



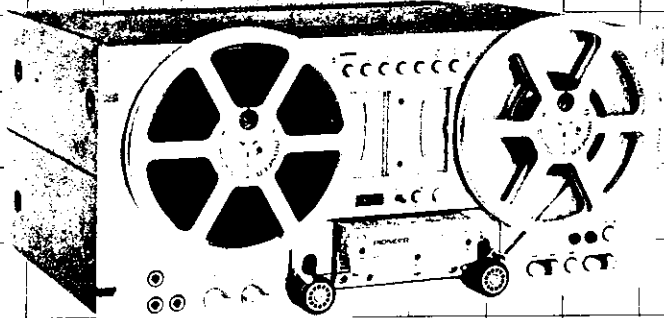
For more Hi-Fi manuals and set-up information
please visit www.hifiengine.com

3-MOTOR 4-HEAD
TAPE DECK

RT-707

OPERATING INSTRUCTIONS

KCU



IMPORTANT NOTICE

The serial number for this equipment is located on the rear panel. Please write this serial number on your enclosed warranty card and keep in a secure area. This is for your security.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD,
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR
MOISTURE.

 PIONEER®

SPECIFICATIONS

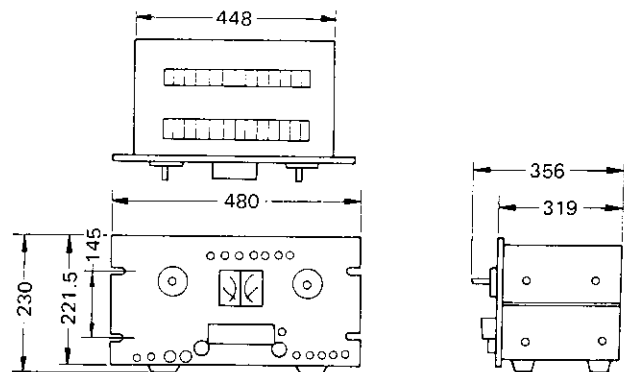
Type	4-track, 2-channel stereo tape deck (Recording, playback with reverse playback)
Operation system	Solenoid drive, Pushbutton direct change system, Timer can be set for recording and playback.
Heads	Recording Head ; 1 Erase Heads ; 1 Forward playback Head ; 1 Reverse playback Head ; 1
Motors	Capstan drive motor ; 1 (FG-system, AC servo, direct drive) Reel base drive motors ; 2 (6-pole inner rotor induction type)
Acceptable Reel Size	7in (17cm)
Tape Speed	19cm/s (7-1/2ips), 9.5cm/s (3-3/4ips) ±0.5%
Fast Forward/Rewind Times	Less than 100 sec. with 7-inch reel and 370m tape
Wow and Flutter	Less than 0.05% WRMS (19cm/s) Less than 0.08% WRMS (9.5cm/s)
Signal-to-Noise Ratio	More than 58dB
Total Harmonic Distortion	Less than 1% (19cm/s)
Frequency Response	
19cm/s	20Hz to 28,000Hz (30Hz to 24,000Hz ±3dB)
9.5cm/s	20Hz to 20,000Hz (30Hz to 16,000Hz ±3dB)
Crosstalk	More than 50dB
Channel Separation	More than 50dB
Erasure Rate	More than 70dB
Recording Bias Frequency	125kHz
Equalization	NAB Standards
Inputs (Sensitivity/Maximum allowable level/Input impedance)	
MIC; 0.25mV/125mV/27kΩ, 6mm diam. jacks (suitable microphone, 250Ω to 30kΩ)	
LINE; 50mV/25V/100kΩ, DIN; 16mV/8V/1.3kΩ, DIN standards	
Outputs (Reference level/Maximum level/Load impedance)	
LINE; 450mV/700mV/50kΩ, DIN; 450mV/700mV/50kΩ, DIN standards	
HEADPHONES; 70mV/8Ω, 6mm diam. jack	
Semiconductors	67 transistors (4 FET's), 5 IC's, 47 diodes (1 thyristor, 2 LED's, 4 Zener diodes, 2 varistors,)
Accessory Functions	
• Pitch control (±6% of rated tape speed)	
• Auto reverse playback (with sensing tape: manual reverse is possible)	
• Auto repeat (counter-interlocked)	
• Recording mode switches (L, R independent)	
• Tape selectors: BIAS (STD/LH); EQ (STD/LH)	
• MIC/LINE mixing	
• Output volume controls	
• Pause indicator lamp	
Power Requirements	AC 120V 60Hz
Power Consumption	120 watts, Max.
AC Outlets	Unswitched (300W max.) x 1
Dimensions	480(W) x 230(H) x 356(D)mm 18-29/32 x 9-1/16 x 14in
Weight	Without package; 20.0kg 44lb 1oz With package; 23.5kg 51lb 13oz

- Accessories
- 7in metal reel (Pioneer PR-85) x 1
 - Connecting cord with pin plugs x 2
 - Head cleaning kit x 1
 - Sensing tape x 1
 - Splicing tape x 1
 - Operating instructions x 1

NOTE:

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

Dimensions



unit = mm

Test Conditions:

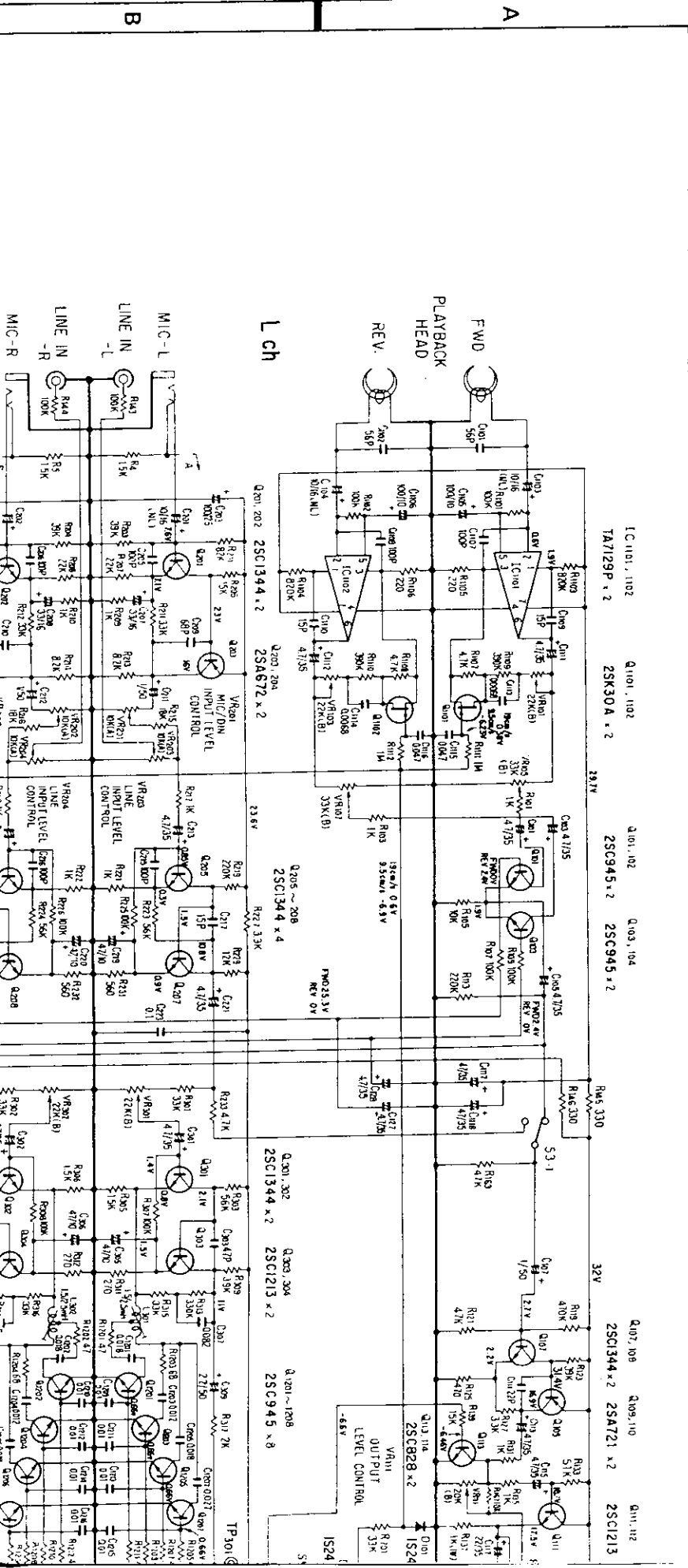
1. Reference tape: Scotch #206
2. Reference recording level: meter 0dB level (NAB standard reference level)
3. Reference signal: 1,000Hz
4. Wow & Flutter: at 3,000Hz weighted RMS
5. Frequency response: measured at -20dB level (19cm/s)
6. Signal-to-Noise ratio: measured at +6dB level
7. Total Harmonic Distortion: measured at reference recording level
8. Channel separation: measured at reference recording level
9. Channel crosstalk: measured at 0dB level (reference recording level)
10. Sensitivity: Input level (mV) for reference recording measured with input (recording) level control set at maximum position.
11. Maximum allowable input level: measured at the point where the output signal wave is clipped while gradually turning the input control.
12. Reference output level: meter 0dB level.
13. Maximum output (playback) level: Output level to reference recording level, measured with output (playback) level control set at maximum position.

3-MOTOR 4-HEAD
TAPE DECK

RT-707

KCU

1 2 3 4

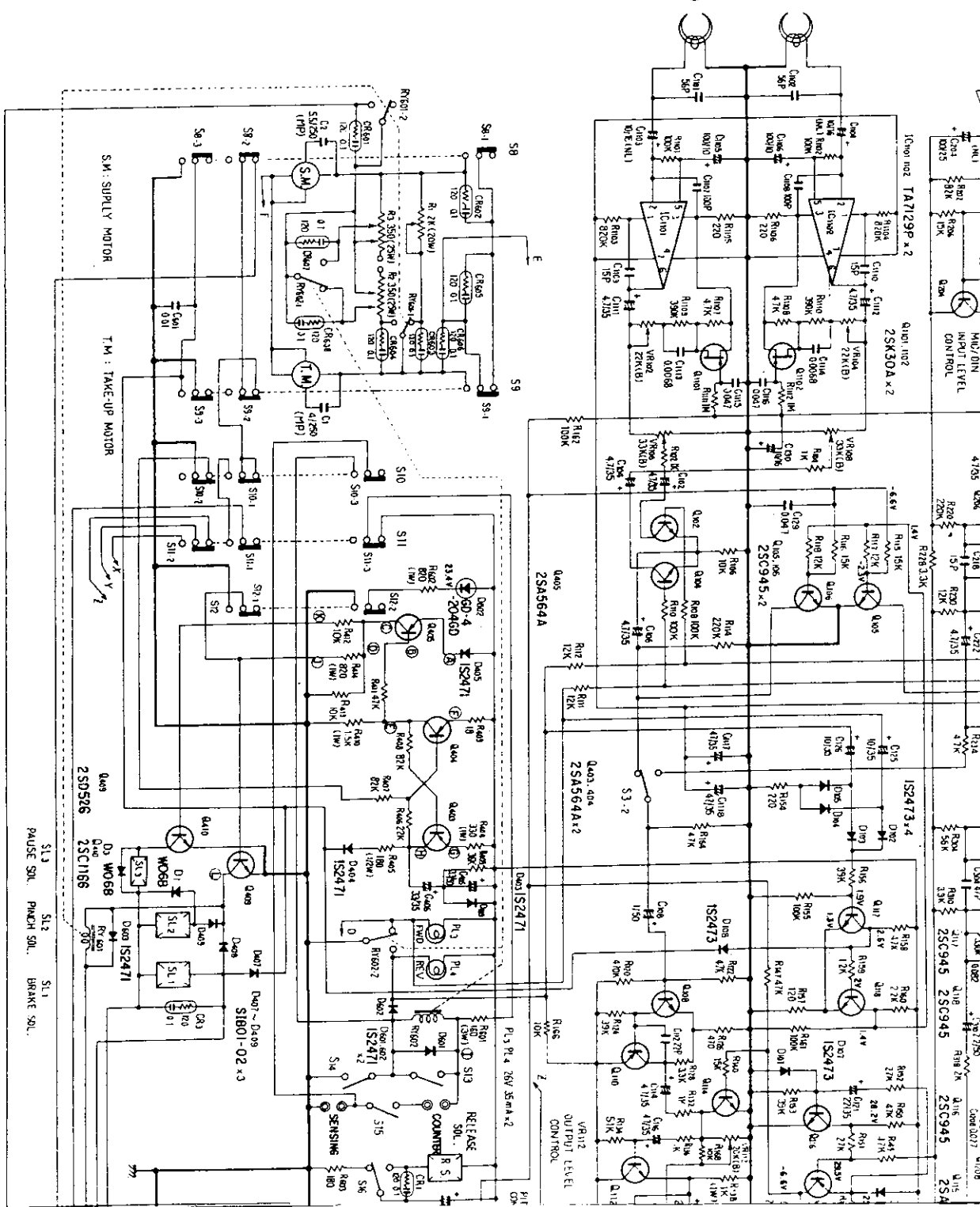


R ch

PLAYBACK HEAD

REV.

FWD



CONTROL

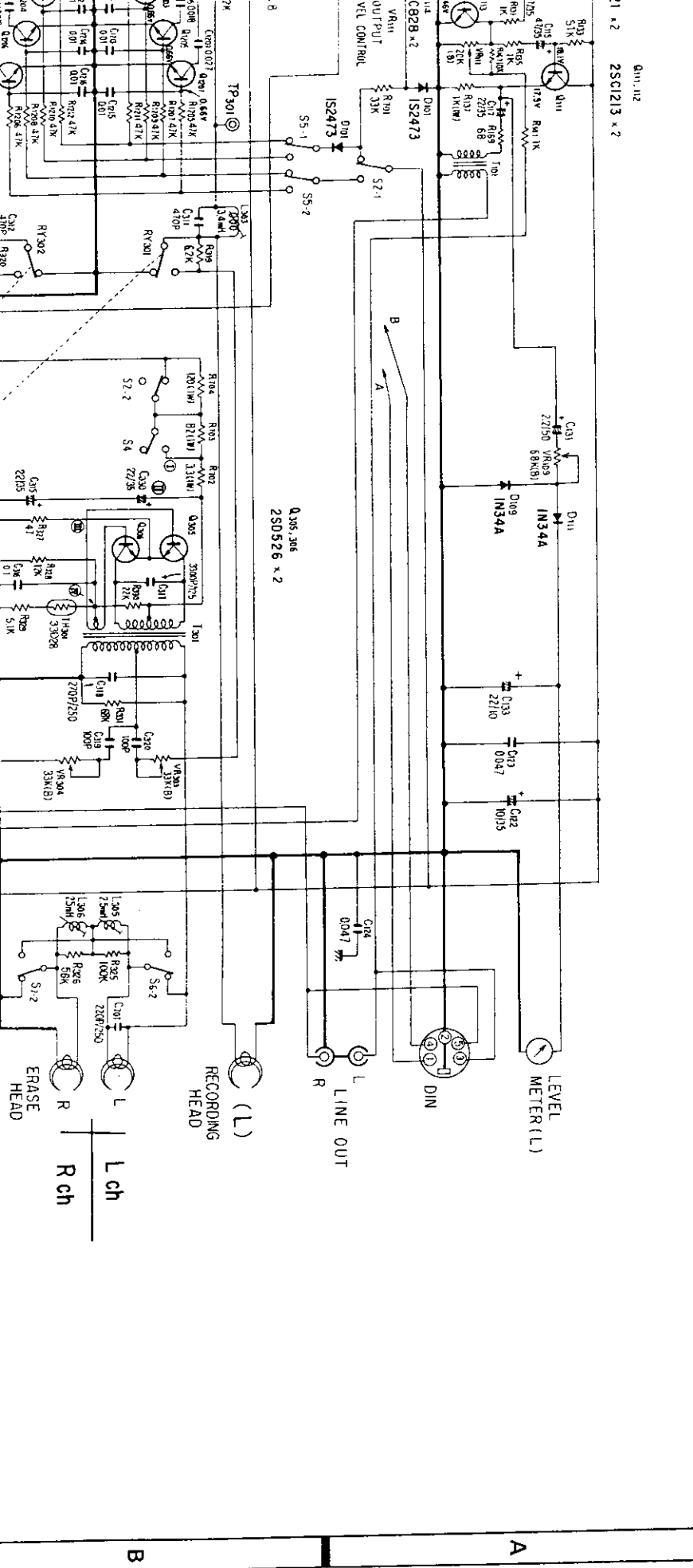
STOP	25.5V	25.2V	0	25.4V	25.5V	25.8V	24.7V	25.5V	0	25.5V
PLAY	24.4V	23.6V	24.3V	24.3V	1.8V	25.2V	25.2V	25.2V	0.8V	0.7V
PLAY/REC	24.4V	23.6V	24.3V	24.3V	1.8V	25.2V	25.2V	25.2V	0.1V	0.8V
FAST	25.3V	25.1V	0	25.2V	25.3V	25.6V	0.9V	25.5V	0	0.3V
PLAY/PAUSE	24.8V	24.1V	24.7V	24.7V	1.8V	25.7V	25.6V	25.1V	0	0.7V
REV										13.6V

