

PHOTOGRAPHING TRAFFIC REGISTERS USING ELECTRICALLY OPERATED KS-14776 CAMERA

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3. PLACING CAMERA IN SERVICE	6	1.01 This section covers the method of photographing traffic registers using cameras per KS-14776 L1 or L2. The KS-14776 L1 and L2 cameras are alike except that the L1 camera is arranged for mounting over 19-inch mounting plates and the L2 for mounting over 23-inch mounting plates.	
4. PREPARING TO TAKE PHOTOGRAPHS . .	6	1.02 This section is reissued to:	
Preliminary Procedures	6	• Add information on the KS-19438 L3 electronic shutter	
Loading the Camera	7	• Add new Fig. 3 and change Fig. 3 and 4 to Fig. 4 and 5	
Attaching Camera to Register Frame	8	• Change Fig. 4.	
5. UNLOADING THE CAMERA AFTER TAKING PHOTOGRAPHS	8	1.03 The KS-14776 camera is arranged for attachment to the frame on which the traffic registers to be photographed are mounted. Photographs can be taken automatically at desired intervals under the control of the traffic usage recorder frame or the traffic register camera control equipment, or the camera can be operated manually. With each exposure a block of 150 12- or 14-type traffic registers, 10 wide by 15 high, can be photographed simultaneously by a single camera. A block of 300 registers, 10 wide by 30 high, can be photographed simultaneously by using two cameras, the lower camera being mounted upside down.	
6. PROCESSING THE KS-19555 FILM	8	1.04 The KS-14776 camera consists of a KS-16007 camera, described in 1.05 through 1.08, mounted on a hood with associated apparatus described in 1.09 through 1.13.	
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focus camera. The L2 shutter is a manually adjustable, multiple-speed shutter which is adjusted to a 1/25 shutter speed setting for the KS-16007 application. A solenoid operates the shutter of the KS-19438 L2.

1.06 The KS-16007 equipped with the KS-19438 L3 shutter is an electronically operated, fixed focus camera. The L3 shutter is a fixed, single-speed shutter which will hold shutter speed fixed within commercial tolerances.♦

KS-16007 Camera

1.07 The KS-16007 camera is designed to photograph traffic registers on KS-19555 35-millimeter film. The camera employs a reduced format which permits about 33 photographs to be made on KS-19555 L1 film or about 59 on KS-19555 L2 film. (See 7.03 for additional details.)

1.08 The KS-16007 camera includes a motor to advance the film after each exposure and a metering arrangement which ensures that the film is advanced the proper amount for the next exposure.

Hood and Associated Apparatus—Fig. 1, 2, and 3

1.09 The hood of the KS-14776 camera is arranged for attachment to mounting brackets which are mounted on the traffic register frame. The hood is equipped with mounting handles, the legs of which engage the brackets on the frame as shown in Fig. 1. This arrangement permits the camera to be readily detached from the frame for loading, unloading, and maintenance.

1.10 Electrical connections to the KS-14776 camera are made by means of a 4-conductor power cord which connects to 120 Vac, a ground-pulse lead for controlling camera operation, and a separate safety ground providing protection whenever the cord is plugged in regardless of whether the hood is attached to the frame or not. The 120 Vac which powers the camera mechanism may be switched on or off by means of a toggle switch mounted on the hood, and an associated pilot lamp indicates whether power is on or off.

1.11 The hood of the KS-14776 camera also includes the following parts.

- (a) A KS-19177 clock, the dials of which are photographed with the registers to record the day and time when the photograph is taken.
- (b) A holder for a designation strip which is photographed with the registers to record supplementary identifying information. (See 7.01.)
- (c) A mirror in which the registers, clock, and designation strip are reflected for photographing.
- (d) Six 100-watt lamps to illuminate the registers, clock, and designation strip while an exposure is made.
- (e) A KS-19408 timer which controls the sequence of operations during the taking of a photograph. This sequence is described in detail in Section 030-302-701.
- (f) A 1-1/4 ampere Fustat.
- (g) A pushbutton switch for manual operation of the camera.
- (h) A resettable exposure counter which is used to indicate the number of exposures made on the film.

1.12 ♦The KS-19438 L3 shutter (Fig. 3) consists of the following elements:

- A manually adjustable lens diaphragm providing an aperture range of F3.5 to F16
- A 3-blade, between the lens, single-speed shutter directly controlled by a small DC solenoid located inside the shutter housing
- A nonadjustable electronic shutter speed control circuit sized to produce a shutter speed of 1/25 of a second.

1.13 The KS-19438 L3 electronic shutter speed control circuit, controlling the DC shutter solenoid, operates from a 120 Vac input pulse. The AC input pulse is converted to a DC supply voltage by a regulated half-wave rectifier circuit. The DC supply voltage energizes the shutter solenoid through a transistorized RC timing and drive circuit. This circuit energizes the shutter solenoid for the desired shutter speed duration. (See Fig. 3.)♦

