

# AIWA

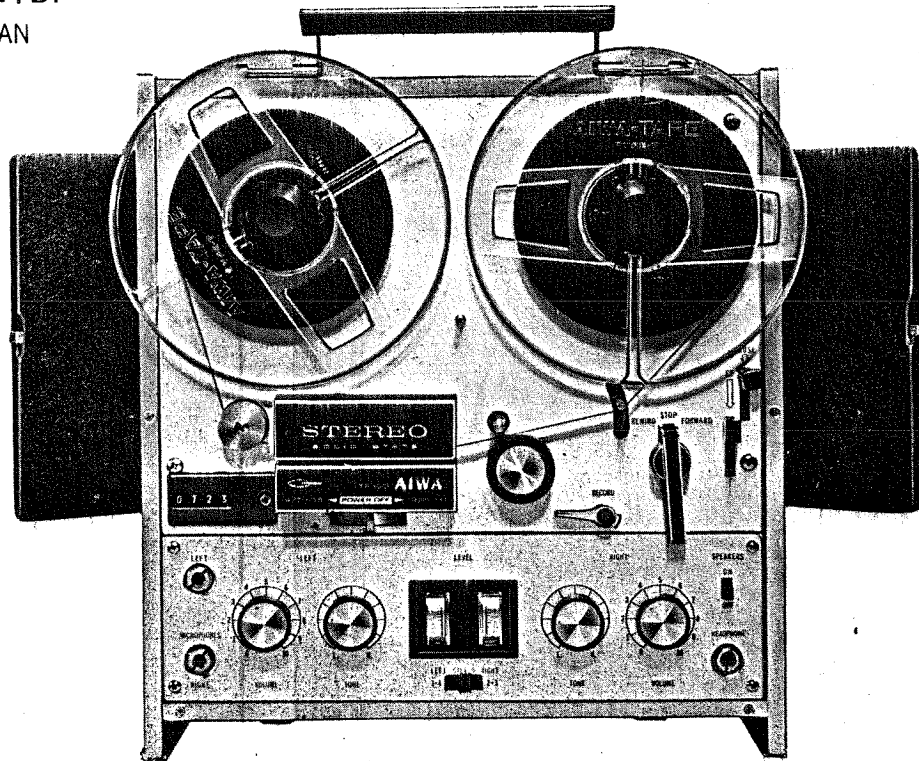
PARTS DEPT

## 4 TRACK STEREO SOLID STATE TAPE RECORDER

MODEL **TP-1001**

[SERVICE MANUAL]

AIWA CO., LTD.  
TOKYO JAPAN



### SPECIFICATION

Type: 4-track stereo, 3-speed recorder  
 Circuit: 22 transistors, 6 diodes & 2 thermistors  
 Reel: 7" type  
 Tape speed & recording time: 7-1/2 ips. (19cm/sec).....1 hour  
 3-3/4 ips. (9.5 cm/sec).....2 hours  
 1-7/8 ips. (4.75 cm/sec).....4 hours  
 (Stereo recording w/7" reel of 50-micron tape, back and forth)  
 Recording system: AC bias  
 Erasing system: AC erasure  
 Frequency characteristics: As defined in NAB Standards  
 Frequency range: 7-1/2 ips. (19 cm/sec).....30c/s-18,000c/s  
 3-3/4 ips. (9.5 cm/sec).....30c/s-12,000c/s  
 1-7/8 ips. (4.75 cm/sec).....30c/s-5,000c/s  
 Output: 10W (Max.), 5W x 2  
 Distortion rate: Less than 2%  
 S/N ratio: 45 dB  
 Cross talk: 55 dB (1,000c/s)  
 Separation: 45 dB (1,000c/s)  
 Power consumption: 46 100W, 110W, 117W, 120W & 200W

Power consumption: 40 VA  
 Motor: 4-pole hysteresis synchronous motor  
 Recording level indication: Level Meter x 2  
 Built-in speaker: 8" x 4" (200 x 100 mm) PM. D speaker (8  $\Omega$ ) x 2  
 Dimensions: 14-5/8" (H) x 13-3/8" (W) x 10-1/4" (D)  
 (368 x 342 x 257 mm)  
 Weight: 33 lbs. (15 kg)  
 Microphone: 10 K $\Omega$  type (2 n-10 K $\Omega$  type can be used)

### ACCESSORIES

7" reel w/ 50-micron tape	x 1
7" reel, empty	x 1
Audio cord	x 2
Patch cord	x 2
Motor pulley	x 1
Splicing tape	x 1
Lubricant oil	x 1
Beel cam	x 2

Ref. No.	Description	Part No.
1	Reel platform, A	2334040
2	Handle	2333370
3	Capstan sleeve rest	2333252
4	Head cover, A	2333443
5	Head cover, B	2333444
6	Stabilizer metal, A	2333263
7	Tape counter	2333018
8	On-Off Switch/Speed Selector Knob	2333250
9	Microphone jack	7032153
10	Volume control knob	2333338
11	Tone control knob	2333338
12	Level meter	7040003 7040004
13	Track selector switch	7031019
14	Headphone jack	7032154
15	Speaker on-off switch	7031017
16	Record knob	2333015
17	Control selector knob	2333362
18	F. FWD button	2333456
19	Instant stop knob "PAUSE"	2333455
20	Automatic stop	2334032
21	Pinch-roller	2333487
22	Capstan - SLEEVE	2333570 - SPEED CHANGE
23	Cabinet proper	2333498
24	Bottom cover, Cabinet	2333498
25	Power jack (AC connector)	7032055
26	Fuse holder	7032048
27	Voltage selector socket	7032179
28	External speaker jack	7032153
29	Line output jack	7032049
30	Aux. input jack	7032049

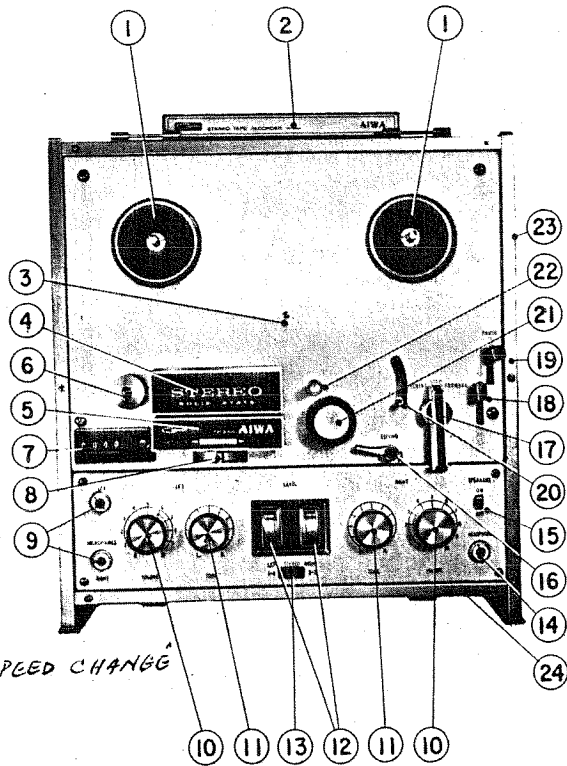


Fig 1

- (1) How to remove cabinet (case) (Fig. 3 & Fig. 4)
- \* Make loose setscrews, (A) & (B) found on both sides of cabinet.
  - \* Remove four setscrews found on the bottom cover of cabinet and pull off the cover for removal.
  - \* Remove (A), (B), (C), (D), (found on both sides) and (E), (F), (G), (H).
  - \* Pull out the deck assembly from cabinet in the direction indicated by the arrow mark.

- (2) How to remove control panel
- \* Using a plus (+) screwdriver, loosen setscrew 1, Fig. 5. Then, pull off control selector knob.
  - \* Loosen setscrews, 2 to 8, by means of a minus (-) screwdriver and pull off respective control knobs.
  - \* Pull off head cover with your hands (A), (B).
  - \* Turn counterclockwise setscrews, (C) of pinchroller and remove them. Now, pull off the rubber roller.
  - \* Using a plus (+) screwdriver, remove screws, 9 to 16.
- With the above procedures, cabinet including exterior fittings can be removed as shown by Fig. 6 & Fig. 7.

