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Bobcat 2.0

Our Field Test of the initial M Series
offering set out to see if the smaller
version could “work big” **p. 24**



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COVER STORY: FIELD TEST

24 Bobcat Packs More Work into a Smaller Skid Steer

Judging the S630, a skid steer of 2,180 pounds rated operating capacity from Bobcat's all-new M Series line, is harder than it looks. It fills a hole in the Bobcat line, so there is no direct comparison in the line against which its performance can be compared. It is the first of what Bobcat is calling a completely "new generation" of skid steers — skid steer 2.0 — yet most of the changes are measured in inches.

A Field Test was clearly necessary to see just how much productivity and efficiency these revisions might deliver. After much discussion, we decided to pit the S630 against the S220, a loader with slight advantages in operating capacity and horsepower on a larger frame. Executive editor Larry Stewart (above) monitored all the tests.

Basic dimensions of the S630 do suggest a rethink of the skid-steer concept by the company that invented them. Bobcat loader specialist, Mike Fitzgerald, told us customers continue to call for more working capability in smaller spaces. The S630 demonstrates the Bobcat approach to that engineering challenge.



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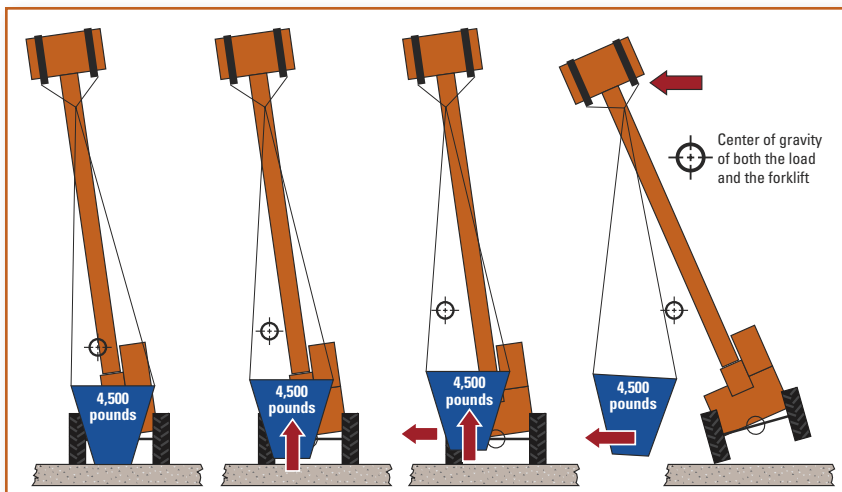
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SAFETY ILLUSTRATED

32 A Primer on Keeping Forklifts Upright

As common as forklifts are, operating one is nothing like driving a car. It is essentially a balancing act that requires utmost skill, training and attention. According to the Occupational Safety and Health Administration, 85 fatal forklift-related accidents occur each year. Another 34,900 operators suffer serious injuries. Forty-two percent of those deaths are a result of operators crushed by the forklift after an unintended tip over. Associate editor Andrew Baltazar details the do's and don'ts of forklift use.



BUYING FILE

38 Category Shift To Shorter Tail Swings

When Buying File last focused on crawler excavators ranging 60,000 to 80,000 pounds in mid-2007, the average list price for the largest share of machines in the range was managing to remain under \$300,000. This share of machines, those ranging in operating weight from 28.1 to 33.0 metric tons or about 62,000 to 73,000 pounds, had its average list price shift up 11 percent from three years prior, but still managed to hang around \$285,000. In less time since, the average crawler is now up to \$303,505. Senior Editor Mike Anderson reports on all the latest excavator models.

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EDITORIAL STAFF

Rod Sutton, Editor in Chief
rsutton@reedbusiness.com
630/288-8130

Larry Stewart, Executive Editor
lstewart@reedbusiness.com
314/962-0639

Mike Anderson, Senior Editor
michael.anderson@reedbusiness.com
519/986-1789

Andrew Baltazar, Associate Editor
andrew.baltazar@reedbusiness.com
630/288-8087

Katie Weiler, Managing Editor
kweiler@reedbusiness.com
630/288-8142

Tom Berg, Truck Editor

Mike Vorster, Contributing Editor

Andy Agoos, Contributing Editor

PUBLISHING OFFICES

Reed Business Information
2000 Clearwater Drive,
Oak Brook, IL 60523; Fax: 630/288-8185

Rick Blesi, Director - Construction Equipment
rblesi@reedbusiness.com

Dawn Batchelder, Marketing & Client
Services Coordinator
dawn.batchelder@reedbusiness.com

Bruce Ksiazek, Director of Finance

Karen A. Ruesch, Production Director

Eletta Harris, Production Manager

Angela Tanner, Audience Marketing Manager

Karthik Krishnan, VP Interactive
Media & Sales Management

Bill Patton, Creative Director

Michael N. Smith, Senior Art Director

Monina Tan-Pipilas, Production Artist

SPEC CHECK: Spec-Check.com

Bill Borthwick, Manager Product Analysis
william.borthwick@reedbusiness.com

Mac Wilcox, Manager Database
mac.wilcox@reedbusiness.com

REPRINTS

Reprint Management Services

Lyndsay Bahn, 717/666-3052
constructionequipment@theygsgroup.com

REED BUSINESS INFORMATION

John Poulin: CEO/CFO, RBI-US

Jeff DeBalko: President of Business Media/
Chief Internet Officer

Dean Horowitz: General Manager-
Construction Media

Eight Tasks for 2010

As construction transitions through 2010 to a rebound in 2011, equipment-management teams should use the time to accomplish eight key tasks.

1) Contain costs. With fewer jobs, more organizations will be bidding against yours. Profit margins will continue to underperform. Don't let equipment costs add to the erosion. Monitor, review, adjust...continuously.

2) Maximize machine life. Keep an eye on fleet age, maintenance costs, components. Work to obtain maximum life without sacrificing utilization, residual value, efficiency or safety. Capital budgets will be tight, so they will have to be spent wisely.

3) Be frugal without being foolish. Continue to evaluate and monitor both capital and maintenance budgets. As revenue stays weak, managers will be asked to do more with less. Work to move some of the capital savings into maintenance.

4) Manage management expectations. There are contradicting forces when you simultaneously attempt task #2 and #3. There will be trade-offs, and management must understand the risks of extending machine life without accounting for the increase in maintenance required to keep those machines operating safely and efficiently.

5) Prioritize purchase strategies. Watch used-equipment prices.

6) Don't forget fuel. Many budgets have been reduced simply because fuel prices have fallen from a couple of years ago. That will not last.

7) Motivate and encourage staff. This may be the hardest task of them all. Encourage them that when business returns, this staff will be primed and ready to perform.

8) Stick close to proven suppliers. Talk more deeply about how his business can make your fleet stronger. Keep those existing relationships strong and talk about ways to make them stronger. The loyalty shown today will pay dividends down the road.

A fleet professional told me that "times like these make better managers out of us." That's not bad advice.



Rod Sutton, Editor in Chief

We welcome your comments.
E-mail: rsutton@reedbusiness.com
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Buckle up, America!

A summary of the month's primary machine introductions and model changes

By KATIE WEILER, Managing Editor

► Case

The M Series 3 lineup of Case backhoe loaders includes the 580M, 580 Super M, 580 Super M+, 590 Super M and 590 Super M+, ranging in horsepower from 79 to 109. Dig depths range from 14 feet 3 inches on the standard backhoe to 20 feet 4 inches with Extendahoe. All M Series 3 models are powered by Tier-3 Case Family IV engines. High-pressure common rail injection on the Super M and Super M+ improves cold starting and fuel efficiency. A new electronic auxiliary control for the loader allows precise, easy control of attachments like a 4-in-1 bucket.

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▼ Grove

With a capacity of 25 tons, Grove's YB7725 industrial crane features a 71-foot, four-section boom with a 17-foot swing-away extension, and its deck can carry up to 15 tons of material. The crane is equipped with a four-position pivoting boom head for low headroom clearance and beam jack-style outriggers that can be extended or retracted at

the same time. Operators benefit from a swing-out door and smoother-operating joysticks.

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▲ National Crane

The 1100 series telescoping boom crane boasts a maximum tip height of 161 feet and comes equipped with a wireless remote that allows workers to hoist themselves. Able to be mounted onto a tracked carrier, it has a 28-ton capacity, and the 105-foot four-section boom allows for more lifts without a jib. Triple-pump hydraulics and advanced control valve technology provide smooth and reliable operation for precise load positioning, according to the company.

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◀ Caterpillar

Caterpillar has upgraded its largest mining truck to a new generation. The 400-ton 797F is powered by Cat's new Tier 2-compliant C175-20 ACERT engine rated at 4,000 horsepower. For safety, Cat has increased the width of the walkways and stairway. Cab changes include shifting the instrument panel to the center for better visibility and angling the center console to face the operator to help reduce fatigue.

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Market Watch



Vermeer

Powered by either a Yanmar diesel or Briggs & Stratton Vanguard gas engine, the Vermeer CS372 offers the production of a self-powered stump cutter in a compact package. A combination belt and gearbox direct-drive system efficiently transfers horsepower from the engine to the cutter wheel, says Vermeer. At a width of 35 inches, the unit can be navigated through gates and operated in confined spaces.

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Cub Cadet Yanmar

The four-wheel-drive Sx3100 tractor's integrated backhoe digs to 6 feet 9 inches deep, and its loader can lift 964 pounds. A 31-horsepower, three-cylinder Yanmar diesel delivers power and the two-range hydrostatic transmission requires no shifting. There's a standard two-year, 2,000-hour warranty on the tractor and three-year, 2,000-hour warranty on the power train.

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Kioti

The new Mechron four-wheel-drive utility vehicle is powered by a 22-horsepower, 3-cylinder diesel engine built by Korean parent, Daedong. Front limited-slip differential and rear differential lock are standard. Mechron carries a 1,600-pound payload in a 56-inch-wide dump bed, which Kioti claims is 23 percent more capacity than the previous market leader in the widest box available.

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National Crane

National Crane's NBT45 truck-mounted crane can reach up to 142 feet with its five-section boom. When equipped with a 55-foot boom extension, the combination provides a lifting tip height of 204 feet and a basket working height of more than 210 feet. All boom sections are supported by one hydraulic extend cylinder. "Easy Glide" boom wear pads reduce the conditions that cause boom chatter and vibration.

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Caterpillar

By introducing a second 70-net-horsepower compact wheel loader to the market, Caterpillar is filling a product-line spot between two popular models, essentially incorporating the front end of the 70-horsepower 906H with the back end of the 79-horsepower 908H. With a general-purpose bucket capacity of 1.3 cubic yards, the 12,809-pound 907H Z-bar wheel loader features a skid-steer-style coupler and standard auxiliary hydraulics.

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Market Watch



◀ Power Curbers

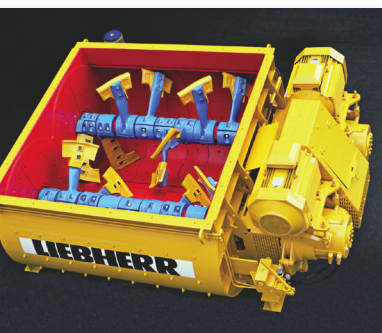
Max Package option for the 5700-C paver outfits the machine with larger crawlers and repositionable right post for pouring large-variable barriers up to 8 feet high and paving to 12 feet wide. Crawlers on the 5700-C-Max are 1 foot longer and feature four rollers instead of three, for increased stability. Low-speed crawler torque hubs enable the machine to pour at a steady crawl when handling large offset molds.

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▼ Liebherr

Available in sizes ranging 3 to 8 cubic yards, a compact design suits the Liebherr twin-shaft concrete mixers to use with mobile plants and on sites with limited space, says the manufacturer. Fed on site by a dry-mix plant, the twin-shaft mixer is installed on a trailer for quick transport and placement. Mixed concrete is then discharged onto a high-speed conveyor belt, feeding either a holding hopper or directly into a truck. Depending on mixer size, aggregates up to 7 inches can be processed.

