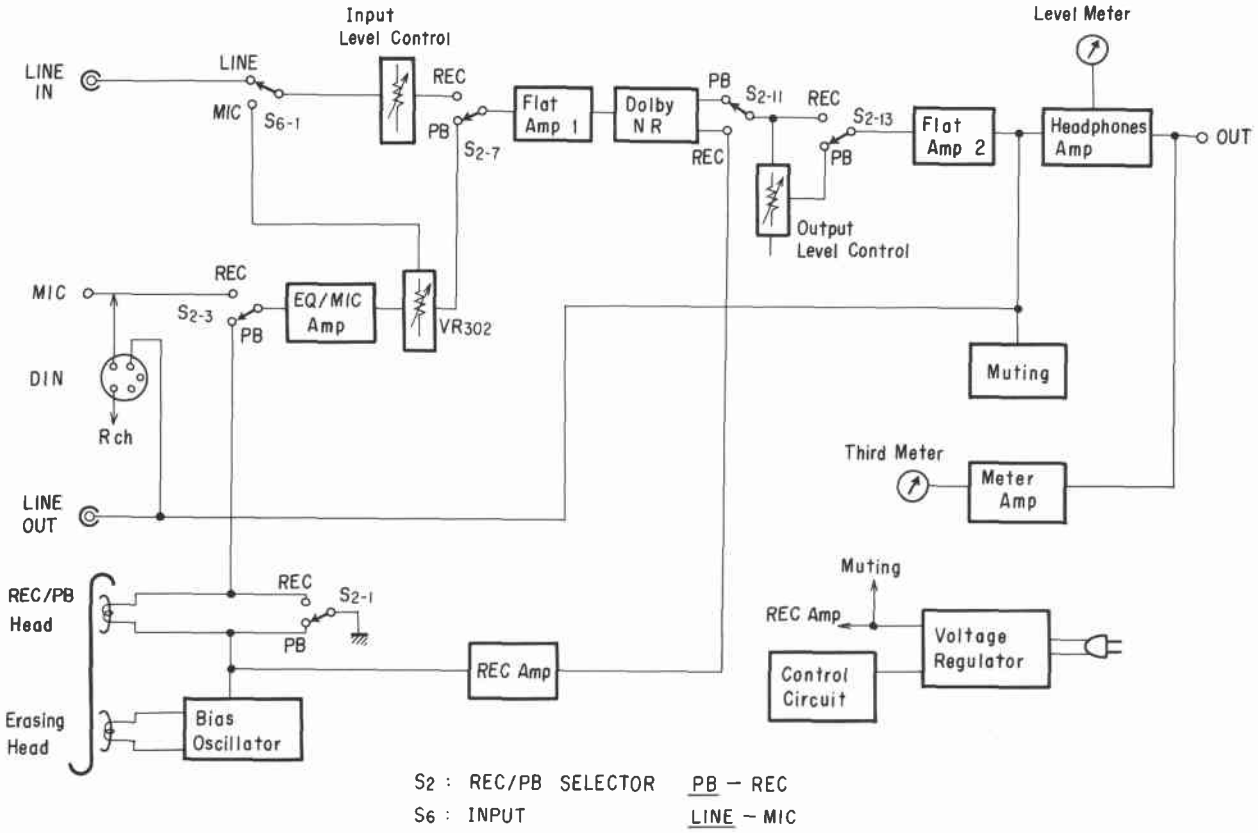


Fig. 9 Block diagram

The circuit construction of the set is shown in the block diagram, and the circuit schematic is shown on page 41.

6.1 RECORDING AND PLAYBACK CIRCUITS

The special tape deck system IC (PA4001) developed by Pioneer is used in the recoridng and playback circuits. The PA4001 is a 16-pin dual-in-line IC containing a microphone amp, recording amp, and headphone amp. Its block diagram is shown in Fig. 10.

Flat amp 1

The flat amp section of PA4001 is used. This amp has a flat frequency response, and boosts the equalizer amp output at playback and the microphone output or LINE input signal at record.

Flat amp 2 (Q_{401})

This amp has a flat frequency response, and amplifies the output of the Dolby processor.

Headphone amp

The headphone amp section of the PA4001 is used. This amp is a headphone and level meter drive complementary amp, and has a gain of approximately 7.5dB. The headphone output is divided by resistors.

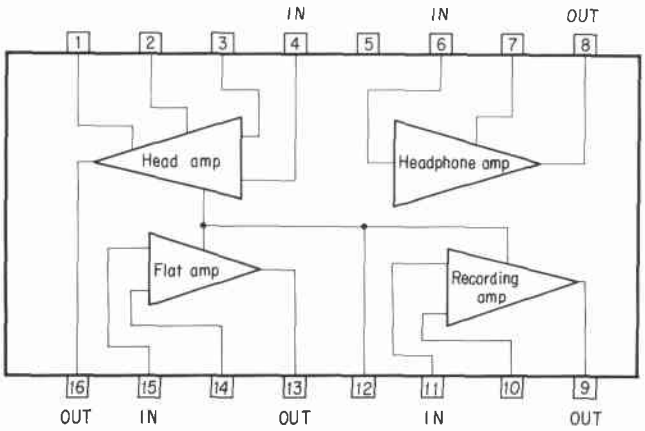


Fig. 10 Block diagram of PA4001

AUTO STOP operation (Fig. 17)

1. When the tape stops running, the base voltage of Q_{701} remains constant and the its collectorr voltage also remains constant, as shown in Fig. 17 Ⓑ.
2. Since the change in the collector voltage of Q_{701} is taken from C_{704} and rectified by D_{703} and D_{704}, no output voltage will appear when the collector voltage is constant.
3. Therefore, bias to Q_{703} is removed, and Q_{703} is turned OFF.
4. When Q_{703} is turned OFF, C_{706} proceeds to charge and the anode voltage of D_{708} rises as shown in Fig. 17 Ⓓ.
5. $+B_2$ is divided by R_{721} and R_{720} and applied to the anode of D_{708}, and since this anode voltage rises further, D_{708} conducts.
6. Therefore, bias is applied to Q_{704}, Q_{704} is turned ON, a voltage drop is generated across R_{719}, and Q_{705} is also turned ON.
7. Consequently, blas is applied to Q_{707}, Q_{707} is turned ON, current flows through the route $+B_2$ → S_7 → D_{714} → solenoid → Q_{707} → ground, and the mechanism is released (placed into the STOP state) by the solenoid.
8. When the tape is stopped in the REW (FF) state, current flows through the route $+B_2$ → S_7 → D_{715} → solenoid → Q_{707} → ground, because S_7 is at the ON side, and the mechanism is released by the solenoid.
   Since this route does not pass through the PAUSE switch S_9, auto stop is performed even if the PAUSE button is pushed.
9. Since S_8 is switched to the OFF side when the mechanism is in the STOP state, Q_{703} is biased through the route $+B_3$ → S_8 → R_{729} → Q_{703}, and Q_{703} is turned ON.
10. Therefore, the anode voltage of D_{708} drops, Q_{704}, ,Q_{705} and Q_{707} are turned ON, and the current flowing through the solenoid is interrupted.
11. When the PAUSE button has been pushed in the PLAY (REC) state, S_9 is switched to the ON side, and Q_{703} is biased through the route $+B_2$ → S_7 → R_{726} → D_{716} → S_9 → D_{712} → R_{710} → D_{705} → R_{712} → Q_{703} and Q_{703} is turned ON.
12. Consequently, Q_{704}, Q_{705}, and Q_{707} remain in the OFF state, even if the tape is stopped.
13. When the PAUSE button has been pushed in the FF (REW) state, the route of item 11 above is not established, Q_{703} is turned ON and OFF in accordance with running of the tape, and the auto stop circuit operates normally.

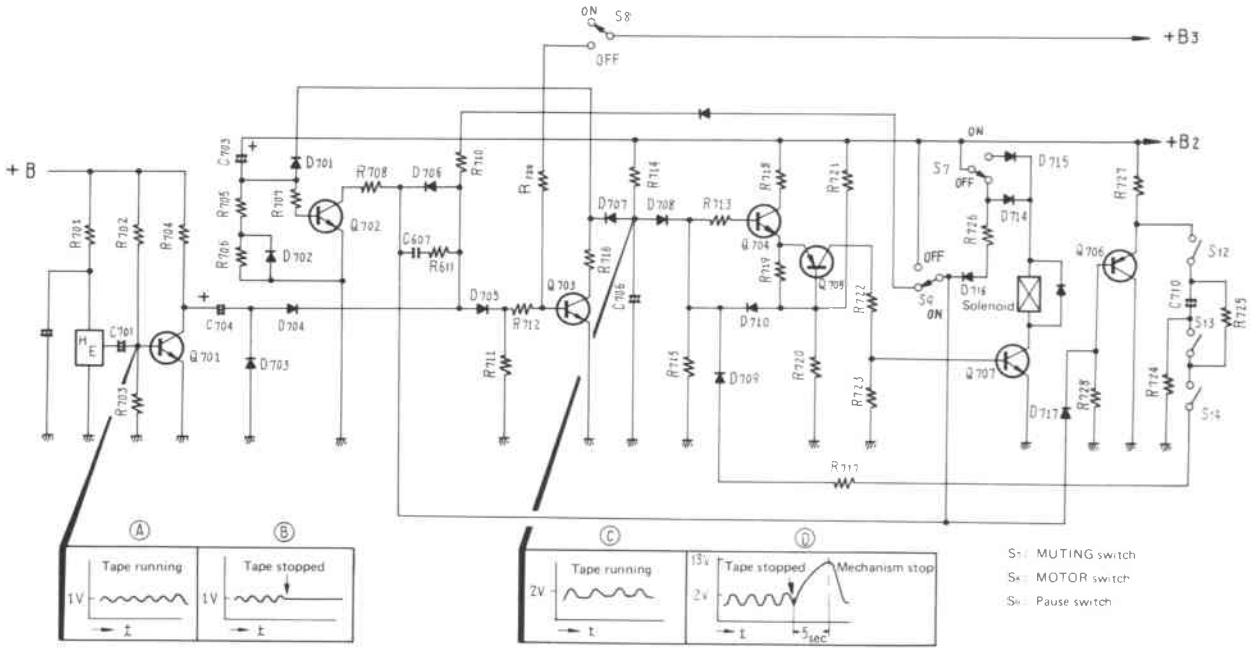


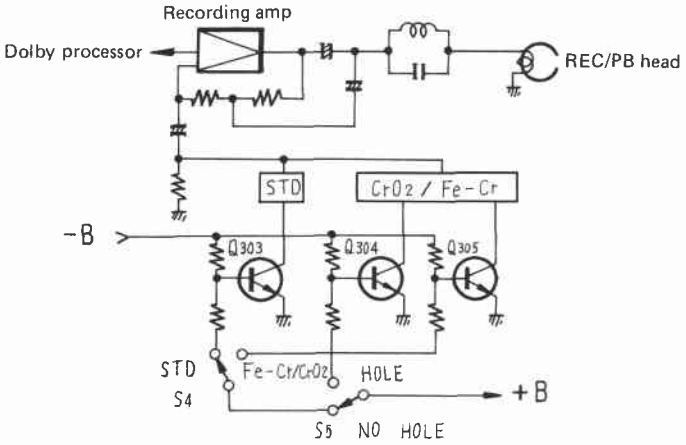
Fig. 17 Control circuit

Recording amp (Fig. 13)

The recording amp section of the PA4001 is used. Its input is a differential amp, and its output is a complementary circuit. A low-range compensation circuit is provided in the NFB loop, and a recording bias trap is provided in the output circuit.

The high range peaking characteristic can be switched between CrO_2, Fe-Cr, and STD by three NPN transistor switches.

+B is supplied to the base of Q_{303}, Q_{304}, or Q_{305} by the tape position determined by the CrO_2 tape detector switch S_5 and EQ switch S_4, −B is cancelled, and the appropriate peaking circuit is operated. The peaking frequency is approximately 14kHz for STD, and approximately 15kHz for CrO_2 and Fe-Cr.



S_4 : EQ switch
S_5 : CrO_2 tape sense switch

Fig. 13 Recording amp circuit

6.2 DOLBY PROCESSOR

This set uses a Dolby B type noise reduction circuit. A Dolby B type circuit boosts the recording level when the input signal drops below a prescribed level (Dolby level) at the mid-range, the range at which the ear is most sensitive, and automatically returns it to its original level at playback. This reduces tape hiss by the amount of drop in the playback level, and improves the S/N ratio at the high range (above 5kHz) by 10dB. A monolithic IC (CR860) is used as the Dolby processor. Dolby processor circuit is shown in Fig. 14.

At record, the compressor input is taken from the input side of the summing amplifier C and the prescribed characteristic is obtained by adding the output of the compressor to the main signal at the summing amplifier C.

At playback, the compressor input is taken from the output side of the summing amplifier C. When the input taken from the output side has been added to the summing amplifier C as the output of the compressor, it is added in the opposite phase of the main signal and is, in effect, subtracted.

Compressor

The input signal is sent to amplifier D thru attenuator H via high-pass filter G. The output of amplifier D is sent to clipper J and then to summing amplifier C as compressor output. On the other hand, it is also sent to amplifier E. The output of amplifier E is sent to rectifier I and fed back to attenuator H as a control signal.

When the signal passing thru high-pass filter G is low level, the rectifier I voltage becomes almost "0", the attenuation of attenuator H becomes minimum and the output of the compressor increases.

When the signal passing thru high-pass filter G is high level, the rectifier I voltage becomes high, the attenuation of attenuator H becomes maximum and the output of the compressor decreases.

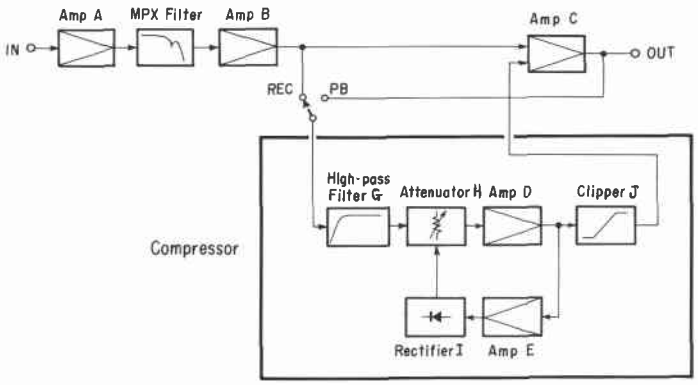


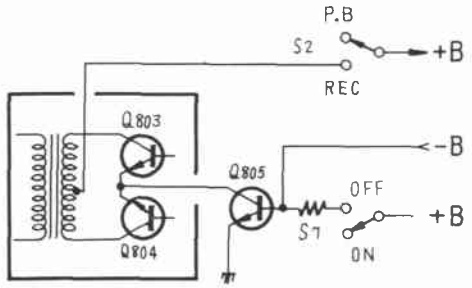
Fig. 14 Dolby processor circuit

6.3 OSCILLATOR CIRCUIT

The oscillator circuit is shown on Fig. 15. This circuit is a push-pull circuit (Q_{803}, Q_{804}), and supplies recording bias current to the recording head and erasing current to the erasing head (frequency is approximately 85kHz).

Since a push-pull oscillator produces few even harmonics, there is no DC magnetization of the tape (even harmonics produce a plus and minus asymmetrical waveform) and little noise.

1. When the REC button is pushed, the REC/PB switch S_2 is switched to the REC side, and +B is supplied to the oscillator. But since the MUTING switch S_7 is at the ON side, Q_{805} is turned OFF by −B, and the circuit does not oscillate (only the amp section is used).
2. When the REC and PLAY buttons are pushed simultaneously, S_7 is switched to the OFF side, Q_{805} is turned ON, and the circuit begins to oscillate.



S_2: REC/PB switch
S_7: MUTING switch

Fig. 15 Oscillator circuit

6.4 MUTING CIRCUIT

Muting when the power switch is turned ON and OFF in the PLAY state (Fig. 16)

This circuit suppresses the click noise produced when the power switch is switched.

Power switch ON

1. Since $+B_2$ flows through the route C_{601} — R_{603} — Q_{601} only while C_{601} is charging, Q_{601} is turned ON.
2. Consequently, Q_{602} is turned ON, Q_{603} (Q_{604}) is turned ON, and muting is actuated. The muting time is determined by the time constant of C_{601} and R_{603}, and is set at approximately 4.5 seconds.

Power switch OFF

1. Since +B is supplied to the base of Q_{602} when the power switch is set to the ON position, Q_{602} is turned OFF.
2. On the other hand, C_{602} is charged by $+B_2$ through the route D_{606} — R_{615} — R_{602}.
3. When the power switch is set to the OFF position, $+B_2$ is no longer applied to the base of Q_{602}.
4. Furthermore, the base voltage of Q_{602} is quickly raised to zero potential through the route D_{604} — R_{610} — R_{605} — S_2 — ground. (This route is D_{605} — R_{611} — R_{606} — S_2 ground at recording.)
5. At this time, the emitter potential of Q_{602} is maintained by the charge across C_{602}, and Q_{602} is turned ON.
6. When Q_{602} is turned ON, Q_{603} (Q_{604}) is turned ON, muting is actuated, and the click noise when the power switch is turned off is prevented.

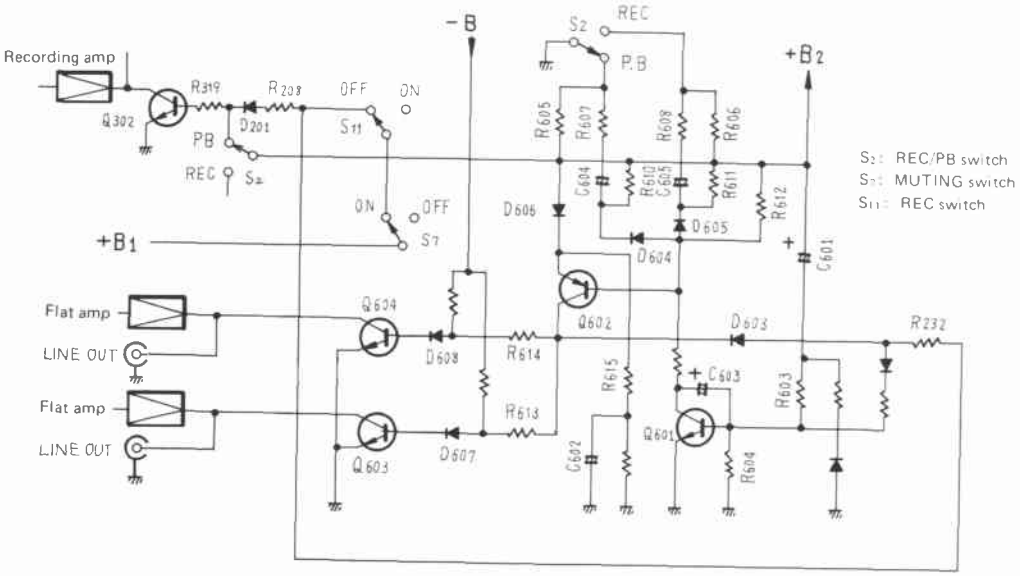


Fig. 16 Muting circuit

Muting at FF, REW, and STOP (Fig. 16)

This circuit prevents unwanted noise (for instance, motor noise) at FF, REW and STOP.

1. When the set is in the STOP state, or the FF or REW button is pushed, MUTING switch S_7 is set to the ON side.
2. $+B_1$ is supplied to Q_{604} (Q_{603}) through the route S_7 → REC switch S_{11} → R_{232} → D_{603} → R_{614} (R_{613}) → D_{608} (D_{607}) → Q_{604} (Q_{603}), and Q_{604} (Q_{603}) is turned ON.
3. When Q_{604} (Q_{603}) is turned ON, the signal current of both the L and R channels flows to ground and is muted.

Recording muting (Fig. 16)

REC switch S_{11} is ganged with the REC button. Mechanical muting is provided so that S_{11} is opened after the REC/PB switch S_2 has been switched when the REC button is pushed, and S_2 is switched to the PB side after S_{11} has been closed when returning to the STOP state after the REC button is pushed. Noise produced when the REC button has been pushed, and noise produced at REC → STOP and REC/PLAY → STOP are muted by the timing of these actions and the muting circuit consisting of Q_{601} to Q_{604} and Q_{302}.

In the STOP state, the MUTING switch S_7 is at the ON side, and since $+B_1$ is applied through the route S_7 → S_{11} → R_{208} → D_{201} → R_{319} → Q_{302}, the recording amp signal is muted.

When the PLAY button is pushed, $+B_2$ is supplied through the route S_2 → R_{319} → Q_{302}, Q_{302} is turned ON, and the muting amp signal is muted, the same as at the STOP state. When the REC button is pushed, S_2 is switched to the REC side, Q_{302} is turned OFF, and the signal enters the recording amp. Noise produced by switching is prevented by turning Q_{302} ON and OFF in this manner.

Muting at follow-on recording (Fig. 16)

This is the muting circuit when follow-on recording by pushing the REC button from PLAY operation.

1. When the REC/PB switch S_2 is switched from the playback side to the recording side, $+B_2$ is supplied through the route R_{612} → D_{605} → C_{605} → R_{608} → S_2 → ground.
2. The base potential of Q_{602} is dropped and Q_{602} is turned ON during the charging time of C_{605}.
3. When Q_{602} is turned ON, Q_{603} and Q_{604} are also turned ON, and muting is actuated. The muting time is determined by the time constant of C_{605} and R_{608}, and is set at approximately 0.5 second.
4. When S_2 has been switched from the playback side to the recording side, $+B_2$ is supplied through the route R_{612} → D_{604} → C_{604} → R_{607} → S_2 → ground.
5. Q_{602} is turned ON during the charging time of C_{604}.
6. When Q_{602} is turned ON, muting is actuated as described in item 3 above. However, the muting time is determined by the time constant of C_{604} and R_{607}.

6.5 CONTROL CIRCUITS

AUTO STOP circuit (Fig. 17)

This circuit automatically releases the mechanism by means of a solenoid when running of the tape is detected and the tape has been stopped with the mechanism in the FF, REW or PLAY (REC) state.

Running of the tape is detected by coupling a Hall element detector switch to the take-up reel turntable with a belt. Since C_{703} is charging during normal operation, Q_{702} is turned OFF, and is unrelated to the AUTO STOP operation.

When tape is running

When the PLAY (FF, REW) button is pushed, the MOTOR switch S_8 is switched to the ON side, and the MUTING switch S_7 is set to the OFF side (to the ON side at FF and REW). Moreover, since the PAUSE button S_9 is not pushed, it is at the OFF side.

1. While the tape is running the base potential of Q_{701} is changed as illustrated in Fig. 17 Ⓐ, by switching of the Hall element.
2. This change is taken from C_{704}, rectified by D_{703} and is used to turn Q_{703} ON and OFF.
3. C_{706} is charged through the route $+B_2$ → R_{714} → C_{706} → ground, but since Q_{703} is turned ON and OFF, the anode voltage of D_{708} is varied as illustrated in Fig. 17 Ⓒ.
4. $+B_2$ is divided by R_{721} and R_{720} and applied to the base of Q_{704} through D_{710} → R_{713}. It is also applied to the emitter of Q_{704} through R_{719}. Therefore, D_{708} is reverse biased and turned off, and Q_{704} is turned OFF.
5. When Q_{704} is turned OFF, there is no voltage drop across R_{719}, and Q_{705} is zero biased and turned OFF.
6. Consequently, since Q_{707} is zero biased, it is turned OFF and current does not flow to the solenoid.

AUTO START circuit (Fig. 17)

This circuit inhibits the start of the PLAY and REC operations until the power supply voltage rises to a stable value after the power switch has been set to the ON position

1. When the power switch is set to the ON position, the charging current of C_{703} flows through the route $+B_2$ → C_{703} → R_{707} → Q_{702} → ground, and Q_{702} is turned ON.
2. $+B_2$ is applied to the anode of D_{706} through R_{710}, but since Q_{702} is ON, its rise is very small and Q_{703} is turned OFF.
3. Therefore, C_{706} is charged through the route $+B_2$ → R_{714} → C_{706} → ground, and the anode voltage of D_{708} rises.
4. When the anode voltage of D_{708} rises, Q_{704}, Q_{705} and Q_{707} are turned ON through the same process as at AUTO STOP.
5. When Q_{707} is turned ON, current flows through the route $+B_2$ → S_7 → D_{714} → Q_{707}, the solenoid is operated, and the tape is started. At the same time, S_9 is switched to the OFF side.

MEMORY REWIND operation (Fig. 17)

This circuit automatically stops the REW operation when the counter reaches "999" after the REW button S_{13} has been pushed while the MEMORY switch S_{14} is set to the ON position. When the counter reaches "999", S_{12} is turned ON.

1. When the REW operation is performed by setting S_{14} to the ON position, the charging current of C_{710} begins to flow through the route $+B_2$ → R_{727} → S_{12} → C_{710} → S_{13} → S_{14} → R_{717} → D_{709} → R_{715} the instant the counter reaches "999".
2. This causes the voltage drop across R_{715} to be applied to the base of Q_{704} through R_{713}, and Q_{704} to be turned ON.
3. Therefore, Q_{705} and Q_{707} are also turned ON, current flows through the route $+B_2$ → MUTING switch S_7 → D_{714} → solenoid, and the mechanism is released (placed into the STOP state) by the solenoid.

6.6 METER CIRCUIT

The meter circuit is shown in Fig. 18. The meter is operated as a peak meter with a flat frequency response at playback, and as a peak meter having a frequency response which increases at the low and high ranges at recording.

Q_{501}, Q_{502} and Q_{503} comprise a 3-stage direct-coupled amp. Logarithmic compression amplification is performed by inserting D_{503} and D_{504} into the feedback loop from the emitter of Q_{503}.

When recording, the low-range frequencies are boosted by R_{504} and C_{502}, and the high-range frequencies are boosted by the LRC series circuit inserted at the emitter of Q_{501}.

The logarithmic compression amplified signal is rectified by C_{510}, and DC amplified by Q_{505} and Q_{506}. The THIRD METER (dynamic level meter) is operated by setting the METER switch S_{10} to the DYNAMIC LEVEL position. Q_{504} is a muting transistor that prevents the meter pointer from deflecting when the power switch is set to the ON position.

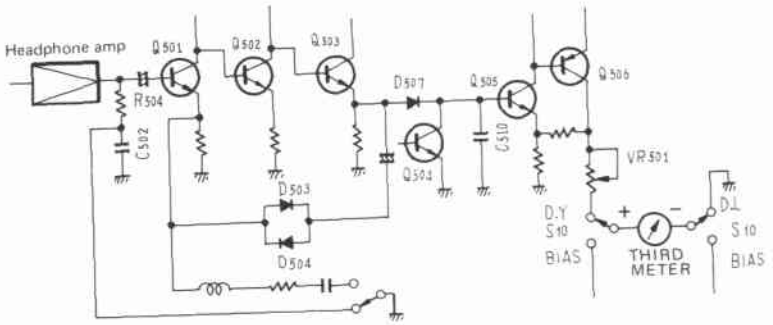


Fig. 18 Meter circuit

1. Insert a screwdriver into the groove in the switch bracket shown in Fig. 23, and adjust the bracket (by moving it back and forth) so that the motor switch is turned ON (reel turntable rotates) the instant the pinch roller is pressed against the capstan.
2. Confirm that the distance between the capstan and pinch roller is within 0 — 0.2mm when the reel turntable begins to rotate.
3. When the distance between the capstan and pinch roller is within 0 — 0.2mm and the adjustment standard cannot be satisfied by the adjustment of item 1 above, roughly adjust by moving the switch bracket back and forth so that the motor switch is turned on when the distance between the capstan and pinch roller is within 0 — 0.5mm.
4. After the adjustment of item 3 is completed, insert a screwdriver at the point where the capstan and pinch roller make contact, and adjust so that the distance between the capstan and pinch roller is within 0 — 0.2mm, being careful not to damage the pinch roller with the screwdriver.

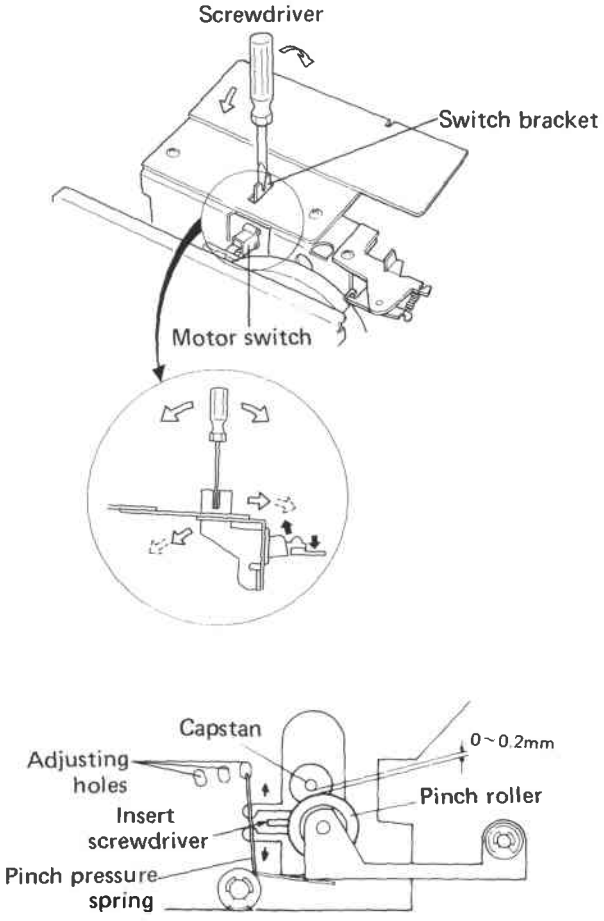


Fig. 23 Motor switch and play timing adjustment

Confirmation after adjustment

1. Motor switch operation
   There must be a back and forth stroke that switches the motor switch when the PLAY, FFl and REW button is slowly pushed.
2. After motor switch operation
   The tape must not fly out or be quickly wound when a tape is inserted and the PLAY button is pushed (not especially slow, but normal PLAY operation).

7.6 MUTING SWITCH OPERATION

Adjustment standard

Contact B must be moved 1mm $^{+0.5}_{-0.3}$ mm further after contact A of the switch separator contacts contact B of the fixed piece by switching of the MUTING switch in the PLAY state. However, this does not include the movement caused by the overstroke of the operating button.

The muting switch switching timing must be slow at STOP → PLAY and fast at PLAY → STOP. The switch must be perfectly switched.

Adjustment procedure

1. Apply 8V DC to the relay ass'y [(—) at terminal No. 44, (+) at terminal No. 47, and terminals No. 45 and No. 46 shorted].
2. Load a cassette tape, and slowly push the PLAY button. Insert a screwdriver into the groove shown in Fig. 24, and adjust so that the cassette lamp is illuminated simultaneously with stopping of the head base operation.
3. After adjustment, place the set into the PLAY state, and confirm that the cassette lamp is not extinguished even when the PLAY button is pushed up.

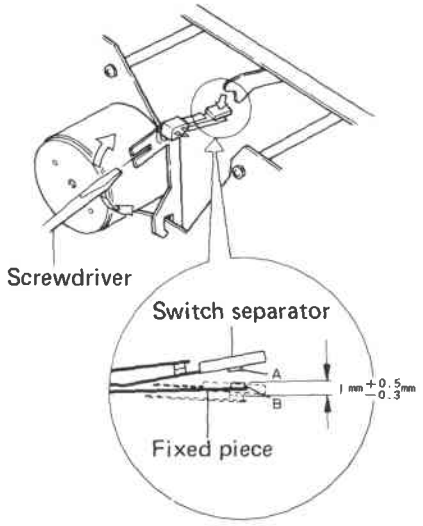


Fig. 24 Muting switch operation adjustment

7. MECHANICAL ADJUSTMENTS

- Adjustment is usually performed with the mechanism section removed from the chassis. However, the wiring must not be disconnected. (Refer to page 6 for the method of removing each part).
- When pushing the PLAY lever with a cassette half not mounted, press the lever while pushing the cassette detector pin.
- The mechanism section adjustment points are shown in Fig. 19.

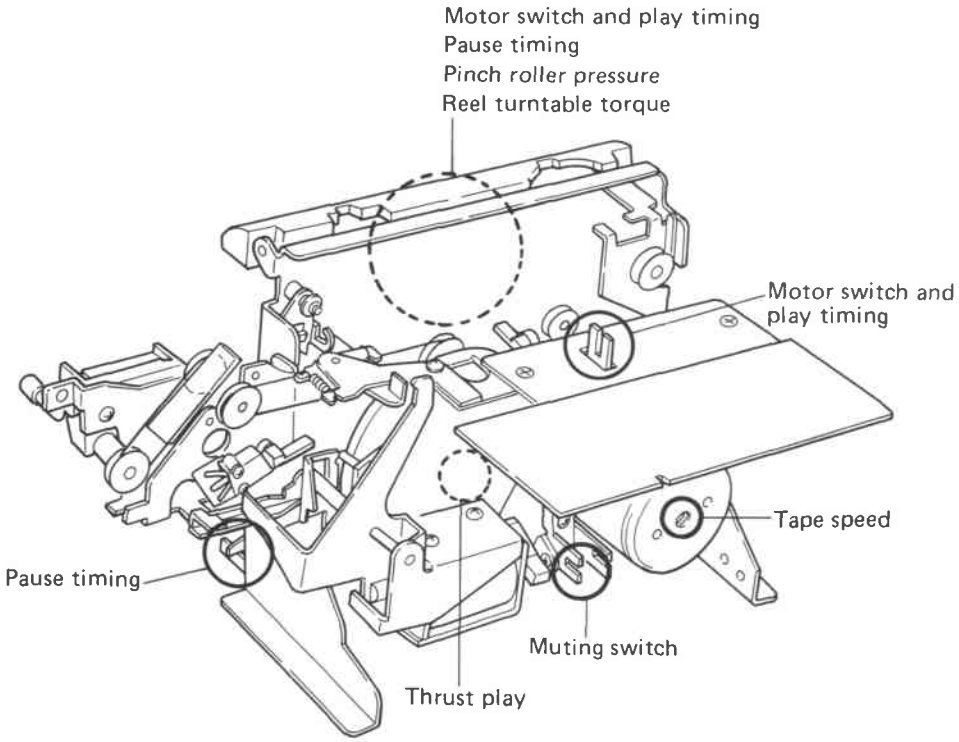


Fig. 19 Adjustment points

7.1 PINCH ROLLER PRESSURE

1. Place the set into the PLAY state, push a tension gauge (rod balance: 500g/full scale) against the part indicated by the ⬇ in Fig. 20 until the pinch roller is separated from the capstan (approximately 0.5mm).
2. Slowly push the pinch roller against the capstan, and read the value indicated at the gauge the instant the pinch roller begins to rotate.
3. If the tension gauge indication is not within the 280g to 360g range, adjust the pinch roller pressure by changing the hooking position in the pinch pressure spring.
4. If the tension gauge indication is still not within the 280g to 360g range after the adjustment in step 3 above, replace the pinch pressure spring (RBH-304).

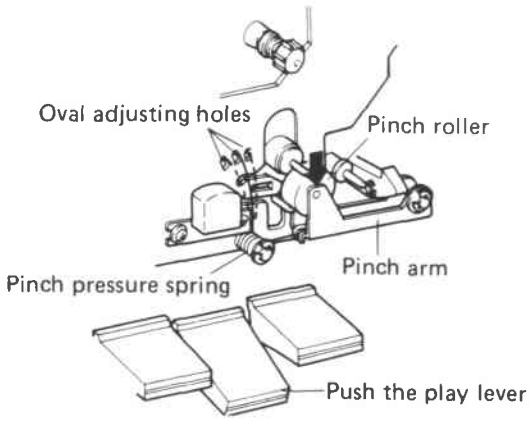


Fig. 20 Pinch roller pressure adjustment

7.2 REEL TURNTABLE TORQUE

Measure the reel turntable torque with a torque meter at the PLAY, FF, and REW operations. The reel turntable torque is normal if it is within the allowable value given in the below table. When the torque is outside this value, clean the reel turntable idler, and other roller contact parts, and remeasure the torque. If it is still outside the allowable value, replace the take-up reel full assembly (RXA-786) or supply reel full assembly (RXA-787).

Table

	Take-up reel turntable	Supply reel turntable
PLAY operation	35 ~ 50g·cm	*6g·cm or less
FF operation	70 ~ 100g·cm	*6g·cm or less
REW operation	*7g·cm or less	70 ~ 100g·cm

*Back tension torque

7.3 TAPE SPEED

1. Connect a frequency counter to the LINE OUTPUT terminal.
2. Play the 3kHz signal of the STD-301 tape speed, wow & flutter test tape.
3. Insert a screwdriver through the hole at the rear of the motor, and adjust the variable resistor for a reading of 2995Hz to 3010Hz at the frequency counter when winding of the tape begins.
4. When the semifixed resistor is turned clockwise, the tape speed increases, and when it is turned counter-clockwise, the tape speed decreases.

