

READER
KS-16789 L1
PIECE-PART DATA AND REPLACEMENT PROCEDURES

1. GENERAL

1.01 This section covers the information necessary for ordering parts to be used in the maintenance of the KS-16789 L1 reader. It also covers the approved procedures for replacing these parts.

1.02 The section is reissued to include ordering information and replacement procedures for the retainer and detent assembly shown in Fig. 3.

1.03 Part 2 of this section covers the parts which it is practicable to replace in the field in the maintenance of the reader. No attempt should be made in the field to replace parts not designated. Part 2 also contains explanatory figures showing the parts. This information is called Replacement Parts.

1.04 Part 3 of this section covers the approved procedures for the replacement of the parts listed in Part 2. This information is called Replacement Procedures.

2. REPLACEMENT PARTS

2.01 The figures included in this part of the section show the various parts of the reader together with the names of the parts which it is practicable to replace in the field.

2.02 Information enclosed by parentheses is not ordering information. This information may be references to notes, parts referred to in other portions of the section and not con-

sidered replaceable, or part names in general use in the field if these names differ from those assigned by the manufacturer.

2.03 When ordering parts for replacement purposes, proceed as follows.

(1) If the part is identified by a BL- number (Griscombe Products Corp), give the number and the name of the part and the complete nameplate data on the reader. For example, BL-211 Fresnel Lens for KS-16789, L1 Reader, Griscombe Products Corp — Serial No. 101.

(2) If the part is identified by a P- number (WECO piece part), give the piece-part number and the name of the part. For example, P-126075 screw.

2.04 If the KS-16789 L1 reader is to be shipped, care should be taken to pack the reader so that it will not be damaged in transit. It is recommended that the packing carton and associated material provided for this purpose be used. This material may be ordered from the Western Electric Company as follows:

Materials, Packing, Set of, for KS-16789 L1 Reader.

2.05 The new gear sector assembly and detent assembly, shown in Fig. 3, were not supplied on older KS-16789 L1 readers. Both these new parts should be substituted, at the same time, when either the retaining pawl assembly or the detent spring assembly on older type readers requires replacement.

