

CHAPTER XXV

THE TRANSFER

First Elevator Pounds When it Seats on Upstroke

By HARRY G. POTTLE in the *Printing Industry*: I suggest you discontinue the liberal application of graphite to the first elevator head, for that will get into the magazine and make trouble.

See that the duplex rail is straight and smooth; clean and graphite it, and put it back; try the levers that operate it and see that it is free.

Raise the first elevator by hand to see if there is a bind. The ends of the duplex rail levers and their opposing blocks should be lubricated with hard oil.

Sometimes mats with distorted toes will stand up too high on the duplex rail.

Are the duplex levers pulling the duplex rail back completely, so mats on the rail are free to drop?

The intermediate bar may be set too far forward and cause too much pressure on the first elevator front jaw.

Mats Spill out at Transfer

Pregunta: Senores: Tenemos una maquina para poner tipos, y hay mucha dificultad ahora con el transporte. Los moldes de cuando en cuando se derraman y se dispersan en el suelo. Nuestra maquina es Linotipo, Numero 5, y tiene cerca de treinta y cinco anos de edad. Esperamos que V. puede responder a nuestra pregunta, y le damos las gracias mas espresivas por el favor que nosotros hace.— D.S., Guadalajara, Jalisco, Mexico.

LOOMIS: Never let it be said that we ignored a yelp for help. This man has a Model 5 about thirty-five years old, and he is distressed because his mats frequently spill out at transfer and are scattered over the floor. It's a big question to take on at such long range, but no more so than some we've already wrangled.

This is not an easy subject, for many things are involved, but it is extremely important, for it affects wear on the combinations of your mats as well as annoyance. Nor is it too difficult when you know what to do. It is worth noting that the *sequence* of tests and adjustments is all-important in alignment of the transfer.

E. B. HARDING in *The Publisher's Auxiliary*, and LOOMIS:

Test the transfer by sliding a line of mats and bands from the first to the second elevator by hand. Hold the mats straight up and down. Note whether

they go across smoothly. There should be no drag except for the very slight friction involved *and* the first elevator jaw spring pawls. For one not accustomed to setting the transfer, it is better to remove these pawls; they can be very confusing.

Note especially the left end of the second elevator bar plate. Does it move up or back or to the front as the mats go over, or does it stand still? It should not move.

The critical point is to the right of the spring pawls. Here the mats start onto the second elevator bar, and for a quarter of an inch are on the bar while still in the jaws. Here they must be loose and free. Using a thick pi mat, see that it is midway in this space, then with your forefinger try pushing it up from beneath. Ideally there should be a tiny bit of free play here. The mat must not be tight. This is the final test of any transfer adjustment, except for actually running the machine.

Now let us assume that you have already adjusted the first elevator's movement up and down, as told in *The Gibs*, page 108. If you have not, you may as well get at it now, for a permanent setting of the transfer cannot be made if you are going to have to change the first elevator gibbs again.

Note too the absolute necessity of first elevator jaws that are level — at the same height. With one jaw lower than the other, the mat is twisted, and it is impossible to get a satisfactory setting. It is important too that the jaws not be too far apart; if they are, alignment will be difficult. If they are tight, there will be a drag that is hard to pin down.

Now, with the elevator up, take off the entire first elevator head by removing the three bolts in top. Take the intermediate bar out of the head by removing the two bolts in front. The touchy point of the intermediate bar is the pawl. Drive out the pins and remove the pawl. If it is broken it should be replaced. If good, rub it on emery cloth and graphite. Also rub the slot with folded emery, and then graphite. Replace the pawl. Replace the bar.

Now pull up the second elevator and replace the head, without mats in the first elevator. With no more than slight finger pressure, push the head forward until the intermediate bar is against the first elevator front jaw. Tighten the head. Set the screws in the back.

A word about this intermediate bar. If you find later that the first elevator seems to be rubbing a nice shiny strip along the corner of the bar, back it up just a little. It is not necessary that they have such hard contact.

This is the only forward-and-back adjustment of the intermediate bar. The two front bolts are for sidewise movement and vertical setting.

Lock the spaceband pawl and let down the second elevator again. See that there is space between the end of the intermediate bar and the end of the second elevator bar. There must be freedom for the intermediate bar pawl to move up and down, but not over $1/32''$.

