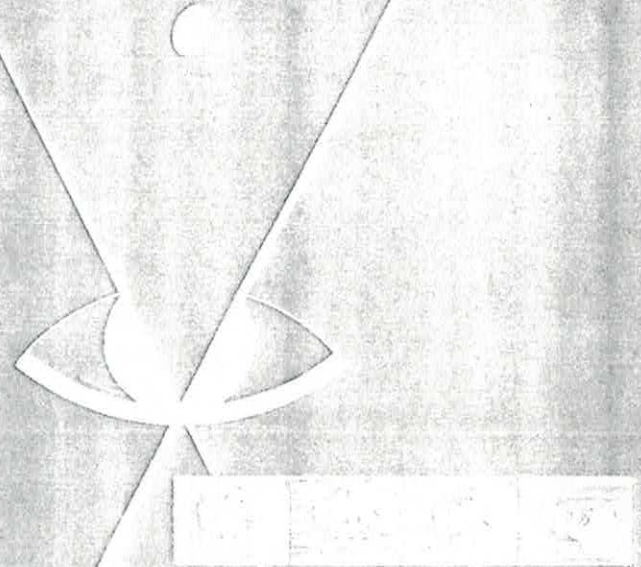
AUTO-PHOTO



OPERATOR'S MANUAL

FOREWORD.....

As this manual goes to press all of us here at AUTO-PHOTO have a deep and sincere feeling of pride. Pride in knowing that the Studio described herein has been judged by its trade acceptance as the finest built and most profitable to operate automatic photo vending equipment available in the world today. This distinction we believe has been earned. That it is an expression of our unwavering faith in the economic soundness of producing and owning quality equipment and in the integrity of all who make this business possible. Further testimony of the high quality photography produced by AUTO-PHOTO Units is the approval of Squier Laboratories, Fort Monmouth, New Jersey, for use by armed forces and government agencies, its multiple use by the Los Angeles Police Department, Chrysler Corporation, Douglas Aircraft, Packard Motor, Hughes Aircraft and many others.

From the engineering and building of the first pilot models in 1946, to the crating of the Studio that just came off the production line, quality of materials, skilled craftsmanship and efficiency in design have been paramount. You can be assured that your new AUTO-PHOTO Studio is built to last and give years of profitable service.

Now a word about our user's manual. Please read it carefully. Familiarity with its pages will assure maximum efficiency with a minimum of attention.

As you progress with your operation always remember "Your best ad is a good photograph." Its quality will not only reflect in the income of your own business but in that of other Studio operations throughout the country.

The photograph the consumer takes home or sends to Aunt Susie is your Window display — your Public relations man — your Billboard. A high quality print and a well maintained Studio are the best insurance you can have for continued business success. The productive life of your Studio will be governed solely by the attention and care it receives.

We also want you to remember that the AUTO-PHOTO COMPANY has a continuing interest in your operation and that our Company's facilities are always at your disposal.

Please be sure to fill out and mail the card at the back of this book. Our guarantee on your Studio is not valid unless this card is on file at the AUTO-PHOTO COMPANY'S Los Angeles office.

AUTO-PHOTO COMPANY

J B Herren

(Signed) J. B. Herren, General Manager

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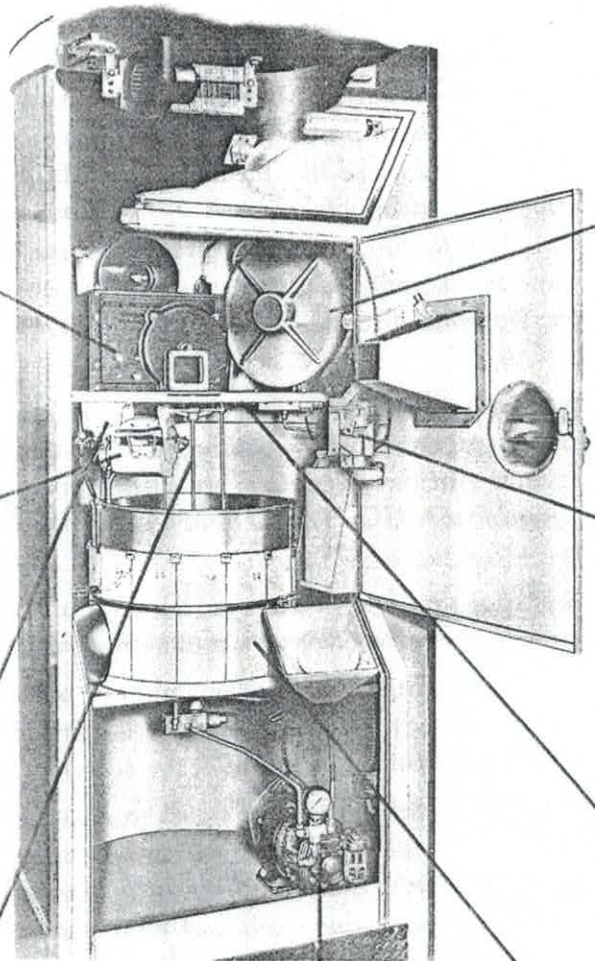
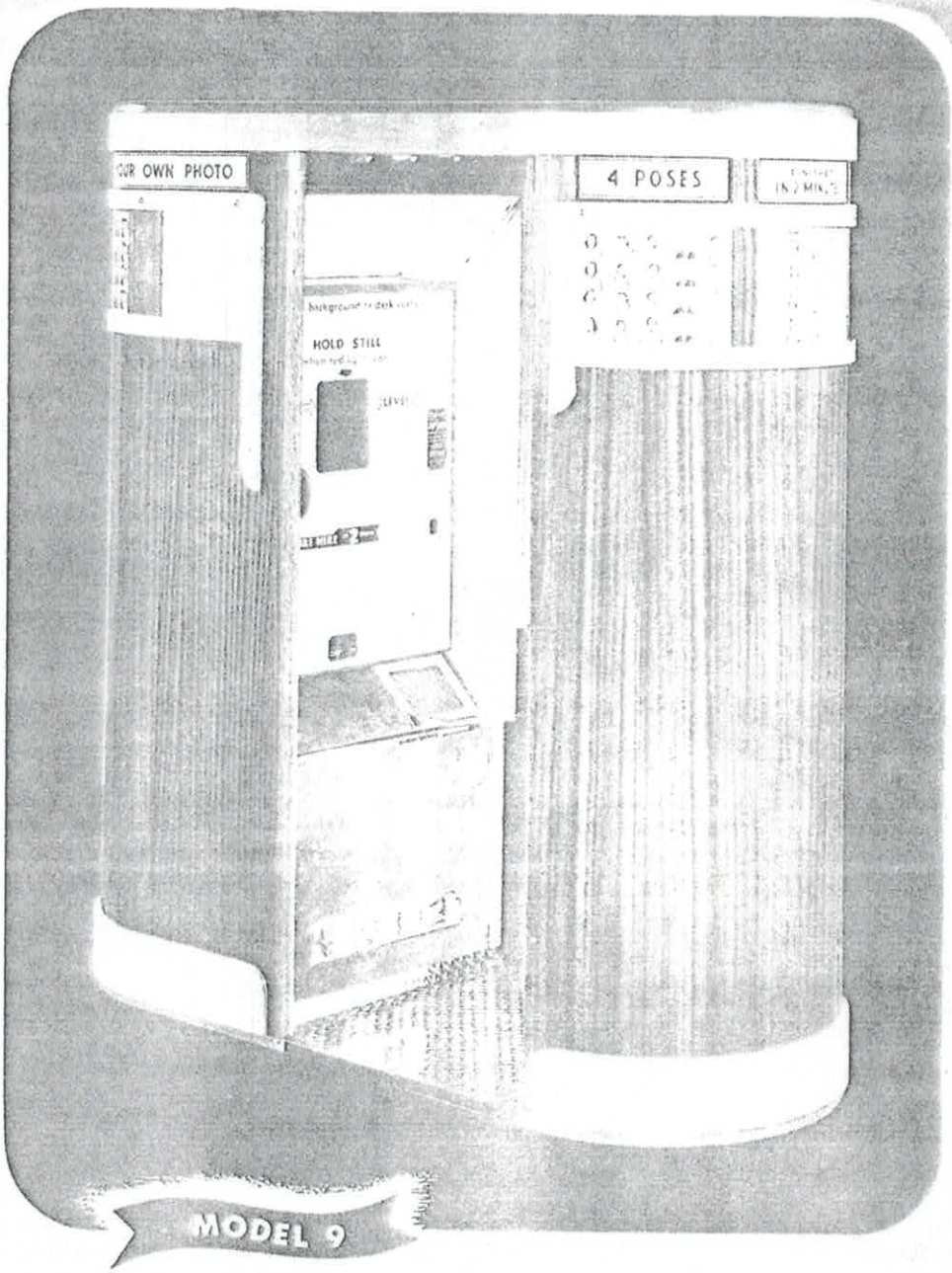
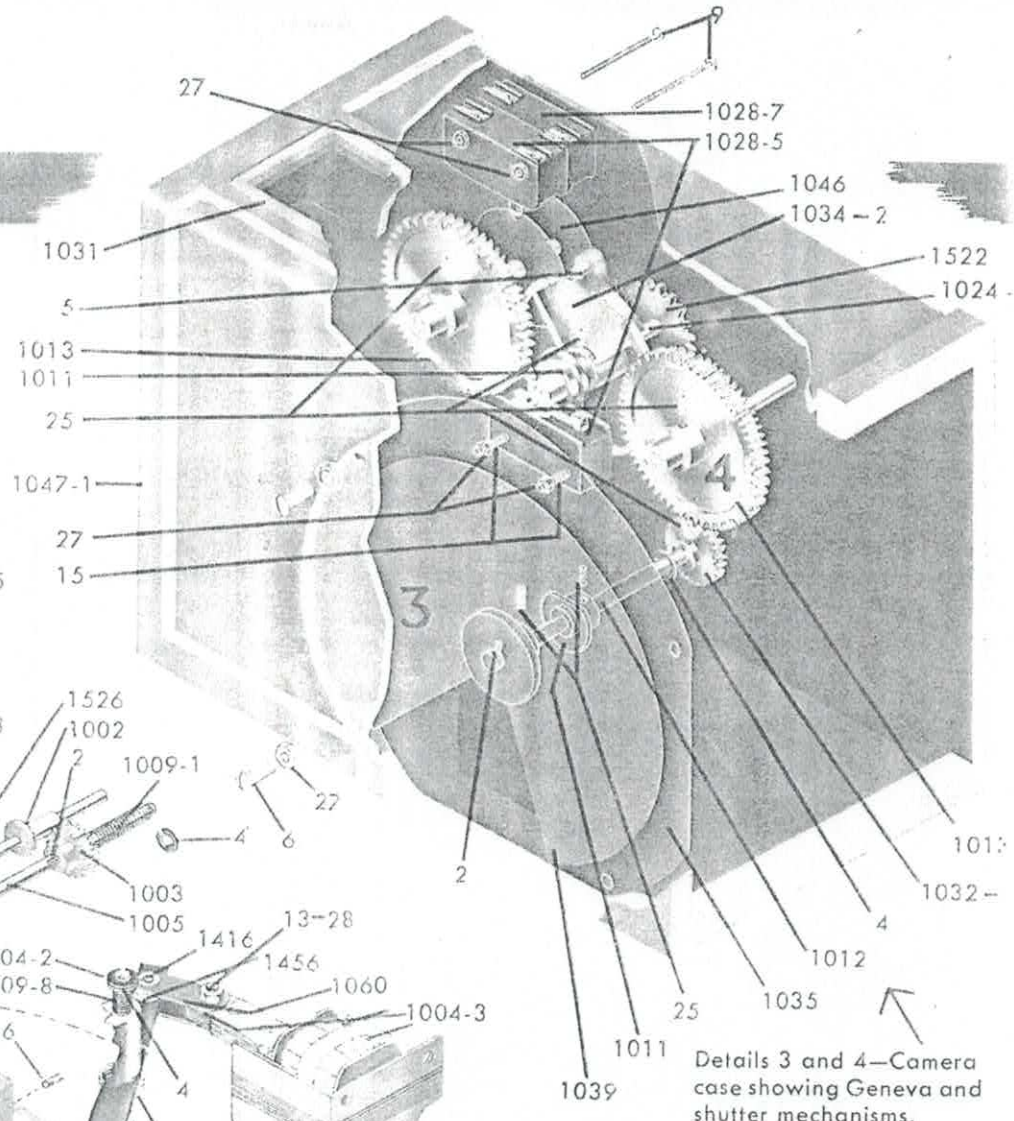




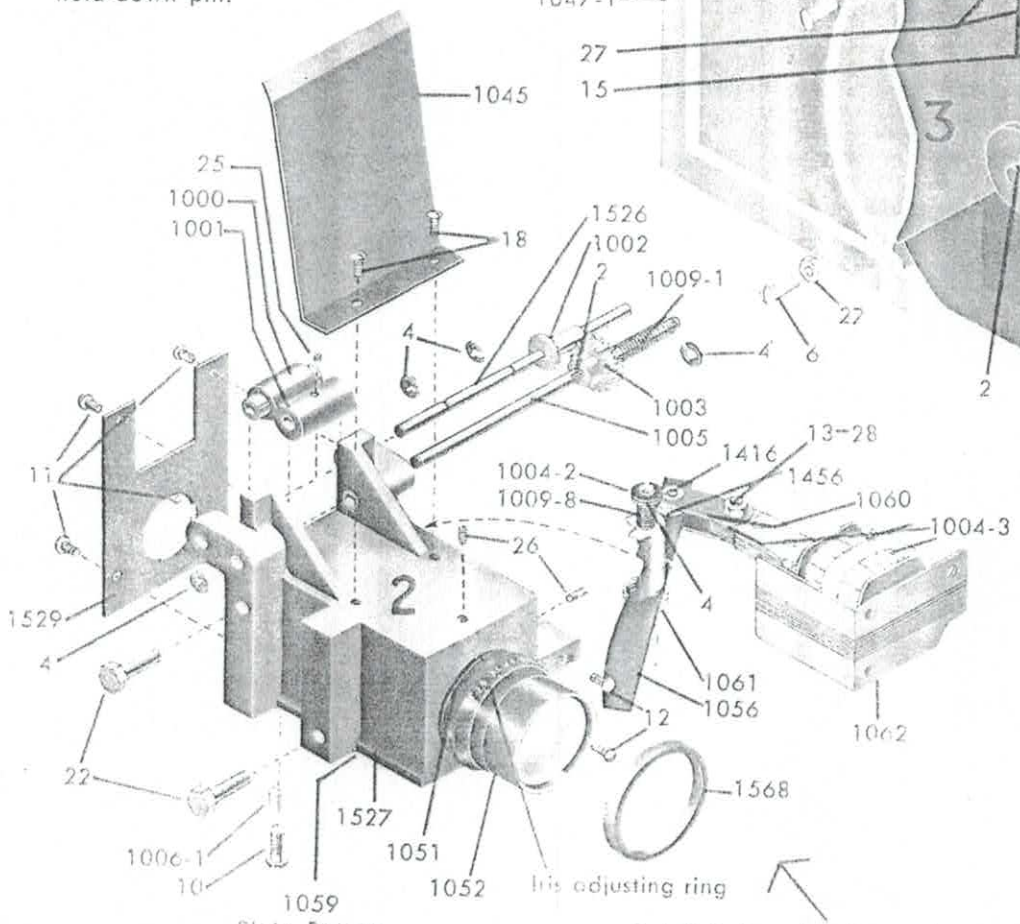
The progressively styled Auto-Photo Model 9 Unit is indeed a pleasing complement wherever it may be stationed. The exceptional blond and mahogany finish will blend well with any surroundings. Strategically located, the Auto-Photo Studio tends to attract prospective clients.

TO REMOVE CAMERA

Unplug harness and remove camera from upper tray by rotating it to the right and lifting at the same time, so camera will be disengaged from keyed hold-down pin.



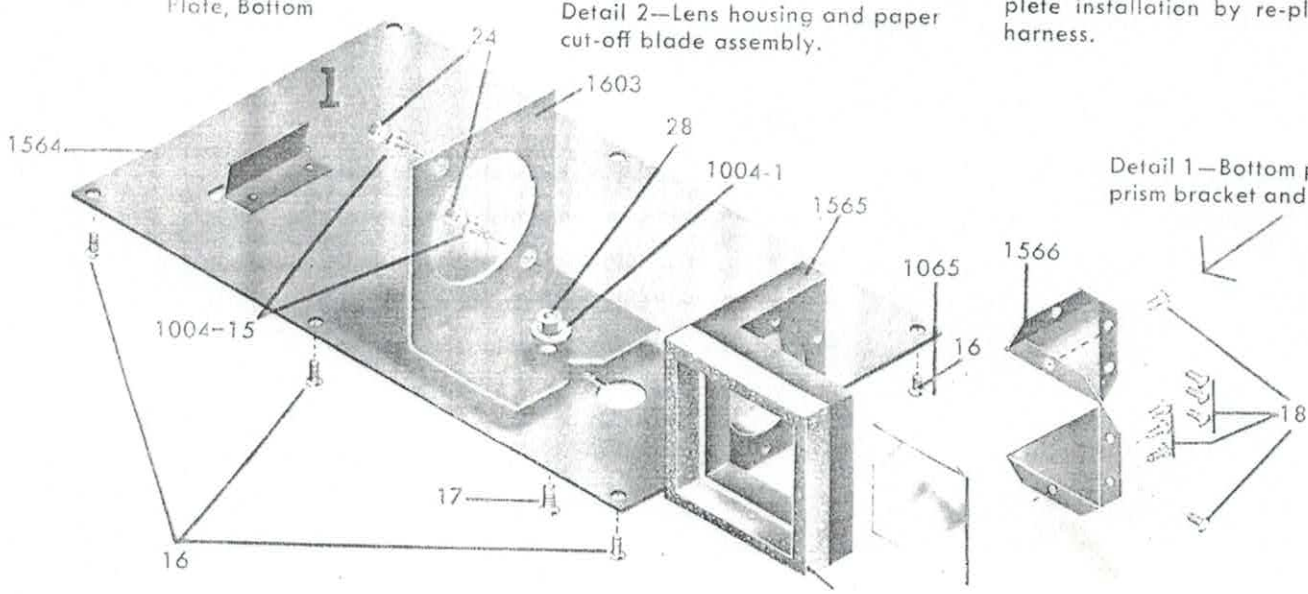
Details 3 and 4—Camera case showing Geneva and shutter mechanisms.



Detail 2—Lens housing and paper cut-off blade assembly.

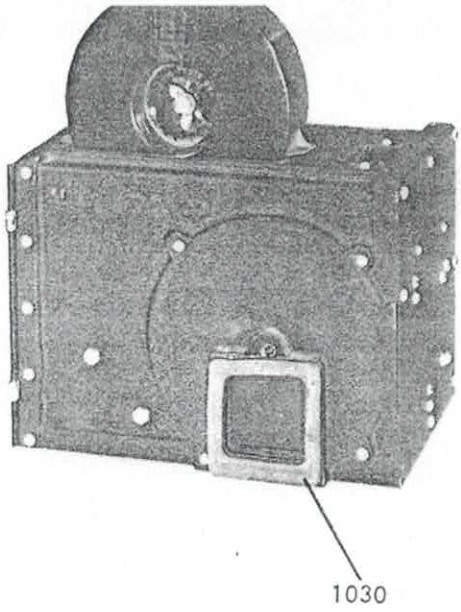
TO INSTALL CAMERA

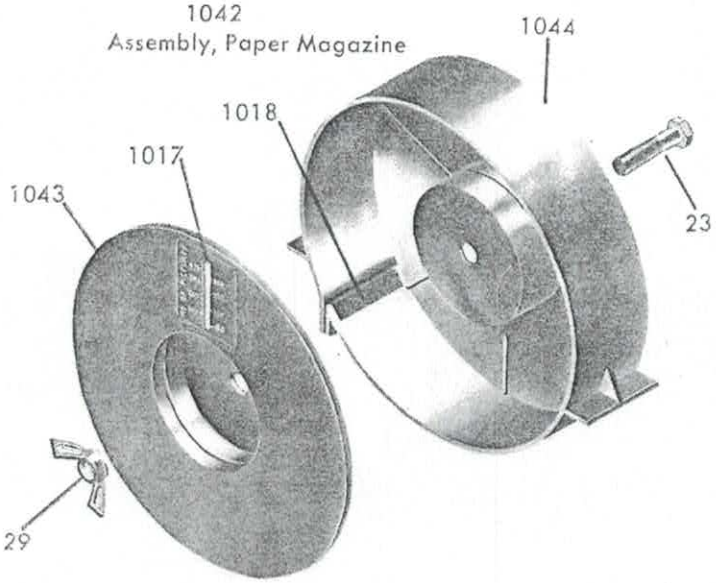
With door end of camera toward operator, place keyed hole over hold-down pin in center of upper tray. Rotate camera to left until it drops into place over keyed pin, making certain it comes to rest against back stop on tray. Complete installation by re-plugging harness.