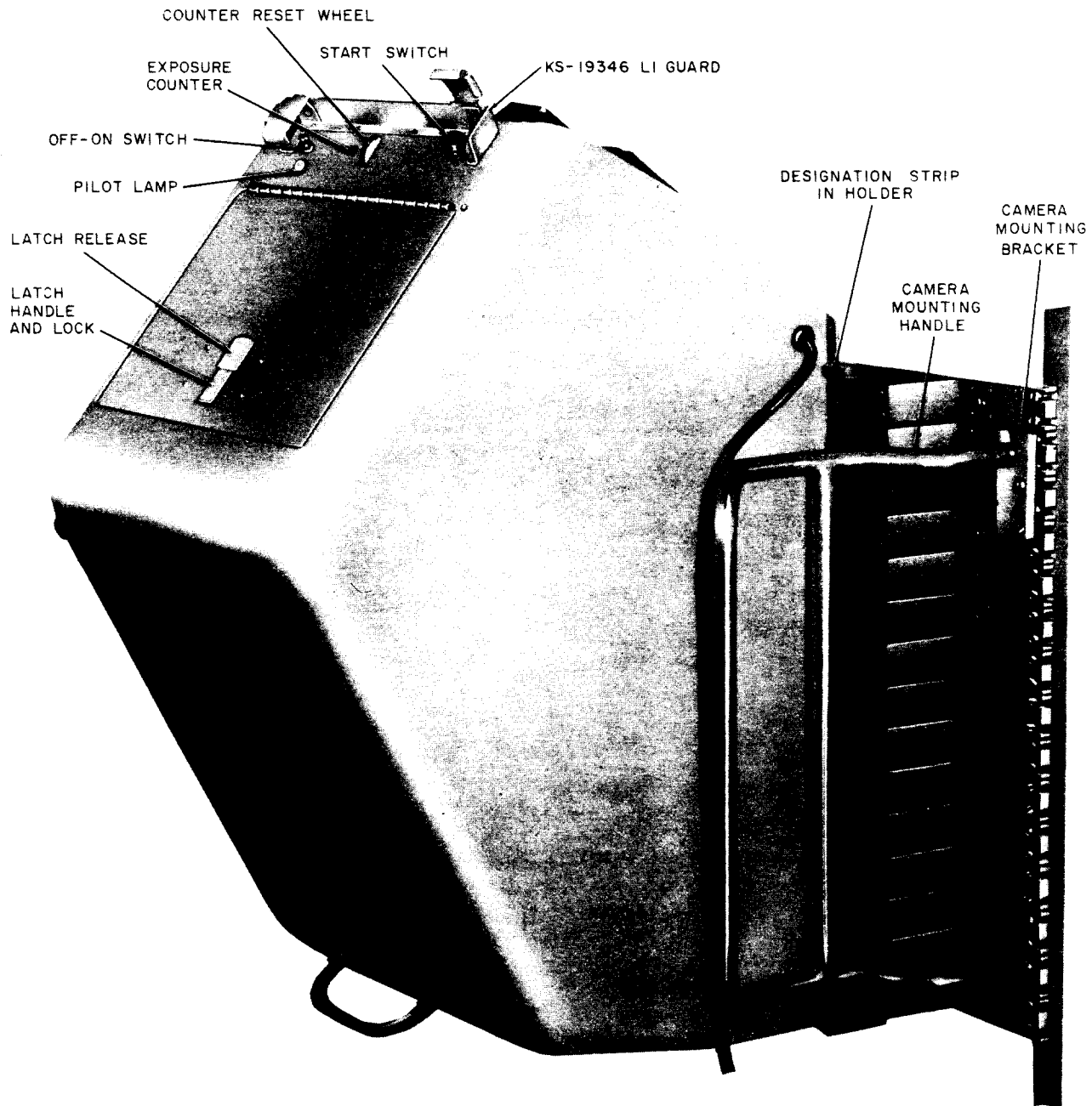


Fig. 1—KS-14776 Camera—Front View

Manual Operation of Camera

1.14 To operate the camera manually, either in connection with the procedures covered in this section or when otherwise necessary, proceed as follows. With power connected to the camera and the ON-OFF switch in the ON position, depress the start switch, hold it operated for at least 1 second or until the lamps in the hood light, and

then release it. This will cause the camera to operate through one complete exposure cycle taking about 5 seconds. If the start switch is released before the lamps light, it will be necessary to reoperate the switch to cause the KS-19408 timer to complete its cycle.