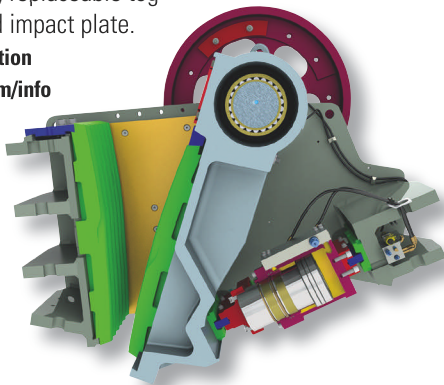
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▼ TelSmith

Model H2550 portable crusher features advanced jaw crusher technology, the company says. A hydraulic toggle system has a heavy-duty cylinder custom engineered for crushing. The hydraulic adjustment, relief and clearing systems eliminate downtime and prevent component damage, TelSmith says. The unit has a 25-x50-inch feed opening, interchangeable and reversible jaw dies, replaceable toggle ends, and impact plate.

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▶ Cub Cadet Yanmar

Cub Cadet Yanmar, an alliance of two compact-tractor brands, expands its Sc Series tractors with the 24-horsepower Sc2450. The four-wheel-drive subcompact adds an integrated backhoe to the line. It's powered by a 3-cylinder Yanmar diesel. Dual hydraulic pumps deliver power on demand. Backhoe dig depth is 6 feet 4.5 inches and the loader can lift 700 pounds.

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▶ Ditch Witch

The excavator end of the Ditch Witch XT855 compact excavator-tool carrier has a 260-degree operating radius, enabling it to offset dig and deposit spoils anywhere within the swing arc. The operator can dig against a footing, wall or fence, and dig a number of trenches without having to move the machine. The 30-horsepower XT855 has a lift capacity of 1,080 pounds when equipped with optional extension legs. The tool carrier can drive up to 70 attachments.

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Asphalt Drum Mixers

Stationary and self-erect asphalt storage silos from Asphalt Drum Mixers (ADM) are compatible with and now available for both ADM asphalt plants and similar competitive models. Storage silos receive freshly mixed asphalt from a conveyor and keep it at a constant temperature until discharge. The stationary and self-erect designs allow the ADM silos to be used in various plant configurations. Multiple capacity options are available.

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Link-Belt

Link-Belt's 75-ton HTT-8675 Series II all-terrain crane has super single tires and all-wheel-steer capability. On the road, rear-wheel steering improves tracking by turning up to 7 degrees at speeds under 15 mph. Off road, four steering modes — all-wheel, diagonal steer, manual steer, and front steer — keep the crane maneuverable. Minimum turning radius is 29 feet in all-wheel steer. The 8675's 127-foot formed boom uses Link-Belt's patented latching mechanism.

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MANUFACTURER NEWS

Case Loaders Serve Military Needs

Case Construction Equipment has reached a milestone in the supply of wheel loaders for the U.S. military.

Under contracts with U.S. Army TACOM (Tank, Automotive and Armaments Command) and the Army National Guard, respectively, Case has for the past six years been resetting and remanufacturing MW24C wheel loaders. It was announced in December that work on the 500th such model was completed at the Case Remanufacturing Center, located at Fort McCoy in western Wisconsin.

Reset units receive a full inspection and the repair or replacement of worn parts, resulting in full restoration to Army performance standards. Remanufacturing includes complete machine disassembly, inspection, refurbishment, reassembly and thorough testing. These processes can extend the life of the machines by as much as 15 years.

"Knowing that we are putting this equipment back to mission-capable standards means we are directly supporting America's troops worldwide," says Chris Rolsen, Case Remanufacturing Center general manager. "This is a great source of pride for our employees at Fort McCoy."

Originally put into service in the early 1980s, Case MW24C wheel loaders have performed in demanding and hostile environments throughout the world. Today's refurbished units have returned to the job, serving in a variety of mission-critical applications.

In addition to the wheel loaders, the Case Remanufacturing Center refurbishes M4K rough-terrain forklifts under contract to TACOM, overhauling 280 such units to date. The facility also provides parts and technical support to reset operations in Iraq and Afghanistan.

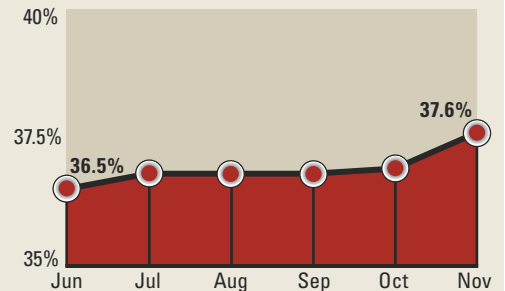


Remanufacturing and resetting such equipment as the MW24C wheel loader, the local workforce employed at the Case Remanufacturing Center includes many current or retired Army National Guard and Reserve members.

USED EQUIPMENT Values Move Up

The Rouse Value Index

(Avg. orderly liquidation value as % of cost)



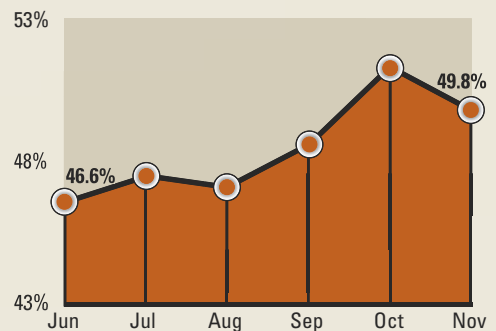
Note: Orderly liquidation value is expressed as a percentage of replacement cost (average cost paid for a new unit by large rental companies and dealers) for the average age of equipment within that category.

Includes 10 categories of equipment common to rental fleets.
Source: Rouse Asset Services

Orderly liquidation values picked up 1.8 percent in November compared to October values. Seven of 10 machines recorded upticks in the month, including scissor lifts and articulating boom lifts.

Skid-Steer Loaders

(Avg. orderly liquidation value as % of cost)



Values of skid-steer loaders fell 3.1 percent in November after a good upturn the previous two months. Values are still up 11 percent compared to six months ago, and average selling age remains at 54 months.

SUPPLIER NEWS

Walker Machinery Sold to Wayne

After 59 years as a heavy-equipment distributor and 56 years as a dealer for Caterpillar in West Virginia and Ohio, the Walker Family is exiting the business. They signed a letter of intent to sell Cecil I. Walker Machinery Co. and Walker Realty to the Boyd Co., owner of Wayne Supply Co., Caterpillar dealer for Kentucky and southern Indiana. Boyd Co. is owned by Monty L. Boyd, a former Cat employee associated with Wayne Supply since 1984. Boyd intends to continue operating Walker Machinery as is, using the Cecil I. Walker Machinery Co. name.

MANUFACTURER NEWS

Terex Sells Mining Equipment And Trailer Businesses to Bucyrus

In early January, Terex sold its mining-equipment business to Wisconsin-based Bucyrus International for \$1.3 billion, citing a need to reshape and focus on niche products rather than compete directly with full-line construction-equipment makers like Caterpillar and Komatsu.

Under the deal with Bucyrus, Terex will hand over assets used to design, manufacture and sell hydraulic excavators, surface mining trucks, and most drills. Included in Terex's mining-equipment business are 38 facilities and 2,150 employees globally.

"We will expand our geographic footprint and diversify our portfolio of products across a broader range of commodities," says Bucyrus CEO Tim Sullivan.

In fact, Bucyrus will double its addressable market from \$15 billion to more than \$30 billion, selling machines from excavators and transport machinery to electric rope shovels and walking draglines.

Terex also sold its Load King trailer division, owned by Terex subsidiary Genie, to South Dakota-based lifting-equipment maker Manitex International for \$3.1 million.

STATUS & FORECAST

CONSTRUCTION EMPLOYMENT

Contractors doubled layoffs in December to 53,000, but most of the increase was probably weather related and will be revised away or reversed quickly. Note that layoffs by heavy general contractors, who are weathering the recession better than building contractors, were unusually large. Layoffs will continue at least through the winter at about a 10,000-25,000 a month pace. Modest residential hiring will not offset continuing layoffs in nonresidential building and possibly small layoffs in heavy construction.

(Change in jobs, thousands)



GREEN NEWS

EPA Proposes Strict Limits On Ground-Level Pollution

The Environmental Protection Agency has proposed replacing smog limits set in 2008 under the Bush administration with an even stricter set of rules. The standards that are currently in place do not go far enough to protect human health, the agency says.

New limits on ground-level pollution could be bad news for owners of construction equipment, trucks, cars and other vehicles, as well as power plants and factories, potentially prompting them to install expensive pollution-control devices.

"EPA is stepping up to protect Americans from one of the most persistent and widespread pollutants we face," says EPA administrator Lisa Jackson. "Smog in the air we breathe poses a very serious health threat, especially to children and individuals

suffering from asthma and lung disease. It dirties our air, clouds our cities, and drives up our health-care costs across the country."

To reduce illnesses caused by vehicle and factory exhaust reacting with the sunlight, EPA wants to limit ground-level ozone concentration from the current 75 parts per billion over 8 hours to between 60 and 70 parts per billion.

"Using the best science to strengthen these standards is a long overdue action that will help millions of Americans breathe easier and live healthier," Jackson says.

If enacted, the new standard would save citizens between \$13 billion and \$100 billion in health-care costs by decreasing aggravated asthma, bronchitis cases, and emergency room visits, the EPA says.

OUR BARRIER



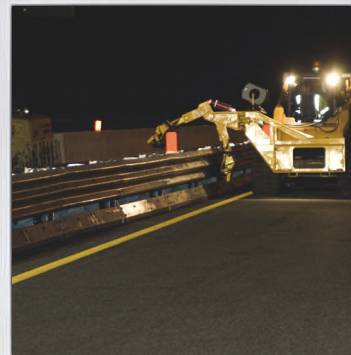
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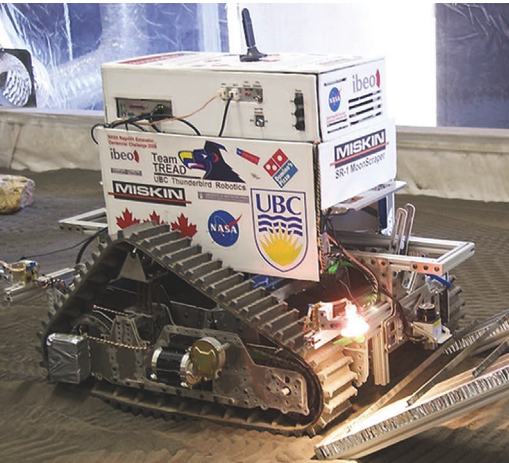
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CONSTRUCTION TECHNOLOGY

Miskin's Bid to Scrape the Moon

NASA (National Aeronautics and Space Admin.) has issued a challenge to build a robotic machine that can excavate and haul moon dust.



Miskin MoonScrapper carries bowls loaded with simulated moon dust up the ramp to the collector bin.

Towed scraper manufacturer Miskin is supporting one response.

NASA has developed a reactor that can extract oxygen, hydrogen, and other useful elements from lunar regolith (moon dust), a major step towards establishing a permanent, inhabited lunar base.

The 2009 Regolith Excavation Challenge was conceived to promote development of designs to excavate and haul lunar regolith to the reactor. Entries had to be able to mine a minimum of 331 pounds of regolith, a very fine type of dirt found on the moon in under 30 minutes using no more power than that of a light bulb. The robots had to be fully or semi-autonomous and able to navigate around obstacles using only technologies that would function on the moon. Machine weight was limited to 176 pounds.

Miskin sponsored the TREAD team's attempt at the challenge. The team of 30 University of British Columbia student and teaching engineers designed a crawler-mounted scraper that used multiple buckets to load more efficiently. Bucket design is based on soil excavators used in coal strip-mining operations.

Unfortunately, due to NASA network interface issues beyond Team TREAD's control at the Challenge event, the MoonScrapper was unable to work for much of its allotted 30 minutes. In three cycles completed (they had planned 10 to 12 cycles), the MoonScrapper hauled 60 kg of material, loading faster and requiring less energy than any other contestant. It also generated far less dust, and was very maneuverable.

MANUFACTURER NEWS

Palfinger Forms New Distribution Company

The evolution of Palfinger North America Group continues with the Jan. 1, 2010, launch of a new distribution company for the multi-brand crane equipment manufacturer. Paltec Truck Equipment Co. is formed by integrating Palfinger's Tiffin Loader Crane Co. and Omaha Standard Distribution companies.

Palfinger North America Group was formed following Palfinger North America's acquisitions of MBB/Interlift and Omaha Standard, the latter which formerly operated as Fontaine Truck Equipment Co. Since the 2008 acquisitions, Automated Waste Equipment has been added to the Palfinger Group. Tiffin Loader Crane joined Palfinger back in 2001.

