

Transistor Mat Detector Manual

**INSTALLATION INSTRUCTIONS
AND
TROUBLE DIAGNOSIS**

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Price \$3.00

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LOCATION OF PHOTOCELL ON MODELS 5, 8 AND 31

See Illustrations #1 and #11

The photocell is located at the left side of the magazine approximately 1/8" away from the front of the magazine and in such a position that the hole in the brass casing is in the center of the magazine as related to the thickness of the magazine.

On all machines, except the Comet Linotype, the photocell must be held to a location as shown in the photo and then centers marked and holes drilled for 8/32" screws.

8/32" self-tapping screws are furnished for mounting these and it is suggested that the hole be drilled first as a starting hole with the #46 or 3/32" drill, then drilled again with a #27 drill. Then drill-ream with a #25 drill. When drill-reaming, be careful to turn the drill very slowly so that it will not oversize. This drill-reaming with a #25 drill provides the right hole in which the self-tapping screw fits.

Remove the matrix guard and the matrix guard supports 1-5420 L.H., and 1-5419 R.H.

Cut off the forward end of the R.H. matrix guard support, 1/8" to the front of the forward elongated mounting slot, then replace this guard on the machine. The replacing of the R.H. support is for the purpose of operating the escapement lever safely.

On the older style model 8, saw off both right and left matrix guard supports just forward from the escapement lever safety guard.

The cutting of the matrix guard supports, as described in the above two paragraphs, is to allow room for the light beam to project across the front of the magazine to the photocell.

INSTALLATION OF PHOTOCELL, LINOTYPE ELEKTRON

Remove the right hand assembler entrance cover support. Cut away the shaded section as shown in Illustration #33.

Mount the photocell bracket over the 2 screws, which serve to hold the upper part of the left hand assembler entrance cover bracket, to the brass assembler entrance plate. See Illustration #14. Remove the grommet which is in the assembler entrance plate where the wires come through to MS-12. This is to enable you to insert the photocell from the back of the assembler entrance plate through this hole to the front. Then, put the photocell through the grommet, then from the bottom upwards, into the photocell bracket. Then replace the grommet back in the hole in the assembler entrance plate.

Two 8/32 x 5/8" Allen cap screws are furnished in the kit to replace the 1/2" screws when installing this bracket.

See Illustration #13, which shows the back of the assembler entrance. You will note here that the black and white photocell wire goes across the back of the entrance, being held in place by the clamps that hold the wires leading to MS-12, then it should follow the large group of black wires back under the right side of the magazine. Use a small plastic cable clamp and fasten this wire to the group of black wires just under the right edge of the magazine, this is to keep it from getting shifted and damaged when swinging the assembler entrances.

LOCATION OF PHOTOCELL ON COMET LINOTYPE

See Illustration #15

Remove the matrix guard 1-8358, and the matrix guard supports 1-8346. Insert the long shoulder screw 1-8347, which attaches the two levers to the right hand matrix guard support back in thru these levers from left to right and put an 8/32" nut on the end of it. This is for the purpose of allowing this linkage for releasing the magazine to shift, to operate when the matrix guard support 1-8346 has been removed.

Place the photocell and bracket on the machine, using the left hand mounting holes for the left hand matrix guard support for means of mounting the photocell. In the kit there are two 1/2" x 8/32" screws and two washers, for the purpose of mounting the photocell. Adjust the photocell in a forward position, or a back position, so the hole in the photocell casing is approximately in the center of the magazine as regards to a forward or back position. It may be necessary after this is mounted to bend the front end of the photocell bracket slightly so it is approximately 1/8" downward from the front end of the magazine.

Remove the assembling guide entrance cover and the brackets, both left hand and right hand which support this cover.

See Illustration #8

With a hack saw, cut a "V" notch in both of these brackets, the top of the "V" to be approximately 5/8" wide and extend downward from the top of these brackets approximately 1/2". This is to allow a space for the light beam to project through across the front of the magazine to the photocell.

NOTE: Illustration #37 has a reproduction of the Assembling Guide Entrance Cover Bracket which may be cut out and used to scribe the proper cut-away for the "V" notching. It is extremely important that this notch is kept as far to the back of the bracket as on the print.

INSTALLATION OF PHOTOCELL ON INTERTYPES A, B, C, V AND MONARCH

See Illustration #12

Remove the spaceband box to allow room for drilling. Next, hold the photocell and bracket in place as shown in the photo, so that the hole in the brass casing is approximately in line with the center of the magazine. Locate and drill holes and tap them for 8/32" screws, or drill the holes with a #25 drill and use 1/4" long self-tapping screws to mount the photocell and bracket. You will note that the photocell and casing can be adjusted up or down a little in the bracket. If the location of the bracket should be slightly higher or lower than necessary to properly align the hole of the photocell casing with the center of the magazine, the photocell and casing may be moved a little in the bracket to secure proper alignment.

By the statement that the hole in the photocell casing should be in the center of the magazine we mean the center as far as the thickness of the magazine is concerned, from the top plate to the bottom plate.

INSTALLATION OF PHOTOCELL INTERTYPES F AND G

See Illustration #16

SCANNER LIGHT INSTALLATION ON COMET

See Illustration #2

Remove the large 3/8" fillister head screw just back of the handle for operating the magazine locating levers. Place the scanner light bracket up against the casting, then insert the fillister head screw and tighten. Next, tighten the two jack screws that come in from the back of the bracket. These screws help to steady the bracket as well as keep it from slipping out of place.

Next mount the scanner light on the bracket that you have just attached to the machine and position it so the beam will shine across the front edge of the magazine and on the hole in the photocell.

LOCATION OF THE COMBINATION SCANNER LIGHT-INDICATOR BOX

See Illustration #4 and #4-A. Also, there is a cardboard template furnished for location and drilling of the holes to mount the Scanner Light-Indicator Box combination. You will note on

the template that there is a large hole at the top, then approximately 2-3/8" down from the center of the large hole, a smaller hole, then on down and slightly to the right are 2 smaller holes. Locate this template on the side of the machine with the large hole and the slightly smaller hole matching the two holes on the casting of the machine. Securely tape this in place with scotch tape, then center punch thru the two smaller holes located horizontally at the bottom part of the template. Drill and tap these holes for a 10/32 screw. Next, fasten the Scanner Light to the side of the machine with two 10/32 Allen cap screws. The cable with the octal plug on it, coming from the bottom of the box, is to be placed into the machine under the right side of the magazine and down thru the large hole in the casting to the right of the reed-rack-micro switch, as shown in Illustration #35. This plug connects with the large octal coming from the Control Box.

SCANNER LIGHT LOCATION, INTERTYPE MONARCH

The scanner light and bracket are installed in the same position on the Monarch as on other Intertypes. See Illustration #5.

SCANNER LIGHT INSTALLATION ON MODELS 5, 8 AND 31 LINOTYPES

See Illustration #3.

The scanner light bracket and scanner light are attached to the frame of the machine by use of two long 3/8 hex-head screws furnished.

Remove the grease cup for the assembler drive shaft and the two 3/8 hex-head screws just above the grease cup.

Attach the scanner light bracket with the two longer screws to the machine frame at this point.

Insert the grease cup extension (1/8 pipe nipple and coupling, furnished) in the grease cup hole, then the grease cup in the 1/8 pipe coupling.

Focus light as described in the last paragraph under heading "Scanner Light Installation on Comet".

CUTTING ASSEMBLING GUIDES - LINOTYPES MODELS 5, 8 AND 31

Next it will be necessary to take a pair of small tin snips, we suggest 6" snips, with the two blades ground so they are rather narrow, to snip off a small portion of the upper part of the assembling guides as illustrated in photo, so the light beam will have room to travel across the front of the magazine.

NOTE: We have had occasion to check several machines for faulty photocell operation and in all instances the installation man did not cut the top of the assembling guides, possibly due to the fact that he got the Mat Detector to work fairly well without cutting them. This can be the case at times, when the Mat Detector is first installed, but after being used for a short time and for plant machinists to make the adjustment of the light beam, it is imperative that these guides be cut away to allow more room for the light beam to travel across the front of the magazine to the photocell.

See photo on position of light beam.

SCANNER LIGHT AND PHOTOCELL ADJUSTMENT, INTERTYPE MONARCH

Now, as to the adjustment of the photocell for height and the scanner light for location and height, these vary little from the slower speed machines.

Hold a mat next to the left hand assembling guide so that the upper back lug is about 1/16" from the magazine. When the mat is in this position, the photocell should be aligned so the hole in the brass casing will align with the "V" combination notch in the upper part of the matrix.



Next, hold a mat in the same manner next to the right hand assembling guide and within 1/16" of the magazine. At this point the scanner light should shine thru the "v" of the mat and onto the photocell.

Please note that the filament image should be at 90 degrees to the assembler front at this position instead of parallel with the slope of the magazine as in the slower speed models.

Now, at this point of the placement and adjustment of the light beam, refer to Page 15

You will note that the scanner light lens is stopped-down on this model, also that the photocell has a silver-like weave in the front of it, instead of a brass appearance going straight up and down in the hole. The photocell is a different photocell for this unit than for the standard unit.

The fact that we state the filament image must be 90 degrees to the brass plate that holds the assembling guides, where it shines thru the "V" notch of the mat combination, instead of in a horizontal line comparable to the plane of the magazine, is due to the fact that we measure not only mats breaking the beam on this model, but also the length of the shadow.

SCANNER LIGHT INSTALLATION ON INTERTYPE V AND A, B, AND C, OLD STYLE

See Illustration #6.

On the Intertype V there is a special bracket and it is necessary to drill and tap two 8/32 holes to locate this bracket, proper position of the bracket is shown in photo.

SCANNER LIGHT ON INTERTYPES HI-SPEED C AND MONARCH

See Illustration #5.

SCANNER LIGHT ON INTERTYPES F AND G

See Illustration #7.

Another type bracket is used on Intertype A thru C. It is necessary to drill and tap 8/32 holes to attach this bracket. Location of this bracket may be observed in photos at rear of the book.

Focus light as described in the last paragraph under heading "Scanner Light Installation on Comet".

SCANNER LIGHT OLD STYLE MODEL 5 AND MODEL L

There are times when you will be called upon to attach a Mat Detector to an older style, or high base Model 5. The photocell and support bracket will be the same type as used on the later Models 5, 8 and 31, however, a different style of scanner light bracket is used and you will have to use your ingenuity a little by looking at the photos furnished to properly install the scanner light.

You will note that the bail which snaps over the magazine must be removed completely, and part of the bronze bracket where the 1/4" stud went in to hold this, in order to get the photocell located. It will also be necessary to clip the upper part of the assembling guides the same as on the later style Models 5, 8 and 31.

Focus light as described in the last paragraph under heading "Scanner Light Installation on Comet".

SCANNER LIGHT AND PHOTOCCELL LOCATION ON MODEL 29 LINOTYPE

On Model 29 Linotype, there is a photocell and a scanner light for both the upper and lower magazine. See Illustrations #9 and #10 for location of these parts. You will note the location of the Control Box on the photo showing the location of the Scanner Lights.

Also note on Illustration #9 the cut-away of bronze frame and assembling guides to allow room for the light beam to project across the front of the magazine to the photocell.

Note carefully Illustration #9 and under no circumstances make a Mixer installation without clipping the top of the guides for both the upper and lower magazines. It may be that you can get the photocell to work properly for a short time without clipping the assembling guides, but usually, after you have left the installation, the plant machinist will have trouble setting the light beam due to a slight aging of the photocell. Therefore, these assembling guides must be cut for both the upper and the lower magazine.

You will also note that the R.H. and L.H. matrix guard supports as well as the matrix guards have to be removed.

Other than dual photocells and scanner light, the mixer unit installation is the same as non-mixing machines.

Both lights must be shining on their respective photocells before the red light on the indicator box will blink when breaking either light beam.

Focus light as described in the last paragraph under heading "Scanner Light Installation on Comet".

FOCUSING SCANNER LIGHT

See Page 15

LOCATION OF SPACEBAND SWITCH #1

Take Spaceband Switch #1 from the kit and locate it on the back of the pot pump bracket in a position when you are facing the back of the machine, just to the left of the mold cam lever handle. Before attaching this Spaceband Switch #1 to the machine, curve both springs outward slightly, especially the long spring contact blade so that it will spring open when it is not in contact with the safety prong or extension on the pot pump lever bracket which is engaged by the safety latch on the mold cam lever handle.

See Illustration #17.

SPACEBAND SWITCH #2

Locate Spaceband Switch #2 on the upward most projection of the right hand main cam shaft bracket. You will note a large hole and two small holes in the Spaceband Switch #2 bracket. Remove the 1/4" screw which serves to hold the steady bolt reaching from cam shaft bracket to the column of the machine, place the Spaceband Switch #2 over this and then replace the 1/4" screw and tighten same. Now drill and tap, or if you prefer, use a #25 drill and drill two holes and attach this bracket securely with two 1/4" 8/32 self-tapping screws enclosed in the kit.

Take the long black wire attached to the Spaceband Switch #1, through the pot pump lever bracket over the top of the pot pump and mold cam levers, then forward and toward the column of the machine over the pump stop bracket, then down through the column of the machine, and back to the Spaceband Switch #1. This wire should have enough slack to allow it to be taped to the steady bolt which reaches from the right hand cam shaft bracket to the column of the machine. Cut this wire at this point and solder the end of it coming from the Spaceband Switch #1 to the top blade of Spaceband Switch #2.

The other end of the wire where it has been cut, solder to the lower blade of Spaceband Switch #2 then take it back inside column along the steady bolt then up through the column and the hole which extends to the right of the machine just back of the magazines, and plug into the R.H. side of the control box. Make these solder joints with a resin core radio solder. Tape these two wires to the steady bolt with Scotch #33 Electrical Tape, or use nylon cable straps.

See Illustration #17.

The Spaceband Switches #1 and #2 are a part of the standard Mat Detector only. They are not made and incorporated into the high speed Mat Detector for use on the Linotype Elektron or the Monarch Intertype. Both of these machines have a loose line stop built into them which takes the place of the Spaceband Switches #1 and #2.

Also these two switches are not applicable to or included with the high speed Mat Detector for use on machines equipped with Star Autosetter.

Due to the absence of the projection on the pot pump lever or Intertype machines, it is necessary to install the Spaceband Switch #1 Actuator.

Take the small actuator, which is curved slightly like the letter "S" from the kit. You will note that this actuator has one hole for a screw in the end of it. Attach this actuator to the pot pump lever just in front of the blade of Spaceband Switch #1. Locate the actuator so that when the pump is in normal position it will hold the blades of Spaceband Switch #1 so the points are together, and when the pump is in travel casting a line, this actuator will allow the contact points of this switch to open.

See Illustration #17.

Revolve the main cams of the machine so that the first pot lock-up cam (the short cam) has passed the pot lever and the cams are in position where the long pot lever cam shoe is just ready to make the second advance of the pot.

With the cams now turned to this location, the center of the hole for the location of the fiber cam on the inside of the transfer cam will be $\frac{5}{8}$ " from the right side of the cam, inward toward the left side of the cam. The location around the circumference of the cam will be $\frac{1}{8}$ " forward of a direct line from where the ejector return cam shoe butts against the cam itself. Hold a straight edge or rule against the back edge of this little ejector return cam shoe, with the rule extending out to the right side of the machine over the transfer cam and scribe a line on the transfer cam so that it will intersect with the line extending, circumference-wise, around the cam $\frac{5}{8}$ " in from the right edge. See photos at the rear of the book for help in locating this cam, as well as the Spaceband Switches #1 and #2.

See Illustration #18.

See Illustration #19.

The elevator cam switch is a small switch enclosed in the kit, or wrapped with the phototube, which has the yellow wire, socket and bracket attached to it. Remove the cover of the operating unit and attach the switch so that it is over the small cam on the back of the elevator cam. Attach by means of the screw in the bronze cam shaft bearing bracket to the right, just back of the elevator cam. Adjust the lower blade of this switch downward so that it rests on this small cam, then adjust the upper blade so that there is a gap of approximately .020" between this and the lower blade. Slide the spaghetti back on this yellow wire and disconnect the connection here which extends on to the phone tip jack, now pass this end of yellow wire down through the little square opening just to the right of the code bars. Attach the bracket and phone tip jack to the front right hand screw which holds the right hand plate or cover under the operating unit. Now connect this wire from the elevator cam switch by means of the little knife connection, then slide the black spaghetti up over the end of this phone tip jack.

With scotch tape, pull the yellow wire tight enough so that it rests in the back left hand corner of this square hole it comes down through, and tape it to the bracket which you have just mounted under the operating unit. This is for the purpose of keeping this wire in such a position that it will not get left behind the stop projection on the code bars as they are operated from right to left, causing a ground in the wire.

See Illustration #20.

See photo for location of switch bracket and switch. After mounting the switch bracket and switch, take the cable with the 4 prong Cinch Jones plug on it and insert the wires up through the base of the TOU 75 through the square hole just under the right end of the code bars. Lead this wire up to the terminal ends of the switch blades. Solder the red wire to the short blade, solder the black wire to the long blade.

With the machine in normal position and no elevator signal sent in, the switch points should be gapped 1/16". Next, run an elevate signal through the operating unit and you will note the lever just to the left of the long blade will move the long blade to make it contact the short blade. There is no extremely critical adjustment of this gap. The point is that after the elevate signal has completed there should be a gap between the points, and they should close as the lever to the left of the long blade moves right when the elevate signal is set up.

This 4 prong Jones plug connects with the female plug of the same kind on the end of the wire coming from the control box.

The purpose of this switch is to give the second pulse to the control card of the Mat Detector in case the last mat in the line is missed, thereby preventing the line from delivering.

Failure of Mat Detectors Model 800 through 1200, to stop on a missing mat, may be due to the red and black wires being reversed on the blades of M-2050 elevator cam switch in case of the Elektron and also on the blades of elevator cam switch M-2000 on the Monarch Intertype equipment with TOU 75.

Due to the fact that when the last mat in the line is missed we get our second impulse for locking from the elevator cam switch M-2050, as described above, but not in time to prevent the elevate signal from being given to the Elektron, (by elevate signal we mean the signal to deliver the line which has been commonly called the elevate signal in tape for tape operated machines). We have a cable coming from the control box which has a 2 prong Jones plug on it, banded red, also the mate to this plug is banded red, and has a 6" cable attached to it. The purpose of this cable is to control the continuity of wire #984 going to plug P-22 in order to prevent a line from delivering when the last mat is missed.

Locate wire #984 coming from plug P-22. Cut this wire and solder the wires from the 6" cable described above (one wire to each of the two cut ends).

The Cinch Jones plug, with the red band, on this short wire extension which you just soldered into wire #984, is to be plugged into the other Cinch Jones plug with the red band, which comes from the control box.

Since you have cut wire #984 and run it into our red-banded plug, it goes into the control box and continuity is made through normally closed contacts of our magnetic switch. When a mat is missed, and the Mat Detector locks out thus closing the magnetic switch, the continuity of the wire #984 is open and, therefore, a line will not deliver until the Mat Detector release button is pressed after having inserted the missing mat at the end of the line.

To further help you in analyzing this particular part of the circuit, the wire #984 which you cut and soldered the cable into, changes to wire #955 as from plug P-23 and goes onto delivery slide MS 18. See wiring diagram on page 48 of Elektron Electrical System, Service Instruction #21 by Mergenthaler.

There is a cable leading out from the laced group of cables which has on its end a 4 connector female Jones plug, with a male plug with no wires on it taped onto the end of this male plug.

Remove the tape and the male plug, then check the cables coming up to the operating unit from the LOU console.

You will note 2 wires coming from these cables from the LOU console, tagged for Mat Detector. Solder these 2 wires to terminals #1 and #2 of the male Jones plug, then plug it into the female Jones plug mentioned in the above paragraph.

This connection is to get an impulse from the return signal of the tape, to stop the machine if the last mat in the line is missed.

To install, remove the screw #6810, washer #34432 and lock washer #2669 which hold the bell-crank stop #385519 in place. You will note that there are the screw and washer at either end of the bell-crank stop.

Discard the screws #6810, but use the washers on the two 1/2 x 10 x 32 screws furnished.

Attach the keyboard contact bar to the under-side of the bell-crank stop by means of the longer screws furnished, in a manner as shown in the following Illustration #21.

The mounting screw holes in the contact bar frame are usually large enough to allow either end to be shifted in or out slightly for the purpose of moving the frame in or out at either end so that the striker bar contacts the bell-crank lever at each end. However, in rare instances, due to slight variations in the casting of the operating unit, we find that it has been necessary to elongate the hole in the right end of the frame, the elongation toward the front, so that the right end of the frame may be moved back far enough so that the striker bar will contact the bell-crank levers in normal position at either end of the bell-crank lever assembly.

After the bar has been mounted as described above, check to see that the striker bar practically centers over the first ninety bell-crank levers from left to right and positively misses the spaceband bell-crank lever. Adjust by means of the hinge pins at either end of the striker-bar. Care should be exercised that these hinge pins are not set so close to the bearings of the striker bar that they will cause it to bind. The striker bar should have approximately .010 to .020 end-play on the hinge pins.

After the keyboard contact bar has been installed as described above, adjust the points. This adjustment is not for the amount of gap, but for the overtravel of the front blade when the back blade is allowed to strike it by the movement of the bell-crank levers when the machine is in operation. Make this adjustment by moving the contact stack bracket on its elongated mounting holes and then watch the front blade while the machine is in operation. By carefully observing you can detect a movement of the front blade and its movements should be .010 to .015" each time the back blade and point strikes it. This will give an unusually wide gap between the points when the machine is at rest and this is a normal condition.

When moving the points and bracket to make this adjustment, take particular note that they are not in such a position that the point operating lug of the striker bar will rub the short blade which is to the front.

The eight ounce scale which is a part of the teletypewriter tools should be used to check the contact blade pressure and the striker bar spring tension.

- A. Hold the striker bar away from the bell-crank levers so the contact points are closed. By using the "pusher" end of the scale and pushing on the back or long blade just to the left end of the front blade, it should require 1½ to 2 ounces to just separate the contact points.

Note: The above described pressure is extremely important as a lighter pressure of the back blade and point against the front blade and point will cause false stops.

- B. Next, by using the hook-end of the scale over the striker bar where it contacts the bell-crank levers and pulling, the scale should be $4\frac{1}{2}$ to 5 ounces when the striker bar is pulled far enough to cause the contact points to close.

ELEKTRON KEYBOARD CONTACT BAR AND KEYBOARD LOCK

See Illustration #23.

Remove the regular locking bar and brass supports.

Attach the keyboard contact bar by means of the fiber brackets to the upper banking bar using the screws which were removed when taking the brass brackets off of the Mergenthaler bar. Adjust the height of this bar to clear the top of the large part of the keyboard weights by .080" to .085" or just slightly more if necessary to allow the keyboard cams to trip freely when a key is pressed. When used with TOU 75-3, the clearance from keyboard weights to keyboard contact bar should be .085" to .095".

Check carefully the tripping of the cams by all keys of the keyboard.

Next, with a volt-ohmmeter, check the contact bar for ground and for continuity as follows:

First, plug one wire of the volt-ohmmeter into the red plug coming from the keyboard contact bar and ground the other wire to the frame of the keyboard. Set the volt-ohmmeter for 100,000 ohms resistance and if this bar is correct the scale of the meter should indicate an open circuit.

Next, jar the keyboard slightly by hammering on one end of the cam frame with your fist and note whether or not the hand on the meter makes any movement. If it does there is an indication of a slight ground. This should be checked by looking at the keyboard bar to see if it is bent in any way. Also, see that the terminal lug at the end of the red wire where it attaches to the bar is not contacting any metal which leads direct to the keyboard bar.

Next, install the new style locking bar as shown in Illustration #23.

Hold the bar in the position as shown by the photo. Locate, drill and tap three 8/32" holes in the upper banking bar for use in securing the upper part of each of the hinges of the new style locking bar. By means of the 8/32 x 3/8" screws and washer, attach the locking bar to the upper banking bar. Before fitting the bar into place under the screws and washers, insert the stud on the right hand end of the bar into the lock control lever which goes to the operating lever at the front of the keyboard, adjust this bar low enough to lock the weights down, but so that it will swing out and in again without binding on the top of the weights.

You will find, by having our contact bar and this new style lock bar adjusted individually that you will have no trouble in getting the keyboard contact bar, which also serves as a banking bar adjusted so the cams may all be tripped freely, and then getting the lock bar adjusted individually from that, so that the keyboard will be locked.

Next, check for proper grounding or continuity from each keyweight as it touches the bar. Strike the keyboard key and note as you press the key to the bottom of its stroke bringing the weight against the contact bar that the meter hand moves indicating a closed circuit. Make this check in several places across the keyboard to be sure all weights are making contact and a circuit continuity with the bar.

INSTRUCTIONS FOR INSTALLING M-4300 KEYBOARD BAR

ALL LINOTYPES EXCEPT ELEKTRON USING FAIRCHILD OPERATING UNITS

See Illustration #22.

The installation of the Transistor Mat Detector on all Linotypes with Fairchild Operating Units except the Linotype Elektron, should be made according to the regular installation manual for the model concerned.

Next, install the keyboard contact bar, M-4300 on the back of the keyboard over the weights by drilling and tapping the upper keyboard banking bar and then putting this bar on the same as illustrated in the picture in this set of instructions. The bar is to be located over the first 90 weights, from left to right. It does not cover the spaceband weight. It should be spaced so that there is approximately .095" between the top of the large part of the weight and the under side of this contact bar. We caution you . . . this .095" clearance is an approximate measurement and will vary some according to the manufacturing tolerance of the keyboard. After locating this bar and adjusting it to approximately .095", then check the keyboard by tripping the keys and being certain that they all trip freely with this amount of clearance.

Illustration #38 shows three points where the parkerizing must be cleaned from the keyboard weight to assist in making good contact with the keyboard bar M-4300. The parkerizing should be cleaned from the top of the large part of the weight marked "A" and the part of the weight marked "B" when used with a Fairchild Operating Unit.

When using LOU or Autosetter, remove the parkerizing from the surfaces "A" and "C" of the keyboard weight.

It is necessary to clean the parkerizing as described above in order to get a good "ground" contact between the frame of the machine and the keyboard bar M-4300. Do not use emery cloth when removing this parkerizing as bits of emery will imbed themselves into the steel of the weight and prevent it from making a good "ground" contact with the M-4300 keyboard bar, and as in instances of the surfaces "B" and "C", from making a good "ground" through to the frame of the machine. We suggest that you use a new sharp file and by the means of one or two strokes over the surface, you will remove parkerizing down to the brake metal.