1.15 A 1-1/4 ampere Fustat is provided inside the hood near the top center to prevent

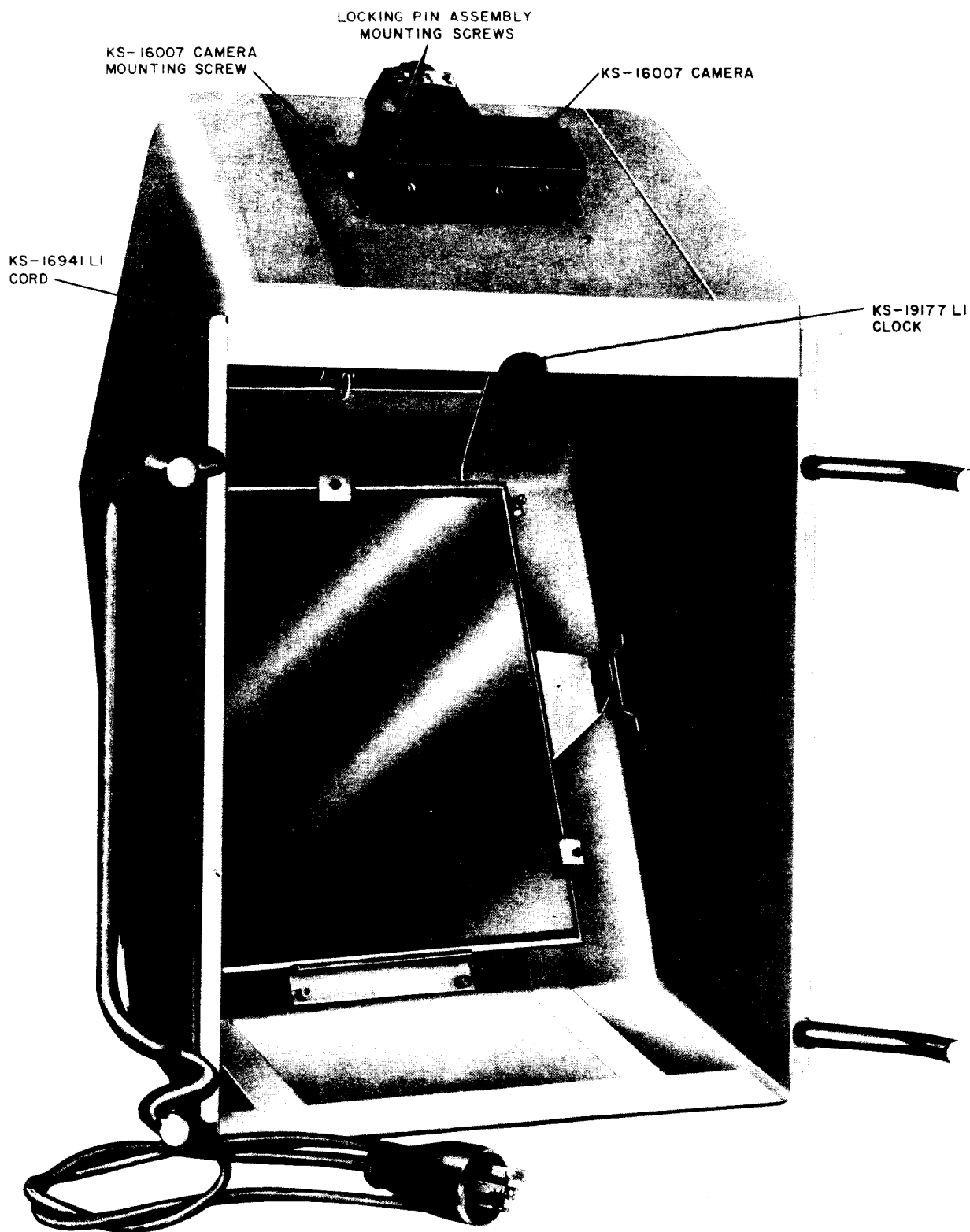


Fig. 2—KS-14776 Camera—Rear View

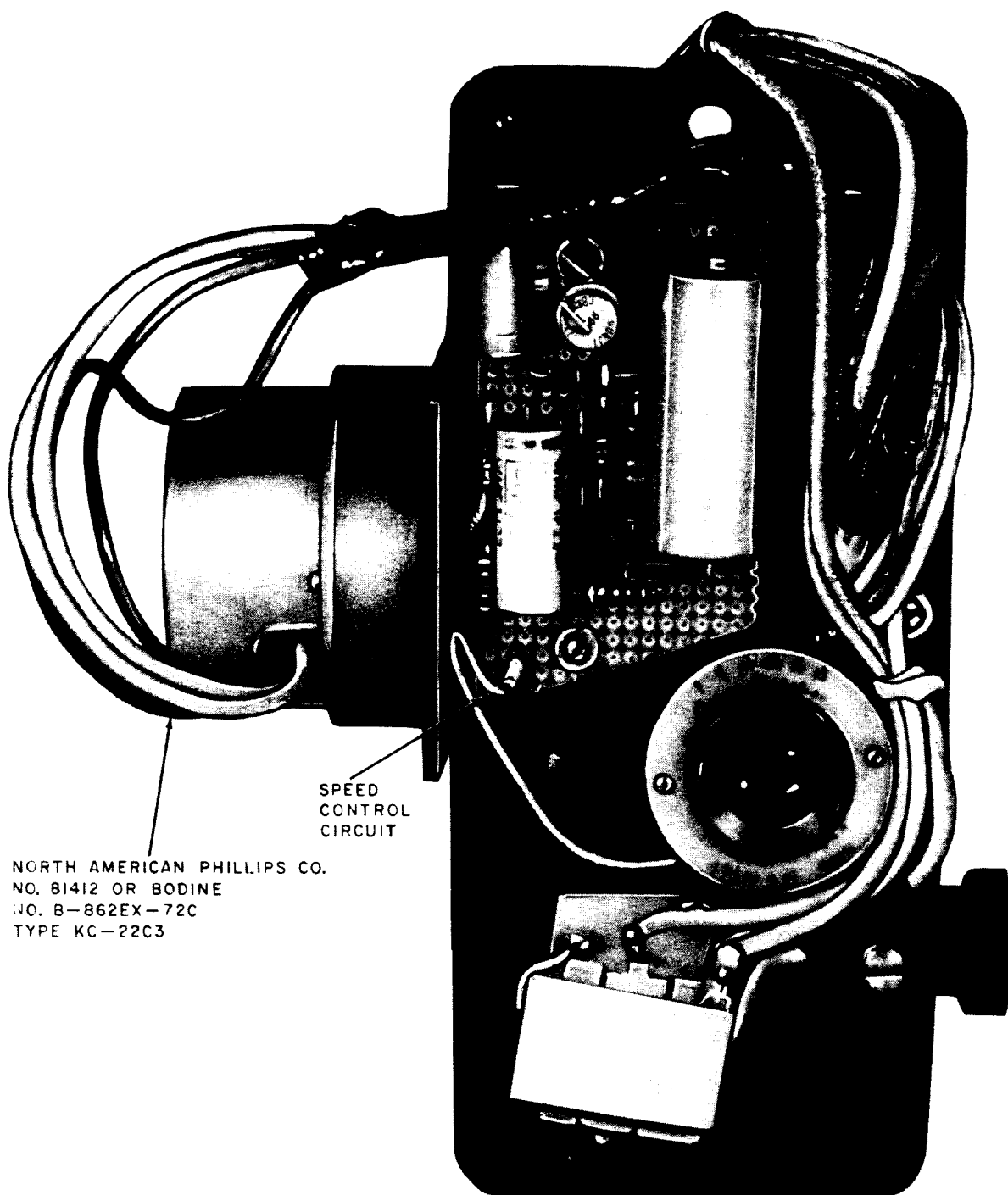


Fig. 3—♦KS-16007 Camera With KS-19438 L3 Shutter♦

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critical temperatures from developing within the camera hood. The Fustat may blow if the camera is operated through more than about eight consecutive cycles. If the Fustat blows, replace it.