"Palfinger strongly believes in independent distribution," says Mark Woody, Palfinger North America president. "The Paltec name gives our distribution company a unique identity, distinct from Palfinger's manufacturing companies, reflecting its independent management and operations."

Paltec will maintain branches in Fort Lauderdale, Charlotte, Atlanta, Birmingham, Nashville, Louisville, Indianapolis and Dallas, as well as the former Omaha Standard and Tiffin headquarters in Council Bluffs, Iowa, and Tiffin, Ohio, respectively.

SUPPLIER NEWS

Mascus Sells Machines In the United States

Mascus (www.mascus.com), an online retailer of used heavy equipment based in Finland, signed its first representative in the U.S. late in 2009.

"The global presence of Mascus will be a great asset for [U.S.] sellers," says Marc Mandt, CIO of new Mascus partner CarolinaClassifieds. "The current economy offers an excellent opportunity for U.S. customers to sell new and used trucks, forklifts, construction and agriculture equipment, as well as grounds care and forestry machinery in the U.S. and international market."

Mascus, which employs a classified-ad approach to selling used equipment, has been expanding for two years and is now present in 32 countries with services available in 33 languages. More than 1,000 customers have advertised 30,000 pieces of used equipment on the website.

RESOURCES

Say Yes or Sí to Internet Training

Celebrating more than two years online, Safety.Cat.Com announces its latest resource — Internet-based safety training. More than 200 training modules are designed to help workers understand and avoid jobsite hazards. About 70 courses are also available in Spanish, and they range from 20 minutes to more than 2 hours in duration. The broad range of subjects addresses all levels of safety within a business, and the system permits managers to track employee progress, Cat says. Many courses start at less than \$20. Log on at Safety.Cat.Com/Training and follow a simple tutorial to begin.



Caterpillar's online Spanish-language modules are grouped into six categories: construction, mining and heavy equipment; driver safety; environmental; general safety; OSHA essentials; and supervisory safety.

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BOBCAT S630

Cover Story **FIELD TEST** FIELD TEST FIELD TEST FIELD TEST

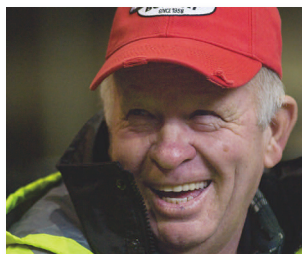
By LARRY STEWART, Executive Editor

Bobcat Packs More Work into **Smaller Skid Steer**

Better view and instruments, plus more efficient hydraulics, allow first M Series loader to overcome a high-flow horsepower disadvantage and match the S220



Ras Rambough, operator, spends most of his time running larger loaders running Opp's dirt-screening operation.



Ted Fey, a project supervisor for Opp Construction operates one of the Grand Forks, N.D., company's 30 skid steers every day.

Judging the S630, a skid steer of 2,180 pounds rated operating capacity from Bobcat's all-new M Series line, is harder than it looks. It fills a hole in the Bobcat line, so there is no direct comparison in the line against which its performance can be compared. It is the first of what Bobcat is calling a completely "new generation" of skid steers – skid steer 2.0 – yet most of the changes are measured in inches.

A Field Test was clearly necessary to see just how much productivity and efficiency these revisions might deliver. After much discussion, we decided to pit the S630 against the S220, a loader with slight advantages in operating capacity and horsepower on a larger frame.

Basic dimensions of the S630 do suggest a rethink of the skid steer concept by the company that invented them. Bobcat loader specialist, Mike Fitzgerald, told us customers continue to call for more working capability in smaller spaces. The S630 demonstrates the Bobcat approach to that engineering challenge.

It starts with a shorter frame – a shorter skid steer can maneuver in smaller areas. The S630 is more than six inches shorter than the S220. The M Series also revived a shorter wheelbase that the company hasn't used since retiring the 863 in 2004. Shorter wheelbase allows the machine to skid through

turns a little more easily.

But engineers obviously set their sights on a small machine that can work big. The S630 has almost the same engine horsepower as the S220 (74.3 and 75, respectively). About 225 pounds more operating weight brings the S630 to within 20 pounds of the S220's 2,200-pound rated operating capacity. But perhaps the greatest productivity boost is designed into the hydraulic system. Bobcat raised the operating pressure to 3,500 psi (a 200-psi increase) and added 2.3 gallons per minute of flow to equip the S630 with 18 percent more standard hydraulic horsepower than the S220.

The most visible change is in what Bobcat is calling a "cab-forward" design. While it's not initially obvious that Bobcat moved the cab forward, the rear does look longer. The cab was only moved ahead two inches, and the S630's frame is six inches shorter than the S220's. So there is actually less machine for the operator to look over behind the cab. Fitzgerald says this improves visibility to both the front and rear of the machine.

It's not until you're in the seat, with a bird's-eye view of the attachment, that it becomes obvious the cab has been moved forward. Combined with significantly increased glass dimensions, the view to the ground all around the working end of the machine is improved.

Bobcat S630

- Length - 4%
- Hydraulic Horsepower . + 18%

FIELD TEST FIELD TEST FIELD TEST FIELD TEST FIELD TEST FIELD TEST FIELD TEST

Augering

Augering	S220	S630
Holes/minute	2.2	2.3 (+ 4.5%)

Test Set

Test Set	S220	S630
Rated Capacity	2,200 lbs.	2,180 lbs.
Weight	7,483 lbs.	7,707 lbs.
Horsepower	75	74.3
Hydraulic pressure	3,300	3,500
Hydraulic Flow (standard)	20.7 gpm (39.9 hp)	23 gpm (47 hp)
(high flow)	37 gpm (71.2 hp)	30.5 gpm (62.3 hp)
Length	142.9 in.	136.8 in.
Wheelbase	48.4 in.	45.3 in.
MSRP*	\$44,524	\$43,180

* Manufacturer's suggested retail price, as tested

We timed the operators boring 16 holes five feet apart. Both finished more than two holes per minute. In high-flow mode, this S220 generates 12.5 percent more hydraulic horsepower, but the S630 equalled it thanks to the operator's clearer view to the work over the lowered door sill.

"You can look down and see the inside and the outside of your tires," says Ras Rambough, one of our two test operators and a construction veteran who runs the soil-screening operation for Grand Forks' Opp Construction. "If you're going along the edge of some lady's flower bed, it's going to be easy to stay out of her flowers."

The new cab-door sill is lowered for better view and easier entry. The windshield-washer reservoir has been moved off the door. Frameless glass expands the view to the bucket cutting edge and the ground around the attachment.

For our Field Test, Bobcat made available an S220 and S630, both with enclosed

cabs, standard hydraulic controls, and bias-ply tires. Both machines were new – the S220 started the test with 10.8 hours on the meter and the S630 had 7.4 hours.

We figured a task that required digging, a bit of carrying, and then loading a truck would compare the unit's overall performance, but Bobcat's hydraulic-system choices really piqued our curiosity about productivity with hydraulic attachments.

Higher hydraulic pressure would boost horsepower across the board, but it was an interesting engineering choice to field the S630

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Trenching

Trenching	S220	S630
High Flow (32 in.)	4.3 ft/min	4.3 ft/min
Standard Flow (24 in.)	3.6 ft/min	4.1 ft/min (+ 14%)

with 30.5 gallons per minute (gpm) capacity in high-flow mode. The S220 high flows 37 gpm, giving it a more than 14 percent advantage over the S630 in high-flow mode.

Our test operators took turns pulling 100-foot stretches of trench with a Bobcat LT405 high-flow trencher. Once the trencher was in the ground, we gauged the angle to make sure it was at 45 degrees, and then started the stop watches. Trenches were consistently 32 inches deep. Each operator made two runs with each loader and the high-flow trencher. Times came in consistently at 23 and a half minutes for each 100-foot trench. Despite its disadvantage in hydraulic horsepower, the new S630 kept up with the S220 at 4.3 feet of trench per minute.

Bobcat's marketing suggested that the M Series' simplified hydraulic circuitry would make enough flow available at the attachment to compensate for the difference between the two machines' hydraulic horsepower. Our tests indicate that they are right.

"This is some of the hardest digging you're going to find, and the '630 didn't get near stall-out. It seemed to pull through better even though it didn't have the higher rating," says Ted Fey, our other test operator and a supervisor with Opp Construction. "There seemed to be more of a direct communication between the hydraulics and the engine – you knew before it actually started to pull down that you had to let off a little bit to keep your flow going. You could hear it in the engine rpm, whereas the other one you never really heard the engine losing the pressure."

Other soft issues also contributed



Operators pulled 100-foot trenches with a high-flow trencher on each loader. Improved hydraulic efficiency and instruments helped the S630 overcome its high-flow disadvantage.

to the S630's high-flow production.

"I like the instrumentation on it (the S630) a lot better," says Fey. "It's electronic, but it comes up like the old-style dials where the other one just has bar-graph displays. It's an individual preference but I could monitor the engine rpm on this one so much easier. If you start binding the trencher a little bit you can easily look and see if it's pulling down the engine or not."

Confirming the trencher results were no fluke of operator style or the experience, the S630 and S220 tied the auger test in high-flow mode, too. We timed the operators boring 16 four-foot holes with a 16-inch auger, five feet apart. They both finished just more than two holes per minute.

The final test of the first day had us measuring a pair of 80-foot runs for the digging and loading event as the wind dampened. Each operator would dig up a bucket load of undisturbed turf and soil, carry it at best possible speed around a cone 80 feet from the digging and loading area, then return to dump the bucket into a waiting truck. With five bucket loads on board, we'd weigh the trucks.

The Dakota wind had begun driving an easy drizzle. With two trucks and tests on both loaders going simultaneously, conditions for each machine were pretty well matched even as they slowly degraded. The rain never intensified, but poor traction definitely challenged the loaders' ability to bust sod.

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Loading

Loading	S220	S630
AVG time	7:04	7:32 (+ 7%)
AVG load	6,980	7,470 (+ 7%)
Tons/hour	29.6	29.7

Our operators took a little longer filling the S630's bucket – the S220 was able to load the truck in about 7 minutes 4 seconds, while the S630 averaged 7:32. It's possible that keeping all four tires on the ground and pulling in a short-wheel-base machine is a skill that would take a little more practice for our operators to master.

Despite the slippery digging surface diminishing the S630's promised 15- to 20-percent tractive advantage, the new machine did dig more dirt. Its average load was 7,470 pounds, about 7 percent more than the S220 produced. The result was another tie, this time at 29.7 tons per hour.

The afternoon's rain turned to a mid-October snow, and Fey drove onto the fairgrounds the next morning with three inches of the white stuff melting off his truck. Luckily, Bobcat rents the riding arena at the Fargo fairgrounds during winter for demonstrations and testing. We were limited to 50-foot runs to avoid the building's foundations, which was fine since the last attachment test would use a Model 313 standard-flow trencher. Again, each operator cut two trenches with each machine.

In standard-flow mode, the horsepower shoe is on the other foot – the S630 delivers 11 percent more hydraulic horsepower than S220. The S630 cut 50 feet of 24-inch-deep

The load-and-carry course was set up with the digging zone near the truck. Operators were to dig a bucket load of soil, carry it around a cone placed 80 feet away, return and dump the load into the truck. After five bucket loads, the trucks were weighed.



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 **TOPCON**



It may not be obvious that Bobcat moved the S630 (foreground) cab two inches forward on the frame. But because the frame is six inches shorter than the S220's, there is actually less machine behind the cab for the operator to see over, improving visibility fore and aft.



A lower door sill improves the view and entry. Operators can see the inside and outside edges of the tires.



The door-mounted windshield-washer reservoir has been moved, and glass extends down further all around the cab.

trench in an average of 12 minutes and 5 seconds, while the S220 would require a full 2 minutes longer. The new M Series contender finished the test with nearly a 14-percent productivity advantage over the S220.

Fey and Rambough did some work with a pallet fork and a load they could place on the bed of a drop-sided truck and a low-bed trailer, to compare pallet work with the new and old machine (more than half of skid steers sold today go out

with pallet forks). Both machines performed well.

"This one (the S630) had better visibility just a little bit higher, where we were loading the truck," says Fey. "We do more truck loading anyway, so for me it was the better machine of the two for pallet loading.

"The fork levels better, too," he adds. "It holds the forks more at a uniform level when you raise and lower the loader arms."


The final Field Test stop was back

at the fuel bulk tank. The S220 topped off with 12.3 gallons and its hour meter showed 4.8 total hours of work since the start of our testing. The S630 had burned 12.5 gallons in 4.6 hours. Having burned 2.6 gallons of diesel per hour, the S220 showed a 6-percent fuel efficiency advantage over the S630, which burned 2.7 gph.