After having cleaned these weights, it is well to check them with a meter to be sure you are getting a good contact. To do this, use a volt-ohmmeter and set the resistance to 100,000 ohms. Next, plug one line from the meter into the red plug coming from the keyboard contact bar and take the other line from the meter and ground it to the frame of the keyboard. Next, while watching the hand on the meter, depress various ones of the keys on the keyboard, and when the key is depressed to its extreme limits, the hand on the meter should move indicating a closed circuit.

Also, while the volt-ohmmeter is connected to the red wire coming from the M-4300 keyboard bar and the other wire grounded to the keyboard frame, there should be no movement of the hand on the meter when no keys are pressed, thus indicating an open circuit.

INSTRUCTIONS FOR INSTALLING THE M-4600 KEYBOARD BAR AND M-4612 LOCK FOR INTERTYPES USING STAR AUTOSETTER AND INTERTYPE MONARCH WITH KEYBOARD USING TOU-75 ALSO MODELS B & C USING T-2895 BANKING BAR

See Illustrations #24, #25 and #26.

1. Remove the upper hex-head screw from both the left and right keyboard cam frame posts. Next install the Weight Holding Tool M-4622 by placing it in position as shown in the illustration and then clamping it in place with the two screws just removed. This will hold the weights in place while performing the operations which will be mentioned next.

2. Remove the keyboard weight banking bar T-2895. Remove the Keyboard Lock T-2785; this can be done without removing the back cam frame. Take out the screw W-2399 that holds the Latch Lever, R.H. T-2782, then with a very sharp chisel or knife, pry the right hand Banking Bar Bracket T-2897 from its dowels on the R.H. cam frame post. This will allow you to remove the Keyboard Lock T-2785. After doing this, replace the R.H. Banking Bar Bracket T-2897 and Latch T-2782 and Screw W-2399.

3. Grind or mill away the underside of the keyboard Banking Bar T-2895. The removal of this material on the underside of the bar should cover the area where the 90 weights from "e" through the "em dash" strike the bottom of the bar. Try carefully not to remove any of the underside of the bar T-2895 where the spaceband weight would contact it.



4. Locate the keyboard bar M-4600 to the bar T-2895, as shown in Illustration #24, and for the proper height location of this bar, see Illustration #39.
 5. Replace the M-4600 bar back on the keyboard banking bar T-2895, and then put the banking bar back in its brackets T-2897 and T-2866, on keyboard cam frame posts.
 6. Remove the keyboard weight holding tool M-4622.
 7. Under the same screw, which was holding part M-4622, put one of the M-4620 brackets on the L.H. Cam frame post - just clamp it with the screw finger-tight. Now, insert the hinge pin of the lock M-4612 into this bracket and, with the other M-4620 bracket slipped over the R.H. hinge pin of the M-4612 lock, fasten this bracket with the other hex-head screw to the R.H. cam frame post.
- Hold the lock M-4612 in over the weights and by means of the elongated holes in the M-4620 brackets, adjust vertical height so the M-4612 lock will hold the weights in their extreme downward position.
8. Place the end of the keyboard lock operating lever and rod T-2956, which is mounted on the R.H. side of the keyboard, into the slot in the M-4612 lock and fasten with the original plate and screw. You will now note that it will be necessary to grind a notch approximately 1/4" farther toward the front of the lock operating rod T-2956 so as to enable the lock operating rod to be pushed far enough toward the back of the keyboard to move the M-4612 lock far enough back so the weights will be free to travel.
 9. After the bar M-4600 has been installed in this manner, it will pick up the memory for the Mat Detector properly when used with the Star Autosetter.

When using this bar on a Monarch with a keyboard equipped with TOU-75, it may be necessary to remove from one to three of the shims from each side of the bell-crank lever assembly of the operating unit in order to secure enough lift of the keyboard weights by the keyboard lever extensions to cause the weights to strike the keyboard bar M-4600 with enough force to put a memory into the Mat Detector.

THE KEYBOARD BAR M-1646, INTERTYPE MONARCH

See Illustration #27.

The keyboard bar for the Monarch is mounted on the front of the operating unit so the striker bar rests on the top of the bell-crank levers instead of on the underside of it with the striker bar contacting the lower front end of the bell-crank as on the slower speed model.

On the front of the operating unit you will note at either side there are two holes which were used for holding the covers on. Drill these holes with a #28 drill and tap them for 8/32. Next take the keyboard bar, two washers for #8 screws, and two 8/32 screws, 3/8" in length, and put the washers between the keyboard bar frame and the operating unit and fasten the keyboard bar to the operating unit by means of the 8/32 screws.

The striker bar should contact all of the bell-crank levers from left to right, except the space band bell-crank lever. The keyboard bar frame should be so adjusted - up and down - at either end so the striker bar will contact the bell-crank levers at either end of the bell-crank lever assembly when the machine is at rest, also high enough so the striker bar can be raised 3/32" without its maximum travel stop, located at the right end of the striker bar.

Adjust the keyboard contact points so that they have a clearance of from .025 to .030 when the machine is not operating. We suggest that you use a wire feeler gage from the teletypesetter kit of tools which is usually in the plant where you will be installing one of these units. See Illustration #28.

Next, adjust the tension of the lower blade of the contact point stack by use of the 8 ounce spring scales. Hold the striker bar up so the points will be closed, then by resting the pusher

end of this scale against the lower blade as in Illustration #29, exert enough push to separate the points, this scale should read from $\frac{3}{4}$ ounce to one ounce. CAUTION: Greater pressure than this required to separate the points will cause a bounce and false stops.

Next, hook the opposite end of this 8 ounce scale on the striker bar as in Illustration #29A, and pull upwards on the striker bar until the points close. When the points close, the scale should read between 7 and 8 ounces. Secure this adjustment by means of the return spring adjustment on the striker bar mounting.

LOCATION AND MOUNTING THE INDICATOR BOX ON ALL MACHINES EXCEPT MONARCH AND ELEKTRON

The indicator box is located in a convenient position on the front of the machine so that it can be readily accessible to release the machine and turn the switch on and off as well as to observe the lights when the machine has stopped.

The strap, with the two mounting holes in it, is furnished on this indicator box in straight length. On the 5's and 8's and 31's, it is mounted on the curved part of the bracket between the assembler drive pulley and the intermediate shaft. On the Comets, it is necessary to put a right angle bend downward in this strap, just inside of the innermost mounting screw hole, then locate this bracket on the pi stacker casting where it attaches to the machine or on the bracket which the pi stacker attaches in case it has been removed from the machine.

On some Intertype machines, we make a 90 degree twist in this bracket and come into the pi stacker bracket from the right side with two holes for mounting it.

From the photos shown, and with a little ingenuity, the indicator bracket can be very readily mounted on any machine.

INDICATOR BOX - MONARCH

See Illustration #30.

MOUNTING THE MAIN CONTROL BOX ON ALL LINOTYPES EXCEPT ELEKTRON

The main control box can be mounted to the right side of the distributor bracket by locating, drilling and tapping two $\frac{1}{4}$ -20 threaded holes and then attaching with the button head $\frac{1}{4}$ -20 screws furnished in the kit.

If this position is taken up with other boxes on the side of the machine, it may be mounted to the horizontal part of the distributor bracket at the back of the machine, toward the extreme right side of the machine as facing the front. There is a small 90 degree angle bracket furnished for mounting.

This same mounting may be followed on any of the Linotype machines from Model 5 thru 31, as well as the Comet. Due to the angle of the inside of the distributor bracket of the Model 31 and 5, a small mounting bracket of the proper angle is also furnished in the kit so that either one, whichever is necessary, may be used.

LOCATION OF THE CONTROL BOX, LINOTYPE ELEKTRON

See Illustration #34.

You will note that we are showing a new location of the control box for the Elektron. This is for easier accessibility for reaching the off-on switch and fuse than was possible in the earlier location.

Position the control box, as shown in the illustration, keeping it as far toward the rear of the machine as possible, so it will present the least possible interference when swinging the keyboard. Locate, drill and tap $\frac{1}{4}$ -20 thread holes. Be sure to use the shakeproof $\frac{1}{4}$ " lock washers on the screws when fastening the control box to the machine as these washers serve the purpose of making a secure "ground" of the control box to the machine frame.

Next, remove the large cover-step and cut away enough of the vertical part of this cover-step, to allow room for cables from the back end of the control box to pass through and into the framework of the machine under the magazines. NOTE: After making this cut on the cover-step, be sure to smooth any rough edges so they will not damage the insulation on the cables.

LOCATING THE MAIN CONTROL BOX, INTERTYPE MONARCH

See Illustration #32.

Before mounting the control box, remove the cover, unwrap the transistor control card and plug it into place. This card is packed separate inside the control box.

When sliding the card into place check carefully that all the connector pins match into the connector card in the base of the control box.

THE ELEVATOR LOCK

See Illustration #36.

The elevator lock is mounted at the lower left hand side of the assembly elevator. This consists of a solenoid, return spring and a latch lever which moves to the right over the casting of the assembling elevator when a character is missed to prevent the assembling elevator from rising. The plug on the end of the long cord coming from the molded solenoid coil plugs into the side of the main control box at the side or back of the machine.

Whenever removing this lock for the purpose of removing the assembling elevator from the machine and then replacing the lock, extreme caution must be taken when tightening the lower screw, which has the little eyelet over it to hold the return spring. This eyelet must be held so the hole, into which the spring is hooked, is straight down from the screw. If this is allowed to turn to the left at an angle of 240 to 270 degrees, it will cause the spring pressure to be so strong that the solenoid will not have enough power to pull the latch over the elevator even though it is energized.

Feed the elevator lock cable through the frame of the machine, across and in back of the keyboard, but just in front of the blower tube, then up along the diagonal brace for the distributor bracket and plug it into its proper receptical in the side of the main control box.

On the Intertype, it is much better to take this cable up through the column and out through the hole just in front of the distributor bracket brace and tape it to the distributor bracket brace to be positive that it will not get against the main drive belt and have the insulation chaffed from it.

On Intertypes, attach the small latch-lever extensions with the two screws and lock washers furnished.

HI-SPEED CUT-OFF, ALL MODELS EXCEPT LINOTYPE ELEKTRON

For machines with the Hi-Speed operating unit and others which have the electric tape stop coils:

The Hi-Speed cut-off cord has a 3 pronged plug which plugs into the side of the main control box and the other end of the wire is connected in with the two leads attaching to the 6 prong plug socket that goes into the back of the operating unit so that when a mat is missed, the stop coils under the operating unit will be energized and stop the operating unit. Most generally these two wires attach to the top and bottom center terminals of this plug; however, on some Intertype installations the attachment will be one wire to the top center and the other wire to the lower right terminal. The description of "right terminal" means, as you are facing the front of the machine.

If there is any doubt as to the proper connection of these wires, take a small wire and while the operating unit is running and the cover is off the back of the 6 prong plug, short between the top and bottom center, or the top center and the bottom right terminal and note whether or not

this shorting condition causes the operating unit to stop. Whichever two terminals you can short across on this 6 prong plug and cause the operating unit stop coils to work, stopping the unit, are the proper terminals to connect either of the two leads from the hi-speed cut-off cable onto. Plug the 3 prong plug into socket on R.H. side of control box.

HI-SPEED CUT-OFF LINOTYPE ELEKTRON

You will note a 3 prong female plug with approximately 8" of 2 wire grey cable on it. Connect these wires to the center top and bottom lugs of plug P-20, this is the 6 connector female Jones plug which connects to the operating unit. The purpose of this Hi-speed cut-off cable is to stop the machine when the Mat Detector has signaled the failure of a mat.

PLUGGING IN THE CABLES ALL MODELS EXCEPT ELEKTRON

Plug the elevator male plug into the female socket on the lower right hand side of the main control box.

Now, take the group of cables coming out of the center of the bottom of the main control box and proceed to lead them thru the machine to their proper positions.

The shorter of the grey wire, with the female Jones plug on it, should be led up-under-through the distributor bracket and looped with a single tie around the rod that runs back of the magazine frame. Plug photocell into this cable.

The long grey wire, with the 8 prong octal socket on it and the other grey wire, approximately the same length with the male Jones plug on it, should be brought up thru the framework of the machine above the intermediate bracket and then down to the scanner light and the indicator box.

Take the red wire and yellow wire, with the red and yellow phone tip Jacks on them, down thru the framework of the machine, just behind the keyboard and plug the red wire into the keyboard bar and the yellow wire into the plug in the bracket coming from the elevator cam switch.

Also, note that by snapping the light socket out of the right side of the scanner light, it may be turned to align the filament in a line approximately the same as the angle of the magazine.

CONNECTING THE CABLES LINOTYPE ELEKTRON

The cables, coming from the Elektron control box, are the same as all other models with the exception of the hi-speed cut-off and the yellow wire with the phone tip on the end.

The hi-speed cut-off for the Elektron is a 3 prong male plug on the end of a grey cable coming from the control box. Also, a grey cable, approximately 8" long, with a 3 prong female plug. See heading "Hi-Speed Cut-Off Linotype Elektron" for description of connecting this.

Instead of the yellow wire with the yellow phone tips on the end of it for the last mat pulse, there is a grey cable coming from the Elektron control box with a 4 connector female Jones plug attached. See heading "Last Mat Pulse For Machines Equipped With LOU, Page 7" for instructions, on making this cable connection.

LOCATION OF CABLES INTERTYPE MONARCH

See Illustration #31.

The wires coming from the control box and going up to the scanner light, photocell and indicator box should come up thru the machine just to the right of the key rod frame. Bring the large wire, with the octal plug, over and plug into the indicator box. Next, take the wire, with the male Jones plug, and bring it up the same place and loop it around the hose that creates a vacuum for the matrix delivery belt and make one loose tie in it. This plug can then be plugged into the scanner light. Next, bring the wire for the photocell up thru this loop, this is the wire with the female Jones plug on it, then draw this loop tight to hold the wire in place. The photocell wire should be looped to the right from the photocell, then up over the top of the

photocell and pulled down, and then led across the machine back of the keyrod frame and over the top of this vacuum tube, then plugged into the female Jones plug socket. Take extreme care to see that none of these wires can be chaffed by any moving parts of the machine.

ALIGNMENT AND HEIGHT OF THE PHOTOCELL AND SCANNER LIGHT ADJUSTMENT - ALL MODELS

See Illustration #1.

Place the light beam and photocell gauges in the magazine as shown in the Illustration.

The thin gauge should be placed in the "e" channel, the thick gauge in the third channel to the left from the right side of the magazine.

Align the scanner light so the beam will shine through both of these gauges onto the round hole in the photocell casing. With the light, shining through these two holes, position the photocell so the hole in the casing is exactly in alignment both up and down and forward and backward in relation to the hole in the gauge which was placed in the "e" channel. You will be able to observe the filament image of the light on the right side of the gauge in the "e" channel. The filament is of a rectangular shape and the lamp socket should be turned so the filament image will appear on the gauge as shown in Illustration #1A. You will note this puts the filament in a line 90° to the slope of the magazine.

The lens barrel may be moved in the scanner light housing by loosening the 8 x 32 Allen set screw. With the set screw loosened, move the lens barrel in and out of the scanner lamp base to secure a sharp image of the filament on the gauge in the "e" channel. After this has been accomplished, then move the lens barrel slightly to the right so the sharp appearing spiral of the filament will be slightly blurred.

Test by moving fingers through the light beam, the red light should blink each time a finger is moved through the light beam.

NOTE: Also check by striking the "e" and the "em dash" and observing the red indicator light. It should blink with both of these characters, if not recheck the light beam again with the characters. With the original setting, the light will always blink when the "e" is dropped. However, occasionally it is possible to have the scanner light a little high or a little low and it will not blink with the "em dash".

Remove the gauges, and the light should be in proper position at focus to operate.

In some composing rooms, due to the location of the machine near a window where the bright sun can cause too much ambient light in the room it is sometimes possible to have a photocell respond on cloudy days or at night but have it fail to respond on a bright sunny day. In the event this trouble is encountered, please write for a photocell shield M-1903. This is a small shield made to slip over the top of the photocell and clamp to the same by a set screw which will reduce the amount of ambient light due to an unusually bright room or sunshine, and enable the photocell to work under these room light conditions as well as on a cloudy day or dark day, or where the machines are located in the room where it is darker or with the back of the machine facing the windows.

On the Elektron, the photocell bracket must be kept as far to the left as possible when mounting in order to clear the rectangular bar sticking down at the left side of the magazine. See Illustration #14, and arrow pointing to the bar, also statement: "Photocell must clear this bar"

PROPER BELL-CRANK LEVER ADJUSTMENT FAIRCHILD OPERATING UNIT

With the driving belt off of the operating unit, put a signal for "e" over the selector pins and turn the unit manually until the bell-crank lever reaches its extreme travel. At this point, there should be .010 to .020 clearance between the bell-crank lever and the key-lever extension. When attempting to hold the key-lever extension down away from the bell-crank lever, use the end of a paper clip or an extremely small screw driver to hold the key-lever extension away from the bell-crank lever then measure the clearance. Secure this clearance by means of the shims under

either end of the bell-crank lever assembly. Also check this clearance at the right side of the assembly by checking with the "em dash".

INSTALLING THE HIGH SPEED MAT DETECTOR FOR MACHINES EQUIPPED WITH STAR AUTOSETTER - BOTH SINGLE DISTRIBUTOR AND MIXER DISTRIBUTOR MACHINES

Install the keyboard bar M-4600 and the lock parts for the Intertype keyboard as described in the instructions for installing this bar.

Follow the brown installation manual as far as the installation of the control box, the photocell and the scanner light and connecting the cables from the control box with the exception of the following items:

1. The M-4230 connector is a large canon plug with 18" of yellow wire and a female phone tip connector on the end of it. You will note on the console of the Autosetter there is a receptacle for the canon plug marked "Mat Detector". Screw this canon plug on to the connector so marked on the console and plug the yellow wire and phone tip coming from the control box on the Mat Detector into the other end of this M-4230 connector.
2. For mixer models of machines using hi-speed Mat Detector and the Autosetter, there are two Y connectors furnished. The M-1880 is a Y light connector; this has on it one female plug and two male plugs. The two male plugs plug into the leads coming from the scanner lights. Plug the female plug into the male connector which is a two prong Jones plug on the end of the cable coming from the control box.

The M-1970 Y photocell connector is a three plug connector with two female plugs and one male plug on it. Plug each of the photocell male plugs into the female plugs on this connector and then plug the male plug of this connector into the female Jones plug coming from the control box which is for the photocell.

The purpose of making these two connectors, the Y light connector and the Y photocell connector, is so we can standardize on the hi-speed control box and yet use it as a control box for a mixer machine using two photocells and two lights.

3. On Mat Detectors special for DeLuxe Check Printers or others not using the return signal in the tape, where the Autosetter is used, there is a connector M-2265, which consists of a 48" two wire cable with a two prong male Cinch Jones plug and a small canon plug on it. The male Cinch Jones plug plugs into the side of the Mat Detector control box. The small canon plug goes to the canon plug receptacle at the lower right hand corner of the plug panel of the Autosetter which is attached to the machine. You will note this particular plug on the panel is covered by a red plastic cap and after removing this cap, there will be a "jumper" wire in this plug receptacle. Remove the red plastic cover and the "jumper" wire and attach this small canon plug to this receptacle.

The purpose of this connector M-2265 is to prevent the line from being elevated to cast, if the last mat on the line is missed when used on the special Autosetter using tape with just the line and the elevate signal at the end but no return signal preceeding this elevate signal.

SPARK SUPPRESSOR M-1099 - - See Illustration #40.

The Spark Suppressor M-1099 is furnished to eliminate the transients generated by the electric clutch magnets of the Fairchild Operating Unit or the relay M-75A-2004 which is part of the Star Parts Control for Non-Star safeties when machines are equipped with the Star Autosetter.

Transients, in the magnitude of from 300 to 600 volts, are generated by the coils of the clutch magnets or the Star relay M-75A-2004; these will trigger a count into the Mat Detector occasionally the same as if a key were pressed.

To install the M-1099 spark suppressor on a Fairchild Unit, connect it across the coils of the electric clutch magnet.

When installing on a machine equipped with Star Autosetter, connect this spark suppressor to terminals #2 and #7 of the socket into which the relay M-75A-2004 is plugged. For further information in locating this device on the machine, it is the small box into which a large six prong and four prong Jones plug are plugged, and also the M-75A-2004 relay.

On Elektrons equipped with Star Autosetter, connect the spark suppressor M-1099 to terminals #2 and #10 of the socket for relay K-1. For location of this socket, see Star Autosetter Wiring Diagram for applying Autosetter to Elektron.

We wish to call to your attention the fact that the addition of any 24-volt solenoid or relay into the safety circuits of the typesetting machine and also solenoids in the various types of rule droppers, can cause "transients" which will make the Mat Detector give false stops. Any of the above described 24-volt coils in the machine safeties or other 24-volt coils specially added to perform special stopping functions MUST have the M-1099 spark suppressor connected across the coil. This connection must be made at the coil, or in case of a plug-in relay, the M-1099 may be connected at the terminals of the socket of the relay (the terminals which lead to the coil).

On Intertypes, which have the electrically operated assembler drive clutch, an M-1099 must be connected across the solenoid which operates this clutch and also the two relays located in the 3 x 5 x 6 inch panel box (located to the front of the electrical panel at the lower right side of the machine). The coils mentioned here are part of the machine safeties and are operated by the micro switch which is actuated by the assembler chute finger in case of a mat "jam" in the assembler.

"Transients" generated by these coils are in the magnitude of from 300 to 600 volts and at various times when they are operated, they will cause the Mat Detector to false-stop.

IMPORTANT POWER INFORMATION

The Transistor Mat Detector is furnished for 110 volts AC, either 40, 45, 50, or 60 cycle power. By this, we mean the transformer in the unit will take any of the above mentioned cycles of power at 110 volts.

When it is to be used where the 110 volts AC power is not available, the available power must be transformed to 110 volts, regardless of the cycles of the power and then the Mat Detector power cord plugged into that particular 110 volt outlet.

This power information pertains to foreign installations where the available power may fall into any of the four cycle categories and anywhere from 200 to 250 volts.

Consult your power company regarding power and transforming it to the proper voltage.

If impossible to secure the proper transformer locally, we will supply the transformer on special order at a reasonable price, depending on the quantity required; however, this item should be available locally.

NOTE: USE ONLY 3/10 AMP FUSES

CONTROL CARDS USED FOR VARIOUS MODELS

MODEL 600

All Linotypes & Intertypes (except Elektron & Monarch) with TTS, Fairchild, TOU 8 to 21:

With keyboard bar M-1600-63	M-1028 Green Control Card
With keyboard bar M-4300 or M-4600	M-1028 Green/Orange Control Card
With Star Autosetter and no keyboard bar	M-1028 Green/Yellow Control Card

MODEL 600-D (Mixer)

Linotype Model 29, Intertype Models F & G with Fairchild Operating Units:

With keyboard bar M-1600-63	M-1028 Green/Blue Control Card
With keyboard bar M-4300 or M-4600	M-1028 Green/Blue/Orange Control Card

MODEL 600-DI (Mixer)

Model 29 Linotype with LOU	M-1028 Green/Blue/Orange Control Card
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MODEL 800

Monarch without keyboard	M-810 Control Card
Monarch with keyboard	M-840 Control Card
Monarch with Autosetter	M-840 Control Card
All Linotypes (except Elektron) for Star Autosetter	M-840 Control Card
On Intertype Autosetter	M-840 Control Card

MODEL 900

Elektron with LOU	M-830-W Control Card
Elektron with Autosetter	M-830-WO Control Card

MODEL 1000

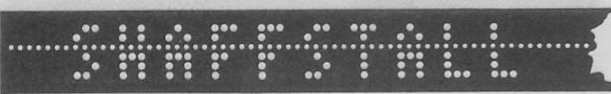
Elektron with TOU 75-3	M-830-WO Control Card
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MODEL 1200

Monarch with Autosetter (Formerly designated as MA)	M-840 Control Card
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MODEL 2000

All Linotypes (except Elektron) with LOU	M-1028 Green/Orange with capacitor Control Card
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GENERAL CHECK OUT

(USED AFTER INSTALLATION AND BEFORE CHECKING FOR TROUBLES)

TOTAL FAILURE (SCANNER LIGHT DOESN'T COME ON, RED LIGHT DOESN'T BLINK)

1. Check 115 volt outlet with lamp to be sure it has power.
2. Check 115 volt cord plug from the Mat Detector to be sure it is plugged into an outlet.
3. See that the power plug is in the outlet securely and also that the prongs have not been bent and are making good contact in the power outlet.
4. Check 3/10 amp fuse in the Mat Detector control box.

PHOTOCELL AND SCANNER LIGHT

1. Scanner light doesn't burn. Check bulb in scanner light.
2. Check magnetic switch in control box, upper points may not be making good contact and scanner light would not burn.
3. Check scanner light beam to be sure filament is shining on photocell.
4. Interrupt scanner light beam and red indicator lamp should blink.
 - a. If indicator light doesn't blink when above is tried, check indicator bulb. It may be burnt out.
 - b. If red light does not blink, check photocell. Do so by exchanging with a new cell.
5. Check scanner light adjustment, see Page 15.

WHEN MAIN POWER SWITCH IS TURNED ON, MAT DETECTOR GOES INTO LOCKED CONDITION IMMEDIATELY

This happens on the standard model only with both the red and green light on the indicator box. If this condition happens, check for burnt out bulb in the green light.

FUNCTIONAL TEST FOR SATISFACTORY CONTROL BOX OPERATION

1. On standard models, disconnect the plugs as follows from the respective jacks: red, yellow and black phone tips.

On hi-speed models you will not have the black phone tip which comes from the spaceband switch #2.

On hi-speed models for Linotype Elektron, instead of yellow phone tip, there will be the square Jones plug with 4 connectors on it.

On hi-speed models for Star Parts, there will be the yellow phone tip plugged into the yellow jack which is connected to the console of the Star Autosetter by a canon plug.

On later Star Autosetter Consoles to be out in the future, there will be a yellow jack on the console and the yellow phone tip from the Mat Detector to be disconnected.

