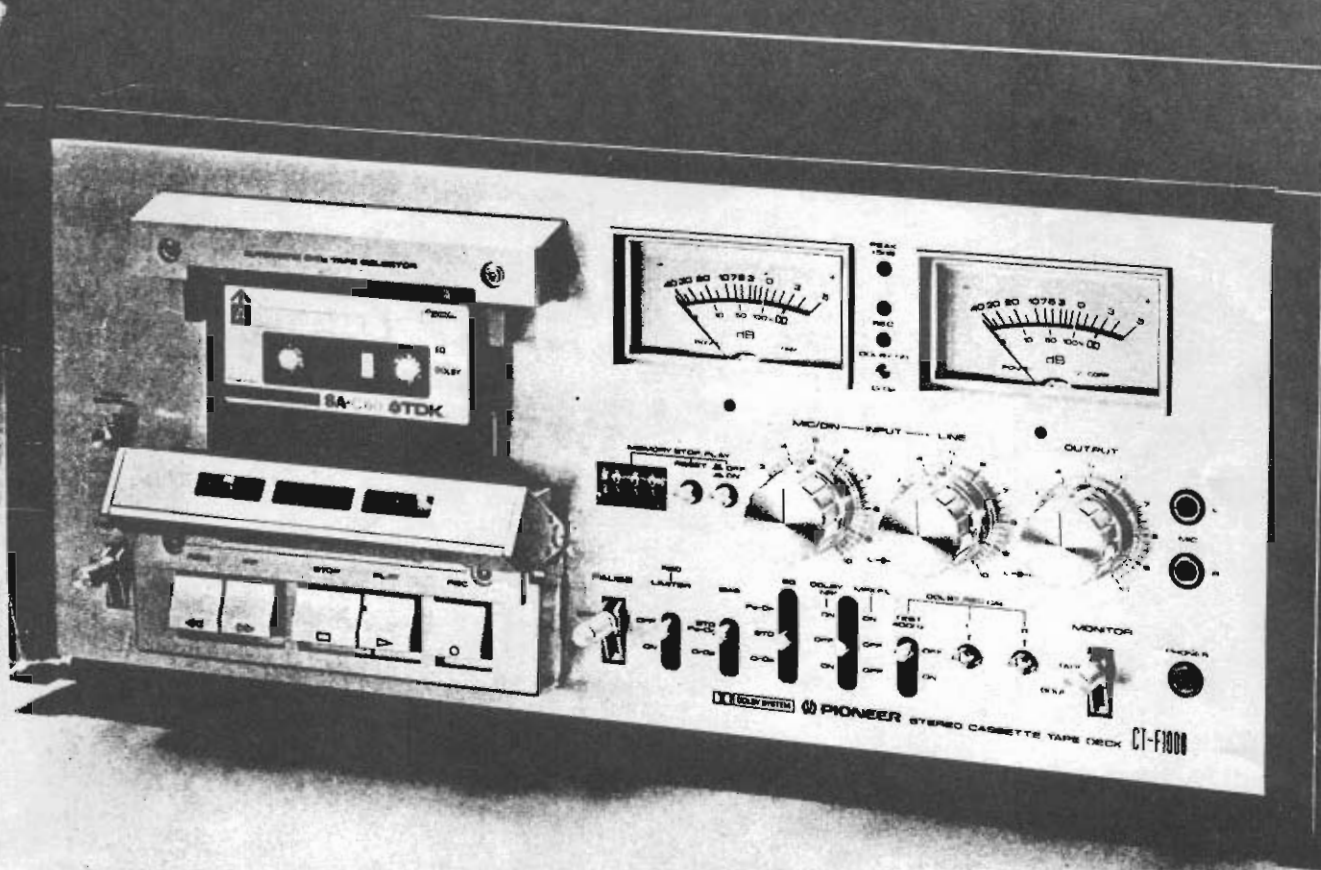


3-HEAD CASSETTE TAPE DECK

CT-F1000

SERVICE MANUAL



ART-251
S/M CT-F1000

1003

SM

1

INV: 31518502
MP: 0102A-04

 PIONEER

MODEL CT-F1000 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

NOTICE:

- This service manual is applicable to the KU and KC types.
- As to the HG, D and D/G types, please refer to page 83.

CONTENTS

- The circuit descriptions and adjustments are issued separately.
- When ordering spare parts and repairing, please confirm the "type" which is described on the packing case because several parts are not interchangeable.
- The wooden case shown in cover is applicable only for the U.S.A. model optionally.

1.	SPECIFICATIONS	3
2.	CONNECTION DIAGRAM	4
3.	FRONT PANEL FACILITIES	5
4.	BLOCK DIAGRAM	7
5.	LEVEL DIAGRAM	11
6.	DISASSEMBLY	13
7.	PARTS LOCATION	
7.1	Front Panel View	16
7.2	Front View with Front Panel Removed	17
7.3	Top View with Bonnet Removed	18
7.4	Rear Panel View	19
8.	EXPLODED VIEWS	20
9.	SCHEMATIC DIAGRAMS, P.C. BOARD PATTERNS AND PARTS LIST	
9.1	Miscellaneous Parts List	33
9.2	External Appearance of Transistors and IC	34
9.3	Circuit Diagram of ICs	34
9.4	Connection Diagram	35

9.5	Schematic Diagram	37
9.6	Main Board Assembly (RWX-178)	39
9.7	Volume Assembly (RWX-181)	46
9.8	Power Supply Assembly (RWR-055)	49
9.9	Recording Equalizer Assembly (RWX-182).....	52
9.10	Playback Equalizer Assembly (RWF-079).....	55
9.11	Dolby Assembly (RWX-183).....	58
9.12	Meter Assembly (RWX-180)	61
9.13	Integrated Assembly (RWX-175).....	64
9.14	Peak Amplifier Assembly (RWX-179)	66
9.15	Pause Switch Assembly (RWS-064).....	67
9.16	Test Tone Assembly (RWA-028).....	68
9.17	Flat Amplifier Assembly (RWX-177)	70
9.18	Indicator Assembly (RWX-176)	72
9.19	Control Assembly (RWG-080)	73
9.20	Fuse Assembly	80
10.	PACKING	81
11.	RACK MOUNT ADAPTOR JA-R102	82
	ADDITIONAL SERVICE MANUAL	83

1. SPECIFICATIONS

Systems	Compact cassette, 2-channel stereo
Motors	Electronically-controlled DC motor (built-in generator) x 1; (4.8cm/s speed drive), DC torque motor x 1; (Fast forward and rewind drive)
Heads	"Uni-crystal ferrite" recording head x 1 "Uni-crystal ferrite" playback head x 1 Ferrite erasing head x 1 } Combination type
Operation	Solenoid drive, direct switchable and timer play presettable
Fast Winding Time	Approximately 65 seconds (C-60 tape)
Wow and Flutter	No more than 0.05% (WRMS)
Frequency Response	Standard, LH tapes: 20 to 17,000Hz (30 to 15,000Hz \pm 3dB) Ferri-chromium tape: 20 to 19,000Hz (30 to 17,000Hz \pm 3dB) Chromium dioxide tape: 20 to 19,000Hz (30 to 17,000Hz \pm 3dB)
Signal-to-Noise Ratio	Dolby OFF: More than 54dB Dolby 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)
Harmonic Distortion	No more than 1.3% (0dB)
Inputs (Sensitivity/Maximum allowable input/Impedance)	MIC (L,R); 0.22mV/100mV/30 kilohms, 6mm diam. jack (Reference MIC impedance; 250 ohms to 30 kilohms) LINE x 4 (2-channel stereo, Parallel connection system); 60mV/25V/100 kilohms REC/PLAY x 1; Input & output, 10mV/5V/2.2 kilohms 5p jack (DIN standard)
Outputs (Reference level/Maximum level/Load impedance)	LINE x 4; 450mV/680mV/50 kilohms (2-channel stereo, Parallel connection system) REC/PLAY x 1; 450mV/680mV/50 kilohms 5p jack (DIN standard) HEADPHONES x 1; 62mV/93mV/8 ohms, 6mm diam. jack

Semiconductors

Amplifier Section Transistors x 98 (including FETs x 4), Diodes x 96 (including Zener Diodes x 7, LEDs x 4), ICs x 4

Motor control Section Transistors x 3, Diodes x 2, IC x 1

Subfunctions

- Dolby system (ON-OFF)
- Dolby calibration (built-in 400Hz test oscillator)
- MPX Filter (ON-OFF)
- Tape Selector (STD/FeCr/CrO₂)
Automatic tape selector for CrO₂ tape, and Manual tape selector of independently BIAS/EQ
- Cassette compartment illumination
- Mixing control used for MIC and LINE input
- Tape counter with rewind Memory switch (ON-OFF) for starting point [REW-STOP/PLAY (REC)]

- Recording limiter (ON-OFF)
- Wide scale level meter (-40 to +5dB)
- Recording Peak level indicator (Lightable level; +5dB)
- Pitch control (more than \pm 6% of rated tape speed)
- Level Memory Marker for inputs and output
- MIC, LINE input and output level controls knob with 41 click step

Power Requirements AC 120V, 220V, 240V (switchable) 50/60Hz (D, D/G model) or AC 220V, 240V (switchable) 50/60Hz (HG model)

Power Consumption 38 watts

Dimensions 420(W) x 187(H) x 368(D)mm Max.
15-9/16 x 7-3/8 x 14-1/2 in

Weight 11.8kg/26 lb (Without package)
14.0kg/32 lb 10 oz (With package)

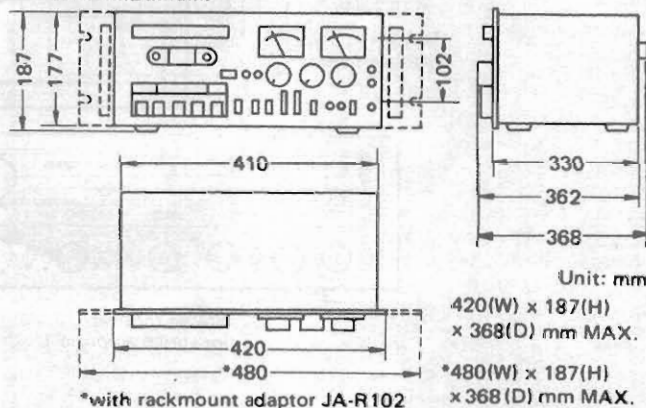
Furnished parts Stereo connecting cord with pin plugs x 2
Head cleaning kit x 1
Fuse (D, D/G model only) x 1 (120V; 1.2A or 220V, 240V 800mA)
Operating instructions x 1

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.
: CrO₂: DIN 45513/BLATT7 (CrO₂) 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 OFF, level deviation is \pm 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.



2. CONNECTION DIAGRAM

Connect the CT-F1000's LINE terminals to the tape terminals on the receiver (or stereo amplifier) with the accessory cords. The top terminal is for the left channel and the bottom for the right channel.

If you do not connect properly, you will hear a monotonous single-pitched hum and this will impair your recording.

Connections for playback

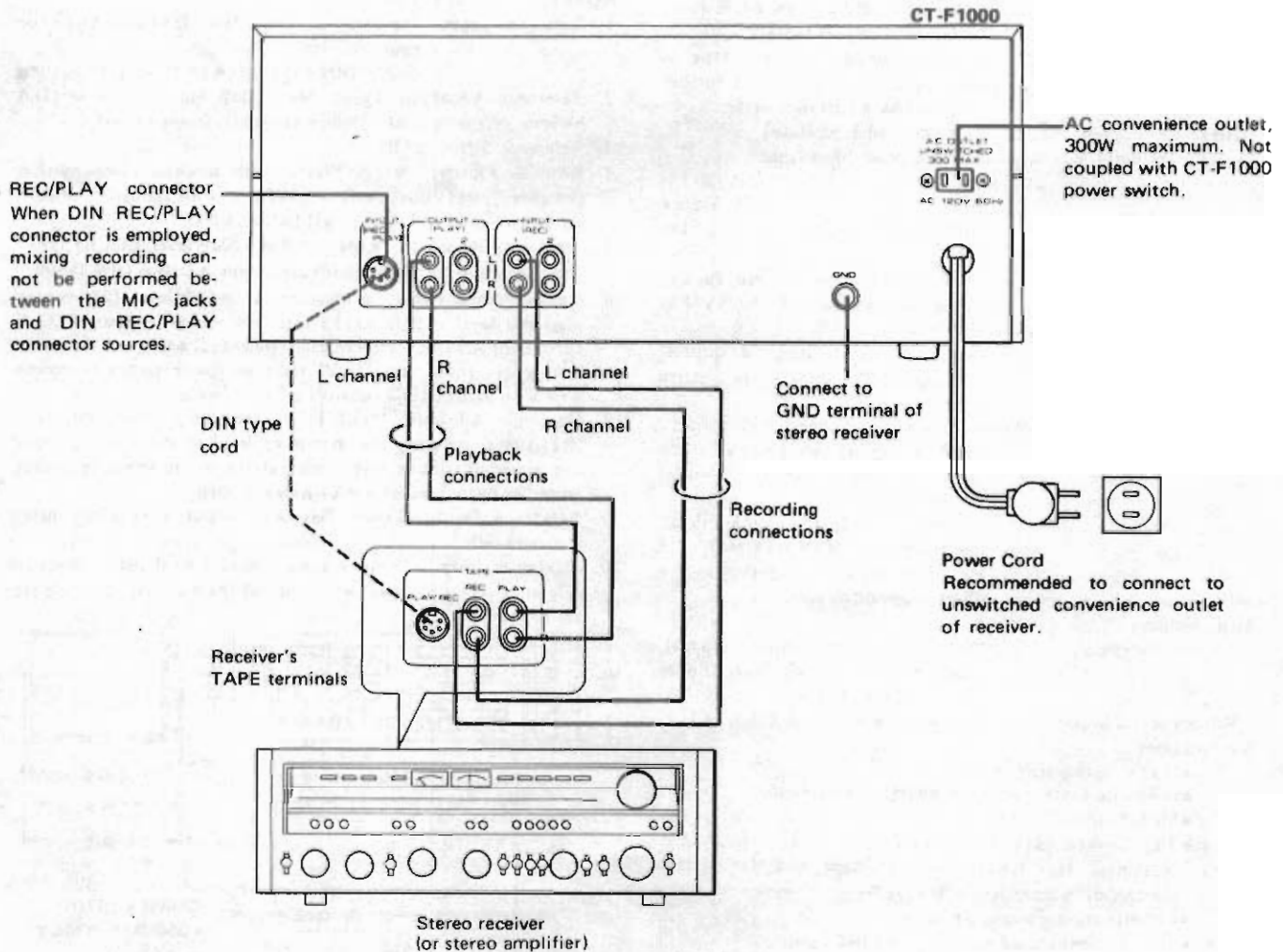
Connect the TAPE PLAY input terminals on the receiver to the CT-F1000's LINE OUTPUT terminals.

Connections for recording

Connect the receiver's TAPE REC output terminals to the CT-F1000's LINE INPUT terminals.

Using the REC/PLAY connectors

You can connect for playback and recording at the same time if you use recording/playback cords which are bought separately, as long as the receiver comes with DIN-standard recording/playback connectors. Use the MIC/DIN recording level controls to adjust the recording level. You will not be able to record the signals from the REC/PLAY connectors if you connect a microphone (or microphones) to the MIC jacks.



3. FRONT PANEL FACILITIES

POWER SWITCH

Power is supplied when this switch is set to ON, at which time the level meter lamps and the remaining tape display lamp go on.

PITCH CONTROL KNOB

You can use this to make the tape travel 6% faster or slower than the rated tape speed during playback. When this knob is set to the central position, the tape speed is a standard 4.75cm/s. Turn the knob 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. The tape speed does not change while recording.

TAPE COUNTER

This indicates the tape running position.

COUNTER RESET BUTTON

Push this button to reset the tape counter to '000'.

MEMORY SWITCH

When this switch is set to ON, the position at which the tape counter was set to '000' is memorized during recording or playback, and the memory play and memory stop functions can then be performed.

LEVEL METERS

These meters allow you to read out the levels during recording and playback. When the MONITOR switch is set to SOURCE, they indicate the input signal level, and when set to TAPE, they indicate the playback output level.

MIC JACKS

These are the input jacks for microphone recording. The left and right channels can be used independently. Only the microphones' input signals are recorded when the REC/PLAY connector (DIN standard) on the rear panel and the MIC jacks are connected at the same time. Use microphones with an impedance ranging from 250 ohms to 30 kilohms.

MONITOR SWITCH

You can listen to the recorded signals (playback sound) if you set this to TAPE. If you set it to SOURCE, you can listen to the signals just before they are recorded (recording input). While recording, alternately select both positions and monitor your recording. Set this switch to TAPE when playing back a tape.

PHONES JACK

This is the output jack for stereo headphones. Signals selected by the MONITOR switch are available here. Use the jack when you want to monitor your recording or listen to a performance directly from the CT-F1000. The output level is adjustable.

NOTE:

Please use low impedance-type headphones. If you use high impedance-type headphones, you may not obtain sufficient volume.

CrO₂ INDICATOR

This indicates that a chrome tape is being used. It also goes on when a cassette has not been inserted into the tape deck. This does not indicate a failure.

DOLBY NR INDICATOR

This lights up when the DOLBY NR switch is set to ON.

RECORDING INDICATOR (REC)

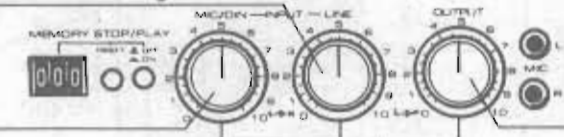
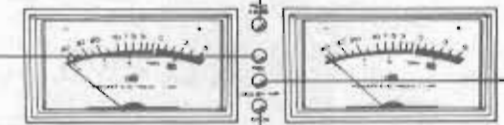
This red indicator lights up during recording.

NOTE:

Be sure to start recording only after you have checked that the recording indicator is on.

PEAK +5dB INDICATOR

This lights up when the recording level exceeds +5dB. When recording, adjust the level with the INPUT recording level (LINE, MIC/DIN) controls so that this lamp does not light up continuously.



DUST COVER

Use this cover when you are not using your tape deck and it will stop dust and dirt from entering the head section and rotating parts.

OPERATING LEVERS

REW ◀ (rewind): Press down to rewind tape. (Tape travels from right to left).

FF ▶▶ (fast forward): Press down for tape fast forward. (Tape travels from left to right).

STOP ■: Press down to stop the tape. This action also releases the other operating levers.

PLAY ▶: Press down to play back the tape. Press down together with the REC lever when recording. (Tape travels from left to right).

REC ● (record): Press down together with the PLAY lever when recording.

NOTE:

The operating levers will not be released if the power is turned off.

PAUSE SWITCH

The tape run is temporarily suspended if this switch is set to ON during recording or playback. When returned to OFF, however, the tape will start to run again. The PAUSE switch will not work if the tape deck is set to the REW or FF modes.

EQ SWITCH

This selects the recording equalization characteristics according to the type of tape used. Select the same position for playback as for recording according to the characteristics of the recording tape.

Fe-Cr: For ferri-chrome tapes.
STD: For standard and LH tapes.
CrO₂: For chrome tapes.

NOTE:

There is no need to select the suitable position with a chrome tape provided with detection holes since the bias and equalization circuits are activated automatically.

BIAS SWITCH

This selects the recording bias current in accordance with the type of tape used for recording.

STD, Fe-Cr: For standard tapes, LH tapes and ferri-chrome tapes.
CrO₂: For chrome tapes.

REC LIMITER SWITCH

Set this switch to ON and record when there are high variations in the recording level which exceed the reference level, or when it is difficult to control the recording level.

DOLBY REC CAL SWITCH & CONTROLS

Use these to adjust the Dolby recording and playback levels in accordance with the type of tape you are using.

TEST 400Hz switch: When set to ON, signals are oscillated for adjusting the recording/playback level. This switch is usually set to OFF.

DOLBY REC CAL (L, R) controls: Use these controls to adjust the Dolby level.

DOLBY NR/MPX FIL SWITCH

Dolby system and multiplex filter.

Set this switch to DOLBY NR ON when recording with the Dolby system or when playing back a tape which has been recorded with the Dolby System.

Set this switch to the MPX FIL ON position when recording (Dolby) without the FM stereo broadcast pilot signal (19kHz).

ON/ON: When playback in Dolby or when recording an FM stereo broadcast in Dolby using an FM tuner with MPX pilot signal leakage.

OFF/OFF: When not recording or playback in Dolby.

ON/OFF: When playback in Dolby or when recording a program source in Dolby other than an FM stereo broadcast, or when using an FM tuner with no MPX pilot signal leakage.

MEMORY MARKER KNOB

You can use this knob to help you remember the level control settings.

OUTPUT LEVEL CONTROLS

Use these controls to adjust the output level when you are playing back a tape. The level increases as the controls are turned to the right. The outer control is for the right channel, and the inner control is for the left channel.

MIC/DIN RECORDING LEVEL CONTROLS

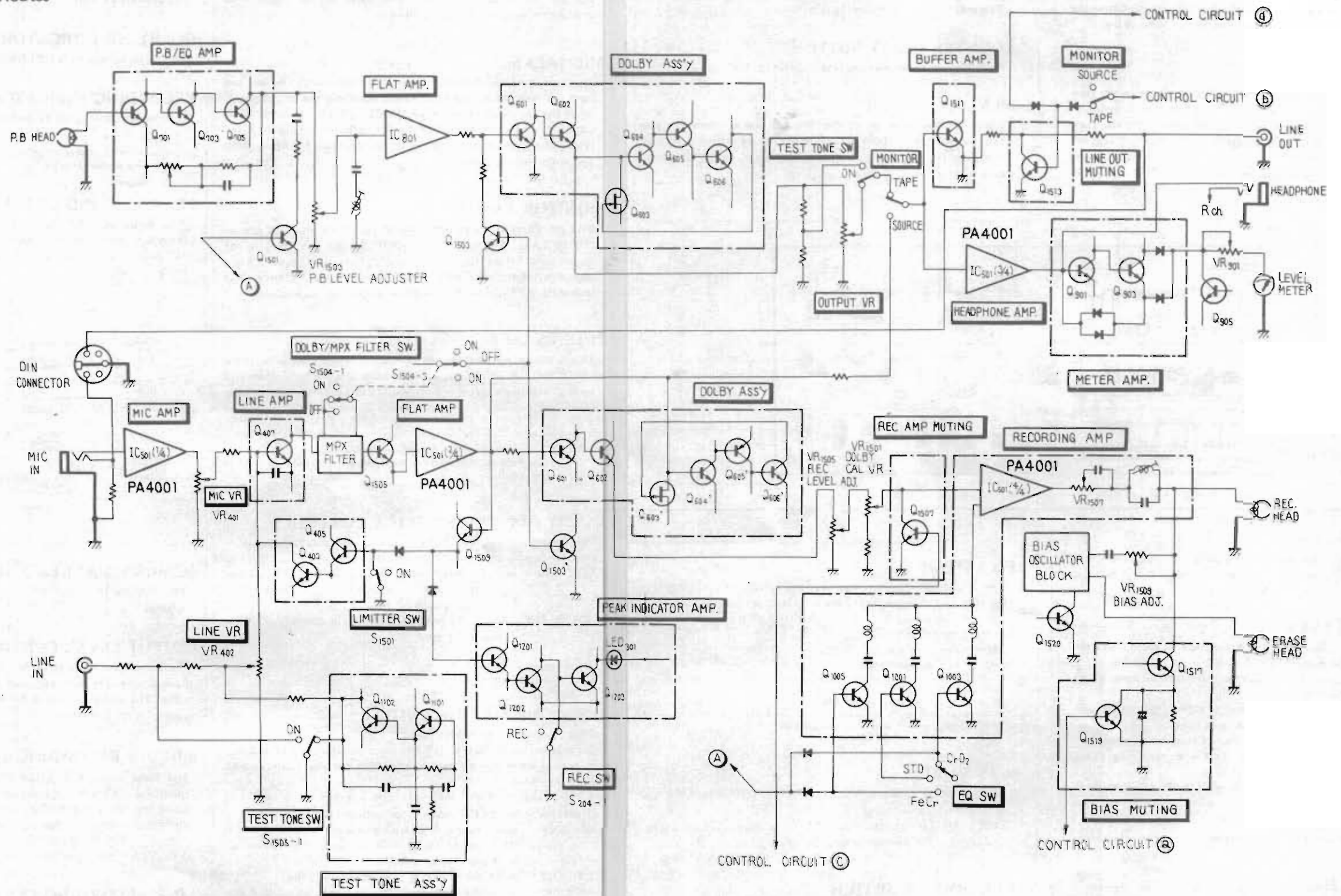
Use these controls to adjust the recording level when you are recording with a microphone (or microphones), or when you are using the rear panel REC/PLAY connector (DIN standard). Use the outer control for the right channel and the inner control for the left channel. Input signals from both the MIC jacks and REC/PLAY connector cannot be recorded simultaneously.

