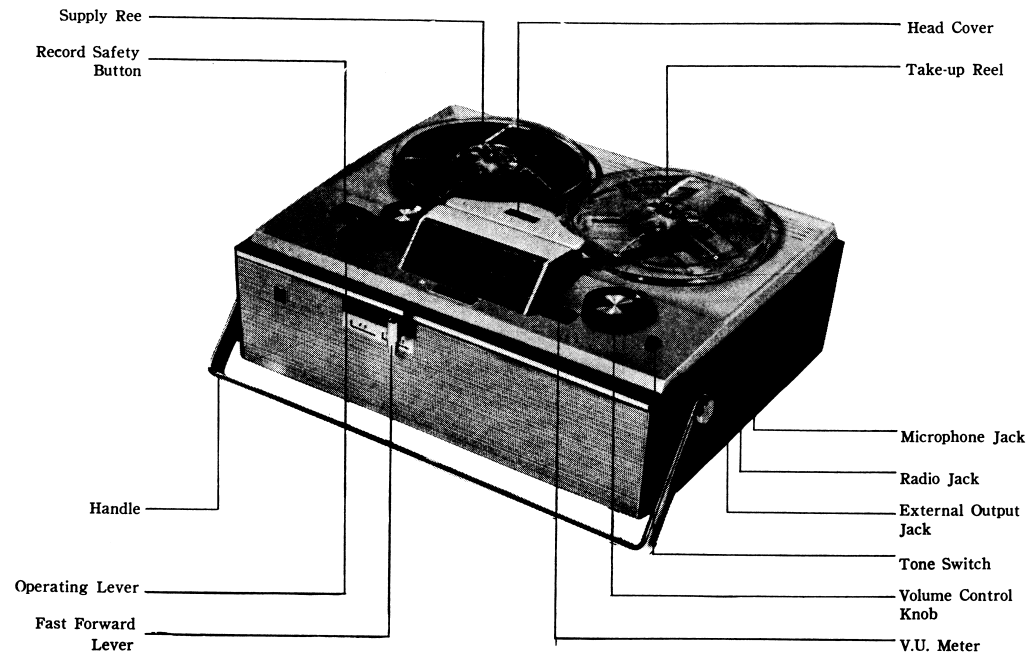


PARTS LOCATION



RQ - 505

Fig. 1

2. SPECIFICATIONS

Power Source:	A.C. 110V, 220V (50c/s, 60c/s)
Power Consumption:	20 watts (abt)
Audio Output:	1.5 watts
Transistors:	2SB173(1) 2SB324(2) 2SB175(3) 2SB172(1)
Diode:	OA-70(1)
Thermistor:	MT-8T(1)
Silicon Diode:	MP-01
Recording System:	AC Bias 35 KC
Erasure System:	DC Erase
Track System:	Double Track Recording System
Tape Speeds:	3-3/4 ips. (9.5 cm/sec) and 1-7/8 ips. (4.75 cm/sec)
Playing Time:	1-1/2 hours at 3-3/4 ips. with 5' Tape (900 ft.) 3 hours at 1-7/8 ips. with 5' Tape (900ft)
Frequency Response:	70-7,000 c/s at 3-3/4 ips. 70-4,000 c/s at 1-7/8 ips.
Wow and Flutter:	Less than 0.4% (at 3-3/4 ips.)
Input Impedance:	Microphone: 20KΩ (unbalanced) Radio 1.5MΩ
Output Impedance:	8Ω (unbalanced) External speaker Output
Fast Forward & Rewind Time:	within 3 minutes
Built-in Speaker:	6"×3" PM Dynamic
Dimensions:	11-4/10×5-4/10×9-1/2 inches
Weight:	7-3/4 lbs.

BLOCK DIAGRAM OF ELECTRICAL CIRCUITS

RECORDING CIRCUIT

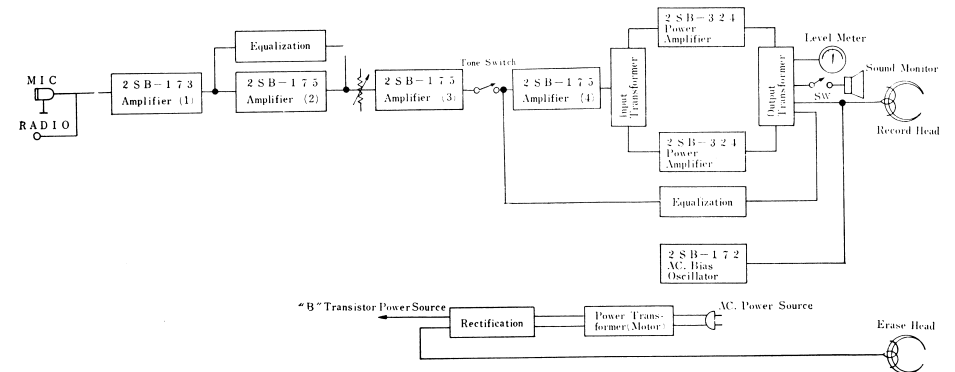


Fig. 2

PLAYBACK CIRCUIT

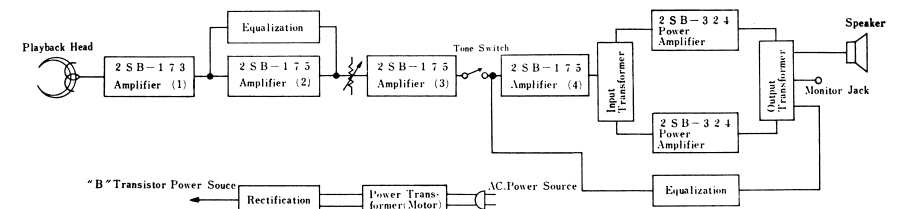


Fig. 3

TAKE-UP IDLER TENSION (Refer to Fig. 12)**Measurement**

Set the unit in Playback mode with Switch turned OFF. Fashion a loop from a suitable string and attach around Take-up Idler.

Hook Spring Scale (500g) on the string and pull it in the direction of a straight line from the centers of the Take-up Reel Table and the Take-up Idler.

Take reading of the Scale at the point where Take-up Idler comes off Take-up Reel Table.

Normal pressure of Take-up Idler shall be 150g.

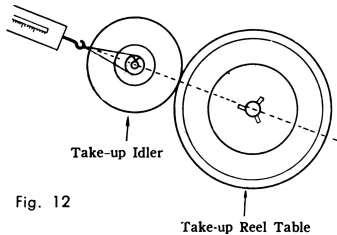


Fig. 12

REWIND IDLER

Set the unit in STOP mode with Power Switch turned OFF. Measure in a manner similar to the Take-up Idler measurement. Normal pressure of Rewind Idler shall be 180-120g.

WINDING TORQUE FOR PLAYBACK**Measurement** (Refer to Fig. 13)

Form a loop at the end of a 5 inch reel of tape with adhesive tape and place the Reel on Take-up Reel Table as shown. Hook Tension Gauge, 50g, on the loop at the end of the Tape.

Set the unit in Playback or Record mode.

Allow the Take-up Reel to pull Tension Gauge.

Read the gauge when it ceases to swing. (Repeat several times)

Normal torque shall be 3-8g for a 5-inch reel of tape, fully wound.

Adjustment

Adjust Tension Spring.

If tension is insufficient, cut the Spring one or two coils shorter. If too strong, stretch the whole length of the spring.

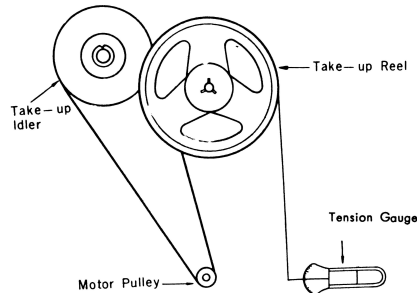


Fig. 13

WINDING TORQUE FOR FAST FORWARD**Measurement**

Place the unit in the Fast Forward mode and measure in a manner similar to Playback.

Normal Winding Torque in Fast Forward mode shall be over 40g for a 5-inch reel of tape, fully wound.

WINDING TORQUE FOR REWIND**Measurement** (Refer to Fig. 14)

Place the unit in the Rewind mode and measure in a manner similar to Playback.

Normal torque shall be over 40g for a 5-inch reel of tape, fully wound.

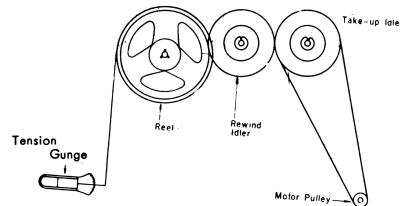


Fig. 14

TAPE PADS PRESSURE (Refer to Fig. 15)**Measurement**

Set the unit in Playback mode.

