Reed Business Information

18 Exclusive 2006-07 outlook

30 Traction control cuts operating costs

56 Spicer tire controls won't bog down

January 2007
ConstructionEquipment.com

CONSTRUCTION EQUIPMENT

Since 1949

Ideas and Insight for the Equipment Pro

Remote Paving

GOMACO GT-3400 puts operator on the ground with radio controls

p. 89

YOU JUST CAN'T KEEP A GOOD TRUCK DOWN.

Come hell or high water, I count on my International® WorkStar™ to finish the job. A redesigned hood and grille houses a larger cooling unit to keep it going 'til the whistle blows. While Diamond Logic® boosts productivity, detecting maintenance issues up to 80% faster. Maybe that's why J.D. Power and Associates ranks International® Highest In Customer Satisfaction among Vocational Segment Class 8 Trucks. So while the ground may quake, my WorkStar stands tall, miles ahead in reliability and recognition.

SEE WHY WE RECEIVED THE J.D. POWER AND ASSOCIATES AWARD
AT INTERNATIONALTRUCKS.COM/WORKSTAR **MILES AHEAD**

WORKSTAR™

INTERNATIONAL®

A ***NAVISTAR*** *COMPANY*

International Truck and Engine Co. received the highest numerical score for vocational trucks in the proprietary J.D. Power and Associates 2006 Heavy-Duty Truck Customer Satisfaction Study℠. Study based on 2,529 U.S. responses measuring 6 manufacturers and measures opinions of principal maintainers. Proprietary study results are based on experiences and perceptions of principal maintainers surveyed in April, May, and June 2006. Your experiences may vary. jdpower.com

Visit ConstructionEquipment.com/info and enter 1

INTELLIGENCE IS KNOWING WHEN TO STOP

With ever-changing soil conditions and asphalt mix designs, proper compaction can be tricky, even for an experienced operator. Over- and under-compaction can impact the success or failure of a road, runway or other surface, leading to costly repairs and rework. On the other hand, knowing when compaction is complete can increase efficiency and eliminate performance penalties.

Intelligent compaction from BOMAG eliminates the guesswork and helps ensure proper compaction in every application. Intelligent compaction systems on BOMAG soil and asphalt rollers make automatic adjustments continuously to control drum output. Maximum energy is delivered without over-compacting the surface. The result: optimum compaction, every time.

Intelligence is knowing when to stop. For more information, visit the Web site below.

www.gobomag.com/measuring

Visit ConstructionEquipment.com/info and enter 2

BOMAG®
COMPACTION PRODUCTS

BOMAG - A DIVISION OF THE FAYAT GROUP

Don't be a stick in the mud. Extend your work season with Bobcat® compact track loaders. Rugged rubber tracks deliver extra traction and superior flotation—so you can power through conditions that stop other machines dead.

712J-1

One Tough Animal™

Bobcat®

Visit ConstructionEquipment.com/info and enter 3

Ingersoll Rand
Compact Vehicle Technologies

1.866.823.7898 ext. 712 **www.bobcat.com/excavation**

CONSTRUCTION EQUIPMENT

January 2007 • Vol. 110, Issue 1

Contents

COLUMNS & DEPARTMENTS

PRODUCTS

Cover photo supplied by GOMACO

FEATURES

EXCLUSIVE

FIELD REPORT

SPECIAL REPORT: Q&A

Contents

CONSTRUCTION EQUIPMENT

January 2007 • Vol. 110, Issue 1

SPECIAL REPORT

HANDS-ON TRUCKING

SPECIAL REPORT

BUYING FILE

ConstructionEquipment.com

Research Equipment Online: When

it's time to research your next machine acquisition, be sure to access the industry's most up-to-date specifications database. With new machines added monthly, ConstructionEquipment.com's Spec Check database ensures that you have the best and most accurate specs for your comparisons. Our archives of evaluations will provide additional insight.

All that, combined with our manufacturers and dealers database, gives equipment buyers the best online research tool on the 'Net. Visit today.

Subscription Information

For subscription inquiries and address changes, please visit ConstructionEquipment.com (click on the subscription button) or call 800/446-6551.

Subscribe online at **www.getFREEmag.com/ce**

Reed Business Information

Tad Smith: CEO; Jeff Greisch: President, Chicago Division

Reed Business Information.

TEAMED FOR success

Faster cycle times, bigger payloads, lower fuel costs. That's what you get with TEREX and its line of performance-matched articulated trucks and hydraulic excavators. Featuring bigger beds, greater heap capacities and some of the highest horsepowers in the industry, our trucks hit the ground running with speeds up to 32 mph. Our advanced excavators offer digging depths to 25' 6", exceptional break-out forces and bucket capacities up to 2.20 yd^3. Plus, an advanced e-Pos System for increased fuel efficiency over competitive models. Add it all up and you have a force that can't be beat.

For details, contact your local TEREX distributor, visit terex.com or call 866.837.3923.

TEREX
FINANCIAL SERVICES

Extend the value. Call 662-393-1232 for financing options.

Visit ConstructionEquipment.com/info and enter 4

TEREX

866-837-3923 | www.terex.com

NEW HOLLAND

SUPER BOOM® ON TRACKS

Muddy, soft or sandy soil. Uneven terrain. Sensitive turf. No matter what the ground conditions, New Holland compact track loaders deliver outstanding flotation and traction with unmatched Super Boom® performance and stability.

- **Super Boom vertical lift linkage** – delivers maximum forward reach at maximum dump height
- **Low center of gravity** – and wide stance lets you operate with confidence, even on slopes
- **Large operator platform** – contoured suspension seat and excellent all-around visibility help maximize productivity
- **Rugged, simple undercarriage design** – delivers long life with minimal maintenance

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

Visit ConstructionEquipment.com/info and enter 5

Backed by a 1-Year Unlimited-Hour Standard Warranty*

*Certain restrictions may apply. See your New Holland construction equipment dealer for details.

NEW HOLLAND

CONSTRUCTION EQUIPMENT
ConstructionEquipment.com

Editorial Staff
Rod Sutton, Editor in Chief
630/288-8130; rsutton@reedbusiness.com
Larry Stewart, Executive Editor
314/962-0639; lstewart@reedbusiness.com
Walt Moore, Senior Editor
630/288-8132; wmoore@reedbusiness.com
Mike Anderson, Senior Editor
michael.anderson@reedbusiness.com
Katie Weiler, Managing Editor
630/288-8142; kweiler@reedbusiness.com
Heather Burlingame, Senior Production Editor
630/288-8136; hburlingame@reedbusiness.com
Tom Berg, Truck Editor
Mike Vorster, Contributing Editor
Preston Ingalls, Contributing Editor

Publishing Offices
Reed Business Information, 2000 Clearwater Dr., Oak Brook, IL 60523; Fax: 630/288-8185
Rick Blesi, Publisher
Dawn Batchelder, Marketing Coordinator
Lisa Hegel, eMedia Coordinator
Bruce Ksiazek, Director of Finance
Karen A. Ruesch, Production Director
Victoria Jones, Production Manager
Allison Ternes, Circulation Manager
Bill Patton, Creative Director
Mary Sondergaard, Art Director

Sales Representatives
Mary Adee, Regional Manager
630/288-8134; Fax: 630/288-8185
madee@reedbusiness.com
Michelle Lorusso, CBC, Regional Manager
770/209-3623; Fax: 630/288-8185
mlorusso@reedbusiness.com
Patricia Maroder, Regional Manager
630/288-8139; Fax: 630/288-8185
pmaroder@reedbusiness.com
Terry McGinnis, Regional Manager
801/273-8790; Fax: 801/273-8799
tmcginnis@reedbusiness.com
Morgan Rautzhan, Account Representative
630/288-8143; Fax: 630/288-8185
morgan.rautzhan@reedbusiness.com
Mike Hancock, International
Tel: 011 44 208/652 8248

Spec Check
Bill Borthwick, Manager Product Analysis
Mac Wilcox, Manager Database

Reprints
Reprint Management Services, Reprints
800/290-5460, ext. 100
constructionequipment@reprintbuyer.com

What? Can't Hear You!

As we drive to and from work these days, we're often caught gawking at the equipment used to widen and reconfigure the tollway around our offices. Even though the phrase "gaper's block" enters the mind, it's difficult not to be distracted by the machines moving dirt or laying pavement.

At some points along this particular stretch of roadway, the Toll Authority is erecting noise walls to protect the adjoining residential areas. For those living in houses here, and even for us inside the vehicles, pavement noise contributes to the ever-increasing din of urban life.

Rod Sutton, **Editor in Chief**

Noise walls can only reduce the overall noise levels, however; they cannot completely block it. And they have to be high and solid in order to do even that.

Road noise rivals congestion as a concern for users, municipalities and states, and residents. It's going to happen every time you put speed and volume together with rubber coming in contact with pavement.

Concrete-paver manufacturers know they can help contribute to noise-reduction efforts. Machine design and technologies, some highlighted in this month's Buying File, allow highway contractors to meet increasing demands for smooth pavements.

Contractors know that pavement smoothness can pay off in performance bonuses or, in the other case, result in penalties. States and other roadway owners increasingly rely on technologies to measure road smoothness and are writing smoothness levels into contracts.

Other technology and techniques will become available to help roadbuilders add noise reduction to their list of performance targets. For those attending World of Concrete later this month in Las Vegas, such items should be on the to-do lists.

Trade shows provide excellent opportunity to talk about such issues. Ask equipment manufacturers what they're doing about pavement noise and how you can attack the problem back home. Ask your colleagues what they're seeing, too.

This issue will not go away. The equipment user who can provide solutions will be highly sought after as pavement noise continues to force its way to the front of the public's consciousness.

Rod

630-288-8130
rsutton@reedbusiness.com

No one gives you more Grade Control experience than Trimble. No one.

T H A T ' S T R I M B L E P R O D U C T I V I T Y

Guided by Trimble

Trimble Grade Control Systems.

The originator.

The innovator.

With more capabilities.

More training.

More speed.

More uptime.

And more production.

Period.

Only from the leader...

GCS900 Grade Control System with laser augmentation- blade control to 3-6 millimeters (0.01 to 0.02 feet)

For more information, go to www.trimble.com/gcs

Your Productivity. Maximized.

Trimble®

www.trimble.com

Visit ConstructionEquipment.com/info and enter 6

CASE
PROFESSIONAL PARTNER

TOUGH TREAD = LESS EXPENSE

YOU DO THE MATH.

Get big-machine durabilty and low maintenance costs with our 420CT, 440CT, 445CT and 450CT Compact Track Loaders. Featuring proven Case undercarriage technologies, these mini-brutes deliver long component life, a comfortable ride and rigid-mount simplicity. Permanently sealed rollers and idlers assure reliable performance. Tapered track frames stay cleaner. Triple-flange rollers minimize wear and prevent de-tracking. From the heavy-duty chassis to the long-lasting radial piston-drive motor, these compacts give you a whole lot of loader. Contact the professional partners at your local dealer for a demo, purchase or rental options, and details on financing and service plans. See www.caseoffers.com for the latest special offers and promotions from Case.

www.casece.com

Visit ConstructionEquipment.com/info and enter 7


p.16

MARKET WATCH

By KATIE WEILER, Managing Editor

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

GOMACO

T/C-400 and T/C-600 texture/cure machines are now available with a skewed tining option. The new option allows the tining bars to travel in a skewed path, while the frame of the machine remains square to the slab. The direction of the skewed pattern can be easily changed, says the company, by moving the timing chain either over or under the main drive sprocket on the upper carriage.

Visit ConstructionEquipment.com/info and enter 175

Komatsu

Komatsu upgraded the HD785-5 rigid-frame off-highway truck to "dash-7" status with its Tier-2 engine — the 1,178-hp Komatsu SAA12V140E-3. The truck not only picked up 137 horsepower, but also gained a new Komatsu seven-speed transmission with an additional reverse gear for low speeds and electronically controlled clutch modulation to manage optimum clutch-engagement oil pressure at every gear. Komatsu replaced the dry-disk front brakes with wet-disk retarders.

Visit ConstructionEquipment.com/info and enter 176

Toyota

The upcoming full-size Tundra with 8 foot-1 inch long-bed version will be available with a two-door Regular Cab and a four-door Double Cab. It comes with six stake pockets, four floor-mounted tie-down rings, and optional deck rail system. It will come with V-6 and V-8 engines, including a new 5.7-liter V-8 that will tow more than 10,000 pounds.

Visit ConstructionEquipment.com/info and enter 177

Bobcat

The Bobcat 425 compact excavator is available in a long-arm configuration. The standard-arm version has a maximum digging depth of 8 feet 4 inches and reach of 14 feet 10 inches at ground level. The 425 long-arm version has a maximum digging depth of 9 feet 4 inches and a reach of 15 feet 9 inches at ground level. Bucket breakout force is 5,058 pounds (5,530 pounds with long-arm option).

Visit ConstructionEquipment.com/info and enter 178

Market Watch

Kobelco

Model SK350LC Acera Mark-8 excavator weighs 79,600 pounds and digs to a depth of 24 feet 10 inches. The machine's 264-hp Tier-3 Hino engine features electronic fuel injection. A power-boost switch allows the operator to call up 10 percent more power for increased bucket breakout force — and to do so without time limitation.

Visit ConstructionEquipment.com/info and enter 179

Link-Belt

The all-new 298 HSL lattice-boom crawler crane has a rated lift capacity of 230 tons. It delivers 55,000 pounds of maximum line pull and a maximum line speed of 525 fpm. A 270-foot boom combines with the 90-foot jib to yield the machine's maximum tip height of 365.5 feet. A counterweight-removal system handles the crane's 160,000 pounds of upper counterweight.

Visit ConstructionEquipment.com/info and enter 180

Auto Crane

The 14,005H telescoping crane complements the company's Titan 70 crane service body, with which it can lift up to seven tons. The 70,000-ft.-lb. crane features: FM remote and tethered pendant, full-power extension to more than 30 feet, two-speed rotation mechanism, and 60 fpm line speed.

Visit ConstructionEquipment.com/info and enter 181

Toro

Dingo TX 525 Wide Track compact track loader offers extra torque, compared to other Dingos, which provides increased pulling and digging force when using attachments in aggressive conditions. Powered by a 25-hp Kubota diesel, it weighs 2,217 pounds and has a rated operating capacity of 553 pounds.

Visit ConstructionEquipment.com/info and enter 182

Ingersoll Rand

The compact MW-500 milling machine offers a standard cutting width of 20 inches. Cutting radius is 7 inches, and the right rear support leg and wheel can be swiveled inboard for flush cutting. Features to help traction include all-wheel drive and Anti-Slip Control. Maximum cutting depth is 8.25 inches; maximum cutting width is 20 inches. Operator station includes an adjustable steering wheel and provides a 360-degree view of the working area. See Paving Report on p. 95.

Visit ConstructionEquipment.com/info and enter 183

Link-Belt

The RTC-8090 Series II rough-terrain crane, with a rated lift capacity of 90 tons, uses Link-Belt's patented locking-and-latching system for the machine's five-section boom, which extends from 38 to140 feet. The boom uses a single hydraulic cylinder to move all five sections. The RTC-8090 has a maximum tip height of 238 feet with the two additional 16-foot lattice inserts.

Visit ConstructionEquipment.com/info and enter 184

Terex Finlay

The I-1312 impact crusher has a multiple-speed impactor for use in primary or secondary crushing of concrete and asphalt rubble and limestone. Cedarapids 5048LP impact crusher has a standard 3-bar or optional 4-bar configuration. Hopper capacity is 11.7 cubic yards.

Visit ConstructionEquipment.com/info and enter 185

Boxer Equipment

Model 320 mini-skid measures just 34.5 inches wide. It can handle all the same attachments as the larger Boxer machines, but offers easier operation. The unit comes with a 7-inch-wide rubber track that produces 3.2 psi of ground pressure. Tip capacity is rated at 1,250 pounds, and operating capacity is 625 pounds at 50-percent operating capacity.

Visit ConstructionEquipment.com/info and enter 186

Market Watch

Komatsu

Both WA450-6 and WA480-6 loaders have been upgraded with Komatsu Tier 3 diesels. WA450-6 specs out with 272 horsepower, operating weight between 48,920 and 49,430 pounds, and dumping clearance of 10 feet 3 inches with a 5.5-cubic-yard general purpose bucket. WA 480-6 offers 299 horsepower, operating weight between 54,200 and 54,830 pounds, and dumping clearance of 10 feet 6 inches with a 6-cubic-yard general purpose bucket.

Visit ConstructionEquipment.com/info and enter 187

Ingersoll Rand

PF-6110 track-mounted asphalt paver features an auger system that works independently of the conveyor system, both systems using sonic sensors for optimal material flow. Self-cleaning conveyor chain is automatically tensioned. Hopper capacity is 14.4 tons; production rate is 820 tons/hour. With a 10-foot screed, maximum paving width is 26 feet. The new operator station has onboard diagnostic capabilities in four languages.

Visit ConstructionEquipment.com/info and enter 188

Bobcat

Models 337, 341 and 435 compact excavators now come with the Hydraulic X-Change mounting system that eliminates the need for operators to manually position or align attachment spins during hookup. Hydraulically activated attachment-retention pins retract to remove the attachment and extend to secure the attachment. Hydraulic X-Change maintains optimal "pin-on" bucket geometry.

Visit ConstructionEquipment.com/info and enter 189

Alimak Hek

Scando 650 modular personnel hoist comes in various configurations including different doors and gates, drive units, speeds and payload capacities. Three available motors provide more hoist power with as much as 40 percent less power than previous models. Single- or twin-car configurations offer payloads of 1,500 to 3,200 kg/car with a standard lifting height of 400 meters.

Visit ConstructionEquipment.com/info and enter 190

Toro

Dingo mini-skid-steer loaders can now be operated with the TX ride-on platform, available as an attachment that can be bolted on to models TX 420, TX 425 Wide Track, and TX 525 Wide Track. The platform pivots up and down to float on uneven terrain. A rubber pad at its hinge point reduces vibration, and a loader control handlebar can be mounted to the dash for additional safety.

Visit ConstructionEquipment.com/info and enter 191

JCB

Midi CX backhoe-loader has a dig depth of 10 feet. It weighs 8,000 pounds, so it can be trailered without a CDL. It features a two-speed hydrostatic transmission and is four-wheel drive and two-wheel steer. The front end has a skid-steer-type coupler for attachments; the back end detaches and has a three-point hitch.

Visit ConstructionEquipment.com/info and enter 192

Terex

The TXL300-2 wheel loader, manufactured by Doosan, is powered by Doosan's DL08 227-hp diesel. It weighs 38,140 pounds and comes standard with a load-sensing steering system with a flow amplifier and priority valve. ZF powershift transmission can be used in manual or automatic modes, with four speeds forward and three reverse. Standard bucket is 3.9 cubic yards, and the loader's breakout force is 36,419 pounds.

Visit ConstructionEquipment.com/info and enter 193

CONCRETE SOLUTIONS

The largest international gathering place in 2008 for the ready mixed concrete industry showcasing the latest equipment, products, services and technologies.

March 11-15, 2008
Las Vegas, USA

CO-LOCATED WITH IFPE 2008

CONEXPO-CON/AGG® 2008

www.conexpoconagg.com

Sponsored by: Association of Equipment Manufacturers | National Ready Mixed Concrete Association | National Stone, Sand & Gravel Association | Associated General Contractors of America

Visit ConstructionEquipment.com/info and enter 9

4240E SERIES
SKID LOADER

CT7-23 TURBO
TELESCOPIC HANDLER

FOR MILLIONS OF YEARS MAN HAS SEARCHED FOR THE RIGHT TOOL

IT WAS WORTH THE WAIT.

503Z COMPACT
EXCAVATOR

GOOD THINGS ARE INDEED WORTH WAITING FOR, AND WHEN IT COMES TO COMPACT EQUIPMENT, IT DOESN'T GET ANY BETTER THAN GEHL.

All Gehl machines are designed to be attachment, service and operator friendly. Match that with a professional customer-oriented nationwide dealer and parts network, and you have the makings for real increases in PRODUCTIVITY AND PROFITABILITY on your work sites.

480T COMPACT
ALL-WHEEL-STEER LOADER

CTL80 COMPACT
TRACK LOADER

GEHL®

WE LOOK AT THE WORLD DIFFERENTLY.™

VISIT YOUR GEHL DEALER SOON AND TEST DRIVE THE COMPACT EQUIPMENT YOU'VE BEEN WAITING FOR.

WWW.GEHL.COM

Visit ConstructionEquipment.com/info and enter 10

Exca-Dozer \'ek-skə-dō-zər\ *n.*

[a.k.a. Kobelco Blade Runner®] ***1*** : A high-performance hybrid; half excavator and half dozer (found only at the most productive work sites) ***2*** : Having a dual-ability; a hydraulic arm and bucket for exceptional reach, digging, lifting and dumping, coupled with a true, heavy-duty six-way power tilt/angle blade—and beefed-up undercarriage—that actually out-pushes dozers with similar size blades. ***3*** : 15- and 19-ton models available.

Introduce It To Your Work Site Vocabulary

Kobelco's Blade Runner—half excavator, half dozer—delivers a whole new definition of versatility, pushing power and productivity.

Get more done with one machine—the **Kobelco Blade Runner**.

KOBELCO®

See the Excavator Expert – Your Kobelco Dealer.

www.kobelcoamerica.com

245 E. North Avenue
Carol Stream, IL 60188 USA

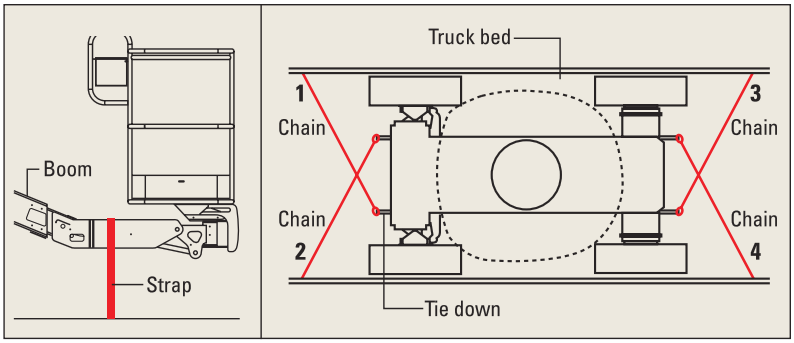
Visit ConstructionEquipment.com/info and enter 11

SAFETY TIPS

Secure Booms Without Damage

With all of the weight that's in the base of telescopic- and articulating-boom aerial-work platforms, the only safe point to secure them is at the tie-down lugs.

- Make sure the boom's turntable is locked before transporting (and don't forget to take the locking pin out before putting the machine back into operation).
- If the slope of the transport's ramp or bed is steeper than the machine's slope rating, winch the unit on and off the truck bed.
- Only winch or tow a boom by hooking to the tie-down lugs.
- Use a minimum of four chains of ample load capacity on the tie-down lugs.
- Secure the platform. Make sure it is in the stowed position and run a nylon strap over the platform mount. Don't pull down with excessive down force.



INDUSTRY NEWS

GM Extends Car and Light-Truck Warranty to 100,000 Miles

To bolster its reliability image, General Motors stretched the standard warranty to cover its entire 2007 car and light-duty truck lineup in the United States and Canada up to 100,000 miles or five years. The new warranty is a fully transferable five-year, 100,000-mile power-train limited warranty with no deductible. GM also has expanded its roadside assistance and courtesy transportation programs to match the power-train warranty term.

