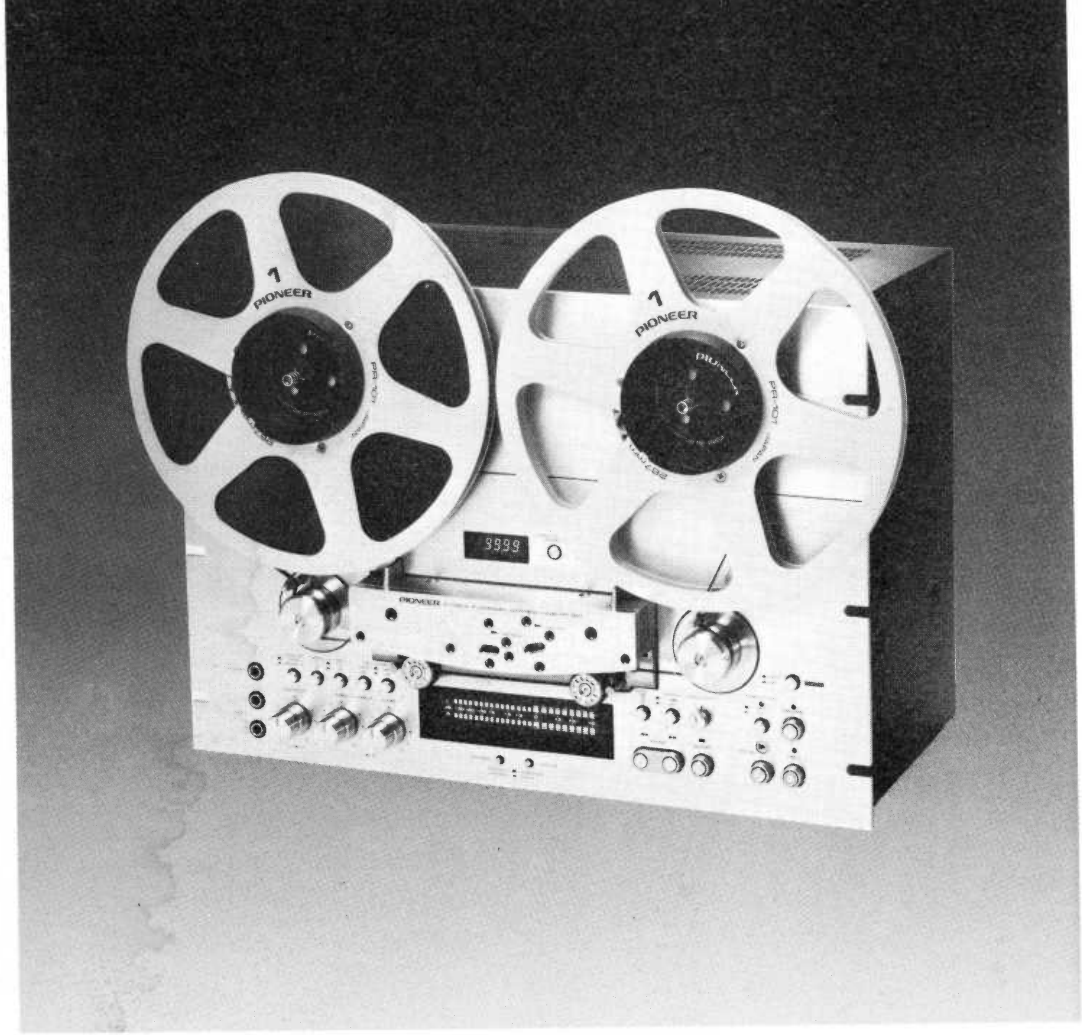


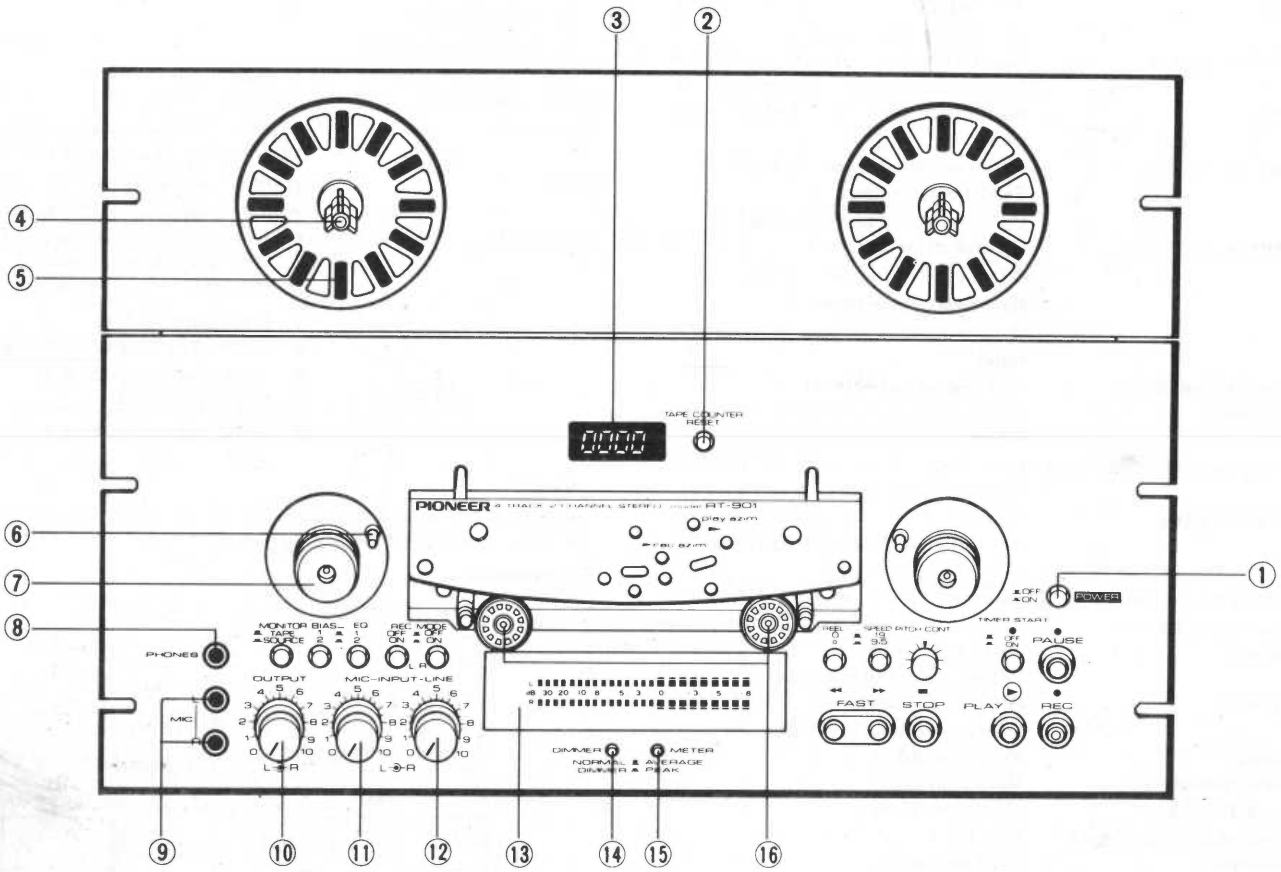
Service Manual

3-MOTOR 3-HEAD
TAPE DECK

RT-901

PIONEER®

2. FRONT PANEL FACILITIES



① POWER SWITCH

The power comes on when the POWER switch is depressed. The level meter and tape counter, will then come on. Release the switch to turn the power off.

② COUNTER RESET BUTTON

Push this button to reset the tape counter to "0000."

③ TAPE COUNTER

This indicates how much tape has been recorded or played back and how much there is left over.

④ REEL CLAMPER

⑤ REEL BASE

⑥ TENSION ARM

Rotate down the arm and lock it before threading the tape. Release the lock after the tape has been threaded.

⑦ GUIDE ROLLER

⑧ HEADPHONES JACK

Plug your stereo headphones into this jack to hear the sound from the signals selected by the MONITOR switch. Use headphones to monitor a recording or listen to a performance directly taped from the RT-901. The output level of the headphones can be adjusted by the OUTPUT level controls.

NOTES:

- *Please use low impedance-type headphones. If you use high impedance-type headphones, you may not obtain sufficient volume.*
- *Do not connect a microphone to this jack, as the microphone may be damaged.*

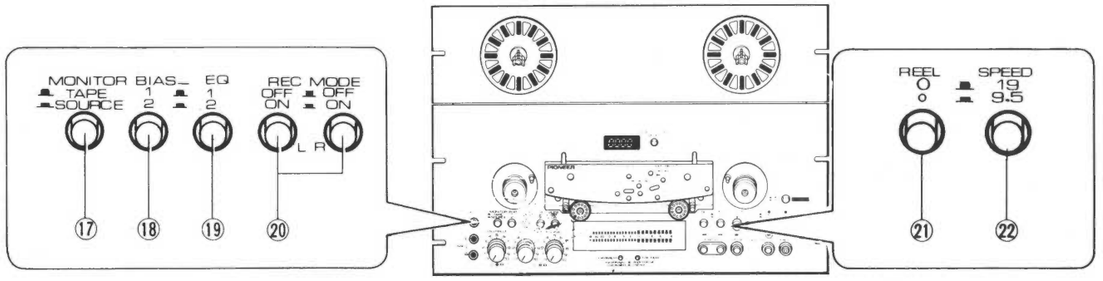
⑨ MIC JACKS (L, R)

These are the input jacks for microphone recording. The L (left) and R (right) channels can be used independently. As long as the microphones have a standard 6mm diameter plug, you can use either a low impedance (600-ohms) or high impedance (Max. 10 kohms) type.

⑩ OUTPUT CONTROLS

Use these controls to adjust the output signal level. Turning the controls to the right increases the level. The controls are coupled when turned but it is also possible to adjust the right channel (outer) and the left channel (inner) independently.

When playing back a reference tape, a reference playback level (0dB) is obtained with these controls set to the center click stop position.



⑪ MIC-INPUT (RECORDING LEVEL) CONTROLS

Use these controls to adjust the recording level when you are recording with a microphone (or microphones). Use the inner control for the left channel and the outer control for the right channel.

⑫ LINE-INPUT (RECORDING LEVEL) CONTROLS

These controls adjust the recording input level from the LINE INPUT terminals on the rear panel. The level increases as the controls are turned to the right. The inner control is for the left channel and the outer control for the right channel.

⑬ FL LEVEL METER

This indicates the input level during recording and the output level during playback.
By operating the METER switch, it can be made to function as a peak meter, or as a (AVERAGE) meter.
The input signal level is indicated when the MONITOR switch has been depressed, and the playback output level is indicated when the MONITOR switch has been released.

⑭ DIMMER SWITCH

Use this switch to select the brightness of the level meters and tape counter.

NORMAL (▬): When using the tape deck in daylight or other bright locations.

DIMMER (▂): At night or in dark locations when the existing brightness is too high.

⑮ METER SWITCH

Use this switch to select the function of the FL level meter.

AVERAGE (▬): When the switch is released to AVERAGE, the meter functions as an ordinary level meter.

PEAK (▂): When this switch is depressed to PEAK, the meter functions as a peak meter.

⑯ PINCH ROLLER

⑰ MONITOR SWITCH

This switch is used to select the output signal which is made available at the output and headphones jack. Since the indication of the level meter can be switched over at the same time, always make it a rule to depress this switch when adjusting the recording level (set to SOURCE position).

For playback: Set the switch to the released (TAPE) position. If it is set to the depressed (SOURCE) position, you will not be able to hear the playback sound.

For recording: Set the switch to the released (TAPE) position and you will then be able to hear the signals (playback sound) immediately after you have recorded the sound source.
If the switch is set to the depressed (SOURCE) position, you will be able to hear the signals (recording input) immediately before you record the sound source.

⑱ BIAS SWITCH

This selects the recording bias current according to the type of tape used for recording. Push for 2; released for 1.

1: For standard tapes.
2: For low noise and high output tapes.

⑲ EQ SWITCH

This selects the recording equalization characteristics according to the type of tape used. Push for 2; released for 1.

1: For standard tapes.
2: For low noise and high output tapes.

⑳ REC MODE SWITCHES (L, R)

Make absolutely sure that these switches are depressed and set to ON for recording.

L: For recording on the left (L) channel.
R: For recording on the right (R) channel.

Depress both switches (L and R) for stereo recording. Do not select these switches during actual recording.

㉑ REEL SIZE SELECTOR

Set this selector to the corresponding to the size (diameter) of the reel being used.

○ mark: Set the switch to the depressed position when using a 7-inch (17cm) reel.

◯ mark: Set the switch to the released position when using a 10-inch (26cm) reel.

NOTES:

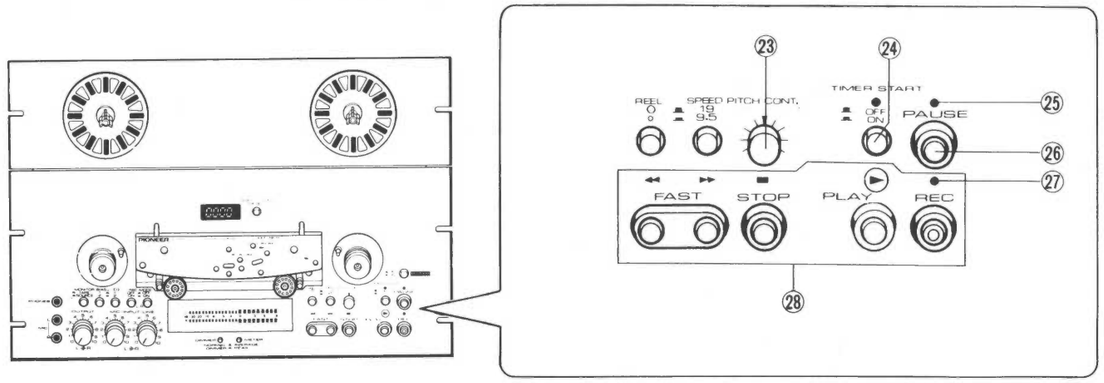
- *Always use two reels of the same size.*
- *Do not use reels with a diameter of 5 inches (12cm) or less.*

㉒ SPEED SWITCH

This switch selects the tape speed. Push for a 9.5cm/s speed; release for a 19cm/s speed (released position).

▬ 19cm/s: Used for recording music programs, etc.

▂ 9.5cm/s: Used for recording lengthy conversations, etc.



㉓ PITCH CONTROL KNOB

You can use this to make the tape travel 6% faster or slower than the normal tape speed during playback. When set to the central position (▼), the tape speed is 19cm/s or 9.5cm/s (standard values). Turn the control to the left and the speed drops and the musical steps are lowered; conversely, turn it to the right, and the speed rises and the musical steps are raised. This control cannot be used during recording.

㉔ TIMER START SWITCH

When unattended recording or wake-up playing back a tape with the help of a timer, depress this switch and then select the REC MODE switches as in the table below. When this switch is set to ON, the green indicator will come on.

Application	TIMER START switch	REC MODE switch
For unattended recording	Depress to ON.	Depress L and R to ON.
For wake-up playback	Depress to ON.	Release L and R to OFF.

㉕ PAUSE INDICATOR

This green lamp lights up when the PAUSE button is depressed to indicate the tape has stopped temporarily.

㉖ PAUSE BUTTON

Depress this button to stop the tape temporarily during recording and playback. Once the button is depressed, the green indicator lights up to indicate that the deck is now set to the pause mode. Release the button to allow the tape to resume traveling. This button does not work in the fast forward and rewind modes. When the fast forward (▶▶) or rewind (◀◀) button is depressed from the pause mode, the pause function is released and the tape is set to the fast forward or the rewind mode.
The pause mode can also be released with the STOP button.

㉗ RECORDING INDICATOR (REC)

This red lamp lights up during recording. Check that it has lit up before recording.

㉘ FUNCTION BUTTONS

◀◀ (REW): Depress this button to rewind the tape. (The tape will travel at high speed from right to left.)

▶▶ (FF): Depress this button to send the tape forward at top speed. (The tape will travel at high speed from left to right).

PLAY: Depress this button to play back or record the tape. (the tape will travels form left to right).

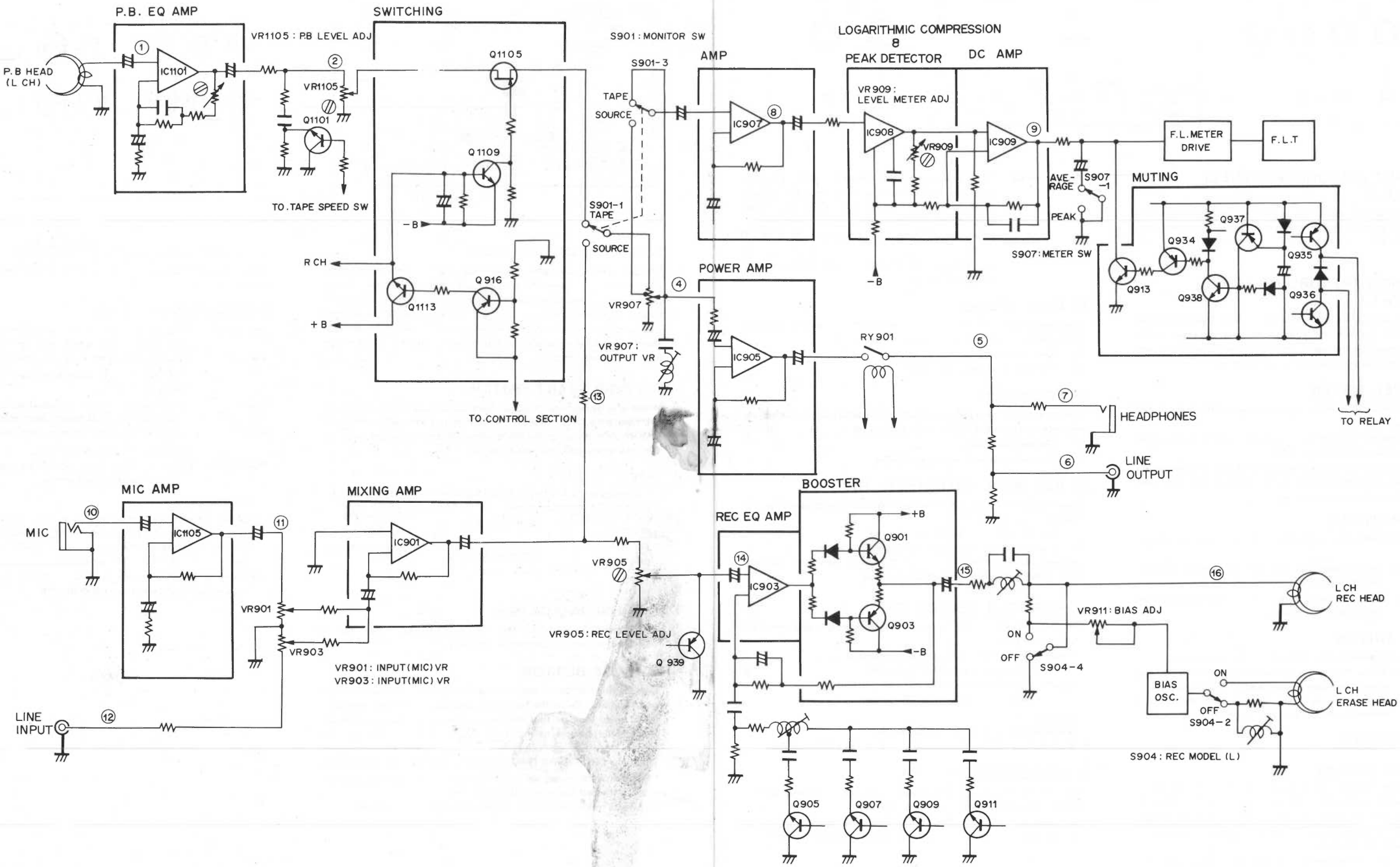
REC: Depress the REC button and the ▶ PLAY button for tape recordings

■ (STOP): Depress this button to stop the tape run and to release the function buttons.

NOTES:

- *When the shut-off switch which is coupled to the tension arm is at OFF, none of the function button indicators come on.*
- *All the function buttons are released (OFF) to stop mode when the POWER switch is turned OFF.*
- *There is no need to press the (■) stop button if you want to change over from one function to another.*

3. BLOCK DIAGRAM AND LEVEL DIAGRAM

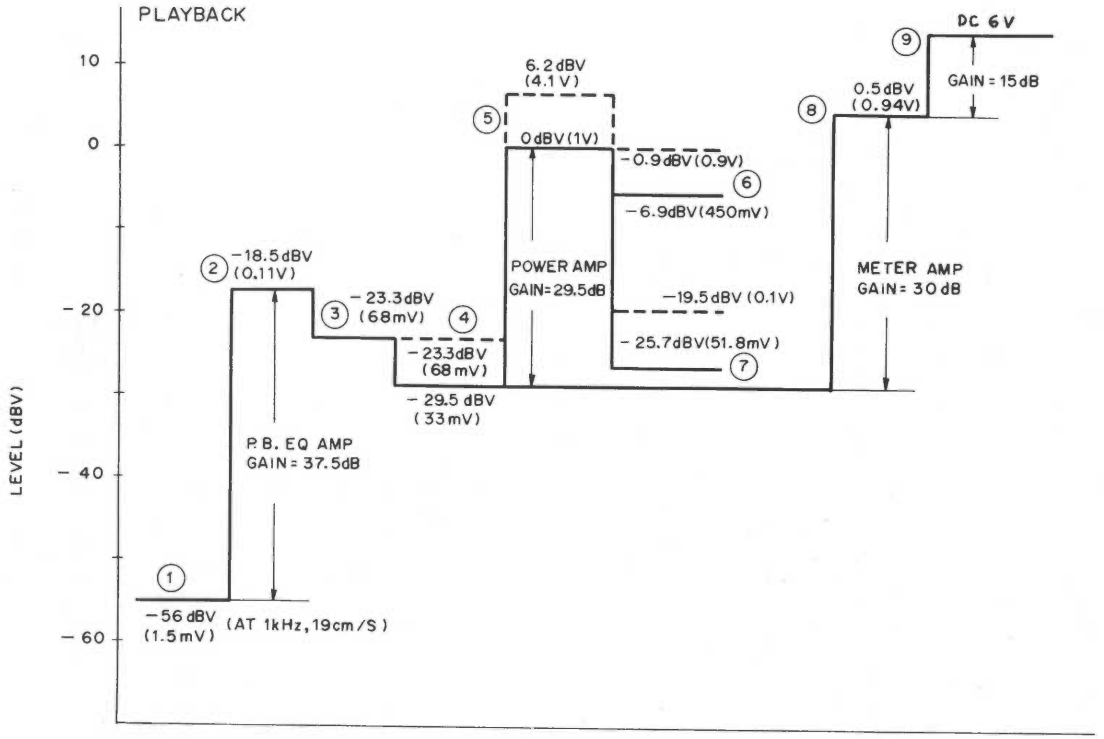


LEVEL DIAGRAM

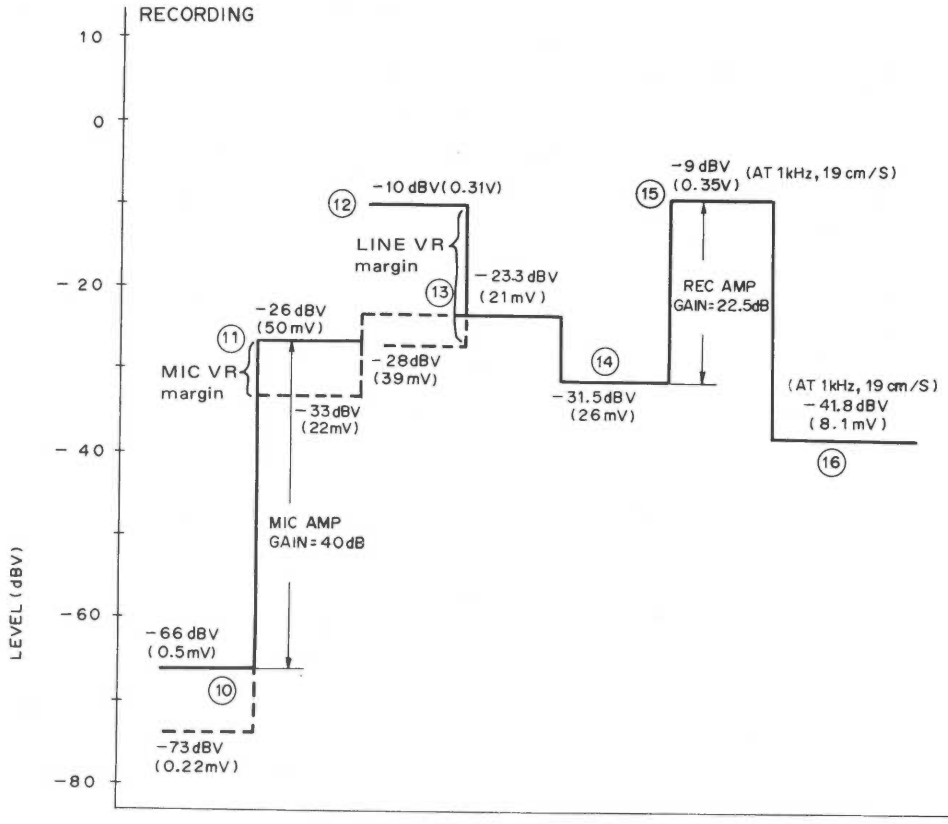
Playback

NOTES:

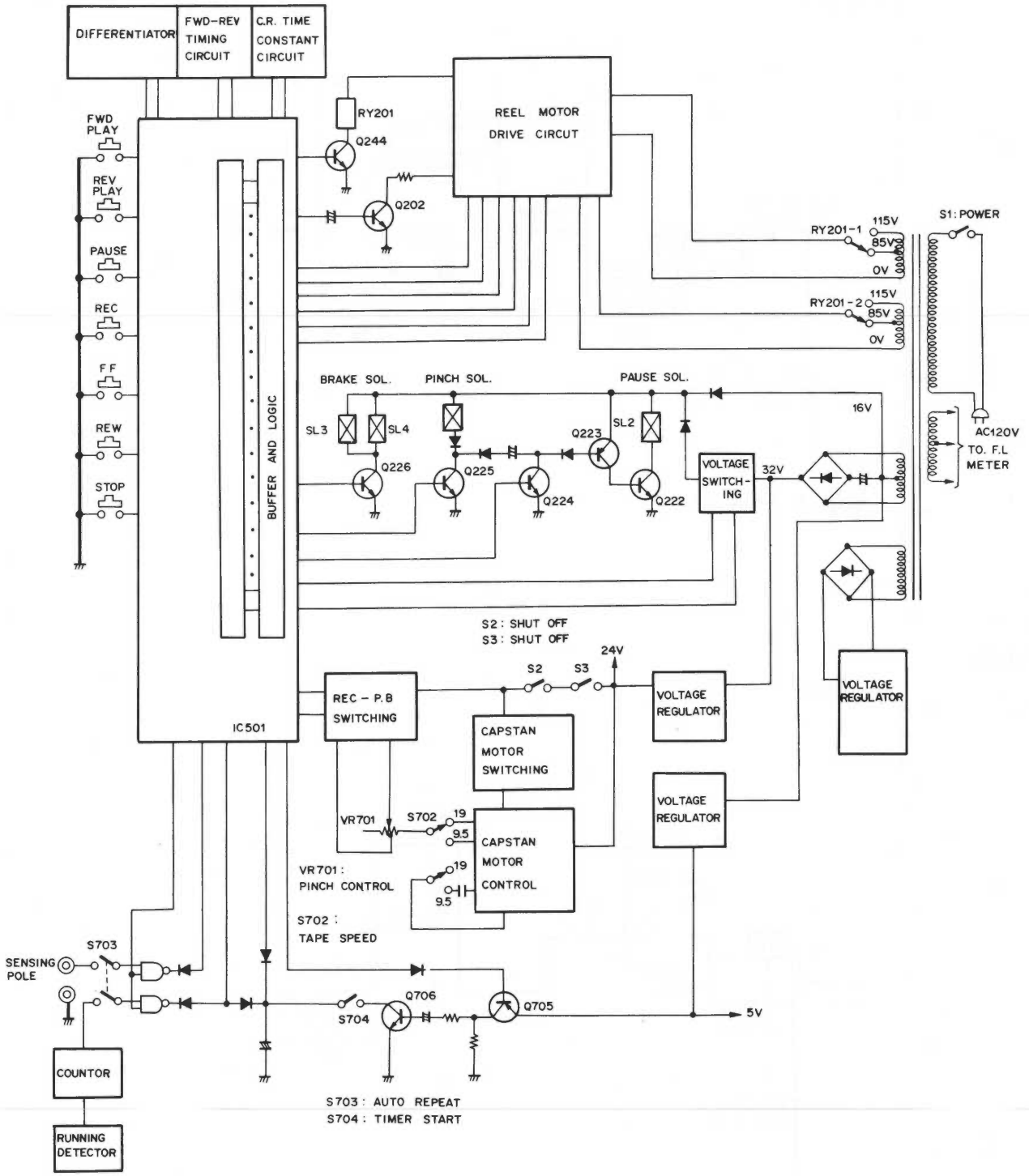
- *0dBv = 1V*
- *Frequency: 1kHz*
- *The level measurement points are indicated on the block diagram.*



Recording



Block Diagram of Control Section



4. DISASSEMBLY

Bonnet

Remove screws ❶

Front Panels

1. Remove knob A, B assembly, and the pitch control knob.
2. Remove screws ❷ to remove the upper front panel.
3. Remove screws ❸ and ❹ to remove the lower front panel.