LINE RECORDING LEVEL CONTROLS

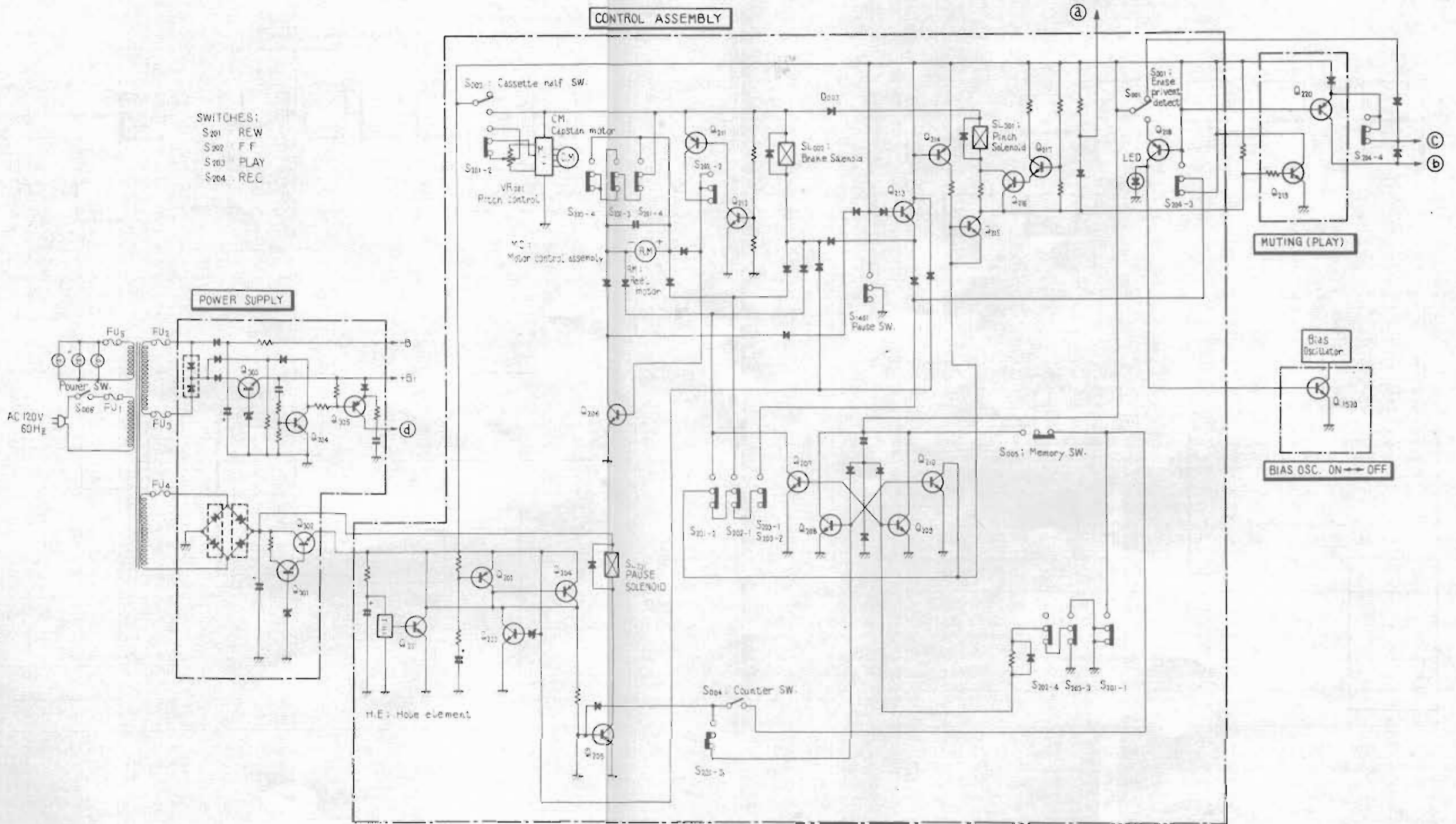
These adjust the recording input level from the LINE INPUT terminals on the rear panel. The level increases as the controls are turned to the right. The outer control is for the right channel and the inner control, for the left channel.

4. BLOCK DIAGRAM

Playback and Recording Routes

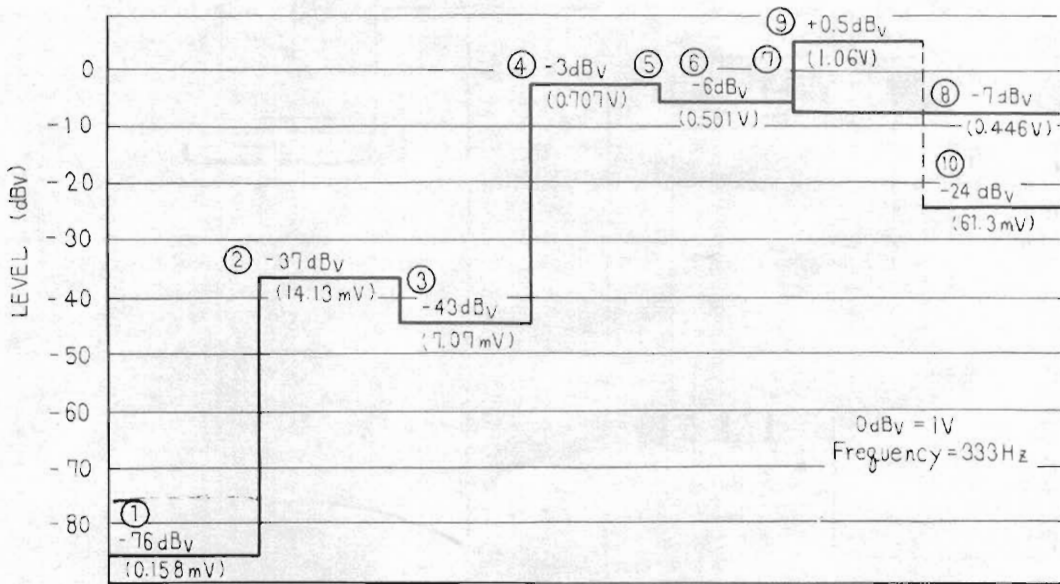
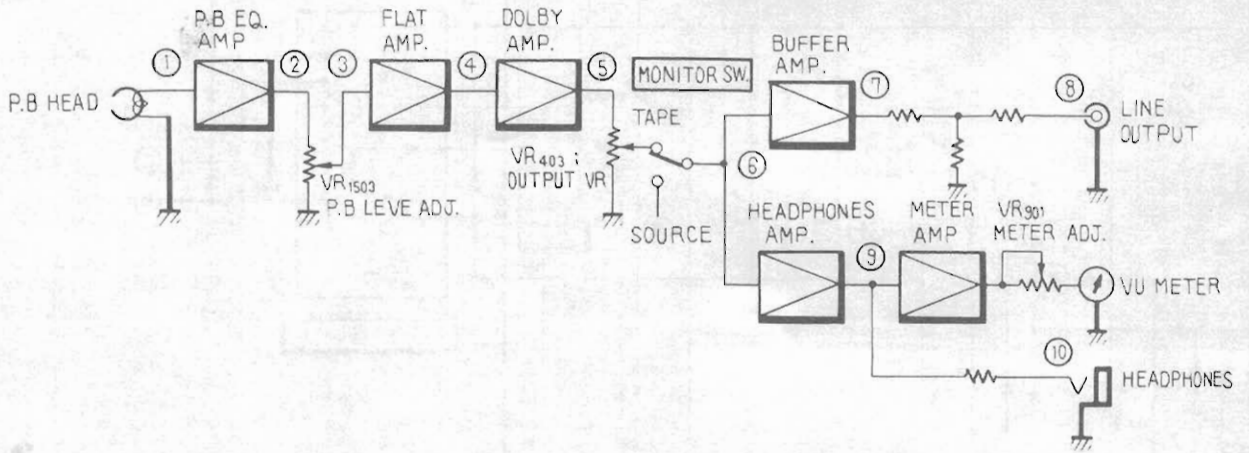


Control Function Routes

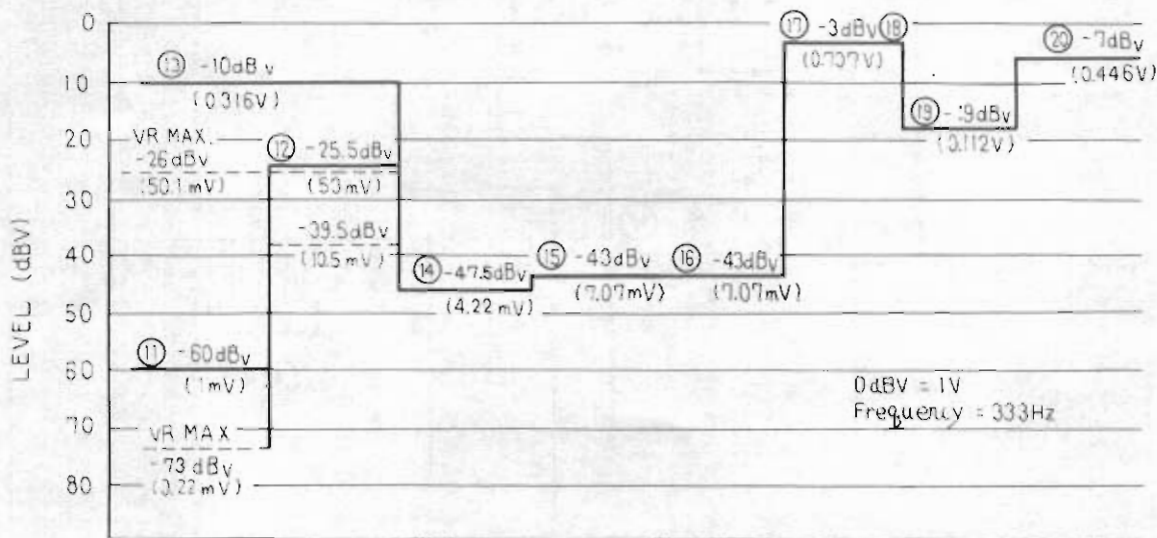
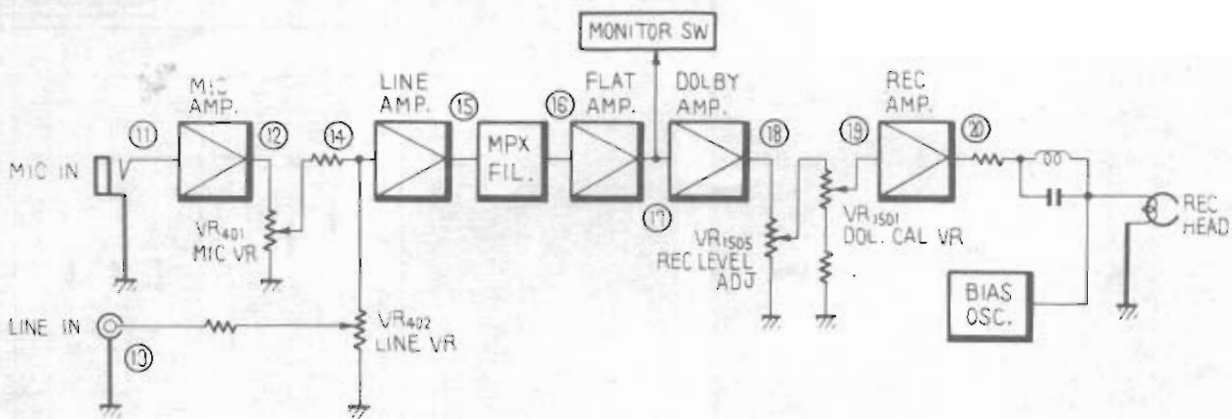


5. LEVEL DIAGRAM

PLAYBACK



RECORDING



6. DISASSEMBLY

Outer Coverings (Fig. 1)

1. First undo the 8 screws (A) securing the bonnet.
2. Then remove all front panel control knobs, and undo the 6 screws (B) securing the front panel.
3. Next undo the 6 screws (C) securing the mechanical assembly.
4. Finally undo the 5 screws (D) securing the bottom plate.

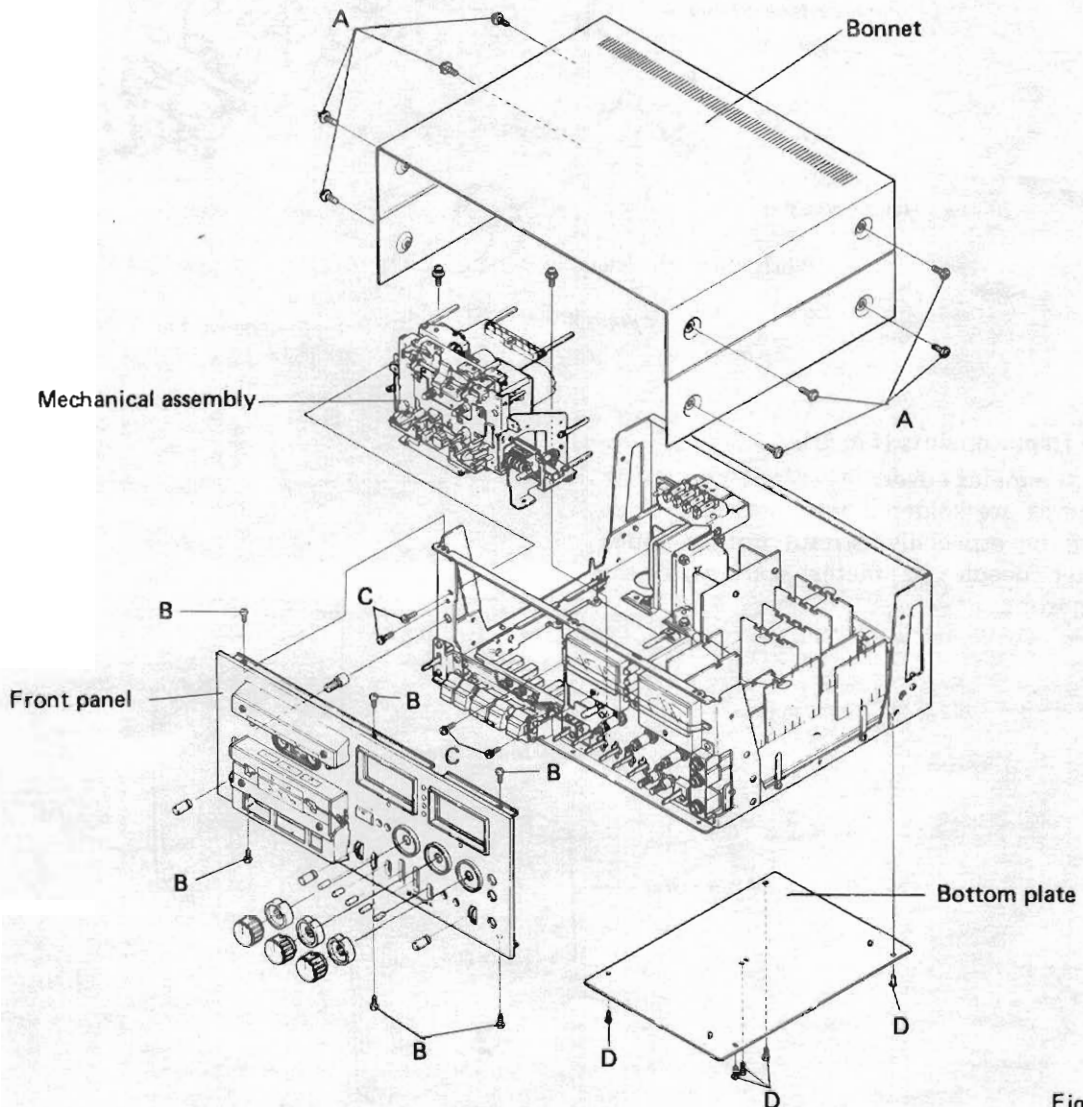


Fig. 1

Head Assembly (Fig. 2)

1. Remove the height adjuster, plus E type and polyethylene washers to release the pinch roller arm assemblies.
2. The recording/playback head and erasing head are both incorporated in the head assembly (RXA-866-0), and cannot be independently removed from the head base assembly. Note that electrical adjustments must always be performed when a new head assembly is inserted.

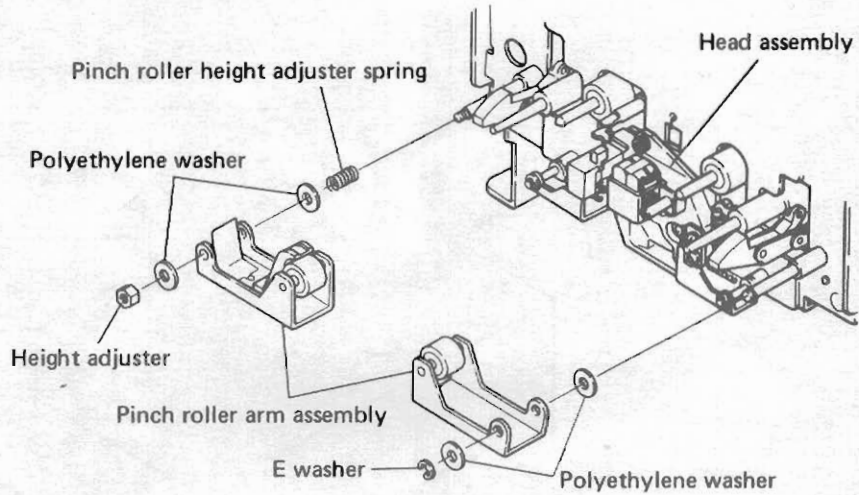


Fig. 2

Meter Lamp Replacements (Fig. 3)

1. Remove the meter cover.
2. Meter lamps are soldered into position. When replacing, be especially careful not to touch the meter needle or meter scale with the soldering iron.

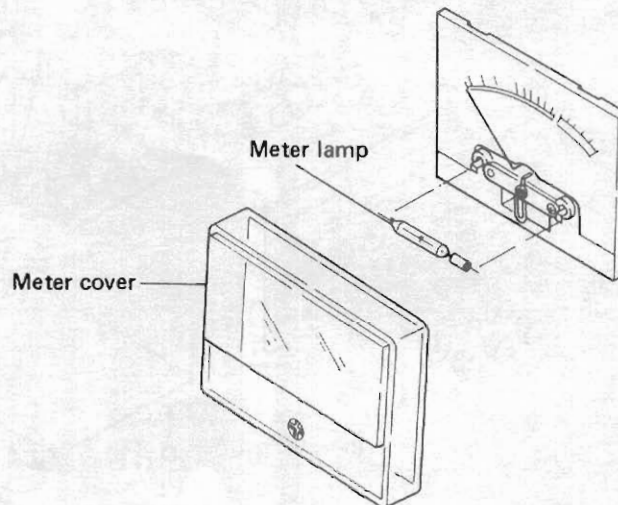


Fig. 3

Mechanical Assembly plus Sub-Assembly (Fig. 4)

1. First remove the 6 screws (G) securing the sub-assembly, and then the 2 screws (H) securing the capstan motor.
2. Undo the 3 screws (I) securing the supply reel base assembly, and the 3 screws (J) securing the take-up reel base assembly.
3. Then undo the 3 screws (K) securing the fast forward motor bracket, and the 2 screws (L) securing the fast forward motor.

