

AKAI TAPE RECORDER

MODEL M-7

SERVICE MANUAL

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I SPECIFICATIONS

MODEL NUMBER: Akai Model M-7, portable 4-track stereo tape recorder.

WEIGHT (NET IN CARTON): 47.3 lbs. (21.5 kg.) for M-7
2.4 lbs. (1.1 kg.) for all accessories supplied.

DIMENSIONS : 20"H×13"W×9"D, overall, case closed. (510H×340W×226D in m/m)

POWER REQUIREMENTS : A.C. 100, 110, 117, 200, 220, 230 or 245 volts interchangeable. 50-60 cycles.

POWER CONSUMPTION : 100 VA.

RECORDING SYSTEM: Specific "cross-field" recording based on the theory of trailless recording bias system. Inline 4 track stereo and 4-track monaural recording.

PLAYBACK SYSTEM : Inline 4-track stereo, monaural and 2-track stereo playback. Playback of monaural double-track and full-track recordings also possible.

TAPE SPEED : Three speeds; 7½" (19 cm.), 3¾" (9.5 cm.) and 1¾" (4.75 cm.) per second.

TAPE SPEED DEVIATION : Less than ±3 per cent at all tape speeds.

WOW AND FLUTTER : Less than 0.15% R.M.S. at 7½ ips.
Less than 0.25% R.M.S. at 3¾ ips.
Less than 0.35% R.M.S. at 1¾ ips.

FAST FORWARD AND REWIND TIME: 90 seconds for 1,200 ft. tape at 50 cycles and 75 seconds at 60 cycles.

FREQUENCY RESPONSE : 40 to 23,000 cps. at 7½ ips ±3 db;
40 to 20,000 cps. at 3¾ ips ±3 db;
40 to 10,000 cps. at 1¾ ips ±4 db.

DISTORTION : Within 3 per cent T.H.D. at all speeds.

SIGNAL-TO-NOISE RATIO : 40 db below recorded level signal at all speeds.

CROSS TALK CHANNEL SEPARATION : Within 53 db between each track.
Better than 60 db at 1,000 CPS 3 VU.

POWER INPUT LEVELS: Microphone input level

-55 db (VR. max) at 1,000 cps.
Phono and radio input level
-15 db (VR. max) at 1,000 cps.

POWER

OUTPUT : Head output, 1 mv. at 1,000 cps.
Pre-Amplifier output, 0.8 V at 1,000 cps, impedance 10,000 ohms
Main output, 34 dbm. up (in 600 ohms).

INSULATION

RESISTANCE : More than 10 MEG ohms

INSULATION

YIELD

STRENGTH: More than one minute at A.C. 1,000 V with Headphone

MONITORING

SYSTEM : (8 ohms) during recording.

MOTOR : Hysteresis synchronous, two-speed, motor. Capacitor start.
1/100 HP. Power ratio, 70 per cent.
3,000 to 1,500 rpm at 50 cps,
3,600 to 1,800 rpm at 60 cps.

HEADS : Inline four-track stereo/monaural record-play head;
Impedance...5,000 ohms at 1,000 cps.
Four-track, cross-field bias head;
Impedance...14,000 ohms at 60 kc.
Four-track erase head;
Impedance...18,000 ohms at 60 kc.

MICROPHONE

USED : Square-shaped, dynamic microphone.
Impedance...50,000 ohms
Sensitivity...55 db.
Frequency Response...70 to 15,000 cps ± 10 db.

SELF-CONTAINED

SPEAKER : 5×7" (12×18 cm.), oval-shaped, dynamic speaker;
Impedance...8 ohms
Allowable Input...6 watts
Frequency Response...80 to 12,000 cps, ± 10 db.

TUBES USED : 6267 (EF86) × 2, (12AD7) × 2,
6BQ5 × 2, 6X4 × 2, 6AR5 × 1.

REELS USED : Up to 7" reel

RECORDING

LEVEL

INDICATOR : Horizontal, A-model VU meter

II HOW TO MEASURE DESIGNATED VALUES IN SPECIFICATIONS

TAPE SPEED

DEVIATION : Record the 1,000 cps. sine curve of the tape speed at rating speeds with a standard sound recorder (AMPEX 351A, for instance) which is little affected by the tape speed deviation throughout the whole length of the tape. Put this standard tape on the tape recorder under test for playing back, and measure its output by a counter, then convert the value into rating power frequency to evaluate the tape speed deviation.

For a rough measurement, the tape speed deviation can also be measured with a speed test timing tape by the count on a stop watch.

WOW AND

FLUTTER : Playback the 3,000 cps. standard tape that guarantees wow and flutter within 0.07 per cent, and read the effective value on wow meter.

Since the sensibility of wow and flutter frequency below 2 cps and above 5 cps drops, the frequency over 5 cps is put to 3 db/OCT circuit, and the frequency below 2 cps is put to 6 db/OCT circuit for adjustment. This adjusted value is called auditory compensated value.

FREQUENCY

RESPONSE : Connect to the input terminal of the test recorder a sweep frequency of the level-20 db. Record the sweep signal, playback the tape, terminate the output with eight ohms.

Read the frequency response which should have a maximum deviation of 6 db.

TOTAL HARMONIC DISTORTION

FACTOR : Provide the input terminal of the tested recorder with 1,000 cps sine curve signals and record these signals on a recording tape at the zero level on the recorder's internal VU meter. Then playback the signals under the normal recording condition to measure the distortion factor by an oscillator. Remove the recording tape from the recorder, then read the noise level on the oscillator to get the required distortion factor by the following formula :

$$d0 = d - d1 - d2$$

d0--required

d--overall distortion factor

d1--noise level

d2--distortion factor of the oscillator used

SIGNAL TO

NOISE : Playback the sine curve, 250 cps tape recorded on a standard recorder on the tested recorder to measure the voltage.

Remove the tape, then measure the noise level under the same condition. Calculate the ratio between the two in decibel.

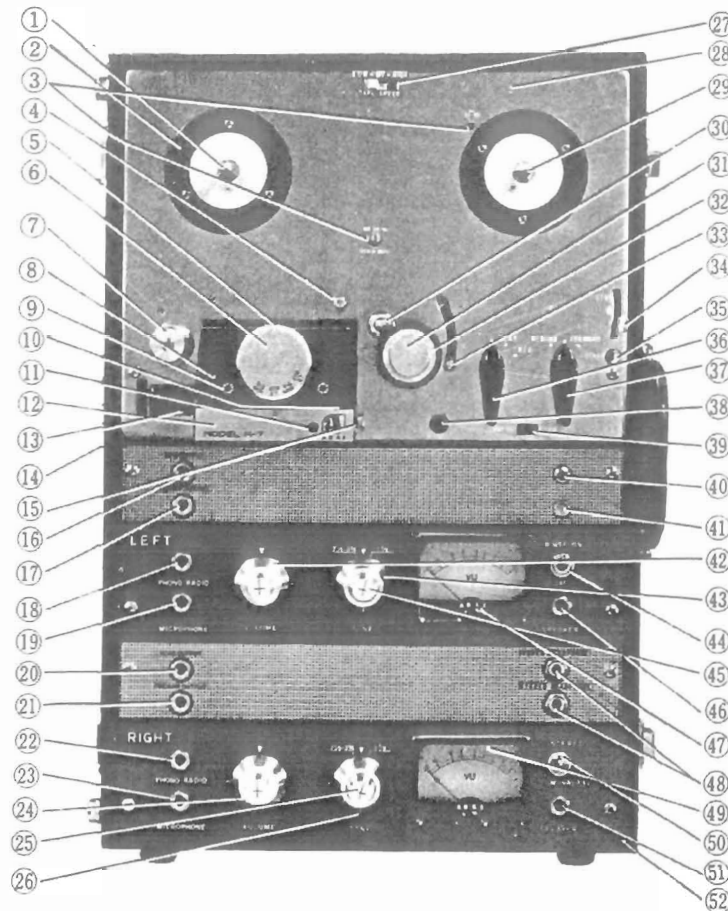
OUTPUT

: Playback on the test recorder the 1,000 cps. sine curve tape which was recorded at the zero VU level on a standard recorder. Terminate the test recorder with eight ohms. Square the voltage reading, then divide the figure by eight ohms to get the r.m.s. power output.

CROSS TALK

: Record 1,000 cps signal at -3VU on the third track, then playback this signal thru a 1,000 cps. Band Pass Filter. Compare the output of tracks 1 and 3 in decibels.

III LOCATION OF CONTROLS



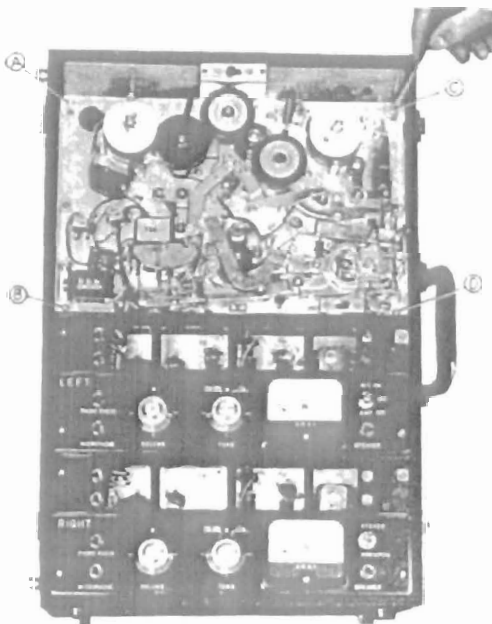
- | | |
|--|---------------------------------------|
| ① FEED REEL SPINDLE | ②7 SPEED CHANGE & ON/OFF SWITCH |
| ② GUARD CIRCLE | ②8 TOP (DECK) PANEL |
| ③ CYCLE CONVERSION SWITCH | ②9 TAKE-UP REEL SPINDLE |
| ④ CAPSTAN HOLDER | ③0 CAPSTAN SHAFT |
| ⑤ RETAINING SCREW | ③1 METAL CAP FOR PINCH ROLLER |
| ⑥ TRACK SELECTOR KNOB | ③2 PINCH ROLLER |
| ⑦ TAPE GUIDE ROLLER | ③3 AUTOMATIC SHUT-OFF LEVER |
| ⑧ HEAD COVER, MAIN | ③4 INSTANT STOP LEVER |
| ⑨ ERASE HEAD | ③5 START BUTTON |
| ⑩ RECORD/PLAY HEAD | ③6 RECORD, PLAY SWITCH |
| ⑪ CROSS-FIELD HEAD (RECORDING BIAS ONLY) | ③7 REWIND, FAST-FORWARD SWITCH |
| ⑫ HEAD COVER, SUB | ③8 RECORD SAFETY BUTTON |
| ⑬ INDEX (REVOLUTION) COUNTER | ③9 AUTO STOP SHUT-OFF SELECTOR SWITCH |
| ⑭ DIN (ONE CONNECTION) JACK | ④0 PILOT LAMP (RECORDING INDICATOR) |
| ⑮ MOUNTING SCREW, SUB HEAD COVER | ④1 INTERNAL SPEAKER ON/OFF SWITCH |
| ⑯ PICK UP INPUT (LEFT CHANNEL) | ④2 VOLUME CONTROL (LEFT) |
| ⑰ PRE-AMP OUTPUT (LEFT) | ④3 TONE CONTROL (LEFT) |
| ⑱ PHONO/RADIO INPUT (LEFT) | ④4 POWER SWITCH |
| ⑲ MICROPHONE INPUT (LEFT) | ④5 EQUALIZER SWITCH (LEFT) |
| ⑳ PICK UP INPUT (RIGHT CHANNEL) | ④6 SPEAKER OUTPUT JACK (LEFT) |
| ㉑ PRE-AMP OUTPUT (RIGHT) | ④7 VOLUME UNIT METER (LEFT) |
| ㉒ PHONO/RADIO INPUT (RIGHT) | ④8 STEREO HEADPHONE JACKS |
| ㉓ MICROPHONE INPUT (RIGHT) | ④9 VOLUME UNIT METER (RIGHT) |
| ㉔ VOLUME CONTROL (RIGHT) | ⑤0 FUNCTION SWITCH |
| ㉕ EQUALIZER SWITCH (RIGHT) | ⑤1 SPEAKER OUTPUT JACK (RIGHT) |
| ㉖ TONE CONTROL (RIGHT) | ⑤2 CARRYING CASE |

IV DISASSEMBLY TO REMOVE TAPE TRANSPORT UNIT & AMPLIFIERS

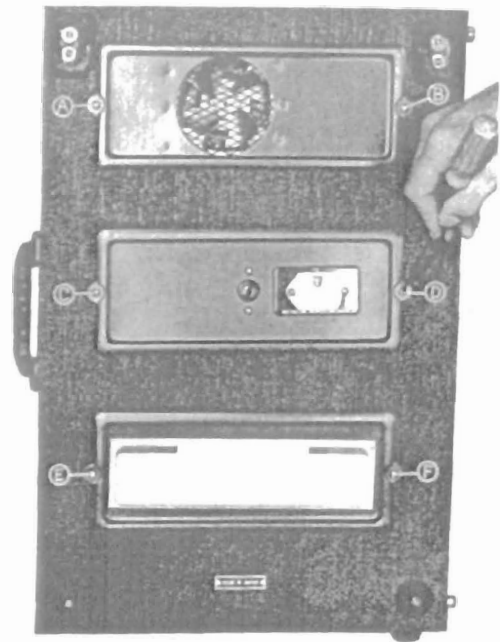
Remove *pinch roller cap* H; by hand and loosen the 4 mm screw inside to pull *pinch roller* I out. Loosen screws holding *head wheel* D and levers J and K to pull them out. Loosen screws on A to G to remove these parts.



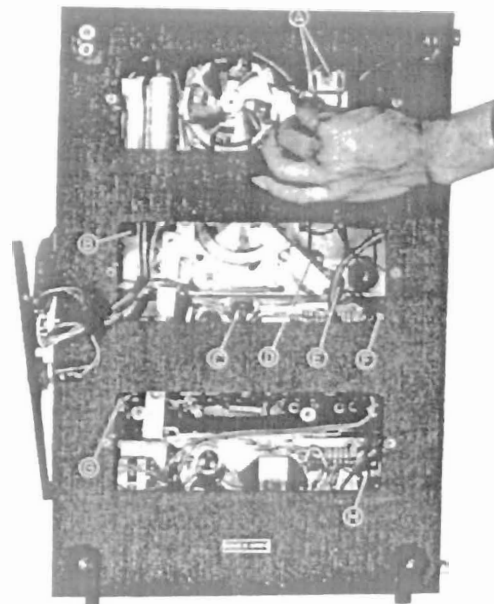
(2) Loosen 4 mm. screws on (A) to (D) to remove them.

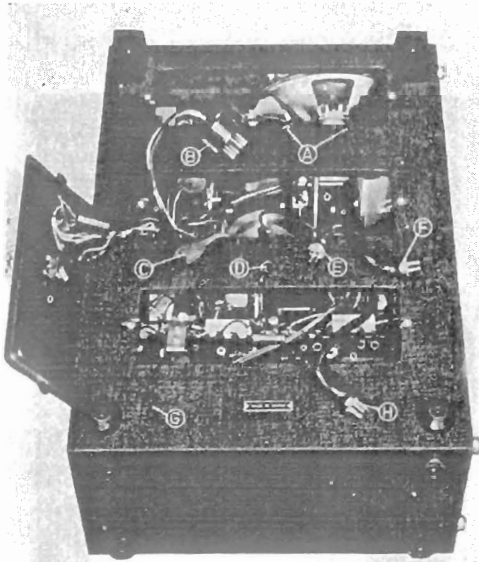


(3) Loosen 3 mm. screws on A to F to remove them.

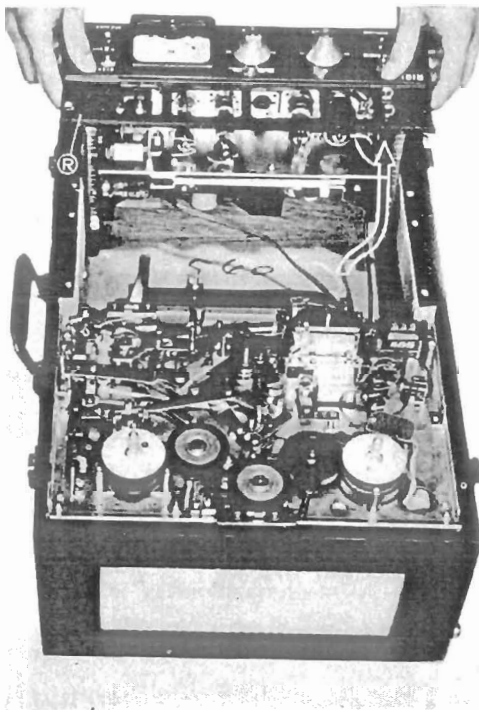


(4) Pull *plugs* A) through H) out by hand. Picture 4) shows how the recorder looks after 4.

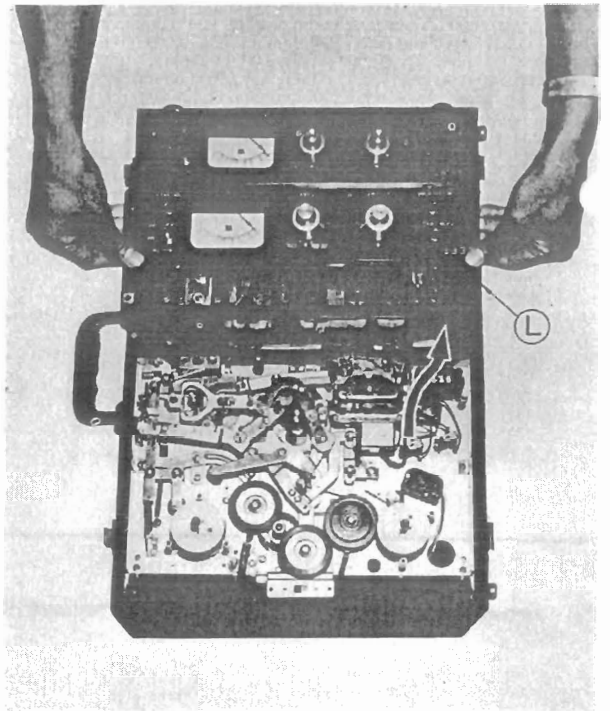




(6) Lift *right amplifier (R)* from case.



(5) Lift *left amplifier (L)* from case.



V TRANSPORT MECHANISM

Driving of Capstan

Figure 1.

