

"The Sharper Edge"™

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Mandrel rebuilding—there's more to it than meets the eye

When a winder is down because a mandrel is worn and you don't have a spare, you suddenly become the head of your company's "mandrel repair team." And while many of you repair your own mandrel assemblies only in times of crisis, others of you repair your mandrels as a matter of routine.

How successful are these on-going "in-house" maintenance programs? An experienced converting manager recently asked that question of Jerry Kedziora, our Marketing/Sales Manager. And because the converting manager was so surprised at the answer, we thought others of you might want to hear Jerry's explanation of mandrel rebuilding. After all, knowing as much as possible about your equipment will help you use it most efficiently.

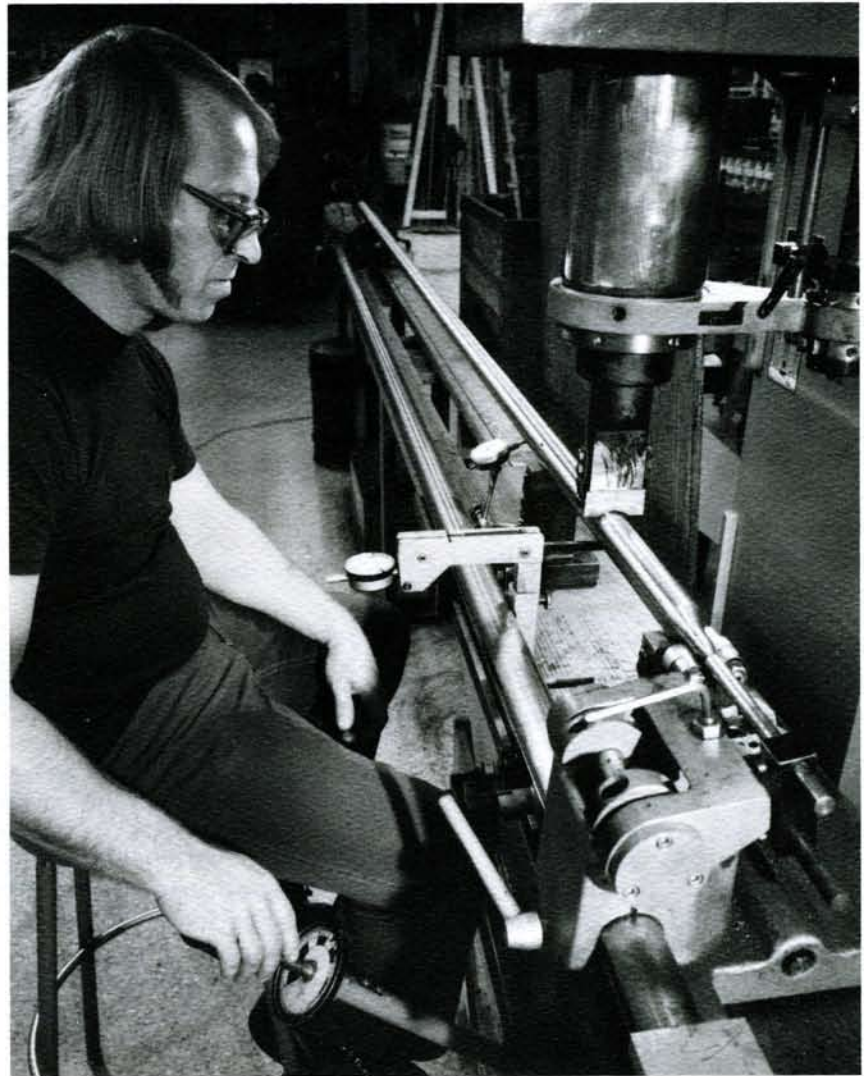
Heat's the wrong way to go

Customers who maintain their mandrels usually try to straighten their tubes using a torch: heating the metal and then using something like a manual press to bend the mandrel back into place.

The problem with such a procedure is that it permanently weakens the mandrel. The heat doesn't just mar the tube's surface; it drastically reduces the mechanical properties of the steel. So a potential trouble spot has been created—a place where the mandrel can either crack and break or bend more easily. Spot annealing, the result of heating the steel in a limited area, changes the steel's properties, lessening its toughness and reducing its ability to stay straight during operation.

