

KS-14778 PHOTO PROCESSOR PIECE-PART DATA AND REPLACEMENT PROCEDURES

1. GENERAL

1.01 This section covers the information necessary for ordering parts to be used in the maintenance of the KS-14778 photo processor used for processing photographs of message registers taken with the KS-14593, List 1 message register camera. It also covers approved procedures for replacing these parts.

1.02 Part 2 of this section covers the piece-part numbers and the corresponding names of the parts which it is practicable to replace in the field in the maintenance of the photo processor. No attempt should be made to replace parts not designated. Part 2 also contains explanatory figures showing the different parts. This information is called Piece-part Data.

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

2. PIECE-PART DATA

2.01 The figures included in this part show the piece-part numbers of the various parts together with their corresponding names.

2.02 When ordering parts for replacement purposes, specify the number and name of the part and refer to the KS-14778 photo processor; for example, 21-808A blade for KS-14778 photo processor or 75-1517A lamp installer for KS-14778 photo processor. Do not refer to the BSP number or to any information shown

in parentheses or brackets following the piece-part number.

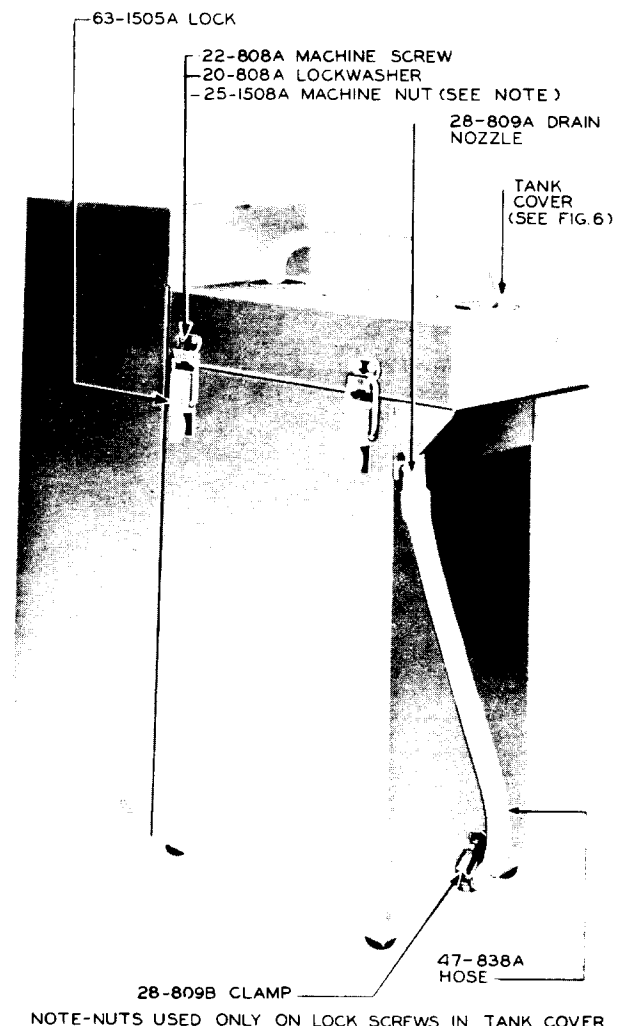


Fig. 1 - KS-14778 Photo Processor

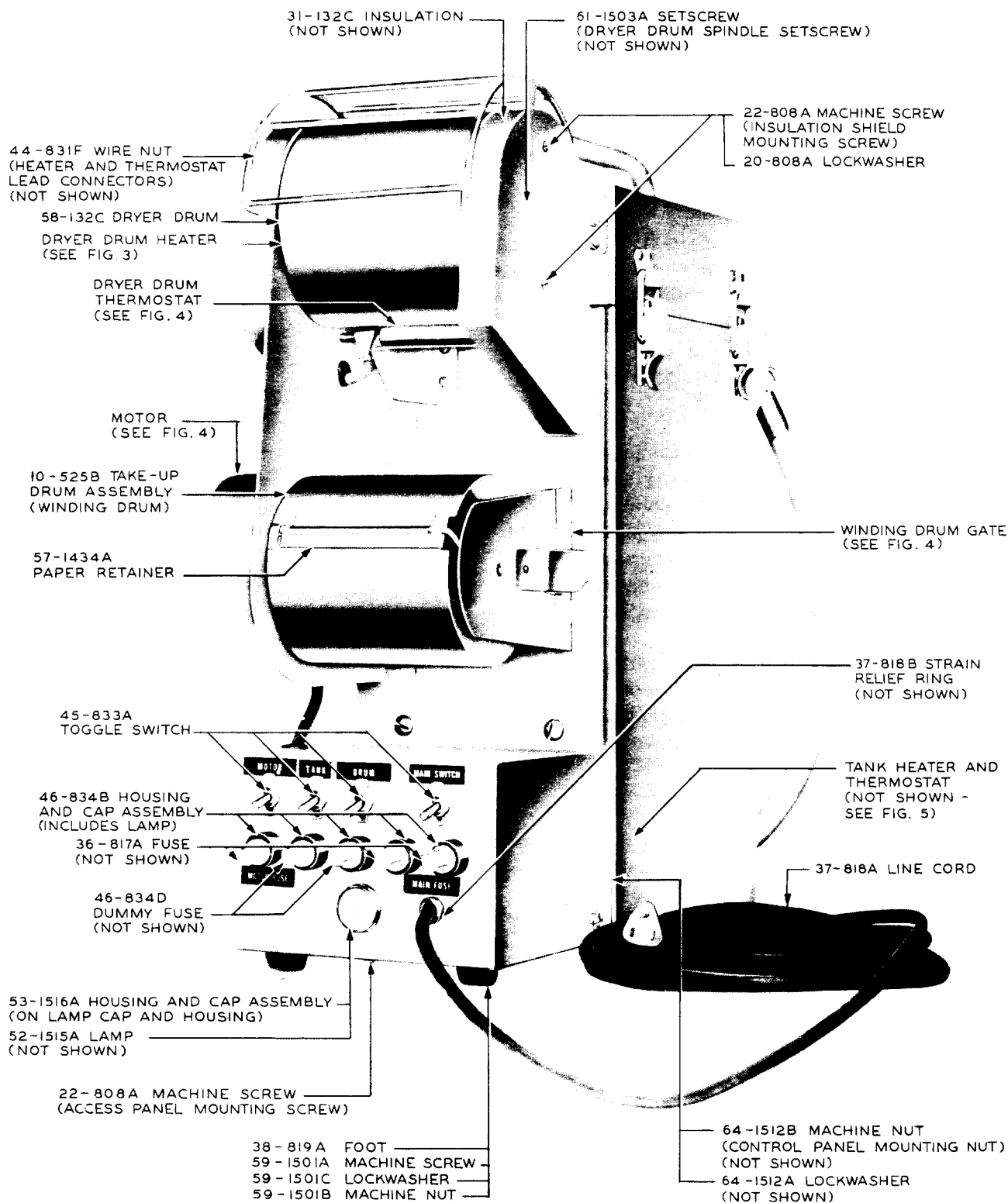


Fig. 2 - KS-14778 Photo Processor — End Cover Removed

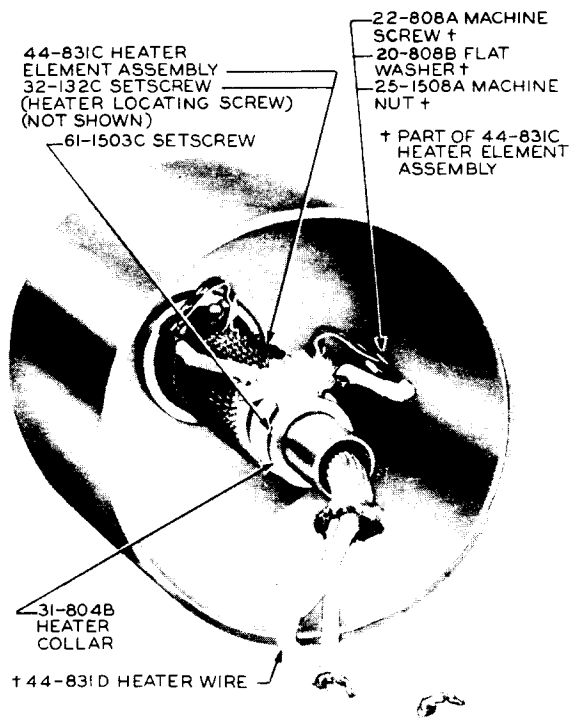


Fig. 3 - Dryer Drum Heater (Drum Removed From Processor)

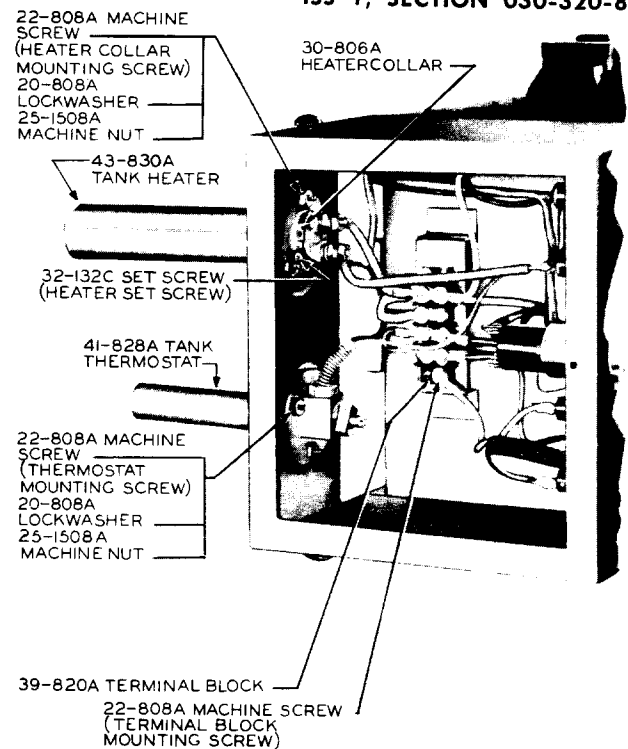


Fig. 5 - Tank Heater, Thermostat, and Associated Parts (Control Panel Removed From Processor)

