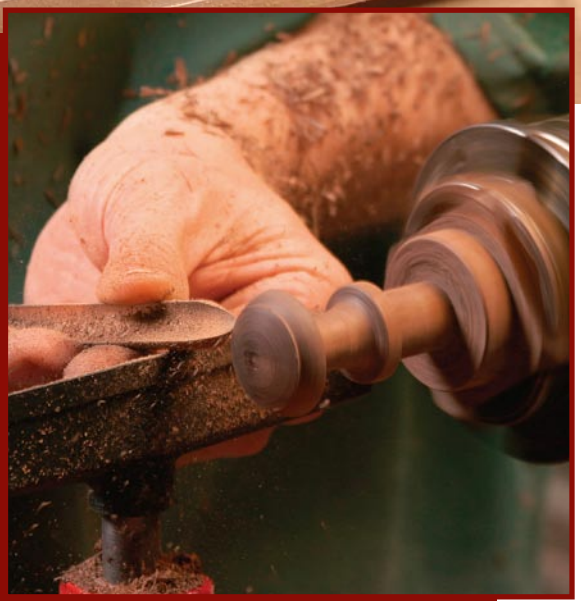
TOOL TEST

Heavy-Duty

These lathes can do it all

With bolt-on bed extensions increasing the center-to-center distance, these benchtop machines can turn out long chair legs and table posts (above). They also have the swing, mass, torque, and variable speed to handle big blanks (near right). Small turnings are easy, too, such as custom knobs and pulls (far right).



Photos: Asa Christiana

Benchtop Lathes

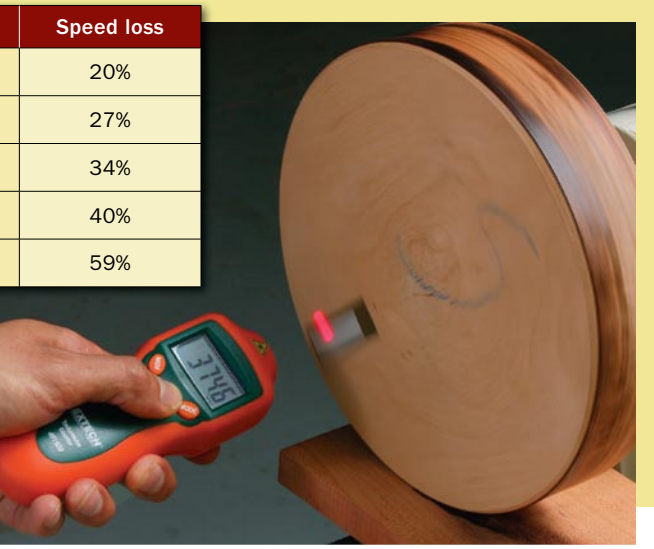
With more muscle and mass than ever, one of these midsize models could be the first and last lathe you'll need

BY TIM ALBERS

Turning is a growing hobby, and newcomers need affordable lathes to get started on. So a few years back, manufacturers started stretching mini-lathes—originally designed for small projects like pens and salt shakers—in an effort to create an entry-level lathe for more ambitious turners. They added bed extensions for longer spindle work and increased the capacity over the bed for bigger bowls and platters. These souped-up minis (called "midis" by at least one manufacturer) sold by the tens of thousands, but user feedback was mixed: When furniture makers tried to turn big posts, or when turners threw a big, chunky blank onto a faceplate, these lightweight lathes didn't have the mass or torque to handle the job. So manufacturers responded with a new breed of midsize

LOW-END TORQUE IS WHAT MATTERS

Model	Starting RPM	RPM w/resistance	Speed loss
Delta 46-460	510	409	20%
Penn State Turncrafter	502	366	27%
General Int'l 25-200M1	502	332	34%
General Int'l 25-114M1	509	303	40%
Jet JWL-1220	501	205	59%