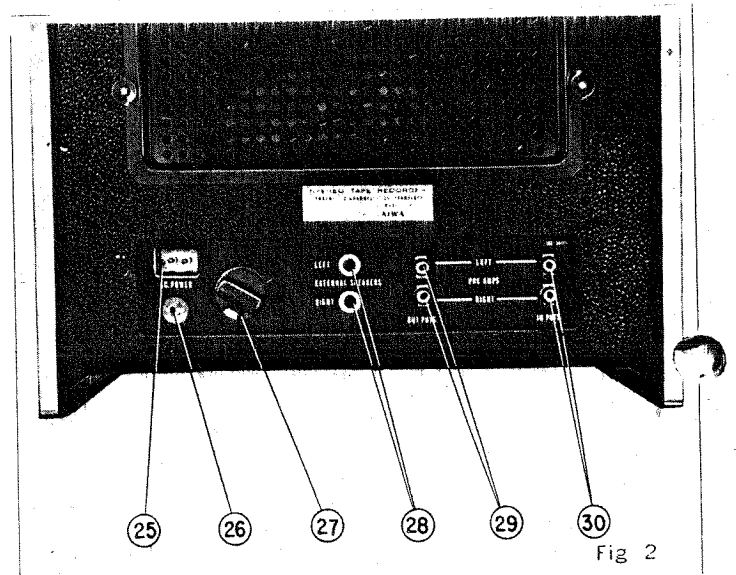


Fig 2

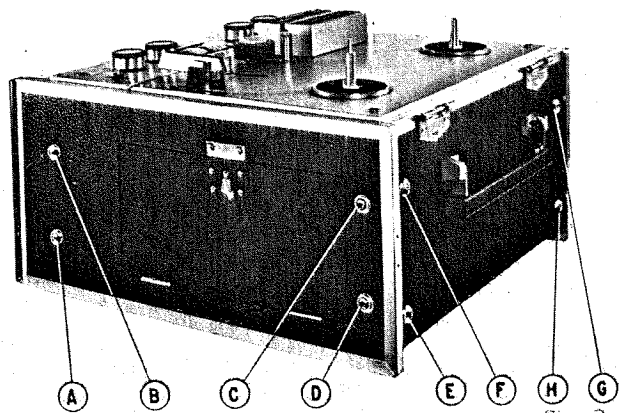
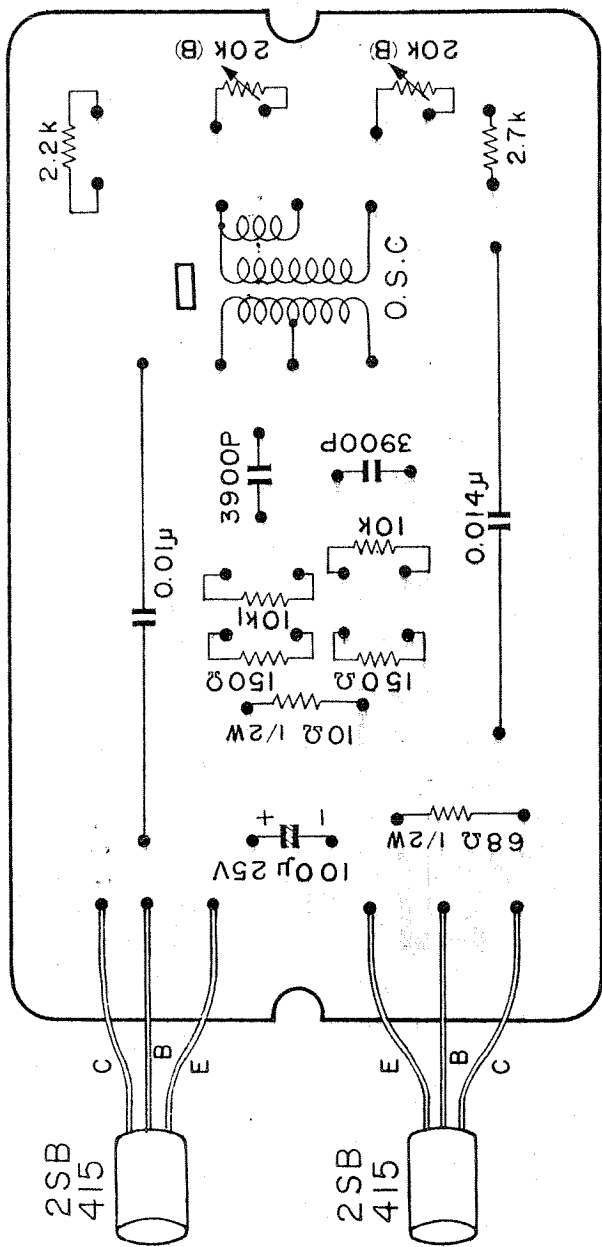
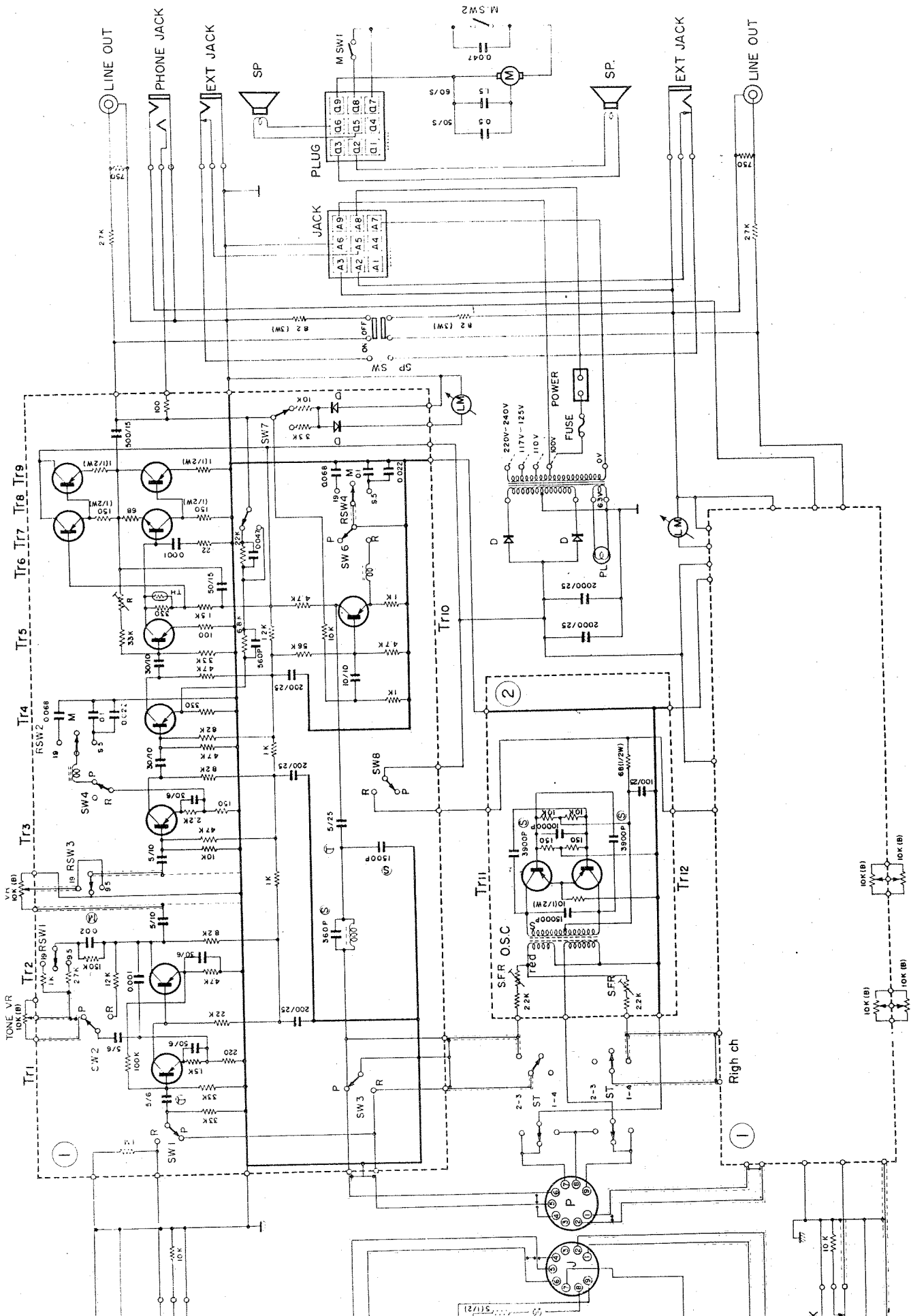


