No. 75UU-F-2

SERVICE MANUAL

Kodascope Pageant Sound Projector, Magnetic-Optical,

Model MK4

EASTMAN KODAK COMPANY • ROCHESTER 4, NEW YORK

Kodascope Pageant Sound Projector, Magnetic-Optical,

Model MK4

TABLE OF CONTENTS

This manual has been prepared as a guide for the experienced projector repairman. While it includes complete disassembly and reassembly, it is expected that the repairman will dismantle only those parts necessary to make the repair.

MK4 SERVICE HINTS

1. No sound (Head switch in Optical – Amplifier selector switch in Optical – Amplifier turned on). Exciter lamp not lighted.

Suggested Check Points

Exciter lamp.
Connection of amplifier power cable to amplifier.
Amplifier tubes.
Amplifier continuity.

2. No sound (Head switch in Optical – Amplifier selector switch in Optical – Amplifier turned on). Exciter lamp lighted.

Suggested Check Points

Speaker plugged in.
Contacts of speaker plug and receptacle.
Speaker cable continuity.
Threading of projector.
Optical Sound Adjustments (instructions No. 133, 134, 135 and 136).
Plug in the microphone and –
(1) If sound is satisfactory through the microphone, check phototube and phototube cable.
(2) If sound is not satisfactory through the microphone, check amplifier tubes and amplifier continuity.

3. No sound (Head switch in Magnetic Record-Playback – Amplifier selector switch in Magnetic Play – Amplifier turned on).

Suggested Check Points

Speaker plugged in.
Contacts of speaker plug.
Speaker cable continuity.
Threading of projector.
Connection of amplifier power cable to amplifier.
Amplifier tubes.
Magnetic Sound Head Projector cable and plug (No. 131598).
Magnetic Sound Head Amplifier cable and plug (No. 131595).
Magnetic Sound Adjustments (see instructions No. 137 and 138).

4. Excessive hum.

Suggested Check Points

Phototube cable plug connection.
Amplifier tubes.
R-40 Hum Balancer.
Magnetic sound head amplifier plug and connection (rotate slightly).
Magnetic head input transformer (rotate slightly).
Record head circuit continuity.

5. Noise in speaker.

Suggested Check Points

Take-up reel support spring (lacquer will cause a static charge to build up).

5. Noise in speaker. (Cont)

Suggested Check Points

Take-up arm grounding connection.
Sound drum reverse drive chain (instruction No. 106) (too loose a chain will strike the pivot shaft and build up a static charge).
Projector electrical connections.
Electrical leakage between motor frame and projector or between amplifier and projector.
Fan clearance.
Drive belt assembly.

6. Microphonics.

Suggested Check Points

Seating of the exciter lamp in the socket.
Sound optics adjustment (instruction No. 136).

7. Microphonics. (Microphone plugged in).

Suggested Check Points

Microphone.
Microphone connector.

8. Weak or distorted sound (Optical).

Suggested Check Points

Fidelity control adjustment (see projector instruction book).
Exciter lamp.
Seating of exciter lamp in the socket.
Pickup rod and sound optics assembly.
Sound optics adjustments (instructions No. 133, 134, 135 and 136).
Amplifier tubes.
Amplifier continuity.

9. Speaker rattles at high sound volume.

Suggested Check Points

Speaker coil for bottoming.
Speaker cone.

10. Sound unsteady.

Suggested Check Points

Threading of projector.
Damping roller action.
Sound drum functioning.
Sound drum reverse drive chain (instruction No. 106).
Pressure roller action.
Pressure roller tension (instruction No. 114).
Lower sprocket.
Damping roller spring for zero tension when damping roller is in the relaxed position (instruction No. 75).
Damping fluid in damping bearing cup.

11. Sound still unsteady after above checks.

Suggested Check Points

Sound drum ball bearing for roughness.
Sound drum sprocket and pawl assembly for binds.

12. Fidelity control does not peak.

Suggested Check Points

Positioning and adjustment of sound optics assembly (instruction No. 135).
Sound optics.

13. Magnetic sound system.

Suggested Check Points

See instructions No. 116 through No. 123, 137 and 138.

14. Projector will not run.

Suggested Check Points

Motor switch and/or wiring.
Motor.
Drive belt for slippage.
Drive pulley.
Motor starting relay.

15. Projector will not run in reverse.

Suggested Check Points

Motor reversing switch.
Motor starting relay.

16. Projection lamp or motor cannot be turned off.

Suggested Check Points

Control switches.

17. Halo or reflections around aperture – no film in projector.

Suggested Check Points

Aperture plate opening for dull-black lacquer coating.

18. Streaks on screen – no film in projector.

Suggested Check Points

Projection lamp for proper seating and adjustment.
Condenser mount assembly.
Reflector.

19. Picture does not focus properly.

Suggested Check Points

Field flattener element for free movement.
Alignment of the aperture plate and pressure pad assembly (instructions No. 67 and 68).

20. Picture cannot be framed properly.

Suggested Check Points

Framing shaft for stripped threads.
Framing shaft retaining ring missing.

21. Picture unsteady.

Suggested Check Points

Claw clearance in aperture plate slot (instruction No. 110).
Claw teeth.
Pull-through tension and side guide pressure (instruction No. 111).
Side guides for free movement.
Cam follower.
Shutter shaft ball bearing.

22. Projector loses lower loop and tears film perforations.

Suggested Check Points

Claw clearance in aperture plate slot (instruction No. 110).
Claw teeth.
Claw protrusion (instruction No. 86).
Alignment of pressure pad rails with aperture plate rails (instructions No. 67 and 68).
Pull-through tension (instruction No. 111).
Sound drum pressure roller tension (instruction No. 114).
In-and-out cam for wear.
Cam follower for wear.

23. Breaks splices.

Suggested Check Points

Condition of splices.
Pull-through tension for excessive amount (instruction No. 111).
Sprocket clamp adjustment (instruction No. 112).

24. Does not take up film.

Suggested Check Points

Take-up arm link assembly for binds.
Take-up pulley pawl for binds (instruction No. 126).

25. Lower reel spills film while projector is running in reverse.

Suggested Check Points

Take-up pulley assembly for binds (instruction No. 126).
Clean and lubricate the pulley pawl.

26. Spills film off upper reel while projector is running in reverse.

Suggested Check Points

Upper spindle torque. Correct torque to between 7 and 14 oz.-inches. If torque is low, replace the tension adjusting spring Part No. 131363 (instruction No. 73).

27. Film does not stay on sound drum when projector is running in reverse.

Suggested Check Points

Damping roller arm adjustment (instruction No. 115).

28. Rewind does not function.

Suggested Check Points

Rewind belt.
Take-up and rewind spindles for binds.
Rewind shift plate for damage.

29. Scratches film.

Suggested Check Points

Damper roller or sound drum pressure roller for binds.
Pressure pad for rough or worn rails.
Alignment of pressure pad rails with aperture plate rails (instructions No. 67 and 68).
All surfaces over which film passes for burrs, nicks or abrasions.

30. Upper spindle rotates while projector is running forward without film.

Suggested Check Points

Clearance between the sun gear and sprocket and the reversing mechanism internal gear (instruction No. 73).

31. Film noise in gate.

Suggested Check Points

Pull-through tension for excess amount (instruction No. 111).
Clearance of claw in aperture plate slot (instruction No. 110).

32. Mechanism noisy - no film in projector.

Suggested Check Points

Claw clearance in aperture plate slot (instruction No. 110).
Claw protrusion (instruction No. 86).
Claw return spring.
Claw retaining spring.

32. Mechanism noisy - no film in projector. (Cont)

Suggested Check Points

Pulldown cam.
In-and-out spring pressure.
Framing mechanism.
Shutter shaft bearings and ball bearing retaining screws.
Worm secure on shutter shaft.
Shutter for wobbling and rubbing adjacent parts (instruction No. 97).
Fan clearance in fan housing.
Tightness of mounting screws and fan housing mounting screws.
Tightness of mechanism mounting screws and case mounting screws.
Belt shifter adjustment (instruction No. 98).
Motor for worn bearings.

33. Squeaks in mechanism.

Suggested Check Points

Fan housing fastening to mechanism.
Fan setscrew.

34. Pinging sound in mechanism especially at silent speed.

Suggested Check Points

Shutter for wobble (instruction No. 97).
Drive belt operation.
Belt shifter adjustment (instruction No. 98).

35. Motor noisy.

Suggested Check Points

Motor bearings for wear.

36. Projector overheats.

Suggested Check Points

Motor speed.
Fan installation (instructions No. 93 and 94).

37. Elevating mechanism does not hold.

Suggested Check Points

Elevating mechanism locking spring assembly.

SERVICE

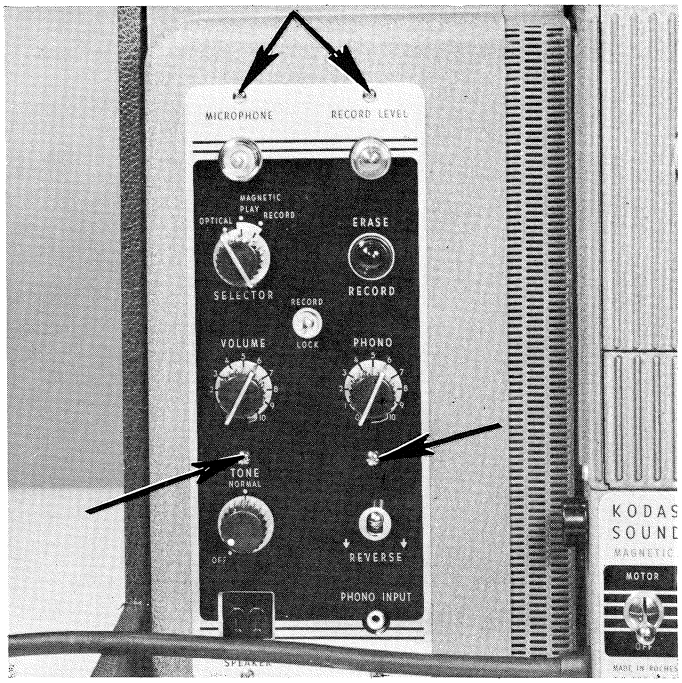
LUBRICATION CHART

Lubricants		Instruction No.
EK1150	– Kodascope Oil	73,75,77,80,81,83, 103,104,106,118,126
CW6092	– Texaco Unitemp	60,77,98
CW6782	– Special Formula Lubricant	124
CW5968	– Special Formula Lubricant	73,80,81,82,98
CW110882	– DC Fluid No. 200 (100,000 centistokes)	75

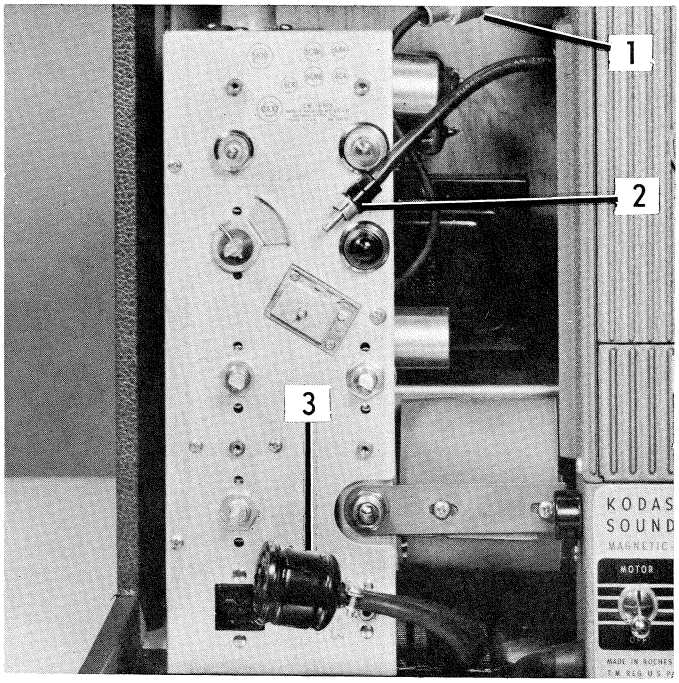
SPECIAL TOOLS AND TEST FILMS

Tool		Instruction No.
No. 260	– Spring Tension Scale	65,69,109,111
No. 813	– Claw Depth Gage	86
No. 815	– Push-Pull Tension Scale	114
No. 962	– Azimuth Adjusting Tool	138
No. 760069	– 100 ft. Calendar Test Film	
No. 760079	– 300 ft. SMPTE Test Film	
No. 760382	– 6 ft. 5,000-cycle Test Film	135,136
No. 760383	– 6 ft. Buzz-Track Test Film	134
No. 760947	– Magnetic Sensitivity Test Film	142
No. 760948	– Magnetic Multi-Frequency Test Film	142
No. 760949	– Unrecorded Magnetic Test Film	142
No. 760950	– Double-Perforated Magnetic Listening Test Film	142
No. 760951	– Double-Perforated Unrecorded Magnetic Test Film	142
No. 760952	– Magnetic Azimuth Alignment Test Film	138

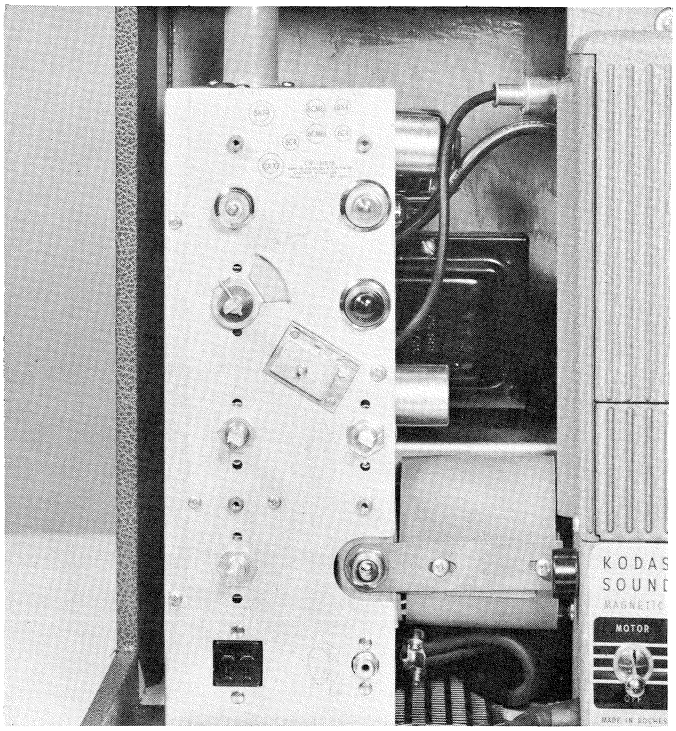
DISASSEMBLY



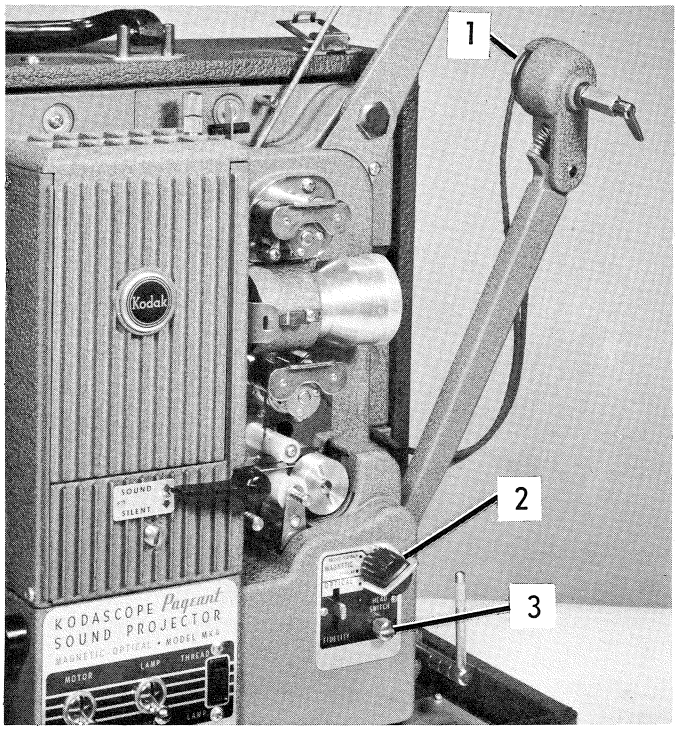
1. Remove the amplifier cover panel by removing the four control knobs and the four panel screws (arrows).



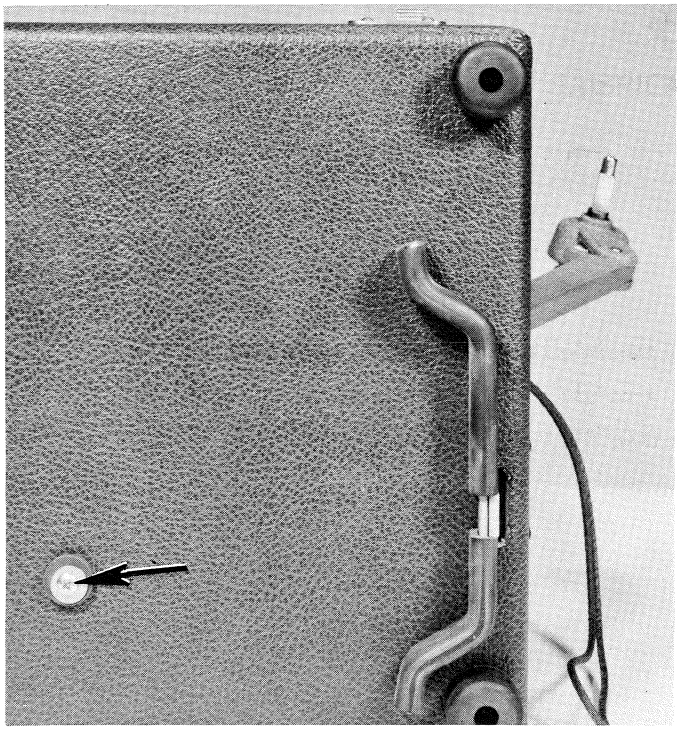
3. Disconnect the magnetic head cable plug (arrow 1), the phototube cable plug (arrow 2) and the power connector (arrow 3). Remove the three amplifier mounting screws from the outside of the case (two screws on the bottom and one on the back of the case) and lift out the amplifier.



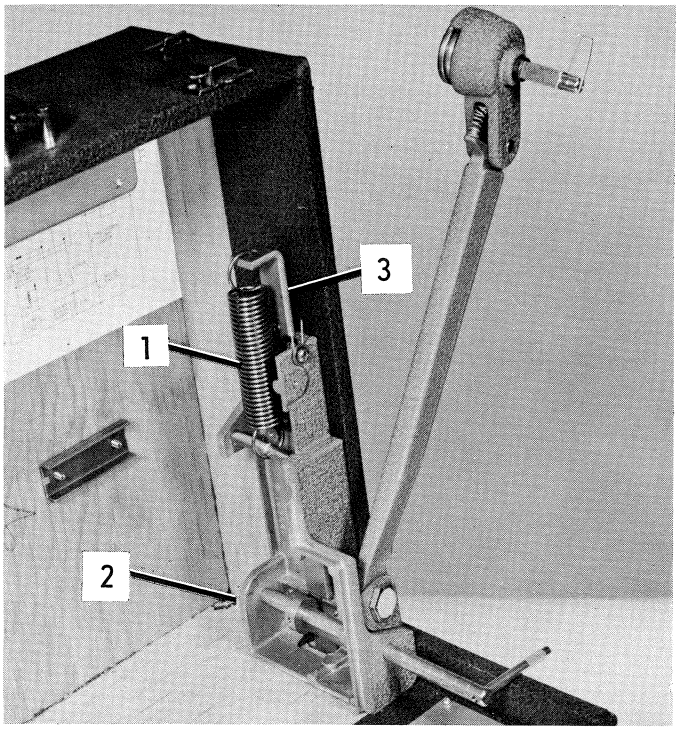
2. Shows amplifier with amplifier cover panel removed.



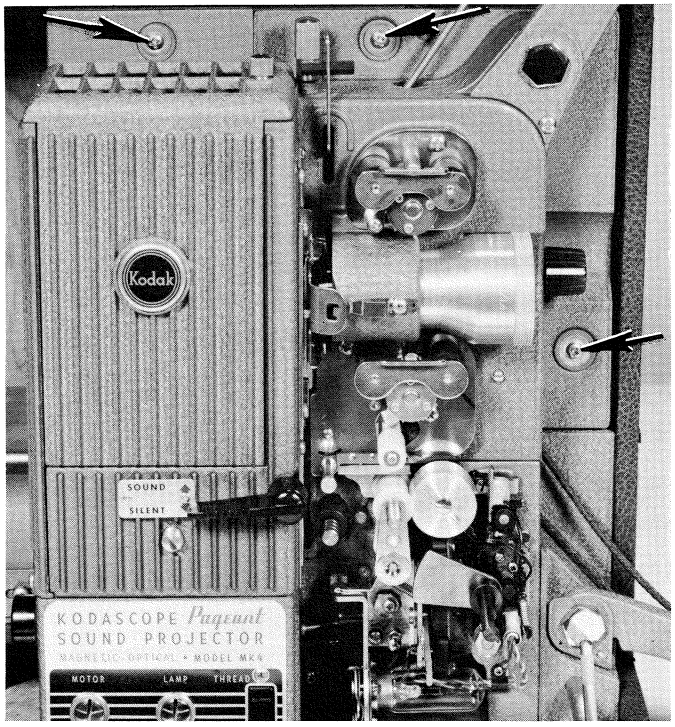
4. Remove the take-up belt from the take-up pulley (arrow 1). Turn the head switch knob (arrow 2) to OPTICAL and remove the knob. Loosen the exciter lamp cover screw (arrow 3) and remove the exciter lamp cover.



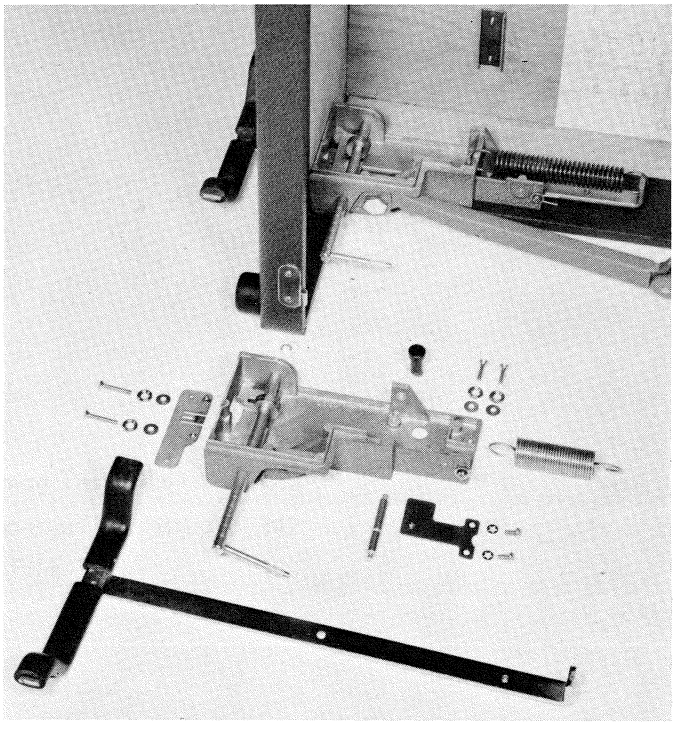
5. Remove the mechanism mounting screw (arrow) located on the bottom of the projector case.



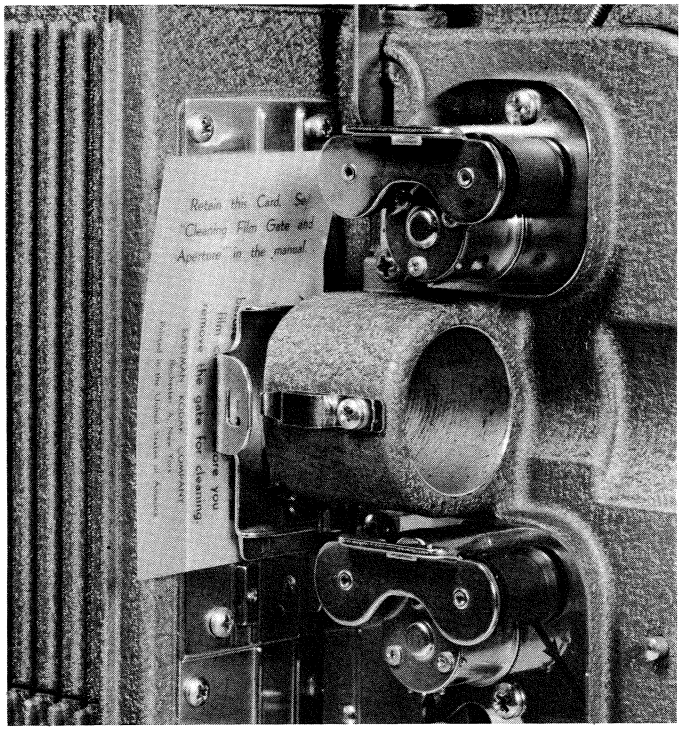
7. Elevate the case and remove the elevating spring (arrow 1). Remove the four bracket mounting screws from the outside of the case. Remove the spring assembly located at the top of the mounting bracket. Remove the retaining ring (arrow 2) from the end of the shaft, and then pull out the shaft far enough to permit the elevating bar assembly (arrow 3) to be removed.



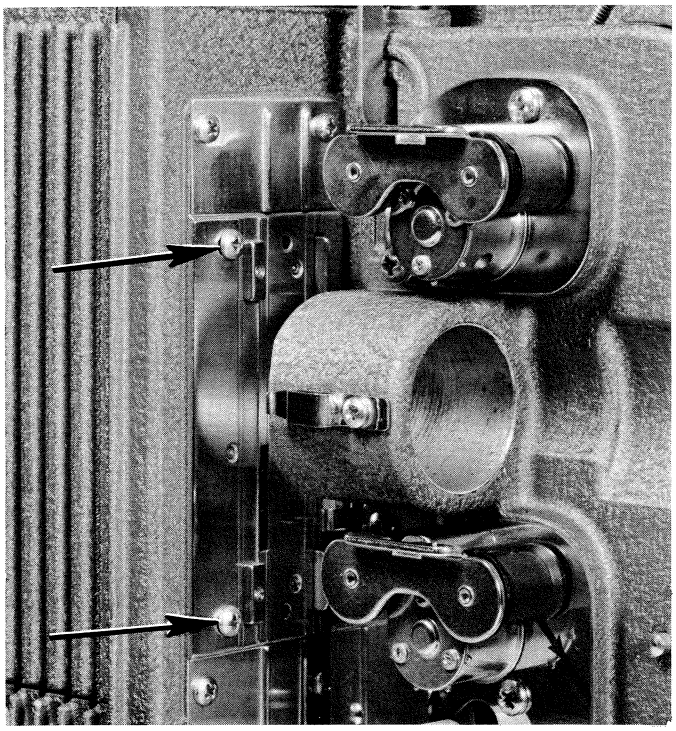
6. Remove the three mechanism mounting screws (arrows) and lift the mechanism from the case. Protect the instruction plate and the lower front edge of the case when removing or replacing the mechanism.



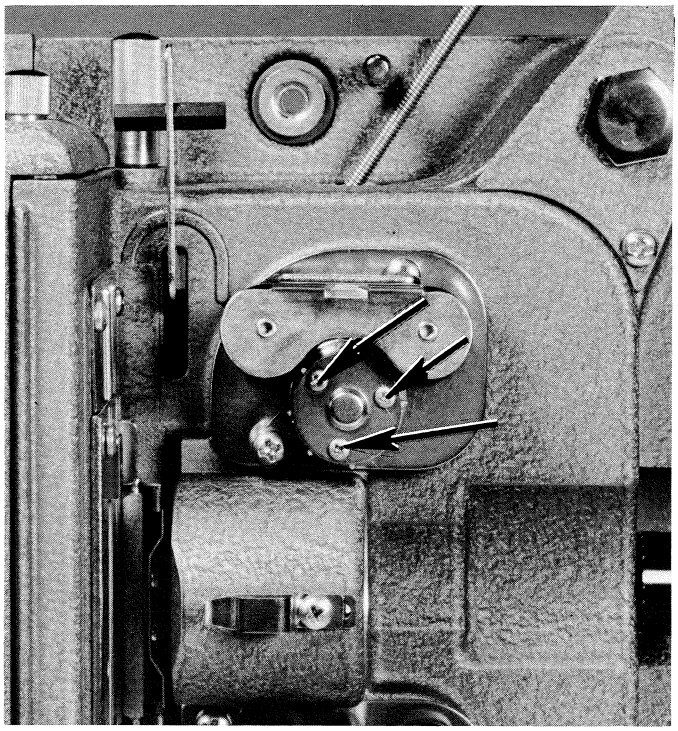
8. Shows elevating mechanism assembly.



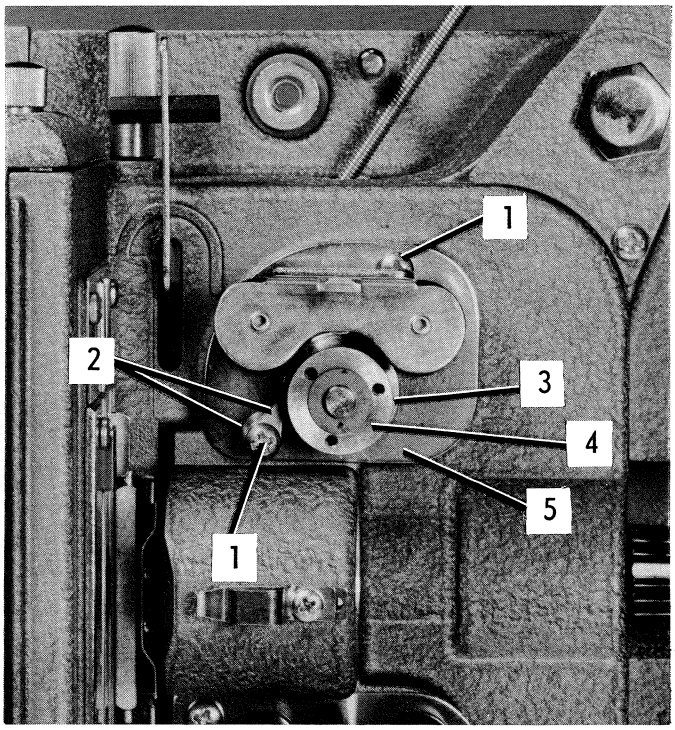
9. Remove the projection lens. Turn the trial thread knob, until the white line on the knob is toward you, to retract the pulldown. Open the gate and insert a clean card or piece of paper to protect the polished surfaces of the gate. Remove the gate by pressing the gate tab toward the back of the projector.



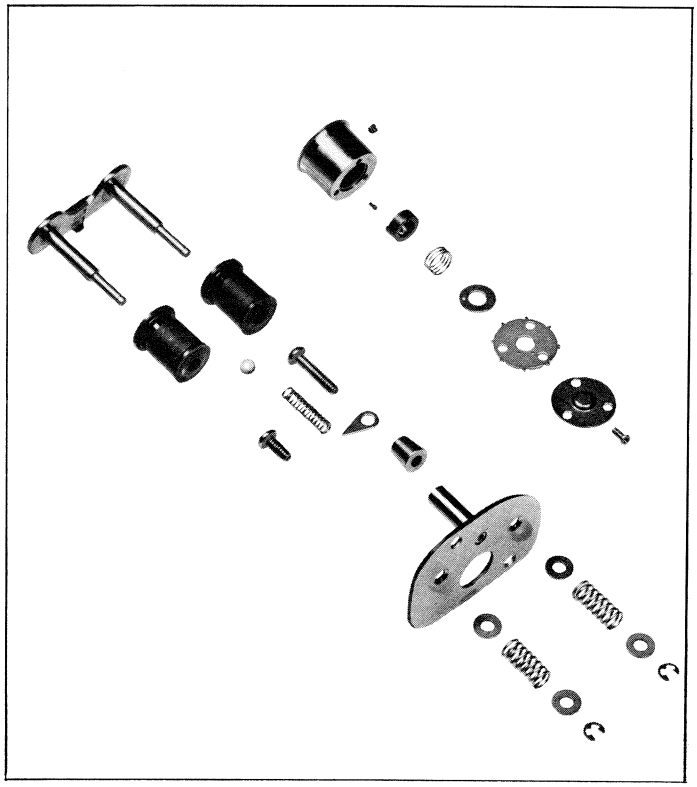
10. Remove the aperture plate by removing the two aperture plate screws (arrows).



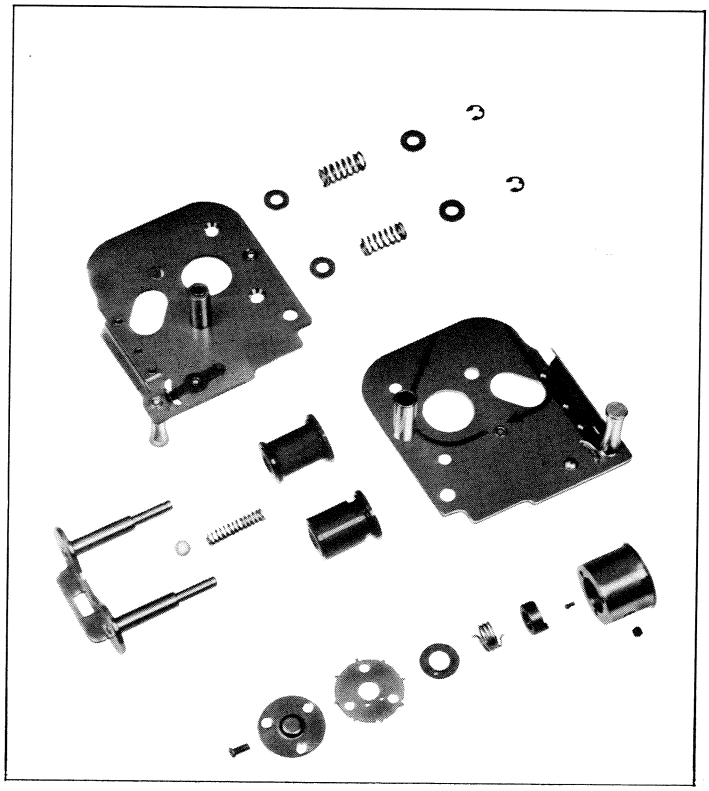
11. Remove the three sprocket end plate screws (arrows) and lift off the end plate and sprocket.



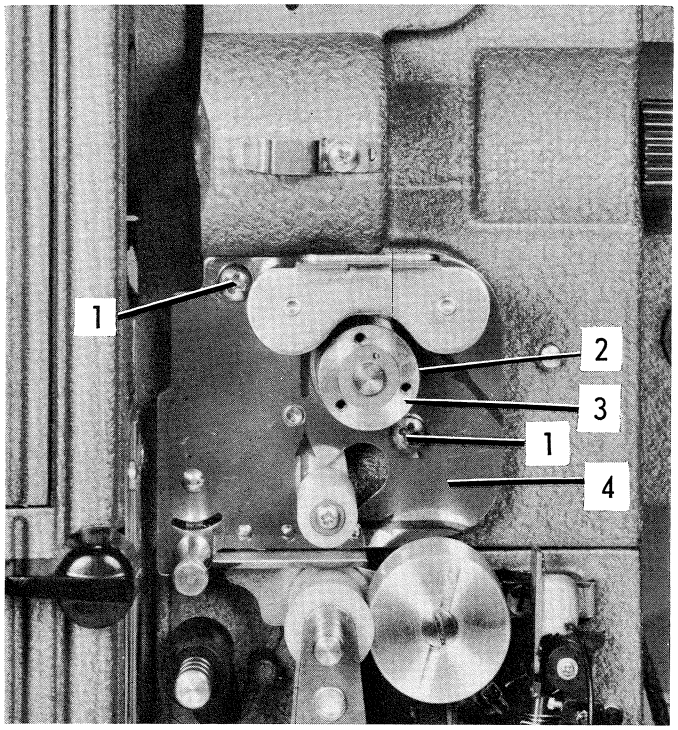
12. Remove the two sprocket plate screws (arrow 1) and the stripper sleeve and stripper (arrow 2). Loosen the setscrew (arrow 3) in the sprocket drive collar (access is through the hole in the hub). Remove the hub (arrow 4) and the sprocket plate assembly (arrow 5), being careful not to bend the flanges of the hub.



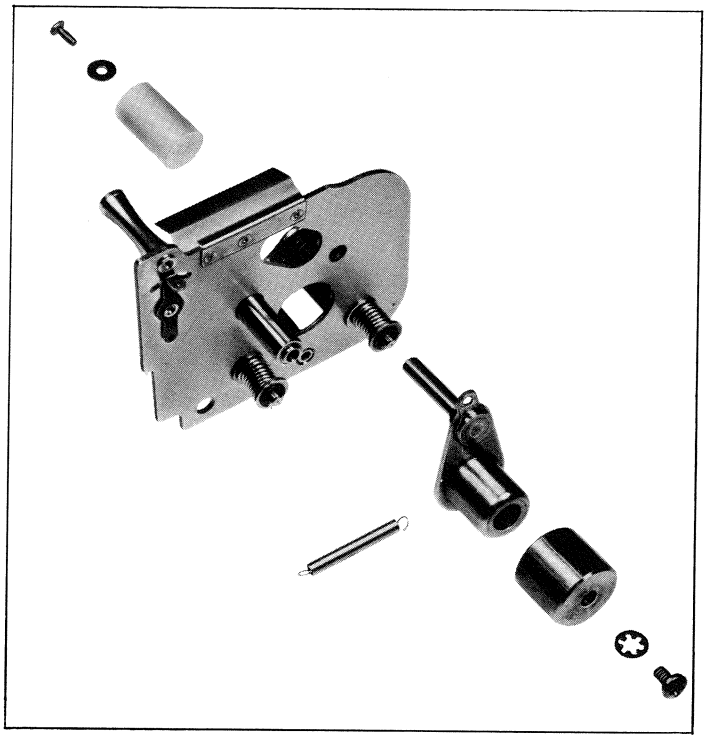
13. Shows upper sprocket plate assembly and the sprocket and parts.



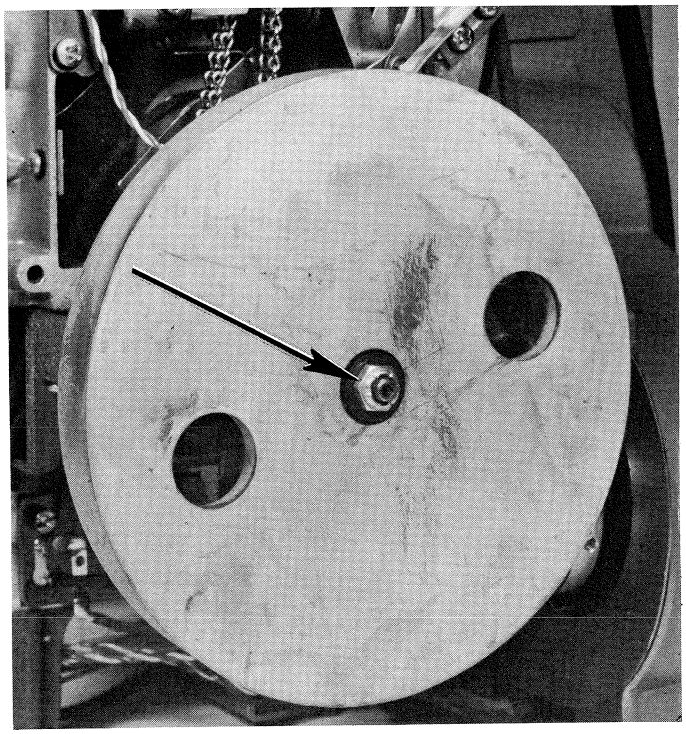
15. Shows the lower sprocket plate assembly and the sprocket and parts.



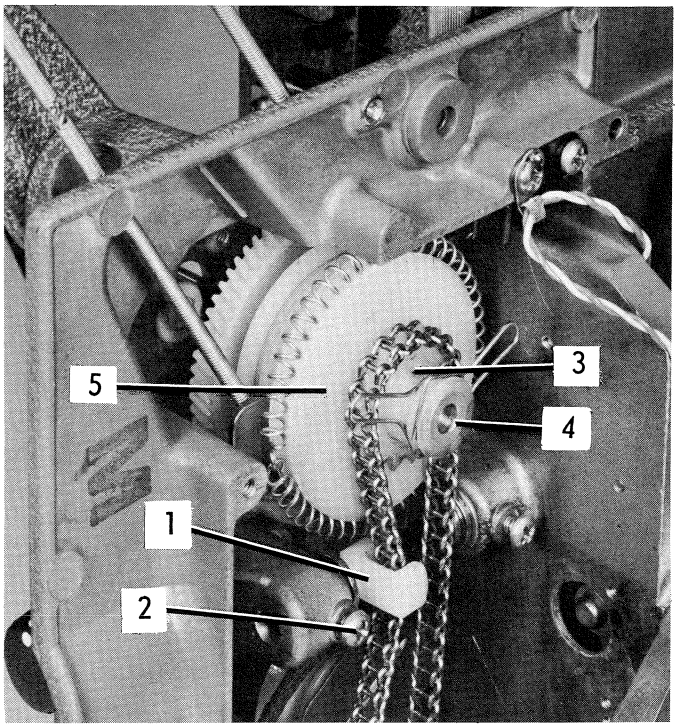
14. Remove the sprocket end plate and the sprocket (see instruction No. 11). Remove the two sprocket plate screws (arrow 1). Loosen the setscrew (arrow 2) in the sprocket drive collar, within the sprocket hub (access is through the hole in the hub). Remove the hub (arrow 3) and the sprocket plate assembly (arrow 4), being careful not to bend the flanges of the hub.



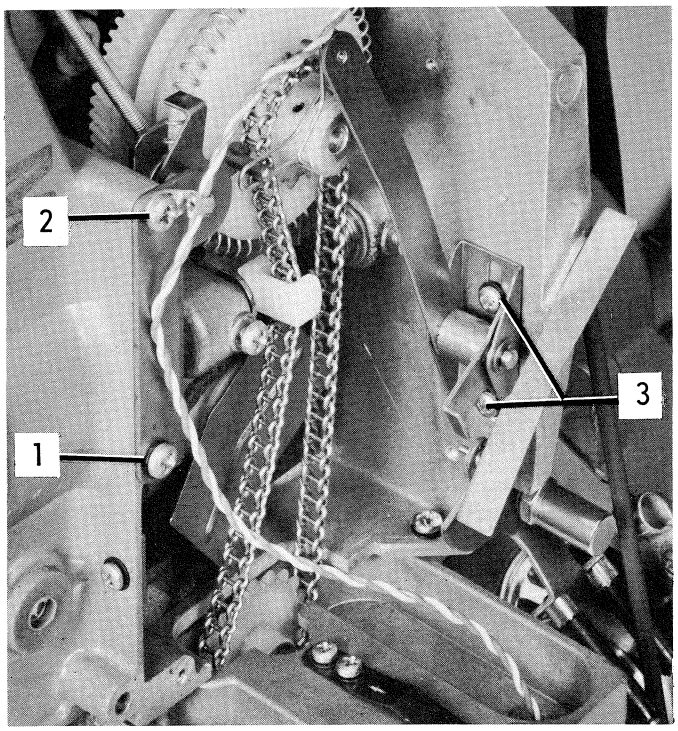
16. Shows the lower sprocket plate assembly with damping roller parts.



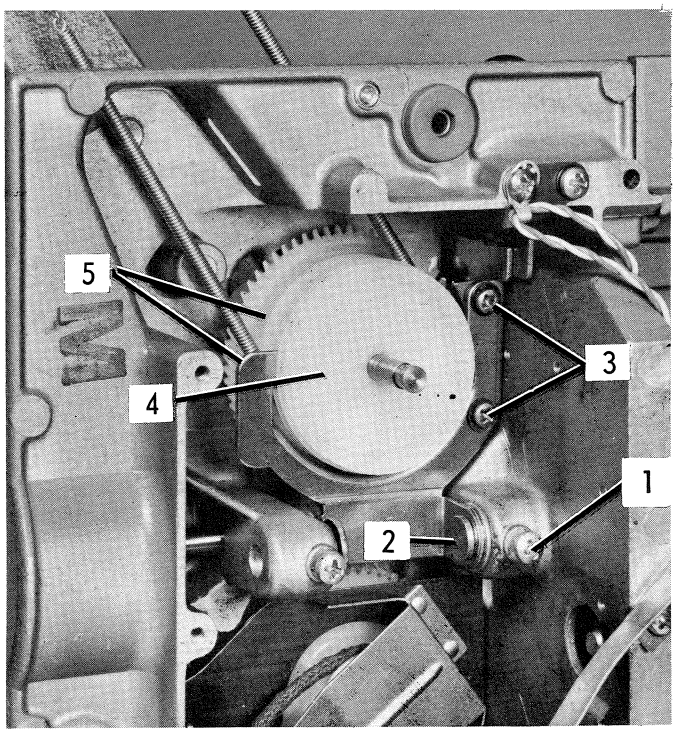
17. Remove the flywheel by removing the stop nut (left-hand thread) (arrow), spring washer and phenolic washer.



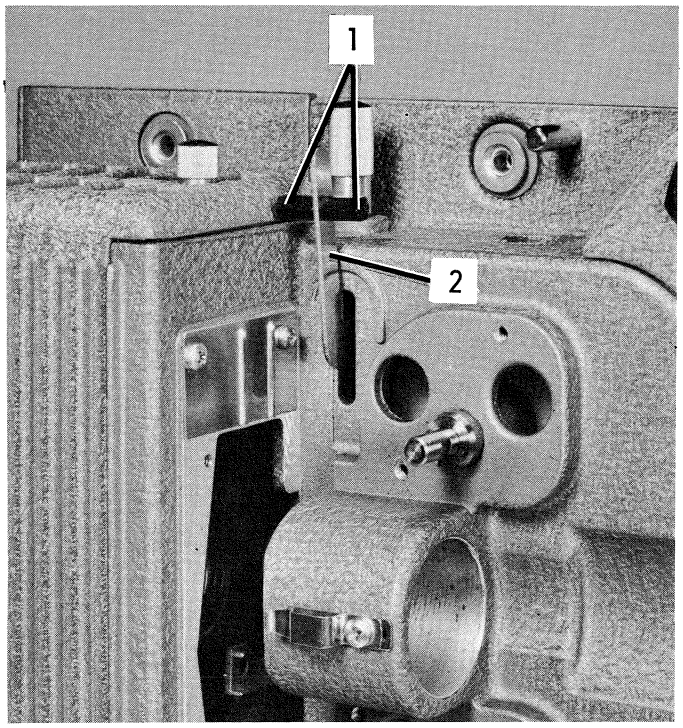
19. Remove the chain tension adjustment stud (arrow 1) by loosening the stud retaining screw (arrow 2). Loosen the reversing mechanism gear and sprocket setscrew (arrow 3) and remove the gear and sprocket (arrow 4) and the spider assembly (arrow 5).



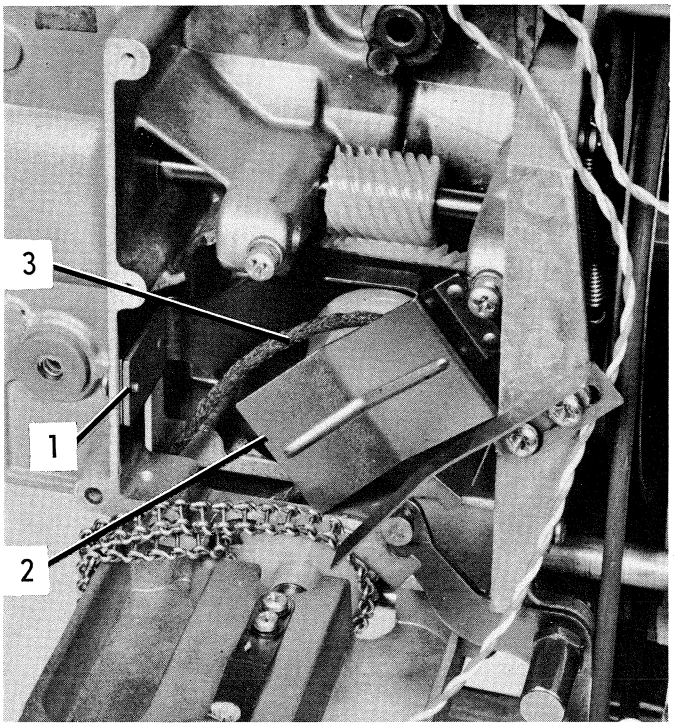
18. Remove the tension clutch by removing the retaining screw and lockwasher (arrow 1) and the support screw and clip (arrow 2). Remove the reverse shift lock assembly by removing the two retaining screws and lockwashers (arrow 3).



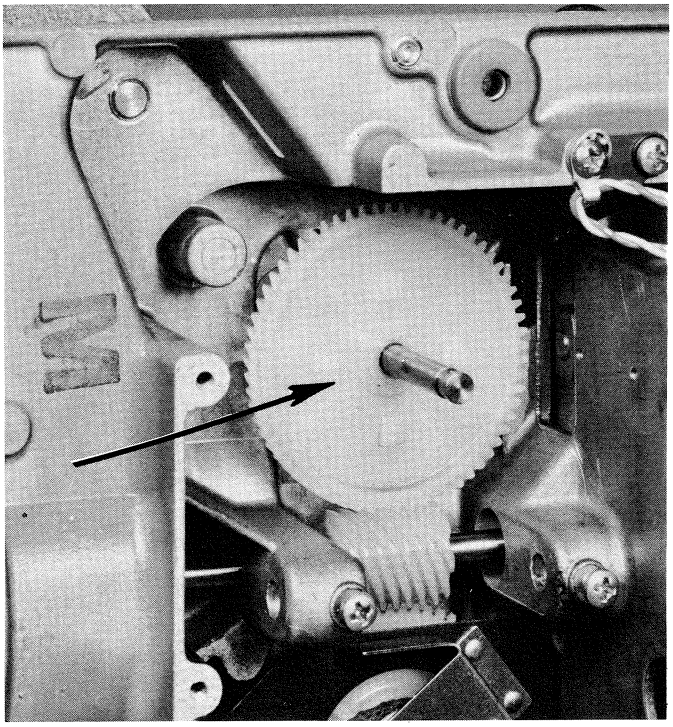
20. Unhook and remove the rewind belt. Loosen the rewind shift plate shaft screw (arrow 1), and remove the shaft (arrow 2) and the spacing washer. Remove the two rewind shift plate screws and lockwashers (arrow 3) and pull out the reverse mechanism gear (arrow 4) and the rewind drive shift plate and the pulley (arrow 5).



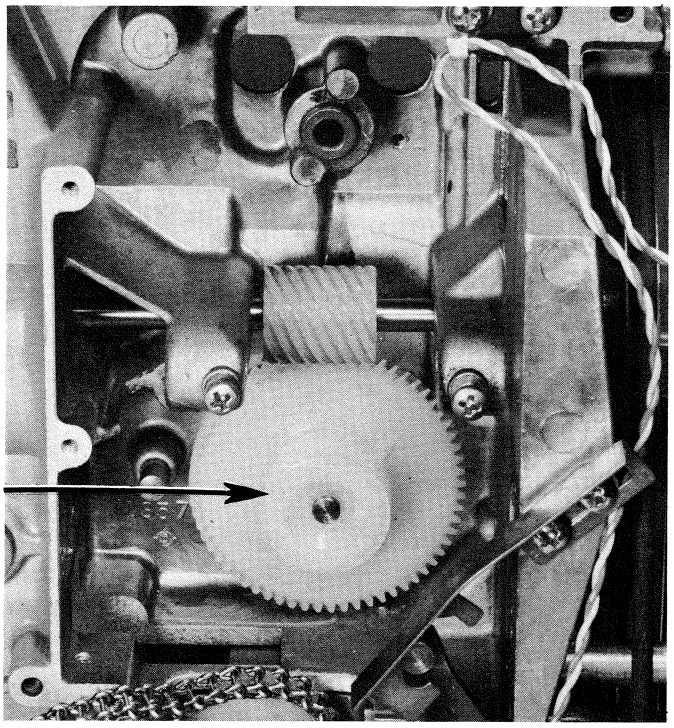
21. Unscrew and remove the rewind lever handles (arrow 1). Remove the rewind lever plate assembly (arrow 2).



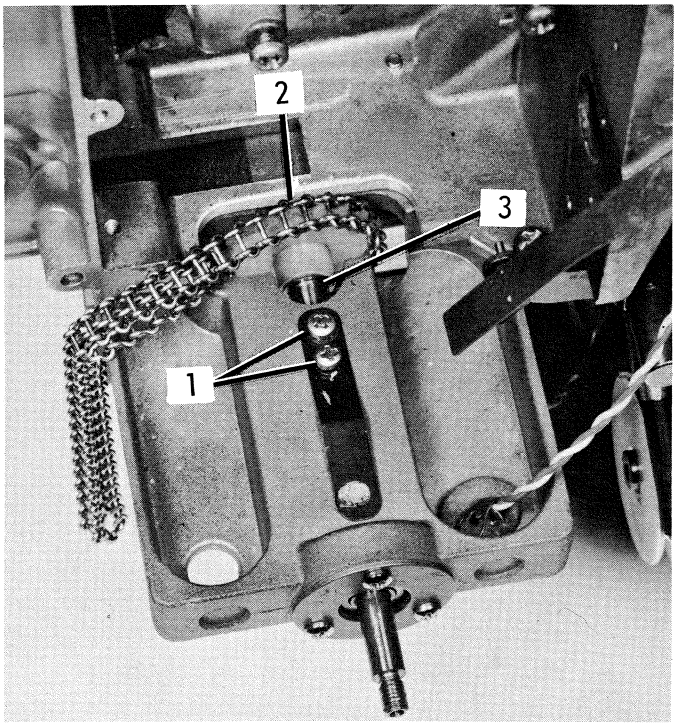
23. Remove the nut plate (arrow 1) by removing the two plate screws and washers. Lift out the take-up belt guard (arrow 2), and the take-up belt (arrow 3).



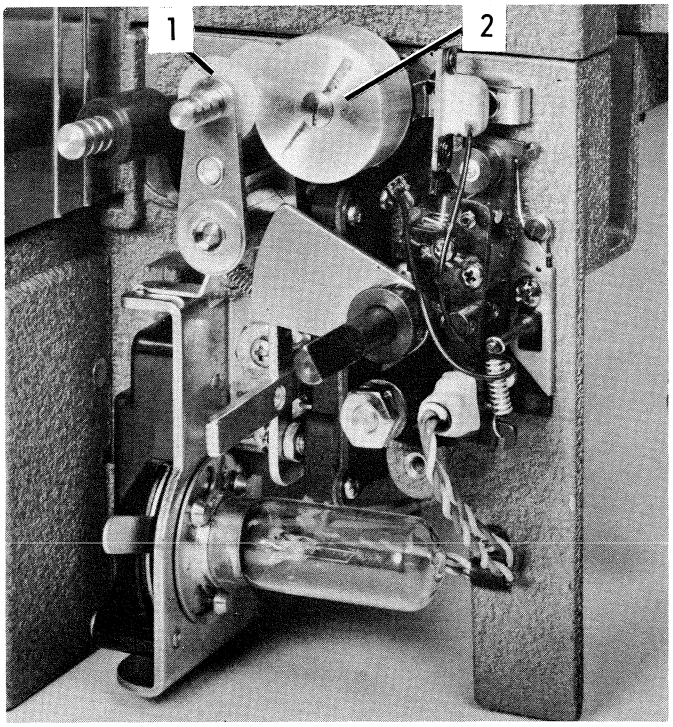
22. Remove the upper sprocket shaft and gear assembly (arrow).



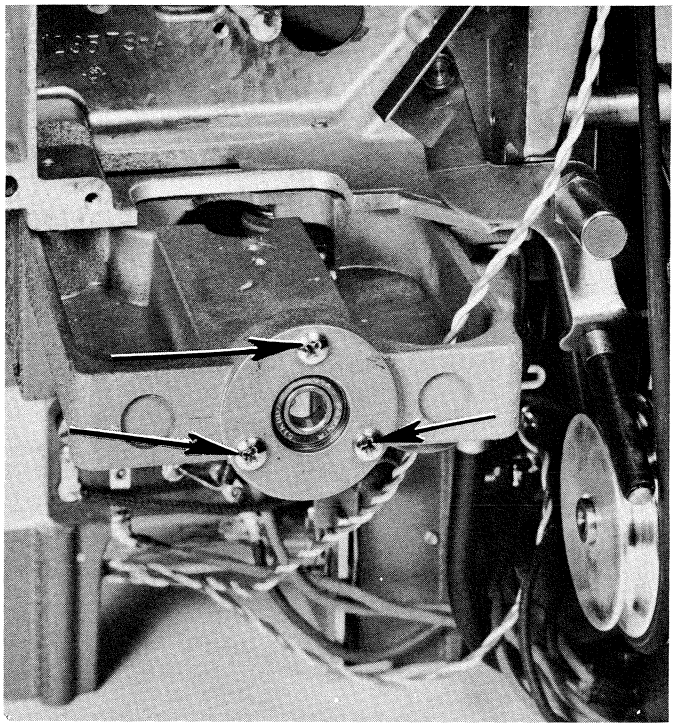
24. Remove the lower sprocket shaft and gear assembly (arrow).



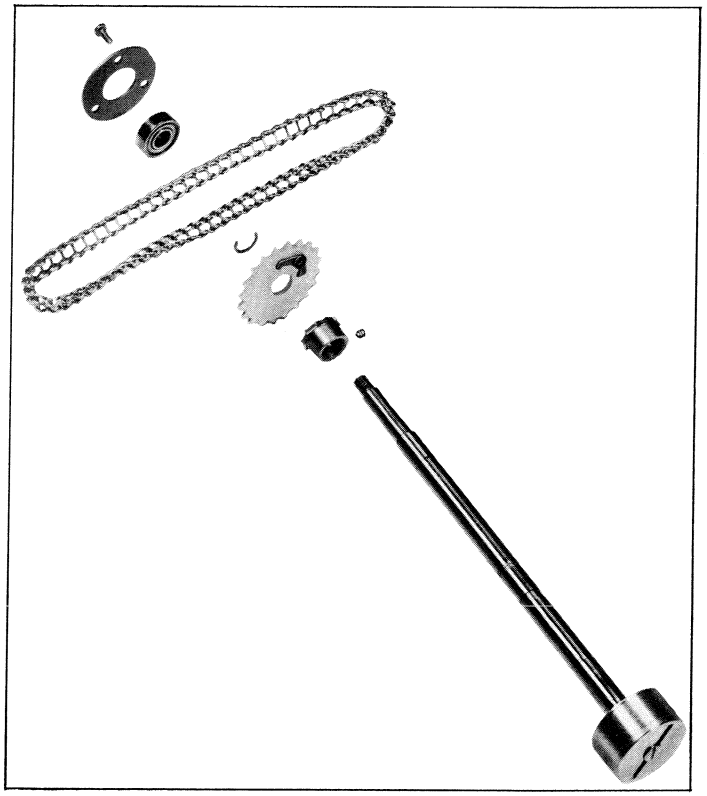
25. Remove the two braking spring and button assembly screws and washers (arrow 1) and lift off the braking spring assembly. Loosen the ratchet setscrew (arrow 2) and remove the retaining ring (arrow 3).



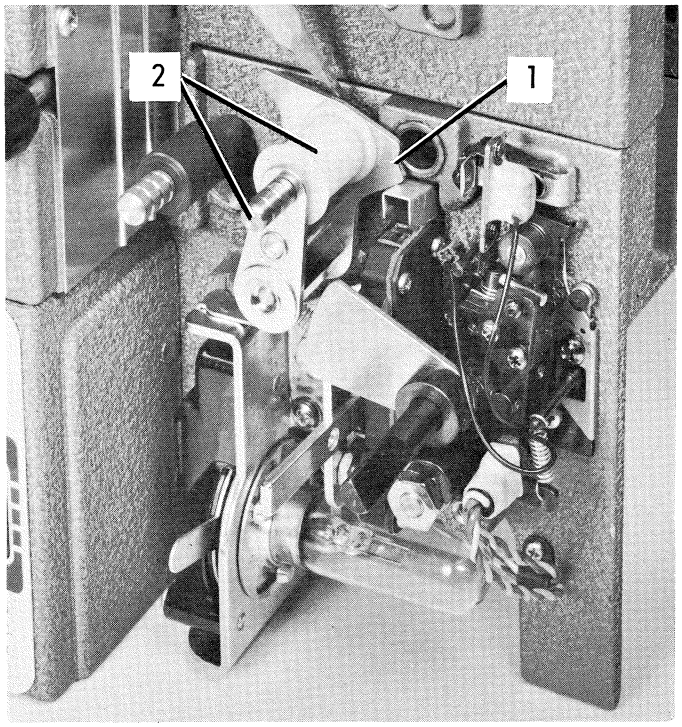
26. Hold back on the pressure roller (arrow 1) and remove the sound drum and flywheel shaft assembly (arrow 2), sprocket and pawl assembly, chain, and ratchet.



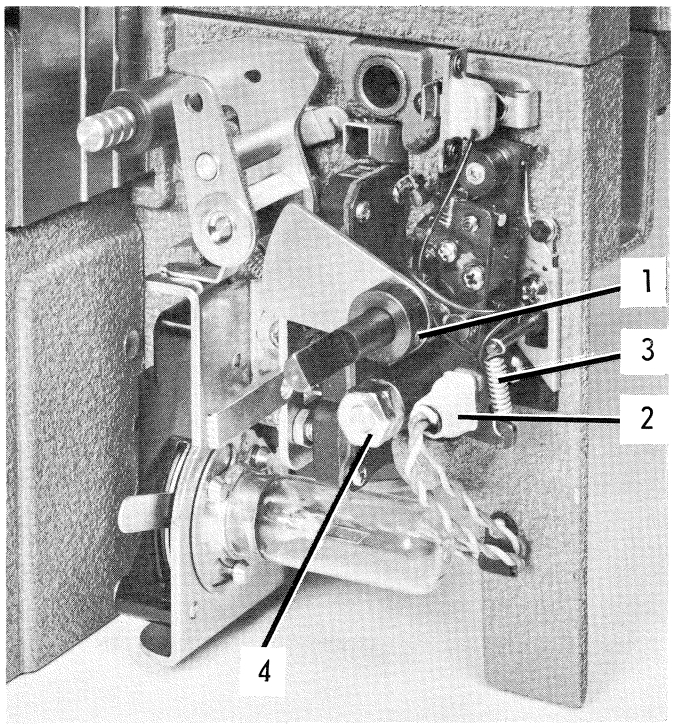
27. Remove the three ball bearing retaining plate screws (arrows). Remove the retaining plate and ball bearing.



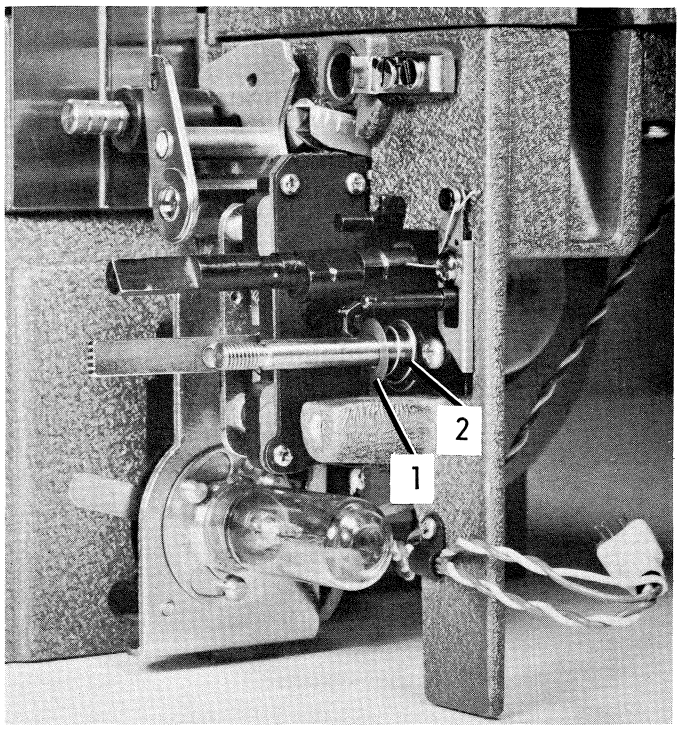
28. Shows sound drum and flywheel shaft assembly, ratchet and setscrew, sprocket and pawl assembly, ring, chain, ball bearing, retaining plate, and screw.