Head Base

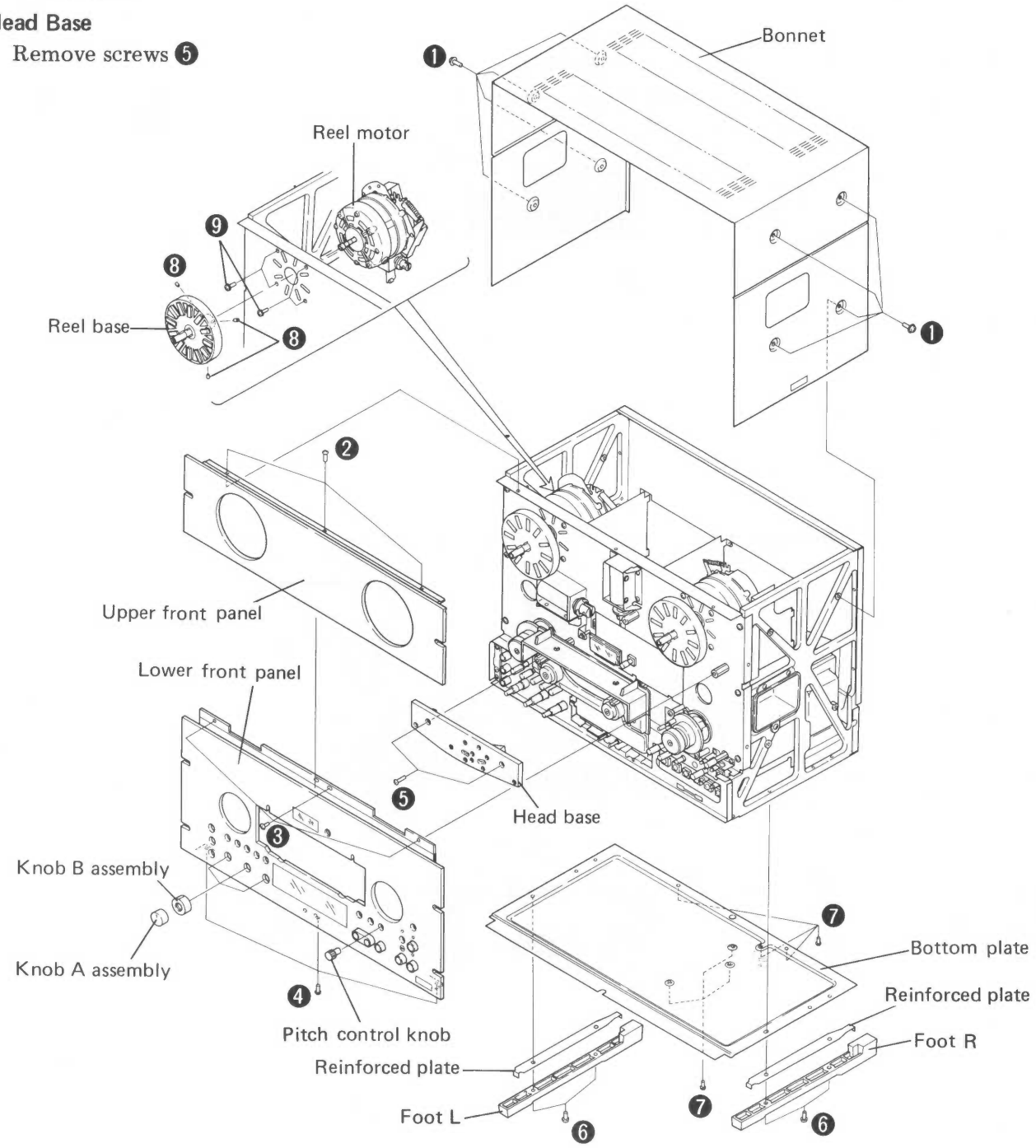
Remove screws ❺

Foot and Bottom Plate

1. Remove screws ❻ to remove the foot.
2. Remove screws ❼ to remove the bottom plate.

Reel Motor

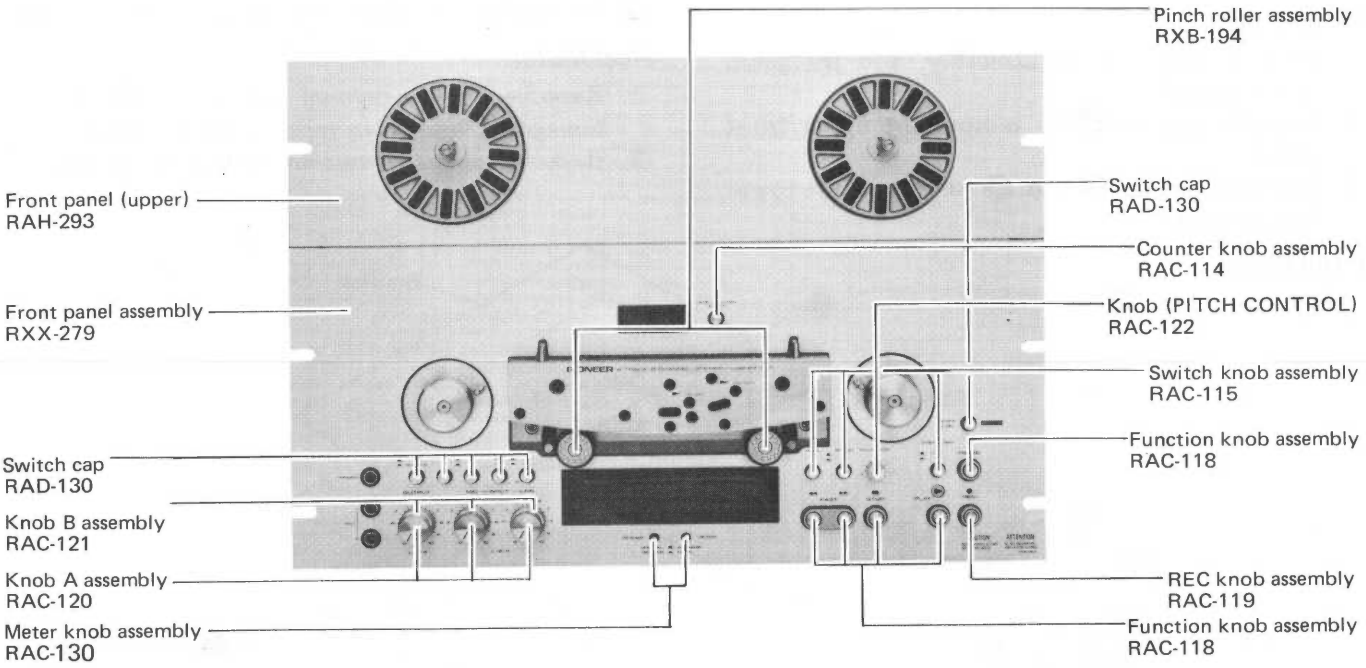
1. Remove the hexagonal setscrews ❽ with a hexagonal wrench to remove the reel base.
2. Remove screws ❾ to remove the reel motor.



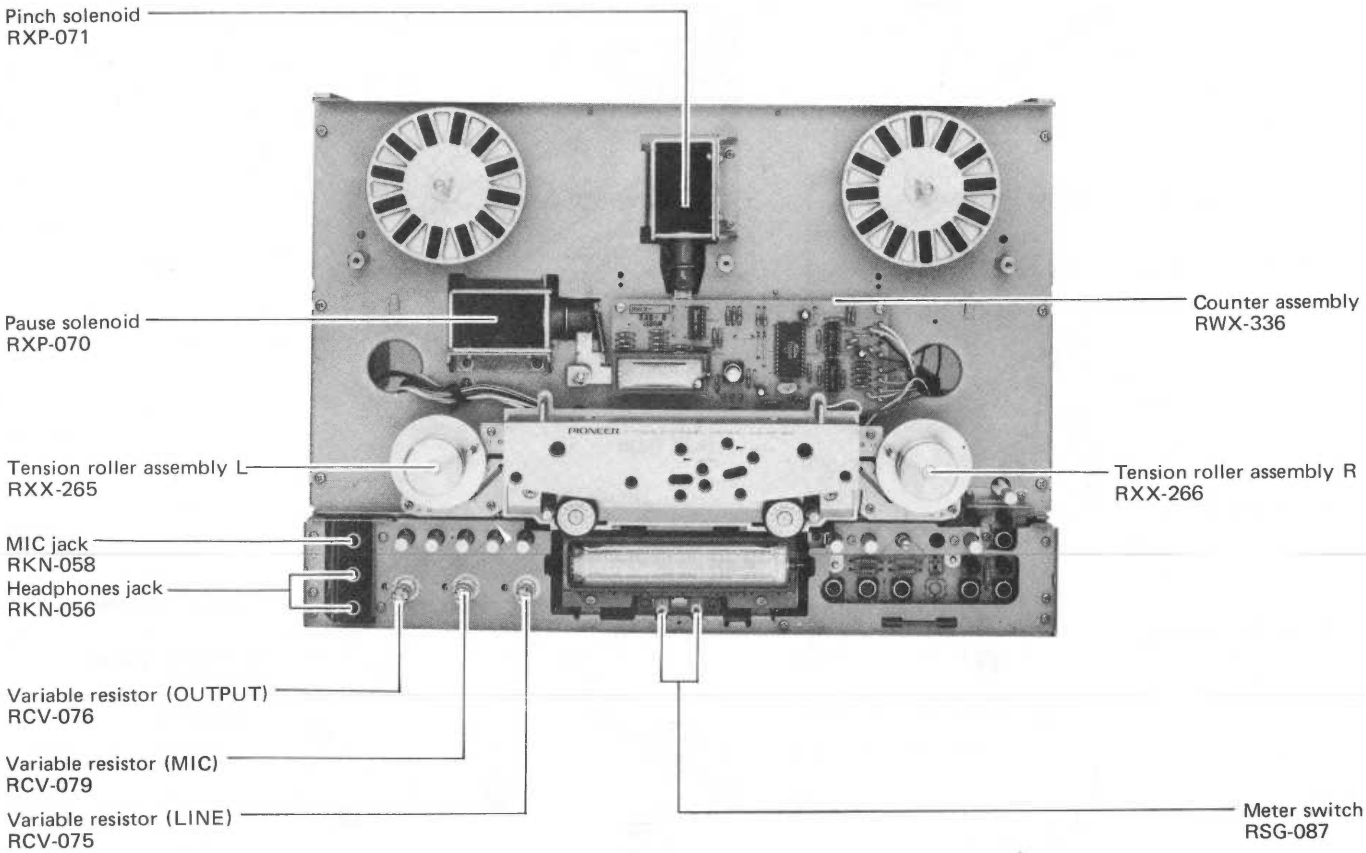
5. PARTS LOCATION

NOTE:
The ⚠ mark found on ome component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

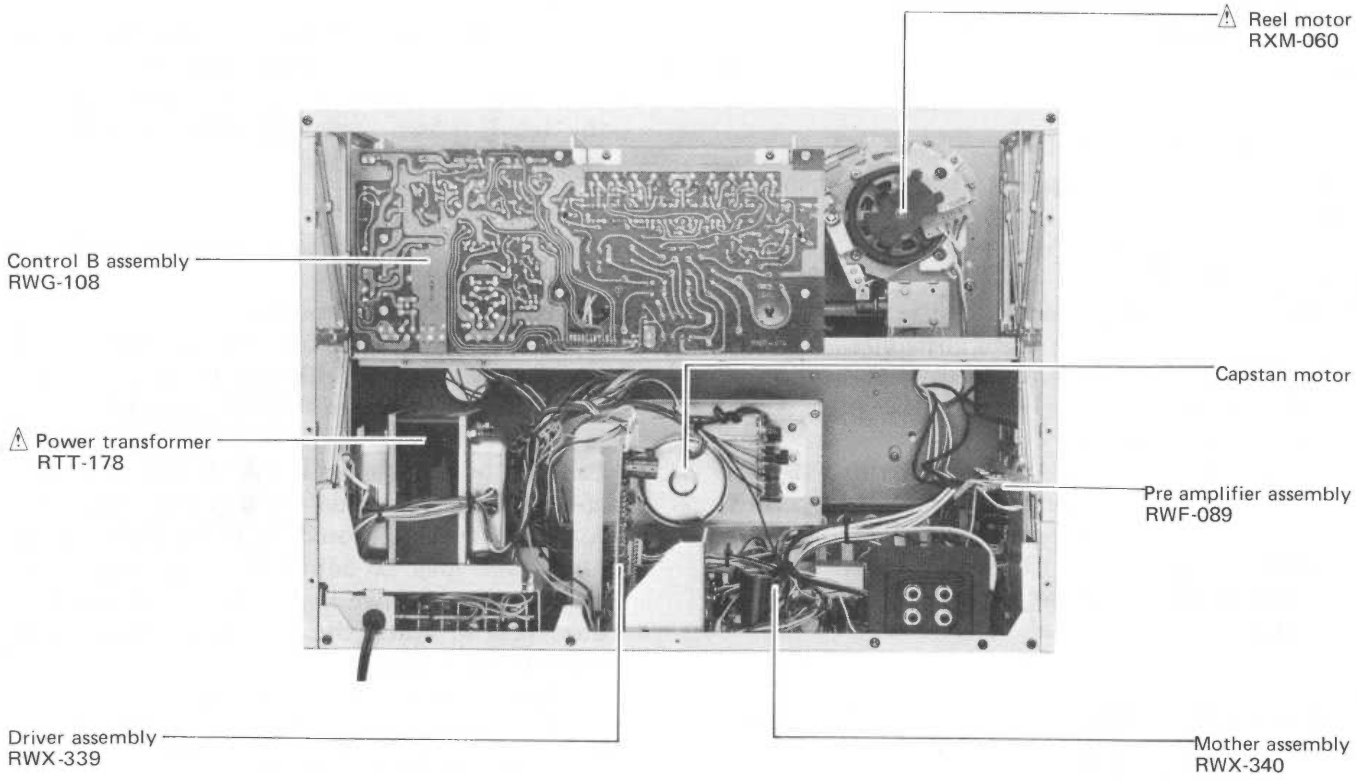
Front Panel View



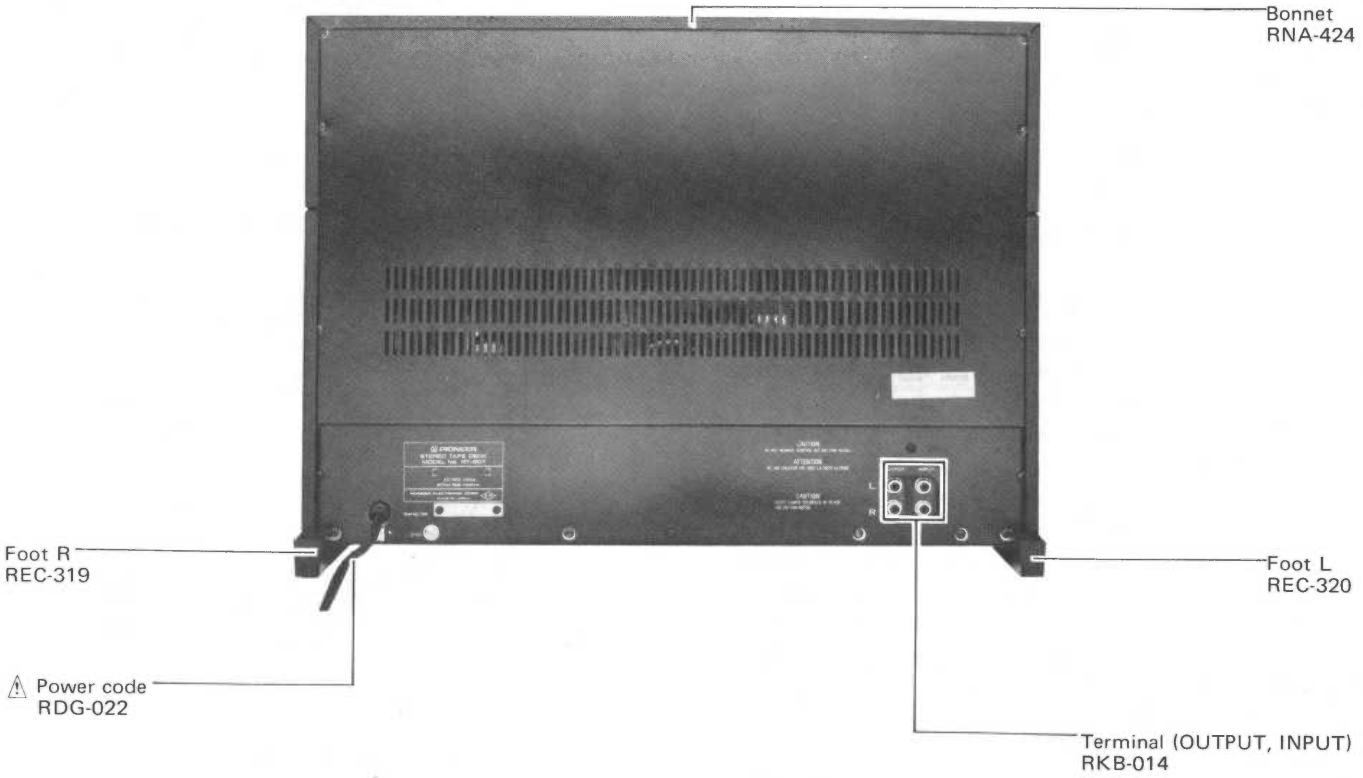
Front View with Front Panel Removed



Rear View with Rear Panel Removed



Rear View



6. MECHANICAL ADJUSTMENTS

Unless otherwise stated, all adjustments should be performed with the unit in the normal vertical operating position.

6.1 REEL BASE HEIGHT ADJUSTMENT

This adjustment is required after exchanging the reel motor, or when an appropriate height cannot be obtained by means of reel base shaft adjustment. (See Fig. 6-1).

1. Remove the bonnet and the upper front panel, and lay the tape deck down horizontally.
2. Adjust the reel base shaft so that the lower edge of the reel base is level with part A of the reel base bearing.
3. Loosen the setscrew (the screw with a hexagonal hole) with a hexagonal wrench to permit the chassis and reel base bearing to be separated by 1mm ±0.1mm. Check that the reel motor shaft is pressed against the brake drum side at this time.

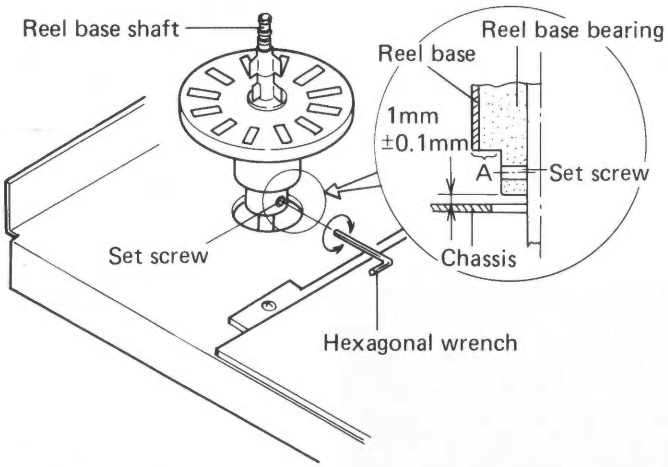


Fig. 6-1 Reel base height adjustment

6.2 BRAKE ADJUSTMENT

This adjustment is required after replacing the brake solenoid or reel motor, and when too much or too little tape tension is achieved after stopping tape transport. Before starting the adjustment, check the following points.

1. First check that the brake band is mounted centrally in respect to the brake drum, and that the band is also parallel (i.e. no tape slackness or twisting). If the band is not in the center, adjust the brake drum; if it is not parallel, adjust the brake band after loosening screw ❶ .
2. Also check that the brake felt is no longer in contact with the brake drum after the brake has been released (by pressing the movable core of the brake solenoid inwards), and that there is no slackness in the brake band. If the brake felt does make contact, or there is slackness in the band, loosen screw ❷ shown in Fig. 6-2 and adjust the brake ring.

Adjustment Procedure

Brackets refer to brake adjustment of the right hand reel motor.

1. Put the unit into stop mode.
2. Wind a piece of thread onto an empty No.7 reel (hub diameter of 60mm), and tie the other end of the thread to a tension gauge as shown in Fig. 6-3.
3. Pull the tension gauge in the B (E) direction, and read off the value when the reel starts to rotate. This value should lie in the 350 — 450g range, and may be adjusted by screwdriver at section A as shown in Fig. 6-2. If this procedure fails to attain the specified range, check the following points.
   Has the brake drum become dirty?
   Has the brake felt worn down or become dirty?
   Does the brake arm move smoothly?
4. Next pull the tension gauge in the A (F) direction, and again read the value when the reel starts to rotate. This value and the previously measured value (in step 3) should be related according to the following expression:

$$\text{Brake ratio} = \frac{\text{Value in B (E) direction}}{\text{Value in A (F) direction}} = 2.5 - 3.5$$

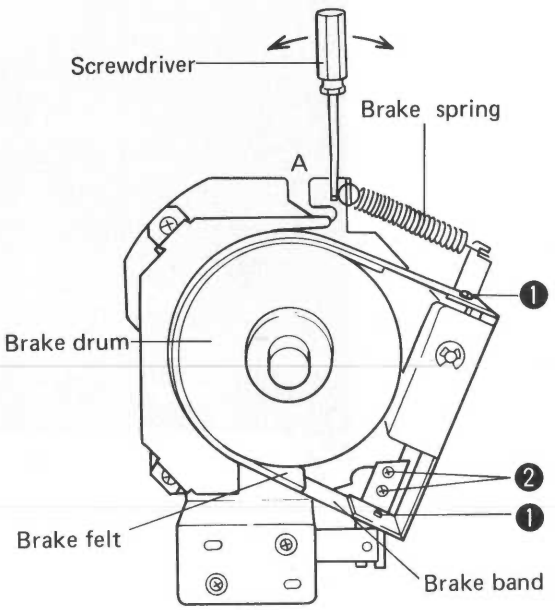


Fig. 6-2 Brake adjustment

6.3 TAKE-UP TORQUE AND BACK TENSION TORQUE ADJUSTMENTS

This adjustment is required following replacement of the reel motor, and when tape transport behaves abnormally.

Prior to Adjustment

1. Set both the R and L shut-off switches coupled to the tension arm to the ON position (and retain with rubber bands).
2. Since torque varies at temperatures considerably lower or higher than 20°C, also check the ambient temperature prior to commencement of the adjustment.

■ Take-up Torque Adjustment during PLAY Mode

1. Set the REEL switch to the 10 inch position (released position).
2. Start the unit in PLAY mode, and "take-up" the tension gauge in the D direction (tension gauge "fed in") as shown in Fig. 6-3. Adjust VR203 in the Control B Assembly shown in Fig. 6-4 so that the tension gauge reads 240 — 260g. Take-up torque is increased by turning these VRs clockwise, and decreased by turning counter clockwise.
3. Next set the REEL switch to the 7 inch position (depressed position), and repeat the procedure described above in step 2. In this case, adjust the tension gauge value to 140 — 160g by means of VR201.

■ Back Tension Torque Adjustment during PLAY Mode

1. Set the REEL switch to the 10 inch position (released position).
2. Put the unit into PLAY mode. Pull the tension gauge in the B direc tion as shown in Fig. 6-3, and read off the gauge value. Adjust the gauge reading to 95 — 105g by means of VR210.

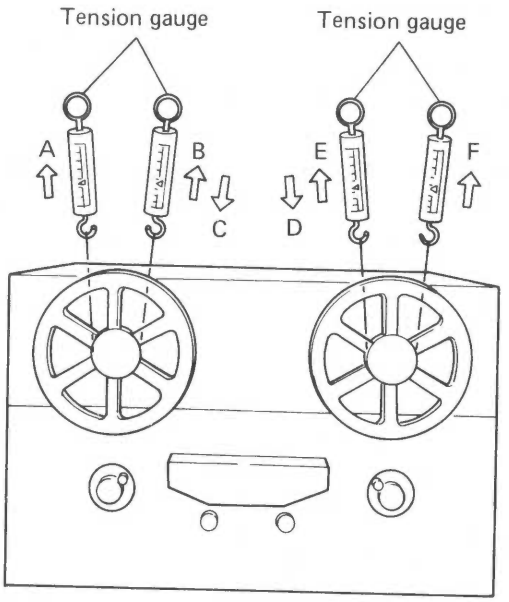


Fig. 6-3 Torque and tension adjustment

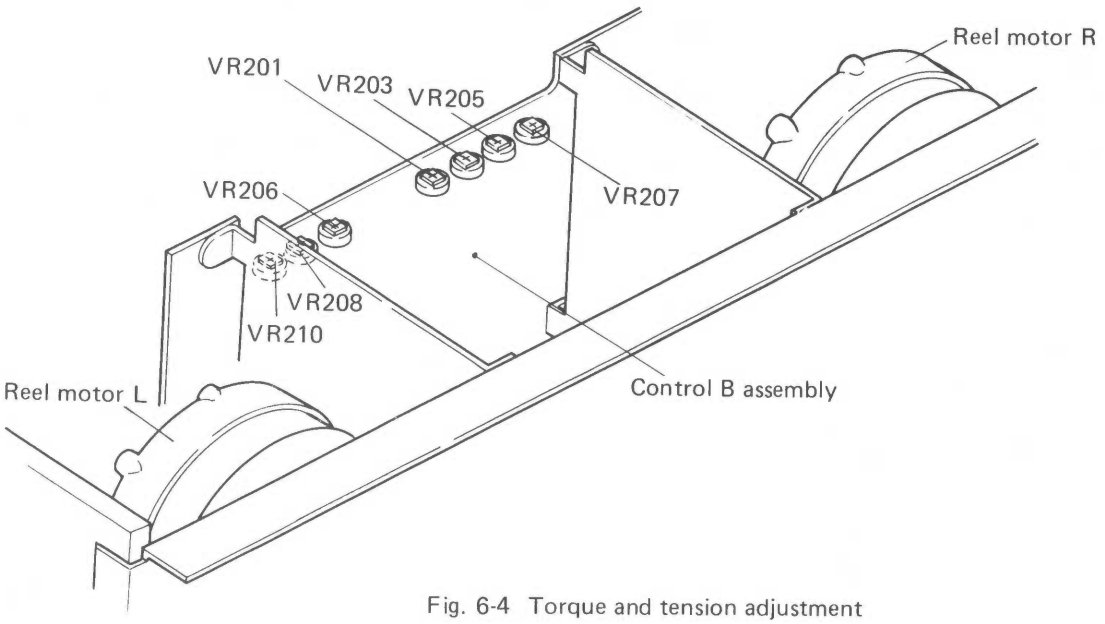


Fig. 6-4 Torque and tension adjustment

■ Take-up Torque Adjustment during FF Mode

Brackets refer to take-up torque adjustment for REW mode.