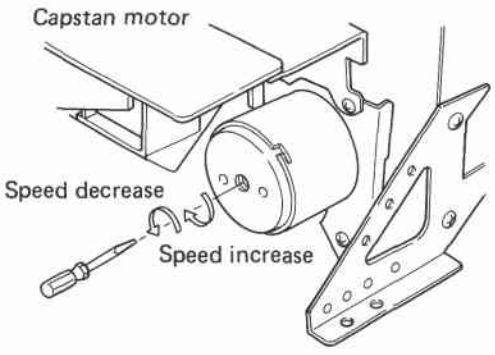


Fig. 21 Tape speed adjustment

7.4 PAUSE TIMING

Adjustment standard

The pinch roller is separated from the capstan by about 1 to 2mm by slowly pushing the PAUSE button in the PLAY state.

The pause timing is then adjusted so that the take-up reel shaft and pinch roller begin to rotate simultaneously when the PAUSE button is slowly released. However, the take-up reel shaft must begin to rotate while the pinch roller and capstan are still 0.1mm apart.

Adjustment procedure

Adjust the pause timing by bending the part indicated by A in Fig. 22 in the pause operating plate movement direction.

The pinch arm and pause arm must be separated in the PLAY state (PAUSE OFF) after adjustment. Moreover, load a tape and place the set into the PLAY state, and confirm that the tape does not fly out or is not wound quickly when the PAUSE button is pushed.

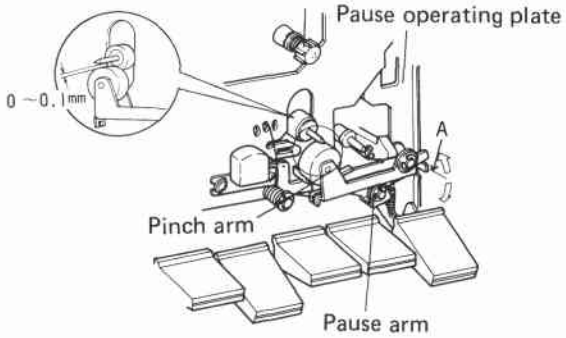


Fig. 22 Pause timing adjustment

7.5 MOTOR SWITCH AND PLAY TIMING

Adjustment Standard

The motor switch and play timing are adjusted so that the reel turntable and pinch roller (capstan) begin to rotate simultaneously, or the reel turntable begins to rotate somewhat before the pinch roller when the PLAY button is slowly pushed. When the reel turntable begins to rotate before the pinch roller, the distance between the capstan and pinch roller the instant the reel turntable begins to rotate must be within 0 — 0.2mm. Adjustment procedure

8.4 LEVEL METER AND D.L. METER

1. Set the INPUT switch to the LINE position.
2. Connect an mV meter to the TP terminal of the Dolby ass'y.
3. Place the set into the recording state, and apply a 333Hz, −10dBv (316mV) signal to the LINE terminal.
4. Adjust the INPUT control for an mV meter indication of −7.7dBv (410mV).
5. Then adjust VR_{301} to obtain a reading of "0dB" at the level meter.
6. Set the METER switch to the DYNAMIC LEVEL position.
7. Adjust VR_{501} to obtain a reading of "0dB" at the DYNAMIC LEVEL meter.

8.5 RECORDING CURRENT (ROUGH ADJUSTMENT)

The recording current is fine adjusted by the adjustment of item "8.8 Recording Level".

The input signal and position of the INPUT control conform with the adjustment of item "8.4 Level Meter and D.L. Meter".

1. Set the EQ switch to the STD position.
2. Connect an mV meter between mother ass'y terminals No. 46 (Lch) and No. 47 (ground), and terminals No. 43 (Rch) and No. 42 (ground).
3. Adjust VR_{303} to obtain a reading of 0.46mV (46μA) at the mV meter.
   Since the level is extremely low, be careful of extraneous noise when adjusting.

8.6 RECORDING BIAS (ROUGH ADJUSTMENT)

The recording bias is fine adjusted by the adjustment of item "8.7 Recording/Playback Frequency Response".

1. Connect an mV meter between mother ass'y terminals No. 46 (Lch) and No. 47 (ground), and terminals No. 43 (Rch) and No. 44 (ground).
2. Set the EQ switch to the STD position, and load a STD cassette half.
3. Place the set into the recording state, and set the INPUT control to minimum.
4. Adjust VR_{801} and VR_{802} to obtain a reading of 1.5mV (150μA) at the mV meter.

8.7 RECORDING/PLAYBACK FREQUENCY RESPONSE

1. Set the EQ switch to the STD position, the DOLBY NR switch to the OFF position, and the METER switch to the BIAS position.
2. Center bias fine adjustment variable resistor VR_{202}.
3. Apply a 333Hz, −30dBv (31.6mV) signal to the INPUT signal, and record this singal on test tape STD-601.
4. Then record a 6.3kHz signal on the same tape (STD-601), and adjust VR_{801} and VR_{802} for a playback level deviation of +0.5dB, relative to 333Hz of item 3 above.
5. Record and playback up to 12kHz and confirm that they are within the rating (Fig. 29).
   When not within the ratings, adjust to 0dB $^{+1}_{-0.5}$ dB by readjusting VR_{801} and VR_{802}.
6. Adjust VR_{203} so that the pointer deflects to "0" on the D.L. meter STD/Fe-Cr scale.
7. Record 333Hz and 6.3kHz signals, using test tape STD-602 (for CrO_2), and adjust VR_{201} for a 6.3kHz playback output deviation of +0.5dB ±1dB referred to 333Hz.
8. Adjust VR_{204} so that the pointer deflects to "0" on the D.L. meter CrO_2 scale.
9. VR_{203} (STD/Fe-Cr side) must not be turned after the adjustment of step 8.
10. Set the EQ switch to the Fe-Cr position, record and playback STD-601, and confirm that it is within the rating.
11. Then set the DOLBY NR switch to the ON position, record and playback over the frequency range stipulated by the ratings, and verify that they are within the ranges shown in Fig. 29.
12. Vary VR_{202} and confirm that the bias meter indication is between −20% and +15% at STD, Fe-Cr, and between −15% and +10% at CrO_2.
13. Connect an mV meter between mother ass'y terminals No. 37 (Lch) and No. 36 (ground), and terminals No. 40 (Rch) and No. 41 (ground).
14. Place the set into the recording state, and confirm that the bias leakage voltage is less than 1V.

8.8 RECORDING LEVEL

1. Set the EQ switch to the STD position, and the DOLBY NR switch to the ON position.
2. Apply a 333Hz, −10dBv (316mV) signal to the INPUT terminal, and connect an mV meter to the DOLBY ass'y TP terminal.
3. Adjust the INPUT control to obtain a reading of −7.7dBv (410mV) at the mV meter.
4. Then record and playback 333Hz with test tape STD-601, and adjust VR_{303} to obtain a reading of −7.7dBv at the mV meter.
5. Record and playback a 333Hz, −10dBv (316mV) signal with test tape STD-602, and confirm that the mV meter reads −7.7dBv ±1.5dB.

7.7 WOW AND FLUTTER

Wow & flutter is noticeable, check for the following items, and clean, adjust or replace the faulty parts, as required:

1. Capstan bent, rattling, dirty.
2. Pinch roller dirty, or pressure is unsuitable.
3. Capstan belt dirty or deteriorated.
4. Take-up ideler dirty, eccentric, or pressure is unsuitable.
5. Take-up reel turntable variation.
6. Back tension unsuitable or irregular.
7. Detector switch rotation not smooth.
8. Tape counter operation not smooth.
9. Cassette tape faulty.
10. Flywheel thrust play.

SIMPLE THRUST PLAY ADJUSTMENT METHOD

Slowly turn the thrust adjusting screw until there is no flywheel play, being careful not to turn it more than necessary, and then back-off the screw 90°. Next, confirm that the flywheel rotates smoothly and then lock the screw.

8.1 HEAD AZIMUTH

1. Connect an mV meter to the LINE OUTPUT terminal.
2. Set the EQ switch to the STD position.
3. Play 10kHz, −20dB of test tape STD-341A, and adjust the head azimuth adjusting screw shown in Fig. 27 to obtain maximum output at both the L and R channels.
4. Be sure to lock the adjusting screw with screw lock after adjustment.

8.2 PLAYBACK EQUALIZER

1. Connect an mV meter to the LINE OUTPUT terminal.
2. Set the EQ switch to the STD position.
3. Play 333Hz, −20dB of test tape STD-341A, and read the mV meter indication.
4. Play 6.3kHz, −20dB of test tape STD-341A, and adjust VR_{301} to obtain an mV meter indication of 0.5dB higher than that for 333Hz.
5. Under this state, set the tape selector switch to the CrO_2 and Fe-Cr position, and verify that the frequency response referred to 333Hz is within the −5.3dB ~ −3.3dB range at 6.3kHz.

8.3 PLAYBACK LEVEL

1. Connect an mV meter to the TP terminal of the Dolby ass'y.
2. Set the DOLBY NR switch to the ON position, and the EQ switch to the STD position.
3. Play 333Hz, 0dB of test tape STD-341A, and adjust VR_{302} for an mV meter indication of −3.7dBv (650mV).

Since this adjustment determine the Dolby level, it must be performed precisely.

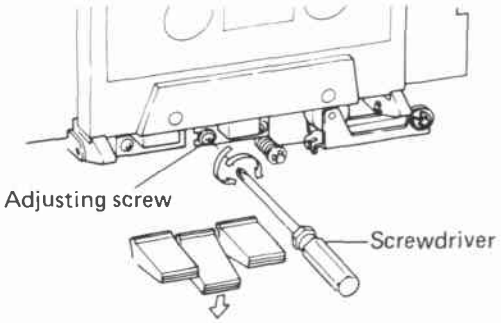


Fig. 27 Head azimuth adjustment

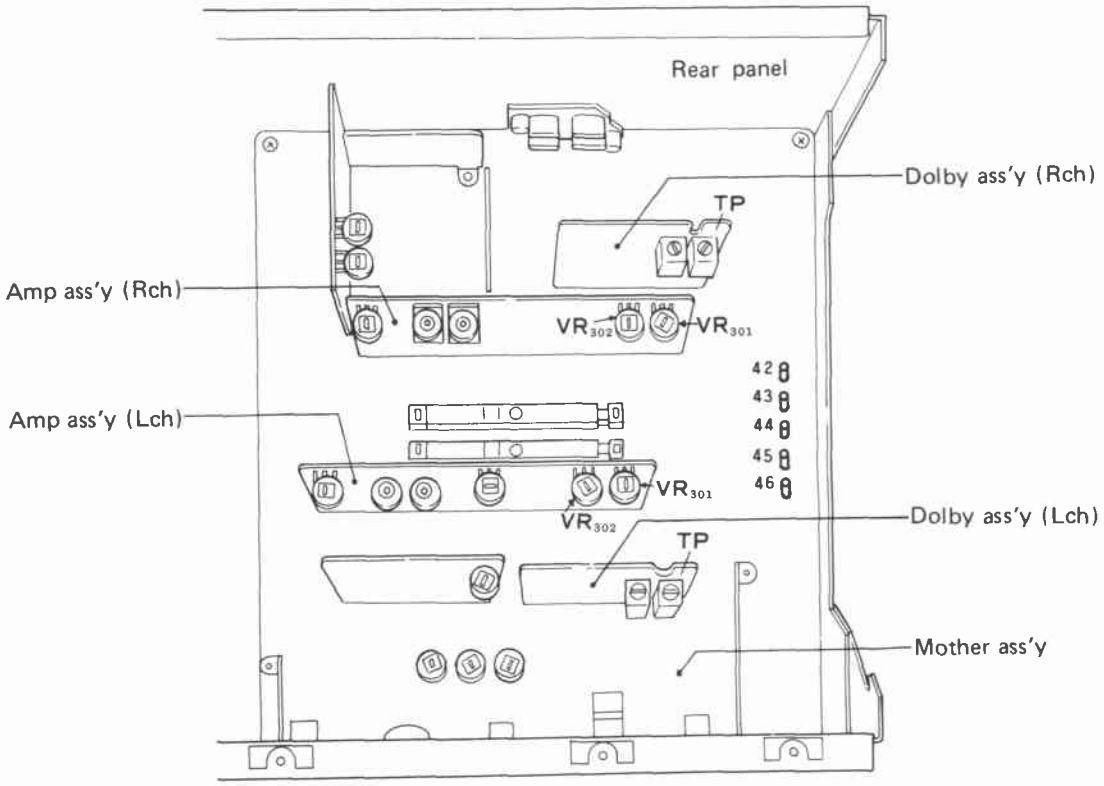


Fig. 28 Adjustment points

8. ELECTRICAL ADJUSTMENTS

Proceed as follows before beginning adjustment of the electrical system:

1. Confirm that the mechanism section has been properly adjusted.
2. Clean the heads.
3. Procure the specified test tapes.
   STD-331A... Playback system overall use
   STD-341A... Playback system adjustment use (see Fig. 25)
   STD-601 .... STD blank tape
   STD-602 .... CrO_2 blank tape
4. When making measurements, make the level 0dBv = 1V, and connect a 50kΩ (47 — 52kΩ) dummy load to the OUTPUT terminal.
5. Unless otherwise specified, "recording state" in this manual indicates the state under which a cassette half without chrome detector hole is loaded and the REC and PLAY levers are pushed (PAUSE lever may also be pushed).

Adjustment Items

Always perform adjustment in the following sequence. If this sequence is not followed, complete adjustment will be impossible, and the set will not display its full performance. The adjustment points are shown in Fig. 26.

Playback System

1. Head azimuth adjustment
2. Playback equalizer adjustment
3. Playback level adjustment

Recording System

4. Level meter adjustment
5. Recording current rough adjustment
6. Recording bias rough adjustment
7. Recording frequency response adjustment
8. Recording level adjustment

Note: The recording trap is not adjusted.

Function of Semifixed Variable Resistors

VR301 (playback equalizer adjustment): This VR is located at the equalizer amp NFB circuit, and makes the playback frequency response flat by changing the time constant of the circuit.

VR302 (playback level adjustment): This VR is inserted at the output of the equalizer amp at playback, and adjusts the gain of the playback circuit and the channel balance.

VR303 (recording level adjustment): This VR is located at the input of the recording amp, and sets the standard recording level by adjusting the gain of the recording circuit.

VR304 (level meter adjustment): This VR sets the meter indication to the standard value by changing the input level of the level meter.

VR201: This VR fine adjusts the CrO_2 bias.

VR202: This VR fine adjusts the STD/Fe-Cr bias.

VR203: This VR "0" adjusts the THIRD METER (bias meter) STD/Fe-Cr bias indication.

VR204: This VR "0" adjusts the THIRD METER (bias) CrO_2 bias indication.

VR501: This VR "0" adjusts the THIRD METER (dynamic level meter).

VR801 (VR802): This VR is inserted between the oscillator circuit and recording head, and adjusts the recording head bias current.

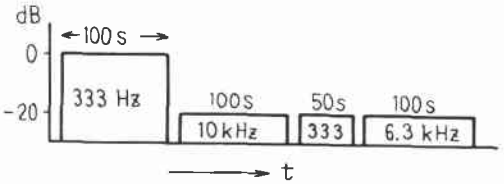


Fig. 25 Recorded contents of test tape STD-341

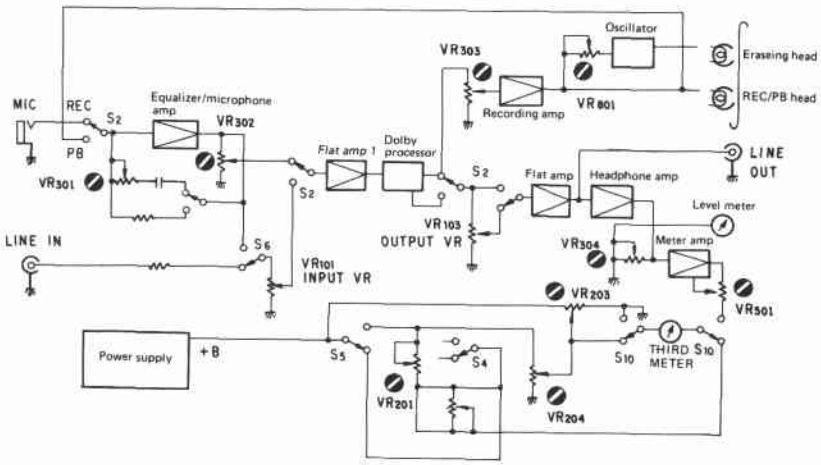
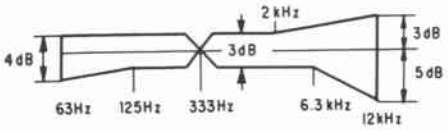
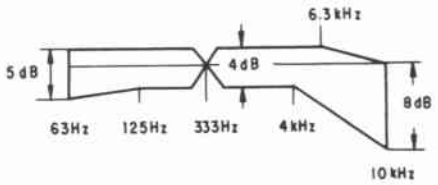


Fig. 26 Adjustment points

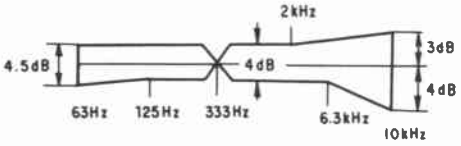
Using STD-601 and the STD position, with DOLBY NR OFF.



Using STD-601 and the Fe-Cr position, with DOLBY NR OFF.



Using STD-601 and the STD position, with DOLBY NR ON.



Using STD-601 and the Fe-Cr position, with DOLBY NR ON.

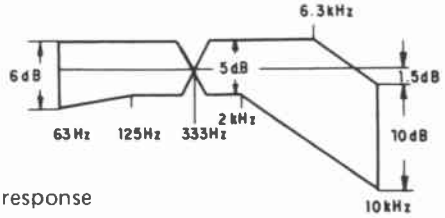


Fig. 29 Frequency response

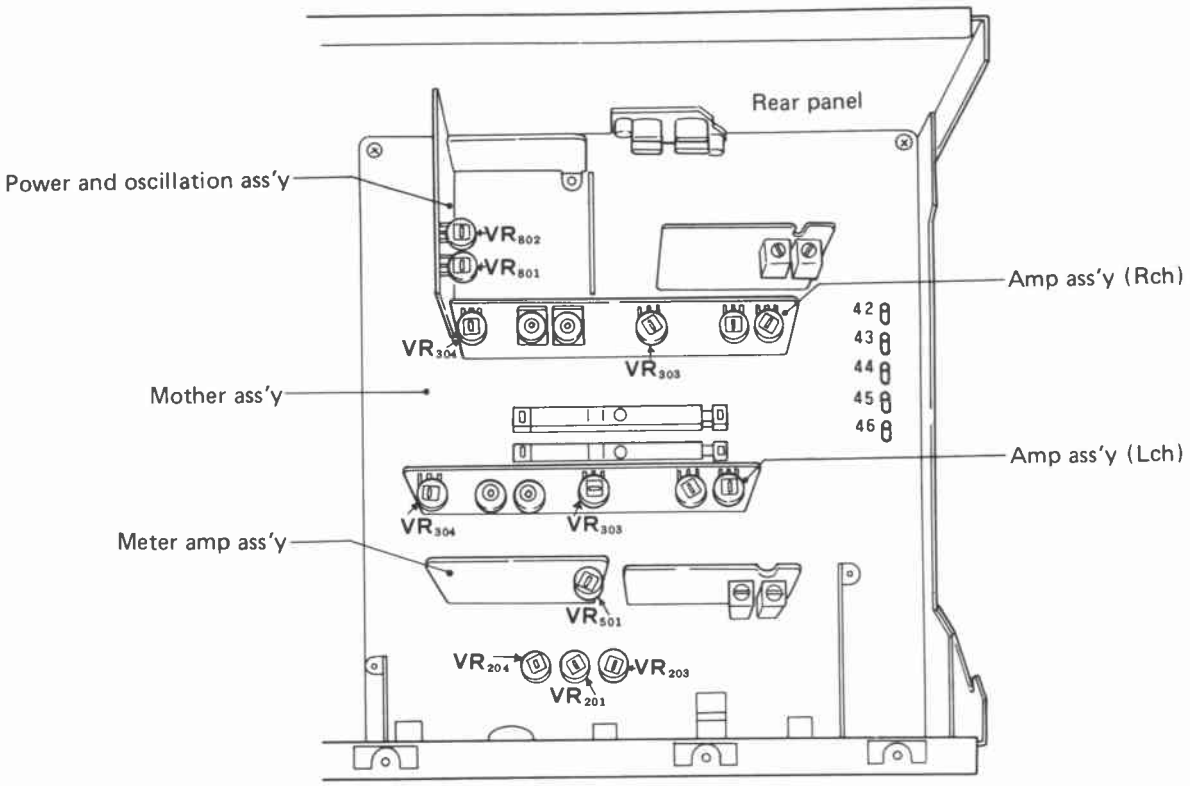
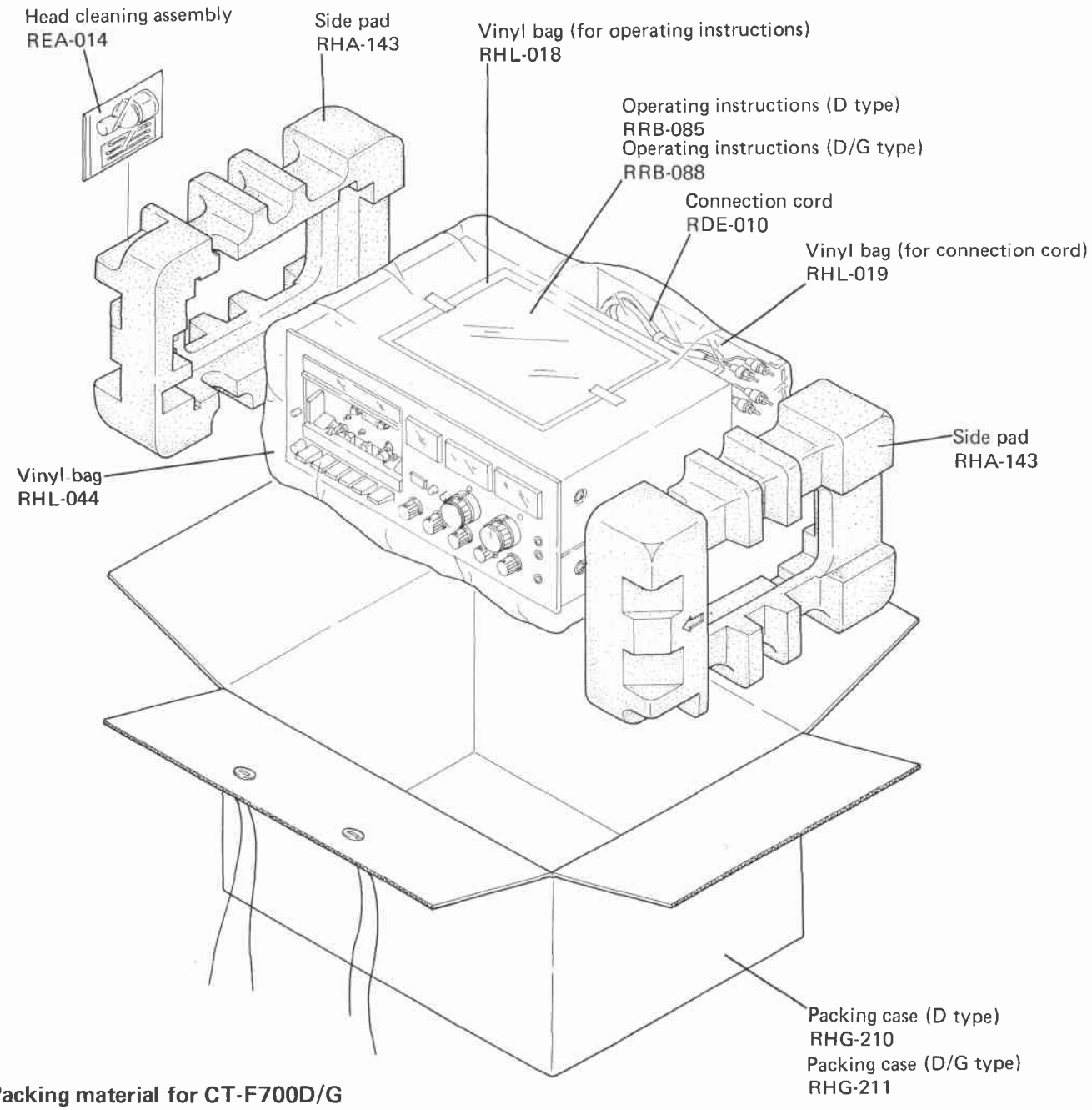


Fig. 30 Adjustment points

9. PACKING

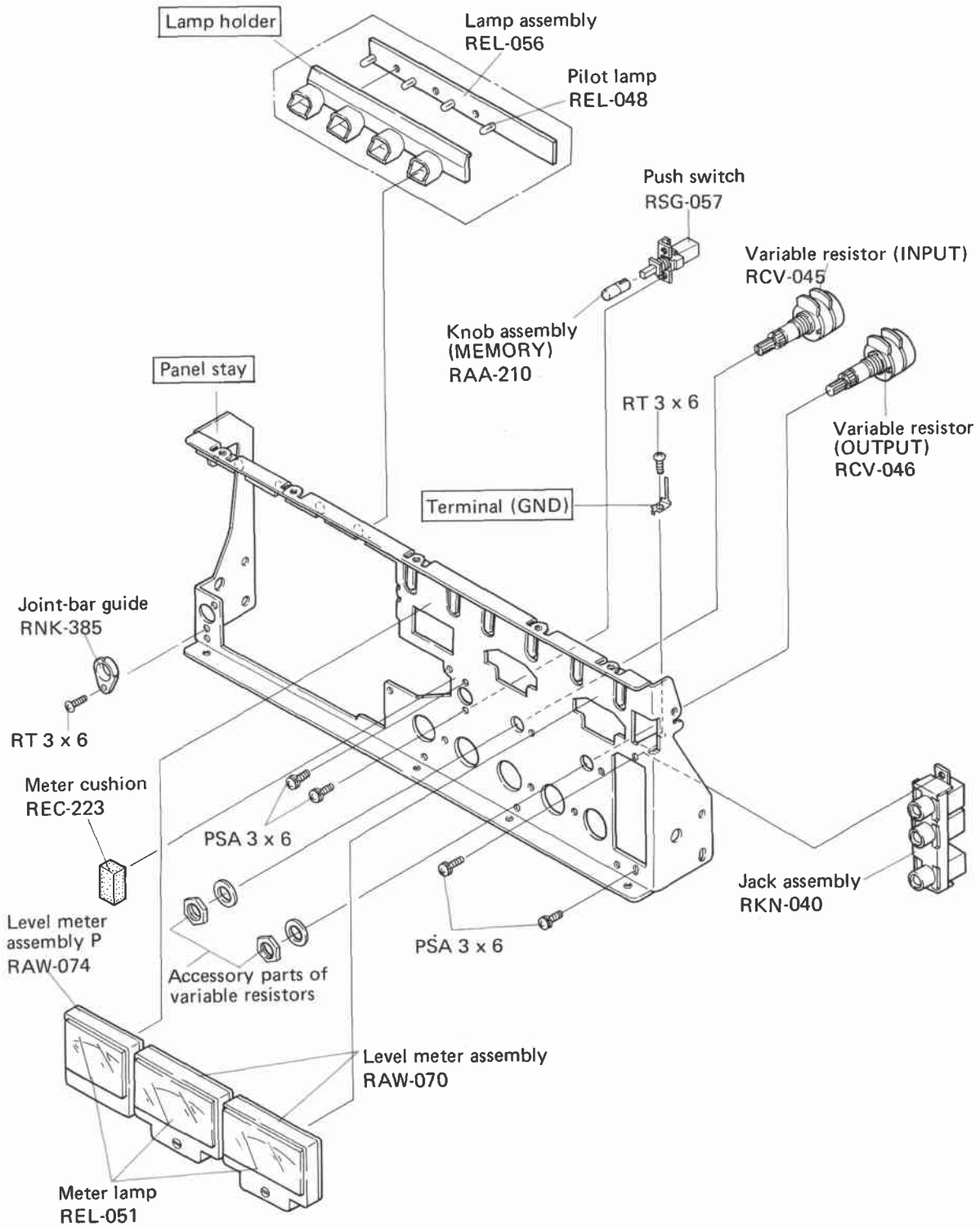


Packing material for CT-F700D/G

Description	Parts No.
Spacer	RHC-077
Spacer A	RHC-071
Spacer B	RHC-072

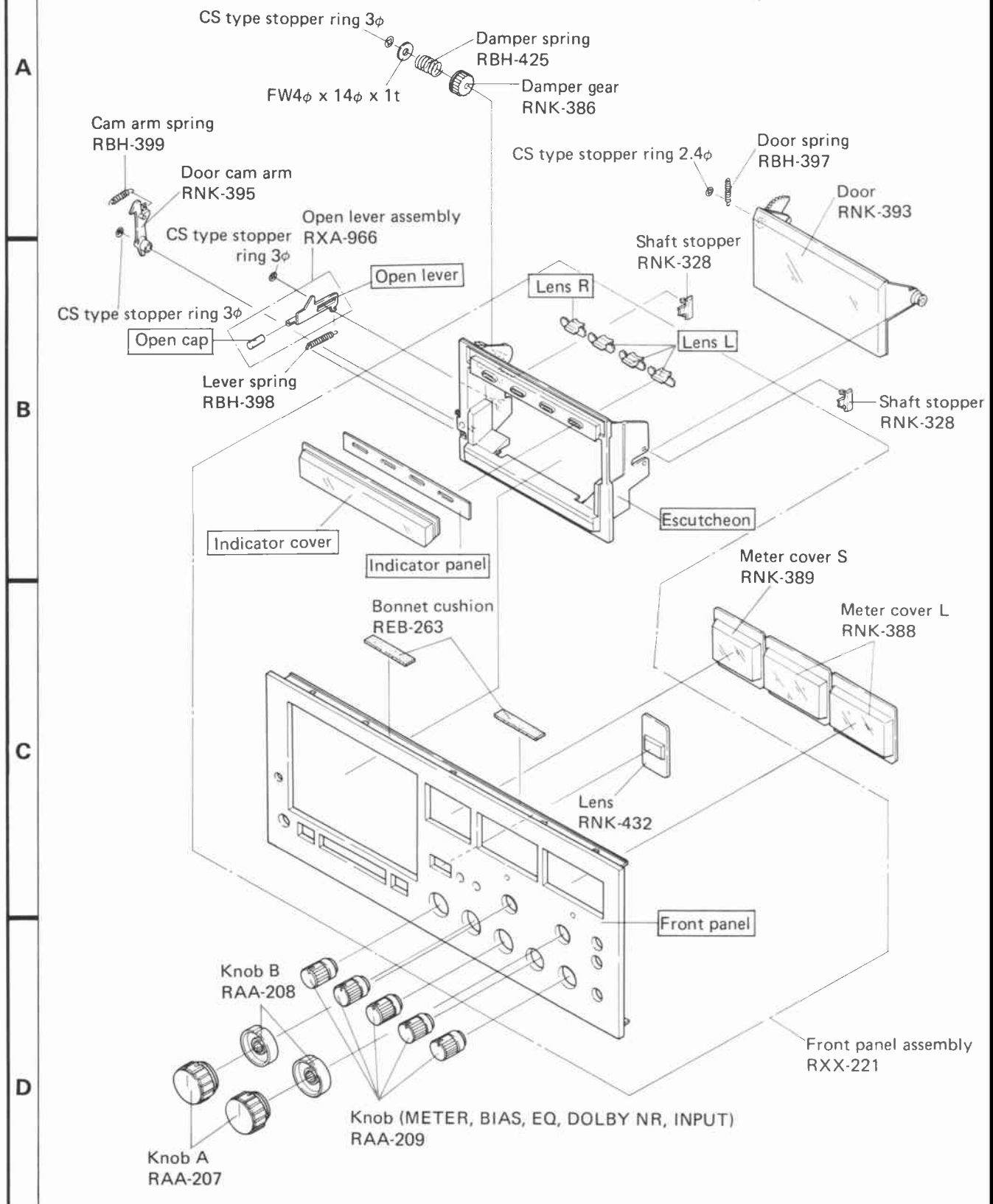
10.5 PANEL STAY

NOTE:
Parts indicated in ▭ type cannot be supplied.