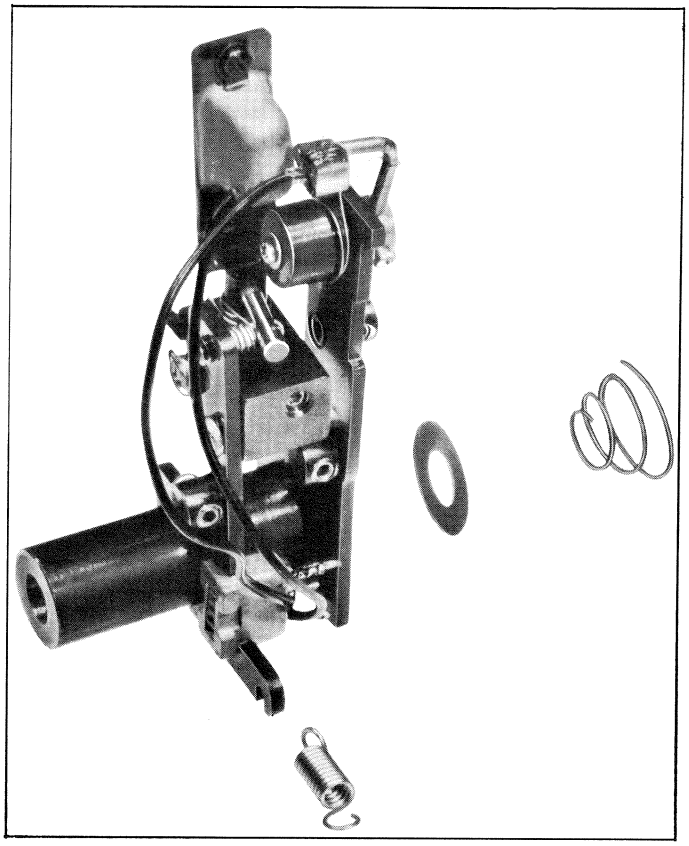
29. Push the pressure roller equalizing link, located in back of the pressure roller arm assembly (arrow 1), away from the pressure roller shaft, and pull out the pressure roller shaft and roller (arrow 2).



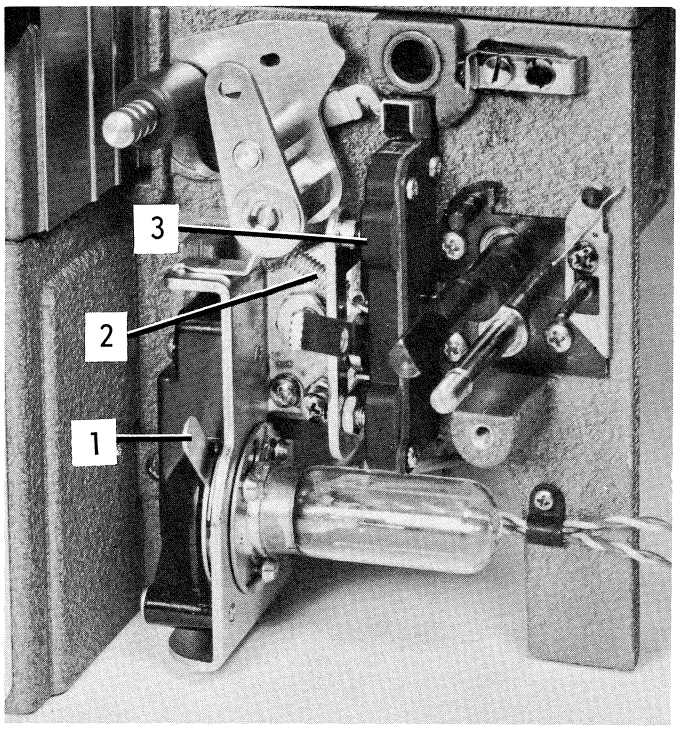
30. Loosen the arm and hub assembly setscrew (arrow 1) and remove the assembly. Unplug the cable connector (arrow 2). Remove the magnetic head return spring (arrow 3) and the adjusting nuts (arrow 4). Carefully slide out the magnetic head assembly.



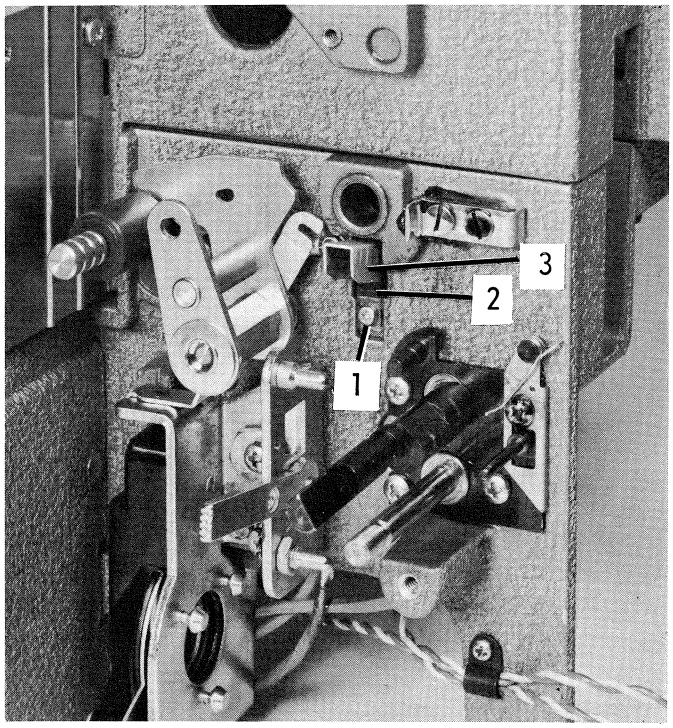
31. Remove the magnetic head separator washer (arrow 1) and the magnetic head spacer spring (arrow 2).



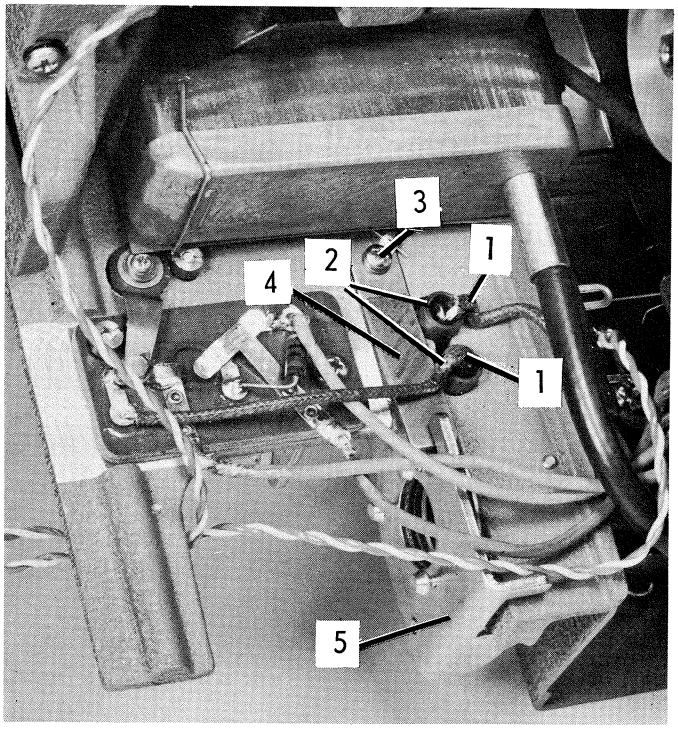
32. Shows the magnetic head assembly, magnetic head return spring, separator washer and head spacer spring.



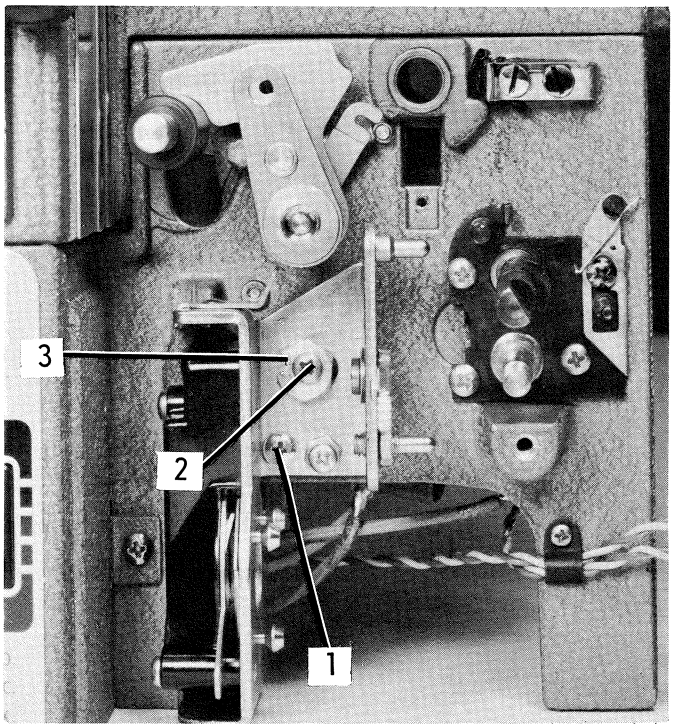
33. Push the exciter lamp release lever (arrow 1) down as far as it will go. Turn the lamp counterclockwise and remove it. Unhook the sound optics spring (arrow 2) from the sound optics assembly. Remove the sound optics (arrow 3).



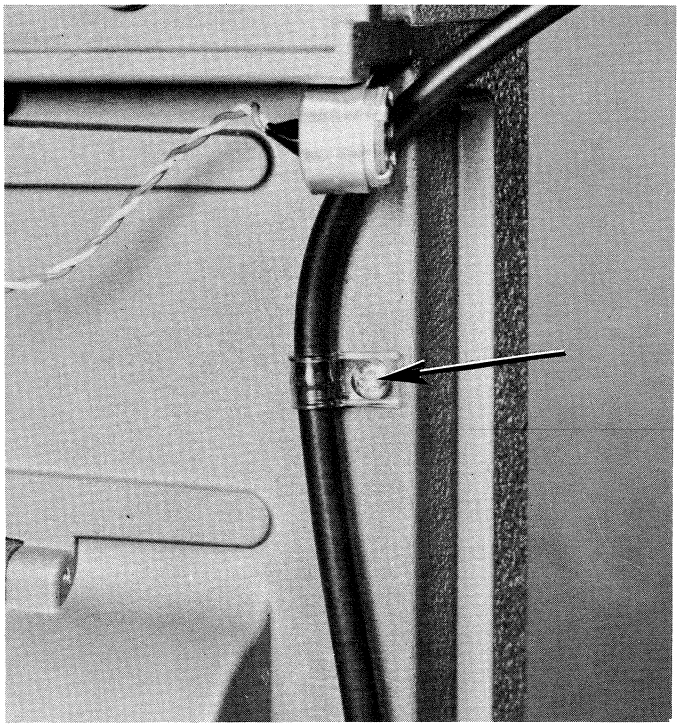
34. Remove the sound pickup rod screw (arrow 1), the pickup rod (arrow 2), and the shield (arrow 3).



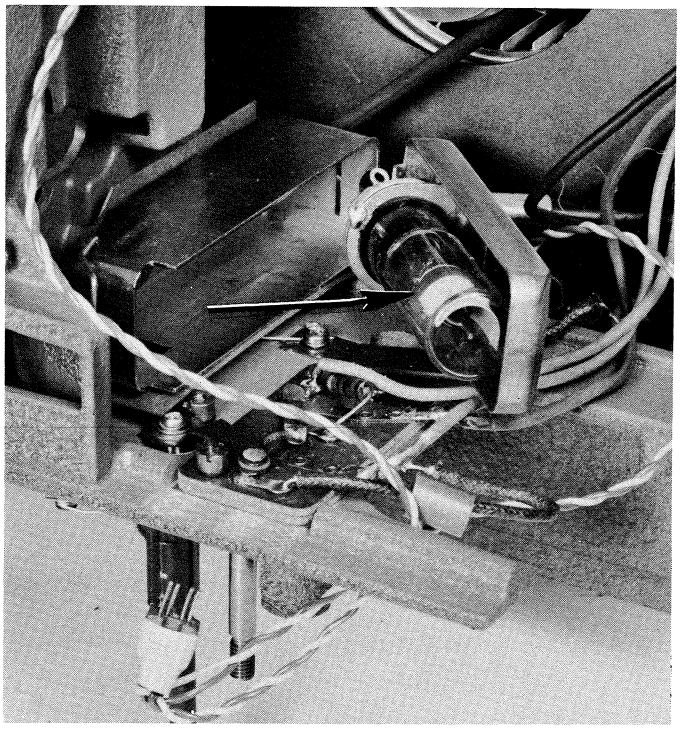
35. Unsolder the two exciter lamp wires (arrow 1) and lift off the two insulators (arrow 2). Loosen the sound optics bracket spring screw (arrow 3) and move the sound optics bracket spring (arrow 4) to the side, sufficiently to allow removal of the bracket (arrow 5).



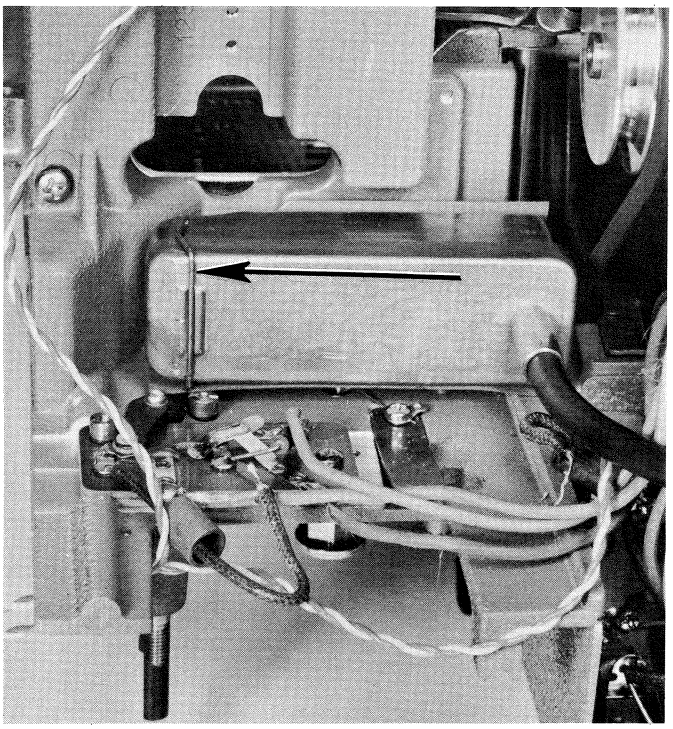
36. Remove the sound optics bracket by removing the bracket screw (arrow 1), the eccentric screw (arrow 2), and the eccentric (arrow 3).



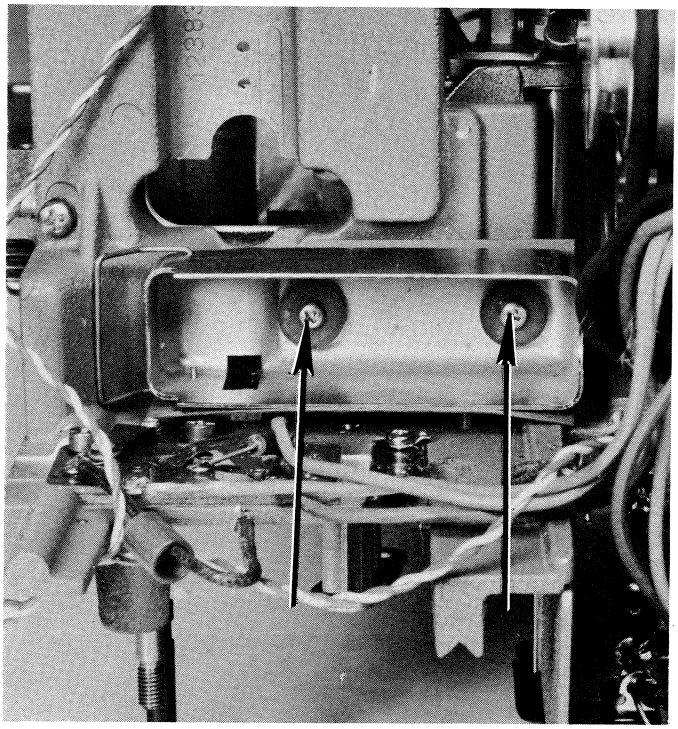
37. Remove the phototube cable clamp screw (arrow) and pull the cable away from the fan housing.



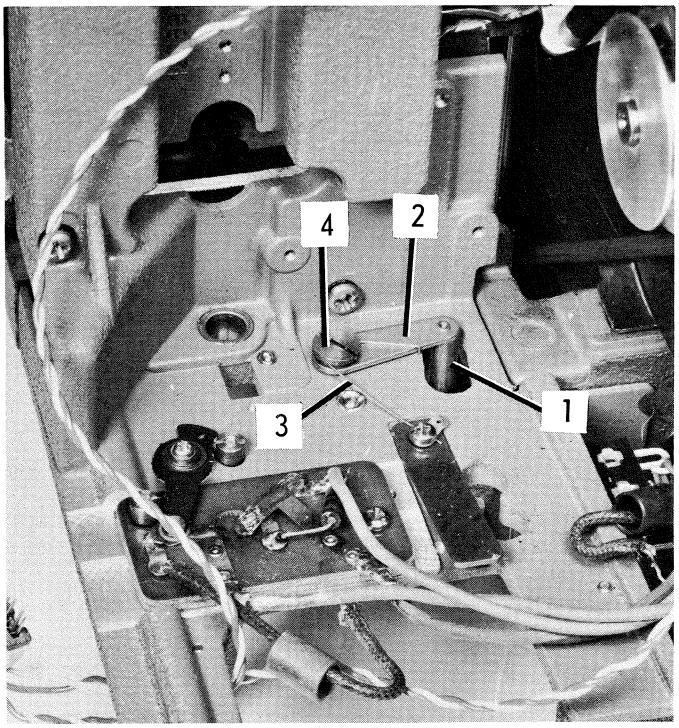
39. Remove the phototube (arrow).



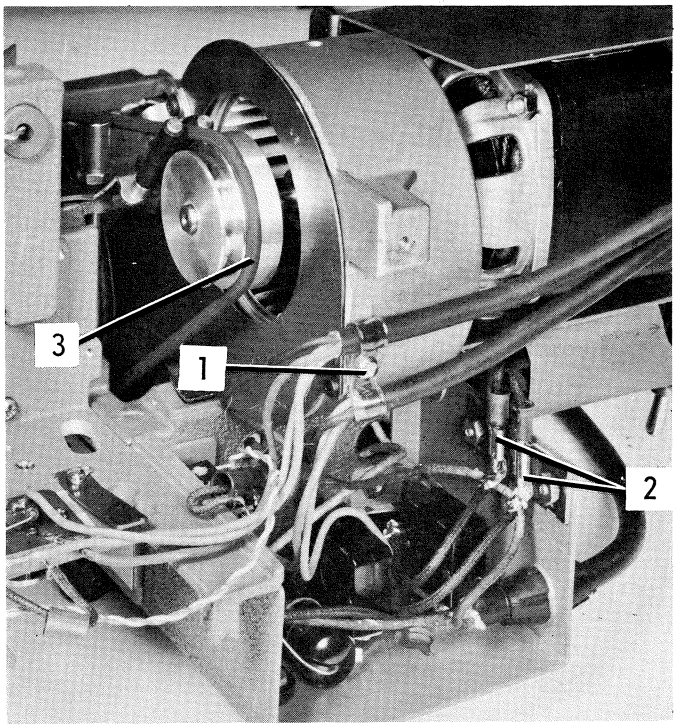
38. Slide the phototube cover clamp (arrow) to the left and open the phototube box.



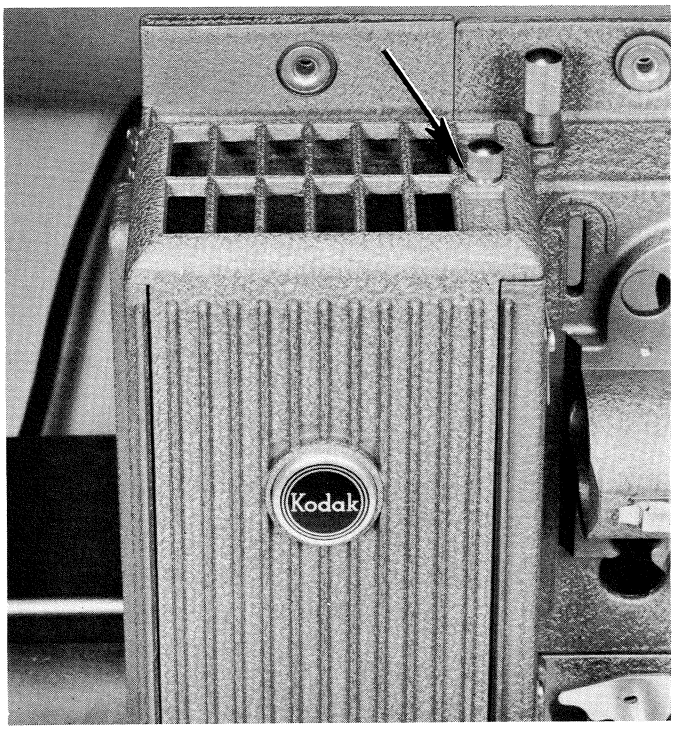
40. Remove the phototube box by removing the two screws and washers (arrows).



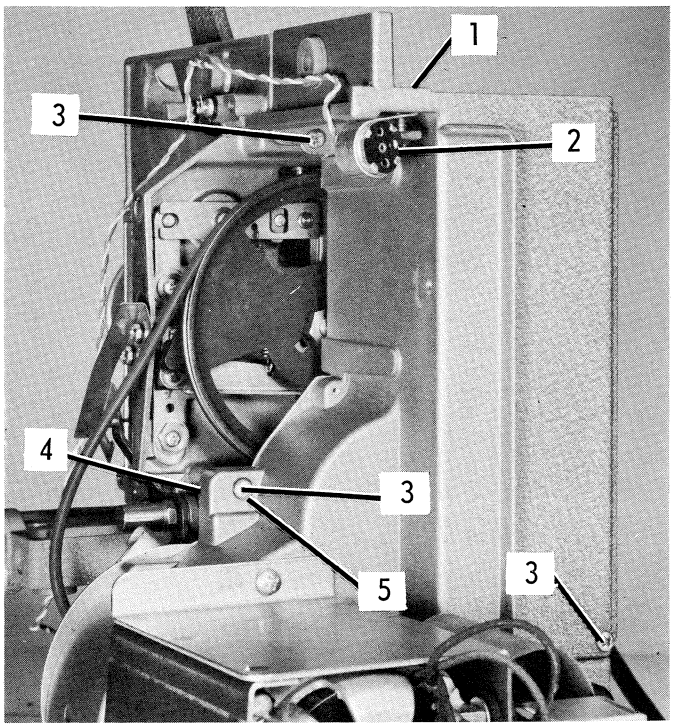
41. Unscrew the handle at the operating side of the projector and remove the loop-former roller (arrow 1). Remove the loop-former arm and shaft assembly (arrow 2) and the spring (arrow 3) by removing the pivot (arrow 4).



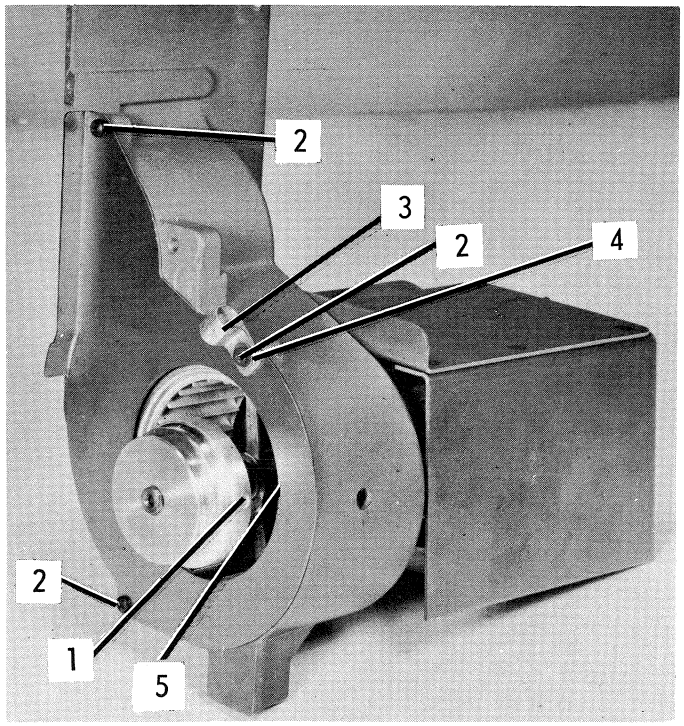
43. Remove the two amplifier cables from fan housing by removing the clamp screw (arrow 1). Unplug the motor wires (arrow 2). Remove the drive belt (arrow 3) from the motor pulley.



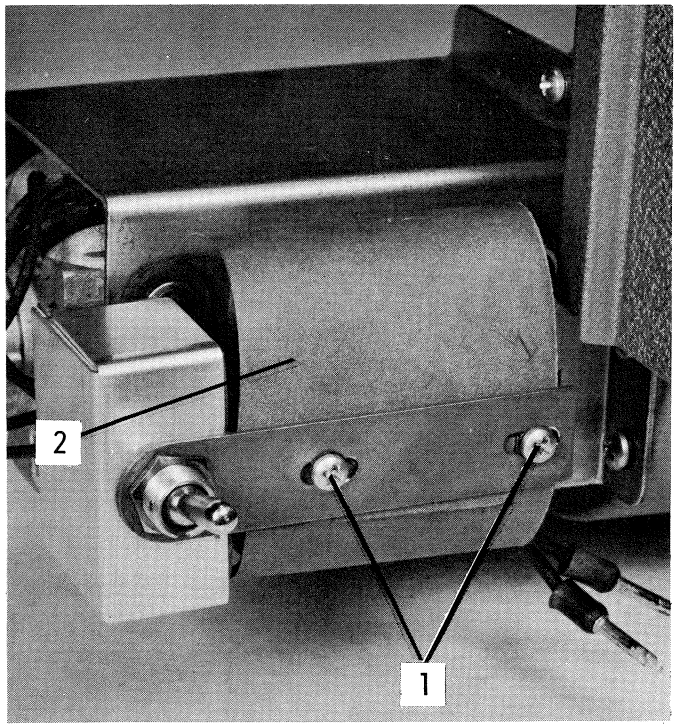
42. Loosen the lamphouse top assembly screw (arrow) and remove the lamphouse top assembly.



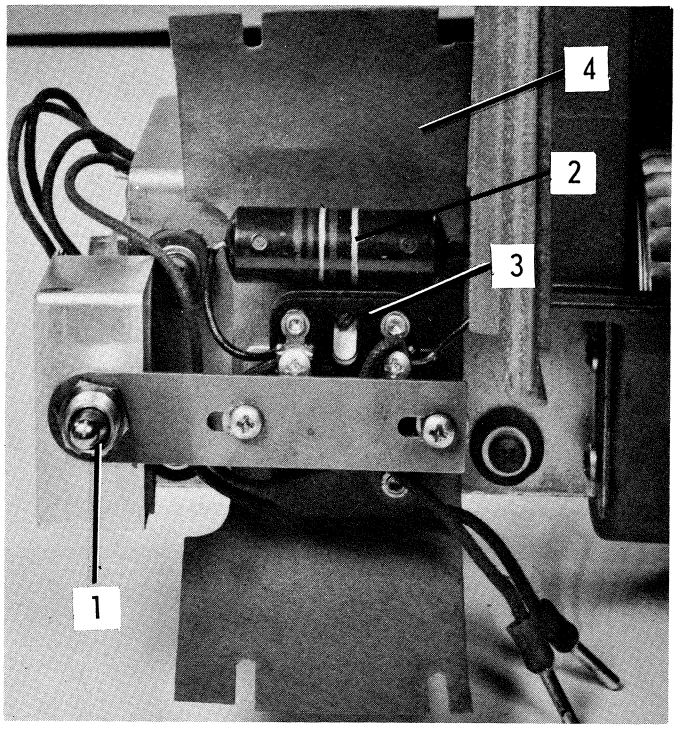
44. Loosen the clamp retaining screw (arrow 1) and remove the cable assembly socket (arrow 2) with connecting wires. Remove the three fan housing screws (arrow 3), the spacer (arrow 4) and the lockwasher (arrow 5). Remove the fan housing to which the motor is attached. Be sure that the projector power cord is not plugged in.



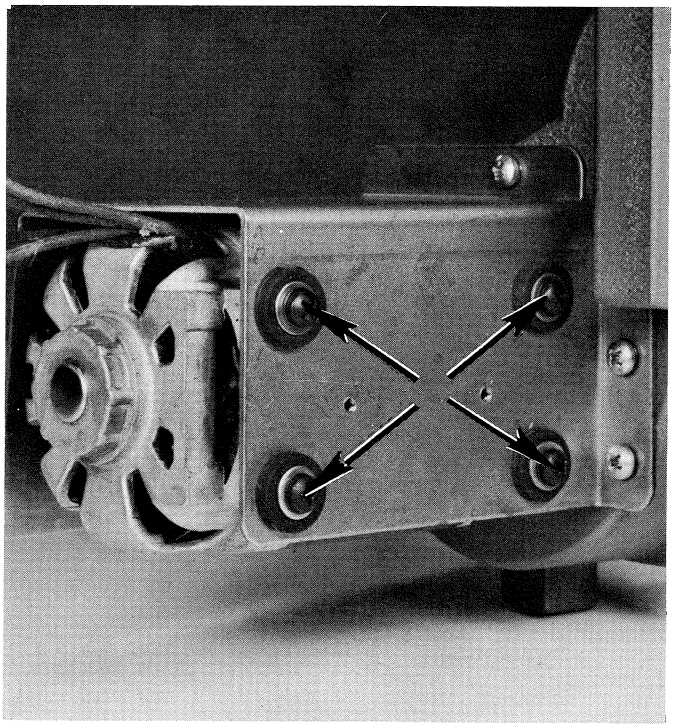
45. Loosen the motor drive pulley setscrew (arrow 1) and remove the pulley. Remove the three fan housing plate screws (arrow 2), the drive belt guide (arrow 3) and the washer (arrow 4). Loosen the fan setscrew (arrow 5) (access through hole in fan housing). Remove the fan.



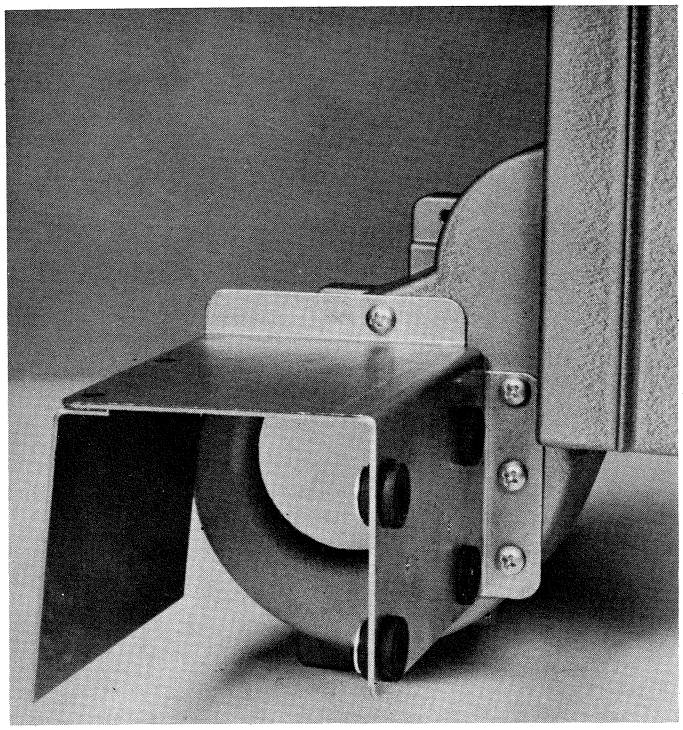
46. Shows the two switch bracket screws (arrow 1), the assembled switch, and the insulator (arrow 2).



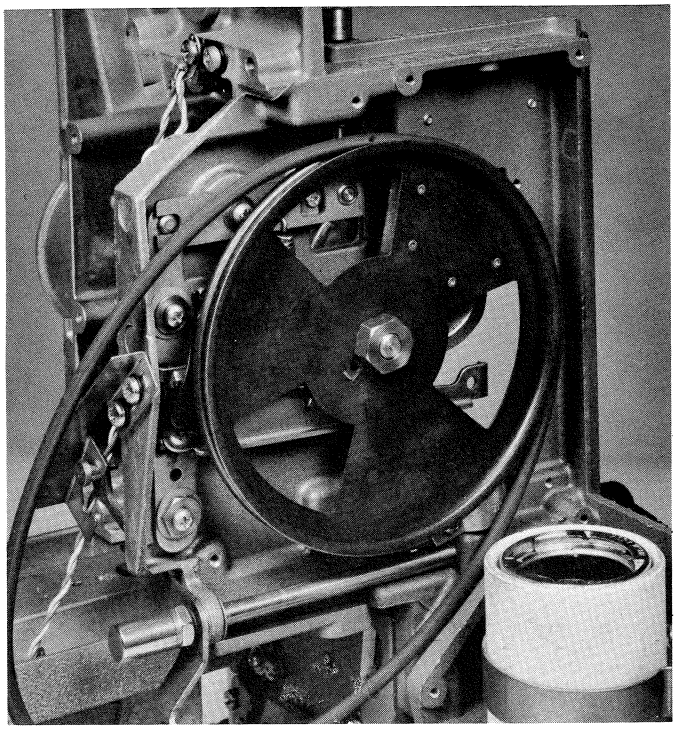
47. Shows switch (arrow 1), condenser (arrow 2), relay (arrow 3), and insulator (arrow 4). Disassemble as required (see wiring diagram).



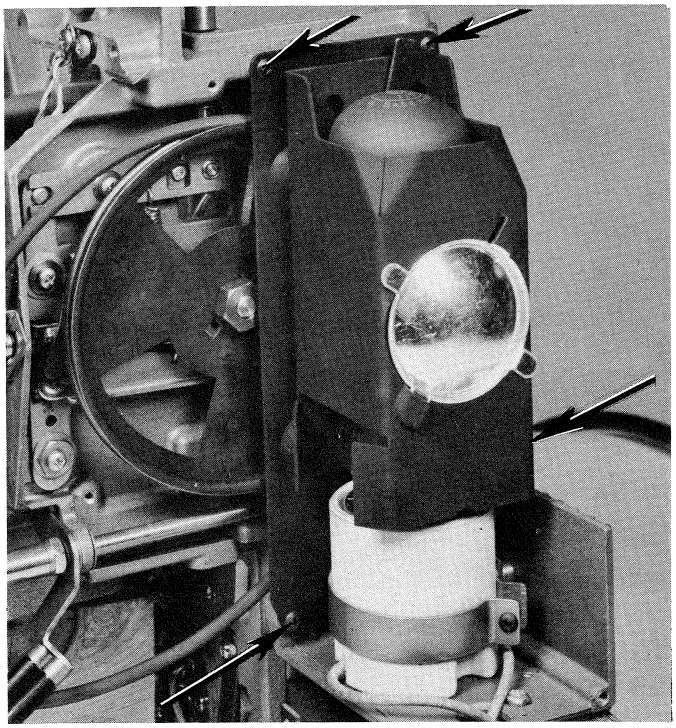
48. Remove the motor by removing the four screws (arrows), lockwashers and plain washers.



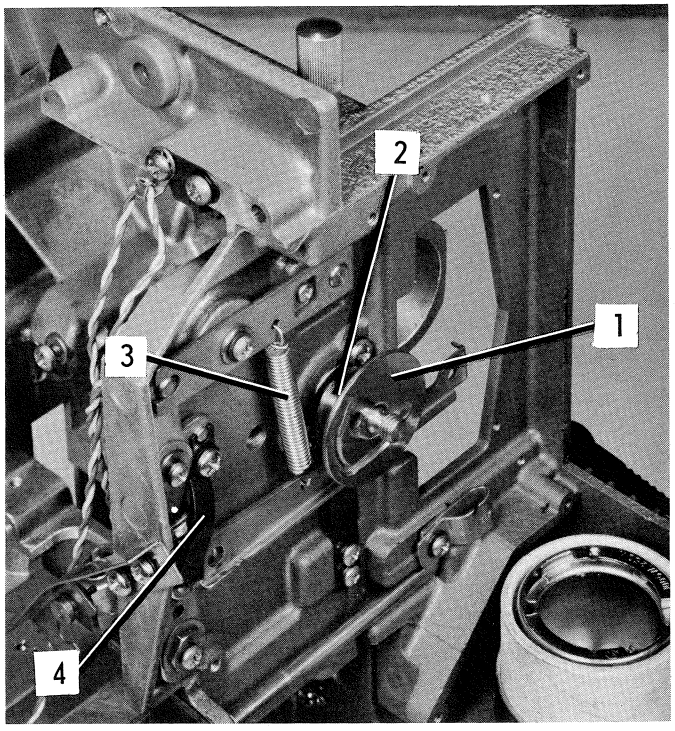
49. Remove the motor mounting bracket and shield assembly by removing the four bracket screws and lockwashers.



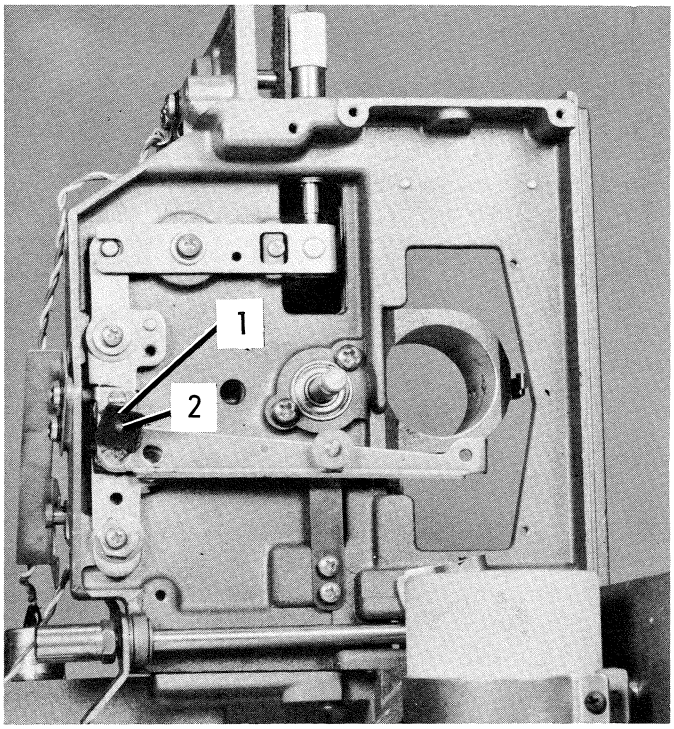
51. Remove the drive belt. Remove the shutter shaft nut (left-hand thread) and lift off the shutter assembly.



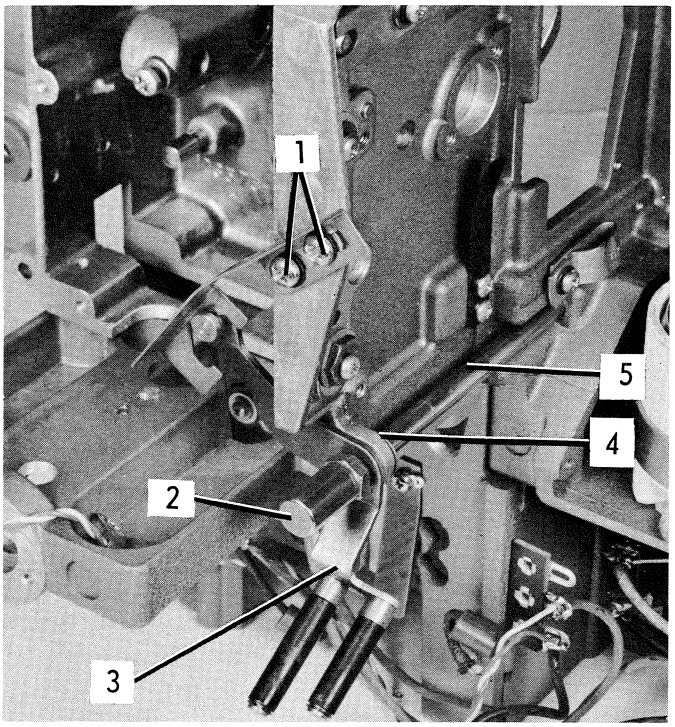
50. Remove the projection lamp. Remove the lamp chimney assembly by removing the four screws (arrows).



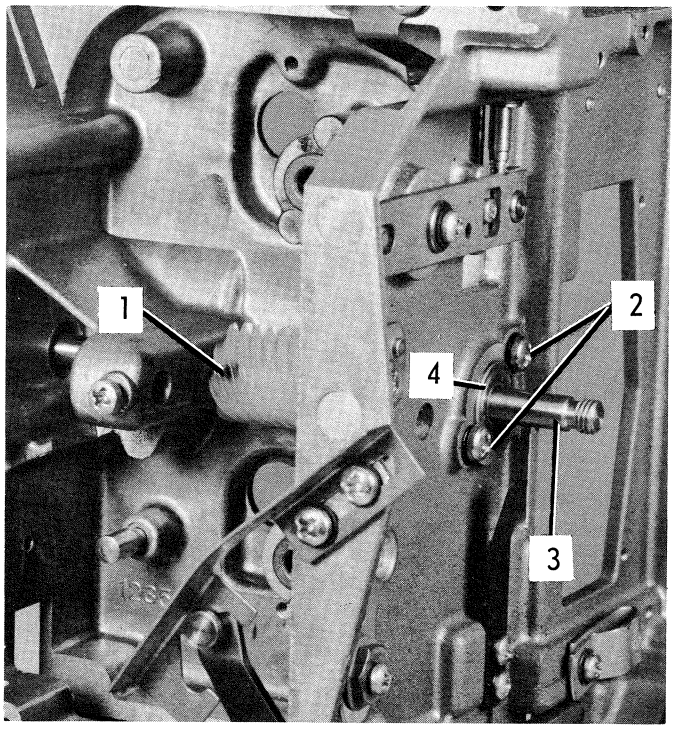
52. Remove the in-and-out cam (arrow 1) and the up-and-down cam (arrow 2). Remove any shim washers from the shaft; do not lose these washers. Remove the claw return spring (arrow 3). Remove the claw retaining spring (arrow 4), by removing the screw and lockwasher.



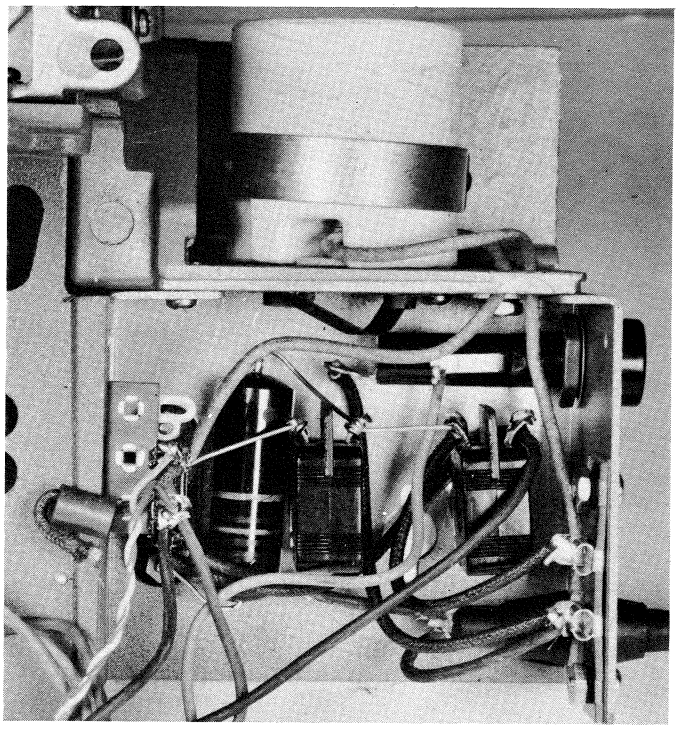
53. Remove the pad (arrow 1) and top pivot ball (arrow 2). Lift off the claw assembly and remove the remaining pad and two pivot balls. Do not lose the three balls.



55. Remove the belt shifting lever detent spring by removing the two retaining screws and washers (arrow 1). Remove the drive belt guide stud (arrow 2) and the two washers. Remove the belt shifting lever and pin assembly (arrow 3). Remove the retaining ring and washers (arrow 4). Pull out the belt shifting shaft (arrow 5), being careful not to lose the washers.

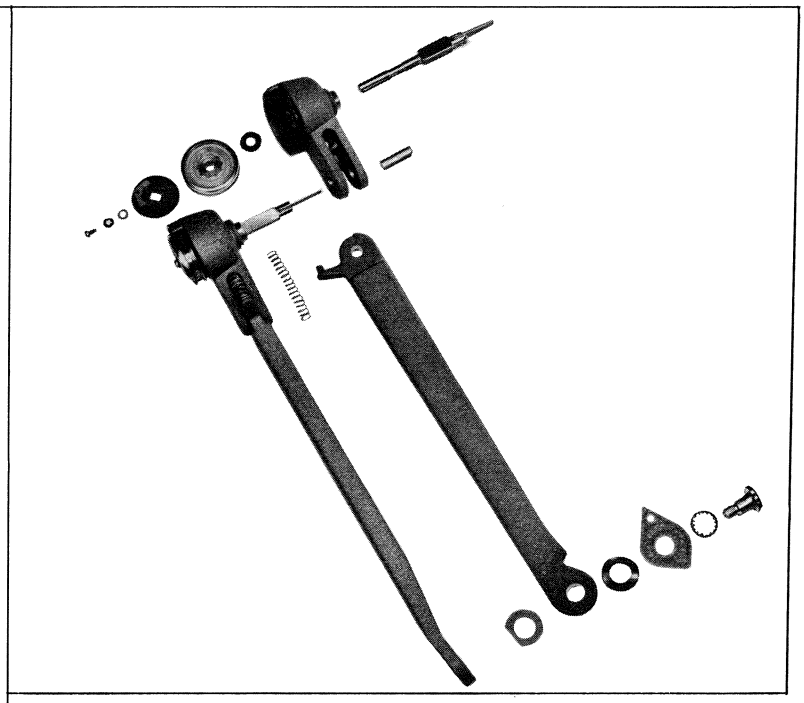


54. Remove the threading knob. Loosen the two worm set-screws (arrow 1) on opposite sides of the worm. Remove the two ball bearing retaining screws and washers (arrow 2). Pull out the shutter shaft and ring assembly (arrow 3) and the ball bearing (arrow 4). Remove the worm.

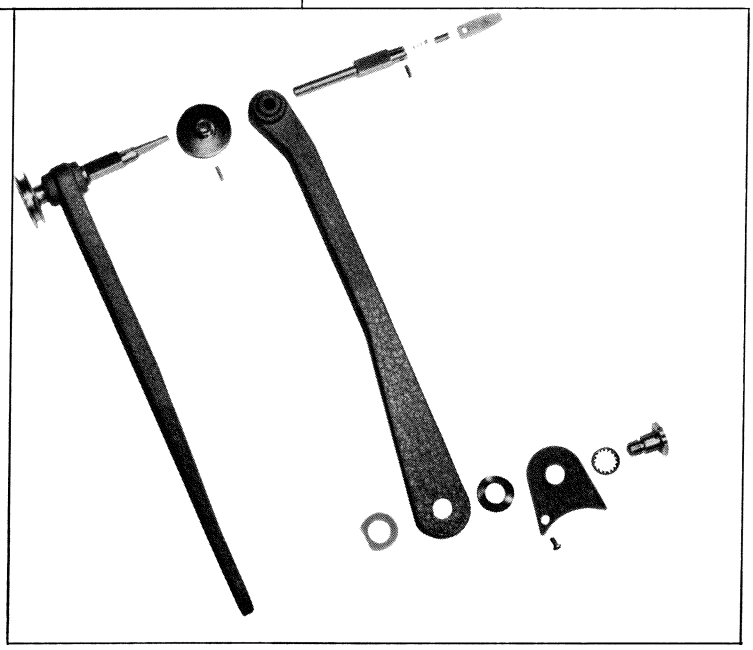


56. Shows switches, fuse post and terminal strips. Disassemble as required (see wiring diagram).

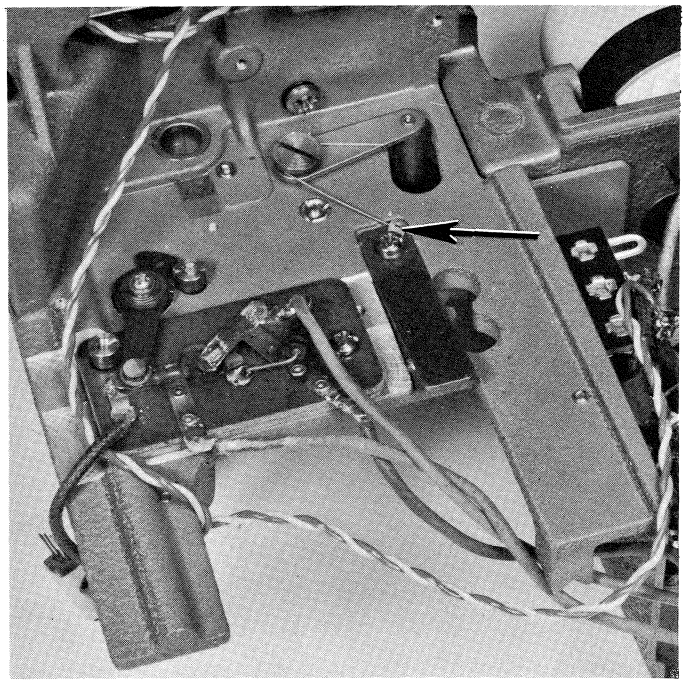
57. Shows fuse post assembly.



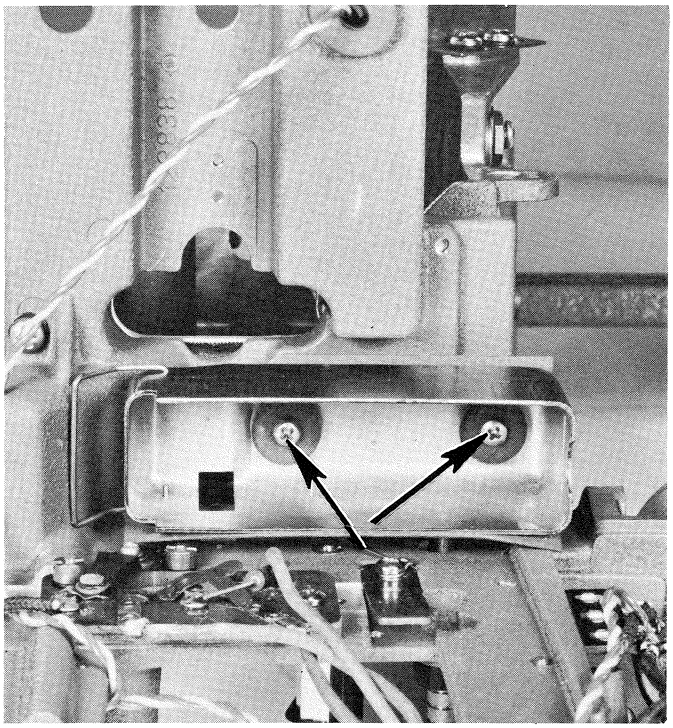
58. Shows take-up arm assembly.



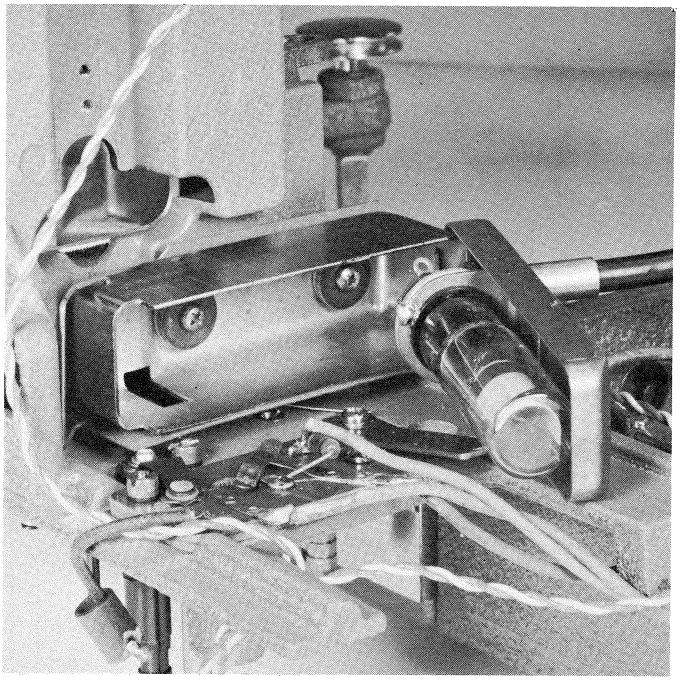
59. Shows rewind arm assembly.



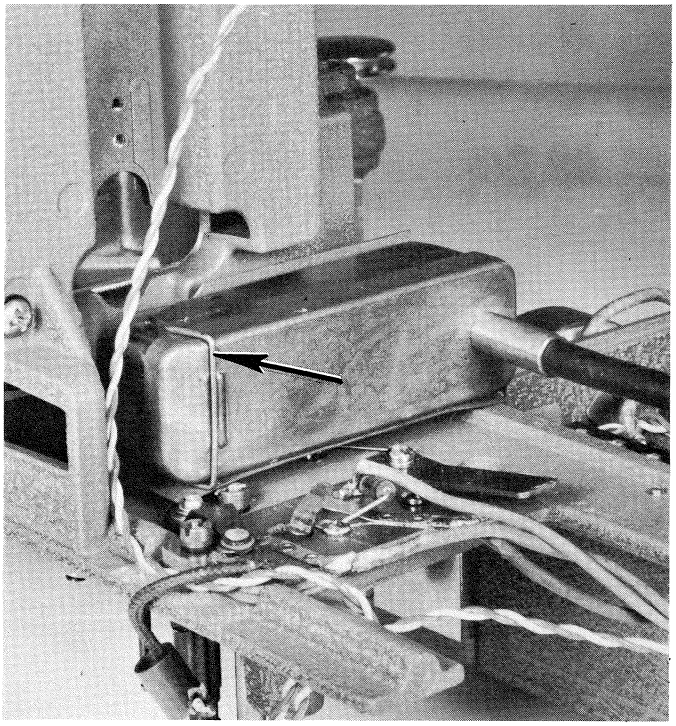
60. Replace the loop-former arm and shaft assembly and the loop-former spring, being sure that the long part of the spring is under the anchor (arrow). Lubricate the loop-former roller shaft sparingly with CW6092. Replace the loop-former roller. Replace the loop-former handle; the handle screws into the loop-former shaft at the operating side of the projector.



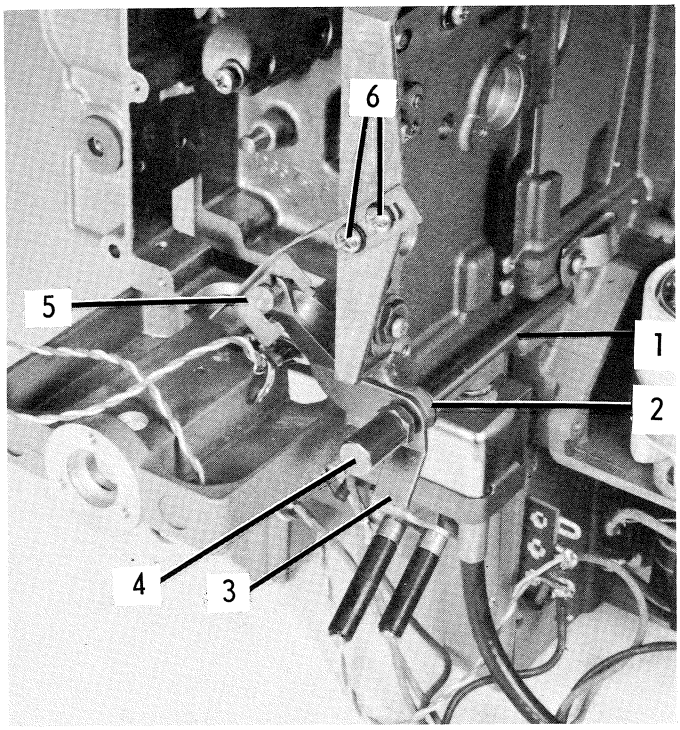
61. Replace the phototube box, two washers, and two screws (arrows).



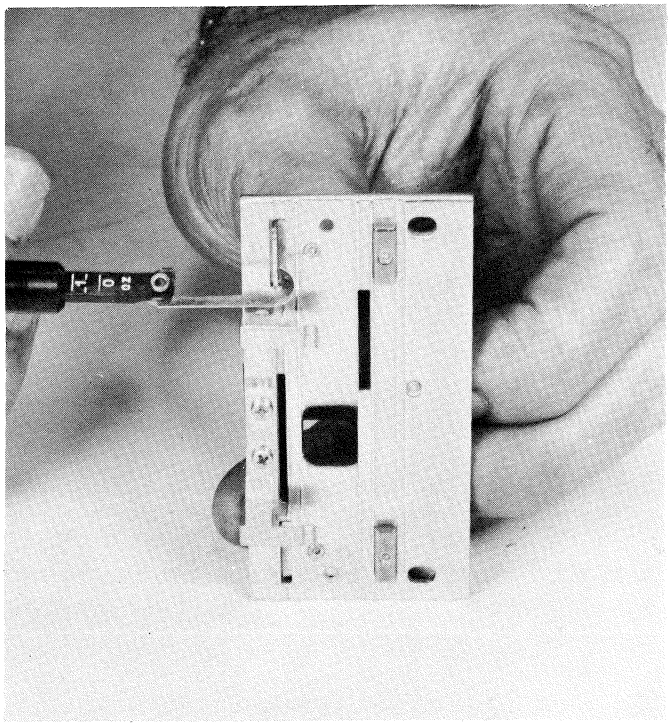
62. Replace the phototube.



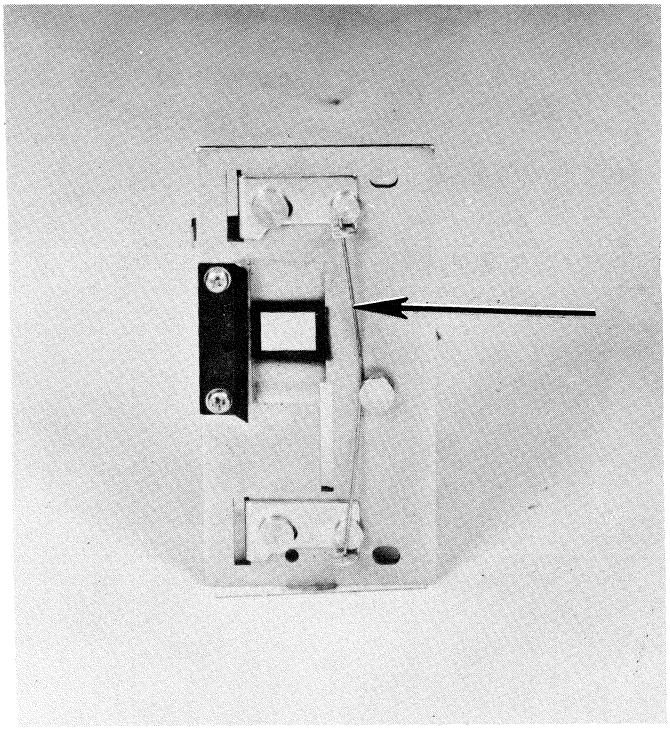
63. Replace the phototube cover and secure it with the cover clamp (arrow).



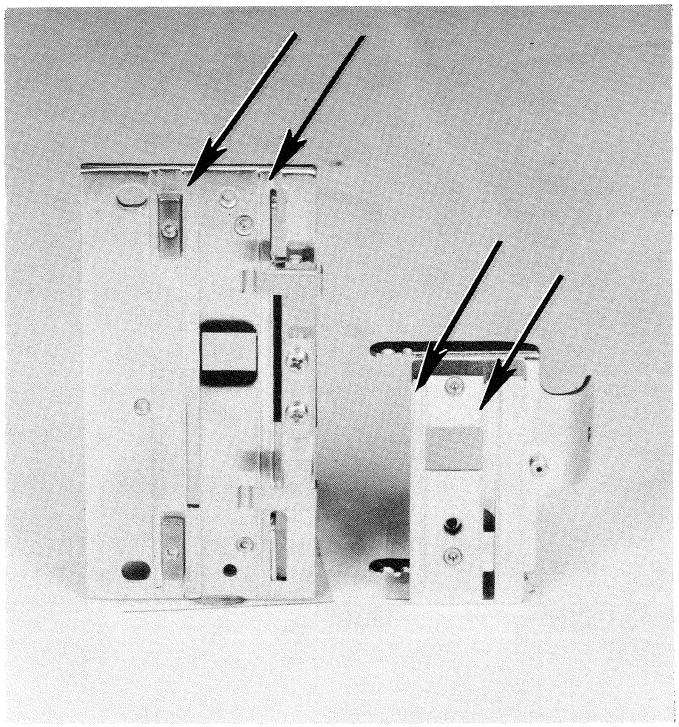
64. Replace the belt shifting shaft (arrow 1), retaining ring and washers (arrow 2), lever and pin assembly (arrow 3), washer, lockwasher and the stud (arrow 4). Replace the detent spring (arrow 5) and the retaining washers and screws (arrow 6).



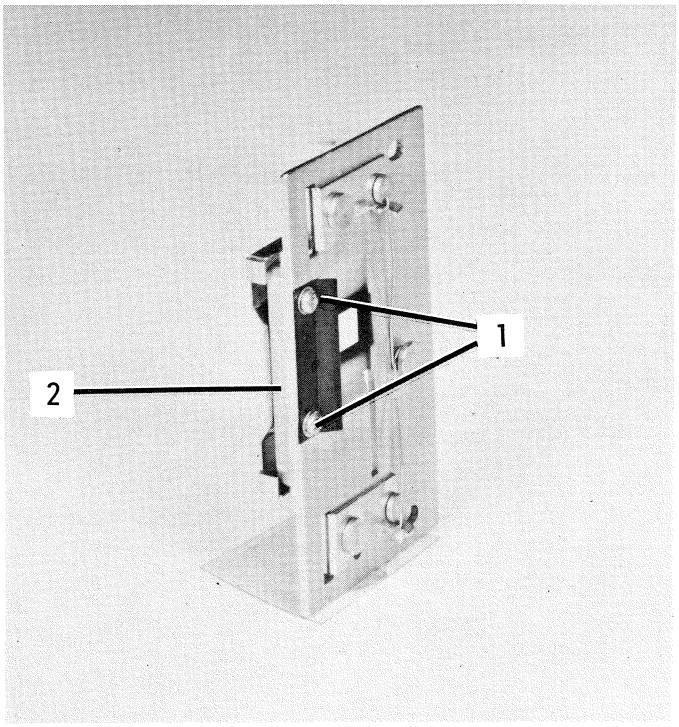
65. Check to see that the side guides do not bind. Check pressure of movable side guides. Each guide should require from 1 to 1-1/2 ounces of pressure to move it.



