

TM 11-6720-239-12

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR AND ORGANIZATIONAL
MAINTENANCE MANUAL INCLUDING REPAIR
PARTS AND SPECIAL TOOL LISTS
CAMERA SET, STILL PICTURE KS-101A



HEADQUARTERS, DEPARTMENT OF THE ARMY

APRIL 1969

CHANGE }

No. 1 }

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 12 June, 1974

**Operator and Organizational
Maintenance Manual Including Repair
Parts and Special Tools Lists
CAMERA SET, STILL PICTURE KS-101A**

TM 11-6720-239-12, 7 April 1969, is changed as follows:

1. A vertical bar appears opposite changed material.
2. Remove and insert pages as indicated in the page list below:

Remove Pages

i and ii
1-1 and 1-2
2-1 and 2-2
B-1 and B-2

Insert Pages

i and ii
1-1 and 1-2
2-1 and 2-2
B-1 and B-2

3. File this change sheet in front of the manual for reference purposes.

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ARNG & USAR: None.

For explanation of abbreviations used, see AR 310-50.

TECHNICAL MANUAL }
 No. 11-6720-239-12 }

HEADQUARTERS
 DEPARTMENT OF THE ARMY
 WASHINGTON, D.C., 7 April 1969

Operator and Organizational Maintenance Manual Including Repair Parts and Special Tool Lists

CAMERA SET, STILL PICTURE KS-101A

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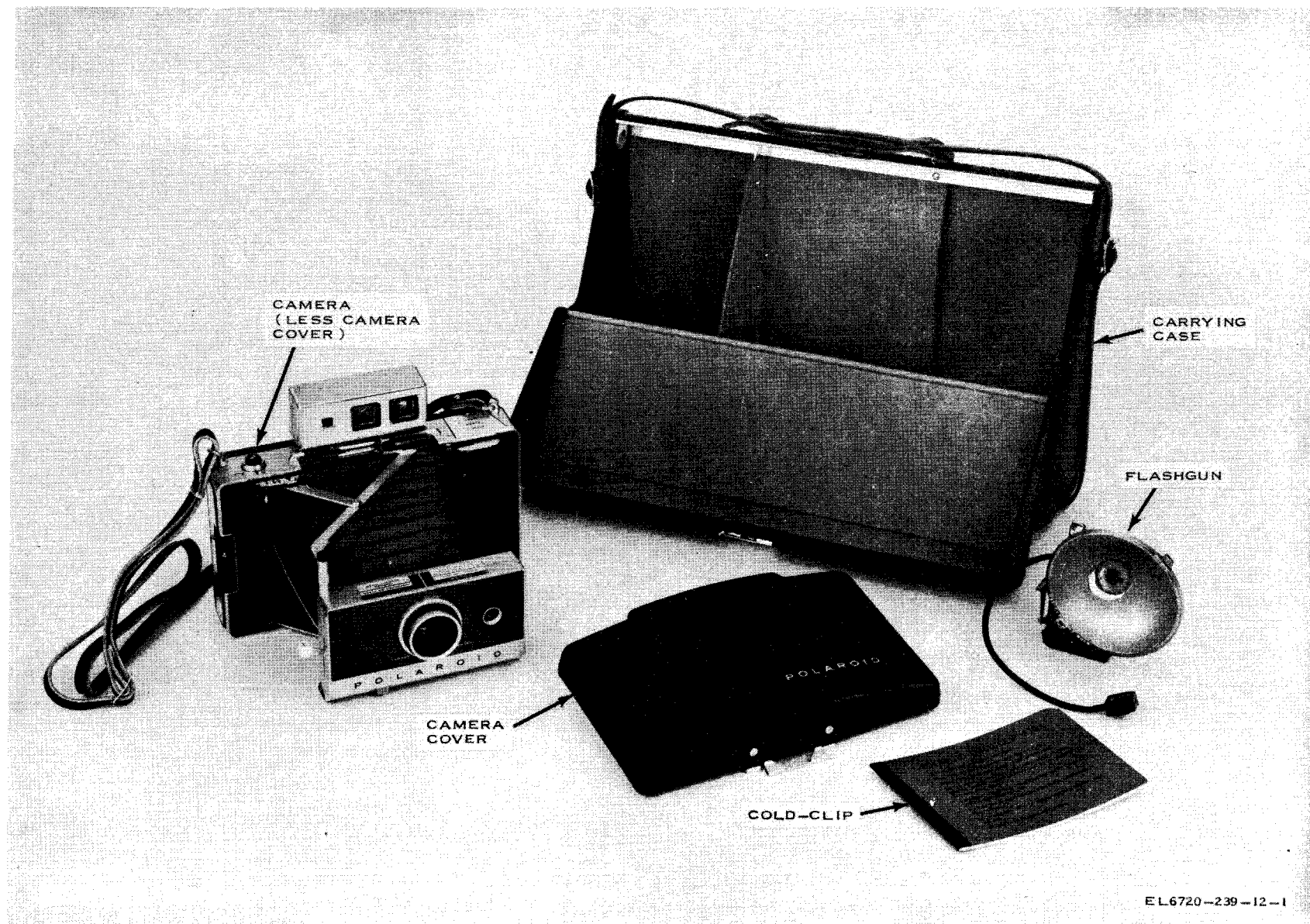


Figure 1-1. Camera Set, Still Picture KS-101A.

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

a. The manual describes Camera Set, Still Picture KS 101A (fig. 1-1) and covers its installation, operation, and organizational maintenance. It includes operation under usual and unusual conditions and cleaning and inspection of the equipment.

b. The maintenance allocation chart (MAC) appears in appendix C. Appendix B is current as of 19 November 1973. Appendix C is current as of 12 June 1968.

1-2. Indexes of Publications

a. DA Pam 310-4. Refer to DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

b. DA Pam 310-7. Refer to DA Pam 310-7 to determine whether there are modification work orders (MWO's) pertaining to the equipment.

1-3. Forms and Records

a. *Reports of Maintenance and Unsatisfactory*

Equipment. Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by TM 38-750.

b. *Report of Packaging and Handling Deficiencies.* Fill out and forward DD Form 6 (Report of Packaging and Handling Deficiencies) as prescribed in AR 700-58/NAVSUP PUB 378/AFR 71-4/MCO P4030.29, and DSAR 4145.8.

c. *Discrepancy in Shipment Report (DISREP) (SF 361).* Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33/AFM 75-18/MCO P4610.19A, and DSAR 4500.15.

d. *Reporting of Em-m-s.* Report of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forwarded direct to Commander, US Army Electronics Command, ATTN: AMSEL-MA-S, Fort Monmouth, NJ 07703.

Section II. DESCRIPTION AND DATA

1-4. Purpose and Use

a. *Purpose.* Camera Set, Still Picture KS-101A (camera set) is a self-contained, portable, hand-operated camera set. The camera component is used to make still photographs using the 3 1/4-by 4 1/4-inch Polaroid film pack.

b. *Use.* The camera set is used in the field to make and process on-the-spot, black-and-white or color photographs. The camera set can be used under extreme lighting conditions.

1-5. Technical Characteristics

a. Camera.

Type Still picture, general purpose, folding.

Lens data:

Focal length114mm (approximately 4.5 inches).

Type Triplet lens, coated.

Speedf/8.8

Angle of view36°by46°.

Shutter data:

Type Between lens.

Speed setting Automatic, internally coupled to electric eye circuit

Diaphragm Fixed to water-house-type stops, internally coupled to film speed dial.

Range finder (finder assembly) viewfinder:

Type Combined focusing and viewing, single window, projected frame, super-imposed image.

Range finder focusing range 31/2 feet to infinity.

Film accommodated:

Type Polaroid film pack, eight-exposures, color or black-and-white.

Size31/4 by41/4 inches.

Loading Daylight.

Battery accommodated:

voltage4.5

Type Eveready No.531. or equal.

b. *Flashgun.*
Type1-cell. with hinged blue
filter shield.
Reflector data:
Shape Parabolic.
Size 3-inch.
Reflecting surface. Highly polished, mirror
finish.

Flashlamp Type M3.
accommodated.
Flashlamp ejection Semiautomatic, button
actuated.
Battery accommodated:
voltage1 .5.
Type Everyready No. E-91, or
equal.
SizeAA.

1-6. Items Comprising an Operable Equipment

FSN	QTY	Nomenclature, part No. and mfr code	Weight (lb)	Dimensions (in.)			Fig No.
				Height	Width	Length	
N O T E							
The part number is followed by the applicable 5-digit Federal supply code for manufacturers (FSCM) identified in SB 708-42 and used to identify manufac- turer, distributor, or Government agency, etc.							
6720-9353818		Camera Set, Still Picture KS-101A: 2522A; 47904					1-1
		Consisting of					
6720-935-3799	1	Camera Still Picture Model 250; 47904	2.75	5	7 3/4	2 3/4	1-3
	1	Cold Clip: 193; 47604	.13		3 7/8	4	1-1
	1	Flash Unit: 268; 47604	.4	4 1/4	3 7/8		1-1

1-7. Description of Camera Set
(fig. 1-1)

The camera set includes the camera, the flashgun, the cold-clip, and the carrying case. When not in use, the camera (para 1-8) and the flashgun (para 1-9) are housed and stored in the padded compartment carrying case (fig. 1-2), and the cold-clip is stored inside the camera cover. The carrying case is equipped with a carrying strap, strap pad, and a hinged half cover. The hinged half cover has a slide latch mounted at the center.

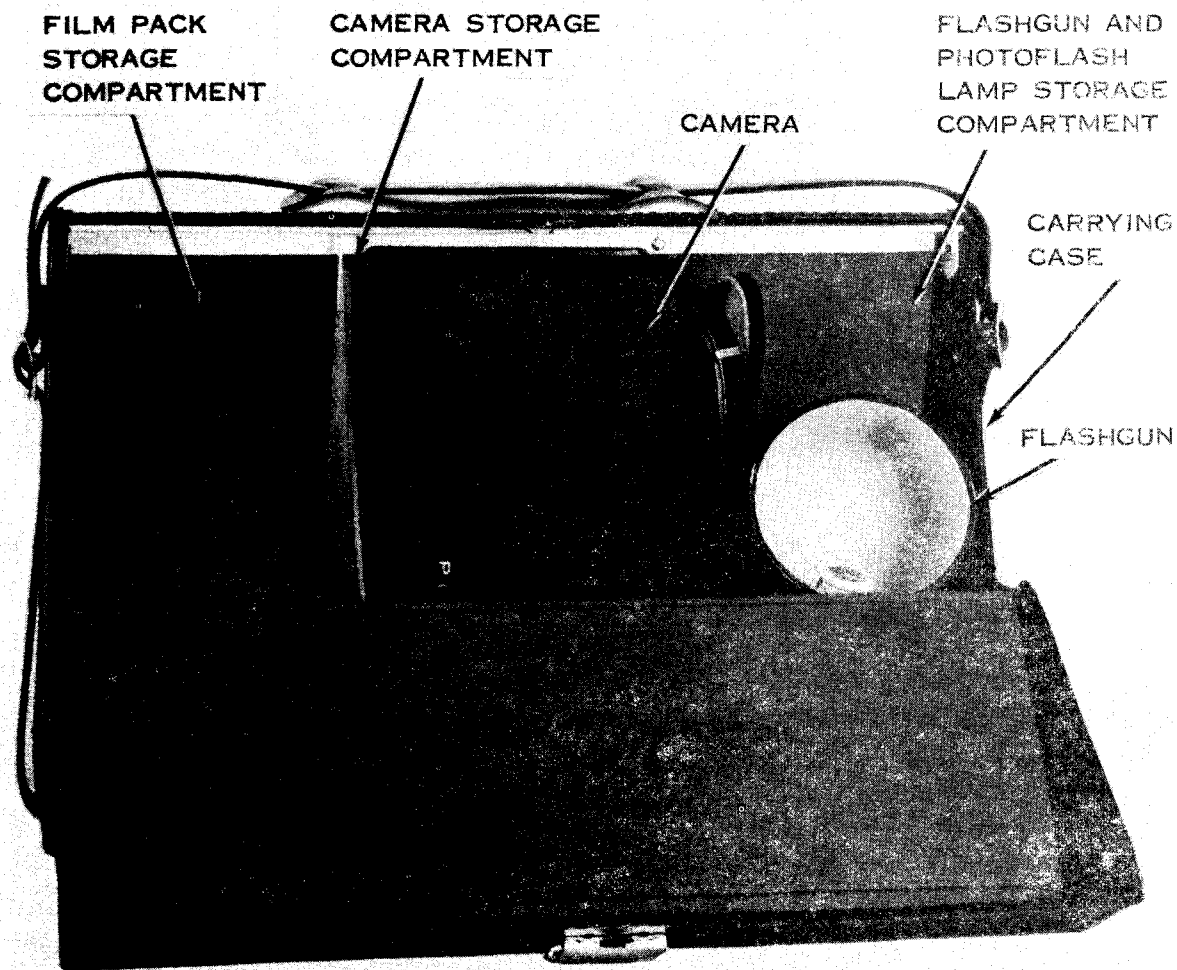
1-8. Description of Camera
(fig. 1-3)

The camera, which takes and develops photographs on location, is a general-purpose handheld folding camera. Focusing is accomplished by a coupled, superimposed-type, rangefinder that is part of the finder assembly. The finder assembly is hinged and, when not in use, folds into the camera. The finder assembly, when in use, lifts out and is held in the operating position by a bar magnet mounted on top of the camera body. The finder assembly also houses the viewfinder. A hinged camera cover is provided to protect the front standard and finder assemblies when the camera is not being used. During use, the

camera cover can be lowered and left attached to the camera body, or it can be removed (fig. 1-4). A tripod socket is provided on the lower-right bottom portion of the camera body. A built in, spring-loaded, nesting lens shade is mounted in front of the lens. The front standard assembly (fig. 1-5) houses the electric eye, the lens and shutter assemblies, and most of the operating controls and indicators. The front standard assembly is bellows-mounted to the camera body and is supported by a set of hinged upper and lower support braces. A neck strap is attached to the top of the camera body. Shutter release button 2 (fig. 1-6) and focusing pushbuttons 1 are mounted on top of the camera body. The camera has a built-in synchronization (sync). The shutter sync outlet for the flashgun (para 1-9)is housed on the lower left side of the front standard assembly. Power for automatic exposure control of the camera is supplied by an internal battery (fig. 1-7) housed in the left rear section of the camera body.

1-9. Description of Flashgun
(fig. 1-8)

The flashgun consists of a self-contained, 3-inch reflector assembly, a battery case, and an attached shutter connecting cable. The shutter connecting

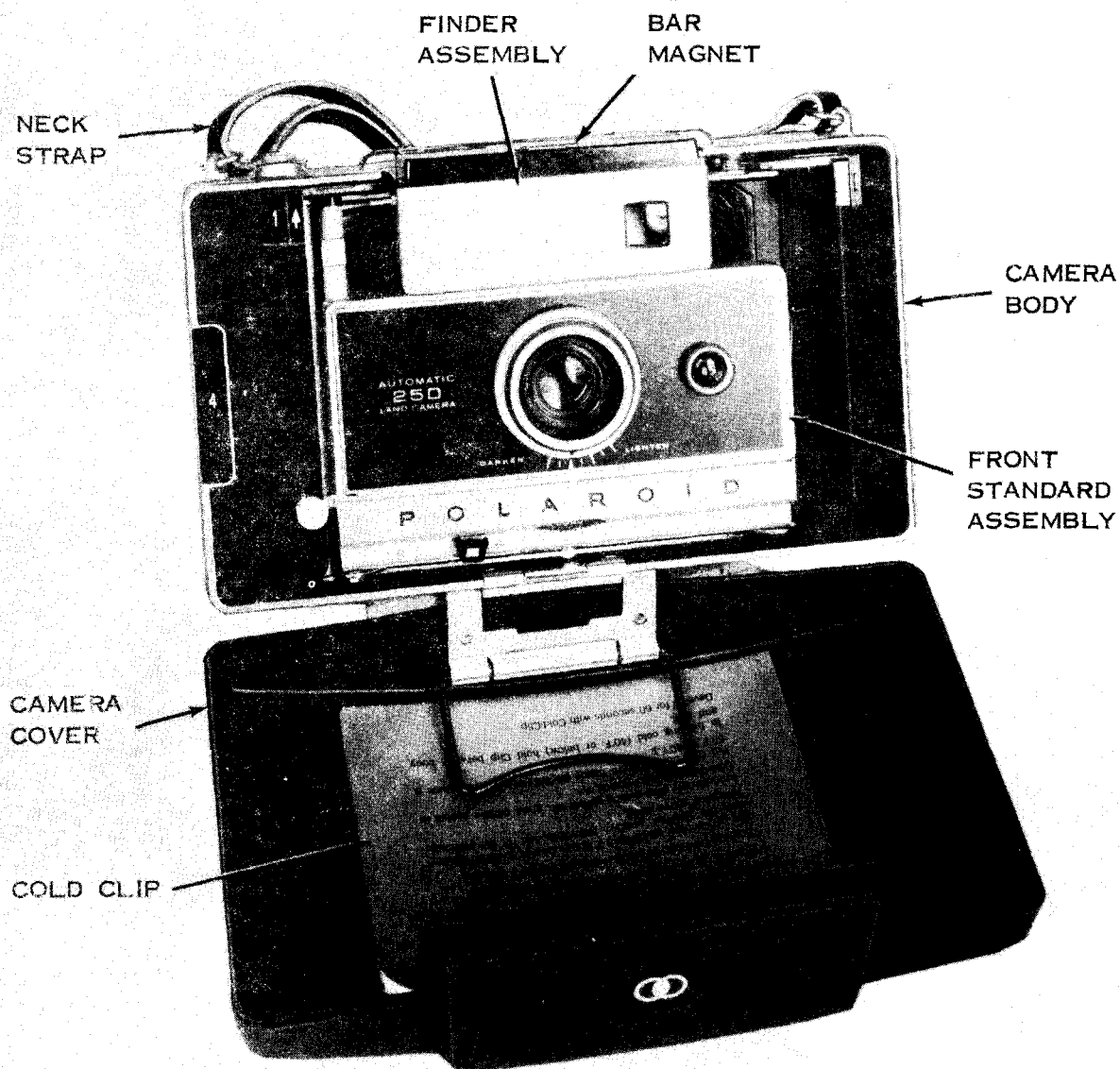


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Figure 1-2. Camera set stored for carrying.