1. Set the REEL switch to the 7 inch position (depressed position).
2. Put the unit into FF mode, and have the tension gauge "taken up" (i.e. "fed in") in the D (C) direction as shown in Fig. 6-3. Adjust the tension gauge reading to 440 — 460g by VR205 (VR206). When switching the unit over to stop mode after completing the adjustment, set the shut-off switch to the OFF position (by removing the rubber bands). The motor will rotate in the reverse direction if the STOP button is pressed under these conditions.

■ Back Tension Torque Adjustment during FF Mode

Brackets refer to back tension torque adjustment during REW mode.

1. Put the REEL switch into the 10 inch position (released position).
2. Put the unit into FF (REW) mode, and pull the tension gauge out in the B (E) direction as shown in Fig. 6-3. Adjust the gauge readings to 55 — 60g by VR208 (VR207). Again, when stopping the unit after completion of the adjustment, always turn the shut-off switch OFF (by removing the rubber bands).

6.4 PINCH ROLLER PRESSURE ADJUSTMENT

After replacing the pinch solenoid or pinch rollers, or if the tape tends to slip during tape transport, adjust the pinch roller pressure as described below.

1. Push the movable core of the pinch solenoid upwards by hand. At the point when the pinch roller meets the capstan, loosen screw ❶ to obtain a gap of 0.5 to 0.8mm between the pinch solenoid and silencer rubber as shown in Fig. 6-5, and then adjust the position of the pinch solenoid.
2. Put the unit into PLAY mode, but without any tape in the reels, and pull the tension gauge straight down while gently pressing against the cap of the pinch roller by hand (see Fig. 6-6). Then check that the pinch roller disengages the capstan within the 1.2 — 1.4kg tension gauge reading range, and that the pinch roller ceases to rotate.
3. If the measured value lies outside this range, check the following points and then readjust.
   Has the pinch roller become dirty?
   Has the capstan become dirty?
   Has the pressure spring become ineffective?

6.5 PAUSE ADJUSTMENT

Pause adjustment is required following replacement of the pause solenoid, and when switching the pause switch on and off during recording and playback modes results in imperfect recording. Note, however, that the pinch roller pressure adjustment must be completed before commencing the pause adjustment.

1. Put the unit into PAUSE mode.
2. Loosen screw ❶ as shown in Fig. 6-7 to obtain a gap of 0.5 — 1mm between the capstan and pinch roller, and then adjust the mounting position of the pause solenoid.

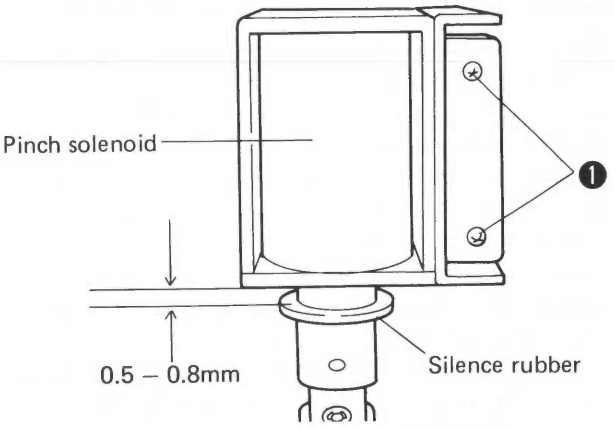


Fig. 6-5 Pinch roller pressure adjustment

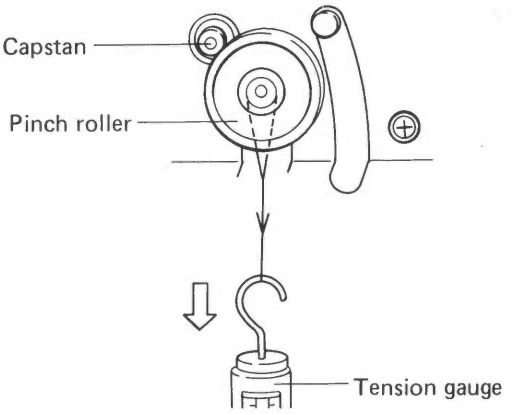


Fig. 6-6 Pinch roller pressure adjustment

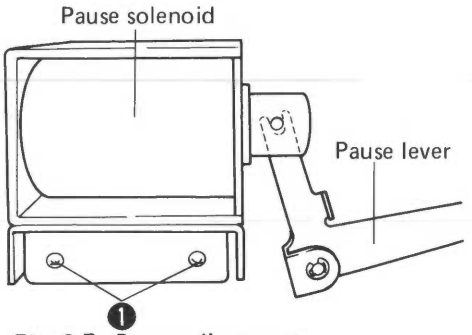


Fig. 6-7 Pause adjustment

6.6 TAPE SPEED ADJUSTMENT

Check the following points before commencing to adjust tape speed.

1. Set the pitch controls to their center click-stop positions.
2. Clean the capstan shaft and pinch rollers with anhydrous alcohol.
3. Use the same size reels on the supply and take-up sides.
4. Complete the take-up torque, back tension torque, and pinch roller pressure adjustments before commencing tape speed adjustment.

Adjustment Procedure

1. Set the SPEED switch to the 19 position (released position), and load the STD-101 test tape used in wow and flutter measurements. Play the tape until approximately equal amounts are on both reels.
2. Connect a frequency counter to the OUTPUT terminals, and start up the unit in PLAY mode. If the frequency counter fails to register 3,000Hz, adjust VR21 in the servo assembly as shown in Fig. 6-8.
3. Next set the SPEED switch to 9.5 (depressed position), and adjust VR22 (also shown in Fig. 6-8) to obtain a frequency counter reading of 1,500Hz.

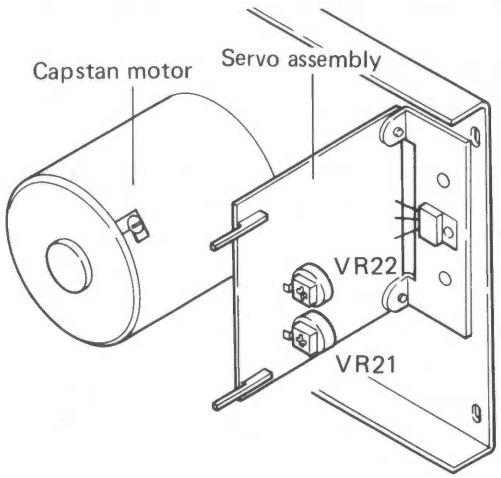


Fig. 6-8 Tape speed adjustment

7. HEAD ADJUSTMENTS

Before Beginning Head Adjustment

1. Clean the head and demagnetize the head with a head eraser.
2. The following test equipments are necessary in head adjustments and electrical adjustments.
   AC millivoltmeter (AC mV meter), DC voltmeter, Oscilloscope, Attenuator, Low frequency generator, Frequency counter
3. All adjustments should be performed with the designated test tape.
   STD-154 ..... Play system adjustment tape
   STD-502 ..... Record/play general adjustment tape
4. Position the switches as follows unless otherwise specified.
   SPEED switch 19
   BIAS switch 2
   EQ switch 1
   MONITOR switch ..... TAPE
   METER switch ..... PEAK
   DIMMER switch ..... NORMAL
   OUTPUT volume ..... Central position (Center click stop)

7.1 APPROXIMATE ADJUSTMENT

■ Height Adjustment

Adjust the following screws (see Fig. 7-2) to attain the dimensions as shown in Fig. 7-1 for each head during tape transport.

Playback head ..... ❶ ❷ ❸
Recording head ..... ❻ ❼ ❽
Erase head ..... ⓰ ⓱

Note:
If the Fig. 7-1 dimensions for the height of the erase head cannot be obtained, remove screws ⓲ and ⓳ and also the head base, loosen screws ⓰ and ⓱, and replace the E head spacer.
E head spacer C (0.1t) RNF-638
E head spacer D (0.2t) RNF-639

■ Tilt Adjustment

Adjust the following screws shown in Fig. 7-2 so that both the top and bottom of the head surface make uniform contact with the tape during tape transport.

Playback head ..... ❶ ❷
Recording head ..... ❻ ❼

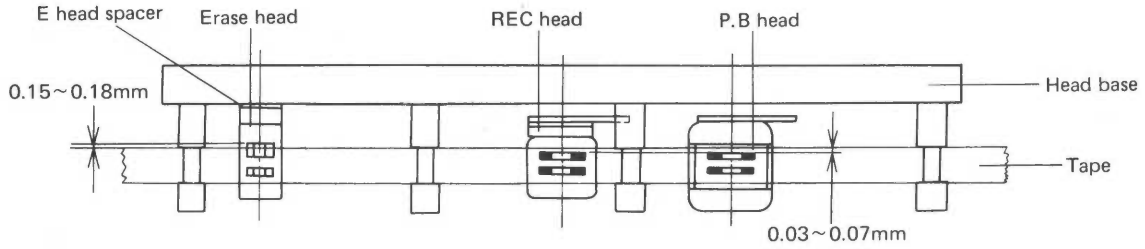


Fig. 7-1 Dimensions for the height of heads

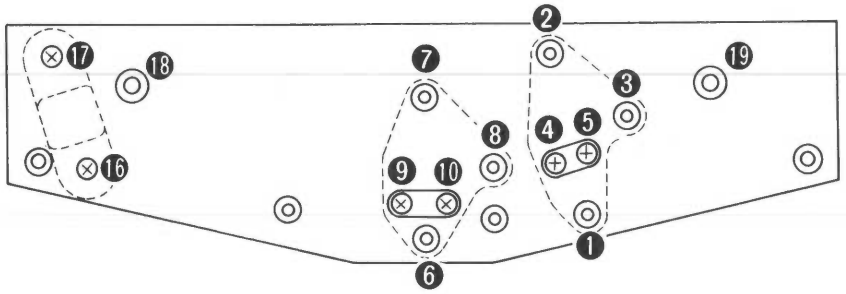


Fig. 7-2 Adjustment points

■ Azimuth Adjustment

Adjust the following screws shown in Fig. 7-2 so that the head gap is at an exact right angle to the direction of the tape.

Playback head ..... ❸
Recording head ..... ❽

7.2 PLAYBACK HEAD ADJUSTMENT

1. Connect an AC millivoltmeter to the OUTPUT terminals, and play the 15kHz section of the STD-154 test tape at 19cm/s.
2. Adjust screw ❸ shown in Fig. 7-2 until the AC millivoltmeter gives a maximum reading. As long as there is no big difference in output between left and right channels, this may be disregarded.
3. Check that there is no change in output when the tape is pressed in slightly by hand (near the head gap) during tape transport. If the output does vary, loosen screws ❹ and ❺ shown in Fig. 7-2, and move the head around in a horizontal plane (i.e. in either left or right directions) to find the most suitable position.

7.3 RECORDING HEAD ADJUSTMENT

This adjustment should always come after the playback head adjustments.

1. Connect an AC millivoltmeter to the OUTPUT terminals, and apply a 2kHz signal to the INPUT terminals (at any suitable signal level).
2. Record this 2kHz signal onto the STD-502 test tape, and play the recorded portion back. Adjust screws ❻, ❼ and ❽ as shown in Fig. 7-2 so as to obtain maximum output level in both left and right channels.
3. Next apply a 15kHz signal and record it onto the same test tape. During playback, fine adjust screw ❽ to again obtain maximum output level in both channels.
4. Then gently press against the tape (by finger) during transport at a spot near the head gap, and check for any change in output level. If the level does vary, loosen screws ❾ and ❿ as shown in Fig. 7-2, and move the head around in a horizontal plane (either to left or right) to find the optimum position.

8. ELECTRICAL ADJUSTMENTS

Proceed as Follows before Beginning Adjustment of the Electrical System.

1. Confirm that the mechanism section has been properly adjusted.
2. When making measurements, make the level 0dBv=1V, and connect a 50kΩ (47—52kΩ) dummy load to the OUTPUT terminals.
3. Furthermore, adjustment will also apply to both left and right channels unless otherwise indicated.
4. 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.
   1. Supply Voltage Adjustment
   2. Playback Level Adjustment
   3. Playback Equalizer Adjustment
   4. Oscillator Voltage Adjustment
   5. Bias Trap and Dummy Coil Adjustment
   6. Level Meter 0dB Adjustment
   7. Recording Bias Adjustment
   8. Recording Level Adjustment
   9. Record/Play Frequency Response

8.1 POWER SUPPLY VOLTAGE ADJUSTMENT

1. Connect a DC voltmeter between terminal no.69 on the mother assembly and ground.
2. Adjust VR914 so as to obtain a meter reading of 15 ±0.2V.

8.2 PLAYBACK LEVEL ADJUSTMENT

1. Connect an AC millivoltmeter to the OUTPUT terminals.
2. Play the 700Hz/0dB portion of the STD-154 test tape.
3. Adjust VR1105 (L ch) and VR1106 (R ch) to obtain a millivoltmeter reading of −7dBv (450mV).

8.3 PLAYBACK EQUALIZER ADJUSTMENT

1. Again connect the AC millivoltmeter to the OUTPUT terminals.
2. Play the 700Hz/−10dB and 10kHz/−10dB portions of the STD-154 test tape.
3. The AC millivoltmeter should shown a level difference of no more than $0^{+0.5}_{-0}$ between these two portions of tape. If the meter readings exceed this specification, adjust VR1101 (L ch) and VR1102 (R ch).

8.4 OSCILLATOR VOLTAGE ADJUSTMENT

1. Turn the REC MODE switch for both left and right channels, and also the PAUSE switch on, and then press the REC and PLAY switches (i.e. REC/PAUSE mode).
2. Connect an AC voltmeter (with either 50 or 100V range) between GND and TP3 on the mother assembly with a connector cord of low distribution capacitance. Adjust VR913 to obtain a meter reading of 30 ±0.5V.

Note:

- *Because of the high oscillator frequency (125kHz) be careful not to introduce any error during the measurement or adjustment stages.*
- *Do not forget to disconnect the AC voltmeter from the TP terminal after completing the adjustment. (Distribution capacitance in the measuring equipment may lead to change in oscillator frequency, resulting in error in the following adjustment).*

8.5 BIAS TRAP AND DUMMY COIL ADJUSTMENTS

1. Connect an oscilloscope to the TP4 and TP5 terminals on the mother assembly. Turn on the REC MODE switch for both left and right channels to put the unit into recording mode. Adjust L903 and L904 to obtain minimum bias voltage at TP4 and TP5.
2. Put the unit into MONO (L ch) recording mode, and adjust L908 (right channel dummy coil) to again obtain minimum bias voltage at TP4.
3. Then put the unit into MONO (R ch) recording mode, and adjust L907 (left channel dummy coil) to obtain minimum bias voltage at TP5.
4. After completion of the above adjustments, connect an AC millivoltmeter and oscilloscope to the OUTPUT terminals, and turn the REC MODE switches for both left and right channels on to put the unit into recording mode. Adjust L901 (L ch) and L902 (R ch) to minimize the bias leak waveform shown in the oscilloscope. When the point of minimum bias leak is not clear, remove the base plate, and adjust from the top side of the mother assembly.

8.6 LEVEL METERS 0dB ADJUSTMENT

1. Connect an AC millivoltmeter to the OUTPUT terminals.
2. Set the MONITOR switch to SOURCE, and the OUTPUT level control to the center click-stop position. Adjust the INPUT (LINE) level controls to obtain a millivoltmeter reading of −7dBv (450mV).
3. Then adjust VR909 (L ch) and VR910 (R ch) to positions where the FL meter [0dB] segment just lights up.

8.7 RECORDING BIAS ADJUSTMENT

1. Connect the AC millivoltmeter to the OUTPUT terminals again.
2. Apply an input signal of 1kHz/−10dBv (316mV) to the INPUT terminals.
3. Set the OUTPUT level control to the center click-stop, and the MONITOR switch to SOURCE. Adjust the INPUT (LEINE) level controls to obtain a meter reading of −7dBv (450mV).
4. Turn both the left and right channel REC MODE switches on, and set the MONITOR switch to the TAPE position. Then record a 1kHz/−10dBv (316mV) signal onto the STD-502 test tape. Turn VR911 (L ch) and VR912 (R ch) from minimum to maximum positions (clockwise rotation), and locate the VR settings at which the AC millivoltmeter exceeds the maximum reading by up to 0.2dB. (See Fig. 8-2).

Note:
VR911 and VR912 influence each other, so this adjustment will have to be repeated several times.

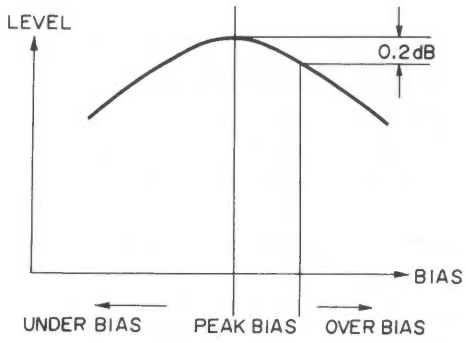


Fig. 8-2 Recording bids adjustment

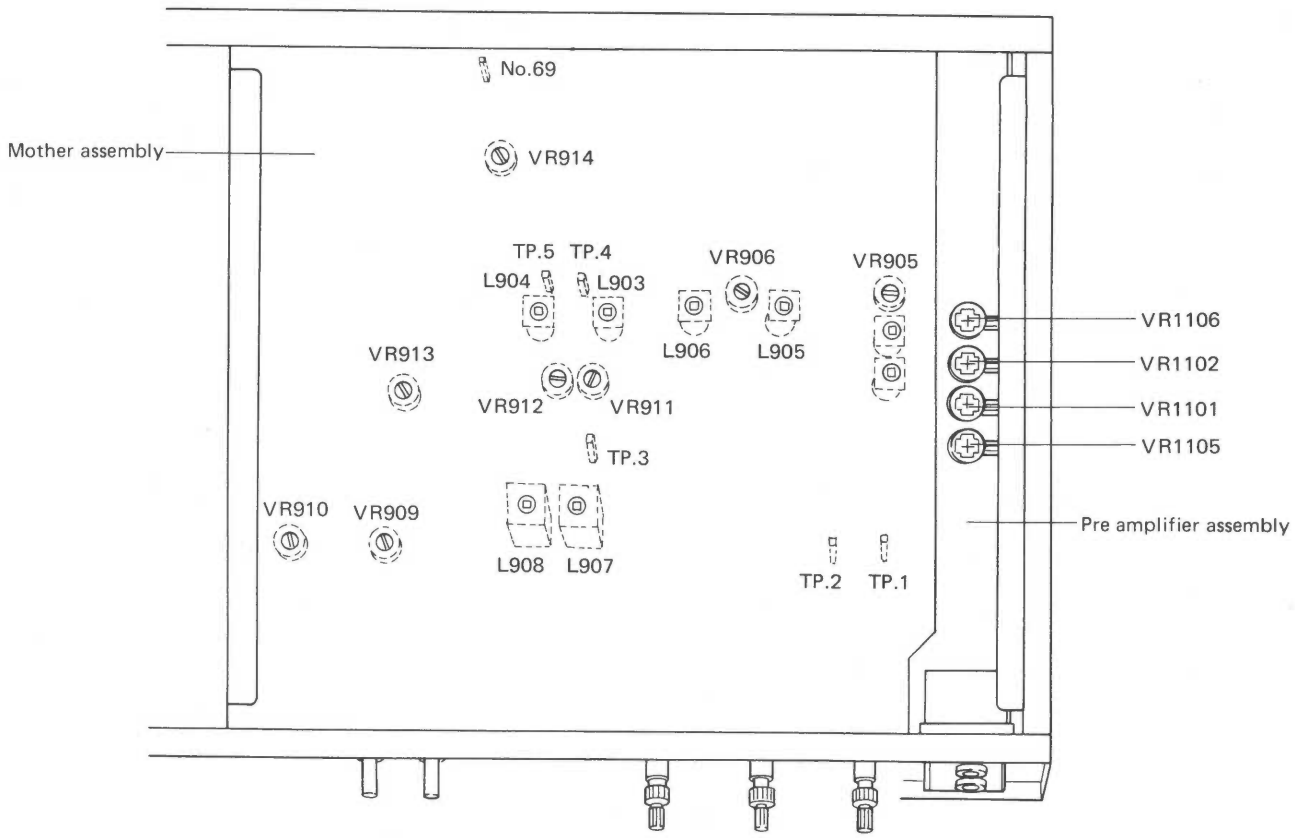


Fig. 8-1 Adjustment points

8.8 RECORDING LEVEL ADJUSTMENT

1. Again connect the AC millivoltmeter to the OUTPUT terminals.
2. Apply a 1kHz/−10dBv (316mV) signal to the INPUT terminals.
3. Set the OUTPUT level control to the center click-stop, and the MONITOR switch to the TAPE position. Record the 1kHz/−10dBv signal onto the STD-502 test tape, and adjust VR905 (L ch) and VR906 (R ch) to obtain a meter reading of −7dBv (450mV).

8.9 RECORDING/PLAYBACK FREQUENCY RESPONSE ADJUSTMENT

This adjustment must be performed after the recording bias adjustment.

1. Connect the AC millivoltmeter to the OUTPUT terminals.
2. Connect another AC millivoltmeter to the INPUT terminals.
3. Turn both the left and right REC MODE switches on, set the OUTPUT level control to the center click-stop position and the MONITOR switch to SOURCE. Adjust the INPUT (LINE) level controls to give a −7dBv (450mV) reading in the AC millivoltmeter.
4. Without changing the INPUT (LINE) level control, drop the input level by 20dB by attenuator, and record the 1kHz portion and all the other frequencies indicated in Fig. 8-3 onto the STD-502 test tape. Then set the MONITOR switch to the TAPE position, and check that the level differences between the 1kHz playback output level and the playback output levels at all other frequencies satisfy the specified ratings. If the output levels fail to satisfy the specifications, adjust L905 (L ch) and L906 (R ch).

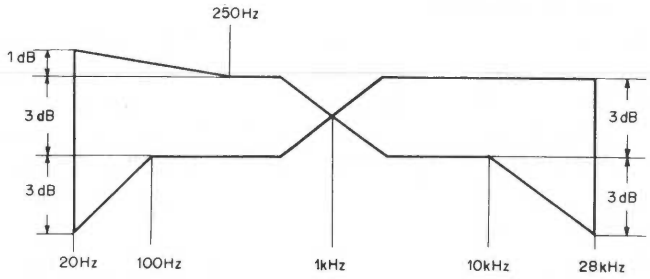


Fig. 8-3 REC/PB frequency response adjustment

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

9.1 MISCELLANEA

NOTES:

- *When ordering resistors, first convert 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 x 10¹*	*561*	*RD¼PS 5 6 1 J*
47kΩ	*47 x 10³*	*473*	*RD¼PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RSIP 0 1 0 K*

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

5.62kΩ	*562 x 10¹*	*5621*	*RN¼SR 5 6 2 1 F*

- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

Miscellaneous Parts

ASSEMBLIES

Part No.	Symbol & Description	
RWX-336		Counter assembly
RWG-108		Control B assembly
RXX-280		Control A assembly
RWS-083		Function switch assembly
RWS-084		Switch assembly
RWX-339		Driver assembly
RWX-340		Mother assembly
RWF-089		Pre amplifier assembly

SWITCHES

Part No.	Symbol & Description	
⚠ RSA-021	S1	Power switch
RSF-022	S2, S3	Micro switch

SEMICONDUCTORS

Part No.	Symbol & Description
2SD686	Q214
2SB682	Q221
⚠ 2SC2535	Q237, Q238
W03C	D1–D4

OTHERS

Part No.	Symbol & Description	
⚠ RWX-109	CR1	Spark killer
⚠ RTT-178	T1	Power transformer
RXP-071	SL1	Pinch solenoid
RXP-070	SL2	Pause solenoid
RXP-075	SL3, SL4	Brake solenoid
⚠ RXM-060	M1, M2	Reel motor
RPB-047		Erase head (4T 2C EH)
RPB-064		REC head (4T 2C RH)
RPB-065		P.B head (4T 2C PBH)
⚠ EDG-022		Power code

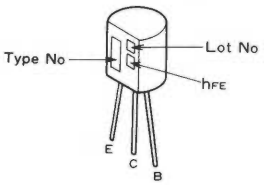
List of Changed Parts for Factory Modification

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

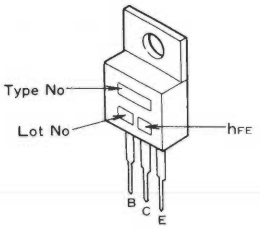
Symbol	Part No.	Description

Appearance of Transistors and ICs

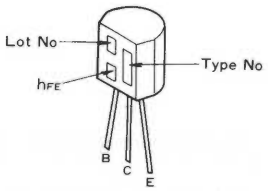
2SA562
2SA1015
2SC1815



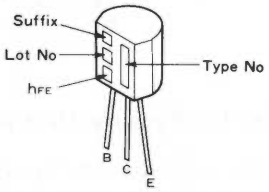
2SA682
2SB682
2SD704
2SD712



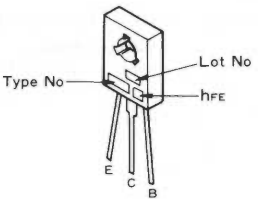
2SA999



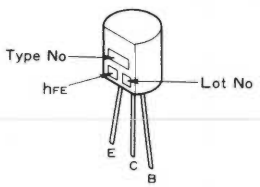
2SA999L
2SC2320L



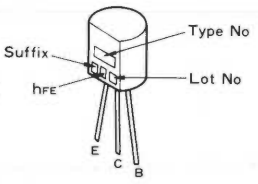
2SC1382



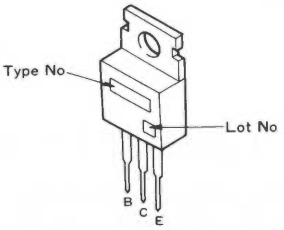
2SC1740



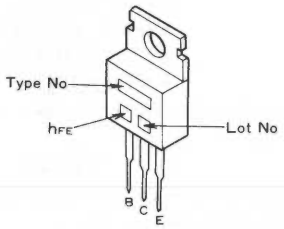
2SC1740LN



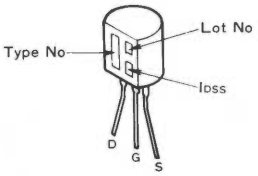
2SC2535
2SD686



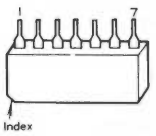
2SD235
2SD837



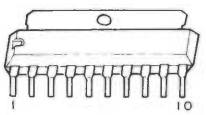
2SK117



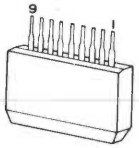
TA7136AP



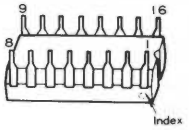
TA7220P



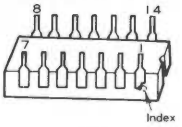
TA7318P



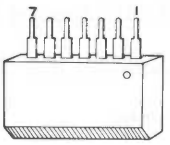
TC4022BP
TC4049BP
TC4050BP
TC5066BP
μPD4049C



