

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	84-3405	* Plunger Knob & Shaft Ass'y.			528.58031 — 528.58011 —
2	70-259-0	* Compression Spring			567.58031
3	86-270	* Flatwasher, Rubber 5/16" I.D. x 9/16" O.D.	40	86-295	Flatwasher, .092" I.D. x 7/32" O.D. (Part of 84-3403 Head Ass'y.)
4	70-256-0	* Spring, Plunger Detent	41	22-40-1	Retainer Spring
5	52-846-0	† Knob, Play-Record (U	42	86-282	Washer, Cloth (2)
	52-779-0	* Knob, Play-Record	43	39-1-5	Pressure Roller
6	84-3781	† Head Cover	44	70-258-0	Spring, Pressure Roller
	21-337-0	* Head Cover	45	70-251-0	Spring, Slide Return
7	21-141-0	† Cover, Pressure Roller	46	22-37-1	Split Ring Retainer
	21-338-0	* Cover, Pressure Roller	47	86-280	Flatwasher, Capstan & Flywheel
8	22-41-1	† Retainer Spring (2)	48	84-3404	Spindle Ass'y.
	22-110-0	* Retainer Spring (2)	49	22-15-4	* Lever, Foot Switch
9	83-1127	† Reel Plate (2)	50	97-569	Screw, #6-32 x 1/4" Phil. Bd. Hd.
	84-3381	* Reel Plate			Brake Spring (Right)
10	97-569	Screw, #6-32 x 1/4" Phil. Pan Hd. (2)	51	70-252-0	Feed Reel Arm Assembly
11	84-3780	† Top Plate Ass'y.	52	84-3419	Flatwasher, .440" I.D. x 11/16" O.D.
	84-3296	* Top Plate Ass'y.	53	86-289	Flatwasher, .440" I.D. x 11/16" O.D.
12	52-845-0	† Knob, Volume & Off/On-Tone		or	
	52-781-0	* Knob, Volume & Off/On-Tone		86-290	Flatwasher, .440" I.D. x 11/16" O.D.
13	52-844-0	† Knob, Fast Forward & Fast Rewind (2)	54	22-42-1	Hairpin Retainer (Large)
	52-782-0	* Knob, Fast Forward & Fast Rewind (2)	55	84-3413	Spindle Pulley & Set Screw Ass'y. (2)
14	56-230	Hex Nut, #3/8-32 (2)	56	84-3407	Bracket, Motor & Lug Ass'y.
15	48-138-2	Jewel, Neon Lamp	57	86-294	Flatwasher, .188" I.D. x 7/16" O.D. (4)
	or		58	97-567	Screw, #8-32 x 3/16" Hex. Hd.
	48-139-2	Jewel, Neon Lamp (Alternate Part)	59	62-78-0	Drive Belt
16	86-265	* Flatwasher, Fiber (1)	60	65-123	Eyelet (3)
17	22-120-0	Retainer Spring	61		Drive Pulley (Part of Motor)
18	86-273	* Flatwasher, .176" I.D. x 5/8" O.D. (2)	62	84-3456	Motor, Plug & Pulley Ass'y.
19	84-3404	Spindle Ass'y.	63	97-619	Set Screw, #8 x 3/16" "Allen Hd." Cup. Pt.
20		Roll Pin (2)	64	84-4240	Fan, Hub & Set Screw Ass'y.
21	86-280	Flatwasher, .315" I.D. x 1/2" O.D. (4)	65	97-577	Set Screw, #6-32 x 3/8" "Slab Hd." Cone Pt.
22	84-3800	† Base Plate, Includes Staked & Riveted Parts	66	86-288	Washer, Rubber
	84-3421	* Base Plate, Includes Staked & Riveted Parts	67	22-38-1	"E" Washer, Retainer
23	97-575	Head Retaining Screw	68	70-260-0	Record Release Spring
24	86-294	Washer, Flat	69	11-1046	Control Shaft Bracket
25	11-1048	Bracket, Head Mounting	70	84-3410	Control Shaft & Lever Ass'y.
26	33-271-0	Record Head (MM #3M-20) (Used In Chassis 528.58031-528.58011 — 567.58031)	71	84-3466	Capstan Shaft & Flywheel Ass'y.
27	56-234	Hex Nut (4)	72	62-79-0	Flywheel Belt
28	33-270-0	Erase Head (MM #7EM-12) (Used In Chassis 528.58031-528.58011 — 567.58031)	73	70-259-0	* Spring, Two Speed Control (Lower)
29	97-573	Screw, #6-32 x 1/4" Phil. Flat Hd. (4)	74	22-14-4	* Speed Control Bracket
30	72-135	Washer, Slide Button (4)	75	86-284	* Washer, Flat
31	84-3408	Pressure Roller Arm	76	86-45	* Lockwasher
32	84-3458	Pressure Plate & Spring Ass'y.	77	97-569	Screw, #6-32 x 1/4" Phil. Pan Hd.
33	97-577	Set Screw, #6-32 x 3/8" "Slab Hd."	78	97-574	Screw, #8-32 x 5/8" Hex. Hd. Motor Mounting (3)
34	84-3409	† Lifter Arm & Set Screw Ass'y.	79	86-293	Washer, Motor Mounting (3)
	84-3399	* Lifter Arm & Set Screw Ass'y.	80	62-74-0	Rubber Bushing, Motor Mounting (3)
35	70-253-0	Spring, Pressure Shoe	81	70-244-0	* Return Spring, Foot Switch
36	84-3401	Pressure Shoe Ass'y.	82	39-1-0	* Cam, Foot Switch Adjustment
37	70-249-0	* Spring, Brake Lever	83	70-250-0	Take-up Spring
38	28-112-1	* Brake Plate	84	22-46-1	* Retainer, Foot Switch Adjust. Cam
39	84-3403	Head Ass'y. (Used In Chassis 528.58030 — 528.58010 — 567.58030)	85	84-3420	Reel Arm Take Up Ass'y.
	84-3418	Head Ass'y. (Used In Chassis	86	70-257-0	Brake Spring (Left)
			87	39-5-3	Foot Switch Linkage Rod
			88	62-78-0	Drive Belt, Take-Up
			89	72-135	Washer, Slide Button Spacer
			90	22-13-4	Take Up Lever
			91	97-573	Screw