"That's not bad," says Bobcat's Fitzgerald. "The S630 had to work harder to keep up with the S220 in high-flow trenching."

The S630's fuel economy would likely be better in standard-flow work, and our testing suggests it can trench at standard flow rates nearly 250 feet of 24-inch trench per hour compared to the S220's 215 feet.

The S630's 74.3 horsepower diesel engine mandates that it meet Tier 4 Interim emissions limitations, whereas the S220, barely over EPA's power break at 75 horsepower, can remain at Tier 3 until 2012. Kubota's Tier 4 Interim engines give up a little fuel efficiency to their Tier-3 counterparts, so a comparison between the S630 and a hypothetical S220 with T4i engine would likely yield some fuel-efficiency advantage for the S630.

"You could tell that the 220 had a little bit more power when you're running it, but from the operator standpoint, there's just no comparison between the two machines," says Fey. "This one's (the S630) just so operator friendly. There are several changes they made that you can't figure out why they didn't do it years ago." 

More Online

To see videos and a slide show of the CE Field Test, including insights into the M Series' many service enhancements, go to ConstructionEquipment.com/article/CA6712818.html.

A Primer on Keeping Forklifts Upright

Operating a forklift may seem simple at first, but one wrong maneuver could send both you and the machine tumbling

As common as forklifts are, operating one is nothing like driving a car. It is essentially a balancing act that requires utmost skill, training and attention. According to the Occupational Safety and Health Administration, 85 fatal forklift-related accidents occur each year. Another 34,900 operators suffer serious injuries. Forty-two percent of those deaths are a result of operators crushed by the forklift after an unintended tip over.

Without training, operators adopt bad habits from each other, says Jeff Stachowiak, director of safety training at Sunbelt Rentals. This leads to maneuvers, lifts and other operating actions that appear safe, but may result in a catastrophic forklift failure.

Know what you're lifting

One important skill that operators should have is to be able to estimate the weight of each load. In heavy construction, loads often have a known weight, which is listed on the load itself. An eight-inch concrete block, for instance, weighs around 35 pounds. Operators

pick up cubes containing 90 concrete blocks, adding up to approximately 3,000 pounds. If the blocks are wet, they may weigh another 100 or 200 pounds.

"Every forklift is made to the same ANSI/ASME standard," Stachowiak says. "All forklifts are designed to pick up a 48-inch by 48-inch by 48-inch cube with the load laterally centered 24 inches out and up."

"Anytime you're picking up a load outside that 24-inch load center, unless it's indicated on the I.D. plate or the load chart, it's really an unknown capacity," he says.

If operators don't know the weight of a load, they should ask their supervisor for it.

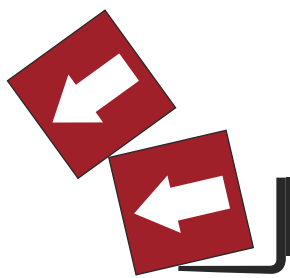
"The load must be split or a machine of sufficient capacity should be used," says Mike Pankonin, senior director of technical and safety services for the Association of Equipment Manufacturers. "If there is any question about the weight of the load or the capacity of the machine, the load should not be moved."

"You have to look at the load chart and you have to look at where you're going to place the load," Stachowiak says. "You have

What Not to Do



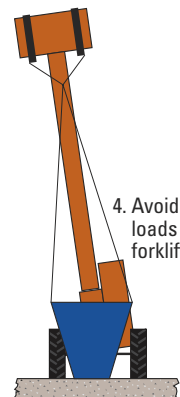
1. Avoid traveling with the boom raised and extended.



2. Don't lift two-tiered loads without properly securing them together.



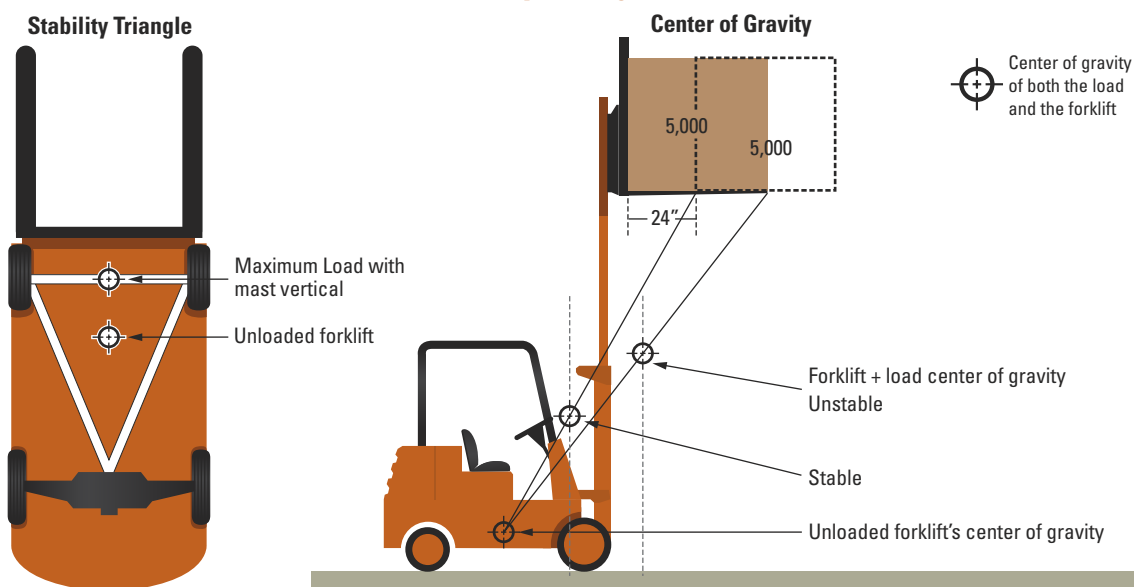
3. Don't exit or jump from the forklift in the event of a tip-over.



4. Avoid rigging loads from the forklift tines.

Image source: Association of Equipment Manufacturers

Stability Strong Points



Most forklifts have three structural strong points (both front tires, and either a rear-axle pivot point or a single rear tire) in their base that form what's called a "stability triangle." As long as the forklift's center of gravity remains within the triangle, the machine will not tip over. If the center of gravity moves beyond the front of the triangle, the forklift could tip forward. If the center of gravity moves to the left or right, a lateral tip may occur. For example, an unloaded forklift with the forks or boom in the raised position pushes the center of gravity to the rear, meaning lateral stability is narrower and therefore the forklift could tip with quick left or right turns.

to figure out whether you're within capacity on the load chart."

Many operators, however, use "the seat of their pants" to determine the weight of the load and whether the forklift can handle it.

Operators, for example, commonly do not pull up close enough to a building to place or lift a load using an extended boom. They end up tipping the forklift because they decline to use the load chart.

Anytime the rear wheels come off the ground, the limitations of the forklift have been exceeded and therefore an accident has occurred, Stachowiak says, even if the machine doesn't tip over. The forklift may appear intact, but the rear axle could have been damaged after hitting the ground.

Other times, forklifts tip when not loaded.

"Driving without out a load, that's when the machine is least stable," Stachowiak says. "All of the center of gravity is closer to the rear of the machine, and putting a load on the forks actually stabilizes the forklift."

Tipping an unloaded forklift often happens when an operator has just placed a load on scaffolding using an extended boom.

How to Brace Yourself in a Tip-Over

- 1 **HOLD ON TIGHT TO STEERING WHEEL**
- 2 **LEAN AWAY FROM IMPACT**
- 3 **BRACE FEET**
- 4 **LEAN FORWARD**

Rather than using the joysticks to retract and lower the fork, the operator puts the entire machine in reverse and turns abruptly while bringing the boom down, which pushes the center of gravity to the edges of the forklift.

"At that point, it's not hard to tip the forklift over," he says.

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A Sunbelt customer in Jacksonville, Fla., recently lifted a 4,500-pound tree by suspending with a rope tow from a forklift's tines. The work-site crew attempted to lift the tree by its root ball and then place it in a hole next to a pool at a residence under construction. Both the tires and ground were level, but the operator frame-tilted the forklift to get around some obstructions. When they lifted the tree off the ground, it began to swing in the direction of the tilted frame. That swing caused enough force to tip the forklift over. Stachowiak says the operator essentially side-loaded the forklift, which is a no-no in the forklift business. Yet, many operators make similar maneuvers each day. It's only a matter of time before an accident catches up with them, Stachowiak says.

Sunbelt Customer Sideloads and Tips Forklift

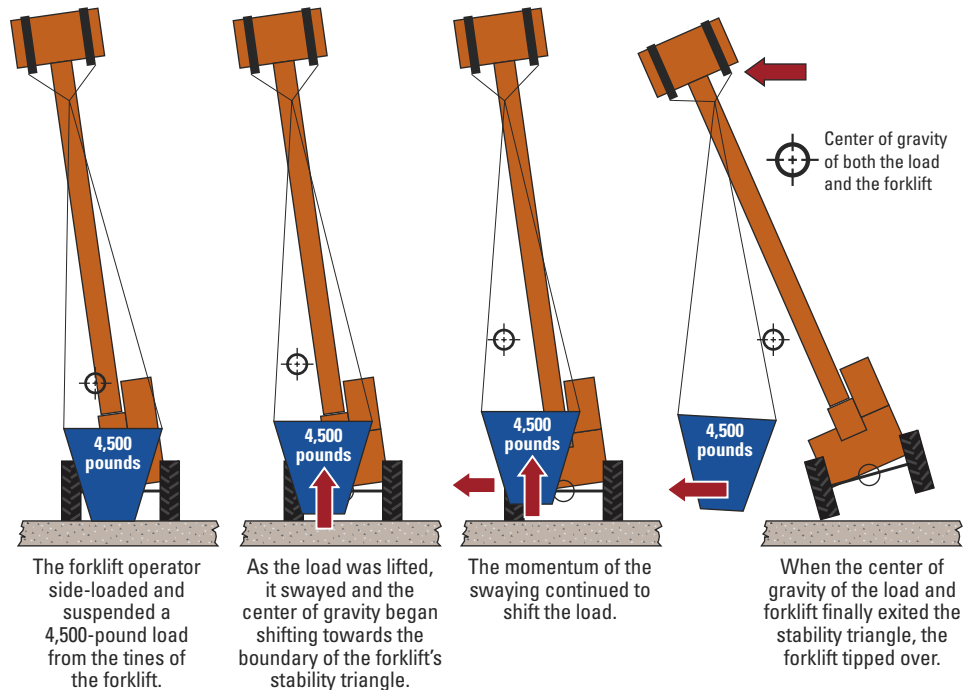
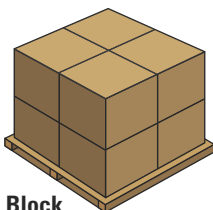


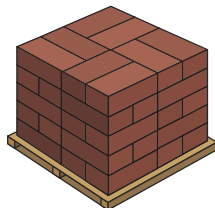
Image source: Sunbelt Rentals

Proper Load Stacking Means More Stability



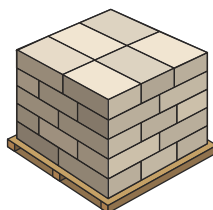
Block

Block stacks are the most common on a job site. The upper level may be unstable if not secured with wire or strapping.



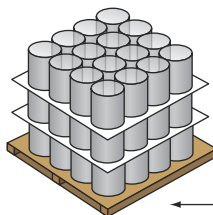
Pinwheel

Each pair of blocks is turned 90 degrees from adjacent blocks.



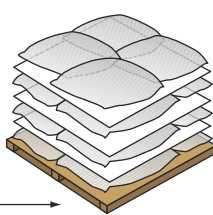
Brick

Containers are interlocked by turning each level 90 degrees.



Irregular

Wood strips, plywood or heavy cardboard between layers can help stabilize castings, bags, and other irregular shapes.



Regular maintenance

As for maintenance, fleets often overlook forklift brakes. Part of an operator's pre-start check must include simple brakes testing to determine whether they work both forward and backward. Emergency brakes should be checked regularly as well. Just like with a car, if the brakes feel mushy or lack stopping power, the operator needs to alert the service department.

"There's a huge amount of forklifts out there that don't have working brakes on them," Stachowiak says. "The way operators stop without brakes is by shifting between forward and neutral, or they drive into the load and it stops when it hits the pallet."