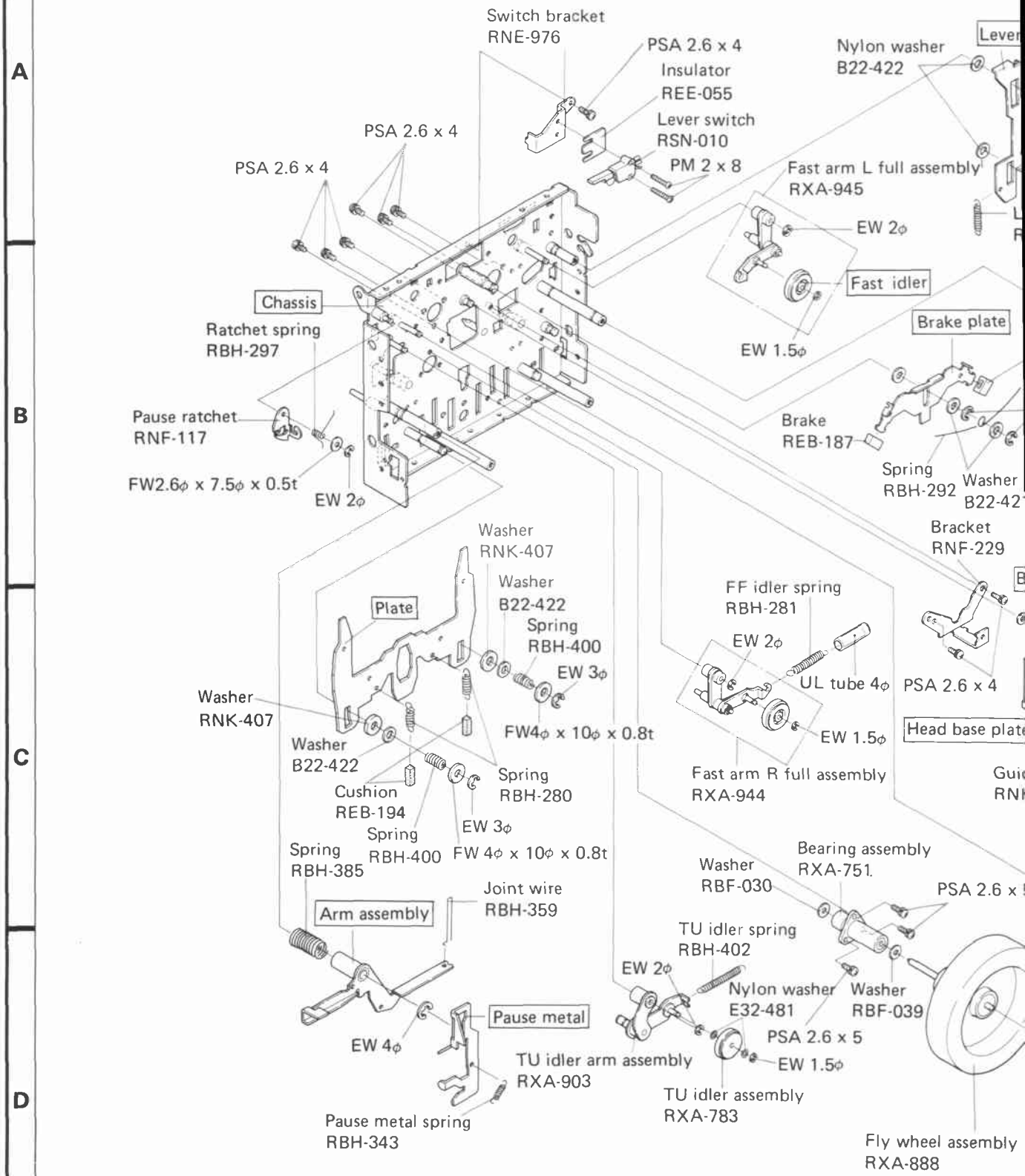


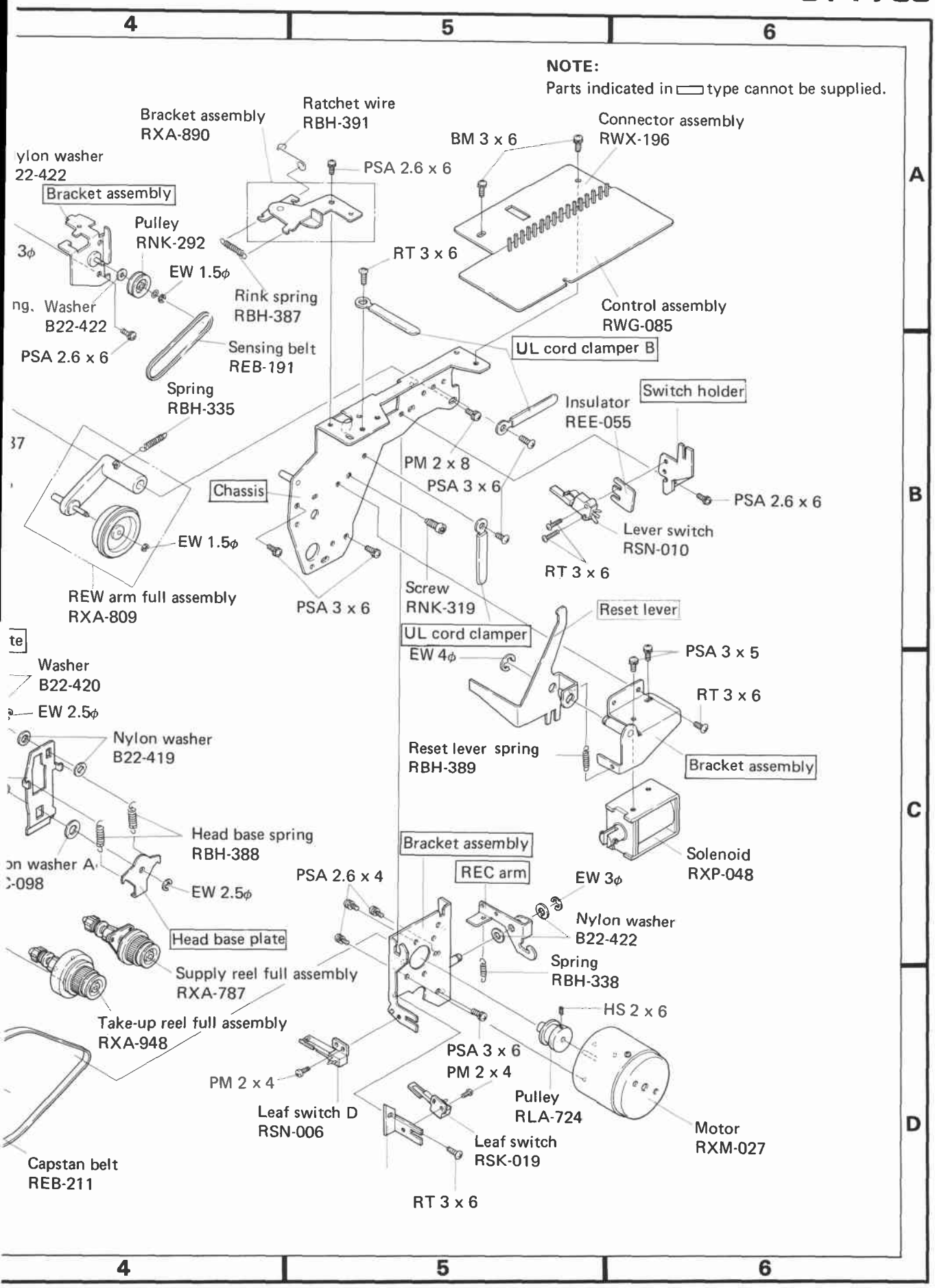
10.4 FRONT PANEL

NOTE:
Parts indicated in ▭ type cannot be supplie

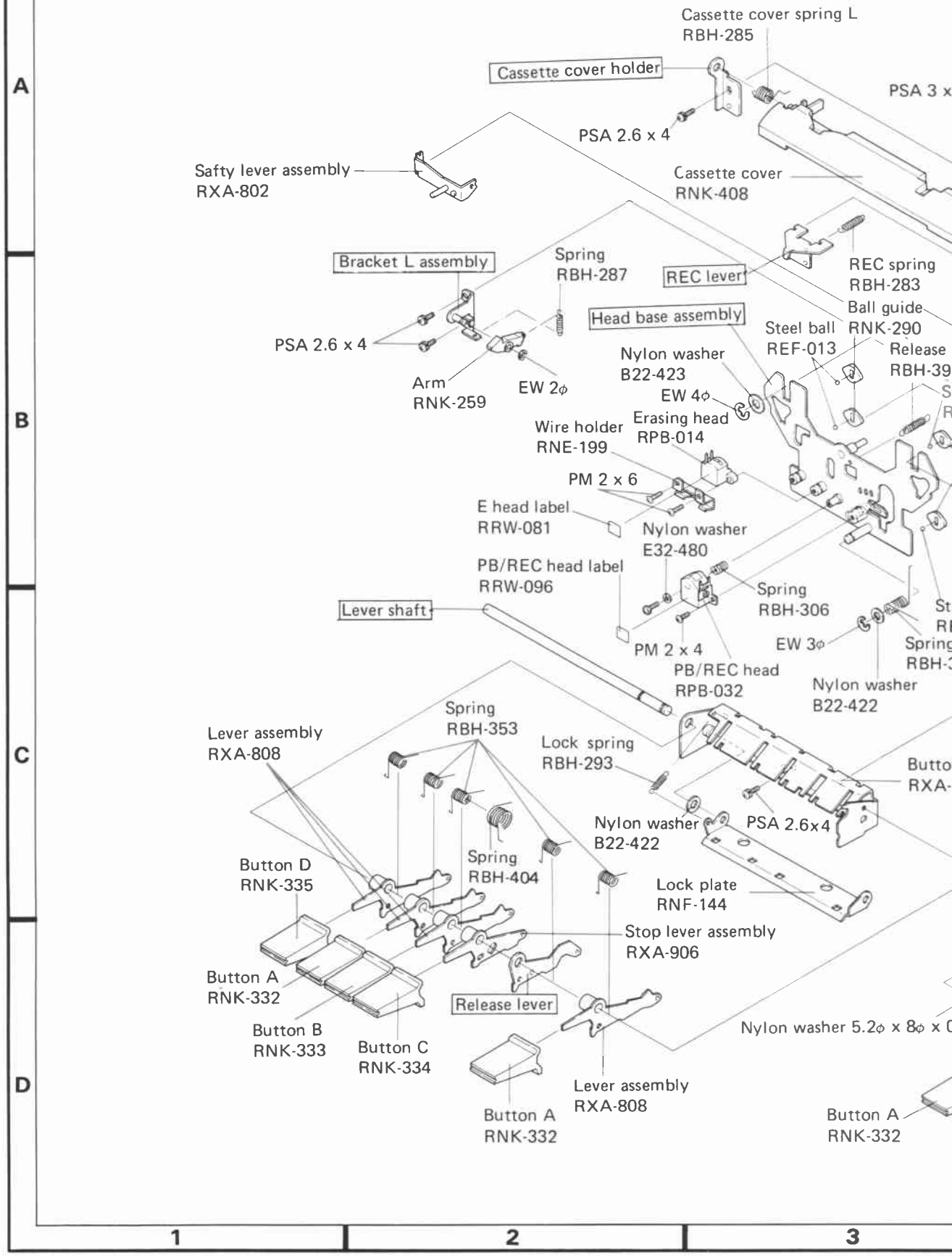


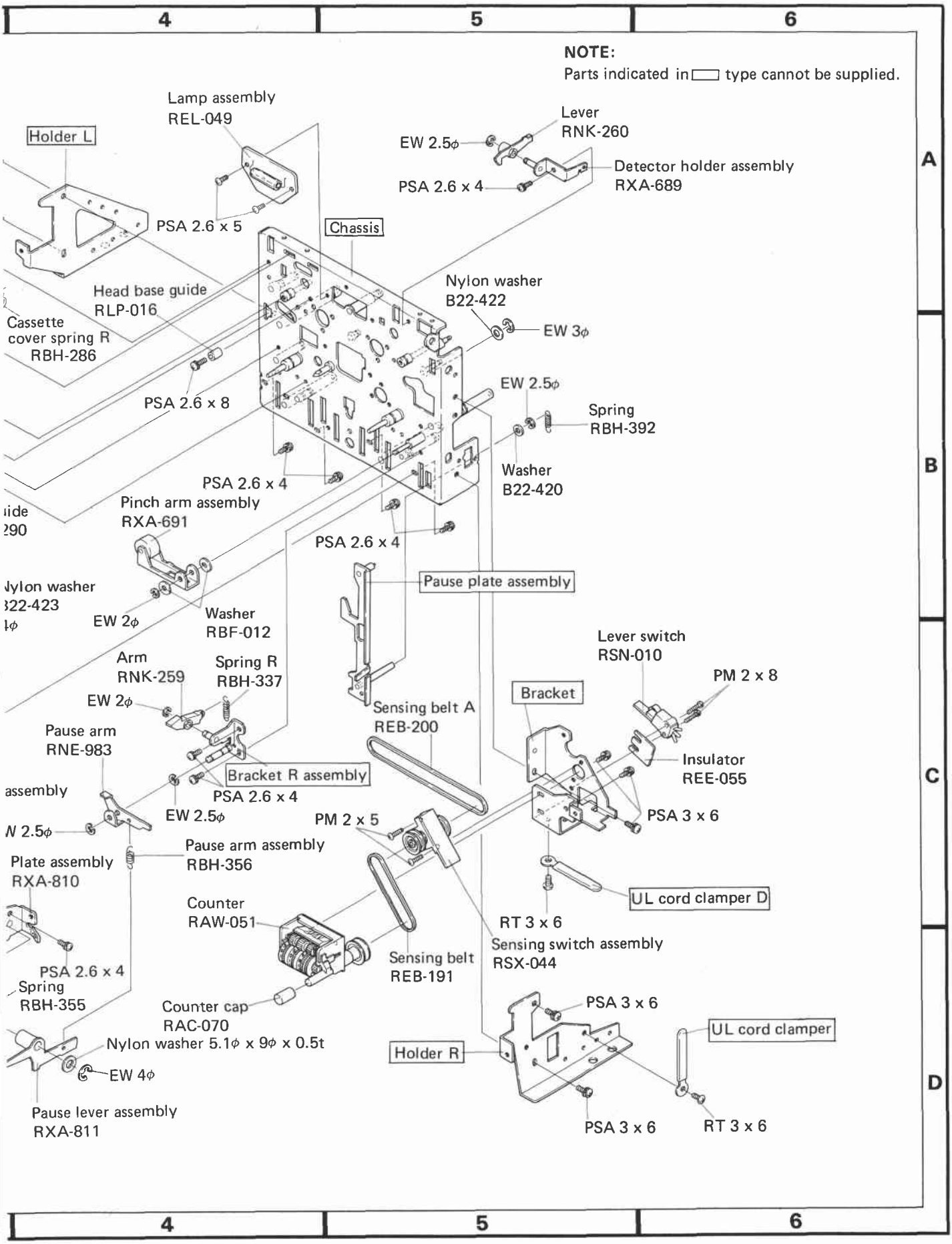
10.3 MECHANISM ASSEMBLY (REAR SIDE)

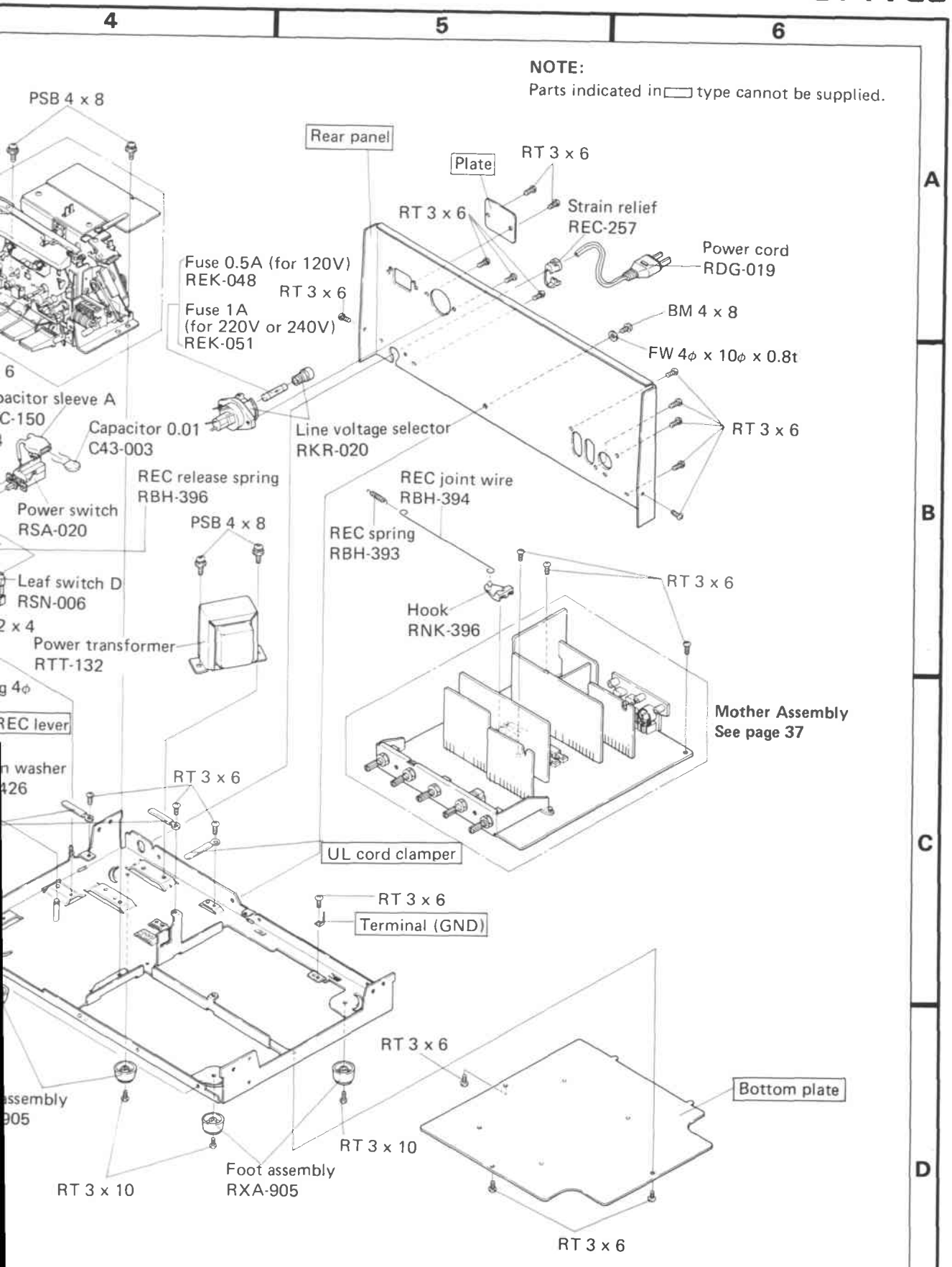



4
5
6
A
B
C
D
NOTE:
Parts indicated in ▭ type cannot be supplied.
Bracket assembly
RXA-890
Ratchet wire
RBH-391
PSA 2.6 x 6
BM 3 x 6
Connector assembly
RWX-196
ylon washer
22-422
Bracket assembly
Pulley
RNK-292
3φ
EW 1.5φ
RT 3 x 6
Rink spring
RBH-387
ng. Washer
B22-422
PSA 2.6 x 6
Sensing belt
REB-191
Control assembly
RWG-085
UL cord clamper B
Spring
RBH-335
Insulator
REE-055
Switch holder
PM 2 x 8
PSA 3 x 6
Chassis
PSA 2.6 x 6
Lever switch
RSN-010
RT 3 x 6
EW 1.5φ
REW arm full assembly
RXA-809
PSA 3 x 6
Screw
RNK-319
Reset lever
UL cord clamper
EW 4φ
PSA 3 x 5
RT 3 x 6
Washer
B22-420
EW 2.5φ
Reset lever spring
RBH-389
Bracket assembly
Nylon washer
B22-419
Head base spring
RBH-388
Solenoid
RXP-048
Bracket assembly
REC arm
PSA 2.6 x 4
EW 3φ
EW 2.5φ
Nylon washer
B22-422
Head base plate
Spring
RBH-338
Supply reel full assembly
RXA-787
HS 2 x 6
Take-up reel full assembly
RXA-948
PSA 3 x 6
PM 2 x 4
PM 2 x 4
Pulley
RLA-724
Leaf switch D
RSN-006
Motor
RXM-027
Leaf switch
RSK-019
Capstan belt
REB-211
RT 3 x 6

10.2 MECHANISM ASSEMBLY (FRONT SIDE)

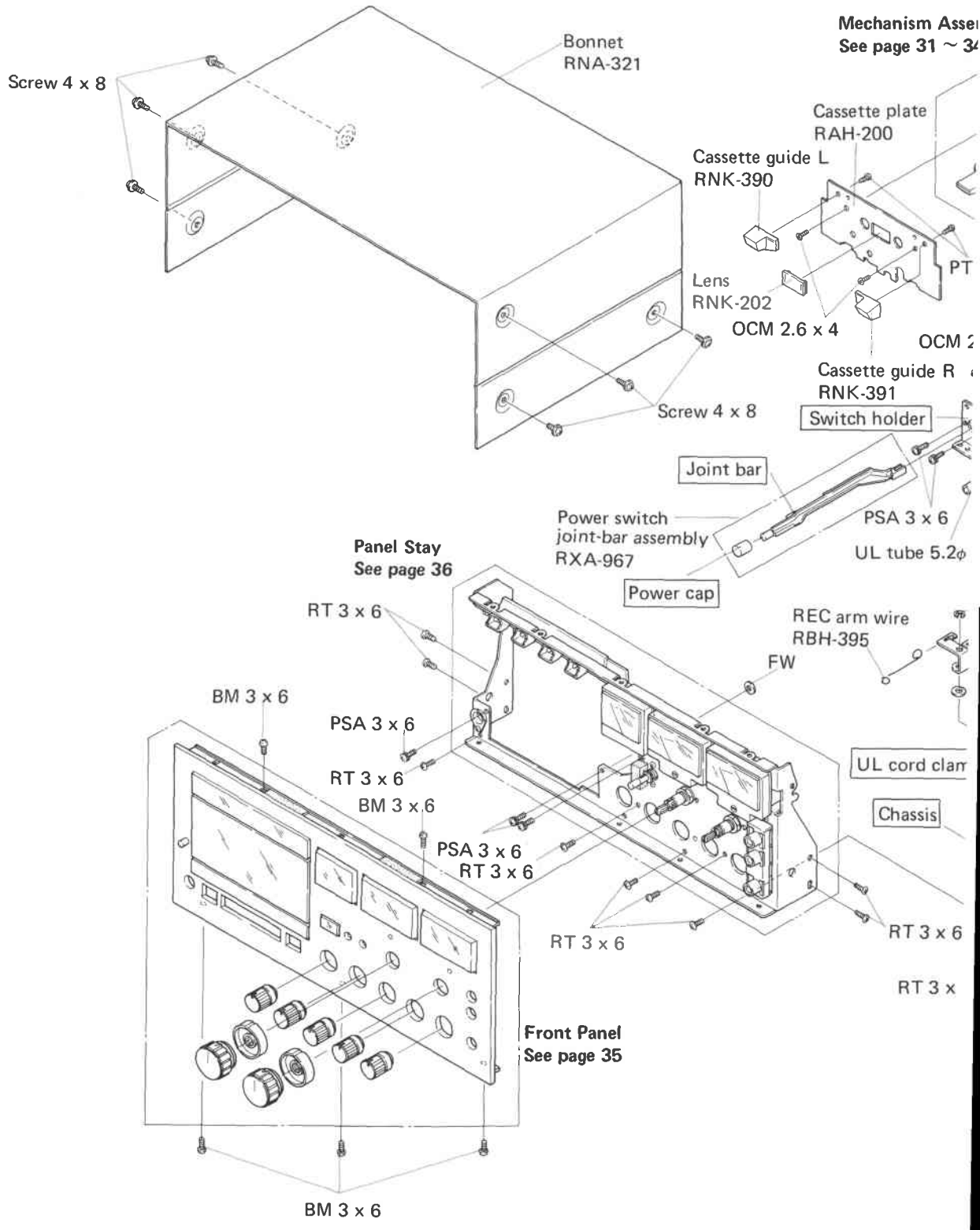



4
5
6
NOTE:
Parts indicated in ▭ type cannot be supplied.
A
B
C
D
Lamp assembly
REL-049
Holder L
PSA 2.6 x 5
Chassis
Lever
RNK-260
EW 2.5φ
PSA 2.6 x 4
Detector holder assembly
RXA-689
Head base guide
RLP-016
Cassette
cover spring R
RBH-286
Nylon washer
B22-422
EW 3φ
EW 2.5φ
Spring
RBH-392
PSA 2.6 x 8
Washer
B22-420
PSA 2.6 x 4
Pinch arm assembly
RXA-691
PSA 2.6 x 4
Pause plate assembly
Nylon washer
EW 2φ
Washer
RBF-012
Lever switch
RSN-010
PM 2 x 8
Arm
RNK-259
Spring R
RBH-337
EW 2φ
Bracket
Sensing belt A
REB-200
Pause arm
RNE-983
Insulator
REE-055
Bracket R assembly
PSA 2.6 x 4
EW 2.5φ
PSA 3 x 6
PM 2 x 5
Pause arm assembly
RBH-356
Plate assembly
RXA-810
UL cord clamper D
Counter
RAW-051
RT 3 x 6
Sensing switch assembly
RSX-044
Sensing belt
REB-191
PSA 2.6 x 4
Spring
RBH-355
Counter cap
RAC-070
PSA 3 x 6
UL cord clamper
Nylon washer 5.1φ x 9φ x 0.5t
Holder R
EW 4φ
Pause lever assembly
RXA-811
PSA 3 x 6
RT 3 x 6


4
5
6
A
B
C
D
NOTE:
Parts indicated in ▭ type cannot be supplied.
PSB 4 x 8
Rear panel
Plate
RT 3 x 6
RT 3 x 6
Strain relief
REC-257
Power cord
RDG-019
Fuse 0.5A (for 120V)
REK-048
RT 3 x 6
Fuse 1A
(for 220V or 240V)
REK-051
BM 4 x 8
FW 4φ x 10φ x 0.8t
RT 3 x 6
Capacitor 0.01
C43-003
Line voltage selector
RKR-020
REC release spring
RBH-396
REC joint wire
RBH-394
Power switch
RSA-020
PSB 4 x 8
REC spring
RBH-393
Leaf switch D
RSN-006
RT 3 x 6
Hook
RNK-396
Power transformer
RTT-132
Mother Assembly
See page 37
RT 3 x 6
UL cord clamper
RT 3 x 6
Terminal (GND)
RT 3 x 6
Bottom plate
RT 3 x 10
Foot assembly
RXA-905
RT 3 x 10
RT 3 x 6

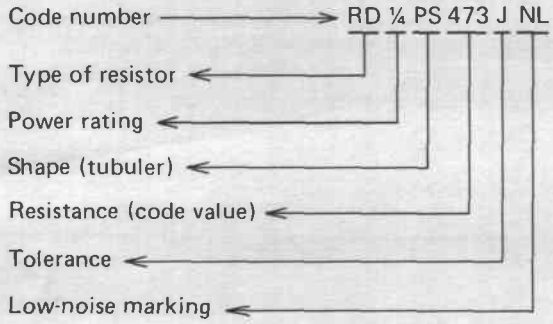
10. EXPLODED VIEWS

10.1 EXTERIOR



RESISTANCE VALUE CODES

Code numbers of resistors used in Pioneer equipment are expressed in the following way:—



Furthermore, in the list of parts found in the Service Manual, the resistance (code value) part of the above code number is expressed as □□□ or □□□□.

Resistors included in the Service Manual list of parts

↓

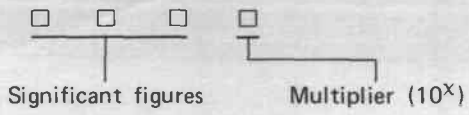
Ex. RD ¼ PS □□□ J NL

When ordering resistor components, first ascertain the actual resistance value from the circuit diagram, and then convert it into code no. form as shown in the following examples.

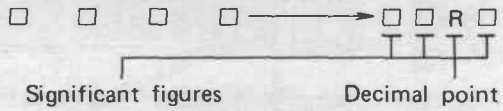
For further details on code numbers, refer to "Tuning Fork" VOL. 1.

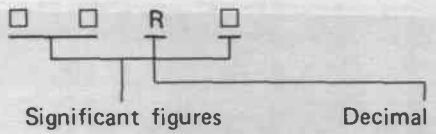
Ex. 1 For □□□□ Codes

* **General resistors**



* **Resistors with fractional values**



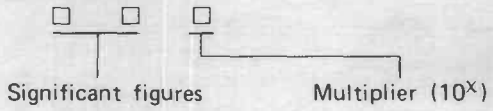


Ex. 1

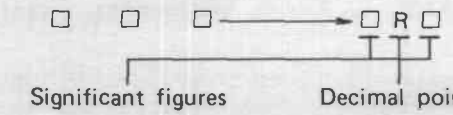
Nominal resistance (Ω)	Significant figure (two figures)	Multiplier (10X)	Resistance value code
5.1	510	.....	5R10
5.62	562	.....	5R62
10	100	.....	10R0
22.5	225	.....	22R5
110	110	$\times 10^0$	1100
1k (1000)	100	$\times 10^1$	1001
1.56k (1560)	156	$\times 10^1$	1561
10k (10000)	100	$\times 10^2$	1002
33.6k (33600)	336	$\times 10^2$	3362
112k (112000)	112	$\times 10^3$	1123
1M (1000000)	100	$\times 10^4$	1004
1.56M (1560000)	156	$\times 10^4$	1564

Ex. 2 For □□□ Codes

* **General resistors**



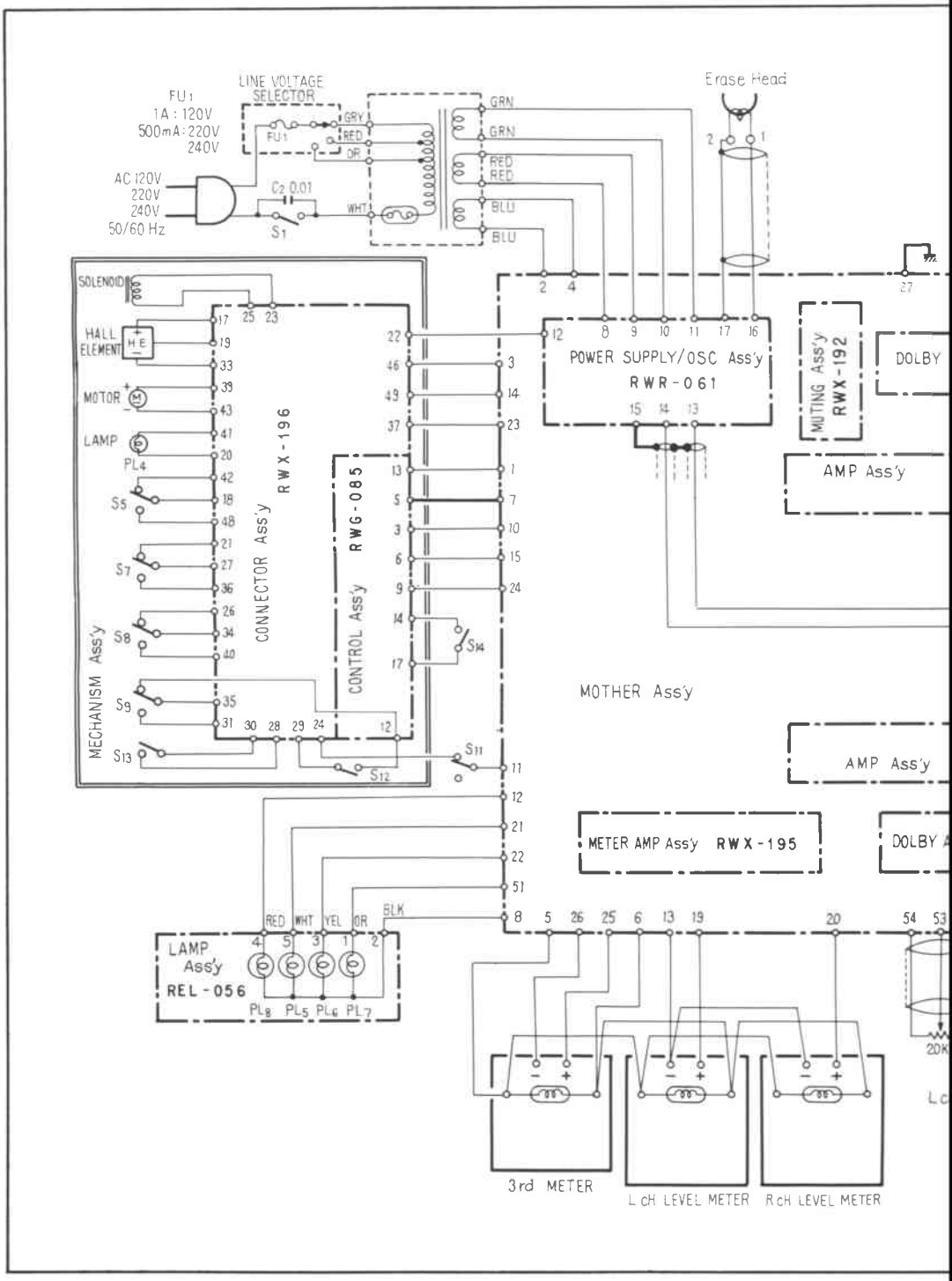
* **Resistors with fractional values**

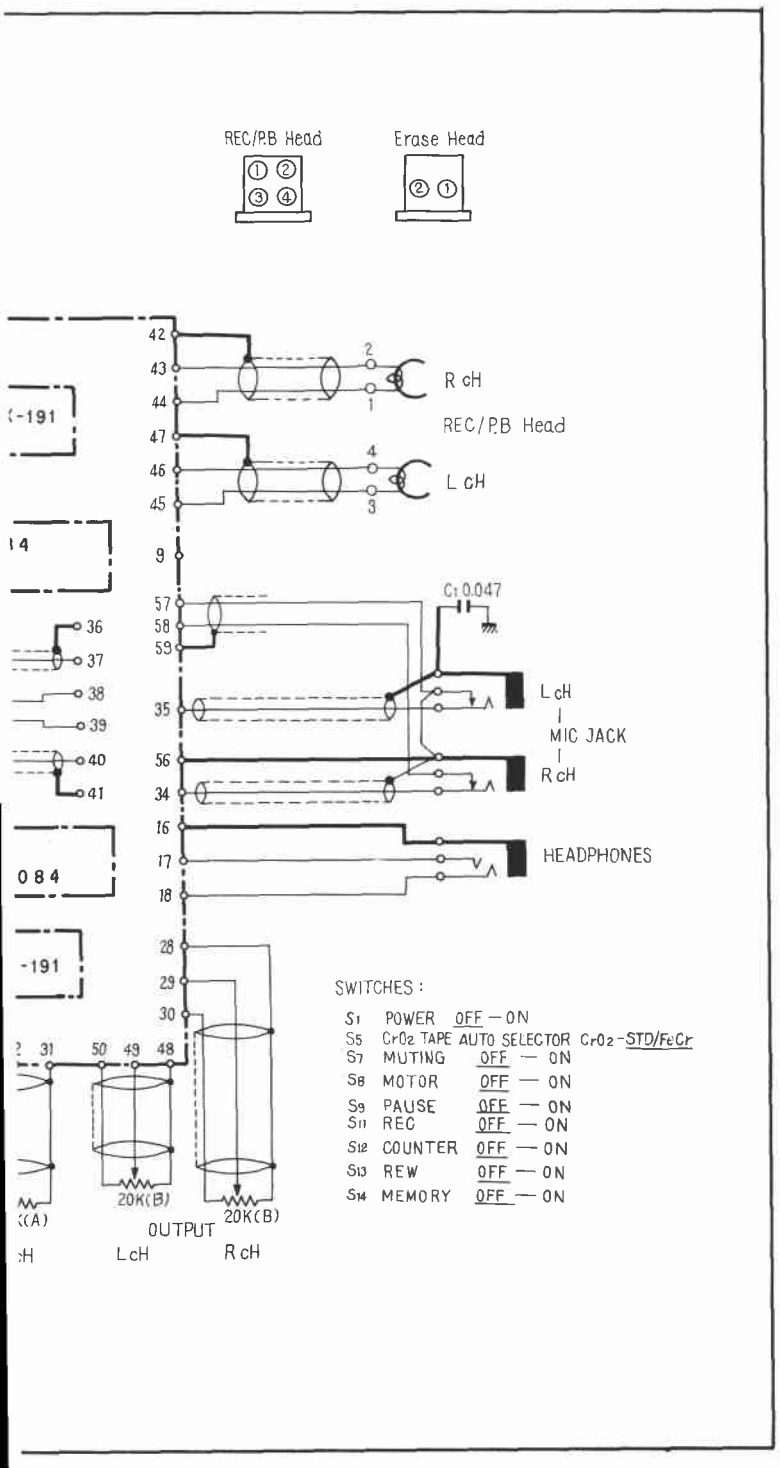


Ex. 2

Nominal resistance (Ω)	Significant figure (two figures)	Multiplier (10X)	Resistance value code
0.5	01	.....	0R5
1.5	15	.....	1R5
1	01	$\times 10^0$	010
22	22	$\times 10^0$	220
330	33	$\times 10^1$	331
1k (1000)	10	$\times 10^2$	102
5.6k (5600)	56	$\times 10^3$	562
68k (68000)	68	$\times 10^3$	683
820k (820000)	82	$\times 10^4$	824
1M (1000000)	10	$\times 10^5$	105
2.2M (2200000)	22	$\times 10^5$	225

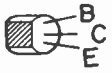
11.2 CONNECTION DIAGRAM



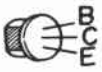


Appearance of Transistors and ICs

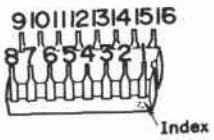
2SA564
2SA564A
2SC828
2SC828A
2SC1684
2SA825
2SC1740LN



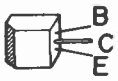
2SC372
2SC373



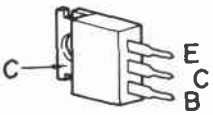
CR860



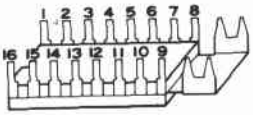
2SC1166



2SC790
2SC1419
2SD234

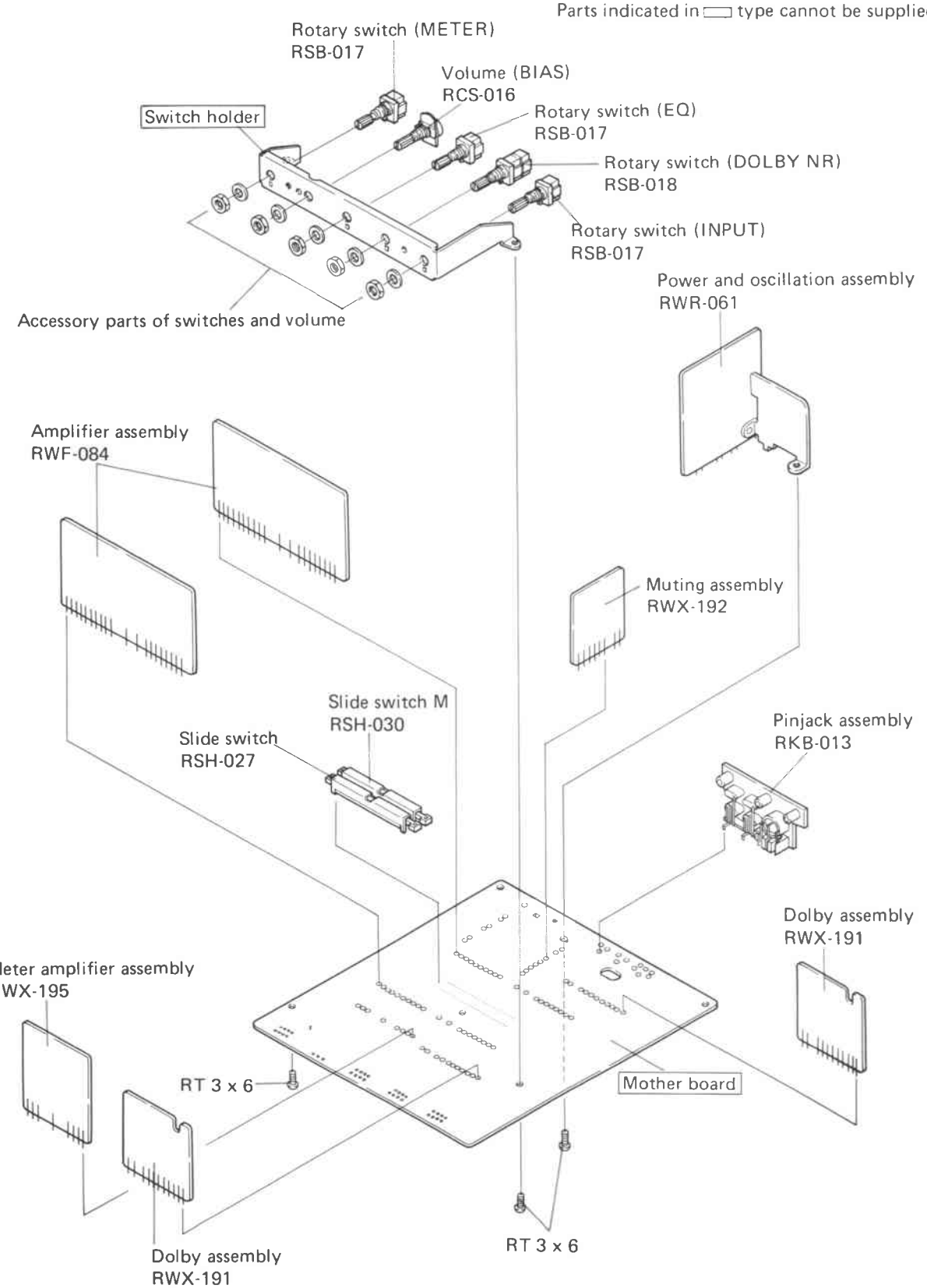


PA4001



10.6 MOTHER ASSEMBLY

NOTE:
Parts indicated in ▭ type cannot be supplied.