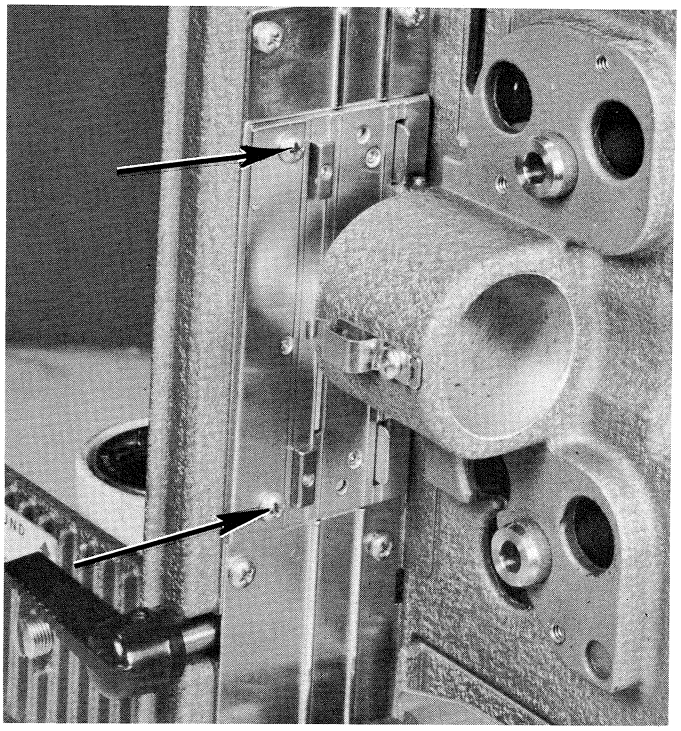
66. If side guide pressures are incorrect, adjust by bending the spring (arrow) on the back of the aperture plate.



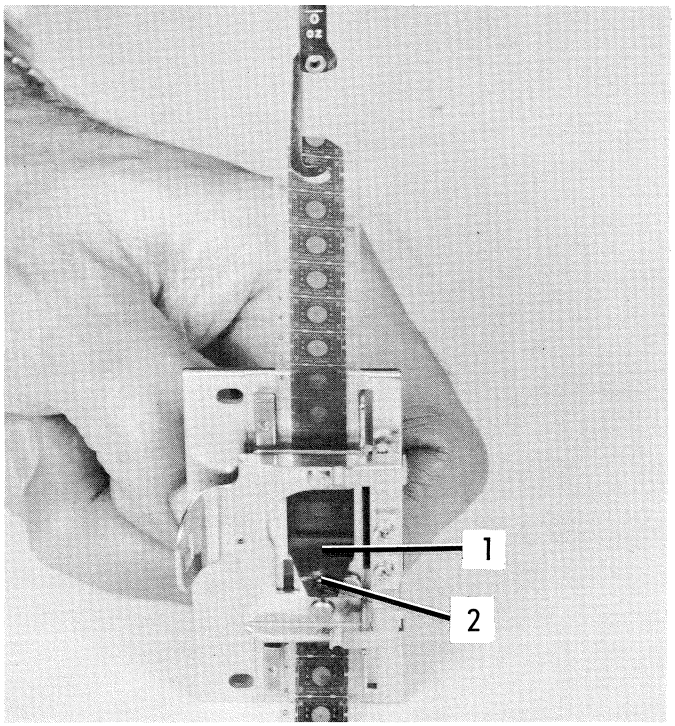
67. Shows aperture plate and pressure pad rails (arrows). The rails on the pressure pad should align with the rails on the aperture plate.



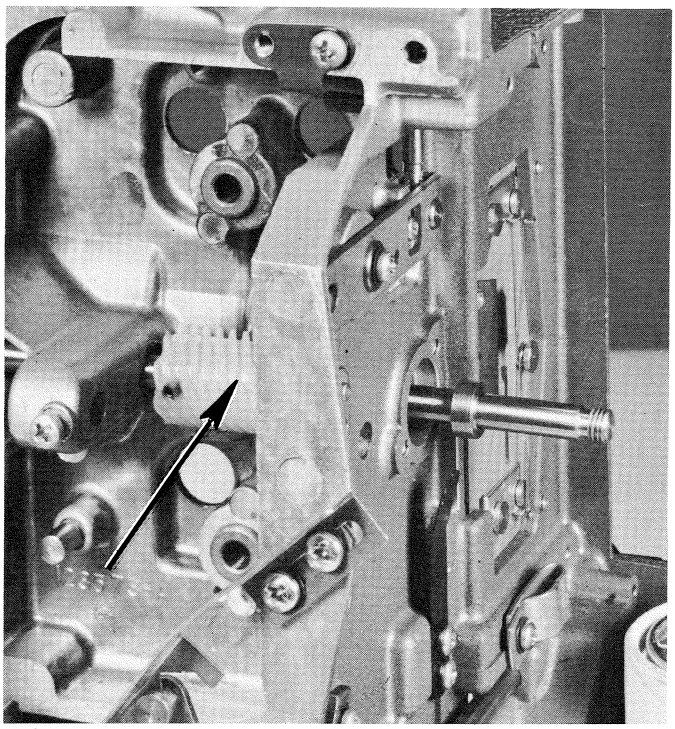
68. If the pressure pad rails need realignment, loosen the two screws (arrow 1) and shift the hinge post (arrow 2).



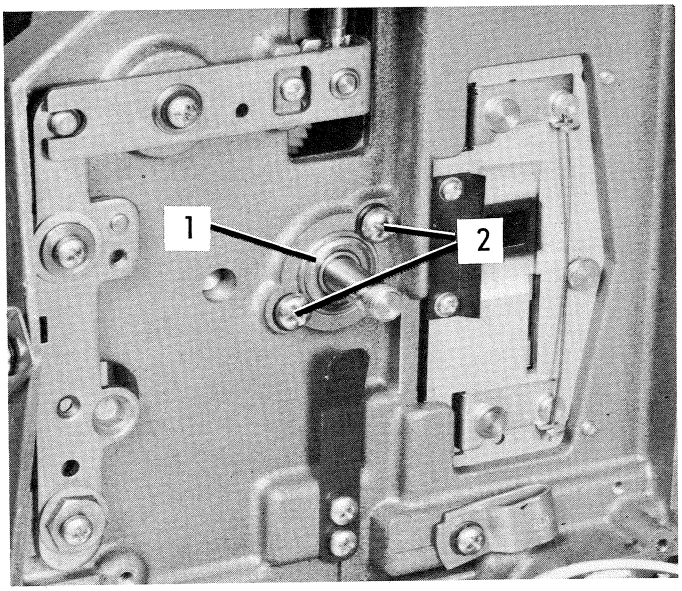
70. Install the aperture plate securing it with the two plate screws (arrows).



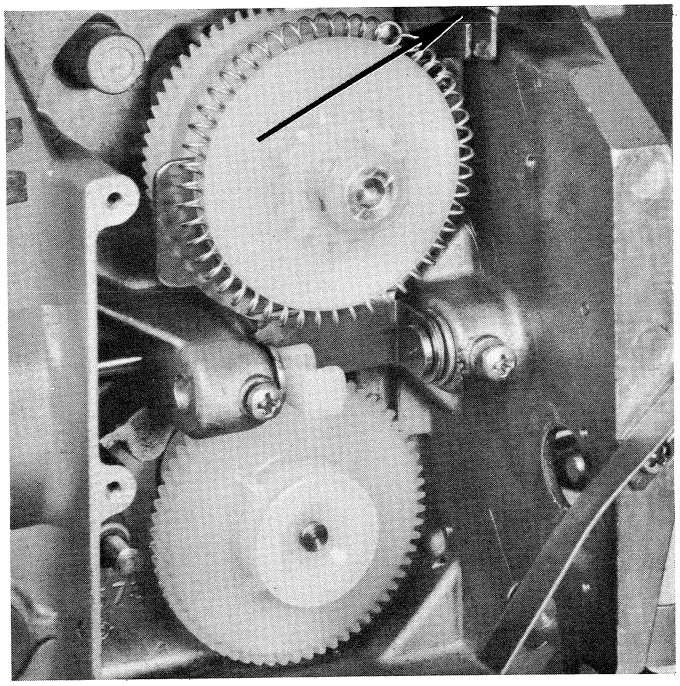
69. Check the pull-through tension using a strip of processed black-and-white film in the gate. The tension required should be between 1-1/2 and 2-1/2 ounces. If the tension is incorrect, adjust the pressure pad spring (arrow 1) by turning the adjusting screw (arrow 2) clockwise to increase tension, counterclockwise to decrease tension.



71. Put the worm (arrow) in position; push the shutter shaft and ring assembly through the ball bearing seat in the casting and through the worm. The worm should be placed on the shaft so that the setscrews will bear against the flats.

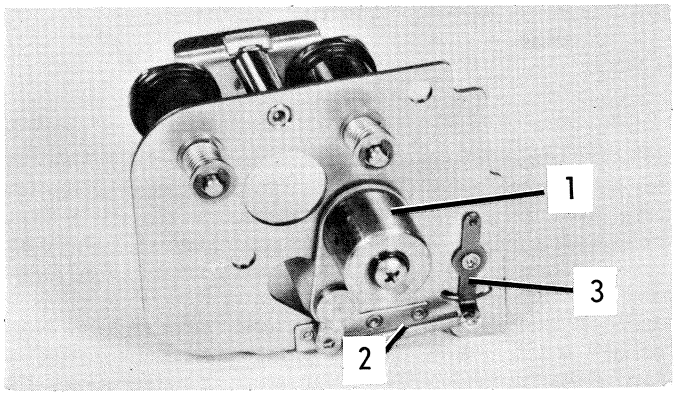


72. Replace the shutter shaft ball bearing (arrow 1) and secure it with the two screws and lockwashers (arrow 2). Push the shaft until the retainer bears against the ball bearing. Center the worm and tighten the two setscrews on the shaft flats.

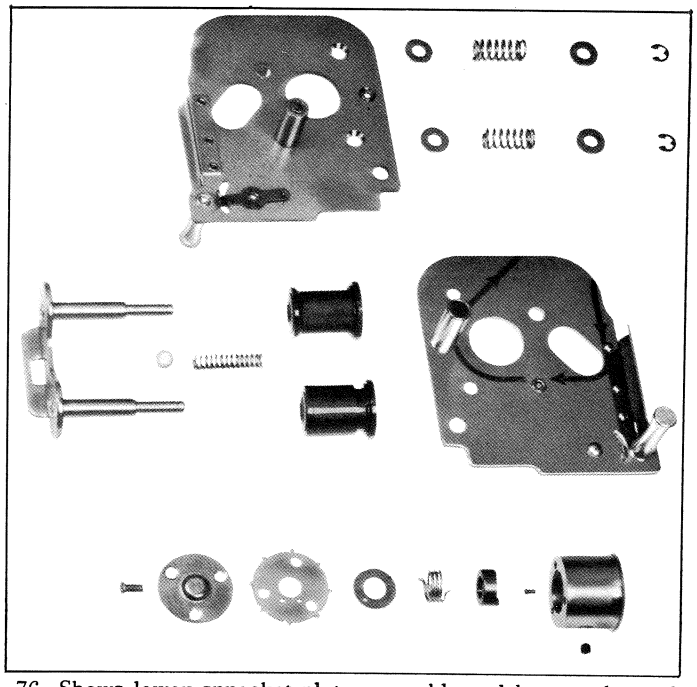


73. Install the upper gear and shaft assembly, the lever and plate assembly, the plate and the pulley, the reversing mechanism internal gear, the reversing mechanism planetary gears, the spider with spring, and the gear (sun) and sprocket. Clearance between the gear (sun) and sprocket and reversing mechanism internal gear should be between .015 and .020 inches. This clearance can be established by setting the gear (sun) and sprocket tight against the reversing mechanism internal gear and then backing it off on the shaft .015 to .020 inches. Place a light film of Kodascope oil on the shaft and on all the gear teeth. If new gears are being installed, they should be run in for about 30 minutes and kept lubricated with Kodascope oil. Apply a small amount of CW5968 lubricant to the detent spring (arrow).

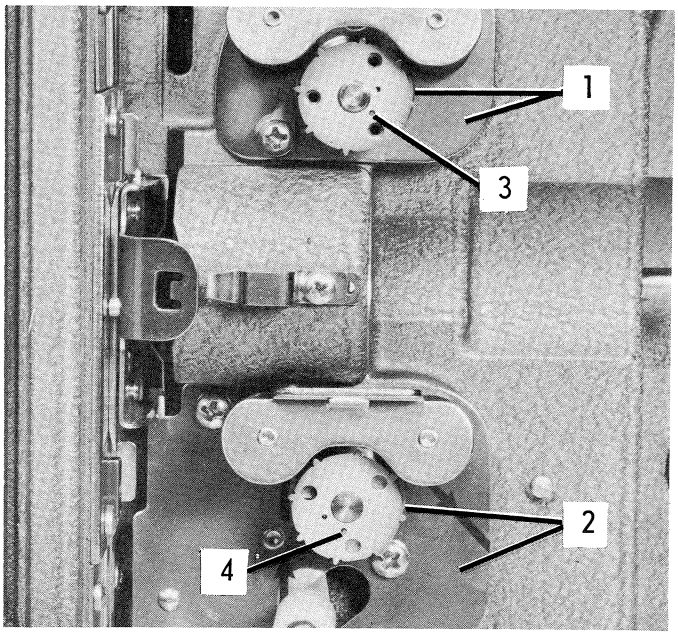
74. Shows the planetary gear assembly, the rewind shift plate, the rewind lever and pivot plate assembly, and the rewind lever handles.



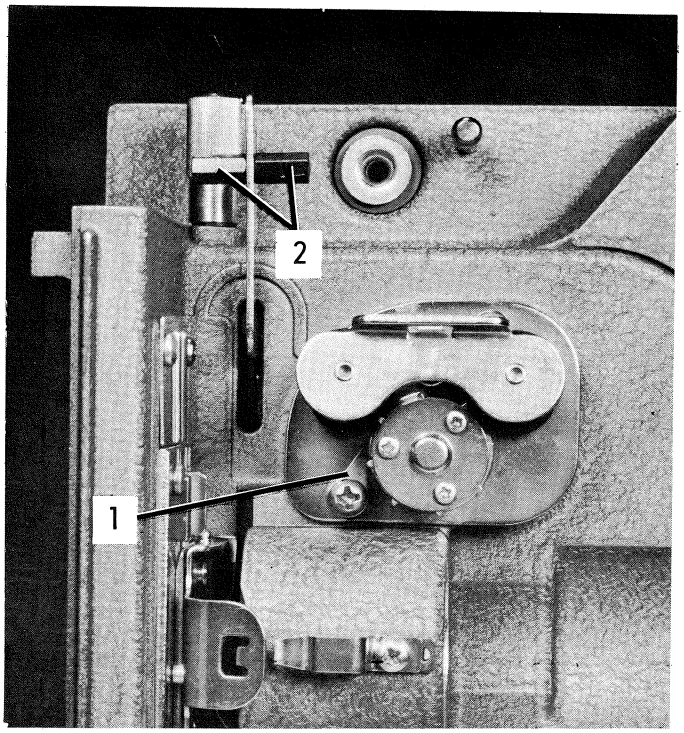
75. If the damping roller has been disassembled, Silicone oil (CW110882) should be placed in the damping bearing cup (arrow 1). Apply Kodascope oil sparingly to the damping roller shaft. When the damping roller is in the relaxed position, there should be no tension on the damping roller spring (arrow 2). Adjust the spring by moving the spring lever (arrow 3).



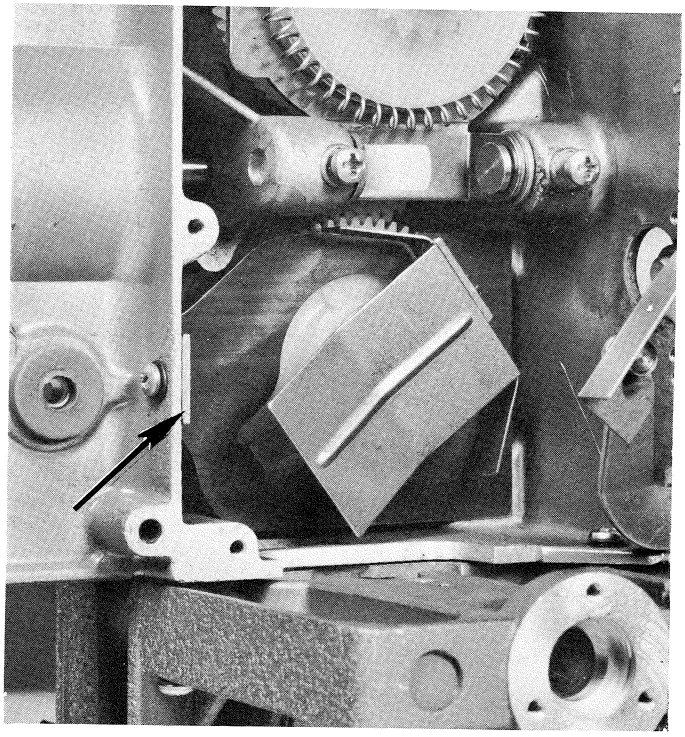
76. Shows lower sprocket plate assembly and the sprocket and parts.



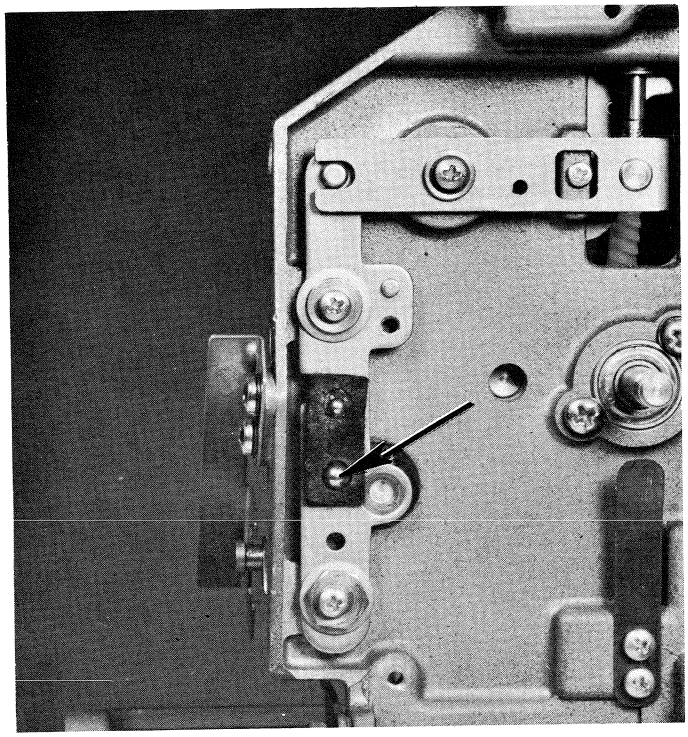
77. If sprocket clamps have been disassembled, lubricate roller shafts with Texaco Unitemp (CW6092) before replacing rollers. Apply Kodascope oil sparingly to the sprocket guard detent springs and balls. Replace the sprocket plate assemblies and sprocket hubs, upper (arrow 1) and lower (arrow 2). Replace the studs and collars. Apply a light film of Kodascope oil to the sprocket shafts and to the collars. Insert the setscrews in the collars and tighten on the flats of the shafts, (eliminating end play of shafts). Replace the springs, washers and sprockets. The top sprocket should be installed as shown with the end of the spring engaging the hole (arrow 3); rotate the sprocket clockwise to align the holes in the sprocket with the screw holes in the hub. The lower sprocket should be installed as shown with the end of the spring engaging the hole (arrow 4); rotate the sprocket clockwise to align the holes in the sprocket with the holes in the hub.



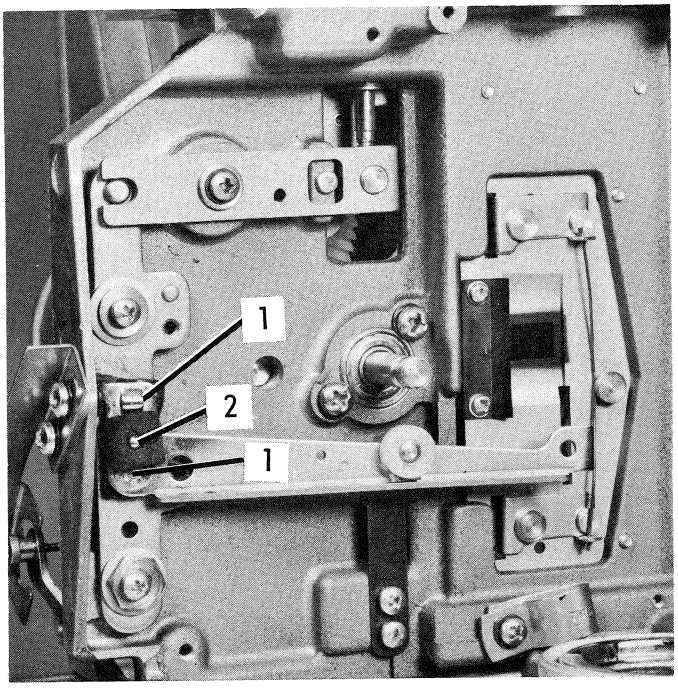
78. Install sprocket end plates and screws. The stripper (arrow 1) should just clear the sprocket hub. Replace rewind lever handles (arrow 2).



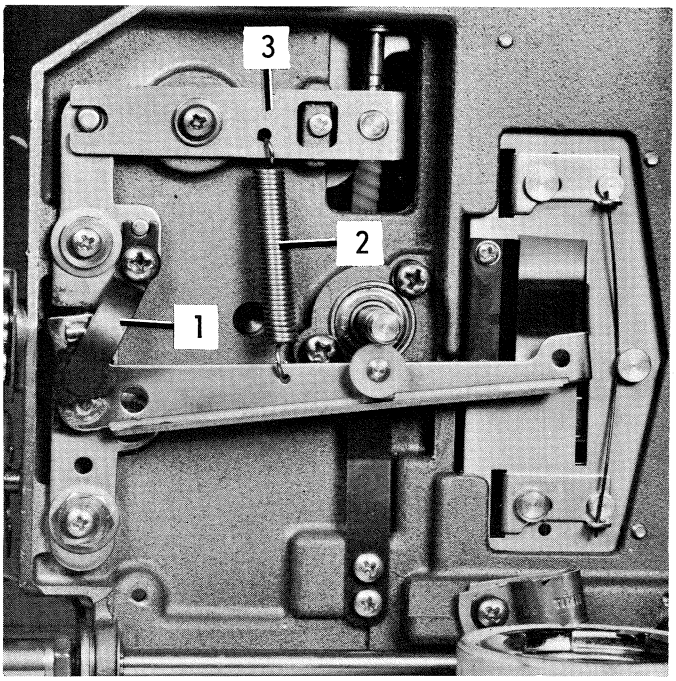
79. Install belt guard, nut plate (arrow), washers, and retaining screws.



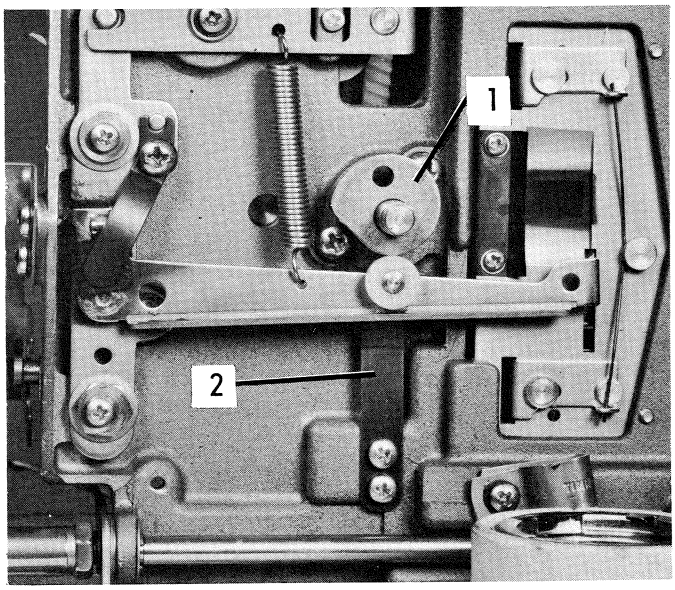
80. Moisten the large felt pad with Kodascope oil and place it in position on the claw pivot plate. Place a small amount of CW5968 lubricant on the large pivot ball and on one of the small pivot balls; then drop them into the holes of the pad with the large ball (arrow) at the bottom.



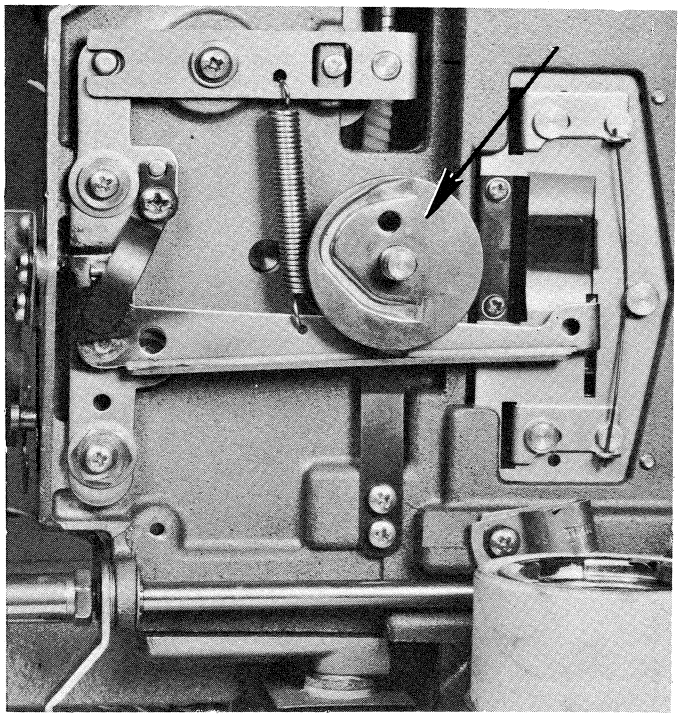
81. Apply a small amount of CW5968 lubricant to the ball recesses (arrow 1) on the underside of the claw assembly. Place the claw assembly in position. Apply a small amount of CW5968 lubricant to the ball recess in the topside of the claw assembly; then drop the remaining small pivot ball (arrow 2) in place. Moisten the small felt pad with Kodascope oil and place the pad in position.



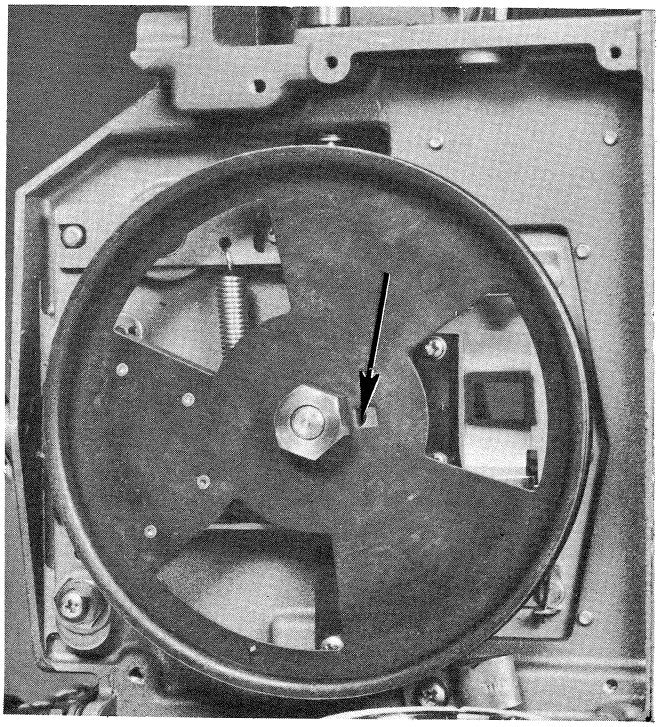
82. Replace the claw assembly retaining spring (arrow 1) and fasten it to the claw assembly pivot plate with its screw and lockwasher. Replace the claw assembly return spring (arrow 2), one end attached to the claw assembly and the other end attached to the framing lever (arrow 3). Apply CW5968 lubricant sparingly to the contact points of the return spring with the framing lever and claw. Make sure that the spring has the pulldown return spring damping insert in place. The claw points should clear the slot in the aperture plate. Adjust the aperture plate if necessary.



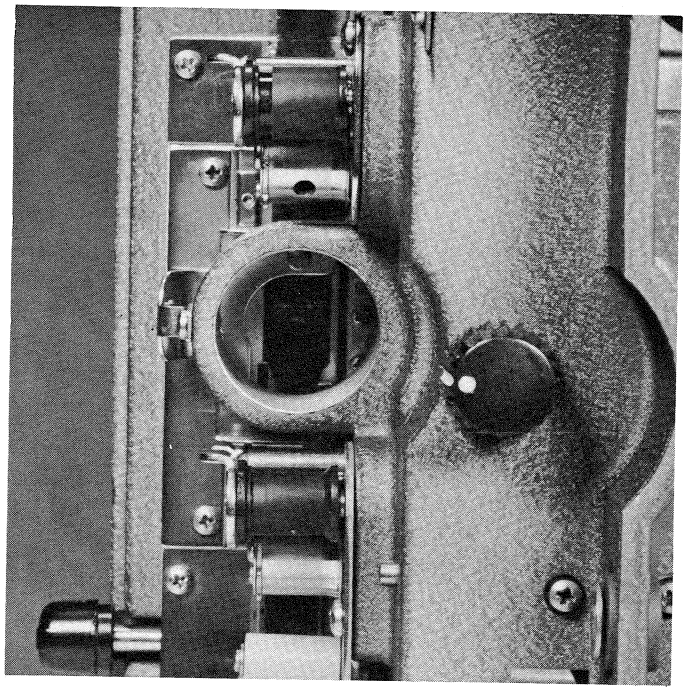
83. Replace the pulldown cam shim washer(s). Wipe off the up-and-down cam (arrow 1), with a clean cloth and then place a light film of Kodascope oil on the surface of the up-and-down cam. Place the cam flat side out, on the shutter shaft. Place a drop of Kodascope oil on the small nylon button on the claw assembly where the button bears against the claw assembly in-and-out spring (arrow 2).



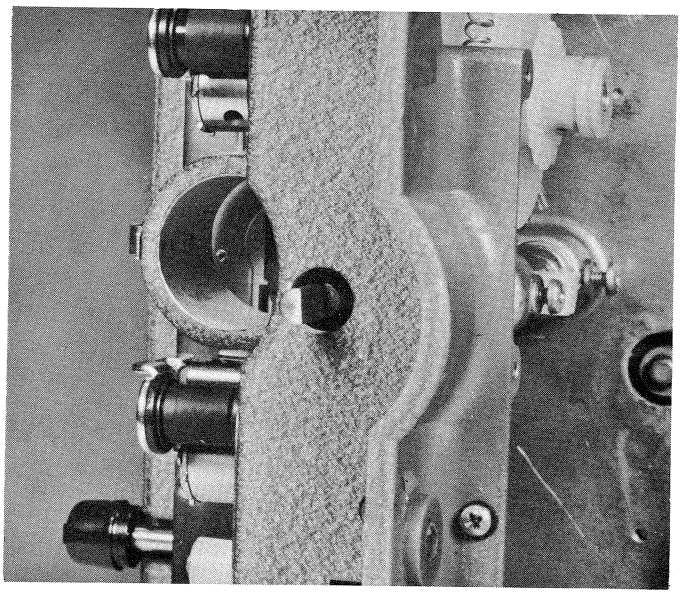
84. Clean and replace the in-and-out cam (arrow), flat side out, on the shutter shaft. Line up the hole in the up-and-down cam with the hole in the in-and-out cam.



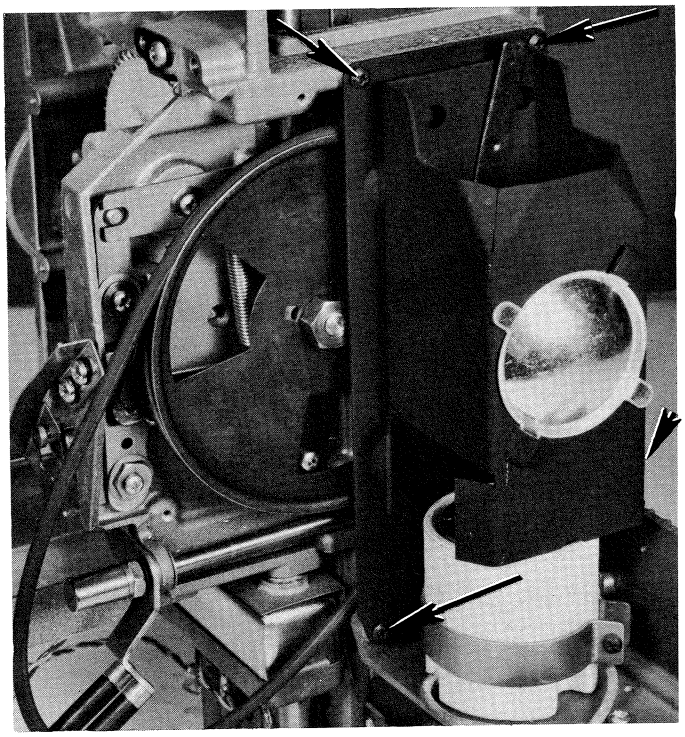
85. Replace the shutter with the shutter timing lug (arrow) in the aligned holes in the in-and-out and up-and-down cams. Replace, but do not tighten, the shutter nut (left-hand thread); then rotate the shutter so that the timing lug is toward the aperture.



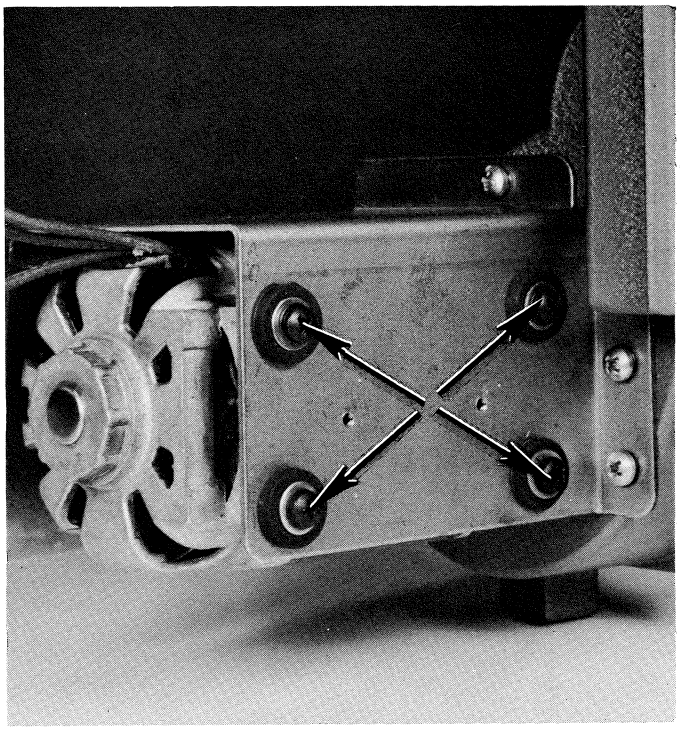
86. Temporarily install the threading knob. Open the gate; insert a strip of film and check the claw protrusion. The beveled portion of the top claw should extend through the film perforation, but not so far that the claw does not properly clear the film on the return stroke. Correct, if necessary, by changing the total thickness of claw shim washers, (see instruction No. 83). (Factory adjustment, using tool No. 813, is .045 inches to .055 inches claw protrusion beyond the aperture plate rails). The claw clearance adjustment (see instruction No. 110) can be conveniently done at this point.



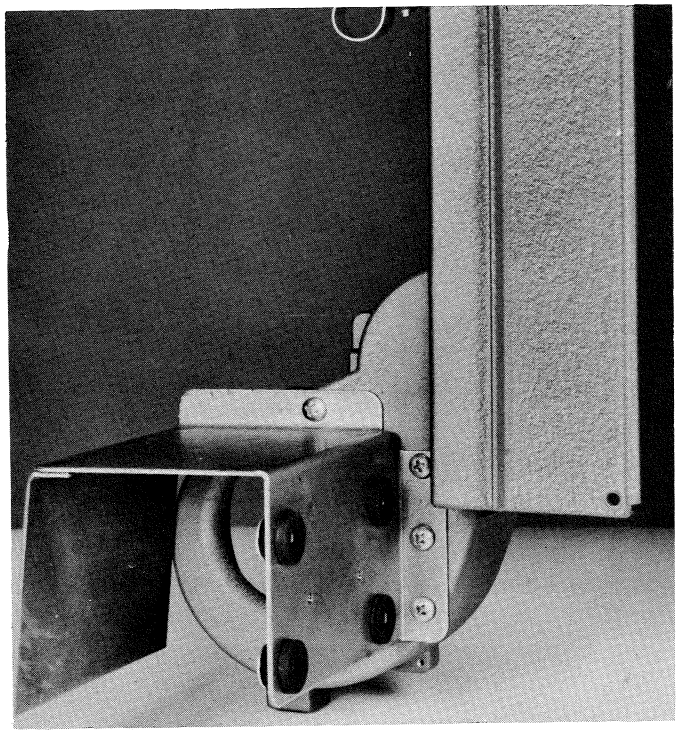
87. Remove the threading knob. The flat side of the shutter shaft should be away from the lens holder casting when the shutter timing lug is toward the aperture. If it is not, hold the shutter to keep it from moving and turn the shutter shaft until the flat side of the shaft is correctly positioned. Hold the shaft with a suitable wrench and tighten the shutter nut (left-hand thread). Replace the threading knob.



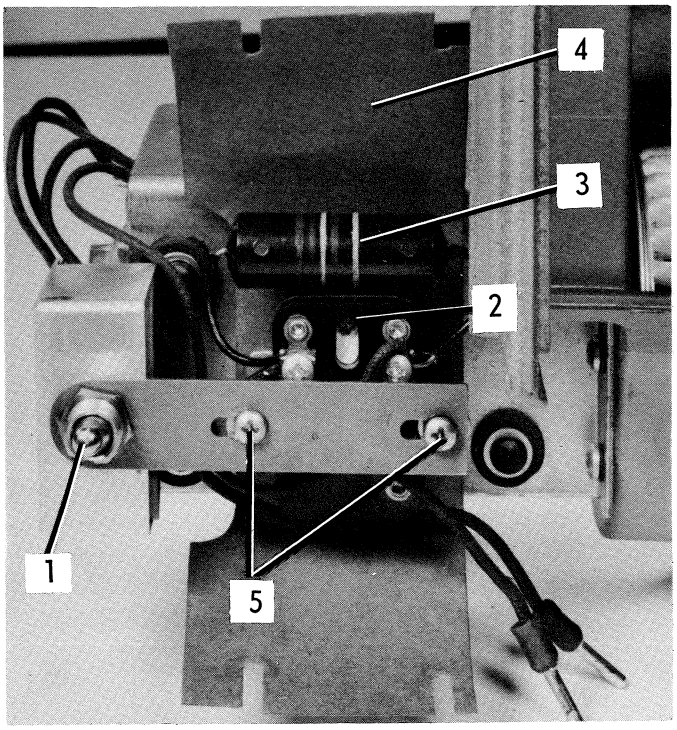
88. Install the drive belt on the shutter. Replace the lamp chimney and secure it with the four chimney screws (arrows).



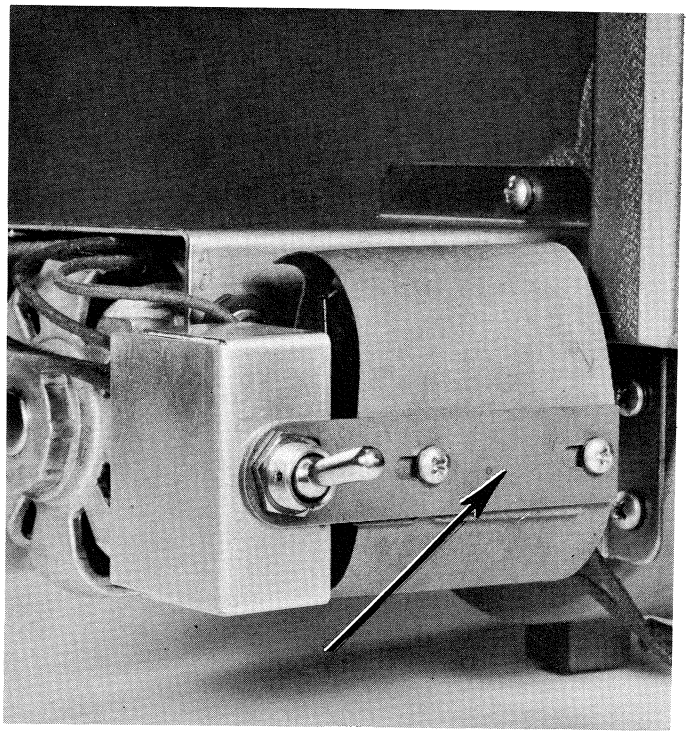
90. Install the motor with the four screws and washers (arrows).



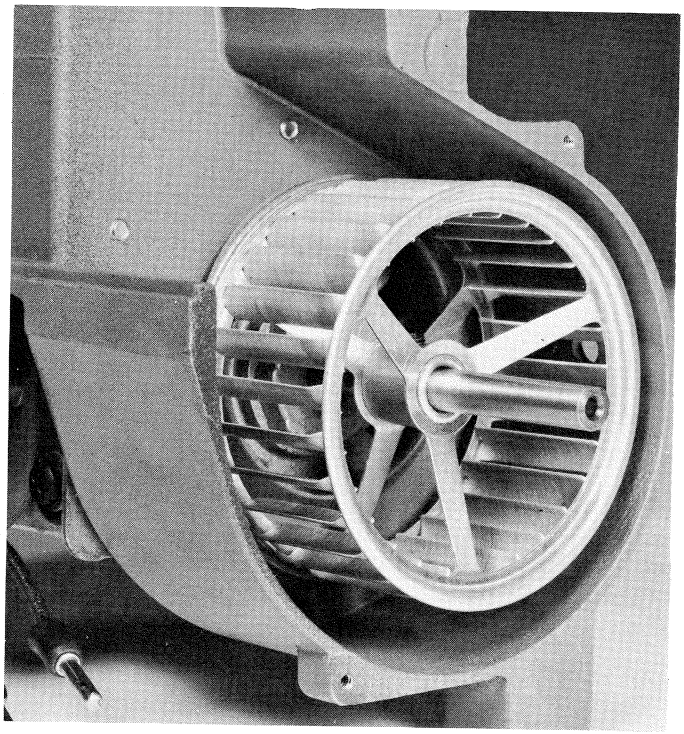
89. Replace the motor bracket and shield on the fan housing, and secure the bracket with the four bracket screws and washers.



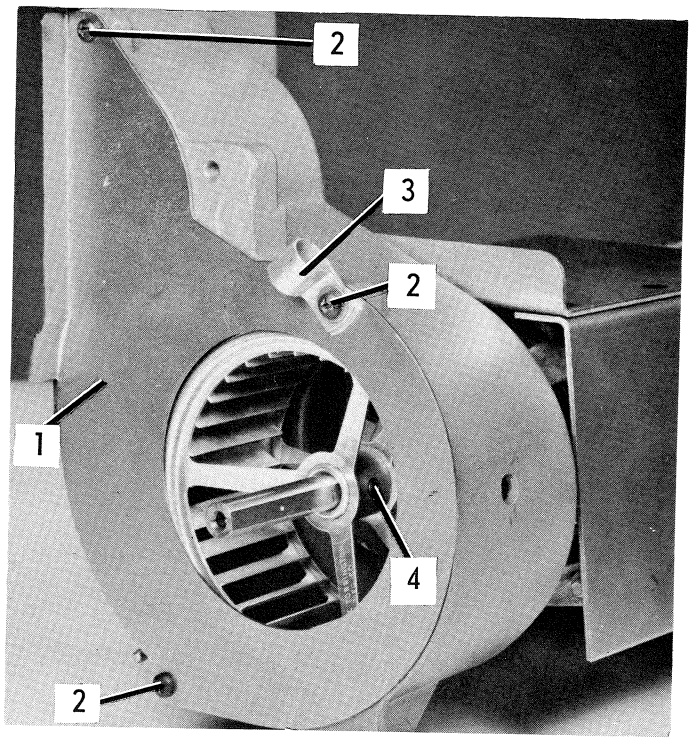
91. Assemble the switch (arrow 1), relay (arrow 2) and the condenser (arrow 3) (see wiring diagram). Attach the assembly and the insulator (arrow 4) oriented as illustrated (located between the relay and the motor bracket), with the two switch bracket screws, spacers and washers (arrow 5). Do not tighten these screws.



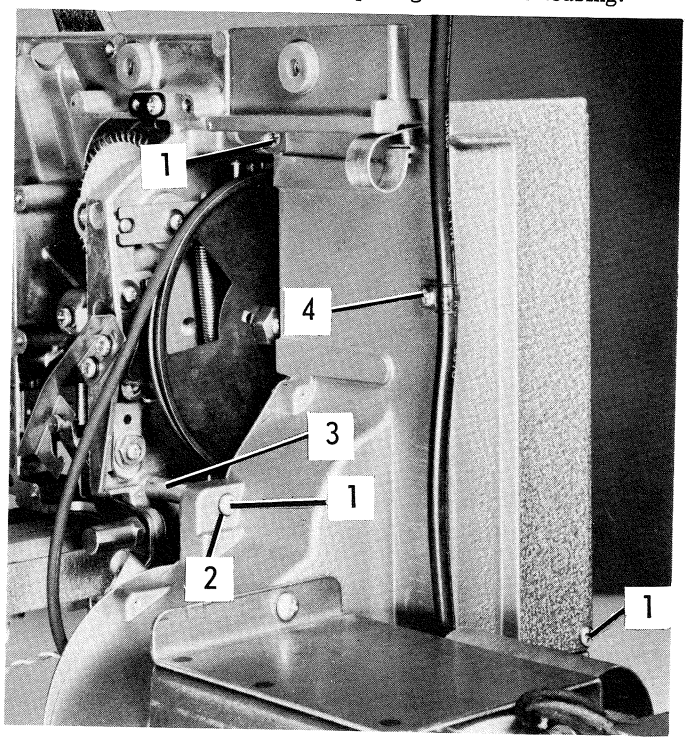
92. Place the ends of the insulator back of the switch bracket (arrow) with the slots in the insulator engaging the switch bracket screws. Tighten the screws.



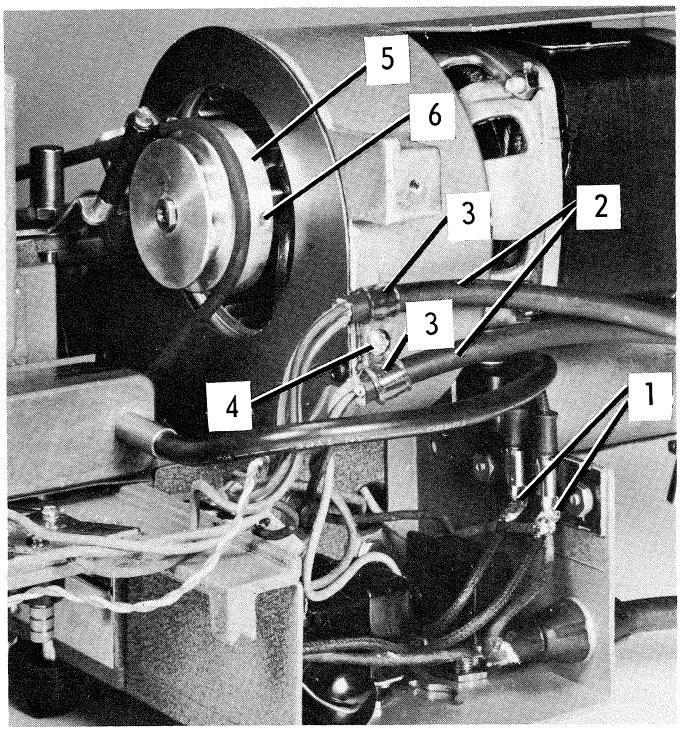
93. Temporarily install the fan on the motor shaft. Be sure the fan is mounted on the shaft so that the direction of the blades is as illustrated.



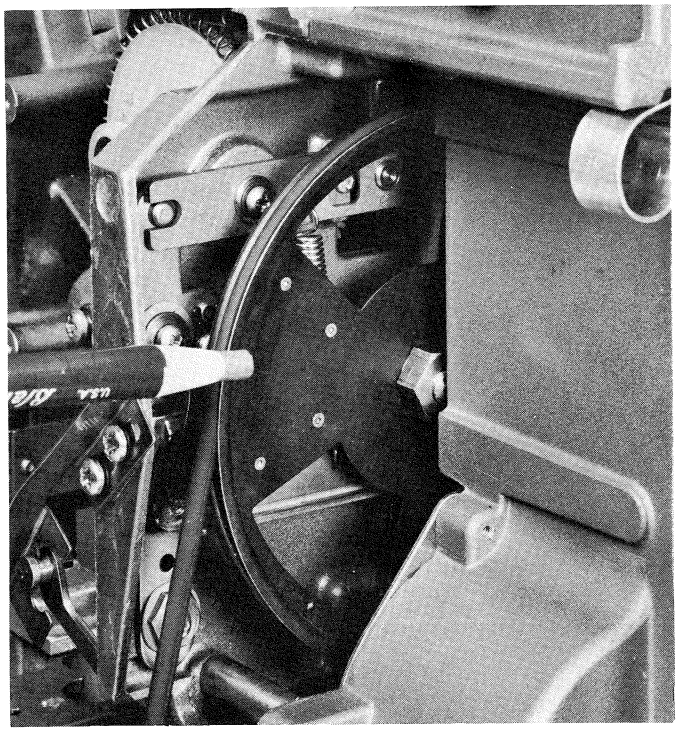
94. Replace the fan housing plate (arrow 1), securing it with the three screws (arrow 2) and the drive belt guide (arrow 3) and washer. The fan should be adjusted on the shaft so that it does not touch the fan housing plate or the fan housing. Secure the fan on the flat of the motor shaft by tightening the fan setscrew (arrow 4), access through the opening in the fan housing.



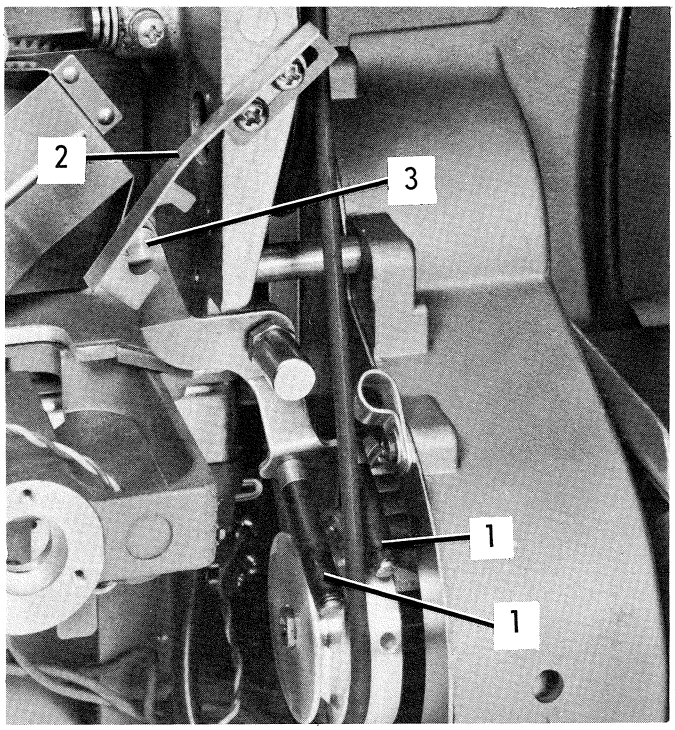
95. Replace the fan housing, securing it with the three fan housing screws (arrow 1), lockwasher (arrow 2) and spacer (arrow 3). Replace the clamp holding the phototube cable, securing it with the clamp screw (arrow 4).



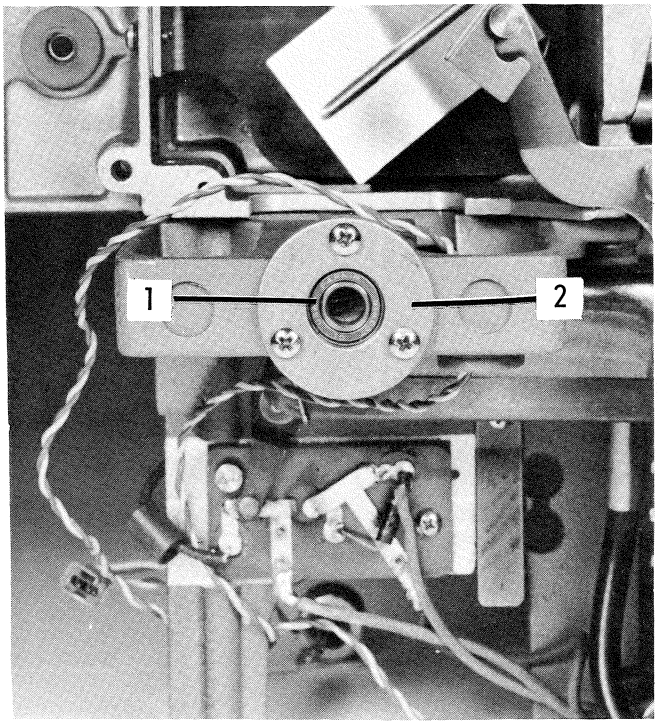
96. Connect the motor wires to the motor connector terminals (arrow 1). Secure the power cords (arrow 2) with the clamps (arrow 3), screw and washer (arrow 4). Temporarily install the motor drive pulley (arrow 5). Replace the drive belt. Align large diameter of the drive pulley with the shutter pulley, favoring sound speed. Tighten the drive pulley setscrew (arrow 6).



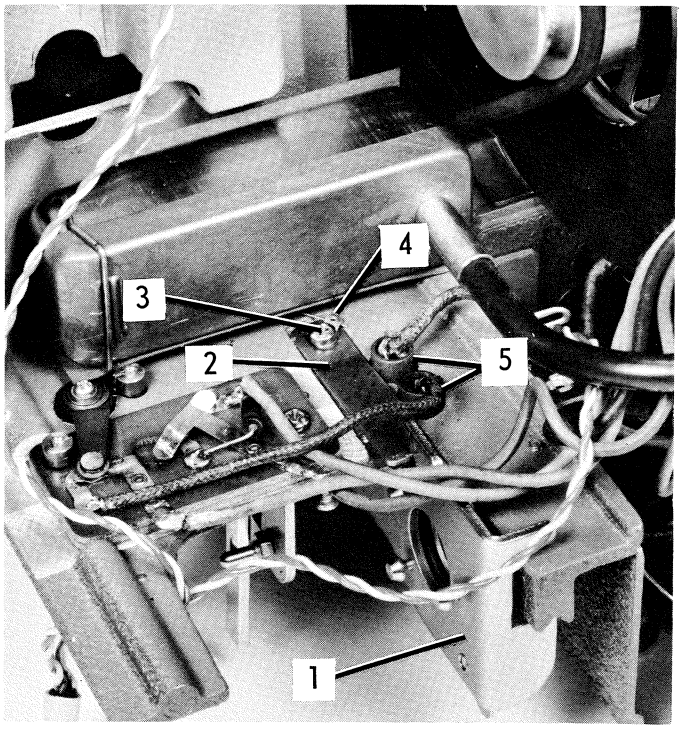
97. With the machine running, hold a china marking pencil so that it lightly touches the edge of the shutter. Low spots will not have any pencil marks. Adjust the shutter at these low points by bending it outward slightly. Recheck and readjust if necessary. Install projection lamp and lamphouse cover.



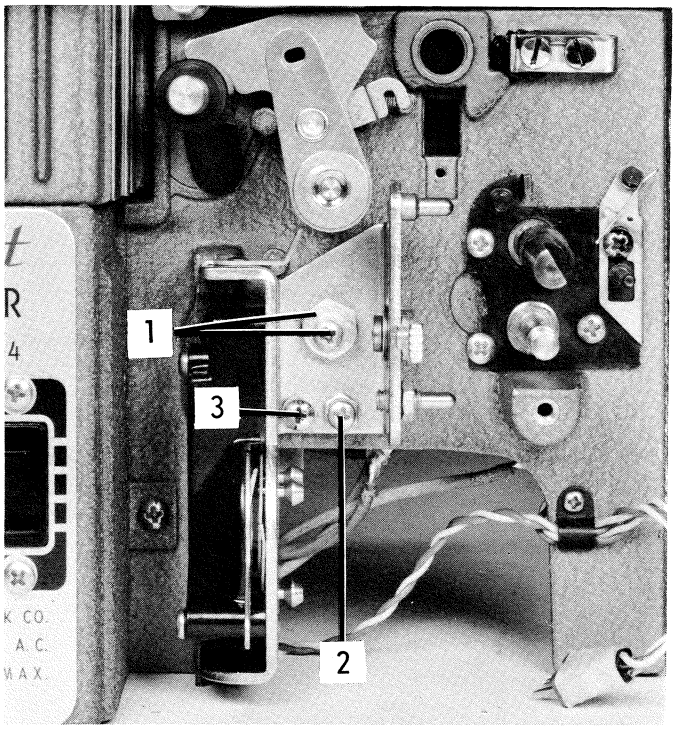
98. The belt shifting fingers (arrow 1) should not touch the belt at either speed setting, nor touch the fan housing at sound speed. If necessary to service the belt shift rollers, apply grease such as CW6092 (Texaco Unitemp) to the roller shafts before replacing the rollers. Adjust the positioning of the rollers by moving the detent spring (arrow 2). Apply a small amount of CW5968 lubricant around the stud (arrow 3) which engages the detent spring. The position of the drive pulley should favor best belt alignment at sound speed (see instruction No. 96).



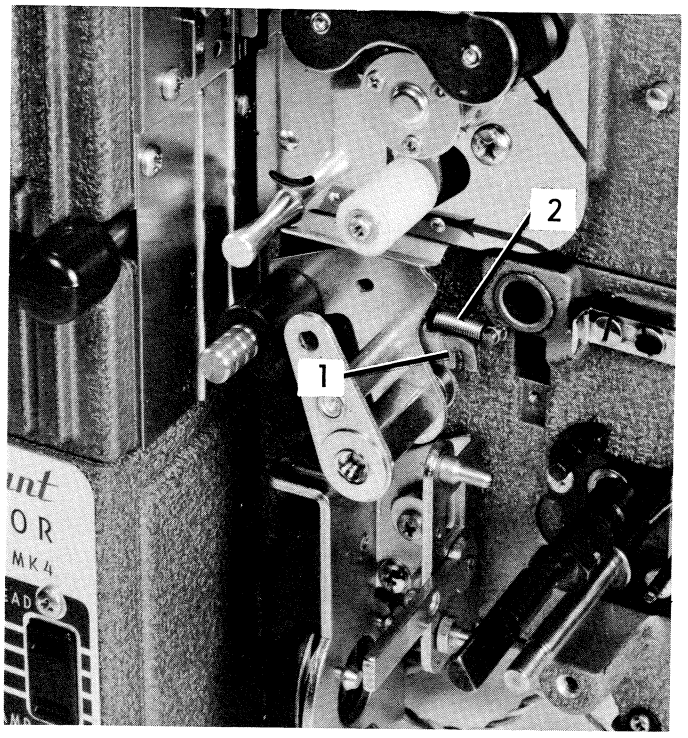
99. Replace the sound drum ball bearing (arrow 1) and secure it with the retaining plate (arrow 2) and the three screws.



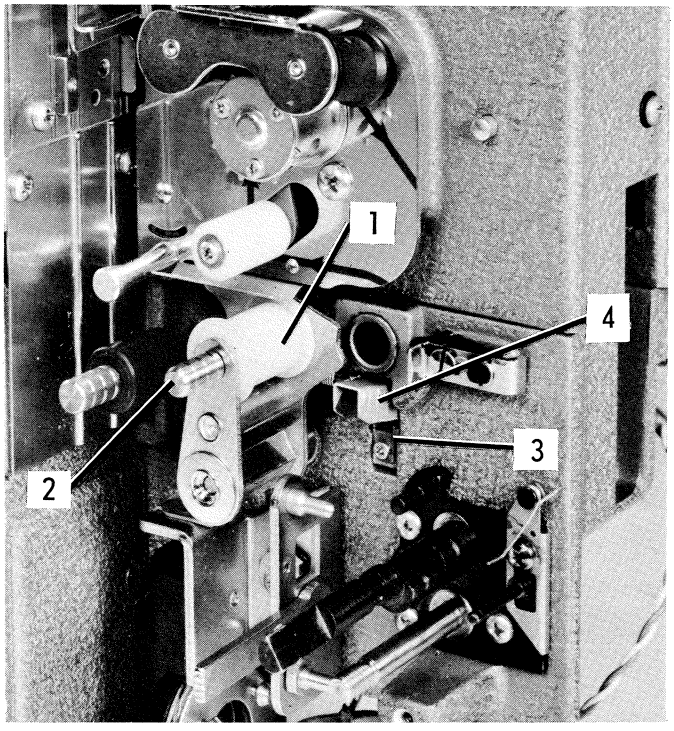
100. Position the exciter lamp bracket (arrow 1) with pivot points in the machined grooves of the casting. Engage the bracket retaining spring (arrow 2) and tighten the spring screw (arrow 3). Be sure the loop-former spring is held in place by the anchor (arrow 4). Replace the two insulators (arrow 5) on the two exciter lamp socket terminals and connect the two exciter lamp wires (see wiring diagram).



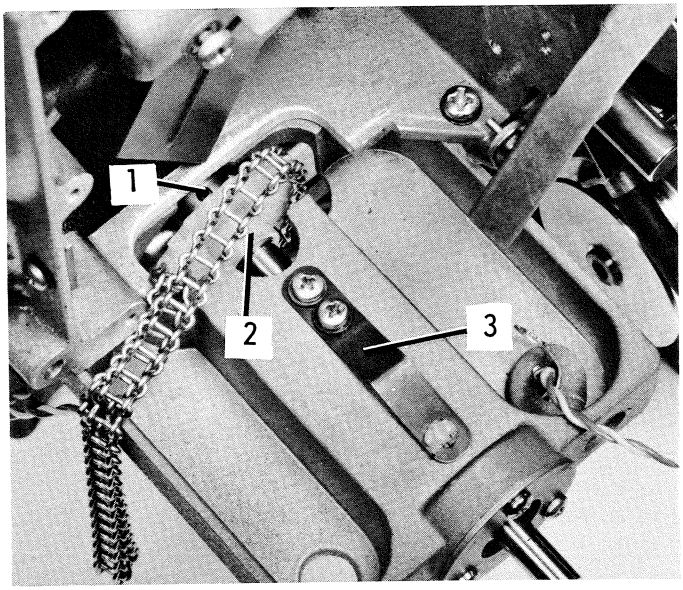
101. Replace the eccentric and eccentric screw (arrow 1), the locknut and screw (arrow 2), and the washer and screw (arrow 3). For sound optics bracket adjustments, see instructions No. 133 and 135.



102. Replace the pressure roller equalizing link (arrow 1). The vertical slot in the link fits on the end of the arm assembly shaft. Make sure the pressure roller spring (arrow 2) (link-to-casting) is not kinked.

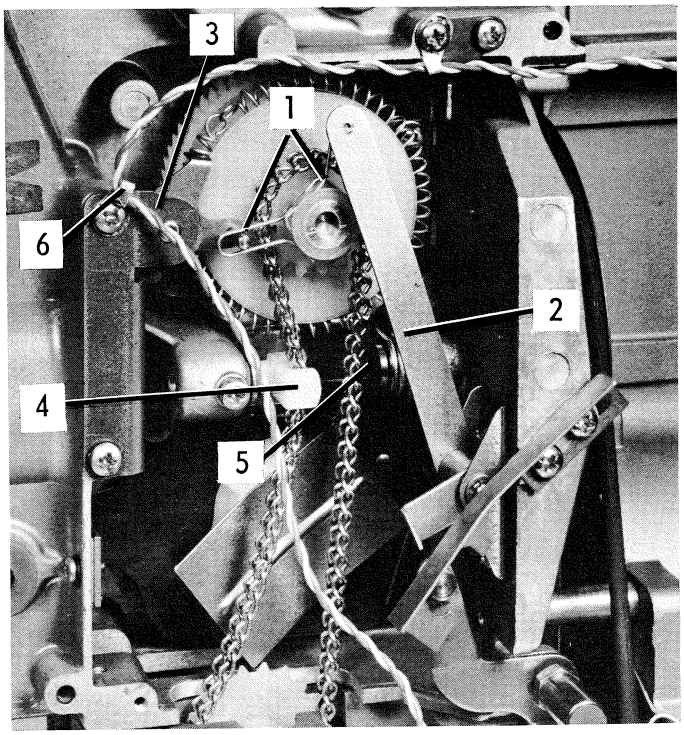


103. Replace the pressure roller (arrow 1) and the pressure roller shaft (arrow 2). Apply a light film of Kodascope oil to the shaft. The horizontal slot in the link fits in the groove in the pressure roller shaft. Install the sound pickup rod (arrow 3) and shield (arrow 4).

