

Mini-Excavators 2002 – 2003 Update

How product improvements drive sales by meeting customer needs

By Glenn Lewin

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According to market surveys, in 1992 there were fewer than 2,500 mini-excavators in use in North America. However, during the past decade – and particularly in the past six years – annual sales have increased both steadily and rapidly. Industry sales for excavators under 20,000 lbs (i.e., those considered “mini-excavators”) currently exceeds 15,000 units annually, with prospects for future sales to exceed 20,000 units.

Originally developed as support equipment for residential and light construction applications, improvements in design, engineering and production have helped to move the mini-excavator to the front and center as a necessary piece of equipment in any contractor’s inventory.

To better understand how excavator manufacturers are working to meet the needs of their customers, Heavy Equipment News interviewed a number of industry experts to find out what specific improvements have been made in the manufacturing, selling and servicing of mini-excavators, and how those improvements are helping contractors realize enhanced profitability. The following reflects the results of those interviews.

Product knowledge at the dealer level

Shopping for a mini-excavator in today’s environment is a substantially different experience from what it was even a few years ago. In the not-too-distant past, dealer sales reps possessed little in the way of product knowledge, as demand was light, and many dealerships had yet to sell even their first unit. However, with initial market penetration coming from the equipment rental industry, contractors renting this equipment had firsthand experience in realizing the versatility, mobility and flexibility in operating a small excavator. As a result, subsequent sales have been driven by contractors purchasing for their own fleets, and greater demands have been made on equipment dealers to become fully versed on equipment capabilities and applications.

As demand for equipment has grown, manufacturers have responded by delivering more training, technical data and technical support to their dealers. And as dealers have become more educated and better able to explain product features and benefits, contractors have been shown a variety of previously unrealized applications. According to Mark Wall, Business Analysis Manager for Deere’s Construction Equipment Division, “North American market demand for mini-excavators has grown substantially over the past five years, and is expected to grow at a steady pace for the foreseeable future. Contractors have yet to realize the full benefit of these machines, and Deere has been working hard to educate and train our dealer sales professionals, so they may serve as a full partner with the customer.”

Ergonomic cab, control and console design

The one area of product improvement singled out by everyone interviewed for this article was the advancements made in cab, control and console design. Tom Connor, Excavator Product Representative for Bobcat, noted that “our engineers have made several design changes to make the cab more comfortable and the controls more responsive. Several industry safety studies have shown how reducing operator fatigue increases productivity and greatly enhances safety. This is a cause and effect relationship that goes right to the equipment owner’s bottom line.”

According to Mark Wall, Deere has designed their cab and control consoles to imitate the operating experience of their larger machines. “Deere has designed its cab and controls to reflect what the operator of a 20 ton excavator experiences,” notes Wall. “The advantage of this engineering and design modification is that the operators of large excavators need no special training to operate the smaller equipment. This represents a greatly-reduced learning curve, which translates into more productivity from each piece of equipment. We see this as a substantial advantage – a reason to choose Deere.”

Other ergonomic improvements include repositioning the seat so that operators have greater leg room, equipping cabs with wider and more cushioned seats, adding air conditioning as a standard feature on larger cabs, and designing joysticks and controls using the results of human factor analysis. Each of these improvements serves to reduce operator fatigue and increase productivity.

Hydraulic system improvements

Model year 2003 is expected to mark the first new product launch where a majority of compact excavator equipment manufacturers will be delivering equipment controlled by axial-piston pumps, instead of the older gear pumps. Benefits include a smoother and more natural control of the arm and bucket, reduced fuel and oil consumption, and the capability to more accurately sense and control loads.

Keith Rohrbacker, Product Manager for Kubota North America, informs customers as to the four most important hydraulic system considerations: speed, power, ease of operation, and timing. “This is where Kubota invests much of its research and development engineering efforts,” states Rohrbacker. “Where some excavator manufacturers focus on speed and power, or perhaps power and timing, Kubota is a market leader in every aspect of the hydraulic system. Additionally, our newest models are coming equipped with an auto-idle feature. When pilot controls are released for four or more seconds, the engine reverts to idle, which conserves fuel and oil, and retards engine wear.”

Maneuverability

Another major improvement to the compact excavator fleet is machine maneuverability, or “zero tail swing,” as it is referred to in the industry. Zero tail swing allows the operator to swivel the cab a full 90° without fear of colliding with a wall, abutment or other equipment. A machine with zero tail swing means the operator can focus entirely on what’s in front of him, what’s in his immediate field of vision.

Dan Rafferty, Product Sales Manager for Takeuchi USA Sales, points out that “mini-excavators are far more maneuverable than backhoes...zero tail swing allows machine operators to dig parallel to walls, foundations or road surfaces. Operators are able to use machines with the zero tail swing feature in almost any ‘close quarters’ environment. It’s a key product advantage.”

Machine maintenance

Another area of specific interest to equipment operators is machine maintenance. Where older equipment required greasing and lubrication on a daily or near-daily basis, current models are designed to reduce those ongoing maintenance requirements. Matthew Newman, Sales Support Specialist for Caterpillar’s compact excavator line, states that “Cat’s newer models are designed so that buckets and quick couplers need be greased every 50 hours of operation (as opposed to eight hours or less on older models), every 100 hours on the swing bearings and gears, and every 500 hours on the pins. This makes the operator’s job that much easier, and equipment operation that much more efficient.”

Tom Connor of Bobcat reports that Bobcat's engineers have designed their machines to give the operator easy access to pumps and engines. "We've worked to design the entire system to be more operator friendly," notes Connor, "and ease of maintenance is important to our customers, which of course makes it important to us."

Machine versatility

A key selling point to owning a compact excavator is its versatility. Current models are equipped to handle an array of attachments that include augers, hammers, breakers, grapples and ditching blades. Manufacturers such as Deere's Construction Equipment Division have designed standard couplers and attachments for interchangeability. In fact, Deere's attachments are universal not only to their mini-excavators, but also to Deere's skid steer loaders and their model 110 utility tractor.

Matthew Newman points out how Caterpillar had designed versatility into its compact excavator line from the very beginning. "We realized the demand, how this equipment was being used in a variety of applications beyond digging. These applications included demolition, landscaping and concrete crushing, to list just a few. And we responded by engineering versatility into the line. Cat's objective is to anticipate customer needs and to then provide a machine that affords its owner the best return for his equipment investment dollar."

Toward the future

As compact excavator sales increase, operators are certain to discover new applications. And as these applications are discovered, it is equally certain that equipment manufacturers will respond by delivering improvements in design, engineering, manufacturing and product support. Mark Wall of Deere's Construction Equipment Division predicts a steady succession of product improvements, improvements that will add value and increase the return-on-investment to its owners. "Product advancements have been significant," states Wall, "and will continue well into the future. Both operators and equipment manufacturers have just begun to realize the potential in this market." **[GSL]**