

**REPLACING PAGE ADDENDUM**  
**Filing Instructions:**

1. REMOVE FROM THE SECTION THE PAGES NUMBERED THE SAME AS THOSE ATTACHED TO THIS PINK SHEET.
2. INSERT THE ATTACHED PAGES INTO THE SECTION IN THEIR PLACE.
3. PLACE THIS PINK SHEET AHEAD OF PAGE 1 OF THE SECTION.

**PHOTOGRAPHING MESSAGE REGISTERS  
USING KS-14593 L1 MESSAGE REGISTER CAMERA  
AND KS-14778 PHOTO PROCESSOR**

**1. GENERAL**

1.001 This addendum supplements Section 030-301-301, Issue 4. The attached pages must be inserted in the section in accordance with the filing instructions above.

1.002 This addendum is issued to amplify procedures for checking empty KS-16148 cassettes used for receiving sensitized paper after exposure and for loading and unloading the camera when a KS-16964 L1 loaded cassette is used.

**3. STORING, HANDLING, AND USE OF CASSETTES**

The following change applies to Part 3 of the section:

- (a) 3.05 — revised

**4. PREPARATION OF CAMERA**

The following change applies to Part 4 of the section:

- (a) 4.08 — revised

**5. PHOTOGRAPHING MESSAGE REGISTERS**

The following change applies to Part 5 of the section:

- (a) 5.08 — revised

**Attached:**

- Page 3 dated August 1963, reissued.
- Page 4 dated August 1963, revised.
- Page 7 dated August 1963, revised.
- Page 8 dated August 1963, reissued.
- Page 9 dated August 1963, reissued.
- Page 10 dated August 1963, revised.

1.19 In order to use the KS-16964 L1 loaded cassette, it is necessary that the camera be equipped with an adapter which is mounted on the fixed pin at the trigger side of the camera as shown in Fig. 7. A locating pin on this adapter enters a corresponding hole in the end of the cassette to hold the cassette in the proper position during withdrawal of the paper. Procedures for mounting the adapter are covered in Section 030-301-801. KS-16148 loaded cassettes may also be used in a camera equipped with the adapter.

#### Cassettes for Receiving Exposed Paper

1.20 An empty KS-16148 cassette (ordered as the 34387-G1 empty cassette) is used for receiving the paper after exposure in the camera regardless of whether the unexposed paper was withdrawn from a KS-16148 or a KS-16964 L1 loaded cassette. If a KS-16964 L1 loaded cassette is used, the KS-16148 cassette into which the exposed paper was wound should be retained for future use after the paper has been removed during processing. Before re-using this cassette, however, the check covered in 3.05 should be made to make sure that the light seals of the cassette are not damaged.

## 2. APPARATUS, TOOLS, AND MATERIALS

- 2.01 KS-6320 orange stick.
- 2.02 KS-14593 L1 message register camera including:
  - KS-14593 L2 message register camera
  - KS-14594 power unit
  - 34387-G1 empty cassette (Graflex, Inc)
  - 34394-G1 magnetic insert (Graflex, Inc)
  - 34437-P13 filter adapter (Graflex, Inc)
  - 34437-P14 filter (Graflex, Inc)
  - W6161 lens cap (Graflex, Inc)
- 2.03 34387-G1 empty cassettes (Graflex, Inc), as required (empty KS-16148 cassettes).

- 2.04 KS-14666 cloth, as required.
- 2.05 KS-14778 photo processor.
- 2.06 KS-16964 L1 loaded cassettes, as required (or replaced KS-16148 loaded cassettes).
- 2.07 KS-16160 chemical kits, as required.
- 2.08 5-inch E screwdriver (or the replaced 5-inch regular screwdriver).
- 2.09 M. L. Snyder Special 2072-D plastic apron (or equivalent), as required.
- 2.10 Plax Corp. S-8105 1-gallon wide-mouth plastic jar (or equivalent), as required.
- 2.11 16-inch lengths of 1/4-inch wooden dowel, as required.
- 2.12 Crocus cloth, as required.
- 2.13 Steel wool, as required.
- 2.14 Cotton work gloves, as required.