Fig 3



TP-1001



Ref. No.	Description	Part No.
1	Chassis	2334010
2	Takeup reel platform assembly	2334040 <del>2336</del>
3	Back tension lever	2333557
4	Brake lever, Right	2333523
5	Idler wheel, A <i>TAKE-UP</i>	2720286
6	Motor pulley <i>82-336-226 21-</i> (60 ~) <del>2334007 <del>82-336</del></del> (50 ~)	2334008
7	Brake spring	2333277
8	Rewinding idler wheel	2334027
9	Idler wheel, C	2334009
10	Brake lever, Left	2333522
11	Supply reel platform assembly	2334040
12	Drive idler wheel	2333436
13	Coupling rod, A	2333554
14	Condenser	8993850
15	Brake lever, B	2333553
16	Stabilizer metal	2333263
17	Head chassis assembly	2333549
18	Tape counter	2333018
19	Banana-tip alligator clip	2333514
20	Tape guide, E	2333461
21	Erasure head <i>70460720</i> <del>7046018</del> <i>70460570</i>	2333438
22	Head pad lever assembly	2333438
23	Speed selector knob	2333250
24	Recording/playback head <i>7046017</i> <i>70460710</i>	2333250
25	Tape guide, R	2333462
26	Chassis supporting plate	2333314
27	Automatic stopper shaft	2333372
28	Pinch-roller lever assembly	2333562
29	Selector cam spring	2333565
30	Selector stopper	2333235
31	F. FWD lever assembly	2333538
32	Pause plate assembly	2334048
33	Instant stop lever	2333577
34	Instant stop shaft	2333260
35	Instant stop ring, B	2333293
36	F. FWD cam	2333248
37	F. FWD, B assembly	2333543
38	F. FWD lever spring	2333303
39	Back tension lever spring	2333558
40	Brake driving lever, A assembly	2333524
41	Takeup idler wheel spring	2333281
42	Spring C, Idler lever B	2720281
43	Brake driving lever, B assembly	2333518
44	Rewinding idler lever assembly	2334021
45	Rewinding idler spring	2333278
46	Rewinding idler lever assembly	2333590
47	Speed selector cam assembly	2334004
48	Pinch-roller spring	2333465
49	Micro switch supporting plate	2333305
50	Actuator (VAL 2)	2333302
51	Micro switch, B	7031065
52	Speed change shaft mount	2333215
53	Speed selector idler spring	2333279
54	Flywheel	2333568
55	Capstan collar assembly	2333570
56	Automatic stopper spring	2334037
57	Setscrew, supporting plate	2334036
58	Recording spring	2333509
59	Actuator, A	2334039
60	Recording stopper assembly	2333396
61	Automatic stopper assembly	2334032
62	F. FWD lock spring	2333291
63	Selector cam shaft assembly	2334014
64	Stopper guide plate	2333496
65	Takeup cam plate assembly	2333573
66	Collar	2333536
67	Micro switch, D	7031084
68	Clamping Metal	2333552

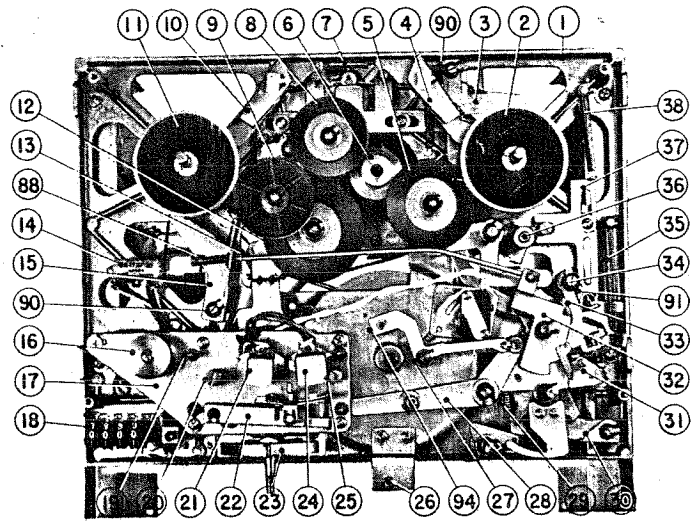


Fig. 8

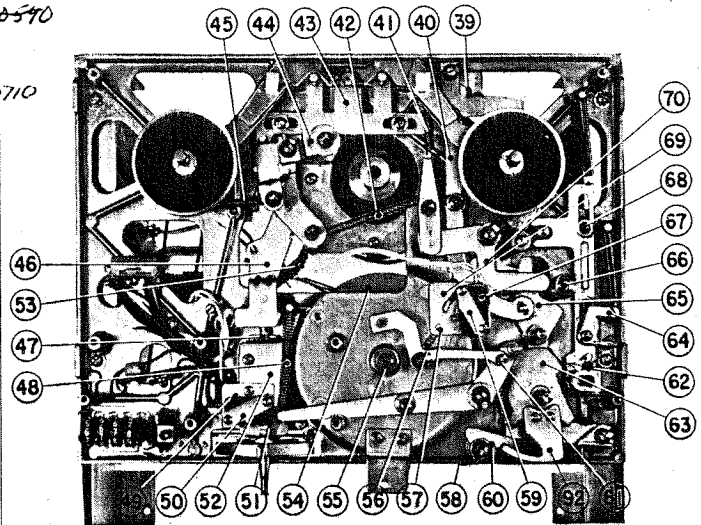


Fig. 9

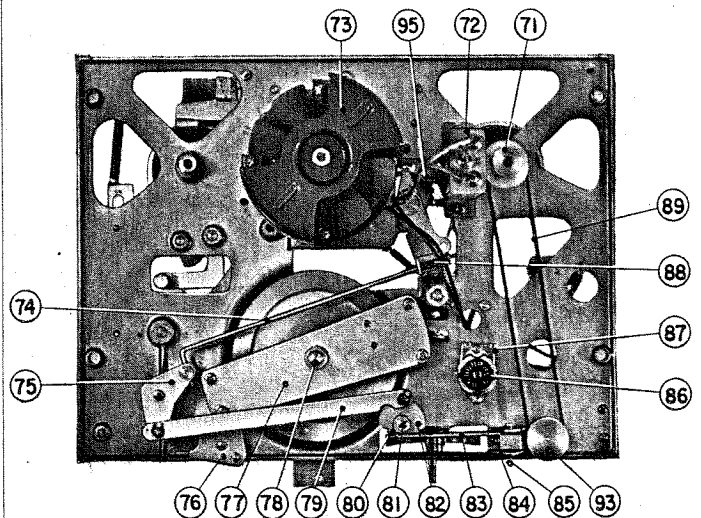


Fig. 10

NO MAIN BELT REQUIRED DIRECT DR.

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*use this no?*

Ref. No.	Description	Part No.
70	F. FWD idler lever assembly	2334015
71	Tape counter drive pulley	2333451
72	MP condenser	7013046
73	Motor	<u>2333616</u>
74	Coupling rod, B	2333533
75	Cam plate assembly	2333527
76	Recording cam assembly	2333582
77	Thrust plate	2333207
78	Bearing screw	2333454
79	Connecting plate	2333534
80	Speed selector knob spring	2333510
81	Speed selector stopper shaft	2333466
82	Speed selector stopper ass'y	2333386
83	Speed selector stopper	2333231
84	Speed selector stopper guide	2333268
85	Speed selector stopper shaft	2333304
86	Socket with 9P clamp	7032188
87	9P clamp	
88	Pause spring	2333555
89	Tape counter belt	2333243
90	Brake lever B shaft	2333403
91	Instant stop shaft spring	2333537
92	Selector cam plate	2333556
93	Tape counter pulley	2334006
94	Weight	2334003
95	Rewinding idler spring B	2333556

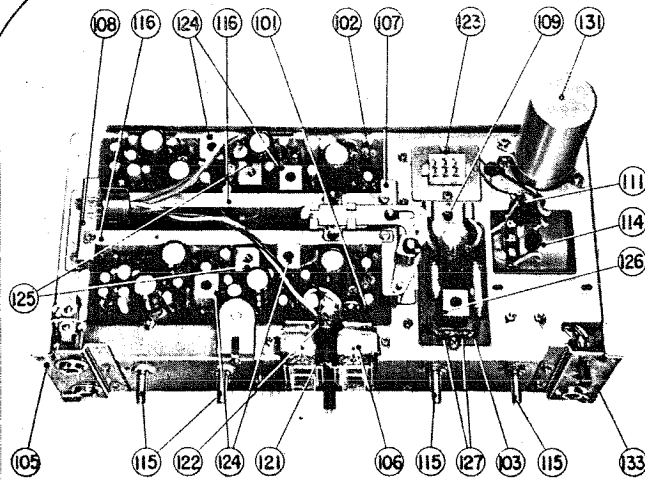


Fig. 11

Ref. No.	Description	Part No.
101	Printed chassis (Main)	2333601
102	Printed chassis (Main)	2333663
103	Printed chassis (Oscillator)	2333602
104	Transistor board	2333604
105	Jack plate (Left)	2333605
106	Meter mounting plate	2333607
107	Slide switch supporter, A	2333608
108	Slide switch supporter, B	2333603
109	Radiation plate	7038004
110	Lug plate	7033009
111	Lug plate	7033001
112	Lug plate	7033002
113	Tube kit table	2333625C
114	Power transformer	7004027
115	Volume AND TONE	7021072
116	Slide switch, A - REC. PLAY SW.	7031018
117	Rotary switch	7031020
118	<del>Motor</del> SEE 73	<del>2333516</del>
119	Speaker	2333617
120	Fuse	7035014
121	Pilot lamp	7035013
122	Pilot lamp socket	7032054
123	Amp. lead connector	2333619
124	Choke coil, 1	2333620
125	Choke coil, 2	2333621
126	Oscillator coil	<del>2333649</del>
127	Semi-fixed resistor	7021063
128	Dummy coil	2333624
129	Socket with 9P clamp	7032188
130	MP capacitor	7013047
131	Chemical capacitor	7015046
132	Resistor	7024004
133	Jack plate (Right)	2334028

