

TECHNICAL MANUAL

DS, GS, AND DEPOT MAINTENANCE
MANUAL INCLUDING REPAIR PARTS
AND SPECIAL TOOL LISTS

PROJECTOR, STILL PICTURE

PH-637D/PFP

HEADQUARTERS, DEPARTMENT OF THE ARMY

MAY 1971

WARNING

DANGEROUS VOLTAGES are used in this equipment
DEATH ON CONTACT MAY RESULT if safety precautions are not observed.

DON'T TAKE CHANCES

Be careful not to come in contact with any of the electrical circuits in the equipment, Turn power off before making any connections or doing any work inside of the equipment. Do not rely on the proper operation of the interlock switch or ON-OFF switch in the equipment. Disconnect the line cord from the power source to remove power.

DS, GS, and, Depot Maintenance Manual
Including Repair Parts and Special Tool lists
PROJECTOR, STILL PICTURE PH-637D/PFP

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CHAPTER 1

INTRODUCTION

1-1. Scope

a. This manual covers direct support (DS), general support (GS), and depot maintenance instructions for Projector, Still Picture PH-637D/PFP. It includes instructions for troubleshooting, testing, aligning, and repairing the projector set, replacing maintenance parts, and repairing specified maintenance parts. It also lists tools and materials required for these categories of maintenance. Direct, general, and depot maintenance repair parts are listed in appendix B. Appendix B is current as of *21 January 1971*.

b. The complete technical manual for this equipment includes TM 11-6730-235-12.

1-2. Indexes of Publications

a. Refer to the latest issue of DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment. DA Pam 310-4 is an index of current technical manuals, technical bulletins, supply

bulletins, and lubrication orders that are available through publications supply channels. The index lists the individual parts (-12, -35, etc.) and the latest changes to and revision of each equipment publication.

b. See DA Pam 310-7 for a list of modification work orders.

NOTE

For applicable forms and records, see paragraph 1-3, TM 11-6730-235-12.

1-3. Reporting of Equipment Manual Improvements

Reporting of errors, omissions, and recommendations for the improvement of this manual by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded direct to Commanding General, U.S. Army Electronics Command, ATTN: AMSEL-ME-NMP-EM, Fort Monmouth, N.J. 07703.

CHAPTER 2

FUNCTIONING

2-1. General

a. This chapter describes the functioning of the projector.

b. The description is presented under the following categories:

- (1) Optical-mechanical operation (para 2-2).
- (2) Electrical operation (para 2-3).

2-2. Optical-Mechanical Operation

The projector is an optical device in which control of certain optical functions is accomplished by the operation of mechanical elements. The optical elements of the projector and the related mechanical elements are shown in schematic form in figure 2-1.

a. A projection lamp located in the lamp housing assembly of the projector case assembly is the light source for the equipment. A reflector located directly below the lamp shapes the light into a beam. This beam is directed toward a fresnel lens.

b. The fresnel lens is a two-element plastic plate which consists of a number of concentric circular lenses arranged around one common lens. The fresnel lens collects light rays with many angles of incidence to bring them to a point of common focus. The light rays being focused by the fresnel lens pass through a stage glass.

c. The stage glass is a transparent sheet of glass that is used as a support for the transparency that contains the image to be projected. This image consists of a combination of translucent, opaque, and partially opaque areas. Light rays from the fresnel lens pass through the stage glass and the image source with an intensity and color that is determined by the transparency and color of the image source.

d. The light rays that pass through the image source are collected by a bottom lens in the lens head assembly. This lens condenses the light rays, focusing them at a point that lies behind a mirror in the lens head assembly.

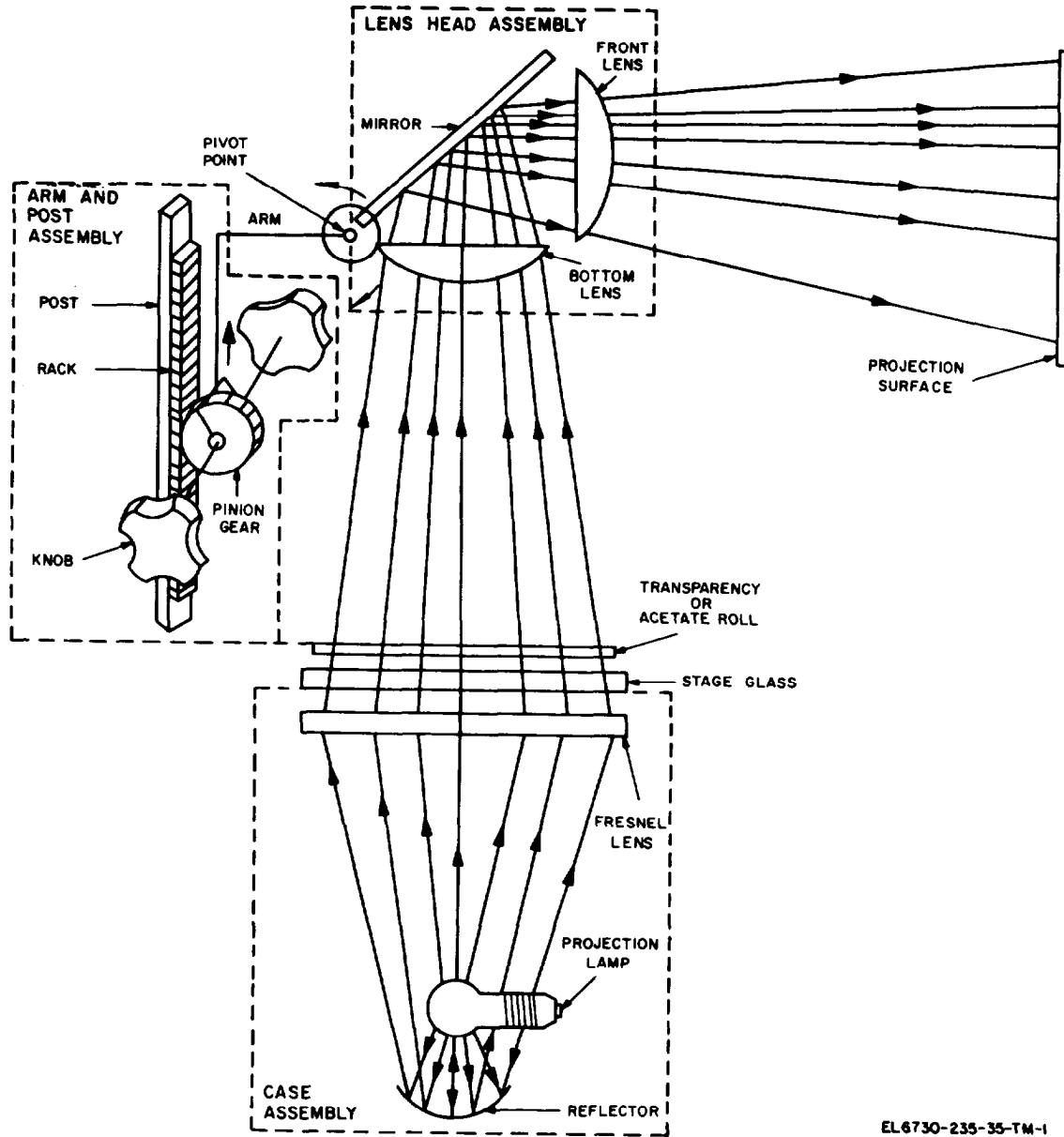
e. The mirror reflects the image-containing light rays. The reflected light rays strike a front lens in the lens head assembly.

f. The front lens diverges the reflected light rays. This divergence magnifies the image to impose it on the projection surface.

g. The lenses and the mirror in the lens head assembly pivot as a unit under the control of the operator. This pivoting action changes the angle of incidence of light rays from the image on the mirror. Changing the angle of incidence, in turn, changes the angle of elevation of the projected image. When the angle of elevation is changed, the projected image is moved up or down in accordance with the angle of the pivoting action.

h. The lens head assembly is fixed to a pinion gear in the focusing arm holster of the arm and post assembly in the projector. This pinion gear lies on a shaft that passes through the two focus knobs of the projector. The teeth of the pinion gear mesh with teeth on a rack that is located on the post of the projector arm and post assembly. Turning the focus knobs turns the pinion gear. Turning the pinion gear moves the gear up and down the post. The direction of motion is determined by the direction in which the focus knobs are turned.

i. When the lens head assembly moves up or down, the distance between the image source on the transparency and the lens system in the lens head assembly is changed. Changing this distance changes the point at which the projected image is focused.



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Figure 2-1. Projector, optical-mechanical schematic diagram.

2-3. Electrical Operation

The electrical operation of the projector involves the application of power to the convenience outlet on the projector, the application of power to the projection lamp, and the control of the power applied to the blower motor in the projector. The electrical elements involved in these operations are shown schematically in figure 2-2.

a. Power is connected to the projector by line plug P1. Whenever the top plate assembly of the projector is in the closed position, the contacts of interlock switch S1 are closed. With interlock switch S1 contacts closed, power is routed to convenience outlet J1.

b. When ON-OFF switch S2 is placed in the on position, power is also applied to projection lamp I1 and to blower motor B1. As a result, projection lamp I1 lights and blower motor B1 drives a cooling fan for the lamp.

c. When the heat produced by the light radiation from lamp I1 reaches 135°F (57°C), the contacts of thermal switch S3 close and parallel the closed contacts of ON-OFF switch S2. When ON-OFF switch S2 is placed in the off position, S2 contacts open. The parallel connection provided by thermal switch S3 contacts remain, however, until the temperature drops to 131°F (54°C). At that time, the opening of the thermal switch S3

contacts removes power from the blower motor, which had been operating even though power had been turned off.

d. If the top plate assembly of the projector is opened for maintenance of items in the case assembly or on the top plate assembly, the interlock arm of the case assembly is actuated. When this arm is actuated, the contacts of interlock switch S1 open. Opening these contacts removes power from convenience outlet J1, lamp I1, and blower motor B1, regardless of the states of ON-OFF switch S2 and thermal switch S3.

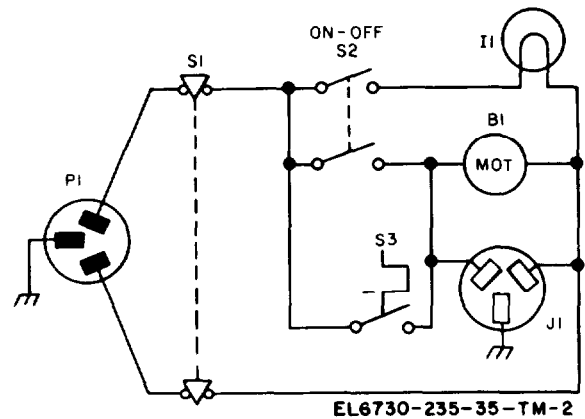


Figure 2-2. Projector, electrical schematic diagram.



CHAPTER 3

DIRECT AND GENERAL SUPPORT MAINTENANCE

Section I. GENERAL

3-1. Scope of Maintenance

The maintenance duties assigned to direct and general support maintenance technicians for the projector are listed below together with references to the paragraphs in this chapter that cover the specific maintenance functions.

- a. Troubleshooting (paras 3-3 and 3-4).
- b. Removal of lens head assembly (para 3-5).
- c. Removal of arm and post assembly (para 3-6).
- d. Removal of top plate assembly (para 3-7).
- e. Removal of case assembly (para 3-8).
- f. Replacement of case assembly (para 3-9).
- g. Replacement of top plate assembly (para 3-10).
- h. Replacement of arm and post assembly (para 3-11).
- i. Replacement of lens head assembly (para 3-12).
- j. Alignment of lens head assembly (para 3-13).
- k. Disassembly of roll attachment (para 3-14).
- l. Disassembly of top plate assembly (para 3-15).
- m. Disassembly of case assembly (para 3-16).
- n. Reassembly of roll attachment (para 3-17).
- o. Reassembly of case assembly (para 3-18).
- p. Reassembly of top plate assembly (para 3-19).
- q. Alignment of projector optical axis (para 3-20).

3-2. Tools and Test Equipment Required

Direct and general support maintenance of the projector requires the use of tools contained in Tool Kit, Photographic Repairman TK-77/GF and of test equipment Multimeter AN/URM-105 or equivalent.

Section II. TROUBLESHOOTING

3-3. General Troubleshooting Techniques

a. Troubleshooting at the direct support and general support levels of maintenance includes all of the techniques outlined for operator and organizational maintenance in TM 11-6370-235-12 plus any other techniques required to localize and isolate trouble to a defective projector assembly, subassembly, or part.

b. The systematic troubleshooting procedure requires the performance of the operational checks assigned to the operator in TM 11-6370-235-12. The troubleshooting chart in paragraph 3-4 lists symptoms that may be encountered when these operational checks are performed on a defective projector. Those symptoms for which corrective measures can be performed by an operator or organizational maintenance man have been

omitted. For each of the symptoms that has been included, the probable causes have been listed with the corresponding corrective action required to isolate, localize, and remedy the trouble. Troubles can be isolated to a defective part using the troubleshooting chart in conjunction with the schematic diagram (fig. 2-2) and the wiring diagram (fig. 3-1) for the projector. The physical location of the electrical parts shown on these diagrams is illustrated by figure 3-5. When trouble is isolated to a defective electrical part, the case assembly should be removed (para 3-8) and the applicable steps of the case assembly disassembly procedure (para 3-16) should be performed, followed by the applicable steps of the reassembly procedure (para 3-18).

c. When troubleshooting techniques localize a trouble to the electrical circuits of the projector and the isolation procedures require that additional troubleshooting procedures be performed with power on, special considerations are involved. Troubleshooting of the electrical circuits of the projector require that the top plate assembly be opened. Opening the top plate assembly opens the contacts of interlock switch S1 (para 2.3c), removing power from the projector. To apply power to the electrical circuits in order to test them, press the button of interlock switch S1 inward with one finger. If this technique is not convenient, perform the following steps to bypass the interlock switch:

WARNING

Be careful when performing any work on the interior of the case assembly of the projector. Voltages that can be dangerous to life exist within these circuits.