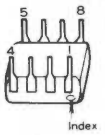
TC4001BP
TC4011BP
TC4013BP
TC4069UBP
TC4071BP
TC4075BP
TC4081BP
μPC324C
μPC4069C
μPD4001C
μPD4011C
μPD4071C
μPD4075BC
μPD4081C



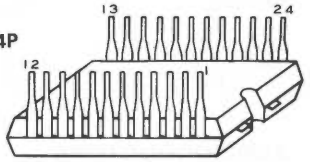
M51970L
M5214L



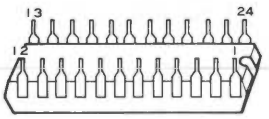
μPC4558C



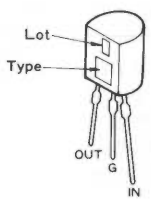
TC5054P



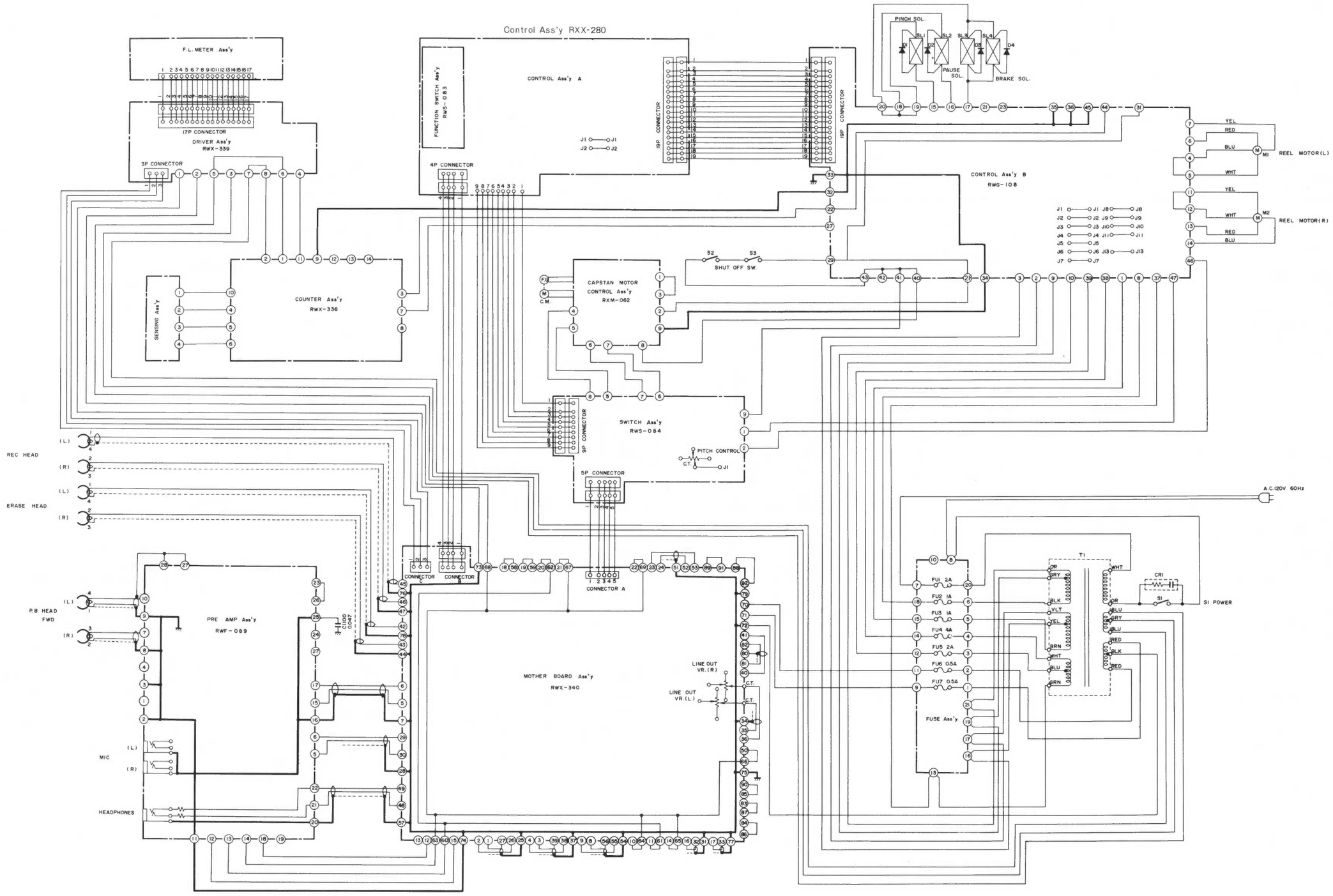
AN6251



TA78L005AP

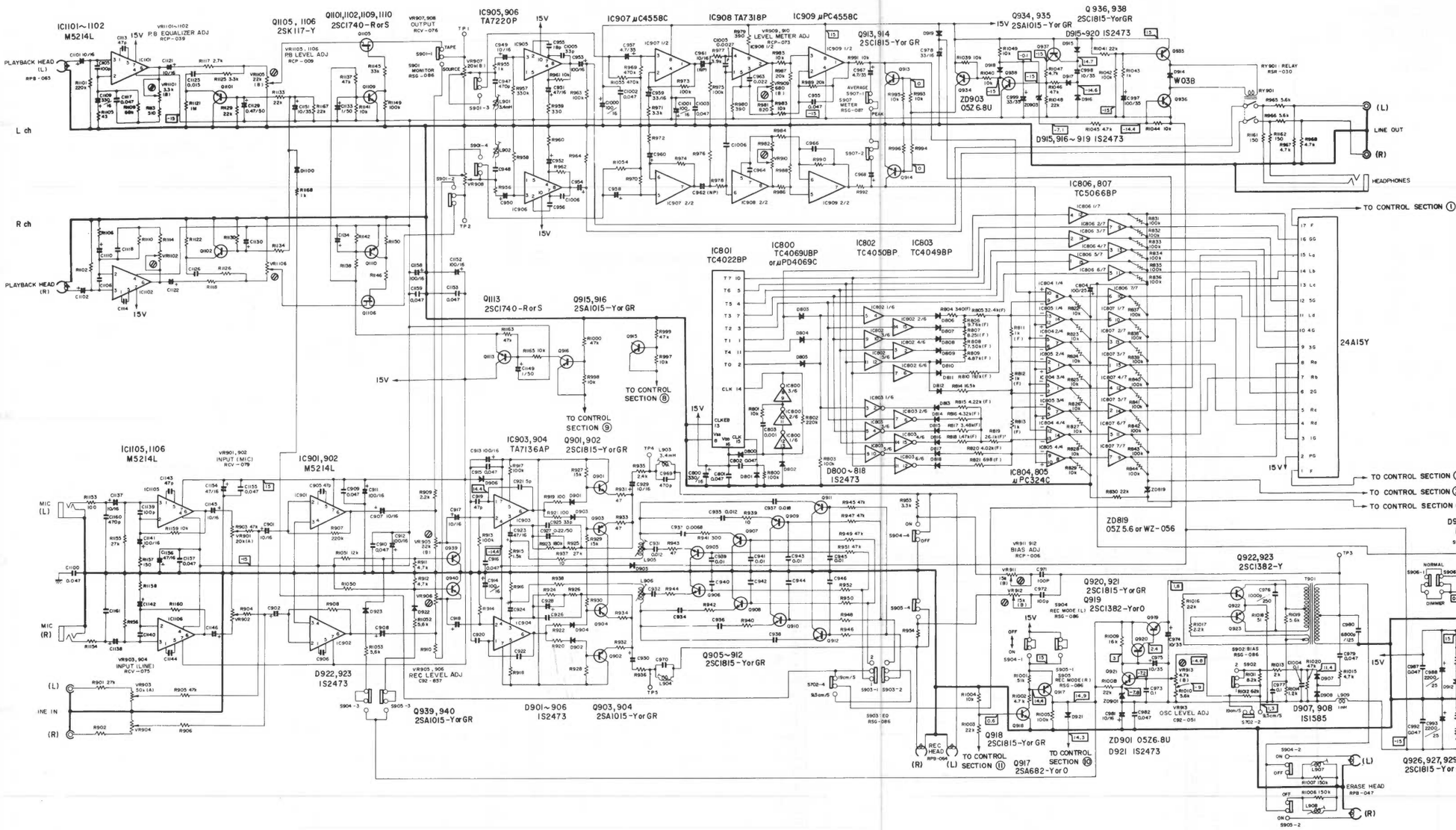


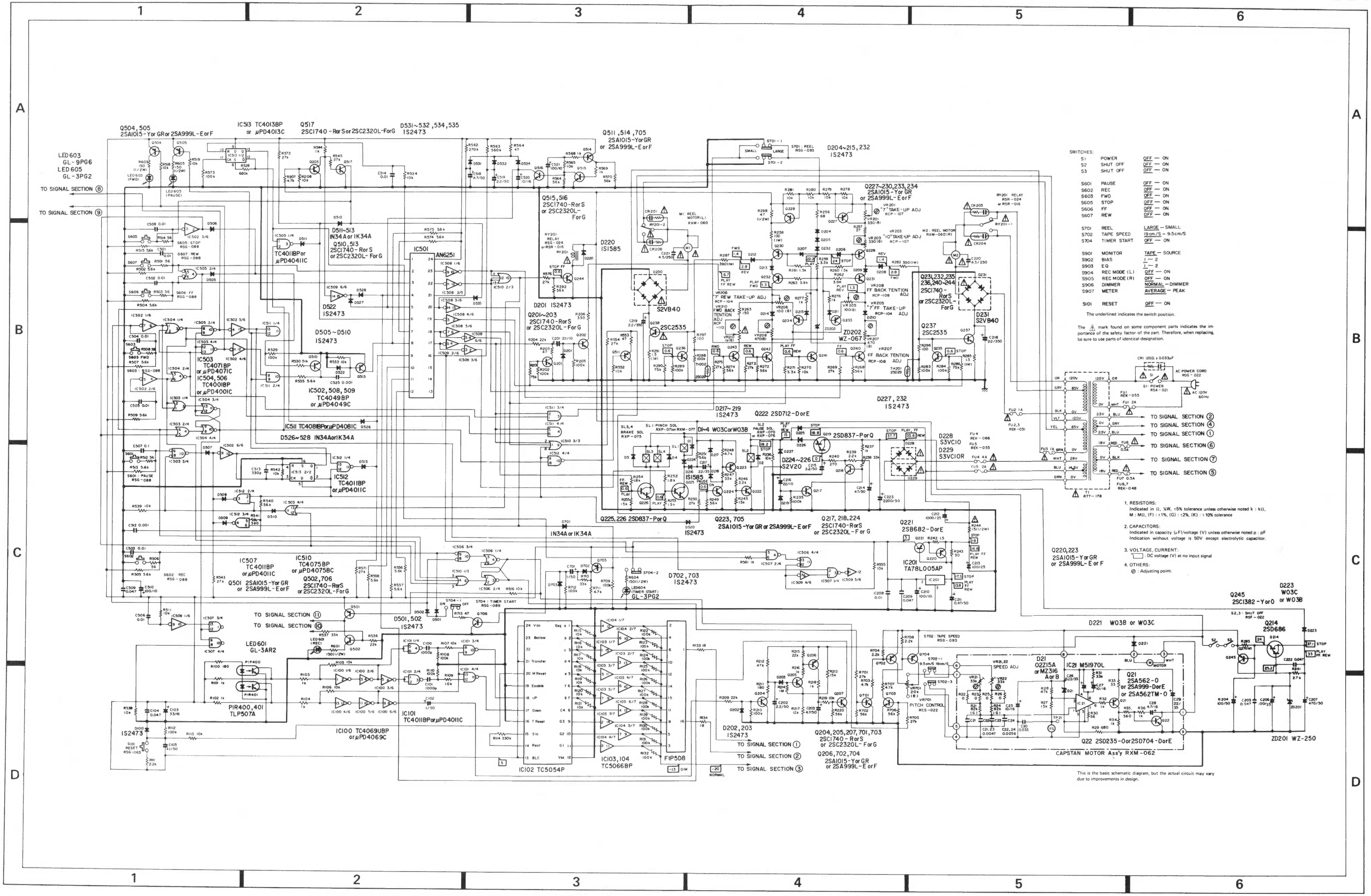
9.2 CONNECTION DIAGRAM



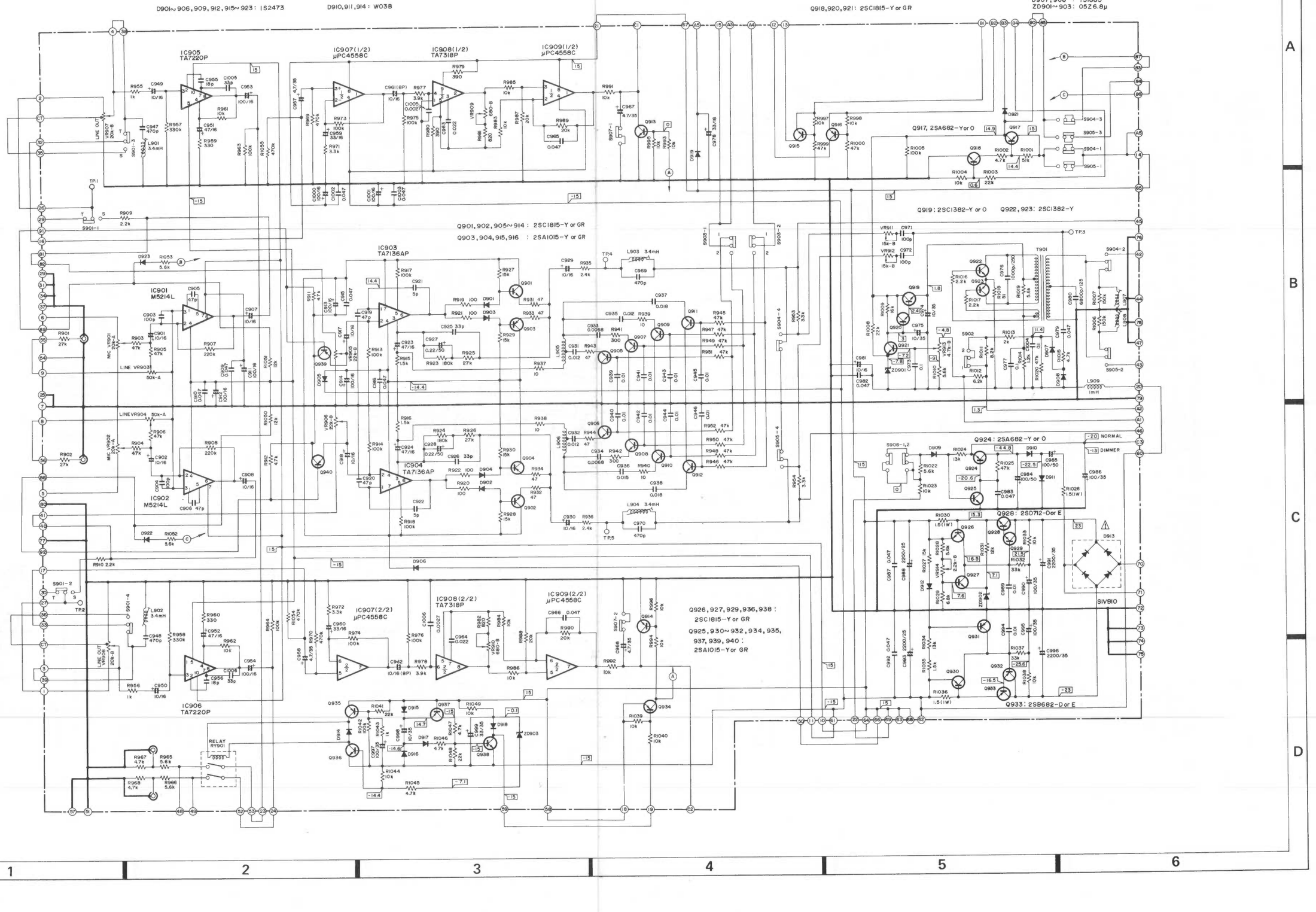
9.3 SCHEMATIC DIAGRAM

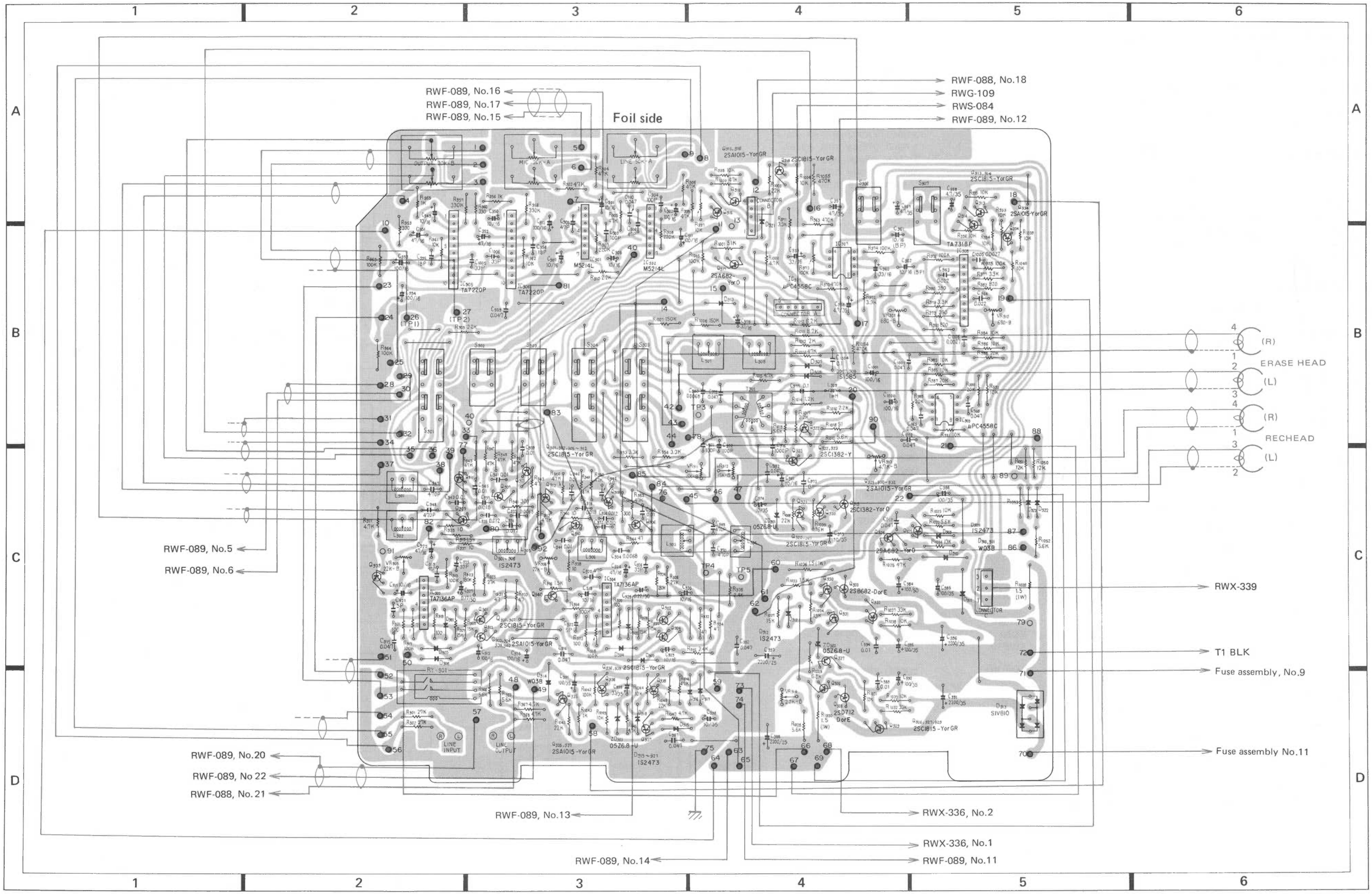
■ **Signal Section**




SWITCHES:
S1 POWER OFF — ON
S2 SHUT OFF OFF — ON
S3 SHUT OFF OFF — ON
S601 PAUSE OFF — ON
S602 REC OFF — ON
S603 FWD OFF — ON
S605 STOP OFF — ON
S606 FF OFF — ON
S607 REW OFF — ON
S701 REEL LARGE — SMALL
S702 TAPE SPEED 19cm/S — 9.5cm/S
S704 TIMER START OFF — ON
S901 MONITOR TAPE — SOURCE
S902 BIAS 1 — 2
S903 EQ 1 — 2
S904 REC MODE (L) OFF — ON
S905 REC MODE (R) OFF — ON
S906 DIMMER NORMAL — DIMMER
S907 METER AVERAGE — PEAK
S101 RESET OFF — ON
The underlined indicates the switch position.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
1. RESISTORS:
Indicated in Ω, ¼W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% tolerance
2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.
3. VOLTAGE, CURRENT:
: DC voltage (V) at no input signal
4. OTHERS:
⊘ : Adjusting point.
This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.
CAPSTAN MOTOR Ass'y RXM-062

9.4 MOTHER ASSEMBLY (RWX-340)




Foil side
RWF-089, No.16
RWF-089, No.17
RWF-089, No.15
RWF-088, No.18
RWG-109
RWS-084
RWF-089, No.12
ERASE HEAD
(R)
(L)
(R)
RECHEAD
(L)
RWF-089, No.5
RWF-089, No.6
RWX-339
T1 BLK
Fuse assembly, No.9
Fuse assembly No.11
RWF-089, No.20
RWF-089, No 22
RWF-088, No.21
RWF-089, No.13
RWX-336, No.2
RWX-336, No.1
RWF-089, No.14
RWF-089, No.11
RT-901
LINE INPUT
LINE OUTPUT
TA7220P
TA7318P
TA7136AP
M5214L
μPC4558C
2SA1015-YorGR
2SC1815-YorGR
2SC1382-Y
2SA682-YorO
2SB682-DorE
2SD712 DorE
IS2473
W03B
SIV8I0
05Z6.8-U

Parts List of Mother Assembly (RWX-340)

SWITCHES

Part No.	Symbol & Description	
RSG-086	S901–S905	Mode switch
RSG-087	S906, S907	Meter switch

TRANSFORMER AND COILS

Part No.	Symbol & Description	
RTD-021	T901	Oscillator transformer
RTF-013	L901–L904	Trap coil
RTF-014	L905, L906	Peaking coil
RTD-022	L907, L908	Dummy coil
RTF-056	L909	Line coil

SEMICONDUCTORS

Part No.	Symbol & Description
CEA 100P 16	C901, C902, C907, C908, C917, C918, C929, C930, C949, C950, C981
CEA 222M 35	C991, C996
CEA 222M 25	C988, C993
CEA 101P 50	C984, C985
CEA 101P 35	C986, C990, C995, C997
CEA 330P 35	C999
CEA 101P 16	C911–C914, C953, C954, C1000, C1001
CEA 100P 35	C974, C975, C998
CEA 470P 16	C923, C924, C951, C952
CEA 330P 16	C959, C960, C978
CEA 4R7P 35	C957, C958, C967, C968
CEA R10M 50	C927, C928
CEA 100M 16NP	C961, C962
CQSA 471K 50	C947, C948, C969, C970
CQSA 101K 50	C971, C972
CQSA 682J 125	C980
CQSA 102J 250	C976
CQMA 104K 50	C973, C977, C1004
CQMA 473K 50	C965, C966, C979
CQMA 223K 50	C963, C964
CQMA 153J 50	C937, C938
CQMA 123J 50	C931, C932
CQMA 103J 50	C935, C936
CQMA 682J 50	C933, C934
CCDCH 101J 50	C903, C904, C919, C920
CCDCH 470J 50	C905, C906
CCDCH 330J 50	C925, C926
CCDCH 180J 50	C955, C956
CCDCH 050J 50	C921, C922
CKDYF 473Z 50	C909, C910, C915, C916, C982, C983, C987, C992, C1002, C1003
CKDYF 103Z 50	C939–C946, C989, C994
CQMA 272J 50	C1005, C1006

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

RESISTORS

Part No.	Symbol & Description
RCV-079	VR901, VR902 MIC volume
RCV-075	VR903, VR904 LINE volume
C92-857	VR905, VR906 Semi-fixed 22k-B
RCV-076	VR907, VR908 OUTPUT volume
RCP-073	VR909, VR910 Semi-fixed 680Ω-B
RCP-006	VR911, VR912 Semi-fixed 15k-B
C92-051	VR913 Semi-fixed 4.7k-B
C92-401	VR914 Semi-fixed 2.2k-B
RD¼PM □□□ J	R901–R936, R939–R1020, R1022–R1025, R1027–R1029, R1031–R1035, R1037–R1049
RS1PF □R□J	R1026, R1030, R1036

