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CONSTRUCTION EQUIPMENT

Ideas and Information for the Equipment Professional

April 2007
ConstructionEquipment.com



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Numbers tell the tale

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Cover illustration: RBI's Curt Spannraft

FEATURES

COVER STORY: Special Report

30 "Click" ... You Own It

Buying and selling construction equipment and heavy trucks via the Internet is attracting lots of interest these days. If you're a buyer, you have ample online opportunities — if you choose to use them — for investigating and purchasing just about any item you might need. But the experts advise: Use the same due diligence transacting online as when buying and selling face-to-face.



HANDS-ON EARTHMOVING

38 XT1600 Displays Ambidextrous Character

Can the respective talents of a small excavator and those of a small attachment-handling loader be combined into one multi-purpose machine? Ditch Witch believes so, and has launched a larger version of its excavator/tool carrier, the XT1600. Professional operator Scott Mennenga uses the machine as a loader, an excavator and a trencher — and likes what he sees.



Contents

HANDS-ON TRUCKING

44 SuperDuties Provide Super Ride, Traction

Only once every 10 years, according to people around San Antonio, does the area get an ice storm like the one that hit in mid-January. Unfortunately, it hindered Ford's plans for a big press event for reporters to drive the redesigned SuperDuty pickups. Luckily, Truck Editor Tom Berg was in the third of three "waves" of writers and was able to drive the new truck. Berg reports that the 2008 SuperDuties have

bolder exterior styling, nicer interiors, and a completely reworked diesel engine.



BUYING FILE

48 Still 'The Core' of Wheel Loaders

With 16 brands active in the North American marketplace, there's no shortage of choice for equipment customers in need of a "utility" wheel loader. From the world's largest OEM to the newest kid on the block, just about anyone who makes a wheeled loading vehicle is a player in the 100- to 200-hp game. Senior Editor Mike Anderson says customers will continue to expand the use of their machines as much as possible, but let there be no hiding that wheel loaders remain primarily loading vehicles.



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Target Zero

Mike Vorster, *Construction Equipment's* Equipment Executive, tends to make simple yet profound connections when holding a conversation about equipment management.

Some time ago, he made a statement that has quietly worked its way into our consciousness, and it is time for that thought to challenge equipment managers everywhere: Target zero machine failures.

Unattainable? Too many abusive operators or noncommitted job superintendents? Before it's relegated to the Nice Idea file, consider what has happened in the safety arena.

Organizations and managers who have taken safety seriously have eliminated accidents. Yes, we've heard stories from managers who have improved their safety records to zero incidents.

This astounding success starts with a manager who believes in the goal. Safety programs save lives, prevent injuries, and ultimately save money. Cost saving rarely tops the list, but no manager motivated to eliminate accidents neglects that important benefit.

Company owners and upper management recognize the cost benefit of safety programs. Although we realize this could sound jaundiced, cost benefits go a long way in enabling organizations to justify the expense involved in planning and funding safety programs.

Now take the leap to in-field machine failures.

Justify this new focus using cost benefits.

Fewer failures mean more uptime and less emergency repair. Toss in expanded lifecycles, more manageable maintenance and repair budgets, and more efficiently utilized labor forces.

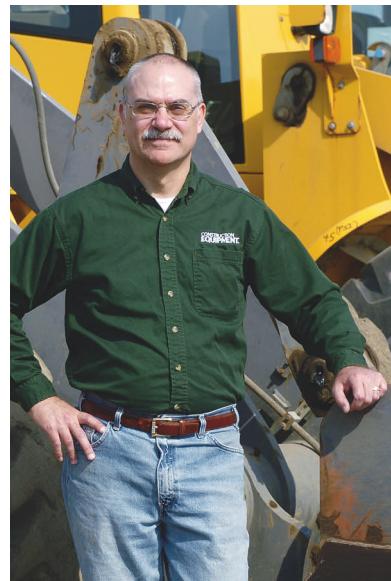
Now zero failures shows some serious cost and operational savings, which should convince management to pony up the investment for implementing a Target Zero plan.

It is a challenge, no doubt. But if you consider it a challenge worth tackling, consider these three steps toward attaining zero in-shift machine failures, compliments of Mike Vorster.

- Set zero as an overall goal
- Treat preventive maintenance as a discipline, starting with a systematic PM program
- Implement a repair-before-failure mentality, strategy and program

Have at it.

Rod



Rod Sutton, Editor in Chief

We welcome your comments.

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MARKET WATCH

By KATIE WEILER, Managing Editor



p. 16

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► Gehl

With an operating weight of 10,000 pounds, the RS5-19 telescopic handler reaches to a height of 19 feet 1 inch and is rated at 5,000 pounds lift capacity. The low-profile machine (6 feet 4 inches overall height) has a turning radius of 11 feet, three steering modes, and a travel speed of 15 mph. It uses a 64-hp Deutz diesel engine and a two-speed hydrostatic drive system. Dynattach quick-coupler comes standard.

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▼ Komatsu

The GD655-3 motor grader comes equipped with a Komatsu Tier 3 turbocharged engine with variable horsepower of 180 to 200. The Komatsu power-shift transmission provides on-the-go, full-power shifting, inching capability, and automatic shifting in higher ranges. Operators can choose either direct drive or torque-converter drive; eight forward speeds and four reverse provide a wide operating range. The machine weighs 33,950 pounds and has a blade width of 12 or 14 feet.

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◀ Kubota

Model B26 compact backhoe-loader delivers 23 percent more horsepower and 18 percent more loader lift capacity than the B21. Backhoe digging depth increased 9 percent to 8 feet 2 inches, and lift capacity increased 18 percent to 780 pounds. The 26-hp, 5,500-pound machine tapers in front for easy visibility to the corners of its skid-steer-type quick coupler. The backhoe can be removed so the tractor can operate three-point-hitch implements.

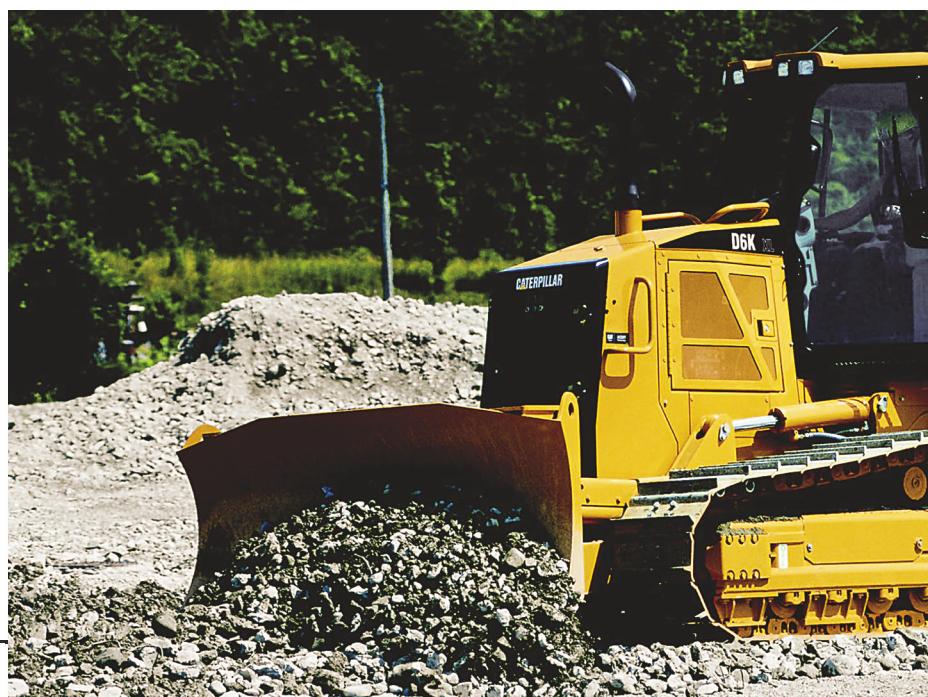
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► Caterpillar

Standard features for the D6K include a new hydrostatic drive train, SystemOne undercarriage, and seat-mounted electro-hydraulic controls ready for easy installation of AccuGrade. Its undercarriage has an oscillating track roller frame, which is said to keep more of the track on the ground in uneven terrain. 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. It is powered by a 125-flywheel-hp Cat C6.6 engine.

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◀ Mack

The TerraPro Cabover vocational truck uses as standard equipment Mack's 2007-EPA-certified, 11-liter MP7 engine, available in horsepower ratings from 325 to 405 and with torque ratings from 1,200 to 1,560 pounds-feet. Also available is the Mack MP8 with horsepower ratings from 415 to 485 and torque ratings from 1,540 to 1,700 pounds-feet. The new truck model uses Mack's in-cab Control Link and back-of-cab Body Link II systems to facilitate quick connection of the body builder's control unit.

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▶ John Deere

J-Series backhoe-loaders — models 310J, 310SJ, 410J and 710J — incorporate new power-train components and numerous structural and electrical enhancements. Horsepower ratings for these new models are 92, 95, 95 and 122, respectively. Digging depths are 14.25, 14.50, 15.83 and 17.83 feet, respectively. The Total Machine Control (TMC) option "integrates control of every system in the machine, from engine to transmission and hydraulic functions to brakes."

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◀ LBX

Link-Belt X2 series of excavators are powered by Isuzu Tier III engines, including a turbocharger with air-to-air intercooler and 4-valve OHC. Up to 10 percent more hydraulic horsepower is available, says the company, because the hydraulic system works with the engine. Two-speed boom lifting and arm open/close functions work with hydraulic system regeneration for increased cycle times. Models in the series are Link-Belt 160 X2, 210 X2, 240 X2, and 290 X2.



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▶ Hydrema

The 912C Series 2 articulated dump truck is available in a Multi-Tip configuration, which allows the dump body to swing 90 degrees left and right to unload material in congested areas. The new hauler, with a 7.6-cubic-yard capacity, uses a 4.4-liter Perkins diesel engine, rated at 123 horsepower, and a ZF ErgoPower 6WG 115 transmission.

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Market Watch

Komatsu

Weighing 109,900 pounds, the D275AX-5 crawler dozer features a Tier 3 engine — the turbocharged SAA6D140E-5 diesel, which provides 449 net horsepower. A new power-train electronic control system improves operation and productivity. Blade capacities are 17.9 cubic yards (Semi-U dozer) and 21.7 cubic yards (U dozer). Fuel consumption is reduced significantly, says the company, by use of the lock-up torque converter function. The new, ergonomically designed Palm Command Control System offers operators a relaxed posture and excellent fine control to reduce operator fatigue.

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Caterpillar

The 990H wheel loader replaces the 990G Series II with a Tier 3 low-emissions engine, improved cooling system and better

operator station. Cat C27 ACERT diesel delivers 627 net horsepower. Operating weight is 171,642 pounds with rated payload of 16.5 tons in standard lift ar-



angement. The loader can handle buckets with capacities from 11 to 12 cubic yards. Sound levels inside the cab are below 75 dB(A).

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Gradall

Model XL5100 III wheeled excavator weighs 55,000 pounds and uses a single Detroit Diesel Mercedes engine instead of two, as its predecessor, the XL5100, did. This conserves fuel, the company says, while producing greater horsepower and operates both the truck carrier and the upperstructure and boom. Eliminating an engine also eliminates maintenance costs associated with the second set of electrical equipment, radiator and filters. Models available in 6x4 and 6x6 configurations.

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Multiquip

Multiquip's 10 AR-Series 1.5- to 5-ton-class tandem and combination vibratory rollers span drum widths from 31 to 51 inches. Centrifugal forces range from 2,925 pounds on the AR-16 to 10,790 pounds on the AR-40. The MQ/Rammax-branded rollers are diesel powered and offer dual frequency and amplitude settings. The pressurized water system is double filtered.



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Kubota

The 18,300-pound KX080-3, is designed to work in limited space with only 14 inches of counterweight extending beyond the track width. With 64 horsepower from its direct-injected diesel engine, the unit develops 8,554 pounds of arm-crowd force and 14,660 pounds of bucket breakout force. The KX080-3 comes with the industry's first standard factory-installed anti-theft system, according to the company.

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Market Watch



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Case

Case upgraded its 800 Series motor-grader line with Cummins Tier III engines, which are electronically controlled and fueled through a high-pressure common rail fuel



John Deere

The latest additions to Deere's D-Series excavator line are the 160D LC, 200D LC and 225D LC. Net horsepower ratings for these models are 121, 164 and 164, respectively. The 160D LC and 200D LC feature Tier-3 John Deere PowerTech diesel engines, and the 225D LC uses a Tier-3-compliant Isuzu diesel engine. D-Series machines feature redesigned cabs, refined hydraulic systems and new cooling systems. Drawbar pull, swing torque, lift capacity and arm force are significantly enhanced.

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Liebherr

The 250-ton LR1200 crawler crane sets up or tears down in less than two hours, the company says. It can operate with a 292-foot maximum main boom, 384-foot long-reach "L"-type top, and 486 feet of luffing jib combination. Line speeds range from 425 fpm standard to 725 fpm with optional high-speed winch. Line pull is 27,000 pounds on top layer. On-line LMI/LML calculation system is exclusive, the company says.

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Vactor

The HXX Prodigy uses hydro-excavation to perform non-destructive digging. The HXX system blasts away soil with water jets of 10 to 20 gpm, at intensities from 1,500 to 2,500 psi. A variable-pressure triplex pump allows water-pressure adjustment at the push of a button. To facilitate digging in frozen ground, optional on-board 400,000- or 900,000-BTU water heaters are available.

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Caterpillar

The all-new 414E IL industrial loader features seat-mounted joystick implement controls, said to be an industry-first and 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 as the system used on the Caterpillar 416E backhoe-loader, and it can use a 1-, 1.25-, or 1.30-cubic-yard multi-purpose bucket as well as a range of other work tools.

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Industrial Pumps Survive Heavy Salvage

A new barge on its maiden voyage suffered a structural failure crippling her in a busy cargo area of San Francisco Bay. Salvagers needed to pump out much of the 2,600 tons of Canadian sand in the Eva Joan's cargo hold quickly without damaging the cracked vessel further and obscuring evidence that would help determine the cause of the failure. The 250-foot-long barge had folded nearly in half and was left stuck in 60-foot water, kept partially afloat by watertight compartments fore and aft.

Protecting the damaged hull and a strong tidal current ruled out using the large dredge pumps and clamshell bucket customarily

used on projects like this. Instead, two modest-sized industrial pumps normally used in a less punishing operating environment were applied to suck the sand out as slurry.

"They didn't have dredge pumps sized to fit the application," recalls Fred Kesich, chief engineer with Pac Machine, an ITT Flygt dealer. "We had in stock two ITT Flygt Model 2670 submersible pumps we felt were durable enough for the task. Both have specially sealed impeller and motor bearings that are inherently protected against dirty, often abrasive environments. Although not the ideal application in this case, the 27-hp Model 2670 units at least offered a

viable alternative to dredge pumps or clawing the sand out with a clamshell bucket."

Underwater Resources put four commercial divers on the job. The pumps were hung from cranes on either end of a 60'x120' derrick barge and went to work.

In about two weeks, the barge rose enough for a tow. It inched ashore and went aground again about half a mile from shore. At that point, the clamshell bucket could be used to empty enough additional sand for the barge to make it to a marina in Alameda.

"We had a good crew who worked 620-plus hours, from the initial underwater survey to development of the



Salvagers dredged tons of sand from the crippled Eva Joan's hold using a pair of 27-hp industrial pumps. The unlikely equipment choice protected the barge's hull from further damage that might obscure evidence of why the vessel failed. *Source: ITT Flygt*

plan with a naval architect. Much of it was in 12-hour days," said Dean Moore, an engineer with Underwater Resources.

"Diving teams in that part of the Bay are pretty much limited to a tidal

current of less than 1.5 knots," he said. "We were very pleased to complete the job without any lost-time injuries. Pac Machine proved to be very responsive and the Flygt pumps operated very well."

LETTER TO THE EDITOR

Recruit Young People

I am 23 years old, and I love your magazine. Every article tells me more and more about construction equipment and the construction industry.

I currently work at United Rentals in the yard and occasionally in the shop. I would really like someday to work for Granite Construction in the Equipment Maintenance Division. I would like you to come up with a feature article regarding how important it is for young people like me to get into this field. It is fun and can be very rewarding, and from what I have heard, you can make really good money at it if you're with the right company. Could you write about how service divisions of construction companies maintain their equipment and how it would be nice if they advertised more toward young people?

— BRIAN GRISWOLD

(via ConstructionEquipment.com)

CE NEWS

Construction Equipment To Publish ICUEE Directory

The Association of Equipment Manufacturers' (AEM) marketing committee has chosen *Construction Equipment* magazine as the publisher of the Official 2007 ICUEE Show Directory. The Directory will be available throughout the show, and it will contain information such as exhibitor listings, floor maps, seminars, recreational information, and more. ICUEE (International Construction & Utility Equipment Exposition) will be held Oct. 16-18, 2007, in Louisville, Ky.

SAFETY TIPS

Nine Tips for Tire Safety

Operators should check tires and rims both before and after their shifts, according to Bridgestone Firestone. Here's a safety checklist that they recommend.

1) Look for the obvious: out of alignment conditions, under-inflated tires, mismatched duals, missing valve caps.

2) Look for tires rubbing any parts of the equipment, such as the frame or fenders.

3) Remove all rocks wedged in the tread face and between duals.

4) Report all oil and fuel leaks. These fluids can weaken and destroy rubber.

5) Identify damaged or cut tires.



Off-road tires often incur surface or appearance cuts that do not affect performance or safety, but if in doubt, contact the job supervisor.

6) Check wheels and rims for bent, leaking or broken components; missing or loose studs or nuts; or wheel slippage

7) Do not stand in front of any damaged or broken component.

8) Never remove or strike damaged components until the tire is completely deflated.

9) Always use a safety inflation device that permits you to be out of the trajectory path if a tire were to explode.

MANUFACTURER NEWS

John Deere to Build TRAMs for Marines

Given the federal government's fondness for acronyms, the U.S. Department of Defense calls a specially modified Deere 624J wheel loader a TRAM — for tractor, rubber-tired, articulated-steering, multi-purpose vehicle.

John Deere has a contract to build 300 of them for the U.S. Marine Corps. Fitted with a special armor package and designed for use in combat-support operations, the TRAM is engineered to a handle a 2.5-cubic-yard, multi-purpose bucket and to serve as a forklift with a minimum capacity of 10,000 pounds at a 48-inch load center.