S.M: SUPPLY MOTOR

T.M: TAKE-UP MOTOR

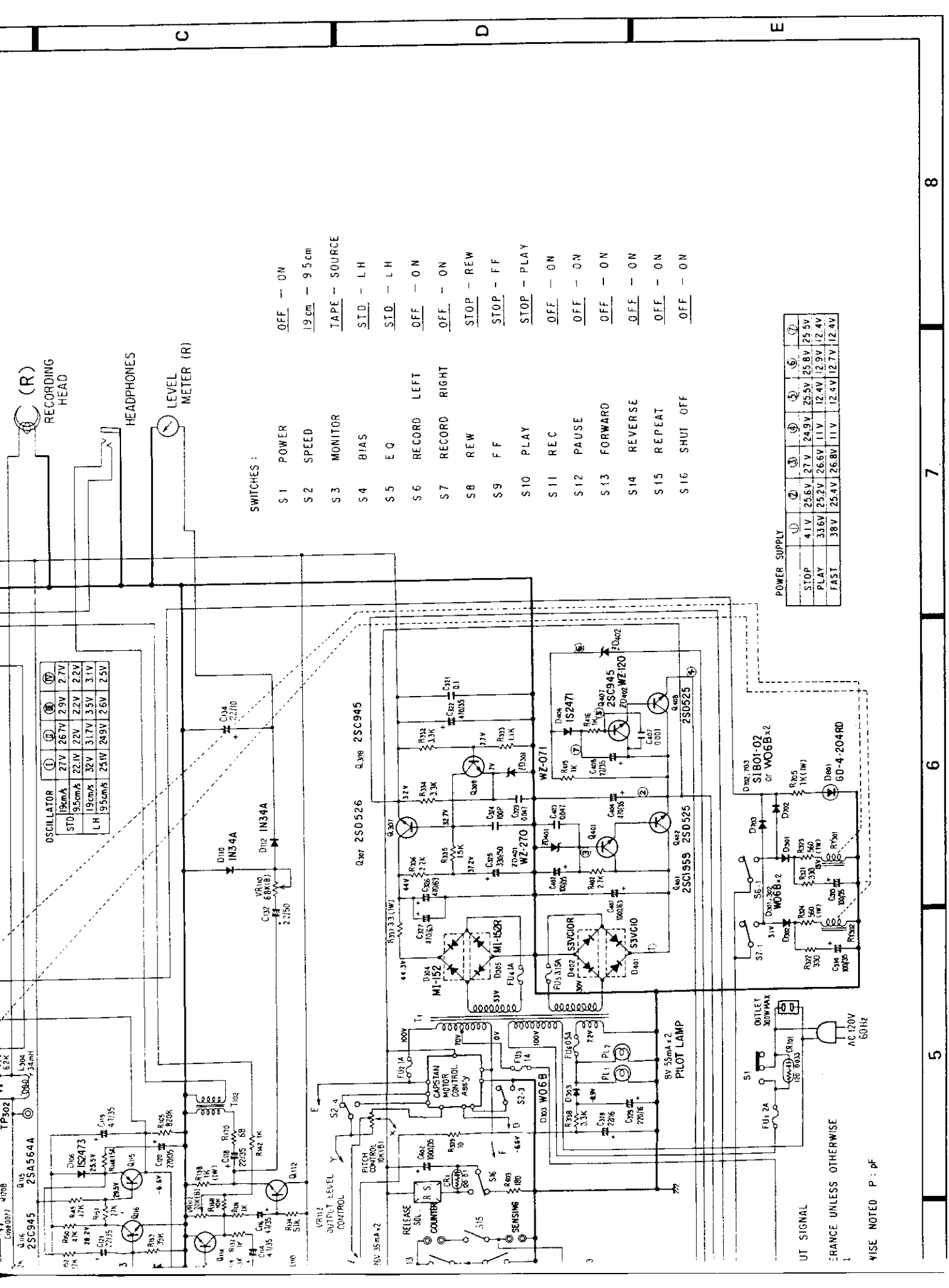
DC VOLTAGE AT NO INPUT SIGNAL
 RESISTORS : IN OHM /AW 4.5% TOLERANCE UNLESS OT
 NOTED K: K Ω M: M Ω
 CAPACITORS IN μF UNLESS OTHERWISE NOTED P: pF

5 6 7 8



B

A



(R)
RECORDING
HEAD

HEADPHONES

LEVEL
METER (R)

SWITCHES :

S 1	POWER	OFF	ON
S 2	SPEED	19 cm	9.5 cm
S 3	MONITOR	TAPE	SOURCE
S 4	BIAS	STD	LH
S 5	E Q	STD	LH
S 6	RECORD	LEFT	RIGHT
S 7	RECORD	LEFT	RIGHT
S 8	REW	STOP	REW
S 9	F F	STOP	FF
S 10	PLAY	STOP	PLAY
S 11	REC	OFF	ON
S 12	PAUSE	OFF	ON
S 13	FORWARD	OFF	ON
S 14	REVERSE	OFF	ON
S 15	REPEAT	OFF	ON
S 16	SHUT OFF	OFF	ON

OSCILLATOR

①	②	③	④	⑤	⑥	⑦
STD	19.5cm/s	22.1V	2.2V	2.2V	2.7V	2.7V
LH	19.5cm/s	32V	3.17V	3.5V	3.1V	2.5V
LH	19.5cm/s	25.1V	24.9V	25.8V	25.5V	25.5V
PLAY	33.6V	25.2V	26.6V	11V	12.4V	12.4V
FAST	38V	25.4V	26.8V	11V	12.4V	12.4V

POWER SUPPLY

①	②	③	④	⑤	⑥	⑦
STOP	4.1V	25.6V	27V	24.9V	25.5V	25.5V
PLAY	33.6V	25.2V	26.6V	11V	12.4V	12.4V
FAST	38V	25.4V	26.8V	11V	12.4V	12.4V

UT SIGNAL

EXCEPT UNLESS OTHERWISE

NOTE: P : pf

10. HEAD ADJUSTMENTS

Before beginning head adjustment:

- Clean the head and demagnetize the head with a head-eraser.
- The following test equipment are necessary in head adjustment and electrical circuit adjustment.
 1. AC voltmeter (millivoltmeter) x 2
 2. Oscilloscope
 3. Audio frequency generator
 4. Frequency counter
 5. STD-154 (play system adjustment tape)
 6. STD-502 (record/play general adjustment tape)

- Use all the specified measurement tapes.
- Position the switches as follows unless otherwise specified:

Tape speed	19cm/s
BIAS switch	STD
EQ switch	STD
MONITOR switch	TAPE
MODE switch	STEREO REC
Playback control	Center click
- Make the level at measurement 0dBv=1V and connect a 50kΩ (47~51kΩ) dummy resistor to the LINE OUTPUT terminals.

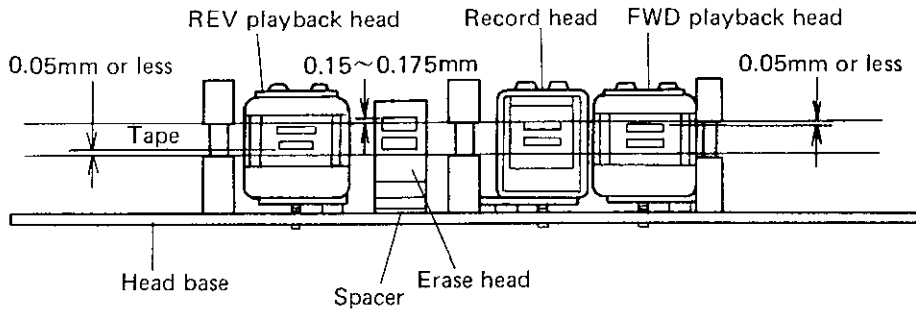


Fig. 30

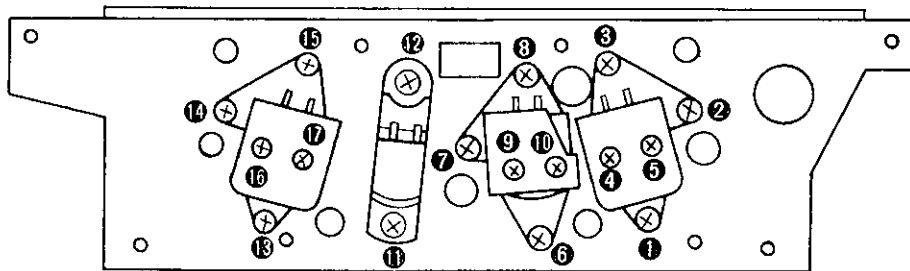


Fig. 31

10.1 HEAD ROUGH ADJUSTMENT

• HEIGHT Adjustment

Adjust the screws of Fig. 31 so that the heads and tape become the dimensions shown in Fig. 30 when the tape has been run.

- | | |
|-------------------|------------|
| FWD playback head | 1, 2, 3 |
| REV playback head | 13, 14, 15 |
| Record head | 6, 7, 8 |
| Erase head | * 11, * 12 |

*When the height of the erase head is not the dimension given in Fig. 30, loosen screws 11, 12 and adjust the height by inserting an adjustment spacer under the head.

- | | |
|-----------------|---------|
| Spacer A (0.1t) | RNF-077 |
| Spacer B (0.2t) | RNF-078 |

• TILT Adjustment

Adjust the screws of Fig. 31 so that the top and bottom of the front of the head contact the tape uniformly when the tape is running.

- | | |
|-------------------|--------|
| FWD playback head | 1, 3 |
| REV playback head | 13, 15 |
| Record head | 6, 8 |

• AZIMUTH Adjustment

Adjust the screws of Fig. 31 so that the head gaps are at right angles to the tape.

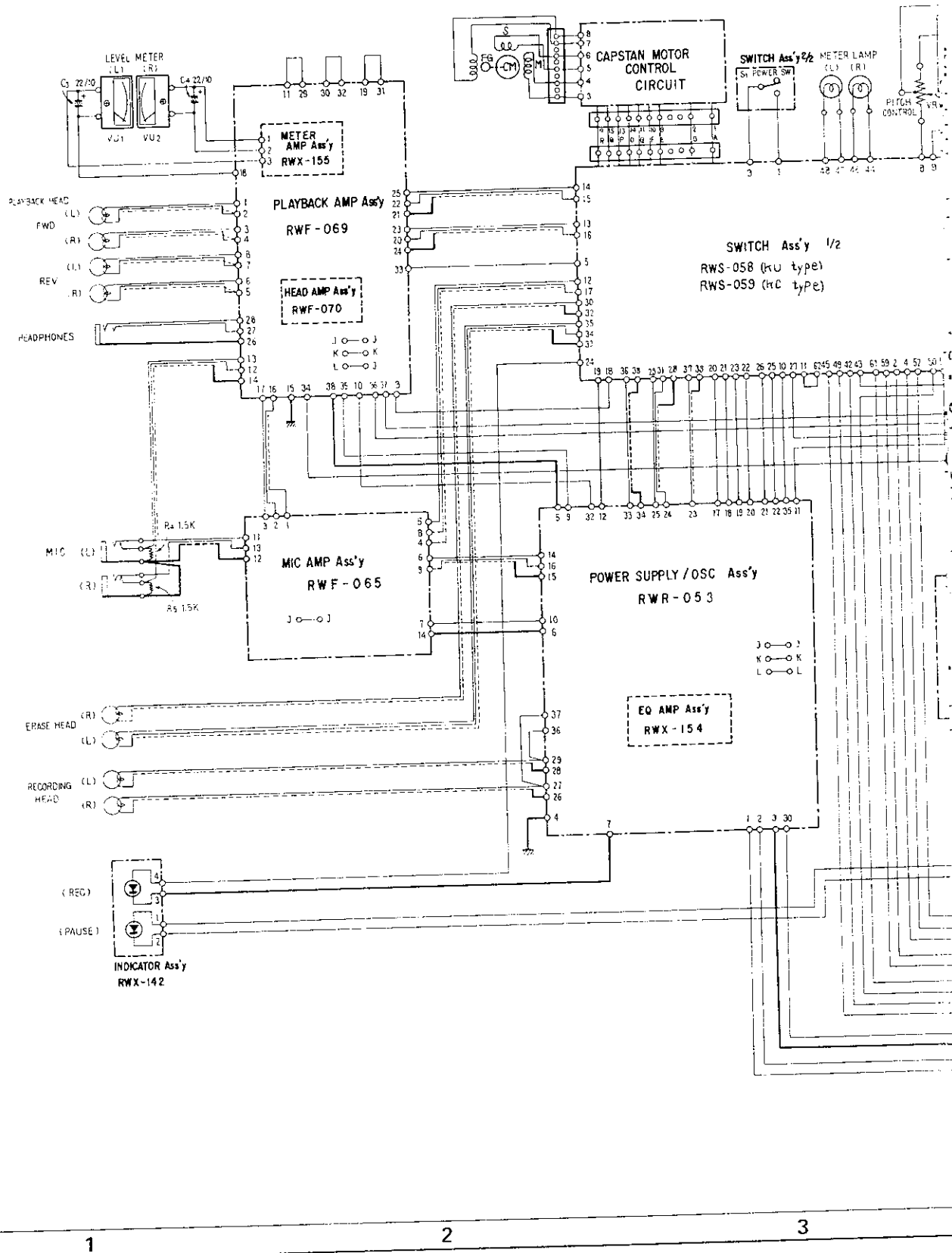
- | | |
|-------------------|----|
| FWD playback head | 2 |
| REV playback head | 14 |
| Record head | 7 |