† Parts Marked With Dagger Used In Model 8070. * Parts Marked With Asterisk Used In Model 8072.

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GENERAL INFORMATION

Silvertone Models 8070 and 8072 are electrically alike. The major difference between the two models is mechanical. Model 8070 is a single speed and Model 8072 is two speed.

Models 8070 and 8072 are designed to record and play two tracks of material on standard width recording tape. This doubles the recording and playing time without loss of quality or frequency response. Recordings can be made from a phonograph, radio or television receiver, in addition to those made directly from the microphone.

Model 8070 has one speed, 7 1/2" per second, while Model 8072 has two speeds, 3 3/4" and 7 1/2" per second. Using both tracks, the recording times are as follows:

Reel Size	3 3/4" Speed	7 1/2" Speed
5" (600 ft.)	1 hour	1/2 hour
7" (1200 ft.)	2 hours	1 hour

Models 8070 and 8072 are designed to operate on 60 cycle, 110-120 volts, AC supply only. Before connecting to a supply line, be absolutely certain that it agrees with the above specifications.

SUPPLIED by:

SEARS, ROEBUCK & CO.
925 S. HOMAN STREET
CHICAGO 7, ILLINOIS

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SILVERTONE MODELS 8070, 8072 (Ch. 528.58010, 528.58011, 528.58030, 528.58031, 528.59040, 528.59041, 528.59060, 528.59061)

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PARTS LIST AND DESCRIPTIONS
TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Pre-Amplifier	12AU7A	
V2	A.F. Amplifier	12AX7	

ITEM No.	USE	TYPE	NOTES
V3	Output Bias Osc	6V6GT	
V4	Rectifier	6X5GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA			
	CAP.	VOLT.	SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBIER PART No.	MALLORY PART No.
C1A	40	300	18-31-3	AFB3-44	DO020	FP377
C1B	40	300				
C1C	40	300				
C2	25	25	18-52-5	PRB25V25	EBR25-25	TC26