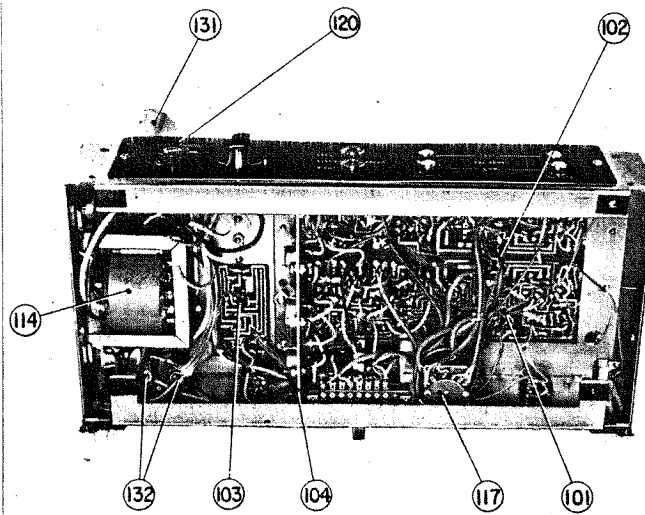
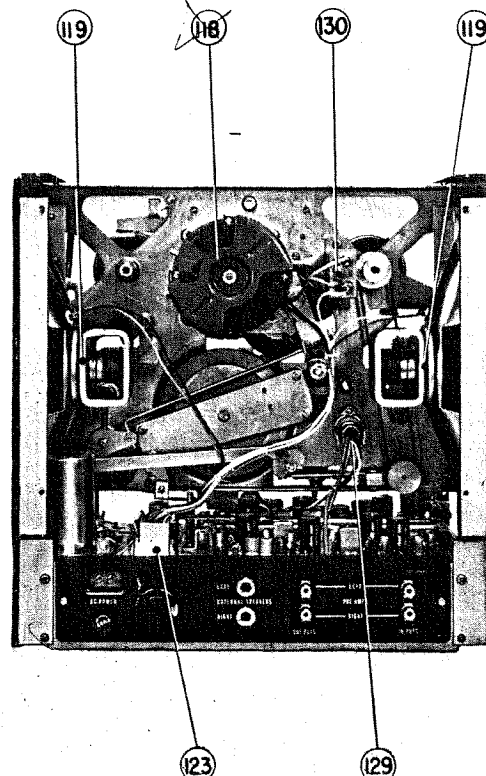