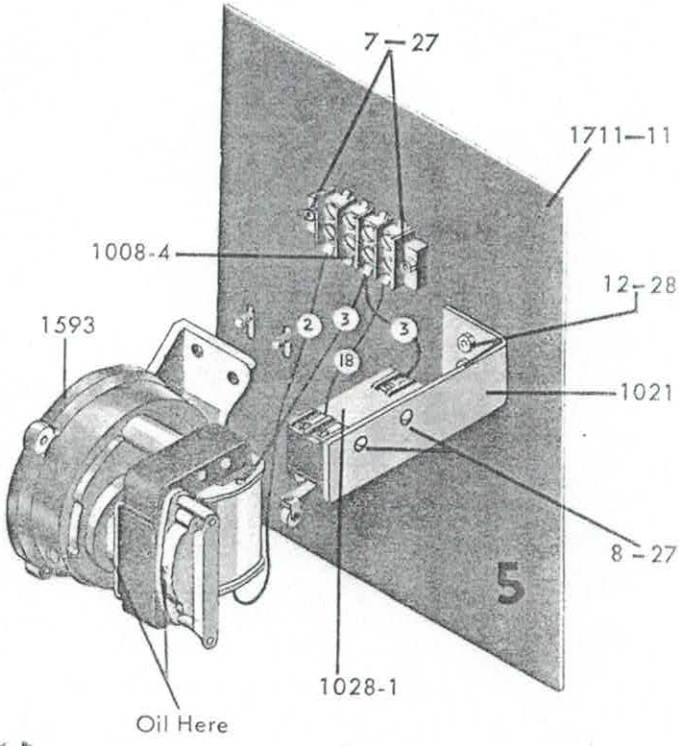


Detail 1—Bottom plate showing prism bracket and mounting.

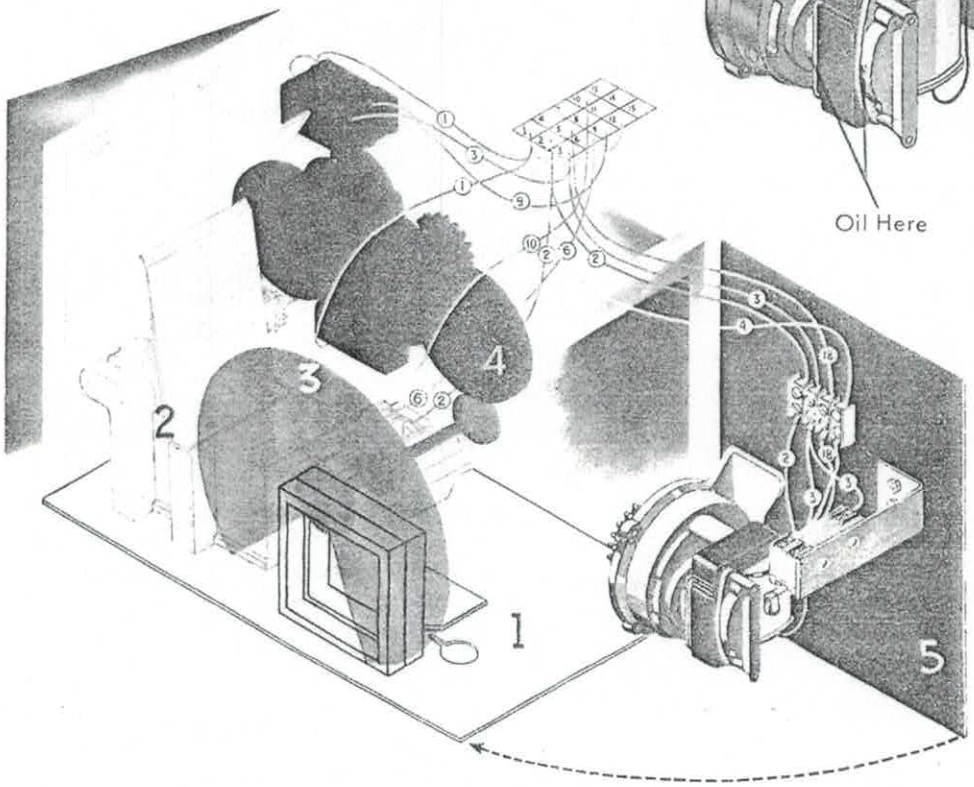
CAMERA ASSEMBLY





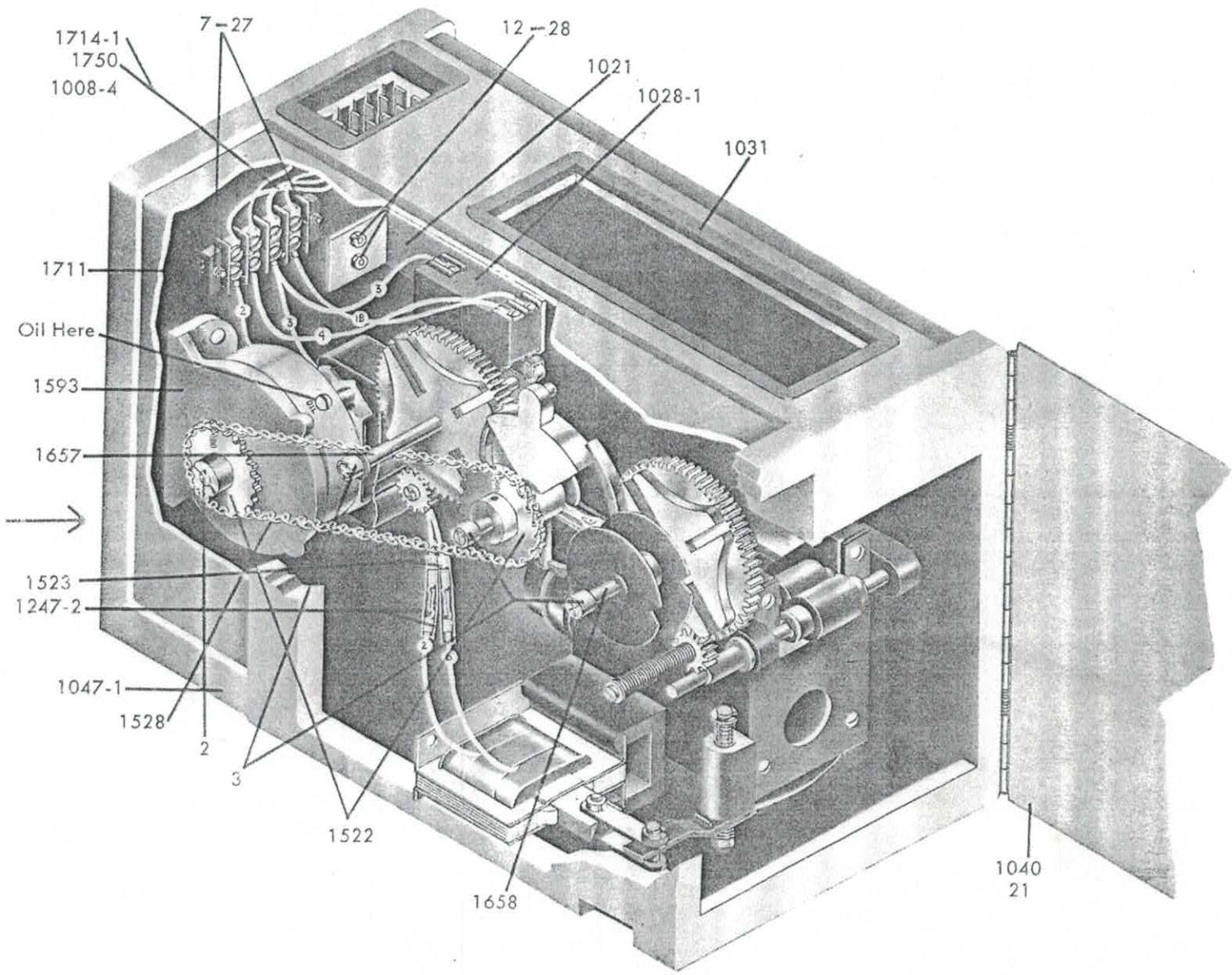


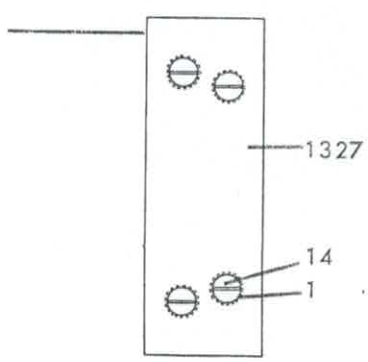
Detail 5—End plate showing camera motor and switch mounting.



Assembly showing components of camera. Details 1, 2, 3, 4 and 5.

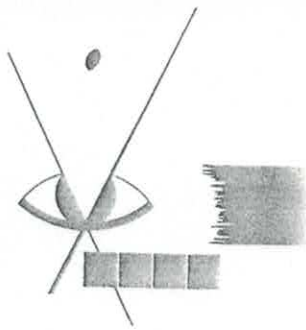
CAMERA ASSEMBLY





D-921 Camera assembly showing parts relationship.

D-921 CAMERA PARTS LIST



PART NO.	QUANTITY	DESCRIPTION
D-921	1	Camera Assembly
1000	1	Roller, Idler
1001	1	Roller, Paper Feed
1002	1	Throw Out, Paper Feed Drive
1003	1	Gear, Paper Feed Drive
1004-1	1	Washer
1004-2	13	Washer
1004-3	2	Washer
1004-15	2	Washer
1005	1	Shaft, Paper Feed Drive
1006-1	1	Bushing, Spacer
1008-4	1	Terminal Strip
1009-1	1	Spring, Compression
1009-8	1	Spring, Compression
1011	2	Cam (Instruction and Main Light)
1012	1	Shaft, Shutter
1013	2	Gear, Geneva Drive
1021	1	Switch Bracket, Bright Light
1024	1	Shaft, Geneva Driver
1028-1	1	Microswitch
1028-5	2	Microswitch
1028-7	1	Microswitch
1030	1	Gasket, Funnel
1031	1	Gasket, Paper Magazine
1032	1	Gear, Shutter Drive
1034	1	Driver, Geneva
1035	1	Plate, Shutter Enclosure
1037	1	Plate, Inspection (Not shown)
1039	1	Assembly, Shutter
1040	1	Assembly, Service Door
1045	1	Shield, Light
1046	1	Cam (Camera Stop-Timer Start)
1047-1	1	Housing, Camera
1051	1	Adjusting Tube, Lens
1052	1	Assembly, Lens
1055	1	Gasket, Prism Mount
1056	1	Assembly, Cut Off Blade
1059	1	Plate, Bottom
1060	2	Cut Off Links
1061	1	Spring, Return
1062	1	Assembly, Solenoid
1065	1	Prism
1247-2	2	Sleeve, Disconnect
1327	1	Plate, Motor Adjusting
1416	1	Pin, Cut Off Links
1456	1	Washer, Felt
1522	2	Sprocket, Geneva Drive
1523	2	Clip, Sleeve Securing
1526	1	Shaft, Paper Feed Idler
1527	1	Housing, Lens
1528	1	Chain, Geneva Drive

PART NO.	QUANTITY	DESCRIPTION
1529	1	Plate, Backing
1564	1	Assembly, Bottom Plate
1565	1	Mount, Prism
1566	1	Retainer, Prism
1568	1	Washer, Felt
1593	1	Assembly, Camera Motor
1603	1	Bracket, Prism Mount
1657	1	Shaft, Geneva Gear Shutter Drive
1658	1	Shaft, Geneva Gear Paper Drive
1711	1	Plate, End
1714-1	1	Clamp, Harness
1750	1	Assembly, Camera Harness
1	4	Shakeproof Lockwasher #1112
2	6	Woodruff Key #204
3	10	Torrington Bearing #B45
4	10	Snap Ring 5133-25
5	1	Dowel Pin ¼" x ½" lg.
6	4	Screw, 6-32 x ⅞" lg. RH, CP
7	2	Screw, 6-32 x ½" lg. RH, CP
8	2	Screw, 6-32 x 1" lg. RH, CP
9	2	Screw, 6-32 x 1 ¾" lg. RH, CP
10	1	Screw, 8-32 x ⅞" lg. RH, CP
11	14	Screw, 10-32 x ⅜" lg. RH, CP
12	4	Screw, 10-32 x ½" lg. RH, CP
13	1	Screw, 10-32 x ¾" lg. RH, CP
14	4	Screw, 12-24 x ⅜" lg. RH, CP
15	2	Screw, 6-32 x 1 ¼" lg. TH, CP
16	7	Screw, 10-32 x ⅜" lg. FH, CP
17	1	Screw, 10-32 x ⅝" lg. FH, CP
18	13	Screw, #6 x ½" lg. Type F, RH, CP
19	2	Screw, #8 x ¼" lg. Type F, RH, CP (Not shown)
20	1	Screw, #10 x 5/16" lg. Type F, RH, CP (Not shown)
21	5	Screw, #10 x ⅜" lg. Type U, RH, CP
22	2	Screw, ¼-20 x 1" lg. Hex Hd., CP
24	2	Screw, 10-32 x ½" lg. Hex Hd., CP
25	11	Set Screw, 10-32 x 3/16" lg. Soc. Hd., CP
26	2	Set Screw, 10-32 x ⅜" lg. Soc. Hd., Dog Pt., CP
27	12	Nut, 6-32 Elastic Stop CP
28	4	Nut, 10-32 Elastic Stop CP
1042	1	Assembly, Paper Magazine
1043	1	Cover
1044	1	Box
1017	1	Window
1018	1	Velvet Seal
23	1	Screw, ⅜-16 x 1 ¼" lg. Hex Hd., CP
29	1	Nut, ⅜-16 Wing CP

NOTE—To insure correct parts for your Studio, always show model and serial number of Studio on your order.

CAMERA ADJUSTMENT AND REPAIR

CAMERA DESCRIPTION

The AUTO-PHOTO CAMERA has a high quality f/2.9 coated lens with an adjustable iris opening. A coated prism inverts the photographic image so that pictures are reproduced on direct positive paper in proper relation to the subject. The camera is operated by a motor-driven Geneva movement which opens the shutter and actuates the lights to take four poses on each strip of photographic paper. A solenoid, controlled by the timer unit, then automatically actuates a paper cut-off knife.

CONTROL SWITCHES

The camera contains and operates the following control switches:

(1) **Bright Light Switch** — operated by cam on shutter shaft to synchronize with opening of shutter.

(2) **Instruction Light Switch** — operated by cam on Geneva driver shaft. Automatically actuates instruction light for one second before opening of shutter, and switches instruction light off while shutter is open.

(3) **Timer Motor Switch** — operated by Paper Feed-Down shaft on the fourth feed-down operation. Automatically operates relays in timer to end camera cycle and to start developing cycle.

(4) **Camera Stop Switch** — operated by Paper Feed-Down shaft on the fourth feed-down operation and automatically stops camera motor.

DRIVING CHAIN

The Driving Chain, which is located between the camera motor and the Geneva Driver, should not be set up too tight, as undue load will thereby be placed on the camera motor. When in proper adjustment, the Driving Chain has a play of between ¼ in. and ⅜ in. at a position midway between motor and driven sprocket. To adjust tension on the chain, loosen the four camera motor mounting screws one turn and slide the motor-adjusting plate up or down for proper tension. If motor adjustment is in its lowest position and the chain is still too loose, return the motor to its top position, remove one link from the driving chain, and adjust.

LENS AND PRISM

Because the high quality coated lens and coated prism surfaces are very easily damaged, do not attempt to clean either prism or lens by any method other than by blowing off loose dust with an air syringe. All exposed surfaces of the lens and prism are coated, and cleaning by any other means will damage the coating. If the lens becomes fogged or extremely dirty, the camera should be returned to the factory for repair.

IRIS ADJUSTMENT

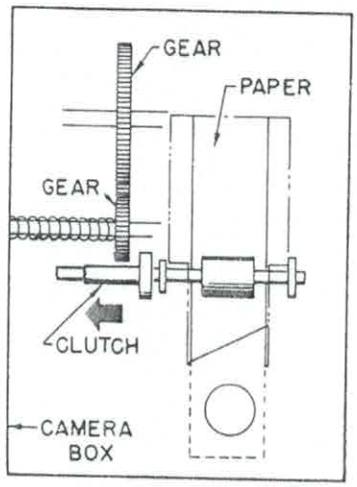
As a general rule, a setting of f/5.6 will give good results. For lighter pictures, open iris by rotating toward f/2.9. For darker pictures, turn to higher "f" setting. In case of mechanical trouble, remove camera unit and return to factory for service or for replacement unit.

SENSITIZED PAPER

The AUTO-PHOTO CAMERA uses direct, positive sensitized paper that is supplied in 200 ft. rolls. Each roll provides paper to take approximately 300 strips of pictures. Care must be taken in storing the sensitized paper to make certain that high temperatures do not damage the paper.

PAPER MAGAZINE

Two magazines are provided with each Studio for the sensitized, direct positive paper. Magazines are black plastic with a calibrated red window opening for checking, *in subdued light,* the number of pictures left in magazine.



To remove the paper magazine, rotate camera to right until the camera door faces operator. (Do not lift camera off hold-down pin.) Open camera door and disengage gear which rotates rubber feed-down rolls, by pushing the clutch in to left until gear teeth **do not** mesh. (See illustration.) Pull paper back and up, out of paper guide channel and lift paper magazine off camera.

In transferring the paper from factory package to magazine, work in a dark room equipped with a No. 2 Wratten safe-light, or equivalent. Work at least 3 ft. from the light source.

To load a magazine, place it on a table with the lid up, unscrew the wing nut and remove the lid. Remove the remnant of sensitized paper left in the cartridge.

To splice sensitized paper, lay both pieces on the table against a straight-edge ruler to be sure that edges are in line. Make the splice without overlapping the paper. Use No. 7 Scotch Acetate Film Tape, ¾ in. wide (manufactured by Minnesota Mining Company), to make the joint. Carefully fold the tape over the edges of the sensitized paper so that no rough edges are created which might catch in the magazine or the paper guide channel of the camera and jam the mechanism.

Load the paper into the magazine with the end of the roll protruding through the slot. Cut the end of the paper at an angle to facilitate feeding it through camera. Make certain that the lid is properly seated all around the edge. Tighten the hold-down nut and, before turning on lights, cover the window in the box lid with No. 33 black Scotch electrical tape ¾ in. wide (manufactured by Minnesota Mining Company).

Fold over paper which protrudes from the slot of the loaded magazine, and seal the slot with opaque tape to prevent light leaks until installation in the camera is completed.

Do not expose the magazine to light for extended periods of time, as light and heat will damage the sensitized paper.

CAUTION—Remove the tape covering the window in the magazine only in subdued light, and only for brief intervals while checking the paper remaining in the magazine. If the tape is removed in a strong light, the paper will be exposed and spoiled.