* Non-Catalog Item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

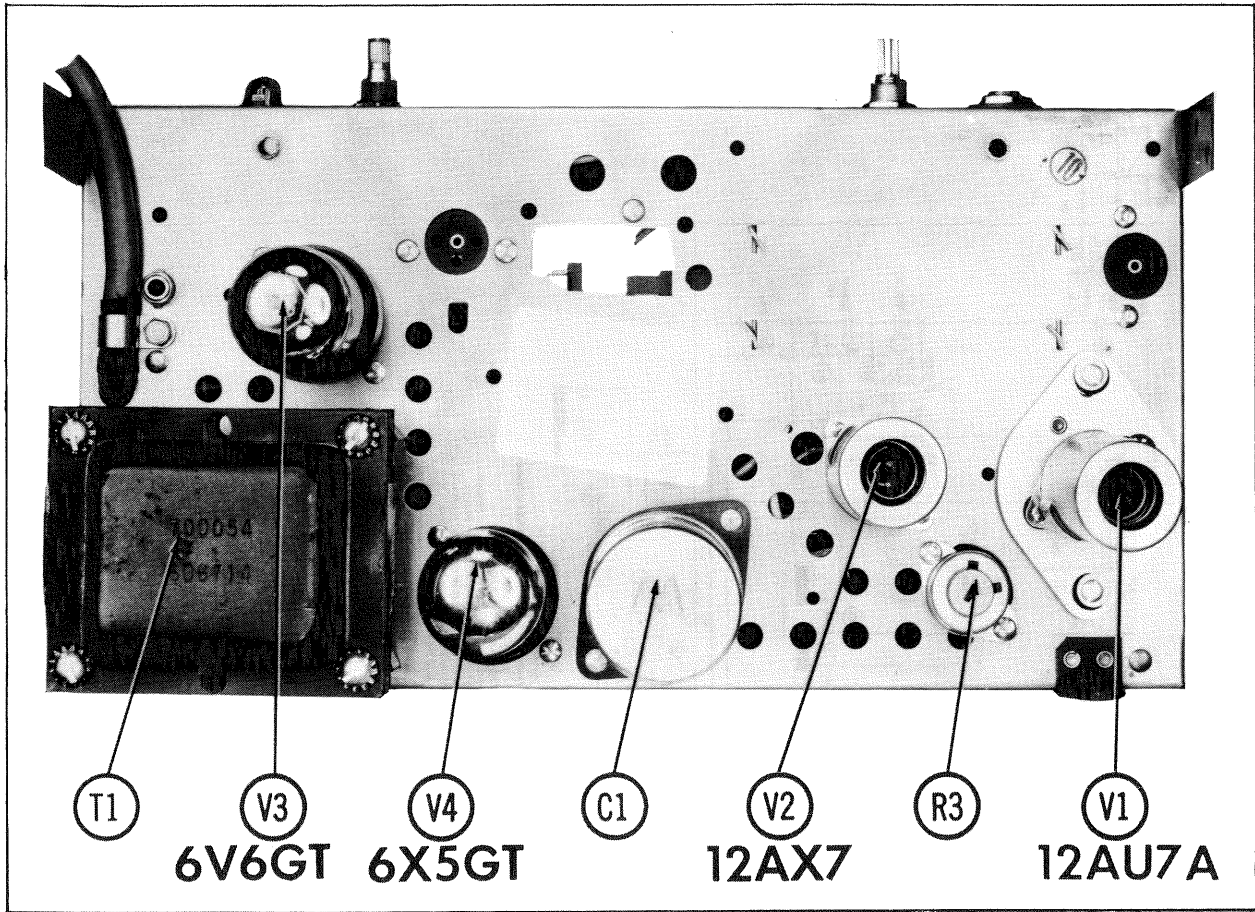
ITEM No.	RATING		REPLACEMENT DATA			
	CAP.	VOLT.	SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBIER PART No.	MALLORY PART No.
C3	20000		15-20316	BPD-02	BYB652	ED-02
C4	10000			BPD-01	DD-103	ED-01
C5	470		15-47111	NPO-S10	DD-471	ED-470
C6	10		15-10011	NPO-S10	DD-100	ED-10
C7	10		15-10011	NPO-S10	DD-100	ED-10
C8	10000		15-10316	BPD-01	DD-103	ED-01
C9	1000		15-10316	BPD-01	DD-103	ED-01
C10	20000		15-20316	BPD-02	BYB652	ED-02
C11	470		15-47111	BPD-02	DD-471	ED-470
C12	120	1000	15-12111	1467-0003	DD-120	ED-120
C13	3000				DD-300	ED-300
C14	470		15-47111	1467-0003	DD-471	ED-470
C15	20000		15-20316	BPD-02	BYB652	ED-02
C16	75		15-75011	NPO-S175	DD-750	ED-75
C17	2000	1000	15-20226		DD-202	ED-202
C18	2000	1000	15-20226		DD-202	ED-202
C19	10000	1500	20-75-0	DAC-27	DD-202	ED-202
C20	10000	1500	20-75-0	DAC-27	DD-202	ED-202