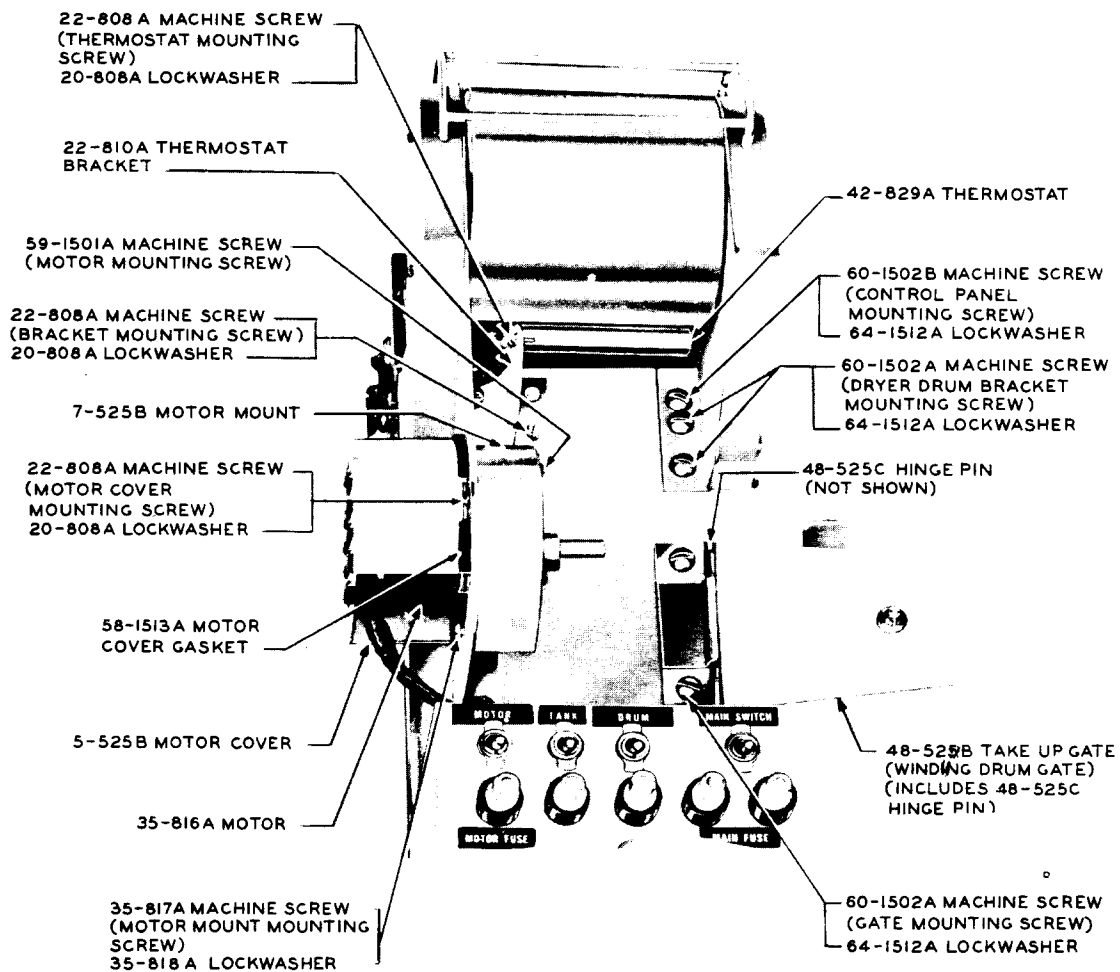


Fig. 4 - KS-14778 Photo Processor - Partial View Showing Motor, Dryer Drum Thermostat, Winding Drum Gate, and Associated Parts

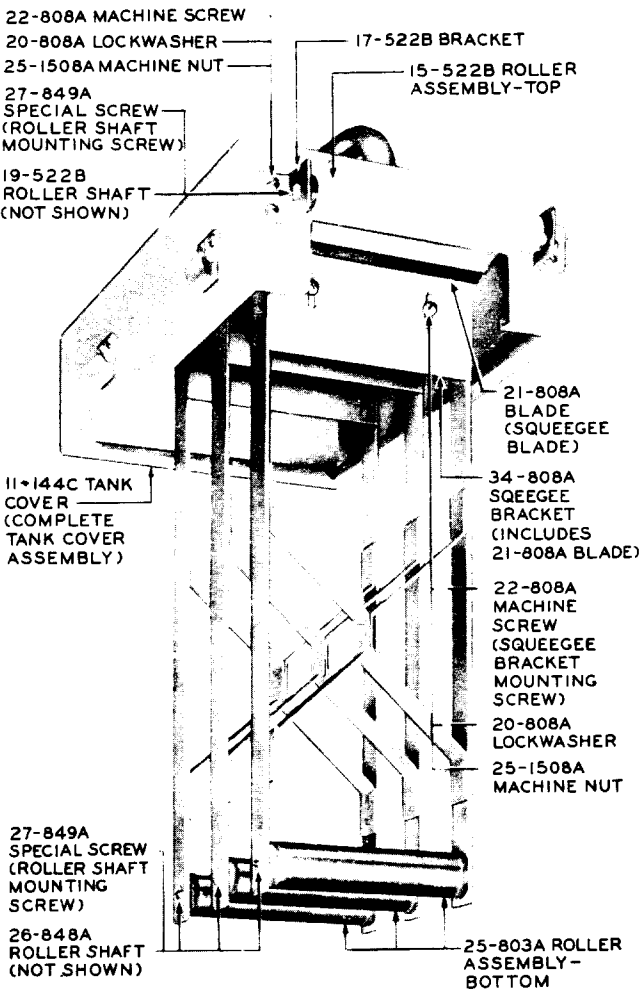
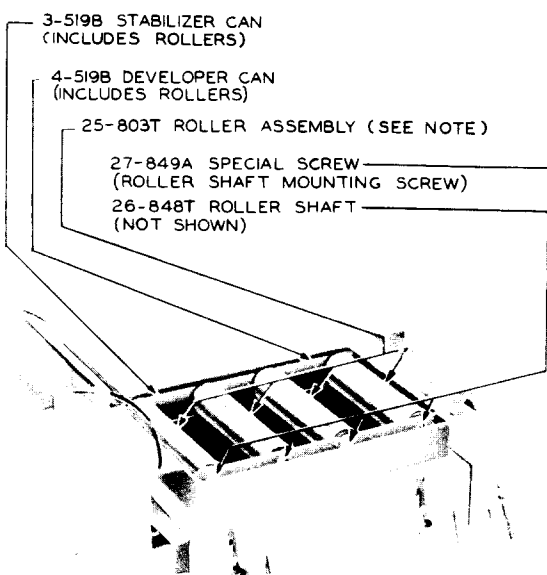