## 3. STORING, HANDLING, AND USE OF CASSETTES

### Cassettes Loaded With Unexposed Paper

- 3.01 Since the sensitized paper is affected by heat and dampness, store loaded cassettes in cool and dry areas.
- 3.02 Before using cassettes, verify the freshness of the paper which they contain by reference to the expiration date indicated on the shipping tube or carton. Do not use cassettes after the expiration date of the paper they contain.
- 3.03 Unwrap a loaded cassette just prior to using it in the camera. Retain the wrapping for use on the cassette containing the paper on which the photographs have been made. After taking the photographs, remove the cassette into which the paper has been wound and, after removing the magnetic insert, immediately wrap the cassette. Subsequently, unwrap the cassette just prior to placing it in the photo processor.

3.04 While handling unwrapped cassettes containing either unused or exposed paper, avoid placing the cassette in a strong light such as close to a window on a bright day.

#### Cassettes for Receiving Exposed Paper

3.05 Where unexposed sensitized paper is supplied in a KS-16964 L1 loaded cassette and an empty KS-16148 cassette (34387-G1 cassette) is used for receiving the paper after exposure in the camera, the empty KS-16148 cassette should be checked for light leaks before each use. Carefully examine the cassette for evidence of wear or damage at the light seals at the paper opening and at the ends of the cassette where the cassette core enters the cassette. If there is any evidence of damage at the light seals or of damage to the cassette which might result in light leaks, do not use the cassette. Also reject cassettes which, due to wear, have slits or notches at the ends of the paper opening which might cause binding or tearing of the sensitized paper.

3.06 Where unexposed sensitized paper is supplied in KS-16148 loaded cassettes and the empty KS-16148 cassettes are returned for credit and reloading, the empty cassettes should be returned promptly to Graflex, Inc, Rochester 8, New York, in accordance with local instructions. The cassettes should be returned in shipping tubes in which loaded cassettes were received.

## 4. PREPARATION OF CAMERA

### General

4.01 Remove the camera from the carrying case as follows. Unlatch and swing back the cover of the carrying case. Loosen the front wing nuts on the two braces which hold the camera in the case, as shown in Fig. 1. Swing the braces away from the camera. Lift the camera from the case, taking care that the flash indicating windows on the camera hood do not strike the wing nut or bolt on the adjacent vertical portion of the brace in the case. Place the camera on the floor or on a suitable support convenient to the location where it is to be used.

4.02 Remove the power unit from its carrying case and place it near the camera and accessible to a power receptacle. Take care that the power unit and its leads are placed so that personnel are not likely to trip over them.

