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Cover photo: George Pfoertner ©

FEATURES

EXCLUSIVE REPORT

28 Top 100 New Products of 2007

Construction Equipment editors choose the 100 most significant product introductions of the year. In evaluating these products, we look for advances in technology, new product lines, significant improvements to existing products, or a product that increases competition in its field. To locate specific product categories, see the following page numbers below or check the index on page 72.

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MAINTENANCE MANAGEMENT

74 Electrical Troubleshooting: Slow Down to Speed up

Troubleshooting is a brain game — not a wrench-turning, meter-reading, parts-changing game. Too many technicians start out with hasty, incorrect assumptions; they're doomed to fail before they start. But take heart; it's a situation that can be reversed by exercising certain basic skills.

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Open Communications

The *Construction Equipment* Top 100 selection process reviews all the year's new equipment. A glance through the Ancillary Products section reveals a trend specific to one of our four judging criteria: advances in technology. Machine-control technology has proven itself among earthmovers, but 2007 is the year these technologies moved into other machines and applications, most notably paving, compaction and trenching. You can read about these on pages 64-70 in this month's report.

What leads us to believe that machine-control technology has broken out, though, are two related events. One was the recent announcement by an equipment manufacturer, the other was a move by equipment managers.

Rod Sutton, **Editor in Chief**

We welcome your comments.
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In early November, Caterpillar appointed a vice president to head a new group, the Electronics & Connected Worksite Division, to address "the fast-developing areas of machine control and guidance, product health and asset management." It expands beyond machine control and incorporates the electronic reporting of component health and machine data.

This is good news for Caterpillar fleets, as these technologies bring tremendous tools to the equipment manager in terms of monitoring not only component and machine health, but also in terms of making important decisions regarding acquisition, repair and disposal.

But few fleets are homogenous, and equipment managers are frustrated because none of the branded machine technology speaks the same language. The Association of Equipment Management Professionals (AEMP) recently formed a task force of end-users to address the issue. Executive director Stan Orr says the task force will identify key machine information that needs to be commonly expressed. AEMP will then turn to its OEM associates to begin discussing how to bring commonality to asset-management communication.

We think AEMP is taking the right tack to achieve this goal. We appreciate the proprietary nature of OEM machine-management technology, but end-users need a common language. It's time to open communications so fleets can collect data in a manner as efficient as the technology itself.

Rod

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p.16

MARKET WATCH

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.

Ditch Witch

Zahn family of compact trenchers includes three power units and multiple front ends, which integrate into the power units to provide an articulated machine with "unmatched" ground speed, the company says. R150, R230 and R300 are 15-, 23- and 30-horsepower units, respectively, featuring two-wheel drive and two trencher options. The two larger models also have InterChange counterparts that accept a variety of front ends and provide four-wheel-drive operation. Front ends include plow, dumper, tiller, backhoe, stump grinder, as well as a tool carrier that can drive more than 40 quick-change attachments.

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Vermeer

The S400TX mini skid-steer has a 23-horsepower Kohler gas engine and easy-to-operate controls. Two joysticks are integrated within a hand-grip bar and control transport and boom/bucket motion. Track undercarriage has high-mount sprocket drive with a standard 7-inch rubber track, with 3.8 psi ground pressure. Measuring 76.5x34.5 inches, the unit weighs 1,950 pounds. Hydraulic flow is 11.5 gpm, operating capacity is 500 pounds, and maximum lifting height reaches 69 inches.

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Caterpillar

Filling a gap in the company's wheel-loader offering, Caterpillar has rolled out a totally new model. With a 25-ton loader capacity, the 993K matches with the Cat 777 and 785 off-highway trucks. It is built on an all-new platform, featuring Z-bar linkage, that provides 20 percent more breakout force than the 992G, the previous generation's next size class down. As compared to the Cat 3508B engine used in previous mining loaders, the 950-net-horsepower C32 ACERT engine delivers 19 percent more power and a 5 percent increase in fuel efficiency.

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Market Watch

Rocksaw

The RSMM1500-D10 Rock Miner is Rocksaw's first production rock-mining machine, designed for a variety of applications in the rock-mining, road-construction, and concrete-recycling industries. The Rock Miner weighs 200 tons, is powered by a 1,500-horsepower Caterpillar diesel engine, and has a production capacity of 500 to 750 tph, depending on the material being excavated. The machine's standard cutting arrangement produces material of 6-inch-minus size. Changing the arrangement of the cutting teeth results in material that is larger or smaller.

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Vermeer and McLaughlin

Billed as a low-cost vacuum excavator system capable of hydro-excavation and retrieving wet and dry spoil, the Vermeer and McLaughlin V250 features a 575-cfm blower and an exclusive three-stage filtration system. For ease of transport, it comes with a tandem axle, 7,000-pound GVWR trailer with electric brakes on each axle. Dual 50-gallon, fresh-water saddle tanks are positioned over the axle for better towing and decreased tongue load.

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Bil-Jax

Originally identified as the SLT-3632T, the self-propelled boom lift is now designated the 36XT and represents the first offering in a series of X-Boom machines. X-Booms are designed to match industry standards for gradeability, platform height, outreach, four-wheel-drive speed and maneuverability, but will be lighter and less expensive than conventional self-propelled boom lifts. The new model has a working height of 43 feet 6 inches.

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Bobcat

The Bobcat T320 compact track loader is a vertical-lift-path model with a rated operating capacity of 3,200 pounds. Standard hydraulic flow is 21.2 gpm, but an optional high-flow system boosts that to 37 gpm. The new model has a lift height of 10 feet 9 inches, and its 18-inch-wide rubber tracks reduce ground pressure to 4.2 psi.

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Stellar

Stellar 902 tire-service body is built with an extruded aluminum plank floor. The body weighs 960 pounds, so it can be used on a single rear-wheel chassis. Dimensions are 64 inches high, 79 inches wide, and 109 inches long. It can carry up to 10 truck tires. An air compressor is included, covered by a heavy-duty bulkhead that protects it from the elements and shifting loads.

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Market Watch

Grove

The 40-ton-capacity RT540E has a 102-foot, four-section boom and an offsettable telescopic swing-away jib that can reach 154 feet. Other features include a 5-ton counterweight, load moment, and anti-two block system. Dual-axis electric joysticks help reduce heat in the new, all-steel cab.

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Terex

Designed for the rental industry, the HFT 70RS trailer comes standard with an automatic hydraulic tail lock system. At a width of 102 inches, the main deck is 29 feet 5 inches in length, and is joined by the additional 9 and 10 feet, respectively, of the gooseneck deck and extended hydraulic ramp. The tail section provides ample ramp length for an easy loading slope with a total length of 14 feet 6 inches. Specifically, the folding tail flips out and lowers to the ground and creates a 6-degree break-over angle, which allows equipment to drive onto the main deck without using a winch.

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Astec

Astec updated its 660 Series II ride-on trencher with a John Deere 5050 four-cylinder diesel. The 75-horsepower machine has a small footprint, says Astec, measuring 91.5 inches high, 98.8 inches long and 70 inches wide. The machine trenches up to 72 inches deep at a width from 6 to 16 inches.

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Case

DV-Series tandem-drum vibratory rollers have been upgraded to include more powerful Tier-3-compliant engines that range in horsepower from 31 to 48. Featuring dual frequency and hydrostatic drive, the DV-Series includes models DV201, DV202 and DV204, which range in operating weight from 5,510 to 7,720 pounds, and in drum width from 39.4 to 51.2 inches.

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Up-N-Atom

Retriever truck body can load and unload a piece of equipment without the truck's engine having to idle because its folding ramp operates on the chassis' compressed air system, not hydraulics. This keeps the truck and its operator in compliance with state and local anti-idling laws aimed at reducing air pollution from engine fumes, says the manufacturer. The system includes a 60-gallon tank that is pumped to 120 psi, which is enough to load and unload a 30,000-pound piece of equipment.

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Caterpillar

A new fuel-management system on the 988H wheel loader boasts a fuel-savings advantage of up to 15 percent compared to the 988 machines without the system. Three different operating modes are available — full power, balanced or max fuel savings. Designed more for production, not fuel efficiency, full-power mode maintains the machine's full 2,120 rpm power. When in balanced power mode, the machine is set at 1,800 rpm for out-of-dig segments, also offering full power (2,120 rpm) in dig segments. Max fuel savings puts the machine into a 1,700-rpm range and reduces pump flow while outside the dig segment, also offering full rpm and pump flow in dig segments. A retrofit kit is available for all machines manufactured prior to June 2007.

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INDUSTRY NEWS

AEM and OSHA Form Forklift-Safety Alliance

The Association of Equipment Manufacturers (AEM) and the Occupational Safety and Health Administration (OSHA) have formed an alliance to provide training that will target rough-terrain forklifts, including telehandlers and straight-mast forklifts. The training will focus on potential operating hazards, such as ground conditions, machine mobility, overloading, and the use of these machines for lifting personnel. The overall intent of the alliance is to reduce workplace hazards for operators and other jobsite workers. Materials developed as a result of the alliance will be made available in multiple languages, including Spanish.

On Oct. 1, 2007, Edwin G. Foulke, Jr., assistant secretary of labor (left), and Dennis Slater, AEM president, signed the new Alliance regarding forklift safety.

AEM and OSHA also have pledged to work together to promote a national dialog on workplace safety and health by convening or participating in forums, round-table discussions or stakeholder meetings on workplace hazards, including those associated with operating rough-terrain forklifts. Implementation teams, consisting of representatives from AEM, its members and OSHA, will develop the goals of the alliance under the direction of AEM's Manufacturers of Rough Terrain Forklifts Council.

MANAGEMENT TIPS

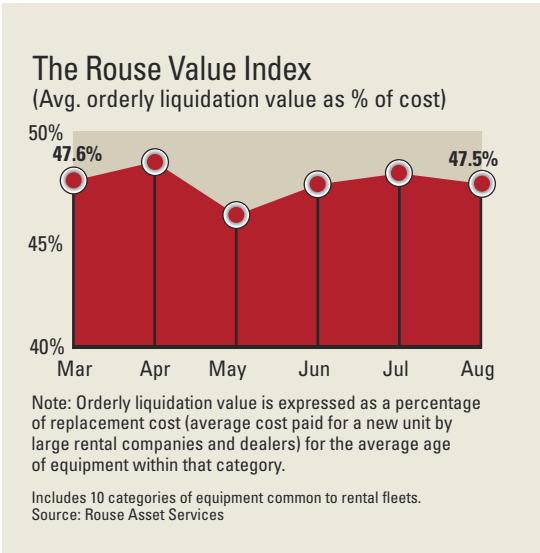
DPL Users Save on Insurance

DPL America, a marketer of telematic theft-prevention systems, has engineered the industry's first insurance-reduction program for users of GPS-based asset-tracking technology. Companies that use DPL's Titan Equipment Monitoring System qualify for premium reductions ranging from 20 to 40 percent below industry standard rates, depending on their fleet-replacement value. It is underwritten by an A M Best "A" rated insurance carrier and administered through Benion-Taylor Insurance. The patent-pending program applies to all equipment owners, and policy coverage is equal to that of any existing inland marine policy.

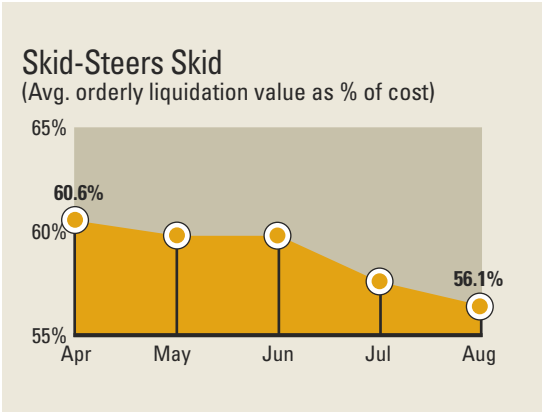
"Titan is the only system available with so many layers of theft protection and a flawless track record of success in both preventing theft as well as recovering stolen equipment," said Joe Fox, senior account executive for Benion-Taylor, "which is why this program applies exclusively to the Titan Equipment Monitoring System."

USED EQUIPMENT

Equipment Values Stay Level



Values for used equipment across the major rental categories are down 0.4 percent in August, compared to July, but sill up 1.1 percent over the past six months. Although most categories were negative, boom lifts posted slight increases. Wheel loaders posted a sixth consecutive monthly value increase, for a total 11.1 percent gain over February values.



Skid-steers continue to drop from a peak of 60.6 percent in April, falling 4.5 percent from February. Average selling age is 70 months.

READER RESPONSE

Vorster Is "Dead On"

"Equipment Executive" is one of the best series of equipment articles published. "Actions Speak Louder than Budgets" (November) is absolutely dead on. Managers that study, understand, and skillfully balance the functions mentioned are proactive and measure results over equipment lifecycles and productivity outcomes. Knowing when and where to increase spending on inspections and periodic maintenance, to provide for the uninterrupted use of safe and reliable equipment, is as important as how to control the cost of the methods. The score, the unit cost at the end of the span of jobs, is a result of decisions made before and during the life and operation cycle.

"Keep your eye on the ball" is well put. That comes back to the coach. Mike Vorster has contributed 50 value-packed articles on how to do and measure it. I look forward to each one and thank Mike for his contributions.

— Bruce Prentice, via ConstructionEquipment.com

INDUSTRY NEWS

Wallace Rates Bristol's Concrete a "10"

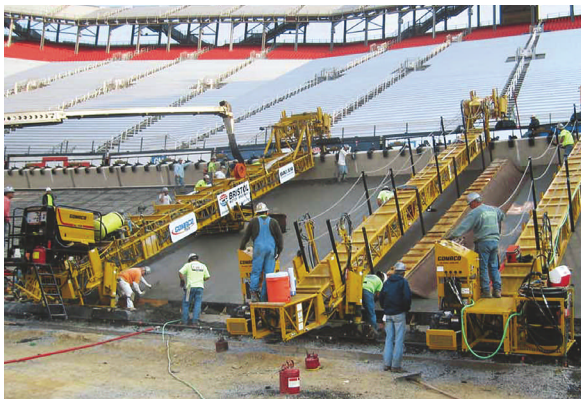
Late one July afternoon, Bristol Motor Speedway (BMS) president Jeff Byrd received a surprise call from Rusty Wallace. The nine-time winner at the World's Fastest Half-Mile was in the neighborhood and stopped by to take a spin on the new concrete surface. Wallace, a former NASCAR Nextel Cup champion, ripped off lap after lap in the BMS pace car at speeds around 95 mph.

"On a scale of 1 to 10, what do I think? It's a 10," Wallace said.

"I love the transition. The straightaways are so smooth. It's a little bumpy in the corners but it's got character and you've got to have character. It's going to be faster, yeah. And there's going to be side-by-side racing. If at some point you don't see 'em three wide . . . I'll be really surprised.

"I was a little worried about how this was going to turn out but I tell you, these guys did an unbelievable job."

"I've been through a lot of these (resurfacing) at different places," Wallace said. "This ranks right up there at the top. I don't know how these (Nextel Cup) guys can't love this. It's so, so much better. Man, it's really good."



Baker Concrete Construction, Monroe, Ohio, paves the .533-mile, high-banked oval racetrack at Bristol Motor Speedway.

Former NASCAR Nextel Cup champion, Rusty Wallace, borrows the Bristol Motor Speedway pace car to be the first to run some hot laps on the new surface.

SAFETY NEWS

AEM Develops Buried-Hazard Guidelines

The reality for concrete contractors today is that buried hazards not only exist, but must be worked around.

To help, the Association of Equipment Manufacturers (AEM) developed Best Practice Guidelines for Addressing Buried Hazards. The guidelines document was prepared by AEM's Masonry and Concrete Saw Manufacturers Institute. The group also has a working relationship with the Concrete Sawing and Drilling Association.

The guidelines are presented in an easy-to-understand "tips" format that covers locating and disabling a variety of hazards.

Even after all proper preparation work to mitigate an accident is done, there is no guarantee that one will not occur. The guidelines, therefore, also discuss implementation of a well-rehearsed response plan.

SUPPLIER NEWS

Cat Rental Stores Go 'Smart'

To streamline aftermarket product support and procurement, Cat Rental Stores will adopt SmartEquip's SmartPortal electronic technology. Using the SmartEquip network, companies participating in Caterpillar's allied vendor program will provide Cat Rental Stores with parts identification and ordering capabilities in real time; the ability to order equipment electronically; self-updating, interactive service support; and a standardized warranty submission process. The result is a shared platform designed to drive service and purchasing efficiencies for both Cat Rental Stores and their vendors.

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What Makes a Good Dozer?

User #1: Brute power that comes on quick, yet with some finesse in tractor balance and feel. Good view with minimum blockage. Creature comforts in a fully enclosed and tight cab, easy to use controls with good feeling. Minimum instruments and dashboard size. Easy to enter and exit cab. Easy to check vital fluids. Quiet.

User #2: Is the machine built to efficiently do the job for which it is intended? Can it be easily maintained? Parts availability. I don't consider price to be a criteria. If you need a machine for a specific purpose, you will pay the price for the machine that will most efficiently serve that purpose.

User #3: It has to be reliable more than pretty. It has to be efficient and accomplish its task using the least amount of fuel possible. It has to accomplish its task at a speed that will allow a profit. If there are electronics on the machine, the diagnostics should be available, "on the machine."

I am far more concerned about the safety of all personnel than I am about how comfortable they are.

User #4: Price versus condition if it is used. I don't want to spend big bucks for something that will need all major drive train and hydraulic components rebuilt in the first month you buy it. For a new machine, I'd want good dealer support and the best deal.

User #5: Sized for the project at hand. Let the machine work all day, not the operator. Serviceability, just being able to get at filters and such easily is very nice. When they break down (and they will), your dealer does what it needs to to get you back runnning in a timely fashion.

User #6: Ownership/operating costs: What are the costs of the parts you will eventually need and what is the reliability of the machine? I have found that the price for filters and wear items can vary tremendously between manufacturers. What I like to do when I am considering purchasing a machine is to pick a few parts/components that could need to be replaced during the operating life and go to the parts counter and price them out.

Resale value: What is your hunk of yellow scrap iron going to be worth when you decide to dispose/trade in? Everyone is different on how long they will run a machine and whether to buy new or used. Regardless, you are purchasing an asset that you not only want to make a return on, but also get the most residual value for at disposal time.

HeavyEquipmentForums.com is a user forum where professionals in the equipment industry can exchange ideas and post questions or comments. Users include owner/operators, operators, company owners, repair technicians, safety officers and others.

INDUSTRY NEWS

Snow Pushers Compete

"More than 50 operators got to strut their stuff, maneuvering equipment around the obstacle course," said Kurt Pease, Territory Sales Manager, John Deere Construction & Forestry, who partnered with local Deere dealer Honnen Equipment to provide machines for the Western Snow & Ice Conference's "Motor Grader Roadeo."

Operating skill and wisdom demonstrated on written and diagnostic tests, brought Dale Frey, of Summit County Road & Bridge in Colorado, the winning point total.

Second place: Vic Schroeder, Summit County Road & Bridge, Colo.

Third place: John Hoppe Pierce, County Public Works, Washington

Fourth place: Spencer Esch, Town of Breckenridge, Colo.

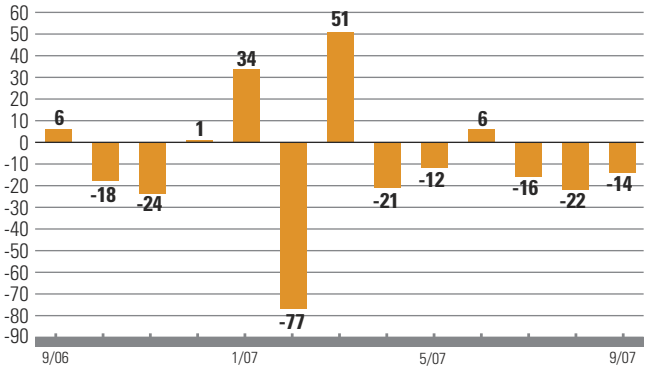
Other events at the Estes Park, Colo., conference included educational seminars and motivational speakers. Each year, the Snow & Ice Conference draws 1,000 to 1,500 attendees.