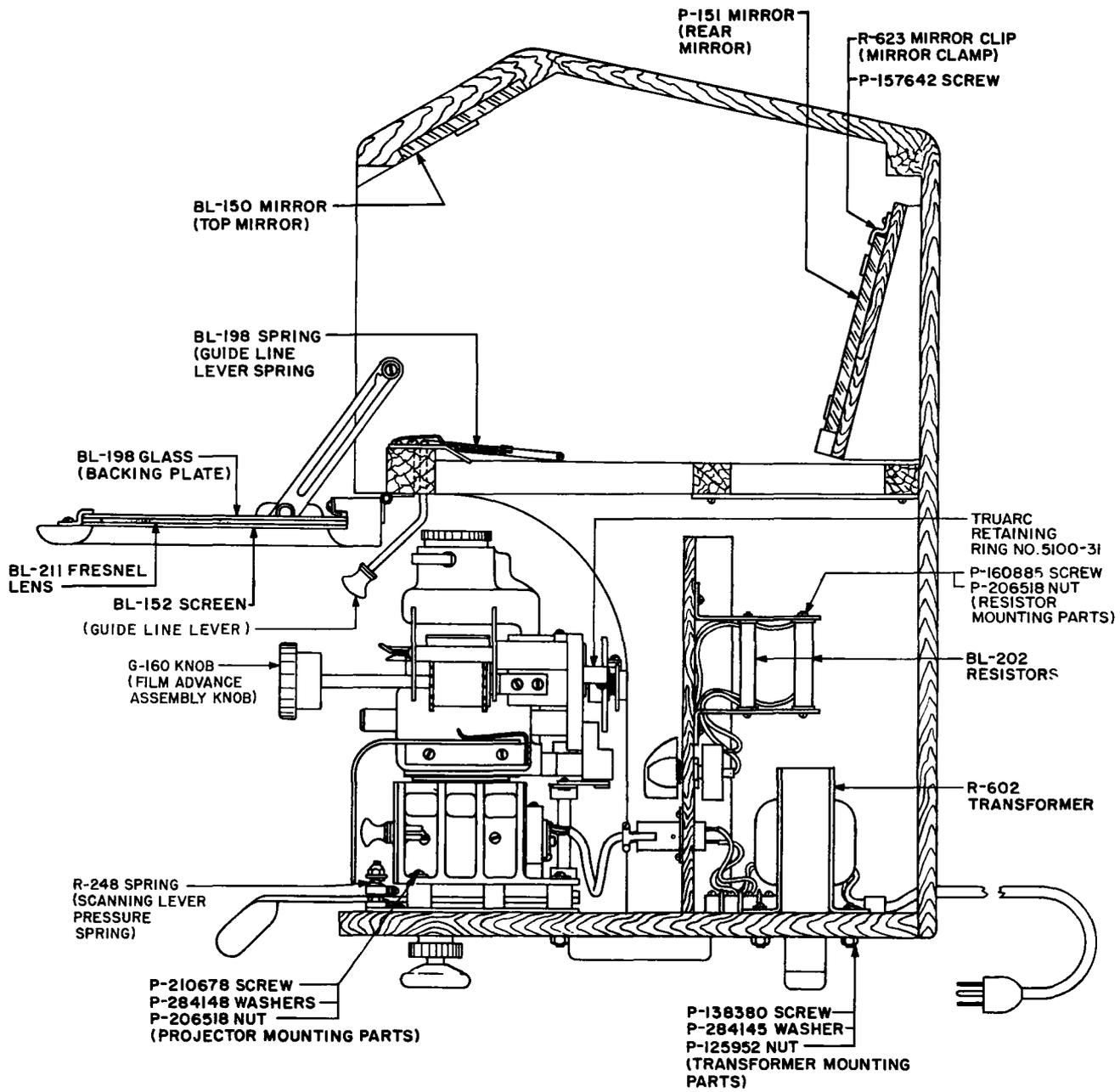


Fig. 1 - KS-16789 L1 Reader - Sectional View

