

PANASONIC®

Service Manual

3 HEAD PROFESSIONAL SOLID STATE STEREO TAPE DECK MODEL RS-768US



SPECIFICATIONS

Power Source:	AC: 117 Volts 60 Hz	Rewind Time:	Approx. 120 seconds with 7" tape
Power Consumption:	Approx. 35 W	Frequency Response:	20~27,000 Hz at 7-1/2 ips 20~17,000 Hz at 3-3/4 ips 20~10,000 Hz at 1-7/8 ips
Operation System:	Lever system	Wow & Flutter:	Less than 0.09% WRMS at 7-1/2 ips Less than 0.15% WRMS at 3-3/4 ips Less than 0.25% WRMS at 1-7/8 ips
Tape Speeds:	3 speeds, 7-1/2, 3-3/4 and 1-7/8 ips	Inputs:	"2 MIC" input "2 AUX" input
Reel Size:	max. 7"	Outputs:	"2 LINE" output "STEREO HEADPHONE" output
Tape Counter:	Push reset 4 digit	Dimensions:	Approx. 18-1/2" (W) × 13-3/4" (H) (× 8"D)
Recording System:	AC bias 85 KHz	Weight:	21 lbs
Erasing System:	AC erase		
Program Time:	4 hours stereo at 1-7/8 ips with 7" tape 8 hours monaural at 1-7/8 ips with 7" tape		
Track System:	4 track stereo		
Fast Forward Time:	Approx. 150 seconds with 7" tape		

MATSUSHITA ELECTRIC CORP. OF AMERICA

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CANADA/MATSUSHITA ELECTRIC OF CANADA LTD., 1054 Kipling Ave. North, Rexdale, Ont.

LOCATION OF PARTS

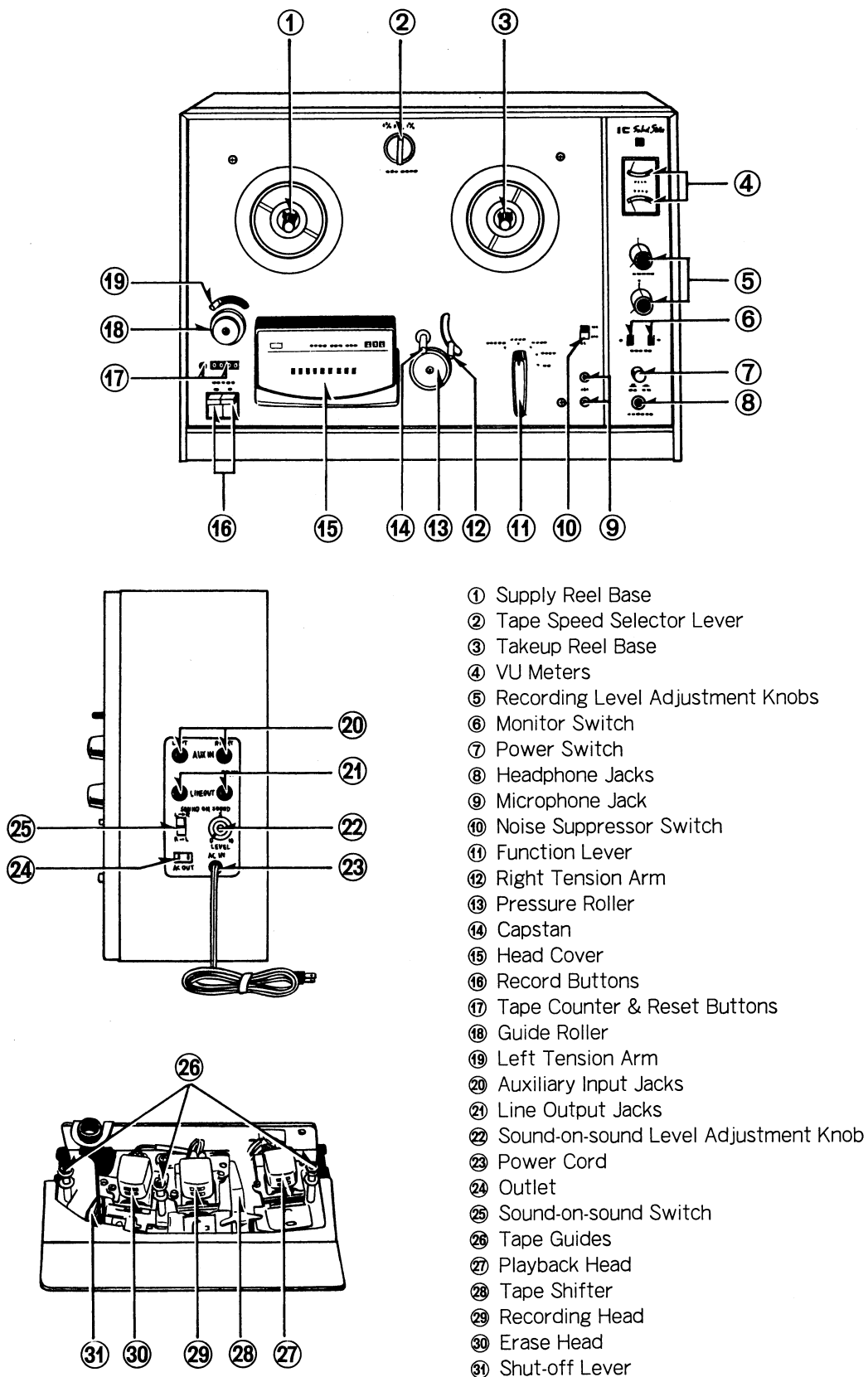


Fig. 1

BLOCK DIAGRAM OF ELECTRICAL CIRCUITS

RECORDING CIRCUIT (Left)

PLAYBACK CIRCUIT (Left)

RECORDING CIRCUIT (Right)

PLAYBACK CIRCUIT (Right)

AC POWER CIRCUIT

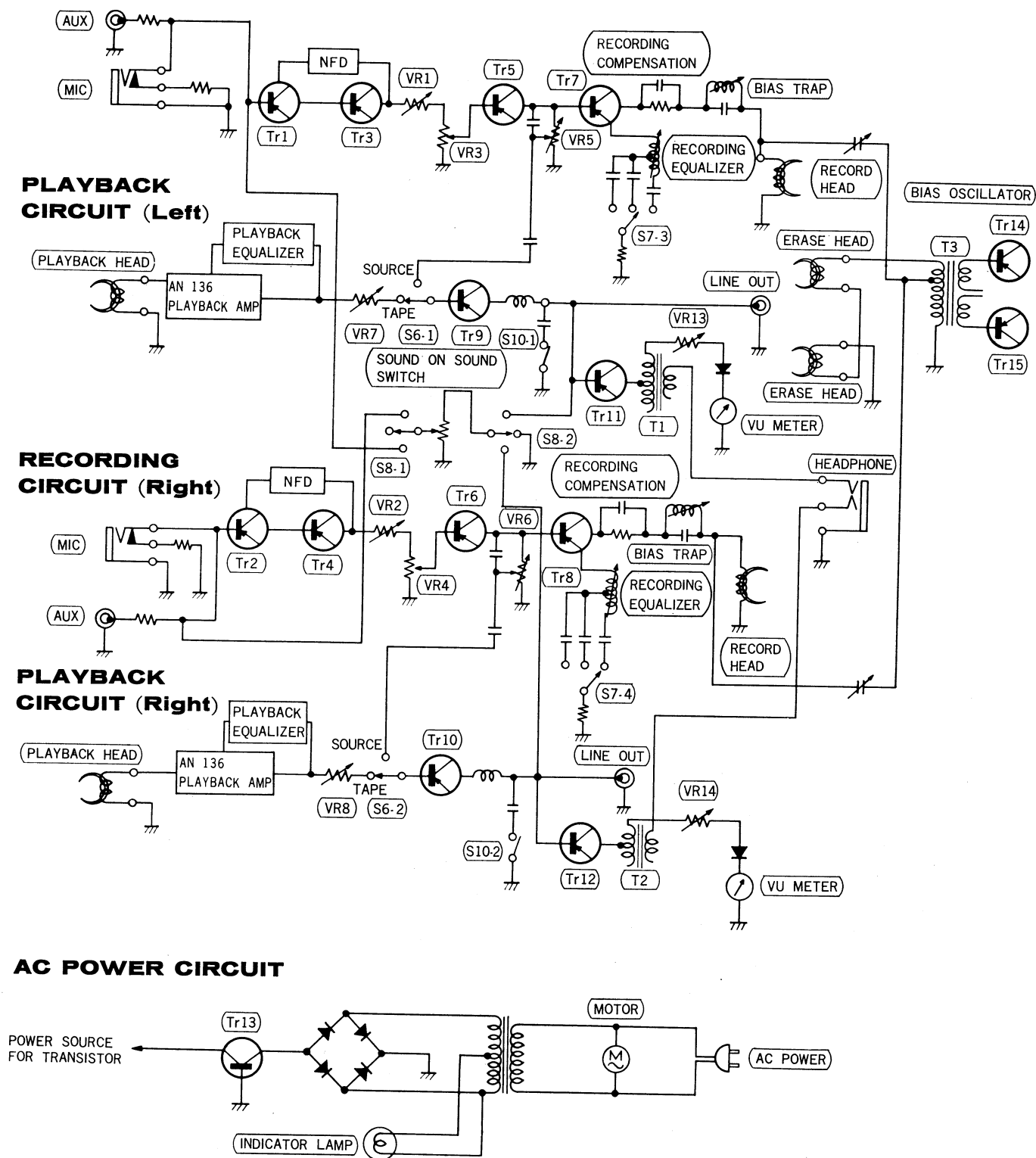
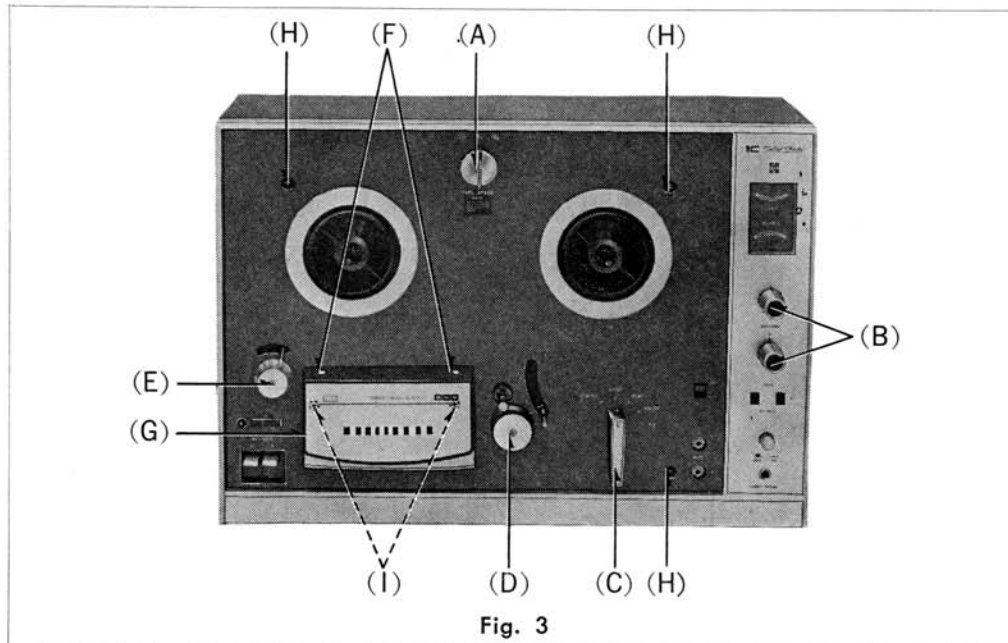


Fig. 2

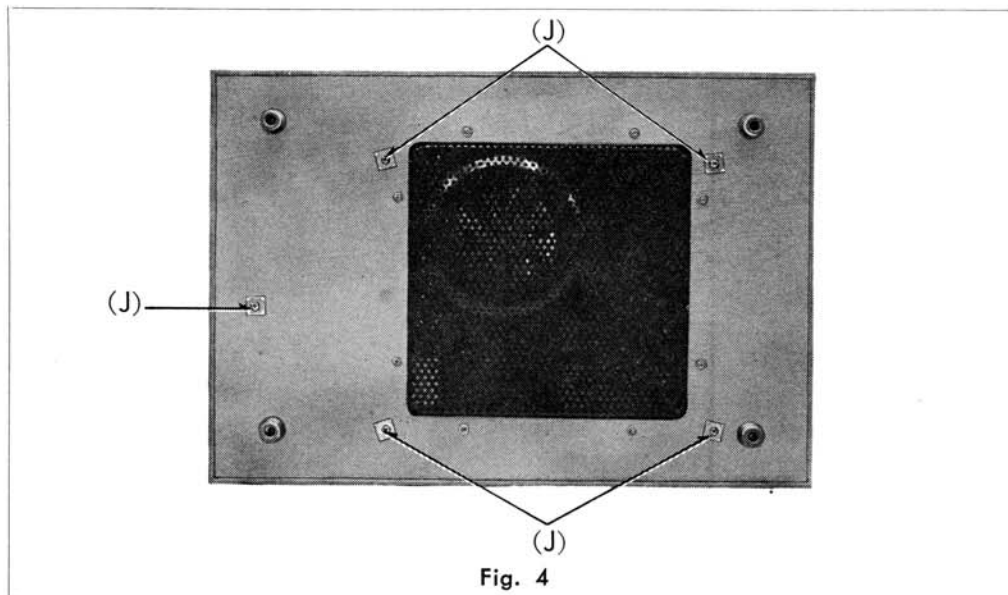
DISASSEMBLY INSTRUCTIONS

HOW TO REMOVE PANEL



1. Remove the Tape Speed Selector Lever (A) and Recording Level Adjustment Knobs (B).
2. Loosen and remove the Function Lever (C), Pressure Roller (D) and Guide Roller (E), respectively.
3. Remove 2 Head Cover Holding Screws (F) and then remove the Head Cover (G).
4. Remove 3 Panel Holding Screws (H) and 2 Screws (I) under the Head Cover. (The Amplifier Part is attached to the Panel.)

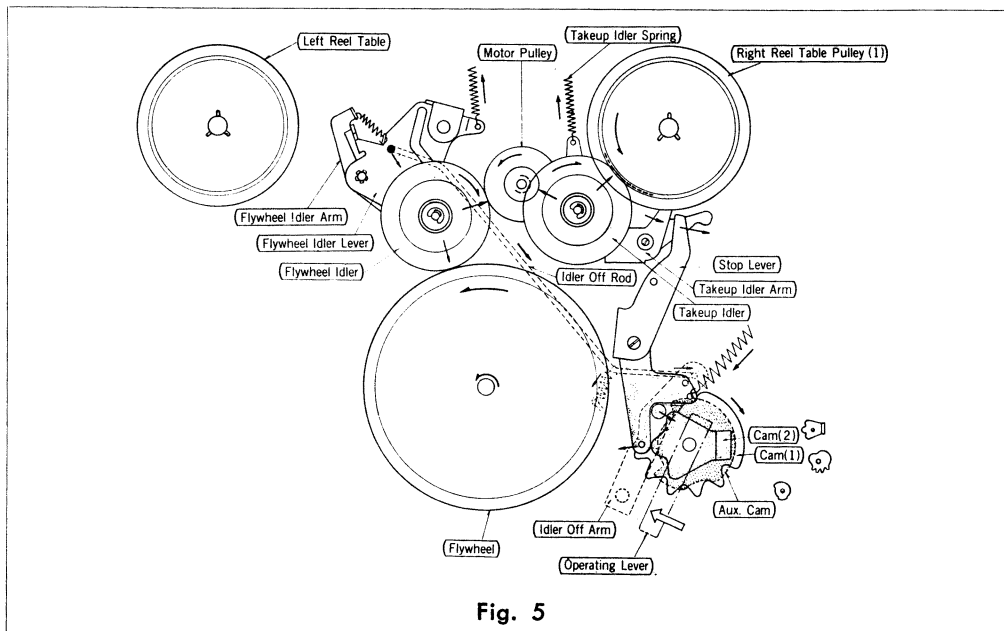
HOW TO REMOVE BODY CASE



1. Turn over the set.
2. Remove 5 Set Holding Screws (J).
3. In this condition, the Body Case can be removed with the Panel attached as it is.

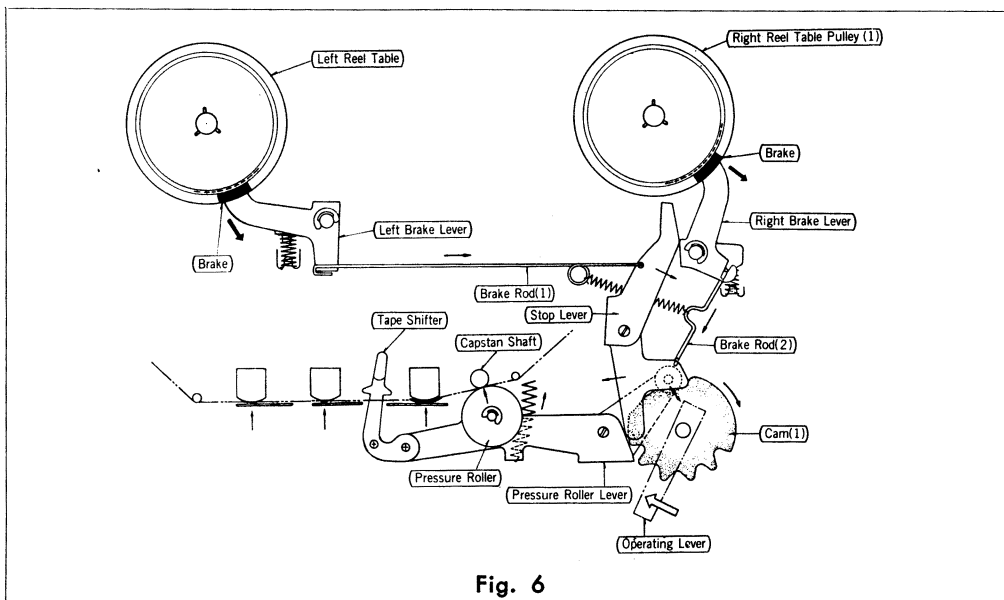
TAPE TRANSPORT OPERATIONS

PLAYBACK



When the Operating Lever is set at the playback position, the following actions occur simultaneously and the mechanism is placed into the Playback mode.

1. The Operating Cam (2) pushes the stop Lever, which unlocks the Takeup Idler Arm.
2. The Takeup Idler Arm is pulled by the Takeup Idler Spring, and the Takeup Idler is pressed against the Motor Pulley and the Right Reel Table Pulley (1).
3. The Sub-Cam moves the Idler-Off-Arm, which pulls the Idler-Off-Rod, thereby moving the Flywheel Idler Lever and the Flywheel Idler Arm.
4. Due to the movement of the Flywheel Idler Arm, the Flywheel Idler is pressed against the Motor Pulley and the Flywheel.
5. The rotation of the Motor Pulley is transmitted to the Flywheel through the Flywheel Idler, while it is transmitted to the Right Reel Table through the Takeup Idler.
6. The Operating Cam (1) moves the Pressure Roller Lever, pressing the Pressure Roller against the Capstan Shaft.
7. Due to the movement of the Stop Lever, the Brake Rods (1) and (2) are pulled, releasing the brakes.