Fig. 12

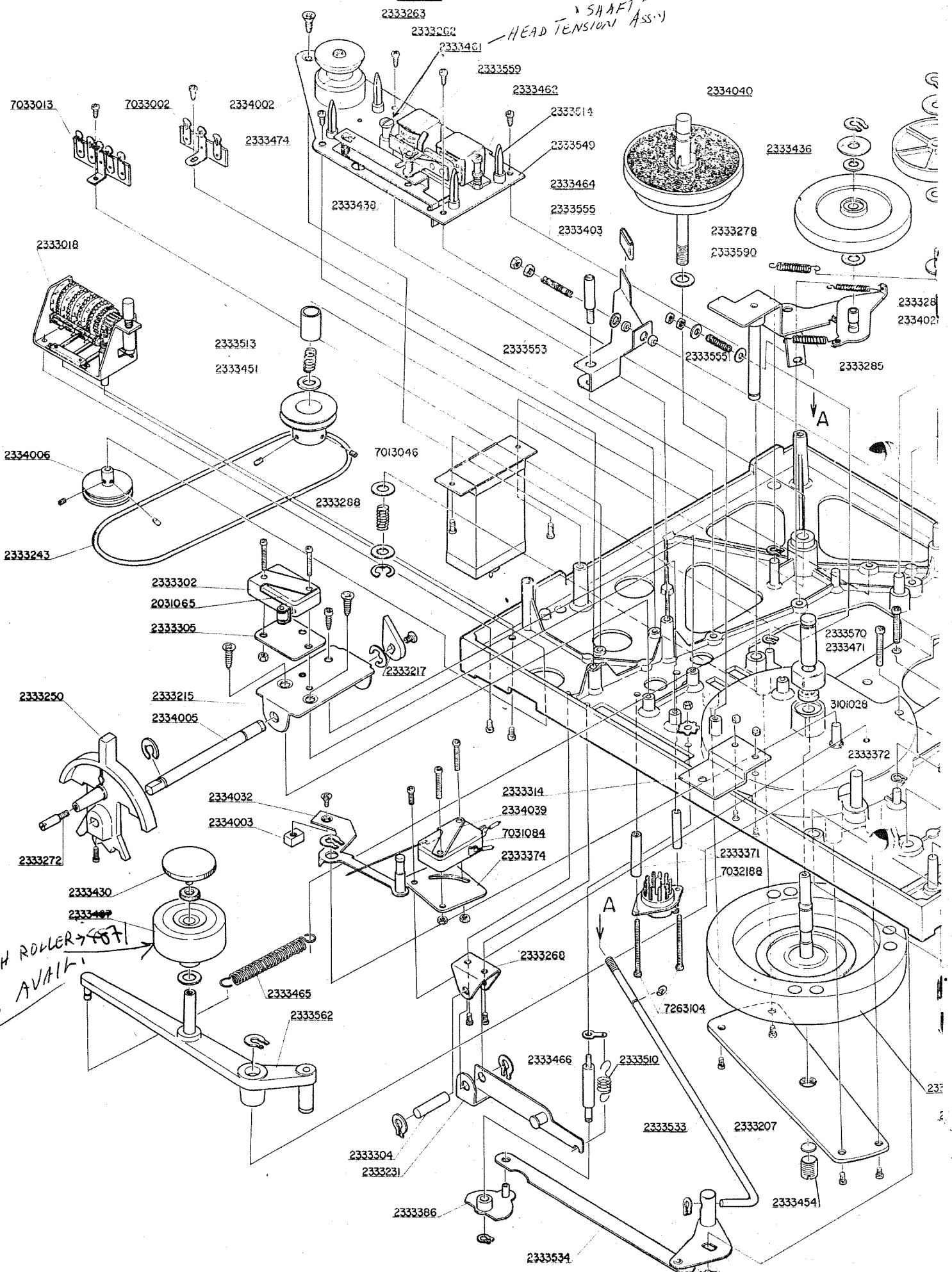


123

129



2333263  
2333262  
2333481  
"SHAFT"  
HEAD TENSION ASSY



7033013

7033002

2334002

2333474

2333438

2333462

2333514

2333549

2333464

2333555

2333403

2334040

2333436

2333278

2333590

2333018

2333513

2333451

2333553

2333555

2333285

2333285

2334021

2334006

7013046

2333288

2333243

2333302

2031065

2333305

2333217

2333215

2334005

2333570

2333471

3101028

2333372

2333250

2334032

2334003

2333314

2334039

701084

2333374

2333371

7032188

2333272

2333430

2333487

2333465

2333562

2333314

2334039

701084

2333374

2333371

7032188

2333268

7263104

2333466

2333510

2333533

2333207

2333304

2333231

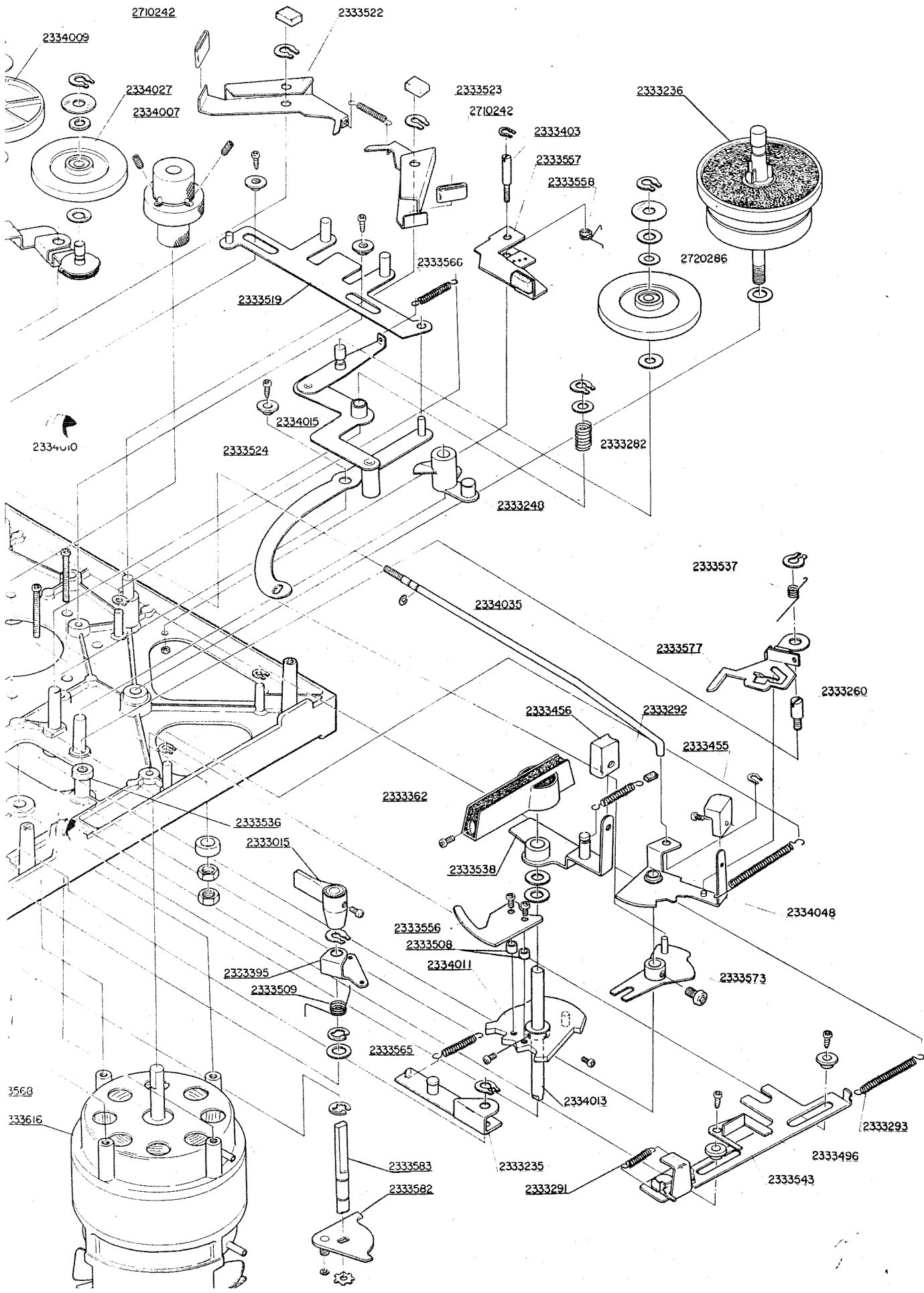
2333386

2333454

2333534

7 INCH ROLLER - 75T  
C.T. AVAILABLE



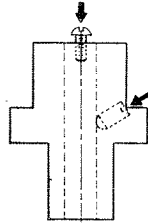


## REPAIR INSTRUCTIONS

Possible cause ▶ Remedy

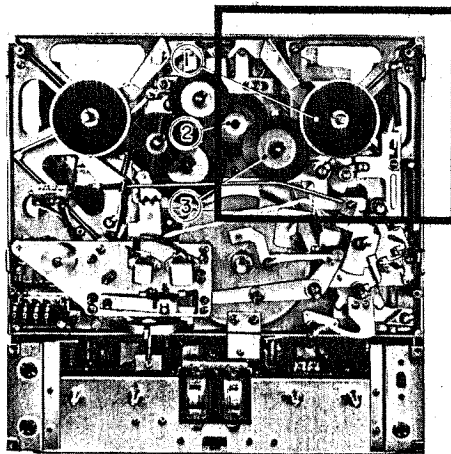
Symptom	Possible Cause & Remedy
Power not in	<ol style="list-style-type: none"> <li><input type="checkbox"/> Broken fuse.                     <ul style="list-style-type: none"> <li>▶ Check fuse found inside of back cover. Replace it if broken.</li> </ul> </li> <li><input type="checkbox"/> Defective contact of amp. lock.                     <ul style="list-style-type: none"> <li>▶ Check amp. lead connector and insert it securely (2 of Fig. 7).</li> </ul> </li> </ol>

Fails to operate in PLAY and RWD



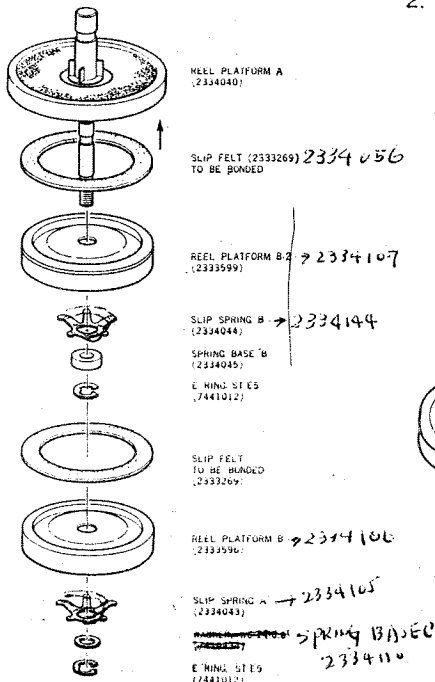
- Clamping screw of motor pulley loose.
  - ▶ Tighten the screw fast by means of a hexagonal wrench.

Imperfect rewinding

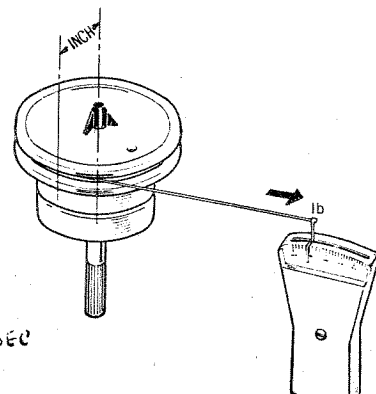


- Reel platform 1, motor pulley 2 and takeup idler wheel 3 stained with oil, resulting in slipping.
  - ▶ Their surface coming in contact with one another will be wiped clean.

TAKEUP SIDE



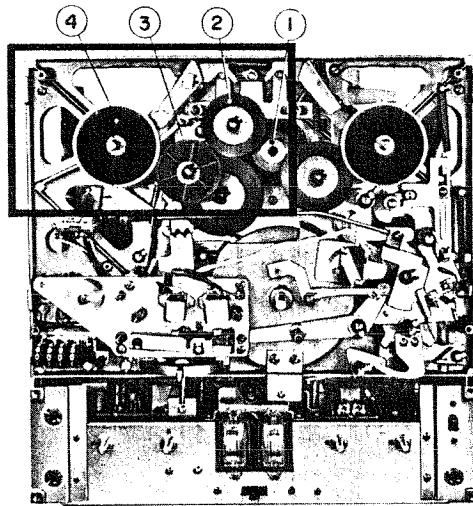
- Insufficient torque of takeup reel platform.
  - ▶ Adjust torque existing between reel platforms A and B to 9.8 lbs.-oz.-inch and that of the reel platform B to 1.6 lbs.-inch.



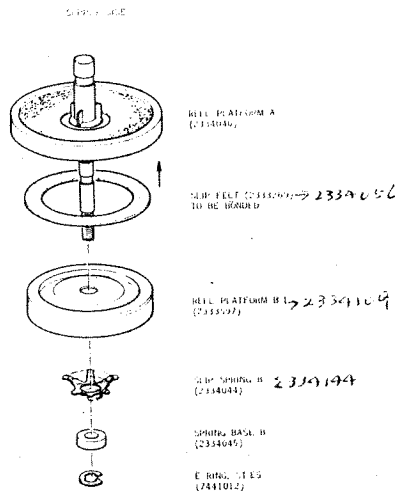
## Symptom

## Possible Cause & Remedy

Unstable rewinding

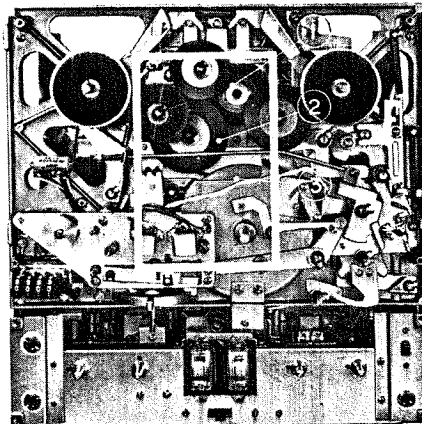


- Motor pulley 1, rewinding idler 2, idler 3 and supply reel platform 4 stained with oil, thus resulting in slipping.
  - ▶ Wipe clean their surface coming in contact with one another.