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

11.1 MISCELLANEOUS PARTS LIST

NOTE:

- *When ordering resistors, first covert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω——56 ×10¹——561 . . . . . RD¼PS 5 6 1 J
47kΩ——47 ×10³——473 . . . . . RD¼PS 4 7 3 J
0.5Ω——0R5 . . . . . RN2H 0 R 5 K
1Ω——010 . . . . . RS1P 0 1 0 K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ 562 × 10¹ 5621 . . . . . RN¼SR 5 6 2 1 F

ASSEMBLIES

Part No.	Description
RWF-084	Amplifier assembly
RWX-191	Dolby assembly
RWR-061	Power and oscillation assembly
RWX-192	Muting assembly
RWX-195	Meter amplifier assembly
RWG-085	Control assembly

TRANSFORMER

Part No.	Symbol & Description	
RTT-132	T1	Power transformer

SWITCHES

Part No.	Symbol & Description	
RSA-020	S1	Power swtich
RSN-016	S11	Leaf switch (REC)
RSG-057	S14	Push switch (MEMORY)

CAPACITORS

Part No.	Symbol & Description			
CKDYF 473Z 50	C1	Ceramic	0.047	50
C43-003		Ceramic	0.01	

RESISTORS

Part No.	Symbol & Description	
RCV-045	VR101	Variable resistor (INPUT) 20k-A
RCV-046	VR102	Variable resistor(OUTPUT)20k-B

OTHERS

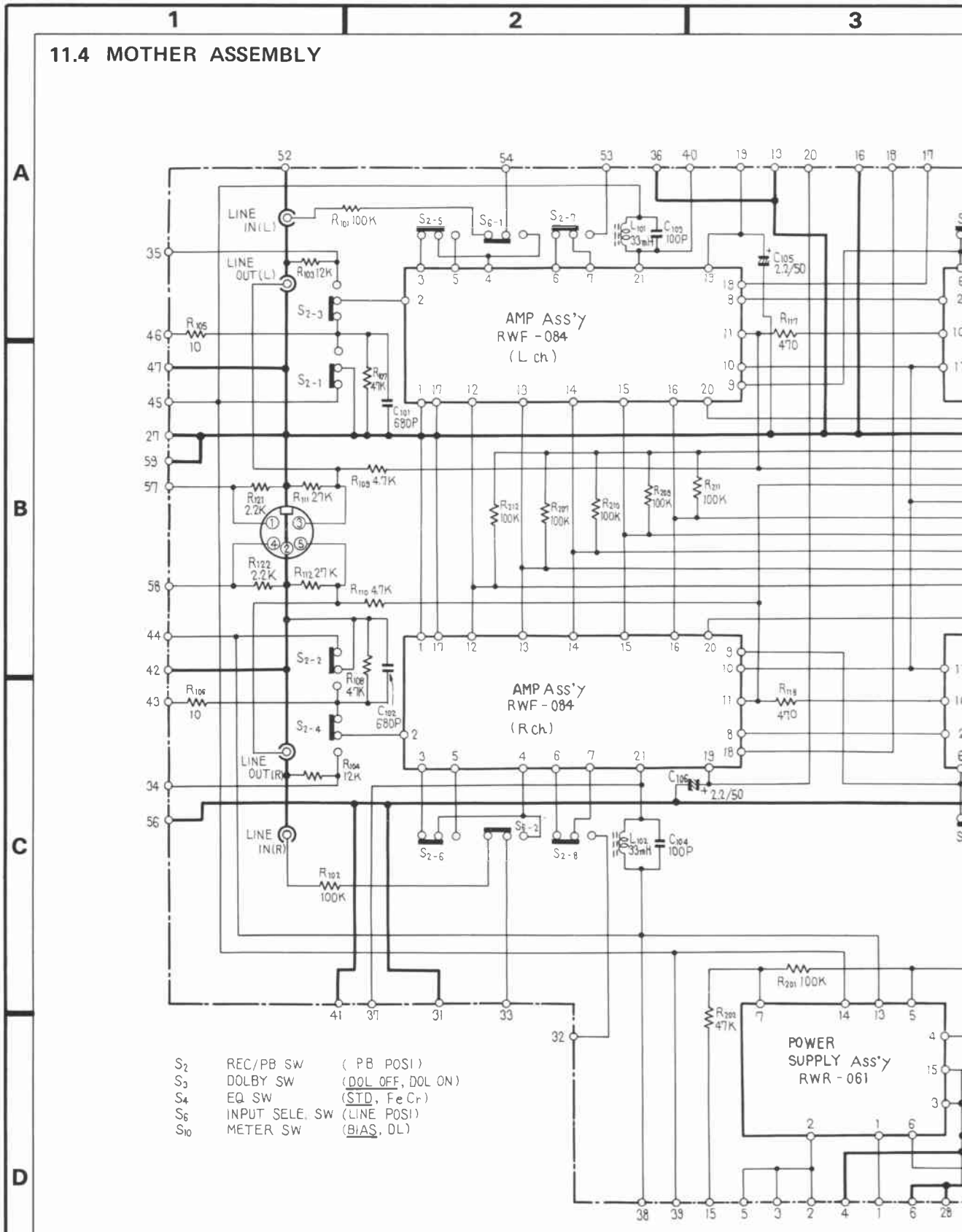
Part No.	Symbol & Description
RDG-019	Power cord
RKR-020	Line voltage selector (switchable 3 positions)
RKN-040	Jack assembly
RAW-074	Level meter assembly P
RAW-070	Level meter assembly
REL-056	Lamp assembly
RXX-218	Front panel assembly
RNA-321	Bonnet
RAA-207	Knob A
RAA-208	Knob B
RAA-209	Rotary knob

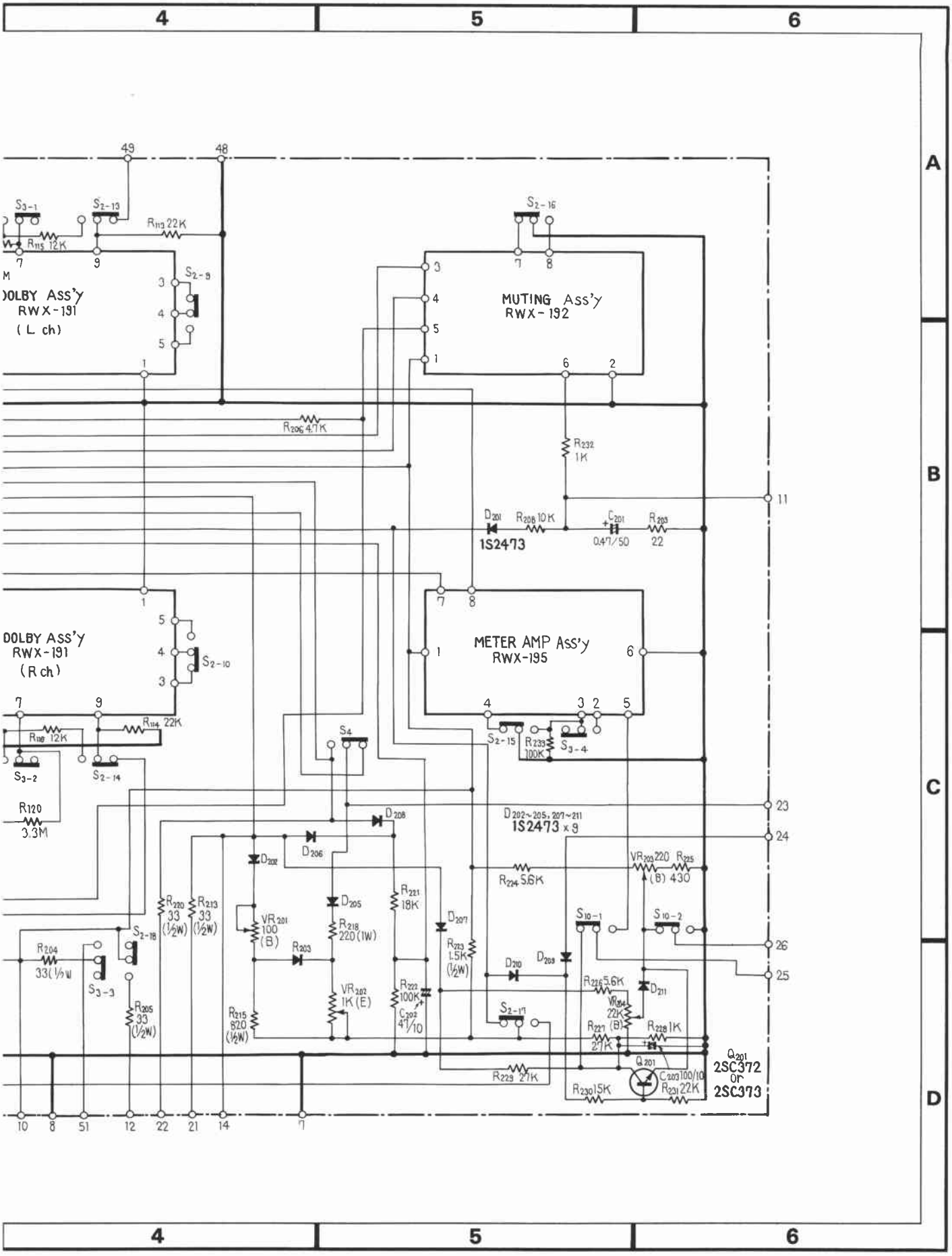
List of Changed Parts for Factory Modification

List of changed parts information will be furnished whenever necessary and you are requested to amend parts number in this parts list.

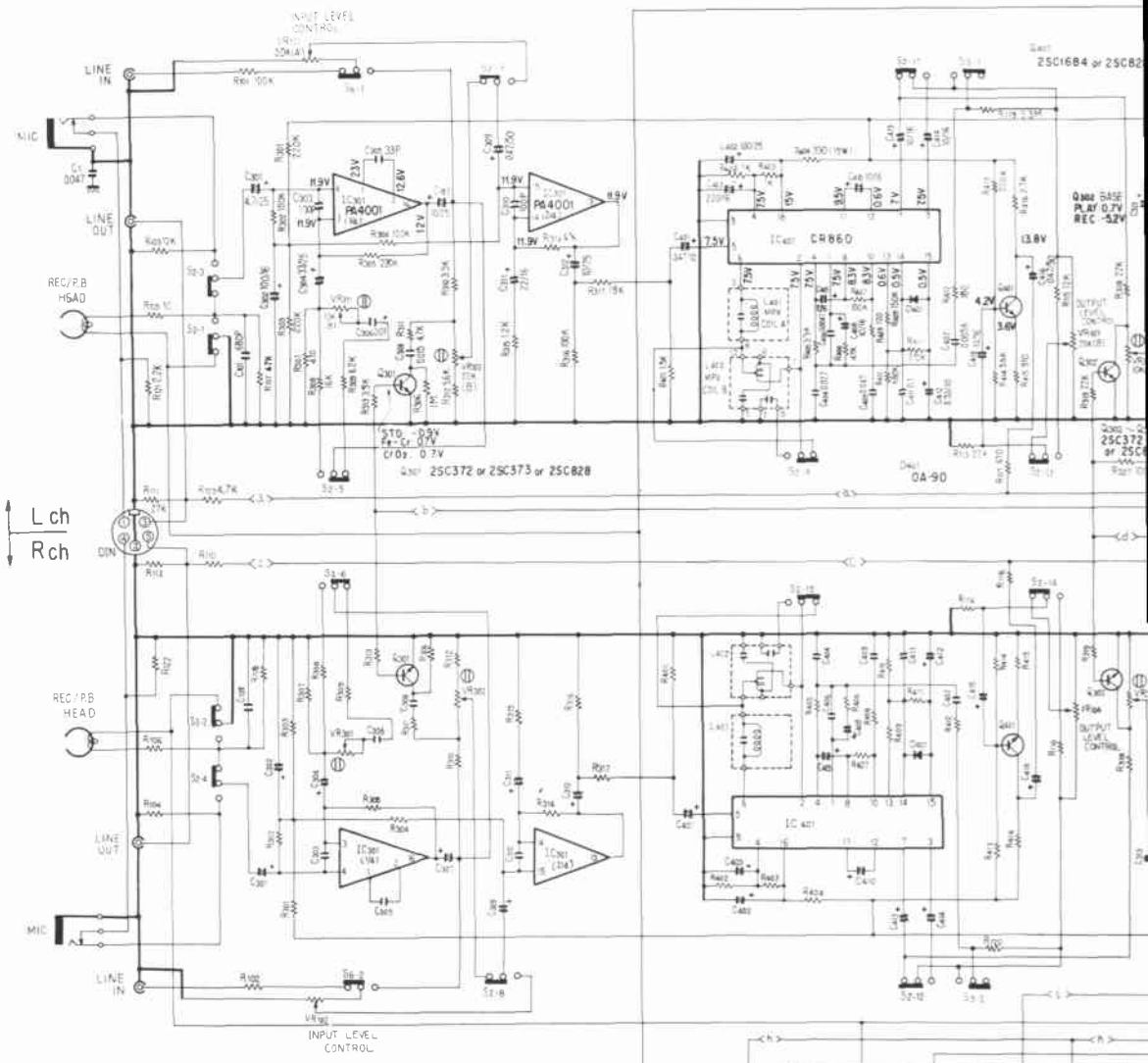
Symbol	Part No.	Description

11.4 MOTHER ASSEMBLY




4
5
6
A
B
C
D
MUTING Ass'y
RWX-192
METER AMP Ass'y
RWX-195
DOLBY ASS'y
RWX-191
(L ch)
DOLBY ASS'y
RWX-191
(R ch)
1S2473
D202~205, 207~211
1S2473 x 9
2SC372
or
2SC373
R206 4.7K
R232 1K
R208 10K
C201 0.47/50
R203 22
R233 100K
R224 5.6K
R225 (B) 430
R220 33 (½W)
R213 33 (½W)
VR201 100 (B)
R218 220 (1W)
R221 18K
R223 1.5K (½W)
R204 33 (½W)
R205 33 (½W)
R215 820 (½W)
VR202 1K (E)
R222 100K
C202 47/10
R226 5.6K
VR204 22K
R227 (B) 27K
R228 1K
R229 27K
R230 15K
C203 100/10
R231 22K
R120 3.3M
R116 12K
R115 12K
R113 22K
R114 22K

11.3 SCHEMATIC DIAGRAM



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

CAPACITORS :
IN μF UNLESS OTHERWISE
NOTED P : pF

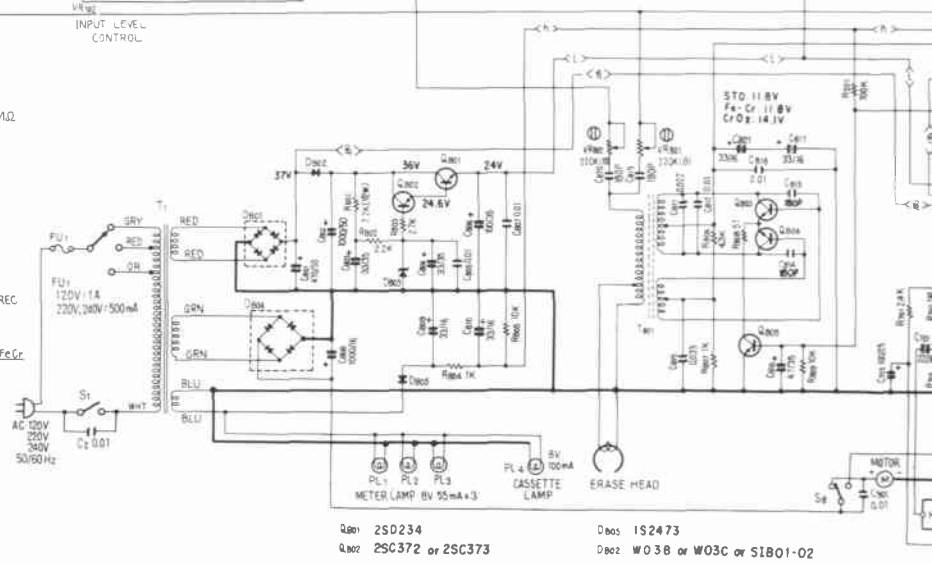
V : VOLTAGE AT NO INPUT SIGNAL

SWITCHES :

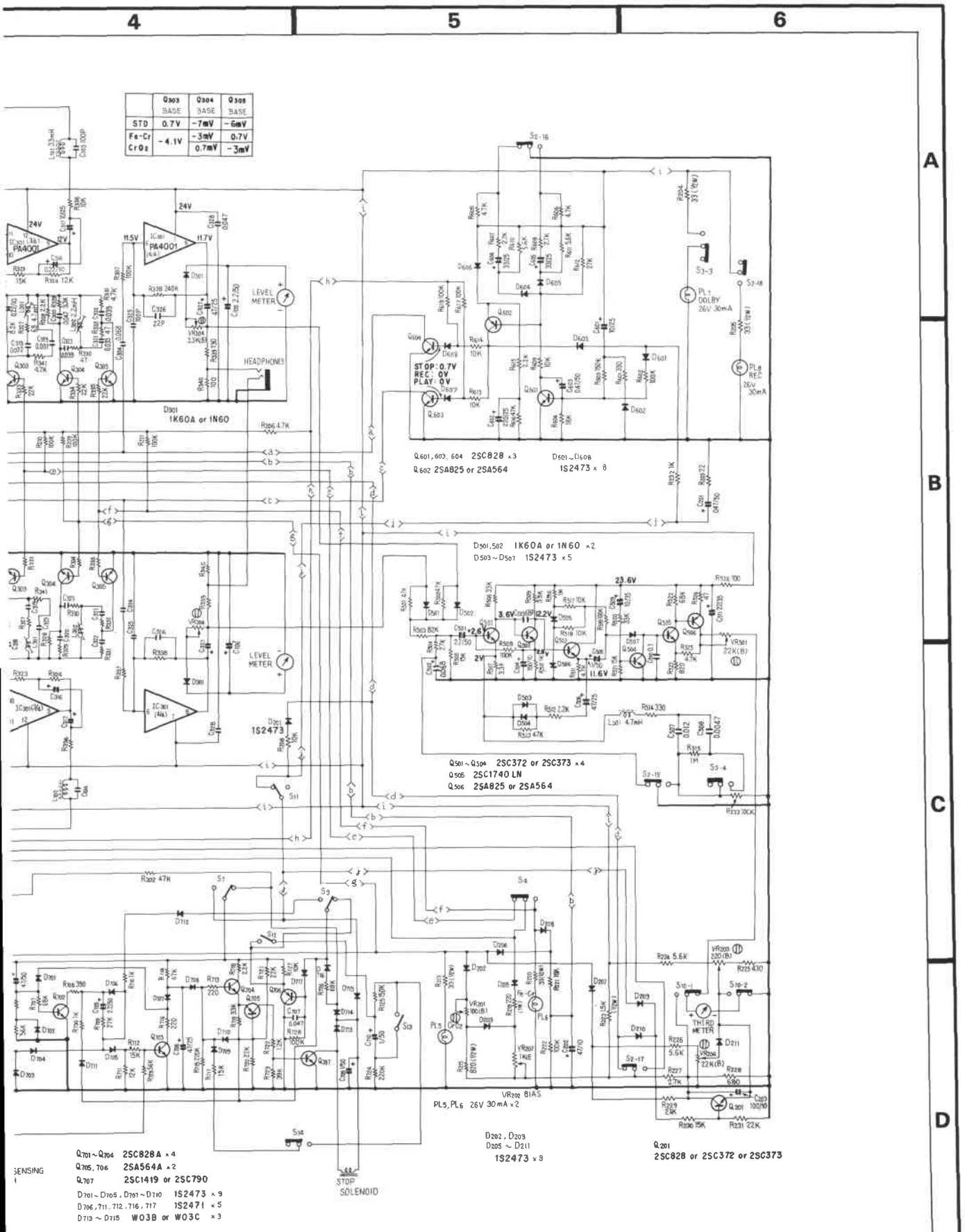
S1	POWER	OFF – ON
S2	REC/PLAYBACK SELECTOR	PLAYBACK–REC
S3	DOLBY NR	OFF – ON
S4	EQ	STD–Fe-Cr
S5	CrO2 TAPE AUTOSELECTOR	CrO2 – STD/Fe-Cr
S6	INPUT	LINE – MIC
S7	MUTING	OFF – ON
S8	MOTOR	OFF – ON
S9	PAUSE	OFF – ON
S10	THIRD METER	DYNAMIC LEVEL – BIAS
S11	REC	OFF – ON
S12	COUNTER	OFF – ON
S13	REW	OFF – ON
S14	MEMORY	OFF – ON

◍ : ADJUSTING MARK

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.



Q801	2SD234	D805	1S2473
Q802	2SC372 or 2SC373	D802	W03B or W03C or SIB01-02
Q803, Q804	2SC1166 or 2SC1214 ×2	D803	WZ-250
Q805	2SC372 or 2SC373	D801, D804	S1QB10×2


4
5
6
A
B
C
D
Q303 BASE
Q304 BASE
Q305 BASE
STD 0.7V -7mV -6mV
Fe-Cr 4.1V -3mV 0.7V
CrO2 0.7mV -3mV
24V
11.5V
11.7V
IC301 PA4001
LEVEL METER
HEADPHONES
D301 1K60A or 1N60
R206 4.7K
STOP: 0.7V
REC: 0V
PLAY: 0V
Q601,603,604 2SC828 x3
Q602 2SA825 or 2SA564
D601~D608 1S2473 x8
D501,502 1K60A or 1N60 x2
D503~D507 1S2473 x5
23.6V
3.6V
2.2V
2V
11.6V
+2.6
Q501~Q504 2SC372 or 2SC373 x4
Q505 2SC1740 LN
Q506 2SA825 or 2SA564
D201 1S2473
S11
S1
S3
S4
S5
S6
S7
S8
S9
S10-1
S10-2
S2-15
S2-16
S2-17
S2-18
S3-3
S3-4
PL1 DOLBY 26V 30mA
PL4 REC 26V 30mA
PL5,PL6 26V 30mA x2
VR202 BIAS
THRD METER
STOP SOLENOID
Q701~Q704 2SC828A x4
Q705,706 2SA564A x2
Q707 2SC1419 or 2SC790
D701~D705, D707~D710 1S2473 x9
D706,711,712,716,717 1S2471 x5
D713~D715 W03B or W03C x3
D202, D203
D205~D211
1S2473 x9
Q201
2SC828 or 2SC372 or 2SC373
SENSING

Parts List of Mother Assembly

ASSEMBLIES

Part No.	Description
RWF-084	Amplifier assembly
RWX-191	Dolby assembly
RWR-061	Power and oscillation assembly
RWX-192	Muting assembly
RWX-195	Meter amplifier assembly

SWITCHES AND COILS

Part No.	Symbol & Description	
RTF-033	L101, L102	Trap coil
RSB-017	S4, S6, S10	Rotary switch
RSB-018	S3	Rotary switch
RSH-027	S2	Slide switch
RSH-030		Slide switch M

CAPACITORS

Part No.	Symbol & Description	
RCE-021	C101, C102	680p/50V
RCE-003	C103, C104	100p/50V
CEA 2R2P 50	C105, C106	
CEA 0R47P 50	C201	
CEA 470P 10	C202	
CEA 101P 10	C203	

Note: When ordering resistors, convert
resistance value into code form,
then rewrite the part no. as bef

RESISTORS

Part No.	Symbol & Description		
RCP-041	VR201	Semi fixed	100-B
RCS-016	VR202	Variable resistor	
RCP-042	VR203	Semi fixed	220-B
C92-857	VR204	Semi fixed	22k-B
RD¼PS □□□ J	R101–122, R201–R203, R206–R212, R221, R222, R224–R231		
RD½PSF □□□ J	R204, R205, R213, R215, R220, R223		
RS1PSF □□□ J	R218		

SEMICONDUCTORS

Part No.	Symbol & Description
2SC372-Y (2SC373) (2SC828-R, S or Q)	Q201
1S2473	D201–D203, D205–D211

OTHERS

Part No.	Symbol & Description
RKB-013	Pin-jack assembly
RNK-396	Joint hook

11.5 MUTING ASSEMBLY (RWX-192)

Parts List

CAPACITORS

Part No.	Symbol & Description
CEA 100P 25	C601
CEA 221P 25	C602
CEA 0R47P 50	C603
CEA 330P 25	C604, C605

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

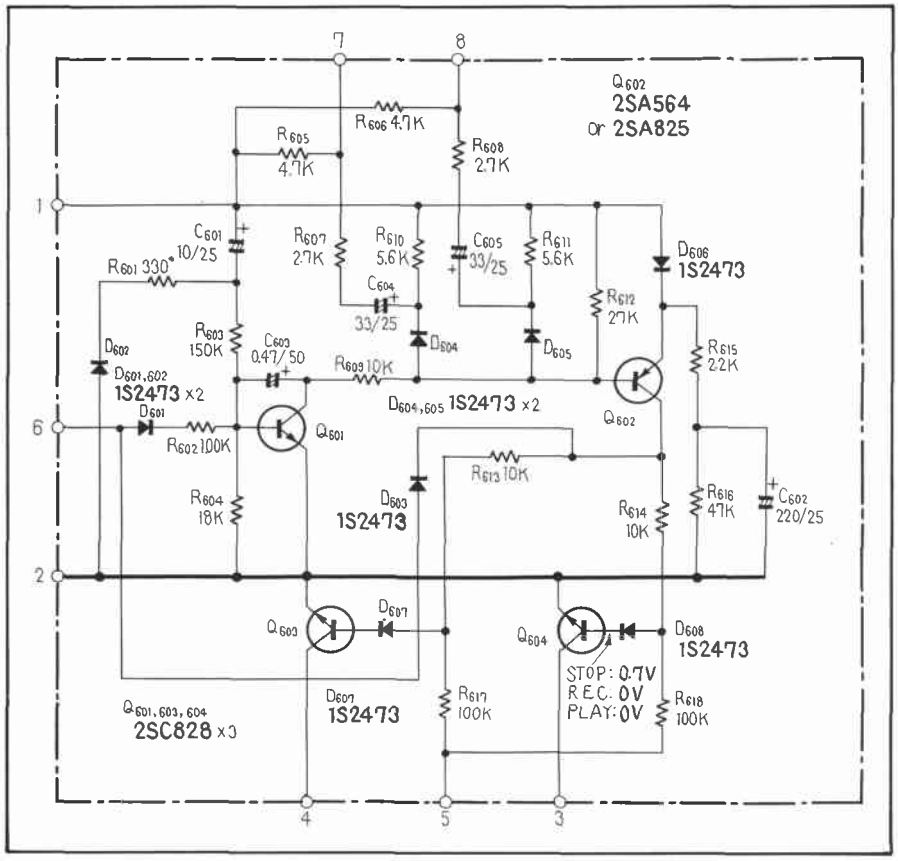
RESISTORS

Part No.	Symbol & Description
RD¼PS □□□ J	R601–R618

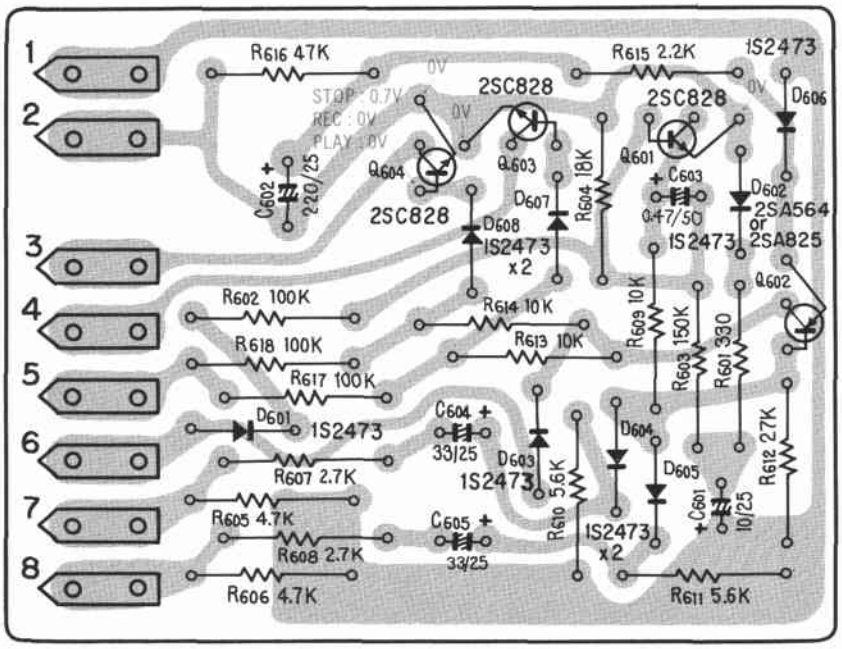
SEMICONDUCTORS

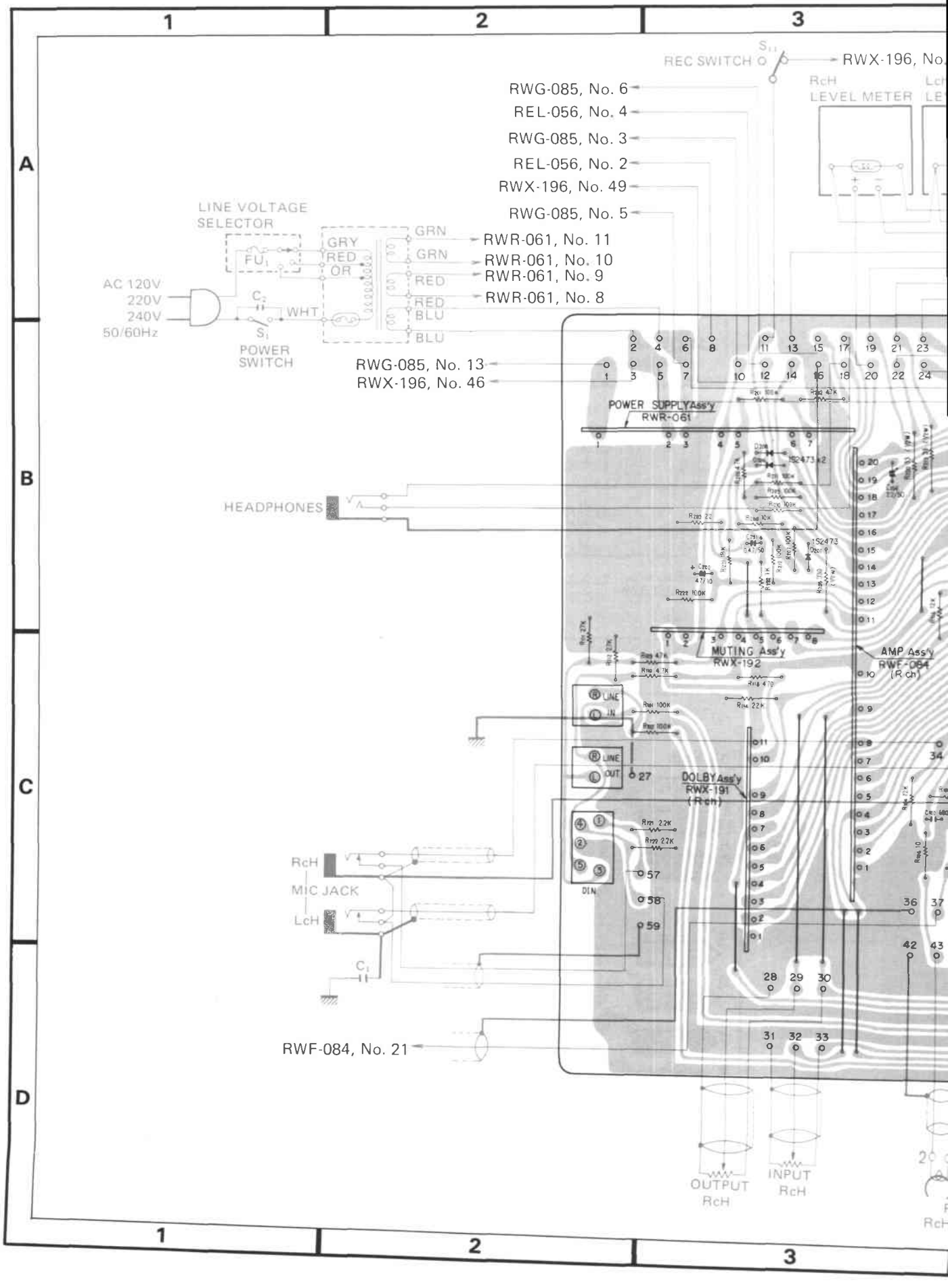
Part No.	Symbol & Description
2SC828-R, S or Q	Q601, Q603, Q604
2SA825-P or Q (2SA564-R, S or Q)	Q602
1S2473	D601–D608

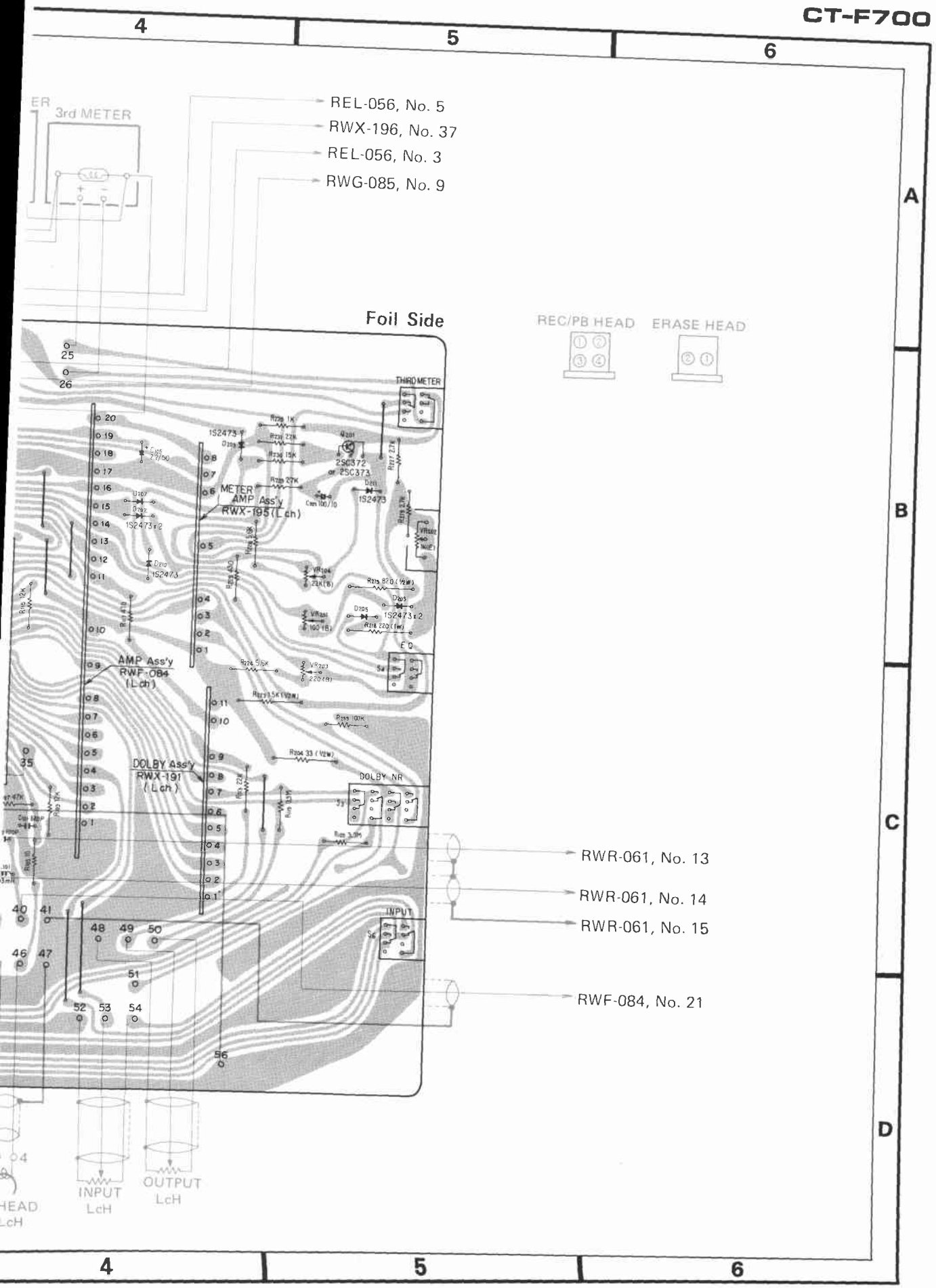
Muting assembly (RWX-192)