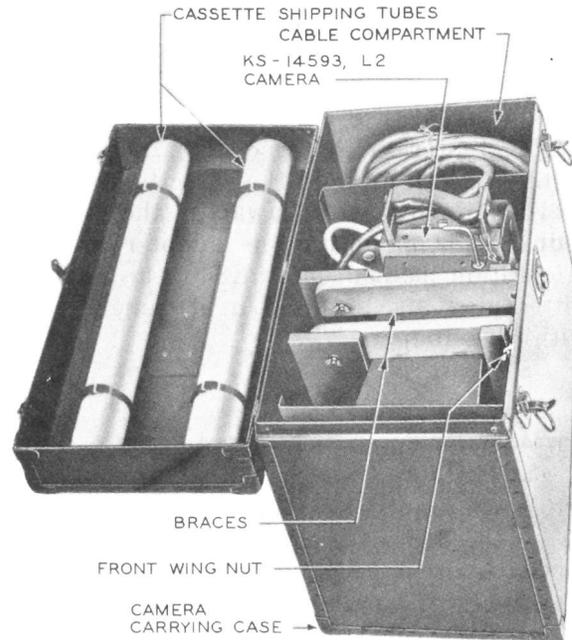


Fig. 1 - Camera in Carrying Case

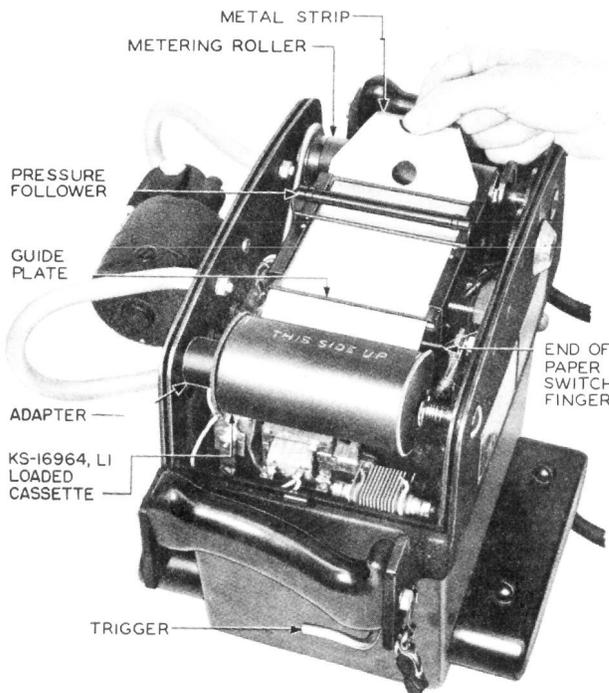
4.03 Prepare a designation strip bearing pertinent information including central office name and date of exposure. The designation strip should be 4 inches long and 1/4 inch wide and should preferably be of a light brown color with the characters applied in India or printer's ink. The characters should be at least 3/16 inch high and the 3/8-inch portion at each end of the strip should be left blank since the designation strip holder lugs cover these portions. Slip the designation strip in position in the holder at the lower edge of the camera hood shown in Fig. 2. The lettering on the strip should face the camera lens, and the bottom edge of the strip should be toward the bottom of the hood.

4.04 **Camera and Power Unit Connections:** Referring to Fig. 3, make sure that the switch on the power unit is in the OFF position and that the voltage regulating knob is set to ZERO. Insert the plug on the camera cable into the jack on the power unit and manually tighten the plug locking ring. Insert the plug on the power unit cord into the proper 115-volt ac receptacle. After making these connections, turn the power unit switch to its ON position and check that the pilot lamp on the power unit lights. Set the volt-

able pin adjacent to the trigger enters the hole in the end of the cassette having the large recess for the retaining ring on the pin. Push the cassette against the retractable pin and position the other end of the cassette so that the fixed pin enters the center hole and the locating pin on the adapter enters the locating hole in this end of the cassette.

**4.08** Draw paper from the loaded cassette over the end-of-paper switch finger and under the guide plate, as shown in Fig. 7. Then, in order to break the internal seal provided in the KS-16964 L1 cassette and to facilitate threading the paper into the take-up cassette, firmly draw the end of the paper about 10 inches beyond the metering roller, taking care not to tear the paper. Lower the pressure follower to its position holding the paper against the metering roller.

**Note:** In loading the camera it will be noted that the emulsion side of the paper is away from the lens. This arrangement is provided in order to obtain direct reading photographs by making the exposure through the paper.

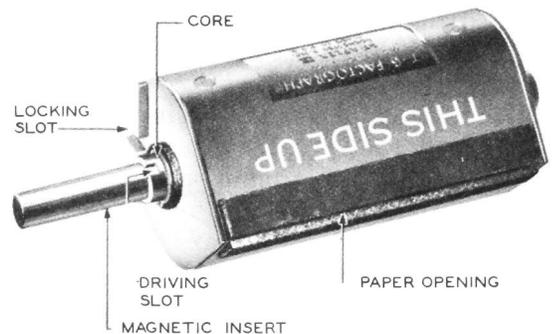


**Fig. 7 – Loading Camera**

**4.09** Make sure that there is a magnetic insert in the hollow core of the empty cassette which was removed from the camera as covered in 4.05. The magnetic insert should have been inserted in this cassette as covered in 5.09 upon completion of previous use of the camera. The magnetic insert is provided to pull the metal strip on the leading edge of the paper against the core when the paper is inserted into the cassette. This facilitates engagement of the hole in the paper adjacent to the metal strip with a lug projecting from the core which is necessary for winding the paper on the core. Fig. 8 shows a cassette with the magnetic insert part way in the core. This figure also shows the cassette locking slot and driving slots referred to in 4.11.

**4.10** Hold the empty cassette with the side marked UP uppermost and the opening in the cassette toward the end of the paper in the camera. Insert the end of the paper into the cassette far enough so that the tapered portion is entirely in the cassette as shown in Fig. 9. Turn the slotted end of the core of the cassette with the fingers in a counterclockwise direction to wind the paper over the core. Continue to turn the core until most of the slack paper is wound into the cassette. When starting and winding the paper into the cassette, take care that the paper enters the cassette squarely and does not tend to curl or bind at either end of the cassette opening.