- (1) Remove the line plug from the power source.
- (2) Remove the two screws that secure the interlock switch cover to the side of the case assembly.
- (3) Connect a jumper lead between the two interlock switch S1 terminals to which black leads are connected (fig. 3-1).
- (4) Connect a jumper lead between the two interlock switch S1 terminals to which white leads are connected.
- (5) Reconnect the line plug to the power source. Power is now under the control of ON-OFF switch S2, only.

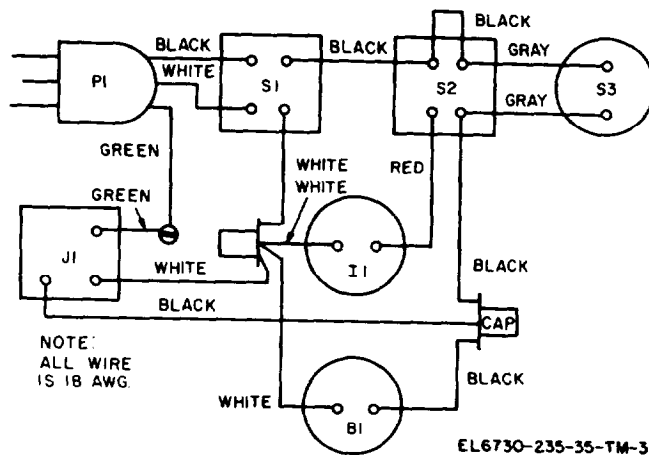


Figure 3-1. Projector wiring diagram.

3-4. Troubleshooting Chart

Item NO.	Trouble symptom	Probable cause	Checks and corrective actions
1	Focusing arm holster does not move up and down smoothly when focus knobs are tightened.	<p>a. Defective pinion gear.</p> <p>b. Defective rack.</p> <p>c. Bent member of arm and post assembly.</p>	<p>a. Replace arm and post assembly (paras 3-6 and 3-11) and refer defective assembly to higher category of maintenance.</p> <p>b. Replace arm and post assembly (paras 3-6 and 3-11) and refer defective assembly to higher category of maintenance.</p> <p>c. Replace arm and post assembly (paras 3-6 and 3-11) and refer defective assembly to higher category of maintenance.</p>
2	Power is not available at convenience outlet J1.	<p>a. Defective interlock switch S1.</p> <p>b. Interlock arm not closing interlock switch S1.</p> <p>c. Defective convenience outlet J1.</p>	<p>a. Jumper interlock switch S1 (para 3-3c) and place ON-OFF switch S2 in on position. If lamp lights, replace interlock switch S1 (para 3-16a through e).</p> <p>b. Perform a above. If trouble persists, check action of interlock arm when top plate assembly is lowered to closed position. If arm is defective, replace case assembly (paras 3-8 and 3-9) and refer to higher category of maintenance.</p> <p>c. Replace convenience outlet J1 (para 3-16f, j, and k).</p>
3	Blower motor does not operate when ON-OFF switch is placed in on position.	<p>a. Defective blower motor B1.</p> <p>b. Defective ON-OFF switch S2 or loose electrical connection.</p>	<p>a. Use multimeter to measure ac voltage at terminals of blower motor B1 when ON-OFF switch S2 is in on position. If line voltage is measured, blower motor B1 is defective. Replace blower motor and wiring harness assembly (para 3-16d, f, g, and of through ai).</p> <p>b. Perform a above. If line voltage is not measured at blower B1 terminals, connect jumper wire between ON-OFF switch S2 terminals connected to gray leads. If blower motor B1 operates, ON-OFF switch S2 is defective. Replace ON-OFF switch S2 (para 3-16f h, and i). If blower motor B1 does not operate, tighten connections made by both electrical caps.</p>
4	Blower motor does not continue operating after ON-OFF switch is placed in off position when projection lamp is still hot.	<p>a. Defective thermal switch S3.</p>	<p>a. Replace thermal switch S3 (para 3-16d, x, and y).</p>
5	Spring lock button does not secure top plate assembly.	<p>a. Defective spring lock button.</p> <p>b. Top plate assembly bent,</p>	<p>a. Replace case assembly (paras 3-8 and 3-9) and refer to higher category of maintenance.</p> <p>b. Replace top plate assembly (paras 3-7 and 3-10) and refer to higher category of maintenance.</p>
6	Lens head assembly does not pivot properly.	<p>a. Defective lens head assembly.</p>	<p>a. Replace lens head assembly (paras 3-5 and 3-12) and refer to higher category of maintenance.</p>
7	Projected image does not center on projection surface with image source centered on stage glass.	<p>a. Lens head assembly out of alignment.</p>	<p>a. Align lens head assembly (para 3-13).</p>

Section III. REMOVAL, REPLACEMENT, AND ALIGNMENT

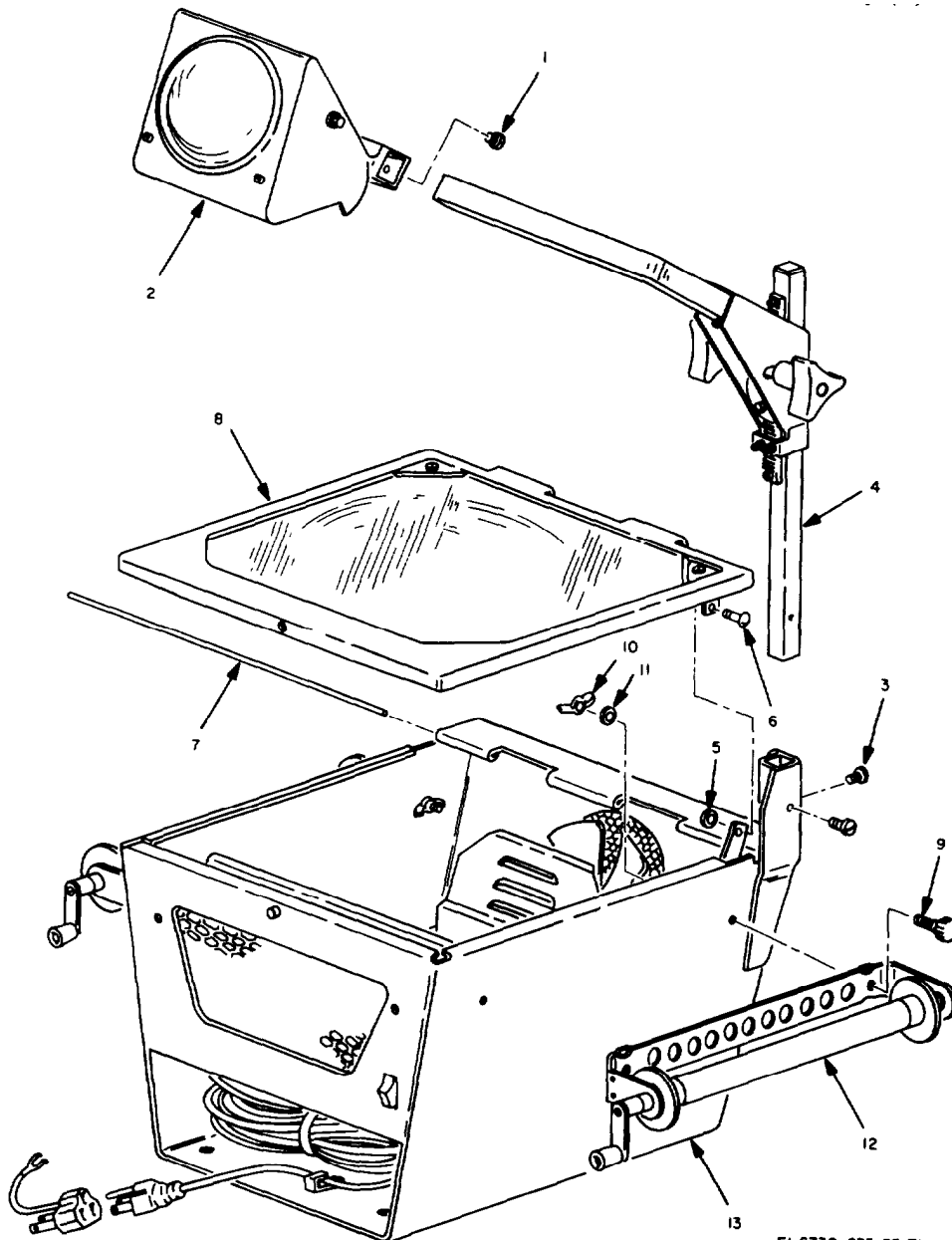
3-5. Removal of lens Head Assembly
(fig. 3-2)

CAUTION

Hold the lens head securely during the removal procedure to prevent its dropping and possibly breaking the stage glass of the top plate assembly.

a. Remove the two screws (1) that secure the lens head assembly (2) to the arm of the arm and post assembly (4).

b. Slide the lens head assembly (2) off the arm of the arm and post assembly (4).



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- | | | | |
|-----------------------------|--------------------------|--------------------------|-------------------------|
| 1. Screws H1 | 5. Capnut A3MP1H3 | 8. Top plate assembly A3 | 11. Washers A7H3 |
| 2. Lens head assembly A1 | 6. Rivet A3MP1H1 | 9. Screws A7H1 | 12. Roll attachments A7 |
| 3. Screws A2H1 | 7. Hinge pin (p/o A3MP7) | 10. Wingnuts A7H2 | 13. Case assembly A6 |
| 4. Arm and post assembly A2 | | | |

Figure 3-2. Projector, exploded view.

3-6. Removal of Arm and Post Assembly*(fig. 3-2)*

a. Remove the lens head assembly in accordance with the instructions of paragraph 3-5.

b. Remove the two screws (3) that secure the post of the arm and post assembly (4) to the case assembly (13).

CAUTION

Be careful that the arm and post assembly is not allowed to drop on and possibly break the stage glass of the top plate assembly.

c. Lift the arm and post assembly (4) out of the post holder on the case assembly (13).

3-7. Removal of Top Plate Assembly*(fig. 3-2)*

a. Turn the focus knobs on the arm and post assembly (4) to raise the lens head assembly (2) to its maximum height.

b. Use a pointed object to press in the spring lock button that secures the top plate assembly (8) to the case assembly (13).

c. Raise the top plate assembly (8) to the point at which it is locked in place by the interlock arm.

d. Pry off the capnut (5) that secures the interlock arm to the top plate assembly (8).

e. While holding the top plate assembly (8) with one hand, remove the rivet (7) that secures the interlock arm to the bracket on the top plate assembly (8).

f. Lower the front of the top plate assembly to the point at which the top plate assembly hinge pin (7) is accessible from the sides of the projector.

g. Use a thin pointed object to push the top plate assembly hinge pin (7) out of the hinge.

h. Lift the top plate assembly (8) off the case assembly (13).

3-8. Removal of Case Assembly*(fig. 3-2)*

a. Remove the two screws (9), two wingnuts (10), and two washers (11) that secure each of the roll attachments (12) to the case assembly (13).

b. Remove the two screws (3) that secure the post of the arm and post assembly (4) to the case assembly (13).

CAUTION

Be careful not to drop the arm and post assembly on, and possibly break, the stage glass of the top plate assembly.

c. Lift the arm and post assembly (4) out of the holder on the case assembly (13).

d. Remove the top plate assembly (8) in accordance with the instructions of paragraph 3-7.

3-9. Replacement of Case Assembly*(fig. 3-2)*

a. Secure the roll attachments (12) to the case assembly (13) in accordance with the installation instructions of TM 11-6730-235-12.

b. Slide the post of the arm and post assembly (4) into the post holder on the case assembly (13).

c. Secure the arm and post assembly (4) to the case assembly (13) with the two screws (3).

d. Turn the focus knobs on the arm and post assembly (4) to raise the lens head assembly (2) to its maximum height.

e. Place the top plate assembly (8) hinge flanges into the mating hinge flanges on the case assembly (13).

f. Pass the hinge pin (7) through the mating hinge flanges of the top plate assembly (8) and the case assembly (13).

g. Line up the upper hole of the interlock arm on the case assembly (13) with the corresponding holes on the top plate assembly (8).

h. Pass the interlock arm rivet (6) through the holes in the top plate assembly (8) and the case assembly (13) that were lined up in g above.

i. Slide the capnut (5) for the interlock arm over the rivet (6) of the interlock arm.

j. Check the alignment of and, if necessary, make the necessary adjustments for the lens head assembly (para 3-13).

3-10. Replacement of Top Plate Assembly

Replace the top plate assembly (8, fig. 3-2) by performing the procedures in *d* through *i* of paragraph 3-9.