2. LIST OF TOOLS, APPARATUS, AND MATERIALS

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
KS-6854	Screwdriver
—	B scissors
—	5-inch E screwdriver
—	Single-edge razor blade*
APPARATUS	
KS-14776 (L1 or L2)	Camera
—	Black changing bag, if required (See 7.07.)
—	Eastman Kodak† day-load tank*
MATERIALS	
KS-19555 (L1 or L2)	35mm film (See 1.05.)
—	Designation strips, as required (See 7.01.)
—	Scotch‡ cellulose tape
—	Eastman Kodak D-11 developer*
—	Eastman Kodak acid fixer*
—	Bottles and containers for mixing, storing, and handling chemicals and washing films, as required
—	Photographic viscose sponge (approximately 4 inches by 3 inches by 1 inch)*

*Required only when film is processed on the job. (See 6.04 through 6.06.)

†Registered trademark of the Eastman Kodak Company.

‡Registered trademark of the Minnesota Mining and Manufacturing Company.

3. PLACING CAMERA IN SERVICE

3.01 Before placing a camera in service, proceed as covered below.

(a) Check that the proper power receptacle or adapter has been installed for connection of the camera power cord and that the necessary camera control arrangements have been provided.

(b) Check that the camera mounting brackets have been correctly mounted on the traffic register frame. Figure 1 shows the brackets mounted in the proper position with respect to the top row of registers to be photographed. The position shown is correct for both upper and lower cameras where two cameras are used.

(c) Check that the registers to be photographed are firmly mounted in the correct positions. Check that glass or plastic windows have been removed from 12- or 14-type register caps, that the identifying markings on the caps are correct and distinct, and that the caps are firmly seated. Replace any registers having discolored or indistinct numerals on the number wheels.

(d) Hang the camera on the mounting brackets provided on the register frame. If the register frame is near a window, check that no direct sunlight falls on the number wheels of the registers. It should be noted that this condition is unlikely, but if it exists it will be necessary to improvise a light shield. Also note that any effect due to sunlight may vary during the day and also with the seasons.

4. PREPARING TO TAKE PHOTOGRAPHS

Preliminary Procedures

4.01 The camera should meet all requirements covered in Section 030-302-701. When adjustments appear to be necessary, refer the matter to the supervisor.

4.02 Check that nothing, such as a displaced patch cord, obscures any of the registers to be photographed. Check that the numerals on the

register number wheels are clean, particularly on the corner registers which are the most difficult to photograph. If necessary clean the number wheels as covered in Section 069-360-801.

4.03 Check that the desired operating schedule for photographing the registers has been provided by proper setting of the program timer of the camera control unit or by whatever other arrangements are necessary. Also determine whether a 20- or 36-exposure cassette of film is to be used. (See 7.03.)

4.04 Place the camera on the floor in front of the traffic register frame.

4.05 Prepare the designation strip as covered in 7.01. Insert it in the holder at the right side of the hood (Fig. 1). If other identifying information is required, locate it as covered in 7.02.

4.06 Plug the camera power cord into the receptacle provided for it and operate the ON-OFF toggle switch to the ON position. Note that the pilot lamp lights. Check the safety ground (see 1.10) by connecting an ohmmeter between the frame and bare metal on the camera hood.

4.07 Press the latch release and open the door in the hood.

4.08 Check that the clock is running by listening for the sound of the clock motor. Note that the clock runs when the power cord is plugged in and is not affected by the position of ON-OFF toggle switch. Set the clock as covered in 7.04 through 7.06, if required.

4.09 While observing the lamps inside the hood, manually operate the camera (see 1.14) and observe that all six lamps light.

4.10 Close the door and latch it.

4.11 Turn the cover release knob on the KS-16007 camera (see Fig. 4) in a clockwise direction, open the cover, and lay it back on the hood.

Note: If there is exposed film in the camera, the cover cannot be opened until the film is rewound in accordance with the procedures covered in Part 5.

4.12 While looking through the lens to observe the action of the shutter, operate the camera manually. Check that the shutter opens and closes while the lights in the hood are on. It is recommended that this procedure be repeated two or three times each time the camera is prepared for loading since, with a little experience, it is possible to detect sluggish or nonuniform shutter action which would result in unsatisfactory photographs. At the same time check that the exposure counter registers each time the camera is operated.

Loading the Camera—Fig. 4

4.13 Using 20- or 36-exposure cassette (see 7.03), load the camera as follows.

(a) Remove a cassette of film from its container.

If the exposed film is to be forwarded for processing, retain the container. Straighten the film leader which extends from the cassette. Orient the cassette as shown in Fig. 4, raise the cassette retaining arm, and place the cassette in the camera so the key end of the cassette spool engages the slot in the film winder, turning the rewind knob as required to facilitate the operation. Lower the cassette retaining arm.

(b) Lift the motor release lever handle and rotate the take-up spool as required to bring the slot in the spool to the top as shown in Fig. 4. Insert the film leader into the slot to the full depth of the slot (about 3/8 inch) and position the leader so the perforated edge is against the adjacent flange of the take-up spool.