PAUSE

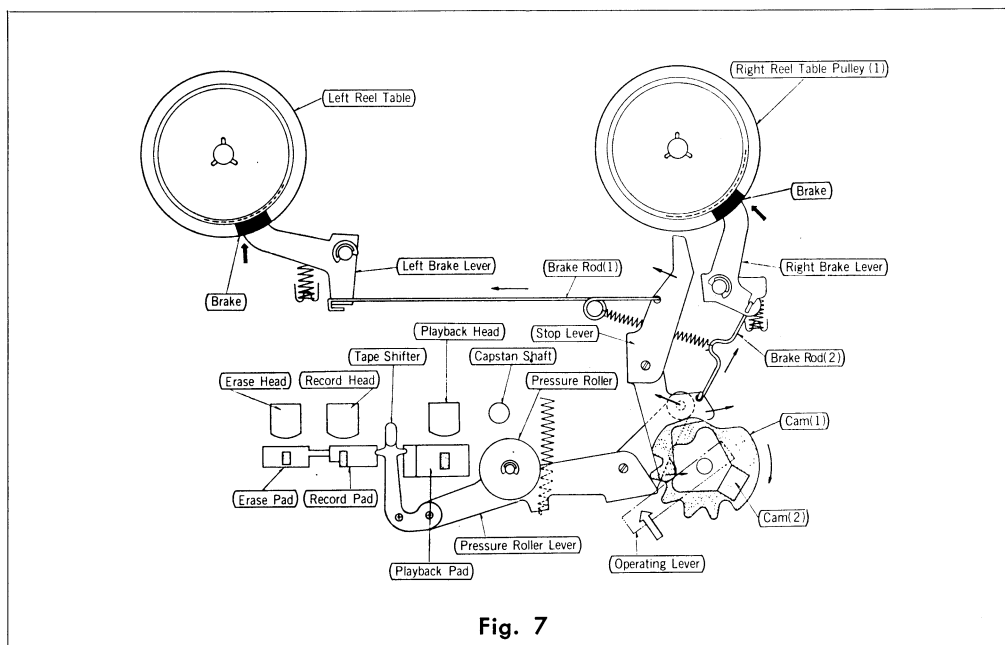


Fig. 7

When the Operating Lever is set at the Pause position, the following actions occur simultaneously, and the mechanism is placed into the Pause mode.

1. The Operating Cam (2) moves the Stop Lever, which pushes the Brake Rods (1) and (2), thereby braking

the Right and Left Reel Table Pulleys (1) and (2).

2. The Operating Cam (1) pushes the Pressure Roller Lever. Then the Pressure Roller moves away from the Capstan Shaft and the Pads also move away from the Heads.

FAST FORWARD

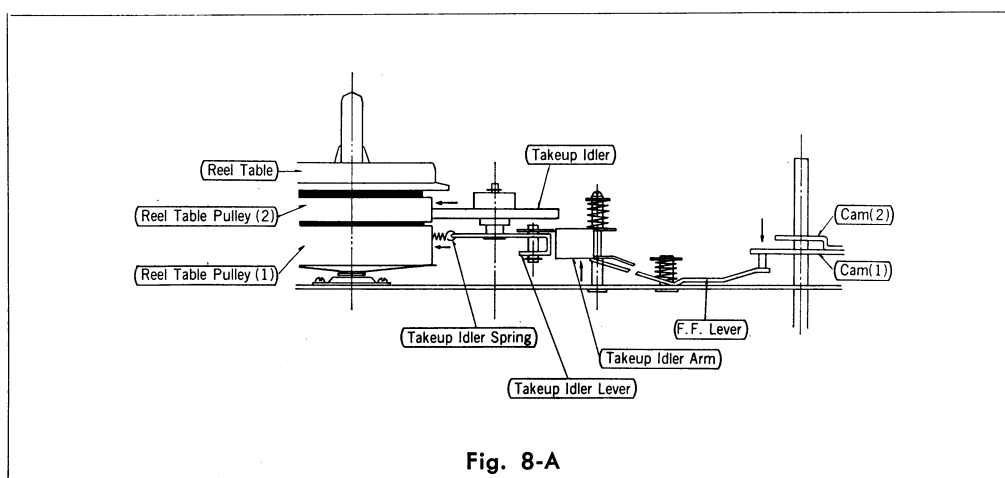


Fig. 8-A

When the Operating Lever is set at the Fast Forward position, the following actions occur simultaneously and the mechanism is placed into the Fast Forward mode.

1. The Operating Cam (1) pushes the Fast Forward Lever down and pushes the Takeup Idler Arm up by means of leverage.
2. The Operating Cam (2) pushes the Stop Lever, un-

locking the Takeup Idler Arm.

3. The Takeup Idler Arm is pulled by the Takeup Idler, and the Takeup Idler is pressed against the Motor Pulley and the Right Reel Table Pulley (2).
4. Due to movement of the Stop Lever, the Brake Rods (1) and (2) are pulled, thereby disengaging the Brakes from the Right and Left Reel Table Pulleys.

REWIND

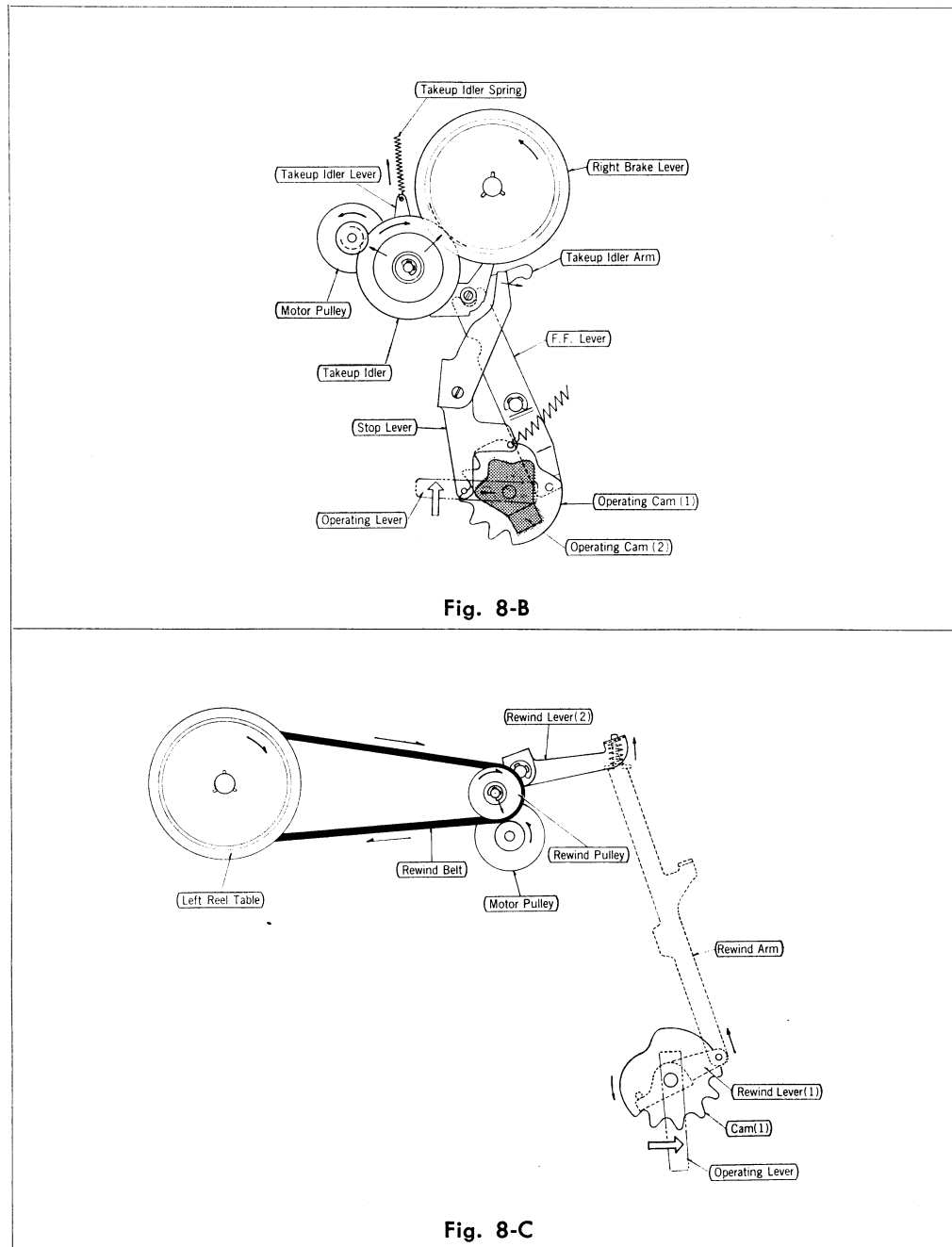


Fig. 8-B

Fig. 8-C

When the operating Lever is set at the Rewind position the following actions occur simultaneously and the mechanism is placed into the Rewind mode.

1. The Operating Cam (1) pushes the Rewind Lever (1) and the Rewind Arm.
2. The Rewind Arm pushes the Rewind Arm Lever (2), thereby pressing the Rewind Pulley against the Motor Pulley.
3. The rotation of the Motor Pulley is transmitted to the Rewind Pulley, turning the Left Reel Table through the Rewind Belt.
4. The Operating Cam (2) moves the Stop Lever, and the Brake Rods (1) and (2) are pulled, thereby disengaging the Brakes of Right and Left Reel Pulleys.

MECHANICAL ADJUSTMENTS

PRESSURE OF PRESSURE ROLLER

As the Pressure Roller is pressed against the Capstan, the Capstan rotation is transmitted to the Tape between Pressure Roller and Capstan. But when pressure of the Pressure Roller against the Capstan is insufficient, slipping occurs and the Capstan rotation is not conveyed smoothly. Therefore, this pressure should always be kept moderate. Given hereunder are the measurement and adjustment methods.

Measuring Method:

Instruments Required: Spring Scale, Strong Thread

1. Thread the Tape and place the set into the Playback mode.
2. Make a loop of the thread and hook the Pressure Roller Shaft to the Spring Scale with it.
3. Pull the Spring Scale slowly along the straight line between the Pressure Roller Shaft and the Capstan

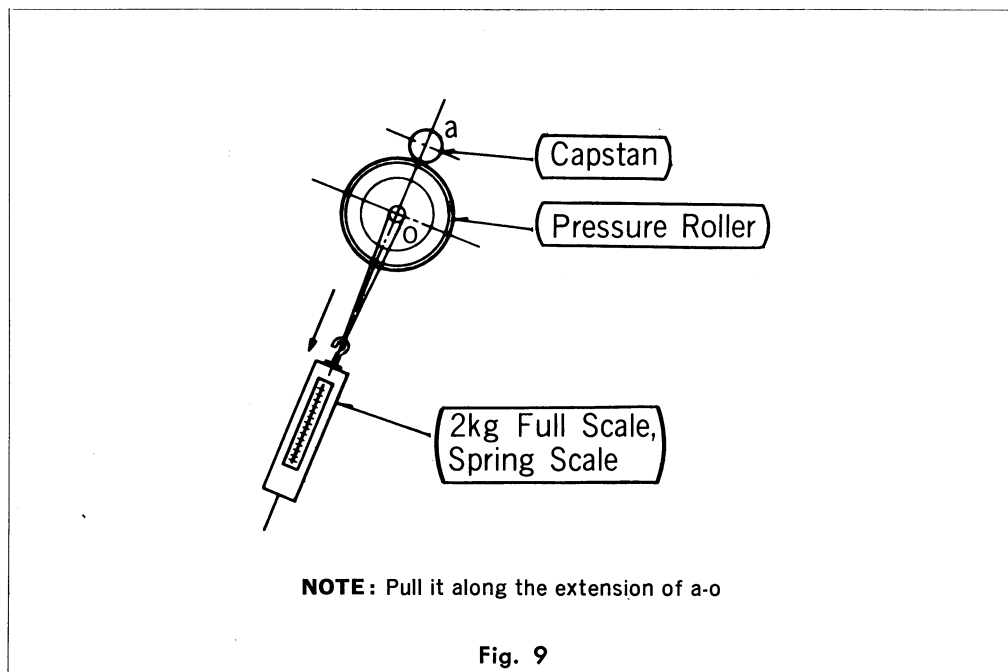
Shaft, and read the value on the Spring Scale when the Tape stops running or when the Pressure Roller moves away from the Capstan.

4. The standard pressure (value on the Spring Scale) is: (1.3~1.7 kg)

NOTE: The Capstan and the Pressure Roller should be in parallel. If they are not in parallel, the Tape moves up and down between the Pressure Roller and the Capstan, or only a side of the Tape is tensioned. The adjustment is made by correcting the bent Pressure Roller Shaft.

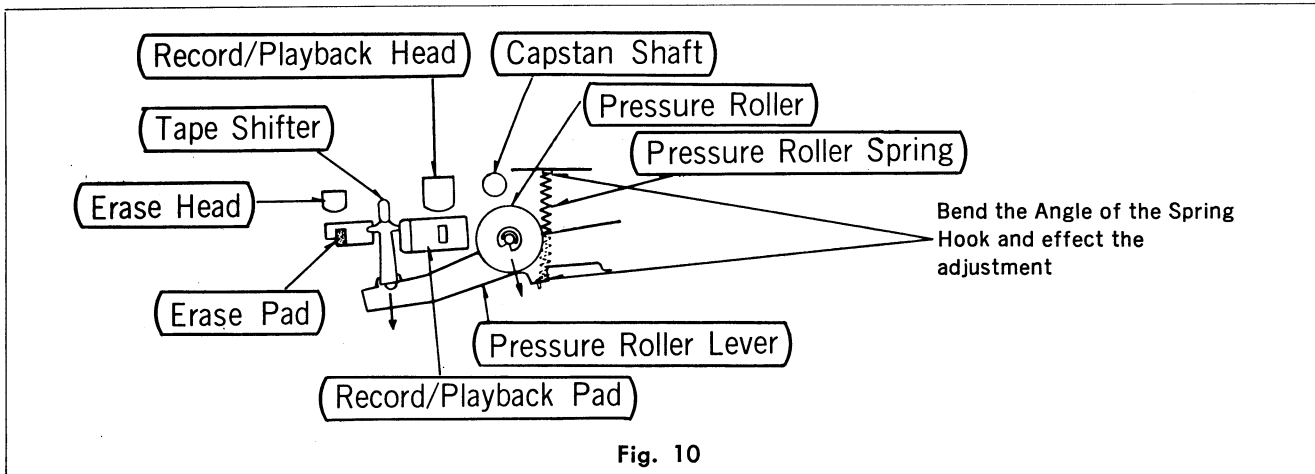
Adjusting Method:

Make the adjustment by use of elongation and contraction of the Pressure Roller Lever Spring. Measure pressure of the Pressure Roller and check if it satisfies the specified value. (Fig. 9)



Adjusting Method:

Make the adjustment by use of elongation and contraction | of the Pressure Roller Lever Spring. (Fig. 10)



TAKEUP TENSION DURING RECORD/PLAYBACK OR FAST FORWARD

Though the Capstan rotates and the Tape runs, the Tape is not taken up if takeup torque is too small. Especially when this torque is small, the Tape loosens and when too big, the Tape is elongated or broken. Therefore, takeup torque should be controlled suitably.

Measuring Method:

Instruments Required: Tension Gauge, Splicing tape

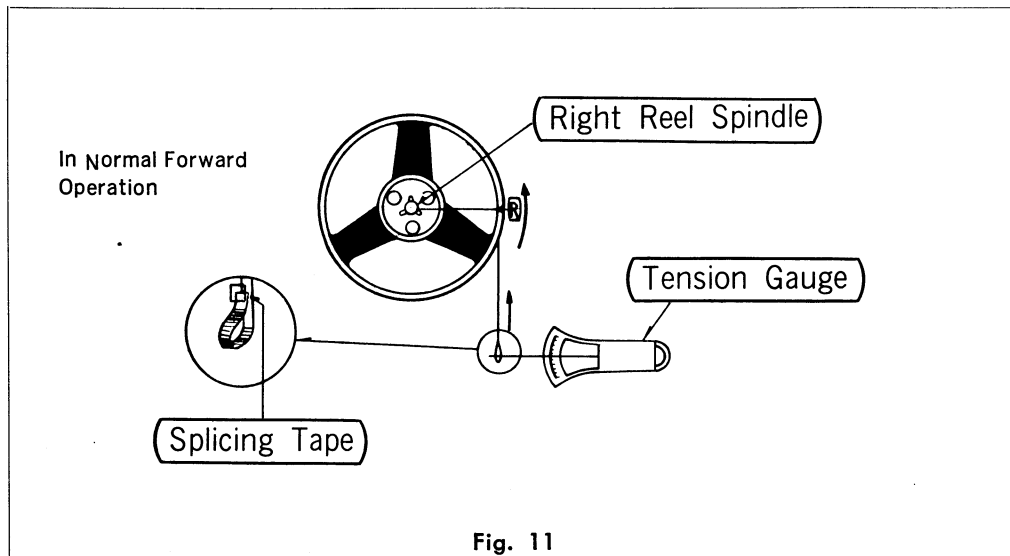
1. Place a full reel of 7" Tape on the Takeup Reel Table and make a loop of the Tape end by using Splicing Tape.
2. Hook the Tension Gauge to the loop of Tape end and unreel about 30" of Tape.

3. Place the set into the Playback mode. (If the Takeup Tension of Fast Forward is to be measured, place the set into the Fast Forward mode.) Allow the Gauge to follow the taking up force. When the value on the Tension Gauge becomes constant, read the graduation. Repeat this procedure several times and take an average.

4. Conduct the measurement with the Tape fully wound on the 7" Reel. The standard Takeup Tension should be:

Takeup Tension during Recording/Playback
(25~35 gr)

Takeup Tension during Fast Forward
(more than 140 gr)



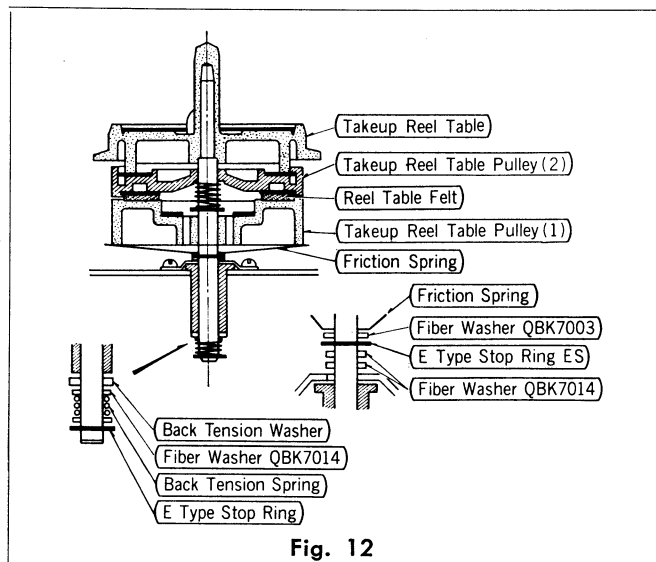


Fig. 12

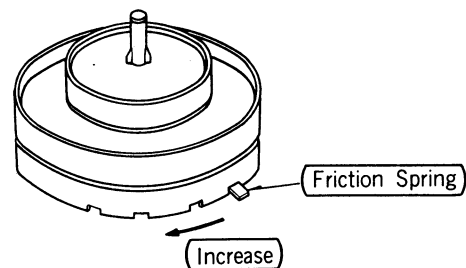


Fig. 13

Adjusting Method:

For Recording/Playback, adjustment is done by using the Friction Spring which is under the Takeup Reel Table Pulley.