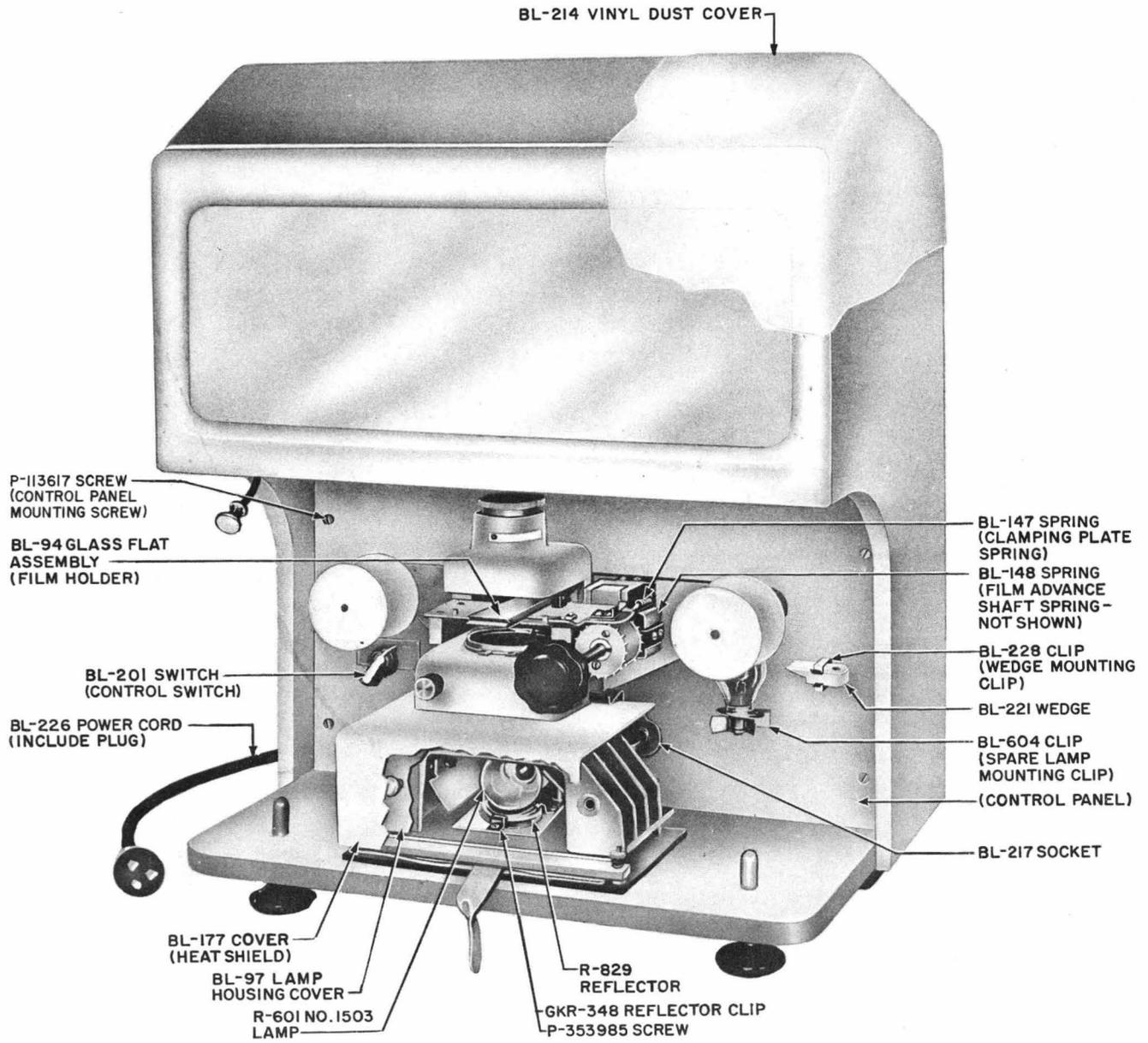
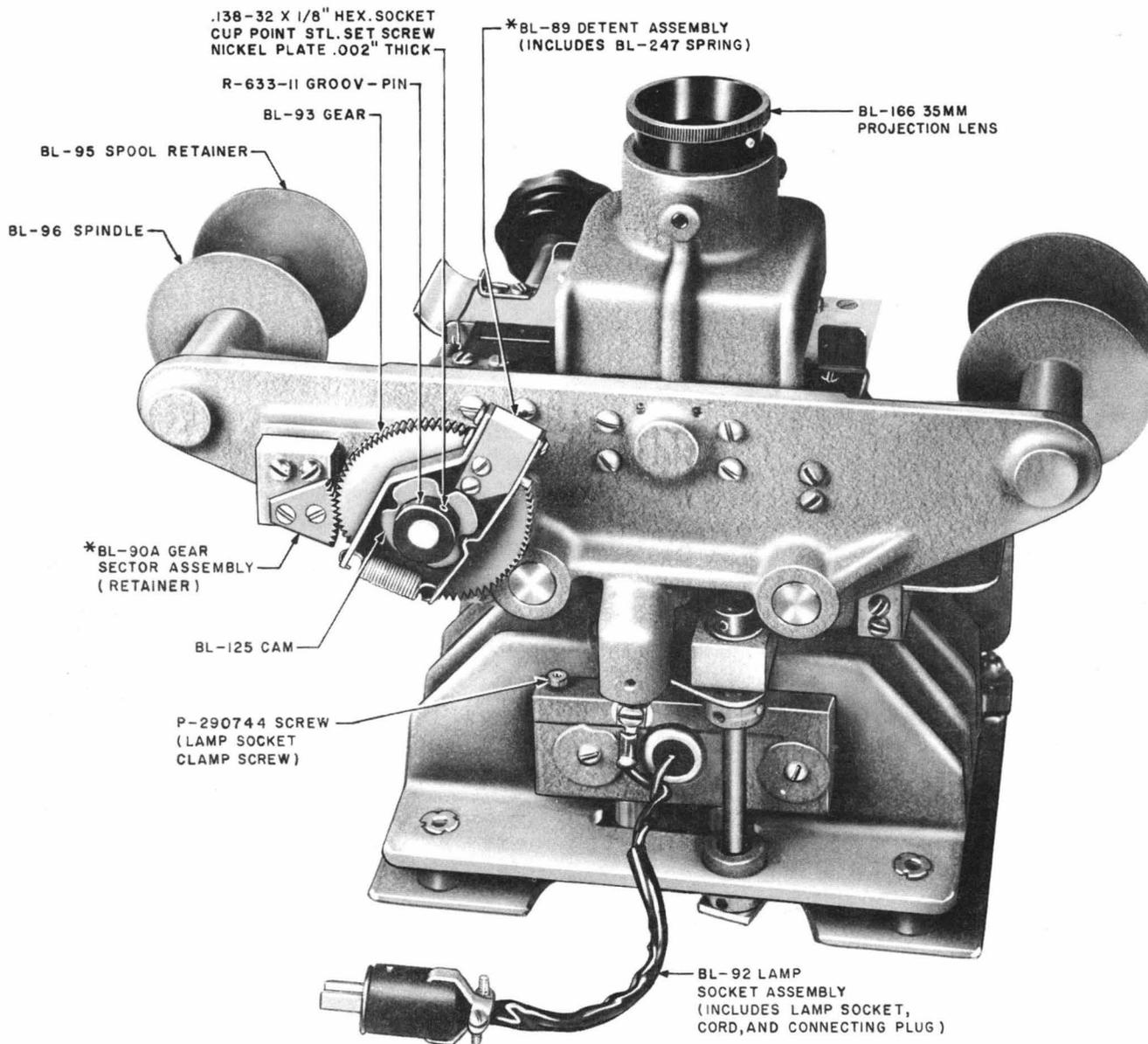


