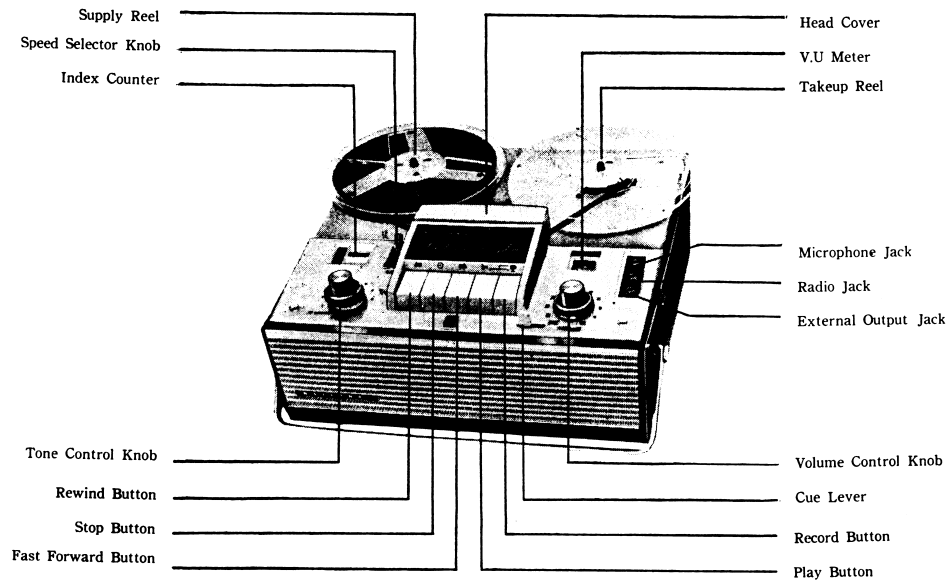


PARTS LOCATION



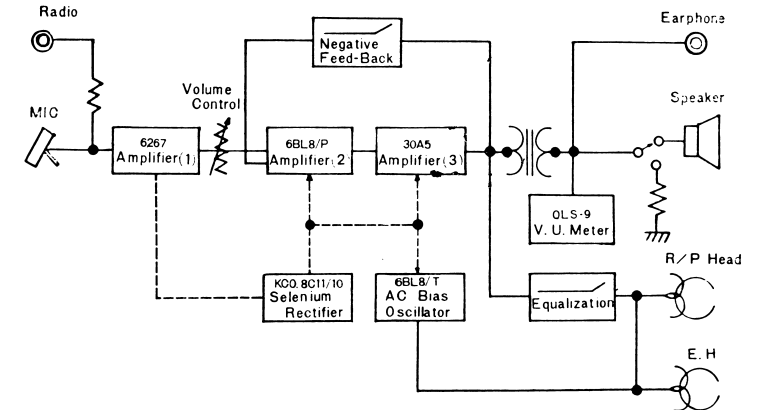
RQ-705

Fig. 1

SPECIFICATIONS

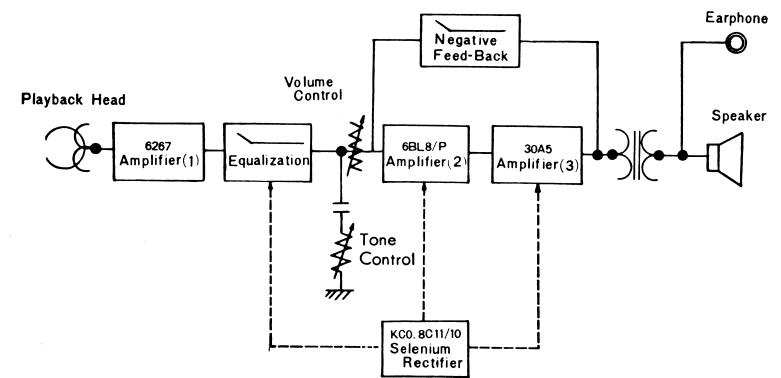
Power Source:	AC 100-250V (50-60c/s)
Power Consumption:	50W (abt.)
Audio Output:	2W
Tubes:	6267 (1) 6BL8 (1) 30A5 (1)
Selenium Rectifier:	KC 0.8C 11/10 (1)
Recording System:	AC Bias 40 KC
Erasing System:	DC Erase
Track System:	Double Track Recording System
Tape Speeds:	7-1/2 ips. (19cm/sec) and 3-3/4 ips. (9.5 cm/sec)
Playing Time:	1-1/2 hours at 7-1/2 ips. with 1800ft. tape. 3 hours at 3-3/4 ips. with 1.800ft. tape.
Frequency Response:	100-15,000 c/s at 7-1/2 ips. 100-10,000 c/s at 3-3/4 ips.
Wow and Flutter:	Less than 0.3% (at 7-1/2 ips.)
Input Impedance:	Microphone 20 K ohms (unbalanced) Radio 680K ohms
Output Impedance:	External Speaker 8 ohms (unbalanced)
Fast Forward & Rewind Time:	within 3 minutes
Built-in Speaker:	6"×4" PM Dynamic
Dimensions:	6-1/4" (H) × 13" (D) × 13-1/4" (W)
Weight:	17 lbs. (7.7 kgs)

BLOCK DIAGRAM OF ELECTRICAL CIRCUITS



Recording Circuit

Fig. 2



Playback Circuit

Fig. 3

HEAD ADJUSTMENT

Position Adjustment (Refer to Fig. 13)

Adjust the levels of the head retaining screws so as the tape during "RECORD" or "PLAY" modes will be position in relationship to the heads as per the diagram below. For quick check, lift the pressure pad assemblies with fingers and see position of tape in relationship to the heads.

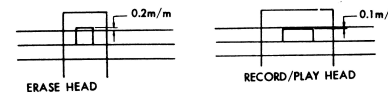


Fig. 13

Azimuth Adjustment

a. Play/Record head adjustment
Thread AMPEX standard alignment tape on the recorder. While playing back the head azimuth adjustment part, adjust the screw of the head mounting plate for the proper position which will give maximum output. The mounting screws must be fixed thereafter.

b. Erase head adjustment
After completion of the above adjustment, record a 450 cps tone on the completely erased tape and erase the recorded portion with erase current of 20mA to 40mA and playback.