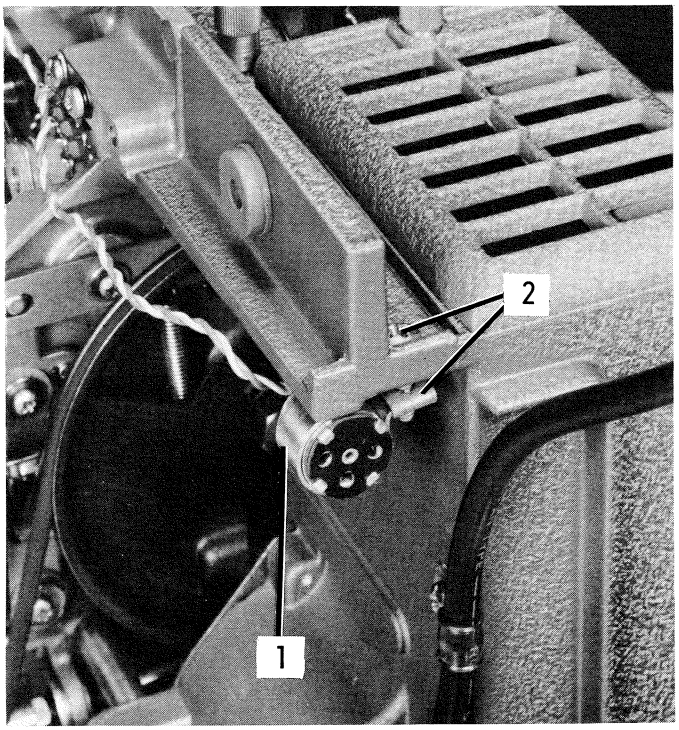


104. Apply a light coating of Kodascope oil to the sound drum shaft. Avoid excessive oiling to guard against oil getting on the sound pickup rod. Push back on the pressure roller; slide in the sound drum and flywheel shaft assembly, and install the ratchet, sprocket and pawl assembly with chain, and the retaining ring. The ratchet and the pawl should be lubricated sparingly with Kodascope oil. Tighten the setscrew (arrow 1) in the ratchet, making sure that the ratchet bears lightly against the sprocket and pawl assembly (arrow 2). Install the braking spring and button assembly (arrow 3).

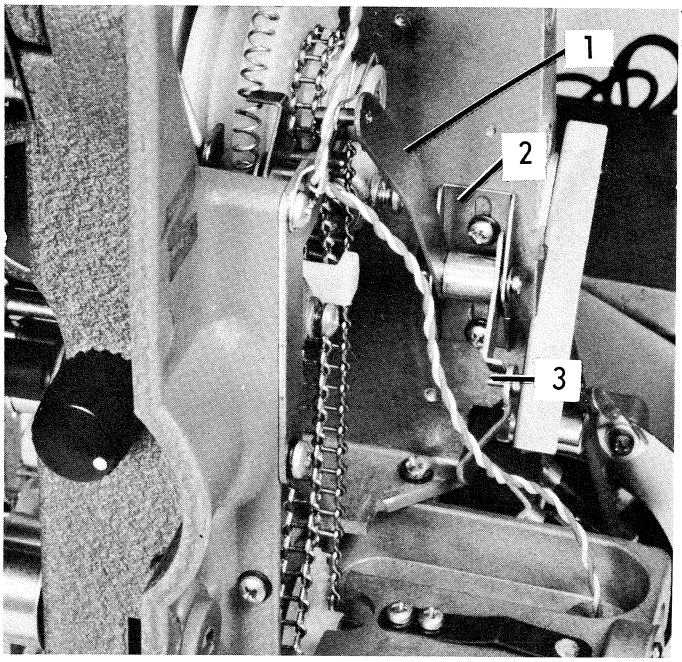
105. Shows sound drum and flywheel shaft assembly, ratchet, sprocket and pawl assembly, retaining ring, chain, ball bearing, retaining plate, and screws.



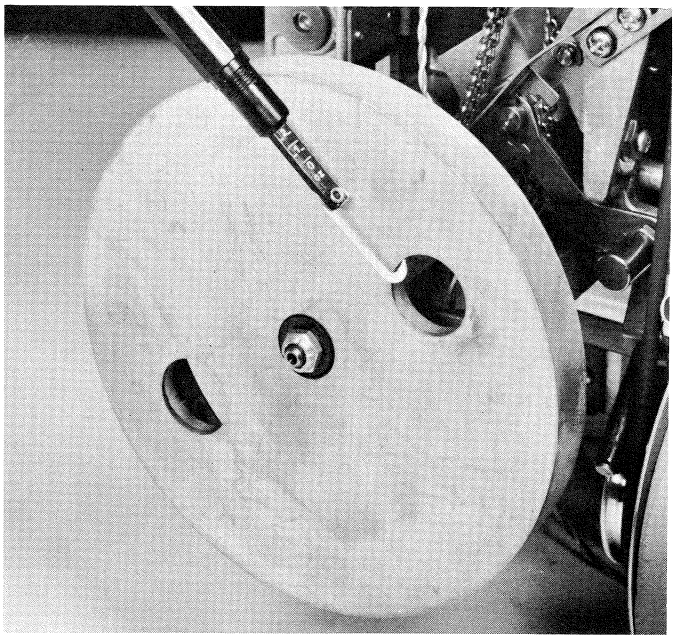
106. Replace the chain. Replace and apply a light coating of Kodascope oil to the actuators (arrow 1); reverse shift lock assembly (arrow 2) and tension clutch and bushing assembly (arrow 3). Adjust the chain tension adjustment stud (arrow 4) so that there is a slight amount of slack in the chain. Too tight an adjustment of the chain will result in wows in the sound; too loose a chain will allow it to strike the pivot shaft (arrow 5) when the projector is elevated. Install the clip with wires (arrow 6).



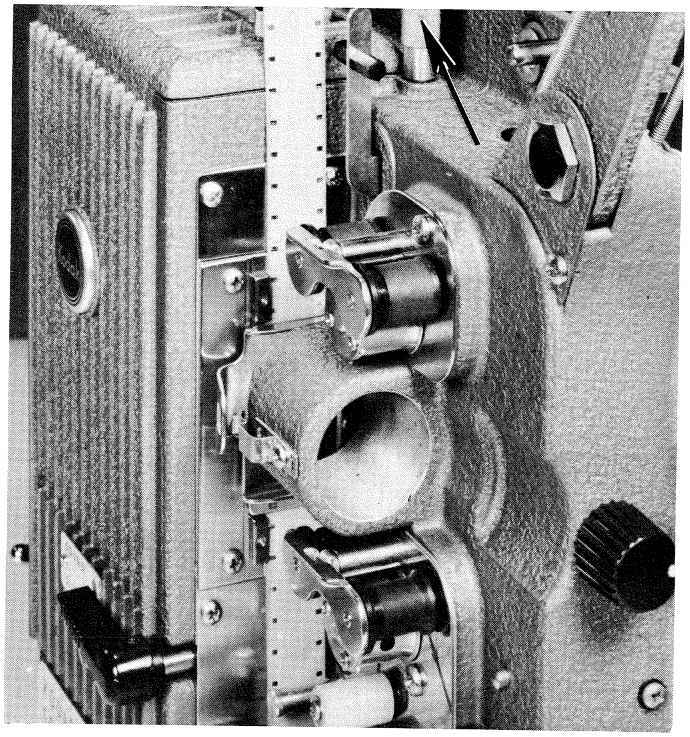
107. Replace the magnetic sound head projection cable socket (arrow 1) and secure it with the clamp and screw (arrow 2).



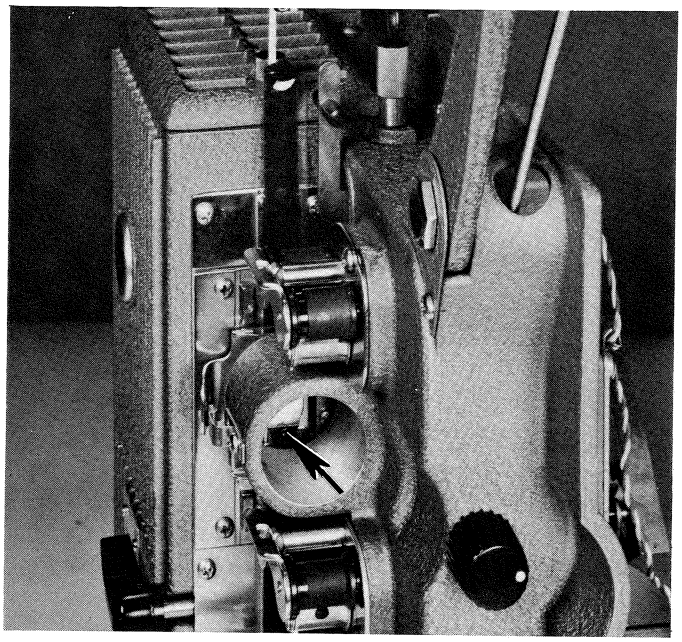
108. Turn the threading knob counterclockwise to bring the reverse shift lock assembly arm (arrow 1) forward as far as it will go. Move the bracket (arrow 2) up or down, as required, to provide approximately .020 inches clearance at the point shown by arrow 3. Replace the rewind belt.



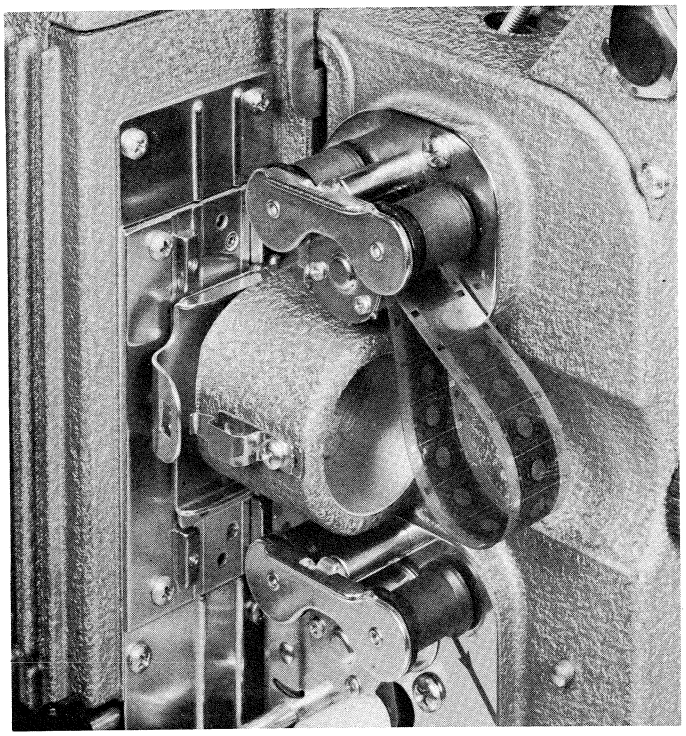
109. Replace flywheel, with phenolic washer next to flywheel, then the spring washer (concave side facing the flywheel) and then the nut (left-hand thread). The torque at which the flywheel slips should be between 3 and 4-1/2 ounce-inches. Check by hooking a pull-type spring scale in one of the motor brush access holes in the flywheel. Keep the axis of the scale at right angles to a radial line from the center of the flywheel to the point of contact of the spring scale, as illustrated. Hold the sound drum firmly to prevent the shaft from turning and note the tension required to start the flywheel to rotate. A correctly adjusted flywheel will require between 2 and 3 ounces tension when the torque is measured in this way.



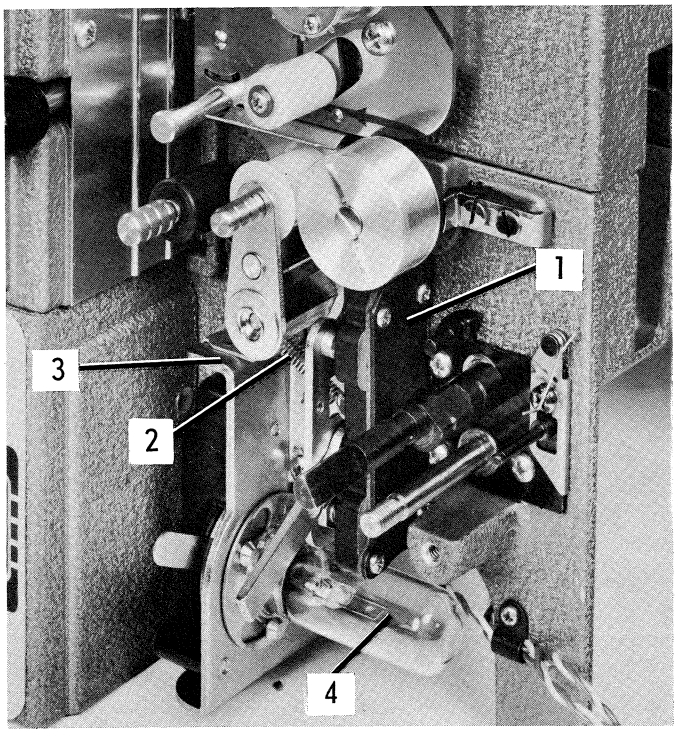
110. Place a strip of film in the gate. Turn the threading knob and observe the claw action, with the framing shaft (arrow) turned first to the extreme clockwise position and then to the extreme counterclockwise position. If either claw point strikes either side of the film perforations or the claw slot, adjust the position of the aperture plate.



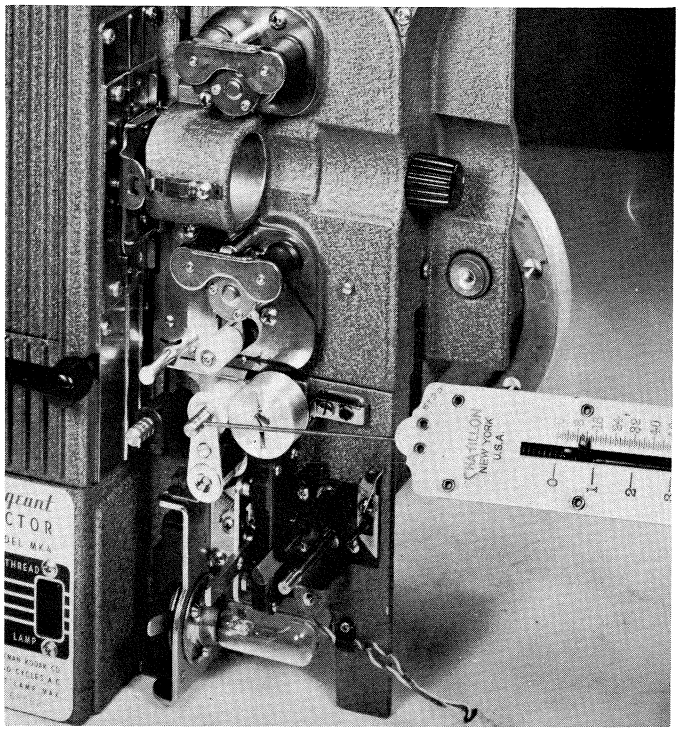
111. With the claw in the retracted position place a strip of processed black-and-white film in the gate. Check the pull-through tension. Tension should be between 1-1/2 and 2-1/2 ounces. If the tension is incorrect, adjustment can be made with a screwdriver inserted through the lens holder. Turn the screw (arrow) on the pressure pad spring clockwise to increase tension, and counterclockwise to decrease tension. Apply a small amount of air-drying cement to the screw.



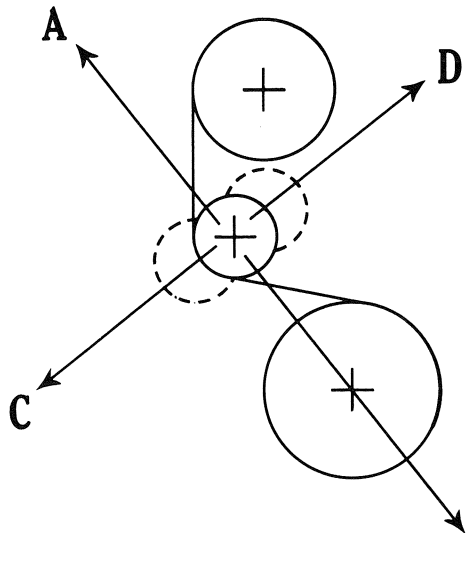
112. Check top and bottom sprocket clamps for proper film clearance. With clamp closed, sprocket rollers should turn freely with two thicknesses of film, but should be snug with three thicknesses. Adjust if necessary by loosening the screws and moving the sprocket plate.



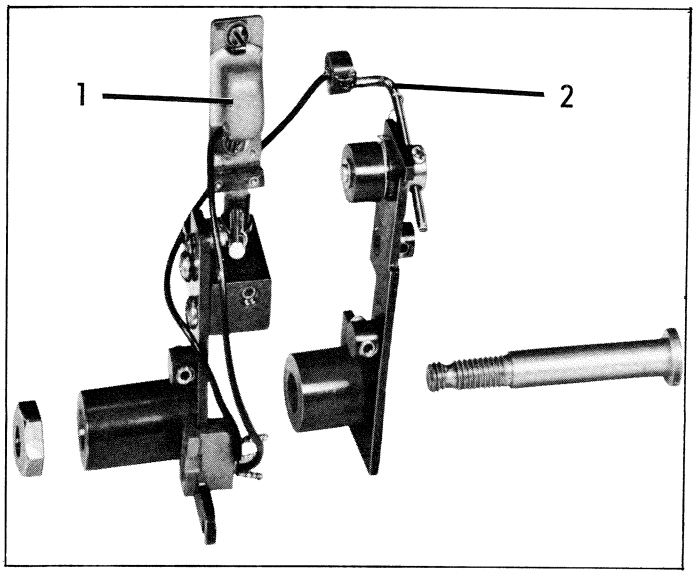
113. Replace the sound optics (arrow 1). Hook the sound optics mount spring (arrow 2) on the sound optics bracket assembly (arrow 3). Install the exciter lamp (arrow 4).



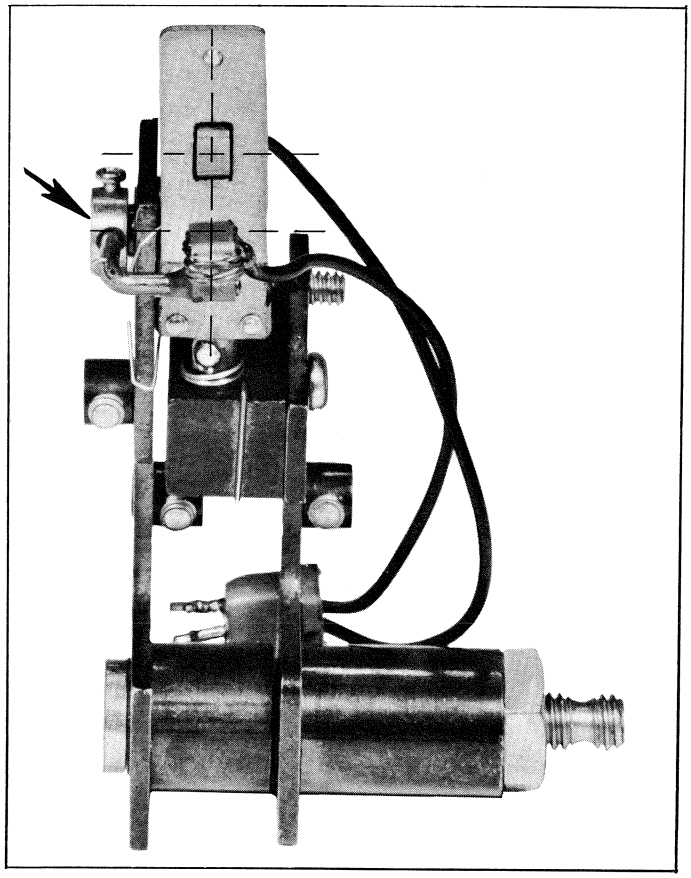
114. Check sound drum pressure roller to see that it is flat against the sound drum. Check the pressure of the pressure roller (12 to 18 ounces). If too great, adjust by stretching the pressure roller spring (see instruction No. 102).



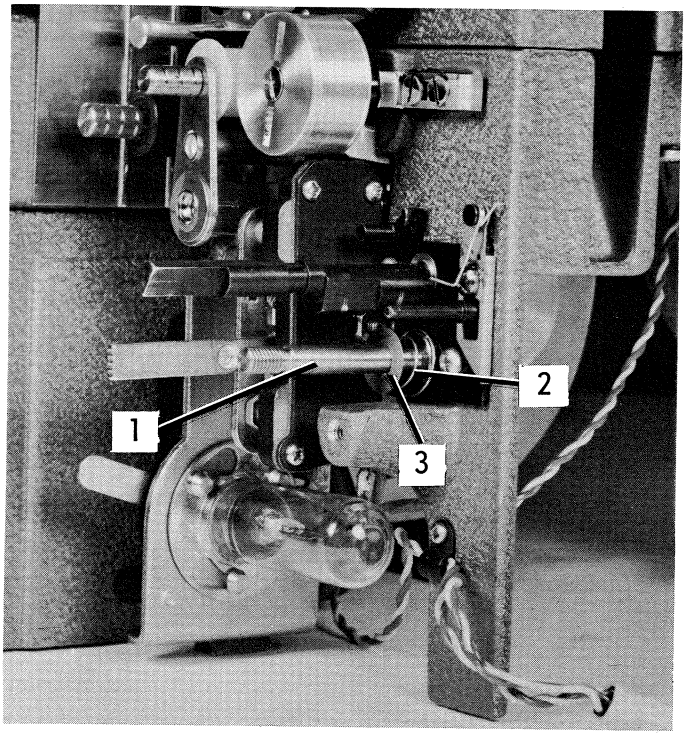
115. Damping Roller Arm Adjustment. Remove the damping roller retaining screw. Thread the projector for sound using non-striped film; turn on the motor, and observe the action of the damping roller. A correctly adjusted roller arm will cause the damping roller to work its way off the shaft slowly when the projector is running forward and cause it to work its way on the shaft slowly (toward the sprocket plate) when the projector is running in reverse. If the roller motion is rapid in either direction, it indicates that the roller arm is bent too much and should be straightened until the in-and-out movement of the roller is slow. Do not bend the roller arm in the direction "C-D"; bend as indicated by "A-B." Replace the damping roller retaining screw.



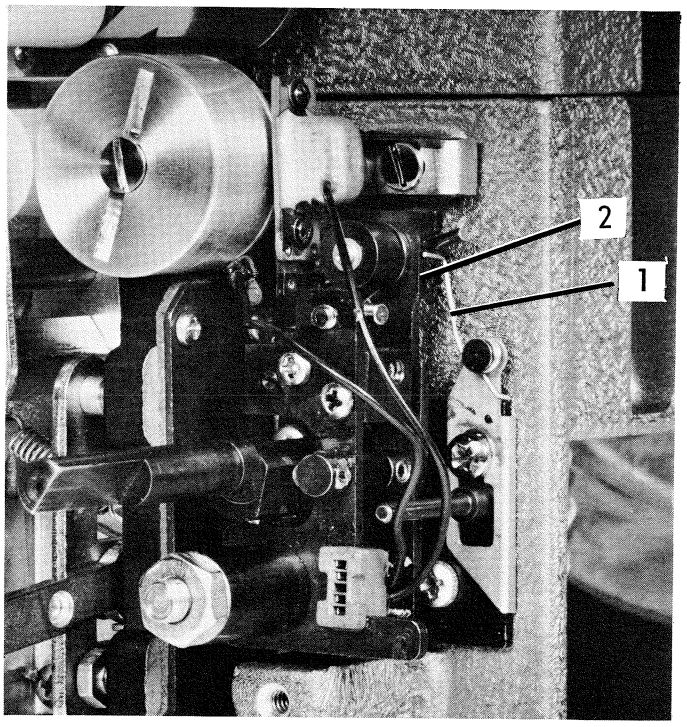
116. Shows record-playback assembly (arrow 1), erase head assembly (arrow 2) and threaded shaft and nut (for holding purposes, see instruction No. 117).



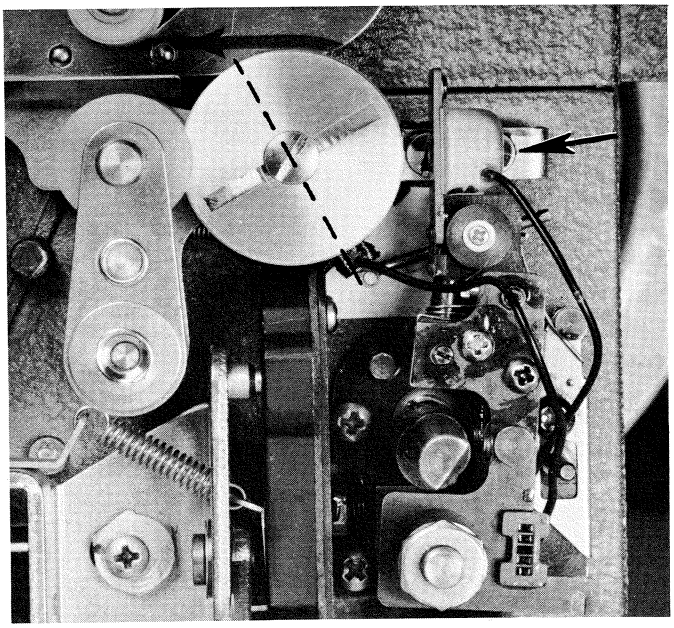
117. Hold the magnetic head assemblies together in the position they will be in when assembled to the projector and make an approximate adjustment of the erase head. (The two assemblies can be held together with a threaded shaft having a body diameter of .202 inches). The erase head should be parallel to and centered on the record-playback head, and the gap in the erase head should be about 1/2 inch from the mounting pivot (arrow). It may be necessary to bend the erase head mounting plate a slight amount in order to center the two heads.



118. In order that the head assembly will operate freely and smoothly, clean any burrs or abrasions off the mounting shaft (arrow 1) with a very fine emery cloth or paper, and oil the shaft sparingly with Kodascope oil. Assemble the spring (arrow 2), small end outward, and the washer (arrow 3) on the shaft.

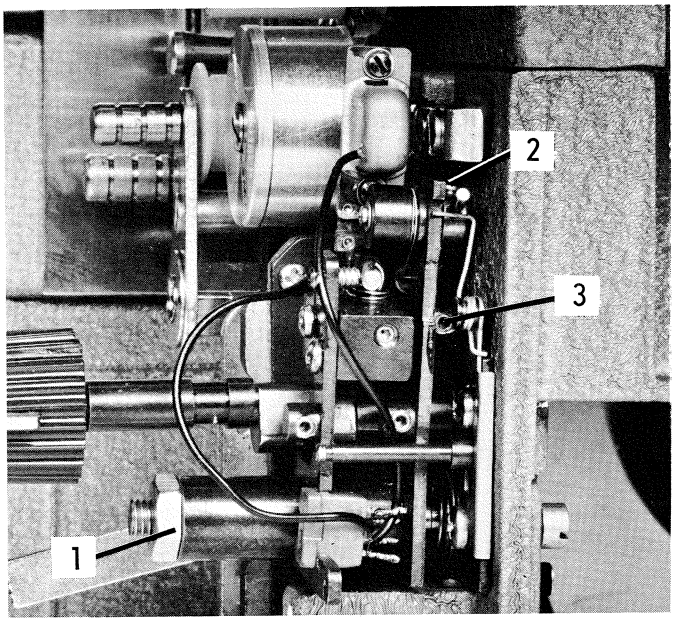


119. With the head switch in the magnetic record-playback position, slide the preadjusted head assembly far enough on the shaft so that the erase head is almost off the sound drum. Be sure that the spring (arrow 1) bears against the erase head mounting plate (arrow 2) as shown. Place one nut on the shaft to hold the assemblies in position.

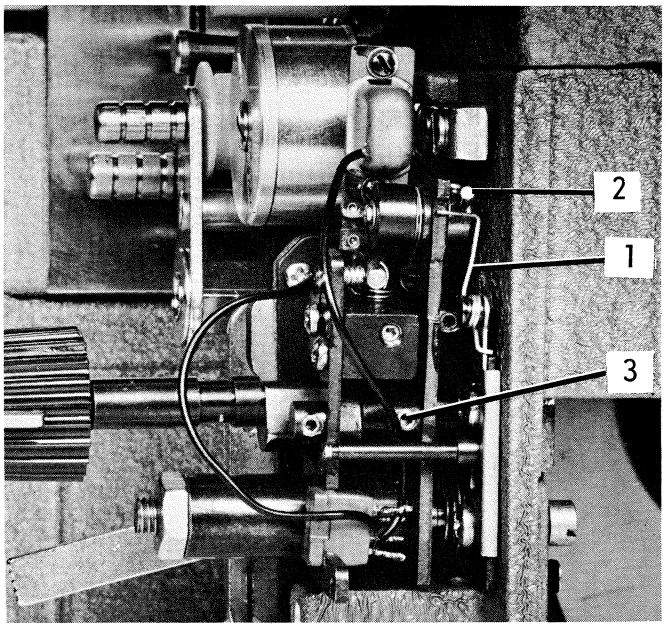


120. When the erase head is correctly adjusted, it will (1) be flat on the sound drum, (2) clear the sound optics and (3) the gap as viewed from the end will be on a center line of the sound drum as shown above.

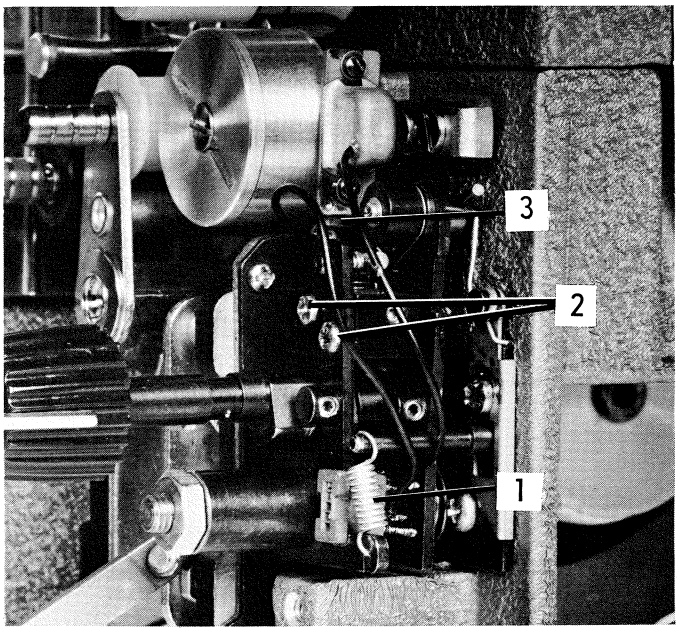
NOTE: The film shoe (arrow) has been precisely adjusted and under no circumstances should it be moved.



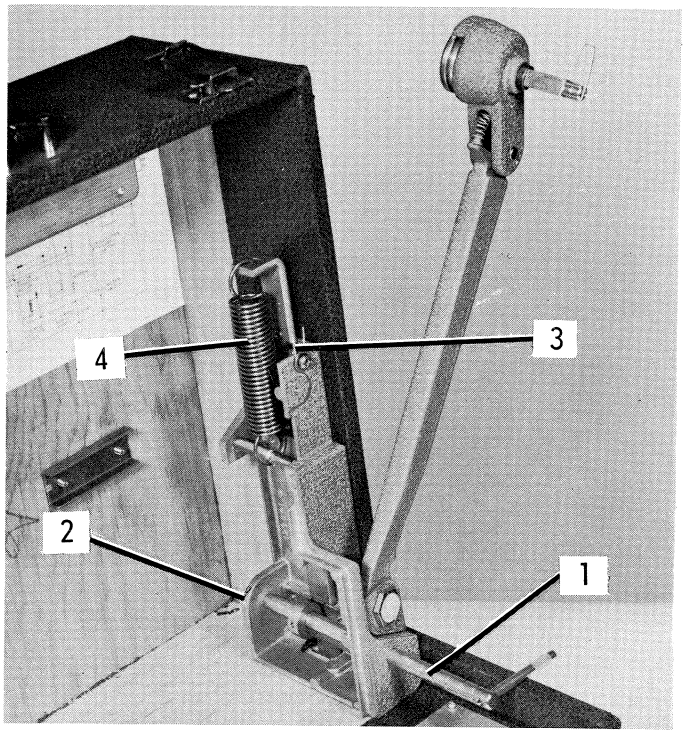
121. Erase Head Adjustment. (A). Check for (1) and (2) conditions of instruction No. 120. If necessary to adjust, loosen the holding nut (arrow 1) and slide the assembly far enough off the shaft so that the erase head arm lockscrew (arrow 2) can be reached. Loosen the lockscrew and reposition the erase head. Turn the holding nut (arrow 1) to position the head assembly far enough on the shaft so that the erase head is almost off the sound drum (as in instruction No. 119). (B). Check the gap alignment, (3) in instruction No. 120. If necessary to adjust, rotate the erase head mounting plate screw (arrow 3). (C). Check for compliance with conditions in (1), (2) and (3) of instruction No. 120, and if necessary repeat A and B, above.



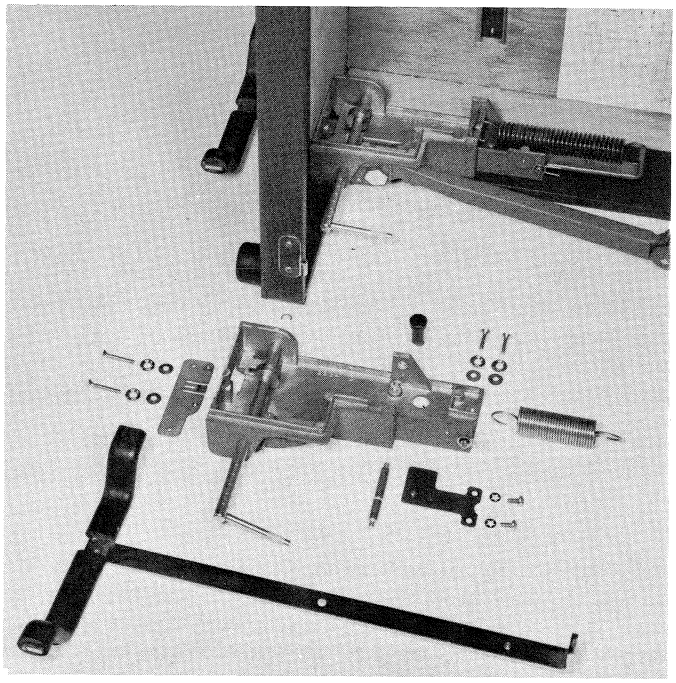
122. The clearance between the erase head and the sound drum should be at least 1/16 inch when the head switch is in the Magnetic Overlap position. The erase head mounting plate spring (arrow 1) contacts the erase arm (arrow 2) as the plate is moved from Record-Playback to Magnetic Overlap causing the arm to rotate about its pivot point, thus moving the erase head away from the sound drum. This movement is regulated by the positioning screw (arrow 3) and therefore to obtain proper clearance between sound drum and the erase head it may require the adjustment of either or both the spring (arrow 1) and the positioning screw (arrow 3).



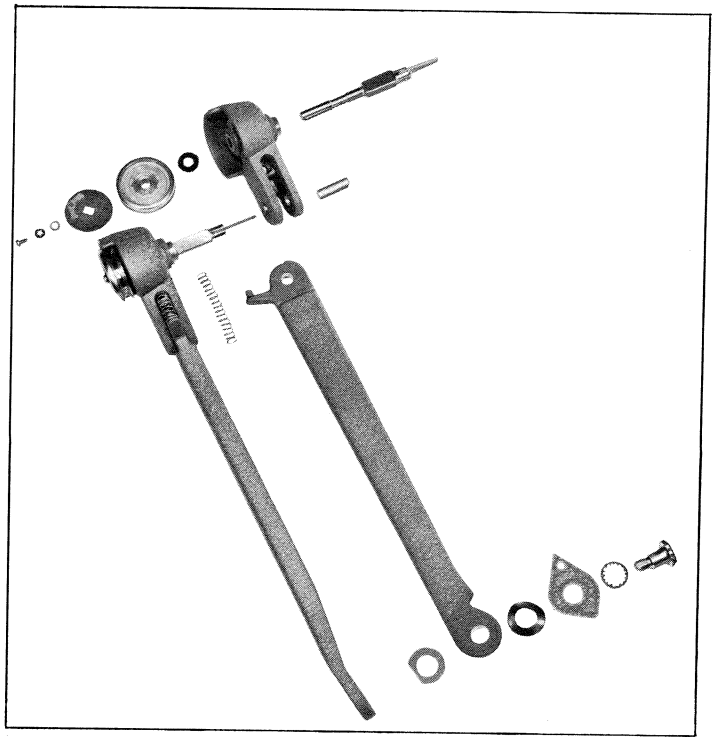
123. Replace the magnetic head return spring (arrow 1). The record-playback head pressure against the film should be exactly 1-1/2 ounces. Adjust by loosening the two mounting screws (arrow 2) and repositioning the head or bending the head mounting spring (arrow 3). Repeat the adjustments in instructions No. 119 through 122 until all mechanical requirements have been met.



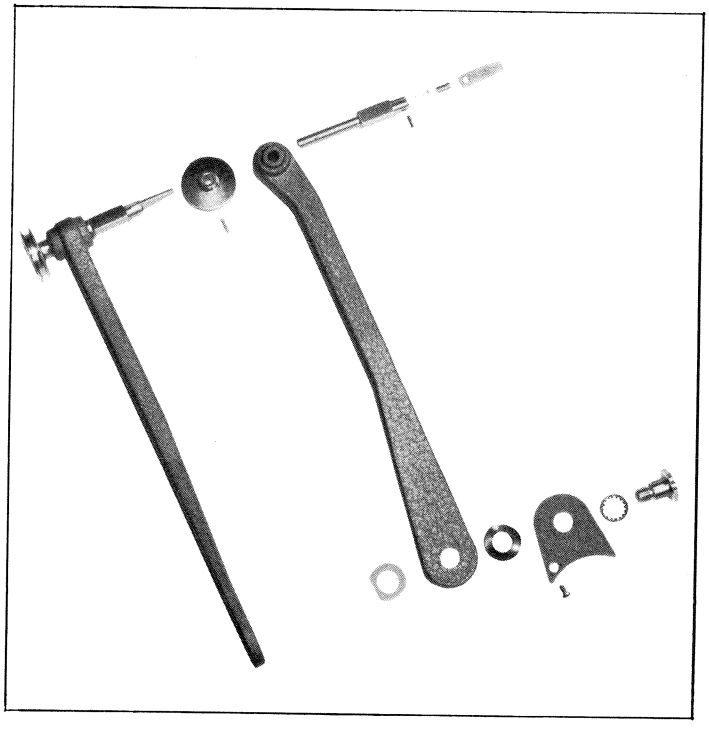
124. Insert the elevating bar assembly through the hole in the bottom of the case and then through the opening in the bottom of the bracket assembly. Replace the elevating mechanism shaft (arrow 1) and the retaining ring (arrow 2). Place the bracket assembly in position in the case and replace the two top (short) mounting screws. Replace the elevating bar clamping plate, securing it with the two remaining mounting screws. Replace the elevating mechanism locking release button and the elevating mechanism locking spring assembly (arrow 3), securing them with the two screws and lockwashers. Elevate the case and install the elevating spring anchor and the elevating spring (arrow 4). Apply CW6782 lubricant sparingly to the various contacting points of the elevating mechanism assembly.



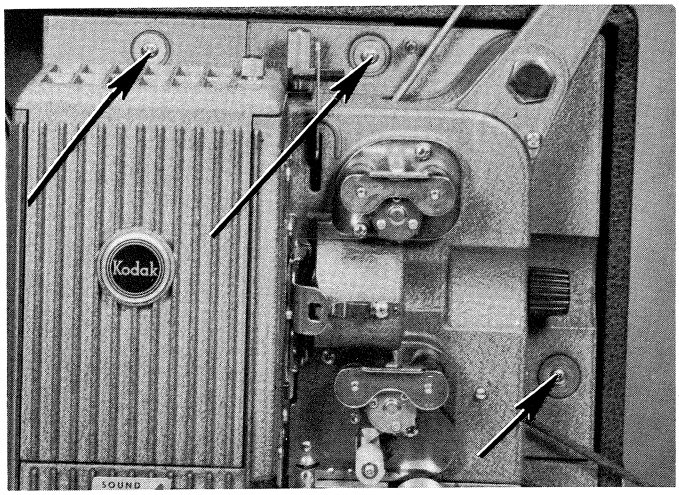
125. Shows elevating mechanism assembly.



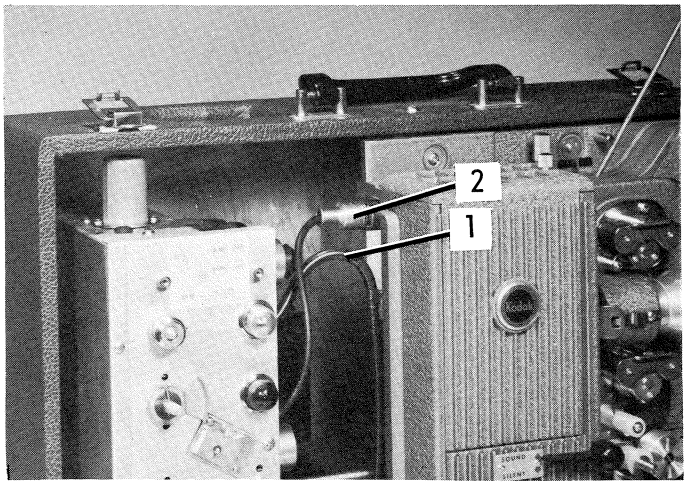
126. Shows take-up arm assembly. If the take-up arm has been disassembled, apply Kodascope oil sparingly to the pawl and the felt washer when reassembling.



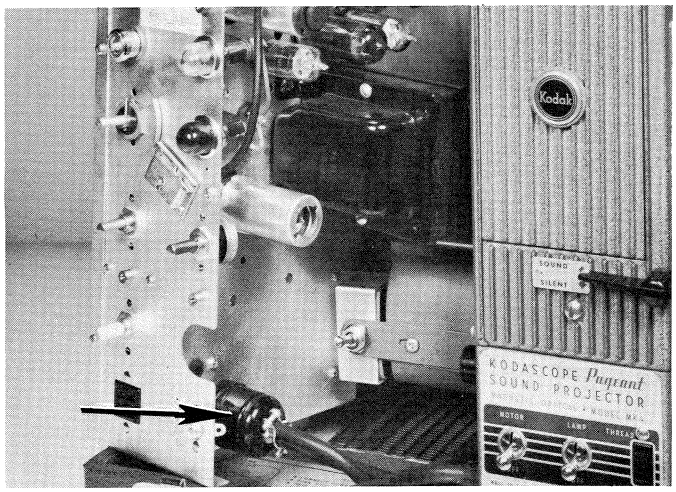
127. Shows rewind arm assembly.



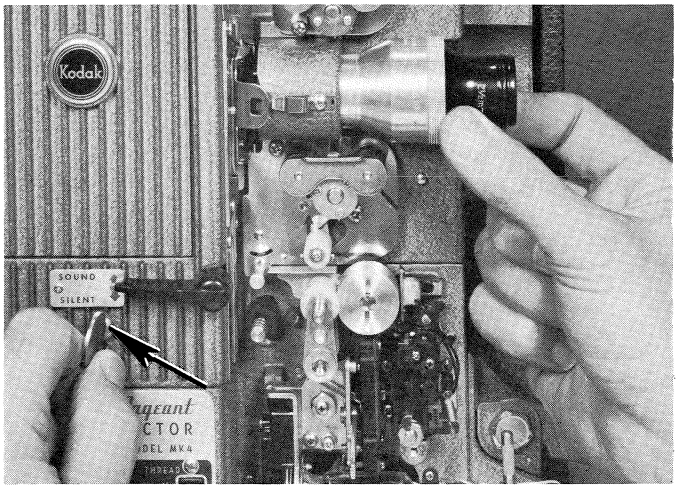
128. Replace the mechanism in the case and secure it with the four mounting screws; three on the front (arrows), one on the bottom. Replace the take-up belt.



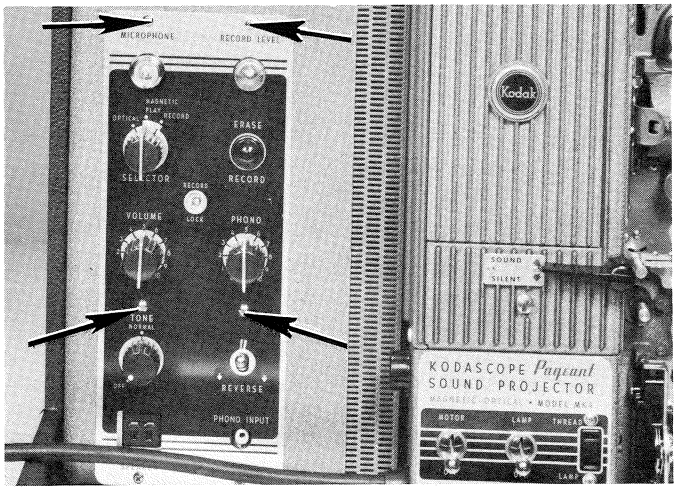
130. Slide the amplifier the rest of the way into the case and secure it with the three screws and washers. Plug in the phototube cable (arrow 1) and the magnetic head cable (arrow 2).



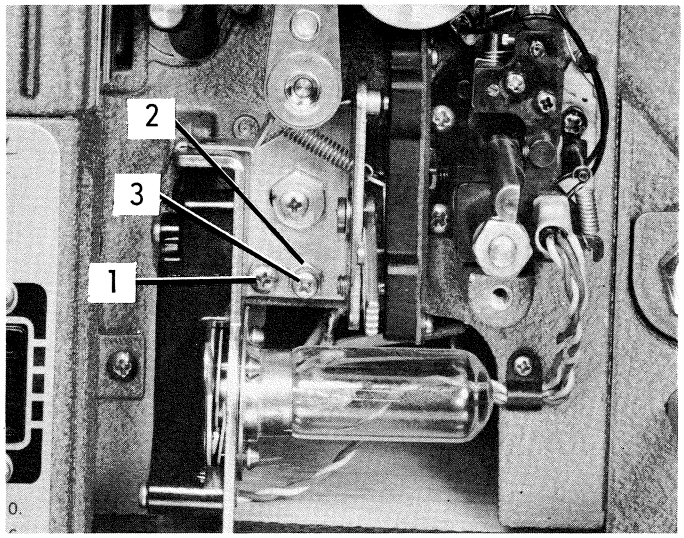
129. Place the amplifier part way into case and plug in the power connector (arrow).



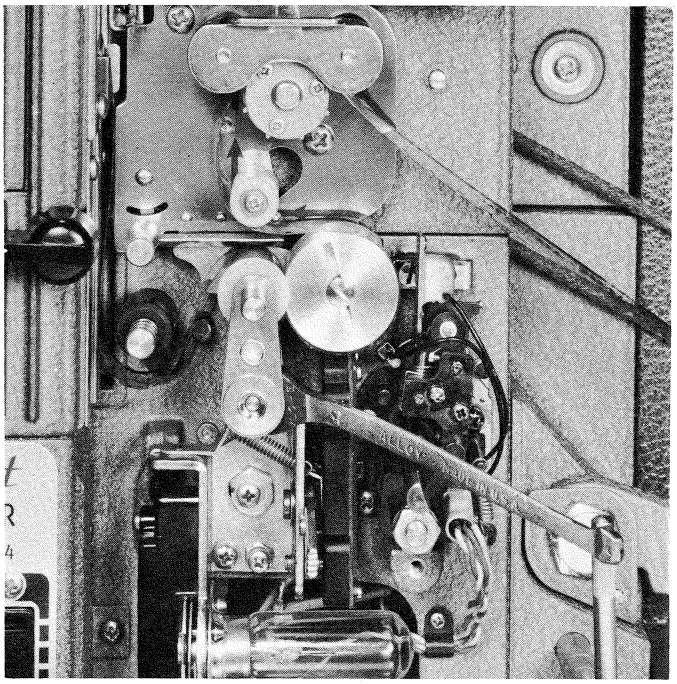
131. Replace the projection lens. Turn on the projection lamp and place a loupe in front of the lens. Project the lamp filaments on a screen, centering the filament image by turning the lamp adjustment screw (arrow).



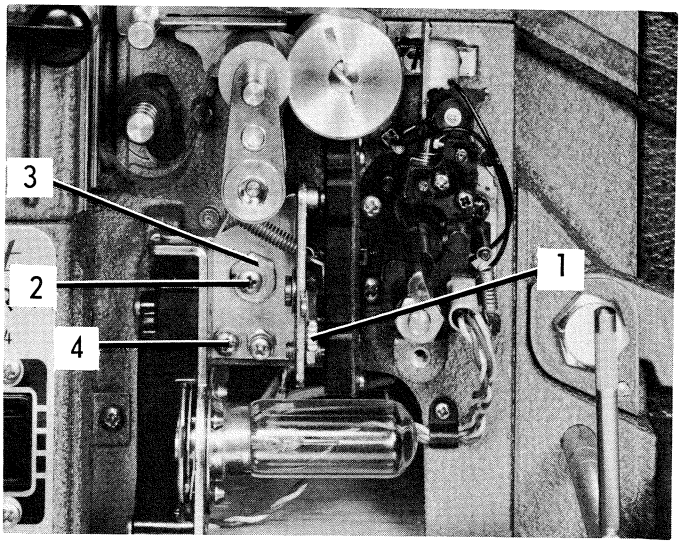
132. Replace the amplifier cover panel and secure it with the four retaining screws (arrows). Replace the control knobs.



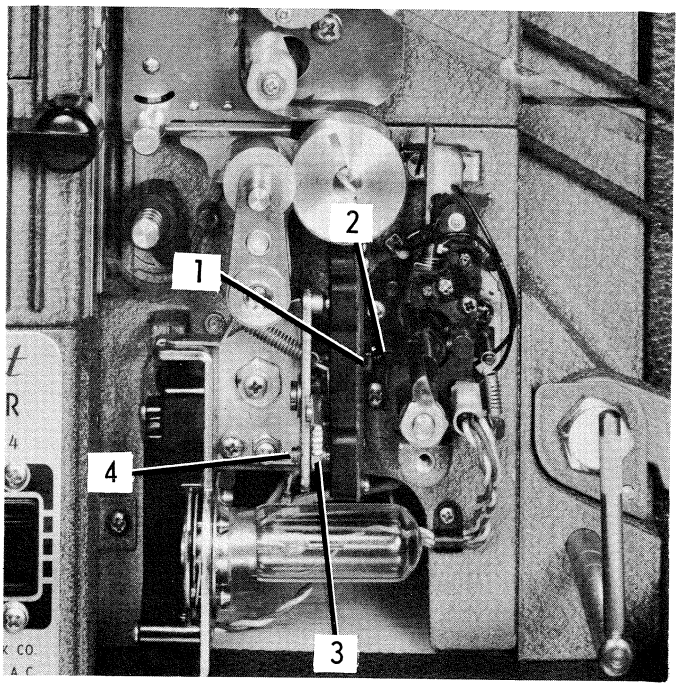
133. Centering of Scanning Beam. Plug in speaker and turn on the amplifier. Observe the scanning beam in reference to lower edge of sound drum. The edge of the scanning beam should just clear the rim of the sound drum but clearance should not be more than .005 inches. If adjustment is necessary, loosen lockscrew (1) and locknut (2). Turn adjusting screw (3) clockwise or counterclockwise as needed. Tighten locknut (2), being careful not to disturb the adjustment.



134. Thread projector with buzz track test film (No. 760383) and run the machine. The pressure roller, for proper overhang of sound track beyond the sound drum, is in correct adjustment when low tone (400 cycle) can just be heard. If this is not true, turn hexagonal spacer to move pressure roller assembly in or out as needed. The distance between inner surface of flange on pressure roller and flat surface of sound drum will be .030 ± .005 inches when the adjustments covered in instruction No. 133 and in this instruction are made. Pressure roller position must insure that inner raised surface of sound drum contacts the film only in area between picture and sound track.

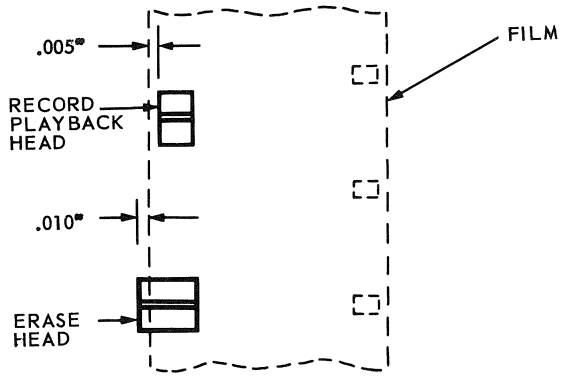


135. Five thousand-cycle adjustment. Thread the projector with 5,000-cycle test film (No. 760382). With the fidelity control lever (arrow 1) in the center of its travel, loosen the eccentric screw (arrow 2) and adjust the eccentric (arrow 3) until the sound output is at maximum. Tighten the eccentric screw. Tighten the lockscrew (arrow 4). Apply a small amount of air-drying cement to these adjustment screws and nuts and those in instruction No. 133.



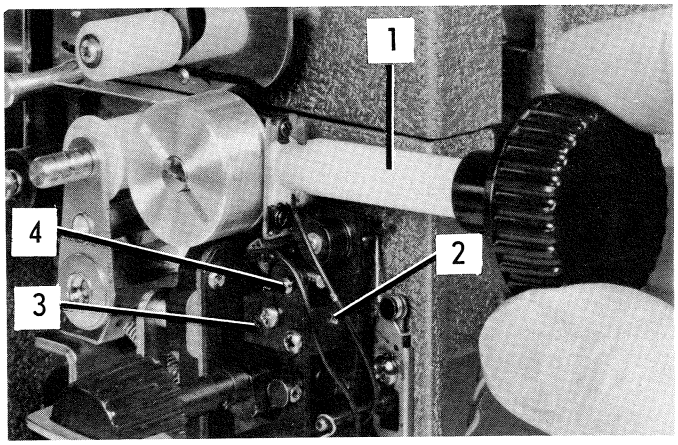
136. Making azimuth adjustments. Thread the projector with 5,000-cycle test film (No. 760382). Peak the fidelity control. (A). Loosen the locknut (arrow 1) and adjust the sound optics by turning the screw (arrow 2), until the sound output is maximum. (B). Loosen the sound optics bracket nut (arrow 3); turn the screw (arrow 4) and adjust for minimum microphonics. Turn the volume up to maximum and tap the soundhead casting during the adjustment. Tighten the sound optics bracket nut and apply a small amount of air-drying cement. Repeat adjustment (A). Tighten the locknut (arrow 1) and apply a small amount of air-drying cement.

SOUND ADJUSTMENTS - MAGNETIC



137. Thread a piece of film through the projector and turn the magnetic head assembly adjusting nut (see instruction No. 121, arrow 1) in until the far edge of the record head is even with the far edge of the film. Back the nut off the shaft one flat, which will bring the edge of the record head about .005 inches from the edge of the film.

Operate the head switch from OPTICAL to MAGNETIC several times so that both mounting brackets have a chance to settle against the separator washer and spring. The erase and record-playback heads should be in positions relative to the film as shown. Lock the head assembly in position using the second nut.



138. Final Adjustments.

A. Thread the projector with Azimuth Alignment test film (No. 760952).

B. Set the projector controls as follows:

1. Tone Control-Normal
2. Phono Volume-Off
3. Amplifier Selector Switch-Magnetic play
4. Master Volume Control-Full
5. Sound Head Selector Switch-Magnetic Playback

C. Connect a 6 ohm 10-watt resistor to the speaker outlet and an ac Vacuum Tube Voltmeter across this load as shown in instruction No. 141A.

D. Run the loop of test film through the projector and adjust the record-playback head for:

1. Azimuth, using Tool No. 962 (arrow 1).
2. Vertical position - lockscrew (arrow 2), adjustment screw (arrow 3).
3. Parallel position - adjustment screw (arrow 4).

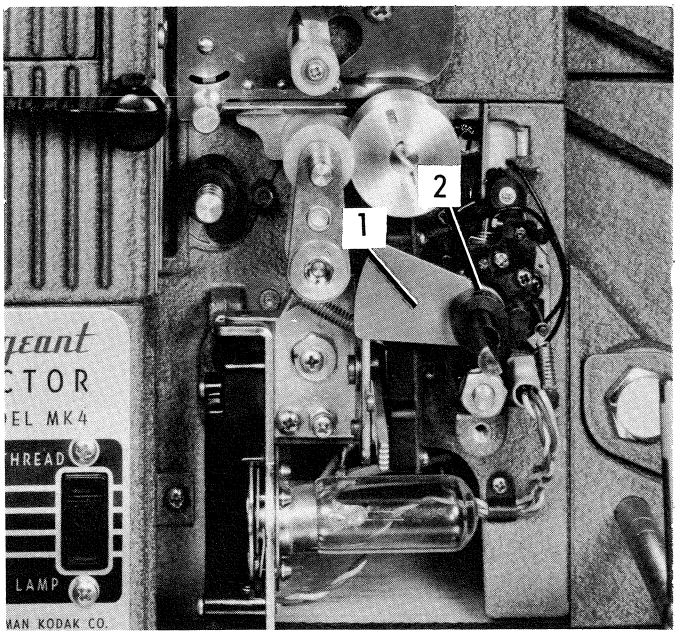
Repeat above adjustments until a maximum peak reading is obtained.

E. Test the magnetic playback characteristics as shown in instruction No. 142A and make the necessary corrections to meet the specifications.

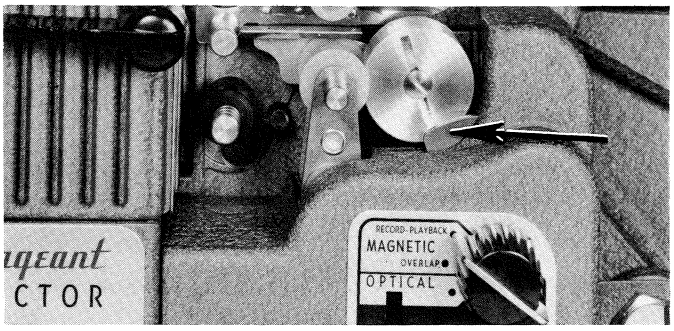
F. Test the magnetic record characteristics as shown in instruction No. 142B and make the necessary adjustments to meet the specifications.

G. Test the erasing characteristics as shown in instruction No. 142C and make the necessary corrections to meet the specifications.

H. Lock the adjustment screws with a good cement, when all specifications have been met.



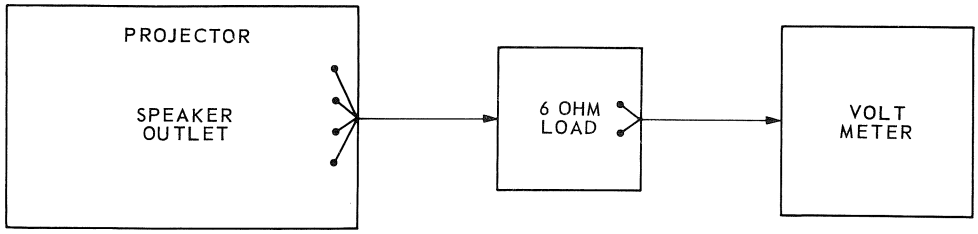
139. Turn the head switch to OPTICAL and replace the arm and hub assembly (arrow 1) tightening the setscrew (arrow 2) temporarily. The setscrew should bear against the undercut part of the shaft. The position of the arm in reference to the sound drum should be as shown.



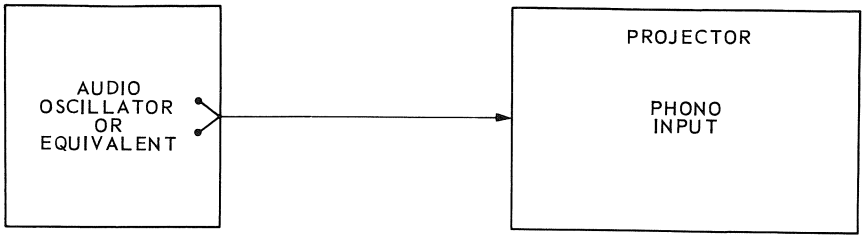
140. Replace the exciter lamp cover and the head switch knob. Check for clearance of the arm (arrow) by turning the head switch from Optical through Magnetic Overlap and Magnetic Record-Playback. If necessary readjust the arm and hub assembly. Tighten the arm and hub assembly setscrew. Note that when the magnetic head switch is in the Magnetic Record-Playback position the arm should block the threading channel as shown; the arm should also block the channel in Magnetic Overlap position but should be out of the way when the head switch is in Optical position.

141. Block diagrams for recording and play-back tests

A. Playback



B. Recording



Line Voltage – 115V, 60 cycle for all tests

142. Magnetic Specifications

A. Playback Test Procedure

1. Projector control positions for all playback tests
   a) Tone Control – normal position
   b) Phono Volume – off
   c) Amplifier Selector Switch – magnetic play
   d) Sound Head Switch – magnetic playback

2. Specifications:

CHECK	MASTER VOLUME CONTROL	SIGNAL SOURCE FREQUENCY	FROM	READING ACROSS 6 OHM RESISTANCE
Noise level (a)	Full	None		.4 Volt with motor off .4 Volt with motor on .6 Volt maximum
Magnetic Sensitivity (b)	Full	400 cycles	Test Film No. 760947	At least 4 volts on both wide and narrow track
Frequency Response (c)	Reference level – 0 db at 1,000 cycles	100 cycles 1,000 cycles 5,000 cycles	Test Film No. 760948	0 db (reference level) – 1,000 cycles -7 db (minimum) – 100 & 5,000 cycles
Audible Flutter (d)	Listen to Test Film No. 760950 as it runs through the projector at silent speed. The over-all sound performance should be good.			
	Record a musical selection, such as Leroy Anderson's recording of "Syncopated Clock," at silent speed on Test Film No. 760951 and listen to the playback. The over-all sound performance should be good, and comparable to Test Film No. 760950.			

3. Service Hints
   a) Noise level – Demagnetize the record-playback head, or replace it.
   b) Magnetic Sensitivity – Adjust the record-playback head vertically and for being flat on the film (Instruction No. 138 D), or replace it.
   c) Frequency Response – Adjust the azimuth of the record-playback head (Instruction No. 138 D), or replace it.
   d) Audible Flutter – Check for binds in the sound drum, and check the pressure roller tension (11-16 oz.)

142. Magnetic Specifications (Cont)

B. Recording Test Procedure

1. Tone Control in normal position for all recording tests

2. Specifications:

CHECK	PROCEDURE	MASTER VOLUME	PHONO VOLUME	AMPLIFIER SELECTOR SWITCH	SOUND HEAD SELECTOR SWITCH	READING ACROSS 6 OHM RESISTANCE
Frequency Recording (a)	Record: 100 cycles, 1,000 cycles, and 5,000 cycles on Test Film No. 760949 with an input of 75 MV	Off	Full	Magnetic Record	Magnetic Record	
	Play back the frequencies just recorded on Test Film No. 760949	Ref. level 0 db at 1,000 cycles	Off	Magnetic Play	Magnetic Playback	1,000 cycles – (0db) 100 cycles – (-3±3db) 5,000 cycles – (-2±4db)
Distortion (b)	Record: 1,000 cycles on Test Film No. 760949	Off	Minimum glow of record level indicator	Magnetic Record	Magnetic Record	
	Play back 1,000 cycles just recorded on Test Film No. 760949	Set to 6.8 V output	Off	Magnetic Play	Magnetic Playback	No visible distortion on an oscilloscope

3. Service Hints

a) Frequency recording – Replace the record-playback head.

b) Distortion – Check the amplifier components.