You may set the right end of the intermediate bar for height. The bottom of the pawl, in its highest position, should be exactly even with the bottom of the second elevator bar. You can adjust this by the screw in the top of the head, loosening and tightening the two front bolts when you want to move the bar. Now you can turn the machine a little forward, until the first elevator drops a couple of inches, and lay two 10-pica slugs across the top of the first elevator jaws. Move the machine slowly back, using the slugs to get the left end of the intermediate bar level with the right end. Now, if your space between intermediate bar and second elevator bar is still correct, we shall proceed.

The next move is to set the duplex rail lever blocks. Loosen the two screws in the top of the transfer head, and push in the plate holding the blocks until both ends of the duplex rail are completely in the clear to allow raised mats to drop for transfer; tighten the screws.

We now have the first elevator properly adjusted in the transfer position except for height. Let's get to work on the second elevator.

We assume for the moment that the second elevator is in good shape; this includes the bar, the bar plate, and the bar link — all of which are subject to wear, and all of which affect the transfer considerably. (See *Repairing the Second Elevator*, page 235).

The first item is the inside width of the transfer channel. (Loomis: Long ago I made a .780" gauge for this. I don't know where I got this measurement, but it is very close to perfect.) If the channel is too narrow or too wide, it can be adjusted. Loosen the three screws that hold the front plate and put a piece of newsprint above or below the left-hand screw, according to whether the channel needs widening or narrowing. Do this until you get it. *Do not make any adjustments on the transfer channel until this is done.*

With the spaceband pawl locked and the second elevator seated (the second elevator cam roll should be free of the cam at this point), observe first the front-to-back alignment of the bar with mats in the first elevator. A second elevator bar plate that is badly worn where it hits the post, can cause endless difficulty here.

On new machines (both Linotype and Intertype) you can control the forward-to-back position by two screws which adjust a plate in the post. Note that the second elevator resists being twisted, so both sides of the adjusting plate should be even.

This adjustment is first made with a good pi mat in the first elevator, the second elevator down in place, and a piece of white paper in the transfer channel just to the left of the spaceband box. Hold a light to shine on the paper — not too close, or it will blind you — and get your eye down on a level with the second elevator bar, out at the left, and sight. This is a good test but has limitations, for after a while you can't see straight any more. At other times you may think you have it lined up, only to find that it won't work. But the thing now is to align it front-to-back, and usually this ends up with the intermediate bar pawl in the center of the second elevator bar — but not always.

A perfect lineup here will show the teeth of the mats as a series of black

triangular teeth fitting into an opposite series of the same, but with a tiny amount of white space everywhere between the two. This optimum condition is hard to attain. Most often, perhaps, it is complicated by unevenness of the first elevator jaws. But we are now trying only for front-to-back. Height adjustment will come next.

Front-to-back adjustment on old machines cannot be attained by adjusting the post, for there is no such adjustment. The entire transfer channel must be moved; that is why we have already adjusted the channel at a width of .780". Now the transfer plates, front and back, must be treated as a single unit. If the second elevator needs moving forward or back, as it usually does, it must be done with shims behind the left-hand screw (not the one we used before) (to move the second elevator forward) or by filing off the boss behind that screw (to move the elevator backward). The right end is not changed, for it has to align with the spaceband box.

Now we'll take the vertical alignment of the two elevators. This is simple. First be sure the First Elevator Slide Stop at the bottom of the first elevator, which holds the adjusting screw, is firmly held to the first elevator. On occasion the first elevator casting becomes cracked or the bolt comes loose. Clean out all lead chips and dirt from around the adjusting screw. Now, with the elevator up and the paper in place, turn the screw until you secure the ideal white space between the teeth of the test mat and the teeth of the second elevator bar. When this adjustment is final, tighten the lock nut. Now give the whole thing the test mentioned above — transfer mats by hand, and set one pi mat on the end of the first elevator, just on the second elevator bar, and tap it upward with the forefinger to see that it is free. If it is, finish tightening the lock nut, holding the adjusting screw head carefully to avoid moving it. Put the first elevator jaw spring pawls back in place.

In actual practice, these two adjustments — front-to-back and vertical — are made simultaneously and intermittently.

Transfer three long lines by hand. They should go over very easily — no drag.

Run a number of lines through, including spacebands and plenty of capitals. Listen for the rattle that indicates misalignment; this is not the same as the sound that comes from stiff jaw spring pawls, although they are similar. Watch closely for any movement of the second elevator bar plate during transfer. It should not move.

Finally, holding the spaceband pawl, try a full 30-pica line, letting the transfer finger do the transferring. The mats should go smoothly, with no apparent obstruction but the spring pawls.

