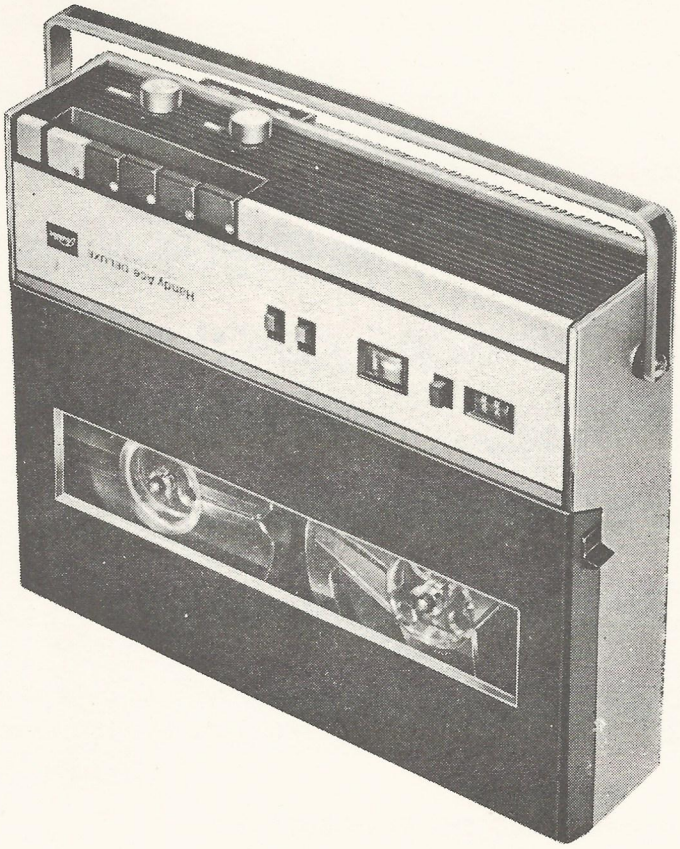
TOSHIBA TAPE RECORDER
SERVICE DATA MODEL GT-611P

FILE NO. 004



SPECIFICATIONS

Usable Tape Reel:	3″, 5″	Power Consumption:	8 watts
Tape Speed:	3-¾ and 1-⅞ ips (2 speeds)	Signal/Noise Ratio:	35 dB minimum
Track:	Double track	Microphone:	Dynamic, nominal impedance 400ohm
Recording System:	A.C. bias at 35K Hz, 1.2 mA	Erasure:	55 dB minimum
Erasing System:	D.C. erase, 5 mA	Hum Level:	When operated on A.C. Line 50 mV maximum When operated on Battery 20 mV maximum
Level Indication:	Level meter		
Frequency Response:	80 to 8000 Hz at 3-¾ ips 80 to 4000 Hz at 1-⅞ ips	Wow/Flutter:	0.35% R.M.S. approx. at 3-¾ ips 0.5% R.M.S. approx. at 1-⅞ ips
Power Output:	600 mW at 7% distortion (maximum 1.5 watts)	Rewind Time:	180 seconds maximum (607 feet tape on 5″ reel)
Input:	MIC. 5K ohm, 0.56 mV AUX. 910K ohm, 100 mV	Fast Forward Time:	180 seconds maximum
		Tape Speed Accuracy:	Within ±3% at 3-¾ and 1-⅞ ips
Output:	EXT. SP. 8 ohm	Dimension:	12-⅜″(W)×10-¼″(D)×3-¾″(H)
Speaker:	6-½″×3-⅛″, impedance 8 ohm	Weight:	8 lds

TOKYO SHIBAURA ELECTRIC CO., LTD.

2, GINZA, NISHI, 5-CHOME, CHUO-KU, TOKYO, JAPAN

TECHNICAL POINTS

2-WAY (A.C./D.C.) POWER SYSTEM

The GT-611P can be operated either on an A.C. power line or on its built-in battery power source. The selector for this purpose is located inside the A.C. connector at a lower right part of the tape recorder. When the power cord (Supplied) is connected to the connector, the A.C. (line) power supply circuit of the tape recorder is closed, when the power cord is disconnected, the D.C. (battery) battery power supply circuit is closed. When the tape recorder is operated in the PLAY mode under the battery operation, the level meter indicates the battery source voltage.
If the meter indication is within the red mark, the tape recorder operates successfully. The boundary position between red mark and silver mark denotes 6.6 volts.

BELT DRIVE SYSTEM IS EMPLOYED

A belt drive system is employed with a view to mark the tape recorder compact and lightweight.
The belt is made of selected, quality neoprene. An angle belt is employed for the rubber belt for the motor pulley, in order to increase the friction surface to prevent slipping.

SELECTABLE AUTO-LEVEL CIRCUIT

In the recording operation, a part of the output voltage of the secondary circuit of the output transformer is rectified by the diode D2 (1N60) and then is fed back to the base of the initial-stage transistor TR1 (2SB440) in order to accomplish an automatic recording level control feature.
In the auto-level mode of operation, the level meter is not deflected. When the auto-level feature is cut off by means of the selector switch S101, recording is made for a wide dynamic range for such use as Hi-Fi recording of music.

PRECAUTIONS IN OPERATING THE PUSH-BUTTONS

The below combinations of buttons won't be able to be operated and if they are forcefully depressed they would be damaged.

Combinations of buttons which must not be simultaneously depressed.

PLAY (Playback)·····F. F. (Fast forward)
PLAY ·····REW (Rewind)
REW ·····REC (Record)
F. F. ·····REC
REW ·····F. F.

Sequential operations (from one mode to the other mode) are allowed or not allowed as mentioned below.

