

USER REPORT

JET VBS-18MW Metal Wood Bandsaw

by Anthony Burnett

The first time I saw this Bandsaw was at the *Brisbane Timber & Working with Wood Show* (Photo.2). The doors were open and even from a distance I could see the wheels rotating slowly. When I got right up to the machine, I thought at first it was a variant of the JET 18" bandsaw made solely for cutting metal.

It took a moment to realise it was a variable speed machine that would be equally at home cutting wood, metal and many other materials. That made it much more interesting, particularly when I discovered that the machine could be quickly converted from one use to the other — the longest part of the conversion being the blade change!

The word revolutionary is often applied without much meaning but in this instance, it may be justified. I've discovered that there have been other bandsaws with low speed capabilities though none I can locate so low as this, and if there is another machine with the same capabilities right now, the manufacturers must be keeping it well hidden.

Having eventually got my hands on a VBS-18MW, I found that in addition to its ability to handle materials that no one would sensibly offer to a conventional wood bandsaw, it has specific benefits for the woodworker, too.

Before discussing its cutting versatility, however, a few comments are warranted

on the obvious physical changes between this and previous JET Bandsaws.

Over the past decade or more, JET has gained a great deal of respect for the strength of the underlying frame on which their machines are constructed.

Until recently, JET Bandsaws had a rectangular, welded steel box section column that tapered on one side from bottom to top. This has been replaced on the 18MW by a triangular section column which appears and probably is, even stronger (Photo.3). The rest of the construction (for the top wheel structure and base), is also of thick, welded plate steel, consistent with the strength of the column.

The strength and integrity of a bandsaw's construction are vital to its function. If there is any movement in the head of a bandsaw when cutting forces are exerted on the blade, the blade will move slightly and the cut will go off track. No amount of adjustment can be made to compensate for this, since the degree to which the blade wanders depends on the force applied, so the operation of the machine can become a nightmare.

I have always thought that the only way to assess the integrity of construction of a bandsaw is by using it for a variety of



Photo.1

work. Jason Burgmann of *Benchworks* (Emu Plains, Sydney, NSW), however, suggests that it is possible to actually feel the movement in some machines by pulling on the worktable while shoving hard against the machine's head with the other hand (Photo.4). Certainly, if you try this on a JET Bandsaw, you will feel no 'give' at all.

Photo.2: First seen at the Brisbane Timber & Working with Wood Show



Photo.3: The new triangular column on the VBS-18MW



Photo.4: Jason Burgmann (Benchworks, Emu Plains, NSW) does the shove test



Another difference between the 18MW and earlier JET bandsaws is the slight curvature of the front panels on the doors. This is probably not just a cosmetic change (though the curves are attractive) since the new panels are more likely to resist the temptation to vibrate.

The major features of JET 18" Bandsaws were covered in a USER Report on the JWBS-18X which appeared in Issue #133 (June, 2007) of *The Australian Woodworker*. The editor has, however, asked me to include a brief discussion of these for those who may not have access to that Issue. But first I want to concentrate on the special characteristics of the VBS-18MW.

The unique feature of this bandsaw is its ability to be set up quickly to cut at 20, 40, 70, 250, 450 or 820 metres per minute.

The highest speed of the JWBS-MW is 820m/min, little different from the blade speed of a standard JET 18" bandsaw which is far too high for cutting metals.

The speed demanded for safe, efficient cutting of metals varies from about 20m/min for hard steel through to about 70-75m/min for aluminium. As mentioned later, other materials, such as plastics and PTFE require medium speeds and trying to cut these or any of the metals on an ordinary woodworking bandsaw is a recipe for disaster.

Cutting metal

Before starting to cut metal on the bandsaw, the dust collection hose must be removed from the 100mm port. This is to stop damage to the hose and dust extractor by hot swarf. The two swarf trays (Photos.7&8) must be in position. (The swarf tray at the bottom of the base cabinet would usually be left in place but I can imagine times when it might be convenient to re move the one at the back of the worktable.)