Forklifts engage in rigorous work requiring heavy loads to be raised and lowered several times each day. Combined with tight work schedules that contractors must stick to, operators push forklifts to their limits.

Get to know the limits of each forklift you use by reading the operators manual and becoming familiar with its load chart.

Image source: Washington Department of Labor and Industries

Buying File: 60,000- to 80,000-pound Excavators

By MIKE ANDERSON, Senior Editor

Category Shift To Shorter Tail Swings

Reduced-tail-swing excavators move comfortably up into a marketplace traditionally covered by conventionally configured machines

When Buying File last focused on crawler excavators ranging 60,000 to 80,000 pounds in mid-2007, the average list price for the largest share of machines in the range was managing to remain under \$300,000. This share of machines, those ranging in operating weight from 28.1 to 33.0 metric tons or about 62,000 to 73,000 pounds, had its average list price shift up 11 percent from three years prior, but still managed to hang around \$285,000. In less time since, the average crawler is now up to \$303,505, according to the most recent figures from Equipment Watch.com.

Knowing all too well what has happened around them since mid-2007, equipment managers continually evaluating buying options aren't exactly brushing off financial numbers

these days. Based on the list cost of the 30-metric-ton excavator, they are no doubt left assured this machine remains a versatile, integral, highly valued member of their fleets.

Among the newest model introductions is a 67,150-pound addition to the Hyundai Series 9 family, the R290LC-9, as well as Kobelco's 66,800-pound SK295LC Acera Mark 8 model. Both represent technology-leveraged enhancements upon the traditional conventional excavator configurations serving this size range.

But it's hardly any semblance of "same old, same old," for 60,000- to 80,000-pound crawler excavators today being offered in the marketplace. Among the newest model offerings from the dozen OEMs active in North America, the largest amount of activity is observed in the arrival of short- or reduced-tail-

At the top end of the 60,000- to 80,000-pound crawler excavator range, the Kobelco SK350LC Acera Mark 8 has a Power Boost feature that provides, with no time limitations, 10-percent more power on command for increased bucket force.



At 271 horsepower, JCB's 71,000-pound JS330 model (right), powered by an Isuzu diesel engine, is among the carriers at the very top of the chart when it comes to net engine output among crawler excavators in the 60,000- to 80,000-pound range.



The largest short-swing crawler excavator offering from the company, the 74,230-plus-pound ECR305CL model pushes Volvo's reduced-tail-swing technology into a size range traditionally owned by conventional crawler excavators. Other manufacturers are offering likewise.

swing machines into a size range traditionally covered by the conventional configuration.

Topping out at 64,043 pounds, the 120-horsepower R 924 Compact is described by manufacturer Liebherr as "a full-size excavator in a compact body. It offers the practicality of a minimum-tail-swing excavator (67 inches) while maintaining powerful performance, whether it is working on the side of a highway trying to keep congestion to a minimum or working in the city on narrow busy roads."

Caterpillar likewise brought its compact-swing-radius technology well into the 60,000-pound-plus range with the 76,500-pound 328D LCR model, featuring a tail swing ra-

Cost of Ownership

Machine Weight	List Price	*Hourly Rate
24.1 - 28.0 metric tons	\$251,267	\$96.10
28.1 - 33.0 metric tons	\$303,505	\$110.43
33.1 - 40.0 metric tons	\$345,611	\$127.93

* Hourly rate is the monthly ownership costs divided by 176, plus operating costs. Unit prices used in this calculation are diesel fuel at \$2.79 per gallon, mechanic's wage at \$47.49 per hour, and money costs at 4.875 percent.

Source: EquipmentWatch.com, phone 800/669-3282

dus of 75 inches, "which means that the counterweight extends only a few inches beyond the tracks when reaching over the side. The compact radius design enables the machine to work efficiently in restricted spaces and alongside highway traffic lanes," Cat says. The 328D LCR is the largest of the Caterpillar compact-swing-radius excavators.

And, introduced in early 2009, the 34.8-

Buying File: 60,000- to 80,000-pound Excavators

Crawler-Excavator Specifications (60,000 to 80,000 pounds)

Model	Operating Weight (mt)	Operating Weight (lb.)	Boom Description	Arm Length	Maximum Dig Depth	Engine Make / Model	Net Engine Output (hp)	Tail Swing Radius
Volvo EC240C LR	27.7	61,520	Long Front (Extreme)	25' 9"	47' 0"	Volvo D7E EBE3	168	9' 10"
LBX Link-Belt 240 X2 Long Front	28	61,729	Long Front (Extreme)	26' 3"	47' 9"	Isuzu AH-4HK1X	177	9' 8"
Case CX240B LR	28	61,730	Long Front (Extreme)	26' 3"	47' 9"	Isuzu 4HK1X	177	9' 8"
Caterpillar 324D L Super Long Reach	28.669	63,204	Long Front (Extreme)	25' 9"	47' 11"	Cat C7 ACERT	188	9' 10"
John Deere 270D LC	28.68	63,229	Regular One-Piece	10' 2"	23' 10"	John Deere 6068H	188	9' 7.8"
Hitachi Zaxis 270LC-3	28.77	63,425	Regular One-Piece	12' 4"	25' 11"	Isuzu AH-4HK1XYS A 03	188	9' 7.8"
Hyundai R290NLC-7A	29.098	64,150	Regular One-Piece	10' 0"	24' 7"	Cummins QSB6.7	197	10' 6"
Doosan DX300LC	29.3	64,594	Regular One-Piece	10' 2"	24' 2"	Doosan DL08	197	10' 6"
Hyundai R290LC-7A	29.3	64,600	Regular One-Piece	10' 0"	24' 7"	Cummins QSB6.7	197	10' 6"
Case CX290B	29.8	65,697	Regular One-Piece	10' 6"	23' 4"	Isuzu 6HK1YSS	207	10' 4"
John Deere 270D LC Super Long Front	29.8	65,698	Long Front (Extreme)	25' 10"	47' 4"	John Deere 6068H	188	9' 8"
LBX Link-Belt 290 X2	29.801	65,700	Regular One-Piece	10' 5"	23' 4"	Isuzu AH-6HK1XYSS	207	10' 4"
Caterpillar 329D L	29.8	65,746	Regular One-Piece	10' 6"	23' 11"	Cat C7 ACERT	204	10' 1"
Doosan DX300LC SLR	30	66,140	Long Front (Extreme)	23' 0"	45' 6"	Doosan DL08	197	10' 6"
Volvo EC290C L	30.1	66,390	Regular One-Piece	10' 0"	24' 0"	Volvo D7E EAE3	192	9' 10"
Komatsu PC270LC-8	30.118	66,399	Regular One-Piece	10' 0"	21' 2"	Komatsu SAA6D107E-1	187	9' 8"
Terex TXC 300LC-2	30.2	66,579	Regular One-Piece	10' 2"	24' 2"	Doosan DL08	197	10' 6"
Sany SY310C	30.3	66,799	Regular One-Piece	10' 5.2"	24' 2"	Cummins QSC8.3	260	10' 10"
Kobelco SK295LC Acera Mark 8	30.3	66,800	Regular One-Piece	10' 2"	23' 8"	FPT F4H E9684B*J1	197	9' 9"
Caterpillar 329D L Mass Boom	30.4	67,101	Mass Excavation	8' 2"	20' 1"	Cat C7 ACERT	204	10' 1"
Hyundai R290LC-9	30.46	67,150	Regular One-Piece	10' 0"	24' 7"	Cummins QSB6.7	197	10' 6"
Hyundai R290LC-9 Long Reach	30.46	67,150	Long Front (Extreme)	25' 9"	48' 7"	Cummins QSB6.7	197	10' 3"
JCB JS 290 LC Tier III	30.5	67,215	Regular One-Piece	10' 2"	23' 0"	Isuzu 6HK1X	216	9' 10"
Terex TXC 300LC-2 Super Long Reach	30.9	68,120	Long Front (Extreme)	23' 0"	45' 6"	Doosan DL08	197	10' 6"
Volvo EC290C LR	31.7	69,900	Long Front (Extreme)	25' 11"	48' 5"	Volvo D7E EAE3	192	9' 10"
Liebherr R 934 C	31.91	70,350	Regular One-Piece	10' 2"	22' 8"	Liebherr D934 L	203	10' 4"
Caterpillar 329D L Super Long Reach	32.1	70,833	Long Front (Extreme)	25' 9"	48' 0"	Cat C7 ACERT	204	10' 1"
Hyundai R320LC-7A	32.2	71,000	Regular One-Piece	10' 6"	24' 2"	Cummins QSC	237	10' 11"
JCB JS 330 LC Tier III	32.23	71,052	Regular One-Piece	10' 7"	24' 3"	Isuzu 6HK1X	271	10' 9"
Komatsu PC308USLC-3	32.63	71,938	Regular One-Piece	10' 0"	21' 2"	Komatsu SAA6D107E-1	187	6' 0"
Hyundai R290LC-7 Long Reach	32.86	72,440	Long Front (Extreme)	25' 9"	48' 7"	Cummins QSB5.9-C	197	10' 6"
Kobelco SK290LC Long Reach	33.9	74,733	Long Front (Extreme)	26' 4"	49' 4"	Mitsubishi 6D16-TLEG	190	10' 1"
John Deere 350D LC Super Long Front	34	74,957	Long Front (Extreme)	24' 8"	46' 5"	John Deere 6090H	271	11' 1"
Doosan DX340LC	34.1	75,177	Regular One-Piece	10' 6"	24' 8"	Doosan DL08	247	11' 6"
Terex TXC 340LC-2	34.1	75,178	Regular One-Piece	10' 6"	24' 7"	Doosan DL08	247	11' 5.8"
Caterpillar 328D LCR	34.7	76,500	Regular One-Piece	10' 6"	22' 8"	Cat C7 ACERT	204	6' 2.8"
Volvo ECR305CL	34.895	76,930	Regular One-Piece	10' 0"	22' 10"	Volvo D6E EAE3	192	6' 1"
Hitachi Zaxis 350LC-3	34.909	76,961	Regular One-Piece	10' 6"	24' 3"	Isuzu AH-6HK1XYS A 01	271	11' 1"
Doosan DX350LC	35.2	77,603	Regular One-Piece	10' 6"	24' 7"	Doosan DL08	271	11' 6"
John Deere 350D LC	35.227	77,662	Regular One-Piece	10' 6"	24' 3"	John Deere 6090H	271	11' 0.7"
Komatsu PC300LC-8	35.371	77,980	Regular One-Piece	10' 5"	24' 3"	Komatsu SAA6D114E-3	246	11' 4"
Case CX350B	35.863	79,065	Regular One-Piece	10' 8"	24' 1"	Isuzu AH-6HK1XYSS	271	11' 4"
LBX Link-Belt 350 X2	35.9	79,146	Regular One-Piece	10' 8"	24' 1"	Isuzu AH-6HK1XYSS	271	11' 3"
Volvo EC330C L	36.07	79,530	Regular One-Piece	10' 6"	24' 7"	Volvo D12D EBE3	247	11' 4"
Hyundai R360LC-7A	36.1	79,590	Regular One-Piece	10' 6"	24' 7"	Cummins QSL	271	11' 2.4"
Kobelco SK350LC Acera Mark 8	36.1	79,600	Regular One-Piece	10' 10"	24' 10"	Hino J08E-TM	264	11' 6"
Volvo EC330C L ME	36.156	79,710	Mass Excavation	8' 6"	22' 1"	Volvo D12D EBE3	247	11' 4"
Volvo ECR305CL w/Blade	36.18	79,770	Regular One-Piece	10' 0"	22' 10"	Volvo D6E EAE3	192	6' 1"

Source: Spec-Check.com Xpanded Specs (as of December / 09)




Shown here lifting concrete, the Caterpillar 336D L crawler excavator represents a model designation change. Formerly the 330D, the 336D L now weighs in, depending on configuration, at either side of the 80,000-pound mark. It is classified as the largest “medium” excavator by Caterpillar.

metric-ton ECR305CL is the largest model in Volvo’s short-swing-radius excavator offering, following the introduction of the ECR145CL and ECR235CL less than a year earlier. The ECR305CL “overcomes the dynamic challenges of producing excavators that work with high-performance capabilities and exceptional stability in confined areas,” says Volvo. “Precisely engineered weight distribution and increased swing torque also gives the new machine superior swing performance when working on slopes.” While offering the muscle of a 75,000-pound excavator, the ECR305CL’s body swings only “fractionally” outside its track width – slightly more than 3 inches when equipped with a standard shoe – enabling it for work close to walls or other barriers.