These new TRAM units, says Deere, are replacements for those originally supplied by the company in the late 1980s. Deere has refurbished the first TRAM models during the past two decades and, according to the company, the machines still serve around the world.



TRAM is an extensively modified Deere 624J wheel loader, built to meet specs set by the U.S. Marine Corps System Command.

— WALT MOORE

MAINTENANCE TIP

Check Your Impact-Wrench Output

Check impact wrenches regularly to be sure that what you tighten stays clamped in place. The Technology & Maintenance Council (TMC) of the American Trucking Association, in Recommended Practice No. 222A, says, "A reduction in torque can result in loose wheel nuts, cracked wheels, and wheel separations."

Simply install a wheel nut on a vehicle using the air tool. The wrench should impact for 3 to 5 seconds. Then measure the torque on the nut using a torque wrench in the tightening direction. Another option is to send the wrench out to a service center to be checked for torque and restored to its original performance. Of course, if you have a Skidmore-Wilhelm gauge, it will measure impact-wrench



performance.

If the air wrench won't achieve working-range torque, it may need to be rebuilt. But first make sure it's getting enough air.

Most air tools require 90 psi of running pressure to operate properly. Measure air-system pressure at the tool by plumbing a pressure gauge into the air line at the tool drop. Check the pressure when the tool is running under load, and make sure other common drains on the air system — such as other impact wrenches, lifts, and pumps — remain in use.

Source: TMC RP 222A

CORRECTION

Lincoln Electric's New Website

In the February issue, page 81, we printed Lincoln Electric's new website incorrectly. The correct URL should be www.powerwavesoftware.com. We regret the error.

NEW HOLLAND



LOADER BACKHOES A HERITAGE OF EXCELLENCE

New Holland loader backhoes have a strong and proud legacy with a heritage of excellence that began with a dedicated tractor loader backhoe introduced in 1966. Today we celebrate 40 years of loader backhoe evolution with five exciting new models that deliver superior performance and productivity.

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For more information on loader backhoes or the complete line of New Holland construction equipment, see your dealer or visit our website at www.newholland.com



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 **NEW HOLLAND**

RESOURCES

Customized Training Tools Available

Arcxis, a provider of industrial training and of OSHA-accredited crane-inspection services, has recently developed its Hard Hat Training Series, which is a "customizable" CD-based series that allows instructors to use the material "as is," or to tailor it to particular situations. Local con-

tent could include, for example, added test questions, photos to illustrate specific job-sites, and company policies on work and safety issues.

Among the programs available are those addressing aerial-work platforms, telescopic handlers, conventional forklifts, boom trucks, rough-

terrain cranes, overhead cranes, excavators and trench safety. Instructors can print student manuals and tests directly from the CD, in any quantity required.

Each Hard Hat Training CD includes applicable OSHA regulations and PowerPoint slides that address accident profiles and safety tips. Each CD-based training package costs \$375, or \$395 in Spanish.



The Arxcis Hard Hat Training Series is a CD-based program that gives instructors the latitude to tailor material to the specific audience.

HEAVY EQUIPMENT FORUM

"Feeling" Buried Lines with the Backhoe

User #1: Anybody care to share their thoughts on whether or not this is an operationally practical approach to locating buried obstacles?

User #2: I think it depends a lot on the dirt you are digging. If the dirt is fairly soft and rock free, then you can feel iron pretty easy. If the soil is rocky, you can't feel [anything].

I had to dig about a mile of trench connecting buildings. There were a lot of water lines that weren't marked, and I felt every one of them and broke none. I knew there were some unmarked water lines and was trying to feel

for them and not digging as fast as I might if I wasn't expecting something. I did punch my teeth through a plastic drain pipe before I felt it. It was softer than the surrounding dirt so I couldn't feel it until the teeth were through it and the bucket contacted it. I ran into a little sand at one point and stopped and probed and one-half inch lower was a newer plastic gas line with a tracer wire that was missed when they marked the underground utilities.

User #3: We'll typically pothole by hand to find marked lines and then continue trenching under the utility via

backhoe and shovels combined.

We have found in trenching operations with backhoes that if we take long, shallow passes that fill the bucket with crumbs as opposed to a massive hog-out, that helps us to be a little luckier in finding pipes/cables that are unmarked without damaging them. I'm still fighting this battle in my mind, because digging around such obstacles has been a major production dropper for us, and most of this stuff is not usually on the plans.

User #4: You can feel old steel gas lines pretty easy, same for ductile water lines, anything

else is pretty tough. Usually find the old trench line, or if the material you are digging gets soft or you find some sand, that gives it away.

User #5: [I] had a 4" sewer line to put in and connect to main. It was about 300' of trench to dig. Running the whole length of the trench was a direct bury phone line that ran the fire alarm to the building.

I told the plant manager that chances of me not hitting the phone

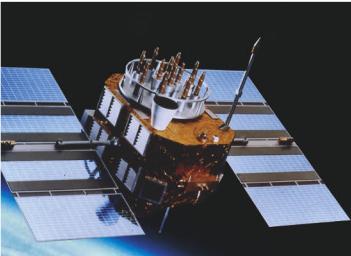
line was not very good. He said, "if you hit the phone line, the plant will pay to have it fixed."

After digging the whole trench [up to the last] 10 feet, the line was so old that it was broken by the shovel my guy was using when he was digging it up. The repair cost \$1,100.

Worked for free that day. If you hit it, you will pay to fix it. Next time I will get it in writing or put my machine back on the trailer.

HeavyEquipmentForums.com is a user forum where professionals in the heavy-equipment industry can exchange ideas and post questions regarding equipment and related topics. Users include owner/operators, operators, company owners, repair technicians, and more. Posts have been edited for clarity and content.

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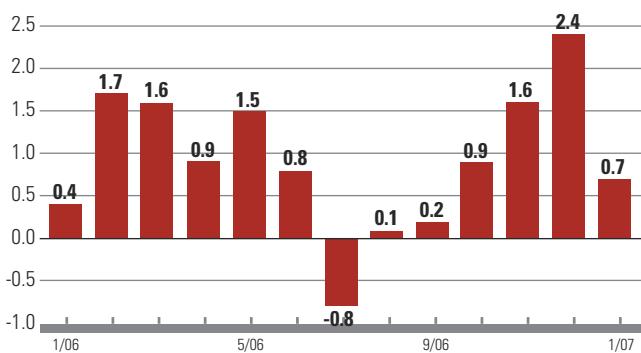
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PUBLIC CONSTRUCTION SPENDING

Spending increased 0.7 percent in January, on track with the 8-percent rise expected for 2007. Highway projects accounted for most of the increase. The near-term outlook is sour for projects that rely on federal funding because of the budget impasse in Congress. But the near-term outlook is brighter for projects funded by state and local governments that have high budget reserves, although reserves will be lower later this year due to slower growth in tax receipts.

(% change from previous month)

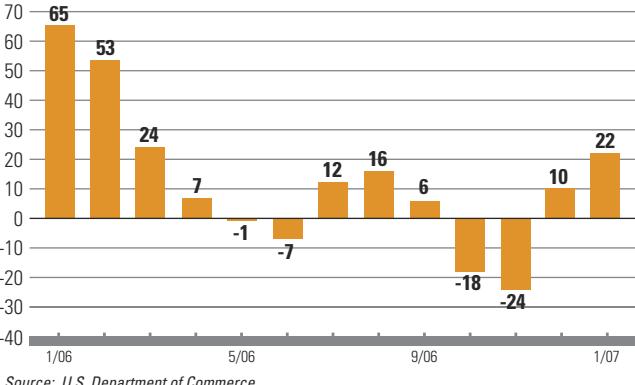


Source: U.S. Department of Commerce

CONSTRUCTION EMPLOYMENT

Contractors hired 32,000 people during the warm Dec.-Jan. timeframe, but this is certain to be reversed as seasonal weather returns. The expected hiring trend is flat to slightly down well into 2007 with modest hiring expected late in 2007 and 2008. Wage pressures and spot shortages of skilled workers will persist for nonresidential building and heavy engineering contractors. All contractors should expect "catch-up" wage requests after the burst of energy-driven inflation.

(Change in jobs, thousands)

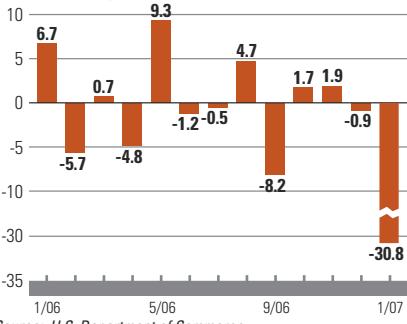


Source: U.S. Department of Commerce

CONSTRUCTION EQUIPMENT SHIPMENTS

Orders and shipments at U.S. factories plunged by one-third in January from the steady level of the previous 13 months. The sudden drop was likely caused partly by measurement error, partly by export problems, partly by the current nervousness about capital spending, and partly by the reaction to declining construction spending since last summer. Monthly shipments this year are expected to average well above the depressed January level.

(% change from previous month)

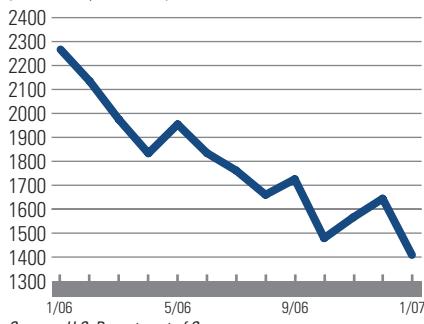


Source: U.S. Department of Commerce

HOUSING STARTS

Starts dropped sharply to 1.408 million units in January. This is below the current, depressed level of new home demand. Starts will stay below demand into the spring as the surplus inventory of approximately 175,000 new homes is absorbed. Then starts will rise to 1.6 million-plus by yearend and expand slightly more in 2008. Condos, resorts and second homes, and entry-level-price homes experienced the steepest drops. Apartment construction has picked up and will continue to expand.

(Annual rate, thousands)

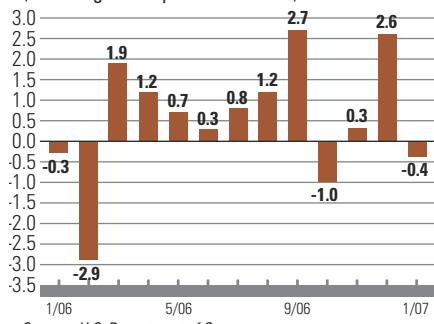


Source: U.S. Department of Commerce

COMMERCIAL CONSTRUCTION SPENDING

Spending for retail, parking and warehouses dipped slightly in January, but is expected to rise between 7 and 8 percent during 2007. Project starts are at the peak for this building cycle. Commercial developers have soured on retail and moved on to offices. Jobsite construction spending will expand faster than project costs only through mid-year and then ebb slowly. Large shopping malls continue to be the fastest-growing commercial market.

(% change from previous month)



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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Cover Story: Special Report

By WALT MOORE, Senior Editor

“Click”...You Own It

Online opportunities abound in today's market for buying and selling construction equipment — but old-fashioned due diligence is still required

Eight years ago, René Bates, owner of René Bates Auctioneers in McKinney, Texas, casually wondered if he could use the Internet to dispose of vehicles left over from a live auction. To test the idea, he developed an easy-to-use online bidding system. It worked. Last year he con-

ducted 475 online auctions for municipalities, utility companies and governmental agencies that were disposing of used equipment. Early this year, Bates handled an online auction for Dallas-Fort Worth Airport, and at the time, he told us that visits (lookers and bidders) to the auction website were averaging an amazing 900,000 per day.

No denying that the phenomenon of online buying — and selling — via the Internet is attracting more and more attention. For some individuals and businesses, buying and selling online is a practice as natural as breathing. Others, however, are somewhat skeptical of the process — distrustful, perhaps, of the electronics involved or the unseen humans at the other end of the electronics.

No matter which camp you might be in as a buyer of construction equipment and heavy trucks, you have ample online opportunities these days — if you choose to use them — for investigating and purchasing everything from welders, air compressors and light towers, to skid-steers, pavers and gooseneck trailers. And increasingly, it seems, potential buyers are using these online sources.

For example, according to Nakkia Gray, general manager of EquipmentTraderOnline.com, a website used by both dealers and private sellers to advertise equipment, the site averages 200,000 visitors per month, and these potential buyers conduct some 760,000 product searches among the more than 40,000 items typically available. Because the sale of equipment advertised on the website is han-



dled privately between buyers and sellers, no actual sales figures are available, but the number of traceable e-mail and phone inquiries from potential buyers to dealers is significant, says Gray.

In some instances, though, sales of equipment from online sources can be tracked, and the numbers are impressive. For instance, according to Rob Alleger, chief executive officer of IronPlanet, an online auction company specializing in construction equipment and heavy trucks, sales range from 600 to 1,200 units per month (depending on the time of year), and dollar volume on those sales may range from \$12 to \$20 million.

Contractors increasingly are using the Internet to research and purchase equipment, says Chester Hagen, vice president of sales for Point2 Technologies, which created an "online marketplace" (UsedIron.com) in 1996. Much of the research is done in the evenings or on weekends, says Hagen, either directly on dealer websites or via listing-aggregation sites, which collect listings from multiple websites. UsedIron.com, says Hagen, each day generates around 10,000 detailed views, each representing a potential buyer who has viewed information for a specific machine.

"Contractors are demanding rich content in the form of more photos, descriptions, conditions and details," says Hagen. "And sellers who provide this content can expect to receive more inquiries than those who use fewer photos and less information. The ease of use, speed and accessibility [of online research and buying] have changed this business forever."

So, if you're interested in buying (or just investigating) construction equipment and heavy trucks online, you can go at it in a number of ways. We contacted a selection of online buying resources (some responded, others didn't) and assembled a sample of available services. The list is not intended to be all-inclusive, nor does mention of a particular service indicate endorsement by *CE*.

And we'll take the liberty up front of passing on a bit of advice offered by nearly everyone we contacted: Use good judgment when buying and selling machines online. Perhaps Point2 Technologies' Hagen says it best: "Buy-

ing equipment online should be done with the same due diligence as buying offline."

BuyerZone.com

If you want to do comparison-shopping and, at the same time, potentially encourage competition among possible suppliers, you might try BuyerZone.com. Owned by *Construction Equipment*'s parent company, Reed Business Information, BuyerZone.com is a free service designed to connect the buyer with a number of qualified suppliers.

For example, by clicking the Industrial heading on BuyerZone's home page, and then on Backhoe-Loaders, you bring up a short questionnaire that helps detail the machine you're considering — for example, New or Used? Application? Dig Depth? Financing Preferences?

When you submit the questionnaire, you create a Request For Quote (RFQ) in the BuyerZone system, which immediately matches your information with as many as six backhoe-loader suppliers within a practical distance of your zip-code area. Since these suppliers are paying BuyerZone to receive your RFQ, and since they know they're competing with other suppliers, they typically respond quickly by phone or e-mail. From that point on, you evaluate what you hear and do business with your chosen supplier.

www.buyerzone.com

eBay

On the other hand, if you like the prospect of landing a deal at an auction, plenty of online action is available.

For example, Tony Quarrick, president of Quarrick Equipment & Auctioneers in Uniontown, Penn., conducts live auctions for his clients, many of whom are construction-equipment dealers. But for selling his own inventory, he relies increasingly on an electronic auction service, eBay. During the past five years, Quarrick has sold nearly 500 pieces on eBay, and he now has one employee whose full-time job is to answer questions from prospective online buyers, arrange for buyers to inspect equipment, and assist with shipping.

Quarrick sets no reserve on the items he

Graphic based on an idea from IronPlanet



Cover Story: Special Report

places on eBay, that is, he doesn't require that a minimum price be met before he sells, agreeing instead to sell to the highest bidder. In fact, he sets ridiculously low opening bids, for example, \$99 for a recently offered Toro Dingo mini-skid loader. Low initial bids and the lack of a reserve, he says, stimulate aggressive bidding.

"I won't deny that we've lost money on a few deals," he says, "but the bottom line is that we make money."

www.ebay.com



Wait! It's Your Cash

If you're buying equipment online, some sources, such as certain auction websites, may require that you pay for purchases according to terms you accepted before bidding. In other instances, however, the website simply connects you with a seller, and it's up to you and the seller to decide how to transfer funds and purchases. But proceed cautiously; the price tag for Internet fraud in the United States last year was a reported \$180 million, says Brandon Abbey, president and managing director of Escrow.com, headquartered in Irvine, Calif.

In increasing numbers, wary online buyers, unless dealing with sellers of known good reputation (such as equipment dealers), are opting to use a reputable escrow service when transacting business on the Internet — as are more and more online sellers. An escrow service is simply a neutral third party that adjudicates a transaction according to terms that the buyer and seller have agreed upon, such as description of the sale item, price, shipping details, length of buyer-inspection period and method of payment to the seller. But before doing business with an escrow company, says Abbey, verify that the service is licensed.

Once both parties accept the terms, says Abbey, the buyer sends payment to the escrow company, and when funds have been verified, the seller is instructed to ship the item via a traceable method. (The buyer's funds are held in a secure manner; Escrow.com, for example, according to Abbey, deposits buyer funds with the Bank of America in a non-interest-bearing trust account.) When notified that the item is in the buyer's possession, the escrow service starts the clock on the inspection period, and the buyer must accept or decline the

IronPlanet

But, if you're hesitant to buy from an auction website that sells everything from tubas to trenchers, other online auctions specialize in equipment.

IronPlanet, for example, is an online auction service that conducts "featured auctions" every other Thursday. Machines in featured auctions are offered on an unreserved basis (Iron Planet does, however, set the opening bid) and are typically "on the block" for five to 10 minutes. You're advised of the auction date and time when you preview an item. If buyers

purchase in the allotted time. If accepted, the escrow company pays the seller; if declined, the buyer returns the item and is reimbursed by the escrow company.

But exercise caution even in escrow transactions. Unscrupulous characters may post a machine-for-sale listing with a legitimate online source by using photos and descriptions stolen from an authentic listing. When potential buyers investigate, they're usually offered an exceptional deal on the machine, and if they bite, they're asked by the seller to access a particular online escrow service "to protect everyone's interest." Chances are that the buyer will be asked to transfer funds by wire — always a bad idea if you don't know the seller.