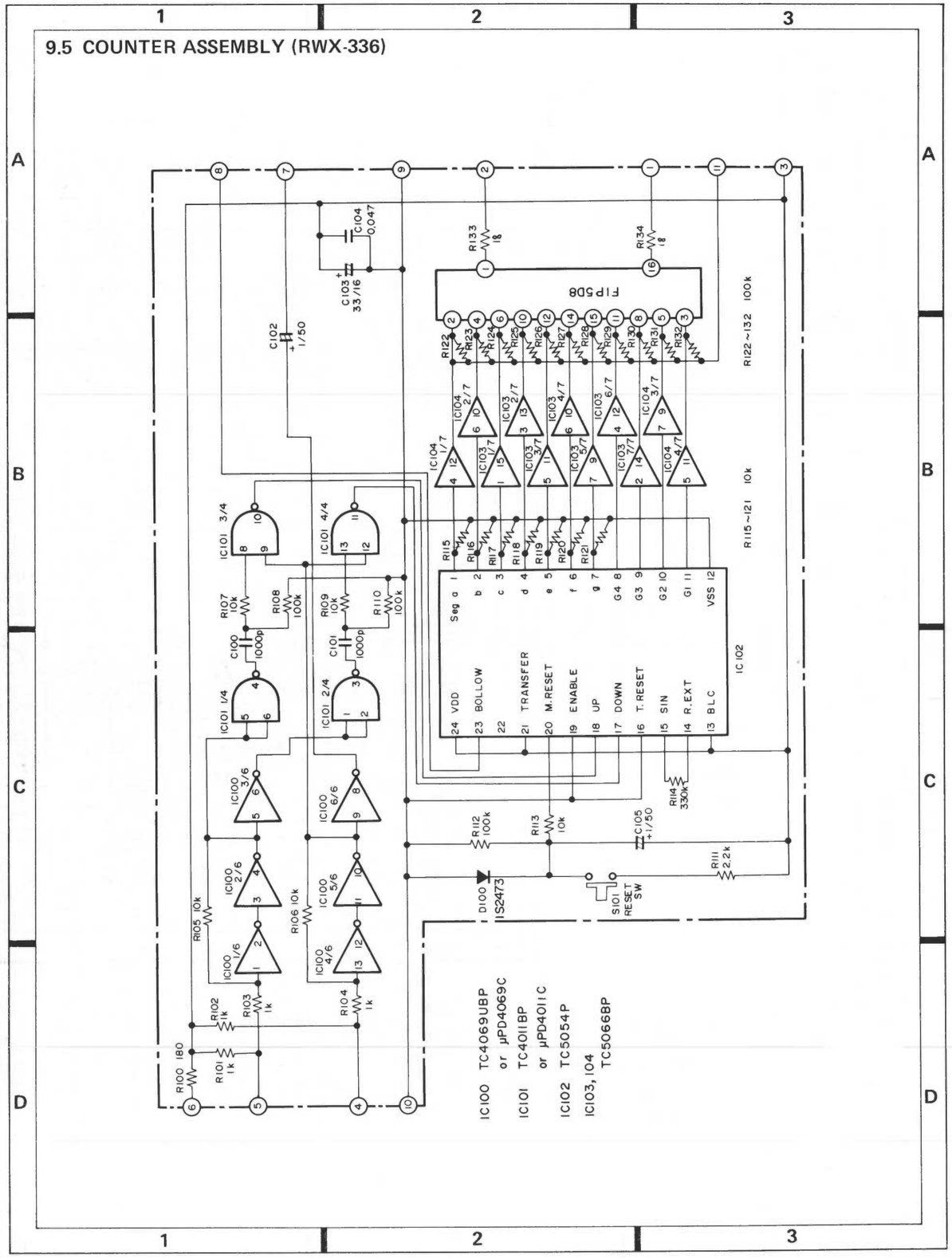
SEMICONDUCTORS

Part No.	Symbol & Description
2SC1815	Q901, Q902, Q905–Q914, Q918, Q920, Q921, Q926, Q927, Q929, Q936, Q938
2SA1015	Q903, Q904, Q915, Q916, Q925, Q939, Q930–Q932, Q934, Q935, Q937, Q940,
2SB682	Q933
2SD712	Q928
2SC1382Y	Q922, Q923
2SC1382	Q919
2SA682	Q917, Q924
M5214L	IC901, IC902
TA7136AP	IC903, IC904
TA7220P	IC903, IC906
μPC4558C	IC907, IC909
TA7318P	IC908
1S2473	D901–D906, D909, D912, D915–D919, D921–D923
1S1585	D907, D908
W03B	D910, D911, D914
SIVB10	D913
05Z6-8U	ZD901–ZD903

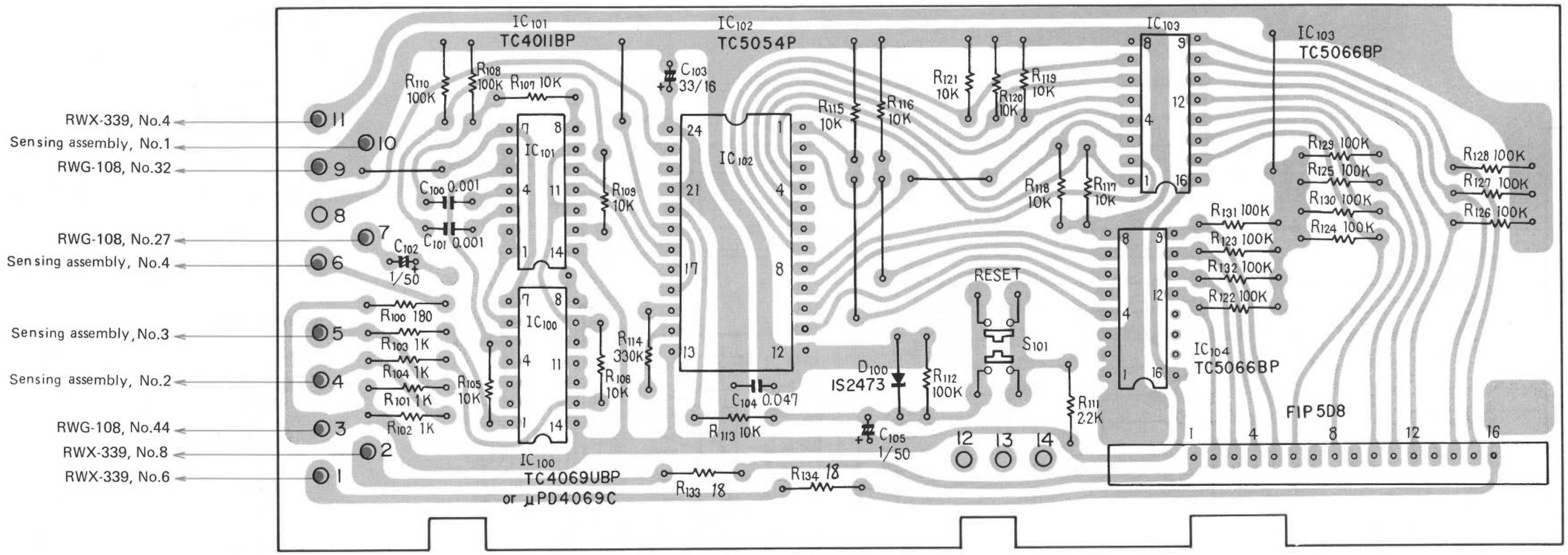
OTHERS

Part No.	Symbol & Description
RKB-014	Terminal
RBA-039	Screw

9.5 COUNTER ASSEMBLY (RWX-336)



Foil side



Parts List of Counter Assembly (RWX-366)

SWITCH

Part No.	Symbol & Description	
RSG-063	S101	Function switch

CAPACITORS

Part No.	Symbol & Description
CKDYB 102K 50	C100, C101
CEA 010P 50	C102, C105
CEA 330P 16	C103
CKDYF 473Z 50	C104

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

RESISTORS

Part No.	Symbol & Description
RD¼PM □□□ J	R100–R134

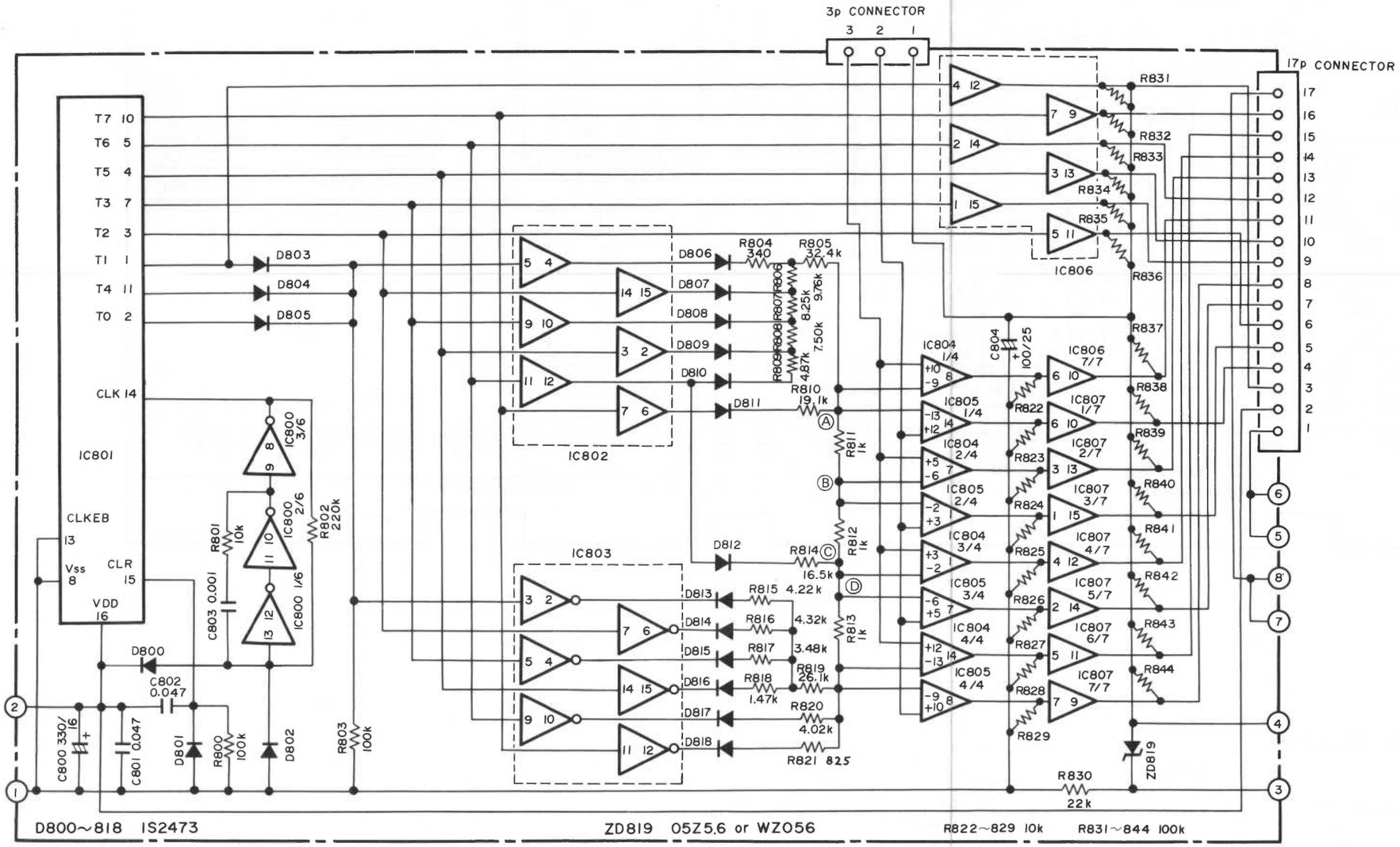
SEMICONDUCTORS

Part No.	Symbol & Description
TC4069UBP (µPD4069C)	IC100
TC4011BP (µPD4011C)	IC101
TC5054P	IC102
TC5066BP	IC103, IC104
1S2473	D100

OTHERS

Part No.	Symbol & Description	
FIP5D8		Flourescent indicator tube

9.6 DRIVER ASSEMBLY (RWX-339)



IC800	TC4069UBP or μPD4069C	IC804,805
IC801	TC4022BP	μPC324C
IC802	TC4050BP	IC806,807
IC803	TC4049BP	TC5066BP

Parts List

CAPACITORS

Part No.	Symbol & Description
CEA 331P 16	C800
CKDYF 473Z 50	C801, C802
CQMA 102K 50	C803
CEA 101P 25	C804

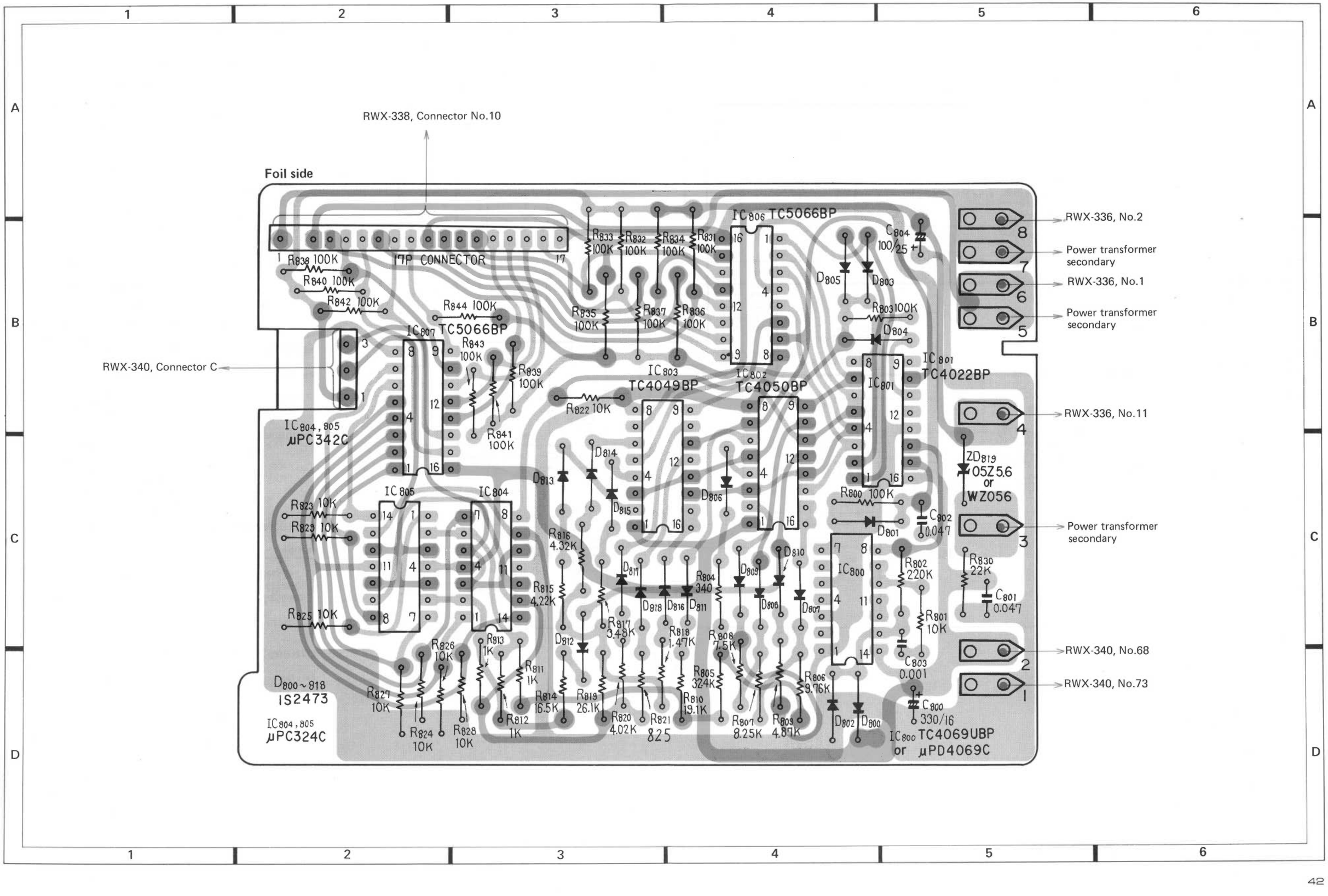
Note: When ordering resistors, convert the resistance value into code form, and then rewite the part no. as before.

RESISTORS

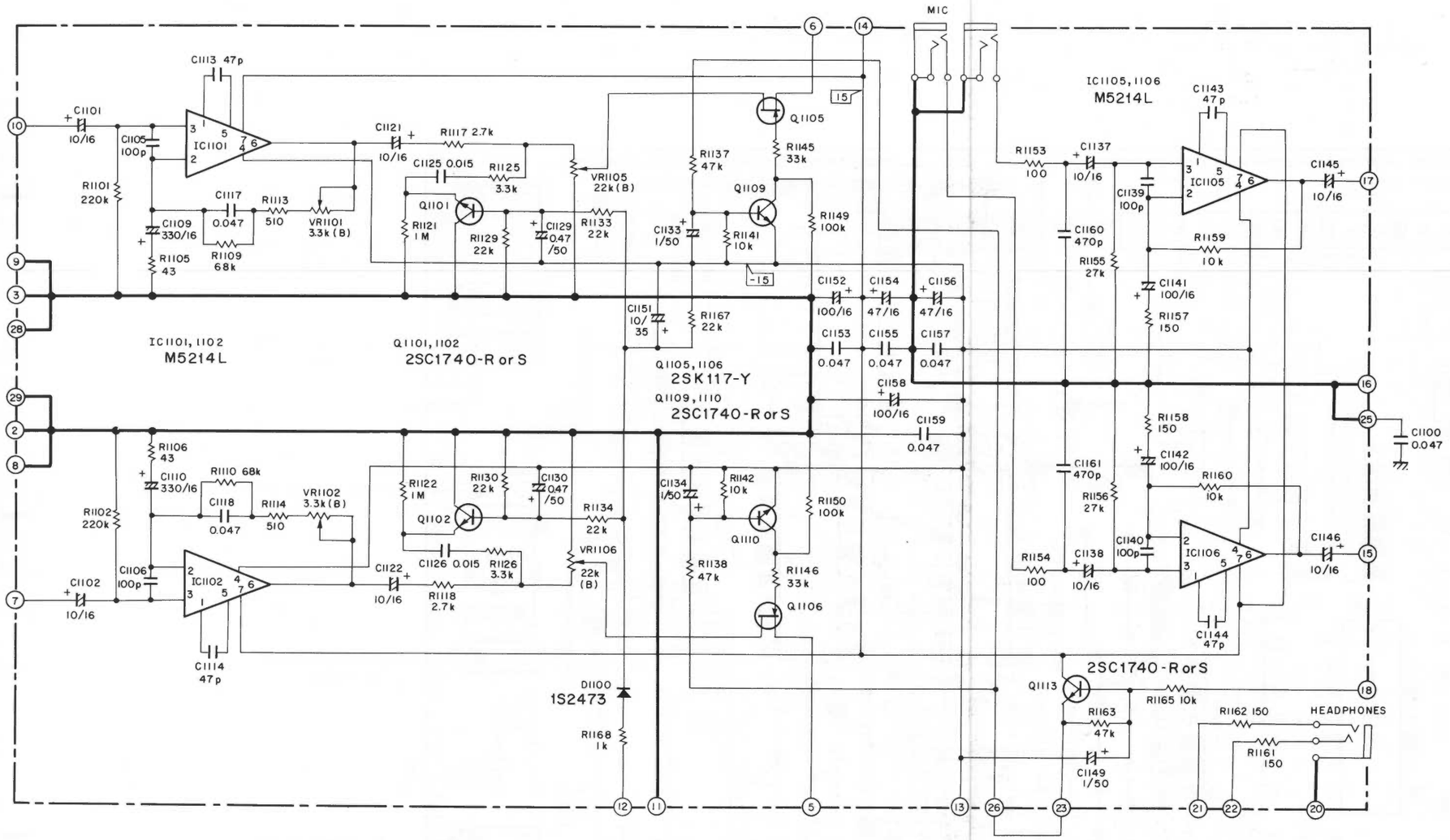
Part No.	Symbol & Description
RD¼PM □□□ J	R800–R803, R822–R844
RN¼PR □□□□ F	R804–R821

SEMICONDUCTORS

Part No.	Symbol & Description
TC4022BP	IC800
TC4069UBP	IC801
TC4050BP	IC802
TC4049BP	IC803
μPC324C	IC804, IC805
TC5066BP	IC806, IC807
1S2473	D800–D818
05Z5.6	D819


RWX-338, Connector No.10
Foil side
17P CONNECTOR
RWX-340, Connector C
IC804, 805
μPC342C
D800~818
IS2473
IC804, 805
μPC324C
IC806 TC5066BP
IC807 TC5066BP
IC803 TC4049BP
IC802 TC4050BP
IC801 TC4022BP
IC805
IC804
IC800 TC4069UBP
or μPD4069C
RWX-336, No.2
Power transformer secondary
RWX-336, No.1
Power transformer secondary
RWX-336, No.11
Power transformer secondary
RWX-340, No.68
RWX-340, No.73

9.7 PRE AMPLIFIER ASSEMBLY (RWF-089)



Parts List

CAPACITORS

Part No.	Symbol & Description
CEANL 100P 16	C1101, C1102, C1137, C1138
CEA 330P 16	C1109, C1110
CEA 101P 16	C1141, C1142, C1152, C1158
CEA 100P 35	C1151
CEA 470P 16	C1154, C1156
CEA 100P 16	C1121, C1122, C1145, C1146
CEA 010P 50	C1133, C1134, C1149
CEA R47P 50	C1129, C1131
CQMA 473J 50	C1117, C1118
CQMA 153J 50	C1125, C1126
CCDCH 101J 50	C1105, C1106, C1139, C1140
CCDCH 470J 50	C1113, C1114, C1143, C1144
CKDYB 471K 50	C1160, C1161
CKDYF 473Z 59	C1153, C1155, C1157, C1159, C1100

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

RESISTORS

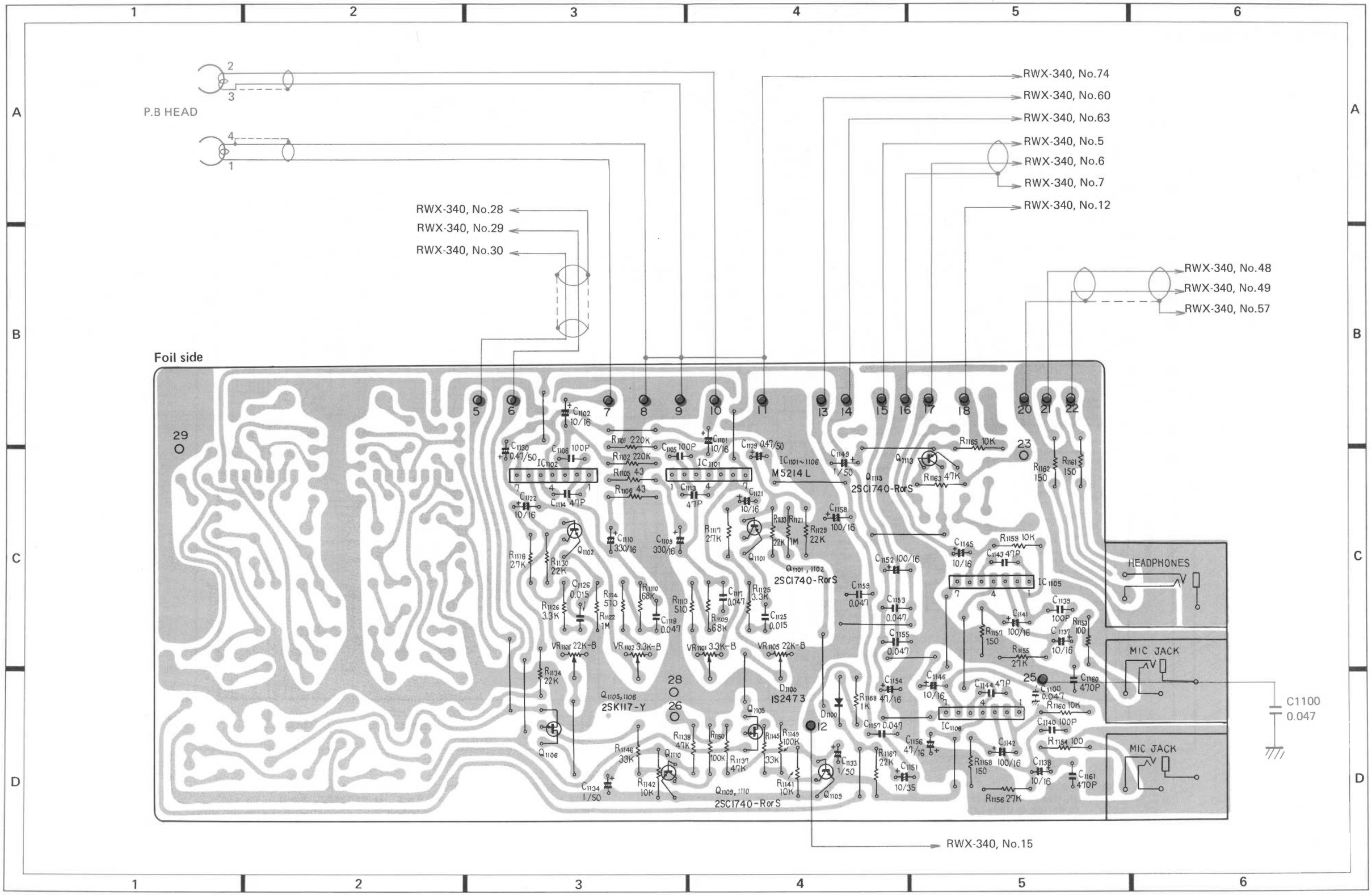
Part No.	Symbol & Description
RCP-039	VR1101, VR1102
RCP-009	VR1105, VR1106
RD¼PM □□□ J	R1101, R1102, R1105, R1109, R1110, R1113, R1114, R1117, R1118, R1121, R1122, R1125, R1126, R1129, R1130, R1133, R1134, R1137, R1138, R1141, R1142, R1145, R1146, R1149, R1150, R1153–R1163, R1165, R1167, R1168

SEMICONDUCTORS

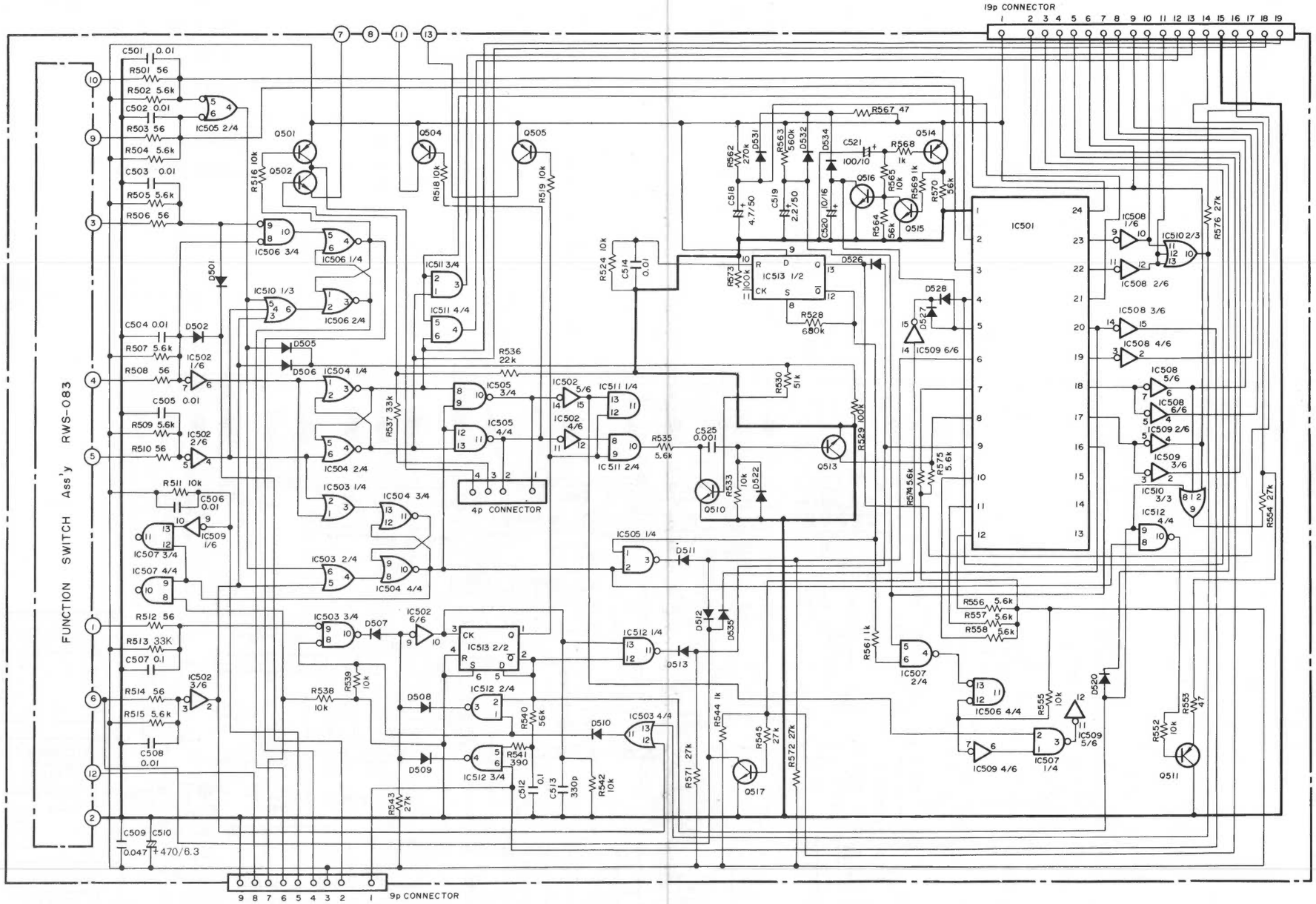
Part No.	Symbol & Description
2SC1740LN	Q1101, Q1102, Q1109, Q1110, Q1113
2SK117	Q1105, Q1106
M5214L	IC1101, IC1102, IC1105, IC1106
1S2473	D1100