Now, with all of the wires disconnected, proceed with the functional test as follows:

1. Strike red phone tip twice on clean unpainted surface of the linecasting machine. When doing this, the red indicator lamp should burn steady and the elevator lock and the electric tape stop should function to prevent the operating unit from running and the assembling elevator from rising or in case of the Linotype Elektron, the delivery slide from being able to go across.

2. Push the release button on the indicator box. Elevator lock and electric tape stop should release. Also in case of the Linotype Elektron, the line would be permitted to deliver.

The above test will indicate that the control circuitry of the Mat Detector is functioning properly.

SPACEBAND SWITCH TEST

NOTE: This is only on the standard Mat Detectors which have both the red and green light on the indicator box.

Connect the black phone tip into the black jack on the control box. Black phone tip comes from spaceband switch #2. See Pages 5 and 6 for description and location of these switches.

1. If green light comes on immediately when black phone tip is plugged into control box, see Page 6 under Spaceband Switch heading and check switch points.
2. Assemble a line of mats that will cast. Elevate to cast. When line is cast, green light should not come on.
3. If green light comes on, check spaceband switch #1.
4. Cycle the linecasting machine through the cast without a justified line in it and hold the pump stop. Green light should come on. If it doesn't, see Pages 5 and 6 and check both #1 and #2 spaceband switches.

ELEVATOR CAM SWITCH

This switch in two styles, M-2000 or M-2050, is used only on machines with Fairchild Operating Units.

1. To test, disconnect red and yellow phone tip from their respective jacks.
2. Strike red phone tip to a clean surface of the linecasting machine one time.
3. Touch yellow phone tip to clean surface of the linecasting machine one time. This should cause the elevator lock to act and the red indicator light to come on steady, thus stopping the machine.
4. In cases of the Linotype Elektron, or machines equipped with Autosetter with no elevator lock, elevator will fail to rise or line will fail to deliver.

NOTE: Elevator cam switch is not used with LOU or Star Autosetter. The pulse for this connection is generated by the respective operating units.

NOTE: Purpose of elevator cam switch is to stop the machine before the line delivers if the last mat in the line is missed.

LAST MAT FUNCTION

This function is performed by the elevator cam switch on machines equipped with Fairchild Unit, and by the Mergenthaler LOU and Star Autosetter on machines equipped with these two operating units.

CHECKING LAST MAT FUNCTION ON LOU OR AUTOSSETTER EQUIPPED MACHINES

1. Punch the test tape with return elevate, then several tape feed signals then return elevate.
2. Remove red phone tip from its jack.
3. Place tape with return and elevate on in the reader of the operating unit ready to run.

2. Points should be set so that when the operating unit sets up elevate condition, the move-able blade or long blade contacts the short blade and moves it approximately .010.
3. On Elektron equipped with LOU, when the Mat Detector stops at the end of the line with no mat missing check the return bale switch on the LOU decoder.
 - a. Swing the keyboard.
 - b. Remove the decoder cover.
 - c. Punch a tape with several return signals.
 - d. Start the tape in the reader and turn the keyboard rolls manually until a return signal is read and note the action of the return bale switch, which is to the right end of the decoder and this can be observed by looking at the under right end of it when the keyboard has been swung out.
 - e. When the decoder has been moved by turning the keyboard rolls so the return bale switch is closed and the lowest point of the cam is directly above the fiber stud and the lowest part of the cam when the switch points are closed.

FALSE STOPS ANY PLACE IN THE LINE

1. Check position and focus of light beam, see description Page #15.
2. Check keyboard bar.
 - a. On M-1600-63 and M-1646, check point clearance and return spring pressure, see Pages #8, #9 and #11.
 - b. With machines equipped with grounding bar over the weights, see Keyboard Bar Clearance, Pages #9, #10 and #11.
 1. Mat lodged between keyboard bar and key weights.
 - c. Transients given off by the closing of the electric clutch magnets or the stopping relay operated by the 24 volt safety system of the machine.
 1. Install spark suppressor M-1099 across the coil of this unit. Spark suppressors are furnished and installed with the unit, but the spark suppressor could become defective in use. See Spark Suppressor M-1099, Pages #16 and #17.
 2. Due to variations of some of the 24 volt Safety Power Supplies on the typesetting machines, transients of so great a magnitude are generated that spark suppressor M-1099 will fail to completely take care of them. It has been necessary on the Mat Detector Models 800 through 1200, to install a capacitor M-1420 from the red keyboard wire to a ground connection somewhere on the frame of the typesetting machine.

NOTE: On all Models 800 through 1200 shipped since February 1965 this M-1420 is incorporated in the circuit. On the same mentioned Models, shipped prior to that time, the addition of M-1420 could help in many instances to remedy false stops.

FURTHER INFORMATION ON FALSE STOPS

1. Check for bent mat or dirty magazine.
2. Check for keyboard cam being dirty or running slow due to lack of oil.
3. Check for oil on the rubber roll or badly worn rubber roll.
4. Check for magazine alignment with assembler front.

- FALSE STOPS ANY PLACE IN THE LINE

- NOTE: On all Models 800 through 1200 shipped since February 1965 this M-1420 is incorporated in the circuit. On the same mentioned Models, shipped prior to that time, the addition of M-1420 could help in many instances to remedy false stops.

1. Check for bent mat or dirty magazine.
2. Check for keyboard cam being dirty or running slow due to lack of oil.
3. Check for oil on the rubber roll or badly worn rubber roll.
4. Check for magazine alignment with assembler front.

The magazine can be too low in adjustment with the assembler front or on Intertype the assembly guide back plate can spring up slightly and retard the mats as they come from the magazine.

5. Check for a mat rubbing the side of one of the assembling guides.
6. Check for escapement verge spring being too tight on Linotype escapement.
7. Check for faulty escapement fall operation on Intertype magazine.

FAILURE TO DETECT MISSING MATS

WILL NOT PICK UP ANY MISSING MATS

Under this heading, we wish to caution you that in case of Hi-Speed Mat Detectors, using the red control card, if the elevator cam switch is grounded or the input from the LOU or the Auto-setter for the elevator cam switch is grounded, the Mat Detector will not detect any missing mat.

1. To check, pull the yellow phone tip from its jack and then if the machine picks up missing mats, check for grounded switch.
2. In case of use with LOU, pull the square 4 connector Jones plug from the socket, then if missing mats are picked up, check for grounded male switch #18 in the LOU decoder.

FAILURE TO DETECT LAST MAT IN THE LINE

See general check out, elevator cam switch.

RANDOM FAILURE TO PICK UP MISSES WHEN USING STAR AUTOSETTER

1. On machines using the M-1600-63 or M-1646 keyboard bar, check for contact point gap. See Pages #8, #9 and #11.
2. On machines using the M-4300 contact bar and parkerized key weights, check for cleanliness of top of the weights.

FAILS TO DETECT ONE PARTICULAR MAT CONTINUOUSLY

1. On machines using the M-4300 or M-4600 keyboard bar and Fairchild Operating Unit, check as follows:
 - a. Bent or cracked bell crank lever.
 - b. Bent key lever extension, front end will be bent down.
 - c. Proper timing of the spreader cam of the TTS unit. If time too fast, push bar will be pushed away from the push bale too quickly and not give complete stroke of keyboard weight. Also defective push bar, by this we mean the edge of the notch where it hooks over the push bale could be rounded.

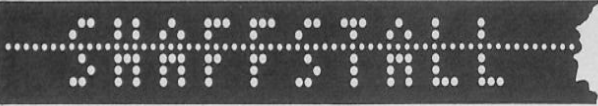
INTERMITTENT OPERATION

Mat Detector works approximately 45 minutes then fails; then if turned off for a time, will work for another period then fail.

1. Change power supply.

FALSE STOPS PART OF THE DAY

1. Check for sunlight coming in the window and shining on photocell for that particular period of the day.



MORE ABOUT FALSE STOPS

After having followed the preceding trouble shooting suggestions for false stops and they persist, see instructions on the various keyboard bars.

1. Check points on the bars with contact points.
2. Check the keyboard bar clearance from the weights on the ones which have the grounding bar located over the keyboard weights.

FAILS TO RELEASE RED LIGHT WHEN RELEASE BUTTON IS DEPRESSED

1. Remove cover from indicator box.
2. Press release button and be sure the contact points, located just behind this button, close when holding the button completely down.

PHONE CALLS TO THE FACTORY FOR AID IN TROUBLE DIAGNOSIS & PARTS ORDERING

Be prepared to give the following information:

Name of Company		Person calling
State	City	Street
Phone Number	Area Code	Extension
Model of machine		Type of operating unit
Speed of machine	Standard or Hi-Speed Mat Detector	
Number of characters per minute operating unit is running		

Type of control card, number of the control card, the color of the modules on the card

WHEN ORDERING PARTS, PLEASE GIVE THE FOLLOWING INFORMATION:

1. Model of operating unit
2. Model of Mat Detector
3. Type of linecasting machine equipment is used on

RETURNING PARTS

Enclose packing slip - stating what service is requested on parts returned.

Photocell,
Light Beam Gauges.

Light Beam Gauges.

Light Beam

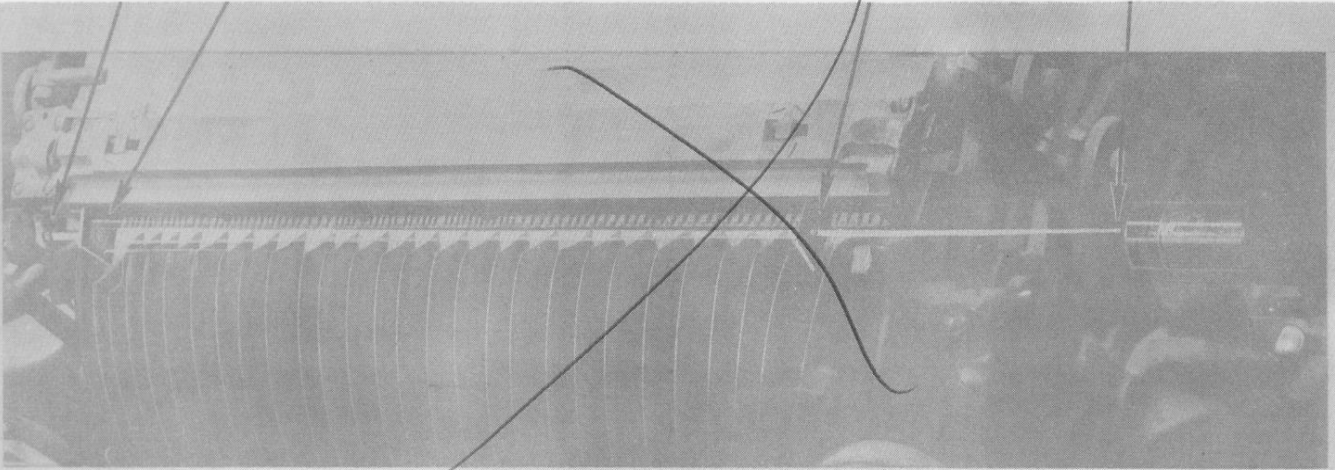


ILLUSTRATION No. 1 Photocell, scanner-light and Light Beam Gauges. Showing position of light beam.

This was made new.

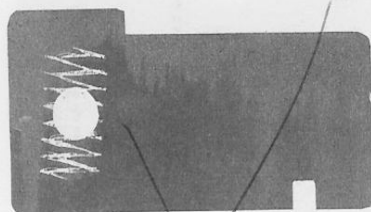


ILLUSTRATION No. 1-A Light Beam Gauges.

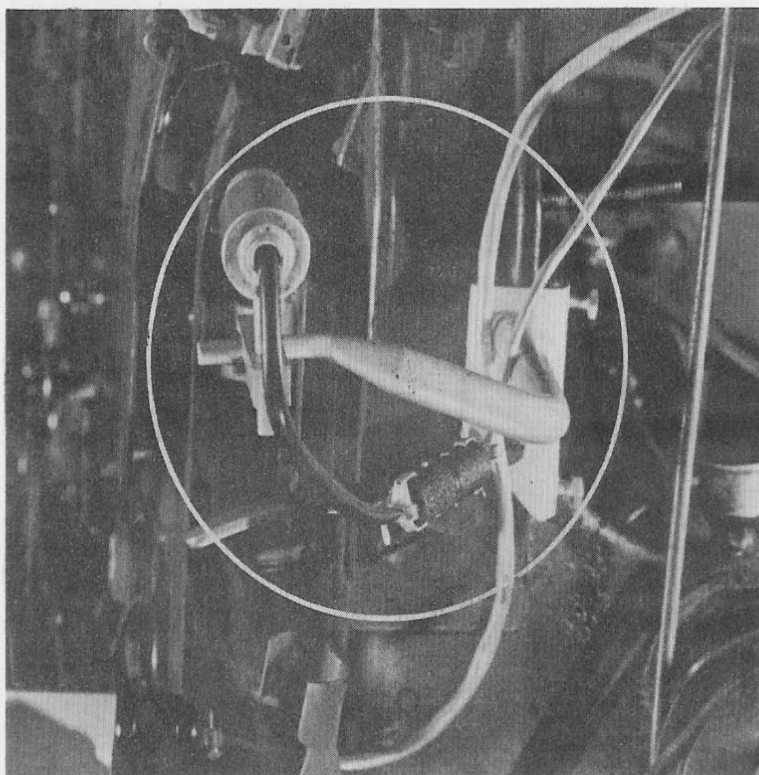
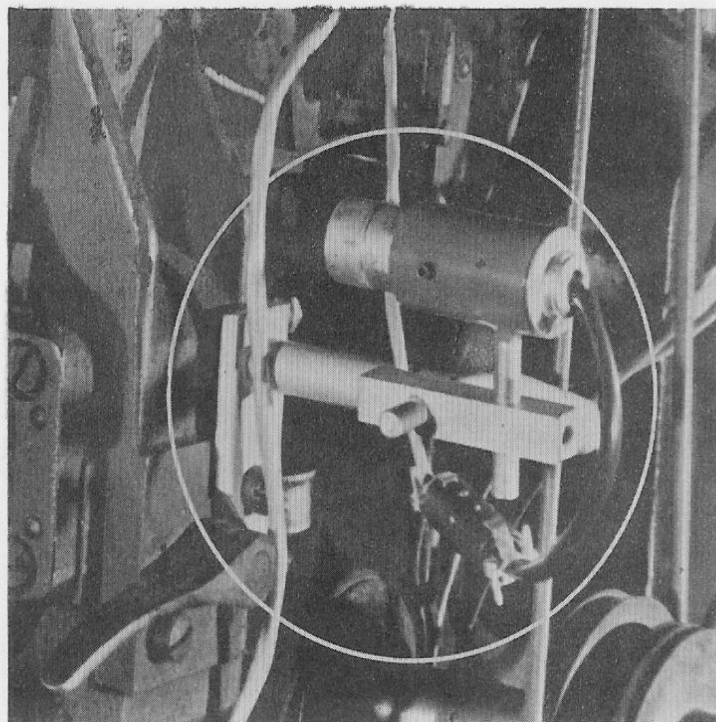


Illustration #2. Location of Scanner Light on Comet.

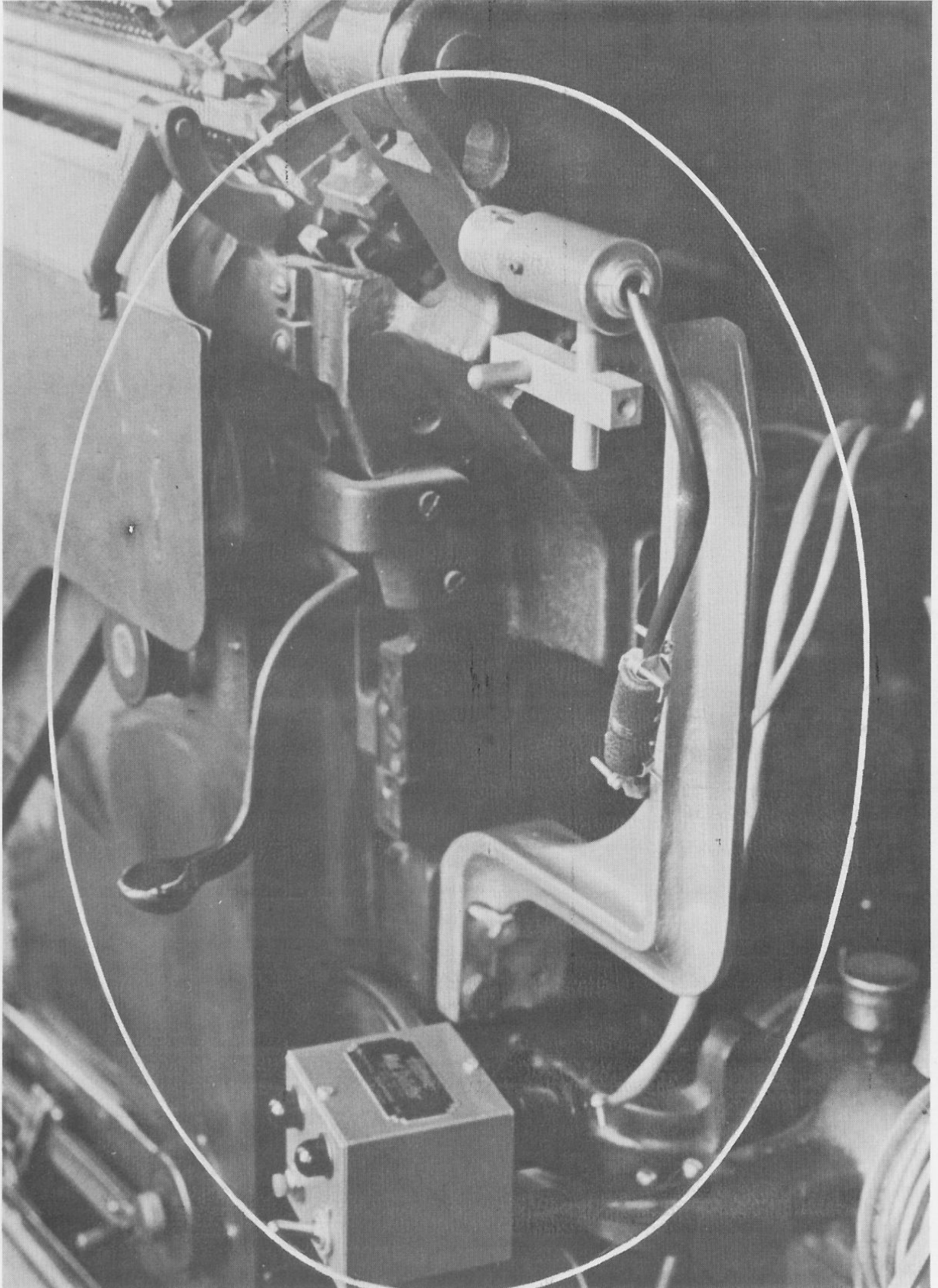


Illustration #3. Location of Scanner Light on Models 5, 8, and 31 Linotype.

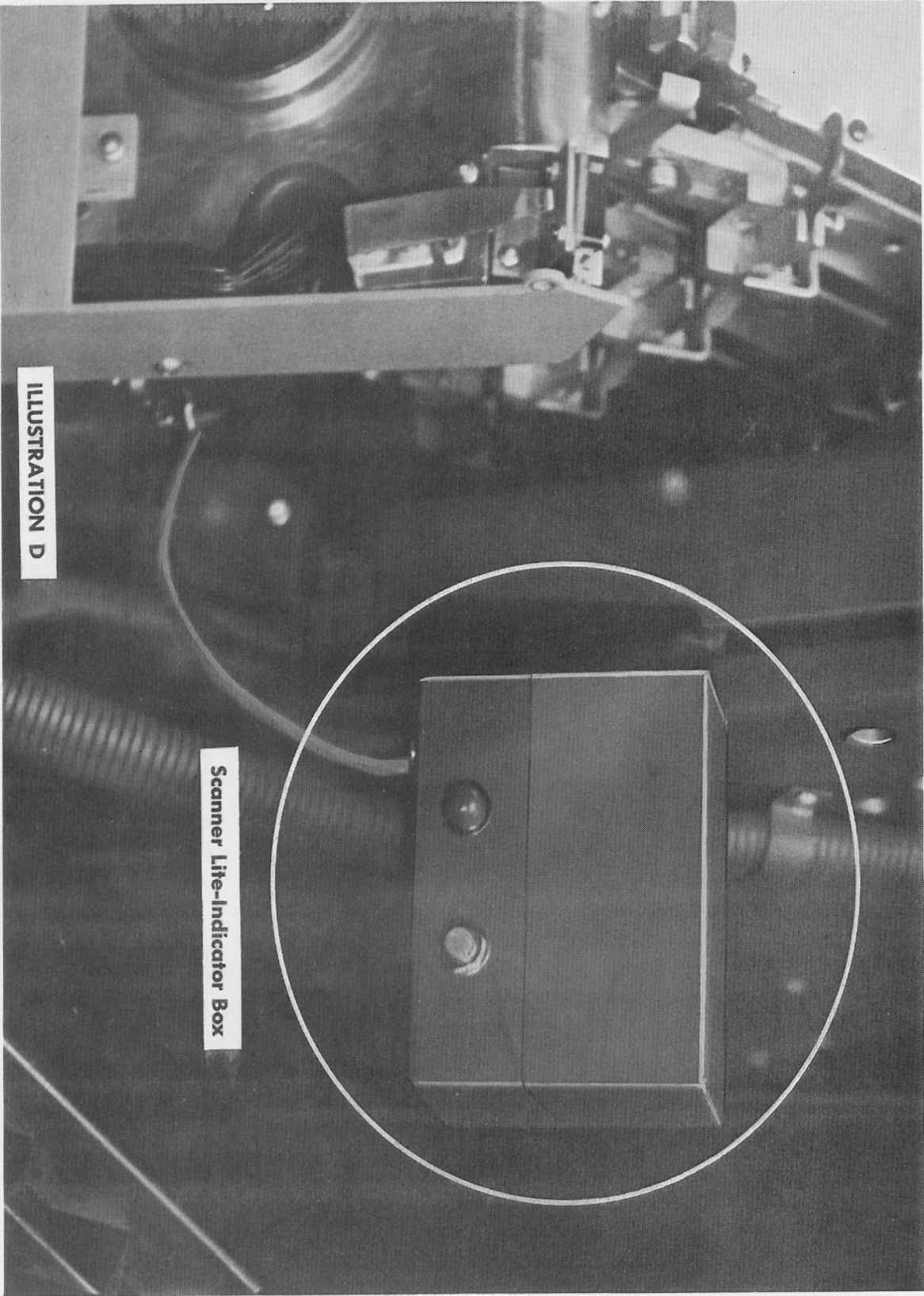


Illustration #4. Scanner Light Indicator Box, Linotype Elektron.



ILLUSTRATION 4-A

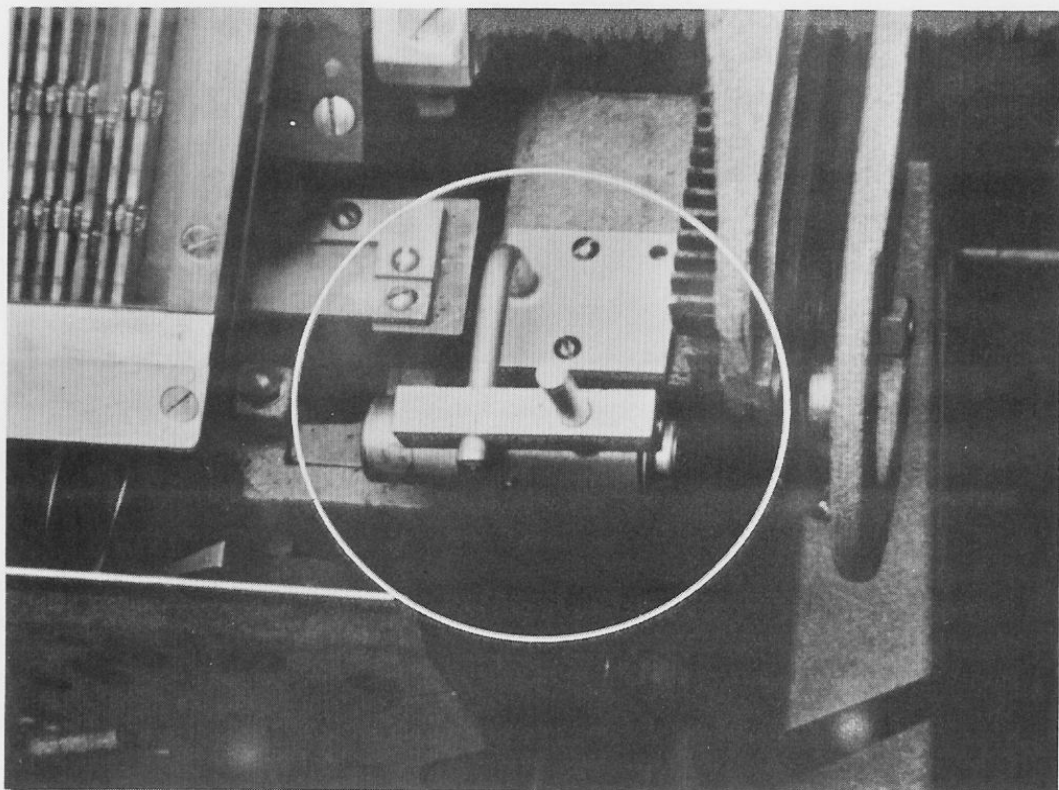


Illustration #5. Location of Scanner Light on Models A, B, C and Monarch Intertypes.