The number of fraudulent escrow websites that Escrow.com reports to hosting companies, the FBI, and industry watchdog groups, says Abbey, averages five per day. Fake sellers, he says, may post a fraudulent escrow website template with many hosting companies, greatly increasing their chances of pulling in unsuspecting buyers. Abbey directed us during our conversation to a known-fraudulent site, which looked convincingly legitimate, but had more than 100 template placements and was operated, he says, from an Eastern European country. You can pull up an unofficial escrow-fraud watchdog site, he says, at www.escrow-fraud.com. Click on Image Gallery to get a listing of suspect sites, and then click on individual images to see how (and on how many websites) the fraudulent service appears. Abbey can be reached at 949-790-5880.



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Albian Sands Energy, Inc.



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www.shell-lubricants.com/construction

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Cover Story: Special Report

can't be online at the time of the auction, they can submit an online PriorityBid, which allows IronPlanet to bid on their behalf.

IronPlanet has achieved a measure of distinction in the online marketplace with its inspection reports, which detail the condition of machines for sale. The reports, available well in advance of the auction date, are compiled, says the company, by a team of more than 350 experienced inspectors who use standard evaluation forms to assess machine condition at the seller's location.

If buyers find machine condition to be other than represented in the inspection report, the company's IronClad Assurance program provides recourse. IronPlanet also handles the transfer of funds and machine title between buyer and seller.

www.ironplanet.com

Tips to Avoid Seller Scams

The following clues could indicate a fraudulent seller, according to Equipment TraderOnline:

- Seller asks for a deposit or payment via wire-transfer*
- Seller offers a price too low to be realistic
- Seller offers free shipping
- Seller insists upon using an unknown escrow service
- Seller communicates only via e-mail, not by telephone
- Seller does business from an international location
- Seller cannot show proof of machine ownership
- Seller cannot provide unique identification of the vehicle (for example, non-advertising photos)

* (CE Note: Even wire transfer services such as Western Union discourage the practice of sending money to anyone you don't know. Only transfer money to someone you know personally or whose identity you can verify, says Western Union.)

Source: www.traderonlinesecurity.com

the central servers, it is forwarded to the auctioneer. By submitting an online "proxy bid" prior to the auction, buyers allow Ritchie Bros. to bid on their behalf. Winning bidders must abide by the company's terms and conditions regarding payment.

www.ritchiebros.com

AssetLine.com

Although we couldn't find a North American contact for AssetLine.com, an online auction service, we include the company here, because it seems to have a significant international presence. If you're a contractor needing to secure and place equipment in various parts of the world, this website and its online bidding system might be worth investigating. Registered bidders have access to detailed machine-condition reports.

www.assetline.com

Ritchie Bros.

While some online auctions are electronic only, those conducted by Ritchie Bros. are adjuncts to selected live auctions, meaning that online bidders are competing with bidders at the live auction. Items are offered on an unreserved basis ("as is, where is, on sale day"), and all potential buyers are welcome to inspect items at the live-auction site prior to sale day.

The company's rbauctionBid-Live system allows online participants "to see an image of the machine on the block, to hear the auctioneer call out bids and to place bids." When online bidders have activated the "Bid" button on their computer screen, the dollar amount displayed is the current asking price for the selected item, and clicking the button submits the bid. If the bid is the first to reach

UsedIron.com

Among the listing-aggregation websites, which bring buyers and sellers together to transact business on their own, is Point2 Technologies' UsedIron.com. According to vice president of sales, Chester Hagen, machine listings on UsedIron.com originate from a number of sources, including dealers using the company's Point2 MANAGER inventory-management system; contractors (who may advertise up to five machines free of charge on the site); and syndication partners, such as online auction services and other listing-aggregation sites looking for additional exposure.

"UsedIron employs a proprietary monitoring system for all Free UsedIron Premium Ads [those placed by end-users] to eliminate fraudulent sellers," says Hagen, "and to keep data accurate and reputable for buyers on the site."

www.usediron.com

MachineMart

MachineMart presents an inventory of used machines available in the inventories of North American equipment dealers who are members of the Associated Equipment Dealers (AED). The website's home page presents a list of the top 10 machine categories (by frequency of search), and clicking on a category brings up

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Cover Story: Special Report

a complete list of machines available, noting make, model, price, year of manufacture and state location. Subsequently clicking on Details presents a general description of the machine's condition (often with photos) and contact information.

Or, the site visitor can browse by manufacturer and, again, the home page presents a list of the top 10 manufacturers by frequency of search. Statistics recently presented on the site advertised that 97 AED distributors, doing business in 350 locations, were offering nearly 8,300 machines for sale.

www.machinemart.com

EquipmentTraderOnline.com

EquipmentTraderOnline.com lists items in such categories as earthmoving, lifting, concrete, attachments and trailers. Visitors to the site can search by machine type, manufacturer, state or zip code/specified distance criteria, and an advanced-search feature narrows selections by such categories as specific model and price range. Once the potential buyer pulls up the listing for a specific machine, complete seller contact information is available.

According to general manager, Nakkia Gray, the company uses an advertisement-verification process to help protect both buyers and sellers from fraudulent activity, plus it maintains a security center (www.traderonline-security.com) to address potential seller (and buyer) scams.

www.equipmenttraderonline.com

CatUsed.com

The inventory on the CatUsed.com website is primarily used equipment, parts and attachments available from Caterpillar dealers. The prospective buyer can search generally by product type or manufacturer, but can potentially narrow the search by specifying exact models and geographical locations, as well as selecting a range for year of manufacture, hour-meter reading and price.

The listing provides a summary that details the unit's features and notes its price, general location, hour-meter reading, and a rating of its overall condition. If potential buyers want

to further investigate a machine, they are encouraged to first select a Caterpillar dealer close to their location. Cat's logic is apparently to help the buyer establish a relationship with a nearby dealer, who can work with the machine-owning dealer to arrange the sale and who can provide product support after the sale. Caterpillar promotes the integrity of the Cat Used.com system by saying it is based on the stellar reputation of Cat Dealers.

www.catused.com

MachineryTrader.com

According to MachineryTrader.com, its website features a continuously updated database of equipment, parts and attachments for sale directly from dealer inventories. The site also allows investigating rental sources and auction results. Machine listings typically include serial number, hour-meter reading, price, name and location of the selling dealer and a general description of the machine and its condition.

MachineryTrader.com is international in scope, but according to the company's Chuck Lewis, North America is its core market. The company's website listings are extensive, having, for example, more than 40,000 units in just seven major earthmoving categories. Activity on the site continues to increase, says Lewis, but he cautions (as do most online services bringing buyers and sellers together) that buyers must do their homework, including, if the situation warrants, traveling to inspect the machine.

www.machinerytrader.com

Crane Network

Crane Network was created in 1998 and specializes in online crane sales, in which buyers deal directly with sellers. The number of units listed typically is around 2,000, ranging from small truck-mounted units to rough terrains to towers. According to the company, the site has an estimated 30,000 visitors per month. Listings typically include photos, basic machine information, and seller contact information.

www.cranenetwork.com



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*Source: Michelin Research Center. Compared with XM27 tire.

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Hands-On Earthmoving

By WALT MOORE, Senior Editor



The XT1600 has a height under the bucket hinge pin of 121 inches, allowing Local 150 instructor/operator Scott Mennenga to place loads over the side of the Local's A25C Volvo articulated hauler.

Photos: George Pfoertner®

XT1600 Displays Ambidextrous Character

Local 150 instructor/operator Scott Mennenga finds this versatile, new Ditch Witch strong, stable and convenient to operate

Being thoughtfully observant can sometimes take your thinking in a new direction. For instance, design engineers at Ditch Witch began to take note of the many equipment trailers hauling both a mini-excavator and a skid-steer (or compact track) loader — a useful combination

on many jobsites. This observation led to a basic question: Could the respective talents of a small excavator and those of a small attachment-handling loader be combined into one multi-purpose machine? They went to work on the idea, and what took shape was the XT850 excavator/tool-carrier, an uncommonly versa-

tile machine that has the look of a dedicated mini-excavator from the back, and a utility loader from the front.

Now, some two years later, and motivated by the XT850's market acceptance, Ditch Witch has launched a larger version of the excavator/tool-carrier, the XT1600. The new model, says the company, is a "hybrid compact utility machine," combining the capabilities of the mini-excavator, skid-steer loader and compact backhoe-loader.

"Basically, the idea was to develop a machine that would fit a niche for the contractor who often might need two or three small machines," says Ditch Witch design engineer, Jeff Smith. "The design challenge was to build the XT1600 to function competitively with any of those dedicated machines it might replace — for instance, by giving it specs similar to those of a mini-excavator in terms of breakout forces, dig depth and reach. There are inevitably some compromises when you try to make a machine do everything, but that said, we've tried hard to minimize those areas."

During a visit to Ditch Witch last fall, we observed the XT1600 in action and thought that this new model, with its ambidextrous design, would make a fitting subject for an installment of Hands-On-Earthmoving. We subsequently asked Jeri Briegge, manager of public relations and advertising at Ditch Witch, if we could borrow a machine for evaluation, and she graciously arranged the loan through Chicago-area-based dealer, Ditch Witch Midwest.

XT1600 on site

So, on a soggy, chilly morning late last fall, Ditch Witch Midwest sales manager Dave Ban arrived with a virtually new XT1600 in tow at the Apprenticeship and Skill Improvement facility that Local 150 (International Union of Operating Engineers) maintains in Plainfield, Ill. Ban unloaded the machine in the warm, dry comfort of Local 150's big shop, where he and Local 150 instructor/operator Scott Mennenga did a walk-around tour of the machine's design and control features.

At the front of this 9,400-pound, rubber-tracked machine is a loader mechanism with a

universal-type coupler that accommodates all appropriately sized skid-steer-loader attachments. (Our machine had a manual coupler, but a hydraulically actuated version is available.) To further enhance utility at the front, the XT1600 is equipped with a standard auxiliary hydraulic system, which includes a case drain and a connector for powering electrical functions on certain attachments.

At the rear is a sturdy, excavator-like digging mechanism, which provides 260 degrees of sweep and allows offset digging by pivoting both on the machine's mainframe (under the operator's station) and at the swing post. Auxiliary hydraulics and a quick-coupler also are available for the excavator end, typically for using a breaker or thumb, says Smith, but capable of handling any tool designed for a mini-excavator. According to Smith, more than a third of XT1600 units leave the factory with a rear coupler and hydraulics.

The machine's 53-hp (net) Kubota diesel engine drives dual pumps for its two-speed hydrostatic propel system, as well as dual gear pumps for the implement- and auxiliary-hydraulic circuits. Auxiliary pressure is set at 3,000 psi, and the flow rate, controlled by a switch on the dash, can be set for 15 or 26



XT1600 Basic Specifications

Engine	Kubota V2300-M-DI-TE2B
Net horsepower	53
Operating weight	9,420 lb.
Rated operating capacity*	1,600 lb.
Auxiliary flow, low/high	15/26 gpm
Auxiliary pressure	3,000 psi
Ground-drive speeds, max.	3.5/6.8 mph
Machine width	69 in.
Track-on-ground	58 in.
Bucket hinge pin height	121 in.
Reach, loader bucket, fully raised	20 in.
Bucket width	73 in.
Excavator dig depth, max.	134 in.
Excavator dump height, max.	122 in.
Excavator reach, from main swing joint	219 in.

* Rated at 35 percent of tipping capacity

The offset capability of the XT1600's excavator comes in handy when pulling sticky material from the dump truck.

Hands-On Earthmoving

gpm. The XT1600's undercarriage uses eight rollers per side, arranged in two bogey sets. This "equalizer track system" is designed, says Smith, to "absorb uneven terrain for a better ride and to assist with break-over when loading the machine."

Mennenga took note that the XT1600 has hydraulic and electrical test ports to facilitate checks and diagnostics, and that the machine's large tilt-up hood in the front allows easy access to routine maintenance points. He did question

Dave Ban, right, sales manager for Ditch Witch Midwest, explains the XT1600's controls to Local 150 instructor/operator Scott Mennenga. The joystick controllers for the excavator can be switched between the SAE and ISO patterns by loosening a thumbscrew and repositioning a lever located under the hood near the top of the firewall.



Compact Controls

Local 150 instructor/operator Scott Mennenga found the XT1600's controls straightforward and easy to use. Left-most joystick is for ground drive, with top switches for stabilizers, side switch for two-speed travel, and a front "operator's presence" switch that allows excavator repositioning. Left joystick controls swing and either dipper or boom, depending on selected pattern, and top switch is for excavator-boom offset. Right joystick controls excavator bucket and boom or dipper, and when the adjacent work-mode switch is in the loader position, also controls lift and tilt functions. Top switches are for auxiliary flow direction and electrical attachment control. Dash switches include those for auxiliary flow rate and the optional hydraulic coupler.



the accessibility of the machine's hydraulic filter, positioned low within the engine bay, but Ban removed an access panel in the operator's station and demonstrated that the filter was within easy reach through the opening.

Local 150 technician Dale Brown stopped by to look over the XT1600 and pointed out that, in his opinion, the fusible links in the machine's electrical system are a good idea. According to Ban, all of the XT1600's electronics are made by Ditch Witch's Subsite Division, which designs and produces the company's tracking equipment for its horizontal directional drills.

XT1600 performance

We apologized to Ban for taking his spotlessly clean machine out into the rain and mud, but he said that's why high-pressure wash systems were invented. The machine clips along at 6.8 mph in high range, so Mennenga quickly reached a stockpile of wet, densely compacted soil in which to test the XT1600's ability to load and lift with the front bucket.

"The machine has plenty of power to get the bucket full. I was impressed with its aggressive push — even into this heavy, wet stuff. Lifting capacity seems exceptionally strong, and it gives no hint of wanting to tip forward when you come up with a load. When I was backing up from the pile, I did have a tendency to pull the steering joystick in the wrong direction, but a couple hours of running time would cure that. I like the steering — it's very responsive."

Although Mennenga used the XT1600 to load a small landscaper's truck that Local 150 uses for utility chores, he added a bit of perspective to the XT1600's truck-loading ability by asking one of his cohorts to bring over the Local's A25C Volvo articulated hauler. With 121 inches under the bucket hinge, the XT1600 got over the side of the Volvo just fine, but maybe could have used a couple more inches of reach to dump in the center. But that's far from a criticism; how often are you going to ask a skid-steer to load an off-highway hauler?



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Hands-On Earthmoving



Mennenga then took the XT1600 to another area to dig with the excavator end. After a number of cycles, we asked for his assessment.

"The backhoe seems very strong; you can tell that it's heavy-duty and that it's exerting plenty of force. I picked a hard spot to dig, and it penetrated the ground with no problem and came up with loaded buckets without getting tippy. I did throttle back at one point to see how the backhoe would react if I had to dig

A large tilt-up hood that gives easy access to routine maintenance points enhances the XT1600's serviceability. Hydraulic and electrical test ports facilitate checks and diagnostics.



The XT1600's trencher attachment pulled steadily through compacted material. The operator has a choice of facing the attachment or rotating the seat to 45 or 90 degrees.



Operator Scott Mennenga was impressed with the digging power and stability of the XT1600's excavator. Note the two outriggers under the machine that deploy rearward.

around utilities, and found that it has a delicate touch to it.

"What I do think would be useful, though, is a couple of small slots in the cab floor to let you see where the outriggers are positioned. And just one mild criticism: the travel lever seems a bit close to the swing lever; you don't

want to interrupt the swing motion — or break your concentration — by your hand hitting another lever."

Mennenga also proved to himself the effectiveness of the machine's offset digging capability when a load of wet muck refused to slide out of the landscaping truck. He positioned the XT1600 behind and at the center of the raised body, and without moving the machine, could swing across the entire width of the body, always keeping the bucket parallel with the sides, to pull out the soil.

Mennenga then returned to the front of the machine and switched the loader bucket for a trencher attachment. He liked the setup, because the tilt function of the coupler allowed him to position the trencher at an angle that gave the best ride. He also liked facing the trencher, and preferred that operating position, even though the XT1600's seat has stops at 45 and 90 degrees as it swings to the excavator position.

"I think a trencher on this machine is very versatile, because you can easily dig up to a corner, pull up the trencher, back around 90 degrees, and quickly resume digging. With a conventional trencher, you'd probably spend much more time repositioning. The machine maneuvers very quickly."

Final thoughts

Back in the comfort of the shop, we asked Mennenga for any final thoughts about the XT1600. He focused on the machine's overall stability and the flexibility of the excavator.

"The machine is exceptionally stable. The center of gravity seems well positioned — in the center of the machine and low to the ground. I tried to get it to tip coming out of the pile with a loaded bucket, but it held its own. I was surprised at that. The ability of the backhoe to do offset digging is a handy feature, and the switch on the joystick to pivot the boom is very convenient."

But Mennenga did have one final wish — sort of: "On a day like this, a cab would be nice. But, then again, you'd give up some of the machine's excellent visibility. I'd probably opt for visibility over comfort, especially when digging around utilities." 

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Says Craig Trombly, Project Manager for Lawrence-Lynch Corp, "Rusty Ryan is a long-term employee with over 30 years experience as a heavy equipment operator. After the first day of operation, Rusty was so thrilled with the power of this 3D GPS system from Leica Geosystems that he asked to be assigned this machine from here on in, period. His comment is that this system saves 25% of the time needed on the job. Everything is done from the cab and he never has to leave his seat. The 3D system tells him when to raise and lower the dozer blade. The result is no stakes, no waiting around, and no lost time." Obviously, he is so impressed with this Leica Geosystems system, we could not get him out of the seat.



Grade control for both sub grade and finish grade is crucial when managing cuts/fills for sub grade and the different gravel base materials. Utilizing GPS and grade control systems proves to be very powerful. This new technology allows for progress in the site work and underground utility work. This progress is made in the way we grade with blade machines as well as the installation of pipes with excavators/backhoes. Dozer operators and motor grader operators have the ability to see the grades (elevations) right in front of them which eliminates any guesswork. Timely activities like staking and pulling strings are eliminated, and production increases.

GPS and grade control systems offer progress when installing drainage and sewer pipe as well. Line and invert control is key to a successful pipe installation project. The Leica Geosystems system offers the operator an LCD screen depicting both the center line of the pipe run and stone bedding sub grade as well as invert elevations, therefore eliminating any guesswork or measuring by the pipe installation crew. Although we still prefer the pipe lasers for invert grade, it is comforting to have the second check on the control systems to eliminate any rework.

Craig Trombly
Project Manager
Lawrence-Lynch Corp.

