

THE WEBSTER & BENNETT MILLENNIUM REFURB PROCESS IS UNDER WAY

once again it shows up the wonderful qualities of this great machine tool

This photo shows a sister machine that we refurbished a few years ago to enable it to continue to perform brilliantly – very high precision turning, milling and drilling

In the web site you can see a short performance film from this machine and the sale quotation for the current machine.

In the following pages you can see the early progress with the current machine





You cannot fail to be impressed with the obvious strength of the main structures

Huge beautifully designed castings that have provided the stable basic structure that enables these machines to be used by the world's top companies producing the major components in aero engines, missiles, railway wheels, engine turbo chargers etc. etc.

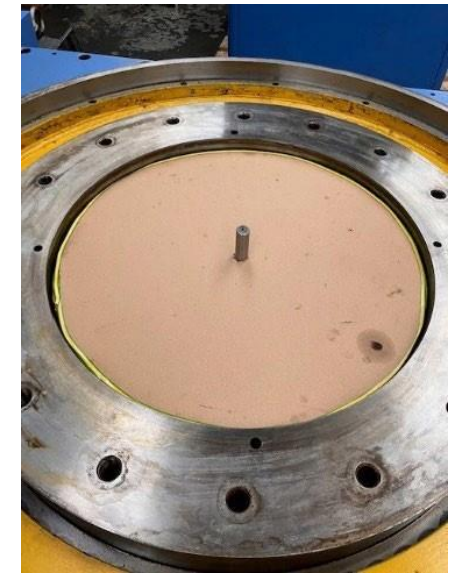
The **forged steel ram** provides huge stability for turning and contains the powerful live spindle for rotary milling, drilling and grinding





Inside the casting and underneath the temporary protective covers is another component that epitomizes the Millennium quality – the wonderful **TIMKEN crossed roller table bearing**. More than 50 years ago Timken developed these bearings for Webster & Bennett heavy duty double column machines with huge 3,600mm diameter tables. With a perfect performance record it was no wonder we specified them when we were designing the Millennium

It is a joy to open up these assemblies and see another major design feature of the Millennium - the **chain drive to the table**. An involute form chain is driven by huge precision sprockets.





The **C axis drive** is a very powerful electric servo, gearbox and hydraulic assembly that mounts in the area in the photo below

The bottom end of the sprocket teeth of the table chain drive is where the C axis drive gear engages under hydraulic pressure to form **a backlash free C axis drive for heavy duty, precision continuous rotary milling**

The combination of powerful performance with high precision finish has provided for many companies a very efficient capability of turning, milling and grinding







When the check over service is completed the huge powerful motor and the Andantex epicyclic 2 speed gearbox will be mounted back on the platform at the rear of the machine. Look at the size and strength of the body casting!

Below the gearbox is the chain sprocket that , when the primary chain is fitted, will drive the upper intermediate sprocket that drives the lower sprocket on which the main drive chain can be seen.

The chain drive provides very high speed table rotation, very quiet

The photo to the left shows the gear changing unit

The next mechanical processes

The Millennium crossrail and live ram assembly can be positioned to enable highly efficient powerful turning and machining of components of various heights

The assembly weighs 13 tons so the Millennium positioning assembly has a high powered motor driving two huge acme thread elevating leadscrews through two massively powerful worm gear boxes. *The positioning assembly is shown below awaiting check over*

Crossrail positioning has to repeat!

It also has to lock firmly in place once re-positioned

The photos below show the main components of the 'latching and clamping' assemblies that perform these functions. You have to see them in reality to appreciate these huge components



This refurbishing process is re-igniting wonderful memories of the hours I spent with the small design team developing the specification of the finished machine and seeing once again the design choices we made and knowing how well they have worked and how reliable they have been

Iain Exeter and am I so happy Petr is here to take on the electrics!

THE ELECTRICS AND SIEMENS 840D CNC

For me, a mechanical man, these next photos look like a nightmare. Not for Petr!

I rate Petr as the best electrical designer to have worked for Webster & Bennett and Wickman Bennett. He is very 'hands on' in electrical assembly and in recent years has developed a very strong understanding and experience of the mechanical and hydraulic

assemblies of these machines. His experience leading installation and commissioning teams for W&B machines is almost twenty years

He will apply his knowledge and experience to my 'nightmare' – I am looking forward to seeing the result