By JIM HAUGHEY, Director of Economics

CONSTRUCTION EMPLOYMENT

Contractors cut 1.4 percent of their workforce in the last year, and the net job reductions are expected to continue well into 2008. The cutback is the net of layoffs in home building, partially offset by small job gains by heavy/engineering contractors and aggressive hiring by nonresidential contractors. The construction labor market is not homogeneous. Contractors have added jobs in 32 states in the last year, especially in the Rocky Mountain, Plains and Southeast, as well as Texas.

(Change in jobs, thousands)

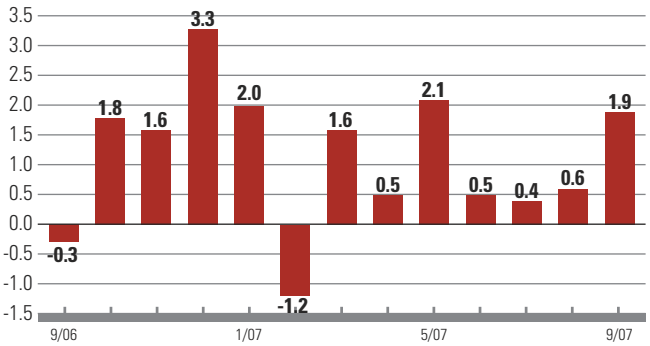


Source: U.S. Department of Labor

PUBLIC CONSTRUCTION SPENDING

Public construction spending is now past the peak growth in this building cycle. Growth will slip from 12 percent in 2007 to 8.4 percent in 2008 and 7.2 percent in 2009. The turnaround comes with the usual year-plus delay after the peak growth in state tax collections and the peak in budget reserves. Catch-up on delayed funding means slightly faster expansion in 2008 for highways and water/sewer projects, but growth will slow in all other sectors.

(% change from previous month)

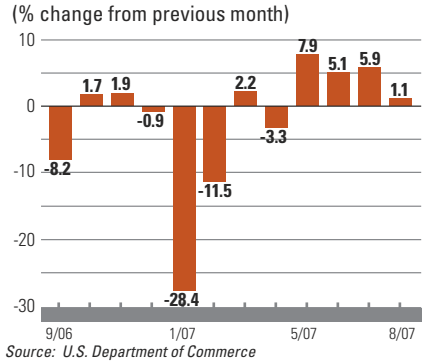


Source: U.S. Department of Commerce

CONSTRUCTION EQUIPMENT SHIPMENTS

Equipment shipments are now inching higher after the abrupt one-third drop in the winter when equipment rental companies reduced purchases sharply. The improvement in equipment orders received by U.S. manufacturers has been larger, including a nearly 60-percent surge in July. Shipments have been weak for small residential and paving equipment, and will weaken further yet this year. Shipments remain very strong for lifting, earthmoving and export equipment.

(% change from previous month)

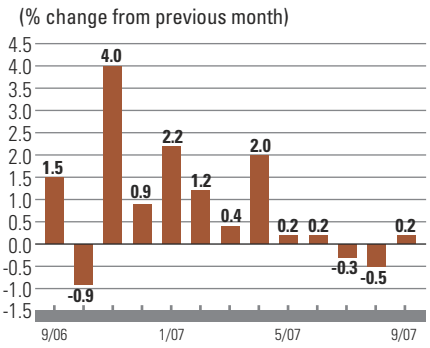


Source: U.S. Department of Commerce

COMMERCIAL CONSTRUCTION SPENDING

Commercial construction spending is currently 10 percent higher than a year ago, but the growth pace will slip to the 5- to 6-percent range for most of 2008 and 2009. The vacancy rate is now rising slightly, and the rental rate growth is ebbing. Consumer spending is being restrained by a slowdown in job and income growth as well as weakened confidence. Growth remains faster for destination stores, large malls and big-box discounters than for neighborhood strip malls.

(% change from previous month)

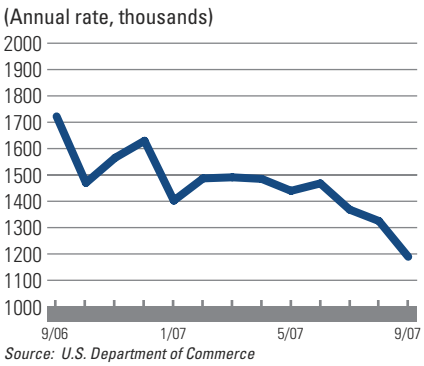


Source: U.S. Department of Commerce

HOUSING STARTS

Housing starts fell under 1.2 million in September and are expected to stay near this level for a few months before a slow recovery begins. Only 40 percent of the 2006/07 collapse in housing starts will be recovered by the end of 2009. Starts are being depressed by a surplus of two million existing homes for sale, expectations of further home price cuts, and the unavailability of low monthly payment mortgages. Nonetheless, some local markets continue to expand.

(Annual rate, thousands)



Source: U.S. Department of Commerce

For the full text of this month's economic analysis, check Economic Outlook at **ConstructionEquipment.com**

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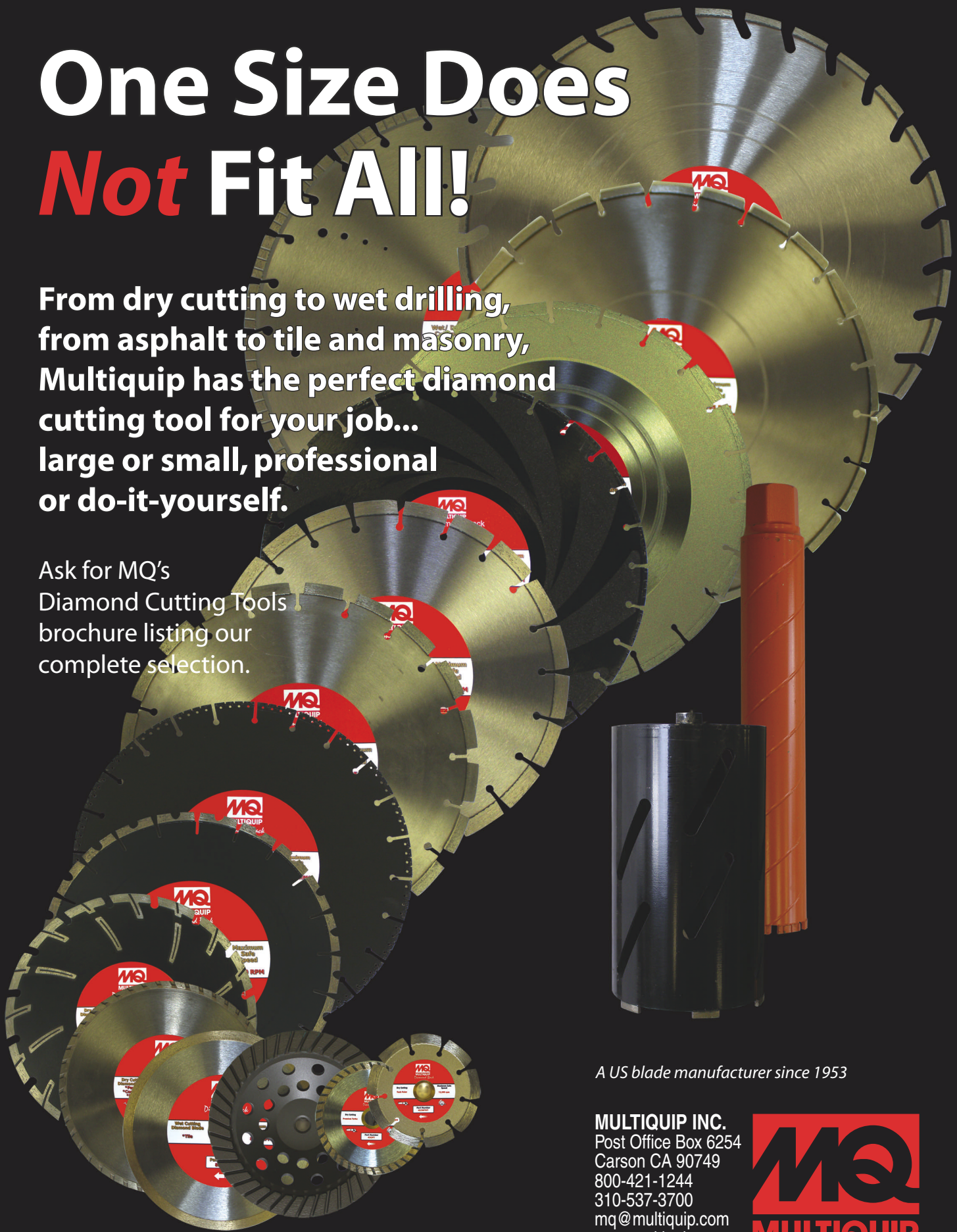

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Top 100 New Products of 2007

Construction Equipment editors select the 100 most exciting product introductions of the year

Our Top 100 Products Award Program was conceived to call special attention to the most significant products introduced each year. We receive more than 1,200 product releases annually and publish nearly 600 of them. We have to choose each month which products have greater interest to the majority of our readers.

In evaluating products for the Top 100 Awards, we look for advances in technology, new product lines, significant improvements to existing products, or a product that increases competition in its field. Also, the highlighted products had to be featured in the magazine between November 2006 and October 2007. Because we narrow down the awards to 100 products, we may not be able to recognize other deserving products in the field.

Komatsu D51 Dozer

Although Komatsu's D51 crawler dozer replaces the D41, the D51EX-22 (standard) and D51PX-22 (low ground pressure) boast a ground-up redesign. According to the company, there are no aspects of the machine that were not improved upon from the D41. The new machine uses a dual mode hydrostatic transmission (choice of 3 or 20 speeds) and a 130-horsepower Komatsu Tier 3-certified engine. By moving the cooling package from under the hood to the rear of the machine, the company was able to steeply slope the hood, providing best-in-class blade visibility. In addition, the operator's station has been moved forward almost two feet closer to the blade. It also features a new track design and 10- or 11-foot, six-way power angle tilt blade with a capacity of 3.5 to 3.8 cubic yards. Estimated list price: $150,000-$220,000.

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Komatsu PC2000-8 Excavator

Komatsu replaced the twin-engine PC1800 excavator with the single-engine PC2000-8, gaining nearly 50 horsepower and driving a major shift toward simplicity. The 443,000-pound PC2000-8 is powered by a Tier 2, 956-horsepower Komatsu turbocharged diesel. Working modes are designed to match engine speed, pump flow and system pressure to specific applications. A new cab designed for mining shovels offers ample space, lower noise levels, improved air tightness, adjustable air-suspension seat, and better visibility. With a 15.7-cubic-yard bucket, the new machine is designed to load a 100-ton truck in four passes. Estimated list price: $2.1 million.

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Volvo L350F Wheel Loader

Replacing the L330E, Volvo says its flagship L350F offers improvements in all major performance categories. Weighing from 50 to 54 tons, this model has undergone more preproduction testing on real site applications than any other Volvo loader. The machine features a new 532 gross horsepower Tier 3 Volvo engine, stronger hydraulics, a new Volvo transmission with lock-up and new axles. All that leads to improved fuel efficiency, faster cycle times and increased productivity, the company says. A larger Volvo Care Cab offers air conditioning; interior insulation from noise, dust and vibrations; improved controls; and anti-slip surfaces. Estimated list price: $650,000.

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Doosan DL Series Wheel Loaders

Replacing the Mega 200, 250 and 500 wheel loaders, models DL200, DL250 and DL500 join the DL300 and DL400 introduced in Spring '06. DL improvements include common rail, electronic Tier 3 engines; communication between engine and automatic transmission; dual-walled exhaust silencer; and centralized remote hydraulic checkpoints and accessible filters/components. The ZF axle is said to maintain a high level of performance because the lower gear speeds provide lower heat generation, which extends component life. The cab features a larger seat, expanded visibility, automatic climate controls, and load-isolation system.

Visit ConstructionEquipment.com/info and enter 176

Caterpillar 414E Loader

The 414E IL industrial loader has exclusive seat-mounted joystick implement controls, which provide greater operator comfort and productivity. With one joystick instead of the traditional four or five levers, Cat says the machine gives the operator full control of all five functions of the three-point tool carrier along with the ability to activate auxiliary hydraulics and work tools. The front loader is the same system used on Cat's 416E backhoe-loader, and it can use a 1-, 1.25-, or 1.30-cubic-yard bucket and other work tools. Estimated list price: $65,500.

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Liebherr R924 Compact Excavator

Liebherr brings its first minimal-tailswing excavator to the U.S. market. The R 924 Compact was designed from the ground up to work on confined jobsites. Powered by a 164-horsepower Liebherr diesel, the machine features an electronic regulating system that ensures an efficient conversion of the engine output in hydraulic performance, the company says. Routine maintenance can be done easily thanks to all service points being centrally located and accessible from the ground; it also has an automatic lubrication system. The unit is said to offer the only full-sized cab in its class, providing the power and performance of a standard excavator without sacrificing operator comfort. Estimated list price: $225,000-$275,000.

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LBX Link-Belt X2 Series Excavators

Powered by re-engineered Tier 3 Isuzu engines, Link-Belt X2 series excavators are billed as being the most fuel efficient excavators on the market and more productive in trenching and truck-loading applications. The engine uses a common rail fuel injection system that provides up to 10 percent more hydraulic horsepower. Two-speed boom lifting and arm open/close functions work with hydraulic-system regeneration for faster cycle times, the company says. The series includes Link-Belt 160 X2, 210 X2, 240 X2, and 290 X2 — ranging in operating weight from 37,700 to 65,700 pounds.

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Challenger MT975B Tractor

According to Agco, its 60,000-pound Challenger MT975B is the world's largest four-wheel-drive, articulated ag tractor. It is powered by a Caterpillar C18 ACERT diesel engine that produces 570 gross horsepower. It features a Cat Powershift 16F/4R transmission and has a maximum travel speed of 24.6 mph. An accessory package includes a scraper plate with hydraulic couplings and belly guards for contractors who want to pull scraper pans. Estimated list price: $250,000-$330,000.

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Case CX B Series Excavators

Improvements abound on Case CX B Series excavators. The machines feature up to a 17 percent increase in horsepower thanks to electronically controlled, common rail Tier 3 engines. In addition, fuel efficiency has increased 20 percent. Because of those two factors, plus an increase in hydraulic flow, the company says the new models move 25 percent more cubic yards of material per gallon of fuel. Maintainability and serviceability have been improved 39 percent as measured by the SAE maintenance score. In addition to numerous cab enhancements for operator comfort, noise levels decreased — both inside and outside the cab. Estimated list price range: $194,600 to $324,300.

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Gradall XL5100 III Excavator

Weighing 55,000 pounds, Gradall's XL5100 III wheeled excavator uses a single Tier 3 Detroit Diesel Mercedes engine instead of two Cummins engines, as its predecessor did. This conserves fuel, the company says, while producing greater horsepower and operating both the truck carrier and the upperstructure. Upper-structure swing speed has increased 33 percent, and breakout force increased from 21,900 to 24,900 pounds. New electronic joysticks replace hydraulic controls, and three joystick patterns are available. Models are offered in 6x4 and 6x6 configurations and can travel on highways at 55 mph. Estimated list price: $320,500 to $340,000.

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Caterpillar D6K Track-Type Tractor

Designed for finish grading, the D6K features a new hydrostatic drive train, durable SystemOne undercarriage, and seat-mounted electro-hydraulic controls ready for easy installation of the AccuGrade grade-control system. Cat says the hydrostatic drive train provides independent power and control of each track for precise maneuvering, quick acceleration, and on-the-go direction changes. Its undercarriage has an oscillating track roller frame, which is said to keep more of the track on the ground in uneven terrain. It is powered by a 125-flywheel-horsepower Cat C6.6 engine, which is 5 dB(A) quieter. Estimated list price: $200,000.

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Caterpillar D-Series Track Loaders

Replacing C Series predecessors, the 953D and 963D track loaders feature more powerful, fuel-efficient engines; a new load-sensing hydraulics implement system and electro-hydraulic implement controls; and hydrostatic dual closed loop drive systems with independent power and control of each track. According to Cat, the implement pump only provides the required power to the system leaving more power to the tracks for heavy applications. Loaders are powered by Tier 3 Cat C6.6 ACERT engines that deliver 148 and 189 horsepower, respectively. The new cab is sealed and pressurized for a clean, comfortable environment; and it features an ergonomic, fully adjustable air-suspension seat. Estimated list price range: $220,000 to $300,000.

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Barbara Smith
Albian Sands Energy, Inc.

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Light Earthmoving

John Deere J-Series Backhoe-Loaders

With the introduction of the J-Series, all four John Deere backhoe-loaders feature Powershift transmissions and cruise control as standard. Among the enhancements over the previous series, four-wheel drive automatically disengages in fourth gear when roading and automatically re-engages when braking. Deere's Total Machine Control (TMC) option, available on the 14-foot-class 310SJ and 15-foot-class 410J models, features boom height kick-out, return-to-carry, parallel lift, and auto-idle for inactive periods. As well, TMC backhoes feature a "mini-joystick" in addition to the armrest-mounted main sticks, so that the operator may comfortably keep both hands on the controls when running the loader and backhoe at the same time. Estimated list price: $75,000 to $160,000.

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Kubota B26 Backhoe-Loader

In addition to its backhoe and loader capabilities, the 26-horsepower Kubota B26 offers "third-machine" service with the Category 1 three-point implement hitch more synonymous with larger machines. An independent hydraulic power take-off can be engaged without having to stop the all-new B26, which features a reinforced, integrated main frame. Featuring four-wheel drive with a differential rear-axle lock, the machine offers 18 percent more loader lift capacity and 9 percent more backhoe dig depth than the company's established B21 model. Estimated list price: $29,610.

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ASV Scout SC-50 Utility Vehicle

With the introduction of the 50-horsepower Scout SC-50, ASV applies its patented rubber-track undercarriage to the utility vehicle market. A combination of multiple bogie wheels and suspension disperses the vehicle weight across 15-inch-wide rubber tracks to give the 4,562-pound Scout SC-50 a ground pressure of only 2.56 pounds per square inch. Rated to carry up to 4,000 pounds, it has a 24-square-foot rear deck, and can be outfitted with an optional dump box with a 1.3-cubic-yard heaped capacity. An optional auxiliary hydraulic system powers front- or rear-mounted attachments. Estimated list price: $25,000 to $33,000.

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Bobcat S330 Skid-Steer Loader

An addition to the 11 skid-steer loaders already offered by Bobcat, the S330 is the largest at 85 horsepower, designed for high-end customers operating in the toughest conditions. The 9,185-pound, vertical-lift-path machine is designed with unequal loading between the front and rear axles. The 70/30 balance improves turning, reduces engine power needs, increases tire and drivetrain life, and delivers better lifting and digging performance. With the patented single-plane design of the vertical lift arms, every pin and connecting point is located in the same plane, greatly reducing arm side deflection. The S330 uses the rugged, maintenance-free Bobcat chaincase. Estimated list price: Starting at $43,300.

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Caterpillar 272C Skid-Steer Loader

With a rated operating capacity of 3,250 pounds, the 272C is the largest-capacity skid-steer loader ever produced by Caterpillar. Incorporating a new design from the ground up, including a single-piece frame, the C-Series loader offers standard features and options derived from the changing needs of compact-equipment operators. Fully adjustable, seat-mounted joystick controls keep the operator in command in the roughest of underfoot conditions. An optional sealed and pressurized cab is an industry first for the skid-steer market. The 90-horsepower 272C is one of two vertical-lift and one of four C-Series skid-steers introduced by Caterpillar. Estimated base list price: $37,250 to $46,250.

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Caterpillar C-Series Multi Terrain Loaders

Called "multi terrain loaders" in the Caterpillar product community, the compact-track-loader family reaches new levels in machine control with the three-model C-Series, under development for four years. Electro-hydraulic joystick control of the hydrostatic drive system combines with electronic torque management for smooth operation and greater productivity, supported by increased horsepower, drawbar pull, lift and breakout forces. Redesigned from the ground up, Cat C-Series multi terrain loaders feature a single-piece frame and a new operator's station design, including an optional sealed and pressurized cab. With a rated operating capacity of 4,233 pounds, the top-of-the-line 297C is the largest multi terrain loader ever produced by Caterpillar. Estimated base list price: $57,500-$67,700.

