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MiniTech Engineering & Model Supplies

Newsletter

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IN THIS ISSUE

It seems that one of the more popular items that sell well are books. In searching for new titles we have come across a supplier who is willing to send us their collection of volumes. Our freight costs being reduced by making purchases in bulk.

We have listed the titles inside. You may be interested to check them out and try something completely different for your next project.

There are a lot of tools out there which make work simple and easy but some home machinists fail to capitalise on because of blissful ignorance. The wiggler (or wobbler as some tend to call it) is a prime example. Even some experienced machinists are at a loss to work out how to use it.

Well this edition of the Newsletter should solve that little issue once and for all.

Another slightly different issue deals with a tool that many machinists already have. Sitting in their shed "somewhere," it doesn't get a jersey because the user doesn't really know how to put it to work. That could be the case for the ubiquitous travelling steady.

One person's methodology for putting it to good use is also covered in this issue of the Newsletter.

Finally, learn the cheapest and easiest method of heat treating that one customer uses that has to be one of those, "why didn't I think of that" moments as you read it.

Read on…..

4 cycles in one rotation. How can that be?

It was 1886, Nicolaus Otto had patented the 4 stroke IC engine and the market was huge. James Atkinson developed this ingenious feat of engineering with the differential engine in order to circumvent Otto's patents. With 2 pistons in the same cylinder and all 4 strokes completed in one revolution of the flywheel, this is the most fascinating engine to watch running and can be observed at this web site….. http://www.lindsaybks.com/dgjp/djgbk/diff/diff.html

Minitech have the castings as well as the how to build it book.

Casting set $319 incl GST

How to Build the Atkinson Differential Engine Book $39.95

Job Interview Question

You are driving along in your car on a wild, stormy night. You pass by a bus stop, and you see three people waiting for the bus:

1. An old lady who looks as if she is about to die.
2. An old friend who once saved your life.
3. The perfect man (or) woman you have been dreaming about.

Which one would you choose to offer a ride to, knowing that there could only be one passenger in your car?

Think before you continue reading. This is a moral/ethical dilemma that was once actually used as part of a job application.

You could pick up the old lady, because she is going to die, and thus you should save her first; or you could take the old friend because he once saved your life, and this would be the perfect chance to pay him back. However, you may never be able to find your perfect dream lover again.

The candidate who was hired (out of 200 applicants) had no trouble coming up with his answer.

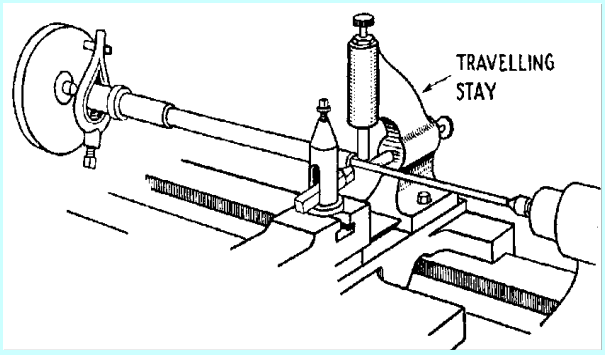
He simply answered: "I would give the car keys to my old friend, and let him take the lady to the hospital. I would stay behind and wait for the bus with the woman of my dreams."

(Editors note… I wonder what sort of job he was applying for?)

Steady as she goes....

Some machinists never use their traveling steady because they don't really know how to. A steady (or stay) is used when the material is so thin that the lateral force of a cutting tool would bend the material and cause an uneven cut. This little excerpt might allay some fears…

1. Mount the travelling steady on the cross slide. It will be the one that is open on one side.
2. With the fingers of the steady clear of the workpiece, mount a suitable tool in the tool post at centre height.
3. Turn a diameter to the depth of your anticipated first cut for a short length (from the point the fingers touch to just past where the tool will touch) to enable the fingers to run on this turned surface
4. Adjust the steady's rear finger to make light contact with the newly turned diameter.
5. Adjust the top finger to make light contact with the diameter.
6. With the cutting tool preceding the steady's fingers, turn this diameter to its given length (either towards the tailstock or the chuck, so long as the steady trails the tool.)
7. Repeat steps 3-6 until you have arrived at the correct diameter.
8. A light coating of oil on the face of the fingers will help prevent scouring.



The Tail Stock Die Holder

From an internet forum..