Fig. 6 – Tank Cover and Associated Parts (Cover Removed From Processor)

3. REPLACEMENT PROCEDURES

3.01 List of Tools and Materials

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
236	9/16-inch Open Single-end Offset Wrench
418A	5/16-inch and 7/32-inch Open Double-end Flat Wrench
R-1455	6-inch C-clamp
R-2671	1/8-inch Allen Socket Screw Wrench
R-2718	Plier Wrench
R-2959	1/16-inch Allen Socket Screw Wrench



NOTE: IN A FEW CASES, ROLLER SHAFTS WERE SECURED TO THE CAN BY RIVETING INSTEAD OF SCREWS. IF A ROLLER REPLACEMENT IS NECESSARY IN SUCH A CASE, THE CAN SHOULD BE RETURNED TO THE SUPPLIER WITH INSTRUCTIONS THAT THE CAN BE EQUIPPED WITH REPLACEABLE ROLLERS.

Fig. 7 – KS-14778 Photo Processor — Partial View Showing Developer and Stabilizer Cans (Tank Cover Removed)

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
R-3193	9/32-inch and 11/32-inch Open Double-end Wrench
KS-8097	7/16-inch and 5/8-inch 12-point Offset Box Wrench
—	4-ounce Riveting Hammer
—	Combination Pliers
—	B Splicer's Scissors
—	3-inch Cabinet Screwdriver
—	4-inch Regular Screwdriver
(2 required)	
—	5-inch Regular Screwdriver
—	75-1517A Lamp Installer (Graflex, Inc) (provided with each photo processor)
MATERIALS	
—	Bell Seal Bond Paper (or equivalent)
—	8-inch Length of 3/16-inch Drill Rod

3.02 Before making any replacement of parts, disconnect the power plug.

3.03 If it is necessary to remove the end cover from the processor to replace any parts shown in Fig. 8, disengage the tank cover latches, loosen the end cover mounting screws with the 5-inch regular screwdriver, and lift the end cover from the processor.

3.04 If it is necessary to remove the access panel at the bottom of the processor control panel (Fig. 8) in order to replace parts, first make sure that the stabilizer and developer cans and the processor tank are empty and that the trunk cover is latched in place. Turn the processor on its side with the motor uppermost. Remove the access panel mounting screw with the 4-inch regular screwdriver.

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

3.06 *Insulation:* To replace the insulation under the insulation shields shown in Fig. 8, remove the shield mounting screws with the 4-inch regular screwdriver, and remove the shield. Remove the insulation. Using the old insulation as a pattern, cut slits in the new insulation with the B splicer's scissors so that the insulation can be fitted around the lugs on the bracket. Mount the insulation and insulation shield and securely tighten the mounting screws.

3.07 *Dryer Drum, Heater, Heater Spacer, and Leads:* To replace any of these parts, remove the drum from the processor and the heater from the drum as covered in (1) through (3). Replace the drum, heater leads, spacer, or heater as covered in (4), (5), (6), or (7), respectively. After making the necessary replacements, remount the parts as covered in (8) and (9).

(1) Remove the insulation shield mounting screws using the 4-inch regular screwdriver, and remove the insulation shield and insulation at each end of the drum. Unscrew the wire connectors from the heater leads at the left end of the drum, remove the connectors, and free the ends of the leads.

(2) Referring to Fig. 9, mark lines on the processor with a sharp pencil to indicate the position of the bracket at the right end of

the dryer drum. This will facilitate remounting the bracket in its original position to insure proper alignment of the drum. Remove the top and bottom bracket mounting screws and loosen the other screw with the 5-inch regular screwdriver. Using the R-2671 Allen wrench, loosen the setscrews at both ends of the drum spindle, and swing the bracket away from the drum. Remove the drum and spindle.

(3) Using a sharp pencil, mark intersecting lines on the removable head of the dryer drum and the adjacent drum surface to indicate the position of the removable head. This may facilitate remounting the head. Push this head out of the drum by inserting an 8-inch length of 3/16-inch drill rod through the small hole in the other head and lightly tapping the drill rod with the 4-ounce riveting hammer. Withdraw the spindle and heater from the drum.

(4) If the drum is to be replaced, mount the spindle and heater in the new drum.

(5) If the heater spacer is to be replaced, loosen the setscrew in the spacer using the R-2959 wrench and remove the spacer. Position the new spacer on the spindle against the insulation over the heater leads so that it holds the leads in place. Tighten the setscrew.

(6) If the heater leads are to be replaced, remove the spacer as covered in (5). Disconnect the leads from the heater, using the 4-inch regular screwdriver and the No. 418A wrench, and remove the leads. Mount and connect the new leads and remount the spacer.