Adjust the height of erase head, so that no recorded signal can be heard through speaker.

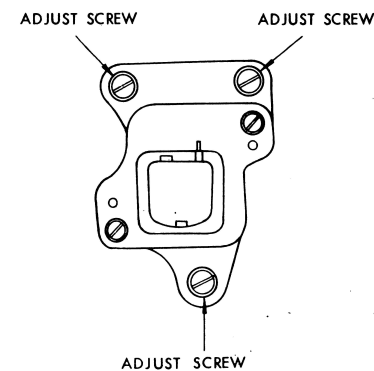


Fig. 14

AMPLIFIER ADJUSTMENTS

Stop Switch Adjustment

In order not to produce any sound from the speaker when the recorder is in the "STOP", "FORWARD" or "REWIND" modes, the secondary winding of the output transformer must be short circuited.

Speed Selector Switch Adjustment

In order to the proper playback equalization the following connections must be made when the speed selector switch is set at each speed.

The selection of the equalization circuit is made by changing the connections of the capacitors connected parallel to the playback circuit and in the negative feedback circuit.

a. At 3-3/4 ips position, the capacitor and resistor C19 250PF R20 47kΩ is connected parallel to the playback circuit.

Bias Oscillator Frequency (Refer to Fig. 15)

Adjust the core adjusting screw of the oscillator coil so that the oscillator frequency of the recording bias and erasing high frequency oscillator circuit at 40kc \pm 5kc. 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).

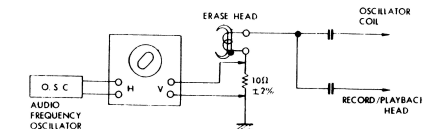


Fig. 15

Bias Current (Refer to Fig. 16)

Proper bias 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 Capacitor C1 proper AC bias:
 $0.25\text{mA} \pm 0.05\text{mA}$

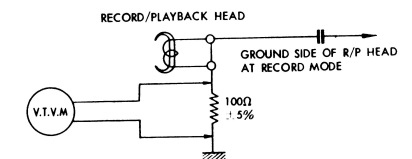


Fig. 16

Erase Current (Refer to Fig. 17)

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 of Erase Head and measure the current. Normally the proper

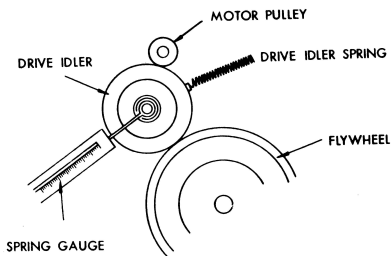


Fig. 9

Rewind Tension (Refer to Fig. 10)

Measure in a manner similar to Playback, but the unit in Rewind mode measurement.

Normal pressure of Rewind Idler shall be 95g - 120g.

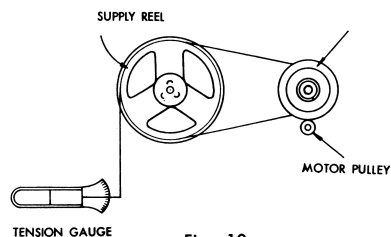


Fig. 10

Winding Torque for Playback (Refer to Fig. 11)

Measurement

From a loop at the end of a 7 inch reel of tape with adhesive tape and place the Reel on Take-up 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.

Normal torque shall be 20 - 50g for 7 inch reel of tape, fully wound.

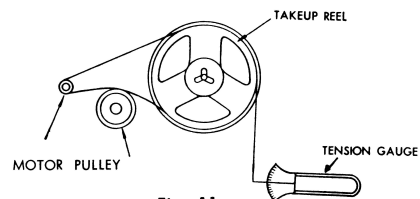


Fig. 11

Adjustment

If tension is insufficient, insufficient, cut the Spring one or two coils shorter.

If too strong, stretch the whole length of the spring.

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 80g for a 7-inch reel of tape fully wound.

Adjustment

Adjust in a manner similar to Playback, but with Fast Forward Lever Spring.

Winding Torque for Rewind

Measurement

Measure in a manner similar to Playback, but the unit in Rewind mode.

Normal torque shall be over 95g for 7-inch Tape, fully wound up.

Tape Pads Pressure (Refer to Fig. 12)

Measurement

Set the unit in Playback mode.

Attach a string to Tension Gauge and tie its end to Pad Arm as shown on the right.

Separate Tape Pads from Head lightly.

Read the gauge where Tape Pads are released.

Normal pressure at the point of pin at the center of Pads shall be 70 - 100g.

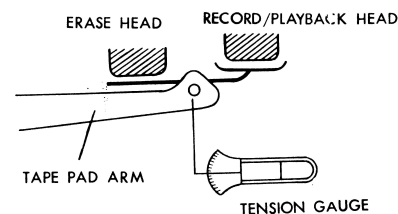


Fig. 12

Note :

In the case of Adjustment above, if Belt is soiled with oil, dust, etc. or Belt has been abnormally stretched out by excessive tension, it is impossible to have satisfactory adjustment, so belt shall be thoroughly cleaned or replaced with new one.

NATIONAL MODEL RQ-705

N25-4.