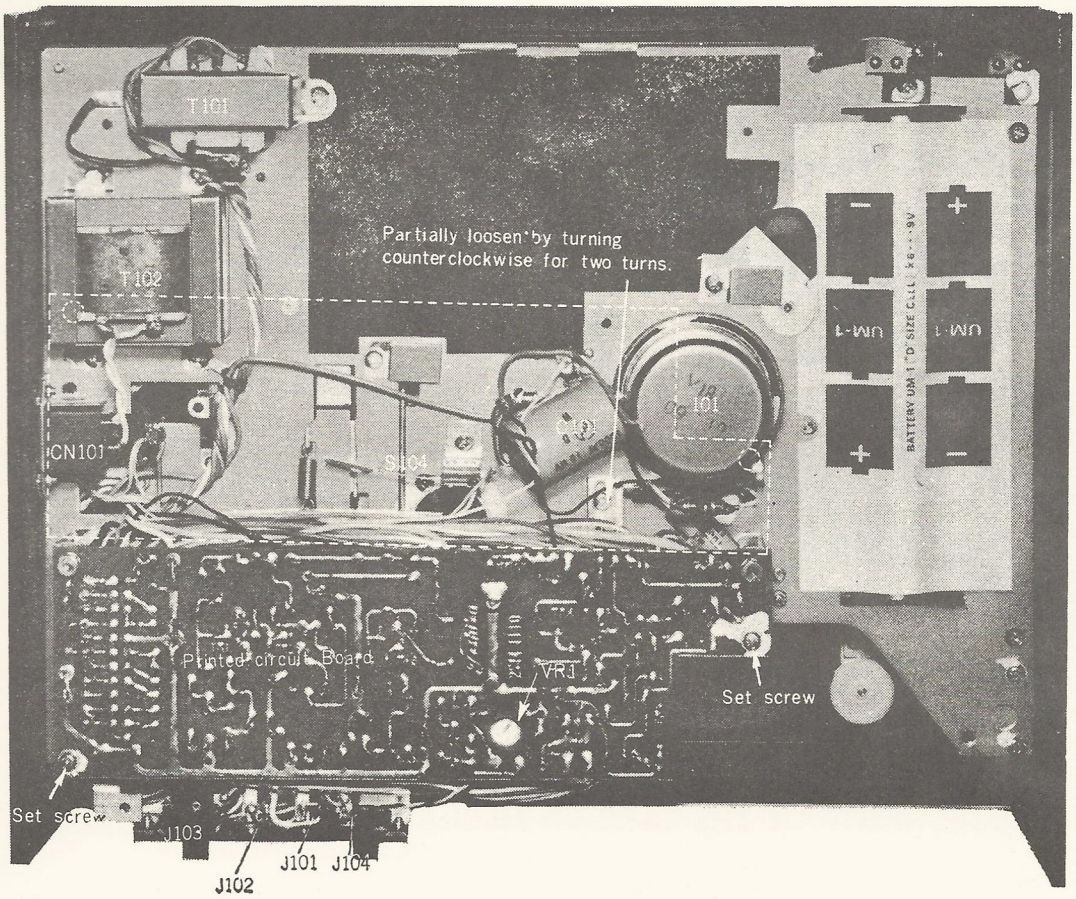
PLAY	F. F.	Allowed
PLAY	REW	Allowed
F. F.	PLAY	Not allowed
REW	PLAY	Not allowed

CURRENTS WHEN THE MOTOR IS RUNNING

PLAY (When tape has been taken up)	150 mA or less	When 5″ tape is used and no amplifier is used.
REW (When tape has been taken up)	250 mA or less	
F. F. (When tape has been taken up)	160 mA or less	

DOOR-TYPE PRINTED CIRCUIT-BOARD

The printed circuit-board is mounted with polypropylene hinges in order that its both surfaces are accessible when two screws are removed and another screw is loosened. In fixing the circuit-board, insure that the transistors have not fall off their heat radiation fins.



SERVICE POINTS

ELECTRICAL ADJUSTMENTS

BIAS OSCILLATOR CURRENT ADJUSTMENT

1. Unsolder the ground lead between the SHIELDED WIRE and the RECORD/PLAYBACK HEAD. (See Figure 1)
2. Connect a 100 ohm resistor in series with the ground lead and ground.
3. Connect a V.T.V.M. across the 100 ohm resistor as illustrated in Figure 1.
4. Adjust oscillator coil L1 to obtain 120 Millivolts RMS across the 100 ohm resistor.

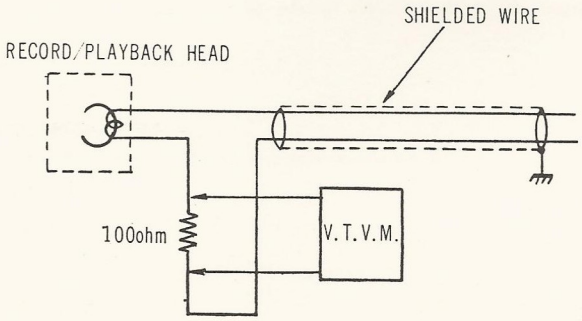


Fig. 1

RECORD-PLAYBACK HEAD ADJUSTMENT

1. Load Standard tape prerecorded with 5,000 Hz on the tape recorder.
2. Connect 8 ohm dummy load to EXT. SP. jack, and connect a V.T.V.M. (1.5V AC range) across the load.
3. Depress the PLAYBACK button.
4. Adjust the head in height and azimuth by either tightening or loosening the ADJUSTMENT SCREWS to obtain the maximum reading on the meter.

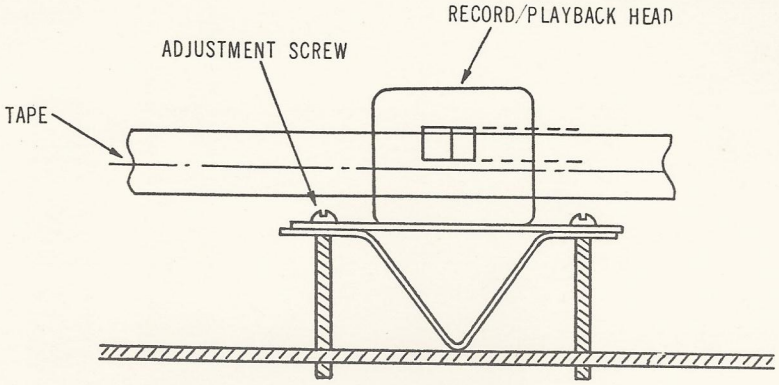


Fig. 2

RECORDING LEVEL METER ADJUSTMENT

Apply a signal of 1,000 Hz, -65 dB (1 V=0 dB) through the microphone jack, and adjust the VR 1 (5 Kohm) so that the meter indicates the boundary line between red mark and silver mark.

ADJUSTMENT OF THE TAKE-UP MECHANISM (Take-up reel drum assembly)

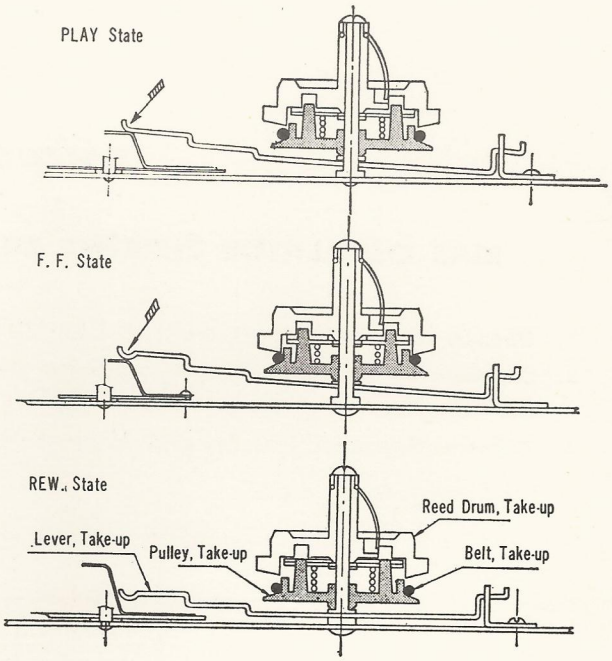
PYAY (Play back) OPERATION

If the take-up torque is insufficient, make adjustment by bending downward the take-up lever at the part indicated by the arrow.
Insare that the take-up belt is not brought into contact with the take-up reel drum.

