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SHOP TALK

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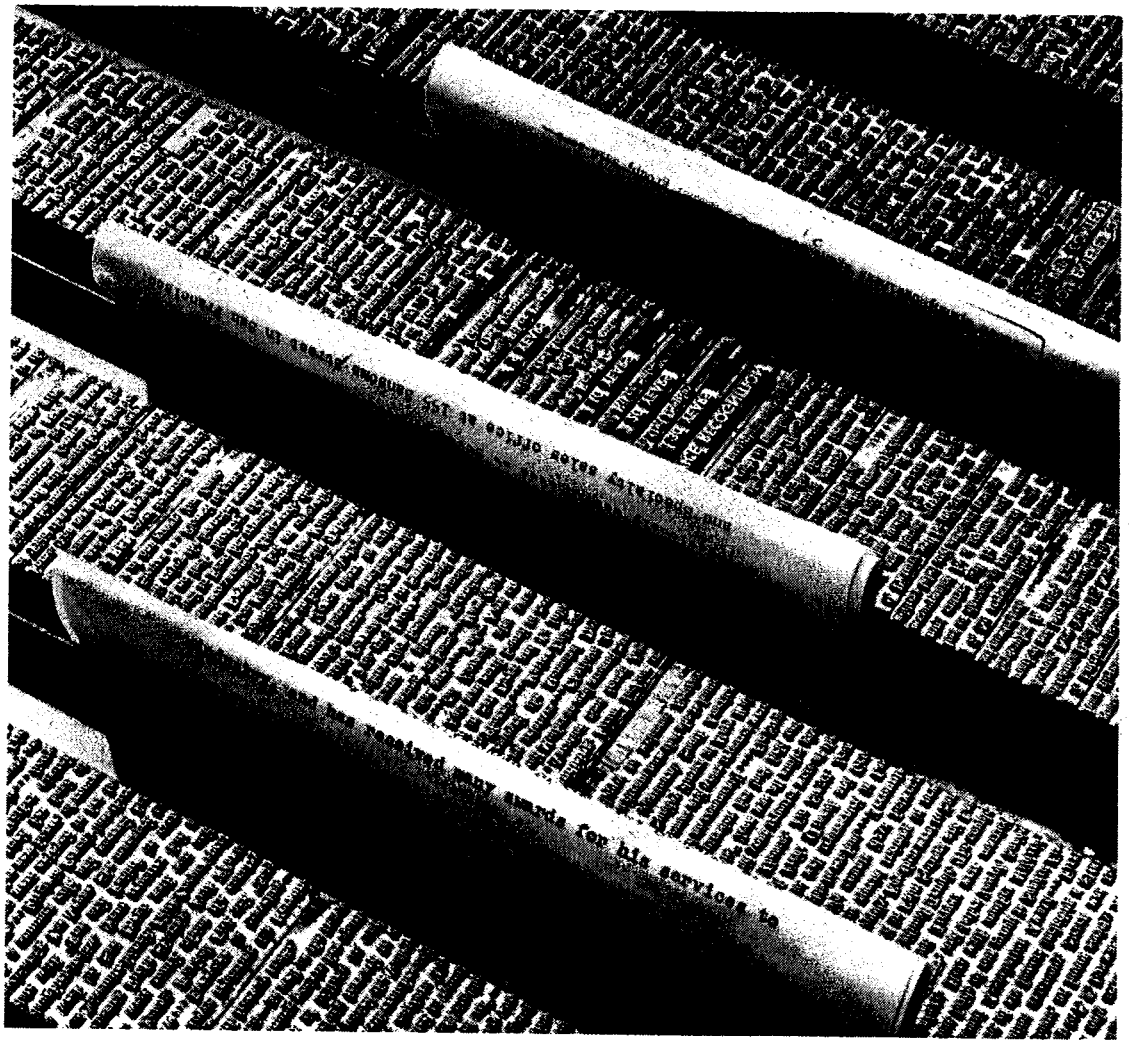

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A WORD FROM YOUR EDITOR...

It's nice to meet you . . . and hope we will have a meeting place in these columns each issue.

Let me introduce myself, Quido E. Herman, an operator, then machinist, and for the past seven years your Star Parts, Inc., representative for California, Washington, Oregon and part of Arizona.

Perhaps there is no more vulnerable spot than that of a person writing technical articles concerning typesetting machines. There are many ways in which to arrive at a successful conclusion to a mechanical problem. We shall point out, from time to time, some of the methods we have learned, not with the intent

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QUIDO E. HERMAN, EDITOR
Manager West Coast Agency, Star Parts, Inc.
1620 W. Pico Blvd., Los Angeles 15, Calif.