A key when pushing reduced-tail-swing excavators up into larger size classes is to enhance the performance of the larger excavators. Having to give up as much if not more than is being gained would be deemed counterproductive.

“The all-new, rounded cab on Volvo’s short-swing models is designed to stay within the rear swing radius,” says Volvo. “Despite this design consideration, it remains the roomiest and most comfortable cab in the market – as befits Volvo’s reputation for providing excellent operator environments. The sliding door provides the operator with the ability to access and exit the cab even when it is positioned close to an obstruction, such as close to a wall. Whilst at work, the heating and ventilation system ensures the perfect working environment, irrespective of weather conditions.”

While, on the whole, the past two-plus years may not go down as the busiest among new introductions in the 60,000- to 80,000-pound crawler excavator market, the significance of the new models being offered can and should not be underestimated. For a look at what each manufacturer is offering, read Buying File Gallery on Page 42. An overview of attachments specific to these carriers follows on Page 44. 

Gallery of Crawler Excavators

HYUNDAI

Series 9 Machines Boast Larger Cabs

The new Hyundai 9 Series crawler excavators, including the 67,150-pound R290LC-9 introduced in 2009, feature improved engine and hydraulic technologies harnessed by the CAPO computer aided power optimization system. The HI-mate remote management system uses GPS and Internet-based user interface to access critical machine information from anywhere in the world. Including the updated R320LC-9 and newly resized larger R380LC-9 being introduced in 2010, 9 Series excavators boast new, larger, reinforced cabs.

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VOLVO

Company Adds Largest Short-Swing Unit

At a minimum 74,230 pounds, the ECR305CL introduced in 2009 pushes the Volvo range of short-swing crawler excavators up into a size range traditionally owned by conventional crawler excavators. While incorporating the structural design of the conventional EC330C and EC290C models for stability and weight distribution, the ECR305CL can swing its body "fractionally" outside its own track width for work close to objects and within a typical single lane of traffic. New Volvos over 12 metric tons will be standard equipped with telematics and a no-charge, three-year CareTrack subscription.

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CATERPILLAR

Nomenclature Change for Models

While not new models, two of Caterpillar's medium crawler excavators received new designations late in 2008 to reflect increased sizes. The 325D L and 330D L, introduced in 2006, are now the 329D L and 336D L, respectively. The 325D L, originally at about 25 metric tons, had grown to 64,460 pounds. The 336D L, the largest in Caterpillar's medium excavator family, weighs 78,634 pounds in its lightest configuration. The 328D LCR is the largest of Cat's compact swing radius units.

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KOBELCO

Excavators Boast Intelligent Systems

With both of its Acera Mark 8 crawler excavator models in the 60,000- to 80,000-pound range, including the recently introduced 66,800-pound SK295LC, Kobelco America offers a power-boost system that provides 10-percent more bucket breakout force on command without time limits. The Intelligent Total Control System recognizes the SK295LC and SK350LC operator's moves, providing progressive hydraulic power where needed. With the power-mode selection feature, the operator can choose from four modes. The SK295LC has a longer X-frame and heavy-duty boom and arm as standard.

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LIEBHERR

Full Size, Compact Configuration

At 120 horsepower and topping out at 64,043 pounds, the R 924 Compact is "a full-size excavator in a compact body," says Liebherr of its newest addition in the 60,000- to 80,000-pound crawler excavator range. Equipped with the new Liebherr positive control hydraulic system, the R 924 Compact combines the practicality of a minimum-tail-swing excavator with 31,698 pounds of breakout force and 22 feet 4 inches of digging depth. Liebherr also offers the larger R 934 C Litronic conventional model.

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CASE

Building a Case for Fast Cycle Times

Powered by Tier-3-certified, 7.8-liter Case engines rated at 207 and 271 net horsepower, respectively, the CX290B and CX350B crawler excavators call on regenerative hydraulics on the boom and arm, as well as the bucket curl, to speed cycle times when moving dirt. Larger-diameter hydraulic cylinders provide increased breakout forces for the 65,697-pound CX290B and 79,065-pound CX350B. The Case excavators feature a memorized operator adjustment, which automatically adjusts to the last settings selected. For operator comfort, the seat adjusts independently of the joystick controls.

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KOMATSU

New Model Just Arriving on Market

Introduced in late 2009 at an operating weight range of 77,362 to 79,037 pounds, the 246-horsepower PC350LC-8 replaces the PC300LC-8 in the Komatsu crawler excavator family. Equipped with a standard pattern change valve, the PC350LC-8 works a heavy-duty boom to a digging depth of 26 feet 10 inches. It has a rearview monitoring system as standard; a second camera is available. It, as with the PC270LC-8 and short-tail-swing PC308USLC-3, offers Komtrax Web-based satellite monitoring.

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JCB

Undercarriage Churns the Dirt

The undercarriage on JCB crawler excavators, including the JS290 and JS330 models at 68,432 and 73,700 pounds, respectively, features an apex designed side frame with large dirt relief holes below the top rollers. This is to minimize dirt build-up and reduce the risk of the top rollers seizing. Up top, JS excavators have a low hood design providing operator visibility around the machine. Standard cushion control reduces shock during dipper and boom operations. Extra Duty (XD) and Long Reach (LR) versions of the JS260 model also creep up above the 60,000-pound mark.

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JOHN DEERE

Keep Tabs on Cool, Clean Machines

The 270D LC and 350D LC models comprising the John Deere offering in the 60,000- to 80,000-pound crawler excavator range are equipped with the company's telematics fleet monitoring system. Along with the ability to check machine operation times, track locations and set operating restrictions, JDLink can be integrated with assorted office management systems. A hydraulically driven, cool-on-demand fan runs only as needed, reducing noise levels, fuel consumption and operating costs. Perforations in the hood and side shields serve as a "first filter," preventing trash entry into the cooling cores.

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HITACHI

Operators Enjoy Creature Comforts

Sister machines to the John Deere 270D LC and 350D LC, the Hitachi Zaxis ZX270LC-3

and ZX350LC-3 now come with three years of free service on their factory-equipped ZXLink Ultimate telematics equipment monitoring system. For operator comfort, the Hitachi Zaxis CRES II cab is claimed as the largest in its class, boasting increased glass, foot room and a wider seatback. A widescreen color LCD monitor is multilingual and multifunctional. From the seat, the operator can make oil-flow adjustments for attachments, monitor 32 different items, and track maintenance for 14 items.

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DOOSAN INFRACORE

Increased Power, Yet Fuel Efficiency

Comprised of the new DX350 and two variations of the DX300 model, Doosan Infracore's offering in the 60,000- to 80,000-pound crawler excavator range boasts increased production and improved fuel economy thanks to the electronic optimization of the hydraulic system and the new-generation Doosan Tier 3 engine. Greasing intervals have been extended to 250 hours, because of the use of new polymer shims and a new design of bushings used at the boom, arm and bucket locations. An "ergonomically correct" cab design includes a telescoping control stand.

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LBX

Saving on the Fuel Bill

Driven by 271 net horsepower, the new 79,146-pound Link-Belt 350 X2 crawler excavator delivers significant

increases in fuel efficiency, says manufacturer LBX. At about \$2.50 per gallon, fuel costs for the owner of 350 X2 can, says LBX, be anticipated to be \$7,600 less annually versus a competitive machine. An increase in hydraulic horsepower offers improved cycle times, boosting digging, lifting and swing speeds. The cab features 60-percent more glass on the right side, enhancing operator visibility.

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Excavator Attachments

Ajusta-Buckets

By incorporating a “Euro” design, hydraulically tilting excavator buckets are designed to “carve the earth” and allow operators to “quit beating a hole in the ground with a club,” says Ajusta-Buckets. A single attachment, capable of tilting 45 degrees left or right, is capable of cleaning ditches, loading trucks and sculpting the ground. A direct OEM fit available in assorted sizes, the Ajusta-Bucket comes with a standard smooth edge; an optional bolt-on edge is available. Ajusta-Buckets are built in the U.S. by York-Seaway.

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Allied-Gator

“Multi-Tools” by Allied-Gator expand the demolition and material-processing capabilities of excavators, allowing one attachment with different quick-change jaw sets to perform shearing, cracking, crushing and “densifying” tasks. For 60,000- to 80,000-pound carriers, the 4,000-pound MTR 40 is available in a third-member configuration, and the 10,000-pound MTR 50 and 12,500-pound MTR 70 are available in second-member configurations. All 11 MT Series models feature 360-degree continuous rotation and trade-marked Speed Circuit jaws.

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Atlas Copco

Designed to combine powerful crushing forces with short cycle times, Atlas Copco’s BP 2900 bulk pulverizer provides 399 tons of cutting force maximum and 125 tons at the jaw tip. With a service weight of 6,460 pounds, the attachment operates at a maximum pressure of 5,075 pounds per square inch, accepts a maximum hydraulic flow of 92 gallons per minute, and is suitable for carriers in the 50,500- to 77,000-pound weight class. The material separator and demolition tool has an angular design, boasting a jaw opening of 37.4 inches and working width of 18.9 inches.

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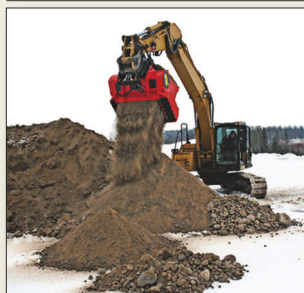


Allied Construction Products

Weighing 5,225 pounds, the Sandvik Model G 88 G-Series hydraulic hammer newly added to the Allied Construction Products line is ideally sized to offer adjustable impact energy for 60,000- to 80,000-pound excavators, says Allied CP. Available in an exclusive silenced CITY model, the G 88 G-Series hammer additionally offers such

operating features as Pro Control, Idle Selector and, to ensure all blows are at full power, Fixed Blow Energy. The hammer body can be rotated 180 degrees in the housing to match the carrier’s right- or left-hand pressure supply.

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Allu

An Allu screening bucket turns an excavator into a mobile fine-screening machine, processing materials up to either five-eighths of an inch or a full inch right at the roadside. The D-Series models have a new stronger frame and outer bucket shell. A dual motor, dual chain drive

and a slower spinning internal rotor speed additionally contribute to longer product life, says the company. A rear-mounted drum system is designed for better protection against dust penetration in the bearings and seals, as well as to provide simpler and faster maintenance.

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Amulet Manufacturing

Available for excavators from 30,000 to 100,000 pounds, G2 PowerClamp hydraulic thumbs from Amulet Manufacturing are designed for use on carriers with or without quick

couplers. The progressive-linkage G2 offers 180 degrees of thumb rotation even when used in conjunction with a quick coupler. An improved curved profile and tooth bar design provides grasping and handling abilities sought after by demolition, infrastructure, construction and land-clearing contractors requiring optimum thumb rotation and material handling, says Amulet.

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Buying File: Attachments

DII Attachments

With a tool diameter of 6.3 inches and operating weight of 5,555 pounds, the Tramac V2500 hydraulic breaker has a back-pressure tolerance of 363 pounds per square inch that allows it to be easily installed on a wide range of carriers. All principal wear parts, including the bushing, are field-replaceable without dismounting the breaker from the carrier or removing any tie rods. As with all Tramac heavy-range V-Series breakers from Doosan-owned DII Attachments, the V2500 uses a blank fire protection feature that prevents metal-to-metal contact that can damage the tool.

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HKX

Described as “a complete attachment control system for excavators,” Active Control Technology (ACT) by HKX Inc. is able to call on multiple attachment settings for high machine flexibility. The ACT system provides advanced control of oil flow, pressure and direction to both attachments and such supporting components as quick couplers, return filters and accumulators, all from an in-cab monitor. With the monitor’s database storing pre-programmed attachment data, the push of a button automatically adjusts the machine’s parameters to match the chosen attachment’s specs.

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Kinshofer

For use with hydraulic breakers and vibrating plates, the Kinshofer NOX tilt rotator system does not require tilt cylinders, “finally making a tilt rotator suitable for standard excavation work and functional in narrow working areas,” says manufacturer Kinshofer North America. Use of an elliptic rotary actuator in place of hydraulic cylinders helps reduce the system’s height, which in turn increases breakout force. Together with the interior gear/worm gear, the rotary system’s integral braking components run in a constant oil bath for reduced required maintenance.