F. F. (Fast forward) OPERATION

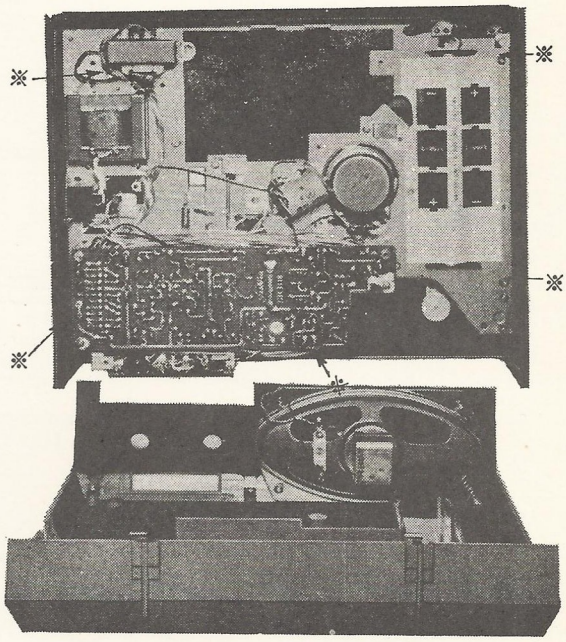
If the F.F. operation is sluggish, bend downward the part indicated by the arrow.
Insure that the take-up belt is kept contacted with the take-up reel drum.

After the above adjustments have been made, insure that the take-up pulley is brought to the lowest position in the REW. mode of operation.



REMOVING THE CABINET

The cabinet consists of the panel and the cabinet bottom cover. To take out the main chassis unit, disassmble the cabinet and then remove the panel.



REMOVING THE BOTTOM COVER

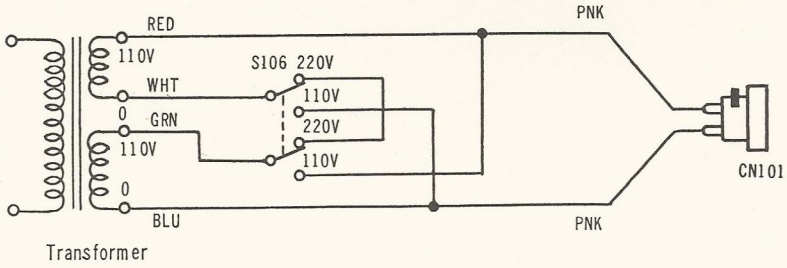
Loosen the two truss screws of the handle and remove the handle.
Turnover the tape recorder the four clampingscrews and the other screw in the pocked.
When the above is made, the bottom cover is ready to be removed.

REMOVING THE PANEL

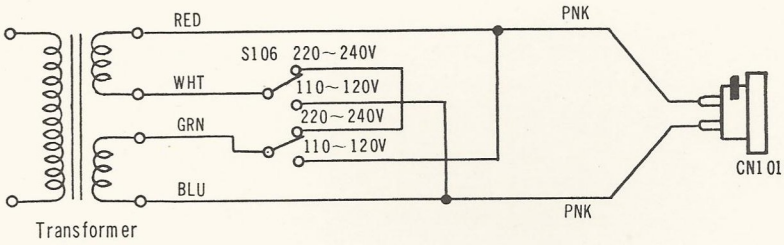
Remove the head cover pin which fixes the head cover.
Remove the bottom cover as described in the preceding paragraph.
Remove the five self-tapping serews (indicated by ※ marks in the photograph) and un-solder the connection of the speaker lead wires.
When the above is made, the panel is readdy to be removed.
In replacing the panel, pay attentions not to tighten the self-tapping screws with excessively large forces lest threads should be damaged.

LINE VOLTAGE SELECTION DIAGRAMS AND SELECTION METHOD

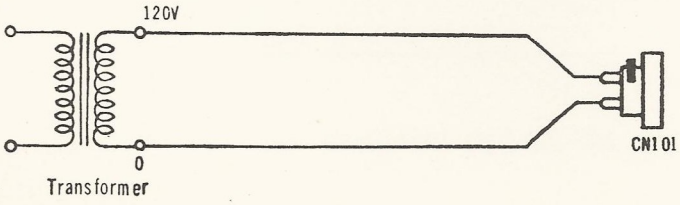
1. 110/220 volts selection diagram.



2. 110~120/220~240 volts selection diagram.