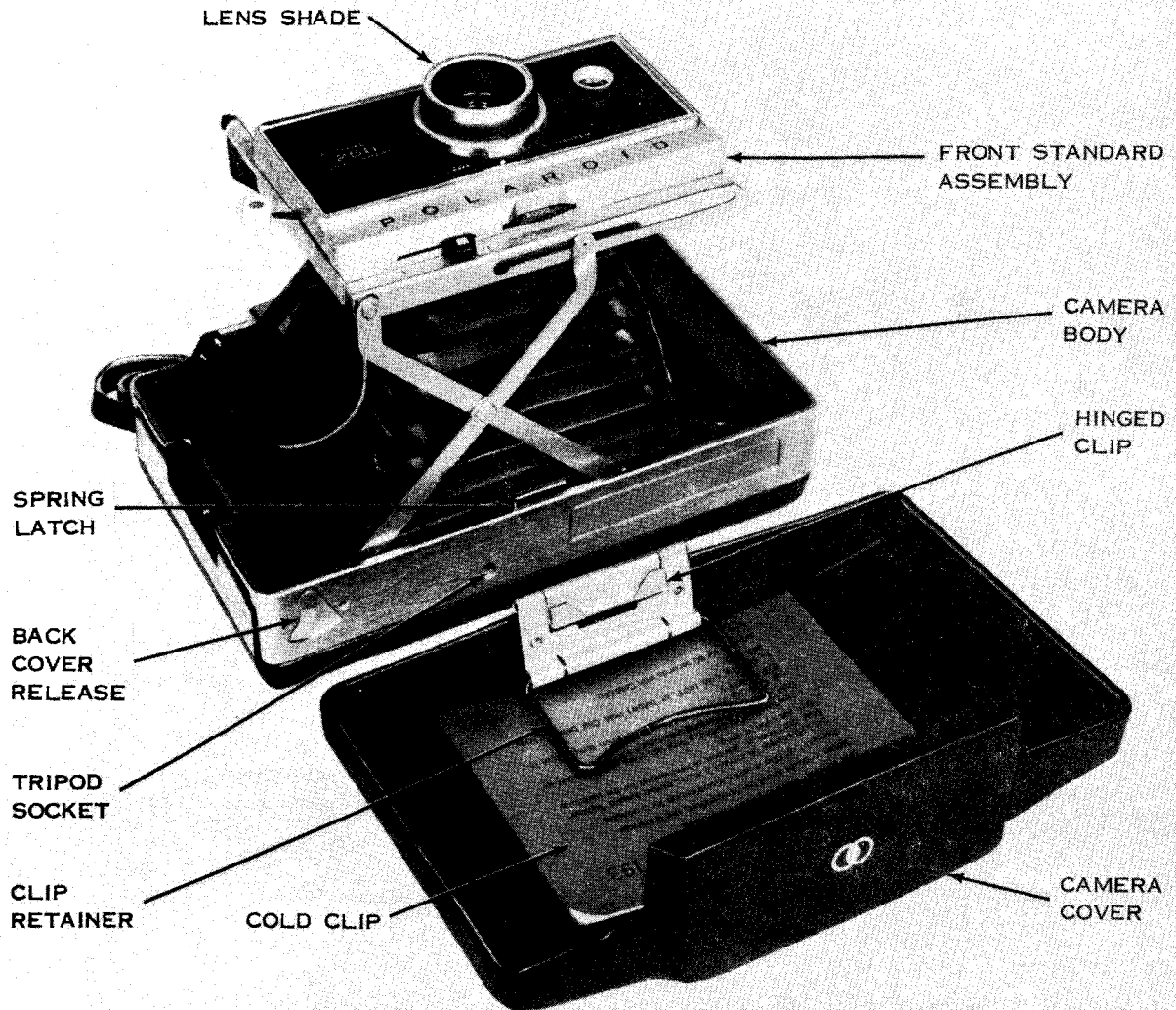
cable is terminated with the sync connector plug that mates with the shutter sync outlet on the camera (para 1-8). The battery case houses the battery that supplies the power to fire the photoflash lamps. The reflector assembly is attached to the battery case and can be swiveled for bounce flash. A hinged blue filter shield is mounted on

the front of the reflector assembly. A release lever facilitates mounting the flashgun on, and removing it from, the camera (fig. 1-9). The flashgun accepts Type M3 photoflash lamps and is equipped with an ejector button which permits expended photoflash lamps to be ejected automatically.



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Figure 1-3. Camera, folded, with camera cover lowered.



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Figure 1-4. Camera, bottom view, opened with camera cover separated.

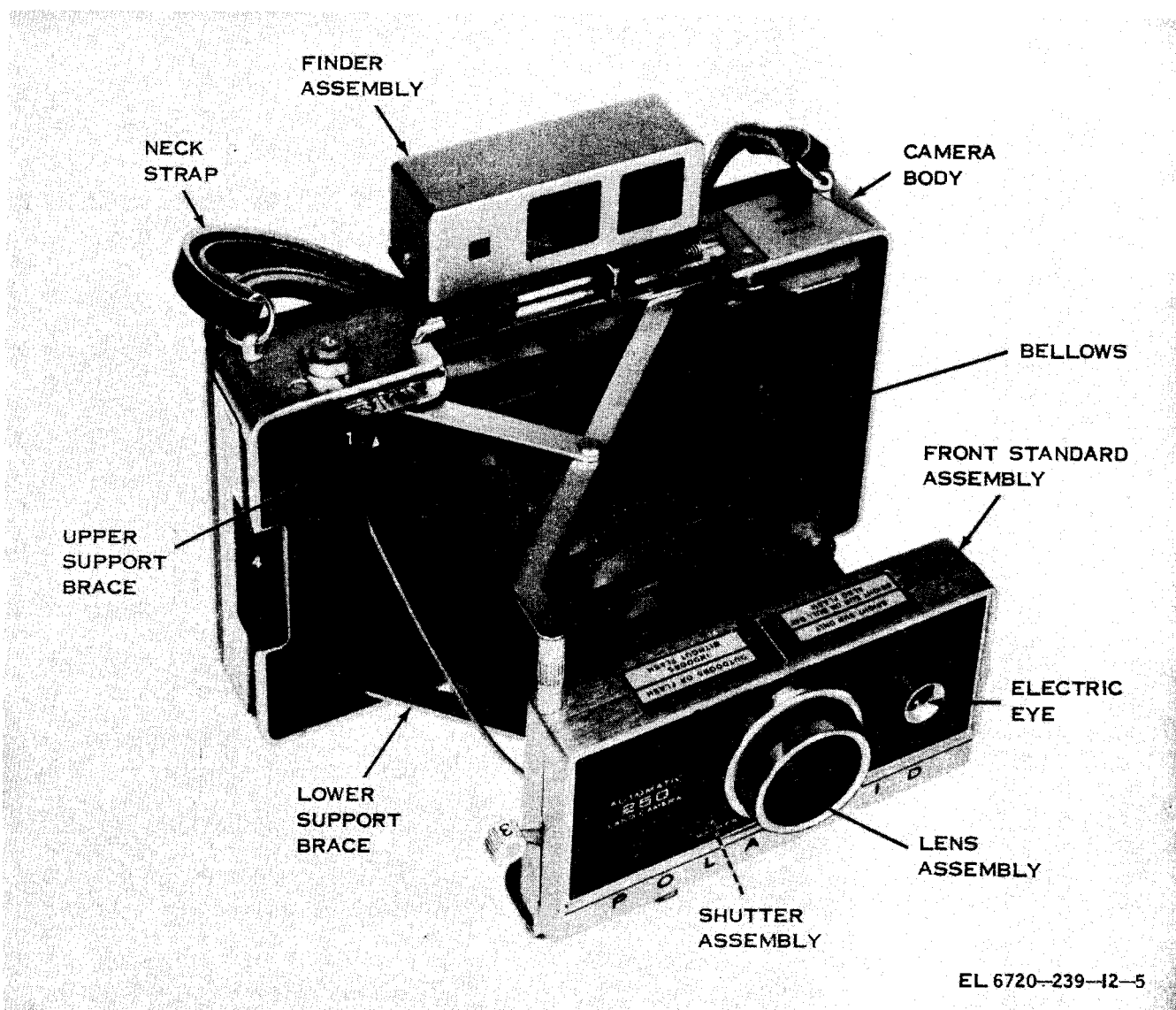


Figure 1-5. Camera, right front view.

SHUTTER
RELEASE
BUTTON [2]

FOCUSING
PUSHBUTTON (RIGHT) [1]

KNURLED
PULL BAR

FOCUSING
PUSHBUTTON (LEFT) [1]

SHUTTER
ELECTRICAL
CABLE

SHUTTER
SYNC OUTLET

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Figure 1-6. Camera, left front view.

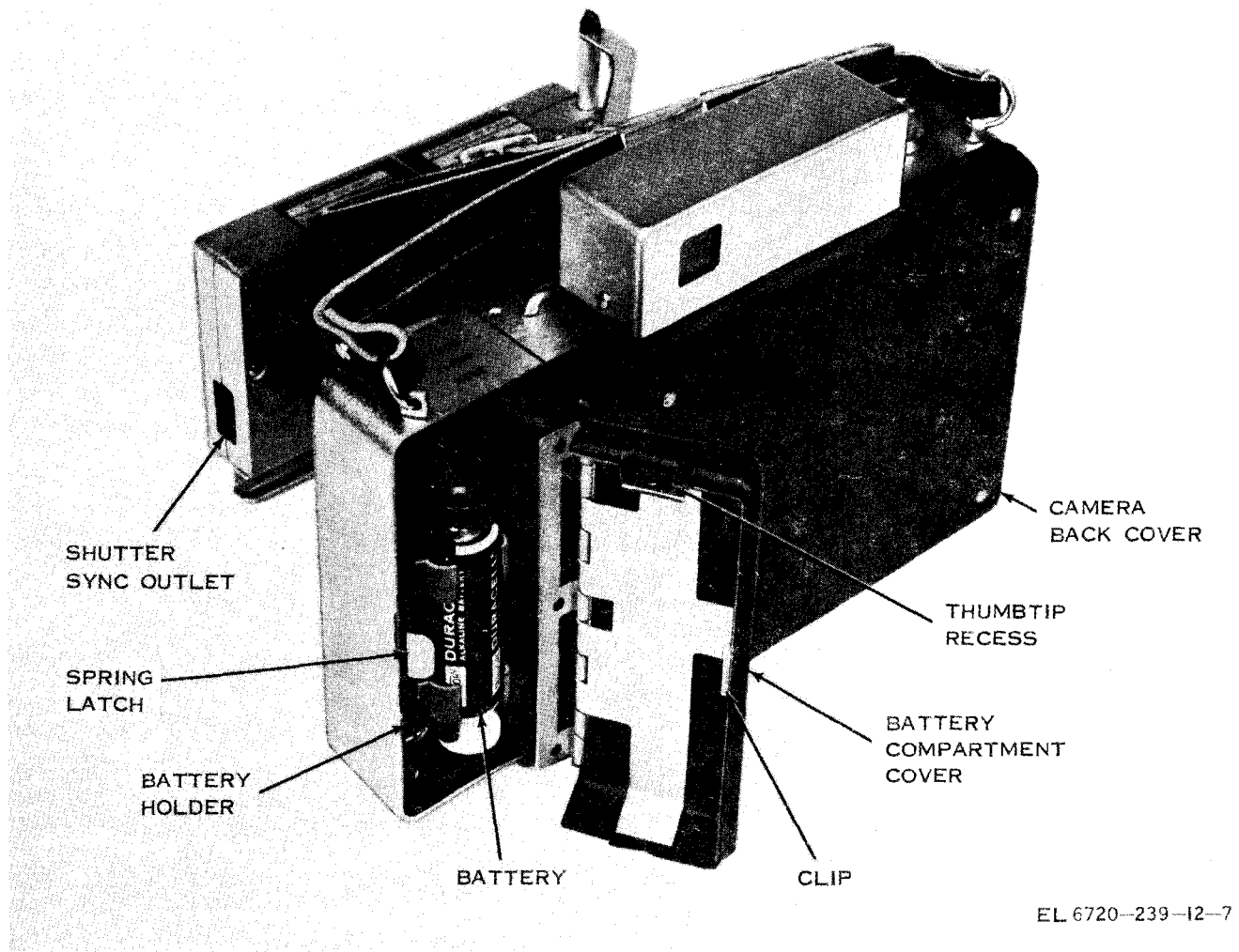
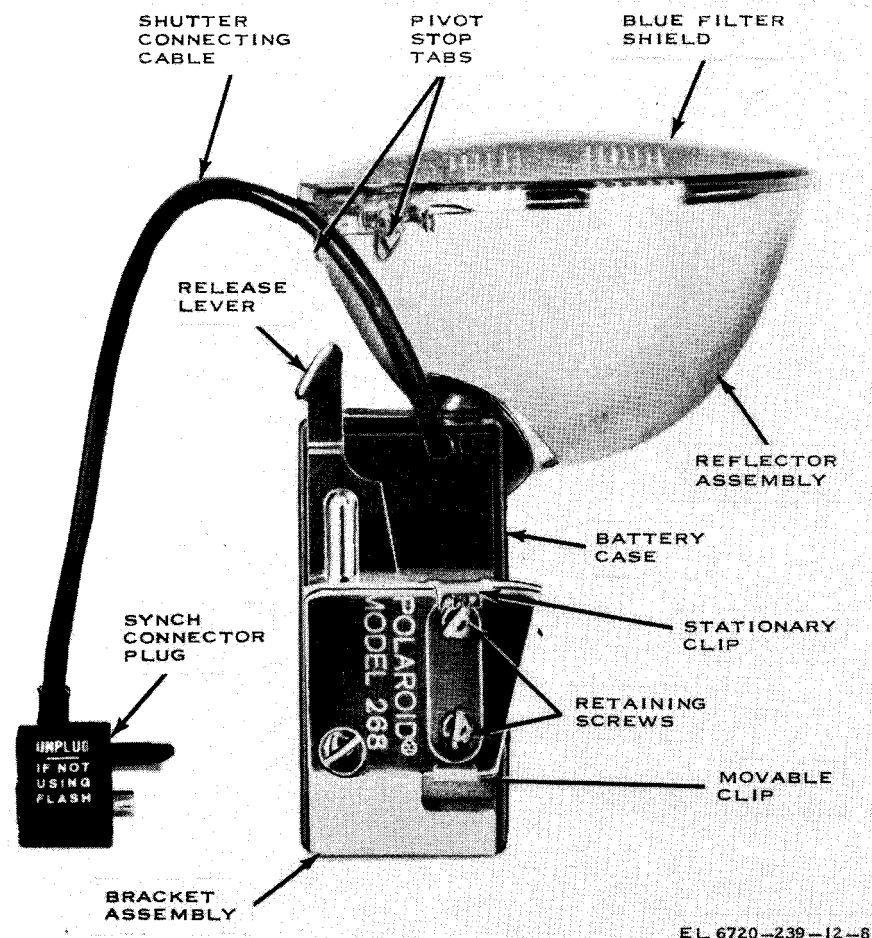
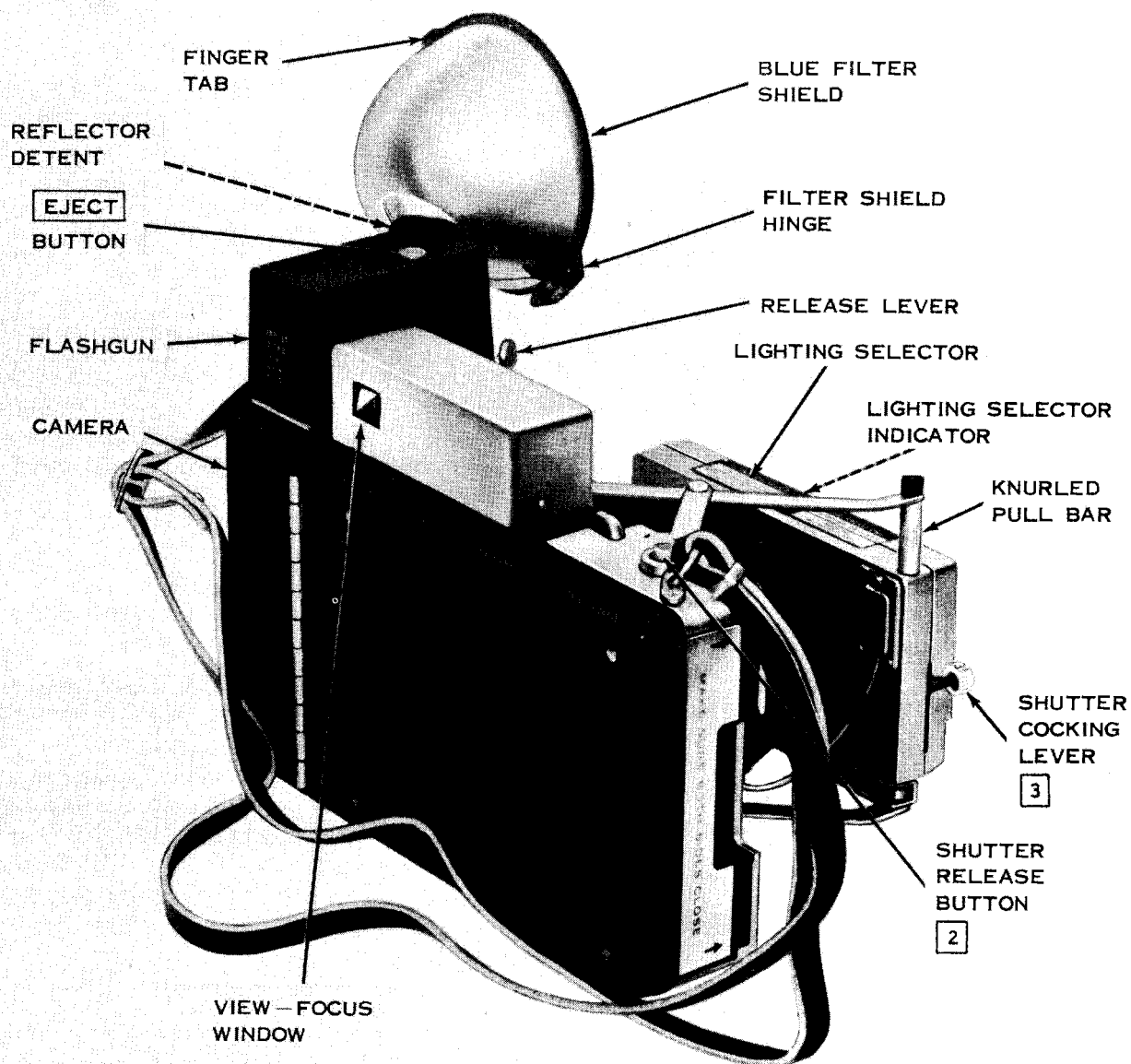


Figure 1-7. Camera, left rearview, with battery compartment cover open.



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Figure 1-8. Flashgun, bottom view.



EL 6720-239-12-9

Figure 1-9. Camera, with flashgun mounted in place.

CHAPTER 2

SERVICE UPON RECEIPT OF EQUIPMENT

2-1. Unpacking

a. Packaging and Packing Data. For domestic shipment, the camera set is packed (fig. 2-1) and shipped in two (nested) corrugated fiberboard cartons. The inner carton is wrapped and sealed in a moisture-vaporproof barrier. The outer carton is sealed with sealing tape.

b. Unpacking Camera Set. Unpack the camera set, as follows:

Caution: Avoid thrusting sharp tools into the interior of the corrugated fiberboard cartons, the camera set may become damaged.

(1) Slit the sealing tape that seals the seam of the outer corrugated fiberboard carton; lift out the camera set packed in the moisture-vaporproof barrier.

(2) Slit the seam of the moisture-vaporproof barrier; lift out the inner corrugated fiberboard carton.

(3) Carefully slit the sealing tape on the inner corrugated fiberboard carton; open the flaps, and lift out the carrying case containing the camera and the flashgun.