Press Tension Gauge on the center of tape pads.

Lightly separate Tape Pads from Head.

Read the gauge when Tape Pads are released.

Normal pressure at the point of the pin at the center of pads shall be 30-40g.

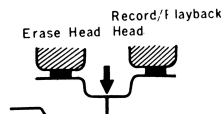


Fig. 15

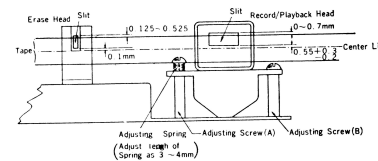
HEAD ADJUSTMENTS

Fig. 16

ERASE HEAD (Refer to Fig. 16)**To Adjust Erase Head Height**

1. Thread the recorder with tape.
2. Turn the opening lever in the Playback position and pull back Tape-pads.
3. Adjust the relative position of Head-core and tape as shown in illustration.
4. If the position of Head-core is too low, raise by means of spacers.

RECORD/PLAYBACK HEAD (Refer to Fig. 16)**To Adjust Record/Playback Head Height**

Repeat Steps 1, 2, 3 as stated above.

Level the Head on its base by adjusting the relative position of Head to the tape as shown above. Use standard alignment tape (with recording of 7000 c/s) and playback the signal on the tape. Find the maximum output point by adjusting screws (A) and (B).

When standard alignment tape is not available, properly record signal with a reliable, Tape-recorder and play it back. Adjust screws (A) and (B) for maximum playback output.

8. AMPLIFIER ADJUSTMENTS**STOP SWITCH**

Install a switch so that the secondary side of the output transformer is short-circuited, in order to prevent the generation of noise from amplifier through the speaker when switching to STOP, F.F. and Rewind.

BIAS OSCILLATOR FREQUENCY (Refer to Fig. 17)

Adjust the core adjusting screw of the oscillator coil so that the oscillator frequency of the recording bias and erasing high frequency oscillator circuit is at $35\text{KC} \pm 5\text{Kc}$.

Connect a 10 ohm resistor in series with the ground side of the erase head and measure the frequency of the voltage across the resistor with an oscilloscope. Compare with the frequency of a standard oscillator (Lissajous wave-form to be observed on the oscilloscope).

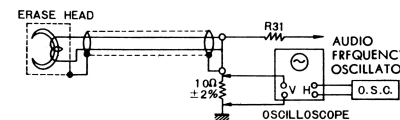


Fig. 17

BIAS CURRENT (Refer to Fig. 18)

Proper bias is necessary for optimum recording. Adjust the bias oscillator frequency as described above. Connect a 100 ohm resistor in series with the ground side of the Record/Playback head and measure the voltage across the resistor. Adjust with the V.R. 500Ω Proper AC bias: 0.6 mA

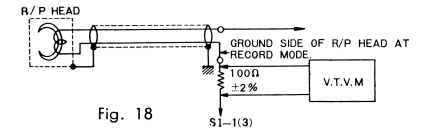


Fig. 18

(voltage at both sides of 100 ohm resistor: $0.6 \times 10^{-3} \times 100 = 0.6\text{V}$)

ERASE CURRENT

Should the erase current be incorrect, imperfect erasure or over-heating of the Erase Head may occur.

Connect a D.C. ammeter in series with the ground side (black) of Erase Head and measure the current. Normally the proper erase current is 8 to 12 mA. If necessary, adjust current by replacing Resistor R31 (820 ohm) which is connected in series to Erase Head.

RECORDING LEVEL (Refer to Fig. 19)

Unless recording level is adjusted properly, the output of the playback may be lowered or the sound may be distorted.

Adjust the level as follows if it is improper:

First, stop the bias oscillator by either short-circuiting the base of Oscillator Transistor 2SB-173 to ground or between the secondary side of Oscillator Transformer and ground. Then adjust variable control VR2 5K ohm so that the signal current to Record Head shows 0.07 mA when measured by a V.T.V.M. The V.U. Meter should show zero.

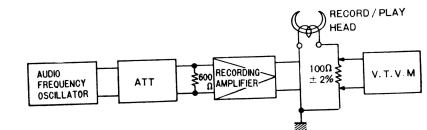


Fig. 19

FREQUENCY ADJUSTMENT

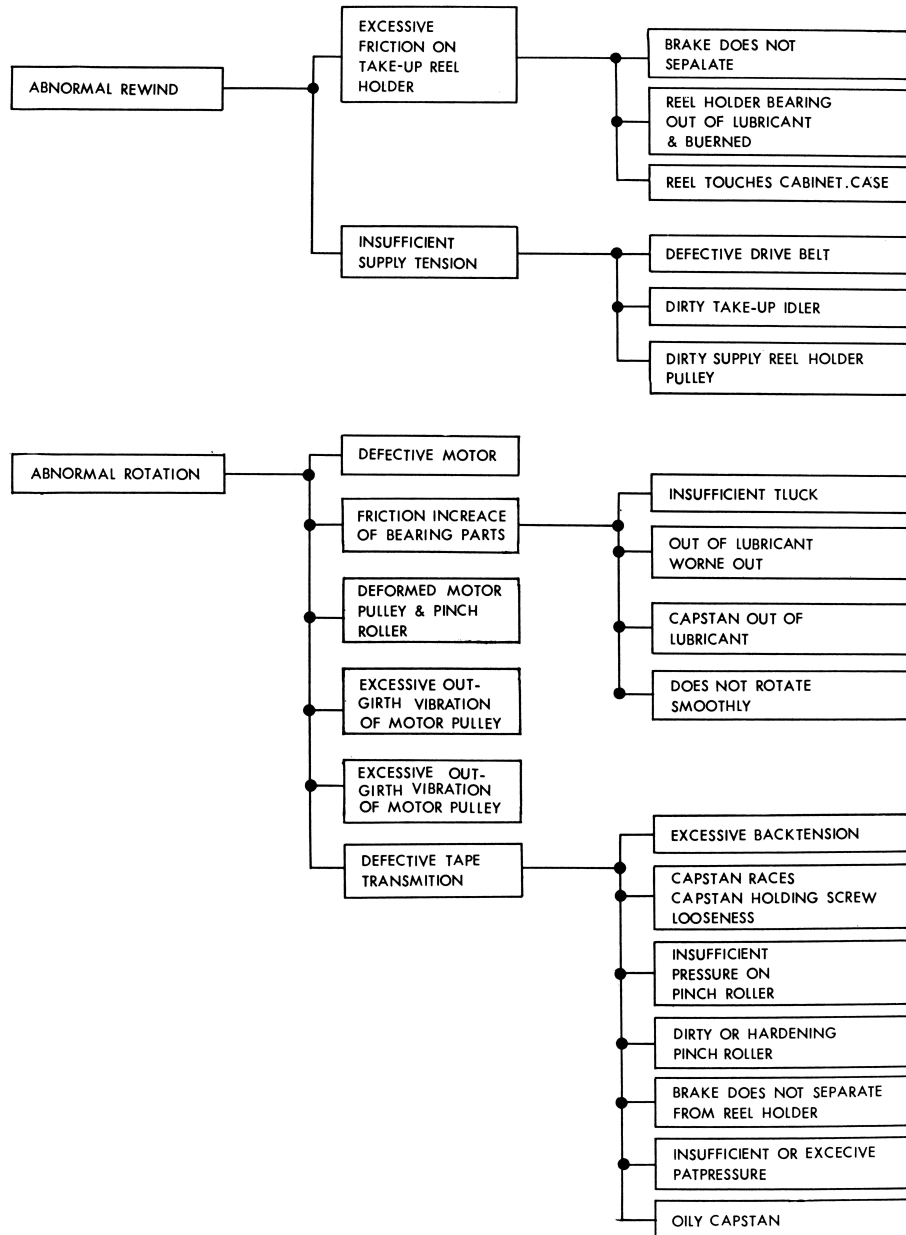
This set is already adjusted for use at 50 c/s. So, when you use the set at 60 c/s, please re-adjust it as follows:

1. Remove the Top panel and bottom case.
2. Loosen the head screw on the motor pulley, and take off the sleeve as illustrated in Fig. 20.
3. Put the removed sleeve rest, and fix it with the head screw.
4. Turn over the set. Shift the vinyl lead wires from ⑮ to ⑯, and from ⑮ to ⑯ respectively.