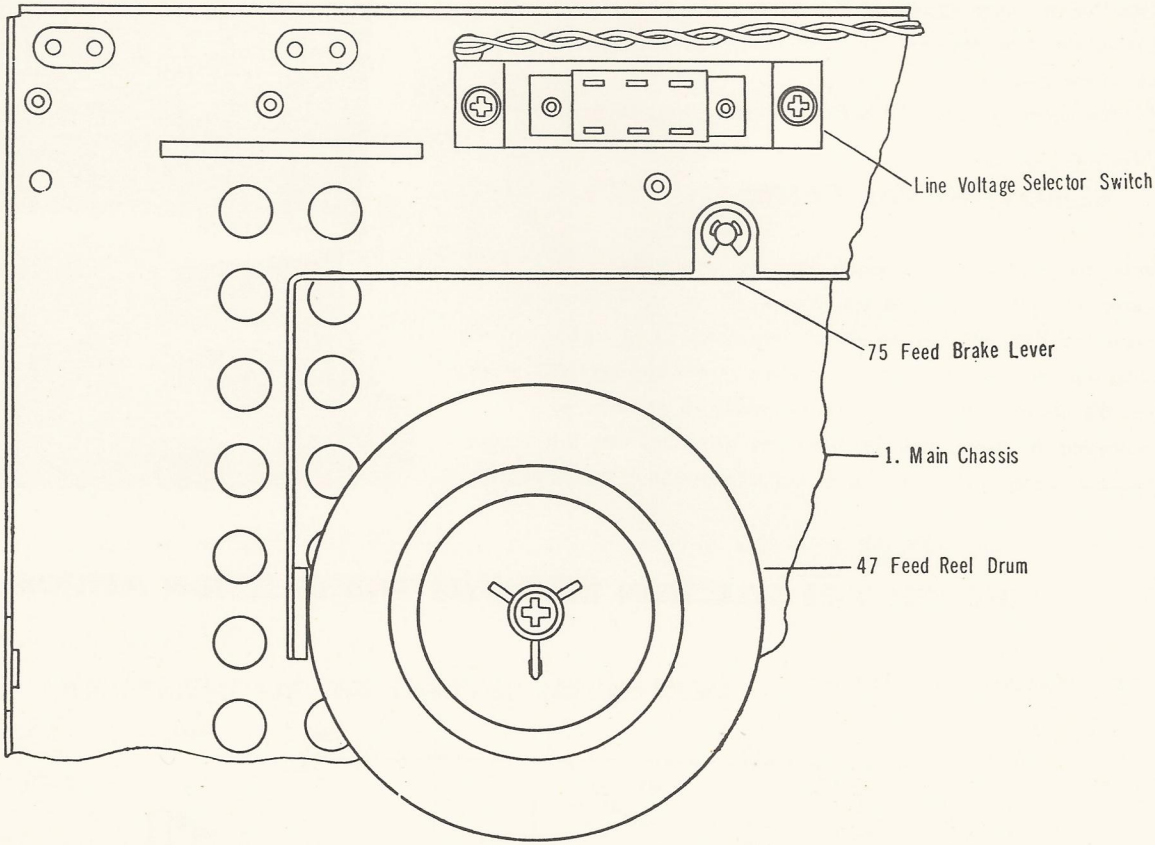


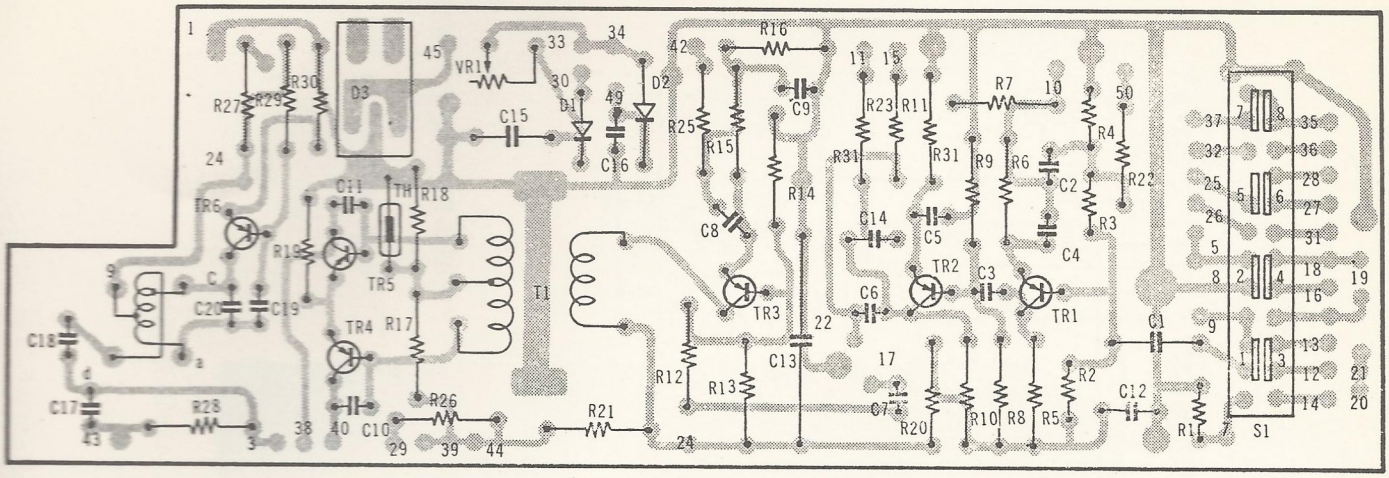
3. 120 volts only diagram.



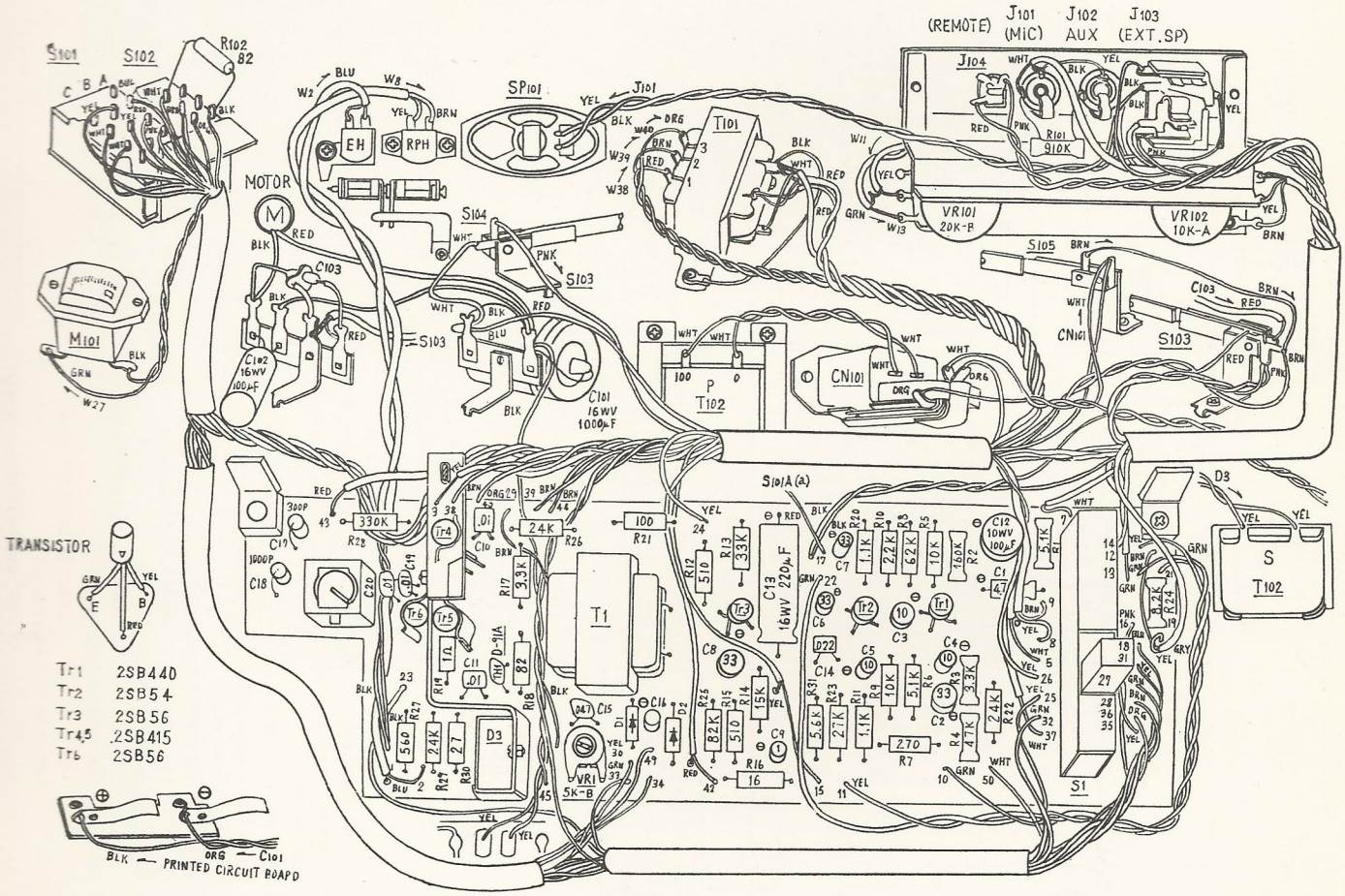
Line voltage selection method.