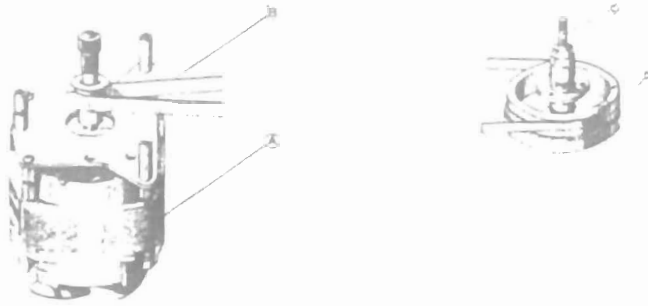


Fig 1

- (A) Motor
- (B) Driving Belt (flat belt)
- (C) Capstan
- (D) Flywheel

High-speed rotation of *Motor* (A) is reduced by *Driving Belt* (B) and transmitted to *Capstan* (C), which is connected to *Flywheel* with ample inertia and enables rating rotation by absorbing minor rotation distortion of motor itself. (See Fig. 1)

Capstan Rotation 606 rpm at $7\frac{1}{2}^*$ (19m.) per sec.
303 rpm at $3\frac{3}{4}^*$ (9.5cm) per sec.
151.5 rpm at $1\frac{7}{8}$ (4.75cm.) per sec.

Motor Rotation 3,000 to 1,500 rpm at 50 cps.
3,000 to 1,800 at 60 cps.

Driving of Pinch Roller

Put tape between rotating capstan and pinch roller and push pinch roller against capstan, this will transport the tape at rated speed. The appropriate pressure of pinch roller at this time is between 1,000 to 1,150 grams at the tape speed of $7\frac{1}{2}$ (19 cm.) per second.

Recording and Play Back

Turn the *RECORD, PLAYBACK* knob (A) to "PLAY" position, and pinch roller presses hard against capstan to move tape at the rated speed. At the same time, *Idler* (B) moves between *Motor Bushing* (C) and the *Take-Up Reel Spindle* (D) to transmit the motor rotation to (D) so that the tape is moved and wound on the take-up reel.

The Take-Up Reel Spindle Base is made up of two plastic rollers (1 and 2) with a clutch felt in between. The Idler is rotating the plastic roller (2) below. Therefore, the tape-winding friction is adjusted by the slipping of the felt to enable rated winding of the tape.

On the other hand, the *Supply Reel Spindle* (H) has a *Brake* (E) hung on the Plastic Roller (4) below which provides appropriate back tension by the clutch felt slipping to the rotation of the Pulley (3) above.

To prevent accidental erasure, the *Record Interlock Button* (F) must be depressed before the *RECORD, PLAYBACK* knob can be moved to the "REC" position. The *Safety device* (G) is depressed to enter the record mode.

(See Figures 2 and 3)

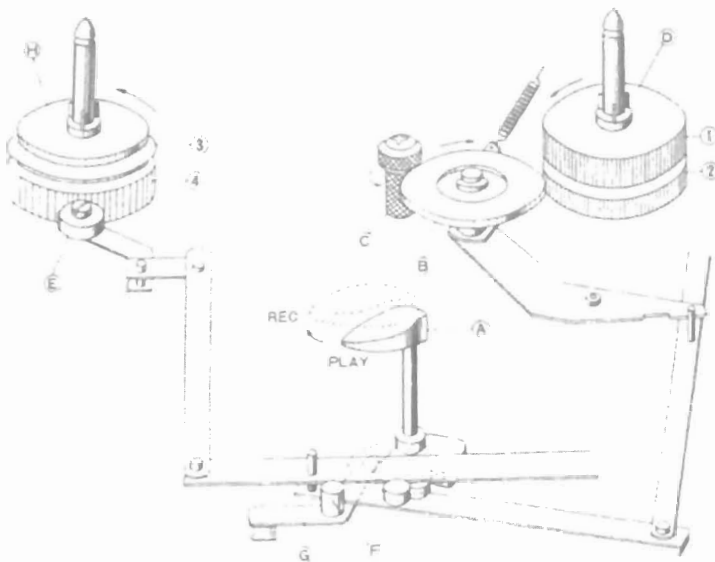


Fig 2

Braked Rotation

Slipping Rotation



Fig. 3

FAST-FORWARD MECHANISM

Turn the *FAST FWD-REWIND knob* (A) to "FAST FWD" position, and the *cam* (B) under the knob pushes up the *Lever* (C). The *Idler* (D) moves into the space between the *Plastic Roller* (F) above the Take-Up Reel Spindle and the upper part of the rotating motor drive bushing to transmit the motor rotation to the take-up reel spindle. At the same time, the *brakes* (H) and (I) come off the reel spindle to free the *Supply Reel Spindle* (G), thereby allowing fast winding of the tape onto the take-up reel.

(See Figures 4 and 5)

Free Rotation High-Speed Rotation

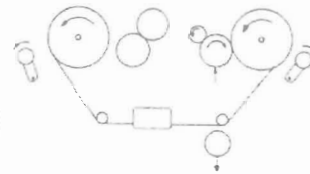


Fig. 5

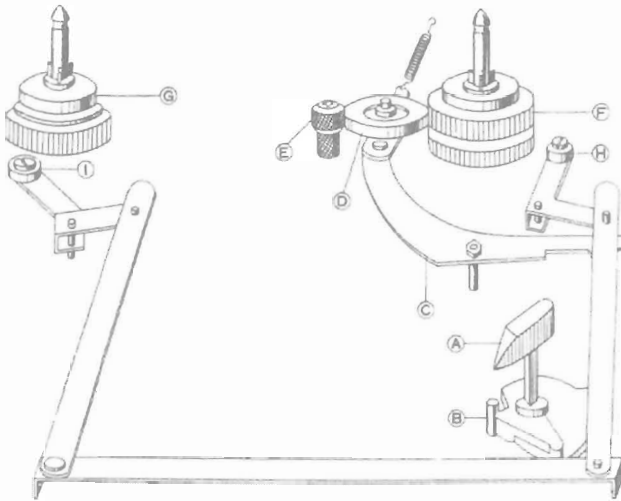


Fig. 4

REWIND MECHANISM

Turn the *FAST FWD-REWIND knob* (A) to "REWIND" position, and the *cam* (B) under the knob pushes the *Lever* (C) up. The *Idler* (D) moves into the space between the upper part of the rotating *Motor drive bushing* (E) and the *Intermediate Pulley* (F) to transmit the high-speed rotation of the motor through the intermediate pulley to the *Supply Reel Spindle* (G). At the same time, *Brakes* (H) and (I) come off the reel spindle to free the *take-up reel spindle* (J), thereby rewinding the tape into the supply reel at a fast speed.

(See Figures 6 and 7)

High-speed Rotation Free Rotation

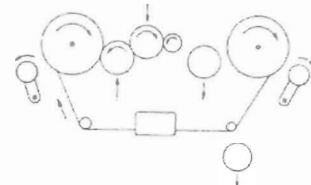


Fig. 7

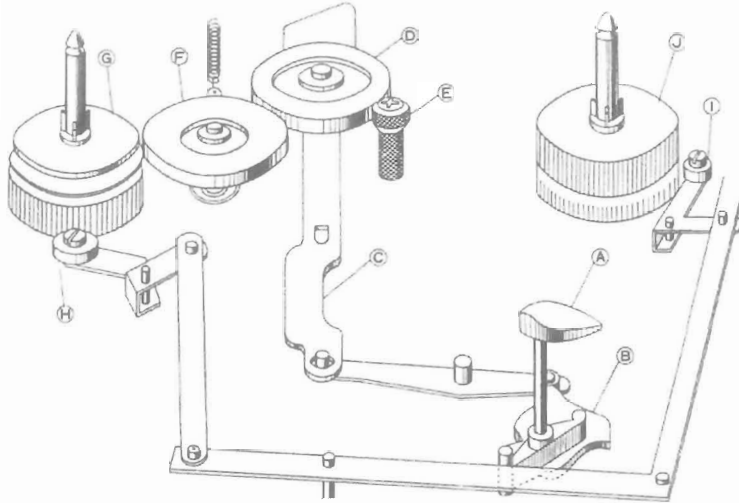


Fig. 6

Modes of Operation	Pinch Roller	Take-up Idler Wheel	Rewind Idler Wheel	Take-up-side Brake	Supply-side Brake
(a) STOP	×	×	×	○	○
(b) FAST-FORWARD	×	○	×	×	×
(c) REWIND	×	×	○	×	○
(d) RECORDING PLAYBACK	○	○	×	×	×

NOTES: ×-marks indicates "open" and ○-marks "engaged"

STOP CONTROL

Push the stop lever to "STOP" position, *brake rubber* (A), and (B) depress reel spindles to stop rotation of the reel spindles.

As brake rubber depresses the plastic rollers under the reel spindles, no friction works on the tape itself.

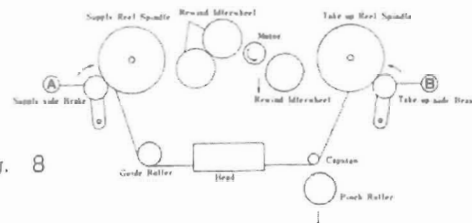


Fig. 8

AUTOMATIC STOP MECHANISM

When the tape is threaded on the pin (B) at the top of the Automatic Stop Lever (A) comes off the pin, the Automatic Stop lever returns to the original position by the action of springs. At this time, the panel spring (C) below the Automatic Stop lever slightly pushes down the projected part of the eccentric gear (D), which gears into the Flywheel Gear (E) to start rotating and pushing up the Momentary Stop Lever (G) that is connected with the eccentric gear base (F).

Thus, the eccentric gear maintains the mechanism in the state of tentative stop for "Playback" or "Recording".

For "Fast-forward," or "Rewind," the Corkscrew lever (H) works to push back the "FAST FWD, REWIND" knob to the "Stop" position before stopping itself.

When the Automatic Cut-Off Switch is moved to "CUT OFF" position, the Shut-Off lever (I) moves to the arrow-mark direction to cut the power circuit, thereby depressing the attached Micro Switch (K) to shut off the current.

(See a, b, c and d in Fig. 9.)

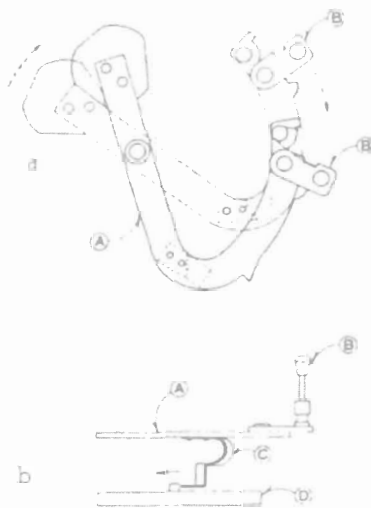
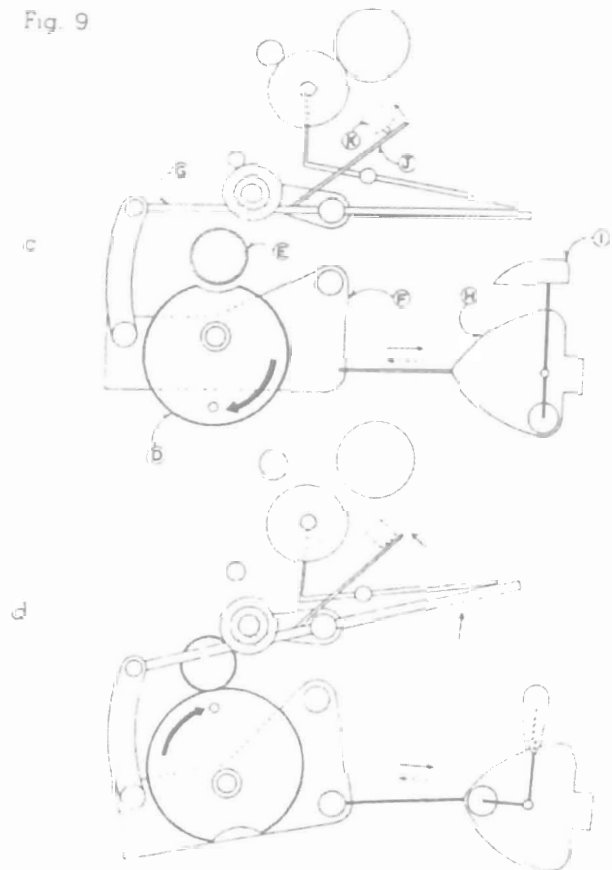


Fig. 9



VI ADJUSTMENT OF TAPE TRANSPORT UNIT

1. ADJUSTMENT OF PINCH WHEEL

It is important that the pinch wheel shaft be kept in complete alignment with the capstan shaft. A proper pinch wheel pressure is between 1,000 and 1,150 grams when the unit is operated at the tape speed of 7-1/2 ips. Any deviation from this specification will result in wow and flutter. Check pinch wheel pressure using a spring scale and, if necessary, adjust the pinch wheel load spring to suit.

2. ADJUSTMENT OF TAKE-UP IDLER WHEEL

The take-up idler wheel must be kept in complete alignment with the take-up reel shaft. When the unit is set in fast forward condition, the idler wheel will contact to the upper knurled wheel of the take-up reel shaft assembly, and it will contact to the lower knurled wheel during record or play mode. Adjust idler wheel load spring so that the idler wheel pressure is kept between 50 and 80 grams. The idler wheel wears rapidly if the pressure is excessive, and slippage occurs in case the pressure is smaller than the specification.

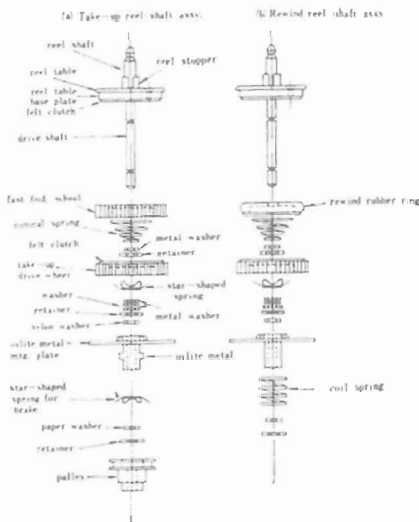


Fig. 10

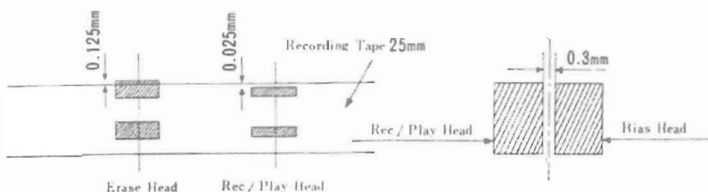


Fig. 11

3. ADJUSTMENT OF REWIND IDLER WHEEL

The rewind idler wheel must be kept in complete alignment with the rewind reel shaft. The amount of pressure to the knurled motor bushing should be maintained about 50 grams during rewind operation. Adjust both the idler load spring and rewind roller.

4. ADJUSTMENT OF INTERMEDIATE WHEEL

The intermediate wheel is located between the rewind idler wheel and the rubber ring which is used on the upper part of the supply reel shaft assembly. When the unit is set in rewind mode, it will contact to these parts simultaneously delivering torque of motor. An adequate pressure to be kept is 50 grams. Adjust the load spring of the intermediate wheel in case the pressure is not sufficient.

5. ADJUSTMENT OF TAKE-UP REEL SHAFT ASSEMBLY

A felt clutch material is attached to the bottom side of the reel table base plate so that recording tape will not be stretched during fast forwarding operation due to excessive tension. To check the amount of friction of this part, place onto the take-up reel table a 5-inch reel with recording tape wound by 60 mm in diameter, and gently pull the end of tape upward using a spring scale. Adjust the conical spring so that the amount of tension at this part will be kept between 400 to 500 grams. Another felt clutch material is attached to the take-up drive wheel. It is used to provide proper slipping operation during record or play mode. The procedure for checking friction of this part is same as the foregoing, and between 120 and 200 grams of friction will provide the best result. Adjust the star-shaped spring immediate below the take-up drive wheel. When the unit is set in rewind mode, the amount of friction of this part will greatly be reduced and will become 10 to 20 grams. Check to see if this is satisfactory and, if not, readjust the star-shaped spring for Brake, and spring retainer washes accordingly. (See figure 10 (a) at left)

6. ADJUSTMENT OF SUPPLY REEL SHAFT ASSEMBLY

A felt clutch material is used between the lower side of the reel table base plate and the rewind rubber ring to protect recording tape from an excessive tension while rewinding operation. To check the amount of friction of this part, place onto the supply reel table a 5-inch reel with recording tape wound by 60 mm in diameter and gently pull the end of tape upward using a spring scale. Adjust the conical spring so that the amount of tension be kept between 400 and 500 grams. Another felt clutch is attached to the rewind drive wheel and is used to provide proper slipping operation during record or play mode. The procedure for checking friction of this part is same as the foregoing, and between 80 and 120 grams of friction will give the best result. When the unit is set in fast forward mode, the amount of friction will greatly be reduced and will become 10 to 20 grams.

Check to see if this is proper and, if not, readjust coil spring and spring retainer washer to suit.

7. ADJUSTMENT OF TAPE HEAD

(See figure 10 (b) at left)

A vertical azimuth alignment of tape head is the only adjustment that can be made at the field of service. To align tape head, play 8,000 cycles recorded on a Ampex standard alignment tape. Rotate the azimuth alignment screw until a maximum playback level through the small hole which is positioned on the shield cover of the tape head assembly.

VII ADJUSTMENT OF AMPLIFIER

1. ADJUSTMENT OF RECORDING BIAS FREQUENCY

Recording erasing bias frequency has been set at 60 KC plus or minus 5 KC before shipment. It is decided by inductance of the oscillator coil (part # OSC 60) and its resonant capacitor (part # C-22). To measure recording bias frequency, insert a 10 or 100 ohm resistor in series to the record/play head and connect vertical input terminals of an oscilloscope as shown in the Fig. 12.

Another testing instrument to be prepared is an audio frequency oscillator and its output should be connected to horizontal input terminals of the oscilloscope. Vary frequency being generated by the audio frequency oscillator around 60 KC, and set the oscillator at the point where a lissajous figure appears on the oscilloscope. The recording bias frequency now corresponds to the reading of the oscillator. Check oscillator coil, C-22, C-27 and bias head if recording bias frequency measured is not within 60 KC plus or minus 5 KC.

2. ADJUSTMENT OF RECORDING BIAS VOLTAGE

A proper recording bias voltage differs on each head from 130 to 230 volts A.C., and it is stamped on the mounting bracket of tape head assembly. To measure recording bias voltage, connect a V.T.V.M. (Vacuum Tube Volt Meter) to the record/play head as shown in the Fig. 14. Check C-21, C-27 and bias head if recording bias voltage does not meet to the above-mentioned specification after adjusting C-27, a 100 pf variable capacitor.