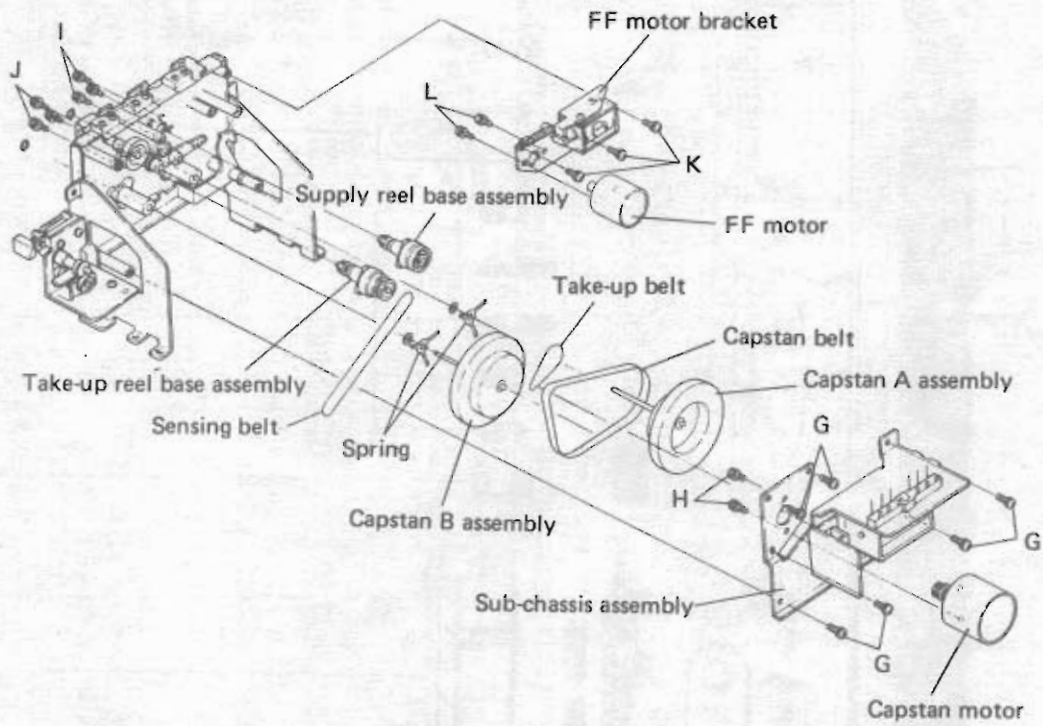


Fig. 4

7. PARTS LOCATION

7.1 FRONT PANEL VIEW

Knob (PITCH CONTROL)
RAA-187

Front panel assembly
RXX-212

Knob B
RAA-191

Knob A assembly
RAA-189

Knob B assembly (POWER)
RAA-184

Function button C (REW)
RAH-190

Function button D (F.F)
RAH-191

Function button E (STOP)
RAH-192

Function button A (PLAY)
RAH-187

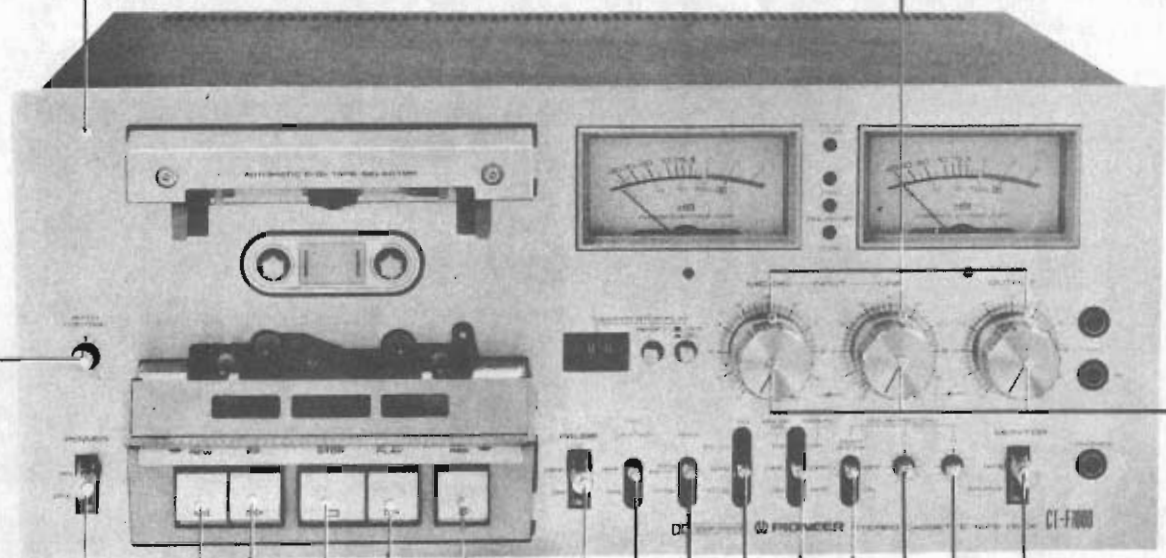
Function button B (REC)
RAH-188

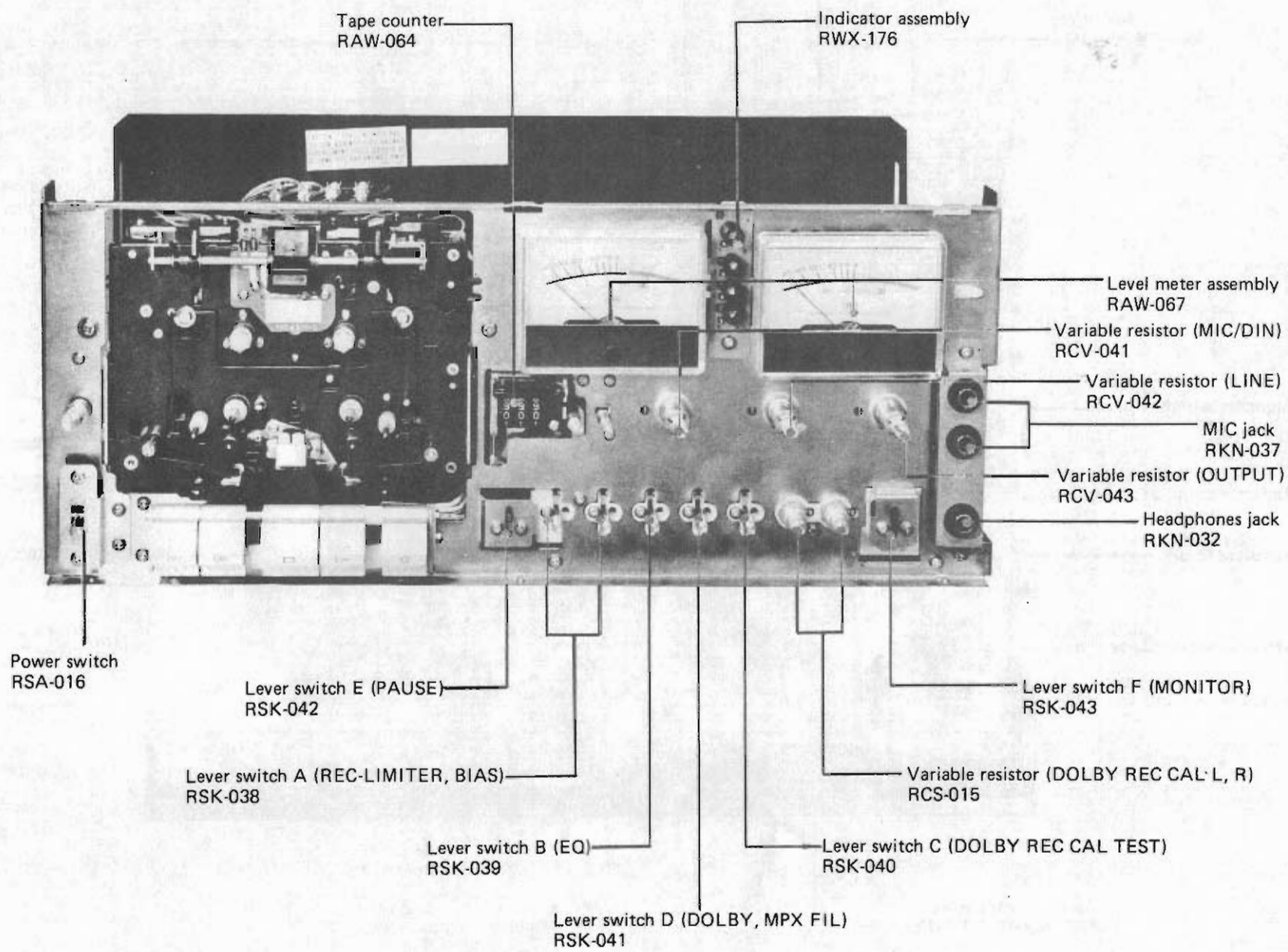
Knob B assembly (MONITOR)
RAA-184

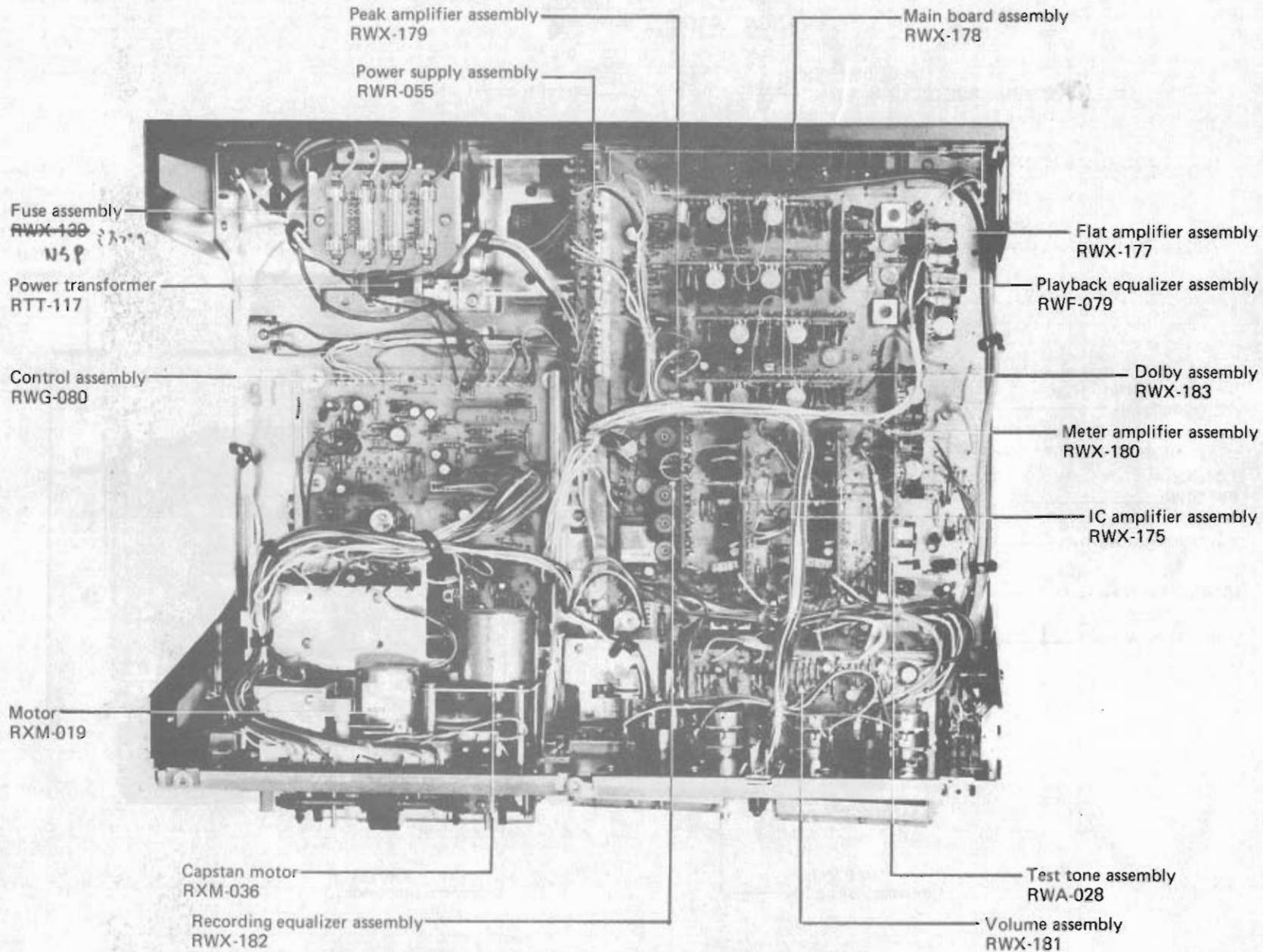
Knob (DOLBY REC CAL L, R)
RAA-188

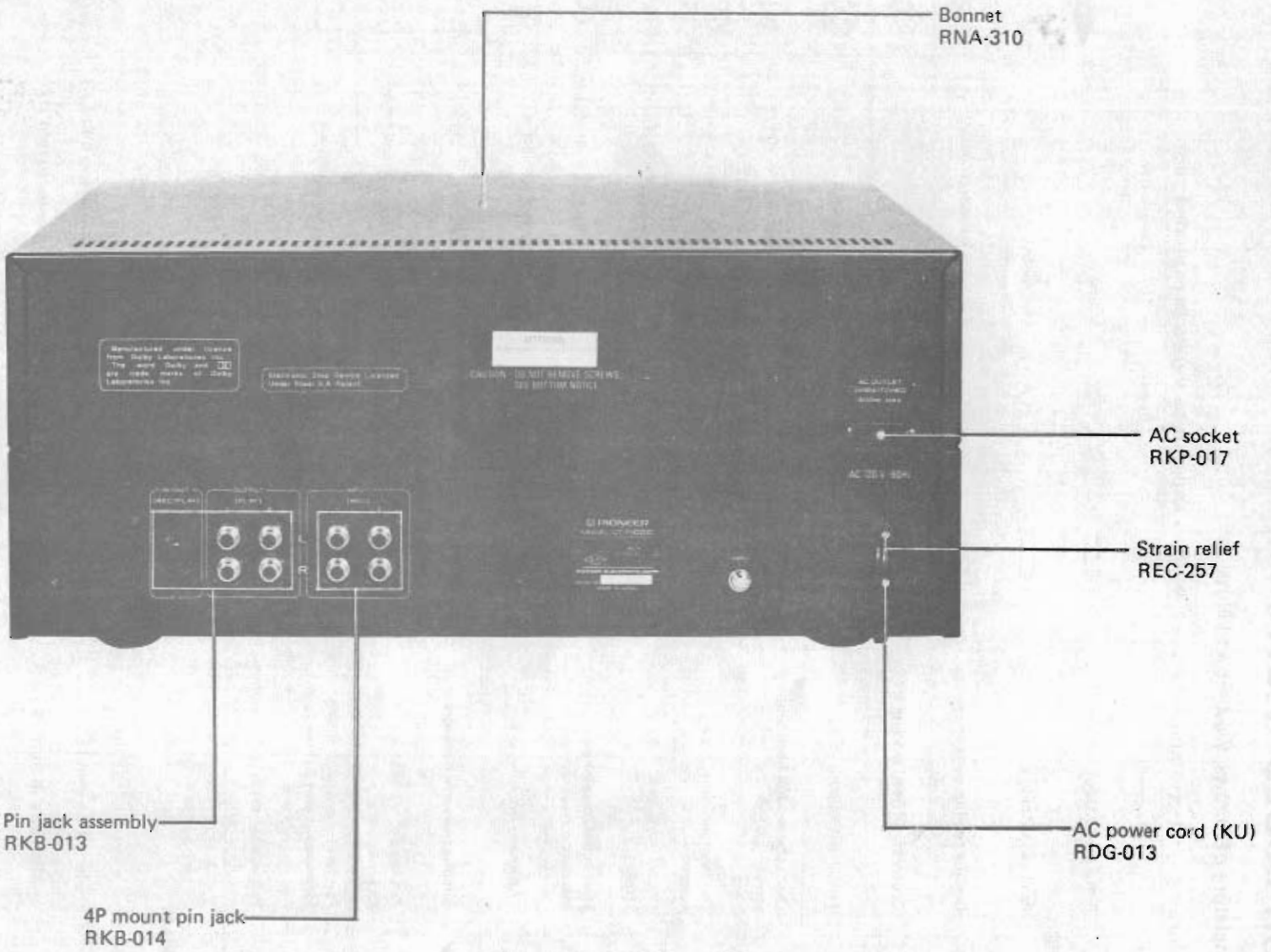
Lever knob A assembly
RAA-180

Knob B assembly (PAUSE)
RAA-184





















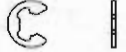
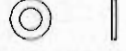
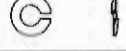
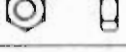
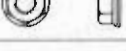
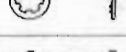
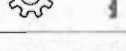


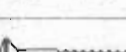
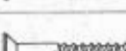
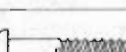



8. EXPLODED VIEWS

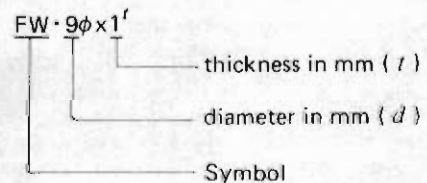
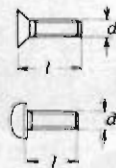
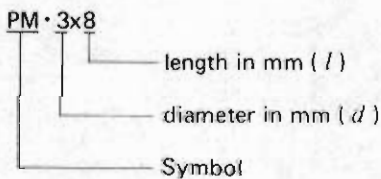
Nomenclature of Screws, Washers and Nuts

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

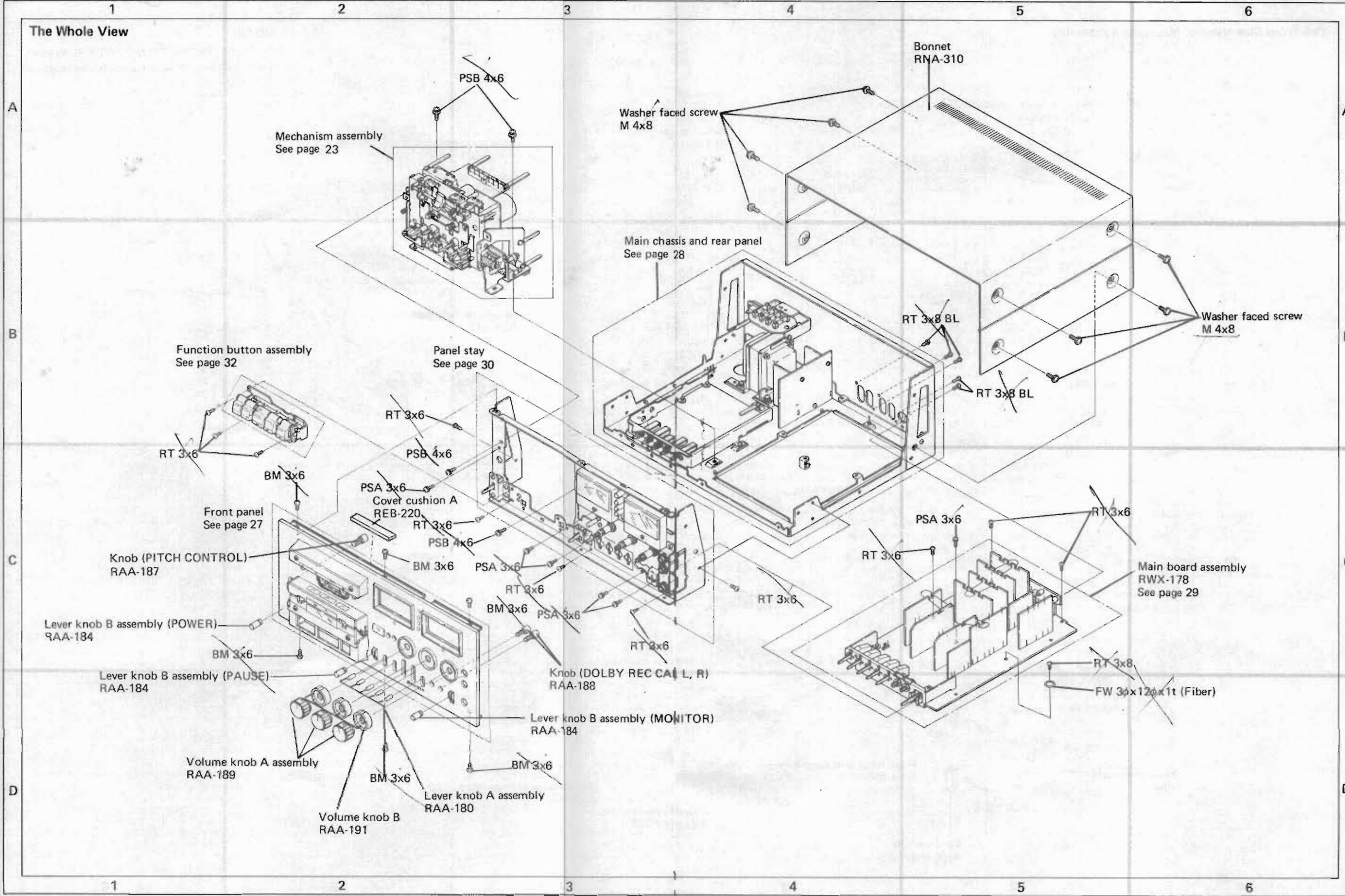
Symbol	Description	Shape
RT	Brazier head tapping screw	
PT	Pan head tapping screw	
BT	Binding head tapping screw	
CT	Countersunk head tapping screw	
TT	Truss head tapping screw	
OCT	Oval countersunk head tapping screw	
PM	Pan head machine screw	
CM	Countersunk head machine screw	
OCM	Oval countersunk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

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

EXAMPLE

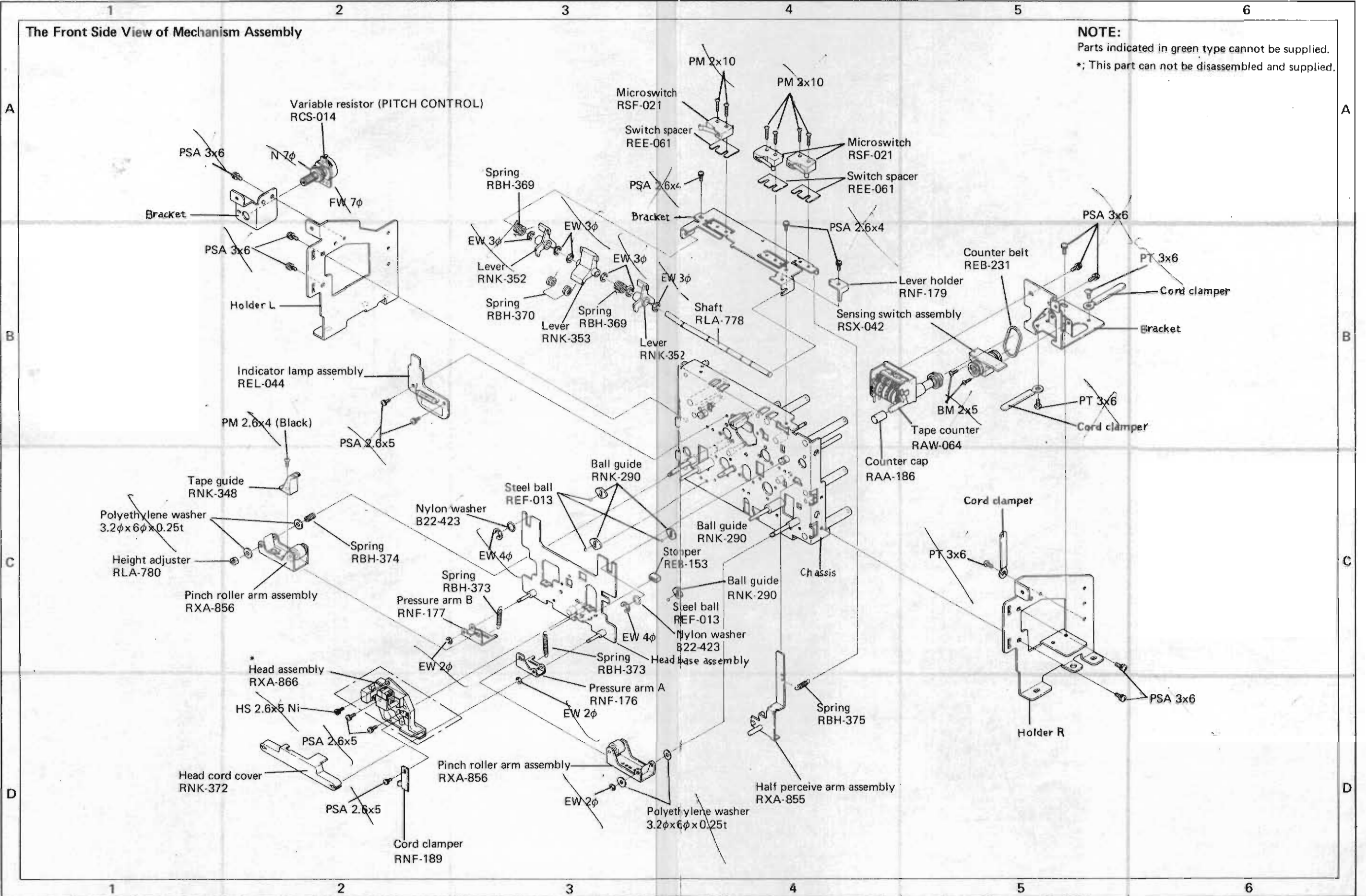


The Whole View



The Front Side View of Mechanism Assembly

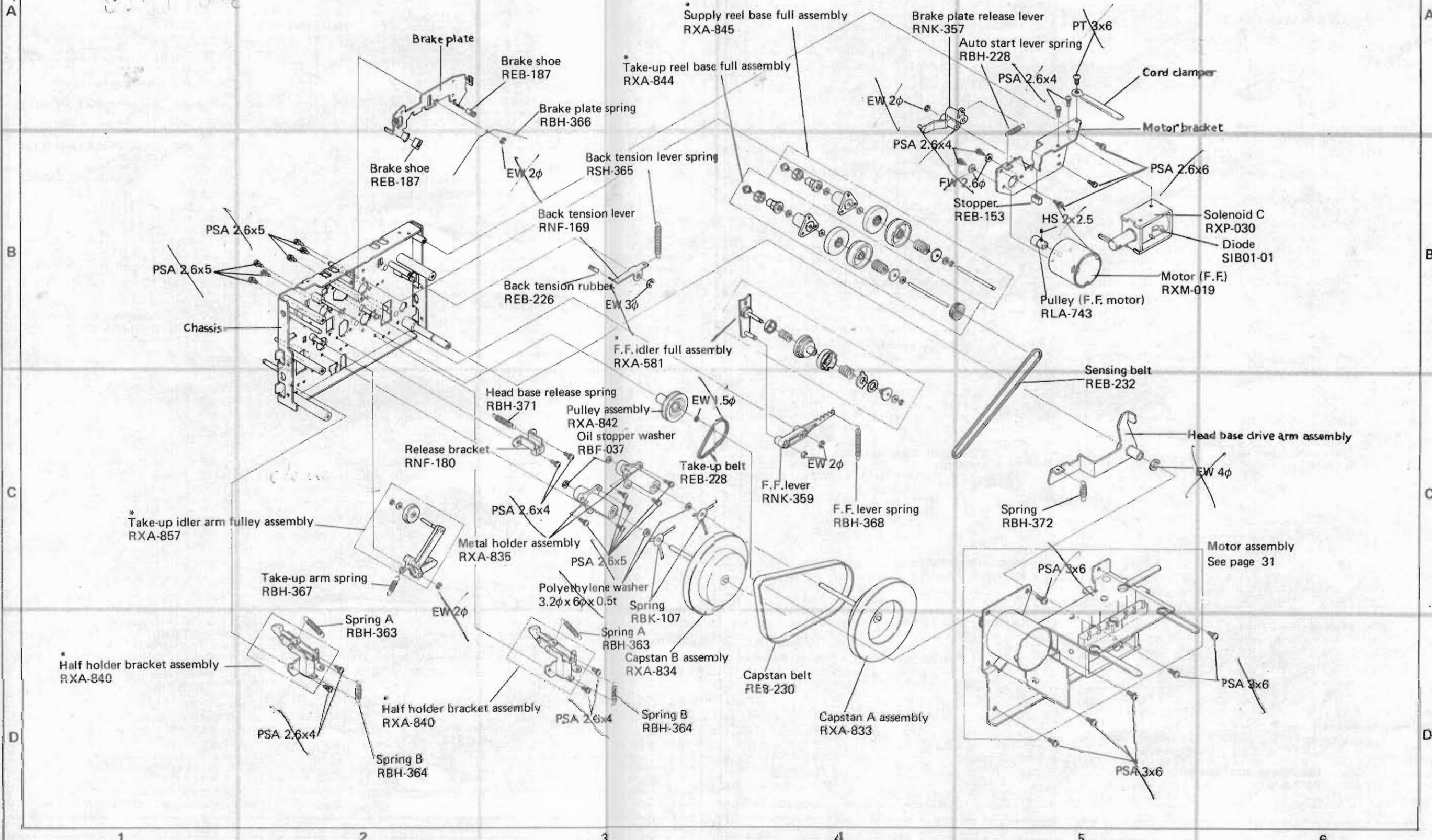
NOTE:
 Parts indicated in green type cannot be supplied.
 *; This part can not be disassembled and supplied.



The Rear Side View of Mechanism Assembly

NOTE:
Parts indicated in green type cannot be supplied.
*: This part cannot be disassembled and supplied.

SI-7-1049
SI-7-1058



1

2

3

Front Panel View

NOTE:

Parts indicated in green type cannot be supplied.

A

A

B

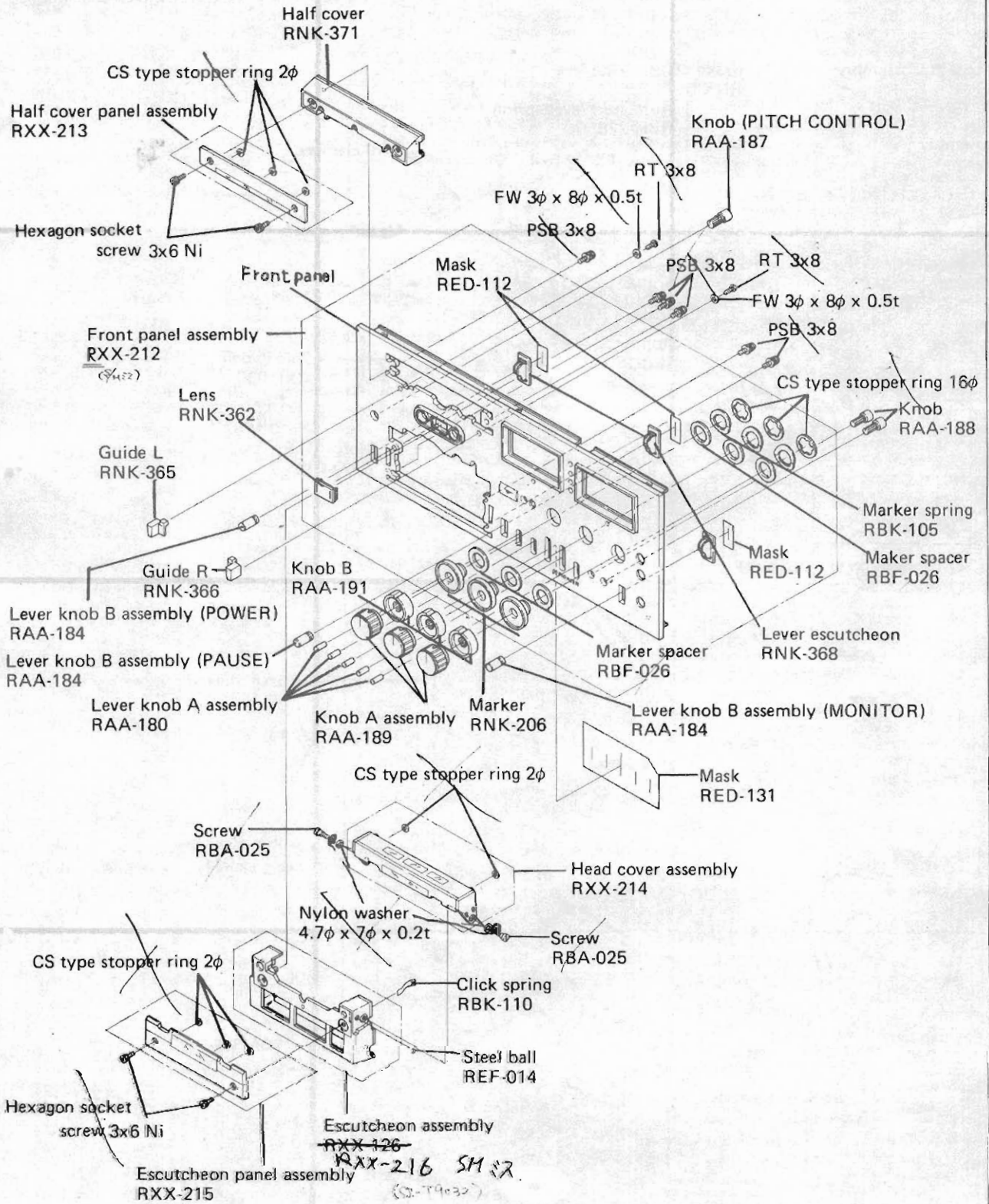
B

C

C

D

D



1

2

3

1 2 3

Main Chassis and Rear Panel

NOTE:
Parts indicated in green type cannot be supplied.