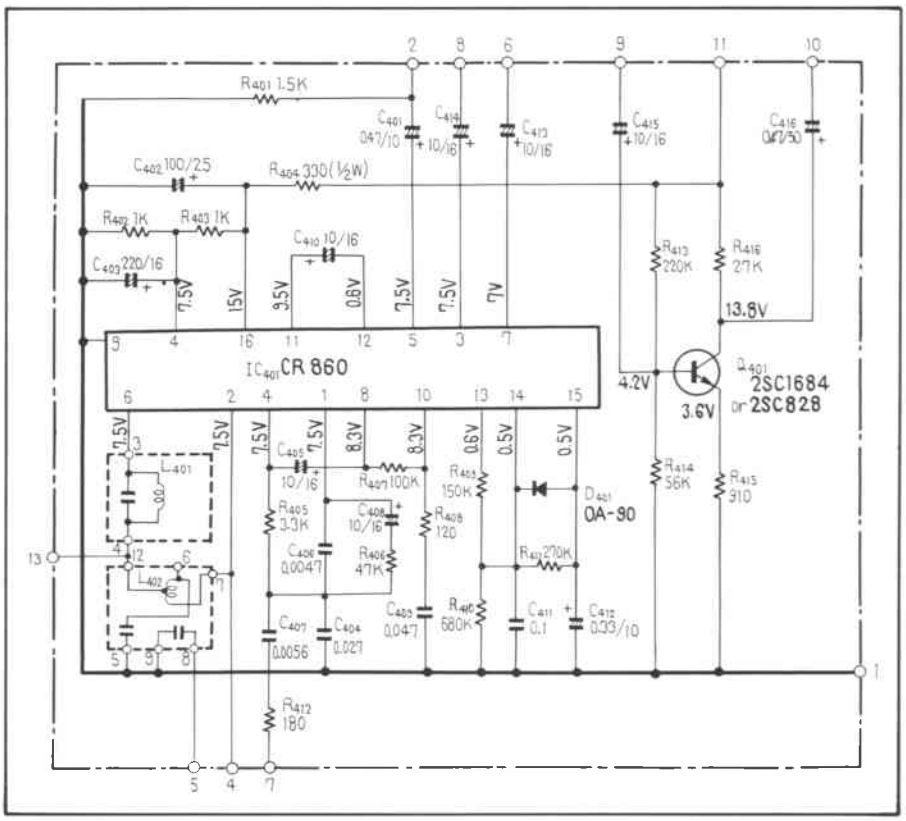
Foil Side



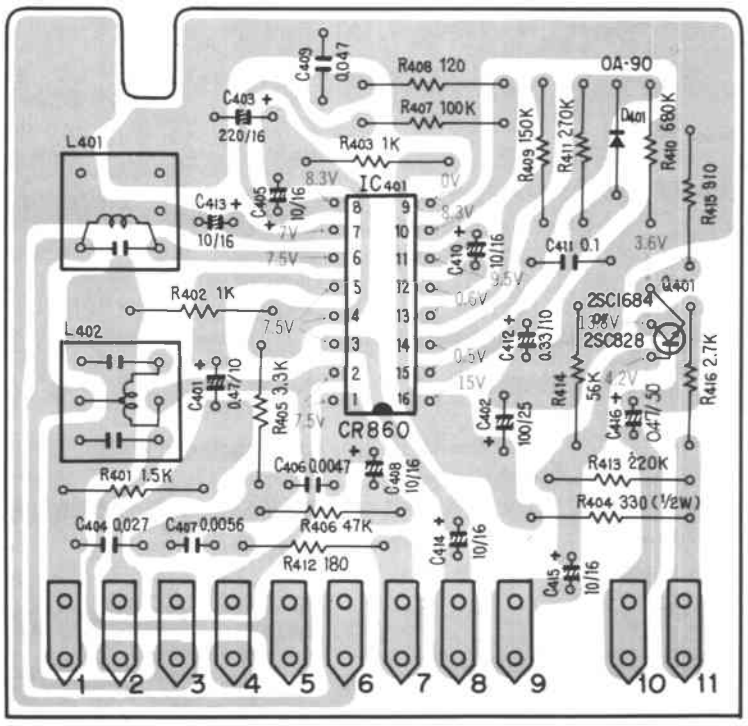

1
2
3
A
B
C
D
REC SWITCH
RWX-196, No.
RcH
LEVEL METER
RWG-085, No. 6
REL-056, No. 4
RWG-085, No. 3
REL-056, No. 2
RWX-196, No. 49
RWG-085, No. 5
LINE VOLTAGE
SELECTOR
AC 120V
220V
240V
50/60Hz
FU1
GRY
RED
OR
WHT
GRN
GRN
RED
RED
BLU
BLU
RWR-061, No. 11
RWR-061, No. 10
RWR-061, No. 9
RWR-061, No. 8
POWER
SWITCH
RWG-085, No. 13
RWX-196, No. 46
POWER SUPPLY Ass'y
RWR-061
HEADPHONES
MUTING Ass'y
RWX-192
AMP Ass'y
RWF-084
(R ch)
LINE
IN
LINE
OUT
DOLBY Ass'y
RWX-191
(R ch)
DIN
RcH
MIC JACK
LcH
RWF-084, No. 21
OUTPUT
RcH
INPUT
RcH


4
5
6
A
B
C
D
ER
3rd METER
REL-056, No. 5
RWX-196, No. 37
REL-056, No. 3
RWG-085, No. 9
Foil Side
REC/PB HEAD
ERASE HEAD
THIRD METER
METER AMP Ass'y RWX-195(Lch)
AMP Ass'y RWF-084 (Lch)
DOLBY Ass'y RWX-191 (Lch)
DOLBY NR
EQ
INPUT
RWR-061, No. 13
RWR-061, No. 14
RWR-061, No. 15
RWF-084, No. 21
INPUT LcH
OUTPUT LcH
HEAD LcH

11.6 DOLBY ASSEMBLY (RWX-191)



Foil Side



Parts List of Dolby Assembly (RWX-191)

COILS

Part No.	Symbol & Description	
RTF-029	L401	MPX coil A
RTF-030	L402	MPX coil B

CAPACITORS

Part No.	Symbol & Description
CSSA 0R47M 10	C401
CEA 101P 25	C402
CEA 221P 16	C403
CQMA 273K 50	C404
CEA 100P 16	C405, C408, C410, C413–C415
CQMA 472K 50	C406
CQMA 562K 50	C407
CQMA 473K 50	C409
CQMA 104K 50	C411
CSSA 0R33M 10	C412
CEA 0R47P 25	C416

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

RESISTORS

Part No.	Symbol & Description
RD¼PS □□□ J	R401–R403, R405–R416
RD½PSF □□□ J	R404

SEMICONDUCTORS

Part No.	Symbol & Description
CR860	IC401
2SC1684-R or S (2SC828H-R or S)	Q401
OA90	D401

11.7 AMPLIFIER ASSEMBLY (RWF-084)

Parts List

COILS

Part No.	Symbol & Description	
RTF-031	L301	Peaking coil
RTF-037	L302	Peaking coil

CAPACITORS

Part No.	Symbol & Description	
RCH-017	C301	4.7/25V
CEA 101P 16	C302	
CCDSL 101K 50	C303, C310, C325	
RCH-036	C304	33/16V
CCDSL 330K 50	C305	
CQMA 103K 50	C306	
CEA 100P 25	C307, C317	
CQMA 153K 50	C308	
CEA R47P 50	C309	
CEA 220P 16	C311	
CEA 010P 50	C313	
CEA 330P 16	C314	
CEA 100P 16	C315	
CSSA 0R22M 10	C316, C318	
CQMA 223J 50	C319	
CQMA 473K 50	C320	
CQMA 333K 50	C321	
CQMA 393K 50	C322, C323	
CQMA 683K 50	C324	
CCDSL 220K 50	C326	
CEA 470P 25	C327	
CKDYF 473Z 50	C328	
CQMA 102K 50	C329	

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

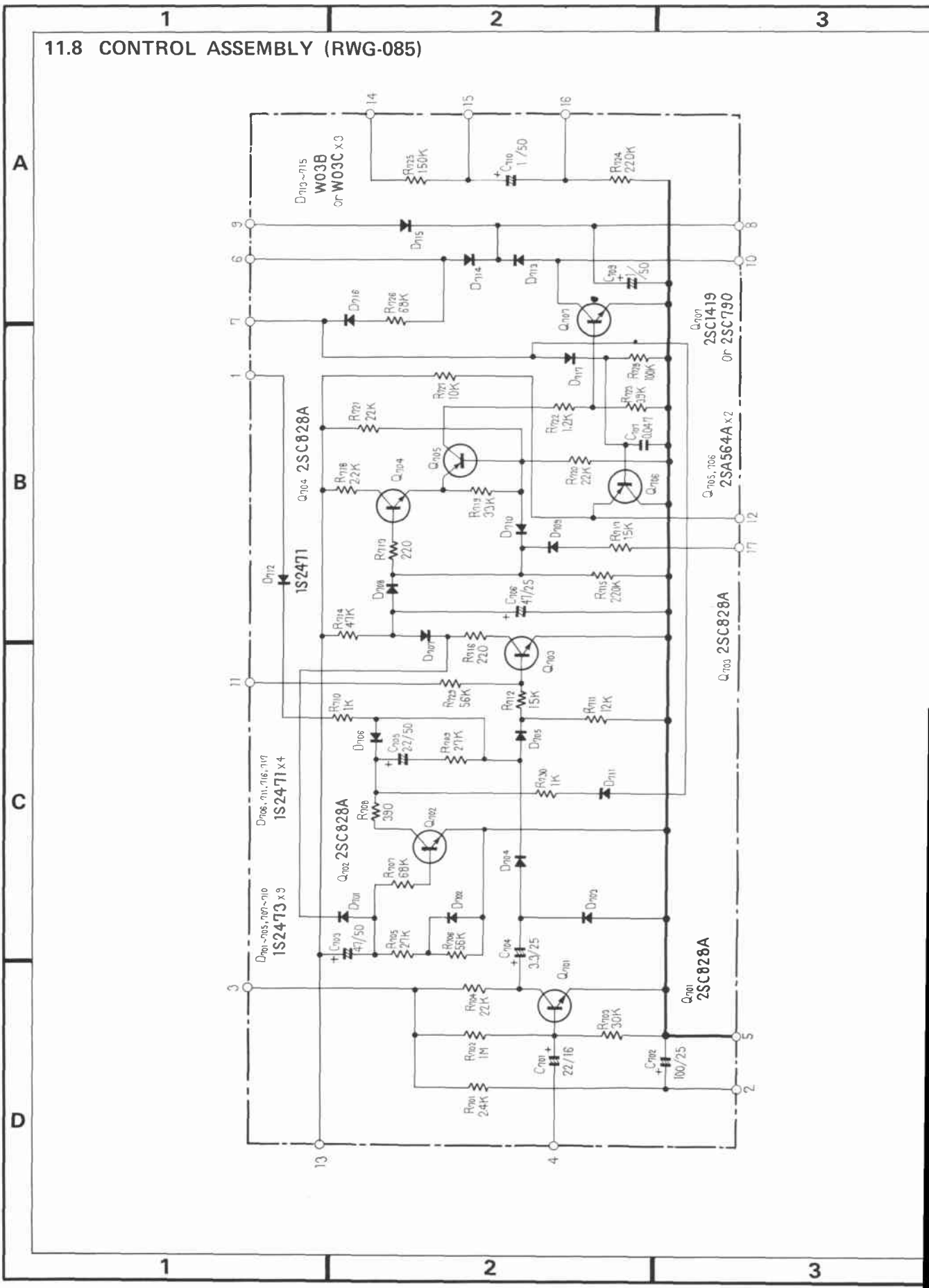
RESISTORS

Part No.	Symbol & Description	
RCP-032	VR301, VR303	Semi fixed 10k-B
RCP-009	VR302	Semi fixed 22k-B
RCP-039	VR304	Semi fixed 3.3k-B
RD¼PS □□□ J	R301–R305, R307–R341	
RD¼VS □□□ J	R306	

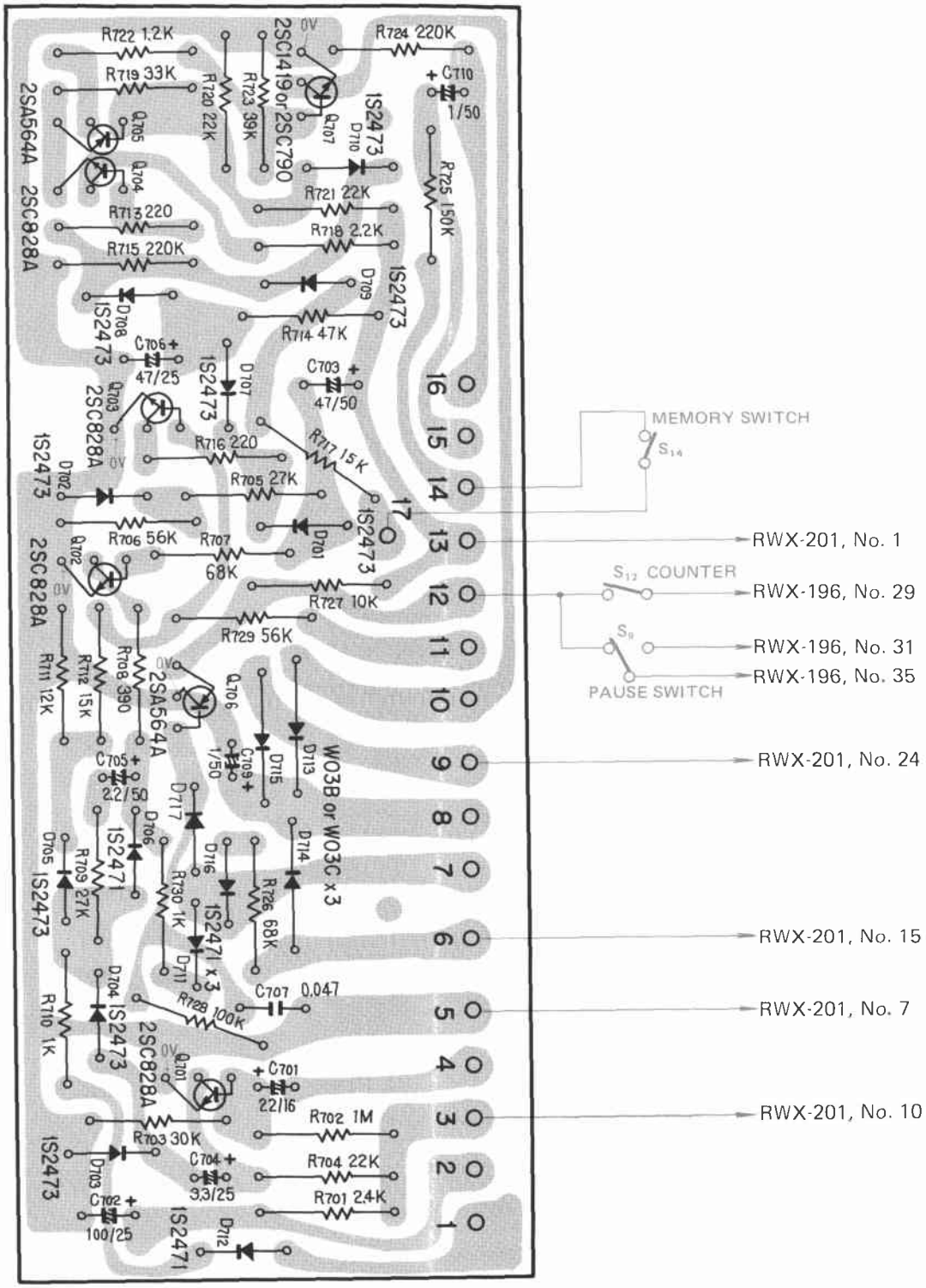
SEMICONDUCTORS

Part No.	Symbol & Description
PA 4001	IC301
2SC372-Y (2SC373) (2SC828-R, S or Q)	Q301–Q305
1K60A or 1N60	D301

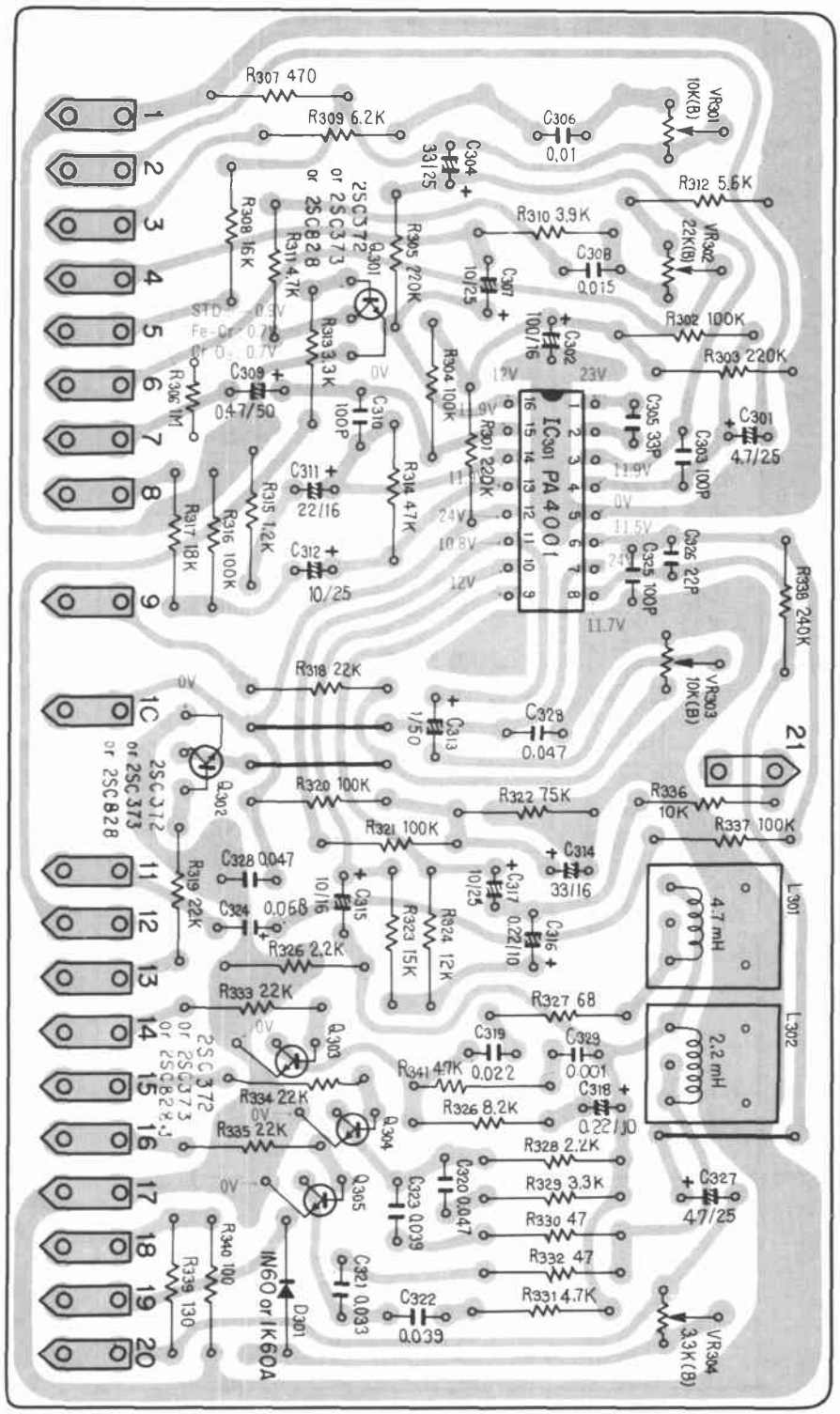
11.8 CONTROL ASSEMBLY (RWG-085)

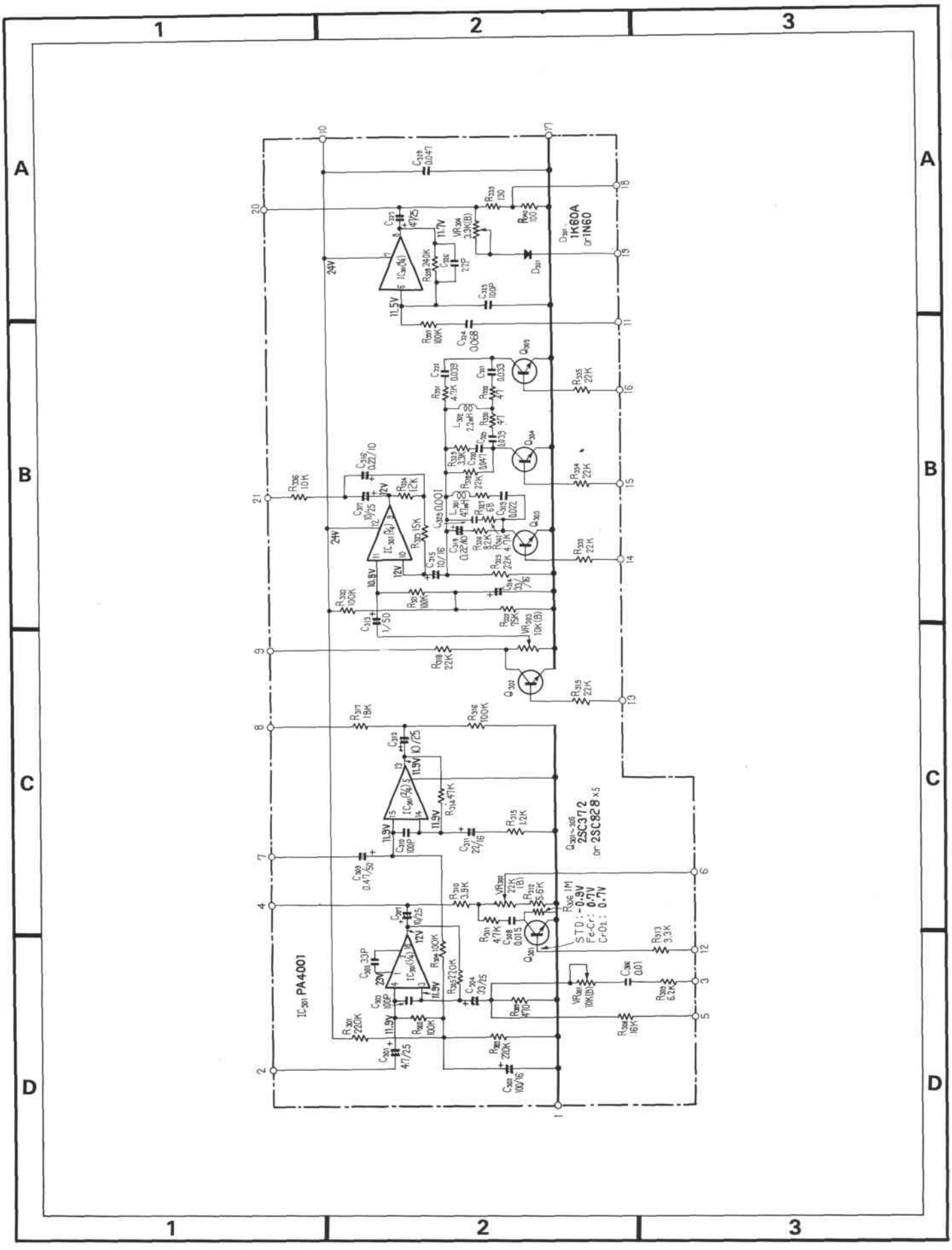


Foil Side


1
2
3
A
B
C
D
R722 1.2K
R719 33K
R720 22K
R723 39K
2SC1419 or 2SC790
0V
R724 220K
+ C710 1/50
Q705
Q704
2SA564A 2SC828A
R713 220
R715 220K
R721 22K
R718 2.2K
R725 150K
D710 1S2473
D709 1S2473
D708 1S2473
R714 47K
C706 + 47/25
C703 + 47/50
D707 1S2473
Q703 2SC828A
R716 220
R717 15K
D702 1S2473
R705 27K
R706 56K
R707 68K
D701 1S2473
Q702 2SC828A
R727 10K
R729 56K
R711 12K
R712 15K
R708 390
Q706 2SA564A
C709 + 1/50
C705 + 22/50
D715
D713
W03B or W03C x 3
D717
D716
D714
D705 1S2473
D706 1S2471
R709 27K
R730 1K
R726 68K
D711 1S2471 x 3
C707 0.047
R728 100K
R710 1K
D704 1S2473
Q701 2SC828A
C701 + 22/16
R702 1M
R703 30K
C704 + 3.3/25
R704 22K
R701 2.4K
D703 1S2473
C702 + 100/25
D712 1S2471
16
15
14
17
13
12
11
10
9
8
7
6
5
4
3
2
1
MEMORY SWITCH
S14
S12 COUNTER
S9
PAUSE SWITCH
RWX-201, No. 1
RWX-196, No. 29
RWX-196, No. 31
RWX-196, No. 35
RWX-201, No. 24
RWX-201, No. 15
RWX-201, No. 7
RWX-201, No. 10

Foil Side


R307 470
R309 6.2K
C306 0.01
VR301 10K(B)
C304 33/25
R312 5.5K
R310 3.9K
VR302 22K(B)
C308 0.015
R308 16K
R311 4.7K
2SC372 or 2SC373 or 2SC828
Q301
R305 220K
C307 10/25
C302 100/16
R302 100K
R303 220K
R313 3.3K
R304 100K
C309 0.47/50
R306 1M
C310 100P
C305 33P
C303 100P
C301 4.7/25
IC301 PA4001
R301 220K
C311 22/16
R314 47K
R315 1.2K
R317 18K
R316 100K
C312 10/25
C326 22P
C325 100P
R338 240K
VR303 10K(B)
R318 22K
C313 1/50
C328 0.047
R320 100K
Q302
R322 75K
R336 10K
R337 100K
R321 100K
C314 33/16
C317 10/25
C328 0.047
C315 10/16
C324 0.068
R319 22K
R323 15K
R324 12K
C316 0.22/10
L301 4.7 mH
L302 2.2 mH
R325 2.2K
R333 22K
R327 68
C319
C329 0.001
R341 47K 0.022
Q303
R334 22K
C318 0.22/10
R326 8.2K
Q304
R335 22K
R328 2.2K
C320 0.047
C327 47/25
R329 3.3K
Q305
C323 0.039
R330 47
R340 100
R332 47
R339 130
C321 0.033
R331 4.7K
C322 0.039
D301 IN60 or 1K60A
VR304 3.3K(B)
A
B
C
D
1
2
3


1
2
3
A
B
C
D
IC301 PA4001
2SC3772
or 2SC828 x5
1K60A
or IN60
STD : - 0.9V
Fe-Cr : 0.7V
CrO2 : 0.7V

Parts List

CAPACITORS

Part No.	Symbol & Description
CEA 220P 16	C701
CEA 101P 25	C702
CEA 470P 50	C703
CEA 3R3P 25	C704
CEA 2R2P 50	C705
CEA 470P 25	C706
CQMA 473K 50	C707
CEA 010P 50	C709, C710

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

RESISTORS

Part No.	Symbol & Description
RD¼PS □□□ J	R701–R730

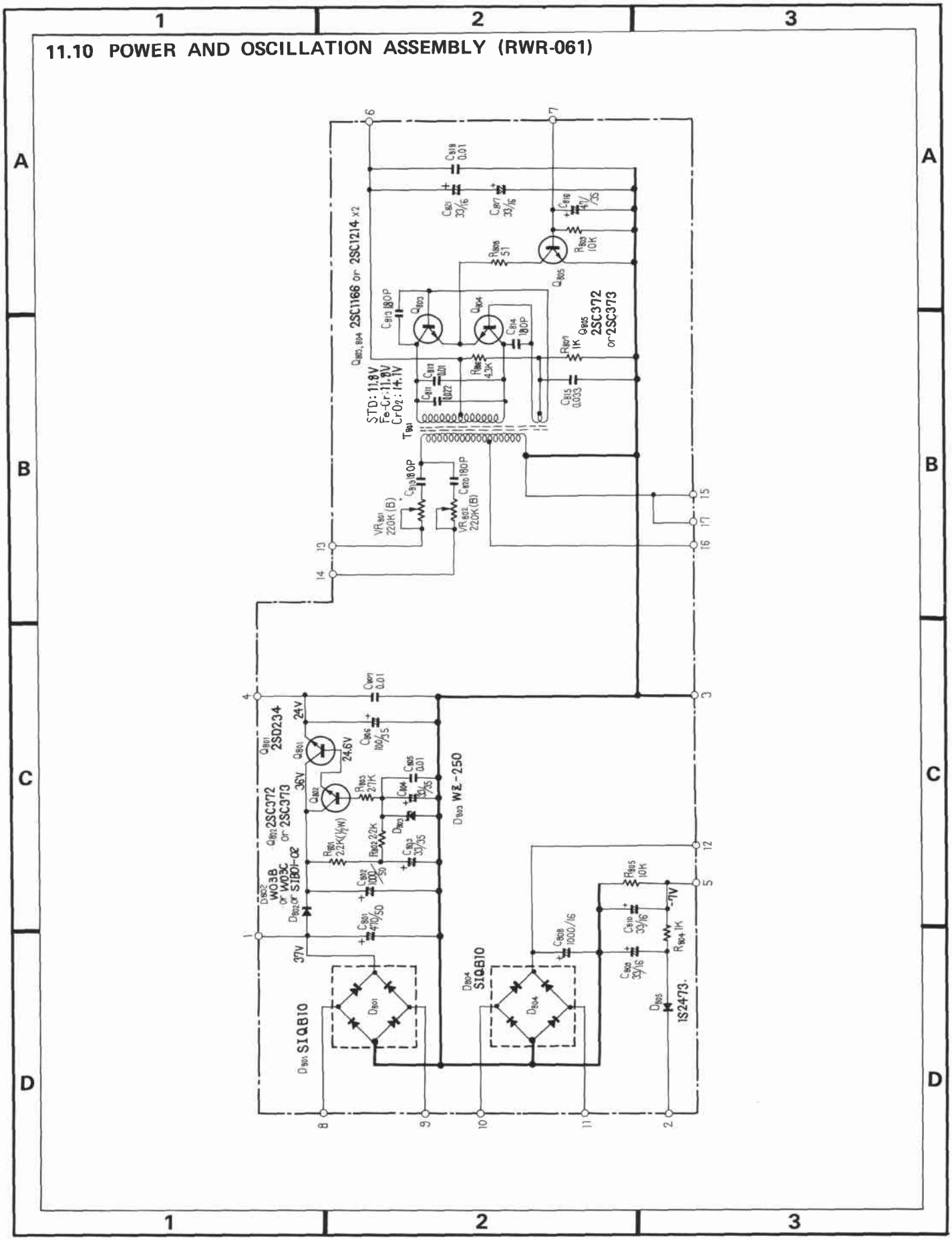
SEMICONDUCTORS

Part No.	Symbol & Description
2SC828A-R or S	Q701–Q704
2SA564A-R or S	Q705, Q706
2SC1419-C T (2SC790-Y)	Q707
1S2473	D701–D705, D707–D710
1S2471	D706, D711, D712, D716, D717
W03B or W03C	D713–D715

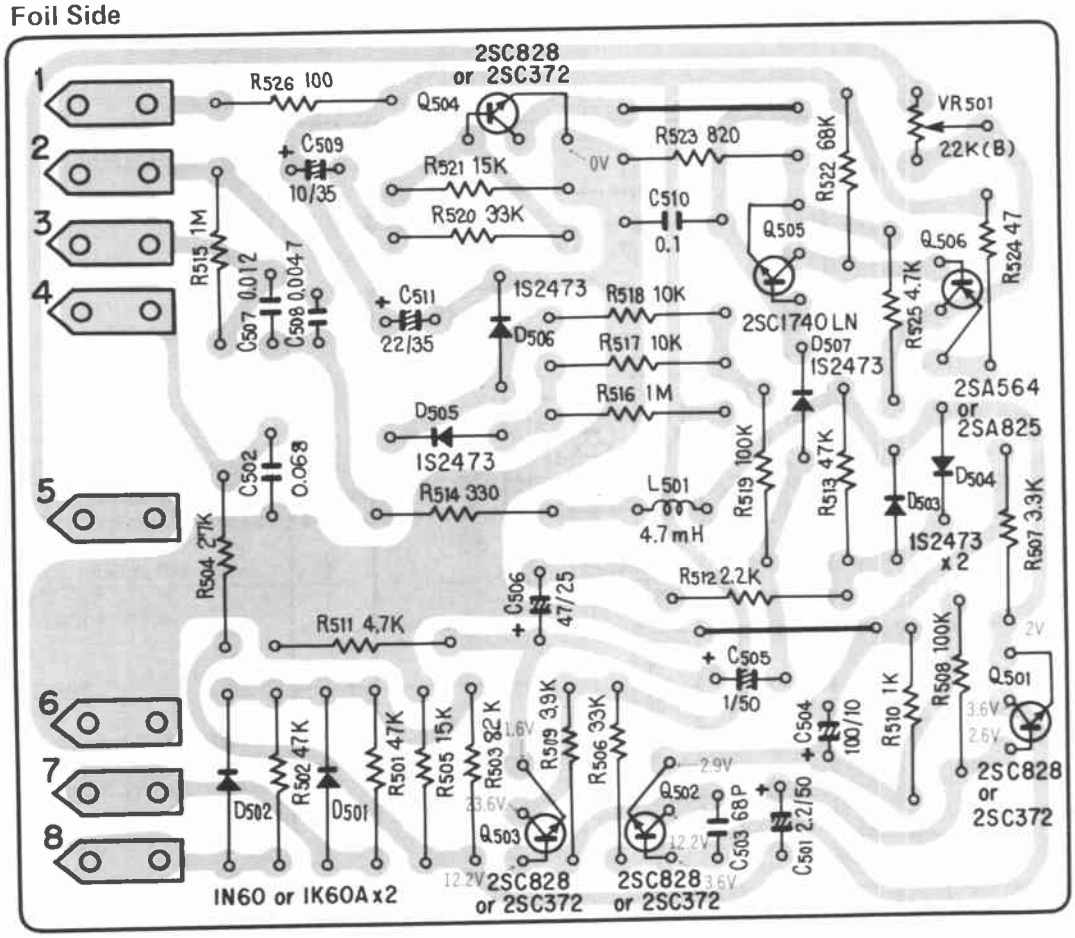
List of Changed Parts for Factory Modification

Symbol	Part No.	Description

11.10 POWER AND OSCILLATION ASSEMBLY (RWR-061)



Foil Side



Parts List

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

COIL

Part No.	Symbol & Description	
RTF-039	L501	Peaking coil

CAPACITORS

Part No.	Symbol & Description
CEA 2R2P 50	C501
CQMA 683K 50	C502
CCDSL 680K 50	C503
CEA 101P 10	C504
CEA 010P 50	C505
CEA 470P 25	C506
CQMA 123K 50	C507
CQMA 472K 50	C508
CEA 100P 35	C509
CQMA 104K 50	C510
CEA 220P 35	C511