For too strong Takeup Tension Turn the Friction Spring counter-clockwise (viewed from below) to decrease the tension.

For too weak Takeup Tension Turn the Spring

clockwise to increase the tension.

The takeup tension may increase or decrease when the Reel Table Shaft is out of oil or the Friction Washer gets stained with oil.

In Fast Forward the Felt between the Reel Table Pulleys may get stained with oil or dust, lowering the takeup tension. The standard conditions are obtained by wiping off the stains completely.

BRAKE POWER ADJUSTMENT

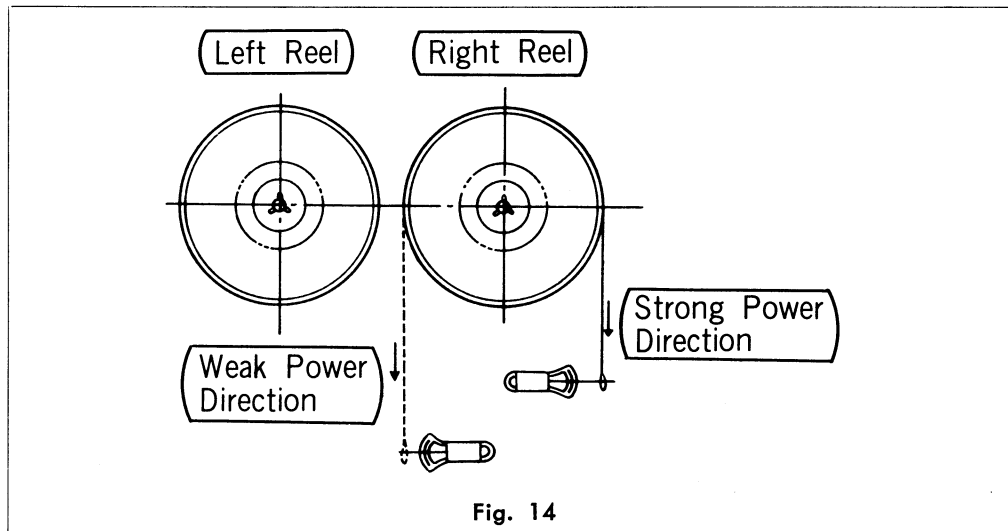


Fig. 14

Abnormal tension may sometimes be applied to the tape if the brake fails in timing. It is, of course, necessary to provide sufficient brake power to stop the tape, but it is all the more necessary to pay attention to the timing.

Specified Value: Strong Power Direction 100~250 g

Weak Power Direction 40~70 g

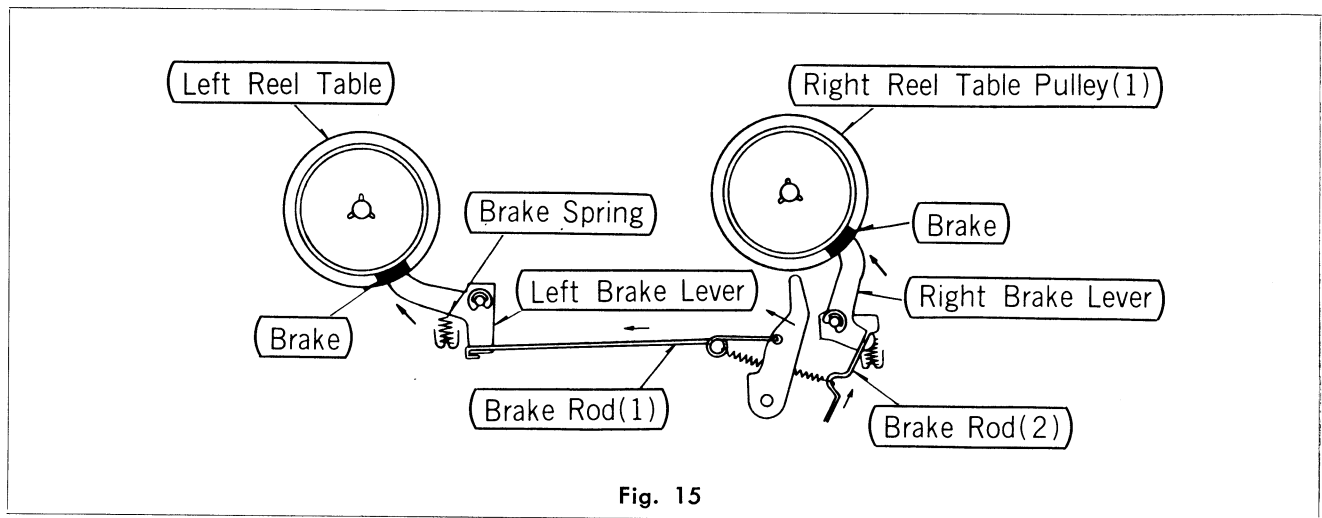
The difference in brake power between the strong power direction and weak power direction should be more than 100 g. (One side Strong Power Direction, and the other side Weak Power Direction)

Measuring Method:

Instruments Required: Tension Gauge, Splicing Tape

Suspend a tension gauge from the end of the 7" Reel Tape in the stop mode, pull it and read the average value for a turn of the Reel. (Fig. 14)

Brake power differs according to the reel table rotating direction, viz., either clockwise or counter-clockwise. Therefore, the measurement should be taken in both cases.



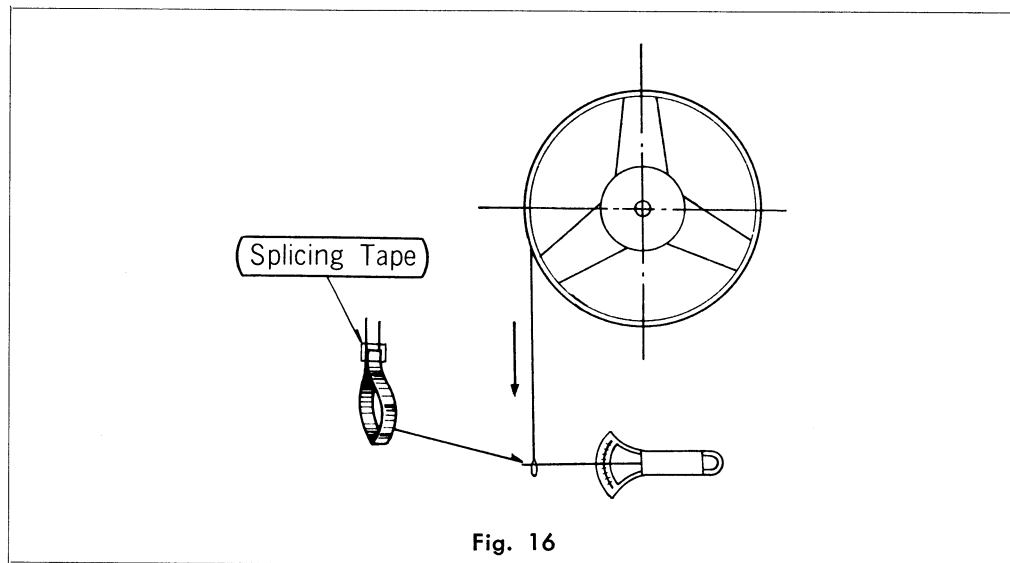
Adjusting Method:

Make the adjustment by use of elongation and contraction of the Right and Left Brake Springs. (Fig. 15)

Brake Timing: During FF or PLAY mode, brake should be

applied earlier on the Supply Reel side than the Takeup Reel side. The reverse applies during the REW or REVERSE mode.

BACK TENSION DURING RECORD/ PLAYBACK OR FAST FORWARD



Back Tension has a relation to Tape Driving Power of the Capstan. Too high or too low Back Tension exerts bad effect on tape speed and increases wow and flutter, preventing the Tape from running smoothly. Back Tension should therefore be adjusted carefully.

Measuring Method:

Instruments Required: Tension Gauge, Splicing Tape

1. Place a full reel of 7" Tape on the Supply Reel Table. While unreeling the Tape, make the measurement in the same way as for measurement of takeup tension during Recording Playback.

2. When the Tape is fully wound on the 7" Reel, the standard Back Tension is:

Back Tension during Recording/Playback:

10~25 gr

Back Tension during Fast Forward: 10~25 gr

Adjusting Method:

1. If Back Tension is high: The Supply Reel Table Shaft is dirty or is out of oil or stain.
2. If Back Tension is low: The tension of Rewind Belt or of Counter Belt is too low. Therefore, it should be replaced.

TAKEUP TENSION AND BACK TENSION DURING REWIND

Instruments Required: Tension Gauge, Splicing Tape

1. In order to measure the Takeup Tension, place a full reel of 7" Tape on the Supply Reel Table and place the set into the Rewind mode. Then measure it in the same way as for measurement Takeup Tension during Record/Playback.
2. In order to measure the Back Tension, place a full reel of 7" Tape on the Right Reel Table and place the set into the Rewind mode. Then measure it in the same way as for measurement during Record/Playback.
3. Takeup Tension and Back Tension during Rewind, when the Tape is fully wound on the 7" Reel, are as follows:

Takeup Tension during Rewind: more than 100 gr

Back Tension during Rewind: 5~12 gr

As a matter of course, the Tape Reel must be of the maximum diameter applicable to the set.

Adjusting Method:

If the Takeup Tension is too low, the causes might be either low Rewind Belt tension insufficient Rewind Pulley pressure, lack of oil on the Supply Reel Table Shaft, oil on the Belt and the Motor Pulley, etc. If the Back Tension is abnormal, the causes might be either that the Spring under the Takeup Reel Table Shaft is dirty or needs oil.

PAD PRESSURE

An excess of Pad Pressure exerts a subtle influence on tape speed, wow and flutter, and abrasion of head. On the contrary, too low pad pressure brings about bad

contact between Head and Tape, and also deteriorates sensitivity and frequency response. Attention should therefore be paid to this Pad Pressure.

Mesuring Method:

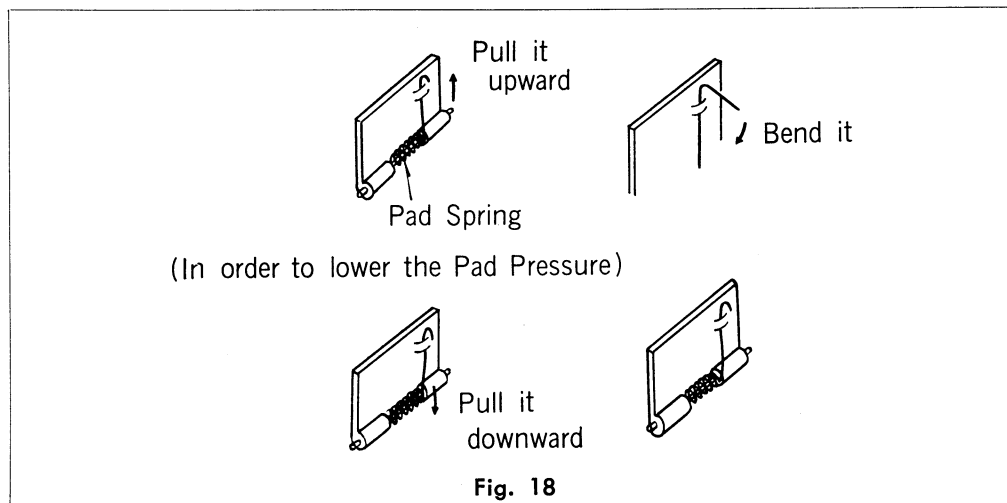
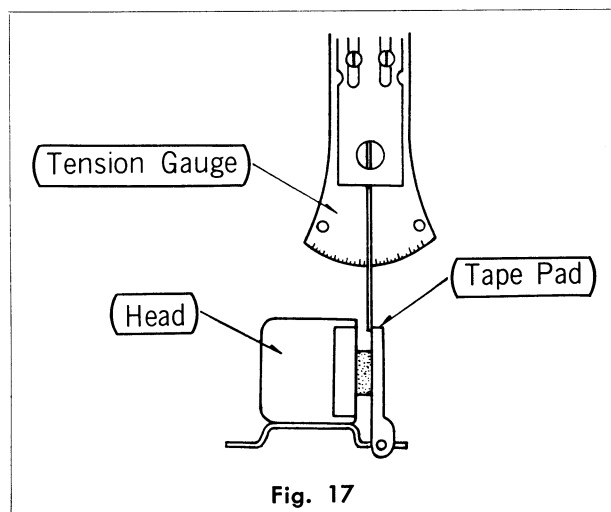
Instrument Required: Tension Gauge

1. Place the set into the Playback mode without loading the Tape.
2. Apply the Tension Gauge to the center of the Pad and move the Pad away from the Head slowly. Read the value when it first separates.
3. The standard Pad Pressure is:
Pad Pressure during Recording/Playback: 20~30 gr
Pad Pressure for Erasing: 15~25 gr

Adjusting Method:

Adjust the Pad Spring

(In order to increase the Pad Pressure)



AMPLIFIER ADJUSTMENTS

PLAYBACK LINE OUTPUT

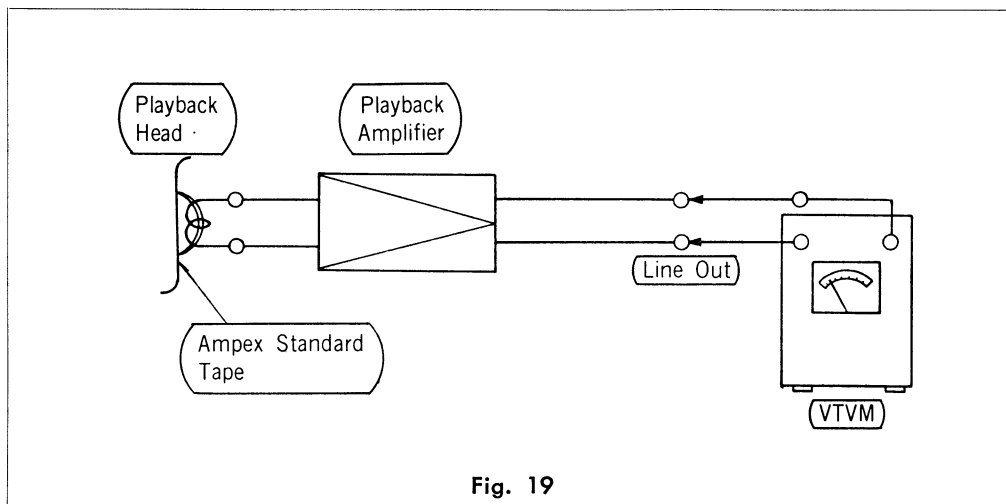


Fig. 19

Instruments Required: VTVM, Standard Tape
Play back the Ampex Standard Tape with frequency of 700 Hz max. level, and adjust the Semi-fixed Volumes

VR7 and VR8 so that the Line Output becomes 0.5 V. (Set the Speed Selector Knob at 7-1/2 ips.) Keep the TAPE/SOURCE Selector Switch set at TAPE.

LEVEL METER ADJUSTMENT

(Specified Range: Level difference within 1 dB, Deviation between channels within 1 dB)
With playback output level adjusted to 0.5 V, adjust

VR13 (left) and VR14 (right) until the level meter indicates 0 VU. (The range of adjustment: Specified Value ± 5 dB.

PLAYBACK FREQUENCY RESPONSE ADJUSTMENT

Instruments Required: VTVM, Ampex Standard Tape

1. Make connections shown in Fig. 19.
2. Play back the Ampex Standard Tape at 7-1/2 ips tape speed, and adjust high frequency response (7.5 KHz, 10 KHz and 12 KHz) with VR9 (CH-1) and VR10 (CH-2), thereby keeping the deviation within 3 dB.
3. After the adjustment, check if the following are satisfied.
Specified: 100 Hz~10 KHz.....Deviation 3 dB
50 Hz~12 KHz.....Deviation 5 dB

4. Play back the Ampex Standard Tape at 3-3/4 ips tape speed, adjust high frequency response (5 KHz and 7.5 KHz) with VR11 (CH-1) and VR12 (CH-2), thereby keeping the deviation within 3 dB.
5. After the adjustment, make sure that the following are satisfied.
Specified: 100 Hz~ 5 KHz.....Deviation 3 dB
50 Hz~12 KHz.....Deviation 5 dB

BIAS OSCILLATOR FREQUENCY

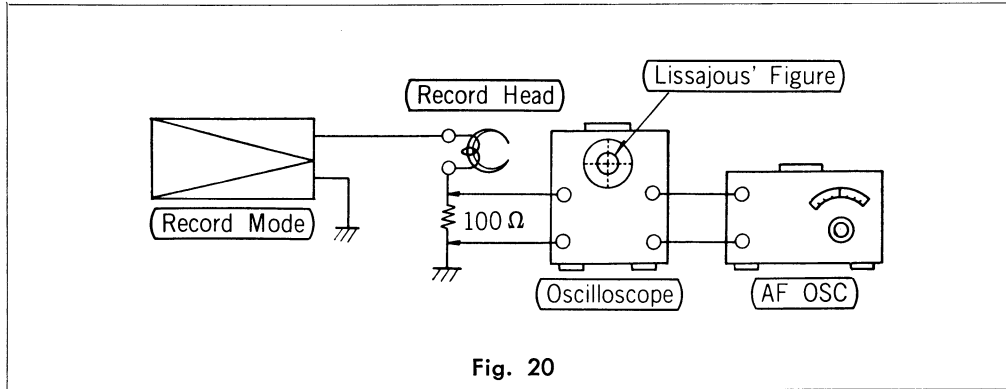


Fig. 20

Instruments Required: Audio Frequency Oscillator, Oscilloscope, 10Ω resistor.

1. Remove the ground side lead wire connected to the Recording Head, and attach the 10Ω resistor in series.
2. Connect the AF Oscillator and the Oscilloscope to both ends of the 10Ω resistor.
3. Place the set into Record mode.

4. Adjust the Audio Frequency Oscillator, and obtain the frequency of bias oscillation by applying resonance.
5. The resonance point is where the Lissajous' Figure becomes stationary, and the oscillation frequency is indicated by the scale of the Audio Frequency Oscillator.
6. The standard oscillation frequency is 80~95 KHz.

BIAS OSCILLATOR CURRENT

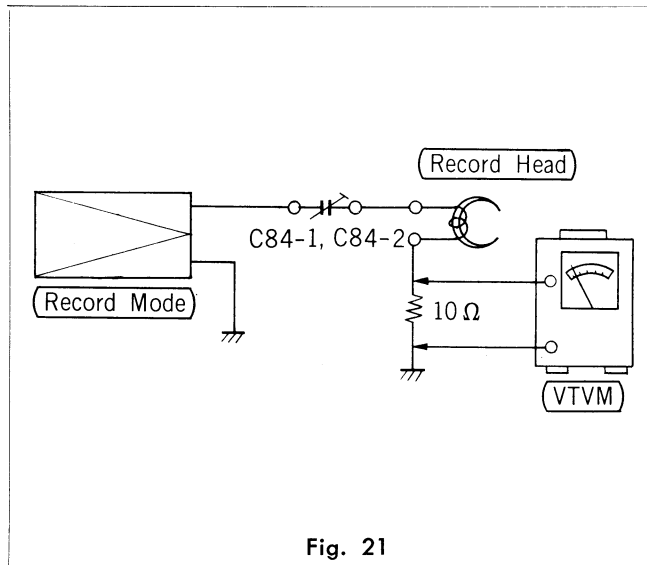


Fig. 21

Instruments Required: VTVM, 10Ω resistor.