The new warranty covers more than 900 components related to the engine, transmission, transfer case (if applicable) and final-drive assemblies on all 2007 model-year Chevrolet, Pontiac, Buick, GMC, Hummer, Saturn, Saab and Cadillac cars and light-duty trucks sold in the United States and Canada. It applies retroactively to 2007 GM cars and trucks already sold. For non-power-train components, GM's Bumper-to-Bumper New Vehicle Limited Warranty remains in effect: four years or 50,000 miles for Buicks, Cadillacs, Hummers and Saabs, and three years or 36,000 miles for Chevrolets, GMCs, Pontiacs and Saturns.

MANUFACTURER NEWS

UpRight to Give Away A Shelby Cobra

To celebrate its revival in the United States, UpRight is throwing a VIP bash at the ARA Show in Atlanta next month, and all invited guests will have the opportunity to win a brand new Ford Shelby Cobra GT500 Mustang.

The Tanfield Group, a UK-based company, bought the aerial-lift division of UpRight in June 2006. Since then, UpRight restarted assembling machines at its California plant. The company promises to open a major U.S. production facility in 2007, which will produce a full line of scissor lifts and big booms.

Get your chance to win a Shelby Mustang at ARA.

Darren Kell, CEO of UpRight, said, "UpRight is a legend reborn in the aerial-lift industry, just as the Shelby Cobra marks the return of an automotive legend."

The UpRight party will be on Friday, Feb. 9, 2007, 5 to 7 p.m. Entry to the drawing for the one-off Shelby Cobra in UpRight colors will be limited to party guests, and you can get an invitation at the company's ARA exhibit. UpRight will be in area B1, Stand 343.

FLEET MANAGEMENT

TMT and Qualcomm Integrate

Qualcomm and TMTsoftware created an automatic solution for managing the entire fleet-maintenance process when they integrated TMT's TRANSMAN program with Qualcomm's GlobalTRACS and OmniTRACS mobile systems. With the integration, TRANSMAN receives hours and location details about off-road equipment from GlobalTRACS and miles and location details about on-road vehicles from OmniTRACS. The system tracks accurate hour-meter and odometer readings for equipment, predicts hours and mileage usage, schedules maintenance automatically, and provides information quickly.

TRUCKING NEWS

International to Use More 'Star' Names, MaxxForce Diesels for New Trucks

International Truck and Engine has prepared a series of cleaner-burning MaxxForce diesels to power its vehicles starting in January, and will give most trucks and tractors "Star"-suffixed names like the PayStar label now being applied to the 5000i severe-service trucks.

Most notable to construction-truck operators is a new WorkStar name to appear on 7000-series heavy vocational trucks. These and all other Internationals are getting technologically advanced MaxxForce engines as pre-EPA '07 diesels cease production at the end of December.

Other new names are CityStar, for medium-duty CF low-cabover trucks, and DuraStar, for the 4000-series medium- and medium-heavy trucks. TranStar, an old name used into the 1980s on over-the-road tractors, is being revived for International's 8500 and 8600 highway tractors, according to Debbie Shust, heavy truck marketing manager.

The 9200 and 9400 series tractors will not get Star names because they will be replaced by versions of the new ProStar tractor. And the 9900i and 9900ix tractors will keep their current numerical designations because they're well known, she said.

Five MaxxForce diesels are based on current V-6, V-8 and inline-6 designs which have been upgraded for better performance and to meet the Environmental Protection Agency's '07 emissions limits, said Jack Allen, president of International's Engine Group. Two others are big-bore I-6s that engineers are developing based on designs from MAN of Germany.

Advances include higher-capacity electronic controls, high-pressure common-rail fuel systems with multi-event injectors, higher rates of exhaust-gas recirculation, variable-geometry turbochargers, and exhaust aftertreatment devices.

MaxxForce engines have undergone 6 million highway miles and 80,000 lab hours of testing, Allen said. During a call-in press conference on Nov. 6, he listed the new models as:

- MaxxForce 5, a 4.5-liter V-6, is the double-turbocharged VT-275 with an upgraded intake throttle, a larger EGR cooler and enhanced electronics. It is rated at 200 horsepower and 440 lbs.-ft. of torque, and will power Class 4 and 5 City Star LCF trucks.
- MaxxForce 7, a 6.4-liter V-8, was extensively redesigned from the 6-liter VT-365 with enhanced electronics, a high-pressure fuel system and a variable-geometry turbocharger. It is said to be quieter and more responsive and will deliver better fuel economy than the 6-liter engine.

MaxxForce 7 has ratings of 200 to 230 horsepower and 560 to 620 lbs.-ft. for use in Class 5, 6 and 7 DuraStar trucks, two of International's XT midrange pickups, and in school and commercial buses.

- MaxxForce DT is based on the 7.6-liter DT 466 I-6, and has a bigger EGR system, foam-molded wiring harnesses and closed-crankcase ventilation system. These provide lower emissions and increased reliability and durability. It's rated at 210 to 300 horsepower and 520 to 860 lbs.-ft.

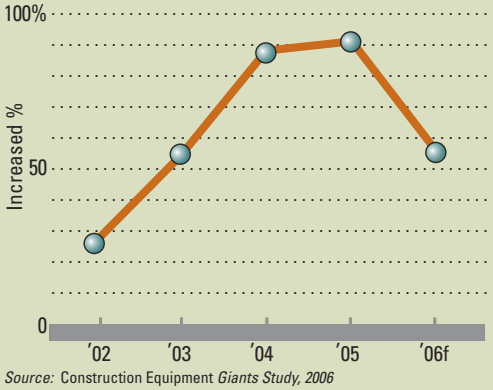
It will power Class 6, 7 and 8 DuraStar and WorkStar trucks.

- MaxxForce 9 is a redesigned 9.3-liter DT 570. It will have ratings of 300 to 330 horsepower and 800 to 950 lbs.-ft., and will power Class 7 and 8 DuraStar and WorkStar trucks.
- MaxxForce 10 is a redesigned HT (high-torque) 570 with 310 to 350 horsepower and 1,050 to 1,150 lbs.-ft., and will be used in Class 8 WorkStar and TranStar trucks and tractors.
- MaxxForce 11 and 13 are International's upcoming big-bore I-6 diesels based on MAN designs. MaxxForce 11 will be offered in Tran Star tractors while the MaxxForce 13 will be available in ProStar tractors.

— TOM BERG

GIANTS

Rental-Fleet Spending Growth Slows



Source: Construction Equipment *Giants Study, 2006*

The drop in percentage of rental Giants who increase fleet spending is not likely to be quite as precipitous as this graph suggests. Seventy-five percent and 88 percent forecast increased spending in 2004 and 2005, respectively, so the forecasts have been consistently low. Twenty-seven percent of Giant rental firms expect to hold fleet spending at last year's level, and 18 percent will cut fleet spending.

Source: Construction Equipment *Giants Study, 2006*

THE GOOD ONES ALWAYS MAKE IT LOOK EASY

We hold reliability to a high standard. Yours.

We know you demand reliability on the job site, and that's why more contractors choose Vermeer® trenchless equipment. Vermeer is a leader in trenchless technology, and our products are backed by a dependable dealer network to support you on the job site with personal attention. Trust a leader in trenchless — Vermeer. **Call 1-888-VERMEER or visit Vermeer.com.**

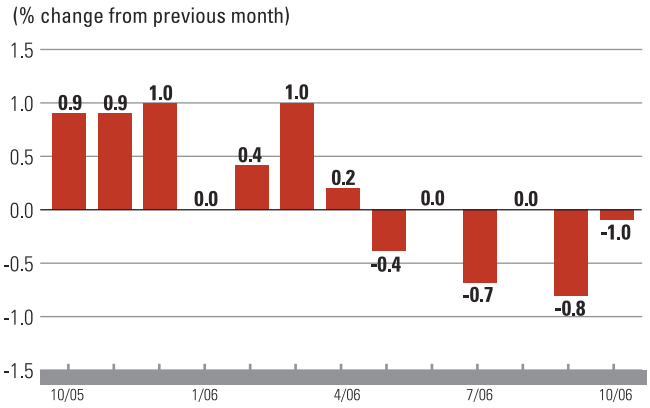
Vermeer®

Visit ConstructionEquipment.com/info and enter 12

By JIM HAUGHEY, Director of Economics

TOTAL CONSTRUCTION SPENDING

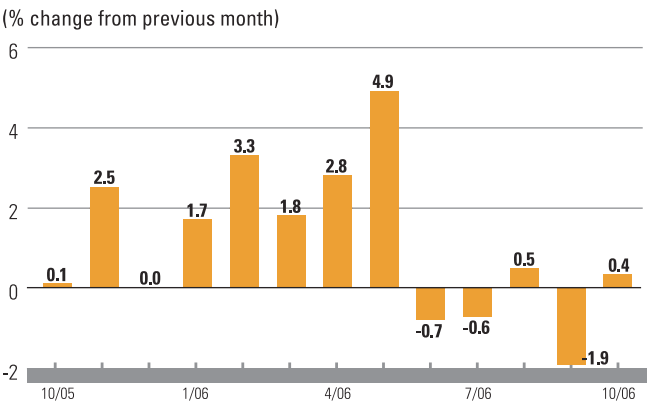
Total spending declined 3 percent in the six months ending in October as declines in single-family construction more than offset rising spending in all other construction sectors. The residential decline is slowing, but no significant rise in overall jobsite spending is expected until spring. Only a 3.3-percent rise, less than inflation, is forecast in 2007, but a rebound to 7.4-percent growth is expected in 2008 when marginal increases in homebuilding resume.



Source: U.S. Department of Commerce

HIGHWAY CONSTRUCTION SPENDING

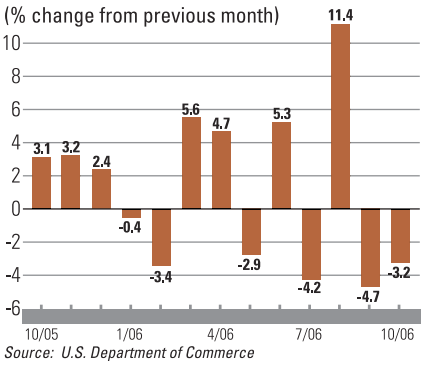
Highway spending was 16 percent higher in October than a year earlier, but it has been declining slowly since May due to sharply higher costs, especially for asphalt, contractor-capacity constraints, and the budget deadlock in Congress. Federal highway funds are being disbursed on a continuing resolution set at last years' appropriation level. The budget restraint will be lifted in the winter or spring, but the other restraints will keep spending growth to 8 percent in 2007 and 2008.



Source: U.S. Department of Commerce

MANUFACTURING CONSTRUCTION SPENDING

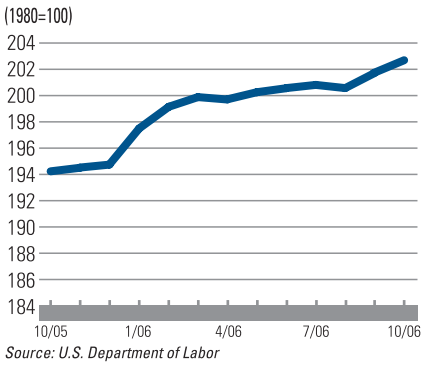
Spending is double four years earlier, but it has been approximately steady since May and is not expected to increase in 2007-08. Both factory production and factory capacity utilization stopped rising in the spring when the diversion of purchasing power to the gas pump caused a rise in goods inventories. But the end of the inventory surplus early in 2007 will not prompt an expansion in factory construction because of the slowing of GDP growth to less than 3 percent.



Source: U.S. Department of Commerce

EQUIPMENT PRICE INDEX

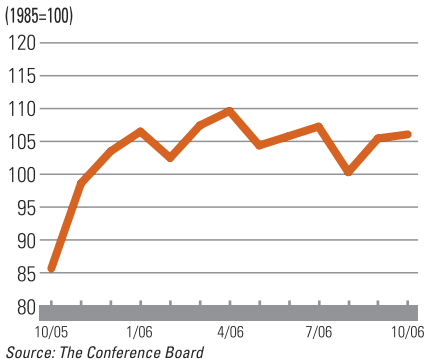
Price gains have been halved in the last six months to a 3-percent annual pace and are expected to remain at or slightly below that level through 2008. Equipment production capacity is still strained by rising demand from nonresidential contractors and foreign buyers. Used-equipment prices remain firm, even rising slightly, according to Rouse Asset Services. As a result, significantly weaker pricing is not expected soon even with much slower growth in construction spending forecast.



Source: U.S. Department of Labor

CONSUMER CONFIDENCE INDEX

The Index slipped to 102.9 in November, remaining stuck for the past year in the 100-110 range, a little above average. This is high enough to accommodate modest growth in consumer spending, but not high enough for consumer spending to prevent economic growth from slipping below its 3-percent-plus long-term average. Two-dollar-plus gasoline prices and slower job growth are the major restraints on confidence. The index is expected to average only slightly higher in 2007-08.



Source: The Conference Board

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

ALL POWERFUL

When you're in the market for utility equipment, go for the power of Ingersoll Rand. Our generators, compressors, light towers, and earthmoving equipment bring untold power not just to your jobsite, but to your company. Ingersoll Rand equipment puts power in your hands: The power to build your business — and your reputation for top-quality work. To get the power, see your nearest Ingersoll Rand dealer today.

Ingersoll Rand
Construction Technologies

ingersollrand.com ▪ (877) IR BRAND

Visit ConstructionEquipment.com/info and enter 13

PRODUCTIVITY | UPTIME | LOW DAILY OPERATING COSTS

JOHN DEERE
Nothing Runs Like A Deere™

"Oh! Sorry, must have dozed off. You see, I've been sitting here, patiently, on your dealer's shelf since even before you bought your Deere. Ready and waiting. Anticipating the moment when there's a problem and I'm whisked off to the jobsite to save the day amid thunderous applause, and... Hey, a filter can dream, can't he?"

What's a Deere Dealer have that others don't? Parts on the shelf before the first new machine model is sold. Smart systems keeping critical parts in inventory. And a borderline obsession with having the right parts on hand.

Need parts now? We're on it.™

www.JohnDeere.com/WereOnIt 1-800-503-3373

Visit ConstructionEquipment.com/info and enter 14

CONSTRUCTION EQUIPMENT EXCLUSIVE FIELD REPORT

VOLVO TRACTION CONTROL

FIELD REPORT FIELD REPORT FIELD REPORT FIELD

Smarter Grip, Less Slip

Volvo says Automatic Traction Control for its articulated haulers simplifies driving chores and saves on operating costs

By WALT MOORE, Senior Editor

The A30D articulated hauler at Volvo's training facility in Asheville, N.C., was equipped with lights above the cab to indicate to observers when the power divider or drop box, or both, had been locked by the Automatic Traction Control system.

In an effort to reduce operating costs for its articulated haulers, Volvo Construction Equipment designed its current range of D-Series trucks to go easy on drive-train components, tires and fuel, says Buddy Goodman, Volvo's product marketing specialist and team leader for haulers and loaders. To that end, says Goodman, these six-wheel-drive trucks, left on their own, operate in a 6x4 configuration (front axle and first rear axle) with all of their differentials unlocked. The decision to power the third axle or to lock any of the differentials in order to increase traction has been left to the driver's discretion. Until now, that is.

Today, the two smallest Volvo haulers, the A25D and the A30D, with payload ratings of 26.5 and 30.9 tons, respectively, are equipped to think for themselves, so to speak, about when and how to apply extra traction. According to Gabriel Barsalini, product specialist, this new capability, called Automatic Traction Control (ATC), assists the driver and enhances truck efficiency by

We found that driving the A30D with Automatic Traction Control (ATC) through Volvo's test track was an easier task than driving the conventionally equipped A40D, because the ATC system was doing traction-control thinking for us. Right inset shows the ATC's display; left inset shows the A40D's green and yellow switches for manually controlling the drop box, power divider and front axle. Interesting to note was that in operating situations where human judgment probably would have opted to engage extra traction, the ATC-equipped truck performed efficiently in its 6x4 configuration.

automatically and exactly applying extra traction. The new system, he says, "won't let the operator make a bad decision."

Understanding the ATC system might be a bit easier with a basic review of the Volvo truck's drive-train layout. Essentially, a driveshaft from the transmission powers a transfer case with a differential (often called a drop box). Drive shafts from the drop box power the front axle and first rear axle. Actually, the drive shaft that extends rearward connects to the power divider, which is basically a gear set housed in the upper section of the first rear axle's differential.

Within the power divider is an air-actuated dog clutch, which, when engaged, directs power to the rear-most axle. The dog clutch is a two-piece, gear-like assembly with teeth that inter-lock when the two halves are forced together — like lacing your fingers together. An air-actuated dog clutch also is used in each of the three axle differentials, and a spring-applied/air-released dog clutch is used in the drop box. Engaging a dog clutch ensures that power entering a component will be split 50/50 to its outputs, meaning that an axle or a wheel that loses traction can't rob all the drive train's power.

Too much green and yellow?

Controlling all this hardware in a truck without ATC are a green rocker switch, a yellow rocker switch and a floor-mounted button. Flip the green switch, and you lock the dog clutch in the drop box and in the power divider. (Volvo calls this the 6x6 longitudinal lock function.) Flip the yellow switch, and you lock the front-axle differential only. (Volvo calls

IT'S HARD TO SAY WHICH IS STRONGER:
OUR PRODUCTS OR OUR DEALER NETWORK.

At IMT, we're proud to be known for products that stand up to the toughest jobs and refuse to quit. We're proud of our dealer network for the same reasons.

IMT dealers know our products and take a hands-on approach to meeting your equipment needs. They're committed to helping you do your job, and that makes IMT products and dealers a perfect match.

IMT commercial vehicles and material handling systems are among the strongest in the industry, and so is our dealer network. Schedule a demo with your nearest IMT dealer today. **Call 1-800-717-1177 or visit IMT.com.**

IMT®

An Oshkosh Truck Corporation Company

Visit ConstructionEquipment.com/info and enter 15

IMT_DealerNetworkAvail_06-02

this the front-axle transverse lock). Depress and hold the floor button, and you lock everything — the drop box, power divider and the differentials in all three axles. (This, says Volvo, is the 6x6, 100-percent lockup mode.)

But the potential problem with these manual controls, says Volvo, is that inexperienced drivers may use the green and yellow switches too frequently. Less skilled drivers often reason, says Volvo, that if the truck performs adequately in its default mode, that is, in its 6x4, open-differential configuration, then wouldn't it perform even better with the green and yellow switches on?

Volvo's answer to this let's-have-all-it's-got reasoning is that more traction is not always better. The logic behind running the truck in its default configuration, says Goodman, is that operating costs are reduced: fuel consumption drops, and since drive-train components and tires are running with reduced stress, they consequently incur less wear.

On the road

To illustrate the point, Volvo recently invited *Construction Equipment* to drive two of its articulated haulers, a conventionally controlled A40D and an A30D with the ATC system. Before first taking the A40D through the company's moderately tortuous and slippery test track at its Asheville, N.C., training center, Barsalini explained how to use the green and yellow switches, should they be needed.

On the test road, we did our best to anticipate where the A40D might need extra traction, and then to flip the appropriate switch at the appropriate time. You quickly learn, however, that this process is not an exact science. Anticipating the need for extra traction, and flipping a switch to engage it, is a judgment call; you don't know for sure whether the truck actually needs the help.

And even if it does, timing can be an issue; if you wait until a wheel is slipping before flipping the switch, the dog clutches can engage with enough protest to make you feel guilty about possibly abusing a half-million-dollar machine. Barsalini assured us that the components are designed to handle this potential mistreatment, but you begin to understand why a rookie operator might choose to keep the switches on.

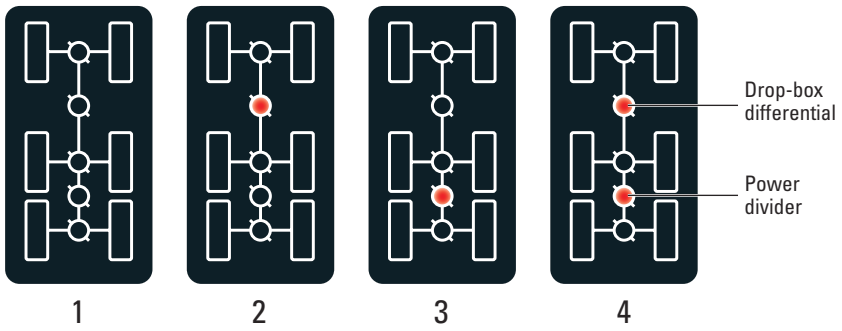
Driving the A30D with the ATC system, however, was a different experience. We took note of how infrequently the truck needed to supplement its basic 6x4 drive; it pulled sure-footedly, with only four wheels driving, through some spots where we would have expected it to need added traction and, in fact, where we had chosen to give the A40D extra help.

ATC-equipped A25D and A30D models have the reasoning capacity to determine when they can work efficiently in their fuel-saving, gear-and-tire-saving, 6x4/open-differential default configuration — and when they need extra traction. They also tell you what they're thinking via a digital display (an icon on the panel in the outline of the drive train) that illuminates when the dog clutch in the power divider or in the drop box, or both, has been automatically engaged. The display blinks out when the clutches disengage.

The new and conventional

A25D and A30D models with ATC have just one, operator-activated, traction-assist

Automatic Traction Control



These schematics illustrate the basic action of the Volvo ATC system. Schematic 1 represents the truck's default mode, which is 6x4 drive (front axle and first rear axle) with no differential locks engaged. The system locks the differential in the drop box (2) if speed differs between the front axle and the first rear axle. The system locks the power divider (3), thus engaging the rear-most axle, if speed differs between the rear axles. Both the drop box and power divider are locked (4) if the system senses a combination of speed differences. The system unlocks these components as soon as speeds equalize.


CAT
SET THE DEPTH, SET THE GRADE,
SAVE ON SURVEY COSTS.
CATERPILLAR

INTRODUCING THE FIRST BACKHOE LOADER WITH THE ACCUGRADE® REFERENCE SYSTEM.

Now you can dig to a specific depth and grade without the cost of a survey crew. The factory-installed AccuGrade Reference System is now available exclusively on the Cat® E-Series Backhoe Loader. It's one more way the new E-Series can help you *WORK AT THE NEXT LEVEL.*

EASY-TO-USE SIMPLICITY utilizing advanced laser-reference technology.

- Laser on a free-standing tripod sends a signal to a receiver mounted on the backhoe loader. The system helps you work to preset measurements allowing you to dig to a specific depth, slope or both. Then watch the in-cab screen as you work.
- Display tells you whether to dig or fill and when you're on grade. It's that simple.
- Operator fatigue is reduced because preset measurements make the job easier.

SECOND SET OF EYES on the job.

- Work confidently in difficult environments, such as at night or when water pipes break.
- With the AccuGrade in-cab screen, you can "see" the bucket when it's not visible, so you can still be productive.

SAVE ON SURVEY COSTS because you no longer need a crew to set multiple survey stakes for digging to depth and grade.

- Start working as soon as you get to a job site.

CATERPILLAR®

GET A FREE ACCUGRADE DVD.