3-11. Replacement of Arm and Post Assembly (fig. 3-2).

a. Slide the post of the arm and post assembly (4) into the post holder on the case assembly (13).

b. Secure the arm and post assembly (4) to the case assembly (13) with the two screws (3).

c. Slide the lens head assembly (2) over the arm of the arm and post assembly (4).

d. Insert the two screws (2) used to secure the lens head assembly (2) to the arm and post assembly (4), but do not tighten them completely.

e. Align the lens head assembly in accordance with the instructions of paragraph 3-13.

f. Tighten the screws (2) to secure the lens head assembly (2) to the arm and post assembly (4) in the position of proper alignment in accordance with paragraph 3-13.

3-12. Replacement of Lens Head Assembly

Replace the lens head assembly (2, fig. 3-2) by performing *c* through *e* of paragraph 3-11.

3-13. Alignment of Lens Head Assembly

a. Place ON-OFF switch S2 of the projector in the on position with the line plug connected to the power source.

b. Position the light projected by the projector on a surface that is larger than the light area.

c. Adjust the focus knobs of the projector so that the concentric rings of the fresnel lens are focused on the projection surface.

d. If they are not already loose, loosen the two screws (2, fig. 3-2) that secure the lens head assembly to the arm of the arm and post assembly (4).

e. Adjust the position of the lens head assembly by moving its slots around the attaching screws (2) until the center ring of the projected fresnel lens image is in the exact center of the projection

area and the sides of the projected image are straight up and down.

f. Tighten the two screws (2).

3-14. Disassembly of Roll Attachment (fig. 3-3).

a. Grasp the spool (1) and push it towards the end plate (7), compressing spring (8).

b. With the spool (1) freed from the key on the end plate (5), slip the spool (1) off the key on the end plate (7) and remove the spool (1).

c. Remove the screw (2) that secures the crank (3) to end plate (5).

d. Remove the crank (3), the washer (4), and the end plate (5).

e. Remove the screw (6), that secures the end plate (7) and the spring (8).

f. Remove the end plate (7) and then slide the spring (8) off the bracket (9).

3-15. Disassembly of Top Plate Assembly (fig. 3-4)

CAUTION

Be careful when handling the top plate assembly. The stage glass can break if dropped and the fresnel lens can be irreparably damaged if scratched or chipped.

a. Remove the screws (1) and the nuts (2) that secure the stage glass clips (3) to the top plate (13).

b. Lift off the stage glass clips (3).

c. Lift the stage glass (4) off the top plate (13).

d. Remove the two screws (5) and the two nuts (6) that secure the hinge of the fresnel lens holder (10) to the top plate (13).

e. Remove the fresnel lens holder (10) and fresnel lens (9) from the top plate (13).

f. Remove the screw (7) and the nut (8) that hold the sections of the fresnel lens holder (10) closed around the fresnel lens (9).

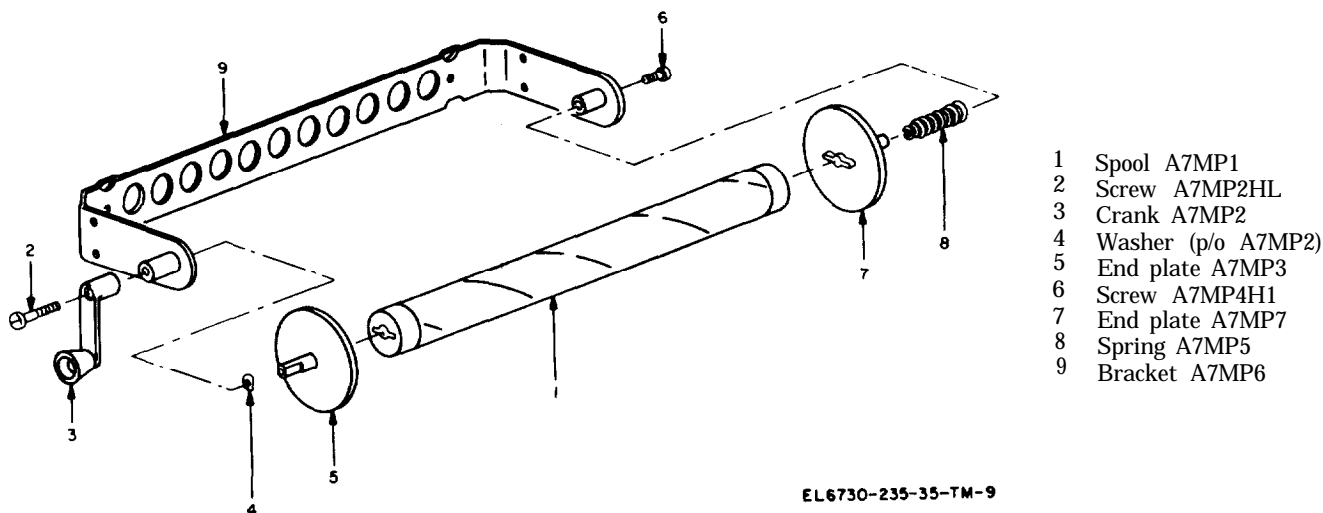


Figure 3-3. Roll attachment, exploded view.

g. Swing the sections of the fresnel lens holder (10) open and slide the fresnel lens (9) out.

h. Remove the two nuts (11) that secure the fresnel catch (12) to the under side of the top plate (13).

3-16. Disassembly of Case Assembly (fig. 3-5).

a. Remove the two screws (1) that secure the interlock switch cover (2) to the case (45).

b. Remove the nut (3) from interlock arm stud on the case (46).

c. Lift interlock arm (4) off the interlock arm stud of the case (46).

d. Slide the lugs of the electrical leads of the wiring harness (36) off the terminals of the projection lampholder (32), thermal switch S3 (27), and interlock switch S1 (5).

e. Push interlock switch S1 (5) through the hole in the interlock support bracket on the case (45).

f. Loosen the screws securing the electrical leads of the wiring harness (36) to ON-OFF switch S2 (7) and convenience outlet J1 (9).

g. Lay the wiring harness (36) on bottom of the case (46) outside the lamp housing (34).

h. Remove the two screws (6) that secure ON-OFF switch S2 (7) to the case (46).

i. Remove ON-OFF switch S2 (7) from the case (46).

j. Remove the screw (8) that secures the green ground leads from convenience outlet J1 (9) and the power cord (11) to the clip support bracket on the case (46).

k. Press the upper and lower metal spring clips on convenience outlet J1 (9) toward the body of the convenience outlet and push the convenience outlet out of the case (46).

l. Remove the strain relief bushing (10).

m. Pull the lead of the power cord (11) through the hole in the case (46).

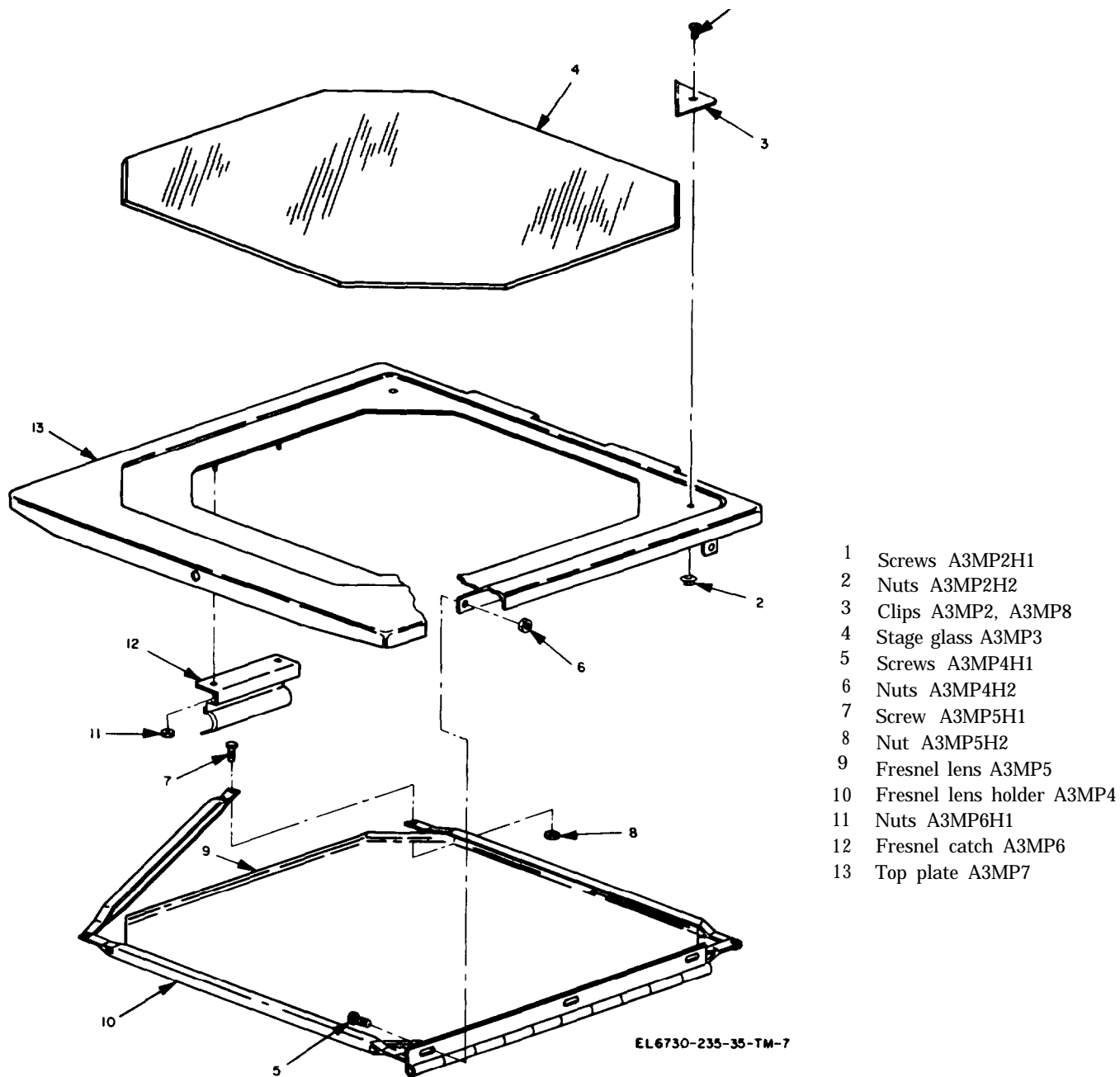
n. Remove the power cord (11) from the case (46).

o. Remove the four screws (12), four washers (13), and four nuts (14) that secure the lamp housing mounting straps (15) to the case (46).

p. Remove the two lamp housing mounting straps (15).

q. Lift the lamp housing assembly (15 through 34) from the case (46).

r. Remove the eight adjusting washers (16) and twelve insulating beads (17) that are attaching hardware for the projection lamp housing (34).



- 1 Screws A3MP2H1
- 2 Nuts A3MP2H2
- 3 Clips A3MP2, A3MP8
- 4 Stage glass A3MP3
- 5 Screws A3MP4H1
- 6 Nuts A3MP4H2
- 7 Screw A3MP5H1
- 8 Nut A3MP5H2
- 9 Fresnel lens A3MP5
- 10 Fresnel lens holder A3MP4
- 11 Nuts A3MP6H1
- 12 Fresnel catch A3MP6
- 13 Top plate A3MP7

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Figure 3-4. Top plate assembly, exploded view.

s. Press the lamp ejection lever on the lamp-holder (32) away from the projection lamp (18) to remove the lamp from the lamp housing (34).

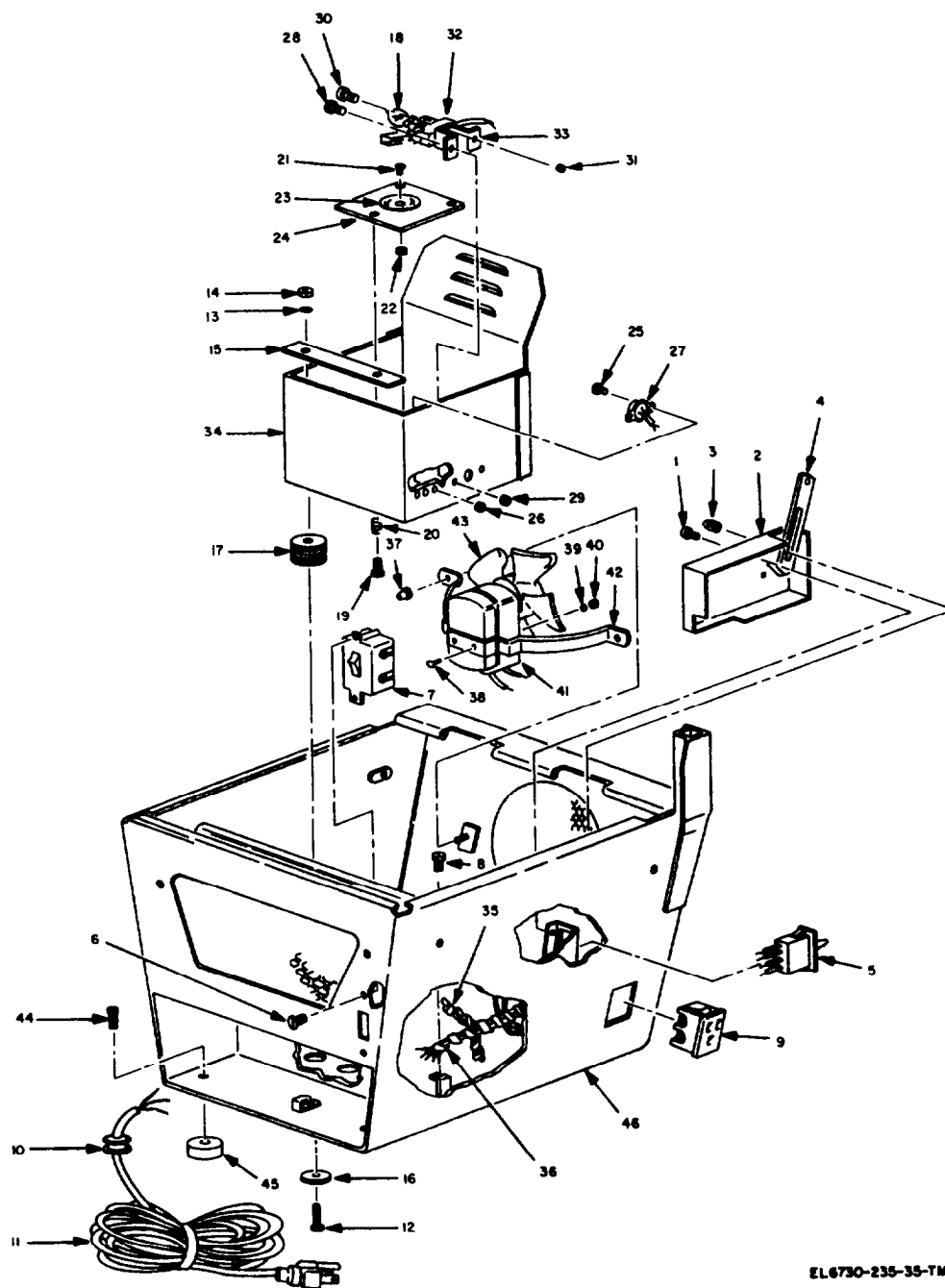
t. Remove the three screws (19) and the three springs (20) that secure the reflector holder (24) to the lamp housing (34).