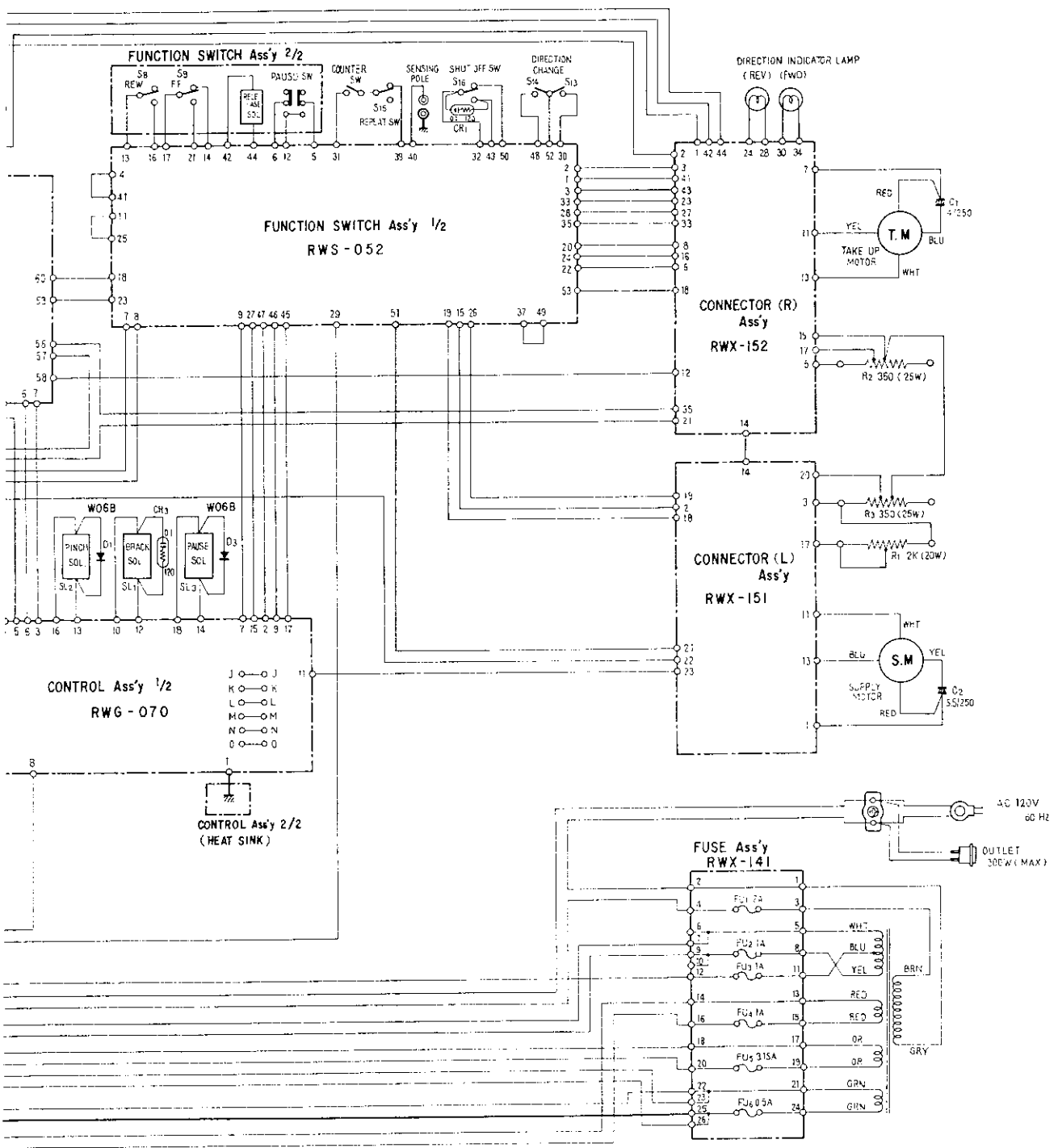
A

B

C

D





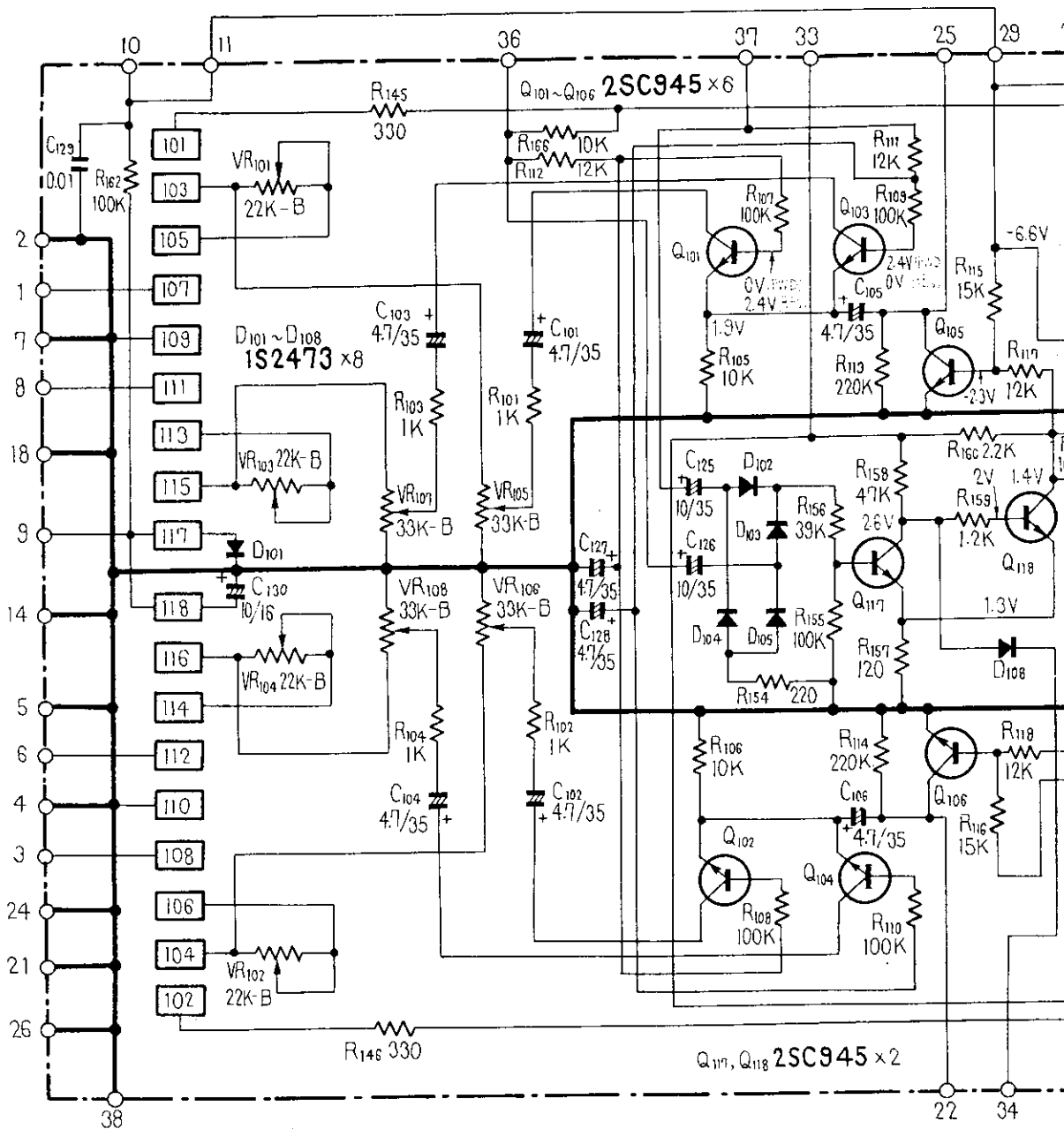
13.5 PLAYBACK AMPLIFIER ASSEMBLY (RWF-069)

A

B

C

D



Foil side

METER AMP Ass'y
RWX-155

HEADPHONES

RWS-058, No.16
RWS-058, No.13

RWS-058, No.14
RWS-058, No.15

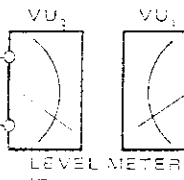
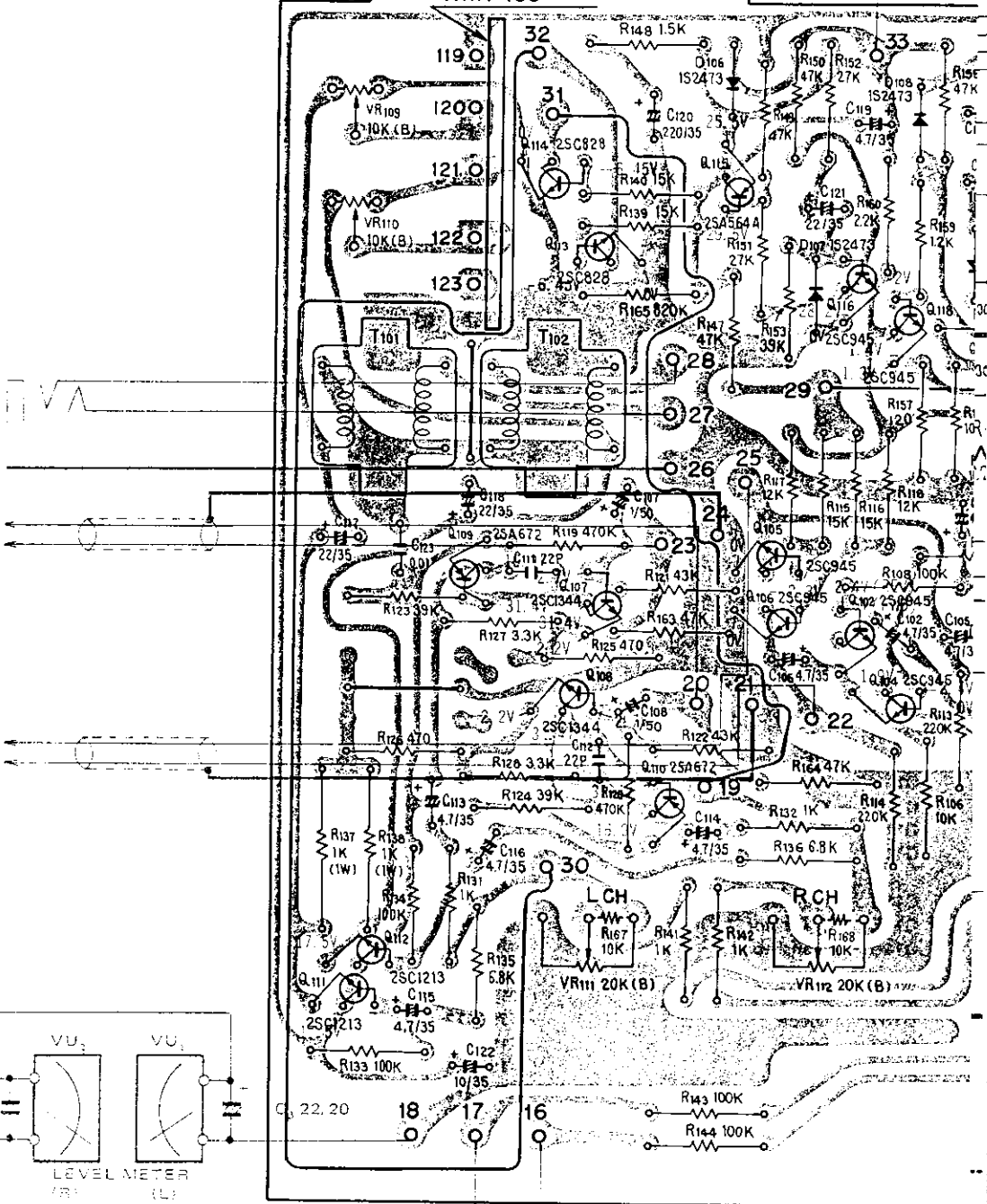
RWX-155, No.3

RWX-155, No.2

RWX-155, No.1

RWF-065, No.3

RWF-065, No.2



4

5

6

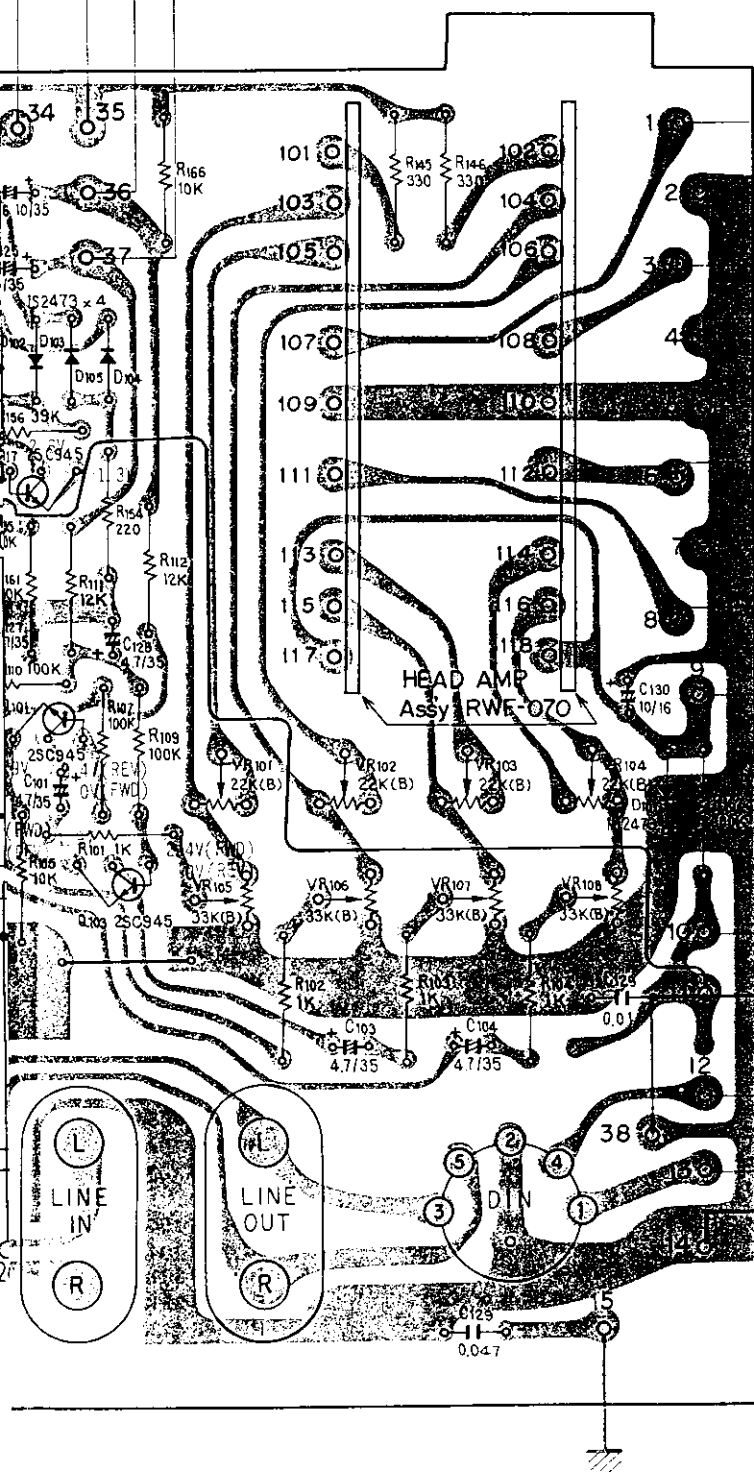
A

B

C

D

- RWR-053, No.9
- RWX-152, No.21
- RWS-058, No.57



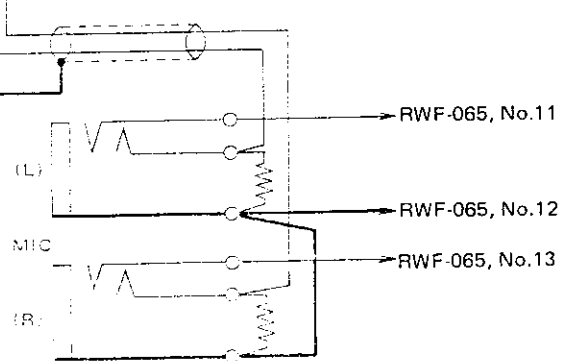
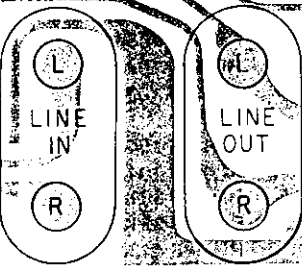
HEAD AMP
Assy RWF-070

- (L)
- PLAYBACK HEAD(FWD)
- (R)
- (R)
- PLAYBACK HEAD(REV)
- (L)

