

September 2009

MiniTech Engineering & Model Supplies Newsletter

Vol 1 No 5

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Deciding what qualifies to have space allocated in the newsletter is determined mostly by you.

As we talk to you, the customer, and you share the issues you are dealing with in your workshop, we make a note to include them in here.

If you have any special interests that you feel would suit these pages then let us know. Alternatively, if you would like to put "pen to paper" on an item that would be relevant to our customers, we would be happy to include your contribution.

In the last edition of the newsletter we promoted the ME Tap and Die sets as finally coming into stock and being 'on the wharf' as we went to print.

They were certainly on all the paper work we received from the supplier as being the ME sets – unfortunately when we opened the crate they were all BA (British Association).

Emails and phone calls to the supplier returned several promises of delivery dates, each passing fruitlessly and us still left empty handed. To date even their most optimistic predictions specify the end of September.

We apologise to those patient customers who are holding out for them. The CEO of the manufacturing company reassures me they will be of "European" standard and worth the wait.

Dear Dad,
\$chool i\$ really great.
I am making lot\$ of
friend\$ and \$tudyng
very hard. With all my
\$tuff, I \$imply can` t
think of anything I
need. \$o if you would
like, you can ju\$t
\$end me a card, a\$ I
would love to hear
from you.

Love, Your \$on

The Reply:

Dear Son,
I kNOW that
astroNomy,
ecoNOmics, and
oceaNOgraphy are
eNOugh to keep even
an hoNOr student
busy. Do NOT forget
that the pursuit of
kNOWLEDge is a NOble
task, and you can
never study eNOugh.
Love, Dad

**Not something you see
everyday.....see over for details**



Brian Thomson from Darwin submitted the images from the previous page with the following letter.....

The AHSNT (*Editor- I suspect this is Aeronautical Historical Society of NT*) has to offer, a free 12" to the foot model of a Douglas DC3/Dakota. Only slightly incomplete. This wing assembly is surplus to requirements. The wing section, part of the lower fuselage with the engine nacelles, also the main wings, wing tips all need a little TLC. All you need to complete this model is to make a fuselage, tailplanes, rudder and overhaul a couple of R2600C.W 14 cyl radials etc etc. May need a hanger and runway as well. Shouldn't take you much longer than I took to build a Quorn or Dore Westbury. Free to anyone who is prepared to pay the removal freight costs...otherwise we are going to cut it up for scrap. Ideal project for someone fed up with machining fiddly bits for A-0-6-0.

Editors note Wing is from PK-RDB (previously ZK-AOZ) wrecked during cyclone Tracy 25th Dec 1974

THIS ARTICLE APPEARED IN "HOME WORKSHOP HINTS AND TIPS"

It may interest those of your readers who suffer from the "incurable chuck" of the 3 jaw SC type, which is too far gone for grinding etc, to know how I overcame my difficulty in that direction.

I was employed at a firm of electrical engineers as a toolmaker, and had considerable spare time jobs of the repetition type to be done on our old "hack" lathe, the chuck of which was hopeless for accurate work. I dismantled said chuck and thoroughly cleaned it and reassembled less chuck back. I obtained a piece of mild steel which was turned accurately between centres and long enough to go right through the chuck, leaving about 1" extending each end.

In the centre of this mandrel, I fitted the chuck securely with it's own jaws in the usual manner. I then turned and re-recessed the back of the chuck, whilst running in the usual manner for pulleys etc.

My next move was to clean and fit the chuck back to the lathe nose, then I refaced and lipped it truly to fit the repaired chuck. As there was ample thickness in the chuck back, this operation was easily performed without fear of weakening.

After refitting the chuck to the back and trying a sample of round steel init, I found by test indicator, that the chuck was true to about half a thou, which limit was about the same over the whole range of the scroll. Not so bad for an apparently hopeless job eh?

Sid Rowley Sep 1936

Printed in "Workshop Hints and Tips" WPS-26 -\$19.80

Necessity is the mother of invention

Recently one of our customers reported how he solved the problem of a very small tap breaking on the job. This is his story....

Some time back now I had to tap six 1/8" W holes in a casting. The first five went perfectly but on the sixth there was a small click and the tap holder came away minus about half the tap.

This broken tap was just below the surface and I tried all sorts of things to get it out to no avail. I remembered some years ago reading about a European tap remover that involved three fingers that went down the flutes of a tap enabling a person to try and unscrew the broken tap.

I tried every engineering place that I could but nobody had any idea of what I was talking about.