u. Remove the reflector holder (24) and the reflector (23) from the lamp housing (34).

u. Remove the screw (21) and the nut (22) that secure the reflector (23) to the reflector holder (24).

w. Remove the reflector (23) from the reflector holder (24).

x. Remove the two screws (25) and the two nuts (26) that secure thermal switch S3 (27) to the lamp housing (34).



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- | | | | |
|------------------------------|--|--------------------------------|---|
| 1 Screws MP1H1 | 14 Nuts MP3H4 | 26 Nuts A4S3H2 | 37 Nuts MP4H2 |
| 2 Intellock switch cover MP1 | 15 Lamp housing mounting straps MP3, MP5 | 27 Thermal switch S3 | 38 Screws B1H1 |
| 3 Nut A3MP1H3 | 16 Adjusting washers MP3H3 | 28 Screws A4MP5H1 | 39 Washers B1H3 |
| 4 Interlock arm A3MP1 | 17 Insulating beads MP3H4 | 29 Nuts A4MP5H2 | 40 Nuts B1H2 |
| 5 Interlock switch S1 | 18 Projection lamp I1 | 30 Screws A4MP4H1 | 41 Motor B1 |
| 6 Screws S2H1 | 19 Screws A4MP2H1 | 31 Nuts A4MP4H2 | 42 Motor bracket MP4 |
| 7 ON-OFF switch S2 | 20 Springs A4MP3 | 32 Lampholder A4MP4 | 43 Fan MP5 |
| 8 Screw H2 | 21 Screw A4MP1H1 | 33 Lamp mounting bracket A4MP5 | 44 Screws A6MP1H1 |
| 9 Convenience outlet J1 | 22 Nut A4MP1H2 | 34 Lamp housing A4MPS | 45 Rubber feet A6MP1, A6MP5, A6MP6, A6MP7 |
| 10 Strain relief bushing MP2 | 23 Reflector A4MP1 | 35 Electrical caps (p/o B1) | 46 Case A5MP4 |
| 11 Power cord W1 | 24 Reflector holder A4MP2 | | |
| 12 Screws MP3H1 | 25 Screws A4S3H2 | 36 Wiring harness (p/o B1) | |
| 13 Washers MP3H3 | | | |

Figure 3-5. Case assembly, exploded view.

y. Remove thermal switch 53 (27) from the lamp housing (34).

z. Remove the two screws (28) and the two nuts (29) that secure the lamp mounting bracket (33) to the lamp housing (34).

aa. Remove the lamp mounting bracket (33) and the lampholder (32) from the lamp housing (34).

ab. Remove the two screws (30) and the two nuts (31) that secure the lampholder (32) to the lamp mounting bracket (33).

ac. Separate the lampholder (32) from the lamp mounting bracket (34).

ad. Remove the electrical caps (35) from the wiring harness (36).

ae. Remove the wiring harness (36) from the case (46).

af. Remove the two nuts (37) that secure the motor bracket (41) to the case (46).

ag. Remove the motor bracket (42) and the motor (41) from the case (46).

ah. Remove the two screws (38), two washers (39), and the two nuts (40) that secure the motor (41) to the motor bracket (42).

ai. Separate the motor (41) from the motor bracket (42).

aj. Pry the spring clip off the shaft of the motor (41) and slide the fan (43) off the shaft of the motor (41).

ak. Remove the four screws (44) that secure the four rubber bumpers (45) to the case (46).

al. Remove the four rubber bumpers (45) from the case (46).

3-17. Reassembly of Roll Attachment (fig. 3-3).

a. Slide the end of spring (8) that has a wider diameter over that stud of bracket (9) that is mounted on the interior side of the bracket.

b. Place the shaft end of the end plate (7) so that the shaft passes through the spring (8) and the stud of the bracket (9).

c. Secure the end plate (7) and the spring (8) to the bracket (9) using screw (6).

d. Slide the washer (4) over the shaft end of the end plate (5).

e. Pass the shaft of the end plate (5) with the washer (4) on it through the free stud of the bracket (9) from the interior of the bracket.

f. Slide the crank (3) over the shaft of the end plate (5).

g. Insert the screw (2) through the crank (3) and tighten the screw to secure the end plate (5) to the bracket (9).

h. Grasp the spool (1) and place the keyway at one end of the spool over the key on the end plate (7).

i. Push the end plate (7) toward the bracket (9) with the spool (1) so that the spring (8) is compressed.

j. Align the free end of the spool (1) with the keyway on the other end plate (5) of the roll attachment.

NOTE

If the roll attachment is being reassembled for shipment or storage, insert the thumbscrews that are used to attach the roll attachment to the case assembly (fig. 3-2) in the applicable holes on the bracket and secure the thumbscrews with wing nuts.

3-18. Reassembly of Case Assembly (fig. 3-5).

a. Install the four rubber feet (45) on the case (46) with the four screws (44).

b. Slide the fan (33) onto the shaft of motor B1 (41) and secure the fan on the shaft with the spring clip provided.

c. Using the two screws (38), the two washers (39), and the two nuts (40) secure motor B1 (41) to the motor bracket (42).

d. Secure the motor bracket (42) to the case (46) using the two nuts (38).

e. Secure the lampholder (32) to the lamp mounting bracket (33) using the two screws (30) and the two nuts (31).

f. Secure the lamp mounting bracket (33) to the lamp housing (34).

g. Secure thermal switch S3 (27) to the lamp housing (34) using the two screws (25) and the two nuts (26).

h. Secure the reflector (23) to the reflector holder (24) using the screw (21) and the nut (22).

i. Secure the reflector holder (24) to the lamp housing (34) using the three screws (19) and the three springs (20). Tighten each screw sufficiently to fully compress the associated spring.

j. Install the lamp housing assembly (15 through 34) in the case (46) using two screws (12), two washers (13), and two nuts (14) for each of the lamp housing straps (15). Three insulating beads (17) should be placed on each screw between the lamp housing (34) and the case (46); two washers (17) should be placed between the case (46) and the screws (12). Do not tighten the nuts (14) on the screws (12). These nuts are tightened during the alignment of the projector optical axis (para 3-20).

k. Work the loose leads of the power cord (11) through the hole in the case (46) so that the line plug is on the outside of the case (46).

l. Slide the strain relief bushing (10) over the loose ends of power cord (11) and slide the bushing to the point at which it can be installed in the hole of the case (46).

m. Press convenience outlet J1 (9) into the appropriate hole in the case (45) by compressing the spring of convenience outlet J1.

n. Secure ON-OFF switch S2 (7) to the case (46) by using the two screws (7).

o. Push interlock switch S1 (5) through the appropriate hole in the interlock support bracket on the case (46) by compressing the spring on the switch.

p. Using the electrical caps (35) connect the wiring harness (36) to the electrical leads of motor B1 (41). The electrical caps should join the white leads of the motor to the white leads of the wiring harness (fig. 3-1) and the black lead of motor B1 to the other black leads of the wiring harness.

q. Connect the middle white lead of the wiring harness (36) to one terminal of the socket on the lampholder (32).

r. Connect the end white lead of the wiring harness (36) to one output terminal of interlock switch S1 (5).

s. Connect the red lead of the wiring harness (36) to the remaining terminal of the socket on the lampholder (32) and to one output terminal of ON-OFF switch S2 (7).

t. Connect the middle black lead of the wiring harness (36) to one of the unmarked terminals of convenience outlet J1 (9).

u. Connect the end black lead of the wiring harness (36) to the remaining output terminal of ON-OFF switch S2 (7).

v. Connect one gray lead from the terminal to which connection was made in *u* above to one terminal of thermal switch S3 (27).

w. Connect a second gray lead from the free terminal of thermal switch S3 (27) to one of the input terminals of ON-OFF switch S2 (7).

x. Connect a black jumper lead between the two input terminals of ON-OFF switch S2 (7).

y. Connect a black lead from that input terminal of ON-OFF switch S2 (7) that has not had a direct connection made to thermal switch S3 (27) to the free output terminal of interlock switch S1 (5).

z. Connect the black and white leads of the power cord (11) to the input terminals of interlock switch S1 (5).

aa. Connect the green lead of the power cord (11) and the end of a green lead to the support bracket on the case (46) using the screw (8).

ab. Connect the free end of the green lead connected in *aa* above to the green (GR) terminal of convenience outlet J1 (9).

ac. Slide the bottom end of the interlock arm (4) over the interlock arm stud on the case (46).

ad. Secure the interlock arm (4) to the interlock arm stud with the nut (3).

ae. Secure the interlock switch cover (2) to the case (46) with the screws (1).

af. Upon completion of the reassembly of the entire projector, align the projector optical axis (para 3.20).

3-19. Reassembly of Top Plate Assembly (fig. 3-4).

a. Install the fresnel catch (12) on the top plate (13) using the two nuts (11).

CAUTION

Be careful not to scratch or in any way mar the surface of the fresnel lens. Any damage to this lens may seriously impair the clarity and visibility of images projected on the projection surface.

b. Place the fresnel lens (9) in the fresnel lens holder (10).

c. Fold the sections of the fresnel lens holder (10) around the fresnel lens (9).

d. Secure the sections of the fresnel lens holder (1) around the fresnel lens (9) using the screw (7) and the nut (8).

e. Secure the fresnel lens holder (10) to the top plate (13) by attaching the hinge with the screws (5) and nuts (6).

CAUTION

Be careful when handling the stage glass of the top plate assembly. As a glass item it is easily broken.

f. Place the stage glass (4) on the top plate (13) in the recess provided.

g. Secure the stage glass (4) in place with stage glass clips (3) that are attached using the nuts (2) and the screws (1).

3-20. Alignment of Projector Optical Axis

a. Place the assembled projector on a projector alignment fixture.

b. Place ON-OFF switch S2 in the off position.

c. Examine the image that can be seen as a reflection of the mirror in the front lens of the front lens head subassembly. This image, which consists of a reflection of the projector lamp and reflector in the lamp housing, should be centered in the front lens.

d. Reach through the legs of the projector alignment fixture and under the projector case assembly.

e. Place your fingers through the cooling holes in the bottom of the case assembly and position the projector lamp housing (35, fig. 3-5) to center the image, if it is not already centered.

f. With the image centered as in e above, tighten the nuts (15, fig. 3-5) that secure the lamp housing (35) to the case (45).

CHAPTER 4

DIRECT AND GENERAL SUPPORT TESTING PROCEDURES

4-1. General

a. Testing procedures are prepared for use by organizations responsible for direct and general support maintenance of the projector to determine the acceptability of repaired equipment. These procedures set forth specific requirements that repaired projectors must meet before being returned to the using organization.

b. Comply with the instructions preceding the body of each of the performance check charts in this chapter before proceeding to the charts themselves. Perform each test in sequence. For each step, perform all of the actions required in the *Control settings* column; then perform each specific test procedure and verify it against its performance standard.

4-2. Test Equipment Required

A thermometer capable of measuring within the temperature range of 130°F (53.3°C) to 136°F

(57.7°C) is the only item of test equipment required to perform the testing procedures in this chapter.

4-3. Modification Work Orders

The performance standards listed in the test (paras 4-4 through 4-6) are for equipment on which no modification work orders (MWO) have been performed. Refer to the latest issue of DA Pam 310-7 to make certain that no MWO's have been performed on the projector under test.