It'll show you just how easy the Cat AccuGrade Reference System is to use. Get yours at **www.CatESeries.com** or call **1-888-OWN-A-CAT.**

CATERPILLAR®


We found it.
Looking for a needle in the haystack when you're online?
ConstructionEquipment.com cuts through the online clutter and gives you the information you really need to get your job done.
Get informed on equipment and make your purchasing decisions easy with our award-winning Buyers Guide. Search more than 900 product categories, 2,000 manufacturers, and 5,000 distributors.
NEW PRODUCTS Keep up on the latest in new equipment releases with our searchable New Product section.
EQUIPMENT SPECIFICATIONS Check out the industry's most complete and up-to-date database of construction equipment specifications.
Forget the haystack.
Find what you need.
CONSTRUCTION EQUIPMENT.com
The Internet home of Construction Equipment magazine

control — the floor-mounted button, which most operators realize is for only momentary use (it releases when you lift your foot) when backing up a slippery ramp to the dumpsite, for example, or when haul-road conditions are atrocious. The green and yellow switches are no longer on the A25D and A30D panel. The green switch is gone for good, while the yellow switch is actually hidden under the panel and can be reinstalled if an experienced driver prefers.

Compared with the dog clutches used in a non-ATC system, left, the dog clutches used in the ATC system, right, provide more tolerance between the teeth, which also have beveled top edges to ease engagement.

The switches have been removed, because these models now rely on multiple-sensor input to determine when the drop box or power divider should be locked — and in what sequence if both are required. When the ATC system decides that added traction is no longer required, the dog clutches disengage quickly, quietly and in the proper sequence. Clutch operation is smoother with ATC, says Volvo, thanks to a new clutch design that provides more tolerance between the reconfigured, interlocking teeth.

Basically, the ATC system does what the green switch did, except that the new system can control the drop box and the power divider independently. With both these functions engaged, says Volvo, the truck can handle 90 percent plus of the conditions it may encounter.

System details

To accomplish this automatic action, the ATC system uses speed sensors to monitor input to the drop box; output from the drop-box to the front axle and to the power divider; and output from the power divider. This information, along with that from a steering sensor and an air-pressure sensor at the power divider, is electronically evaluated with proprietary software.

Based on this evaluation, the system decides, first, if extra traction is required, and if so, determines how best to apply it. We rode in the A30D, with Goodman driving, taking the truck nose first up a slippery ramp. In this situation, the drop box engaged first, then the power divider. When backing up the same ramp, the sequence of engagement reversed. (Actually, the system is designed to automatically select 6x6 drive when the truck reverses.) In both maneuvers, the A30D negotiated the grade without wheel spin.

We then observed as Goodman took the A40D through the same exercise. To illustrate a possible situation that an inattentive or inexperienced driver might cause, he allowed the A40D to remain in its default 6x4 drive mode as he backed up the ramp. When the left wheel of the second axle lost its grip, all the truck's power was dissipated through that spinning wheel. On a second similar pass, he flipped on the green switch at what he considered the optimum point, but the same wheel still slipped, momentarily, until the added traction took hold.

It was a convincing demonstration of the new ATC system's ability to react quickly and competently to changing conditions.

"The ATC system lets the operator focus on driving, instead of always trying to anticipate conditions," says Goodman. "And in the process, the truck owner can save on operating costs."

Goodman admits that skilled operators may resist the loss of manual control, but the ATC system is doing exactly what these good drivers would do, he says, but in a more precise and timely manner. He notes, too, that even skilled operators get tired as the workday wears on and may not be as diligent about shutting off extra traction that has been engaged.

To cover all eventualities, however, the new system, which adds around $3,000 to the truck's cost, is a "deletable standard," meaning that it is standard equipment, unless the buyer chooses to delete it.

The power to

make you one

buzz-sawin',

nail-gun-totin',

hole-drillin',

tool-chargin',

late-night-workin'

job-site wrangler.

HONDA
GENERATORS

THE POWER OF CHOICE

Nothing works harder on the job than a Honda generator. It's super reliable, whisper quiet and fuel efficient. Whenever you need to wrangle power, lasso a Honda: the name you know and trust.

Visit ConstructionEquipment.com/info and enter 17

For a free brochure or the nearest dealer, call 800.426.7701 or shop online at gen.honda.com.

SHOP ONLINE

Please read the owner's manual before operating your Honda Power Equipment. Connection of a generator to house power requires a transfer device to avoid possible injury to power company personnel. Consult a qualified electrician.

"Cat® Drive Train parts give us superior performance and wear life."

"OUR CAT® DEALER HELPS us manage our Drive Train service. We repair before failure, allowing us to take advantage of the reusability Caterpillar® designs into many of their Drive Train parts and components. This reduces our owning and operating costs over the entire life of our equipment."

SERVICE. We'll be there with the solutions you need throughout the life of your Cat® machines. Call or stop by soon to find out all the ways we can help you get the most from your equipment.

For more information go to www.catproductinfo.com/drivetrain

CATERPILLAR®
TODAY'S WORK. TOMORROW'S WORLD.™

Visit ConstructionEquipment.com/info and enter 18

By ROD SUTTON, Editor in Chief

One on One with Phil Christman

International Truck exec discusses truck engineering and design, and the 2010 round of engine changes

Over-the-road truck manufacturers have had to deal with substantial changes with the new engine technologies rolled out for this month's EPA emissions deadline. It's been well-documented (see ConstructionEquipment.com for a variety of articles) that these engines required considerable thought on the part of truck builders as they integrated them, and their related componentry, into the trucks themselves.

Late last year, we sat down with International Truck & Engine's Phil Christman, recently appointed vice president and general manager for the company's Severe Service Vehicle Center, to talk about what truck buyers can expect from the 2007 engines and, more importantly, what they might expect over the next few months and even into 2010.

Christman brings an engineer's perspective to his post at International. He started his career at International in 1986, doing product development work. He then spent three years in a manufacturing facility, followed up with several years in special-equipment engineering working closely with International's customers as VP Product Creation.

Construction Equipment: How has International addressed the engineering design issues made necessary by the latest engines and aftertreatment devices?

Christman: The impact has been in two areas. The first is additional heat rejection. We've increased fan sizes and increased radiator package sizes.

On the 7000, we redesigned the front end with a new hood. We have so many customers that need extended, full-length frame rails that we decided not to cut them. So we had to make our package bigger, on top of the frame rails.

The second part is the bigger, heavier aftertreatment packages. We had to make sure our trucks were engineered for the robustness of the applications served. If you think about the vocational segments we're in, they tend to move these packages around, so there are a lot of different packages in a lot of different places. Our task was to make sure we could meet all the applications of the people who buy our products in a way that they can still mount their bodies.

CE: What has been the customer response to the hood design?

PC: It has been very positive. It's an impressive front end, but when you measure it from eye standpoint to the ground, you lose almost no forward visibility. The design is more aggressive than the past, so I think it gives the illusion that it's probably bigger than it really is.

CE: Any changes in your manufacturing processes?

PC: A fair amount. We needed bigger, heavier racks, hoists, lifts. There is wiring now on the aftertreatment devices, so you have to protect them when the connections are made. It's much more critical now that the connections between the exhaust manifold and aftertreatment device are leak-free.

CE: What steps are you taking to ease the maintenance/serviceability issues for truck users?

PC: When we started off on this whole

"We anticipate automatic transmission volumes to continue to increase," Christman says. "As drivers change demographics, it really does make a nice package that's easy to use, particularly in a vocational environment."

process of particulate filters and aftertreatments, there was probably a lot of fear of the unknown. The reality is, with all the electronic capabilities out there, as well as our electronic capabilities with our multiplex system, our ability to diagnose all this is excellent.

The aftertreatment systems have become much more robust. We set high targets, and we've reached those targets and even exceeded them. The amount of time between cleanout, and for the most part the amount of time between regenerations, is pretty high. Our goal is to make that invisible.

CE: How have you tried to ease customer concern on this issue?

PC: We were proactive. Over a year ago we organized a tour across the country with our technical experts, inviting our dealers and customers to dinners and meetings. We would talk about what's coming at them: This is what it is, this is what it isn't. Anything we could do to help them understand what we were doing, how we were doing it, and that we understood what we were doing. This tour helped alleviated a lot of fears.

CE: We're starting to see layoffs among truck builders. Any effect on your manufacturing plans?

PC: Across almost all of our plants, we will be taking the line rates down. Our forecast demand is less than [2006]. For Class 8, we see [2007] as a good year, but not the year that 2006 was.

CE: We've heard declines of 30 to 40 percent.

PC: We're forecasting a similar number. For vocational markets, it's a bit uncertain where that's going to level out. There is some thought that the significant year for the vocational market this year was driven some by pre-buy, but a lot by a really strong industry. There is some thought that the demand for the vocational Class 8 market was driven by just good economics. We're going to get an opportunity in the first part of [2007] to determine if that's true or not.

CE: How much was pre-buying?

PC: Our estimate, particularly on the vocational side, was that it wasn't as bad as in 2004. I think people are much more comfortable with the technology and what's going on with the industry. By the second half of [2007], we're expecting the market to be back to normal.

E: What does the Allison agreement making them International's sole supplier of fully automatic transmissions mean for truck buyers?

PC: Allison clearly has a huge portion of the marketplace. They have a proven product. Our customers like it. We anticipate automatic transmission volumes to continue to increase. As drivers change demographics, it really does make a nice package that's easy to use, particularly in a vocational environment.

In some cases, the benefits surround specialized offerings. [It allows for] more integrated matching between engines and transmissions for International trucks.

CE: What is on the horizon as far as price increases?

PC: We're in that range between $5,000-$10,000. Obviously, that was a big driver to some of the pre-buys. It's not an economic advantage for any manufacturer; we're all required to meet the same emissions requirements.

I think the biggest risk to pricing is commodity pricing. Certainly, the pressures we've seen over the past few years – steel, copper, aluminum – have impacted the trucking industry in a big way. The particulate filters we're putting on these vehicles [contain] some very expensive material. The commodity pricing of those materials will determine where the pricing is of the aftertreatment systems.

CE: What are key customer-relations challenges and how will you address them?

PC: We have a broad spectrum of products that people use in a lot of different ways. So the challenge and opportunity for us is understanding how those people use our products. How do we meet customer expectations? How do we give people trucks that allow them to be more productive, to make them money in the marketplace?

We put product engineers at the [assembly] plant because that's where our customers come. Our customers come to review their product. It was a thoughtful and purposeful

thing when we put the engineers at the plant to meet those customer requirements. We don't cut the dealer out; dealers are an important part of receiving that voice of the customer, and they have the relationships with the customer. But we have to be just as intelligent and knowledgeable about how all of our customers are using our product.

Think of all of the aftertreatment, the whole exhaust system's changing. A dump truck isn't a dump truck isn't a dump truck, whether you're on the East Coast or the West Coast or North to South; all those look different. Configurations look different, lift axles look different. [We want to] make sure that on the exhaust side we have ways to meet all those packaging requirements.

CE: Is this like building a house? You start with an architect, and then when you're building it you have to deal with plumbers onsite?

PC: It's a great analogy. The industry next year will be around 60,000 units. There's not 1,000 of any one type of configuration out there. There's a lot of different configurations. We want to be as close to the customer as possible. We want to understand what they're doing, how they're doing it, and how we can drive value to their operations.

CE: What about 2010?

PC: Some of the Europeans have announced that they're heading down an SCR path. We're leaving a couple of options open; we're parallel pathing where we think we want to be. We want to be on a path to 2010 that meets customer needs better than anyone else, both from a cost standpoint as well as a functionality standpoint.

There's a potential for increased heat rejection, and there's a potential for additional aftertreatment. Certainly SCR is additional aftertreatments. Depending on the solution, the challenge is to do the right balance between heat and NOx reduction and particulate. CE

WHAT EVERY TRENCHER SECRETLY WANTS TO BE.

Ditch Witch®
GROUNDBREAKING™

Visit ConstructionEquipment.com/info and enter 20

WORLD OF CONCRETE®
WORLD OF MASONRY | TECHNOLOGY FOR CONSTRUCTION

Sneak Peek

World of Concrete will be held Jan. 23 to 26, 2007. The following pages feature a sampling of what you'll find exhibited at the Las Vegas Convention Center

Case

To mark the 50th anniversary of the introduction of Case's 320, the first factory-integrated tractor-loader-backhoe, this exhibit will present a custom model displaying a frosted-window treatment of the original machine in one window and a futuristic design in the other. Customers who purchase a new backhoe-loader in 2007 can choose a special edition featuring commemorative decals. Today's M Series 2 line includes units ranging from 76 to 98 horsepower, and they feature the Pro Control System. See Booth **C6269**

Visit ConstructionEquipment.com/info and enter 220

Bobcat

Expanded zero-tail-swing excavator line includes the ZTS 425 compact machine in the 2- to 3-metric-ton size class, offering a digging depth of 8 feet 4 inches and reach of 14 feet 10 inches at ground level. A long-arm option delivers a digging depth of 9 feet 4 inches, reach of 15 feet 9 inches, and features an additional counterweight that extends 3 inches beyond the tracks. Both units are powered by a 26-hp liquid-cooled diesel engine and feature two-speed travel motors. See Booth **C5483**

Visit ConstructionEquipment.com/info and enter 221

American Eagle

This exhibit will showcase various configurations of heavy-duty, truck-mounted drawer sets, as well as truck-mounted hydraulically driven air compressors. The drawer sets carry a lifetime warranty on the drawer slides, which can withstand up to 300 pounds. The air compressors are available in capacities ranging from 12 to 185 cubic feet per minute and pressures from 90 to 175 pounds per square inch. See Booth **S13624**

Visit ConstructionEquipment.com/info and enter 222

Allmand

Night-Lite PRO portable light towers feature the company's durable SHO lighting system consisting of parallel lamp fixtures. Galvanized steel tower provides corrosion protection and features a "self-healing" coating that expands when the surface is scratched to protect the damaged area against corrosion. The mast is center-mounted between two retractable rear outriggers and tongue jack for operational stability in winds up to 65 mph. The molded 30-gallon seamless polyethylene fuel tank provides up to 60 hours of continuous operation. See Booth **031542**.

Visit ConstructionEquipment.com/info and enter 223

Bomag

Designed for confined spaces and light-duty projects, the BP10/36-2 single-direction plate compactor delivers 2,250 pounds of centrifugal force, a frequency of 5,400 vibrations per minute, and a working speed of 82 feet per minute. It is powered by a 4-hp Honda GX120 gasoline engine. The 150-pound compactor features a frame-integrated lifting point, a cast-iron base plate with reinforced sides, and a high lip at the edge of the base plate.

See Booth **N2015**

Visit ConstructionEquipment.com/info and enter 225

Atlas Copco

Designed for skid-steers, backhoes and excavators in the 4,400- to 12,100-pound weight class, the SBC 410 hydraulic breaker attachment features a solid one-piece body that eliminates the need for side bolts and provides added strength. The breaker weighs 453 pounds, accepts a maximum hydraulic flow of 17.2 gallons per minute at a working pressure of 2,175 pounds per square inch, and delivers an impact rate of up to 1,200 blows per minute. The high power-to-weight ratio permits use on a smaller carrier.

See Booth **C4025**

Visit ConstructionEquipment.com/info and enter 224

WORLD OF CONCRETE
WORLD OF MASONRY | TECHNOLOGY FOR CONSTRUCTION

Caterpillar

The new 414E industrial loader tractor features a box section mainframe with integrated Category 2 three-point tool carrier. The operator station incorporates a spacious platform, seat-mounted joystick controls, and a suspension seat with 20-degree rotation to facilitate use of rear-mounted work tools. Bucket capacity is 1 cubic yard. The power train features a Cat 3054C naturally aspirated diesel engine producing 74 net horsepower as standard equipment. An optional turbocharged configuration produces 89 net horsepower. All-wheel-drive is standard. See Booth **C6069**

Visit ConstructionEquipment.com/info and enter 226

CEAttachments

The new EDGE Material Unroller offers optional stems to accommodate rolls of erosion-control material from 4 to 12 feet. The stem design of this attachment enables a skid-steer operator to remove a roll of erosion-control material from the truck, a task that otherwise requires several workers. The 180-degree swing feature allows the skid-steer to unroll material on one side of the machine, swing the material to the other side, and begin rolling right away. See Booth **C6498**

Visit ConstructionEquipment.com/info and enter 227

John Deere

Two compact track loaders feature reinforced booms, two-speed transmission, hydraulic quick-attach system, self-leveling bucket, high-flow hydraulics, and a true-vertical-lift boom said to improve stability in the work zone (ground level to 6 feet). At an operating weight of 8,305 pounds, the CT 322 delivers a boom breakout force of 3,410 pounds. The CT 332 features a 10,825-pound operating weight, boom breakout force of 6,650 pounds, servo controls, and an ergonomically shaped armrest. See Booth **C6469**

Visit ConstructionEquipment.com/info and enter 229

Gehl

Model 7810E skid-steer loader offers a load capacity of 3,850 pounds, a lift height of nearly 12 feet, bucket breakout force of 8,340 pounds, and the power of a Cummins 99-hp turbocharged diesel engine. True-vertical-lift linkage provides consistent forward reach throughout the lift cycle. The machine is suitable for applications ranging from breaking, hauling and grinding concrete to digging, moving materials and loading trucks. A two-speed drive is available that delivers ground speeds up to 12.5 miles per hour. See Booth **C6689**

Visit ConstructionEquipment.com/info and enter 228

SKID STEER LOADERS

100% comfortable

KOMATSU®

Komatsu skid steer loaders are designed for comfortable operation all day, every day. Making the operator comfortable ensures the highest levels of safety and productivity. Coupled with ease of service, durability, reliability and quality, Komatsu skid steer loaders provide the ultimate comfort and productivity package.

- Low-effort Proportional Pressure Control (PPC) loader joysticks have optional SAE/ISO pattern changer.
- Spacious and ergonomically designed operator platform provides exceptional visibility.
- Standard two-speed transmission makes short work of load and carry operations.
- Wide-opening rear door and tilt-up engine cover make access to service check and fill points a snap.
- Radial lift and vertical lift loader models make it easy to choose the right machine for your business.

When you want your skid steer loader to work for you instead of against you, the choice is 100% clear. Put a Komatsu skid steer loader to work today and enjoy the confidence that comes from machines that are…

100% Komatsu.

866.513.5778 www.komatsuamerica.com

Visit ConstructionEquipment.com/info and enter 21

KA09

WORLD OF CONCRETE
WORLD OF MASONRY | TECHNOLOGY FOR CONSTRUCTION

GOMACO

The three-track and four-track Commander III is capable of slipforming such applications as median barrier, variable barrier and bridge parapet wall. Designed for stability over grade variations, the machine hydraulically elevates to slipform barrier or parapet. The paver features a G21 digital operating system with electronic-over-hydraulic circuits for easy, accurate adjustments and fast, controlled response. "Smart" cylinders allow push-button steering setup. Minimum-clearance requirements are easily achieved with side-mounted or center-mounted mold, according to the manufacturer. See Booth **C5168**

Visit ConstructionEquipment.com/info and enter 231

JLG

Lull 1044C Series II telehandler features 80 inches of horizontal boom travel for accurate load placement at full height, 10,000-pound lift capacity, 54-foot lift height capability, and 3,000-pound capacity with the outriggers deployed. The steel frame design incorporates a twin-rail box construction for stronger structure and increased load capacity. Proportional joystick controls provide precise load placement and faster cycle times. See Booth **C6731**

Visit ConstructionEquipment.com/info and enter 232

General Equipment

Designed for small-scale surface preparation projects, the SG12/E single-head surface grinder is powered by a fully enclosed, fan-cooled 1.5-hp electric motor. It features a single rotating disc with a 12-inch working width and top rotation speed of 250 rpm. The SG12 can be used with grinding stones, scarifiers, wire brushes, and the manufacturer's coatings removal and diamond segment grinding systems. Applications include grinding concrete surfaces, removing adhesives and epoxies, and breaking up deposits of grease and dirt. See Booth **S11213**

Visit ConstructionEquipment.com/info and enter 230

Ingersoll Rand

Six new models in the PowerSource mobile generator line extend the range from 10 kVA to 560 kVA. The generators feature SaferSwitch system that facilitates changing the voltage settings while providing protection against voltage changeover during operation. An environmental-containment system provides double-wall protection, minimum 110 percent containment of fluids, and an operator alert. Trailer system with heavy-duty torsion axles provides jobsite mobility and highway towing stability. See Booths **C6286** and **O30437**

POWER THAT PAYS

$25 INSTANT CASH

Subaru Robin has delivered value time and time again by providing an exceptionally powerful engine to a wide range of exceptional equipment. Now with an instant $25 going directly into your pocket, the power pays again.

$25 INSTANTLY

Get a head start on your profits. Purchase any piece of equipment powered by Subaru Robin during World of Concrete or The Rental Show and we'll give you $25 cash. And just for visiting our booth you'll have a chance to win a little extra dough.

Hit the show floor running. Visit www.powerthatpays.com today for more details. Or visit booth #C7489 at World of Concrete or booth #2419 at The Rental Show.

SUBARU

Robin Industrial Engines

Visit ConstructionEquipment.com/info and enter 22

WORLD OF CONCRETE
WORLD OF MASONRY | TECHNOLOGY FOR CONSTRUCTION

MBW

The GPR77, a 400-pound reversible vibratory plate, produces 7,775 pounds of centrifugal force at 4,725 vibrations per minute. The low-maintenance mechanical shifting design is said to reduce acquisition cost and provide a geotechnical benefit in its ability to shift travel direction at constant speed, which helps achieve uniform density and stiffness over the area being compacted. The GPR77 produces an amplitude of .064 inches, travels up to 85 feet per minute, and handles all types of granular soils. See Booth **C4347**

Visit ConstructionEquipment.com/info and enter 234

Multiquip

The MVC-80 vibratory plate compactors incorporate an anti-vibration handle system (AVS) said to reduce vibration by 50 percent compared with earlier models, reducing operator fatigue while boosting productivity. Providing centrifugal force of 2,925 pounds, the compactors are suited for compacting granular soils and asphalt. At maximum speed, the units can compact up to 72 feet of material per minute. The economically priced compactors are offered with 5.7-hp Robin and 5.5-hp Honda gasoline engines, and have exciter speeds of 5,580 revolutions per minute. See Booth **C4813**

Visit ConstructionEquipment.com/info and enter 235

Komatsu

WB146-5 and WB146PS-5 backhoe-loaders offer a 16,090-pound operating weight and 1.25-cubic-yard loader bucket. The 88-hp engine in the WB146-5 drives the HydrauMind hydraulic system and includes a 4-speed synchro-shuttle transmission with standard four-wheel drive. The WB146PS-5 includes a PowerShift transmission with twist grip gear control. Other features include a heavy-duty single-piece welded mainframe, S-shaped backhoe boom, parallel lift linkage, and a cast-iron nose guard that protects the machine and acts as an integral counterweight. See Booth **C6486**

Visit ConstructionEquipment.com/info and enter 236

Mack Trucks

On display will be heavy-duty trucks featuring the MP engine series offered in two versions: axle-forward and axle-back. The company also introduces the Road Stability Advantage (RSA) electronic stability system, available for mixer applications on the Granite truck model. Designed to reduce incident potential and enhance profitability, the RSA uses the existing ABS wheel speed sensors, along with steering, yaw and lateral acceleration inputs, to deactivate the throttle and selectively apply the brakes when necessary to reduce rollover potential. See Booth **C5469**

Visit ConstructionEquipment.com/info and enter 237

Time = Productivity = Profit

Outperforms Equipment In Its Class!

High Productivity

Whether you're paving a highway, residential street, parking lot or runway, you want more production. Reliable Power Pavers machines with quick width changes and easy loading keep you on line and productive. Please call us to learn about our full line of slipform pavers, placer spreaders, form riders, and texture/cure machines.