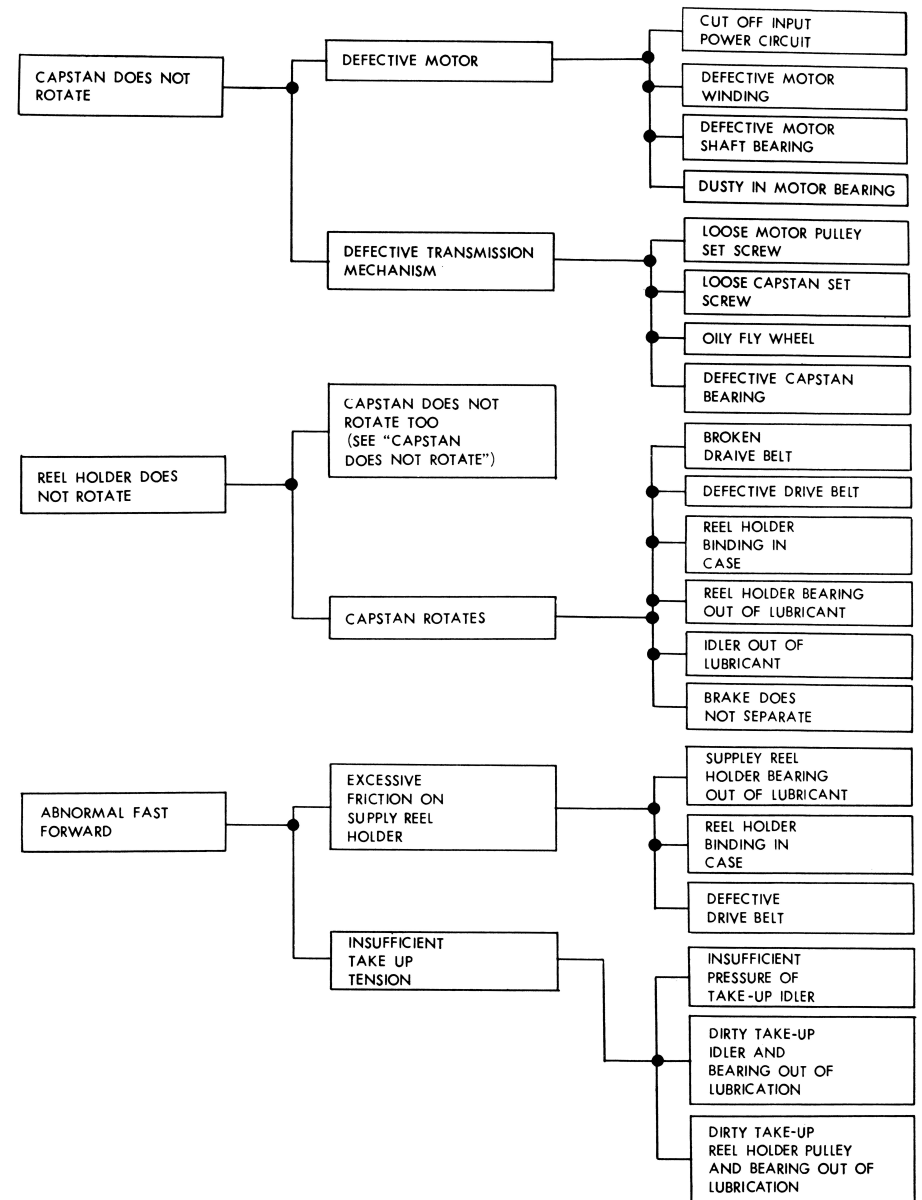
Note: Refer to the diagrams below when you shift the lead wires.

Reverse the instructions to adjust the set for use at 50c/s.

TROUBLE SHOOTING GUIDE 2



TROUBLE SHOOTING GUIDE 3



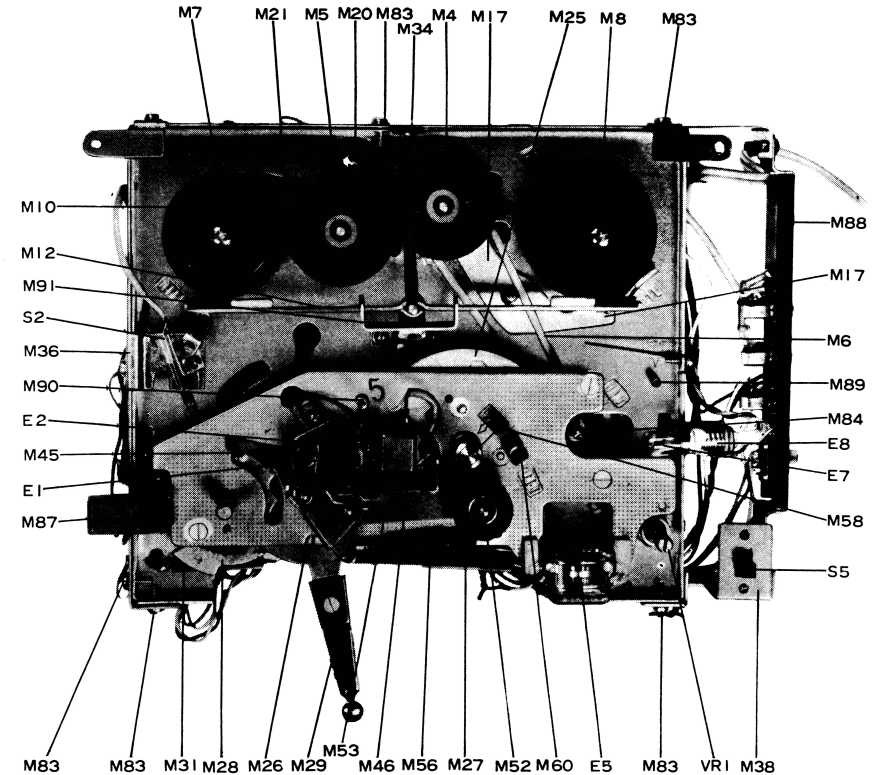
MECHANICAL PARTS

M- 1 C-Washer for Rewind Idler
 M- 2 Fiber Washer for Rewind Idler
 M- 3 Felt Washer for Rewind Idler
 M- 4 Takeup Idler
 M- 5 Rewind Idler
 M- 6 Takeup Belt
 M- 7 Screw for Reel Table
 M- 8 Takeup Reel Table
 M- 9 Reel Pulley
 M-10 Supply Reel Table
 M-11 Reel Table Shaft
 M-12 Brake Arm Assembly
 M-13 Screw for Brake Guide
 M-14 Spring Washer for Brake Guide
 M-15 Fiber Washer for Brake Lever
 M-16 Reel Table Shaft (Right)
 M-17 Takeup Guide Arm
 M-18 Spring Washer for Takeup Guide Arm
 M-19 Fiber Washer for Takeup Guide
 M-20 Setting Plate for Rewind Idler
 M-21 Rewind Idler Spring
 M-22 Chassis (A)
 M-23 Flywheel Bearing
 M-24 Screw for Flywheel Bearing
 M-25 Flywheel
 M-26 Fast Forward Lever
 M-27 Fast Forward Lever Spring
 M-28 Cam Plate
 M-29 Fast Forward Lever Knob
 M-30 Operating Arm
 M-31 Operating Arm Spring
 M-32 Operating Lever
 M-33 Chassis (B)
 M-34 Brake Guide Spring
 M-35 Chassis (C)
 M-36 Stop Switch Holder
 M-37 Fast Forward Spring
 M-38 Angle for Tone Switch
 M-39 Screw for Tone Switch
 M-40 Screw for Record Play Head Adjustment
 M-41 Spring Washer for above
 M-42 Spring for Record/Play Head Adjustment
 M-43 Screw for Erase Head
 M-44 Spring Washer for Erase Head
 M-45 Tape Guide (Left) Assembly
 M-46 Tape Pad Assembly
 M-47 Tape Guide Spacer
 M-48 Head Adjustment Plate
 M-49 Pinch Roller C-Washer
 M-50 Fiber Washer for Pinch Roller
 M-51 Felt Washer for Pinch Roller
 M-52 Pinch Roller
 M-53 Pinch Roller Lever
 M-54 C-Washer for Pinch Roller
 M-55 Fiber Washer for above
 M-56 Pinch Roller Spring
 M-57 Capstan Screw
 M-58 Capstan Sleeve
 M-59 C-Washer for Capstan Sleeve
 M-60 Tape Guide (Right)
 M-61 Pinch Roller Lever Shaft
 M-62 Screw for Chassis (A)
 M-63 Motor Spring
 M-64 Takeup Rod Spring
 M-65 Lever for Record Safety Button
 M-66 Takeup Rod
 M-67 Motor Setting Plate