Fig. 2 - KS-16789 L1 Reader - Front View



* BL-89 DETENT ASSEMBLY AND BL-90A GEAR SECTOR ASSEMBLY
ARE SUITABLE FOR EITHER PRESENT OR EARLY TYPE PROJECTORS

Fig. 3 - Rear View of Projector (removed from cabinet)

3. REPLACEMENT PROCEDURES**3.01 List of Tools and Materials**

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
206	30-Degree Offset Screwdriver
246	1/2-Inch Hex. Open Single-End Flat Wrench
417A	1/4- and 3/8-Inch Hex. Open Double-End Flat Wrench
R-1005	Jewelers Screwdriver
R-2262	5/32- and 7/32-Inch Open Double-End Flat Wrench
R-2959	1/16-Inch Allen Wrench
R-3040	5/8- and 3/4-Inch Open Double-End Flat Wrench
R-3193	9/32- and 11/32-Inch Open Double-End Flat Wrench
—	3/32-Inch Drive-Pin Punch, L. S. Starrett Co. No. 565, or Equivalent
—	3-Inch C Screwdriver
—	4-Inch E Screwdriver
—	4-Ounce Riveting Hammer
—	Combination Pliers
—	P-Long-Nose Pliers (or the replaced long-nose pliers)
—	No. 2 Truarc Pliers, 90-Degree Bent Tip, Waldes Kohinoor Inc.

MATERIALS

KS-14666 Cloth

3.02 Before making any replacement of parts of the reader, remove the power cord plug from the outlet of the 120-volt supply.

3.03 No replacement procedures are specified for screws or parts where the replacement procedure consists of a simple operation.

3.04 After making any replacement of parts, the part or parts replaced shall meet the requirements specified in Section 034-338-701. Other parts whose adjustment may have been directly disturbed by the replacement operation shall be checked to the applicable requirements.

3.05 In some cases, it will be necessary to remove the projector from the cabinet for replacement of parts. To remove the projector, proceed as follows. Remove the projector mounting screws located adjacent to the front and rear cooling fins using the 3-inch C screwdriver and the R-3193 wrench. Remove the lamp cord plug from its socket. Carefully remove the projector from the cabinet.

3.06 Screen, Fresnel Lens, and Backing Plate: Fig. 1

(1) To replace any of these parts, which constitute the viewing screen assembly, first disengage the frame latching screws with the 3-inch C screwdriver and lower the frame to the horizontal position.

(2) Remove the viewing screen assembly clamp screws with the screwdriver and remove the clamps.

(3) Remove the viewing screen assembly from the frame and place it on a flat surface covered with several clean KS-14666 cloths. Separate the parts of the assembly noting the position of the plastic-coated surface of the screen with reference to the fresnel lens.

(4) Substitute new parts as required. Before mounting the screen assembly, clean both sides of the fresnel lens and the inner surfaces of the screen and backing plate as covered in Section 034-338-701.

(5) Mount the screen assembly as follows. Place the screen on the KS-14666 cloths with the plastic-coated surface upward if that surface was adjacent to the fresnel lens or downward if it was away from the lens [see (3)]. Place the fresnel lens on the screen so that the grooved surface of the lens is against the screen and the notch is at the right front corner. Then place the back-

ing plate on the lens. Handling the screen assembly by its edges, mount the assembly in the frame so that the notch in the fresnel lens is at the right front corner.

(6) Remount the clamps and tighten the clamp screws. Clean the outer surfaces of the backing plate and screen as covered in Section 034-338-701. Swing the frame upward and engage the latching screws.

3.07 Rear and Top Mirror: Fig. 1

(1) Using the 3-inch C screwdriver, disengage the frame latching screws and lower the frame to the horizontal position.

(2) **Rear Mirror:** Remove the rear mirror clamp screws with the 3-inch C screwdriver and remove the clamps. Remove the mirror. Position the new mirror on its mounting and remount the mirror clamps. Tighten the mirror clamp screws. Clean the mirror as covered in Section 034-338-701.