3. ADJUSTMENT OF ERASING BIAS VOLTAGE

A proper erasing bias voltage is decided automatically as recording bias voltage is set. The erasing bias voltage, however, should always be more than 170 volts A.C. To measure erasing bias voltage, connect a V.T.V.M. to the erase head as shown in the Fig. 15. Check C-21 (1000 pf mica capacitor) and erase head if erasing bias voltage measured is lower than 170 volts A.C.

4. ADJUSTMENT OF RECORDING LEVEL

A basic recording level, usually referred to as "0 VU", is set at the point where current of $30 \mu\text{A} = 10\%$ flows to the recording head at 1000 cycles. The VU meter indicates 0 VU ± 2 VU when a signal of 55 db ± 5 db at the microphone jack or -15 db ± 5 db at the line input jack is given with the volume control set at its maximum. Adjustment of recording level can be accomplished by varying sensitivity of VU meter, however, it is not necessary to make in a field of service as all VU meters have correctly been calibrated at factory before shipment. See Fig. 15 for details.

NOTE: Make sure to stop oscillation by disconnecting the oscillator coil #OSC 60 at the points marked "P" and "G" prior to measurement of recording level.

Fig. 12



Fig. 13

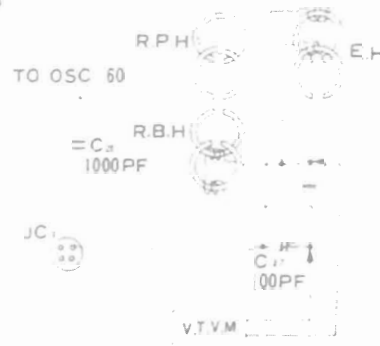


Fig. 14

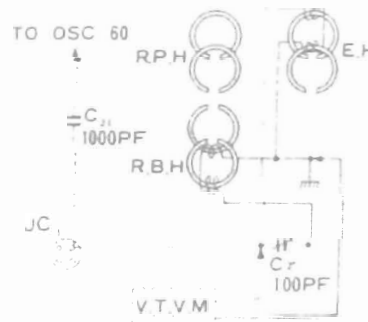
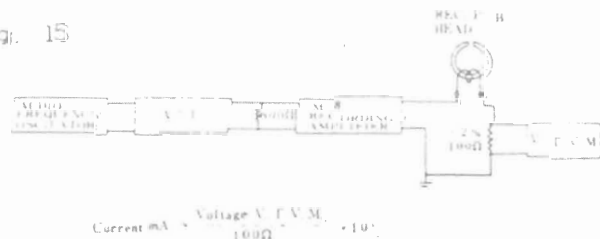


Fig. 15



VIII MAINTENANCE PROCEDURES

1. LUBRICATION INSTRUCTION

For maximum service life and optimum performance, lubricate the parts identified below after each 500 hours of operation. Use only light machine oil of good quality

Motor	3 drops
Drive Capstan Shaft	2 drops
Rewind Idler Wheel Bearing and Wind take-up Idler Bearing.	1 drop
Intermediate Idler Bearing	"
Pinch Wheel Bearing	2 drops
Take-up and Supply Reel Shaft Bearing &	"

Also apply a liberal film of light machine grease to each roller surface of all levers and cams.

CAUTION: DO NOT OVER-LUBRICATE, AND WIPE OFF EXCESS IMMEDIATELY USING A COTTON SWAB SOAKED IN ALCOHOL. OTHERWISE, THE OVER-FLOWED LUBRICANT MAY BE SCATTERED DURING OPERATION AND DETERIORATION OF RUBBER COMPONENT PARTS WILL RESULT.

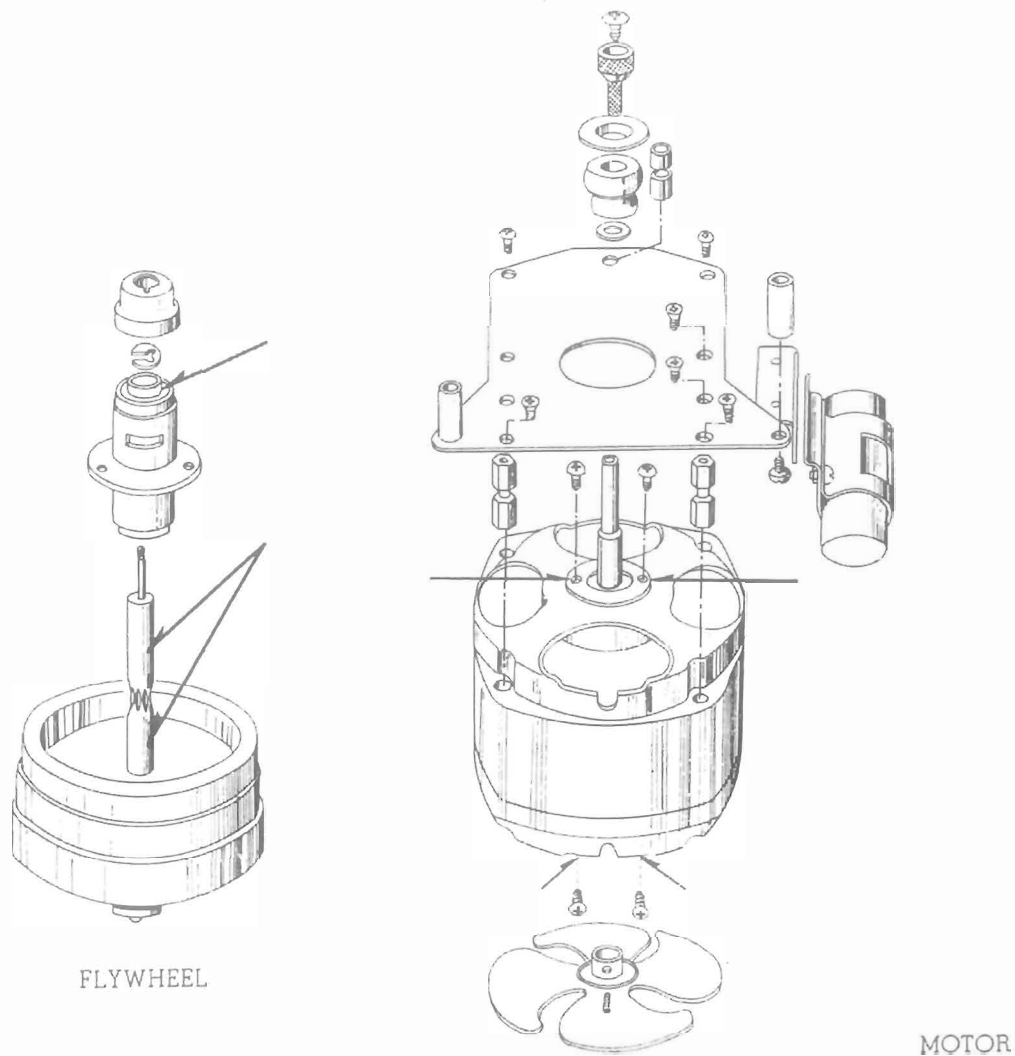


Fig. 16

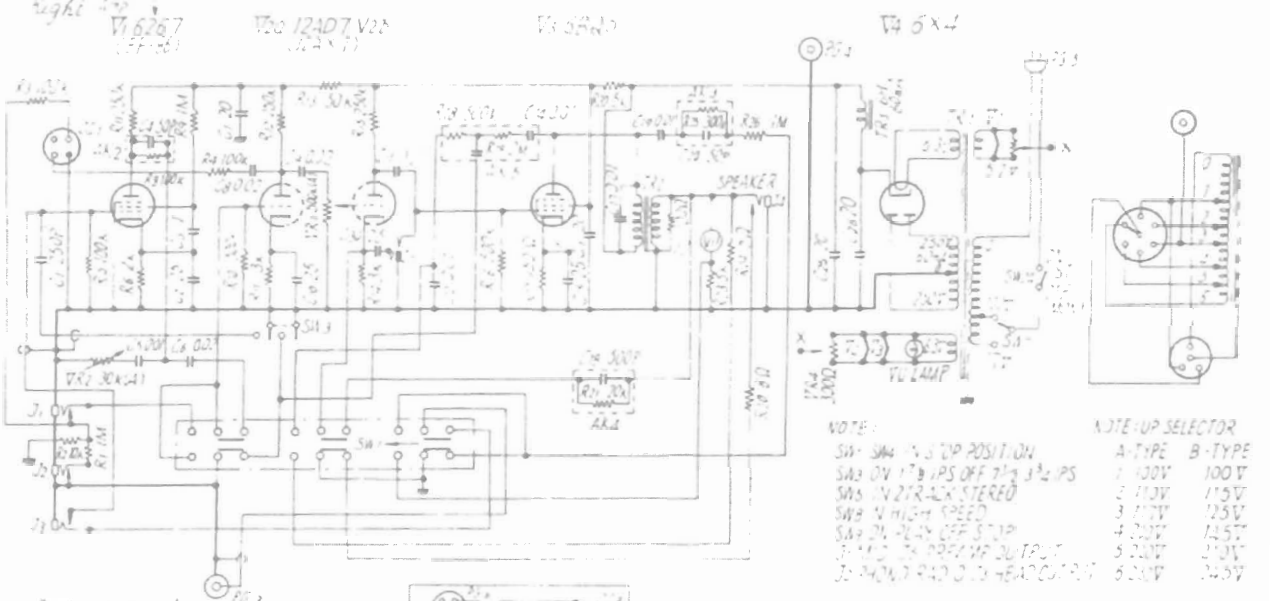
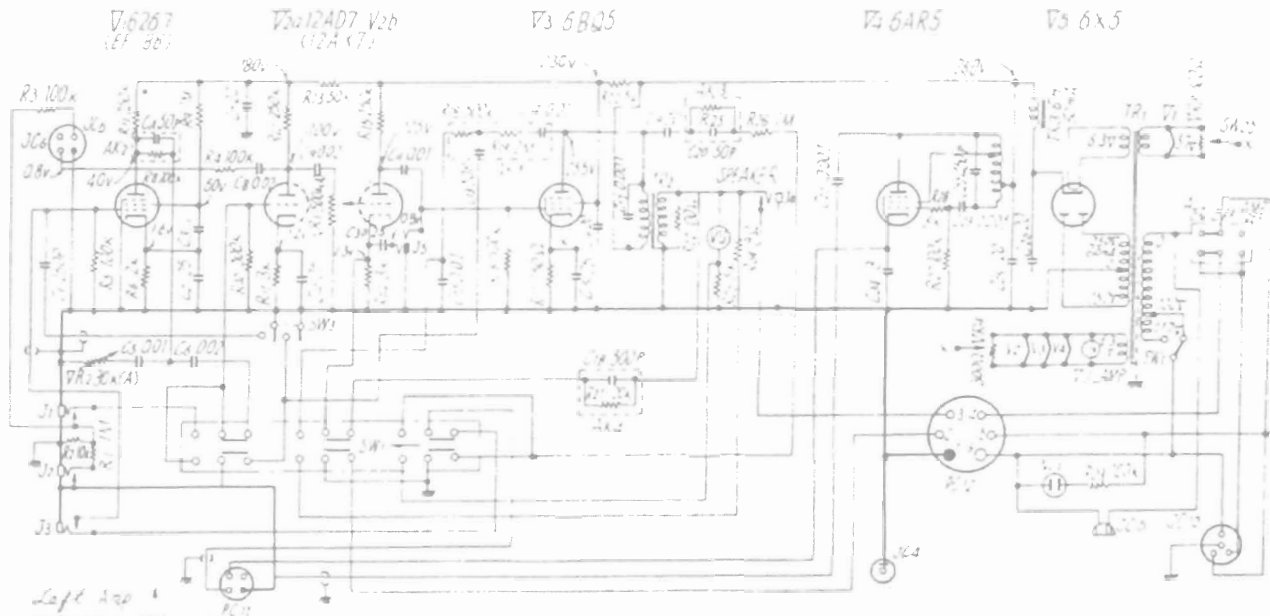
MOTOR

2. CLEANING TAPE HEADS AND OTHER PARTS

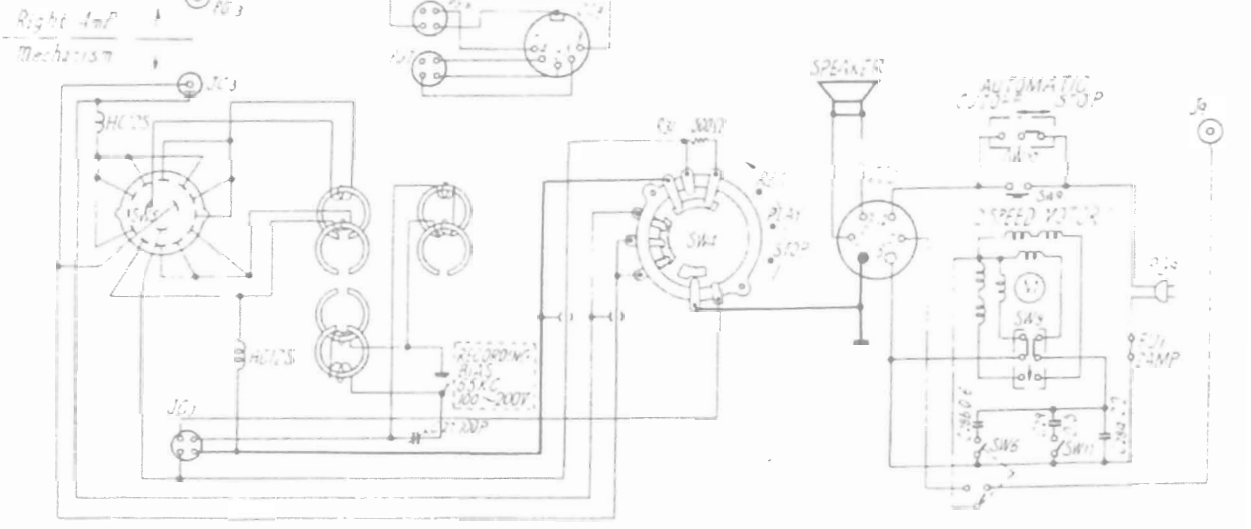
Wipe surface of tape heads, guide roller bearing, capstan bushing and pinch wheel periodically with a soft cloth soaked in alcohol or carbon-tet.

IX SCHEMATIC DIAGRAM

LATEST M-7 SCHEMATIC

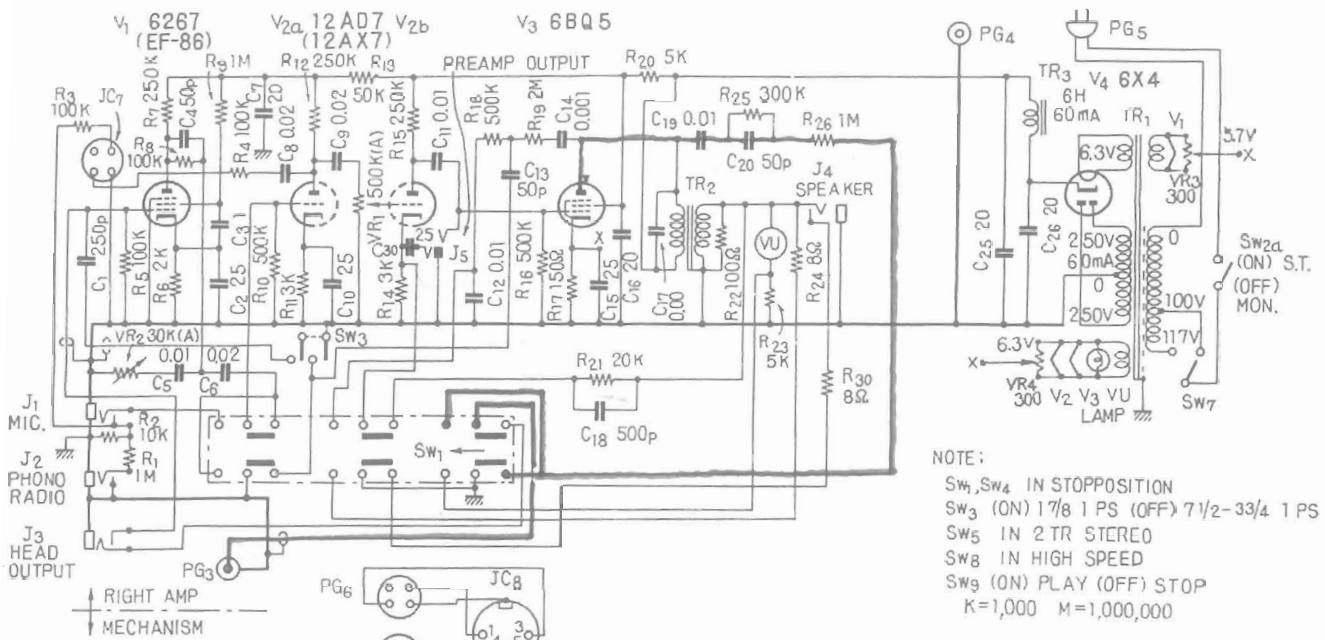
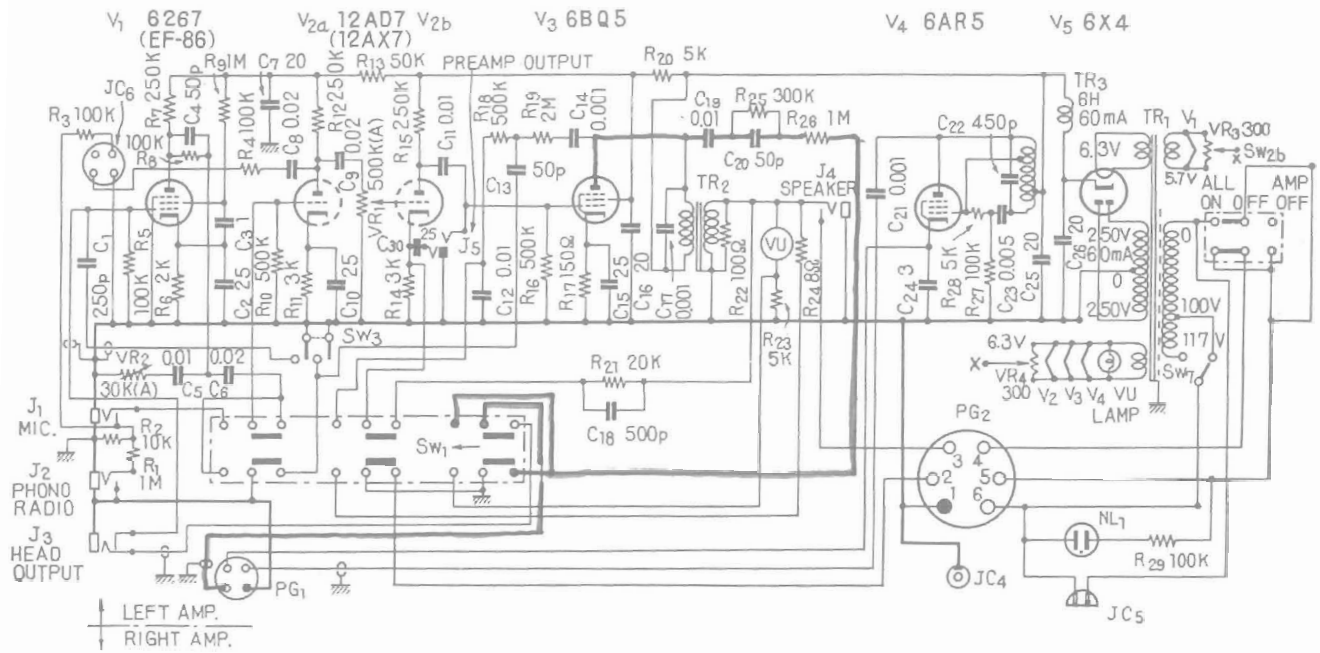