1. Insure that the power cord is disconnected from the power line receptacle.
2. Remove the cover of the pocket so that the selector switch is accessible.
3. Set the switch in the desired position as indicated by designations on the selector switch.

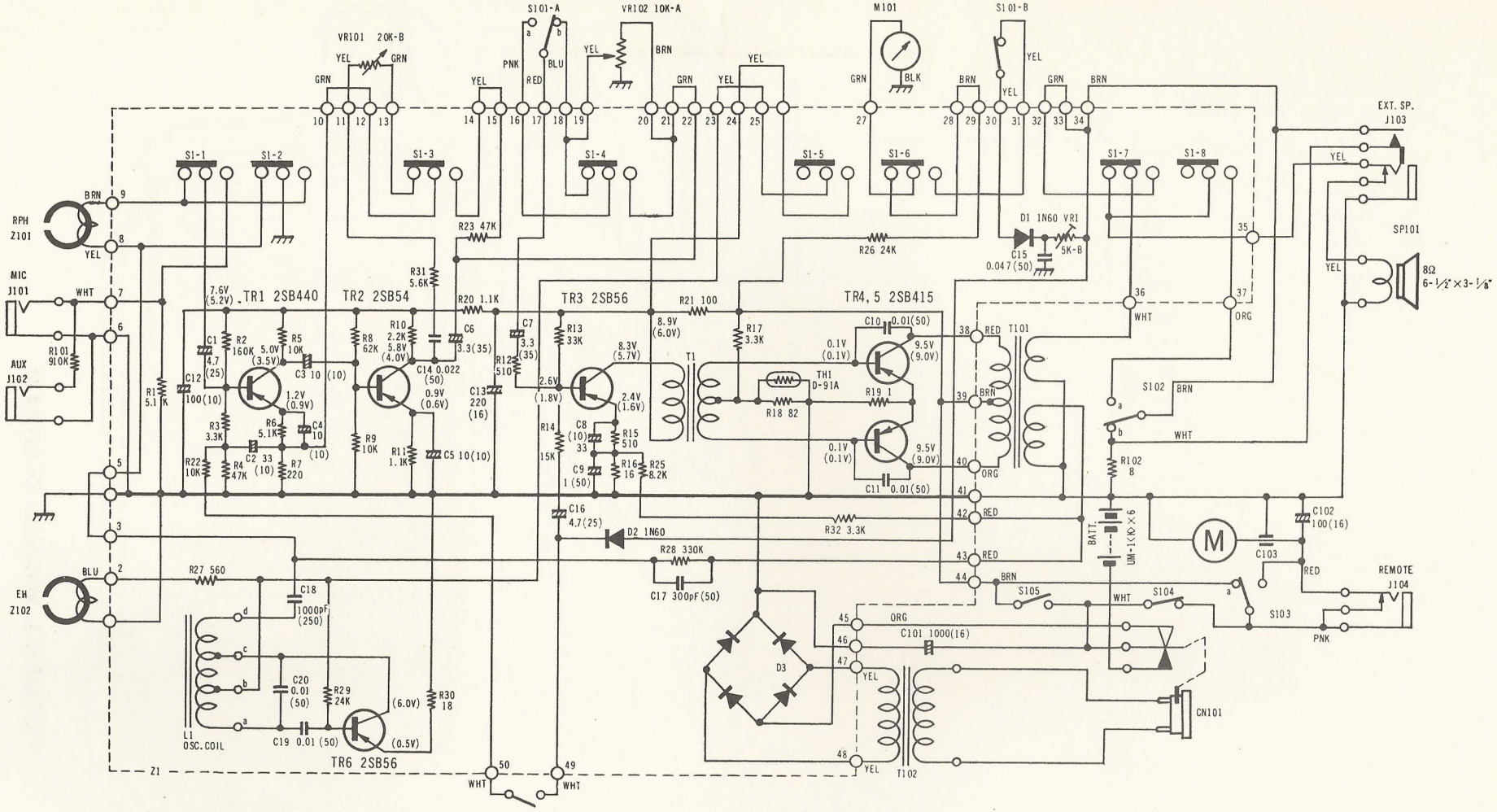




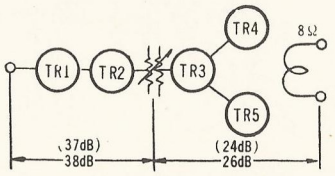
BOTTOM VIEW



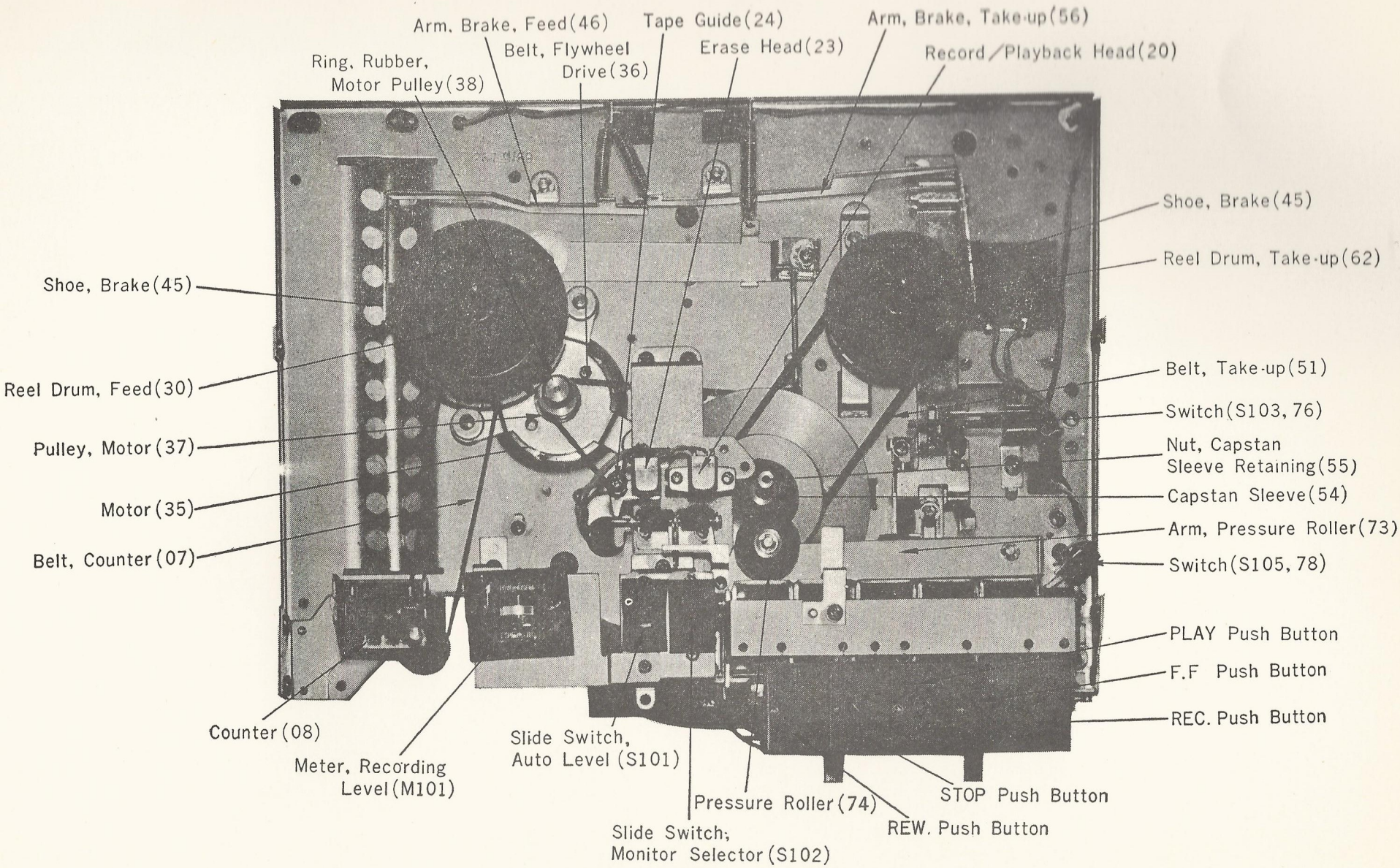
PICTORIAL WIRING DIAGRAM



1) All resistor values in ohms, K=1,000, Capacitor in farads, ( ) shows W. V.
2) Resistors are 1/2 watt Composition type. But R101, R1~4 & R24 are 1/4 watt carbon film type.
3) Voltages between indicated point & chassis ground (positive grounded) are measured by V.T.V.M. in Playback position & without signal in-put. And shown in parenthesis are measured in Pecord position.
4) S1-1~8 Slide switch for Record-Playback change (shown in Playback position)
5) S101-A~C Slide switch for Auto Level circuit (shown in Auto Level-OFF position)
6) S102 Slide switch for Speaker Monitor (shown in Sp.-Monitor OFF position)
7) S105 Leaf switch for recording level setting ("ON" when Record button is pushed.)
8) S103 Leaf switch power source change for amplifier (a: Record or Playback condition, b: F.F., Rewind or Stop condition)
9) S104 Leaf switch for power supply (shown in operating condition)
10) Stage Voltage Gain ( ) shows Rec.position



SCHEMATIC DIAGRAM



PARTS LOCATION-TOP VIEW

PARTS LIST

Symbol No.	Stock No.	Description
TRANSISTORS, THERMISTOR AND DIODES		
TR 1	3122044000	2SB440, 1st Audio Amp.
TR 2	3122005400	2SB54, 2nd Audio Amp.
TR 3, 6	3122005600	2SB56, Audio Driver, Bias Oscillator
TR 4, 5	3122041500	2SB415, Audio Output
D 1, 2	3112006000	1N60, Level Meter, Auto Level Rectifier
D 3	2511510800	Selenium Rectifier
TH 1	2269100200	D91A, Temperature Compensator
ELECTRICAL PARTS		
T 1	2521411800	Transformer, Audio Input
T 101	2521610600	Transformer, Audio Output
T 102	2521312300	Transformer, Power (110 to 120V/220 to 240V)
or	2521312400	Transformer, Power (220V)
L 1	2523511300	Coil, Bias Oscillator
J 101, 102	2516314000	Jack, MIC., AUX. (3.5mm)
J 103	2516311700	Jack, EXT. SP. (3.5mm)
J 104	2516311800	Jack, REMOTE (2.5mm)
M 101	2510410500	Meter, Record Level
SP 101	2215125500	Dynamic Speaker, 6-½″×3-⅛″, 8 ohm
CN 101	2516610100	A.C. Connector
	2512511300	Micro Motor
SWITCHES		
S 1	2514515100	Slide, Record/Playback
S 101	2514510200	Slide, Auto Level, ON/OFF
S 102	2514515200	Slide, Speaker Monitor, ON/OFF