A

A

B

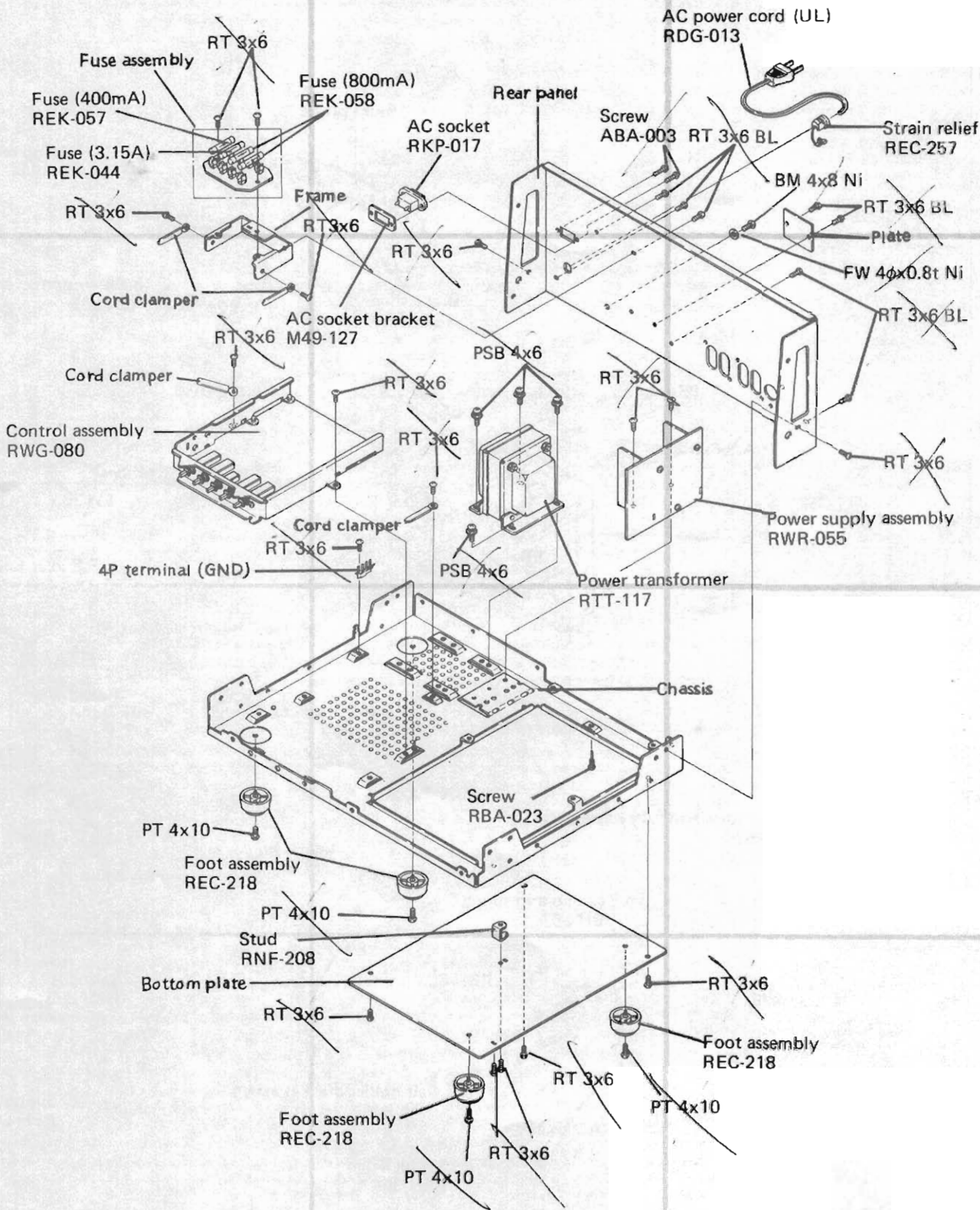
B

C

C

D

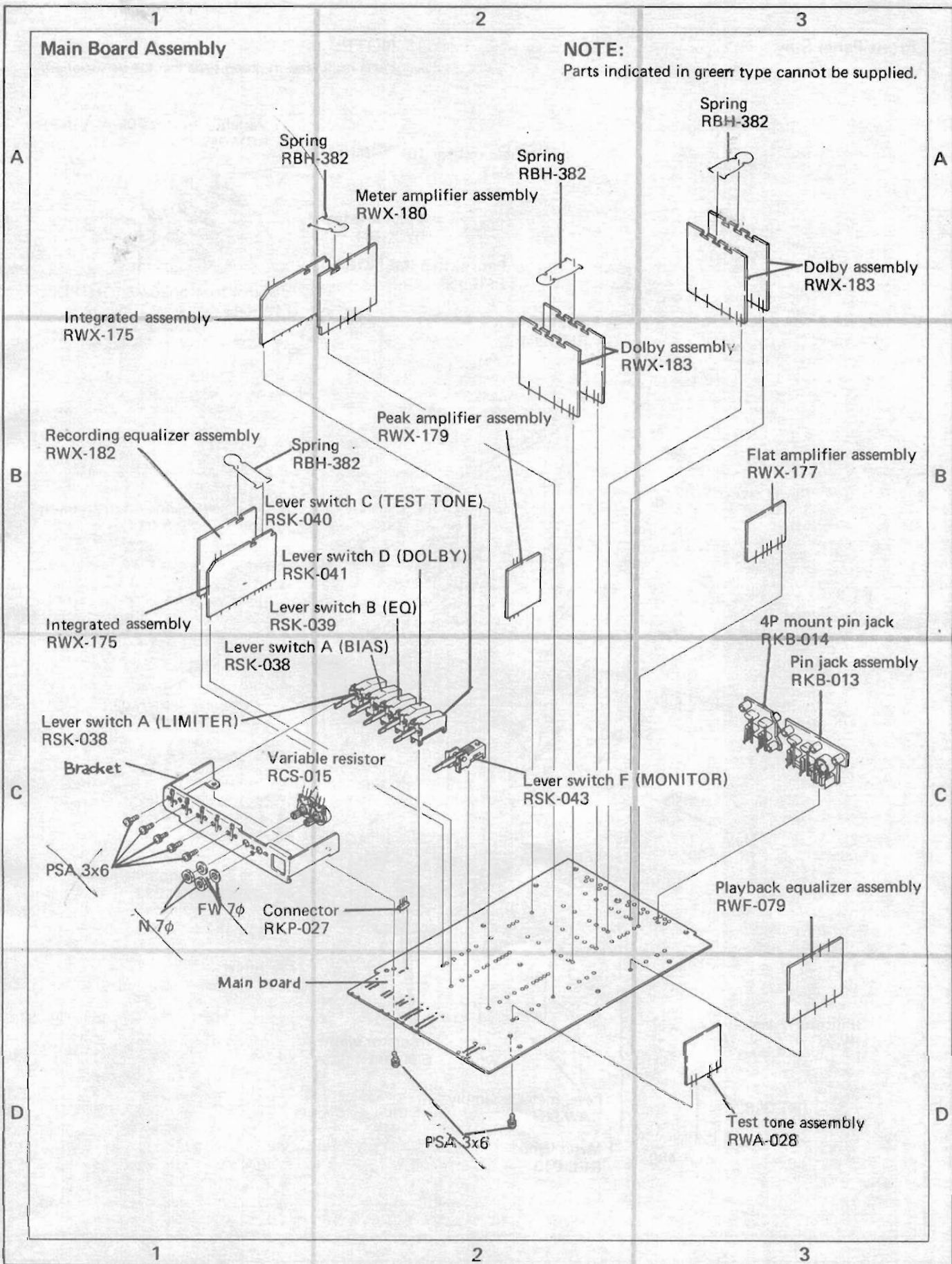
D

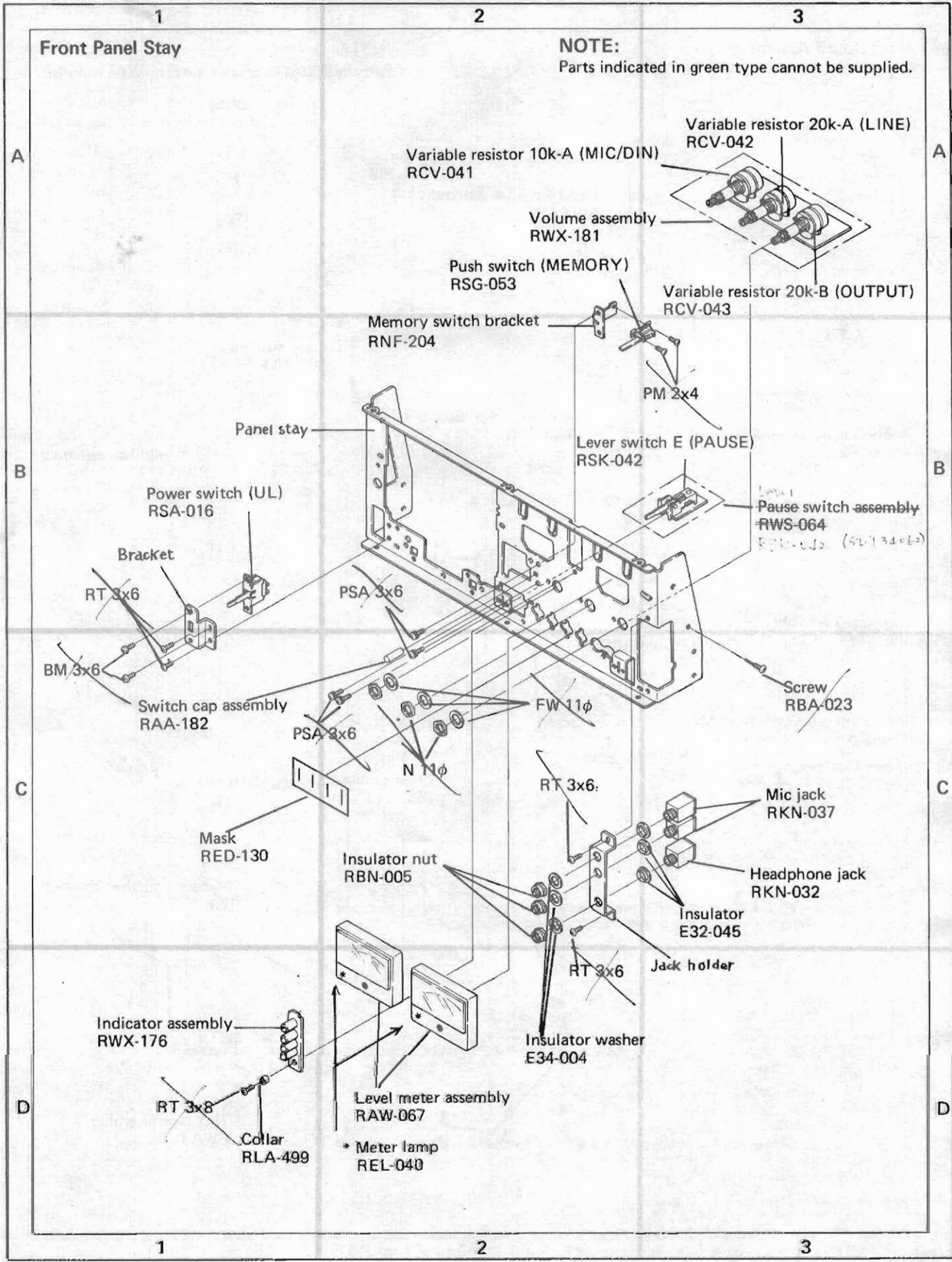


1

2

3



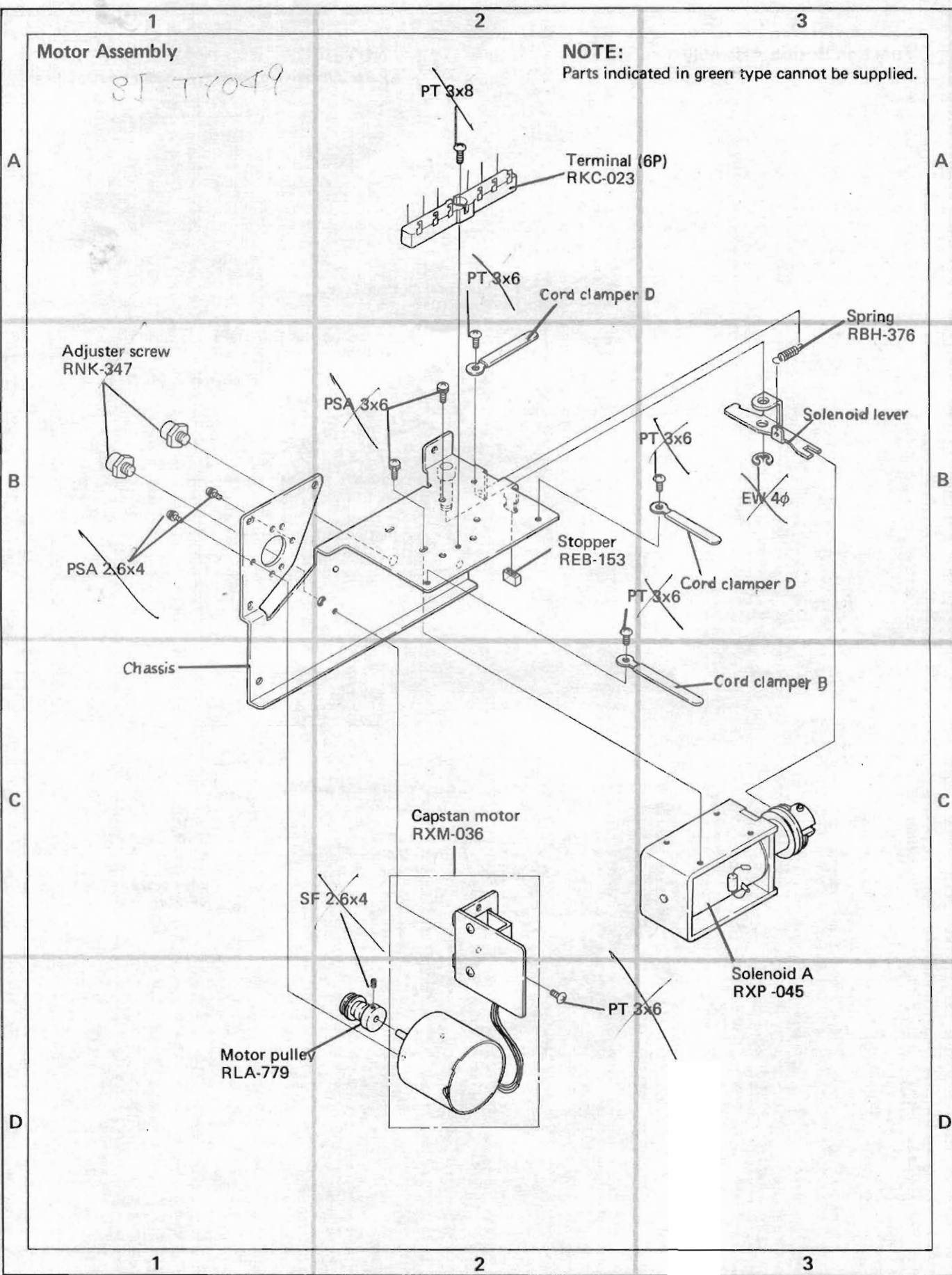


Motor Assembly

SI 77049

NOTE:

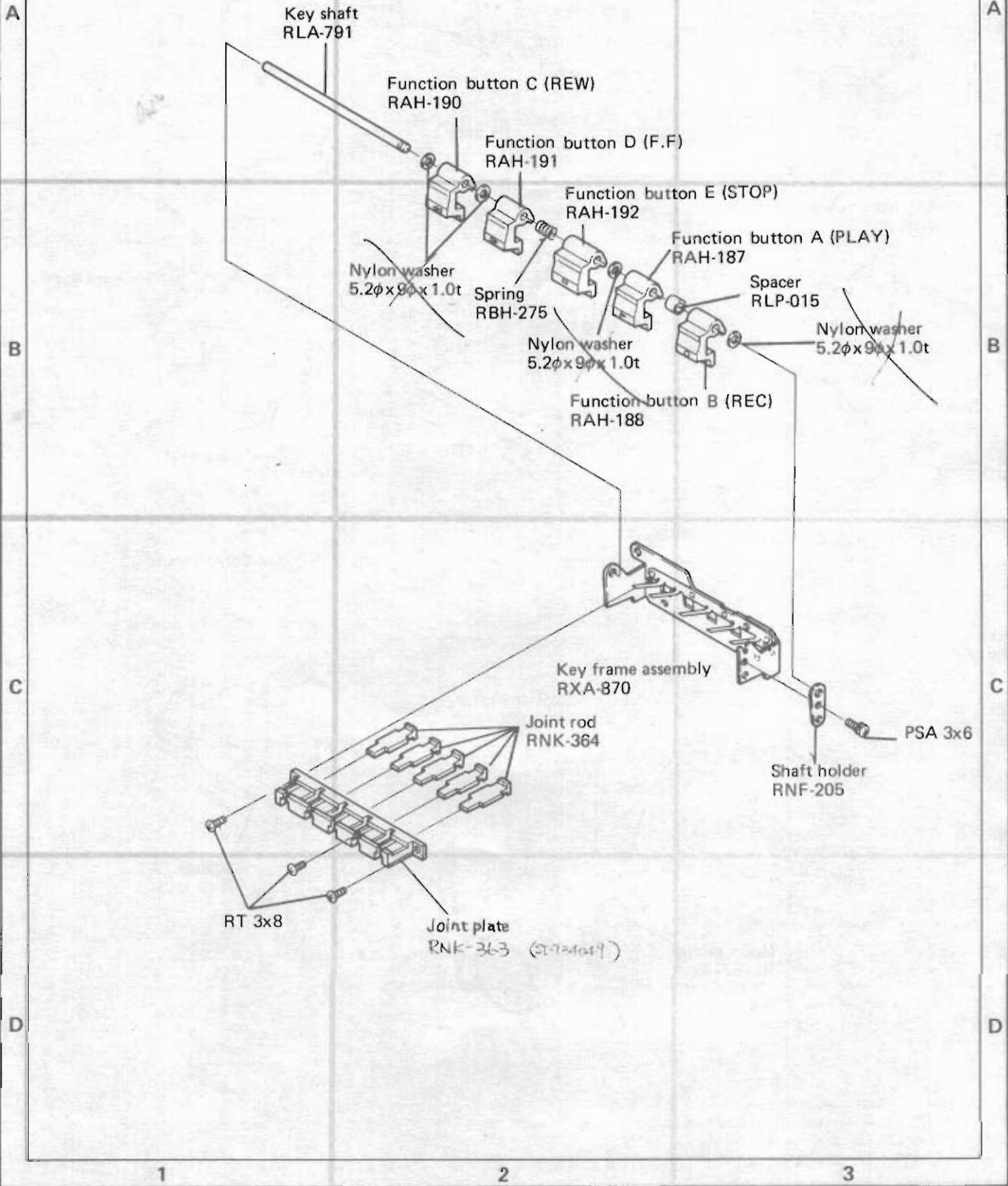
Parts indicated in green type cannot be supplied.



Function Button Assembly

NOTE:

Parts indicated in green type cannot be supplied.