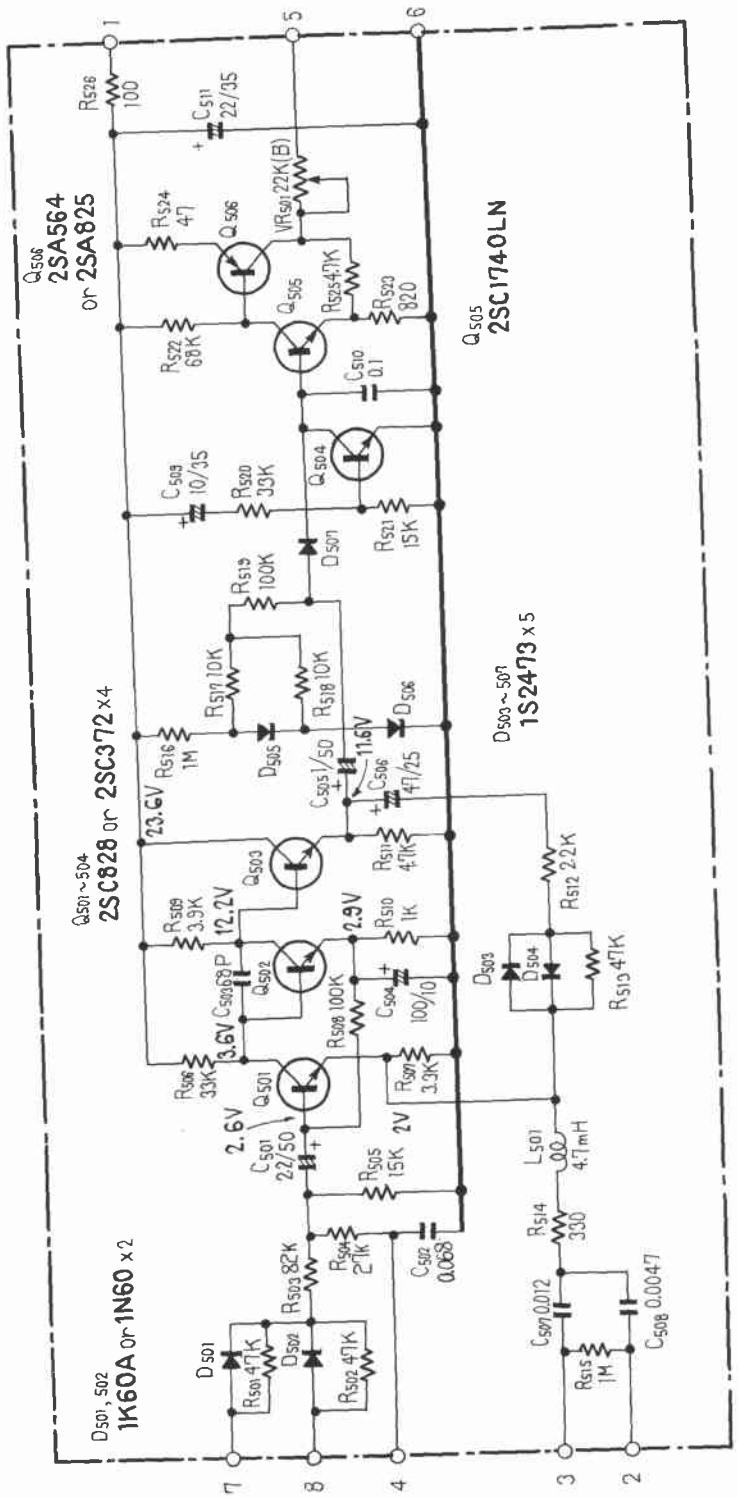
RESISTORS

Part No.	Symbol & Description	
RCP-009	VR501	Semi fixed
RD¼PS □□□ J	R501–R526	

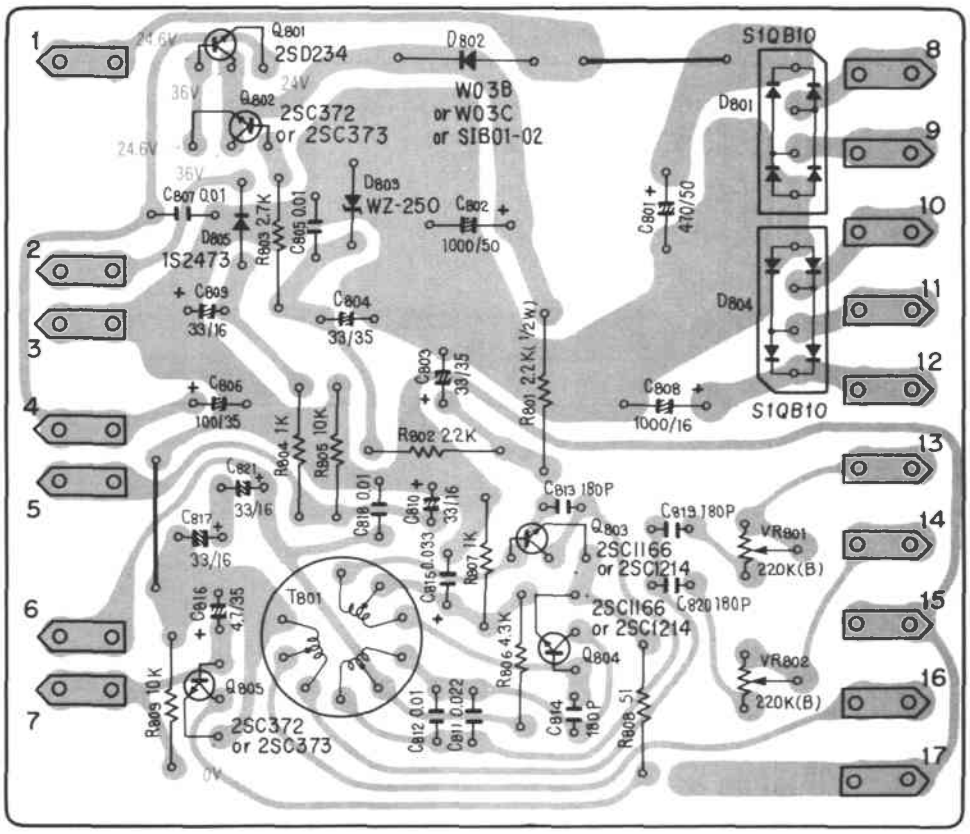
SEMICONDUCTORS

Part No.	Symbol & Description
2SC372-Y (2SC373) (2SC828-R, S or Q)	Q501–Q504
2SC1740LN-S	Q505
2SA825-P or Q (2SA564-R, S or Q)	Q506
1K60A or 1N60	D501, D502
1S2473	D503–D507

11.9 METER AMPLIFIER ASSEMBLY (RWX-195)



Foil Side



Parts List

COIL

Part No.	Symbol & Description	
T64-001	T801	Oscillation coil

CAPACITORS

Part No.	Symbol & Description	
CEA 471P 50	C801	
CEA 102P 50	C802	
CEA 330P 35	C803, C804	
CKDYF 103Z 50	C805, C807, C818	
CEA 101P 35	C806	
CEA 102P 16	C808	
CEA 330P 16	C809, C810, C817, C821	
CQPA 223K 50	C811	
CQMA 103K 50	C812	
CCDSL 181K 50	C813, C814	
CQMA 333K 50	C815	
CEA 4R7P 35	C816	
RCE-025	C819, C820	Polystyren 180p/50V

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

RESISTORS

Part No.	Symbol & Description	
RCP-040	VR801, VR802	Semi fixed 220k-B
RD¼PSF □□□ J	R801	
RD¼PS □□□ J	R802–R809	

SEMICONDUCTORS

Part No.	Symbol & Description
2SD234-O or R	Q801
2SC372-Y (2SC373)	Q802, Q805
2SC1166-O or Y (2SC1214-B or C)	Q803, Q804
S1QB10	D801, D804
W03B or W03C (SIB 01-02)	D802
WZ-250	D803
1S2473	D805

1. CONTRAST OF MISCELLANEOUS PARTS LIST

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

ASSEMBLIES

Symbol	Description	Part No.				
		D type	D/G type	KU type	KC type	HG type
	Fuse assembly	.....	.....	.....	.....	RWX-202
	Amplifier assembly	RWF-084	RWF-084	RWF-085	RWF-085	RWF-082
	Dolby assembly	RWX-191	RWF-191	RWX-200	RWX-200	RWX-200
	Power and oscillation assembly	RWR-061	RWR-061	RWR-063	RWR-066	RWR-066
	Muting assembly	RWX-192	RWX-192	RWX-192	RWX-192	RWX-192
	Meter amplifier assembly	RWX-195	RWX-195	RWX-195	RWX-195	RWX-195

TRANSFORMER

Symbol	Description	Part No.				
		D type	D/G type	KU type	KC type	HG type
T_1	Power transformer	RTT-132	RTT-132	RTT-131	RTT-138	RTT-133

SWITCHES

Symbol	Description	Part No.				
		D type	D/G type	KU type	KC type	HG type
S_1	Power switch	RSA-020	RSA-020	RSA-021	RSA-021	RSA-022

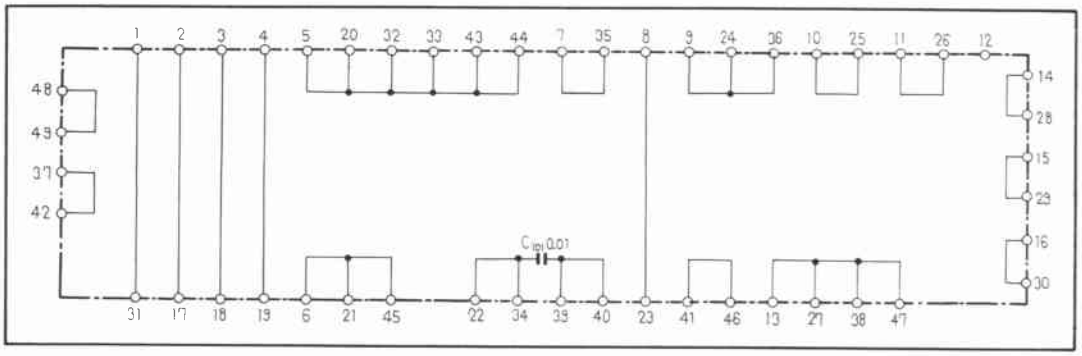
CAPACITOR

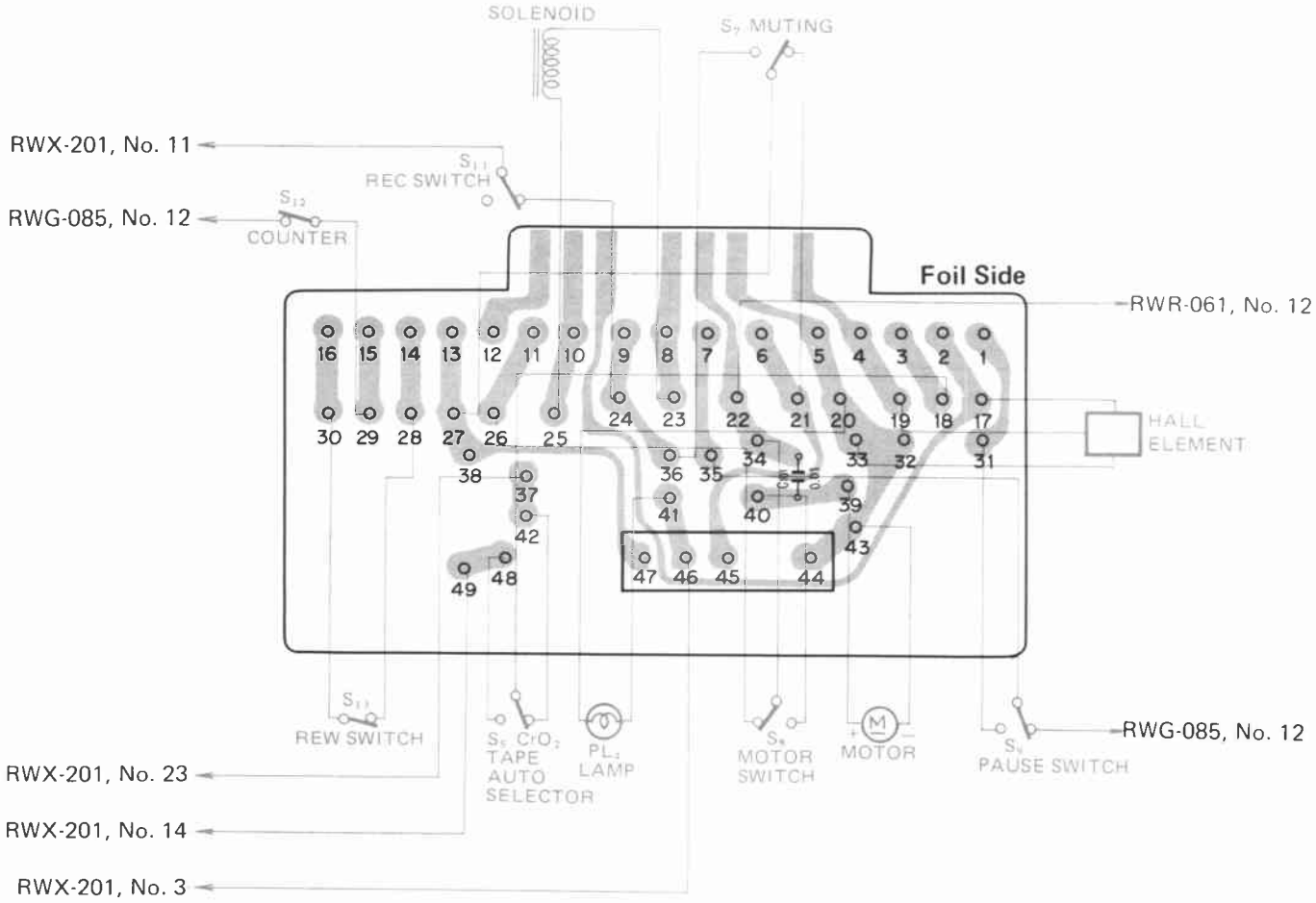
Symbol	Description	Part No.				
		D type	D/G type	KU type	KC type	HG type
	Capacitor 0.01	C43-003	C43-003	.....	.....	.....

FUSES

Symbol	Description	Part No.				
		D type	D/G type	KU type	KC type	HG type
	0.5A	REK-048	REK-048	.....	.....	.....
	1A	REK-051	REK-051	.....	.....	.....
	T500mA	.....	.....	.....	.....	REK-049

11.11 CONNECTION ASSEMBLY (RWX-196)





Parts List

CAPACITOR

Part No.	Symbol & Description
CQMA 103K 50	C101

ADDITIONAL

Service Manual

PIONEER

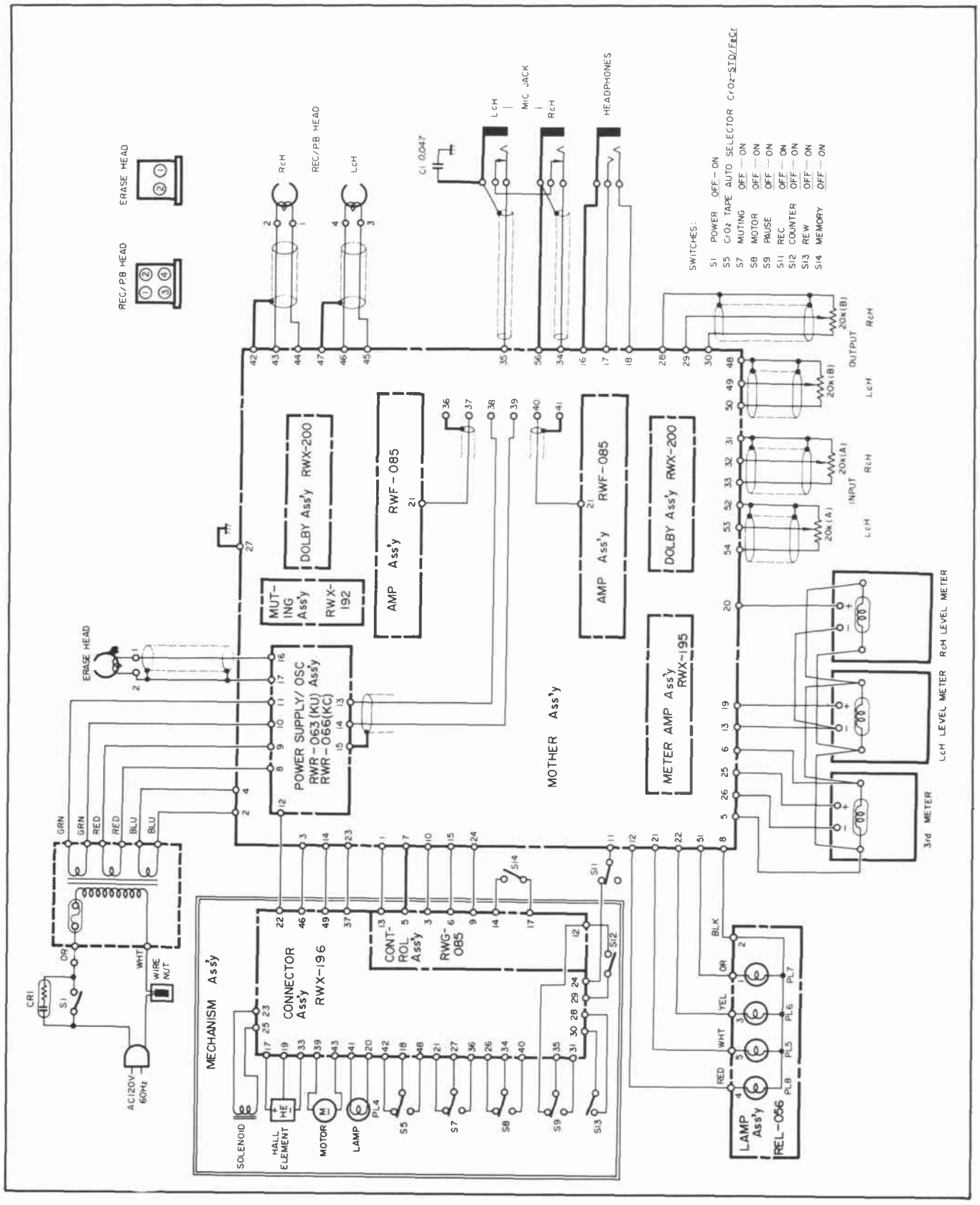
CASSETTE TAPE DECK

CT-F700 KC,KU,HG

- **This additional service manual is applicable to the CT-F700/KU, KC and HG. Connections, operating, and adjustments are basically the same as CT-F700/D, D/G.**
- **The parts which are different from the CT-F700/D, D/G are covered in this additional service manual. Please use this manual together with the CT-F700/D, D/G service manual when ordering parts and repair.**

CONTENTS

2.3 CONNECTION DIAGRAM



OTHERS

Symbol	Description	Part No.				
		D type	D/G type	KU type	KC type	HG type
	Power cord	RDG-019	RDG-019	RDG-013	RDG-021	.....
	Spark killer	.....	.....	RWX-109	RWX-150	.....
	Capacitor sleeve A	REC-150	REC-150	.....	.....	.....
	Capacitor sleeve D	.....	.....	REC-250	REC-250	.....
	Line voltage selector (Switchable 3 positions)	RKR-020	RKR-020	.....	.....	.....
	Line voltage selector (Switchable 2 position)	.....	.....	.....	.....	RKR-019
	Front panel assembly	RXX-221	RXX-221	RXX-223	RXX-223	RXX-221
	AC socket (INLET)	.....	.....	.....	.....	RKP-014
	Wire nut	.....	.....	RBM-004	RBM-004	.....

PACKING MATERIALS AND FURNISHED PARTS

Symbol	Description	Part No.				
		D type	D/G type	KU type	KC type	HG type
	Packing case	RHG-210	RHG-211	RHG-216	RHG-215	RHG-218
	Spacer	.....	RHC-077	.....	.....	.....
	Spacer A	.....	RHC-071	.....	.....	.....
	Spacer B	.....	RHC-072	.....	.....	.....
	0.5A Fuse	REK-048	REK-048	.....	.....	.....
	1A Fuse	REK-051	REK-051	.....	.....	.....
	Vinyl bag (for fuse)	H46-854	H46-854	.....	.....	.....
	Operating instructions (English)	RRB-085	RRB-088	RRB-087	RRB-087	RRB-088
	Operating instructions (German/French)	.....	.....	.....	.....	RRD-027

2. CT-F700/KU

2.1 CIRCUIT DESCRIPTION

Although the CT-F700/KU and KC, and the CT-F700/D and D/G employ the same basic circuitry, there are differences in the power supply circuit (power supply and oscillation assembly) and Dolby assembly. The Dolby Processor is described here in detail, while all other circuits are discussed under Circuit Descriptions starting on page 13.

Dolby Processor

Both the CT-F700/KU and CT-F700/KC are equipped with a Dolby Processor IC (PA4002) recently developed by Pioneer. Unlike earlier ICs (such as the CR860 employed in the CT-F700/D and D/G), the PA4002 makes use of a voltage-controlled amplifier instead of variable resistance elements. As can be seen from the block diagram, the same Dolby Processor circuit is used during recording and playback modes.

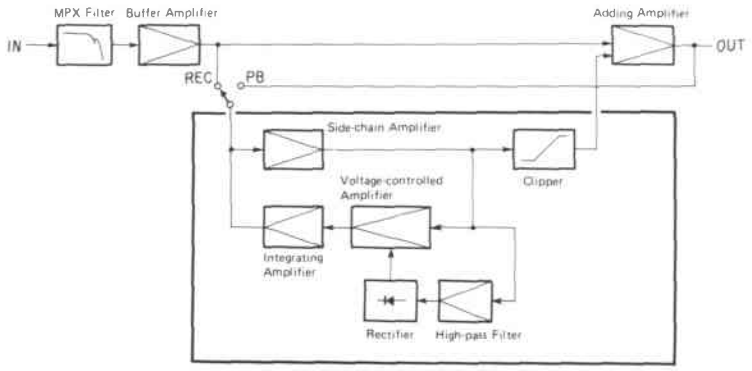
Recording Mode Operation

1. Input signals are first applied to the MPX filter where the FM broadcasting station's pilot signal is removed, and where an 85kHz bias trap is employed to prevent mis-operation of the Dolby noise reduction system.
2. From the MPX filter, the signals are passed on to the buffer amplifier whose output is divided into 2 routes. The main signal is passed directly to the adding amplifier, while the sub-signal is passed via the side chain amplifier and clipper before being recombined with the main signal in the adding amplifier.
3. Besides being applied to the clipper, the side chain amplifier output is also passed via the voltage controlled amplifier and integrating amplifier back to the side chain amplifier input, forming a variable filter circuit.
4. In addition to the above, the side chain amplifier output is further applied to a high-pass filter and rectifier where it is converted into a DC voltage for control of the voltage controlled amplifier.
5. When the level of the signal passed through the high-pass filter is low, the rectifier output DC voltage will be almost "0", resulting in a minimum turnover frequency for the variable filter. The level of the adding amplifier output will thus be 10dB (above 5kHz) higher than the level of the main signal, thereby contracting the dynamic range.
6. The clipper produces a time lag in the signal applied to the voltage-controlled amplifier, and since it is not capable of responding to sudden level changes, no uncontrolled signals iwll be applied to the adding amplifier.
7. When the level of the signal passed through the high-pass filter is high, the rectifier output DC voltage will also be high, and the variable filter turnover frequency will be increased. The sub-signal level will therefore become almost "0", so there will be no contraction of the dynamic range.

Playback Mode Operation

Although each section of the Dolby Processor operates in the same way as during recording mode, the sub-signal is derived from the output of the adding amplifier. And since the adding amplifier is an inversion amplifier (where output phase is opposite to input phase), the sub-signal will be of opposite phase, thereby forming an NFB loop.

In Dolby B noise reduction systems, contraction and expansion occur within a fixed frequency range determined by the variable filter circuit. And, in order to achieve perfectly symmetrical operation, it is necessary to fix a reference level for the operational point. This is the so-called "Dolby level", below which no contraction and expansion is performed



2.2 MISCELLANEOUS PARTS LIST

NOTE:

- *When ordering resistors, first covert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω——56 ×10¹——561 . . . . . RD¼PS 5 6 1 J
47kΩ——47 ×10³——473 . . . . . RD¼PS 4 7 3 J
0.5Ω——0R5 . . . . . RN2H 0 R 5 K
1Ω——010 . . . . . RS1P 0 1 0 K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ 562 × 10¹ 5621 . . . . . RN¼SR 5 6 2 1 F

ASSEMBLIES

Part No.	Description
RWF-085	Amplifier assembly
RWX-200	Dolby assembly
RWR-063	Power and oscillation assembly
RWX-192	Muting assembly
RWX-195	Meter amplifier assembly
RWG-085	Control assembly

TRANSFORMER

Part No.	Symbol & Description	
RTT-131	T1	Power transformer

SWITCHES

Part No.	Symbol & Description	
RSA-021	S1	Power switch
RSN-016	S11	Leaf switch (REC)
RSG-057	S14	Push switch (MEMORY)

RESISTORS

Part No.	Symbol & Description	
RCV-045	VR101	Variable resistor (INPUT) 20k-A
RCV-046	VR102	Variable resistor(OUTPUT)20k-B

OTHERS

Part No.	Symbol & Description
RDG-013	Power cord
RKN-040	Jack assembly
RAW-074	Level meter assembly P
RAW-070	Level meter assembly
REL-047	Lamp assembly

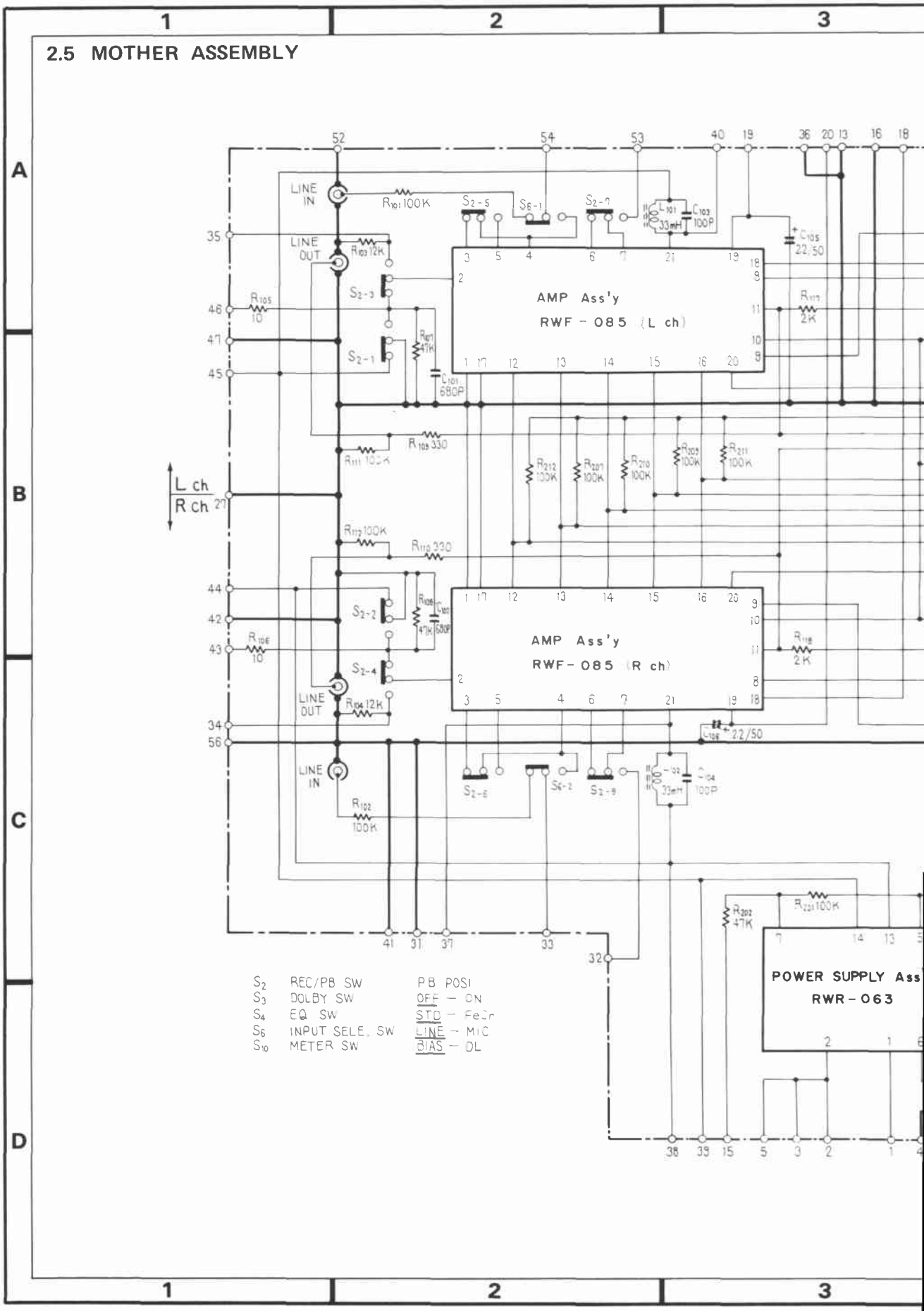
Part No.	Symbol & Description
RXX-223	Front panel assembly
RNA-321	Bonnet
RAA-207	Knob A
RAA-208	Knob B
RAA-209	Rotary knob
RWX-109	Spark killer
REC-250	Capacitor sleeve D

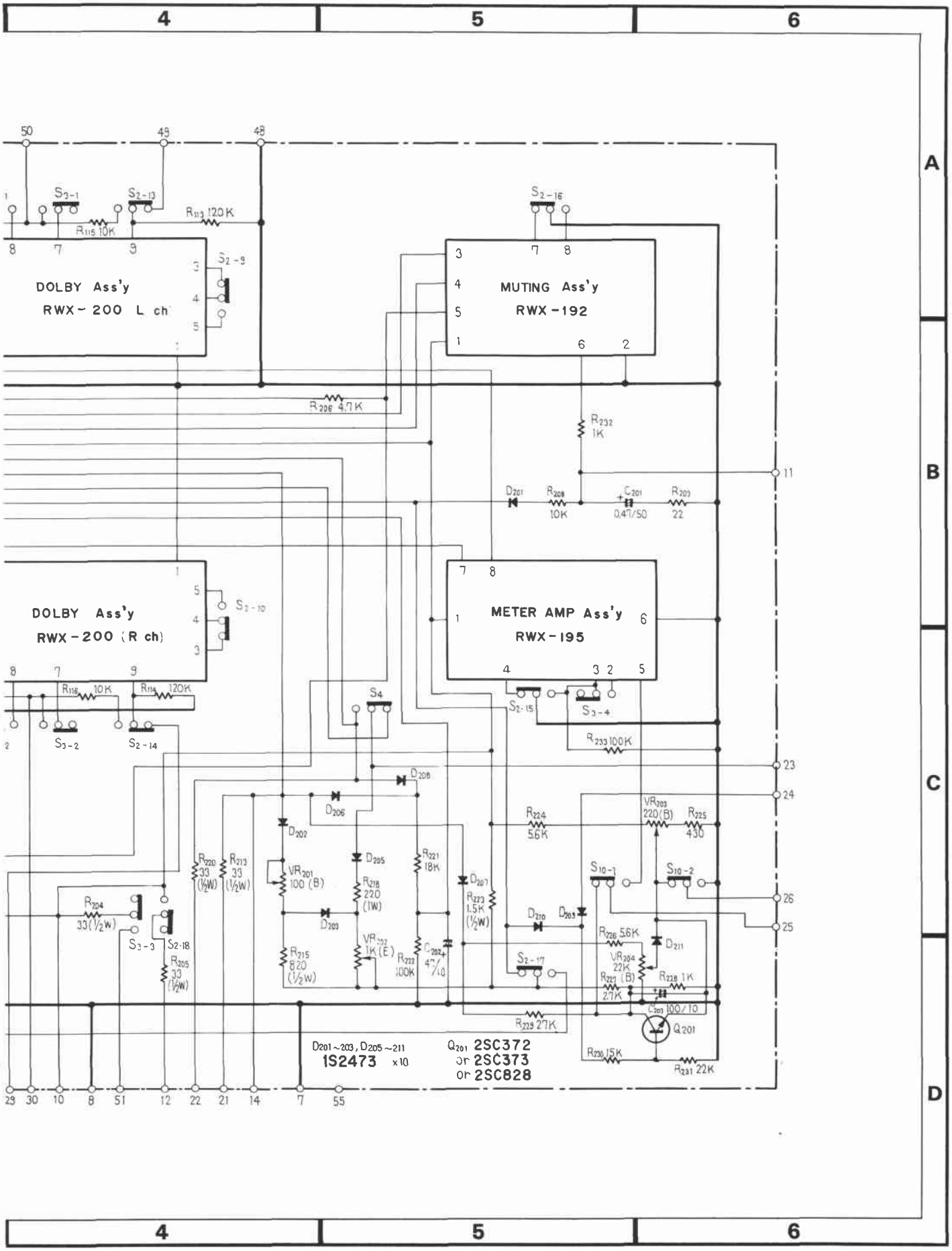
List of Changed Parts for Factory Modification

List of changed parts information will be furnished whenever necessary and you are requested to amend parts number in this parts list.

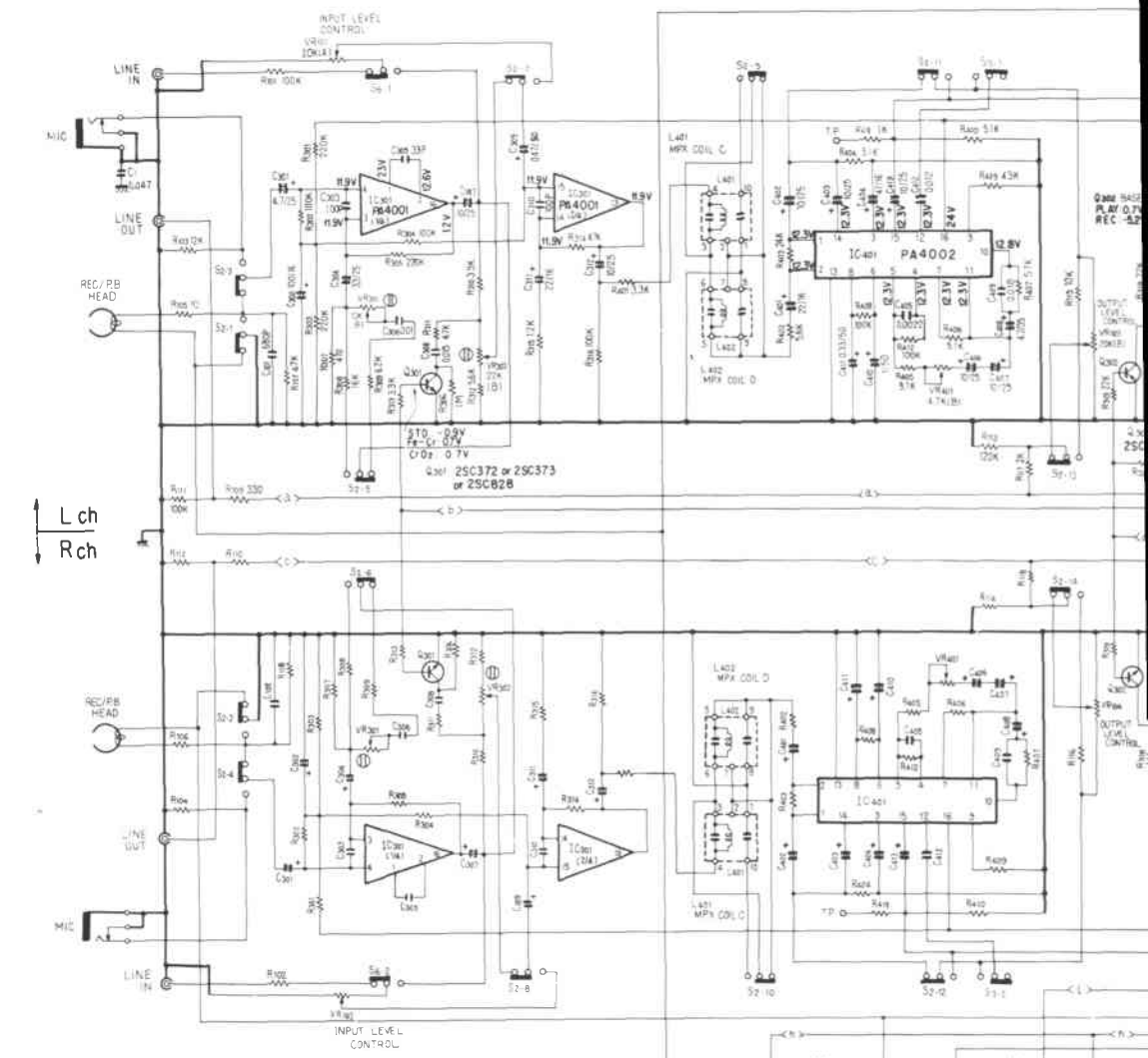
Symbol	Part No.	Description

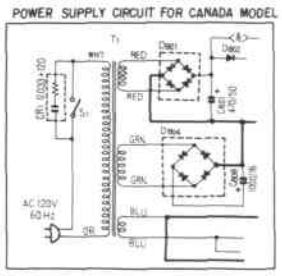
2.5 MOTHER ASSEMBLY

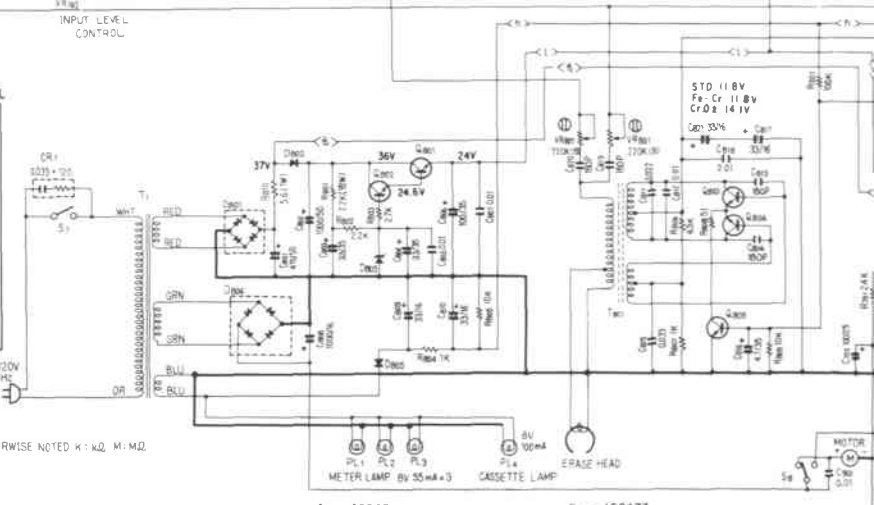



4
5
6
A
B
C
D
DOLBY Ass'y
RWX-200 L ch
DOLBY Ass'y
RWX-200 (R ch)
MUTING Ass'y
RWX-192
METER AMP Ass'y
RWX-195
S3-1
S2-13
S2-16
S2-9
S3-2
S2-14
S2-10
S4
S2-15
S3-4
S3-3
S2-18
S2-17
S10-1
S10-2
R113 120K
R115 10K
R116 10K
R114 120K
R206 4.7K
R232 1K
R233 100K
R224 5.6K
R225 430
R226 5.6K
R227 27K
R228 1K
R229 27K
R230 15K
R231 22K
R201 10K
R202 47K
R203 22
R204 33 (1/2W)
R205 33 (1/2W)
R208 10K
R209 1.5K (1/2W)
R210 820 (1/2W)
R211 18K
R212 220 (1W)
R213 33 (1/2W)
R220 33 (1/2W)
R221 (B) 27K
R222 100K
VR201 100 (B)
VR202 1K (E)
VR203 220 (B)
VR204 22K
C201 0.47/50
C202 47/10
C203 100/10
D201
D202
D203
D205
D206
D207
D208
D210
D211
Q201
11
23
24
25
26
29
30
10
8
51
12
22
21
14
7
55
D201~203, D205~211
1S2473 x10
Q201 2SC372
or 2SC373
or 2SC828

2.4 SCHEMATIC DIAGRAM







RESISTORS :
Ω OHM 1/4W ±5% TOLERANCE UNLESS OTHERWISE NOTED K : kΩ M : MΩ

CAPACITORS :
μF UNLESS OTHERWISE NOTED P : pF

V : DC VOLTAGE AT NO INPUT SIGNAL

SWITCHES :

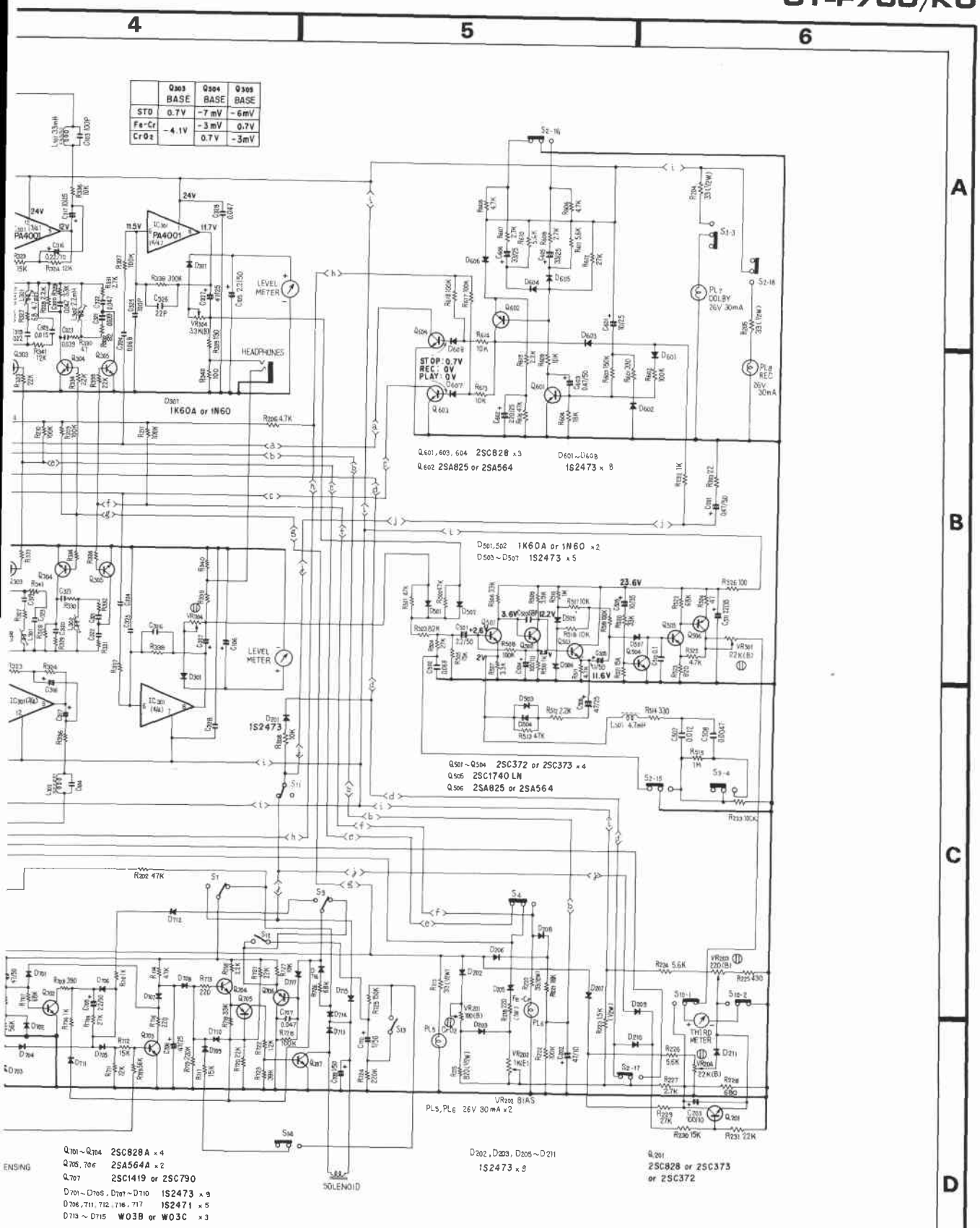
S1	POWER	OFF — ON	S8	MOTOR	OFF — ON
S2	REC/PLAYBACK SELECTOR	PLAYBACK — REC	S9	PAUSE	OFF — ON
S3	DOLBY NR	OFF — ON	S10	THIRD METER	DYNAMIC LEVEL — BIAS
S4	EQ	STD — Fe-Cr	S11	REC	OFF — ON
S5	CrO2 TAPE AUTO SELECTOR	CrO2 — STD/Fe-Cr	S12	COUNTER	OFF — ON
S6	INPUT	LINE — MIC	S13	REW	OFF — ON
S7	MUTING	OFF — ON	S14	MEMORY	OFF — ON

Q801 2SD234
Q802, Q805 2SC372 or 2SC373 ×2
Q803, Q804 2SC1166 or 2SC1214

D801 1S2473
D802 W03B or W03C or SIB01-02
D803 WZ-250
D811, D804 SIQB10×2

◍ : Adjusting point

This is the basic schematic diagram



tual circuit may due to improvements in design.