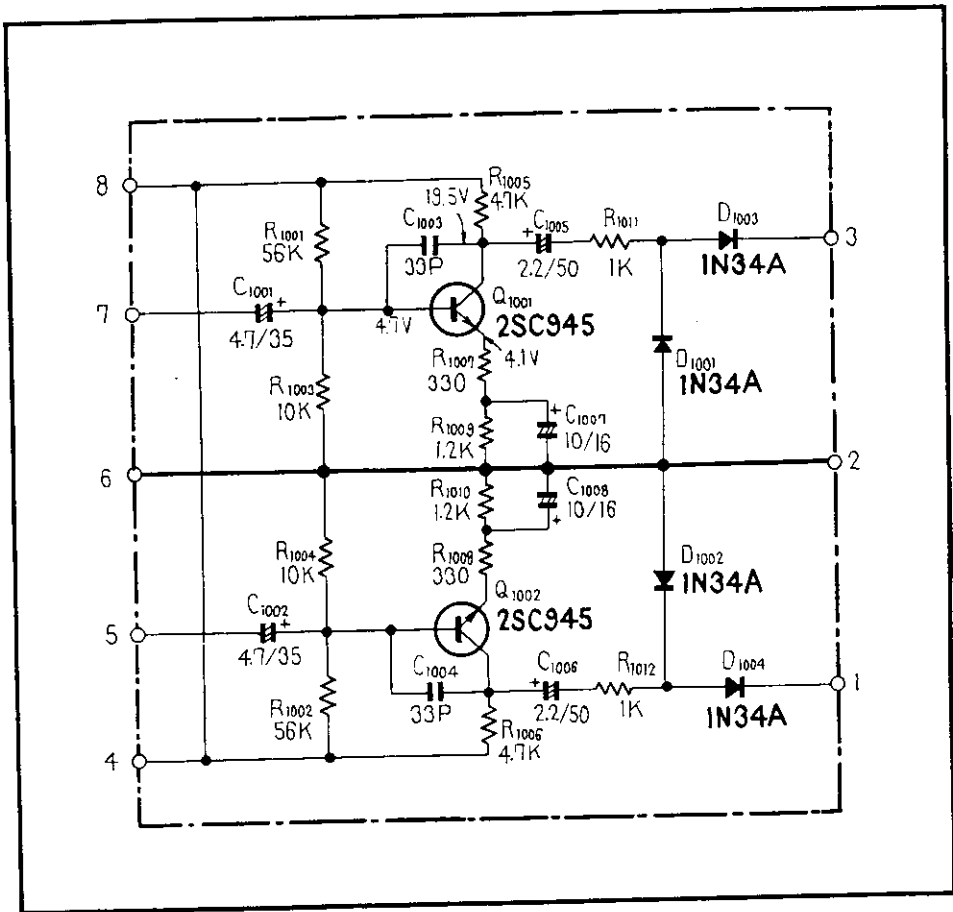
→ RWS-058, No.18

→ RWR-053, No.32

→ RWR-053, No.5



13.6 METER AMPLIFIER ASSEMBLY (RWX-155)



RWF-069, No.18

C₃ 22/10

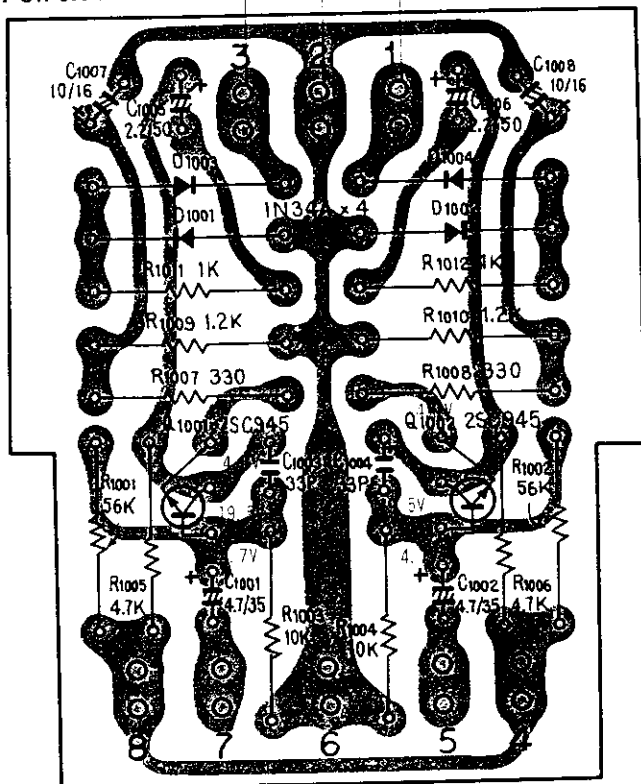
(L) VU₁

LEVEL METER

(R) VU₂

C₄ 22/10

Foil side



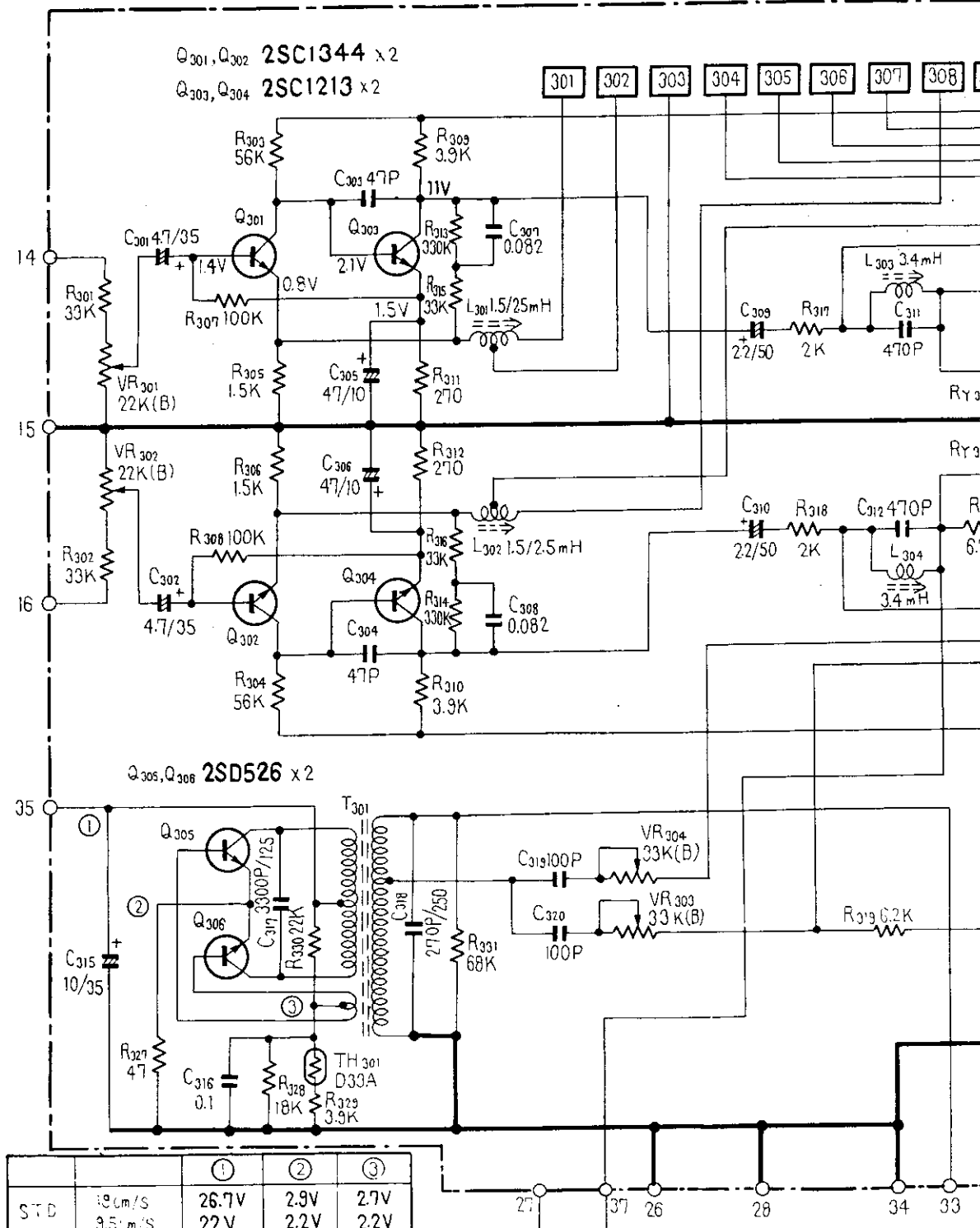
13.7 POWER AND OSCILLATION ASSEMBLY (RWR-053)