To replace the paper magazine, remove the tape over the paper feed slot of the magazine. Place the magazine in the opening at top of camera housing. Disengage the gear that drives the rubber roller by pushing the clutch to the left, until gear teeth **do not** mesh. Guide end of paper between rubber rolls so that it lines up in paper guide slot. Rotate the rolls by hand to feed paper down until paper end protrudes below camera housing. (Cutting the paper at a 60° angle facilitates feeding the paper through the camera.)

Use extreme care to avoid getting oil or grease on the rubber rolls, to prevent transfer to the sensitized paper. Re-engage the gears; then operate the Paper Cut-Off Knife by hand to cut paper to proper length in camera. Close the camera door and rotate camera into position against the stop on the upper tray. Take one strip of pictures to use portion of paper which has been exposed to light during paper loading operation.

When servicing the machine, it is desirable to check the magazine to be sure there is sufficient paper to last until the operator expects to again check or service the machine. If the paper supply is low, install a fresh, full magazine and take the partially used magazine back to the shop for splicing to a new roll.

LUBRICATION

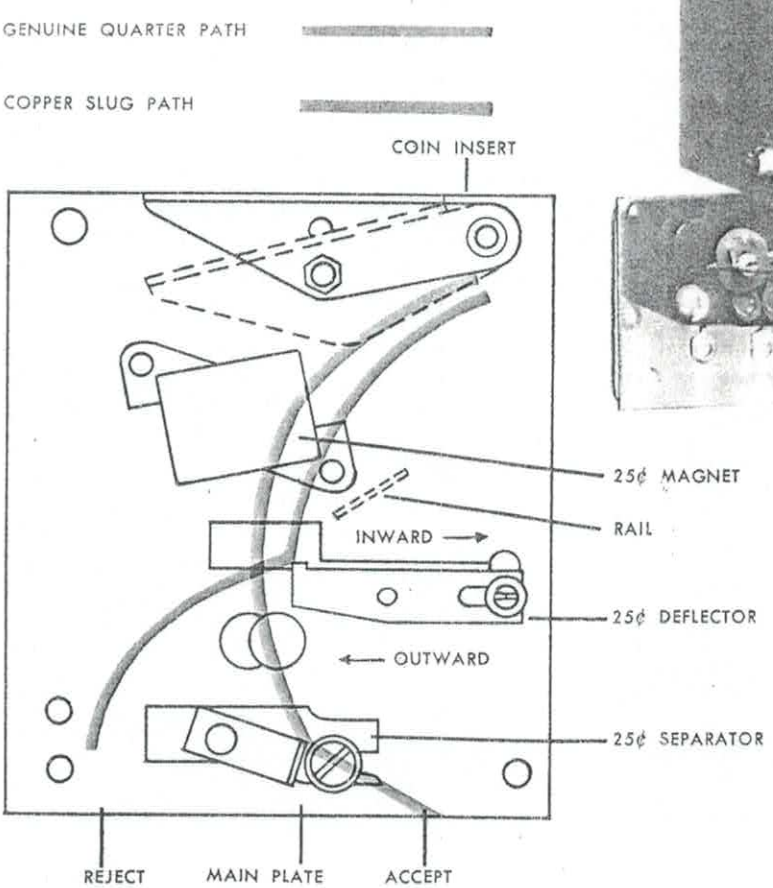
See chart on page 33 for instructions.

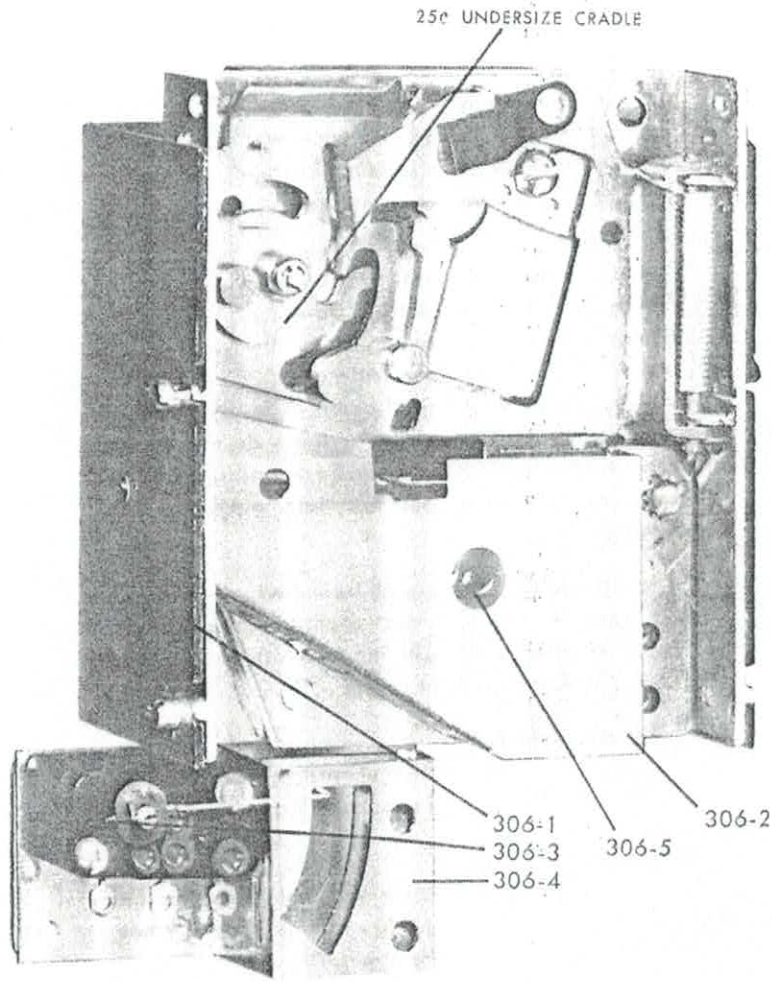
COIN MECHANISM ASSEMBLY

306-1	1	Mounting Channel
306-2	1	Slug Rejector
306-3	1	Coin Switch
306-4	1	Bracket Coin Switch
306-5	1	Coin Return Solenoid

Before adjustments are made, be certain the rejector is level and clean and the magnet is free of metal particles.

If genuine quarters repeatedly drop through 25¢ undersize cradle — the cradle arms are worn or distorted. Remove the cradle and bend the arms slightly closer together, using a pliers. Take care not to distort the 25¢ undersize cradle or it may bind on the plate when reinstalled. Also see that the clearance between the arms and the main plate is not increased, allowing thin quarters to by-pass the cradle and drop through to the reject outlet. Adjustment of the cradle will very seldom be necessary, and should be avoided if at all possible.





306 Slug Rejector Assembly

If quarter-size brass, lead, zinc, or German-silver slugs are accepted — the 25¢ separator is probably set too far to the outside. Loosen the separator screw, move the separator slightly inward, then tighten the screw. If the separator is moved inward too far, good quarters will be rejected.

If genuine quarters are repeatedly rejected after leaving the rail — the good quarters may be striking the deflector, in which case it must be moved inward. If moved too far inward, copper slugs will be accepted. Make slight adjustments until proper acceptance and rejection of coins and slugs results.

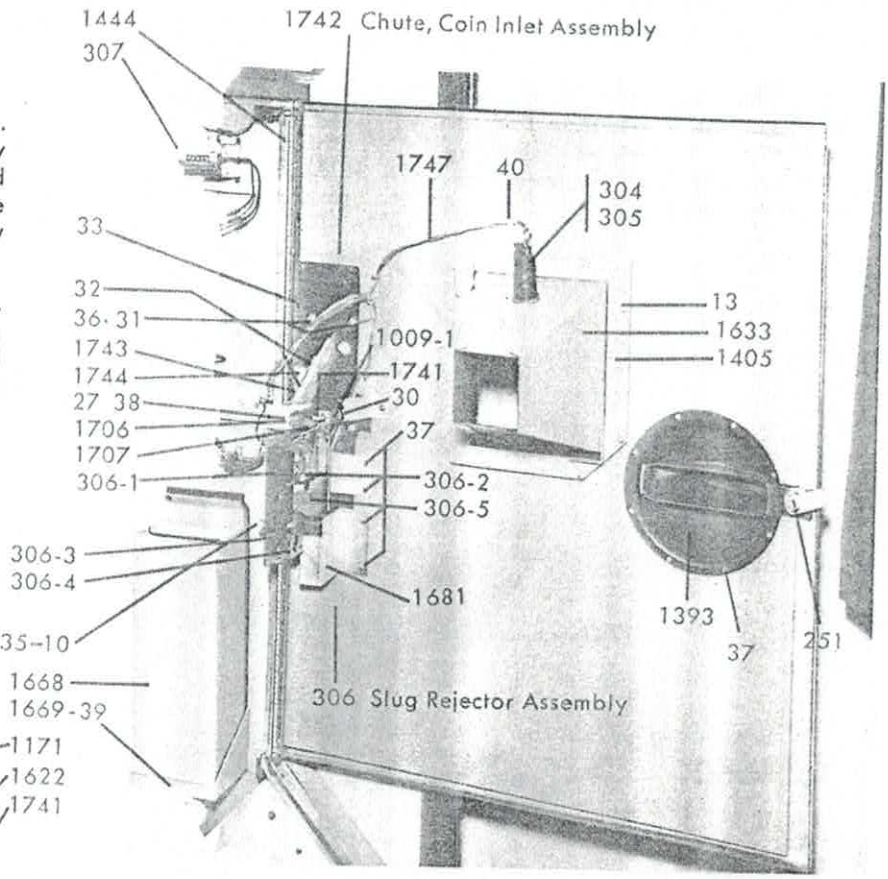
PANEL DOOR ASSEMBLY

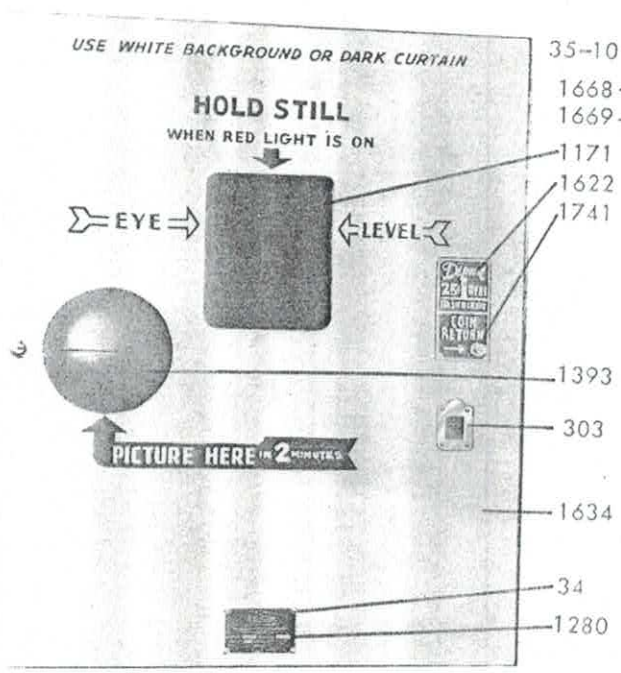
CARE AND MAINTENANCE OF PANEL DOOR

Keep the cover glass clean, inside and out. Rough spots in the slot of the delivery chute may be caused by transfer of emulsion from sensitized paper or from exterior damage. Slot should be cleaned with a small file or strip of fine emery cloth.

Every month, or more frequently if necessary, remove coin chute cover and clean coin track with carbon-tetrachloride and an acid brush. This will insure free passage of the coin into the coin mechanism.

To change instruction light bulb, reach through square opening in funnel and slip off instruction light lens. The S-6 Lamp bulb may be easily unscrewed and replaced. Replace instruction light lens.



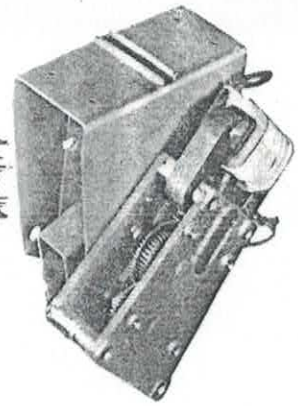


251	1	Lock, Panel Door, Assembly
303	1	Cup, Coin Return
304	1	Light, Instruction
305	1	Lamp, Instruction Light
306	1	Slug Rejector Assembly
306-1	1	Mounting Channel
306-2	1	Slug Rejector
306-3	1	Coin Switch
306-4	1	Bracket Coin Switch
306-5	1	Coin Return Solenoid
307	1	Counter, Master
1009-1	1	Spring, Compression
1171	1	Glass, Cover
1280	1	Plate, Name
1393	1	Ball, Picture Delivery

1405	1	Retainer, Funnel
1444	1	Hinge, Door
1622	1	Plate, Coin Inlet
1633	1	Funnel, Panel Door
1634	1	Door, Panel
1668	1	Box, Coin
1669	1	Holder, Coin Box
1681	1	Guard Switch
1706	1	Spacer, Coin Return Lever
1707	1	Lever, Coin Return
1741	1	Pin, Coin Return
1742	1	Chute, Coin Inlet Assembly
1743	1	Guide, Coin
1744	1	Bracket, Coin Chute
1747	1	Harness, Panel Door
13	8	Screw, 10 x ¾" lg., R.H., C.P.
27	1	Nut, 6-32, Elastic Stop, C.P.
30	1	Snap Ring, 5133-50
31	3	Nut, 6-32, Pal, C.P.
32	5	Screw, 6 x ¼, Type A, R.H., C.P.
33	8	Screw, 6 x ½, Type A, R.H., C.P.
34	4	Screw, 4 x ½" lg., Phillips, R.H., C.P.
35	3	Screw, 6-32 x ⅜" lg., R.H., C.P.
36	8	Screw, 6-32 x ⅜" lg., Phillips, R.H., N.P
37	13	Screw, 6 x ½" lg., R.H., C.P.
38	1	Screw, 6-32 x ¾" lg., R.H., C.P.
39	4	Screw, 8 x ⅝, F.H., C.P.
40	4	Staples, #5 Insulating

NOTE—To insure correct parts for your Studio, always show model and serial number of Studio on your order.

PAPER FEED DOWN ASSEMBLY

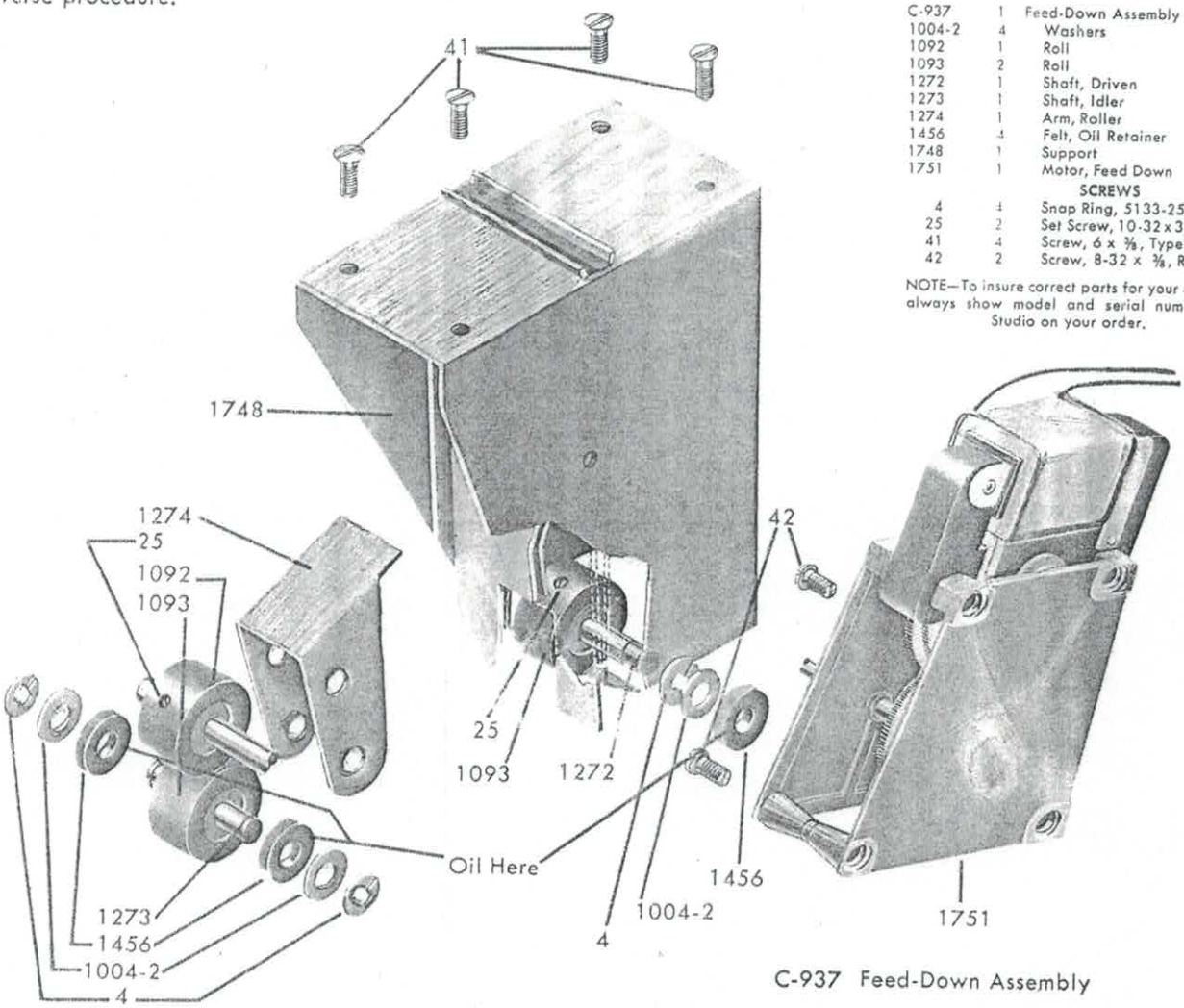


TO REMOVE FROM CABINET

First, turn off power to machine and electrically disconnect Feed-Down Motor. Remove four mounting screws in upper tray. To install, reverse procedure.

PART NO.	QUANTITY	DESCRIPTION
C-937	1	Feed-Down Assembly
1004-2	4	Washers
1092	1	Roll
1093	2	Roll
1272	1	Shaft, Driven
1273	1	Shaft, Idler
1274	1	Arm, Roller
1456	4	Felt, Oil Retainer
1748	1	Support
1751	1	Motor, Feed Down
		SCREWS
4	4	Snap Ring, 5133-25, C.P.
25	2	Set Screw, 10-32 x 3/16, Soc. Hd., C.P.
41	4	Screw, 6 x 3/8, Type Z, F.H., C.P.
42	2	Screw, 8-32 x 3/8, R.H., C.P.

NOTE—To insure correct parts for your Studio, always show model and serial number of Studio on your order.



C-937 Feed-Down Assembly

OPERATION

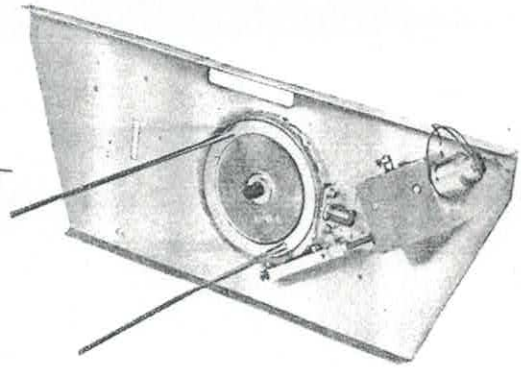
The Paper Feed-Down Unit feeds the exposed strip of sensitized paper to the Paper Carrier. (Note that the Feed-Down Motor and the Delivery Unit Motor operate simultaneously.)