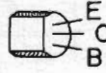


9.2 EXTERNAL APPEARANCE OF TRANSISTORS AND ICs

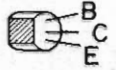
2SK30AD



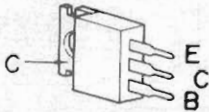
2SA628
2SC1312
2SC711
2SC620



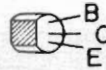
2SC1209



2SD526
2SD234
2SC1419
2SC790



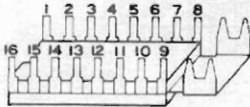
2SC828



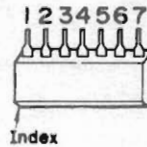
2SB525



PA4001

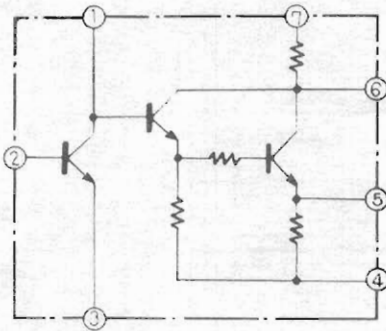


TA7129P

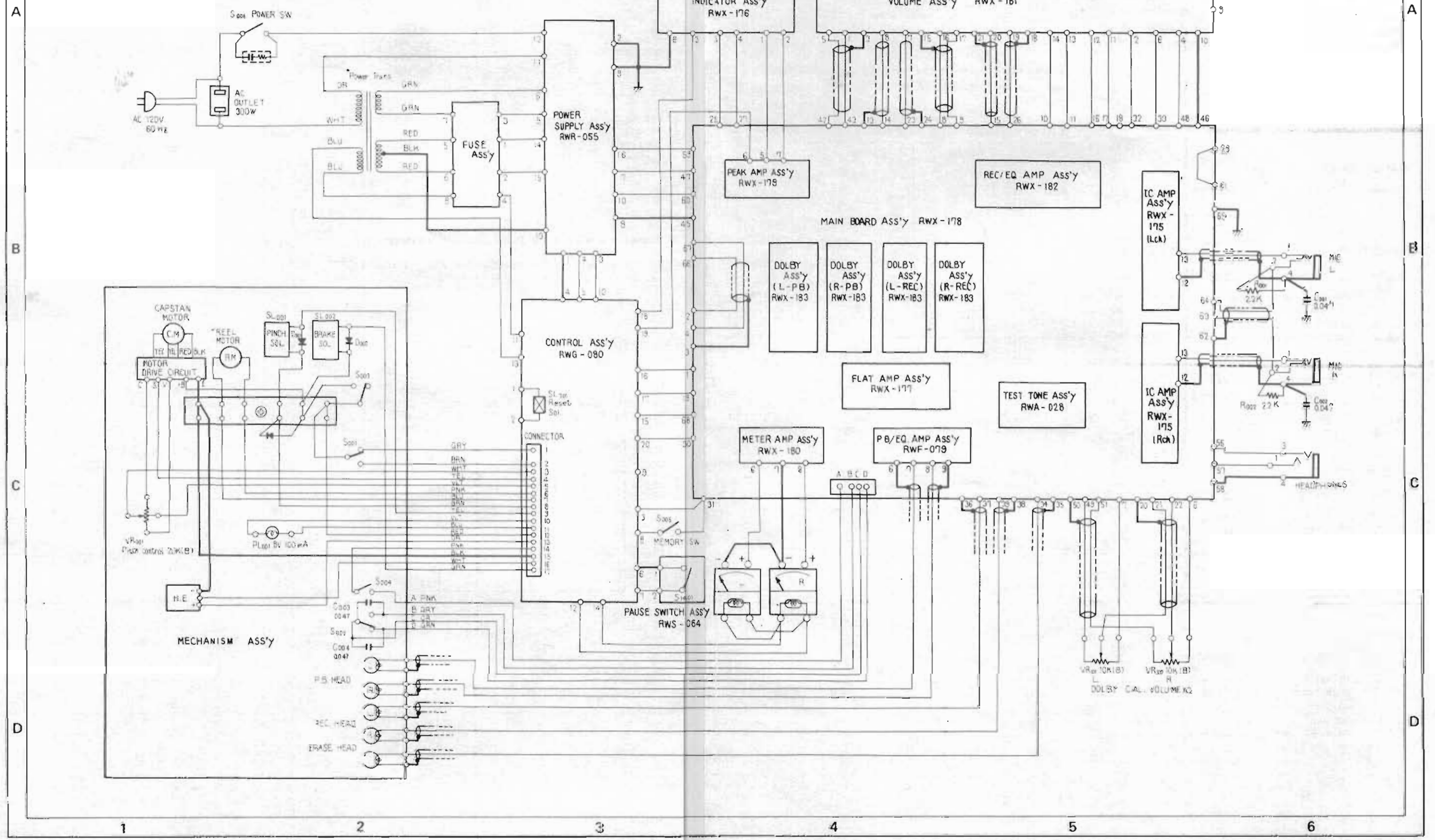


9.3 CIRCUIT DIAGRAM OF IC

TA7129P

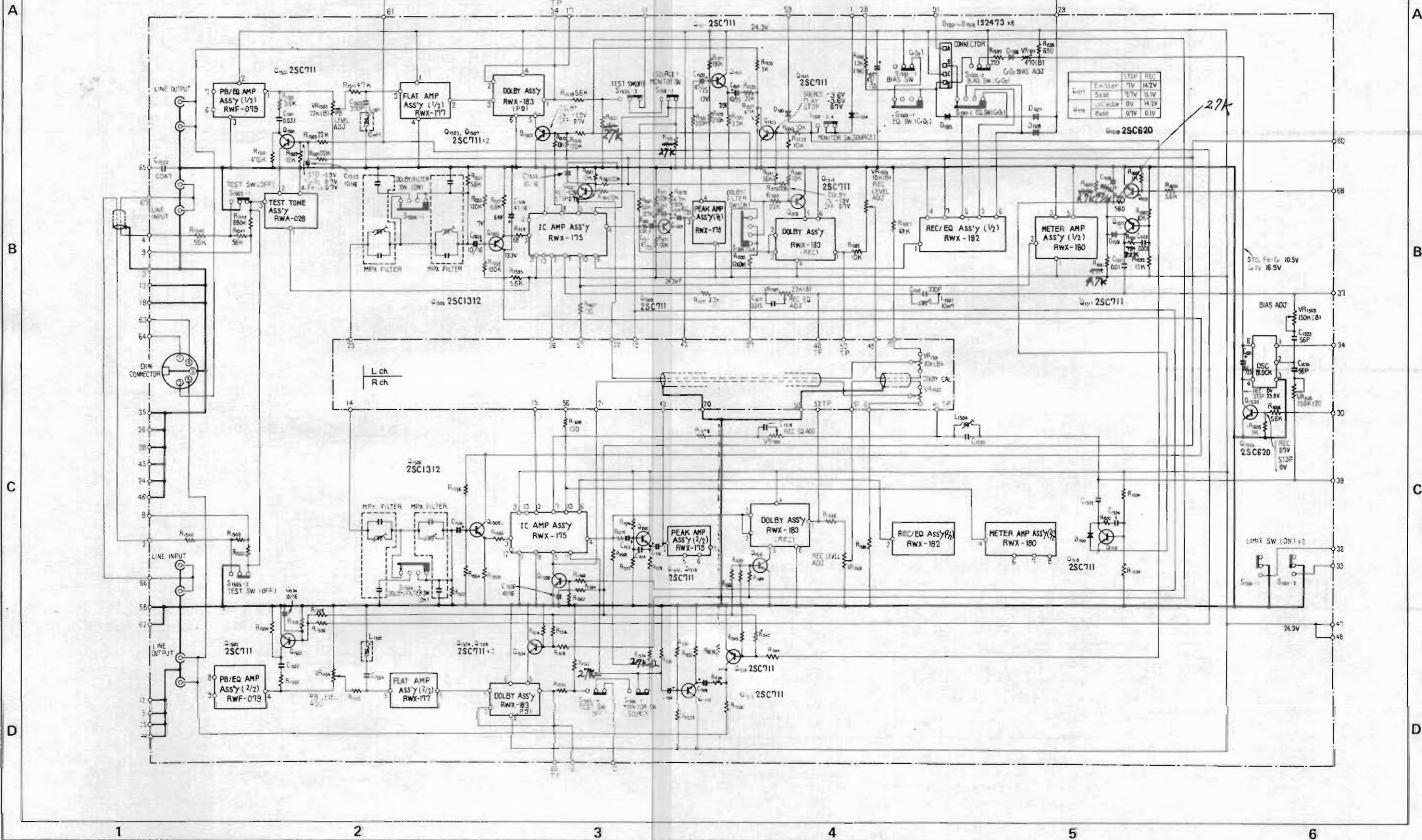


9.4 CONNECTION DIAGRAM



9.6 MAIN BOARD ASSEMBLY (RWX-178)

PRINT-243-A



Parts List of Main Board Assembly (RWX-178)

ASSEMBLIES

Symbol	Part No.	Description	Symbol	Part No.	Description		
	RWX-177	Flat amplifier assembly	C1516	CEA 100P 25	Electrolytic	10	25V
	RWA-028	Test tone assembly	C1517	CQMA 153K 50	Mylar	0.015	50V
	RWX-179	Peak amplifier assembly	C1518	CQMA 153K 50	Mylar	0.015	50V
	RWF-079	Playback equalizer assembly	C1519	RCE-008	Styrol	330p	50V
	RWX-180	Meter amplifier assembly	C1520	RCE-008	Styrol	330p	50V
	RWX-175	IC amplifier assembly	C1521	CQMA 103K 50	Mylar	0.01	50V
	RWX-182	Recording equalizer assembly	C1522	CQMA 103K 50	Mylar	0.01	50V
	RWX-183	Dolby assembly	C1523	CQMA 102K 50	Mylar	0.001	50V
			C1524	CQMA 102K 50	Mylar	0.001	50V
			C1526	CEA 470P 16	Electrolytic	47	16V

SWITCHES

Symbol	Part No.	Description	Symbol	Part No.	Description		
S1501	RSK-038	Lever Switch A	C1527	CEA 470P 25	Electrolytic	47	25V
S1502	RSK-038	Lever Switch A	C1528	CEA 100P 16	Electrolytic	100 47	16V
S1503	RSK-039	Lever Switch B	C1529	RCE-004 ⁴⁷⁰	Styrol	56p	50V
S1504	RSK-041	Lever Switch D	C1530	RCE-004	Styrol	56p	50V
S1505	RSK-040	Lever Switch C	C1531	CEA 100P 25	Electrolytic	10	25V
			C1532	CKDYF 473Z 50	Ceramic	0.047	50V
			C1533	CEA 100P 16	Electrolytic	10	16V
S1506	RSK-043	Lever Switch F	C1534	CEA 100P 16	Electrolytic	10	16V
			C1535	CEA 100P 16	Electrolytic	10	16V
			C1536	CEA 100P 16	Electrolytic	10	16V

COILS

Symbol	Part No.	Description
L1501	RTF-024	Trap Coil
L1502	RTF-024	Trap Coil
L1503	RTF-024	Trap Coil
L1504	RTF-024	Trap Coil
	RTF-034	MPX Coil
	RTF-035	MPX Coil

RESISTORS

Symbol	Part No.	Description
VR1501	RCS-015	Variable resistor 10k-B
VR1502	RCS-015	Variable resistor 10k-B
VR1503	C92-857	Semifixed 22k-B
VR1504	C92-857	Semifixed 22k-B
VR1505	C92-049	Semifixed 10k-B
VR1506	C92-049	Semifixed 10k-B
VR1507	C92-401	Semifixed 2.2k-B
VR1508	C92-401	Semifixed 2.2k-B
VR1509	C92-860	Semifixed 150k-B
VR1510	C92-860	Semifixed 150k-B
VR1511	RCP-022	Metal glaze semifixed 470-B
R1501	RD%PS 362J	Carbon film 3.6k
R1502	RD%PS 362J	Carbon film 3.6k
R1503	RD%PS 474J	Carbon film 470k
R1504	RD%PS 474J	Carbon film 470k
R1505	RD%PS 223J	Carbon film 22k
R1506	RD%PS 223J	Carbon film 22k
R1507	RD%PS 124J	Carbon film 120k
R1508	RD%PS 124J	Carbon film 120k
R1509	RD%PS 103J	Carbon film 10k
R1510	RD%PS 103J	Carbon film 10k
R1511	RD%PS 472J	Carbon film 4.7k
R1512	RD%PS 472J	Carbon film 4.7k
R1513	RD%PS 103J	Carbon film 10k
R1514	RD%PS 103J	Carbon film 10k
R1515	RD%PS 124J	Carbon film 120k

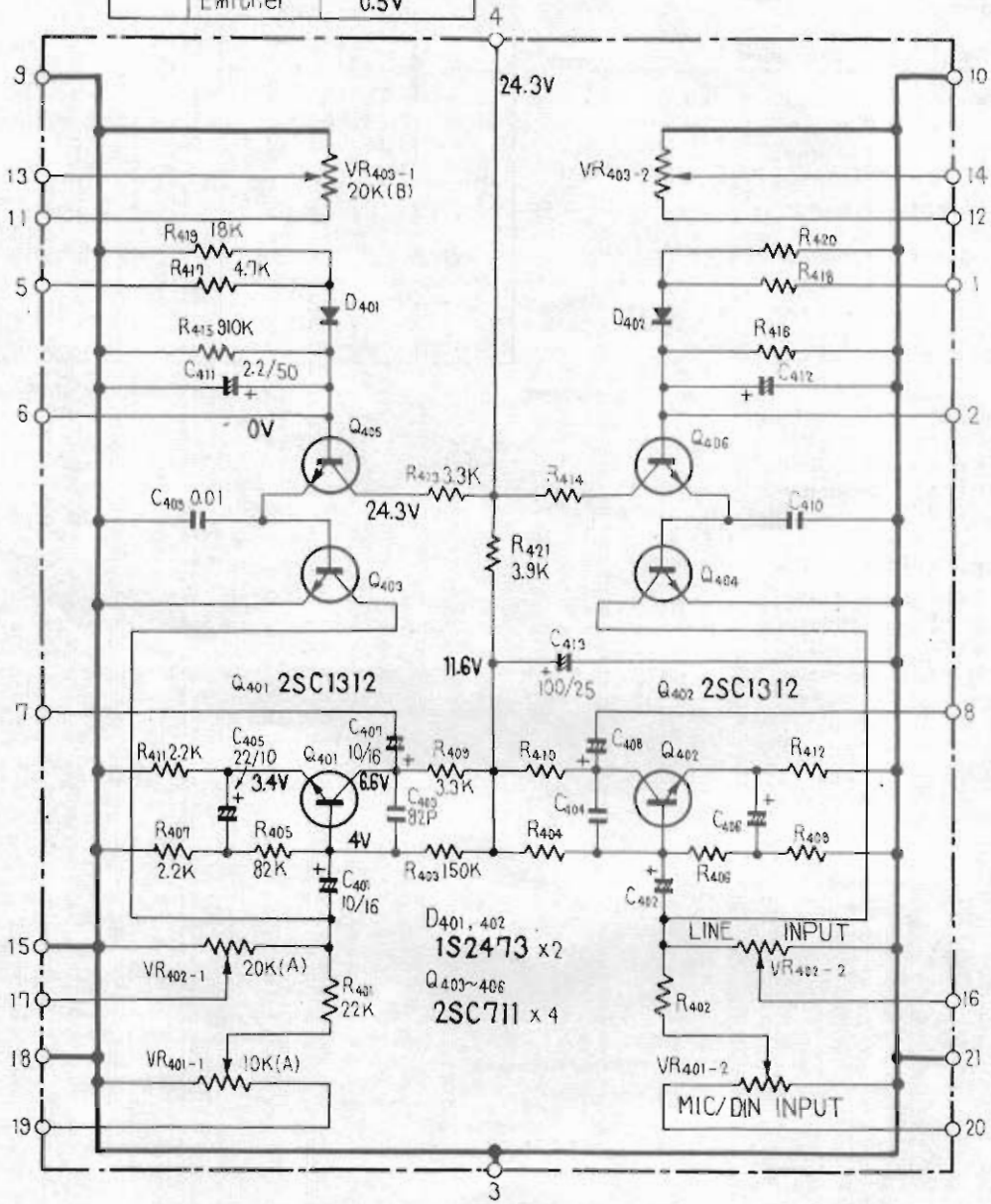
CAPACITORS

Symbol	Part No.	Description
C1501	CQMA 333K 50	Mylar 0.033 50V
C1502	CQMA 333K 50	Mylar 0.033 50V
C1503	RCE-008	Styrol 330p 50V
C1504	RCE-008	Styrol 330p 50V
C1505	CEA 4R7P 35	Electrolytic 4.7 35V
C1506	CEA 4R7P 35	Electrolytic 4.7 35V
C1507	CEA 100P 25	Electrolytic 10 25V
C1508	CEA 100P 25	Electrolytic 10 25V
C1509	CEA 100P 16	Electrolytic 10 16V
C1510	CEA 100P 16	Electrolytic 10 16V
C1511	CEA 4R7P 35	Electrolytic 4.7 35V
C1512	CEA 4R7P 35	Electrolytic 4.7 35V
C1513	CCDSL 101K 50	Ceramic 100p 50V
C1514	CCDSL 101K 50	Ceramic 100p 50V
C1515	CEA 100P 25	Electrolytic 10 25V

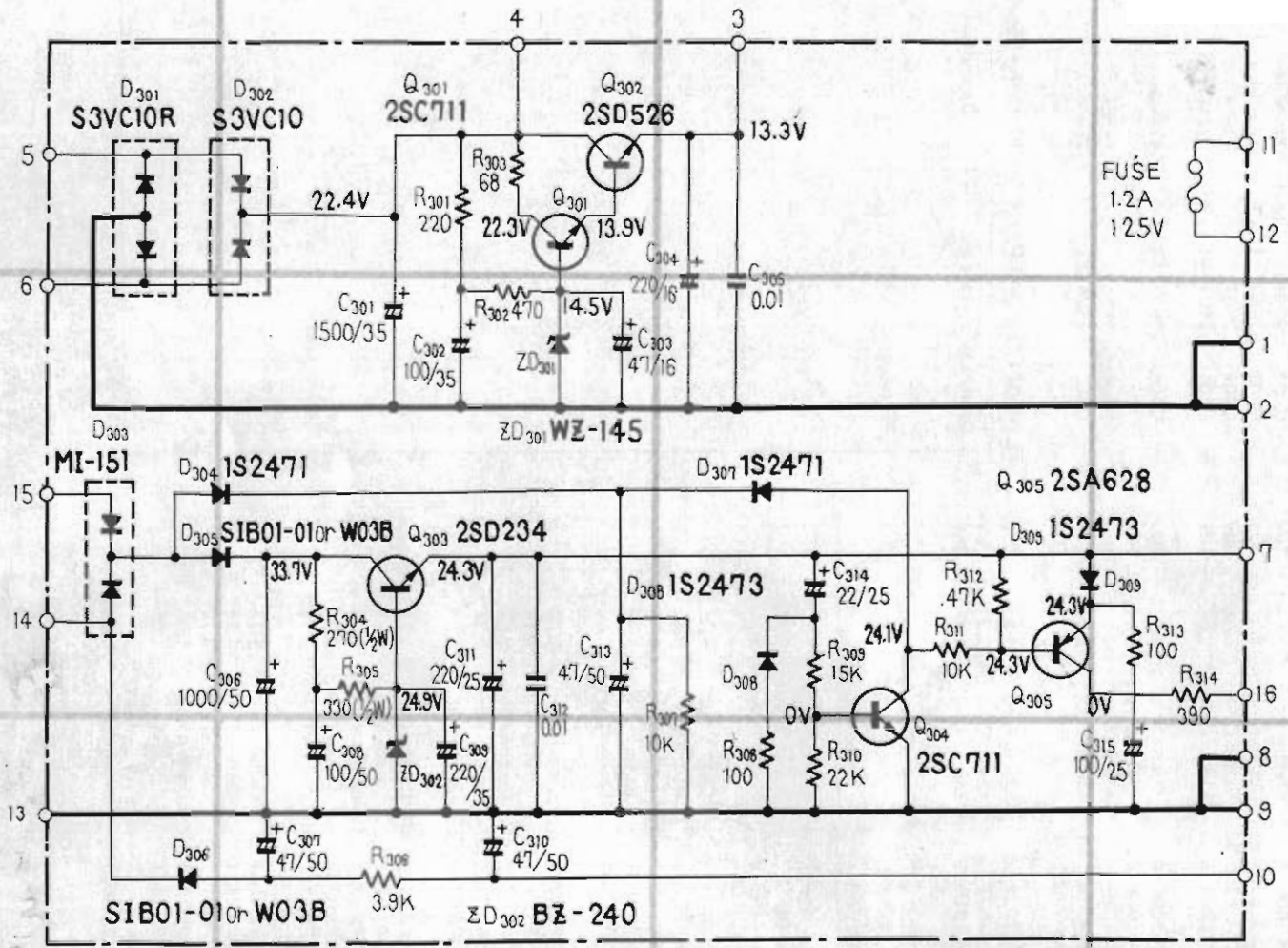
Symbol	Part No.	Description	Symbol	Part No.	Description
R1516	RD½PS 124J	Carbon film 120k	R1566	RD½PS 103J	Carbon film 10k
R1517	RD½PS 223J	Carbon film 22k	R1567	RD½PS 562J	Carbon film 5.6k
R1518	RD½PS 223J	Carbon film 22k	R1568	RD½PS 562J	Carbon film 5.6k
R1519	RD½PS 562J	Carbon film 5.6k	R1569	RD½PS 122J	Carbon film 1.2k
R1520	RD½PS 562J	Carbon film 5.6k	R1570	RD½PS 122J	Carbon film 1.2k
R1521	RD½PS 183J	Carbon film 18k	R1571	RD½PS 124J	Carbon film 120k
R1522	RD½PS 183J	Carbon film 18k	R1572	RD½PS 124J	Carbon film 120k
R1523	RD½PS 183J } 273J	Carbon film 18k } 27kΩ	R1573	RD½PS 104J	Carbon film 100k
R1524	RD½PS 183J	Carbon film 18k	R1574	RD½PS 104J	Carbon film 100k
R1525	RD½PS 224J	Carbon film 220k	R1575	RD½PS 472J	Carbon film 4.7k
R1526	RD½PS 224J	Carbon film 220k	R1576	RD½PS 472J	Carbon film 4.7k
R1527	RD½PS 184J	Carbon film 180k	R1577	RD½PS 222J	Carbon film 2.2k
R1528	RD½PS 184J	Carbon film 180k	R1578	RD½PS 222J	Carbon film 2.2k
R1529	RD½PS 274J	Carbon film 270k	R1579	RD½PS 124J	Carbon film 120k
R1530	RD½PS 274J	Carbon film 270k	R1580	RD½PS 124J	Carbon film 120k
R1531	RD½PS 332J	Carbon film 3.3k	R1581	RD½PS 103J	Carbon film 10k
R1532	RD½PS 332J	Carbon film 3.3k	R1582	RD½PS 103J	Carbon film 10k
R1533	RD½PS 222J	Carbon film 2.2k	R1583	RD½PS 223J	Carbon film 22k
R1534	RD½PS 222J	Carbon film 2.2k	R1584	RD½PS 223J	Carbon film 22k
R1535	RD½PS 102J	Carbon film 1k	R1585	RD½PS 103J	Carbon film 10k
R1536	RD½PS 102J	Carbon film 1k	R1586	RD½PS 103J	Carbon film 10k
R1537	RD½PS 473J	Carbon film 47k	R1587	RD½PS 682J	Carbon film 6.8k
R1538	RD½PS 473J	Carbon film 47k	R1588	RD½PS 682J	Carbon film 6.8k
R1539	RD½PS 103J	Carbon film 10k	R1589	RD½PS 103J	Carbon film 10k
R1540	RD½PS 103J	Carbon film 10k	R1590	RD½PS 103J	Carbon film 10k
R1541	RD½PS 563J	Carbon film 56k	R1591	RD½PS 123J } 823J	Carbon film 12k } 82k
R1542	RD½PS 563J	Carbon film 56k	R1592	RD½PS 123J	Carbon film 12k
R1543	RD½PS 103J	Carbon film 10k	R1593	RD½PS 123J	Carbon film 12k
R1544	RD½PS 103J	Carbon film 10k	R1594	RD½PS 123J	Carbon film 12k
R1545	RD½PS 563J	Carbon film 56k	R1595	RD½PS 562J	Carbon film 5.6k
R1546	RD½PS 563J	Carbon film 56k	R1596	RS1P 122J	Metal oxide 1.2k 1W
R1547	RD½PS 563J	Carbon film 56k	R1597	RS1PSF 221J	Metal oxide 220 1W
R1548	RD½PS 563J	Carbon film 56k	R1598	RS1PSF 681J	Metal oxide 680 1W
R1549	RD½PS 684J	Carbon film 680k	R1599	RS1P 122J	Metal oxide 1.2k 1W
R1550	RD½PS 684J	Carbon film 680k	R1600	RD½PS 332J 472J	Carbon film 3.3k 4.7k
R1551	RD½PS 562J	Carbon film 5.6k	R1601	RD½PS 223J 472J	Carbon film 2.2k 4.7k
R1552	RD½PS 562J	Carbon film 5.6k	R1602	RD½PS 102J	Carbon film 1k
R1553	RD½PS 124J	Carbon film 120k	R1603	RD½PS 501J 272J	Carbon film 500 2.7k
R1554	RD½PS 124J	Carbon film 120k	R1604	RD½PS 562J	Carbon film 5.6k
R1555	RD½PS 104J	Carbon film 100k	R1605	RD½PS 102J	Carbon film 1k
R1556	RD½PS 104J	Carbon film 100k	R1606	RD½PS 562J	Carbon film 5.6k
R1557	RD½PS 682J	Carbon film 6.8k	R1607	RD½PS 131J	Carbon film 130
R1558	RD½PS 682J	Carbon film 6.8k	R1608	RD½PS 131J	Carbon film 130
R1559	RD½PS 680J	Carbon film 68	R1609	RD½PS 105J	Carbon film 1M
R1560	RD½PS 680J	Carbon film 68	R1610	RD½PS 105J	Carbon film 1M
R1561	RD½PS 103J	Carbon film 10k			
R1562	RD½PS 103J	Carbon film 10k			
R1563	RD½PS 124J	Carbon film 120k			
R1564	RD½PS 124J	Carbon film 120k			
R1565	RD½PS 103J	Carbon film 10k			

9.7 VOLUME ASSEMBLY (RWX-181)

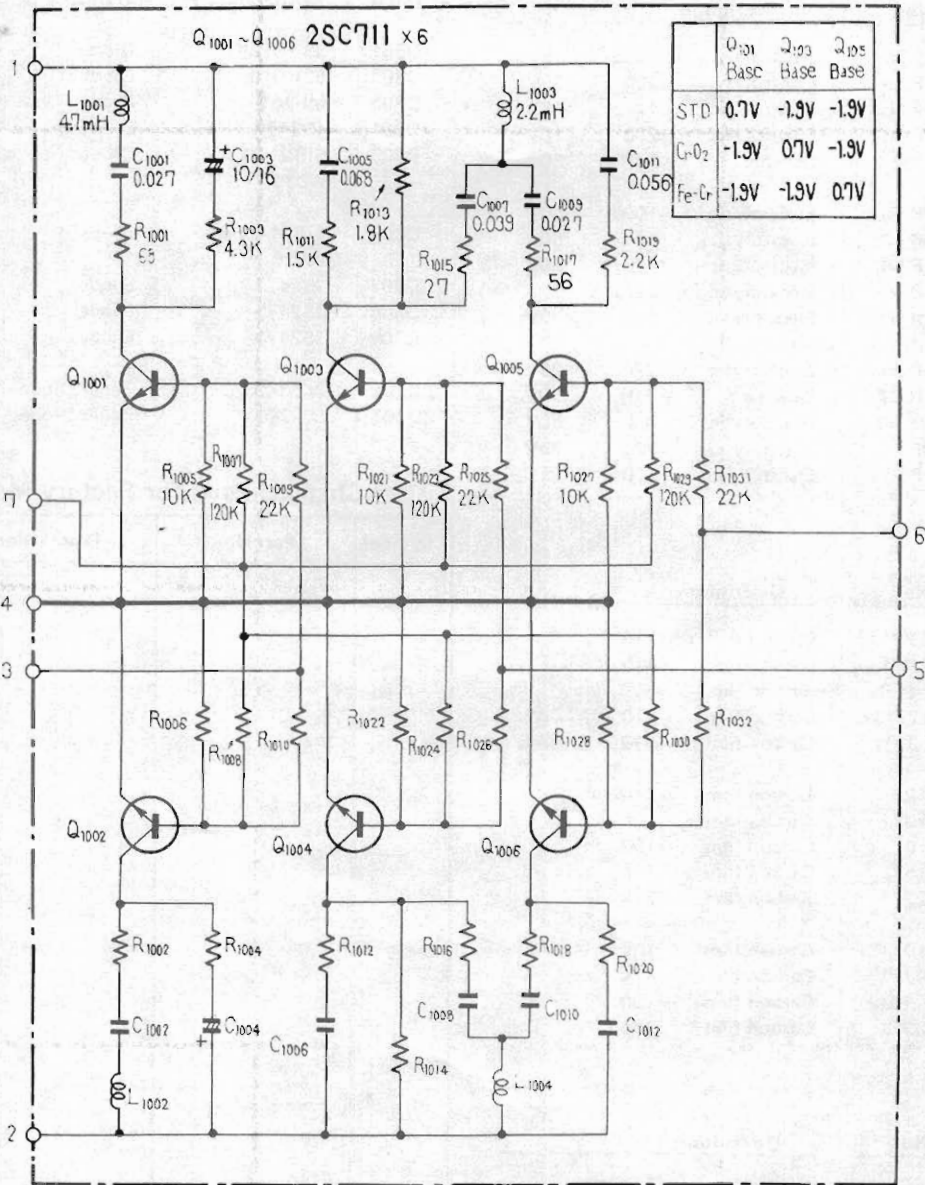
		MUTING ON
Q ₄₀₅	Collector	24.2V
	Base	1.2V
	Emitter	0.5V