Visit ConstructionEquipment.com/info and enter 201

JCB Robot Series II Skid-Steer Loaders

With its first major redesign of the Robot skid-steer and compact-track-loader family, JCB expanded upon the ergonomic and safety benefits of its single loader arm design. The door hinge has been moved from the front pillar to the B pillar, improving cab entry and exit. JCB remains the only skid-steer manufacturer to offer a single-sided loading arm, allowing for a full side door. With the Robot Series II, the instrument panel has been lowered to provide better visibility at full lift height. Joined by JCB's first mid-sized 1,800-pound-capacity skid-steer, the four pre-existing skid-steer and three track-loader models offer increased bucket breakout forces and hydraulic pressure and flow. Estimated list price: $25,900 to $34,700.

Visit ConstructionEquipment.com/info and enter 202

JCB Midi CX Backhoe-Loader

In contrast to modifying a lawn or small agricultural tractor with a bolted-on loader and backhoe frame, JCB set out to design a "true" construction backhoe-loader for the 10-foot dig depth class. The JCB Midi CX's main frame both includes the loader-holding tower and connects directly to the removable backhoe, under which is equipped a Category 1 three-point implement hitch with power take-off for the additional use of attachments. Also with auxiliary hydraulics, the loader end is equipped with a skid-steer-type quick coupler. Sized between the 8-foot-class JCB Mini and 12-foot-class 2CX backhoe-loaders, the JCB Midi can be trailered behind a pick-up truck. Estimated list price: $45,000 to $50,000.

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Hyundai R35Z-7 Mini-Excavator

The first zero-tail-swing mini-excavator developed by Hyundai, the R35Z-7 is equipped with an offset boom for digging flush up against obstructions such as walls or hedges. Yet, despite the machine's compact design, the cab provides as much space as a standard-configuration machine of comparable size, according to the company. At about 8,000 pounds, or more than 3.5 metric tons, the excavator offers a digging depth of 10 feet 4 inches and dumping height of 11 feet 4 inches. A three-stage hydraulic pump allows three work movements to be performed independently by the R35Z-7, which is powered by a 26-horsepower Yanmar engine.

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Komatsu WB142-5 Backhoe-Loader

At 14,500 pounds, the WB 142-5 is a new "entry-level" backhoe-loader model from Komatsu that retains many design features of its big brother, the WB146-5. For operators, visibility to the front of the four-wheel-drive WB 142-5 is maximized via the steep slope angle of the engine hood, corner-mounted exhaust and front roof cutout. To the rear, a slim backhoe boom allows the operator to see the bucket edge. A suspension seat is standard, and all electrical control switches are located in one area on the side dash. Tandem gear hydraulic pumps provide 37 gallons per minute of flow for fast cycle times. Estimated list price: $71,916.

Visit ConstructionEquipment.com/info and enter 205

Ditch Witch XT1600 Excavator-Tool Carrier

It's called an excavator-tool carrier, but the Ditch Witch XT1600 is designed to perform the duties of three different machine types: a backhoe-loader, mini-excavator and compact track loader. With 260-degree coverage, the excavator end of this rubber-tracked hybrid compares to a dedicated excavator in the 3- to 4-metric-ton class. With hydraulic flow of 26 gpm, at up to 3,000 pounds per square inch, the tool-carrier end accepts most skid-steer attachments. The controls for the XT1600's ground drive, excavator and tool carrier are incorporated into the operator's station, and the seat can be rotated for multiple operating positions. Estimated list price: $60,000.

Visit ConstructionEquipment.com/info and enter 206

Kubota KX080-3 Excavator

Reaching for the first time beyond its traditional mini-excavator offering, Kubota offers the utility excavator market more than 14,000 pounds of bucket breakout force with the 64-horsepower KX080-3 model. The eight-metric-ton, tight-tail-swing excavator's oil-flow control feature allows easy in-cab adjustment to match the needs of the job or attachment in use. To ensure the machine remains where it should be, the KX080-3 features what is described by Kubota as the industry's first factory-installed anti-theft system, which allows only registered keys to crank the engine. Use of non-registered keys will disable the machine and sound an alarm. Estimated list price: $81,450.

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Mack TerraPro Cabover

The TerraPro Cabover offers a choice of Mack's U.S.-2007-certified MP7 and MP8 engines with ratings up to 485 horsepower and new multiplexed VMAC IV electronics. The chassis features new engine and cab mounts designed to produce a much quieter cab with less vibration. The interior has been redesigned to enhance the driver environment.

Visit ConstructionEquipment.com/info and enter 208

Caterpillar 770, 772 Haul Trucks

With the new 770 and 772 rigid-framed haul trucks, Caterpillar introduced a center-mounted cab, which is 14 inches wider and provides 52 percent more glass for better visibility to both sides of the machine. The 770 and 772 use Cat ACERT C15 and C18 engines, respectively. Automatic Retarding Control is standard equipment on both trucks, allowing them to descend grades up to 15 percent quicker than with manual retarding. Pneumatic brakes were replaced by hydraulic systems. Estimated list price: $675,000 to $760,000.

Visit ConstructionEquipment.com/info and enter 209

Moxy MT51 Articulated Dump Truck

Moxy boasts that its MT51, at nearly 51 tons of capacity, is currently the world's largest ADT, but nearly as significant is the fact that the truck's unladen weight of 68,900 pounds is lighter than three competitors in the 40-ton class. The Norwegian MT51 is driven by a 15-liter Cummins QSX15 diesel (Tier-3 compliant) at 510 horsepower through an Allison 4600 ORS six-speed automatic transmission. Rubber-mounted cab and hood improve the ride and reduce operator noise levels to 74 dB(A).

Visit ConstructionEquipment.com/info and enter 210

Komatsu HD785-7 Haul Truck

Four-wheel oil-cooled disc brakes at the HD785-7 rigid-framed haul truck's four wheel stations allow retarding force to be applied to all four wheels, increasing the effective retarder capacity. Retarding force is controlled on the front and rear wheels independently, and ground speed for descending grades can be set cruise-control style with Komatsu's Auto-Retard Speed Control system. The truck is powered by a Tier-2 Komatsu SAA12V140E-3 engine. Estimated list price (without tires): $1,008,454.

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International WorkStar 7600/7700

The International 7700, now known as the WorkStar, combines the style and drivability of the 7000 with the chassis strength and packaging of International's PayStar Series. Two of the new models feature a front-bumper-to-axle setting of 29.1 inches and frames that optimize payload for bridge-formula states. The WorkStar's frame system is based on a single 12¼-inch frame 400 pounds lighter than many double 10-inch frames.

Visit ConstructionEquipment.com/info and enter 212

Ford F-Series Super Duties

Ford's 2008 F-450 Super Duty — the first factory-built Class 4 pickup — can tow 24,500 pounds (8,000 pounds more than the nearest competitor) and is powered by a new, more powerful 6.4-liter Ford diesel engine. The new Super Duty also features a unique TailGate Step that folds down to make it easier to load heavy equipment in the bed; and PowerScope power-folding, power-telescoping trailer-tow side mirrors. Estimated list price range: $23,000 to $65,000.

Visit ConstructionEquipment.com/info and enter 213

Travis Mule Horizontal-Discharge Trailer

The Travis Mule is a horizontal-discharge asphalt trailer with a patented Wave body design, dual-walled with smooth sides. The hydraulic V-Floor walking-floor system by Keith Mfg., with reciprocating floor slats, discharges cargo without lifting the body at a rate controllable at the back of the trailer. Travis says the 28-foot-long, four-axle trailer — including tarp and two Travis T-lite auxiliary liftable air suspensions — weighs just 10,998 pounds, putting a 27-ton payload in a small package. The hollow walls are filled with insulation to retain hot-mix heat.

Visit ConstructionEquipment.com/info and enter 214

2008 Dodge Ram 4500 and 5500 Chassis Cabs

Chrysler barged into the medium-duty class with the 2008 Dodge Ram 4500 and 5500 Chassis Cabs. They are aggressively specced with gross vehicle weight ratings of 16,500 and 19,500 pounds, respectively, and standard 6.7-liter Cummins turbo diesel engines. There's a choice of six-speed automatic or manual transmissions. The trucks feature upfitter-friendly flat frame rails and standard exhaust brakes. Estimated list price range: $34,050 to $36,050.

Visit ConstructionEquipment.com/info and enter 216

GMC/Chevrolet 2500HD/3500HD Trucks

The extension of General Motors' inside-out pickup redesign brings a smooth-shifting six-speed Hydra-matic transmission to GMC and Chevrolet 3/4 and one-ton trucks. A manual transmission mode gives you control of shifts up and down through the gears. The tow-haul mode holds each gear longer during acceleration, and downshifts automatically to second gear during braking. The standard engine is GM's 6-liter 353-horsepower Vortec 6000 V8.

Visit ConstructionEquipment.com/info and enter 218

Volvo Automatic Traction Control

Volvo's Automatic Traction Control, available on the A25E and A30E articulated dump trucks — controls longitudinal lock across all three axles automatically, leaving the operator free to concentrate on the work at hand. The machine's computers, along with sensors, determine which axles need to be engaged for the conditions. The system retains the exclusive dog-clutch locking system. Estimated list price: $3,000.

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The Dominator field service vehicle features improved winch placement that eliminates tension on the cable when the boom is raised or lowered with hook in stowed position. The redesigned workbench offers greater workspace designed for comfort, safety, and maneuverability. And the new hydraulic-driven rotary screw compressor provides reliable power for hand tools, tire inflation, and more.

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Oshkosh Truck Corporation is a leading designer, manufacturer and marketer of a broad range of specialty access equipment, commercial, fire and emergency and military vehicles and vehicle bodies. Oshkosh's products are valued worldwide by rental companies, fire and emergency units, defense forces, municipal and airport support services, and concrete placement and refuse businesses where high quality, superior performance, rugged reliability and long-term value are paramount.

Toyota Tundra Pickup

Toyota is striking for the heart of the half-ton pickup market with the new Tundra and its 5.7-liter i-Force V8 engine. The 32-valve, double-overhead-cam design with variable valve timing delivers 381 horsepower and 401 ft.-lbs. of torque and an ultra-low-emissions vehicle rating. The 5.7L i-Force V8 is mated to a six-speed automatic transmission, for a power train that can haul 2,065 pounds of payload and tow 10,800 pounds. Estimated list price (regular cab with 5.7-liter i-Force V8): $24,380.

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Volvo Enhanced Stability Technology

VHD vocational trucks built for concrete mixer duty are now standard with Volvo Enhanced Stability Technology (VEST) to reduce the possibility of rollovers in the high-center-of-gravity vehicles. Made by Bendix, VEST uses the truck's anti-lock braking system and traction control to monitor wheel speeds and compare them with other dynamic motions in the chassis and, if necessary, reduce power and apply individual brakes to lessen the chance of rollovers. VEST uses sensors to determine steering angle, lateral acceleration, and pressure in the rear suspension's air bags to measure driver input and vehicle response in changing situations.

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Volvo E Series Articulated Dump Trucks

Volvo's computer-controlled full-suspension option for the A35E and A40E ADTs made quite a splash in Europe, where new ergonomic standards limit the amount of vibration to which operators can be subjected. But the two largest E-Series trucks were dramatically redesigned, even without the industry's first active, intelligent suspension. The A40E's capacity increased 4,400 pounds to 43 tons. Its power and torque increased 12 percent and 19 percent with the new, 464-horsepower Volvo D16 engine. And the A40E weighs more than a ton less than the A40D. The A35E's capacity increased 2,200 pounds to 37 tons, with a new rating of the D12 diesel, equaling the A40D's 414 horsepower and 1,549 foot-pounds of torque. Estimated list price range: $525,000 to $590,000.

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Bomag MPH122-2 Recycler/Stabilizer

Fitted with a 482-horsepower, Tier 3 Deutz V6 diesel engine, the Bomag MPH122-2 asphalt recycler/soil stabilizer uses Bomag's proven hydrostatic rotor-drive system, designed, says the company, to optimize fuel efficiency and minimize maintenance. The operator can vary rotor speed from 100 to 170 rpm while the machine is under load, allowing the MPH122-2 to adapt on the fly to specific job conditions. Rotor options include a stabilizer rotor (91.7 inches wide) that uses paddle-type teeth and cuts to depths of 19.7 inches, plus two universal-type rotors, both 99.6 inches wide and capable of cutting to depths of 16.5 inches. One of the universal rotors features bolt-on tooth holders, which allow no-weld replacement at the jobsite. Estimated list price: $450,000.

Visit ConstructionEquipment.com/info and enter 221

GOMACO GT-3400 Curb-and-Gutter Paver

The most distinguishing feature of the new GOMACO GT-3400 is its radio-remote-control capability, designed to give operators the freedom to position themselves to best advantage on the project. The remote-control system, which continually changes frequencies to maintain consistent contact with the machine, also can be tethered to the machine in areas that disallow radio transmitting. Of course, the machine still can be operated from the platform, and it also allows either right- or left-side pouring, whether guided by stringline or by stringless technology. The paver features a three-track design that gives tight-turning-radius capability, and it features GOMACO's Hook-and-Go mold-mount system. Estimated list price: $215,00 to $225,000.

Visit ConstructionEquipment.com/info and enter 222

Power Curbers 5700-C Curb-and-Gutter Paver

A fully enclosed auger conveyor on the Power Curber 5700-C curb-and-gutter paver is designed to move concrete rapidly, to hold enough concrete to complete a tight-radius without being delayed by repositioning the ready-mix truck and to mix the concrete as it moves to the mold, thus helping to avoid mix separation. The paver's swivel chute allows it to pour in a single traffic lane, with the ready-mix truck positioned directly in front, and it can pour from both the right and left side. On the platform, the Smart AMP control system is designed to provide an easy and efficient means of adjusting operating parameters List price is around $185,000, but varies with options.

Visit ConstructionEquipment.com/info and enter 223

Volvo PF-6000 Series Asphalt Pavers

Featuring an independent material-feed system with four sonic sensors, the new Volvo PF-6000 Series asphalt pavers (models PF-6110, PF-6160 and PF-6170) have a self-priming function to fill the auger-tunnel area in front of the screed, plus an automatic conveyor-chain tensioning system. The PF-6160 and PF-6170 use a level-ride undercarriage system that employs a hydraulic bogie system allowing independent action at each of the front bogies. The new pavers can handle a range of screeds, including vibratory, tamping, front-extension and rear-extension. All are equipped with a 30-kw generator, and the three-phase screed heating system allows heat bars to be replaced without removing plates. Depending on model and equipment, list prices for the new series range from $430,000 to $525,000.

Visit ConstructionEquipment.com/info and enter 224

Caterpillar AP655D Asphalt Paver

Caterpillar's AP655D asphalt paver uses a "gateless" material-handling system featuring independent adjustment of its dual conveyors and augers. Screed options allow using either rear- or front-mounted extenders. Undercarriage choices include two versions of the Mobil-trac system, plus a steel-track system. Dual operating stations provide unobstructed sight lines, and the Advisor Monitoring System permits the operator to easily monitor and calibrate system operation, calculate paving speed and material requirements, and track items such as paving distance and fuel consumption. Estimated list price range: $425,000 to $450,000.

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Schwing Modular Octagonal Mast

Schwing's new modular mast and accessory system enables mounting the manufacturer's placing booms (28, 31, 32 and 39 meters) on the same octagonal mast sections. The bolt-together, 6-meter modular sections allow mast height to be adjusted to suit the job and allow free-standing applications to 65 feet for the 32-meter boom and to 45 feet for the 39-meter boom. The modular system also is designed to allow rapid changes in the field if project requirements necessitate a switch in length or type of mounting. The same octagonal mast works in free-standing, self-climbing, and non-climbing slab-supported applications. Each 6-meter mast section lists for $16,800.

Visit ConstructionEquipment.com/info and enter 226

Schwing 52-Meter Concrete Pump

The S 52 SX concrete pump with RZ5 placing boom combines features of two boom types (the Schwing Overhead Roll and Fold and the Z tip section) in a five-section boom. It has placing capacities to distances of more than 170 feet vertically and 160 feet horizontally. The RZ5 boom has a 180-degree working range of the main section to facilitate maneuvering deep into buildings, and the Vector Control system uses twin joysticks to provide proportional boom movement for accuracy. The Super X Outriggers are designed to maximize horizontal reach, and the curved front outriggers telescope around obstacles, while providing a compact and stable pumping platform. Estimated list price (not including the truck) is $825,000.

Visit ConstructionEquipment.com/info and enter 227

Stone Rhino 84X Roller

With a standard heated and air-conditioned cab, the new Stone Rhino 84X soil compactor has an operating weight of 27,337 pounds when equipped with a smooth drum and 31,057 pounds with a pad-foot shell. This new dual-amplitude model, the largest in Stone's ride-on range, delivers compaction forces of 42,743 and 62,989 pounds. The Rhino 84X, with a 130-horsepower Cummins diesel engine, uses Sauer-Danfoss hydraulic components and a ZF axle with a no-spin differential. Estimated list price range: $120,00 to $135,000.

Visit ConstructionEquipment.com/info and enter 228

Wacker RD 12 Series Asphalt Rollers

Wacker's new RD 12 Series ride-on asphalt rollers, the RD 12-90 and RD 12A-90, have been newly configured to eliminate rear overhang, allowing enhanced visibility and the capability to compact to the edge of the mat. Both machines have an operating weight of 2,490 pounds, use 35.4-inch-wide drums, and produce a centrifugal force of 3,400 pounds at the front drum (the rear drum is static). The RD 12-90 is equipped with a 20.5-horsepower Wacker engine, and the 12A-90 uses an 18-horsepower Honda. The new hydrostatic-drive rollers feature dual drum drive with articulated steering. A pressurized water system allows consistent water flow, and the water pump timer is adjustable to eight positions. Estimated list price: $18,820.

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Terex Cedarapids CR300L Series Pavers

Now with a fully electronic, Tier 3 diesel engine developing 160 horsepower, the Terex Cedarapids CR300L Series asphalt pavers (the rubber-tire CR352L, rubber-track CR362L and steel-track CR362LS) use a patented frame-raise system that lifts the entire rear frame of the machine, not just the spreading augers, in order to more precisely control the head of material at the screed. In addition, a three-point suspension system is designed to assist in maintaining grade and slope settings for optimum mat quality. The CR362L features the Smartrac System, which automatically maintains proper track tension and eliminates manual adjustments. List prices range from $250,000 to $300,000, depending on model and configuration.

Visit ConstructionEquipment.com/info and enter 230

Wirtgen W 120 F and W 60 Milling Machines

The new mid-size Wirtgen W 120 F cold milling machine, with 280 horsepower and a maximum milling width of 48 inches, features a hydraulically folding supporting track and front-end loading of reclaimed pavement via a two-part conveyor system. The optional Flexible Cutter System permits the use of 12-, 24-, 36- and 48-inch milling drums, and the optional Level Pro system automatically regulates pre-set milling depth and inclination. The rear-loading W 60, with 208 horsepower, cuts to 12 inches deep and can be fitted with 12-, 18- and 24-inch drums (via the Flexible Cutter System) and can be equipped with the Level-Pro system.

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Honda EU6500is Generator

Honda replaced its EX4500, EX5500 and ES6500 with the new EU6500is, rated at 6,500 watts and designed for simultaneous 120-volt and 240-volt output. Compared to the EX5500, the new EU6500is has 33-percent smaller footprint, weighs 35 percent less (at 253 pounds), and about 5 dB(A) quieter at rated load. Honda's Eco-Throttle and inverter reduce gas consumption by 30 percent. The inverter in the new model is credited with enhanced commercial-grade power output at wave-form distortion less than 2.5 percent. Estimated list price: $4,000.