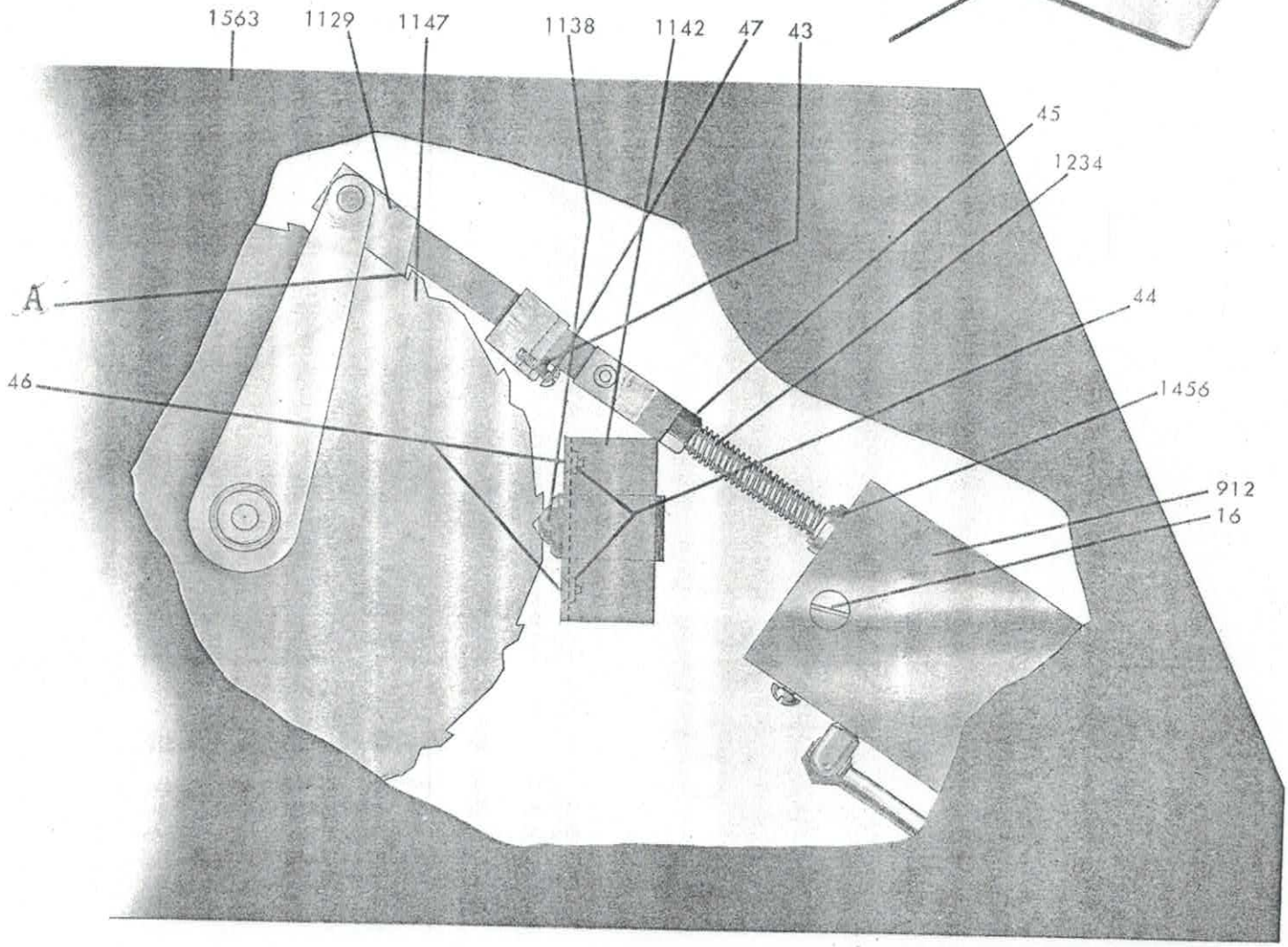
CARE AND MAINTENANCE

Crystallized developer may accumulate on the lower lips of the Feed-Down Unit. Remove any such accumulation with fresh water. Also, frequently pass a blotter or piece of crocus paper, cut to the width of the direct positive paper, through the chutes in the Feed-Down Unit. These two precautions will prevent foreign matter from accumulating in the Feed-Down Unit and scratching the surface of the sensitized paper.

Adjustments are not required for the Paper Feed-Down Assembly. To service, just keep all felts on shafts moistened with oil—but only to the extent that oil can be seen on the surface of the felts when they are compressed. **Do not over-oil,** excess oil may get on the rubber rolls and be transferred onto the sensitized paper and prevent even development. Surplus oil can be removed from the surfaces of the rolls with carbon-tetrachloride.

UPPER TRAY ASSEMBLY





TO ADJUST LINKAGE OF INDEX CYLINDER

To determine if valve linkage is properly adjusted, proceed as follows:

1. Make sure detent ball (1138) is in notch in index plate (1147).
2. Move piston assembly (1234) to its extreme "out" position. At this point there must be from 1/32" to 1/16" clearance between pawl (1129) and edge of notch in index plate (1147) as shown at (A). This can be adjusted by loosening lock nut (45) and turning piston assembly (1234) right or left as required. Make sure lock nut (45) is set up tightly after adjustment is completed.

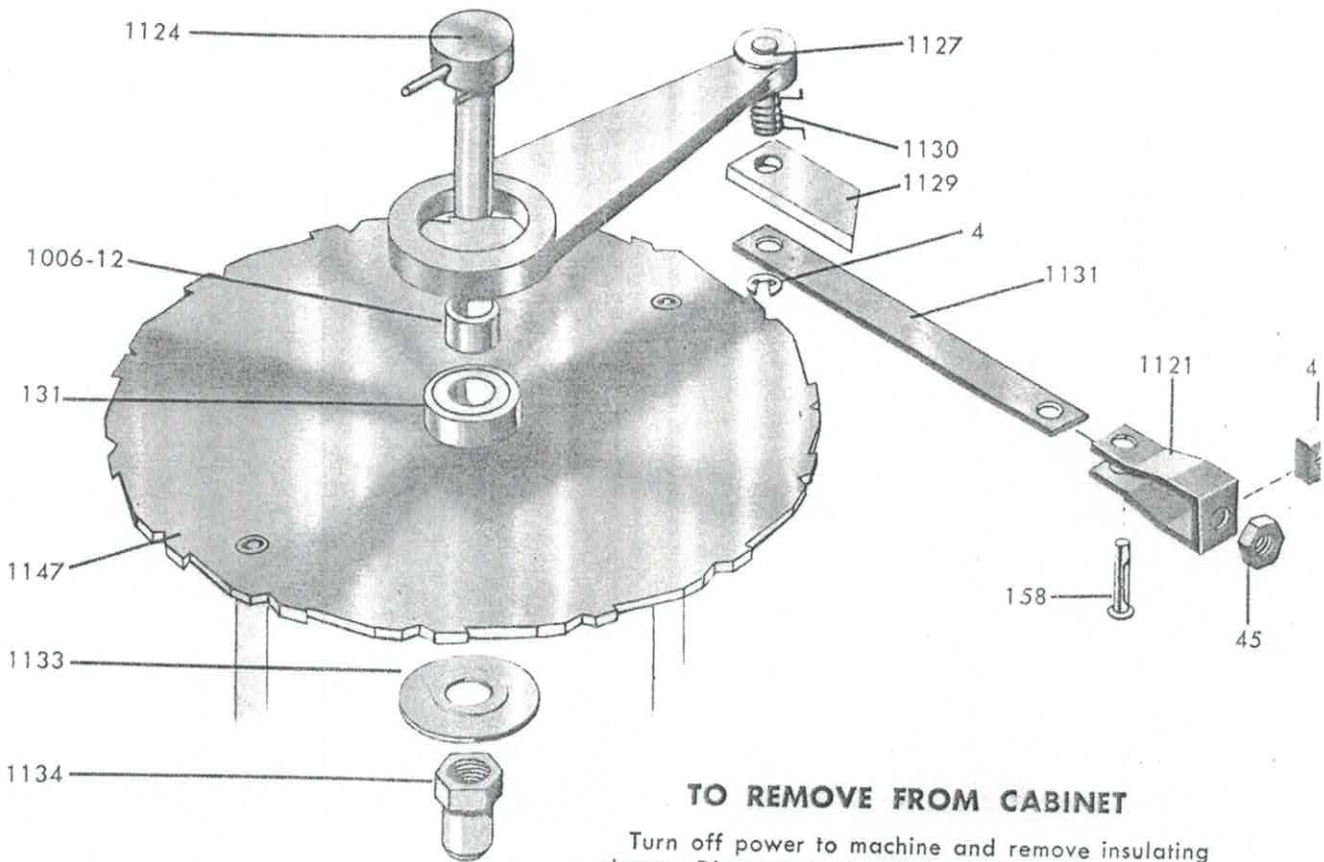
NOTE—Stop screw (47) controls the length of the index stroke and should not be re-adjusted unless ball (1138) fails to seat in notch in index plate (1147) when piston assembly (1234) is in its extreme "in" position.

Before placing machine in operation, thoroughly saturate felt (1456) with #10 oil and put several drops of oil in valve oiler.

PART NO.	QUANTITY	DESCRIPTION
912	1	Valve, Index
1129	1	Pawl
1138	1	Ball, Detent
1142	1	Mount, Ball Stop
1147	1	Plate, Index Assembly
1234	1	Piston Assembly
1456	1	Washer, Felt
1563	1	Tray, Upper Assembly
43	1	Nut, 8-32, Pal, C.P.
44	2	Nut, 8-32, Elastic Stop, C.P.
45	1	Nut, ¼-20, Hex, C.P.
16	2	Screw, 10-32 x ⅜, F.H., C.P.
46	2	Screw, 8-32 x ¼, F.H., C.P.
47	1	Screw, 8-32 x ½, R.H., C.P.

NOTE—To insure correct parts for your Studio, always show model and serial number of Studio on your order.

INDEX VALVE ASSEMBLY



TO REMOVE FROM CABINET

Turn off power to machine and remove insulating sleeves. Disconnect solenoid lead wires; disconnect air line fitting from the fitting in the side of Valve Assembly. Remove clevis pin by pulling downward. Remove Timer Assembly from Upper Tray. Remove Valve Assembly from Upper Tray by removing the two screws.

To install new valve, reverse this procedure.

OPERATION

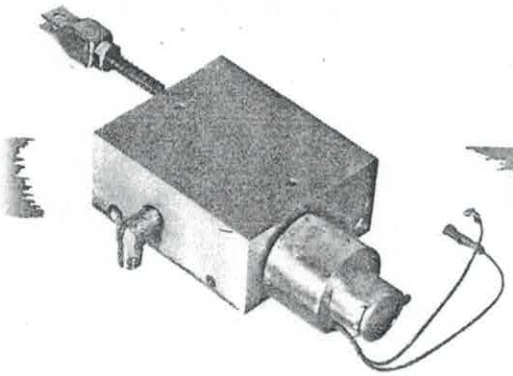
A solenoid coil controlled by the Timer Unit serves to actuate the Index Cylinder and Valve Assembly, which in turn, indexes the Paper Carrier.

CARE AND MAINTENANCE OF INDEX CYLINDER AND VALVE ASSEMBLY

At each servicing, the Index Valve should be oiled with a pressure oiler. Extreme care must be used to insure sparing use of oil, as this unit is located above the chemical tanks and oil may drop into the solution. After oiling, wrap a rag around the entire unit and run the machine two cycles—which will allow the excess oil to be blown out of the valve.

To aid the valve in indexing, a small amount of Lubriplate or similar lubricant, should be applied to the notches of the Index Plate.

If valve is dirty or gummed, disassemble and wash thoroughly in gasoline or solvent. Remove solenoid by unscrewing from valve body. Do not dip solenoid in gasoline or solvent. If surface of solenoid is dirty, it may be wiped clean with a cloth moistened in cleaning fluid. Take care not to nick or burr edges of spool valve. Oil with light machine oil when reassembling. Do not lubricate electrical parts. Check hole in 1291-2 orifice (in 1290 fitting)—must be free from obstruction.

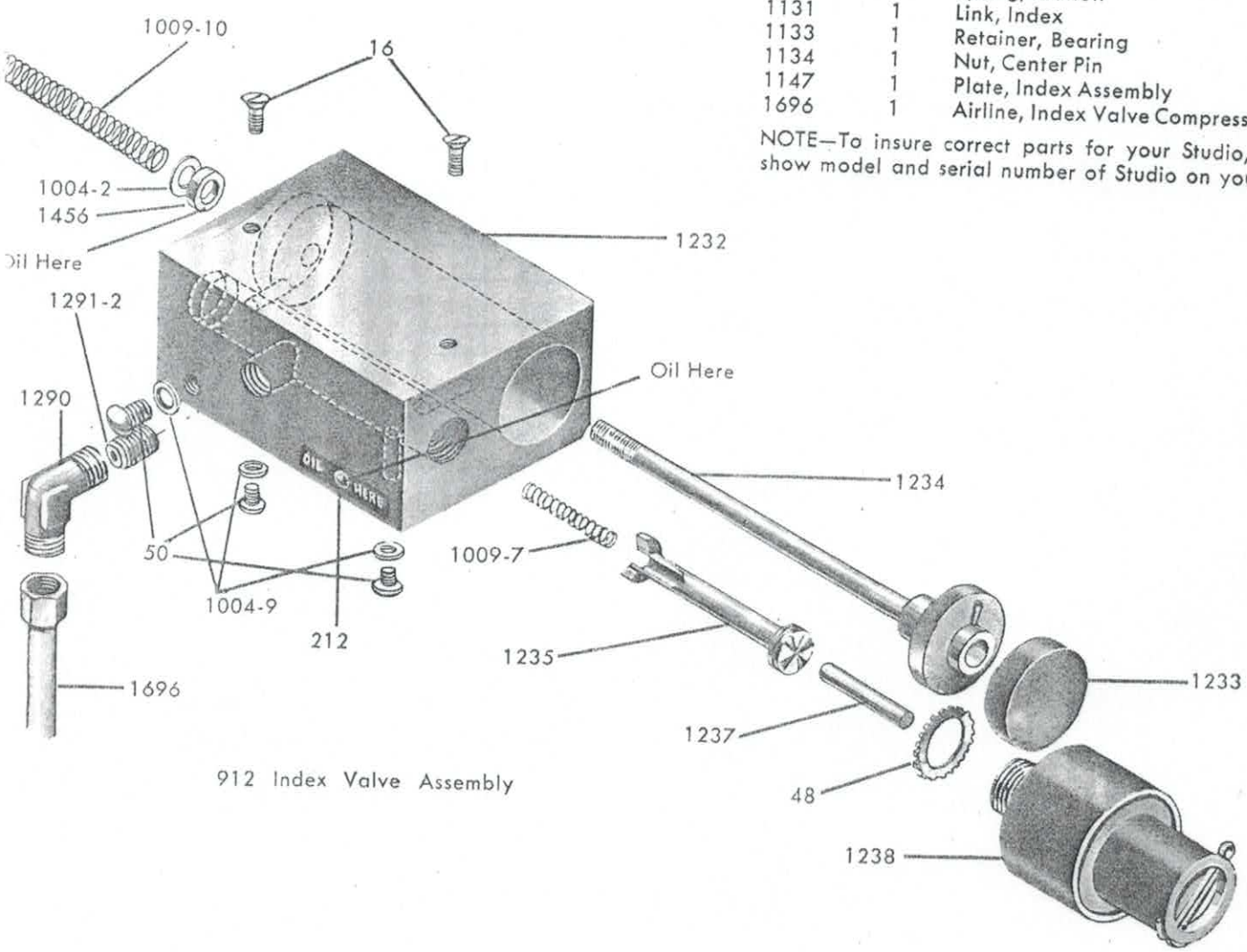


PARTS LIST

912	1	Index Valve Assembly
212	1	Oiler #520
1004-2	1	Washer
1004-9	3	Washer, Sealing
1009-7	1	Spring, Compression
1009-10	1	Spring
1121	1	Clevis
1232	1	Body, Valve Assembly
1233	1	Plug
1234	1	Piston Assembly
1235	1	Spool, Valve
1237	1	Rod, Push
1238	1	Solenoid Assembly
1290	1	Fitting
1291-2	1	Orifice, Valve
1456	1	Washer, Felt

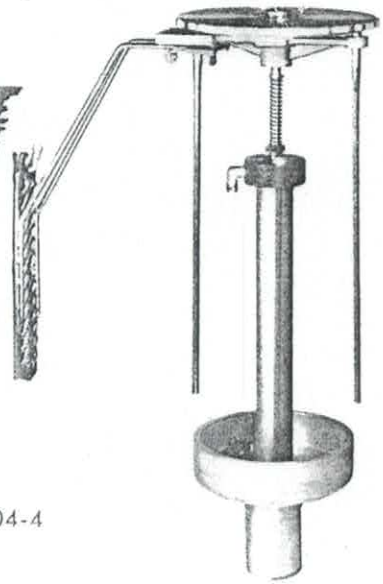
45	1	Nut, ¼-20, Hex, C.P.
48	1	Lockwasher #1128
49	1	Nut, ¼-20, Square, C.P.
50	3	Screw, 8-32 x ¼" lg., R.H., C.P.
		MISCELLANEOUS
4	1	Snap Ring, 5133-25
		SCREWS
16	2	Screw, 10-32 x ⅜" lg., F.H., C.P.
		MISCELLANEOUS REFERENCE PARTS
131	1	Bearing, Index
158	1	Pin, Clevis
1006-12	1	Bushing, Spacer
1124	1	Pin, Center Assembly
1127	1	Arm, Pawl Assembly
1129	1	Pawl
1130	1	Spring, Torsion
1131	1	Link, Index
1133	1	Retainer, Bearing
1134	1	Nut, Center Pin
1147	1	Plate, Index Assembly
1696	1	Airline, Index Valve Compressor

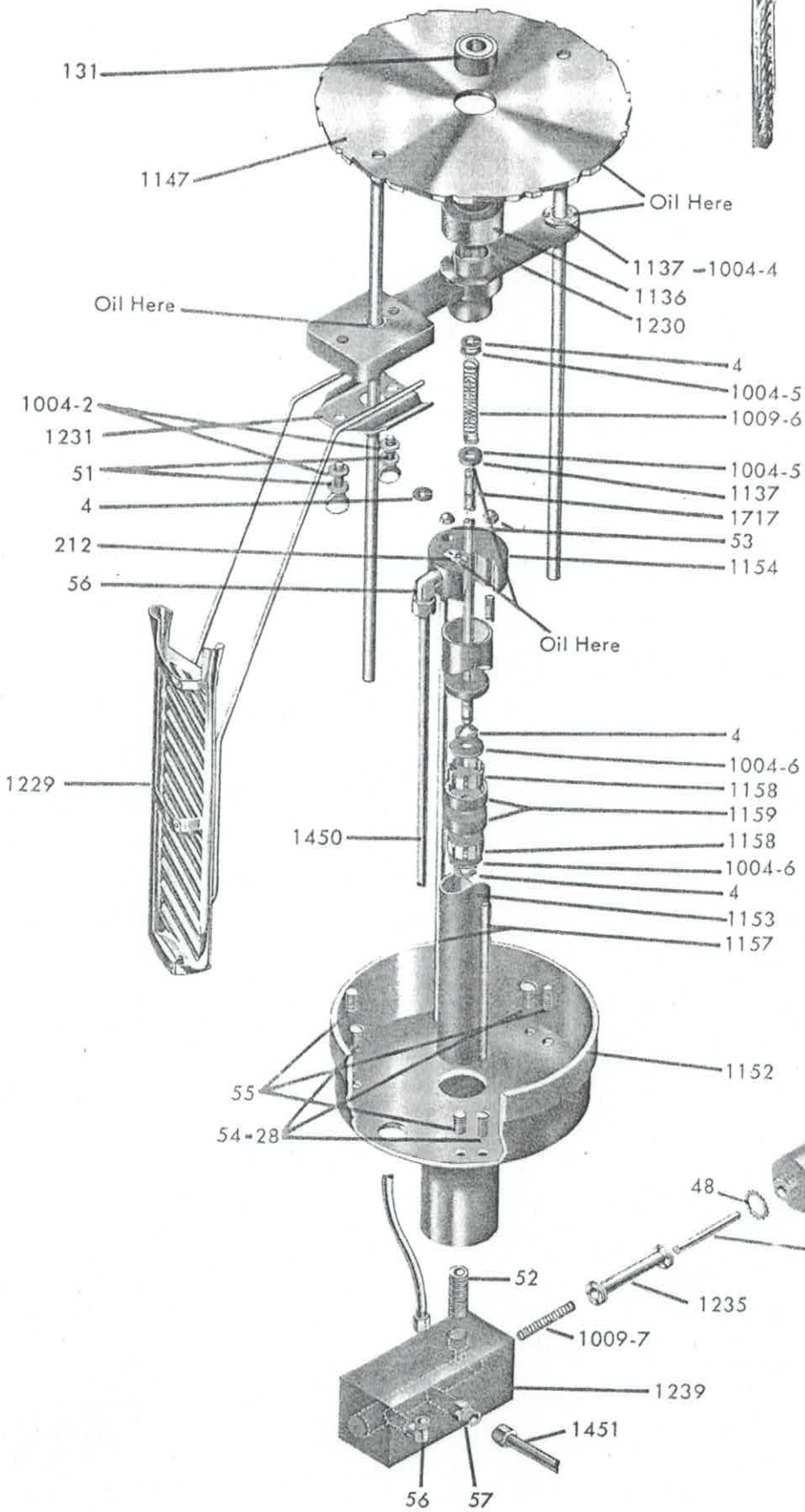
NOTE—To insure correct parts for your Studio, always show model and serial number of Studio on your order.