1. Remove the lead wire (which is on the ground side when recording) connected to the Record Head, and attach the 10Ω resistor in series.
2. Connect VTVM to both ends of the 10Ω resistor, and measure the voltage value.

$$\text{Bias current} = \frac{\text{Voltage value}}{\text{Resistance value (10)}}$$

3. Standard bias current = 1.25~1.45 mA.

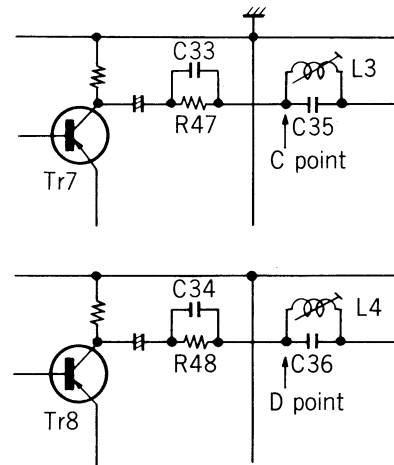


Fig. 22

Adjusting Method:

1. Place the unit in the STEREO RECORD mode and adjust the Peaking Coils L3 and L4 so as to minimize bias leakage.
2. Adjust C84-1 and C84-2 so that bias current shows the standard value.

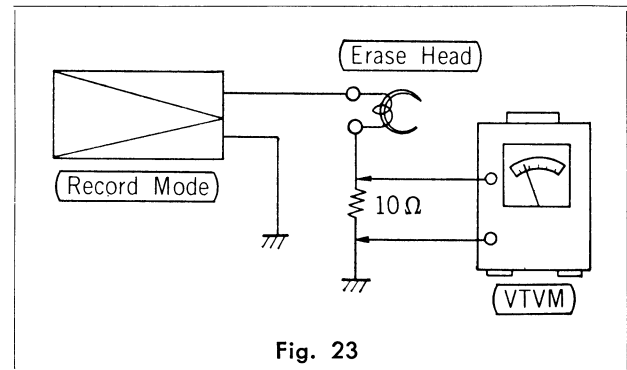
ERASE CURRENT

Instruments Required: VTVM, 10Ω Resistor

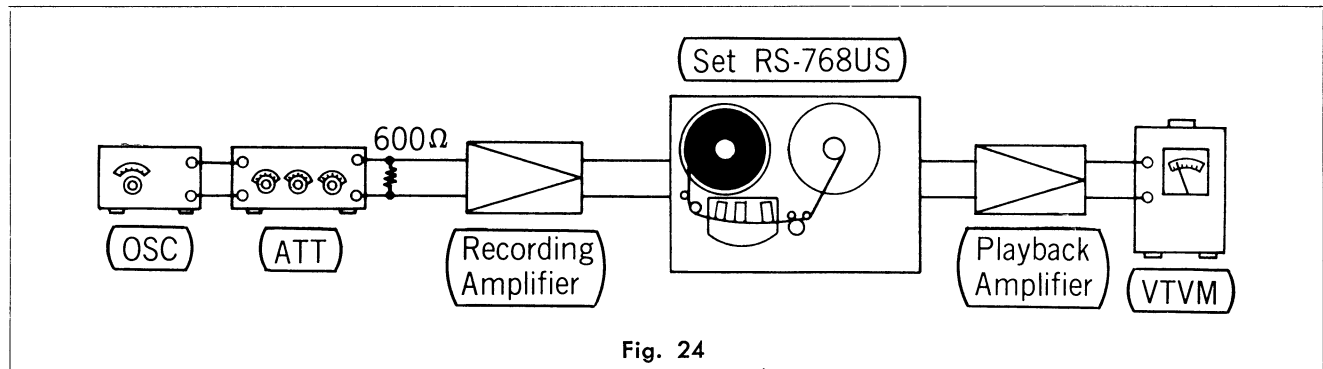
1. Remove the ground side lead wire connected to the Erase Head, and attach the 10Ω resistor in series.
2. Connect VTVM to both ends of the 10Ω resistor, and measure the voltage value.

$$\text{Erase current} = \frac{\text{Voltage value}}{\text{Resistance Value (10)}}$$

3. Standard erase current = 35~50 mA.



RECORDING LEVEL ADJUSTMENT



Instruments Required: OSC, ATT, VTVM

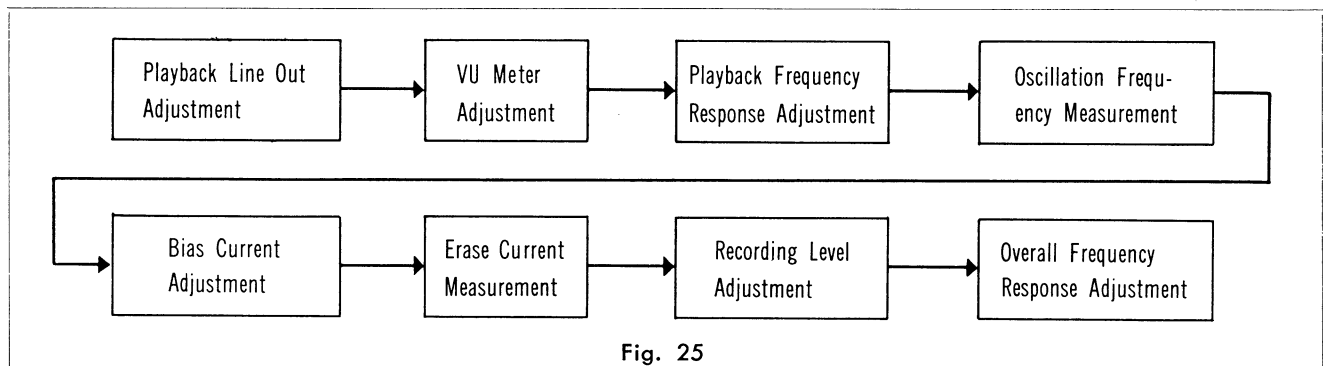
1. Place the unit in the RECORD mode, make a recording by supplying -65 dB (1 KHz) from the mic. input terminal, set the TAPE/SOURCE Selector Switch to TAPE, and adjust VR1 (CH-1) and VR2 (CH-2) so that the line output becomes 0.5 V or the VU Meter indicates 0 VU.
2. In this condition, set the TAPE/SOURCE Selector Switch to SOURCE and adjust VR5 and VR6 so that the VU Meter deflects around 0 VU.

OVERALL FREQUENCY RESPONSE ADJUSTMENT

Instruments Required: OSC, ATT, VTVM (See Fig. 24)

1. Place the unit in the RECORD mode, and make a recording by supplying -90 dB from the mic. input terminal.
2. Record and play back with each frequency and adjust the Peaking Coils L1 and L2 so that the specified value is obtained at 20 KHz.
3. Adjust L1 and L2 and, if the specified value is not obtained, adjust bias current.
(If bias current is made low, the high frequency range is increased.)
But it must be made sure that the bias current value is within the specified range.

ADJUSTMENT ORDER



HEAD ADJUSTMENTS

HEAD HEIGHT

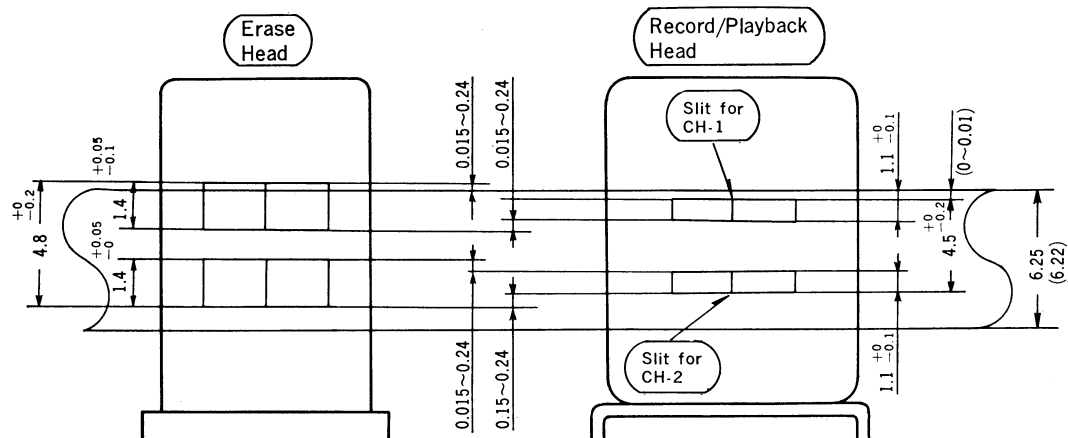


Fig. 26

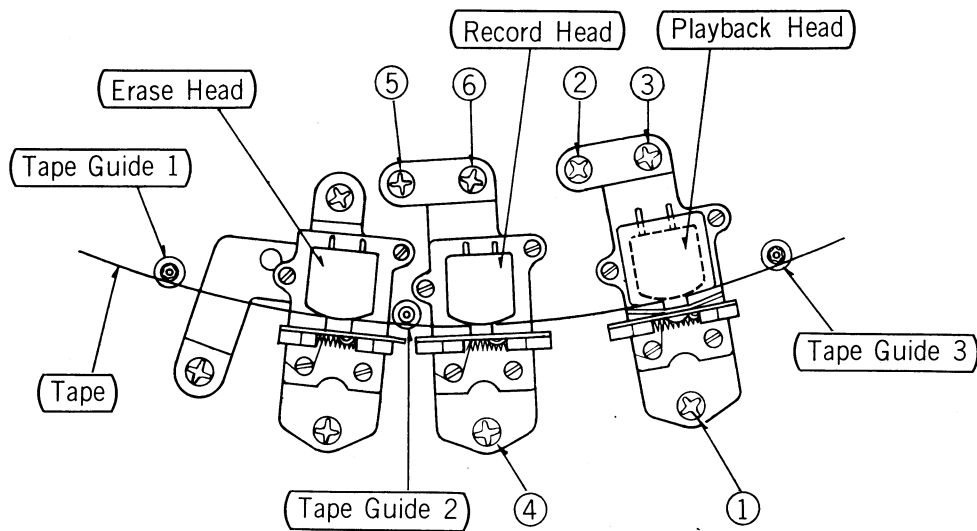


Fig. 27

- | | |
|---|--|
| <p>1. Regarding the relative positions of Head and Tape, the Erase Head Core should be so adjusted as to come out about 0.015~0.24 mm from the Tape. This is usually conducted by use of transparent tape and observing with the named eye. Likewise adjust</p> | <p>the Record and Playback Heads so that they become ca. 0~0.01 interior from the tape.</p> <p>2. The adjustments are effected with Screws ①~③. The Screw ① should be mainly used for the purpose.</p> |
|---|--|

ANGLE ADJUSTMENT

PLAYBACK HEAD

1. Connect a VTVM to the LINE OUT terminal of each channel.
2. By using an Angle Adjusting Standard Tape (7-1/2 ips, 7 KHz), play back 7 KHz signals at 7-1/2 ips tape speed and turn the Adjusting Screws ② and ③ shown

in Fig. 27 so that the max. output is obtained at both channels. In case it is difficult to adjust the slit angle between CH-1 and CH-2, seek for the middle point. (The measuring circuit is shown in Fig. 28)

RECORD HEAD

1. Adjust its angle after adjusting the Playback Head Angle.
2. Connect a Standard Oscillator to the AUX IN terminal of each channel and a VTVM to the LINE OUT terminal.
3. Keep the oscillation frequency at 15~20 KHz and the recording level lower by 10 dB than the standard recording level, and place the unit in the RECORD mode.
4. Record the specified signal with the Record Head while playing it back with the Playback Head, and

adjust the Record Head Adjusting Screws ⑤ and ⑥ so that each output becomes maximum.

NOTE: At this time, do not adjust the Playback Head. (The measuring circuit is shown in Fig. 29)

Cautions in Measurement:

Move finely the Adjustment Screws ② and ③, ③ and ② alternately.

* After the adjustment, lock the screw heads with lacquer.

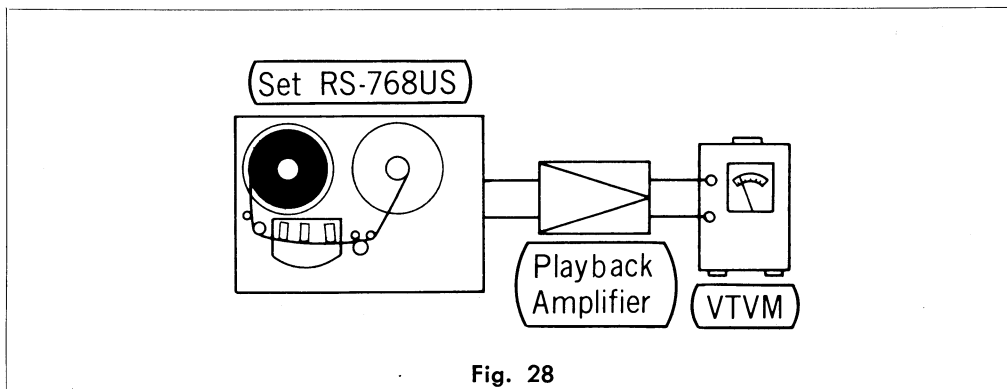


Fig. 28

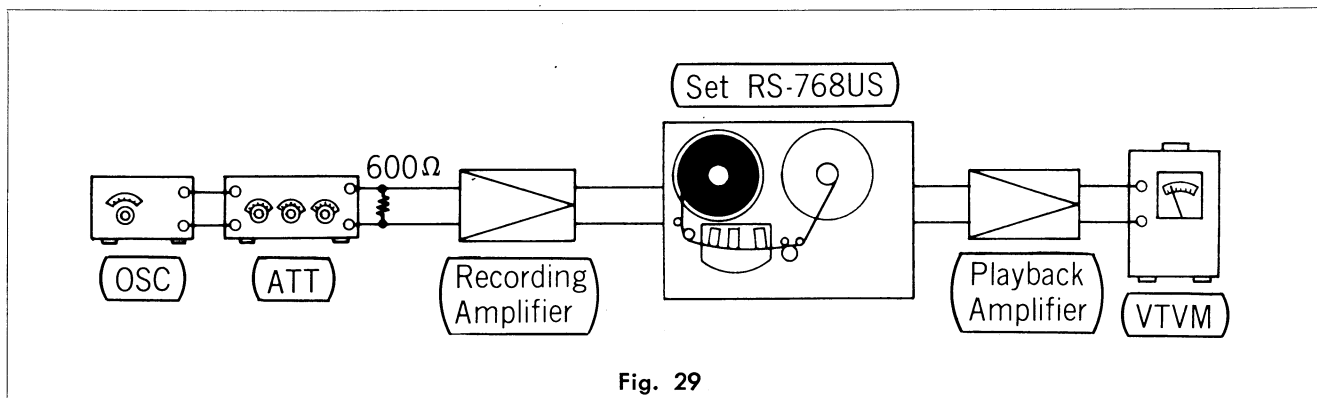


Fig. 29

CAPACITORS

Ref. No.	Description	Part No.
C1, 2, 5, 6, 43, 44	Electrolytic Capacitor	ECE-A16V3R3
C3, 4, 63, 64 ...	Electrolytic Capacitor	ECE-A6V33
C7, 8, 51, 52 ...	Electrolytic Capacitor	ECE-A10V47
C9, 10, 35, 36, 85, 86, 87, 88	Mylar Capacitor	ECQ-M05102MZ
C11, 12	Aluminum Solid Capacitor	ECS-Y25EF0R47
C13, 14	Electrolytic Capacitor	ECE-A10V100
C15, 16, 17, 18, 25, 26, 29, 30, 31, 32, 59, 60, 61, 62, 67, 68, 69, 70	Electrolytic Capacitor	ECE-A16V10
C19, 20, 49, 50	Electrolytic Capacitor	ECE-A10V220
C21, 22, 41, 42	Mylar Capacitor	ECQ-M05823KZ
C23, 24	Electrolytic Capacitor	ECQ-A16V100
C27, 28	Mylar Capacitor	ECQ-M05222KZ
C33, 34	Mylar Capacitor	ECQ-M05113KZ
C37, 38	Mylar Capacitor	ECQ-M05183KZ
C39, 40	Mylar Capacitor	ECQ-M05663KZ
C45, 46	Styrol Capacitor	ECQ-S1101K
C47, 48, 55, 56, 71, 72	Electrolytic Capacitor	ECE-A10V33
C53, 54	Electrolytic Capacitor	ECE-A10V470N
C57, 58	Mylar Capacitor	ECQ-M05273KZ
C65, 66	Mylar Capacitor	ECQ-M05223KZ
C73, 74	Mylar Capacitor	ECQ-M05472KZ
C75	Electrolytic Capacitor	ECE-A16V1000
C76	Electrolytic Capacitor	ECE-A16V220
C77	Electrolytic Capacitor	ECE-A16V4R7
C78	Electrolytic Capacitor	ECE-A16V47
C79, 93, 94 ...	Mylar Capacitor	ECQ-M1103KZ
C80	Paper Capacitor	ECN-R4333M
C81	Paper Capacitor	ECH-R2254M
C82, 83	Styrol Capacitor	ECQ-S1101K
C84-1, 84-2 ...	Trimmer Capacitor	QCV-2118A-1
C79	Motor Capacitor	AF-450VR9#

TRANSISTORS & IC

Ref. No.	Description	Part No.
Tr1, 2... ..	Transistor	2SB-348
Tr3, 4, 7, 8, 9, 10	Transistor	2SB-346
Tr5, 6... ..	Transistor	2SA-101C⑩
Tr11, 12	Transistor	2SB-172 (A)
Tr13	Transistor	2SB-324 (D,E,F)
Tr14, 15	Transistor	2SB-324 (G,H,I,J,K,L,O,P,Q)
IC1, 2	Integrated Circuit	AN-136
D1, 2	Diode	OA-70
D3	Selenium Rectifier	12C2P-114

DIODES & RECTIFIER

THERMISTOR

TH1... ..	Thermistor	QVM-500A
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TRANSFORMERS & COILS

T1, 2	Headphone Transformer	QLA-0349
T3	Oscillator Coil	QLB-0133
T4	Power Transformer	QLP-0379-1
L1, 2	Peaking Coil	QLH-2006
L3, 4	Peaking Coil	QLH-2003
L5, 6	Choke Coil	ELQ-4C1
L7	Erase Dummy Coil	QLH-9009

SWITCHES

S1, 2 (1-1~1-5, 2-1~2-5) ...	Slide Switch (R/P Selector)	QSS-1067
S3 (3-1, 3-2) ...	Slide Switch (Stop)	QSS-1053
S4	Push Switch (Power ON/OFF)	QSW-0108
S5	Micro Switch (Shut-off)	QSM-0025
S6 (6-1, 6-2) ...	Slide Switch (TAPE/SOURCE Selector)	QSS-1013
S7 (7-1~7-4) ...	Rotary Switch (Equalizer)	ESR-E283L36AS
S8 (8-1, 8-2) ...	Slide Switch (Sound on Sound)	QSS-1048
S10 (10-1, 10-2)	Lever Switch (N.S)	QST-0002