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JRB

The VersaLoc, a patent-pending quick coupler from Paladin Construction Group’s JRB brand, combines the abilities to handle multi-pin spreads and various pin diameters, al-

lowing the excavator user to change out a large variety of attachments in seconds. The lighter coupler is designed to compensate traditional breakout force loss by creating a lower offset. With models for excavators ranging 25,000 to 100,000 pounds in operating weight, the JRB VersaLoc is available with pin spreads ranging up to 24.9 inches. Pin diameters accommodated range to 110 millimeters.

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Hudco

Manufacturing in the U.S. for 30 years, Hudco makes a line of vibratory plate compactors of which the two largest models, the HC40 and HC50, fit excavators in the 60,000- to 80,000-pound range. As well as compacting soil in trenches, foundations or on slopes, Hudco

compactors are able to drive wood, steel sheeting, posts and beams.

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Kenco Corp.

Accommodating slabs ranging from 4 to 20 inches in thickness and fitting excavators ranging up to 150,000 pounds, the Slab Crab bucket from Kenco turns the clean

removal of concrete slabs and bridge decks into a one-man job. The contractor simply cuts the concrete into slabs and, with a Slab Crab-equipped excavator, loads the pieces directly into the truck bed – all without disturbing the sub-base. The Slab Crab is available as either a direct pin-on attachment or to accept the Kenco WedgeBolt coupler system.

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Buying File: Attachments

Lemac

To be used as a downsizing tool for use on excavators working alongside tub grinders or other wood processing machines, the Lemac stump shear is available as a mechanical or hydraulic attachment. With no need for additional hydraulics, the mechanical model pins in place of the bucket and uses the bucket cylinder to power a single blade jaw through the tree stump. The hydraulic model has two ripper spikes with oversized replaceable teeth on the outer jaw, used to pry the stump from the ground. The inner jaw, with its replaceable blade, shears the stump.

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Vacuworx International

A leader in vacuum lifting for field and in-house applications, Vacuworx International offers the RC Series lifters for attachment to various carriers, including excavators.

Handling coated steel pipe, plastic pipe, concrete pipe, flat steel plate and concrete slab, the profiled Vacuworx lifters range from 3 to 20 metric tons and beyond in capacity. Available as RC Series options are hydraulic rotators with horizontal stabilizers, as well as suction pads for various pipe diameters.

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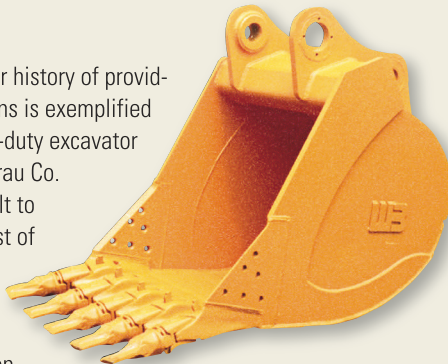


Werk-Brau

The company's 63-year history of providing equipment solutions is exemplified with its line of severe-duty excavator buckets, says Werk-Brau Co.

These buckets are built to withstand the toughest of conditions and to last. With the focus being on improving daily on-site production, Werk-Brau's customization capabilities will meet the needs and applications of the individual operator or the particular job.

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Surestrike

As an option for secondary breaking and rip-rap production, Surestrike hammers use a "simplistic and dependable" solution to deliver up to 75,000 foot-pounds per



blow. The mechanical impact hammers allow excavator operators to effectively break oversize material and demolish concrete without the use of drop balls or hydraulic-powered tools. The cylinder fully extends to raise the impact weight to its highest position, upon which the cylinder closes, causing the weight to freefall onto the striker pin. The full energy of the weight impacts the pin, breaking the material.

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Northshore Manufacturing

A redesigning of the upper head and connecting link allows the hoses on Northshore Manufacturing's Builtrite four-tine orange peel grapples to be re-routed over the top of the carrier's jib, reducing the likelihood of the hoses being torn off during scrap handling. Bolt-on cylinder covers are now standard on the full-sized grapple models. Covers and bolt-on heads are recessed to avoid being



caught on material being handled, and bolt-on access plates on the sides of the tines further keep material free. High-torque rotation motors do not require a case drain line.

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FRD Furukawa

The most popular model in the F-Series hydraulic breaker lineup from FRD Furukawa, formerly Kent Demolition Tools, the KF 22 Qt competes in the 4,000-foot-pound energy impact class. Qt breakers feature a higher back head pressure and larger piston diameter for a claimed 20-percent increase in impact energy over previous models. A patented dust intake prevention system keeps dust from entering the front head during piston upstroke, and a built-in hydraulic safety valve actuates when the carrier exceeds maximum pressure. An automatic greasing system is optional.



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Paving Report

By MIKE ANDERSON, Senior Editor

It's a New Road Ahead for Dynapac Pavers

To be publicly debuted at World of Asphalt, the new highway-class paver line is designed from the road up specifically for North American contractors

Not lost amidst the celebrations of a new product-line launch was one Dynapac dealer's collected reviews of a highway-class asphalt paver designed specifically for the North American market.

Myke Thurman followed up corporate overviews of the new Dynapac F1000T tracked and F1000W wheeled pavers with detailed rundowns of actual commercial and highway jobsite results for a prototype F1000T that his employer, Salt Lake City-based Cate Equipment, had put out to work throughout its highly variable coverage area. Paving in a high desert region comprised of Nevada, Utah, Idaho and Wyoming means dealing with a combination of high elevations, wild ambient temperature swings and nil to minimal humidity. "If it'll work there, it'll work anywhere," according to Thurman.

With the largest contingent on hand for the product launch Dec. 9 in Garland, Texas, comprised of dealers, Thurman's presentation resonated. When the 10-foot-wide-class F1000 units were physically unwrapped shortly afterward, it didn't take long for the climbing aboard and operating of the machines to heat up, even in the face of freezing temperatures fueled by biting winds.

The first two models of the new Dynapac highway-class paver product line, the F1000T and F1000W will make their "official" debut at the World of Asphalt show in Cincinnati in February; 8-foot-class machines will follow in 2011.

The asphalt-paver design features an outboard auger drive and conveyor system, which eliminates the auger chain drive box and, thus, leaves no center line segregation in the asphalt. The F1000's conveyor system delivers up to 600 tons per hour of asphalt to either a Carlson EZ III or EZ IV screed for the laying of mats up to 12 inches in depth on new placements, or thin overlays on rehab jobs.

A low deck height – claimed to be the lowest in the industry – is combined with dual swing-out operator stations to provide a clear view of the hopper, auger and work area from up top. George Platt, Dynapac USA's vice president of pavers and planers, terms it a "clean-sheet design."

The F1000 pavers are powered by Tier-3-certified Cummins QSB 220 diesel engines putting out 230 horsepower at 1,800 rpm, and are driven by integrated Sauer systems. The availability of these and other parts throughout the North American market means quick maintenance and repair, stresses Dynapac.



With a helping hand from Dynapac field service technician Charlie Yingling, Atlas Copco Road Construction Equipment Division president Claes Ahrengart takes to the operator's seat of the new F1000T asphalt paver, part of a new highway-class paver product line designed specifically for the North American market.

"Nothing will work unless you have parts and service," emphasizes Claes Ahrengart, president of Atlas Copco Road Construction Equipment Division.

"This product is American made," says Bruce Truesdale, president of Dynapac USA, whose European-based parent has committed to the Dynapac brand established in road building, although the Dynapac sales organization is being integrated into Atlas Copco. "You're going to have all the tools at your fingertips to support the product."

No daily lubrication of the tractor is required, and two fuel tanks at ground level allow for quick refueling. A single side panel provides access to filters, and flip-open doors and a removable top cover gain access to the engine and hydraulic lines.

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JOHN DEERE

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By KATIE WEILER, Managing Editor

Deere Customers Help Shape D-Series Loaders

New skid steer and compact track loaders feature a host of improvements stemming from end-user input

Upon visiting John Deere Construction's Web site, you'll be entertained by a virtual skid steer sitting inside a suggestion box, complete with interactive notes to click on and see what customers asked for in the way of improvements for Deere's skid steers and CTLs. The company says the product launch results from years of research and partnering with skid-steer owners and operators from around the world.

"We've listened to what customers told us they wanted in skid steer and compact track loaders, and we've responded with nine new models that incorporate their suggestions," says Gregg Zupancic, Deere product marketing manager for the products.

New skid steers include the following models: 318D, 320D, 326D, 328D and 332D, with net-horsepower ratings of 58 to 89; rated operating loads from 1,800 to 3,200 pounds; and tipping loads from 3,600 to 6,400 pounds. The new 319D, 323D, 329D and 333D compact track loaders have a horsepower range of 58 to 89 and rated operating capacity of 1,900 to 3,300 pounds. CTL tipping loads range from 5,600 to 9,425 pounds.

According to Deere, one of the most dramatic differences in the D-Series is the cab. Customers asked for larger, more comfortable cabs, and Deere answered with 24 percent more room overall and 6 more inches of headroom than predecessor machines. The cabs also offer a 50-percent noise reduction inside and out resulting not only from improved sound absorption, but also a hydraulic fan drive, auto-idle feature, and new electronically controlled Tier 3/interim Tier 4 PowerTechE diesel engines. Deere claims best-in-class visibility as well, with 100-percent more front glass and 50-percent larger top window and lower side windows. In addition, HVAC directs 50 percent more air flow and 30 percent more heat for improved operator comfort.

Three choices of controls are available on all D-Series machines. Foot controls come standard. Operators can also choose optional hands-only levers or electro hydraulic joy-



D-Series cabs are larger and more comfortable than predecessor machines, with increased visibility, improved HVAC system, larger door opening and quieter operation.

sticks for steering, forward/reverse, and boom/bucket functions. Optional EH (electro hydraulic) Performance Package includes switchable controls from ISO to H pattern; creeper mode, allowing the operator to set wheel/track speed in 10-percent increments of top speed; and boom and bucket metering, with three settings.

Other options include reversing hydraulic fan, which works with a computer program that monitors engine and hydraulic fluid temperatures to increase or decrease fan speed as necessary. The V-Plenum cooling system sports aluminum coolers that are larger, taller and positioned side by side. They are protected from air-blown debris damage because the fan is rearward of coolers, Deere says.

Despite all the changes, D-Series units have retained many of the productivity features of the 300 Series such as planetary gear drives on the CTLs, "industry-leading" bucket roll-back and dump angles, and ease of maintenance.

Retail prices for the line range from \$20,000 to \$60,000. Visit ConstructionEquipment.com/info and enter 182



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Market Watch Lite

By KATIE WEILER, Managing Editor

Access our online reader response form at ConstructionEquipment.com/info. Just key in the issue date and make your selections. Subscribe to our monthly eNewsletter at ConstructionEquipment.com/subscribe.asp.

▶ E-Z Drill

Compatible with most skid steers and compact track loaders, the Model 210 Twin Vertical concrete drill attachment from E-Z Drill incorporates two adjustable vertical drills in a non-hydraulic system designed for pulling patches, slab-jacking or under-sealing. The completely pneumatic system requires a minimum of 260 cubic feet per minute of air flow to drill holes ranging from 0.75 to 2.5 inches in diameter to depths of 17 inches.

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▶ McLaughlin

The ON Target auger boring system's steering head allows underground contractors to not only control horizontal directional changes, but also lateral directional changes. The steering head's cutting path – both grade and lateral movement – is controlled by hydraulic-actuated panels that open and close to keep the head on the intended path. A control station features a hydraulic power pack to control the movement of the steering head, and a built-in water level monitors grade throughout the bore.

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▶ Miller Electric

The Filtair 130 welding fume extractor from Miller Electric is designed to capture particles down to 0.1 micron. This, says Miller, is compared to units on the market that only capture particles 0.4 microns and larger. About 90 percent of welding fumes are between 0.1 and 0.4 microns, the company says. Filtering up to 132 cubic feet per minute at a noise level of just 68.5 decibels, the Filtair 130 comes standard with an 8-foot collection hose; 17- and 34-foot hoses are available as options.

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▶ CEAttachments

CEAttachments did away with the front caster wheels and added a bumper so its new Edge Hopper Brooms for skid steer loaders can work up close to objects. The bolt-on motor is now featured with a protection guard, and quick-change broom sections allow

for easy replacement. These single-motor brooms are available in 60-, 72- and 84-inch widths and come complete with hoses and couplers as well as a bolt-on cutting edge.

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▶ Trimble

An automatic three-dimensional extension of Trimble's PCS400 paving control system, a new PCS900 paving screed control system added to the paver allows the contractor to switch from two-dimensional grade and slope mode to 3D mode. A combination of the PCS400 and PCS900 systems provides a choice between sonic sensors, slope sensor, sonic average beam, 3D slope and 3D elevation control on each side of the screed.