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Allied Hammerhead II HB 550 Concrete Breaker

Allied's Hammerhead II Model HB 550 is not a drop hammer. It's a 1,130-pound hydraulic concrete-slab buster sized to mount on a 5,000- to 9,000-pound skid-steer or 7,000- to 16,500-pound mini-excavator or backhoe-loader. An internal hydraulic cylinder compresses a heavy spring set that loads the system with 3,350 psi of hydraulic pressure. The return stroke of the cylinder triggers the 388-pound impact bar at the concrete with the impact force of a 4,000-foot-pound hammer. Estimated list price range: $10,000 to $13,000.

Visit ConstructionEquipment.com/info and enter 187

Karcher Industrial IB 15/80 Dry-Ice Blaster

The new IB 15/80 Dry Ice Blaster uses compressed air to propel tiny dry-ice pellets at supersonic speeds so they flash freeze and then lift grime, paint, rust, mold, asphalt and other contaminants from a broad range of surfaces. The pellets quickly dissipate into the air so there's no messy waste water, solvents, sand or other waste, only the soiled contaminant that is easily swept or vacuumed. Dry ice is safe to use on virtually any surface. Estimated list price: $19,995.

Visit ConstructionEquipment.com/info and enter 185

Kubota RTV1100 Compact Utility Vehicle

The Kubota RTV1100 is the only utility vehicle that comes standard with a factory-installed cab, air conditioning, heater and defrost. It also comes standard with variable hydrostatic drive and hydraulic power steering. The three-cylinder, 24.8-horsepower Kubota diesel delivers 50.3 foot-pounds of torque. The RTV1100 will carry 1,100 pounds of cargo in its 16-cubic-foot bed, which comes with hydraulic bed-lift system. Estimated list price: $16,999.

Visit ConstructionEquipment.com/info and enter 186

Godwin Wet-Prime Pumps

Godwin designed its Wet-Prime pumps a high cast chromium steel impeller and ductile iron wearplates for field durability, and packaged it in many sizes, including a 4-inch dewatering pump. The new line replaces the gasoline-powered line from a third-party supplier that Godwin had branded in the past. Estimated list price range: $395 to $3,165.

Visit ConstructionEquipment.com/info and enter 188

CEAttachments Edge Material Unroller

The Edge Material Unroller's stem swings hydraulically 180 degrees, allowing a skid-steer operator to safely remove rolls of erosion-control mat or other material from a truck, position it, and unroll it. Stem options for the 530-pound attachment accommodate 4- to 12-foot rolls of material. Estimated list price: $6,000.

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Ashland Ground Hog 2500 Scraper

Ashland's Ground Hog 2500 is a "one-of-a-kind" scraper attachment that mounts to a skid-steer's quick attach and is pushed in front of the loader. The bowl moves three to four times the material per load than the loader's bucket, distributing weight onto the attachment's castering front wheels. All scraper functions — cut, carry and dump — are controlled by a single hydraulic valve. Estimated list price: $13,000 to $15,000.

Visit ConstructionEquipment.com/info and enter 190

Ingersoll Rand PowerSource Generators

Ingersoll Rand's new PowerSource mobile generators reduce noise levels, and many key models come in smaller packages than the units they replace. An exclusive feature of the voltage selector shuts down the generator if the operator attempts to switch voltage while it is running. Thirteen models of PowerSource mobile generators range from 10 to 456 kilowatts. All but the smallest model produce single- and three-phase output. Estimated list price range: $14,400 to $157,000.

Visit ConstructionEquipment.com/info and enter 191

Lincoln Electric Miniflex Fume Extractor

Miniflex is a portable, high-vacuum, low-volume system specifically designed to remove and filter welding fumes. The 33-pound unit can be used in confined spaces and other places not accessible to more-bulky fume extractors. It automatically turns on and off during welding. Two 1.34-horsepower motors and primary LongLife-H and secondary HEPA filters offer capacity to handle most common light- and medium-duty arc welding.

Visit ConstructionEquipment.com/info and enter 192

Thompson Pump Arctic Knight

Arctic Knight's self-contained pumping system uses a thermostat-controlled diesel-fired heater burning the fuel on-board to maintain a preset temperature inside the enclosure, keeping the pumping unit primed and ready in temperatures ranging from -40 F to 110 F. The system accommodates various pumps, and automatically drains fluid from the pump and piping when the pump turns off to prevent freezing. The automatic drain requires no external electrical power. Estimated list price: $65,000.

Visit ConstructionEquipment.com/info and enter 193

Sage Oil Vac 21120 Lube Skid

The 21120 Lube Skid is Sage's largest skid-mounted oil-changing system, with four 60-gallon new-product tanks and one 120-gallon used-product tank. Oil Vac Lube systems work on a patented vacuum and pressure process. An air compressor creates a vacuum in the tanks for vacuuming used fluids from components, and pressurizes tanks to blow fresh fluids into machine components. Sage claims maintenance times can be cut as much as 50 percent using an Oil Vac Lube Skid rather than gravity drain. Estimated list price: $14,280.

Visit ConstructionEquipment.com/info and enter 194

PowerTech 3000 Series Pickbucket

PowerTech added the 3000 Series to its percussion-bucket line in 18-, 24- and 30-inch versions for demolition and excavation work with 8.5- to 16-ton excavators. The new percussion buckets, which put the hydraulic-impact force of a hammer into the bucket, use more powerful hydraulic cells than the smaller 1000 Series and 2000 Series.

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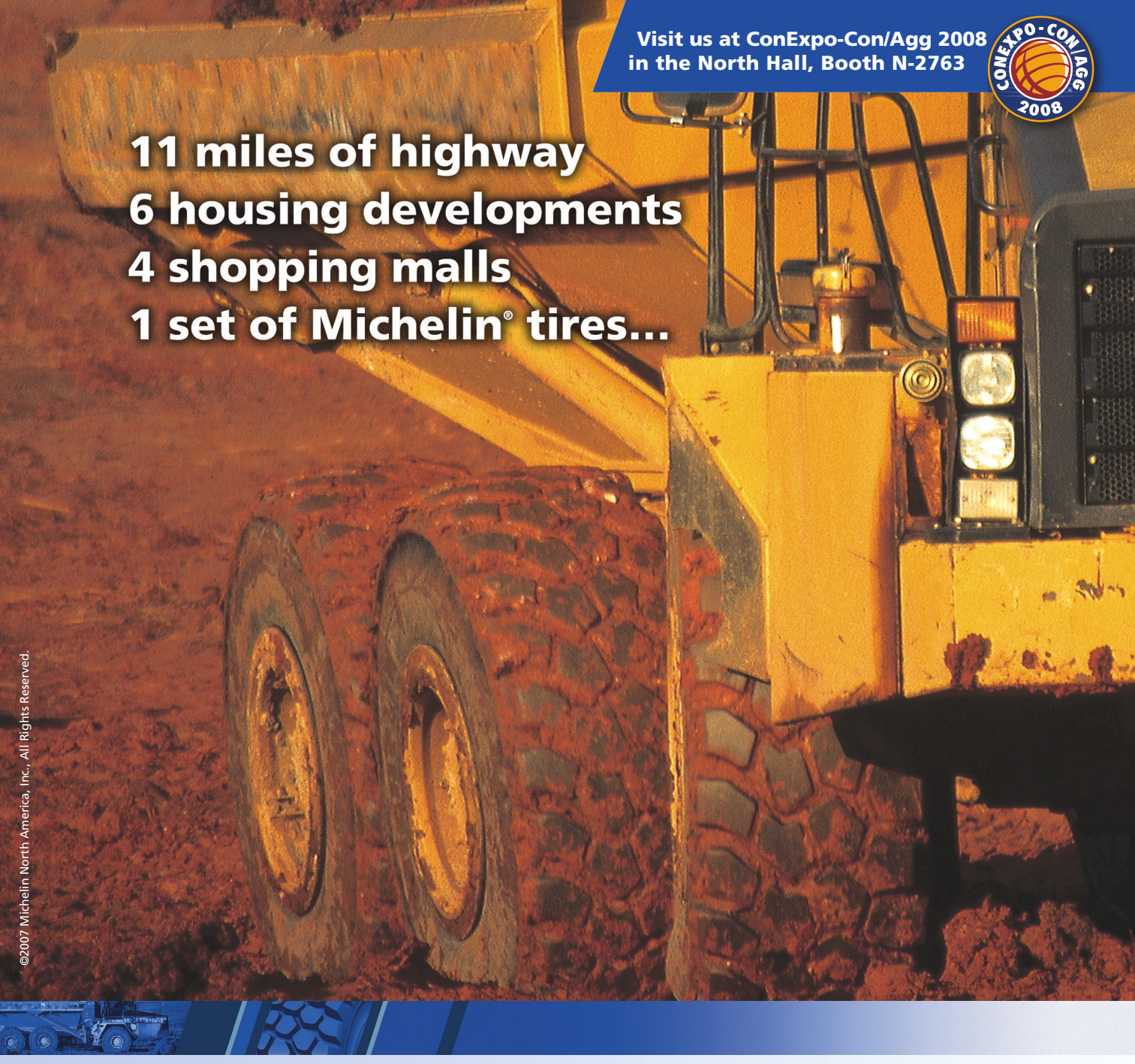

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Earth Tool HammerHead HydroBurst HB125

A high-tonnage pipe-bursting system designed for use in water- and sewer-pipe replacement, the HammerHead HydroBurst HB125 features rod string with a rotation ability that allows it to "drill" through pipe collapses when setting up a burst. Hydraulic leveling jacks keep the unit on center with the host pipe and can be activated at any time during the burst without having to stop and re-shore the unit. The HB125 generates 800 foot-pounds of torque, 20 tons of thrust, and can replace lines ranging in diameter from 4 to 20 inches. Estimated list price: $145,000.

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Ditch Witch 420sx Vibratory Plow

An addition to the Ditch Witch product line, the 420sx provides a dedicated ride-on lawn plow in a pedestrian-size package. For ease of operation, the console of the Ditch Witch 420sx moves with the operator when the frame articulates, so the controls are always in the same position in relation to the operator. The ride-on unit's exclusive dual-speed attachment drive helps the operator respond to changing ground conditions, while the plow's ground-following capability provides accurate installations in the most uneven terrain. Estimated list price: $29,000 to $36,000.

Visit ConstructionEquipment.com/info and enter 233

Trench-Tech TT Series Trenchers

Series 2000 includes four chain-type trencher models — TT-2000C, TT-2300C, TT-2500C and TT-2700C — that provide horsepower ratings from 300 to 830 from Cat engines. Operating weights range from 75,000 to 300,000 pounds. Cutting widths range from 12 to 72 inches, with cutting depths to 24 feet. The mechanical-drive design allows the chain to move slower in first gear (compared to hydrostatic-drive) to break up (not grind) the rock. The mechanical drive system provides four, high-torque digging speeds.

Visit ConstructionEquipment.com/info and enter 234

Ditch Witch JT3020 HDD

With 148 available horsepower, the Ditch Witch JT3020 Mach 1 horizontal directional drill allows the operator to use all functions simultaneously without negatively affecting other functions. Built up from the JT2720, the self-contained JT3020 provides 30,000 pounds of pullback and the capacity to bore pilot hole diameters up to 4.5 inches and backream diameters up to 12 inches. Meanwhile, the sound level is less than 82 dB(A) at the operator's ear. A redesigned machine anchor system is easy to set up and holds firm in various soil conditions. Estimated list price: $215,000 to $275,000.

Visit ConstructionEquipment.com/info and enter 235

Vermeer RTX1250 Trencher

Formerly only with rubber tires, Vermeer's 120-hp ride-on trencher is also available with a quad-track design that maximizes traction and stability by maintaining four-point ground contact and providing full power to each of the four tracks. The RTX1250 has no break-over point, which improves operator comfort and control. At the same time, remaining functional are the ground drive features available on rubber-tire units, such as axle oscillation, four-wheel steering and crab steering. The unit is able to trench to a depth of 72 inches and a width of 18 inches. Estimated list price: $100,000 to $130,000.

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TesCar CF 2.5 Drill Rig

Compact in size and controlled remotely, the TesCar CF 2.5 core drill rig is designed to work in low-ceiling, limited-access, or even unstable worksites where full-size rigs often can't. Despite being only about 54 inches in width and 13 feet in length, the rubber-tracked TesCar CF 2.5 does offer "big-rig-like" torque of 19,536 foot-pounds for a maximum drilling diameter of about 2 feet to a depth of almost 50 feet. To fit in low-ceiling areas, the swing mast compresses to 7 feet. Estimated list price: $235,000.

Visit ConstructionEquipment.com/info and enter 237

Vermeer D330x500 Navigator

Operating a horizontal directional drill traditionally means exposing a few workers to the full brunt of outdoor conditions. Well, with its D330x500 Navigator, Vermeer offers a redesigned and reconfigured self-contained operator's station that allows an operator to comfortably run the large-diameter drilling unit, which produces 50,000 foot-pounds of rotational torque. All functions including transport, drilling controls, craning and drilling-fluid controls are operated from the cab. The D330x500 delivers 330,000 pounds of thrust/pullback force — or 30,000 more than the predecessor model. Estimated list price: $900,000 to $1,000,000.

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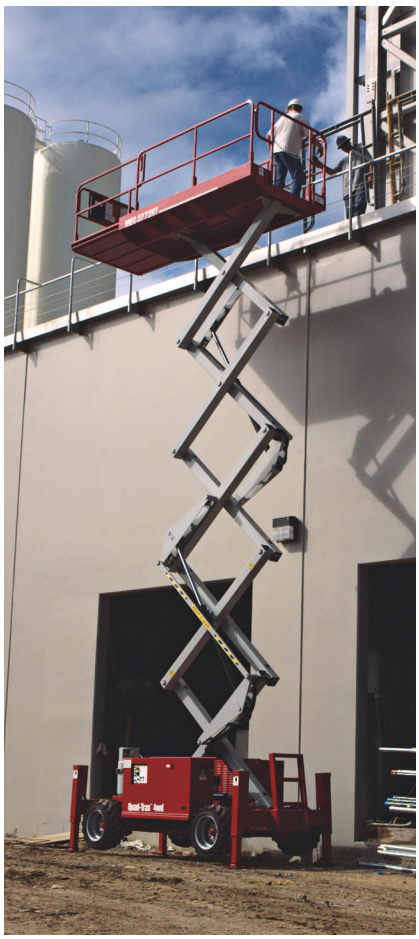

MEC RT-Series Scissors Lift

The seven models in the new MEC RT-Series of scissors lifts range in platform height from 30 to 41 feet and feature fully proportional drive and lift controls. The robust design of these units, says MEC, includes the company's use of wide beams and large pins, in self-lubricating bearings, to create large load-bearing surfaces in scissor-pivot areas. The new work platforms are available with dual-fuel engines, and diesel engines are available as an option. Other options include Quad-Trax four-wheel-drive system; auto-leveling outriggers; generator; and tire configurations, including non-marking and foam-filled. Estimated list price: $55,264 to $85,577.

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Elliott Equipment E120 Aerial Work Patform

Elliott Equipment's E120 aerial-work platform features a hydraulically powered, four-section boom, providing a working height of 120 feet, and a self-leveling, 600-pound-capacity platform measuring 84x48 inches. The company's proprietary control valve and proportional remote controls have a high and low range, and are designed to provide smooth response at working heights. In standard rear-mounted configuration, the E120 is 36 feet 8 inches long and mounts on a 54,000-pound tandem-axle chassis. Estimated list price: $250,000.

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Genie GTH-1056 Telehandler

When designing the new GTH-1056 rough-terrain telehandler, says Genie, the aim was a 10,000-pound-rated machine that could maneuver in tight spaces without compromising lift and reach capability. The resulting specifications are an outside turning radius of 13 feet 3 inches and a 500-pound lift capacity at maximum reach (42 feet) without stabilizers, or 3,000 pounds with the stabilizers planted. Lift capacity at the machine's maximum height of 56 feet 10 inches is 4,000 pounds. To improve overall machine utilization, says Genie, the quick-attach system was redesigned to accommodate better attachment interchange between models and brands. The new telehandler weighs less than 30,000 pounds and is available with either a Perkins (127 horsepower) or John Deere (125 horsepower) diesel engine. Estimated list price: $149,985.

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Liebherr LR1200/LR1200SX Crawler Crane

According to Liebherr, the design of LR1200SX lattice-boom crawler crane resulted in part from the request of a large North American crane-rental company that saw a market for a higher-capacity version of the company's 250-ton-rated LR1200. The result of that idea, the LR1200SX, is a crawler crane that provides higher capacities at shorter radii. Especially well accepted by customers, says Liebherr, is the new crane's luffing-jib capacities. The standard LR1200 can use 384 feet of lightweight main boom (292 feet of heavy boom), up to 312 feet of luffing jib, and 85 feet of fixed jib. Maximum combination is 486 feet. Estimated list price: $1,650,000 to $2,100,000.

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New Holland M-Series Telehandler

Attachment-handling versatility, says New Holland, characterizes the design of the company's M-Series telehanders. The three new models — M427, M428 and M459 — have maximum lift-capacity ratings of 6,600, 8,000 and 9,000 pounds, respectively, and lift heights of 42, 42 and 45 feet. A low-boom design provides 360-degree visibility, says the company, and four-wheel drive and three-mode steering provide enhanced traction and maneuverability on the jobsite. Models M428 and M429 are available with optional stabilizers, but all units feature single-joystick control and two high-flow gear pumps that deliver 31.7 gpm. Estimated list prices for basic models: $85,000 to $100,000.

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Caterpillar TL-Series Telehandlers

Caterpillar makes the point that its new TL-Series telehandlers, which replace certain B-Series models, are built specifically for North American users, featuring a high-boom pivot design and a tool-carrier-type coupler. The four new models (TL642, TL943, TL1055 and TL1255) range in lift capacity from 6,500 to 12,000 pounds, and in lift height from 42 to 55 feet. The new models result from Caterpillar's alliance agreement with JLG Industries, reflecting proven JLG designs, says Cat, but incorporating a high content of Caterpillar components, including Cat engines. The new models incorporate pilot-operated, single-joystick control (allowing three simultaneous boom functions), three steering modes and frame leveling.

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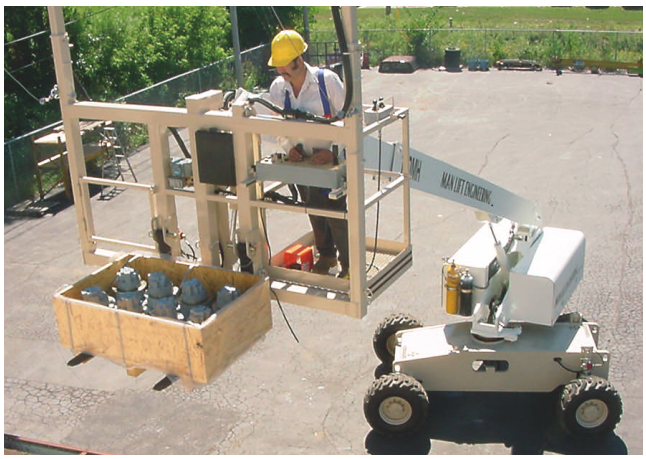

MLE T40MH-3000 Quad Lifter

According to Man & Materials Lift Engineering (MLE), the telescopic-boom T40MH-3000 Quad Lifter aerial work platform can do the work of multiple machines, given its capability to handle accessories, including a pallet-fork carriage, extendable material racks and winches. The 80-horsepower, four-wheel-drive model has a platform height of 40 feet, and has a rated 3,000-pound platform capacity. Optional equipment includes a dual-fuel engine, 10- and 12-foot platforms, 1,000-pound capacity winch, generators, welding package, and the supply of oxy/acetylene and 220/440 V three-phase power to the platform.

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National Crane 1300H-Series Boom Trucks

The National 1300H-Series boom trucks are rated at 30 tons capacity and are the largest National cranes that can mounted on a three-axle truck. A four-section boom is available in 69-, 100-, or 110-foot lengths. The new series features the company's "Easy Reach" control console, which can be unlatched and used in either the transport or operating positions. According to National, the H1300 Series is the only stand-up-control crane with pilot hydraulics, and the machine's hydraulic-system components have been designed and positioned for easy service accessibility. The cranes are designed with CAN-Bus electronics, a graphic load-moment indicator and dual H-style outriggers.