ELECTRICAL PARTS

Ref. No.	Description	Part No.
E1	Playback Head	WY-416W
E2	Record Head	WY-417W
E3	Erase Head	WY-550W
E4	VU Meter	QSL-0047
E5	Pilot Lamp	QVL-101
E6	Headphone Jack	QJA-0219
E7	Cord Bushing	QTD-1129
E8	AC Cord	QFC-1016A
E9	Lug Board 1-2PH (B)	QJT-2003-1
E10	Cord Crimper	QTD-1002
E11	Heat Sink	QTH-1033
E12	Pilot Lamp Socket	QJS-101
E13	M3 Jack	QJA-0115
E14	Pin Jack	QJA-902
E15	Lug Board 1-4PH (A)	QJT-4001
E16	Jack Plate	QGJ-1116
E17	Jack Indication Plate	QGS-2152-1
E18	Jack Angle	QTT-1564
E19	Jack Board	QGJ-1114
E20	Transformer Angle	QTT-1568
E21	Stop Switch Lever	QML-1563-1
E22	Stop Switch Spring	QBN-1065-1
E23	Pilot Lamp Cover	QTV-1031
MECHANICAL PARTS		
M6	60 Hz Capstan Cap	QMQ-1097
M7	Screw PH $\ominus$ 2 $\times$ 4	QHN-120 $\times$ 4U3
M8	Spring Washer SW2 ϕ	QWS-202U
M9	Erase Pad Plate Assembly	QAP-1161
M9-1	Pad Felt 4 $\times$ 7 $\times$ 3	QAP-1137
M10	Record Pad Plate Assembly	QAP-1160
M11	Playback Pad Plate Assembly	QAP-1162
M12	Screw S $\oplus$ 3 $\times$ 10	QMS-230 $\times$ 10
M13	Screw PH $\oplus$ 3 $\times$ 6	QHN-230 $\times$ 10U3
M14	Spring Washer SW3 ϕ	QWS-302U3
M15	Erase Head Plate Assembly	QMZ-1040

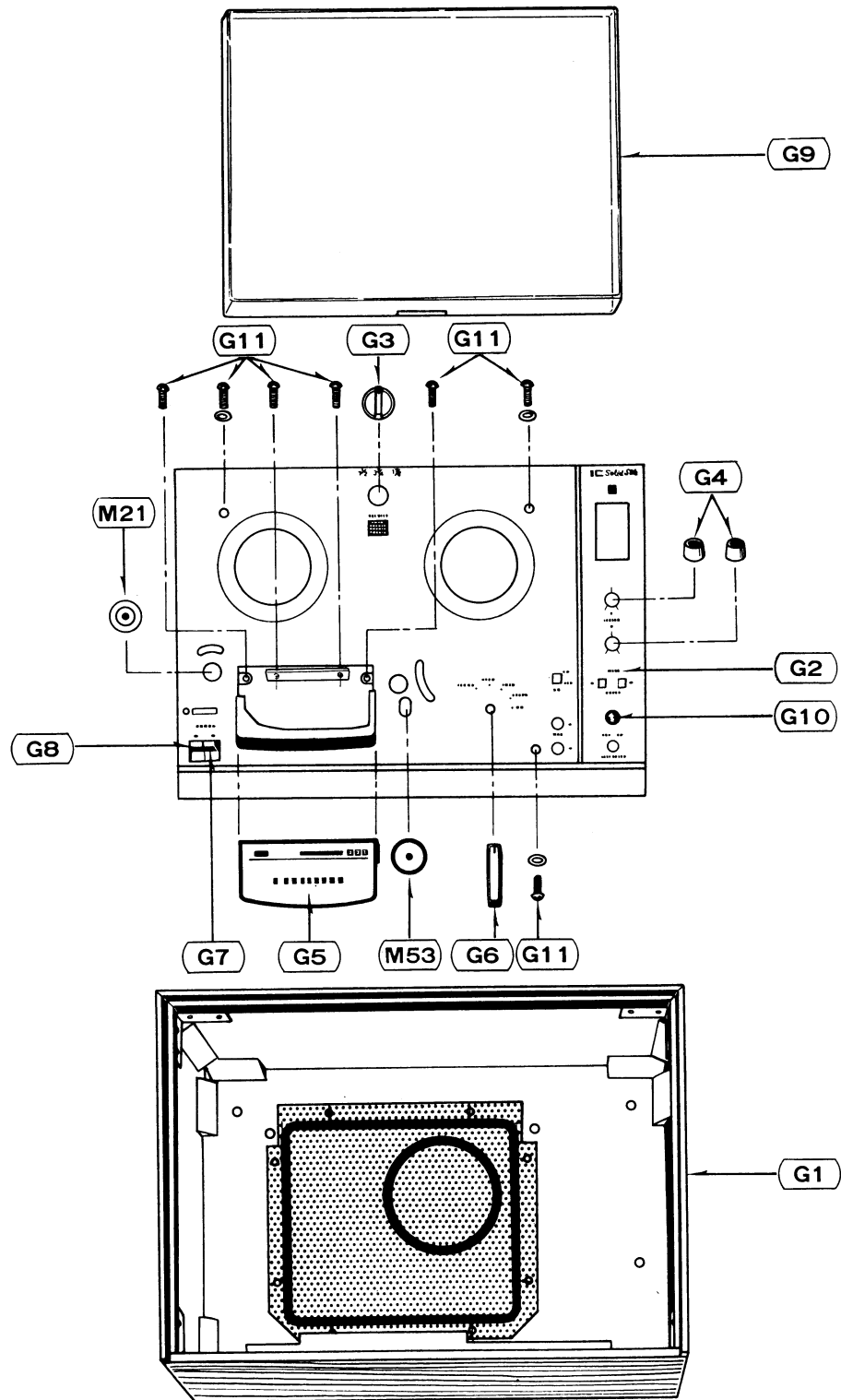
Ref. No.	Description	Part No.
M16	Record/Playback Head Plate	QMZ-1041
M17	Record/Playback Head Plate Spring	QBP-1171
M18	Screw MS $\oplus$ 3 $\times$ 8	QHV-230 $\times$ 8C1
M19	Guide Roller Cap	QMQ-1093
M20	Fiber Washer 6.2 $\times$ 8.2 $\times$ 0.25	QBK-7046
M21	Guide Roller	QDP-1248-1
M22	Fiber Washer 5.2 $\times$ 10 $\times$ 0.5	QBK-7027
M23	Stop Ring E4 ϕ	QNS-404T3
M24	Fiber Washer 5.2 $\times$ 10 $\times$ 0.25	QBK-7085
M26	Tension Arm C Spring	QBT-1373
M27	Tension Arm C Guide	QMA-1351
M28	Rubber Stopper	QBG-1132
M29	Guide Roller Shaft	QMS-1484
M30	Screw PH $\oplus$ 3 $\times$ 6	QHN-230 $\times$ 6U3
M31	Spring Washer SW3 ϕ	QWS-302U3
M32	Nut N3 ϕ	QNN-3022U3
M33	Tension Arm Assembly	-
M35	Screw PH $\oplus$ 4 $\times$ 8	QHN-240 $\times$ 8U3
M36	Spring Washer SW4 ϕ	QWS-402U3
M37	Screw PH $\oplus$ 3 $\times$ 6	QHN-230 $\times$ 6U3
M38	Spring Washer SW3 ϕ	QWS-302U3
M39	Tension Arm Guide	QMF-1291
M40	Tension Arm Spring	QBT-1338M
M41	Stop Ring E3 ϕ	QNS-304T3
M42	Nut N2.6 ϕ	QNN-2622U3
M43	Tape Guide Washer	QWQ-1085
M44	Limiter	QAG-1107
M45	Tape Retainer	QAG-1148
M46	Tape Guide Spring	QBC-1126
M47	Tape Guide Pole	QAG-1145
M48	Spring Washer SW2.6 ϕ	QWS-262U3
M49	Tape Guide	QAG-1146
M50	Screw MS $\oplus$ 3 $\times$ 6	QHV-230 $\times$ 6C1
M51	Pressure Roller Cap	QMQ-1094
M52	Pressure Roller Felt	QBF-1154
M53	Pressure Roller	QDP-1245

Ref. No.	Description	Part No.	Ref. No.	Description	Part No.
M54	...	...	M79-6	...	QBK-7014
M55	Fiber Washer 6.2×8.2×0.25	QBK-7046	M79-7	Stop Ring E5φ	QNS-504T3
M56	Screw PH⊕3×6	QHN-230×6U3	M79-8	Takeup Reel Table Pulley (2)	QDP-1122
M57	Lock Washer L3φ	QWS-302U3	M79-9	Friction Spring	QBP-1091-1
M58	Tape Shifter	QAS-1038	M80	Rewind Belt	QDB-0060
M59	Mechanism Reinforcement Plate Assembly	QXH-0042	M81	Rewind Lever Assembly	QXL-0249
M60	Tapping Screw 3×8	QHB-530×8U3	M81-1	Stop Ring E5φ	QNS-504T3
M61	Stop Ring E3φ	QNS-304T3	M81-2	Idler Washer	QWQ-1104
M62	Fiber Washer 4.2×6×0.5	QBK-7075	M81-3	Rewind Pulley Washer	QBF-1155
M63	Speed Selector Lever (2)	QML-1598	M81-4	Rewind Pulley	QDP-1247-2
M64	Speed Selector Bush	QMB-1017	M81-5	Fiber 5.2×8×0.5	QBK-7095
M65	Speed Selector Angle Assembly	QMP-1185	M81-6	Rewind Lever (2)	QML-1600
M66	Speed Selector Clicker Spring	QBP-1092	M82	Screw PH⊕3×6	QHN-230×6U3
M67	Thrust Steel Ball	QDK-1003	M83	Reel Table Metal Retainer	QMH-1046
M68	Speed Selector Lever	QML-1607	M84	Reel Table Metal	QMH-1020
M69	Fiber Washer 6.2×10×0.25	QBK-7056	M85	Tapping Screw ⊕3×6	QHB-530×6U3
M70	Stop Ring E5φ	QNS-504T3	M86	Supply Reel Table Angle	QMA-1130-1
M71	Screw PH⊕4×6	QHN-240×6U3	M87	Fiber Washer 6.2×8.2×0.25	QBK-7056
M72	Spring Washer SW4φ	QWS-402U3	M88	Fiber Washer 6.2×9.5×2	QBK-7083
M73	Screw PH⊕3×6	QHN-230×6U3	M89	Fiber Washer 6.2×8.2×0.5	QBK-7013
M74	Spring Washer SW3φ	QWS-302U3	M90	Fiber Washer 6.2×8.2×1	QBK-7014
M75	Spring Hanger	QMA-1169-1	M91	Reel Table Counter Pulley	QDP-1137-3
M76	Takeup Idler Spring Assembly	QXJ-0051	M92	Tape Counter Belt	QDB-0061
M77	Idler Arm Spring Assembly	QXJ-0037	M93	Flywheel Idler Assembly	QXJ-0014
M78	Tapping Screw ⊕3×8	QHB-230×8U3	M93-1	Stop Ring E3φ	QNS-304T3
M78-1	Supply Reel Table Assembly	QXP-0247	M93-2	Fiber Washer 4.2×6×0.5	QBK-7075
M78-2	Supply Reel Table	QDR-1048	M93-3	Tension Pulley Washer	QWQ-1023
M78-3	Supply Reel Table Pulley	QDP-1244	M93-4	Idler Felt	QBF-1121
M78-4	Poly-Slider 6.2×9×0.25	QBJ-3042	M93-5	Idler	QDP-1153/2
M78-5	Reel Table Pulley Pressure Spring	QBC-1061	M93-6	Fiber Washer 4.2×9×0.25	QBK-7007
M78-6	Fiber Washer 6.2×12×1	QBK-7040	M94	Idler Arm Spring (2)	QBT-1191
M79	Stop Ring E5φ	QNS-504T3	M95	Takeup Idler Assembly	QXJ-0025
M79-1	Takeup Reel Table Assembly	QXP-0246	M95-1	Stop Ring E4φ	QNS-404T3
M79-2	Takeup Reel Table	QDR-1047	M95-2	Fiber Washer 5.2×8×0.5	QBK-7095
M79-3	Takeup Reel Table Pulley (1)	QDP-1121	M95-3	Idler Washer	QWQ-1104
M79-4	Poly-Slider 6.2×9×0.25	QBJ-3042	M95-4	Pulley Felt	QBF-1156
M79-5	Supply Reel Table Pressure Spring	QBC-1069	M95-5	Takeup Idler	QXI-0026
	Fiber Washer 6.2×11×0.5	QBK-7003			

Ref. No.	Description	Part No.	Ref. No.	Description	Part No.	
M95-6	...	Takeup Idler Lever	QML-1606	M123 ...	Screw PH⊕3×6	QHN-23×6U3
M95-7	...	Fiber Washer 6.2×9×0.25	QBJ-3042	M124 ...	Lock Washer L3ϕ	QWG-302U3
M95-8	...	Stop Ring E5ϕ	QNS-5043T	M125 ...	Stop Ring E3ϕ	QNS-304T3
M95-9	...	Takeup Idler Arm	QML-1328-3	M126 ...	Stop Ring E5ϕ	QNS-504T3
M96	...	Screw PH⊕3×6	QHN-230×6U3	M127 ...	Fiber Washer 4.2×9×0.25	QBK-7007
M97	...	Idler Stopper	QMA-1127	M128 ...	Release Lever (2)	QML-1602
M98	...	Left Brake Assembly	QUV-1025	M129 ...	Fiber Washer 6.2×11×0.5	QBK-7003
M98-1	...	Brake Shoe	QBG-1134	M130 ...	Release Lever Spring (1)	QBT-1135M
M99	...	Brake Spring	QBC-1058	M131 ...	Release Lever (1)	QML-1601
M100	...	Stop Ring E5ϕ	QNS-504T3	M132 ...	Spring Hanger Plate	QMF-1295
M101	...	Fiber Washer 6.2×11×0.5	QBK-7003	M133 ...	Tapping Screw 3×8	QHB-530×8
M102	...	Right Brake Assembly	QUV-1024	M134 ...	Release Lever (3) Assembly	QXL-0251
M103	...	Brake Rod (1)	QMR-1057	M135 ...	Clicker Arm	QML-1273-2
M104	...	Brake Rod (2)	QMR-1064	M136 ...	Stop Ring E5ϕ	QNS-504T3
M105	...	Brake Rod Spring Assembly	QXJ-0035	M137 ...	Record Lock Spring	QBT-1190
M106	...	Stop Lever Assembly	QXL-0109	M138 ...	Fiber Washer 6.2×11×0.5	QBK-7003
M107	...	Stop Lever Spring	QXJ-0045	M139 ...	Record Lock Plate	QMF-1294
M108	...	Stop Ring E5ϕ	QNS-504T3	M140 ...	Function Cam Assembly	QXH-0012
M109	...	Takeup Idler Arm Spring	QBC-1080	M141 ...	Fiber Washer 6.2×11×0.25	QBK-7056
M110	...	FF Lever	QML-1275	M142 ...	Rewind Lever Assembly	QXL-0111
M111	...	FF Lever Spring	QBC-1060	M143 ...	Click Roller	QDP-1125
M112	...	Stop Ring E5ϕ	QNS-504T3	M144 ...	Stop Ring E6ϕ	QNS-604T3
M113	...	Pressure Roller Lever Assembly	QXL-0248	M145 ...	Fiber Washer 8.2×12×0.5	QBK-7049
M113-1	...	Pressure Roller Shaft	QMS-1480	M146 ...	Stop Ring E3ϕ	QNS-304T3
M113-2	...	Spring Washer SW4ϕ	QWS-402U3	M147 ...	Counter Assistance Pulley Felt	QBF-1171
M113-3	...	Nut N4ϕ	QNN-4022U3	M148 ...	Counter Assistance Pulley	QDP-1294
M113-4	...	Stop Ring E4ϕ	QNS-404T3	M149 ...	Fiber Washer 4.2×9×0.25	QBK-7007
M113-5	...	Click Roller	QDP-1126	M150 ...	Counter Assistance Belt	QDB-0097
M114	...	Pressure Roller Lever Spring	QBT-1186-1	M151 ...	Tape Counter	QDC-0028
M115	...	Fiber Washer 8.2×12×0.5	QBK-7049	M152 ...	Top Cover Felt	QBF-5660
M116	...	Flywheel Spring	QBC-1067-1	M153 ...	Oil Felt	QBF-1170
M117	...	Flywheel Assembly	QXF-0043	M154 ...	Counter Angle	QMA-1282
M118	...	Thrust Retainer	QMQ-1004-1	M155 ...	Screw ⊕PH3×4	QHN-230×4U3
M119	...	Screw ⊕2.6×8	QHS-226×8U3	M156 ...	Base Plate Leg, Left-Front	QMA-1285
M120	...	Record Lever Guide	QMS-1322	M157 ...	Base Plate Leg, Left-Back	QMA-1278
M121	...	Record Lock Lever Assembly	QXL-0250	M158 ...	Base Plate Leg, Right-Back	QMA-1279
M122	...	Record Lock Spring (2)	QBT-1190	M159 ...	Base Plate Leg, Right-Front	QMA-1276