Address all communications to:
Mr. Emil Bendow, Star Parts, Inc.
2 South Main Street, South Hackensack, N. J.

(continued)

of implying they are the best or the only ways, but methods which have proven successful for us. If you have a satisfactory procedure, by all means, continue as you have.

We want you to feel this is your publication . . . truly "Shop Talk", and your comments, pro or con, will be of great help in making it the kind of publication you desire.

Cordially,

Quido E. Herman

QUIDO E. HERMAN

DESCENDERS...

keep them on the slug

The problem of preventing damage to the bottom of descending characters such as lower case g, y, p, q, j, can sometimes become quite difficult. There are, however, several basic adjustments and conditions to consider, and if you are faced with this problem, we hope the answer will be found here.

Generally speaking, the damage to the characters is caused at the time the slug is being pulled away from the line of matrices. Because type is cast with the bottom part of the letter toward the mold cap, it is evident that any downward motion of the line of matrices during the break-away, would tend to damage the bottom of the characters.

While it is true there is a taper in all matrices to permit the slug to be removed from the matrices without damage, this clearance, or "shoulder cut" as we shall term it, varies with different matrices, being less on smaller typefaces. This explains why small type will be nicked, while larger faces will be apparently undamaged.

The first thing to check is the amount of vertical motion of the first elevator jaws between first and second justifications. This must NOT exceed .010". In cases of special wide-lip mold caps, it may sometimes be necessary to decrease this amount. The important point to bear in mind is that *some motion* must occur, or it will be impossible to justify lines, and the mold aligning rails will cut the top portion of the bottom toe of the matrices, causing mis-alignment and consequently ruining the entire font.

There is an easy way to check this .010" clearance, but before this is done it is necessary to have the line of matrices parallel with the mold itself, so the setting will not be changed with variations in line length. This adjustment will also clear up matrix alignment, provided all matrices have original lower toe measurement of .125".

To verify parallelism, cast two 30-em slugs, using lining rule or 6-pt. em dashes on each end. Trim the ends of the slug on a saw, then butt the two slugs either on the saw or on some other perfectly straight surface. Examine the slugs carefully to see that the rules form one continuous line with absolutely no step between the two slugs.

If the rules are perfect, the alignment is perfect. If not, here is a shortcut—instead of trying to feel the upward pressure of two matrices, etc. Set the machine at 30 ems, run down a full line of matrices (no spacebands). Send these into the machine, stopping it when the mold advances the first time and the vise closing lever (the outside lever) is at its full upstroke.

At this point there will be no upward pressure on the first elevator, so loosen the two bolts or screws which fasten the bottom elevator slide gibs, leaving them loose, and loosen the gibs in their aligning grooves. Now place a large screwdriver between the first elevator cam and roller by forcing it from the top between the cam and roller so an upward pressure will be exerted by the matrices in the mold aligning rails.

The bottom of the elevator slide will now be in perfect alignment, so push it against the vise frame (you will be able to feel how it will attempt to center itself) then adjust the lower gibs to .005 clearance between the elevator slide and gibs. We are assuming, of course, you have the upper gibs set for correct clearance of the jaws and delivery channel. The upper right hand gib is usually doweled. Be sure to remove the screwdriver before starting the machine.

You are now ready to adjust the vertical motion of the first elevator slide. Set up the machine as before, light-face position, no spacebands, 30-em line of mats, stopping in the same position. Loosen the large adjusting screw on top of the first elevator slide and place a .010″ feeler gauge on top of the vise cap, directly under the large screw. Leave the feeler in this position, and tighten the screw until it raises the elevator slide and matrices against the mold aligning rails (tighten as far as it will go.) Now remove the feeler gauge and you have exactly .010″. The principle is to use the gauge and adjust tight, then remove the gauge and what is left will be the thickness of the gauge. This same principle can be applied to mold advance, also.

It is of utmost importance to double-check to be sure you can move the matrices when the feeler is removed, as they must be free. By lifting the elevator by hand you will be able to feel a slight movement, and watching the elevator during casting, you will likewise see a .010″ rise of the elevator jaws.

It may be necessary to re-set the vise automatic stop adjustment (the small screw on top of the elevator slide) if the original vertical adjustment has required much changing. Set it so it just clears the pawl and dog (E-350 or U-207) on regular lines, and so it will stop the machine if a 2-point space or .025″ to .030″ is placed under the elevator slide adjusting screw.

Of course the accuracy by which these adjustments can be made is determined by the condition of the mold disk and hub, locking studs and blocks, wear in the first elevator lever link eyebolts and pins or any wear which contributes to the looseness of the casting mechanism. Always bear in mind you are working in thousandths, and if there is wear in the hub, disk, studs or blocks, replace them and start over. There is no magic wand that can do the job.

Linecasting machine parts...