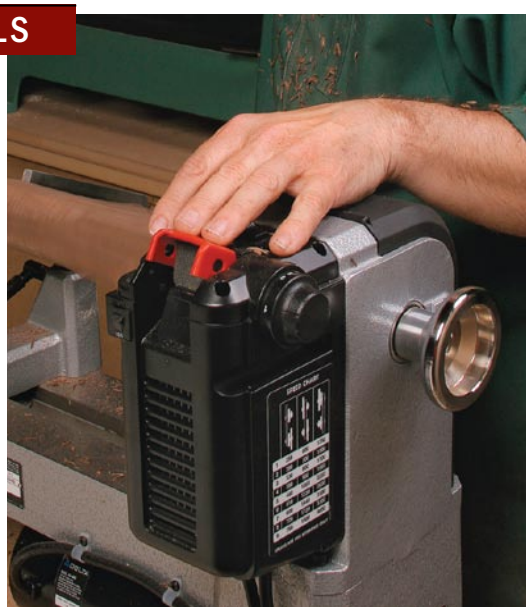


Tough test. *Albers screwed a big wooden disk to each lathe's faceplate, and used a simple lever to put roughly 12 lb. of pressure on the disk. With the belt set on the lowest speed range, Albers set each lathe as close to 500 rpm as he could get it and put weight on the lever. Then he used a laser photo tachometer to measure how much speed each lathe lost. The Delta proved to be the most powerful.*

The little things add up quickly

CONTROLS

Good controls are a big plus. *With top-mounted electronics and a large off switch, the Delta (right) makes it easy to stop the lathe quickly or change speeds without having to hunt. The small buttons on the General Intl. 25-114's side-mounted control box (below) are hard to find in a pinch.*



BELT CHANGES

Belt changes should be easy, too. *Although these lathes are touted as variable speed, they still require belt changes to access the highest and lowest speed ranges. Delta (left) makes it easy, with up-front access to the belts and a one-handed motor release. Speed changes are fussier on the Jet (below).*

benchtop lathes, and that's good news for woodworkers of all stripes.

These new models offer beefed-up castings, larger motors, and even more swing over the bed than the old midis. What's more, at $500 to $1,000 including a bed extension, their prices have not increased as much as their versatility has.

For furniture makers, whose needs range from bed posts to drawer pulls, one of these lathes will be a friend for life. Better yet for people like me, who enjoy turning for turning's sake, they have the low-end torque and vibration-dampening mass to turn odd-shaped burls and heavy logs into beautiful bowls, platters, and hollow vessels. And most come with the variable speed, reverse rotation, and precise indexing found on lathes that cost twice as much.

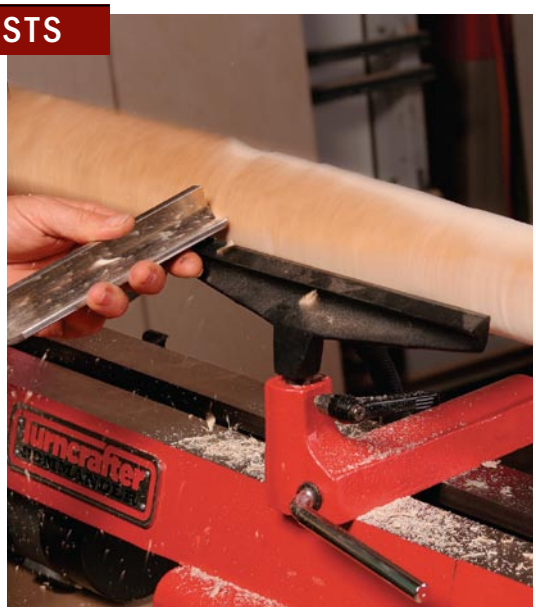
I couldn't wait to compare these new models head to head. I limited my test to benchtop lathes with bed extensions, at least 12 in. of swing over the bed, and motors of ¾ hp or more. Where possible, I ordered the variable-speed model. Each lathe has a 1-in. by 8-tpi spindle and a No. 2 Morse taper headstock and tailstock. Also, each comes standard with a drive center, live tail center, knockout bar, and faceplate. You might need to buy an additional tail center, as the standard ones are a bit large for thin spindles, such as the end of a table leg.