(4) Open the carrying case and remove any packing material used to cushion the camera set components.

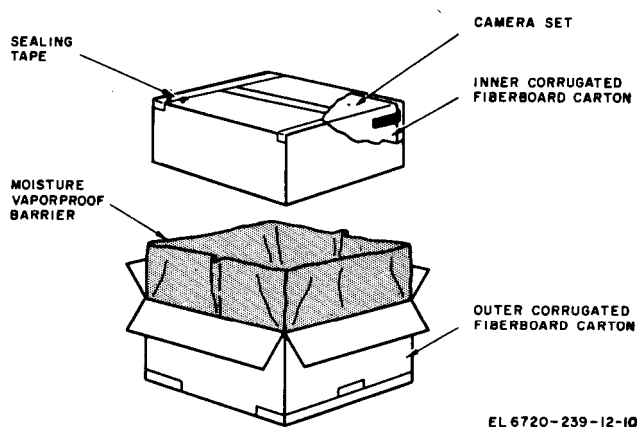


Figure 2-1. Camera set, typical packaging diagram.

2-2. Checking Unpacked Equipment

a. General.

(1) Inspect the camera set components (fig. 1-1) for damage incurred during shipment. If the equipment has been damaged, report the damage on DD Form 6 (para 1-3).

(2) Check to see that the equipment is complete as listed on the packaging slip. If a packing slip is not available, check the equipment against the basic issue items list (app B). Report all discrepancies on DD Form 6.

Note. Shortage of a minor component that does not affect proper functioning of the equipment should not prevent use of the camera set.

(3) If the equipment has been modified, the MWO number will appear on the equipment. Check to see whether the MWO number (if any) and appropriate notations concerning the modification have been entered in the equipment manual.

Note. Current MWO's applicable to the equipment are listed in DA Pam 310-7.

(4) Check to see that the mechanical and optical parts of the camera set are clean. If necessary clean the camera set (para 4-7).

b. Camera.

(1) Open the camera cover (fig. 1-3) by gently lifting the upper part free of the camera body; allow the camera cover to hang down.

(2) Raise the finder assembly to its operating position; make sure that the bar magnet holds the finder assembly in place.

(3) Gently lift up on right focusing push-button 1 (fig. 1-6) to release the front standard assembly.

(4) Open the camera by pulling out on the knurled pull bar, (fig. 1-9) and check it for bent, broken, or missing parts.

(5) Check the camera cover, the neck strap, and the camera covering for wear, cuts, and abrasions.

(6) Check the front standard assembly, upper and lower hinged support braces, and the camera body to be sure that they are not loose, bent, or broken.

(7) Check the optical parts of the camera (lens, finder assembly, and electric eye) for scratched, cracked, or broken parts.

(8) Check the overall camera (fig. 1-3) for damaged controls and indicators.

(9) Open the battery compartment cover (fig. 1-7), and inspect the battery compartment; check to see that the battery compartment is clean

and that the battery is properly installed and connected.

c. *Flashgun* (fig. 1-8).

(1) Check the reflector assembly and the battery for broken or cracked parts.

(2) Check the reflector and the blue filter shield for badly scratched surfaces.

(3) Check the bracket assembly for bent or broken parts.

(4) Check the shutter connecting cable for kinks, cuts, wear, and abrasions and a damaged sync connector plug.

CHAPTER 3

OPERATING INSTRUCTIONS

Section I. OPERATOR'S CONTROLS AND INDICATORS

3-1. Camera Controls

The chart below lists the camera controls used by the operator and describes their function.

a. Camera Controls.

Control	Function						
Back cover release (fig. 3-2) _____	Releases camera back cover and allows access to film pack compartment.						
FILM SPEED control _____	Internally adjusts basic shutter speed and lens opening to speed of film being used.						
Focusing pushbutton 1 (left) (fig. 3-1) _____	Works in conjunction with focusing pushbutton 1 (right) to focus camera.						
Focusing pushbutton 1 (right) -----	Dual function control: <table> <tr> <th>Position</th><th>Action</th></tr> <tr> <td>Upward movement.</td><td>Releases front standard assembly permitting camera to be opened.</td></tr> <tr> <td>Lateral movement.</td><td>Works in conjunction with focusing pushbutton 1 (left) to operate range-finder portion of finder assembly for focusing camera.</td></tr> </table>	Position	Action	Upward movement.	Releases front standard assembly permitting camera to be opened.	Lateral movement.	Works in conjunction with focusing pushbutton 1 (left) to operate range-finder portion of finder assembly for focusing camera.
Position	Action						
Upward movement.	Releases front standard assembly permitting camera to be opened.						
Lateral movement.	Works in conjunction with focusing pushbutton 1 (left) to operate range-finder portion of finder assembly for focusing camera.						
Knurled pull bar (fig. 3-2) -----	Used to pull front standard assembly into operating position and to fold camera.						
Lighten-DARKEN (L/D) control -----	Internally adjusts sensitivity of electric eye circuit.						
Lighting selector control _____	Two-position control: <table> <tr> <th>Position</th><th>Action</th></tr> <tr> <td>Right (away from FILM SPEED control).</td><td>Adjusts lens to maximum opening. Also positions lighting selector indicator so that it indicates opposite first item of lighting selector.</td></tr> <tr> <td>Left (toward FILM SPEED control).</td><td>Adjusts lens to smaller opening and shutter to slower speed. Also positions lighting selector indicator so that it indicates opposite second item of lighting selector.</td></tr> </table>	Position	Action	Right (away from FILM SPEED control).	Adjusts lens to maximum opening. Also positions lighting selector indicator so that it indicates opposite first item of lighting selector.	Left (toward FILM SPEED control).	Adjusts lens to smaller opening and shutter to slower speed. Also positions lighting selector indicator so that it indicates opposite second item of lighting selector.
Position	Action						
Right (away from FILM SPEED control).	Adjusts lens to maximum opening. Also positions lighting selector indicator so that it indicates opposite first item of lighting selector.						
Left (toward FILM SPEED control).	Adjusts lens to smaller opening and shutter to slower speed. Also positions lighting selector indicator so that it indicates opposite second item of lighting selector.						
PRESS TO CLOSE arm (fig. 3-1) _____	Part of upper support brace assembly; releases upper support brace assembly permitting camera closure.						

b. Camera Indicators. The chart below lists the camera indicators used by the operator and describes their function.

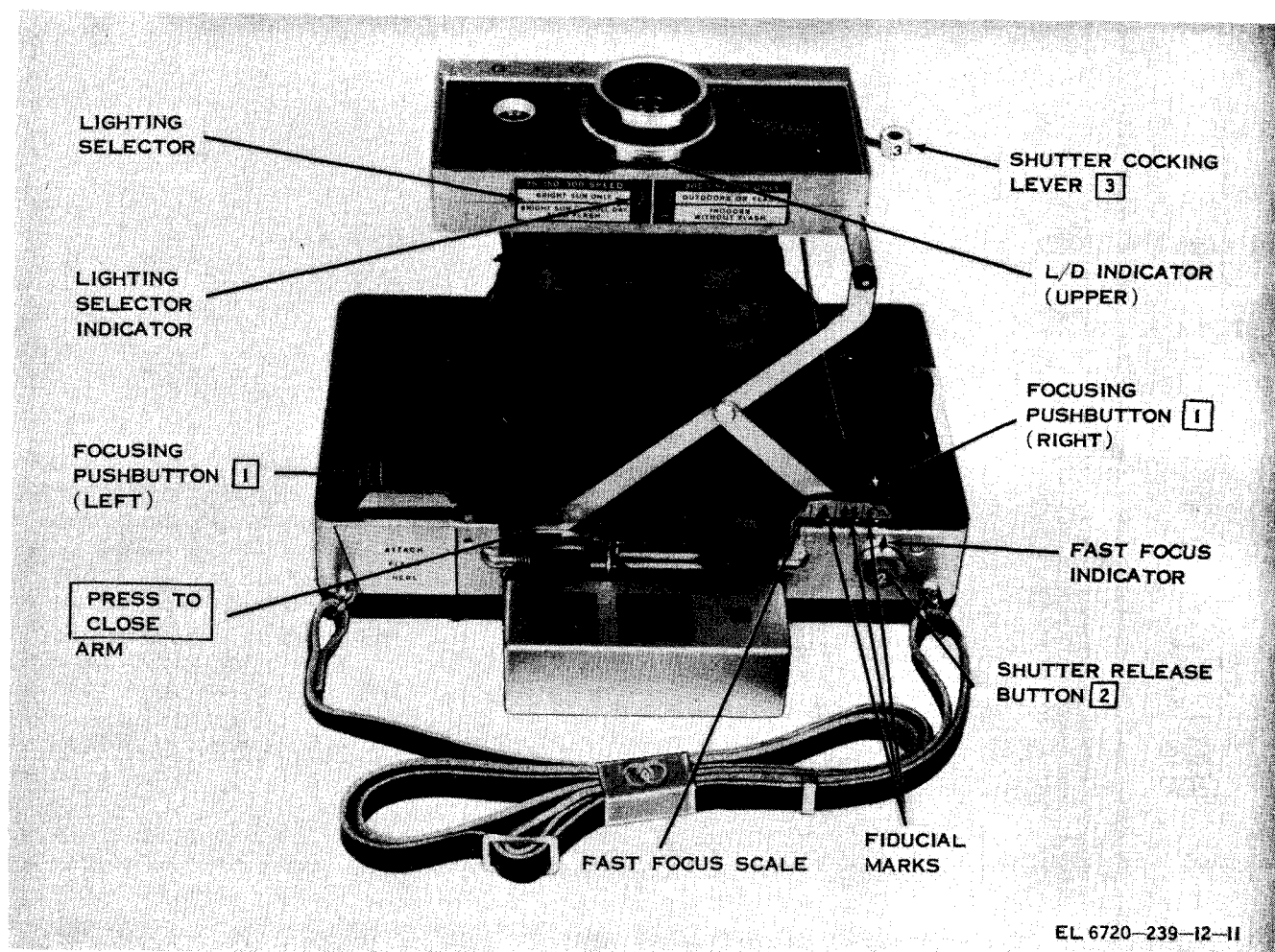
Indicator	Function
Fast focus indicator (fig. 3-1) -----	Indicates on fast focus scale relative camera-to-subject distance.
Fast focus scale -----	Used (for black-and-white film only) in conjunction with fast focus indicator to rapidly focus camera on desired subject matter.

Indicator	Function
Fiducial marks -----	Indicates optimum settings on fast focus scale for given camera-to-subject distance range.
FILM SPEED dial (fig. 3-2) -----	Indicates film speed that FILM SPEED control is set for.
L/D indicator (lower) -----	Indicates on L/D scale, relative setting of L/D control.
Lighting selector indicator -----	Indicates on lighting selector the lighting condition that lighting selector control is set for.
Lighting selector -----	Describes lighting condition that lighting selector indicator is set to.
Roller assembly release latch (fig. 4-1). -----	Releases roller assembly to allow access to rollers for cleaning and inspection.
Shutter cocking lever 3 (fig. 3-1). -----	Sets up shutter for tripping by tensioning the actuating spring.
Shutter release button 2 -----	Trips shutter actuating mechanism.

3-2. Flashgun Controls

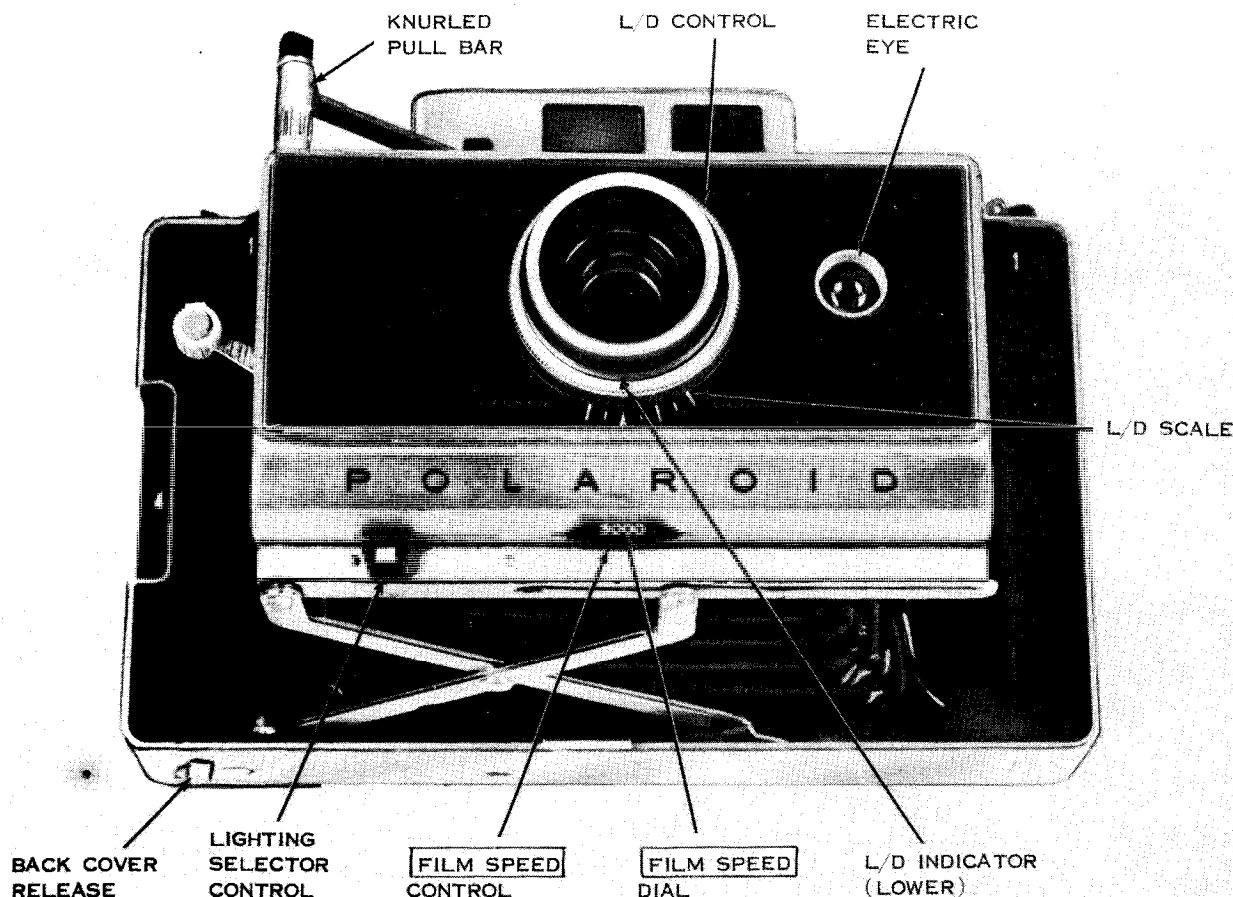
The chart below lists the flashgun controls used by the operator and describes their function.

Control	Function
Ejector button (fig. 1-9).....	Automatically ejects expended photoflash lamp.
Finger tab -----	Used to raise and lower blue filter shield for over reflector.
Reflector detent -----	Position reflector assembly in normal or bounce flash position as desired.
Release lever -----	Operates movable clip on bracket assembly permitting installation and removal of flashgun.



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Figure 3-1. Camera, controls and indicators, top view.



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Figure 3-2. Camera, controls and indicators, lower front view.

Section II. PRELIMINARY PROCEDURES

3-3. Loading Film Pack in Camera

The film pack may be loaded in the camera in full daylight, however, do not expose the film pack to direct sunlight during the loading operation. Load the film pack into the camera as follows:

a. Open the top of the film pack box; remove the instruction sheet, the tube containing the coater, and the sealed foil package containing the film pack.

Note. If color film is used, no coater is supplied as it is *not* required. A set of mounts is supplied and should be returned to the box (after the film pack is removed) until needed.

b. Read the instruction sheet packed with the film pack, and note any special instructions as to camera settings and operation.

c. Release the camera back cover (fig. 3-3) by sliding the back cover release (fig. 1-4) toward the center of the camera body.

d. Open the camera back cover (fig. 3-3) and check the rollers to see that they are clean; if necessary, clean the rollers (para 4-7).

Caution: Handle the foil package, which contains the film pack, and the film pack after removal near the edges only. Do not press or grasp the center of the film pack area; fogging or damage to the film pack can occur.

e. Carefully open the foil package containing the film pack along the dotted lines as indicated.

f. Holding the film pack (fig. 3-4) by the edges, carefully insert it into the film pack compartment so that the printing on the safety cover

faces the lens, and the safety cover pull tab and pull tabs face to the right as shown.

g. Gently push the bottom edge of the film pack under the door hinge, against the slight tension of the retaining spring (fig. 3-3). Seat the film pack (fig. 3-4) flush in the film pack compartment; make sure that the safety cover pull tab and the white pull tabs are not folded under the film pack and that they stay outside the film pack compartment.

h. Close the camera back cover (fig. 3-5); make sure that both sides latch and the safety cover pull tab sticks out of the small tab slot to the right of concealed door 4.

3-4. Attaching Flashgun to Camera

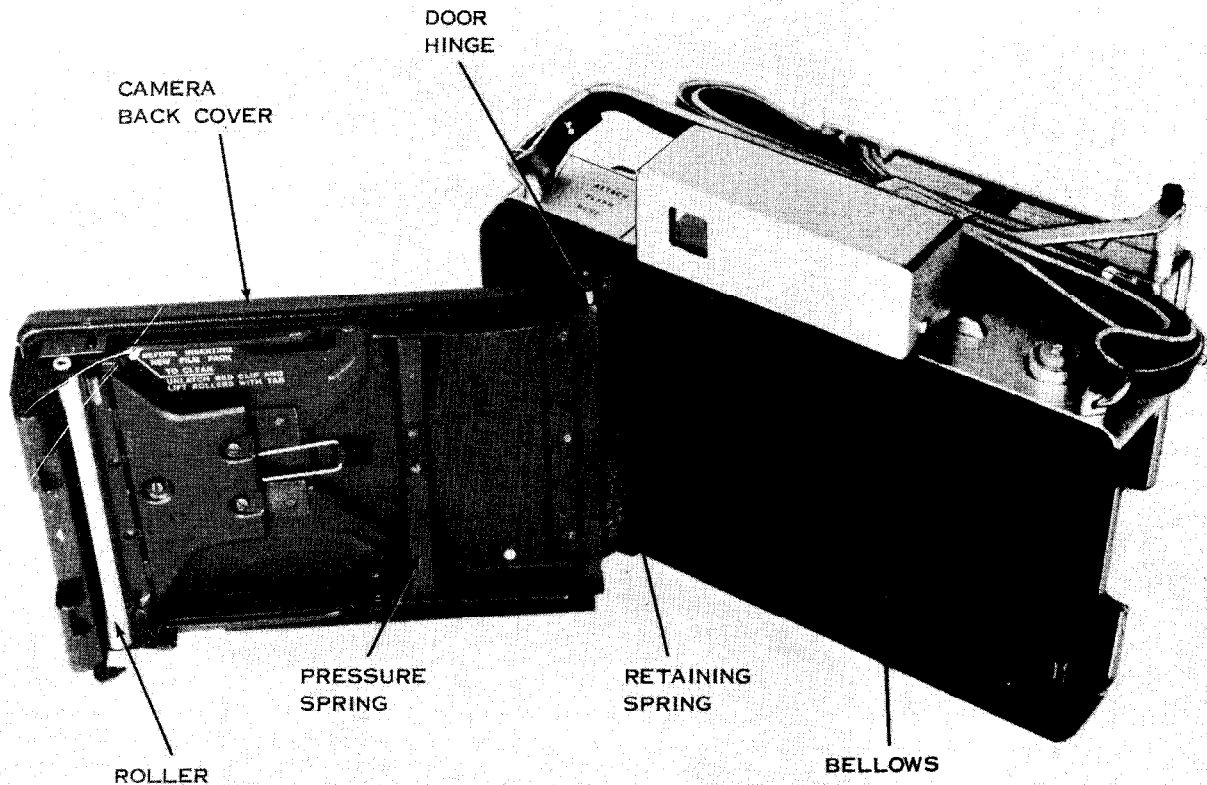
If it is determined that photoflash photography is to be used, attach the flashgun (fig. 1-9) to the camera as follows:

a. Position the stationary clip (fig. 1-9) so that it engages the top front edge of the camera body.

b. Press the release lever, and seat the flashgun on top of the camera body. Release the release lever, making sure that the movable clip engages the top rear edge of the camera body (fig. 3-5) just in front of the thumbtip recess.