912 Index Valve Assembly

PAPER CARRIER AND

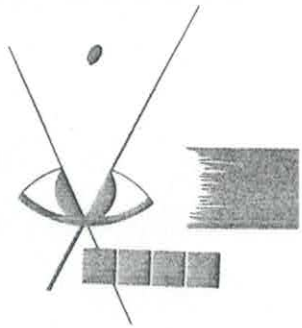




907 Cylinder, Vertical Assembly

913 Vertical Cylinder Valve

VERTICAL CYLINDER ASSEMBLY



PART NO.	QUANTITY	DESCRIPTION
907	1	Cylinder, Vertical Assembly
212	1	Oiler
1004-6	2	Washer
1009-6	1	Spring
1137	2	Guide, Felt
1152	1	Support Vertical Cylinder
1153	1	Cylinder
1154	1	Head, Cylinder Assembly
1157	2	Rod, Tie
1158	2	Expander
1159	2	Leather, Cup
1450	1	Airline, Vertical Cylinder
1717	1	Rod, Piston
28	3	Nut, 10-32, Elastic Stop, C.P.
52	1	Nipple, ¼" Pipe
53	2	Nut, 10-32, Acorn, N.P.
54	3	Screw, 10-32 x 1" lg., R.H., C.P.
55	3	Set Screw, ¼-20 x ½" lg., S.H., C.P.
4	4	Snap Ring, 5133-25
913	1	Vertical Cylinder Valve
1009-7	1	Spring, Compression
1235	1	Spool, Valve

PART NO.	QUANTITY	DESCRIPTION
1237	1	Rod, Push
1238	1	Solenoid Assembly
1239	1	Body
48	1	Lockwasher #1128
131	1	Bearing
1004-4	2	Washer
1004-5	2	Washer
1004-2	2	Washer
1229	1	Paper Carrier
1230	1	Support, Paper Carrier
1231	1	Clamp, Paper Carrier
1136	1	Spacer, Felt
1137	2	Guide, Felt
1147	1	Plate, Index Assembly
1451	1	Airline, Vertical Cylinder Valve Compression
56	2	Fitting — 69F
57	1	Fitting — 68F
51	2	Screw, ¼-20 x ½, T.S., C.P.

NOTE—To insure correct parts for your Studio, always show model and serial number of Studio on your order.

OPERATION

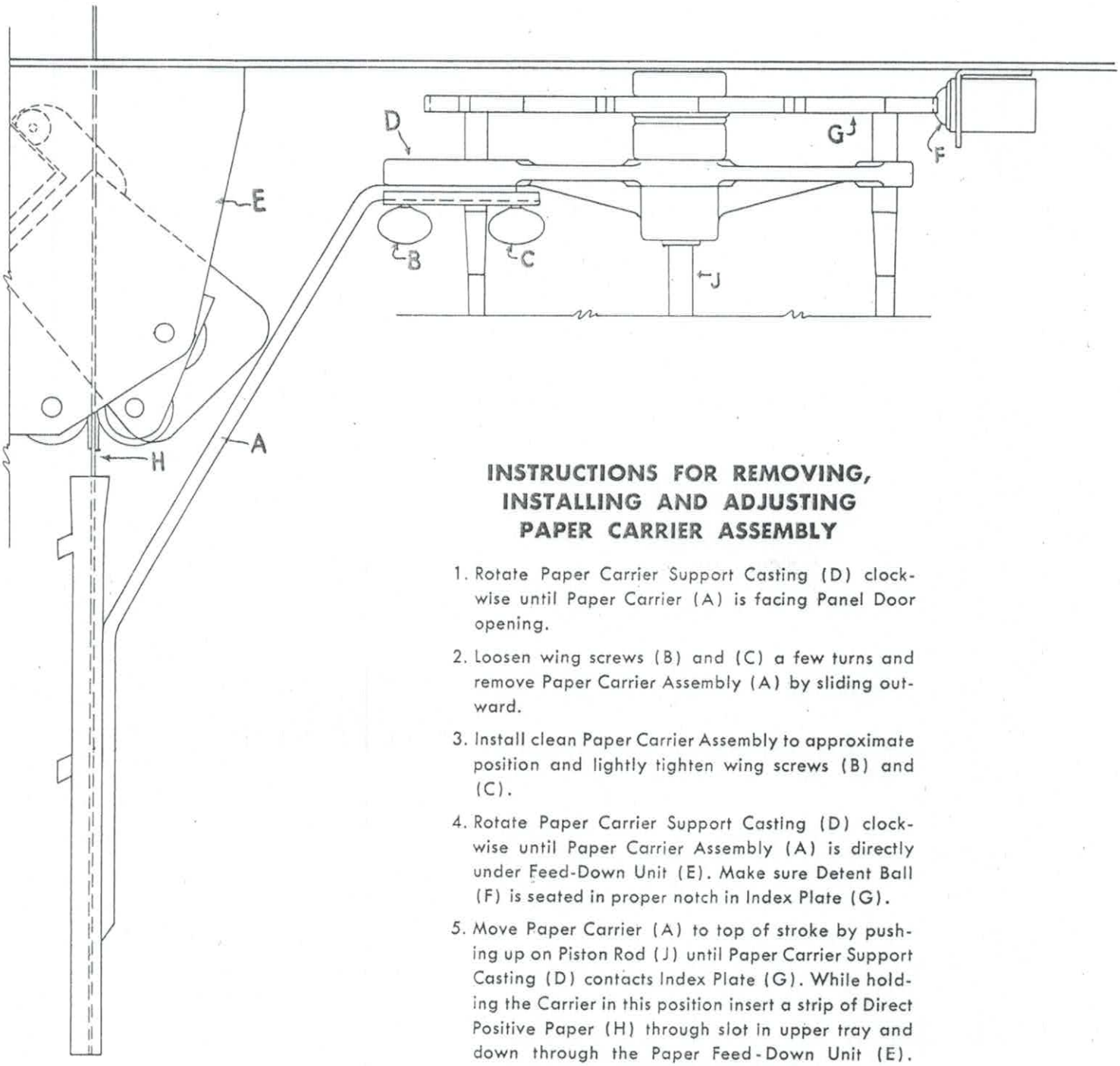
The Paper Carrier is supported by the Vertical Cylinder Assembly and its up and down strokes are controlled by the Vertical Cylinder Valve. This valve is identical to the Index Cylinder Valve and is mounted at the lower end of the Vertical Cylinder Assembly. The Vertical Cylinder Valve is actuated by a solenoid coil that is controlled by the Timer Assembly. In operation, the Paper Carrier indexes to each of the fourteen Polyethylene tanks to dip the exposed sensitized paper to complete the developing cycle. If the Paper Carrier does not return to Tank No. 1 when the Studio has completed its cycle, retime the carrier by rotating it clockwise until it's in place over Tank No. 1.

NOTE: The Paper Carrier may be put out of correct timing by catching on the Delivery Unit in the event the Delivery Unit does not rock clear of the Carrier before the Index stroke. See instructions for proper adjustment of Delivery Unit.

Chemical salts will tend to accumulate on the Carrier and it will become necessary to chemically clean the Carrier at intervals of about once every four weeks. We recommend that an operator have a spare Carrier so that when cleaning is necessary, he can remove the dirty Carrier from his Studio and replace it with a clean unit.

Carriers can be chemically cleaned by soaking them for 24 to 36 hours in the AUTO-PHOTO Bleach solution. This can be done in a tank or crock in the operator's shop. After soaking, the residue can be removed by rinsing the Carrier in clear water and brushing with a toothbrush.

PAPER CARRIER ASSEMBLY



INSTRUCTIONS FOR REMOVING, INSTALLING AND ADJUSTING PAPER CARRIER ASSEMBLY

1. Rotate Paper Carrier Support Casting (D) clockwise until Paper Carrier (A) is facing Panel Door opening.
2. Loosen wing screws (B) and (C) a few turns and remove Paper Carrier Assembly (A) by sliding outward.
3. Install clean Paper Carrier Assembly to approximate position and lightly tighten wing screws (B) and (C).
4. Rotate Paper Carrier Support Casting (D) clockwise until Paper Carrier Assembly (A) is directly under Feed-Down Unit (E). Make sure Detent Ball (F) is seated in proper notch in Index Plate (G).
5. Move Paper Carrier (A) to top of stroke by pushing up on Piston Rod (J) until Paper Carrier Support Casting (D) contacts Index Plate (G). While holding the Carrier in this position insert a strip of Direct Positive Paper (H) through slot in upper tray and down through the Paper Feed-Down Unit (E). Paper carrier must be adjusted to a position that it is impossible to make the strip of paper catch on upper edges of the Paper Carrier, even when you intentionally cause paper to move from side to side in the slot in the Feed-Down Unit (E).
6. Tighten Wing Screws (B) and (C).

PAPER CARRIER AND VERTICAL CYLINDER ASSEMBLY

TO REMOVE PAPER CARRIER SUPPORT CASTING FROM PISTON ROD

(1) Remove the lower Snap Ring at the base of the Casting and slide Piston Rod up through the Casting.

(2) Remove upper Snap Ring and slide Support Casting off the rod. To assemble, reverse procedure.

VERTICAL CYLINDER ASSEMBLY

The Vertical Cylinder is actuated by air pressure which is supplied by the compressor that is located on the floor of the Dark Room. This Vertical Cylinder actuates the Paper Carrier Assembly, moving it up and down to immerse the film in each of the tanks in sequence to complete the developing process.

TO REMOVE THE VERTICAL CYLINDER ASSEMBLY

(1) Remove Paper Carrier Support Casting.

(2) Remove Vertical Cylinder Valve.

(3) Remove three slotted screws in base (the nuts are located on the under side of the Tray).

(4) To replace, reverse the procedure. See Instructions for adjusting the alignment of the Vertical Cylinder.

ALIGNMENT ADJUSTMENT

To properly adjust the Vertical Assembly alignment with the nut in the center of the Index Plate, the operator should locate three Socket Head Screws in the base casting of the Vertical Cylinder Assembly. Beside these three Socket Head Screws, the operator will find three Slotted Head Screws. To adjust, first loosen the three Slotted Head Screws slightly, then alternately tighten or loosen the Socket Head Screws so that the Vertical Cylinder Assembly will be tipped in such a manner that when the piston rod is extended it will center on the nut of the Index Plate under the upper tray. Then the Slotted Head Screws should be tightened.

TO DISASSEMBLE VERTICAL CYLINDER PISTON

(1) Remove Paper Carrier Support Castings. See instructions.

(2) Remove tie rods holding Cylinder Head in place. Piston Rod and cup leathers may then be removed from Vertical Cylinder. The Cylinder Sleeve may also be slipped out of Support Casting.

(3) To assemble, reverse procedure.

NOTE: When installing Vertical Cylinder Piston, make sure cup leathers are not folded and that expanders are not collapsed. The expanders should exert a light spring pressure against the cup leathers, and the cup leathers must be in contact with the Cylinder walls.

VERTICAL CYLINDER VALVE ASSEMBLY

The Vertical Cylinder Valve is mounted at the lower end of the Vertical Cylinder Assembly underneath the lower Tray. Lubrication for this unit is supplied by the oil vapor from the air compressor and by oil that drains into the valve from the Vertical Cylinder. No additional lubrication is required.

If valve is dirty or gummed, disassemble and wash thoroughly in gasoline or solvent. Remove solenoid by unscrewing from valve body. Do not dip solenoid in gasoline or solvent. If surface of solenoid is dirty, it may be wiped clean with a cloth moistened in cleaning fluid. Take care not to nick or burr edges of spool valve. Oil with light machine oil when reassembling. Do not lubricate electrical parts.

TO REMOVE VERTICAL CYLINDER VALVE

(1) Disconnect lead wires.

(2) Disconnect airlines.

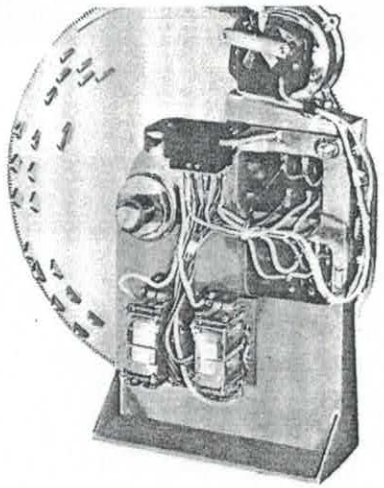
(3) Rotate Valve Assembly counter-clockwise to unscrew from bottom of Vertical Cylinder.

(4) To assemble, reverse the procedure.

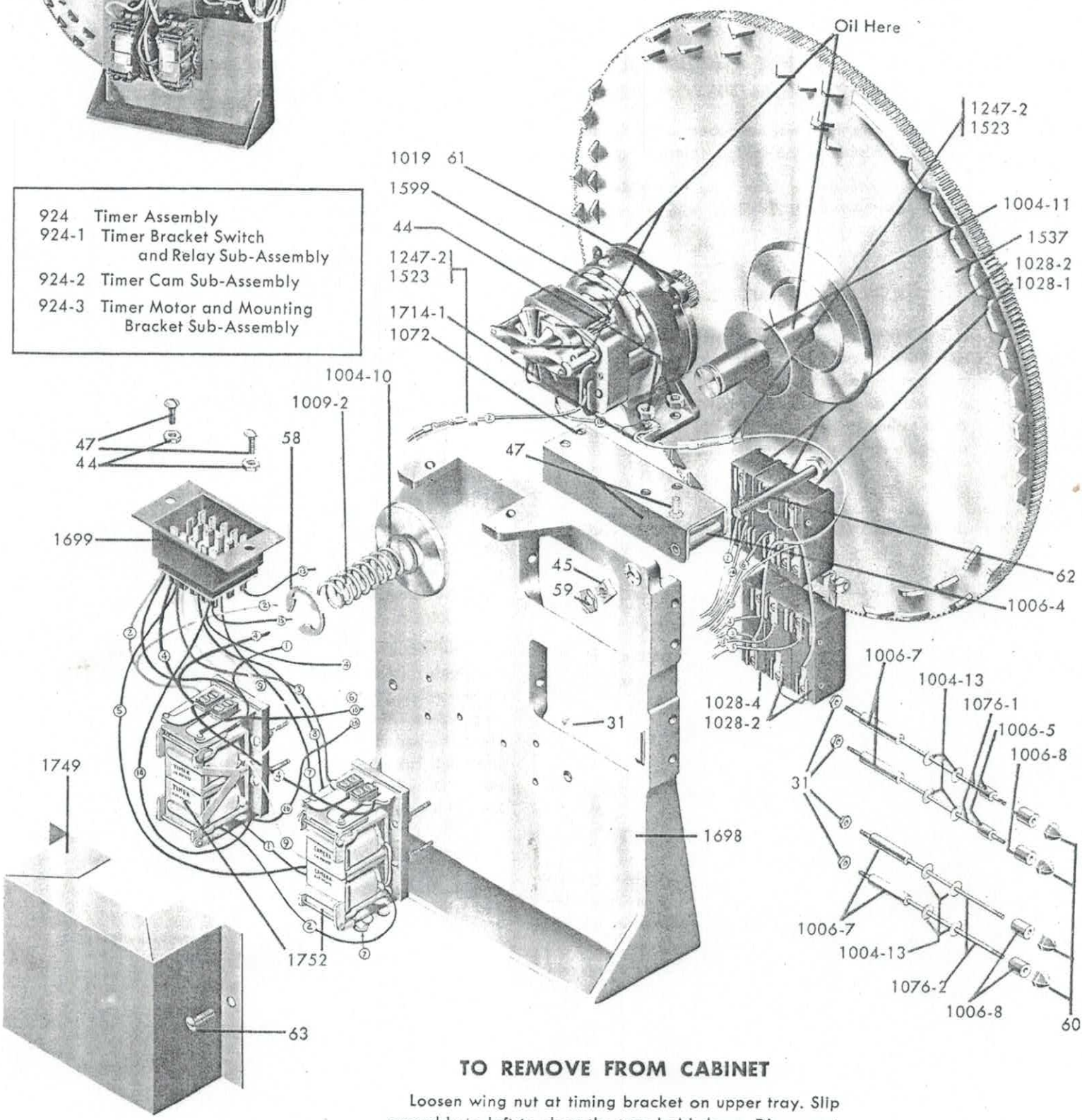
LUBRICATION

Each time the chemicals are changed, the operator should put a shot of oil in the oil cup provided on the head of the Vertical Cylinder Assembly. Use a No. 10 Machine Oil. See chart on page 33 for instructions.

TIMER UNIT ASSEMBLY



924 Timer Assembly
924-1 Timer Bracket Switch and Relay Sub-Assembly
924-2 Timer Cam Sub-Assembly
924-3 Timer Motor and Mounting Bracket Sub-Assembly



TO REMOVE FROM CABINET

Loosen wing nut at timing bracket on upper tray. Slip assembly to left to clear the tray hold-down. Disconnect harness plug and lift assembly out of machine. To install, reverse procedure.

PARTS LIST

PART NO.	QUANTITY	DESCRIPTION
924	1	Timer Unit Assembly
924-1	1	Timer Bracket Switch and Relay Sub-Assembly
1004-13	17	Washer
1006-5	2	Bushing, Spacer
1006-7	4	Bushing, Spacer
1006-8	4	Bushing, Spacer
1028-1	1	Micro Switch
1028-2	4	Micro Switch
1028-4	1	Micro Switch
1076-1	2	Screw, Switch Mounting
1076-2	2	Screw, Switch Mounting
1247-2	2	Sleeve, Disconnect
1523	2	Clip, Sleeve Securing
1698	1	Bracket, Timing Cam
1699	1	Harness, Timer
1749	1	Cover, Relay
1752	2	Relay Assembly
31	10	Nut, 6-32, Reg. Pal, C.P.
44	2	Nut, 8-32, Elastic Stop, C.P.
47	2	Screw, 8-32 x ½" lg., R.H., C.P.
60	4	Nut, 6-32, Acorn Pal, C.P.
63	2	Screw, 8 x ⅜" lg., Type F., R.H., C.P.
924-2	1	Timer Cam Sub-Assembly
1004-10	1	Washer
1004-11	1	Washer
1009-2	1	Spring, Compression
1537	1	Cam, Timing
58	1	Snap Ring, #5133-75
924-3	1	Timer Motor and Mounting Bracket Sub-Assembly
1006-4	1	Bushing, Spacer
1019	1	Gear, Timer Drive
1072	1	Channel, Motor Mount
1599	1	Motor, Timer
1714-1	1	Clamp, Harness
44	4	Nut, 8-32, Elastic Stop, C.P.
45	1	Nut, ¼-20, Hex, C.P.
47	4	Screw, 8-32 x ½" lg., R.H., C.P.
59	1	Nut, ¼-20, Pal, C.P.
61	1	Set Screw, 10-32 x ⅛" lg., S.H., C.P.
62	1	Screw, ¼-20 x 2¼" lg., H.H., C.P.