Parts List of Mother Assembly

ASSEMBLIES

Part No.	Description
RWF-085	Amplifier assembly
RWX-200	Dolby assembly
RWR-063	Power and oscillation assembly
RWX-192	Muting assembly
RWX-195	Meter amplifier assembly

SWITCHES AND COILS

Part No.	Symbol & Description	
RTF-003	L101, L102	Trap coil
RSB-017	S4, S6, S10	Rotary switch
RSB-018	S3	Rotary switch
RSH-027	S2	Slide switch
RSH-030		Slide switch M

CAPACITORS

Part No.	Symbol & Description	
RCE-021	C101, C102	680p/50V
RCE-003	C103, C104	100p/50V
CEA 2R2P 50	C105, C106	
CEA 0R47P 50	C201	
CEA 470P 10	C202	
CEA 101P 10	C203	

Note: When ordering resistors, convert t resistance value into code form, a then rewrite the part no. as befo

RESISTORS

Part No.	Symbol & Description		
RCP-041	VR201	Semi fixed	100-B
RCS-016	VR202	Variable resistor	
RCP-042	VR203	Semi fixed	220-B
C92-857	VR204	Semi fixed	22k-B
RD¼PS □□□ J	R101–188, R201–R203, R206–R212, R2 R221, R222, R224–R231		
RD½PSF □□□ J	R204, R205, R213, R215, R220, R223		
RS1PSF □□□ J	R218		

SEMICONDUCTORS

Part No.	Symbol & Description
2SC372-Y (2SC373) (2SC828-R, S or Q)	Q201
1S2473	D201–D203, D205–D211

OTHERS

Part No.	Symbol & Description
RKB-014	4P mount pin-jack
RNK-396	Joint hook

2.6 DOLBY ASSEMBLY (RWX-200)

Parts List

COILS

Part No.	Symbol & Description	
RTF-034	L401	MPX coil C
RTF-035	L402	MPX coil D

CAPACITORS

Part No.	Symbol & Description
CEA 220P 16	C401
CEA 100P 25	C402, C403, C406, C407, C413
CEA 470P 16	C404
CQMA 222K 50	C405
CEA 4R7P 35	C408
CQMA 183K 50	C409
CSSA 010M 50	C410
CEA R33M 50	C411
CQMA 123K 50	C412

Note: When ordering resistors, convert resistance value into code form, a then rewrite the part no. as befo

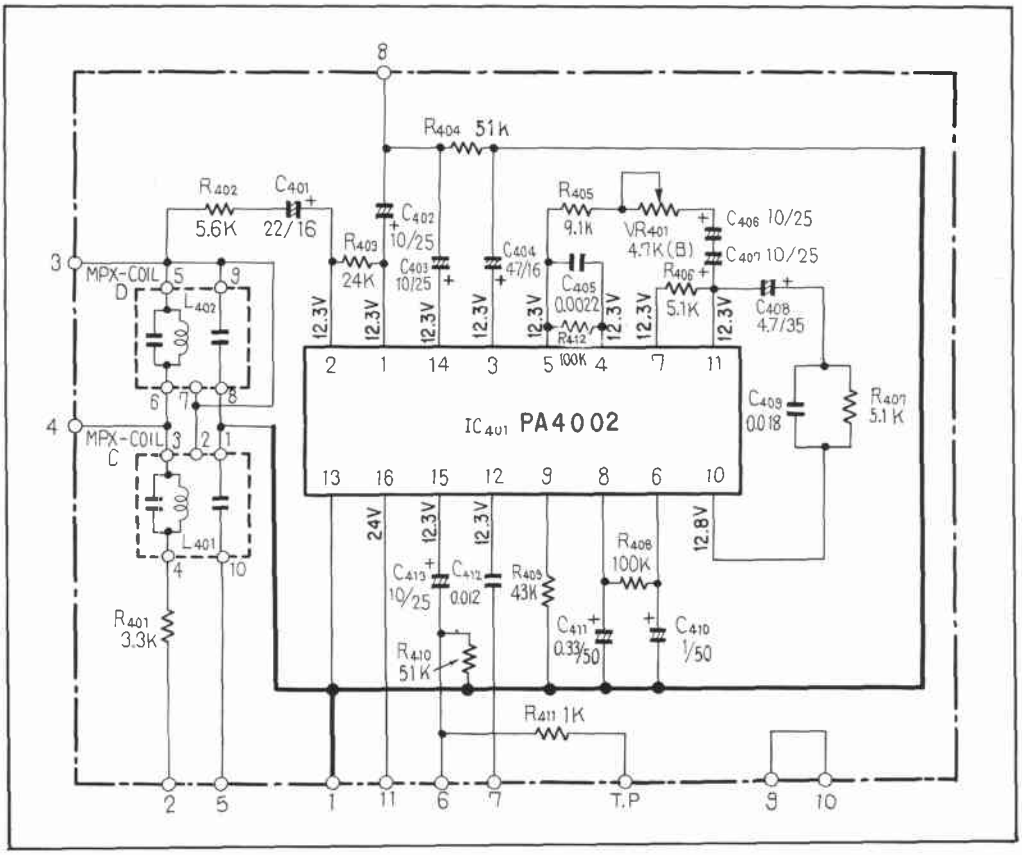
RESISTORS

Part No.	Symbol & Description	
RCP-038	VR401	Semi fixed 4.7k-B
RD¼PS □□□J	R401–R411	
RD¼VS □□□J	R412	

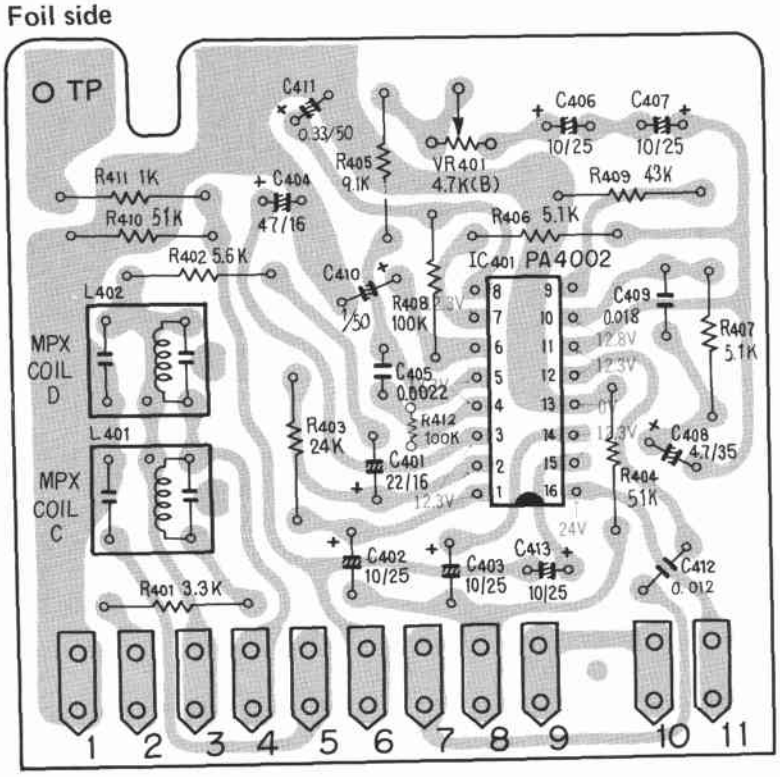
SEMICONDUCTOR

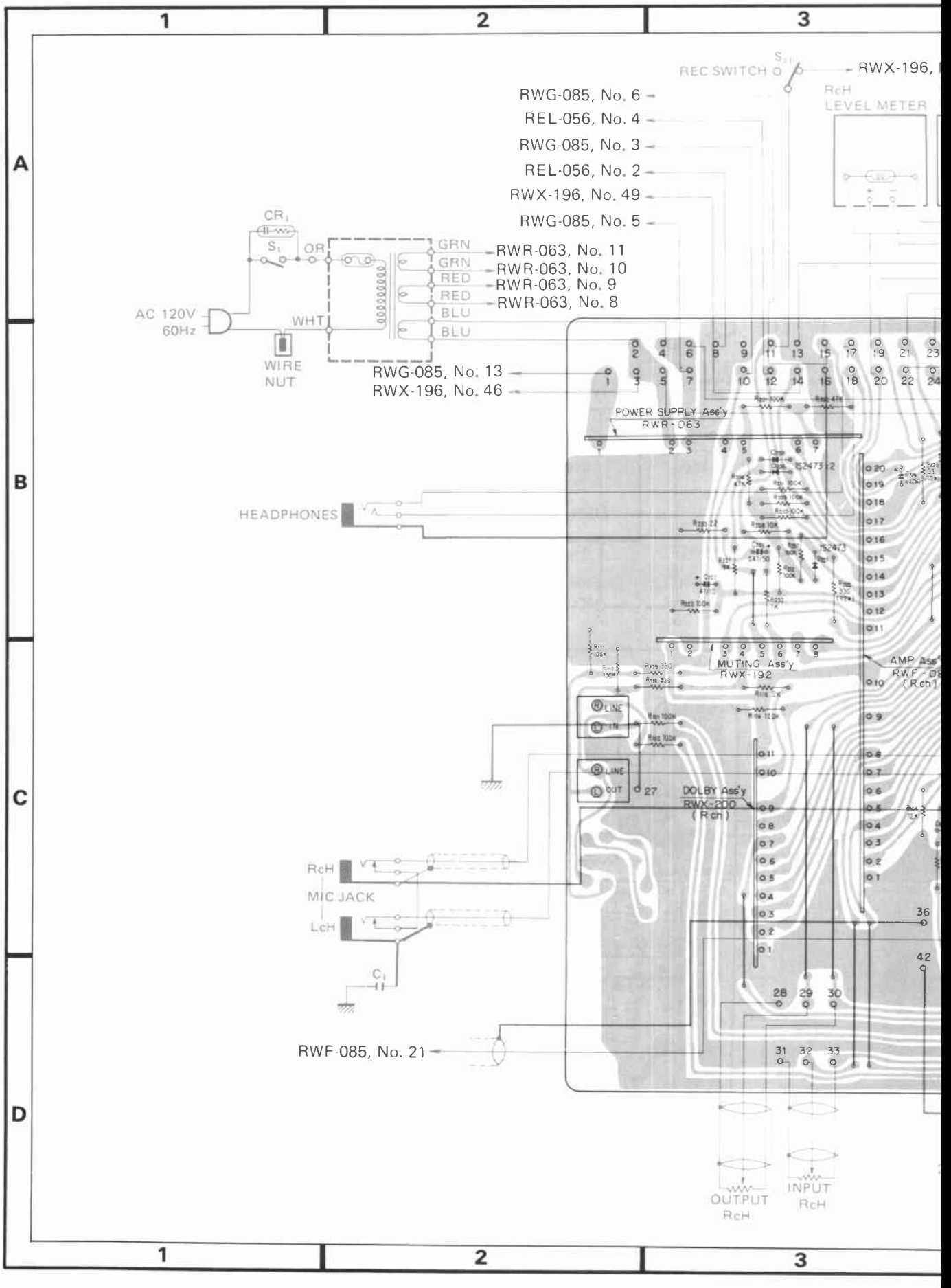
Part No.	Symbol & Description
PA4002	IC401

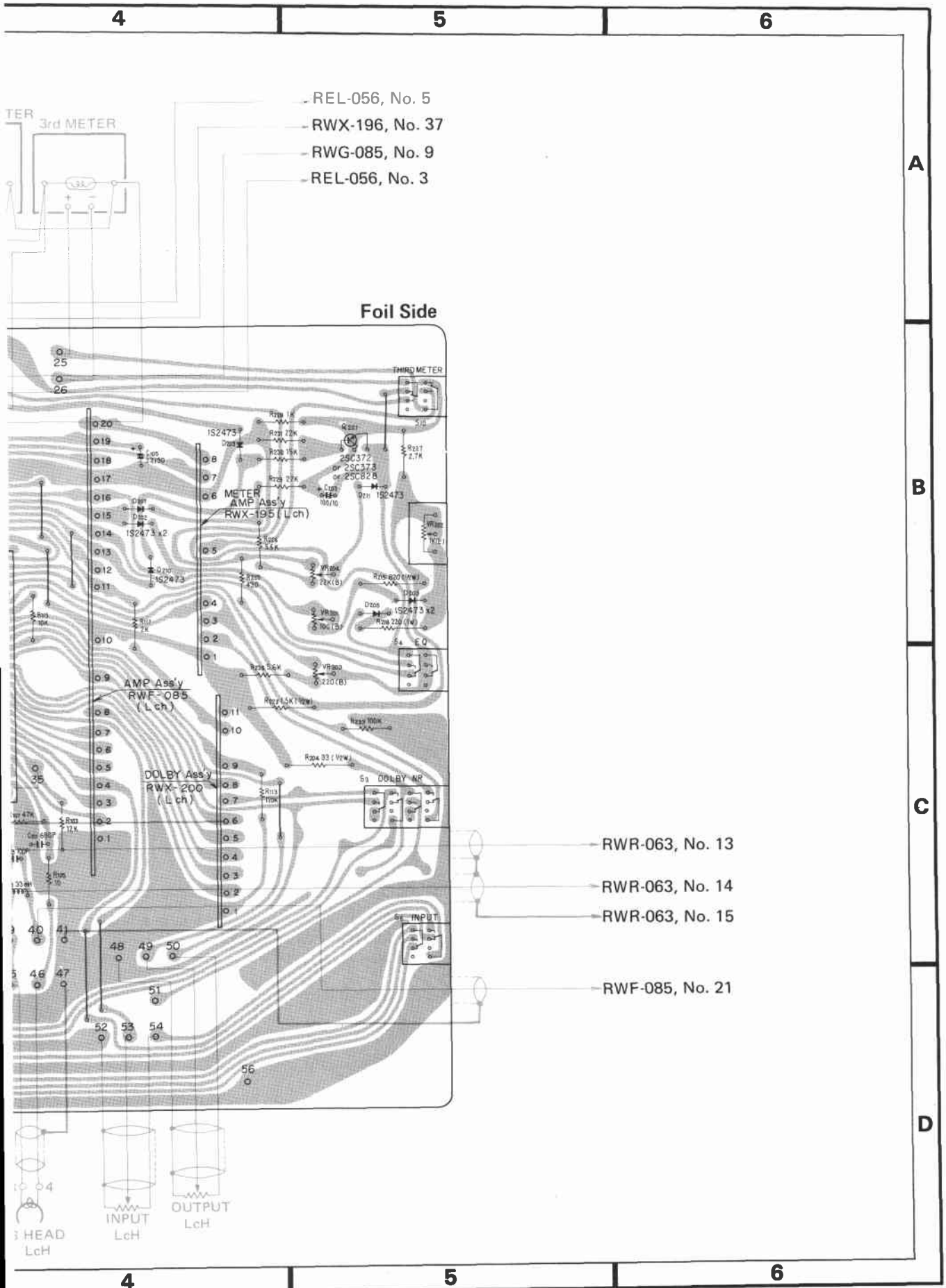
Dolby Assembly (RWX-200)



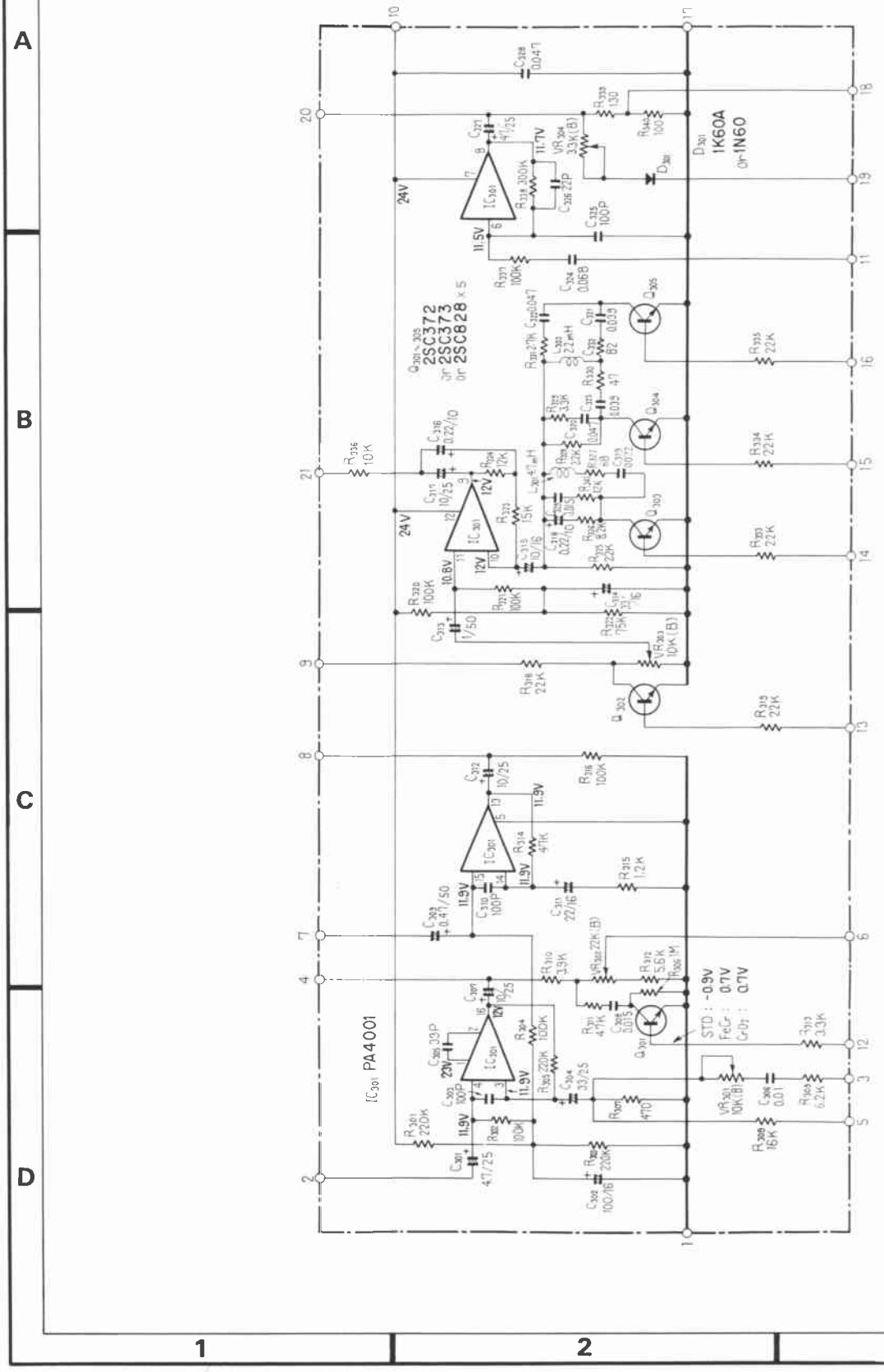
Foil side



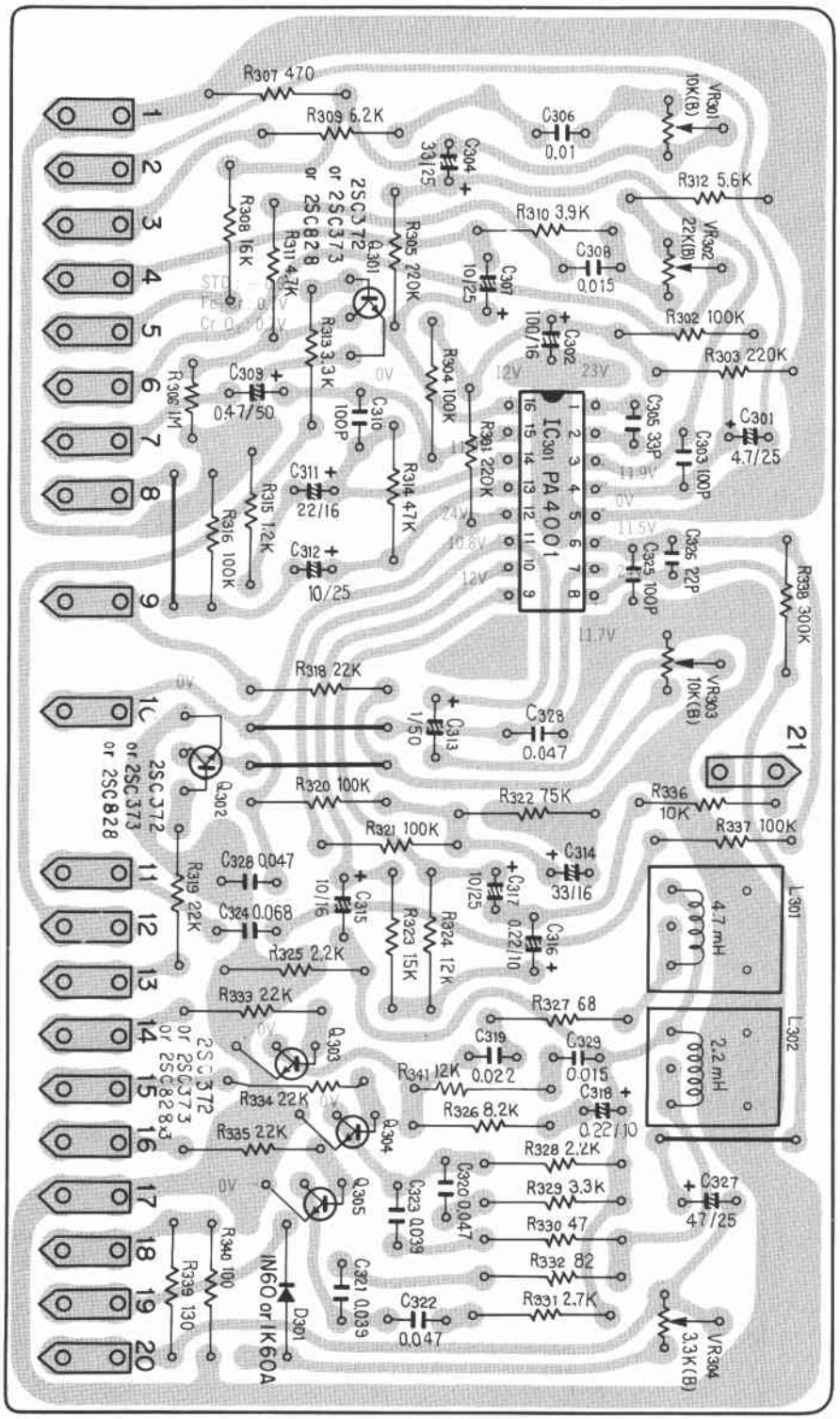

1
2
3
A
B
C
D
REC SWITCH
RWX-196,
RcH
LEVEL METER
RWG-085, No. 6
REL-056, No. 4
RWG-085, No. 3
REL-056, No. 2
RWX-196, No. 49
RWG-085, No. 5
CR1
S1
OR
GRN
GRN
RED
RED
BLU
BLU
RWR-063, No. 11
RWR-063, No. 10
RWR-063, No. 9
RWR-063, No. 8
AC 120V
60Hz
WHT
WIRE
NUT
RWG-085, No. 13
RWX-196, No. 46
POWER SUPPLY Ass'y
RWR-063
HEADPHONES
MUTING Ass'y
RWX-192
AMP Ass'
RWF-0
(Rch)
LINE
IN
LINE
OUT
27
DOLBY Ass'y
RWX-200
(Rch)
RcH
MIC JACK
LcH
C1
36
42
28
29
30
RWF-085, No. 21
31
32
33
OUTPUT
RcH
INPUT
RcH


4
5
6
A
B
C
D
REL-056, No. 5
RWX-196, No. 37
RWG-085, No. 9
REL-056, No. 3
3rd METER
Foil Side
THIRD METER
METER AMP Ass'y RWX-195 (Lch)
AMP Ass'y RWF-085 (Lch)
DOLBY Ass'y RWX-200 (Lch)
EQ
DOLBY NR
INPUT
RWR-063, No. 13
RWR-063, No. 14
RWR-063, No. 15
RWF-085, No. 21
HEAD LcH
INPUT LcH
OUTPUT LcH

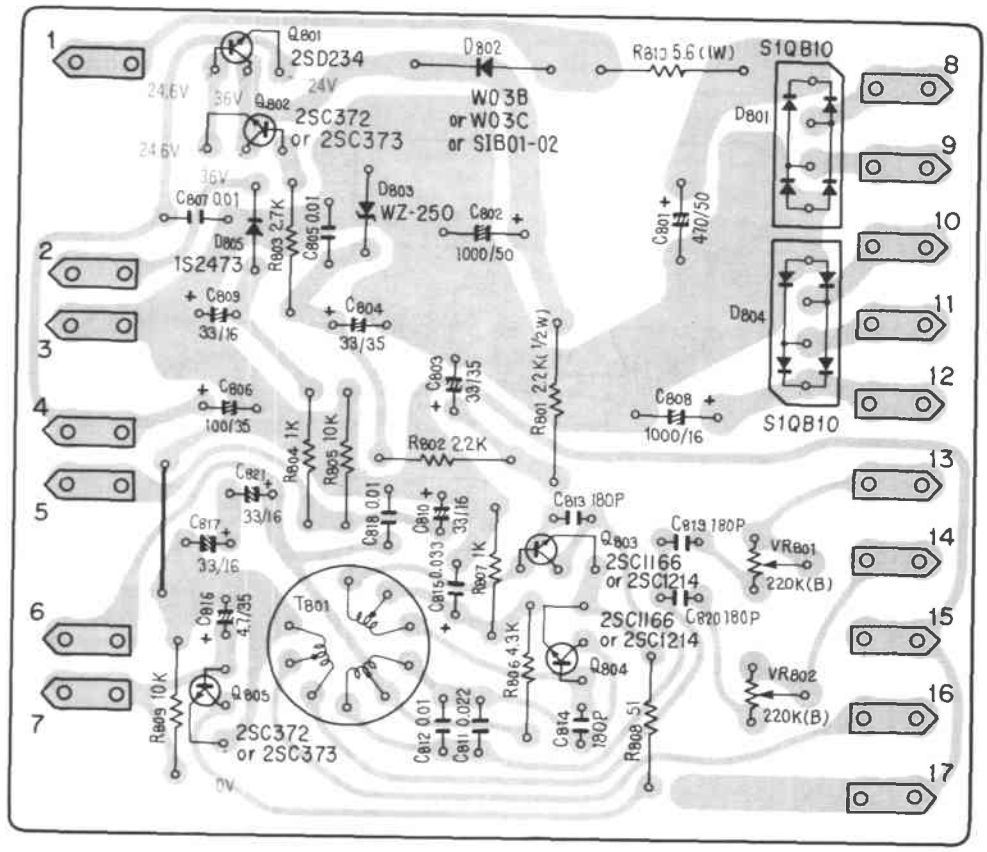
2.8 AMPLIFIER ASSEMBLY (RWF-085)



Foil side


R307 470
R309 6.2K
C306 0.01
VR301 10K(B)
C304 33/25
2SC372 or 2SC373 or 2SC828
R312 5.6K
R310 3.9K
VR302 22K(B)
R308 16K
C308 0.015
R311 4.7K
Q301
R305 220K
C307 10/25
R302 100K
C302 100/16
R303 220K
R313 3.3K
R304 100K
C308 0.47/50
R306 1M
C310 100P
IC301 PA4001
C305 33P
C301 4.7/25
C303 100P
R301 220K
C311 22/16
R314 47K
R315 1.2K
R316 100K
C312 10/25
C325 100P
C326 22P
R338 300K
VR303 10K(B)
R318 22K
C313 1/50
C328 0.047
R320 100K
R322 75K
R336 10K
R337 100K
Q302
R321 100K
C328 0.047
C314 33/16
C317 10/25
L301 4.7 mH
L302 2.2 mH
R319 22K
C324 0.068
C315 10/16
R323 15K
R324 12K
C316 0.22/10
R325 2.2K
R327 68
R333 2.2K
C319 0.022
C329 0.015
Q303
R341 12K
R334 22K
C318 0.22/10
R326 8.2K
Q304
R335 22K
R328 2.2K
C320 0.047
C323 0.039
R329 3.3K
C327 47/25
Q305
R330 47
R332 82
C321 0.039
R340 100
R339 130
IN60 or 1K60A
D301
C322 0.047
R331 2.7K
VR304 3.3K(B)

Foil side



arts List

OIL

t No.	Symbol & Description	
4-001	T801	Oscillation coil

APACITORS

t No.	Symbol & Description	
A 471P 50	C801	
A 102P 50	C802	
A 330P 35	C803, C804	
DYF 103Z 50	C805, C807, C818	
A 101P 35	C806	
A 102P 16	C808	
A 330P 16	C809, C810, C817, C821	
PA 223K 50	C811	
MA 103K 50	C812	
OSL 101K 50	C813, C814	
MA 333K 50	C815	
A 4R7P 35	C816	
E-025	C819, C820 Polystyrene	180P/50V

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

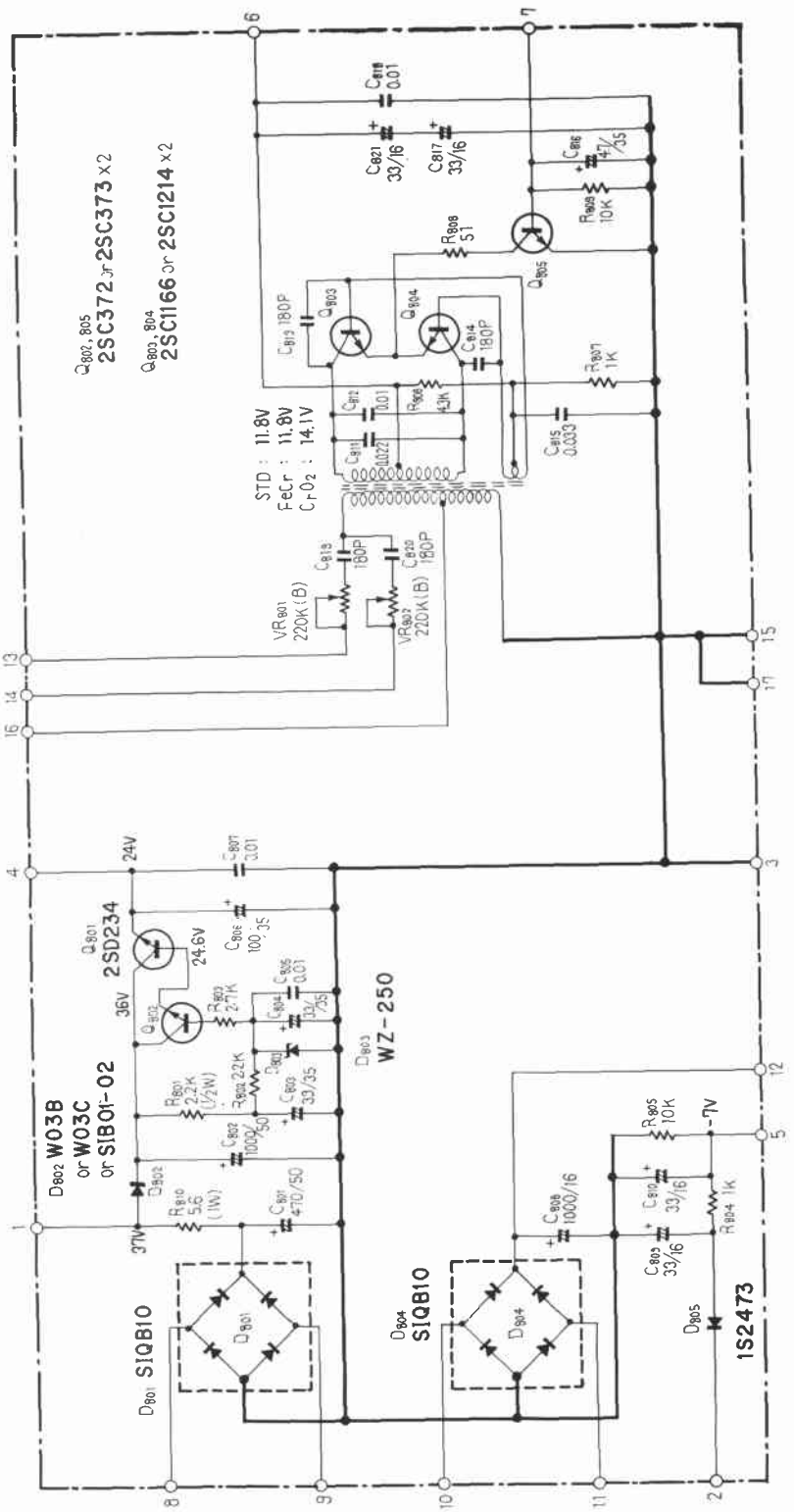
RESISTORS

Part No.	Symbol & Description	
RCP-040	VR801, VR802	Semi fixed 220k-B
RD½PSF □□□J	R801	
RD¼PS □□□J	R802–R809	
RS1PF □□□J	R810	