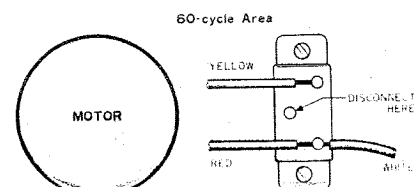
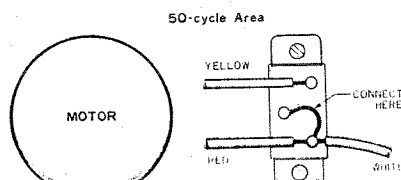


- Insufficient torque of supply reel platform assembly.
  - ▶ Adjust the torque to 9.8 lbs.-oz.-inch.

Tape speed too slow

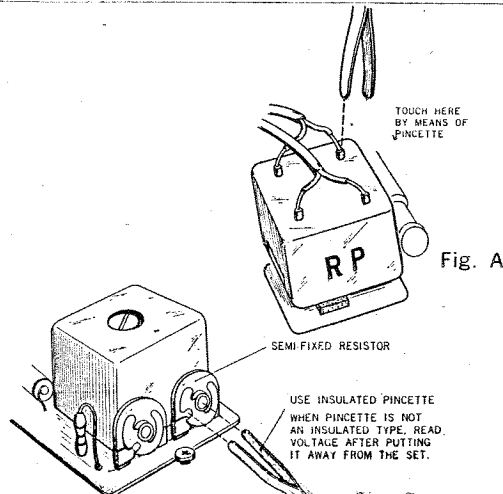


- Motor pulley 1, drive idler 2 and flywheel 3 stained with oil, thus resulting in slipping.
  - ▶ Their surface coming in contact with one another should be wiped clean.
- When a model designed for operation with AC 60c/s power supply is to be operated with AC 50c/s power
  - ▶ Change motor pulley as well as MP capacitor connections.



Symptom	Possible Cause & Remedy
Tape speed too fast	<input type="checkbox"/> When a model designed for operation with AC 50 c/s power supply is to be operated with AC 60 c/s power. <input checked="" type="checkbox"/> Change motor pulley as well as MP condenser connections (see illustration above).
Knocking sound heard during Play, RWD	<input type="checkbox"/> Idlers dirty with dust, rubber powder and other alien materials. <input checked="" type="checkbox"/> Clean surface of the idlers' contacting parts.
Reel platform squeaks	<input type="checkbox"/> This is caused by damaged surface of washer or that of E washer, both used in reel platform assembly and coming in contact with each other. <input checked="" type="checkbox"/> Replace the washer and the E washer.
Brake gives squeaking	<input type="checkbox"/> Insufficient tension of brake spring. <input checked="" type="checkbox"/> Replace or adjust brake spring.
Power not in	<ol style="list-style-type: none"> <li><input type="checkbox"/> Power cord not connected. <input checked="" type="checkbox"/> Connect it</li> <li><input type="checkbox"/> Fuse broken. <input checked="" type="checkbox"/> Replace it.</li> <li><input type="checkbox"/> Power cord broken. <input checked="" type="checkbox"/> Replace it.</li> <li><input type="checkbox"/> Power transformer broken. <input checked="" type="checkbox"/> Replace it.</li> <li><input type="checkbox"/> Soldered connection of AC connector broken. <input checked="" type="checkbox"/> Re-solder it.</li> <li><input type="checkbox"/> Soldered connection of lead wire broken. <input checked="" type="checkbox"/> Re-solder it.</li> </ol>
Fails to reproduce sound	<ol style="list-style-type: none"> <li><input type="checkbox"/> Speaker On-Off switch is at Off position. <input checked="" type="checkbox"/> Turn it on.</li> <li><input type="checkbox"/> Defective speaker On-Off switch. <input checked="" type="checkbox"/> Replace it.</li> <li><input type="checkbox"/> Lead wire of speaker On-Off switch broken. <input checked="" type="checkbox"/> Re-solder the lead.</li> <li><input type="checkbox"/> Wiring of speaker broken or short-circuited. <input checked="" type="checkbox"/> Replace the speaker.</li> <li><input type="checkbox"/> Soldered connection of speaker lead wire broken. <input checked="" type="checkbox"/> Re-solder it.</li> <li><input type="checkbox"/> Wiring of recording/playback head broken or short-circuited. <input checked="" type="checkbox"/> Replace the head.</li> <li><input type="checkbox"/> Soldered connection of lead wires of recording/playback head broken. <input checked="" type="checkbox"/> Re-solder them.</li> </ol>
Oscillating sound heard (Buzzing)	<ol style="list-style-type: none"> <li><input type="checkbox"/> Broken or almost broken wiring of recording/playback head. <input checked="" type="checkbox"/> Replace the head.</li> <li><input type="checkbox"/> Lead (ground contact) of recording/playback head disconnected. <input checked="" type="checkbox"/> Solder it.</li> <li><input type="checkbox"/> Leads of recording/playback head short-circuited. <input checked="" type="checkbox"/> Correct it.</li> <li><input type="checkbox"/> Defective amplifier. <input checked="" type="checkbox"/> Inspect it, referring to the Circuit Diagram.</li> </ol>
Volume & Tone Controls fail to work	<ol style="list-style-type: none"> <li><input type="checkbox"/> Defective Volume Control. <input checked="" type="checkbox"/> Replace it.</li> <li><input type="checkbox"/> The leads broken or short-circuited. <input checked="" type="checkbox"/> Replace.</li> <li><input type="checkbox"/> The leads disconnected. <input checked="" type="checkbox"/> Solder them.</li> </ol>
Low volume. Buzzing sound also heard when recording/playback head is touched	<ol style="list-style-type: none"> <li><input type="checkbox"/> Broken wiring of recording/playback head. <input checked="" type="checkbox"/> Replace the head.</li> <li><input type="checkbox"/> Disconnected lead wire of recording/playback head. <input checked="" type="checkbox"/> Solder it.</li> </ol>
Low volume but no buzzing sound heard even when recording/playback head is touched	<ol style="list-style-type: none"> <li><input type="checkbox"/> Recording/playback head short-circuited. <input checked="" type="checkbox"/> Replace head.</li> <li><input type="checkbox"/> Lead wires of recording/playback head short-circuited. <input checked="" type="checkbox"/> Replace.</li> <li><input type="checkbox"/> Defective amplifier. <input checked="" type="checkbox"/> Check the defect, referring to Circuit Diagram.</li> </ol>

Sound being recorded is heard distorted when monitored



- Recording/playback head wiring almost broken.  Replace the head.
- Improper bias current during recording.  See Fig. A, B, C & D. As shown by Fig. D, the bias current should be set to the bias value 1dB lower than the maximum recording/playback sensitivity. Fig. C shows how to measure value of bias current. AC voltmeter used for this purpose is a millivolt meter. Put in a 100  $\Omega$  resistor between the head and the lead wire (one that buzzes when tou-