Precision and vibration

Put mechanical properties of metal aside for a moment, mandrel repairers still face the problem of knowing how much to bend the tube to restore it to its original straightness. And even if the correction is off by as little as .005",



Darryl Benn inspects and finish straightens a mandrel assembly on our hydraulic press.

the tube is going to vibrate noticeably during use.

The right equipment

Clearly, repairing mandrels requires sophisticated diagnostic and repair equipment. First, you need a precision carriage to properly support the bent mandrel. Unless the mandrel rotates in

a straight line to begin with, all of your measurements will be inaccurate.

Secondly, you need exact measuring devices—equipment that can identify straightness to a half-thousandth of an inch. To eliminate the vibration caused by bent mandrels you must straighten

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Mandrel Rebuilding

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them to within .002", T.I.R.

Repairing mandrels takes an investment, a solid commitment to the right equipment. The right equipment changes the procedure and insures success.

Cold straightening, precision, and quality parts

The first thing we do when we rebuild a mandrel is put it in a precisely aligned carriage. As the mandrel rotates, we measure how much it is bent—in numbers as precise as .0005", T.I.R.

Then, using 35 years' experience and a state of the art hydraulic press, we cold straighten the mandrel by exerting the minimum amount of pressure needed—just enough to correct the problem, but not enough to permanently distort the steel. Cold straightening preserves the properties of the heat-treated, alloy steel, yet returns the mandrel to within .002", T.I.R., insuring peak performance.

"Cold straightening preserves the properties of the heat-treated, alloy steel . . ."

If you send us a mandrel to be straightened, we'd also take your mandrel assembly apart and carefully examine its components. Next we'd replace any worn parts—and our replacement parts are often better quality than the original parts.

For example, we check things like the fingers (sometimes called dogs or pins), springs, and push pins, adjusting them so fingers extend properly to eliminate core slippage and log stripping problems. We also check the clearance of the core release rod to be sure it is centered and working. Then we reassemble the mandrel, again checking its straightness.

Balancing

However, mandrels must be straight, well-equipped, **and balanced** to do their job properly. Often, straightening alone is not enough. A straight mandrel that's not balanced can still foul up production.

So, as a finishing touch to the rebuilding process, we test the mandrel's balance. If our diagnostic procedure reveals that the mandrel is out of balance, we correct the problem using our exclusive, three plane dynamic balancing



*Ray Gwitt, known around Kinetic as "The Mandrel Doctor," replaces the worn fingers (dogs or pins) on a mandrel. Ray selects the **right** replacement parts by referring to the assembly drawing.*

process.

When we're done, you get a mandrel that is **better** than new (unless, of course, it was a Kinetic Certified winding mandrel, to begin with). And you get this better-than-new mandrel for a fraction of the cost. You can tell the difference. Our rebuilt mandrel assemblies hum through their speeds—you don't hear a bit of vibration.

Service to maintain quality

This service began strictly as a favor to our customers who weren't satisfied with things as they were:

- their current repair service wasn't solving their problems.
- salespeople were trying to sell our customers new mandrels rather than suggesting customers rebuild old ones.
- repairing mandrels "in-house" wasn't succeeding.

Now, however, Mandrel Rebuilding is one of our fastest growing departments.

Customers who have sent us their mandrels for rebuilding can testify to the quality of our work. We regularly rebuild mandrels for customers in the United States, Canada, Europe, and Mexico.

Perhaps the success of the Rebuilding Department explains why many of you—like the converting manager whose question prompted this article—may be repairing your own mandrels, yet you still aren't satisfied with the results.

Getting straight, vibration-free mandrels takes sophisticated and expensive equipment. If your company doesn't want to invest in specialized, repair machinery, talk to us about our Mandrel Rebuilding Service. It's quick, convenient, very affordable, and incomparably good.

We've been making and rebuilding mandrels for over 35 years—longer than everyone else combined—we know what we're talking about.