- NOTE:
- SW1 SW1 IN STOP POSITION
 - SW2 ON 170 PS OFF 70 PS
 - SW3 IN 2TR-ACK STEREO
 - SW4 HIGH SPEED
 - SW5 IN 2TR OFF STOP
 - SW6 IN 2TR OFF STOP
 - SW7 IN 2TR OFF STOP
- NOTE UP SELECTOR
- | A-TYPE | B-TYPE |
|--------|--------|
| 1 100V | 100V |
| 2 110V | 115V |
| 3 120V | 125V |
| 4 130V | 135V |
| 5 140V | 145V |
| 6 150V | 155V |
| 7 160V | 165V |

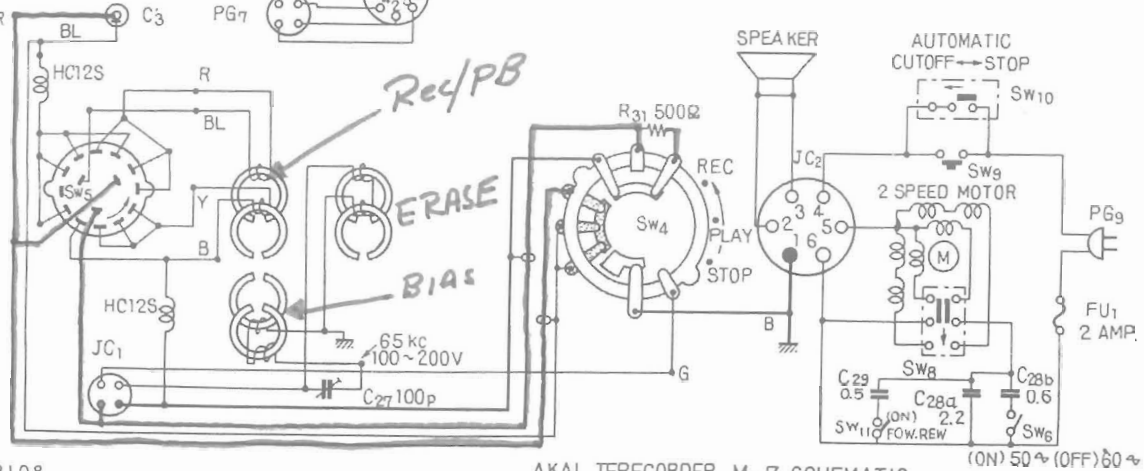


NO 631215

1950 E. E. ...



NOTE:
 Sw₁, Sw₄ IN STOPPOSITION
 Sw₃ (ON) 17/8 1 PS (OFF) 7 1/2-33/4 1 PS
 Sw₅ IN 2 TR STEREO
 Sw₈ IN HIGH SPEED
 Sw₉ (ON) PLAY (OFF) STOP
 K=1,000 M=1,000,000



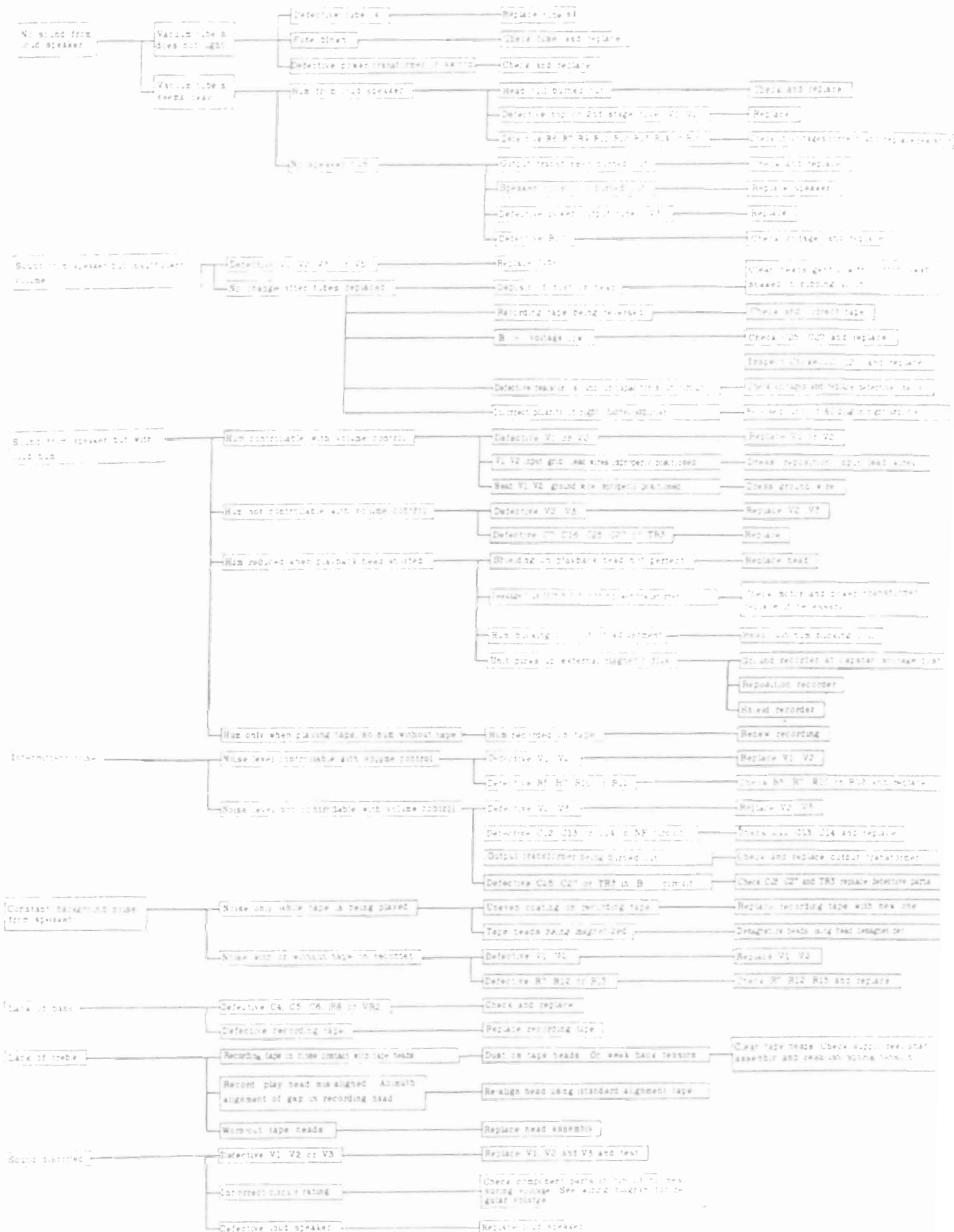
No. 62108

AKAI TEREORDER M-7 SCHEMATIC
 AKAI ELECTRIC CO., LTD.

X TROUBLE SHOOTING CHART FOR MODEL M-7

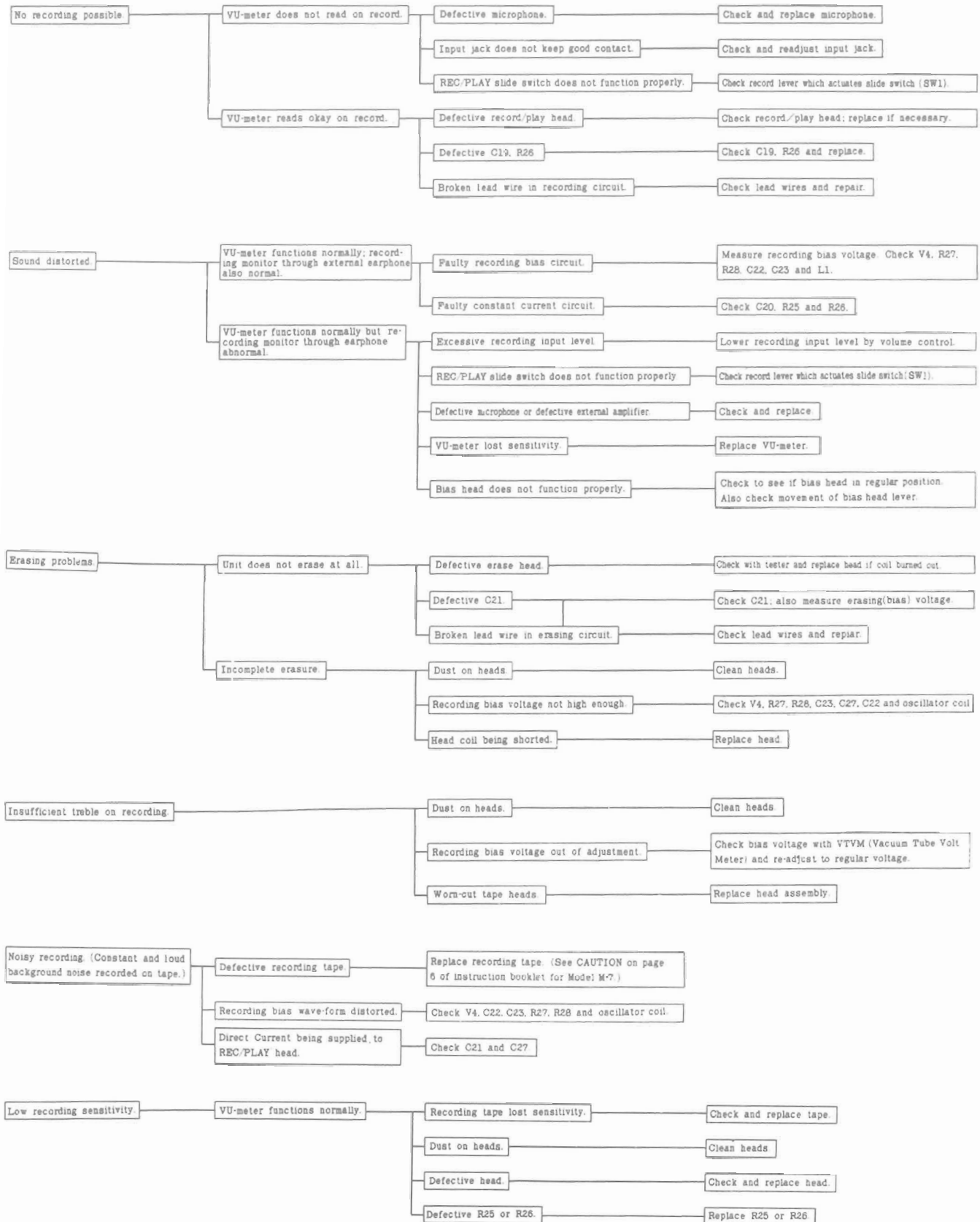
SECTION "A" TROUBLES WITH AMPLIFIER

1. Playback problems. (Unit set in play position.)



2. Recording Problems.

(Unit plays back pre-recorded tapes okay, but recording not satisfactory.)



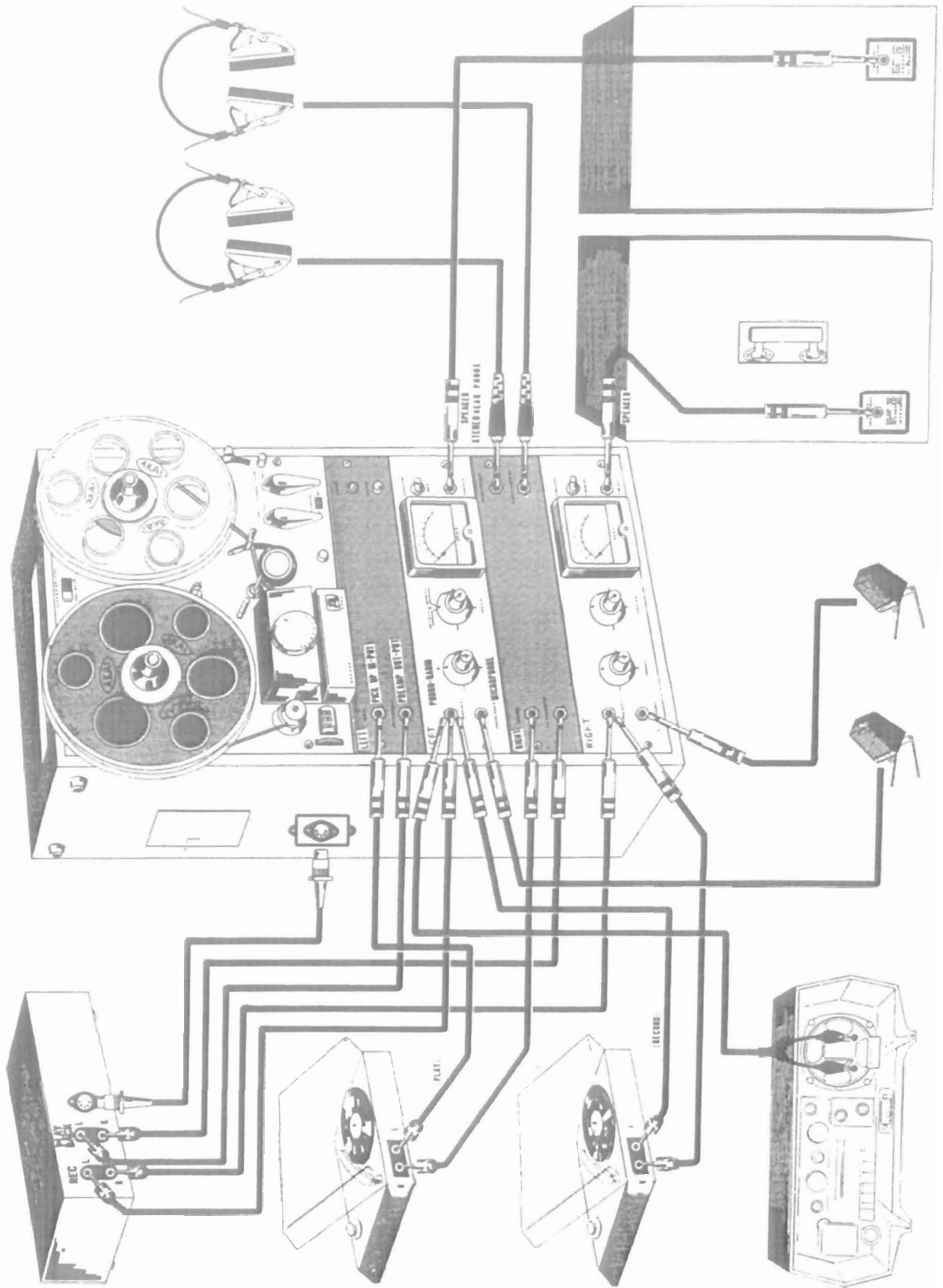
SECTION "B" TROUBLES WITH TAPE TRANSPORT MECHANISM.



SECTION "B" TROUBLES WITH TAPE TRANSPORT MECHANISM.



XI MODEL M-7 CONNECTING DIAGRAM

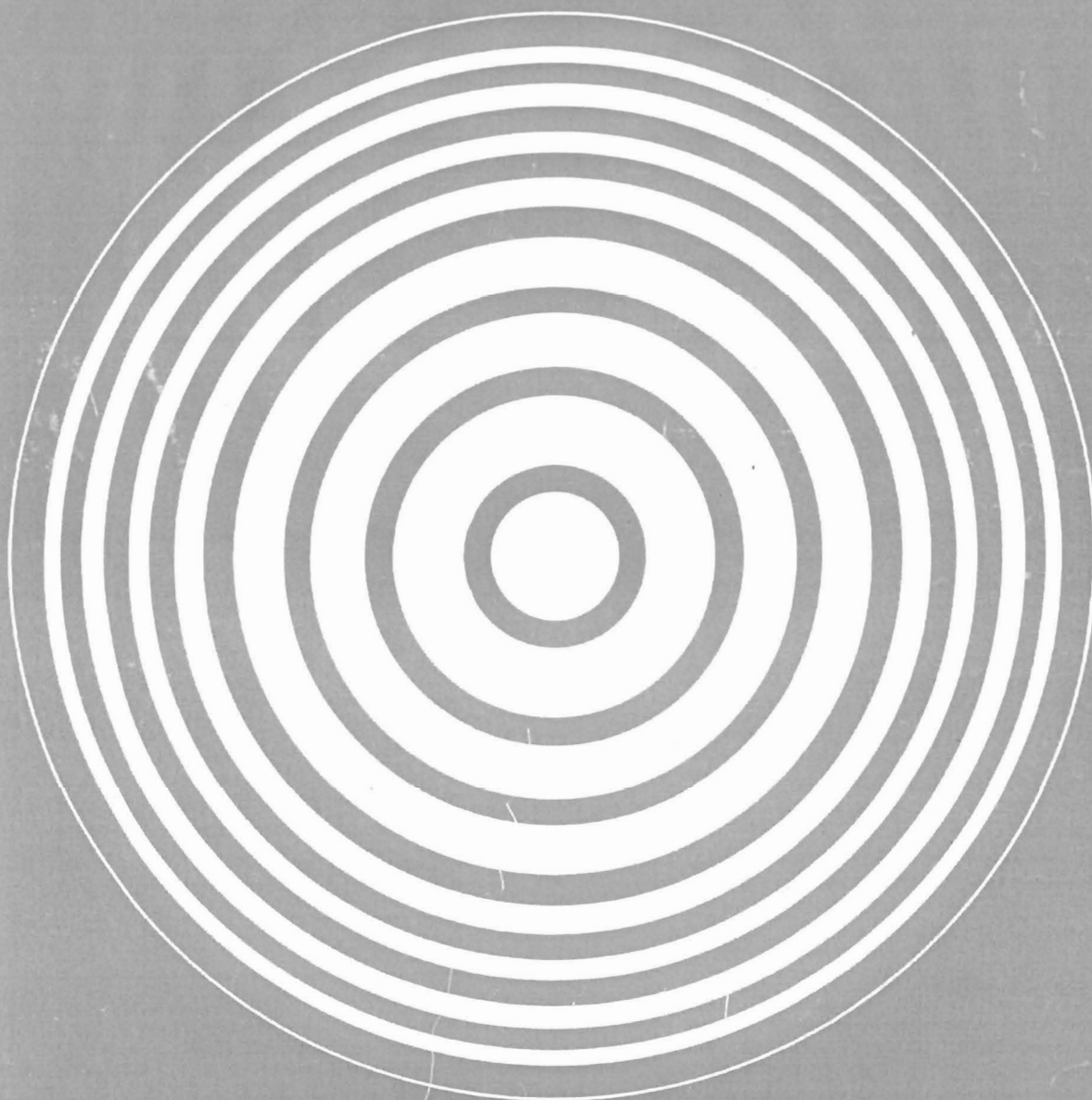
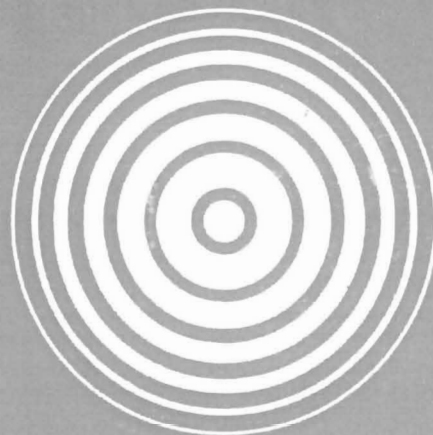