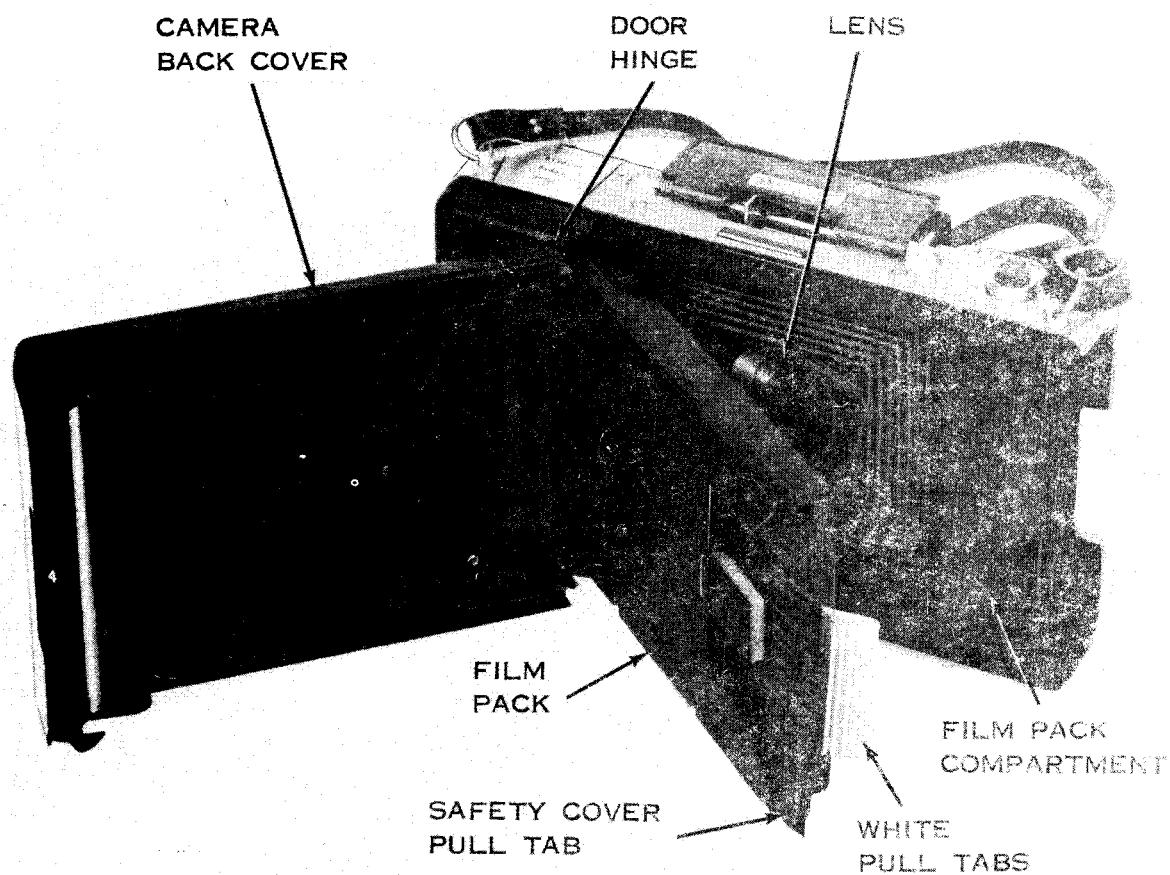
c. Do not connect the polarized sync connector plug (fig. 3-6), on the end of the shutter cable, to the shutter sync outlet until such time as photo-flash pictures are to be taken.

d. When bounce flash photography is desired, rotate the reflector assembly so that it is positioned on the flashgun as shown in figure 3-7,



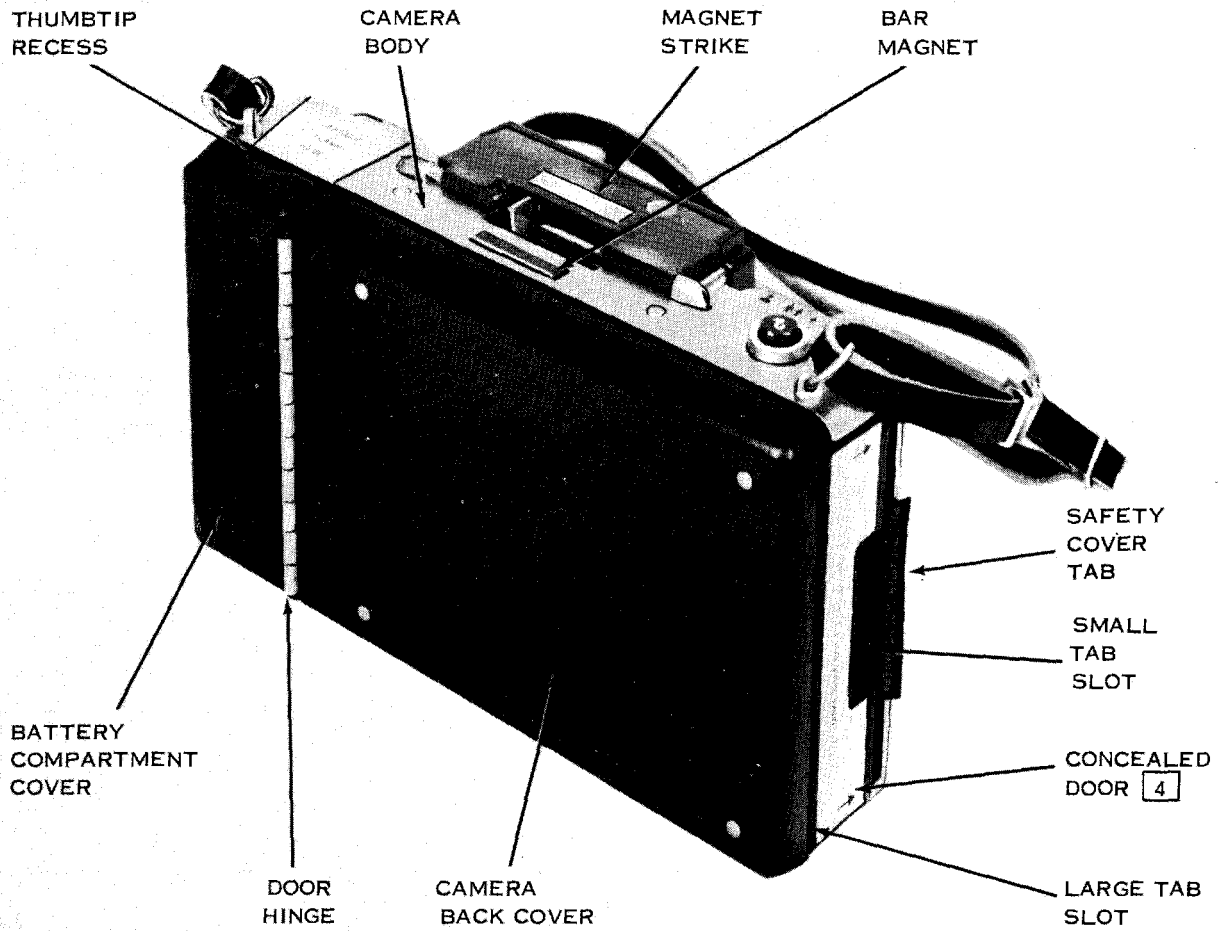
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Figure 3-3. Camera, right rear view, with camera back cover open.



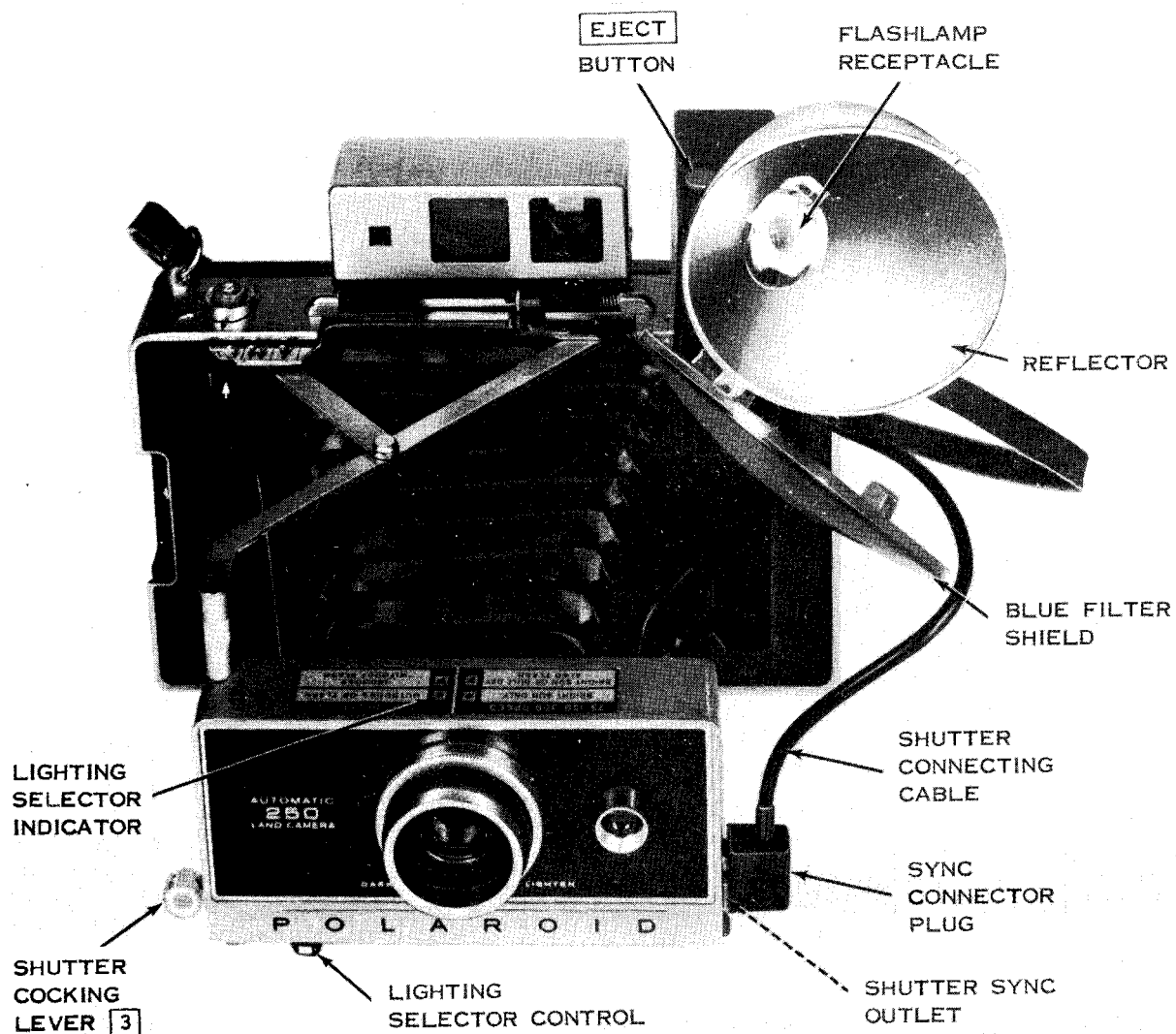
EL6720-239-12-14

Figure 3-4. Camera with film pack partially inserted.



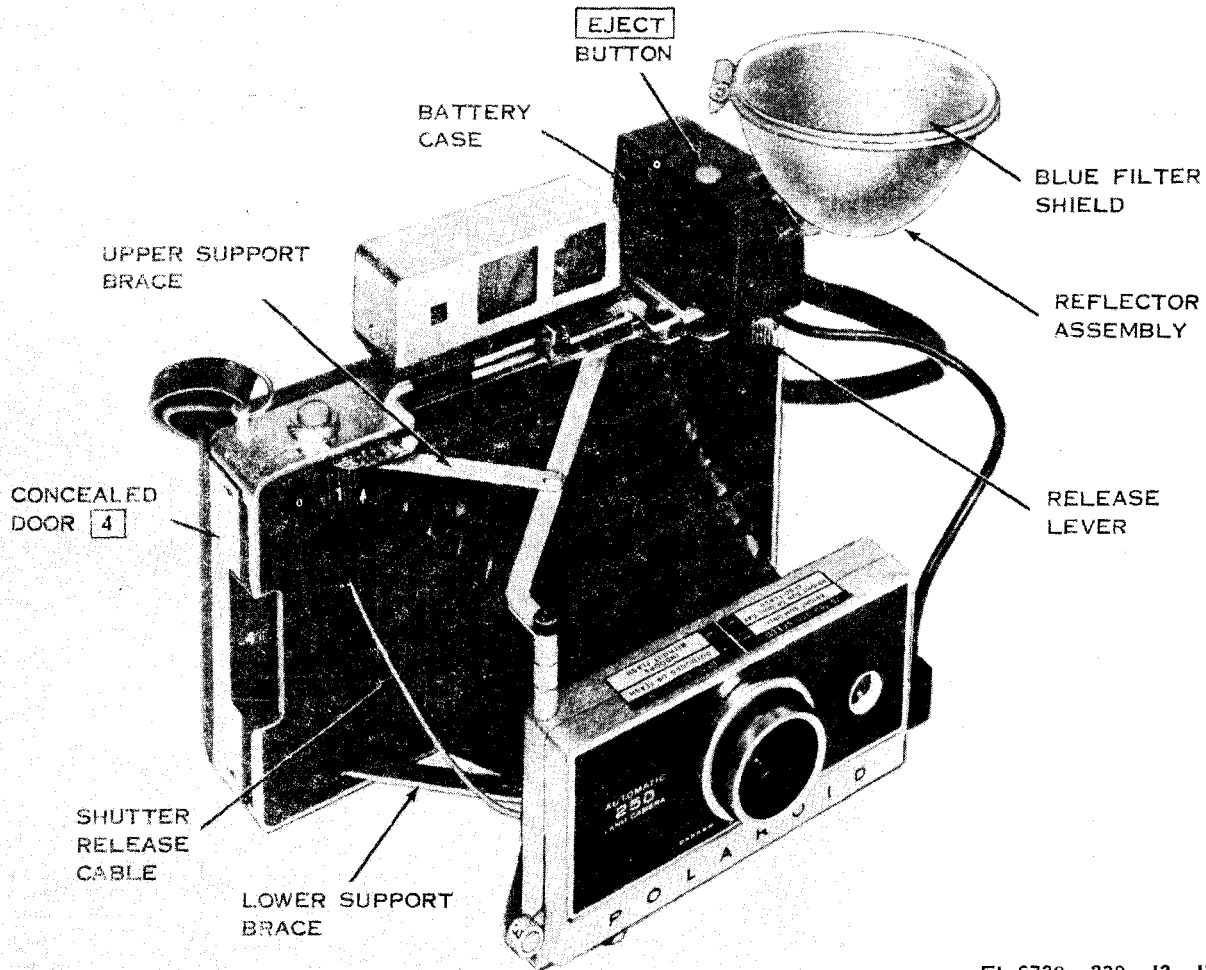
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Figure 3-5. Camera, right rear view, with safety cover pull tab showing.



EL 6720-239-12-16

Figure 3-6. Camera with flashgun mounted and reflector assembly positioned for direct flash.



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Figure 3-7. Camera with flashgun mounted and reflector assembly positioned for bounce flash.

Section III. OPERATION UNDER USUAL CONDITIONS

3-5. Focusing

The camera provides for coarse and fine focusing. For normal photography, use the rangefinder for fine focusing by following the procedures given in *a* below. If fast action or rapid events are to be covered, and there is not enough time to permit normal fine focusing with the rangefinder, use coarse (fast) focusing by following the procedures given in *b* below.

Note. Fast focusing must be used with black-and-white film only on outdoor subjects in bright sunlight, or in indoor subjects with direct flash.

a. Focusing with Range finder. Focus the camera on the subject as follows:

(1) Sight and compose the subject through the view/focus window (fig. 1-9),

(2) Place the index fingers on the left and right focusing pushbuttons 1 (fig. 3-8).

(3) Move focusing pushbuttons 1 from side to side until the movable image is superimposed on the stationary image.

b. Fast Focusing. Fast focus the camera, as follows:

(1) Make sure that the camera is loaded only with black-and-white film pack and that the reflector assembly on the flashgun, if used, is set for direct flash operation.

(2) Move the lighting selector control (fig. 3-8) to the right (away from the FILM SPEED

control). This action will set a smaller lens opening in position which, in turn, will increase the depth of field of the lens.

(3) On the fast focus scale, find the illustration that most accurately describes the subject distance (closeup, near, or distant) to the camera.

(4) Move focusing pushbuttons 1 from side to side until the fast focus indicator is opposite the applicable illustration found in (3) above.

Note. Settings between the fiducial marks may be used for in-between subject distance.

3-6. Operation

a. Check to be sure that the battery (fig. 1-7) is properly installed in the camera battery compartment. If the battery is defective, or more than 1 year old, replace it (para 4-10).

b. Load the film into the camera (para 3-3).

c. Rotate the FILM SPEED control (fig. 3-2) so that the FILM SPEED dial indication corresponds to the speed of the film being used.

d. Hold the camera level with the left hand; sharply pull the safety cover pull tab straight out to remove the film pack safety cover (fig. 3-9) from the film pack in the camera. Make sure that the end of a small white tab protrudes from the small tab slot.

e. If the camera is to be used for photoflash photography, install the flashgun on the camera (para 3-4).