142. Magnetic Specifications (Cont)

C. Erasing Test Procedure

1. Tone Control in normal position for all erasing tests

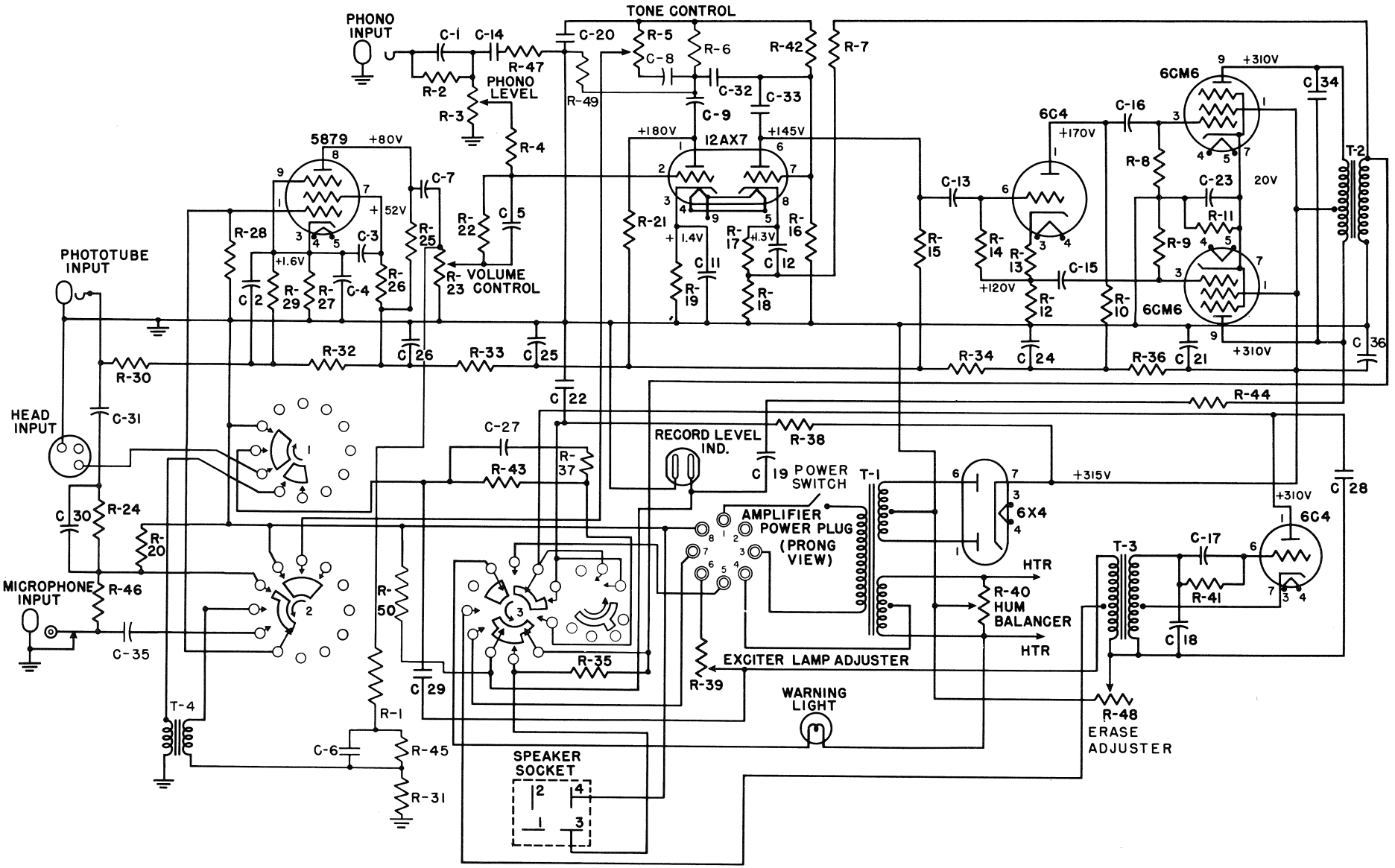
2. Specifications:

CHECK	PROCEDURE	MASTER VOLUME	PHONO VOLUME	AMPLIFIER SELECTOR SWITCH	SOUND HEAD SELECTOR SWITCH	READING ACROSS 6 OHM RESISTANCE
	Record 1,000 cycles frequency on Test Film No. 760949	Off	Minimum glow of record level indicator	Magnetic Record	Magnetic Record	
Full Erase (a)	Erase the 1,000 cycle frequency, just recorded on Test Film No. 760949, by running the film through the projector once	Off	Off	Magnetic Record	Magnetic Record	
	Run Test Film No. 760949 just erased, through the projector	Full	Off	Magnetic Play	Magnetic Playback	"Noise" reading plus a maximum of .2 volts
Partial	Record 1,000 cycle frequency on Test Film No. 760949 as in Full Erase Check					
	Run half of Test Film No. 760949, just recorded, through the projector to partially erase	Off	Off	Magnetic Record	Magnetic Overlap	
Erase (b)	Run Test Film No. 760949, just partially erased, through the projector	Reference level	Off	Magnetic Play	Magnetic Playback	Difference in level between the partially erased and the non-erased section should be 15db ± 8db

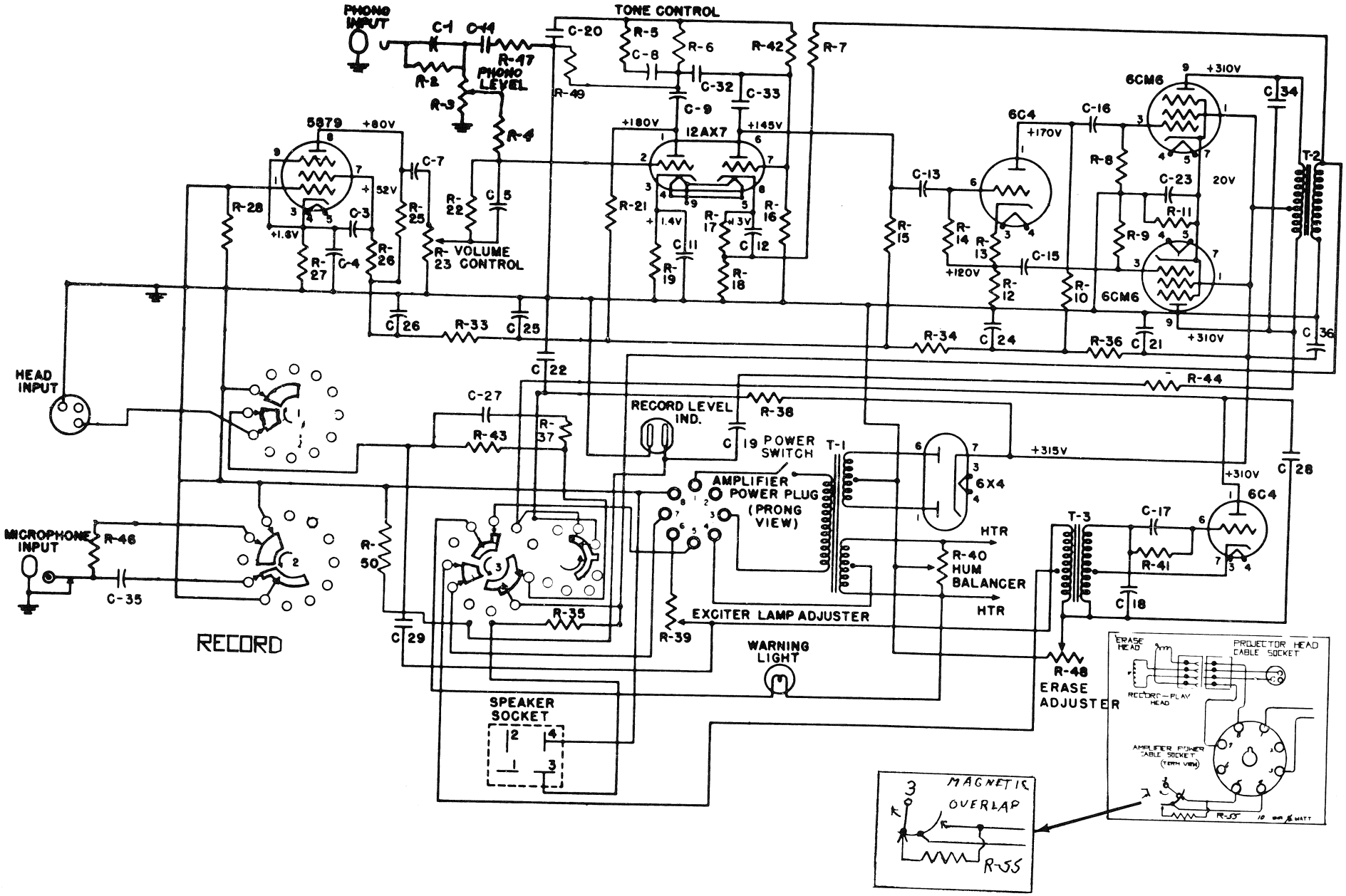
3. Service Hints

a) Full Erase – Readjust the erase head for proper contact (Instruction No. 121), and check the erase head current (Schematic)

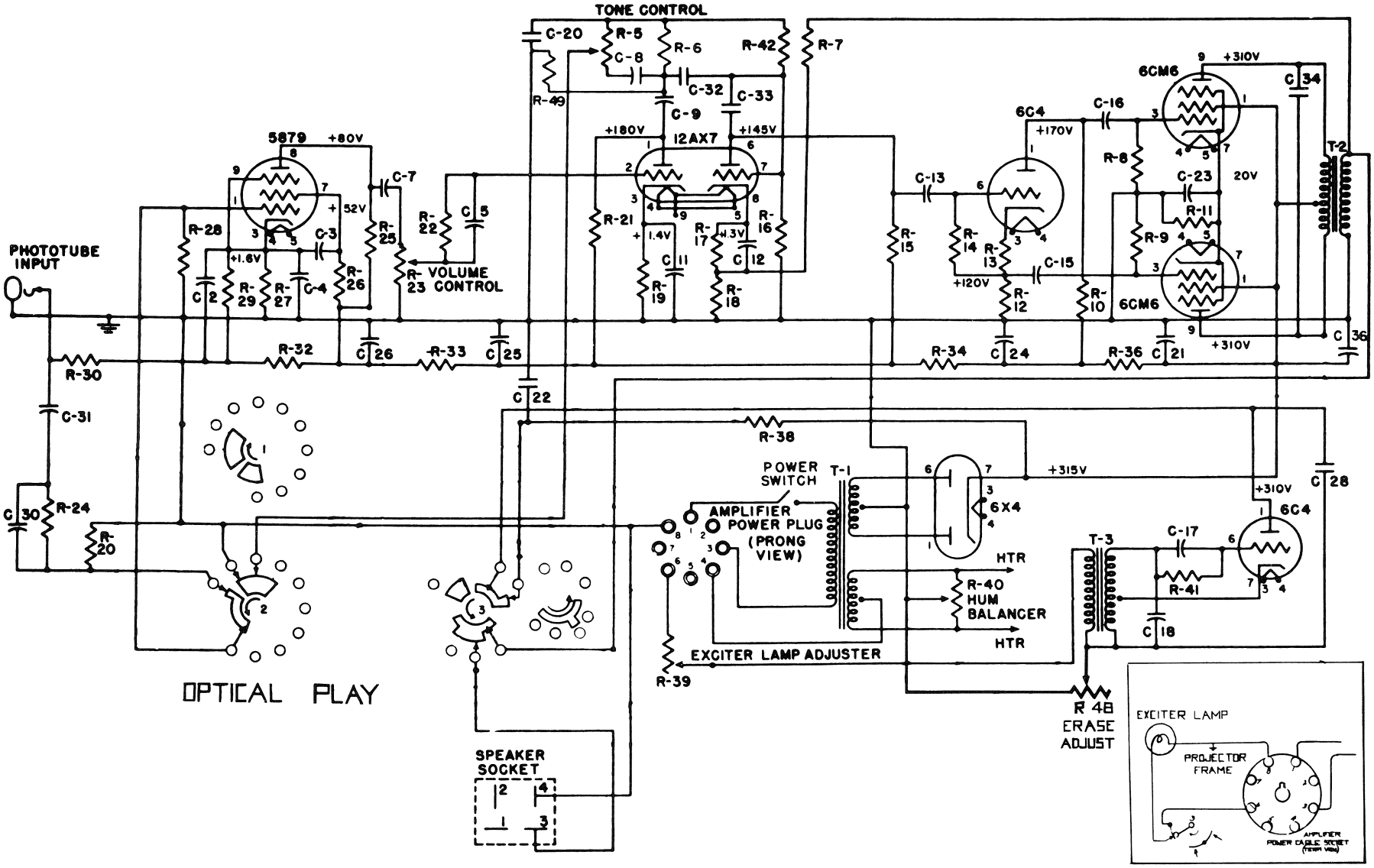
b) Partial Erase – Replace the erase head



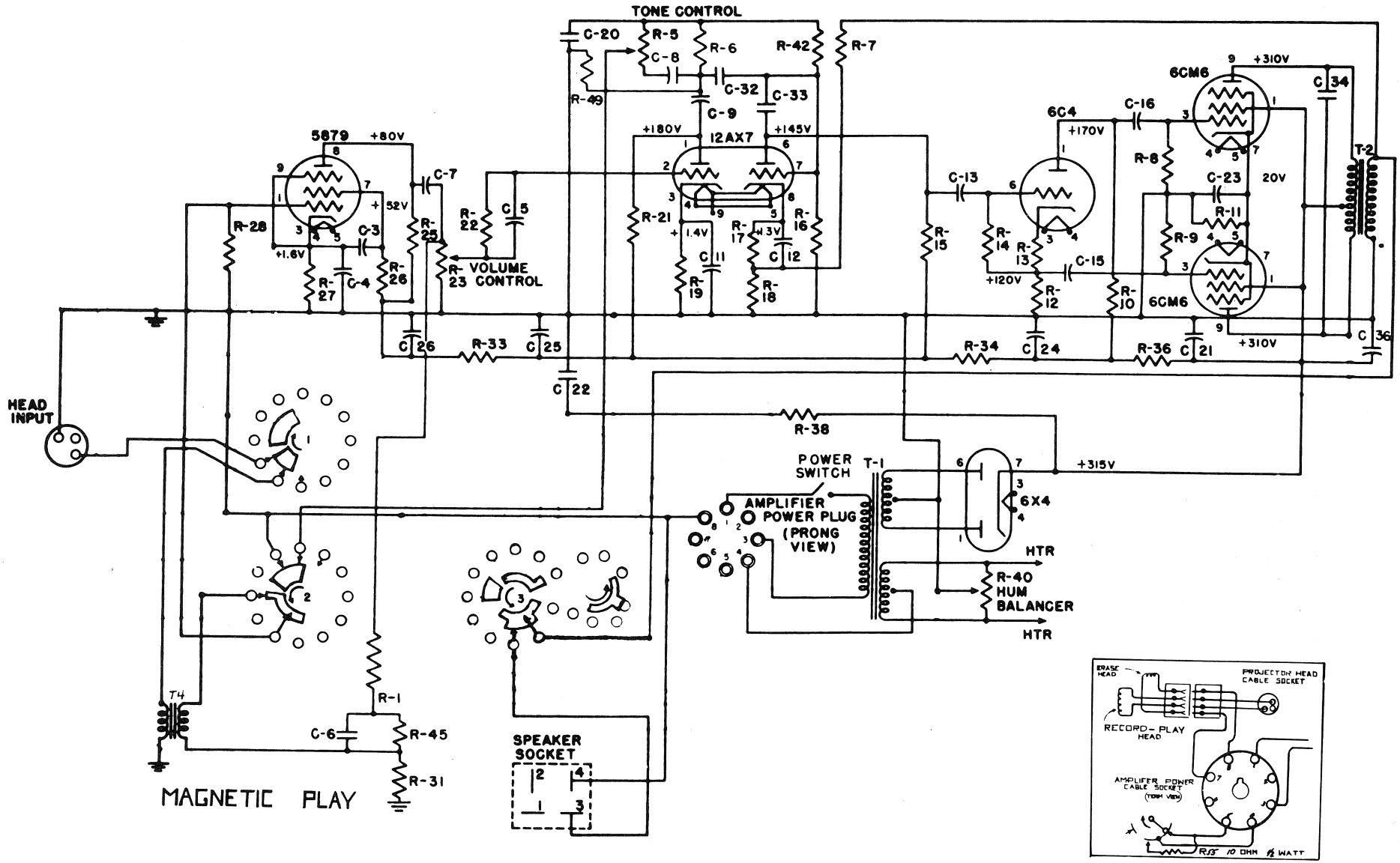
1. Amplifier Schematic



2. Schematic Diagram Showing Circuit
For Record and Magnetic Overlap Position of Selector and Head Switches



3. Schematic Diagram Showing Circuit
For Optical Playback Position of Selector and Head Switches



4. Schematic Diagram Showing Circuit
For Magnetic Playback Position of Selector and Head Switches

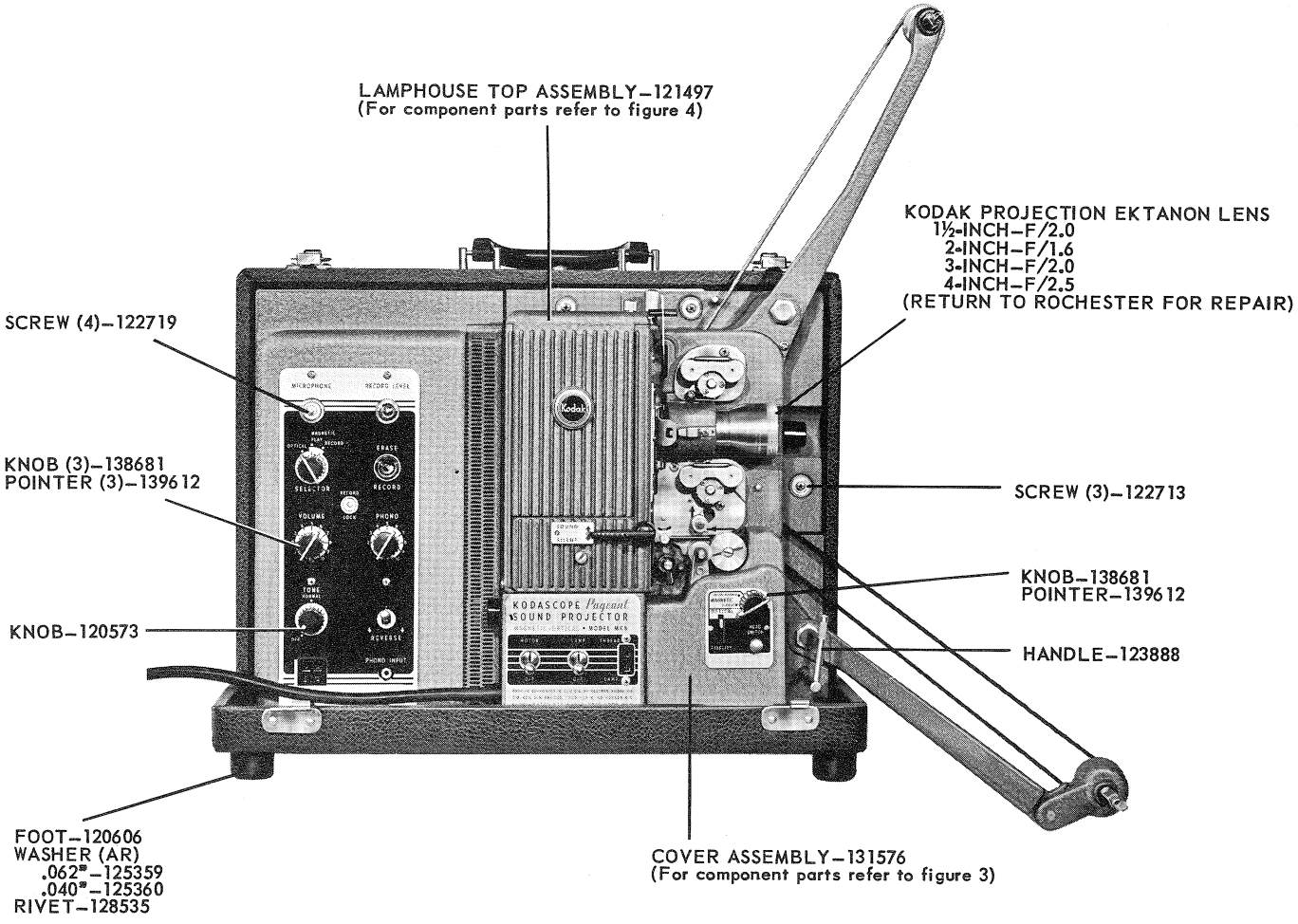
JANUARY 1957 PARTS LIST No. 7500-F

KODASCOPE PAGEANT SOUND PROJECTOR

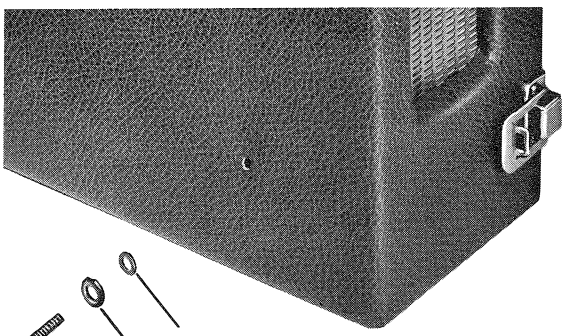
MAGNETIC-OPTICAL, MODEL MK4

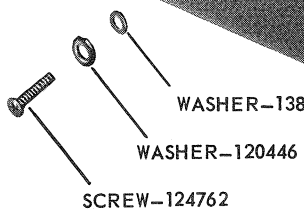
STARTING WITH SERIAL No. 65001

This list also includes the Kodak 35-Ft Speaker Extension Cord and the Kodak De Luxe Speaker Unit, Model A.

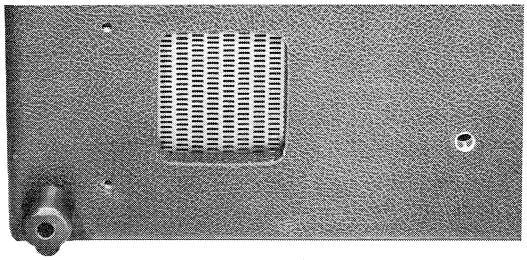


CASE BACK





CASE BOTTOM



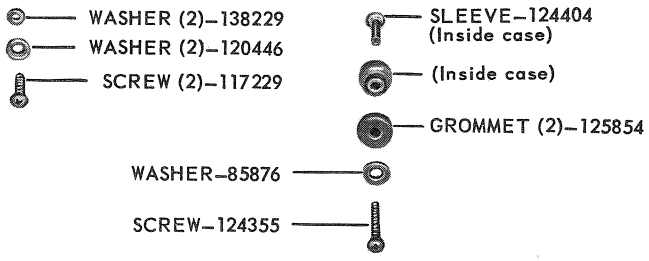


FIGURE 1

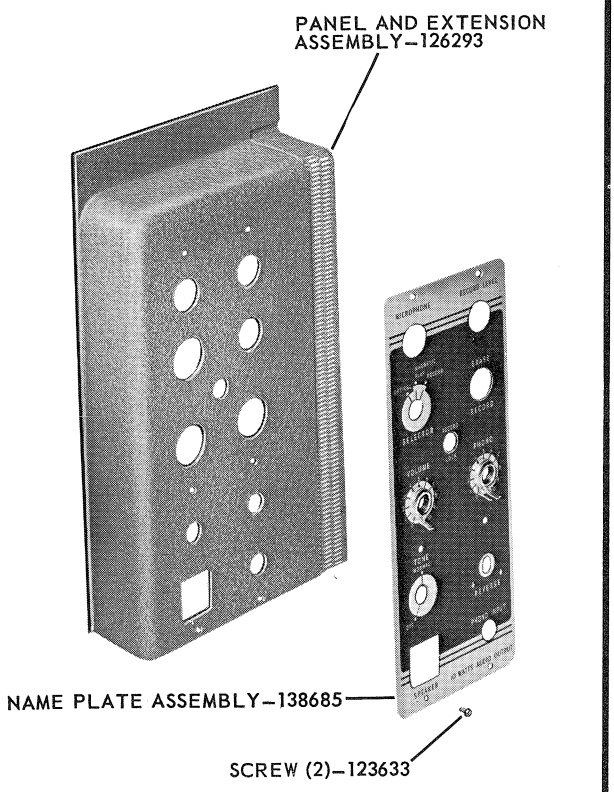


FIGURE 2

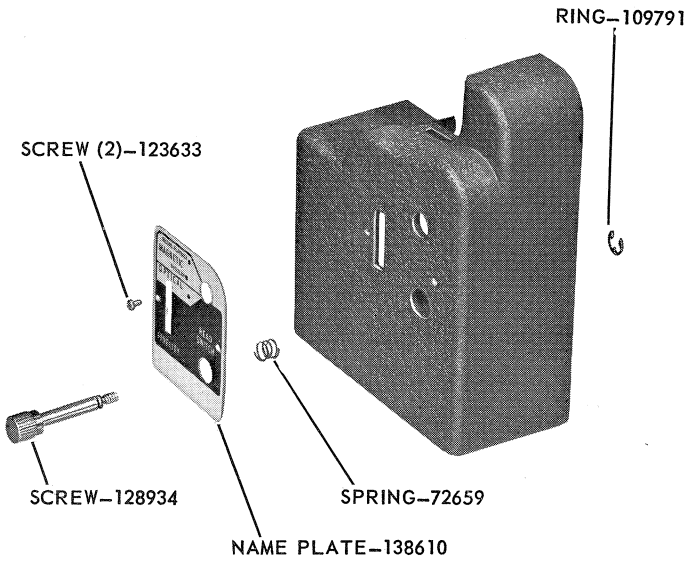


FIGURE 3

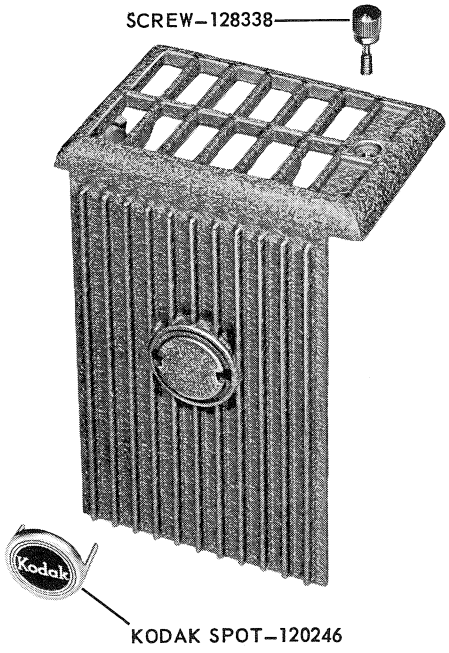


FIGURE 4

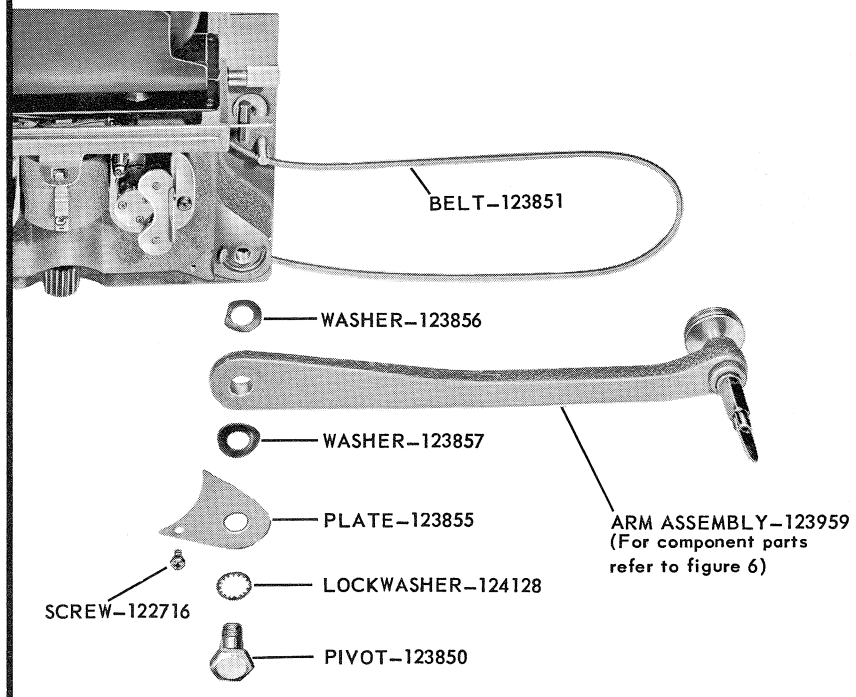


FIGURE 5

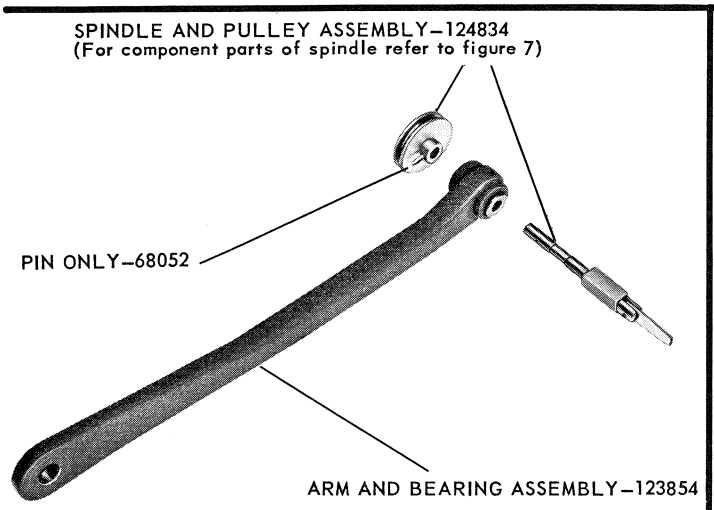


FIGURE 6

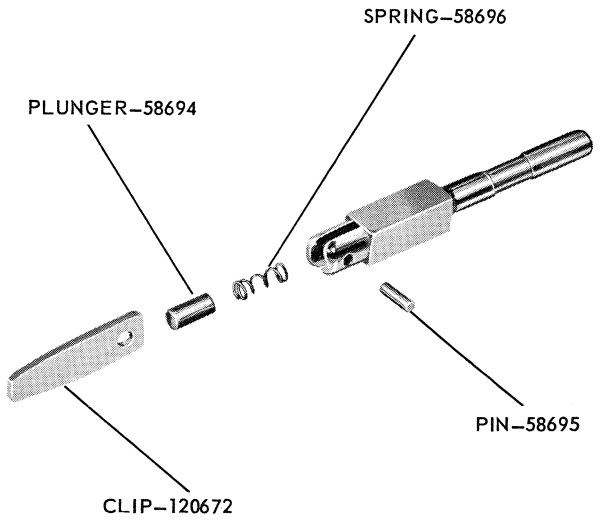


FIGURE 7

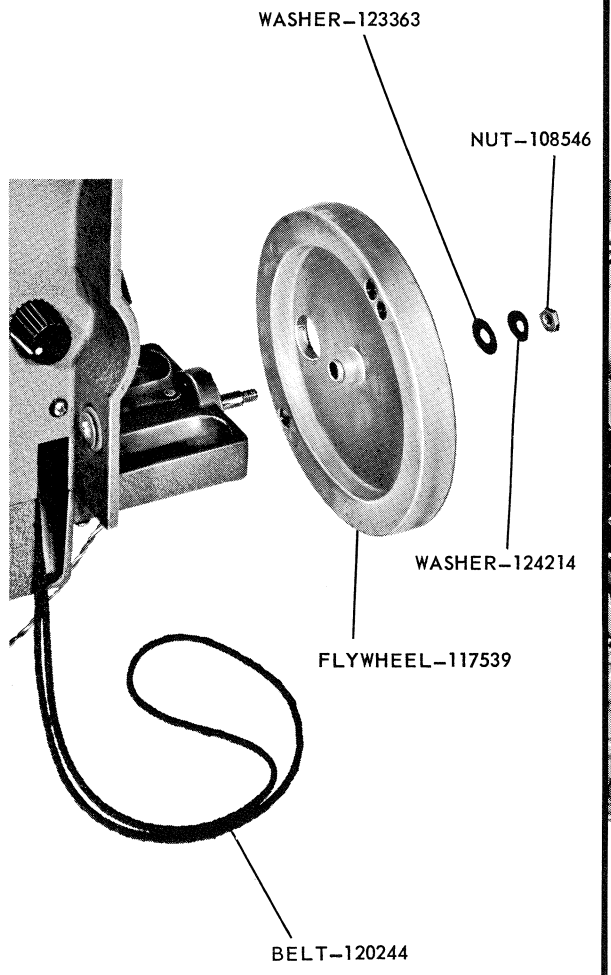


FIGURE 8

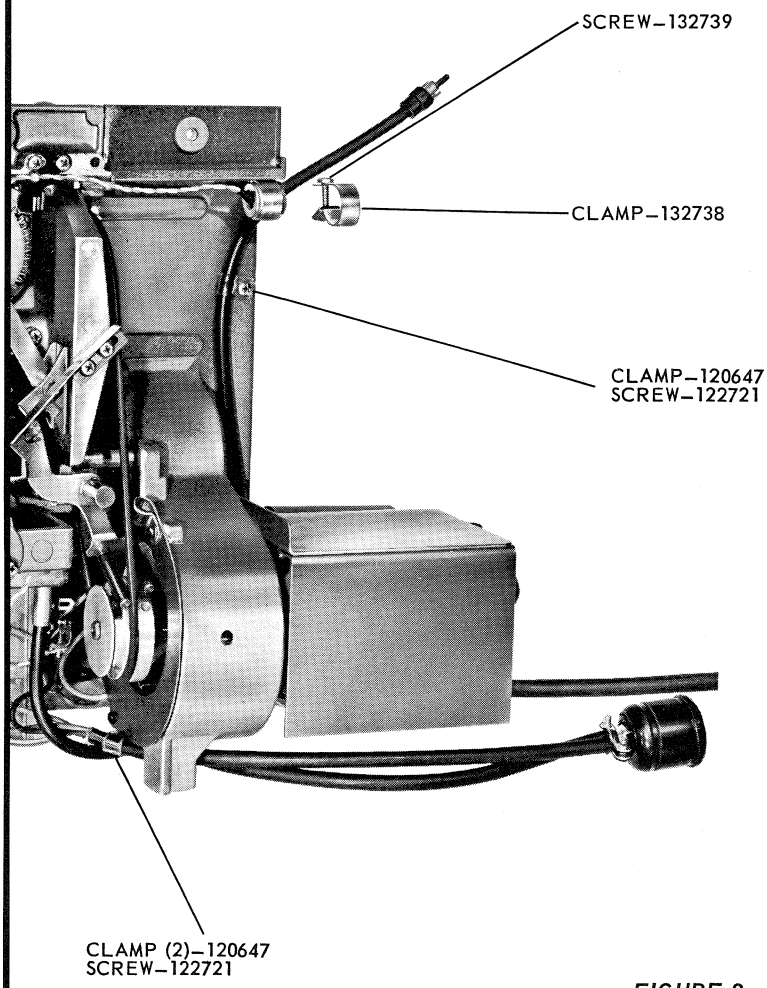


FIGURE 9

Always give PART NUMBER and NAME when ordering parts

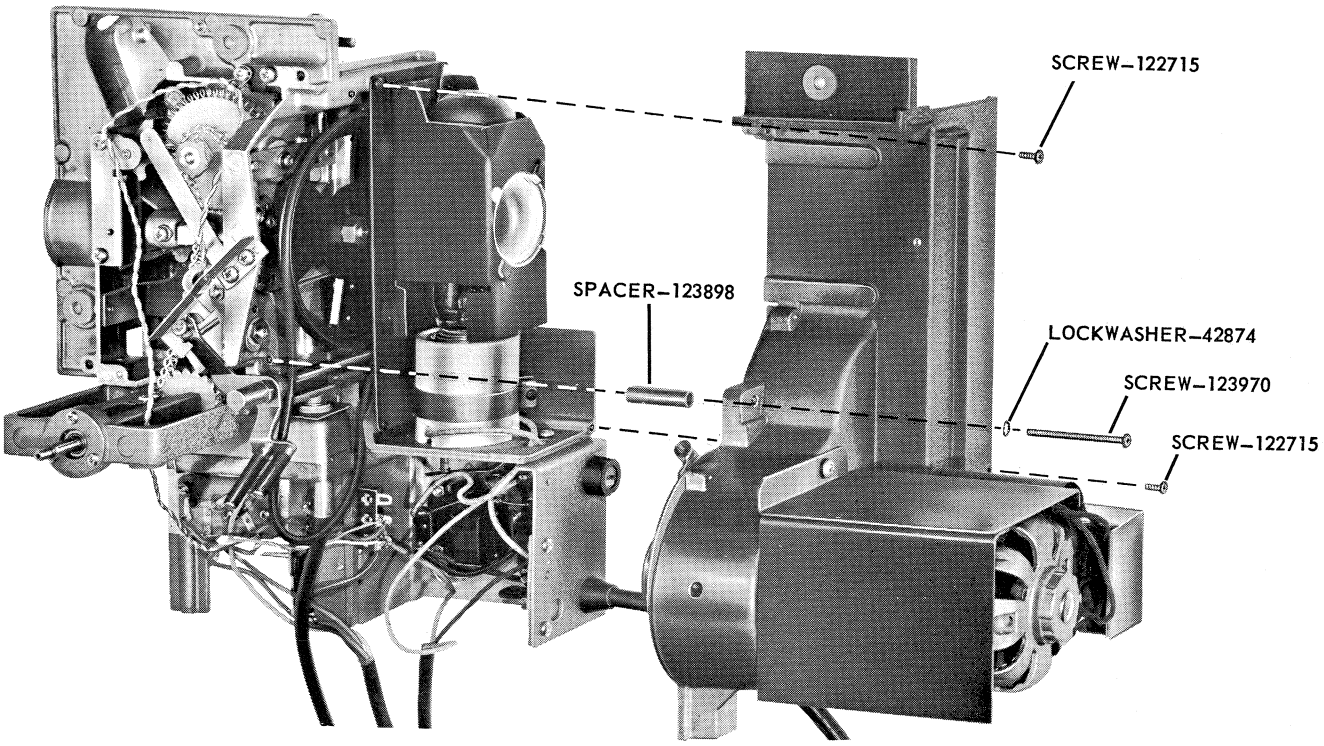


FIGURE 10

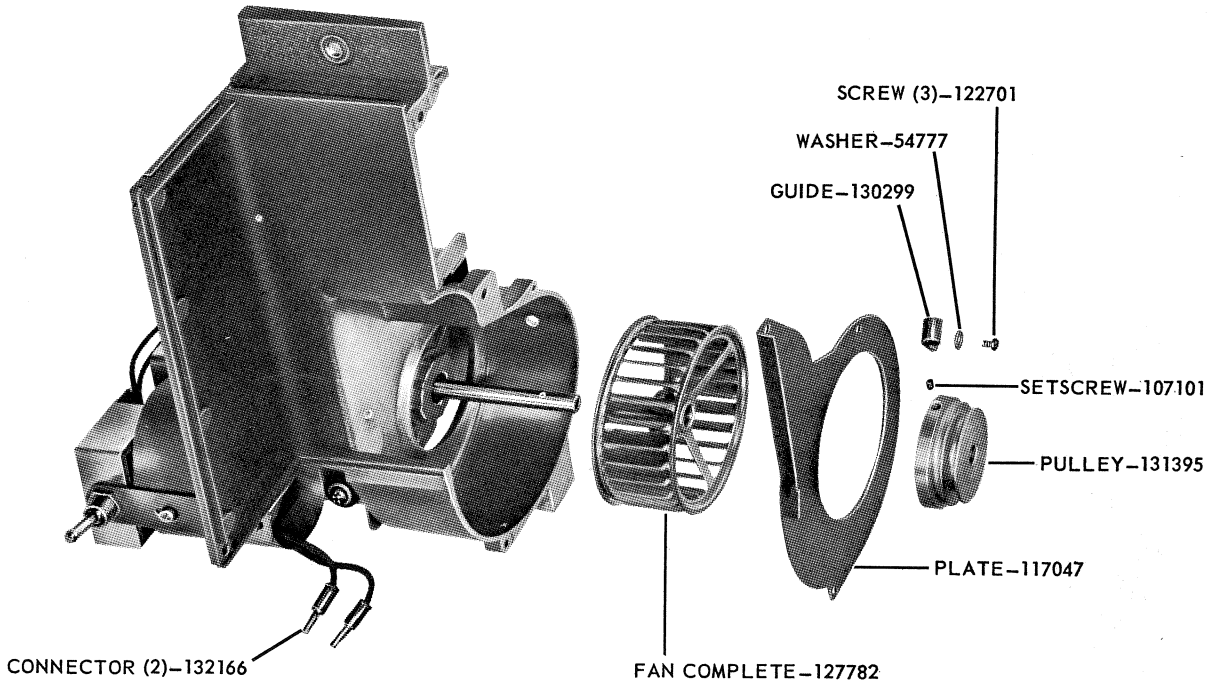


FIGURE 11

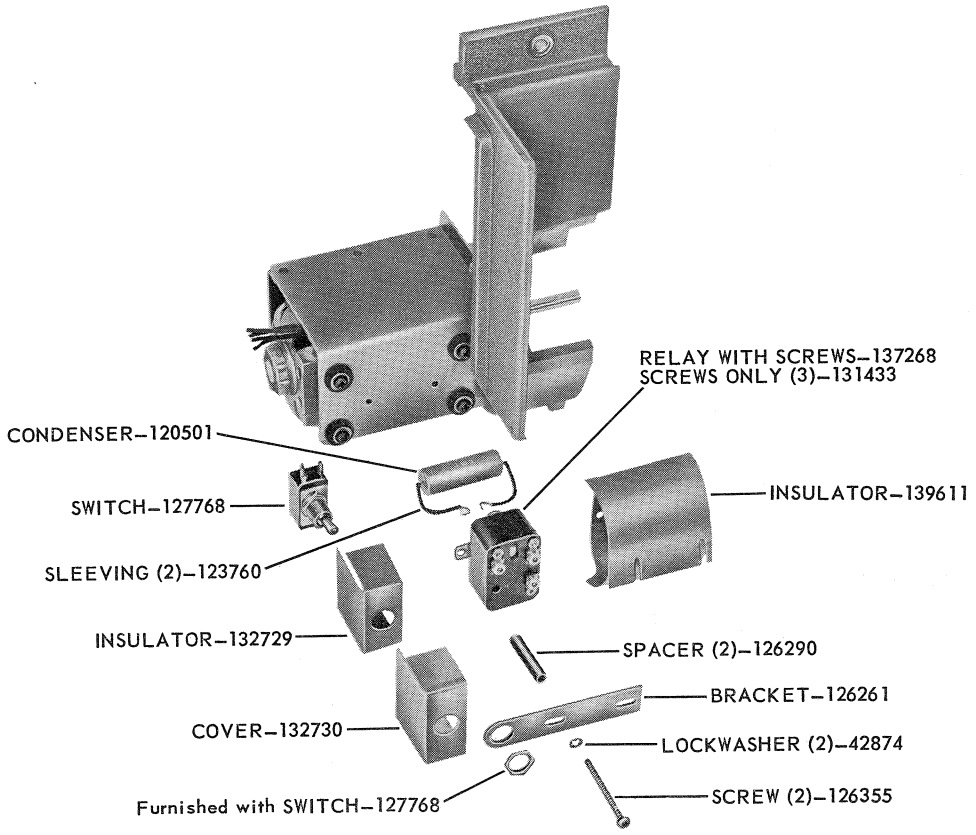


FIGURE 12

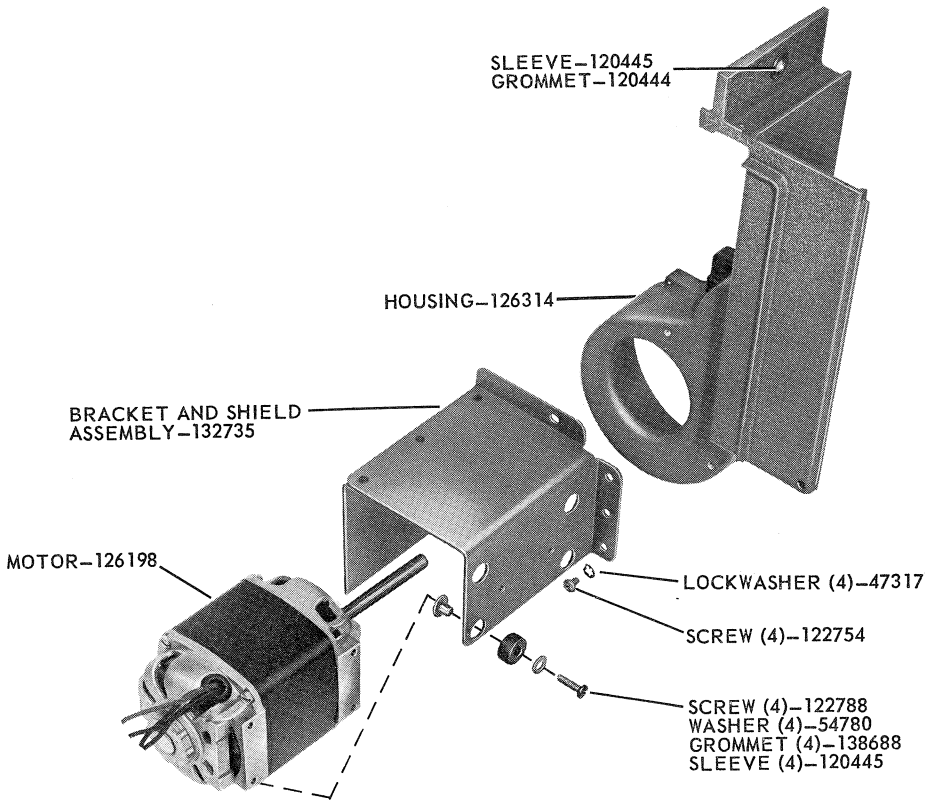


FIGURE 13

Always give PART NUMBER and NAME when ordering parts

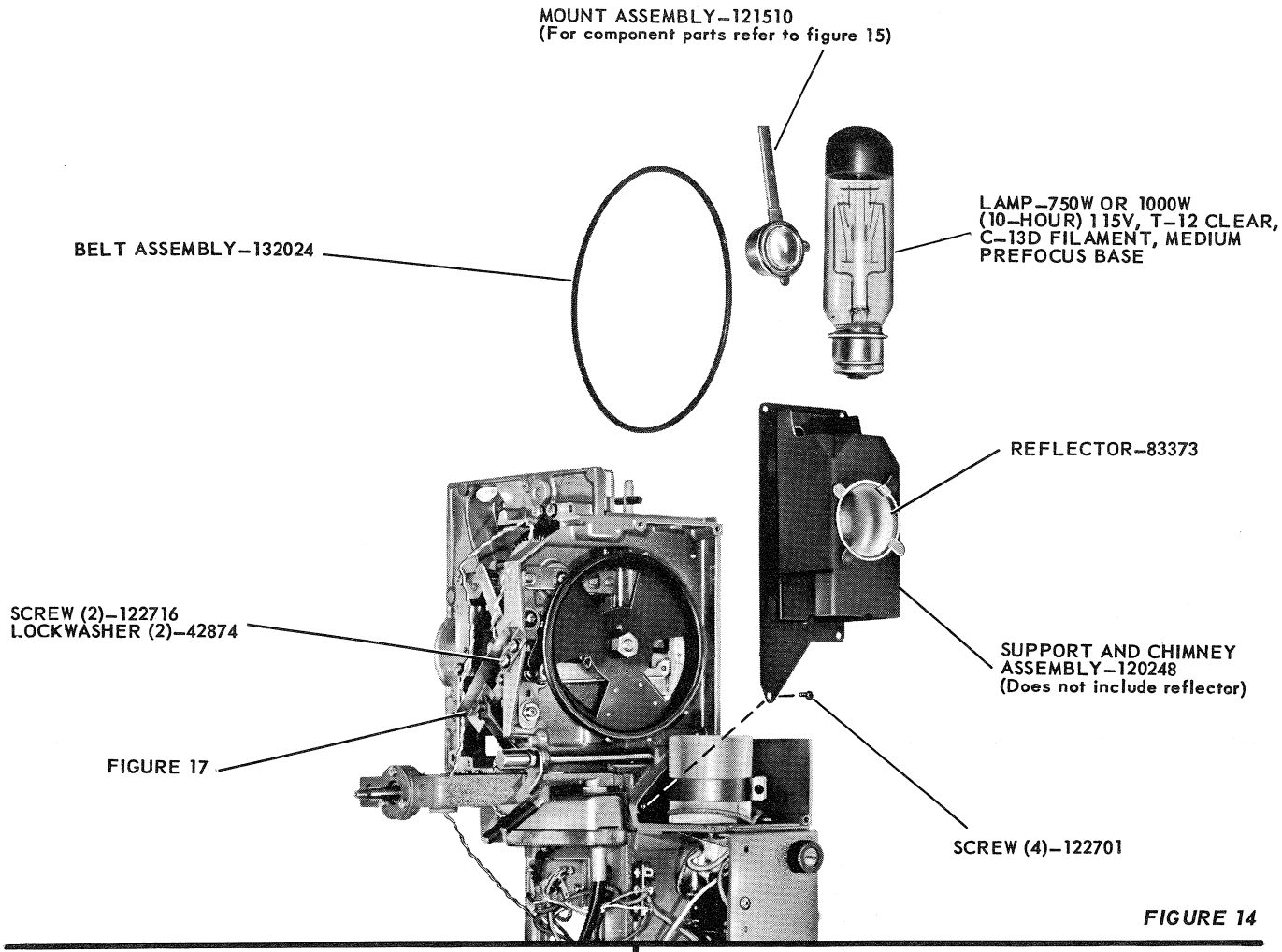


FIGURE 14

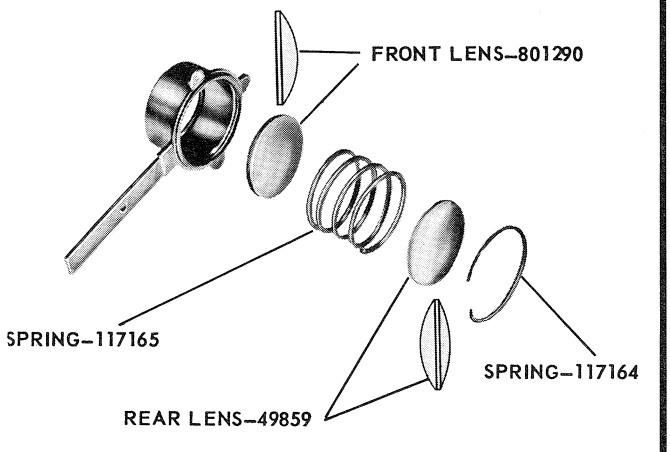


FIGURE 15

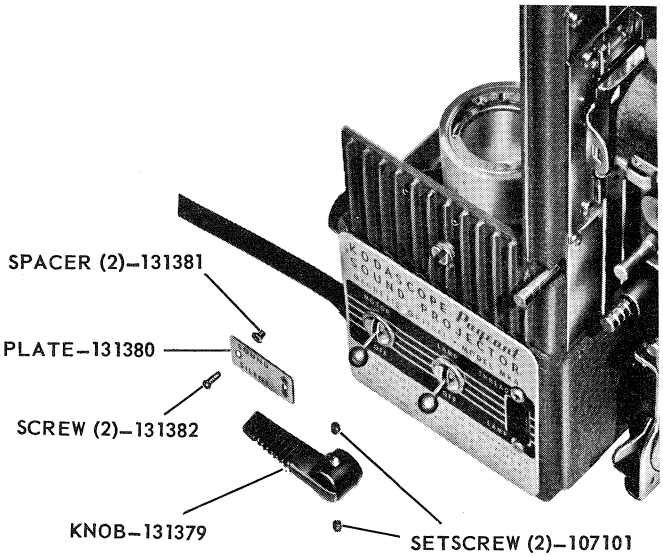


FIGURE 16

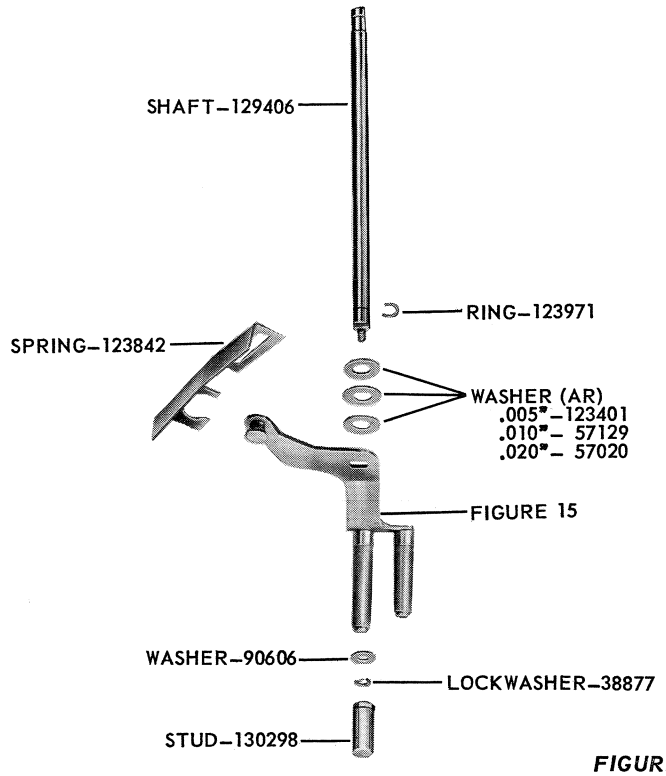


FIGURE 17

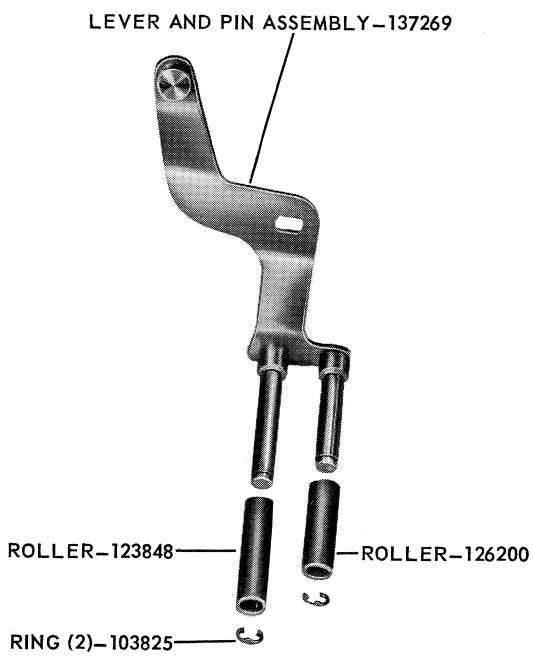


FIGURE 18

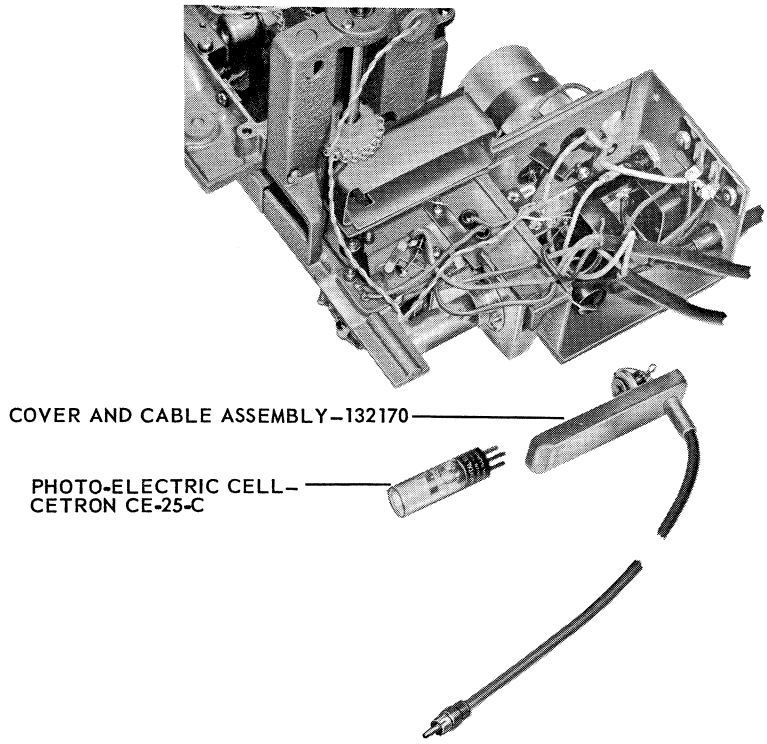


FIGURE 19

Always give PART NUMBER and NAME when ordering parts

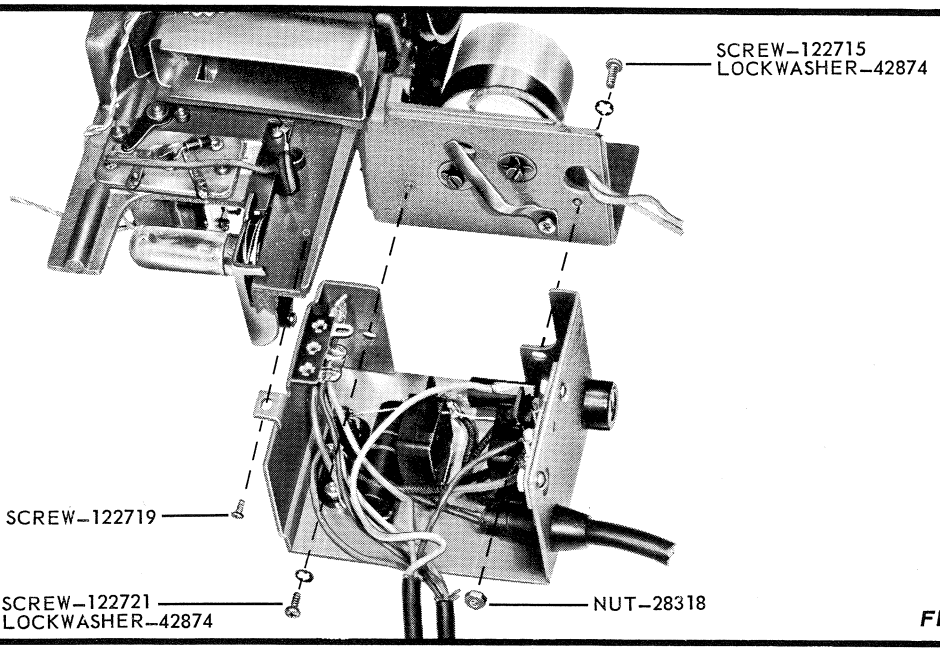
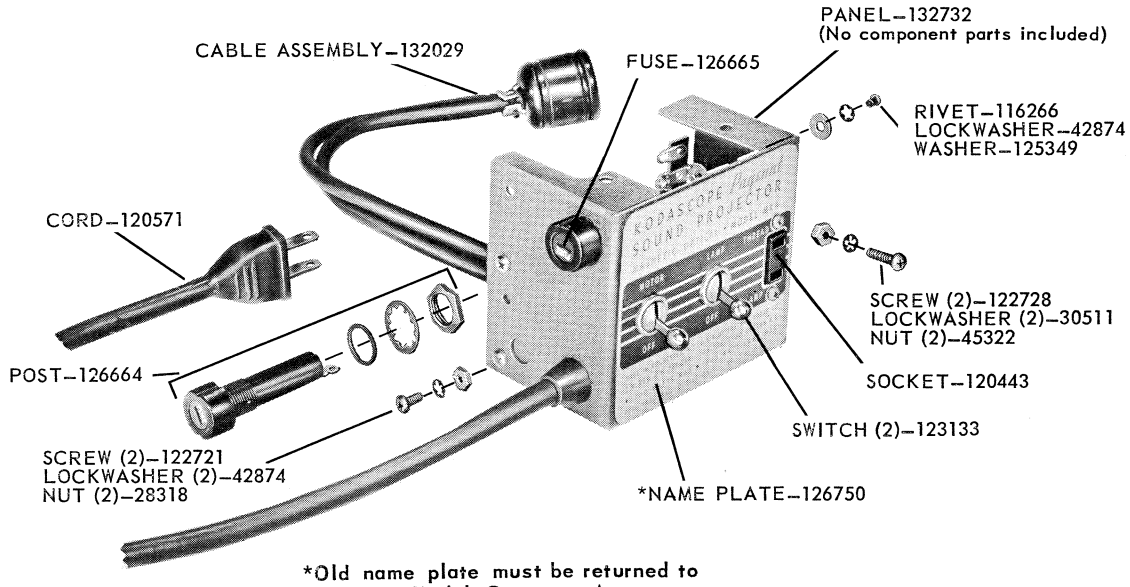


FIGURE 20



*Old name plate must be returned to Eastman Kodak Company, Apparatus Parts Service, Rochester 4, N. Y. before a new plate will be supplied.

