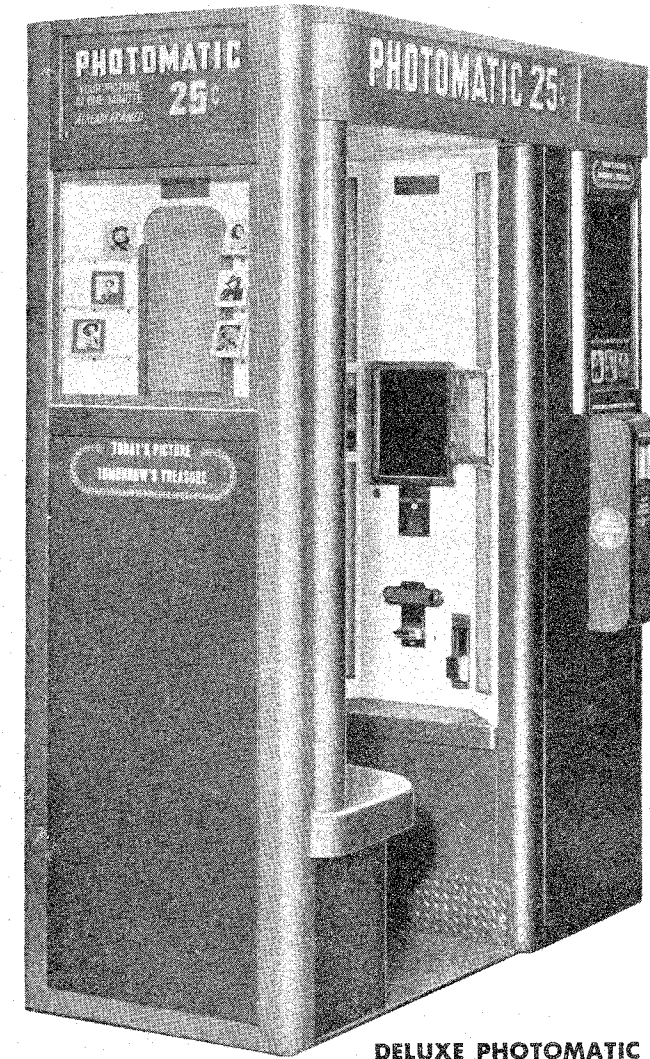


PHOTOMATIC

TRADE MARK REG. U. S. PAT. OFF.

MANUAL



DELUXE PHOTOMATIC

MANUFACTURED BY
INTERNATIONAL MUTOSCOPE CORPORATION
 MUTOSCOPE BUILDING
 LONG ISLAND CITY 1, NEW YORK, U.S.A.



PHOTOMATIC

REG. U. S. PAT. OFF.

Covered by Patents and Patents Pending
in U.S.A. and Foreign Countries

FROM
 LEMME TONK MACHINE CO.
 135 W. FERRIS BUILDING
 DETROIT, MICHIGAN



Illustration 1 - Photomatic, DeLuxe Model

OPERATION

When magazine is empty, the testing finger is allowed to enter magazine thus disengaging the locking finger catch on the outside circumference of turret. The turret is then released and is turned by a spring controlled driving arm pinned directly to the center shaft of the turret underneath the fibre gear. This arm holds a ratchet arm which catches on one of the three driving studs and rotates the next filled magazine into place. The locking finger holds magazine in place and the ratchet of the driving arm passes by the driving stud.

26. CAMS AND CAM LEVERS. (See illustrations 10 and 11.)

The cams, contact disk, and fibre gear on cam drum are driven by means of the synchronous motor which is connected through a coupling to a pinion gear which in turn engages the large fibre gear (see illustration 13). As the motor operates, it rotates the entire cam assembly which operates in the following manner:

- a. Slide Cam (Top). - Controls the position of the spring controlled slide and the jam control arm. A roller connected to the slide rides on a circumference of the cam. Connected to the roller stud is the jam control arm. The cam rotates and allows the slide to move forward after the shutter action. The spring controlled slide pushes the Mutosnap into the developing chamber with the jam control arm closing the jam control switch. When this occurs, the jam control arm and slide are at the lowest point of the cam. (See illustration 12.)

OPERATION

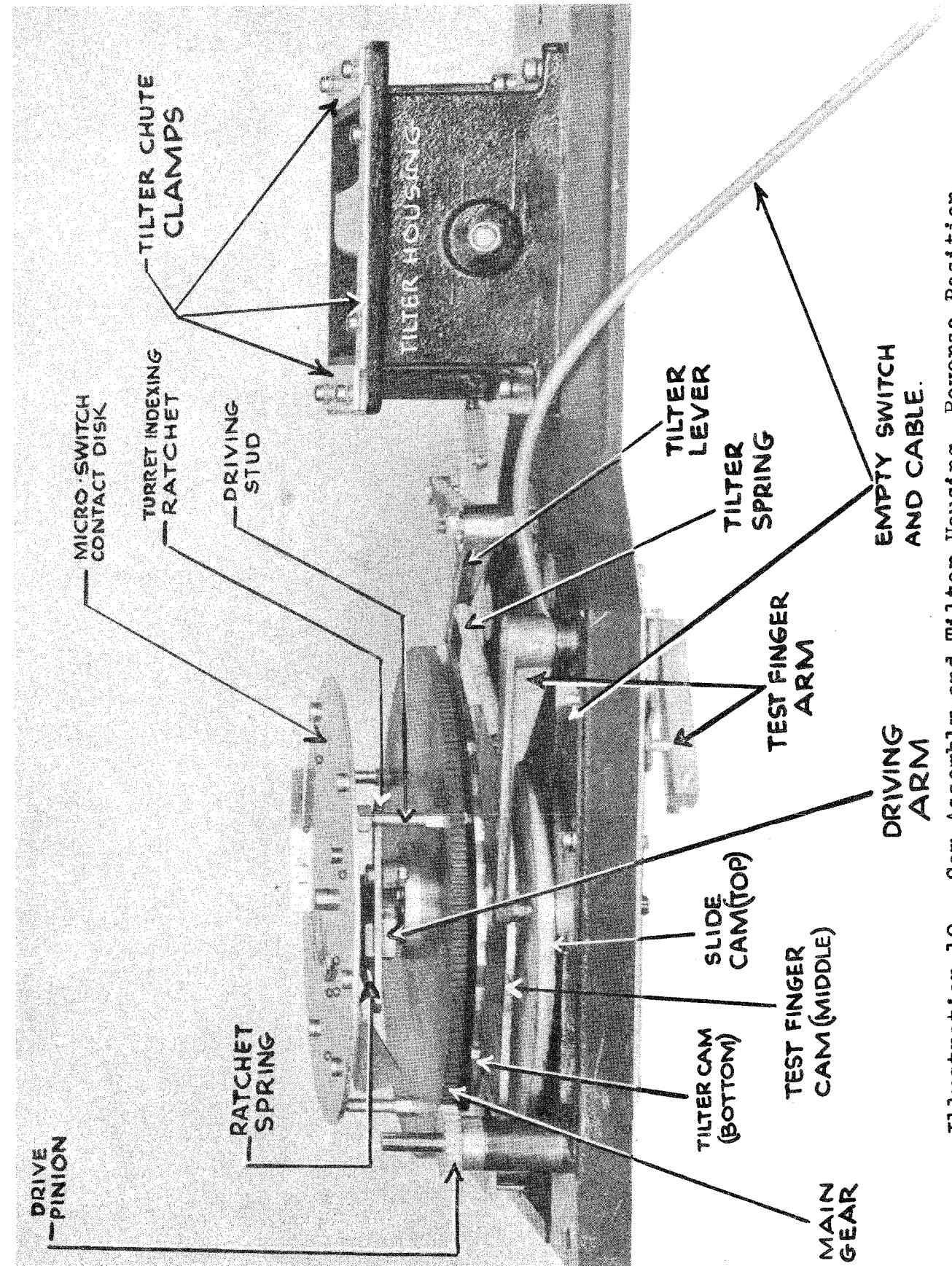
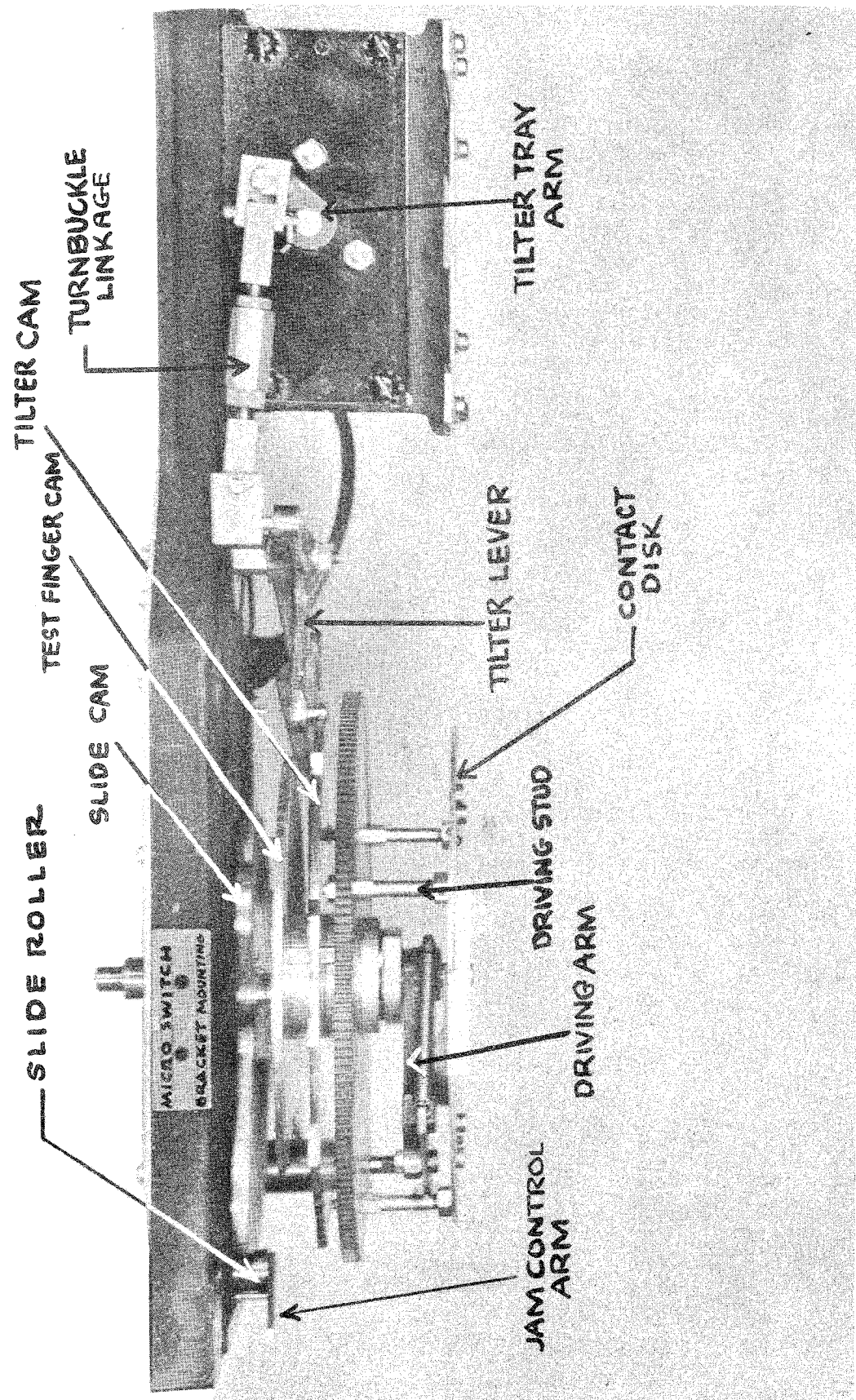
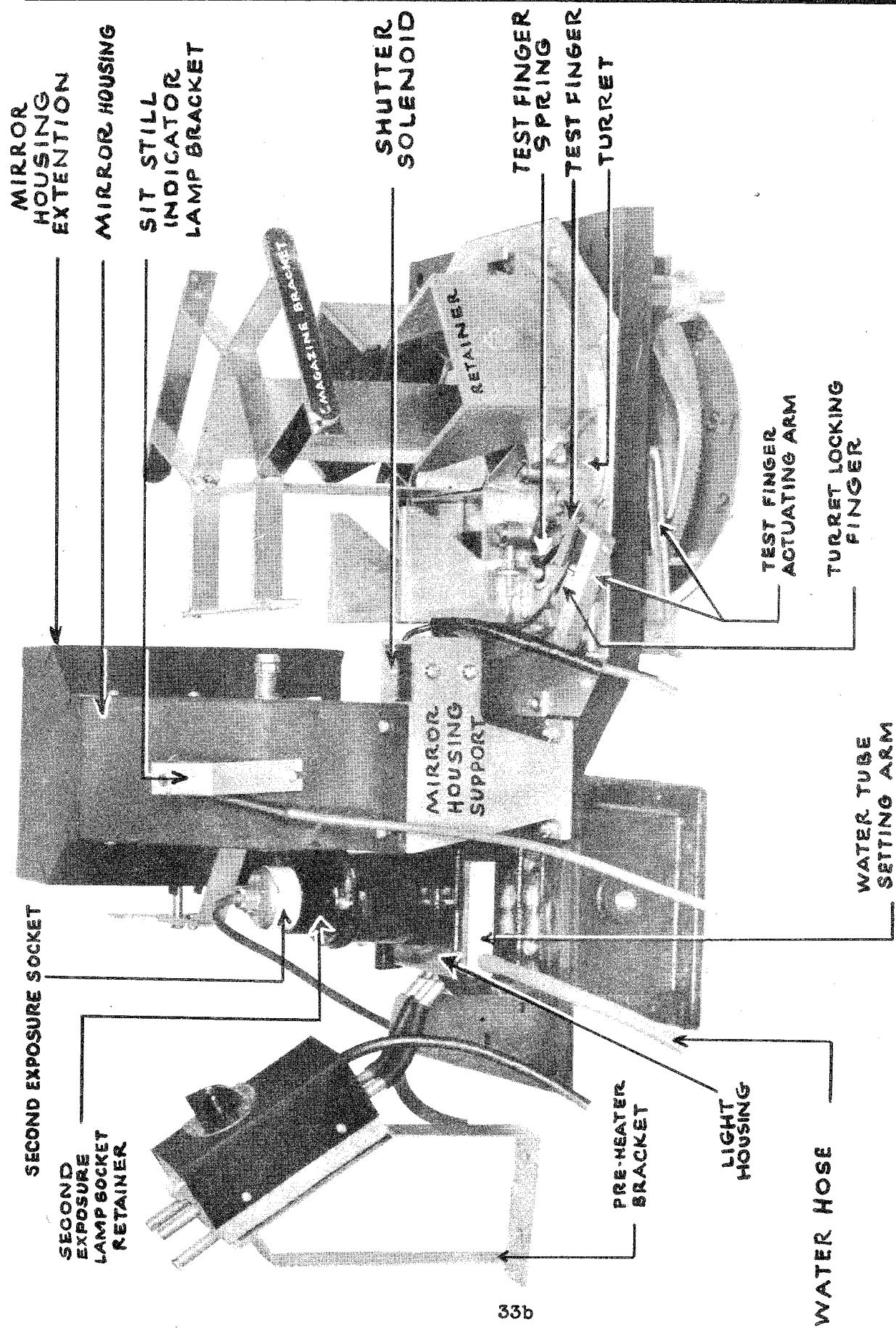


Illustration 10 - Cam Assembly and Tilter Housing, Reverse Position



34b

Illustration 11 - Cam Assembly, Normal Position



33b

Illustration 9 - Rear View of Mechanism

OPERATION

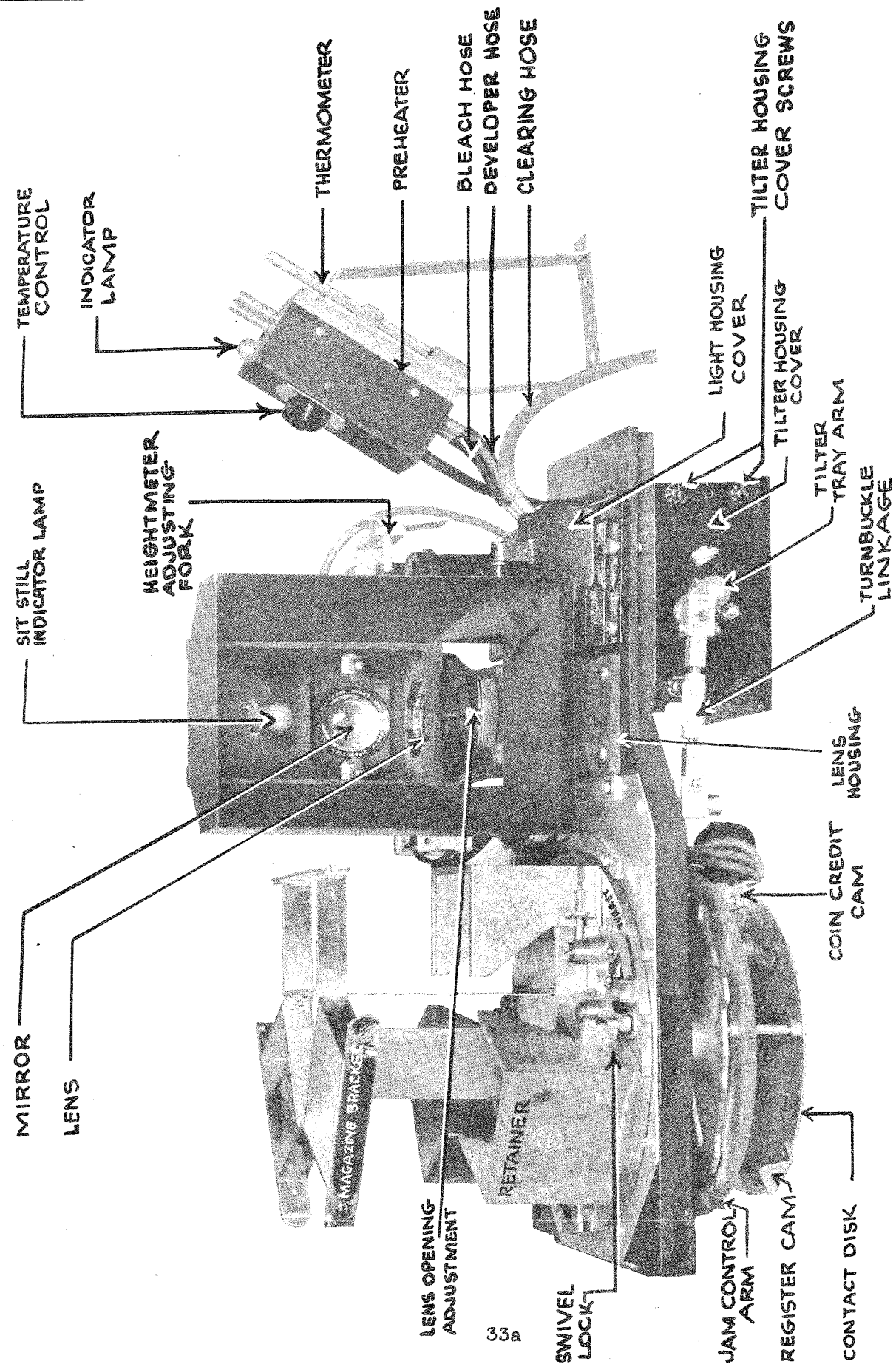


Illustration 8 - Front View of Mechanism

OPERATION

- b. Test Finger Cam (Center). - A spring controlled lever arm rides on the center cam. The lever arm is connected through a shaft to an arm above the turret. This pushes the testing finger into the magazine in the turret to determine if Mutosnaps are present in the magazine. If the magazine is empty the finger will ride into the magazine, thus disconnecting the locking finger (catch) on the outside diameter of the turret, allowing the driving arm underneath the fibre gear to be pushed by one of the three turning finger studs rotating the turret to its next position.
- c. Tilter Cam (Bottom). - This cam controls, by means of its lever arm, the position of the tilter platform in the developing chamber. A turnbuckle connects the arm to shaft of the tilter tray. The arm of the bottom cam is connected by a spring to the arm of the center cam. This causes both arms to ride positively on the circumference of the cams.
- d. Main Fibre Gear. - This gear is connected indirectly through a pinion to the driving motor.
- e. Driving Studs, Contact Disk, Driving Arm. - The contact disk is connected to the fibre gear by means of three driving studs. As the fibre gear rotates, it turns the contact disk which rides over the Microswitches. The contact rivets of the contact disk depress the Microswitches thus actuating the electrical components wired to the Microswitch assembly.