NOTE—To insure correct parts for your Studio, always show model and serial number of Studio on your order.

CARE AND MAINTENANCE

The Timer Unit is mounted on the upper tray beside the camera. This unit contains the timing cam which is a disc with a series of risers that actuate micro-switches controlling the movements of the machine during the development cycle.

OPERATION

After the fourth photo on a strip of four has been taken, switches in the camera latch-in the timer relay, start the timer motor, and latch-out the camera relay to stop the camera motor.

Timer micro-switches are arranged as follows: (counting the rollers from the outside edge of the cam drum toward the hub) (1) Vertical Cylinder Solenoid Switch; (2) Master Stop Switch; (3) Index Solenoid Switch; (4) Paper Cut-Off Solenoid Switch; (5) Compressor Motor Stop Switch; and (6) Paper Feed-down and Delivery Unit Switch.

When the timer is started, switch No. 5 closes to continue the supply of current to compressor motor after camera relay has been opened. Switch No. 2 closes to continue supply of current to timer motor after timer relay has been opened. Switch No. 4 closes momentarily, supplying current to solenoid coil in camera to actuate Paper Cut-Off Knife. Switch No. 6 closes for a few seconds to operate the paper delivery unit and the paper Feed-Down, feeding paper from camera to Paper Carrier. Switches No. 3 and No. 1 will be closed alternately by the risers on the cam to index and dip the carrier into the various tanks. As the carrier rises from tank No. 13, switch No. 6 closes to operate the paper delivery unit, which rocks down to roll the paper between a set of drying rollers. The paper is then delivered through the panel door. Switch No. 3 will close twice, to index the carrier to tank No. 14 and tank No. 1. (Carrier does not dip into tank No. 14.) Switch No. 5 opens to stop the Compressor Motor, and switch No. 2 opens to stop the Timer Motor.

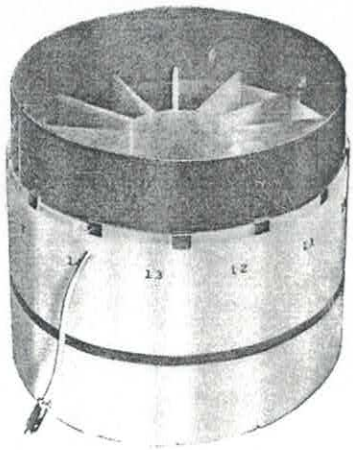
The timer motor is mounted on a hinged base, so that the drive pinion can be lifted free of the ring-gear to permit rotation of the cam by hand for checking any portion of the development cycle. When moving cam by hand, do so slowly, and in a clockwise direction only to prevent damage to machine's moving parts. Reset the cam and the Paper Carrier to its zero position to complete adjustment.

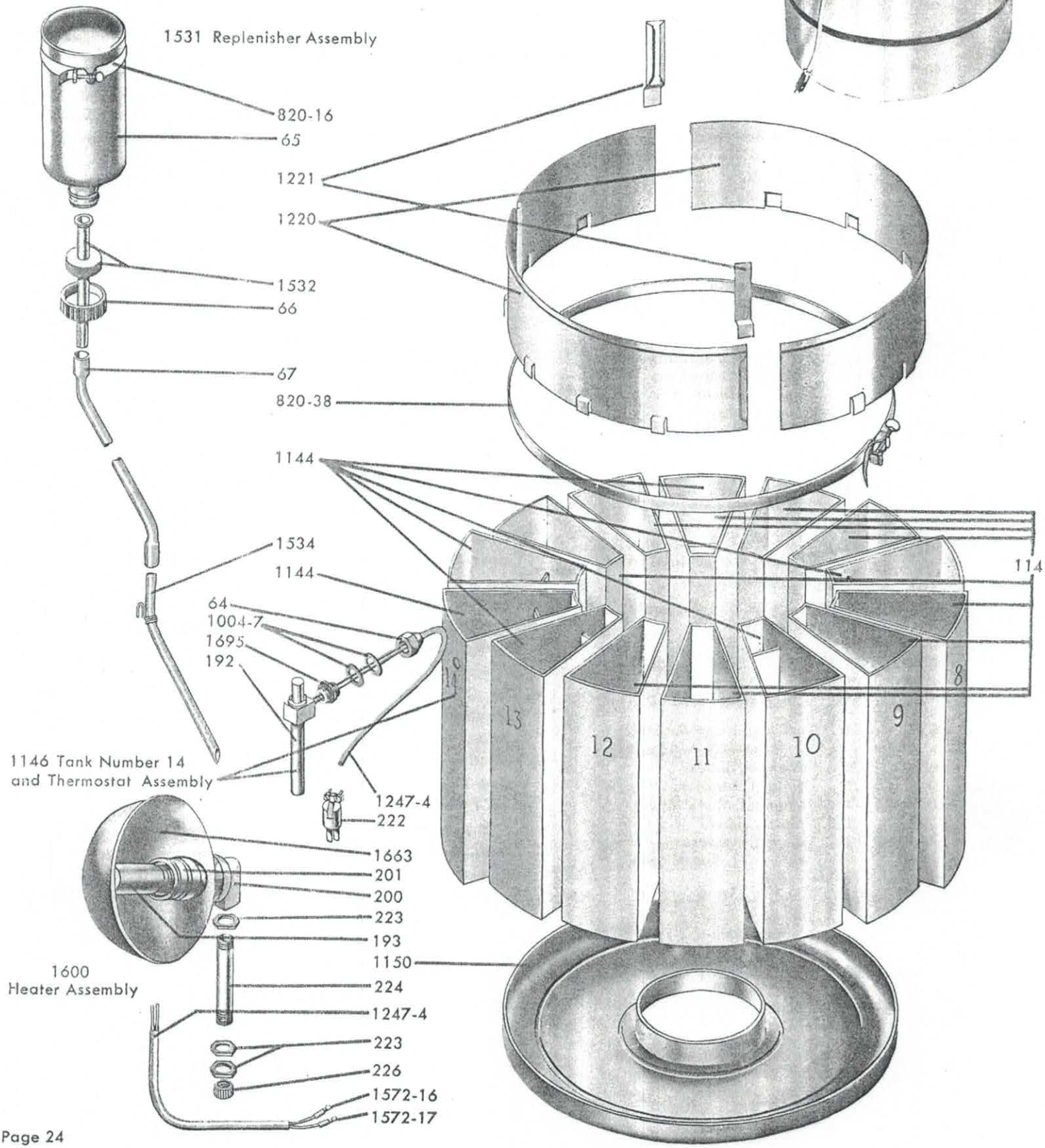
It is important to check to make sure that the plugs connecting the harness and the timer are securely in place, making good electrical contact at all times.

LUBRICATION

See chart on page 33 for instructions.

DEVELOPER TANKS - REPLENISHER ASSEMBLY





HEATER ASSEMBLY

PART NO.	QUANTITY	DESCRIPTION
1144	5	Tank, Chemical (Specify Tank Number)
1145	8	Tank, Water (Specify Tank Number)
1146	1	Tank Number 14 with Thermostat Assembly
192	1	Thermostat
222	1	Plug—P302-CCT
1004-7	2	Washer
1144	1	Tank, Chemical #14
1247-4	1	Sleeve
1695	1	Adapter—Thermostat
64	1	Nut — 41FS Union
1150	1	Base, Tank Rotating
820-16	1	Clamp, Universal
820-38	1	Clamp, Universal
1220	1	Guard, Splash Assembly
1221	2	Clips, Splash Guard
1531	1	Replenisher Assembly
1532	1	Tube Assembly, Upper
1534	1	Tube Assembly, Lower
65	1	Bottle, Pint
66	1	Cap, Bottle
67	1	Tube, Rubber
1600	1	Heater Assembly
193	1	Heater Element
200	1	Cap, Angle
201	1	Socket
223	3	Nut, Lock 3/8
224	1	Nipple—3/8 x 4
226	1	Bushing, End
1247-4	1	Sleeve
1572-16	1	Lead Wire
1572-17	1	Lead Wire
1663	1	Reflector

NOTE—To insure correct parts for your Studio, always show model and serial number of Studio on your order.

TO REMOVE FROM CABINET

Unlock Panel Door and remove lower front panel by lifting and pulling toward operator. Then:

(1) Remove developer replenisher bottle and tube assembly from left wall.

(2) Remove splash guards around tops of tanks.

(3) Remove tie strap which clamps tanks together.

(4) Unplug the electrical connection from tank No. 14.

(5) Secure paper carrier in its top position by clipping a clothespin on the piston rod at the top of the Vertical Cylinder.

(6) Lift tanks from the rotary tray, rotate tray to facilitate removal.

SERVICE AND MAINTENANCE OF DEVELOPER UNIT

Empty and thoroughly clean the tanks before replacing them in the machine. (A spare set of clean tanks will expedite servicing and insure cleanliness.)

Any chemical deposit on walls, or any residue of old chemicals, decreases the number of good quality photos that can be obtained from a fresh change of chemicals. Never use hot water to clean tanks. It will warp and buckle tanks out of shape.

If tanks have an accumulated deposit on their walls as a result of improper cleaning, remove by putting undiluted Auto-Photo bleach solution in the tank and letting it stand. Overnight is usually sufficient. Let it stand longer if necessary. The solution may be saved and used again. After pouring off bleach solution, scrub tank clean with clean water.

(1) Place clean tanks in rotary tray, and arrange tanks clockwise in numerical order. Place strap around tanks and tighten to draw tanks together. **CAUTION — Do not distort tanks.**

(2) Add proper chemical solutions and water to tanks.

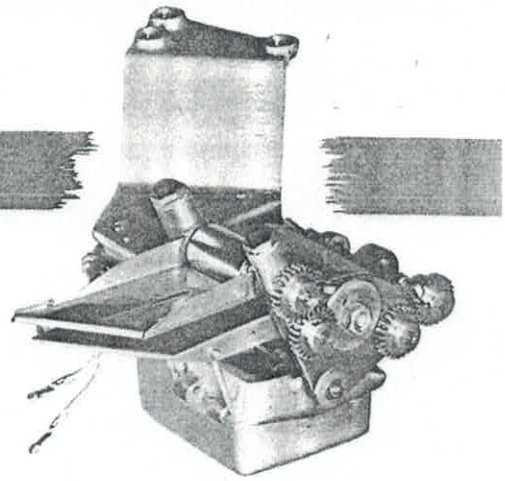
(3) Install splash guards, locating groove for developer replenisher tube in one guard over tank No. 1. Rotate tank tray clockwise until it reaches its zero position. In the zero position, tank No. 1 will be directly under the Paper Feed-Down Unit. Make electrical connection between tank No. 14 and main harness. **WARNING — Do not connect plug before tanks No. 1 and No. 14 have been filled.**

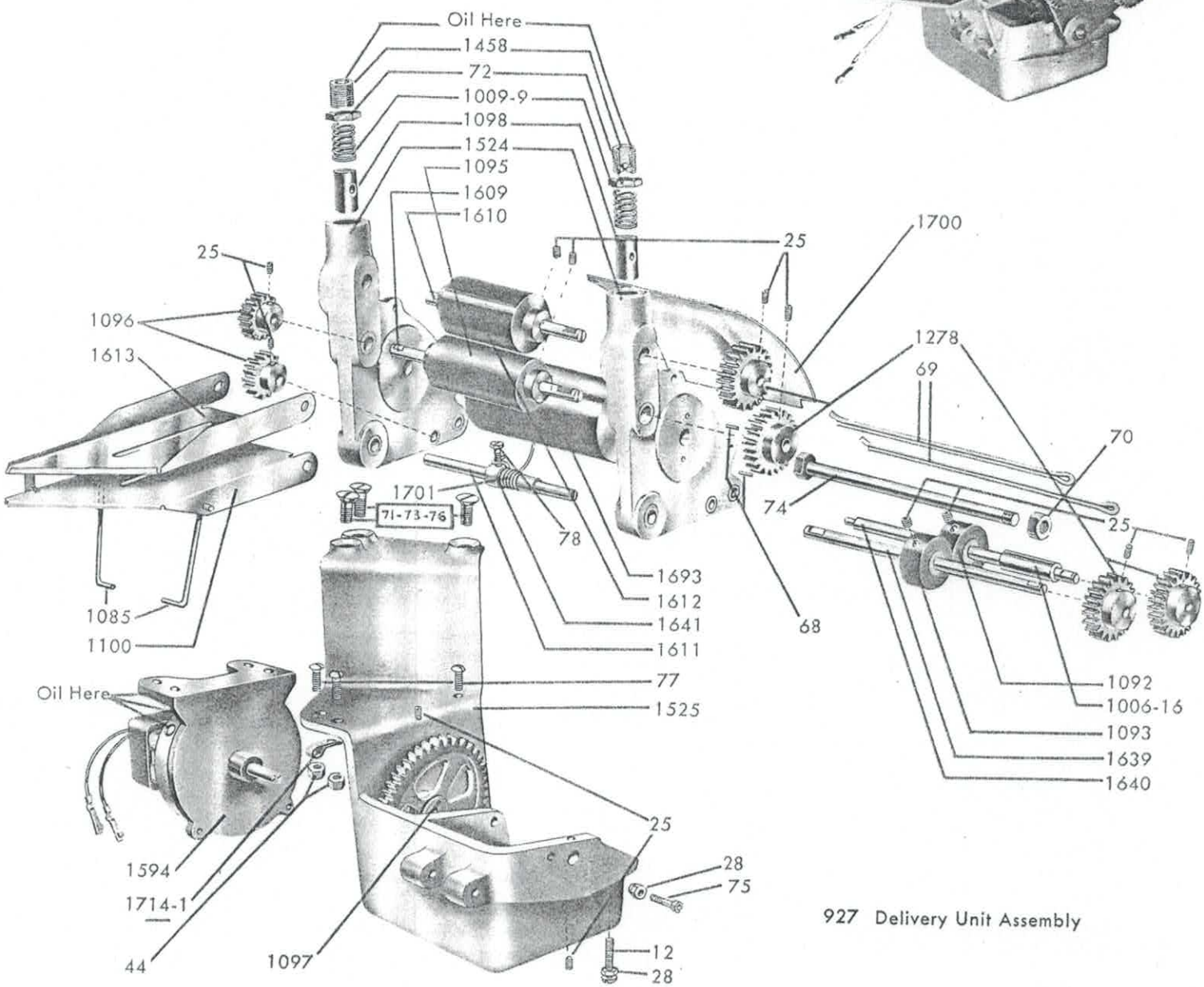
(4) Install replenisher line into bottle of AUTO-PHOTO Developer. Keeping bottle at a level lower than the replenisher line, insert the tube alongside the splash guard of tank No. 1, hooking it onto the top of the splash guard. Invert the bottle and clamp it into its retaining clip on the left cabinet wall.

TEMPERATURE CONTROL

Please refer to page 38.

DELIVERY UNIT ASSEMBLY





927 Delivery Unit Assembly

OPERATION

The Paper Delivery Unit removes the developed paper from the Paper Carrier, rolls it between a set of rollers and delivers it through the Delivery Slot in the panel door.

The adjustable upper rollers of the Delivery Unit are set with sufficient tension to rock the Delivery Unit down, as the motor starts, and pick the strip of paper out of the Paper Carrier.

PARTS LIST

PART NO.	QUANTITY	DESCRIPTION
927	1	Delivery Unit Assembly
1006-16	1	Bushing, Spacer
1009-9	2	Spring, Compression
1085	2	Support, Lower Chute
1092	1	Roll, Pickoff Driven
1093	1	Roll, Pickoff Drive
1095	1	Roll, Delivery Drive
1096	2	Gear, Pickoff Driven
1097	1	Gear, Pickoff Driver
1098	2	Bearing, Spring Loaded
1100	1	Chute, Lower Delivery
1278	4	Gear, Pickoff
1458	2	Set Screw, Drilled
1524	2	Carriage, Roller Assembly
1525	1	Support
1594	1	Motor Assembly
1609	1	Shaft, Delivery Drive
1610	1	Shaft, Delivery Idler
1611	1	Shaft, Pivot
1612	1	Roll, Delivery Driven
1613	1	Stripper, Upper
1639	1	Shaft, Pickoff Driver
1640	1	Shaft, Pickoff Driven
1641	1	Anchor, Spring
1693	1	Spacer, Rocker
1700	1	Liner, Chute
1701	1	Torsion Spring
1714-1	1	Harness Clamp
		MISCELLANEOUS
68	4	Pin, Dowel — 1/8 x 3/4
69	2	Pin, Cotter — 3/16 x 4 1/2
		NUTS
28	2	Nut, 10-32, Elastic Stop, C.P.
44	3	Nut, 8-32, Elastic Stop, C.P.
70	1	Nut, 3/8-24, Hex, C.P.
71	3	Nut, 12-24, Hex, C.P.
72	2	Nut, 7/16-20, Pal, C.P.
73	3	Nut, 12-24, Pal, C.P.
		SCREWS
12	1	Screw, 10-32 x 1/2" lg., R.H., C.P.
25	12	Set Screw, 10-32 x 3/16" lg. S.H., C.P.
74	1	Screw, 3/8-24 x 3 3/4" lg., H.H., C.P.
75	1	Screw, 10-32 x 3/4" lg., Cap, C.P.
76	3	Screw, 12-24 x 1" lg., F.H., C.P.
77	3	Screw, 8-32 x 1" lg., R.H., C.P.
78	1	Screw, 10-32 x 1/4" lg., R.H., C.P.

NOTE—To insure correct parts for your Studio, always show model and serial number of Studio on your order.

CARE AND MAINTENANCE

Generally speaking, if operators' experience trouble with the delivery unit, it is usually caused by a lack of understanding the importance of adjusting the spring tension FIRST and the roller tension SECOND, and the importance of not putting too much pressure on either adjustment to obtain good performance.

FIRST, check the amount of tension or torsion created by the spring that rocks the unit to its idle position after the motor is stopped. This spring should have only enough tension on it to cause the rocker to move to its idle position promptly as soon as the motor stops. Excessive tension on the torsion spring will make it necessary for you to put undue pressure on the rollers which may damage the unit.

SECOND, set screws to put pressure on the upper roller, making the upper roller snug enough so that when the delivery unit motor starts the rocker will promptly rock to its "down" position. Too much tension on the upper roller assembly will overload the electric motor, causing it to stall, and it can damage the rollers.

If the Delivery Unit does not remove the paper strip from the carrier, check the index action by running the machine with the door open. This will determine if the Paper Carrier indexes to tank No. 13 at the proper time to coordinate with the action of the delivery unit. Check these points:

(1) If Paper Carrier index does not coordinate properly with the Delivery Unit action, check plugs connecting harness to camera and timer, to make certain that they are accurately in place and making good electrical contact. In addition, retime the Paper Carrier by rotating it clockwise until it is in place over Tank No. 1.

(2) If Delivery Unit does not rock down to pick paper strip out of carrier, adjust the roller tension. First, adjust tension of torsion spring by loosening set-screw (Part #3), located in casting under right end of shaft, and rotating rocker shaft to increase or decrease spring tension as required. Set rollers with only sufficient tension to operate rocker.

If paper strip is caught or folded in the Delivery Slot, check the slot for rough spots and accumulation of emulsion that rubs off of strips of sensitized paper.

Routine servicing should include the following:

(1) Clean off any deposits of emulsion that may have accumulated on the curved plastic back or the delivery lips. The plastic back may be snapped out for inspection, and the delivery lips may be separated by springing out the clips. Clean the guide lips.

(2) Check the chute in the delivery slot on the panel door. Clean the surface of any accumulation of emulsion or dirt.