FIGURE 21

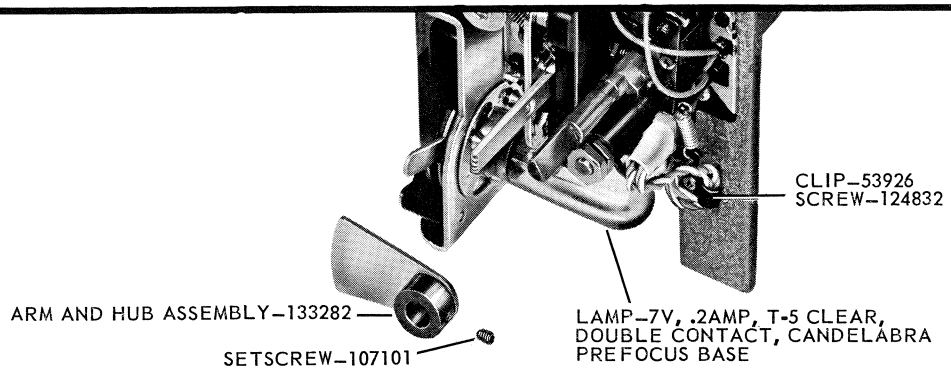


FIGURE 22

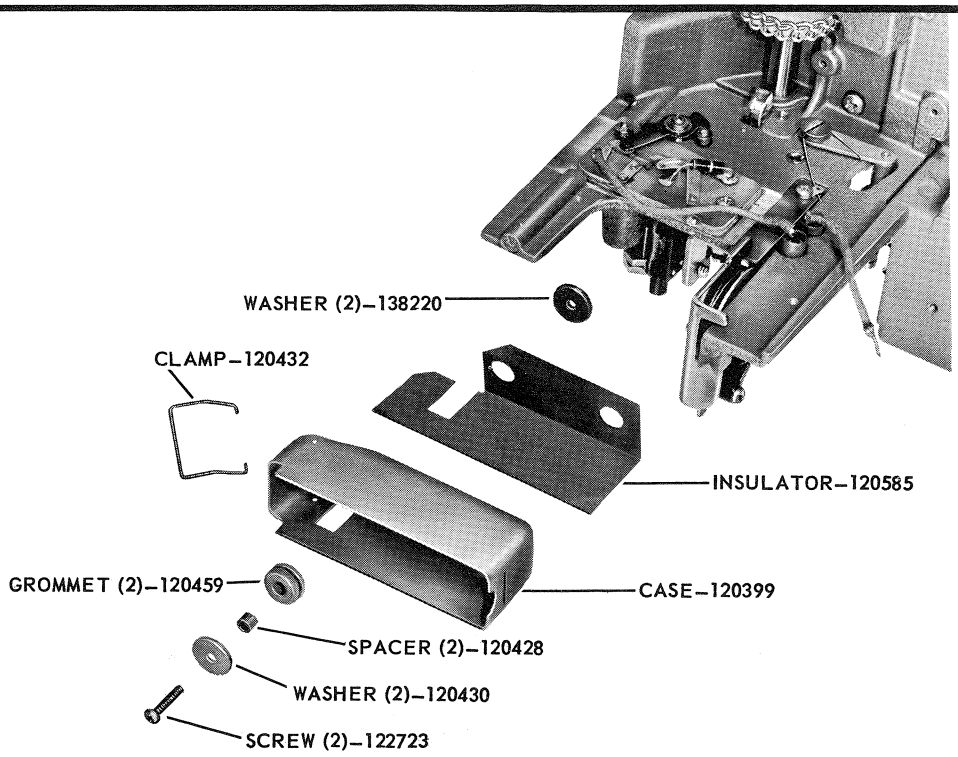


FIGURE 23

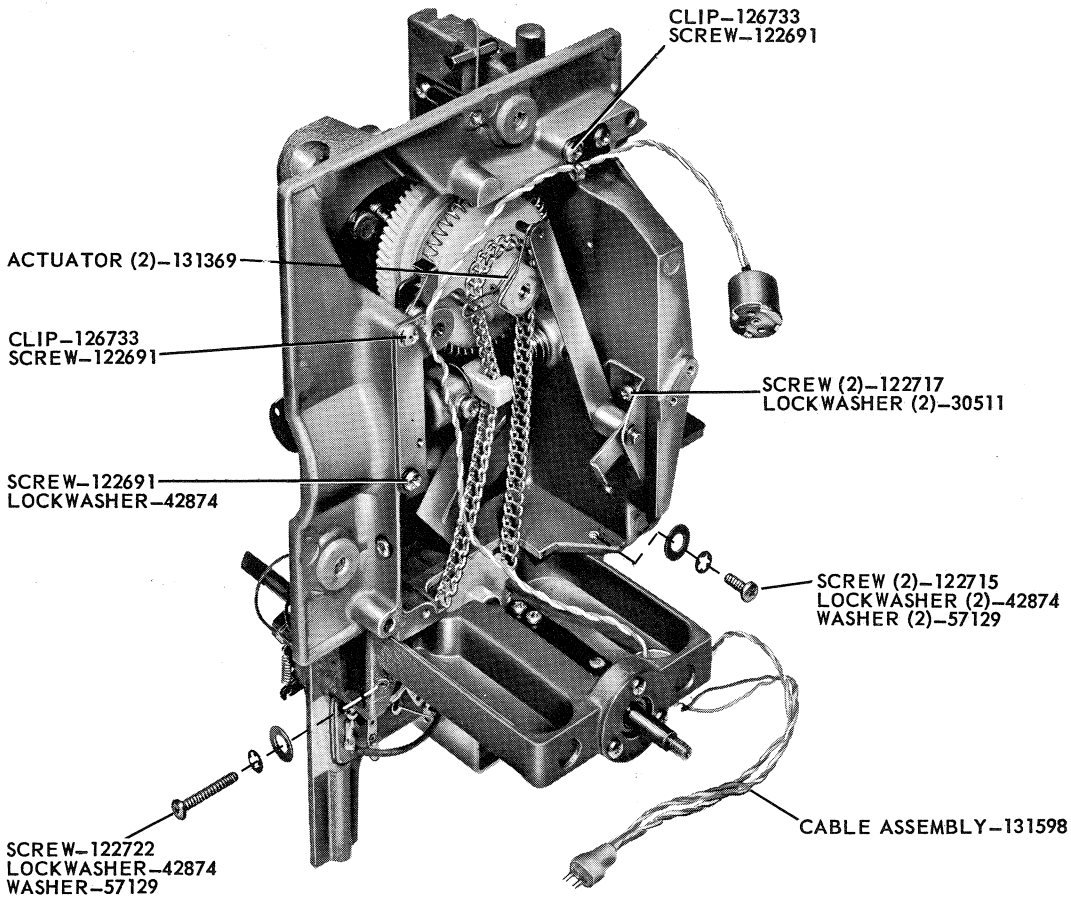


FIGURE 24

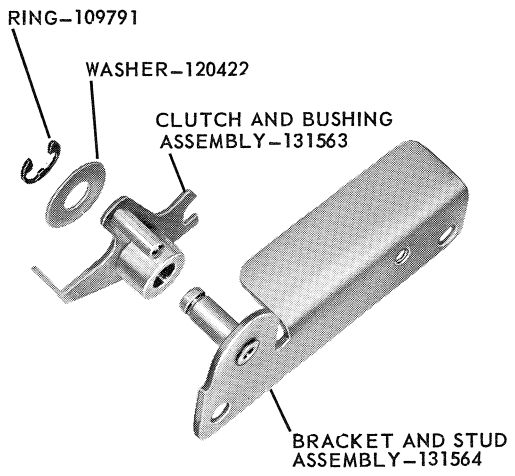


FIGURE 25

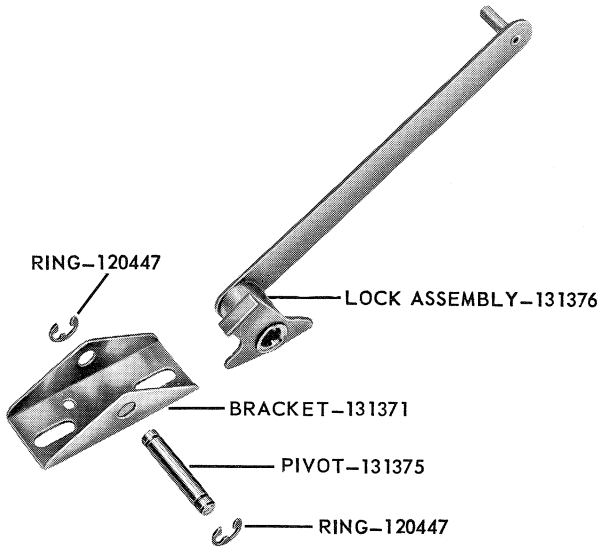


FIGURE 26

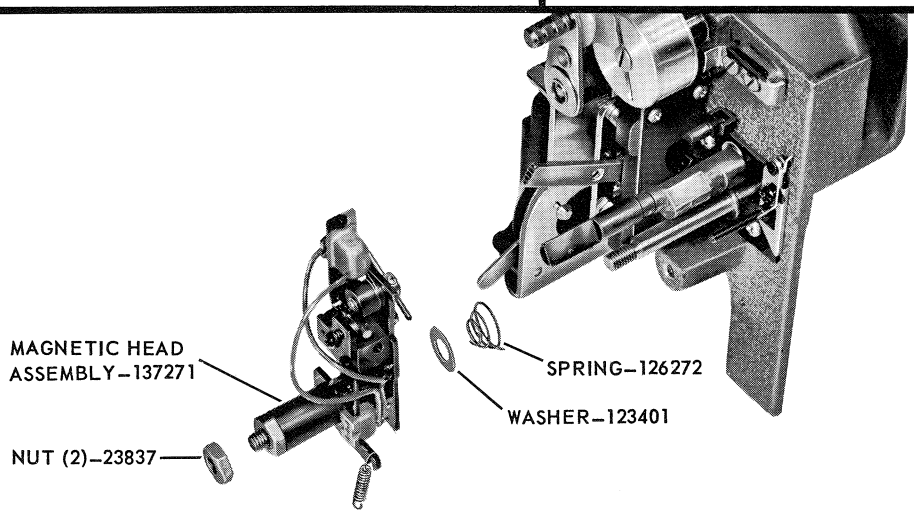
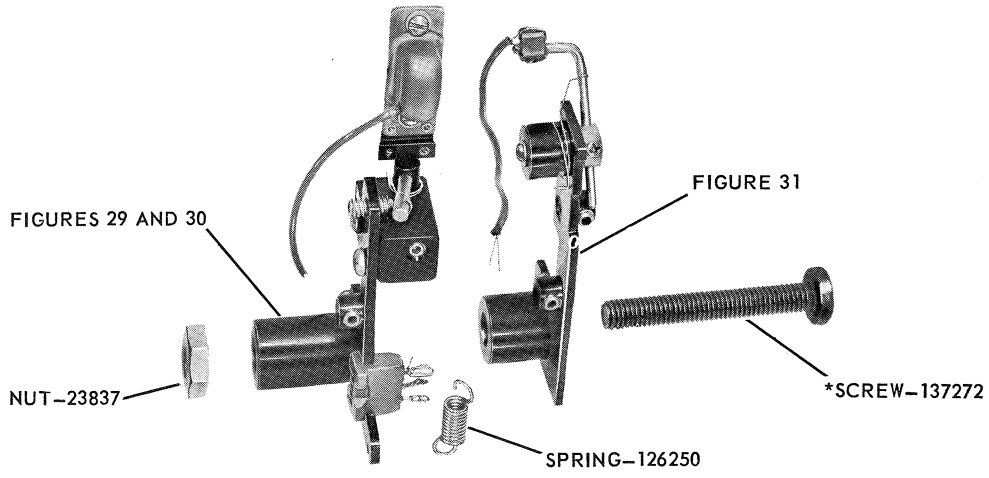


FIGURE 27



*HOLDING SCREW (For shipping purposes only)