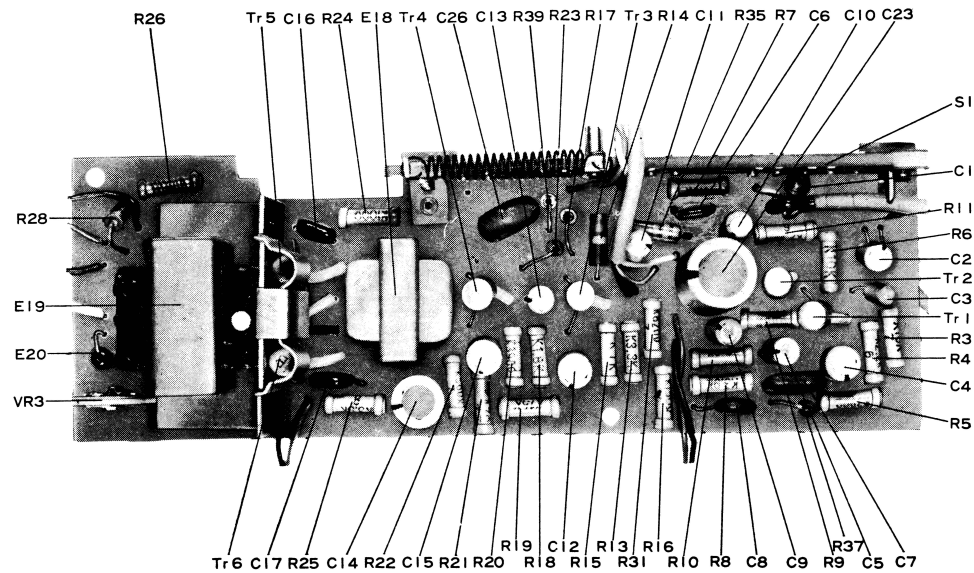
M-68 Fiber Washer for Brake Lever
 M-69 Rubber Cushion for Motor Setting Plate
 M-70 Screw for Rubber Cushion
 M-71
 M-72 Hook for Brake Spring
 M-73 Spring Washer for Brake Lever
 M-74 Stop Switch Setting Plate
 M-75 Screw for Printed Circuit Board
 M-76 Screw for Stop Switch
 M-77 Hook for Brake Spring
 M-78 Pilot Lamp Holder
 M-80 Screw for above
 M-81 Nut for Reel Table Spindle
 M-82 Screw for Jacks Board
 M-83 Screw for Chassis Holder
 M-84 Motor Pulley
 M-85 AC Selector Switch Holder
 M-86 Washer for Motor Setting Plate
 M-87 Record Button
 M-88 Jacks Board
 M-89 Motor Pulley Rest
 M-90 Capstan Rest
 M-91 Brake Guide

ACCESSORIES

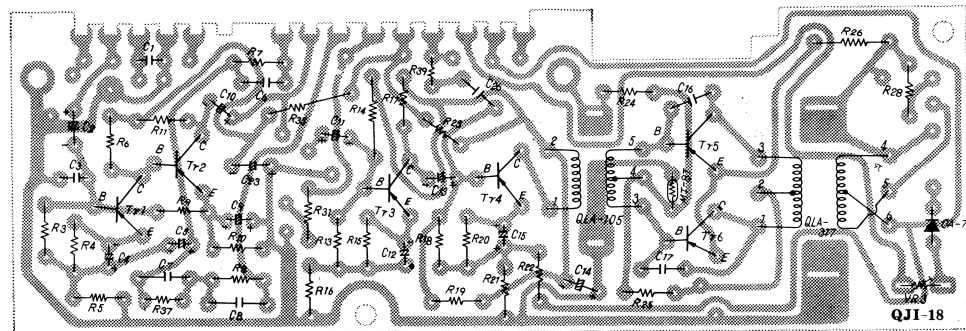
A- 1 Dynamic Microphone (WM-2048N)
 A- 2 5" Recording Tape (600ft)
 A- 3 5" Empty Reel
 A- 4 Radio Cord
 A- 5 Connector Cord
 A- 6 Splicing Tape
 A- 7 Operating Instructions

**Top View Mechanism**

PRINTED CIRCUIT BOARD (QJI-18) & (QJI-19)



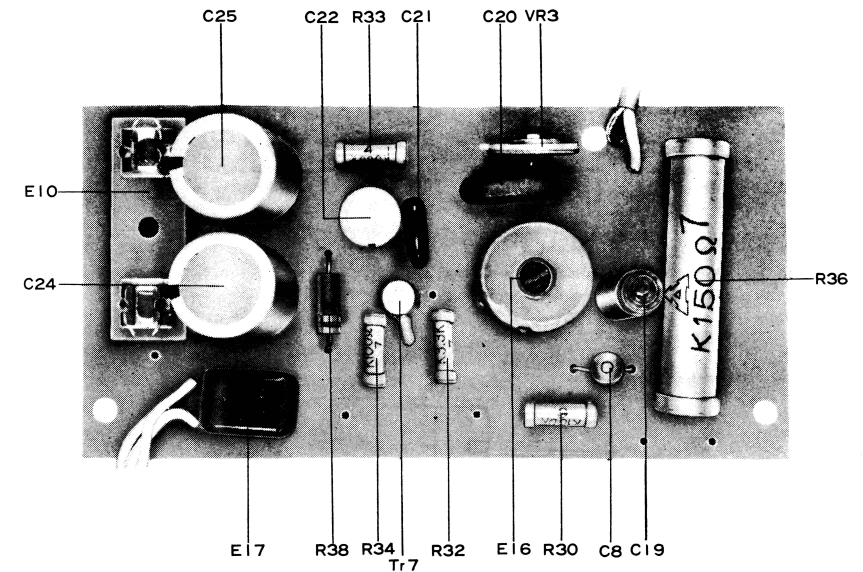
Electrical Parts Location



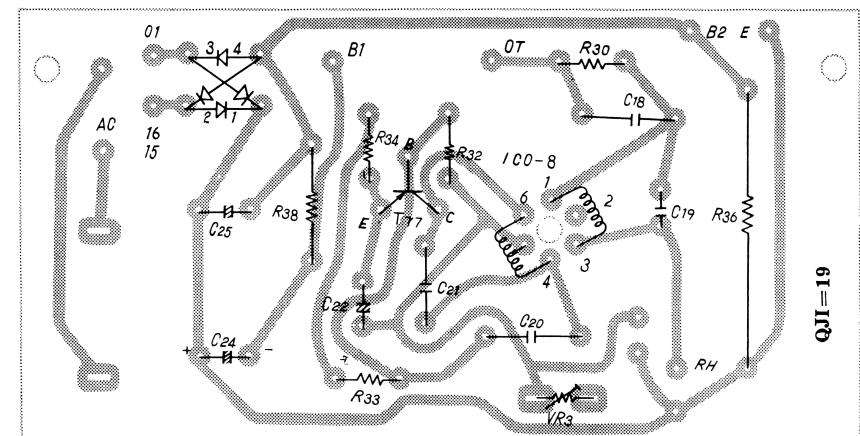
Note :
.....are mounted on the reverse side.

NATIONAL MODEL RQ-505

N19-8.