4-4. Physical Tests, Inspection, and Mechanical Operation

a. *Test Equipment and Materials.* None required .

b. *Test Conditions.* Disconnect the line plug from the power source to remove input power to the projector.

c. *Procedure.*

Step No.	Control settings		Test procedure	Performance standard
	Test	Equipment under test		
1	None	Controls may be in any position.	a. Inspect all mechanical assemblies for loose or missing screws and nuts.	a. Screws and nuts must be tight; none missing.
2	None	Controls may be in any position.	a. Inspect line plug, convenience outlet, and all electrical connections in case assembly interior.	c. No evidence of burning or charring; electrical caps are secure; screw connections must be tight; terminal lugs must be secure on posts.
		Controls may be in any position.	b. Inspect line cord for evidence of fraying, wear, breaks, kinks, and burns.	b. No evidence of frays, worn insulation, or breaks, kinks, or burns.

c. Procedure (Continued)

Step NO.	Control settings.		Test procedure	Performance standard
	Test equipment	Equipment under test		
3	None	Controls may be in any position.	<p>a. Operate focus knobs to move focusing arm holster to upper and lower extremes of travel.</p> <p>b. Move lens head assembly about its pivot point.</p>	<p>a. Movement shall be smooth with no slipping of focus knobs on their shafts and no catching of pinion gear on rack of arm and post assembly; travel shall not bring focusing arm holster past either limit stop.</p> <p>b. Lens head assembly shall pivot smoothly without binding or stopping.</p>
4	None	Controls may be in any position.	<p>c. Examine lenses on lens head assembly.</p> <p>b. Examine mirror in lens head assembly by looking through front lens.</p> <p>c. Examine stage glass and fresnel lens of top plate assembly.</p>	<p>a. Lenses shall not be chipped, cracked, broken, fogged, or dirty.</p> <p>b. Mirror shall be clean with no chips, cracks, breaks, or unsilvered portions visible.</p> <p>c. Stage glass and fresnel lens shall be clean, with no chips, cracks, breaks, or fogging.</p>
5	None	Controls may be in any position.	<p>a. Check spring lock button on case assembly.</p> <p>b. Release top plate assembly and swing upward.</p> <p>c. Press bottom of interlock arm toward front of case assembly.</p> <p>d. Press down on top plate assembly.</p>	<p>a. Spring lock button shall secure top plate assembly in closed position; shall operate to release top plate assembly.</p> <p>b. Top plate assembly hinge shall operate smoothly without binding and shall be locked in open position by interlock arm.</p> <p>c. Interlock arm shall release top plate assembly, permitting it to close.</p> <p>d. Spring lock button shall secure top plate assembly by latching hole in top plate assembly.</p>
6	None	Controls may be in any position.	<p>a. Release top plate assembly and swing upward.</p> <p>b. Operate bulb eject lever.</p> <p>c. Return bulb.</p> <p>d. Release interlock arm and close top plate assembly.</p>	<p>a. None</p> <p>b. Bulb shall loosen in socket so that it can be lifted out easily.</p> <p>c. Bulb shall seat securely in its socket.</p> <p>d. None.</p>

4-5. Electrical Tests

b. Test Conditions. Connect the line plug of the projector to the power source.

a. Test Equipment and Materials. Thermometer.

c. Procedure.

Step No.	Control settings		Test procedure	Performance standard
	Test equipment	Equipment under test		
1	None	ON-OFF switch: on	a. Observe projection lamp. b. Place hand over rear louvers of case assembly.	a. Projection lamp shall light. b. Blown air from blower motor shall be felt.
2	None	ON-OFF switch: off	a. Remove fresnel lens from case assembly. b. Place thermometer near thermal switch S3 so that it can be read through stage glass when top plate assembly is closed. c. Close top plate assembly.	c. None. b. None. c. None.
3	Thermometer	ON-OFF switch: on	a. Observe thermometer.	a. Temperature shall not exceed 135° F (57° C).
4	Thermometer	ON-OFF switch: off	a. Observe thermometer and blower motor.	a. Blower motor operates until temperature drops below 131° F (54° C).

4-6. Optical Tests

b. Test Conditions. Connect the line plug of the projector to the power source.

a. Test Equipment and Materials. None

c. Procedure.

Step No.	Controls settings		Test procedure	Performance standard
	Test equipment	Equipment under test		
1	None	ON-OFF switch: on	a. Examine image reflected in front lens of lens head assembly.	a. Image (reflection of projector lamp and lamp reflector in lamp housing assembly) shall be centered in front lens.
2	None	ON-OFF switch : off	a. Observe light projected on projection surface. b. Observe image projected on projection surface.	a. Light shall be projected with same intensity at four comers and center of projection surface. b. Fresnel lens center ring image shall be in center of projection surface; sides of projected image shall be parallel and shall be straight up and down.

CHAPTER 5

DEPOT MAINTENANCE

Section I. GENERAL

5-1. Scope of Maintenance

The maintenance duties assigned to the depot category of maintenance for the projector include the maintenance procedures described for all other levels of maintenance and, in addition, the disassembly and reassembly procedures outlined below.

- a. Disassembly of lens head assembly (para 5-3).
- b. Disassembly of arm and post assembly (para 5-4).

c. Reassembly of arm and post assembly (para 5-5).

d. Reassembly of lens head assembly (para 5-6).

5-2. Tools and Test Equipment Required

The tools and test equipment required for depot maintenance of the projector consists of tools contained in Tool Kit, Photographic Repairman TK-77/GF.

Section II. DISASSEMBLY AND REASSEMBLY

5-3. Disassembly of lens Head Assembly (fig. 5-1)

a. Loosen and remove the two shoulder screws (1) and washers (2) that secure the front lens head subassembly (10) to the bottom lens head subassembly (16).

b. Separate the front lens head subassembly (10) from the bottom lens head subassembly (16).

CAUTION

Hold the mirror (4) and the back mirror mounting bracket (5) during the performance of the following steps to insure that they do not fall and break.

c. Remove the two screws (3) that secure the back mirror mounting bracket (5) to the front lens head subassembly (10).

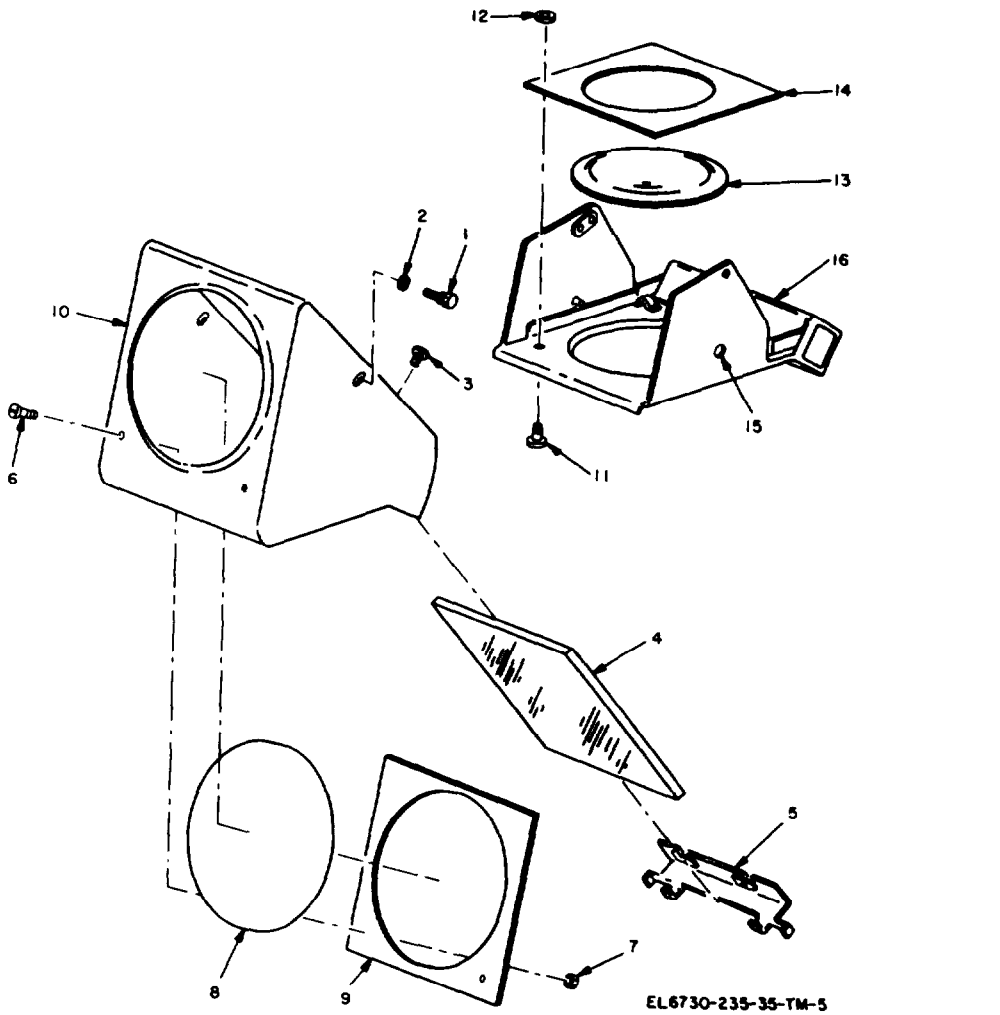
d. Slide the mirror (4) out of the front mirror mounting bracket on the front lens head subassembly and lift the mirror (4) and the back mirror mounting bracket (5) out of the front lens head subassembly (10).

e. Separate the mirror (4) from the back mirror mounting bracket (5).

f. Remove the two screws (6) and nuts (7) that secure the front lens mounting bracket (9) to the front lens head subassembly (10).

g. Slide the front lens mounting bracket (9) and the front lens (8) from under the front mirror mounting bracket on the front lens head subassembly (10).

h. Separate the front lens (8) from the front lens mounting bracket (9).



- | | |
|----------------------------------|--|
| 1. Shoulder screws A1H1 | 9. Front lens mounting bracket A1MP10 |
| 2. Washers A1H2 | 10. Front lens head subassembly A1MP4 |
| 3. Screws A1MP2H1 | 11. Screws A1MP6H1 |
| 4. Mirror A1MP1 | 12. Nuts A1MP6H2 |
| 5. Mirror mounting bracket A1MP2 | 13. Bottom lens A1MP6 |
| 6. Screws A1MP10H1 | 14. Bottom lens mounting bracket A1MP5 |
| 7. Nuts A1MP10H2 | 16. Nylon studs A1MP9 |
| 8. Front lens A1MP3 | 16. Bottom lens head subassembly A1MP8 |

Figure 5-1. Lens head assembly, exploded view.

i. Remove the two screws (11) and nuts (12) that secure the bottom lens mounting bracket (14) to the bottom lens head subassembly (16).

j. Lift the bottom lens mounting bracket (14) and the bottom lens (13) out of the bottom lens head subassembly (16).

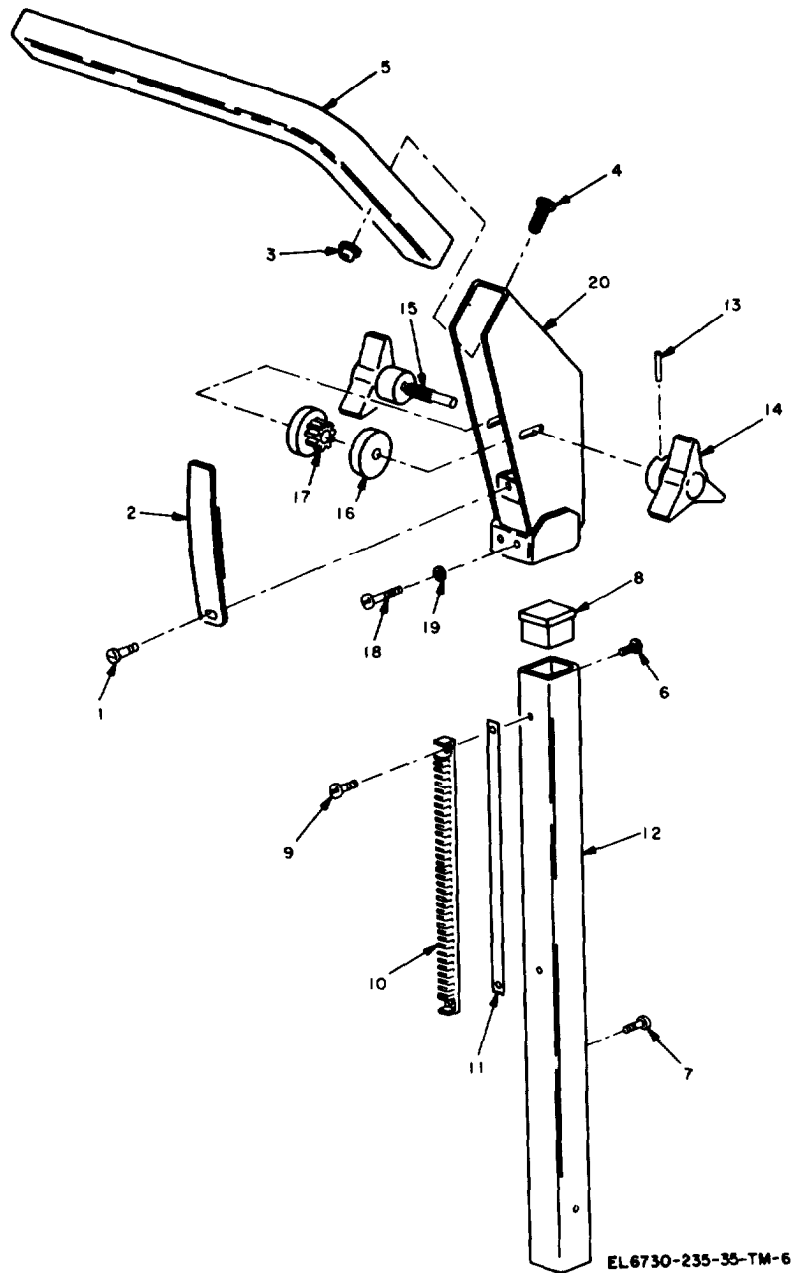
k. Separate the bottom lens (13) from the bottom lens mounting bracket (14).

l. Push the two nylon studs (15) out of the bottom lens head subassembly (16).