FIGURE 28

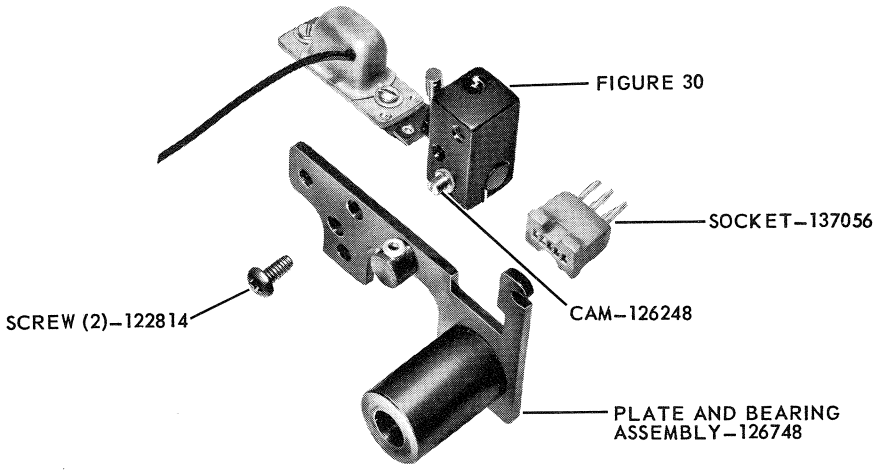


FIGURE 29

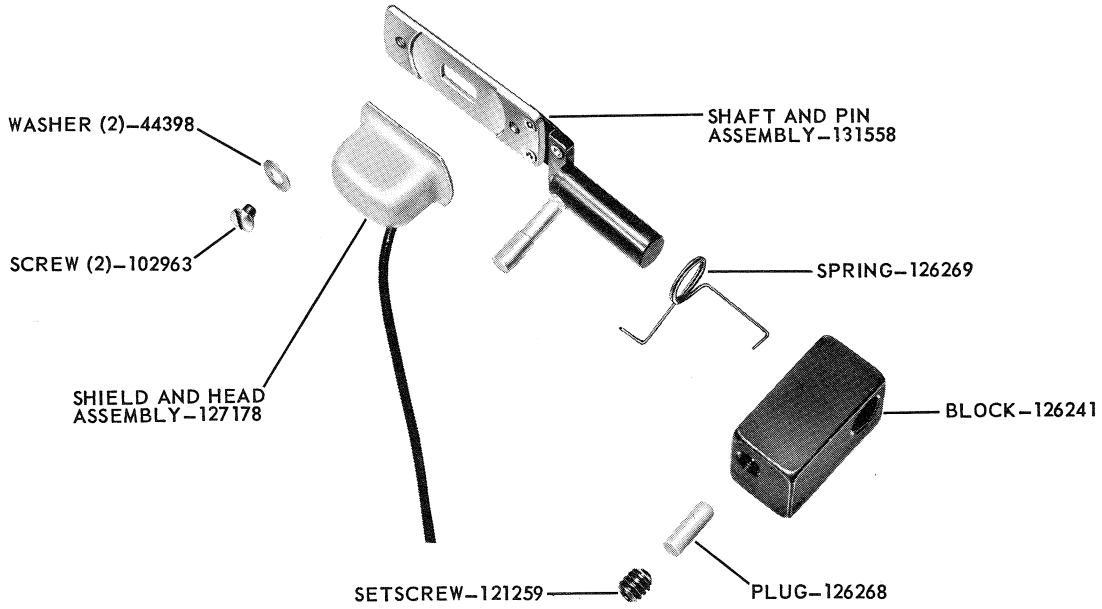


FIGURE 30

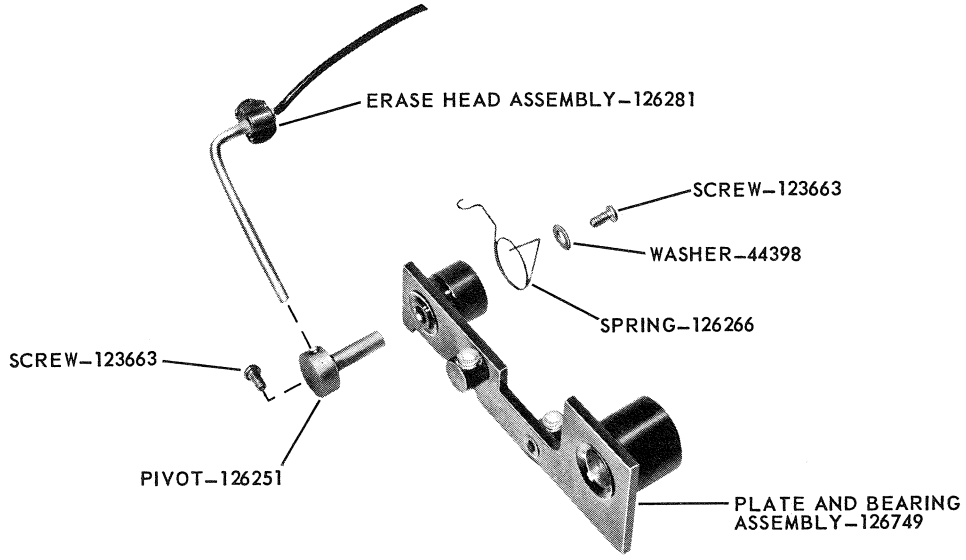


FIGURE 31

Always give PART NUMBER and NAME when ordering parts

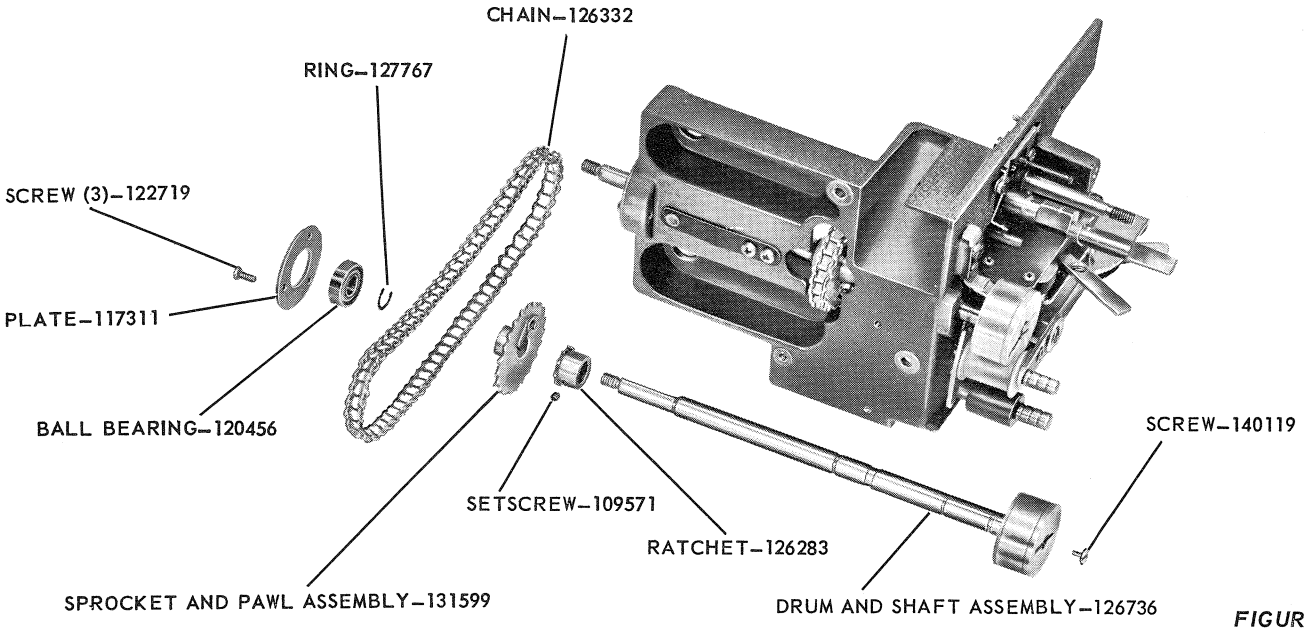


FIGURE 32

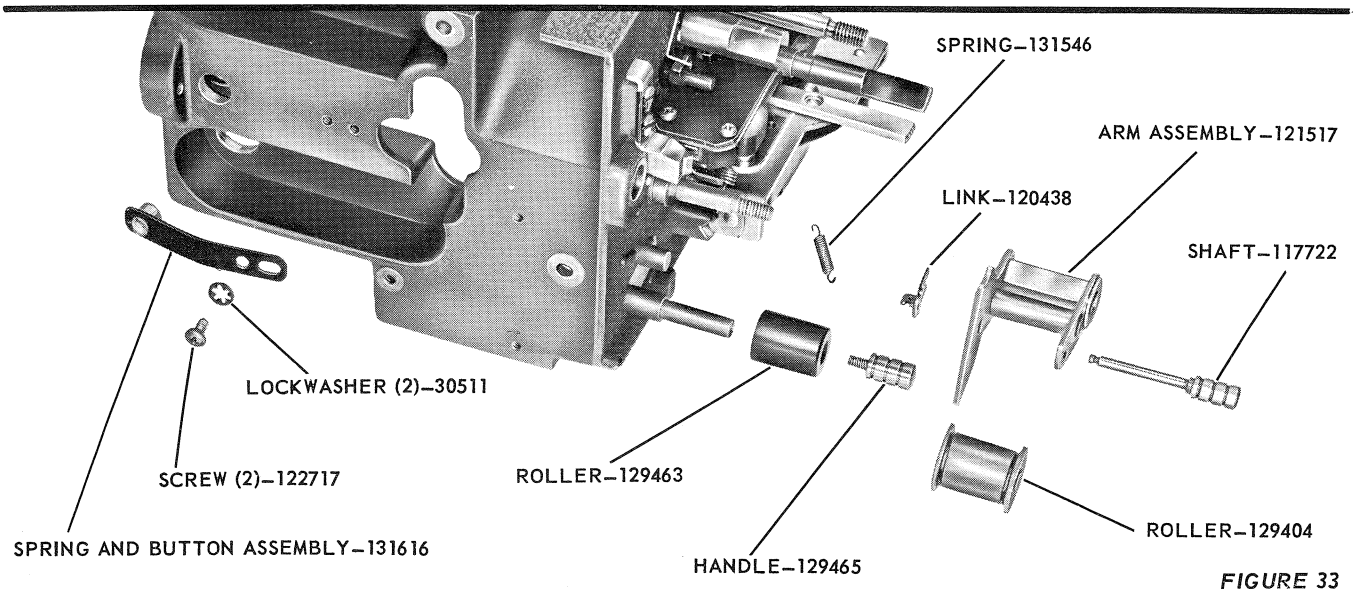


FIGURE 33

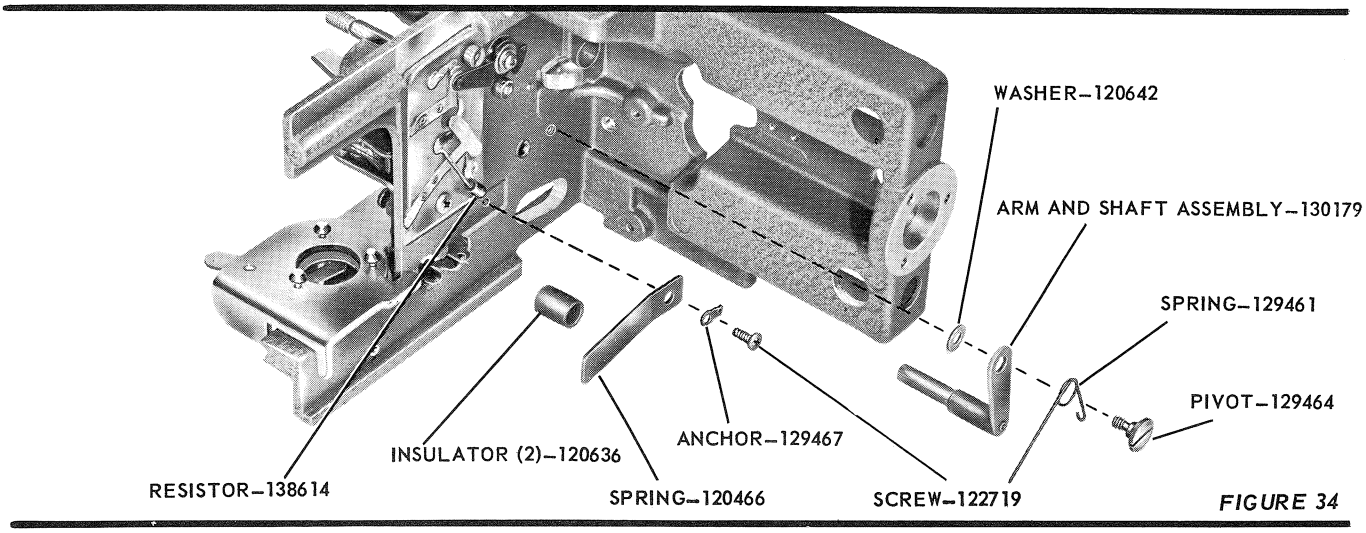


FIGURE 34

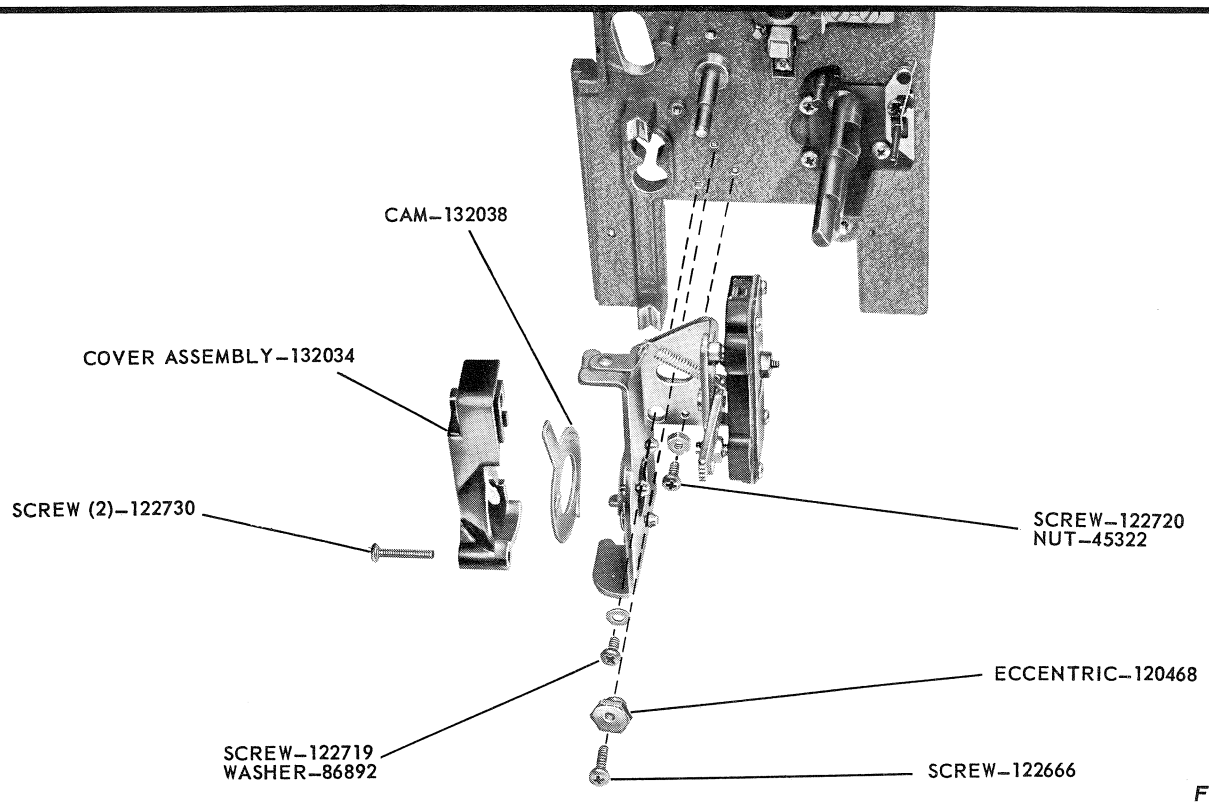


FIGURE 35

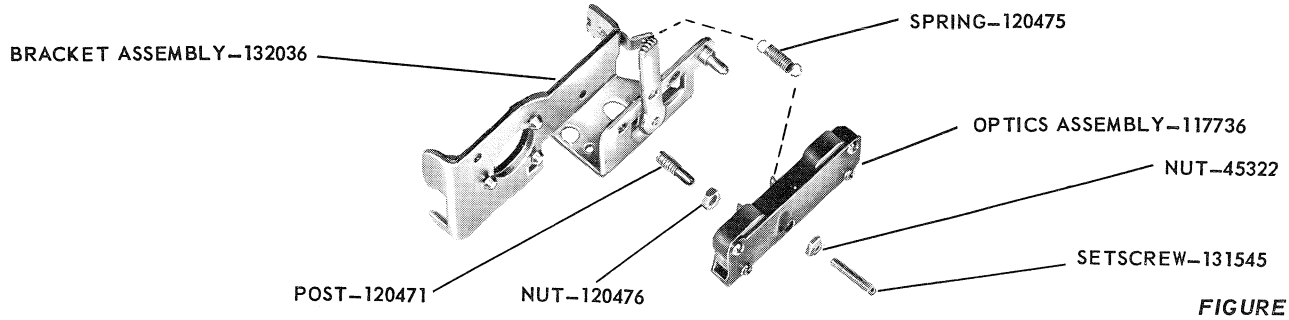


FIGURE 36

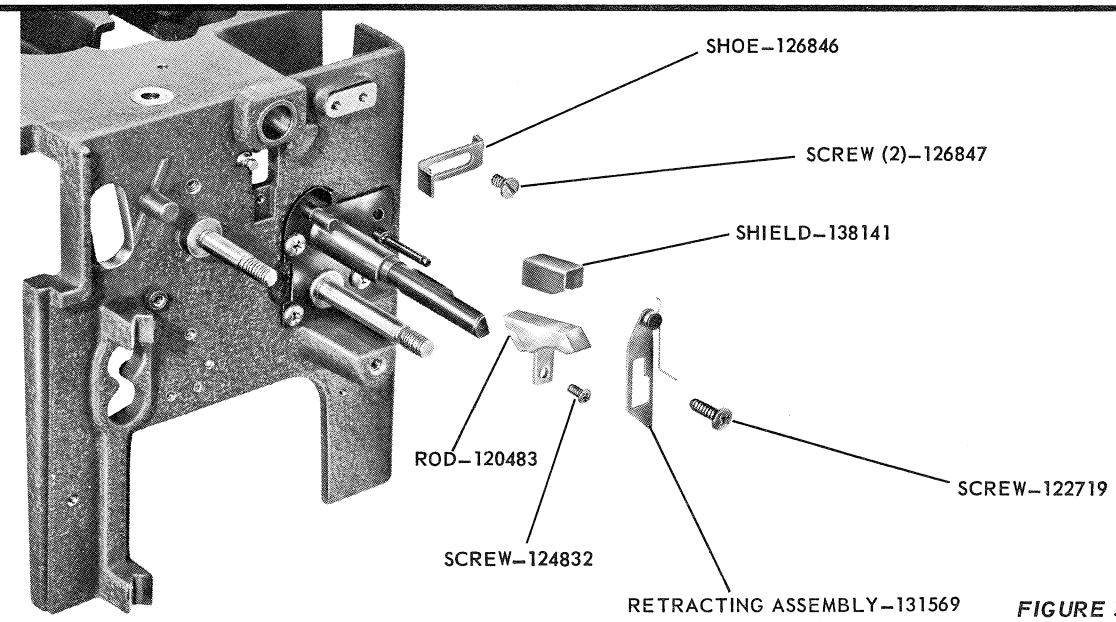


FIGURE 37

Always give PART NUMBER and NAME when ordering parts

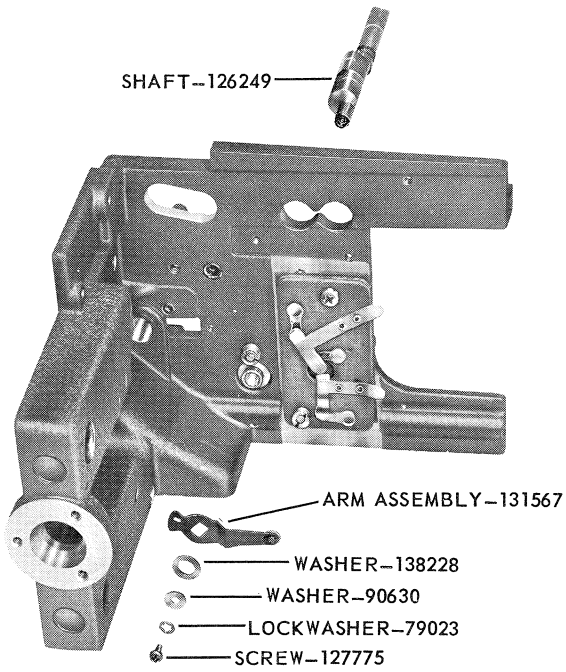


FIGURE 38

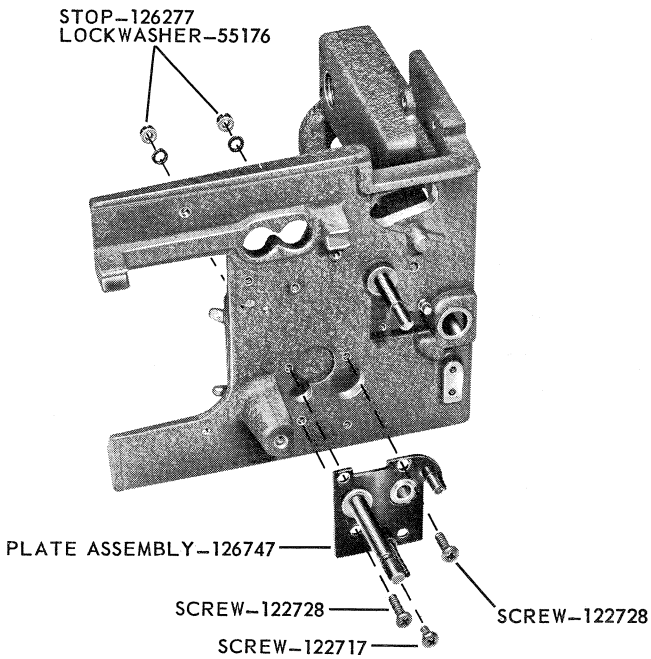


FIGURE 39

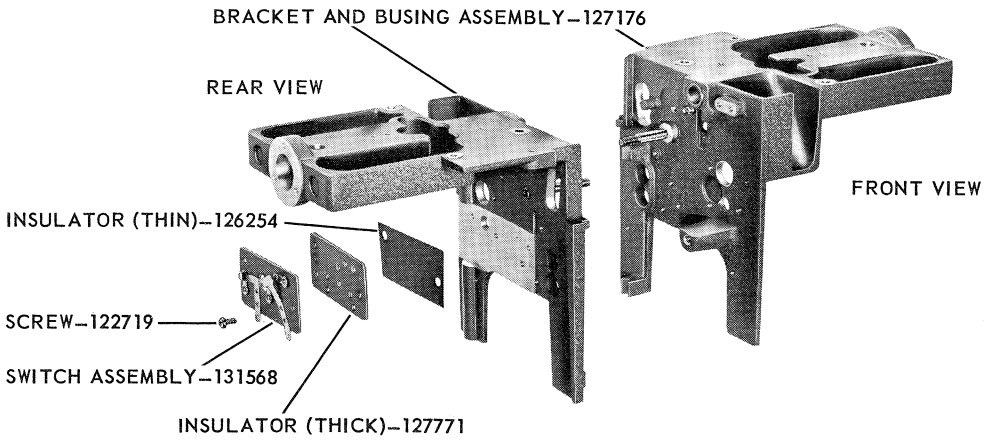


FIGURE 40

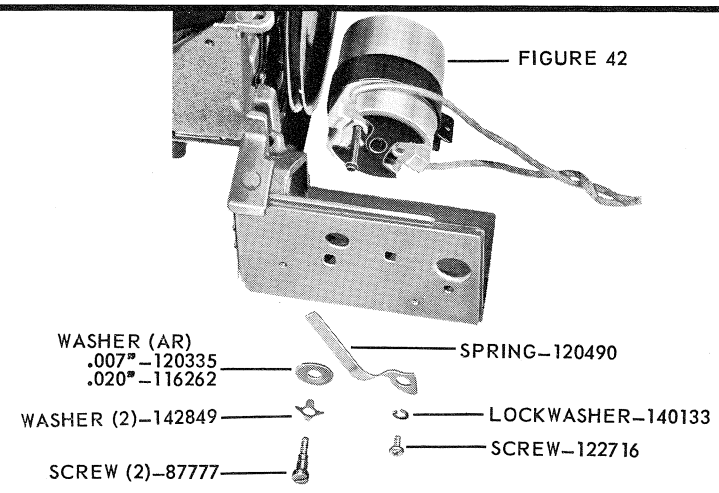


FIGURE 41

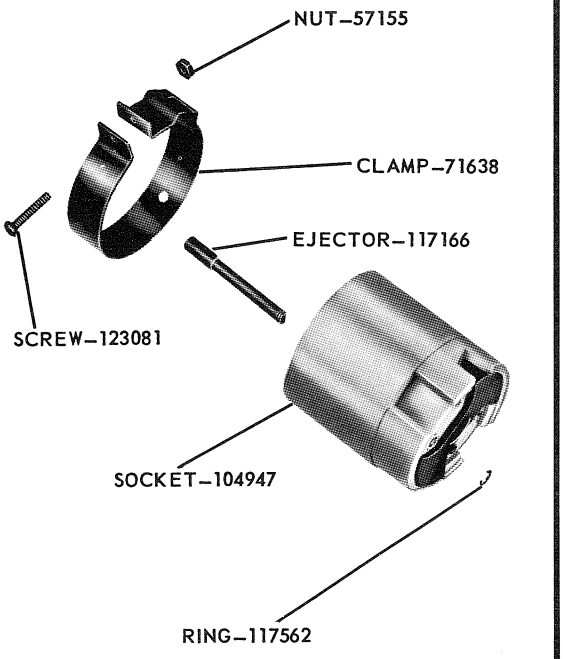


FIGURE 42

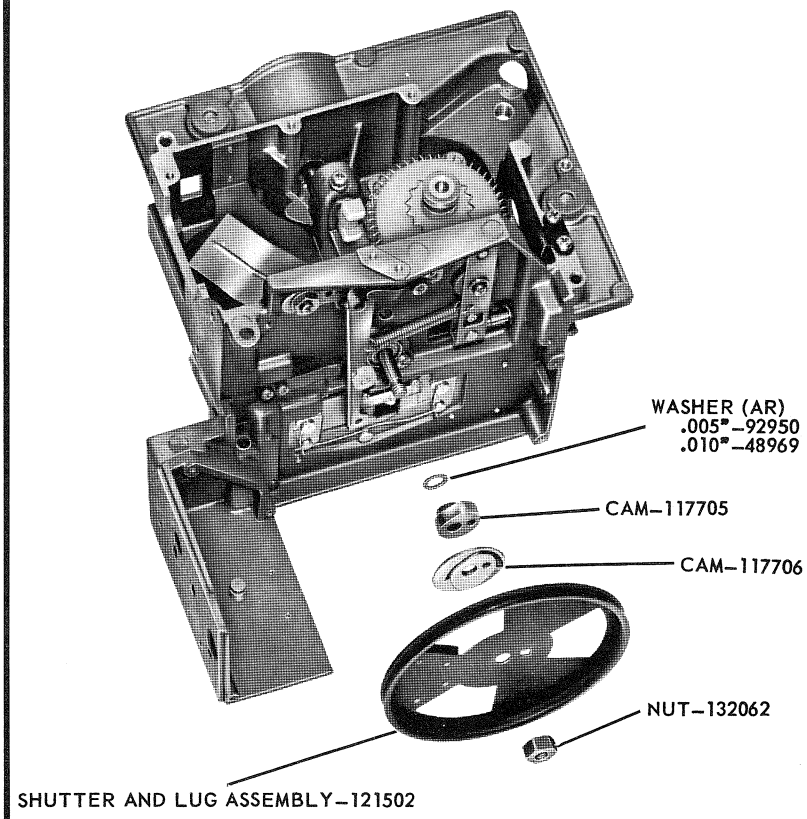


FIGURE 43

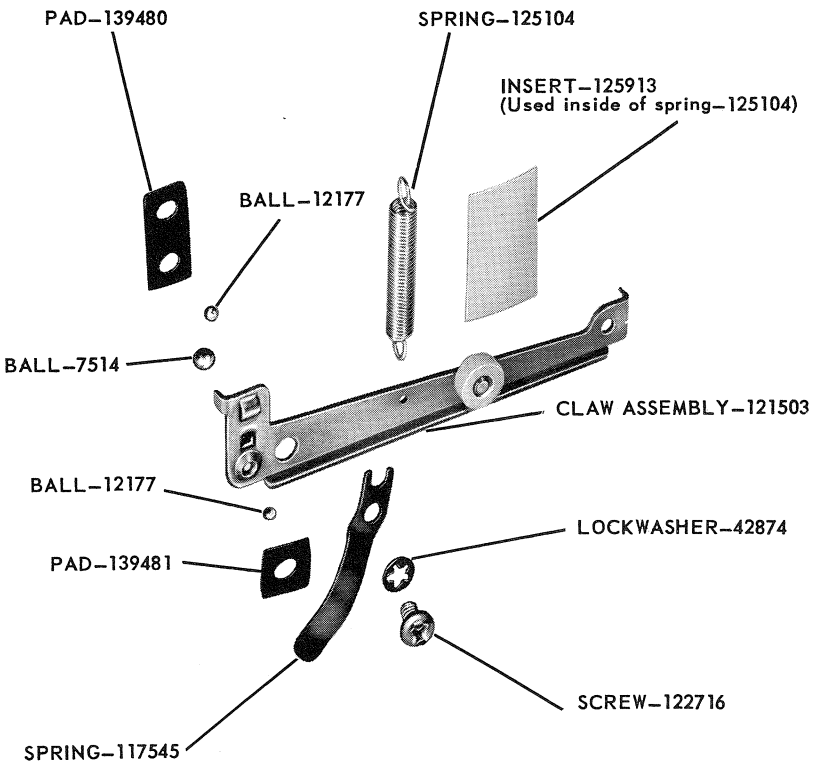


FIGURE 44

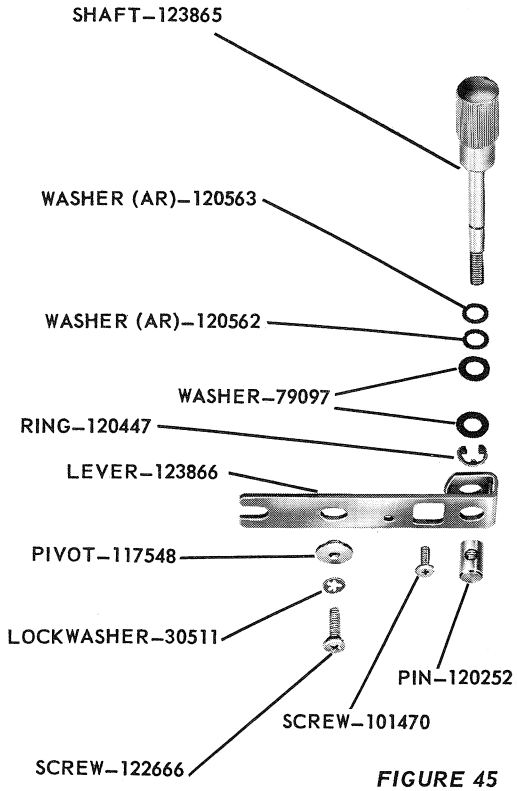


FIGURE 45

Always give PART NUMBER and NAME when ordering parts

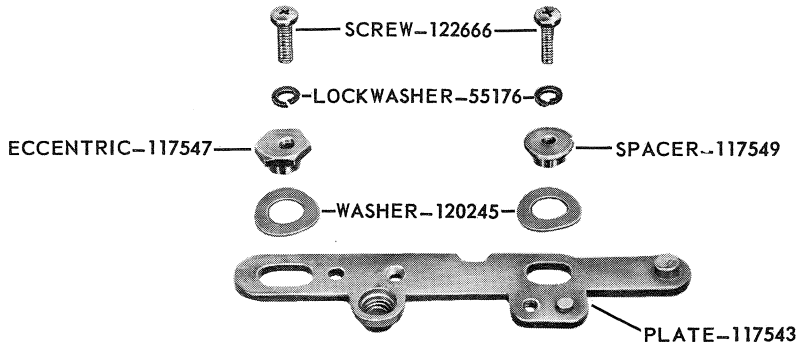


FIGURE 46

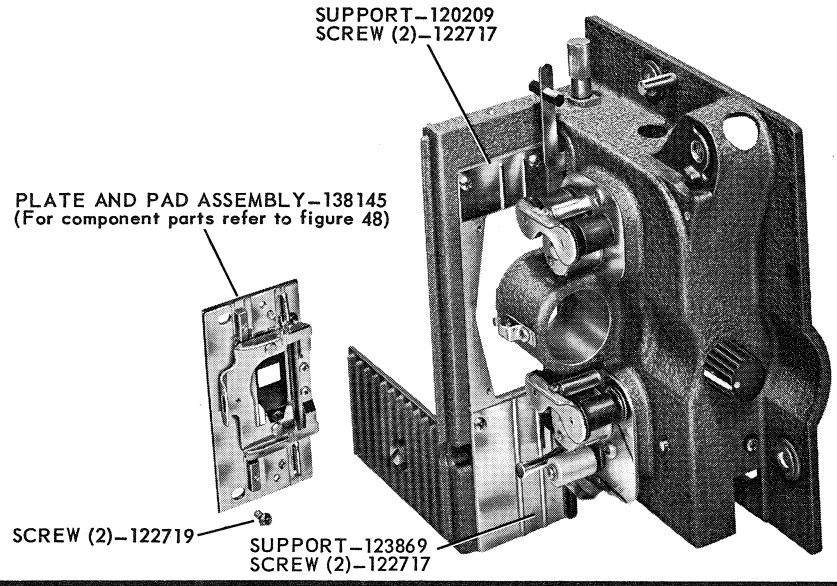


FIGURE 47

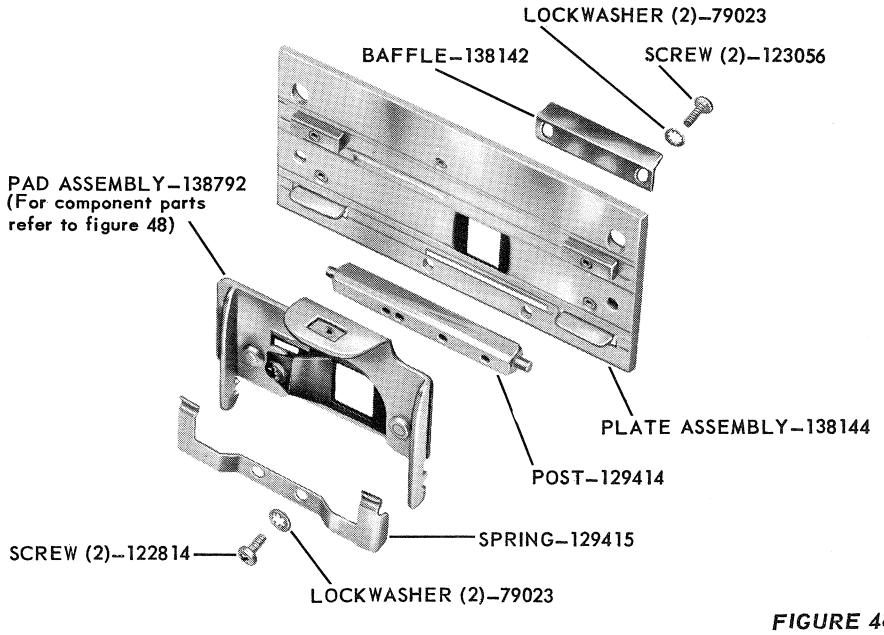


FIGURE 48

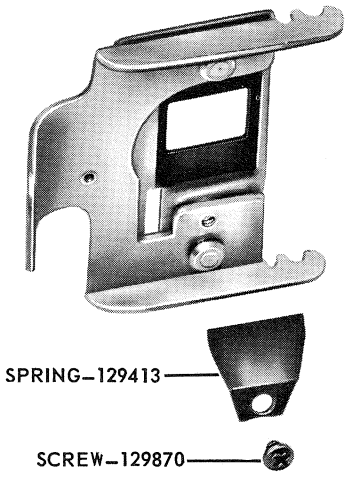


FIGURE 49

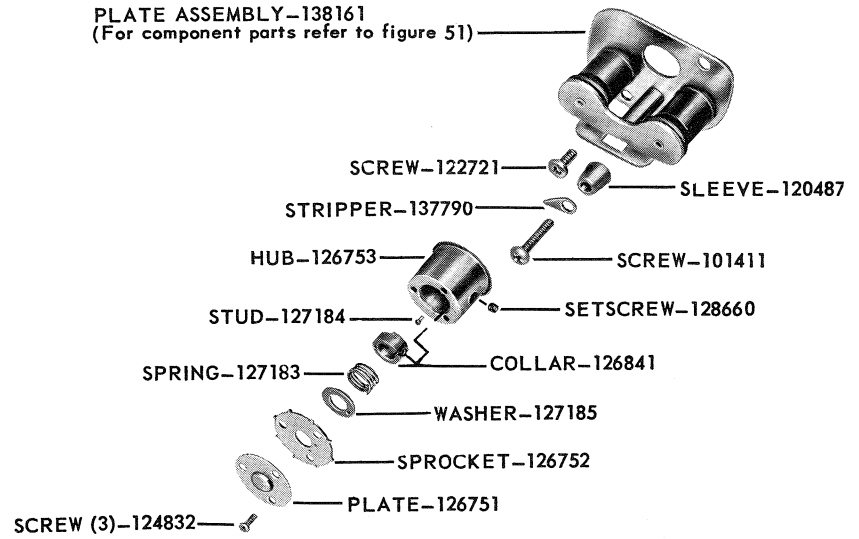


FIGURE 50

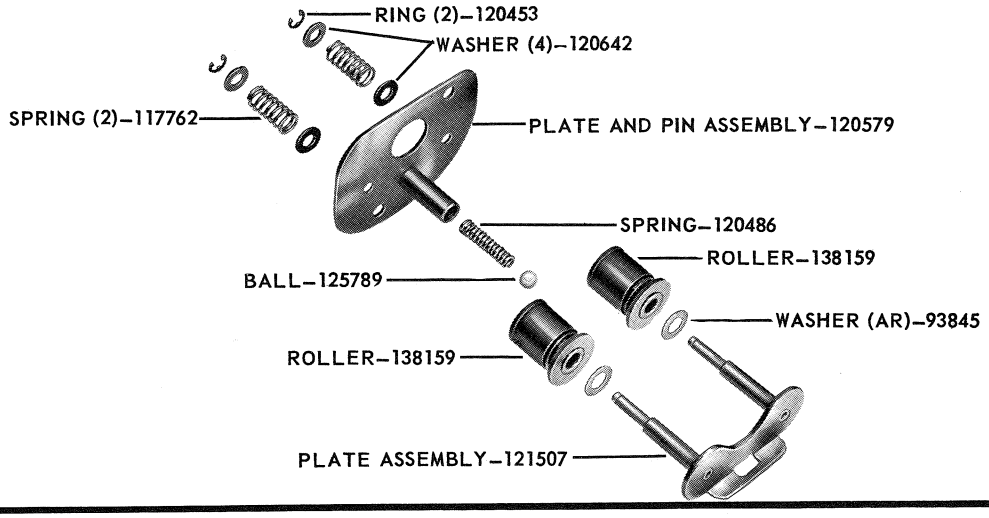


FIGURE 51

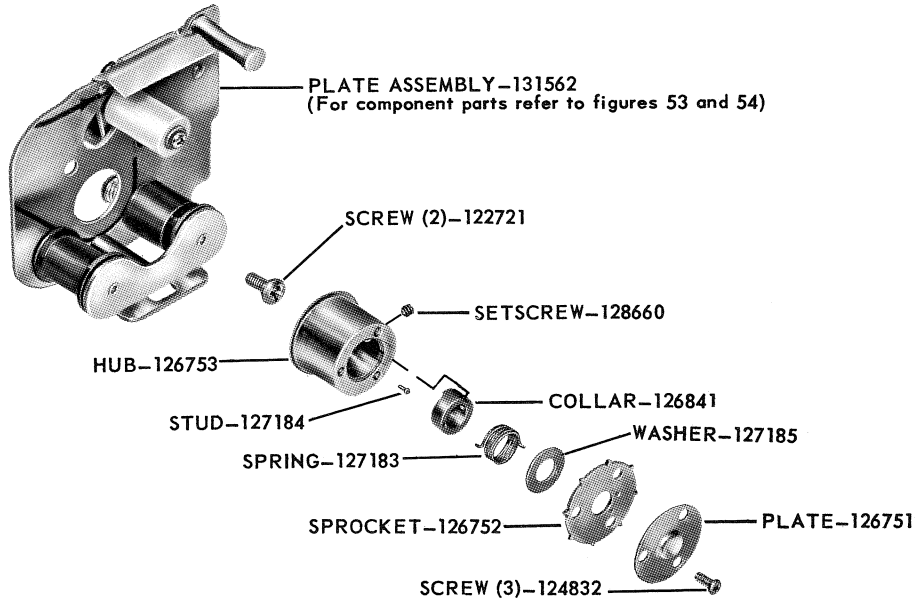


FIGURE 52

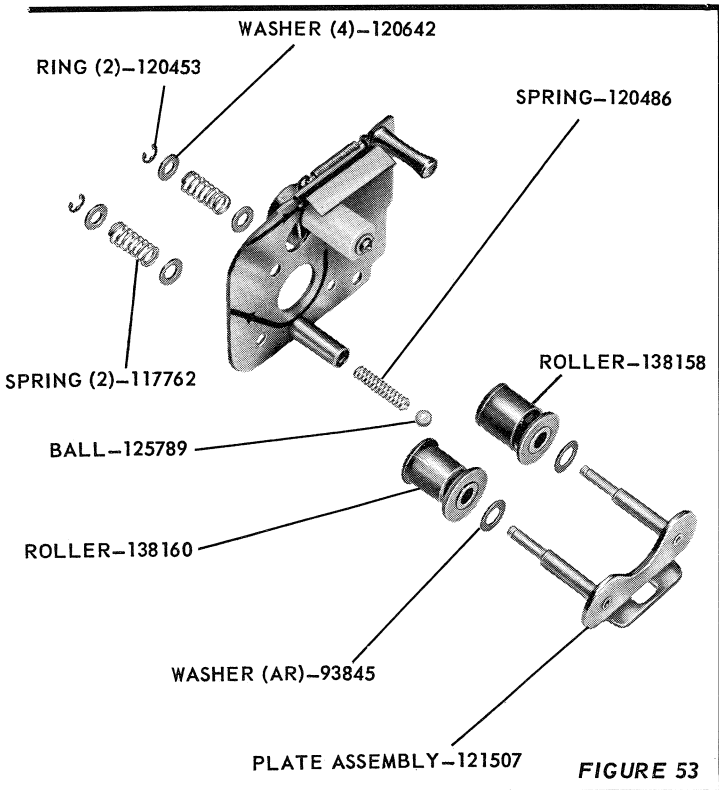


FIGURE 53

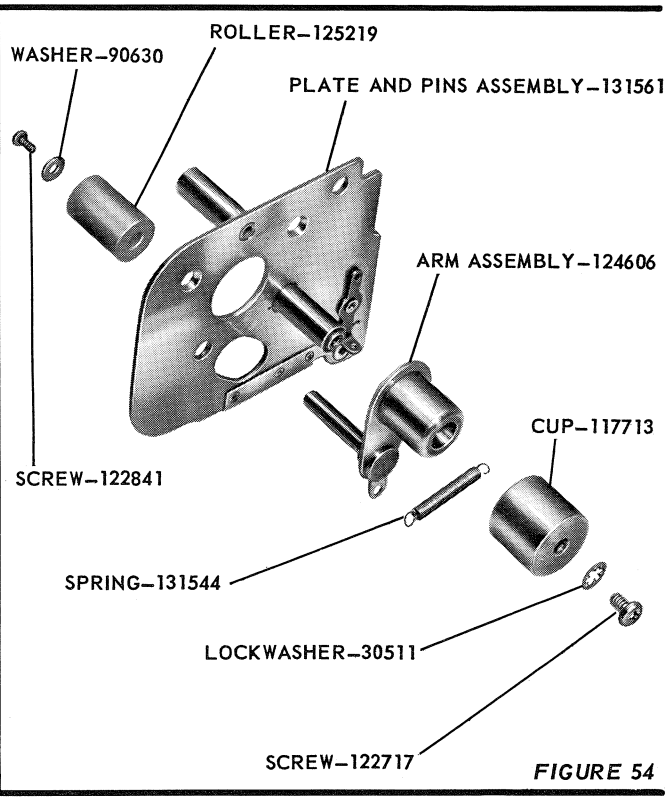


FIGURE 54

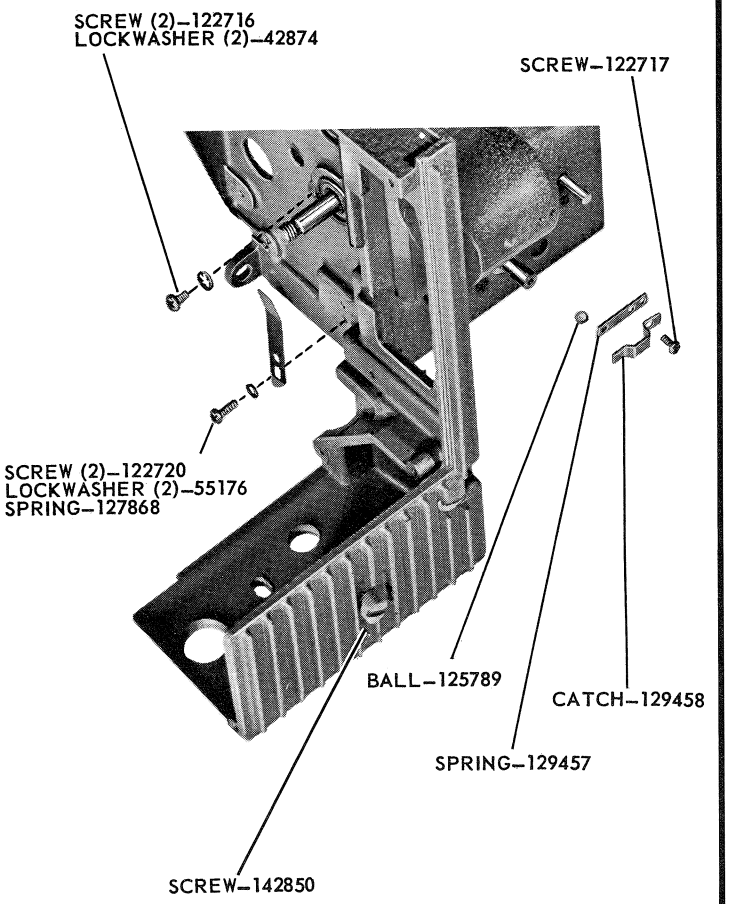


FIGURE 55

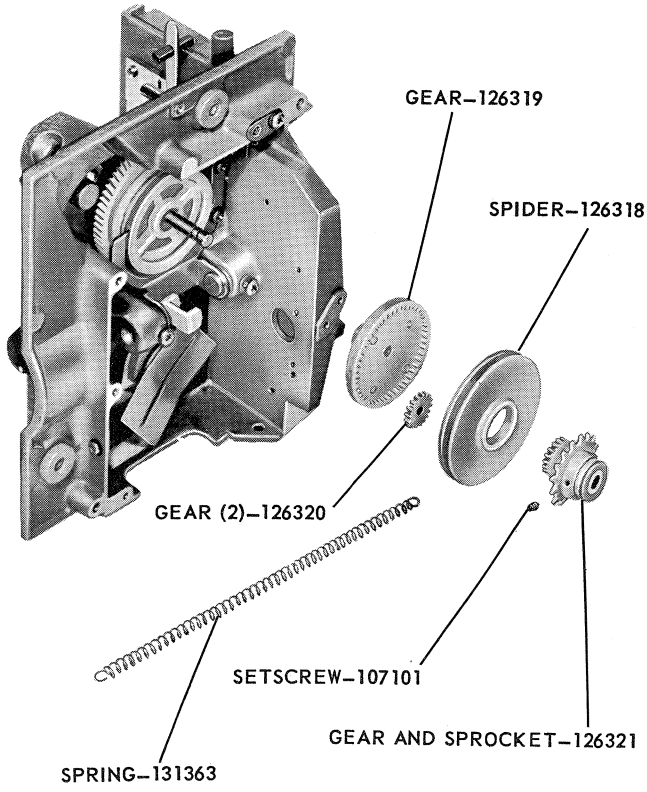


FIGURE 56

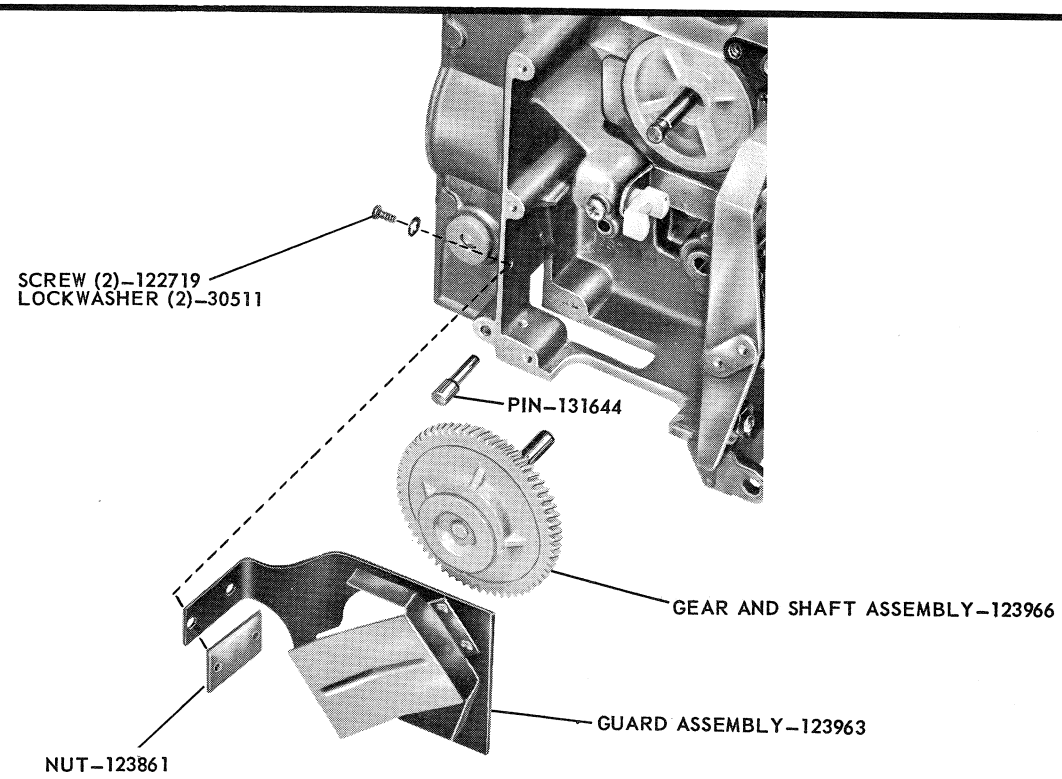


FIGURE 57

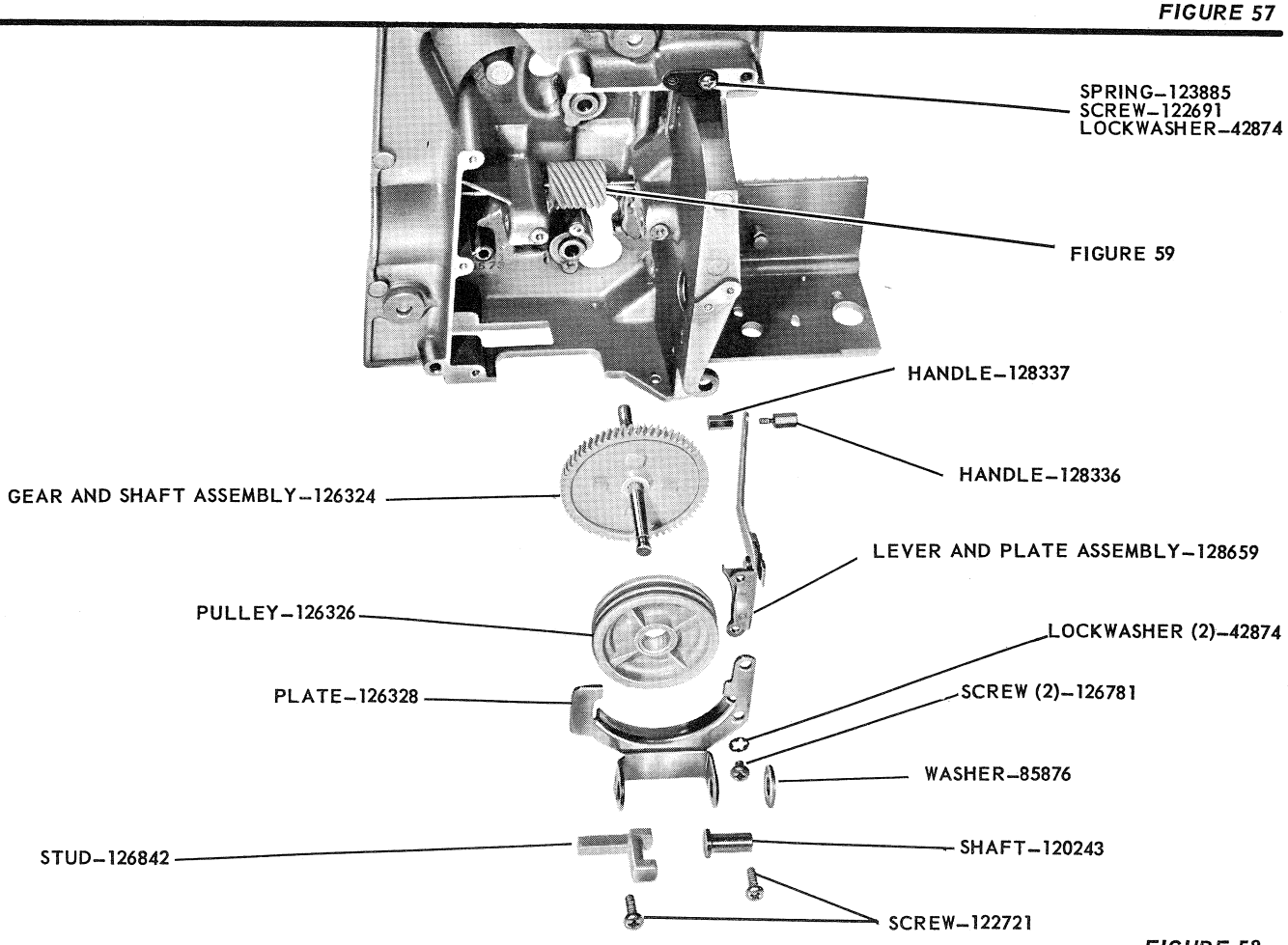


FIGURE 58

Always give PART NUMBER and NAME when ordering parts

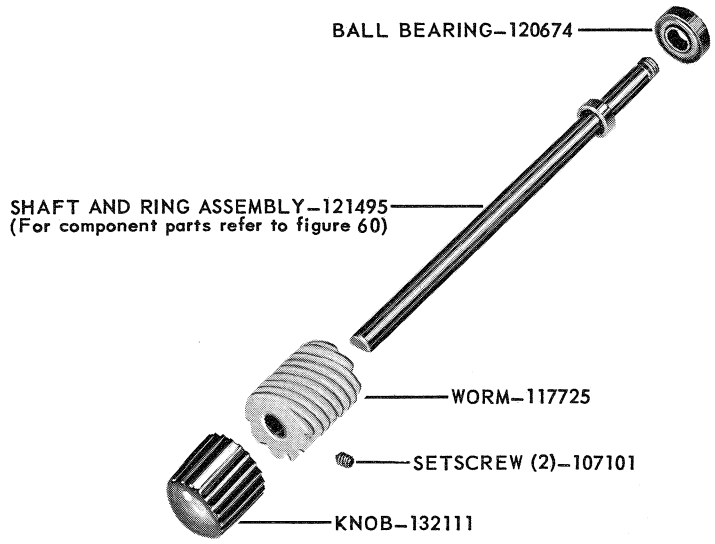


FIGURE 59

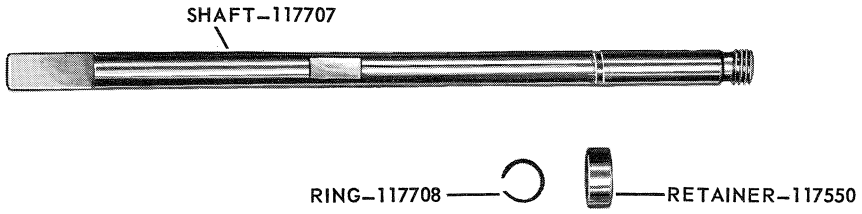


FIGURE 60

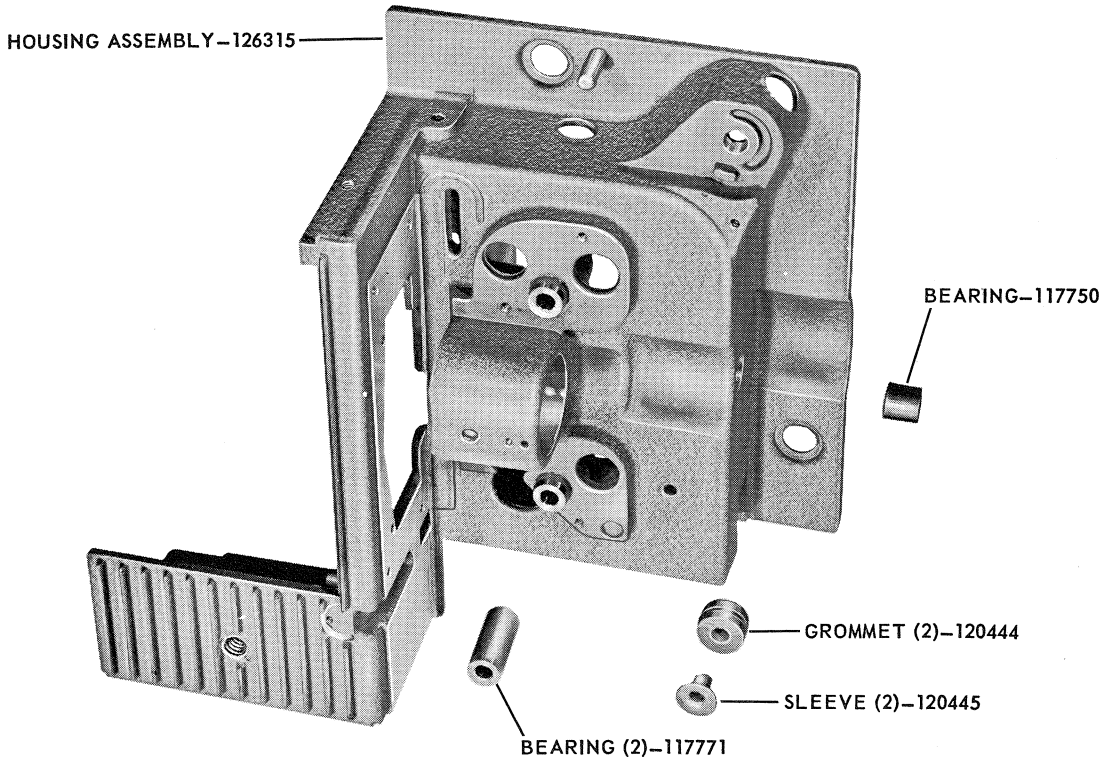


FIGURE 61

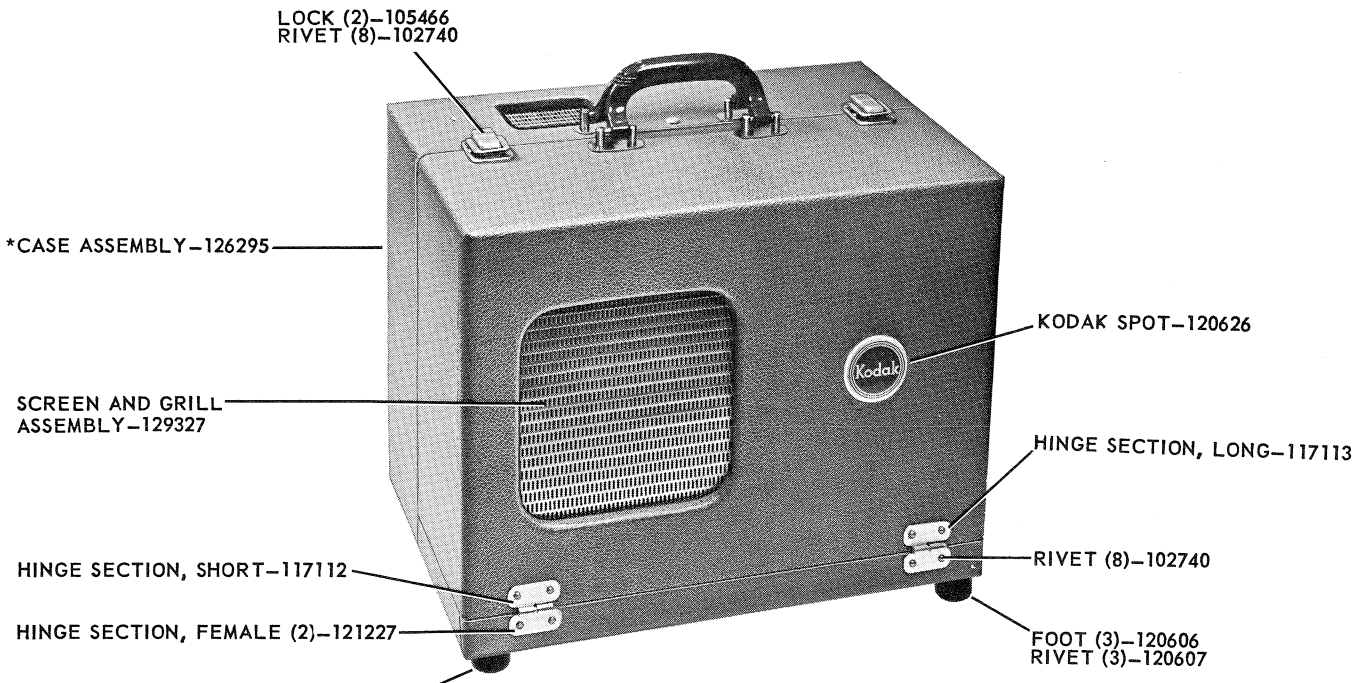


FIGURE 62

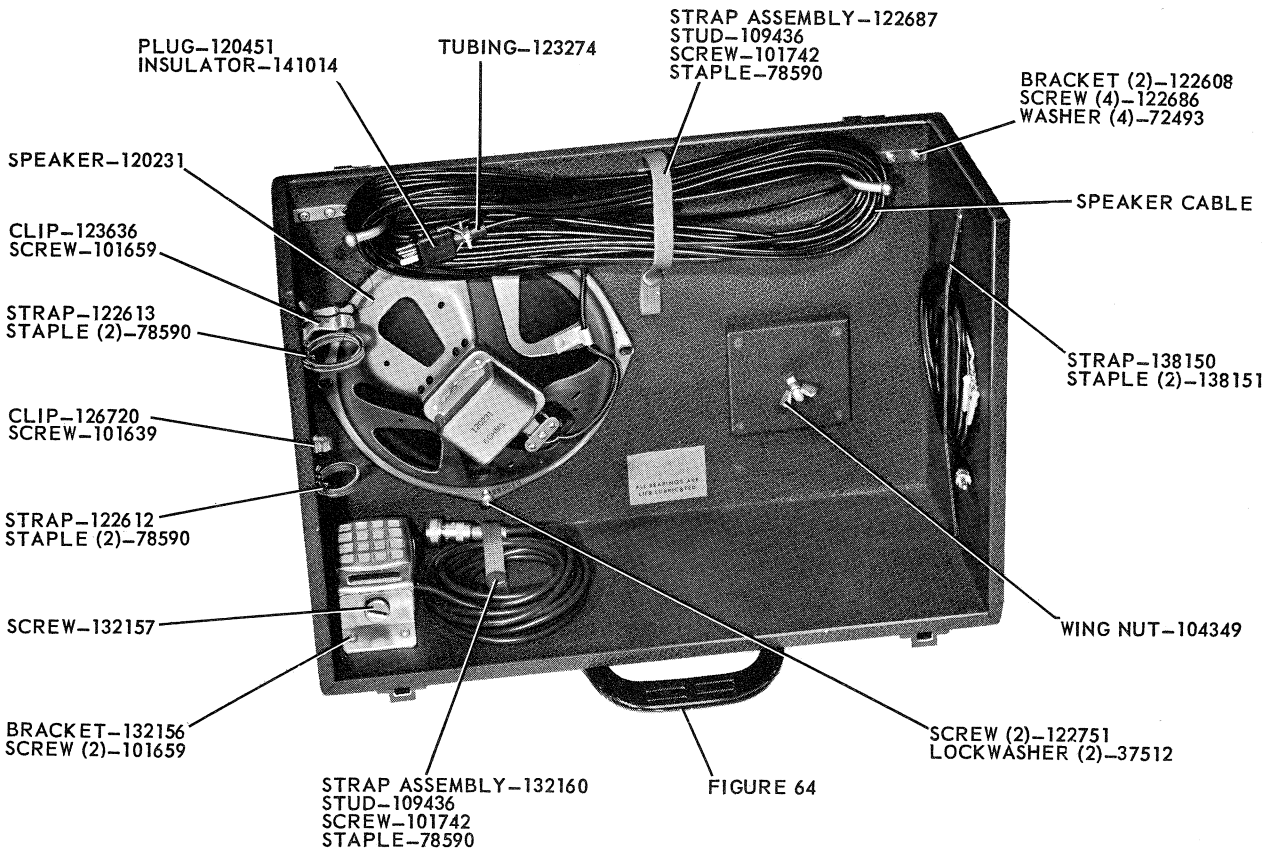


FIGURE 63

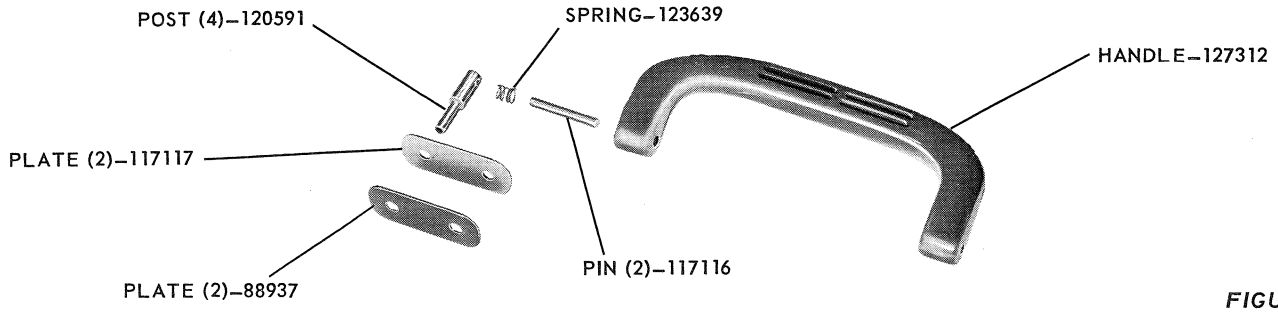


FIGURE 64

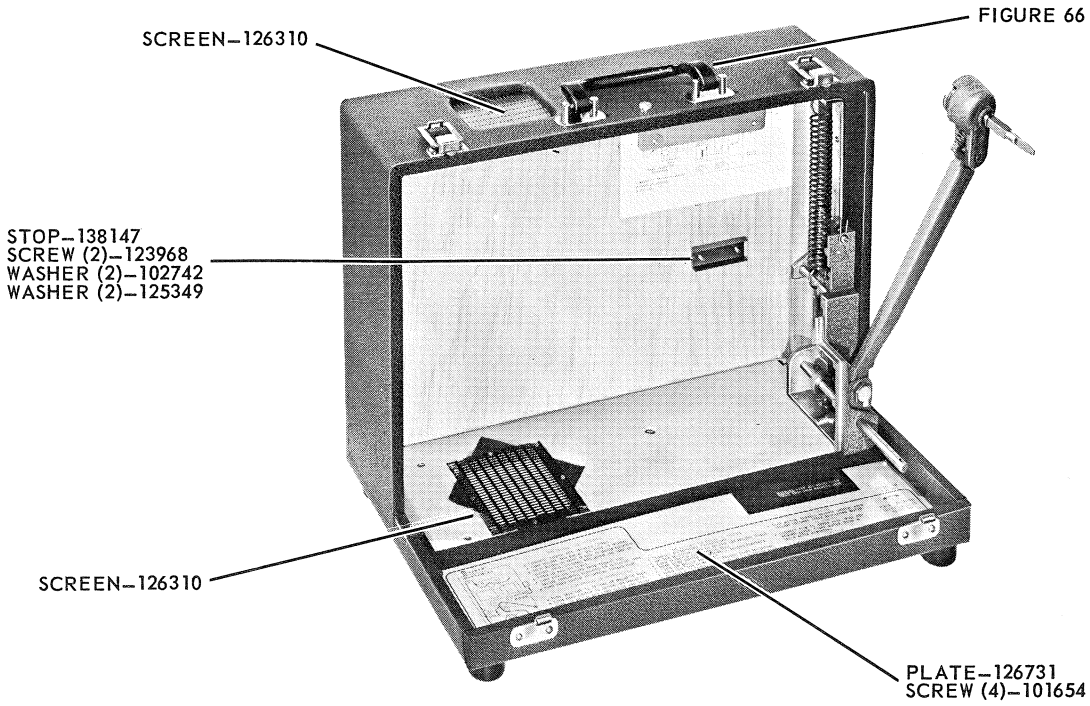


FIGURE 65

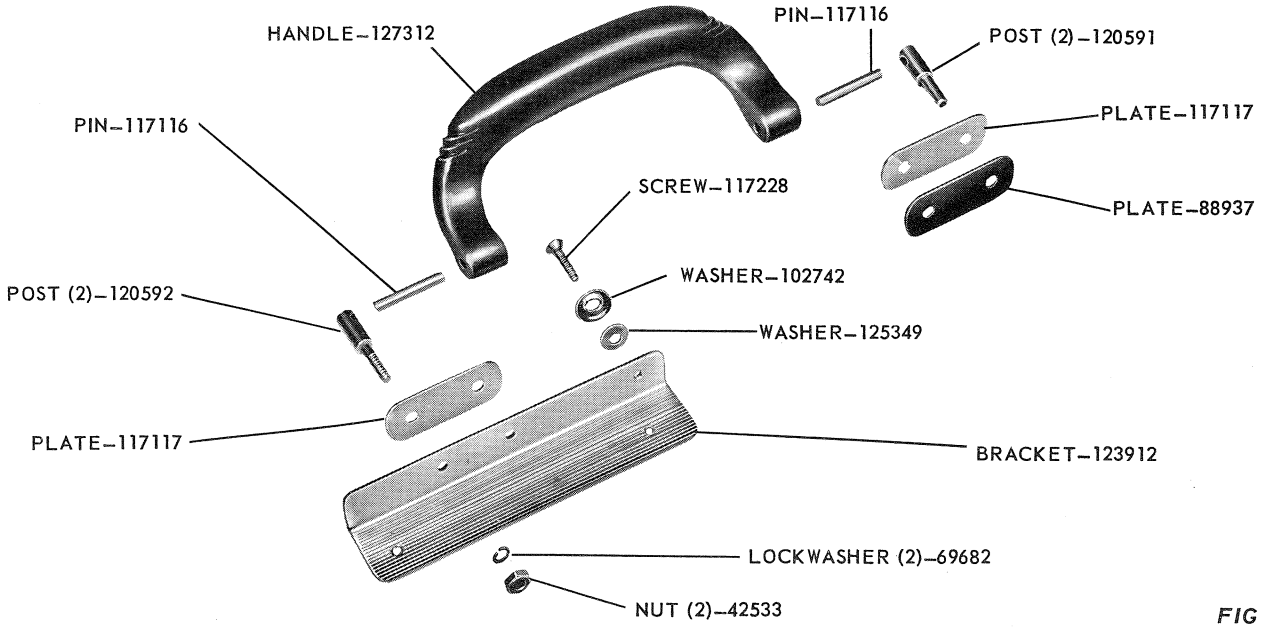


FIGURE 66

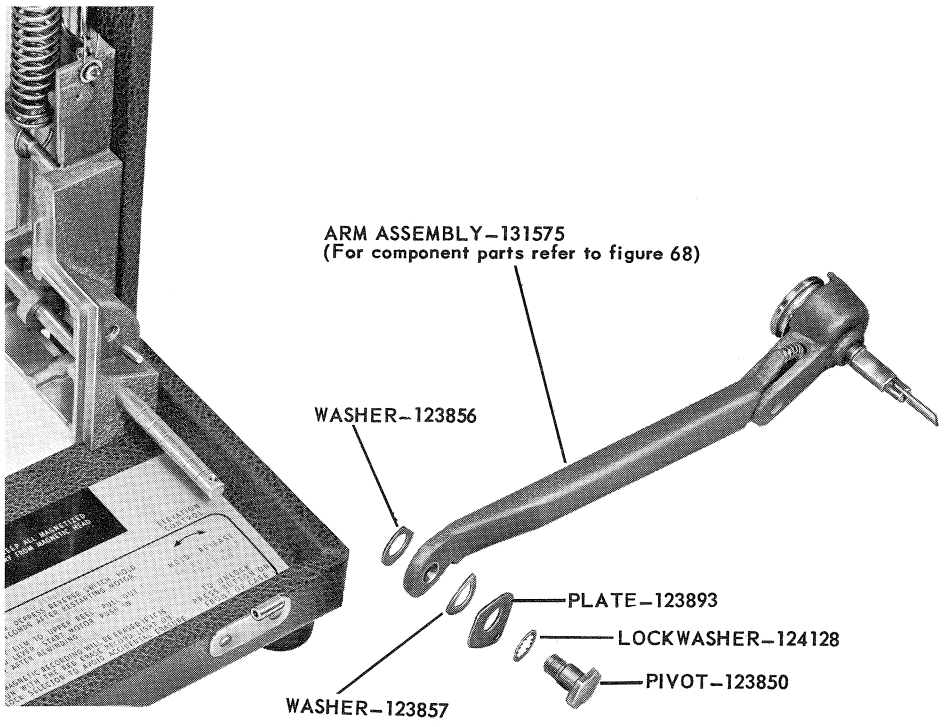


FIGURE 67

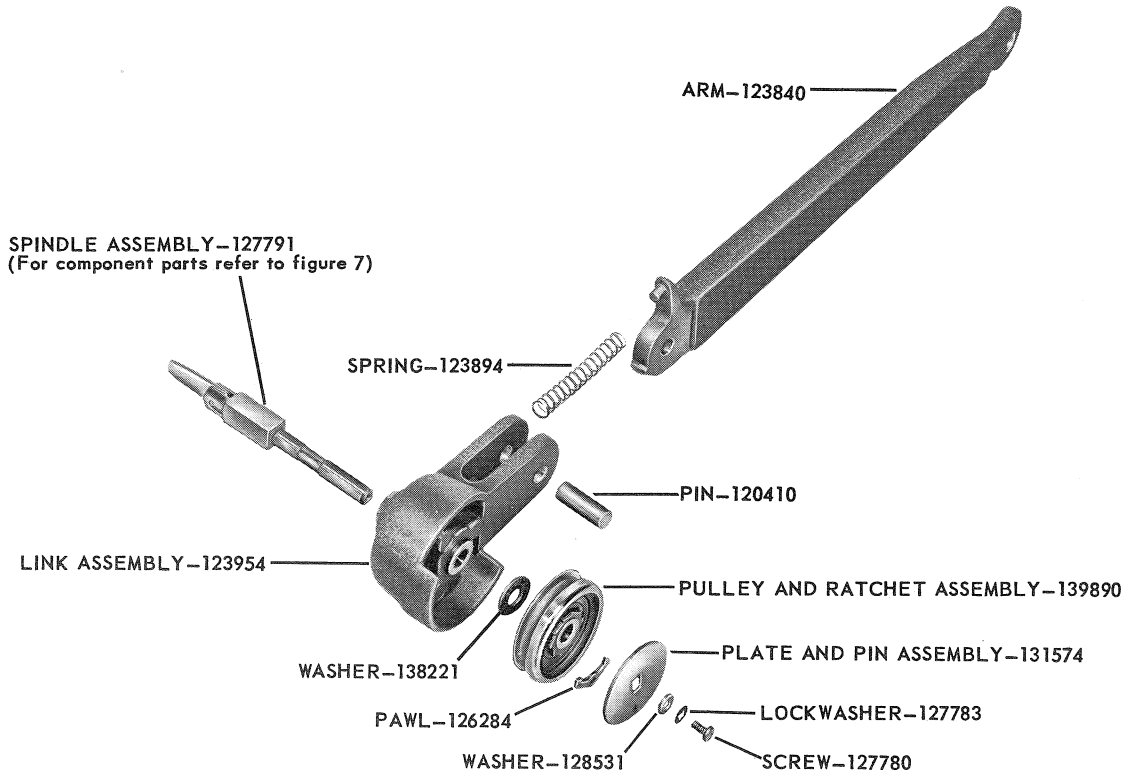


FIGURE 68

Always give PART NUMBER and NAME when ordering parts

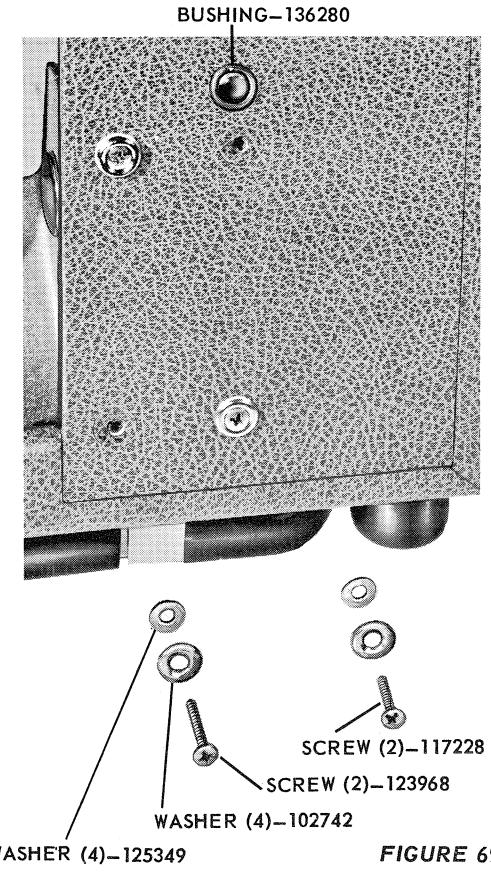


FIGURE 69

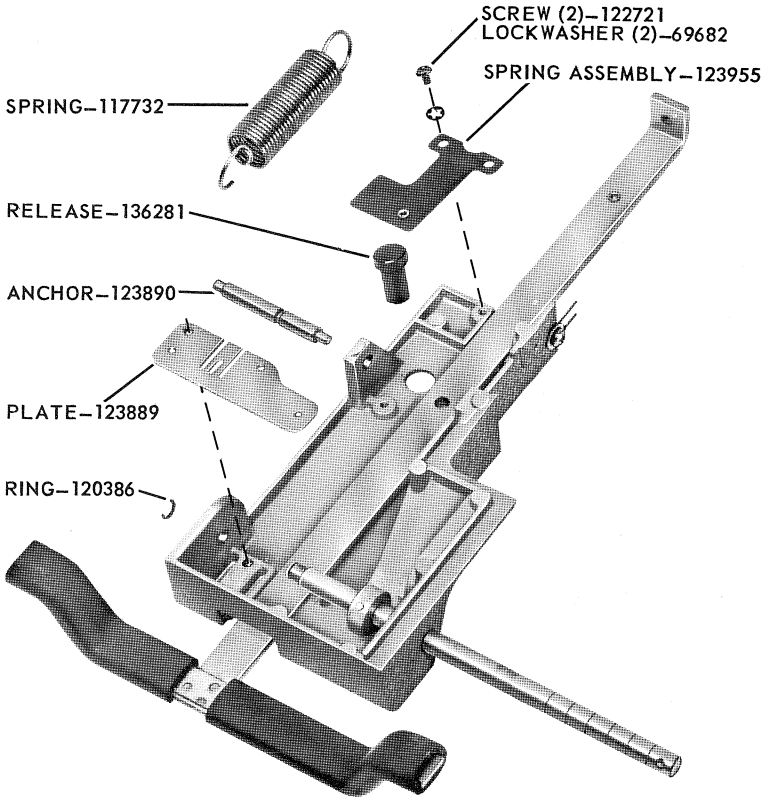


FIGURE 70

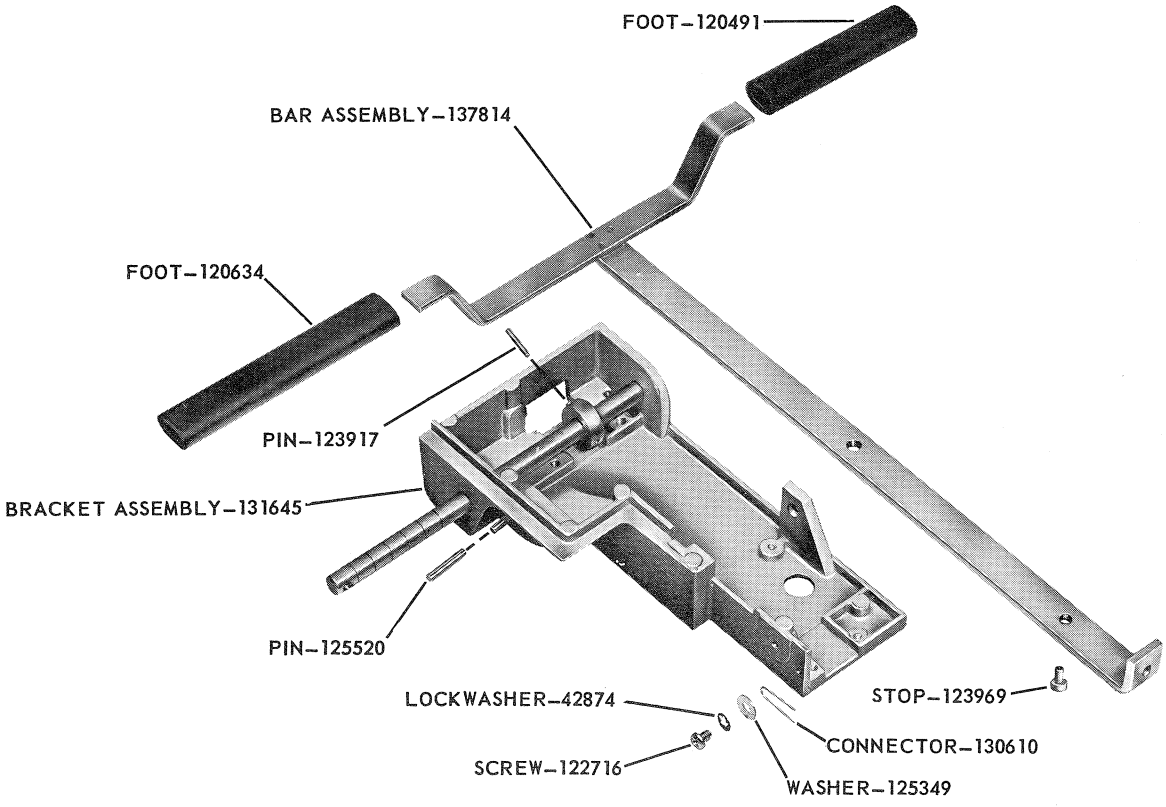


FIGURE 71

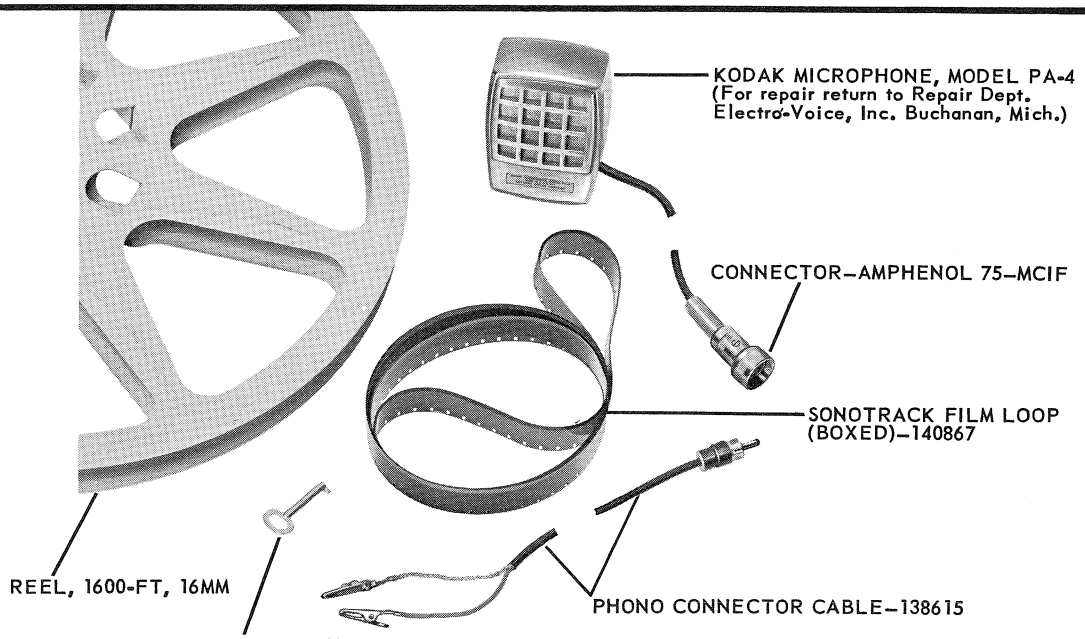


FIGURE 72

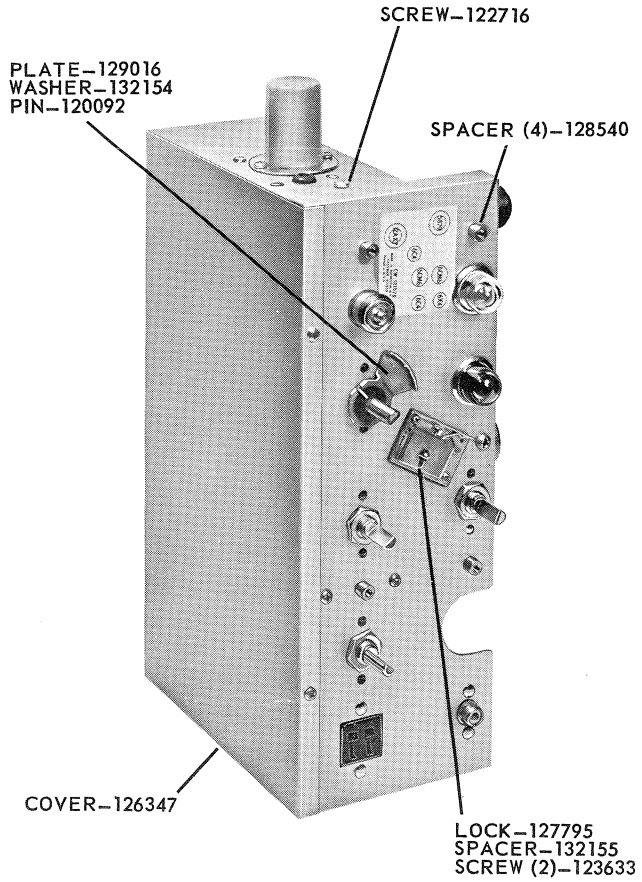


FIGURE 73

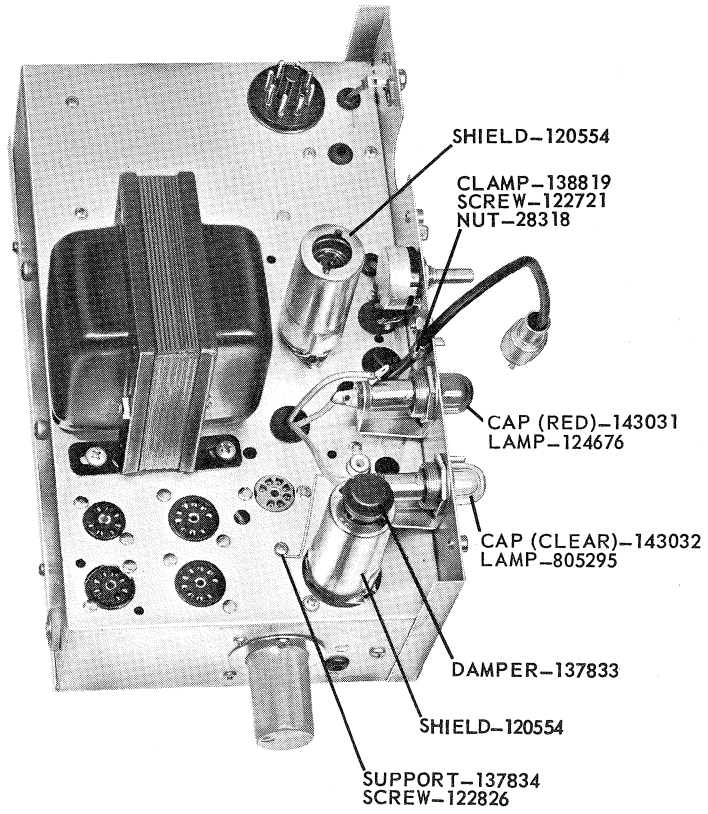
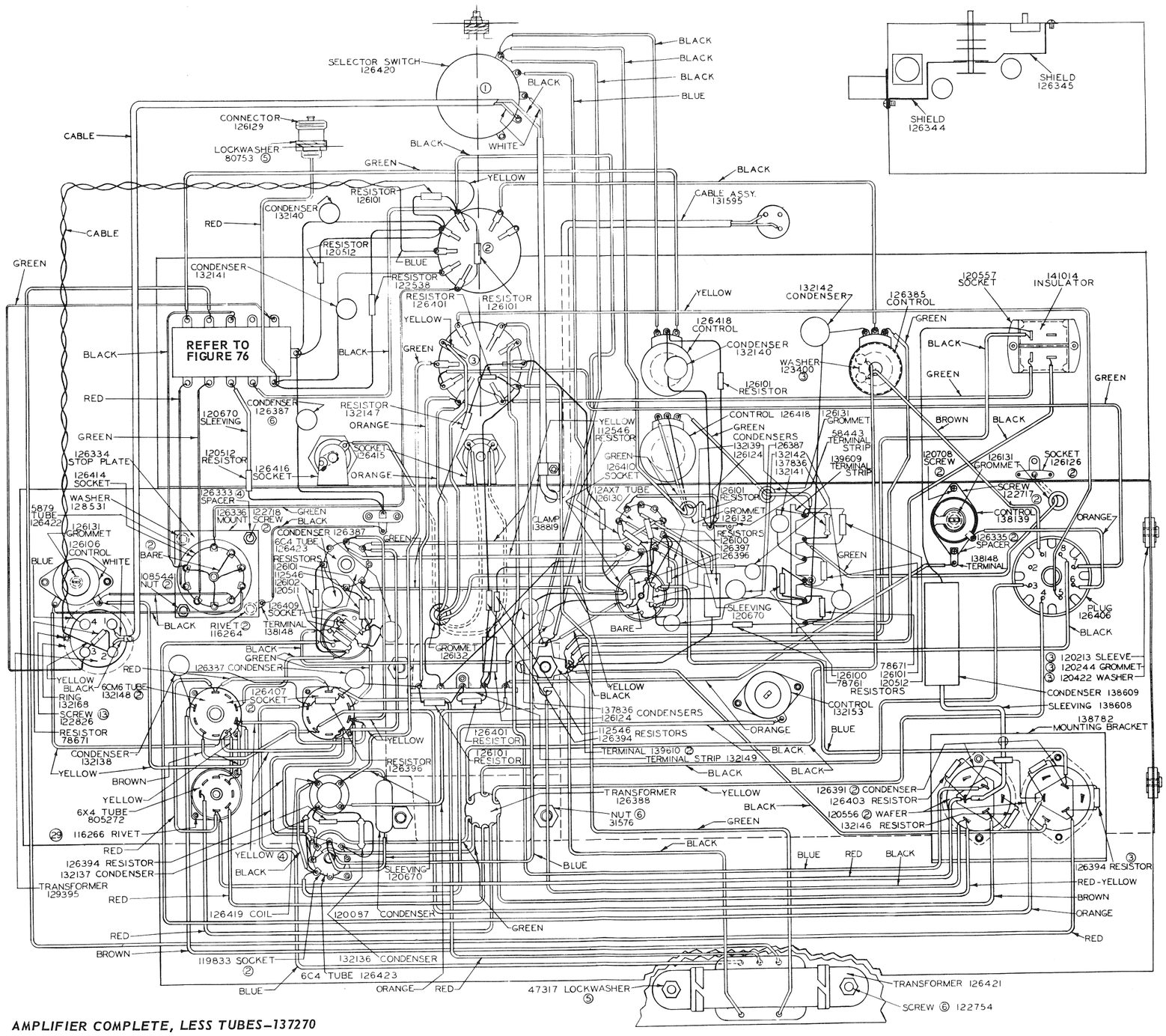


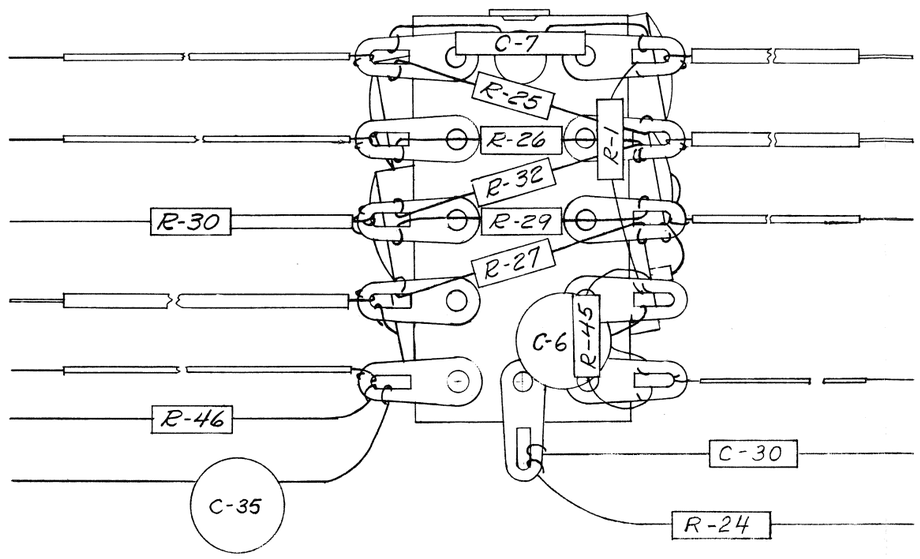
FIGURE 74

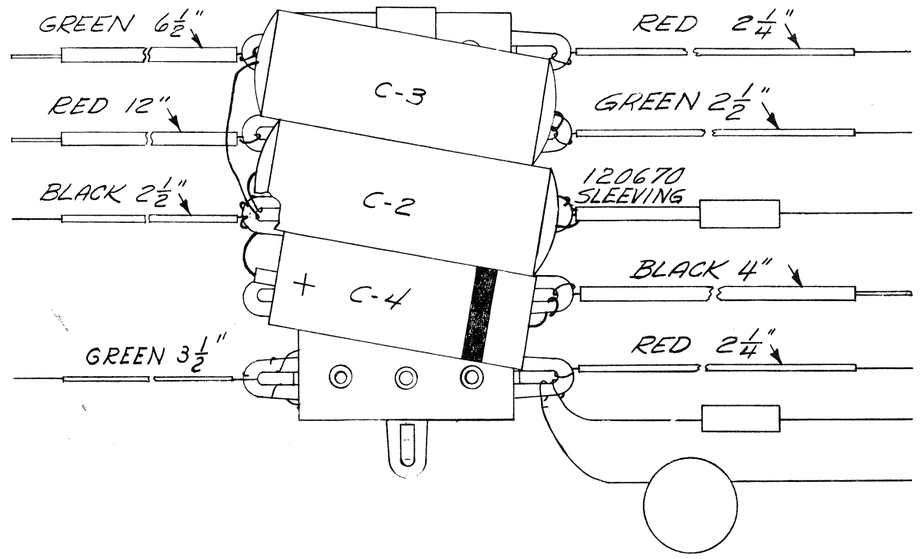


AMPLIFIER COMPLETE, LESS TUBES–137270

AMPLIFIER WIRING DIAGRAM FOR KODASCOPE PAGEANT SOUND PROJECTOR—MAGNETIC OPTICAL

Figure 75

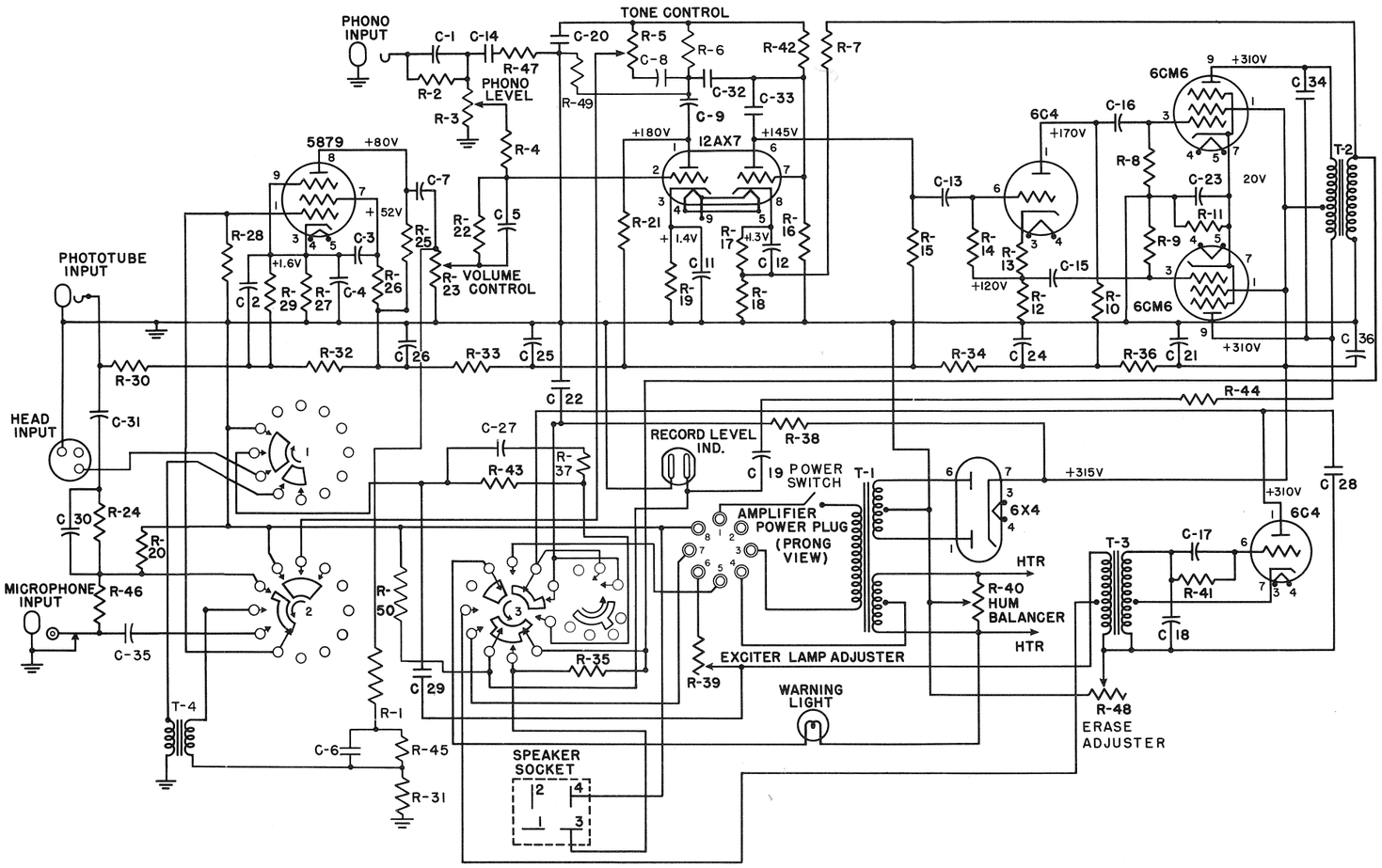




CODE	PART NO.	VALUE
C-2	120087	.1 MFD. 400 V.D.C.
C-3	120087	.1 MFD. 400 V.D.C.
C-4	126124	50 MFD. 6 V.D.C. ELECTROLYTIC
C-6	137835	250 MMFD. 500 V.D.C.
C-7	126387	.02 MFD. 450 V.D.C.
C-35	132141	.002 MFD. 500 V.D.C.
C-30	132140	100 MMFD. 500 V.D.C.
R-25	126396	270,000 OHMS ±10% ½ WATT
R-26	122538	1.0 MEG. ±10% ½ WATT
R-27	126397	1,500 OHMS ±10% ½ WATT
R-29	122538	1.0 MEG. ±10% ½ WATT
R-30	120512	1.5 MEG. ±10% ½ WATT
R-32	132150	2.2 MEG. ±10% ½ WATT
R-46	122538	1.0 MEG. ±10% ½ WATT
R-24	120512	1.5 MEG. ±10% ½ WATT
R-1	126101	470,000 OHMS ±10% ½ WATT
R-45	137865	6.8 MEG. ±10% ½ WATT

CONDENSER AND RESISTOR BOARD WIRING DIAGRAM

Figure 76



NOTE: WITH 115V. 60 CYCLES APPLIED BETWEEN POWER PLUG TERMINAL #1 & #3 ADJUST RHEOSTAT R-39 FOR 0.19 AMPERE THROUGH PROJECTOR EXCITER LAMP, WHICH IS CONNECTED BETWEEN POWER PLUG TERMINALS #6 & #8. THIS CURRENT IS AT ABOUT 40 KC AND THEREFORE MUST BE MEASURED WITH A SUITABLE RF AMMETER. ALTERNATIVELY THE ADJUSTMENT CAN BE MADE FOR 6.6 VOLTS ACROSS THESE TERMINALS MEASURED WITH AN AC VOLTMETER ACCURATE AT 40 KC. A 35 OHM 2 WATT RESISTOR MAY BE USED INSTEAD OF THE EXCITER LAMP.

THE DC VOLTAGES SHOWN ON THE TUBES ARE MEASURED TO GROUND WITH AN ELECTRONIC VOLTMETER WITH THE SELECTOR SWITCH IN "OPTICAL" (COUNTER CLOCKWISE) AND WITH A 115 V 60 CYCLE LINE SUPPLY. THE VALUES ARE INTENDED TO SERVE AS A GUIDE AND SUBSTANTIAL VARIATIONS DO NOT NECESSARILY INDICATE FAULTS.

THE CURRENT IN THE ERASE HEAD WITH 115 VOLTS 60 CYCLE LINE SUPPLY SHOULD BE ADJUSTED BY MEANS OF RHEOSTAT R-48 TO 0.80 AMPERE BY MEANS OF AN RF AMMETER.

SELECTOR SWITCH SHOWN IN "OPTICAL" POSITION.
AMPLIFIER OUTPUT IMPEDANCE 6 OHMS.

C-5	132140*	100 MMFD 500V. DC
C-6	137835*	250 MMF 500V. DC
C-7	126387	.02 MFD 450V. DC
C-8	132142	.01 MFD 500V. DC
C-9	137836	.02 MFD 500V. DC
C-11	126124	50 MFD 6V. DC
C-12	126124	50 MFD 6V. DC
C-13	126387	.02 MFD 450V DC
C-14	132141 *	.002 MFD 500V. DC
C-15	126387	.02 MFD 450V. DC
C-16	126387	.02 MFD 450V. DC
C-17	132136*	.005 MFD 500V. DC
C-18	132137*	.001 MFD 500V. DC
C-19	126387	.02 MFD 450V. DC
C-20	132142	.01 MFD 500V. DC
C-21		25 MFD 350V. DC
C-22	126391	25 MFD 350V. DC
C-23		20 MFD 350V. DC
C-24		25 MFD 350V. DC
C-25	126391	25 MFD 350V. DC
C-26		20 MFD 350V. DC
C-27	137836	.02 MFD 500 VDC
C-28	120087	0.1 MFD 400V. DC
C-29	137836	.02 MFD 500 VDC
C-30	132140*	100 MMFD 500V. DC
C-31	126387	.02 MFD 450 V. DC
C-32	132142	.01 MFD 500V. DC
C-33	132139*	50 MMFD 500V. DC
C-34	132138*	500 MMFD 2000V DC
C-35	132141*	.002 MFD 500V. DC
C-36	138609	40 MFD 350V. DC

NOMENCLATURE FOR RESISTORS AND CONDENSERS

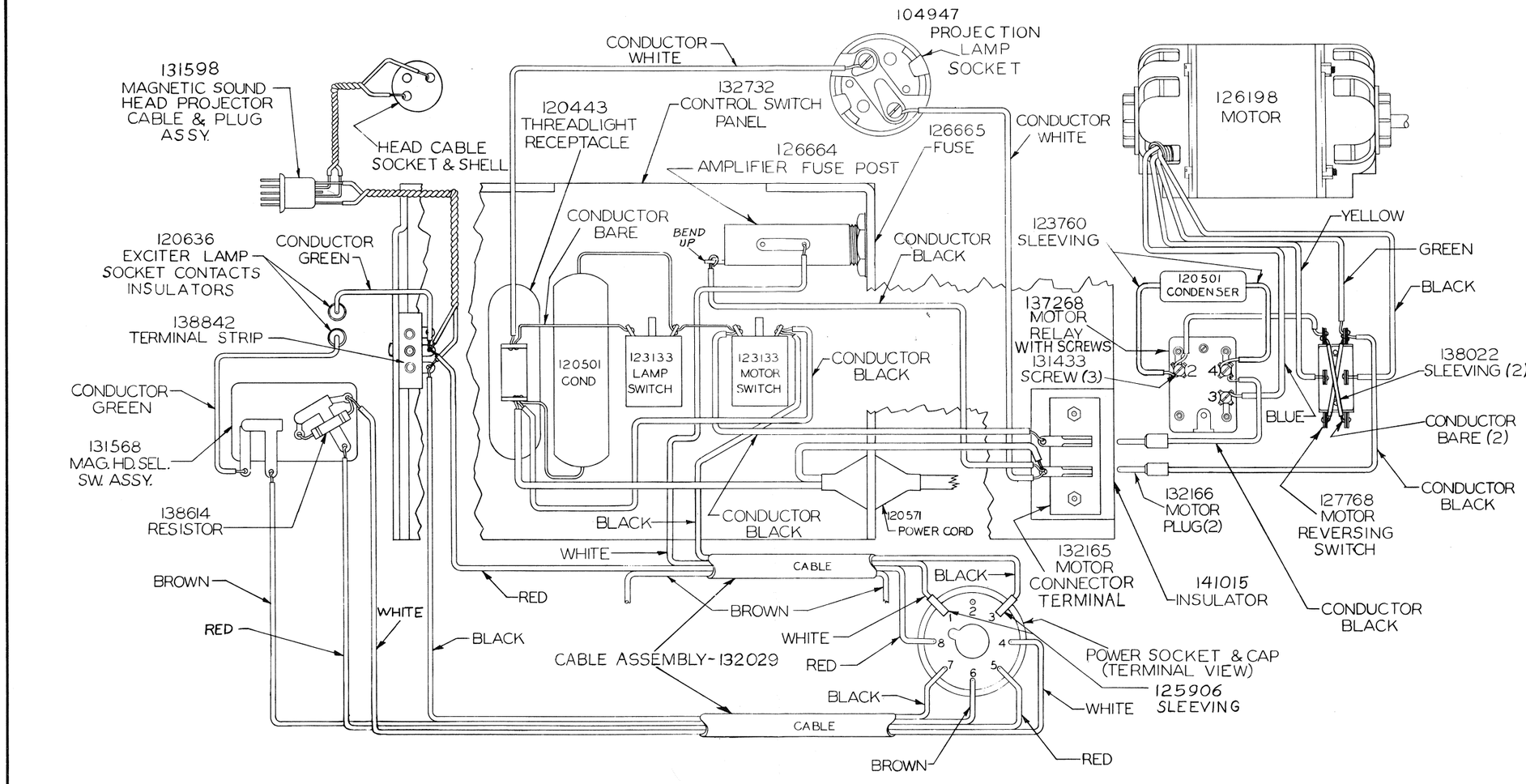
R-1	126101	470K OHMS ±10% ½ WATT	R-15	126396	270K OHMS ±10% ½ WATT	R-29	122538	1.0 MEG. ±10% ½ WATT	R-43	112546	2700 OHMS ±10% ½ WATT
R-2	120512	1.5 MEG. ±10% ½ WATT	R-16	126396	270K OHMS ±10% ½ WATT	R-30	120512	1.5 MEG. ±10% ½ WATT	R-44	126396	270K OHMS ±10% ½ WATT
R-3	126418	1.0 MEG. PHONO LEVEL CONTROL	R-17	112546	2700 OHMS ±10% ½ WATT	R-31	78671	47K OHMS ±10% ½ WATT	R-45	137865	6.8 MEG. ±10% ½ WATT
R-4	126101	470K OHMS ±10% ½ WATT	R-18	126401	150 OHMS ±10% ½ WATT	R-32	132150	2.2 MEG. ±10% ½ WATT	R-46	122538	1.0 MEG. ±10% ½ WATT
R-5	126385	.50 MEG. TONE CONTROL	R-19	126397	1500 OHMS ±10% ½ WATT	R-33	126394	4700 OHMS ±10% ½ WATT	R-47	126101	470K OHMS ±10% ½ WATT
R-6	78671	47K OHMS ±10% ½ WATT	R-20	126101	470K OHMS ±10% ½ WATT	R-34	126394	4700 OHMS ±10% ½ WATT	R-48	132153	3 OHMS RHEOSTAT
R-7	126394	4700 OHMS ±10% ½ WATT	R-21	126100	100K OHMS ±10% ½ WATT	R-35	126401	150 OHMS ±10% ½ WATT	R-49	126100	100K OHMS ±10% ½ WATT
R-8	120511	510K OHMS ± 5% ½ WATT	R-22	126101	470K OHMS ±10% ½ WATT	R-36	126394	4700 OHMS ±10% ½ WATT	R-50	126101	470K OHMS ±10% ½ WATT
R-9	120511	510K OHMS ± 5% ½ WATT	R-23	126418	1.0 MEG. VOLUME CONTROL	R-37	132147	330 OHMS ±10% ½ WATT			
R-10	126102	130K OHMS ± 5% ½ WATT	R-24	120512	1.5 MEG. ±10% ½ WATT	R-38	126403	470 OHMS ±10% 1 WATT			
R-11	132146	270 OHMS ±10% 1 WATT	R-25	126396	270K OHMS ±10% ½ WATT	R-39	138139	25 OHMS RHEOSTAT	C-1	132139*	50MMFD 500V. DC
R-12	126102	130K OHMS ± 5% ½ WATT	R-26	122538	1.0 MEG. ±10% ½ WATT	R-40	126106	40 OHMS HUM BALANCER	C-2	120087	0.1 MFD 400V. DC
R-13	112546	2700 OHMS ±10% ½ WATT	R-27	126397	1500 OHMS ±10% ½ WATT	R-41	126394	4700 OHMS ±10% ½ WATT	C-3	120087	0.1 MFD 400V. DC
R-14	126101	470K OHMS ±10% ½ WATT	R-28	126101	470K OHMS ±10% ½ WATT	R-42	78671	47K OHMS ±10% ½ WATT	C-4	126124	50 MFD 6V. DC

T-1	126388	POWER TRANSFORMER
T-2	126421	OUTPUT TRANSFORMER
T-3	126419	OSCILLATOR COIL
T-4	129395	MAG. INPUT TRANSFORMER

* TOLERANCE ±10%

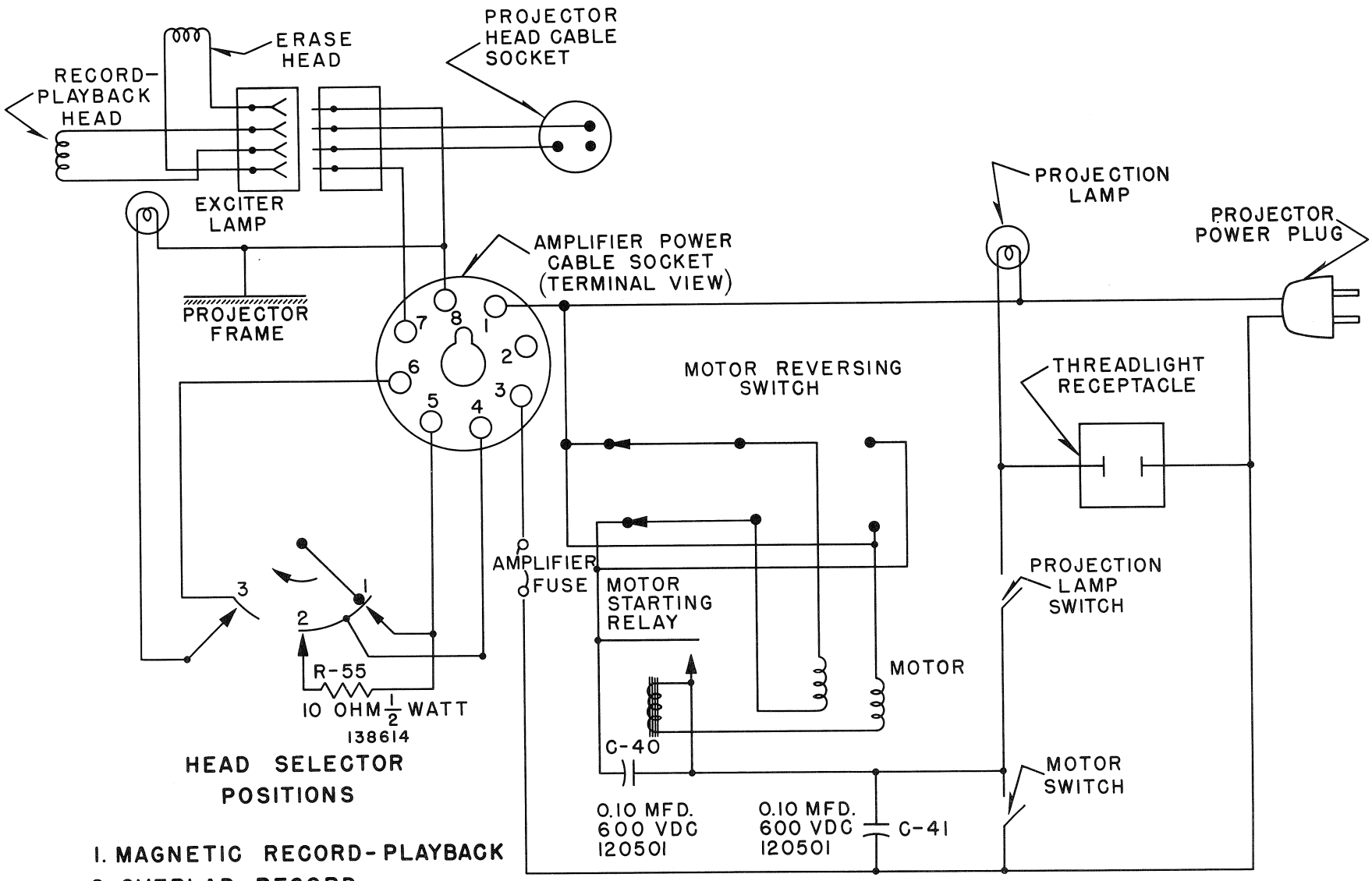
SCHEMATIC CIRCUIT FOR KODASCOPE PAGEANT SOUND PROJECTOR AMPLIFIER—MAGNETIC OPTICAL

Figure 77



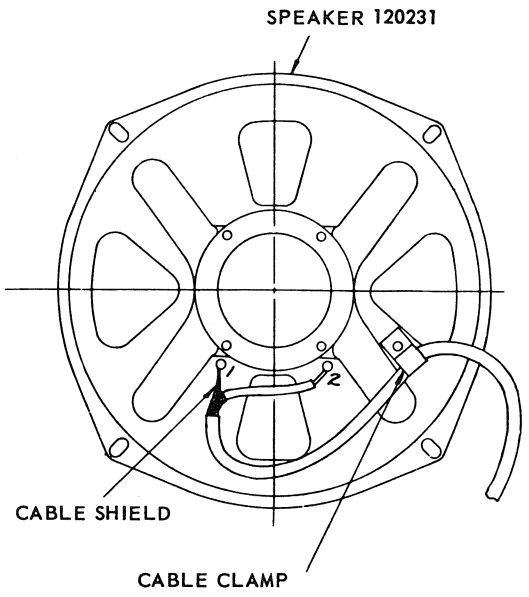
PROJECTOR WIRING DIAGRAM FOR KODASCOPE PAGEANT SOUND PROJECTOR—MAGNETIC OPTICAL

Figure 78



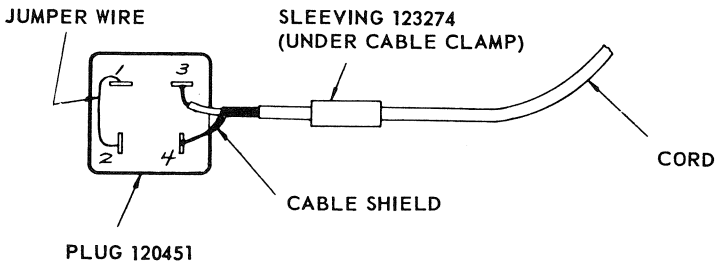
PROJECTOR SCHEMATIC DIAGRAM

Figure 79



IMPORTANT

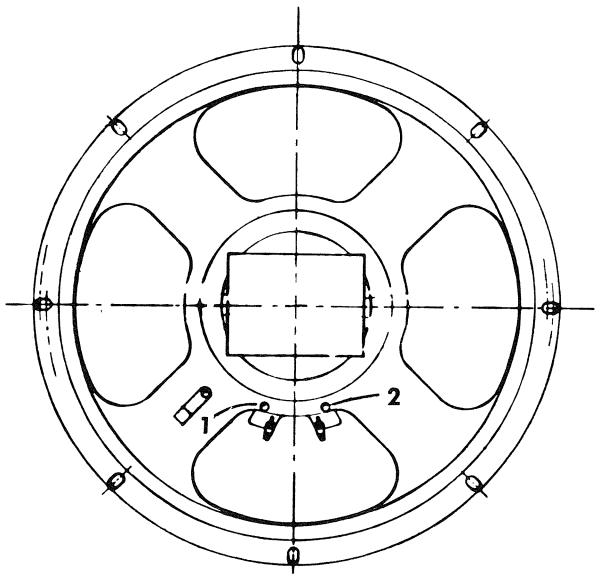
CABLE SHIELD MUST ALWAYS BE CONNECTED TO SPEAKER TERMINAL NO. 1. THE LOCATION OF THE NO. 1 & NO. 2 SPEAKER TERMINALS MAY BE REVERSED FROM THOSE SHOWN.