Each lathe got a real-world workout

Lathes are simple machines, but the primary parts must all work well. The headstock

TOOL RESTS

You want a wide, solid tool rest. *Penn State leads the way with a 12-in. rest (right), meaning you can do more turning before unlocking and shifting it. The Jet's rest (below) pivoted under moderate use, no matter how tightly Albers locked it down.*



GENERAL INTERNATIONAL OFFERS A UNIQUE HEADSTOCK

Limited benefit. *The sliding, pivoting headstock on the General Intl. 25-200M1 does allow outboard turning, but that doesn't mean vessels much bigger than 12 in. dia. are possible: The small outboard bed limits the effective reach of the tool rest (left). The sliding headstock does come in handy when you move it to the far end of the lathe (below), where a long tool handle won't bump the bed.*

must be solid and vibration-free, the tailstock and banjo (which supports the tool rest) must slide on the bed easily but lock firmly, the tailstock quill must be solid, and the lathe should have power and speed options in keeping with its capacity.

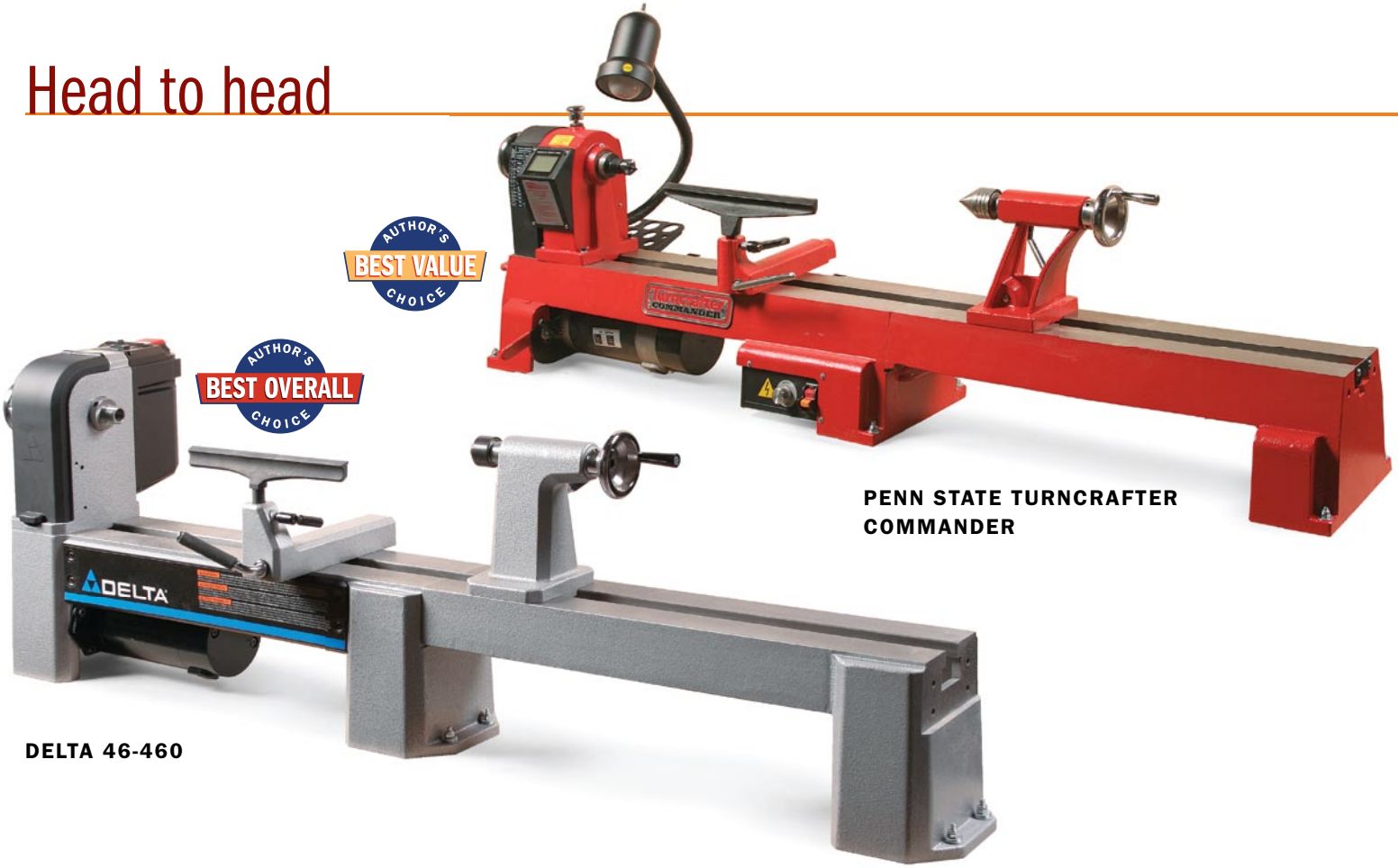
To put each lathe on the same footing, I built a universal stand from MDF. Then, to test their high- and low-end capabilities, I spent a fair amount of time on each lathe turning real-world projects. I turned small spindles that you might use as a chair rung or leg; larger spindles such as table legs and newel posts; small intricate items like knobs, finials, and handles; and finally, big, heavy green-wood bowl blanks. All of the lathes performed reasonably well, and I was able to create high-quality work from each one. Still, a few stood out from the rest.