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Potain Igo-Series Self-Erecting Cranes

Potain's Igo range of self-erecting tower cranes are electrically powered, bottom-slewing models that can use either jobsite power or power from a portable generator. The cranes are designed to self-erect by employing a system that includes a mast-mounted hydraulic cylinder (activated via an electrically powered hydraulic pump), jib cylinders and a mast and jib pendants. The machines can install their own counterweights (via an integral auxiliary derrick), and the jib can be configured to work at less-than-maximum length. Electric motors for hoist, trolley and swing functions are accessible from ground level. Cranes can arrive at the jobsite via drop-deck trailer or, if regulations allow, can be towed by installing a transport axle.

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Xtreme XRM1267 Telehandler

Xtreme Manufacturing's new 12,000-pound-rated XRM1267 telehandler, with a maximum lift height of 67 feet, will reach forward 53 feet 8 inches and handle 3,000 pounds at maximum reach. The new telehandler's Perkins turbo-diesel develops 130 horsepower and drives through a three-speed Dana transmission and Dana axles. The 46,300-pound machine provides 8 inches of frame leveling and rides on foam-filled 15.5 x 25 E3 tires. Standard equipment includes rear-axle stabilization, an auxiliary-hydraulic system (rated at 49 gpm and 4,000 psi) and a quick-attach system. Among a selection of optional work tools are a utility bucket, concrete bucket, truss boom and wallboard/sheet material handler.

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MAX-ER Attachment for Manitowoc 16000

The Manitowoc 16000 lattice-boom crawler crane, with a standard rated lift capacity of 440 tons, is now available with the company's MAX-ER attachment, which can provide up to 256 tons of counterweight for the machine. The MAX-ER allows longer boom lengths and added capacity at any given radius, says Manitowoc. Standard boom length for the 16000 is 315 feet, but the MAX-ER allows 394 feet of main boom. When used with a luffing jib, the standard 16000 can handle 177 feet of boom and 275 feet of jib, for a total reach of 452 feet. With the MAX-ER, boom length can increase to 295 feet, resulting (with the 275-foot jib) in 570 feet of reach. The MAX-ER attachment for the 16000 also is equipped with a hydraulically driven stinger, which allows the operator in the cab to adjust the position of the MAX-ER behind the crane.

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Haulotte HB 135 JRT Work Platform

With a platform height of 134.5 feet, the 45,400-pound Haulotte HB 135 JRT aerial work platform has a horizontal reach of 65 feet 7 inches. The new four-wheel-drive unit features proportional and simultaneous controls and provides 360-degree continuous rotation. The HB 135 JRT allows the operator to select from four steering modes, and its oscillating axle is designed to adjust to varying ground contours. The fly jib allows both vertical and horizontal movement for maximum positioning flexibility. According to Haulotte, the new model's low transport height allows "standard transport," thus potentially reducing mobilization costs.

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Link-Belt 298 HSL Crawler Crane

With a rated lift capacity of 230 tons, the Link-Belt 298 HSL lattice-boom crawler crane is available with a range of main-boom lengths (60 to 270 feet) and with a range of jib options ((30 to 90 feet). According to the 298 HSL's Jib Attachment Working Range diagram, the maximum boom-and-jib combination yields a tip height of 365 feet. The crane uses a Mitsubishi diesel engine (rated at 365 horsepower) that drives the unit's seven hydraulic pumps. The lift drums are 35 inches wide, and the new crane has an available line pull of 55,000 pounds. The 298 HSL can handle 160,000 pounds of upper counterweight and 60,000 pounds of lower counterweight.

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Grove GTK1100

The basic design of the Grove GTK1100 crane incorporates a special wheeled carrier with a six-section telescopic mast that extends to 266 feet. At the top of the mast is a slewing "upperworks" assembly that incorporates the hoist drums and a telescopic luffing boom that extends to 197 feet. The base carrier uses four massive outriggers (8 feet high, 60 feet long, and arranged in a cross shape) that are connected via a pendant-tensioning system to four large lattice-type beams at the top of the mast (This configuration is designed to provide the crane's central ballast.)

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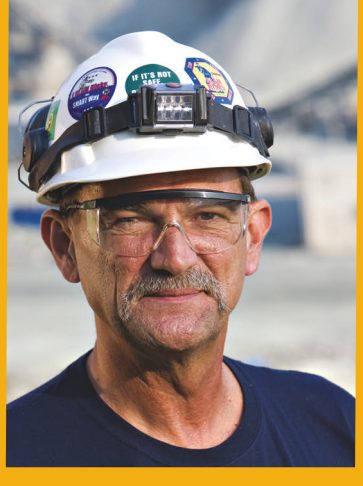

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Caterpillar AccuGrade Compaction

AccuGrade Compaction from Caterpillar is a new GPS machine-control system that provides centimeter-level mapping accuracy for quality control and assurance documentation in paving operations. Jobsite managers can remotely monitor job progess using an on-site computer for in-process control, the company says. Color graphic display presents data in an intuitive, easy-to-read format so the operator can see in real time what conditions exist and adjust accordingly for improved compaction quality. Estimated list price: $85,000 to $95,000.

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Construction Lifters Pipe Pick

Construction Lifters Pipe Pick is an attachment that allows workers to lift concrete pipe without actually going inside the pipe. Inserted through the hole in the top of the pipe, the unit automatically engages inside the pipe by tilting the handle and raising the lifter. The lifting arm engages inside the pipe. This process improves on-site safety, speed and efficiency, the company says. Estimated list price: $700 to $1,600.

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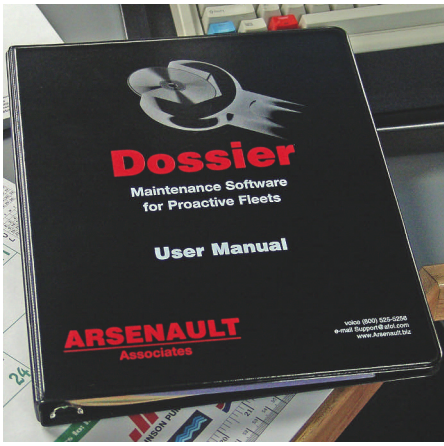
Arsenault Dossier Software



Dossier Maintenance Software version 4.3 offers advancements in fleet maintenance management, says Arsenault Associates, including the elimination of up to 75 percent of all repair order data entry for recurring work. Pocket Dossier wireless mobile software operates on PDA cell phones, allowing technicians to run the program wherever they are. A new "one entry/post to all" features broadcast service bulletins and other fleet issues to multiple units with one entry. An automatic expense tracking feature reports maintenance, fuel and administrative expenses and compares them to projected operating budgets. User licenses are scalable to fleet size.

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DeWalt MobileLock DS500

DeWalt MobileLock DS500 is a wireless alarm system combining GPS locating ability with alarm monitoring and notification. Contained within a weatherproof box, the unit has 30 days of run time without external antennas or plug-ins required. It is controlled through a website portal and phone menu system and communicates via digital cellular communications on the Sprint PCS network. Estimated list price: $500 to $600 for hardware; $20 to $30 for the monthly service.

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Astec Phoenix Phantom

Astec Phoenix Phantom burner, for use in the hot-mix asphalt industry, has a new injection method that allows more complete mixing of air and gaseous fuel for more efficient burning that lowers emissions, the company says. Instead of using gas injection tubes, the Phantom injects gas into 3-inch-diameter turbulent mixing tubes as air passes through them. This mixing enables the unit to achieve low emissions without using flue-gas recirculation.

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VIS Tire-Inflation System

Vehicle Inspection Systems VIS-Nitro tire-inflation system has a nitrogen inflator to help eliminate under-inflation of tires. The unit can fill four commercial tires simultaneously. Technicians clip on the chucks and set the pressure, the company says. Automated purge cycle vents air from the inflated tire and replaces it with "high-purity" nitrogen.

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DPL America Titan Equipment Monitor

Titan equipment monitoring system incorporates a completely hidden, in-cab antenna. The GPS-based system allows users to remotely disable and re-enable equipment through the company's Internet software. Each time the monitored machine is turned on, off or moved, the unit updates the status and location in real time. If discovered by a potential thief, the unit will disable the machine, and a "panic mode" feature leaves a mapped trail for police to follow. The system features one rate plan, a flat rate with no overages. Estimated list price: $500 to $900.

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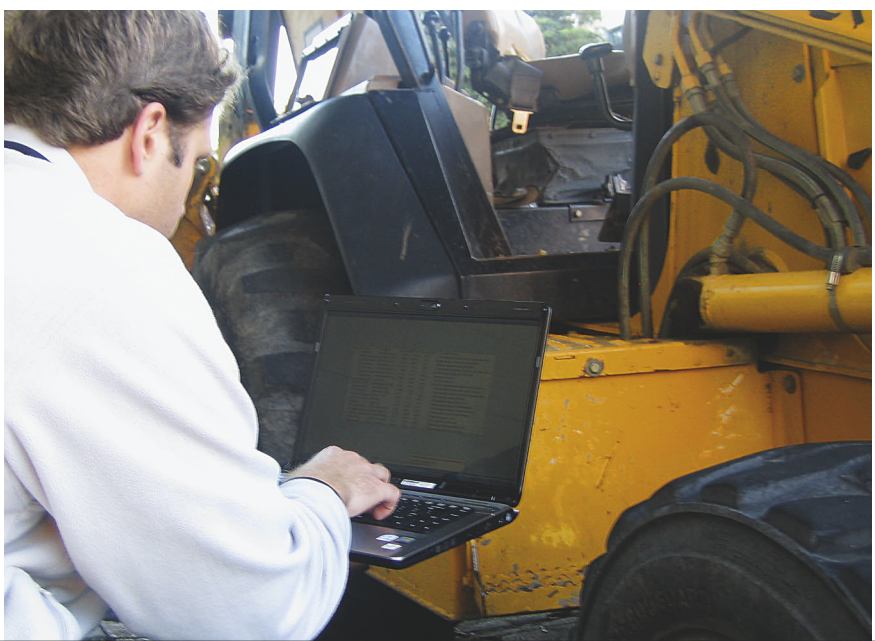

Michelin XMCL Radial Tire

Michelin XMCL radial tire has a steel crown belt package and reinforced sidewalls for puncture-resistance and overall durability. Structure helps enable the tire to provide load-carrying capacity of 14,400 pounds at 6 mph and 9,900 pounds at 24 mph, up 51 and 55 percent, respectively, compared to the model it replaced. Michelin is targeting smaller machines, such as backhoe-loaders, compact loaders and telehandlers. Estimated list price: $300 to $1,000 per tire.

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Leica PaveSmart 3D System

Leica Geosystems PaveSmart 3D automated steering-and-elevation control system is for use on curb-and-gutter applications. It is based on the company's 3D software platform, which uses its X-Function dataflow concept. PaveSmart is designed to be used for offset slipform paving such as curb-and-gutter, barrier, v-channel and sidewalk.

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Mobile Awareness Tire Monitoring System

Tire-pressure monitoring system from Mobile Awareness features pressure sensors that mount externally on the valve stem for ease of installation. Unit measures low and high pressure, plus tire temperature and slow leaks. The upgraded model is smaller, lighter, and can transmit farther, eliminating the need for a signal repeater, the company says. Battery life has been extended to seven to 10 years. Estimated list price range: $595 to $1,195, depending on tire configuration.

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Loegering Quad Track System

Loegering QTS is a bolt-on traction system for telescopic boom lifts. According to the company, lift safety is improved because the system allows the front of the unit to articulate independently from the rear. Each of the four track systems oscillate, too, enhancing machine mobility and operator safety. Estimated list price: $29,500 per set.

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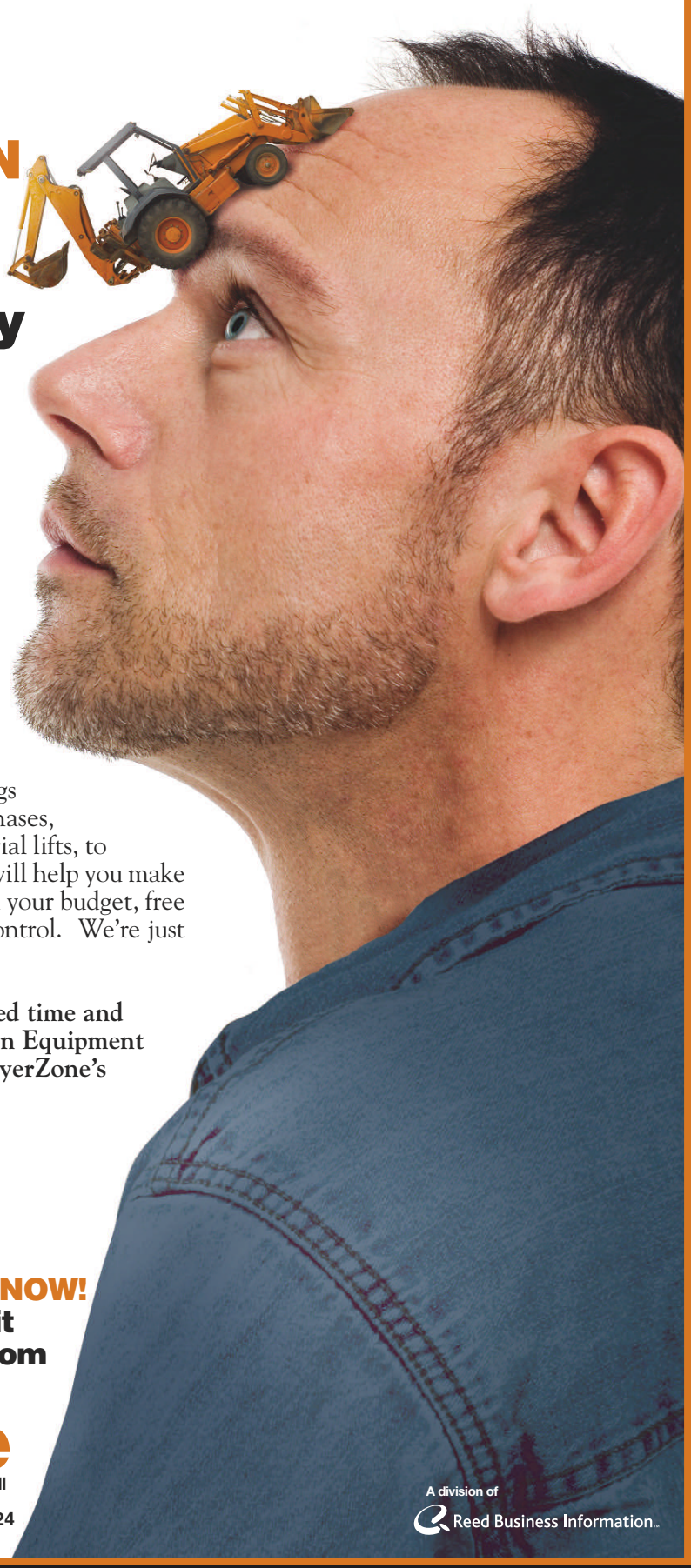

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Topcon/Sauer Danfoss AutoPave

AutoPave machine control technology from joint venture company Topcon/Sauer Danfoss does not require a total station, which enables users to moves multiple machines without regard to sight lines. Users can accurately control the x, y, and z axis down to within a millimeter, the company says. One transmitter works with multiple GPS receivers. Price is $100,000 for the machine control components and a start-up cost of $50,000 for jobsite surveying equipment.

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Goodyear Wrangler Pro-Grade Tire

Goodyear has added SilentArmor Pro-Grade tires to its Wrangler line for pickup trucks. Tires have a new tread compound for better tread wear and toughness. The compound is chip- and chunk-resistant and works with two high-tensile steel belts and a Kevlar layer to absorb road noise and provide a smooth ride. Rim Lock provides a more stable bead area, which Goodyear says reduces rim slip and reduces the need for balancing the tire.

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Sakai ExactCompact System

On-board ExactCompact system enables roller operators to maintain impact spacing. The operator sets the push-button control for the desired target figure — anywhere between 8 and 20 impacts per foot — and when the machine runs, the target appears on a display, allowing the operator to reset as needed. The company says operators can learn to use the unit within minutes. The system is standard on models SW850 and SW900, and an option for model SW800, priced at $2,000.

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Trimble CCS900 Compaction Control

Trimble CCS900 compaction control system aids users in compacting surface material to a target density and in checking finish-grade accuracy. A satellite-based positioning system enables users to collect and document comprehensive, real-time compaction data, the company says. It can then be transferred wirelessly for reporting. Two levels of functionality allow the system to be used on most manufacturer's brands, as well as on Trimble-ready rollers.

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Trimble Grade Control for Excavators

GCS600 grade control system is designed for excavation, trenching, grading and profile work. Excavator operator programs for depth and or slope, references the laser system to a benchmark, and digs. Indicator light and tone guides the operator to accuracies within an inch, Trimble says. A pitch and roll sensor compensates for machine footing attitude, eliminating the need to level the machine before working. An optional Laser-Catcher features re-benches with the laser without returning to the original benchmark, allowing for work across a greater area as the machine can move location. The system can be upgraded to GPS (GCS900), which gives the operator access to site plans through the CB430 in-cab control box.

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Environmental Safety Solutions Enviroboot

Enviroboot is a dust-suppression accessory for demolition and chipping hammers and is more than 90 percent effective in reducing particulates distributed in the air, according to Environmental Safety Solutions. Enviroboot connects to a HEPA-filtered vacuum unit to create a vacuum chamber around the chisel to withdraw fine dust. Model EB-1 fits on hammers; EBCH-1 is for chipping hammers. Estimated list price: $120-$165.

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WaveBox Microwave

A portable microwave oven from WaveBox weighs 15 pounds and has a heavy-duty handle for carrying. Powered by in-vehicle power outlet (12v, 15-amp minimum), as well as standard 110v outlet or direct connection to a 12-volt battery with alligator clamps. The unit also includes a CoolWave integrated soft-side cooler that stores inside the microwave until ready for use. Estimated list price: $199.

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TruckWeight Smart Scale

TruckWeight Smart Scale is a wireless onboard scale for trucks and tractors with air suspensions. Sensors measure temperature and pressure changes in the suspensions and relay data to a handheld receiver via low-powered radio transmitter, and can be monitored from up to 500 feet. Installation takes 30 minutes for a standard five-axle setup. The unit is powered by AA batteries and housed in a shock-resistant, noncorrosive, waterproof container. The scale monitors 20 times per minute to determine if the truck is being loaded, then enters quick-response mode for up-to-the second weights during loading. Estimated price is $1,590 for a five-axle tractor-trailer, which includes two sensors and one receiver.

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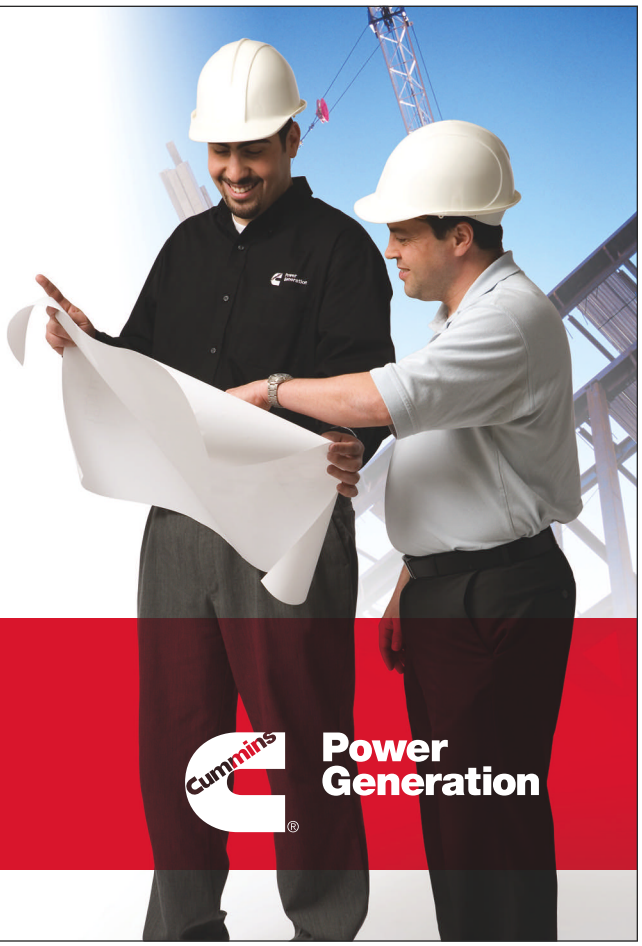

Cummins Power Generation

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By DAN SULLIVAN, Contributing Editor

Electrical Troubleshooting: Slow Down To Speed Up

Troubleshooting is a brain game — not a wrench-turning, meter-reading, parts-changing game

In previous articles for *Construction Equipment* magazine, I've detailed specific skills and practices that can be used to speed up and streamline electrical troubleshooting. In this article I'll be doing the same, but I'll also try to suggest a few ways you can alter your thinking about the way you approach troubleshooting.