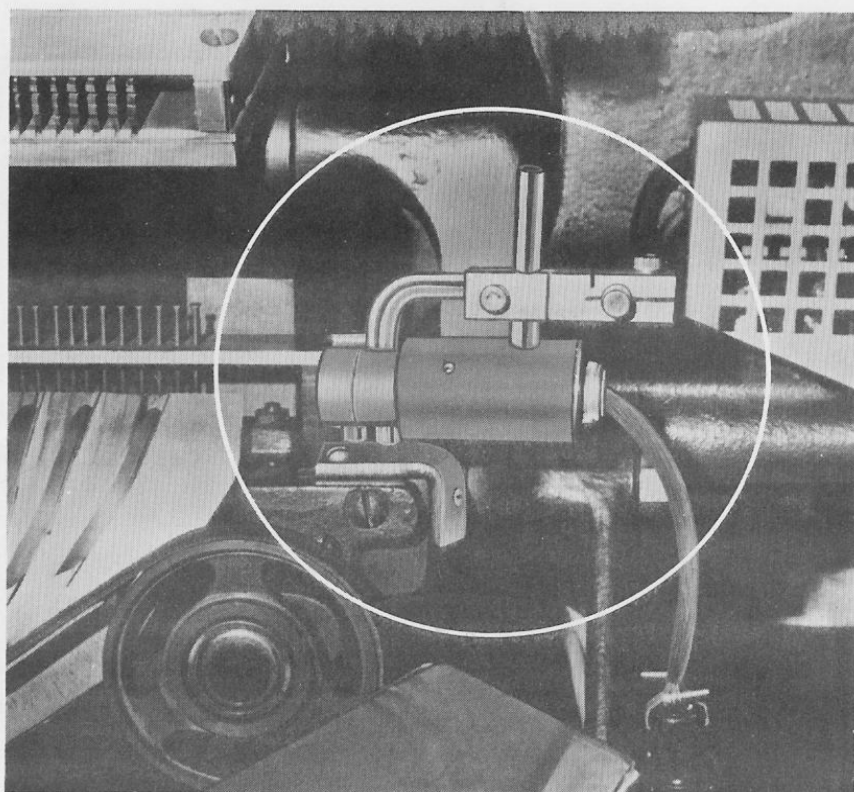


Illustration #6. Scanner Light and Bracket, Model V Intertype.

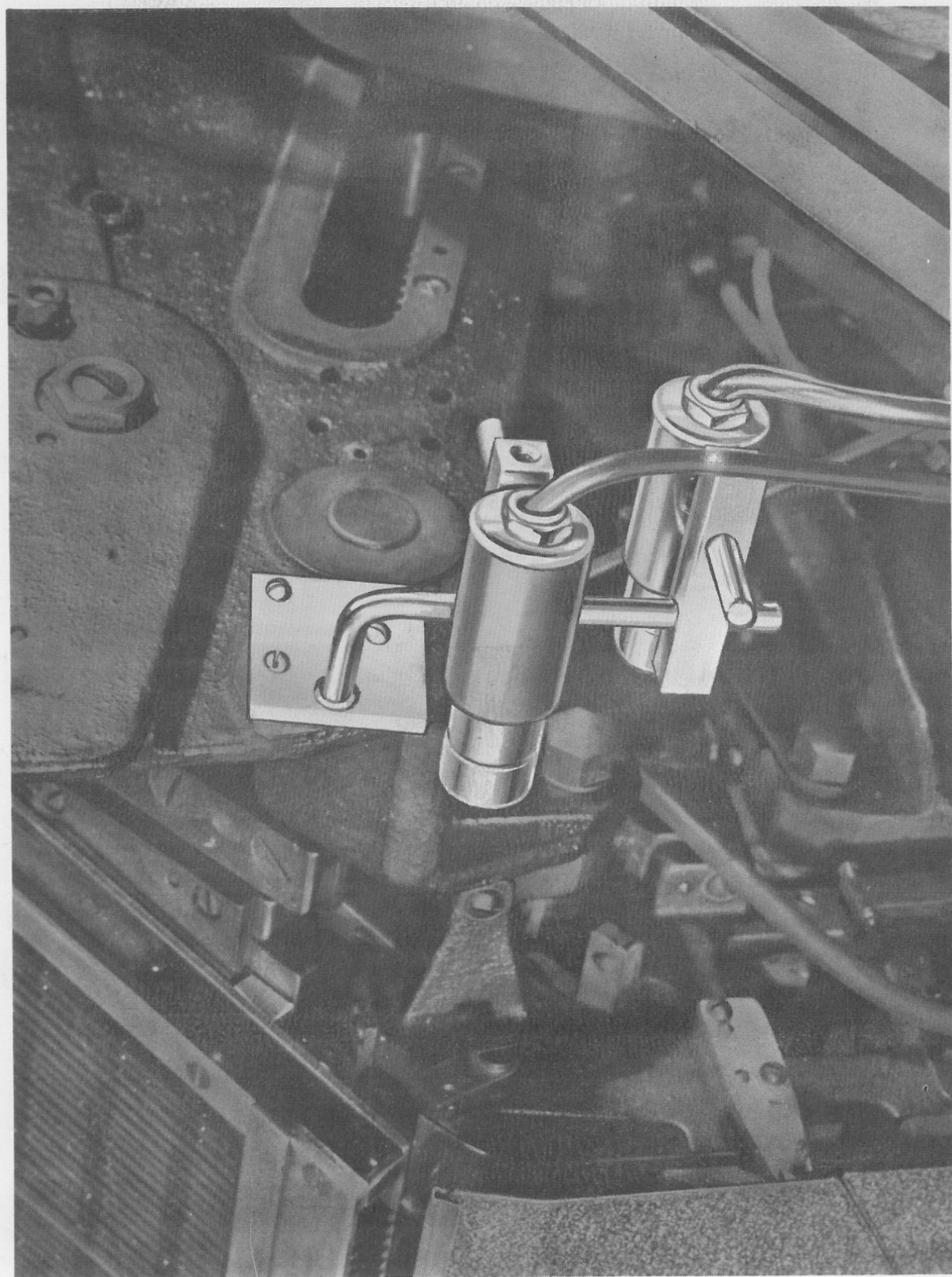


Illustration #7. Scanner Light and Bracket, Intertype, Models F and G.

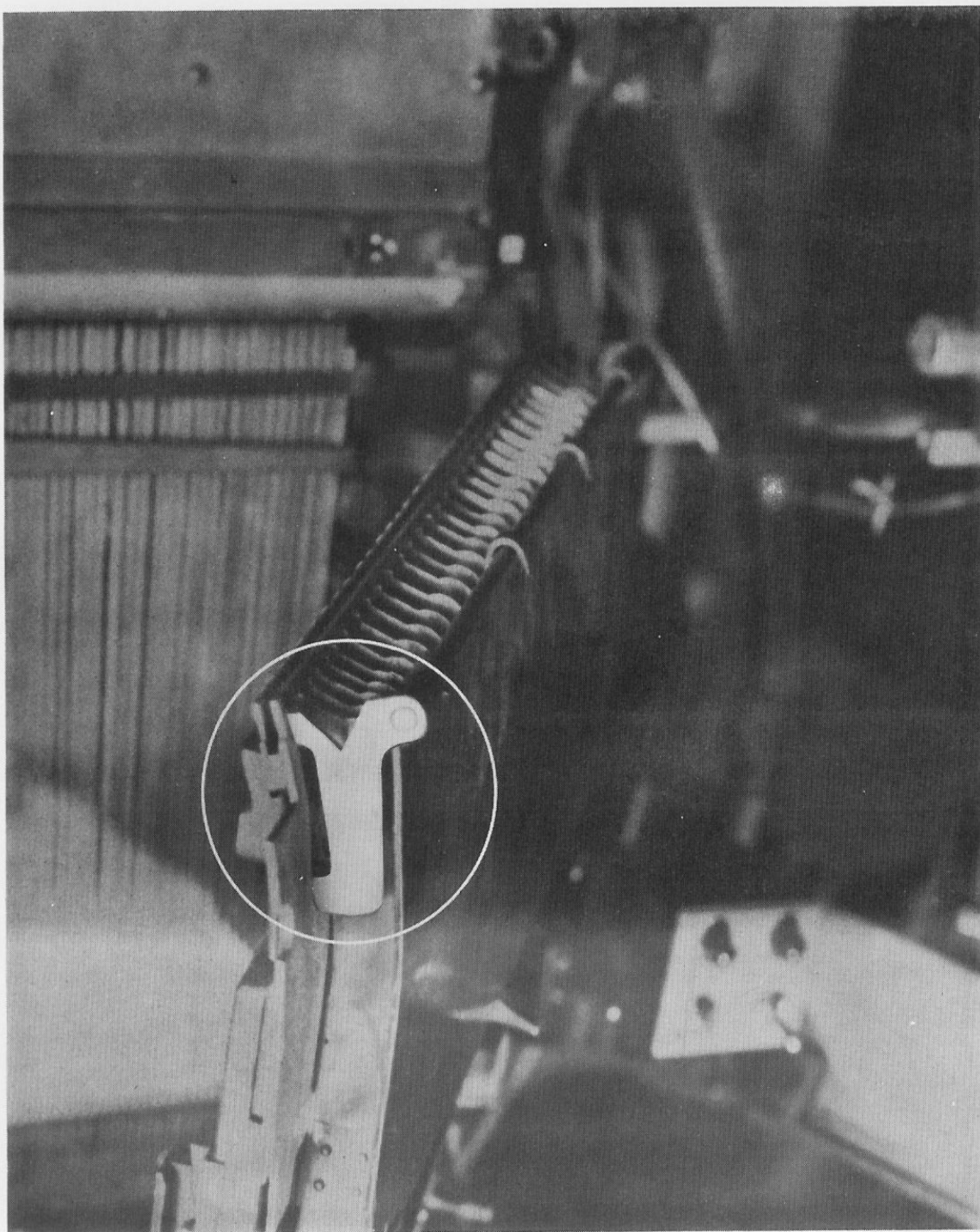


Illustration #8. Notching Comet Assembler Entrance Cover Brackets.
See number 35, for templates.

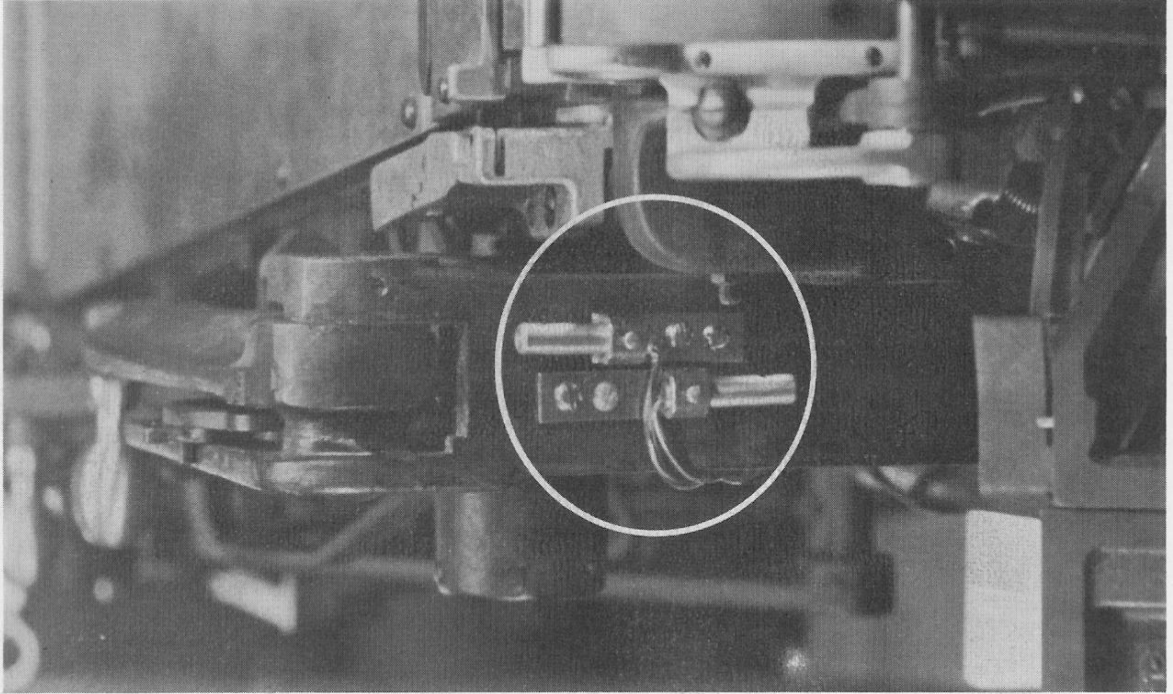


Illustration #10. Location of Photo Cells on Model 29 Linotype.

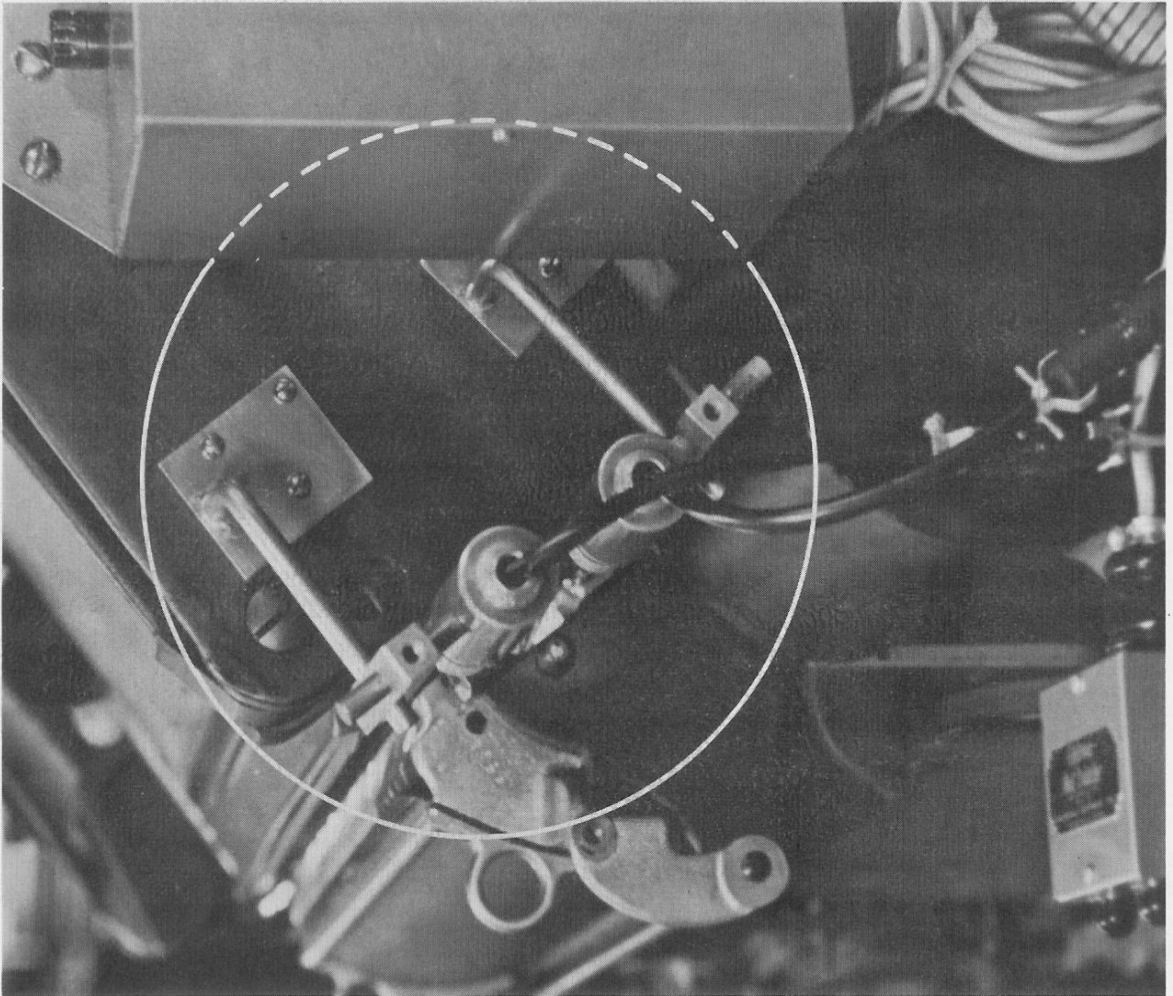


Illustration #9. Location of Scanner Lights and Control Box on Model 29 Linotype.

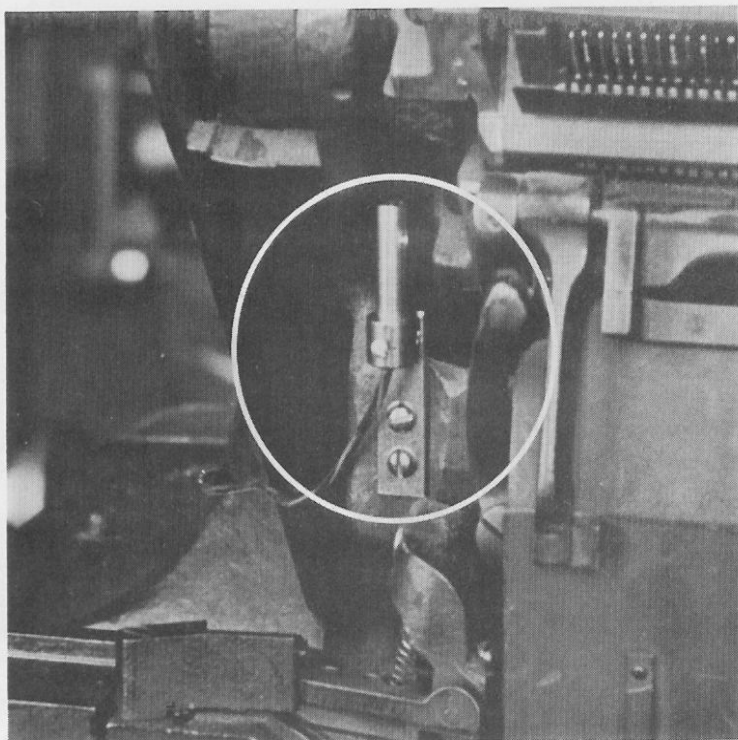


Illustration #11. Location of Photo Cell on Models 5, 8 and 31 Linotype.



Illustration #11A. Where to Oil Escape Levers on Late Style Models 5, 8 and 31 Linotypes.

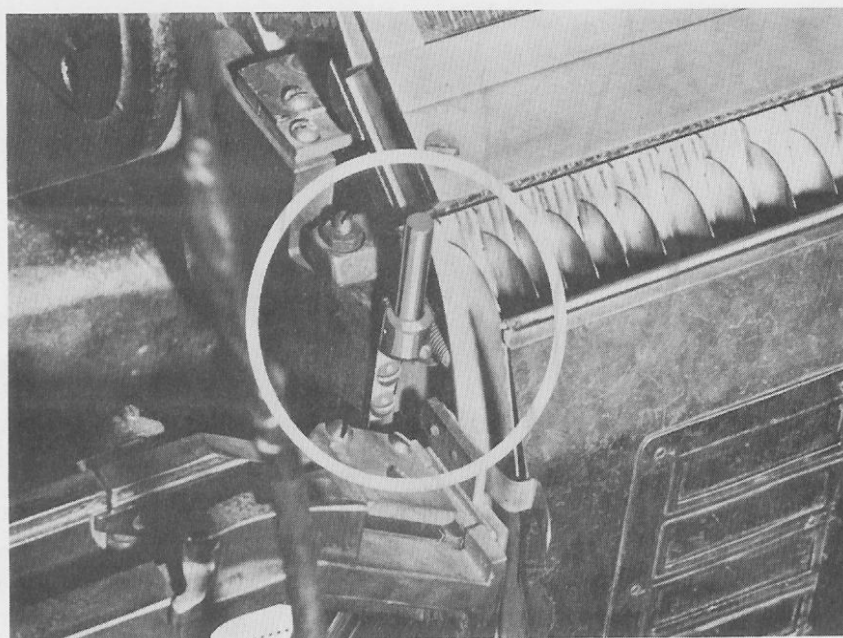


Illustration #12. Location of Photocell on A, B, C, V and Monarch Intertype.

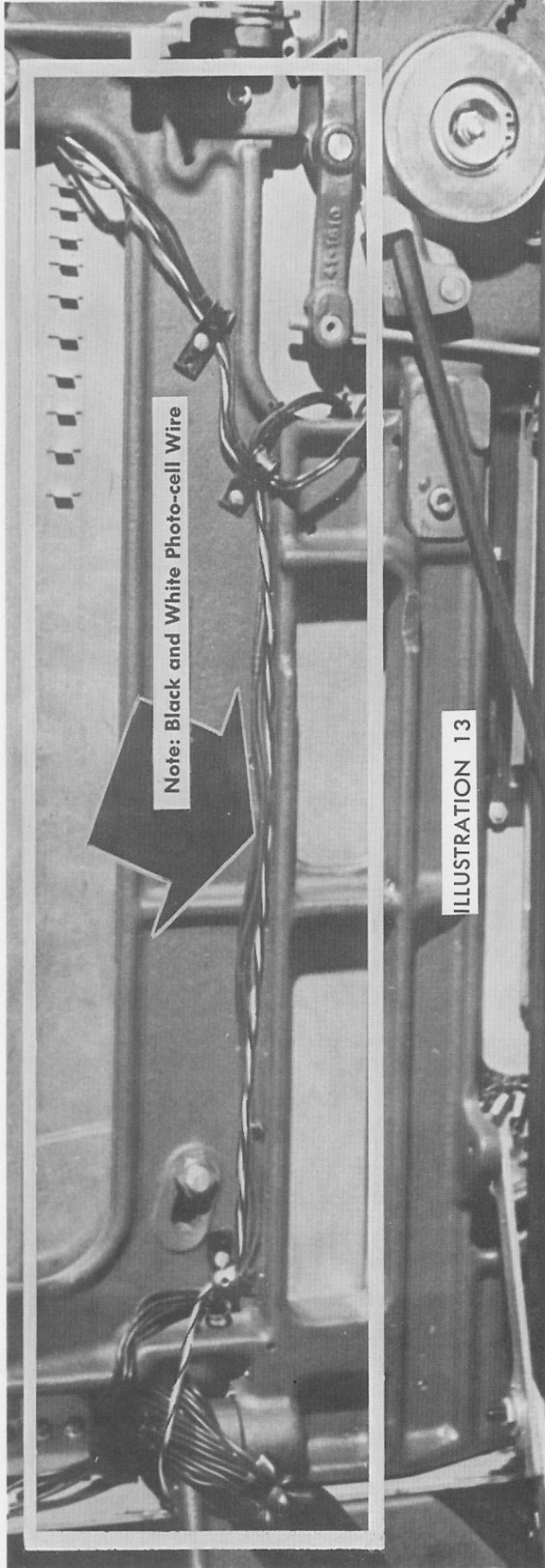


Illustration #13. Routing Photo Cell wires, Linotype Elektron.

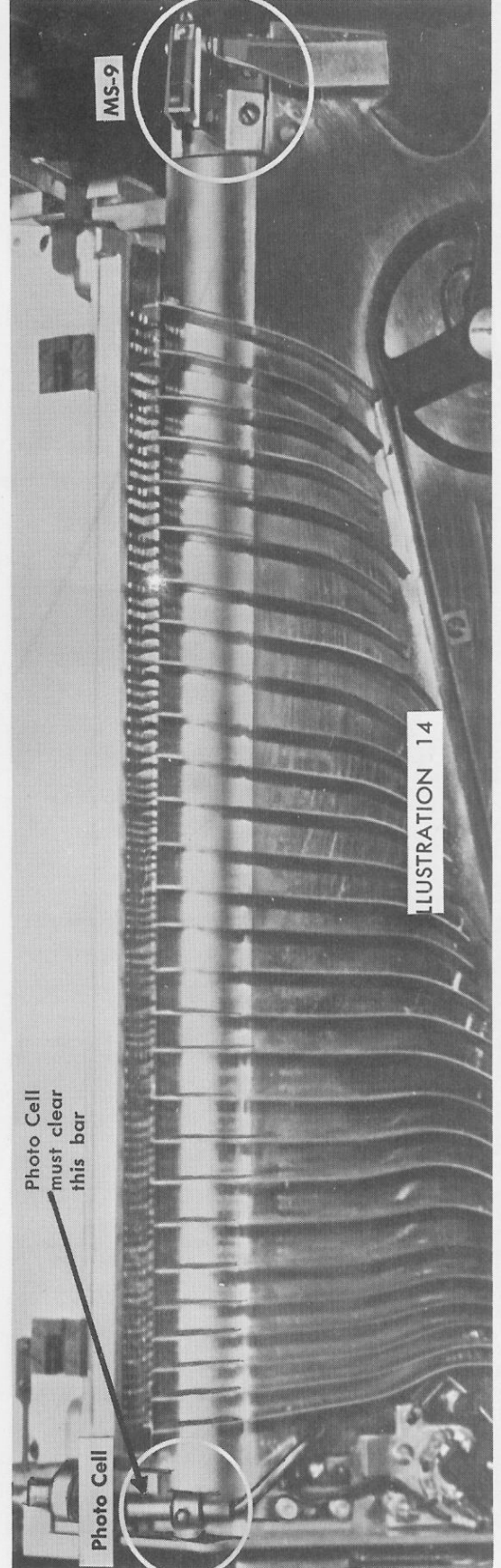


Illustration #14. Photo Cell, Linotype Elektron.