OTHERS

Part No.	Symbol & Description
RKN-058	MIC Jack
RKN-056	Headphones jack


1
2
3
4
5
6
A
B
C
D
P.B HEAD
RWX-340, No.74
RWX-340, No.60
RWX-340, No.63
RWX-340, No.5
RWX-340, No.6
RWX-340, No.7
RWX-340, No.12
RWX-340, No.28
RWX-340, No.29
RWX-340, No.30
RWX-340, No.48
RWX-340, No.49
RWX-340, No.57
Foil side
IC1101~1106
M5214L
IC1102
IC1101
IC1105
IC1106
Q1101, 1102
2SC1740-RorS
Q1105, 1106
2SK117-Y
Q1109, 1110
2SC1740-RorS
Q1113
2SC1740-RorS
D1100
IS2473
HEADPHONES
MIC JACK
MIC JACK
C1100
0.047
RWX-340, No.15

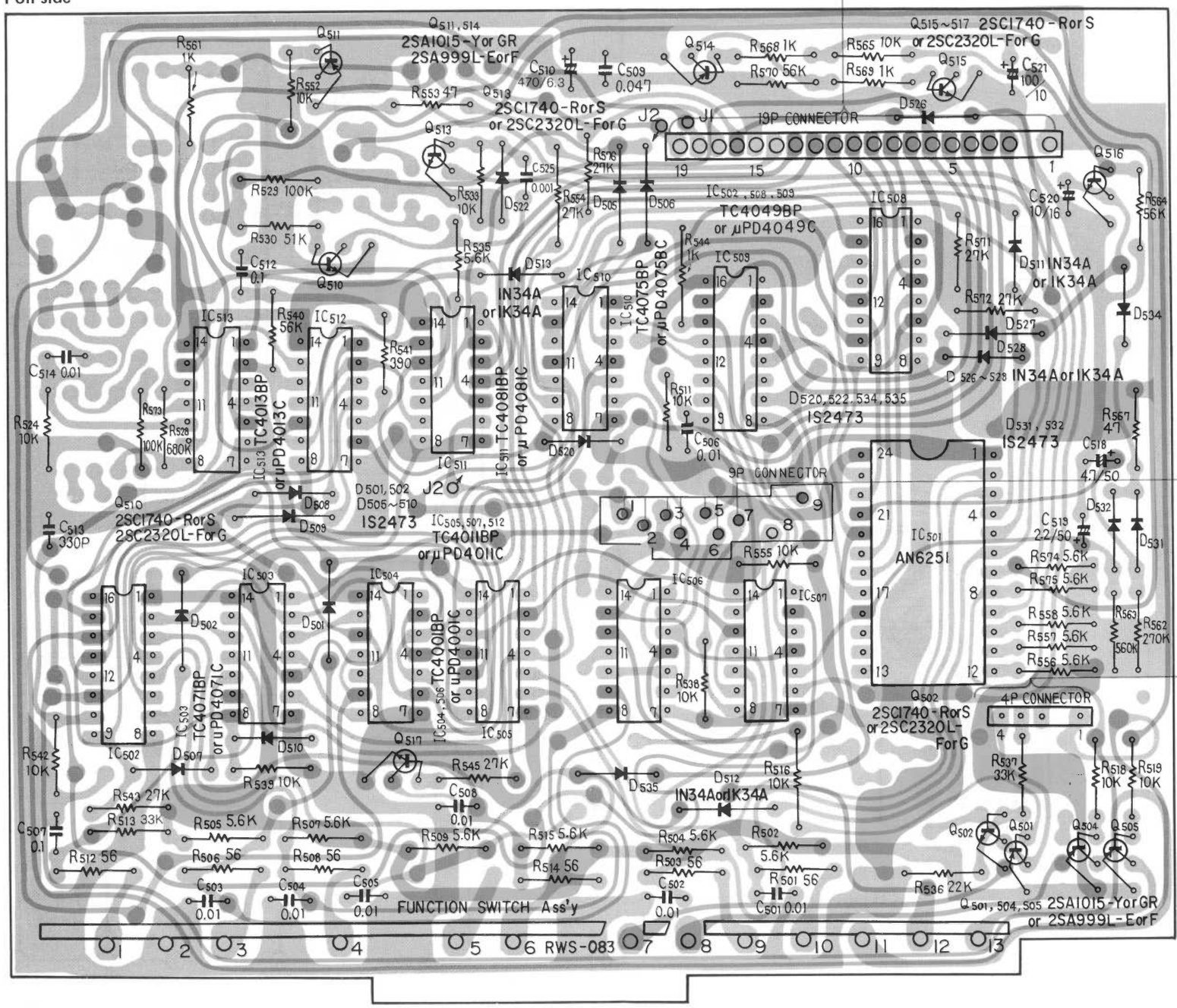
9.8 CONTROL A ASSEMBLY



IC501 : AN6251
IC502, 508, 509 : TC4049BP or μPD4049C
IC503 : TC4071BP or μPD4071C
IC504, 506 : TC4001BP or μPD4001C
IC505, 507, 512 : TC4011BP or μPD4011C
IC510 : TC4075BP or μPD4075BC
IC511 : TC4081BP or μPD4081C
IC513 : TC4013BP or μPD4013C

Q501, 504, 505, 511, 514 : 2SA1015-Y or GR or 2SA999L-E or F
Q502, 510, 513, 515~517 : 2SC1740-R or S or 2SC2320L-F or G
D511~513, 526~528 : 1N34A or 1K34A
D501, 502, 505~510, 520, 522, 531, 532, 534, 535 : 1S2473

Foil side


RWG-108, connector (19p)
RWS-084, Connector (9P)
RWX-340, connector B
19P CONNECTOR
9P CONNECTOR
4P CONNECTOR
FUNCTION SWITCH Ass'y
RWS-083
Q511, 514 2SA1015-Y or GR 2SA999L-E or F
Q515~517 2SC1740-R or S or 2SC2320L-F or G
Q513 2SC1740-R or S or 2SC2320L-F or G
Q510 2SC1740-R or S 2SC2320L-F or G
Q502 2SC1740-R or S or 2SC2320L-F or G
Q501, 504, 505 2SA1015-Y or GR or 2SA999L-E or F
IC502, 508, 509 TC4049BP or µPD4049C
IC513 TC4013BP or µPD4013C
IC512 TC4013BP or µPD4013C
IC511 TC4081BP or µPD4081C
IC510 TC4075BP or µPD4075BC
IC503 TC4071BP or uPD4071C
IC504, 506 TC4001BP or uPD4001C
IC505, 507, 512 TC4011BP or µPD4011C
IC501 AN6251
D501, 502 D505~510 IS2473
D520, 522, 534, 535 IS2473
D531, 532 IS2473
D511 IN34A or IK34A
D513 IN34A or IK34A
D526~528 IN34A or IK34A
D512 IN34A or IK34A

rt List of Control A Assembly

ıPACITORS

t No.	Symbol & Description
CKDYF 103Z 50	C501–C506, C508, C514
CEA 2R2M 50	C519
CEA 4R7M 50	C518
CEA 100P 16	C520
CEA 101P 10	C510, C521
CQMA 102K 50	C512, C525
CQMA 104K 50	C507
CKDYF 474Z 50	C509
CKDYB 331K 50	C513

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

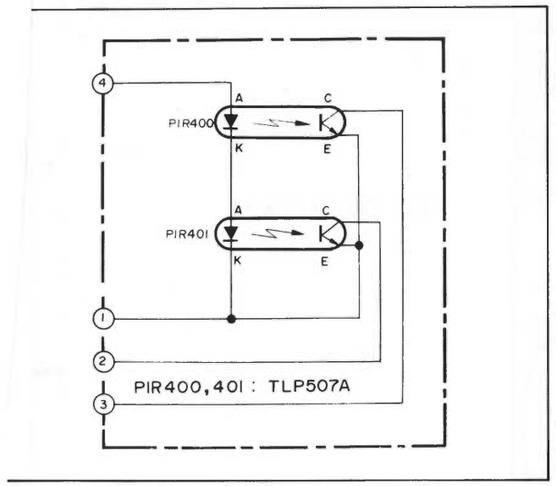
SISTORS

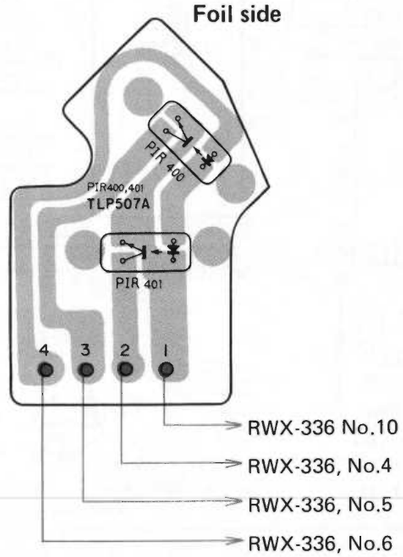
t No.	Symbol & Description
¼PM □□□ J	R501–R509, R511–R516, R518, R519, R524, R528–R530, R533, R535–R545

SEMICONDUCTORS

Part No.	Symbol & Description
2SA1015 (2SA999L)	Q501, Q504, Q505, Q511, Q514
2SC1740 (2SC2320L)	Q502, Q510, Q513, Q515–Q517
AN6251	IC501
TC4049BP (μPD4049C)	IC502, IC508, IC509
TC4075BP (μPD4075BC)	IC510
TC4001BP (μPD4001C)	IC504, IC506
TC4011BP (μPD4011C)	IC505, IC507, IC512
TC4071BP (μPD4071C)	IC503
TC4081BP (μPD4081C)	IC511
TC4013BP (μPD4013C)	IC513

9 SENSING ASSEMBLY

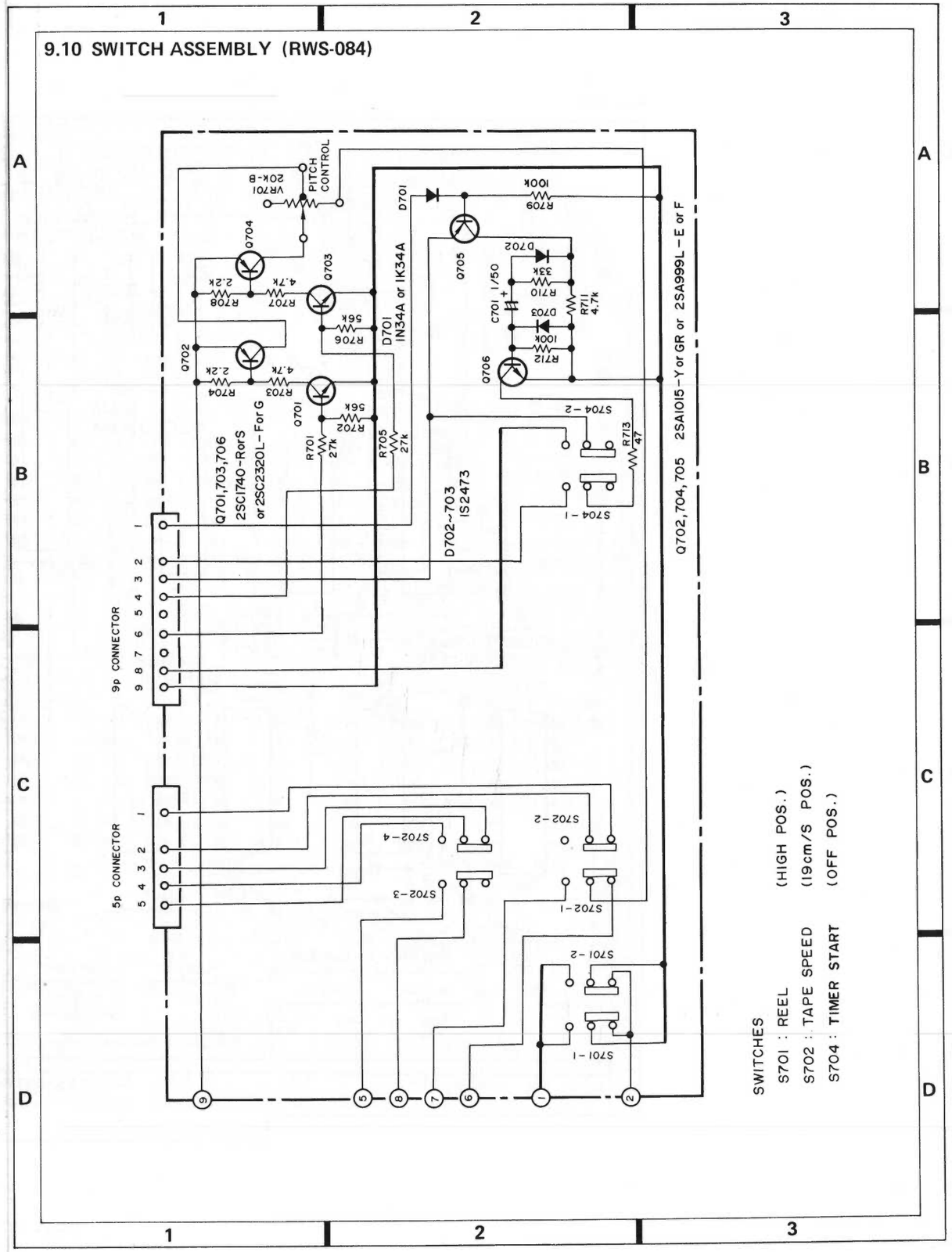


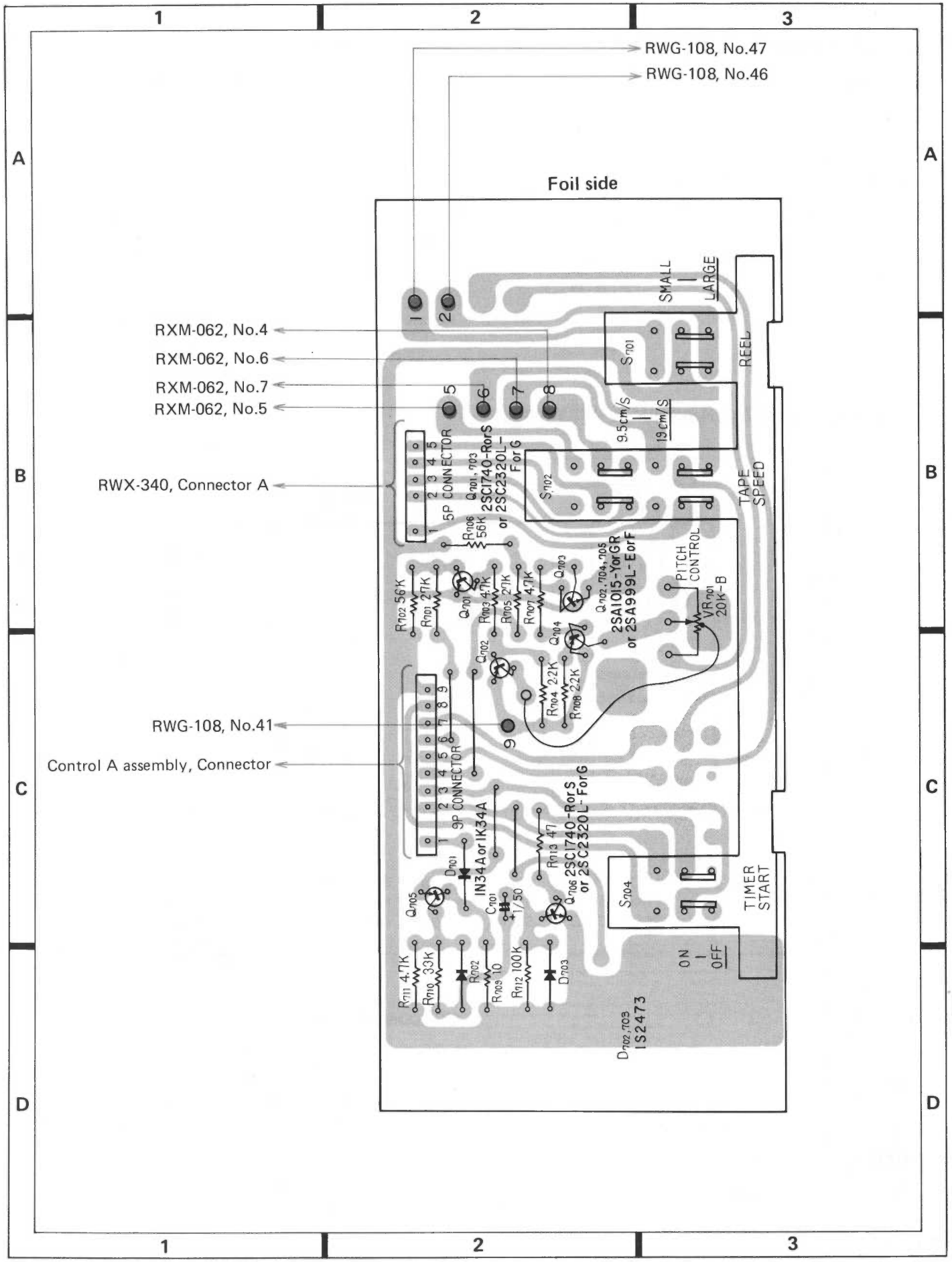


Parts List

Part No.	Symbol & Description
TLP507A	PIR400, PIR401

9.10 SWITCH ASSEMBLY (RWS-084)




1
2
3
A
B
C
D
RWG-108, No.47
RWG-108, No.46
Foil side
RXM-062, No.4
RXM-062, No.6
RXM-062, No.7
RXM-062, No.5
RWX-340, Connector A
RWG-108, No.41
Control A assembly, Connector
SMALL
LARGE
REEL
S701
9.5cm/S
19cm/S
TAPE SPEED
S702
5P CONNECTOR
Q701, 703 2SC1740-RorS or 2SC2320L-ForG
R706 56K
R702 56K
R701 27K
R703 47K
R705 27K
R707 47K
Q702, 704, 705 2SA1015-YorGR or 2SA999L-EorF
PITCH CONTROL
VR701 20K-B
R704 2.2K
R708 2.2K
9P CONNECTOR
D701 IN34A or IK34A
R713 47
Q706 2SC1740-RorS or 2SC2320L-ForG
C701 1/50
S704
TIMER START
R711 4.7K
R710 33K
R709 10
R712 100K
D703
ON
OFF
D702, 703 1S2473

Parts List of Switch Assembly (RWS-084)

CAPACITOR

Part No.	Symbol & Description
CEA 010P 50	C701

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

RESISTORS

Part No.	Symbol & Description
RCS-022	VR701 Pitch control volume
RD¼PM □□□ J	R701–R713

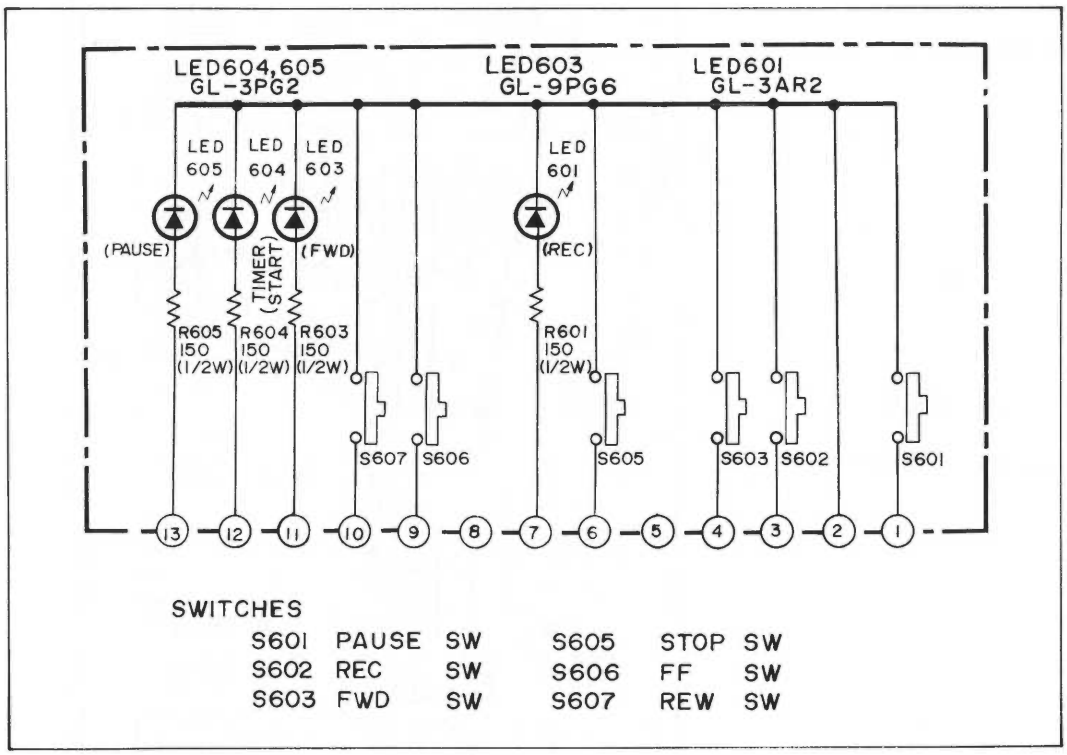
SEMICONDUCTORS

Part No.	Symbol & Description
2SC1740 (2SC2320L)	Q701, Q703, Q706
2SA1015 (2SA999L)	Q702, Q704, Q705
1N34A (1K34A)	D701
1S2473	D702, D703

OTHERS

Part No.	Symbol & Description
RSG-093	S701, S702, S704 Control switch

9.11 FUNCTION SWITCH ASSEMBLY (RWS-083)



Part List

SWITCHES

Part No.	Symbol & Description
RSG-088	S601–S603, S605–S607 Push switch

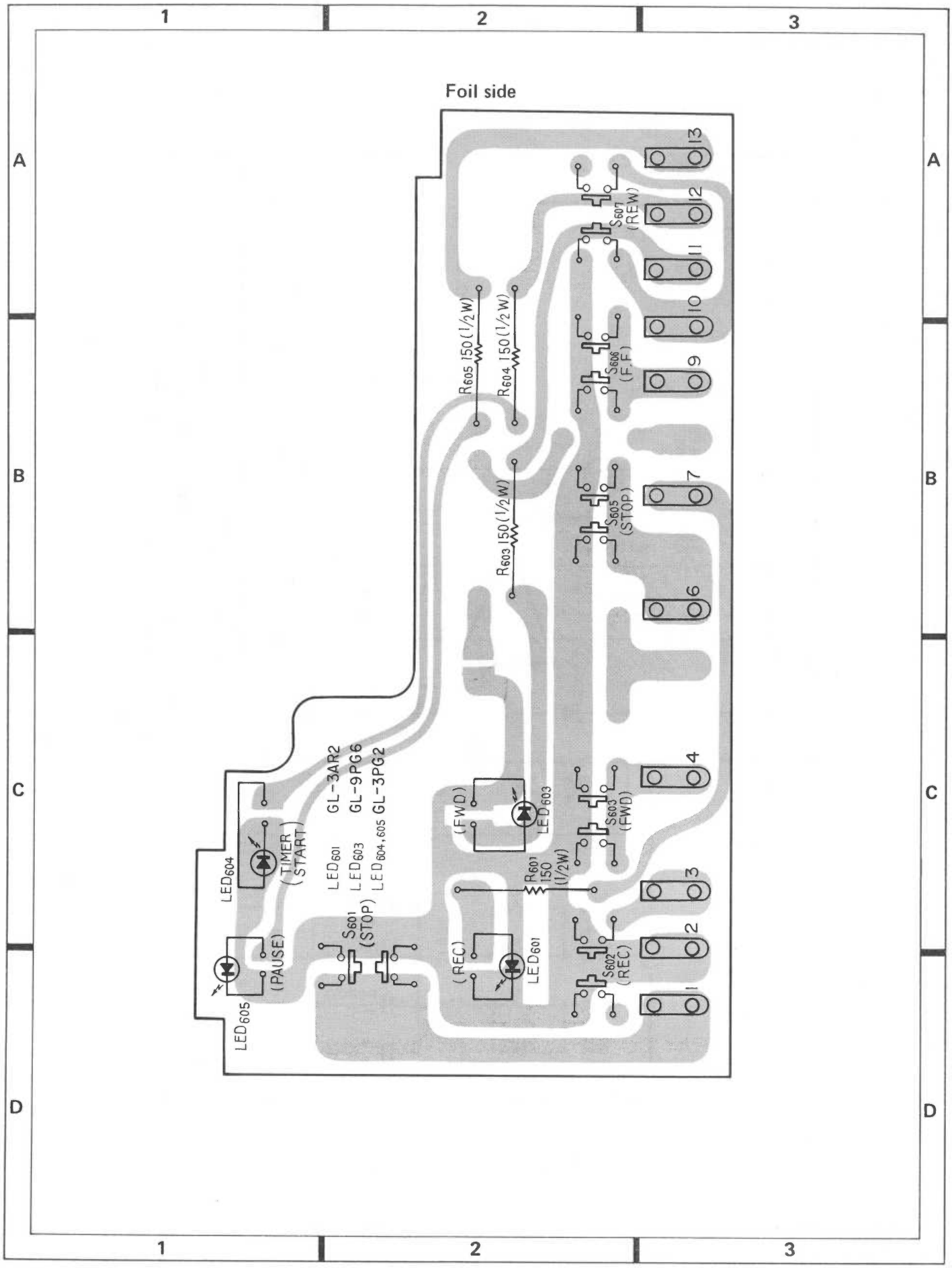
Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