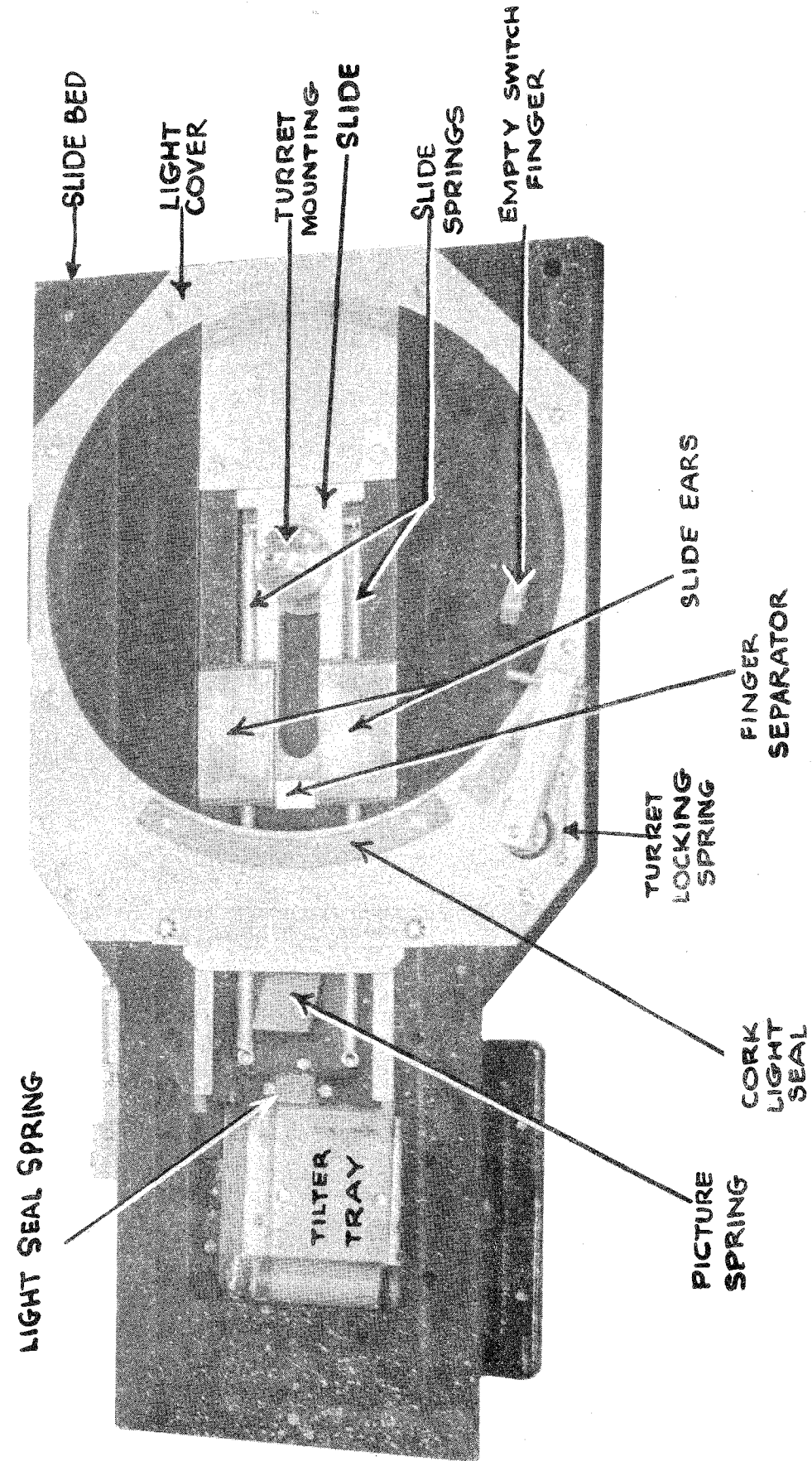


Illustration 12 - Slide Bed Showing Springs and Tilter Tray

35a

is moved into developing chamber, this arm pushes leaf of jam control switch down, thus closing the circuit. Synchronized with jam control switch is stopping of drive motor through action of rivet on contact disk and Microswitch. If the Mutosnap can not be pushed into correct position, the jam control arm does not push leaf of jam control switch down, circuit is opened, motor stops, and the Photomatic does not operate.

- j. No Credit Switch. - At beginning of operation no credit switch is held down, in its "ON" position, by the coin credit cam on the contact disk. (See illustration 8.) This allows totalizer to register. When machine starts and disk turns, the coin credit cam passes the switch, opening the circuit and will not register coins passing through the coin mechanism.

25. TURRET. (See illustrations 8 and 9.)

Three magazines are fastened to the turret which is so designed that when one magazine is emptied, the turret rotates another magazine into place. When all magazines are emptied, the empty reset switch underneath turret housing is allowed to spring up, thus opening coin credit circuit and will not allow coins to register. This switch is in series with the no credit switch. The turret is controlled by 1 cam and 2 cam lever arms. After a Mutosnap is pushed into developer chamber, a testing finger set within the turret probes the magazine.

OPERATION

- d. Water Valve. - This valve is energized four times in a complete cycle allowing for the passage of water on the Mutosnap; thus, rinsing off the solutions in each step of the developing process.
- e. Shutter. - A solenoid is energized which opens and closes the shutter immediately after the coins have been accepted, thus exposing the Mutosnap.
- f. Second Exposure Light. - At period of clearing and before final development, it is necessary to have a second exposure. A light set into the developing chamber, lights up thus completing the second exposure.
- g. Motor Stop. - This single pole double throw Microswitch stops motor at end of cycle and in case of a jam will stop motor at start of operation.
- h. Timer. - After pouring and agitation of Developer, Bleach and Clearing the action of the single pole double throw switch starts the timer and stops driving motor. Timer is started by its Microswitch and stops driving motor at completion of a set period. This occurs for four separate periods; developer, bleach, clearing and second developer. At completion of each period, the timer arm starts the driving motor and shuts off its motor. (See page 27, paragraph 23a.)
- i. Jam Control Switch. - This switch in starting position is open. A jam control arm is attached to the spring controlled slide. (See illustration 8.) When a Mutosnap

OPERATION

- (See paragraph 24, page 31.) The driving arm is pinned to the center shaft of the turret and sets between contact disk and fibre gear. When a magazine is emptied, the driving arm through the ratchet arm is engaged by one of the driving studs and swings the turret so that the next filled magazine is set in place to deliver Mutosnaps.
- f. Driving Motor. (See illustration 13.) - This motor is a 60 cycle, 115 V, A.C. motor of constant speed. The speed of this motor will not vary with temperature.
27. LENS, PRISM MIRROR, AND LENS HOUSING. (See illustrations 8 and 9.)
- a. Prism Mirror. - The prism mirror is synchronized with height meter dial. When the customer moves the dial for his height, the prism mirror is moved accordingly, thus registering the subject correctly with relation to the Mutosnap upon exposure.
 - b. Lens. - The lens is a F/2, 3", Wollensak portrait lens. Its deep focus compensates the depth of field. All lenses are pre-set and inter-changeable. No focusing is required on an exchange lens. When replacing lens, you merely remove the mirror housing bracket. Then loosen the set screw in the side of the lens housing, also remove the brass thumb screw which holds the diaphragm adjustment then lift lens from housing. Keep lens clean at all times. When cleaning lens, use camel's hair brush only, which will prevent scratching of lens

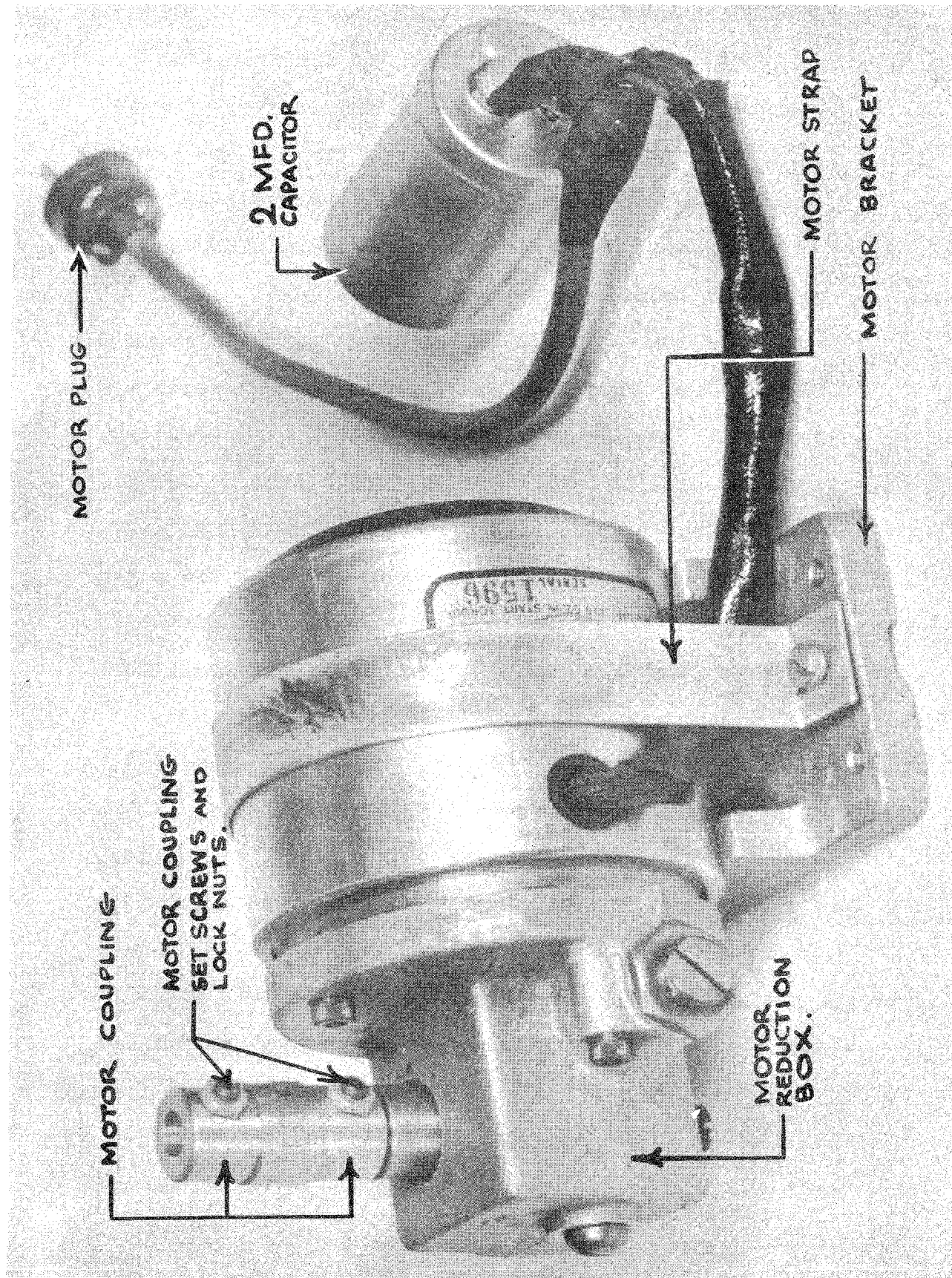


Illustration 13 - Driving Motor

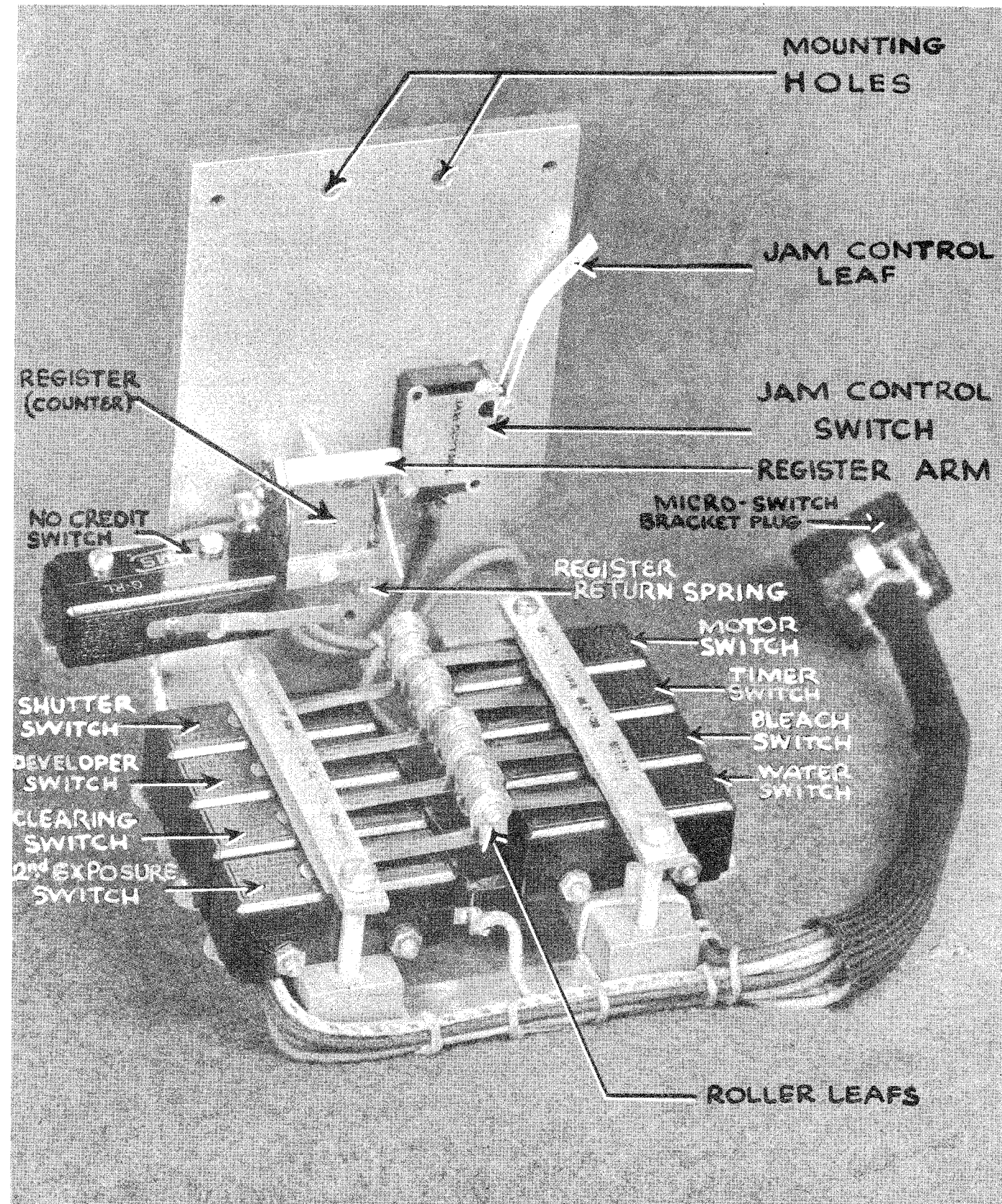


Illustration 7 - Microswitch Assembly

OPERATION

solenoids are energized which act on a lever that rotates a ratchet wheel. The five cent solenoid rotates one tooth on wheel, the ten cent solenoid moves two teeth on ratchet wheel. The 25¢ solenoid moves 5 teeth on wheel. If the machine is set for 15 cents, three teeth on ratchet wheel will rotate the credit switch pawl closing the credit switch which is set for this setting of ratchet wheel thus starting machine. Additional coins will not register if placed in during cycle of operation. If return button is pressed after the insertion of additional coins, the coins will be returned. The totalizer with adjustment will register any combination of coins up to 25¢. (See paragraphs 31 and 32.)

24. MICROSWITCH ASSEMBLY. (See illustration 7.)

The Microswitch assembly consists of a bank of 8 Microswitches, "Jam Control" switch and the "No Credit" switch. This assembly is located directly below rotating contact disk. The Microswitches, when actuated by rivets on contact disk, control the operation of the following:

- a. Developer Valve. - This valve is energized twice in one complete cycle of operation, allowing for the passage of developer on the Mutosnap.
- b. Bleach Valve. - This valve is energized once in a complete cycle, allowing for the passage of bleach on the Mutosnap.
- c. Clearing Valve. - This valve is energized once in a complete cycle, allowing for the passage of clearing on the Mutosnap.

OPERATION

surface. Lens diaphragm opening is regulated by means of knurled brass screw set directly in front of lens housing.

- c. Lens Housing. - The lens housing is designed so that the Mutosnap rests under the lens in proper focus for exposure and is then pushed into the developing chamber by the slide.

28. DEVELOPING CHAMBER. (See illustrations 8 and 9.)

After Mutosnap is exposed in the lens housing, it is pushed by the slide, falling onto the tilter platform of the developing chamber. The position of the Mutosnap on the platform is controlled by the lever arm working off the third cam which is connected to the tilter platform by means of a turnbuckle. Chemicals (Developer, Bleach and Clearing) are poured onto the Mutosnap at separate timed intervals when Mutosnap is in a horizontal position in the developing chamber. Immediately after chemicals are poured on the Mutosnap, the tilter platform agitates the Mutosnap gently. This assures complete coverage of the chemical action on the paper. After each chemical is poured on and allowed to react on the paper, the tilter platform turns in an almost vertical position. This allows the chemicals to run off and sets the Mutosnap in the correct position for its water rinse which takes place after each chemical step. On completion of cycle, the tilter platform turns completely vertical. The Mutosnap is pushed off the tilter platform by means of pin set into bracket underneath the platform and falls into the delivery chute, sliding into the

OPERATION

outlet chute to the customer. Set into the top of the developing chamber is the second exposure light which goes on prior to the pouring of the second developer. This action of the second exposure light and the second developer develops the positive image.

The tilter platform can be easily removed for cleaning by unfastening the turnbuckle from tilter shaft lever by removing the screw on lever and the four mounting screws for the tilter housing cover plate. The tilter platform must be in its horizontal position before it can be removed. Open door to observe if it is in its normal position before attempting to remove the tilter platform assembly. Whenever the tilter platform assembly is removed, the developing chamber can also be easily cleaned. Before reinstalling, squeeze "Lubriplate" (see list of accessories, paragraph 5) on ends of tilter shaft to prevent chemicals entering bushing. It is easy to check the action of the tilter platform and chemicals by simply opening door in developing chamber and observing the step by step procedure. (See page 25, paragraph 22.)

29. PREHEATER. (See illustrations 8 and 9.)

The preheater is found on the right side of the developing chamber below the valves. It heats the developer and bleach before they enter the developing chamber. When these solutions are correctly heated, the Photomatic operates most efficiently and the Mutosnaps can be produced at high speed. Temperature is controlled by dial on preheater which should be set so that preheater operates at about 105°. When set at the

OPERATION

IX. Second Exposure Lamp Socket. - Cable and plug of second exposure light in developing chamber is connected to circuit at this socket.

X. Cable leading from Switch Box:

(a) Six wire cable with female socket is connected to six prong male plug of valve assembly.

(b) Eight wire cable with female socket connects to eight prong male plug of coin mechanism.

(c) Cable with two prong plug coming from switch box is the switch box circuit plug.