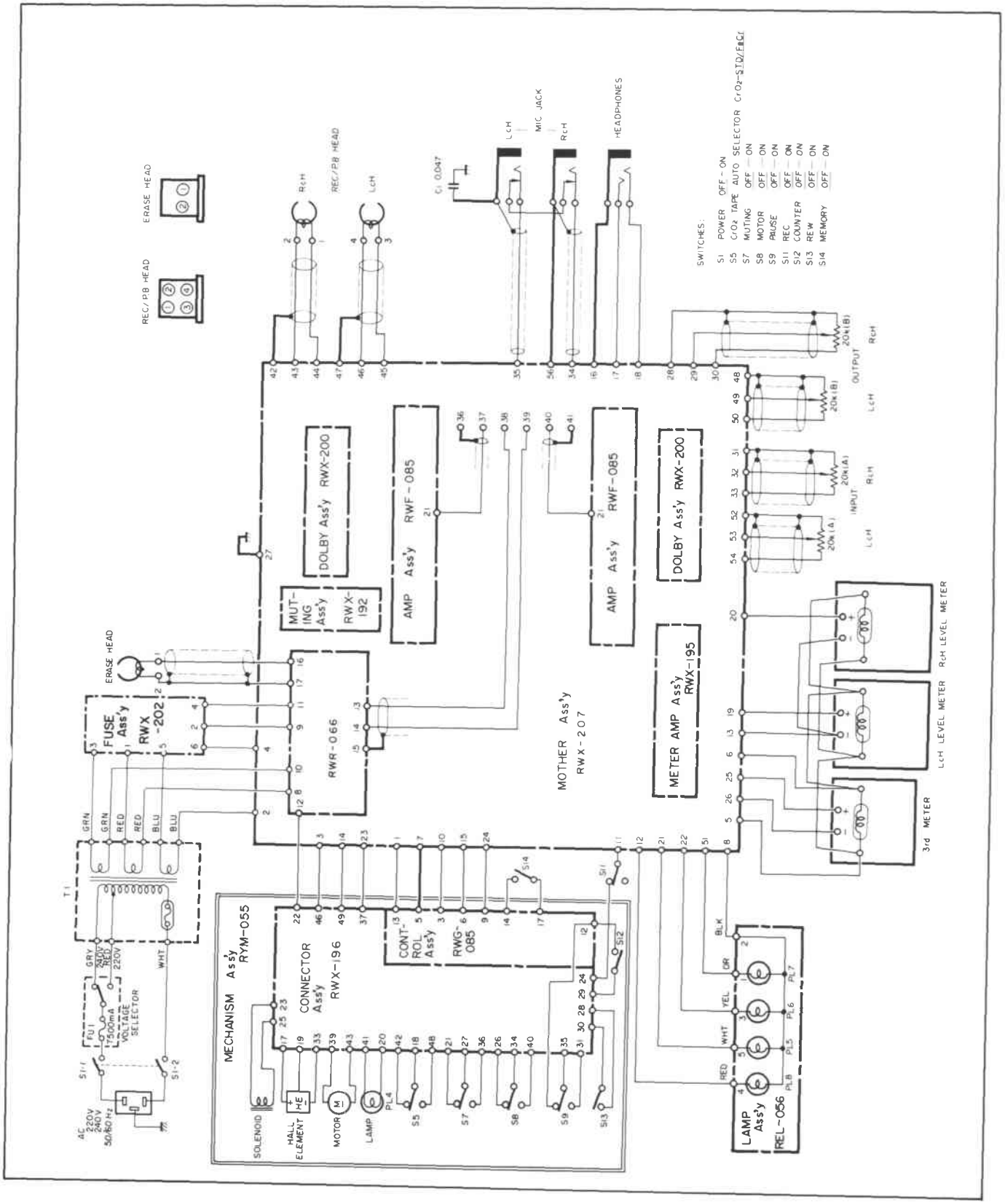
SEMICONDUCTORS

Part No.	Symbol & Description
2SD234-O or R	Q801
2SC372-Y (2SC373)	Q802, Q805
2SC1166-O or Y (2SC1214-B or C)	Q803, Q804
SIQB10	D801, D804
W03B or W03C (SIB 01-02)	D802
WZ-250	
1S2473	D805

2.7 POWER AND OSCILLATION ASSEMBLY (RWR-063)



4.2 CONNECTION DIAGRAM



Parts List

COILS

Part No.	Symbol & Description	
RTF-031	L301	Peaking coil
RTF-037	L302	Peaking coil

CAPACITORS

Part No.	Symbol & Description	
RCH-017	C301	4.7/25V
CEA 101P 16	C302	
CCDSL 101K 50	C303, C310, C325	
RCH-036	C304	
CCDSL 330K 50	C305	
CQMA 103K 50	C306	
CEA 100P 25	C307, C312, C317	
CQMA 153K 50	C308, C329	
CEA R47P 50	C309	
CEA 220P 16	C311	
CEA 330P 16	C314	
CEA 100P 16	C315	
CSSA 0R22M 10	C316, C318	
CEA 2R2P 50	C318	
CQMA 223J 50	C319	
CQMA 473K 50	C320, C322	
CQMA 393K 50	C321, C322	
CQMA 683K 50	C324	
CCDSL 220K 50	C326	
CEA 470P 25	C327	
CKDYF 473Z 50	C328	

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

RESISTORS

Part No.	Symbol & Description	
RCP-032	VR301, VR303	Semi fixed 10k-B
RCP-009	VR302	Semi fixed 22k-B
RCP-039	VR304	Semi fixed 3.3k-B
RD¼PS □□□ J	R301–R305, R307–R316, R318–R337, R339–R341	
RD¼VS □□□ J	R306	

SEMICONDUCTORS

Part No.	Symbol & Description
PA4001	IC301
2SC372-Y (2SC373) (2SC828-R, S or Q)	Q301–Q305
1K60A or 1N60	D301

List of Changed Parts for Factory Modification

Symbol	Part No.	Description

3. CT-F700/KC

3.1 MISCELLANEOUS PARTS LIST

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

ASSEMBLIES

Part No.	Description
RWF-085	Amplifier assembly
RWX-200	Dolby assembly
RWR-066	Power and oscillation assembly
RWX-192	Muting assembly
RWX-195	Meter amplifier assembly
RWG-085	Control assembly

TRANSFORMER

Part No.	Symbol & Description	
RTT-131	T1	Power transformer

SWITCHES

Part No.	Symbol & Description	
RSA-021	S1	Power switch
RSN-016	S11	Leaf switch (REC)
RSG-057	S14	Push switch (MEMORY)

RESISTORS

Part No.	Symbol & Descritpion	
RCV-045	VR101	Variable resistor (INPUT) 20k-A
RCV-046	VR102	Variable resistor(OUTPUT)20k-B

OTHERS

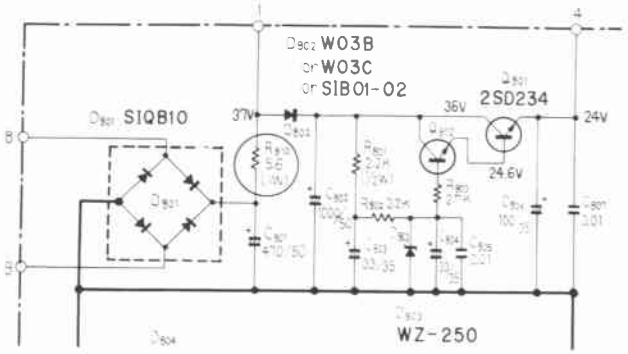
Part No.	Symbol & Description
RDG-013	Power cord
RKN-040	Jack assembly
RAW-074	Level meter assembly P
RAW-070	Level meter assembly
REL-056	Lamp assembly
RXX-218	Front panel assembly
RNA-321	Bonnet
RAA-207	Knob A
RAA-208	Knob B
RAA-209	Rotary knob
RWX-150	Spark killer
REC-250	Capacitor sleeve D

The CT-F700/KU and CT-F700/KC differ in the following respects;

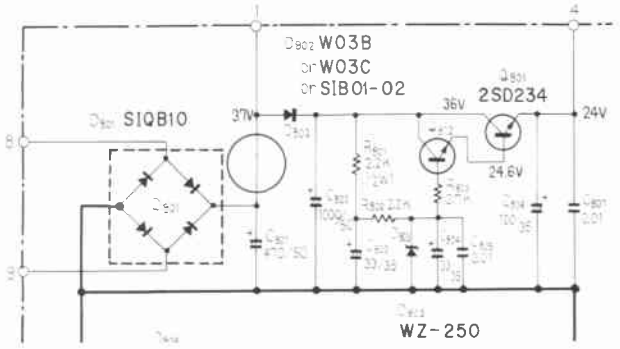
3.2 POWER AND OSCILLATION ASSEMBLY (RWR-066)

The CT-F700/KU power supply and oscillation assembly (RWR-063) and the CT-F700/KC power supply and oscillation assembly (RWR-066) are almost exactly teh same in composition and time constants, the only difference being that the RWR-066 has had the R810 resistor (5.6Ω 1W) replaced by a jumper wire.
Refer to page 75 for further details.

Power and oscillation assembly (RWR-063) for CT-F700/KU type



Power and oscillation assembly (RWR-066) for CT-F700/KC type



3.3 MOTHER ASSEMBLY

The power supply and oscillation assembly is one of the component assemblies mounted on the mother assembly board. Since the component part no. for this component assembly has been changed, the mother assembly component part no. has also been changed. See page 69 for further details on the mother assembly, page 73 for the Dolby assembly, page 77 for the amplifier assembly, and page 47 for the same muting assembly used in the CT-F700/D and D/G.

4. CT-F700/HG

4.1 MISCELLANEOUS PARTS LIST

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

ASSEMBLIES

Part No.	Description
RWF-082	Amplifier assembly
RWX-191	Dolby assembly
RWR-066	Power and oscillation assembly
RWX-192	Muting assembly
RWX-195	Meter amplifier assembly
RWG-085	Control assembly
RWX-202	Fuse assembly

TRANSFORMER

Part No.	Symbol & Description	
RTT-133	T1	Power transformer

SWITCHES

Part No.	Symbol & Description	
RSA-022	S1	Power switch
RSN-016	S11	Leaf switch (REC)
RSG-057	S14	Push switch (MEMORY)

RESISTORS

Part No.	Symbol & Description	
RCV-045	VR101	Variable resittor (INPUT) 20k-A
RCV-046	VR102	Variable resistor(OUTPUT)20k-B

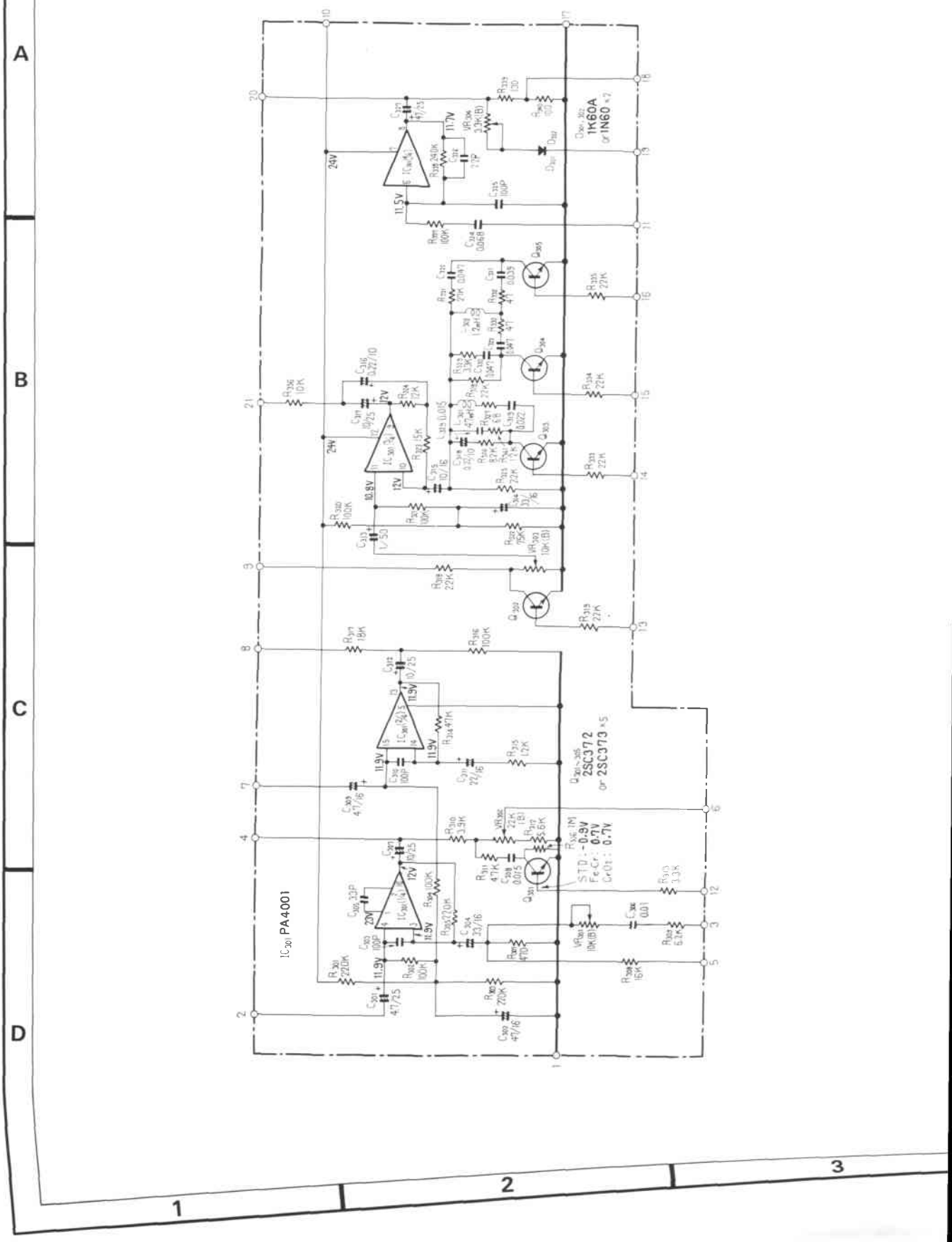
OTHERS

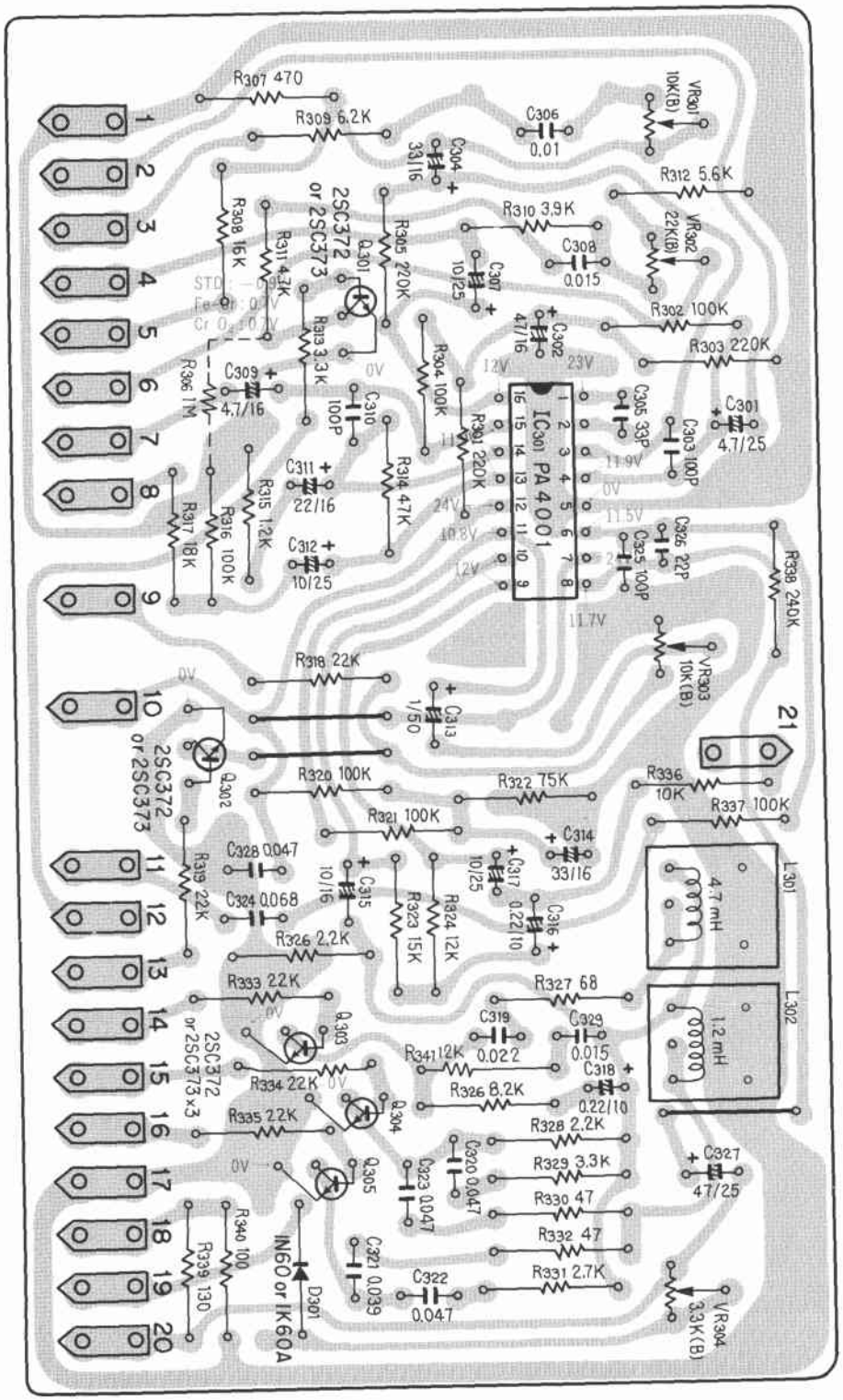
Part No.	Symbol & Description
RKN-040	Jack assembly
RAW-074	Level meter assembly P
RAW-070	Level meter assembly
REL-056	Lamp assembly
RXX-221	Front panel assembly
RNA-321	Bonnet
RAA-207	Knob A
RAA-208	Knob B
RAA-209	Rotary knob
REK-049	Fuse T500mA
RKR-019	Line voltage selector (switchable 2 positions)

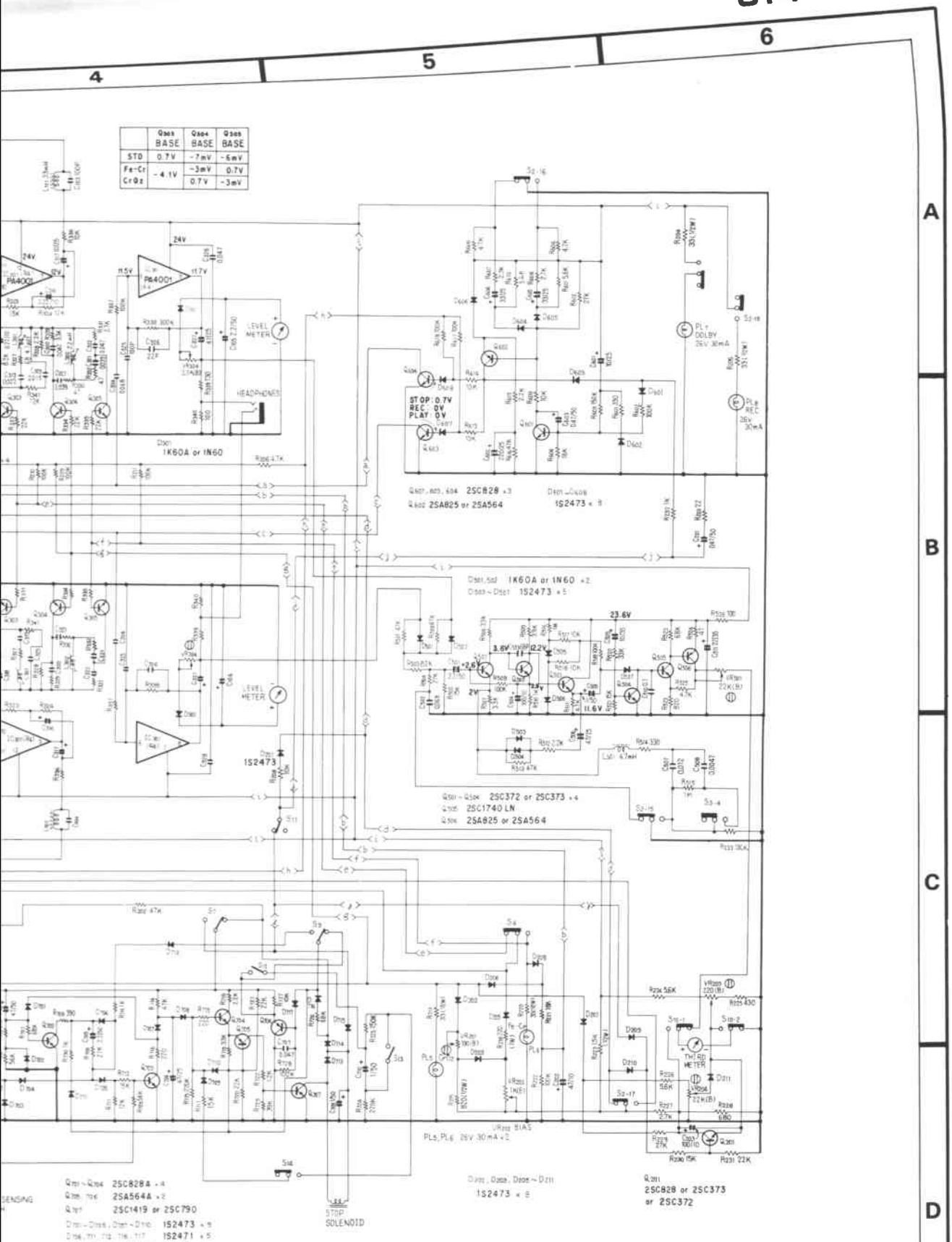
List of Changed Parts for Factory Modification

Symbol	Part No.	Description

4.4 AMPLIFIER ASSEMBLY (RWF-082)

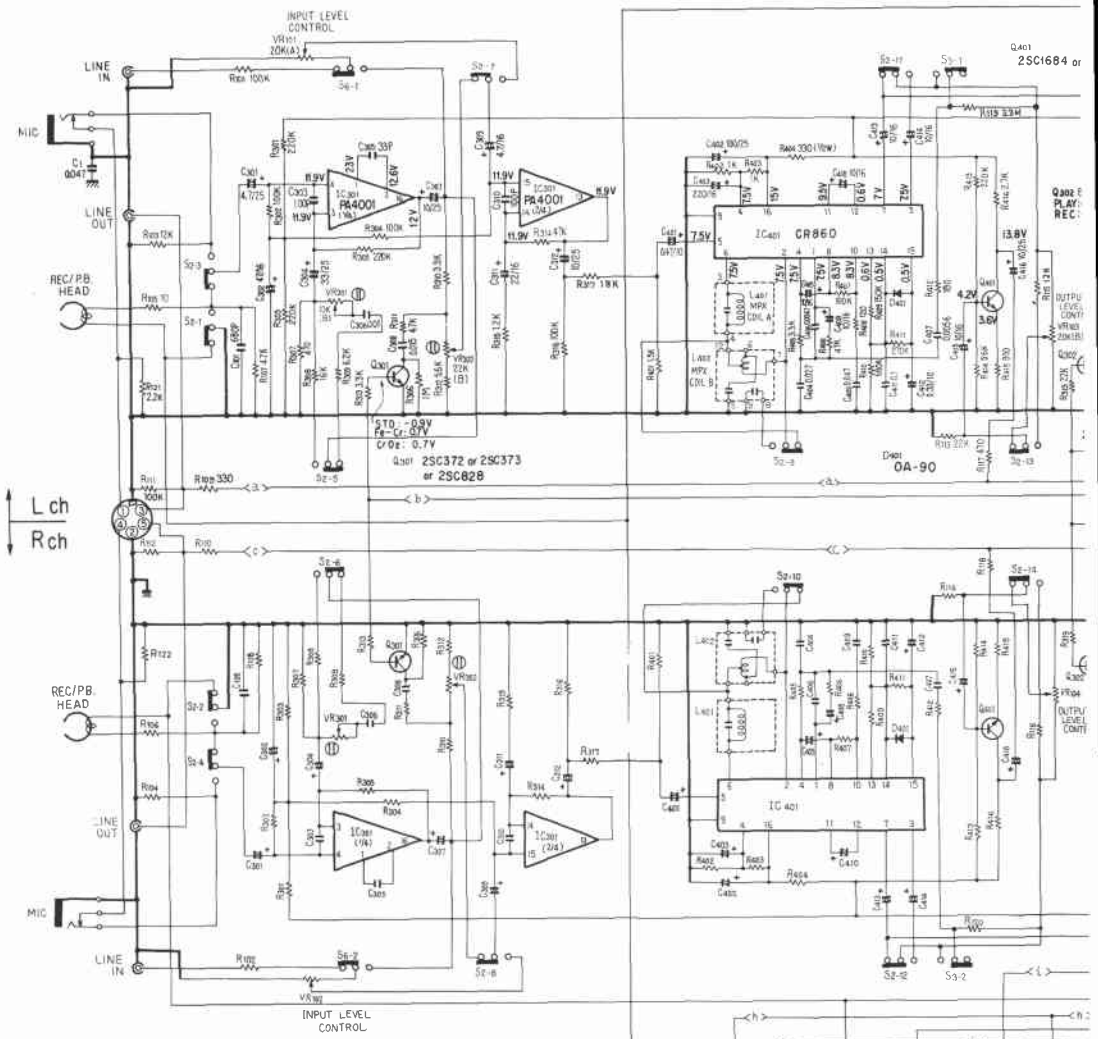


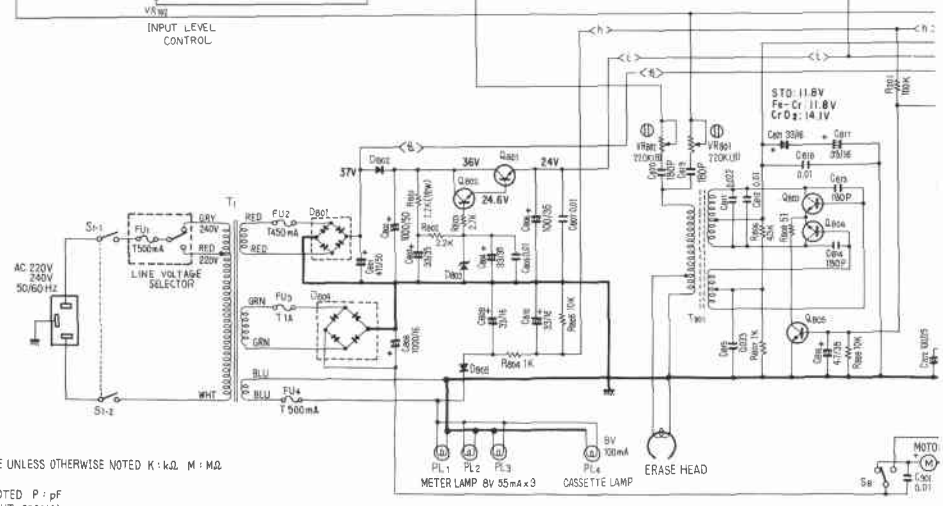

R307 470
R309 6.2K
C306 0.01
VR301 10K(B)
C304 33/16
R312 5.6K
R310 3.9K
VR302 22K(B)
C308 0.015
R308 16K
R311 4.7K
2SC372 or 2SC373
Q301
R305 220K
C307 10/25
R302 100K
C302 47/16
R303 220K
R313 3.3K
R304 100K
C309 4.7/16
C310 100P
C305 33P
C303 100P
C301 4.7/25
R306 1M
IC301 PA4001
R301 220K
R315 1.2K
C311 22/16
R314 47K
R316 100K
R317 18K
C312 10/25
C325 100P
C326 22P
R338 240K
VR303 10K(B)
R318 22K
C313 1/50
21
R320 100K
R322 75K
R336 10K
R337 100K
2SC372 or 2SC373
Q302
R321 100K
C314 33/16
C328 0.047
C317 10/25
L301 4.7 mH
C324 0.068
C315 10/16
R319 22K
R323 15K
R324 12K
C316 0.22/10
R326 2.2K
R327 68
R333 2.2K
C319 0.022
C329 0.015
L302 1.2 mH
Q303
R341 12K
C318 0.22/10
R334 22K
R326 8.2K
2SC372 or 2SC373 x3
Q304
R335 2.2K
R328 2.2K
C327 47/25
R329 3.3K
Q305
C323 0.047
C320 0.047
R330 47
R340 100
R339 130
R332 47
C321 0.039
R331 2.7K
C322 0.047
IN60 or IK60A
D301
VR304 3.3K(B)



This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

4.3 SCHEMATIC DIAGRAM





RESISTORS :
IN OHM 1/4W ±5% TOLERANCE UNLESS OTHERWISE NOTED K : kΩ M : MΩ
CAPACITORS :
IN μF UNLESS OTHEWISE NOTED P : pF
V : DC VOLTAGE AT NO INPUT SIGNAL
SWITCHES :

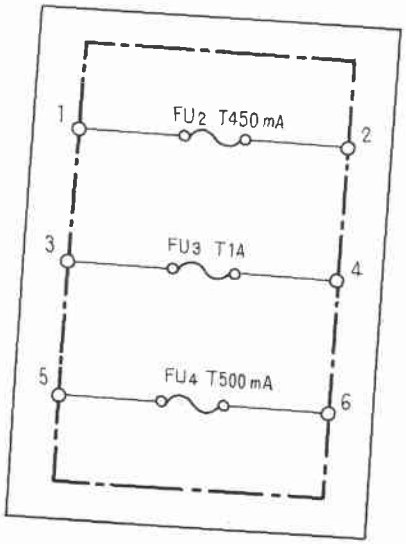
S1	POWER	OFF — ON	S8	MOTOR	OFF — ON
S2	REC/PLAYBACK SELECTOR	PLAYBACK — REC	S9	PAUSE	OFF — ON
S3	DOLBY NR	OFF — ON	S10	THIRD METER	DYNAMIC LEVEL — BIAS
S4	EQ	STD — Fe Cr	S11	REC	OFF — ON
S5	CrO2 TAPE AUTO SELECTOR	CrO2 — STD/Fe-Cr	S12	COUNTER	OFF — ON
S6	INPUT	LINE — MIC	S13	REW	OFF — ON
S7	MUTING	OFF — ON	S14	MEMORY	OFF — ON

Q801 2SD234
Q802, Q805 2SC372 or 2SC373 x2
Q803, Q804 2SC1166 or 2SC1214

D805 1S2473
D802 W03B or W03C or SIB01-02
D803 WZ-250
D801, D804 S1QB10 x2

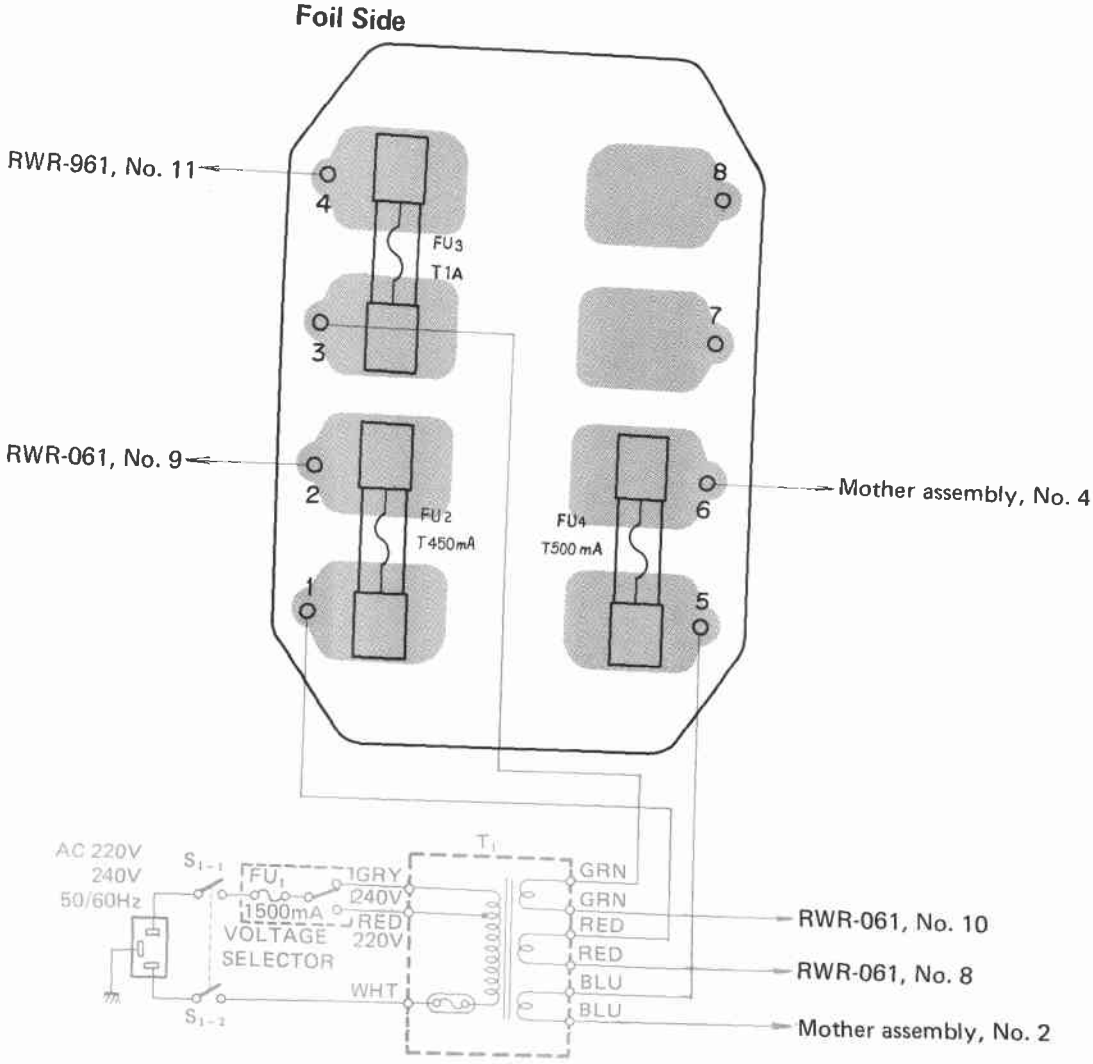
◍ : Adjusting point

4.5 FUSE ASSEMBLY (RWX-202)



Parts List

Part No.	Symbol & Description
RKR-013	Fuse holder B
REK-056-A	Fuse 1A
REK-049-B	Fuse 500mA
REK-060-Q	Fuse 450mA



Parts List

COILS

Part No.	Symbol & Description	
RTF-031	L301	Peaking coil
RTF-038	L302	Peaking coil

CAPACITORS

Part No.	Symbol & Description
RCH-017	C301
CEA 470P 16	C302
CCDSL 101K 50	C303, C310, C325
CEA 330P 16	C304, C314
CCDSL 330K 50	C305
CQMA 103K 50	C306
CEA 100P 25	C307, C312, C317
CQMA 153K 50	C308, C329
CEA 4R7P 16	C309
CEA 220P 16	C311
CEA 010P 50	C313
CEA 100P 16	C315
CSSA 0R22M 10	C316, C318
CQMA 223J 50	C319
CQMA 473K 50	C320, C322, C323
CQMA 393K 50	C321
CQMA 683K 50	C324
CCDSL 220K 50	C326
CEA 470P 25	C327
CKDYF 473Z 50	C328

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

RESISTORS

Part No.	Symbol & Description	
RCP-032	VR301, VR303	Semi fixed 10k-B
RCP-009	VR302	Semi fixed 22k-B
RCP-039	VR304	Semi fixed 3.3k-B
RD¼PS □□□J	R301–R305, R307–R341	
RD¼VS □□□J	R306	

SEMICONDUCTORS

Parts No.	Symbol & Description
PA4001	IC301
2SC372-Y (2SC373) (2SC828-R, S or Q)	Q301–Q305

List of Changed Parts for Factory Modification

Symbol	Part No.	Description