RESISTORS

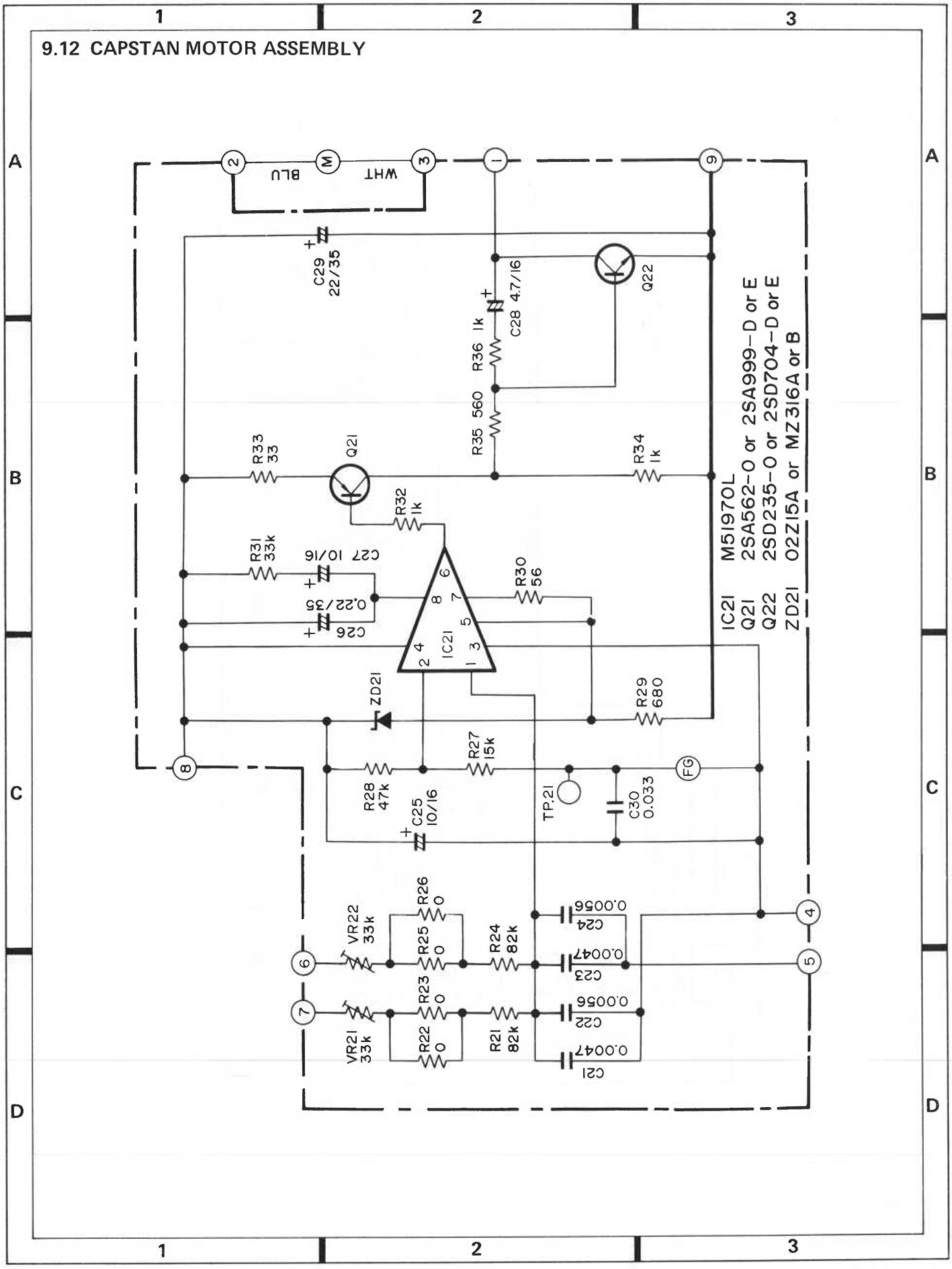
Part No.	Symbol & Description
RS½PF 151J	R601, R603–R605

SEMICONDUCTORS

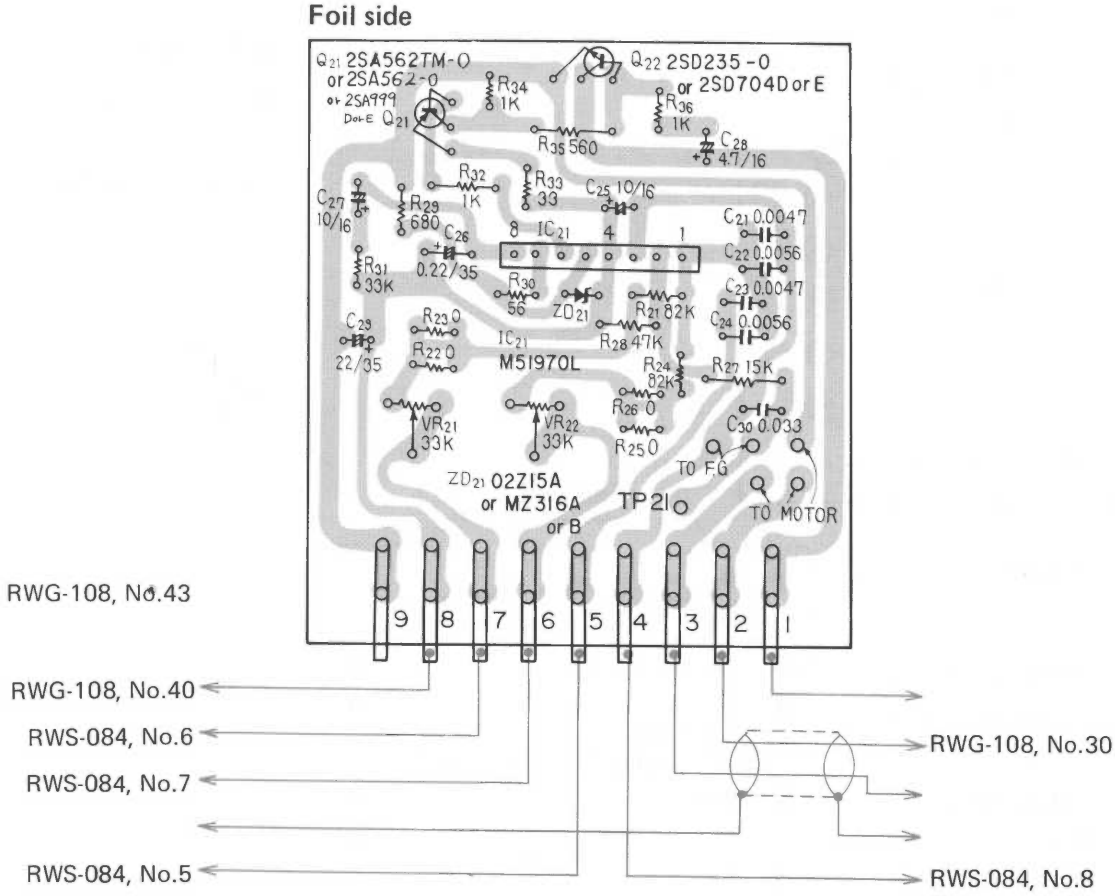
Part No.	Symbol & Description
GL-3AR2	LED601 Light emitting diode
GL-9PG6	LED603 Light emitting diode
GL-3PG2	LED604, LED605 Light emitting diode


1
2
3
A
B
C
D
Foil side
LED604
(TIMER START)
LED605
(PAUSE)
S601 (STOP)
LED601 GL-3AR2
LED603 GL-9PG6
LED604,605 GL-3PG2
(REC)
LED601
(FWD)
LED603
R601 150 (1/2W)
R603 150 (1/2 W)
R604 150 (1/2 W)
R605 150 (1/2 W)
S602 (REC)
S603 (FWD)
S605 (STOP)
S606 (F.F)
S607 (REW)
1
2
3
4
6
7
9
10
11
12
13

9.12 CAPSTAN MOTOR ASSEMBLY



Foil side



Parts List

CAPACITORS

Part No.	Symbol & Description
CQPA 472G 50	C21, C23
(CQPA 472F 50)	
CQMA 562J 50	C22, C24
CEA 100P 16	C25, C27
CSZA R22M 35	C26
(CSZAH R22M 35)	
CEA 4R7P 16	C28
CEA 220P 35	C29
CQMA 333K 50	C30

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-119	VR21, VR22 Semi-fixed 33k-B
RN¼PR □□□ G	R21, R22
RD¼VS □□□ J	R27–R36

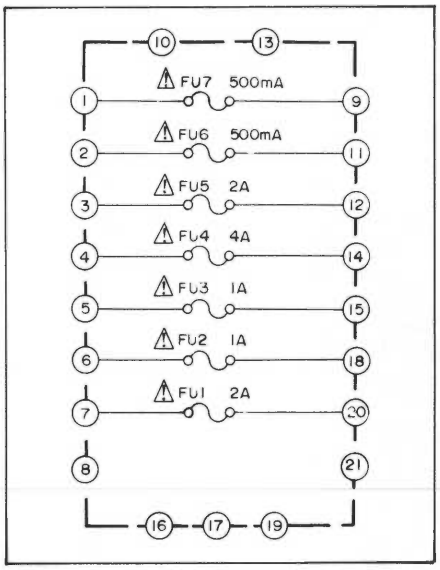
SEMICONDUCTORS

Part No.	Symbol & Description
M51970L	IC21
2SA562TM	Q21
(2SA562)	
(2SA999)	
2SD235	Q22
(2SD704)	
02Z 15A	ZD21
(MZ316)	

OTHERS

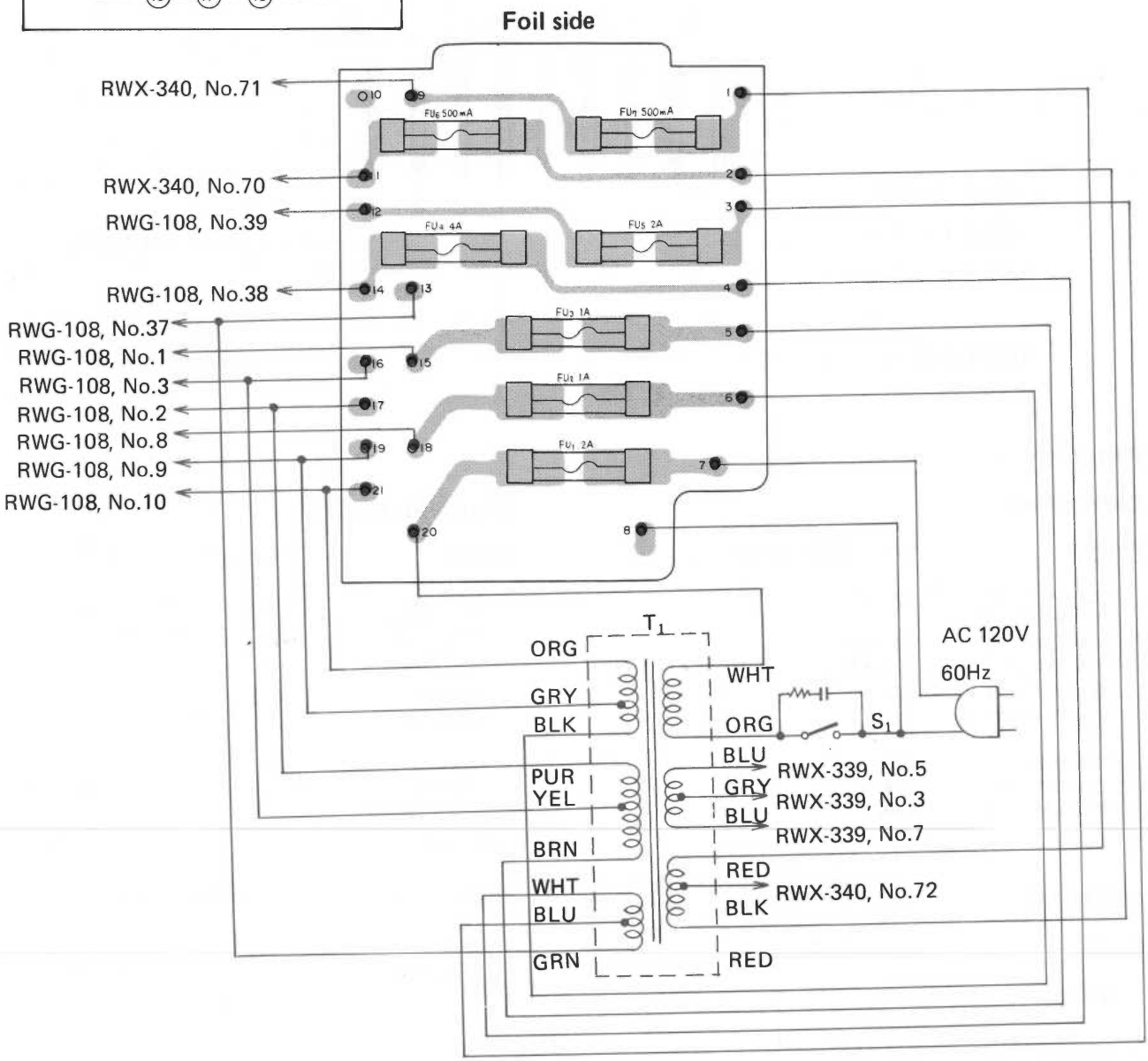
Part No.	Symbol & Description
REE-051	Insulator spring
REE-068	Insulator spacer

9.13 FUSE ASSEMBLY

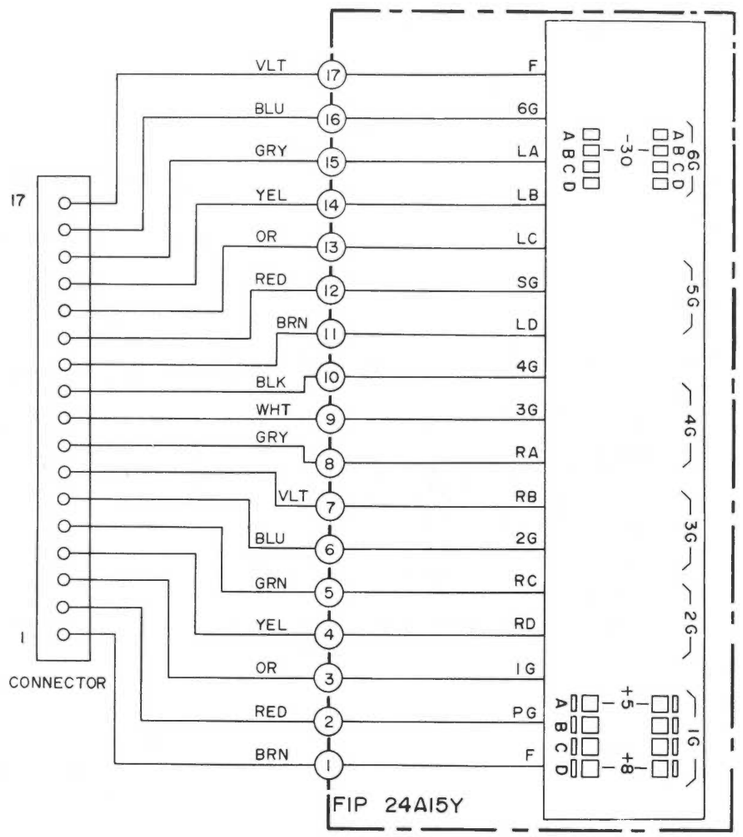


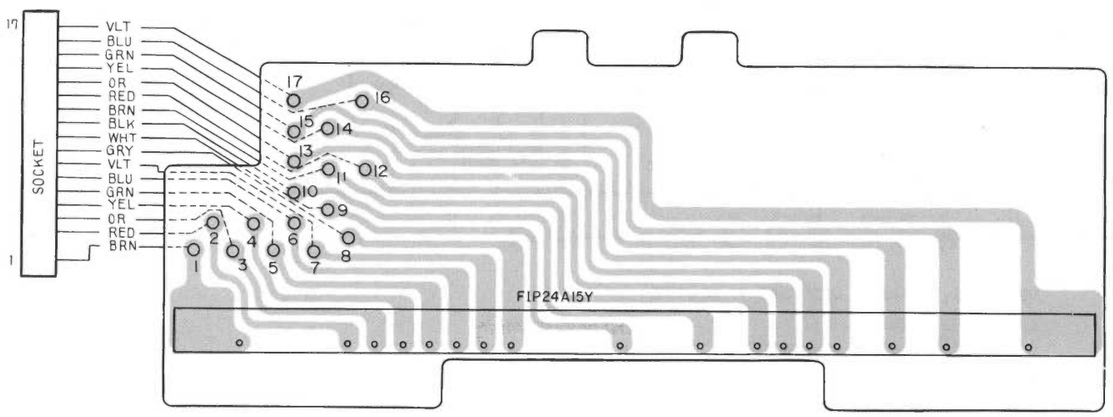
Parts List

Part No.	Symbol & Description	
REK-055	FU1, FU5	Fuse 2A
REK-051	FU2, FU3	Fuse 1A
REK-066	FU4	Fuse 4A
REK-048	FU6, FU7	Fuse 0.5A



9.14 F.L. METER ASSEMBLY





9.15 CONTROL B ASSEMBLY (RWG-108)

Parts List of Control B Assembly

CAPACITORS

Part No.	Symbol & Description
CEA 220P 10	C201, C216
CEA 2R2P 350	C218, C219
CEB 222M 50	C223
CEA 471M 50	C207
CEA 102P 25	C212
CEA 101M 50	C204
CEA 101P 25	C206, C213
CEA 101P 10	C210
CEA 470P 50	C214
CEA 220P 10	C217
CEA 4R7P 50	C203
CEA 2R2P 50	C202, C215
CEA 0R47P 50	C211
CKDYF 473Z 50	C205, C209, C222
CKDYF 103Z 50	C208
⚠ RCE-201	C220, C221

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-107	VR201–VR204 Semi fixed 330Ω-B
RCP-104	VR205, VR206 Semi fixed 100Ω-B
RCP-108	VR207, VR208 Semi fixed 470Ω-B
RCP-110	VR210 Semi fixed 1k-B
RD¼PM □□□ J	R201–R220, R235–R243, R245–R257, R259–R263, R265, R268–R280, R283, R284, R286, R288–R290, R292, R296, R297
RS1PF □□□ J	R282, R287, R258
RS½PF □R□ J	R285, R291
RS1PF R□□ J	R293
RD½PF □□□ J	R298
⚠ RS½PF □□□ J	R244

SEMICONDUCTORS

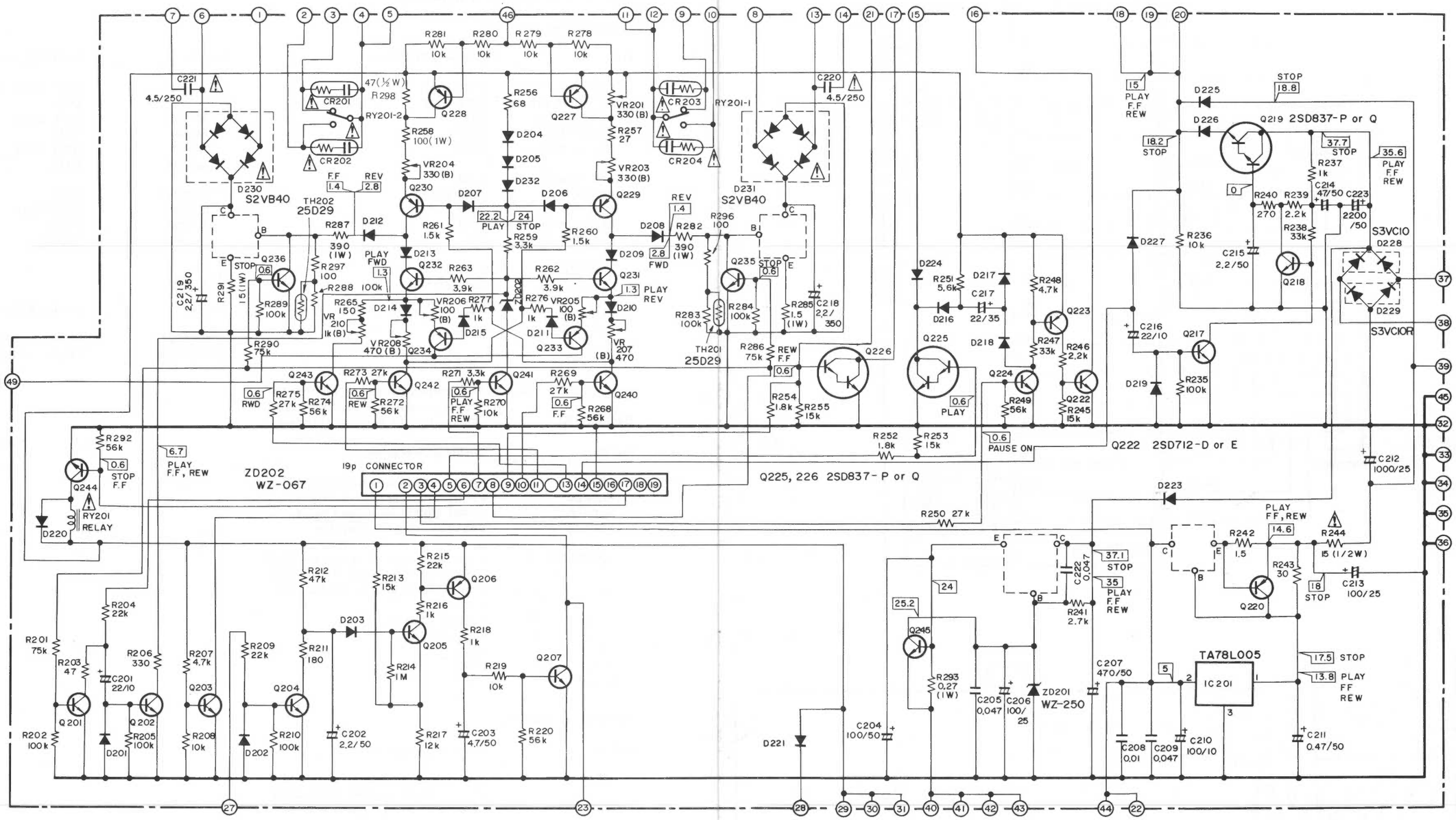
Part No.	Symbol & Description
2SC1740	Q201–Q205, Q207, Q217, Q218, Q224, Q231, Q232, Q235, Q236, Q240–Q244
2SD837	Q219, Q225, Q226
2SD712	Q222
2SC1382	Q245
2SA1015	Q206, Q220, Q223, Q227–Q230, Q233, Q234
TA78L005AP	IC201

Part No.	Symbol & Description
1S2473	D201–D215, D217–D219, D227, D237, D232
1S1585	D216, D220
W03B	D223
S2V20	D224–D226
⚠ S3VC10	D228
⚠ S3VC10R	D229
⚠ S2VB40	D230, D231
WZ-250	ZD201
WZ-067	ZD202

OTHERS

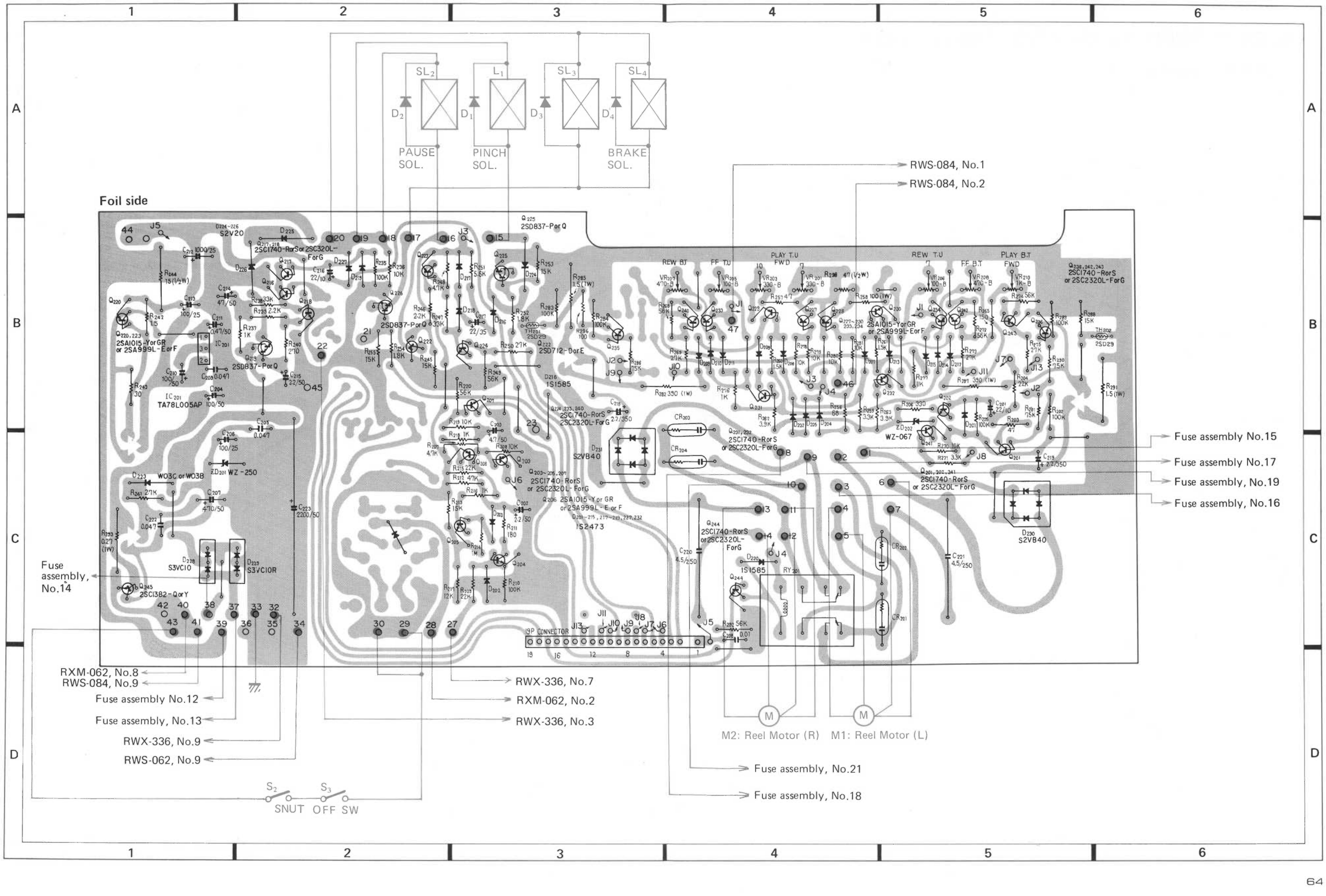
Part No.	Symbol & Description
⚠ RSR-024	RY201 Relay
⚠ RWX-030	CR201–CR204 Spark killer

Control B Assembly (RWG-108)



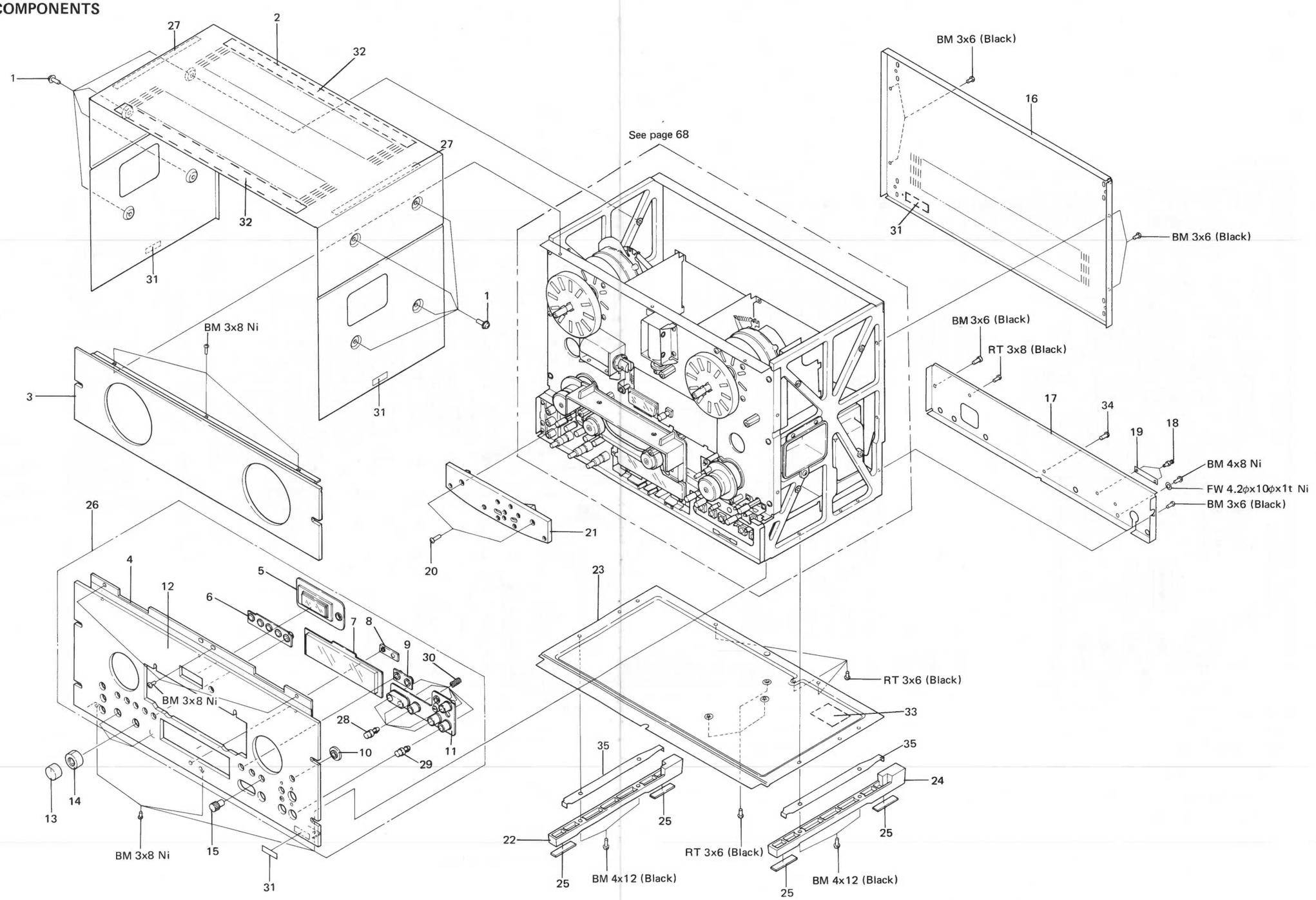
Q201~205, 207, 217, 218, 224, 231, 232, 235, 236, 240~244 : 2SC1740-R or S or 2SC2320L-F or G
Q245 : 2SC1382-O or Y
Q206, 220, 223, 227~230, 233, 234 : 2SA1015-Y or GR or 2SA999L-E or F