See Us at World of Concrete, Jan. 23-26,
Las Vegas Convention Center, Booth C-5627

5838 W. Cedar Wapsi Road, Cedar Falls, IA 50613
Tele: 319-987-3070 Fax: 319-987-3074
E-mail: info@powerpavers.com www.powerpavers.com

Power Pavers INC.
Our Commitment Shows

WORLD OF CONCRETE
WORLD OF MASONRY | TECHNOLOGY FOR CONSTRUCTION

Robin America

On display is the Silent Series generator line, including the new Subaru Robin RG4300iS, claimed to be the first 4,300-watt inverter generator. The inverter technology reduces sound by running the engine at a slower speed for low power use and increasing speed as more power is required. A microcomputer controls the voltage and frequency of the power output, monitors the temperature of the electronics, and automatically cuts off the power output if necessary to prevent overloading and electrical shorts.

See Booth **C7489**

Visit ConstructionEquipment.com/info and enter 238

Trimble

Featured products include self-leveling Spectra Precision Laser LG20 crossbeam generator, a horizontal and vertical hand tool for line, level and vertical plumb applications; HR250 laser receiver for use with the LG20; HD50 laser handheld distance meter for measuring remote places; and LM80 layout manager used with the 5605 robotic construction total station, which enables contractors to enter blueprint dimensions to build a portable digital replica of projects to assist with equipment setup and building layout.

See Booth **C4847**

Visit ConstructionEquipment.com/info and enter 245

New Holland

The L175 skid-steer offers a 2,000-pound operating capacity, 4,300-pound bucket breakout force, 6,230-pound operating weight, 10-foot lift height, and 29 inches of forward reach. Other features include the patented Super Boom vertical-lift linkage and a 60-hp turbocharged engine. Also on display is the C175 compact track loader with a 2,200-pound operating capacity, 7,535-pound operating weight, 10-foot lift height, and 30 inches of forward reach. At 71.1 inches wide over the tracks and 129.5 inches long, the machine is designed for hard-to-reach areas.

See Booth **C5869**

Visit ConstructionEquipment.com/info and enter 239

Mustang

New to the Value-Series line, Model 842 telescopic handler offers four-story reach at an economical price. The 8,000-pound unit shares a boom design with the company's larger telehandlers. A spring-applied, hydraulically released parking brake is automatically applied when the engine is shut off or the boom is raised over 60 degrees. Optional Work Platform System (WPS) automatically applies safeguards to provide for a stable personnel work platform attached to the forks.

See Booth **C5283**

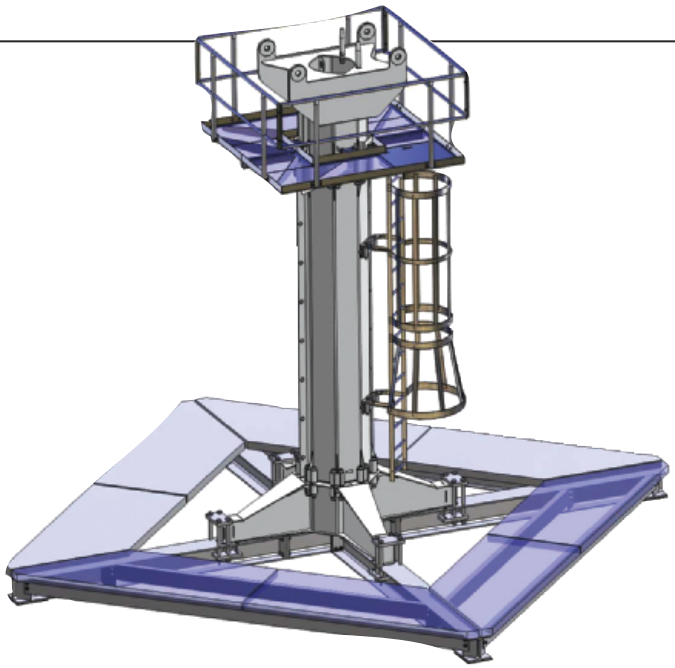
Visit ConstructionEquipment.com/info and enter 241

Stanley

Designed for backhoe-loaders and mini-excavators in the 14,000- to 26,000-pound range, the 1,500-ft.-lb. class MB15EXS mounted breaker features an enclosed housing to eliminate damaging shocks to the carrier and a narrow profile that enhances visibility and positions the operator closer to the edge of the work. The breaker weighs 1,100 pounds.

See Booth **O30309**

Visit ConstructionEquipment.com/info and enter 242



Schwing

A new modular mast and accessory system enables mounting all of the manufacturer's placing boom sizes on the same octagonal mast sections. The sections can be assembled to free-stand 32-meter booms 65 feet, and 39-meter booms 45 feet. The 6-meter-long mast sections can be bolted together. The modular system allows rapid changes in the field if a switch in length or type of mounting is required. The same octagonal mast works in free-standing, self-climbing, and non-climbing slab-supported applications. See Booth **C5144**

Visit ConstructionEquipment.com/info and enter 243

Takeuchi

The 81-hp TL140 compact-track-loader features rubber tracks that enable operation on improved surfaces. High sprocket planetary drive system provides efficient speed reduction and torque amplification, and eliminates drive chains, chain cases, axles and hubs. Track undercarriage provides flotation for working in muddy or loose ground conditions and delivers traction for excavating tough materials. A pilot-operated joystick controls loader and travel functions.

See Booth **C5194**

Visit ConstructionEquipment.com/info and enter 244

Power Curbers

A new entry in the 5700 Series of curb-and-gutter slipform machines can pour from either the right or left side. Using a standard swivel chute, the 5700-C pours in a single traffic lane with the concrete truck lined up in front of the machine. Enhancements include 132-gallon water capacity and 66-gallon fuel capacity. The narrow machine is suited for tight spots in parking lots. The streamlined design has fewer catch points for concrete, which simplifies cleaning. Other features include an electronic control system and a raised operator's platform for improved visibility. See Booth **C5627**

Visit ConstructionEquipment.com/info and enter 240

Power Aid

Pressure compensating piston pumps.
This lets you run several functions
at the same time without losing speed.
They provide the flow and pressure
for unmatched breakout force.
You can feel and control the power
of the boom, arm and bucket stroke.

Try a Takeuchi and feel the power.

TAKEUCHI®

The Power of Product and Support

Visit ConstructionEquipment.com/info and enter 24

www.takeuchi-us.com

By TOM BERG, Truck Editor

Spicer Deflation Device Gives Trucks Go-Ability

Bleeding air from tires eases travel over deep sand, and some customers now ask for delivery by "tire truck"

Got sand? They do in east-central Minnesota, where glacial lakes and rivers many thousands of years ago deposited silt that's now deep and plentiful. The sand is both useful, as an ingredient in concrete, and an impediment, as it's tough for mixer trucks to traverse work sites.

Off-road enthusiasts who frequent sand dunes know that bleeding air from a vehicle's tires lets them almost float over the soft ground instead of bogging down in their own ruts. When the four-wheeler returns to hard roads, its driver has to pull out hoses to pump the tires back up. But on-board systems available on many heavy vocational trucks do it quickly and conveniently.

The U.S. Army first applied this idea to a few of its amphibious trucks in World War II. By the start of the Gulf War in '91, it had Eaton Corp.'s Central Tire Inflation systems on thousands of tactical cargo trucks, and they worked well, and still do in military operations in Iraq and Afghanistan.

Dana Corp.'s Commercial Vehicle Systems Div., which acquired the product from Eaton

This Kenworth mixer moves fairly easily over most sandy areas after its Spicer TPC system has reduced air pressure in steer and drive-axle tires. These 6x4 trucks have replaced most 6x6s in this fleet near Minneapolis.

several years ago, continues business with the military as well as with commercial customers who find the Spicer Tire Pressure Control system, its civilian name, useful. Most construction truck operators using TPC are in Florida, but Dana says it's finding converts elsewhere, including Minnesota.

Apple Valley Ready Mix, which operates as AVR Inc. out of its namesake suburb south of Minneapolis, runs 140 Kenworth mixer trucks with TPC and is acquiring another 20 now. They're replacing older 6x6s, which had been the only way to place concrete at new jobsites in sandy soil.

"It's amazing what they will go through," said Paul Chaves, AVR's transportation manager, in describing the TPC-equipped trucks. The fleet first tried the system in '03, after managers saw it displayed at a trade show. He related that on the first TPC truck's maiden run, it pulled a stuck 6x6 off a site. Customers have noticed how well the trucks get around, and some request deliveries in "the tire trucks," as they call them.

Tire Pressure Control is not a cheap option, costing $8,000 to $16,000, depending on the truck manufacturer and its profit goals, as well as what its engineers think is needed for it to work properly, according to Jim Beverly, Dana's chief engineer for TPC who was present during this visit. For instance, at least one builder adds a high-capacity air compressor that others leave optional. Chaves said he specs his trucks with an 18.7-cubic-foot-per-minute pump, which is adequate.

In spite of the price, TPC makes a strong business case for anyone needing extra off-road mobility in soft soil. It costs about $20,000 less than a 6x6 truck, with its transfer case, extra driveline, front-driving axle and jacked-up suspensions. All that iron adds weight, limiting a 6x6's payload to 9 yards of concrete versus a TPC truck's 11 yards, Chaves said. A 6x6 also needs more maintenance, and partly because of that, it sells for less as a used truck than one with TPC. The fleet usually sells a mixer truck after five years of service.

AVR's Kenworths also have Allison RDS six-speed automatic transmissions, which of course are easy to drive, and they cushion the drivelines on and off road. First bought in a group of trucks in '04, the automatics aren't cheap either, but have eliminated repairs to clutches, driveshafts and U-joints, and their associated breakdowns and unscheduled downtime, Chaves said.

Spicer Tire Pressure Control systems have needed little maintenance other than checking the hoses and fittings on new trucks to be sure they're secure. TPC monitors tire pressure on steer and drive axles and keeps them where they should be, so it's not necessary to check those tires in the morning, said veteran driver Larry Olson, whose truck we used for a demonstration. It does take longer to rotate tires, though, because hoses must be disconnected

TEST SET

Truck: 2006 Kenworth W900S (forward-set steer axle), six-axle chassis w/11-yd. McNeilus mixer, empty weight 31,500 lb., legal GVWR 75,500 lb.

Engine: Cummins ISM, 350 hp @ 1,900 rpm, 1,150 lbs.-ft. @ 1,200 rpm, w/rear PTO

Transmission: Allison 4500 RDS 6-speed automatic

Front axle: 20,000-lb. Dana Spicer EFA-20F4 on 20,000-lb. taperleafs, w/425/65R22.5 Bridgestone M844F wide-base tires

Rear axles: 46,000-lb. Dana Spicer D46-170HP w/locking axle differentials and 5.38 ratio, on 46,000-lb. Hendrickson HMX460 Haulmax, w/11R22.5 Bridgestone M711 tires

Wheelbase: 248 inches

Pusher axles: Two 10,000-lb. Hendrickson air-spring/air-lift w/255/70R22.5 Yokohama radials

Booster axle: 12,000-lb. McNeilus Bridgemaster V w/11R22.5 Yokohama radials

Wheels: Alcoa polished aluminum discs

Brakes: Meritor Q-Plus, 16.5x6-in. front, 16.5x7-in. rear, w/Gunite automatic slack adjusters and Bendix ABS

Fuel tank: 56-gallon aluminum

Hard tires have caused the truck to bog down. It freed itself after TPC bled the tires, and later pumped them back up for travel over hard dirt and pavement.

Air plumbing runs through axles and special seals in hubs, so the only exposed air lines hug the wheels between hubs and valve stems. Bridge-formula-compliant lift axles are stowed while truck's off road, so don't have TPC equipment.

Drivers use two rocker switches to choose Loaded or Empty and On-Road, Off-Road or Emergency. The system then sets pre-programmed tire air pressure, which is shown in a small LED display. Compact control panel is labeled CTI, for Central Tire Inflation, its military name.

A strong Cummins ISM worked with the truck's Allison automatic to resolutely push the truck through deep sand.

and reconnected before it's all done.

It was time to see what a truck could do, and outside AVR's garage, Olson had his Kenworth warmed up. It's an '06 W900S set up like many others in the fleet, with a 350-hp Cummins ISM, plus two pusher axles and a booster axle among its specifications. He drove it over to a large sandy area nearby as we followed in 4x4 pickups.

I had related to the guys that in the past I'd gotten a couple of similarly equipped trucks stuck. But I had made the mistake of not airing down the tires before venturing off pavement. Also, the trucks were empty, reducing traction on the drive wheels. Well, as an encore, I managed to get Olson's truck bogged down, too, again while its barrel was empty and its tires were hard. The small crowd offered mock cheers.

Olson got back behind the wheel, punched one of the dash-mounted TPC switches into Off-Road mode, and waited a couple of minutes while air bled out of the steer and drive tires. Then he punched the Allison into Reverse and backed out of the ruts I had made. After several passes without getting stuck, he went off to the quarry and got a load of stone in the barrel; it was the equivalent of about 9 yards of concrete.

Ha! Once again, I got the truck stuck, even with soft tires, while trying to drive up a loose, sandy slope. Olson hopped on the steps, reached in and threw the toggles that locked the tandem's interaxle differential and both its axle diffs. Duh, I could've done that. Now, with less wheel spin, I backed up a little, punched Drive and then charged up the slope – hooray – and onto a flat field where sand had been graded for drying.

The Cummins bellowed heartily as it pushed the truck through the pebbly sand, which seemed bottomless and certainly loose enough to make walking difficult. Yet the truck plowed resolutely ahead – and kept plowing as I began making turns. Even though the big duplex steer-axle tires were cut to the right or left, the front end tried to keep going straight. So I turned gradually, in wide arcs, moving the truck forward and back as needed to avoid going into ravines on three sides of this large sand box.

If I had unlocked the tandem, the truck would steer better, Olson said, when I returned to the trail. But I didn't want to do that while underway because I was afraid I'd break something in the differentials, and if I stopped to unlock the diffs I'd get stuck again, wouldn't I? "Maybe," he said, smiling tolerantly like someone who's been doing this since 1967, because he has.

You'd think the strong torque needed to twist the wheels through the grabby sand would cause the softened tires to slip on their rims and go flat, but they don't, he said; modern radials (Bridgestones in this case) are that tough. But sidewall flexing tends to safely eject stones caught between the dualed tires, which is another advantage of the system.

How much pressure do tires lose when TPC bleeds them? The numbers are programmed in to suit the owner and his operation, Dana's Beverly said. Here the steers drop from 100 psi to 70, and the dualed drives go from 100 to 50 when Off-Road is chosen. An LED read-out on the dash next to TPC's two switches showed those levels. An Emergency setting drops the steers to 30 and the drives to 25. From the Off Road levels, it takes the system about five minutes to air the tires back up, Olson said.

If the driver forgets to punch the system into On-Road mode as he leaves a jobsite, TPC will sense when road speeds get above 25 mph and automatically pump up the tires. It has to be told to bleed them, though. Olson said he decides if that's necessary when he arrives at jobsites. He finds it most useful in pouring curbs and sewer basins where streets have not yet been paved and sand is a real obstacle. TPC also lets a truck squeeze through low doors at warehouses and factories because dropping tire pressure lowers the truck by an inch or more.

How about mud? It's not as effective in that, Olson said. Sand is where it shines. Got some of that where you are? Then TPC might work for you, too. CE

KNOWLEDGE IS POWER.

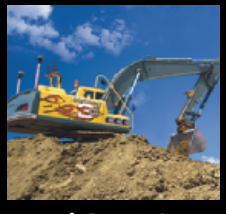
It started over 100 years ago. Volvo built its first internal combustion engine in 1893. Today, it is the world's largest manufacturer of heavy-duty diesel engines in the 9 to 18 liter class. The Volvo V-ACT technology and engineering in today's heavy and medium duty diesel engines give you perfectly matched engine performance with each application. And power when you need it with high torque at low rpms across the engine speed range. Tier 3/Stage IIIA emission levels, and fuel efficiency. It's this maximum efficiency that delivers minimum engine work, even when you are pushing your machine to the limits. Volvo V-ACT technology meets the demands of the toughest industry in the world. And yours.

MORE CARE. BUILT IN.

Volvo Construction Equipment www.volvoce.com
Visit ConstructionEquipment.com/info and enter 25

THE SECRET IS OUT


Complete range of Surveying Instruments


DigSmart & DigSmart 3D


GradeSmart & GradeSmart 3D Dozer


GradeSmart & GradeSmart 3D Grader


Complete range of Construction Lasers


PaveSmart 3D

The secret is out! Leica Geosystems offers a complete range of Machine Automation solutions.

See us at World of Concrete Booth #C4871

It's no secret that Leica Geosystems is committed to the Construction industry. Over the past year, Leica Geosystems has made great strides to meet your needs, including:

- Introducing the GradeSmart 3D and DigSmart 3D to empower your operators and improve your profits through greater accuracy and efficiency
- Introducing the SiteSmart Translator, enabling you to use your current design software to export to GradeSmart 3D and DigSmart 3D
- Rounding out the Machine Automation portfolio to include a stronger system offering, adding more distribution resources and service personnel for faster responsiveness

- when it has to be **right**

Leica Geosystems

Visit ConstructionEquipment.com/info and enter 26

By G.C. SKIPPER, Contributing Editor

How to Choose Asset-Tracking Systems

It's all about knowing where the machines are and what they're doing

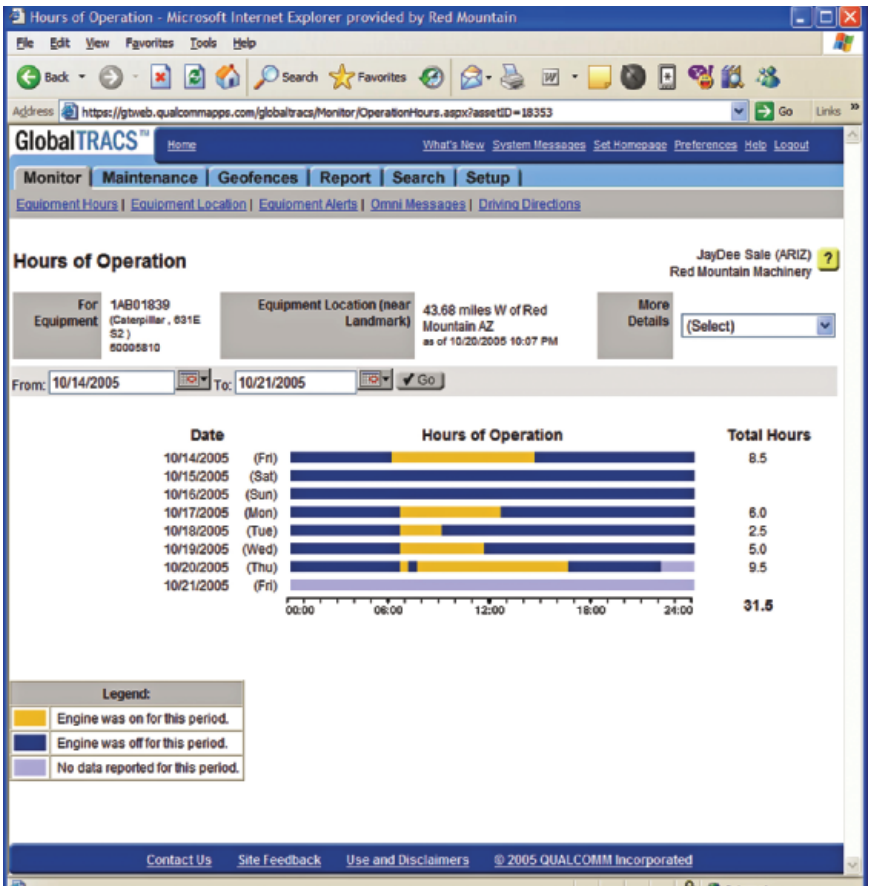
One of the most challenging facets of managing a fleet is keeping up with the machines and knowing what they are doing — or not doing.

One way to pinpoint equipment location and tell if it's running or not is by investing in an asset-tracking system. At its most basic level, asset tracking identifies where the machine is and how many hours it runs each day. Knowing the location has numerous benefits, allowing fleet managers to find and move a machine from one site, where it's not being used, to another site where it's needed. Hours run, of course, contributes to equipment utilization and productivity.

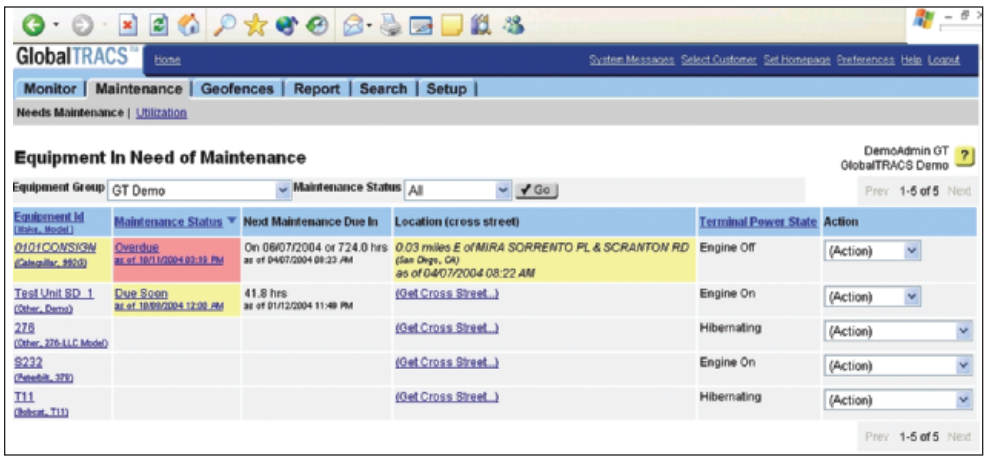
On a more advanced level, tracking systems can send out alerts when something is wrong with a unit or maintenance is overdue. The system monitors engine starts and stops, maintenance data and usage hours, all of which helps equipment professionals establish better preventive-maintenance schedules. When used with a "geo-fence," these systems also alert managers when a machine arrives at a particular job and when it leaves that job.

"A geo-fence is an imaginary fence around a piece of equipment," says Jay Dee Sale, director of operations for Red Mountain Machinery. Red Mountain is a heavy-equipment rental firm that serves southern California, Arizona and southern Nevada. It has equipment all over the territory, so two years ago the company installed a system called GlobalTRACS from Qualcomm.

Asset tracking and asset management are not synonymous, says Will McFadyen, president of McFadyen & Associates, a full-scale technical consultancy and custom programming group focused on contractors, rental houses, OEMs and



Red Mountain Machinery uses this GlobalTRACS report to pinpoint the location of the equipment in the field and keep track of how many hours it has run. In this case, a Caterpillar 631E 52, located 43.68 miles from Red Mountain, Ariz., ran a total of 8.5 hours from Oct. 14 to Oct. 21, 2005. Yellow indicates when the engine was on; dark blue shows when the engine was off. The light blue bar indicates that no data was reported during this period.



Records of engine-hours data enables managers to optimize service programs and preventive-maintenance schedules, reducing downtime and related costs by helping to prevent excess servicing and inadequate or late servicing.

Illustration copyrighted by QUALCOMM® Inc. and is reproduced with permission.

equipment dealers.

"There's a big difference between the two," he says. "Asset-tracking software lets you know where the equipment is. It also provides basic functions, such as how long the machine has been running, and basic preventative maintenance data. It might not necessarily include such things as detailed maintenance calculations, purchase orders, work orders, and utilization analysis. Those types of things are reflected in asset-management software."

Of course, asset-tracking and asset-management systems can be, and often are, integrated. In a successful marriage of the two systems, for example, the hours a unit runs at a particular jobsite can be accurately tabulated and transferred into the asset-management system to determine the exact amount charged back to that particular project. The down side of that transaction, however, is that managers can't distinguish between actual hours run and idling hours, such as time spent warming the machine up on a cold morning, without the incorporation of sensors.