HOW THEY ARE MADE

The other day when a visitor was being shown through the Star Parts plant he exclaimed:

"I had no idea that all this went into the making of parts."

This is a typical reaction from those who have never been inside of a production machine shop. It is this which inspires us to explain what goes into the making of the Star parts you are using on your Linotype and Intertype machines. A production machine shop, as distinguished from a general machine shop, is a highly complex operation. We will give you this story with the principle highlights so the reader may have a good general picture of what the production of parts entails.

The story of any part begins with an idea. If it is an established or standard part, it begins with a blueprint; if it is an improved part, perhaps submitted by a machinist in the trade, or from our own practical experts in the field, it is first the subject of a conference among our engineers,—men who have the everyday knowledge of the linecasting machine.

When these fellows decide the idea has merit from a mechanical standpoint a survey is made by the Sales Department to determine if there is wide enough demand to justify manufacture. This survey

may, in the case of costlier items, take several months. It is then submitted to the Engineering Department for possible redesigning.

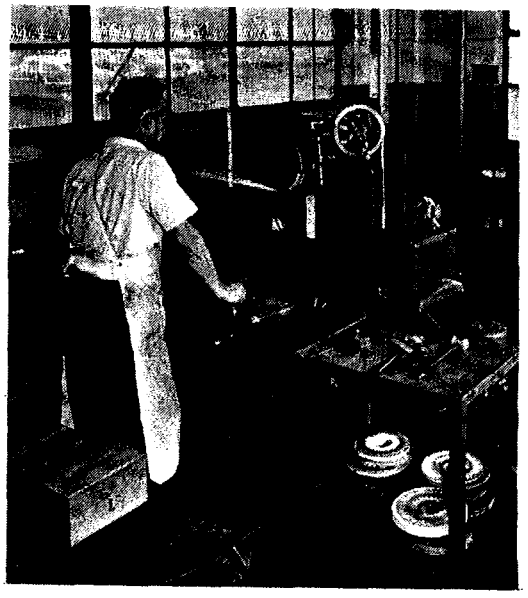
Every part must be made to sell at as reasonable a price as possible, so it is necessary for the Engineering Department to estimate manufacturing costs. This Department then supervises the hand manufacture of a model which might take weeks or months depending on the size of the part or assembly of parts involved. This model is then submitted to the Rebuilding and Service Departments for in-plant and field testing.

Back in the Engineering Department experimental drawings of the part or assembly must be broken down into detailed operational blueprints from which the production workers will take their measurements for the individual operations. Careful planning and ingenuity are necessary in the designing of the tools and fixtures which will hold the material while it is being milled, ground, and drilled on the machines which may have to be used. Special cutting tools may have to be ordered. A good portion of the cost of the finished part comes from these tools and fixtures.

While this engineering, designing, and manufacturing of the tools takes place, the selection of material is made that will do the job best in each particular instance.

There are hundreds of alloys in steel, aluminum, and copper to choose from, in many different standard shapes and sizes, and a selection must be based on which will give the least amount of waste. Sometimes when the standard stock sizes or shapes cannot be used, a special order may have to be entered with the mill. Waste becomes especially important when the material selected is an expensive alloy, so the material may become an important cost factor.

(To be continued in next issue)

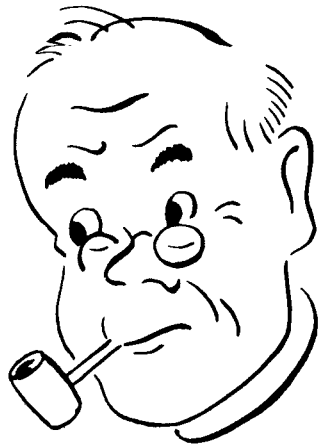


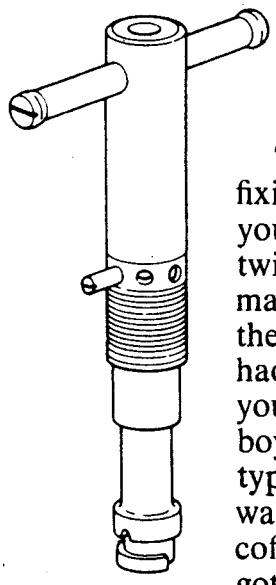
A model of a new part is first carefully hand made by tool makers.

The model of the part is tested, both in the Service Department and in the field.

After successful testing, detailed operational blue-prints are then prepared for shop manufacture.

GRANDPA SAYS...





"By Golly I was fixin' machines when you wasn't even a twinkle in your old man's eye, and in them days we really had to fix 'em. And you know that the boys used to really set type . . . none of this waitin' for copy, and coffee breaks like they got now."