9.8 POWER SUPPLY ASSEMBLY (RWR-055)



9.9 RECORDING EQUALIZER ASSEMBLY (RWX-182)

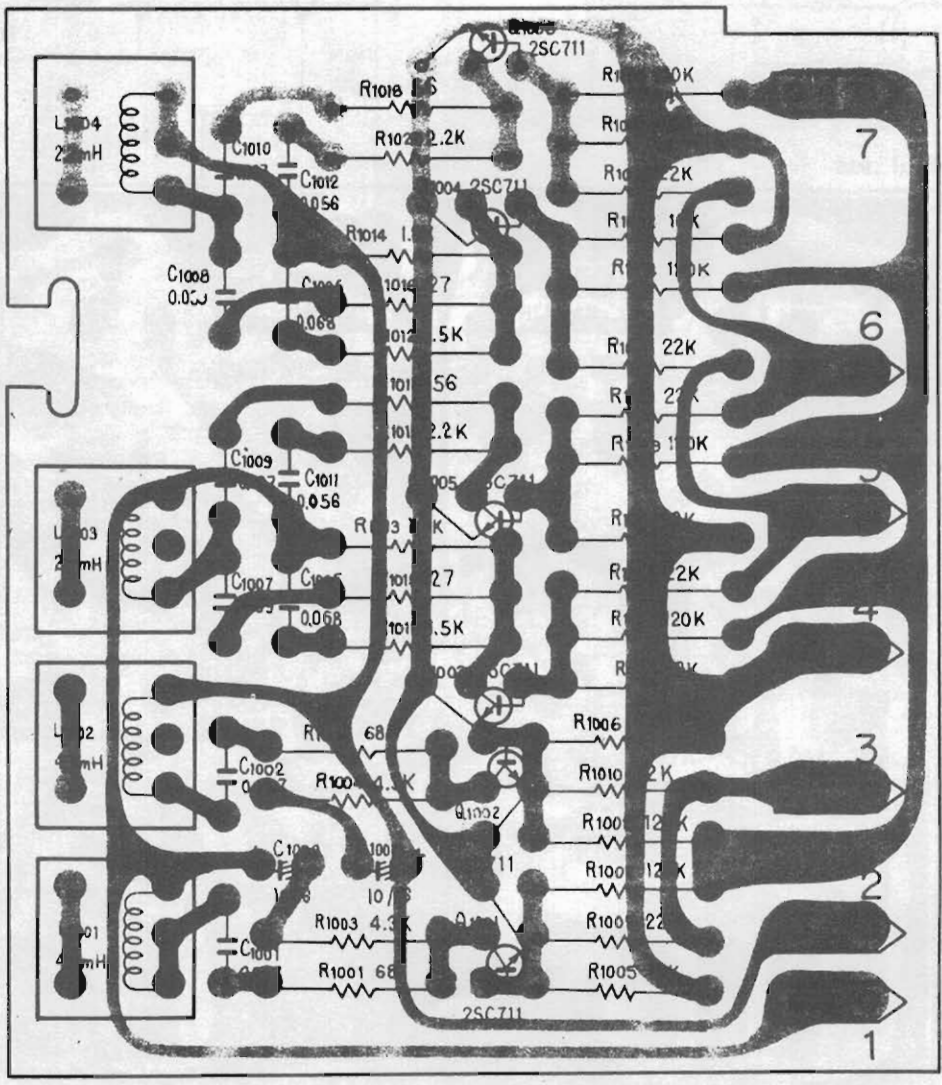


1 2 3

A

A

Foil side



B

B

C

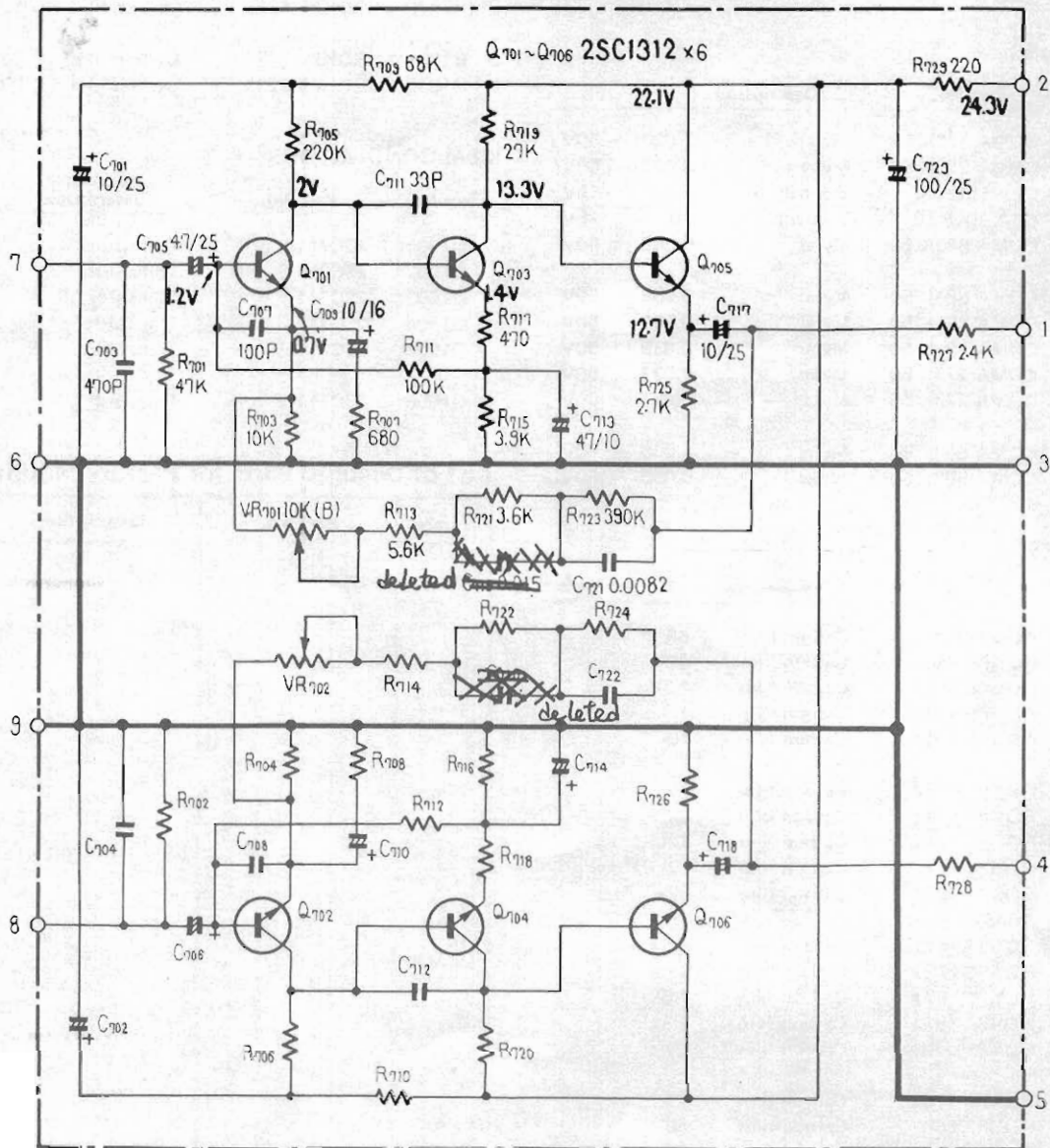
C

D

D

1 2 3

9.10 PLAYBACK EQUALIZER ASSEMBLY (RWF-079)



1

2

3

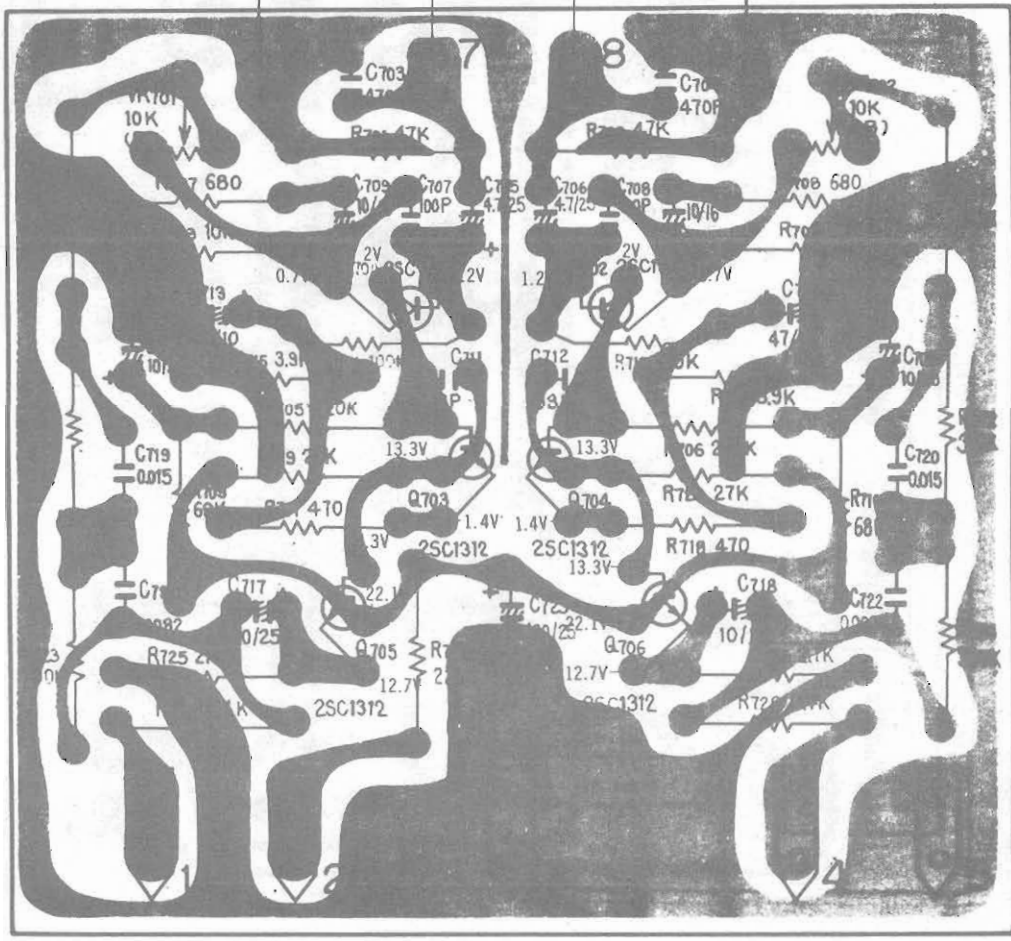
A

A

P.B HEAD
L

P.B HEAD
R

Foil side



B

B

C

C

D

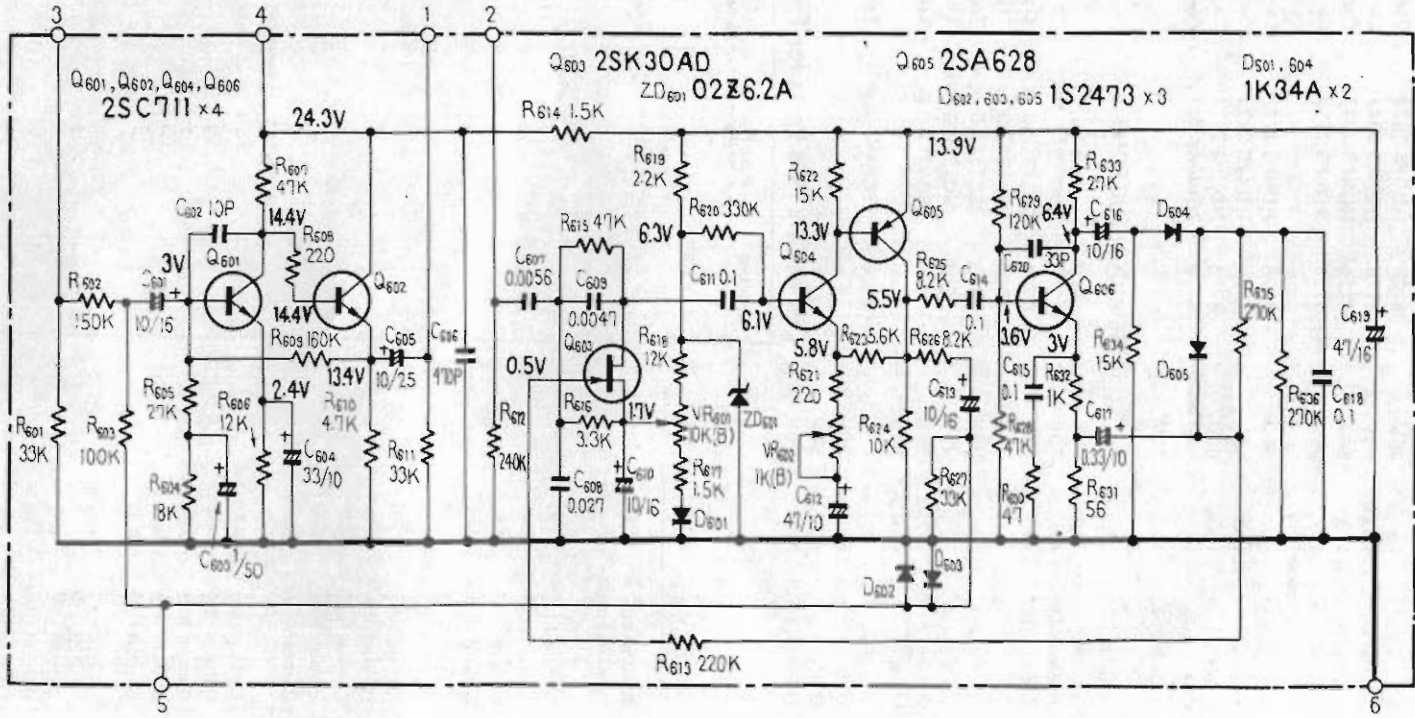
D

1

2

3

9.11 DOLBY ASSEMBLY (RMX-183)



1

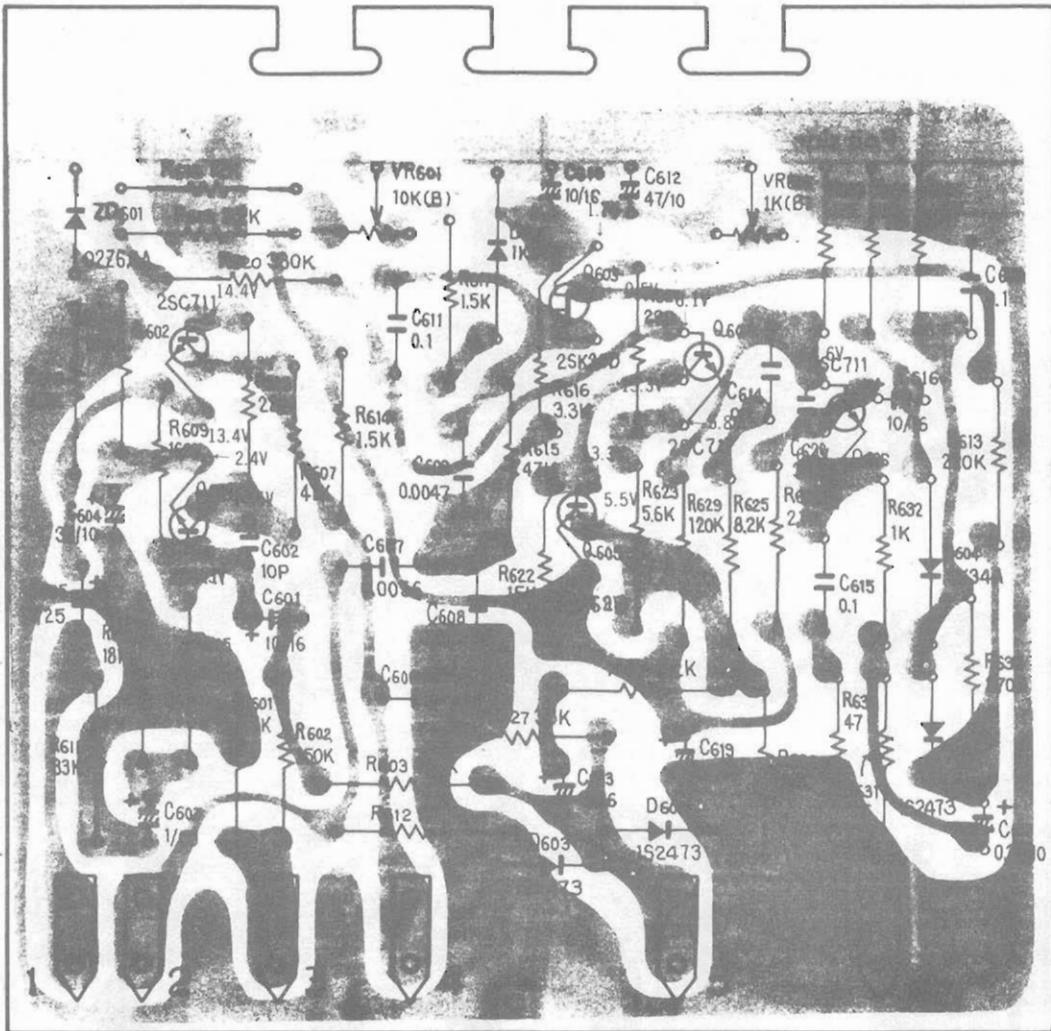
2

3

A

A

Foil side



B

B

C

C

D

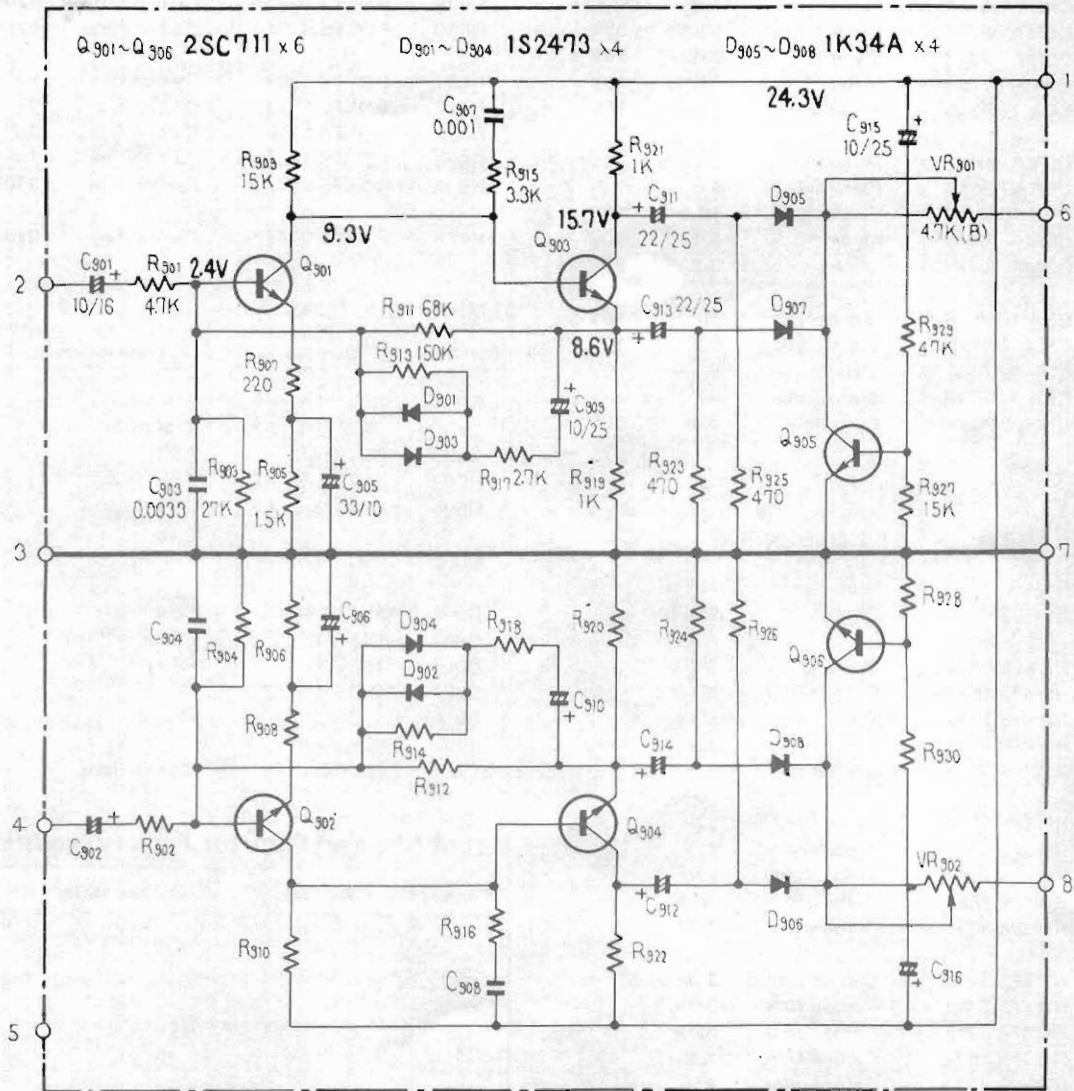
D

1

2

3

9.12 METER ASSEMBLY (RWX-180)



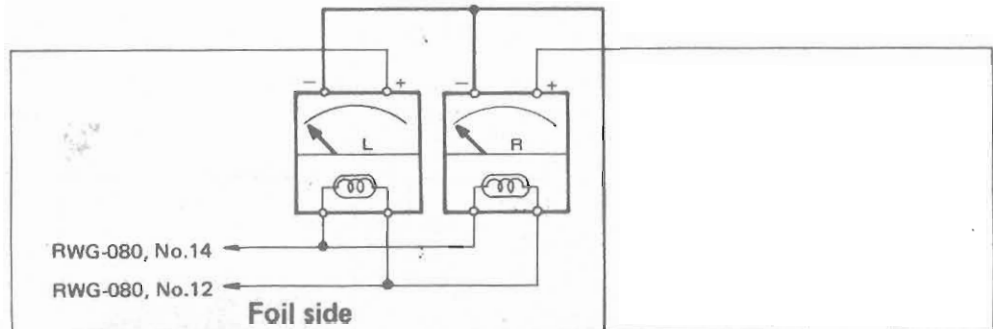
1

2

3

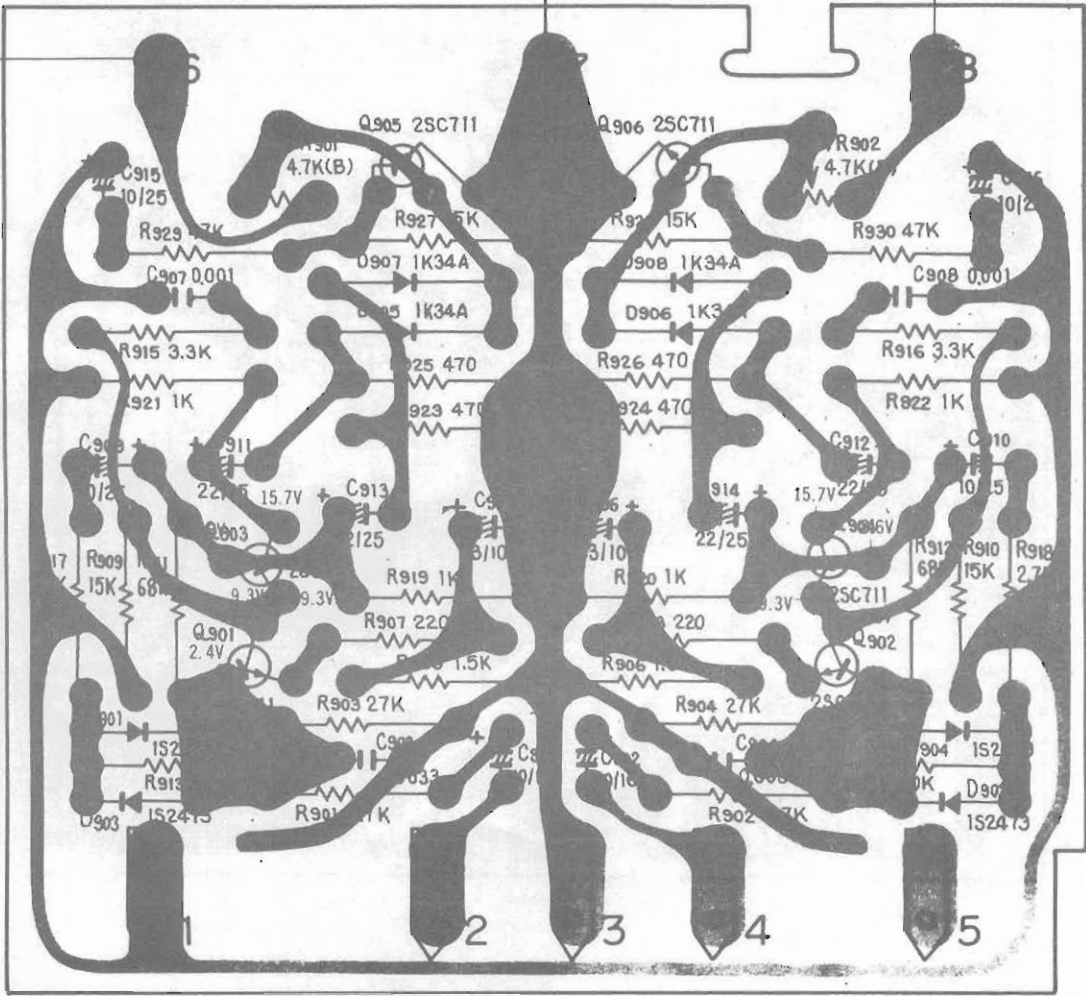
A

A



B

B



C

C

D

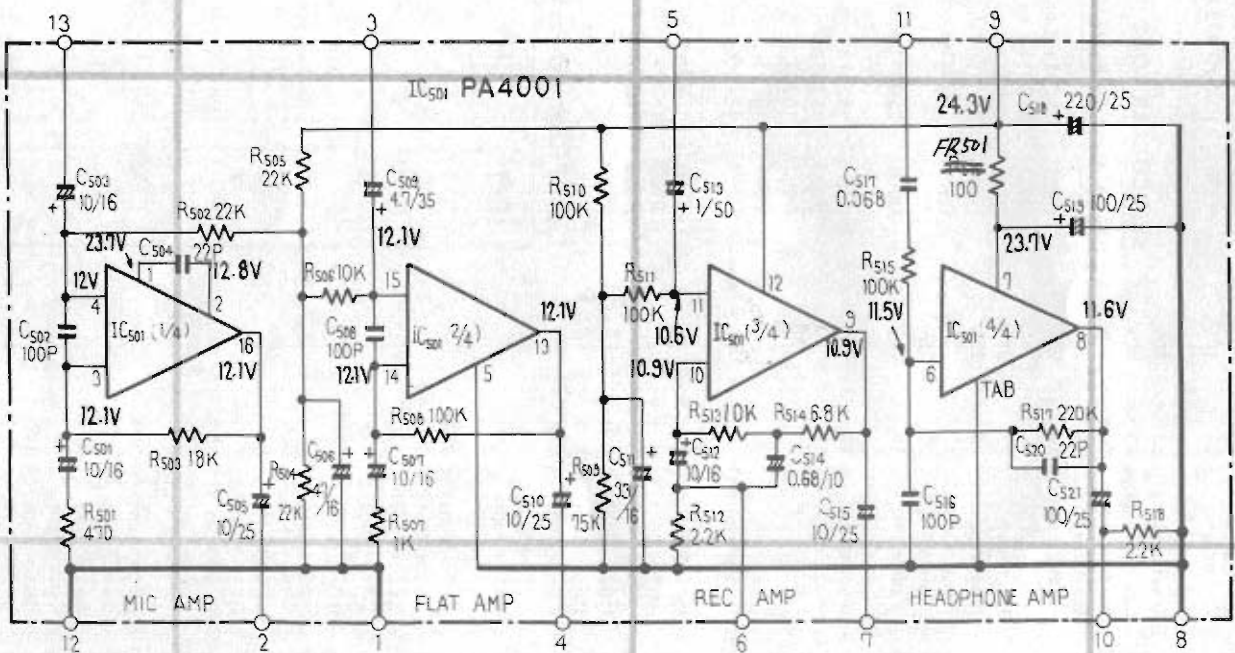
D

1

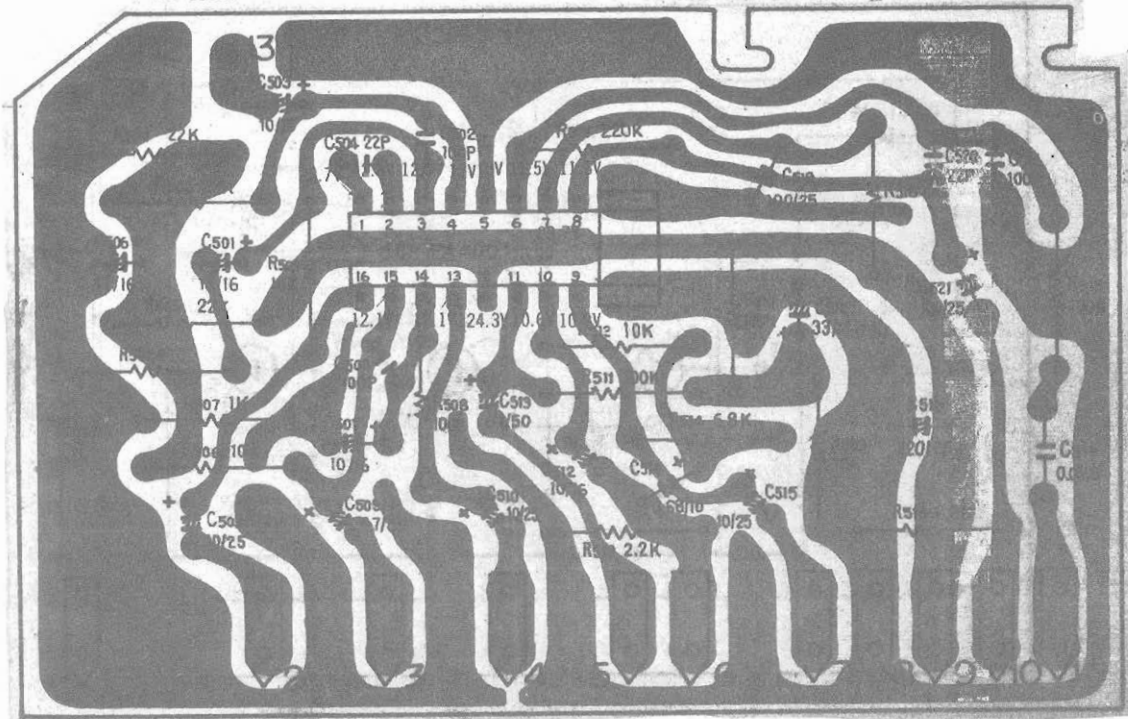
2

3

9.13 INTEGRATED ASSEMBLY (RMX-175)



Foil side



Parts List

CAPACITORS

Symbol	Part No.	Description		
C501	CEA 100P 16	Electrolytic	10	16V
C502	CCDSL 101K 50	Ceramic	100p	50V
C503	CEANL 100P 16	Electrolytic	10	16V
C504	CCDSL 220K 50	Ceramic	22p	50V
C505	CEA 100P 25	Electrolytic	10	25V
C506	CEA 470P 16	Electrolytic	47	16V
C507	CEA 100P 16	Electrolytic	10	16V
C508	CCDSL 101K 50	Ceramic	100p	50V
C509	CEA 4R7P 35	Electrolytic	4.7	35V
C510	CEA 100P 25	Electrolytic	10	25V
C511	CEA 330P 16	Electrolytic	33	16V
C512	CEA 100P 16	Electrolytic	10	16V
C513	CEA 010P 50	Electrolytic	0.1	50V
C514	CSSA R68M 10	Electrolytic	0.68	10V
C515	CEA 100P 25	Electrolytic	10	25V
C516	CCDSL 101K 50	Ceramic	100p	50V
C517	CQMA 683K 50	Mylar	0.068	50V
C518	CEA 221P 25	Electrolytic	220	25V
C519	CEA 101P 25	Electrolytic	100	25V
C520	CCDSL 220K 50	Ceramic	22p	50V
C521	CEA 101P 25	Electrolytic	100	25V

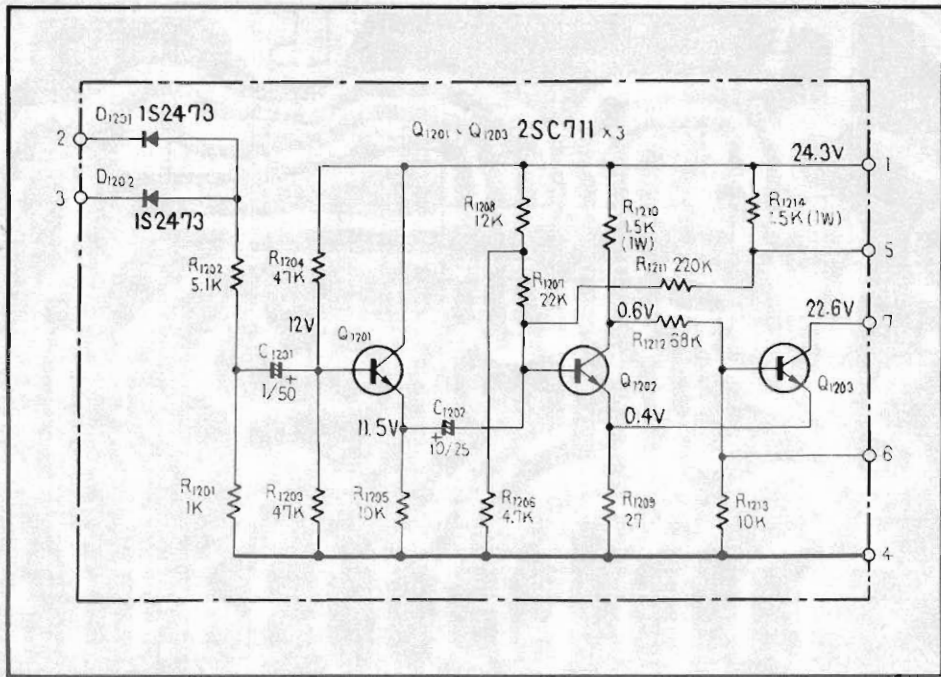
RESISTORS

Symbol	Part No.	Description	
R501	RD%PS 471J	Carbon film	470
R502	RD%PS 223J	Carbon film	22k
R503	RD%PS 183J	Carbon film	18k
R504	RD%PS 223J	Carbon film	22k
R505	RD%PS 223J	Carbon film	22k
R506	RD%PS 103J	Carbon film	10k
R507	RD%PS 102J	Carbon film	1k
R508	RD%PS 104J	Carbon film	100k
R509	RD%PS 753J	Carbon film	75k