PARTS LIST

FOR

TAPE RECORDER

MODEL M-7



PARTS LIST WITH PRICE FOR MODEL M-7

Parts No.	Nomenclature	Unit Price
TOP VIEW		
		(US)
865	Carrying Case	\$ 10.40
102S	Handle	\$ 0.60
102S1	Handle Metal Fitting	\$ 0.06
953	Rubber Foot (large)	\$ 0.08
821	Ventilator Panel	\$ 0.32
820	Ventilator Panel	\$ 0.32
81	Fuse Holder	\$ 0.04
391	Fuse 2A (10ea)	\$ 0.06
903	Fuse Post	\$ 0.17
904	Fuse Post Metal Fitting	\$ 0.03
53B	Screw 3 x 6mm (10ea)	\$ 0.02
955	Rubber Foot (small)	\$ 0.01
952	Metal Foot	\$ 0.03
957	Hinge	\$ 0.16
958	Catch, Compartment Cover	\$ 0.16
361	AC Power Cord	\$ 0.21
20	AC Power Cord Holder A	\$ 0.01
21	AC Power Cord Holder B	\$ 0.01
(361, 20, 21 are located inside of 958)		
130S	Reel Holder	\$ 0.08
841	5-Pin Escutcheon Panel	\$ 0.08
905	5-Pin receptacle	\$ 0.16
D21	Plate, Serial Number	\$ 0.03
457	Nut	\$ 0.06
747	Screen, Speaker	\$ 0.12
125	Board, Speaker	\$ 0.09
102	Speaker, Oval, 5" x 7"	\$ 1.52
150B	Grilled Panel, Speaker	\$ 0.46
956	Catch	\$ 0.16
197	Nut	\$ 0.03
83B	4-P plug	\$ 0.08
TOP PANEL		
386	Retaining Screw	\$ 0.05
864	Knob, Track Selector Control	\$ 0.90
806	Head Cover, Main	\$ 0.85
810	Name Plate	\$ 0.11
807	Head Cover, Sub	\$ 0.60
842	Mounting Screw	\$ 0.04
D-4	Guard Circle, Metal	\$ 0.15
805	Top (Deck) Panel	\$ 4.00
342	Screw, Tape Guide 5 x 20mm	\$ 0.03
816	Top Plate, Tape Guide	\$ 0.16
950	Washer (10ea)	\$ 0.03
71	Bearing	\$ 0.60
817	Table, Tape Guide	\$ 0.25
705	Screw 3 x 8mm (10ea)	\$ 0.20
809	Base, Head Cover	\$ 0.46
718	Prop B, Head Cover	\$ 0.03
RA10	Prop A, Head Cover	\$ 0.03
915	Prop C, Head Cover	\$ 0.03
949	Mounting Screw	\$ 0.03
65	Nut (10ea)	\$ 0.20
REEL TABLE ASSEMBLY		
53A	Screw, Reel Table Plate (10ea)	\$ 0.15
D-3	Plate, Reel Table	\$ 0.09
850	Reel Shaft	\$ 0.46
176	Rubber Ring	\$ 0.12

Parts No.	Nomenclature	Unit Price
		(US)
175	Rewind Pulley	\$ 0.09
844	Spring G, Left	\$ 0.08
944	Washer (10ea)	\$ 0.03
195	Washer Pin	\$ 0.01
301	Take-up Roller (Lower) C	\$ 0.14
941	Holder, Reel Shaft	\$ 0.02
939	Washer (10ea)	\$ 0.02
945	Washer (10ea)	\$ 0.03
940	Washer (10ea)	\$ 0.01
266	Metal Fitting	\$ 0.46
340	Metal Bushing	\$ 0.03
822	Washer Pin	\$ 0.01
144B	Pully, Reel Shaft	\$ 0.12
920	Screw	\$ 0.02
299	Take-up Roller (Upper) A	\$ 0.14
845	Spring G, Right	\$ 0.08
300	Take-up Roller (Lower) B	\$ 0.14
942	Holder, Reel Shaft	\$ 0.14
144C	Counter Pully	\$ 0.12
144D	Counter Belt	\$ 0.16
369	Spring F-2	\$ 0.05
894	Feed Reel, Complete	\$ 1.20
895	Take-up Reel, Complete	\$ 1.20
DECK FRAME		
804	Metal (Deck) Frame	\$ 1.25
16	Spring Holder	\$ 0.01
193	Earth Lug 4mm ball	\$ 0.01
334	Spring, Cycle Conversion	\$ 0.04
849	Spring, Lever B	\$ 0.05
29	Spring, D	\$ 0.05
32	Shaft, Brake Lever	\$ 0.13
51	Screw	\$ 0.01
12	G Metal	\$ 0.08
151C	Holder, Instant Stop Lever	\$ 0.03
861	Prop, Safety Lever	\$ 0.05
505	Prop, Panel	\$ 0.03
325	Switch, 50 & 60 cycles	\$ 0.23
848	Spring, Idler Wheel	\$ 0.05
45B	Shaft, Lever F	\$ 0.14
153	Torsion Spring	\$ 0.08
73B	Prop, Head Assembly	\$ 0.05
863	Hum Bucking Coil	\$ 0.16
190	Fiber	\$ 0.01
189	Plate, Cam Stopper	\$ 0.03
52	Spring	\$ 0.01
851	Shaft, Lever A	\$ 0.14
15	Cam Stopper	\$ 0.06
818	Recording Safety Button (Red)	\$ 0.09
498	Spring B	\$ 0.05
822	Washer Pin	\$ 0.01
302	AS Lever, Complete	\$ 0.60
751	Spring, AS Lever	\$ 0.05
48	Screw	\$ 0.01
750	Plate, AS Lever	\$ 0.14
887	Head Assembly, Complete	\$ 30.00
888	Record/Playback Head	\$ 7.50
889	Erase Head	\$ 7.50
890	Bias Head (Cross Field Head)	\$ 9.00
959	Prop, Bias Head	\$ 0.02
898	Spring C	\$ 0.06

PARTS LIST WITH PRICE FOR MODEL M-7

Parts No.	Nomenclature	Unit Price (US)
832	Field Lever B	\$ 0.03
858	Screw	\$ 0.01
909	Micro Switch	\$ 0.46
828	Insulation Plate	\$ 0.03
866	Index Counter, Complete	\$ 1.90
902	Trimmer Capacitor	\$ 0.12
489	Lever, Automatic Switch	\$ 0.18
829	Gear, Stopper	\$ 0.04
488	Gear, Bakelit	\$ 0.11
67	Idler Wheel	\$ 0.60
852	Screw, Gear	\$ 0.12
62	Mounting Screw	\$ 0.06
753	Plate, Gear	\$ 0.25
161	Internal Wheel	\$ 0.25
710	Screw	\$ 0.05
119	Lever K	\$ 0.14
831	Field Lever A	\$ 0.12
61	Screw, Brake Shoe	\$ 0.05
70A	Brake Shoe (Rubber only)	\$ 0.06
13	Brake Lever	\$ 0.09
384	Spring Supply Brake	\$ 0.04
83A	4 Pin Jack	\$ 0.06
907	Switch, Speed Change	\$ 0.20
194	Washer Pin	\$ 0.01
846	Spring, Stopper	\$ 0.08
840	Lever, Shut-Off	\$ 0.06
151B	Holding, Instant Stop Lever	\$ 0.03
825	Instant Stop Lever	\$ 0.32
491	Spring for Instant Stop	\$ 0.05
69	Metal Cap, Pinch Roller	\$ 0.05
54	Screw 4x8mm	\$ 0.02
→ 233	Pinch Roller	\$ 0.56
812	Lever FB	\$ 0.16
830	Lever A-2	\$ 0.08
855	Lever, Pinch Roller	\$ 0.40
833	Field Lever D	\$ 0.03
843	Brake Cover	\$ 0.02
839	Plate, Speed Change Switch	\$ 0.06
51	Screw	\$ 0.01
910	Stopper, G-Lever	\$ 0.01
34	Shaft, Cam Roller	\$ 0.06
813	Lever GH	\$ 0.32
8	Lever C	\$ 0.03
834	Field Lever E	\$ 0.09
118	Lever FA	\$ 0.16
811	Lever A	\$ 0.32
9	Lever B-D	\$ 0.32
492	Button, Start	\$ 0.14
762	Screw	\$ 0.01
891	Lever AB,	\$ 0.06
838	Safety Lever B	\$ 0.03
837	Safety Lever A	\$ 0.08
417	Cam Roller A	\$ 0.07
48	Screw	\$ 0.01
835	Plate, Automatic Shut-off Switch	\$ 0.03
906	Switch, Automatic Shut-off	\$ 0.16
752	Cam Roller B	\$ 0.05
136	Pin Jack	\$ 0.05
210	Cover, Rotary Sealed	\$ 0.03
145C	Spring E	\$ 0.04
54B	Screw 4x8mm for Frame	\$ 0.01

Parts No.	Nomenclature	Unit Price (US)
FLYWHEEL ASSEMBLY		
824	Retaining Nut, Capstan	\$ 0.04
823	Capstan, 7.5 ips	\$ 0.08
819	Capstan Rest	\$ 0.02
815	Main Metal Cap B	\$ 0.03
195	Washer Pin	\$ 0.01
854	Main Metal Case	\$ 0.47
856	Fly Wheel, Complete	\$ 2.10
703	Screw	\$ 0.01
946	Washer (10ea)	\$ 0.01
719	Spring Washer	\$ 0.01
317	Prop A, Fly Wheel	\$ 0.12
318	Prop B, Fly Wheel	\$ 0.09
368	Retaining Nut	\$ 0.06
289	Lever, Fly Wheel	\$ 0.05
947	Washer (10ea)	\$ 0.01
427	Spring Washer (10ea)	\$ 0.01
344	Wing Nut	\$ 0.03
DRIVE MOTOR		
847	Spring, Switch Lever	\$ 0.08
826	Metal Fittings	\$ 0.08
827	Lever, Belt Change	\$ 0.53
417	Cam Roller A	\$ 0.07
334	Spring, Lever	\$ 0.03
880	Prop, Motor Mfg Plate	\$ 0.05
38	Supporter, Cord	\$ 0.03
857	Screw (10ea)	\$ 0.01
64	Nut (10ea)	\$ 0.01
932	Prop, Panel Support	\$ 0.07
933	Base	\$ 0.02
→ 66	Capstan Drive Belt	\$ 0.30
886	Retaining Screw	\$ 0.02
871	Stepped Bushing	\$ 0.03
884	Belt Holder	\$ 0.03
885	Motor Bushing	\$ 0.12
881	Prop, Motor Mfg	\$ 0.05
893	Screw	\$ 0.01
935	Screw (10ea)	\$ 0.02
741	Screw (10ea)	\$ 0.01
883	Plate, Motor	\$ 0.11
882	Hexangular Nut	\$ 0.05
872	Holder, Motor Condenser	\$ 0.03
226	Condenser, 2.2μF+0.6	\$ 0.75
867	Motor, Complete	\$ 21.95
36B	Long Screw, Motor	\$ 0.01
870	Motor Fan	\$ 0.18
908	Motor Condenser 0.5μ 300V AC	\$ 0.18
SWITCH BLOCK		
739	Switch Block, Complete	\$ 3.00
M-15	Knob, Record/Play & Rewind Fast Forward (Grey)	\$ 0.16
M-15S	Screw for Mechanism (10ea)	\$ 0.01
752	Cam Roller B	\$ 0.07
43	Cam B	\$ 0.13
450	Cam A	\$ 0.17
191	Ball Bearing, 8mm	\$ 0.01
167	Switch Table A	\$ 0.30
417	Cam Roller A	\$ 0.07
148B	Lever I	\$ 0.09
710	Screw	\$ 0.06

PARTS LIST WITH PRICE FOR MODEL M-7

MECHANISM

Parts No.	Nomenclature	Unit Price (US)
259	Rotary Switch A	\$ 0.46
122A	Rotary Switch B	\$ 0.48
757	Resistor, 500Ω	\$ 0.01
146	Cam Amp Switch	\$ 0.09
387	Pin	\$ 0.07
149B	Plate Cam,	\$ 0.03
700	Spring K	\$ 0.03
44	Cam C	\$ 0.12
169	Switch Plate B	\$ 0.08
199	Prop. Receptacle	\$ 0.06
89	UZ Receptacle	\$ 0.11
338	Lever, SW Lever	\$ 0.16
293	Switch Lever A	\$ 0.14
147B	Switch Lever B	\$ 0.02
294	Switch Lever C	\$ 0.08
295	Switch Lever D	\$ 0.05

AMPLIFIER

Parts No.	Nomenclature	Unit Price (US)
A101-OL7	Amp. panel, left	\$ 2.20
A101-OR7	" " , right	\$ 2.20
A102-OL7	Amp. chassis, left	\$ 0.75
A102-OR7	" " , right	\$ 0.75
A103-OL7	Sub-chassis A with V1 V2	\$ 0.05
A104-OL7	Sub-chassis B with V3 V4 V5	\$ 0.08
A105-OL7	Hum balancer mount A	\$ 0.04
A106-OL7	4P jack mount	\$ 0.04
A107-OL7	Amp. Grilled Panel Left	\$ 0.60
A107-OR7	Amp. Grilled Panel Right	\$ 0.60
AK2	C. R. compound body (100KΩ 50 PF)	\$ 0.09
AK3	C. R. compound body (300KΩ 50 PF)	\$ 0.09
AK4	C. R. compound body (20KΩ 500 PF)	\$ 0.09
AK5	C. R. compound body (500KΩ 2M 0.001 uf)	\$ 0.14
C1	Mica condenser 250PF 1 KV	\$ 0.04
C2	Tubular type electrolytic condenser 25 μf 25 WV	\$ 0.08
C3	Tubular type electrolytic condenser 1 μf 150 WV	\$ 0.07
C4	Condenser, enclosed in AK2 50 PF	\$ 0.05
C5	Tubular type paper condenser 0.01 μf 400 WV	\$ 0.04
C6	Tubular type paper condenser 0.02 μf 400 WV	\$ 0.04
C7	Tubular type electrolytic condenser 20 μf 300WV B-bypass	\$ 0.19
C8	Tubular type paper condenser 0.02 μf 400 WV	\$ 0.04
C9	Tubular type paper condenser 0.02 μf 400 WV	\$ 0.04
C10	Tubular type electrolytic condenser 25 μf 25 WV cathode by-pass	\$ 0.08
C11	Tubular type paper condenser 0.01 μf 400 WV	\$ 0.04
C12	Tubular type paper condenser 0.01 μf 400 WV	\$ 0.04
C13	Condenser, enclosed in AK5 50 PF	\$ 0.07
C14	Condenser, enclosed 0.001 μf	\$ 0.07
C15	Tubular type electrolytic condenser 25 μf 25 WV	\$ 0.08

AMPLIFIER

Parts No.	Nomenclature	Unit Price (US)
C16	Tubular type electrolytic condenser 25 μf 25 WV	\$ 0.19
C17	Tubular type paper condenser 0.001 μf 400 WV	\$ 0.04
C18	Condenser, enclosed in AK 4 500 PF	\$ 0.06
C19	Tubular type paper condenser 0.01 μf 400 WV	\$ 0.04
C20	Condenser, enclosed in AK 3 50 PF	\$ 0.06
C21	Mica condenser 0.001 μf 1 KV	\$ 0.05
C22	Mica condenser 450 PF 1 KV	\$ 0.04
C23	Tubular type paper condenser 0.005 μf 400 WV	\$ 0.04
C24	Tubular type electrolytic condenser 3 μf 350 WV	\$ 0.08
C25	Lug terminal type electrolytic condenser 20 μf 350 WV	\$ 0.50
C26	Lug terminal type electrolytic condenser 20 μf 350 WV	\$ 0.50
C27	Patting condenser 100 PF 1 KV	\$ 0.04
C28a	M. P. S. condenser 2.2 μf 300 WV	\$ 0.09
C28b	M. P. S. condenser 0.6 μf 300 WV	\$ 0.09
C29	Tubular type oil condenser 0.5 μf	\$ 0.08
C30	Tubular type electrolytic condenser 25 μf 25 WV	\$ 0.08
J1	2P jack A	\$ 0.09
J2	" "	\$ 0.09
J3	2P jack B	\$ 0.09
J4	2P jack A	\$ 0.09
J5	2P jack D 3-pole jack	\$ 0.12
JC1	4-pole jack	\$ 0.06
JC2	UZ jack	\$ 0.12
JC3	1P jack for right ch. head-out, bias feed.	\$ 0.04
JC4	1P jack right ch. earth line	\$ 0.05
JC5	AC mold receptacle	\$ 0.10
JC6	4P jack relay to left ch. DIN jack	\$ 0.07
JC7	4P jack right ch. DIN jack	\$ 0.07
JC8	D. I. N jack	\$ 0.13
JC10	4P baby connector jack	\$ 0.20
L1	Oscillating coil OSC-60-450	\$ 0.32
L2	Choke coil 6H 60 mA	\$ 0.60
M1	M-7 VU meter	\$ 3.00
PG1	4P plug	\$ 0.08
PG2	UZ plug	\$ 0.05
PG3	Tip plug	\$ 0.04
PG4	" "	\$ 0.04
PG5	AC mold plug	\$ 0.23
PG6	4P plug relay to left ch. DIN jack	\$ 0.09
PG7	4P plug relay to right ch. DIN jack	\$ 0.09
PG9	AC mold plug	\$ 0.23
PG10	4P baby connector plug	\$ 0.20
PL1	Pilot lamp (meter lamp) attached to M1	\$ 0.04
PL2	Neon tube bracket neon	\$ 0.04
R1	L-type fixed resistor ALW 1MΩ	\$ 0.02
R2	L-type fixed resistor ALY 10KΩ (N)	\$ 0.02
R3	P-type fixed resistor 4/1P 100 KΩ (10%)	\$ 0.02
R4	P-type fixed resistor 4/1P 100 KΩ (10%)	\$ 0.02
R5	L-type fixed resistor ALW 100KΩ	\$ 0.02
R6	L-type fixed resistor ALY 2 KΩ	\$ 0.02