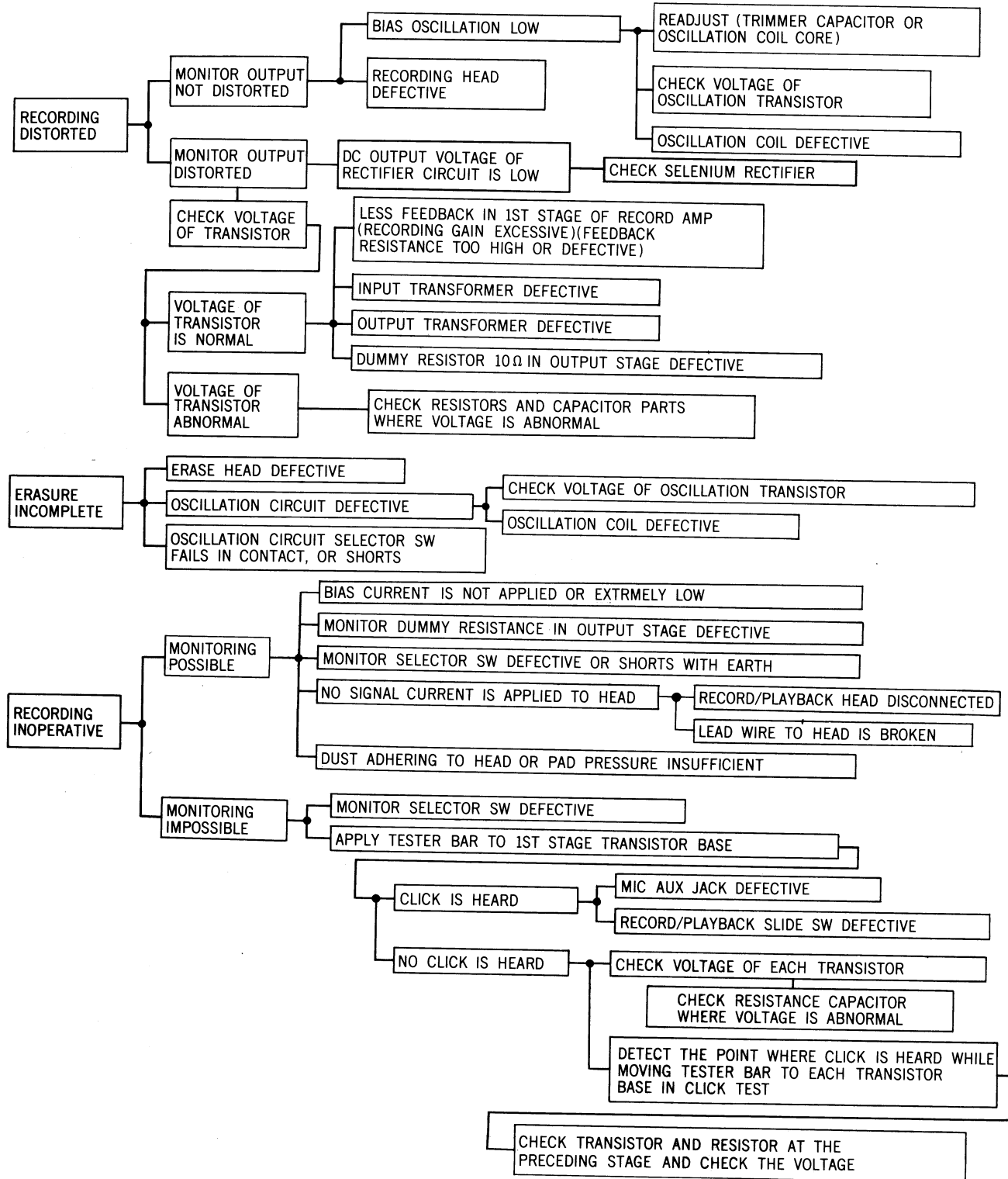
Ref. No.	Description	Part No.	Ref. No.	Description	Part No.
M160 ...	Tapping Screw 3×8	QHB-530×8U3	M196 ...	Reel Table Metal	QMM-1020
M161 ...	Screw PH⊕3×6	QHN-230×6U3	M197 ...	Back Tension Washer	QBJ-3015
M162 ...	Spring Washer SW3φ	QWS-302U3	M198 ...	Fiber Washer 6.2×8.2×1	QBK-7014
M163 ...	Record Lever Plate Spring	QBP-1172	M199 ...	Back Tension Spring	QBC-1064
M164 ...	Record Lever	QML-1603	M200 ...	Fiber Washer 6.2×8.2×1	QBK-7014
M165 ...	Record Lever Spring	QBT-1378T	M201 ...	Stop Ring E5φ	QNS-504T3
M166 ...	Record Lever Angle	QMA-1284	M202 ...	Screw PH⊕3×4	QHN-230×4U3
M167 ...	Tapping Screw 3×8	QHB-5308U3	CABINET PARTS		
M168 ...	Shut-off Angle Assembly	QXE-9915/2	G1 ...	Wooden Cabinet Assembly	QYJ-1122
M169 ...	Tapping Screw 3×8	QHB-530×8U3	G2 ...	Panel Assembly	QYP-0174
M170 ...	Screw M⊕2×14	QHM-220×14U3	G3 ...	Speed Selector Lever	QYT-0100
M171 ...	Spring Washer SW2φ	QWS-202U3	G4 ...	Volume Knob (A)	QYT-0086
M172 ...	Stop Ring E4φ	QNS-404T3	G5 ...	Head Cover Assembly	QYR-0089
M173 ...	Shut-off Pin	QMQ-1064	G6 ...	Function Lever	QYT-0101
M174 ...	Fiber Washer 5.5×10×0.25	QBK-7044	G7 ...	Record Button (R)	QGO-1055
M175 ...	Stop Switch Angle Assembly	QXE-0027	G8 ...	Record Button (L)	QGO-1054
M176 ...	Tapping Screw 3×8	QHB-530×8U3	G9 ...	Top Cover Assembly	QKF-1061
M177 ...	Idle Off Arm Assembly	QXA-0044	G10 ...	Power Button	QGO-4032
M177-1 ...	Idle Off Roller	QDP-1127	G11 ...	Screw ⊕PH3×8	QHN-230×8V1
M177-2 ...	Stop Ring E4φ	QNS-404T3	G12 ...	Screw ⊕PH4×20	QHN-240×20U3
M178 ...	Record Lock Arm Assembly	QXA-0043	G13 ...	Screw ⊕PH3×12	QHN-230×12U3
M179 ...	Fiber Washer 6.2×11×0.5	QBK-7003	ACCESSORIES		
M180 ...	Stop Ring E5φ	QNS-504T3	A1 ...	7" Empty Reel	QFR-71PZ
M181 ...	Idle Off Rod	QMR-1066	A2 ...	Connection Cord-C	QEB-14P-1
M182 ...	Idle Off Rod Spring	QBT-1203	A3 ...	Head Cleaning Ribon	QFQ-1015
M183 ...	Click Spring	QXJ-0027	A4 ...	Splicing Tape	QFS-2-1
M184 ...	Sub Cam Plate Assembly	QXH-0039	A5 ...	Instruction Book	QQT-1147
M185 ...	Screw PH⊕3×8	QHN-260×8U3	PACKINGS		
M186 ...	Rewind Arm	QML-1280	P1 ...	Packing Case	QPN-1859
M187 ...	Rewind Arm Spring	QBC-1057	P2 ...	Inner Cushion	QPN-1828
M188 ...	Stop Ring E3φ	QNS-304T3	P3 ...	Dust Cover	QFD-0111
M189 ...	Motor Pulley	QDP-1250-1	P4 ...	Paper Cushion	QPN-1861
M190 ...	Motor Pulley Holding Screw	QHR-840×4U3	P5 ...	Crosspiece	QPN-1806
M191 ...	Motor	4KSC-20DPL			
M193 ...	Fiber Washer 6.2×8.2×1	QBK-7014			
M194 ...	Fiber Washer 6.2×8.2×0.25	QBK-7046			
M195 ...	Reel Table Metal Retainer	QMH-1046			