M 18	QMH1019	Flywheel Bearing Retainer
M 19	QDH1004	Capstan Oil Cap
M 20	QMM1013	Flywheel Bearing
M 21	QBC1022	Head Adjustment Spring
M 22A		Supply Reel Table Assembly
M 23	QDB0021	Rewind Rubber Belt
M 24A		Takeup Reel Table Assembly
M 25	QDB0022	Takeup Belt
M 26	QBC1015	Sub-Baseplate Knock Spring
M 27A		Rewind Idler Assembly
M 28	QMS1060	Rewind Idler Shaft
M 29	QMS1061	Rewind Lever Shaft
M 30	QML1059	Rewind Idler Lever-A.
M 31	QML1060	Rewind Idler Lever-B
M 32A		Rewind Brake Lever Assembly
M 33	QBJ1046	Rewind Brake
M 34	QBG1028	Brake Rubber
M 35A		Takeup Brake Lever Assembly
M 36	QBJ1021	Takeup Brake
M 37	QBC1019	Brake Spring
M 38	QBJ1045	"CUE" (Instant Stop) Brake
M 39	QMR1018	"CUE" (Instant Stop) Rod
M 40	QML1061	Fast Forward Lever-A
M 41	QDP1021	Tension Pulley
M 42	QWQ1023	Tension Pulley Washer
M 43	QBF1049	Felt Washer 4×11×2t
M 44	QML1062	Fast Forward Lever-B
M 45	QWQ1038	Tension Lever Washer
M 46A		Rewind Lever Assembly
M 47	QBN1004	Fast Forward Lever Spring
M 48	GMS1064	Tension Pulley Shaft
M 49	QMS1069	Tension Pulley Lever Shaft
M 50	QBT1017	Drive Idler Spring
M 51	QBJ1047	Vinyl Pipe for Idler Spring
M 52A		Drive Idler Assembly
M 53	QML1067	Drive Idler Lever-B
M 55A		Drive Idler Lever-A Assembly
M 56	QMS1064	Drive Idler Spacer
M 57	QMR1014	Rewind Idler Rod
M 58A		Takeup Rod Assembly
M 59	QBC1020	Takeup Rod Spring
M 60A		Pinch Roller Lever Assembly
M 65A		Pinch Roller Lever Spacer
M 66A		Pinch Roller Lever-F Assembly
M 67	QBC1021	Pinch Roller Spring
M 68	QMQ1008	Washer for Pinch Roller Spring
M 69A		Pinch Roller Lever-E Assembly
M 70A		"CUE" Lever Assembly
M 71	QMP1032	Shaft for above
M 73	QBK7020	Fiber Washer 1.0
M 74	QML1058	Speed Selector Slide Lever
M 75	QMQ1036	Washer for above
M 76A		Pinch Roller Assembly
M 77	QBF1051	Felt Washer 6×12×2t
M 78	QBK7021	Fiber Washer 0.5t
M 79	QMS1068	Pinch Roller Shaft

M 80A		Flywheel Assembly
M 81A		Tape Counter Assembly
M 82	QKT1087	Tape Counter Holding Bracket
M 83	QKT1089	"CUE" Lever Holding Bracket
M 84	QMH1011	V.U Meter Holding Bracket
M 85A		Base Plate
M 86A		Push Button Release Arm Assembly
M 87A		Counter Pulley-A Assembly
M 88A		Counter Pulley-B Assembly
M 89	QDB0003	Counter Belt
M 90	QMM1020	Reel Table Spacer
M 91	QMH1017	Reel Table Spacer Holder
M 93	QMK1016	Motor Mounting Board
M 94	QWQ1016	Motor Mounting Washer
M 95	QBG1024	Motor Mounting Rubber Cushion
M 96	QHQ1010	Motor Mounting Screw
M 97	QDP1009	Motor Pulley (Red)
M 98	QHQ1023	Motor Pulley Holding Screw
M 99		Motor Pulley Rubber Washer
M 100	OBT1049	Brake Rope Guide Spring
M 101	QMH1018	Brake Rope Guide Plate
M 102	QBJ1048	Brake Rope Guide
M 103	QBT1048	Brake Rod Spring
M 104A		Rewind Rod Assembly
M 105A		Brake Rod Assembly
M 106A		Fast Forward Rod Assembly
M 107	QBC1017	Fast Forward Rod Spring-A
M 108	QBT1050	Fast Forward Rod Spring-B
M 109	QMN1041	Fast Forward Rod Bracket
M 110	QWQ1039	Rods Washer
M 111	QMN1045	Spring Bracket
M 112A		Record Lever Bracket Assembly
M 113	QML1068	Guide Lever
M 114		Felt Washer for Motor Oil Cap
M 115	QBK7019	Washer for Idler Lever
M 116	QBJ1056	Tension Pulley Plate
M 117	QKT1090	Speed Selector Lever
M 118	QBC1018	Speed Selector Lever Spring
M 119		Flywheel Thrust Steel Ball
M 120		Brake Rope
M 121	QMA1041	Base Plate Bracket-A
M 122	QMA1040	Base Plate Bracket-B
M 123		Push Button Arm
M 124	QWQ1037	Rewind Lever Spring Cap Washer
M 125	QBC1016	Rewind Idler Spring
M 126	QBF1050	Felt Washer for Capstan Oil Cap
M 127		Push Button Spring
M 128		Push Button Shaft
M 129A		Push Button-A Assembly
M 130A		Push Button-B Assembly
M 131		Push Button Frame-A

M 132		Vinyl Pipe-A for Push Button Shaft
M 133		" -B " "
M 134		Vinyl Pipe-C for Push Button Spring-A
M 135		Push Button Spring-A
M 136A		Push Button Frame-B Assembly
M 137		Push Button Frame-C
M 139		Push Button Spring-B
M 140	QHQ1006	Capstan Screw
M 141	QMS1015	Capstan Sleeve 50c/s

CABINET PARTS

G 1A		Top Cover Assembly
G 2A		Main Case Assembly
G 3	QPW1009	Storage Compartment
G 4A		Storage Pocket Lid
G 5	QKT1019	Rubber Foot
G 6	QKL1003	Lock Hinge
G 7	QKT1038	Lock Hinge Plate
G 8	QKT1044	Hinge
G 9	QHQ1008	Handle Holding Screw
G 10A		Top Panel Assembly
G 11	QGH1016	Head Cover
G 12A		Volume, Tone Control Knob
G 13	QGT2009	CUE (instant stop) Knob
G 14	QGS3044	CUE Plate
G 15	QG1J024	Jacks Holding Bracket
G 16	QKH1008	Handle