Grandpa went on to say that once in a while he'd see a Star Parts man, who always kept telling him about "Improved" parts. Says he never ordered anything from this "peddler" as he referred to the representative, until he had some vise locking screws (E-1875) that had the tips broken off, and if they were so dern good back at the factory, maybe they could take these and weld new tips on them.

"That's when I found out what the man was talkin' about," said Grandpa. "He just showed me how the Improved Screws that Star makes have replaceable ends . . . that if one did bust off he could slip a new tip in and do it without even taking the screw out of the machine, mind you. Looked pretty good to me, but when this feller showed me that the reason most of them break is because they don't get a full "bite" and how that Improved one of his could be adjusted so it would have full contact with the stud, even if the stud was worn . . . that really sold me on Improved parts. Been usin 'em ever since."

Grandpa says: "Son, there ain't no sense throwing that whole thing away just because a little ole tip breaks off . . ."

RAIN...and front squirts

Now that seems like an odd head for an article, but maybe its not as strange as it seems. Machines are subject to front squirts, especially during the rainy season . . . in the Southwest or in New England.

This was brought to our attention because of the number of service calls we would receive on the day following a heavy rain. The calls would follow a pattern: "You'd better send a man over, the machine is squirting on the left end of the line, like the spacebands weren't coming up, but we cleaned them this morning, and it still does it . . . how soon can you get a man over to fix it?"

A few calls like this on the same morning, and we soon ran out of

machinists. And the peculiar part is that this trouble would show up in different plants, and all on the same day or two after a good rain.

After checking the mold advance and the height of the elevator slide, to be sure the line is free, the machine would be fine on straight-matter, but a full line, especially on small type, would still occasionally show a squirt on the left end of the slug.

Yes, you guessed it . . . it *was* the spacebands . . . and now we fix those calls over the telephone. You know, of course, graphite has the ability to absorb moisture and when it does, it gets quite gummy. This stickiness, along with the accumulation of dirt on spacebands, would prevent them from driving up and giving good justification. The high humidity was the reason.

Now don't be fooled in thinking that because a sleeve will fall by its own weight, that it will justify a line. It doesn't work that way in a machine—there is pressure exerted on each side of the spaceband, and if there is any gummy substance on the side of the wedge or inside the sleeve, the pressure will cause it to stick, to the extent that justification is impaired. In the case of a full 30-em line with a lot of spacebands, it simply will not justify. An end squirt is the result.

The answer is to remove the spacebands, wash them in white gas or other dry solvent (never typewash, as it is sticky) dry the spacebands and at the same time discard any bent or damaged bands. Next, dump the old graphite from your board, use a wire brush and remove all the old caked graphite from the board and start with a liberal amount of fresh Dixon's No. 635 Graphite. Polish both sides of the spacebands in a straight back and forth motion, then push the sleeve down and polish the upper portion of the wedge which was under the sleeve.

All spacebands should be washed occasionally, Graphite will harden under heat and pressure, and because improper justification is the major cause of hairlining mats . . . treat spacebands with gentle, loving care, giving them a chance to do the job for which they are intended. And your mats will love you for it!

THE MASTER MIND

Sometimes some real funny situations arise that could only have humor to someone who is a machinist or operator. Have you ever noticed how the little wife looks at you like you have a screw loose, when you tell her about something that happened at the shop that you thought was a real "leg-slapper"?

Thought this was a good one, but don't try it on your wife: While calling on a machinist who was telling me how nice his plant was running and what a great bunch of fellows he had . . . here came an operator with 18 lower case "e" from the 8-point.

He opened his hand real slowly, held them out and said to the machinist: "Joe, would you look at these mats and tell me which one is doubling? One of them has been giving me trouble all morning."

STAR PARTS, INC.
Factory & Main Office
South Hackensack, N. J.
Tel: DIamond-3-4810

TWIN CITY LINO SERVICE
2350 Highway 100
Minneapolis 16, Minn.
Tel: WEst-9-7807

STAR PARTS, INC.,
Western Branch
1327 Broadway
Kansas City 5, Mo.
Tel: HArrison-1-5522

HUNT-BROWN CO., INC.
13 School Street
South Acton, Mass.
Tel: COlonial-3-7242

STAR PARTS, INC. AGENCY
208 No. Wells Street
Chicago 6, Illinois
Tel: ANdover-3-3423

A. E. HEINSOHN
1443 Blake Street
Denver 2, Colorado
Tel: TAbor-5-8251

QUIDO E. HERMAN
1620 W. Pico Blvd.
Los Angeles 15, Calif.
Tel: DUnkirk-4-2128

STAR PARTS (LINECASTING)
CANADA LTD.
322 Youville Square
Montreal, Quebec
Tel: DUpont 7-6221

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