(c) Lift the motor release lever handle and manually rotate the take-up spool in a counterclockwise direction, viewed from the motor side of the camera, until the spool has made one complete revolution. ♦Refer to Fig. 4 and check for correct rotation as indicated by the arrow on the take-up spool.♦ This draws the film leader down between the sprocket and the take-up spool, under the spool, and back up to the top of the spool. Release the motor release lever handle, and make sure the perforated edge of the leader is still against the adjacent flange of the spool.

(d) Holding the flat portion of the cassette so the slot faces directly toward the take-up spool, turn the rewind knob to take up any

slack in the film, making sure the sprocket engages the perforations in the film leader and that the film lies straight and flat between the guide rails.

Caution: *To insure proper tracking of the film in the camera, it is important that the film and the cassette be properly positioned when the cover is closed. If the film shows any tendency to ride up on either guide rail, recheck the engagement of the cassette spool with the film winder and the alignment of the film leader on the take-up spool.*

- (e) With the cover still open, set the exposure counter to zero. Electrically operate the camera two times by pushing the start switch, making sure each time that the film advances onto the take-up spool and the film shows no tendency to ride up on either guide rail. Close the cover of the camera. Operate the camera, as before, three more times to bring the unexposed film into position for taking the first photograph. ♦ During these operations, observe that the rewind knob is turning. This indicates that the film is being wound on the take-up spool. ♦

Note: Subject to local practice, the exposure counter may be reset to zero after the five operations covered above. Note, however, that allowing the counter to record the total number of times the camera operates after being loaded has the advantage that, if the camera is inadvertently operated manually more or less than the five times specified, the exposure counter will reflect this and thus allow an accurate determination to be made at any time of the amount of unexposed film remaining in the camera.

- (f) If the camera is equipped with a KS-19346 guard, lower the switch covers over the ON-OFF and START switches.

Attaching Camera to Register Frame

4.14 Hang the camera on the brackets provided on the register frame, making sure the legs of the camera mounting handles are fully seated in the brackets.

4.15 If a block of 300 registers is to be photographed simultaneously, use two KS-14776 cameras.

Attach the lower camera, upside down, to the brackets provided for it before attaching the upper camera.

5. UNLOADING THE CAMERA AFTER TAKING PHOTOGRAPHS

5.01 After the desired photographs have been taken, remove the camera from the register rack and place it on the floor. If two cameras are used, remove the upper camera first and then remove the lower camera and turn it right side up before placing it on the floor.

Note: Do not remove the camera power cord plug from its receptacle since this would stop the camera clock.

5.02 Remove the cassette with exposed film from the camera, proceeding as follows. Referring to Fig. 4, lift the motor release lever handle and turn the rewind knob in a clockwise direction as viewed from its own side of the camera. If the film is to be processed in a day-load tank as covered in 6.04 through 6.06, continue to turn the rewind knob only until a slight tug is felt as the film leader pulls free from the take-up spool. Do not continue to turn the knob after the tug is felt since this would wind the film leader into the cassette. If the film is to be processed by a commercial photo-finisher, continue to turn the knob until it begins to turn freely indicating that the exposed film has been rewound into the cassette.

5.03 Turn the cover release knob and open the cover. Raise the cassette retaining arm and remove the cassette from the camera. If specified by local practices, apply an identifying label to the cassette. If the cassette is to be forwarded for processing, package it in accordance with local instructions.

5.04 If the film cannot be rewound or the cover cannot be opened, as covered above, refer to 7.07 through 7.10 for special procedures to be followed.

6. PROCESSING THE KS-19555 FILM

General

6.01 To obtain maximum readability, traffic register films must be given special, high-contrast development. Centralized development