R510	RD%PS 104J	Carbon film	100k
R511	RD%PS 104J	Carbon film	100k
R512	RD%PS 222J	Carbon film	2.2k
R513	RD%PS 103J	Carbon film	10k
R514	RD%PS 682J	Carbon film	6.8k
R515	RD%PS 104J	Carbon film	100k
R501	REK-062	Carbon film	100
R517	RD%PS 224J	Carbon film	220k
R518	RD%PS 222J	Carbon film	2.2k

SEMICONDUCTOR

Symbol	Part No.	Description
IC501	PA4001	IC

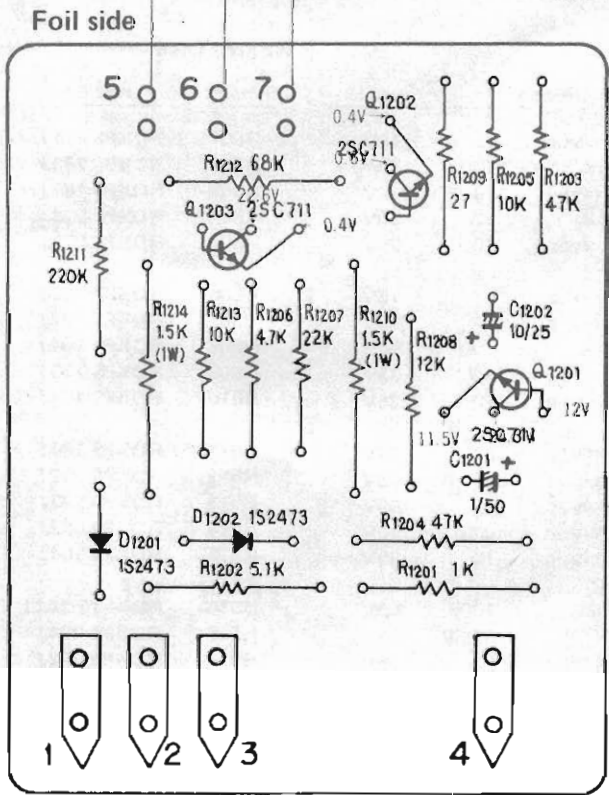
9.14 PEAK AMPLIFIER ASSEMBLY (RWX-179)



RWG-080, No.19

RWX-176, No.2

RWX-176, No.1



Parts List

CAPACITORS

Symbol	Part No.	Description
C1201	CEA 010P 50	Electrolytic 1 50V
C1202	CEA 100P 25	Electrolytic 10 25V

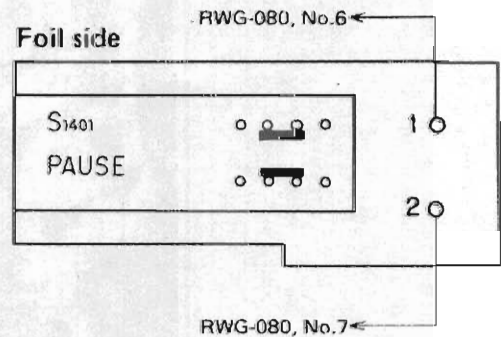
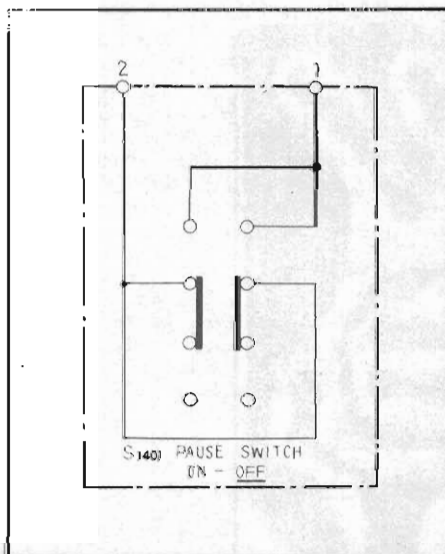
SEMICONDUCTORS

Symbol	Part No.	Description
Q1201	2SC711-E or F	Transistor
Q1202	2SC711-E or F	Transistor
Q1203	2SC711-E or F	Transistor
D1201	1S2473	Diode
D1202	1S2473	Diode

RESISTORS

Symbol	Part No.	Description
R1201	RD¼PS 102J	Carbon film 1k
R1202	RD¼PS 512J	Carbon film 5.1k
R1203	RD¼PS 473J	Carbon film 47k
R1204	RD¼PS 473J	Carbon film 47k
R1205	RD¼PS 103J	Carbon film 10k
R1206	RD¼PS 472J	Carbon film 4.7k
R1207	RD¼PS 223J	Carbon film 22k
R1208	RD¼PS 123J	Carbon film 12k
R1209	RD¼PS 270J	Carbon film 27
R1210	RD1PS 152J	Metal oxide 1.5k 1W
R1211	RD¼PS 224J	Carbon film 220k
R1212	RD¼PS 683J	Carbon film 68k
R1213	RD¼PS 103J	Carbon film 10k
R1214	RS1PS 152J	Metal oxide 1.5k 1W

9.15 PAUSE SWITCH ASSEMBLY (RWS-064)

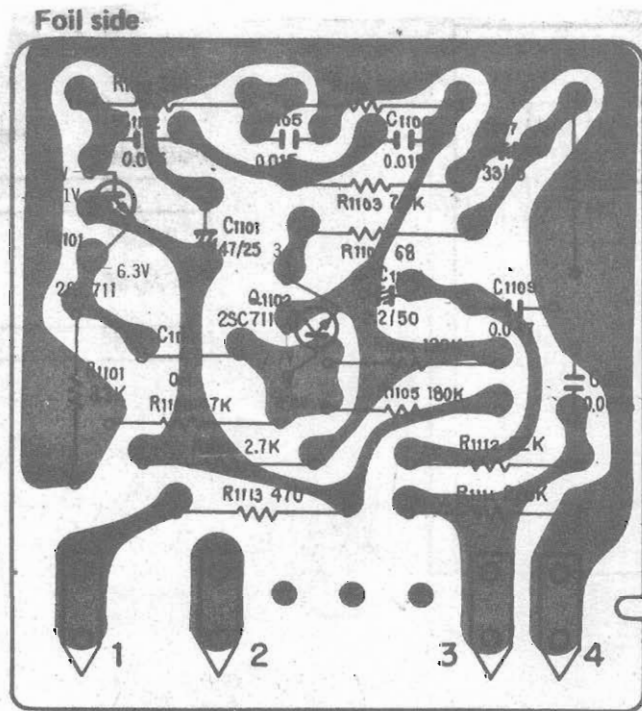
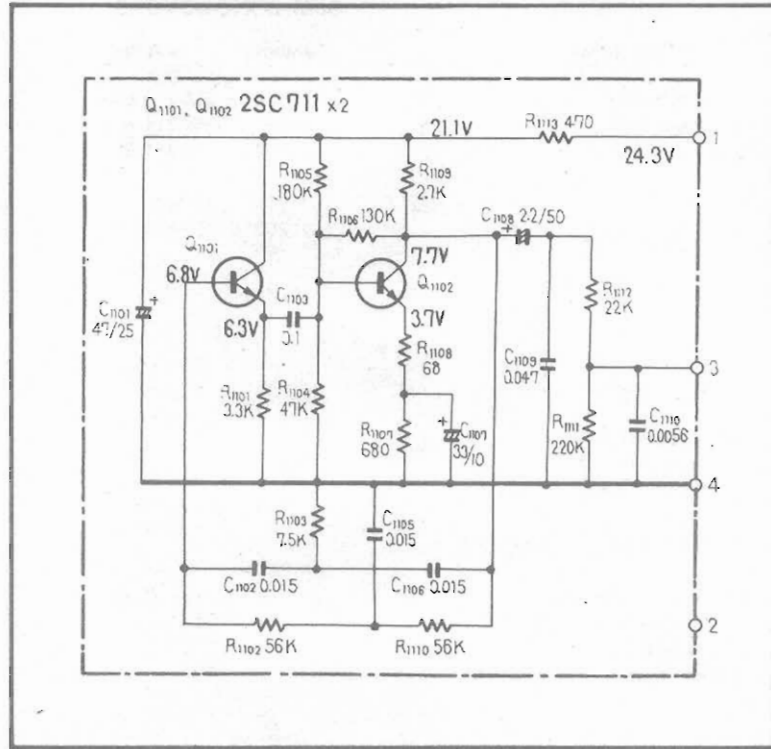


Part List

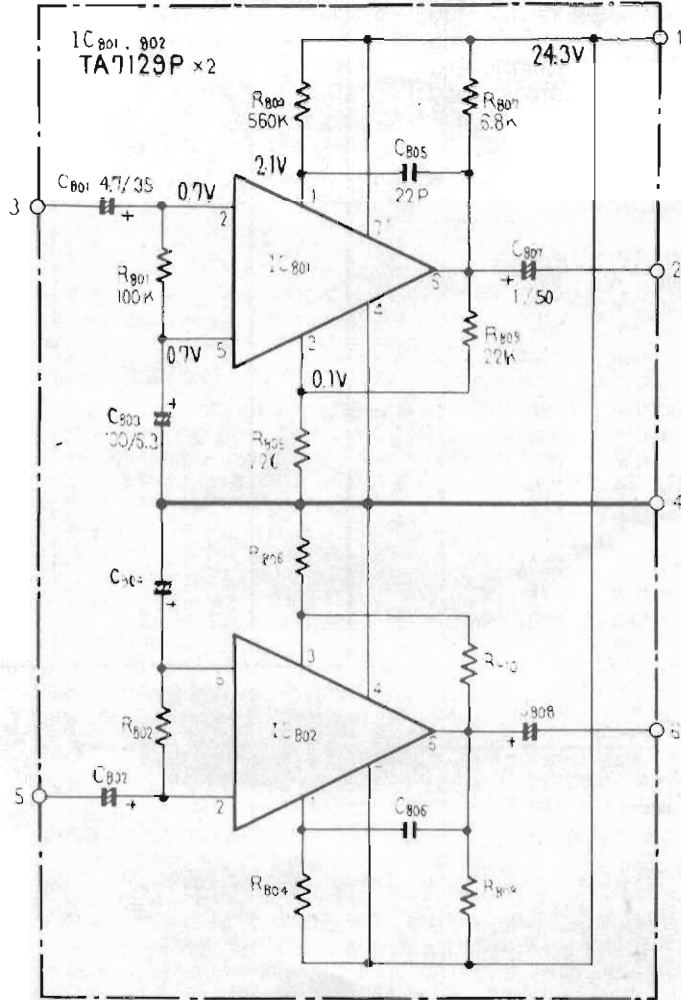
SWITCH

Symbol	Part No.	Description
S1401	RSK-042	Lever switch E

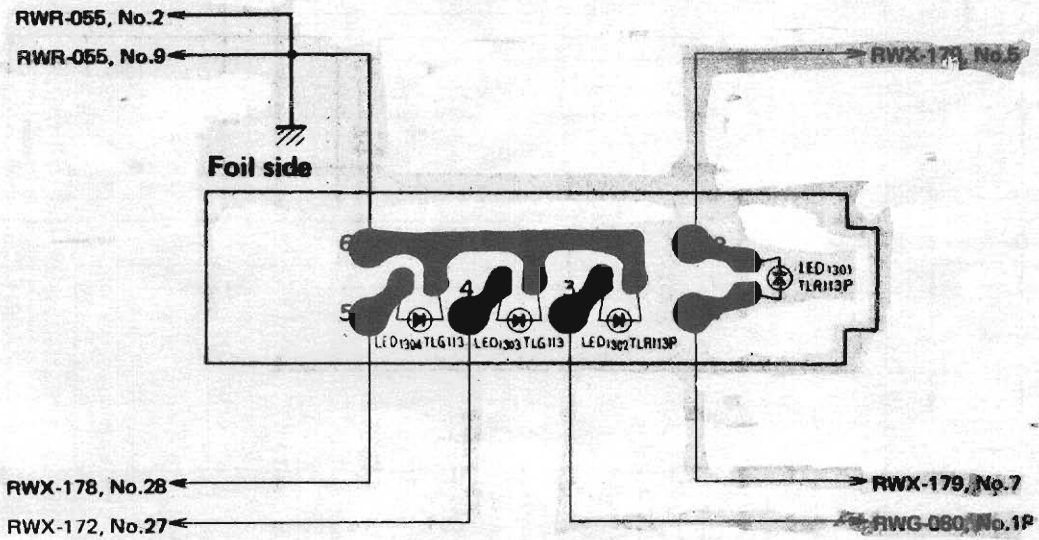
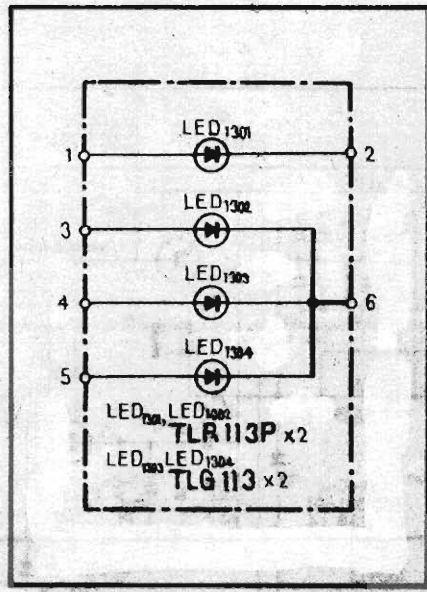
9.16 TEST TONE ASSEMBLY (RWA-028)



9.17 FLAT AMPLIFIER ASSEMBLY (RWX-177)



9.18 INDICATOR ASSEMBLY (RWX-176)



Parts List

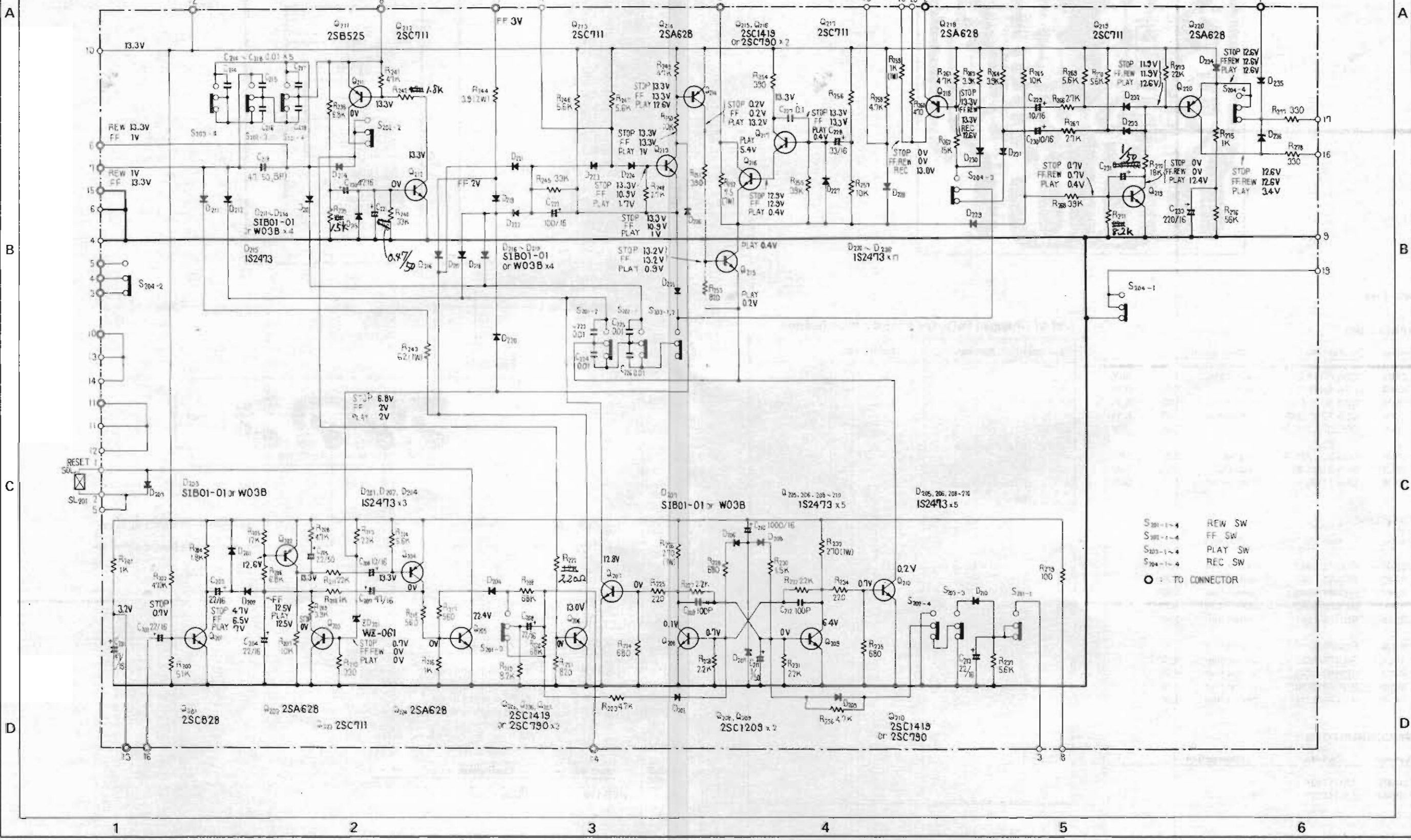
SEMICONDUCTORS

Symbol	Part No.	Description
LED1301	TLR-113P	Light emitting diode
LED1302	TLR-113P	Light emitting diode
LED1303	TLG-113	Light emitting diode
LED1304	TLG-113	Light emitting diode