Fit and finish varied

None of the lathes took more than 10 minutes to assemble, but once I began bolting on the bed extensions, differences began to appear. The Delta, Penn State, and General Intl. 25-200M1 bolted together with minimal work, but the Jet and the General International 14-in. model required me to file the beds so the tailstock would slide freely. The Jet also had rough castings, sharp enough to cut my finger when I picked it up. The Delta had the smoothest machining, and the best fit between the beds and access doors.

By the way, the Delta and the General Intl. 25-200M1 can accept multiple bed extensions. Want to turn 60-in. spindles?

Head to head



PENN STATE TURNCRAFTER COMMANDER

DELTA 46-460

MODEL	STREET PRICE*	MOTOR	WEIGHT**	SWING	BETWEEN CENTERS***	SPEED (RANGES)	REVERSIBLE?
BEST OVERALL **Delta 46-460** deltaportercable.com	$750	1 hp	97 lb.	12 in.	41½ in.	Variable (250–750, 600–1,800, 1,350–4,000)	Yes
General Int'l 25-114M1 general.ca	$760	¾ hp	93 lb.	14 in.	40 in.	Variable (250–800, 550–1,700, 1,200–3,600)	Yes
General Int'l 25-200M1 general.ca	$930	¾ hp	146 lb.	12 in.	49 in.	Variable (300–900, 600–1,800, 1,200–3,600)	No
BEST VALUE **Penn State Turncrafter Commander** pennstateind.com	$480	1 hp	106 lb.	12 in.	42 in.	Variable (150–1,900, 300–4,100)	No
Jet JWL-1220 jettools.com	$570	¾ hp	98 lb.	12 in.	48 in.	6 speeds (500–3,900)	No

* including one bed extension **without bed extension *** with one bed extension installed

Buy another extension and bolt it on. And the General Intl. 25-200M1 offers another unique feature: a sliding and pivoting headstock. This doesn't deliver the big outboard turning capacity you might expect, but it does have its advantages.