5-4. Disassembly of Arm and Post Assnly (fig. 5-2)

a. Remove the screw (1) that secures the pinion tension spring (2) to the bracket on the focusing arm holster (20).

b. Remove the pinion tension spring (2).



- | | | |
|--------------------------------|-----------------------------------|---------------------------------|
| 1. Screw A2MP1H1 | 8. Post cap A2MP3 | 15. Pinion shaft A2MP7 |
| 2. Pinion tension spring APMP1 | 9. Screws A2MP4H1 | 16. Pinion spacer A2MP8 |
| 3. Nuts A2MP2H2 | 10. Rack A2MP4 | 17. Pinion gear A2MP9 |
| 4. Screws A2MP2H1 | 11. Shim A2MP11 | 18. Screws A2H3 |
| 5. Focusing arm A2MP2 | 12. Post A2MP5 | 19. Stopnuts A2H4 |
| 6. Top post stopscrew A2H2 | 13. Setscrews (p/o A2MP6, A2MP11) | 20. Focusing arm holster APMP10 |
| 7. Bottom post stopscrew A2H2 | 14. Focus knobs A2MP6, A2MP11 | |

Figure 5-2. Arm and post assembly, exploded view.

c. Remove the two screws (3) and nuts (4) that secure the focusing arm (5) to the focusing arm holster (20).

d. Slide the focusing arm (5) out of the focusing arm holster (20).

e. Remove the top post stopscrew (6) and the bottom post stopscrew (7).

f. Pry the post cap (8) out of the post (12).

g. Turn the focus knobs (15) to raise the focusing arm holster (20) until the pinion gear (17) in the focusing arm holster (20) is free of the rack (10).

h. Slide the focusing arm holster (20) off the post (12).

i. Remove the two screws (9) that secure the rack (10) and shim (11).

j. Remove the rack (10) and shim (11) from the post (12).

k. Loosen the setscrews (13) that secure the focus knobs (14) to the pinion shaft (15) using a hexagonal (Allen head) wrench.

l. Slide the focus knobs (14) off the pinion shaft (15).

m. Tap the pinion shaft (15) through the pinion spacer (16), the pinion gear (17) and the focusing arm holster (20).

n. Remove the pinion spacer (16) and pinion gear (17) from the focusing arm holster (20).

o. Remove the two screws (18) and stopnuts (19) from the focusing arm antisag device on the focusing arm holster (20).

5-5. Reassembly of Arm and Post Assembly (fig. 5-2)

a. Install the two screws (18) and the stopnuts (19) on the antisag device of the focusing arm holster (20).

b. Place the pinion spacer (16) and the pinion gear (17) together and position them in the focusing arm holster (20) so that their holes line up

with the appropriate slots on the focusing arm holster.

c. Tap or press the pinion shaft (15) through the slots on the focusing arm holster (2) and the holes in the pinion spacer unit (16) and pinion gear (17) so that equal portions of the pinion shaft (14) extend on either side of the focusing arm holster (20).

d. Slide the focus knobs (14) over the exposed ends of the pinion shaft (15).

e. Secure the focus knobs (14) by tightening the setscrews of the knobs with a hexagonal (Allen head) wrench.

f. Secure the rack (10) and the shim (11) to the post (12) using the two screws (9).

g. Slide the focusing arm holster (20) down onto the post (12) far enough to allow the teeth of the pinion gear (17) to engage the teeth of the rack (10)-

h. Press the post cap (8) into the top of the post (12) with the hole in the post cap lined up with the corresponding hole in the post (12).

i. Install the post top stopscrew (6) and the post bottom stop-screw (7) in the post (12).

j. Slide the focusing arm (5) into the focusing arm holster (20) and secure it with the two screws (3) and the two nuts (4).

k. Place the unslotted end of the pinion tension spring (2) under the end of the focusing arm (5) that is in the focusing arm holster (20).

WARNING

Be careful when compressing the pinion tension spring that it is not allowed to release suddenly. The springing action of this part can drive it with sufficient force to cause a painful injury.

1. Place the screw (1) into the slot of the pinion tension spring (2) and then press the end of the pinion tension spring toward the bracket on the focusing arm holster (20) until the screw (1) mates with the threaded hole. Tighten the screw.

5-6. Reassembly of lens Head Assembly (fig. 5-1)

- a. Press the two nylon studs (15) into the holes in bottom lens head subassembly (16).
- b. Slide the bottom lens (13) into the bottom lens mounting bracket (14).
- c. Install the bottom lens mounting bracket (14) on the bottom lens head subassembly (16) using the two screws (11).
- d. Slide one end of the front lens (8) into the front lens mounting bracket (9).
- e. Slide the other end of the front lens (8) under the front mirror holder of the front lens head subassembly (10).
- f. Secure the front lens mounting bracket (9) to the front lens head subassembly (10) using the two screws (6) and the two nuts (7).
- g. Slide one end of the mirror (4) into the mirror mounting bracket (5).
- h. Slide the other end of the mirror (4) into the front mirror holder on the front lens head subassembly (10).
- i. Secure the mirror mounting bracket (5) to the front lens head subassembly (10) using the two screws (3).
- j. Slide the front lens head subassembly (10) over the bottom lens head subassembly (16) so that the holes in both line up.
- k. Install the two shoulder screws (1) and washers (2) in the joined front lens head subassembly (10) and the bottom lens head subassembly (16).

CHAPTER 6

DEPOT OVERHAUL STANDARDS

6-1. Applicability of Depot Overhaul Standards

Depot overhaul standards are designed to measure the performance capability of a repaired projector. A projector that is to be returned to stock should meet the standards specified for depot overhaul.

6-2. Test Requirements

The test requirements for depot overhaul standards are the same as the direct and general support testing procedure performance standards outlined in chapter 4. A projector that is tested and meets those performance standards (paras 4-4 through 4-6) should be considered as having passed the depot overhaul standards for the projector.

APPENDIX A

REFERENCES

The following publications contain information applicable to the direct support, general support, and depot maintenance of Projector, Still Picture, PH-637D/PFP:

DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (Types 7,8, and 9), Supply Bulletins, and Lubrication Orders
DA Pam 310-7	U.S. Army Equipment Index of Modification Work Orders
TB SIG 355-1	Depot Inspection Standard for Repaired Signal Equipment
TB SIG 355-2	Depot Inspection Standard for Refinished Repaired Signal Equipment
TB 746-10	Field Instructions for Painting and Preserving Electronic Command Equipment
TM 11-6625-203-12	Operator and Organizational Maintenance: Multimeter AN/URM-105, including Multimeter ME-77/U.
TM 11-6730-235-12	Operator and Organizational Maintenance Manual: Projector, Still Picture PH-637D/PFP.

APPENDIX B
 DS, GS, AND DEPOT MAINTENANCE REPAIR PARTS

 AND SPECIAL TOOLS

Section I. INTRODUCTION

B-1. Scope

This appendix lists repair parts and special tools required for the performance of direct support, general support, and depot maintenance of the PH-637D/PFP.

B-2. General

This repair parts and special tools list is divided into the following sections:

a. Repair Parts for Direct Support, General Support, and Depot Maintenance - Section II. A list of repair parts authorized for the performance of maintenance at the direct support, general support, and depot level.

b. Special Tools, Test and Support Equipment for Direct Support, General Support, and Depot Maintenance - Section III. Not applicable.

c. Index-Federal Stock Number Cross-Reference to Figure and Item Number or Reference Designation - Section IV. A list of Federal Stock numbers in ascending numerical sequence followed by a list of reference numbers in ascending alphanumeric sequence, cross-referenced to figure number and reference designation.

d. Index-Reference Designation Cross-Reference to Page Number - Section V. A list of reference designations cross-referenced to page numbers.

B-3. Explanation of Columns

The following provides an explanation of columns in the tabular lists:

a. Source, Maintenance, and Recoverability Codes (SMR), Column 1.

(1) Source codes indicate the selection status and source for the listed item. Source codes used are-

code	Explanation
P -	Repair parts which are stocked in or supplied from the GSA/DSA or Army supply system and authorized for use at indicated maintenance categories.
P2-	Repair parts which are procured and stocked for insurance purposes because the combat or military essentiality of the end item dictates that a minimum quantity be available in the supply system.
P9-	Assigned to items which are NSA design controlled: unique repair parts, special tools, test, measuring and diagnostic equipment, which are stocked and supplied by the Army COMSEC logistic system, and which are not subject to the provisions of AR 380-41.
P10-	Assigned to items which are NSA design controlled: special tools, test, measuring and diagnostic equipment for COMSEC support, which are accountable under the provisions of AR 380-41, and which are stocked and supplied by the Army COMSEC logistic system.
M-	Repair parts which are not procured or stocked, but are to be manufactured at indicated maintenance levels.
A -	Assemblies which are not procured or stocked as such, but are made up of two or more units. Such component units carry individual stock numbers and descriptions, are procured and stocked separately, and can be assembled to form the required assembly at indicated maintenance categories.
x -	Parts and assemblies which are not procured or stocked and the mortality of which normally is below that of the applicable end item or

Code	Explanation
	component. The failure of such part or assembly should result in retirement of the end item from the supply system.
X1-	Repair parts which are not procured or stocked. The requirement for such items will be filled by use of the next higher assembly or component.
X2-	Repair parts which are not stocked. The indicated maintenance category requiring such repair parts will attempt to obtain same through cannibalization. Where such repair parts are not obtainable through cannibalization, requirements will be requisitioned, with accompanying justification, through normal supply channels.
G-	Major assemblies that are procured with PEMA funds for initial issue only as exchange assemblies at DSU and GSU level. These assemblies will not be stocked above DS and GS level or returned to depot supply level.

(2) Maintenance codes indicate the lowest category of maintenance authorized to install the listed item. The maintenance level codes are -

Code	Explanation
O	Organizational maintenance
F	Direct support maintenance
H	General support maintenance
D	Depot Maintenance

(3) Recoverability codes indicate whether un-serviceable items should be returned for recovery or salvage. Items not coded are expendable. Recoverability codes are -

code	Explanation
R-	Repair parts and assemblies that are economically repairable at DSU and GSU activities and are normally furnished by supply on an exchange basis.
S-	Repair parts and assemblies which are economically repairable at DSU and GSU activities and which normally are furnished by supply on an exchange basis. When items are determined by a GSU to be uneconomically repairable, they will be evacuated to a depot for evaluation and analysis before final disposition.
T-	High-dollar value recoverable repair parts which are subject to special handling and are issued on an exchange basis. Such repair parts normally are repaired or overhauled at depot maintenance activities.
U-	Repair parts specifically selected for salvage by reclamation units because of precious metal content, critical materials, or high-dollar value reusable casings or castings.

B-2

b. Federal Stock Number, Column 2. This column indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

c. Description, Column 3. This column indicates the Federal item name and any additional description of the item required. The index number has been included as part of the description to aid in the location of "same as" items. A part number, or other reference number, is followed by the applicable five-digit Federal supply code for manufacturers in parentheses.

d. Unit of Measure (U/M), Column 4. A 2-character alphabetic abbreviation indicating the amount or quantity of the item upon which the allowances are based, e.g., ft, ea, pr, etc.

e. Quantity Incorporated in Unit, Column 5. This column indicates the quantity of the item used in the PH-637D/PFP. Subsequent appearances of the same item in the same assembly are indicated by the letters "REF."

f. 30-Day DS/GS Maintenance Allowances, Columns 6 and 7.

NOTE

Allowances in GS column are for GS maintenance only.

(1) The allowance columns are divided into three subcolumns. Indicated in each subcolumn, opposite the first appearance of each item, is the total quantity of items authorized for the number of equipments supported. Subsequent appearances of the same item will have the letters "REF" in the applicable allowance columns. Items authorized for use as required, but not for initial stockage, are identified with an asterisk in the allowance column.

(2) The quantitative allowances for DS/GS levels of maintenance will represent initial stockage for a 30day period for the number of equipments supported.

(3) Determination of the total quantity of parts required for maintenance of more than 100 of these equipments can be accomplished by converting the equipment quantity to a decimal factor by placing a decimal point before the next

to last digit of the number to indicate hundredths, and multiplying the decimal factor by the parts quantity authorized in the 51-100 allowance column. *Example:* authorized allowance for 51-100 equipments is 40; for 150 equipments multiply 40 by 1.50 or 60 parts required.

g. One-Year Allowances per 100 Equipments/Contingency Planning Purposes, Column 8. This column indicates opposite the first appearance of each item the total quantity required for distribution and contingency planning purposes. The range of items indicates total quantities of **all** authorized items required to provide for adequate support of 100 equipment for 1 year.

h. Depot Maintenance Allowance per 100 Equipments, Column 9. This column indicates opposite the first appearance of each item the total quantity authorized for depot maintenance of 100 equipments. Subsequent appearances of the same item will have the letters "REF" in the allowance column. Items authorized for use as required but not for initial **stockage** are identified with an asterisk in the allowance column.

i. Illustrations, Column 10. This column is divided as follows:

(1) *Figure number, Column 10a.* Indicates the figure number in which the item is shown.