PARTS LIST WITH PRICE FOR MODEL M-7

AMPLIFIER

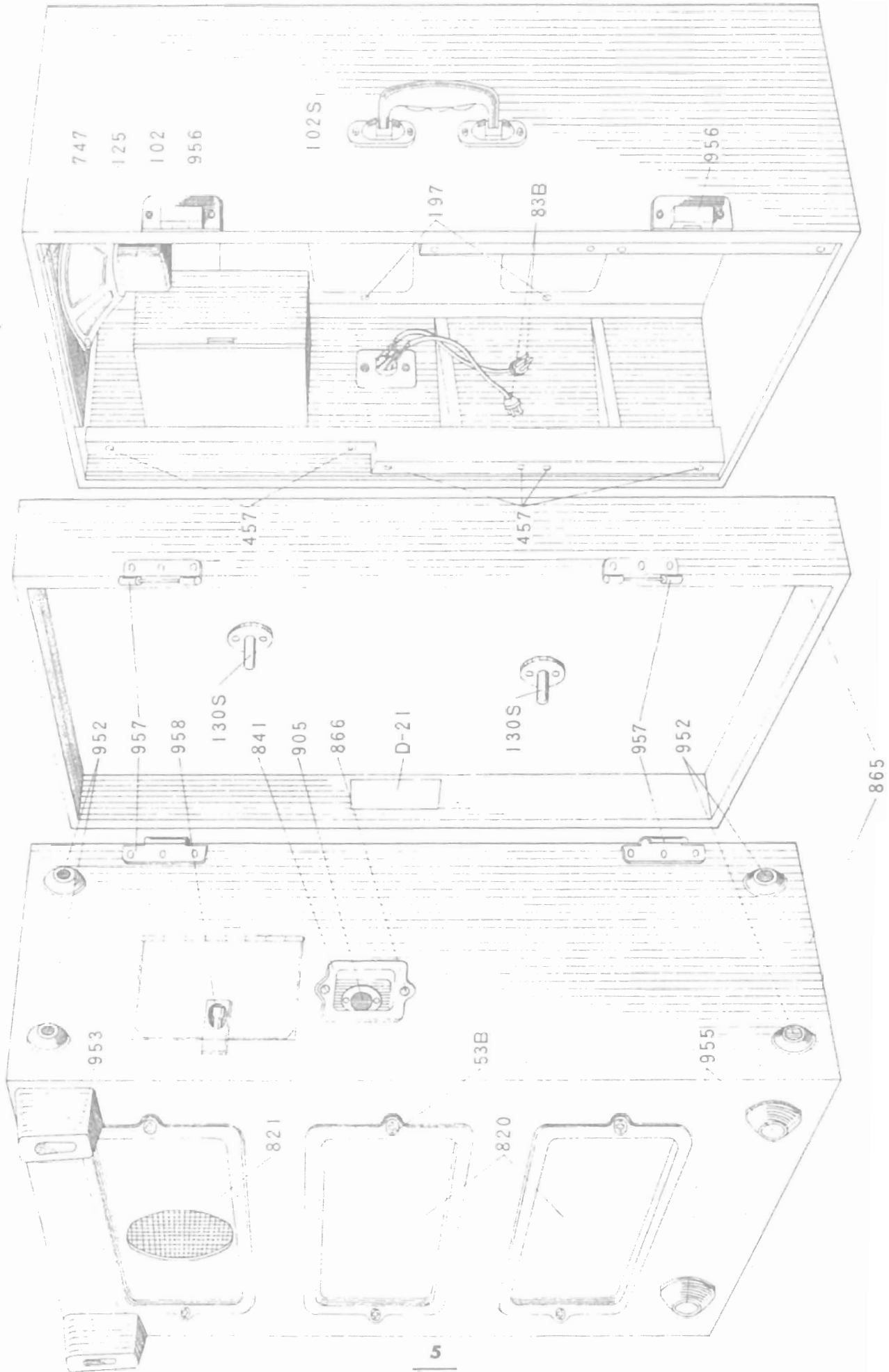
Parts No.	Nomenclature	Unit Price (US)
R7	L-type fixed resistor CLY 250K Ω	\$ 0.02
R8	Resistor, enclosed in AK2 100K Ω	\$ 0.02
R9	L-type fixed resistor CLY 1 M Ω	\$ 0.02
R10	L-type fixed resistor ALY 500 K Ω (N)	\$ 0.02
R11	L-type fixed resistor ALY 3K Ω	\$ 0.02
R12	L-type fixed resistor CLY 250K Ω	\$ 0.02
R13	L-type fixed resistor ALY 50K Ω	\$ 0.02
R14	L-type fixed resistor ALY 3K Ω	\$ 0.02
R15	L-type fixed resistor CLY 250K Ω	\$ 0.02
R16	L-type fixed resistor ALY 500K Ω	\$ 0.02
R17	L-type fixed resistor CLY 150K Ω	\$ 0.02
R18	Resistor, enclosed in AK5 500K Ω	\$ 0.02
R19	Resistor, enclosed in AK5 2K Ω	\$ 0.02
R20	L-type fixed resistor CLY 5K Ω	\$ 0.02
R21	Resistor, enclosed in AK4 20K Ω	\$ 0.03
R22	L-type fixed resistor ALY 100 Ω	\$ 0.02
R23	L-type fixed resistor ALY 5K Ω	\$ 0.02
R24	Flexible fixed resistor 8 Ω	\$ 0.05
R25	Resistor, enclosed in AK3 300K Ω	\$ 0.05
R26	L-type fixed resistor ALW 1M Ω	\$ 0.02
R27	L-type fixed resistor ALW 100K Ω	\$ 0.02
R28	L-type fixed resistor ALY 5K Ω	\$ 0.02
R29	L-type fixed resistor ALW 100K Ω	\$ 0.02
R30	Flexible fixed resistor 8 Ω	\$ 0.05
R31	L-type fixed resistor ALY 100K Ω	\$ 0.02
VR1	Variable resistor V-24 A-500K Ω	\$ 0.18
VR2	Variable resistor VS-305V A-30K Ω	\$ 0.50
VR3	Variable resistor V-18 B-300 Ω	\$ 0.18
VR4	Variable resistor V-18 B-300 Ω	\$ 0.18
SW1	Slide switch SL 62M	\$ 0.46
SW2a	Toggle switch ST 103A	\$ 0.18
SW2b	Toggle switch ST 210PG	\$ 0.55
SW3	Rotary switch attached to VR2	\$ 0.24
SW4	Rotary switch 1-2-3 switch	\$ 0.47
SW5	Rotary switch head change-over switch	\$ 0.29
SW6	Rotary switch c/s change-over	\$ 0.24
SW7	Rower source voltage selector (100/117 change-over switch for former type)	\$ 0.07
SW8	Slide switch for motor speed change	\$ 0.20
SW9	Micro switch, automatic shut-off, for power source	\$ 0.46
SW10	Slide switch, automatic shut-off for power source	\$ 0.13
T1	Power switch transformer for 100/117 change-over	\$ 2.00
T2	Output transformer (5 K Ω : 8 Ω)	\$ 1.07
T3	Universal Trans. A or B Type	\$ 2.00
T3-462	Screw and Nut for A/B Trans.	\$ 0.03
T3-463	Decoration Plastic, Trans.	\$ 0.07
T3-464	Metal Cover, Trans.	\$ 0.05
T3-466	AC Socket, Trans.	\$ 0.07
T3-467	Plug-in Converter, Trans.	\$ 0.07
T3-468	Baby Connector, Trans.	\$ 0.20
T3-901	Ventilation Panel, Trans.	\$ 0.32
TB1	40P lug plate, type 40D	\$ 0.71
TB2	4P lug plate	\$ 0.03
V1	Vacuum tube 6267	\$ 0.71
V2	Vacuum tube 12AD7	\$ 0.55
V3	Vacuum tube 6BQ5	\$ 0.46
V4	Vacuum tube 6AR5	\$ 0.27
V5	Vacuum tube 6X4	\$ 0.25
VS1	Vacuum tube socket, 9P mold type with sheath	\$ 0.19
VS2	Vacuum tube socket, 9P mold type	\$ 0.19

Parts No.	Nomenclature	Unit Price (US)
VS3	Vacuum tube socket, 9P mold type	\$ 0.14
VS4	Vacuum tube socket, 7P mold type	\$ 0.09
VS5	Vacuum tube socket, 7P mold type	\$ 0.09
Z101-0L7	Amplifier knob A Equalizer	\$ 0.09
Z102-0L7	Amplifier knob B Tone	\$ 0.21
Z103-0L7	Amplifier knob C Volume	\$ 0.30
Z104-0L7	Shield Plate Amplifier shield parts	\$ 0.03
Z105-0L7	Shield Plate output shield plate	\$ 0.03
Z106-0L7	Cord clamp B holding wiring, etc.	\$ 0.01
Z107-0L7	Cord clamp C holding UZ plug connection line	\$ 0.03
Z108-0L7	Cord clamp E settig shield wire	\$ 0.03
Z109-0L7	Amplifier lever, left	\$ 0.05
Z109-0R7	Amplifier lever, right	\$ 0.05
Z110-0L7	Spring, left amplifier, attached to amplifier lever	\$ 0.05
Z111-0L7	Spring, small holding VU meter	\$ 0.01
Z112-0L7	Rubber cap shield rubber V1 cap	\$ 0.26
Z113-0L7	Rubber bush 10 ϕ rubber bush Insulation of sub-chassis	\$ 0.03
Z114-0L7	Support receptable support 6 \times 38	\$ 0.05
Z115-0L7	Fiber washer Insulated washer Insulation of J3, J5	\$ 0.01
Z116-0L7	Vinyl tube 8.5 ϕ transparent vinyl tube	\$ 0.01
Z117-0L7	Feed screw (-) 3 \times 5	\$ 0.01
Z118-0L7	Support AC receptacle support	\$ 0.03
Z119-0L7	Feed screw (-) 3 \times 12	\$ 0.01
Z120-0L7	Amplifier lever set screw	\$ 0.04
Z121-0L7	3 mm nut	\$ 0.01
Z122-0L7	Screw 4 \times 10.5	\$ 0.02
Z123-0L7	Screw 4 \times 8.5	\$ 0.02
Z124-0L7	Screw 4 \times 7.5	\$ 0.02
Z125-0L7	Clamp for 7 pin	\$ 0.07
Z126-0L7	Clamp for 6BQ5	\$ 0.02
Z127-0L7	Amp. Panel screw 4 \times 12	\$ 0.02

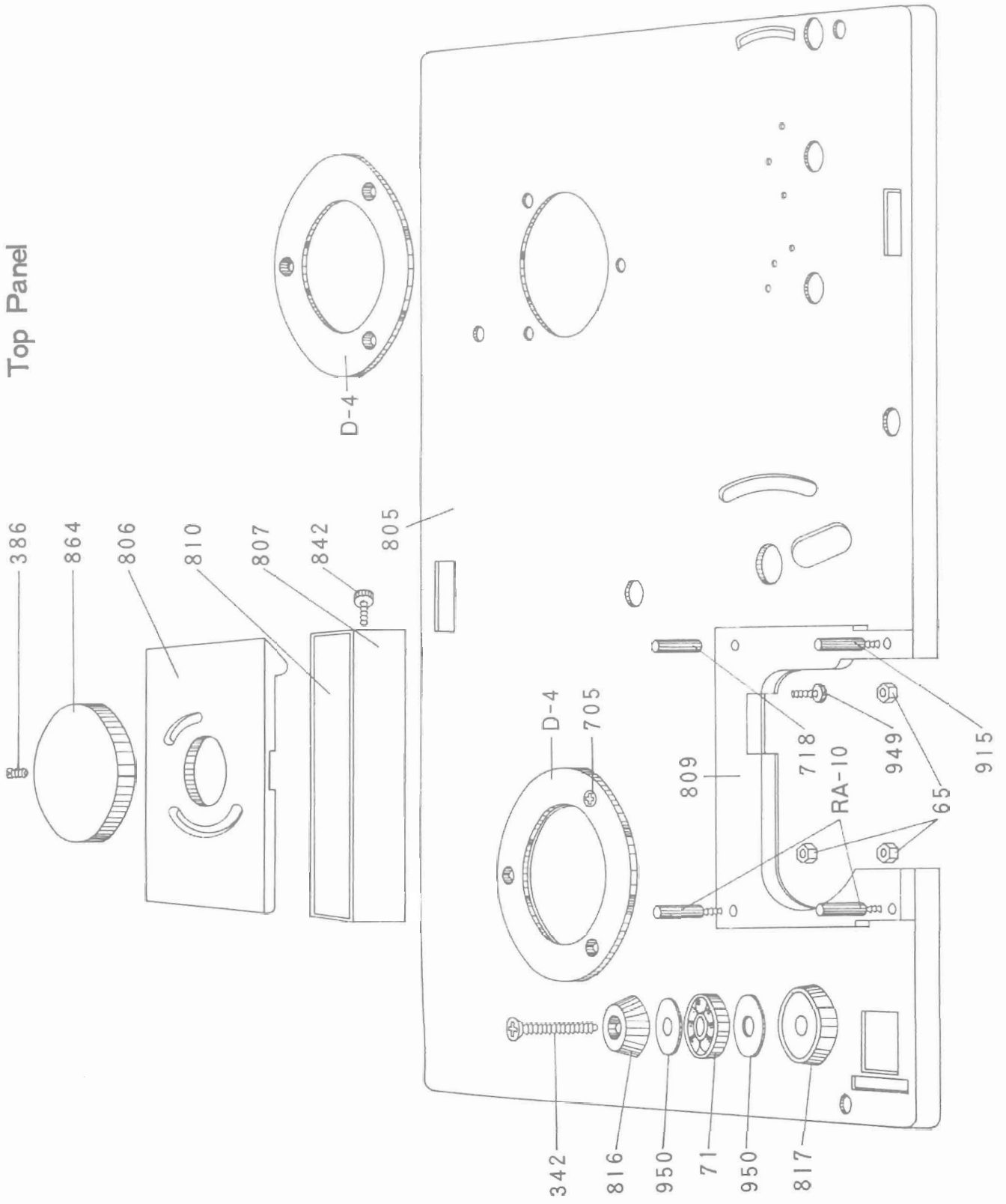
APPENDIX : ACCESSORIES

AE-1	Endless Tape	\$ 3.00
AP-2	Telephone Pick Up	\$ 1.80
AS-3	Tape Splicer	\$ 0.90
AM-4P	Monitor Receiver (Straight)	\$ 0.70
AM-4	Monitor Receiver (Angle)	\$ 0.70
AMS-5L	Microphone Stand (Large)	\$ 0.60
AMS-5	" " (Small)	\$ 0.30
AH-6	Head-Demagnetizer	\$ 2.10
ATE-7	Tape Eraser	\$ 11.00
ASE-8	Stereo Headphone (two plug)	\$ 5.00
ASE-8S	Stereo Headphone (single)	\$ 5.00
AK-15	15 inch Adaptor Kit	\$ 0.71
AK-D	Din Jack Connection Cable	\$ 1.10
	Accessories Bag	\$ 14.00
	AKAI Leader Tape	\$ 0.11
	AKAI Splicing Tape	\$ 0.11
	5" AKAI Recording Tape 600 ft	\$ 1.05
	900 ft	\$ 2.00
	7" AKAI Recording Tape 1200 ft	\$ 1.90
	1800 ft	\$ 3.60
	Radio Connection Cable	\$ 0.42
	Rubber Adaptor	\$ 0.05