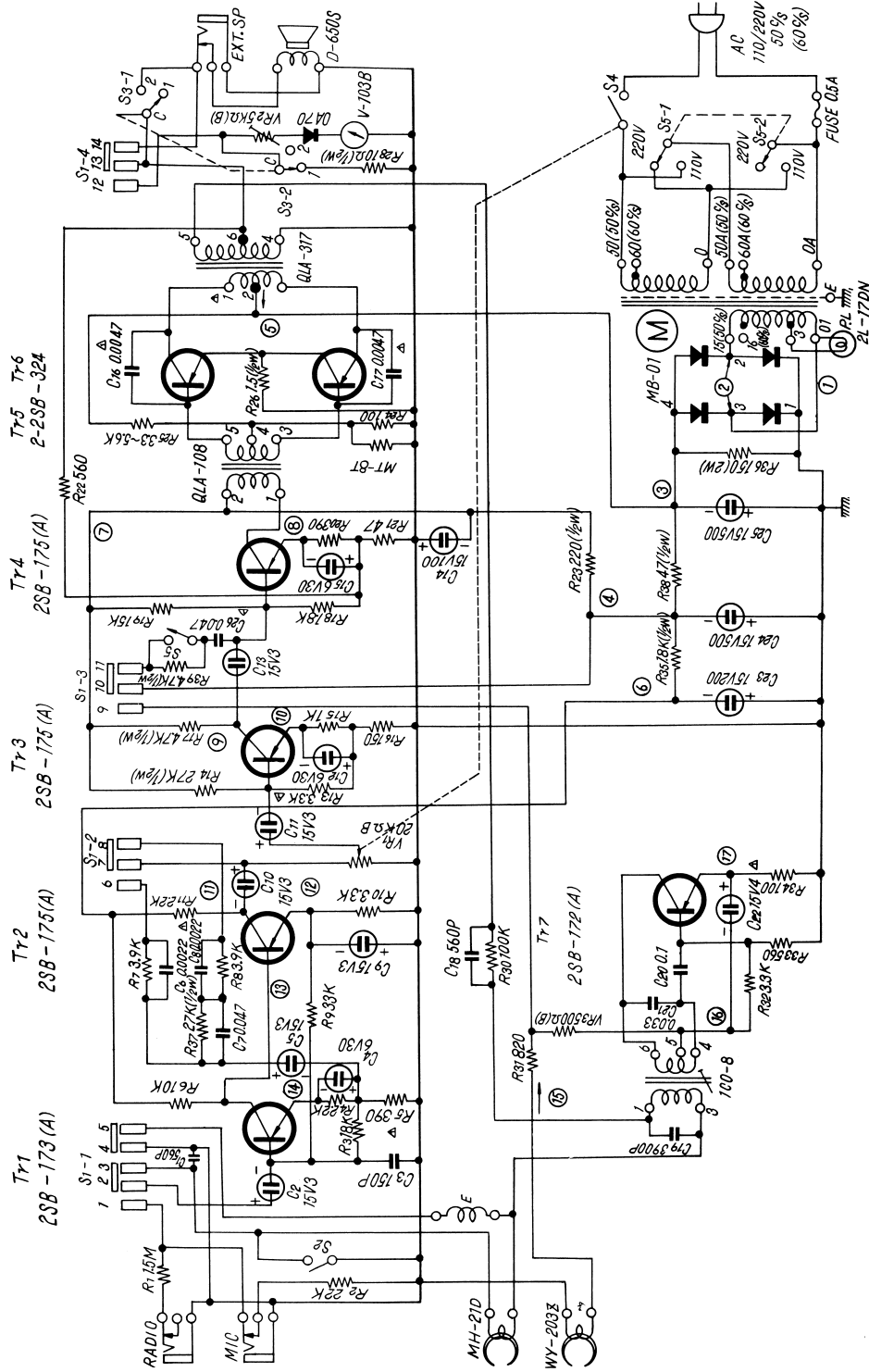


Electrical Parts Location



Note :
.....are mounted on the reverse side.

15. SCHEMATIC DIAGRAM



- NOTE:**
1. S1 Record/Playback Selector Switch (shown in Play position)
 2. S2 Stop Switch
 3. S3 Monitor Switch
 4. S4 On/Off Switch (ganged with VR1)
5. S5 Tone Switch
6. Capacity of resistor with no unit indication is Ω . K—is 1000, M—is 100,000
7. Value of capacitors with no unit indication is Microfarads, P—is Micro-microfarads.

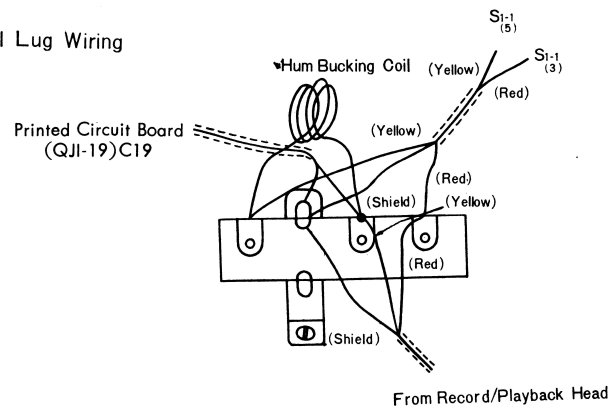
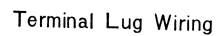
NATIONAL MODEL RQ-505

N19-10

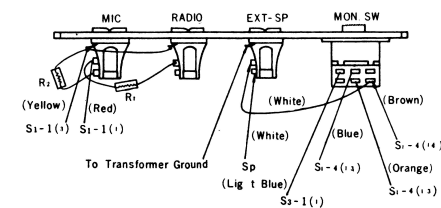
VOLTAGE CHART

NO.	Record Mode (V)	Playback Mode (V)	Tolerance (%)
1	AC 3.0V	AC 3.0V	10%
2	AC 10.5V	AC 10.5V	5%
3	DC -11.5V	DC -12.5V	5%
4	DC -10.5V	DC -11.5V	5%
5	DC 6mA	DC 6mA	2mA
6	DC -8.0V	DC -8.5V	10%
7	DC -10.2V	DC -10.7V	10%
8	DC -1V	DC -1.1V	15%
9	DC -6.5V	DC 6.8V	15%
10	DC -1.1V	DC -1.2V	15%
11	DC -5.4V	DC -5.7V	15%
12	DC -3.6V	DC -4.0V	15%
13	DC -3.7V	DC 4.1V	15%
14	DC -1.2V	DC 1.3V	15%
15	DC -10mA		2mA
16	DC -7.4V		20%
17	DC -1.1V		20%

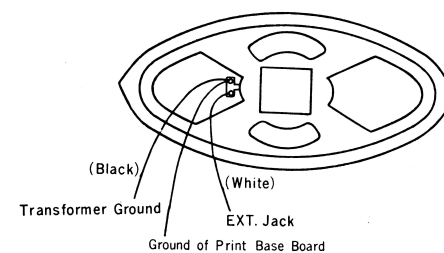
Wiring Top View



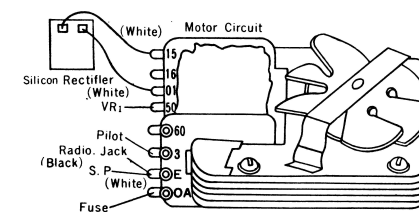
Jack Board Top View



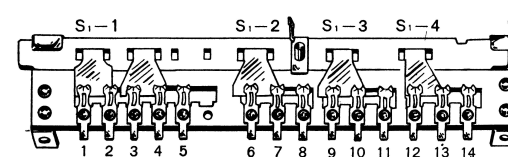
Speaker Wiring Top View

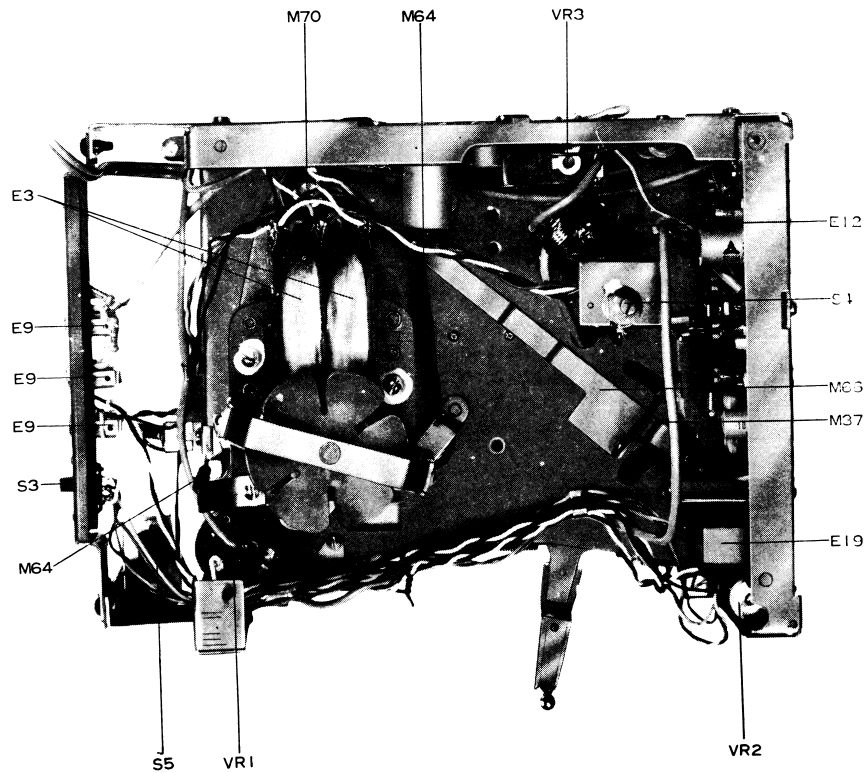


Motor Wiring (Shown in 50c/s)