ACCESSORIES

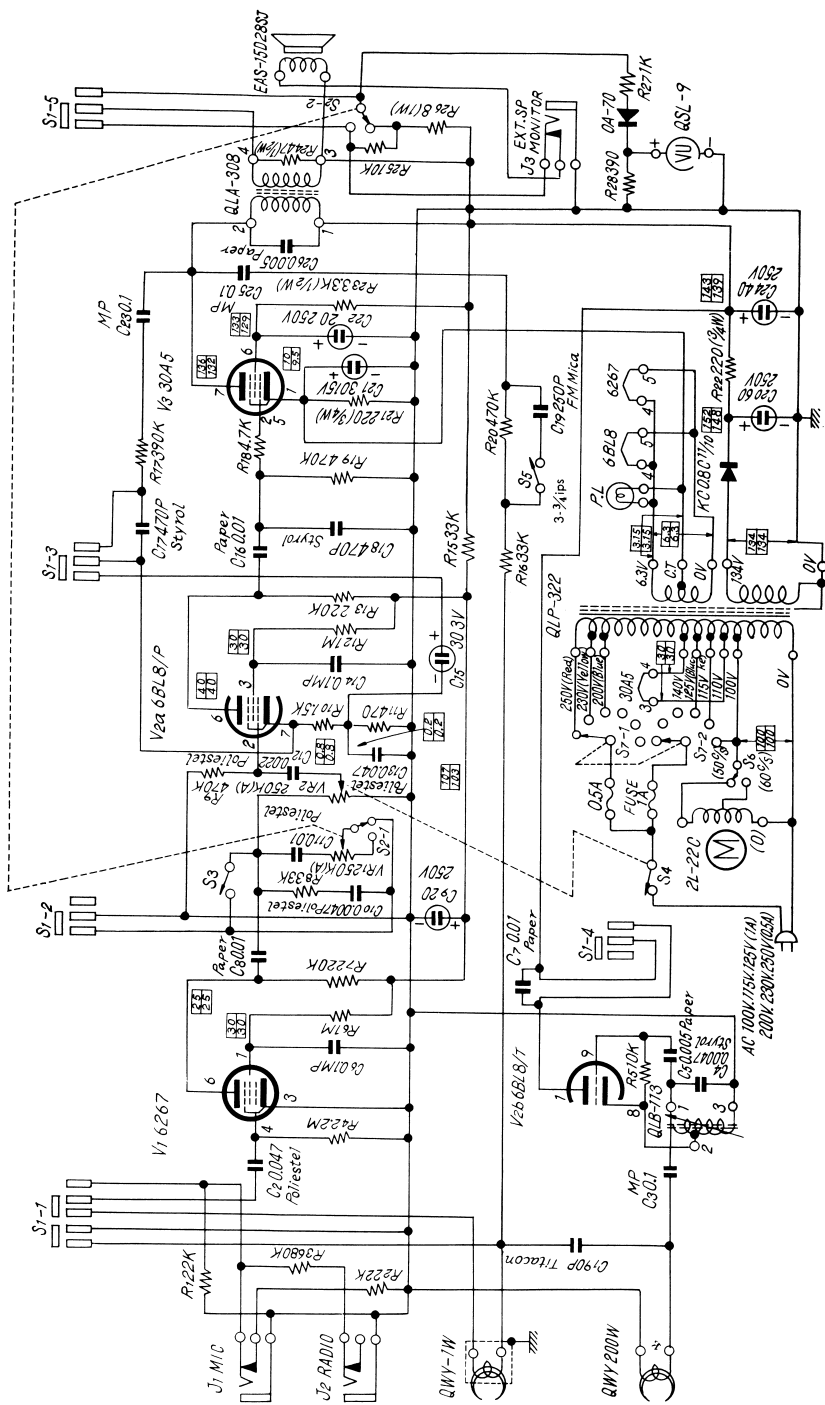
A 1	WM2026(N)	Dynamic Microphone
A 2	RT-5	Recording Tape
A 3	RP-5	Empty Reel
A 4	QFC8024	Connection Cord-B
A 5	QFC8021	Connection Cord-R
A 6	QFS0002	Splicing Tape
A 7		Instructions Book

SCREWS & WASHER

X 1	Screw, Round-head	2×4
X 2	" "	2.6×4
X 3	" "	2.6×25
X 4	" "	3×5
X 5	" "	3×12
X 6	" "	3×20
X 7	Screw, Flat-head	2.6×12
X 8	" "	4×8
X 9	" "	3×5
X 10	Spring Washer	2
X 11	" "	2.6
X 12	" "	3
X 13	" "	4
X 14	" "	8
X 15	Nut,	2.6
X 16	" "	3

X 17	"	4
X 18	"	8
X 19	C-Washer	2.3
X 20	"	3
X 21	"	4
X 22	"	5
X 23	Washer	8×13×0.5
X 24	"	2.6×13×0.5
X 25	"	5.5×10×0.8
X 28	Fiber Washer	6.2×8.2×0.5
X 29	" "	6.2×8×10
X 30	" "	4.2×9×0.25
X 31	" "	4.2×9×0.5
X 32	" "	4.2×9×1.0
X 33	" "	7×12×1.0
X 34	" "	5×9×0.5
X 35	" "	3.5×5.5×0.5
X 36	" "	3.5×5.5×1.0
X 37	" "	6×8×0.25