① Some versions use an .01 in this application.
② In Chassis 587, 59060 a 1500 MMF @ 500V 10% GP Part #15-15211 is used in this application.
③ In Chassis 528, 59040 a 750 MMF @ 500V 10% GP Part #15-75111 is used.
④ In Chassis 528, 59040, 60 a 75 MMF @ 500V 10% GP Part #15-75011 is used in this application.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			
	RESIST.	WATTS	SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.
R1A	500K	1/2	24-267-0	B-60	A47-500K-Z	Q13-133
R2A	500K	1/2	24-143-2	B-60	A47-500K-Z	Q13-133
R3	2000	2 W	24-1-3	KB-1	SWE-12	76-1

CHASSIS—TOP VIEW



a section of the tape straight with both hands and insert the tape in the tape slot making certain that the dull coated side faces the rear of the recorder.

4. Insert the end of the tape into one of the three radial slots in hub of the take-up reel. Turn the reel several turns, clockwise, until the tape is secured to the reel and all slack is taken up between the reels.

To Record From Microphone-

1. Turn the recorder on by rotating the "ON"-OFF" control to the right. Allow about 30 seconds for the tubes to warm up.

2. Insert the microphone plug into the "Mike" jack.

3. Adjust the speed control knob (1) for the desired speed — 3 3/4" or 7 1/2" per second.

4. Push down on the Play-Record control knob (5) as far as it will go. Hold down and turn clockwise until it locks.

5. Hold the microphone away from your mouth about 6 to 12 inches and speak in a normal voice. DO NOT SHOUT. Adjust the volume control until the record level indicator flashes on the loudest sound.

NOTE: Correct volume level on recording is very important. Too weak a signal, which does not cause flashing on the recording level indicator, will result in weak playback and high background noise. Too strong a signal, which causes continuous flashing of the level indicator, will result in distortion during playback.

To Record From Radio-

Recordings from a radio may be made by one of these methods.

1. Through the microphone by pickup from the radio speaker:

Place the microphone about 6" to 12" in front of the radio speaker. Turn the radio volume control to a normal level. Setting it too high will cause distortion. Turn the radio tone control to treble or high. Set the recording level and record as under "To Record From Microphone."

2. Through a direct connection to the Radio speaker:

Make up a shielded cable with a two conductor phone plug on one end and two alligator clips on the other end. Connect the alligator clips across the voice coil terminals of the radio speaker and insert the plug into the "Radio-Phono" jack. Set the radio volume and tone controls as described above. Set the recording level and proceed as described under "To Record From Microphone".

3. Through a direct connection to the volume control of the radio:

Make up a shielded cable with a two conductor plug on one end. Connect the other end across the radio volume control. Insert the phone plug in the "Radio-Phono" jack. Set the recording level and pro-

ceed as described under "To Record from Microphone". The radio volume and tone controls do not affect this set up, consequently they may be set any place.

To Record From Record Player-

1. If the Record Player being used has a phone type plug on the pick-up leads, insert it into the "Radio-Phono" Jack. Set the recording level and proceed as listed under "To Record From Microphone".

2. If the Record Player has a standard pin type plug, which is more common, an adapter is needed. Insert the pin plug into the adapter and plug the adapter into the "Radio-Phono" jack.

To Record From Television Receiver-

Use one of the three methods described under "To Record From Radio".

Dual Track Recording-

These recorders are designed to record and play on one-half the width of the tape at a time; thereby resulting in two track recording. To record on the other half of the tape remove the full reel from the takeup (left) side, turn reel over and place it on the feed (right) side. In playing or recording you may stop any place and reverse the reels to use the other track.

Fast Forward And Fast Rewind-

High speed forward or rewind operation may be obtained by pressing the desired knob (13) toward the head cover. This will wind the tape on the desired reel at a high speed as long as the knob is held in this position.

NOTE: Do not attempt fast forward or rewind with the Play-Record control on any setting except neutral position, as damage to the unit or tearing of the tape will result.