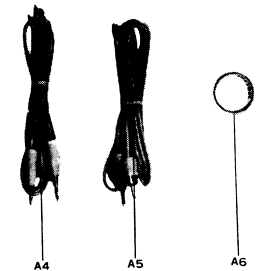
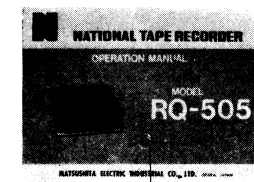
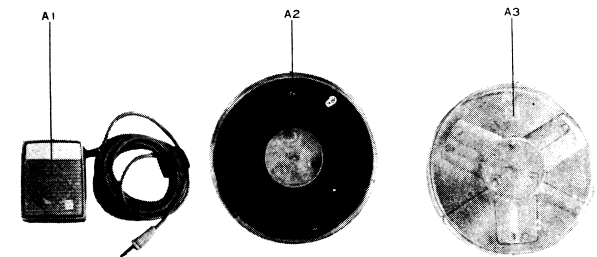
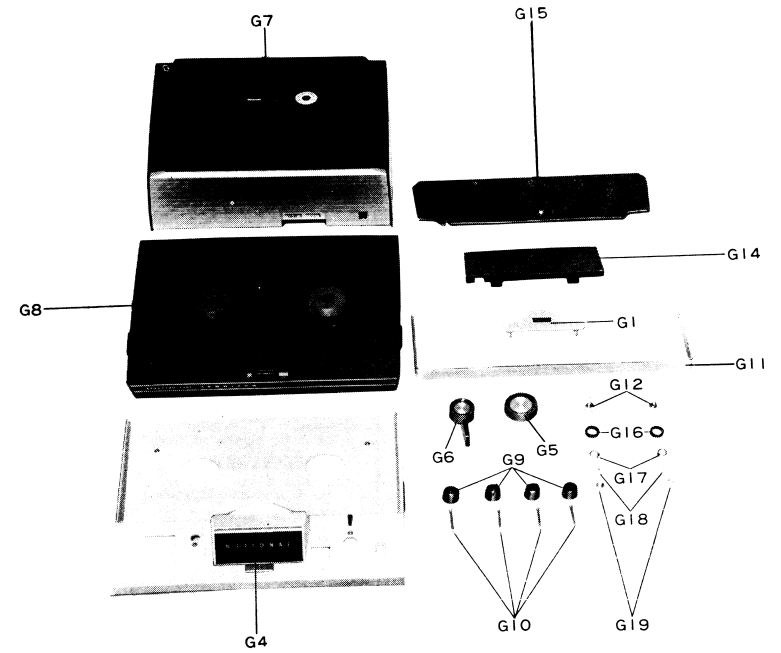


Slide Switch Top View

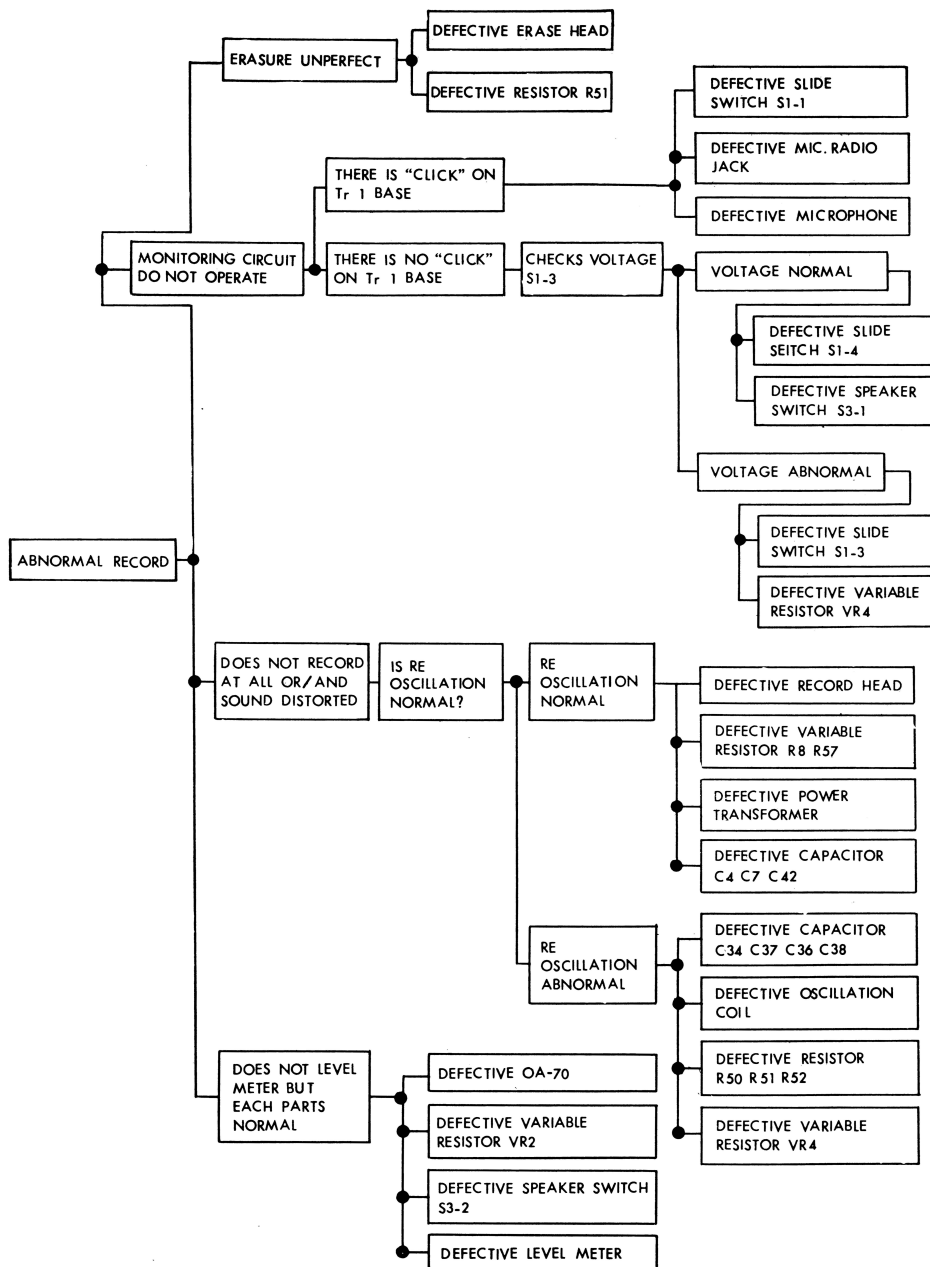




Bottom View of Mechanism



TROUBLE SHOOTING GUIDE 4



REPLACEMENT PARTS

RESISTORS

Symbol	Parts No.	Description
R-1	ERD-14LZK 1.5MΩ	Carbon Resistor
R-2	" 22kΩ	"
R-3	" 18kΩ	"
R-4	" 2.2kΩ	"
R-5	" 390Ω	"
R-6	" 10kΩ	"
R-7	" 3.9kΩ	"
R-8	" 3.9kΩ	"
R-9	" 33kΩ	"
R-10	" 3.3kΩ	"
R-11	" 2.2kΩ	"
R-13	" 3.3kΩ	"
R-14	ERC-12BFM 27kΩ	Solid Resistor
P-15	ERD-14LZK 1kΩ	Carbon Resistor
R-16	" 150Ω	"
R-17	ERC-12BFM 4.7kΩ	Solid Resistor
R-18	ERD-14LZK 1.8kΩ	Carbon Resistor
R-19	" 15kΩ	"
R-20	" 390Ω	"
P-21	" 47Ω	"
R-22	" 560Ω	"
R-23	ERC-12BFM 22Ω	Solid Resistor
R-24	ERD-14LZK 100Ω	Carbon Resistor
R-25	" 3.3-7.7kΩ	Carbon Resistor
R-26	ERW12L 1.5Ω	Wire Wound Resistor
R-28	ERC-12BFM 10Ω	Solid Resistor
R-30	" 100kΩ	"
R-31	" 820Ω	"
R-32	" 22kΩ	"
R-33	" 560Ω	"
R-34	" 100Ω	"
R-35	ERC-12BFM 1.8kΩ	Solid Resistor
R-36	ERD-2LZK 150Ω	Carbon Resistor
R-37	ERC-12BFM 27kΩ	Solid Resistor
R-38	ERD-12LZK 47Ω	Carbon Resistor
R-39	ERC-12BFM 47kΩ	Solid Resistor

VARIABLE RESISTORS

VR-1	EVC-AODL30B24	Volume Control
VR-2	EVJ-LOAAO0B53	V.U. meter Control
VR-3	EVJ-LOAAO0B52	Oscillator Control

CAPACITORS

C-1	ECQ-S1561KZ	Polystyrene Capacitor
C-2	ECE-A15V 3	Electrolytic Capacitor
C-3	ECQ-S1151KZ	Polystyrene Capacitor
C-4	ECE-A6V 30	Electrolytic Capacitor
C-5	ECE-A15V 3	"
C-6	ECQ-M05222MZ	Mylar Capacitor
C-7	ECQ-M05473MZ	"
C-8	ECQ-M0222MZ	"
C-9	ECE-A15V 3	Electrolytic Capacitor
C-10	ECE-A15V 3	"
C-11	ECE-A15V 3	"
C-12	ECE-A6V 30	"
C-13	ECE-A15V 3	"
C-14	ECE-A15V 100	"
C-15	ECE-A6V 30	"
C-16	ECQ-M05472MZ	Mylar Capacitor
C-17	ECQ-M05472MZ	"
C-18	ECQ-S1561KZ	Polystyrene Capacitor
C-19	ECQ-S1392KZ	"