**4.11** Place the cassette into which the paper has been started on the pins adjacent to the metering roller, as follows. Facing the metering roller, hold the cassette so that the paper opening is at the top. Tilt the cassette sufficiently to position the left end of the core on



**Fig. 8 – Empty KS-16148 Cassette (34394-G1 cassette) With Magnetic Insert Part Way in Core**

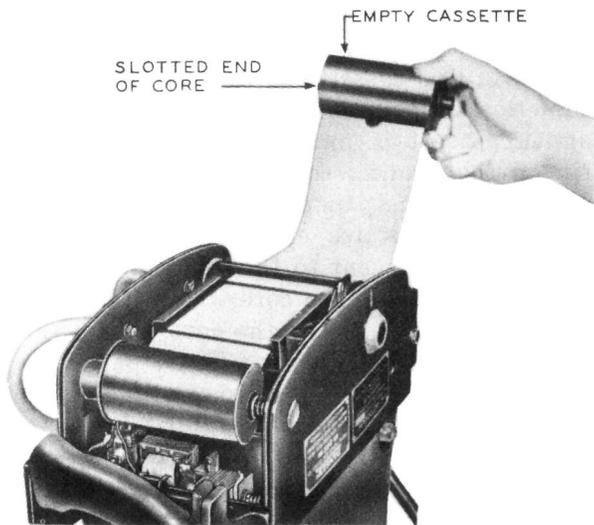


Fig. 9 – Paper Inserted in Empty Cassette

the retractable pin shown in Fig. 5. Rotate the cassette to move the paper opening away from the roller sufficiently to clear the metering roller cam, and push the cassette against the retractable pin. Then position the cassette so that the locking slot shown in Fig. 8 engages the locking pin in the bottom of the camera (Fig. 5) and the core is against the end of the driving pin. Turn the wind knob on the camera until the driving pin lugs engage the driving slots in the core of the cassette. Check that the cassette is locked in position by the locking pin. Then turn the wind knob counterclockwise to take up any remaining slack in the paper.

**4.12** Turn the switch on the power unit to its ON position. Turn the voltage regulating knob until the indicator of the associated meter is approximately centered in the green range on the meter scale. As stated in 5.01(g), special conditions may indicate the desirability of deviating from this setting. In such cases, adjust the voltage toward the minimum or maximum of the range, as required.

**4.13** Move the cam release lever (Fig. 5) toward the metering roller until the lever releases the cam and the motor starts. Release the lever and note that the paper is drawn from the loaded cassette, under the guide plate, over

the metering roller, and into the second cassette without binding. Mount the cover on the camera, taking care that the slot in the cover engages the cover locating pin shown in Fig. 5. Make sure that the hole in each cover latch engages the associated pin on the cover.

**4.14** Operate the camera three times to bring unexposed paper into position for taking the first photograph. In operating the camera, pull and release the trigger and wait until the motor stops before starting the next operation. Note that both flash indicating windows (Fig. 4) are momentarily illuminated by the flash lamps each time the camera operates. Depress the screw in the center of the exposure counter to disengage the counter gearing and turn the counter, as necessary, to set it to 80. Release the screw and check that the counter gearing is engaged.

## 5. PHOTOGRAPHING MESSAGE REGISTERS

### General

**5.01** In order to obtain satisfactory photographs, the following general procedures should be observed in photographing message registers with the KS-14593 camera.

- (a) Make sure that the caps are fully seated on all registers.
- (b) Indistinct markings on the register caps and broken or cracked register windows will reduce the legibility of the photographs. If the markings are in red, it may be desirable to restencil them in white.
- (c) Portions of register numerals may be obscured due to the following conditions which would result in the complete numeral not being photographed.
  - (1) Masks on 5-type registers may cover portions of numerals on any of the wheels of the register. In such cases, the holes in the masks may be enlarged or the masks removed.
  - (2) The edges of the window in cover caps of the earlier design used on 14-type registers may obscure portions of the nu-

merals at either side. In such cases, replace the caps.

(d) If, in taking photographs, there are any indications of improper handling or functioning of the camera, doubtful exposures should be repeated after the condition has been corrected.

(e) Care should be taken not to skip any blocks of registers in taking the series of photographs.

(f) In general, the best photographs will be obtained under the following conditions.

(1) Median voltage adjustment on the power unit, as covered in 4.12.

(2) Filter mounted on lens of camera when photographing blocks of 14-type registers or of 5-type registers having covers equipped with plastic windows.

(3) Filter removed from lens of camera when photographing blocks containing any 5-type registers equipped with glass windows.