Braking-

This recorder contains an automatic brake mechanism giving more accurate tape control. To stop the tape at any time, when operating on fast forward or fast rewind, simply release the forward or rewind control. The tape will automatically come to a stop.

To Play A Recording-

1. Thread the tape as described under "Threading Tape".

2. Turn play-record control (5) clockwise without depressing until it locks.

3. Adjust the "Volume" and "Tone" controls (12) to desired listening level.

To Use An External Speaker-

Plug external speaker through a three conductor plug into the "Output Jack". Connect the three conductor plug as shown in sketch.

CAUTION: Do not insert plug into recorder without external speaker attached.

slide contact touches only the first two wiper contacts. At all times during this step, switch cam (70) must touch switch cam at end at switch slide.

5. Move pusher stud (34) to the "Record" position and tighten set screw (33).

6. Reconnect switch spring.

Oscillator Coil Adjustment-

If the oscillator coil (L1) is replaced, the setting of the adjustable slug should be checked as follows:

1. Connect a frequency meter between point 2 of the erase head and ground.

2. Turn volume and tone controls on.

3. Set the Play-Record knob (5) to the "Record" position.

4. Adjust the oscillator slug for a 52.5 KC reading on the meter (A non-metallic screwdriver should be used for this adjustment.)

Hum Balance-

When either the 12AX7 tube or the Head (39) has been changed, the setting of the hum balancing control should be checked. This can be done as follows:

1. Connect an A.C. V.T.V.M. across the speaker coil. The meter's lowest scale should have a .1 volt reading at full scale deflection, or at least 1/3 of full scale.

2. Turn volume control and tone control fully clockwise.

3. Set control knob (5) to the playback position.

4. Adjust the hum balance control for a minimum reading. This reading should not exceed .1 volt.

LUBRICATION

The lubrication applied at the time of manufacture should be sufficient for a long period of time. In cases of unusual use, high operating temperatures, or the replacement of a part, lubrication may be required.

TROUBLES

Improper Tape Take-Up-

1. Spindle (48) binding.

(a) Lubricate and check end play. See adjustment section "Spindle End Play".

2. Improper Take-up spring (83) action.

(a) See "Take-up Lever Adjustment".

3. Drive belt slipping.

(a) Clean pulleys.

4. Broken drive belt.

Fails To Fast Forward Properly-

1. See above except for step 2.

(a) See corresponding remedies above.

Fails To Fast Rewind Properly-

1. See above except for step 2.

(a) See corresponding remedies above.
CAUTION: When replacing belt (59) be sure to give it a half-twist.

Stalling Or Binding-

1. Speed control (11 setting changed while unit is not turned on. This should be done only while motor (62) is rotating.

(a) With motor (62) turned on, try moving Speed Control (1) up and down several times.

(b) Should the above fail, try holding Fast Forward Control to the left as far as it will go, and with the other hand manually rotate Take-up Reel Spindle (48).

(c) If binding continues it will be necessary to remove unit from cabinet and free any binding action.

Speed Does Not Agree With Speed Setting-

1. Bend Speed Control Bracket (74).

(a) Straighten bracket (74) so that upper and lower fingers are equal distant from drive belt when belt is in normal operating position.

2. Broken "ears" on Drive Pulley (61).

(a) Replace entire motor (62).

Tape Creeps Out Of Tape Slot-

1. Head (93) improperly adjusted.

(a) See "Head Alignment Adjustment".

Plays Back But Does Not Record-

1. Bad component.

(a) Check voltage and resistance readings.

2. Switch slide not contacting proper terminal.

(a) See "Switch Cam Adjustment".

Does Not Completely Erase Previous Recording-

1. Bad 6V6GT tube.

(a) Replace tube. This tube may function properly as a power amplifier but not as an oscillator which is needed for erasing.

2. Bad Head.

(a) Replace head following "Head Alignment Adjustment".