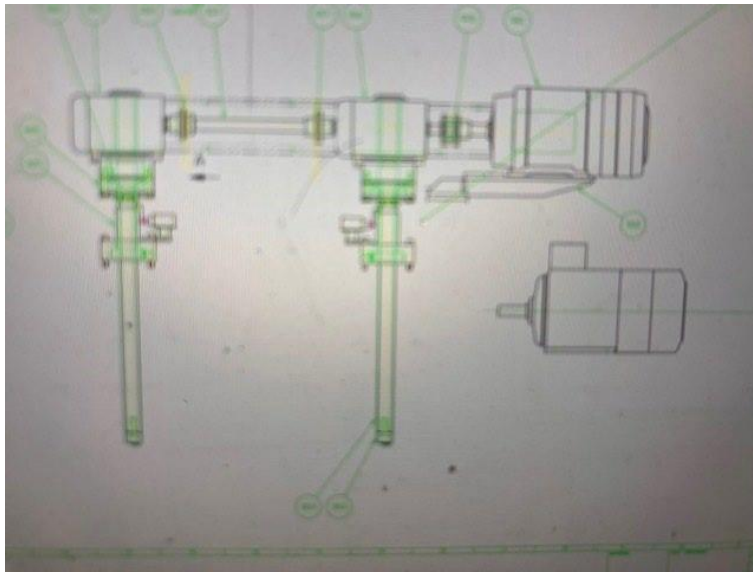


A Millennium has a huge range of turning, milling, drilling, grinding capabilities. You cannot do what a Millennium do without a lot of wiring. Petr says his design changes will reduce it by at least 30%. Follow our progress on <https://www.vtt-wb.com/>

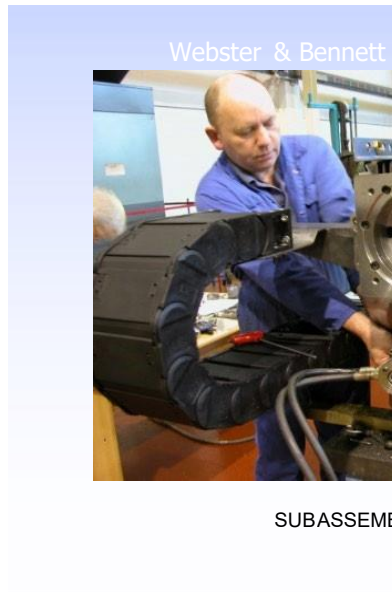


Good day. Happy with the checkover of the motor, gearbox and gear changer – so re assembled it. The four controls on the left of the first picture are flow control valves for the excellent and powerful lubricating system for the chain drive and sprocket bearing assemblies, the Andantex gearbox and the huge Timken cross roller table spindle bearing

Good day made even better because next week we will be ready to remount the machine chuck and the cross rail elevating assembly



During cleaning and checkover we have confirmed the excellent condition of the elevating assembly. The powerful motor in the right photo is powerfully coupled to both elevating acme screw assemblies via the massive worm gearboxes. This is superb heavy engineering design. All the time I keep remembering those days when we designed the Millennium. Choices had to be made and we always chose the higher engineering option. Cost was not considered



Petr and me back to when we were building these machines new Today we started working on the Live Spindle ram.

This photo shows the man given the responsibility to build the live spindle and drive assembly to produce total reliability while driving 50Int taper tools up to 4000rpm. **He is Mick Macnamara.**

We had some superb mechanical fitters but Mick was the best Webster & Bennett ever had.

Petr's target is to match Mick's level of precision, care and quality. I think he has got there.

I wish Mick had stayed in the machine tool industry. He and Petr would be a formidable combination now. When they worked together before Petr was working only on electrics design and assembly

The photos below were taken as we dismantled Micks work to check current condition

The result – there is no doubt, this live spindle drive assembly is like everything we have seen on this machine so far – it will clean up to new condition



The motor, gearbox and transmission gear are off the machine and onto the bench

Andantex epicyclic gear boxes are wonderful for performance and reliability. We used them both for table drive and live spindle drive on all our machines since 1993

The transmission gear driven by the Andantex box is in new condition as is the mating gear in the transmission box – no surprise when you know the care when it was originally assembled and that the transmission box was packed with **Kluber Synthge 46-1200 grease**. It was sealed for life but with the machine being stored for several years we are giving it a new life

The motor bearings are fine and we look forward to test running it in a few weeks time



- The live spindle transmission box is 'Kluber greased' ready for the reassembly
Petr brings in the motor and gearbox and a few careful minutes later it is bolted in and he starts the connections





At the back of the crossrail the cable chains, pipes, hoses, cables, connector boxes and wiring have been removed and will be reassembled in a 2020's format.

Petr says he will beat his prediction to reduce wiring by 30% substantially!

Targets remaining for this week – quite a target!

- Refit the live spindle lubrication assembly
- Refit the crossrail elevation assembly
- Refit the cable chains with the hydraulics hoses, electrics and wiring to the crossrail 2 axes assembly and live spindle ram