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Market Watch Lite

Kinshofer

The Kinshofer NOX tilt/rotator system has no tilt cylinders, making it suitable for standard excavation work and small enough for narrow working areas. An elliptic rotary actuator replaces hydraulic cylinders to create the tilting action. Kinshofer says the actuator also makes the coupler 15 to 20 percent smaller than other tilt/rotators, which preserves more of the backhoe's original bucket breakout force.

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Griffin

Griffin nonclog pumps have an impeller capable of handling stringy materials and solids up to 4.5 inches, the company says. A large clean-out port allows for removal of debris larger than 4.5 inches without removing suction pipe or hose. Pumps can deliver more than 17,000 gpm at head capacities of 240 feet or more. Pumps come with electric or diesel engines, with internal fuel tanks for 24-hour operation on most models.

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CEAttachments

Two new Mini Backhoes for skid steers extend the Edge line for digging deeper trenches and footings. The Fixed Mini Backhoe digs 73 inches deep with overall reach of 75 inches and bucket dig force of 3,895 pounds. The Edge Mini Backhoe with Swing features in-cab electric controls, a cushioned swing cylinder for 140 degrees of smooth rotation, and improved bucket breakout force. This model has 76 inches of digging depth with a 78-inch reach and 3,800 pounds of digging force.

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BLS

BLS introduces 10- and 12-inch versions of the Tufpads Hightop track pads designed to last 25- to 50-percent longer than standard poly bolt-on track pads. The 14-inch Hightop, originally designed for the Wirtgen W 2200 milling machine, has been used on Roadtec, Caterpillar and other Wirtgen models. The new 10-inch pad can be used on the Roadtec RX-400 and Wirtgen W 1200, W 1900 and W 120 milling machines; the 12-inch variety is for the Roadtec RX-500, Wirtgen W 2000 and Volvo MT2000 machine models.

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Trimble

Trimble expanded the mix of machines supported by the GCS900 system to include milling machines to save material and improve smoothness in repaving. The new configuration allows contractors to implement total station-based



machine control technology across more machines in their fleet. Using Trimble GCS900, contractors can now port their machine control positioning system components between dozers, graders, excavators, soil compactors, trimmers, and milling machines.

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ESAB

ESAB's 151i and 201i Caddy Arc welding devices run on a single-phase DC/CC power supply, and have an adjustable arc force that sets the intensity of the arc to ensure weld quality. The machines are encased in a polymer/aluminum shell that is lightweight and easy to carry. Other features include an adjustable hot start that reduces starting problems, and large heat sinks to cool down the machine in harsh working environments.

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Trimble

Trimble Spectra Precision Laser DDS300 Depth Display System is for backhoe-loaders, mini-excavators and smaller excavators. Laser and angle sensors provide real-time position information for the bucket. Wireless connectivity between the sensors on the boom and the in-cab control box eliminate cables, reducing install time.

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Giti Tire

Designed for heavy front axles, Giti's GT876 Wide-Base Radial is suited for on/off highway service and heavy-haul applications. The Chinese tire maker uses an aggressive, deep tread design for traction and long life. The GT876 is available in 385/65R22.5 18PR, 425/65R22.5 20PR, and 445/65R22.5 20PR sizes.

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Radmeister

Radmeister says the unique hexagonal bar in its over-the-tire (OTT) steel tracks for skid steer loaders delivers superior grip and traction in wet and icy conditions. The hexagon pattern on the side-bars is credited with helping keep the tracks on even when working on side slopes. The heat-treated steel tracks are rebuildable, allowing links or sections to be replaced, which can help reduce operating costs. Over-the-tire tracks shield tires from major cuts.

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Market Watch Lite



◀ Jenny

Four new models of belt-drive cold pressure washers with ratings of between 3,000 and 4,000 pounds per square inch have been introduced. With flow rates varying between 3 and 4 gpm, the pressure washers are powered by 9- to 13-horsepower Honda GX Series engines and feature triplex ceramic pump pumps. Designed for heavy use, belt-drive pressure washers provide longer pump life than direct-drive units due to the pulley system which turns the pump significantly slower than an engine crankshaft, says Jenny.

pressure washers provide longer pump life than direct-drive units due to the pulley system which turns the pump significantly slower than an engine crankshaft, says Jenny.

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▶ Ditch Witch

Ditch Witch replaced its RT40 trencher with the Tier 4-Interim-compliant release of the new RT45 for cutting 4- to 5-foot trenches. The RT45 runs the same sized trencher, but at 39 horsepower, its Deutz F3M2011 engine gives up about 8 percent of the power of the RT40. The 4,200-pound basic unit weight is about 600 pounds lighter than the predecessor. The RT45 offers a choice of attachments, including a centerline or dual-position trencher, vibratory plow, rotary saw, combination trencher/plow, and backhoe.

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◀ Caterpillar

Creating an automated grading system, a laser-based AccuGrade product specifically for Cat C-Series compact loaders combines the capabilities of the Level Best grading box with the C-Series integral electro-hydraulic controls. For use on the current Cat skid steer

loaders, and multi-terrain and compact track loaders, the new system establishes flat or single-slope grades to within 0.25 inches without grade stakes or the expense of grade checkers, says the company.

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▶ Teupen

German aerial-lift manufacturer Teupen introduced to North America its latest model, the electric LE013GT articulating boom aerial work platform, with working heights from 12 to 42 feet. In travel position, the tracked machine is just 30 inches wide and 78 inches high. It weighs 3,087 pounds. The two-person basket with 441 pounds of capacity offers 20 feet of side reach. Operators can work the machine from inside the basket or use the detachable remote control.

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Trimble

To be used with Trimble's range of site-positioning and grade-control products, a free Web-downloadable software extension allows information from Autodesk's AutoCAD Civil 3D model to be directly imported into the Trimble Business Center-Heavy Construction Edition data management software. Minimizing the need to recreate design information cuts data preparation time and supports the faster delivery of design updates, which is a regular occurrence on highway projects, says Trimble. To download the AutoCAD Civil 3D Importer, visit www.autodesk.com/civil3d-trimble or www.trimble.com/tbc-hce

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▼ Allmand Bros.

The Maxi-Lite EX Series of light towers from Allmand Bros. comes standard with the company's V-Series vertical



light tower configuration. With the vertical configuration, the mast on Allmand's updated light towers will vertically telescope and retract — in

less than 30 seconds — from its own housing. With up to 40 kilo-

watts of power, the light tower provides 150,000 lumens per lamp.

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◀ Dust Control Technology

A 180-degree oscillation option effectively quadruples the coverage area of each of its two largest dust-suppression machines, the company says. The optioned-out flagship DustBoss DB-60 model will be able to deliver particle control over more than 80,000 square feet; the DB-45 covers more than 40,000 square feet with its dust-trapping mist. Users will be able to select from 45-, 90-, 135- and 180-degree oscillation settings.

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▶ Vacuworx

A new smaller size of vacuum lifting attachment from Vacuworx opens up the use of the self-contained lifter to a host of new carriers, the company says. At a dry weight of 900 pounds, the MC 3 with its three-ton lifting capacity can be used on compact excavators, forklifts, wheel loaders, cranes and boom trucks to lift tubular products, as well as steel plate, concrete slab and even landscape rock. The Vacuworx MC 3 comes with a wireless remote control.

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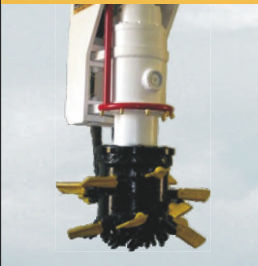
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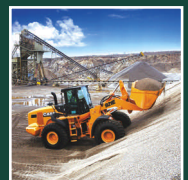
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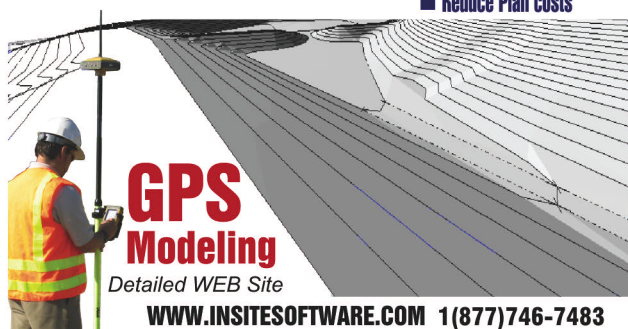
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Media Sales Contacts

Reed Business Information, 2000 Clearwater Dr., Oak Brook, IL 60523; Fax: 630/288-8185

General Manager –
Construction Media
Dean Horowitz, 630/288-8180
dhorowitz@reedbusiness.com

Group Director – Sales/
Business Development
Tony Mancini, 610/688-5553
armancini@reedbusiness.com

Director – E-media Solutions
Shannon Wasiolek, 630/288-7963
shannon.wasiolek@reedbusiness.com

Midwest Region

Director – Midwest Region
Rick Blesi, 630/288-8140
rblesi@reedbusiness.com

Key Accounts – Integrated Sales
Mary Adee, 630/288-8134
madee@reedbusiness.com
States: AR, IA, IN, KS, LA, MO, ND, NE, OK, SD, WI

Key Accounts – Integrated Sales
Tim Gillerlain, 630/288-8168
tim.gillerlain@reedbusiness.com
States: IL, KY, MN, OH, TN, WV

Eastern Region

Director – Eastern Region
Dan Colunio, 781/734-8360
dcolunio@reedbusiness.com

Key Accounts – Integrated Sales
Adam Grubb, 317/913-1608
adam.grubb@reedbusiness.com
States: CT, MA, ME, NH, NJ, NY, PA, RI, VT, Eastern Canada

Key Accounts – Integrated Sales
John Huff, 630/288-8189
john.huff@reedbusiness.com
States: AL, DC, DE, FL, GA, MD, MS, NC, SC, VA

Western Region

Director – Western Region
Jeff Elliott, 616/846-4633
jelliott@reedbusiness.com

Key Accounts – Integrated Sales
Mike Ostrowski, 630/288-8139
michael.ostrowski@reedbusiness.com
States: AK, CA, HI, OR, WA, Western Canada

Key Accounts – Integrated Sales
Brian Grohe, 630/288-8159
brian.grohe@reedbusiness.com
States: AZ, CO, ID, MT, NM, NV, TX, UT, WY

Product Specialists – Integrated Sales

Rob Bertrand, 630/288-8615
rob.bertrand@reedbusiness.com

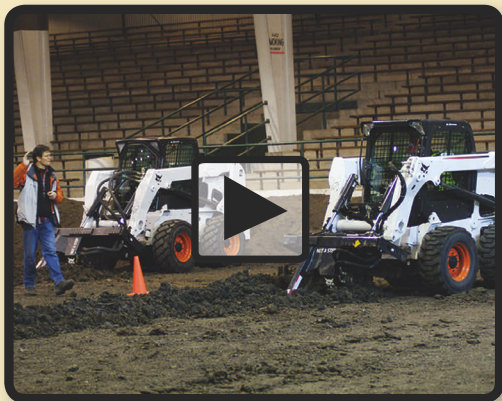
Brian Grohe, 630/288-8159
brian.grohe@reedbusiness.com

Jan Varnes, 630/288-8143
jan.varnes@reedbusiness.com

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Watch Bobcat's S630 Skid Steer Take on Bigger Brother

Last summer, Bobcat introduced the S630 M-Series skid steer loader. *Construction Equipment* has since put it through its paces in a recent Field Test.

Bobcat claims the S630 boasts improved visibility, instrumentation and hydraulic efficiency to help it to overcome a high-flow horsepower disadvantage and match the larger S220.

Which loader performed better in *Construction Equipment's* tests? Watch the video field test, compare in-depth specs, and learn about each machine's features at ConstructionEquipment.com/digest.

What New Equipment Will 2010 Bring?

Construction Equipment was able to get a sneak preview of new products that will be unveiled at this year's Bauma, the triennial construction-machinery trade show held in Munich, Germany. Find out what products may be coming to dealers near you in 2010.

High-Speed Grading with a Dozer?

Topcon's 3D-MC² machine control system uses GPS in addition to new sensor technology — a combination of inertial sensors and gyros — that calculates and updates such information as blade tilt, machine position in every direction, and instant change in direction, at a rate 10 times quicker. The result is what Topcon has touted as an increase of 200 percent or more in smooth grading speed for dozers.



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