Grade control for both sub grade and finish grade is crucial

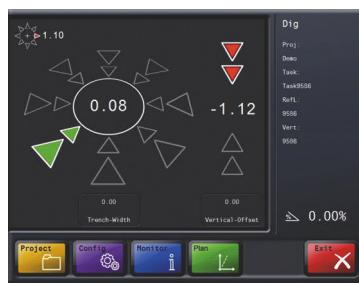
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Ice storm complicates logistics of press event, but doesn't stop

Ford's redesigned-for-2008 heavy pickup trucks

Thick ice coats the foliage in Texas Hill Country, and as ice melted, it made mud that tested the traction of this and other SuperDuty pickups. They passed handily. Bolder exterior styling, nicer interiors, and reworked Power Stroke diesel are among the 2008s' features.

Only once every 10 years, according to people around San Antonio, does the area get an ice storm like the one that hit in mid-January. It crippled travel and commerce, closed schools, and forced folks to stay home. Road departments here don't store salt for such rare eventualities, so everyone just waits a day or two or three until temperatures rise above freezing and the ice goes away.

Meantime, many travelers were caught in the storm and its aftermath, and they included

more than a hundred newspaper and magazine writers invited in by Ford Motor Co. to drive its redesigned SuperDuty pickups. Ford's extensive and expensive logistical plans for the event were disrupted, and many reporters did very little driving because roads were too slick. Those of us in the third of three "waves" missed the worst of the storm and got most of the planned experiences.

We drove the SuperDuties on freeways and two-lane roads, then waded through a muddy off-road course set up in the Hill Coun-



try northwest of San Antonio. In our group there were about 40 writers sharing 15 or so trucks, and time in each was rather limited. Still, I came away with a good feel for the F-250s, 350s and 450s, and what Ford engineers and designers have done to keep them competitive.

The 2008 SuperDuties have bolder exterior styling, nicer interiors, and a completely reworked diesel engine. The EPA '07-spec Power Stroke V-8 now displaces 6.4 liters (versus 6 liters for the previous version), inhales with help from two turbochargers (a commercial version used by International, which builds the diesel, uses one turbo), and exhales through an oxidation catalyst and particulate filter. It burns very clean, has absolutely no exhaust odor, and makes 350 horsepower and 650 pounds-feet of torque. Less costly 5.4-liter V-8 or 6.8-liter V-10 Triton gasoline engines are also available in the Fords, and each gets a TorqShift 5-speed automatic or a 6-speed manual transmission.

Our group started out in Corpus Christi, where Ford's corporate jetliner (a DC-9-size Fokker 70) headed after ice-caused delays at Dallas-Fort Worth. From there, the airplane carried off the event's previous wave of writers, who had escaped from the storm farther north and then had huddled most of the day in the terminal. We offered them our sympathies, then jumped into a small fleet of freshly washed SuperDuties and motored up to San Antonio, our originally planned destination.

The trip was an easy 160 or so miles via now-dry freeways and streets. Two of us had a roomy four-door Crew Cab F-250; its bed was empty, yet the truck rode comfortably, confirming what Ford people called a "car-like ride." There was a hint of firmness that you'd expect in a 3/4-ton pickup, but improved suspensions did their work of filtering out what little harshness there was on Interstate 37 between the two cities.

Limo luxury

This truck had the top-of-the-line King Ranch interior, with plush, thick leather coverings on seats, steering wheel and arm rests. It was as nice as a limousine. Among its equipment was an automatic dual-mode climate control, which allows driver and front-seat pas-

senger to set individual temperatures. But there's only one fan switch, and a microchip seems to decide how air is distributed; we couldn't find any way to direct fresh air to our faces except to open a window. Thankfully, a mostly manual HVAC system with good ol' rotary switches is available in most trim levels.

Also in this truck was an optional combination stereo audio and navigation system, with a big, bright color screen and a bunch of puzzling (to me) buttons. The nav system's female British voice gave us accurate directions, even if we sometimes ignored them (where-



upon "she" would say, "Recomputing," then devise new ones).

Two-door Regular and four-door Super Cabs are also available. SuperDuty trim packages for '08 are XL, XLT, XLT Sport, FX4 and Lariat. With those, you get either painted or chromed noses and increasingly higher levels of trim and equipment. There was nary a base-level XL to be seen at the event, and only a few of the new F-450 pickups. I did drive one that was hitched to a heavy trailer, and it felt entirely up to the task.

Trailer towing results

Trailer towing came early the next morning, at a dude ranch about an hour northwest of San Antonio. Two types of trailers — box-type utilities weighing about 10,000 pounds

Crew Cab with Lariat trim includes limo-like seating and attractive (but mostly numberless) gauges. This truck has the optional, nagging navigation system and irksome automatic climate control.

Hands-On Trucking

Heavy trailers were hitched to F-250, 350 and 450 trucks that waited, all warmed up, for writers' attentions. The SuperDuties pulled well, even in gooey mud.

Super Cab's rear-hinged back doors still open only about 90 degrees, half what those on some competitors' now do.



New 6.4-liter Power Stroke diesel uses high-pressure

fuel injection, double turbo-charging, and exhaust aftertreatment, which removes most pollutants and leaves no odor.

each and house-type RVs weighing 20,000 – were hooked to about a dozen SuperDuties. Engines in all the trucks were idling, all warmed up and ready to go. With three times as many drivers as trucks, we had to take turns at the wheel. We pulled the trailers up and down a short stretch of highway outside the ranch, which was enough to get a feel for how the trucks and their Power Stroke V-8 diesels behaved.

The chassis were sure and steady, but we could definitely feel the drag of the trailers. The diesels ably yanked the heavy vehicles around, but had to get busy to do it. While accelerating and on almost any sort of upgrade, rpm climbed to 3,000 or more as the auto-trannies downshifted early and often. Combustion sounds were audible and somewhat pleasing to the ear, but the sheer amount of revving surprised me.

None of the mechanical music came from the two turbos, which neither whistled nor whined. But during each climb, the boost

gauges in two of the trucks registered about 32 psi, and in a third truck the needle said 38, or just 2 psi short of the maximum of 40. If the gauges were right, the turbos were really pumping air. By the way, this and the tachometer and speedometer were the only instruments in the Fords that had numbers; all others said only C to H or L to H, with long arcs of “normal” ranges in between. Ford has done its gauges this way for many years (so have some others) and the trucks run just fine, but a few more details on what the engine and alternator are doing would be nice.

Back on the ranch, the 4x4 SuperDuties pulled the trailers through stretches of slick mud with little or no wheel spin. Traction was even more impressive at a nearby off-road course. Melting ice and sleet had soaked the ground, and numerous passes by previous vehicles had dug deep ruts in places. Sometimes the thick, gooey mud would grab the tires and force a truck off to the side, like deep snow pulling a car into a ditch; when that happened, all one needed to do was stop, back up, re-aim the front wheels and get on the gas again.

I say “gas” because the truck I drove off road had the Triton gasoline V-10, a smooth and fairly quiet engine even under these conditions. I wanted to try a V-10 on the highway, but never did find one available in the time I had. Ford was obviously promoting the diesel (in spite of its legal dispute with International), and all the other SuperDuties I drove had them. One truck did get stuck in a deep pool of murky water when its driver apparently failed to apply enough power (whether from a gas or diesel engine was impossible to know because its identifying badges and much of its sheet metal and side windows were slopped with mud). A crew was preparing to tow it out and I bypassed the scene.

For me the fun stopped at 9:45 a.m. when I had to catch a ride to the airport. I left with an appreciation for the vehicles and the Ford folks’ logistic efforts under trying conditions brought on by the storm. The fun should be continuous for customers who buy any of these smooth and comfortable SuperDuty pickups, and they’ll probably be impressed with the trucks’ appetite for work, too. 



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By MIKE ANDERSON, Senior Editor

Still 'The Core' of Wheel Loaders

Brand and model choices abound in 'utility' wheel loader product line

With 16 brands active in the North American marketplace, there's no shortage of choice for equipment customers in need of a "utility" wheel loader. From the world's largest OEM to the newest kid on the block, just about anyone who makes a wheeled loading vehicle is a player in the 100- to 200-hp game.

"From an industry standpoint, it's the constant," says Doug Laufenberg, a product marketing manager with John Deere Construction & Forestry.

Many OEMs have expanded above and below the 100- to 200-hp range, and perhaps

none more so than Deere, but the roughly 2- to 4-cubic-yard range remains "the core" of the wheel-loader market.

"Things are growing on either side," says Deere colleague David O'Keeffe, who pointed to his own company's introduction of the smaller 244 and larger 844 models, "but this is still the heart of the line."

The core, the heart or, as Case Construction Equipment marketing manager David Wolf terms it, "the mainstay" is not dwindling away.

But this does not mean the offering in the utility market is stagnant. Far from it, says O'Keeffe, Deere's product marketing manager

Customers will continue to expand the use of their machines as much as possible, but let there be no hiding that wheel loaders remain primarily loading vehicles, according to some OEMs.





for 4WD loaders.

While the actual model designations have often remained the same over the years, machine horsepower and size have naturally crept up. Today's Caterpillar 924 or Deere 444 is going to be bigger than the one bought years earlier, and customers are starting to make adjustments, according to representatives of some OEMs.

"Customers have bought on the number a lot of times in the past," says O'Keefe. "And the machine has actually grown up on them and now they're kind of looking around saying, 'Hey, things are not getting any cheaper, and I'm not sure if I really need this size of machine or not.'"

Case's Wolf agrees that models have adjusted upwards, but not to the degree of a complete shift.

"We have seen a natural increase in horsepower, and probably a little bit of an increase in bucket size," says Wolf, "but I don't think it's to the point where you're taking a customer from a 621 and downsizing him to a 521. You still have to take a look at your lift capacity, your breakout forces; it's not just horsepower."

The continued development of machines does add weight, added Michael Stec, wheel loader and articulated hauler sales engineer with Volvo Construction Equipment North America, but he warns that any comparison of a new model to a previous generation's larger-

sized model is not an "apples-to-apples" comparison.

"With any manufacturer of heavy equipment, it is a challenge to improve our machines through technology, longevity and innovation," says Stec. "Many times, this can add weight to a machine, but ultimately it will improve many buying criteria that customers drive and demand, such as productivity, reliability, lower operating and owning costs, operator comfort, etc.

"Firstly, our customers help drive the demand for a prospective higher horsepower and/or heavier wheel loader. Secondly, our competitors drive the demand — we keep one another honest. We all strive for designing strong and reliable machines without pushing ourselves out of one size class and into another, and possibly be weak."

Deere's O'Keefe senses that "customers are getting not as dependent on the size, the 'number' they've always bought, but more so on, 'What's the operation I need to fit my machine around and what's the one that delivers the best to my bottom line?'"

Dave Hardwick of JCB has seen that trend, too.

"Today's wheel loader has grown from previous models," says Hardwick, "and will likely continue to do so as Tier 3 and then Tier 4 emissions legislation come into force."

In the case of JCB, the 426 and 436 mod-

Situated at the very top of the 100- to 200-hp wheel-loader offering, Deere's 644J model is representative of a trend in the "core" wheel-loader market, says Deere's David O'Keefe. Models have crept up in horsepower and size, prompting some customers to look long and hard at which machines best fit their needs.

Buying File: 100-200-HP Wheel Loaders

els now includes as standard the formerly optional extra-duty counterweight, as well as more powerful engines, giving the customer "more machine" than before.

"A good site survey is more important than ever when specifying replacement loaders," says Hardwick, JCB's heavy-line product

manager. "Just because an older 436 loader is being replaced doesn't mean that this is automatically the model that should replace it. A 426 may now be capable of doing this task due to the increased lift capacity and power, or a new 436 may allow for increase in output of the operation, assuming there is

100-200-HP Wheel Loaders

Core Models*	Net Engine Horsepower	Operating Weight (lb.)	Bucket Range (cu. yd.)
Case			
521D	110	22,193	2.0 - 2.5
621D	136	26,242	2.5 - 3.0
721E	172	30,910	3.0 - 3.5
Caterpillar			
924Gz	129	24,029	2.3 - 2.7
928Gz	143	27,245	2.5 - 3.0
930G	149	28,718	2.6 - 6.5
938G II	160	29,500	3.0 - 3.92
950H	197	40,435	3.25 - 6.75
Changlin			
ZL30H	117	22,487	2.22
ZL40H	169	29,101	3.0
Coyote			
C17-4	100	15,600	1.5+
C20-4	115	16,530	1.63+
C28	101	17,600	2.0+
C29	130	18,300	2.0+
Doosan			
DL200	137	24,912	2.35 - 2.62
DL250	153	30,864	3.1 - 3.5
Dresssta			
515G	120	20,040	1.75 - 2.0
520G	142	23,181	2.0 - 3.0
530E	195	36,508	3.7 - 5.9
Hyundai			
HL730-7	119	21,400	2.4
HL740-7	133	25,350	2.3 - 2.7
HL757-7	164	30,420	3.5
Intensus			
WL30G	114	23,150	2.2
JCB			
416 HT	116	20,823	1.8 - 2.2
426 ZX	142	29,167	2.0 - 2.8
436 ZX	165	31,972	3.0 - 3.5
446 ZX	176	39,286	3.7 - 4.3

Core Models*	Net Engine Horsepower	Operating Weight (lb.)	Bucket Range (cu. yd.)
John Deere			
444J	115	22,645	2.0 - 2.5
544J	145	27,489	2.5 - 3.0
624J	165	31,691	3.0 - 3.5
644J	185	38,876	4.25 - 4.5
Kawasaki			
60ZV	119	20,010	2.1 - 2.5
65ZV	134	23,610	2.6 - 2.8
70ZV-2	174	31,437	3.25 - 4.0
80ZV-2	198	39,308	4.0 - 4.75
Komatsu			
WA200-5	120	21,870	2.2 - 3.1
WA250-5	134	24,846	2.5 - 3.5
WA320-5	166	30,600	3.0 - 4.2
WA380-6	191	38,760	3.8 - 5.2
Liebherr			
L 524 2plus1	117	22,825	2.6
L 528 2plus1	117	23,775	2.9
L 542 2plus1	143	28,750	3.5
L 550 2plus2	177	36,450	4.2
New Holland			
W110	110	22,915	2.0
W130	136	25,725	2.56
W170B	183	30,707	3.0 - 3.5
Terex			
TXL 200-2	143	25,673	2.5
TXL 250-2	170	30,865	3.25
Volvo			
L60F	154	24,250	2.2+
L70F	168	28,000	2.6+
L90F	172	33,070	3.0+

* Many brands offer additional model variances, including tool carrier and waste-handler configurations.

Source: Spec-Check Xpanded Specs

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Buying File: 100-200-HP Wheel Loaders

Attachments Add Versatility to Wheel Loaders

The ability to fill the bucket quickly and completely is key to any wheel loader's productivity.

It's only so, however, if the material loaded into the bucket is ultimately placed exactly where it's needed.

That is where specialized attachment makers such as the New Brunswick-based Craig Manufacturing Ltd. come in with products like the Model SDB side dump bucket.

A sequence valve allows the hydraulically operated locking mechanism to unlock and then open the bucket to a side angle discharge of 38 degrees. With less time required for machine maneuvering, the bucket is suited to material placement on water and sewer fill projects. A cushioned head dump cylinder is used for consistent, smooth dumping.

During standard use, the same attachment is designed to be dumped at 45 degrees like a general purpose bucket. In the carry position, the side dump plate is parallel to the ground.

Available in a variety of sizes, the Craig SDB comes with options common on standard buckets, such as bolt-on teeth and cutting edges. Also available are hanging adjustable L-shaped tines for fork-type applications.

Other attachment innovations aimed at the loader market:

1. Available for wheel and track loaders of all sizes, AIM Log & Lumber Forks are available in widths ranging 60 to 120 inches, handling up to 80,000 pounds of material. A low-profile back frame maximizes operator visibility to the forks, and machine loading and unloading on rough terrain is eased through the use of vertical floating tines, adjustable to accommodate various load widths. AIM also offers pallet forks and heavy-duty GPL buckets.

2. ESCO's Super V Tooth System, developed for all applications, features a slim-profile cast tooth for improved penetration that twists a quarter-turn onto an adapter. A new locking surface with each point change provides optimum point retention. A smooth nose contour reduces stress concentrations



With Craig Manufacturing's Model SDB side dump bucket, placing material exactly where it's needed is much easier.



It's still a wheel loader, but the use of such attachments as a side dump bucket can make the carrier more productive.

for improved fatigue resistance.

3. Coleman Scoop Forks, heritage products newly re-introduced by Techniflow Services LLC, quickly convert a loader into a forklift, mounting directly onto the bucket at any spacing. With no requirement for brackets or holes to be welded for installation, the Scoop Forks can be used on more than one piece of equipment. Maximum capacity is 10,000 pounds.



1. AIM Log & Lumber Forks



2. ESCO's Super V Tooth System



3. Coleman Scoop Forks

capacity available."

The municipal sector is one where this adjustment is evident, says Deere's O'Keeffe. Towns and city works department officials are discovering their needs today are adequately met by a machine formerly considered too small, he says. This is a reflection of both the "creeping up" of machine sizes and the overall product enhancements made throughout various OEMs' product lines.

"Personally, I don't see that," says Wolf, "not in the Case lineup anyway."

Loading up

As the "mainstay" of the wheel-loader market, the varied products of the 100- to 200-hp range remain primarily loading tools, says Case's Wolf.

"We now see the demolition contractors using wheel loaders, we've seen some on the ag side with dairy farms," he says, "but the applications I don't think have changed all that much."

"They're loading vehicles basically — that's your main number-one thing with these — trenches for residential."

Deere's O'Keeffe sees variances in the use of these machines.

"You've got to be able to service a lot of different customers," he says, "and the needs may be a little bit different. Some customers may use it on underground or pipe jobs, where they backfill some trenches and also use it to move some piping, but they also may only use it three or four hours a day. Whereas, there may be a guy who works in a cement plant who might use it all day long."

While attachments are used by these vehicles, this is mostly limited to "third-function" tools, says Laufenberg, Deere's product marketing manager for attachments and compact wheel loaders. Hydraulic attachments requiring one circuit, such as a side dump bucket,

pick-up brooms or snow blades, are most commonly put to work.

"Couplers are becoming more common, probably over the past four to five years, so being able to have various buckets and other attachments just allows even more versatility



At 168 horsepower and 28,000 pounds, the L70F represents the middle of three model sizes offered by Volvo in the 100- to 200-hp range. For 2007, these Volvo loaders boast a new D6E Tier 3-compliant engine and a new smoother-shifting, quicker transmission.

with these machines," says O'Keeffe.

Volvo's Stec, whose company recently rolled out three new F-Series models, has advice for customers sourcing wheel loaders.