(g) If lighter or darker photographs than those obtained under the conditions described in (f) are desired, they may be obtained as follows.

(1) Lighter photographs may be obtained by adjusting the voltage at the power unit toward the minimum of the range specified, while darker photographs may be obtained by adjusting the voltage toward the maximum of the range.

(2) In any case, the use of the filter will result in lighter photographs than those obtained without it.

(h) If the camera does not function properly, refer the matter to the supervisor. Apparatus requirements and adjusting procedures for the camera are covered in Section 030-301-701.

### Taking the Photographs

**5.02** Place the camera strap over the shoulders to avoid dropping the camera and to facilitate its handling. While using the camera, periodically check the position of the indicator on the meter of the power unit as covered in 4.12.

**5.03** Bring the camera into position for an exposure by inserting the locating lugs on the hood into the spaces bounding the block of registers to be photographed, as shown in Fig. 10. Hold the camera firmly and squarely against the registers and pull the trigger. Note that both flash lamps flash.



**Fig. 10 – Photographing Block of 25 Message Registers**

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**5.04** Move the camera to the position for the next exposure and observe that the pilot lamp on the camera lights before pulling the trigger.

*Note:* The camera may be moved from one position to the next as soon as the flash lamps have flashed.

**5.05** Continue to photograph blocks of registers as covered in 5.03 and 5.04. The normal number of exposures to be made on a roll of paper is 80 as indicated by the exposure counter. However, a maximum of five additional exposures may be made if needed.

**5.06** After the last photograph has been taken as covered in 5.05, operate the camera four times. This advances the paper sufficiently to prevent the last photograph being light struck when the cover is removed from the camera. Remove the camera strap from the shoulders and place the camera, hood down, on the floor or a suitable support.

**5.07** Release the cover latches and remove the cover from the camera. Move the cam release lever (Fig. 5) toward the metering roller and hold it in this position until the motor stops. The motor is stopped by the end-of-paper switch when the switch finger is released by the cutout near the end of the paper. Turn the switch on the power unit to its OFF position and set the voltage regulating knob to ZERO.

**5.08** Remove the empty cassette from the trigger side of the camera. If a KS-16964 L1 loaded cassette was used and the exposed paper cannot be readily detached from the cassette core, tear the paper straight across using the adjacent edge of the guide plate as a straight edge against which to tear the paper. Remove the cassette into which the paper has been wound. To do this, push the cassette toward the retractable pin, thus disengaging it from the driving pin. Then tilt the cassette, as required, and remove it from the camera. Remove the magnetic insert from the core of the cassette by pushing it out with the KS-6320 orange stick. Carefully wrap the cassette using the wrapping referred to in 4.06.

**5.09** Check an empty KS-16148 cassette (34387-G1 cassette) for light leaks as covered in 3.05. Place the magnetic insert in the core of

this cassette by pushing the insert into the slotted end of the core until it is entirely within the core. Then, using the KS-6320 orange stick, position the insert so that it is just clear of the driving slots. If more photographs are to be taken immediately, do not place the cassette in the camera, but proceed to reload the camera, as covered in 4.06 through 4.14.

**5.10** If additional photographs are not to be taken, mount the empty cassette in the trigger side of the camera to insure that a cassette with a magnetic insert will be available when the camera is next used. Mount the cover on the camera. Remove power from the power unit. Unscrew the camera cable plug locking ring and remove the plug from the jack on the power unit. Place the camera and power unit in their carrying cases. When placing the camera in its case, take care to position it so that the brace farther from the cable compartment engages both portions of the hood of the camera (Fig. 1). This position of the camera will prevent distortion of the hood by the brace. Also, make sure that the camera pilot lamp cap clears the vertical portion of the adjacent brace in carrying cases in which the brace is not notched at this point.

## 6. PREPARATION OF PHOTO PROCESSOR

**6.01 General:** The following general procedures apply to the use of the KS-14778 photo processor.

(a) The KS-14778 photo processor should be set up for use outside the switchroom in a ventilated location specified locally for this purpose, preferably near a water supply. An electric fan should be placed to direct a current of air over the drying drum of the processor in order to dissipate vapors resulting from drying the paper.

(b) If more than five cassettes of paper are to be processed within a period of several days, it may be advantageous to mix developing and stabilizing solutions in greater quantities than required for a single filling of the processor cans. If this is done, the solutions should be kept in tightly capped bottles to prevent oxidation and contamination.