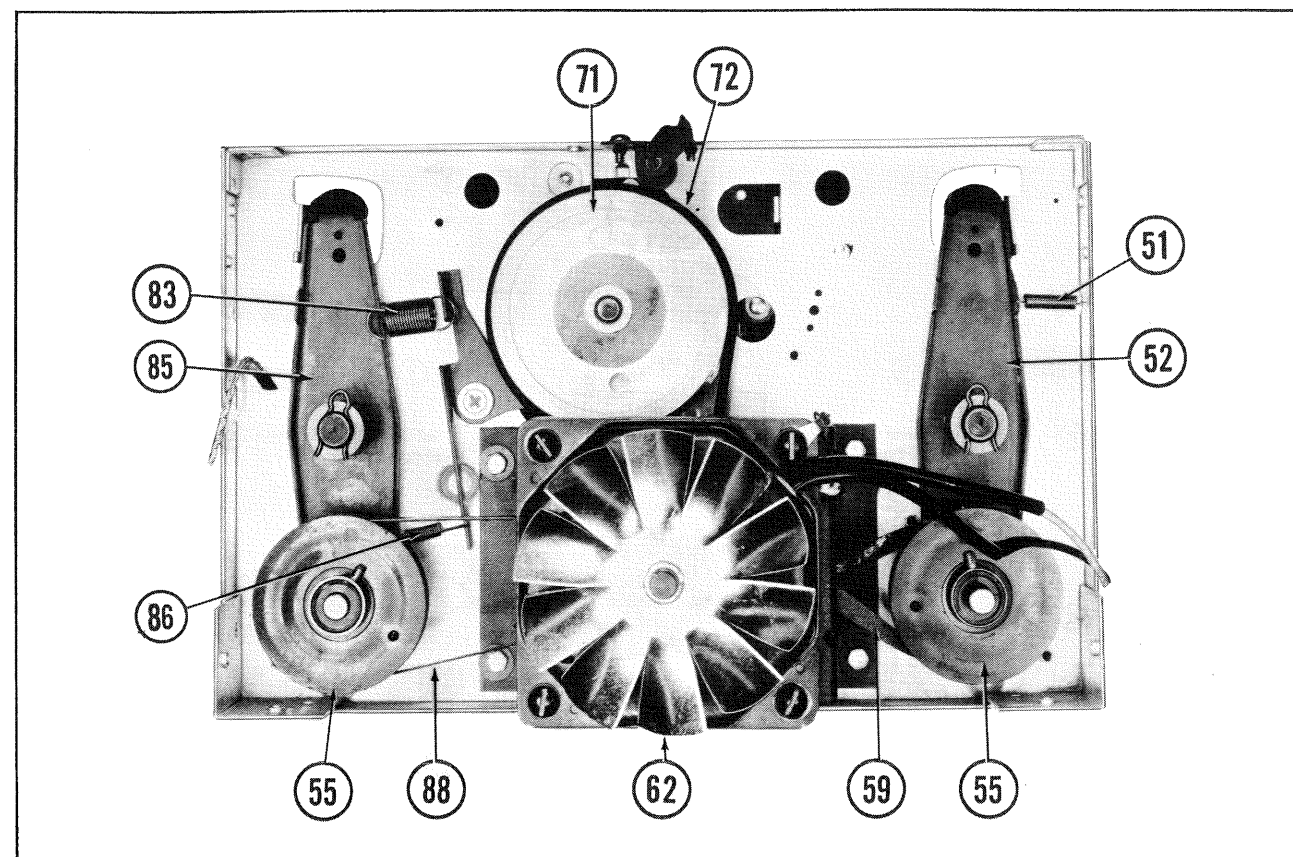


FIG. 2

simple alignment procedure is as follows:

(a) Place a full reel of tape on the right hand spindle (19) and thread tape. See "Threading Tape".

(b) Pull tape tight against Heads (26) and (28) by rotating one reel while holding the other reel.

(c) Both heads should then be positioned so the top edge of the tape is exactly even with the bottom edge of the ground down "flat" section on the face of the heads.

(d) When in this position, both heads should also be perpendicular to the bracket vertically and horizontally.

(e) The faces of the heads should be in line with each other so as to present a flat surface to the tape, i.e. one head should not protrude further forward than the other.

3. Output Response

To make this adjustment, a tape on which a 3000 cycle note has been recorded by a unit known to be in good operating condition will be required.

Connect an output meter, or AC voltmeter, across the speaker voice coil of the unit to be adjusted. While playing back the 3000 cycle note tape, pivot head (39) back and forth on mounting screw (23) until maximum amplitude on output meter is achieved. Make certain that head height has not been changed.

If a 3000 cycle tape cannot be made, use a recording with high note content to make the adjustment described above.

4. Track Overlap

This should be checked by first making a recording on a blank tape with the unit being checked.

Do not rewind the tape, merely reverse the reels and play back the other track.