For a long time I used a hand-held die holder from Sears to cut threads on small rounds. I rarely got them straight, so a nut or other dohicky screwed on often was not square -- "caliwhompus," I think they call it. Then I found a die holder that mounts in a chuck held in the tailstock. Put the workpiece in the 3-jaw, turn the spindle with one hand while feeding the tailstock- mounted die holder into the workpiece with the other, and whoop-de-doo! Problem solved.

another forum

This is a handy little tool we use here in the shop. It is essentially a holder which will hold either a 13/16 or 1" button die which rotates on the shank mounted in the tail stock. One runs the die holder up to the work with the lathe spindle turning the part to be threaded, hold the holder until the desired length of thread has been generated and release. Stop the lathe, reverse the spindle holding the holder until the die disengages from the part. In this manner one can generate threads that are geometrically correct rather than off at some odd angle to the axis of the part.

and another

The main safety points to bear in mind are:
Remove the handle so it won't take your thumb off
Wind in any screws below the body if like mine its double ended. Wind the toolpost well back out the way.

You just grip the body of the die holder, start the lathe and slide the holder towards the work, as soon as you reach a sholder the holder will rotate in your hand or just loosen your grip when the length of thread is what you want. Either wind out by hand or flick the lathe into reverse.

This is OK for threads upto about 1/4" any more and its hard to grip plus you want to wind back the die to break the chip.

And yet another..

A small chamfer will help. I don't have my tailstock bolted down when I do the next step. Just snug enough so the tailstock will still slide on the ways. There is quite a bit of force on the tailstock when using a die. I just push the just barely loose tailstock against the work and the die will begin to cut and feed on its own. I do this in the lowest speed possible - no hurry here. Have your other hand on the switch to shut off the lathe when you reach the depth of your cut or something goes wrong. Shut it off, let the spindle stop then switch into reverse to back out the die. Don't forget the oil!

Tailstock die holders come with 13/16", 1", 1. 5/16," 1. ½" interchangeable die holders included available in 2MT - $93.50 and 3MT $104.50.

Parallel shank with 13/16" die holder - $19.80 ***OR*** *make your own as described in "The Model Engineers Workshop Manual" Price $99 (Plus a host of other handy projects)*

How to Use a Wiggler...(Courtesy Little Machine Shop)

A wiggler is a type of edge and center finder. They usually come as a set of 5 pieces. One piece is the body. The other four are various types of probes. Each probe has a large ball on one end that snaps into the body.

The **wiggler body** holds the selected probe. Loosen the knurled nut and snap the ball on the end of the probe into the body. Tighten the knurled nut so the probe is not loose, but can still move. When using the dial indicator probe, tighten it firmly.Put the shank of the body into the chuck, end mill holder or collet on your mill or drill press.

Use the **point probe** to find a point on a work piece. This is the probe you use to locate scribed lines on a work piece under the drill or mill chuck.

Center the probe by turning on the machine to about 1000 RPM. Use a wooden pencil or other object to press on the side of the probe near the point until it turns true, with no wobble. When you press too hard you will find out why this device is called a wiggler!

Once you have the probe centered, turn off the power and center the mark on the work piece under the point of the probe.

Use the **disk probe** to find the edge of a work piece. The disk on the end of this probe is 0.100" in diameter.

Center the probe by turning on the machine to about 1000 RPM. Use a wooden pencil or other object to press on the side of the probe near the point until it turns true, with no wobble.

Leave the power on as you move the side of the work piece into the tip of the probe. When the probe touches the side of the work piece it will start to wobble. The center of the spindle is 0.050" from the edge of the work.

Use the **ball probe** to find the center of existing holes.

Center the probe by turning on the machine to about 1000 RPM. Use a wooden pencil or other object to press on the side of the probe near the point until it turns true, with no wobble.

Once you have the probe centered, turn off the power and center the existing hole in the work piece under the ball of the probe.

This probe can also be used to find the edge of a work piece. The smaller ball on this probe is 0.250" in diameter, so when it touches the side of the work piece, the center of the spindle is 0.125" from the edge of the work.

Use the **indicator probe** to mount a dial test indicator. Use a dovetail clamp or a body clamp to attach the dial test indicator to the indicator probe.

You can use this to check the alignment of a vise on your mill.

Case Hardening the Vance Hunter way.

To harden steel requires the transfer of carbon to the surface layer of the metal. One customer achieves this by heating the metal to a straw colour and then immerses it into old sump oil from a diesel motor. The oil is full of carbon and works brilliantly says Vance. (Send your tips to bob@minitech.com.au)

Sally was trying hard to get the sauce out of the bottle. During her struggle the phone rang so she asked her 5-year-old daughter to answer the phone. "Mummy can't come to the phone to talk to you right now. She's hitting the bottle."

NEW BOOK TITLES

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Build Your own Metalwork Shop from Scrap	74.95
Making a Gas Fired Crucible Furnace	18.95
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Build The Atkinson Cycle Engine	39.95
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