(7) If the heater is to be replaced, remove the heater locating screw at the end of the heater opposite the heater spacer. Remove the spacer as covered in (5) and remove the heater and leads from the spindle. Position the new heater and leads on the spindle and mount the locating screw so that it protrudes approximately 1/4 inch from the spindle. Remount the heater spacer.

(8) After replacing any of the parts covered in (4) through (7), proceed as follows. Make sure that there is at least 3/8-inch clearance between the heater coil and the lead extending across the coil. Position the spindle in the drum. Pass the heater leads and sleeve

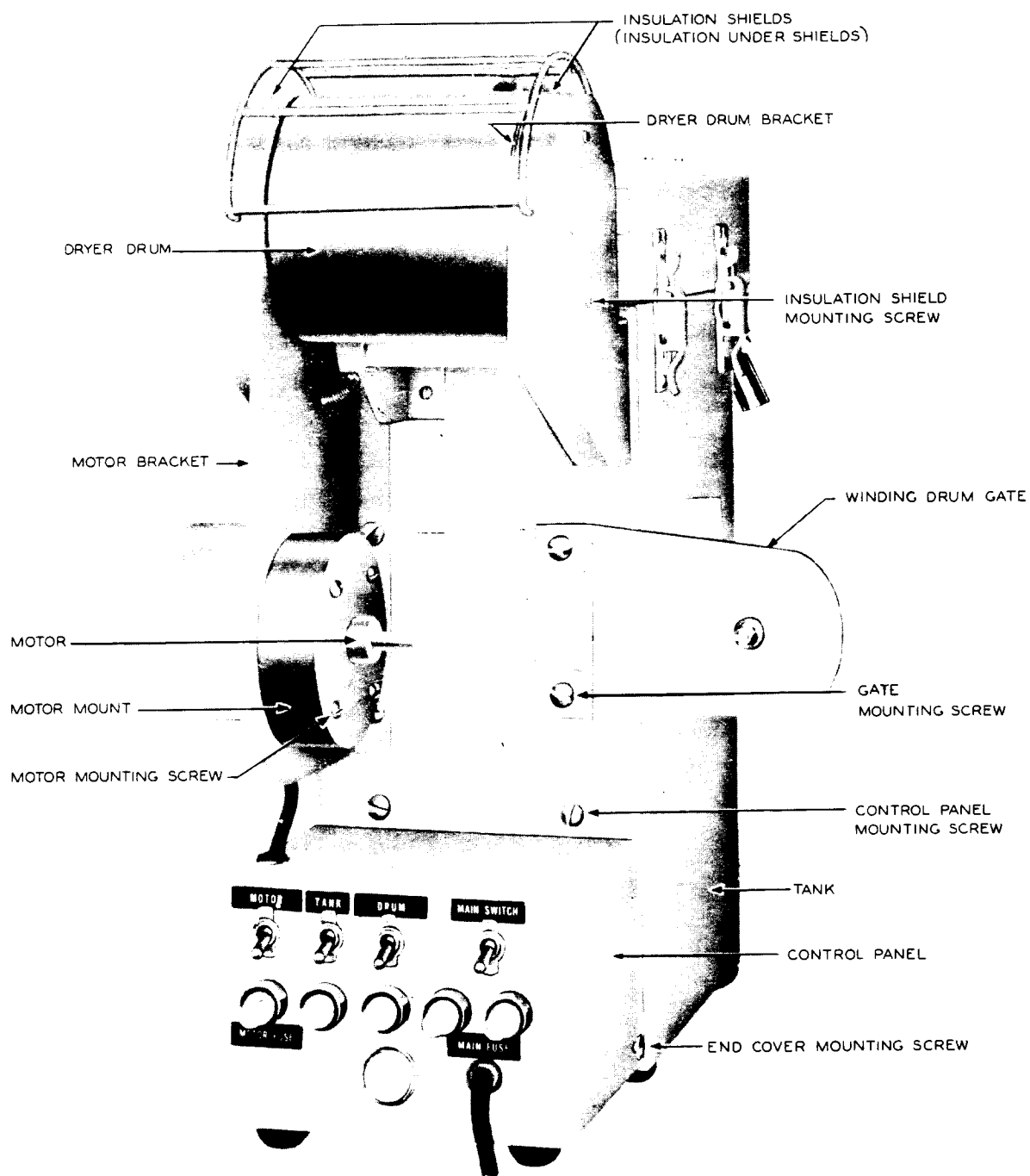


Fig. 8 — KS-14778 Photo Processor — End Cover and Winding Drum Removed

ing through the bearing in the removable head of the drum, and position the head over the spindle so that the pencil marks on the surface of the drum and on the head intersect. Mount the head in its recess by tapping progressively around its periphery with the 4-ounce riveting hammer.

(9) Mount the dryer drum and spindle on the processor taking care that the dryer drum bracket is properly located as indicated by the pencil marks on the end of the processor. Partially tighten the bracket mounting screws and securely tighten the setscrews at each end of the spindle. Check that there is approximately 1/16-inch clearance between the drum and the drum thermostat and that the drum rotates freely. Shift the bracket slightly, if necessary, to obtain these conditions. Tighten all screws securely. Reconnect the heater leads using the wire connectors. Remount the insulation and

the insulation shields and tighten the mounting screws securely.