Yet when all the benefits are considered, McFadyen says, asset tracking is "absolutely advantageous" to contractors, rental houses, OEMs, and "anybody involved in the equipment triangle."

One person who is part of that triangle is Joe Schuster, fleet manager at Emery Sapp & Sons. The company, with a fleet of about 500 machines, half of which are heavy equipment, provides road and bridge building, concrete paving, and residential and commercial site development in central and western Missouri, eastern Kansas and northwestern Arkansas. "At any given time, we probably have 50-plus different jobs underway in three different states," Schuster says.

Although Schuster's system, also GlobalTRACS, is fairly new — installed in July 2005 — he's already seeing benefits, he says. Previously he relied on field crew supervisors to turn in progress reports. Many times that didn't happen, and when it did the information was not accurate or timely. Asset tracking has definitely solved that problem, he says. As a result, the company now has better timing on oil changes, for example.

The system also has cut down on time spent traveling to a jobsite to service a piece of equipment, only to return and discover the next day that there were two more units at the same jobsite that also needed servicing, Schuster says.

Another benefit is that the company can now group and manage preventive maintenance schedules much more efficiently. "Prior to the winter season, it's critical that we check the antifreeze levels in each piece of equipment," Schuster says. "We also have to determine if the coolant is actually protecting the equipment to the degree it needs to. With our system, it's easy to locate where each unit is."

Schuster's rental expenses also have gone down. "The jobs vary so much year to year that it's hard to quantify how much," he says. "I know when we get a request to rent a piece of equipment, we look in the system and many times move a unit that is being underutilized.'"

Although there are a number of fleet-tracking system providers, McFadyen says, the "Coke, Pepsi, and 7-Up kind of crowd" include Qualcomm, Trimble and Micrologic, in addition to Caterpillar, Komatsu and others.

No matter what brand of asset-tracking system is installed, McFadyen says, it shouldn't necessarily change how you do business. "It should be used to enhance your knowledge about the business that you're doing," he says. "Fleet tracking can give you a wealth of data, and one of the things you want to do is ask your provider to turn that raw data into useful information."

Once the information makes sense, says McFadyen, it can most certainly affect bottom-line decisions. "Information from these systems help you determine things like fleet optimization in terms of knowing which equipment are your dogs — that is, the units that are underperforming," he says. "They will help you better plan your PMs since scheduled maintenance will come into vision a lot more clearly than it would if you weren't using a system like this.

"The nice part about it is that once you have the equipment location and hours, you can build a maintenance system that will be able to incorporate cost,"

The new force in dewatering

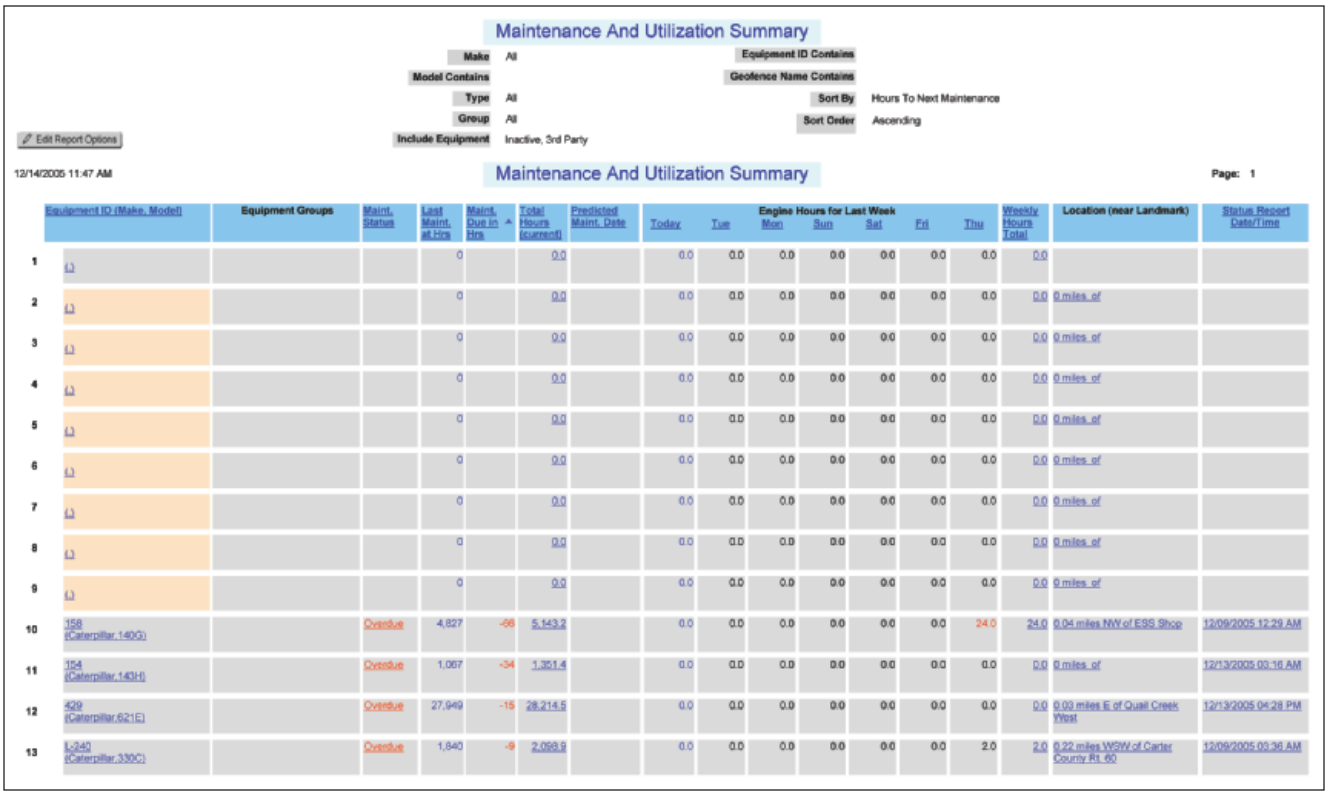
The new 2600 series from ITT Flygt sets the standard in dewatering pump technology. Featuring cutting-edge design with new materials and the patented Dura-Spin™ hydraulic system, these pumps deliver unmatched wear resistance and consistent performance over time. All of which contributes to the lowest possible cost of ownership. And with our outstanding support and worldwide presence Flygt helps keep your operations moving.

To find out more about how Flygt pumps can solve your dewatering problems, contact Mr. Radu Murgescu at (203) 380-4851. Or visit us at www.flygtus.com ITT Flygt Corporation, Trumbull, CT 06611

ITT

Engineered for life

Visit ConstructionEquipment.com/info and enter 27



Maintenance And Utilization Summary

Make: All
Model Contains:
Type: All
Group: All
Include Equipment: Inactive, 3rd Party
Equipment ID Contains:
Geofence Name Contains:
Sort By: Hours To Next Maintenance
Sort Order: Ascending

Edit Report Options

12/14/2005 11:47 AM

Maintenance And Utilization Summary

Page: 1

	Equipment ID (Make, Model)	Equipment Groups	Maint. Status	Last Maint. at Hrs	Maint. Due in Hrs	Total Hours (current)	Predicted Maint. Date	Engine Hours for Last Week: Today	Tue	Mon	Sun	Sat	Fri	Thu	Weekly Hours Total	Location (near Landmark)	Status Report Date/Time
1	()			0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
2	()			0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 miles of	
3	()			0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 miles of	
4	()			0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 miles of	
5	()			0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 miles of	
6	()			0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 miles of	
7	()			0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 miles of	
8	()			0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 miles of	
9	()			0		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 miles of	
10	158 (Caterpillar,140G)		Overdue	4,827	-66	5,143.2		0.0	0.0	0.0	0.0	0.0	0.0	24.0	24.0	0.04 miles NW of ESS Shop	12/09/2005 12:29 AM
11	154 (Caterpillar,140H)		Overdue	1,067	-34	1,351.4		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 miles of	12/13/2005 03:16 AM
12	429 (Caterpillar,621E)		Overdue	27,949	-15	28,214.5		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.03 miles E of Quail Creek West	12/13/2005 04:28 PM
13	L-240 (Caterpillar,330C)		Overdue	1,840	-9	2,099.9		0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.22 miles WSW of Carter County Rt. 60	12/09/2005 03:36 AM

Shown here is a Maintenance and Utilization Summary that is one of the reports generated by GlobalTRACS, an asset tracking system used by Emery Sapp & Sons. It tells when oil changes are due. Fifty hours prior to service being due, the system flags the machine in yellow and drops it into a group of machines to be serviced. If the unit goes over the service interval of 250 hours, the system highlights the equipment in red.

he says. "You will know what it cost per hour to own and operate that equipment. This is a huge issue in construction."

Before such technology came along, supervisors, for instance, turned in time sheets that showed how long the equipment ran for a given period of time or when it was due for service. "This still goes on today, but a lot of time it's a guessing game," McFadyen says. "There tends to be a lot less accurate data when it's recorded by humans."

The supervisor in the field, he says, might guess that the machine ran for seven hours when, in reality, it ran for 11 hours. This causes the actual hours used to be either over- or under-estimated.

"Obviously, that has a big effect on the bottom line," he says. "It raises such questions as, 'Am I doing my PMs too soon because of that, or too late?' If PMs are done too quickly, you could be spending too much money. If a PM is done too late, it affects the condition of the equipment and could be eating away the health of major components. That causes the machine to fail more quickly. When you're talking about a machine that costs $500, 000, that's a pretty substantial chunk of change."

Sale describes how his system works in terms of hours and maintenance. "We schedule PMs at 250 hours," he says. "We know every day what the hours are on the machine. We are able to be more exact, and by knowing what the hours really are, we know exactly when to do the PM."

In addition to accuracy, the system reports are valuable tools for fleet managers. There are the monitoring hours and location reports, already mentioned, and Schuster also receives an equipment-maintenance summary.

"The summary tells us when an oil change is due on a machine," he says. "At 50 hours prior to service being due, the system will flag that machine as yellow and drop it into a group of machines to be serviced. If the unit goes over the service interval of 250 hours, the system highlights the equipment in red."

Another report shows what pieces of equipment are on a certain job and what jobs a particular machine has been on and when, he says. "It will tell you the history of that unit for the last three months."

Schuster has just reached the point where he can now use the system to monitor the health of a unit. "We set up alerts to tell us if oil pressure drops below a certain level or if an engine coolant temperature climbs above a certain level," he says. "It lets us know when a

Building a better future
Global Leader

POWER/SAFETY/TECHNOLOGY

We build a better future

A new chapter in construction equipment has now begun.

The Best Warranty
2 Years 2,000Hours
Bumper to Bumper

Hardworking Hyundai Constuction Equipment

Hyundai's 7A series will give you satisfaction in superior performance at your worksite.

Technology in cab design

CRAWLER EXCAVATOR

WHEEL LOADER

Contact Point

■ HCE U.S.A 955 ESTES AVE. ELK GROVE VILLAGE, IL 60007 TEL 800-423-8721 www.hceusa.com

www.hceusa.com

HYUNDAI HEAVY INDUSTRIES CO.,LTD. | CONSTRUCTION EQUIPMENT

Visit ConstructionEquipment.com/info and enter 28

transmission temperature reaches a critical level. When that happens, the system sends out an alert."

The alerts go out in three ways: via e-mail, to a pager, and to three different cell phones until someone answers. Schuster had problems installing the system on older equipment. Although the boxes on the machines are "fairly durable," he says, "if you happen to have an electrical problem on the older units, it sends you a false alert. You have to make certain your electrical system is up to snuff or you'll get some bad data." This particular problem showed up in about 5 percent of his fleet, he says.

As for the system used for tracking and reporting at Red Mountain, it's not surprising that the reports that have made the most difference, according to Sale, are the ones showing the hours a machine runs. That up-to-date data, he says, is something the company never had before.

"We didn't know if the machines were being run 24 hours a day or an hour every three days," he says. "It was very hard to know when to schedule preventive maintenance. Now we can schedule our service people to do the PM at the correct time."

The value of asset-tracking reports many times depends on the industry, according to McFadyen. For example, a contractor might be extremely interested in utilization because he may be thinking of streamlining the fleet. A rental house, on the other hand, might focus on preventive maintenance features to ensure everything is done on time.

Installation of an asset-tracking system in a fleet of machines ranges from one to four months, depending on a number of factors including size of fleet, the experience of the installers, and what time of year the installation takes place.

For contractors, installation during a busy season would take longer than installation during the middle of winter when the majority of the systems are down. It also can depend on the complexity of the installation. "Installing an asset-tracking device that monitors multiple sensors, such as oil-pressure alerts and temperature alerts, obviously, takes considerably more time than a device that just collects hours and location," McFadyen says.

Because there are so many influencing factors, it's difficult to come up with a "completely accurate answer" on installation, he says. Sale's system took three or four months to install, and Schuster — who hired an outside firm to do the installation — says the job took about two or two-and-a-half months.

"We wound up installing 170 units," he says. "We didn't want to put the system on everything, just on our primary, productive pieces. We didn't install any on our paving equipment because we generally know where paving fleets are."

Since the construction industry has now caught the attention of a number of asset-tracking-system providers, fleet professionals should try out different programs before making a final decision.

Most providers usually give you a three-month trial period, says Schuster. "If you don't decide to go with that particular system, you send the equipment back. You may have to pay a small fee for the airtime you use." Sale also tried out several systems before making his decision, he says.

In addition to comparing the different systems, there are other guidelines that equipment managers should heed.

- Work with a provider that provides the means to integrate its fleet-tracking solution with either a fleet-management or maintenance application.
- Consider the hardware itself, the physical toughness and ability to stand up to the rigors of the construction-equipment environment.
- Determine the need for a satellite-based system or a cellular system. Satellite is good for companies that have equipment going outside the area. Cellular systems, as the name implies, work best where you have cellular coverage. Satellite systems usually cost a bit more than cellular.
- Know the reliability of the messaging network. How long does it take for the message to travel from the equipment, to the message center, then to you?
- Find out who sees and owns the data. What are their intentions on how the data will be used?
- Make sure the captured data is secure. Is it stored on the user's site or at the provider's site? What precaution is the provider taking to ensure data doesn't go into somebody else's hands?
- Make certain the provider really understand the industry.
- Try to work with well-established providers. Invest in a system from a company that will be around a few years from now.

Asset tracking has come a long way in providing equipment managers with accurate, timely information. But there are some hurdles to overcome. Schuster would like to see a system that can be installed quickly on rental machines.

"We don't have the luxury of pulling a rental piece of equipment into the shop and spending two or three hours installing the tracking device," he says. "I'd like to see a battery-operated version that you stick on a rental with magnets, or a kit you could install in 15 or 20 minutes."

Schuster says he'd also like to see the system track fuel consumption and be able to separate a unit's run time versus idle time.

He's talking to his provider about such developments, he says, but meanwhile he is still learning how to fully utilize the system he has. "We're just now learning what this tool can do for us," he commented. "We continue to find better ways to utilize the data."

This article first appeared in Equipment Manager, *the official publication of AEMP.*

Troy Uphold | Stark County, Ohio, Highway Department

Highway and roadwork... all with **one man** and **one machine.**

Gradall® tilting boom action and strong breakout forces now enable just one excavator and one operator to pull patch, repair medians, widen lanes, spread asphalt and more. You save equipment, manpower and money. Plus, the telescoping Gradall boom is the only one that can work under bridges, trees and signage. For a demo, call 330-339-2211 or visit www.gradall.com

By LARRY STEWART, Executive Editor

Paver Makers

Refine Controls, Width Changes and Reliability

Each concrete-paver model addresses these three keys to success, but different manufacturers emphasize different keys

Terex Roadbuilding relies on hydraulic sensing and grade control, and is pursuing better profilograph reports by taking the flex out of its new SF-3502B paver frame with 26-inch support tubes.

The confines of the concrete-paver market — where only seven manufacturers produce the 30 models of slipform pavers available in North America today — contain a startling variety of technology adoption and application. Buyers continue to demand refined control over pavement smoothness to satisfy project owners and flexibility to change paving widths and transport equipment quickly and easily, all in a package that is durable and reliable. Each of the seven manufacturers serving concrete pavers in North America answers those demands with a unique approach.

GOMACO has teamed up with Leica to adapt laser grading technology to control paving pans without string lines. It has proven effective when plugged into the manufacturer's G21 electronic system, and the next phase in adoption shifts from technical to political, as the industry works to convince more specifying agencies that stringless paving can produce quality pavements at lower cost.

GOMACO recently introduced a new option to address the need for the ability to change pavement widths without interrupting the paving process. The company's V2 is a dual-mold system that is hydraulically adjustable for paving at different widths. The positions of the front and rear molds relative to each other dictates the width of the pavement, and there is a separate control for each half of the mold.

An optional auto-width adjustment package uses sensors to manage on-the-go changes in paving width to produce a tapered slab. String line is set for the desired taper, and sensors on the paver follow it to control the hy-

draulic cylinders that extend the frame and side-shift the mold. The operator switches the system on when approaching a width transition, and the mold adjusts automatically to the new paving width. This stand-alone package can be installed on any GOMACO paver with the V2 mold.

Terex Roadbuilding is pursuing better profilograph reports by building its new SF-3502B paver frame with 26-inch support tubes. The idea is to minimize frame deflection even when paving at the machine's 33-foot maximum width.

Terex designed the two-track SF-3502B with telescoping walkway, handrails, and vibrator manifold to reduce the time needed for width changes and transport.

Guntert & Zimmerman's machine-control microprocessor offers many options for delivering smooth pavements, and was instrumental in helping Concrete Placing Co. win one of the American Concrete Paving Association's 2005 Excellence in Concrete Pavement Awards.

The contractor was paving a three-mile stretch of US-93 in the Ashley Creek project in Kalispell, Mont. Repeated rain days required some innovation to complete the work on time. Most of the work was paved without string lines using a Guntert & Zimmerman S-850 Quadra paver. After following strings to pave the first lane, each succeeding lane was paved using the preceding lane as a reference. Programming the desired cross-slope of the lane into the paver's computer automatically controlled the elevation on the outside lane edge.

The grade system in Power Pavers' two twin-track concrete pavers uses four hydraulic grade cylinders — two mounted on each track — controlled by four proportional hydraulic sensors. They can reference dual string lines or they can be locked to grade. Steering can also be controlled by a proportional hydraulic sensor, which can be deployed on either the right or left side of the machine.

HEM also uses all-hydraulic paving-pan controls. The company has been upgrading its entire paver line, though, with features such as a hydraulically sliding frame. The system, first applied to its Model 8-16 last year, now is available on Models 12-27 and 14-37, and it allows these pavers to change paving width while they are slipforming.

HEM has also added an

GOMACO added variable-width paving to its paver line with the hydraulically adjustable V2 mold. The mold's two parts (see inset) can be shifted automatically by GOMACO's G21 electronic controller.

automatic dowel-bar inserter, and canal-paving options for its slipform pavers. For fast loading and transport, the pavers use an outrigger lift system similar to that used on Power Pavers machines to raise the machines high enough for a lowboy trailer to be backed under them.

Rexcon redesigned most of the Town & Country's control system in the past year, replacing many electrical controls with hydraulic sensors, and the screw jacks with hydraulic cylinders.

Auger-control cables and tamper-bar cables were replaced with electrical controls, but these new electrical controls forego the control boards that Rexcon once used, greatly simplifying troubleshooting and repairing the systems.

Clearly, some manufacturers are still improving their concrete pavers to match the industry's reliability standards. Many makers continue to build their product lines on machines that rely on tried-and-true hydraulic sensing and paving control to deliver quality paving, and some are stretching the technology envelope at the leading edge of what can be done with electronics to meet smoothness standards most quickly and easily. An increasing number of models are engineered with the ability to change paving widths without interrupting the flow of mix through the paver, and virtually all of the mid-sized pavers on the market are designed to be ready to transport with minimal investment of time and support equipment.

Despite the small number of manufacturers and machine models available, it seems there's a combination of technology, versatility, and price for almost any buyer.

Web Resources

Specifications	ConstructionEquipment.com
Allen	www.allenpavers.com
GOMACO	www.gomaco.com
Guntert & Zimmerman	www.guntert.com
HEM	www.heavyequipmentmfg.com
Power Pavers	www.powerpavers.com
RexCon	www.rexcon.com
Terex Roadbuilding	www.terexrb.com

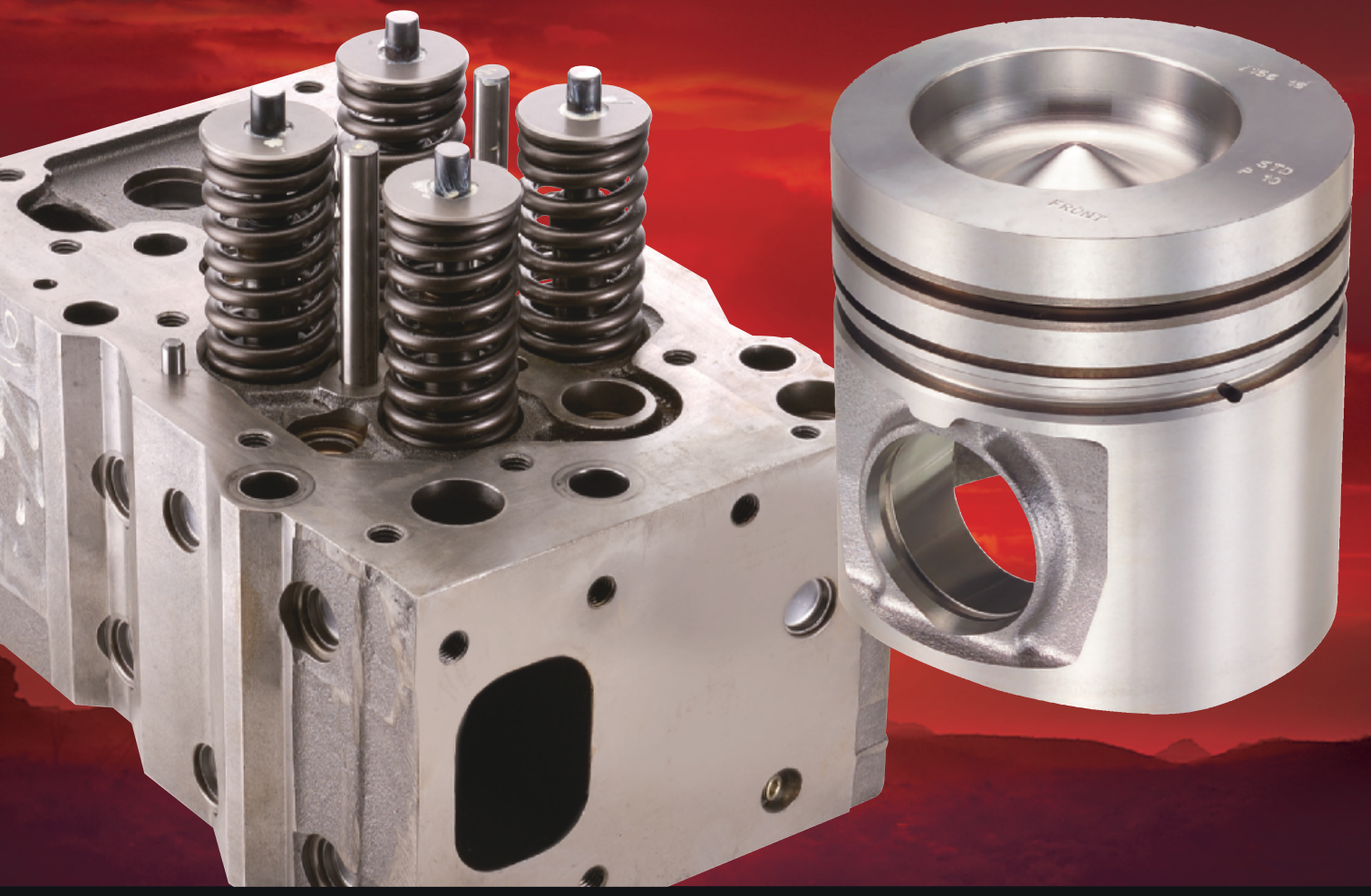
Concrete-Paver Specifications (by maximum paving width)

Model	Max. Paving Width*	Gross Horsepower	Transport Width	Operating weight (lb.)
Projected Allen ASF 1600 2T HP	16′ 0″	200	11′ 11″	44,000
HEM 8-16	16′ 0″	179	8′ 6″	33,100
GOMACO Commander III-4T	20′ 0″	200	8′ 3″	33,400
GOMACO GT-6300-4T Slipform	20′ 0″	155	8′ 2″	28,500
Terex RB SF-2204 HVW	20′ 0″	250	8′ 6″	55,000
Allen ASF 2700 2T LP	27′ 0″	265	16′ 4″	48,000
HEM 12-27	27′ 0″	240	8′ 6″	59,000
Allen ASF 3200 2T HP	32′ 0″	325	14′ 0″	52,000
GOMACO GHP-2800-4T	32′ 0″	335	8′ 2.5″	80,000
GOMACO GP-2600-4T	32′ 0″	275	9′ 9.8″	79,000
GOMACO GHP-2800-2T	32′ 0″	335	12′ 0″	70,000
GOMACO GP-2600-2T	32′ 0″	275	11′ 10.7″	75,000
Power Pavers SF-2700	32′ 0″	215	12′ 0″	48,000
Power Pavers SF-3000	32′ 0″	250	14′ 0″	65,000
Terex RB SF-3502B	33′ 0″	350	12′ 0″	73,000
Guntert & Zimmerman S850 Quadra	34′ 0″	335	12′ 0″	90,200
Guntert & Zimmerman S850(ST) 10′	34′ 0″	335	12′ 0″	80,000
Guntert & Zimmerman S850(ST) 12′	34′ 0″	335	12′ 0″	90,200
RexCon T&C I	34′ 0″	325	11′ 0″	60,000
HEM 14-37	37′ 0″	325	8′ 6″	82,850
Guntert & Zimmerman S1000	44′ 0″	335	n/a	95,500
Terex RB SF-6004	44′ 0″	400	10′ 2″	115,000
GOMACO GP-4000-4T	50′ 0″	450	9′ 8″	115,000
GOMACO GP-4000-2T	50′ 0″	450	9′ 8″	88,000
Guntert & Zimmerman S1500	56′ 0″	425	n/a	106,500

* With extensions

Source: Spec-Check.com Xpanded Specs

EVERY™ PART. GENUINE.