(d) Cable wired in switch box and connected to "Sit Still" light in mirror housing.

c. Totalizer.* (See illustrations 18 and 19.) - This unit is directly connected to coin mechanism. It accumulates the count as coins are inserted in the machine. It will not register coins during the time that the machine is in action and such coins can be returned by pressing button. Coins must be inserted newly for each picture. If an insufficient amount of coins is inserted, the totalizer will be partially energized but coins will be returned providing that the return button is pressed. When coins are inserted,

OPERATION

- III. **Timer and Motor Switch.** - This is the main shut off switch of the entire machine. When this switch is off, it shuts off the entire mechanism, opening all circuits except for the gauge light and the fluorescent tubes and preheater. This switch is in "ON" position when lever is pressed down.
- IV. **EMPTY RESET SWITCH.** - Lever of this switch must be pressed down before starting machine. This closes circuit with magazine empty switch in slide bed. When three magazines are emptied, switch in slide bed rises making contact. This actuates empty reset relay which releases and allows lever to rise thus opening circuit. When switch is open, it opens coin credit circuit and will not allow coins to register.
- V. **Microswitch Socket.** - This socket connects to a 12 prong plug which is wired to the Microswitches in the Microswitch assembly.
- VI. **Motor Socket.** - The plug of driving motor cable is connected to this socket.
- VII. **Empty Relay Switch Connector.** - Cable and plug of empty relay switch of slide bed is connected to circuit at this point.
- VIII. **Shutter Socket.** - Solenoid controlling the shutter is connected to this socket by means of its wire and plug.

OPERATION

correct temperature, the bleach and developer hose outside the preheater should be slightly warm. Do not set dial so that thermometer reads over 115°. Thermometer and heating element will burn out at temperatures over 115°.

30. SOLENOIDS AND VALVES. (See illustration 14.)

The solenoids control the action of the valves. These solenoids are connected to Microswitches in the Microswitch assembly which when actuated energize the solenoids, thus operating the valves. (See paragraph 24, page 31.) It is necessary to bleed or prime the lines leading to the valves to remove air bubbles that may have formed during the filling of tanks. This can be done easily by pushing plungers of solenoids up by hand until the air is removed from the lines by the solution pushing it out. When adjusting valves to increase flow of solutions, apply only light pressure to locking nut. Otherwise, you will break valve base. (See page 60, paragraph 56, remedy b., for correct procedure.)

31. COIN MECHANISM.* (See illustrations 15, 16 and 17.)

- a. A machine set for 15¢ will take any combination of coins, that is: three nickels, or a dime and a nickel. If the operator wishes to change the price of his Mutosnap to 20¢, he can adjust the totalizer (see paragraph 32, page 40), without changing the coin mechanism and then order new top glasses with 20¢ price designation. If a 25¢ price is desired, an etched plate and new top glasses with 25¢ price designation will be required, all of which will be supplied upon request at nominal cost. When ordering above, serial number of your machine must be given.

*The Post War Model has a straight coin slot and chute.

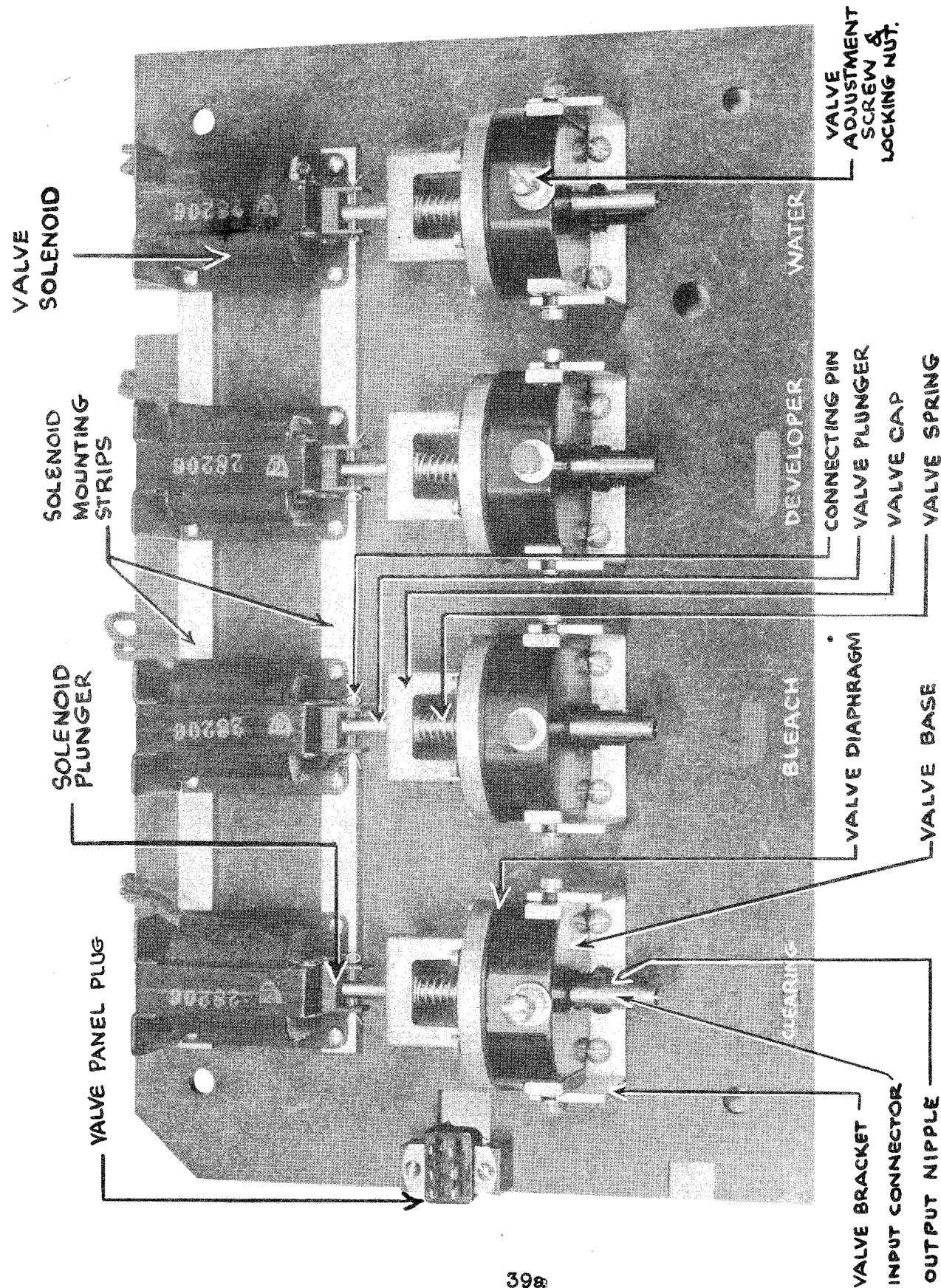


Illustration 14 - Solenoid and Valve Assembly

through one part of its cycle. The end contact touches the contact on the timer plate thus actuating the relay which starts the driving motor. Then, the middle contact moves onto a bakelite segment on the timer plate which opens the timer motor circuit thus stopping both timer motor and the timer arm. The steps that follow after the pouring of the next chemical in this cycle are identical.

The time period required for a complete cycle of operation is controlled by adjusting the adjustable finger contact on the timer arm. (See illustration 5.) Speed 4 is the slowest, and speed 1 is the fastest. Because of the present type of paper, it is advisable to operate the machine on either position 4 or position 2.

b. Switches and Plug Connections. -

I. Timer Cut Off Switch. - This switch controls the timer motor. At start of machine's operation, switch lever must be placed up in "ON" position. In this way, the timer motor is connected to circuit.

II. Valve Cut Off Switch. - This switch controls the valves. The switch is "ON" when the switch lever is in down position. The valves will then be connected to circuit.

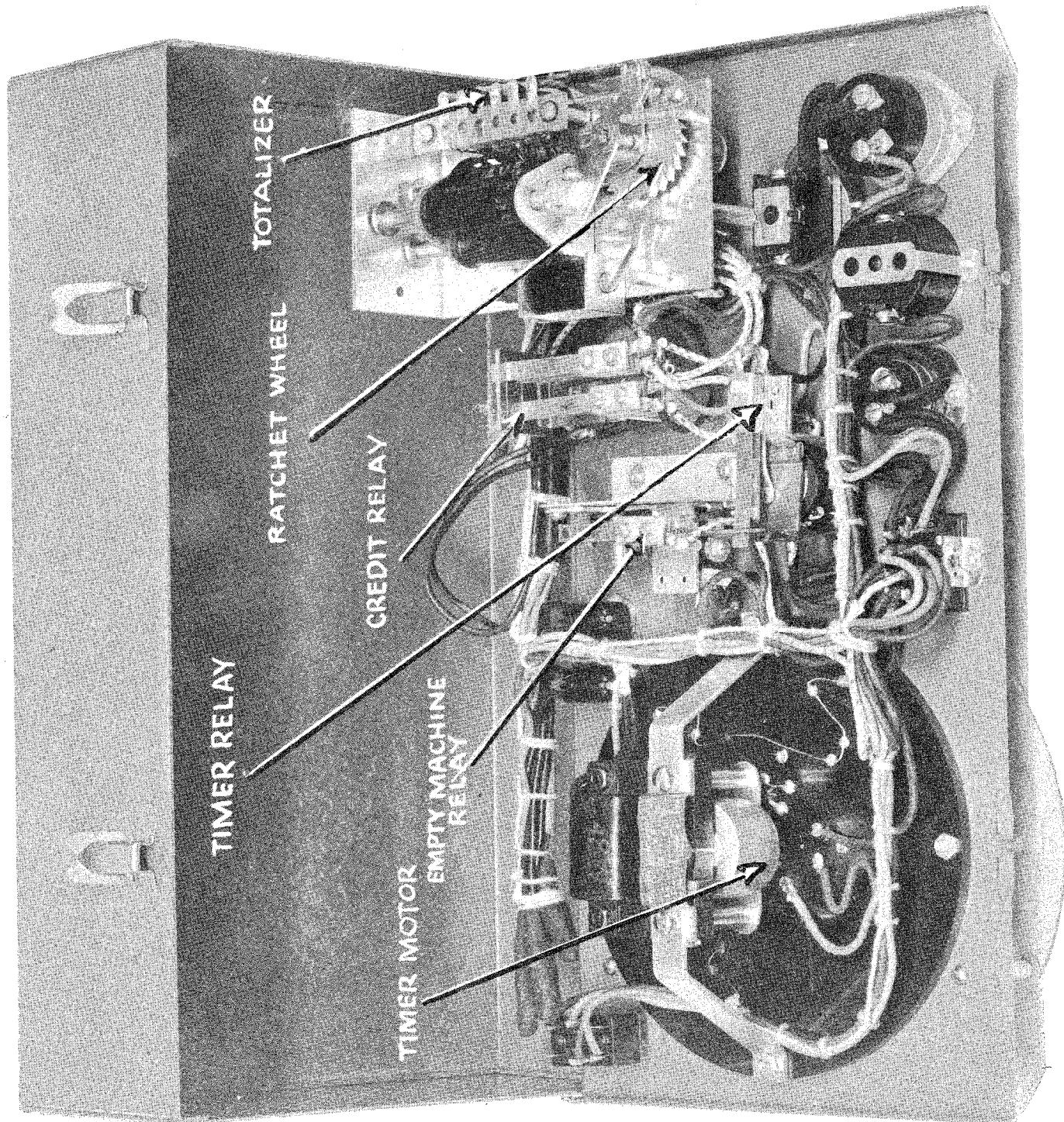


Illustration 6 - Switch Box, Interior View

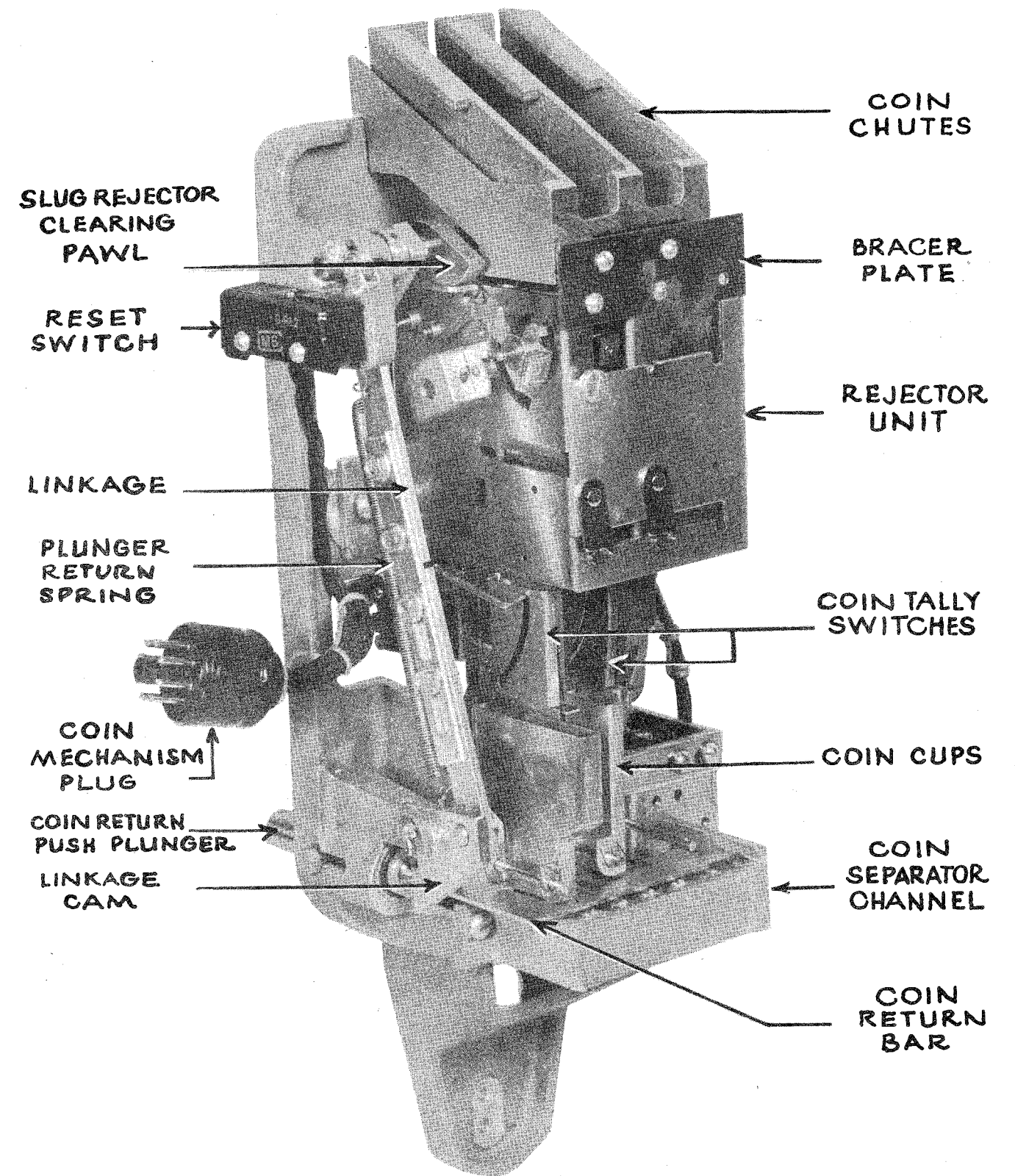


Illustration 15 - Coin Mechanism, DeLuxe Model Photomatic, Left Side

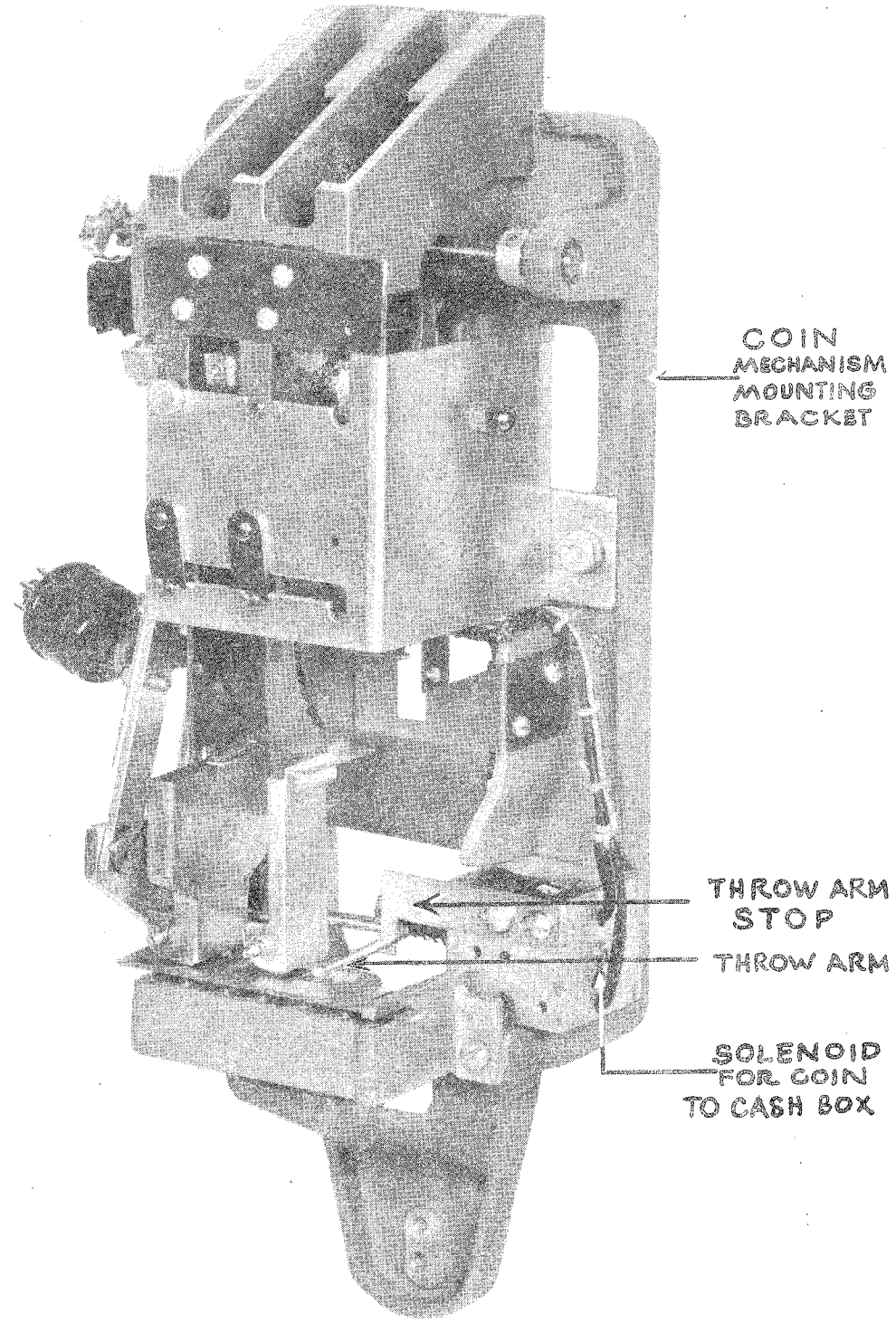
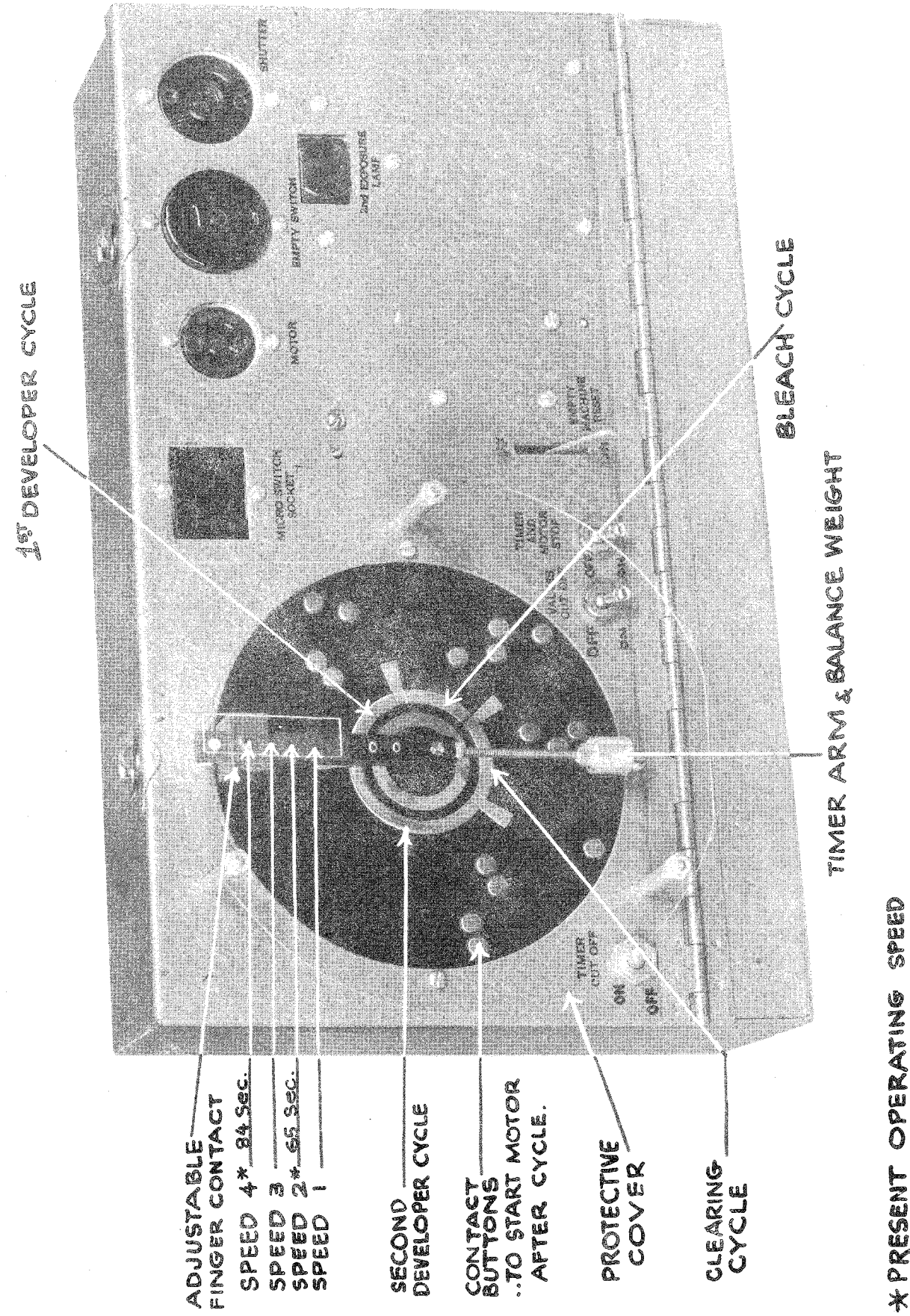


Illustration 16 - Coin Mechanism, DeLux Model Photomatic, Right Side



OPERATION

pushes the Mutosnap off the platform into the delivery chute.