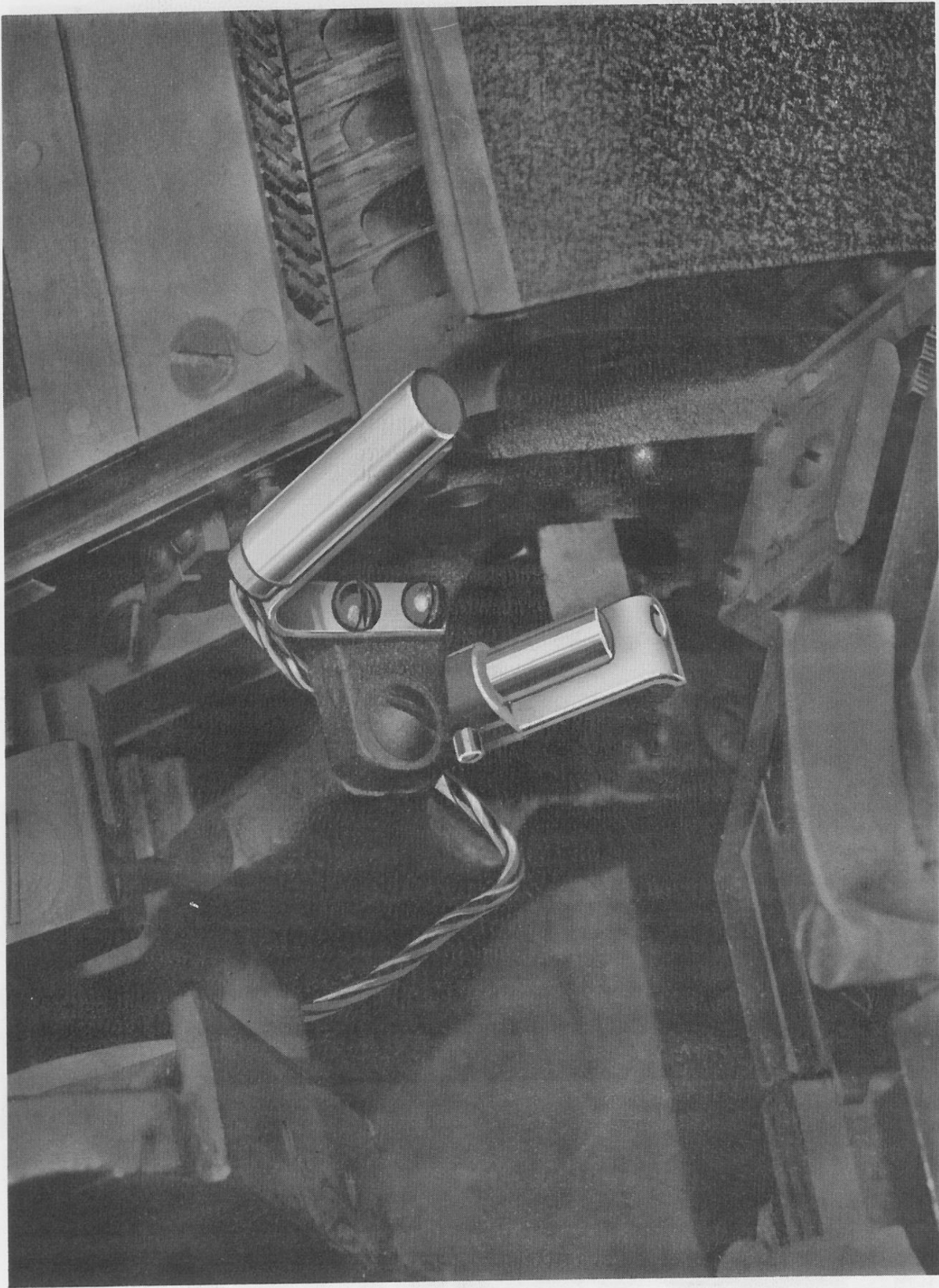


Illustration #16. Photo Cells, Intertype, Models F and G.

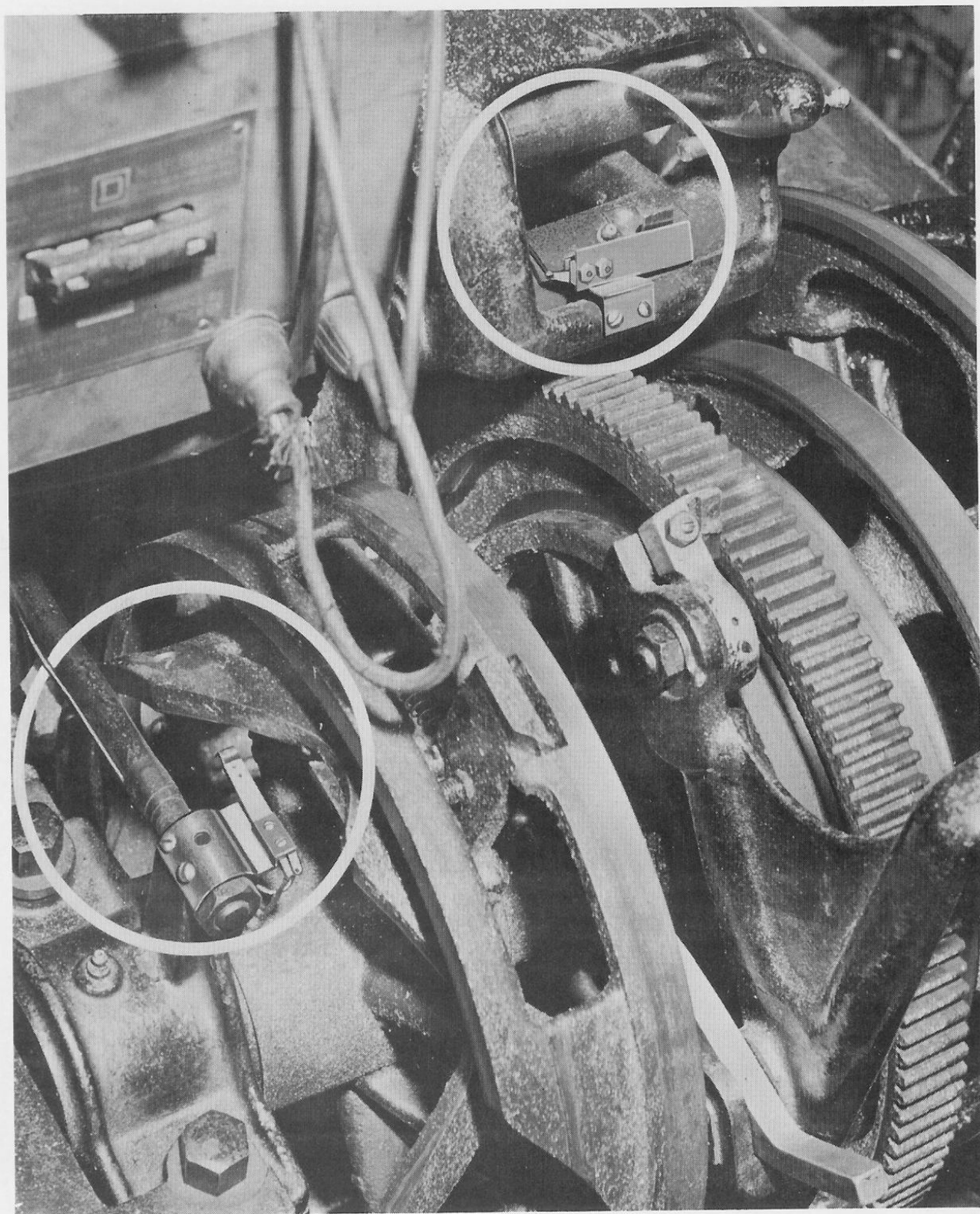


Illustration #17. Location of Spaceband Switches #1 and #2.

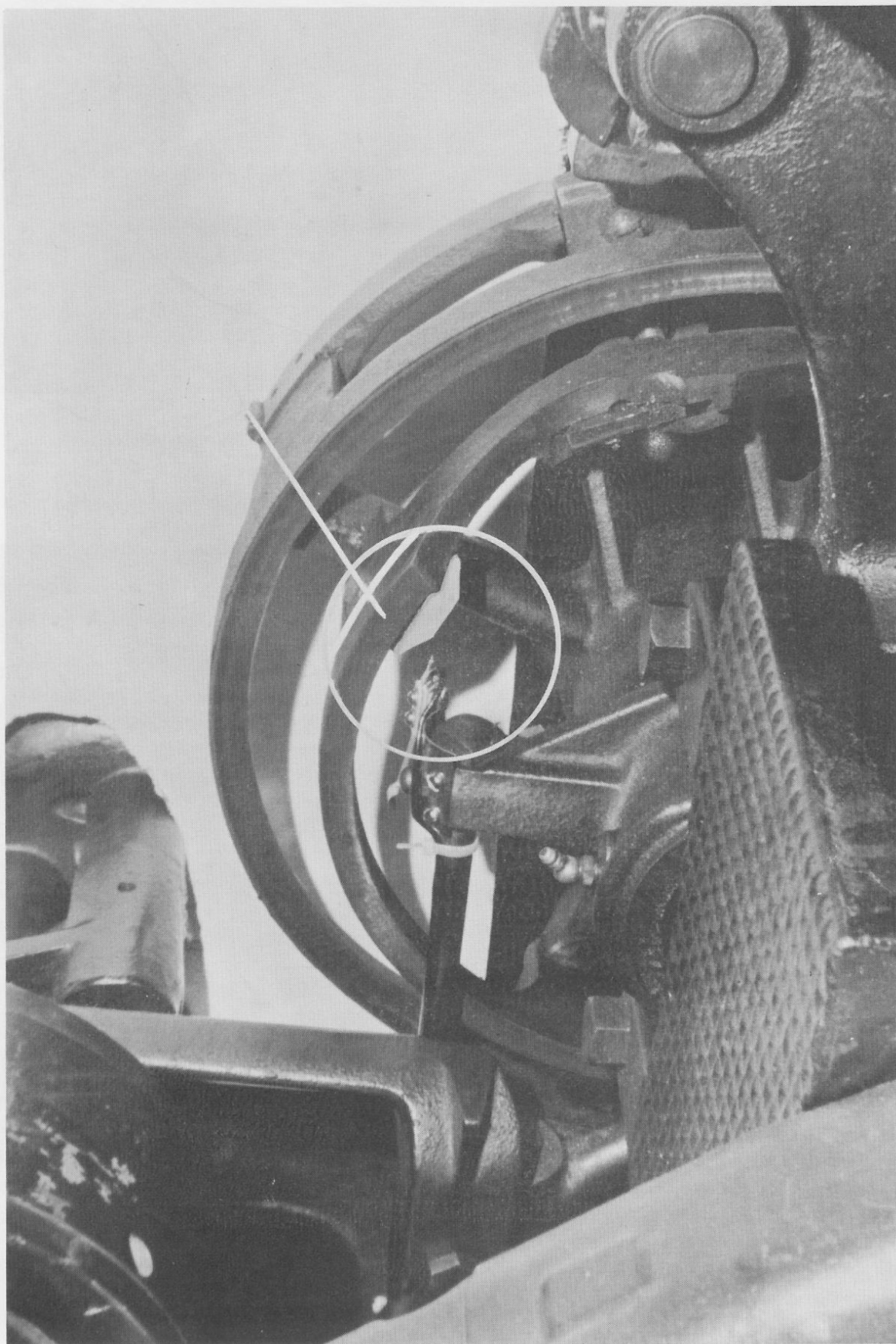


Illustration #18. Location of Fibre Operating Cam for Spaceband Switch #2.

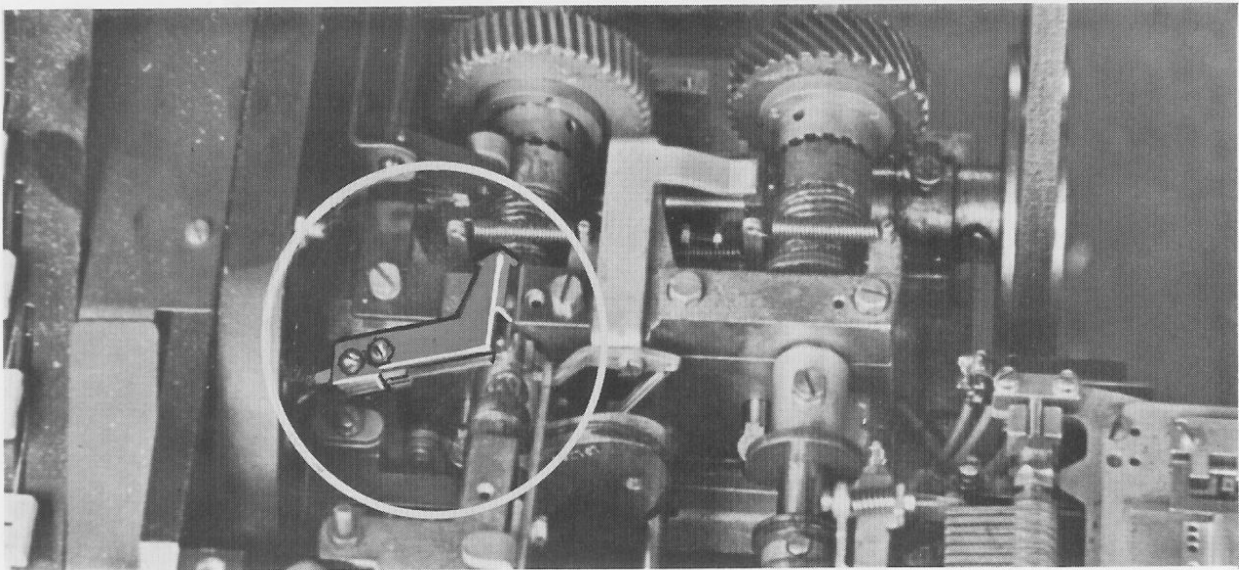


Illustration #19. Elevator Cam Switch, for Fairchild Operating Units, all models except Linotype Elektron.

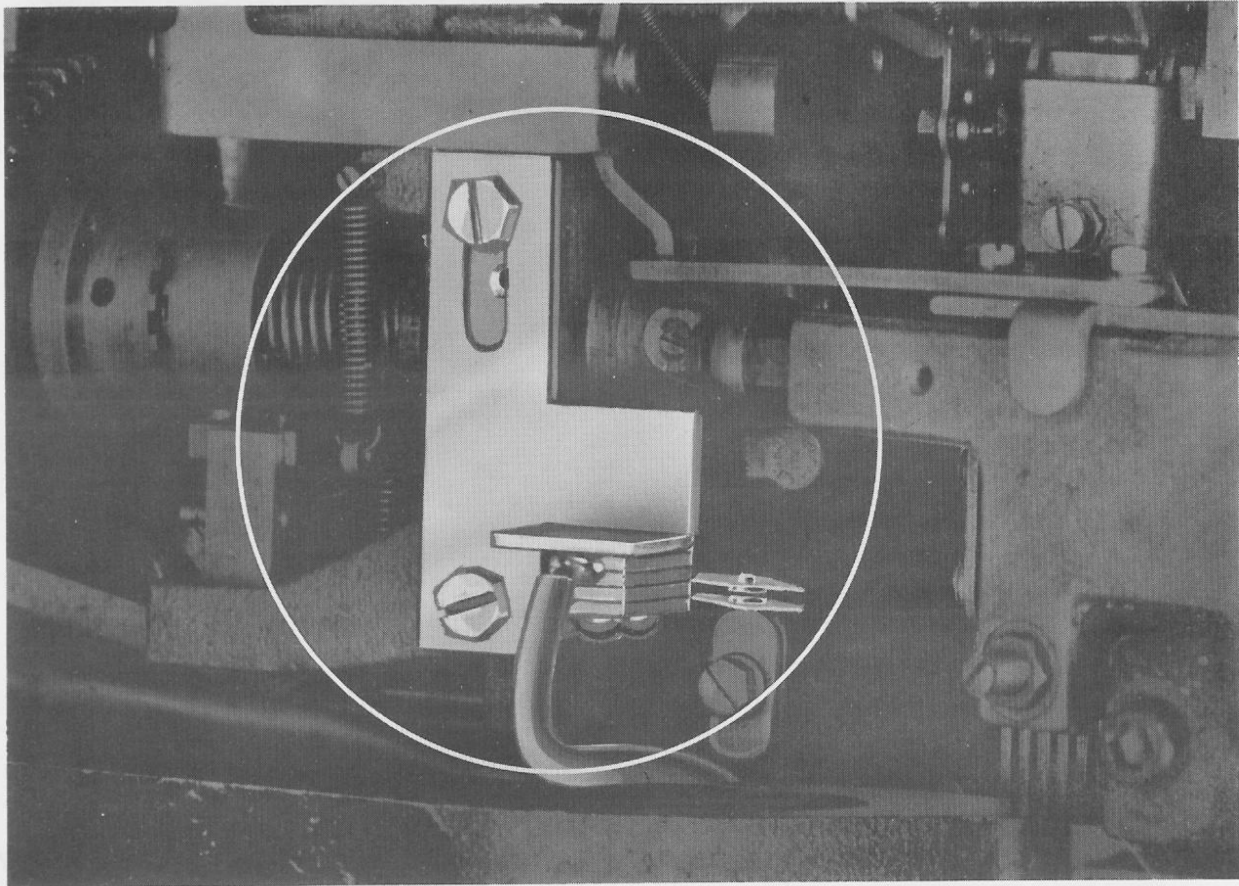


Illustration #20. Elevator Cam Switch, Fairchild T.O.U. 75-3 or Linotype Elektron.

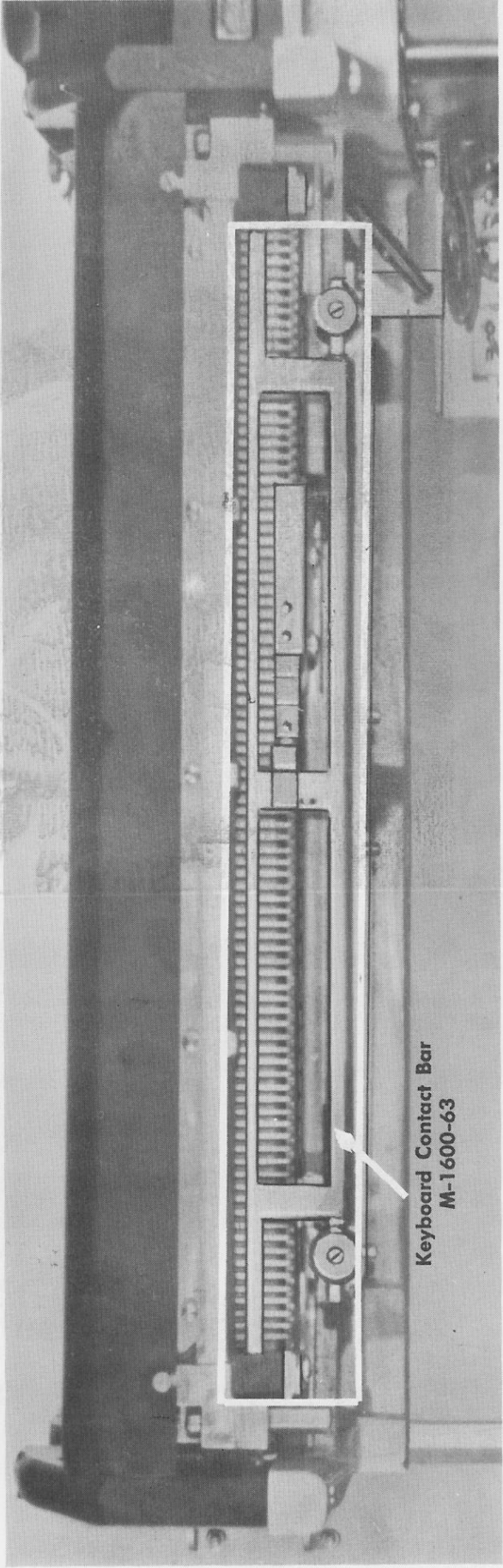
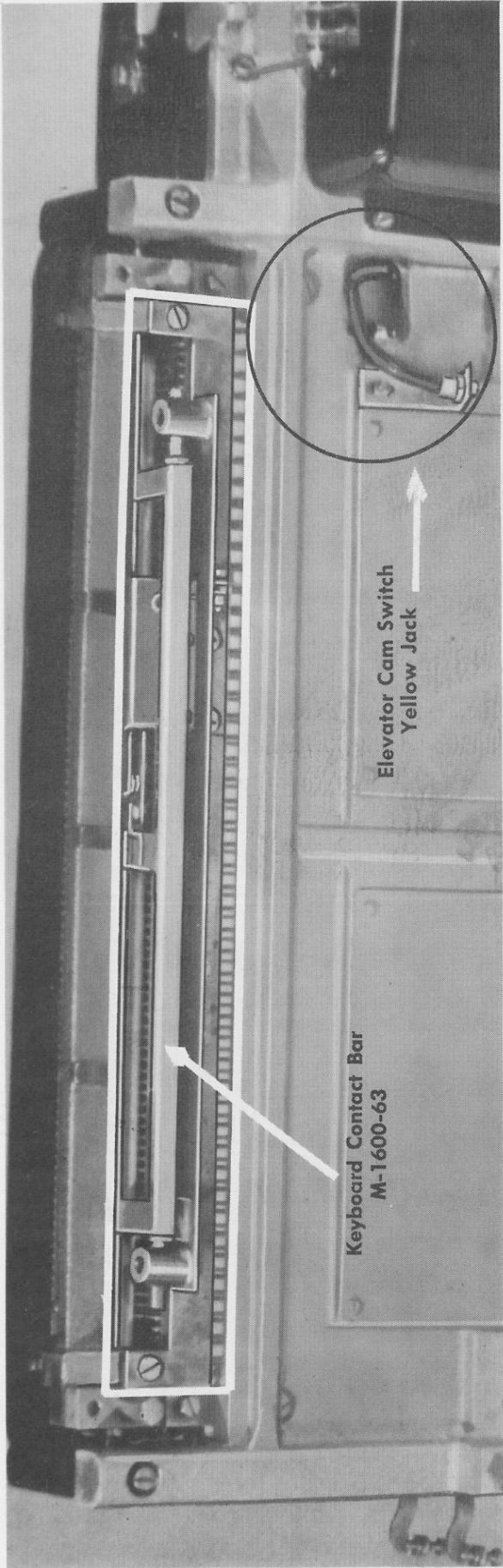


Illustration #21. Location of Keyboard Contact Bar M-1600-63, on the Operating Unit. Also Location of Bracket and Yellow Phone Tip Plug for the Elevator Cam Switch.

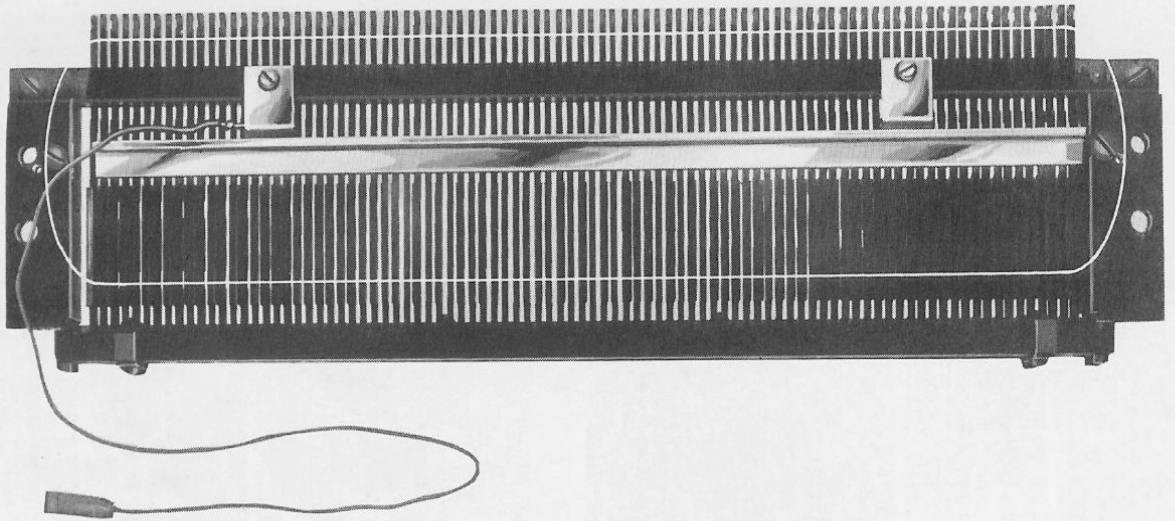


Illustration #22. M-4300 Keyboard Par. All Linotypes except Elektron.

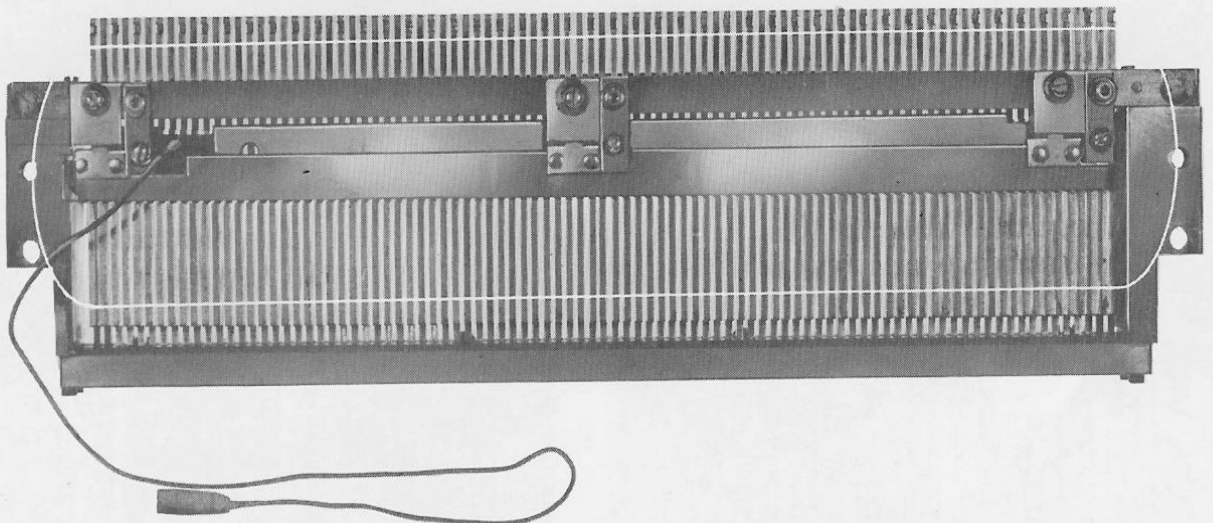


Illustration #23. M-4000 Keyboard Bar and M-4012 Lock. All Linotype Elektrons.