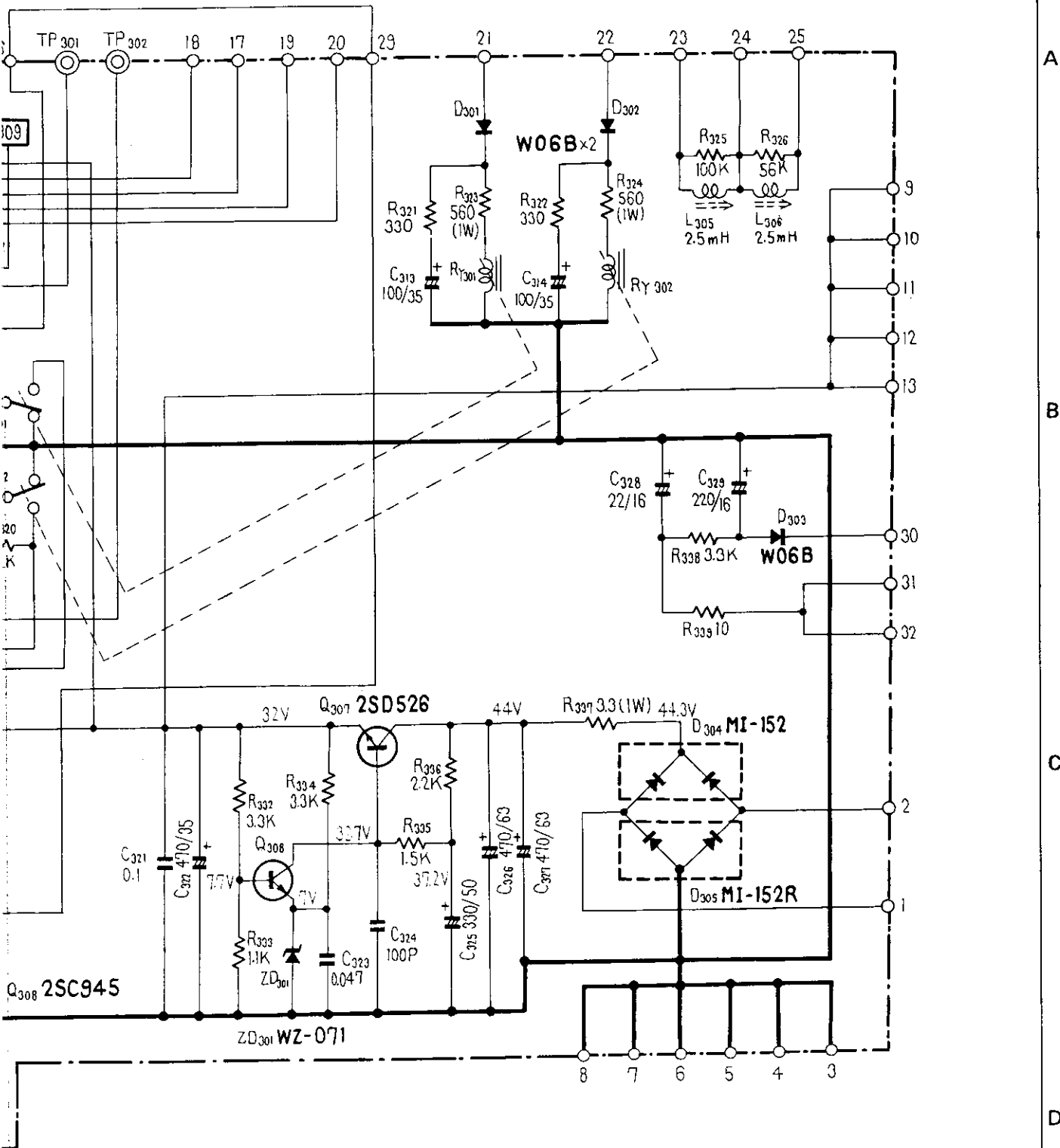
A

B

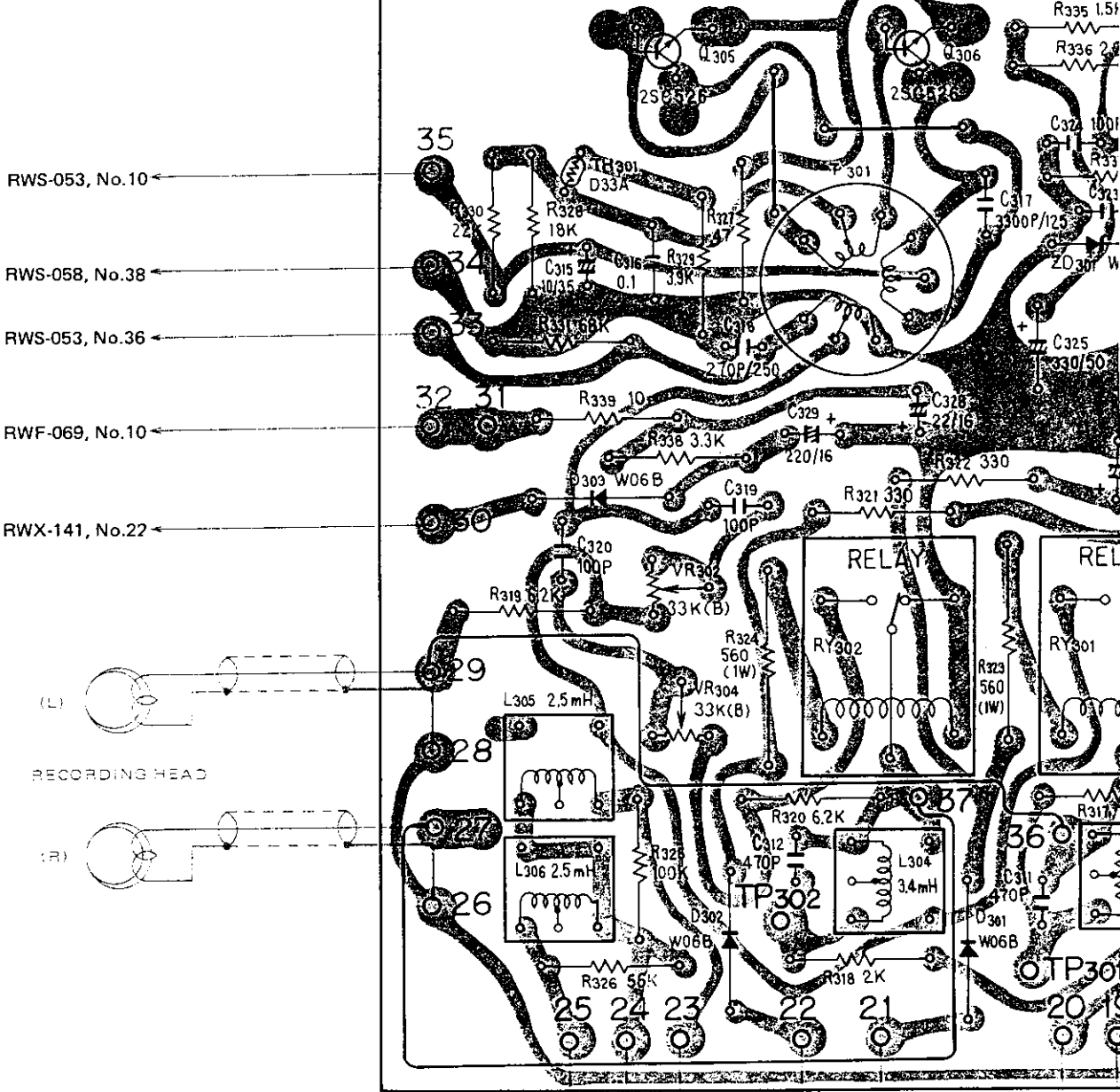
C

D





Foil side

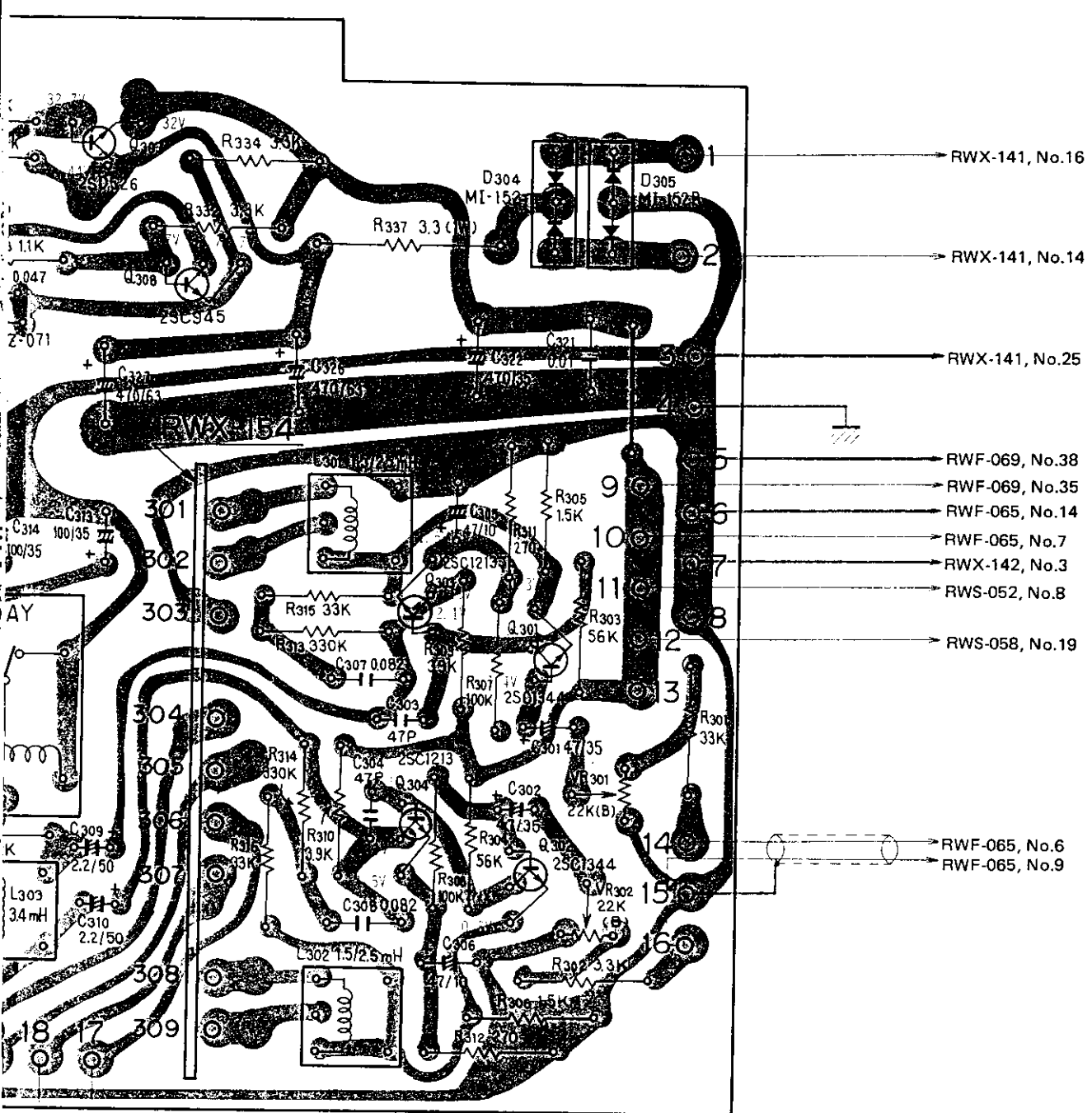


RWS-058, No.29 ←

RWS-058, No.31 ←

RWS-058, No.37 ←

RWS-058, No.25 ←



→ RWX-141, No.16

→ RWX-141, No.14

→ RWX-141, No.25

→ RWF-069, No.38

→ RWF-069, No.35

→ RWF-065, No.14

→ RWF-065, No.7

→ RWX-142, No.3

→ RWS-052, No.8

→ RWS-058, No.19

→ RWF-065, No.6

→ RWF-065, No.9

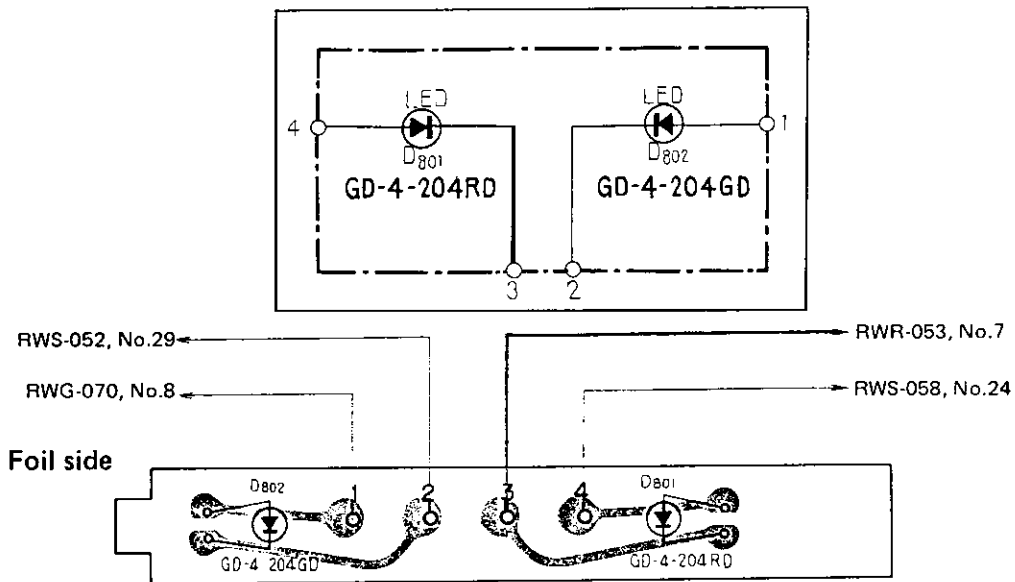
→ RWS-058, No.20

→ RWS-058, No.21

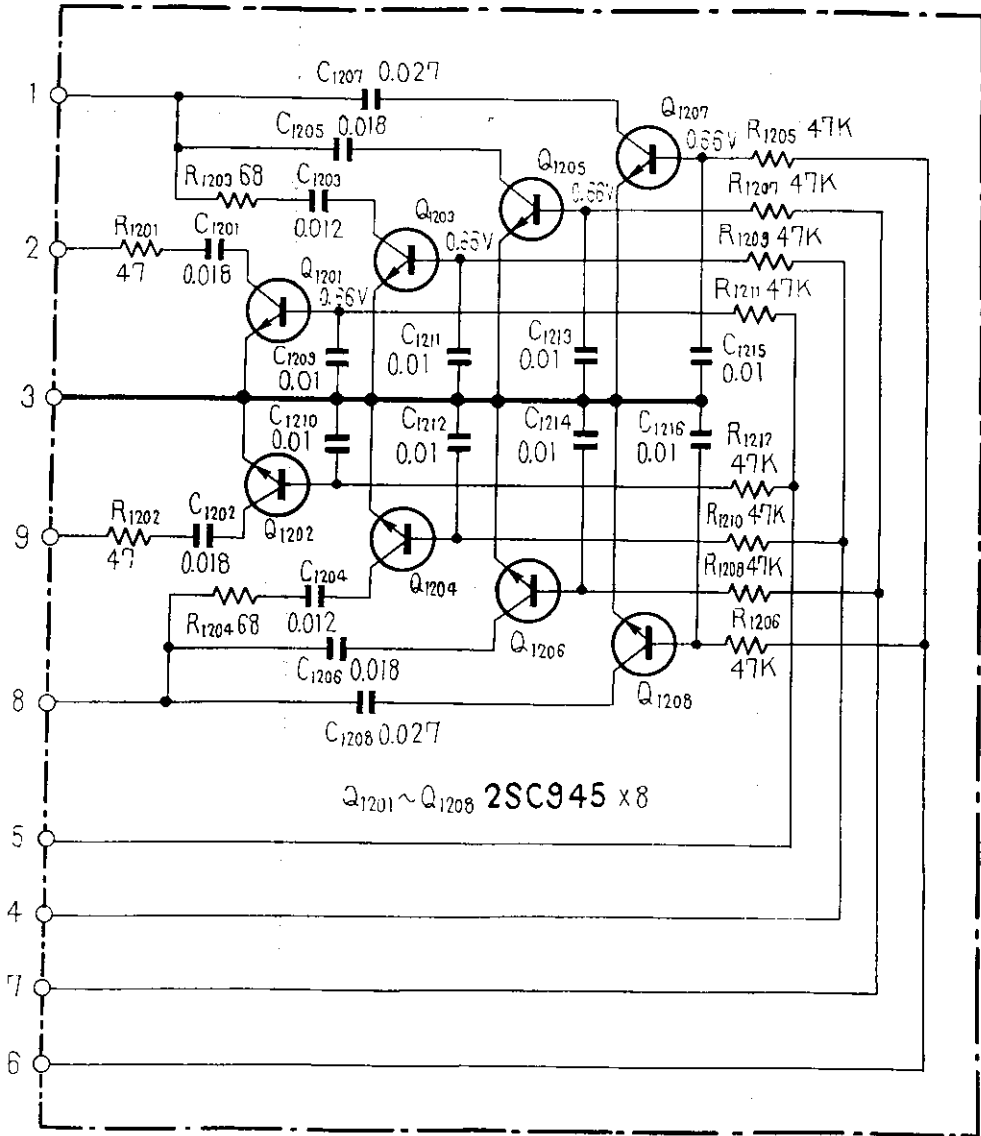
→ RWS-058, No.23

→ RWS-058, No.22

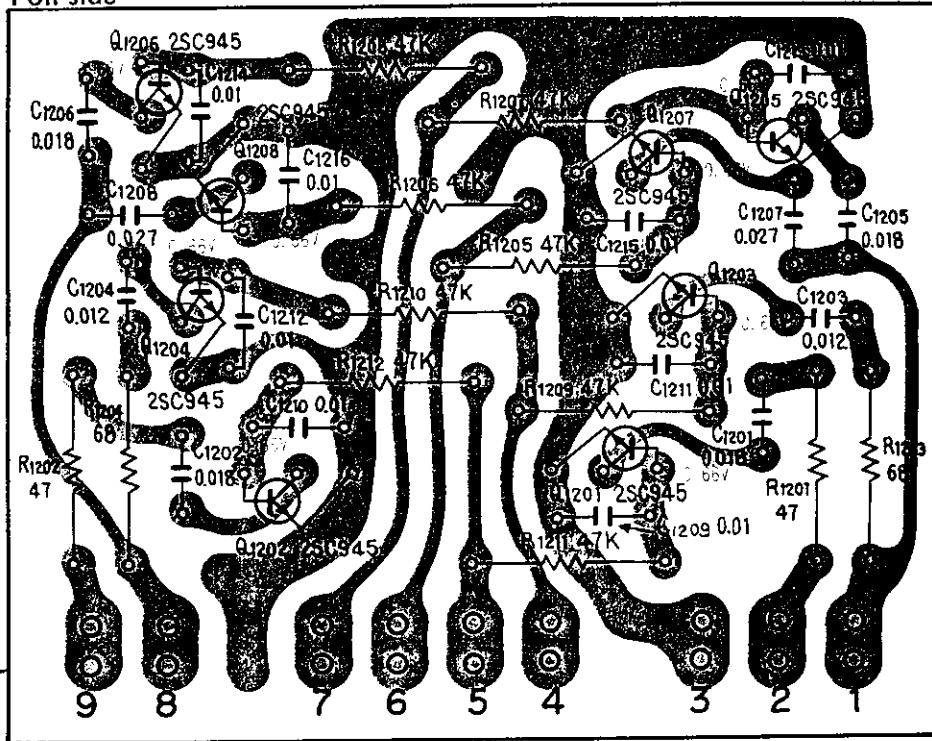
13.8 INDICATOR ASSEMBLY (RWX-142)



13.10 EQUALIZER AMPLIFIER ASSEMBLY (RWX-154)

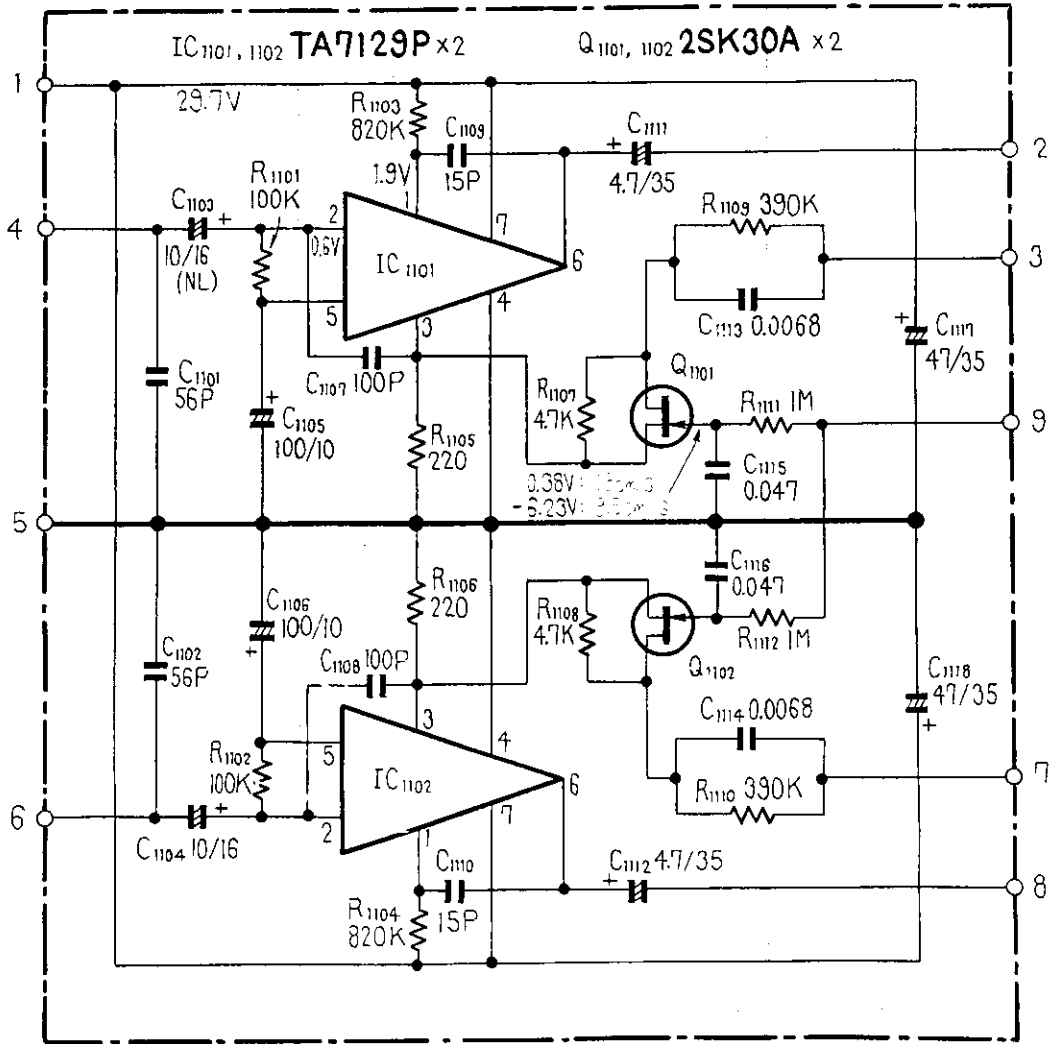


Foil side



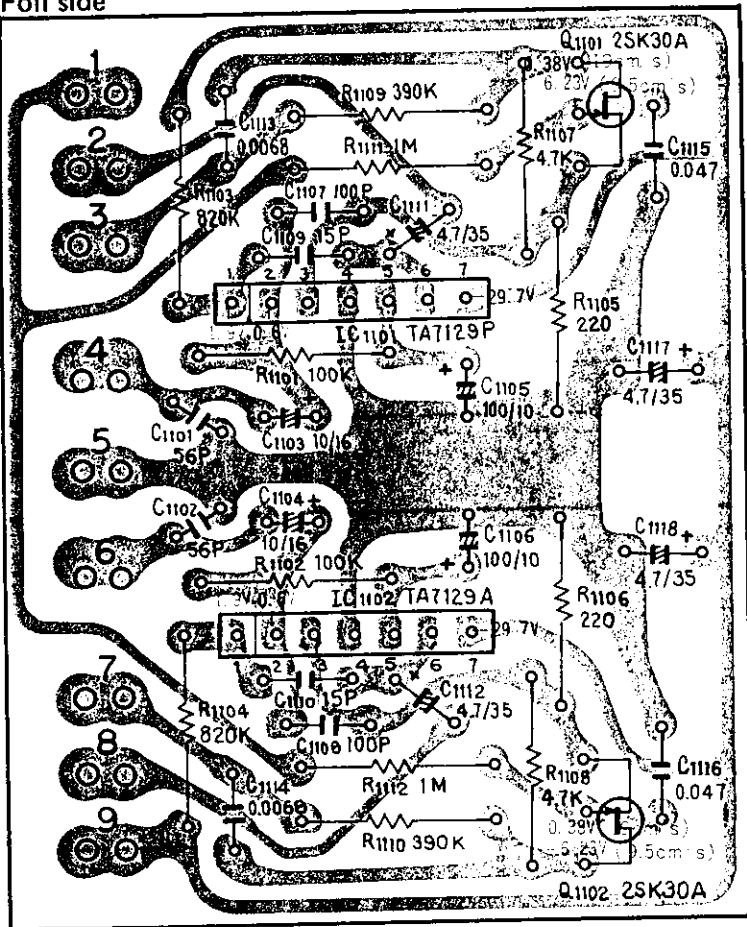
ON POWER AND OSCILLATION ASSEMBLY (RWR-053)