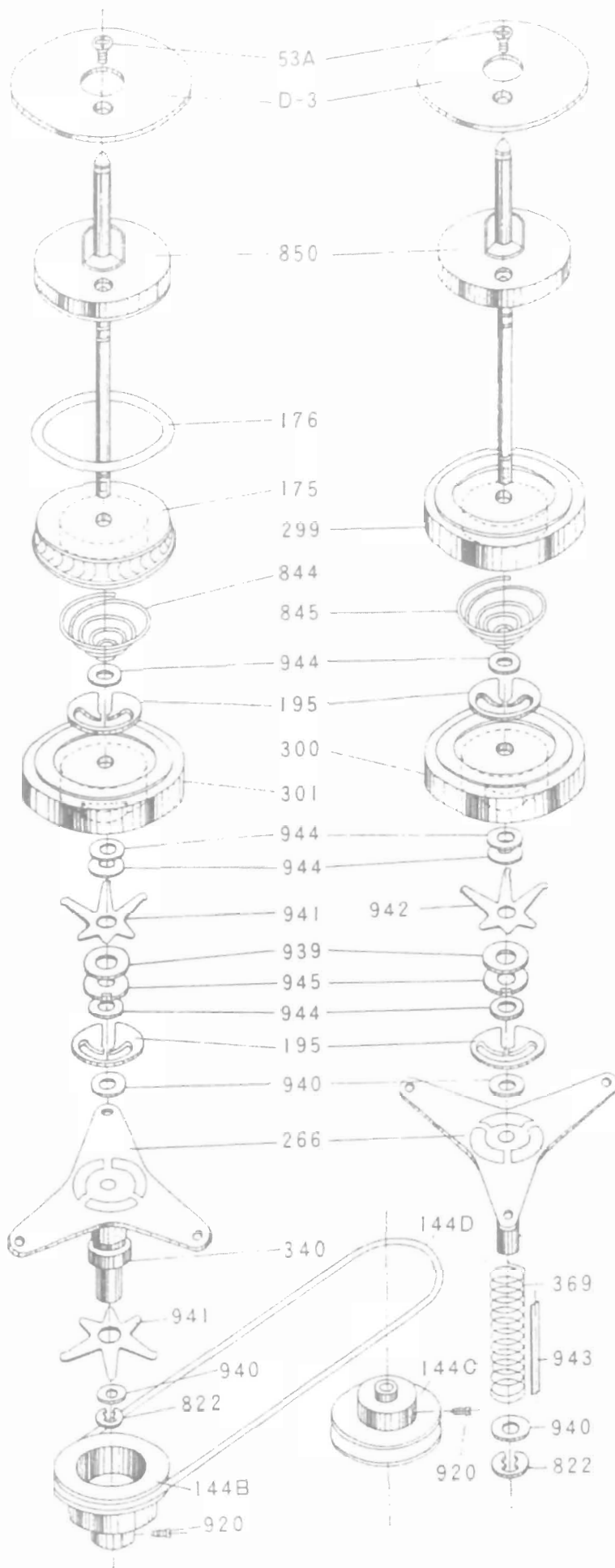
Top View

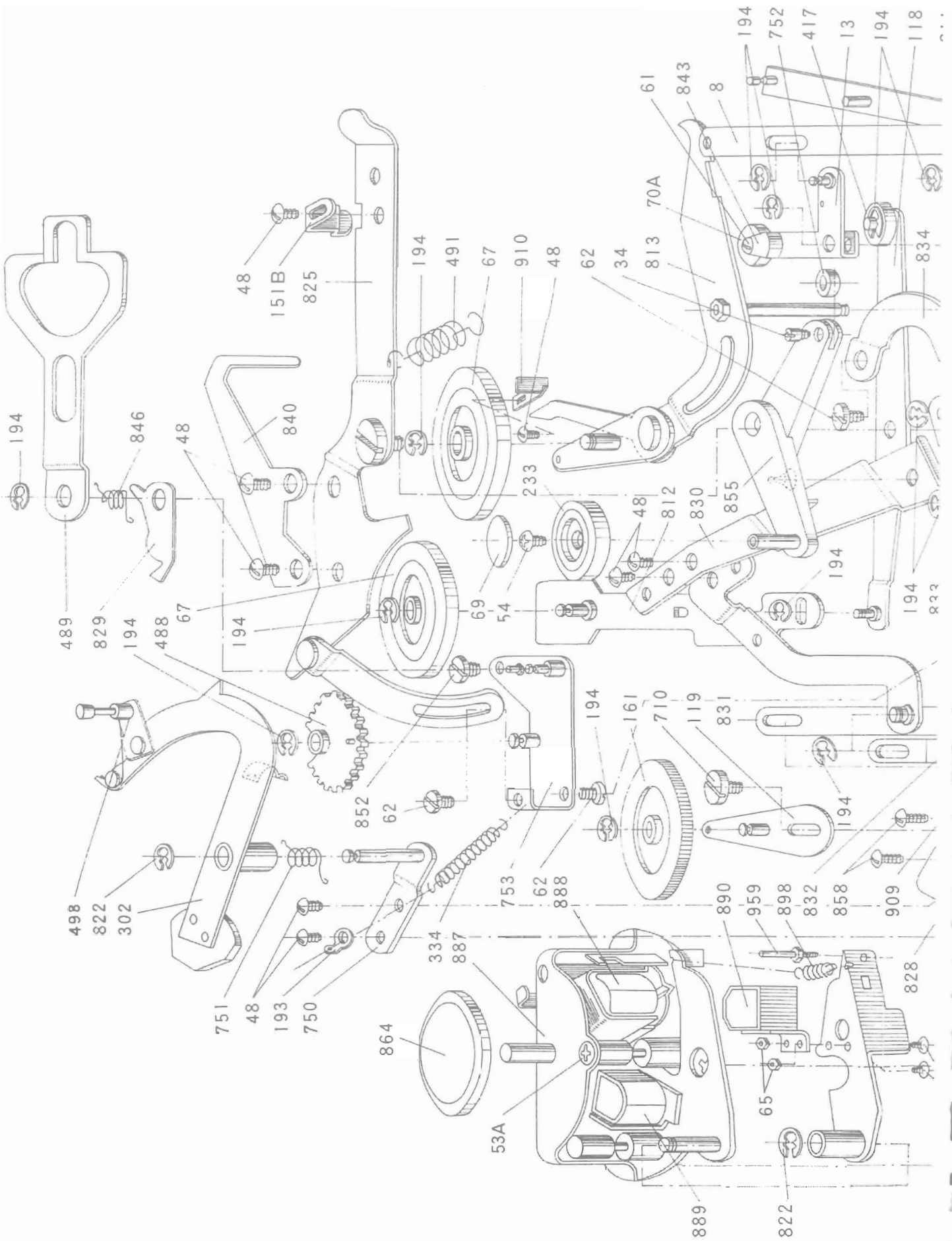


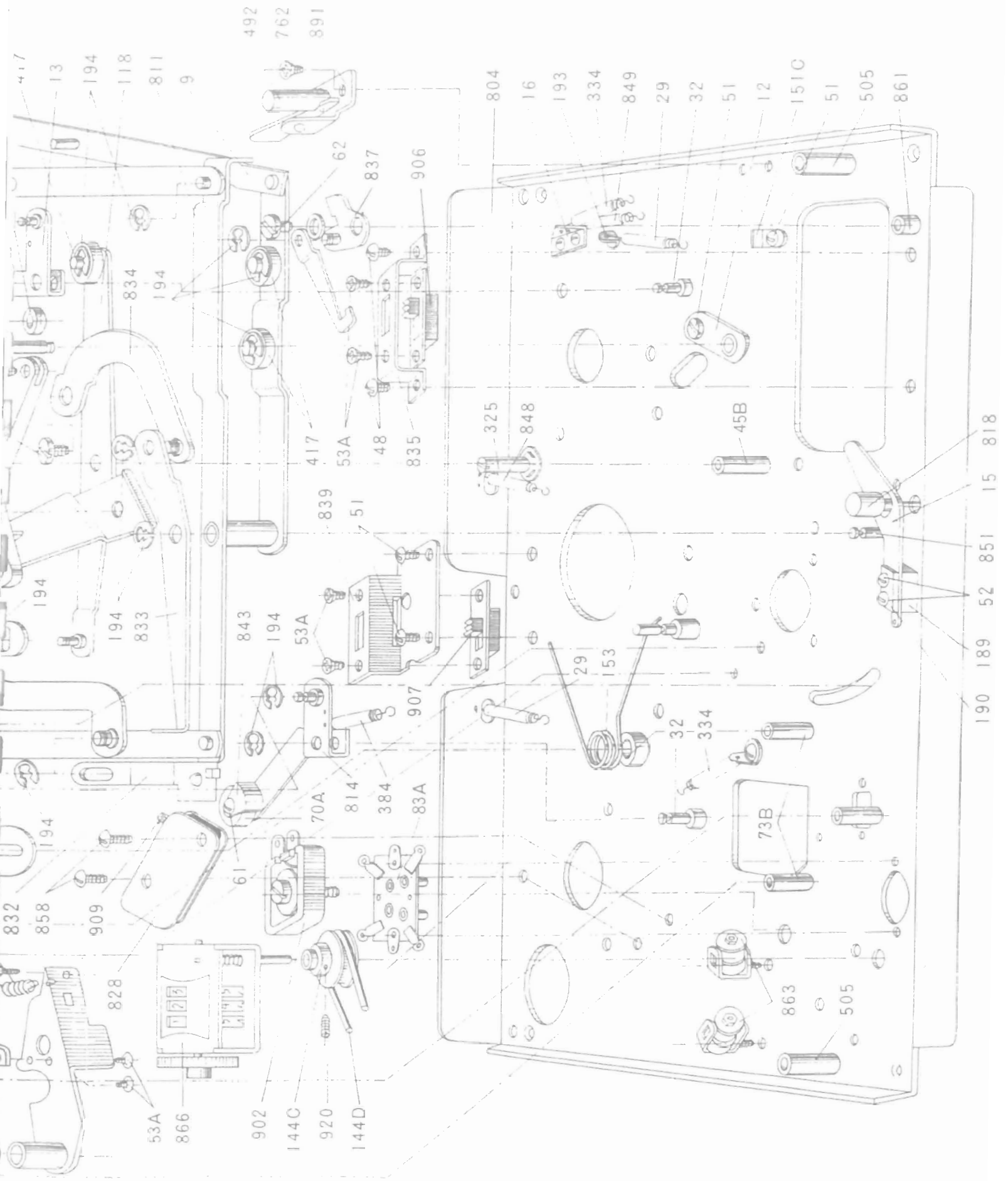
Top Panel

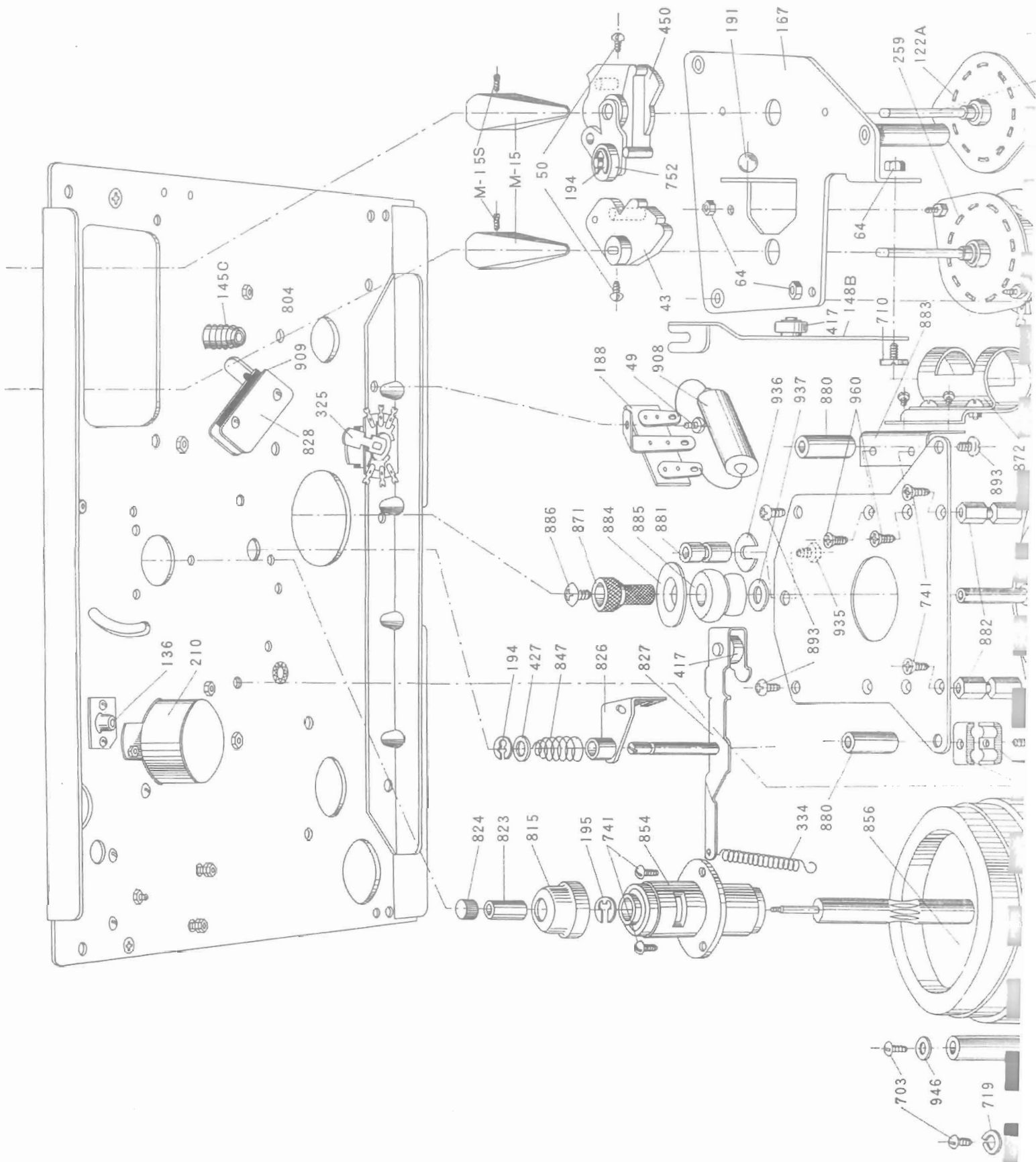


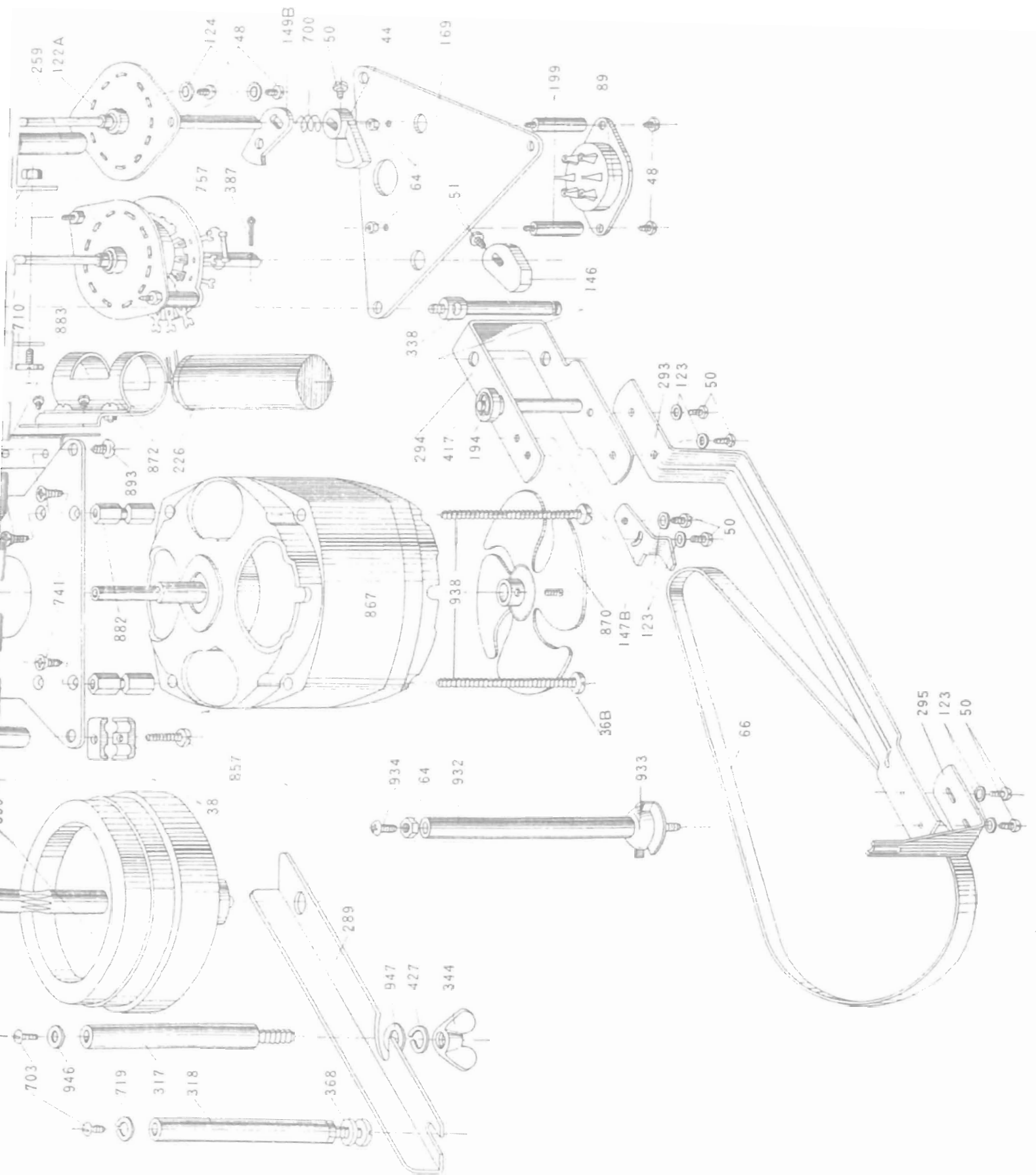
Reel Table Assembly







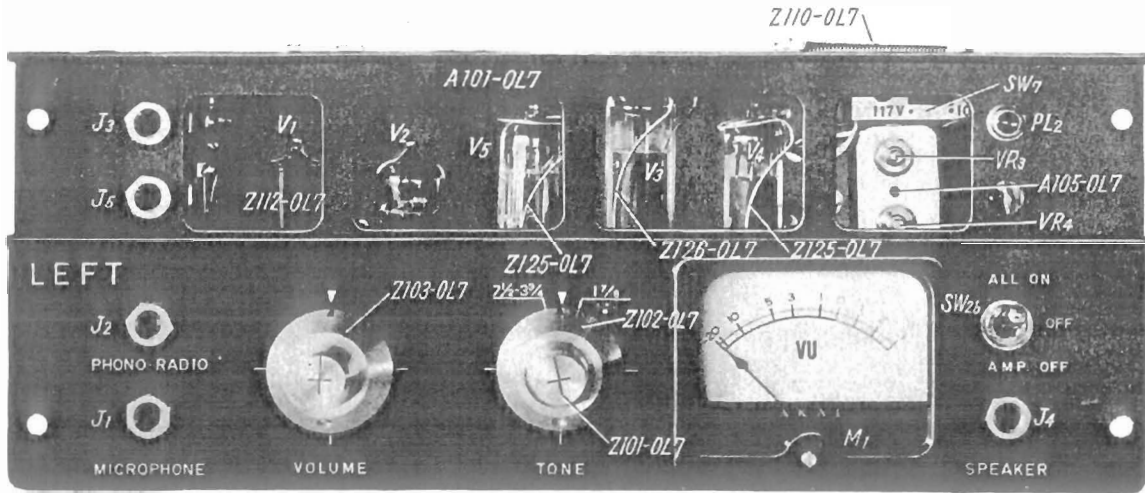




Left

Outside Grilled Panel

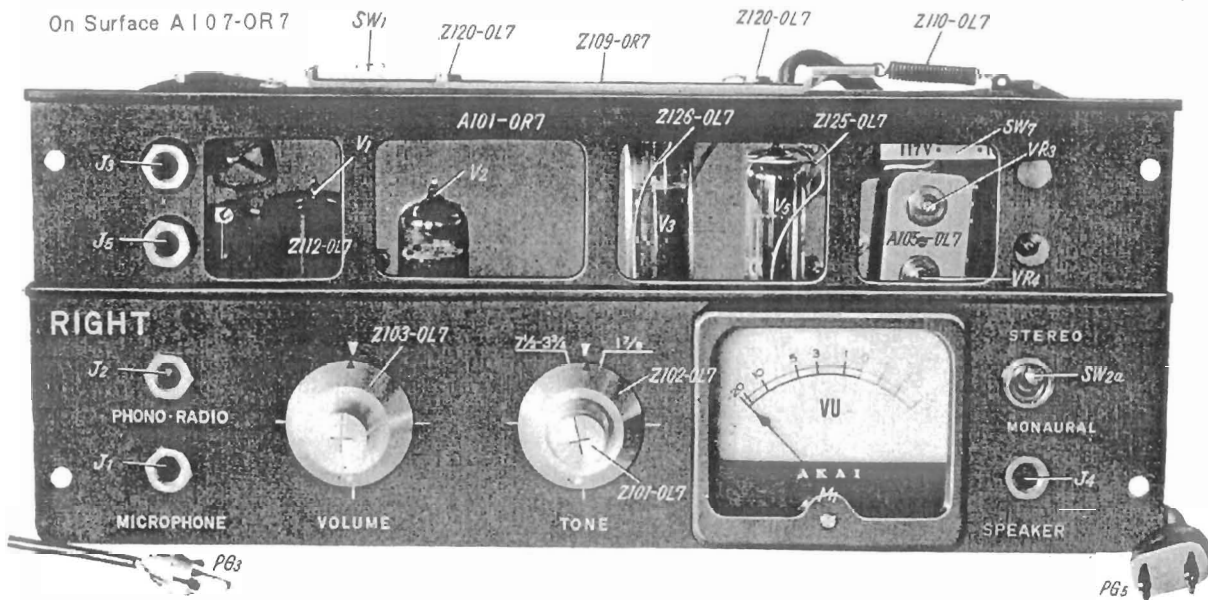
On Surface A107-OL7