D201~215, 217~219, 227, 232 : 1S2473
D216, 220 : 1S1585
D221, D223 : W03C or W03B
D224~226 : S2V20


SL2
L1
SL3
SL4
D2
D1
D3
D4
PAUSE SOL.
PINCH SOL.
BRAKE SOL.
Foil side
RWS-084, No.1
RWS-084, No.2
Fuse assembly No.15
Fuse assembly No.17
Fuse assembly, No.19
Fuse assembly, No.16
Fuse assembly, No.14
Fuse assembly No.21
Fuse assembly, No.18
RXM-062, No.8
RWS-084, No.9
Fuse assembly No.12
Fuse assembly, No.13
RWX-336, No.9
RWS-062, No.9
RWX-336, No.7
RXM-062, No.2
RWX-336, No.3
M2: Reel Motor (R)
M1: Reel Motor (L)
S2 S3
SNUT OFF SW
19P CONNECTOR
REW B.T
FF T.U
PLAY T.U
REW T.U
FF B.T
PLAY B.T
IC201 TA78L005AP
2SA1015-YorGR or 2SA999L-EorF
2SC1740-RorS or 2SC2320L-ForG
2SD837-PorQ
2SD712-DorE
2SD29
S2VB40
S3VC10
S3VC10R
2SC1382-QorY
1S1585
1S2473
WZ-067
RY201

10. EXPLODED VIEW AND PARTS LIST

10.1 EXTERIOR COMPONENTS



- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts without part number cannot be supplied.*

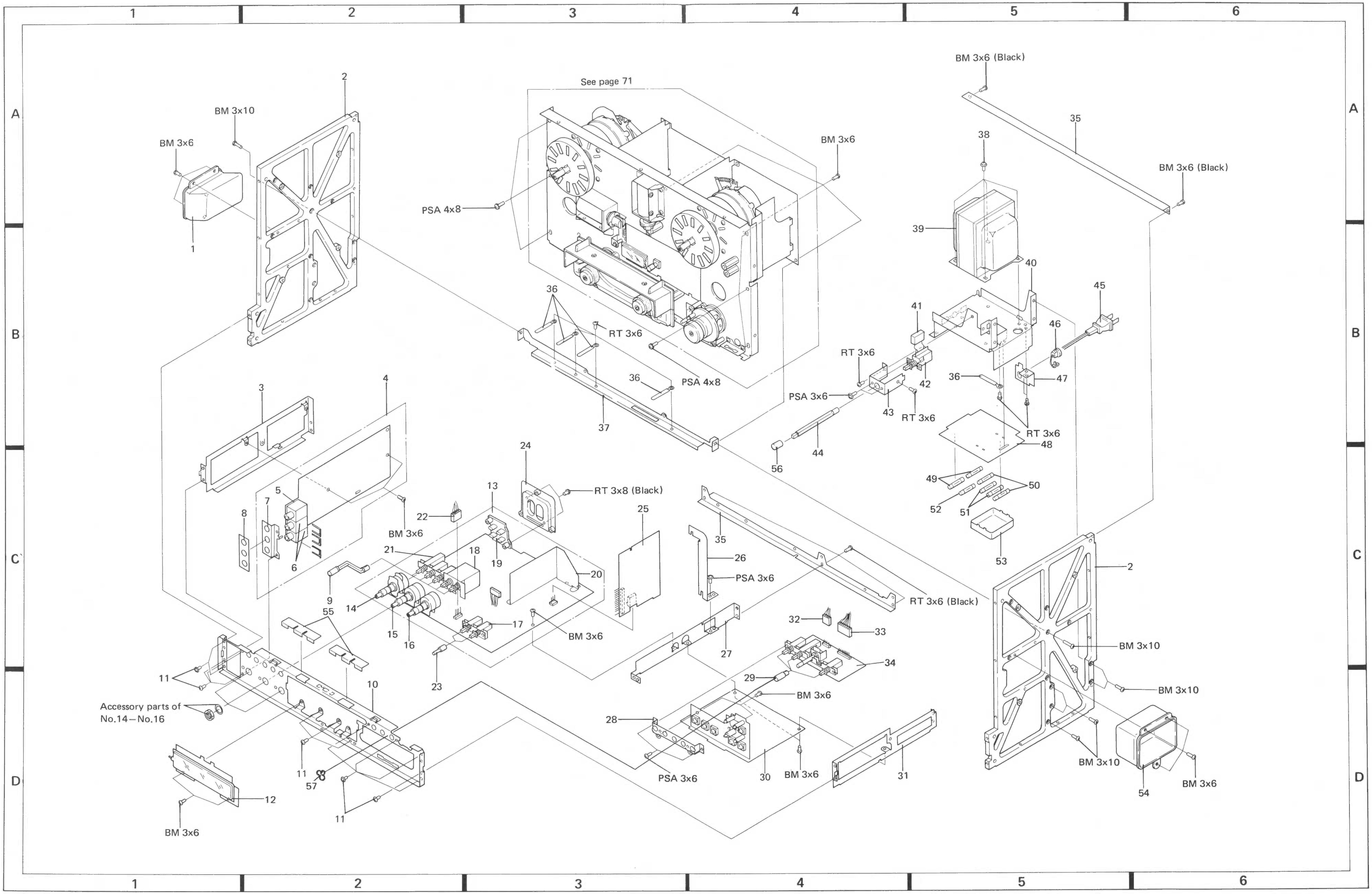
Parts List

Key No.	Part No.	Description
1.	ABA-010	Frange screw M4x15
2.	RNA-424	Bonnet
3.	RAH-293	Front panel
4.		Panel cushion
5.	RNK-829	Counter lens
6.		Escutcheon C
7.	RNK-831	Meter lens
8.		Escutcheon
9.		Escutcheon A
10.		Escutcheon B
11.		Escutcheon
12.		Front panel
13.	RAC-120	Knob A assembly
14.	RAC-121	Knob B assembly
15.	RAC-122	Knob (PITCH CONTROL)
16.		Rear panel
17.		Rear panel
18.		Rivet
19.		Serial no. plate
20.	RBA-017	Countersink screw with hexagon hole M4x8
21.	RNG-241	Head base
22.	REC-320	Foot L
23.		Bottom plate
24.	REC-319	Foot R
25.	RED-167	Foot felt
26.	RXX-279	Front panel assembly
27.	REB-220	Cover cushion A
28.	RAC-118	Function knob assembly
29.	RAC-119	REC knob assembly
30.	RBH-622	Knob return spring
31.	RRW-112	UL caution label A
32.	REB-221	Cover cushion B
33.		UL caution label C
34.	RBA-057	Screw
35.		Reinforce metal

10.2 INTERIOR COMPONENTS

Parts List

Key No.	Part No.	Description
1.	RNK-832	Handle L
2.		Frame
3.		Chassis L
4.	RWF-089	Preamplifier assembly
5.	RKN-056	Headphones jack
6.	RKN-058	Mic jack
7.		Jack bracket
8.		Jack mask
9.	RNK-812	Switch joint
10.		Chassis
11.		TP screw 3x6
12.		Fluolescent meter assembly
13.	RWX-340	Mother assembly
14.	RCV-076	Variable resistor (OUTPUT)
15.	RCV-079	Variable resistor (MIC)
16.	RCV-075	Variable resistor (LINE)
17.	RSG-087	Meter switch
18.		Switch shield
19.	RKB-016	Terminal (OUTPUT, INPUT)
20.		Heat sink
21.	RSG-086	Mode switch
22.	RKP-126	Connector assembly (4p)
23.	RAC-130	Meter knob assembly
24.		Jack escutcheon
25.	RWX-339	Driver assembly
26.		Holder A
27.		Center bracket
28.		Switch bracket
29.	RAC-115	Switch knob assembly
30.	RXX-280	Control A assembly
31.		Chassis R
32.	RKP-121	Connector assembly (5p)
33.	RKP-128	Connector assembly (9p)
34.	RWS-084	Switch assembly
35.		Reinforced metal
36.	RNE-605	UL cord clamper D
37.		L angle
38.		TP screw M4x8
⚠ 39.	RTT-178	Power transformer
40.		Bracket
⚠ 41.	RWX-109	Spark killer (UL)
⚠ 42.	RSA-021	Power switch (KC, KU)
43.		Switch holder
44.	RNK-811	Power switch joint
⚠ 45.	RDG-022	Power code
46.	REC-272	Strain relief
47.		AC code holder
48.		Fuse assembly
49.	REK-048	Fuse 0.5A
50.	REK-055	Fuse 2A
51.	REK-051	Fuse 1A
52.	REK-044	Fuse 4A
53.		Fuse cover
54.	RNK-834	Handle R
55.		Arm mask B
56.	RAD-130	Switch cap
57.	RBH-648	P control spring



1
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A
B
C
D
See page 71
BM 3x10
BM 3x6
BM 3x6 (Black)
PSA 4x8
RT 3x6
PSA 3x6
RT 3x8 (Black)
RT 3x6 (Black)
Accessory parts of No.14—No.16
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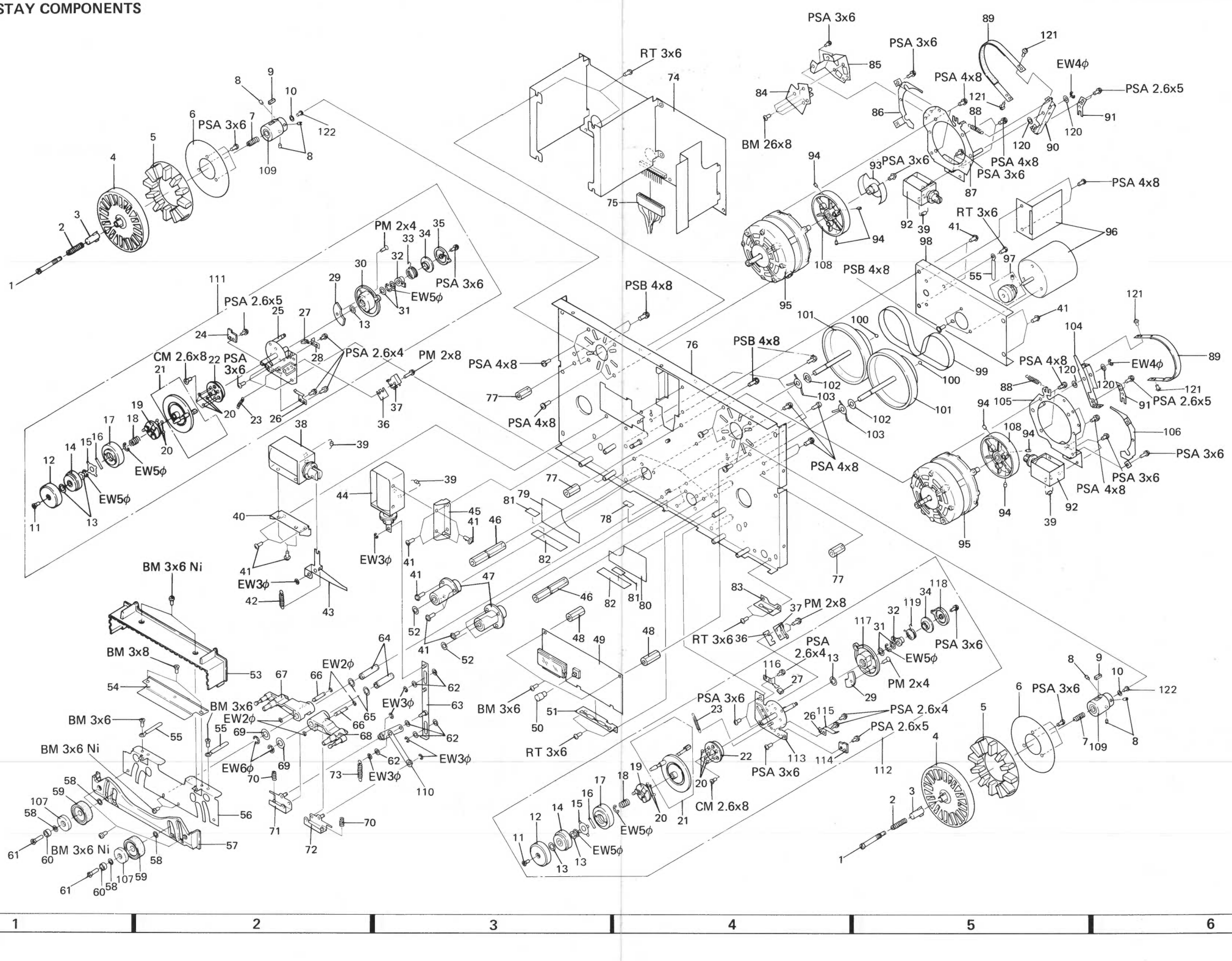
10.3 PANEL STAY COMPONENTS

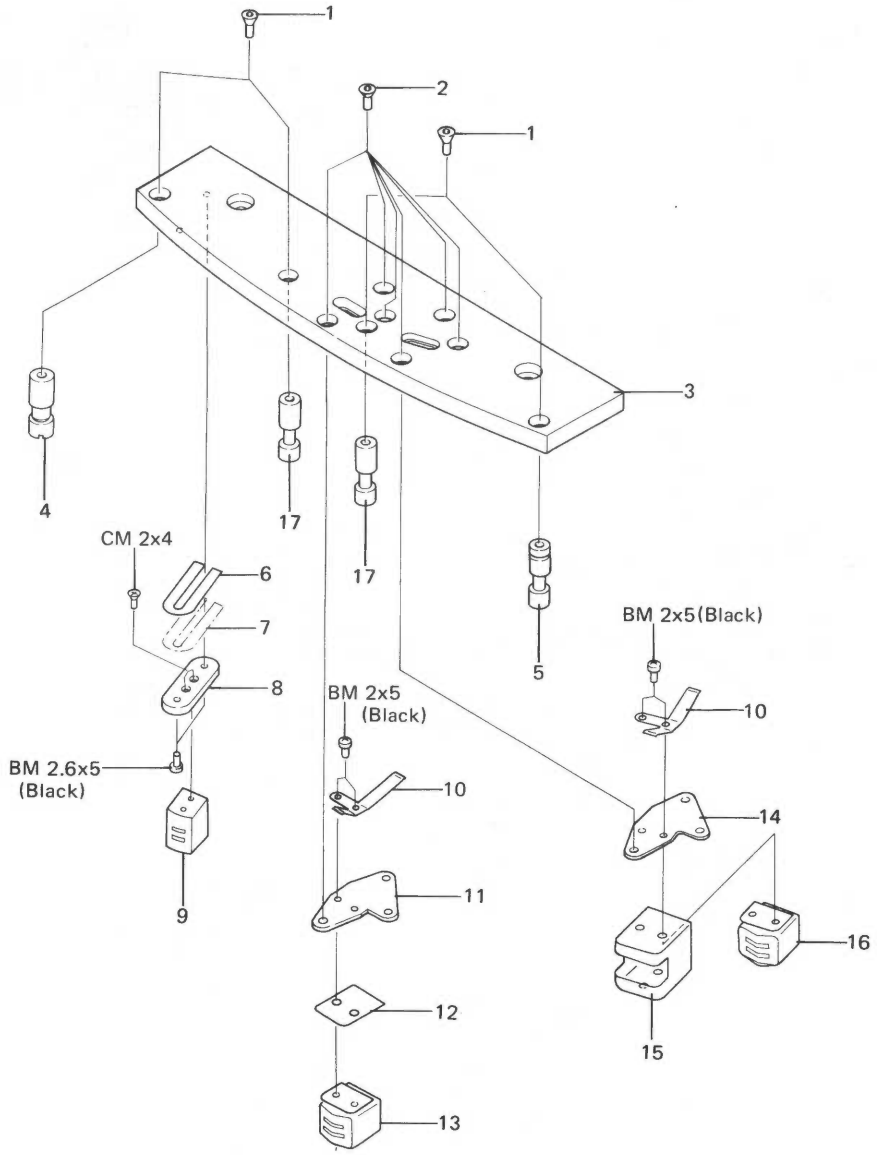


Parts List

Key No.	Part No.	Description
1.	RLB-116	Reel base shaft
2.	RBH-585	Reel base spring
3.	RNG-227	Reel base blade
4.	RNG-209	Reel base
5.	REB-349	Reel sheet
6.		Reel plate
7.	RBH-586	Reel base adjust spring
8.		Setscrew with hexagon hole M4x4
9.	RLB-129	Sliding key
10.		Nylon washer 3.2ϕx6ϕx0.5t
11.		Countersink screw with hexagon hole M4x8
12.		Roller cap
13.		Nylon washer 6.2ϕx12ϕx0.5t
14.		Guide roller assembly
15.		Spring
16.		Parallel pin
17.		Guide case
18.		Spring
19.		Ball holder
20.		Nylon ball
21.		Guide table assembly
22.		Ball tray
23.		Arm return spring
24.		Stopper L
25.		Roller stay L assembly
26.		Lock plate L
27.		Stopper
28.		Stopper bracket L
29.		Sub balance weight
30.		Shut-off cam L
31.		Nylon washer 6.2ϕx12ϕx0.3t
32.		Damper plate
33.		Damper spring L
34.		Damper cap
35.		Damper stopper L
36.	REC-278	Switch spacer
37.	RSF-022	Micro switch
38.	RXP-070	Pause solenoid
39.		Diode W03C
40.		Solenoid stay
41.		TP screw M3x6
42.	RBH-584	Pause lever spring
43.		Pause lever
44.	RXP-071	Pinch solenoid
45.		Solenoid stay
46.		Head base stay
47.	RXB-174	Bearing assembly
48.		Boss
49.	RWX-336	Counter assembly
50.	RAC-114	Counter knob assembly
51.		Stay
52.	REB-052	Oil thrower washer A
53.	RNK-835	Head housing A
54.		Shield plate
55.		UL code clamper (D)
56.		Shield plate
57.	RNK-842	Head housing B
58.	RBF-033	Polyethylene washer
59.	RXB-194	Pinch roller assembly
60.	RLB-105	Pinch roller collar
61.	RBA-050	Countersink screw with hexagon screw M3x6
62.		Nylon washer 4.2ϕx8ϕx0.5t
63.		Center link assembly
64.		Pinch arm shaft
65.		Nylon washer 8.2ϕx16ϕx0.5t
66.	RLB-108	Shaft
67.	RXB-195	Pinch arm L assembly
68.	RXB-196	Pinch arm R assembly
69.		Nylon washer 8.2ϕx16ϕx0.5t
70.	RBH-645	Pressure spring
71.		Pressure plate L assembly
72.		Pressure plate R assembly
73.	RBH-583	Senter link return spring
74.	RWG-108	Control B assembly
75.	RKP-130	Connector assembly (19p)
76.		Chassis assembly
77.		Panel stud
78.	RED-166	Stopper felt
79.		Arm mask L
80.		Arm mask R
81.	REB-374	Arm cushion
82.		Arm mask A
83.		P.C.B. holder
84.		Sensing assembly
85.		Sensing bracket
86.		Brake guide L
87.		Brake bracket L assembly
88.	RBH-591	Brake spring
89.	RXB-204	Brake band assembly
90.		Brake arm L
91.		Brake link
92.	RXP-075	Brake solenoid
93.	RNK-827	Sensor slit
94.		Setscrew with hexagon hole M4x4
⚠ 95.	RXM-060	Reel motor
96.		Capstan motor
97.	RXB-239	Pulley assembly
98.		Motor stay
99.	REB-361	Belt
100.	N23-608	Nylon ball

Key No.	Part No.	Description
101.	RXB-283	Capstan assembly
102.		Nylon washer 6.2ϕx12ϕx0.5t
103.	RBK-139	Thrust spring
104.		Brake arm R
105.		Brake bracket R assembly
106.		Brake guide R
107.	REC-305	Pinch roller cap
108.	RNK-833	Brake drum
109.		Reel base bearing
110.		Joint assembly
111.	RXX-265	Tension roller assembly L
112.	RXX-266	Tension roller assembly R
113.		Roller stay R assembly
114.		Stopper R
115.		Lock plate R
116.		Stopper bracket R
117.		Shut-off cam R
118.		Damper stopper R
119.		Damper spring R
120.	B22-424	Washer 5ϕ
121.		TP screw M2.6x5
122.		Bolt with hexagon hole 2.6x5

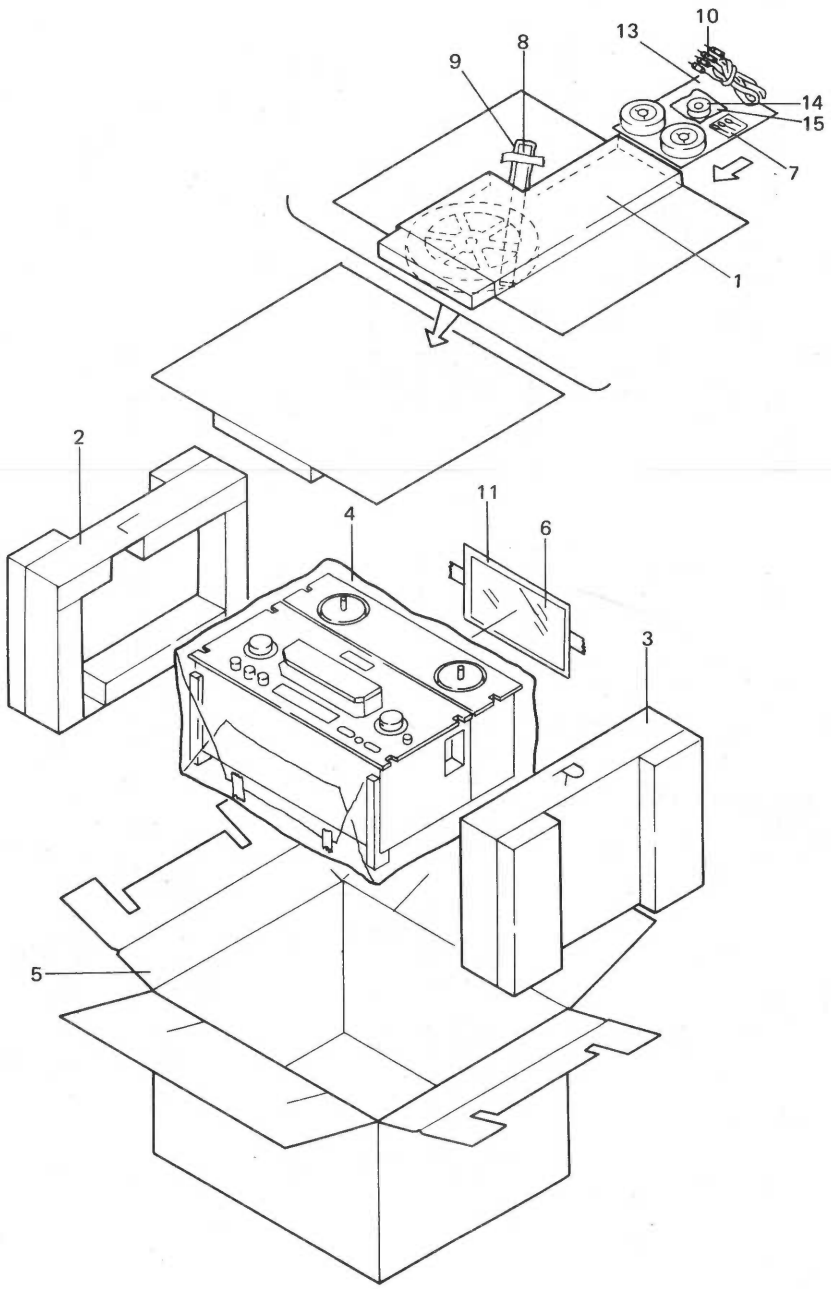
10.4 HEAD BASE COMPONENTS



Parts List

Key No.	Part No.	Description
1.	RBA-015	Countersink screw with hexagon hole M3 8
2.	RBA-016	Countersink screw with hexagon hole M3 10
3.	RNG-241	Head base
4.	RLB-186	Tape guide L
5.	RLB-112	Tape guide R
6.		Spacer C
7.		Spacer D (for height adjustment)
8.		E head mount plate
9.	RPB-047	Erase head (4T 2C EH)
10.	RBK-147	Head adjust spring
11.		REC head mount plate
12.		Shield case spacer
13.	RPB-064	REC head (4T 2C RH)
14.		Head mount plate
15.		Shield case
16.	RPB-065	P.B. head (4T 3C PBH)
17.	RLB-111	Tape guide

11. PACKING



Parts List

Key No.	Part No.	Description
1.	RHC-095	Accessory box
2.	RHA-194	Cushion L
3.	RHA-195	Cushion R
4.	RHL-055	Vinyl bag
5.	RHG-319	Packing case
6.	RRB-122	Operating instructions
7.	REA-021	Head cleaning assembly
8.	RNA-428	Blank panel
9.	RHL-056	Vinyl bag
10.	RDE-010	Connection code
11.	RHL-018	Vinyl bag
12.	.....	
13.	RHL-025	Vinyl bag
14.	P45-851	Splicing tape
15.	H46-853	Vinyl bag B

PIONEER®

SERVICE INFORMATION

No. SI-T84045
Date: September, 1984

CORRECTION TO SERVICE MANUAL

MODEL: RT-909 (ART-420)
RT-901 (ART-441)

PAGE: 37 (Key No. 11, 12); 38 (Key No. 121)

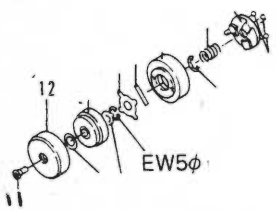
Roller Cap and screw of Key No. 12 and TP screw M2.6x5 of Key No. 121 are now available as spare parts.

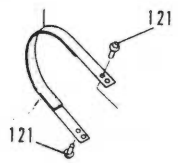
These parts were previously NON-SPARE-PARTS.

Please add them in your Service Manual as follows:

(Added)

Key No.	Part No.	Description
11	RBA-049	Screw
12	RLB-280	Roller Cap
121	AMZ26P050FMC	TP Screw M2.6x5





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