Instead of checking spec sheets for machine horsepower, "they should concentrate on the loss between gross power and net or working power." A small loss, he explains, will result in lower fuel consumption and a maximizing of the entire power train. 

Web Resources

Find wheel-loader manufacturers' websites in the online version of this story at ConstructionEquipment.com. Just click on Archives, Buying File, and you'll find a link to this story.

Gallery of Wheel Loaders

CASE

Adjustable Power, Larger Loads

The new E Series wheel loaders, including the 721E and 721E/XT models at the top end of the 100- to 200-hp range, feature the adjustable power, fully electronic Case Tier III engine. This 6.7-liter engine allows operators to match power and fuel economy to their applications by choosing between three power curves (max, standard and economy) and four work modes (max, standard, economy and auto). Case has also redesigned the bucket for increased material retention, extending the bolt-on cutting edge for larger loads and creating a finer edge for easier pile penetration.



Number of models: 7

New models: 721E, 721E/XT

Product-line features: Case wheel loaders use the exclusive cube-shaped, mid-mount cooling module, which supplies clean ambient air to all coolers for increased cooling efficiency, reduced fluid breakdown and extended component life. With no stacked coolers, the mid-mount module also prevents debris from plugging between coolers. A hydraulically controlled fan within the cooling module can be reversed to purge debris from the module within seconds.

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HYUNDAI

7 Series Includes Smaller Models

Hyundai's new generation of wheel loaders, the HL 7 series, starts with three smaller model sizes in the 100- to 200-hp market. At 125, 140 and 173 horsepower, respectively, the HL 730-7, HL740-7 and HL757-7 compete in the 2.0- to 3.5-cubic-yard market. The smaller two models are also available in TM tool-carrier configurations.



Number of models: 5

Product-line features: Two kickdown switches, located on top of the loader control lever and the gear-shifting lever, allow the operator to change instantly to first-stage lower gear to drive at full power into the pile. A centralized digital display provides machine status and working conditions at a glance.

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JOHN DEERE

Solid State Provides Electrical Reliability

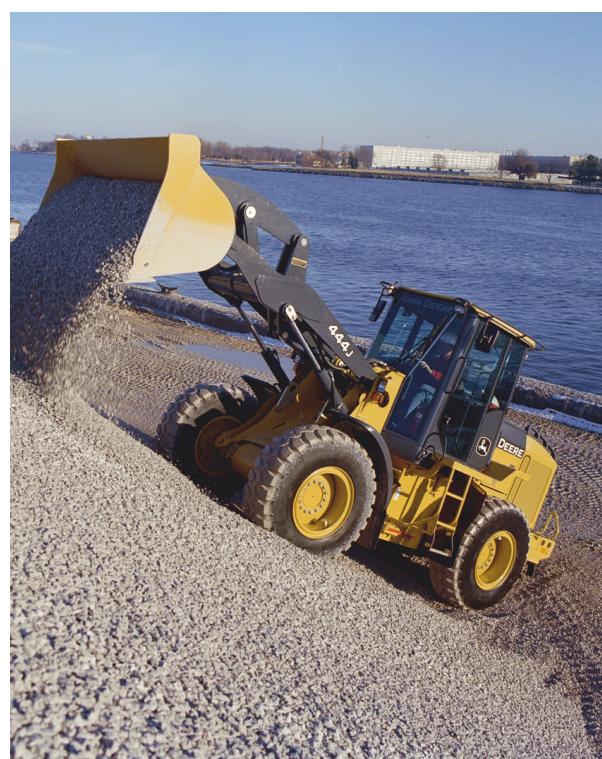
Deere redesigned the electrical system in the J-Series wheel loaders with a solid-state electrical distribution system, which replaces nearly all fuses and relays. Interconnecting with a circuit board, solid-state switches and a vehicle electrical center, the system eliminates the need for multiple wiring harnesses and connectors. The monitor in the cab provides detailed diagnostic messaging for troubleshooting without connecting to a laptop or other device.

Number of models: 4

New models: 444J, 544J, 624J, 644J

Product-line features: The J-Series Quad-Cool system arranges coolers side by side within a box rather than stacked, allowing easy access to both sides of each cooler for cleaning and repair. A cool-on-demand hydraulic fan provides appropriate speed based on system temperatures and offers the option of reversing direction to blow debris back out. The cooling package is isolated from the engine in a separate compartment, which minimizes preheating of the incoming fresh ambient air.

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CATERPILLAR

Hydraulic Flow Efficiencies

Introduced in November of 2005, the 197-hp 950H wheel loader features a new hydraulic load-sensing implement system that provides flow to the attachments on demand and only in the amount needed for the function. The intent is to reduce heat and wasted energy, thus maximizing fuel efficiency. A new proprietary implement valve proportionally adjusts flow amounts on both the lift and tilt function to avoid unintended stall. At the same time, Caterpillar updated the 160-hp IT38G II model, expanding

the range of bucket sizes available and increasing full-turn static tipping load by 14 percent to 19,106 pounds.

Number of models: 7

New model: 950H

Product-line features: Caterpillar's 924G and 930G wheel loaders can be equipped with a hydraulic joystick control that integrates third-function control into the handle, which is useful for customers using multi-purpose buckets or buckets with top clamps. The 930G also has an optional dual-steer mode feature. The steering mode provides conventional steering of approximately 3.5 turns from lock to lock, while the "quick-steer" mode requires only 50 degrees to turn lock to lock.

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LIEBHERR

Power 'Plus' Drives Loaders

The four current Liebherr wheel loaders in the 100- to 200-hp range are all newly introduced, collectively offering increased Tier III engine horsepower, as well as increased tipping load, speed and cab space. On the L524, L528 and L542 models, the new "2plus1" drive-line concept features two drive motors. The L550 is part of Liebherr's "2plus2" family of larger loaders, incorporating two hydraulic drive motors used singly or in tandem as conditions merit.

Number of models: 4

New models: L524 2plus1, L528 2plus1, L542 2plus1, L550 2plus2

Product-line features: Each of the wheel loaders offered by Liebherr in the 100- to 200-hp range are hydrostatically driven which, according to the company, results in improved fuel economy, better component layout, and decreased wear to the tires and brakes. The overall result is reduced operating costs, increased productivity and reduced maintenance costs.

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KOMATSU

Komtrax Keeps Track of Loader

Introduced in 2006, the 191-net-hp WA380-6 not only tops off this product range for Komatsu, but also is the most recent model upgrade. A low-noise, high-torque Komatsu Tier 3 engine combines with the Closed-Center Load Sensing (CLSS) system to reduce fuel consumption. The WA380-6 is also equipped with the latest Komtrax technology, which sends machine operating information to a secure website utilizing wireless technology.

Number of models: 4

New model: WA380-6

Product-line features: The established WA200-5, WA250-5 and WA320-5 wheel loaders offer a one-pump, two-motor hydrostatic transmission for better hill climbing and precise control. Dynamic braking reduces operator fatigue and increases the life of the wet-disc brakes. A variable-shift control system allows the operator to match machine and hydraulic speeds to the application.

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Gallery of Wheel Loaders

NEW HOLLAND

Limited-Slip Axles Offer A No-Spin Zone

Introduced last August, the W170B model tops New Holland's extensive product offering in the 100- to 200-hp wheel loader range. At 195 gross horsepower, this unit is more powerful than its predecessor, yet according to the manufacturer, delivers better fuel efficiency thanks to the standard availability of four power modes. With this 3-cubic-yard loader, both standard and tool-carrier configurations are available.

Number of models: 6

New models: W170B

Product-line features: New Holland wheel loaders feature heavy-duty outboard planetary reduction final drives that develop torque at the wheel instead of along the axle, thus reducing axle shaft stress. Maintenance-free outboard wet disc brakes on all four wheels stand up to continuous stop-and-go operation. Standard limited-slip axles automatically sense tire spin and transfer power to the wheel with the best traction.

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TEREX

Product Line Upgrades Ongoing

Between the two TXL 200 and two TXL 250 models, the established Terex product offering in the 100- to 200-hp wheel loader market covers a standard bucket capacity range of 2.35 to 3.25 cubic yards. With four speeds forward and three speeds reverse, a rugged fully auto powershift transmission optimizes cycle times for the four loaders. A new series of larger Terex loaders was rolled out in the first quarter of 2006. The 200 and 250 models are following suit.

Number of models: 4

Product-line features: With breakout forces that reach up to 29,100 pounds for the 170-hp TXL 250-1 model, the small Terex wheel loaders are designed to sustain digging and loading under difficult conditions. For the operator, the ROPS/FOPS cab maximizes bucket-corner and maneuver-zone visibility, be it front or back.

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INTENSUS

Single Joystick Operates Machine

With one model offered in this size range in North America, the China-based Intensus has updated the machine controls to incorporate a single joystick as part of an overall ergonomic upgrade. The 114-hp WL30G model carries a 2.2-cubic-yard bucket and, like the plus-200-hp WL50G model also offered in North America, has obtained CE approval in addition to OSHA and ISO requirements, according to the company.

Number of models: 1

New model: WL30G

Product-line features: Intensus Engineering is a subsidiary of the largest manufacturer of heavy construction equipment in China, turning out a new wheel loader every 20 minutes. The company's loaders feature components recognized worldwide, such as Cummins or Perkins engines and Dana or ZF transmissions.

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The Group

Gallery of Wheel Loaders

KAWASAKI

Toolcarrier Grows into New Model

With the 70TMV-2, Kawasaki has introduced a new model addition to the sub-200-hp wheel loader market. At 174 horsepower, this is the second and largest of the TaskMaster models, the integrated toolcarriers manufactured by Kawasaki. Also, the standard-configuration 70-size model has joined the company's 198-hp 80-size loader in an upgrade to the ZV-2 generation, incorporating such features as adjustable declutch, dual-boom kickout control, an idle-management system and a dual-mode engine switch.

Number of models: 6

New models: 70TMV-2, 70ZV-2, 80ZV-2

Product-line features: Kawasaki's new Machine Operations/Diagnostics

Module, or MODM, presents operations and diagnostic information in an LED display on the cab's dash. The engine control module, while also providing operating data and feedback, allows the engine performance to be modified to fit the particular application.

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tend component life. Compared to the Mega Series loaders of the predecessor Daewoo line, the DL Series loaders reward operators with a 15-percent-larger, air suspension seat with lumbar support.

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JCB

Small Loaders Receive Upgrades

Following the 2005 introduction of the new 456 model in the plus-200-hp class, JCB has now extended the more sophisticated operation, larger field of vision and greater performance to the smaller 426 and 436 wheel loaders, at 142 and 165 horsepower, respectively. Payload capacities have been increased by 13 and 12 percent on the updated models, both of which are available in HT high-lift or ZX Z-bar loader configurations. Also serving this market is the 116-hp 416 HT.

Number of models: 8

New models: 426 HT, 426 ZX, 436 HT, 436 ZX, 436 Wastemaster

Product-line features: The new cab on the updated 426 and 436 wheel loaders provides an extra 50 percent of interior space. The models can be specified with either single- or multi-lever controls, depending on operator preference. All daily checks and fill points are accessible from ground level.

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Gallery of Wheel Loaders

VOLVO

New Transmission Smoothes Shifting

Volvo's three models in the 100- to 200-hp wheel loader market were recently updated to the F Series, incorporating the new D6E Tier III V-ACT engine with more horsepower for better pile



penetration. Also new for the L60F, L70F and L90F loaders is the HTE transmission, built in-house at Volvo. The transmission uses a pulse-width modulation valve for

smoother shifting between gears. In gears 1-4, fully automatic power shift is standard on each of the three new models.

Number of models: 3

New models: L60F, L70F, L90F

Product-line features: Volvo's F Series loaders incorporate the new "Care" cab, featuring an additional 2 inches in length and 4 inches in width, a 22-percent larger windshield and viscous mountings. For easier accessibility, the door's opening angle is 95 degrees, and the rear part of the door has a 22-degree bevel edge.

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DRESSTA NORTH AMERICA

Upgraded Models, Simpler Operation

Dresssta recently rolled out two updated wheel loaders as part of its three-model offering in the 100- to 200-hp range. Upgrades from corresponding E Series models, the new 120-hp 515G and

142-hp 520G feature new Cummins engines, an electronic engine speed control pedal, an improved three-in-one cooling module, and enhanced styling that includes a new paint-color scheme.



Number of models: 3

New models: 515G, 520G

Product-line features: With Dresssta's single-lever equipment control joystick, oil pressure activates the main valve spools, making bucket and boom movements smooth and easy for operators. A single button on the joystick controls the downshift function of the electric-controlled transmission, itself updated with a single lever mounted on the left side of the steering column as a replacement for the two levers used on earlier Dresssta wheel loaders.

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CHANGLIN

Models Arrive Via Canada

Changlin has been a player in the Chinese market since 1978, and the Changzhou Komatsu organization is that nation's largest manufacturer of large-capacity loaders. Changlin



wheel loaders were introduced to North America in 2005 by Changlin Canada, now Terraquip. The Canadian company today imports five models, the smallest two of which fit into the 100- to 200-hp market.

Number of models: 2

Product-line features: At 117 and 169 horsepower, respectively, the ZL30H and ZL40H models utilize Cummins power and automatic leveling to compete in the 2- to 3-cubic-yard rated capacity market. A Changlin powershift transmission offers three forward and three reverse gears. Changlin's five-model North American product offering tops off with the 5.5-cubic-yard, 290-hp ZL75H.

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COYOTE

Compact Line Extends Upward

Founded in 1984 by Steve Kabay, Coyote Loader Sales extends its selection of multi-sourced compact loading machines up to the 130-hp C29 model. Others serving the 100-hp-plus market are the C17-4, C20-4 and C28 at 100, 115 and 101 horsepower, respectively. The C17-4T and C29-4T are telescoping articulated loader versions.

Number of models: 6

Product-line features: Equipped with quick-change buckets and the high-speed capability to accommodate fast road travel requirements, a fleet of 26 Coyote wheel loaders was put to work this year alongside New York Department of Transportation salt trucks during interstate highway winter maintenance.

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Bobcat	B100 B	Select <input type="checkbox"/>
Bobcat	B300 B	Select <input type="checkbox"/>
Case	580 Super M Series 2	Select <input type="checkbox"/>
Case	580M Series 2	Select <input type="checkbox"/>
Case	580M Turbo Series 2	Select <input type="checkbox"/>
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Caterpillar	416E	Select <input type="checkbox"/>

SPECIFICATION SEARCH TYPE
CURRENT MODELS

Specification (Unit of Measure: English)	Allmand Brothers TLB-535 ESL	Bobcat B100 B	Case 580M Series 2	Caterpillar 430E
ENGINE				
Engine make	Isuzu	Kubota	Case	Cat
Engine model	3LD-1	D1105-T	445/M2	3054C DIT
Net engine power - hp	0.0	31.5	76.0	97.0
DRIVE				
Transmission type	Hydrostatic	Hydrostatic	Synchroneshift/Pwr Shuttle	Synchronoshuttle/Pwr Shuttle
No. of speeds (fwd/rev)	1 / 1	1 / 1	4 / 4	4 / 4
Max. travel speed - mph	5.5	4.7	24.5	26.8
No. of drive wheels	2WD	2WD	2WD/4WD	2WD/4WD
Steering configuration	2WS	2WS	2WS	2WS
HYDRAULICS				
Hydraulic pump flow - gpm	8	11.7	28.5	43
Relief valve pressure - psi	2400	--	3050	3611
BACKHOE				
Backhoe bucket width range - in	12"-36"	--	12"-36"	12"-36"
Max. dig. depth, optional extended stick - ft/in	--	--	18' 3"	19' 6"
Loading height, standard stick - ft/in	7' 8"	--	11' 2"	13'

2.

3.

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Safety and Security Products

DAVID CLARK CO.

With its new two-way radio communications system, David Clark Co. provides a personal safety solution to jobsite noise while still ensuring clear communications for all workers. David Clark manufactures noise-attenuating headsets and adapters for more than 300 different radios, both mobile and portable. With both over-and behind-the-head styles available, the David Clark headsets can be used in conjunction with a safety cap or a helmet.

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KOEHLER BRIGHT STAR

Although weighing only 1.9 pounds, the Lighthawk fire lantern from Koehler Bright Star offers 120,000 candlepower and offers a 1:1 burn/charge ratio, powered by lithium-ion technology. Constructed of chemical- and heat-resistant nylon, the lantern has an ergonomic handle designed to fit the largest gloved hands, as well as strategically configured pulsating white and red tail-light LEDs and a low-battery indicator.

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LOJACK

A tracking and recovery solution designed specifically for construction equipment and other commercial vehicles is being offered by LoJack. Featuring the core strengths of the company's flagship Stolen Vehicle Recovery System, the LoJack Ruggedized System utilizes radio frequency technology for asset tracking and recovery. The system is directly integrated with law-enforcement agencies in LoJack markets — the tracking computers are installed in police autos, helicopters and fixed-wing aircraft to track and recover stolen equipment. Certified technicians install the LoJack system covertly on an individual piece of equipment. The system is powered

by the carrier's electrical system, backed up by an additional battery. **Visit ConstructionEquipment.com/info and enter 151**



KEYTROLLER

Programmable ignition systems by Keytroller are designed to prevent the theft of construction equipment. The Keyenabler utilizes a wireless relay hidden between the starter and power supply that can be activated via a keypad, RFID card or keychain fob. Keypads, RFID cards and keychain fobs form the basis of other Keytroller systems, including the KISS passive RFID card enabling system (shown). The driver flashes the card over the reader located in the dash, activating a wireless relay hidden in the ignition or fuel pump circuit.

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Spotlight

LITTLE MULE FOR CONSTRUCTION

A removable-handle ratchet binder from Little Mule for Construction is designed to reduce the theft of loads. Without a handle, the ratchet binder (shown) cannot be adjusted, so the load cannot be loosened or removed. Other Little Mule safety and security products include the Lodelok Hook, a positive interlocking nose latch that will not open under load. Little Mule's half-inch Grade 80 ratchet binder offers a 12,000-pound working load limit with the added security of a 4:1 design.

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TEREX

The 4,000 watts offered by the Terex RL4000 heavy-duty light tower can illuminate more than seven acres of the most remote of jobsites. The tower, which reaches a light height of 30 feet at full extension, offers 360-degree rotation for pinpoint light positioning. A dual self-braking winch design allows fast and easy tower erection and extension. A tank of fuel will provide up to 60 hours of run time for the three-cylinder diesel engine that powers the brushless, self-regulated-type generator.

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THE EQUIPMENT LOCK CO.