(2) *Item number or reference designation, Column 10b.* Indicates the reference designation used to identify the item in the illustration.

B-4. Special Information

Repair parts mortality is computed from failure rates derived from experience factors with the individual parts in a variety of equipments. Variations in the specific application and periods of use of electronics equipment, the fragility of electronic piece parts, plus intangible material and quality factors intrinsic to the manufacture of electronic parts, do not permit mortality to be based on hours of end item use. However, long periods of continuous use under adverse conditions are likely to increase repair parts mortality.

B-5. Location of Repair Parts

a. This appendix contains two cross-reference indexes (secs. IV and V) to be used to locate a repair part when either the Federal stock number,

reference number (manufacturer's part number), or reference designation is known. The first column in each index is prepared in numerical and/or alphanumeric sequence in ascending order. Where a Federal stock number is not listed, refer to the reference number (manufacturer's part number) immediately following the Federal Stock number.

b. When the Federal stock number is known, follow the procedures given in (1), and (2) below.

(1) Refer to the index of Federal stock numbers (sec. IV) and locate the Federal stock number. The FSN is cross-referenced to the applicable figure and reference designation.

(2) When the reference designation is determined, refer to the reference designation index (sec. V). The reference designations are listed in alphanumeric ascending order and are cross-referenced to the page number on which they appear in the repair parts list (sec. II). Refer to the page number noted in the index and locate the reference designation (col. 10b). If the Description column indicates that it is a "same as" item, locate the first appearance of the item by the index number, referenced.

c. When the reference designation is known, follow the procedure given in b (2) above.

d. When neither the FSN nor reference designation is known, identify the part in the illustration and follow directions given in c above, or scrutinize column 3 of the repair parts list.

B-6. Federal Supply Code for Manufacturers

Code	Explanation
06247. . . .	General Electric Co., Lamp Metals and Components Dept.
08863. . . .	Nylomatic Corp.
15329. . . .	Salisbury Metal Products Co.
28520. . . .	Heyman Mfg. Co.
31535. . . .	Buhl Projector Co, Inc.
73586....	Circle F. Industries
77122. . . .	Palnut Co.
78537....	Star Porcelain Co.
91929. . . .	Honeywell, Inc., Micro Switch Division
96906. . . .	Military Standards

SECTION II

REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION USABLE ON REFERENCE NUMBER & MFR. CODE CODE		(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE			(7) 30-DAY GS MAINT ALLOWANCE			(8) 1 YR ALW PER EQUIP CNTGCTY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS		
						(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION	
	6730-493-2984	A001	PROJECTOR, STILL PICTURE PH-637D/PPF (This item is nonexpendable)													
P-F-S	6730-350-4177	A002	ASSEMBLY, HEAD, LENS: 80-8 (31535)	ASSY	1	*	*	2	*	2	2	8	5	5-1	A1	
P-F	5305-043-6532	A003	SCREW, MACHINE, BND HD 8/32x3/8: MS 35221-43 (96906)	EA	2	*	*	2	*	*	2	8	3	3-2	H1	
X		A004	SCREW, SHOULDER	EA	2										A1H1	
X		A005	WASHER, BOW, 1/4	EA	2										A1H2	
X1		A006	BRACKET, MOUNTING, MIRROR 80-3A (31535)	EA	1										A1MP2	
P-H	5305-043-6501	A007	SCREW, MACHINE, BND HD, 6/32X5/16: MS 35221-27 (96906)	EA	2				*	*	2	6	3	5-1	A1MP2H1	
X1		A008	MIRROR: 80-3 (31535)	EA	1										A1MP1	
X1		A009	HOLDER, LENS FRONT: 80-6A (31535)	EA	1										A1MP2	
P-H	5305-019-3254	A010	SCREW, MACHINE, BND, HD, 6/32X3/16: MS 35221-25 (96906)	EA	2				*	*	2	6	3	5-1	A1MP2H1	
X		A010A	NUT, LOCK HEXAGONAL, STEEL, 6/32:	EA	2										A1MP2H2	
X1		A011	LENS, FRONT: 80-1 (31535)	EA	1										A1MP3	
X1		A012	HEAD, LENS, FRONT: 80-6 (31535)	EA	1										A1MP4	
X1		A013	HOLDER, LENS, BOTTOM: 80-7A (31535)	EA	1										A1MP5	
P-H	5305-043-6502	A014	SCREW, MACHINE, BND HD, 6/32X3/8: MS 35221-28 (96906)	EA	2				*	*	2	6	3	5-1	A1MP5H1	
X		A015	NUT, LOCK, HEXAGONAL, STEEL, 6/32: SAME AS A010a	EA	2										A1MP5H2	
X1		A016	LENS, BOTTOM: 80-2 (31535)	EA	1										A1MP6	
X		A017	STUD, NYLON, RHD, 6/32X1/2	EA	1										A1MP7	
X		A017A	STUD, NYLON, RHD, 6/32X1/2: SME AS A017	EA	1										A1MP9	
X1		A018	HEAD, LENS, BOTTOM: 80-7 (31535)	EA	1										A1MP8	
P-H		A019	ASSEMBLY, ABM AND POST 80-9 (31535)	ASSY	1				*	*	*	5	2		A2	
P-H	5305-043-6532	A020	SCREW, MACHINE, BND HD 8/32X3/8: SAME AS A003	EA	2				REF	REF	REF	REF	REF		A2H1	
X		A021	SPRING, TENSION, PINION	EA	1										A2MP1	
P-H	5305-043-6532	A022	SCREW, MACHINE, BND HD, 8/32X3/8: SAME AS A003	EA	1				REF	REF	REF	REF	REF		A2MP1H1	
X		A023	ARM, FOCUSING	EA	1										A2MP2	
P-H	5305-043-6532	A024	SCREW, MACHINE, BND HD 8/32X3/8: SAME AS A003	EA	2				REF	REF	REF	REF	REF		A2MP2H1	
P-H	5310	A025	NUT, HEXAGONAL, ELAS STOP, 8/32: MS 20365B832A (96906)	EA	2				*	*	2	6	3	5-2	A2MP2H2	
P-H	5305-720-7763	A026	SCREW, MACHINE, FILH, 8/32X3/16: MS 35265-40 (96906)	EA	2				*	*	2	6	3	5-2	A2H2	
X		A027	CAP, POST	EA	1										A2MP3	

SECTION II

REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION USABLE ON REFERENCE NUMBER & MFR. CODE CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE			(7) 30-DAY GS MAINT ALLOWANCE			(8) 1 YR ALW PER EQUIP CNTGCTY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS	
					(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
					X		A028 RACK, GEAR	EA	1					
X		A029 SHIM, RACK, GEAR	EA	1										A2MP11
P-F	5305-043-6476	A030 SCREW, MACHINE, BND HD, 4/40X3/8; MS 33221-15 (96906)	EA	2	*	*	1	*	*	1	8	3	5-2	A2MP4H1
X		A031 POST	EA	1										A2MP5
P-O		A032 KNOB, FOCUS: 80-13 (31535)	EA	2	*	2	2	*	2	2	16	8	5-2	A2MP6
P-O	5355-237-4053	A032A KNOB, FOCUS: SAME AS A032	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	5-2	A2MP11
X		A033 SHAFT, PINION	EA	1										A2MP7
X	5355-237-4053	A034 SPACER, PINION	EA	1										A2MP8
X		A035 GEAR, PINION	EA	1										A2MP9
P-F		A036 SCREW, MACHINE, NYL, RH, 6/36-1/2; MS 18212-30 (96909)	EA	2	*	*	2	*	*	2	8	3	5-2	A2H3
P-F	5305-582-6151	A037 NUT, HEXAGONAL, STEEL, 6/32; MS 35649-832A (96909)	EA	2	*	*	2	*	*	2	8	3	5-2	A2H4
X		A038 HOLSTER, ARM, FOCUSING	EA	1										A2MP10
X		A039 ASSEMBLY, PLATE, TOP	ASSY	1										A3
X		A040 ARM, INTERLOCK	EA	1										A3MP1
P-H		A041 RIVET, ALUMINUM, RDH, 3/16X1/2; MS 20470A6-8 (96906)	EA	1				*	*	*	5	2	3-4	A3MP1H1
X		A042 WASHER, RETAINER, STEEL, 5/16	EA	1										A3MP1H2
X		A043 CLIP, GLASS, COVER	EA	2										A3MP2
X		A043A CLIP, GLASS, COVER: SAME AS A043	EA	REF										A3MP8
P-H		A044 SCREW, MACHINE, BND HD, 6/32X3/8; SAME AS A014	EA	2				REF	REF	REF	REF	REF		A3MP2H1
P-O		A045 GLASS, STAGE: 80-29 (31535)	EA	1	*	*	2	*	2	2	12	5	3-4	A3MP3
X	5305-043-6502	A046 HOLDER, LENS, FRESNEL	EA	1										A3MP4
P-H		A047 SCREW, MACHINE, BND HD 4/40X3/8; SAME AS A030	EA	2				REF	REF	REF	REF	REF		A3MP4H1
P-F	6730-223-7302	A048 NUT, HEXAGONAL, STEEL, 4/40; MS 35649-242 (96909)	EA	2	*	*	1	*	*	1	8	3	3-4	A3MP4H2
P-F		A049 LENS, FRESNEL: 80-28 (31535)	EA	1	*	2	2	*	2	2	16	10	3-4	A3MP5
P-F	5305-043-6476	A050 SCREW, MACHINE, BND HD, 4/40X3/8; SAME AS A030	EA	1	REF	REF	REF	REF	REF	REF	REF	REF		A3MP5H1
P-F		A051 NUT, HEXAGONAL, STEEL, 4/40; SAME AS A048	EA	1	REF	REF	REF	REF	REF	REF	REF	REF		A3MP5H2
X	9739	A052 CATCH, FRESNEL	EA	1										A3MP6
X		A053 NUT, LOCK, STEEL, 6/32	EA	2										A3MPH1
X	6760-402-2293	A054 PLATE, TOP	EA	1										A3MP7
M-H		A055 COVER, SWITCH, INTERLOCK: 80-50 (31535)	EA	1										MP1
P-H	5305-043-6476	A056 SCREW, MET, SH, BND HD, B, N06, 1/4; MS 24621-15 (96906)	EA	2				*	*	2	6	3	3-5	MP1H1
P-H	5310-934-9739	A057 NUT, CAP, 8/32; MS 24679-22 (96909)	EA	1				*	*	*	5	2	3-5	A3MP1H3
	5305-844-9888													
	5310-995-2723													

SECTION II

REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION USABLE ON REFERENCE NUMBER & MFR. CODE CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE			(7) 30-DAY GS MAINT ALLOWANCE			(8) 1 YR ALW PER EQUIP CNTGCT	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS	
					(a)	(b)	©	(a)	(b)	©			(a)	(b)
					1-20	21-50	51-100	1-20	21-50	51-100			FIG NO.	ITEM NO. OR REFERENCE DESIGNATION
P-F	5930-412-9261	A058 SWITCH, INTERLOCK: 80-51 (91929)	EA	1	*	*	2	*	2	2	10	5	3-5	S1
P-F	5930-413-4409	A059 SWITCH, ON-OFF, DPDT 80-31 (31535)	EA	1	*	*	2	*	2	2	10	5	3-5	S2
P-F	5305-984-4983	A060 SCREW, MACHINE, BND HD 6/32X1/4: MS 35221-26 (96906)	EA	3	*	*	2	*	*	2	8	3	3-5	S2H1
P-F	5305-984-4983	A061 SCREW, MACHINE, BND HD, 6/32X1/4: SAME AS A060	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF		H2
X		A062 OUTLET, CONVENIENCE	EA	1										J1
X		A063 BUSHING, RELIEF, STRAIN	EA	1										MP2
M-F	6730	A064 CORD, POWER: 80-32 (31535)	EA	1										W1
M-H		A065 STRAP, MOUNTING, HOUSING, LAMP: 80-36 (31535)	EA	2										MP3
M-H		A065a STRAP, MOUNTING, HOUSING LAMP: SAME AS A065	EA	REF										MP5
P-H	5305-221-6116	A066 SCREW, MACH, BND HD, 6/32X1-3/8: MS51957-125	EA	4				*	*	2	6	3	3-5	MP3H1
		A067 WASHER, ADJUSTING, NUMBER 6	EA	32										MP3H3
		A068 BEAD, INSULATING	EA	4										MP3H4
P-H	6730-223-7305	A069 ASSEMBLY, HOUSING., LAMP: 80-49 (31535)	ASSY	1				*	*	*	5	2	3-5	A4
P-O	6240-402-2234	A070 LAMP, PJTR, QTZHALOGEN CY, 600W: 120DYS (06247)	EA	1	4	11	20	6	5	5	242	200	3-5	A411
X		A071 REFLECTOR, SPHERICAL	EA	1										A4MP1
P-H	5305-984-4983	A072 SCREW, MACHINE, BND HD, 6/32X1/4: SAME AS A060	EA	1				REF	REF	REF	REF	REF		A4MP1H1
X		A073 NUT, LOCK, HEXAGONAL, STEEL, 6/32: AS A010A	EA	1										A4MP1H2
X		A074 HOLDER, RELECTOR	EA	1										A4MP2
P-H	5305-043-6510	A075 SCREW, MACHINE, BND HD, 6/32X1/2: MS 35221-36 (96906)	EA	2				*	*	2	6	3	3-5	A4MP2H1
X		A076 SPRING, MOUNTING, REFLECTOR	EA	3										A4MP3
P-F	5930	A077 SWITCH, THERMAL: 80-38 (31535)	EA	1	*	2	2	*	2	2	11	6	3-5	A4S3
P-F	5305-043-6478	A078 SCREW, MACHINE, BND HD, 4/40X7/16: MS 35221-17 (96906)	EA	2	*	*	2	*	*	2	8	3	3-5	A4S3H1
P-F	5305-934-9739	A079 NUT, HEXAGONAL, STEEL, 4/40: SAME AS A048	EA	2	REF	REF	REF	REF	REF	REF	REF	REF		A4S3H2
X		A080 HOLDER, LAMP	EA	1										A4MP4
P-H	5305-043-6502	A081 SCREW, MACHINE, FILH, 6/32X3/8: SAME AS A014	EA	2				REF	REF	REF	REF	REF		A4MP4H1
X		A082 BRACKET, MOUNTING,LAMP	EA	1										A4MP5
P-H	5305-984-4983	A083 SCREW, MACHINE, BND HD 6/32X1/4: SAME AS A060	EA	2				REF	REF	REF	REF	REF		A4MP5H1
P-H	5305-934-9739	A084 NUT, HEXAGONAL, STEEL, 4/40: SAME AS A048	EA	2				REF	REF	REF	REF	REF		A4MP5H2
X		A085 HOUSING, LAMP	EA	1										A4MP6
M-H		A086 BRACKET, MOUNTING, MOTOR: 80-47 (31535)	EA	1										MP4