3.08 *Dryer Drum Thermostat and Mounting Bracket*

(1) Remove the insulation shield mounting screws at the left end of the dryer drum using the 4-inch regular screwdriver and remove the insulation shield and insulation. Unscrew the wire connectors from the thermostat leads, and free the ends of the leads. Referring to Fig. 9, remove the thermostat bracket mounting screws with the 4-inch regular screwdriver and remove the thermostat and bracket. Remove the thermostat mounting screws with the 4-inch regular screwdriver and remove the thermostat from the bracket.

(2) Substitute new parts as required, and remount the parts in reverse order of removal. Position the thermostat mounting

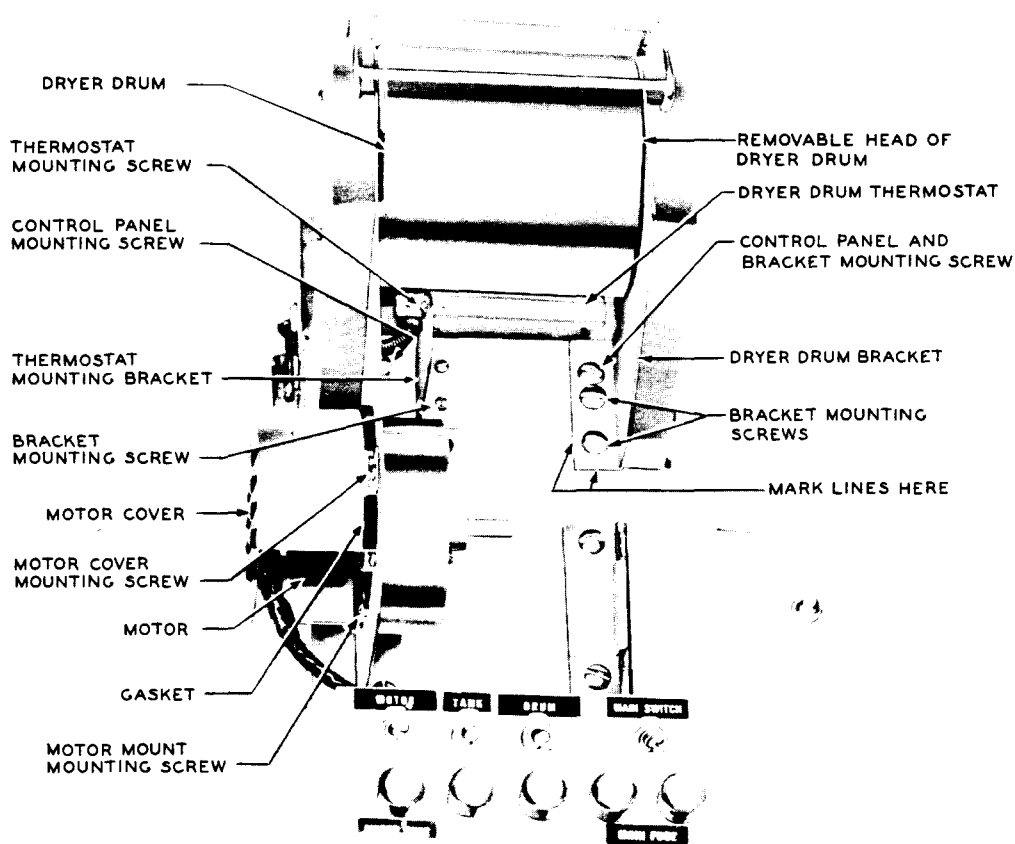


Fig. 9 - KS-14778 Photo Processor — Partial View Showing Motor and Associated Parts

bracket on the control panel so that the thermostat is approximately parallel to the dryer drum and that there is approximately 1/16-inch clearance between the thermostat and the drum in all positions of the drum.

3.09 Motor Cover and Gasket: Referring to Fig. 9, remove the motor cover mounting screws using the 4-inch regular screwdriver, and remove the motor cover and gasket. Remove the gasket from the motor cover. Substitute new parts as required and remount the parts in reverse order of removal.

3.10 Motor and Motor Mount

(1) Remove the access panel at the bottom of the processor control panel as covered in 3.04. Note the terminals to which the motor leads are connected, and disconnect the motor leads. Remove the motor lead strain relief ring.

(2) Turn the processor upright. Unlatch the winding drum gate and remove the winding drum. Remove the motor cover mounting screws using the 4-inch regular screwdriver and remove the motor cover and gasket. Remove the motor mount mounting screws shown in Fig. 9 using the 4-inch regular screwdriver. Remove the motor mount and motor and pull the motor leads through the grommet in the control panel. Remove the motor mounting screws shown in Fig. 8, using the 4-inch regular screwdriver, and remove the motor from the motor mount.

(3) Substitute new parts as required, and mount the parts in reverse order of removal. When mounting the motor mount on the motor bracket, take care that the holes in the bracket and motor mount for the motor cover mounting screws line up. Turn the processor on its side with the motor uppermost, and connect the motor leads to the proper terminals. Remount the strain relief ring and the access panel, and turn the processor upright.

3.11 Winding Drum Gate and Associated Parts

(1) Remove the gate mounting screws shown in Fig. 8, using the 5-inch regular screwdriver, and remove the gate. If the hinge pin is to be replaced, remove the pin using the R-2959 wrench to start it out of the hinge if necessary.

(2) Substitute new parts as required and mount the parts in reverse order of removal. Partially tighten the gate mounting screws. Remount the winding drum, and check that the drum bearing pin on the gate lines up properly with the associated hole in the winding drum. Shift the gate slightly, if necessary, to obtain this alignment. Tighten the gate mounting screws securely.