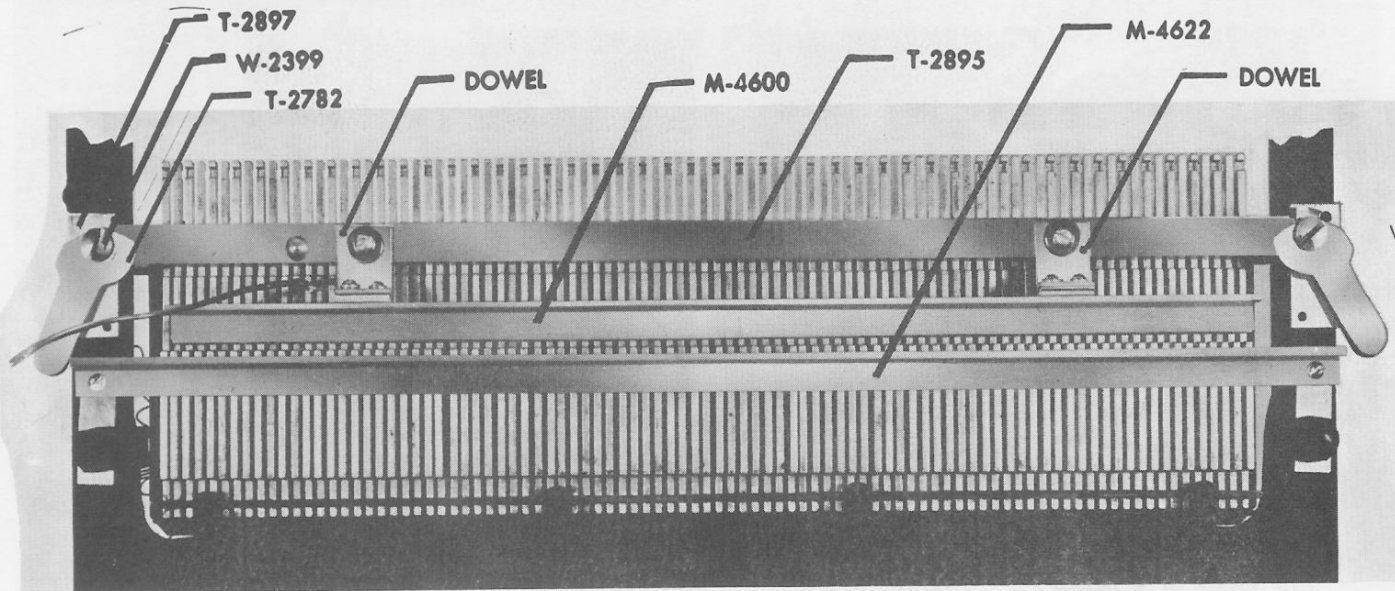


Illustration #24. M-4600 Keyboard Bar and M-4600 Weight Holding Tool.
All Intertypes except Monarch with T.O.U. 75.

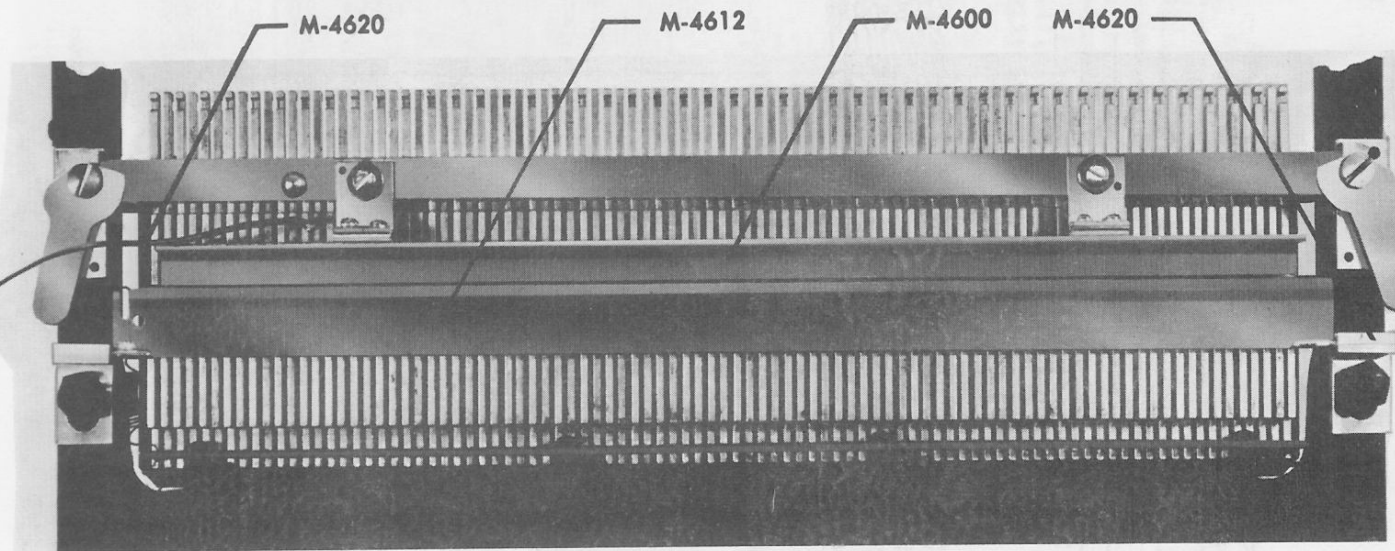
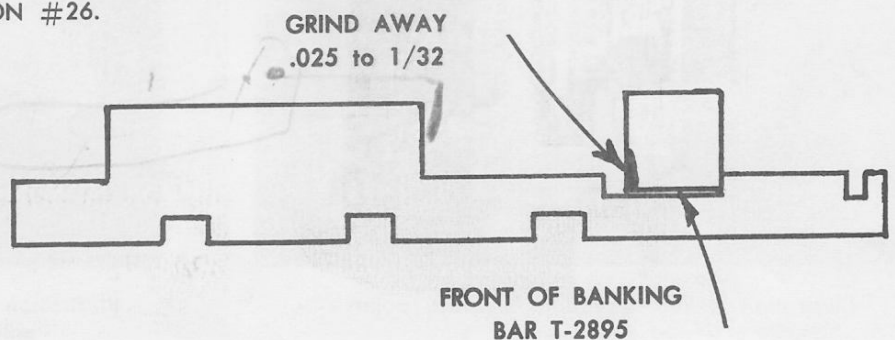


Illustration #25. M-4612 Lock and Brackets. All Intertypes except
Monarch with T.O.U. 75.

ILLUSTRATION #26.



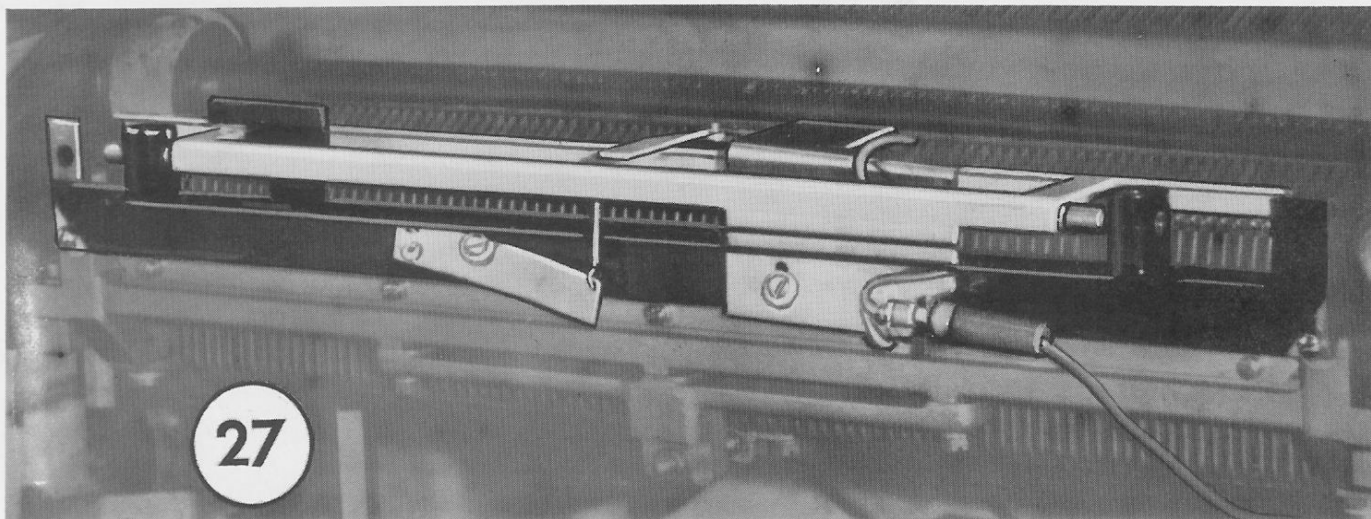


Illustration #27. Keyboard Bar. Intertype Monarch with T.O.U. 75.

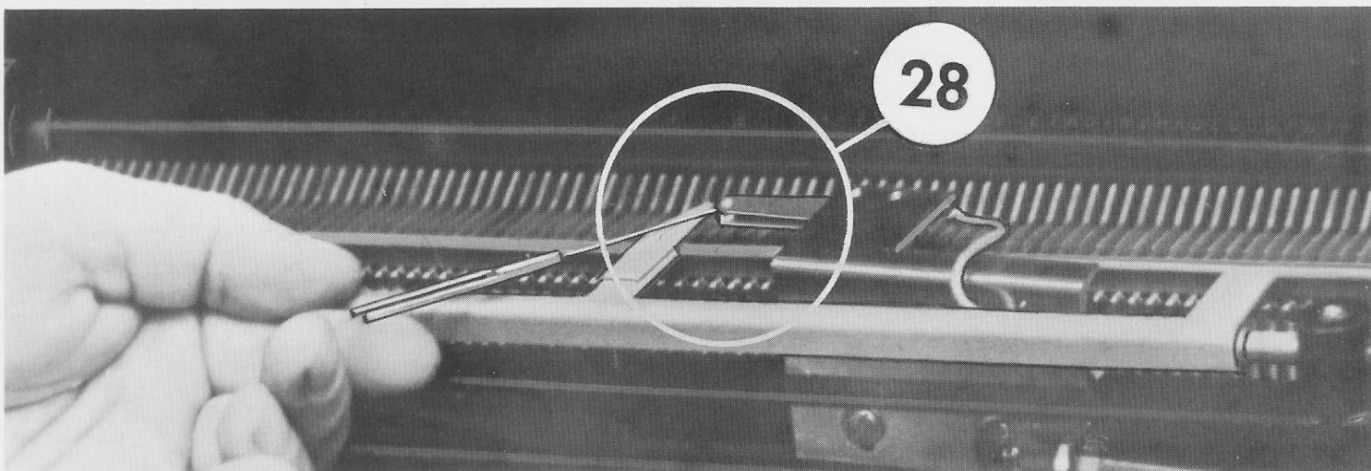


Illustration #28. Keyboard contact points — adjustment.

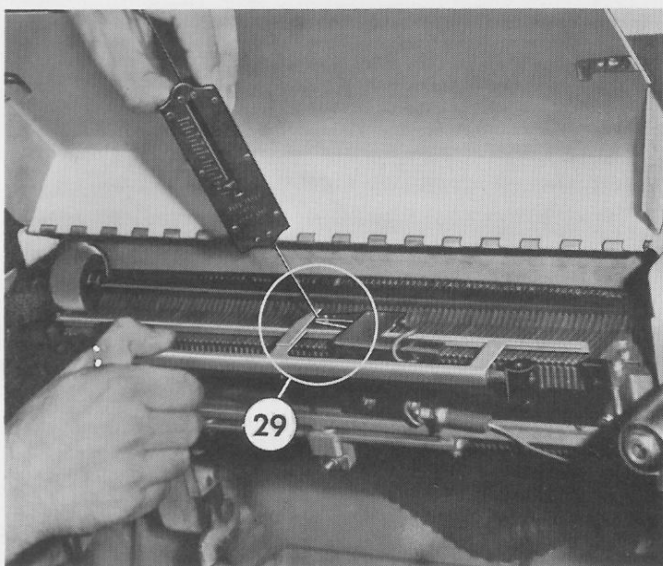


Illustration #29. Keyboard contact points — adjustment.

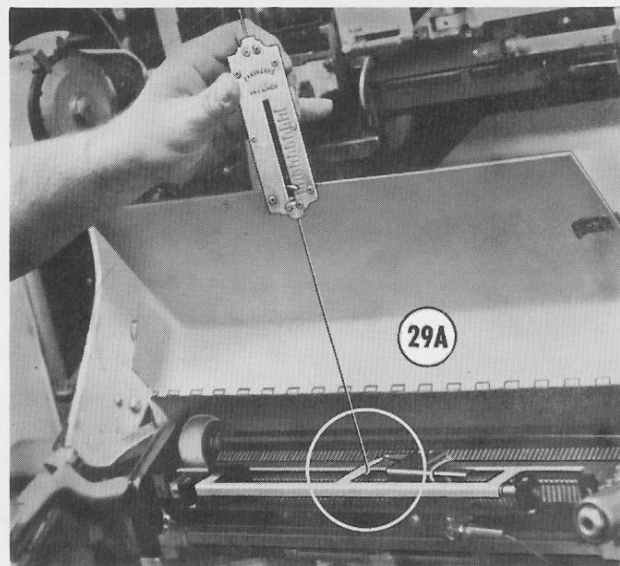


Illustration #29A. Keyboard contact points — adjustment, Intertype Monarch.

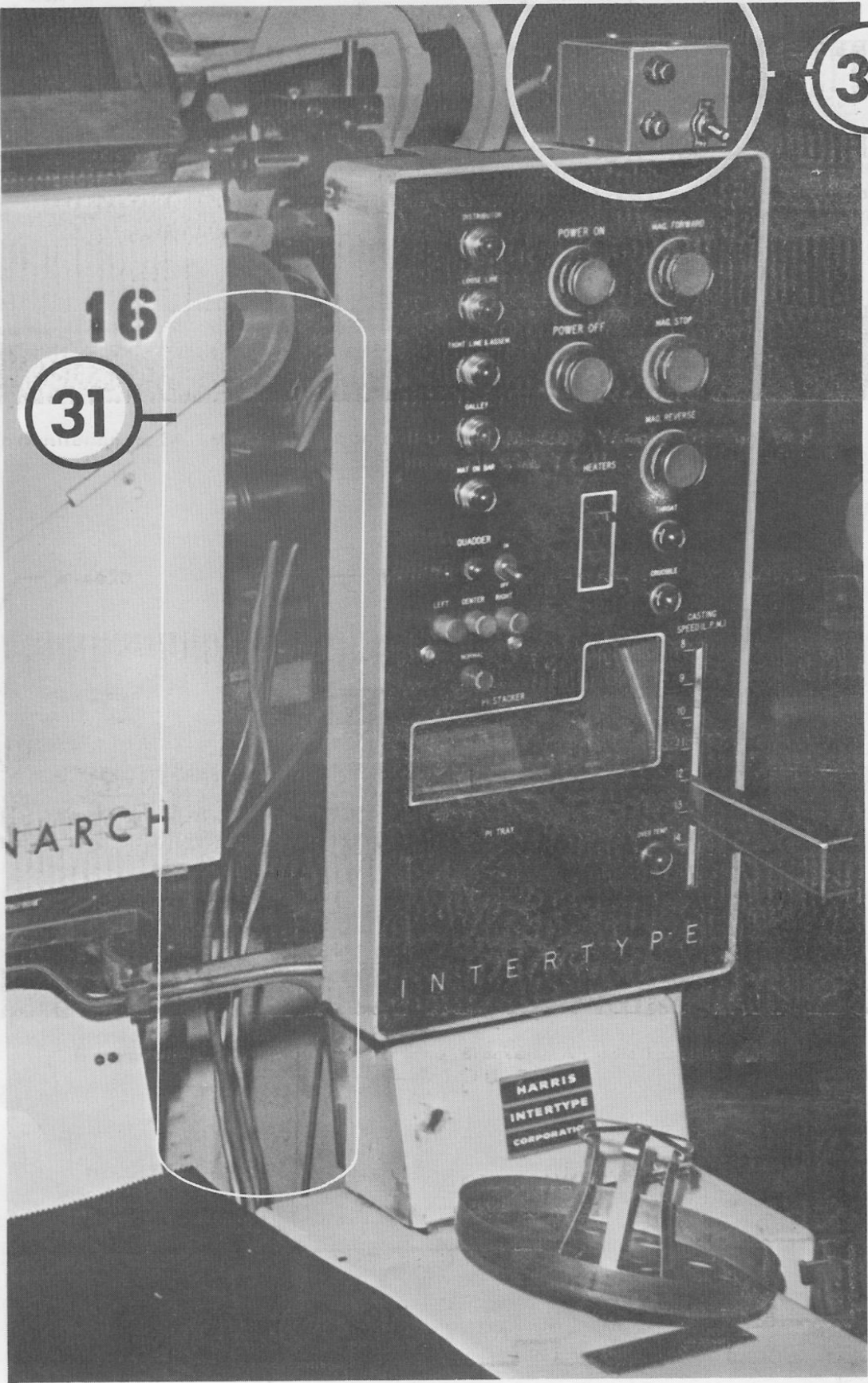


Illustration #30. Indicator Box Location, Intertype Monarch.

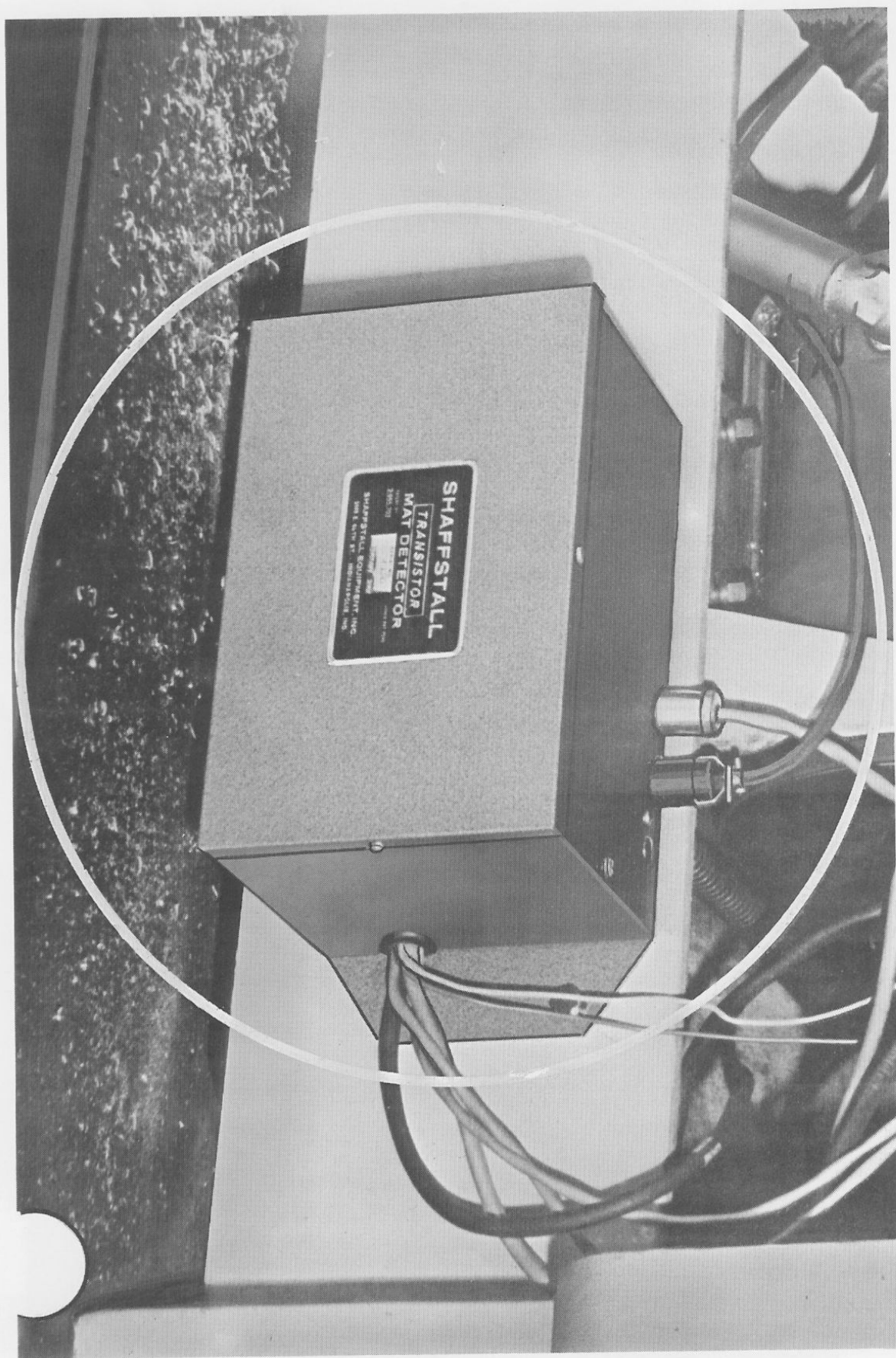


Illustration #32. Main control box, Intertype Monarch.

Right Assembler Entrance
Cover Support —
Cut-away shaded section

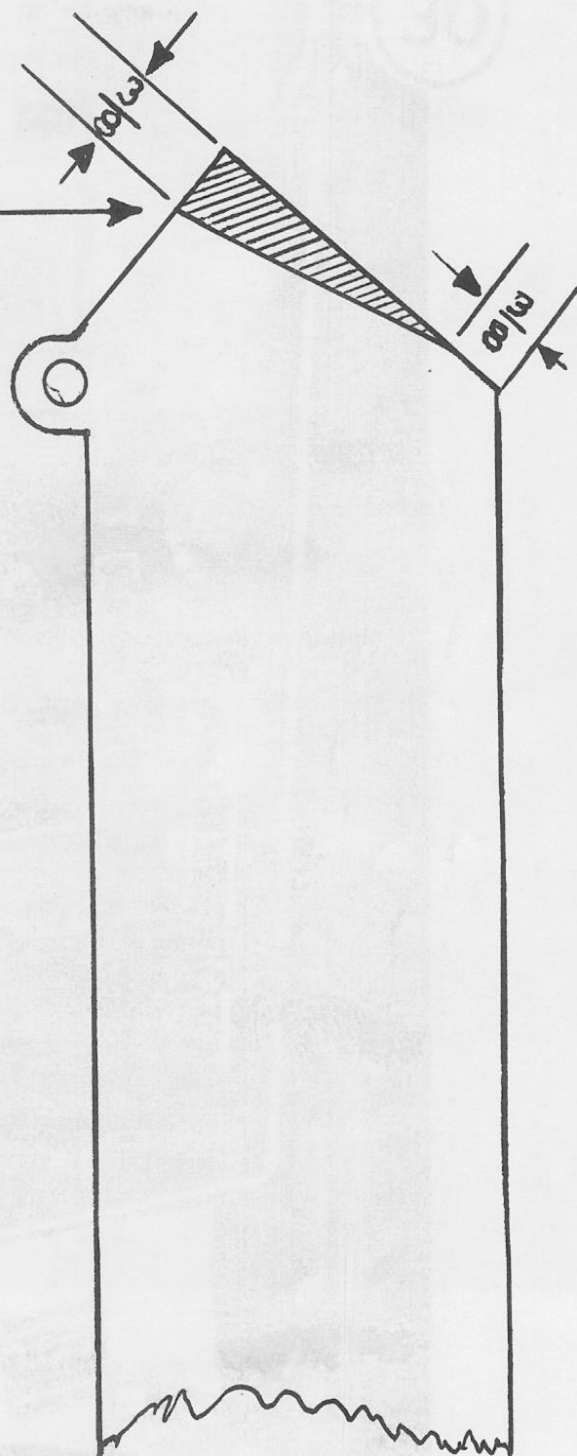


Illustration #33. Diagram for cut-away, for Elektron Light Beam.



Illustration #34. Control Box Location, Linotype Elektron.

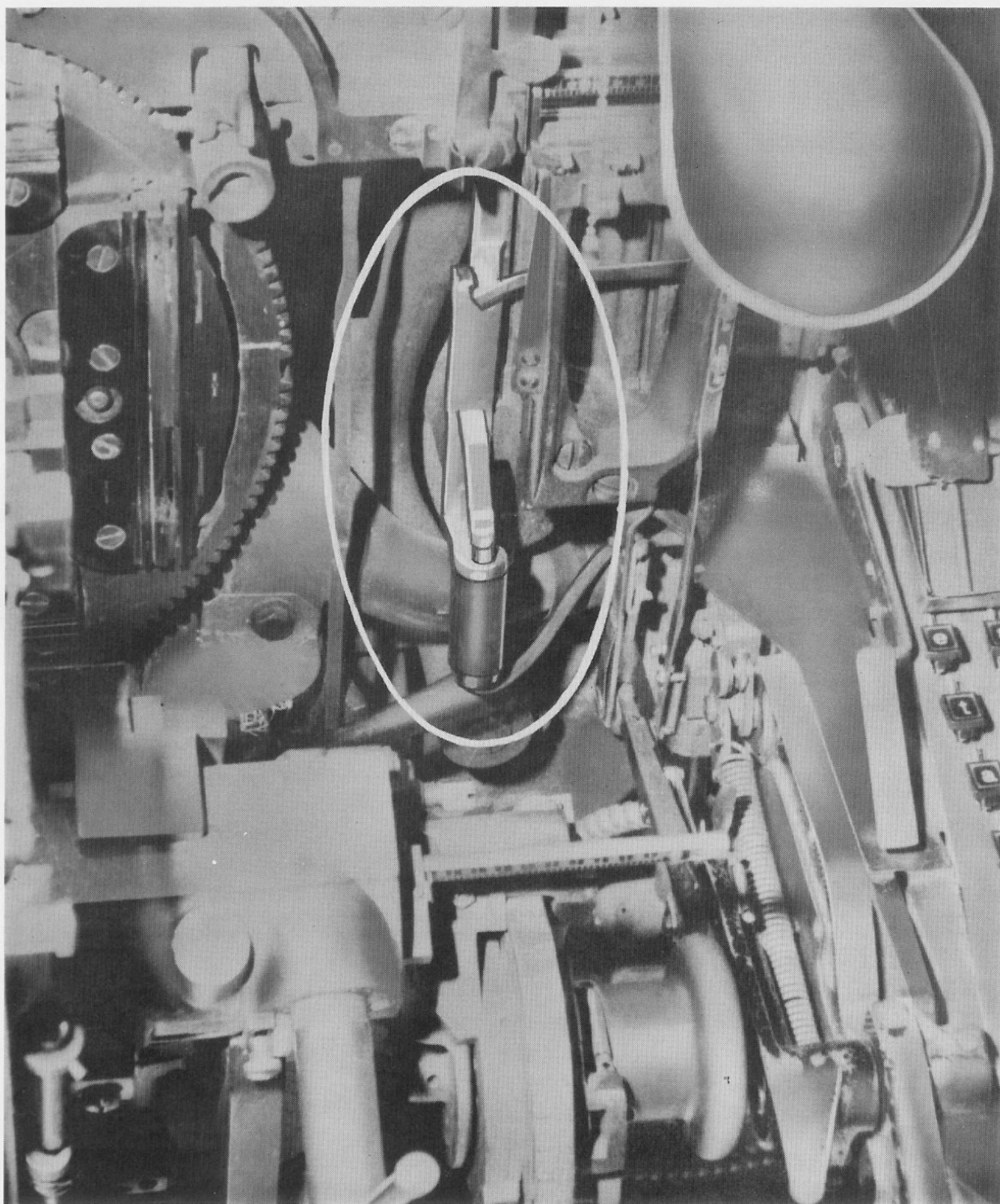


Illustration #36. Location of Elevator Lock, All Machines.