- k. During the cycle of operation, a small cam connected to contact disk operates the "Veeder-Root" counter, recording the number of Mutosnaps delivered by the machine.
- l. During this entire period, the timer in control box revolves at certain periods controlled by a Microswitch. Timer arm returns to zero position on completion of one cycle. (See paragraph 23, below.) The contact of the timer arm contacts various points which electrically set the time period that the Developer, Bleach and Clearing remain on the Mutosnap.

23. OPERATION AND DESCRIPTION OF SWITCH BOX.

(See illustrations 5 and 6.)

The switch box is located within the mechanism cabinet on the lower left hand side. This box is the basic electrical control unit. Its components are mounted within and upon the box and are:

- a. Timer Arm and Timer Motor. - This arm is driven by a 60 cycle, synchronous motor controlled by a single pole double throw Microswitch working off contact cam disk. The timer arm is synchronized with the driving motor. It controls the period of time immediately after the agitation that the chemical rests on the horizontal Mutosnap within the developing chamber. When this period of time ends, the timer arm driven by its motor has rotated

OPERATION

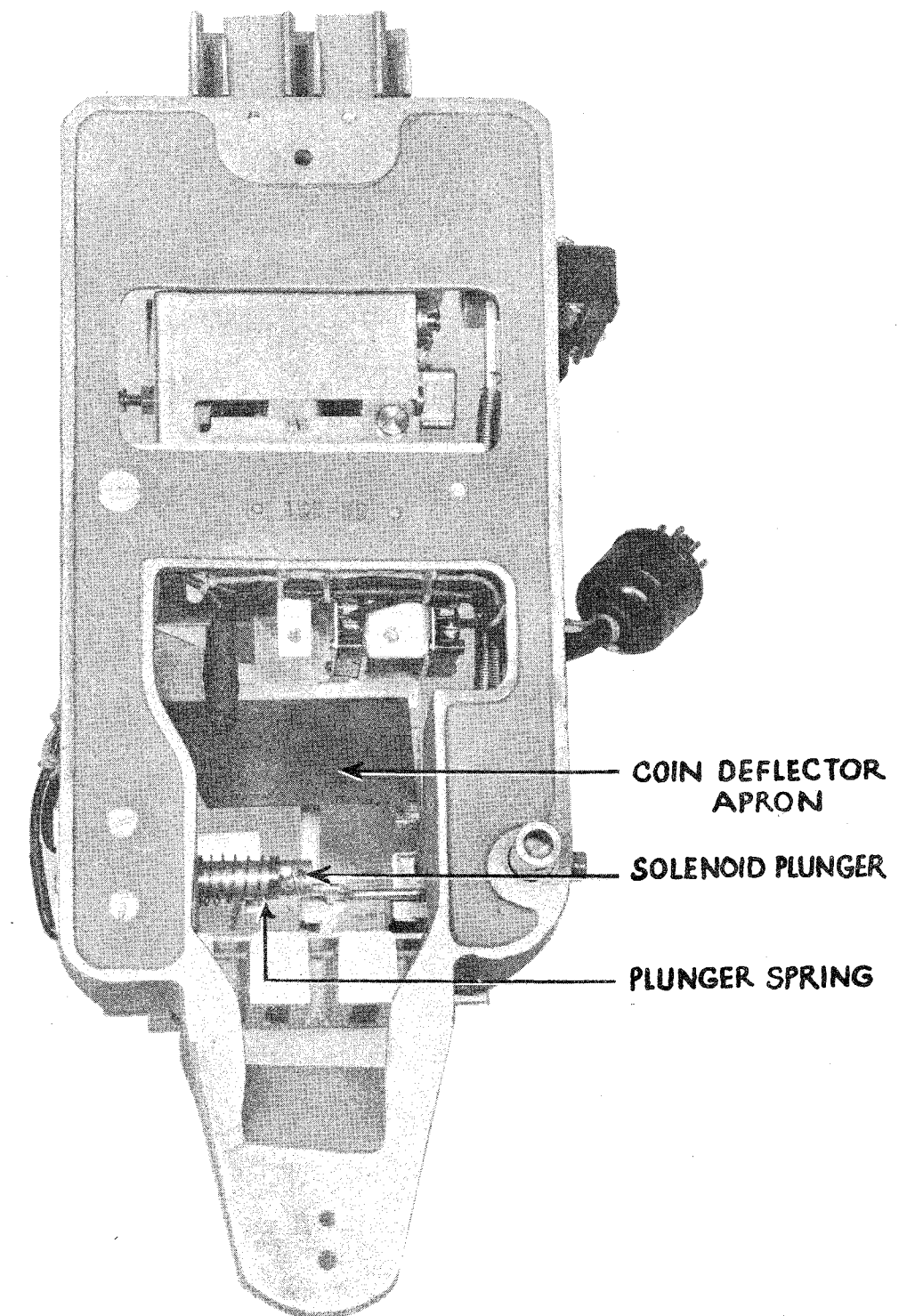


Illustration 17 - Coin Mechanism, DeLuxe Model Photomatic, Rear View

OPERATION

- b. Operation of Coin Mechanism. (See illustrations 15, 16 and 17.)

The coins are deposited and fall through the coin chute into the rejector unit from the rejector unit to the coin tally, then into coin cups. When the proper amount of coins is deposited, the solenoid pulls the throw arm, allowing the coins to go through the separator channel into cash box. If defective coins are inserted or machine is inoperative or machine is going through cycle of operation, coins can be returned by pushing in the coin return push plunger which moves the coin return bar from under the coin cups and allows the coins to be returned through the coin separator channel to the customer. Also when the plunger is pushed, a cam and linkage system is operated which clears the coin mechanism of defective coins. When the return plunger is pushed in, the reset switch on the coin mechanism actuates the reset solenoid on your totalizer unit cancelling any tally.

32. ADJUSTING TOTALIZER FOR PRICE CHANGES.* (See illustrations 18 and 19.)

When it is desired to change the price required for Mutosnaps (see paragraph 31, page 39), it is necessary to adjust the totalizer as follows:

- a. Loosen the screw on the terminal strip closest to the ratchet arm. This will allow movement of the adjustable stop.

OPERATION

- e. After the developer has poured on the Mutosnap, the platform gently agitates, assuring complete coverage; stimulating the action of the developer on the paper. Agitation and entire control of the tilter platform is accomplished by the tilter cam (bottom) and a cam lever which is connected to tilter platform by means of a turnbuckle.
- f. The Mutosnap is then turned in a nearly vertical position allowing the developer to run off and immediately afterward the Mutosnap is sprayed with water. The water valve is actuated by a Microswitch which is depressed by a rivet on the contact disk.
- g. Steps d, e and f are repeated for the bleach, and clearing solutions except that separate bleach and clearing valves are actuated by other Microswitches. The water valve is synchronized to spray the Mutosnap after each chemical step.
- h. During clearing, the Mutosnap is ready for its final development. A 15 Watt clear light goes on in the developing chamber giving the necessary second exposure. This light stays on until Mutosnap is delivered.
- i. The developer valve is then actuated by a Microswitch allowing developer to pour on the paper so that the positive image is developed.
- j. This last chemical solution is washed off with a spray of water. Developing chamber platform turns to a vertical position and a bracket set under the tilter platform

PART THREE

OPERATION

22. OPERATION OF PHOTOMATIC STEP-BY-STEP.

- a. The customer steps into booth adjusts height meter and inserts his coin or coins one at a time. The last coin trips the mechanism.*
- b. Immediately afterward, the machine starts operating. A red panel light goes on warning the customer to sit still. A few seconds later the shutter opens and closes. Shutter is opened by a solenoid, connected to a Microswitch actuated by contact rivet on contact disk. (See illustrations 8 and 9.) As shutter closes, red light goes out, and Mutosnap resting underneath lens has become exposed.
- c. A spring controlled slide pushes the exposed Mutosnap into position for developing. The slide is controlled by the slide cam (top) which is returned to starting position at completion of cycle. (See illustrations 10 and 11.)
- d. The developer valve is opened allowing developer to pour on the Mutosnap, which is in a horizontal position. A rivet on the contact disk depresses a Microswitch momentarily closing the circuit and actuating the developer valve solenoid. (See illustration 14.)

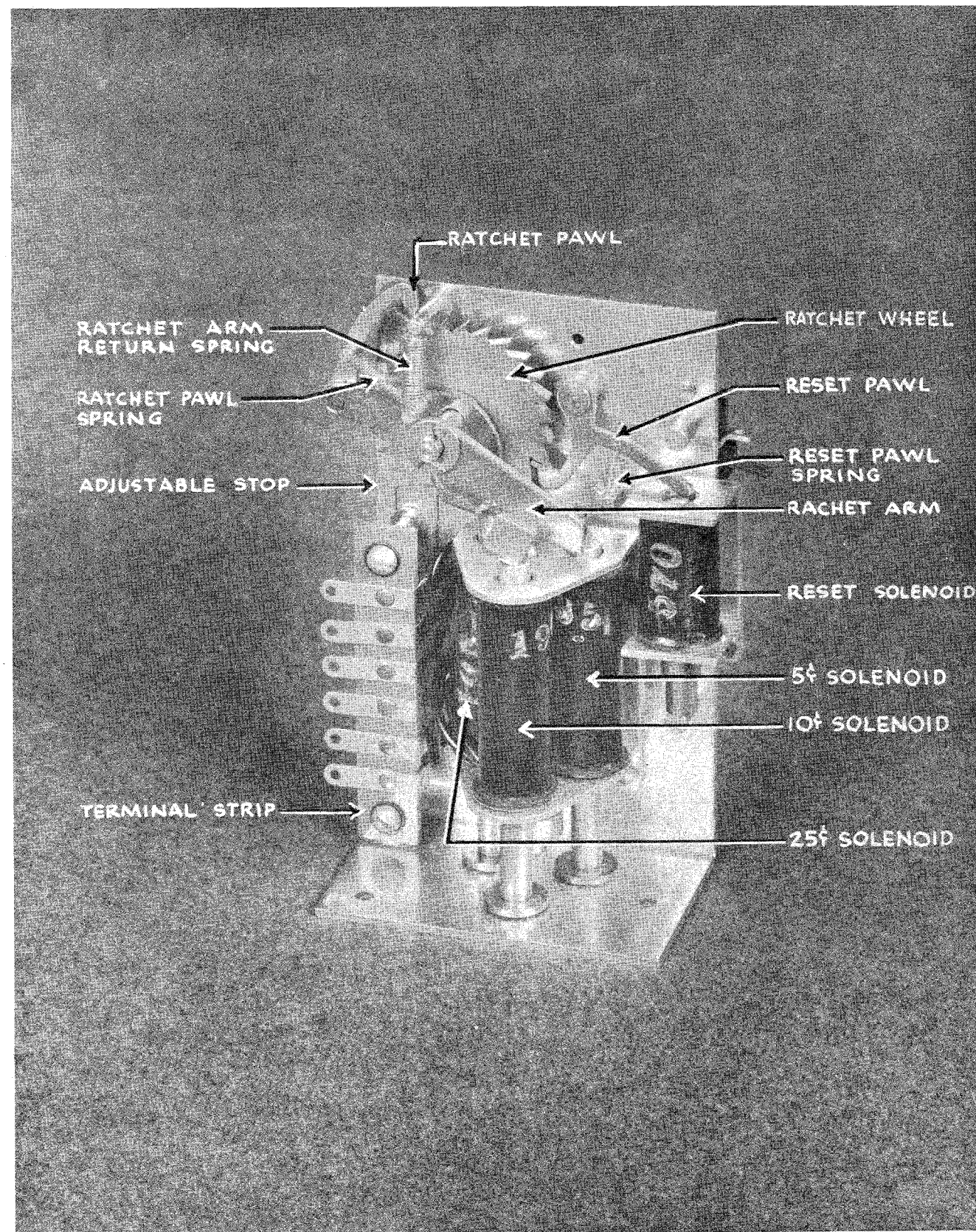


Illustration 18 - Totalizer, Front View

40a

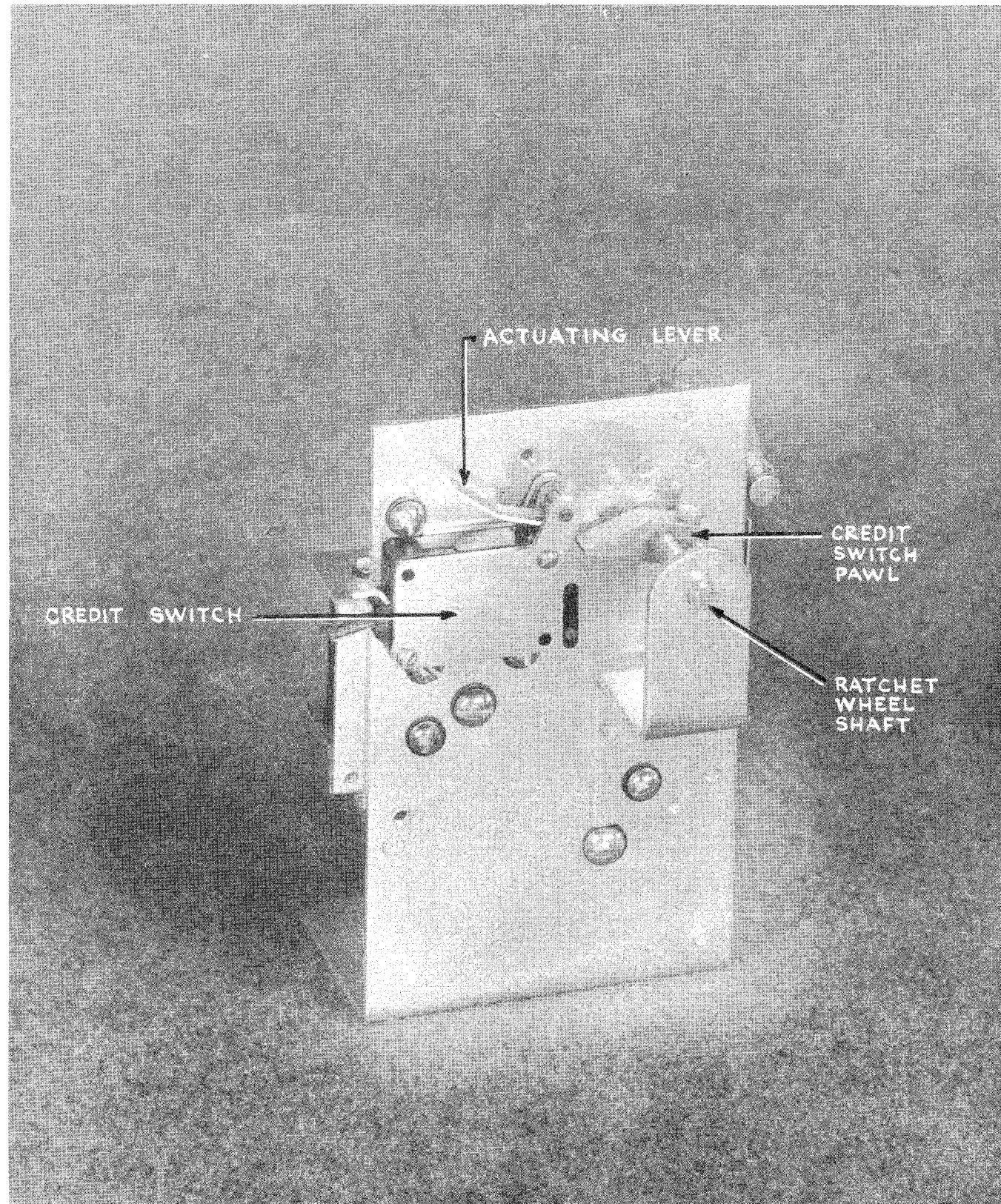


Illustration 19 - Totalizer, Rear View

has a separate drain plug. Remove each plug with the wrench provided and drain the tank. If solutions are in good condition, they can be saved and used again by disconnecting drain hoses from the waste trough and running solutions into separate storage bottles*. (See page 22, paragraph 20b.)

- c. Draining the Water Auxiliary Tank. -- This tank has no drain plug. To drain it, push up solenoid valve shaft and let water drain off.

SETTING UP THE PHOTOMATIC

solution into clean one gallon bottles which should then be filled to the top and securely corked. For best results use brown bottles for developer when possible. Bleach and Clearing solutions can be stored in partly filled bottles as they do not readily oxidize or break down. Dry chemicals, whether prepared or in bulk, should be stored in a cool DRY place; temperature of storing room should not be less than 50° F. or 10° C.

- c. Storage Compartment. (See illustration 4.) - This compartment is located under the display case. It can conveniently store seven Magazines and one-half assortment of chemicals (5 units of each).

21. HOW TO DRAIN THE PHOTOMATIC*.

The draining system in the machine has been designed so that solutions can be drained easily and quickly.

When it becomes necessary to drain the tanks of the Photomatic follow the procedure listed below.

- a. Draining the Main Water Reservoir. -- A special "T" shaped handle stopper is set into this tank. Unscrew this stopper and allow the water to run off.
- b. Draining the Developer, Clearing, and Bleach Tanks. -- These three tanks are drained in the same way except that the lid of the developer tank must be removed prior to removing its drain plug. Each of these tanks

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* In Post War Model Machine, all tanks are drained as described in c. of this paragraph, see next page.