Next, a suitable fine tooth metal cutting blade must be installed. A 'starter' blade is supplied with the machine and suppliers such as Henry Bros (Vineyard, Sydney) can advise on blades for specific purposes.

Finally, the correct speed must be set. This is simpler than changing blades.

First the gearbox selector (Photo.5) is



Photo.5: New curved doors should reduce chances of vibration

pulled out to its maximum limit. The lever has two positions — IN for high speeds and OUT for low speeds.

The locking knob on the motor height mechanism is then released. The long lever (on the left in Photo.5) is used to lift the motor to its top position where the locking knob is tightened to hold it up while the belt is changed to achieve the required speed. The mechanism is shown in Fig.1. A toothed belt (Photo.8) connects the bottom (motor) pulley to the top (wheel) pulley .

Once the belt is in the desired position, the locking knob is again released, the lever lowered to the bottom of its travel and then pushed down slightly to firmly tighten the belt before screwing in the locking knob.

The three metal cutting (Low Gear) speeds are 20, 40 and 70metres/min. The use of these speeds is defined Table.1.

The material used to test the machine for this Report could be classified from light to medium — light gauge steel and aluminium tubing through to solid steel

Table 1

Material	Speed
Steel St37	40
Carbon Steel C15	40
Carbon Steel C45	20
Alloy Steel	20
Stainless Steel	20
Copper	20
Titanium	20
Cast Iron	20
Brass	40
Al-bronze	40
Aluminium	70

up to a few millimetres thick. This is the kind of material most likely to be encountered in a workshop that handles both metals and wood.

In every case, the cutting action was fast and easy to control. Heavier materials can of course, be cut, provided the work is undertaken with care. There is no shortage of power from the gutsy 3hp* motor. (An optional 3.8hp 3-phase motor is also available.)

I was interested to see whether the heat developed by cutting might be a problem. It certainly didn't appear to be. This is probably due to the length of the bandsaw blade compared with the much shorter lengths of either a hand operated or powered hacksaw blade. This gives the heat more time to dissipate before the same teeth are used again. For example, a cutting rate of 20metres/min is equivalent to 333mm/sec. The length of the blade is 3480mm, so it takes about 10 seconds for the same teeth to re-present at the cut.

One comment is relevant with respect to heating, however. This is that it is wise to support thin walled tubing (in a wooden vee block, for example) to avoid the tube collapsing while being cut.

*1.75hp output power

Photo.6: The motor drives the machine through a gearbox— the gear knob is in the centre, the motor lifting lever is on the left and the securing knob is at the top.

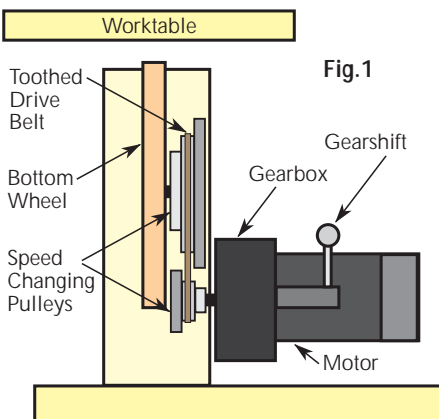


Fig.1



Photo.7&8: There are two swarf trays — back of the table and inside the base



Cutting Wood and other Materials

Many buyers of this machine will want it because it can handle a wide variety of materials, but even those whose work is largely devoted to cutting wood will find that the VBS-18MW offers them a substantial benefit.

Table.2 lists some of the materials for which the various High Gear speeds are suitable.

As pointed out previously, the top speed is approximately equivalent to that of a standard 18" woodworking bandsaw and therefore appropriate for general cutting of wood. But the machine also provides a slower speed — 450m/min — which the manufacturer recommends for Tropical Hardwoods. Normally, the setting-up of a machine for

Table 2

Material	Speed
Polyamid, ABS Plastic	250
Tropical Hardwood	450
PTFE	450
Hard Rubber	820
Plywood	820
Wood	820

Photo.9: Cutting is fast and accurate — note fine tooth 'metal' blade



cutting dense hardwoods is confined to blade choice alone. The ability to select a lower speed doubles the options available to the operator.