C-20	ECQ-M05104MZ	Mylar Capacitor
C-21	ECQ-M05333MZ	"
C-22	ECE-A15V4I	Electrolytic Capacitor
C-23	ECE-A15V 200	"
C-24	ECE-A15V 500Z	"
C-25	ECE-A15V 500Z	"
C-26	ECQ-M05473MZ	Mylar Capacitor

ELECTRICAL PARTS

E-1	MH-21D	Record/Playback Head
E-2	WY-203Z	Erasing Head
E-3	2L-17DN	Motor
E-4	ESA-15D30S	Speaker
E-5	V-103B	V.U. Meter
E-6		Heat Sink
E-7	6.3V0.17A	Pilot Lamp
E-8		Pilot Socket
E-9	M-3(A)	Radio, Mic, Ext. Jack
E-10	1P-A	Fuse Holder
E-11	0.5A	Fuse
E-12		Hum Bucking Coil
E-13	1-3PLH(A)	Lug Board
E-14	QJI-18	Printed Circuit Board
E-15	QJI-19	Printed Circuit Board
E-16	ICO-8	Oscillator Coil
E-17	MB-01	Silicon Rectifier
E-18	QLA-108	Input Transformer
E-19	QLA-317	Output Transformer
E-20	0A-70	Germanium Diode
E-21	MT-8T	Thermistor

TRANSISTORS

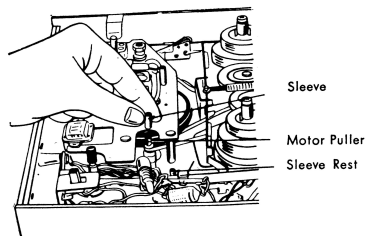
Tr-1	2SB173A	Transistor
Tr-2	23B175A	"
Tr-3	"	"
Tr-4	"	"
Tr-5	2SB324	"
Tr-6	"	"
Tr-7	2SB172A	"

SWITCHES

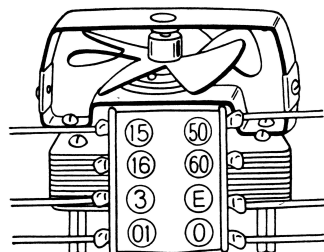
S-1	ESD-1212	Record/Playback Selector Switch
S-2	QSB-102	Stop Switch
S-3	SW22	Monitor Selector Switch
S-4	ESR-E122S20AE	Voltage Selector Switch
S-5	ESD-105	Tone Switch

CABINET PARTS

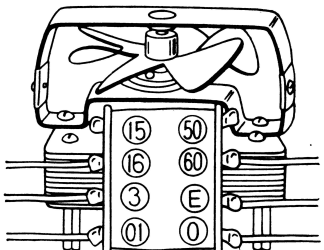
G-1	Head Cover
G-2	Panel Mounting Screw (A)
G-3	Panel Mounting Screw (C)
G-4	Top Panel Assembly
G-5	Volume Control Knob
G-6	Operating Knob
G-7	Bottom Cover Case (B) Assembly
G-8	Cabinet Cover (A) Assembly
G-9	Rubber Foot
G-10	Screw for above
G-11	Cabinet Handle
G-12	Screw for Handle
G-13	Nut for above
G-14	Storage Pocket Lid
G-15	Storage Pocket Board
G-16	Handle Spacer
G-17	Washer for above
G-18	Spring Washer for Handle
G-19	Nut for above



Shift of Sleeve Fig. 20



50-Cycle wiring Fig. 21



60-cycle wiring. Fig. 22

MAINTENANCE

LUBRICATION & CLEANING

This tape recorder does not, as a rule, require oiling, however, it is preferable to oil once a year or when parts are repaired, as follows:

Capstan Bearing	1—2 drops Oil
Pinch Roller Bearing	1—2 drops Oil
Rewind Pulley Bearing	1—2 drops Oil
Motor Bearing	1 drop Oil
Reel Spindles	1—2 drops Oil

RECORD/PLAYBACK HEAD & ERASE HEAD

When Heads get dirty, it is important to wipe off dirt using a soft cloth moistened with alcohol. As Heads are constantly brushed by tape they gradually wear out. After many hours of use, their characteristics may deteriorate somewhat. It is desirable to replace Heads after about 1000 hours of use.

MOTOR

The motor also has to be oiled...once every 500 hours. Use a good quality spindle oil or machine oil.

IDLER

Clean the surface of Idler in contact with the belt with alcohol.

Also, clean the surface of Idler in contact with the Reel-tables. Oil the central shaft of Idler 1 to 2 drops once every 200 hours.

Use a good quality spindle or sewing machine oil.

PINCH-ROLLER

Clean the surface of the Pinch-Roller in contact with the Capstan with alcohol. Oil the central shaft of Pinch-Roller 1 to 2 drops once every 200 hours. Use a good quality spindle or sewing machine oil.

CAPSTAN

Clean the surface of Idler with alcohol. Oil the root of Capstan 1 to 2 drops once every 200 hours. Use spindle or sewing machine oil. Any remaining oil or grease on the surface of Capstan in contact with Pinch-Roller might cause the tape to slip and deteriorate the Pinch-Roller. AVOID EXCESSIVE OILING.

11. DISASSEMBLY

BOTTOM COVER CASE

1. Turn over the tape recorder so that the bottom faces up.
2. Remove 4 metal screws. (Foot Screws)
3. Remove bottom cover.

TOP PANEL

To check and clean mechanical parts and amplifier. Remove Top Panel as follows:

1. Remove Head Cover by pulling straight up.
2. Pull off Volume Control Knob.
3. Remove Operating Knob set screw.
4. Remove 4 screws on the top Panel.
5. Carefully pull Top Panel upward.

OTHER PARTS

MOTOR

1. Remove Belt from Motor-pulley.
2. Unsolder lead wires from Terminal Board of Motor.
3. Remove Motor Spring.
4. Remove 2 screws on Motor-holding plate.
5. Move Operating Lever to PLAY position.
6. Remove Motor together with Motor-holding plate.
7. Remove Motor from Motor-holding plate.

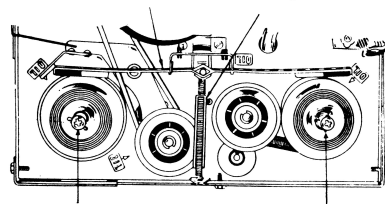
BELT

1. Move Operating Lever to STOP position.
2. Remove Belt from Motor-pulley.
3. Remove Belt by turning Take-up idler.

BRAKE

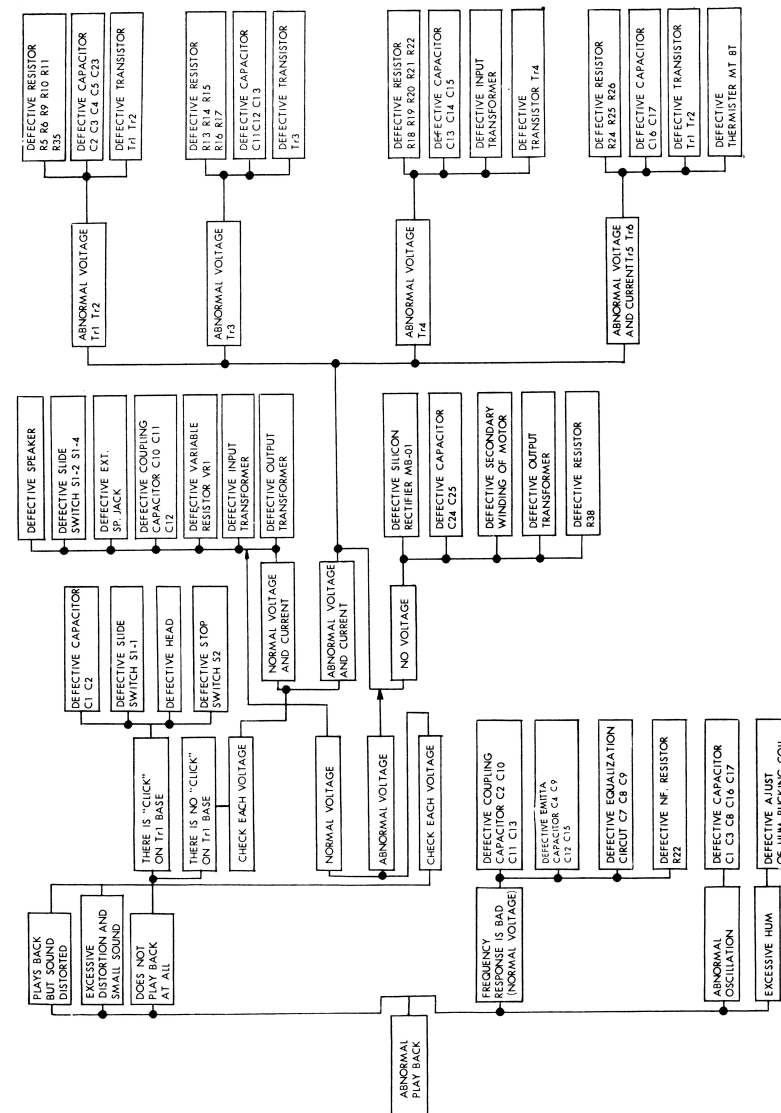
1. Remove Brake-spring.
2. Loosen screw of Supply-reel table and remove Reel-table
3. Loosen screw of Take-up table and remove Reel-table
4. Move operating Lever to STOP position.