Note. Disconnect the shutter connecting cable from the shutter sync outlet when photoflash lamps are not used to make an exposure. Failure to disconnect the shutter connecting cable will yield dark (underexposed), unusable prints.

f. Move the lighting selector control (fig. 3-6) in the direction that positions the lighting selector indicator opposite the applicable light condition.

g. Focus the camera on the subject to be photographed (para 3-5).

h. Cock the shutter by pressing shutter cocking lever 3 (fig. 3-9) until it locks in the cocked (down) position.

i. If a photoflash lamp is to be used, carefully open the blue filter shield (fig. 1-9) and insert a No. M3 clear photoflash lamp in the flash-lamp receptacle.

j. Close the blue filter shield; make sure that the shutter connecting cable is connected to the shutter sync outlet.

k. Frame the subject in the view/focus window (fig. 1-9) and make the exposure by pressing shutter release button 2.

l. Remove the expended photoflash lamp (if used) by opening the blue filter shield and pressing the ejector button on the flashgun.

m. With the left hand, hold the camera horizontal and level. Do not block the large tab slot (fig. 3-10) to the left of concealed door 4. Pull the protruding small white pull tab straight and out of the camera. A larger yellow pull tab will appear in the large tab slot to the left of concealed door 4, and another small white pull tab will appear in the small tab slot.

Caution: Do not store the equipment with the shutter in the cocked position. Omit the procedure in *n* below after the last photograph is made and the photographic mission is completed.

n. Press shutter cocking lever 3 until it locks in the cocked position.

o. At this time, the camera is set to take another picture or to process the picture made in *k* above.

p. Before another picture can be taken, the first picture taken has to be processed. To process the first exposure, proceed as follows:

q. With the left hand, hold the camera horizontal and level. Rapidly pull the large yellow pull tab, which protrudes from the large tab slot to the left of concealed door 4, straight and out of the camera as rapidly and smoothly as possible.

r. Start timing the recommended developing time indicated in the film pack instruction sheet as soon as the large yellow pull tab with attached picture assembly is free of the camera.

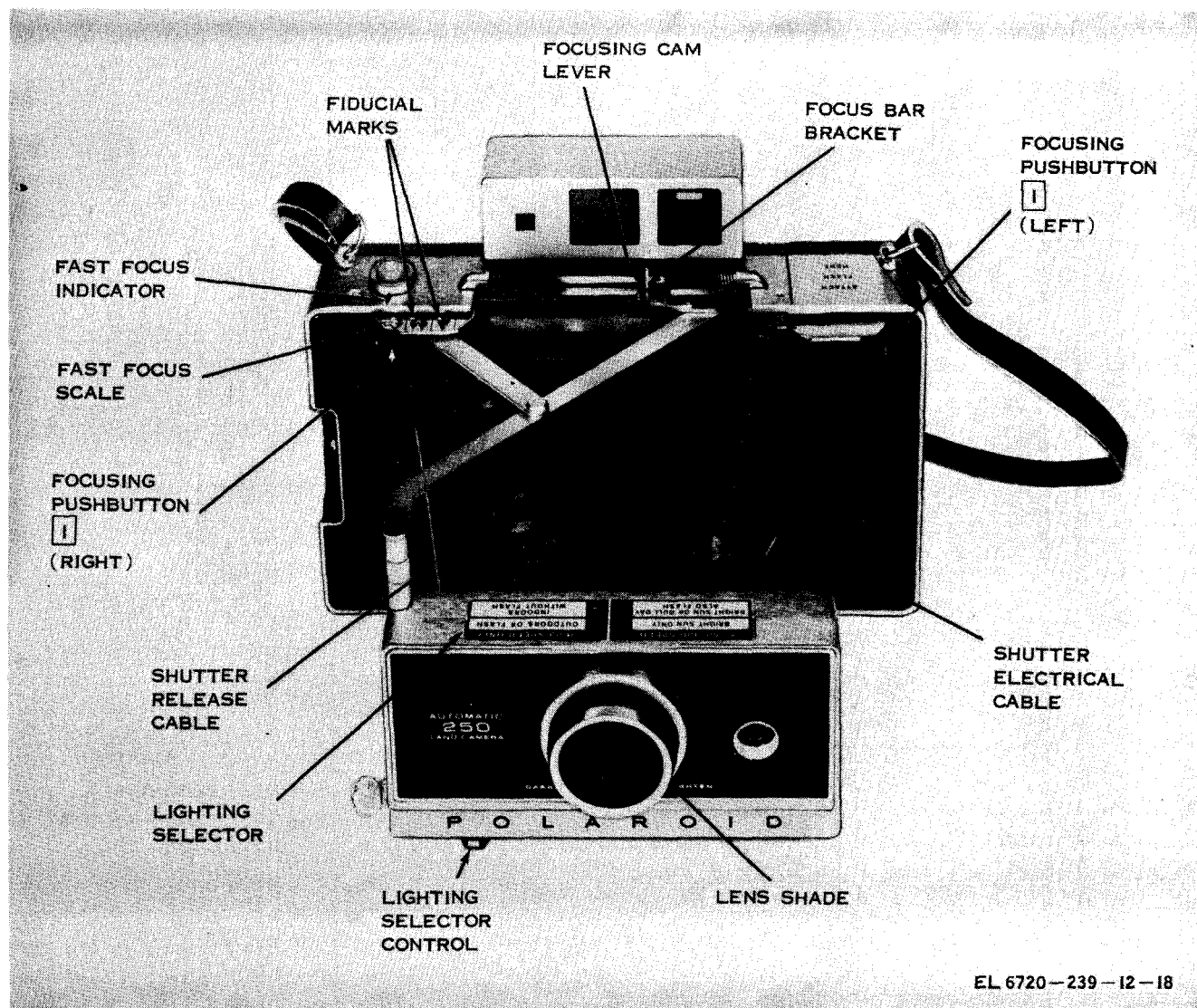
Warning: Avoid contact with the chemicals left on the negative assembly after the print is removed. Fold the negative assembly so that the moist side is inward; discard the folded negative assembly in a refuse container.

s. After the recommended development time has elapsed, raise one corner of the print, and quickly and smoothly lift the print off of the negative assembly.

Note. Handle prints by edges only; do not touch the face of prints. Coat black-and-white prints (para 3-7) as soon as possible to protect them from scratches, fingerprints, and fading. Color prints do not require coating. Follow the same handling technique outlined for black-and-white prints.

t. Allow approximately 5 minutes for coated black-and-white prints and color prints to air dry so that the surface can harden to a tough, glossy finish.

u. Repeat the procedures given in *f* through *t* above until the photographic mission is completed, or the film pack is expended. If the film pack is



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Figure 3-8. Camera, top front view.

expended before the photographic mission is completed, reload the camera with a new film pack (para 3-3).

v. After the photographic mission is completed, perform the stopping procedures (para 3-8).

3-7. Coating Black and White Prints

Coat black and white prints as soon as possible after they are processed. Coating is necessary to preserve the image against fading and protect it from scratches and fingerprints. Coat black-and-white prints as follows:

a. Lay the print face up on a clean, smooth work surface.

b. Carefully remove the coater from the plastic tube packed with the film pack.

c. Hold one corner of the print with the tip of the index finger of one hand, and grasp the

plastic handle of the coater with the thumb and index finger of the other hand.

d. Spread some of the fluid, from the saturated absorbent wad of the coater, evenly across the entire face of the print, including the border. Apply the fluid with moderate pressure, using six to eight strokes in the same lengthwise direction.

Caution: Avoid contact between the face of the print and the edges of the coater's plastic handle. Contact with the edge of the plastic handle can scratch the print.

Note. After the coater has been used to coat several prints, the liquid on the face of the coater will be depleted and the coater will feel dry. To replenish the supply of fluid on the face of the coater, press down on the plastic handle near the edge of the print. Spread the squeezed-out fluid evenly across the face of the print.

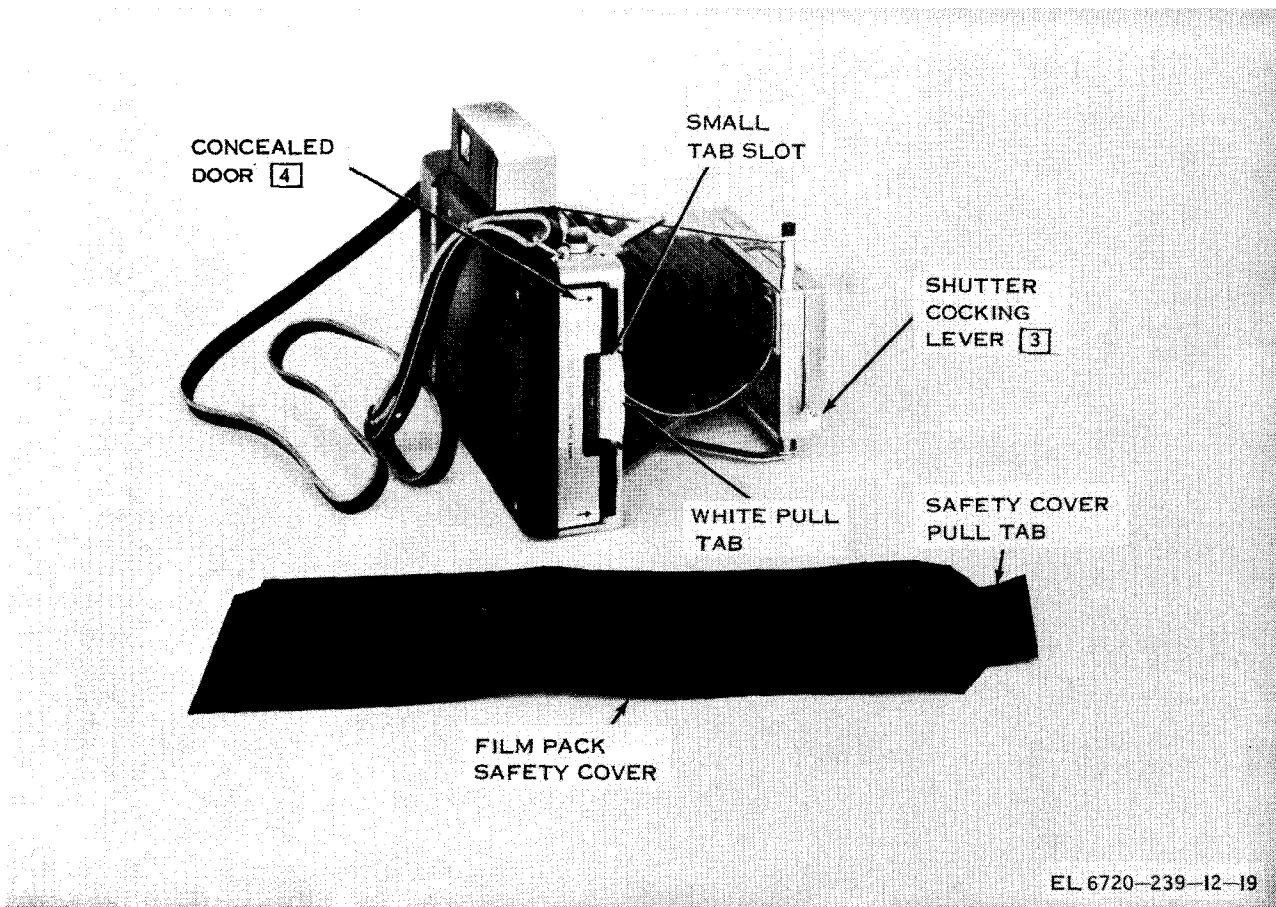


Figure 3-9. Camera, right side, with film pack, safety cover removed.

e. Set the coated prints aside to dry. Keep freshly coated prints separated from each other to avoid their sticking together.

3-8. Stopping Procedure

After the photographic mission is completed, stop the camera set as follows:

a. If the flashgun was used, disconnect the sync connector plug on the shutter connecting cable from the shutter sync outlet on the camera.

b. Press the release lever at the base of the flashgun and remove the flashgun from the top of the camera.

c. Make sure that the flashgun is clean (para 4-7), and return the flashgun to the right-hand compartment in the carrying case.

d. Make sure that the last exposure made has been removed from the camera (para 3-6m, q, r, and s) and that the camera is clean (para 4-7).

e. Gently apply pressure on the PRESS TO CLOSE arm, a part of the upper support brace assembly, to release the front standard assembly.

f. Fold the camera by pushing the knurled pull bar toward the camera body until the front standard assembly locks in place.

g. Close the finder assembly by gently lifting the rear of the finder assembly free of the bar magnet hold; fold the finder assembly into the camera and close the camera cover.

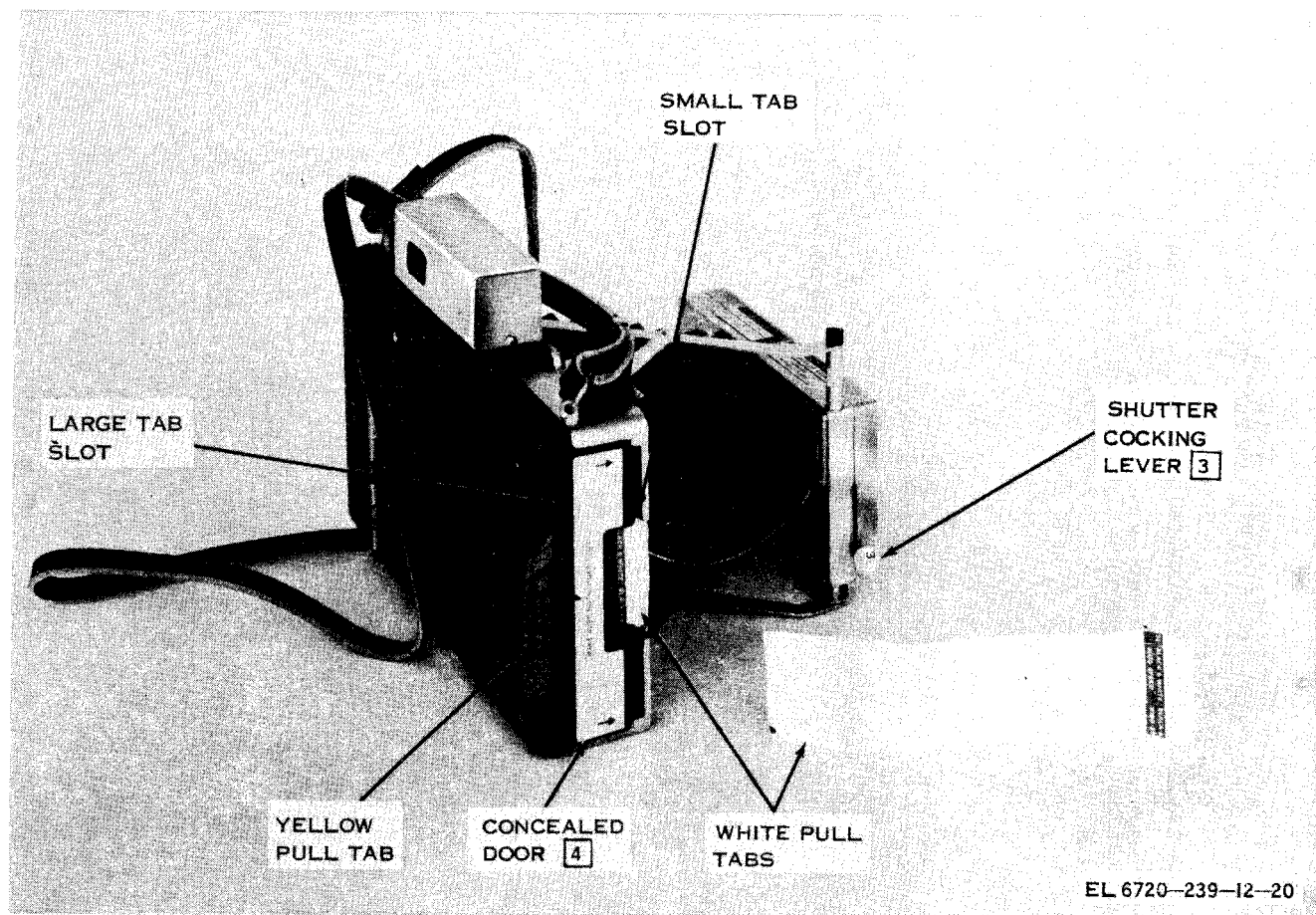


Figure 3-10. Camera, right side, with first white pull tab removed and yellow pull tab in position to start processing.

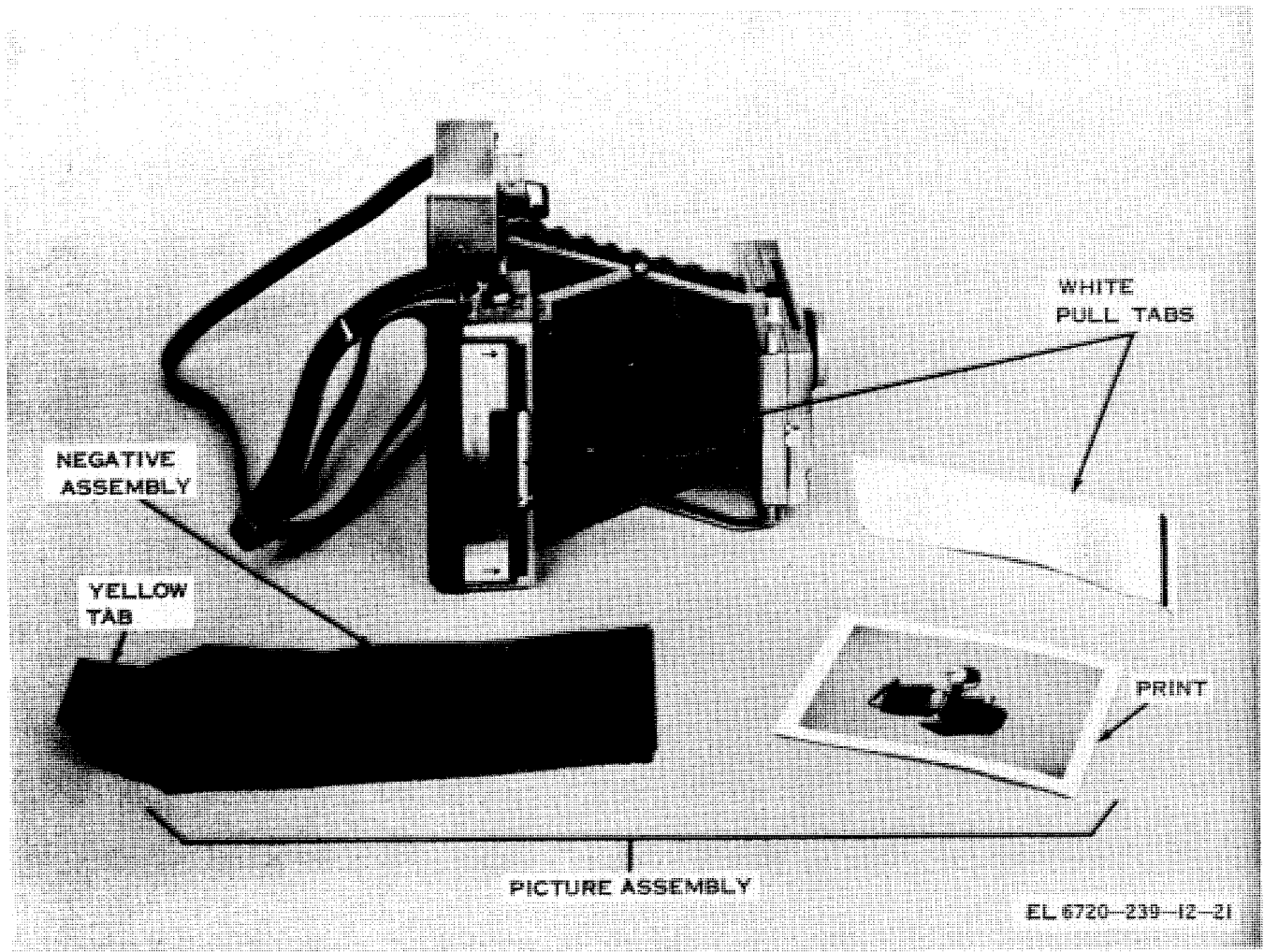


Figure 3-11. Camera with processed picture assembly.