Illustration #37. Templates for Comet Assembling Cover Bracket, notching for light beam.

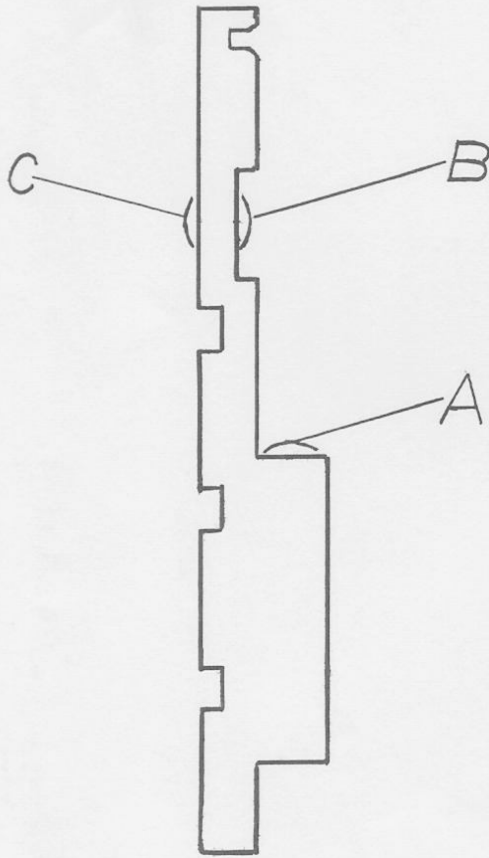


ILLUSTRATION No. 38 Key Weight

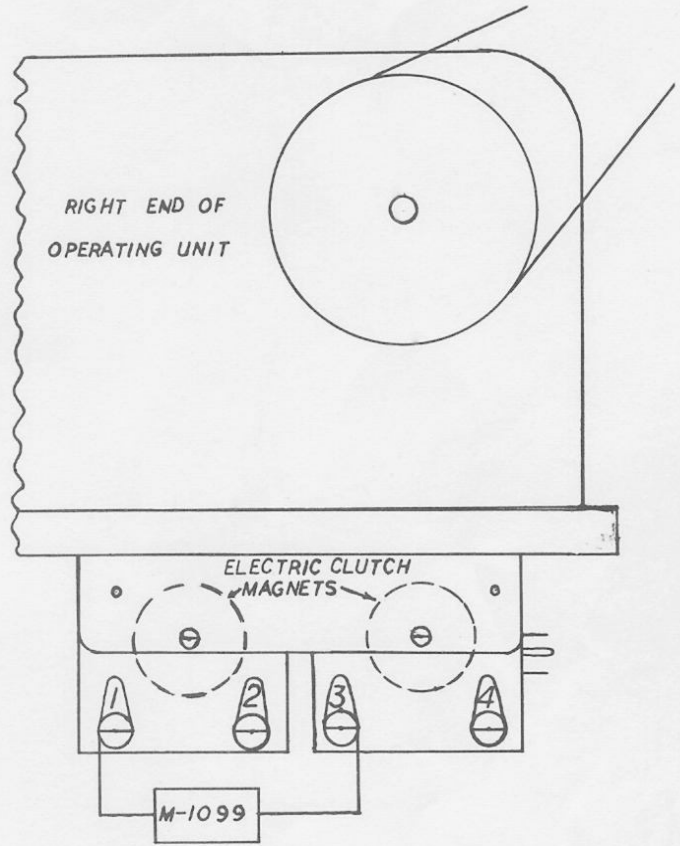


ILLUSTRATION No. 40 Connecting Spark Suppressor M-1099.

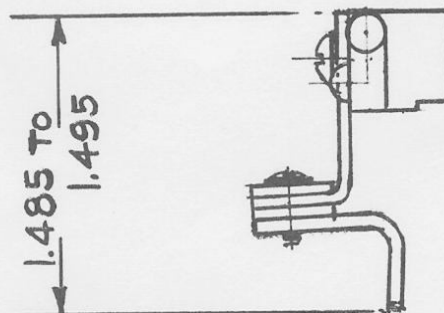
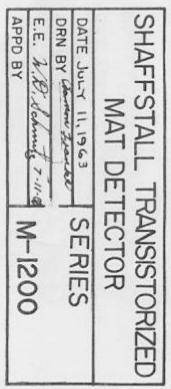
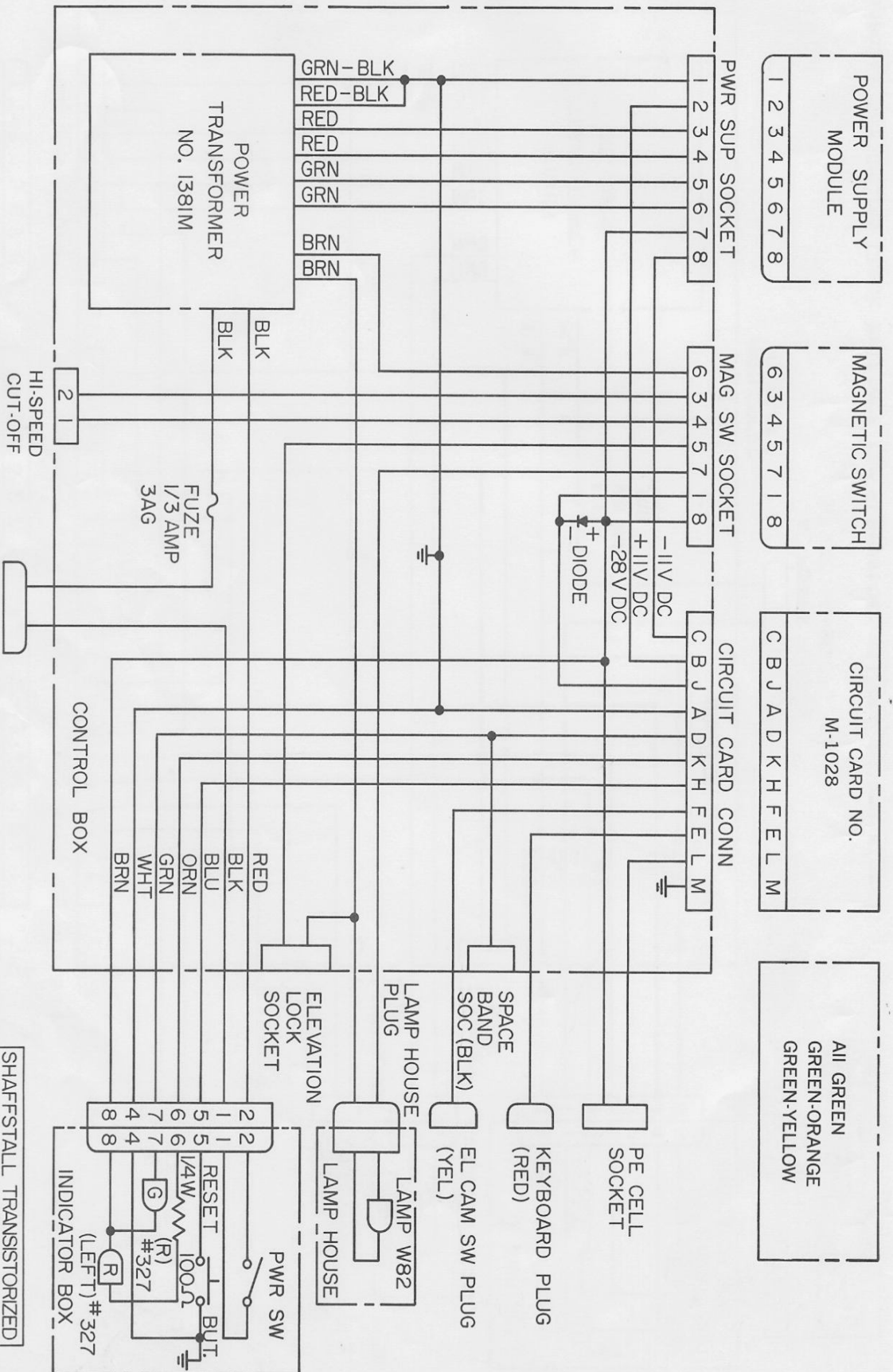


ILLUSTRATION No. 39 Height of Keyboard Bar M-4600.



Special for Deluxe Check Printers for Autsetter without return signal.



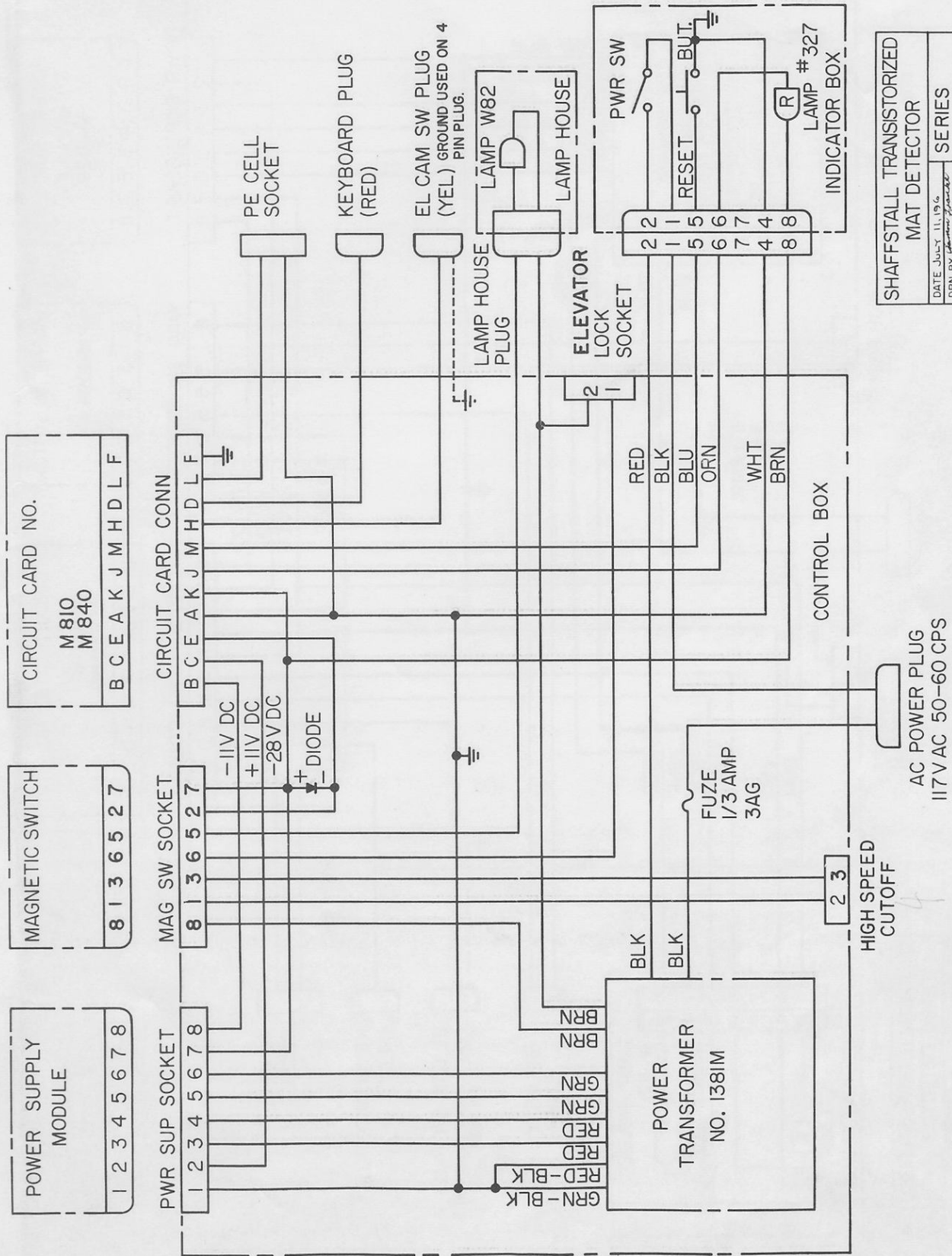
MODEL 600

600 D = std motor - 5B

600 DI = motor with 20u 5B 0

2000 = 10u

SHAFSTALL TRANSISTORIZED MAT DETECTOR	
DATE July 11, 1961	
DRN BY [Signature]	
E.E. [Signature]	
APPD BY	M-127001



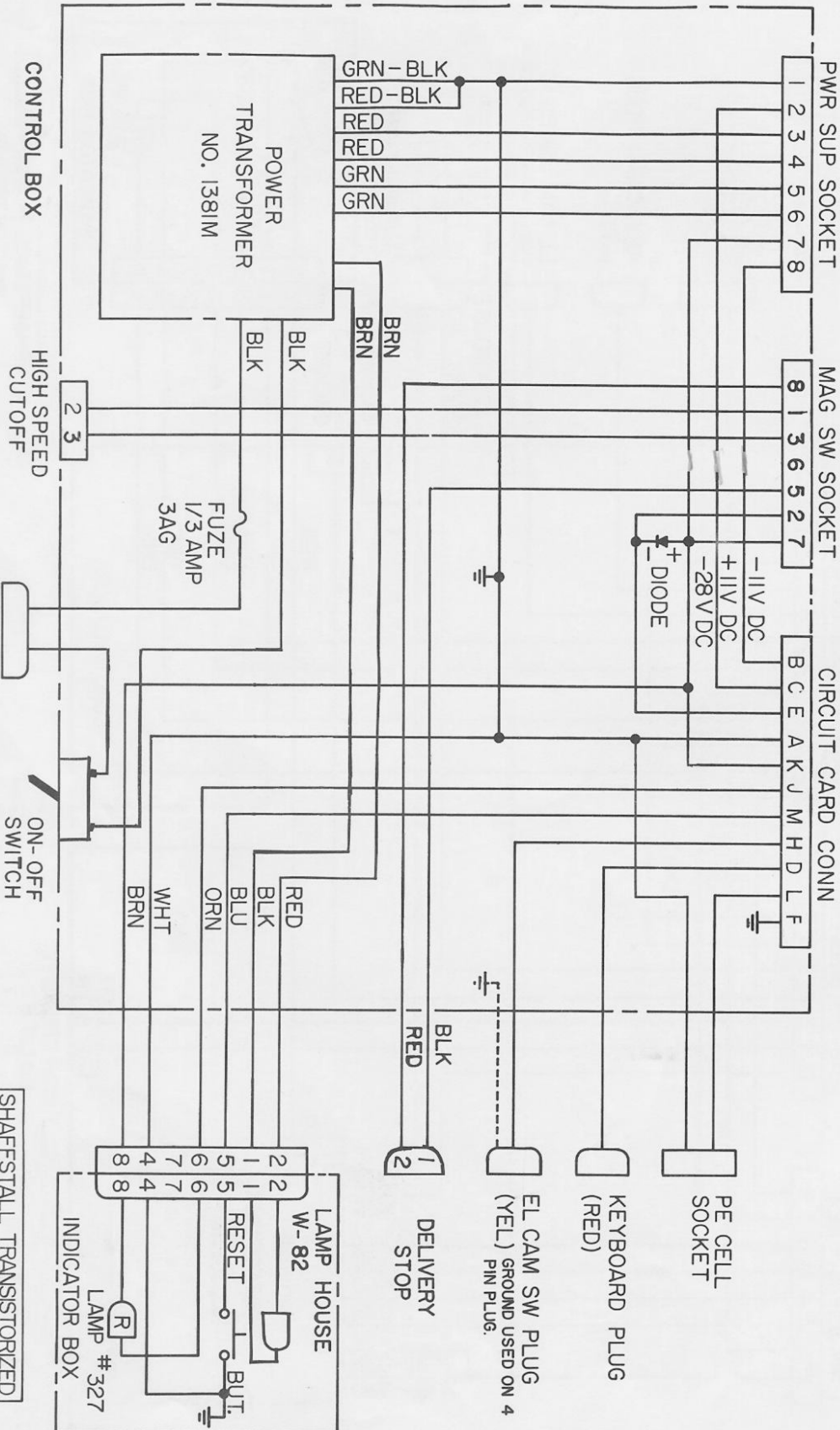
SHAFFSTALL TRANSISTORIZED MAT DETECTOR	
DATE July 11, 1966	SERIES
DRN BY <i>Shawn Francis</i>	M-800
E.E. <i>A. P. Schmidt 7-11-66</i>	
APPD BY	

With #810 Control Card on Monarch without keyboard with TTS.
 With M-840 Control Card on Monarch with keyboard with TTS or Autosetter.

POWER SUPPLY								
MODULE M-1029								
1	2	3	4	5	6	7	8	

MAGNETIC SWITCH								
M-1095								
8	1	3	6	5	2	7		

CIRCUIT CARD NO.												
M 830W M 830WO												
B	C	E	A	K	J	M	H	D	L	F		



With M-830 with Control Card on Elektron with I.O.U. 75-3 or Autosetter
With M-830 WO Control Card on Elektron with I.O.U. 75-3 or Autosetter

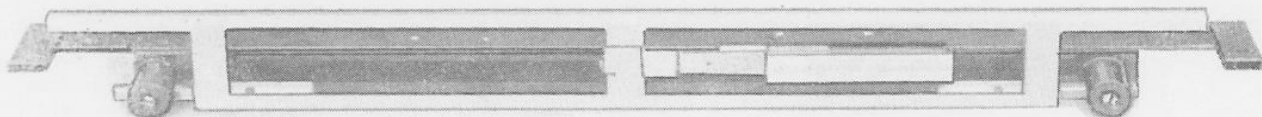
SHAFSTALL TRANSISTORIZED MAT DETECTOR			
DATE JULY 11, 1966	SERIES		
DRN BY <i>Charles H. H. H.</i>	M-900		
E.E. <i>H. H. H.</i>	M-1000		
APRD BY			

PARTS LIST for TRANSISTOR MAT DETECTOR

MODELS 600 THROUGH 2000

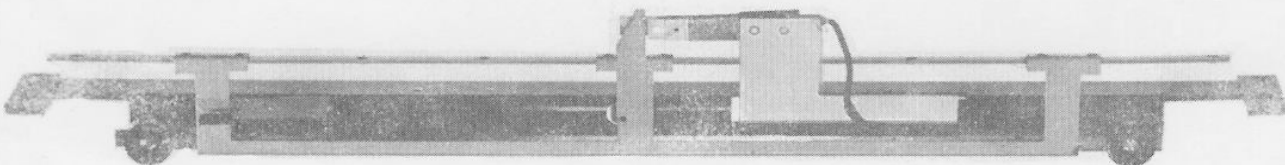
D E C E M B E R , 1 9 6 4

KEYBOARD CONTACT BAR



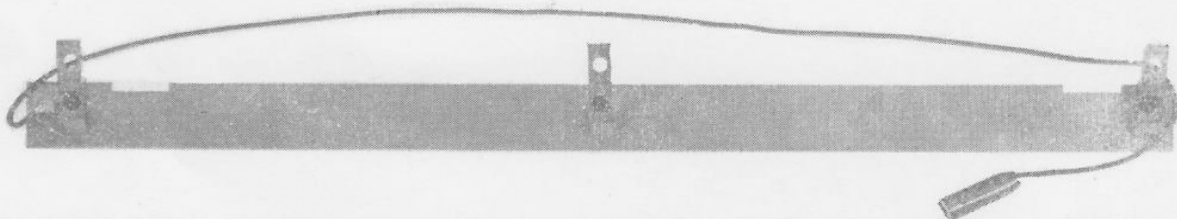
M-1600-62 or M-1600-63 Complete Keyboard Assembly For Models 600 and 600-D

- M-1607-63 Striker Bar assembly —
- M-1618 Hinge Pins
- M-1642-62 Switch Stack Assembly only
- M-1645-62 Spring
- M-1657 Screw for Hinge Pin



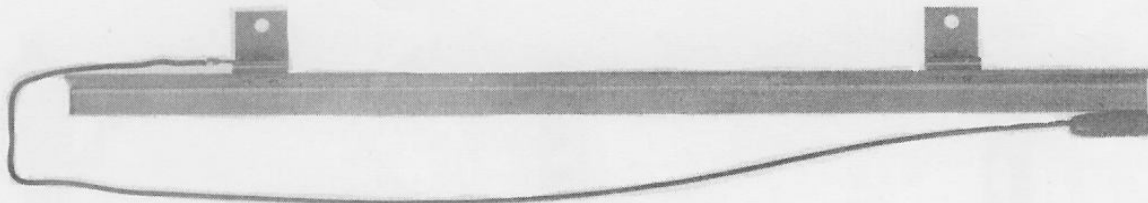
M-1646 Monarch without keyboard with Fairchild unit:

- M-1618 Hinge pin
- M-1645 Keyboard spring
- M-1647 Keyboard switch assembly
- M-1648 Bracket
- M-1657 Screw for Hinge Pin
- M-1680-63 Striker bar Assembly



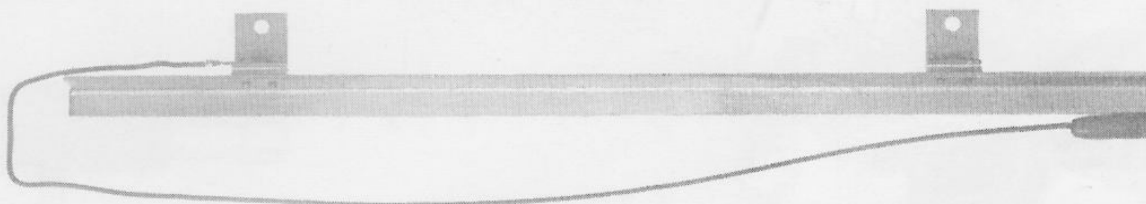
M-4000 Elektron with LOU, Fairchild TOU 75-3 or Star Autsetter:

- M-4001 Contact bar
- M-4002 Mounting insulator
- M-4007 Screws
- M-4009 Connecting wire assembly
- M-4012 Complete lock assembly for Elektron



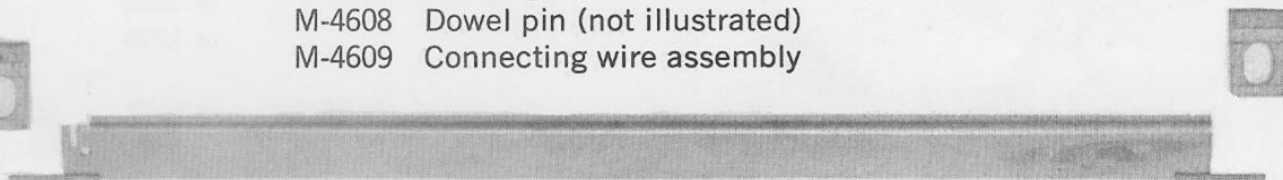
M-4300 Linotype using Fairchild Units, LOU or Star Autsetter:

- M-4301 Contact bar
- M-4302 Mounting brackets
- M-4303 Mounting screws
- M-4304 Insulator
- M-4305 Bushing
- M-4308 Dowel pin (not illustrated)
- M-4309 Connecting wire assembly
- M-4310 Red female connector



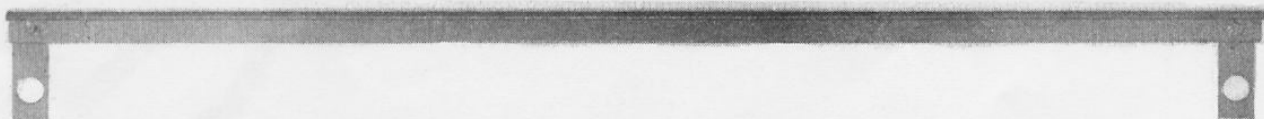
M-4600 Intertype, All models with keyboard, using Fairchild Units or Star Autsetter:

- M-4601 Contact bar
- M-4602 Mounting screw
- M-4603 Mounting washer
- M-4606 Insulator
- M-4607 Bushing
- M-4608 Dowel pin (not illustrated)
- M-4609 Connecting wire assembly



M-4610 Lock Bar Assembly, Intertype:

- M-4612 Lock bar
- M-4620 Bracket



M-4622 Weight Holding Tool, Intertype using M-4600 Contact Bar



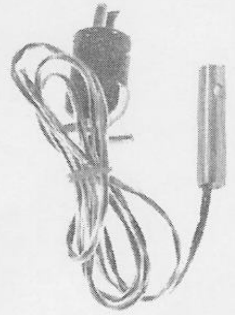
M-1921



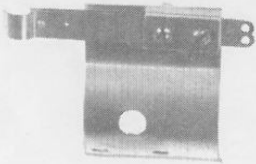
M-1933
M-1937
M-1940

M-1945

M-1942 R-Fn G.