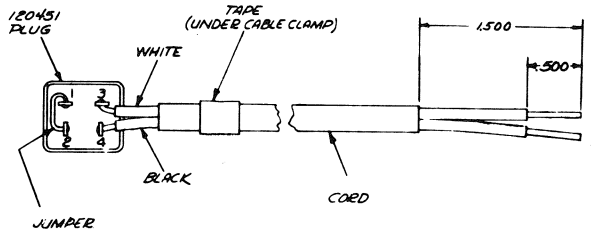


HOW TO DETERMINE NO. 1 SPEAKER TERMINAL

IF THE CONE MOVES FORWARD WHEN A FLASHLIGHT BATTERY IS PLACED ACROSS THE SPEAKER TERMINALS, THE TERMINAL CONNECTED TO THE POSITIVE POLE OF THE BATTERY WILL BE NO. 1.

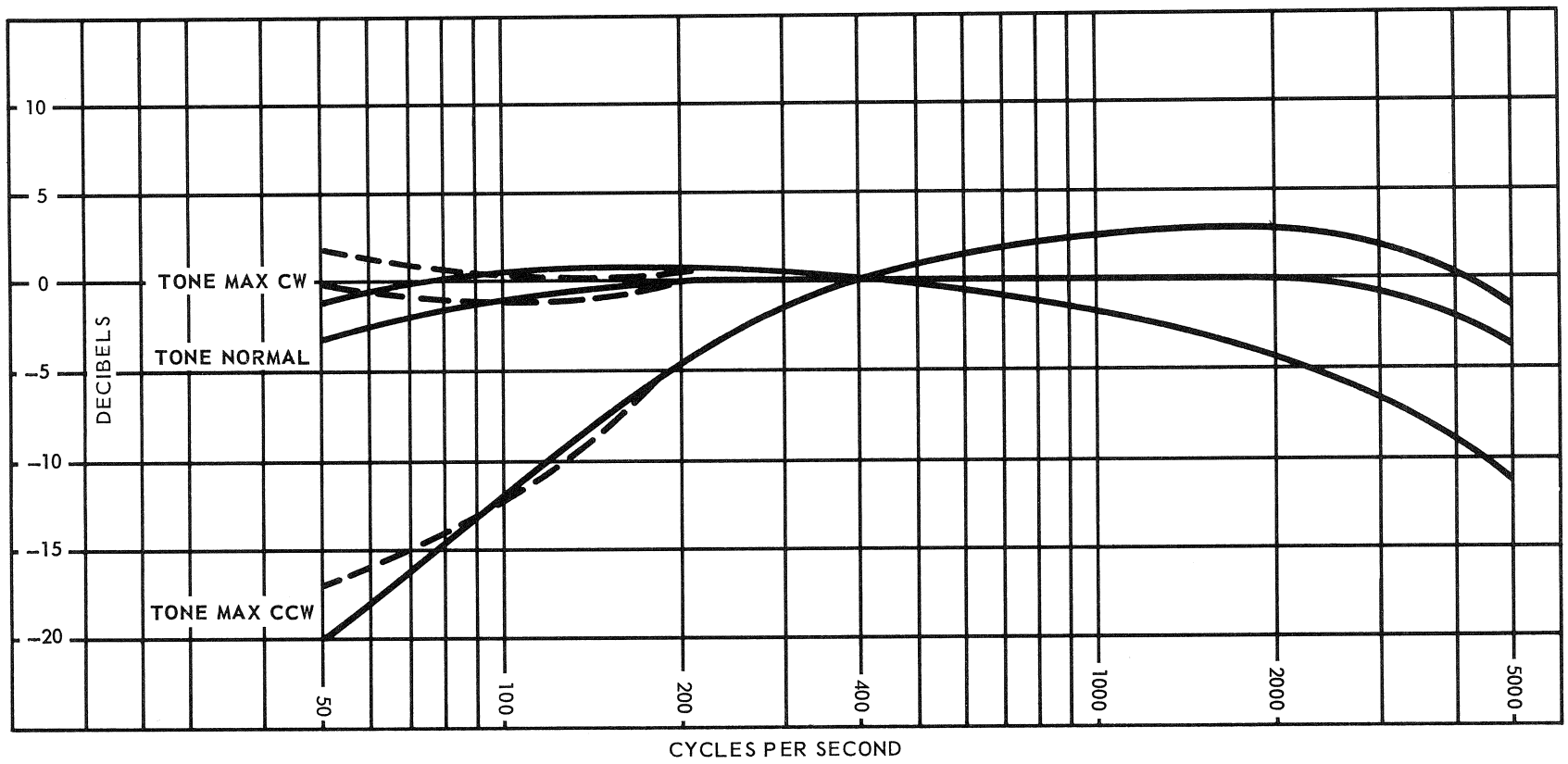
SPEAKER AND CABLE WIRING DIAGRAM





NOTE:
CONNECT BLACK LEAD TO SPEAKER TERMINAL NO. 1
CONNECT WHITE LEAD TO SPEAKER TERMINAL NO. 2

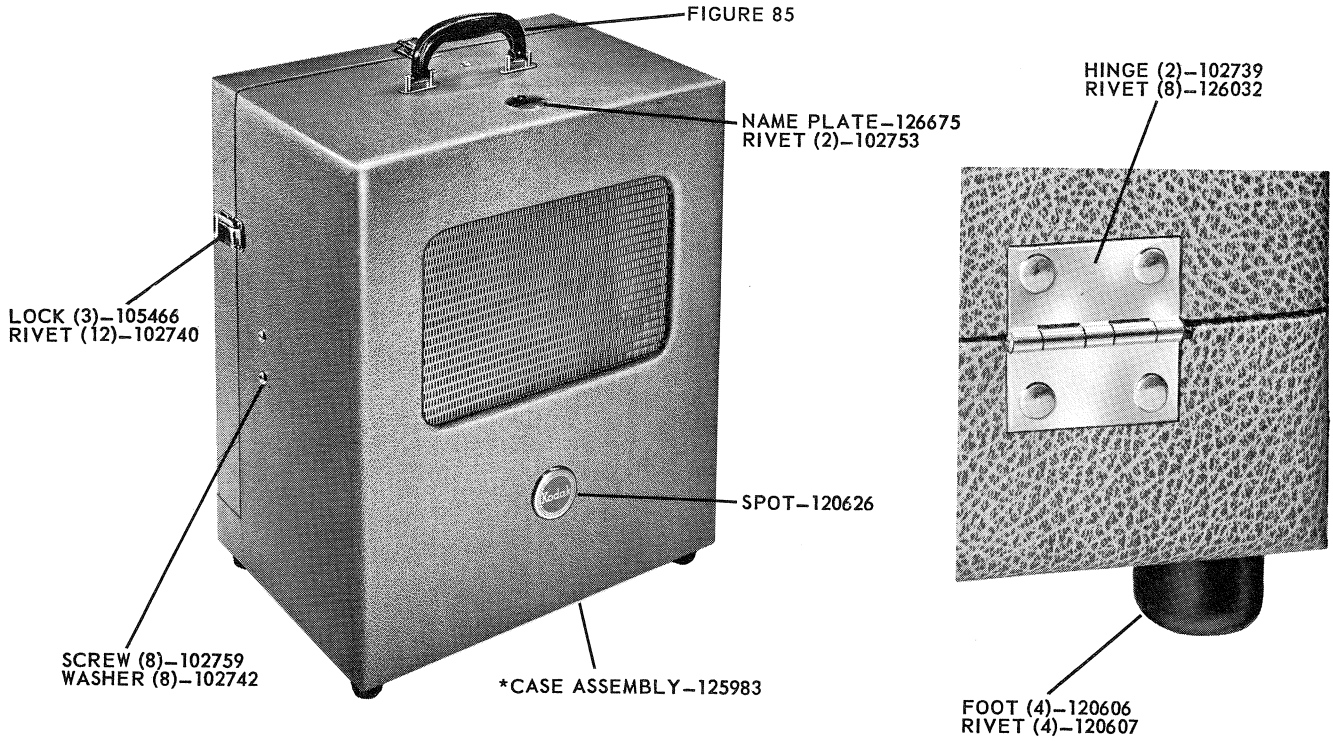
KODAK DELUXE SPEAKER UNIT, MODEL A



——OPTICAL PLAY FROM SMPTE OPTICAL FREQUENCY TEST FILM

– – – MAGNETIC PLAY FROM SMPTE MAGNETIC FREQUENCY TEST FILM

KODAK PAGEANT SOUND PROJECTOR MAGNETIC-OPTICAL FREQUENCY RESPONSE CURVES



*Does not include speaker, cord, reel support and their attaching parts

FIGURE 80

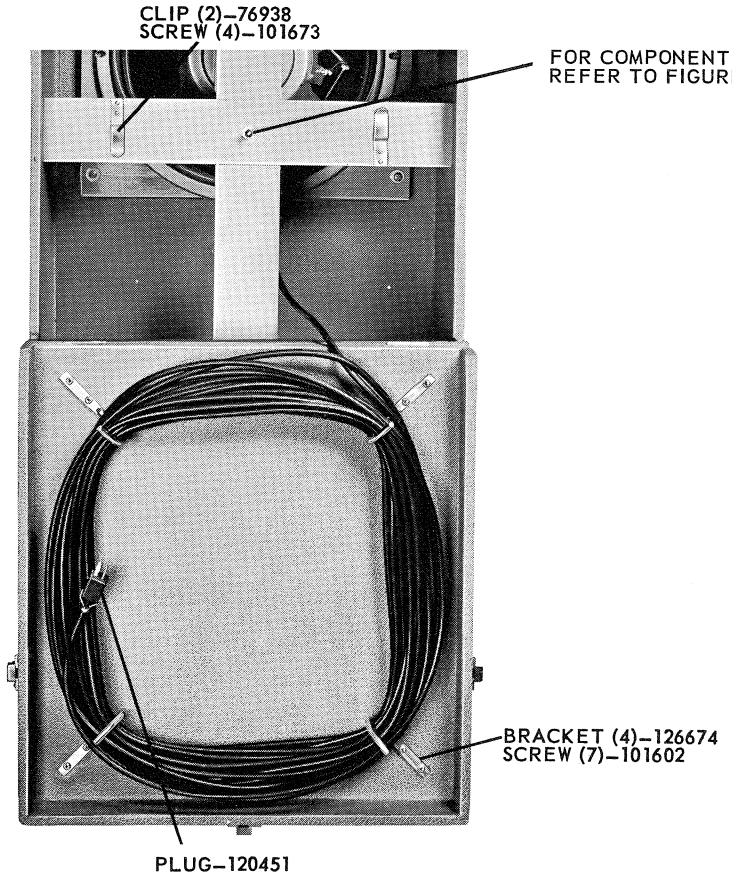


FIGURE 81

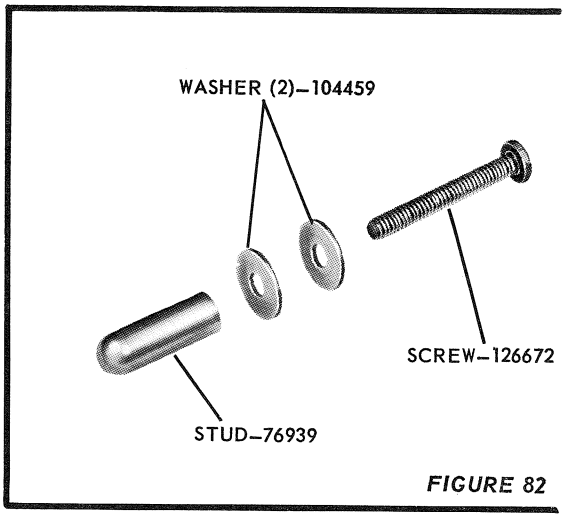


FIGURE 82

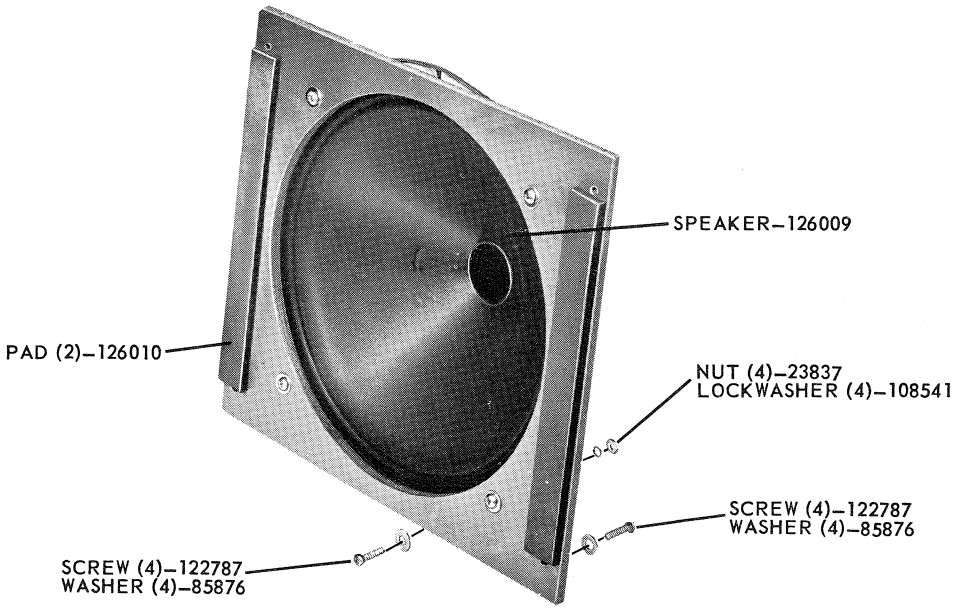


FIGURE 83

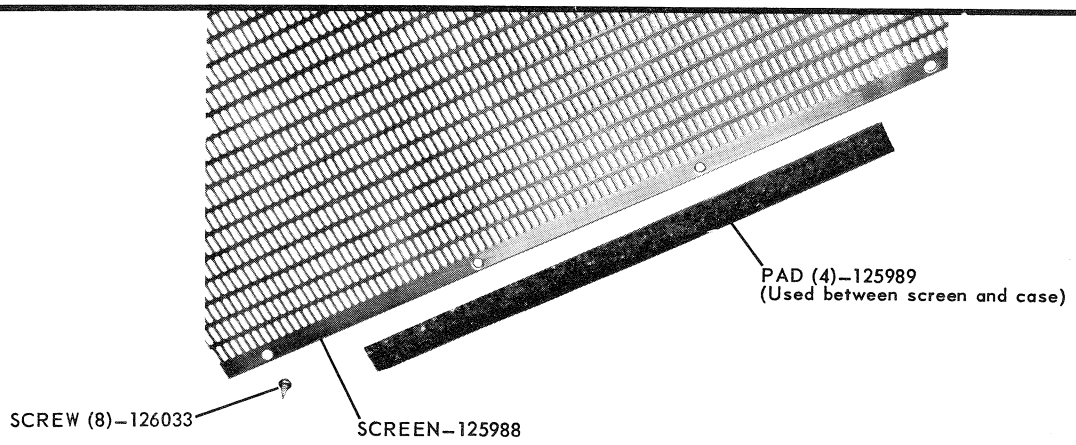


FIGURE 84

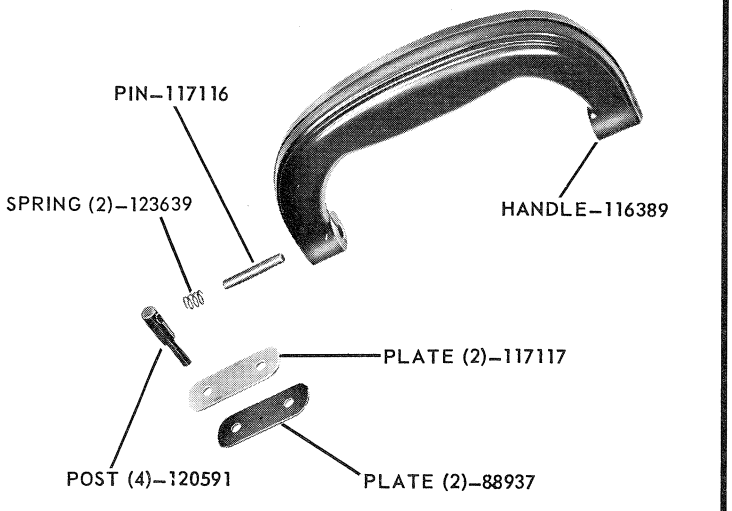


FIGURE 85

KODAK 35 FT SPEAKER EXTENSION CORD

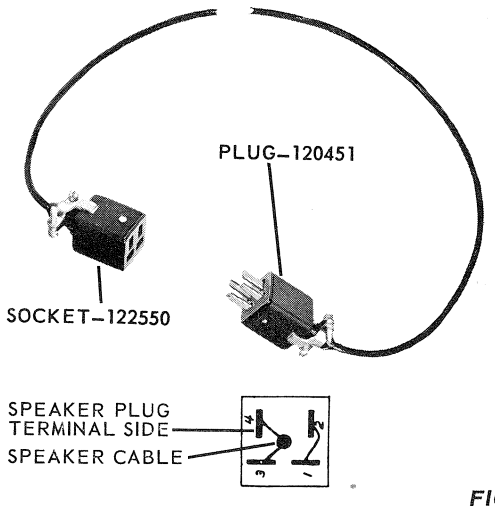


FIGURE 86

FIG.	PART NO.	PART NAME	REQD.
44	7514	Ball - 3/16 in. diam, carbon steel; Pulldown pivot	1
44	12177	Ball - 1/8 in. diam, carbon steel; Pulldown bearing	2
27,28	*23837	Nut - Hex, mach screw, steel, semibright nickel, 10-32; Adjusting	2
20,21,74	*28318	Nut - Hex, mach screw, double chamfer, steel, semibright nickel, 6-32 x 5/16; Control switch panel to mechanism housing screw–1, Motor connector terminal screw–2, Magnetic sound head amplifier cable clamp screw–1	4
21,24, 33,45, 54,57	30511	Lockwasher - Internal tooth, steel, No. 4; Threadlight socket screw–2, Shift lever latch mounting bracket to mechanism housing–2, Sound drum braking spring screw–2, Framing pivot screw–1, Damping cup screw–1, Take-up belt guard to mechanism housing–2	10
75	*31576	Nut - Hex, mach screw, steel, semibright nickel, 8-32; Power transformer–4, Output transformer–2	6
63	*37512	Lockwasher - Spring, ASA, medium, steel, semibright nickel, No. 10; Speaker to case screw	2
17	*38877	Lockwasher - Spring, ASA, medium, steel, rustproof, No. 4; Belt shifting shaft	1
66	*42533	Nut - Hex, mach screw, double chamfer, steel, rustproof, 6-32 x 5/16; Handle retaining	2
10,12, 14,20, 21,24, 44,55, 58,71	42874	Lockwasher - Internal tooth, steel, No. 6; Fan housing to mechanism housing spacer screw–1, Reversing switch bracket screw–2, Belt shifting lever detent spring screw–2, Control switch panel to mechanism housing screw–2, Terminal strip screw–1, Motor connector terminal screw–2, Tension clutch bracket screw–1, Mechanism housing to sound head bracket screw–3, Claw retaining spring to claw pivot plate screw–1, Shutter bearing retaining screw–2, Rewind detent spring screw–1, Rewind shift lever screw–2, Take-up arm grounding connector screw–1	21
30,31	44398	Washer - Shield clamping–2, Erase arm–1	3
21,35,36	*45322	Nut - Hex, mach screw, steel, semibright nickel, 4-40; Threadlight socket screw–2, Buzz track adjusting screw–1, Azimuth adjusting screw–1	4
13,75	47317	Lockwasher - Internal tooth, steel, No. 8; Motor mounting bracket to fan housing–4, Power transformer–3, Output transformer–2	9
43	48969	Washer - .010 in., steel; Pulldown cam	AR
15	49859	Lens - Condenser, rear	1
11	54777	Washer - Plain, ASA, steel, 1/8 ID x 5/16 OD x .032 thk; Drive belt guide	1
13	54780	Washer - Plain, ASA, steel, 3/16 ID x 7/16 OD x .049 thk; Motor mounting	4
22	53926	Clip - Magnetic sound head cable and plug assembly	1
39,46,55	55176	Lockwasher - Spring, ASA, medium, steel, No. 4; Switch arm stop–2, Stroke adjusting eccentric screw–1, Claw pivot plate spacer screw–1, In-and-out spring screw–2	6
17	57020	Washer - .020 in., steel; Belt shifting shaft	AR
17,24	57129	Washer - .010 in., steel; Belt shifting shaft–AR, Mechanism housing to sound head bracket screw–3	AR
42	*57155	Nut - Hex, mach screw, steel, rustproof, 4-40; Lamp socket clamp screw	1
75	58443	Strip - Terminal, Cinch No. 1520 lug type or equiv	1
7	58694	Plunger - Reel clip	2
7	58695	Pin - Reel clip	2
7	58696	Spring - Reel clip plunger	2
6	68052	Pin - Groove, Type 1, steel, 1/16 x 3/8; Rewind pulley to spindle	1
66,70	*69682	Lockwasher - Internal tooth, steel, rustproof, No. 6; Handle retaining nut–2, Elevating lock spring to take-up arm mounting bracket screw–2	4
42	71638	Clamp - Lamp socket	1
63	72493	Washer - Power and speaker cord bracket to case screw	4
3	72659	Spring - Exciter lamp cover	1
63	78590	Staple - No. 10 double-pointed tack, 16 gauge; Power and speaker cord strap assembly–1, Microphone cord strap assembly–1, Lamp strap–4	6
75,77	78671	Resistor - Fixed, composition, 47,000 ohms ± 10%, 1/2 watt, insulated	3
38,48	*79023	Lockwasher - Internal tooth, steel, semibright nickel, No. 2; Magnetic head cam shaft–1, Gate spring screw–2, Hinge post screw–2	5
45	79097	Washer - Framing screw	2

* Standard parts except for finish
AR Signifies As Required

FIG.	PART NO.	PART NAME	REQD.
75	*80753	Lockwasher - Internal tooth, steel, semibright nickel, 3/8 in., Microphone connector–2, Selector switch–3	5
14	83373	Reflector	1
1,58	*85876	Washer - Plain, ASA, steel, semibright nickel, 1/4 ID x 9/16 OD x .065 thk; Fan housing to case screw–1, Rewind shift plate spacing–1	2
35	86892	Washer - Sound optics bracket clamping screw	1
41	87777	Screw - Socket	2
64,66	88937	Plate - Bottom	3
17	*90606	Washer - Plain, ASA, steel, rustproof, 1/8 ID x 5/16 OD x .032 thk; Belt shifting shaft.	1
38,54	*90630	Washer - Plain, ASA, steel, semibright nickel, 3/32 ID x 1/4 OD x .020 thk; Magnetic head cam shaft–1, Damping roller screw–1	2
43	92950	Washer - .005 in., steel; Pulldown cam	AR
51,53	93845	Washer - Sprocket roller	AR
50	*101411	Screw - Mach, Phillips rd hd, steel, semibright nickel, 6-32 x 5/8; Upper sprocket stripper sleeve to mechanism housing	1
45	101470	Screw - Mach, miniature hd, steel, semibright nickel, 4-40 x 1/4; Framing lever stop to mechanism housing	1
63	*101639	Screw - Wood, Phillips rd hd, steel, semibright nickel, No. 4 x 3/8; Fuse clip	1
65	*101654	Screw - Wood, Phillips rd hd, steel, semibright nickel, No. 2 x 1/4; Instruction plate	4
63	*101659	Screw - Wood, Phillips rd hd, steel, semibright nickel, No. 6 x 3/8; Exciter lamp clip–1, Microphone mounting bracket to case–2	3
63	*101742	Screw - Wood, Phillips flat hd, steel, semibright nickel, No. 2 x 3/8; Power and speaker cord strap stud–1, Micro cord strap stud–1	2
62	102740	Rivet - Split; Case lock–8, Hinge–8	16
65,66,69	102742	Washer - Finishing; Sound drum shaft–2, Mounting bracket–5	7
30	102963	Screw - Record head shield	2
18	103825	Ring - Retaining; Belt shifting rollers	2
63	*104349	Wing Nut - Steel, semibright nickel, 1/4-20; Reel support bolt	1
42,78	104947	Socket - Lamp (ceramic)	1
62	105466	Lock - Case	2
11,16, 22,56,59	107101	Setscrew - Hex socket hd, cone point, steel, 5-40 x 3/16; Motor drive pulley–1, Speed changing knob–2, Safety arm hub–1, Gear (sun) and sprocket retaining–1, Worm–2	7
75	108544	Stop Nut - Resilient tube mounting	2
8	108546	Nut - Left hand; Flywheel retaining	1
63	109436	Stud - Power cord strap–1, Micro cord strap–1	2
32	*109571	Setscrew - Hex socket hd, cone point, steel, rustproof, 4-40 x 1/8; Sound drum reverse drive ratchet	1
3,25	109791	Ring - Retaining; Exciter lamp cover screw–1, Clutch mounting stud–1	2
75,77	112546	Resistor - Fixed, composition, 2,700 ohms ± 10%, 1/2 watt, insulated	3
41	116262	Washer - .020 in., steel; Lamp socket screw	AR
75	116264	Rivet - Resilient tube mounting	2
21,75	116266	Rivet - Steel, nickel, .120 diam x .141 lg; Grounding terminal to control switch panel–1, Speaker socket–2, Phenolic mounting wafer–4, Hum balance control–2, Tube sockets to shassis–12, Phono input socket–4, Terminal strips–3, Bias control–2	30
11	117047	Plate - Fan housing	1
62	117112	Hinge Section - Male, short	1
62	117113	Hinge Section - Male, long	1
64,66	117116	Pin - Handle	4
64,66	117117	Plate - Top	4
15	117164	Spring - Condenser lens retaining	1
15	117165	Spring - Lens separator	1
42	117166	Ejector - Lamp	1
66,69	*117228	Screw - Mach, Phillips oval hd, brass, transparent lacquer, 6-32 x 5/8; Mechanism mounting bracket to case–1, Take-up arm mounting bracket to case–2	3
1	117229	Screw - Mach, Phillips oval hd, brass, transparent lacquer, 8-32 x 3/4; Amplifier to case	2

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FIG.	PART NO.	PART NAME	REQD.
32	117311	Plate - Bearing retaining	1
8	117539	Flywheel	1
46	117543	Plate - Claw pivot	1
44	117545	Spring - Claw retaining	1
46	117547	Eccentric - Stroke adjusting	1
45	117548	Pivot - Framing lever	1
46	117549	Spacer - Claw pivot plate	1
60	117550	Retainer - Snap ring	1
42	117562	Ring - Lamp ejector	1
43	117705	Cam - Pulldown	1
43	117706	Cam - In-and-out	1
60	117707	Shaft - Shutter	1
60	117708	Ring - Snap; Shutter shaft	1
54	117713	Cup - Damping bearing	1
33	117722	Shaft - Pressure roller	1
59	117725	Worm	1
70	117732	Spring - Elevating mechanism	1
36	117736	Sound Optics Assembly	1
61	117750	Bearing - Front shutter shaft	1
51,53	117762	Spring - Sprocket roller, rear	4
61	117771	Bearing - Sprocket shaft	2
75	119833	Socket - Amphenol No. 147-500 or equiv; 7-pin miniature tube	2
75,76,77	120087	Condenser - Molded tubular, 0.1 mfd, 400 V, Sprague No. 67P10404 or equiv	3
73	120092	Pin - Groove, Type 2, steel, semibright nickel, 1/16 x 5/8; Switch locking plate actuating	1
47	120209	Support - Upper loop	1
75	120213	Sleeve - Amplifier spacer	3
63	120231	Speaker - 8 in. P.M., 6 ohm voice coil	1
58	120243	Shaft - Rewind shift plate	1
8	120244	Belt - Take-up	1
46	120245	Washer - Spring; Pivot plate	2
4	120246	Spot - Kodak, 1 in. diam	1
14	120248	Chimney Support and Lamp Chimney Assembly	1
45	120252	Pin - Framing lever	1
41	120335	Washer - .007 in., steel; Lamp socket screw	AR
70	120386	Ring - Retaining; Elevating mechanism shaft	1
23	120399	Case - Phototube	1
68	120410	Pin - Take-up reel support	1
25,75	120422	Washer - Tension clutch spacing–1, Mounting grommet–3	4
23	120428	Spacer - Insulating; Phototube case	2
23	120430	Washer - Insulating; Phototube case	2
23	120432	Clamp - Phototube case cover	1
33	120438	Link - Pressure roller equalizing	1
21,78	120443	Socket - Threadlight	1
13,61,75	120444	Grommet - Support mounting–3, Amplifier mounting–3	6
13,61	120445	Sleeve - Motor mounting–4, Upper spacer–3	7
1	120446	Washer - Finishing; Amplifier mounting screw	3
26,45	120447	Ring - Retaining; Shifting lever latch pivot–2, Framing shaft–1	3
63	120451	Plug - Jones Type P-304-CCT with screws 5/16 in. lg; Speaker	1
51,53	120453	Ring - Retaining; Sprocket roller shaft	4
32	120456	Ball Bearing - Flywheel shaft	1
23	120459	Grommet - Phototube case mounting	2
34	120466	Spring - Sound optics bracket	1
35	120468	Eccentric - Sound optics bracket	1
36	120471	Post - Sound optics mounting adjusting	1
36	120475	Spring - Sound optics mount	1
36	120476	Nut - Sound optics mounting adjusting	1
37	120483	Rod - Sound pickup	1

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FIG.	PART NO.	PART NAME	REQD.
51,53	120486	Spring - Detent; Sprocket guard	2
50	120487	Sleeve - Upper sprocket stripper	1
41	120490	Spring - Lamp ejector	1
71	120491	Foot - Elevating mechanism, short	1
12,78,79	120501	Condenser - 0.1 mfd, 600 VDC, Sprague Cat. No. 73P10406 or approved equiv; Fan housing and motor assembly–1, Control switch panel assembly–1	2
75,77	120511	Resistor - Fixed, composition, 510,000 ohms ± 5%, 1/2 watt, insulated	2
75,76,77	120512	Resistor - Fixed, composition, 1.5 meg ± 10%, 1/2 watt, insulated, Allen Bradley Type EB or equiv for low noise level	3
74	120554	Shield - Miniature tube	2
75	120556	Wafer - Phenolic mounting for 1 in. electrolytic condenser, Cornell-Dubilier Cat. No. 19884 or equiv	2
75	120557	Socket - Jones Cat. No. S-304-AB; Speaker	1
45	120562	Washer - Thrust, thin; Framing knob	AR
45	120563	Washer - Thrust, thick; Framing knob	AR
21,78	120571	Cord - Power, 12 ft long	1
1	120573	Knob - Tone control	1
51	120579	Upper Sprocket Plate and Pin Assembly	1
23	120585	Insulator - Phototube case	1
64,66	120591	Post - Handle	6
66	120592	Post - Handle and suspension	2
1,62	120606	Foot	4
62	120607	Rivet - Split, steel, rustproof, .156 x 7/8; Foot	3
62	120626	Spot - Kodak, 2 in. diam	1
71	120634	Foot - Elevating mechanism, long	1
34,78	120636	Insulator - Exciter lamp contact	2
34,51,53	120642	Washer - Loop restorer pivot–1, Sprocket roller shaft–8	9
9	120647	Clamp - Phototube cable–1, Amplifier power cable assembly–2	3
75,76	120670	Sleeving - Resistor	5
7	120672	Clip - Reel	2
59	120674	Ball Bearing - Shutter shaft	1
75	*120708	Screw - Tapping, Type F, Phillips pan hd, steel, semibright nickel, 4-40 x 1/4; Exciter lamp control to spacer	2
62	121227	Hinge Section - Female	2
30	121259	Setscrew - Hex socket hd, cup point, steel, 4-40 x 1/8; Friction plug retaining	1
59	121495	Shutter Shaft and Snap Ring Assembly	1
1	121497	Lamphouse Top Assembly	1
43	121502	Shutter and Lug Assembly	1
44	121503	Claw Assembly	1
51,53	121507	Sprocket Roller Plate Assembly	2
14	121510	Condenser Mount Assembly	1
33	121517	Pressure Roller Arm Assembly	1
76,77	122538	Resistor - Fixed, composition, 1.0 meg ± 10%, 1/2 watt, insulated	3
63	122608	Bracket - Power cord	2
63	122612	Strap - Lamp, small	1
63	122613	Strap - Lamp, large	1
35,45,46	*122666	Screw - Mach, Phillips pan hd, steel, semibright nickel, 4-40 x 3/8; Sound optics bracket eccentric to sound optics bracket–1, Framing lever pivot to mechanism housing–1, Claw pivot plate to mechanism housing–2	4
63	*122686	Screw - Wood, Phillips rd hd, steel, semibright nickel, No. 8 x 1/2; Power and speaker cord bracket to case	4
63	122687	Power and Speaker Cord Strap Assembly	1
24,58	*122691	Screw - Mach, Phillips pan hd, steel, semibright nickel, 6-32 x 1/4; Magnetic sound head projector cable clamp–2, Tension clutch bracket–1, Rewind shift lever detent spring to mechanism housing–1	4
11,14	*122701	Screw - Mach, Phillips pan hd, steel, rustproof, 4-40 x 1/4; Fan housing plate to fan housing–3, Chimney support–4	7
1	*122713	Screw - Mach, Phillips pan hd, steel, semibright nickel, 6-32 x 1/2; Mounting flange to case brackets	3

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FIG.	PART NO.	PART NAME	REQD.
10,20,24	*122715	Screw - Mach, Phillips pan hd, steel, semibright nickel, 6-32 x 3/8; Mechanism housing to fan housing–2, Control switch panel to mechanism housing–1, Sound head bracket to mechanism housing–2	5
5,14, 41,44, 55,71,73	*122716	Screw - Mach, Phillips pan hd, steel, semibright nickel, 6-32 x 3/16; Supply arm plate to mechanism housing–1, Belt shifting lever detent spring–2, Lamp ejector spring to mechanism housing–1, Claw retaining spring to claw pivot plate–1, Shutter bearing retaining–2, Take-up arm grounding connector screw–1, Terminal board to chassis–1	9
24,33, 39,47, 54,55,75	*122717	Screw - Mach, Phillips pan hd, steel, semibright nickel, 4-40 x 3/16; Shift lever latch mounting bracket to mechanism housing–2, Sound drum braking spring to sound head bracket–2, Magnetic head mounting plate to sound head–1, Upper and lower loop supports to mechanism housing–4, Damping bearing cup to damping bearing shaft–1, Film gate catch to mechanism housing–1, Exciter lamp control to chassis–2	13
75	*122718	Screw - Mach, Phillips pan hd, steel, semibright nickel, 6-32 x 5/8; Resilient tube socket mounting	2
1,20, 32,34, 35,37, 40,47,57	*122719	Screw - Mach, Phillips pan hd, steel, semibright nickel, 4-40 x 1/4; Amplifier cover panel to amplifier–4, Control switch panel to sound head bracket–1, Bearing retaining plate to sound head bracket–3, Sound optics bracket retaining spring to sound head bracket–1, Sound optics bracket clamping–1, Erase head retracting assembly–1, Rear switch mounting plate to sound head–1, Aperture plate to mechanism housing–2, Take-up belt guard to mechanism housing–2	16
35,55	*122720	Screw - Mach, Phillips pan hd, steel, semibright nickel, 4-40 x 5/16; Sound optics–1, In-and-out spring–2	3
9,20,21, 52,58, 70,74	*122721	Screw - Mach, Phillips pan hd, steel, semibright nickel, 6-32 x 5/16; Phototube cable clamp to fan housing–1, Amplifier power cable clamp–1, Control switch panel to mechanism housing–1, Motor connector to control switch panel–2, Upper sprocket plate to mechanism housing–1, Lower sprocket plate to mechanism housing–2, Rewind shift plate shaft–1, Chain tension adjustment stud–1, Elevating mechanism locking spring assembly to take-up arm mounting bracket assembly–2, Magnetic head amplifier cable clamp–1	13
24	*122722	Screw - Mach, Phillips pan hd, steel, semibright nickel, 6-32 x 7/8; Sound head bracket to mechanism housing	1
23	*122723	Screw - Mach, Phillips pan hd, steel, semibright nickel, 4-40 x 1/2; Phototube case to sound head bracket	2
21,39	*122728	Screw - Mach, Phillips pan hd, steel, semibright nickel, 4-40 x 7/16; Thread-light socket to control switch panel–2, Magnetic head mounting plate to sound head–2	4
35	*122730	Screw - Mach, Phillips pan hd, steel, semibright nickel, 4-40 x 5/8; Exciter lamp contact cover	2
63	*122751	Screw - Mach, Phillips pan hd, steel, semibright nickel, 10-32 x 5/8; Speaker to case	2
13,75	*122754	Screw - Mach, Phillips pan hd, steel, semibright nickel, 8-32 x 1/4; Motor mounting bracket to fan housing–4, Output transformer–2, Power transformer–4	10
13	*122788	Screw - Mach, Phillips pan hd, steel, rustproof, 8-32 x 5/8; Motor mounting	4
29,48	*122814	Screw - Mach, Phillips pan hd, steel, semibright nickel, 2-56 x 3/16; Magnetic head mounting block to mounting plate–2, Gate mounting spring to hinge post–2	4
74,75	*122826	Screw - Tapping, Type B, Phillips pan hd, steel, semibright nickel, No. 4 x 3/16; Tube damper support to chassis–1, Bottom cover–4, Shield No. 1–2, Shield No. 2–2, Electrolytic condenser mounting bracket–2, Input transformer clamping ring–2	13
54	*122841	Screw - Mach, Phillips pan hd, steel, semibright nickel, 2-64 x 3/16; Damping roller	1
48	*123056	Screw - Mach, Phillips pan hd, steel, semibright nickel, 2-56 x 1/4; Hinge post to aperture plate	2

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FIG.	PART NO.	PART NAME	REQD.
42	*123081	Screw - Mach, Phillips pan hd, steel, rustproof, 4-40 x 5/8; Lamp socket clamp	1
21,78	123133	Switch - Control	2
63	123274	Tubing - 5/32 ID x 3/8 OD x 1 lg; Speaker plug clamp	1
8	123363	Washer - Flywheel	1
75	123400	Washer - Control spacer	3
17,27	123401	Washer - .005 in; steel; Belt shifting shaft–AR, Magnetic head separator–1	AR
2,3,73	*123633	Screw - Tapping, Type B, Phillips pan hd, steel, semibright nickel, No. 2 x 1/8; Amplifier name plate to amplifier cover panel–2, Fidelity plate to exciter lamp cover–2, Selector switch lock to chassis–2	6
63	123636	Clip - Exciter lamp	1
64	123639	Spring - Handle	1
31	123663	Screw - Mach, miniature hd, steel, semibright nickel, 0-80 x 1/8; Erase arm retaining–1, Erase arm pivot retaining–1	2
12,78	123760	Sleeving - Insulator	2
68	123840	Arm - Take-up reel support (pivoted)	1
17	123842	Spring - Belt shifting lever detent	1
18	123848	Roller - Belt shifting, left	1
5,67	123850	Pivot - Reel arm	2
5	123851	Belt - Rewind	1
6	123854	Supply Arm and Bearing Assembly	1
5	123855	Plate - Supply arm	1
5,67	123856	Washer - Reel arm pivot	2
5,67	123857	Washer - Spring; Reel arm	2
57	123861	Nut - Plate; Take-up belt guard	1
45	123865	Shaft - Framing	1
45	123866	Lever - Framing	1
47	123869	Support - Lower loop	1
58	123885	Spring - Rewind shift lever detent	1
1	123888	Handle - Elevating mechanism	1
70	123889	Plate - Clamping; Elevating bar	1
70	123890	Anchor - Elevating spring	1
67	123893	Plate - Take-up arm	1
68	123894	Spring - Take-up reel support	1
10	123898	Spacer - Fan housing to mechanism housing	1
66	123912	Bracket - Mechanism mounting, upper	1
71	123917	Pin - Groove, Type 1, steel, 3/32 x 5/8; Elevating mechanism cam	1
68	123954	Take-Up Reel Support Link Assembly	1
70	123955	Elevating Mechanism Locking Spring Assembly	1
5	123959	Pivoted Supply Arm Assembly	1
57	123963	Take-Up Belt Guard Assembly	1
57	123966	Lower Sprocket Gear and Shaft Assembly	1
65,69	*123968	Screw - Mach, Phillips oval hd, brass, transparent lacquer, 6-32 x 7/8; Sound drum shaft stop–2, Take-up arm mounting bracket assembly to case–2	4
71	123969	Stop - Elevating mechanism bar	1
10	*123970	Screw - Mach, Phillips pan hd, steel, semibright nickel, 6-32 x 1-3/4; Fan housing to mechanism housing	1
17	123971	Ring - Retaining; Belt shifting shaft	1
5,67	124128	Lockwasher - Reel arm pivot	2
8	124214	Washer - Spring; Flywheel	1
1	124355	Screw - Mach, Phillips pan hd, brass, 8-32 x 1; Fan housing to case	1
1	124404	Sleeve - Spacer; Fan housing to case	1
54	124606	Damping Arm Assembly	1
75	124676	Lamp - 6–8 volt, miniature bayonet base, GE No. 44; Warning	1
1	*124762	Screw - Mach, Phillips oval hd, brass, transparent lacquer, 8-32 x 1; Amplifier to case back	1
22,37, 50,52	124832	Screw - Mach, miniature hd, steel, semibright nickel, 2-56 x 3/16; Magnetic sound head projector cable clip–1, Sound pickup rod to sound head–1, Sprocket end plate to sprocket hub–6	8

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FIG.	PART NO.	PART NAME	REQD.
6	124834	Supply Arm Spindle and Pulley Assembly	1
44	125104	Spring - Claw return	1
54	125219	Roller - Damping	1
21,65, 66,69,71	125349	Washer - Grounding terminal to control switch panel–1, Sound drum shaft–2, Mechanism mounting bracket to case–1, Take-up arm mounting bracket to case–4, Take-up arm grounding connector–1	9
1	125359	Washer - .062 in.; Elevating foot	AR
1	125360	Washer - .040 in.; Elevating foot	AR
71	125520	Pin - Groove, Type 3, steel, semibright nickel, 1/8 x 3/4; Take-up arm stop	1
51,53,55	125789	Ball - .1875 diam precision, nylon; Sprocket guard stop pin–2, Lens retainer–1	3
1	125854	Grommet - Fan housing mounting	2
75	125906	Sleeving - Power socket terminals 1 and 3	2
44	125913	Insert - Pulldown spring damping	1
75,77	126100	Resistor - Fixed, composition, 100,000 ohms ± 10%, 1/2 watt, insulated	2
75,77	126101	Resistor - Fixed, composition, 470,000 ohms ± 10%, 1/2 watt, insulated	7
75,77	126102	Resistor - Fixed, composition, 130,000 ohms ± 5%, 1/2 watt, insulated	2
75,77	126106	Control - 40 ohms, Muter Type B; Hum balance	1
75,76,77	126124	Condenser - Electrolytic, 50 mfd, 6 VDC, Sprague Type 18D3	3
75	126126	Socket - Phono input	2
75	126129	Connector - Microphone	1
75	126130	Tube - 12AX7, RCA, Sylvania or equiv	1
75	126131	Grommet	4
75	126132	Grommet	2
13,78	126198	Motor	1
18	126200	Roller - Belt shifting, right	1
30	126241	Block - Magnetic head mounting	1
29	126248	Cam - Record head adjusting	1
38	126249	Shaft - Magnetic head cam	1
28	126250	Spring - Magnetic head return	1
31	126251	Pivot - Erase arm	1
40	126254	Insulator - Magnetic head contact, thin	1
12	126261	Bracket - Reversing switch	1
31	126266	Spring - Erase head tension	1
30	126268	Plug - Friction	1
30	126269	Spring - Record head mounting	1
27	126272	Spring - Magnetic head spacer	1
39	126277	Stop - Switch arm	2
31	126281	Erase Head Assembly	1
32	126283	Ratchet - Sound drum reverse drive	1
68	126284	Pawl	1
12	126290	Spacer - Reversing switch bracket	2
2	126293	Cover Panel and Extension Assembly	1
62	126295	Case Complete Assembly	1
65	126310	Screen - Ventilating hole	2
13	126314	Housing - Fan	1
61	126315	Mechanism Housing Assembly	1
56	126318	Spider - Reversing mechanism	1
56	126319	Gear - Reversing mechanism internal	1
56	126320	Gear - Reversing mechanism planetary	2
56	126321	Gear (Sun) and Sprocket - Reversing mechanism	1
58	126324	Upper Sprocket Gear and Shaft Assembly	1
58	126326	Pulley - Rewind drive	1
58	126328	Plate - Rewind shift	1
32	126332	Chain - Sound drum reverse drive	1
75	126333	Spacer - Resilient tube mounting	4
75	126334	Plate - Stop	1
75	126335	Spacer - Exciter lamp control	2
75	126336	Mount - Resilient tube	1

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FIG.	PART NO.	PART NAME	REQD.
75	126344	Shield No. 1	1
75	126345	Shield No. 2	1
73	126347	Cover - Chassis base	1
12	*126355	Screw - Mach, Phillips pan hd, steel, semibright nickel, 6-32 x 1-5/8; Reversing switch bracket	2
75,77	126385	Control - Tone with switch	1
75,77	126387	Condenser - Ceramic, .02 mfd, 450 VDC, Centralab No. DA-145-001A	6
75,77	126388	Transformer - Power	1
75,77	126391	Condenser - Electrolytic 25-25-20 mfd, 350V DC	2
75,77	126394	Resistor - Fixed, composition, 4,700 ohms ± 10%, 1/2 watt, insulated	5
75,76,77	126396	Resistor - Fixed, composition, 270,000 ohms ± 10%, 1/2 watt, insulated	4
75,76,77	126397	Resistor - Fixed, composition, 1,500 ohms ± 10%, 1/2 watt, insulated	2
75,77	126401	Resistor - Fixed, composition, 150 ohms ± 10%, 1/2 watt, insulated	2
75,77	126403	Resistor - Fixed, composition, 470 ohms ± 10%, 1 watt, insulated	1
75	126406	Plug - Amphenol No. 86-CP8 with retaining ring, grooved for .030 thk panel or equiv; Amplifier power	1
75	126407	Socket - Noval miniature, Cinch Cat. No. 12824; 9-pin miniature tube	2
75	126409	Socket - Hugh Erby Cat. No. 9737-3; 7-pin miniature turret	1
75	126410	Socket - Hugh Erby Cat. No. 9737-1; 9-pin shield base miniature turret	1
75	126414	Socket - Noval miniature, Cinch Cat. No. 12825; 9-pin shield base	1
75	126415	Socket - Pilot light, E. F. Johnson Cat. No. 147-406, red; Warning light	1
75	126416	Socket - Pilot light, E. F. Johnson Cat. No. 147-406, clear; Level indicator	1
75,77	126418	Control - Volume	2
75,77	126419	Coil - Power oscillator	1
75	126420	Switch - Selector	1
75,77	126421	Transformer - Output	1
75	126422	Tube - 5879, RCA, Sylvania or equiv	1
75	126423	Tube - 6C4, RCA, Sylvania or equiv	2
21,78	126664	Post - Fuse extractor for No. 3AG fuse, with screwdriver slot	1
21,78	126665	Fuse - Type 3AG, 2 amps, 250V max	2
63	126720	Clip - Fuse	1
65	126731	Plate - Instruction	1
24	126733	Clip - Magnetic sound head projector cable	2
32	126736	Flywheel Shaft and Sound Drum Assembly	1
39	126747	Magnetic Head Mounting Plate Assembly	1
29	126748	Record Plate and Bearing Assembly	1
31	126749	Erase Plate and Bearing Assembly	1
21	126750	Name Plate	1
50,52	126751	Plate - Sprocket end	2
50,52	126752	Sprocket - Drive	2
50,52	126753	Hub - Sprocket	2
58	126781	Screw - Mach, miniature hd, steel, 6-32 x 3/16; Rewind lever and pivot plate assembly to shift plate	2
50,52	126841	Collar - Sprocket drive	2
58	126842	Stud - Chain tension adjustment	1
37	126846	Shoe - Film support	1
37	126847	Screw - Film support shoe lock	2
40	127176	Sound Head Bracket and Bushing Assembly	1
30	127178	Shield and Recording Head Assembly	1
50,52	127183	Spring - Sprocket drive	2
50,52	127184	Stud - Sprocket drive	2
50,52	127185	Washer - Sprocket hub aligning	2
64,66	127312	Handle - Split; Case	2
28	127767	Ring - Retaining; Sound drum reverse drive sprocket	1
12,78	127768	Switch - Motor reversing	1
40	127771	Insulator - Magnetic head contact, thick	1
38	127775	Screw - Mach, Phillips pan hd, steel, 2-56 x 3/16; Magnetic head switch arm to magnetic head cam shaft	1

* Standard parts except for finish

FIG.	PART NO.	PART NAME	REQD.
68	*127780	Screw - Mach, Phillips pan hd, steel, semibright nickel, 3-48 x 3/16; Take-up spindle pawl plate retaining	1
11	127782	Fan Complete	1
68	*127783	Lockwasher - Internal tooth, steel, rustproof, No. 3; Take-up spindle pawl plate retaining screw	1
68	127791	Take-Up Spindle Assembly	1
73	127795	Lock - Selector switch	1
55	127868	Spring - In-and-out	1
58	128336	Handle - Rewind lever	1
58	128337	Extension - Rewind lever handle	1
4	128338	Screw - Lock; Lamphouse cover	1
68,75	128531	Washer - Plain, ASA, steel, semibright nickel, 1/8 ID x 1/4 OD x .022 thk; Pawl plate–1, Resilient tube mounting–1	2
1	128535	Rivet - Split, steel, rustproof, .156 x 7/8; Foot	1
73	128540	Spacer - Panel	4
58	128659	Rewind Lever and Pivot Plate Assembly	1
50,52	128660	Setscrew - Sprocket drive collar to sprocket shaft	2
3	128934	Screw - Exciter lamp cover	1
73	129016	Plate - Switch locking	1
62	129327	Speaker Screen and Grill Assembly	1
75,77	129395	Transformer - Magnetic head input	1
33	129404	Roller - Pressure	1
17	129406	Shaft - Belt shifting	1
49	129413	Spring - Pressure pad	1
48	129414	Post - Hinge	1
48	129415	Spring - Gate mounting	1
55	129457	Spring - Lens retaining	1
55	129458	Catch - Film gate	1
34	129461	Spring - Loop former	1
33	129463	Roller - Loop former	1
34	129464	Pivot - Loop former	1
33	129465	Handle - Loop former	1
34	129467	Anchor - Loop former spring	1
49	*129870	Screw - Mach, Phillips pan hd, steel, black oxide, 2-56 x 5/64; Pressure pad spring adjusting	1
34	130179	Loop Former Arm and Shaft Assembly	1
17	130298	Stud - Drive belt guide	1
11	130299	Guide - Drive belt	1
71	130610	Connector - Take-up arm grounding	1
56	131363	Spring - Tension adjusting	1
24	131369	Actuator - Clutch	2
26	131371	Bracket - Shifting lever latch mounting	1
26	131375	Pivot - Shifting lever latch	1
26	131376	Reverse Shift Lock Assembly	1
16	131379	Knob - Speed changing	1
16	131380	Plate - Speed indicator	1
16	131381	Spacer - Speed plate	2
16	131382	Screw - Mach, miniature hd, steel, semibright nickel, 2-56 x 1/4; Speed plate to mechanism housing	2
11	131395	Pulley - Motor drive	1
12,78	131433	Screw - Mach, Phillips electrical binding hd, brass, 6-32 x 3/16; Motor starting relay terminal	3
54	131544	Spring - Tension roller	1
36	*131545	Setscrew - Hex socket hd, oval point, steel, semibright nickel, 4-40 x 5/8; Azimuth adjusting	1
33	131546	Spring - Pressure roller	1
30	131558	Record Head Shaft and Pin Assembly	1
54	131561	Lower Sprocket Plate and Pins Assembly	1

* Standard parts except for finish

FIG.	PART NO.	PART NAME	REQD.
52	131562	Lower Sprocket Plate Assembly	1
25	131563	Tension Clutch and Bushing Assembly	1
25	131564	Clutch Bracket and Stud Assembly	1
38	131567	Magnetic Head Switch Arm Assembly	1
40,78	131568	Magnetic Head Selector Switch Assembly	1
37	131569	Erase Head Retracting Assembly	1
68	131574	Pawl Plate and Pin Assembly	1
67	131575	Take-Up Reel Support Arm Assembly	1
1	131576	Exciter Lamp Cover Assembly	1
75	131595	Magnetic Sound Head Amplifier Cable Assembly	1
24,78	131598	Magnetic Sound Head Projection Cable Assembly	1
32	131599	Sprocket and Pawl Assembly	1
33	131616	Braking Spring and Button Assembly	1
57	131644	Pin - Belt guard actuating	1
71	131645	Take-Up Arm Mounting Bracket Assembly	1
14	132024	Drive Belt Assembly	1
21,78	132029	Amplifier Power Cable Assembly	1
35	132034	Exciter Lamp Contact Cover Assembly	1
36	132036	Sound Optics Bracket Assembly	1
35	132038	Cam - Exciter lamp releasing	1
43	132062	Nut - Shutter shaft	1
59	132111	Knob - Threading	1
75,77	132136	Condenser - Ceramic, .005 mfd ± 10%, 500 VDC, Muter Type 38 T137 Durez V. I. or equiv	1
75,77	132137	Condenser - Ceramic, .001 mfd ± 10%, 500 VDC, Muter Type 10T137 Durez V. I. or equiv	1
75,77	132138	Condenser - Ceramic, 500 mmfd ± 10%, 2,000 VDC, Muter Type 1/2 HK3 Durez V. I. or equiv	1
75,77	132139	Condenser - Ceramic, 50 mmfd ± 10%, 500 VDC, Muter Type 10N750 Durez V. I. or equiv	2
75,76,77	132140	Condenser - Ceramic, 100 mmfd ± 10%, 500 VDC, Muter Type 10T137 Durez V. I. or equiv	2
75,76,77	132141	Condenser - Ceramic, .002 mfd ± 10%, 500 VDC, Muter Type CC63-HK10-2000-10	2
75,77	132142	Condenser - Ceramic, .01 mfd ± 20%, 500 VDC, Muter Type 3/4 HK7 Durez V. I. or equiv	3
75,77	132146	Resistor - Fixed, composition, 270 ohms ± 10%, 1 watt, insulated	1
75,77	132147	Resistor - Fixed, composition, 330 ohms ± 10%, 1/2 watt, insulated	1
75	132148	Tube - 6CM6, RCA, Sylvania or equiv	2
75	132149	Strip - Terminal, 5 lug, Cinch No. 1542-A or equiv	1
76,77	132150	Resistor - Fixed, composition 2.2 meg ± 10%, 1/2 watt, insulated	1
75,77	132153	Rheostat - Bias, Muter Type A 3 ohm sensitivity control	1
73	132154	Washer - Spring; Switch locking plate	1
73	132155	Spacer - Selector switch lock	1
63	132156	Bracket - Microphone mounting	1
63	132157	Screw - Microphone mounting	1
63	132160	Microphone Cord Strap Assembly	1
78	132165	Terminal - Motor connector	1
11,78	132166	Connector - Motor	2
75	132168	Ring - Clamping; Input transformer	1
19	132170	Phototube Case Cover and Cable Assembly	1
12	132729	Insulator - Reversing switch cover	1
12	132730	Cover - Reversing switch	1
21,78	132732	Panel - Control switch	1
13	132735	Motor Mounting Bracket and Shield Assembly	1
9	132738	Clamp - Magnetic sound head projection cable socket	1
9	*132739	Screw - Tapping, Type B, Phillips pan hd, steel, semibright nickel, No. 8 x 5/8; magnetic sound head projection cable socket clamp	1
22	133282	Safety Arm and Hub Assembly	1

* Standard parts except for finish

FIG.	PART NO.	PART NAME	REQD.
69	136280	Bushing - Elevating mechanism locking release	1
70	136281	Release - Elevating mechanism locking	1
29	137056	Socket - Record and erase head	1
12,78	137268	Motor Starting Relay with screws	1
18	137269	Belt Shifting Lever and Pin Assembly	1
75	137270	Amplifier Complete, Less Tubes	1
27	137271	Magnetic Head Assembly with Fasteners	1
28	*137272	Screw - Mach, Phillips pan hd, steel semibright nickel, 10-32 x 1-3/8; Magnetic head assembly holding	1
72	137273	Key - Selector switch lock	1
50	137790	Stripper - Film	1
71	137814	Elevating Mechanism Bar Assembly	1
74	137833	Damper - Tube, Canfield snap-in bumper Cat. No. 10573	1
74	137834	Support - Tube damper	1
76,77	137835	Condenser - Ceramic, 250 mmfd ± 10%, 500 VDC, Muter Type CC61-HK11-250-10 or equiv	1
75,77	137836	Condenser - Ceramic, .02 mfd ± 20%, 500 VDC, Muter Type CC64-HK10-(2)-.02-20 or equiv	3
76,77	137865	Resistor - Fixed, composition, 6.8 meg, ± 10%, 1/2 watt, insulated	1
78	138022	Sleeving - Insulating; Reversing switch	2
75,77	138139	Control - Exciter lamp	1
37	138141	Shield - Pickup rod	1
48	138142	Baffle - Vent slot	1
48	138144	Aperture Plate Assembly	1
47	138145	Aperture Plate and Pressure Pad Assembly	1
65	138147	Stop - Sound drum shaft	1
75	138148	Terminal - Resilient–1, Grounding–1	2
63	138150	Strap - Manual	1
63	138151	Staple - No. 8 double-pointed tack; Manual strap	2
53	138158	Roller - Sprocket	1
51	138159	Roller - Upper front sprocket	2
53	138160	Roller - Lower front sprocket	1
50	138161	Upper Sprocket Plate Assembly	1
23	138220	Washer - Insulating; Phototube case	2
68	138221	Washer - Take-up pulley lubricating	1
38	138228	Washer - Switch arm retaining	1
1	138229	Washer - Amplifier mounting	3
75	138608	Sleeving - Insulating	1
75,77	138609	Condenser - Electrolytic, 40 mfd, 350 VDC, 15/16 diam, 85° C, Sprague Type DEE	1
3	138610	Name Plate - Fidelity	1
34,78,79	138614	Resistor - Fixed, composition, 10 ohms ± 10%, 1/2 watt, insulated	1
72	138615	Cable - Phono connector	1
1	138681	Knob - Selector switch–1, Head switch–1, Volume control–1, Phono control–1	4
2	138685	Amplifier Name Plate Assembly	1
13	138688	Grommet - Motor mounting	4
75	138782	Bracket - Condenser mounting	1
48	138792	Pressure Pad Assembly	1
74,75	138819	Clamp - Magnetic head amplifier cable	1
78	138842	Strip - Terminal, lug type	1
44	139480	Pad - Claw pivot (large)	1
44	139481	Pad - Claw pivot (small)	1
75	139609	Strip - Terminal, 6 lug	1
75	139610	Terminal - Solder	2
12	139611	Insulator - Motor relay	1
1	139612	Pointer - Switch	4
68	139890	Take-Up Pulley and Ratchet Assembly	1
32	140119	Screw - Flywheel shaft end	1

FIG.	PART NO.	PART NAME	REQD.
41	140133	Lockwasher - Spring, ASA, medium, steel, No. 6; Lamp ejector spring screw	1
72	140867	Loop - Sonotrack film (Boxed)	1
63	141014	Insulator - Speaker plug and receptacle	2
78	141015	Insulator - Motor connection terminal	1
41	142849	Washer - Spring; Lamp socket screw	2
55	142850	Screw - Lamp adjusting	1
74	143031	Cap - Red for warning light socket	1
74	143032	Cap - Clear for level indicator socket	1
15	801290	Lens - Condenser, front	1
75	805272	Tube - 6X4, RCA, Sylvania or equiv	1
74	805295	Lamp - Pilot, GE No. NE-51; Level indicator	1
63		Cable - No. 18AWG tinned copper stranded, vinyl plastic insulation, tinned copper braid shield, vinyl plastic jacket, max diam .145 in., 40 ft.; Speaker	AR
75		Cable - Tensolite Cat. No. 1628E-2, twisted 2 conductor cable No. 24 tinned copper conductors (16 x 36 stranding) and vinyl insulation 1 conductor blue and 1 conductor yellow; Input transformer	1
19		Cell - Photoelectric, Cetron CE-25-C	1
72		Connector - Amphenol 75-MCIF	1
22		Lamp - Photocell exciter, 7V, .2 amp, T-5 clear, double contact, candelabra prefocus base	2
14		Lamp - Projection, 750W, 115V, T-12 clear, C-13D filament, medium prefocus base	1
14		Lamp - Projection, 1000W (10-hour), 115V, T-12 clear, C-13D filament, medium prefocus base	AR
1		Lens - Kodak Projection Ektanon, 1½-inch, f/2.0	AR
1		Lens - Kodak Projection Ektanon, 2-inch, f/1.6	1
1		Lens - Kodak Projection Ektanon, 3-inch, f/2.0	AR
1		Lens - Kodak Projection Ektanon, 4-inch, f/2.5	AR
72		Microphone - Kodak, Model PA-4	1
72		Reel - Kodascope, 1600 ft., 16mm	1

KODAK DE LUXE SPEAKER UNIT, MODEL A

FIG.	PART NO.	PART NAME	REQD.
83	*23837	Nut - Hex mach screw, steel, semibright nickel, 10-32 NF-2B; Speaker to mounting board	4
81	76938	Clip - Reel	2
82	76939	Stud - Reel support	1
83	*85876	Washer - Plain, ASA, steel, semibright nickel, 1/4 ID x 9/16 OD x .065 thk; Speaker to mounting board–4, Speaker mounting board to case–4	8
85	88937	Plate - Bottom	2
81	*101602	Screw - Wood, Phillips rdhd, steel, semibright nickel, No. 8 x 5/8 in.; Brackets to case	8
81	*101673	Screw - Wood, Phillips rdhd, steel, semibright nickel, No. 3 x 3/8 in.; Reel clip	4
80	*102739	Hinge	2
80	102740	Rivet - Split; Case lock	12
80	*102742	Washer - Finishing; Support screws	8
80	102753	Rivet - Name plate to case	2
80	*102759	Screw - Wood, Phillips oval hd, brass, transparent lacquer, No. 6 x 1 in.; Support to case	8
82	104459	Washer - Reel support stud	2
80	105466	Lock - Case	3
83	*108541	Lockwasher - Internal tooth, steel, semibright nickel, No. 10; Speaker to mounting board	4
80	116389	Handle	1
85	117116	Pin - Handle	2

* Standard parts except for finish
AR Signifies As Required

KODAK DE LUXE SPEAKER UNIT, MODEL A

FIG.	PART NO.	PART NAME	REQD.
85	117117	Plate - Top	2
81	120451	Plug - Jones Type P304 CCT with screws 5/16 in. lg; Speaker	1
85	120591	Post - Handle and suspension	4
	120598	Nut - Speaker mounting board	4
80	120606	Foot	4
80	*120607	Rivet - Foot	4
80	120626	Spot - Kodak, 2 in. diam	1
83	*122787	Screw - Mach, Phillips pan hd, steel, semibright nickel, 10-32 x 7/8 in. NF-2A; Speaker mounting board to case—4, Speaker to mounting board—4	8
85	123639	Spring - Handle	2
80	125983	Case Assembly	1
84	125988	Screen	1
84	125989	Pad - Screen	4
83	126009	Speaker - 12 in., 6-8 ohm voice coil	1
83	126010	Pad - Speaker mounting board	2
80	126032	Rivet - Hinge	8
84	126033	Screw - Wood, Phillips rdhd, steel, No. 4 x 3/8 in.; Screen to case	8
82	126672	Screw - Mach, Phillips pan hd, steel, 8-32 x 1-1/4 in. NF-2A; Reel support stud to support	1
81	126674	Bracket - Speaker cord	4
80	126675	Name Plate	1
		Cable - Type SV, rubber insulation, black rubber jacket No. 18AWG, two conductor, black and white, stranding 41 of No. 34, 75 ft; Speaker	AR

KODAK 35-FT SPEAKER EXTENSION CORD

FIG.	PART NO.	PART NAME	REQD.
86	120451	Plug - Jones Type P304 CCT with screws 5/16 in. lg; Speaker	1
86	122550	Socket - Jones Type S304 CCT with screws 5/16 in. lg	1
		Cable - No. 18AWG tinned copper, single conductor, stranded 41 No. 34 vinyl plastic insulation; tinned copper braid shield; vinyl plastic jacket; overall diam .135 in., 35 ft; Speaker	AR

* Standard parts except for finish
AR Signifies As Required

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