S 103	2914515300	Leaf, Motor, ON/OFF
S 104	2514515400	Leaf, Power, ON/OFF
S 105	2514515500	Leaf, Power, Record
S 106	2514522400	Line Voltage, Selector Switch
CAPACITORS		
C 1	2549547900	Electrolytic, 4.7 mfd, 25 WV
C 2, 8	2547333000	Electrolytic, 33 mfd, 10 WV
C 3, 4, 5	2547310000	Electrolytic, 10 mfd, 10 WV
C 6, 7	2547633900	Electrolytic, 3.3 mfd, 35 WV
C 9	2547710900	Electrolytic, 1 mfd, 50 WV
C 10, 11, 19, 20	2537310300	Mylar, 0.01 mfd, 50 WV
C 12	2547310100	Electrolytic, 100 mfd, 10 WV
C 13	2549422100	Electrolytic, 220 mfd, 16 WV
C 14	2537322300	Mylar, 0.022 mfd, 50 WV
C 15	2537347300	Mylar, 0.047 mfd, 50 WV
C 16	2547547900	Electrolytic, 4.7 mfd, 25 WV
C 17	2539230100	Polyethylene, 300 pF, 50 WV
C 18	2539510200	Polyethylene, 1000 pF, 250 WV
C 101	2546010200	Electrolytic, 1000 mfd, 16 WV
C 102	2547410100	Electrolytic, 100 mfd, 16 WV
C 103	2534010100	Ceramic (Feed-thru Type), 1000pF, 500 WV
RESISTORS (All resistors are ½W, 10%, unless otherwise noted)		
R 1	2551251200	Carbon film, 5.1 Kohm, ¼W
R 2	2551216400	Carbon film, 160 Kohm, ¼W
R 3	2551233200	Carbon film, 3.3 Kohm, ¼W
R 4	2521247300	Carbon film, 47 Kohm, ¼W
R 5, 9, 22	2556310300	Carbon Composition, 10 Kohm
R 6	2556351200	Carbon Composition, 5.1 Kohm
R 7	2556322100	Carbon Composition, 220 ohm
R 8	2556362300	Carbon Composition, 62 Kohm
R 10	2556322200	Carbon Composition, 2.2 Kohm
R 11, 20	2556311200	Carbon Composition, 1.1 Kohm
R 12, 15	2556351100	Carbon Composition, 510 ohm
R 13	2556333300	Carbon Composition, 33 Kohm
R 14	2556315300	Carbon Composition, 15 Kohm
R 16	2556316000	Carbon Composition, 16 ohm
R 17, 32	2556333200	Carbon Composition, 3.3 Kohm
R 18	2556382000	Carbon Composition, 82 ohm
R 19	2556310900	Carbon Composition, 1 ohm
R 21	2556310100	Carbon Composition, 100 ohm
R 23	2556347300	Carbon Composition, 47 Kohm
R 25	2556382200	Carbon Composition, 8.2 Kohm
R 26, 29	2556324300	Carbon Composition, 24 Kohm
R 27	2556356100	Carbon Composition, 560 ohm
R 28	2556333400	Carbon Composition, 330 Kohm
R 30	2556318000	Carbon Composition, 18 ohm
R 31	2556356200	Carbon Composition, 5.6 Kohm
R 101	2551291400	Carbon film, 910 Kohm, ¼W
R 102	2556380900	Carbon Composition, 8 ohm
VARIABLE RESISTORS		
VR 1	2561012100	Semi-Fixed Variable, 5 Kohm
VR 101	2561510400	Variable, 20 Kohm, Tone
VR 102	2561510300	Variable, 10 Kohm, Volume
ACCESSORIES		
	2515410900	Dynamic Microphone
	2596510200	Splicing Tape
	2595413100	Owner's Manual
	2517612700	Power Cord
or	2517612400	Power Cord
	2517011200	Patch Cord