CABINET PARTS



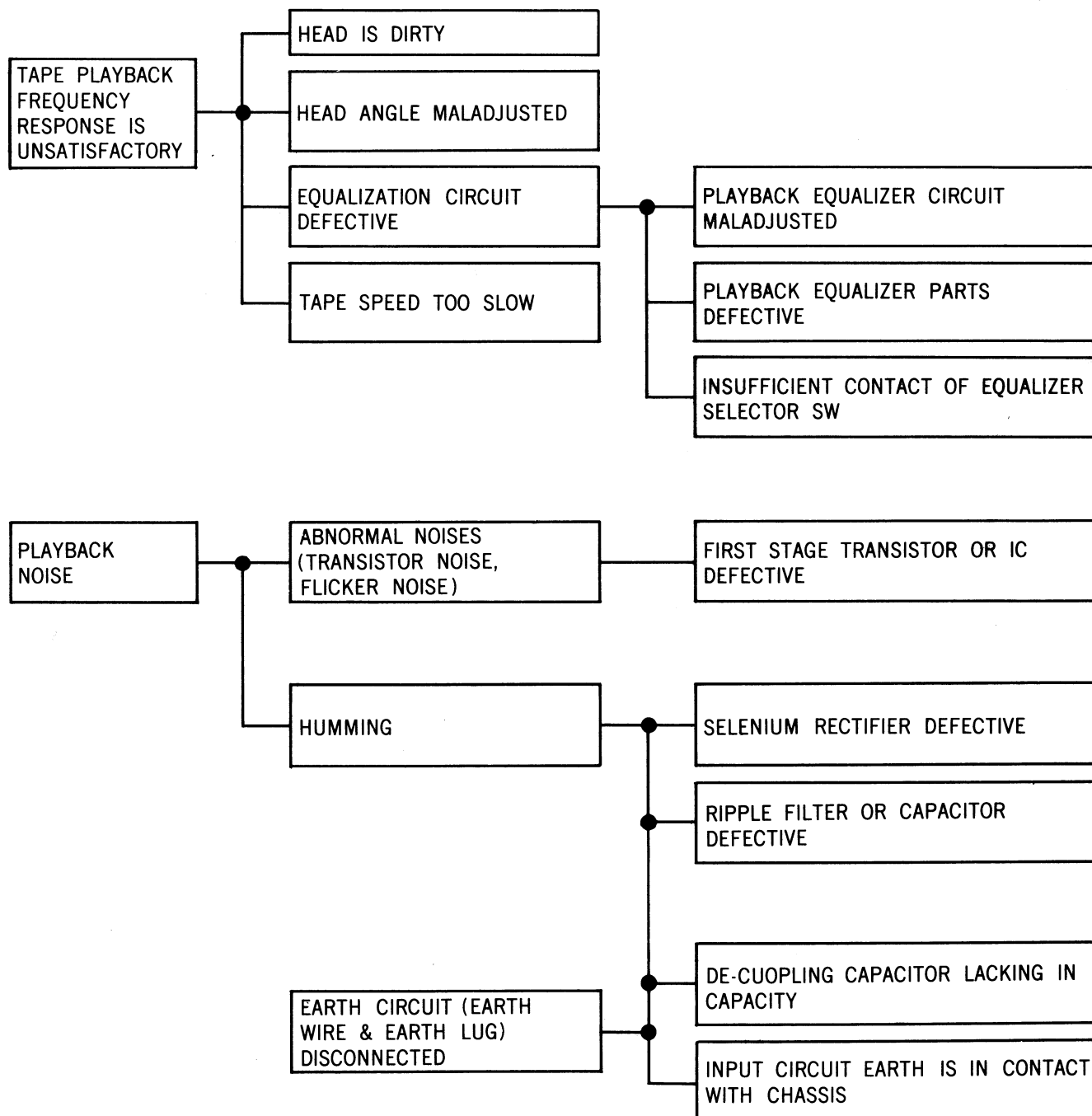
TROUBLE SHOOTING GUIDE 1

DEFECTIVE RECORDING CIRCUIT



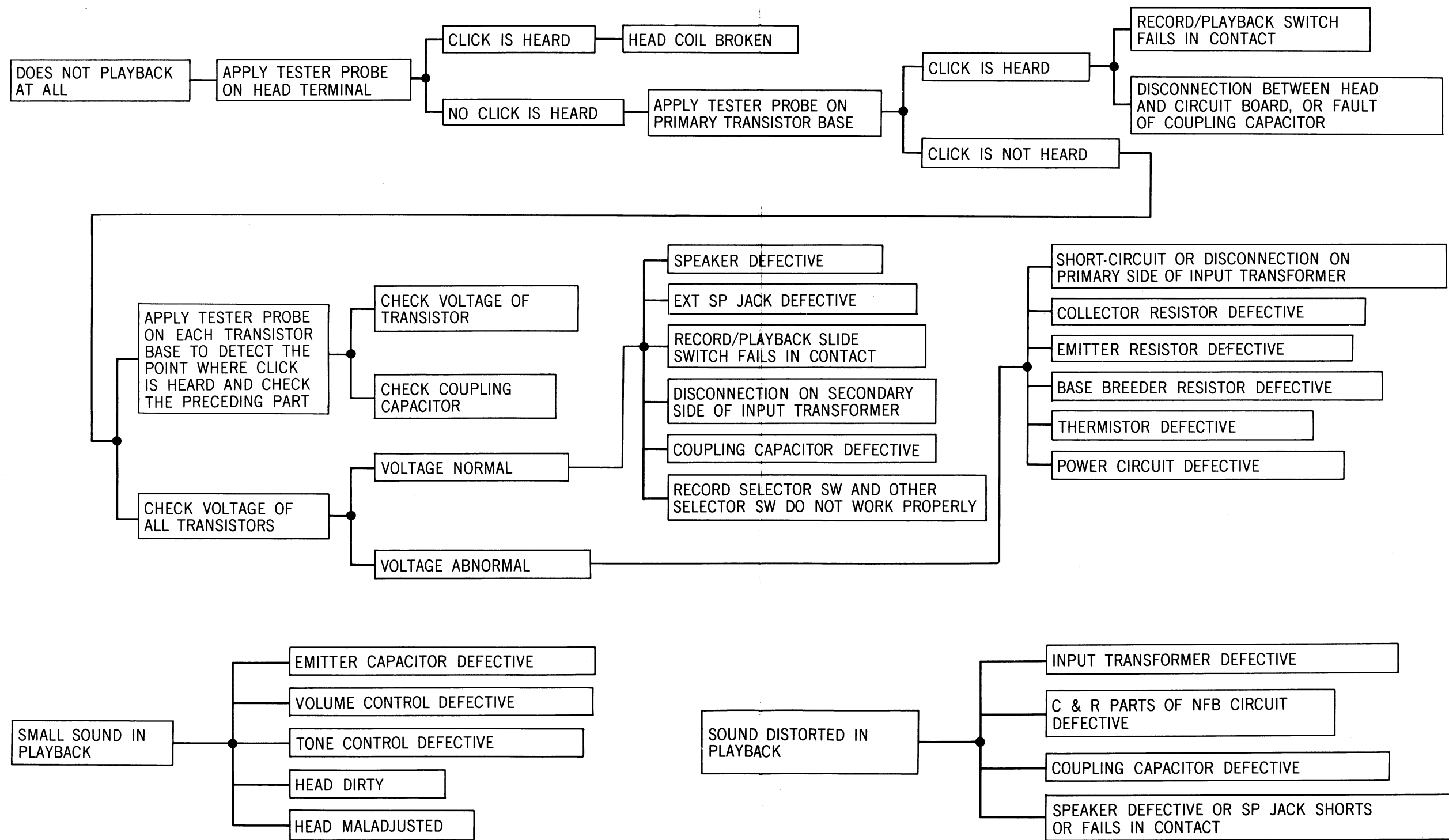
TROUBLE SHOOTING GUIDE 2

DEFECTIVE PLAYBACK CIRCUIT

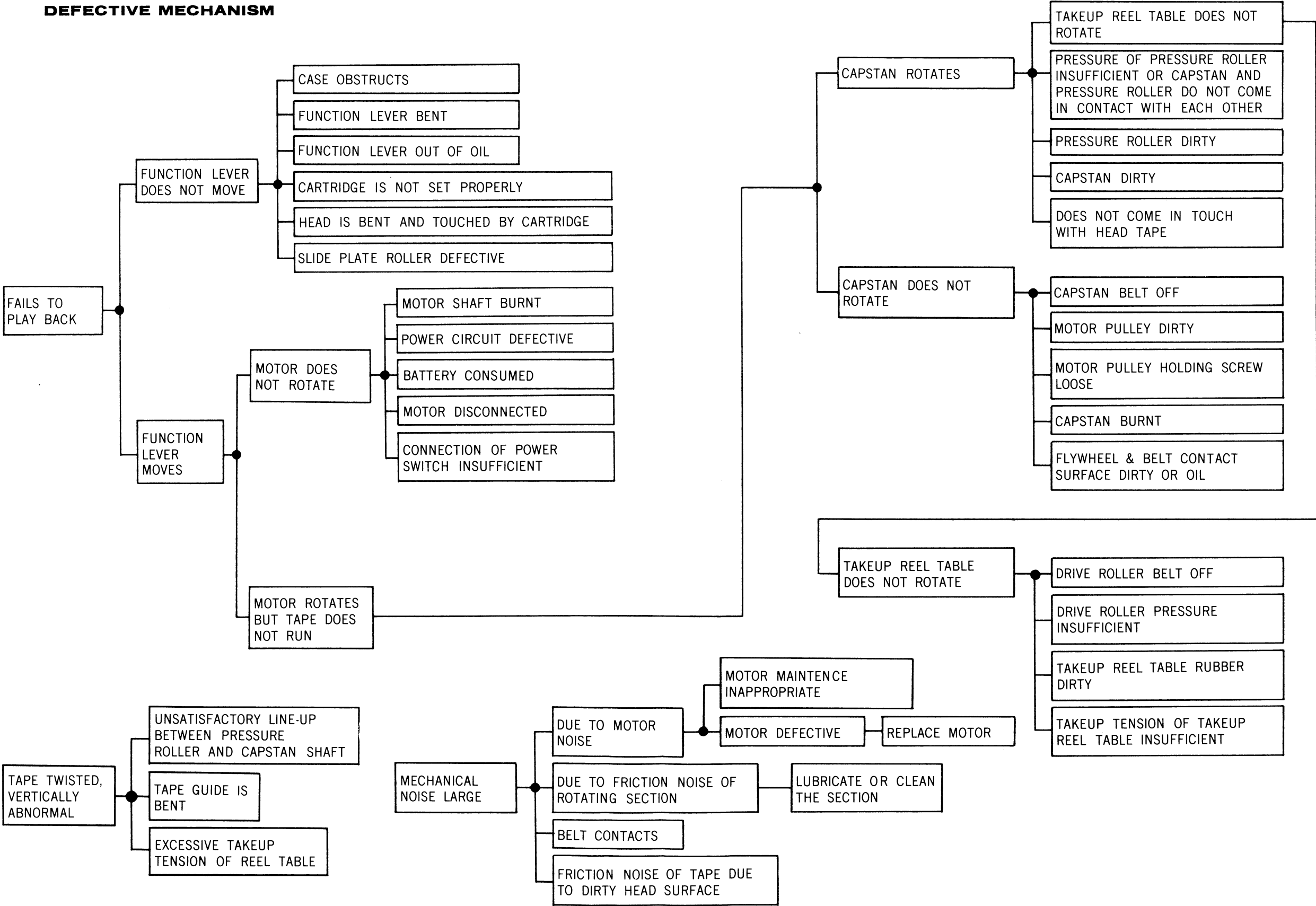


TROUBLE SHOOTING GUIDE 3

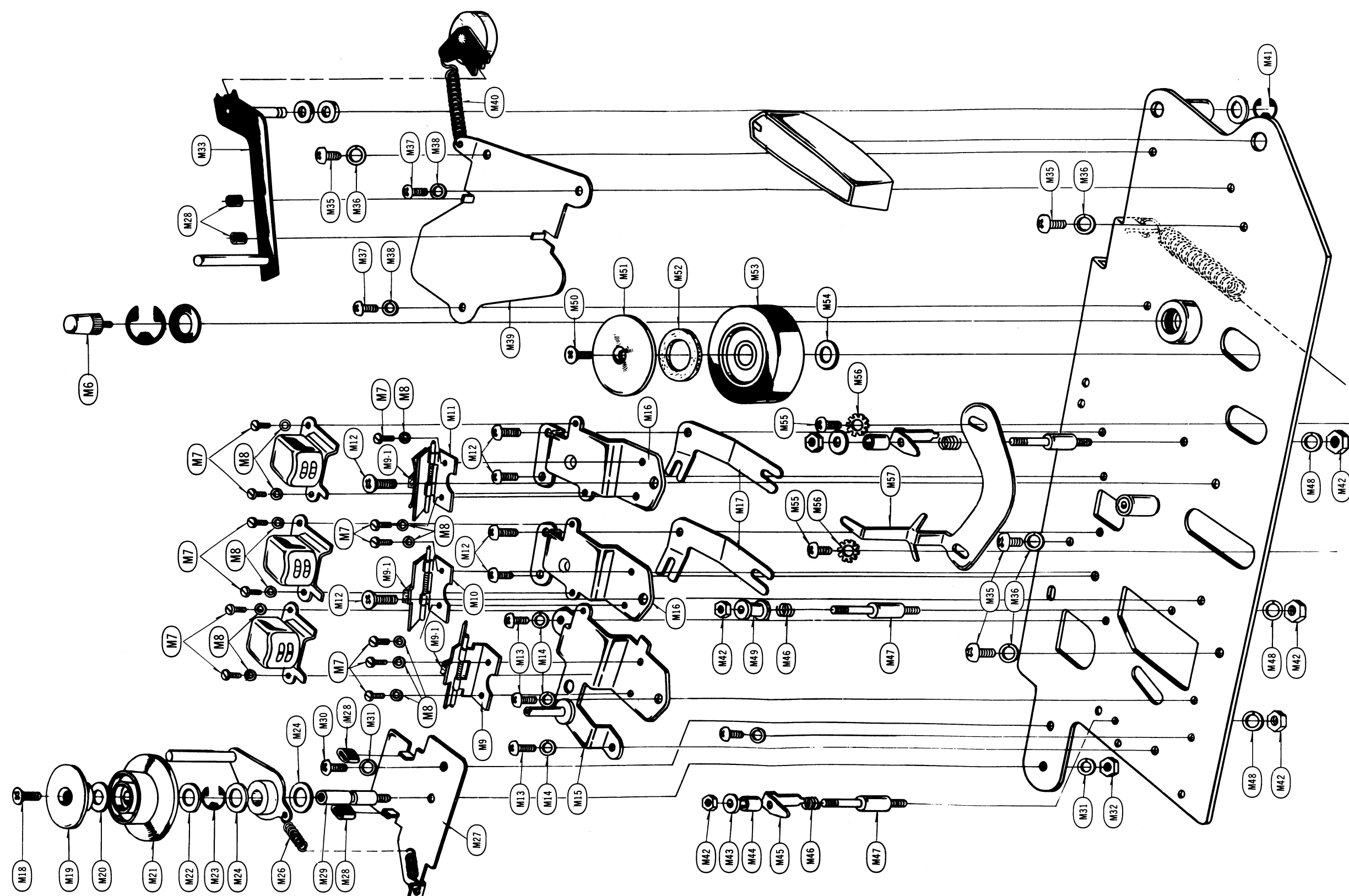
DEFECTIVE PLAYBACK CIRCUIT

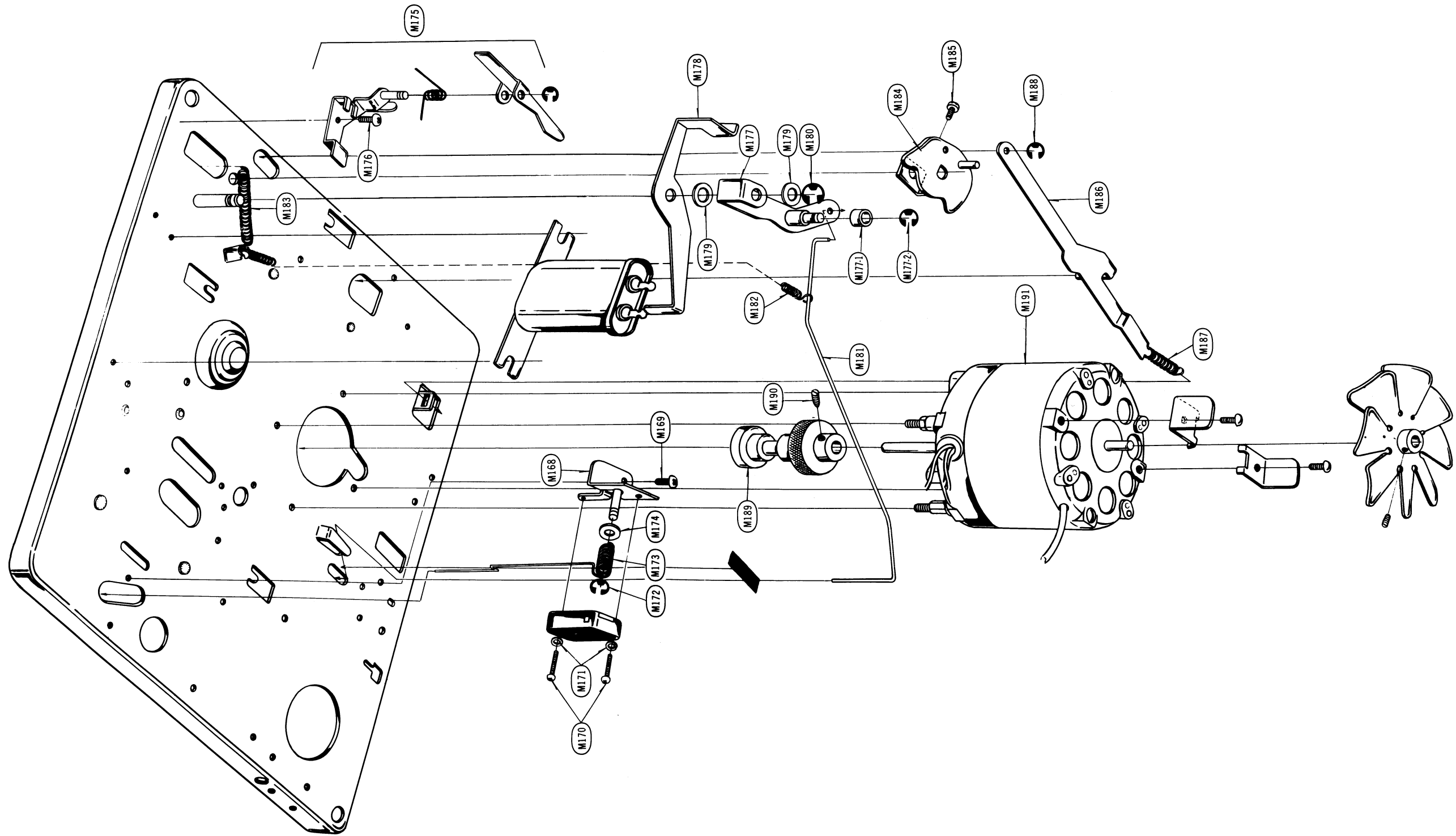


TROUBLE SHOOTING GUIDE 4



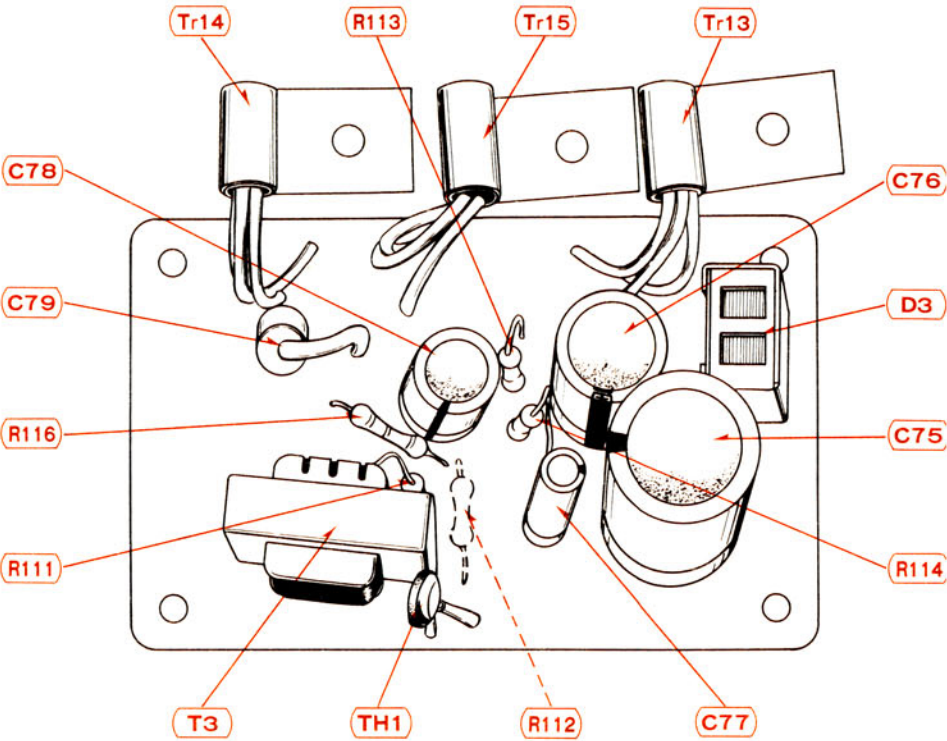
EXPLODED VIEWS



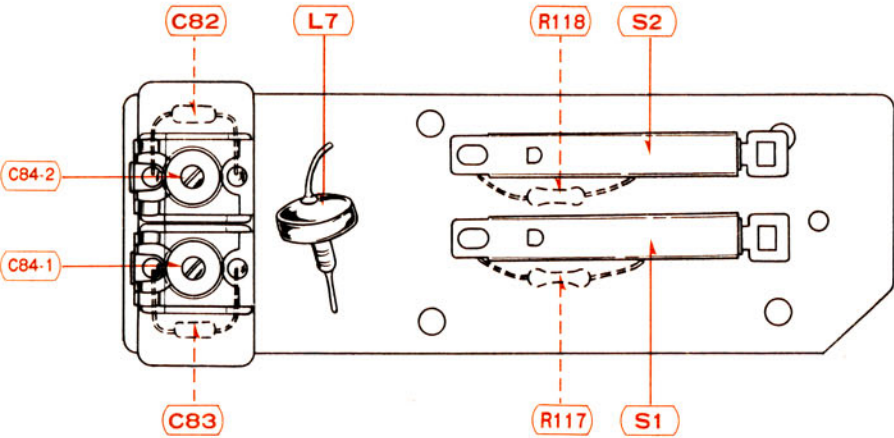


CIRCUIT BOARD

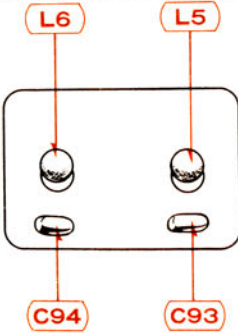
POWER CIRCUIT & OSC CIRCUIT SECTION



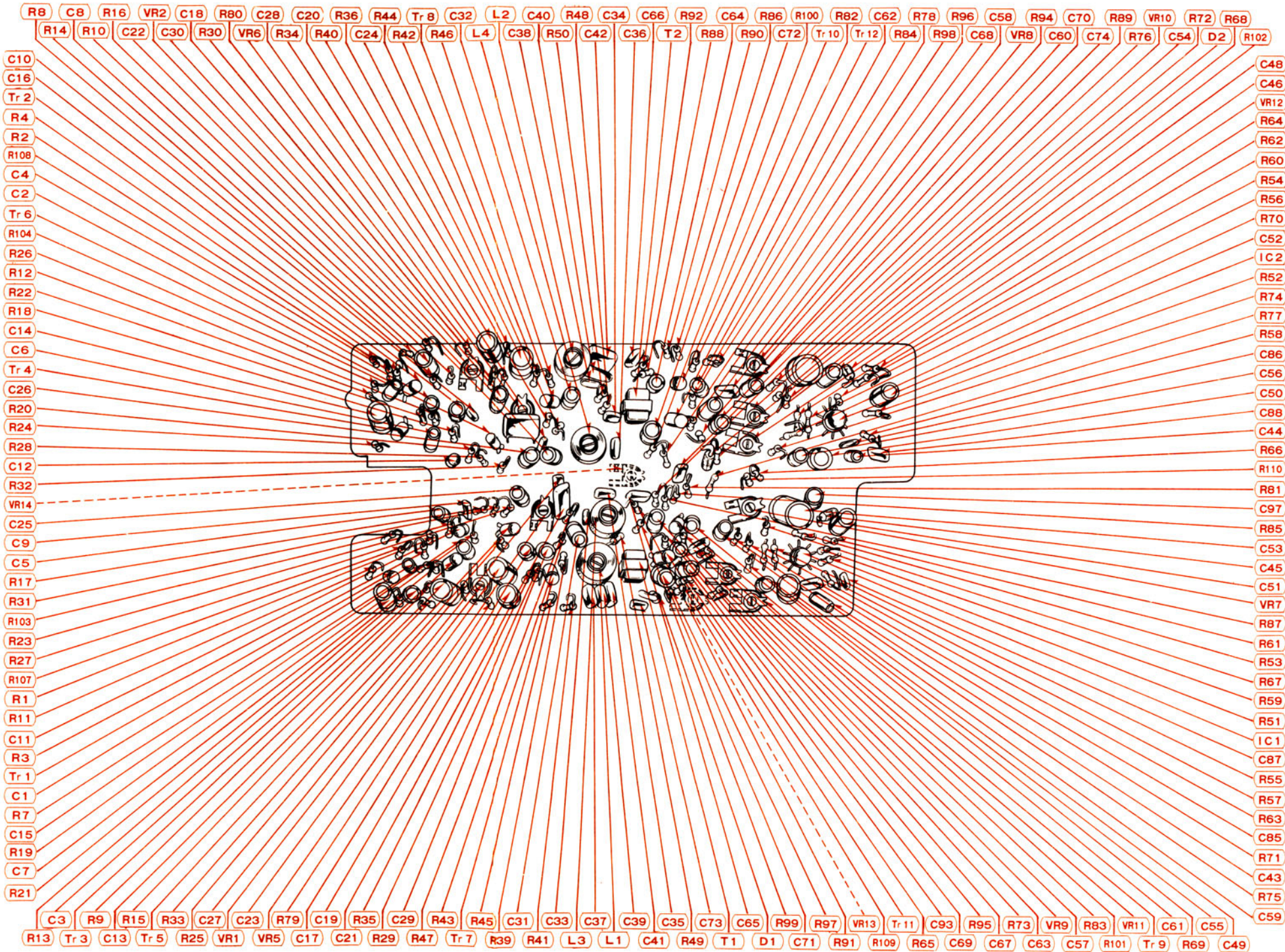
RECORD/PLAYBACK SELECTOR SECTION



HIGH CUT FILTER SECTION

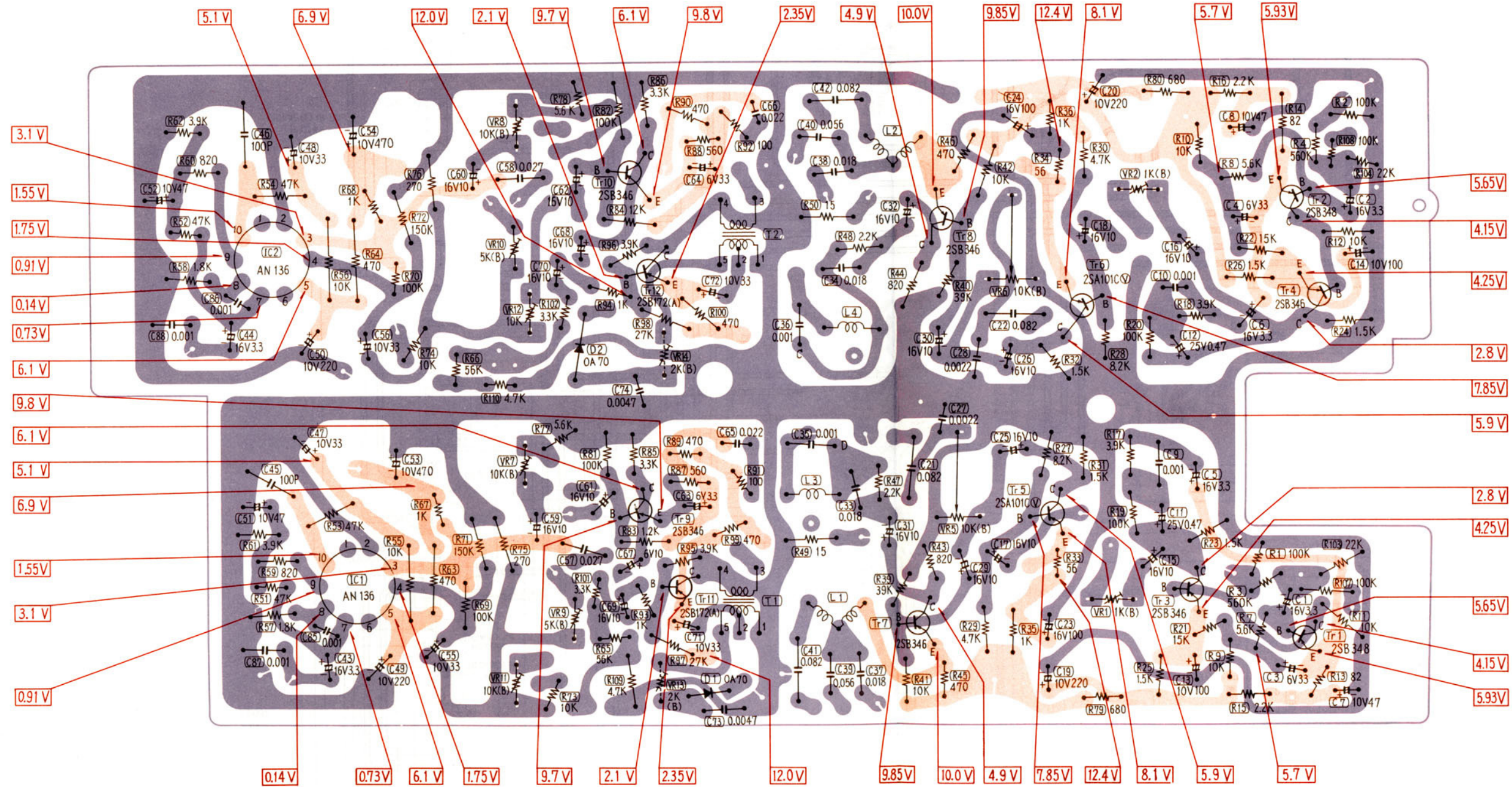


MAIN SECTION



CIRCUIT BOARD

MAIN SECTION

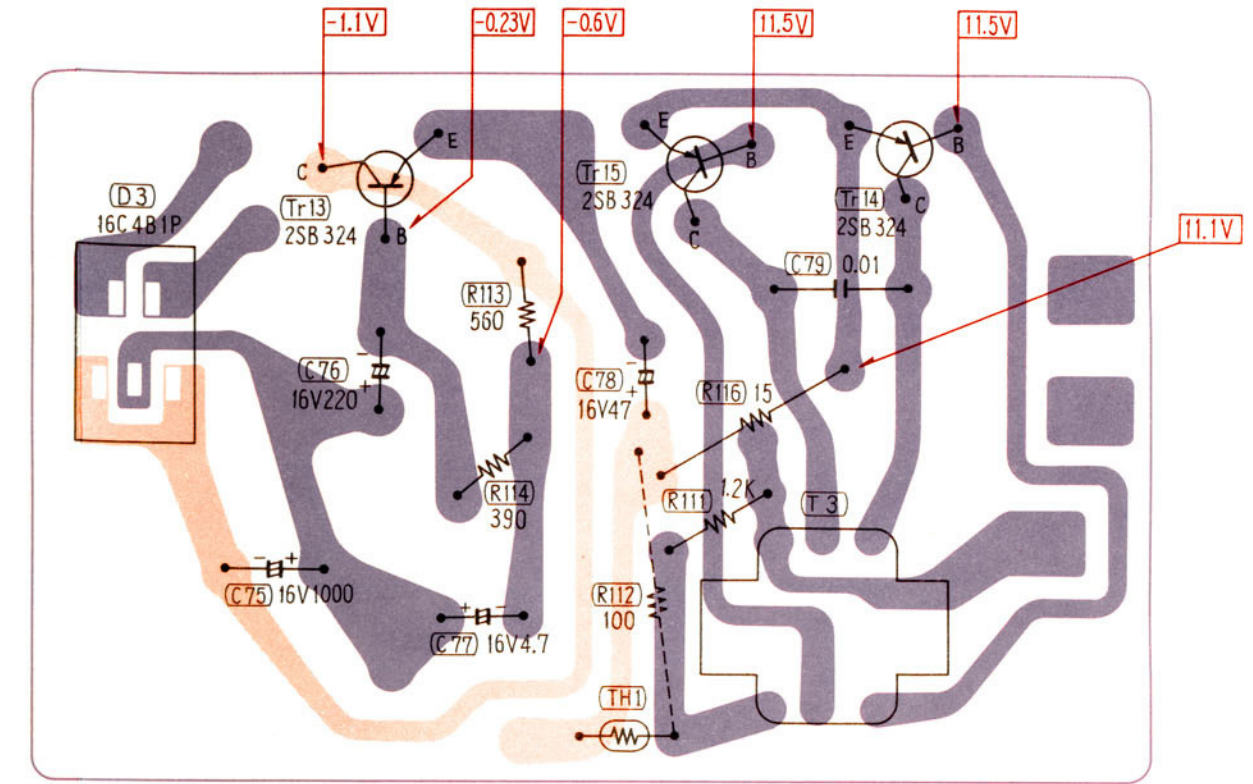


NOTE:

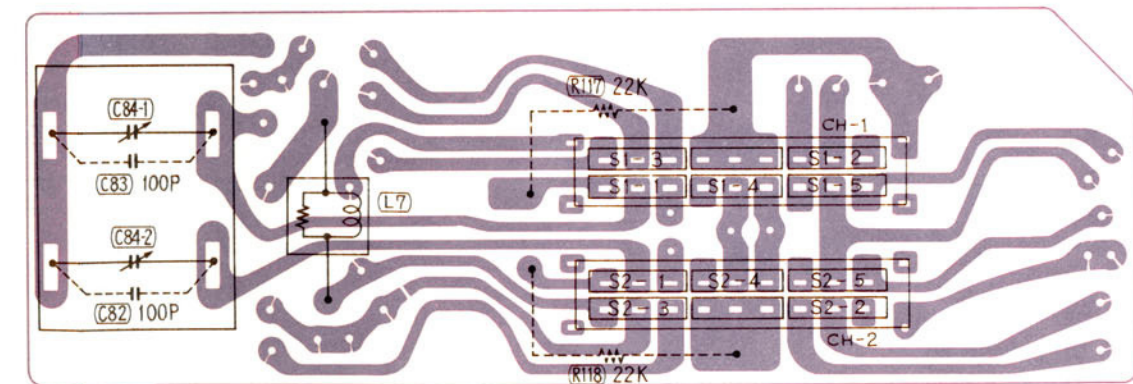
The circuit shown in red on the conductor side is -B circuit.

Values indicated in are DC to chassis ground with no signal applied.

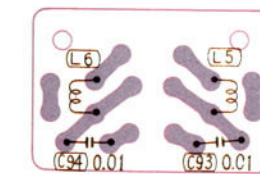
POWER CIRCUIT & OSC CIRCUIT SECTION



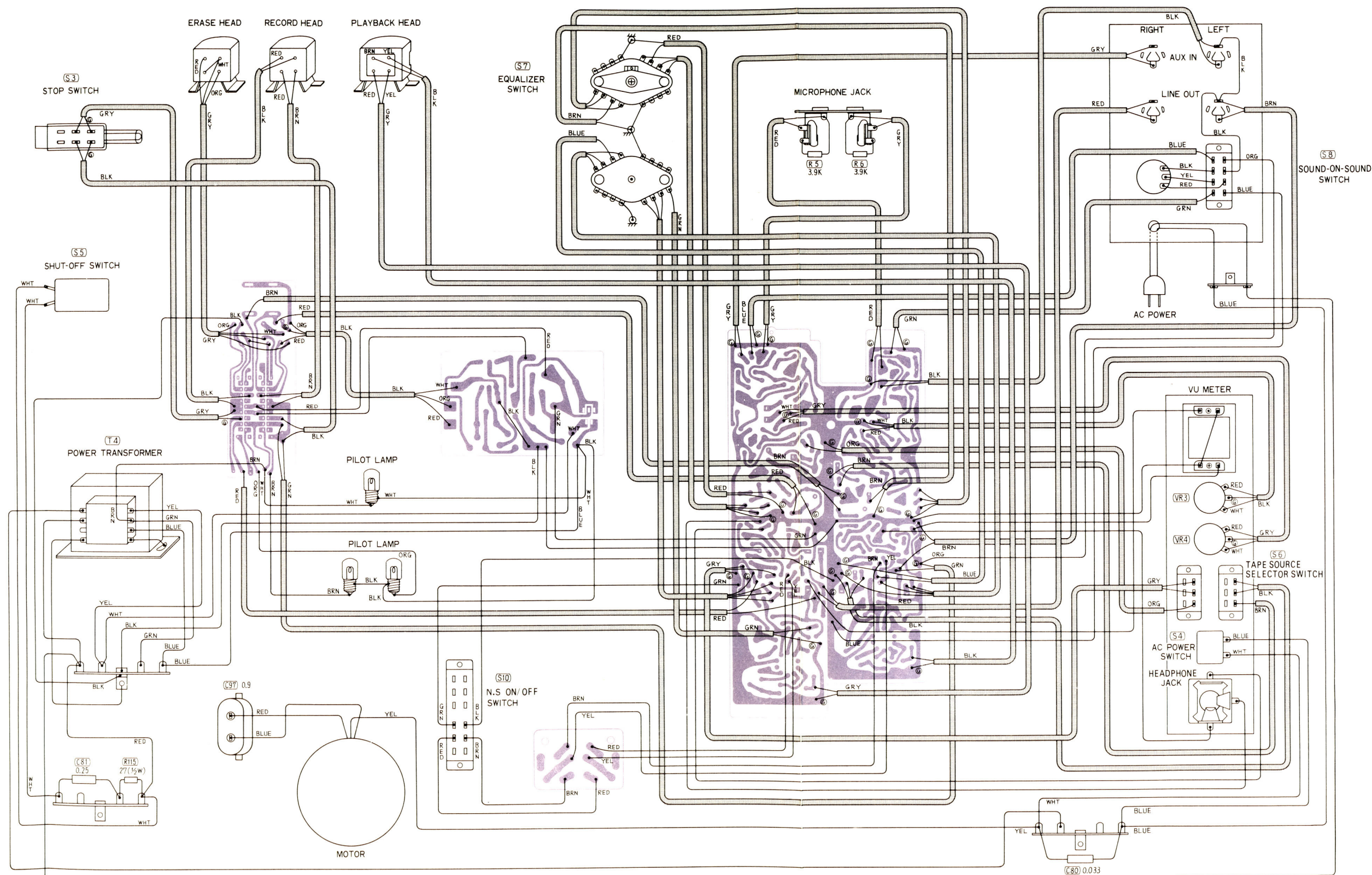
RECORD/PLAYBACK SELECTOR SECTION



HIGH CUT FILTER SECTION



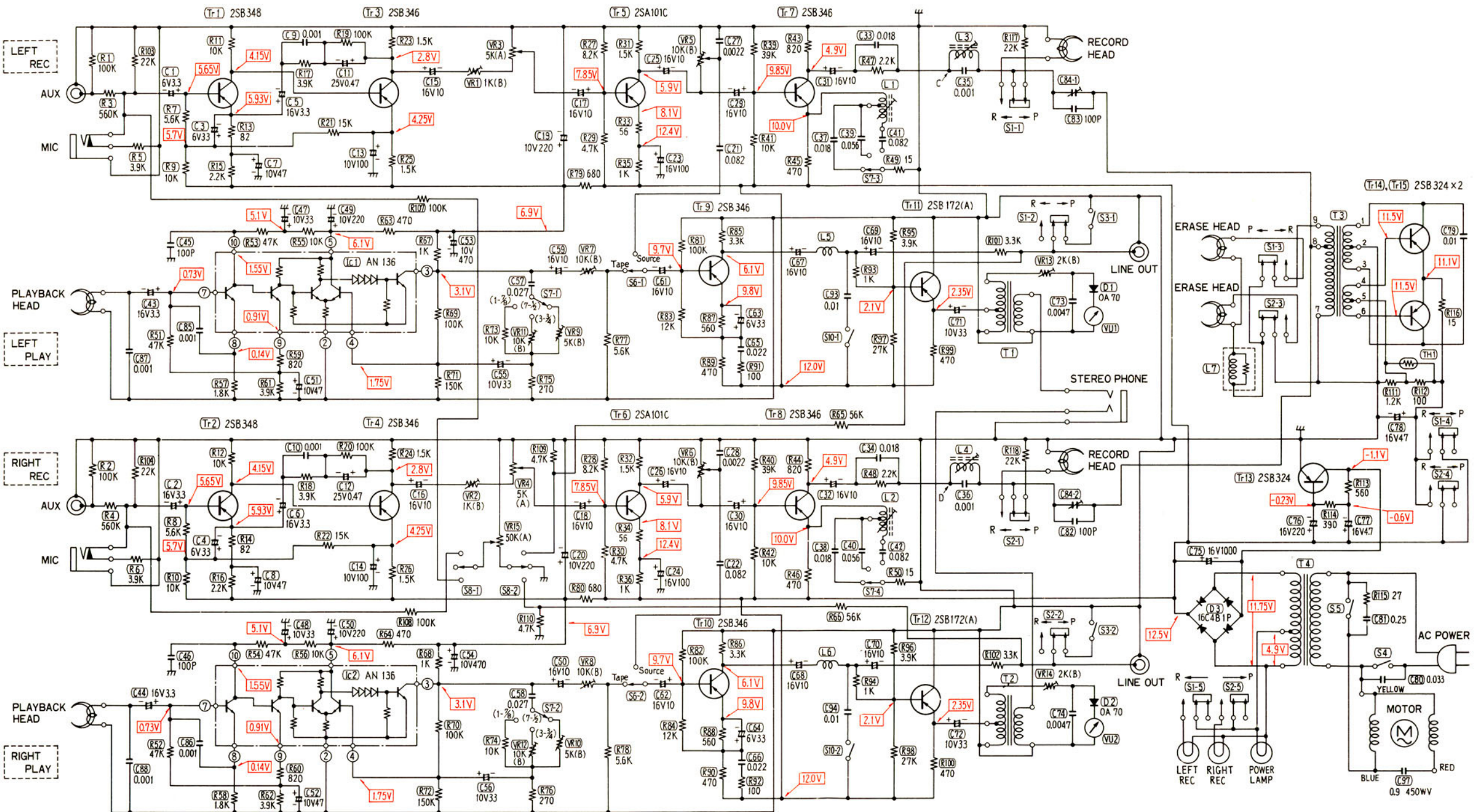
WIRING CONNECTION DIAGRAM MODEL RS-768US



NOTE:
BLK BLACK
BLUE BLUE
BRN BROWN
GRN GREEN
GRY GRAY
L. BLUE LIGHT BLUE
ORG ORANGE
RED RED
VLT VIOLET
WHT WHITE
YEL YELLOW
Ⓢ Shield Wire

SCHEMATIC DIAGRAM MODEL RS-768US

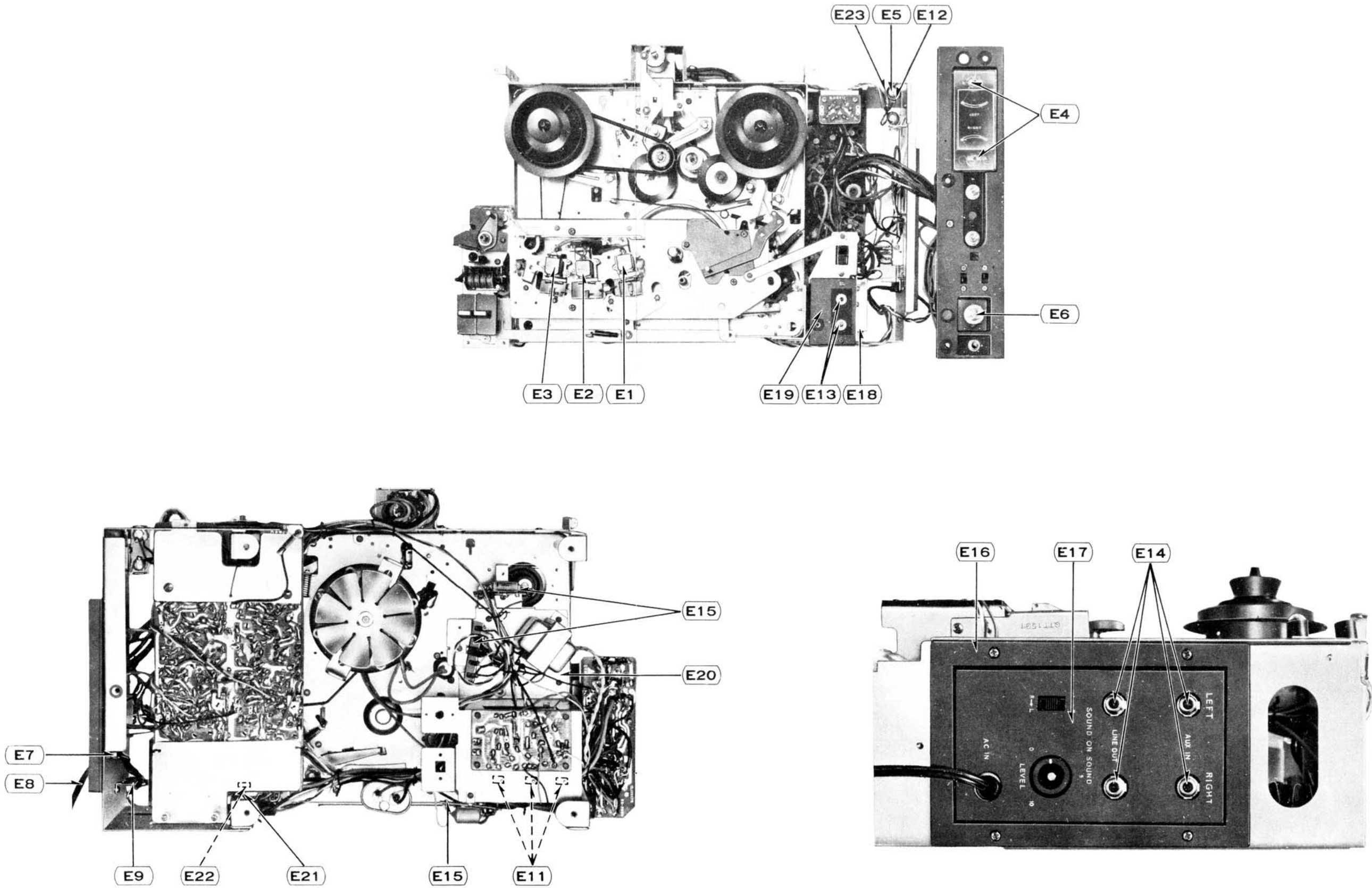
CAPACITORS	(C1)	(C3)	(C7)	(C5)(C9)	(C11)(C13)	(C15)	(C19)(C17)	(C25)(C23)	(C21)(C27)(C29)	(C31)(C37)(C39)(C33)(C41)	(C35)	(C83)	(C73)(C84-1)	(C79)
	(C87)(C43)	(C45)(C85)	(C47)(C51)	(C49)	(C16)	(C53)	(C55)(C57)(C59)	(C61)	(C63)(C65)	(C67)	(C71)	(C82)(C84-2)	(C76)	(C77)
	(C2)	(C4)	(C8)	(C6)(C10)	(C12)(C14)	(C16)	(C20)(C18)	(C26)(C74)	(C22)(C28)(C30)	(C32)(C38)(C40)(C34)(C42)	(C36)	(C82)(C84-2)	(C78)	(C79)
	(C88)(C44)	(C46)(C86)	(C48)(C52)	(C50)	(C54)	(C56)	(C58)(C60)	(C62)	(C64)(C66)	(C68)	(C72)	(C74)	(C75)	(C81)
RESISTORS	(R1)(R3)(R5)(R19)	(R7)(R9)	(R11)(R15)(R13)	(R17)	(R21)(R19)	(R23)(R25)(R107)	(R27)(R29)(R31)(R33)(R35)	(R39)(R41)(R43)(R45)	(R47)(R49)	(R117)	(R11)	(R12)	(R16)	
	(R51)	(R57)(R53)	(R61)(R59)(R55)	(R63)	(R67)(R69)(R71)	(R73)	(R75)	(R77)	(R83)(R81)(R87)(R89)(R85)(R91)	(R65)(R93)(R97)(R95)	(R99)	(R101)	(R11)	(R12)
	(R2)(R4)(R6)(R10)	(R8)(R10)	(R12)(R16)(R14)	(R18)	(R22)(R20)	(R24)(R28)(R108)	(R110)(R109)	(R80)(R28)(R30)(R32)(R34)(R36)	(R40)(R42)	(R44)(R46)	(R48)(R50)	(R102)	(R14)	(R13)
	(R52)	(R58)	(R54)(R62)(R60)(R56)	(R58)	(R68)(R70)(R72)	(R74)	(R76)	(R78)	(R84)(R82)(R88)(R90)(R86)(R92)	(R66)(R94)(R98)(R96)	(R100)	(R102)	(R115)	



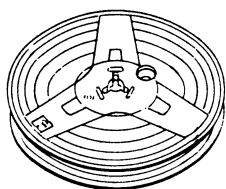
NOTE:

1. S1-1~S1-5, S2-1~S2-5 Record/Playback Selector Switch
(Shown in Playback position).
2. S3-1~S3-2 Stop Switch.
3. S4 AC Power Switch.
4. S5 Shut-off Switch.
5. S6-1~S6-2 Tape Source Selector Switch.
6. S7-1~S7-4 Equalizer Switch.
7. S8-1~S8-2 Sound-on-sound Switch.
8. S10-1~S10-2 N.S ON/OFF Switch.
9. C and D are check points for bias leakage.
10. Resistors are 1/4 watt unless specified otherwise.
K=1,000 Ω , M=1,000,000 Ω .
11. Capacitors are microfarad (μF) unless specified otherwise.
P=Micro-microfarads.
12. Values indicated in are DC to chassis ground with no signal applied.

ELECTRICAL PARTS LOCATION



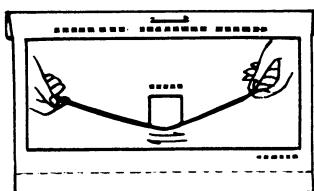
ACCESSORIES



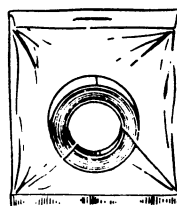
A1



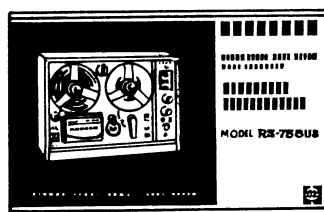
A2



A3



A4



A5