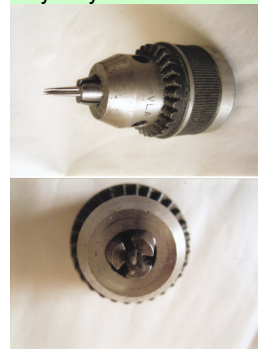
Finally I had the bright idea of getting three small needles wrapping them into bundle with masking tap and then fitting this into a small drill chuck. When I first tried, there was no movement, but then after some jiggling I felt a slight movement and then to my amazement, the broken tap screwed straight out.

I now keep this precious little item in my cabinet of tap and dies.

Hope you enjoyed this little saga.

Regards

Ray Hayward



BOOK REVIEW

"Fitting and Machining"

General editor Ron Culley. First published by TAFE publications in 1988. This ed 2008. Distributed by RMIT Publishing, Melb Vic.

This was once a three volume set and has a stated aim of "a thorough coverage of the practical aspects of the work without excessive emphasis on theoretical detail." The target readers are apprentices for their trade training.

As such, it has just about every conversion table, trigonometrical table, formula, explanation, definition, law and principle known to man. These "tools" are all in the front of the book and extremely handy to someone in a workshop wanting to remember the correct way to calculate the volume of a cone without having to get the shakes when remembering their High School maths teacher.

There are hundreds of photographs and drawings to illustrate what the plain language text is attempting to describe. As the intended reader is inexperienced, the principles are easy to understand and follow.

Elsewhere in this newsletter is an attempt to show how to work out the cutting speed in a lathe or milling operation simply and easily. This text has a detailed treatment of the speeds required for almost all metals including the "exotics."

It is a hardback volume of A4 size paper and has over 600 pages of information including an index to make looking up easier. Besides teaching how to do a task, it also teaches how to use various tools and machinery such as lathes, milling machines, bandsaws, grinders, shapers and slotters.

You will learn how to weld, grind, lap, cut a thread or a gear and to diecast. Years ago we had ten quid tourists who made great contributions to Australia. With this book you could be a \$68.50 tradesman and continue the tradition.

SPECIALS

SLITTING SAWS - Choice of 1 or 2mm thick x 80mm Dia x 48TPI. Supplier sent 22mm bore instead of the more popular 25.4 mm. Only \$10 each incl GST

5 PIECE WIGGLER AND CENTRE FINDER SET - hard to sell since the advent of the very popular laser centre edge finder. Half price Only \$11 incl GST

DIGITAL CALIPERS - Electronic readout, metric or imperial at the touch of a button, has depth gauge function. 4" normally \$49.50 sell \$35, 6" normally \$65 sell \$45, 6" Left handed normally \$88, sell \$65.

How *fast* should I go!

This question is probably the most frequently asked question of Minitech personnel regarding how fast should they run their machine whilst turning/milling?

The fact is, there are so many variables that affect the speed that it makes an exact answer unwise to proffer. The hardness of the material, the type of cutting tool, how sharp is the tool, what is the depth of cut, are you using coolant and what is the feed speed etc. all impact on the speed of the cutter over the surface of the material being cut.

A rule of thumb for carbide cutters on Bright Mild Steel is "10,000 divided by the diameter of the cutter (if milling) or the diameter of the work (if turning) in millimeters". If using HSS cutters then the starting number is 6,000.

Generally the softer the material being cut the faster the cutting speed should be. Therefore the speed would increase through alloy steels, normal steel, iron, bright mild steel, brass, aluminium and plastic.

Likewise with the cutting tool, the harder the cutting tool, the faster the speed. Therefore you would increase speed from carbon steel to HSS to carbide tools or carbide tipped tools.

A technical example is as follows. The surface speed for cutting free machining steel with HSS is 48 meters per min. Therefore a piece of 1" carbon steel is calculated by dividing the circumference into the surface speed.

Circumference in cm ($2 \times \pi \times \text{radius}$) = $2 \times 3.142 \times 1.27 = 7.98$. In metres that is 0.0798. The rpm for an industrial machine, therefore = $48 / 0.0798 = 600\text{rpm}$.

To help you calculate what surface speed you need using HSS, without cutting oil and at a medium cut and feed rate we supply the following chart.

	Metric speed per min	Imperial speed per minute
Carbon steel (hard)	15-18 m/min	50-60 fpm
Mild steel	30-38 m/min	100- 125 fpm
Cast Iron	18-24 m/min	60-80 fpm
Bronzes	24-45 m/min	80-150 fpm
Brass (soft)	45-60 m/min	150-200 fpm
Aluminium	75-105 m/min	250-350 fpm

Roughing cuts could take a heavy cut at a slower speed. Finishing cuts could usually take a very light cut at a higher speed