Symptom	Possible Cause & Remedy
	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>Fig. C</p> </div> <div style="text-align: center;">  <p>Fig. D</p> </div> </div> <p>and measure the value at both terminals of the head. In this case, the set should be turned to recording position. Now, adjust semi-fixed resistor provided for the purpose of bias current adjustment for respective channels until voltage indicated reads approx. 120 mV as shown by Fig. B. If the desired result is not obtained by this adjustment anyway, check the cause by referring to Circuit Diagram.</p>
<p>In RECORD, sound is heard through monitoring but not recorded</p>	<ol style="list-style-type: none"> <li>1. <input type="checkbox"/> Recording circuit defective.             <ul style="list-style-type: none"> <li>▶ a. Disconnect lead wire of the head and measure voltage at both ends of it. If the voltage value does not amount to 25 V-30 V, check the defect against Circuit Diagram.</li> <li>b. If the voltage is too low, check the cause against Oscillation Circuit.</li> <li>c. If no recording current is running, check the cause against Circuit Diagram.</li> </ul> </li> <li>2. <input type="checkbox"/> Turn the set to Recording position, disconnect power lead of Oscillator chassis, replace the 10 Ω resistor as shown by Fig. C and then measure voltage at both ends of the resistor. Now, put in signal of 1,000 c/s through input jack, adjust the input so that VU Meter's pointer may point to OVL and finally read pointer of the voltmeter, which should remain pointing to around 10 mV under the above setting, indicating the normal condition.             <ul style="list-style-type: none"> <li>▶ If the result obtained as above is not normal, check the cause against Circuit Diagram.</li> </ul> </li> <li>3. <input type="checkbox"/> Defective recording/playback head is also indicated when lead wire of the head is disconnected and resistance value measured at both terminals of the head falls short of 33Ω-40Ω.             <ul style="list-style-type: none"> <li>▶ Replace the head.</li> </ul> </li> <li>4. <input type="checkbox"/> Disconnected lead wire of recording/playback head.             <ul style="list-style-type: none"> <li>▶ Solder it.</li> </ul> </li> </ol>
<p>In PLAY, it fails to permit monitoring and recording</p>	<ol style="list-style-type: none"> <li>1. <input type="checkbox"/> Defective microphone jack.             <ul style="list-style-type: none"> <li>▶ Replace.</li> </ul> </li> <li>2. <input type="checkbox"/> Lead wire of microphone short-circuited or disconnected.             <ul style="list-style-type: none"> <li>▶ Repair it.</li> </ul> </li> <li>3. <input type="checkbox"/> Defective amplifier.             <ul style="list-style-type: none"> <li>▶ Check the amplifier against Circuit Diagram.</li> </ul> </li> </ol>
<p>Incomplete erasing</p>	<ol style="list-style-type: none"> <li>1. <input type="checkbox"/> Turn the set to Recording position and measure voltage at both ends of erasing head. It should indicate about 12 V. If the voltage is far lower than that, disconnect lead wire of the erasing head and measure voltage at both ends of the lead. It should be about 20 V. If far lower than that:             <ul style="list-style-type: none"> <li>▶ 1. Check oscillator circuit.</li> <li>▶ 2. Defective slide switch is indicated. Replace it.</li> <li>▶ 3. Lead wire disconnected. Solder it.</li> </ul> </li> <li>2. <input type="checkbox"/> If 20 V is indicated, the erasing head is defective.             <ul style="list-style-type: none"> <li>▶ Replace it.</li> </ul> </li> </ol>
<p>Recording impossible</p>	<ol style="list-style-type: none"> <li>1. <input type="checkbox"/> Defective recording/playback head.             <ul style="list-style-type: none"> <li>▶ Replace.</li> </ul> </li> <li>2. <input type="checkbox"/> Lead wire of recording/playback head short-circuited or disconnected.             <ul style="list-style-type: none"> <li>▶ Repair.</li> </ul> </li> <li>3. <input type="checkbox"/> Defective amplifier.             <ul style="list-style-type: none"> <li>▶ Check it against Circuit Diagram.</li> </ul> </li> </ol>

## PARTS LIST

PART NO.	DESCRIPTION	QUANTITY	PART NO.	DESCRIPTION	QUANTITY
2333002	Cabinet cover	1	2333288	Speed selector lower spring	1
2333003	Aluminum sash A	4	2333291	F. FWD lock spring	1
2333004	Aluminum sash B	2	2333292	Instant stop spring A	2
3101008	Metal fittings, Handle	2	2333293	Instant stop spring B	1
1918120	Latch assembly	2	2333297	Slide switch supporter shaft	1
2333007	Tape counter cover	1	2333300	Speaker nut	2
2333010	Ventilation window	2	2333302	Actuator (VAL2)	1
2333015	Recording knob	1	2333304	Speed selector stopper shaft	1
2333017	Cap, Reel shaft <i>RUBBER</i>	2	2333305	Micro switch supporting plate	1
2333018	Tape counter	1	2710271	Leather washer, Idler	4
2333022	Name plate, Recording	1	2710222	Head pad spring	1
3101028	Felt washer	4	2710240	Nylon washer	6
2333027	AC cord holder	1	2710150	Head shield plate	1
2333207	Thrust plate	1	7081113	Nylon washer	10
2233215	Speed selector shaft mount	1		Nylon washer	7
2333216	Equalizer mount	1	2710245	Head chassis felt	5
2333217	Speed selector cam	1	2333313	Pad felt	5
2333221	Speed selector cam B	1	2333314	Chassis supporting plate	1
2333231	Speed selector stopper	1	2333317	Pilot lamp cover	1
2333235	Control selector stopper	1	2333323	Headphone jack spacer	1
2333243	Tape counter belt	1	2333325	Latch assembly	2
2333248	F. FWD cam	2	2333326	Latch mount	2
2333250	Speed selector knob	1	2333327	Reflexion board assembly	2
2333252	Capstan sleeve rest	1	2333333	Instant stopper A	1
2333253	Takeup cam plate shaft	1	2333338	Volume knob assembly	4
2333256	Spring base	1	2333347	Ampl. lock mount	1
2333260	Instant stopper shaft	1	2333350	Reel platform	2
2333262	Stabilizer metal A	1	2333351	Aluminum sash cover	2
2333263	Stabilizer metal B	1	2333362	Control selector lever	1
2333268	Speed selector stopper guide	1	2333334	Jack washer	3
2333269	Slip Felt	3	2333366	Headphone jack nut	1
2333270	Slip spring A	1	2333370	Handle proper	1
2333272	Speed selector knob metal	1	2333371	Supporter	2
2333274	Slip spring B	2	2333372	Automatic stopper shaft	1
2333278	RWD idler spring	1	2333374	Micro switch supporting plate	1
2333279	Speed selector idler spring	1	2333375	Serial number plate	1
2333281	Takeup idler spring	1	2333386	Speed selector stopper assembly	1
2333282	F. FWD pressure spring	1	2333395	Recording stopper assembly	1
2333285	Speed selector lever spring A	1	2333403	Brake lever B shaft	2
2333286	Speed selector lever spring B	1			

PART NO.	DESCRIPTION	QUANTITY	REMARKS
7352171	Pan-head tapping screw, V12⊕4-10S	2	1 for speed selector shaft mount & 1 for condenser.
7352170	" VT2⊕4-8S	8	4 for head chassis & 4 for thrust plate.
7352172	" VT2⊕4-12S	5	2 for F. FWD & 3 for brake drive levers, A & B.
7352094	" VT2⊕3-5S	4	2 for speed selector stopper guide & 2 for lug terminal plate.
7322094	Countersunk tap. screw, QT2⊕3-6S	1	For speed selector shaft mount.
7322170	" QT2⊕4-8S	1	For head chassis.
7275169	Truss screw, Y⊕4-6 (Chrome)	4	For control panel.
7275094	" Y⊕3-6 ( " )	4	For amp. panel.
7229174	Round countersunk screw, P⊕4-15(Chrome)	12	8 for speaker mount & 4 for amplifier chassis.
7225178	" P⊕4-25(Chrome)	5	1 for stabilizer & 4 for chassis mount.
7225177	" P⊕4-20(Chrome)	2	For handle.
7263174	Pan-head screw, V⊕4-15S	7	4 for chassis mount, 2 for motor & 1 for condenser.
7263178	" V⊕4-25S	2	For motor.
7263170	" V⊕4-8S	2	For handle.
7263172	" V⊕4-12S	2	For power transformer.
7263169	" V⊕4-5S	2	For amp. mounting.
7263104	" V⊕3-30S	2	For 9P jack supporter.
7263095	" V⊕3-8S	3	2 for tape counter & 1 for control selector knob.
7263094	" V⊕3-6S	7	1 for speed selector knob, 4 for transistor mount & 2 for amp. mounting.
7263092	" V⊕-4S	16	4 for jack plates, left & right, 4 for slide switch supporters, A & B, 2 for jack name plate, 2 for slide switch, 1 for chassis holding plate & 1 for radiation plate.
7263109	Pan-head screw, V⊕3-55S	2	FOR 5.2 W PAIR RESISTOR.