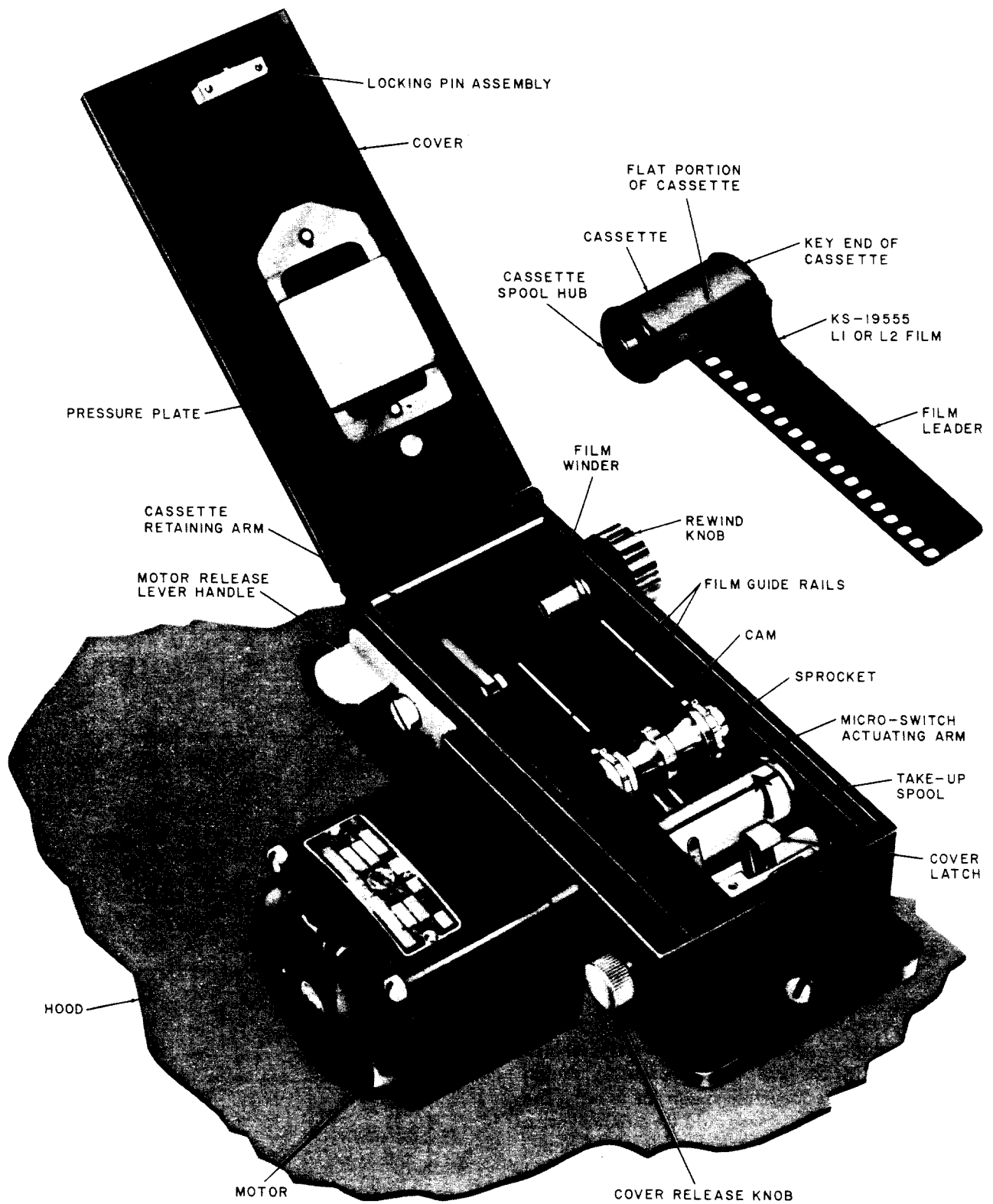


Fig. 4—KS-16007 Camera and KS-19555 Film

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by a commercial photo-finisher on an area- or a company-wide basis is recommended since usually the special development required will be furnished at a reasonable price only by a large processor who is assured an adequate volume of business. If required, films can be developed on a small scale on the job as described in 6.04 through 6.06.

Special Development by Commercial Photo-Finisher

6.02 The recommended developer for traffic register films is Eastman Kodak D-11. This developer provides the special, high-contrast development required in 5 minutes at 68°F. Where the commercial photo-finisher cannot furnish D-11 development, satisfactory results can be obtained with other more commonly used developers, such as Eastman Kodak DuraFin or D-76 diluted 1 to 1, by extending the development time to 15 to 20 minutes at 68°F. Note that this is two or three times the normal development time for films of this type in these solutions.

Checking for Proper Development

6.03 A simple check for proper development of a film can be made provided the film leader, which was fully exposed during loading, has not been cut off. If the film was properly developed, a nearby incandescent or fluorescent light should be nearly invisible when viewed through this portion of the film held close to the eye. If complaints are received that films are too thin and too light, refer to Tables A and B in Section 030-302-701 for the proper corrective action.

On-the-Job Processing

6.04 General: A Kodak day-load tank is recommended for small scale on-the-job development of traffic films. This tank provides means for developing and fixing a single roll of film per loading. Detailed instructions for its use are furnished with the tank. The processing should be carried out in a location specified locally for this purpose. This location should be supplied with hot and cold running water, a sink with a drainboard which will not be damaged by the photographic chemicals, and suitable containers for mixing, handling, and storing the chemicals.

6.05 Processing Solutions: Eastman Kodak developer D-11 and Eastman Kodak acid fixer are recommended for processing traffic register

films. These chemicals are furnished in package form with directions for making the solutions on each package. Both solutions may be reused if they are kept in tightly stoppered brown bottles. One gallon of each solution will process about 50 rolls of exposed film.

6.06 Processing

- (a) Load the Kodak day-load tank in accordance with the instructions furnished with the tank. Using the Kodak D-11 developer full strength, develop for 5 minutes at 68°F or for corrected time at temperatures other than 68°F as shown in Fig. 5. In no case should the temperature exceed 80°F. (See note.) Agitate the film for the first minute and for about 10 seconds each minute thereafter.

Note: Where high, ambient temperatures prevail, the temperature of the processing solution may be lowered as required by immersing the container in cold water.