13.11 HEAD AMPLIFIER ASSEMBLY (RWF-070)



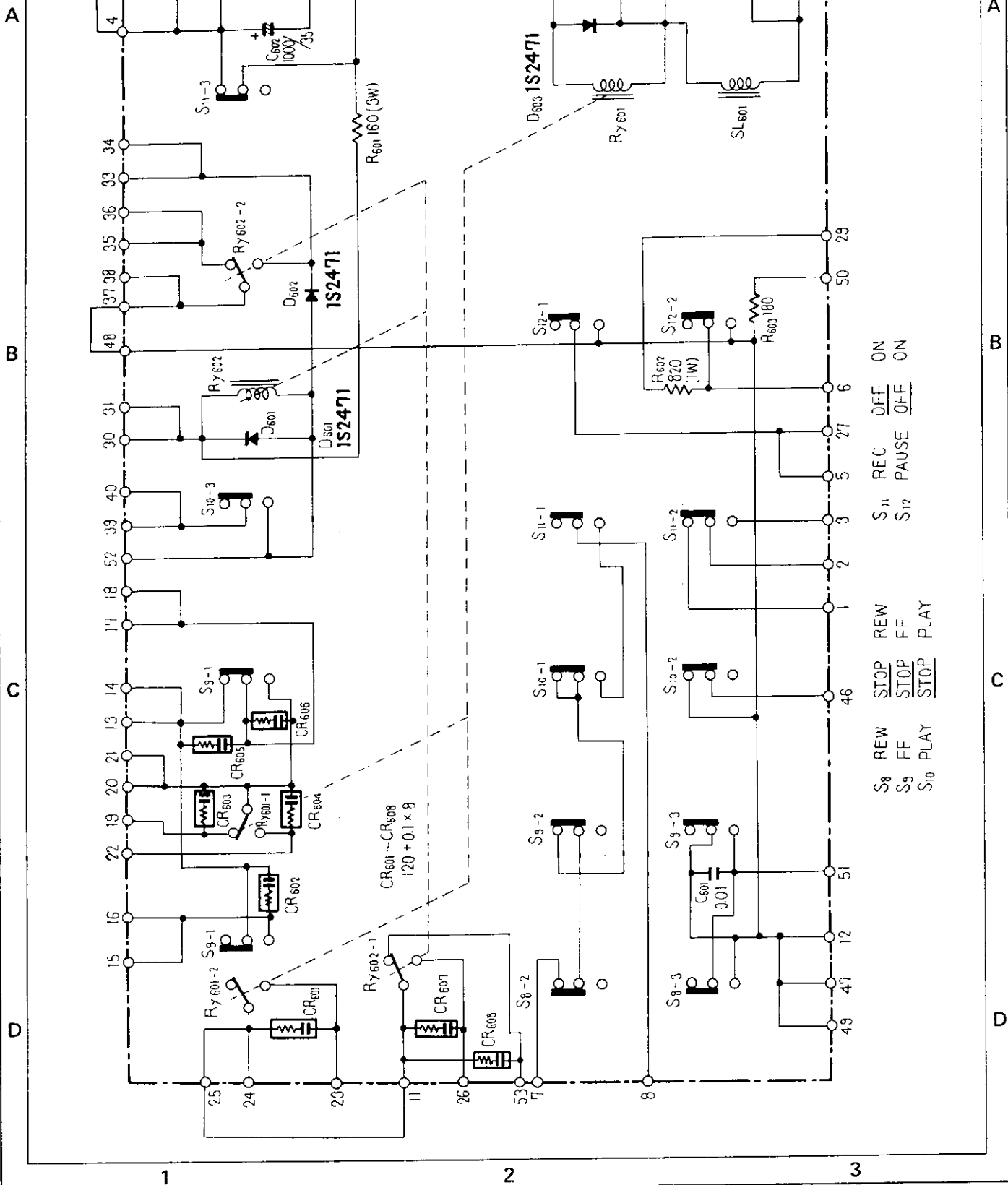
Foil side

ON PLAYBACK AMPLIFIER
ASSEMBLY (RWF-069)

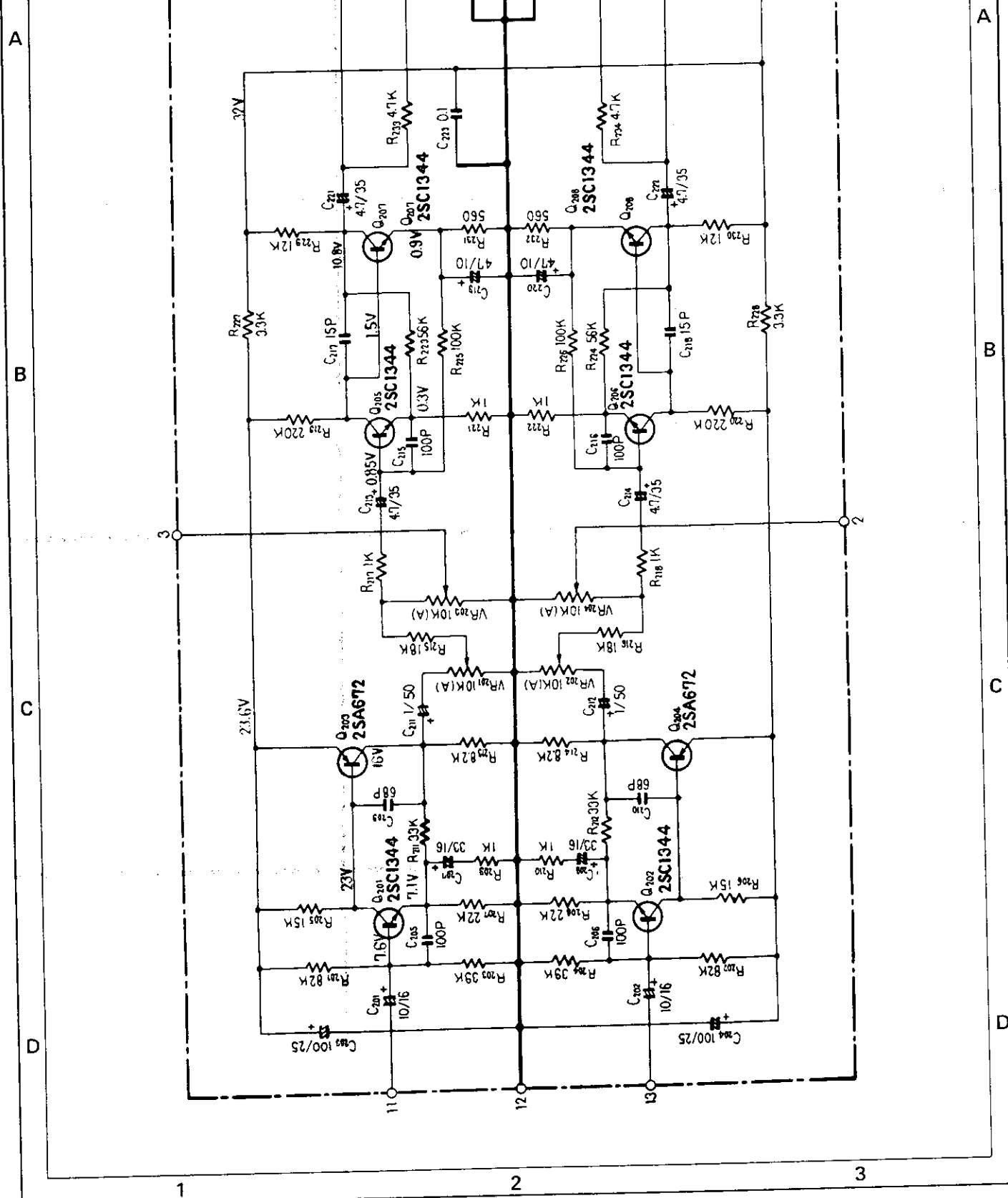


RESISTORS

13.14 FUNCTION SWITCH ASSEMBLY (RWS-052)



13.15 MIC AMPLIFIER ASSEMBLY (RWF-065)



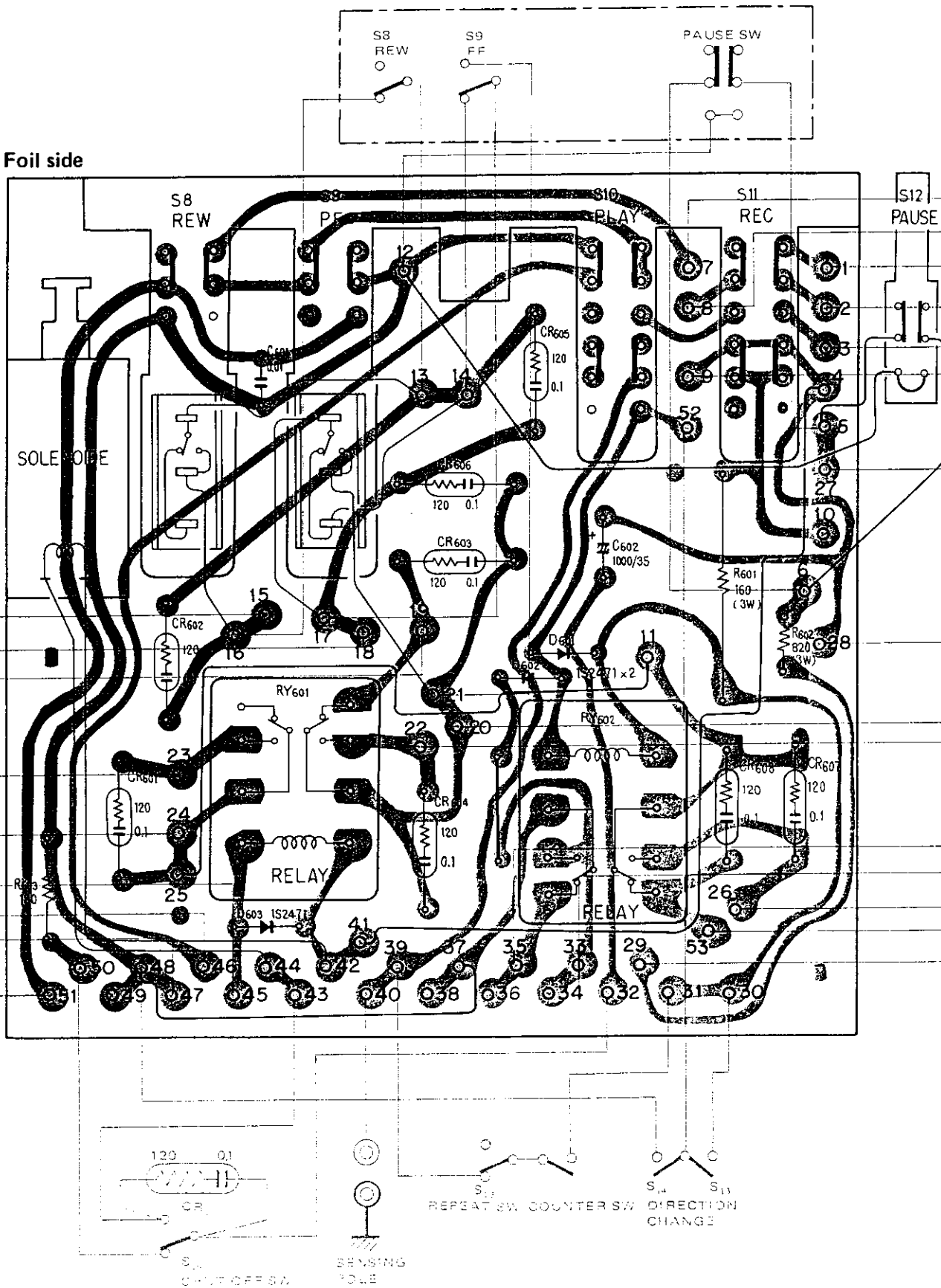
Foil side

- RWX-151, No.2
- RWS-058, No.60
- RWX-151, No.18

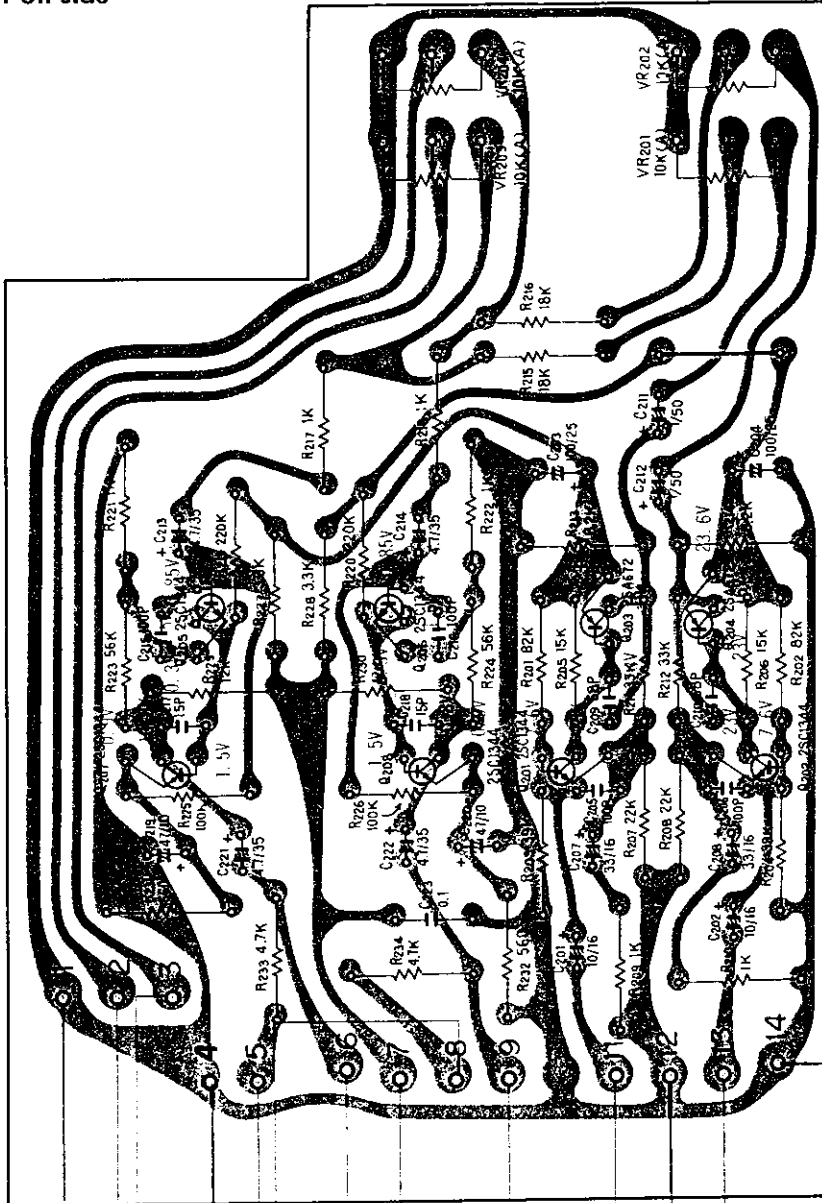
- RWS-058, No.53

- RWX-152, No.16
- RWG-070, No.17
- RWG-070, No.9
- RWG-070, No.2

- RWX-151, No.21



Foil side



RWR-053, No.6

RWF-069, No.12

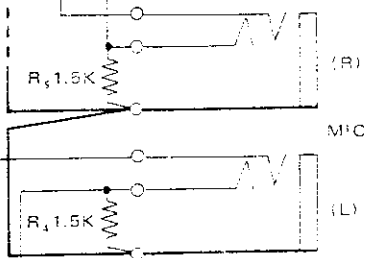
(R)