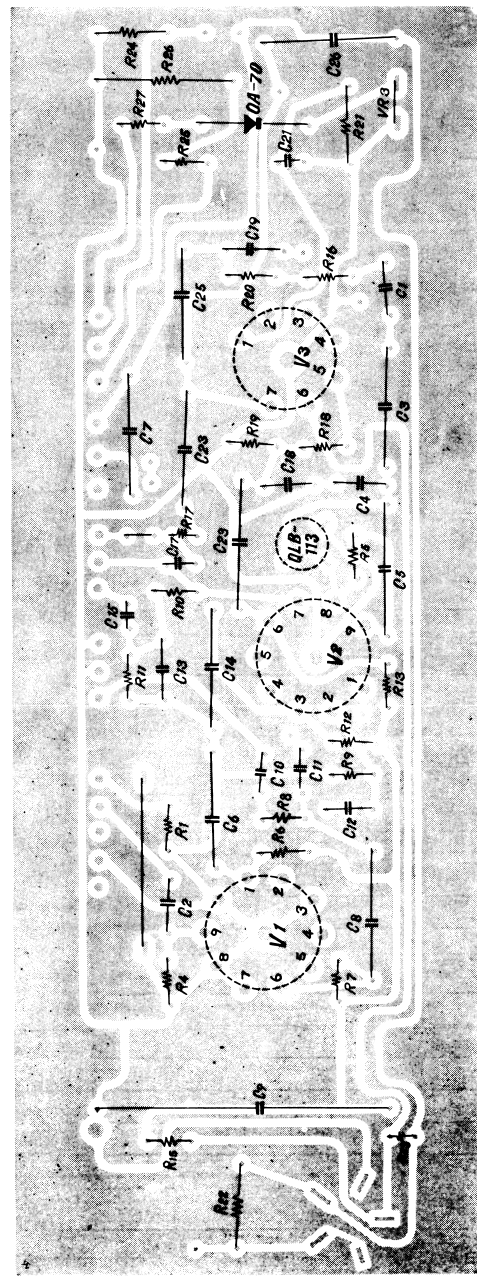
SCHEMATIC DIAGRAM

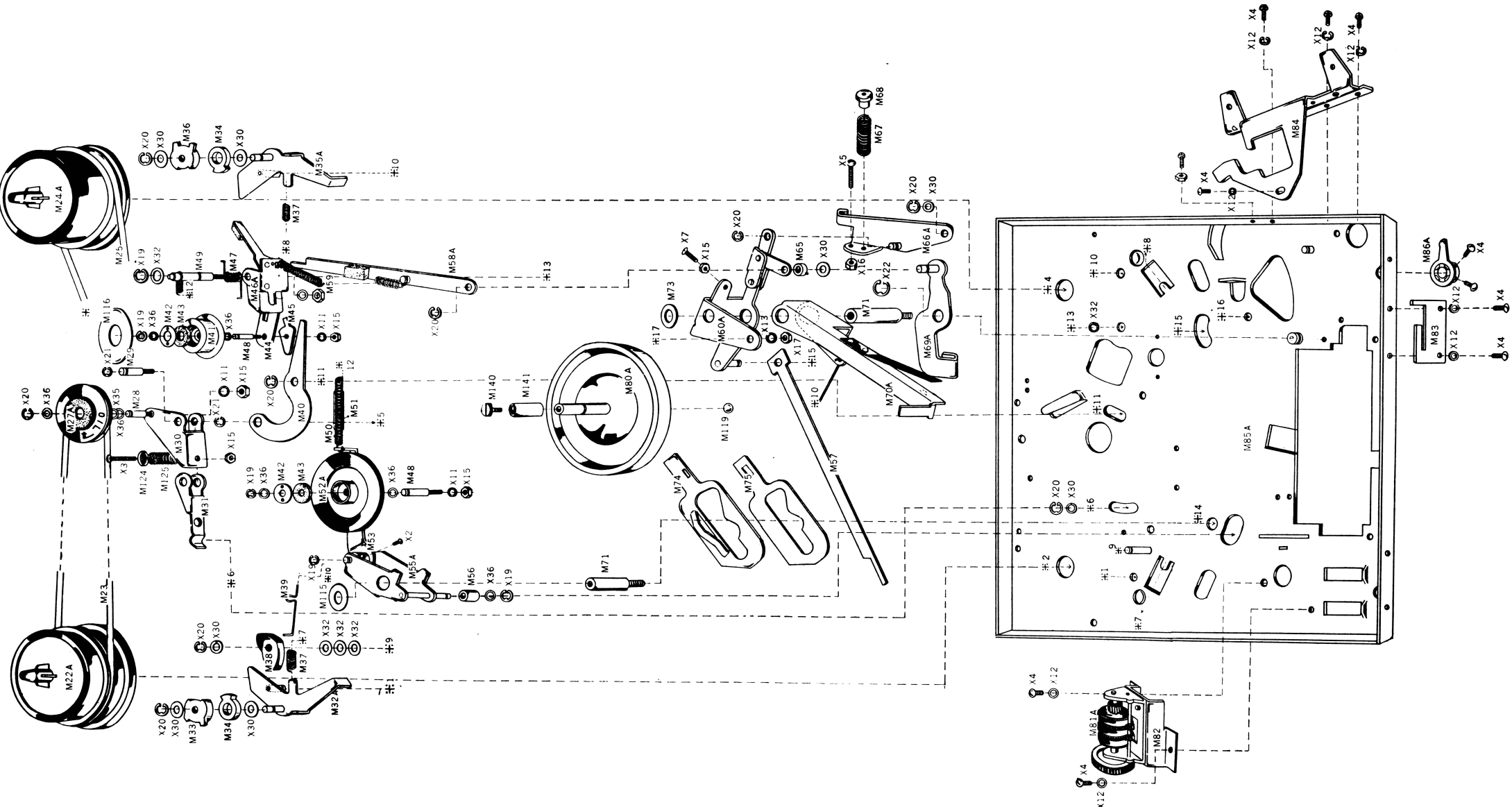


NOTE:

1. S-1 Record/Play Selector Switch (shown in play position)
2. S-2 Monitor Selector Switch (ganged with VR1)
3. S-3 Stop Switch
4. S-4 ON/OFF Switch (ganged with VR2)
5. S-5 Speed Selector Switch (shown in 7-1/2ips. position)
6. S-6 AC cycle Selector Switch
7. S-7 Voltage Selector Switch (shown in 250V position)
8. Capacities of resistors are 1/4W, if not indicated.
9. K for resistor stands for K Ω , M for M Ω .
10. Values of capacitors without unit are on the order of μ F. P stands for PF (μ MF).
11. Values indicated in \square are DC voltage between the chassis.
12. Values in \square with arrows are AC Voltages between lines. The upper values should be measured during playback and the lower values during recording.