MECHANISM

Key No.	Stock No.	Description
01	2571119000	Main Chassis
02	2573118600	Bracket, Counter and Level Meter
03	7402003031	Lock Washer, 3mm
04	7020300611	Screw, 3mm×6mm
05	2576112800	Cushion, Rubber, Level Meter
06	7020300511	Screw, 3mm×5mm
07	2575512400	Belt, Counter
08	2587311000	Counter
09	2573124700	Sub Chassis
10	2572612500	Column, Sub Chassis
11	2586311300	Bracket, Slide Switch Mtg.
12	7020300811	Screw, 3mm×8mm
13	2571410700	Pressure Pad
14	2576210600	Felt, Pressure Pad
15	7402002631	Lock Washer, 2.6mm
16	7020260511	Screw, 2.6mm×5mm
17	2577410900	Spring, Record/Playback Head
18	7020170311	Screw, Head Mtg., 1.7mm×3mm
19	2573317900	Plate, Record/Playback Head Mtg.
20	2521710700	Record/Playback Head
21	7020261411	Screw, Head Mounting Plate, 2.6mm×14mm
22	2573328000	Bracket, Erase Head Mtg.
23	2521810700	Erase Head
24	2572311600	Tape Guide
25	7020301211	Screw, Tape Guide Mtg., 3mm×12mm
26	2571211200	Feed Reel Drum Shaft and Lever
27	2572612600	Spacer, Feed Reel Drum Shaft and Lever
28	2572612700	Washer, Feed Reel Drum Shaft and Lever
29	2576416000	Washer, Nylon, 0.5mm
30	2571215501 2571216900	Reel Drum, Feed
31	2576415900	Washer, Nylon, Reel Drum