MIC

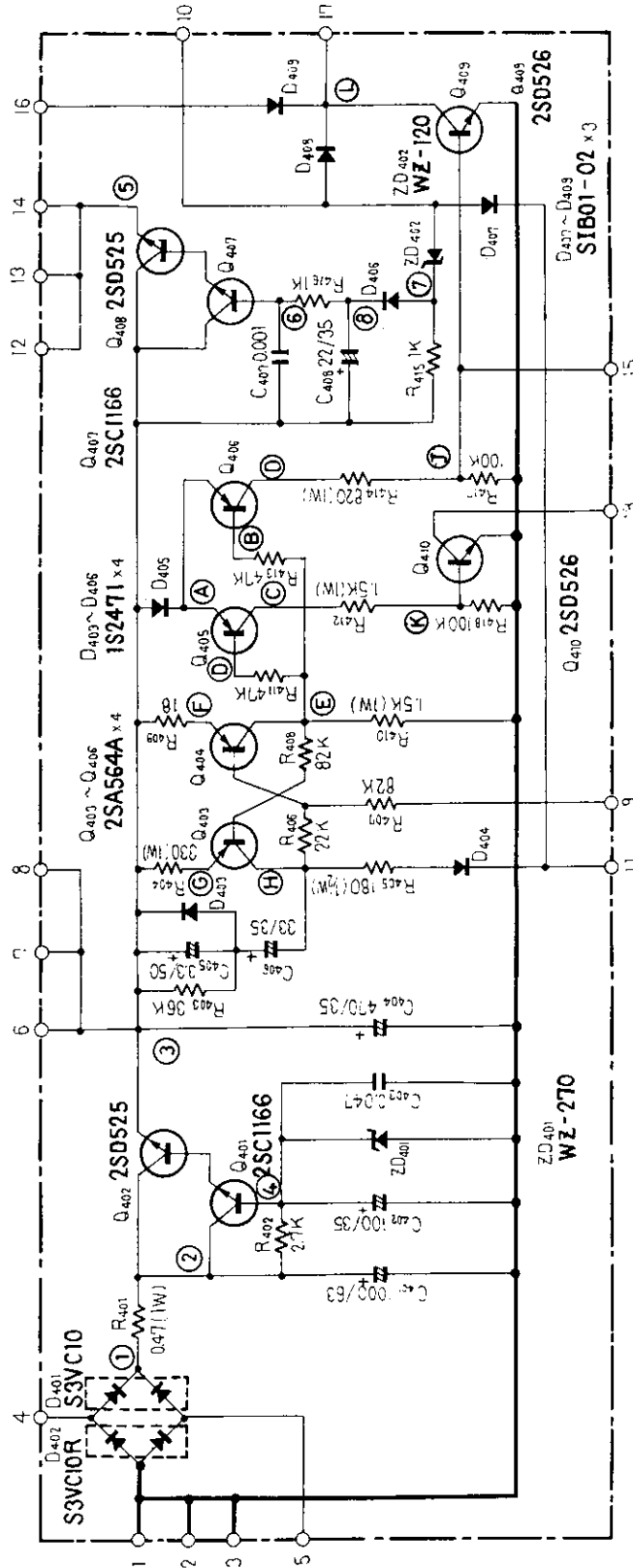
(L)

RWF-069, No.13

- RWF-069, No.16
- RWF-069, No.17
- RWS-058, No.12
- RWS-058, No.17
- RWR-053, No.14
- RWR-053, No.10
- RWR-053, No.16



13.16 CONTROL ASSEMBLY (RWG-070)



CONTROL

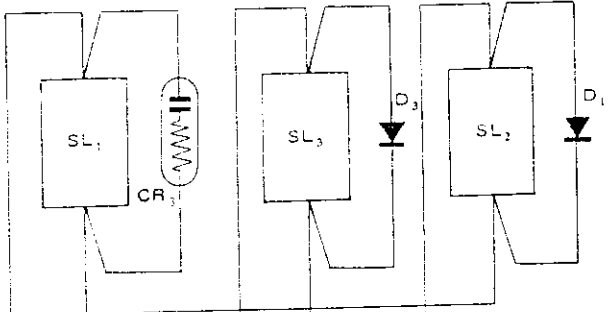
CONTROL	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)
STOP	25.5V	25.2V	0	0	25.4V	25.5V	25.8V	24.7V	0	0	0	25.5V
PLAY	24.4V	23.6V	24.3V	24.3V	1.8V	25.2V	25.2V	25.2V	0.8V	0.7V	0.7V	0.3V
PLAY/REC	24.4V	23.6V	24.3V	24.3V	1.8V	25.2V	25.2V	25.2V	0.8V	0.7V	0.7V	0.3V
FAST	25.3V	25.1V	0	0	25.2V	25.3V	25.6V	0.9V	0	0	0	25.5V
PLAY/PAUSE	24.8V	24.1V	24.7V	24.7V	1.8V	25.7V	25.6V	25.1V	0	0.7V	0.7V	25.5V
REV												

POWER SUPPLY

POWER SUPPLY	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
STOP	41V	40.7V	25.6V	27V	24.9V	25.5V	25.8V	25.5V
PLAY	33.6V	33V	25.2V	26.6V	11V	12.4V	12.9V	12.4V
FAST	38V	37.8V	25.4V	26.8V	11V	12.4V	12.7V	12.4V

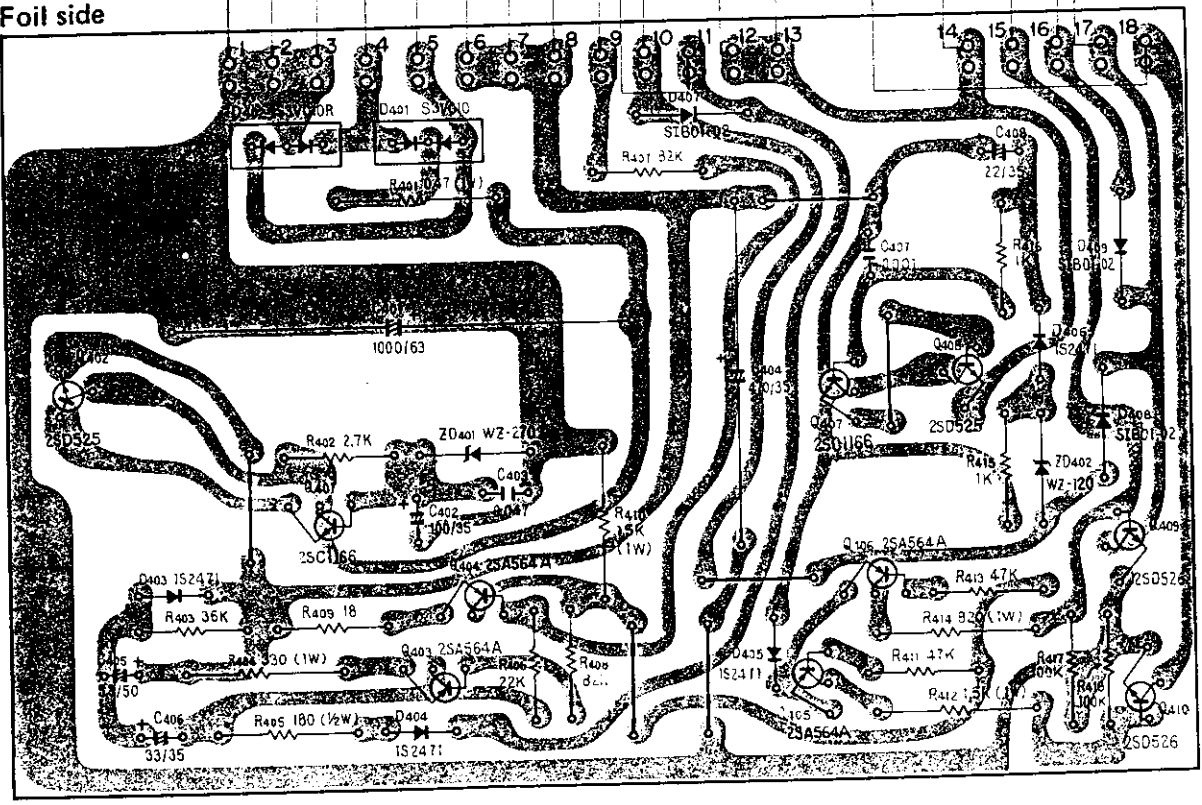
- RWX-151, No.23 ←
- RWS-052, No.46 ←
- RWX-142, No.1 ←
- RWS-052, No.9 ←
- RWS-058, No.6 ←
- RWS-058, No.43 ←
- RWS-058, No.51 ←
- RWS-052, No.47 ←
- RWS-058, No.7 ←

SL₁: Brake Solenoid SL₃: Pausa Solenoid SL₂: Pinch Solenoid

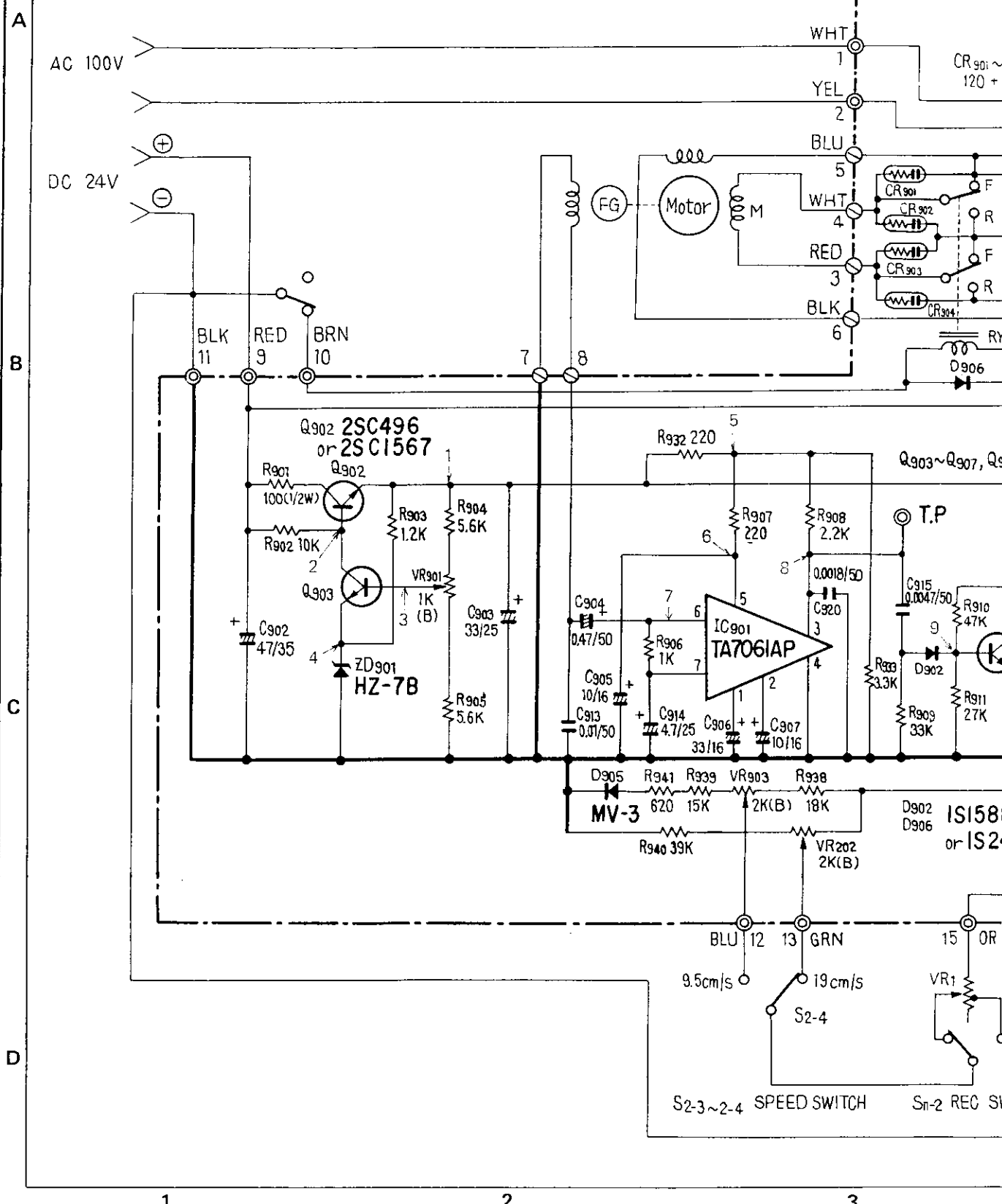


- RWS-052, No.27
- RWS-052, No.45

Foil side



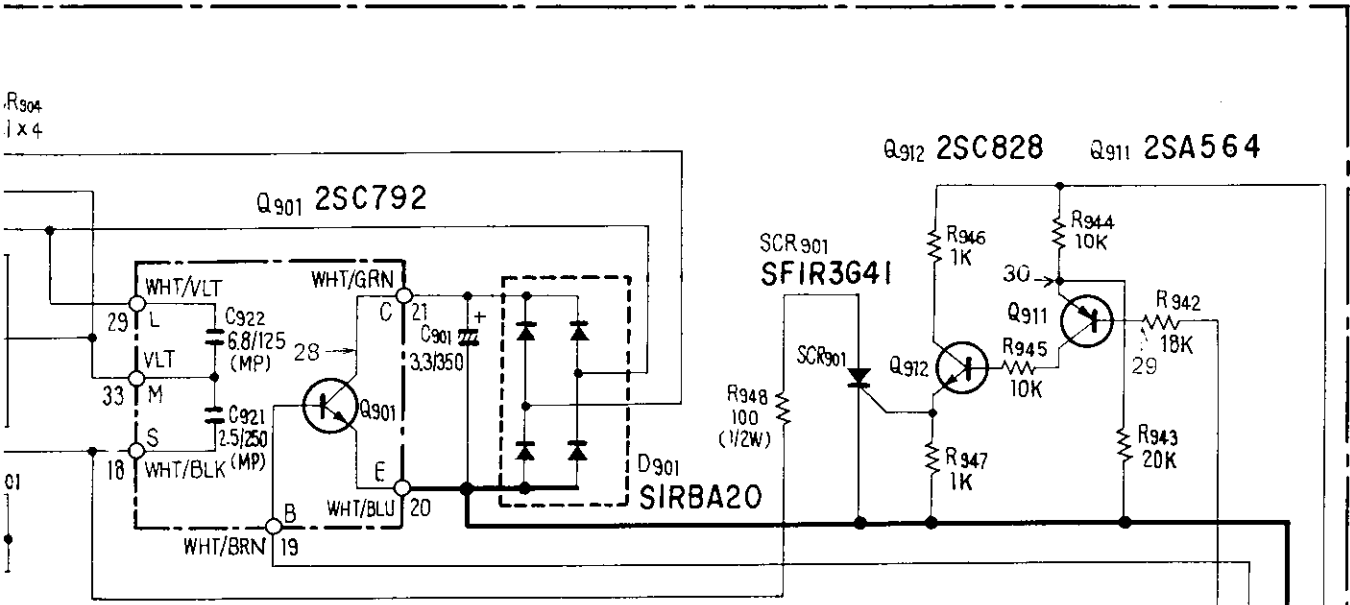
13.17 SERVO AMPLIFIER ASSEMBLY (RWG-076)



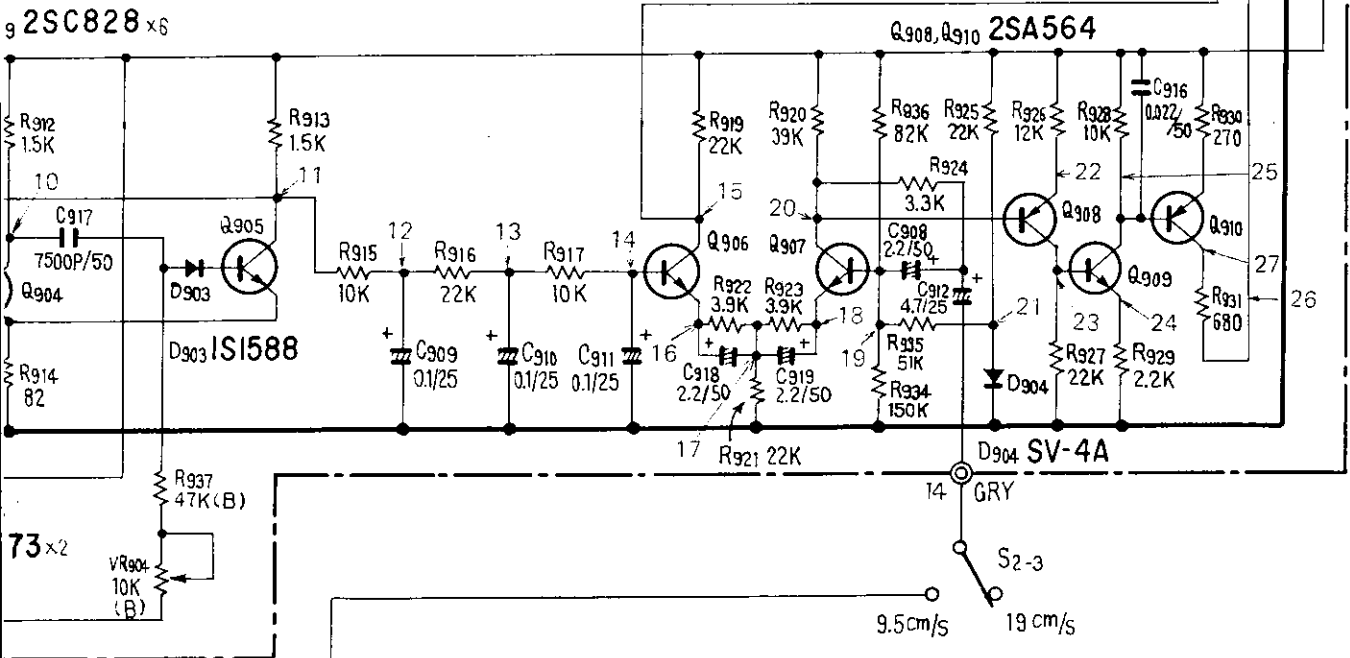
NOTE:

The voltage at each measure points are indicated on page 99.