ON Lamp, Indicator Lamps, Switches, Power Cord, and Associated Parts

3.12 ON Lamp: To replace the lamp, lift the cap off with the fingers, and unscrew the lamp with the lamp installer furnished with the photo processor. Substitute the new lamp and screw it into the housing, using the lamp installer. Manually press the cap into place.

3.13 ON Lamp Housing and Cap: Remove the ON lamp and cap as covered in 3.17. Remove the access panel from the bottom of the control panel as covered in 3.04. Loosen the lamp housing mounting nut (Fig. 10) using the R-2718 plier wrench, and rotate the housing to gain access to the terminal screws. Disconnect the leads with the 4-inch regular screwdriver. Remove the mounting nut from the housing and remove the

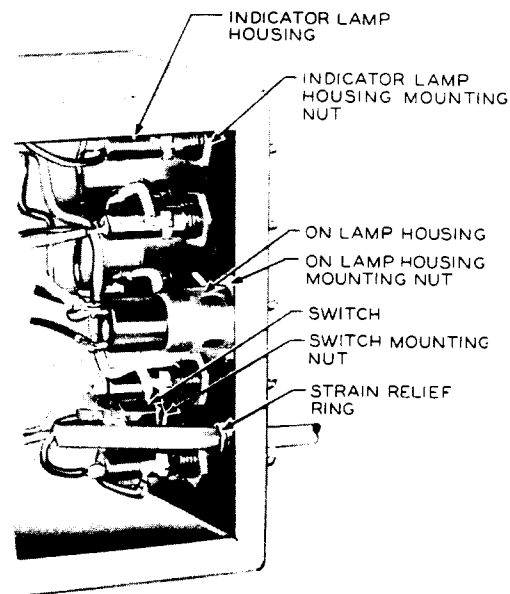


Fig. 10 — KS-14778 Photo Processor — Partial View With Access Panel Removed Showing Lamp Housings, Switches, and Associated Parts

housing from the control panel. Substitute the new lamp housing and cap and mount the parts in reverse order of removal. Connect the leads to the housing terminals and securely tighten the mounting nut.

3.14 *Indicator Lamp Fuses and Dummy Fuses:*

Press the lamp toward the lamp housing, turn the lamp counterclockwise, and remove it. Remove the fuse or dummy fuse from the lamp. Substitute the new part as required and mount the parts in reverse order of removal.

3.15 *Indicator Lamp Housing (Includes Lamp):*

Remove the lamp and fuse or dummy fuse from the housing as covered in 3.19. Remove the access panel from the bottom of the control panel as covered in 3.04. If necessary to gain access to the part to be replaced remove the ON lamp housing as covered in 3.18. Unsolder the leads to the indicator lamp housing. Remove the indicator lamp housing mounting nut using the combination pliers, and remove the housing. Substitute the new housing and mount the parts in reverse order of removal. Solder the leads to the housing.

3.16 *Switches:* Remove the access panel from the bottom of the control panel as covered in 3.04. If necessary to gain access to the switch to be replaced, remove the ON lamp housing as covered in 3.18 and indicator lamp housings as covered in 3.20. Loosen the switch mounting nut with the No. 236 wrench and rotate the switch to gain access to the terminal screws. Disconnect the leads to the switch, using the 4-inch regular screwdriver. Remove the knurled mounting ring on the outside of the panel and remove the switch. Substitute the new switch and mount the parts in reverse order of removal, connecting the leads to the proper terminals.

3.17 *Power Cord:* Remove the access panel from the bottom of the control panel as covered in 3.04. Unsolder the two power cord leads from the fuse indicator lamp housings and disconnect the third lead of the power cord from the terminal strip using the 4-inch regular screwdriver. Remove the strain relief bushing from the cord and remove the cord. Substitute the new cord and mount it in reverse order of removal, connecting the leads to the proper terminals. Remount the access panel and turn the processor upright.

Tank Heater, Thermostat, and Associated Parts

3.18 *General:* To replace these parts it is necessary to remove the control panel from the tank of the processor. To do this, remove the access panel from the bottom of the control panel as covered in 3.04. Using the KS-8097 wrench, remove the control panel mounting nuts and lockwashers adjacent to the tank heater and thermostat. Turn the processor upright, and remove the control panel mounting screws shown in Fig. 8 and 9, using the 5-inch regular screwdriver. Carefully withdraw the control panel from the tank so that the heater and thermostat do not bind in their receptacles in the tank. Lay the control panel on its side with the motor uppermost.

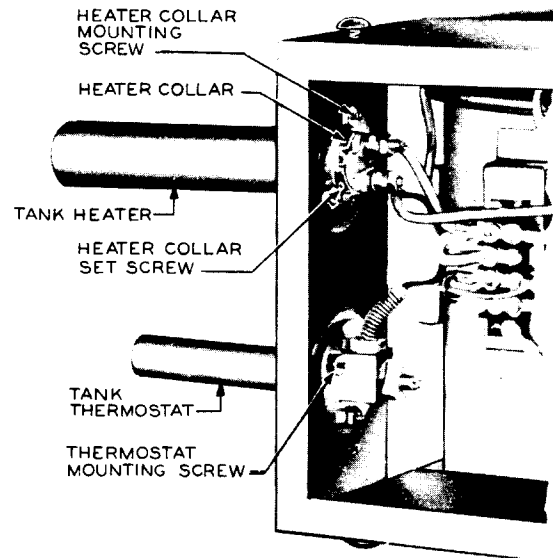


Fig. 11 – Tank Heater Thermostat and Associated Parts (Control Panel Removed From Processor)

3.19 *Tank Heater and Heater Collar:* Tag and disconnect the leads to the heater, using the R-3193 wrench. If the setscrews in the heater collar are accessible, loosen them with the R-2959 wrench and remove the heater. If the setscrews are not accessible or if the heater collar is to be replaced, remove the collar mounting screws and associated nuts, using the 4-inch regular screwdriver and the No. 418A wrench. Rotate the collar until the setscrews are accessible, loosen the setscrews and remove the heater from

the collar. Substitute new parts as required and mount the parts in reverse order of removal, connecting the leads to the proper terminals.