(3) **Top Mirror:** Place the reader on its side on a flat surface covered with several thicknesses of KS-14666 cloth. While holding the mirror in position, remove the upper mirror clamp screw with the 3-inch C screwdriver and remove the clamp. Loosen the low clamp screw and carefully remove the mirror. Position the mirror in the cabinet and tighten the lower clamp screw. Remount the upper clamp and tighten the clamp screw. Clean the mirror as covered in Section 034-338-701.

3.08 Guide Line Lever Spring: Fig. 1 — Move the guide line lever to its outermost position as shown in Fig. 1. Disengage the frame latching screws with the 3-inch C screwdriver and lower the frame to the horizontal position. Using the P-long-nose pliers, unhook both ends of the spring. Mount the new spring.

3.09 Transformer, Resistor, and Control Switch: Fig. 1 and 2

(1) To replace any of these parts, first remove the projector from the cabinet as covered in 3.05. Then remove the control panel

mounting screws with the 3-inch C screwdriver and tilt the panel forward to gain access to the parts.

(2) Transformer

(a) Using the 3-inch C screwdriver and the R-3193 wrench, remove the transformer mounting screws and associated nuts and washers. Remove the ground connection from the transformer mounting screw.

(b) Open the splices to the primary winding of the transformer and tag the external leads which were connected to the primary. At the terminal strip, disconnect the leads to the secondary winding of the transformer.

(c) Splice the external leads to the primary winding of the new transformer in accordance with approved procedures. Connect the leads from the secondary winding to the terminal strip.

(d) Mount the transformer and connect the ground lead to one of the transformer mounting screws. Securely tighten the screws.

(3) **Resistor: Fig. 1** — Tag and unsolder the leads to the resistor at the resistor terminals. Remove the resistor mounting screw and nut using the 3-inch C screwdriver and R-3193 wrench. Remove the resistor. Mount the new resistor and connect the leads to the proper resistor terminals.

(4) Control Switch: Fig. 1

(a) Tag and unsolder the leads to the control switch at the switch terminals. Loosen the switch knob setscrew with the R-1005 jewelers screwdriver and remove the knob. Remove the locknut at the front of the control panel with the R-3040 wrench and then remove the switch.

(b) Remove the locknut and knob from the new switch. Insert the switch bushing through the mounting hole in the control panel. Position the switch so that the guide

pin, which is mounted in the control panel, engages the guide pin hole in the switch. Mount and securely tighten the locknut on the switch bushing from the front of the panel.

(c) Place the switch knob on the shaft and rotate the switch to its OFF (maximum counterclockwise) position. Reposition the knob so that the point of the knob is in line with the OFF position and then securely tighten the knob mounting screw with the R-1005 jewelers screwdriver.

(d) Connect and solder the leads to the proper switch terminals.

(5) After replacing parts covered in (2), (3), and (4), dress the leads to conform with associated wiring.

(6) Remount the control panel and the projector.

3.10 Projection Lens. Fig. 3 — Unscrew the lens counterclockwise and remove it from the projector. Screw the new lens into the projector.

3.11 Film Holder: Fig. 2

(1) Grasp both plates of the film holder and carefully pull them outward from the projector.

(2) Before mounting the new film holder, clean the plates as covered in Section 034-338-701.

(3) Mount the film holder so that the shim attached to one of the plates is against the other plates and the inner ends of the beveled edges are adjacent to each other.

3.12 Clamping Plate Spring: Fig. 2 — To replace the clamping plate spring, first lower the clamping plate and then unhook both ends of the spring using the P-long-nose pliers. Remove the spring. Mount the new spring.

3.13 Spool Retainer and Spindle: Fig. 3

(1) Pull the spool retainer outward from the spindle. If the spindle is to be replaced, loosen the spindle setscrew using the R-2959 wrench and remove the spindle. Replace the parts as required in the reverse order of removal taking care to tighten the setscrew on the flat of the spindle shaft.

3.14 Lamp: Fig. 2

(1) Remove the heat shield and lamp housing cover by carefully pulling them outward from the projector.

(2) Remove the lamp by pushing it in and then turning it counterclockwise to disengage it from the socket.

(3) Mount the new lamp by pushing it into the socket and turning it clockwise.

(4) Remount the lamp housing cover and the heat shield.

3.15 Reflector: Fig. 2

(1) Remove the heat shield, lamp housing cover, and lamp as covered in 3.14(1) and (2).

(2) Remove the reflector clip mounting screws using the 206 offset screwdriver and remove the clips. Remove the reflector.