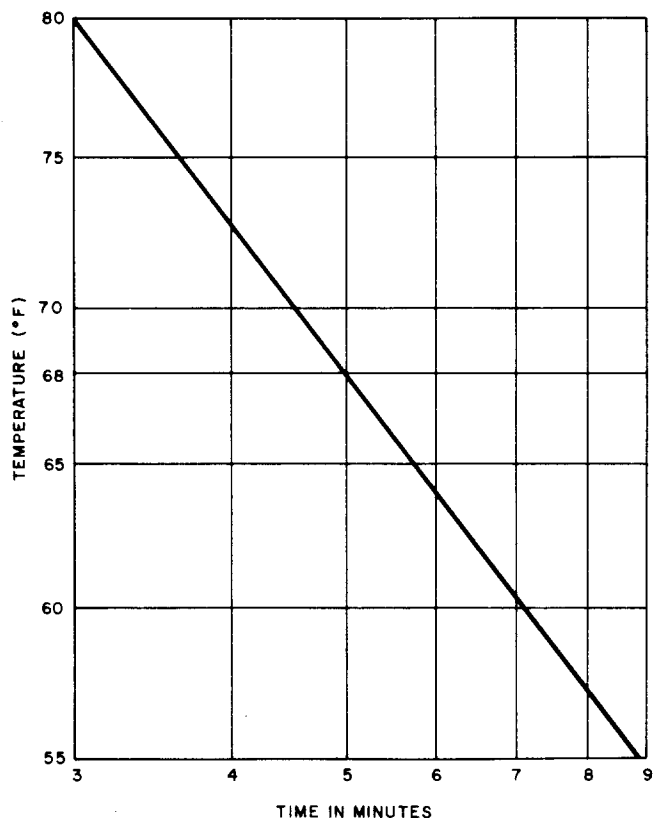


Fig. 5—Time and Temperature Chart

- (b) Pour the developer out of the tank and immediately refill the tank with rinse water, preferably at 65° to 70°F, while agitating the film. Rinse for at least 30 seconds.
- (c) Pour the rinse water out of the tank and refill with the acid fixer. Fix the film for 5 to 10 minutes occasionally agitating the film.
- (d) Pour the fixer out of the tank and remove the film from the tank. Wash the film in running water (65° to 75°F). If the film is merely submerged in running water, it should be washed for 20 to 30 minutes. The film can be washed, however, in about 5 minutes if it is repeatedly drawn through the fingers while being held under running water.
- (e) Remove all water droplets from the film by drawing the film through a damp, photographic, viscose sponge. The sponge (about 4 inches by 3 inches by 1 inch) should have been previously prepared by slitting it with the single-edge razor blade through the center of the 1-inch dimension for about three-quarters of its length. Hang the film in a dust-free place until it is thoroughly dry.

Caution: *All equipment used in processing, such as the day-load tank, sponge, and containers, and the area around the sink must be kept scrupulously clean at all times. The tank must be thoroughly rinsed and dried after each roll of film is developed. Care must be exercised to avoid spilling processing solutions on clothes or parts of the body. Any spilled solutions should be wiped up immediately. For specific precautions covering the particular chemical used, refer to the manufacturer's instructions on the package labels.*

7. SUPPLEMENTARY INFORMATION

Designation Strips

- 7.01 Preparation:** Use a white designation strip, 8 inches long by 5/16 inches wide, lettered preferably in india ink. Confine the lettering to the left 6 inches of the strip.
- 7.02 Additional Designating Information:** If additional designating information is desired on the photographs, an arrangement may be

improvised using space to the left of the clock. The information should not extend above the level of the top of the designation strip but may extend below the edge of the hood opening provided it does not obscure any register markings.

Selection of 36- Versus 20-Exposure Cassettes

7.03 The traffic register camera uses a format which is 5/8 the width of that normally used in 35mm still cameras. Thus, as used in the traffic register camera, a nominal 36-exposure cassette will provide about 59 traffic register photographs and a 20-exposure cassette about 33. (See note.) The cost difference for film and processing between the 36- and 20-exposure cassettes is relatively small. Therefore, in order to standardize operating and administrative procedures, it is recommended that the 36-exposure cassette be used exclusively unless the 20-exposure cassette is adequate for all traffic register photographing programs.

Note: These totals do not include the five exposures made in the process of loading the camera [see 4.13(e)] which do not produce useful photographs.

Setting Clock

7.04 General: The film identifier (clock) originally furnished with the KS-14776 camera has been superseded by the KS-19177 L1 clock. To set the KS-19177 L1 clock, proceed as covered in 7.05. To set the film identifier originally furnished, proceed as covered in 7.06.

7.05 Setting the KS-19177 L1 Clock: The KS-19177 L1 clock has two dials, one indicating the day, the other the hour. The day dial is numbered from 1 to 7 with a mark under each number to serve as an index for the hour dial. The hour dial has the even hours numbered through 24. The day dial advances one step at about midnight (24 on the dial) and requires about 30 minutes to complete the changeover. During this time, the clock cannot be set or read with any degree of accuracy. To set the clock, turn the hour dial (always clockwise if the curved arrow on the motor case so indicates) until the correct time of day is indicated by the index line under the day number. Then set the day dial so the correct day number, as specified by local practice, appears at the bottom of the dial.

Note: To set PM time on the 24-hour dial, add 12; for example, at 6 PM set the dial at 18 (6 + 12).

Caution: *The day dial can be turned in either direction except when the hour dial is near midnight. To avoid damage to the clock, when the hour dial indicates a time between 23:00 and 1:00, advance the day dial only by turning the hour dial clockwise.*

7.06 Setting Film Identifier (Clock) Initially

Furnished: The film identifier initially furnished has a fixed index single dial which makes one revolution per 24 hours. The dial has two sets of numerals 2 through 12 indicating the even-numbered AM and PM hours, respectively. The odd hours are indicated by index lines. Half of the dial is marked DAY and includes the hours from about 6:30 AM to 6:30 PM. The other half, marked NIGHT, includes hours from 6:30 PM to 6:30 AM. The dial may be turned in either direction to set the clock but care must be exercised to select the correct segment. Since the clock can be set most accurately at the index lines, it is recommended that it be set or rechecked at an odd hour.

Special Procedures for Unloading KS-16007 Camera

7.07 General: If the film cannot be rewound as covered in 5.02 or the cover cannot be opened as covered in 5.03, this may be due to the following.

- (1) The film may have pulled loose from the cassette spool due to too many exposures having been made on the film.
- (2) The film may have jammed or torn during rewinding.
- (3) The cover latch may have jammed.
- (4) The film may have not been completely rewound.