There should be no sound but, if what is heard is backwards, there is track overlap. To correct this, it will be necessary to adjust the tape guide on the side of the head holder by bending it upwards. This should move the tracks further apart.

Switch Cam Adjustment-

The Play-Record Switch in the amplifier chassis is normally held in the play position by a spring located on the switch arm. When cam on the end of the control shaft (70) actuates switch, it should move the switch far enough to allow all circuits to be switched from Playback to Record. If adjustment is required proceed as follows:

1. Loosen set screw (33).

2. Carefully detach one end of switch spring.

3. Push down on control knob (5) and turn it clockwise to the Record position.

4. Manually move switch cam (70) until first

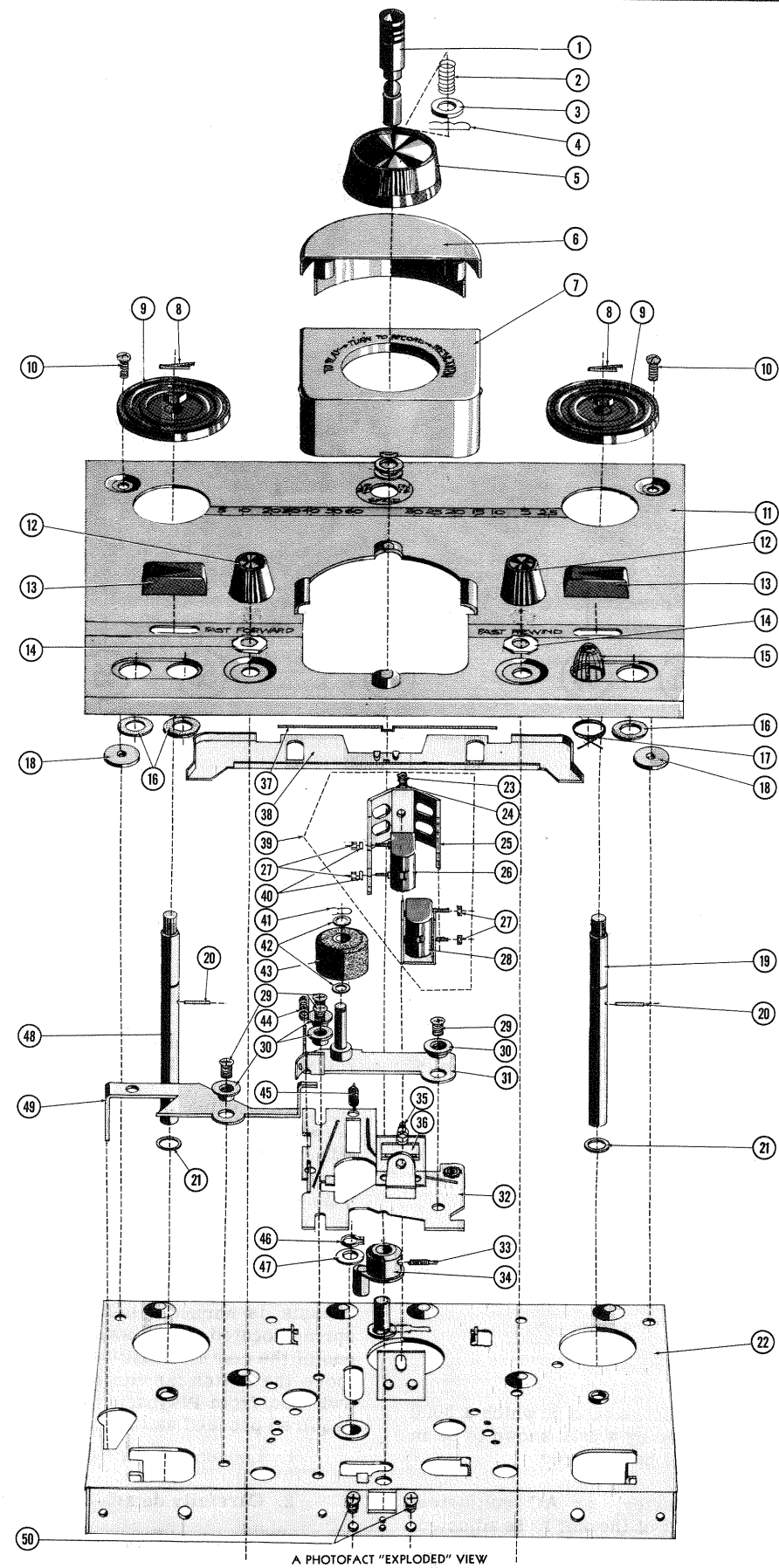


FIGURE 3A. EXPLODED VIEW OF PARTS ABOVE BASEPLATE.