3.20 Tank Thermostat: Note the terminals to which the thermostat leads are connected and disconnect the leads. Use the 4-inch regular screwdriver to disconnect the lead at the tank switch and the R-3193 wrench for the lead at the heater. Remove the thermostat mounting screws and the associated nuts using the 4-inch regular screwdriver and the No. 418A wrench. Remove the thermostat from the inside of the control panel. Substitute the new thermostat and mount the parts in reverse order of removal.

Tank Cover Rollers, Squeegee Blade and Bracket, and Associated Parts

3.21 Rollers Mounted on Tank Cover Legs:

Unlatch and remove the tank cover. Remove the roller shaft mounting bolts with the 4-inch regular screwdriver, remove the shaft and roller, and remove the shaft from the roller. If difficulty is experienced in removing a bolt due to the shaft turning with the bolt, place the R-1455 C-clamp across the legs which mount the roller as close as practicable to the bolts, and tighten the clamp sufficiently to prevent the shaft from turning. Substitute the new roller and remount the parts in reverse order of removal. The use of two screwdrivers will permit tightening the two bolts simultaneously.

3.22 Roller Mounted at End of Tank Cover:

Unlatch and remove the tank cover. Remove the roller shaft mounting bolts with the 4-inch regular screwdriver, remove the shaft and roller, and remove the shaft from the roller. If, after removing one bolt, difficulty is experienced in removing the other due to the shaft turning with the bolt, remove the bracket at the end of the shaft opposite the bolt being removed. Use the 4-inch regular screwdriver and the No. 418A wrench to remove the bracket mounting screws and associated nuts. Remove the roller from the shaft and hold the shaft while removing the remaining shaft mounting bolt. Substitute the new roller and remount the parts in reverse order of removal. The use of two screwdrivers will permit tightening the two mounting bolts simultaneously.

3.23 Squeegee Blade Bracket (Including Blade)

(1) Unlatch and remove the tank cover. Mark the location of the bottom edge of the bracket on the tank cover legs with a sharp pencil. Remove the bracket mounting screws and associated nuts using the 4-inch regular screwdriver and the No. 418A wrench, and remove the bracket. Substitute the new bracket and remount the parts in reverse order of removal, taking care that the bracket is positioned as indicated by the pencil marks.

(2) Determine whether the position of the new bracket provides satisfactory functioning of the squeegee blade as follows. Make sure that the developer and stabilizer cans are properly placed in the processor tank. Cut a piece of bond paper approximately 1 inch by 8 inches. Lay the strip over the right end of the stabilizer can roller nearer the drying drum. The outer end of the strip should project toward the drying drum just far enough to be grasped with the fingers after the tank cover has been mounted on the processor. Mount and latch the tank cover on the processor. Pull the strip of paper out from between the squeegee blade and the roller on the stabilizer can. There should be an appreciable drag on the paper. Repeat this check with the paper at the left end of the roller. The drag on the paper at both ends of the roller should be approximately the same. If there is no drag or a very heavy drag on the paper at either end of the roller, reposition the bracket as required.

3.24 Squeegee Blade: Unlatch and remove the tank cover. Remove the bracket from the tank cover as covered in 3.28. Withdraw the blade from one end of the slot in the bracket. Draw the new blade into the slot and center it on the bracket. Make sure that neither end of the blade projects from the ends of the slot. Remount and position the bracket as covered in 3.28.

Drain Hose, Hose Clamp, and Nozzle

3.25 Nozzle: To replace the nozzle, manually work it out of the hose. Insert the new nozzle in the hose so that it projects approximately 1 inch from the end of the hose.

3.26 Drain Hose and Hose Clamp: Loosen the hose clamp screw and remove the hose and clamp. If the clamp is to be replaced, remove

the clamp from the hose and substitute the new clamp. Position the hose on the drain and the clamp on the hose. Tighten the clamp screw until the hose is securely clamped to the drain. If the drain hose is to be replaced, transfer the nozzle and clamp to the new hose and remount the hose as covered above.

Tank Cover Latches

3.27 Remove the tank cover from the processor. Remove the portion of the latch on the tank cover by removing the mounting screws and nuts with the 4-inch regular screwdriver and the No. 418A wrench. Remove the latch from the processor tank by removing the mounting screws with the 4-inch regular screwdriver. Substitute

the new latch and remount the parts in reverse order of removal. Before tightening the latch screws on the tank, remount the tank cover and position the latch on the tank so that it will secure the tank cover firmly in place. Tighten all screws securely.

Developer and Stabilizer Cans, Rollers, Roller Shafts, and Bolts

3.28 To replace any of these parts, remove the tank cover and remove the can involved. If a roller or shaft is to be replaced, remove the roller from the can, substitute the new part and mount the parts following procedures similar to those covered in 3.21. Mount the can in the tank and the tank cover on the processor.