Section IV. OPERATION UNDER UNUSUAL CONDITIONS

3-9. Operation at Low Temperatures

The camera set can be operated at near freezing temperatures providing the procedures given in *a* and *b* below are observed.

a. Equipment to be operated at low temperatures should be stored at approximately the same temperature as that in which it will be used. Avoid rapid changes in the equipment temperature. If the equipment is stored in a colder location than where it will be used, follow the procedures given in (1), (2), and (3) below.

(1) Transfer the equipment from the low-temperature storage location to the warmer location at least 6 hours in advance of its anticipated use.

(2) Before operating the equipment, wipe off any moisture on the outer plastic and metal

surfaces of the equipment with a soft, lint-free cloth.

(3) Inspect the optical surfaces of the finder assembly and the lenses on the front standard assembly for moisture. If moisture is present on the exposed optical surfaces, clean the exposed optical surfaces with lens tissue dampened with lens cleaner. Dry the exposed optical surfaces with fresh lens tissue.

Note. If moisture has condensed on the inner surfaces of the optical components, allow the equipment to stand long enough for the moisture to evaporate. Moisture on the inner surfaces may be evaporated more rapidly by allowing the equipment to stand in a warm area. Temperature must not exceed + 125° F. (50° C).

b. When the camera set is to be operated at low temperatures, observe the following points:

(1) Keep the equipment in low-temperature storage when it is not in use. Use precautions to prevent moisture from forming on the camera and flashgun parts, particularly on the optical assemblies.

(2) Avoid breathing directly on the equipment while it is at low temperature.

(3) Provide additional precautions and protection to the equipment while it is in storage to prevent exposure of the equipment to high humidity accompanied by freezing temperatures.

(4) Follow the cold weather directions given in the instruction sheet (supplied by the manufacturer) packed with the film pack being used.

Note. Do not use the cold-clip to develop black-and-white pictures.

(5) Use the cold-clip to develop color prints at near freezing temperatures (approximately 40° F. (4.4° C). Keep the cold-clip warm by holding it in an inner clothing pocket, close to the body.

3-10. Operation in Desert Areas or in Dust-Laden Atmosphere

When the camera set is used in desert areas or

other dust-laden atmosphere, observe the following precautions:

a. Expose the equipment to dust-laden air for minimum lengths of time.

b. Be sure that the flashgun is free of excessive dust before attaching it to the camera.

c. Install the camera cover as soon as possible after each use of the equipment.

d. Keep the camera and the flashgun in the carrying case at all times when the equipment is not in actual use.

e. Check the equipment frequently to see if cleaning is required.

3-11. Operation in Tropical Regions

When operating the camera set in tropical regions, observe the following precautions:

a. Inspect the equipment daily for fungus, mites, and metal corrosion. Clean the equipment (para 4-7), and remove all fouling matter immediately.

b. Keep the camera and the flashgun in the carrying case when the equipment is not in use.

c. When using the camera set, take additional precautions to prevent insects from entering the equipment. Do not leave the camera set exposed in insect-infested locations.

CHAPTER 4

OPERATOR'S MAINTENANCE INSTRUCTIONS

4-1. Scope of Operator's Maintenance

The maintenance duties assigned to the operator of the camera set are listed below, together with references to the paragraphs covering the specific maintenance functions. The duties assigned do not require materials other than those specified in paragraph 4-2.

- a. Daily preventive maintenance checks and services check (para 4-5).
- b. Weekly preventive maintenance checks and services chart (para 4-6).
- c. Visual inspection and cleaning (para 4-7).
- d. Troubleshooting (paras 4-8 and 4-9).

4-2. Materials Required

The following materials are required to perform the operator's preventive maintenance:

- a. Camel's-hair brush.
- b. Cleaning compound.
- c. Lint-free cloth.
- d. Lens cleaner.
- e. Lens tissue (FSN 6640-393-2090).

4-3. Operator's Preventive Maintenance

Operator's preventive maintenance is the systematic care, servicing, and inspection of equipment to prevent the occurrence of trouble, reduce downtime, and assure that the equipment is serviceable.

- a. *Systematic Care.* The procedures given in paragraphs 4-5, 4-6, and 4-7 cover routine systematic care and cleaning essential to proper upkeep and operation of the equipment.
- b. *Preventive Maintenance Checks and Services.* The operator's preventive maintenance checks and services charts (paras 4-5 and 4-6) outline functions to be performed at specific in-

tervals; however, if the equipment is used as part of a set or system, follow the procedures established in the set or system manual. These checks and service are to maintain Army equipment in a serviceable condition; that is in good operating condition. To assist operators in maintaining serviceability, the charts indicate what 'to check how to check, and 'the normal conditions; the *References* column lists the location of additional data on procedures. Records and reports of these checks must be made in accordance with the requirements set forth in TM 38-750.

4-4. Operator's Preventive Maintenance Checks and Services Periods

Operator's preventive maintenance checks and services of the camera set are required daily and weekly.

- a. Paragraph 4-5 specifies the checks and services that must be accomplished daily and under the following conditions:
 - (1) When the equipment is initially installed.
 - (2) When the equipment is reinstalled after removal for any reason.
 - (3) At least once each week if the equipment is maintained in standby condition.

b. Paragraph 4-6 specifies checks and services that must be performed weekly. A week is defined as approximately 7 calendar days of 8-hour-per-day operation. If the equipment is operated more than 8 hours per day, the weekly maintenance interval should also be made to compensate for any usual operating condition. Equipment maintained in a *standby* (ready for immediate operation) condition must have weekly maintenance, Equipment in limited storage (requires service before operation) does not require weekly maintenance.

4-5. Operator's Daily Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Prcedure	References
1	Cleanliness_ _ _ _ _	Check to see that equipment is clean.	Para 4-7b.
2	Completeness_ _ _ _ _	Check to see that equipment is complete.	Para 1-6 and app B.

Sequence No.	Item to be inspected	Procedure	References
3	Operation_ _ _ _ _	During operation, be alert for unusual operating conditions. Listen for unusual sounds from shutter assembly. Feel for binding or erratic operation of controls and rollers.	Para 3-6.
4-6. Operator's Weekly Preventive Maintenance Checks and Services Chart			
Sequence No.	Item to be inspected	Procedure	References
1	Camera cover _ _ _ _ _	Open camera cover by lifting upper part free of bar magnet's hold; allow camera cover to lay open. Gently press in on spring latch and lift hinged clip free of camera body. Check to see that camera cover is not damaged and is easily removed from camera body.	Fig. 1-4.
2	Finder assembly (view-finder portion).	Raise finder assembly to operating position. Sight nearby subject through range finder/viewfinder window. Check to see that finder assembly raises easily, bar magnet holds finder assembly firmly in operating position, and subject imaged in rangefinder/viewfinder window is sharp and clear.	
3	Front standard assembly ----	Gently lift up on right focusing pushbutton 1 to release front standard assembly. Pull out on knurled pull knob until front standard assembly locks in extended position. Check to see that front standard assembly releases, pulls smoothly, and locks in extended position.	
4	Focusing pushbuttons 1 _ _ _ _ _	Operate focusing pushbuttons 1. Check to see that focusing buttons move smoothly from side-to-side, and front standard assembly moves in and out without binding.	Fig. 3-1.
5	Finder assembly (range-finder portion).	Sight nearby subject through range-finder/viewfinder window; operate focusing pushbuttons 1. Image seen in range finder/wiewfinder window has bright spots in center and is seen double. When focusing pushbuttons 1 are moved, multiple image in bright spot comes together and super imposes when point of focus is reached. Images in bright spot should come together smoothly, without jumping, and superimpose.	
6	Exterior surfaces (fig. 1-1) .	Inspect and clean camera, flashgun, cold-clip, and carrying case.	Para 4-7.
7	Electrical wiring and connectors.	Check all exposed electrical on flashgun and camera for worn, cracked, broken, and frayed areas.	Refer to higher category maintenance for repair.

4-7. Visual Inspection and Cleaning

Visual inspection and cleaning will save time and may also avoid further damage to the camera set. When the equipment fails to perform properly, check for the possible defects as described in a below. If necessary, have defective parts repaired (or replaced) as soon as possible by appropriate maintenance personnel. Clean the camera set as directed in *b* below as often as necessary.

a. Visual Inspection. Make a general visual inspection of the camera set; check for obvious defects as follows:

(1) Check the camera set controls for damaged or inoperative condition.

(2) Check the condition of the bellows (fig. 4-1). Make sure that it is free of foreign matter and not frayed, worn, or creased outside the normal folds.

(3) Check the tension on the pressure and retaining springs.

(4) Check the surfaces of concealed door 4 and rollers to see that they are not bent, dented, or worn.

(5) Check the condition of the shutter connecting cable (on the flashgun), and the shutter cable release and shutter electrical cable (on the camera); check for signs of deterioration, breaks, and worn spots.

(6) Check the optical surfaces for any chipped, cracked, scratched, or dirty condition.

b. Cleaning.

(1) Remove loose dirt from metal surfaces with a clean, dry cloth.

(2) Remove dirt from hard-to-reach surfaces with a brush.

Warning: Prolonged breathing of cleaning compound is dangerous; make sure that adequate ventilation is provided. Cleaning compound is flammable; *do not* use near a flame. Avoid contact with the skin; wash off any that spills on the hands.

Caution: Do not allow the cleaning compound to come in contact with the bellows optical surfaces or the plastic parts of the camera set. Use cleaning compound sparingly.

(3) Remove grease, fungus, and ground-in dirt from the exterior metal surfaces; use a clean, lint-free cloth dampened with the cleaning compound. Dry-wipe the cleaned areas.

(4) Dust the bellows and the plastic parts of the camera set.

(5) Clean the bellows and the plastic parts of the camera with a clean, lint-free cloth dampened with water, and wipe dry.

4-8. Operator's Troubleshooting Information

The troubleshooting chart (para 4-9) helps the operator to find and correct certain troubles. The troubles and corrective measures listed are those the operator can accomplish. If the corrective measures suggested do not restore normal equipment performance, do not attempt to disassemble the defective camera set component. Note on the repair tag what corrective measures were taken, how the equipment performed at the time of failure, and refer the equipment to the organizational category of maintenance for repair.

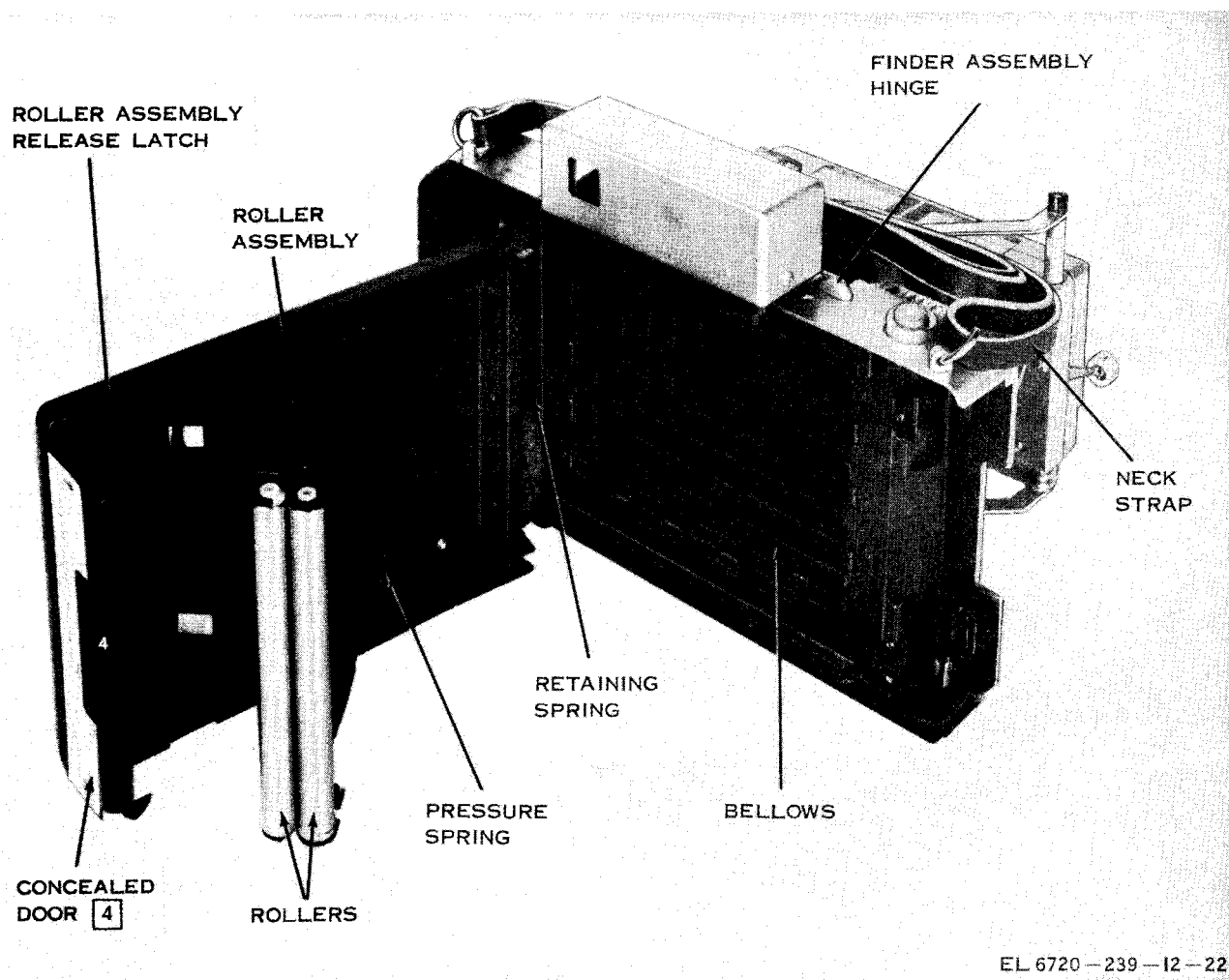
4-9. Operator's Troubleshooting Chart

The chart below lists the trouble symptoms, probable trouble, and corrective measures that are common to both black-and-white and color prints.

Item No.	Trouble symptom	Probable trouble	Checks and corrective measures
	Print is white and has no perceptible image, or print is white and image very faint,	Print is lightstruck or severely overexposed; check for the following:	
		<i>a.</i> Safety cover removed from film pack before film pack installed.	<i>a.</i> Properly reload new film pack in camera (para 3-3).
		<i>b.</i> Incorrect setting of FILM SPEED control.	<i>b.</i> Reset FILM SPEED control (para 3-6c) to match speed of film pack in use.
		<i>c.</i> Film pack removed from camera.	<i>c.</i> Do not remove film pack from camera once safety cover is pulled out.
	Print is black and has no perceptible image, or print is black and image very faint.	<i>a.</i> Shutter did not open; shutter cocking lever 3 not cocked.	<i>a.</i> Make sure that shutter cocking lever 3 is cocked all the way.

Item No.	Trouble symptom	Probable trouble	Checks and corrective measures
		<ul style="list-style-type: none"> <i>b.</i> Front standard not pulled out to its limit. <i>c.</i> Battery in camera defective. 	<ul style="list-style-type: none"> <i>b.</i> Pull out front standard until it locks in extended position. <i>c.</i> Replace camera battery (para 4-10).
3	Prints are all light (overexposed).	<ul style="list-style-type: none"> <i>a.</i> Incorrect setting of L/D control. <i>b.</i> Incorrect setting of FILM SPEED control. 	<ul style="list-style-type: none"> <i>a.</i> Refer to film pack manufacturer's instruction sheet and set L/D control as recommended. If already set to recommended setting, adjust L/D control toward DARKEN until desired result is obtained. <i>b.</i> Reset FILM SPEED control to match speed of film pack in use.
4	Prints are all dark (underexposed).	<ul style="list-style-type: none"> <i>a.</i> Incorrect setting of L/D control. <i>b.</i> Incorrect setting of FILM SPEED control. <i>c.</i> Shutter connecting cable from flashgun connected to shutter sync outlet while making non flash pictures. 	<ul style="list-style-type: none"> <i>u.</i> Refer to film pack manufacturer's instruction sheet, and set L/D control as recommend; adjust L/D control toward LIGHTEN until desired result is obtained. <i>b.</i> Reset FILM SPEED control to match speed of film pack in use. <i>c.</i> Disconnect flashgun shutter connecting sync outlet when non-flash pictures are made.
5	Light or discolored areas show along edges and/or corners of print.	Yellow pull tab not pulled out of camera straight, causing uneven development.	Pull yellow pull tab swiftly and straight out of camera.
6	Rectangular light area runs through most of center of print.	White pull tab not completely removed from camera, and is withdrawn back into camera when yellow pull tab is pulled.	Pull white pull tab straight and completely out of camera.
7	Repeated white spots show, running evenly spaced through print.	Dirt or foreign matter on rollers.	Inspect and clean rollers (para 4-7) each time new film pack is inserted in camera.
8	Many white specks show on print.	Yellow pull tab pulled excessively fast.	Pull yellow tab slightly slower.
9	Prints are muddy looking; black-and-white prints appear dull gray and lack contrast; color prints appear brownish-pink overall.	Print underdeveloped.	Develop print for full time recommended in film pack manufacturer's instruction sheet. In case of color prints, use cold-clip when surrounding temperature falls below 66° F (18.3° C).
10	Light streamers from sources of light show in picture area.	<ul style="list-style-type: none"> <i>a.</i> Lighting selector control incorrectly set when photoflash lamp was used, causing camera to make secondary time exposure; during this time, camera or light source in picture area moved. <i>b.</i> Lighting correctly set for photoflash use, but lamp-to-subject distance excessive, causing camera to make secondary time exposure; during this time, camera or light source in picture area moved. 	<ul style="list-style-type: none"> <i>a.</i> Reset lighting selector control to reflect correct lighting condition. <i>b.</i> Move camera (with flashgun attached) closer to subject, or arrange secondary lighting so that it is out of picture area; make another exposure.
11	<p>Corner and/or edges of print are very dark.</p> <p>U-shaped white area appears on print.</p>	<p>Lighting selector control incorrectly set.</p> <ul style="list-style-type: none"> <i>a.</i> White pull tab folded under when film pack was loaded in camera. 	<p>Reset lighting selector control to reflect correct lighting condition.</p> <ul style="list-style-type: none"> <i>a.</i> Load film pack in camera correctly (pars 3-3).