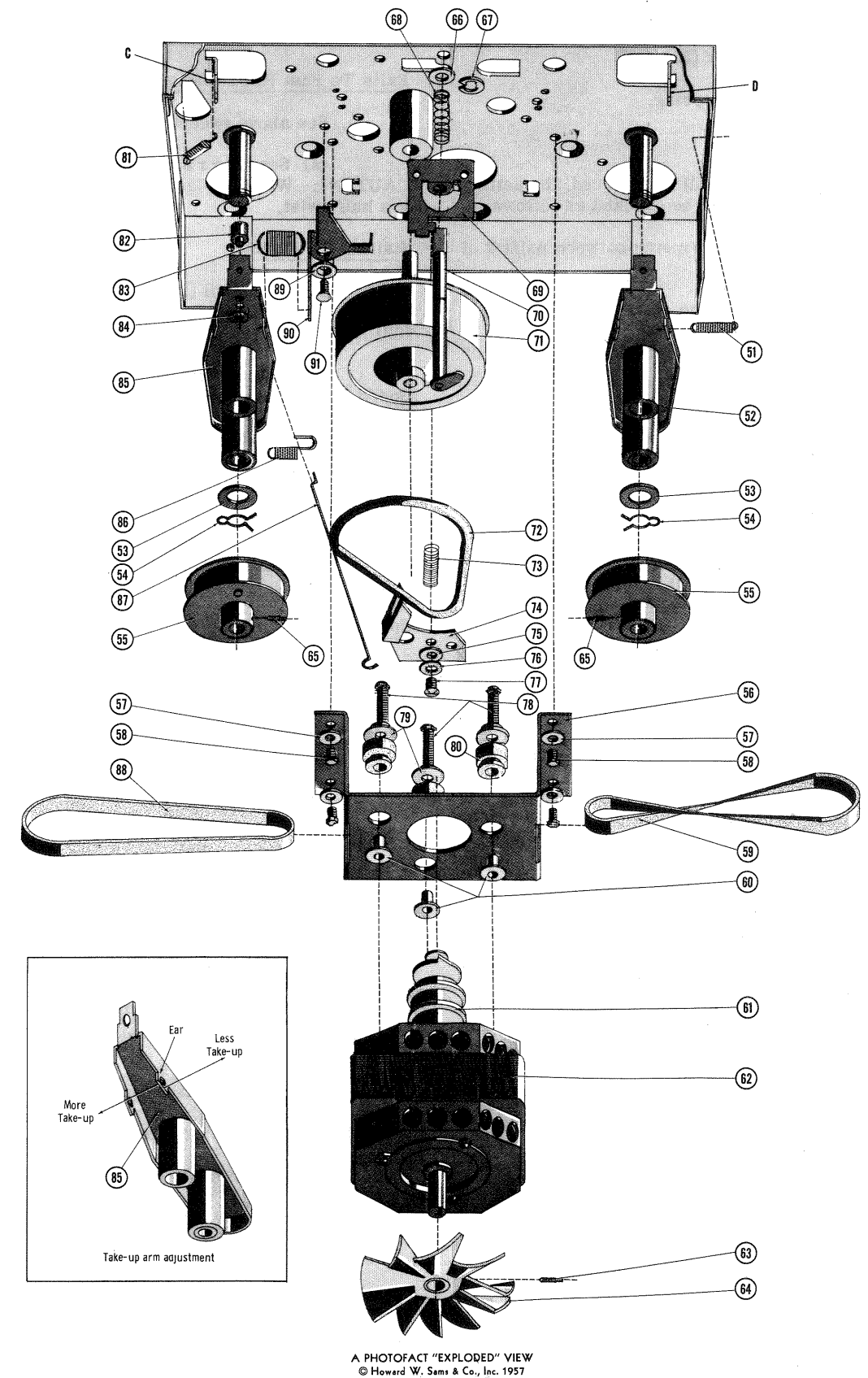


FIGURE 3B. EXPLODED VIEW OF PARTS BELOW BASEPLATE.