(3) Position the new reflector on the reflector mounting plate and remount the reflector clips. Tighten the reflector clip mounting screws.

(4) Remount other parts in reverse order of removal.

3.16 Lamp Socket Assembly: Fig. 3

(1) Remove the projector from the cabinet as covered in 3.05.

(2) Remove the heat shield, lamp housing cover, and lamp as covered in 3.14(1) and (2). Cover the reflector with a clean KS-14666 cloth to prevent scratching it while removing the lamp socket assembly.

(3) Loosen the lamp socket clamp screw at the rear of the projector with the 3-inch C screwdriver. Carefully remove the lamp socket assembly through the opening at the front of the lamp housing, taking care not to drag the socket or the plug across the reflector.

(4) Insert the plug of the new lamp socket assembly through the opening at the front of the lamp housing so that the plug extends from the rear of the projector. While carefully pulling the cord through the lamp housing, guide the socket at the end of the cord so that it is not dragged across the reflector. Position the socket at the rear of the housing so that the groove in the socket engages the guide pin in the housing and the socket is against its stop. While holding the socket against the stop, securely tighten the clamp screw.

(5) Remount the projector in the cabinet and insert the lamp socket plug in the socket on the control panel.

3.17 Cam: Fig. 3

(1) Remove the projector from the cabinet as covered in 3.05.

(2) Rotate the film advance assembly knob until the cam setscrew is accessible. Loosen the setscrew with the R-2959 wrench.

(3) Again rotate the knob until the ungrooved end of the Groov-Pin is accessible. Place the 3/32-inch drive-pin punch on the ungrooved end of the pin and lightly tap the punch with the 4-ounce riveting hammer until the pin extends approximately 3/8 inch beyond the cam hub. Remove the pin with the P-long-nose pliers. Remove the cam from the shaft.

(4) Raise the detent assembly spring slightly, and position the new cam on the shaft so that the hole in the cam is in line with the hole in the shaft. Insert the ungrooved end of the Groov-Pin in the hole, using a new pin if

the old pin is bent. Lightly tap the pin into place with the punch and hammer. Securely tighten the cam setscrew.

(5) Remount the projector in the cabinet and insert the lamp socket plug in the socket on the control panel.

3.18 Detent Assembly: Fig. 3

(1) Remove the projector from the cabinet as covered in 3.05.

(2) Remove the detent assembly mounting screws using the 3-inch C screwdriver. Remove the detent assembly.

(3) Mount the new detent assembly on the gear and securely tighten the mounting screws.

(4) Remount the projector in the cabinet and insert the lamp socket plug in the socket on the control panel.

3.19 Gear: Fig. 3

(1) Remove the projector from the cabinet as covered in 3.05.

(2) Remove the cam from the film advance assembly shaft as covered in 3.17 (1) through (3).

(3) Remove the gear from the shaft.

(4) Remove the detent assembly from the gear as covered in 3.18(2).

(5) Remount the detent assembly on the new gear as covered in 3.18(3).

(6) Position the new gear on the shaft so that the retainer engages the gear teeth and the gear is against the shaft retaining ring.

(7) Remount the cam on the shaft as covered in 3.17(4).

(8) Remount the projector in the cabinet and insert the lamp socket plug in the socket on the control panel.

3.20 Retainer: Fig. 3

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- (1) Remove the projector from the cabinet as covered in 3.05.
- (2) Using the 3-inch C screwdriver, remove the retainer mounting screws (round-head screws) and associated washers. Remove the retainer.
- (3) Position the new retainer on the projector so that the teeth of the retainer and the gear mesh without bind. Securely tighten the mounting screws.

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3.21 Film Advance Shaft Spring: Fig. 2

- (1) Remove the cam and gear from the rear of the film advance shaft as covered in 3.19 (1) through (3).
- (2) Remove the shaft retaining ring adjacent to the shaft bearing with the No. 2 Truarc pliers.

(3) Using the 4-inch E screwdriver, remove the four screws adjacent to the shaft which mounts the spring housing. Remove the shaft and associated parts from the front of the projector. Remove the spring from the shaft.

(4) Mount the new spring on the shaft. Remount the shaft assembly in reverse order of removal.

(5) Remount the projector in the cabinet and insert the lamp socket plug in the socket on the control panel.

3.22 Scanning Lever Pressure Spring: Fig. 2

- (1) Remove the stop nut and associated washer from the spring mounting stud using the R-3193 wrench. Remove the spring.
- (2) Mount the new spring on the stud. Remount the nut and washer.