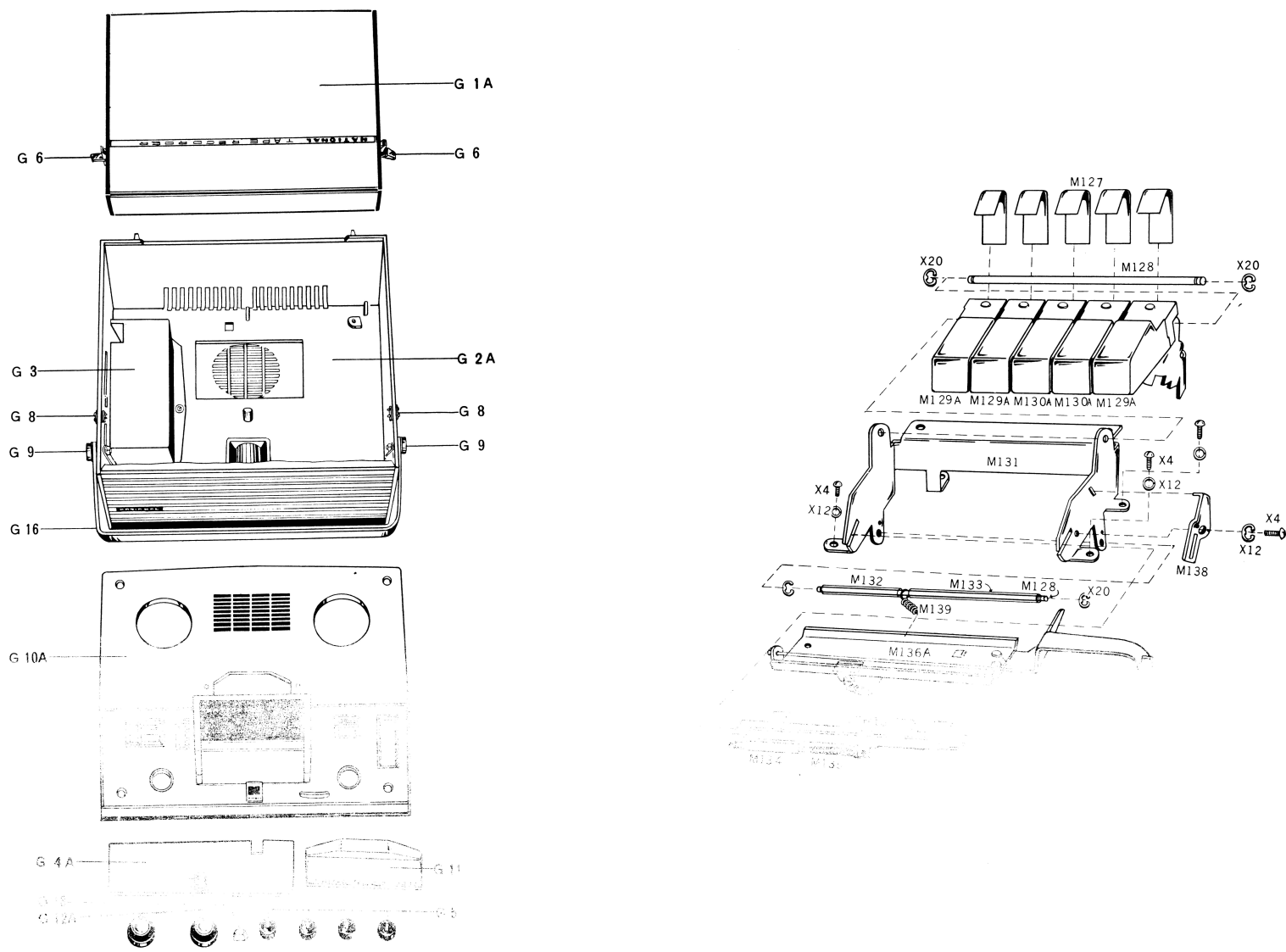
PRINTED CIRCUIT BOARD (Reverse Side)





N25-5. NATIONAL MODEL RQ-705

VIEW OF ASSEMBLY



N25-3. NATIONAL MODEL RQ-705

erase current is 25 to 45mA.
If the proper value is not obtained, adjust by changing the capacity of the C3 0.1 μ F capacitor.

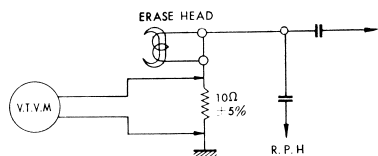


Fig. 17

Recording Level Adjustment (Refer to Fig. 18)

Standard recording level is not proper, an insufficient playback output, or sound distortion may occur. To cure this, either short-circuit the grid-ground of the oscillation tube V2b 6BM8/T, or short-circuit the plate-grid of the oscillator coil QLB-113.

Then, stop oscillation and adjust the resistor R28 390 Ω so that level indicator 0 VU, when the signal current flows in the record head, registers 0.05mA at 1K c/s.

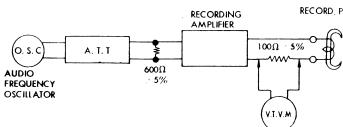


Fig. 18

9. DISASSEMBLY INSTRUCTIONS

How to Remove Panel (Refer to Fig. 19)

- Remove Head Cover① by pulling up both ends.
- Lift the All knobs with care.
- Remove 4 screws② holding Top panel to the chassis.
- Lift the top panel with care.

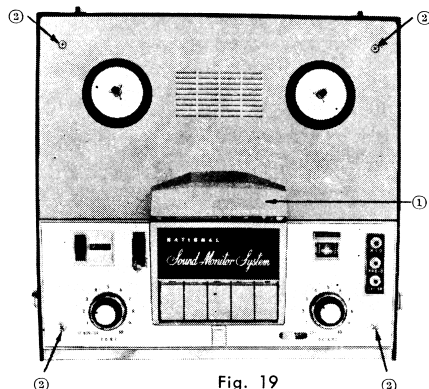


Fig. 19

How to Remove Mechanism & Amplifier Assembly from Cabinet (Refer to Fig 20)

- Remove Head cover and Top Panel.
- Lift the assembly with care.
- Remove 4 screws③ holding bottom case.

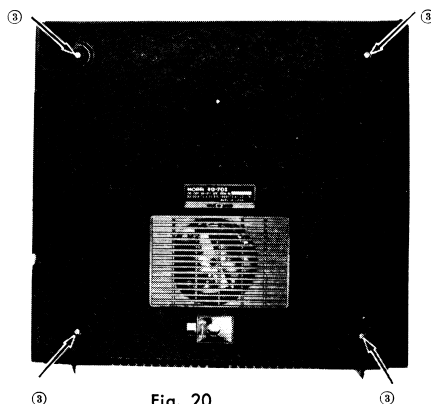


Fig. 20

How to Remove Motor from Chassis

- Remove the Takeup Belt the motor pulley.
- Remove the motor pulley from motor shaft, by loosening the screw holding the motor pulley to the motor shaft.
- Remove two lead wires of the motor with soldering iron.
- Remove four screws holding the motor to the motor mounting board together with the retaining screws of the oiling cup to the motor, thus the motor can be removed from the motor mounting board.

How to Remove Rewind Reel Table

Pull the table after removing the "C" washer holding the reel table shaft to the base plate.