Under these circumstances, it is necessary to remove the KS-16007 camera from the hood and unload it in total darkness to avoid losing the exposures which have been made on the film. This may be done in a totally dark room or by using a black changing bag obtained locally for this purpose.

In any case it is advisable to gain experience by practicing the operations in a lighted room before attempting them in the darkroom or changing bag. It is recommended that a cassette of film marked test or exposed be set aside for this purpose.

7.08 Preliminary Procedures: Prepare to carry out the operations which must be performed in total darkness by proceeding as follows.

- (a) Remove the KS-16007 camera from the hood by removing the two camera mounting screws using the 5-inch E screwdriver.
- (b) Prepare an empty cassette by removing the cap opposite the projecting end of the cassette spool. To do this, cup the cassette in the hand with the cap to be removed against the palm of the hand, grasping the body of the cassette with the thumb and fingers. Then rap the projecting end of the cassette spool sharply against a firm surface until the cap in the hand is detached from the cassette body. Remove the spool from the cassette. If necessary remove any film and adhesive tape which may be attached to the spool.
- (c) Cut a piece of Scotch cellulose tape about 2 1/2 inches long. Looking at the end of the cassette spool opposite the projecting end, wrap a turn of tape counterclockwise around the middle of the spool core making sure the tape adheres firmly to the core. Fold about 1/8 inch of the free end of the tape back on itself and adhere the remainder of the tape lightly to the part wrapped on the core.
- (d) Place the cassette body, spool, and the detached cap in a small box for convenience in handling in the changing bag or darkroom.
- (e) Referring to Fig. 2, note the location of the two locking pin assembly mounting screws on the camera and be prepared to remove them using the KS-6854 screwdriver.
- (f) Place in the changing bag, or have at hand in the darkroom, the empty cassette prepared as covered in (b) through (d), the KS-16007 camera, the roll of Scotch cellulose tape, the KS-6854 screwdriver, and the B scissors.
- (g) If the changing bag is to be used, in order to avoid light leakage, the arms should be

bare to the elbows when placed in the sleeves of the bag and the elastic should come well up on the forearms.

7.09 Unloading the KS-16007 Camera in Changing Bag or Darkroom: Make sure the preliminary procedures covered above have been carried out. Also take care that the following procedures are performed only in total darkness.

- (a) With the KS-16007 camera in the changing bag or darkroom, remove the two locking pin assembly mounting screws using the KS-6854 screwdriver.
- (b) Open the camera cover and remove the locking pin assembly. Determine the nature of the trouble and proceed in accordance with the appropriate paragraph below.
- (c) If the trouble was a jammed cover latch, the film having been properly rewound into the cassette, the camera may be removed from the changing bag or darkroom and unloaded as covered in 5.03.

Caution: *Before returning the camera to service, adjust the camera to meet the cover latch clearance requirement in Section 030-302-701.*

- (d) If the trouble is due to the film having pulled loose from the cassette spool, perform the following steps.

- (1) Lift the cassette retaining arm and remove the cassette from the camera.
- (2) Lift the motor release lever handle and unwind about 6 inches of film from the take-up spool.
- (3) Using the empty cassette prepared in 7.08(c), peel back about 3/4 inch of tape from the core of the spool.
- (4) Hold the projecting end of the spool horizontally, place the end of the film, emulsion side down, on the spool core, and tape firmly.
- (5) Turn the spool three turns clockwise.

- (6) Hold the spool with the projecting side down and insert it into the cassette, sliding the film edgewise down into the slot.
 - (7) Remount the cap by snapping it into place.
 - (8) Mount the cassette in the camera and rewind the film as covered in 5.02.
- (e) If the trouble is due to the film having torn, perform the following steps.
- (1) Check to see if the torn end is in the cassette.
 - (2) Lift the motor release lever handle and unwind about 6 inches of film from the take-up spool.
 - (3) Remove the cassette from the camera and open it as covered in 7.08(b).
 - (4) Remove the spool from the cassette body and place the body and cap where they can be found when required.
 - (5) Hold the spool horizontally and unwind the torn end a few inches.
 - (6) With the emulsion side down from the spool, splice the torn ends together using Scotch cellulose tape taking care that the torn ends do not overlap.
 - (7) Turn the spool clockwise until the splice has been wound around the core.
 - (8) Hold the spool with the projecting side down and insert it into the cassette, sliding the film edgewise down into the slot.
 - (9) Remount the cap by snapping it into place.
 - (10) Mount the cassette in the camera and rewind the film as covered in 5.02.
- (f) If the trouble is due to the film having jammed without having torn or broken and the film is partially rewound into the cassette but still partially wound on the take-up spool, perform the following steps.

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- (1) Attempt to rewind the film by lifting the motor release lever handle and turning the rewind knob clockwise.
- (2) If the rewind knob will not turn, lift the cassette retaining arm and remove the cassette.
- (3) Rewind the film into the cassette by alternately pulling film from the take-up spool with the motor release lever operated and turning the projecting end of the spool counterclockwise.
- (4) If the take-up spool will not turn with the motor release lever operated, withdraw the remaining film from the cassette.
- (5) If the end of the film cannot be readily detached from the cassette spool, cut the

film at the cassette opening using the B-splicers scissors.

- (6) Unwind the film from the take-up spool a turn at a time until the film can be removed from the spool.
- (7) Stretch out the film to gain access to the end which was detached from the cassette.
- (8) Repeat (d), Steps 3 through 8.

7.10 Remounting KS-16007 Camera: After the appropriate procedures covered in 7.09 have been completed, remove the KS-16007 camera and the cassette of film from the changing bag or darkroom. Forward the film for processing. Remount the locking pin assembly on the camera cover. Remount the KS-16007 camera on the hood.