First of all, let's assume that we want the same thing — namely, a faster process for finding electrical faults that's accurate and definitive. We want fewer wrong turns, fewer parts replaced unnecessarily, and a testing and repair process that reduces the chance we'll cause damage that will come back to haunt us in the future.

Attaining these goals is not as difficult (or impossible) as it might seem. The issues involved here are the knowledge, thought processes and confidence of the technician. First and fundamental, the technician must have a detailed understanding about how the voltmeter works and a disciplined approach to reading electrical schematics. My experience has taught me that these are absolutely critical skills. We've touched on these subjects before, but we'll cover a few more tricks in these areas in our present discussion.

But just as important is the technician's thought process. Electrical troubleshooting is a logical exercise that requires logical thinking. Too many technicians start out with hasty, incorrect assumptions; they're doomed to fail before they start. But take heart; it's a situation that can be reversed, and you'll find your confidence growing as you learn to thoughtfully exercise basic skills.

Slow down to save time

Okay, I know what you're about to say: "If I take time to think through an electrical problem, they'll say I'm not working."

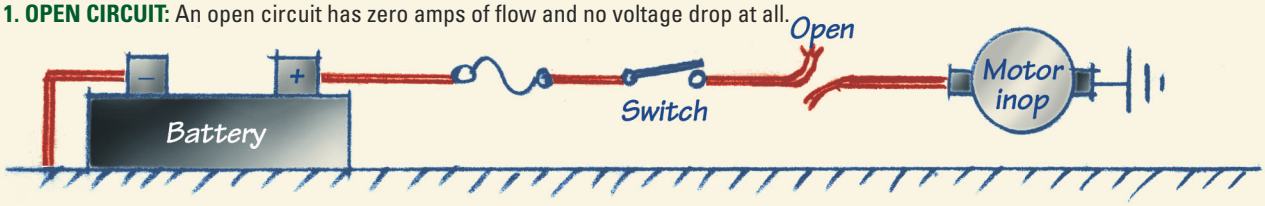
But actually, you're saving time. As an electrical troubleshooter, you must keep track of time and not let it get the better of you. Without question, most technicians have a misplaced sense of time when working on electrical problems. I've seen them waste two or three hours walking around, changing parts (without knowing for certain if the parts are faulty), pulling wire harnesses apart just to look at them, and doing other "little" things that add up to hours of effort.

My suggestion for technicians who approach problems in this manner is that they sit down and read the schematic — perhaps for as little as half an hour — to orient themselves and figure out how the system works. Unfortunately, that suggestion, as we've already noted, typically is met with protest: "I can't waste the time to do that," or "I'll get yelled at if I do that."

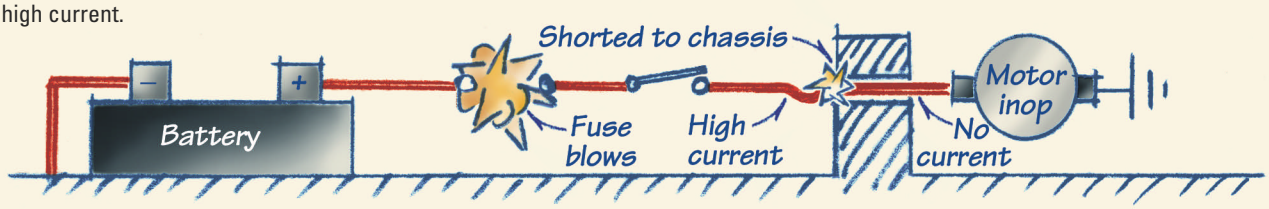
Schematic reading is a skill that is central to the troubleshooting process, and if you try

Circuit Fault Definitions

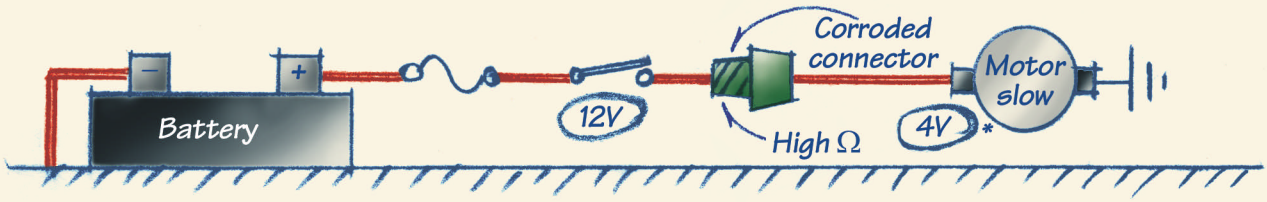
1. OPEN CIRCUIT: An open circuit has zero amps of flow and no voltage drop at all.



2. SHORT-TO-GROUND: A short-to-ground creates a low-resistance circuit that bypasses the load (working component) and causes high current.



3. HIGH-RESISTANCE: High-resistance faults — which can include corroded wires, corroded connectors and bad grounds — cause low current and a strange voltage reading.



* This voltage reading assumes the circuit is being tested under load.

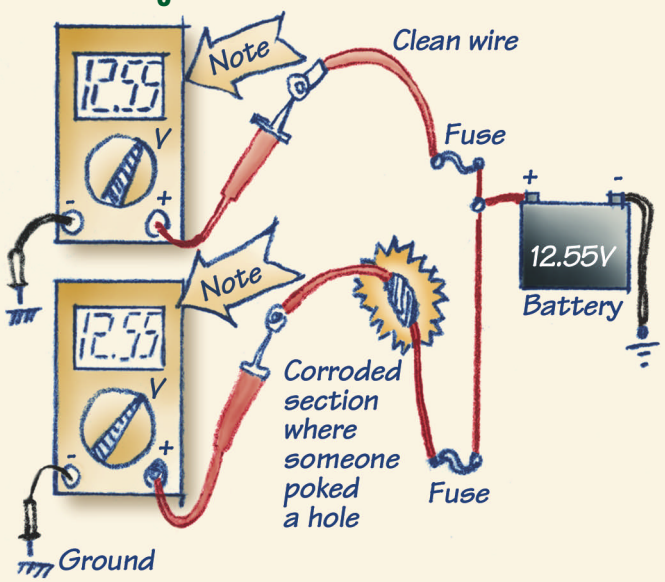
to avoid it, you'll be working on the machine as if blind. It's crucial that technicians get into the books and get the system figured out before starting the troubleshooting process. Doesn't it make sense to gain some idea of what could be causing the problem before you attempt to make the repair?

I tell students repeatedly: "You troubleshoot circuits, not wires. The circuit is simple; the wiring is complex."

My approach to troubleshooting is first to make a simple drawing of the suspect circuit in order to figure out what it does (and what it doesn't do) and, then, to repair the wires. Technicians can waste a lot of time, because they think they need to see the wiring in order to figure out what's going on. So, they rip open harnesses, cut tie-wraps and unravel wire looms. Nothing could be more unproductive. The redrawing process forces technicians to slow down and to analyze, resulting in intelligent decisions.

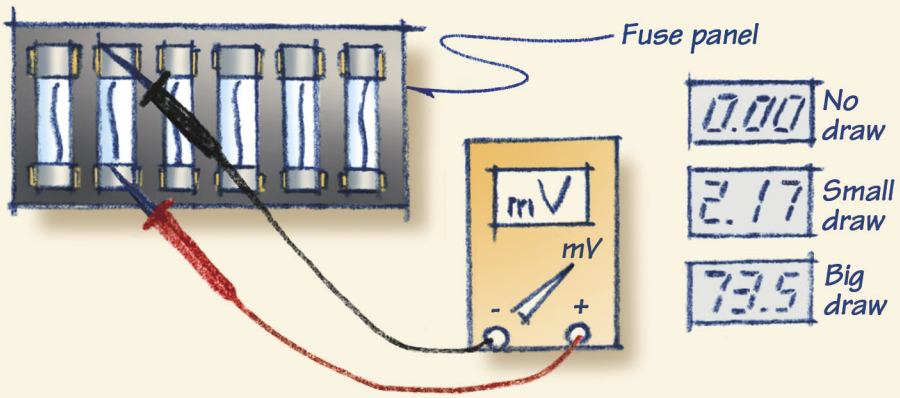
(See "The Electrical Schematic Is Your Friend," page 48 in *CE*'s August 2006 issue — or online at http://www.constructionequipment.com/article/CA6359334.html. Editor)

How Can a Digital Voltmeter Mislead?



The digital voltmeter is the best basic tool for electrical troubleshooting, because it's calibrated and exact. But remember, the digital voltmeter can't detect a high-resistance fault if the circuit is open. You'll read full-system voltage in a high-resistance circuit unless the circuit is tested under load.

Testing for Battery Draws



Any fused circuit that has a current flow will have a small millivolt (one thousandth of a volt) drop. You can use the voltmeter set on "mV" across the fuses to test for current drain. The voltage drop will be small (5 to 20 mV) for a small current, and greater (above 20mV) if the current is large. (The numbers used here are approximate.) Remember, voltage drops occur only in wires with current flowing through them, and if current is flowing, the wire can't be open.

The voltmeter gets my vote

Dare I say it? The ohmmeter is really a terrible troubleshooting tool. Now, don't misinterpret this to mean that using the digital meter is a mistake. What I'm saying is that the OHM function on the meter is not anywhere as effective and useful as most people assume.

The voltmeter is far more effective for finding faults. It's much faster; it's more meaningful; it's more accurate; and it's safer. When the voltmeter is used properly, every reading is a specific answer. Using the voltmeter doesn't require you to know what's wrong before you start. It can test the entire circuit — connected — in just a few steps, rather than many — disconnected — steps.

But that said, the voltmeter is often misused. For instance, some technicians round off readings, instead of using the exact number: 13.3V is not 12V and 11.8V is not 12V. If you don't take advantage of the meter's accuracy, you'll miss the diagnosis. And for all of its virtues, the voltmeter can mislead you in certain situations; but if you're aware of this, you won't be tripped up. But unfortunately, some technicians haven't yet learned to use the voltmeter to its full potential, often ignoring valuable readings that they don't understand.

Specific faults/ specific readings

For instance, a little-known voltmeter reading is called "ghost voltage." Digital voltmeters are so sensitive that even the earth's magnetic field will induce a very small voltage in its leads (as when you turn it on). You get the same result — a rapidly fluctuating, low voltage reading (ghost voltage) — when the leads are touching two wires that are not connected, as when there's a broken or disconnected wire stopping current flow.

This is an "open circuit." So when you see this reading, don't say, "what the heck is this?" but begin to investigate for an "open." Current flow through an open circuit is zero. The circuit is dead.

When making this investigation and you're looking for voltage at a component you have unplugged, the voltmeter will register ghost voltage if the wire is not complete (open) to the component, or exact system voltage if the wire is complete to where you are. If you do read exact voltage, you then know that something after the component is open.

On the other hand, if the meter reads 0.00V and it locks in on that reading, the correct answer is "continuity to ground," which often is expressed as a "short-to-ground." This is a specific fault (copper from the circuit touching a steel ground), and it causes the voltmeter to give a specific reading — 0.00V or "true zero voltage." Some technicians, however, don't understand this reading. If the wire you're testing is shorted to ground, then both leads will be at the same potential, and the meter reads, "zero".

A short-to-ground causes very high — possibly damaging — current, and if the fuse blows, it's to protect the wire. Whatever you do, don't install a 50-amp fuse in the panel to "find the short." If you do, you risk a fire that can burn the machine down to the tires. I've

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seen it happen. True zero voltage is blatant, because ghost voltage stops and zero locks in. This is how the VOLTmeter shows you continuity, making the OHMmeter unnecessary.

Tricky high resistance

The most dangerous error a technician can make is assuming that a wire is actually clean and can carry a load — just because you see a correct voltage. There's a big difference between voltage (pressure) and amperage (flow). Seeing voltage on the meter confirms that wires aren't open, but not that they will carry a load. This situation can occur if the circuit has a high-resistance fault, such as when corrosion or rust blocks current flow enough to cause the load (component) to malfunction.

Believe me, a great many parts are replaced needlessly because of this error. Since the technician reads full system voltage when testing the circuit to the component, the usual assumption is that the circuit is capable of carrying proper current; therefore, the component itself is bad. This problem is very frustrating, because you change the part with confidence after following the manufacturer's instructions, but it still doesn't work.

Unfortunately, a conventional digital voltmeter can't see this problem. The corrosion will keep the load from functioning properly, but it won't keep the voltmeter from reading 12V or 24V — that is, "normal." Light-bulb testers also will fail in this situation, especially those with LEDs, because it takes very little current for the LED to light. And in some conditions, you can't tell if the light is fully bright. Most of these light-bulb testers will actually be fully bright with as much as 10,000 ohms, and it takes only 20 ohms or less to kill a circuit.

Technicians who understand the problem of high-resistance faults and the voltmeter's inability to find the fault in a static test (that is, without current flowing) sometimes work around it by devising a dynamic test (with current flowing) by using a headlight that can be placed in the circuit to "load" it. Or, another possibility is using a testing tool capable of performing a dynamic test, such as TESlite Voltmeter Leads, which allow you to determine if the circuit is free of resistance by loading the circuit during the voltage test. (See "Unique Leads Find Wiring Problems That Evade Meters" in *CE*'s October 2002 issue, or online at http://www.constructionequipment.com/article/CA6295282.html. Editor)

In conclusion, the best way to think about all of this is to understand that troubleshooting is a brain game, not a wrench-turning, meter-reading, parts-changing game. Once you've read the schematic, redrawn the circuit, determined what the circuit is supposed to do and, finally, have taken meter readings to see what the circuit is (or isn't) actually doing, then you troubleshoot.

Don't do something with your hands just to look busy. You'll actually make more intelligent repairs if first you sit on your hands and engage your mind.

Construction Equipment thanks Dan Sullivan for sharing his expertise in this special report. Graphics are adapted from Dan's practical handbook, Fundamental Electrical Troubleshooting. Dan is a full-time trainer, helping technicians understand and apply electrical theory and problem diagnosis. You can reach Dan at Sullivan Training Systems, 877-WRENCH2, or at www.brighterideas.com.

More Help from Dan Sullivan

On the home page of *Construction Equipment*'s website (Construction Equipment.com), type "Dan Sullivan" in the search box to pull up a list of pertinent electrical-repair articles. Copy the article file name and paste it into the address box. Or, use the file names supplied here to pull up the appropriate article.

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The Electrical Schematic Is Your Friend
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By LARRY STEWART, Executive Editor

No-Shortcut Oil Analysis Drives O&G Reliability

Ninety-eight percent of repairs before failure and saving $180,000 per year render the cost of 7,000 samples insignificant

The centerpiece of O&G Industries' 84-year-old maintenance program is the company's commitment to oil analysis. To keep the fleet's 700 units reliable and cost effective, Jim Zambero, O&G's vice president of maintenance, says, "we don't ever — ever — take a shortcut.

"We sample every single thing (in the fleet)," Zambero adds. And he means every single fluid reservoir on every single piece of equipment — generating 7,000 oil-analysis reports per year. "We have a lawnmower on the system, plate compactors — a whole operation could stop if a plate compactor stops.

"If we buy a lightweight portable generator, like you'd use around your home, we study the recommended maintenance, install an hour meter, we put it in the system, and it gets sampled so there's no excuses for why it hasn't been serviced.

"If you sample everything," he concludes, "you don't have to worry about anything."

Only about 150 units of the fleet are light trucks and cars. There are about 200 ready-mix trucks and tri-axle dump trucks, and most of the rest of the fleet is heavy off-road equipment.

"So naturally, we have very expensive equipment that operates under the most extreme conditions," says Zambero. "Used-oil analysis is a must, based upon many years of experience (Zambero himself has been with the company for 28 years). It is imperative to know what is happening in all components of a piece of equipment.

"If we see any warning signs of a problem, we take immediate corrective action to prevent a minor problem from becoming a costly catastrophe."

O&G uses ExxonMobil's Signum oil-analysis system. Zambero has elected to receive any alerts Signum generates directly via fax at the company's offices.

Those alerts have a major impact on how we plan our day," Zambero says. "I try to check the fax machine regularly during the day (it's in an office on the floor below his). Everybody in the building understands how important those are to our business, though, and they bring them right up as soon as they come in."

Photos: Jeffery Yardis©

Lee Powers (left), president of O&G's ExxonMobil distributor LF Powers, reviews fleet-wide oil analysis performance with Zambero and Phil Covelli (right), O&G's shop foreman.

PROFILE

Jim Zambero, Vice President of Maintenance

O & G Industries

Headquarters:
Torrington, CT

Specialty:
Diversified construction services; aggregates, asphalt and concrete plants; and mason-supply stores

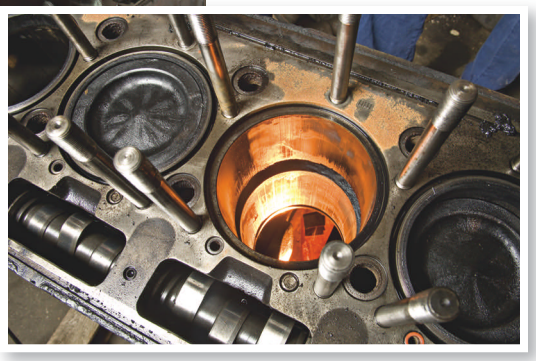
Fleet Value:
$162 million

Fleet Makeup:
350 off-road pieces; 200 heavy, on-road trucks; 150 pickup trucks

Support Staff:
75 technicians and staff, seven parts people, 12 administrators

Facilities:
Six shops, 30 mechanics trucks, six lube service trucks

Market Range:
Primarily New England, with some national joint ventures



Dick Mangione (center), technician at O&G, reports on the condition of rings and liners in a 1963 Detroit Diesel DD 6-110 to Zambero and Covelli. Oil analysis allows O&G to change oil at 350-hour intervals with no loss of component life and a 98-percent repair-before-failure record.

If the alert doesn't require immediate attention, it is routed to technicians at the O&G location where the machine is domiciled, "so everybody knows what's going on with the machines they're using," Zambero says.

If the sample is suspicious, but not threatening, Zambero adds a note to the sample report letting the remote service manager know when he'd like to have the compartment sampled again for a follow-up analysis. He also creates what is known around the company as a BOS — a bad oil sample — note in the O&G maintenance-management system. The system automatically creates a work order when the follow-up sample should be taken.

"That's a system we will follow through on," Zambero says. "Sometimes maintenance gets overlooked. It's typically not intentional — just a big company and everybody's busy. But if the work is not done, the system generates a report so we're reminded to call the operation and get that follow-up sample.

"If we get a fax alert that says there's something really urgent happening, like coolant in an engine, we'll stop the machine right away."

"The system has provided dividends in the profitability of our operations," Zambero says. "It also helps with the resale of our used equipment, by confirming its condition."

A conservative estimate of savings directly attributable to the choice of Mobil's Delvac premium lubricants and the oil-analysis program is $180,000 per year. The A service interval for heavy equipment has increased gradually under the watchful eye of oil analysis, from 200 hours to 350 hours. Heavy trucks are serviced at 12,000 miles. Power-transmission oil-drain intervals have been nearly doubled. Hydraulic filters are changed at A services and oil samples are analyzed every 1,000 hours. There is no preset hydraulic oil-change interval.

Oil analysis ensures that O&G repairs 98 percent of components before failure, saving significantly on parts costs and downtime.