Torque test was tough for some

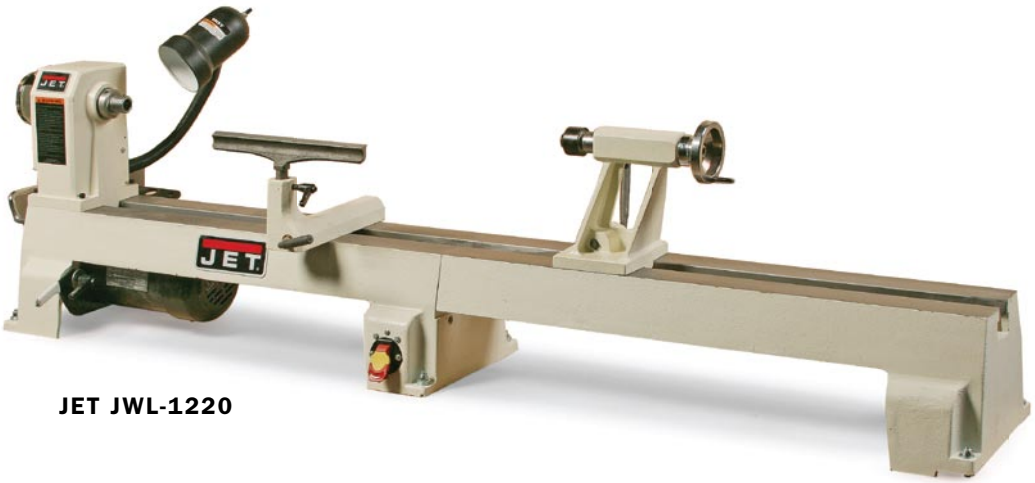
All of these midi-lathes offer more power than yesterday's minis and midis, but I wanted to see if they could produce the low-speed torque required for serious faceplate turning. I used a variation of the power test Andy Barnum developed for big floor models in *FWW* #191 ("Tool Test: Heavy-Duty Lathes"). The Delta and the Penn State, with larger motors, were the big winners (see chart, p. 37), and had plenty of power when I turned full-size bowl blanks. That's not to say that I couldn't purposely stall these lathes with an aggressive cut, but with a sharp tool and a moderate cut they had no problems. The lower-powered lathes performed well enough on spindles, but were frustrating when I turned the largest bowl blanks.

Ease of use matters most

While these lathes seem similar at first glance, ergonomics varies quite a bit, and

GENERAL INT'L 25-114M1

GENERAL INT'L 25-200M1



JET JWL-1220

details that seem small at first can turn into big frustrations as you use a lathe more and more.

For example, you'll use the controls constantly, and the large on-off switch and variable-speed dial on the Delta are easy to reach and manipulate. The dials and switches on the Penn State and General Intl. 25-200M1 also worked well. But the small buttons and poor location of the General Intl. 25-114M1's controls forced me to actually look and concentrate as opposed to just reaching.

Although all but one of the lathes offers variable speed, the dials only work in a given range. To get to a higher or lower range, you'll need to move a belt. The Delta has a large access door up front, with a one-handed motor tension lever, a real plus. The Penn State, which has only two speed ranges (for fewer belt changes), offers a large, removable plastic cover on the outboard side that allows good access to the belts and pulleys. The other models offer the same two-handed belt-tensioning and small, hard-to-access doors I've seen on mini-lathes for years.

You'll need to lock the spindle when you change chucks or faceplates, or use the indexing function. The Penn State's locking pin, mounted directly on top of the headstock, is the easiest to use. The Delta's pin works well but gets in the way when you crank the headstock by hand. All of the lathes offer 24 indexing positions, except the General Intl. 25-200M1, which has 36. However, when not in use, the pin is kept in a threaded storage position, and must be unscrewed and screwed into one of several holes for indexing, which is a hassle.

The digital speed readouts on the Penn State and both General Intl. models are neat features, but I'm not sure how much value they add. Most woodworkers will quickly get a sense of the appropriate speed for the task at hand. Basically, I've learned to turn as fast as the lathe will allow without vibrating or shuddering.

Tool rests are not all created equal— The Delta, Jet, and Penn State each come standard with a 6-in. tool rest and a longer 10-in. (Delta and Jet) or 12-in. rest (Penn State). The General Intl. models include only the shorter size, which must be relocated constantly when turning long spindles. More importantly, not all of the tool rests stayed put. The one on the Jet moved under moderate use no matter how hard I tightened the handle, while the rest on the General Intl. 25-200M1 moved occasionally under heavy use.

Two standouts

In the end, the Best Overall and Best Value awards were easy decisions. The Delta's power and features stand out from the crowd. And the Penn State is a real bargain at $480 including the bed extension. Either of these models is plenty of lathe for a furniture maker, and will satisfy many turners, too. □

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