Appearances can be deceiving, especially on critical parts for your engine. Close inspection between Genuine Cummins Parts and “will-fit” parts reveals dramatic differences in design, tolerances and materials. Differences that can result in early failure, unscheduled downtime and increased repair costs. Don’t take unnecessary risks – make sure that every engine part you get is Genuine Cummins, every time. For parts and service information, see quickserve.cummins.com.

Cummins®

GOMACO

Tapers Slab Width Automatically

GOMACO's new auto-width-adjustment option provides sensor control of paving-width changes on the go. String line is set to follow the desired taper of the slab, and sensors on the paver use that string line to control cylinders for extending the frame and side-shifting the mold. The operator — with a switch of a button — turns the system to automatic when approaching a width transition, and the mold adjusts to the new paving width automatically. This is a stand-alone package that can be installed on any GOMACO paver with the hydraulically variable V2 mold.

Number of models: 4

Product-line features: GOMACO's road pavers include the 28,500-pound GT-6300 that transports at 8 feet 2 inches wide; the 33,400-pound Commander III — with versatility to flat pave widths up to 20 feet, integral curbs, and to slipform 80-inch bridge parapet; and the 115,000-pound GP-4000 that paves 50 feet wide in a pass.

Visit ConstructionEquipment.com/info and enter 168

POWER PAVERS

Two Routes to 32-Foot Paving

Both of Power Pavers' two-track machines are capable of maximum slab widths of 32 feet with bolt-in extensions, but the company positions its 65,000-pound SF-3000 as the paver for meeting profilograph specs on airports and roads. The 48,000-pound SF-2700 is a low-profile machine with a 215-hp Cummins diesel (compared to the SF-3000's 250-hp Cummins), which Power Pavers recommends for paving parking lots, city streets and residential developments.

Number of models: 2

Product-line features: Power Pavers' grade system employs four hydraulic grade cylinders — two mounted on each track — for nearly 24 inches of lift. They're controlled by four proportional hydraulic sensors reading from dual string line or lock-to-grade referencing.

Visit ConstructionEquipment.com/info and enter 169

GUNTERT & ZIMMERMAN

Quick Width Changes At Lower Cost

Guntert & Zimmerman developed a kit to increase the maximum working width of the S850 paver to 37.5 feet wide. The S850ST — ST for "Single Telescopic" — has a fixed bolster, or track module, on one end of the 10- or 12-foot center frame, and a telescoping Quadra Bolster on the other. The machine offers paving-width changes in a matter of hours from 10 to 17 feet or 12 to 19 feet at lower cost than G&Z's double-telescoping S850 Quadra.

Number of models: 4

Product-line features: G&Z mid-size pavers are designed to self-load on trailers without need for a crane. G&Z says quick width changes require nothing more than a mechanic's truck or small boom crane.

Visit ConstructionEquipment.com/info and enter 170

The Power of Choice

Introducing the New GT-3400 with Remote Control

GOMACO

Booth #C5168
in the Central Hall

WORLD OF CONCRETE®

The GOMACO GT-3400 is the first new curb and gutter machine design for the 21st century and… it's remote controlled! The remote control is light weight and gives the operator total freedom to move about the operation. The remote features all the necessary functions, including vibrator adjustment and an emergency stop. The GT-3400 can be right- or left-side pour. It features a revolutionary, high-powered trimmer, and changing molds is quick and easy with the new Hook-and-Go system. Its total length is less than 20 feet (six meters) and the new three-track design features All-Track Steering. The GT-3400 is the beginning of a whole new class of curb and gutter machines. See it for the first time at World of Concrete!

… Choose from several different models of curb and gutter machines on display in our booth... the choice is yours
… 4-Track Commander III with the V2 mold for on-the-go width changes
… C-450 cylinder finisher designed with versatility for multi-application capabilities
… GSI® for paving grade evaluation, stringline analysis and smoothness indication

Stop in and visit with us about your projects for 2007 and GOMACO's complete line of concrete paving and support equipment.

800-831-2320 | www.gomaco.com

TEREX ROADBUILDING

26-Inch Tubing Stiffens New 32-Foot Paver

Terex Roadbuilding used 26-inch support tubes in the frame of its new SF-3502B to reduce deflection — the object being to reduce yields and deliver a smoother road surface needing little to no grinding to meet smoothness specifications. The vibrator manifold mounts directly to the paving kit, cutting in half the amount of hose required. Telescoping walkway, handrails, and vibrator manifold reduce the time needed for width changes and transport.

Number of models: 8

New models: SF-3502B

Product-line features: The SF-3502B is powered by the 350-hp Cat C-9 diesel (Tier-3-certified), mounted in a low-rise compartment that enhances the operator's view to the front of the paver. The SF-3502B is a two-track machine, and Terex RB plans a four-track SF-3504B.

Visit ConstructionEquipment.com/info and enter 171

HEAVY EQUIPMENT MANUFACTURING

Variable-Width Paving Throughout

HEM has been steadily adding features and options to its concrete-paver line, this year applying the hydraulic sliding frame for paving-width changes on the go to models 12-27 and 14-37. The pavers also incorporate a new high-profile frame design.

Number of models: 5

New models: 12-27H and 14-37H

Product-line features: HEM now offers an automatic dowel-bar inserter, and canal-paving options for its slipformers. The company touts the reliability of its all-hydraulic guidance and grade-control systems. An outrigger lift system raises the pavers high enough for a lowboy trailer to be backed under them.

Visit ConstructionEquipment.com/info and enter 172

REXCON

Hydraulics Replace Electrical Boards

In an effort to improve usability and serviceability, Rexcon eliminated control boards in the electrical system of its Town and Country paver by using more hydraulic systems. Hydraulic sensors and cylinders replace grade sensors and screw jacks, and the machine steers with a Sauer Danfoss Proportional Rotary Position Controller.

Number of models: 1

Product-line features: The Town and Country's auger-control cables were replaced with an electrical control system, including a shut-off override. And cable control of the tamper bar system is being replaced with electrical controls. Rexcon is also increasing the tamper-bar motor's output torque, equipping it to handle stiffer mixes.

Visit ConstructionEquipment.com/info and enter 173

PRODUCTIVITY | UPTIME | LOW DAILY OPERATING COSTS

JOHN DEERE
Nothing Runs Like A Deere®

Why settle for the other guys' compact track loaders when you can run a John Deere next-generation CTL? Their best-in-class stability, breakout, tractive effort, and travel speed enable the new CT322 and CT332 to outwork them all. Plus, they run on a smooth-riding easy-to-clean undercarriage that's more durable and significantly less expensive to operate and maintain. To learn more about the many ways these new CTLs redefine productivity, uptime, and low daily operating costs, see your John Deere dealer. Or call 1-800-503-3373.

"Upstart"

www.JohnDeere.com/6286

Visit ConstructionEquipment.com/info and enter 32

If you think shingles can take a pounding,
you should see what they do to recycling equipment.

What problem can we solve for you? When shingles are replaced, the asphalt gets recycled. But this abrasive material quickly wears down equipment. So we created tough fasteners that last 100 hours instead of 4 and grinders that last 8–10 times longer. Our metallurgical engineers can find similarly innovative solutions to the problems you're facing, then deploy and support them globally. Find out more at kennametal.com.

Visit ConstructionEquipment.com/info and enter 33

KENNAMETAL®

By WALT MOORE, Senior Editor

Welding Equipment

HOBART

The Handler 187 MIG welder from Hobart uses a "seven-tap" voltage-selection control designed to assist the operator in making arc adjustments in finer increments. It also features "enhanced magnetics with better inductance," an improvement that results in better arc starts, smoother arc performance, and less spatter. The Handler 187 weighs 68 pounds, has an output range of 25 to 185 amps of power, and operates on standard 230/240-volt household power.

Visit ConstructionEquipment.com/info and enter 160

LINCOLN ELECTRIC

Vantage 400 from Lincoln Electric is a compact, 400-amp welder/generator using Lincoln's Chopper Technology, which is designed to deliver easy starts and a smooth arc for stick, downhill-pipe, TIG or wire welding — as well as for arc gouging. Powering the new welder is a four-cylinder, water-cooled Perkins diesel engine, running at 1,800 rpm. Vantage 400 delivers 400 amps, 36 volts and up to 450 amps, 32 volts of rated DC welding output at 100-percent duty cycle. It also generates 19,000 watts (peak) of three-phase, 240V AC generator power for industrial equipment, such as a plasma cutter; and 12,000 watts (peak) of single-phase AC auxiliary power for lights and construction tools.

Visit Construction Equipment.com/info and enter 161

MILLER ELECTRIC

Miller Electric's new Spectrum 375 X-TREME plasma cutter weighs just 18 pounds and can connect to any single-phase 115V-230V power source. The user need only select the correct (115V, 15A or 230V, 50A) Multi-Voltage Plug (MVP) for the power supply and connect the power cord. The MVP is designed for switching in seconds without tools. The new machine is rated at ⅜-inch cutting capacity on mild steel and ¼-inch cutting capacity on aluminum. At a working rate of 6 inches per minute, the unit can cut ½-inch mild steel. An internal filter and factory-set regulator eliminates the need for the operator to adjust air pressure.

Visit ConstructionEquipment.com/info and enter 162

MULTIQUIP

The DLW-300ES welder/generator from Multiquip is a 300-amp welder and a 10-kilowatt generator with a 100-percent duty cycle at 280 amps. Designed for fuel efficiency, the machine's Kubota diesel engine uses only 1.1 gallon of fuel per hour at full load. An arc-force dial allows the operator to adjust the arc to the desired quality, and the machine features multiple AC electrical outlets. The compact DLW-300ES measures 50 inches in length and weighs 842 pounds.

Visit ConstructionEquipment.com/info and enter 163

THERMADYNE

The TurboTorch TTV-100-cpt is a portable medium-duty oxy-fuel cutting and brazing package that includes a medium-duty handle, cutting attachment, Rosebud heating tip, cutting tip, two nozzles, tank key, "B-to-A" adaptor, type "M" 10-cubic-foot fuel cylinder, and a type "R" 20-cubic-foot oxygen cylinder.

Visit ConstructionEquipment.com/info and enter 167

GOSS

The WeldPro cutting and welding torch kit from Goss uses forged regulator bodies with stainless-steel needle valves and contains an EO-50 Oxy regulator and an EA-50-P (or EA-50-C) fuel regulator. The package includes a welding torch, cutting attachment and tip, welding tips, hose and accessories.

Visit Construction Equipment.com/info and enter 165

BROCO

The Goweld portable welder is a portable machine (using two or three 12-volt batteries) that features an on-board computer and proprietary software aimed at simplifying the welding process. The unit features a maximum power rating of 42 volts DC and 200-plus amps. A handle-mounted micro switch and an integral gas valve operate directly off the trigger, providing the ability to "pre-flow" and "post-flow" shielding gas. An optional Power Conditioning Unit is available for using Goweld as a spool gun with conventional welding-power sources such as an inverter or generator.

Visit ConstructionEquipment.com/info and enter 164

BURCO

The 72-pound Burco MPM 165 welder/generator uses a 7.2-hp Honda engine and features a 60-percent duty cycle at 150 amps. The unit's DC/CC welding range is from 40 to 150 amps. The MPM 165's digital signal processing "chopper" technology, says the manufacturer, enhances weld results. The unit's DC chopped auxiliary output allows operation of virtually all standard hand-held power tools. Overall dimensions are compact, measuring 18 inches long, 14.5 inches wide and 16.5 inches high. Accessories include a 10-foot ground cable and a 15-foot cable with electrode.

Visit ConstructionEquipment.com/info and enter 166

YOU WORK HARD EVERY DAY. SO SHOULD YOUR TELEHANDLER.

THE NEW CAT® TL SERIES. AS PRODUCTIVE AS YOU ARE.

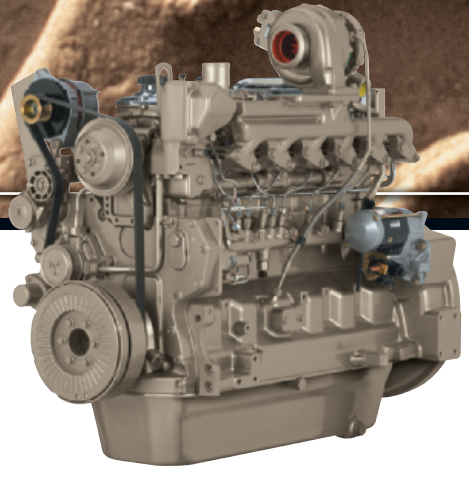
Rugged. Reliable. Durable. And as versatile as your job demands. Introducing four new TL Series telehandlers. Proven drivetrains deliver optimum performance and greater uptime. The comfortable cab with joystick controls will help you be more productive. And a variety of Caterpillar® Work Tools, with a manual or hydraulic Cat quick coupler, is available for just about every type of job. All backed by renowned Cat Dealer support and the industry's best parts availability. To learn more, talk with your Cat Dealer today or visit **www.cat-telehandlers.com/TL6**

www.cat.com

CATERPILLAR®

TODAY'S WORK. TOMORROW'S WORLD.™

When you're going beyond the boundaries, go with someone who knows the territory.



BEYOND THE BOUNDARIES

Your equipment faces tough working conditions. That's why John Deere builds reliable, fuel-efficient diesel engines that can handle anything your jobsite can dish out. We have more than 85 years of experience and insight in off-highway applications. And because you work in remote locations — we've put our support network out there with you — over 4000 locations strong.

Next time you want to go beyond the boundaries, go with John Deere. To learn more, call 1-800-JD-ENGINE or visit www.JohnDeere.com/beyond

JOHN DEERE

Visit ConstructionEquipment.com/info and enter 35

Visit us at World of Concrete booth number N2427.

By PRESTON INGALLS, Contributing Editor

Barriere Battles Back

Rapid growth, Katrina cause maintenance efficiencies to slide, but Fleet Master returns to excellence

Barriere Construction won the 2004 Fleet Masters Award for its remarkable improvement in maintenance operations. But this year, equipment director Ben Tucker noticed slippage among some of the New Orleans contractor's benchmarks, set after a five-year maintenance-improvement process that began in 1999.

In 2000, Barriere implemented Total Process Reliability (TPR) to focus efforts on improvement. The impact was phenomenal (see "Barriere Builds Profit on Machine Maintenance," April 2004, or at Construction Equipment.com).

"Maintenance costs were reduced by 52 percent between 2000 and 2004," Tucker says. "Fleet utilization went from 51 percent to over 90 percent. With a major reduction in emergency (breakdowns) from 90 percent in 1999 to 8 percent in 2004, we made a choice to outsource maintenance totally."

After these considerable successes, however, Barriere's focus on maintenance excellence began to wane. The emergency-maintenance rate, which had dropped to less than 8 percent, had crept up to 15 percent in mid-2006. The percentage of preventive maintenance was dropping as well.

"Prior to Katrina we were growing significantly, causing us to bring on many new operators, supervisors and engineers," Tucker says. "We started to lose focus. Then Katrina

Heavy-equipment operator Murphy Martin (right) was recognized for his TPR participation at Barriere. Ongoing efforts to reward positive behavior has helped to improve the cleanliness of equipment and operator inspection compliance, and has encouraged higher levels of operator participation in Barriere's efforts.

PROFILE

Ben Tucker,
Equipment Director

Barriere Construction

Headquarters:
New Orleans

Specialty:
Highway-and-heavy construction, industrial

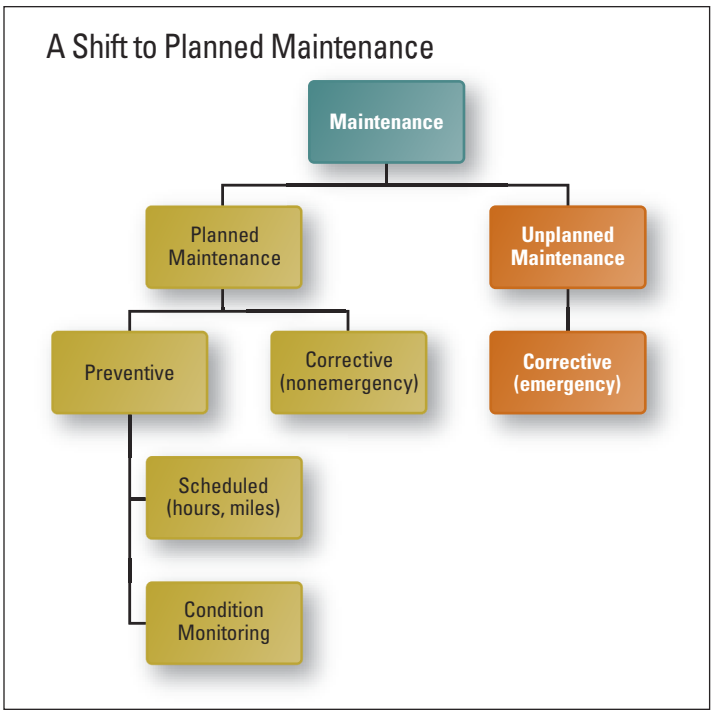
Equipment Value:
$26 million

Fleet Makeup:
126 off-road units, 33 on-road vehicles — includes four asphalt-paving spreads and one concrete paving operation

Support Staff:
1 welder, 2 divisional equipment coordinators, 1 dispatcher, 1 craftsman

Facilities:
None. All repairs are outsourced

Market Range:
Louisiana



By studying machine failures, called a Root Cause Failure Analysis program, Barriere reorganized its maintenance system, shifting more and more effort toward planned maintenance.

came, and it was survival."

In response, Tucker decided to recharge the TPR process. Barriere reorganized its steering council to include a one-day training and planning session. One of the company owners, Bert Wilson, became a sponsor of the project and joined the council. "Bert became a major supporter for the change efforts," Tucker says.

Wilson took the reins to reinvigorate the TPR efforts across the company's four major divisions. Plant efforts and fleet efforts were coordinated through the steering council. A second equipment reliability coordinator was added to assist Tucker in coordinating maintenance and maintenance-improvement efforts.

Barriere started training newer supervisors and followed up with a series of one-day training sessions for operators called CLAIRE Workshops. The sessions focused on Cleaning, Lubricating, Adjusting, Inspecting, Repairing and Eliminating.

"It has truly brought the awareness up," Tucker says. "The machines are better cared for daily and weekly. For example, superintendents are now required to audit two machines a month. Recent audit findings showed 37 percent of the audited equipment needed lubrication, while 50 percent needed cleaning. We are getting there."

Barriere also implemented a Root Cause Failure Analysis (RCFA) program, and key personnel were trained to track down the causes of failures. Part of the plan was to decrease unplanned maintenance and shift more effort toward planned maintenance (see illustration).

Although the refocus efforts are only a few months old, Barriere is already seeing dividends. The emergency-maintenance rate, which had crept up to 15 percent, is now down to 6 percent, only one point off of the 2004 benchmark of 8 percent. Preventive maintenance schedule compliance, which had dropped to 56 percent, has rebounded to 76 percent. Utilization has improved to 90 percent, only 4 points below the target of 90 percent. RCFA compliance is at 100 percent. Percent preventive maintenance has improved from 38 percent to 42 percent, with opportunity to move to 60 percent, a world-class rate.

"Prior to Katrina we were growing significantly, [and] we started to lose focus. Then Katrina came, and it was survival."
— Ben Tucker

Tucker summarized the lessons learned the past few months. "If you don't stay focused on a process, you forget the reality of what you can accomplish."

Preston Ingalls is president/CEO of TBR-Strategies in Raleigh, N.C., and consults regularly on maintenance and reliability.

Help from above.

For the hard work below the surface, there's new help from above. Topcon's new 3DXi GPS+ excavating control system combines the power of precise, real-time location data and intuitive graphic depth control to make all your jobs simpler, safer and more profitable.

Site prep, road work, ditches, landfills, ponds, canals, or complex designs–it makes no difference. You finish the job to specs quicker, with measurable material savings, without over-excavating.

Dig easy with help from above.

800.443.4567 www.topconpositioning.com

TOPCON
It's time.

Genie®
A TEREX COMPANY

THE COLOR OF **confidence**

Genie is a name you can depend on for the most advanced lifts in the industry. With quality built into every step of the manufacturing process, you are assured exceptional performance for your most demanding jobs.

Plus, every Genie comes with 24/7 service and support from people who know your business. Be confident in your equipment choice, **Think Blue.**

1-800-536-1800

EMAIL **info@genieind.com** | WEB **genieindustries.com**

Visit ConstructionEquipment.com/info and enter 37

By MIKE VORSTER, Contributing Editor

The Elusive Benchmark

Understand then meet the challenges behind setting benchmarks and performing against them

We all seek the elusive benchmark that we can compare with others and improve our performance. Benchmarks set standards, define what is achievable, and give us the motivation to be best in class. They are an indispensable part of our management tool kit; yet they are difficult to define, difficult to use, and often inappropriate.