"Routine used-oil analysis provides us with advanced warning of developing problems in our equipment," Zambero says. "On numerous occasions, we have discovered fuel-dilution problems, coolant leaks, air-intake problems, and adverse-wear situations during their developmental phase. This provides us with additional time to schedule replacement equipment for a jobsite, order in parts, and schedule the maintenance repairs.

"That has dramatic value," Zambero says. "It frees up manpower, reduces repair costs, increases equipment utilization and availability — it is a cornerstone of our maintenance program."

"You have to look at the average life of a piece of equipment [like the one you just repaired before failure]," says Scott Stonecipher, ExxonMobil lubrication engineer and representative to O&G. "If oil analysis helps you find a coolant leak at one-third of the life of a machine, you saved two-thirds of the life of that engine."

Faithfully recorded trends in component condition have also simplified warranty claims.

"We have been able to go back to the OEM to document equipment problems that were only starting to grow while under warranty but became major problems out of warranty," Zambero says. Encountering only two or three such events each year, the records can save a bundle. "With the oil-analysis history to show that the trend started while the machine was still under warranty, manufacturers will stand behind it."

Being able to show prospective buyers the quality of service a used machine has received at O&G and the condition of the internal components also brings a premium for O&G's used equipment.

"When you go into the office and bring out the oil-analysis results on every component on the machine from when that machine was brand new, it gives them some kind of comfort level that the machine is in good working condition," Zambero says. "It adds a lot of value at resale."

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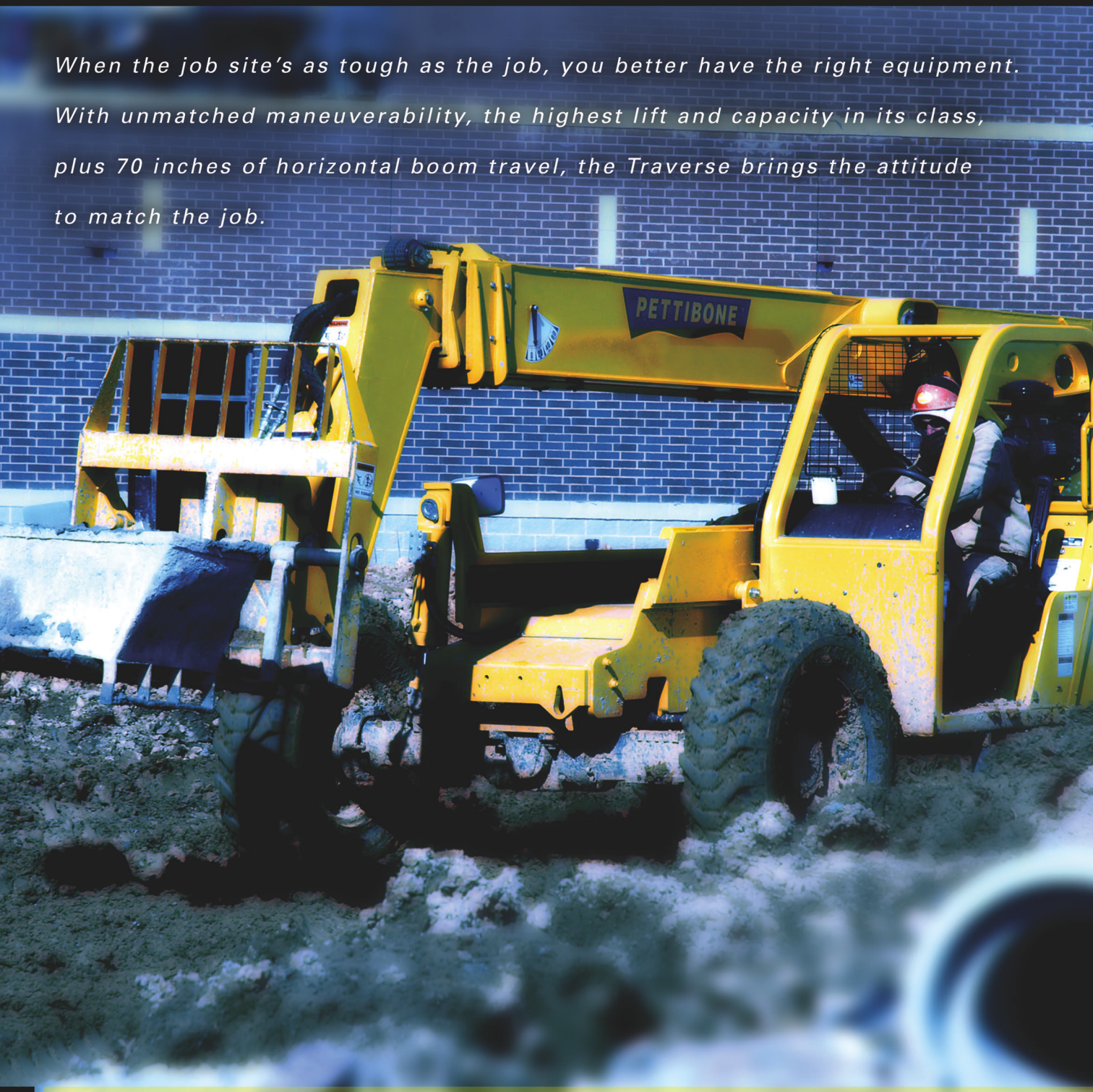

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By MIKE VORSTER, Contributing Editor

Why the Sweet Spot Matters

Economic life provides more than an accurate hourly rate. Managed well, it ensures an age-balanced fleet.

Most companies have a standard way of calculating the estimated owning-and-operating cost for a machine. Many develop their own style, others follow a format developed by one of the major manufacturers, or some use one of many described in published texts. Selecting and using an appropriate standard method is important, but the secret to success and the real challenge lies in estimating future costs and understanding the risks involved in each category.

Adding up the total costs expected throughout the lifecycle of the machine and dividing by the hours you expect the machine to work gives your best estimate for the hourly owning-and-operating cost under the conditions you have assumed. It is, however, a limited calculation that does not enable you to determine the economic life, or "sweet spot," when the machine has worked sufficient hours to absorb high early depreciation but is not yet old enough to experience high downtime and repair costs.

Analysis is valuable when we use it to quantify the importance of a rational and consistent replacement policy

The economic-life calculation is similar to the normal-rate calculation except that you repeat the analysis to see how total owning-and-operating cost varies as the machine ages. The analysis gives you three important pieces of information.

The magnitude of the minimum point. This is the standard-rate calculation with the added knowledge that the life you have assumed gives the lowest possible hourly rate.

The timing of the minimum point. This shows you how long you should aim to keep the machine to minimize the sum of decreasing owning and increasing operating costs.

The shape of the curve. This shows you how sensitive your cost calculation is to shortening or lengthening the life of the machine and enables you to set ranges or "zones" used to motivate replacement decisions.

Here is how it works:

Produce a graph showing owning-and-operating cost vs. hours worked as in the illustration at the top of the next page. Do this by repeating a standard-rate calculation for a range of values for hours worked and changing the age-dependant factors such as residual market value and expected lifetime repair cost for each assumed age.

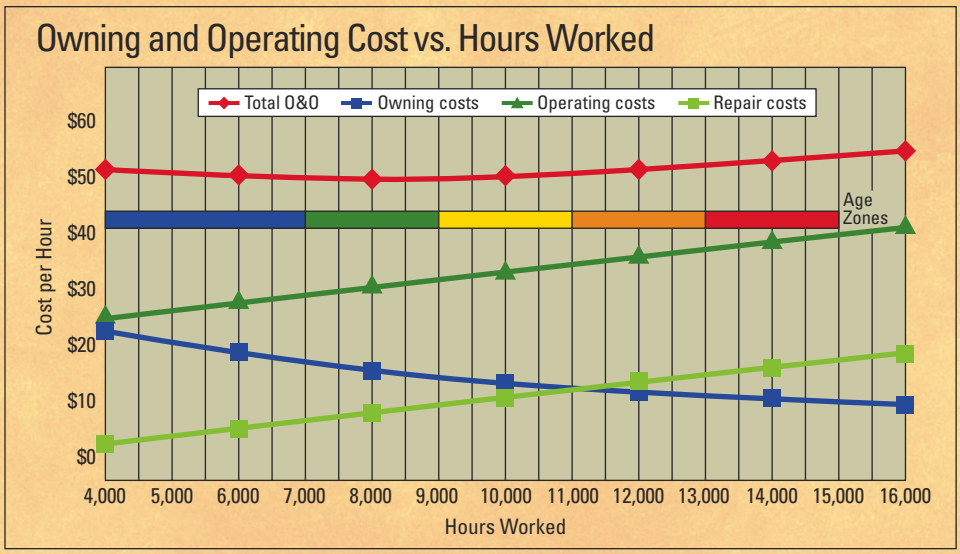
The red line shows how total owning-and-operating cost varies as the machine ages. The line indicates that the minimum owning-and-operating cost for our example machine is about $44 per hour, and it occurs at an assumed life of 8,000 hours. Also note that the owning cost (blue line) decreases and the operating cost (green line) increases, but the total (red line) runs fairly flat. This means that owning-and-operating cost is not sensitive to assumed life, and we can keep the machine for any period between 4,000 and 11,000 hours without going above the $45-per-hour line.

Knowing the minimum point ($44 per hour) helps to set an hourly rate for the machine. More importantly, knowing when the minimum point hits (8,000 hours) and the shape of the line enables us to manage the average age of our fleet and show what happens if we do not have a consistent and realistic replacement strategy.

This is a two-step process. First, we use our knowledge about the shape of the line to define a number of "age zones." Second, we

Mike Vorster

David H. Burrows Professor of Construction Engineering and Management at Virginia Tech. See ConstructionEquipment.com for full archives of "Equipment Executive."



Analysis of owning-and-operating costs over time allows for the management of fleet average age and replacement strategy.

Unit number	Current age in hours	Expected age at end of			
		2008	2009	2010	2011
7002	18,092	Sell			
7003	15,304	< 2			
7001	13,326	15,126	< Sell 1		
7004	12,317	14,117	15,817	< Sell 1	
7022	10,374	12,174	13,874	15,574	< Sell 1
7150	7,156	8,956	10,656	12,356	14,056
7161	6,182	7,982	9,682	11,382	13,082
7157	4,921	6,721	8,421	10,121	11,821
7160	4,875	6,675	8,375	10,075	11,775
7152	4,588	6,388	8,088	9,788	11,488
	Buy	1,700	3,400	5,100	6,800
	2 >	1,700	3,400	5,100	6,800
		Buy 1 >	1,700	3,400	5,100
			Buy 1 >	1,700	3,400
				Buy 1 >	1,700

Follow Unit 7161 across the rows and see how it moves from blue through green, yellow, orange and red in five years. In 2009, machines are balanced across zones, with three in each of the blue and green zones and two in each of the yellow and red zones.

use our knowledge of the current age of the machines in our fleet to develop a fleet-replacement strategy.

Based on our example, let's define age zones as follows:

- Blue zone: less than 7,000 hours. These are young machines still to reach their minimum point.
- Green zone: between 7,000 and 9,000 hours or 1,000 hours each side of the "sweet spot." This is the ideal and most economical zone.
- Yellow zone: between 9,000 and 11,000 hours. Machines in this zone are close to the minimum but are becoming more expensive due to rising hourly repair costs.
- Orange zone: between 11,000 and 13,000 hours. Machines in this zone are clearly becoming more expensive due to rising hourly repair costs.
- Red zone: more than 13,000. Machines in this zone are clear candidates for replacement due to rising hourly repair costs.

Now let's see how this works. Suppose we own 10 machines distributed in the age zones shown in the "current age" column of the second diagram. Assume they will work 1,700 hours per year, and we move them into the age zones shown in the columns for the years 2008 to 2011.

Look at the three units in the current "red zone." Our plan is to sell two and buy two to give the balanced fleet shown in the 2008 column. If we do not do this, we will have four units in the "red zone" in 2008 and face a real problem in 2009. If we sell two units now and repeat the process with one unit each year, we will be able to maintain a reasonably balanced fleet as shown in the 2008 to 2011 columns. If we look horizontally along a given row, we can see how one machine moves through the age zones (Unit 7161 moves from blue through green, yellow, orange and red in the five years of our example). If we look vertically up a given column, we can see how the units in the group remain balanced through the age zones (In 2009, we expect to have three in each of the blue and green zones and two in each of the yellow and red zones).

Doing a full economic-life calculation to determine the sweet spot is seldom worth it if we only use the analysis to determine the hourly rate. A single assumed age calculation will do that with reasonable accuracy. The analysis is valuable when we use it to show how hourly costs increase with age and if we use this knowledge to quantify the importance of a rational and consistent replacement policy that keeps our fleet balanced as close to the optimum cost point as possible. CE

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By LARRY STEWART, Executive Editor

Groutzilla Forklifts Grout to Heights

Hopper with easy-clean auger fills block faster than buckets, cheaper than grout pumps

Stone Construction Equipment's new Groutzilla Placement System places grout or mortar in concrete blocks, walls, forms and foundations faster than buckets and less expensively than grout pumps. The productive hopper-and-auger system uses the forklift already on most sites to deliver a controllable stream of grout or mortar high onto walls.

Stone says Groutzilla can be effective on jobs that call for filling more than 5,000 blocks. With a suggested retail price of $6,499, the company suggests the unit will pay for itself in 60,000 blocks.

Locked on the forks of a telehandler or other forklift and powered by auxiliary hydraulic circuits, Groutzilla handles 20 cubic feet of material of almost any slump (Parker heavy-duty hoses carry a five-year leak-free guarantee). The hopper swivels on heavy-duty roller bearings. Three locking positions allow it to turn 360 degrees for cleaning and filling, 180 degrees for grout placing, or lock it in place for transport.

Groutzilla is designed for easy cleaning. The replaceable steel hopper's geometry promotes flow to the auger and helps prevent accumulation of grout on the hopper sidewalls. A built-in splash guard reduces spills in transport. The self-wiping polymer flighting on the Talet auger discharges all the grout in the chamber, eliminating build-up that can contaminate the next batch and significantly reducing waste.

You don't have to take the discharge snout apart or remove the auger to completely clean the unit. One five-gallon bucket of water can clean the hopper. The hydraulically activated shut-off valve seals the hopper, preventing any water seepage. Running the auger in reverse agitates the water and loosens residual grout. Run the auger forward to flush the hopper and discharge snout.

An optional radio-frequency remote (retails for $998) transfers control of grout placement from the forklift operator to the mason at the discharge point, eliminating the need for confusing hand signals. The remote can be purchased with the unit or installed later in the field.

Groutzilla can be filled from either a ready-mix truck or a mortar mixer, and was designed to be most productive when teamed with Stone's 20-cubic-foot SM2000 Silo Mixer. Groutzilla is covered by an unlimited one-year warranty.

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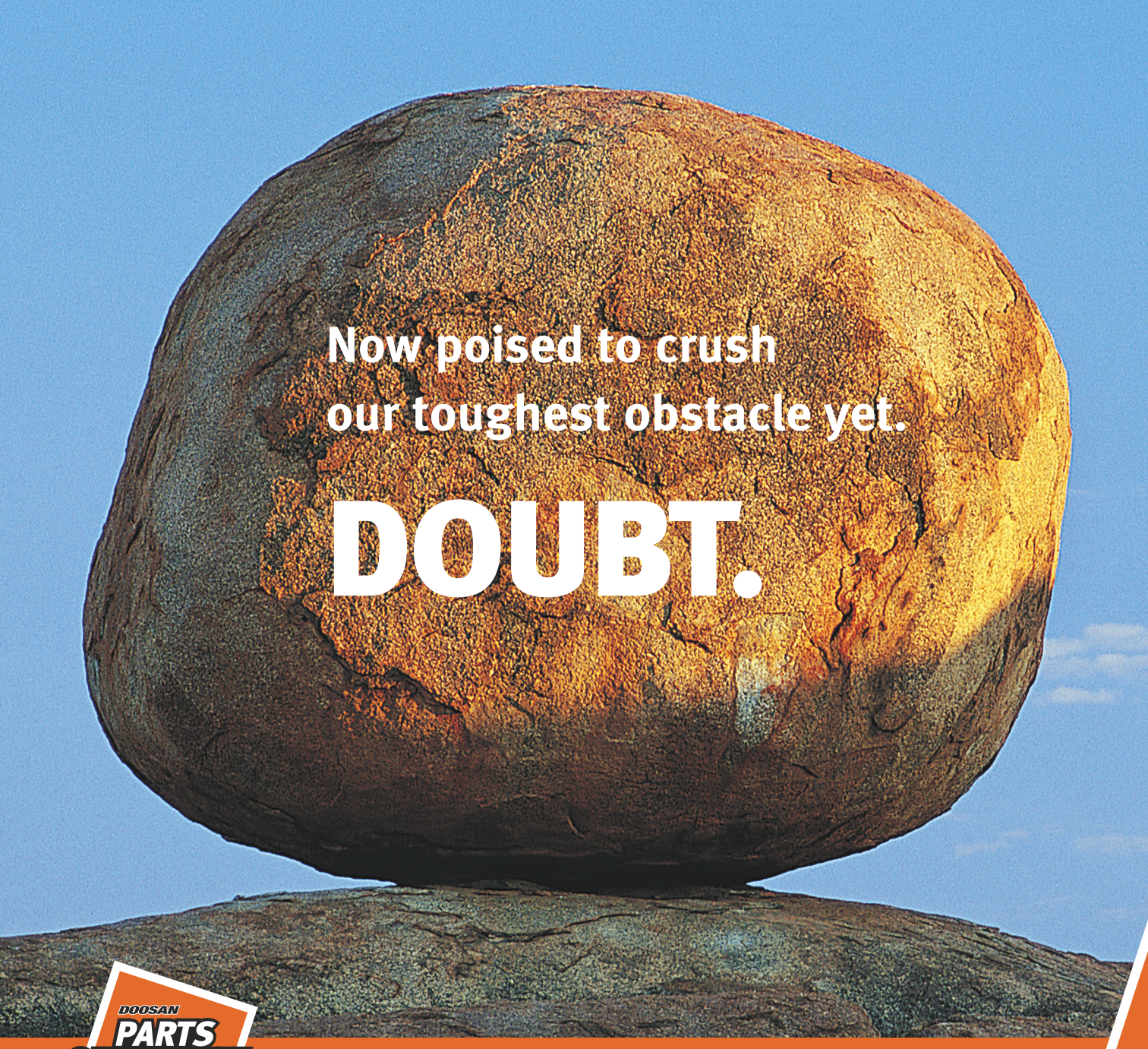
Stone designed Groutzilla to clean up in just a few minutes with no disassembly. But its discharge snout can swing away on heavy-duty hinges for visual inspection as necessary.

Groutzilla and its 20-cubic-foot hopper locks on the forks of a telehandler or forklift. It is powered by the forklift's auxiliary hydraulic circuits.



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By LARRY STEWART, Executive Editor

Manitex Brings a 50-Ton Boom Truck

Veri-Tek division fields the greatest lifting capacity available on a commercial chassis

Riding on tandems and a tag axle, the 5096s meets published road and federal bridge laws.

The Manitex 5096s has a base rating of 50 tons at a six-foot radius — 25 percent greater than any other boom truck — and meets federal bridge laws riding on a tandem chassis with a tag axle. Introduction of the crane is an early indication that the boom-truck brand is making aggressive use of capital available through its new owner, Veri-Tek.

Veri-Tek president, Andrew Rooke, said the 5096s demonstrates Manitex's commitment to providing customers with innovative lifting solutions.

The 50-ton boom truck comes with capacity charts for fully extended, mid-span and retracted-outrigger configurations. Areas of operation include over-the-rear, 360 degrees, and on-rubber capacity.

The four-section, 96-foot boom extends the maximum lift height to 152 feet. A two-stage offset jib and an auxiliary winch are available as options, as is cab air conditioning. The company is expected to introduce a longer boom for the crane in the second quarter of 2008.

Standard equipment includes a main winch that develops 15,000 pounds of line pull, pilot-operated controls, Manitex's ACCUSwing metering system that allows operator to adjust swing speed up to a maximum of 2 revolutions per minute, ROCSolid radio outrigger control, a CANbus load moment indicator, and cab heater.