OPERATION

- b. Reset the totalizer by lifting the reset pawl.
- c. Add up the number of 5¢ units the new price will require, such as: 25¢ is 5 units, 20¢ is 4 units, 15¢ is three units. Move the ratchet wheel the same number of teeth the units require.
- d. Move adjustable stop up to the stop pin on the under side of the ratchet wheel. While holding the reset pawl down in a locked position, tighten the screw on the terminal strip.
- e. Adjust the credit switch pawl. This pawl is located on the back side of the totalizer unit and is fastened to the ratchet wheel shaft.
- f. Hold the ratchet wheel against the stop. Loosen the screw in the credit pawl and move pawl until it just engages the actuating lever.
- g. Move the pawl very slowly until a click is heard within the credit switch. Tighten the credit switch pawl to the ratchet wheel shaft. The totalizer is ready to start operating for the denomination required.

33. MAINTAINING FLUORESCENT LIGHTS.

- a. Fluorescents (Top Side). - To remove burnt out fluorescent tubes and starters, remove two Phillips head screws from top cover and lift cover. Fluorescent can then be removed. Replace with 5,600 degree Kelvin, daylight tube. Starter can be found directly under tube.

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- b. Fluorescent Top Front. - To remove burnt out fluorescents and starters remove four screws mounted on top of cabinet cover and lift cover from cabinet. Push display glass up and back, and allow glass to slowly drop out top channel. Remove glass from top and replace fluorescent or starter.
- c. Door Fluorescents. - To remove door fluorescents open front doors of mechanism cabinet and unhitch latches. Remove fluorescents from sockets in mounting fixture.

34. CABINET FIXTURES.

- a. Side Mirrors. - Mirrors are removed by opening back door of mechanism cabinet and loosening the four lower screws holding the mirror frame. Slide mirror frame down and remove frame and mirror.
- b. Top Display Side Glasses.* - When it is necessary to remove top display glasses to change price signs, unfasten two screws holding top cover and remove cover. Remove the two front screws set in cabinet that brace glasses in the channels. Push glass up and back allowing glass to slowly drop out of top channel. Remove glass from top and replace with new top glass, which includes new price.
- c. Top Front Display Glass.* - When it is necessary to remove top display front glass to change price sign, unfasten the 5 screws holding the top cover and remove

- 42 -

* If the fluorescent set in back of the glass causes difficulty in removing glass. Fluorescent bracket can be removed by unfastening its mounting screws.

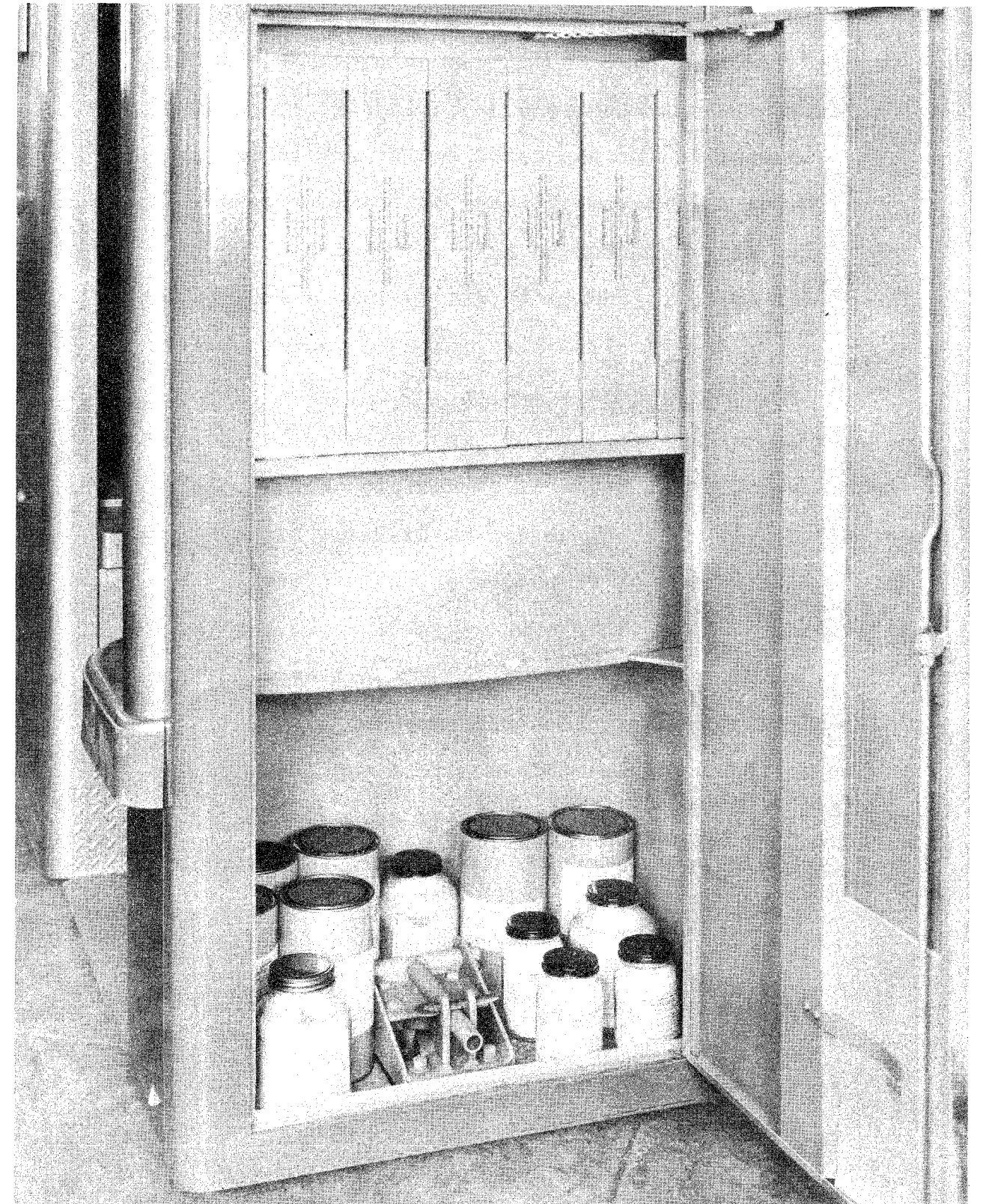


Illustration 4 - Storage Compartment

SETTING UP THE PHOTOMATIC

Mutosnaps consist of a special photographic paper sealed in metal frames. This paper is sensitive to light and should be handled only in deep red light in a dark room. Do not expose to this red light longer than necessary when reloading partly filled magazines. Make-shift lamps or coated red bulbs are only temporarily safe at best and will eventually cause the paper to be fogged, causing flat results, and perhaps complete failure. A 10 Watt red safelight lamp is furnished with equipment.

Always follow these two rules when storing and using Mutosnaps:

- I Always leave in original packing until ready to use.
- II Always store in dark, cool, DRY place.

Mutosnaps can be safely stored for at least six months in this manner.

- b. How to Store Solutions.- Developing solution should be kept in clean bottles, filled to the top, and securely corked. This prevents any air from being present in bottles. Air breaks down (oxidizes) developer. It can then be safely kept in this manner for a period of at least 3 weeks. Whenever part of a 5 gallon bottle of developer is to be used, it is absolutely necessary to transfer the remaining

OPERATION

the cover (The center front screw in cover braces the glass in the channel). Push glass up and back, allowing glass to slowly drop out of top channel. Remove glass from top and replace with new top glass, which includes new price.*

- d. Placing Advertising Display Sign in Display Case Mirror Frame. - The display case mirror frame is specially arranged so that cards, the width of the mirror and from 3 to 4 inches in height, can be inserted in frame for special advertising purposes. (See paragraph 34e, below.)
- e. Removing Framed Outside Glass of Display Case. - Remove this glass by opening storage compartment door underneath display case and remove two thumb screws fastened to the bottom frame of the display glass and the cabinet. Insert two fingers into cutout set in back of the frame of the display glass and push frame out. Be careful to hold glass with other hand while pushing framed display glass out of display case.
- f. Curtains. - Curtains and rods are not supplied with the machine, but if desired, a complete set of rods and curtains can be obtained at nominal cost.
- g. Envelope Vendor. - The Envelope Vendor is standard equipment only with DeLuxe Model Machines. However, provisions have been made so that it can be attached to the Post War

* When ordering new top glasses, serial number of your machine must be given.

OPERATION

Model. Holes have been provided on either side of the machine for mounting the Envelope Vendor. These holes are located beneath display mirrors. The Envelope Vendor has a capacity of approximately 150 envelopes and has a locked cash box. When re-loading the envelope vendor, unlock and pull down front panel. Instructions for maintaining the envelope vendor are pasted on the inside front panel.

SETTING UP THE PHOTOMATIC

Developing Chamber is thermostatically controlled and automatically shuts off when a predetermined temperature is reached. An Indicator Lamp lights when heater is on and goes out when heater is off. A built-in Thermometer enables direct reading of solution temperature. The Preheater which is set at the factory should operate at about 105° average. Regulate temperature by means of dial on Preheater. Raise temperature by turning dial clockwise; lower temperature by turning dial counter clockwise.

Do not operate preheater over 115°. It will burn out heating element and thermometer.

- d. To Make Certain Mutosnaps Are Getting Proper Amount of Solutions.- There should always be enough solution poured on Mutosnaps to cover paper completely at each stage of developing. If Mutosnaps are not completely covered and if tanks are not empty, air bubbles are present in the line which must be removed by bleeding the valves. (See page 15, paragraph 16.) Improper pressure caused by an almost empty tank will also trap air in lines. Do not allow visible level of liquid in gauges to fall below red line on gauges.*

20. HANDLING AND STORING OF MUTOSNAPS AND SOLUTIONS.

- a. Handling and Storing Mutosnaps.- It is important to know the following facts to obtain best results:

capable of producing good pictures. If paper is entirely white, or has light streaks across it, indications are that the Mutosnaps have been either partly or entirely fogged (light struck) and it may be that Mutosnaps in this magazine cannot be used. Before discarding magazine, run several trial tests. A few Mutosnaps on bottom may have been exposed because of improper loading. If, after these tests, a gray or cloudy result is obtained, Mutosnaps of this serial number have been allowed to become too old and will not produce good pictures. Storing Mutosnaps without original waxed-paper wrapping or in a hot, damp place, may also spoil them. (See page 21, paragraph 20a.)

IMPORTANT

Do not attempt test No. 2 until test No. 1 is complete and correct. Test No. 1 shows that temperature, solutions and timing is correct.

c. Test No. 3 To Make Certain Preheater Is Working Properly.- In order to operate Photomatic at high speed, it is necessary to maintain a pre-determined temperature of Developing and Bleach solutions. The Preheater located above

35. GENERAL

These service notes have been compiled so that the operator can follow a systematic method of checking and correcting the Photomatic whenever adjustment might be necessary.

36. DIMENSIONS AND WEIGHT OF PHOTOMATIC

Height	6 ft. 8 in.
Width	2 ft. 6 in.
Length	5 ft.
Entrance to Seat	2 ft. 6 in. wide x 5 ft. 11 in. high
Shipping Weight	Approximately 1200 lbs. (when crated)
Net Weight	Approximately 840 lbs.

See instructions for moving machine on page 3, paragraph 6.

37. SPEED OF MACHINE FOR DIFFERENT SETTINGS.

a. The time period for a complete cycle of operation is controlled by adjusting the adjustable finger contact on timer arm. (See illustration 5.) The machine can be set for five different speeds which are broken down into seconds as indicated in the Table of Speeds on the next page in this paragraph. These adjustable variations in speed of a complete cycle of operation allow the operator to set the machine for different variations that exist from time to time in sensitized paper. For example: in Speed #2 the time allotted for first developer is 16 seconds, time for bleach is 15 seconds, time for clearing is 8 seconds and time for second developer is 10 seconds. The remaining time intervals indicated in the table for starting of machine and washing of Mutosnaps are constant for

SERVICE NOTES

all of the different speed settings. When operating machine without timer, disconnect the timer by pushing the timer cut off switch in down position. (See illustration 3.) In cold weather, when room temperature is below 55° F., it is recommended that machine be operated at Speed #4.

b. Table of Speed of Machine for Different Settings.
(All values are in seconds or fractions of a second.)

SPEED	START	1st DEVEL.	WASH	BLEACH	WASH	CLEARING	WASH	2nd DEVEL.	FINAL WASH	TOTAL
Without timer.	9	10	2	7	$\frac{1}{2}$	3	$\frac{1}{2}$	7	8	46
Speed #1	9	16	2	12	$\frac{1}{2}$	6	$\frac{1}{2}$	10	8	64*
Speed #2	9	16	2	15	$\frac{1}{2}$	8	$\frac{1}{2}$	10	8	69*
Speed #3	9	21	2	14	$\frac{1}{2}$	7	$\frac{1}{2}$	13	8	75*
Speed #4	9	18	2	17	$\frac{1}{2}$	16	$\frac{1}{2}$	13	8	84*

* Time required for the complete operation may vary plus or minus 2 per cent.

38. MACHINE FAILS TO OPERATE. (See illustration 32, page 68.)

- a. Check plug to outlet box connection to make sure of firm contact. Be certain that your source of power is 110 volt, 60 cycle, A.C.
- b. Check fluorescent lights to see that they are on. If not, press key into external key switch located on mechanism cabinet, top front, left side. If they go on, current is present in machine. Fluorescents must be on for machine to operate.

SETTING UP THE PHOTOMATIC

position. If you still do not get results, then operate on position 4. (See page 28 paragraph 23.)

- III. Clearing should remove orange bleach stain entirely. If not, check clearing solution in tank. Insert a clean screw driver or any rod into solution. Remove rod and allow it to dry. A white chemical deposit will appear on rod showing presence of chemical. If not, you may have water or incorrect solution in tank.
 - IV. Second development should not have any apparent effect.
 - V. Final rinse removes all traces of developer.
 - VI. Mutosnap is water rinsed between each solution and agitated when in a horizontal position.
- b. Test No 2 To Determine If the Mutosnaps In The Machine Are Perfect and Can Produce Good Photos.- Disconnect second exposure plug from service outlet. Connect plug to its outlet in the switch box during this test. Close door of developing chamber. Pull shutter plug from its socket, shutter will not open and will not expose Mutosnap. Start machine with coins and complete entire operation. If this unexposed paper is black, Mutosnaps are

into source of power, this socket is alive. Start machine with coins and complete entire operation. (See page 25, paragraph 22, for operation of machine step-by-step.) This fully exposed paper should be entirely white. If paper is gray or cloudy, development is incomplete. Check speed (See paragraph 23) temperature, and solutions until you obtain a white result by this test before continuing with next test.

NOTE

When operating for the first time, the machine must run through three complete operating cycles before a Mutosnap is developed and delivered. Furthermore, it is advisable if a complete white paper does not first result, to run several trial exposures until machine warms up.

Watch the following closely in developing chamber:

- I First development should produce a deep black result. If it does not, after several tests, discard developer and replace with fresh solution, properly mixed.
- II Bleach should remove all traces of black. If it does not after several tests, check timer switch to see that it is on in "UP"

- c. Check fuses in fuse box.
- d. Check magazines to see whether they contain Mutosnaps. If not, see paragraph 17, page 15.
- e. Check "Machine Empty" reset relay in switch box to see if it is making firm contact when lever is down. (See illustration 6.)
- f. Check on contacts of credit relay to see if they are making and breaking properly. (See illustration 6.)
- g. Make sure switches on switch box are in proper operating position (see illustration 3 and paragraph 10b) and that switches are functioning properly.
- h. Make sure all plugs are firmly placed in their proper receptacles.
- i. Check to see whether or not a jam is existent because of inverted or improperly formed Mutosnaps. If a jam exists, do the following:
 - 1. Rotate the magazine that is being used to feed Mutosnaps at the time of the jam counter clockwise, until magazine faces front.
 - 2. Using magazine removal slide (shipped inside cash box), remove magazine and set empty receptacle of turret back in original position.
 - 3. It may be necessary to remove the other two magazines on the turret. For this purpose, it is necessary to save and store in machine for instant use a few magazine covers, so that magazines can be suitably slid into cover when removed from turret. To prepare a magazine cover for this purpose, tear

SERVICE NOTES

each corner of one of the long sides, so that it serves as a flap upon which the magazine can be slid from the turret into the cover.

Fasten cover by tying or taping magazine to prevent light from entering magazine and to retain all remaining Mutosnaps in magazine.

Keep magazine upright (TOP END UP) at all times.

4. After removing the magazine as described in steps 1 and 2, the jammed Mutosnap will then be seen on the slide bed. Move slide back. Remove jammed Mutosnap.
5. If Mutosnap can not be pulled out, push it forward into developing chamber. Easiest method to push jammed Mutosnap as just described is to use an old discarded Mutosnap. (Save and keep in the machine a few Mutosnaps used while testing the Photomatic, so that they might be used for this purpose.)
6. This procedure can be followed when Mutosnap is jammed under lens housing. Any Mutosnap which is jammed can be forced out by pushing it from behind with discarded Mutosnap.
7. Permit slide to return to normal position and allow machine to finish cycle of operation.

39. INSUFFICIENT CHEMICAL FLOW. (See illustrations 20 and 22.)

a. Insufficient Solution*

1. Check to see whether sufficient solutions and water are in tanks.
2. Bleed the lines. (See page 15, paragraph 16.)

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* Check Developer, bleach, clearing, water valves, and lines in the manner described in this paragraph.

SETTING UP THE PHOTOMATIC

- a. Check all electrical connections to be sure that current is present in the machine and that the switches are set in their right positions. (See page 10, paragraph 10b.) Make sure that fluorescents are on.
 - b. Check tanks to see that they are filled, covers and lid in place and that all hose and tube connections are sealed and tight. (See page 10, paragraph 11.)
 - c. Check valves to see that no air bubbles have formed in tubing. Push valves up until solutions run into waste tank.
 - d. Be certain that each of the magazines is firm in its receptacle, and that loaded turret revolves smoothly.
 - e. Make certain that preheater is up to required temperature of 105°. Red lamp will go off when temperature is reached. Raise temperature if necessary by turning temperature dial clockwise. Preheater will maintain its temperature once properly adjusted.
- ### 19. TESTING THE PHOTOMATIC.
- a. Test No. 1 To Determine If Solutions' Operating Speed and Temperature Are Correct.- Lift cover on developing chamber, keep lamp in socket lighted by removing second exposure plug from switch box and insert plug in service outlet. Service outlet is located in rear mechanism cabinet next to switch box. When main plug is inserted

SETTING UP THE PHOTOMATIC

magazine faces lens housing and is directly over slide bed. With magazine in this position, proceed with step 5 on magazine.

- b. Fill the second receptacle (facing you) with another magazine following the directions exactly as written on the magazine through step 6.
- c. Rotate turret counter clockwise until last receptacle faces you. Fill this last receptacle with third magazine following the directions exactly as written on the magazine through step 6.
- d. With all receptacles filled, rotate first magazine counter clockwise until it faces you and then place retainer on magazine.

NOTE

When operating the Photomatic for the first time, it is necessary to run machine through its complete cycle three times before a Mutosnap will be developed and delivered. (Always use coins to operate Photomatic.) Mutosnaps will be fed continuously until all magazines are empty. (See page 25, paragraph 22.)

18. FINAL CHECK.

Make a quick check of the following before making the first tests:

SERVICE NOTES

3. Check to see that all hose connections are on solidly from the valves to preheater to light housing.
4. If proper flow of solutions does not result from above steps, see paragraph 56, remedy b. The same procedure can be applied for bleach and clearing valves.

40. COIN MECHANISM FAILS TO OPERATE.

- a. Make sure plug and socket of coin rejector system are properly connected.
- b. Clear your rejector for defective coins by pressing coin return button.
- c. Check possible clogs of chutes and guides.
- d. Check coin switch action underneath each rejector. (See page 40, paragraph 31b.)
- e. Check totalizer in switch box to see that coin solenoids are operating properly. (See page 40, paragraph 32.)
- f. Check "No Credit" switch on Microswitch assembly for proper action. (See paragraph 24j, page 33, and illustration 7.)
- g. Check credit relay in switch box for proper contact alignment. (See illustration 6.)
- h. Check "Machine Empty" reset relay in switch box for proper switch contact. (See illustration 6.)
- i. Check plug from switch box to switch box receptacle.
- j. Check reset switch on coin mechanism for about 1/16" push contact movement. (See illustration 15, and page 40, paragraph 31b.)