At the simplest level, we can benchmark internally and try to improve relative to our own data and performance metrics. We can also benchmark relative to a select group of noncompeting peer organizations where we share information and best practices, or we can benchmark across the industry as a whole. Each, as shown in the accompanying table, has its advantages and disadvantages. If the benchmark group is small and tightly defined, we have the advantage of accurate and relevant metrics, but lose the opportunity to compare across a wide spectrum of potential winners. If the group is broad, we compare ourselves with all comers but run the risk of using values that do not apply to us because of differences in where we work, how we collect the data, and how we define the metrics.

A good example of the problem is undercarriage life, where industry norms are all but meaningless due to the wide range of conditions under which equipment operates. Narrow the benchmarking group to contractors in Florida, and the values become more accurate and more relevant to companies in the peer group.

Another challenge comes from the way we define the metrics, do the calculations, and collect the data. Availability and utilization are good examples. The illustration (see next page) shows one approach where availability is defined as the time a machine is capable of working divided by the period the machine is required to work and where utilization is defined as the hours worked divided by the hours the machine is capable of working during the day. The definitions are far from universally accepted, and it is impossible to develop availability and utilization benchmarks without first agreeing on the way to collect the data and calculate the required values. Another complication stems from the fact that so many things are interrelated. We can, for instance, see that acceptable availability depends on the length of the required shift as this affects the time available to finish repairs and perform off-shift work within a 24-hour cycle.

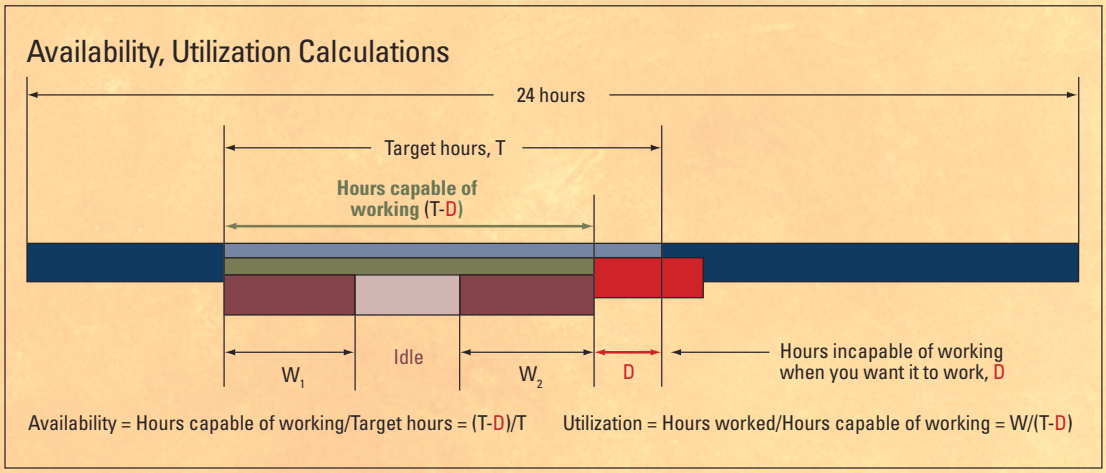
The solution is not easy. What can we do

Mike Vorster

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

Benchmarking Options

Scope of benchmarking group	Advantages	Disadvantages
Internal to your company or business unit.	Definition of data and metrics is consistent and directly relevant.	Lack of input from others. Concern about industry standards and trends.
Among a select group of peer organizations.	Are able to compare best practices and measure performance within the group.	Data and metrics must be agreed within the group. Applications and environments may differ.
Across the industry as a whole.	Large data set. The comfort of knowing and having an "industry standard."	Data, metrics, applications and environments can vary to the extent that results have little value.



Availability is the time a machine is capable of working divided by the period the machine is required to work. Utilization is the hours worked divided by the hours the machine is capable of working during the day. Availability and utilization appear to be simple metrics, but it is difficult to agree on exactly how they will be defined and calculated.

to improve our ability to define and use benchmarks?

First, think about and define your benchmarking peer group. Know how to benchmark internally before seeking to develop a peer group or trying to use industry benchmarks. If breakdowns currently generate 22 percent of work orders, then you can set a new benchmark of 15 percent and diligently work toward this new goal. You may not know how you are doing relative to the industry, but you know you will be improving. You will, above all, know that the data you use are good and consistent, and that you are comparing apples with apples.

Know how to benchmark internally before seeking to develop a peer group or trying to use industry benchmarks.

Second, focus on the equipment-management functions (see "Six Functions of Machine Management," July 2006 or at ConstructionEquipment.com). Define benchmarks that measure performance in field maintenance operations, shop and yard operations, and fleet asset management. These are different functions with different measures for success. Field maintenance operations should be measured in terms of your ability to prevent failures; shop and yard operations are measured in terms of the speed and efficiency with which machines are repaired, rebuilt and made ready for their next assignment; and fleet asset management is measured in terms of financial measures such as profitability and return on assets. High-level financial metrics such as contract value per dollar of fleet-replacement value can be based on industry norms, but even these are subject to discussion on how much work each company subcontracts and how each company values its fleet.

Third, stick to simple metrics. Availability and utilization appear to be simple metrics, but it is difficult to agree on exactly how they will be defined and calculated. Down hours per hour worked is simpler and subject to less interpretation. Define metrics that measure inputs such as mechanic hours per hour worked, outputs such as reliability or uptime, and balance such as the ratio of parts cost to labor cost or the ratio of repair parts and labor to total equipment cost. Remember that physical metrics such as fuel consumption per hour are more reliable than cost-based metrics such as fuel cost per hour.

Fourth, get going. Many companies are reluctant to start a benchmarking and continuous-improvement process because they are constantly searching for a perfect set of universally applicable metrics. The shop overhead data study done by *Construction Equipment* in June 2005 (read the article at ConstructionEquipment.com) is a great place to learn about benchmarking and to develop your skills.

Benchmarks tell us where we are now, give us an ability to measure improvement, and reward success. Without them, it is difficult to make decisions and find your way through the maze of available data. CE

LIFTS ENGINES, CONSTRUCTION MATERIALS, AND HEAVY EQUIPMENT. NOT TO MENTION ENTIRE BUSINESSES.

Keep your business running strong with the help of Auto Crane. With a full line of powerful cranes guaranteed to stand the test of time and innovative Titan™ crane bodies built tough enough to meet the needs of virtually every heavy-equipment industry. What's more, our crane bodies can be configured to fit your specific needs. For details, call 1-800-815-0198 or visit autocrane.com.

Visit ConstructionEquipment.com/info and enter 38

AUTO CRANE®

WE'RE JUST THE LIFT YOU NEED.

SIMPLY THE BEST...

Ranco Lightweight Doubles

RANCO

- **FREE**...1-Year Scheduled Maintenance
- **3 YEAR**... Structural Warranty
- **TRAILERS**...For Every Application

Ranco Lightweight 21-40

For more information and a Dealer Near You Call:

(800) 631-5708

Visit ConstructionEquipment.com/info and enter 39

P.O. Box 856 • Lamar, CO 81052 • FAX (719) 336-5952 • *www.rancotrailers.com*

By LARRY STEWART, Executive Editor

EXCLUSIVE

GOMACO Paves Curb and Gutter Via Remote

Wireless handset puts the operator in the best, safest place to pour quality curb and gutter

GOMACO is introducing a curb-and-gutter paver without a mounted control console. The three-tracked GT-3400 integrates GOMACO's G21 electronic-over-hydraulic control system for grade, steering, cross-slope, reverse steer and all other paving functions with a remote-control handset that the operator wears, so the operator can be positioned close to the machine's work.

"Safety and visibility were No. 1 and No. 2 on the design priority list," says Scott Pedersen, research-and-development project manager for the GT-3400. "The way to get the greatest visibility and safety was to put the operator down on the ground close to the concrete in the hopper and close to the mold."

A frequency-hopping transmitter ensures that the controller is in constant contact with the paver. It can be wired to the machine with a tether in conditions that do not allow radio communication.

"We spent a great deal of time with radio manufacturers having them convince us that these radios are reliable," says Kevin Klein, GOMACO's manager of research and development. "The last thing we want is any lag in communication between operator and machine."

The transmitter changes frequency every 200 milliseconds to maintain uninterrupted contact with the machine. If there is a communication breakdown, the machine would stop automatically. It inevitably proved its dependability, but just because the remote-control box is the only controller available for the GT-3400 doesn't mean radio frequency is the only way it communicates.

For jobs that restrict radio use — near airports or blasting operations, for instance — the control box can be plugged into a tether and the wireless transmitter disabled. The remote is powered by an off-the-shelf, nine-volt, Makita battery.

Pedersen and the GOMACO design group included controls for all paving functions on the compact remote control. The handset measures 11x7x4.5 inches and has 21 toggle switches, three control dials, five indicator lamps, and four variable controls for the vibrator circuits. The most prominent feature is the emergency-stop button (more emergency stop buttons are placed strategically around the machine).

Another built-in safety feature is a position sensor in the remote-control box. If the box is tipped more than 60 degrees from the horizontal axis, an emergency stop signal is sent out and the machine will automatically stop.

The GT-3400 is carried on an all-new three-track footprint.

Competitive Curb-and-Gutter Pavers

Manufacturer/Model	Tracks	Engine	Gross HP	Max. Travel Speed (fpm)	Max. Trimming Width (in.)	Oper. Weight (lb.)
Power Curbers 5700-Super-B	3	Deutz	133	110	78	23,500
Huron 880	4	Deere	118	170	79	24,000
Miller Formless M-8100	4	Deere	156	45	36	25,000
GOMACO GT-3400	3	Cat	127	125	78	27,500
GOMACO GT-3600	3	Deere	99	125	66	25,670
GOMACO Commander III	3	Deere	185	97	120	28,000
GOMACO GT-6300	4	Cummins	155	55	120	28,500
Huron 1000	4	Cummins	185	102	120	31,000

Source: www.Spec-Check.com Xpanded Specs To compare all curb-and-gutter paver models, go to www.Spec-Check.com.

Paving Report

The 11-inch-wide control handset offers the operator full paving control, with 21 toggle switches, three control dials, five indicator lamps, and four variable controls for vibrator circuits.

The machine can be ordered either with two tracks on the left side of the machine for left-hand pours, or two tracks on the right side for right-hand pours. The footprint keeps the machine under 8½ feet wide and 20 feet long.

All-Track Steering allows tight turns, and the machine will slipform a 2-foot radius. All-Track Steering also allows the machine to easily crab steer up to a string line for setup.

GOMACO's new leg design is a cylinder-within-a-cylinder, piston-style with wear pads that eliminate metal-on-metal contact. Each leg has a bolt-on male keyway against which a hydraulic steering cylinder acts. GOMACO uses its Smart Cylinders on each leg for steering setup.

An auger feeds the paver's extra-large hopper.

"We knew it would be a little more compact, and that an auger could run at a little steeper angle to keep overall length of the machine down," says Klein. "We wanted the machine to be able to bring the mold as close into 90-degree corners as possible to eliminate some of the handwork."

The auger is driven directly by a hydraulic motor, as is the trimmer. The trimmer's closed-loop hydraulic circuit and axial-piston motor deliver a whopping 27,280 foot-pounds of torque at the trimmer head. The 24-inch-diameter trimmer comes with Kennametal teeth, and its width can be varied from 30 to 78 inches.

GOMACO incorporated the Hook-And-Go Mold Mount on the GT-3400. The system hooks up to a mold, or unhooks to change molds without requiring any pin changes.

The new machine is powered by Caterpillar's 127-hp 3054E diesel engine. A remote hydraulic motor for the fan allows the G21 controller to vary fan speed to match the cooling demand, reducing noise and horsepower diverted from paving functions. Two-speed drive motors hustle the GT-3400 along at 125 feet per minute.

Manufacturer's suggested retail price for the GT-3400 is expected to be about $225,000.

Visit ConstructionEquipment.com/info and enter 174

Bringing industry news right to your desktop.

Construction Equipment brings you **FREE e-newsletters** written with you in mind...

E-Market Watch: *Construction Equipment* brings you new products within four weeks of their release. This monthly eNewsletter complements the print Market Watch and showcases the latest and greatest in construction equipment, trucks and related products.

Economics Update: Every equipment buyer needs to know about the current economic conditions affecting their business, including pricing, equipment shipments, and housing starts. Economic Outlook brings you the information you need monthly.

E-Update: This monthly eNewsletter focuses on editorial features, industry news and product evaluations. A must read for the construction industry.

E-Giants: News, trends and insight for and about the industry's largest equipment fleets.

E-Paving: Want to know what's happening in the paving sector? We bring you news, products and information specifically for asphalt and concrete paving.

Product Showcase: Brings you products/services of interest for the construction industry.

To subscribe, visit www.constructionequipment.com

FIELD SERVICE AUTOMATION

1-877-7NEXTEL
nextel.com/business

Get the power to finish jobs on time and on budget with Nextel. While on the Nextel National Network, Field Service Automation gives your crew access to blueprints, schedules and work orders all on their mobile devices, all in real time. And with the world's largest Walkie-Talkie network, you can connect with your people instantly, making just about any place a workplace.

NEXTEL
only from Sprint

By LARRY STEWART, Executive Editor

Single-Engine Komatsu PC2000 Packs More Power

Komatsu replaced a twin-engine excavator/shovel with 50 more horsepower; simpler systems; and smarter, quieter operation

At the opening ceremonies of its new training center in Cartersville, Ga., Komatsu announced that it replaced the twin-engine PC1800 excavator/shovel with the single-engine PC2000LC-8, adding nearly 50 horsepower (a 5.5-percent gain). The first of these 445,000-pound excavators was on hand in the Cartersville demo area for trade journalists and Komatsu dealers to see how the single engine simplified the mining machine.

The 445,000-pound Komatsu PC2000LC-8 crawler excavator, swinging a 15.7-cubic-yard bucket 30 to 40 degrees, clocks 25-second loading cycles. It is sized to load a 100-ton truck in four passes.

The PC2000 steps into the operating-weight gap between Hitachi's EX1900-5 BE and EX2500-5 BE. While the PC2000's dig depth is an impressive 3½ feet deeper than the EX1900, it's not deeper than the PC1800 that it replaced. Standard bucket size and engine horsepower remain about the same, if a little less than the smaller Hitachi's. Komatsu's Tier 2 power solution is its SAA12V140E-3 diesel, rated at 956 net horsepower.

Reducing the population of hydraulic pumps aboard the mountainous earthmover was a natural outgrowth of the single-engine design. Four much-larger pumps — a pair of twins — replace the PC1800's 10 hydraulic pumps, reducing power lost to heat and bringing about dramatic hydraulic-system simplification. For example, Komatsu did away with the dedicated swing pump, and the PC1800's dual drives in each track are replaced by single hydraulic motors.

The engine, hydraulic pumps, and cooling system (with enlarged oil cooler) are packed in a power module that can be lifted off the machine in one 22-ton load. The simplified power train also reduces required maintenance hours and the overall number of parts, which Komatsu says contributes to total cost reduction.

Boom-cylinder bore increased about 4 inches (from 280 mm to 300 mm) for faster cycle times. Paul Dawlearn, product manager for loading equipment with Komatsu mining, says that the unit, when swinging 30 to 40 degrees loading with a 15.7-cubic-yard bucket, clocks 25-second cycles. The PC2000LC-8 is designed to load a 100-ton truck in four to five passes.

A new, pressurized cab designed only for use in mining shovels is 30 percent larger than the predecessor's cab and cooled by a twin air conditioner. New damper mounts, in conjunction with power module packaging, attain car-like noise levels of 64.5 dB(A). Indeed, I had to turn down the air-handling fan in order to confirm that the engine had started when cranking the ignition, and had to listen closely to detect a sound difference when the engine revved to high idle. A new, 7-inch LCD monitor provides improved panel visibility to ensure a secure and smooth operation.

Suggested retail price on the Komatsu PC2000LC-8 is expected to be about $2.1 million.

Visit ConstructionEquipment.com/info and enter 219

Competitive Crawler Excavator/Shovels

	Bucket Cap. (cu.yd.)	Net HP	Lift Cap. (lbs.)*	Max. Dig Depth	Arm Length	Oper. Weight (tonnes)
Hitachi EX1900-5 BE	15.7	966	88,000	26′ 10″	11′ 10″	186.5
Komatsu PC1800-6	15.7	908	n/a	30′ 5″	12′ 10″	180
Komatsu PC2000LC-8	**15.7**	**956**	**103,900**	**30′ 4″**	**12′ 10″**	**200**
Hitachi EX2500-5 BE	19.6	1,302	186,000	28′ 1″	13′ 9″	239
Komatsu PC3000	19.5	1,260	n/a	25′ 7″	13′ 1.5″	253
Liebherr R994 Li	17	1,142	n/a	28′ 6″	13′ 1.5″	229

** Over the end at 30-ft. radius, ground level. Source: Spec-Check.com*

HD605-7 & WA600-6

100% loaded

(with features that deliver results)

KOMATSU®

When it comes to loading and hauling large amounts of material, speed and capacity mean productivity. But to turn that productivity into profitability, you have to consider maintenance, fuel efficiency and reliability. The Komatsu WA600-6 and HD605-7 fit this equation perfectly.

- Fuel-efficient, Tier-3 engines and optimized hydraulics deliver maximum work per gallon.
- Precise, responsive controls allow for faster cycle times.
- Advanced diagnostic technology simplifies maintenance and service.

When every minute—and every dollar—count toward your bottom line, rely on the rugged dependability of precision-engineered machines that are…

100% Komatsu.

847.437.5800 www.komatsuamerica.com

Visit ConstructionEquipment.com/info and enter 44

KA05

By KATIE WEILER, Managing Editor

Two Milling Machines Make Their Debut

Ingersoll Rand reenters the milling-machine market with two new models and four more planned down the road

Construction editors were recently given the "red-carpet" treatment in Shippensburg, Pa., as they were the first to view Ingersoll Rand's new milling machines, pavers and compactors. Complete with a live milling/paving/compacting demonstration, we were able to see first-hand how well the new machines performed in sequence. Because the company has been out of the milling-machine business since 1995, we set out to report on the new technology entering the milling market.

According to Patrick Wakefield, marketing manager for milling, the three main objectives of the product launch were productivity, safety and serviceability. Six models are planned, with cutting widths from 20 inches to 14 feet, and operating weights from 19,000 to 100,000 pounds. The MT-2000 flagship model is a four-track, front-load, half-lane machine, engineered and manufactured in Shippensburg, Pa. It is powered by a Tier 3 Cummins engine, providing 600 horsepower at 1,800 rpm.

The unit offers three different drum-cutting speeds selectable from the operator's panel, which is said to be an industry-first. The high-speed selection is for maximum speed on shallow cutting depths, and standard cutting speed is used to provide maximum horsepower and efficiency at normal cutting depths. The deep-cut power bulge feature, says the company, provides higher torque at lower engine speeds to power through tough material or deep-cut applications.

The MT-2000 can use both 78.75- and 86-inch drums, which are available with weld-on or quick change tooth holders, and fine or standard tooth spacing patterns. Specialty drums are also available.

Its four-track system offers many features to improve performance. Because of its five steering modes, Ingersoll Rand says the MT-2000 is the most maneuverable machine in its class. It offers front, rear, coordinated, crab, and circle steer. A pressure monitor in the discharge conveyor is designed to slow the machine to prevent overloading of the conveyor system.

The machine features advanced technology with intuitive operator panels that are easy to understand and operate. Each control panel has an illuminated display area that allows the operator to view the master control screen or one of eight different diagnostic screens.

The MT-2000 milling machine features three different drum cutting speeds selectable from the operator's panel, which Ingersoll Rand says is an "industry-first."

At the smallest end of the milling-machine line, the MW-500 fits into the utility class with a standard cutting width of 20 inches and maximum cutting depth of 8.25 inches. The four-wheel, rear-loading machine offers a tight cutting radius of 7 inches, which is comparable to many three-wheel machines on the market. Plus, the right rear support leg and wheel can be swivelled inboard for flush cutting.

The MW-500 features all-wheel drive and anti-slip control (ASC). Ingersoll Rand says its patent-pending Line Manager system works with the ASC to allow the operator to maintain a constant speed of operation and direction of travel without being adversely affected by the rotation of the milling drum.

Visit ConstructionEquipment.com/info and enter 246

POWERED by HONDA

Genuine Honda

There are lots of power equipment engines to choose from. But nothing makes an impression like the legendary reliability of Honda.

Powered by Honda means a heritage. A DNA of performance, from Formula One racing to motorcycles. It's a name that spells quality to customers.

Your equipment is part of your reputation. When you choose genuine Honda, you're making a long lasting, positive mark.

HONDA ENGINES

Built like no other.

Visit ConstructionEquipment.com/info and enter 45

honda-engines.com

By WALT MOORE, Senior Editor

Link-Belt TCC-450 Telescopic Crawler Crane Rated at 45 Tons

This new model merges the capabilities of rough-terrain and crawler cranes

The new Link-Belt TCC-450 telescopic crane, with a rated lift capacity of 45 tons, is designed to combine the lifting flexibility of a rubber-tired rough-terrain crane with the mobility and stability of a crawler crane. The crane's four-section, full-power telescopic boom features box construction and allows lifting lengths from 33 to 105 feet. The main winch provides 19,108 pounds of line pull with 18-mm wire rope. This 197-hp (gross) machine uses a Tier-3-compliant Isuzu 4HK-T3 diesel engine.

The TCC-450's hydraulic system, says Link-Belt, is designed to provide positive, precise control with independent or simultaneous operation of all functions. The system uses two variable-displacement pumps, operating at 4,410 psi and 59 gpm, to power the load-hoist drums (main and optional auxiliary), boom-hoist cylinder and travel functions. A fixed-displacement gear pump (4,134 psi and 34 gpm) powers the swing motor, and another gear pump (711 psi and 8.7 gpm) powers the machine's controls. The hydraulic system's "fine-inching" mode, which the operator can select, permits slow, precise movement of the load-hoist drums and travel functions.

The new crane's lower structure uses welded-box construction for the carbody and all-welded construction for the side frames. The side frames can be hydraulically extended and retracted by means of a hydraulic cylinder in the lower frame, allowing track gauge to range from 10 feet 10 inches (extended) to 8 feet 4 inches (retracted). Catwalks on both the right and left sides also fold up and pin in place for reduced travel width. The tracks are 18 feet long, use 32-inch-wide shoes, and employ 10 sealed rollers per side. A two-speed travel system allows a maximum travel speed of 1.2 mph.

The operator's station for this crane is a comfortable, efficient workplace, providing hot-water heat, air conditioning, sliding entry door, fully adjustable axis controls, hand and foot throttles, mechanical drum-rotation indicators, and rated-capacity-limiter system that uses a wireless load cell. The rated-capacity-limiter system provides the operator with lift and geometry data, including load-on-hook, main-boom length, main-boom angle, boom-tip height and load radius. An alert system provides both visual and audible reminders before function kick-out. A wireless anti-two-block device is also part of the system.

Optional equipment for the Link-Belt TCC-450 includes an auxiliary load-hoist winch and a one-piece swing-away fly.