Universal anti-theft and safety devices manufactured by The Equipment Lock Co. (TELC) secure the equipment's drive controls, rendering the machine useless even if the key is available. Depending on the characteristics of the equipment, the approach differs. For instance, the TELC Skidsteer Lock immobilizes both drive control levers, the E-Series Skidsteer Lock immobilizes one drive lever, the Excavator Lock immobilizes the drive levers in opposite directions, and the Backhoe Lock (shown) immobilizes the steering wheel and drive control. TELC products are designed to be used in conjunction with OSHA lockout/tagout procedures.

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REMCON

Beginning 15 years ago with the development of one of the first rotationally moulded, water-filled barriers, the safety product offering by Remcon has grown into a full line of plastic barriers and barricades for the protection of sites and passersby alike. The Remcon Plastics product line includes the ADDGARDS pedestrian barricades and Guardsafe plastic barriers, as well as plastic directional and Type I, II and III barriers.

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Spotlight

RIEKER

Available as a display or remote sensor package, Rieker's RDI Series digital inclinometers improve the vehicle operator's ability to detect dangerous roll-over situations before equipment damage or injury can occur. The tilt indicator provides highly visible and audible alerts for off-road vehicles such as mining trucks and heavy-equipment tip trailers. The four open collector outputs can be set to switch anywhere within the measurement range to either trip an alert or act as an equipment shutdown controller.

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YODOCK

Water-filled barricades from The Yodock Wall Co. provide a new self-contained perimeter for site protection and material containment. Job-sites secured with Yodock barricades not only keep construction materials and equipment free from theft, they also reduce liability and are aesthetically pleasing. Yodock water-filled barricades, accessorized with fencing, provide a clear line of safety and security for the site, workers and pedestrians alike.

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Worn iron inspections and good record keeping can also help you make a more educated choice up front.

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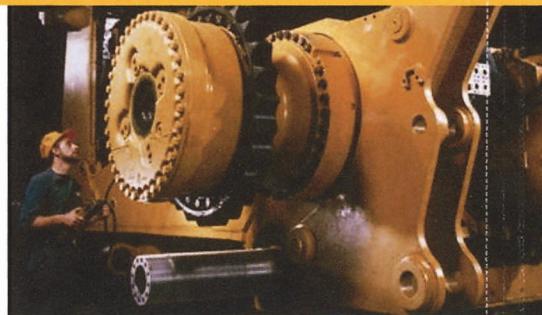
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Today's technologically advanced drive trains are capable of delivering excellent performance, fuel economy and service life by historical standards, but in order to enjoy those benefits, you need to manage your drive train effectively. Here are ways to do that.

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2. **Use proper oil-change procedures** to help prevent contamination.
3. **Choose Cat fluids and filters** for optimum performance, longer component life and lower long-term costs.
4. **Use S-O-S™ Fluid Analysis** to help identify drive train problems early and prevent costly failures.
5. **Inspect your machine regularly** following your manufacturer's guidelines for daily walk arounds and operational checks.
6. **Watch for repair indicators** such as leaks, unusual noises, gear slippage or overheating.
7. **Repair problems before failure** in order to minimize damage to related components and reduce the cost of the repair.
8. **Hire the best operators** and train them well. A good operator may be the best defense against premature drive train failure.
9. **Use a scheduling system** to ensure that service is always performed on time.
10. **Keep accurate records** so you can identify trends and recurring problems.



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Beyond the Certified Power Train program, Caterpillar also offers Cat® Certified Rebuilds, in which the entire machine is disassembled and restored to like new condition. Cat Certified Rebuild machines:

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- Receive a new Product Identification and a similar-to-new warranty

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For more information on Cat Dealer Support, contact your Cat Dealer or visit www.catproductinfo.com/5

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An advanced solution for remote monitoring and tracking of mobile off-road equipment, the Titan Equipment Monitoring System by DPL America allows managers to track their assets continuously and accurately from a robust, Internet-based software package. Once covertly installed on a piece of equipment, the rugged Titan hardware unit wirelessly reports the machine's activity, location, status and other operational data to the software. The system communicates over the GPRS network, North America's largest pure digital data network.

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LIFEGUARD

Introduced at World of Concrete, the LifeGuard RollTek system on Oshkosh S-Series front-discharge mixers represents the first integration of a rollover protection system on a concrete mixer. Originally developed in 2003, RollTek protects drivers by deploying advanced seatbelt technology in sync with integrated airbags during a rollover accident. A sensor inside the cab monitors the truck's stability and, if it detects an imminent rollover, it initiates three events within a quarter of a second — tightening the driver's

seatbelt, pulling down the suspension seat, and inflating a side airbag to cushion head impact.

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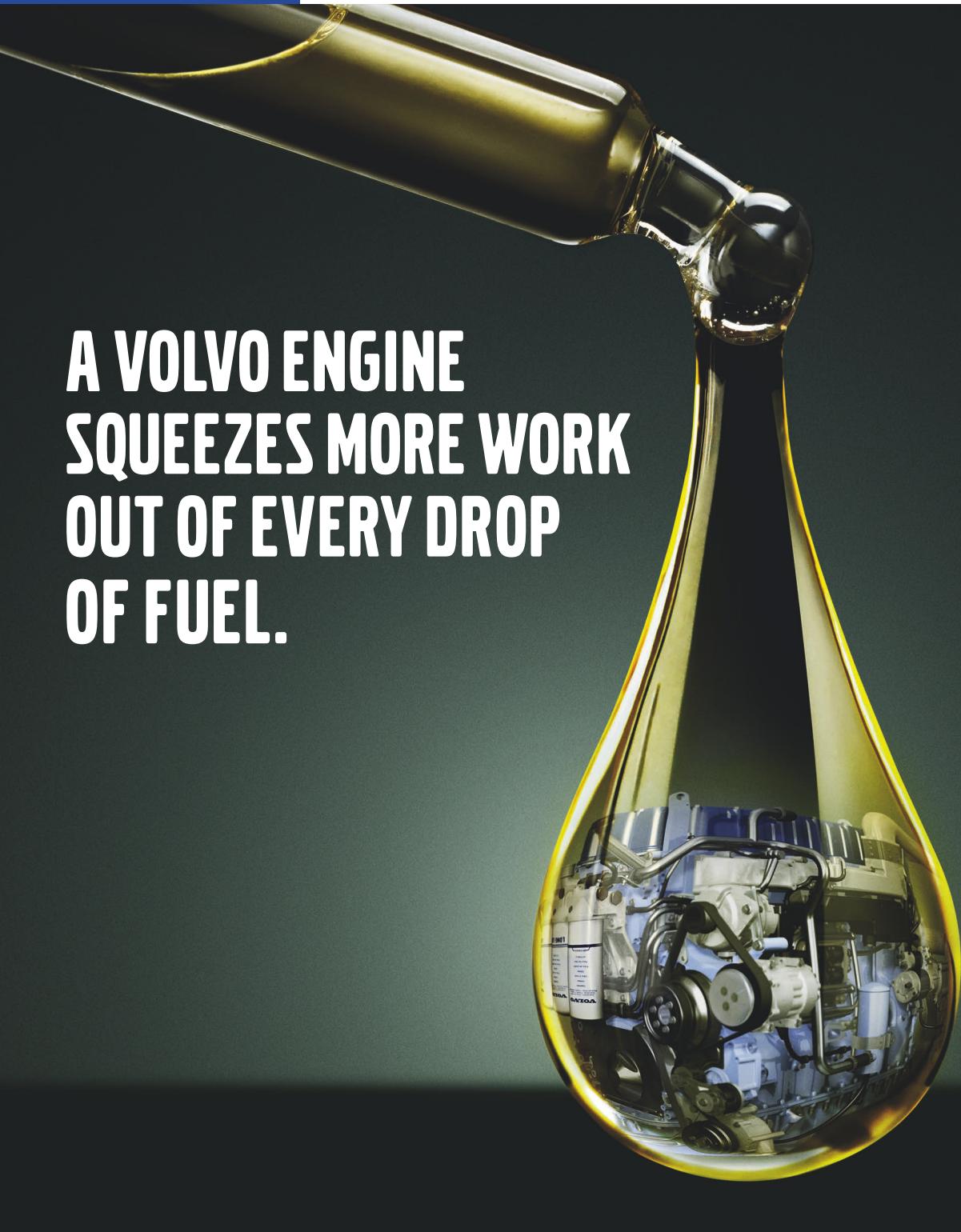


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Seven Steps to Recover Equipment Costs

Equipment rates must not only recover costs, they must also recoup them in the most beneficial manner over the machine's life

The equipment rate and the calculation used to determine minimum equivalent annual cost is often at odds with normal accounting and finance concepts. We need to develop a new approach to the rate calculation that is more in tune with accountants and finance specialists and that improves our ability to answer the all-important questions "how much will it cost?" and "how long should we keep it?"

The classic rate calculation requires that we estimate the total cost of owning and operating a machine for an assumed period and divide that by an assumed number of operating or "revenue" hours to arrive at an average hourly cost recovery rate. We can, and we should, repeat the process for different assumed periods to determine the minimum average hourly rate and the optimum life for the machine.

The approach set out below is similar in that it focuses on estimating owning and estimating costs, but it differs in that it also looks at how these costs will be recovered over the life of the machine. To keep things simple, we will take some liberties with formal definitions and define three terms that enable us to understand the methodology.

Cash out is the total of all the costs and charges we expect to experience as a result of owning, operating and disposing of the machine. Fuel is an example of an hourly cost; the interest we charge ourselves as a return on the equity capital tied up in the machine is an example of an annual charge.

Cash in is the total "revenue" generated by the machine each year, calculated as the product of the hourly, weekly or monthly cost recovery rate and the corresponding number of hours, weeks or months worked.

Cash position is the difference between cash in and cash out. The machine will be in a negative position in its early years, and the

object of the exercise is to develop a financing plan, recovery rate, and repair/rebuild strategy that creates a break-even situation early and maintains a positive or slightly positive "cash position" for as long as possible.

The calculation itself is not complex, but there is a lot of detail that we will not discuss here. Instead, a spreadsheet in the Equipment Executive section of ConstructionEquipment.com provides all the detail and does a calculation for an assumed machine. Here, we'll look at the principal steps and then review the results obtained using the spreadsheet.

Step 1. Transactions associated with bringing the machine into your fleet.

This step requires that you determine the magnitude and timing of all the transactions associated with acquiring the asset. If it is purchased with cash and if it is your style to debit the machine with the purchase price as a lump sum, then the full amount goes in as a transaction at the beginning of the first year. If you bill the machine with depreciation charges, then these are included here in the year of their occurrence.

Rental-purchase costs, lease payments, loan payments, and other financial costs associated with bringing the machine into the fleet are also included in this step. Take care not to double count by including the purchase price and lease or loan payments as well as depreciation. Most of the costs and charges in this section are known, determined by policy, or set by contract at the time the machine is acquired.

Step 2. Transactions associated with keeping the machine in your fleet.

This is where you detail all the costs and charges associated with keeping the machine



Mike Vorster

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

If a machine is sold after two years with a book value of \$182,000 and a market value of \$163,000, we would be "upside down" to the tune of \$19,000.

Equipment Executive

“cold and dry.” The main components are charges for the use of equity capital and the cost of licenses, insurance, property taxes and the like. Overhead associated with the machine or equipment-management function are also frequently included in this step.

Step 3. The costs you generate once you turn the key and put the machine to work.

This step requires that you estimate the expected

Cash Position and Age



Equipment hourly rate is accurate in this example, exemplified by the sweet spot at eight years where after-sale position is at its most positive. Data for this chart are found at the online version of the article at Construction Equipment.com.

operating costs for each year through the machine's lifecycle. First, include costs that are proportional to hours worked and not directly affected by the age of the machine. Second, estimate planned or expected repair parts and labor where the cumulative cost grows exponentially as the machine ages. Third, add large, discrete cost events associated with rebuild actions that occur in the life of the machine.

Step 4. Determine the total “cash out.”

Steps 1, 2 and 3 give the “cash out” associated with owning and operating the machine and set the total cost profile prior to any adjustment for the transactions that occur when the machine is sold.

Step 5. Estimate the “cash in.”

This is the product of an assumed hourly, weekly or monthly cost recovery rate and the corresponding number of hours, weeks or months worked. The assumed rate is adjusted to achieve the target values for the breakeven period and lifecycle cost recovery. Cash in is, of course, extremely dependant upon annual utilization.

Step 6. Transactions associated with selling the machine.

This step requires that you estimate and include the gain or loss on book value experienced when the machine is sold. If, for instance, the machine is sold after two years with a book value of \$182,000 and a market value of \$163,000, we would be “upside down” (more cash out) to the tune of \$19,000. If we sold the machine after five years with the numbers at \$21,000 and \$74,000, respectively, we would experience a gain on book value and be able to decrease our final cash out position by \$53,000.

Step 7. Calculate the final “cash position” and understand the results.

This is the difference between cash in and cash out before or after sale on an annual or cumulative basis. The results are best displayed on a graph (left) that shows the cash position and age.

The chart, based on the calculations in the online spreadsheet, illustrates two important points. First, the annual cash position line clearly shows how difficult it is to manage on the basis of year-to-year numbers. The first two years show “losses” based on high rates of depreciation, and the next three show “gains” due to relatively low operating costs. The true picture only emerges after five or six years when the asset is fully depreciated and annual costs are set against annual recoveries. Second, the plot of the cumulative after-sale cash position shows that the lifecycle of the machine is really made up of two parts.

In the first phase, owning costs and charges are high due to high rates of depreciation. In the second phase, from year five on, recoveries and expected costs are in balance; the machine lives within \$10,000 of break-even with repair and rebuild costs becoming the dominating factor. The assumed hourly rate is clearly appropriate; the additional costs set aside for a rebuild during year six can be afforded; and the sweet spot is seen to occur after eight years and about 13,000 hours.

The chart and the methodology used clearly show the delicate balance between “cash in” and “cash out” in the later stages of the machine's life. It is easy to see how the repair and rebuild cost estimates used to calculate the assumed rate can be replaced with the actual costs experienced and used as the basis for repair limits that control expenditure and achieve break-even cost recoveries within the target rate over the full lifecycle of the machine. 



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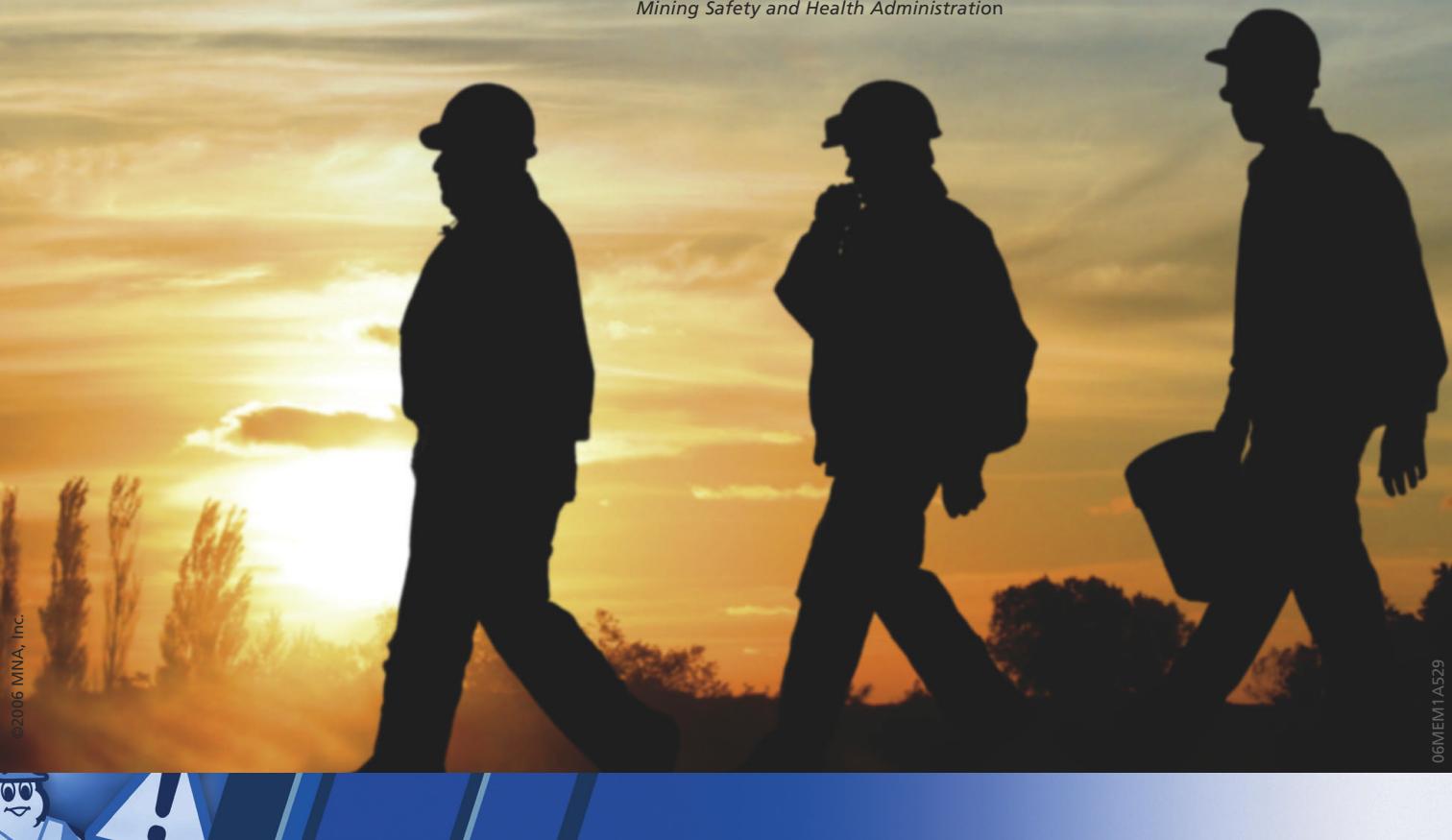
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A Better Way to Build Business

Contractor's sister company creates product that revolutionizes fleet



Photo: George Pfeiffer

For C.J. Moyna & Sons, a concept too good to reject led to E-Ject.

Jason Marmann, equipment manager at the Elkader, Iowa, heavy grading and crushing contractor, didn't have to look far and wide for a solution to what he considered a costly way to move earth. E-Ject Systems, a sister company to C.J. Moyna & Sons, is the manufacturer of the towed scraper product that has since replaced a major portion of the fleet Marmann manages.