SERVICE NOTES

- k. Check credit switch on totalizer. (See illustration 19.)
- l. Check for jam in slide bed. (See paragraph 381, page 47.)

41. VALVE FAILS TO OPERATE.

- a. Check to see that plug from Microswitch assembly sets firmly in receptacle in switch box.
- b. Check to see that valve cut-off switch is in "ON" position. (See illustration 3, page 10a.)
- c. Check to see that plug or switch sets firmly in receptacle in switch box.
- d. Check to see that plug and receptacle at valve panel are firmly connected and tied with safety wire.
- e. Check operation of each individual solenoid to see that solenoid plunger pulls valve up.
- f. Check to see that Microswitches, controlling valves on Microswitch assembly, make contact when depressed lightly and break when released.

WARNING

Do not adjust these Microswitches unless absolutely necessary because timing of the machine is governed by these switches.

42. SECOND EXPOSURE LIGHT DOES NOT GO ON. (See illustration 25.)

- a. Check to see that plug from Second Exposure Lamp to Switch box is set firmly in receptacle.
- b. Test Second Exposure Lamp and socket, to see if lamp is burned out or if a short exists at socket.
- c. Check Second Exposure Microswitch on microswitch assembly to see that it makes and breaks contact.

43. SHUTTER FAILS TO OPEN. (Emulsion is entirely black.)

- a. Check to see that your plug from shutter solenoid is set

SETTING UP THE PHOTOMATIC

To protect developer from spoiling which is caused by being in contact with the air, a stainless steel floating lid is provided. Be sure to remove floating lid in developing tank before solution is poured into tank. Fill to 2 inches from top. After filling developer tank, place floating lid on top of the developer solution.

16. BLEEDING VALVES OR REMOVING AIR FROM TUBES.

It is important to remove any air bubbles that may have accumulated in the lines during the filling of tanks. These air bubbles are easily removed by pushing the valve shafts up until solutions run into the waste tank. If this is not done, the air bubbles in the lines will not allow easy passage of solutions thereby not covering entire surface of Mutosnap, thus not developing satisfactory pictures.

17. LOADING MAGAZINES IN TURRET.

It is most important when turret is loaded for the first time or when the turret is reloaded with three new magazines that the instructions on the magazine container and this additional material is observed:

- a. Follow instructions on magazine through step 4. At this point, rotate magazine counter clockwise so that

Proper labels are shipped with machine.

- f. Seal or cork bottles containing chemical solutions thoroughly after using them. Fill developer bottle completely with solution. Do not leave developer bottle partially filled as the air will deteriorate this solution. (See page 22, paragraph 20b.) Mix chemicals in 5 gallon bottles and store in 1 gallon bottles. Always store chemicals in a cool, dry place.

15. POURING SOLUTION INTO PHOTOMATIC.

After preparing solutions, see preceding paragraph 14. Pour solutions into the machine using 1 gallon bottles. If a pail is used, always use an enamel pail and always rinse pail thoroughly with water before pouring in a different solution. When filling large water reservoir, check to see that auxiliary tank fills up simultaneously with the large tank. Never pour water into auxiliary tank; always use main reservoir. Fill all tanks to 2 inches from top. When filling developer tank, always remove developer floating lid at bottom of tank and then fill tank and replace lid. Pour solutions in chemical tanks in the following order: Bleach, Developer, and Clearing.

CAUTION

When pouring chemicals into tanks, be certain that chemicals are poured directly into tanks and avoid spilling or splashing the solutions. Soak up any excess with a dry cloth, and then wipe up with a water soaked cloth.

firmly in switch box.

- b. Check to see that pin from shutter arm is engaged by shutter solenoid plunger. (See illustration 9.)
- c. Check to see that shutter Microswitch on Microswitch Sub-Assembly is in proper working order. (See illustration 7.)

44. MACHINE DOES NOT CUT OFF WHEN ALL MAGAZINES ARE EMPTY.

- a. Check to see that empty switch plug is plugged firmly into switch box.
- b. Check to see that switch on empty reset relay operates.
- c. Check "Machine Empty" switch on slide bed to see that contact is made when switch is released. (See illustration 13.)

45. PHOTOS INDISTINCT, FUZZY, OR OUT OF FOCUS. (See illustration 27.)

- a. Check to see that lens is set firmly in lens housing.
- b. Make sure both sides of door glass, prism mirror and lens are clean. Brush dust off lens with camels' hair brush, only, and clean door glass, lens, and prism mirror with soft facial tissue.

46. CYCLE OF TIMER OUT OF PHASE WITH MACHINE'S OPERATION CAUSING IMPROPERLY DEVELOPED PHOTO.

- a. At a few seconds after completion of machine's operation, check to see that timer arm is completely vertical as in illustration 5. If not, check the two spring finger contacts under timer arm near inner motor shaft to see that they ride positively on inner contact ring and outer segments. If necessary, adjust spring fingers so that they make positive contact on inner contact ring and outer segments.

SERVICE NOTES

- b. Check timer cut-off switch. If timer is inoperative, check timer cut-off switch to see if it is in proper operating position (see illustration 3). Check timer motor to see that it is working when switch is "ON".
- c. Check timer Microswitch on Microswitch assembly to see that it makes and breaks contact. (See illustration 7.)
- d. If drive motor fails to operate during timer cycle, check adjustable finger contact to see that it touches contact buttons positively (see illustration 5). Adjust finger contact so that it touches contact buttons. Check timer relay to see that it is operating and its switch makes and breaks contact. (See illustration 6.)

47. MACHINE OPERATES, NO JAMS PRESENT, AND TURRET DOES NOT ROTATE.
(See paragraph 44.)

Check to see that magazines are put in correctly with label reading "FRONT FACING YOU". If magazine is not properly installed in turret when magazine empties, the testing finger cannot enter opening cut in magazine and will therefore not release turret locking finger (catch) and turret will not rotate another new filled magazine into position. Cut out at bottom of magazine will be at rear right corner when "FRONT" faces you.

48. DRIVING MOTOR FAILS TO OPERATE AFTER ADJUSTABLE FINGER CONTACT ON TIMER PASSES CONTACT BUTTON.

- a. Check the motor couplings to see that they are tight.
(See illustration 13.)
- b. Check Timer Microswitch (see illustration 7) to determine if it is depressed by its actuating (1/4") rivet on contact disk; thus starting timer motor and stopping

SETTING UP THE PHOTOMATIC

- c. Waste trough*.- Waste from the developing chamber and tanks flows into the waste trough and then into the waste tank. Do not allow any chemical deposits to form in the developing chamber, waste chute, trough or hose. Clean thoroughly at least once a month so that there is easy passage of waste chemicals into waste tank.
- d. The 28 gallon waste tank at bottom of machine is used to collect waste solutions. Always empty it before it is too full. Check the waste tank gauge to see how much waste there is in the tank. A stirrup pump is provided with the machine which is to be used to drain tank completely. This prevents formation of sludge on bottom of tank, increasing life of tank. Machine's capacity is reduced if bottom sludge is not removed.
- e. A carefully planned set of equipment and accessories is sent with each new PHOTOMATIC. In addition the operator will need the following easily obtained items for storing chemical solutions: at least three (3) five-gallon bottles and fifteen (15) one-gallon bottles. It is advisable to have five (5) brown one-gallon bottles of the fifteen required for storing developer. It is important to label each bottle for kind of solution being used. See special instructions about developer, page 22, paragraph 20b.

* Waste trough is not featured in Post War Model Machines.

14. HOW TO PREPARE SOLUTIONS.

- a. Dry chemicals for solutions are supplied in prepared form. Instructions for preparing solutions are contained on every container of prepared chemical, which are furnished in the following units:

Single Prepared Unit	Gallons per Unit	Number of Units per Carton
Developer*	5	10
Bleach*	5	10
Clearing*	5	10

* 5 gallons of Developing solution will finish approximately 500 Mutosnaps and 5 gallons of Clearing and Bleach will finish approximately 1,000 Mutosnaps.

- b. Solutions must always be carefully and properly mixed and stored. If solutions look dirty or contain any foreign matter, they should be filtered through several layers of clean cheesecloth placed over a large funnel. When the solution tanks have to be refilled, it is very important that tanks be filled slowly, so as to avoid spilling or splashing the solution onto the machine.

driving motor.

- c. Check timer relay for proper switch action. (See illustration 6.)
 d. Check timer arm to see that the adjustable finger contact on timer arm makes proper contact on contact buttons. (See illustration 5.)

49. MACHINE STARTS, ACTS AS IF JAMMED, BUT NO JAMS PRESENT.

- a. Check the jam control switch. When it is not operating, leaf of switch should be in the same position as shown in illustration 7, page 31 a.
 b. Leaf of switch is pressed in direction of arrow by the jam control arm (see illustration 8) during cycle of operation. When leaf is pressed, switch responds when operative with a slight clicking noise.
 c. When jam control arm moves from jam control switch, small plunger in switch pushes leaf back to its hanging or normal position. The slight clicking noise can be heard during the action of this switch.
 d. If switch does not act as described in paragraphs b and c above, it is inoperative and should be replaced.
 e. If switch is operative, it may also be actuated a little late in the machine's operation, causing the machine to stop and act as if it is jammed. To overcome this, bend jam control arm slightly towards jam control switch in order to make earlier contact.

50. MACHINE RUNS CONTINUOUSLY.

- a. Jam control switch remains closed. (See paragraph 49 d.)

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- b. Totalizer does not reset, see operation of coin mechanism and totalizer, paragraphs 31 and 32, pages 39 and 40.
- c. Credit relay remains closed. Readjust points. (See schematic wiring diagram, illustration 32.)
- d. Credit relay switches not aligned properly. Readjust points. (See schematic wiring diagram, illustration 32.)
- e. Timer relay remains closed. Readjust points. (See schematic wiring diagram, illustration 32.)

SETTING UP THE PHOTOMATIC

- a. Water reservoir - 19 gallons (approx.)
Water auxiliary tank - $1\frac{1}{2}$ gallons (approx.)
- b. Developer tank - 5 gallons (approx.)
- c. Clearing tank - $2\frac{1}{2}$ gallons (approx.)
- d. Bleach tank - $2\frac{1}{2}$ gallons (approx.)

The water reservoir has a large hinged cover, held in place by four brackets; two at each end. Remove the brackets from that end of the machine that is more suitable for servicing and lift cover. With proper key, unlock and open the lid covering chemical tanks, remove packing material. A drain plug is screwed into the bottom of tanks. This plug, when removed, is used for draining*. It allows for quick and easy draining of the machine. A special wrench is supplied for these plugs. (See page 22, paragraph 21 for draining procedure.)

13. CHECKING GAUGES.*

Each tank has a separate indicator gauge set in front of the tanks in the cabinet. By observing these gauges the operator can determine the amount of solutions in the tank. Tanks are full when lower end of float reaches blue line on each gauge. Tanks are almost empty when visible level of liquid reaches red line.

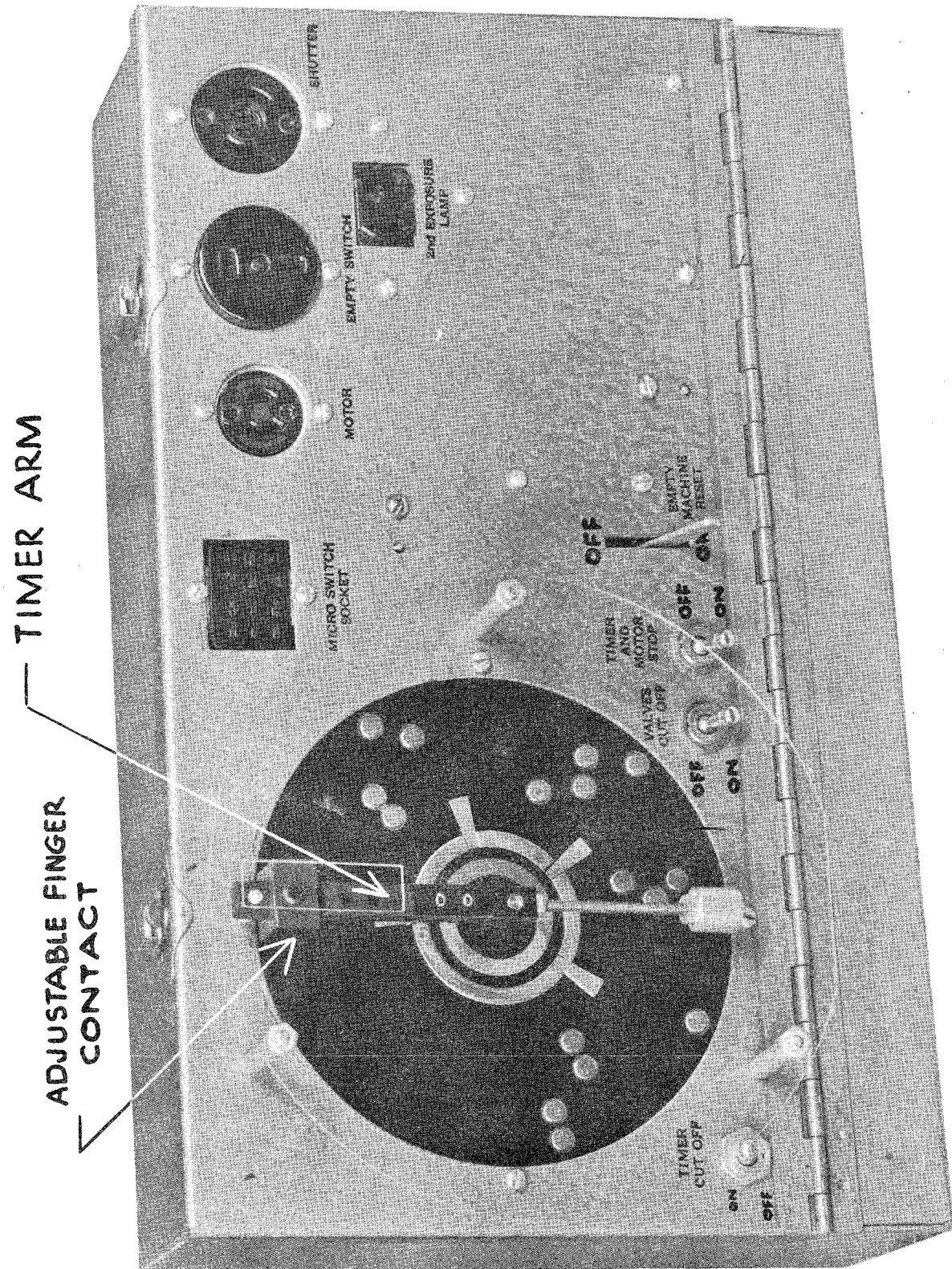


Illustration 3 - Switch (Control) Box with Switches in "ON" Position

51. THE PHOTOGRAPHIC PROCESS IN GENERAL PHOTOGRAPHY.

Generally, photographs are produced by means of two (2) distinct and separate processes on a sensitized silver chloride or bromide emulsion prepared as follows:

- a. The Negative Image. - An emulsion containing silver bromide is applied to a transparent base such as glass or celluloid and then used as a negative. When negative is exposed, light passes through the lens and projects an image onto the emulsion. The resulting latent image (see paragraph 53) is then developed into a metallic silver image, fixed in a hypo solution, washed with water and dried. The result is a transparent negative.
- b. The Positive Image. - An emulsion containing silver bromide (for projection) or silver chloride (for contact) is applied to paper for making the positive. The negative is placed in contact with, or projected upon the paper and light is passed through the negative onto paper. The resulting latent image (see paragraph 53) is then developed into a metallic silver image, fixed in a hypo solution, washed with water and dried. The result is a positive on paper.

NOTE

Generally, the image passing through the lens is reversed, that is, the kerchief in a left lapel pocket is on the right side in the negative. When printing the positive, the image is again reversed and the kerchief will be on the left side of the positive print.

52. THE PHOTOGRAPHIC PROCESS EMPLOYED IN THE PHOTOMATIC.

The Photomatic produces a positive picture on a Mutosnap in a single process by means of a specially waterproofed paper, coated with a specially prepared sensitized emulsion, as follows:

- a. The Mutosnap is exposed to the image projected thereon through the prism mirror and lens.
- b. The latent image (see paragraph 53) now in the emulsion is then developed into a metallic silver image, producing a negative.
- c. The developer is rinsed off with water.
- d. The metallic silver image forming the negative is completely dissolved by the bleach solution. The remaining unexposed and undeveloped emulsion will form the positive image and is not removed by the bleach solution.
- e. The bleach solution is rinsed off with water.
- f. The bleach solution remaining on the emulsion is neutralized by the clearing solution, which also removes the orange stain. (At approximately this stage, a 15 W clear Mazda lamp in developing chamber lights and exposes the remaining emulsion forming the positive latent image. This is generally termed printing.)
- g. The clearing solution is washed off with water.
- h. The exposed latent positive image is developed into a metallic silver positive. (2nd exposure lamp can now be turned off.)
- i. The developing solution is rinsed off with water.
- j. The Mutosnap is ejected from the tilter platform and

Place plug into receptacle of power source.

(See page 2, paragraph 4.)

- b. Check switches on control box. (See illustration 3.)

See if they have the following positions:

Timer Cut Off Switch in "UP" Position is "ON".

Valve Cut Off Switch in "DOWN" Position is "ON".

Timer and Motor Switch in "DOWN" Position is "ON".

Empty Reset Switch in "DOWN" Position is "ON".

- c. With front door mechanism cabinet open, note whether gauge light*, placed at top near tanks, is lit. When lit, it indicates that current is present. Also turn on fluorescent tubes by means of special key for key switch which is located on the mechanism cabinet top front, left side. Machine will not start unless fluorescents are on.

11. CHECKING HOSE AND TUBING.

Prior to shipment all tube and hose connections are tightened and sealed. However, in transit connections may have loosened. Check all tubing and hose connections. If any loose connections require tightening, tighten and seal with cement provided. This will prevent leaks developing when tanks are filled.

12. LOCATION AND DESCRIPTION TANKS.

There are four tanks and a large water reservoir located in the top of the cabinet. They have approximately the following capacity and are:

*Gauge light does not appear on Post War Model Machines.

PART TWO
SETTING UP THE PHOTOMATIC

8. GENERAL

After Photomatic has been removed from the packing case and placed in its desired location, unlock the front and rear doors of the mechanism cabinet with the keys provided. Note that the magazine turret is held by means of a wire. Remove wire by cutting with a cutting plier. Set turret in normal position by turning it counter clockwise as directed on the plate. It must rotate freely.

9. PREPARING THE LOCATION.

To facilitate filling of tanks and handling of waste in the Photomatic, it is advisable for permanent locations, to install the following wherever possible:

- a. A cold water line that will run over the top of the cabinet to aid in filling the water tank.
- b. Connection to sewer by means of a drain pipe. A hole has been provided in the bottom of the cabinet. Remove the waste tank and connect the waste trough through a hose to the drain pipe. This will simplify the problem of handling waste solutions.

10. CHECKING ELECTRICAL CONNECTIONS.

- a. Check your source of power. It must be 110 Volt, 60 cycles, A.C. Connect ground wire of power plug to an adequate ground such as a water or steam pipe.

dropped into the delivery chute.

NOTE

The Photomatic succeeds in printing without reversing the image by passing the image through the prism mirror which reverses it and then through the lens where the image is once more reversed. In this way, a kerchief in a left lapel pocket will be on the left side of the finished Mutosnap.

53. LATENT IMAGE.

The latent image, photographically speaking, is that portion of the sensitized emulsion which has been acted upon by light. It can not be seen, felt or made manifest in any manner except by being reduced to metallic silver by a combination of certain chemicals, which in solution are called photographic developer. When we properly expose a Mutosnap, we know it is there, but we can't see it until it is properly developed.