PART NO.	DESCRIPTION	QUANTITY	REMARKS
7081115	" V⊕3-21S	1	For speed selector cam B.
7263072	" V⊕2.6-5S	1	For micro switch.
7263036	" V⊕2-8	6	2 for head & 4 for level meter.
7263038	" V⊕2-12S	2	For head.
7233095	Countersunk screw, Q⊕3-8S	3	2 for chassis holding plate & 1 for transistor mount.
7233096	" Q⊕3-10S	1	For weight.
7233070	" Q⊕2.6-3S	2	For jack plate, right.
7233171	Countersunk screw, Q⊕4-10S	8	For speakers.
7253092	Bind screw, U⊕3-4S	17	4 for printed chassis, 2 for oscillator chassis, 2 for amp. lock, 2 for block condenser, 1 for 1P lug plate, 1 for micro switch, 1 for support. plate, 2 for L. meter mount & 2 for equalizer mount.
7253099	" U⊕3-15S	2	For micro switch.
7253078	" U⊕2.6-15S	2	For micro switch.
7253072	" U⊕2.6-5S	2	For 8.2 Ω coil resistor.
7306119	Round wood screw, SW⊕3.1-10 (Chrome)	4	For ventilation window.
7374091	Setscrew, grooved, SS⊖3-3	1	For Recording knob.
7374032	" SS⊖2-3	2	For tape counter pulley.
7364094	Setscrew, hexagonal, SSH-3-6, Enameled	4	2 for motor pulley & 2 for tape counter drive pulley.
7442006	Powerful stop ring, ST-P6φ	8	1 for selector cam shaft, 2 for instant stop plate, 1 for instant stop shaft, 1 for F. FWD lever shaft, 2 for pinch-roller shaft, 1 for recording knob shaft, 1 for rewinding idler lever shaft.
7442005	" ST-P 5φ	14	1 for stopper, 4 for idler, 2 for brake, 2 for supporter, 1 for automatic stopper, 2 for speed selector spring, 2 for slide switch supporter shaft.
7442004	" ST-P 4φ	12	2 for connecting plate, 1 for recording cam, 1 for stopper spring, 1 for F. FWD spring, 1 for instant stopper, 1 for F. FWD idler spring, 2 for pinch-roller lever spring, 2 for head chassis & 1 for rewinding idler spring.
7442003	" ST-P 3φ	4	2 for recording lever B, 1 for coupling rod B & 1 for coupling rod A.
7441012	E-shaped stop ring, ST-E 5	8	1 for takeup idler lever, 2 for recording knob shaft, 3 for reel platform, 1 for speed selector & 2 for lever shaft.
7441006	" ST-E 2S	3	For coupling rod.
7391125	Hexagonal nut, N-4	14	2 for transformer, 4 for handle & 8 for speakers.
7391126	" N-3	16	2 for 8.2 Ω coil resistor, 1 for radiatoin plate, 2 for 9P supporter, 1 for speed selector stopper shaft, 2 for supporter, 4 for coupling rod, 1 for weight & 2 for chassis mount.
7391118	" N-3	4	For banana tip alligator clip.
7391128	" N-5	1	For supporter
7391132	" N-6	2	For reel platform.
7391115	" N-2.6	9	4 for 2P jack, 2 for AC jack, 2 for voltage selector switch & 1 for micro switch.
2333420	Angle washer, 4φ	16	For cabinet.
7410434	Flat washer, W-6φ×14 (or 13)×0.6	5	1 for speed selector lever shaft, 2 for selector cam shaft, 1 for F. FWD lever shaft & 1 for reel platform.
7410328	" W-4φ (4×15×0.8φ)	2	For handle.
7410426	" W-4φ (4φ×10×1)	4	For chassis.
7410314	" W-3φ (3×8×0.3)	2	For coupling rod.
7422308	" WS-4 (4.2×7.7×10)	2	For power transformer.
7422306	" WS-3	2	For block chemical capacitor.
7432906	Geared Washer, WTE-4φ	4	For chassis.
7432904	" WTE-3φ	5	1 for chassis mount, 3 for supporters, & 1 for cam plate.
7381411	Thin flat rivet, PR-2-2 (Alm'm)	2	2 for shield plate.
7441010	Speed nut, U (or J) type	4	For amplifier chassis.
7067007	E-shaped stop ring, ST-E 3.2φ	1	For speed selector stopper shaft.
7233074	9P clamp spring C	1	
7233074	Countersunk screw, Q⊕2.6-8S	8	4 for 2P jack, 2 for AC jack, & 2 for power on-off switch.
7450414	Lug plate, L-B4	2	8.2 Ω coil resistor & 1 for speed selector stopper shaft.

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PART NO.	DESCRIPTION	QUANTITY	PART NO.	DESCRIPTION	QUANTITY
2333417	Insulation washer	1	2333566	Takeup idler spring B	1
2333410	Mike jack spacer	2	2333567	Flywheel assembly	1
2333419	Spacer	2	2333570	Capstan collar assembly	1
2333429	Transformer supporting plate	2	2333573	Takeup cam plate assembly	1
2333430	Screw, Pinch-roller decorative plate	1	2333577	Instant stop lever	1
2333434	Flywheel shaft holder	1	2333578	Recording lever A assembly	1
2333435	Drive idler	1	2333581	Recording lever B	1
2333438	Head pad lever assembly	1	2333582	Recording cam assembly	1
2229036	Label, Service note	1	2333586	Slide switch supporter A assembly	1
2333441	Chassis	1	2333589	Slide switch spring	1
2333442	Cushion	1	2333590	Takeup idler lever assembly	1
2333443	Head cover A	1	2333595	Felt B	1
2333444	Head cover B	1	2333596	Reel platform B	1
2333445	Name plate, Head cover B	1	2333597	Reel platform B assembly	1
2333447	Name plate, Head cover B	1	2333599	Reel platform B-2	1
2333451	Tape counter drive pulley	1	2334001	Slide bar stopper	1
2333454	Bearing screw	1	2334002	Guide roller	1
2333455	Instant stopper knob	1	2334003	Weight	1
2333456	F. FWD button	1	2334004	Speed selector cam assembly	1
2333460	Name plate, Jacks	1	2334006	Tape counter pulley	1
2333461	Tape guide E	1	2334007	Motor pulley	1
2333462	Tape guide R	1	2334008	Motor pulley	1
2333463	Tape guide rod	1	2334009	Idler C	1
2333464	Tape guide spring	1	2720286	Idler A assembly	1
2333465	Pinch-roller spring	1	2334010	Chassis	1
2333466	Speed selector stopper shaft	1	2334011	Selector cam assembly	1
2333471	Cap	1	2334113	Selector cam shaft	1
2332079	Slit spring	2	2334014	Selector cam shaft assembly	1
2332474	Head pad lever spring	1	2334015	F. FWD idler lever assembly	1
2332475	Cushion	1	2334021	RWD idler lever assembly	1
2332486	Felt A	1	2334026	Amplifier chassis	1
2332487	Pinch-roller	1	2334027	RWD idler	1
2333488	Nylon washer, 6.5 $\phi$	1	2710274	Reel platform felt	1
2333496	Stopper guide plate	1	2334028	Jack mounting plate, Right	1
1301111	Rubber bushing, R-1111	1	2334027	Handle B assembly	2
2333498	Cabinet proper assembly	1	2334031	Foam cushion (Himeron)	2
2333499	Large hinge, Upper side	2	2334032	Automatic stopper assembly	1
2333500	Large hinge, Lower side	2	2334035	Coupling rod A	1
2333504	Cushion	6	2334036	Setscrew, Supporting plate	1
2333505	Cushion	1	2334037	Automatic stopper	1
2333506	Cushion	4	2334038	Felt, Automatic stopper	1
2333507	Cushion	3	7031084	Micro switch D	1
2333508	Collar	2	2334039	Actuator A	1
2333509	Recording spring	1	2219214	Lead wire clamp	1
2333510	Speed selector knob spring	1	2334040	Reel platform A	2
2333511	Transistor mounting plate	1	2720281	Spring C, Idler lever B	1
2333513	Lower spring B, Supply reel platform	1	2334042	Pinch-roller collar	1
2333514	Banana tip alligator clip	4	3101028	Pinch-roller felt	1
2333515	Speaker mount, Right	1	2246164	Rewinding spring	1
2333516	" Left	1	2334043	Slip ring A	1
2333517	Baffle plate	2	2334044	Slip ring B	2
2333518	Brake drive lever B	1	2334045	Spring base, B	2
2333522	Brake lever, Left	1	2334046	Panel	1
2333524	Brake drive lever A assembly	1	2334047	Amplifier panel	1
2333527	Cam plate assembly	1	2334048	Instant stop plate assembly	1
2333533	Coupling rod B	1	7039710	7" reel with tape	1
2333534	Connecting plate	1	7139700	7" reel, Empty	1
2333533	Hinges, Reflexion board	4	7034007	AC cord	1
2333536	Collar	1	7034903	Pin-plug cord	2
2333537	Instant stop shaft	1	7034904	Cord with 6.3 $\phi$ plug	2
2710242	Brake shoe	2	7092007	Lubrication oil	1
2333538	F. FWD lever A assembly	1	7077001	Splicing tape	1
2333543	F. FWD lever B assembly	1	2333851	Printed indiv. packing	1
2333549	Head chassis assembly	1	2333854	Indiv packing cushion	4
2333551	Control panel	1	7051039	Polyethylene sack	1
2333552	Clamping metal	5	7058002	Desiccative (silica gel)	1
2333553	Brake Lever B	1	7051104	Indiv packing, Reel w/tape	1
2333554	Coupling rod A	1	7051104	" Empty reel	1
2333555	Instant stop spring	2	7051005	Polyethylene sack for AC cord	1
2333556	Selector cam plate	1	2333901	Operating instructions booklet	1
2333557	Back tension lever	1	7051014	Polyethylene bag	1
2333558	Back tension spring	1	7051011	Polyethylene sack	1
2333559	Head pad assembly	1	2333860	Pad, Main body	1