"At one time, we were up to 40 articulated trucks, the various support equipment such as excavators, dozers and so on, and 13 of the 631 motor scrapers," he said. "We're now down to around 20 articulated trucks, three wheel-tractor-scrapers and 40 towed scrapers with 20 Challengers pulling them."

"It's been a good shift. The work has changed a little bit that way, but the efficiencies are just phenomenal with fuel, labor and overall productivity. That's what's really driven our change."

For C.J. Moyna & Sons and the projects it takes on, the

Iowa-based contractor C.J. Moyna & Sons had "dabbled" in the use of towed scrapers, but is now a confirmed user of the units made by sister company E-Ject Systems.

motivation behind the move essentially boils down to the differences in the characteristics of the two machine types, says Marmann.

"You can top-load a towed scraper; you can't push-load a truck," he explains. "If you watch the articulated truck and excavator work in good solid work, the towed scraper will just eat them up."

The company had "dabbled" in the use of towed scrapers in and around 2000, using smaller pans with agricultural tractors on some compact, residential-type projects, Marmann says. If the results were not yet evident, the potential indeed was, particularly with the increased carrier speeds of Challenger tractors.

"The concept was there," says Marmann. "We knew it would work for ourselves, and that sparked the manufacturing division into building the scrapers. We felt there was not

Application Ideas

The use of towed scrapers has reduced the amount of big iron required by heavy grading contractor C.J. Moyna & Sons. The company says its efficiencies are "just phenomenal with fuel, labor and overall productivity."

a construction-grade scraper that was really efficient loading and unloading out there."

Since then, start-up E-Ject Systems has become a leading manufacturer of eject earthmoving pan scrapers as part of an extensive line of pull-type construction and agricultural equipment, which also includes disk harrows, sheepsfoot rollers, lube trucks, pup trailers and scarifiers.

At C.J. Moyna & Sons, the corresponding overhaul of the fleet has reduced the amount of big iron needed.

"You've now got one unit towing and loading and dumping, with fairly small support equipment in the fill and haul road," said Marmann, "against an articulated truck where you've got a fairly big excavator loading them (if you're being productive) and you're still hauling less material.

"If you look at a 40-ton truck, you're not competing anywhere near with what the towed scrapers are capable of hauling. So, at the end of the day, you get to look at the number of yards hauled by loads between the two; it's a pretty nice number. It cuts down your fuel consumption, your gallons per cubic yard.

"I don't want to get real spe-

cific in that, but it's tremendous."

C.J. Moyna & Sons' move away from articulated dump trucks to the pull scrapers began in '03/04, and Marmann said the opportunities for work have grown since for the private company.

"It seems like there's some more advantages we've been able to pick up with the towed scrapers," he explains. "Shortening some hauls or also lengthening the hauls, the towed scraper doesn't seem to notice that. It's allowed us to use the same equipment in maybe two or three different niches, where before we had a truck operation for mud and closer haul, and motor scrapers for maybe a little harder material and longer haul."

Utilizing a patented material expulsion system that ejects rather than dumps, the E-Ject scrapers shine on both shorter- and longer-haul work, "giving us more ammunition" as a business, said Marmann.

"It's like everybody's business. You get lean and mean to compete," he said. "You've got to have that edge to go out there to bid work and be competitive."

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Dan Stewart, a 36-year veteran of C.J. Moyna & Sons, inspects a towed scraper attachment now at the core of his company's earthmoving fleet.



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Numbers Tell the Tale

Case CX B series excavators tout measurable improvements



Case put its numbers where its mouth is when it introduced the new CX B series excavators at World of Concrete in January. Citing operator comfort, serviceability, durability and reliability, marketing manager Dave Wolf provided percentages to show just how much improvement to expect.

Included in the CX B series are: CX160B, CX210B, CS240B and CX290B, with long-reach configurations available for the CX210B and CX240B and a narrow version for the CX210B.

The most significant improvement, in raw percentages, is a 39-percent improvement in maintainability and serviceability as measured by the SAE maintenance score. Features that led to this improvement include moving the hydraulic engine oil filter into the pump house so it can be changed without going underneath the machine, repositioning the engine oil filter for easier access, ganging together grease zerks, and flip-open panels.

Case also registered a 20-percent gain in fuel efficiency. "That's huge," Wolf says. "During testing, we were seeing almost a gallon an hour difference in fuel use. If you multiply that times 2,000 hours of operation per year times \$2.50 a gallon for diesel fuel, that's a savings of \$5,000 per year that

Case CX B series excavators have Isuzu Tier III diesels that boost horsepower in the series by up to 17 percent.

Inset: Reinforced posts in the corners of the cab improve visibility by providing more glass and a broader view to the jobsite. See-through skylight is optional.

goes straight to the bottom line."

Electronically controlled, common rail Tier III engines from Isuzu deliver up to a 17-percent increase in horsepower, Wolf says. Respectively, the CX160B, CX210B, CX240B and CX290B offer 120, 157, 177 and 207 net horsepower. Wolf suggests that with the combined increases in fuel efficiency and horsepower, the new series of excavators can move 25 percent more cubic yards per gallon of fuel.

Hydraulic horsepower has increased 4 to 10 percent as a result of increases Case has made in delivering flow. Wolf says the extra boost comes from using regenerative hydraulics to the bucket curl, a tactic the company already employs in the boom and arm.

Noise levels in the cab came down 4.7 percent to 68.6 dB(A), Wolf says, comparing it to being in a car. External noise was reduced by 3.0 dB(A). Other creature comforts include a seat that adjusts independently of the joysticks and remembers the settings selected by the operator. B series excavators will also store up to 10 auxiliary hydraulic flow patterns, so operators can quickly adapt to various attachments.

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Basic Specifications: Case CX B Series

	CX160B	CX210B	CX240B	CX290B
Operating weight (lbs.)	37,700	47,400	55,120	65,697
Engine	Isuzu 4JJ1X	Isuzu 4HK1X	Isuzu 4HK1X	Isuzu 6HK1YSS
Net HP	120	157	177	207
Bucket dig force (lb.)	25,179	31,923	36,419	39,252
Max. dig depth*	21' 4"	21' 10"	24' 4"	36' 7"

*with longest arm

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New Backhoe-Loader Series from Deere

Total Machine Control option on 310SJ and 410J models combines excavator and wheel-loader capabilities, says Deere

Building on the strengths of its popular G-Series backhoe-loaders, John Deere Construction & Forestry recently rolled out its new J-Series models — the 310J, 310SJ, 410J and 710J. The new units, says Bob Tyler, product-marketing manager, provide "many enhancements that deliver a substantial increase in the amount of work an operator can do with the machine in a day."

The J-Series models use all-new ZF drive-train components, including the transmission and both axles. The new outboard-planetary rear axle features larger differential components and improved lubrication, compared to predecessor models; and the available mechanical-front-wheel-drive system, with a limited-slip differential, uses a multi-plate clutch that allows on-the-fly engagement. The standard transmission in all four new models is a powershift type, and complementing the new transmission is a cruise-control feature. In addition, radial tires are now a factory option.

Electrical-system enhancements for the J-Series, says Deere, include a solid-state-electronics design that minimizes relays, plus a new digital monitor that provides enhanced on-board diagnostic capability. A new single-radiator cooling system features reduced fan speeds, says the company, and an optional "sound package" is designed to further attenuate sound levels. Serviceability enhancements include fewer grease zerk and the use of synthetic bushings and wear pads in the loader linkage and extendible dipperstick.

The jewels in the crown of the J-Series might be the models 310SJ and 410J equipped with the optional Total Machine Control (TMC) system, which, says Deere, provides the best features of

the hydraulic excavator and the four-wheel-drive loader in one machine.

"TMC integrates control of every system in the machine," says Tyler, "from engine to transmission and hydraulic functions to brakes."

The TMC option provides three "speed modes" for the backhoe — high-production, normal and craning, and according to Deere, digging-cycle time may be reduced by 20 percent, compared with non-TMC predecessor models. TMC controls feature armrest-mounted joysticks that incorporate multiple controls to eliminate foot pedals and extra levers. Also available for TMC-equipped models is a tool-carrier front end that uses Deere's Worksite Pro coupler and provides electronic parallel lift with return-to-carry and boom-height-kick-out features.

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Basic Specifications: J-Series Backhoe-Loaders

	310J	310SJ TMC	410J TMC	710J
Deere engine	4045T 4.5L	4045T 4.5L	4045T 4.5L	6068T 6.8L
Net horsepower	92	95	95	122
Weight (lb.)	16,140	16,960	18,500	25,500
Dig depth	14' 3"	14' 6"	15' 10"	17' 10"



Equipped with the Total Machine Control system, the 310SJ and 410J models can be fitted with a tool-carrier front end that features Deere's Worksite Pro coupler.



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of 2,960 lbs. Backhoe dig depth is 10.0ft with a digging force of 5,800 lbs., and a generous 13'2" reach. A powerful HMT transmission means no-range shifting during loader operation with a forward-reverse pedal. And the mechanical quick coupler is compatible with skid-steer attachments. A Category I-3 point hitch is optional.

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D6K Kicks Off A New Line

Caterpillar boasts “best-in-class performance” for the first K-Family track-type tractor

Medium to large crawler dozers from Caterpillar are easy to recognize because of their elevated sprocket design. Not so with the new D6K track-type tractor. The new model — which replaces the D5N — features a conventional, oscillating undercarriage, which increases stability while traveling on uneven terrain and provides a smoother ride.

Caterpillar says its SystemOne undercarriage comes standard on the D6K, and it can reduce operating costs and extend undercarriage life by up to 70 percent. Further, the company says SystemOne has proved to outperform sealed and lubricated track and heavy-duty track across a wide range of applications. The system combines rotating bushings with a center-tread idler, which is said to eliminate link scalloping and bushing turns, while allowing high-speed operation in both forward and reverse.

Another standard feature is the new hydrostatic drive system, providing independent power and control of each track for excellent maneuvering, fast acceleration, and quick direction changes. By using the hydrostatic control located on the left armrest, operators can deliver smooth power turns and choose from infinite speed selection from 0 to 6.2 mph in forward and reverse. The operator can also program certain speeds and recall them for specific ground conditions.

Powering the new drive system is the six-cylinder Cat C6.6 engine with ACERT technology, said to deliver 125 flywheel horsepower — the most in its size class while meeting worldwide emissions requirements. It provides quiet operation, and it automatically adjusts engine power to maintain peak implement and power-train performance. Also, a hydraulically driven Automatic Demand Fan offers increased cooling performance and improves fuel efficiency. An optional reversible fan is available for improved cooling performance in high-debris or dusty environments.

In addition to Caterpillar’s “industry-leading performance”



Designed for finish grading, the D6K track-type tractor features a new hydrostatic drive system that provides independent power and control of each track for excellent maneuvering and quick direction changes.

claim comes “industry-leading comfort” for the operator. The new operator station features seat-mounted electro-hydraulic controls, combined decel/brake pedal, integrated AccuGrade display (optional), and excellent visibility to the blade. The left joystick provides control of machine direction and speed. It also has buttons for programming independent operating speeds. The right joystick controls the dozer blade, including a button for automatic blade shake and thumbwheel for blade-angle adjustment. In addition, an Automatic Temperature Control provides “intelligent” A/C and heating functions.

With a full complement of standard features, the estimated list price for the D6K is around \$200,000.

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Basic Specifications

	D6K XL	D6K LGP
Engine	Cat C6.6	Cat C6.6
Operating weight	28,409 lbs.	29,690 lbs.
Track length on ground	104 in.	104 in.
Track gauge	70 in.	79 in.
Blade capacity	3.5 cu. yd.	3.8 cu. yd.

We found it.

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By WALT MOORE, Senior Editor



The new Bobcat S330 has the hydraulic horsepower to handle demanding attachments, such as stump grinders.

The 425 ZTS adds depth to Bobcat's zero-tail-swing excavator range.



Bobcat Adds Big Skid-Steer and ZTS Mini

S330 skid-steer loader and 425 ZTS compact excavator are latest additions

With a rated operating capacity of 3,300 pounds, the new Bobcat S330 is now the largest model in the company's loader range. Featuring a vertical lift-arm path and a lift height of 10 feet 10 inches to the bucket hinge, the 9,185-pound machine produces 85 horsepower from its turbocharged, liquid-cooled diesel engine.

The loader has a standard auxiliary flow of 20.7 gpm, and its high-flow option delivers 37.0 gpm; both systems operate at 3,300 psi. Also standard are fingertip controls for the auxiliary-hydraulic system, allowing selection of maximum or variable flow and providing a forward/reverse-flow detent. As an option, the deluxe panel provides information on the function of specific attachments and illustrates how best to control them. Two-speed travel, a standard feature, allows speed ranges to 6.9 and to 12 mph.

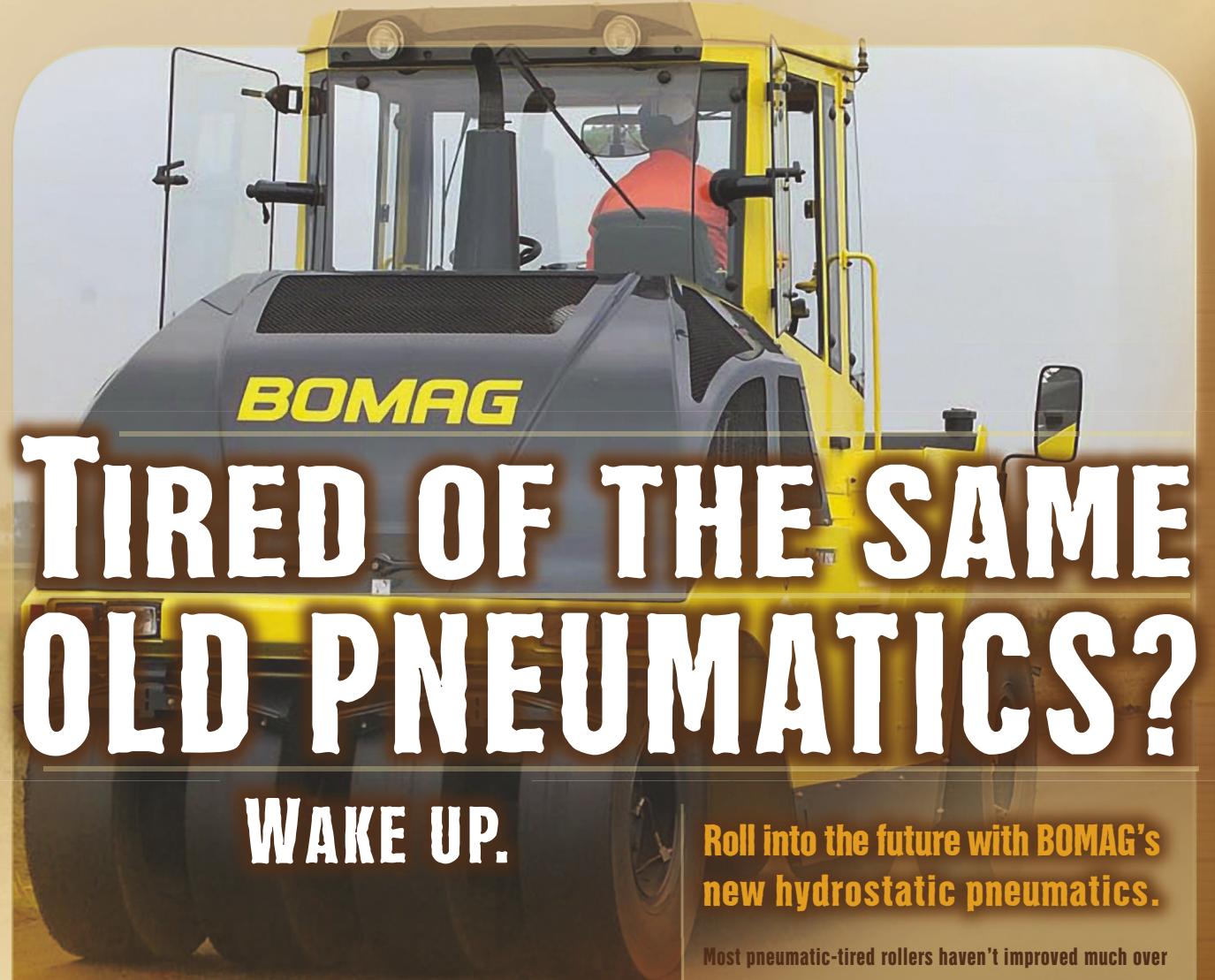
Optional operator-comfort features include an attachment-control kit, the deluxe instrumentation package, and Bobcat's Selectable Joystick Controls (SJC), which provides all-hand control of the machine. Included with the SJC package are horsepower-management and speed-management features. The former automatically adjusts the drive system to maxi-

mize pushing and digging power, says the company, and the latter allows the operator to "dial in" a suitable travel speed up to 7 mph.

Also new from Bobcat is a fourth zero-tail-swing (ZTS) compact excavator, the 425 ZTS, weighing in at 5,849 pounds with its standard digging arm. The standard arm allows dig depths to 8 feet 4 inches, but a long-arm option can increase that dimension to 9 feet 4 inches. The long-arm configuration adds about 400 pounds in counterweight to the machine, and the larger counterweight does protrude 3 inches beyond the tracks.

The machine's four-cylinder, liquid-cooled diesel engine produces 26 horsepower, and its working hydraulic system uses a variable-displacement pump with an auxiliary flow of 13.2 gpm. Auxiliary-hydraulic relief pressure is 2,610 psi for the standard-arm version and 2,900 psi for the long arm. Rubber tracks are standard, but steel versions are available for severe-duty applications. And with an overall width of slightly less than 61 inches, the 425 ZTS, says Bobcat, fits neatly into tight work spaces.

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Market Watch Lite

By KATIE WEILER, Managing Editor

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Vermeer

Multiblade plow attachment can pull up to three Netafim drip-lines for installation in septic tank leaching fields. Dripper-lines can be installed at a predetermined depth from 2 to 12 inches, and spacing from 10 to 24 inches. High-frequency vibration cuts through the ground and closes up the channel, the company says. Plow fits the LM42 lawn plow and RT450 ride-on tractor. Each of three reels holds up to 1,000 feet of tubing.

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Subaru Robin

Diesel generators use four-stroke-cycle, single-cylinder Hatz diesel engines. The RGD3300H uses a 6.8-hp engine and has a rated output of 3,000 watts. The RGD5000 uses a 9.9-hp engine and has a rated output of 5,000 watts. Both models have electric

starters with recoil backups. Both also feature a 129-volt, 30-amp "twistlock" receptacle and 120/240-volt, 20-amp twist-lock receptacle.