Item No.	Trouble symptom	Probable trouble	Checks and corrective measures
		b. Yellow pull tab pulled too slowly.	b. Pull yellow pull tab swiftly and straight out of camera.
		c. Dirt or foreign matter on ends of rollers.	c. Clean rollers (para 4-7)
		d. Right end of camera squeezed while yellow pull tab was being pulled out.	d. Do not obstruct large and small tab slots while pulling white or yellow pull tabs out of the camera. (Pull tabs swiftly and straight out of camera).
	Photoflash lamp (when flash pictures are being taken) does not fire,	a. Defective photoflash lamp.	a. Install new photoflash lamp.
		b. Shutter connecting cable from flashgun not connected to shutter sync outlet.	b. Connect shutter connecting cable to shutter sync outlet.
		c. Defective flashgun.	c. Refer flashgun to higher category maintenance.



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Figure 4-1. Camera, camera back cover open.

4-10. Replacing Camera Battery

Replace the battery in the camera as follows:

a. Open the battery compartment cover (fig. 3-5) by placing the tip of the thumb in the thumb-nail recess; pull out on the battery compartment cover.

b. Carefully unsnap the black (–) and white (+) battery connectors (fig. 4-2) from the terminals on the ends of the battery and move them to one side.

c. Note the position of the battery in the battery compartment; gently snap the battery out of the battery holder.

d. Install the new battery in the battery holder so that it rests in the position noted in c above.

e. Connect the white (+) battery connector to the positive terminal of the battery, and the black (–) battery connector to the negative terminal of the battery.

f. Dress the wires, attached to the battery connectors, inside the battery compartment so that they do not become pinched when the battery compartment cover is closed.

g. Close the battery compartment cover; make sure that the clip engages the spring latch and snaps into place.

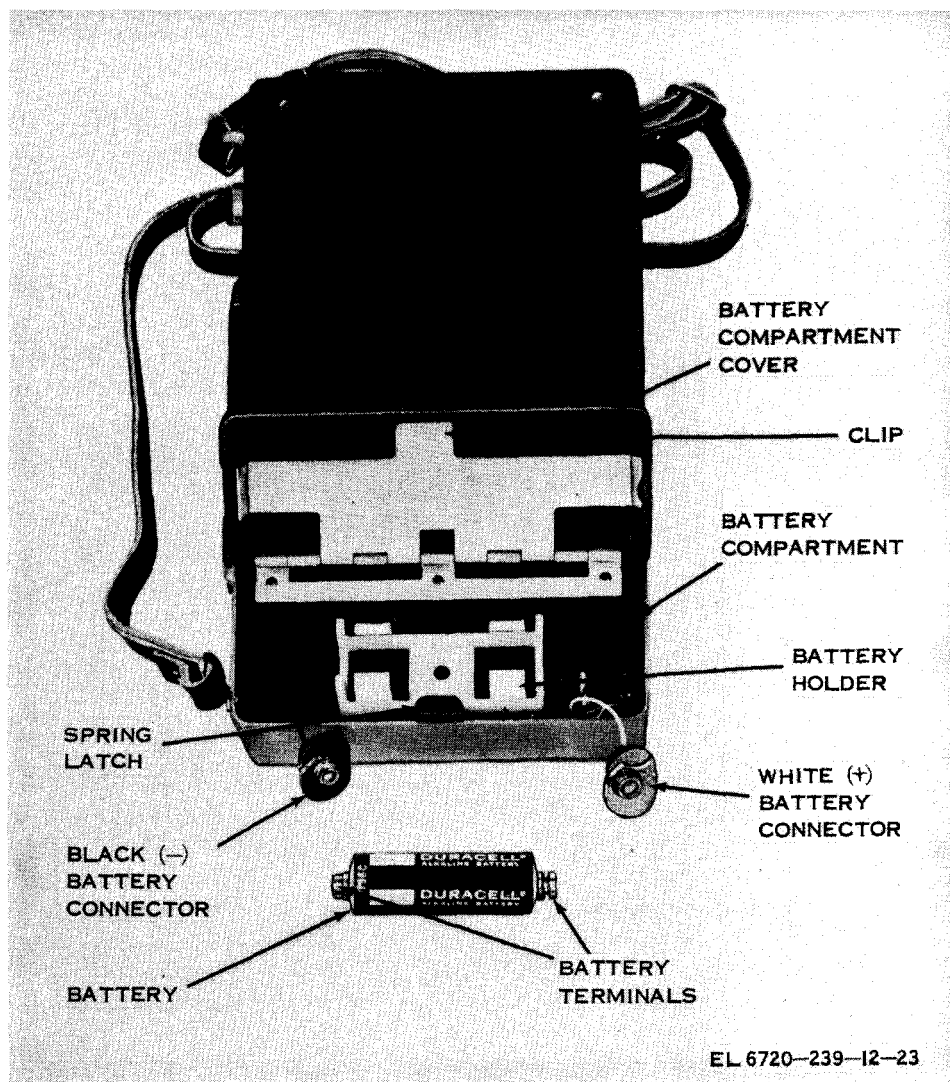


Figure 4-2. Battery removed from camera.

CHAPTER 5

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

5-1. Scope of Organizational Maintenance

The maintenance duties assigned to the organizational repairman of the camera set are listed below, together with references to the paragraphs covering the specific maintenance functions. The tools and test equipment required are specified in paragraph 5-2.

- a. Monthly preventive maintenance checks and services (para 5-5).
- b. Troubleshooting (para 5-6).
- c. Repairs, adjustment, and replacement of parts (paras 5-7, 5-8, and 5-9).

5-2. Tools, Materials, and Test Equipment
Required for Organizational Maintenance

In addition to the materials required for operator's maintenance (para 4-2), the items given below are required for organizational maintenance:

- a. Tool Kit, Photographic Repairman TK-77/GF.
- b. Multimeter AN/URM-105.
- c. Cable release tool, Polaroid CR169449.

5-3. Organizational Preventive Maintenance

a. Organizational preventive maintenance is the systematic care and servicing of equipment to maintain it in serviceable condition, prevent breakdown, and assure maximum operational capability. Preventive maintenance is the responsibility of all personnel concerned with the equipment, and includes the inspection, testing, and

repair or replacement of parts that inspection and tests indicate would probably fail before the next scheduled periodic service. Preventive maintenance checks and services of the camera set at the organizational maintenance category are made at monthly intervals, unless otherwise directed by the commanding officer. The preventive maintenance checks and services should be scheduled concurrently with the operator's daily (para 4-5) and weekly (para 4-6) preventive maintenance checks and services.

b. Maintenance forms and records to be used and maintained on this equipment are specified in TM 38-750,

5-4. Organizational Monthly Preventive
Maintenance

Perform the maintenance functions indicated in the monthly preventive maintenance checks and services chart (para 5-5) once each month. A month is defined as approximately 30 calendar days of 8-hour-per-day operation. If the equipment is operated 16 hours a day, the, monthly preventive maintenance checks and services should be performed at 15-day intervals. Adjustment of the maintenance interval must be made to compensate for any unusual operating conditions. Equipment maintained in a *standby* condition must have monthly preventive maintenance checks and services performed on it. Equipment in *limited storage* does not require monthly preventive maintenance.

5-5. Organizational Monthly preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedure	References
1	FILM SPEED control _____	Rotate FILM SPEED control through its range of film speed stops. Check to see that FILM SPEED control rotates easily and comes to definite stop in each detent position. Aperture opening should be centered in lens, and FILM SPEED dial marking centered and clearly visible below lens,	Fig. 3-2

Sequence No.	Item to be inspected	Procedure	References
2	Lighting selector control _____	With lighting selector control in left position (in direction of lens) to start, move lighting selector control to right (away from lens). Check to see that lighting selector control moves with minimum of resistance, aperture seen in lens is changed to smaller opening, and lighting selector indicator shifts to alternate position.	Fig. 3-2
3	Shutter cocking lever 3 - - - - - assembly.	Cock shutter by pressing shutter cocking lever 3 down as far as it will go. Check to see that shutter cocks, and shutter cocking lever 3 remains in down position.	Fig. 3-1.
4	Concealed door 4 -----	Operate concealed door 4. Check to see that concealed door 4 moves easily on its pivots.	Fig. 3-10.
5	Back cover release (fig. 1-4).	Move back cover release in direction of tripod socket. Check to see that back cover release moves without binding and camera back cover (fig. 3-3) opens.	Fig. 1-4.
6	Door hinge - - - - -	Fully open camera back cover. Check to see that door hinge does not bind and is firmly attached to end of camera back cover.	Fig. 4-1.
7	Pressure spring and retaining spring.	Press in on ends of pressure spring and retaining spring. Check to see that springs are firmly secured and spring back to original shape when pressure is released.	Fig. 4-1.
8	Roller assembly -----	Gently lift up on roller assembly release latch until roller assembly is freed. Check to see that roller assembly swings out, and rollers are clean and free of damage and foreign matter, and move without binding.	Fig. 4-1.
9	Roller assembly release latch.	Move roller assembly to camera back and into operating position. Check to see that it is held securely by roller assembly release latch.	Fig. 4-1.
10	Camera back cover _____	Close camera back cover. Check to see that camera back cover closes easily and both sides latch securely.	Fig. 3-3.
11	Battery compartment cover.	Open battery compartment cover; battery compartment cover should open against stiff resistance of clip against spring latch.	Fig. 4-2.
12	Battery - - - - -	Check condition of battery and its installation. Make sure that battery does not leak or bulge and is held securely in battery holder; and check to see that black and white battery connectors are connected to their respective battery terminals.	Fig. 4-2.
13	Clip and spring latch -----	Close battery compartment cover. Check to see that battery compartment cover closes easily and is held securely by spring latch and clip.	Fig. 4-2.

Sequence No.	Item to be inspected	Procedure	References
14	Flashgun _____	Install flashgun on camera, and connect sync connector plug to shutter sync outlet. Check to see that flashgun installs easily, and sync connector plug fits firmly in shutter sync outlet.	Para 3-4 and fig. 3-6.
15	Reflector assembly -----	Rotate reflector assembly through its range of rotation. Check to see that reflector assembly rotates easily and reflector detent (fig. 1-9) positions reflector assembly in each operating position.	Fig. 1-8.
16	Blue filter shield _____	Carefully open blue filter shield to maximum open position. Check to see that blue filter shield operates easily and is firmly attached at its hinged pivot point; check to see that pivot stop tabs are not broken or cracked.	Fig. 1-8.
17	Flashlamp receptacle _____	Insert photoflash lamp in flashlamp receptacle. Check to see that photoflash lamp installs easily and is held firmly in flashlamp receptacle.	Fig. 3-6.
18	Ejector button _____	Press in on ejector button. Check to see that ejector button operates easily and photoflash lamp ejects from flashlamp receptacle.	Fig. 1-9.
19	Release lever _____	Press release lever; remove flashgun and return it to carrying case. Check to see that release lever operates easily and frees flashgun from camera.	Fig. 1-9.
20	PRESS TO CLOSE arm ____	Gently press PRESS TO CLOSE arm and close camera. Check to see the PRESS TO CLOSE arm operates easily and releases front standard assembly, allowing camera to be folded.	Fig. 3-1.
21	Shutter release button 2 ____	Press shutter release button 2. Shutter assembly operates; shutter blades seen through lens do not open, indicating normal break in shutter electrical circuit when camera is folded.	Fig. 3-1.
22	Camera cover and finder assembly.	Install camera cover (fig. 1-4) on bottom edge of camera body; carefully rotate finder assembly to front of camera and close camera cover. Check to see that spring latch holds hinged clip on camera securely, finder assembly folds into camera after, bar magnet hold is broken, and camera cover is held in closed position by bar magnet (fig. 3-5) used to hold finder assembly in operating position.	Fig. 1-3.

5-6. Organizational Troubleshooting

a. Organization Troubleshooting Information. The troubleshooting chart (b below) is furnished as an aid in localizing trouble in the camera set. Only those corrective measures that the organizational maintenance man can apply are given. If the corrective measure suggested does not restore normal equipment performance, troubleshooting is required by a photographic maintenance man at a higher category of maintenance. Note on the repair tag what corrective measures were taken, and

refer the equipment to the next higher category of maintenance for repair. Before using the troubleshooting chart, examine the repair tag to see whether the trouble has been sectionalized by the operator. If there has been no sectionalization, inspect the equipment for obvious defects before attempting to operate it.

b. Organizational Troubleshooting Chart. The chart below lists the trouble symptom, probable trouble, and corrective measures that can be accomplished by organizational maintenance personnel.

Item No.	Trouble symptom	Probable trouble	Checks and Corrective Measures
1	Rangefinder portion of finder assembly is inoperative or inaccurate.	a. Obstruction between focusing cam lever (fig. 3-8) and focus bar bracket. b. Range finder mechanism of finder assembly defective.	a. Remove obstruction from focusing cam lever. b. Refer equipment to high category maintenance for repair.
2	Flashgun is inoperative or defective.	a. Defective flashgun battery. b. Break in electrical circuit continuity. c. Defective flashgun.	a. Replace flashgun battery (para 5-8) . b. Remove flashgun battery, and check continuity of electrical circuit. Use low ohms scale of Multimeter AN/URM-105 and repair break in continuity. c. Refer equipment to higher category maintenance for repair.

5-7. Organizational Repairs, Adjustments, and (Replacement of Parts

a. Organizational maintenance includes the repair, adjustment, or replacement of parts for which the authorized tools, test equipment, and spare parts have been made available. All other items needing repair or replacement must be handled at a higher category of maintenance.

b. When replacing an electrical component, or making electrical repairs, tag all disconnected leads; refer to the information on the tagged leads for connection information before reconnection loose leads.

5-8. Replacing Flashgun Battery (fig. 5-1)

Install a new battery in the flashgun (when required) as follows:

a. Make sure that the flashgun is removed and disconnected from the camera.

b. Remove the retaining screws that secure the battery compartment cover (bracket assembly) to the battery case.

c. Note the polarity position of the battery, and remove the battery from the battery compartment.

d. Install the new battery in the position noted in c above.

e. Install the bracket assembly on the battery case, and secure it with the retaining screws removed in b above.

5-9. Blue Filter Shield Replacement (fig. 5-1)

Replace the blue filter shield on the flashgun as follows:

a. Remove the flashgun from the camera and close the blue filter shield.

b. Carefully drive out the hinge pin.

c. Remove the defective blue filter shield from the reflector assembly.

d. Position the new blue filter shield so that the fixed hinge is between the pivot stop tabs on the blue filter shield.

e. Line up the holes in the pivot stop tabs and the fixed hinge; carefully reinsert the hinge pin removed in b above.

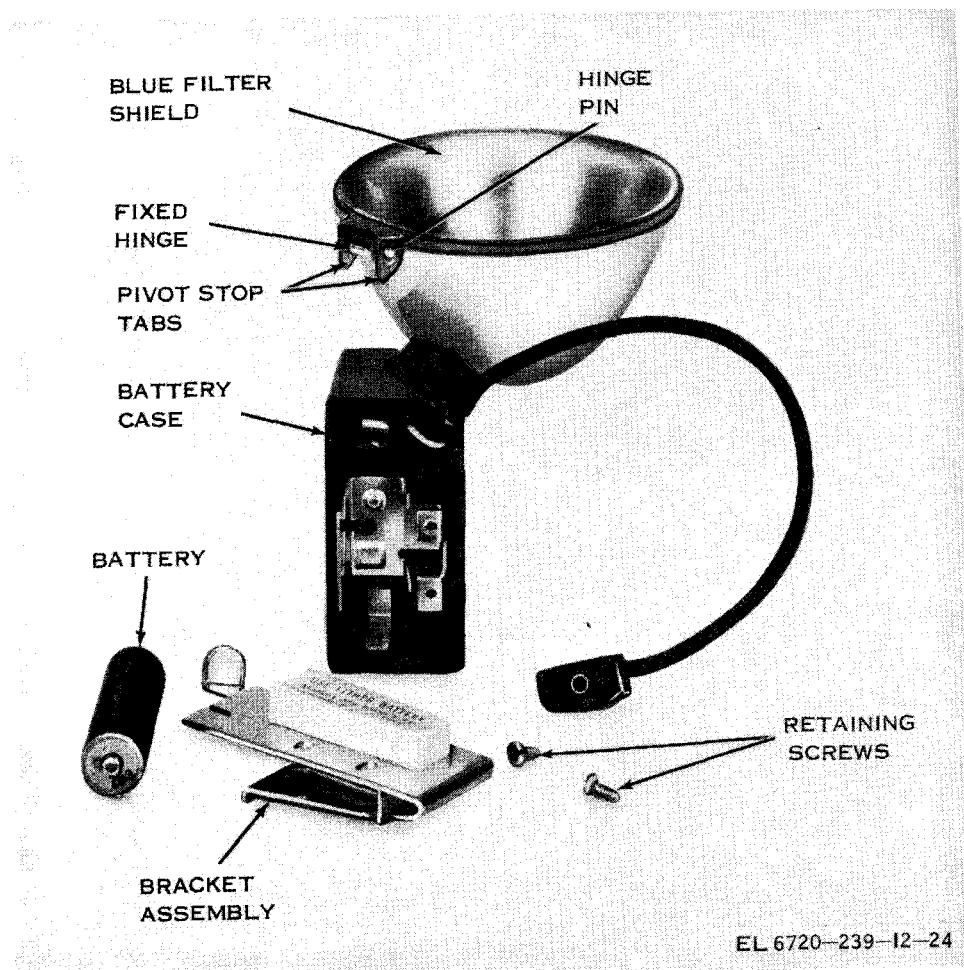


Figure 5-1. Flashgun, partially disassembled.

CHAPTER 6

SHIPMENT AND LIMITED STORAGE AND DEMOLITION TO PREVENT ENEMY USE

Section I. SHIPMENT AND LIMITED STORAGE

6-1. Preparation for Storage

Prepare the camera set for packaging as follows:

- a. Check to be sure that the camera set is clean (para 4-7).
- b. Perform the stopping procedures (para 3-8).

6-2. Repacking Camera Set for Shipment or Limited Storage (fig. 2-1)

Normally, equipment that is to be shipped for use by other personnel or activities is packaged by organizational personnel; however, if the equipment is to be transported over a short distance (under the control of the using unit) for immediate reuse, perform the procedures given in a through f below,

- a. Open the carrying case to reveal the stored components (fig. 1-2).

- b. Check to be sure that all components are secured by the spring clips, straps, and catches provided within the case,

- c. Fill all spaces between the components in the carrying case with any material capable of absorbing the shock encountered in handling and transit (cloth, rolled-up paper, or pads fabricated from corrugated cardboard).

- d. Close the lid of the carrying case and snap the latch securely,

- e. Cushion the outside of the carrying case with pads fabricated from corrugated cardboard, or other material capable of absorbing shock.

- f. Place the carrying case, cushioned as described in e above, into a close-fitting, corrugated fiberboard box (fig. 2-1) and seal all closures with gummed sealing tape.

Section II. DEMOLITION TO PREVENT ENEMY USE

6-3. Authority for Demolition

Demolition of the equipment will be accomplished only upon the order of the commander. Use the destruction procedures outlined in paragraph 6-4 below to prevent further use of the equipment.