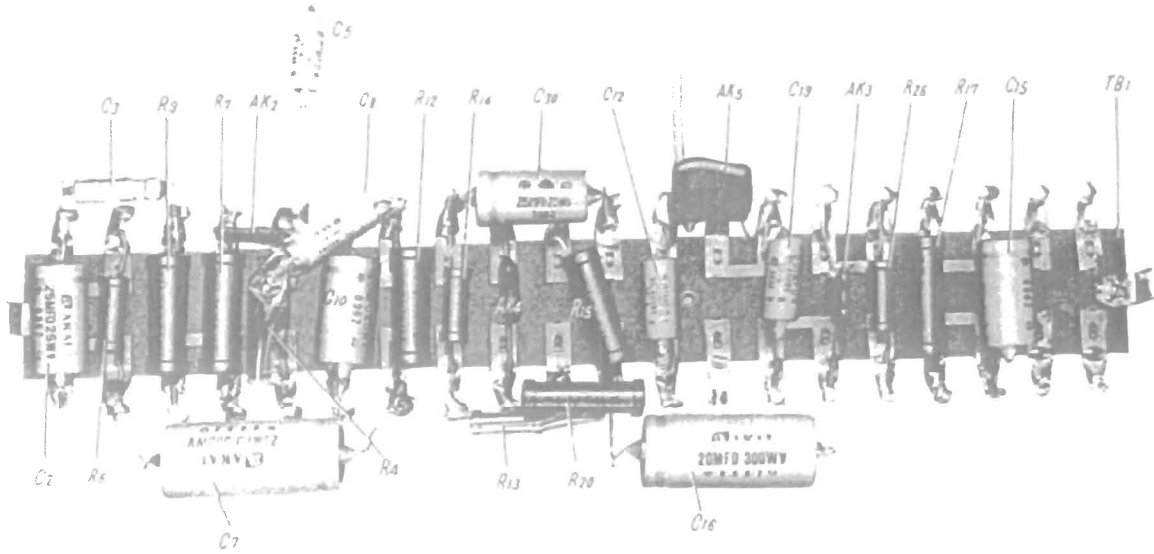
Right

Outside Grilled Panel

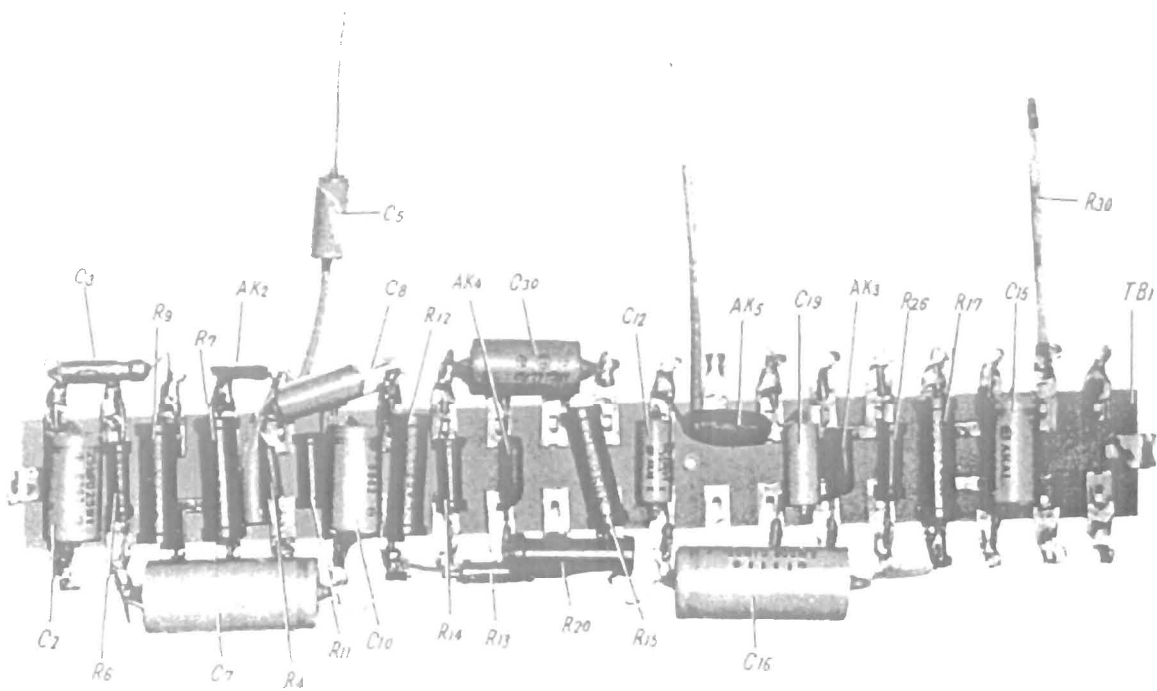
On Surface A107-OR7



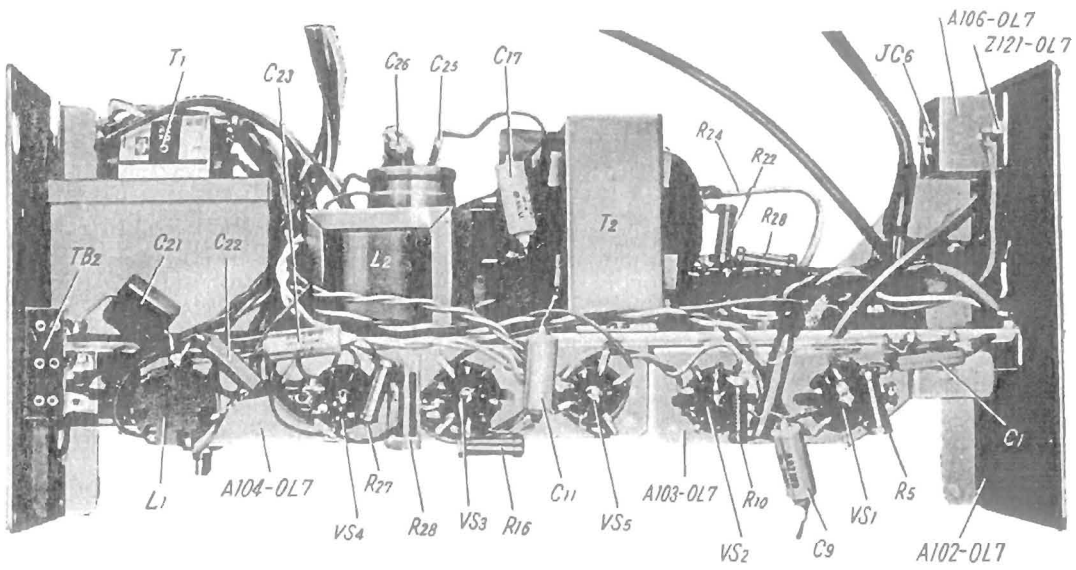
Left



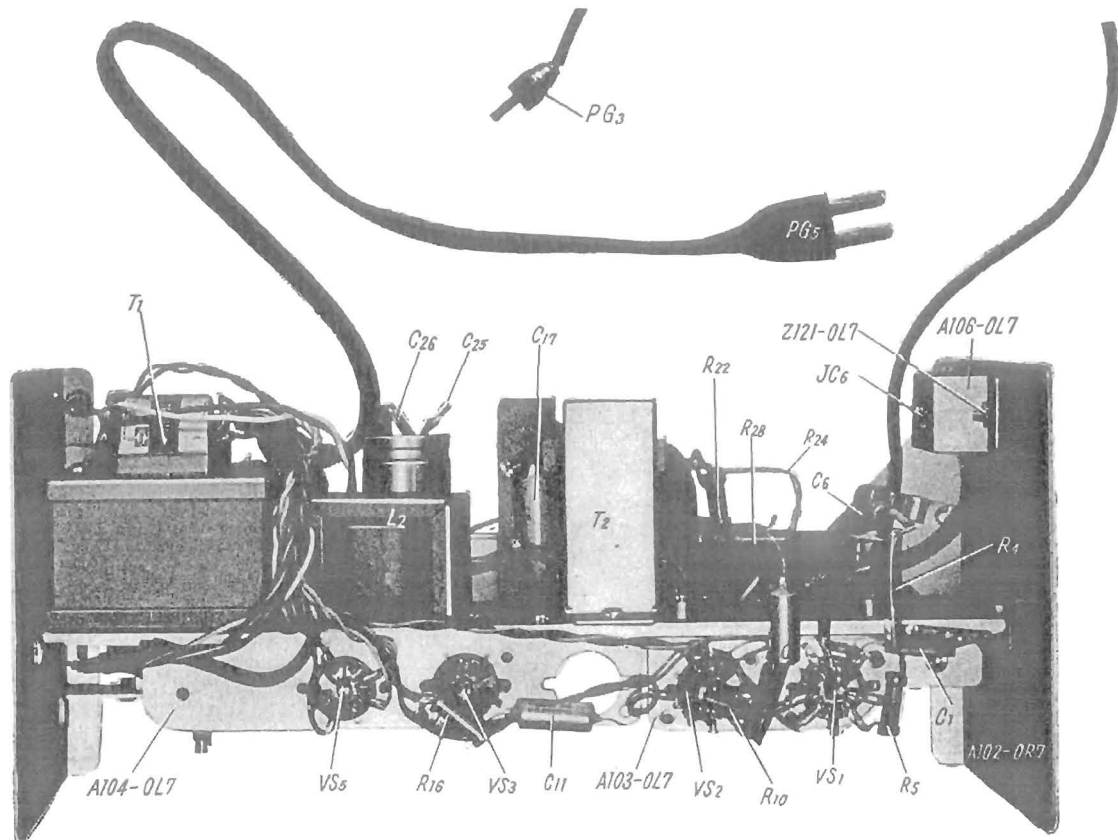
Right



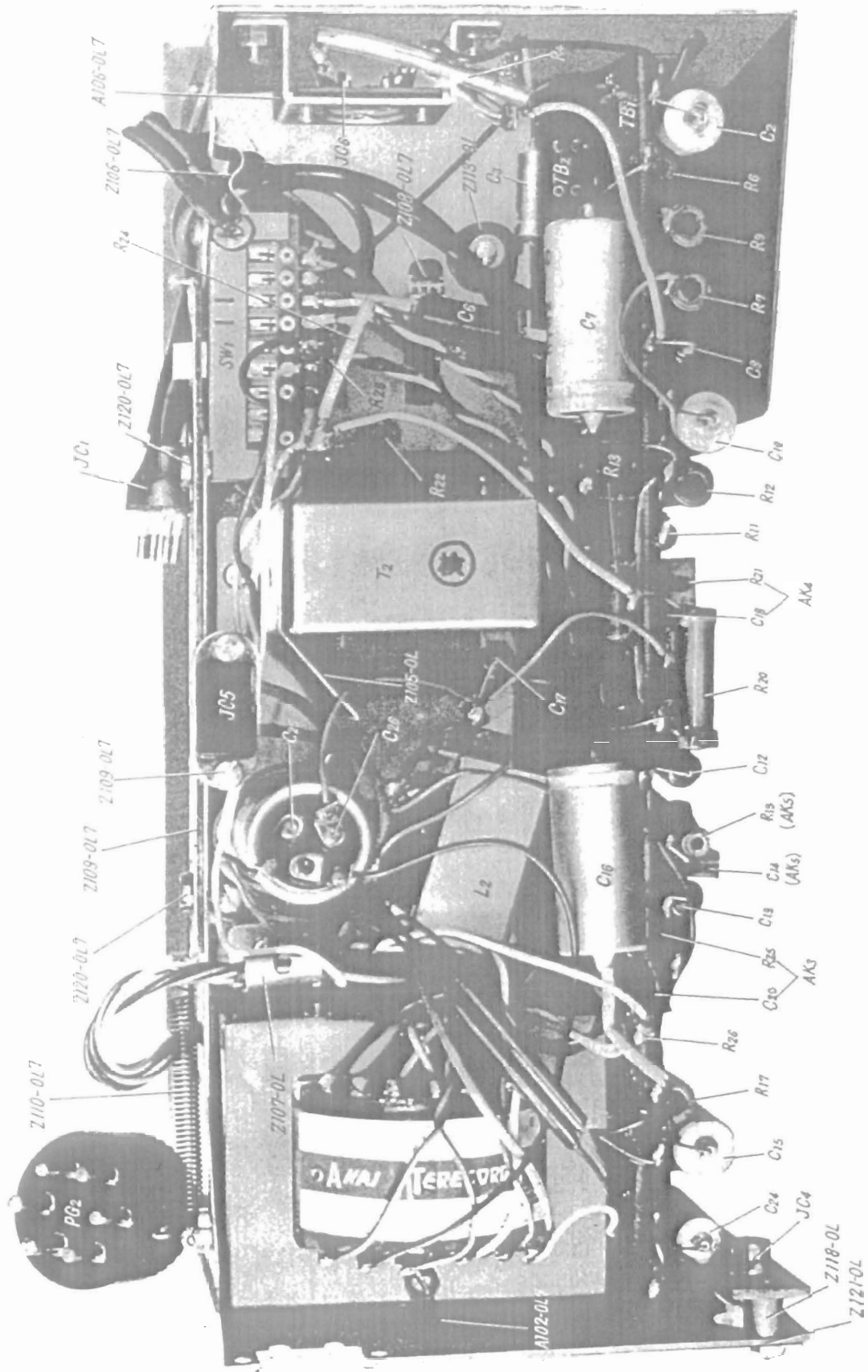
Left

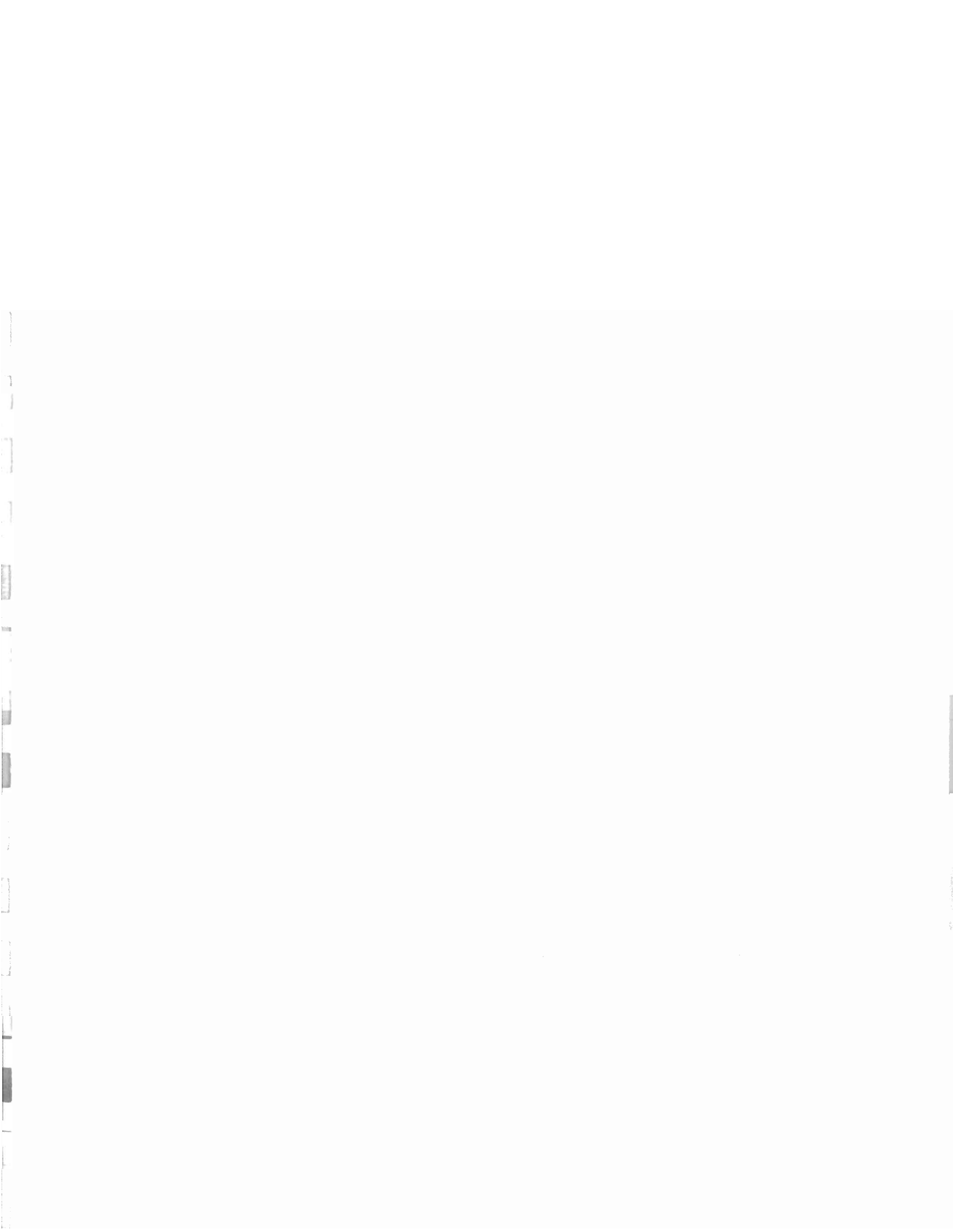


Right



Left







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