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Earth Tool

The HammerHead HydroBurst HB125 is a "high-tonnage" pipe-bursting system designed for use in the water- and sewer-pipe replacement market. It is based on the Vermeer Navigator HDD platform and generates 250,000 pounds of pulling force. The HydroBurst HB125, says the manufacturer, is capable of replacing pipes from 4 to 20 inches in diameter and features a rotating rod string that is designed to penetrate collapsed lines.

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Magnum Systems

A new line of five brush cutter heads is available from Paladin Brands. The cutter heads are available in sizes for use on skid-steer loaders, backhoe-loaders and excavators. The fixed-tooth cutter/mulcher head is available in sizes from 165 to 500 horsepower and has a patented hammer design.

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Ground Heaters

Arctic Bear HD indirect-fired heater has a heat output that varies from 430,000 to 700,000 BTU, depending on outdoor ambient temperature. It has a stainless-steel firebox and heat exchanger and is capable of running on three fuels: diesel, natural gas or propane. The heater also is available with an optional 5.5 kW, 2,800-rpm, liquid-cooled Onan generator.

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Market Watch Lite



Eaton

VORAD VS-400 collision warning system offers the option of purchasing any one or all of the safety-related VORAD offerings, including a standard collision warning system with forward-looking radar, Blindspotter side sensor and SmartCruise adaptive cruise control. The extraction and real-time wireless transfer of data is now available through a subscription to the safety package of Eaton's Fleet Resource Manager.

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Ground Heaters

The Arctic Bear Cub indirect-fired heater is available in three models: the 200, 400 and 700, which have maximum heat outputs of 200,000, 400,000 and 700,000 BTU per hour, respectively, and airflows of 1,475, 5,000 and 8,240 cubic feet per minute. The new heaters feature stainless-steel fireboxes and heat exchangers.

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Bobcat

The Bobcat Forestry Cutter attachment features a 60-inch width and a tube-style cutting drum with 30 carbide teeth arranged in a spiral pattern that allows one tooth at a time



to engage the material for maximum cutting efficiency. The new tool is used by raising the machine's boom, then lowering the cutter down through the tree or brush.

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Stone Construction Equipment



A lightweight 36-inch walk-behind trowel has been added to Stone's "Smooth Operator" power-trowel line. The new CF36L weighs 23 pounds less than its larger CF364 counterpart, making it ideal for basement work, says Stone, because it can be more easily carried down stairs. The new trowel has a 36-inch working width and is powered by either a 5.5- or 8-hp Honda engine.

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Putzmeister

The 45me DRI dehydrator and filter is designed to remove free, dissolved and emulsified water from hydraulic fluid. The self-contained, portable machine rolls into place and can be connected to the fluid reservoir in less than five minutes, says the company. The water-removal cartridge has an expected five-year life with regular daily use. The unit includes a high-capacity (3-micron absolute) spin-on filter, and can be used to fill reservoirs at the rate of 55 gallons in 15 minutes.

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Subaru Robin

Models PTD310T and PTD410T diesel trash pumps are powered by air-cooled Hatz diesel engines. The PTD310T uses a 6.8-hp engine, has a 3-inch discharge port, and a maximum capacity of 317 gpm. The larger PTD410T has 9.9 horsepower, a 4-inch discharge port, and a maximum capacity of 449 gpm. Both models are self-priming.

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Market Watch Lite

Vermeer

Three new attachments are available for use on the S600TX compact track loader. STR48 trencher attachment includes an 18-inch-diameter discharge auger. Maximum digging depth is 48 inches to a width of 8 inches. SVP18 vibratory plow can pull or direct-bury product up to 2 inches in diameter at depths from 6 to 18 inches. LG42 grapple can grip material up to 36 inches in diameter.

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Wacker

According to Wacker, the BH 24 gas-powered pavement breaker features a percussion system that uses a re-configured piston and striker for increased power, reduced weight and less vibration. Also contributing to reduced vibration is its patented vibration-dampening protective housing, which isolates the breaker's entire upper housing. The BH 24 uses a Wacker WM 80 two-stroke-cycle engine.



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Kenco

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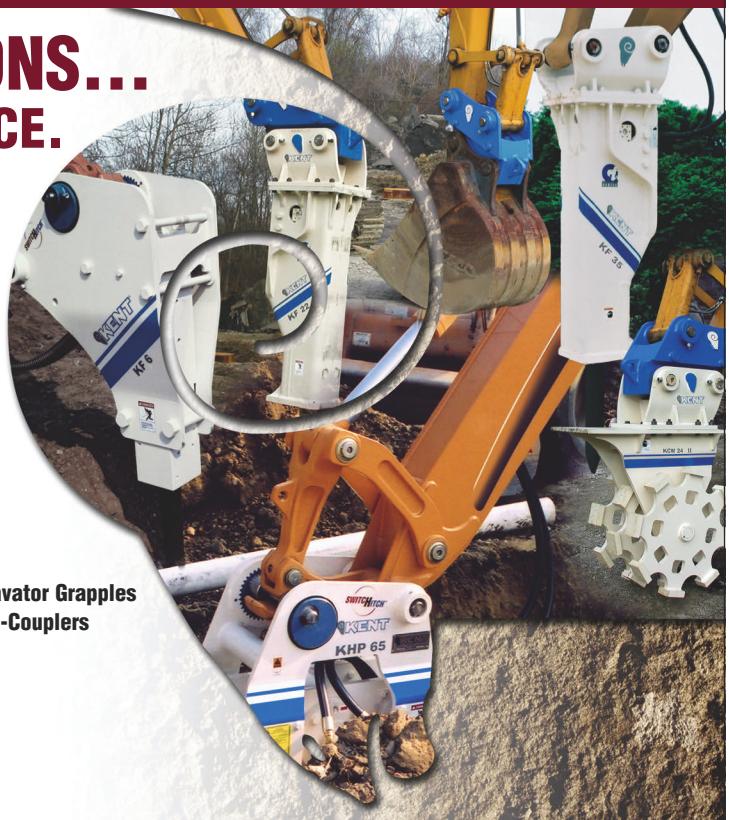
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WaveBox

WaveBox makes big claims of being the world's first truly portable microwave oven, and it is said to bring the power of the kitchen to mini-vans, trucks, jobsites, and more. A triple-power delivery system allows the WaveBox to run off a standard AC outlet, the 12-volt power socket in most vehicles, or by direct connection to a 12-volt battery. It has a built-in, retractable AC cord and swappable DC cords for the vehicle power socket or direct battery connection; no inverter is needed. It retails from \$179 to \$199.

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Godwin

The GSP20SL sub-prime electric submersible pump is capable of maximum heads to 65 feet and maximum flows of 140 gpm. The compact, slim design allows use in caissons or casings 8 inches in diameter. It has a dual-voltage motor. **Visit ConstructionEquipment.com/info and enter 216**



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A large, vertical image of a construction worker. The worker is wearing a white hard hat and a dark suit jacket over a light-colored shirt. He is smiling at the camera. In the background, there is a large building under construction with a complex steel framework. The lighting suggests it might be late afternoon or early evening.

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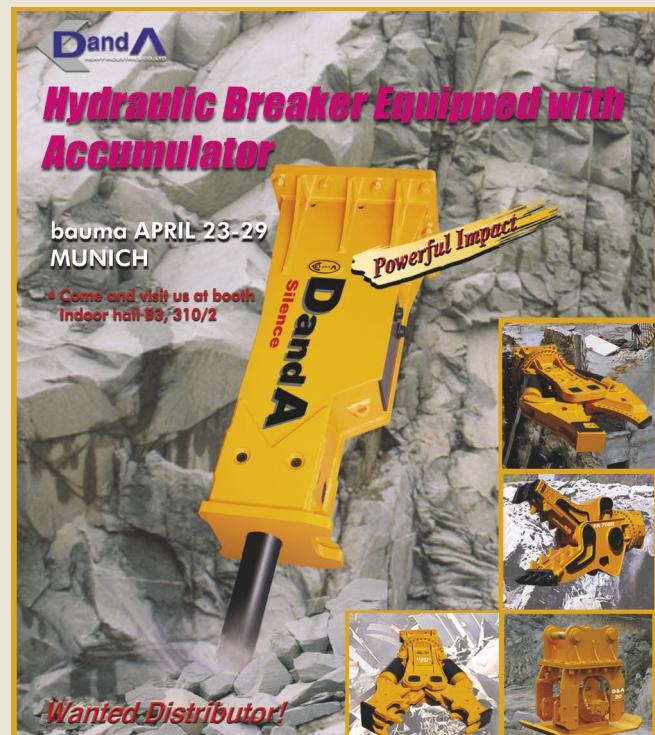
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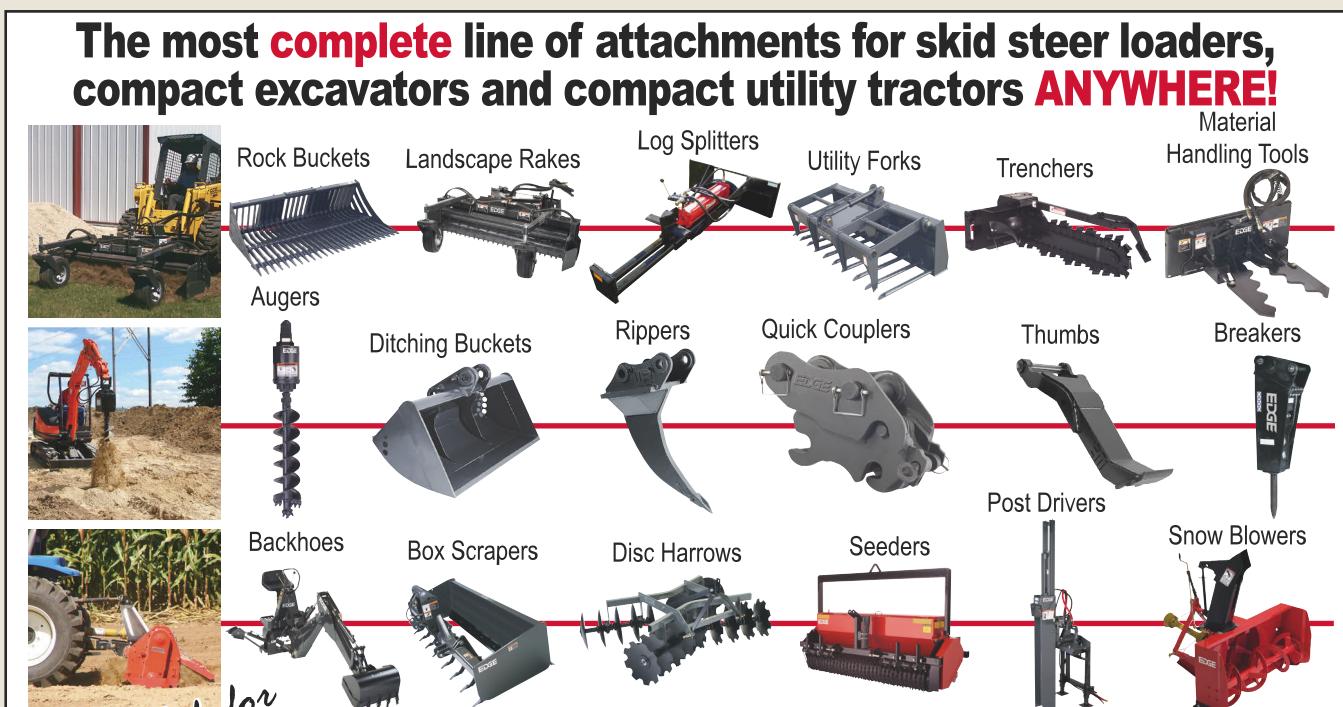


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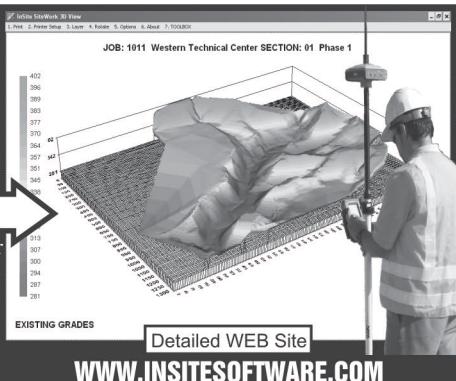
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50 Years of Compaction

Wacker's popular compaction products celebrate 50 years in the United States

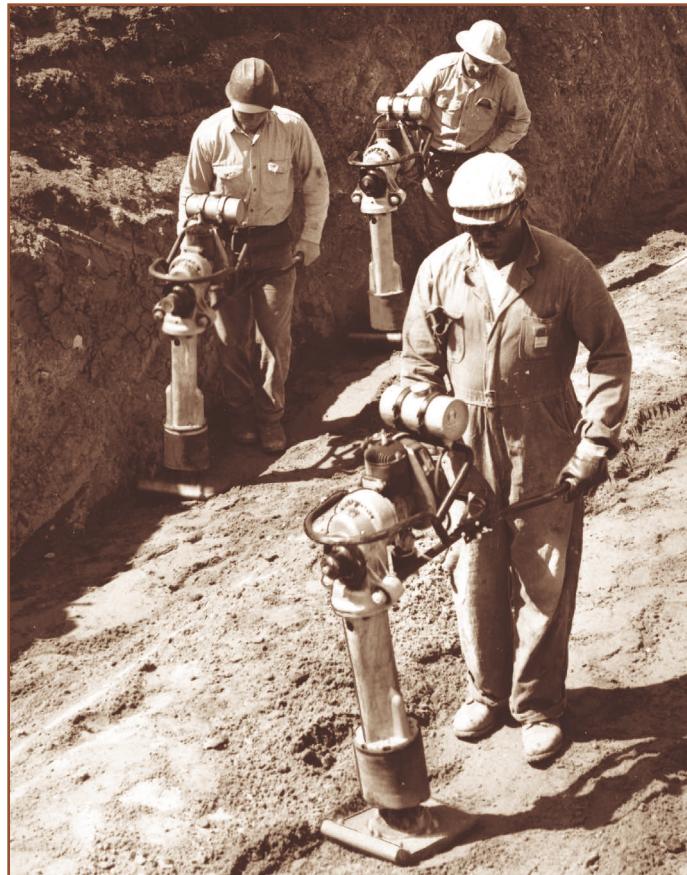
This year Wacker of Menomonee Falls, Wis., celebrates its 50th anniversary in the United States. Its founders, brothers Peter and Hermann Wacker, emigrated from Germany in 1957 to manufacture and promote their powered hand tools specializing in compaction. While the company's roots date back to 1848 in Germany, opening a U.S. operation for the family-owned manufacturer was a true milestone.

It was only 12 short years after their post-war startup that the Wackers had foresight to bring the growing German construction-equipment manufacturing business to the Hartford, Wis., community. Their original grassroots operation started in a small second-floor warehouse, was successfully run by only six employees, and offered one product: Hermann Wacker's innovative soil compaction invention, the Rammer.

Today, backfill compaction in confined areas is critical to a well-engineered construction project, but in 1957 America it was an uncommon, labor-intensive process. The brothers' innovative, high speed GVR-100 rammer was an effective, one-man-operated machine that saved significant construction costs. The rammer's reputation spread; demand skyrocketed in the United States; and, in 1958, land was acquired for a 21,600-square-foot office, warehouse and production facility.

The GVR-100 Rammer weighed only 125 pounds, but gave a mighty impact of 1,590 pounds per blow, 630 times per minute. A lightweight gasoline motor provided power to the reciprocating mechanism, ensuring flexibility of operation without being tied to electric or compressed air lines. A standard compaction shoe of 11x13 inches was provided, although narrower shoes to 4 inches were available. The machine featured positive grease lubrication, an aluminum alloy casing for reduced weight, and a convenient steel grab bar encircling the top of the machine for ease of handling. It also came complete with low-noise insulation and spark arrester approved by the U.S. Forest Service.

Over the past 50 years, Wacker has continually improved the Rammer, introduced new products, and developed new sales concepts. Early on it recognized the challenges of introducing products to a customer base spread across North America, so it hired salespeople whose sole responsibility was to visit jobsites and demonstrate products. Contractors interested in buying were directed to local dealers for purchase.



Wacker brothers' high speed GVR-100 rammer was a highly effective, one-man-operated machine that saved significant construction costs.

This is still Wacker's strategy. With a fledgling rental industry started in the 1970s, Wacker was one of the first equipment manufacturers to see a promising future for light-equipment rental. Today construction-equipment rentals dominate the industry, and Wacker is a leading supplier to rental dealers.

In 1986, Wacker moved to a new facility in Menomonee Falls, Wis., which has been expanded many times since. Besides the company's vibratory rammer, the U.S. operation is responsible for the manufacture of all vibratory walk-behind and ride-on rollers, trash pumps, portable and mobile generators, and walk-behind and ride-on trowels. Wacker currently markets over 150 models sold through its dealer network.

*You can read more about the evolution of construction equipment in Keith Haddock's latest book release, an updated version of his illustrated *Earthmover Encyclopedia* due in bookstores Spring 2007. Also, consider a membership in the Historical Construction Equipment Association, www.hcea.net.*

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ConstructionEquipment.com Headlines

New Product: [Telehandler](#)
The new line of compact telehandlers includes the Model 45-19A with a maximum capacity of 15,000 lbs. and Model 60-19A with 6,000 lbs. of 45-19A lifts up to 19 feet with a forward reach of 13 feet, 10 inches. Cab design offers improved operator vision and comfort. A 100-degree degree quick switch enables fast attachment changes. Powered by a 100-hp Deutz diesel, the telehandler has four-wheel drive for 45-percent gradeability. Four-wheel steering can be used for steer, crab steer, or front-wheel steering.

For more on telehandlers, including feature articles and the latest product introductions, click here.

Equipment Evaluation: [Ariens Stump Bump2](#)
The new 95 Series® loader-track loaders—so far, only the 95-18—feature a new "Stump Bump2" attachment designed to help them share just a handful of attachments with the company's other models. It features a supple new undercarriage that soaks up obstacles in its path.

Equipment Use Survey

Recently, we asked if you had seen a change in the age of heavy equipment in rental fleets? Here's what you said.

No, machine age doesn't appear to be changing.	18.9%
Yes, machines are never than they have been recently.	13.5%
Yes, Reel machine age is getting higher.	8.1%
Don't rent heavy equipment.	59.5%

This month, we'd like to know: **Highway funding. Has the Federal funding legislation affected state budgets?** To answer this question, please click here for our online survey.

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