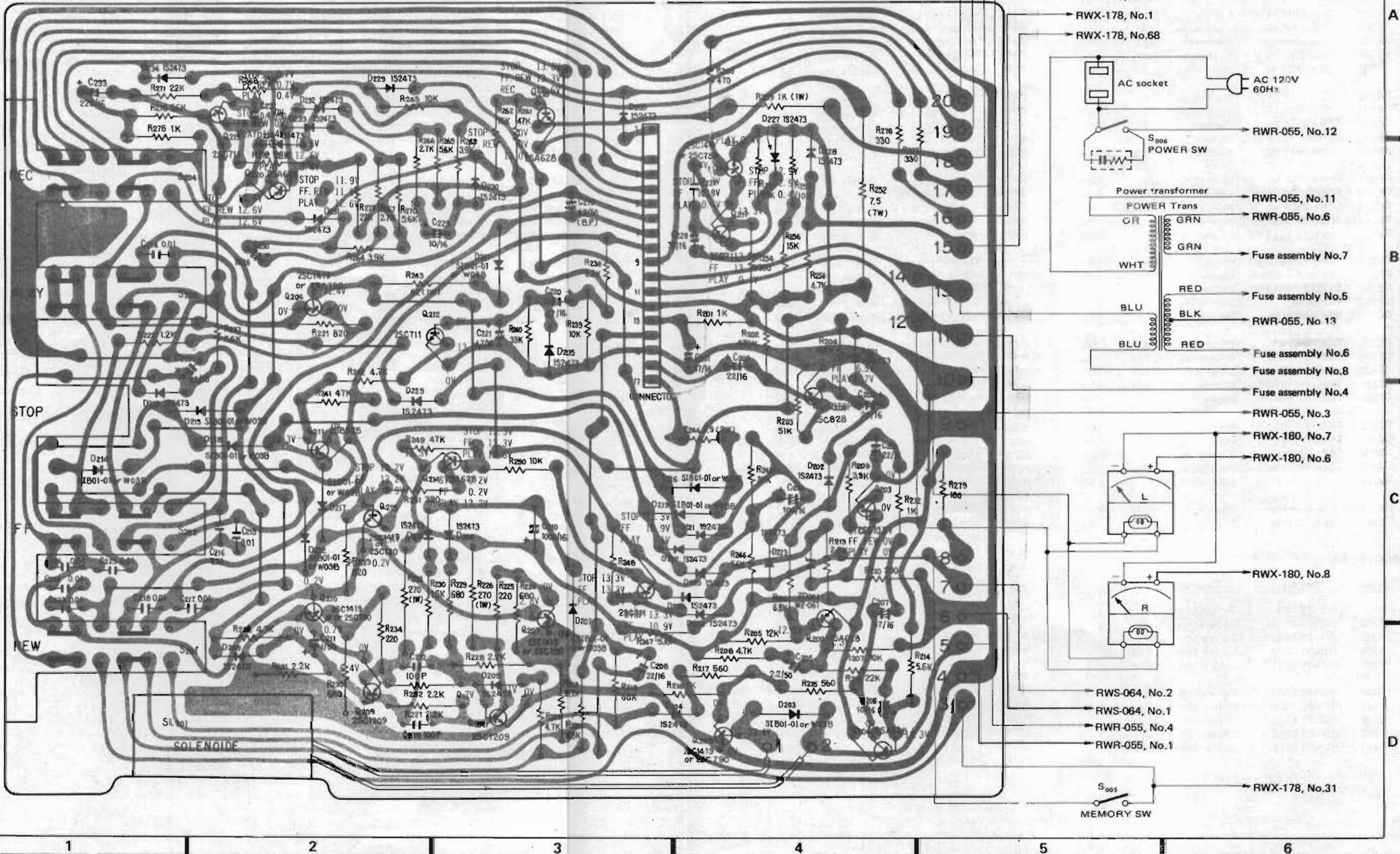
OTHER

Symbol	Part No.	Description
	REB-179	Diode Holder

12.19 CONTROL ASSEMBLY (RWG-080)



Foil side



Parts List of Control Assembly (RWG-080)

CAPACITORS

Symbol	Part No.	Description	Symbol	Part No.	Description
C201	CEA 470P 16	Electrolytic 47 16V	R211	RD½PS 223J	Carbon film 22k
C202	CEA 220P 16	Electrolytic 22 16V	R212	RD½PS 102J	Carbon film 1k
C203	CEA 220P 16	Electrolytic 22 16V	R213	RD½PS 222J	Carbon film 2.2k
C204	CEA 220P 16	Electrolytic 22 16V	R214	RD½PS 562J	Carbon film 5.6k
C205	CEA 2R2P 50	Electrolytic 2.2 50V	R215	RD½PS 561J	Carbon film 560
C206	CEA 100P 16	Electrolytic 10 16V	R216	RD½PS 102J	Carbon film 1k
C207	CEA 470P 16	Electrolytic 47 16V	R217	RD½PS 561J	Carbon film 560
C208	CEA 220P 16	Electrolytic 22 16V	R218	RD½PS 683J	Carbon film 68k
C209	CCDSL 101K 50	Ceramic 100p 50V	R219	RD½PS 822J	Carbon film 8.2k
C210	CEA 102P 16	Electrolytic 1000 16V	R220	RD½PS 683J	Carbon film 68k
C211	CEA 010P 50	Electrolytic 1 50V	R221	RD½PS 821J	Carbon film 820
C212	CCDSL 101K 50	Ceramic 100p 50V	R222	RD½PS 472J / 22J	Carbon film 4.7k 220Ω
C213	CEA 220P 16	Electrolytic 22 16V	R223	RD½PS 472J	Carbon film 4.7k
C214	CKDYF 103Z 50	Ceramic 0.01 50V	R224	RD½PS 681J	Carbon film 680
C215	CKDYF 103Z 50	Ceramic 0.01 50V	R225	RD½PS 221J	Carbon film 220
C216	CKDYF 103Z 50	Ceramic 0.01 50V	R226	RS1P 271J	Metal oxide 270 1W
C217	CKDYF 103Z 50	Ceramic 0.01 50V	R227	RD½PS 222J	Carbon film 2.2k
C218	CKDYF 103Z 50	Ceramic 0.01 50V	R228	RD½PS 222J	Carbon film 2.2k
C219	RCH-026	Electrolytic 4.7 50V	R229	RD½PS 681J	Carbon film 680
C220	CEA 470P 16	Electrolytic 47 16V	R230	RD½PS 152J	Carbon film 1.5k
C221	CEA 470P 16 ^{R47P50}	Electrolytic 47 ^{0.47} 16V ^{50V}	R231	RD½PS 222J	Carbon film 2.2k
C222	CEA 101P 16	Electrolytic 100 16V	R232	RD½PS 222J	Carbon film 2.2k
C223	CKDYF 103Z 50	Ceramic 0.01 50V	R233	RS1P 271J	Metal oxide 270 1W
C224	CKDYF 103Z 50	Ceramic 0.01 50V	R234	RD½PS 221J	Carbon film 220
C225	CKDYF 103Z 50	Ceramic 0.01 50V	R235	RD½PS 681J	Carbon film 680
C226	CKDYF 103Z 50	Ceramic 0.01 50V	R236	RD½PS 472J	Carbon film 4.7k
C227	QOMA 104K 50	Mylar 0.1 50V	R237	RD½PS 562J	Carbon film 5.6k
C228	CEA 330P 16	Electrolytic 33 16V	R238	RD½PS 682J	Carbon film 6.8k
C229	CEA 100P 16	Electrolytic 10 16V	R239	RD½PS 103J / 52J	Carbon film 10k 1.5k
C230	CEA 100P 16	Electrolytic 10 16V	R240	RD½PS 333J	Carbon film 33k
C231	CEA R47P50 ^{10P50V}	Electrolytic 47 ¹ 16V ^{50V}	R241	RD½PS 473J	Carbon film 47k
C233	CEA 221P 16	Electrolytic 220 16V	R242	RD½PS 472J / 82J	Carbon film 4.7k 1.8k
			R243	RS1PSF 620J	Metal oxide 62 1W
			R244	RCN-031	Wire wound resistor 3.9 2W
			R245	RD½PS 333J	Carbon film 33k

RESISTORS

Symbol	Part No.	Description	Symbol	Part No.	Description
R201	RD½PS 102J	Carbon film 1k	R246	RD½PS 562J	Carbon film 5.6k
R202	RD½PS 474J	Carbon film 470k	R247	RD½PS 562J	Carbon film 5.6k
R203	RD½PS 513J	Carbon film 51k	R248	RD½PS 272J	Carbon film 2.7k
R204	RD½PS 182J	Carbon film 1.8k	R249	RD½PS 473J	Carbon film 47k
R205	RD½PS 123J	Carbon film 12k	R250	RD½PS 103J	Carbon film 10k
R206	RD½PS 682J	Carbon film 6.8k	R251	RD½PS 391J	Carbon film 390
R207	RD½PS 103J	Carbon film 10k	R252	RCN-032	Wire wound resistor 7.5 7W
R208	RD½PS 472J	Carbon film 4.7k	R253	RD½PS 821J	Carbon film 820
R209	RD½PS 392J	Carbon film 3.9k	R254	RD½PS 391J	Carbon film 390
R210	RD½PS 331J	Carbon film 330	R255	RD½PS 393J	Carbon film 39k
			R256	RD½PS 153J	Carbon film 15k

Symbol	Part No.	Description	Symbol	Part No.	Description
R257	RD%PS 103J	Carbon film 10k	Q207	2SC1419-C or	Transistor
R258	RD%PS 472J	Carbon film 4.7k		2SC790-Y	
R259	RS1P 102J	Metal oxide 1k 1W	Q208	2SC1209-E	Transistor
R260	RD%PS 471J	Carbon film 470	Q209	2SC1209-E	Transistor
R261	RD%PS 473J	Carbon film 47k	Q210	2SC1419-C or	Transistor
				2SC790-Y	
R262	RD%PS 153J	Carbon film 15k	Q211	2SB525-D or E	Transistor
R263	RD%PS 392J	Carbon film 3.9k	Q212	2SC711-E or F	Transistor
R264	RD%PS 392J	Carbon film 3.9k	Q213	2SC711-E or F	Transistor
R265	RD%PS 103J	Carbon film 10k	Q214	2SA628-E or F	Transistor
R266	RD%PS 272J	Carbon film 2.7k	Q215	2SC1419-C or	Transistor
				2SC790-Y	
R267	RD%PS 272J	Carbon film 2.7k	Q216	2SC1419-C or	Transistor
R268	RD%PS 393J	Carbon film 39k		2SC790-Y	
R269	RD%PS 562J	Carbon film 5.6k	Q217	2SC711-E or F	Transistor
R270	RD%PS 562J	Carbon film 5.6k	Q218	2SA628-E or F	Transistor
R271	RD%PS 392J 822J	Carbon film 39k 82kΩ	Q219	2SC711-E or F	Transistor
R272	RD%PS 183J	Carbon film 18k	Q220	2SA628-E or F	Transistor
R273	RD%PS 223J	Carbon film 22k			
R275	RD%PS 102J	Carbon film 1k	D201	1S2473	Diode
R276	RD%PS 563J	Carbon film 56k	D202	1S2473	Diode
R277	RD%PS 331J	Carbon film 330	D203	SIB01-01 or	Diode
				W03B	
R278	RD%PS 331J	Carbon film 330	D204	1S2473	Diode
R279	RD%PS 101J	Carbon film 100			

OTHERS

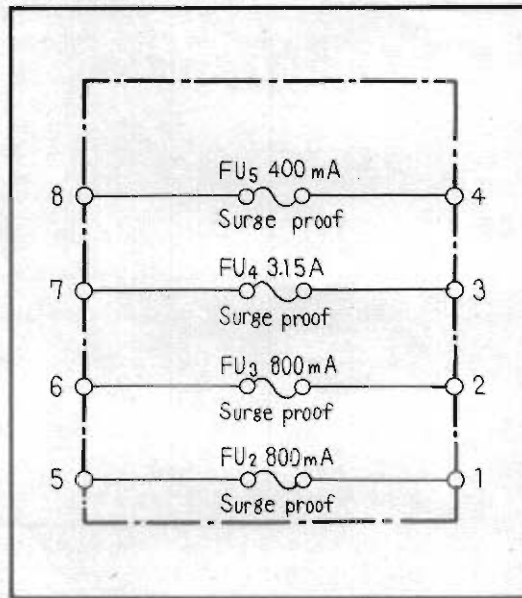
Symbol	Part No.	Description
SL201	RXP-032	Solenoid D
S201	RSG-055	Function switch
S202	RSG-055	Function switch
S203	RSG-055	Function switch
S204	RSG-055	Function switch
	RKP-033	Connector (17P)
	RNE-889	Release plate
	RBH-152	Release spring

SEMICONDUCTORS

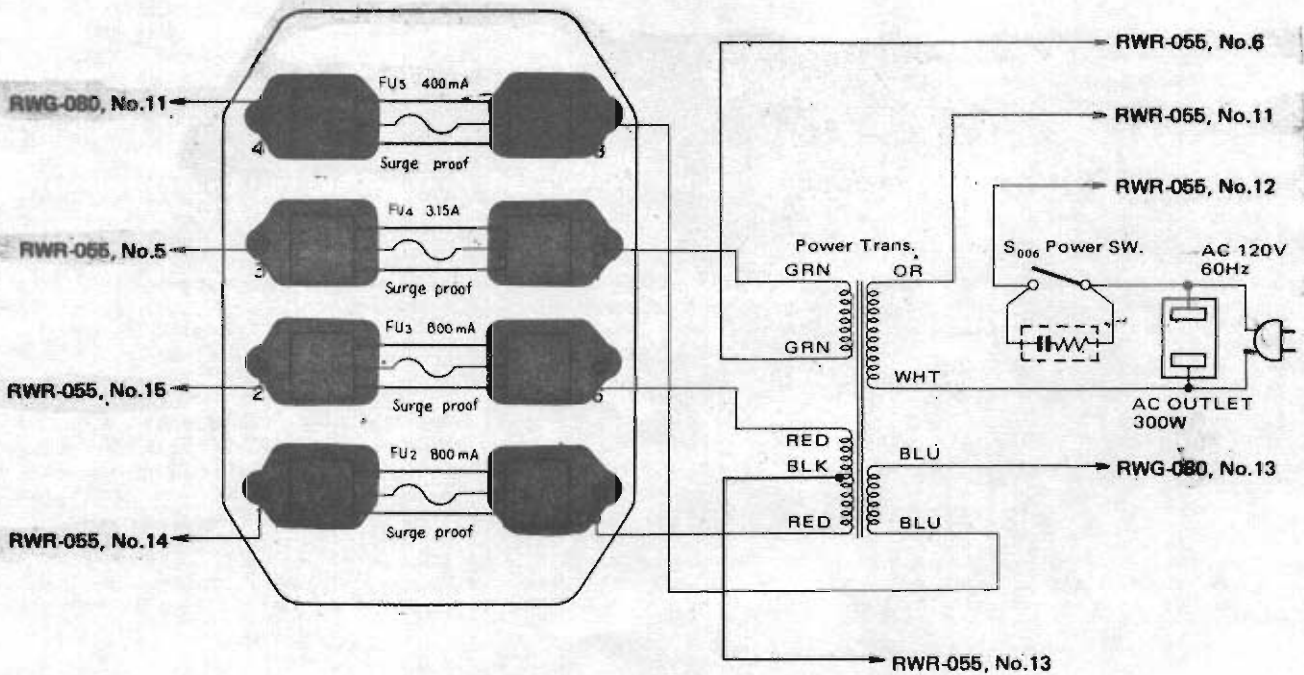
Symbol	Part No.	Description
Q201	2SC828-S	Transistor
Q202	2SA628-E or F	Transistor
Q203	2SC711-E or F	Transistor
Q204	2SA628-E or F	Transistor
Q205	2SC1419-C or	Transistor
	2SC790-Y	
Q206	2SC1419-C or	Transistor
	2SC790-Y	

D205	1S2473	Diode
D206	1S2473	Diode
D207	SIB01-01 or	Diode
	W03B	
D208	1S2473	Diode
D209	1S2473	Diode
D210	1S2473	Diode
D211	SIB01-01 or	Diode
	W03B	
D212	SIB01-01 or	Diode
	W03B	
D213	SIB01-01 or	Diode
	W03B	
D214	SIB01-01 or	Diode
	W03B	
D215	1S2473	Diode
D216	SIB01-01 or	Diode
	W03B	
D217	SIB01-01 or	Diode
	W03B	
D218	SIB01-01 or	Diode
	W03B	
D219	SIB01-01 or	Diode
	W03B	

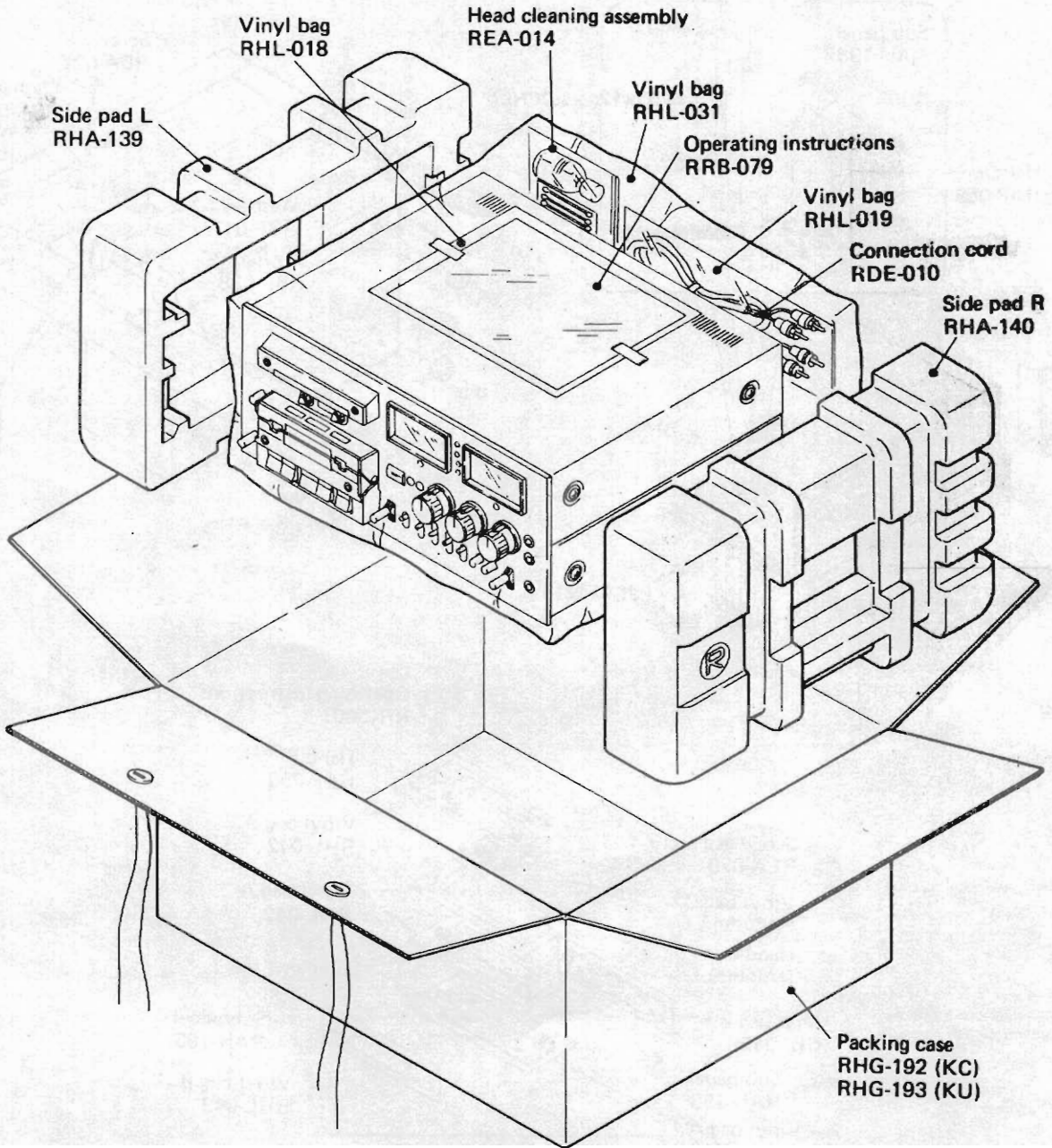
9.20 FUSE ASSEMBLY



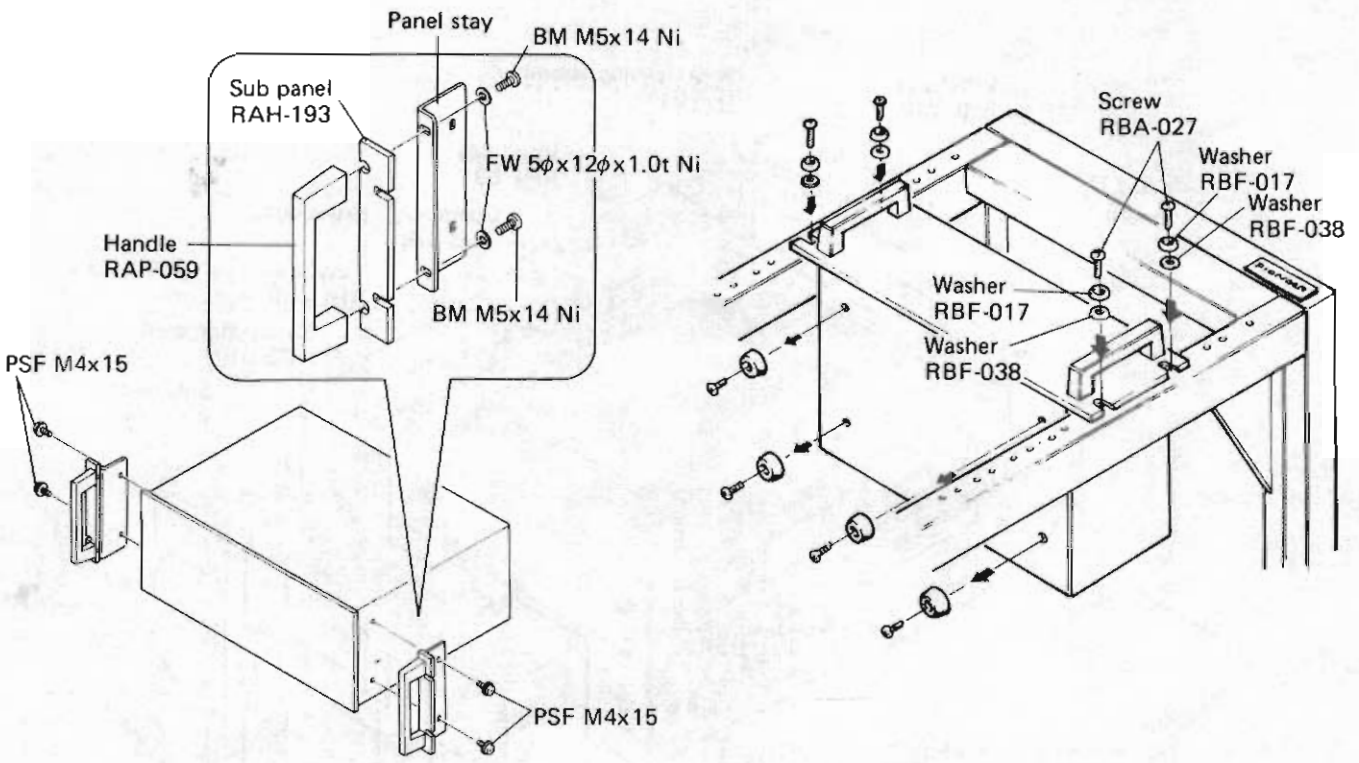
Foil side



10. PACKING



11. RACK MOUNT ADAPTOR JA-R102(EIA STANDARDS)



Packing