Scott Rolston, Manitex general manager, told Cranes Today in late August that the company had sold 29 units of the 5096s, setting single-order records for Manitex with a dealer who followed an initial order for five cranes with a second order for 18 more. Ralston says most of these first 5096s models in the field are going into oilfield work. One customer replaced a truck crane, and plans to lift as much as 40,000 pounds over the back of the crane.

The Manitex's 5096s is expected to have a manufacturer's suggested retail price of about $370,000.

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Manitex 5096s Numbers

Capacity:	50 tons @ 6-foot radius
Maximum Lift Height:	152 feet
Boom:	4-section, 96 feet
Winch:	15,000 pounds line pull
Operating Weight:	60,000 pounds

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By MIKE ANDERSON, Senior Editor

New Sweet Sounds of Safety

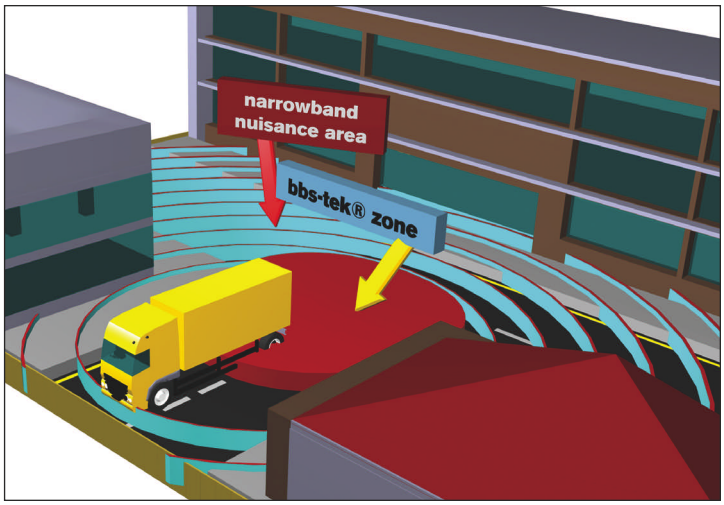
For contractors needing to keep the peace and quiet, it's Brigade to the rescue

Those of us who spend our working days on construction sites are intimately familiar with the beeping of back-up alarms on jobsite vehicles. Then again, so too are people on the next block.

Knowing the sound is one thing; knowing exactly where the sound is coming from is indeed another. Lives are at stake.

Now, thanks to broadband sound alarm products developed by Brigade Electronics, noise pollution control and safety don't necessarily have to battle for space on the jobsite.

It was the potential safety benefits that first attracted Chris Hanson-Abbott, chairman of U.K.-based Brigade, when he learned about the locatable traits of broadband sound.



Leveraging "locatable" broadband sound, bbs-tek back-up alarm products by Brigade Electronics contain the loud warning sounds to the equipment's hazard zone and immediate vicinity.

"A blind person could point instantly in the direction that the sound is coming from," says Henry Morgan, Brigade director and general manager.

Studies identifying traditional reasons behind backing-up accidents confirmed Hanson-Abbott's belief.

"When it comes down to the audible warning part of it, the accidents happen because the alarms get tuned out," says Morgan. "People ignore them, because they're associated with the irritation of a truck backing somewhere in the neighborhood, rather than the danger warning signal. If you have a look at what a back-up alarm is meant to do, your normal beep actually doesn't do it particularly well, if at all.

"A lot of people complain and report that either the back-up alarms get spoiled, bunged up or cut, because they're a constant irritation to people working on site. When you replace the tonal alarm — the beeping — with the broadband, you eliminate all of those things."

Based on Hanson-Abbott's observation, Brigade Electronics acquired a license for the broadband patent, and eventually developed the bbs-tek product family.

The "Shhh . . . Shhh" of the broadband alarms is "contained in and around the danger zone," meaning less decibels can actually end up having more effect because the sound is directed where it is intended, says Morgan.

"It was only once we started doing full trials that we suddenly would realize the environmental benefits."

And this is where markets are being created now.

Brigade first presented its technology to New York City officials in February 2005. Almost three years later, the BBS-92 was the only back-up alarm listed in Gotham's new noise control code that comes into effect Jan. 1.

With a U.S. subsidiary headquartered in New York, Brigade has also made presentations to officials in such cities as Seattle and Phoenix, says Morgan. Since safety is clearly most important, public officials have traditionally had to tread lightly on the noise concerns, "but if there is an alternative, then they'll start demanding it."

At present, the Port of Houston Authority is in the process of retrofitting equipment at work on the Bayport Terminal construction project.

The bbs-tek alarms are similar in size and material as traditional tonal alarms. In fact, one Brigade model uses the same bolt holes as the traditional alarms on Caterpillar equipment, allowing for complete interchangeability, says Morgan. However, the location must be correct.

"That does not work with the broadband. It needs to be on the back of the vehicle as if it's a back-up light pointing into the hazard zone."

Even people who have never before heard a bbs-tek alarm "know instantly" which way to look, because of the locatable sound, says Morgan. "It's a hear-look-learn experience."

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Market Watch Lite

By KATIE WEILER, Managing Editor

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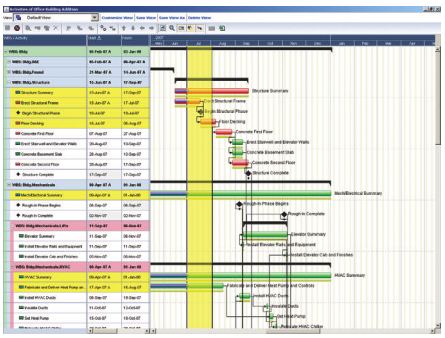

Primavera Systems

A new version of enterprise project and program management software, known as 6.0 or "P6," is Web-based, quick to deploy, and enables users to manage the planning, execution and control of projects. Planners and schedulers can use the software anytime, anywhere to collaborate and access information. The system uses intuitive, interactive Gantt charts and screen layouts; and powerful dashboards deliver exactly the information needed for decision-making.

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Hilti

Hilti says its PD 40 and 42 Laser Range Meters are the first laser range meters available with an accuracy of ± 1/25 inch for accurate measurements at the press of a button from two inches up to 650 feet. The PD 40 and 42 can add and subtract distances, as well as areas and volumes. Hilti claims its new optics and signal processing allow the meters to measure faster and further than other meters, even outdoors in bright light. The PD 42 stores the last 30 distance measurements or the last five function results.

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Shoxx

According the Shoxx, a proprietary process used in the manufacture of its X20 masonry saw blade (involving coating the diamond grains with titanium to increase grain retention), means that the blade "cuts twice as fast as a standard blade and lasts twice as long as a top-range blade." The Shoxx X20 diamond blade has a 20-millimeter segment height and is designed to cut materials such as paving blocks, brick, granite, flagstone, natural stone and reinforced concrete.

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Ground Heaters

Billed as having up to 75 percent net heater efficiency, Ground Heaters says the Arctic Bear Cub 300 indirect fired heater offers a maximum heat input of 288,000 Btu/hour at an airflow rate of 3,690 cubic feet per minute. It features a stainless-steel firebox and heat exchanger for long-lasting durability and performance. The unit's fuel tank has a 36.7-gallon capacity, which can run 24 hours a day with the remote thermostat accessory.

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Wacker

Boasting more power with the lowest hand-arm vibration (HAV) in its class, Wacker's EH 27 Low Vib electric breaker features a leaf spring dampening system that is the basis for the reduction of HAV to 5.5 m/s^2 — a 28-percent reduction from previous models. According to Wacker, the EH 27 Low Vib is the only machine in the industry that dampens vibrations in the entire upper housing, including the handles. Weighing just 60 pounds, the unit hits with 37 ft.-lbs. of impact energy at a rate of 1,000 bpm.

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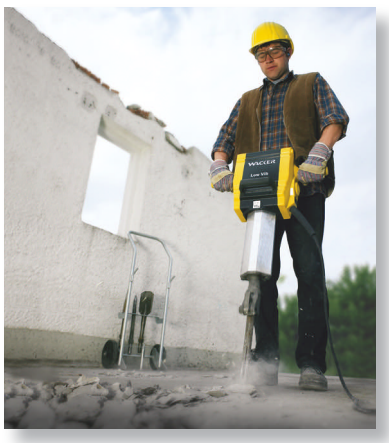

Market Watch Lite

Trimble

Multipurpose Universal Total Stations are designed for grade-control and site-positioning needs. The SPS730 and SPS930 total stations, says Trimble, feature "servo, autolock, robotic, DR reflectorless and ATS modes of operation," and "are designed to satisfy all site-measurement, stakeout, reflectorless-measurement and grade-control needs." The SPS930 is said to be accurate to one arc second in the vertical and horizontal angles, and the SPS730 is designed to provide three-arc-second accuracy in the horizontal plane and two-arc-second accuracy in the vertical.

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FCI-Burndy

The Patriot PAT46-18V battery-actuated crimping tool provides 15 tons of force and a 2-inch jaw opening. The new crimper allows installation of a large variety of splices, taps and terminals. The crimper features a C-Head design with 335 degrees of head rotation and a retractable assist handle. An audible "pop off" indicator signals a successful crimp.

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Lincoln Electric

Magnum arc-welding MIG guns for semi-automatic, gas-shielded welding are manufactured with a proprietary liner, a durable abrasion-resistant gun-cable outer jacket, and a gooseneck with three layers of insulation. The amperage rating of Magnum guns varies from 100 to 600 amps, and wire diameters range from 0.25 to 0.12 inches.

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Market Watch Lite

Hiniker

Hiniker's new line of V-plows features a high-clearance trip edge, which is designed to protect the plows. The pinch-free pivot point is 9 inches above ground level, for improved protection from higher obstacles. Because each side of the plow trips independently, tripping action is much smoother than with most V-plows. Double-acting hydraulic cylinders provide positive hydraulic control of moldboard plowing forward or backdragging.

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Trimble

The SPS710 and SPS610 robotic total stations are designed for construction layout applications. Used with the LM80 Layout Manager, the SPS710 and SPS610 units, says Trimble, "offer construction-specific functionality allowing general and concrete contractors to perform all jobsite layout and measurement tasks." An easy-to-follow user interface is intended to shorten the learning curve and speed operation.

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Topcon

Now part of all radio/antenna add-on kits for Topcon 3D positioning systems, a new MC 2.5 component will replace older receivers with new digital signal processing UHF radio technology. The gain for the customer is better radio data, and the flexibility in both channel spacing and frequency range programmability, according to Topcon. Compatible to systems already deployed in the field, the new MC 2.5 with digital radio is supported with Version 6.11 3D-MC software.

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Caterpillar

The AS2302 Vers-A-Mat screed is a hydraulically extendible model that provides paving widths from 10 to 18 feet. With optional bolt-on extensions, paving width can be extended to 22 feet, or with optional cut-off shoes, paving width can be reduced to 8 feet. The screed features narrow front-mounted extenders, electrically heated screed plates and new end gates. The main screed plate is 18 inches from front to back, and the front extenders measure 9 inches front to back.

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Trimble

To facilitate high-accuracy configurations for dozers and graders using the new SPS730 and SPS930 universal total stations, Trimble introduces version 10.7 of the GCS900 grade-control system. System versatility is broadened using satellite-based augmentation system support, such as the U.S. Wide Area Augmentation System, European Geostationary Navigation Overlay System, and Japan's MTSAT. In addition, supporting on-machine software logs a new productivity data file for project tracking and management.

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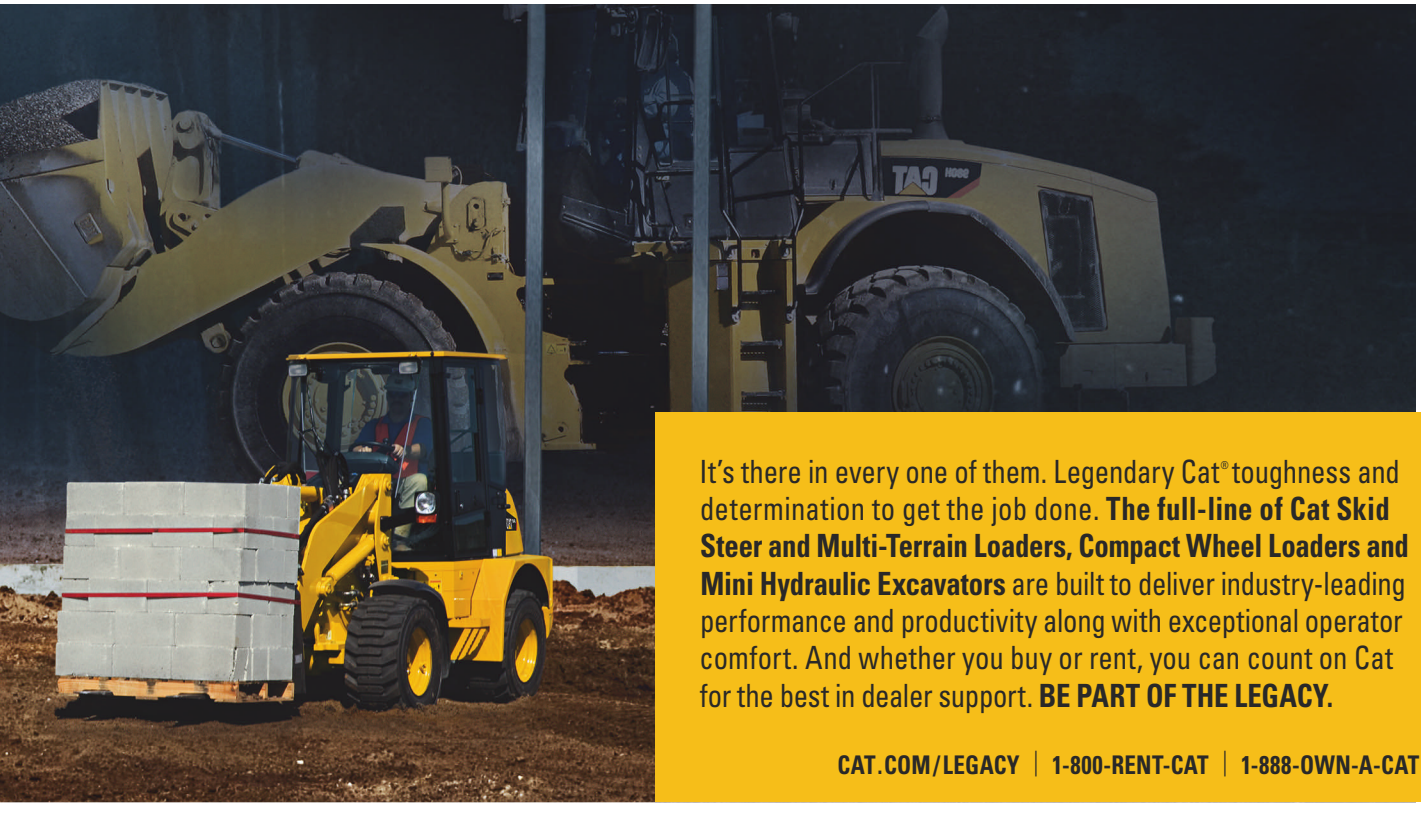

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Market Watch Lite

VMAC

The VR70 Underhood Air Compressor for the 2007 GM 6.6L Duramax Diesel 4500-5500 Series truck delivers air at up to 70 cubic feet per minute or 175 psi at a weight of less than 150 pounds (dry). A belt-driven air compressor mounted under the truck's hood maximizes the work truck's usable deck space and payload capacity.

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Karcher

Four electric-powered cold-water pressure washers provide cleaning pressure up to 3,200 psi with a flow rate up to 4.5 gpm. Each unit comes with Karcher's professional-grade axial pump integrated with a four-pole, water-cooled motor, and feature infinitely variable water pressure, volume temperature control and detergent metering.

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Market Watch Lite

Bobcat

A radio remote control option is now available for Bobcat skid-steer loaders and compact track loaders with the company's Selectable Joystick Controls, as well as for all-wheel-steer models. The remote-control system allows the operator to start the machine's engine and to operate drive, lift, tilt and auxiliary-hydraulic functions from as far away as 1,500 feet. The operator also can switch between remote-control and machine/direct modes.

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Hotsy

Gas Engine Series includes four belt-drive pressure-washer models, which can be ordered in different configurations for various cleaning needs. They are offered with 9, 13 or 16 horsepower, and produce cleaning power between 3,000 and 3,500 psi water pressure with up to 4.6 gpm of flow volume. A four-wheel pressure-washer kit is available with pneumatic tires. All come with seven-year warranty on the pump.

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Maxwell Systems

Quest Estimator 7.6 from Maxwell Systems is the company's newest takeoff and estimating system, which is designed to track all quantities and cost-item specifications, providing an audit trail for each job. According to the company, Quest Estimator 7.6 also provides a centralized storage location for historical pricing on each cost item and allows users to create estimate templates within the program containing items they regularly use.

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Atlas Copco

The QAX24 generator, rated at 24 kVA, is powered with a three-cylinder, turbocharged Deutz diesel engine, which is housed under an acoustically treated, weatherproof canopy. The 2,000-pound unit, says Atlas Copco, is equipped with a simple control panel that has just six buttons for operating the generator. A 13-gallon fuel tank is designed to operate the unit for 13 hours at full load.

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Caterpillar

At widths of 72 and 84 inches, respectively, two new industrial grapple-rake attachment models equip compact loaders for debris cleanup and land-clearing tasks. Each of the robust, bucket-like rakes features tines on the floor to allow small material to sift through while the skid-steer or multi-terrain loader carriers continue to catch large material. The grapples open vertically to 37 inches. Clamping force is 2,250 pounds per grapple.

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Dana

SmartWave Tire-Pressure Monitoring System (TPMS), a real-time electronic system that measures air pressure and temperature for each tire on a vehicle, is now available for retrofit installation through International Truck dealers. The system transmits data in wireless fashion to a receiver mounted on the vehicle, and then displays the information in the cab. The SmartWave TPMS was developed in collaboration with SmarTire Systems. Initial configurations include 4x2 with standard dual tires, 6x4 with wide-base tires, and 6x4 with standard dual tires.

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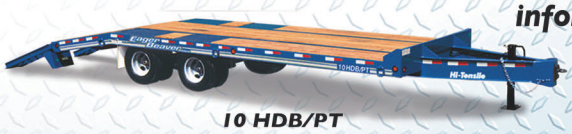

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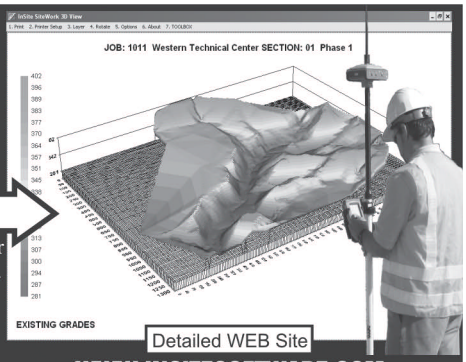

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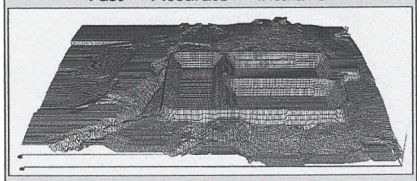

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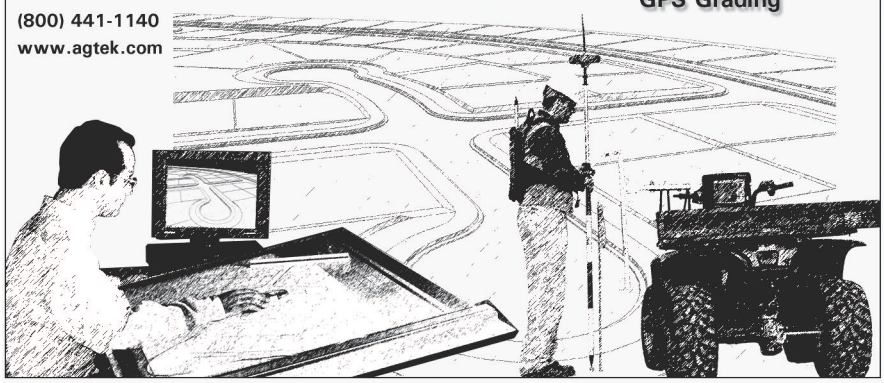

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