IMPORTANT

To be sure to obtain best results with Mutosnaps, always use Mutoscope Prepared Chemicals. Years of research and a great deal of experimenting have enabled us to give you a product which has been made especially for the Photomatic. We know they are right because we test them.

PART SIX

CAUSES OF AND REMEDIES FOR IMPROPERLY DEVELOPED PHOTOS.

54. GENERAL PRECAUTIONS.

The following precautions should be observed when making tests to remedy improperly developed pictures.

- a. Solutions.- When making solutions always be sure that ENTIRE CONTENTS of the Prepared Chemicals are THOROUGHLY DISSOLVED. The pail, stirring-rod, funnel, bottles and corks must be absolutely clean. The finished solution should be clear and free from any precipitation caused by undissolved chemicals. When dissolved, solutions should appear as follows:

The Developer should have a very slight amber color.

The Bleach should be a deep orange color.

The Clearing should be practically colorless.

The water should be clean and free from foreign matter.

Some chemicals will come out of solution and precipitate when stored in a place where the temperature is below 50° Fahrenheit; this will cause the solution to be weak and result in under-developed Mutosnaps. Always shake bottle of solution thoroughly before transferring into tank or another bottle.

Never pour developer into a tank that contains stale, oxidized, or brown developer. Clean tank and floating-lid thoroughly, first. Check to see that all chemical tanks contain sufficient developer, bleach, clearing and water.

CAUTION

When mixing solutions be careful not to allow any chemical to spatter on skin or clothes. (See precautions on labels of chemical containers.)

- b. Electrical.- Check to see that all plugs are connected to

PREPARING FOR OPERATION

- n. Electrical Slug Rejectors*.- Is a device which measures, weighs and otherwise tests the coin to detect "slugs" (spurious coins). If the inserted coin is not satisfactory, it will be rejected and thrown back through the return chute. If the coin passes all tests, it will be guided to the coin switch and after sufficient coins have been inserted, they will actuate the totalizer, thus starting the machine.
- o. Tilter.- After each chemical action such as Developing, Bleaching, Clearing and Rinsing, the Mutosnap, resting upon a "Tilter Platform", is tilted from a horizontal to a nearly vertical position, and then back to horizontal again. The vertical position is necessary to drain off the chemicals and water. The horizontal position sets the Mutosnap in correct position to receive the next solution. To make certain that the solutions act most efficiently, the tilter platform, when in a horizontal position, agitates the solution on the Mutosnap. After the final water rinse, it tilts completely vertical and causes the fully developed Mutosnap to drop into the delivery chute.

- j. Preheater.- Is a chamber wherein the developing and bleaching solutions are automatically kept at a pre-determined temperature of 105° thus enabling the Photomatic to operate at high speed because warm solutions act faster than cold solutions. The Thermostat is an electrical device which controls the temperature of the solutions in the Preheater, by automatically shutting off the heat when the highest desired temperature is reached and automatically turning on the heat when temperature drops.
- k. Printing.- Is the photographic term used to define that part of the process where the emulsion receives the second exposure and is redeveloped into a positive image.
- l. Prism-mirror.- This is a specially perfected mirror that reflects the SUBJECT'S image through the lens and onto the Mutosnap. In doing so, it reverses the image, which is again reversed by the lens; thus the right side of the subject is always on the right side of the Mutosnap - one of the reasons Photomatic pictures are so acceptable for identification purposes.
- m. Shutter. - Consists of light-proof stainless steel blades (between the lens elements) which open and close the lens aperture. The length of time the shutter is open determines speed of exposure of Mutosnap.

proper receptacles and that all switches are in "ON" position.
(See page 9, paragraph 10 and illustration 3.)

55. CLEANING PROCEDURE TO BE OBSERVED ONCE A MONTH.

To insure good operation of the Photomatic at all times, it is recommended that the machine be thoroughly cleaned once a month, as described in the following:

- a. Scrape waste trough so that all chemical deposits are removed from sides of the trough.*
- b. Remove plugs from all tanks (except water.) If chemicals are in good condition, save them by running them off into storage bottles. If not, drain chemicals into waste tank.* (See page 23, paragraph 21.)
- c. Clean strainer in water tank and water spray tube in developing chamber. (See paragraph 57, remedy d.)
- d. Replace plugs in tanks. Pour hot water into tanks until they are half full.
- e. Squeeze all hoses leading from tanks to loosen chemical deposits.
- f. Remove plugs in tanks using wrench and wash out waste trough with the water flowing from drain hose.* Be sure that water is completely drained from tanks.
- g. Replace all drain plugs in chemical tanks.*
- h. Drain waste tank completely. Use stirrup pump to empty sludge found at bottom of tank. Pull tank out so that bottom of stirrup pump can be inserted in tank. Pump sludge out into a pail until tank is completely emptied - wash tank and discard sludge.

*The waste trough, drain plugs and drain hose do not appear in Post-War Model. When draining and cleaning tanks run waste and hot water through valves. (See page 24, paragraph 21c.)

CAUSES OF AND REMEDIES FOR IMPROPERLY DEVELOPED PHOTOS

- i. Fill all tanks with new chemicals.
- j. Bleed all lines leading to valves. (See page 15, paragraph 16.)
- k. Clean lens, lens mirror and window. (See paragraph 45, page 51.)
- l. Clean the slide bed ways to remove accumulation of dust and lacquer chips of Mutosnaps.
- m. Clean and lubricate developing chamber. (See paragraph 28, page 38.)
- n. Clean contact buttons on timer disk with crocus cloth only. Do not use sandpaper, emery cloth or steel wool on contact buttons.

56. PART OF PHOTO ENTIRELY BLACK. (See illustration 20.)

CAUSE	REMEDY
<ul style="list-style-type: none"> a. Mutosnap not level on tilter platform in developing chamber. b. Not enough developer poured on to cover entire emulsion. 	<ul style="list-style-type: none"> a. The Photomatic is properly set before leaving our factory and the tilter platform will be level if Photomatic is set level on floor. b. See that developer tank contains enough solution and check the flow of first developer with Test #1 as explained on page 17. If necessary bleed the line. (See page 15, paragraph 16.) If after the above, developer still does not cover entire emulsion, turn developer valve adjustment screw 1/4 turn counterclockwise and, <u>using slight pressure</u>, retighten locking nut. (See illustration 14.)

PREPARING FOR OPERATION

Do not tamper with diaphragm at any time.

- f. Exposure.- Is the amount of light allowed to enter the lens and act upon the emulsion on the Mutosnap and is determined by:
 - I. The brightness of lamps used.
 - II. Shutter remaining open for a set time.
 - III. Size of diaphragm opening in lens.
- g. Lens Housing.- Is a box-like, light-proof casting which acts as a frame for the lens, and is so shaped as to allow all rays to pass through the lens onto the Mutosnap located immediately below it during the exposure period.
- h. Mutosnaps.- Ordinary cameras use film to produce the negative, from which a paper positive is made. The Photomatic uses its patented metal framed Mutosnaps for the same purpose - except that a positive image is produced directly on the sensitized Mutosnap paper.
- i. Gauge Light*. - When mechanism's cabinet door is opened, light goes on. The light is located behind tulox tubing showing fluids in gauges. When door is open, gauge light indicates that current is present in the machine.

*Gauge light is not featured in Post War Machine

- c. When moving machine to a new location, be certain that all movable parts are correctly tied and protected from injury.

7. DEFINITIONS OF TERMS.

This list has been placed in alphabetical order and is in no way a sequence of operation.

- a. Bleach.- A chemical solution that REMOVES the negative image produced by the first development.
- b. Clearing.- A chemical solution that neutralizes the acid remaining in the emulsion after the bleaching solution has been rinsed off. It also removes ORANGE Bleach stain.
- c. Developer.- A chemical solution used twice in the Photomatic process. It reduces to metallic silver those portions of the emulsion that have been exposed to light, thereby producing a negative image in the first development and a positive image in the second development.
- d. Developing Chamber.- Is simply a small darkroom inside the Photomatic where the various automatic finishing processes take place.
- e. Diaphragm.- Consists of 10 thin blades which form a complete circular orifice, the size of which allows more or less light to enter the lens, thereby giving lighter or darker pictures. It is located immediately below the lens shutterblades, between the lens elements.



Illustration 20 - Part of Photo Entirely Black.
(See paragraph 56.)



Illustration 21 - Gray and Mottled Photo as a result of insufficient First Development, Clearing or Rinse.
(See paragraph 57.)



Illustration 22 - Dark, Cloudy Appearance of Photo caused by insufficient Bleaching.
(See paragraph 58.)



Illustration 23 - Photo too Light and Detail in Highlights lacking Caused by Over-Exposure.
(See paragraph 59.)



Illustration 24 - Photo too dark and Detail in Shadows Lacking Because of Under-Exposure.
(See paragraph 60.)

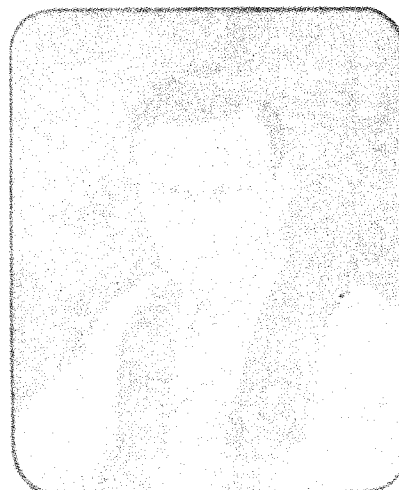


Illustration 25 - Photo Entirely White or Containing Just a Faint Trace of Image.
(See paragraph 61.)



Illustration 26 - Photo is not Sharp and Out of Focus.
(See paragraph 62.)



Illustration 27 - Photo is Indistinct and Lacking Detail Throughout.
(See paragraph 63.)

two wheels set in the front of the machine, and on the rear cabinet base of the machine. When it is desired to move the machine, a third wheel at the rear can be easily set into action by means of a jack located in rear compartment. To raise jack insert rod provided into sleeve and press jack down. This position is then secured by inserting the heavy pin provided in holes of bracket. This sets the Photomatic on wheels on a three point dolly making it easy to move the machine. Always drain all tanks, completely, including water, prior to moving. Do not ever move the machine while tanks contain solutions. To return cabinet to stationary position, press jack down, remove pin from bracket, hold handle firmly and allow cabinet to lower slowly.

- b. If it is necessary to move the Photomatic in a horizontal position, be sure that the chemicals are completely drained from the machine and the machine is placed on a dolly which must have a platform the same size or larger than the outside measurements of the machine. Never use a dolly smaller than that just recommended. When resting on the proper size dolly in this manner, there will be no chance to damage, bend or dent the rear or outside metal panels of the cabinet.

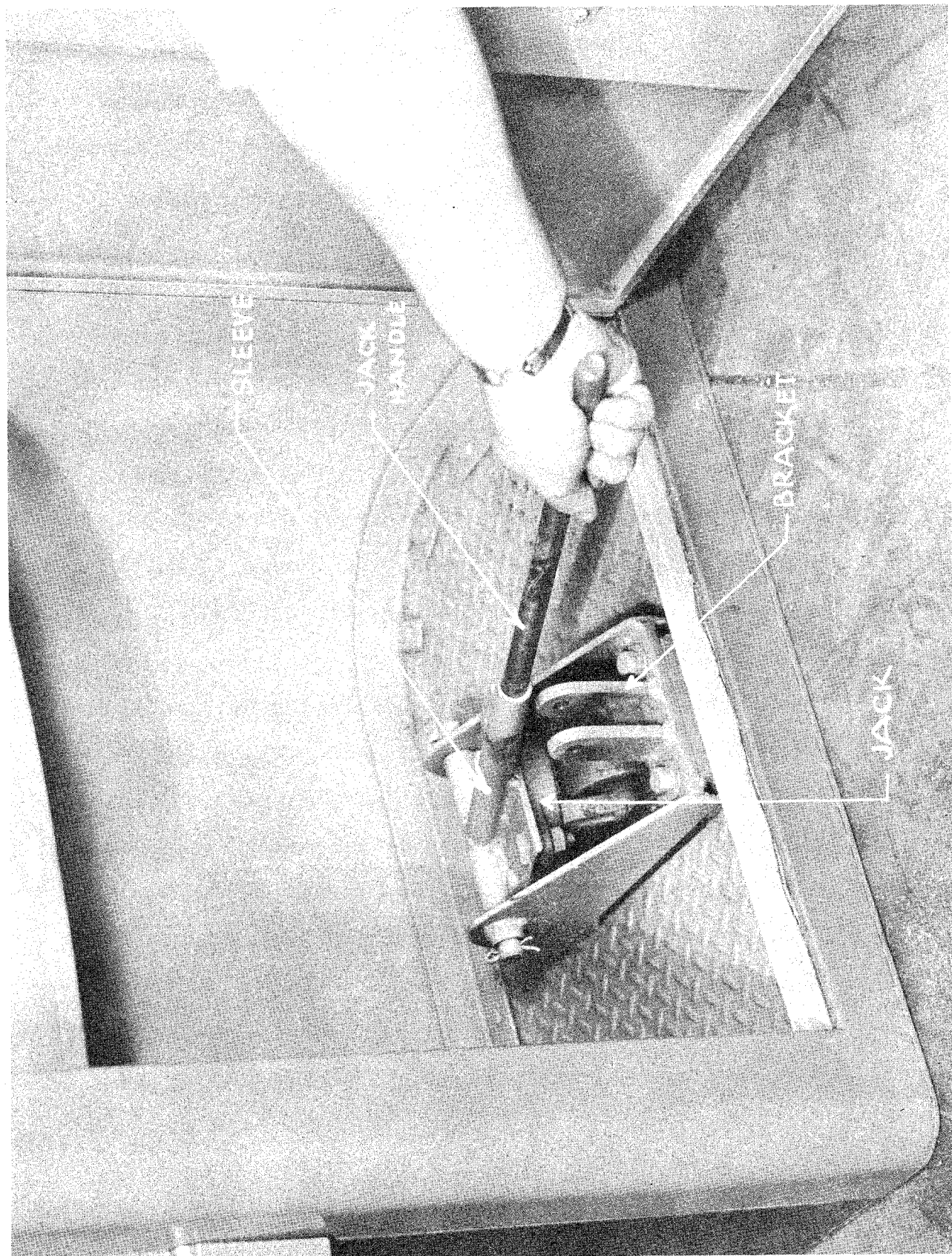


Illustration 2 - Raising DeLuxe Model Photomatic By Means of Jack



Illustration 28 - Photo is Blurred and May Show Double Image. (See paragraph 64.)



Illustration 29 - Black Spots on Photo. (See paragraph 65.)



Illustration 30 - Part of Photo is very Light or Entirely White. (See paragraph 66.)



Illustration 31 - Satisfactory Photo. (See paragraph 67.)

CAUSES OF AND REMEDIES FOR IMPROPERLY DEVELOPED PHOTOS

PREPARING FOR OPERATION

57. GRAY AND MOTTLED PHOTO AS A RESULT OF INSUFFICIENT FIRST DEVELOPMENT, CLEARING OR RINSE. (See illustration 21.)

- 1 - 3 Ft. 1/4" I.D. x 1/16" Wall, Buna Grade "S" Tube
- 1 - Set of Allen Wrenches for #6, #8, #10 and 1/4" Set Screws
- 12 - Labels each, Developer, Bleach, Clearing in envelope.
(To be used for identifying five and one gallon bottles)
- 1 - Sealing Cement with Brush for sealing tulox tubing connections.
- 2 - Slide Springs #08-118
- 1 - Ratchet Spring #08-186
- 1 - Tilter Spring #08-182
- 2 - 1/4-20 x 5/8" Fillister Hd. Screws (Stainless) for Tilter Housing Plate
- 1 - Package of Sample Photomatic pictures for use in display case. (By means of easel backs, stand these pictures in display case in front of machine.)
- 1 - Operational Manual
- 4 - Small Jars, different color paint for retouching machine when needed
- 1 - Pint Light Blue Paint for Repainting Background
- 1 - 1 oz. Tube Lubriplate to lubricate bearings of tilter platform in Developing Chamber.
- 1 - 1 lb. container of Cleaning Powder for cleaning cabinet.

6. MOVING PHOTOMATIC.

- a. Moving DeLuxe Model Photomatic. (See illustration 2.) -
In normal position, the DeLuxe Photomatic rests on

CAUSE	REMEDY
a. Developer too cold.	a. Set temperature of Preheater at 105° (See Test #3, page 20.)
b. Photomatic operating too fast.	b. Operate the Photomatic at slower speed, preferably at speed 4. (See page 46, paragraph 37.)
c. Developer too weak or oxidized. (Sometimes causes a grainy photo with greyish whites.)	c. Check the developer by following Test #1 on page 17. Prevent oxidization of developer by always using floating lid in tank and observe the instructions on page 58, paragraph 54a.
d. No rinse between solutions.	d. Check all rinses by following Test #1 on page 17 and see that water tank contains sufficient amount of water and that the water flows freely out of water spray tube in developing chamber. If not, disconnect rubber hose from water spray tube and blow out foreign matter from tube. Clean strainer in large water reservoir tank when refilling the tank.
e. No clearing after bleach.	e. See that clearing tank contains enough solution and check the flow of clearing solution with Test #1 on page 17. If necessary, bleed the line, (see page 15, paragraph 16.) If after the above, clearing still does not cover the entire emulsion, turn clearing valve adjustment screw (see illustration 14) 1/4 turn counterclockwise and using slight pressure retighten locking nut.
f. Mutosnaps too old.	f. Check Mutosnaps by following Test #2 on page 19. Always keep Mutosnaps in original package and store in a cool, dry place. (See page 21, paragraph 20.) To avoid aging always use Mutosnaps in rotation as received.

PREPARING FOR OPERATION

4. ELECTRICAL REQUIREMENTS. (See illustration 32, page 69.)

The Photomatic operates only on 110-120 volts, A. C., 60 cycles. If electrical source is D. C., a converter must be used. The converter must be rated at not less than 800-1,000 watts, continuous duty. It is absolutely imperative that electrical supply be identical to these specifications. Considerable damage will result if the equipment is connected to improper power supply. Running from the power plug is a third or ground wire. It is most important that the ground wire be connected to a proper ground such as a water or steam pipe.

5. CHECKING ACCESSORIES SHIPPED WITH MACHINE.

After removing the Photomatic from the packing case, check the following items that have been included with shipment: (If any item is missing communicate with factory at once.)

- 1 - Enamel Pail
- 1 - Glass Stirring Rod for mixing chemicals
- 1 - Funnel (Glass or Enamel)
- 1 - Stirrup Pump (for pumping out bottom of waste tank)
- 1 - 3 ft. Ladder (for pouring chemicals and water)
- 1 - Wrench for chemical tank drain plugs.*
- 1 - Second Exposure Lamp, S-14, 15W, Clear, MSB
- 1 - Ten Watt Red Safelight
- 1 - Indicator Lamp, 6W, Ruby, Candleabra Base
- 1 - Camel's Hair Brush, for cleaning lens and prism mirror
- 2 - 10 Amp. Plug Fuses

CAUSES OF AND REMEDIES FOR IMPROPERLY DEVELOPED PHOTOS

58. DARK, CLOUDY APPEARANCE OF PHOTO CAUSED BY INSUFFICIENT BLEACHING. (See illustration 22.)

CAUSE	REMEDY
a. First developer not thoroughly rinsed off.	a. Check rinse by following test #1 on page 17. Keep the flow of water at its maximum by keeping strainer and spray tube clean. (See paragraph 57, remedy d.)
b. Bleach Solution too cold.	b. Set temperature of Preheater to 105°. (See test #3, page 20.)
c. Not enough bleach solution poured on to cover entire emulsion.	c. See that bleach tank contains enough solution and check the flow of bleach solution with Test #1 on page 17, if necessary, bleed the line (see page 15, paragraph 16). If after the above, bleach still does not cover the entire emulsion, turn bleach valve adjustment screw (see illustration 14) 1/4 turn counterclockwise and using slight pressure, retighten locking nut.
d. Bleach solution too weak.	d. If, after following the above remedies, the emulsion does not bleach out completely, prepare another 5 gallons of bleach by completely and thoroughly dissolving entire contents of another container of Mutoscope's prepared bleach.
e. Photomatic operating too fast.	e. Operate the Photomatic at slower speed. (See page 45, paragraph 37.)