How to Remove Takeup Reel Table

Pull the table after removing the set screw at the counter pulley and removing the "C" washer holding the reel table shaft to the base plate.

10. LUBRICATION & CLEANING

All rotating parts are factory lubricated. However, for every 500 hours of use, the following lubrication must be made with sewing machine oil.
These parts are all marked as "OIL". Excessive oil is undesirable, and if the oil is overflowed to the other parts, slippage might happen.

- 2 drops to the capstan bearing
- 1 drop to the pinch roller bearing
- 1 drop to the idler bearing
- 1 drop to the tension pulley bearing
- 2 drops to the reel table bearing

The record, play back and erase heads, tape guides, capstan and pinch roller are subject to an accumulation of tape coating residue. Use a soft cloth dampen with carbon tetrachloride to clean the above-mentioned parts.

Rubber tired idlers, rewind roller, rubber belt and pinch roller must be kept free from oil or grease. Use a soft cloth and cleaning fluid (carbon tetrachloride) to clean oil and grease from rubber parts. When you clean these parts, do not forget to clean other rollers which are in contact with the parts.

Always clean the unit after service is completed.

11. PARTS LIST

Ref. No.	Parts No.	Description
C 1	TNP-090J	Tantalum Capacitor
C 2	ECQ-M05473MZ	Polyester Capacitor
C 3	ECH-R2104M	Metallized Paper Capacitor
C 4	ECQ-S2472KZ	Styrol Capacitor
C 5	ECN-R4502X	Paper Capacitor
C 6	ECH-R2104M	Metallized Capacitor
C 7	ECN-R4103M	Paper Capacitor
C 8	ECN-R4103M	" "
C 9	ECE-C250V20	Electrolytic Capacitor
C 10	ECQ-M05472MZ	Polyester Capacitor
C 11	ECQ-M05103MZ	" "
C 12	ECQ-M05223MZ	" "
C 13	ECQ-M05473MZ	" "
C 14	ECH-R2104M	Metallized Capacitor
C 15	ECE-A3V30	Electrolytic Capacitor
C 16	ECN-R4103M	Paper Capacitor
C 17	ECQ-S1471KZ	Styrol Capacitor
C 18	ECQ-S1471KZ	" "
C 19	QCD-10004	PM Mica Capacitor
C 20,22,24	ECE-E250VBX1Z	Block Electrolytic Capacitor
C 21	ECE-A15V30	Electrolytic Capacitor
C 23	ECH-R2104M	Metallized Capacitor
C 25	ECH-R2104M	" "
C 26	ECN-R4502X	Paper Capacitor

RESISTORS

R 1	ERD14LZK223	Carbon Film Resistor
R 2	ERD14LZK223	" "
R 3	ERC14BFK684	Solid Resistor
R 4	ERC14BFK225	" "
R 5	ERD14LZK103	Carbon Film Resistor
R 6	ERD14LZK105	" "
R 7	ERD14LZK224	" "
R 8	ERD14LZK333	" "
R 9	ERC14BFK474	Solid Resistor
R 10	ERC14BFK152	" "
R 11	ERD14LZK471	Carbon Film Resistor
R 12	ERD14LZK105	" "
R 13	ERD14LZK224	" "
R 15	ERD14LZK333	" "
R 16	ERD14LZK333	" "
R 17	ELR1/4K390K Ω	" "
R 18	ERD14LZK472	" "
R 19	ERC14BFK474	Solid Resistor
R 20	ERC14BFK474	" "
R 21	ERD34LZK221	Carbon Film Resistor
R 22	ERD34LZK221	" "
R 23	ERC12BK332	Solid Resistor
R 24	ERD12LZK470	Carbon Film Resistor
R 25	ERD14LZK103	" "
R 26	ERD1LZK8R0	" "
R 27	ERD14LZK102	" "
R 28	ERD14LZK391	" "

VARIABLE RESISTORS

VR 1	EVC-A4QL50AF5	Tone Control
VR 2	EVC-A4CL50AF5	Volume Control

ELECTRICAL PARTS

E 1	QWY0200W	Erase Head
E 2	QWY0001W	Record/Playback Head
E 3	2L-22C1	Motor
E 4	EAS15D28SJ	Speaker
E 5	QSL0009	V. U. Meter
E 6	QLB0113	Oscillator Coil
E 7	QLP322	Power Transformer
E 8	QLA308	Output Transformer
E 9	QJS0704	9-P Molded Socket
E 10	QJS0705	9-P Molded Socket-B
E 11	QJS0712	7-P Molded Socket-F
E 12	QJS0101	Pilot Lamp Socket
E 13	QVL0101	Pilot Lamp
E 14	QTV1016	Pilot Lamp Cover
E 15	QTF1002	Fuse Holder
E 16	QJF1001	Fuse (0.5A)
E 17	QJF1002	Fuse (1.2A)
E 18	QJA0102	Mic, Radio, Xet.S.P Jack
E 19	QJ10102	Printed Circuit Board
E 20	QTV1015	MT Shielding Case-B
E 21	QTV1002	MT Spring-B
E 22	KC0.8C11/10	Selenium Rectifier
E 23	0A-70	Diode
E 24	QTS1018	Head Shielding Cover
E 25	QTS1009	Switch Shielding Plate
E 26	QTS1023	Jacks Shielding Plate
E 27	QTT1105	Cord Clamper

S 1	ESD0128	Record/Playback Selector Switch
S 3	QSB0107	Stop Switch-D
S 5	QSB0113	Speed Selector Switch
S 6	ESD1012	AC Cycle Selector Switch
S 7	ESRC12653A	Voltage Selector Switch

V 1	6267	Vacuum Tube
V 2	6BL8	Vacuum Tube
V 3	30A5	Vacuum Tube

MECHANICAL PARTS

M 1A		Sub-Baseplate Assembly
M 2	QMZ1007	Record/Playback Head Plate
M 3	QMZ1008	Erase Head Plate
M 4	QAG1026	Tape Limiter
M 5	QAP1033	Tape Pad Arm
M 6A		Tape Pad Arm Assembly
M 8	QAP1035	Pad Arm Shaft
M 9	QAP1037	Pad Arm Spacer
M 10	QAP1038	Pad Arm Spring
M 11A		Speed Selector lever Assembly
M 12	QGT2108	Speed Selector Knob
M 13	QMQ1009	Speed Selector Plate
M 14	QAG1014	Tape Guide Plate
M 15	QAG1015	Tape Guide Washer
M 16	QAG1007	Tape Guide
M 17	QAG1021	Tape Guide Screw

MECHANICAL OPERATING CONTROLS

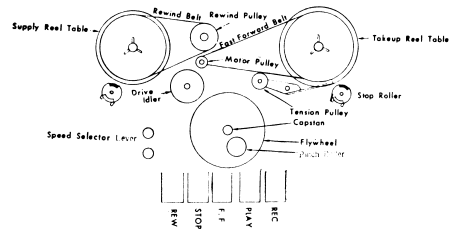


Fig. 4

Power Source

To turn "ON" the recorder, turn the Volume Control with ON/OFF Switch slightly clockwise until it clicks.