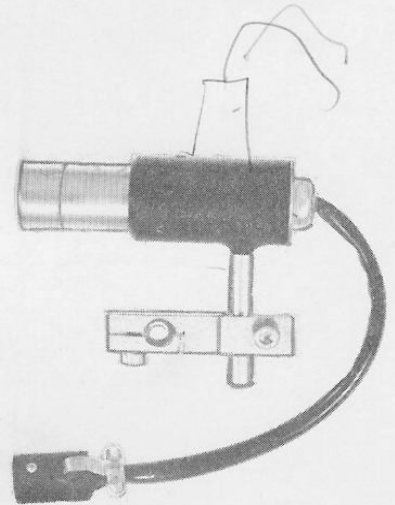
M-1900-X
M-1963



M-2150

M-2151

M-2152

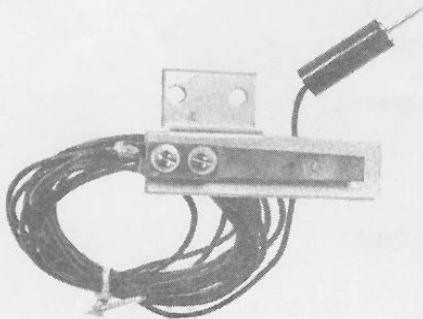


M-1850
M-1870

M-1851
M-1864

M-1867
M-1861

M-1863
M-1872



M-2100

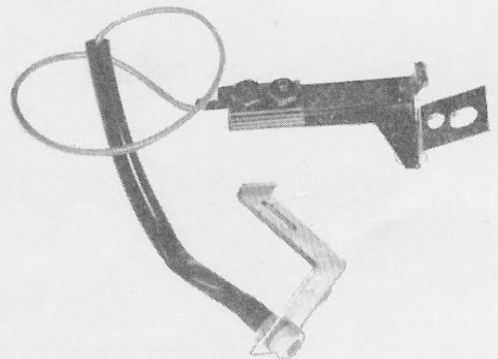
M-2102

M-2107

M-2115



M-2159

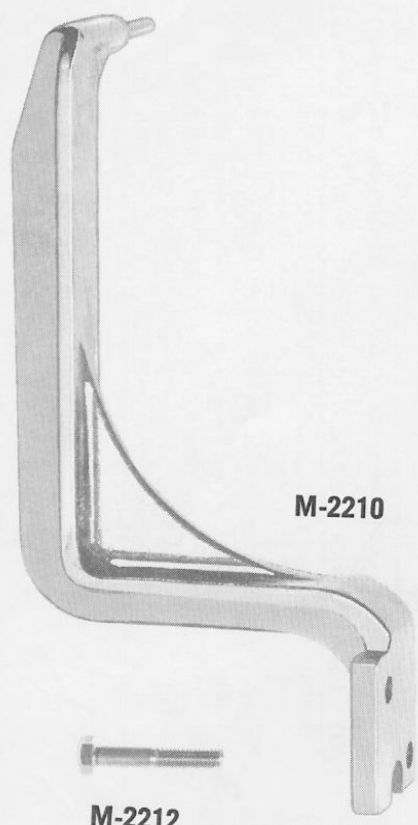


M-2000

M-2001
M-2002

M-2014
M-2016

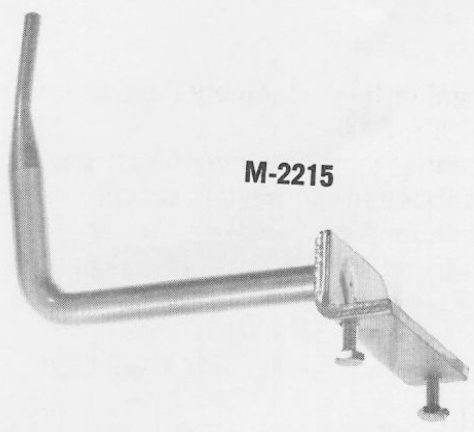
- M-1850 Complete scanner light assembly (less M-1867 block) for 600, 600D, 600DI, 2000
 - M-1870 Complete scanner light assembly for Hi-speed
 - M-1851 Scanner light body for all models except Elektron
 - M-1861 Scanner light connector female
 - M-1863 Lens-barrel assembly for 600, 600D, 600DI, 2000
 - M-1864 Cable and socket assembly
 - M-1867 Scanner light connecting block
 - M-1872 Lens-barrel assembly for 800, 900, 1000, 1200
-
- M-1900-X Photocell sub-assembly for 600, 600D, 600DI, 2000
 - M-1921 Photocell bracket—Comet
 - M-1933 Photocell bracket—Linotype Models 5, 8, 31 and Intertype
 - M-1937 Photocell mounting bracket for Fotomatic
 - M-1918 Screw for photocell brackets M-1921, M-1933 and M-1937
 - M-1963 Hi-speed photocell for 800, 900, 1000, 1200
 - M-1940 Photocell bracket, Intertype Model F or G
 - M-1945 Photocell bracket, Linotype Electron
-
- M-2000 Elevator switch assembly, complete, all machines except Elektron**
 - M-2001 Elevator switch mounting bracket, all machines except Elektron
 - M-2002 Elevator switch only, all machines except Elektron
 - M-2014 Bracket for M-2016 Jack
 - M-2016 Jack—yellow
 - M-2159 Cam Block
-
- M-2100 Spaceband switch #1, complete, all machines except Elektron & Monarch**
 - M-2102 Spaceband switch #1, only, all machines except Elektron & Monarch
 - M-2107 Bracket for mounting spaceband switch #1, all machines except Elektron & Monarch
 - M-2115 Phone tip—black
-
- M-2150 Spaceband switch #2, complete, all machines except Elektron & Monarch**
 - M-2151 Bracket for spaceband switch #2, all machines except Elektron & Monarch
 - M-2152 Spaceband switch #2 only, all machines except Elektron & Monarch



M-2210

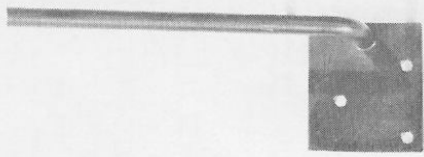


M-2212



M-2215

M-2216



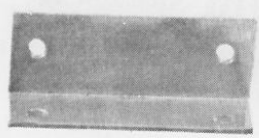
M-2253



M-2220



M-2228



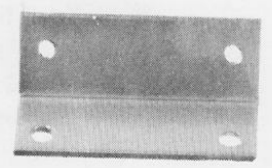
M-1024



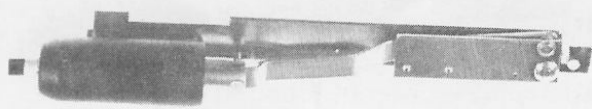
M-1703



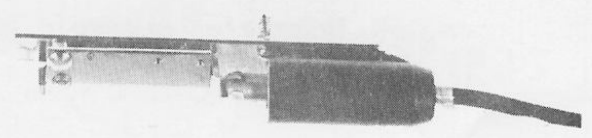
M-2227



M-1025



M-1700



M-1750

M-1710

M-1713

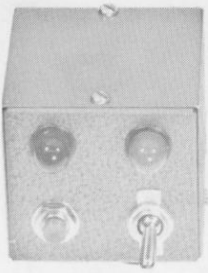
M-1713

M-1760

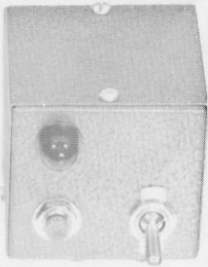
M-1024 Bracket for Mounting Control Box—all units
 M-1025 Bracket for Mounting Control Box—Linotype only

 M-1700 Elevator lock assembly complete, all Linotypes and 4 mold Intertypes
 M-1703 Leaf extension for elevator locks M-1700 or M-1750
 M-1710 Elevator lock spring for M-1700
 M-1713 Solenoid assembly
 M-1750 Elevator lock assembly for 6 mold Intertype
 M-5000 Elevator lock assembly for Intertype Fotomatic (no illustration)
 M-1760 Elevator spring for M-1750
 M-2210 Scanner light mounting bracket Linotype
 M-2212 Mounting screw for M-2210 scanner light mtg. brkt. Linotype
 M-2215 Scanner light mounting bracket for Comet
 M-2216 Adjusting screws for M-2215 brkt. for Comet
 M-2220 Scanner light mounting bracket for Intertype ABC & Monarch
 M-2227 Operating lever for Intertype
 M-2228 Scanner light mounting bracket for Model V Intertype
 M-2253 Scanner light mounting bracket for Mixer Units

M-1550 Indicator Box Complete for Models 600, 600-D, 600-DI and 2000

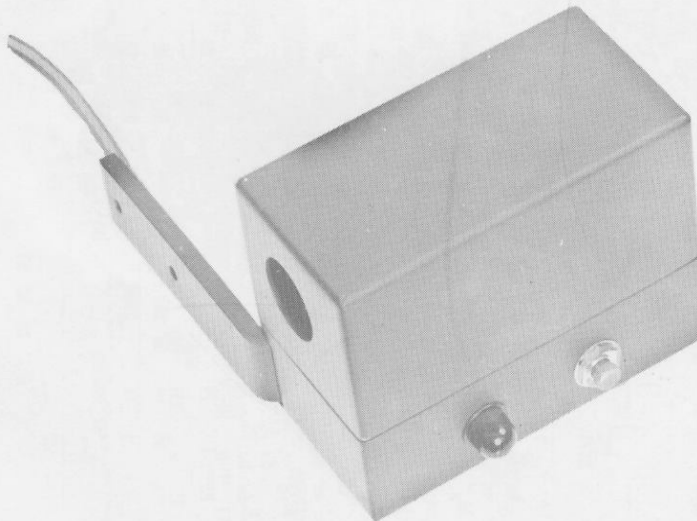


- M-1556 Off-on Switch
- M-1557 Push button Switch
- M-1558 Bubble—Red
- M-1559 Bubble—Green
- M-1562 Indicator Lamp
- M-1562-L Indicator Lamp (extra long life)
- M-1120 Plug (not shown)
- M-1055 Nut for push button switch #1557
- M-1056 Internal lock washer for push button switch #1557



M-1560 Indicator Box Complete for Models 800 and 1200

Parts for M-1560 Indicator Box are numbered same as on the M-1550, except the M-1559 Green Bubble has been deleted.



M-4200 Elektron Combination Indicator Box and Scanner Light for Models 900 and 1000

- M-1872 Lens-Barrel for Models 900 and 1000
- M-4210 Scanner Light Assembly, complete for Models 900 and 1000
- M-4212 Scanner Light body assembly for Models 900 and 1000
- M-4214 Scanner Light Connecting Block for Models 900 and 1000
- M-4215 Cord & Plug Assembly for Models 900 and 1000
- M-4216 Terminal Strip for Models 900 and 1000



CONTROL BOXES

On Model 800 and 1200, state vertical or horizontal mounting.
Order Control Boxes by Model Numbers.

- M-1516 Phone Jack Black
- M-1026 Fuse Holder
- M-1027 Fuse .3 amp.
- M-1032 Amphenol Socket
- M-1033 Elevator Lock Female Connector

PARTS NOT ILLUSTRATED

- M-1034 Transformer
- M-1036 Step-down transformer (110-220-240 V)
- M-1043 Octal socket
- M-1044 Octal socket cap
- M-1045 Power cord 46"
- M-1051 Amphenol retainer ring
- M-1052 Tyrap
- M-1053 Cable clamp
- M-1054 Solder lug
- M-1099 Spark suppressor
- M-1609-63 Keyboard striker bar assembly $\frac{1}{4}$ " longer—Fotomatic
- M-1675 Keyboard cover
- M-1708 Leaf extension screw
- M-1865 Lamp for scanner light (box of 10)
- M-1903 Photocell shield
- M-1940 Photocell bracket, Intertype Model F or G
- M-3300 Spare parts kit, Standard
- M-3320 Spare parts kit, Models 800, 900, 1000, 1200
- M-5000 Elevator lock for use with Intertype Fotomatic



M-4225

M-4226



M-1041

M-1042



M-4227

M-4228



M-1059

M-1060



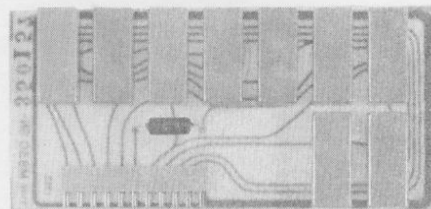
M-1046

M-1639

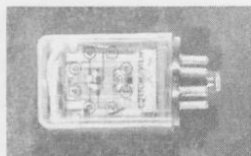


M-1047

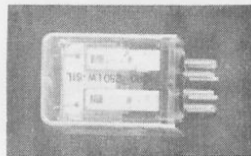
M-2016



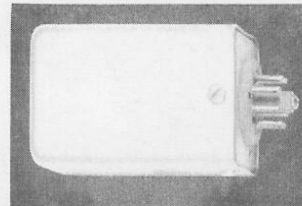
See page captioned:
**"CONTROL CARDS FOR
VARIOUS MODELS"**
when ordering Control Cards.



M-1030



M-1095



M-1029

- M-1029 Power pack
- M-1030 Magnetic switch for Models 600, 600D, 600DI & 2000
- M-1041 Male 2 prong connector
- M-1042 Female 2 prong connector
- M-1046 Yellow phone tip
- M-1047 Red Phone tip
- M-1059 Octal male connector with clamp type cap
- M-1060 Octal female connector with clamp type cap
- M-1095 Magnetic switch for Models 800, 900, 1000 & 1200
- M-1639 Red phone jack
- M-2016 Yellow phone jack
- M-4225 Cinch Jones 2 prong male connector
- M-4226 Cinch Jones 2 prong female connector
- M-4227 Amphenol 3 prong male connector
- M-4228 Amphenol 3 prong female connector

CONTROL CARDS USED FOR VARIOUS MODELS

MODEL 600

All Linotypes & Intertypes (except Elektron & Monarch) with TTS, Fairchild, TOU 8 to 21 Operating Units:

With Keyboard Bar M-1600-63, Use M-1028 Green Control Card

With Keyboard Bar M-4300 or M-4600, Use M-1028 Green-Orange Control Card

With Star Autosetter and no Keyboard Bar, Use M-1028 Green-Yellow Control Card

MODEL 600-D (Mixer)

Linotypes Model 29, Intertypes Models F & G with Fairchild Operating Units:

With Keyboard Bar M-1600-63, Use Green-Blue Control Card

With Keyboard Bar M-4300 or M-4600, Use Green-Blue-Orange Control Card

MODEL 600-DI (Mixer)

Model 29 Linotype with LOU, Use Green-Blue-Orange Control Card

MODEL 800

Monarch without keyboard, Use M-810 Control Card

Monarch with keyboard, Use M-840 Control Card

Monarch with Autosetter, Use M-840 Control Card

All Linotypes (except Elektron) for Star Autosetter, Use M-840 Control Card

On Intertypes Autosetter, Use M-840 Control Card

MODEL 900

Elektron with LOU, Use M-830W Control Card

Elektron with Autosetter, Use M-830WO Control Card

MODEL 1000

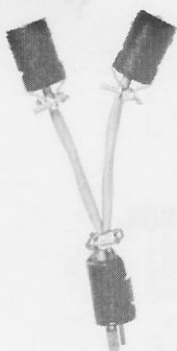
Elektron with TOU 75-3, Use M-830WO Control Card

MODEL 1200

(Formerly designated as MA) Monarch with Autosetter, Use M-840 Control Card

MODEL 2000

All Linotypes (except Elektron) with LOU, Use Green-Orange Control Card with capacitor



M-1970



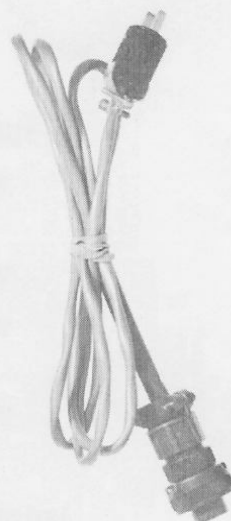
M-1880



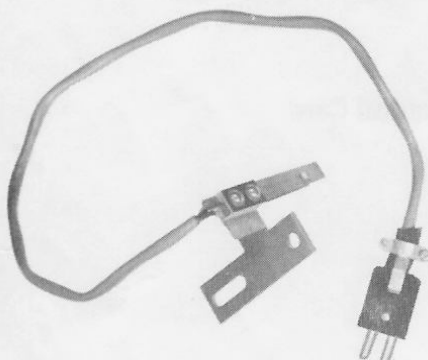
M-4222



M-4224



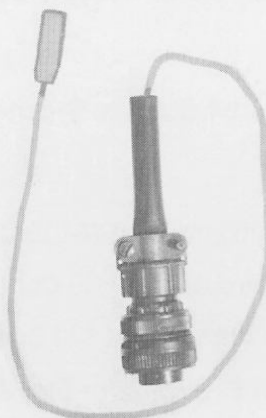
M-2265



M-2051

M-2050

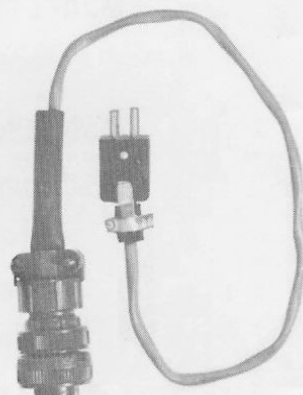
M-2102



M-4230

M-4231

M-4232



M-4220

- M-1880 Scanner light "Y" connector for Models 800, 1200, mixers
- M-1970 Photocell "Y" connector for Models 800, 1200, mixers
- M-2020 Cable and plug for Elevator cam switch M-2050 Elektron with TOU 75-3

M-2050 Elevator cam switch assembly, Elektron with TOU 75-3

- M-2051 Bracket for switch assembly, Elektron with TOU 75-3
- M-2102 Switch assembly only, Elektron with TOU 75-3

- M-2265 Connector for Star Autosetter, all models except Elektron
- M-4220 Connector for Elektron with Autosetter, for last mat function
- M-4222 Connector for Elektron with TOU 75-3
- M-4224 Connector for Elektron with TOU 75-3
- M-4230 Connector for Star Autosetter, all Models except Elektron
- M-4231 Yellow female connector
- M-4232 Large Cannon plug

**POWER SUPPLY
MODULE**
M 1029 B

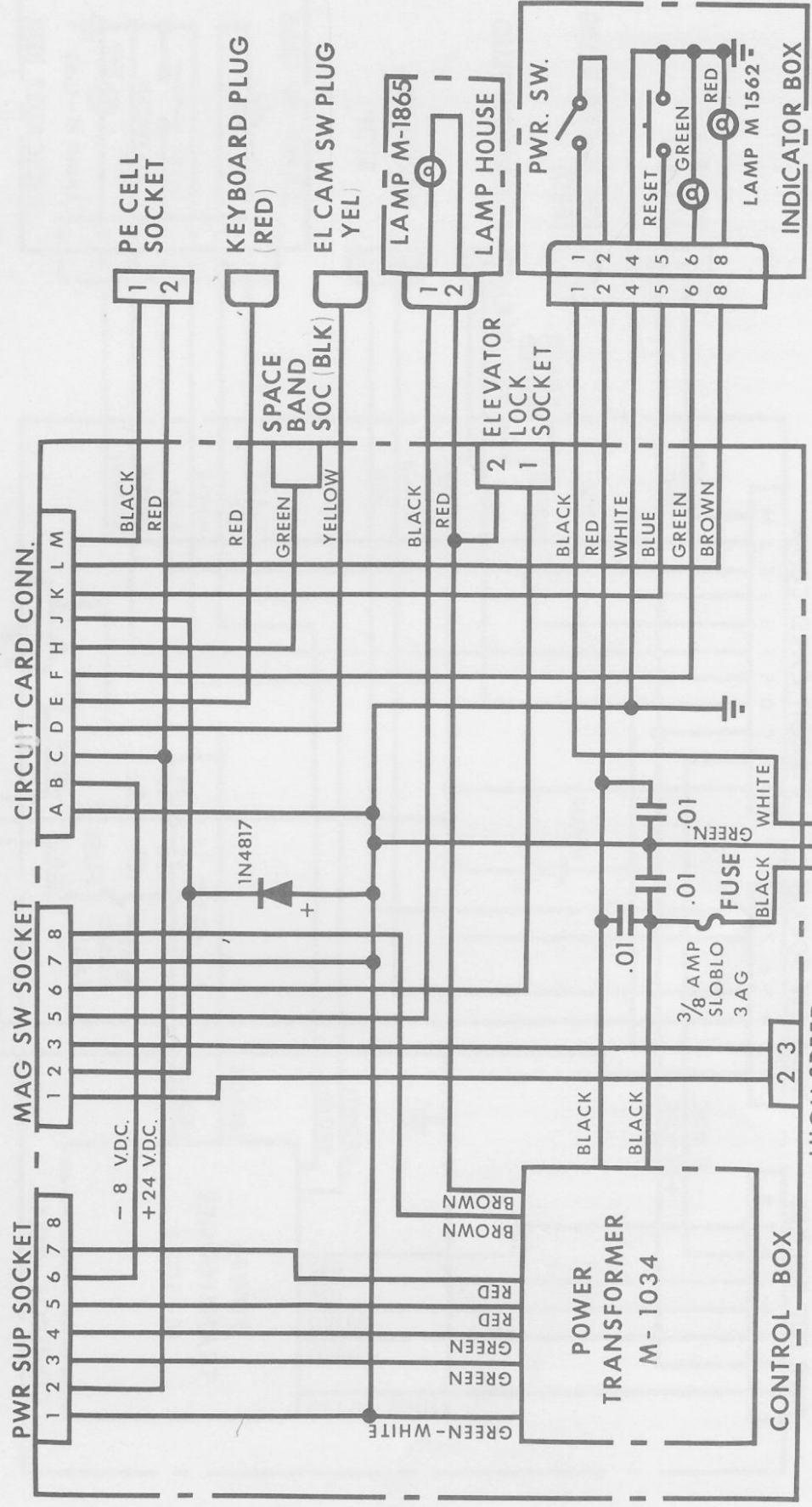
1 2 3 4 5 6 7 8

**MAGNETIC
SWITCH**
M-1095

1 2 3 5 6 7 8

CIRCUIT CARD NO.
M-700

A B C D E F H J K L M



Shaffstall		Transistorized	
Mat		Detector	
Date	MODEL		
Drn. By	M-800-B		
E.E.			
Appd. By			

Use M-700 Control Card for Linotype or Intertype with TTS with keyboard.
 Use M-700X Control Card for Monarch without keyboard.
 Use M-700 W Control Card for Linotype with LOU.

POWER SUPPLY MODULE
M-1029-B

1 2 3 4 5 6 7 8

MAGNETIC SWITCH
M-1095

1 2 3 5 6 7 8

CIRCUIT CARD NO.
M-700

A B C D E F H J K L M

PWR SUP SOCKET

1 2 3 4 5 6 7 8

MAG SW SOCKET

1 2 3 5 6 7 8

CIRCUIT CARD CONN.

A B C D E F H J K L M

- 8 VDC.
+ 24 VDC.

1
2

BLACK
RED

PE CELL
SOCKET

KEYBOARD PLUG
(RED)

SPACE
BAND
SOC (BLK)

RED
GREEN
RED

EL CAM SW PLUG

1
2

BLACK
BLACK
RED

DELIVERY
STOP

1
2

BLACK
BLACK
RED

DELIVERY
STOP

POWER TRANSFORMER
M-1034

INDICATOR BOX

LAMP M-1865

RESET GREEN

LAMP M-1562

CONTROL BOX

ON-OFF
SWITCH

HIGH SPEED CUTOFF AC POWER PLUG
117 VAC 50-60 CPS

2 3

Shaffstall
Mat Detector

Date	6-17-70	MODEL	M-1000-B
Drn. By	J.P. Carter		
E.E.	Don Bell		
Appd. By			

Use M-700 Control Card for Elektron with TTS 75-3 or with Autosetter.
Use M-700W Control Card for Elektron with LOU.

**POWER SUPPLY
MODULE**
M-1029 B

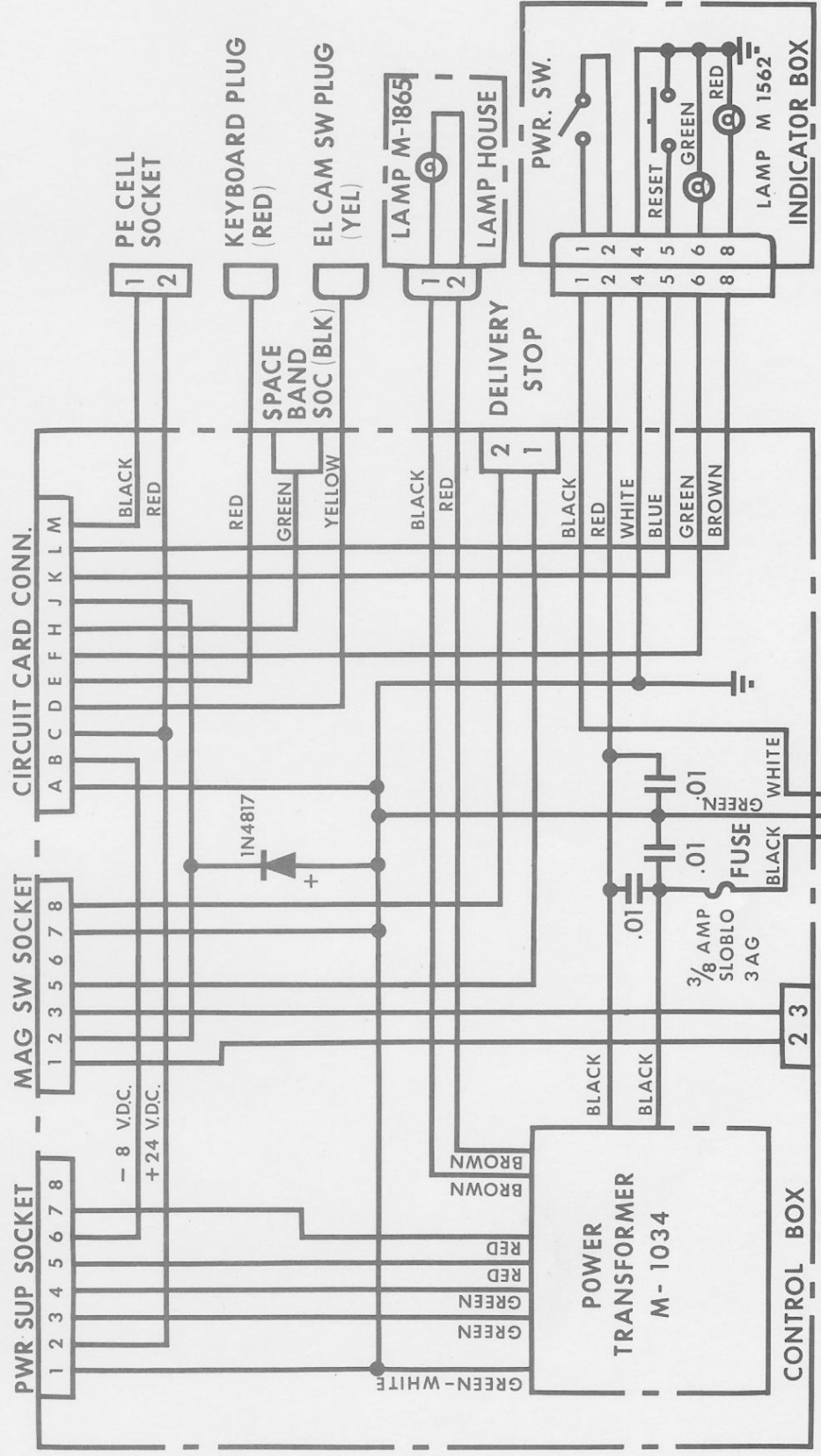
1 2 3 4 5 6 7 8

**MAGNETIC
SWITCH**
M-1095

1 2 3 5 6 7 8

CIRCUIT CARD NO.
M-700

A B C D E F H J K L M



Shaffstall		Transistorized	
Mat		Detector	
Date	MODEL		
Drn. By			
E.E.		M-1200-B	
Appd. By			

Use M-700 Control Card for Linotype (except Elektron) and Intertype with Autosetter.