PARTS LIST

Key No.	Stock No.	Description
32	2572813400	Truss Screw, Reel Drum Mtg., 2.6mm×6mm
33	2571018000	Spring, Feed Reel Drum Shaft and Lever
34	2573413800	Plate, Rewind Rod
35	2512511300	Motor
36	2575515500	Belt, Flywheel Drive
37	2572319200	Pulley, Motor
38	2576112900	Ring, Rubber, Motor Pulley
39	7020260611	Screw, Motor Mtg., 2.6mm×6mm
40	2573318400	Plate, Motor Mtg.
41	2576113000	Cushion, Rubber, Motor Plate Mtg.
42	2572612900	Spacer, Motor Plate Mtg.
43	2573511000	Washer, Motor Plate Mtg.
44	7020301011	Screw, Motor Plate Mtg., 3mm×10mm
45	2576310100	Shoe, Brake
46	2574311500	Arm, Brake, Feed
47	2577117100	Spring, Feed Brake
48	7405003231	Stop Ring, 3.2mm
49	2571810800	Bearing, Capstan Shaft
50	7409020021	Ball, Steel, Capstan Shaft Bearing
51	2575512300	Belt, Take-up
52	2571714300	Flywheel and Capstan Shaft
53	2576415800	Washer, Vinyl, Capstan Sleeve
54	2575312000	Capstan Sleeve
55	2572811400	Nut, Capstan Sleeve Retaining
56	2574311400	Arm, Brake, Take-up
57	2577117000	Spring, Take-up Brake
58	2576417800	Washer, Nylon, 1mm
59	2575413200	Pulley, Take-up
60	2577218501	Spring, Friction Plate
61	2576425400	Plate, Friction
62	2571215401 2571216800	Reel Drum, Take-up
63	2574225200	Lever, Take-up
64	2573418800	Retainer, Take-up Lever
65	7020300411	Screw, Playback Slider Spring Mtg., 3mm×4mm
66	2573417600	Spring, Playback Slider
67	2574111901	Slider, Playback
68	2577415100	Spring, Fast Forward Slider
69	2574112001	Slider, Fast Forward
70	2574610800	Plate, Pressure Roller Spring
71	2577212800	Spring, Pressure Roller
72	7430201811	Split Pin, Pressure Roller Spring
73	2571711800	Arm, Pressure Roller
74	2575212500	Pressure Roller
75	2574610700	Plate, Pressure Pad Actuating
76		Switch, S 103, See Switches Parts List
77	2586310600	Bracket, AC Connector Mtg.
78		Switch, S 105, See Switches Parts List
79	2573413700	Guide, Pressure Roller Arm
80	2571611800	Assembly, Push Button
81	2572712700	Rod, Rewind
82	7320200051	Nut, Rewind Rod, 2mm
83	2573318200	Bracket, Printed Circuit Board Mtg., Right
84	2584711600	Hinge, Printed Circuit Board
85	7024300811	Countersunk Screw, Hinge Mtg., 3mm×8mm
86	2573414500	Stud Plate, Main Chassis Mtg.
87		Switch, S 104, See Switches Parts List
88	2574112301	Slider, Brake and S 104 Switch
89	2577116900	Spring, Slider
90	2571119300	Retainder, Capstan Shaft Bearing Ball
91	2586310500	Bracket, Volume Mtg.
92	2586511400	Plate, Jack Mtg.
93	2573117100	Partition Plate, Pocket
94	2571010100	Terminal Plate, Battery
95	2573318300	Bracket, Printed Circuit Board Mtg., Left
96	2576424700	Washer, Nylon, 1mm
97	7024300611	Countersunk Screw, Take-up Lever Retainer Mtg., 3mm×6mm
98	7400103011	Washer, Fast Forward Slider Spring, 3mm
		CABINET
	2581114600	Bottom Cover
	2581310900	Front Grille
	2581211100 2581217800	Pocket Cover
	7020300811	Screw, Bottom Cover Mtg., 3mm×6mm
	7020300511	Screw, Bottom Cover and Decoration Plate Mtg., 3mm×5mm
	7100301011	Self-tapping Screw, Front Grille Mtg., 3mm×10mm
	7100300611	Self-tapping Screw, Pocket Cover Mtg., 3mm×6mm
	2581211000	Battery Cover
	2581912201 2581915600	Panel
	2581413100	Decoration Plate, Right
	2581413200	Decoration Plate, Left
	2583512200	Retainer, Decoration Plate
	7100300811	Self-tapping Screw, Panel Mtg., 3mm×8mm
	2581211200 2581217900	Top Cover
	2582511900	Handle, Carrying
	2583512000	Spacer, Handle
	2583511700	Cushion, Rubber, Handle
	7026401813	Truss Screw, Handle Mtg., 4mm×18mm
	2582915201 2582914901	Head Cover
	2581612200	Knob, Volume Control
	2584612000	Pin, Head Cover
	2572811500	Pin, Capstan Sleeve Storing
	7320300051	Nut, Capstan Sleeve Storing Pin Mtg., 3mm
	7401003021	Spring Washer, Pin, 3mm
	2583112700	Ring, Vinyl, Battery
	2583312400	Cloth, Pocket
	2595614200	Model No. Plate
	2595812400	Battery Label
	2595812500	Label, Line Voltage
		PACKAGE
	2591312900	Carton
	2593313700	Cushion, Left
	2593313800	Cushion, Right
	2594311800	Polyethylene Bag
	2593110500	Holder, Battery
	2591900100	Spacer, Top Cover
	2595812900	Label, CD No.

Printed in Japan

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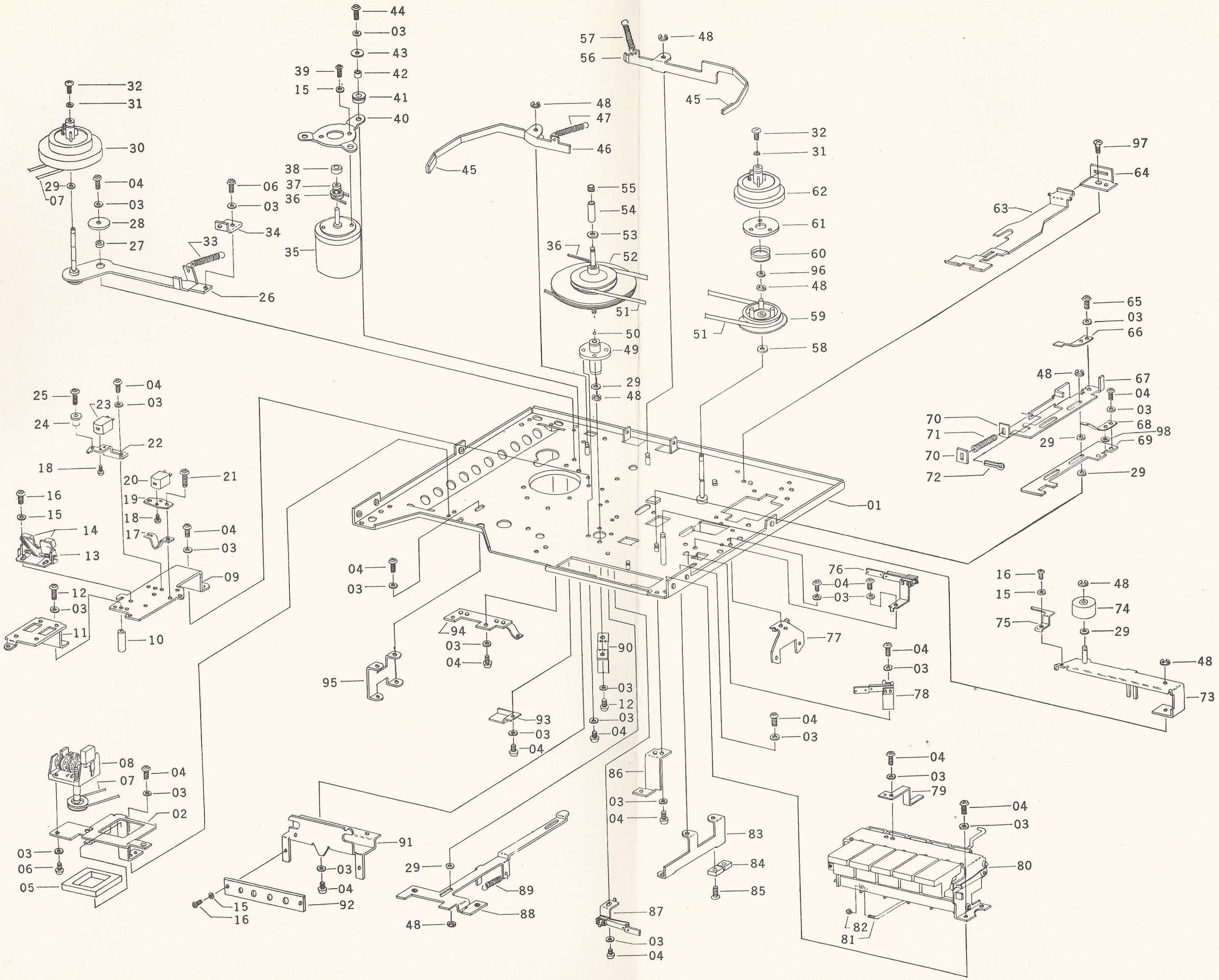

EXPLODET VIEW-MECHANISM