LUBRICATION

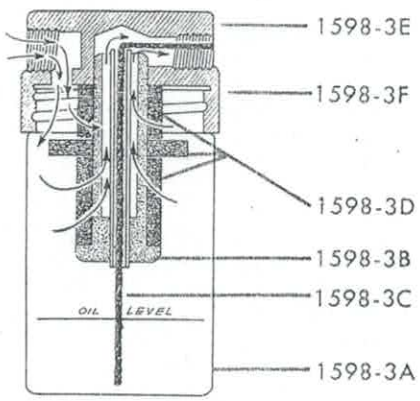
See chart on page 33 for instructions.

AIR COMPRESSOR UNIT

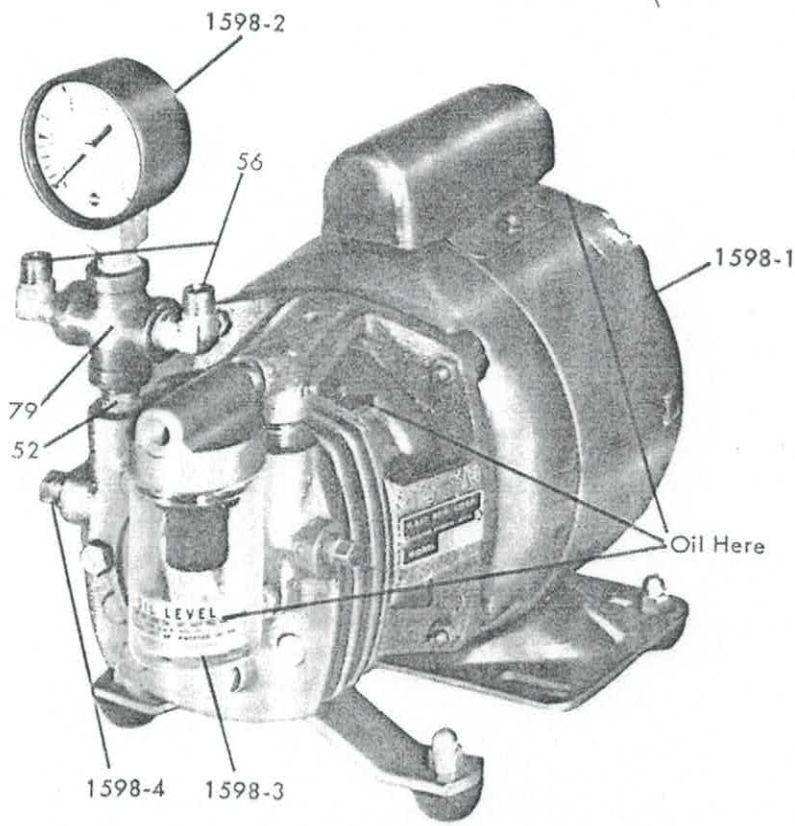
OPERATION

The Air Compressor is started by the entry of a 25c piece into the coin switch, which closes the camera relay. This Compressor Unit has an adjustable pressure control valve which controls the speed of movement of the Vertical Cylinder. Air pressure is set at the factory for 5 to 6 pounds.

The Index Cylinder and the Vertical Cylinder are operated by the Air Compressor Assembly and are controlled by their respective valves.



Detail of 1598-3 air inlet filter and oil cup assembly.



1598 Air Compressor Assembly

ADJUSTMENT AND MAINTENANCE

If air pressure does not attain the desired 5 to 6 pounds, adjustment is required. To alter the pressure, loosen the lock-nut and adjust the screw (part No. 1598-4). When air pressure is properly adjusted, re-tighten lock-nut.

Obstructions in air lines may cause trouble. Remove air lines between the valves and the compressor in order to clean lines and fittings. Replace after clearing obstruction.

To prevent starving the vertical cylinder and index valves of your auto-photo studio for air, the operator should clean the air inlet passages and filter felts in the oil cup on the air compressor every 90 days.

1. Remove 1598-3 assembly by unscrewing from nipple that connects it to compressor and remove glass jar (1598-3A) from head (1598-3E).
2. Unscrew felt retaining gland (1598-3B) and remove filter felts (1598-3D).
3. Wash felts in cleaning fluid or carbon tet. If felts are in bad condition, they should be replaced.
4. Check air inlet passages and remove any deposits of dirt that have accumulated.
5. Reassemble felts (1598-3D) on gland (1598-3B) and screw gland in to head (1598-3E) being careful to extend oil wick (1598-3C) into the air and oil outlet passage to the compressor. After gland is screwed in place, double check oil wick to be certain it has not become twisted in the air and oil outlet passage so it could obstruct the flow of oil and air to the compressor.
6. Caution: Do not oil the filter felts.
7. Install gasket (1598-3F) and screw head (1598-3E) on to nipple at inlet side of air compressor.
8. Fill glass jar to indicated level with DTE No. 10 oil and screw into place.
9. Start machine and check air pressure — re-adjust pressure control valve on compressor if necessary — the mechanism should give most satisfactory results at about 6 lb. air pressure.

PART NO.	QUANTITY	DESCRIPTION
1598	1	Air Compressor Assembly
1598-1	1	Air Compressor
1598-2	1	Gauge, Air
1598-3	1	Oiler Assembly
1598-3A	1	Jar
1598-3D	1	Felts, set of 3
1598-4	1	Relief Valve Assembly
52	1	Nipple ¼"
56	2	Fitting #69
79	1	Cross Pipe ¼"

OPERATIONAL SEQUENCE

Refer to Schematic and Electrical Diagrams Pages 31 and 32

I. Customer's coin momentarily closes Coin Switch (CS) which energizes "Camera-In" Coil (CIC) in Relay Mounted on Timer with the following results:

A. Closes "Camera-In" Point #1 (CIP-1)

1. Energizes Light Resistor (LR) putting Photoflood Lights (PL) on in their Dim Brilliance.
2. Supplies power to Bright Light Switch (BLS) In Camera which at this time is in Open Position.
3. Starts Camera Motor (CM).

B. Closes "Camera-In" Point #2 (CIP-2)

1. Starts Air Compressor (PM).

C. Opens "Camera-Out" Point #3 (COP-3)

1. Opens circuit to Electric Sign (ES) if used.
2. Opens circuit to Developer Heater (DH) through Door Safety Switch (DSS) which is closed if the Panel Door is closed, and Developer Heater Thermostat (DHT) which is closed if the temperature of the fluid in Tank #14 is below required operating temperature.

D. Opens "Camera-Out" Point #4 (COP-4)

1. Opens circuit to Coin Switch (CS) and to Coin Reject Solenoid (CRO) which prevents machine from accepting another coin.

Note:
Camera Motor (CM) rotates Geneva Driver Shaft on which is located Geneva Driver and Instruction Light Cam. As Geneva Driver Shaft rotates the Instruction Light Cam closes Instruction Light Switch (ILS) which closes circuit to Instruction Light (IL) for one second, then opens the circuit.

Geneva Driver engages the first Driven member which rotates the Shutter for the first exposure. Located on the same shaft with the Shutter is a cam which operates the Bright Light Switch (BLS) which, when it is closed, brings the Photoflood Lights (PL) up to full brilliance. The Photoflood Lights (PL) are on full brilliance only at the time the exposure is made.

When Geneva Driver engages the second Driven Member it feeds down the first exposed picture. Located on the second Driven Member Shaft is a double cam which operates two switches — the Camera Stop Switch (CSS) and the Timer Motor Switch (TMS). The Camera Stop Switch (CSS) supplies a second source of power to the Camera Motor (CM), Bright Light Switch (BLS) and Light Resistor (LR) although they are still receiving power from the "Camera-In" Point #1 (CIP-1).

Geneva Driver makes three more revolutions, repeating the cycle outlined above except for the fourth operation of the second Geneva Driven Member, outlined below:

II. As the second Geneva Driven Member is operated to feed down the fourth exposed picture, the Cam on its Shaft closes two Switches:

A. The Timer Motor Switch (TMS) closes momentarily and then opens

1. It energizes the "Camera-Out" Coil (COC) In Relay Mounted On Timer.

a. It opens the "Camera-In" Point #1 (CIP-1)

(1) Opens circuit to Light Resistor (LR), Bright Light Switch (BLS), and Camera Motor (CM). Photoflood Lights will stay on and Camera Motor will continue to run due to additional power source from Camera Stop Switch (CSS) still to be operated.

b. Opens "Camera-In" Point #2 (CIP-2)

(1) Opens one circuit to the Air Compressor Motor (PM). Air Compressor Motor continues to operate through another circuit being closed simultaneously with this one. (See Section II-A-2-b)

c. Closes the "Camera-Out" Point #3 (COP-3)

(1) Closes circuit to Electric Sign (ES), if used.

(2) Closes circuit to Door Safety Switch (DSS) and subsequently, to Developer Heater Thermostat (DHT) and to Developer Heater (DH) if temperature is below the Thermostat setting.

d. Closes "Camera-Out" Point #4 (COP-4)

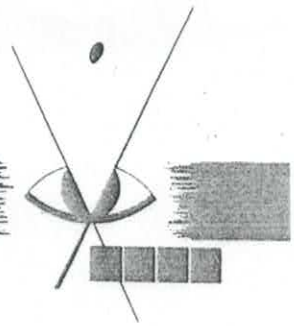
(1) Would supply power to Coin Reject Solenoid (CRO) and Coin Switch (CS) except that the circuit has been interrupted simultaneously by another point opening. (See Section II-A-2-c)

2. Energizes "Timer-In" Coil (TIC)

a. Closes the "Timer-In" Point #1 (TIP-1)

(1) Energizes Timer Motor (TM)

(2) Energizes Pump Motor Switch (PMS).



This Switch is open at this time and Air Compressor Motor is getting power from another circuit closed simultaneously. (See Section II-A-2-b)

b. Closes "Timer-In" Point #2 (TIP-2)

(1) Supplies power to the Air Compressor Motor (PM) as indicated in Section II-A-1-b)

c. Opens "Timer-Out" Point #3 (TOP-3)

(1) Opens circuit to Coin Switch (CS) and Coin Reject Solenoid (CRO) as indicated in Section II-A-1-d.

d. Opens "Timer-Out" Point #4 (TOP-4)

(1) Unused Circuit.

B. Camera Stop Switch (CSS) opens and remains open until next cycle.

1. Stops Camera Motor (CM) completing Camera cycle.

2. Opens circuit to the Bright Light Switch (BLS), Light Resistor (LR) and Photoflood Lamps (PL), turning lights off.

III. Developing Cycle

A. Timer Stop Switch (TSS) Switch #2 in the Timer, changes position. This is a Single Pole, Double Throw Switch.

1. One side of this Switch opens circuit to the Coin Switch (CS) and Coin Reject Solenoids (CRO), preventing machine from accepting additional Coins.

2. The other side of this Switch closes the circuit to the Timer Motor (TM). This provides a dual source of power to the Timer Motor. (The other source is the "Timer-In" Point #1 (TIP-1).

B. Pump Motor Switch (PMS). Switch #5 in the Timer, closes circuit to supply power to the Air Compressor Motor (PM). This is a dual source of power in conjunction with "Timer-In" Point #2 (TIP-2).

C. Cut Off Switch (COS) Switch #4 in the Timer closes to operate Paper Cut Off Solenoid (COO) in Camera. This Solenoid operates the Paper Knife which cuts off the strip of exposed paper. This circuit also operates Master Counter (MC) recording the number of cycles taken.

D. Delivery Unit Switch (DUS) Switch #6 in the Timer closes:

1. Supplies power to the Delivery Unit Motor (DUM) and to the Feed-Down Motor (FDM), feeding the strip of exposed paper into the Paper Carrier.

2. Energizes "Timer-Out" Coil (TOC)

a. Opens "Timer-In" Point #1 (TIP-1)

(1) Eliminates one source of power to the Timer Motor (TM) Motor continues to operate through Timer Stop Switch (TSS). Refer to Section III-A.

b. Opens "Timer-In" Point #2 (TIP-2). Eliminates one source of power to the Air Compressor Motor (PM). Motor continues to operate through Pump Motor Switch (PMS). Refer to Section III-B.

c. Closes "Timer-Out" Point #3 (TOP-3). This closes to ultimately supply power to Coin Switch (CS) and Coin Reject Solenoid (CRO). This circuit is now broken by one side of the Timer Stop Switch (TSS).

d. Closes "Timer-Out" Point #4 (TOP-4)

(1) Unused Circuit.

E. Vertical Cylinder Switch (VCS) Switch #1 in the Timer closes to supply power to the Vertical Cylinder Solenoid (VCO), causing the air pressure to operate the Vertical Cylinder and dip the paper carrier into tank #1 eleven times. Carrier does not return to its top position between dips in tank #1 only.

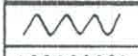
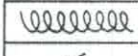
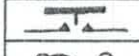
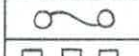
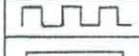
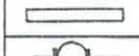
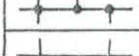
F. Index Solenoid Switch (IOS) Switch #3 in the Timer closes to supply power to Index Solenoid (IO) which permits air pressure to operate the Index Piston and move carrier over Tank #2. Switch #1 and #3 will be closed alternately by the risers on master cam to dip the carrier and index into the various tanks in sequence. (Carrier will not dip in Tank #14.)

G. Delivery Unit Switch (DUS) operates when Paper Carrier is over Tank #13, operating Delivery Unit Motor (DUM) to remove the developed pictures from the paper carrier and deliver them to the customer. The "Timer-Out" Coil (TOC) is also energized at this time but with no effect.

H. Pump Motor Switch (PMS) Switch #5 in the Timer, opens, stopping Air Compressor Motor (PM).

I. Timer Stop Switch (TSS) Switch #2 in the Timer, opens, stopping Timer Motor (TM). As this is a single pole, double throw switch, the other side of the switch supplies power to the Coin Switch (CS) and Coin Reject Solenoid (CRO), making the machine ready to receive another coin for the next cycle.

SYMBOLS

SYMBOL	DESCRIPTION
	Resistor
	Coil
	Switch – single throw
	Relay contact points
	Fuse
	Heater
	Fluorescent light
	Motor
	Incandescent light
	Switch – double throw
	Wires crossed and electrically connected
	Wires crossed and not electrically connected

SCHEMATIC ELECTRICAL DIAGRAM

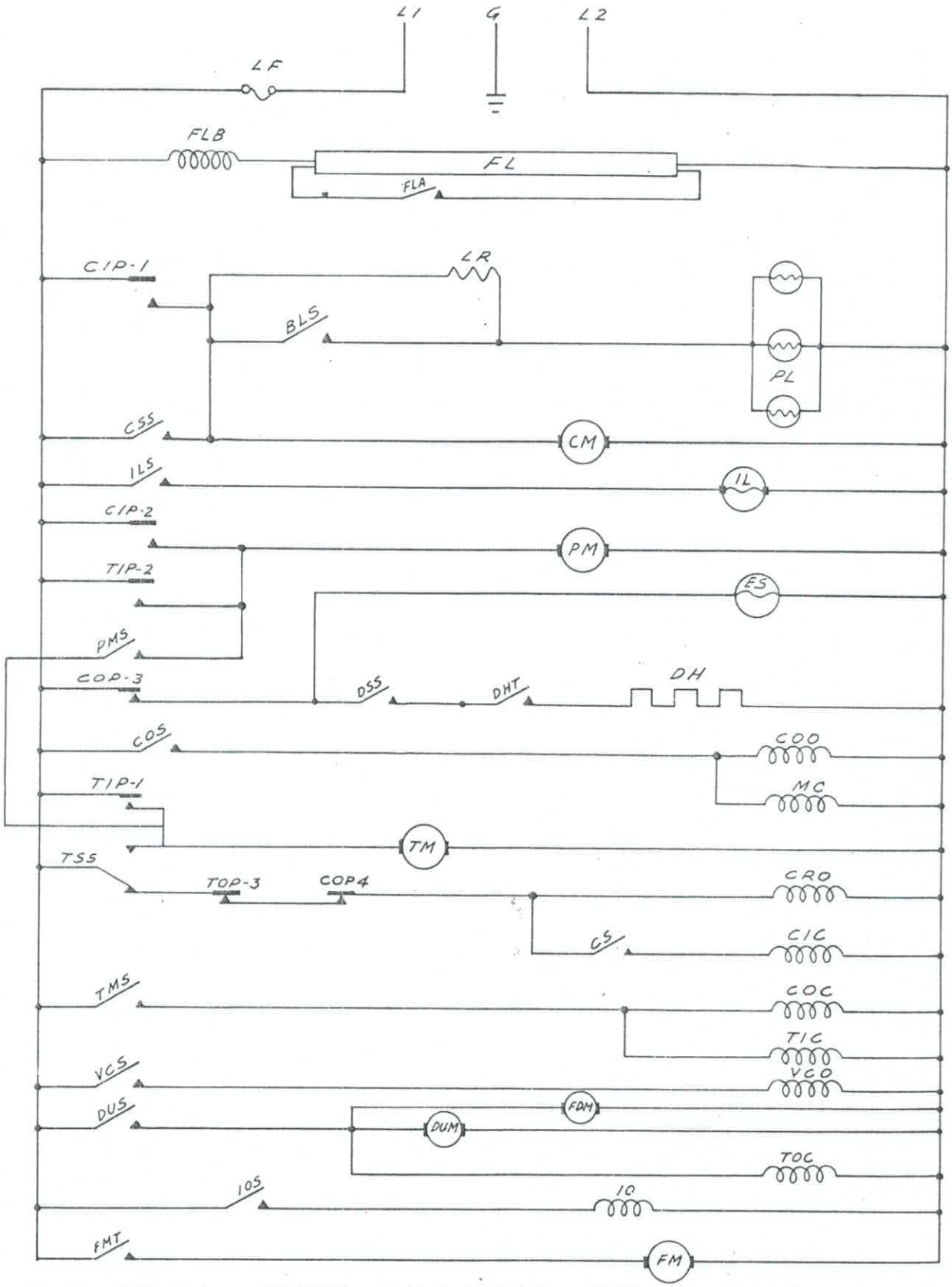
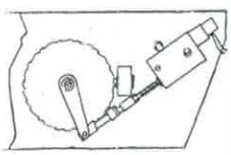


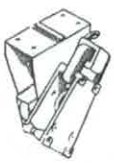
DIAGRAM SHOWN WITH MACHINE IN ZERO POSITION

CODE LIST

CODE	DESCRIPTION	LOCATION
BLS	Bright light switch	Camera
CIC	Camera latch in relay coil	Timer
CIP-1	Camera latch in relay contact point	Timer
CIP-2	Camera latch in relay contact point	Timer
CM	Camera motor	Camera
COC	Camera latch out relay coil	Timer
COO	Cut-off solenoid, paper	Camera
COP-3	Camera latch out relay contact point	Timer
COP-4	Camera latch out relay contact point	Timer
COS	Cut-off switch, paper	Timer
CRO	Coin reject solenoid	Panel Door
CS	Coin switch	Panel Door
CSS	Camera stop switch	Camera
DH	Developer heater	Lower Tray
DHT	Developer heater thermostat	No. 14 Tank
DUM	Delivery unit motor	Delivery Unit
DSS	Developer heater safety switch	Cabinet Panel Door
DUS	Delivery unit switch	Timer
FL	Fluorescent light	Upper Light Box
FLA	Fluorescent light actuator (Starter)	Upper Light Box
FLB	Fluorescent light ballast	Cabinet Top
FM	Fan motor	Cabinet Top
FMT	Fan thermostat	Cabinet Top
GND	Ground line	Cabinet Bottom
IL	Instruction light	Panel Door
ILS	Instruction light switch	Camera
IO	Index solenoid	Upper Tray
IOS	Index solenoid switch	Timer
L-1	Line 1 110 V.A.C. 60 Cy.	Main Harness
L-2	Line 2 110 V.A.C. 60 Cy.	Main Harness
LR	Light resistor	Cabinet Top
LF	Line fuse	Cabinet Bottom
MC	Master counter	Cabinet
PL	Photo floodlight	Light Boxes
PM	Pump motor	Cabinet Floor
PMS	Pump motor switch	Timer
TIP-1	Timer latch in relay contact points	Timer
TIP-2	Timer latch in relay contact points	Timer
TM	Timer motor	Timer
TMS	Timer motor switch	Camera
TOC	Timer latch out relay coil	Timer
TOP-3	Timer latch out relay contact points	Timer
TSS	Timer stop switch	Timer
TIC	Timer latch in relay coil	Timer
VCO	Vertical cylinder solenoid	Lower Tray
VCS	Vertical cylinder switch	Timer
ES	Electric sign	Optional
FDM	Feed-down motor	Feed-down