Height of Intermediate Bar

LOOMIS: This is a great fooler. I like to give it a final test this way: run up a 30-pica line and do not let it transfer. Loosen slightly the holding screws of the intermediate bar, and ascertain that the bar drops slightly to the mats. If it does,

push it back up and tighten. Sometimes the mats' teeth rub on this bar, and that is not good. I like from .005" to .010" play here.

Transfer Releasing Lever

When the second elevator seats, the long screw that goes through a lug just behind the second elevator pushes down the releasing lever, raising the left end of the lever to allow the transfer finger to move to the right. The left end of the lever should clear by 1/32".

Intertype Transfer Safety Latch

HARDING: This is an additional lock on Intertypes to prevent transfer when recasting raised lines.

Transfer Slide and Finger

LOOMIS: Let's start with the link, that narrow piece about 10" long; it has two holes in one end; use the inside one. When the holes become badly worn, replace the link. It is attached to the transfer slide by a screw that often works out — nearly always so as to project into a hole at the back of the face plate and stop the machine. When the screw threads in the transfer slide become too worn, re-tap for 8x32 and put in a spaceband pawl lifting screw, sawing off what is left over.

The finger itself should be straight, both sides even and square with the world. The screws that hold it are almost the same as those that hold the knife wiper (commonly called knife wiper flag). If the threads become beaten, you can re-tap for 6x48 or 8x32, but you will always have to countersink the finger a little to keep the screw heads from projecting. It's easier to get a new slide.

The finger should not bind on the intermediate bar, on the first elevator jaws, or on the second elevator bar. On old machines it is sometimes necessary to put a fancy kink in the finger to keep it from rubbing on the back jaw. Just below the screws, bend it forward at about a 45° angle; then immediately bend it back just below the first bend, so the net result is to move the finger forward about 4 points. This usually does it. You won't need more.

Transfer Channel Friction Spring

While often absent, this is an important part on most machines. Adjust it so that it bulges out slightly to create a drag against the bands and keep them from swinging.

Leathers in the Transfer Channel

Narrow strips of leather cut from an old main drive belt, fitted snugly into the channels, and tamped down, will often clear up trouble with transfer of spacebands. But if you get them too thick, they will push up the spaceband wedges against the second elevator bar and stall the machine.

Spaceband Pawl

LOOMIS: The lever often has a lot of play down at the shaft. Tighten the set screw firmly at the bottom. See that the center bar of the pawl is not worn out; that the hinge pin is not worn down; that the spring is strong enough to pull the spacebands but no stronger. The tips of the pawl should go about $\frac{1}{8}$ " below the ears of a new spaceband; there is a slotless screw, B-246 (why slotless, I never have been able to understand), which can be used to adjust this height; you grind off the bottom of the screw — but if this turns out to be necessary, you'd better consider investment in a new pawl. Loosen the screw that holds the hinge pin in place; let the pawl go over into the channel and let it center itself there; then tighten.

Why Does the Transfer Finger Hit a 30-Pica Line?

LOOMIS: The transfer finger on old machines should have $5\frac{9}{16}$ " between it and the transfer channel; on later machines it is $5\frac{5}{8}$ ". Cut a piece of reglet $5\text{-}11/16$ ". Corral an assistant. Have him (or her, if you're lucky) hold the spaceband pawl to the right until the transfer finger allows the reglet to go in. You are behind the machine, loosening the two $\frac{3}{4}$ " bolts with a thin end-wrench. As she holds the pawl, you tap the arm of the lever against the cam, and tighten. Chances are the finger will come about right, with that $1/16$ " allowance. But never mind; you may have to do it several times. Just get the $5\frac{5}{8}$ "; then you take your assistant out and buy her a coke or a cup of coffee.

Why Won't a 30-Pica Line Transfer?

LOOMIS: More trouble with 30 picas. (What would you do with 42?) Anyway, this happens because that same finger does not travel far enough to the right. Here's the way I set that: Lock the spaceband pawl and let the machine come to a safety stop. Push in the clutch. Release the spaceband pawl and let the transfer finger come in. Now in most transfer fingers there is a $\frac{1}{8}$ " deep cut on the right edge — as far as I know for this purpose only. The bottom of that cut should be even with the end of the first elevator jaws, which would bring the last mat outside of the jaws and free to be lifted. If this mat is left within the first elevator jaws, there's gonna be trouble.