Brake Arm Brake Spring



Screw for Take-up Reel Table Screw for Supply Reel Table
Fig. 23

TROUBLE SHOOTING GUIDE 1



N19-1. NATIONAL MODEL RQ-505

MECHANICAL OPERATING CONTROLS (Refer to Fig. 4)

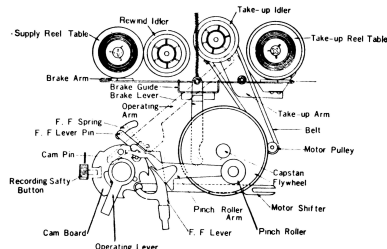


Fig. 4

OPERATING CONTROLS

The tape transport mechanism of Model RQ-505 is operated by means of the Operating Lever and Fast Forward (F.F.) Lever only. By turning the Operating Lever, the mechanical Parts are actuated by the Cam-plate.

SPEED CHANGE

The speed of the tape is changed by installing or removing the Capstan-sleeve.

POWER SOURCE

Turning the Volume Control Knob clockwise switches the recorder ON and energizes the pilot lamp. When the recordings are completed, the recorder must be turned off manually and the operating lever returned to the STOP position.

TAPE TRANSPORT OPERATION

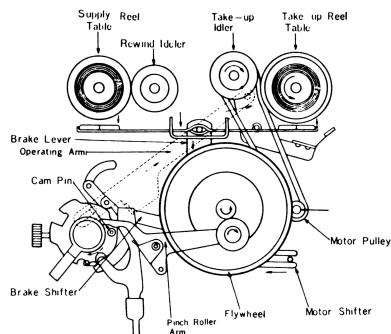


Fig. 5

RECORDING AND PLAYBACK (Refer to Fig. 4 and 5)

The Operating Lever is set in the Playback mode for both recording and playback. The electrical circuit is in the Recording mode only when RECORD button is pressed.

When the Operating Lever is turned to the RECORD or PLAYBACK position, the Cam-plate turns, pulling the Motor Shifter in the direction of the 'arrow' mark and the Motor-pulley is pressed against the Flywheel, thus causing the Capstan to rotate.

The movement of the Brake-lever and the Brake-shifter disengages the Brake from the Reel-table.

By the movement of the Operating-arm, the Take-up Idler approaches the Reel-table allowing the Rubber-belt to touch the Reel-table causing the Reel-table to rotate. The Cam-pin applies pressure to the Pinch-roller arm which, in turn, Presses the Pinch-roller against the Capstan. The Tape is thus advanced. All these movements occur simultaneously by the turning of the Operating Lever which, in turn, rotates the Cam-plate.

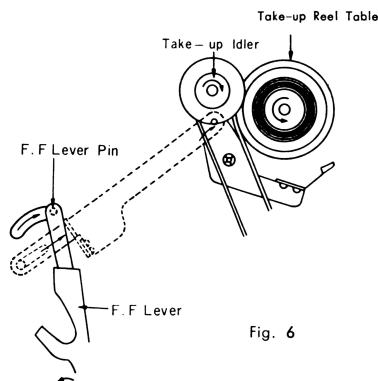


Fig. 6

FAST FORWARD (F.F.) (Refer to Fig. 6)

Fast Forward will operate with Operating Lever at the STOP position only. Pull the front F.F. Lever to the left. The F.F. Lever pin moves in the direction of 'arrow' mark; the F.F. spring is pushed up; the Take-up Idler is pressed against the Reel-table thereby enabling the tape to continually travel forward rapidly. To release press the F.F. Lever downward.

REWIND (Refer to Fig. 7)

Turning the Operating Lever to the Rewind position moves the operating-arm which pushes the Motor-shifter in the direction of 'arrow' mark causing the Motor-pulley to disengage the Flywheel. The Take-up Idler is pressed against the Rewinding Idler which transmits rotation to the Supply-reel table. The Pinch-roller arm is pressed by the Cam-plate causing the Pinch-roller to disengage the Capstan. The Brake-lever and Brake-shifter releases the Brake from the Reel-table. All these movements occur simultaneously.

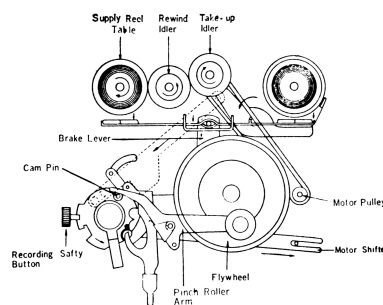


Fig. 7

STOP (Refer to Fig. 8)

When the Operating Lever is turned to the STOP position, the Brake is pressed against both Reel Tables Simultaneously the Pinch Roller disengages the Capstan and the Motor Pulley disengages the Flywheel.

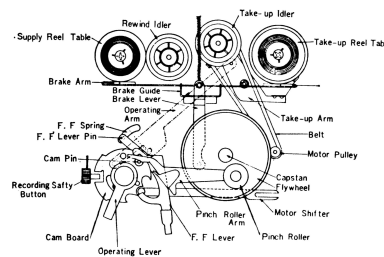


Fig. 8

MECHANICAL ADJUSTMENTS

INSTRUMENTS REQUIRED

Spring Scale 50g, 150g, 300g, 500g and 3kg.

PINCH ROLLER TENSION

Measurement (Refer to Fig. 9)

Do not load Tape-reel.

Attach a string to the Pinch-roller.

Hook Spring Scale (3 kg) on Pinch-roller.

Set the unit in Playback or Record mode and turn unit ON. Pull Pinch-roller in the direction of a straight line from the centers of the Capstan and the Pinch-roller. Observe the reading of the Spring Scale at the point where the Pinch-roller ceases to rotate.

Pressure of Pinch-roller shall normally be:

320-420g 3-3/4 ips (9.5 cm/sec)

or

300-340g 1-7/8 ips (4.75 cm/sec.)

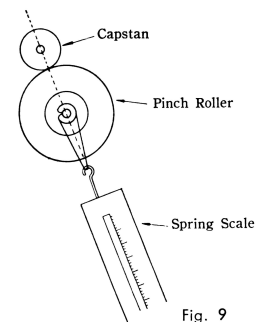


Fig. 9

ADJUSTMENT (Refer to Fig. 10)

Adjust Pinch-roller Spring.

If spring tension is too weak cut the spring 1-2 turns shorter. If spring tension is too strong stretch the spring throughout the length.

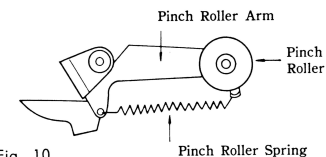


Fig. 10

MOTOR PULLEY TENSION (Refer to Fig. 11)

Measurement

Set the unit in Playback mode with power Switch turned OFF. Fashion a loop from a suitable string and attach around Motor pulley. Hook Spring Scale (500g) on the string and pull Motor away. Take reading of the Scale at the point where the Motor pulley disengages the Flywheel. Pressure of Motor pulley shall normally be 600-700g.

Adjustment

Adjust Motor-spring.

If tension is too weak, cut the spring 1-2 turns shorter. If tension is too strong, stretch the spring throughout the length.

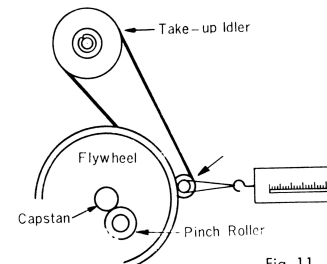


Fig. 11