Push Button Operations

- When "PLAY" push Button is pressed, the unit is set at "PLAY" mode.
- When "PLAY" & "RECORD" Push Buttons are Pressed simultaneously, the unit is set at "RECORD" mode"
- When "REWIND" Push Button is Pressed, the tape just recorded or Played back is rewound rapidly.
- When "FAST FORWARD" Push Button is pressed, the tape is advanced rapidly.
- When "CUE" LEVER (Instant stop) is pressed, the tape motion stops instantly for editing purposes.

Volume Control

- When Playing back: The playback sound level can be controlled by Volume Control.
- When recording: It controls recording level.

Tone Control

When playing back, It controls the tonal quality.

TAPE TRANSPORT OPERATION

- All push buttons are locked in position only when the Volume Control is turned "ON".
- The buttons are released automatically, when the Volume Control is turned "OFF".

- The buttons are released automatically, when the other buttons are pressed, except.
- The CUE stop lever is in operative when unit is set at "FAST FORWARD" or "REWIND" mode.
- The speed selector knob is automatically locked when tape is in motion, preventing resultant damage to the tape.

Speed Change

- When you switch the speed selector knob, the speed selector lever is turned, thereby moving the speed selector slide lever forward or backward, and the contact position of the idler to the motor pulley is changed.
- As a result, the revolution of the idler is changed, whose action is transmitted to the capstan through the flywheel, thus a different tape speed is obtained.

Fast Forward (Refer to Fig. 5)

- When you press the fast forward button, the fast forward rod is moved forward. As a result, the tension pulley is moved as shown by an "arrow" mark, giving the take-up belt a proper tension. And, the revolution of the motor is transmitted through the belt to the take-up reel table, and the tape is wound up rapidly into the take-up reel.

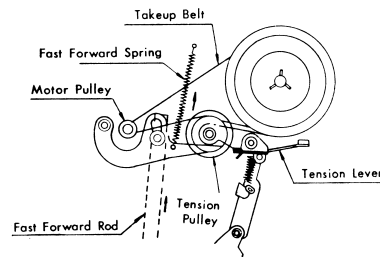


Fig. 5

Rewind (Refer to Fig. 6)

- When you press the rewind button, the rewind rod is moved forward as shown by an "arrow" mark, thus connecting the rewind pulley to the motor pulley. And, the revolution of the motor is transmitted through the rewind belt to the supply reel table.
- Since the supply reel table is linked through the rewind belt to the rewind pulley, the supply reel table turns clockwise, and the tape is wound up rapidly into the supply reel.

- In this case, the back tension is caused by the friction between the felt at the tip of the tension pulley lever and the take-up reel table.

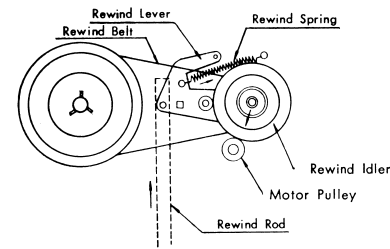


Fig. 6

Stop (Refer to Fig. 7)

- When you press the stop button, the stop rod is moved forward, thereby making the brake rope pulling the brake lever loose. As a result, the brakes are pushed to the reel tables by the springs.

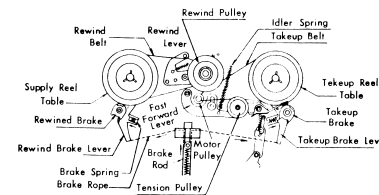


Fig. 7

CUE (Instant Stop)

- When you push the cue lever to the right, the cue brake is applied to the supply reel table thereby stopping immediately the supply reel. At the same time, the pinch roller is disconnected from the capstan while you keep the cue lever to the right.

MECHANICAL ADJUSTMENTS

Instruments Required

Spring Gauge 50g, 150g, 300g, 500g, and 3kg

Pinch Roller Tension (Refer to Fig. 8)

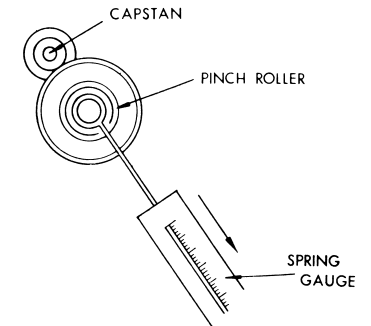


Fig. 8

Measurement

Do not load Tape-reel

- Attach a string to the Pinch-roller.
 - Hook Spring Gauge (3kg) 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 Gauge at the point where the Pinch-roller ceases to rotate.
- Normal Pressure of Pinch roller Shall be 1.1 kgs - 1.5 kgs at 60 c/s

Adjustment

Loosen Adjusting Nut.

Adjust Adjusting Screw. If insufficient pressure, tighten the screw and if strong, loosen the screw.

If Adjusting Screw becomes too short, replace it (3×20). If screw protrudes too much, cut off the tip.

Paint-lock Adjusting Screw when Properly adjusted.

Idler Tension (Refer to Fig. 9)

Measurement

- Set the unit in Playback or Record mode.
- Hook Spring Gauge, 500g on Idler Shaft and pull it in the direction Perpendicular to a line connecting the centers of Motor Pulley and Flywheel as shown on the right.
- Read the gauge at a point where Idler ceases to rotate.
- Normal pressure of Idler Shall be 200g - 300g adjustment.
- If pressure is insufficient, cut short the Spring for coil or two.
- If too strong, stretch the Spring in the whole length.