6-4. Methods of Destruction

- a. If complete destruction of the camera set cannot be accomplished in the time available, destroy the components in the following order:

- (1) Camera.
- (2) Flashgun.
- (3) Carrying case.
- (4) Cold-clip.

- b. Use any of the following methods to destroy the equipment:

- (1) *Smash*. Smash all optical and metal components; use sledges, axes, handaxes, pickaxes, hammers, or crowbars.

- (2) *Cut*. Cut the extension and connecting cords, leather strap, and film; use axes, handaxes, or machetes.

- (3) *Bend*. Bend the camera back cover and support braces.

Warning: Be extremely careful with explosives and incendiary devices. Use these items only when the need is urgent.

- (4) *Burn*. Burn the film, cords, leather strap, and technical manuals; use gasoline, kerosene, oil, flamethrowers, or incendiary grenades.

- (5) *Explode*. If explosives are necessary, use firearms, grenades, or TNT.

- (6) *Dispose*. Bury or scatter the destroyed parts in slit trenches or foxholes, or throw them into streams.

APPENDIX A

REFERENCES

The following publications contain information applicable to the operation and maintenance of Camera Set, Still Picture KS-101A.

DA Pam 3104	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 Required Signal Equipment.
TB SIG 355-2	Depot Inspection Standard for Refinishing Repaired Signal Equipment.
TB SIG 355-3	Depot Inspection Standard for Moisture and Fungus Resistant Treatment.
TM 11-401	Elements of Signal Photography.
TM 11-6625-203-12	Operator and Organizational Maintenance: Multimeter AN/URM-105, Including Multimeter ME-77/U.
TM 11-6625-366-15	Organizational, DS, GS, and Depot Maintenance Manual: Multimeter TS-322B/U.
TM 38-750	Army Equipment Record Procedures.

APPENDIX B

BASIC ISSUE ITEMS LIST (BIIL) AND ITEMS TROOP INSTALLED OR AUTHORIZED LIST (ITIAL)

Section I. INTRODUCTION

B-1. Scope

This appendix lists only basic issue items required by the crew/operator for installation, operation, and maintenance of Camera Set Still Picture KS-101A.

B-2. General

This Basic Issue Items and Items Troop Installed or Authorized List is divided into the following sections:

- a. *Basic Issue Item-s List - Section II.* A list, in alphabetical sequence, of items which are furnished with, and which must be turned in with the end item.
- b. *Items Troop Installed or Authorized List -Section III.* Not applicable.

B-3. Explanation of Columns

The following provides an explanation of columns found in the tabular listings:

- a. *Illustration.* This column is divided as follows:
 - (1) *Figure Number.* Indicates the figure number of the illustration in which the item is shown.
 - (2) *Item Number.* Not applicable.
- b. *Federal Stock Number.* Indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

c. *Part Number.* Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications standards, and inspection requirements, to identify an item or range of items.

d. *Fedeml Supply Code for Manufacturer (FSCM).* The FSCM is a 5-digit numeric code used to identify the manufacturer, distributor, or Government agency, etc., and is identified in SB 708-42.

e. *Description.* Indicates the Federal item name and a minimum description required to identify the item.

f. *Unit of Measure (U/M).* Indicates the standard of basic quantity of the listed item as used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation, (e.g., ea, in., pr, etc.). When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned.

g. *Quantity Furnished with Equipment (Basic Issue Items Only).* Indicates the quantity of the basic issue item furnished with the equipment.

Section II. BASIC ISSUE ITEMS LIST

(1) Illustration		(2) Federal stock number	(3) Part number	(4) FSCM	(5) Description Usable on code	(6) Unit of meas	(7) Qty furn with equip
(A) Fig. No.	(B) Item No.						
1-2		6760-880-5263	322	47904	CASE PHOTOGRAPHIC EQUIPMENT	EA	1

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APPENDIX C

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

C-1. General

This appendix provides a summary of the maintenance operations covered in the equipment literature for Camera Set, Still Picture KS-101A. It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

C-2. Explanation of Format for Maintenance Allocation Chart

a. Group Number. Not used,

b. Component Assembly Nomenclature. This column lists the item names of component units, assemblies, subassemblies, and modules on which maintenance is authorized.

c. Maintenance Function. This column indicates the maintenance category at which performance of the specific maintenance function is authorized. Authorization to perform a function at any category also includes authorization to perform that function at higher categories. The codes used represent the various maintenance categories as follows:

Cede	Maintenance category
C-----	Operator/crew
O-----	Organizational maintenance
F-----	Direct support maintenance
H-----	General support maintenance
D-----	Depot maintenance

d. Tools and Equipment. The numbers appearing in this column refer to specific tools and equipment which are identified by these numbers in section III.

e. Remarks. Self-explanatory.

C-3. Explanation of Format for Tool and Test Equipment Requirements

The columns in the tool and test equipment requirements chart are as follows:

a. Tools and Equipment. The numbers in this column coincide with the numbers used in the tools and equipment column of the MAC. The numbers indicate the applicable tool for the maintenance function.

b. Maintenance Category. The codes in this column indicate the maintenance category normally allocated the facility.

c. Nomenclature. This column lists tools, test, and maintenance equipment required to perform the maintenance functions.

d. Federal Stock Number. This column lists the Federal stock number.

e. Tool Number. Not used.

GROUP NUMBER	COMPONENT ASSEMBLY NOMENCLATURE	MAINTENANCE FUNCTIONS										TOOLS AND EQUIPMENT	REMARKS	
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL			REBUILD
	CAMERA SET, STILL PICTURE KS-101A	C	O	C	H					O			10 1,6,12	
	BATTERY							C						
	ELECTRONIC BLOCK AND SHUTTER		P										2,4,5,7,8,9, 11	
	BASE PLATE ASSY		H										2,9	
	FLASH UNIT		O					C					1,3	
	FINDER ASSEMBLY							O					1	

SECTION III. TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOLS AND EQUIPMENT	MAINTENANCE CATEGORY	NOMENCLATURE	FEDERAL STOCK NUMBER	TOOL NUMBER
1	O	KS-101A (cont) TOOL KIT TK-77/GF	5180-752-9068	
2	F	TOOL KIT TK-109/GF	5180-856-9653	
3	O	MULTIMETER AN/URM-105	6625-581-2036	
4	F	MULTIMETER TS-352/U	6625-242-5023	
5	H	LENS FOCUSING TOOL POLAROID CR169452		
6	O	CABLE RELEASE TOOL POLAROID CR169449		
7	F	SPECIAL WRENCH POLAROID CR169456		
8	F	ADJUSTING WRENCH POLAROID CR1004		
9	H	SPEED TESTER POLAROID 100		
10	H	UNIVERSAL COLLIMATOR POLAROID 100		
11	H	SOLDER COBBLER IRON AIR VAC MILL FORT, CONN		
12	F	BIPAX TRA-CON BA-2122		

APPENDIX D

ORGANIZATIONAL REPAIR PARTS

Section I. INTRODUCTION

D-1. Scope

This appendix contains a list of repair parts and special tools required for the performance of organizational maintenance for Camera, Still Pictures KS-101A.

Note. No special tools, test, and support equipment are required,

D-2. General

The repair parts list is divided into the following sections:

a. Prescribed Load Allowance (PLA), Section II. The PLA is a consolidated listing of repair parts allocated for initial stockage at the organizational maintenance category. This is a mandatory minimum stockage allowance.

b. Repair Parts for Organizational Maintenance, Section III. Repair parts authorized for organizational maintenance are included in this section.

Note. All indexes noted below are cross referenced to index numbers. The index numbers appear in ascending sequence in column 1 of the repair parts list (para D-3a). The index number for the particular item will be the same for the item in all sections of this appendix.

c. Federal Stock Number Cross-Reference to Index Number, Section IV. This is a cross-reference of Federal stock numbers and manufacturer's part numbers to index numbers.

d. Figure and Item Number Cross-Reference to Index Number, Section V. This is a cross-reference index of figure number and item number (reference designation) to index number. The figure numbers are listed in numerical sequence; reference designations are listed for each figure.

e. Reference Designation Cross Reference to Index Number, Section VI. This is a cross reference index of reference designations to index numbers.

D-3. Explanation of Columns

An explanation of the columns is given below,

a. Source, Maintenance, and Recoverability Codes (SMR) and Index Numbers Column. The first line in this column lists the applicable SMR

codes for the part. Listed in ascending order directly below the SMR codes is the index number assigned to the repair part,

(1) *Source code (S).* The selection status and source for the listed item is noted here. Source codes and their explanations are as follows:

code	Explanation
P	Applies to repair parts that are stocked in or supplied from the GSA/DSA, or Army supply system, and authorized for use at indicated maintenance categories.
X1	Applies to repair parts that are not procured or stocked, the requirement for which will be supplied by the use of next higher assembly or component.

(2) *Maintenance code (M).* The lowest category of maintenance authorized to install the listed item is noted here.

Code	Explanation
O-----	-Organizational maintenance
(3) Recoverability code (R).	The information in this column indicates whether unserviceable items should be returned for recovery or salvage. Recoverability code and its explanation is as follows:

Note. When no code is indicated in the recoverability column, the part will be considered expendable.

Code	Explanation
R	Applies to repair parts and assemblies which are economically repairable at DSU and GSU activities and normally are furnished by supply on an exchange basis.

b. Federal Stock Number Column. The Federal stock number for the item is listed in this column.

c. Description Column. This column includes the Federal item name and any additional description of the item required, the manufacturer's part number (reference number) and the applicable five-digit Federal Supply Code for Manufacturers (para D-5), Usable on code column is not used.

d. Unit of Measure Column. The unit used as a basis of measure (e.g., ea, pr, ft, yd, etc.) is indicated in this column,

e. Quantity Incorporated in Unit Column. The quantity of repair parts in an assembly is given in this column,

f. Maintenance Allowances Column.

(1) The maintenance allowance column is divided into subcolumns. Indicated in each subcolumn opposite the item is the total quantity of items authorized for the number of equipments supported, 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 organizational category of maintenance represents one initial prescribed load for a 15-day period for the number of equipments supported. Units and organizations authorized additional prescribed loads will multiply the number of prescribed loads authorized by the quantity of repair parts reflected in the appropriate density column to obtain the total quantity of repair parts authorized,

(3) Subsequent changes to organizational allowances will be limited as follows: No change in the range of items is authorized. If additional items are considered necessary, recommendations should be forwarded to Commanding General, U.S. Army Electronics Command, ATTN: AMSEL-ME-NMP-R, Fort Monmouth, N. J. 07703, for exception or revision to the allowance list. Revisions to the range of items authorized will be made by the USA ECOM National Maintenance Point based upon engineering experience, demand data, or TAERS information.

g. Illustrations Column.

(1) *Figure number (a).* The number of the illustration in which the item is shown is indicated in this column.

(2) *Item No. or reference designation (b).* The reference designation used to reference the item in the illustration appears in this column.

D-4. Location of Repair Parts

a. This appendix contains three cross-reference indexes (sec. IV, V, and VI), to be used to locate a repair part when either the Federal stock number, reference number (manufacturer's part number), figure number, or reference designation is known. The first column in each cross-reference index is prepared, as applicable, in numerical or alphanumeric sequence. The last column of each cross-reference index lists the index number assigned to the part,

b. Refer to the appropriate cross-reference index (para D-2c, *d*, *e*) and note the index number in the last column; then refer to the repair parts list to locate the index number which is listed in ascending order in column 1 of the repair parts list.

D-5. Federal Supply Codes

This paragraph lists the Federal supply code and the associated manufacturer's name.

Code	Manufacturer
47904 _____	Polaroid Corp

SECTION II. PRESCRIBED LOAD ALLOWANCE

(1) FEDERAL STOCK NUMBER	(2) DESCRIPTION USABLE ON CODE	(3) 15-DAY ORG. MAINT. ALLOWANCE			
		(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100
	FLASHGUN ASSEMBLY: 268; 47904	*	*	*	2
	FLASH CONNECTOR AND CORD ASSEMBLY: 161172; 47904	*	*	*	2
	SCREW, SELF TAPPING: 220463; 47904	*	*	*	2
	MOUNTING FOOT ASSEMBLY: 146897; 47904	*	*	*	2
	SCREW: 157849; 47904	*	*	*	2
	SPRING: 157911; 47904	*	*	*	2
	COLLAR: 155342; 47904	*	*	*	2
	HOUSING: 143851; 47904	*	*	*	2
	EJECTOR BUTTON: 146765; 47904	*	*	*	2
	INSULATOR: 154524; 47904	*	*	*	2
	BATTERY CUP: 155326; 47904	*	*	*	2
	PLATE MOUNTING: 155332; 47904	*	*	*	2
	SCREW: 154525; 47904	*	*	*	2
	REFLECTOR ASSEMBLY: 143866; 47904	*	*	*	2
	SOCKET ASSEMBLY: 146893; 47904	*	*	*	2
	SPACER DETENT: 160597; 47904	*	*	*	2
	SPRING, DETENT: 155216; 47904	*	*	*	2
	RETAINER: 163048; 47904	*	*	*	2
	BATTERY TERMINAL: 160406; 47904	*	*	*	2
	BATTERY CLIP: 155426; 47904	*	*	*	2
	SCREW: 157918; 47904	*	*	*	2

SECTION III. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE

(1) SMR CODE INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW				(7) ILLUSTRATIONS	
					(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-O-R A001	6720-935-3818	CAMERA SET, STILL PICTURE KS-101A: Consists of a camera, flashgun, coldip and carrying case. The camera takes and develops color and black and white film pack exposures 3-1/4 x 4-1/4, hand held, between the lens type, automatic shutter coupled to electric eye circuit coupled range finder, dimensions 2-3/4 L, 7-3/4 h 5h Model 250; 47904 (This item is nonexpendable)								
P-O-R A135		FLASHGUN ASSEMBLY: 268 ; 47904	ea	1	*	*	*	2	1-8	A22
P-O A136		FLASH CONNECTOR AND CORD ASSEMBLY: 161172 ; 47904	ea	1	*	*	*	2	1-8	A23
X1-O A136A		CONTACT, BATTERY: 146766 ; 47904	ea	1					5-1	MP68
P-O A137		SCREW, SELF-TAPPING: 220463 ; 47904	ea	1	*	*	*	2	5-1	H37
P-O A138		MOUNTING FOOT ASSEMBLY: 1468971; 47904	ea	1	*	*	*	2	5-1	A24
P-O A139		SCREW: 157849 ; 47904	ea	2	*	*	*	2	5-1	H38
P-O A140		SPRING: 157911 ; 47904	ea	1	*	*	*	2	5-1	MP69
X1-O A141		RELEASE LEVER, MOUNTING FOOT: 155358 47904	ea	1					1-9	MP70
X1-O A142		PIVOT, MOUNTING FOOT: 160468 47904	ea	1					5-1	MP71
P-O A143		COLLAR: 155342 ; 47904	ea	1	*	*	*	2	5-1	H39
P-O A144		HOUSING: 143851 ; 47904	ea	1	*	*	*	2	5-1	MP72
P-O A145		EJECTOR BUTTON: 146765 ; 47904	ea	1	*	*	*	2	1-9	MP73
P-O A146		INSULATOR: 154524 ; 47904	ea	1	*	*	*	2	5-1	B2
P-O A147		BATTERY CUP: 155326 ; 47904	ea	1	*	*	*	2	5-1	MP74
P-O A148		PLATE MOUNTING: 155332 ; 47904	ea	1	*	*	*	2	5-2	MP75
P-O A149		SCREW: 154525; 47904 154525	ea	2	*	*	*	2	5-1	H40
P-O A151		REFLECTOR ASSEMBLY: 143866 ; 47904	ea	1	*	*	*	2	5-1	A25
X1-O A152		REFLECTOR: 155300; 47904	ea	1					5-1	MP76
X1-O A153		REFLECTOR SHIELD: 155328; 47904	ea	1					5-1	MP77
X1-O A154		HINGE PIN: 157852; 47904	ea	1					5-1	H41
P-O A155		SOCKET ASSEMBLY: 146893 ; 47904	ea	1	*	*	*	2	5-1	A26
P-O A156		SPACER DETENT: 160597; 47904	ea	1	*	*	*	2	5-1	H42
P-O A157		SPRING, DETENT: 155216; 47904	ea	1	*	*	*	2	5-1	MP78
P-O A158		RETAINER: 163048; 47904	ea	1	*	*	*	2	5-1	H43
P-O A160		BATTERY TERMINAL: 160406; 47904	ea	1	*	*	*	2	4-2	BTL-1

SECTION III. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE (CONTINUED)

(1) SMR CODE INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code USABLE ON CODE	(4) UNI OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY MAINTENANCE ALW				(7) ILLUSTRAT	
					ORGAN				(a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
					(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100		
P-0 A163		BATTERY CLIP: 155426; 47904	ea	1	*	*	*	2	4-2	H47
P-0 A164		SCREW 157918; 47904	ea	1	*	*	*	2	4-2	H48

SECTION IV. INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO INDEX NUMBER

FEDERAL STOCK NUMBER	INDEX NO	REF NUMBER	INDEX NO.	REF NUMBER	INDEX NO.
6720-935-3818	A001	163048	A158		
REF NUMBER	INDEX NO.	220463	A137		
		268	A135		
143851	A144				
143866	A151				
146765	A145				
146766	A136A				
146893	A155				
146897	A138				
154524	A146				
154525	A149				
155216	A157				
155300	A152				
155326	A147				
155328	A153				
155332	A148				
155342	A143				
155358	A141				
155426	A163				
157849	A139				
157852	A154				
157911	A140				
157918	A164				
160406	A160				
160468	A142				
160597	A156				
161172	A136				

SECTION V. INDEX-FIGURE AND ITEM NUMBER CROSS REFERENCE TO INDEX NUMBER

FIG. NO.	ITEM NO. OR REFERENCE DESIGNATION	INDEX NO.	FIG. NO.	ITEM NO. OR REFERENCE DESIGNATION	INDEX NO.
1-8	A22 A23	A135 A136			
1-9	MP70 MP73	A141 A145			
4-2	BT1-1 H47 H48	A160 A163 A164			
5-1	A24 A25 A26 E2 H37 H38 H39 H40 H41 H42 H43 MP68 MP69 MP71 MP72 MP74 MP76 MP77 MP78	A138 A151 A155 A146 A137 A139 A143 A149 A154 A156 A158 A136A A140 A142 A144 A147 A152 A153 A157			
5-2	MP75	A148			

**SECTION VI. INDEX- DESIGNATION CROSS REFERENCE
TO INDEX NUMBER**

REFERENCE DESIGNATION	INDEX NO.	REFERENCE DESIGNATION	INDEX NO.	REFERENCE DESIGNATION	INDEX NO.
A22	A135				
A23	A136				
A24	A138				
A25	A151				
A26	A155				
BT1-1	A160				
E2	A146				
H37	A137				
H38	A139				
H39	A143				
H40	A149				
H41	A154				
H42	A156				
H43	A158				
H47	A163				
H48	A164				
MP68	A136A				
MP69	A140				
MP70	A141				
MP71	A142				
MP72	A144				
MP73	A145				
MP74	A147				
MP75	A148				
MP76	A152				
MP77	A153				
MP78	A157				

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USAR: None.

For explanation of abbreviations used, see AR 320-50.

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