Now to set it. I get a small end wrench with a $\frac{1}{2}$ " opening — the S wrench you use on the pot leg nuts is a natural — and lie on your right side back of the machine. Reach up under and around the main drive shaft, locate the nut on the safety pawl that locks the adjustment screw, and loosen same. Now generally the screw will turn with your fingers. If not, you can work it with a small ratchet screwdriver, or you can crawl out of the machine and turn it over until you can reach it with a straight screwdriver — though you won't find this much easier.

This is the clumsiest operation I know of, but I have tried for thirty-five years without improving it.

Turn the screw in or out and find which way produces the proper movement of the finger; keep at it until you get it right. If your assistant is still there, it will be a lot easier on your knee-joints if you will show her what you are trying to achieve, and have her tell you when you get the finger right. Then she can hold the spaceband pawl hard to the left while you tighten the lock nut (which usually keeps the screw from moving).

A 30-Pica Line Goes up but It Bangs

LOOMIS: This usually means the finger is coming too far to the right and binding against the mats as the second elevator rises. See the adjustment above.

Transfer Finger Does Not Push Bands Under the Pawl

LOOMIS: This also is an adjustment of the transfer finger — but this one is a cinch. There is a long screw in the transfer slide behind the finger which banks on the brass buffer in the spaceband pawl. This screw should be set so the bottom of the cut in the finger comes even with the inside edge of the two pawls that pull the bands. There should be a couple of felt washers behind the brass buffer.

Why Don't the Bands Go All the Way Into the Box?

LOOMIS: This is an adjustment of the turnbuckle, one of my favorites, because you can make it sitting in your chair. With a 10-penny nail reach under the assembling elevator. The turnbuckle is straight behind the bottom of the assembling elevator. Put the nail in the hole and turn. You can see the spaceband pawl move either left or right. Set it so the points come $\frac{1}{4}$ " to the right of the point where the incline starts in the points in the spaceband box rails. If there is so much play you are in doubt, hold the pawl to the left as you make this.

Why Do Spacebands Twist in the Channel?

HARDING: Often this comes from too wide a channel. Check the .780" width. It may result from a worn-out spaceband pawl that "rides" the bands. It may also be badly worn bands. It may come from bands' swinging in the channel (they should be carefree!). It may be badly worn channels.

Why Are Bands Left in the Channel?

HARDING: A weak or missing spaceband pawl spring is the most common reason. Ears of bands too narrow, or points on spaceband pawl too short, or pawl riding too high. Any obstruction to the path of the bands; this may happen particularly at the spot where the spaceband box rails fit into the milled-out spots on the channels. They must fit back snugly, and must offer no obstruction on the top edge.

(Incidentally, I have always used .785" as the distance between the channels.)

30-Pica Lines Catch in First Elevator Jaws, Though the Transfer Finger is Correctly Set

HARDING: This can happen from "spring back," a spreading of a very full line as the second elevator starts up. We can take steps.

On the safety pawl in back of newer machines is a screw in the outer edge; set this to prevent the pawl being driven more than 1/64" off the stopping pawl.

There is a small pawl on the right end of the second elevator bar. Grind one-third of its width off the left side, to give the mats a little more room. (If you go too far with this, the mats then will strike the bottom of the distributor box or distributor box bar.)

See that the spaceband friction spring is in place.

14-point Bold Face Will Not Transfer

QUESTION: I have been on a machine for forty-three years and thought I knew most of the answers, but this is one I can't fathom: Our 14-point works fine in every way — except it won't transfer on the bold face. I can see nothing wrong, but when the mats are on the duplex rail they consistently jam at the transfer. They do not do this if the flipper is used. — T.F.P., Millinocket, Me.

LOOMIS: If it makes you feel better, you aren't the first one who has labored over this. Hardly less than twenty years ago I ran into it. The answer is this: 14-point, or at least certain faces, will not transfer on older machines when in the raised position, for the punched die in the mat catches on the intermediate bar. There is no answer that I know of, except to use the flipper, or release the mats by hand before they go up, if necessary to use a mixed line. It is interesting to note that there are some machines that do not suffer from this difficulty. Perhaps a maladjustment of the intermediate bar will cure it — but that may lead to other troubles.

Transfer Channel Stop Pawl for Mats

LOOMIS: The Intertype, lacking a stop pawl on the right end of the second elevator bar, uses a steel plate in the transfer channel to keep the mats from going too far to the right. This can be applied to a Linotype. There seem to be occasions where there is difficulty with the usual stopping pawl and you can't get anywhere with it. Use an assembling elevator fiber buffer. Set it on top of the ridge in the back plate, with the left edge 5 3/16" from the left edge of the transfer channel. I have found this little device 100% effective. Thin it down so bands will pass.

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