R904
1x4



9 2SC828 x6



PITCH CONTROL

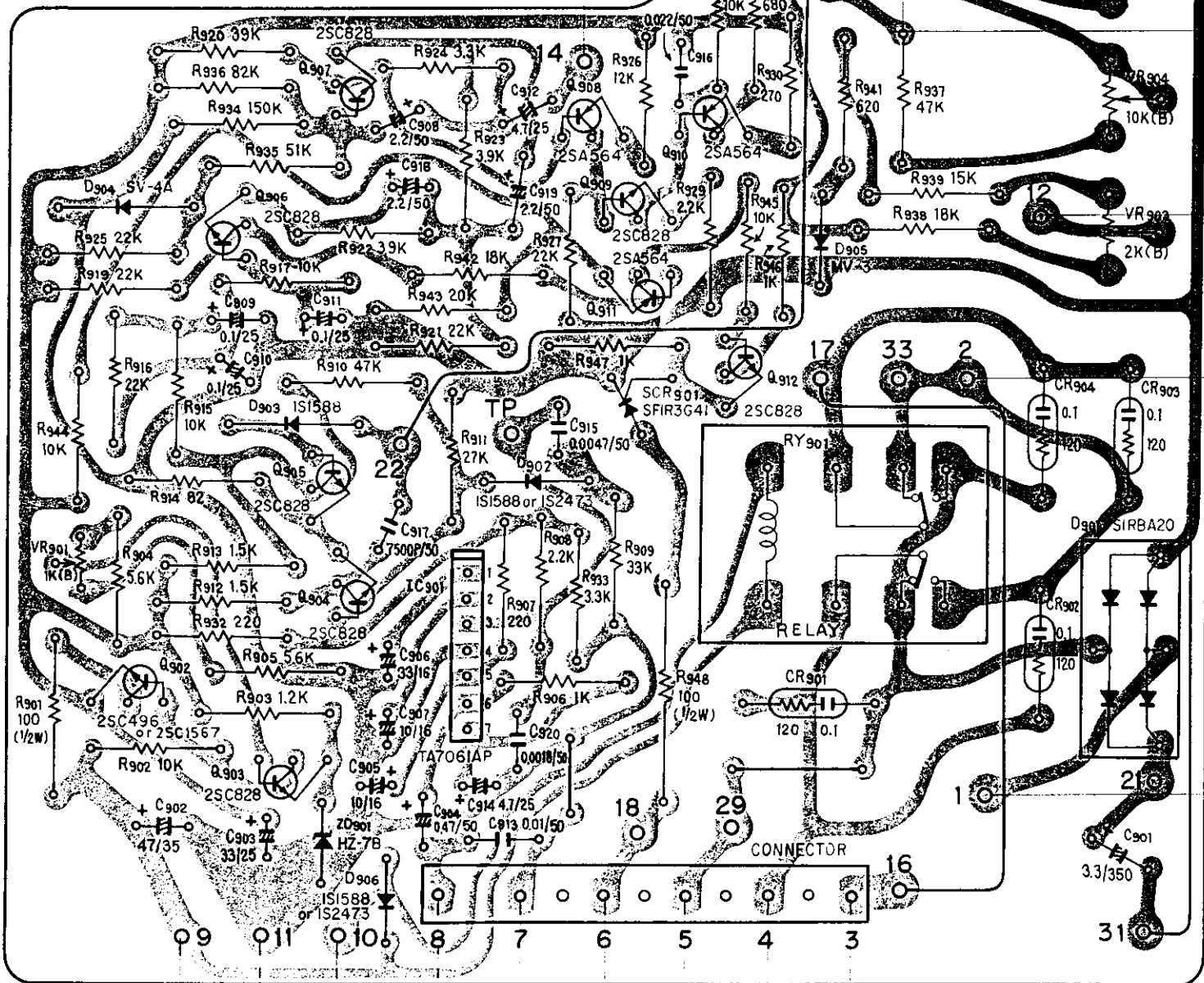
10KΩ (B)

REC

PITCH

RWS-058, No.0

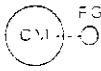
Foil side



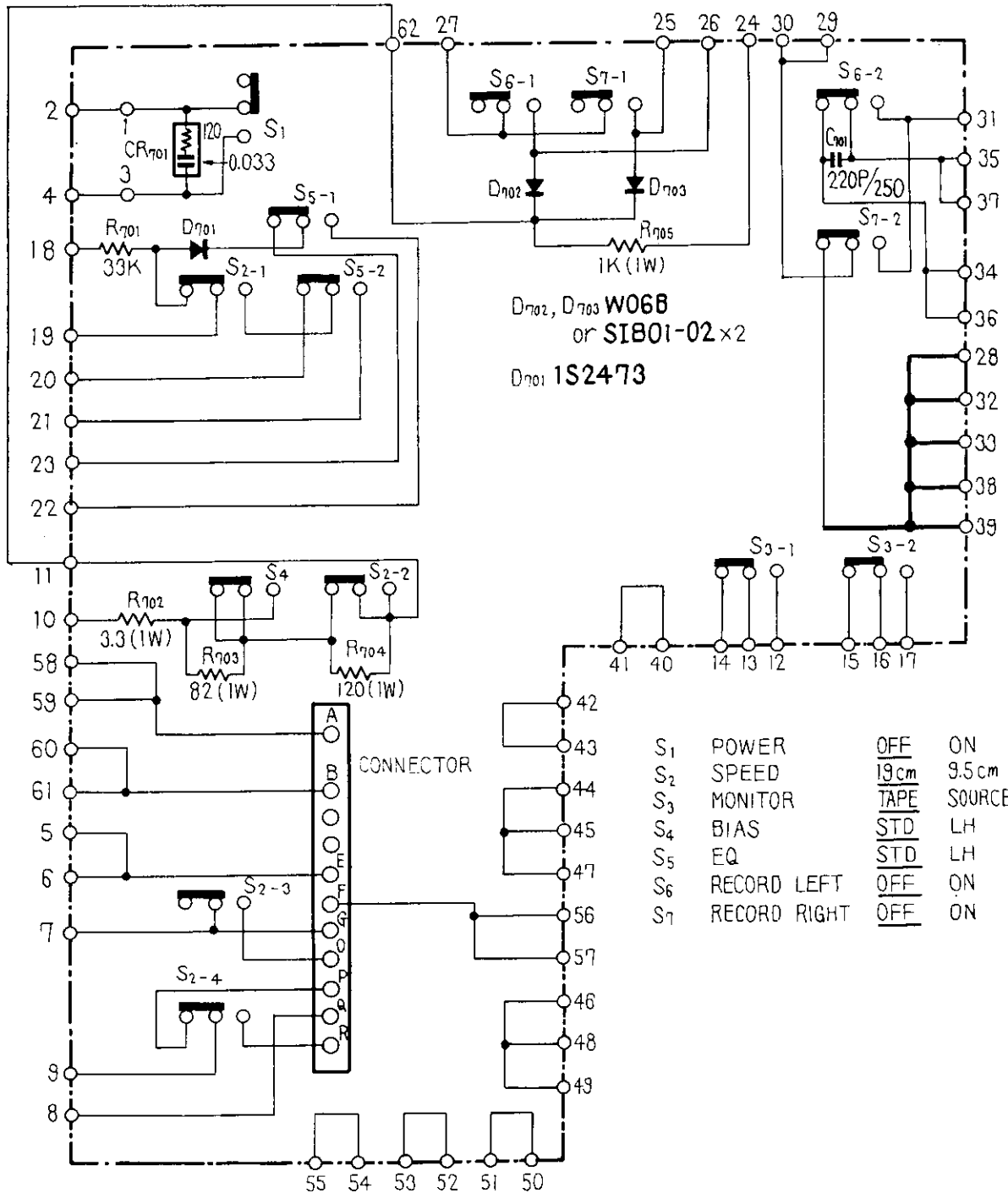
RWS-058, No.E

RWS-058, No.G

RWS-058, No.F



13.18 SWITCH ASSEMBLY (RWS-058 KC type)
(RWS-059 KU type)



D702, D703 W06B
or SIB01-02 x 2
D701 1S2473

S1	POWER	<u>OFF</u>	ON
S2	SPEED	<u>19cm</u>	9.5cm
S3	MONITOR	<u>TAPE</u>	SOURCE
S4	BIAS	<u>STD</u>	LH
S5	EQ	<u>STD</u>	LH
S6	RECORD LEFT	<u>OFF</u>	ON
S7	RECORD RIGHT	<u>OFF</u>	ON

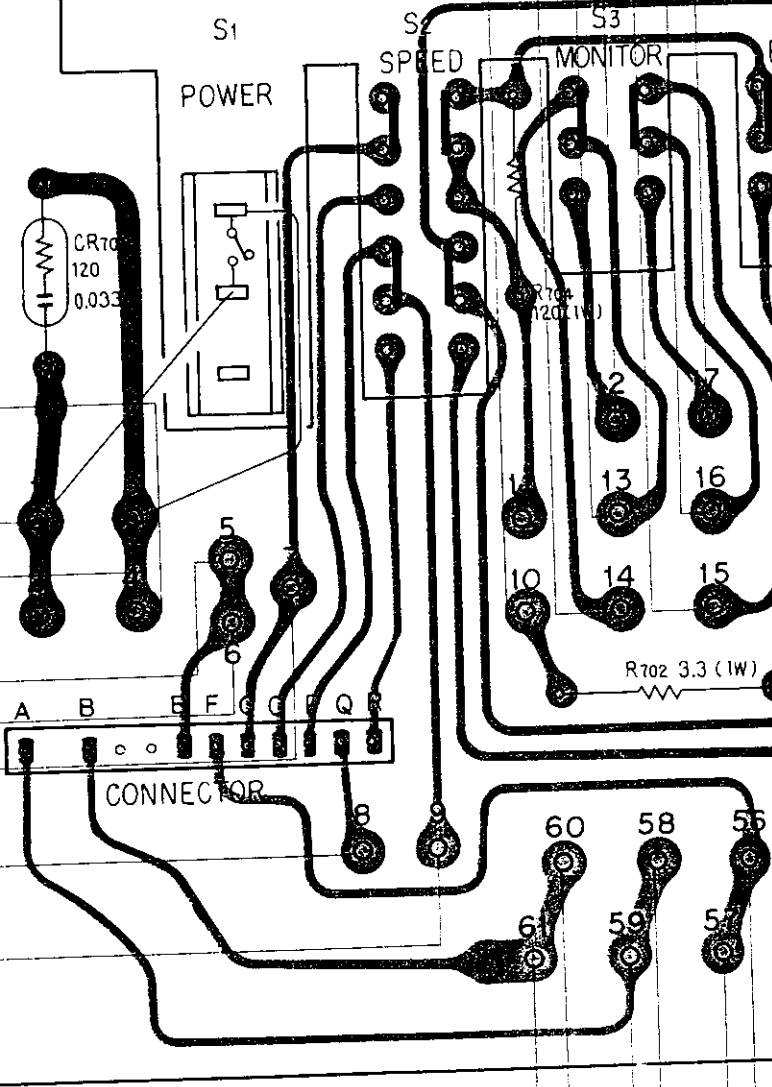
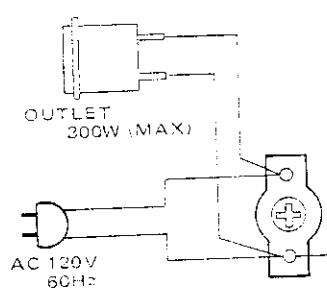
1

2

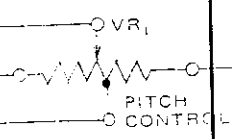
3

- RWF-065, No.8
- RWF-069, No.20
- RWF-069, No.22
- RWF-065, No.5
- RWF-069, No.23
- RWF-069, No.25
- RWR-053, No.35

Foil side



- RWF-069, No.33
- RWG-070, No.6
- RWG-070, No.3
- RWX-152, No.42
- RWX-152, No.2
- RWX-152, No.44
- RWX-152, No.1



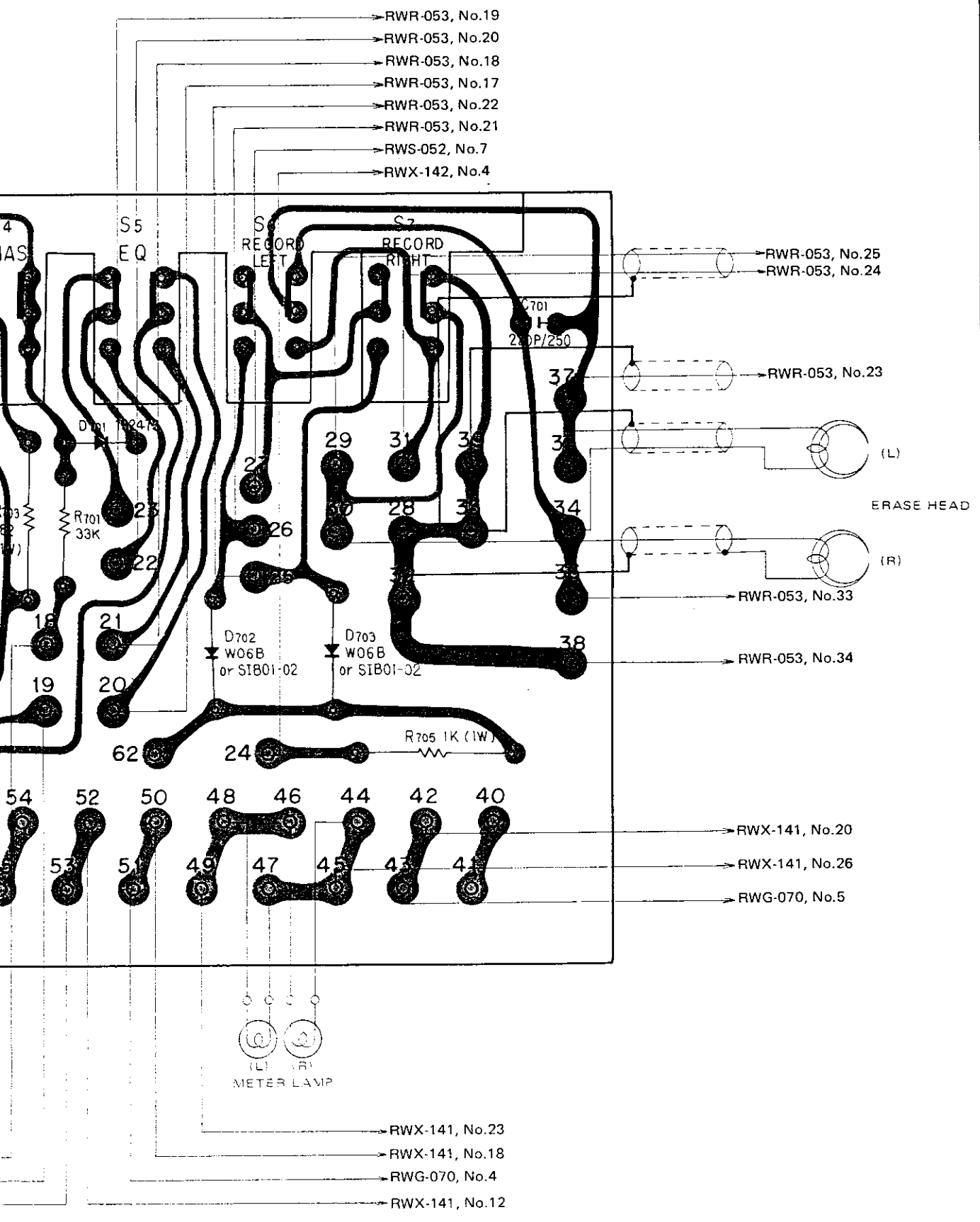
- RWX-141, No.9
- RWS-052, No.18
- RWX-141, No.7
- RWX-152, No.12
- RWF-069, No.37
- RWX-152, No.35
- RWF-069, No.9
- RWR-053, No.12
- RWS-052, No.23

1

2

3

D



A

B

C

D