The TCC-450 features a two-mode boom-extension system, which, in standard mode, synchronizes all the extending sections proportionally, and in the "A-max" mode provides enhanced lifting capability by extending the first telescopic section to 57 feet. At the boom head, four nylon sheaves (with a 16.5-inch root diameter) can handle up to eight parts of line. Boom elevation ranges from 3 degrees below horizontal to 78 degrees above horizontal, and boom elevation time (0 to 78 degrees) is 40 seconds.

Visit ConstructionEquipment.com/info and enter 247

By HEATHER BURLINGAME, Senior Production Editor

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

OEM Data Delivery

OEM Data Delivery ST-500 radio service tracker transmits hours and service alerts via radio frequency to an on-site tower that interfaces with PDA handheld collectors or directly to a computer. Continuous operation of the unit does not interrupt machine operation. The unit can be used with PDA programs that capture fuel, repair, inspection, project and task data.

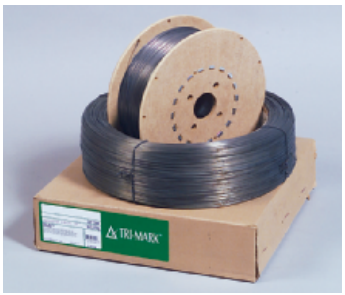
Visit ConstructionEquipment.com/info and enter 194

Lincoln Electric

Lincoln Electric's new Power Feed 25M is designed, says the company, to meet the unique challenges of the aluminum-fabrication, pipeline-construction and power-generation industries. The feeder is designed to handle multiple welding tasks, including MIG, pulsed-MIG, Surface Tension Transfer, flux-cored, stick and to facilitate arc gouging. The new feeder can operate at 50 to 800 inches per minute and uses 40-volt input power. The Power Feed 25M also incorporates Lincoln's MAXTRAC wire-drive system.

Visit ConstructionEquipment.com/info and enter 195

Hobart



Hobart Brothers Tri-Mark, Triple 7 gas-shielded flux-cored wire is a high-strength, high-deposition-rate welding filler for use in single- and multiple-pass welding. Wire can be used on A572, A36 and 572 grades steel, and produces impact values of 34 ft.-lb. and 64 ft.-lb. at 0 degrees with 100 percent carbon dioxide or mixed cases. Fast-freezing slag allows operators to use higher welding current and boost deposition rates in all welding positions.

Visit ConstructionEquipment.com/info and enter 196

Parker

Parker Hannifin ParMax 761 series hydraulic hose offers a constant working pressure of 8,000 psi. An inner tube made of oil-resistant synthetic rubber and six spiral plies of high-tensile steel-wire reinforcement enable the hose to handle high pressures. No-Skive design eliminates the need to remove the cover before crimping, the company says. For a copy of the bulletin, use the following link: http://www.parker.com/hpd/literature/pdf/4480_b123.pdf.

Visit ConstructionEquipment.com/info and enter 197

Chicago Pneumatic

The 35-pound-class CP 1210 handheld breaker from Chicago Pneumatic Construction Tools provides 20-percent more hitting power than previous models. The jackhammers require 59 cfm of air and deliver 1,400 bpm. Basic, silenced and vibration-reduced models are available with various shank sizes. Ergonomic improvements include a teasing throttle to ease operator stress at the start of breaking. An improved swivel coupling now allows swiveling action when pressurized.

Visit ConstructionEquipment.com/info and enter 198

Market Watch Lite

Leica

New firmware for Sprinter 100M electronic levels, with new line-leveling applications and onboard GSI commands, covers the most common field-leveling procedures practiced by engineers and surveyors. Onboard commands facilitate two-way communication between the instrument and a PDA or data collector.

Visit ConstructionEquipment.com/info and enter 209

DeWalt

MobileLock GPS Locator and Anti-Theft Alarm is a stand alone, portable, wireless system that easily mounts to equipment using heavy-duty magnets or screws. Mobile Lock features a GPS locator that allows contractors to find equipment in real time using the Internet. The system runs on rechargeable lithium ion batteries and will remain powered for 30 days. MobileLock units range in price from $499 to $599.

Visit ConstructionEquipment.com/info and enter 210

Eaton

Eaton's web-based Fleet Resource Manager includes new Fleet Health and Driver Behavior packages. Fleet Health is available with a Diagnostics or Advanced Diagnostics package. Users will view real-time vehicle locations and mileage totals. Service tools include trip-report summaries, fuel-usage reports, braking summaries and low engine-oil notifications. Driver Behavior Performance includes most of the Fleet Health functions, plus rpm and mph details and summaries.

Visit ConstructionEquipment.com/info and enter 211

Ruwac

Little Red WNS 2220 vacuum is designed for picking up chips and fine dust, but can be adapted for use with vacuum-assist tools and pre-separation systems, as well as for point-of-source extraction. The vacuum uses a MicroClean filter rated at 99.9 percent efficiency at 0.5 microns.

Visit ConstructionEquipment.com/info and enter 212

Leica

GPS900 RTK is a complete base and rover system packaged in a single, "ruggedized" case. The system, says Leica, provides a complete, low-cost, turnkey GPS surveying solution that can be easily transported. The rover is a lightweight, all-on-the-pole, cableless, dual-frequency RTK GPS instrument designed for one-person operation.

Visit ConstructionEquipment.com/info and enter 200

Continental

General S371 replaces the S370 for use on- and off-road. A 20/32-inch tread depth and chip-resistant tread compound provide optimal on-highway mileage and resistance to cuts. Visual alignment indicators show tire tracking irregularities within the first 5/32 inches of wear. They are available in 11R22.5, 11R24.5, 285/75R24.5, and 295/75R22.5.

Visit ConstructionEquipment.com/info and enter 201

Trimble

R6 GPS System is an all-in-one, compact unit that features a multi-channel, multi-frequency GPS receiver, antenna, data-link radio and battery. The system combines an advanced receiver (powered by a new RTK engine) that incorporates a proven design for maximum accuracy and productivity. Along with GPS capabilities, optional GLONASS augmentation enables GLONASS signals to be used for enhanced positioning, offering surveyors increased field efficiency and reduced downtime.

Visit ConstructionEquipment.com/info and enter 202

Cimline

Matrix 1500 melter/applicator for cracksealing combines the features from the Magma series with the pumping technology of Garlock Equipment, a sister company. With a capacity of 150 gallons, the unit has oil-jacketed tank and recirculation and maintains sealant temperature within one degree. Electronic ignition burner is diesel fired and provides 250,000 Btu.

Visit ConstructionEquipment.com/info and enter 199

Market Watch Lite

Thompson Pump

Arctic Knight allows diesel-powered pumps to be used in climates as cold as minus 40F. It uses a self-contained, thermostatically controlled heating system that operates from the on-board fuel supply to regulate the temperature inside the pump enclosure. An auto-drain feature drains fluid from inside the pump and piping system.

Visit ConstructionEquipment.com/info and enter 213

Donaldson

Donaldson's medium-flow, modular fuel filters feature a single-base head assembly with water sensor, electrical heater, visual water bowl, manual priming pump and life indicator (electronic or visual). Mix-and-match components include a Donaldson Twist & Drain valve. Media options are the traditional silicone-treated cellulose or synthetic media with Synteq, which removes contaminants and emulsified water from the fuel stream.

Visit ConstructionEquipment.com/info and enter 214

Hard Dollar

Hard Dollar introduced a new module that supports automatic, wireless synchronization of field data between offsite and office personnel. One-click synchronization provides up-to-the-minute job information to and from the field. In addition to timesheet and equipment data, the system captures diary and safety information, as well as expenses related to subs or suppliers. Data can be exported into formats acceptable by most major construction accounting systems.

Visit ConstructionEquipment.com/info and enter 215

Atlas Copco

Handling stone and debris up to 2½ inches in diameter, 3-inch LTP 3 submersible trash pump has a discharge capacity of 507 gpm. The 28-pound spark-proof pump is driven by a hydraulic motor and can run dry without sustaining damage to internal components, says the company.

Visit ConstructionEquipment.com/info and enter 216

Horton

Lightweight WindMaster Plastic MS9 fan for Class 5, 6 and 7 trucks is available in clockwise and counter-clockwise rotations with diameters from 22 to 30 inches. Pitch width is 3.62 inches, and standard mounting pilots range from 2 to 5 inches.

Visit ConstructionEquipment.com/info and enter 217

Goodyear

Larger trucks — ¾- and 1-ton models — generate more torque than ½-ton models, says Goodyear. Extra torque can accelerate tire wear on vehicles that are heavily loaded. Wrangler Silent Armor Pro-Grade tire is ideal for heavily loaded, high-torque trucks. A chip- and chunk-resistant tread compound enhances service life. Two steel belts and a DuPont Kevlar belt (two in load-range E sizes) help absorb road noise and smooth the ride. The tire fits most working trucks and is sold with a 50,000-mile tread-life limited warranty and a 30-day, no-obligation trial period.

Visit ConstructionEquipment.com/info and enter 208

Atlas Copco

The 435-psi XRXS 566 air compressor from Atlas Copco is designed to provide a high-pressure, high-volume (1,200 cfm) source of air for the drilling industry. Also for drilling applications, the XRVS 606 delivers 1,250 cfm at pressures to 365 psi. FuelXpert system regulates engine speed and air inlet. Oiltronix maintains oil-injection temperatures. The air compressors feature a Tier III Caterpillar C18 ACERT engine.

Visit ConstructionEquipment.com/info and enter 218

Market Watch Lite

Landa

Landa claims its PGHW5-50524E is the first hot-water pressure washer to deliver 5,000 psi of cleaning power at 5 gpm. The fifth model in Landa's line of gasoline-powered pressure washers, it has an extra-large heating coil to produce hot water at nearly 190 F. A 27-hp Kawasaki gasoline engine powers the washer. The self-contained unit requires no electricity. The tripliex, oil-bath LH 5050 Landa pump comes with a seven-year warranty.

Visit ConstructionEquipment.com/info and enter 203

Climax

LM6000 on-site milling machine is the largest machine of its type the company has developed. It is aimed at repair applications involving the milling of critical mounting surfaces. The tool's rigid bed minimizes sag and twisting, and it can work under both conventional conditions and in overhead operations. A heavy-duty spindle allows metal removal rates of up to 7 cubic inches per minute with an 8-inch-diameter cutter and a 25-hp hydraulic power unit.

Visit ConstructionEquipment.com/info and enter 205

Godwin Pumps

HL Series of single-stage Dri-Prime pumps from Godwin Pumps offers heads up to 600 feet and flows up to 5,000 gpm. Because they are automatic self-priming pumps, they are always ready to go and can start dry and run dry without any damage, the company says. The Dri-Prime system has no moving parts and requires little maintenance. Sizes range from 4 to 12 inches and horsepower from 71 to 500. There are 10 diesel models in the line, all available with electric motors as well.

Visit ConstructionEquipment.com/info and enter 207

Construction Lifters

Pipe Pick inserts into the lifting hole on precast concrete pipe to keep workers out of the mud and out of the pipe, says Construction Lifters. The tool is tilted in the pipe to engage the beveled edge, allowing the pipe to be lifted and set. Then, the Pipe Pick is lowered and a counterweight lift arm automatically falls straight, allowing the tool to be removed from the pipe.

Visit ConstructionEquipment.com/info and enter 204

ITT Flygt

ITT Flygt 2600 dewatering pumps (models 2610, 2620, 2630, 2640, 2660 and 2670) discharge from 2 to 6 inches NPT and perform from 150 gpm to 1,400 gpm with heads from 40 to 230 feet. Patented DuraSpin hydraulic system and newly designed impeller made of high-chrome cast iron improves wear-resistance, the company says. Junction box is easy to access, and external oil and inspection plugs are standard. Pumps carry a one-year warranty.

Visit ConstructionEquipment.com/info and enter 206

Construction Equipment (ISSN 0192-3978, GST #123397457, C.P.C. Intl. Pub. Mail #0360139) is published monthly — semimonthly in August — by Reed Business Information, 8878 S Barrons Blvd., Highlands Ranch, CO 80129-2345. Reed Business Information is a division of Reed Elsevier and is located at 360 Park Avenue South, New York, NY 10010. Tad Smith, Chief Executive Officer; Jeff Greisch, President, Chicago Division. Periodicals postage paid at Littleton, CO 80126 and additional mailing offices. Circulation records are maintained at Reed Business Information, 8878 S Barrons Blvd., Highlands Ranch, CO 80129-2345. Tel:303/470-4445. **Postmaster: send address changes to Construction Equipment, P.O. Box 7500, Highlands Ranch, CO 80163-7500.** Rates for non-qualified subscriptions, including all issues: USA, $99.90 1-year, $177.90 2-year; Canada, $151.90 1-year, $257.90 2-year; (includes 7% GST, GST #123397457); Mexico, $141.90 1-year, $240.90 2-year; foreign surface, $194.90 1-year, $332.90 2-year; foreign air expedited surcharge add $4.00 per issue. Except for special issues where price changes are indicated, single copies are available for $10.00 USA and $15.00 foreign. Please address all subscription mail to ***Construction Equipment***, 8878 S Barrons Blvd., Highlands Ranch, CO 80129-2345. Printed in the USA. **Publications Mail Agreement No. 40685520. Return undeliverable Canadian addresses to: Deutsche Post, 4960-2 Walker Road, Windsor ON N9A 6J3 Email: subsmail@reedbusiness.com.** Reed Business Information does not assume and hereby disclaims any liability to any person for any loss or damage caused by errors or omissions in the material contained herein, regardless of whether such errors result from negligence, accident or any other cause whatsoever.

Visit ConstructionEquipment.com/info and enter 138

Visit ConstructionEquipment.com/info and enter 140

Visit ConstructionEquipment.com/info and enter 139

Visit ConstructionEquipment.com/info and enter 141

COMPUTER SOFTWARE

PRODUCTS FOR SALE

USED REPAIR PARTS

RECRUITMENT

Ad Index

We're making it quicker for you to obtain more information on products.
Visit ConstructionEquipment.com/RS and enter the Reader Service No.

Company	Page No.	Reader Service No.
American Honda Power Equipment	37, 96	17, 45
American Rental Association	103	49
Auto Crane	87	38
Ayantra	107	140
BLS Enterprises	107	138
Bobcat	6	3
Bomag	4,5	2
Case	14	7
Caterpillar Drive Train	38	18
Caterpillar Telehandlers	79	34
Caterpillar/Building Const. Products	34A-34D	—
*Caterpillar Delta Group	113	50
CE Attachments	106	137
Cenex	98A-98B	—
Conexpo-Con/Agg	19	9
Cummins Engine	71	30
Ditch Witch	42-43	20
Donaldson	102	48
Doosan Infracore Daewoo	C3-114	52
Erskine Attachments	109	146
Expander Americas	108	145
E-Z Drill	108	142
Gehl	20-21	10
Genie	84	37
GOMACO	73	31
Gradall	67	29
Hyundai Construction Equipment	65	28
Ingersoll Rand	27	13
International	C2-3	1
Iowa Mold Tooling	33	15
ITT Flygt	63	27
John Deere Construction Equip.	28-29, 75	14, 32
John Deere Power Systems	80	35
Kenco	108	143
Kennametal	76	33
Kobelco Construction Machinery	22	11
Komatsu America	47, 94	21, 44
Leica Geosystems	60	26
Lincoln Electric	C4	53
*Lojack	91	41
Morbark	105	136
Multiquip	101	—
Munich Int'l. Trade Fairs	98	46
New Holland Construction	10	5
*Paladin Light Construction	113	51
Power Curbers	51	23
Qualcomm	41	19
Ranco Trailers	88	39
Robin America	49	22
Service Trucks International	107	141
Site Armor	108	144
Sprint Nextel	92	43
Takeuchi Manufacturing	54-55	24
Terex	9	4
Terramite Construction Equipment	16-17	8
The Caldwell Group	107	139
Topcon Positioning Systems	83	36
Trail King	100	47
Trail-Eze	90	40
Trimble Geomatics & Engineering	12-13	6
Vermeer Manufacturing	25	12
Volvo Construction Equipment	59	25

Annual Report & Forecast

Case	2, 7, 11, 12-13, 17, 20, 24	—

* Regional/Demographic ad

Sales Representatives

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

IL, MI, WI, OH
Patricia E. Maroder, Regional Manager
630/288-8139; pmaroder@reedbusiness.com

IA, IL, MN, ND, SD
Mary Adee, Regional Manager
630/288-8134; madee@reedbusiness.com

East, Southeast, Eastern Canada
Michelle Lorusso, CBC, Regional Manager
770/209-3623; mlorusso@reedbusiness.com

Southwest, West, Western Canada
Terry McGinnis, Regional Manager
801/273-8790; Fax: 801/273-8799
tmcginnis@reedbusiness.com

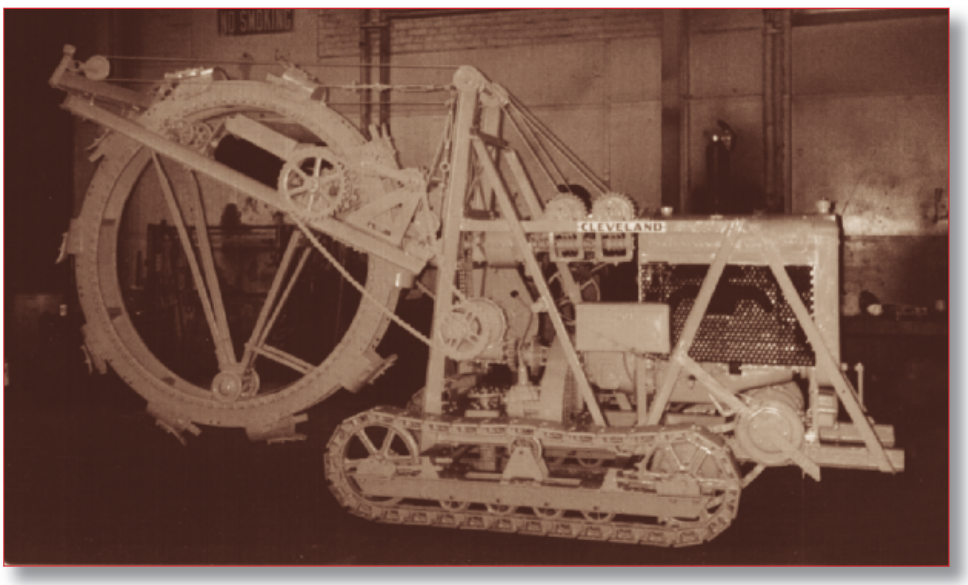
UK/Europe/Middle East
Mike Hancock
Quadrant House, The Quadrant
Sutton, Surrey SM2 5AS, UK
Tel: 011 44 208/652 8248
Fax: 011 44 208/652 8249

Special Advertising Products
Morgan Rautzhan, Account Representative
630/288-8143; Fax: 630/288-8185
morgan.rautzhan@reedbusiness.com

By KEITH HADDOCK, Contributing Editor

Cleveland Trencher

"Baby Digger" helped change ditch digging from back-breaking labor to high-speed operation



This Baby Digger was originally sold to the Peoples Natural Gas Co. of Pittsburgh, Pa., in 1924.

During the 1920s, trench digging was transformed from back-aching hand labor to mechanized continuous operation by several enterprising individuals who invented and marketed specialized trenching machines. Over the next three decades, specialized trench excavators were commonplace on industrial sites, road construction, housing developments, and wherever pipes had to be laid. With the advent of the loader-backhoe in the 1950s, and the popular compact utility trenchers of today, markets for the big ditchers diminished. But for big cross-country pipeline jobs, with the right geological conditions and free of obstructions, nothing can compete with the continuous production of a ditching machine. One prominent ditcher manufacturer that has always specialized in this kind of equipment is Cleveland Trencher Co.

Back in 1921, contractor A.J. Penote Co., a water-and-sewer contractor from Cleveland, built a small wheel ditcher for a job in Detroit. Following many inquiries about this successful machine, the company decided to manufacture and sell it, and the Cleveland Trencher Co. was established in 1923. One of the first ditching machines produced was the "Baby Digger" of 1924, which helped to establish the company's reputation for tough, reliable machines.

The Cleveland Baby Digger was a wheel-type trencher with 10 buckets attached to the circumference of the wheel. All motions of the trencher were mechanically transmitted to the appropriate parts of the machine through chains and gears. The wheel was driven by a pair of spur gears meshing with teeth on the outer sides of the wheel, and the digging structure was hoisted and lowered by cables wound on worm-driven drums. The conveyor, which could be set to discharge to either side of the machine, was driven by chain from the digging wheel drive shaft. In this way, the conveyor always functioned whenever the wheel turned. The crawler tracks were driven by chains and sprockets through a differential drive with steering accomplished through wrap-around brakes on the final drive shafts. It could dig trenches from 10 to 23 inches wide to a maximum depth of 5 feet 6 inches. Power came from a Hercules 27-hp engine, and the machine's light weight of 7,400 pounds enabled it to work on soft ground and cement sidewalks without damaging them.

Over the decades, the Baby Digger's power and capacity were increased, and upgraded versions were still part of Cleveland's line well into the 1950s.

From 1968 to 1984, Cleveland Trencher was owned by American Hoist & Derrick Co. of St. Paul, Minn., and then by a management buyout team until 1986. In 1987, the company was bought by the owner of Cleveland's distributor for the Middle East and Far East, but the machines continue today to be made in the original Cleveland plant.

**You can read more about the evolution of construction equipment in Keith Haddock's book "Giant Earthmovers an Illustrated History" available in most bookstores. Also, consider a membership in the Historical Construction Equipment Association, www.hcea.net. Visit ConstructionEquipment.com for past Iron Works features.*

DURABLE
ECONOMICAL
1
RELIABLE
EFFICIENT

Solution For EVERY Job

PALADIN™
LIGHT CONSTRUCTION

Bradco	FFC	Harley	McMillen	The Major	Sweepster
(800) 922-2981	(800) 747-2132	(800) 437-9779	(800) 922-2981	(800) 922-2981	(800) 456-7100

www.paladinbrands.com

Visit ConstructionEquipment.com/info and enter 51

Doosan stands up better because more stands behind it.

Out here, respect has to be earned—and you can count on Doosan to go all out to earn yours. You get heavy equipment that has proven itself at some of the world's toughest job sites and is backed by best-in-class service and immediate parts availability. So your downtime and operating costs stay low, while after-market value stays high. That's why people who know heavy equipment are choosing Doosan.

DOOSAN **Doosan Infracore**
Construction Equipment

To locate your nearest dealer or inquire about joining our network, call 770.831.2200, email InfoNow@dhiac.com or visit www.dhiac.com

Visit ConstructionEquipment.com/info and enter 52

New. Powerful. Durable.

Vantage® 400

- Compact design with quiet 1800 rpm engine is an ideal choice for pipe rig owners, construction teams and rental fleets.
- Lincoln Chopper Technology® delivers 400 amps of great multi-process welding–Stick, TIG, MIG or Cored wire.
- Plenty of AC generator power for the most demanding job sites–19 kW of peak 3-phase and 12 kW of peak 1-phase power.
- Stainless steel corrosion-resistant roof and side panels provide maintenance-free protection and durability.
- Innovative Service Access includes large sliding engine access door, front panel-mounted battery drawer and latched, locking radiator access.
- VRD™ Voltage Reduction Device–reduced Open Circuit Voltage (OCV) in the CC-stick weld mode for added safety.
- Low Noise–99.1 dBA Lwa sound power (74.8 dB at 23 ft./7 m).

Ask your Lincoln distributor for a demonstration today.

Vantage® 400 Multi-process Engine-driven Welder

AR06-1

Visit ConstructionEquipment.com/info and enter 53

Why buy anything else?

LINCOLN® ELECTRIC
THE WELDING EXPERTS℠

www.lincolnelectric.com