*This wrench not shipped with Post War Model Machine

59. PHOTO TOO LIGHT AND DETAIL IN HIGHLIGHTS LACKING CAUSED BY OVER-EXPOSURE. (See illustration 23.)

CAUSE	REMEDY
a. Lens-Diaphragm open too much.	a. Slightly decrease lens-diaphragm opening by moving lever to the left. (See illustration 8, page 33a.)
b. The exposure speed of the specially sensitized emulsion varies slightly in different lots and Mutosnaps being used may require a little less exposure than previous lots.	b. Same remedy as a. above

60. PHOTO TOO DARK AND DETAIL IN SHADOWS LACKING BECAUSE OF UNDER-EXPOSURE. (See illustration 24.)

CAUSE	REMEDY
a. Lens-diaphragm open too little.	a. Slightly increase lens-diaphragm opening by moving lever to the right. (See illustration 8, page 33a.)
b. Mutosnaps being used may require slightly more exposure.	b. Same remedy as a. above
c. All fluorescent lights may not be lit.	c. Check and see that all fluorescent tubes are lit. If fluorescents are burnt out or flicker, replace with 5,600 degree Kelvin, daylight tubes only. (See page 41, paragraph 33.)

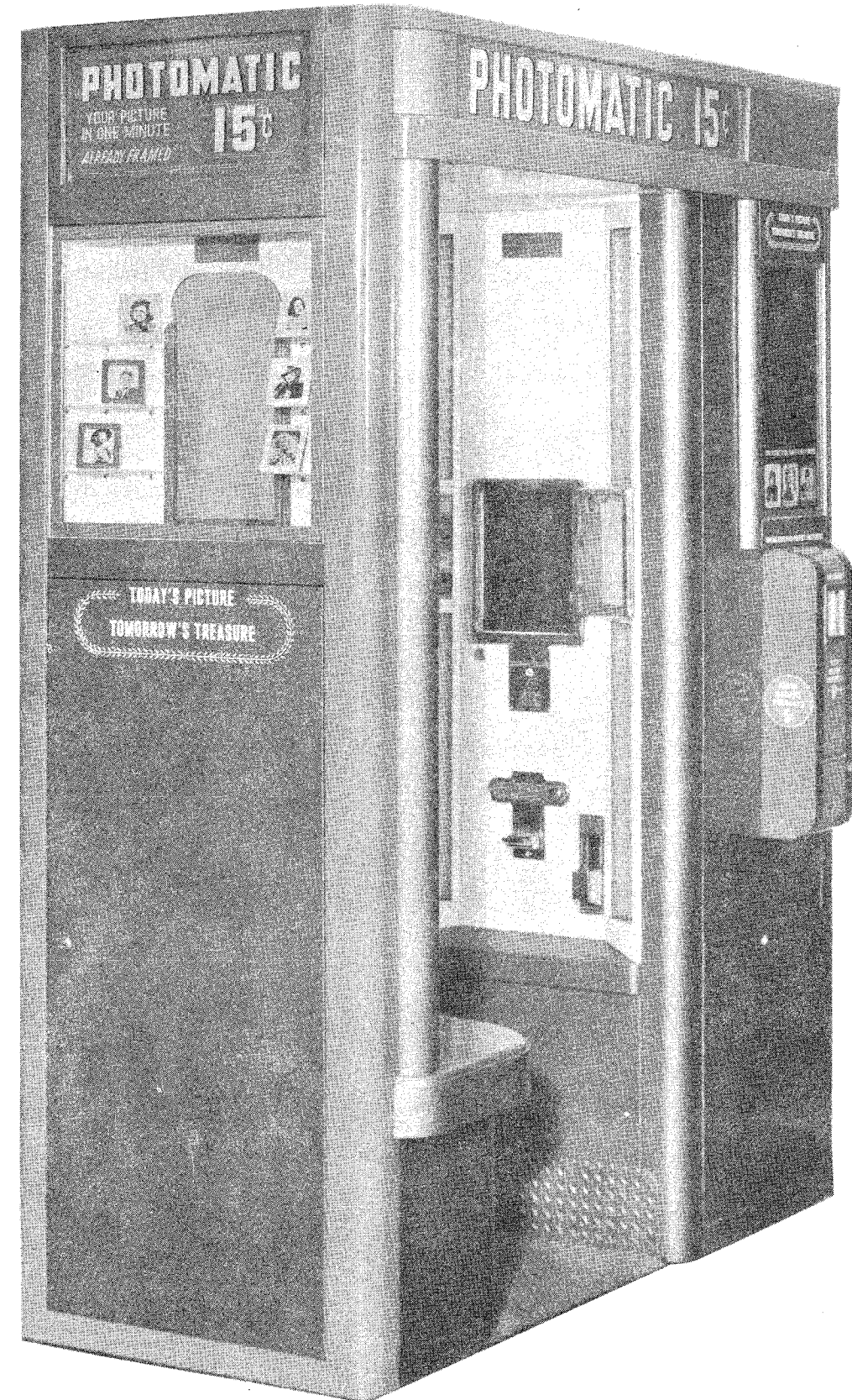


Illustration 1 - Photomatic, DeLuxe Model

PART ONE

PREPARING FOR OPERATION

1. GENERAL INFORMATION.

This manual has been prepared to acquaint the operator with the facts for setting up, operating, and servicing either the Post War or De Luxe Model Photomatic. General and specific photographic information and descriptions of the major parts are also included. Study this manual carefully before setting up or operating this equipment.

2. THE PHOTOMATIC.

Built of only the finest materials, the Photomatic has a mechanism that is expertly designed and sturdily constructed. It has the kind of eye appeal and purpose that will insure continuous and profitable service. The International Mutoscope Corporation is proud of this equipment and its unparalleled position in the coin-operated machine industry. A thorough understanding of this manual will quickly give you the knowledge for the best operation of the Photomatic.

3. PREPARATION.

Before receiving the Photomatic, prepare for its installation by securing three (3) five-gallon and fifteen (15) one-gallon bottles, essential for mixing and storing chemicals. It is advisable to have five (5) brown one-gallon bottles of the fifteen required for storing developer. A small three foot ladder is supplied with the machine as an aid in pouring solutions into the water and chemical tanks.

CAUSES OF AND REMEDIES FOR IMPROPERLY DEVELOPED PHOTOS

61. PHOTO ENTIRELY WHITE OR CONTAINING JUST A FAINT TRACE OF IMAGE. (See illustration 25.)

CAUSE	REMEDY
a. No second exposure. (picture will appear if dipped in developer.)	a. See that second-exposure lamp plug is connected in proper receptacle on the switch-box as shown in illustration 3 on page 10a, and also check to see that lamp is not burnt out. (See page 50, paragraph 42.)
b. No second development (Picture will appear if dipped in developer.)	b. See that the developer tank contains enough solution and check the flow of second developer by Test #1 as explained on page 17. (See page 15, paragraph 16.)
c. Second exposure lamp is lit before or during first development. (Picture will not appear if dipped in developer and emulsion will scrape off wet Mutosnap when scratched with finger nail.)	c. Check connection as explained in a. above and make sure that light housing cover is closed.
d. Photo-paper assembled on reverse side in frame of Mutosnap. (Picture will not appear when dipped in developer and wet emulsion will not scrape off when scratched with finger-nail indicating absence of emulsion.)	d. Discard Mutosnap.
e. Mutosnaps have been fogged by exposure to light before being loaded into Photomatic. (Picture will not appear if dipped in developer and wet emulsion will scrape off if scratched with finger-nail.)	e. There is no remedy for Mutosnaps which have been exposed to light. Discard any such Mutosnaps. ALWAYS BE VERY CAREFUL NOT TO EXPOSE MUTOSNAPS TO LIGHT WHILE LOADING OR HANDLING AT ANY OTHER TIME.

CAUSES OF AND REMEDIES FOR IMPROPERLY DEVELOPED PHOTOS

LIST OF ILLUSTRATIONS (cont.)

62. PHOTO IS NOT SHARP AND OUT OF FOCUS. (See illustration 26.)

CAUSE	REMEDY
a. Subject sitting too close to the lens.	a. See that the subject is seated according to instructions on the Photomatic. Leaning forward will result in an extra large head which will be out of focus.
b. Lens not set firmly in mounting.	b. Set lens firmly in mounting of lens housing.

63. PHOTO IS INDISTINCT AND LACKING DETAIL THROUGHOUT. (See illustration 27.)

CAUSE	REMEDY
a. Door-glass, prism mirror and/or lens dirty or smeared.	a. Thoroughly and properly clean both sides of door-glass, prism mirror and lens as explained on page 51, paragraph 45.
b. Sometimes old outdated Mutosnaps produce similar results.	b. Test Mutosnaps. (See Test #2, page 19.)

64. PHOTO IS BLURRED AND MAY SHOW DOUBLE IMAGE. (See illustration 28.)

CAUSE	REMEDY
a. Subject moved during exposure.	a. None, except that subject should remain still as instructed on Photomatic direction glass. The Photomatic shutter is set for approximately 1/10 second exposure and will produce sharp photos under normal conditions.

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CAUSES OF AND REMEDIES FOR IMPROPERLY DEVELOPED PHOTOS

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65. BLACK SPOTS ON PHOTO. (See illustration 29.)

CAUSE	REMEDY
a. Dirt deposited on emulsion before exposure. (Irregular spots.)	a. See that all parts of the Photomatic through which the Mutosnap passes are clean and free from dirt.
b. Air bubbles in first developer. (Generally round spots.)	b. Remove air from tubing as explained on page 15, paragraph 16.
c. Oil or grease deposited on emulsion before first development.	c. This will not happen if Photomatic is lubricated properly. Do not apply oil or grease to <u>any part</u> of the Photomatic other than applying "Lubriplate" to bearings in filter housing as described in paragraph 28, pages 37 and 38.

66. PART OF PHOTO IS VERY LIGHT OR ENTIRELY WHITE. (See illustration 30.)

CAUSE	REMEDY
a. Mutosnaps have been exposed to light, especially during loading, and not placed immediately into turret receptacle after removing cover. May also be caused by leaving Mutosnaps exposed to red light in darkroom too long.	a. None, except to be more careful when handling Mutosnaps. Do not expose them to light unnecessarily. Be sure that cover in light housing is completely closed. Make a few additional tests and if results continue to show fog, discard Mutosnaps.

KEY AND DESCRIPTION OF PARTS OF ILLUSTRATION 32

KEY	DESCRIPTION	KEY	DESCRIPTION
AS-1	Acro Switch SPST N.O.* Jam Control	PS-1	Receptacle Motor & Switch Box G.E. #7468
AS-2	Acro Switch SPST N.O. 5½ Tally	PS-2	Receptacle Empty Switch G.E. #10108
AS-3	Acro Switch SPST N.O. 10½ Tally	PS-3	Receptacle Shutter Solenoid G.E. #7526
AS-4	Acro Switch SPST N.O. 25½ Tally	PS-4	Receptacle Second Exposure P & S #1520
AS-5	Acro Switch SPST N.O. Credit Switch		
C-1	Capacitor 2 MFD Solar--220 AC WV---Wet	R-1	Relay #T-11 (Guard) S.F.D.T. --Empty Reset
L-1	Second Exp.Lamp 15W--110V-Clear M.S.B.--S-14	R-2	Relay #110 A.C. (Guard) S.F. St. N.O.
L-2	Sit Still Warning Lamp--6W--110 V--Red	R-3	Timer Relay
LS-1	Candelabra Base T6½		
M-1	Leaf Switch Spec. SPST N.O. Machine Empty Switch	S-1	Relay #110 A.C. (Guard) 1 SPDT & 2 SPST N.O. --Credit Relay
M-2	Motor EAD--110 A.C.--10.5 RPM--Mechanism Motor	S-2	Solenoid #14 A.C. (Guard) 12.5 Ohm--Clearing Valve
MS-1	Motor Telechron--110 A.C.--1 RPM--Timer Motor	S-3	Solenoid #14 A.C. (Guard) 12.5 Ohm--Bleach Valve
MS-2	Micro Switch SPST N.O. Coin Mech. Switch	S-4	Solenoid #14 A.C. (Guard) 12.5 Ohm--Developer Valve
MS-3	Micro Switch SPST - Motor Switch	S-5	Solenoid #14 A.C. (Guard) 12.5 Ohm--Water Valve
MS-4	Micro Switch SPST N.O. Shutter	S-6	Solenoid #2 A.C. (Guard) 166 Ohm Shutter
MS-5	Micro Switch SPST N.O. Developer	S-6	Solenoid #2 A.C. (Guard) 86 Ohm - Coin Mechanism
MS-6	Micro Switch SPST N.O. Bleach	S-7	Solenoid Special ABT - 25½ Tally
MS-7	Micro Switch SPST N.O. Clearing	S-8	Solenoid Special ABT - 10½ Tally
MS-8	Micro Switch SPST N.O. Water	S-9	Solenoid Special ABT - 5½ Tally
MS-9	Micro Switch SPST N.O. Second Exposure	S-10	Solenoid Special ABT - Reset
MS-10	Micro Switch SPST N.O. Reset Coin Tally	TS-1	Toggle Switch DPDT --Timer Cut Off Switch
P-1	Motor & Switch Box Plug G.E. #7465	TS-2	Toggle Switch SPST --Valve Cut Off Switch
P-2	Empty Switch Plug G.E. #6730	TS-3	Toggle Switch SPST --Main Cut Off Switch
P-3	Shutter Solenoid Plug G.E. #7507	T-1	Totalizer Unit ABT Special
P-4	Second Exposure Plug Std. Male	T-2	Timer Contact Arm and Fingers
		T-3	Timer Contact Plate

*N.O. means normally open switch

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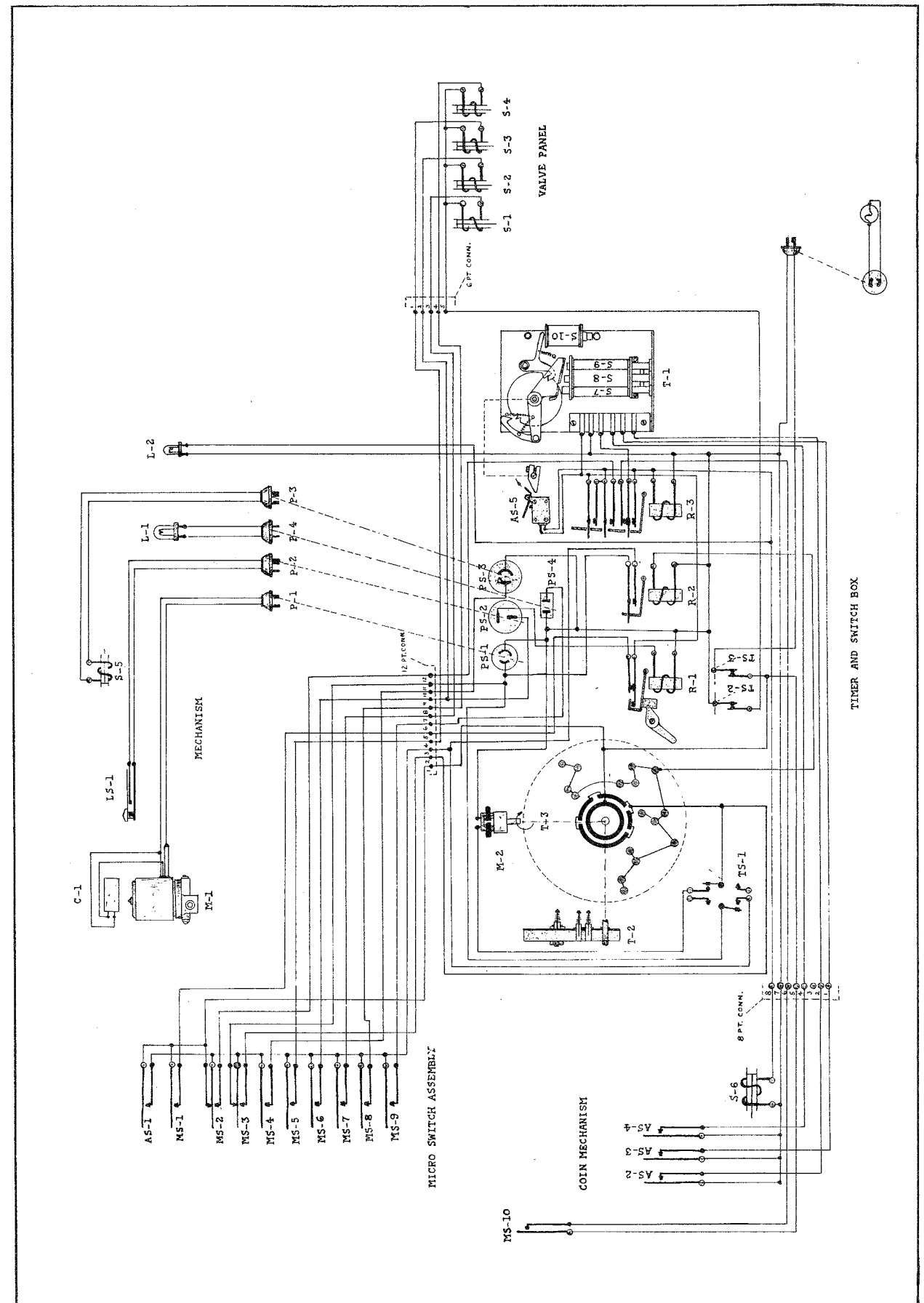
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Illustration 32 - Operational Schematic Wiring Diagram of Deluxe Model Photomatic



CAUSES OF AND REMEDIES FOR IMPROPERLY DEVELOPED PHOTOS

67. SATISFACTORY PHOTO. (See illustration 31.)

When all instructions have been carefully followed and proper results are obtained by following Tests #1 and 2, the photos delivered by the Photomatic should be sharp, clear and 100% satisfactory to your customer. Your best salesman is a good photo.

68. PHOTOMATIC DELIVERS A MUTOSNAP WITH AN ENTIRELY BLACK EMULSION (except when making Test #2).

NOTE

Check all plugs and switches before observing any of the following remedies.

CAUSE	REMEDY
a. No bleaching action.	a. Check bleaching with Test #1. See that bleach tank contains enough solution and check the flow of bleach solution by Test #1 on page 17. If necessary, bleed the line, see page 15, paragraph 16.
b. No first exposure.	b. Look directly into the prism mirror to see if the shutter in lens opens as described in paragraph 22b, page 25. Check shutter, see paragraph 43.

INTERNATIONAL MUTOSCOPE CORPORATION

44-01 ELEVENTH STREET · LONG ISLAND CITY · NEW YORK

CABLE ADDRESS "MUTOSCOPE"



OFFICE OF
WM. RABKIN
PRESIDENT

TELEPHONE
STILLWELL 4-3800

MR. PHOTOMATIC OWNER:

The art of Photography has improved greatly since the tin-type days of our grand-fathers, but each improvement in photographic papers, lenses, and developing processes has been a slow, tedious development.

This makes all the more remarkable the PHOTOMATIC'S ability to do AUTOMATICALLY, without human aid, the task of turning out a framed picture, 2 5/8" x 3 1/8", in less than one minute.

But mighty important is the fact that even though the PHOTOMATIC is a marvelous machine MECHANICALLY, it cannot start or function without proper care or attention.

Treat your watch well, and it serves you well . . . treat your PHOTOMATIC well, and it PAYS you well.

Study these simple, thorough instructions carefully. They are here for a purpose . . . TO HELP YOU GET THE GREATEST POSSIBLE RETURNS FROM YOUR INVESTMENT.

The better you get to know these instructions, the quicker you will be able to make any slight adjustments and corrections that may occasionally become necessary.

We take great pride in the PHOTOMATIC and our aim is to keep it the most outstanding machine of its kind. Should you desire information on any question not covered in these pages, please do not hesitate to write us. Detailed suggestions will follow promptly.

INTERNATIONAL MUTOSCOPE CORPORATION

Wm Rabkin

President