SECTION II

REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE

(1) SMR COD E	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE			(7) 30-DAY GS MAINT ALLOWANCE			(8) 1 YR ALW PER EQUIP CNTGCV	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS		
					(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION	
															USABLE ON CODE
P-H	5310	A087	NUT, HEXAGONAL, ELAS STOP, 8/32: SAME AS A025	EA	2				REF	REF	REF	REF	REF		MP4H2
P-H	6105-351-3112	A088	ASSEMBLY, MOTOR AND HARNESS 80-45 (31535)	EA	1				*	*	*	5	2	3-5	B1
P-H	5305-411-0682	A089	SCREW, MACH, BND HD, 8/32X1-1/8, MS 51957 (96906)	EA	2				*	*	2	6	3	3-5	B1H1
P-H	5310-836-7179	A090	NUT, HEXAGONAL, ELAS STOP, 6/32: 20365-632a (96906)	EA	2				*	*	2	6	3	3-5	B1H2
XI		A091	BLADE, FAN, CLOCKWISE, 5 INCH, 80-46 (31535)	EA	1										MP5
X		A092	ASSEMBLY, CASE	ASSY	1										A6
P-F	5340	A093	BUMPER, RUBBER: 80-34 (15329)	EA	4	*	2	2	*	2	2	11	6	3-5	A6MP1
P-F	5340	A093A	BUMPER, RUBBER: SAME AS A093	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-5	A6MP5
P-F	5340	A093B	BUMPER, RUBBER: SAME AS A093	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-5	A6MP6
P-F	5340	A093C	BUMPER, RUBBER: SAME AS A093	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF		A6MP7
P-F	5305-043-6510	A094	SCREW, MACHINE, BND HD, 6/32X1/2: SAME AS A075	EA	4				REF	REF	REF	REF	REF	3-5	A6MP1H1
X		A095	BUTTON, LOCK SPRING	EA	1										A6MP2
P-F	5305-043-6530	A095A	SCREW, MACHINE, BND HD, 8/32X1/4: MS 35221-41 (96906)	EA	1	*	*	2	*	*	2	8	3	3-2	A6MP2H1
X		A096	SPRING, LOCK	EA	1										A6MP3
P-F	5310	A097	NUT, HEXAGONAL, STEEL, 6/32: SAME AS A037	EA	2	REF	REF	REF	REF	REF	REF	REF	REF		A6MP3H1
X		A098	CASE	EA	1										A6MP4
X		A099	ADAPTER, PLUG, LINE, 3 TO 2	EA	1										CP1
P-H		A100	ASSEMBLY, ATTACHMENT, ROLL: 615-82 (31535)	ASSY	2				*	*	*	5	2		A7
M-H		A100A	ASSEMBLY, ATTACHMENT ROLL: SAME AS A100	ASSY	REF										A8
X		A101	SCREW, THUMB, KNURLED 10-24	EA	2										A7H1
P-H	5310-515-9267	A102	NUT, WING 10-24: MS 35427-37 (96906)	EA	2				*	2	2	8	5	3-2	A7H2
X		A102A	WASHER, RUBBER	EA	2										A7H3
P-O	6760-350-9467	A103	SPOOL, ATTACHMENT, ROLL: 615-82-1 (31535)	EA	1	*	2	2	*	2	2	19	10	3-3	A7MP1
M-H		A104	HANDLE, CRANK: 615-82-2 (31535)	EA	1				*	*	2	6	3	3-3	A7MP2H1
P-H	5305	A105	SCREW, SLF TPG, BND HD TYPE B, 1/2: MS 24621 (96906)	EA	1										
M-H		A106	PLATE, END 615-82-4 (31535)	EA	2										A7MP3
M-H		A106A	PLATE, END: SAME AS A106	EA	REF										A7MP7
P-H	5305	A107	SCREW, SLF TPG, FILH, TYPE B, 3/8: AN 530 (96906)	EA	1				*	*	2	6	3	3-3	A7MP4H1
X		A108	SPRING, HELICAL	EA	1										A7MP5
M-H		A109	BRACKET, ATTACHMENT, ROLL: 615-82-7 (31535)	EA	1										A7MP6

SECTION II

REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION USABLE ON REFERENCE NUMBER & MFR. CODE CODE		(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE			(7) 30-DAY GS MAINT ALLOWANCE			(8) 1 YR ALW PER EQUIP CNTGCTY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS	
						(a)	(b)	©	(a)	(b)	©			(a)	(b)
						1-20	21-50	51-100	1-20	21-50	51-100			FIG NO.	ITEM NO. OR REFERENCE DESIGNATION
P-O	6730-401-9631	A110	ROLL, ACETATE, 100-FOOT: ACC-1 (31535)	EA	1	*	*	2	*	*	2	8	3		
P-O	6640-393-2090	A111	TISSUE, LENS, 3X5: 33768 (25734)	EA	1	*	*	*	*	*	*	5	2		
P-O		A113	CASE, CARRYING, BULL MODEL 80 OVERHEAD PROJECTOR: ACC-2 (31535)	EA	1	*	*	*	*	*	2	8	3		

SECTION IV

INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE

TO FIGURE AND ITEM NUMBER OR REFERENCE DESIGNATION

FEDERAL STOCK NUMBER	FIGURE NUMBER	ITEM NUMBER OR REF. DESIGNATION	REFERENCE NO.	MFGRS. CODE	FIG. NO.	REF. DESIGNATION OR ITEM NO.
5305-019-3254	5-1	A1MP2H1	AN530	96906	3-3	A7MP4H1
5305-043-6476	5-2	A2MP4H1	MS20365B832A	96906	5-2	A2MP2H2
5305-043-6476		A3MP4H1	MS20365B832A	96906		MP4H2
5305-043-6476		A3MP5H1	MS20470A6-8	96906	3-4	A3MP1H1
5305-043-6478	3-5	A4S3H1	MS24621	96906	3-3	A7MP2H1
5305-043-6501	5-1	A1MP2H1	MS35649-832A	96906	5-2	A2H4
5305-043-6502	5-1	A1MP5H1	MS35649-832A	96906		A6MP3H1
5305-043-6502		A3MP2H1	615-82	31535		A7
5305-043-6502		A4MP4H1	615-82	31535		A8
5305-043-6510	3-5	A4MP2H1	615-82-2	31535		A7MP2
5305-043-6510	3-5	A6MP1H1	615-82-4	31535		A7MP3
5305-043-6530	3-2	A6MP2H1	615-82-4	31535		A7MP7
5305-043-6532	3-2	H1	615-82-7	31535		A7MP6
5305-043-6532		A2H1	80-1	31535		A1MP3
5305-043-6532		A2MP1H1	80-2	31535		A1MP6
5305-043-6532		A2MP2H1	80-3	31535		A1MP1
5305-221-6116	3-5	MP3H1	80-3A	31535		A1MP2
5305-411-0682	3-5	B1H1	80-6	31535		A1MP4
5305-582-6151	5-2	A2H3	80-6A	31535		A1MP2
5305-720-7763	5-2	A2H2	80-7	31535		A1MP8
5305-844-9888	3-5	MP1H1	80-7A	31535		A1MP5
5305-984-4983		H2	80-32	31535		W1
5305-984-4983	3-5	S2H1	80-34	15329	3-5	A6MP1
5305-984-4983		A4MP1H1	80-34	15329		A6MP5
5305-984-4983		A4MP5H1	80-34	15329	3-5	A6MP6
5310-515-9267	3-2	A7H2	80-34	15329		A6MP7
5310-836-7179	3-5	B1H2	80-36	31535		MP3
5310-934-9739	3-4	A3MP4H2	80-36	31535		MP5
5310-934-9739		A3MP5H2	80-38	82647		A4S3
5310-934-9739		A4MP5H2	80-46	31535		MP5
5305-934-9739		A4S3H2	80-47	31535		MP4
5310-995-2723	3-5	A3MP1H3	80-50	31535		MP1
5355-237-4053	5-2	A2MP6				
5355-237-4053	5-2	A2MP11				
5930-412-9261	3-5	S1				
5930-413-4409	3-5	S2				
6105-351-3112	3-5	B1				
6240-402-2234	3-5	A411				
6730-223-7302	3-4	A3MP3				
6730-223-7305	3-5	A4				
6730-350-4177	5-1	A1				
6760-350-9467	3-3	A7MP1				
6760-402-2293	3-4	A3MP5				

SECTION V

INDEX-REFERENCE DESIGNATION

CROSS REFERENCE TO PAGE NUMBER

REFERENCE DESIGNATION	PAGE NUMBER	REFERENCE DESIGNATION	PAGE NUMBER.	REFERENCE DESIGNATION	PAGE NUMBER.
A411	B-6	AMP5	B-5	A7	B-7
B1	B-7	A2MP6	B-5	A7H1	B-7
B1H1	B-7	A2MP7	B-5	A7H2	B-7
B1H2	B-7	A2MP8	B-5	A7H3	B-7
CP1	B-7	A2MP9	B-5	A7MP1	B-7
H1	B-4	A2MP10	B-5	A7MP2	B-7
H2	B-6	A2MP11	B-5	A7MP2H1	B-7
J1	B-6			A7MP3	B-7
MP1	B-5	A3	B-5	A7MP4H1	B-7
MP1H1	B-5			A7MP5	B-7
MP2	B-6	A3MP1	B-5	A7MP6	B-7
MP3	B-6	A3MP1H1	B-5	A7MP7	B-7
MP3H1	B-6	A3MP1H2	B-5	A8	B-7
MP3H3	B-6	A3MP1H3	B-5		
MP3H4	B-6	A3MP2	B-5		
MP4	B-6	A3MP2H1	B-5		
MP4H2	B-7	A3MP3	B-5		
MP5	B-6	A3MP4	B-5		
		A3MP4H1	B-5		
S1	B-6	A3MP4H2	B-5		
S2	B-6	A3MP5	B-5		
S2H1	B-6	A3MP5H1	B-5		
W1	B-6	A3MP5H2	B-5		
A1	B-4	A3MP6	B-5		
A1H1	B-4	A3MP6H1	B-5		
A1H2	B-4	A3MP7	B-5		
A1MP1	B-4	A3MP8	B-5		
A1MP2	B-4	A4	B-6		
		A4MP1	B-6		
A1MP2H1	B-4	A4MP1H1	B-6		
		A4MP1H2	B-6		
A1MP2H2	B-4	A4MP2	B-6		
		A4MP2H1	B-6		
A1MP3	B-4	A4MP3	B-6		
A1MP4	B-4	A4MP4	B-6		
A1MP5	B-4	A4MP4H1	B-6		
A1MP5H1	B-4	A4MP5	B-6		
A1MP6	B-4	A4MP5H1	B-6		
A1MP7	B-4	A4MP5H2	B-6		
A1MP8	B-4	A4MP6	B-6		
A1MP9	B-4	A4S3	B-6		
A2	B-4	A4S3H1	B-6		
A2H1	B-4	A4S3H2	B-6		
A2H2	B-4	A6	B-6		
A2H3	B-5	A6MP1	B-7		
A2H4	B-5	A6MP1H1	B-7		
A2MP1	B-4	A6MP2	B-7		
A2MP1H1	B-4	A6MP2H1	B-7		
A2MP2	B-4	A6MP3	B-7		
A2MP2H1	B-4	A6MP3H1	B-7		
A2MP2H2	B-4	A6MP4	B-7		
A2MP3	B-4	A6MP5	B-7		
A2MP4	B-5	A6MP	B-7		
A2MP4H1	B-5	A6MP7	B-7		
			B-7		

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