The lowest of the High Gear speeds is 250 metres/minute which is very useful for cutting materials such as plastics, which are a real headache for most workshops. Attempts to cut plastics on a standard high speed (wood cutting) saw generally result in melting the plastic; the kerf often becomes so distorted that the cut pieces are unusable.

Other Features

All the parts of the machine, from the cast metal wheels for the height adjustment and blade tensioning, to the rack and pinion and single point re-saw guide, have a solid feel to them. This robust build of the Bandsaw is reflected in the machine's 210kg weight.

The overall dimensions of the JET VBS-18MW are 970mm x 1070mm x 1900mm and it has a large (485mm x 485mm) heavy cast-iron worktable supported by sturdy trunnion bearings. The table can be tilted from 45° to 10° and has an adjustable stop to allow quick re-setting to 90°.

The maximum depth of cut is 300mm and the maximum width of cut, 400mm. The quoted minimum size blade is 3mm, the maximum, 30mm.

A JET representative told me that the cast iron bandsaw wheels are balanced after the tyres are fitted. I did as suggested and ran a hand around behind the inner edge of a wheel to detect the balancing holes.

The 18MW shares the same multi-point guide system fitted to other JET Bandsaws. As reported in the previous USER Report on the JWBS-18X, this is an excellent system which is easy to adjust. Each guide set, one above, the other below the table, consists of a pair of high grade bearings which are brought to near contact with the blade. Another similar bearing takes the thrust forces created when the workpiece pushes the blade back during a cut.

All of the adjustments could be made and the wing nuts nipped tight without tools. As on the 18X, the eccentric cams that move the lower guide rollers towards and away from the blade, are adjusted by rotating the knurled ends of shafts which are brought out, almost to the edge, underneath the table. Barked knuckles are eliminated and the fiddle factor is almost zero.

The upper guide mechanism is mounted at the lower end of a rack and pinion assembly (same as the 18X) which raises and lowers to accommodate material of differing heights. A height gauge is provided as well as a locking knob.

Again, as shown in the 18X USER Report, the height adjustment rack and pinion mechanism can be adjusted to compensate for wear that would otherwise make it difficult or impossible to keep the



Photo.10: Machine uses quickly adjusted US Carter guides

rear thrust bearing the correct distance from the back of the blade throughout its entire travel.

Blade tensioning is by way of a cast metal knob under the top wheel case. A lockable tracking adjustment is provided on the back of the same case and a small window permits the operator to watch the movement of the blade as the adjustment is made.

Summary

I believe that bandsaws are like cars. No matter what you buy, it has to be a compromise — but the versatility of the JET VBS-18MW makes it less of a compromise than most.

It can cut not only wood and metal, it can also cut a variety of other materials for which the optimum cutting speed is very different to that of commonly used woods.

As a general workshop machine, it doesn't seem to have a rival — certainly not one that I can find. Even in a workshop devoted primarily to woodworking, the occasional (once a month, once every few months) need to cut metals will probably make prospective bandsaw buyers contemplate its purchase. The difference in cost may well be outweighed by the ability to do things in-house that would otherwise have to be subbed out, or worse still, got around in some other way.

That said, it has to be understood that this is not a replacement for a motorised hacksaw — the kind of machine that is fitted with continuous cooling and used for cutting 75mm thick pieces of carbon steel.

But it will do light and medium work much faster than such a machine and with at least the same degree of accuracy AND it will double as an excellent bandsaw for wood and other materials.

The r.r.p. of the JETVBS-18MW Bandsaw is \$2850 (ex-Brisbane, incl. GST) and it is available from JET TOOL Stores throughout Australia. (Call 07 33753288 or e-mail info@jet-tools.com.au for location of nearest dealer.)