LUBRICATION CHART

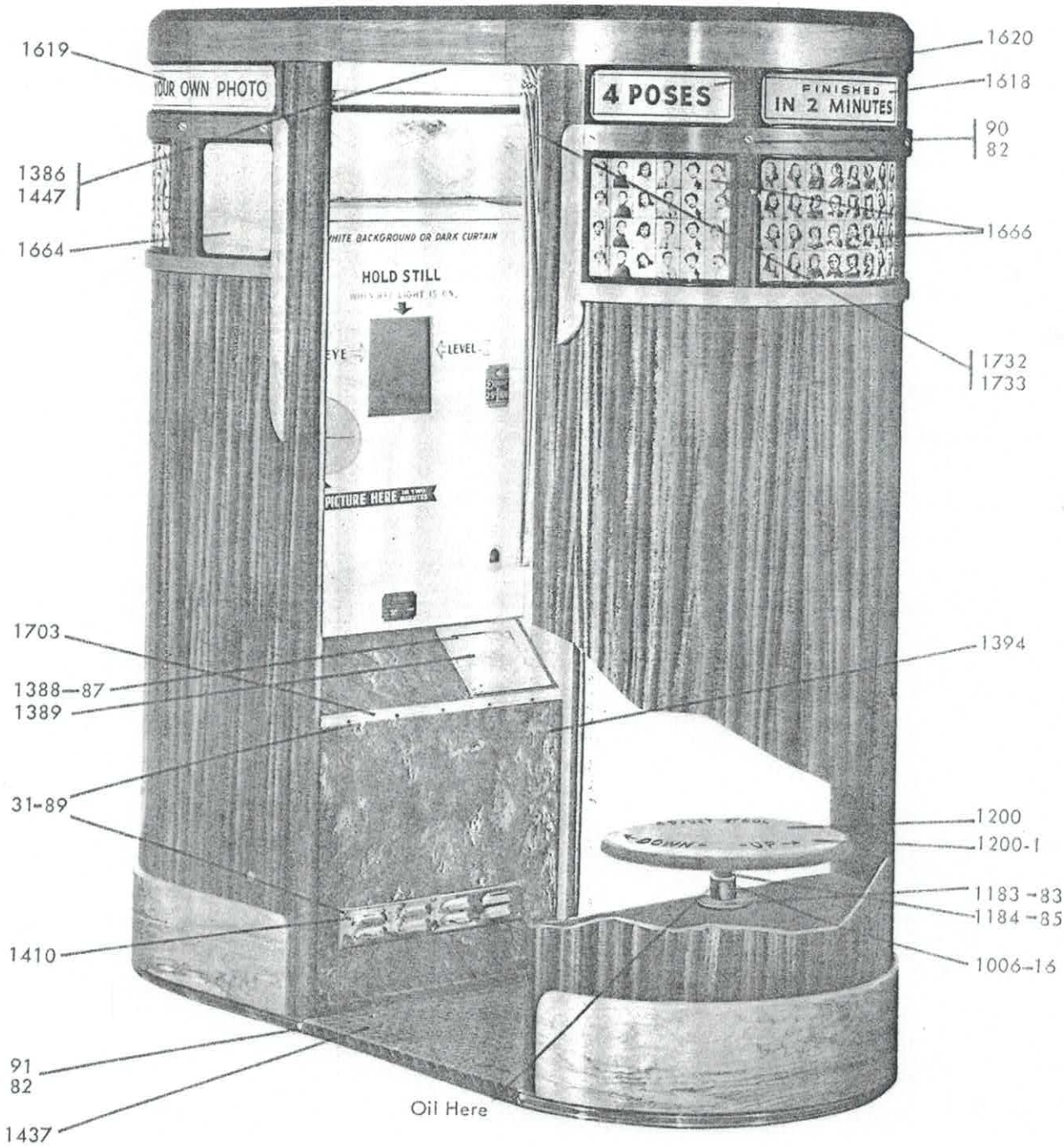




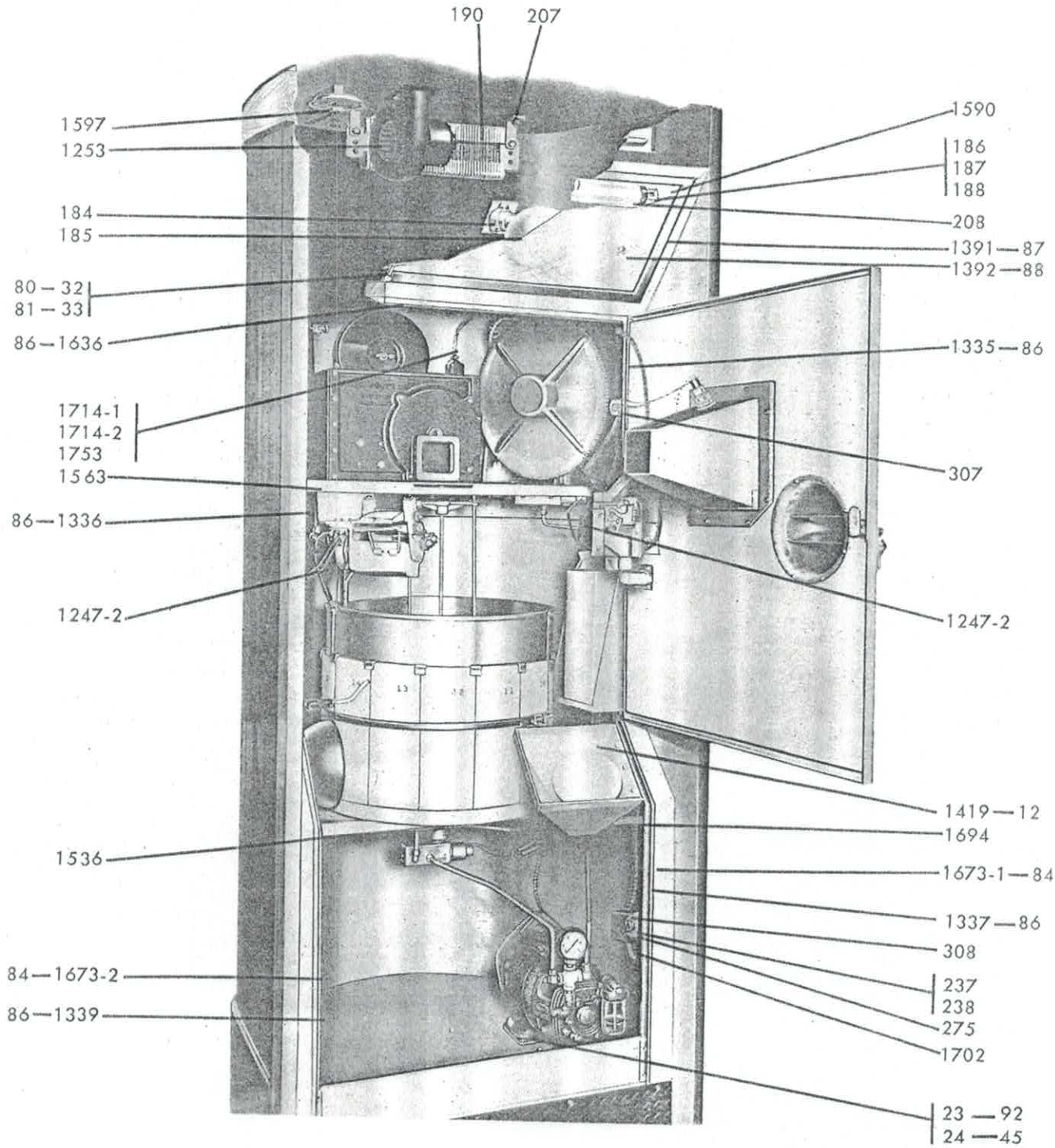
WHAT	WHERE	HOW MUCH	
Vertical Cylinder	Oil cup in cylinder head	Several drops	EVERY SERVICING
	Piston rod and felt washer	2 or 3 drops	
Index Cylinder	Oil cup in side of valve body	1 or 2 drops	
	Piston rod and felt washer	2 or 3 drops	
Paper Carrier	Guide rods	1 or 2 drops	
Paper Delivery Unit	Both bushings of the metal roller (Oil through upper roller adjusting screws)	2 or 3 drops each	
Air Compressor	Glass oil cup	Fill to marked level only	
Index Plate	Teeth of plate	Wipe with grease stick or paraffin	
Paper Feed-Down	Felt retainers on each shaft	2 or 3 drops only. Excessive oil will damage paper.	
Feed-Down Motor	Requires no lubrication	None	
Timer Motor	Felt retainers at each end of motor shaft	Several drops	MONTHLY
Air Compressor Motor	Motor and compressor bearing metal oil cups	Several drops	
Seat Assembly on Model 9	Screw under seat	Wipe with Vasoline or Lubriplate	
Timer Unit	Cam spindle through hole in timer mounting bracket	1 or 2 drops only	
Camera	Requires no lubrication—except motor and gear box		EVERY 90 DAYS
Vertical Cylinder Valve & Index Valve	Lubricated by oil vapor in air from compressor. No other lubrication is necessary.		
Camera Motor Fan Motor Delivery Motor	Felt retainers at each end of motor shaft	Several drops	
Timer Motor Gear Box Camera Motor Gear Box Delivery Unit Gear Box	Check oil level inside gear box	Maintain level below drive shaft	

NOTE: Use DTE light oil except as noted.

CABINET ACCESSORIES



CABINET ACCESSORIES



CABINET ACCESSORIES

PART NO.	QUANTITY	DESCRIPTION
184	3	Lampholder, Photoflood
185	3	Lamp
186	1	Lampholder, Fluorescent
187	1	Lampholder, Fluorescent Starter
188	1	Starter, Fluorescent
190	1	Resistor, Light
207	2	Brackets, Resistor
208	1	Lamp, Fluorescent
237	1	Fusestat S10
238	1	Adaptor, Fusestat SA10
275	1	Base, Plug Fuse
307	1	Counter, Master
308	1	Box, Fuse Cutout
1006-16	1	Spacer
1183	1	Nut, Seat Adjusting
1184	1	Screw, Seat Adjusting Assembly
1200	1	Seat
1200-1	1	Seat, Cover
1247-2	20	Sleeve, Disconnect
1250	1	Ballast, Fluorescent Light (Not shown)
1253	1	Fan
1335	1	Return, Upper Right
1336	1	Return, Upper Left
1337	1	Return, Lower Right
1339	1	Return, Lower Left
1386	2	Bracket, Drape Rod Mounting
1388	1	Frame, Lower Light Box
1389	1	Glass, Lower Light Box
1391	1	Frame, Upper Light Box
1392	1	Glass, Upper Light Box
1394	1	Panel, Cabinet Lower
1410	1	Plate, Louvre Lower
1419	1	Light Box, Lower
1437	1	Plate, Floor
1447	1	Rod, Drape
1536	1	Tray, Lower
1563	1	Tray, Upper
1590	1	Light Box, Upper
1597	1	Fan, Thermostat Assembly

PART NO.	QUANTITY	DESCRIPTION
1618	2	Advertiser "Finished in Two Minutes"
1619	2	Advertiser "Take Your Own Photo"
1620	2	Advertiser "Four Poses"
1636	1	Return, Upper
1664	2	Mirror
1666	1	Displays (Set of 6)
1673-1	1	Moulding, Right Hand
1673-2	1	Moulding, Left Hand
1694	1	Brace, Lower Light Box
1702	1	Cord, Service
1703	1	Moulding, Lower Panel
1714-1	4	Clamp, Harness
1714-2	3	Clamp, Harness
1732	2	Drapes, Side
1733	1	Drapes, Back
1753	1	Harness, Main
		MISCELLANEOUS
80	8	Clip, Upper Light Box Glass
81	8	Strip, Rubber
82	14	#10 Finishing Washers, N.P.
		NUTS
31	13	Nut, 6-32, Pal, C.P.
45	2	Nut, ¼-20, Hex, C.P.
		SCREWS
12	3	Screw, 10-32 x ½, R.H., C.P.
83	3	Screw, ¼-20 x 2¼, F.H., C.P.
84	14	Screw, 4 x ½, F.H., N.P.
85	4	Screw, 14 x 1, F.H., C.P.
86	54	Screw, 6 x ⅝, R.H., C.P.
87	8	Screw, 6-32 x ¼, R.H., C.P.
88	2	Screw, 10-24 x 3½, R.H., C.P.
89	13	Screw, 6-32 x ⅜, O.H., N.P.
90	10	Screw, 10 x ¾, O.H., N.P.
91	4	Screw, 10 x ⅞, O.H., N.P.
92	2	Carriage Bolt, ¼ x 3

NOTE—To insure correct parts for your Studio, always show model and serial number of Studio on your order.

KEEP YOUR AUTO-PHOTO STUDIO CLEAN

A clean photo studio is a smiling invitation for people to visit your studio — again and again!

Make certain that the signs calling attention to the Auto-Photo Studio are clean and inviting. Dust can be removed with a soft cloth. If your signs are in bad condition, get new ones. They are your best and least expensive form of advertising. Keep the area around your photo studio clean. A neat Studio can increase your profit.

Your Auto-Photo Studio is valuable equipment. Give it the same attention you would an office or store to which your customers would come. Nicks and scratches are bound to appear with use. A good furniture polish will make the mahogany finish gleam like new. Treat your Auto-Photo Studio as you would any piece of fine furniture. If it must be exposed in any way to weather, apply a good coat of wax as often as deemed necessary.

Check the interior of your Auto-Photo Studio to see that it is orderly and clean. A damp cloth can do wonders. Don't wait for a service call to be a reminder. Clean equipment has "sell appeal." Let your Auto-Photo Studio sell itself!

TROUBLE SHOOTING

If the machine fails to deliver a strip of pictures, check the following:

1. Magazine may be out of paper.

2. Check plugs connecting harness to camera and timer, to make certain they are securely in place and making good electrical contact.

3. Check voltage at machine. If machine is on an electrical circuit with other equipment, it may be starved for sufficient amperage and voltage to operate its solenoid coils. AUTO-PHOTO Machines require a minimum of 110 volts and 15 amps to insure trouble-free operation.

4. If paper carrier does not return to tank No. 1 when the machine completes its cycle, re-time it by rotating the carrier clockwise until it is in place over tank No. 1.

a. The paper carrier may be put out of time by catching on paper delivery unit if delivery unit does not rock clear of carrier before the index stroke. Check adjustment of tension of rollers and torsion spring in paper delivery unit. (See Adjustment, pages 26 and 27).

b. Index cylinder may need oil. (See page 33.)

c. Air pressure may be too low. (See Compressor adjustment instructions, page 28.)

d. Air lines or metering fittings may be obstructed. Remove air lines between valves and compressor, and remove the metering fittings to clean lines and fittings.

e. Index valve may be gummed or dirty. (See page 16.)

5. If strip of paper is not cut off in camera, check function of cut off blade by operating machine with door open and camera rotated so the action of the cut-off blade solenoid can be observed. If solenoid works, check blade for binds.

6. If strip does not pass through feed-down unit, check alignment of camera with slot in upper tray and feed-down unit motor for satisfactory operation.

7. If strip does not feed into paper carrier, check adjustment of paper carrier to see if it lines up with the feed-down unit. (See pages 18 and 19.)

8. If strip is not removed from the carrier by the delivery unit, check the index action by running the machine with the door open to determine that carrier indexes to tank No. 13 at proper time to co-ordinate with action of the delivery unit.

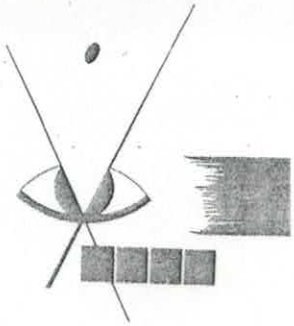
a. If carrier index does not co-ordinate with delivery unit action, recheck for trouble as outlined in steps 2 and 4 above.

b. If delivery unit does not rock down to pick strip out of carrier, adjust roller tension. (Adjustments outlined pages 26 and 27.)

9. If strip is caught or folded in the delivery slot, check slot for rough spots and accumulation of emulsion that rubs off strips of sensitized paper. Clean guide lips.

10. Tanks may be out of position causing carrier to bind or catch on sides of tanks. Check developing cycle with door open, to make sure the carrier dips in each tank without interference. Adjust position of tanks as required.

TROUBLE SHOOTING



POOR QUALITY PICTURES

1. Dirty chemical and rinse tanks. (See pages 24 and 25.)

2. Spoiled sensitized paper that has been:

a. Exposed to light by a defective safe light in the darkroom.

b. Exposed to light by removing tape from inspection window on cartridge in bright light, or exposing loaded cartridge to strong sunlight for extended periods of time.

c. Overheating in storage or transit.

3. Dirt on glass in panel door.

4. Oil in the fluid in the chemical and rinse tanks.

5. Oil transferred to the strip of paper in the camera or feed-down mechanism.

6. Old chemicals. Chemicals must be changed after 300 strips of pictures have been developed, or once a week, depending on which occurs first. If new chemicals are put in dirty tanks, their life will be shortened.

7. Spoiled developer solution. Developer solution may spoil after mixing if it is stored too long before use, or if bottle caps are not tight enough to prevent oxidation of the solution.

8. Cold developer solution. When heater is turned off, check temperature of developer. It should not be less than 82° F. (See adjustment of temperature controls this page.

9. Dirty paper carrier. If chemical salts build up on carrier, remove and clean. (See pages 18 and 19.)

10. Incorrect chemicals in tanks. If chemicals are mixed, or put in wrong tanks, or if chemicals other than AUTO-PHOTO chemicals are used, machine will deliver a poor quality picture.

11. Photo flood lights expended. We recommend lights be replaced after 10,000 strips of pictures. Old lights do not give the full illumination required for good photography.

12. Photo flood lights out of adjustment. (See lights adjustment this page.)

13. Scratches in the emulsion on the face of a strip of pictures. These may be caused by rough spots on the curved plastic back of the delivery unit, or the delivery lips, or the slot in the panel door. (See pages 13 and 27.)

14. If pictures are too light, check temperature of developer solution. If temperature is over 86°F., check heater beside tank. It should turn off at 84°F. (See adjustment of temperature controls this page.

15. If pictures are too light or too dark, refer to iris adjustment instructions, page 10.

LIGHTS

To insure full illumination, replace flood lights every 10,000 strips. To reach upper lights, take out two screws through door header into bottom of upper light box and remove glass and frame asembly. To refocus lights, remove upper light box glass and frame assembly. Adjust stool to proper height to take your picture. Sit on stool and sight to each light. Bend the base bracket of each light until light points directly to you.

TEMPERATURE CONTROL

The thermoswitch in tank No. 14 is factory set to maintain fluid in tank No. 1 at 84°F. For adjustment, remove the cap on top of thermoswitch. Turn screw counter-clockwise to increase temperature, or reverse this direction to reduce temperature. A quarter-turn will change the temperature approximately 15 to 20 degrees.

Refill No. 14 tank with fresh water every time chemicals are changed. Temperature of tank No. 14 must be approximately same as tank No. 1 for correct operation of thermostat.

If Heater does not operate:

(1) Check temperature in No. 14 tank. (Heater will not operate unless temperature is below approximately 84°F.)

(2) Check Door Switch and all electrical connections on circuit. (Heater will be off when door is open.)

(3) Remove Heater Element and replace with a light bulb. If light illuminates when Door Switch is closed by hand, the element should be replaced.

If temperature is too high, check and adjust thermostat as outlined above.