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## BURSTING AHEAD

Trenchless methods make  
sewer system repairs easy

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Tim Krueger



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**dig**DIFFERENT

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Derek Vesely uses a GapVax MC1510 Series combination jet/vac unit in a residential pipe bursting job. Ken-way Excavating, based in Iowa, uses pipe bursting technology to replace failing pipe in onsite septic systems. (Photography by Mark Hirsch)

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- Machine Shop: Pneumatic piercing tools



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THE NO-DIG SHOW PROVIDES FOUR DAYS' WORTH OF OPPORTUNITY TO SEE AND DISCUSS ALL THE **TOOLS AND METHODS THAT CAN HELP YOU MAKE YOUR BUSINESS STRONGER AND JOBS SUCCESSFUL.**

## California Dreamin'

### THE NORTH AMERICAN SOCIETY FOR TRENCHLESS TECHNOLOGY'S ANNUAL SHOW BRINGS CONTRACTORS AND MANUFACTURERS TOGETHER FOR WEEK OF LEARNING

BY CORY DELLENBACH

It's been a long winter for many of us, but the warm months are just around the corner and that means work will start to pick up soon.

Before the summer days return, though, why don't you find some time for yourself? You're in the field every day and have plenty of perspective on the work you do. But how often do you talk to other contractors, subject matter experts or equipment manufacturers to get their perspectives?

Attending the North American Society for Trenchless Technology's No-Dig Show is the perfect place to do all of that.

This year's No-Dig Show, being held at the Palm Springs Convention Center in Palm Springs, California, is March 25-29. The show is jam-packed with educational sessions, ranging from directional drilling and auger boring to CIPP and sliplining. The exhibit hall is open from 11:45 a.m. to 3:45 p.m. on March 26 and 27 and from 9 a.m. to 12:30 p.m. on March 28.

The No-Dig Show provides four days' worth of opportunity to see and discuss all the tools and methods that can help you make your business stronger and jobs successful. Think of it as four days of business building.

I met one of the contractors we featured last year, David Howell, senior project manager of Indiana-based Midwest Mole, at last year's show. That led to some email correspondence and eventually the story in August 2017. It's a great story about the company not being afraid to take on difficult jobs and growing because of that.

I've met a lot of other people at the show, too — people who have given me a better understanding of the jobs you do every day and what it takes to be successful in this industry.

I'll be at the show again this year, and I hope you will be, too. If you see me out on the floor (Booth 368), feel free to introduce yourself. I'm always interested in hearing your stories.

The No-Dig Show is a chance to get away from the day-to-day operations and do something that will pay dividends in the long run. Plus, if you're in a cold-weather climate like me in Wisconsin, you can enjoy some of the nice, warm California weather.

#### THE TOUGH JOBS

A big part of the No-Dig Show is listening to the many case studies that are presented during the educational sessions. Jobs of all sizes are discussed in detail, giving other contractors ideas about how to manage their own jobs.

On that same note, *Dig Different* loves to give readers a chance to read about your tough jobs. I'm looking for contractors who have handled a tough or unique job and are willing to discuss it. Tell me what the challenges were, how you worked through them and what your crews got out of it.

You can contact me at 800-257-7222 or online at [editor@digdifferent.com](mailto:editor@digdifferent.com).

Enjoy this issue, and think ahead to the warm weather!

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## DON'T RELY ON TECHNOLOGY

### Operator Awareness Is Best Means of Accident Prevention

Workers often share their workspace with machines. Safety awareness, while always important, becomes paramount when the equipment begins moving large amounts of dirt or lifting heavy objects. Operators need to rely on their training, hand signals, and the equipment. [digdifferent.com/featured](#)

## OVERHEARD ONLINE

**"BACK IN THE DAY, THEY'D PUT NEW WORKERS IN A TRUCK AND LET THEM LEARN OUT IN THE FIELD. TO THROW THEM RIGHT OUT INTO THE FIELD SEEMS KIND OF CRAZY TO ME."**

*Boots on the Ground 101: Training Employees Right*  
[digdifferent.com/featured](#)



## CLEAN-UP DUTY

### Hydrovac Crews Aid in Mudslide Cleanup

Crews from Discovery Hydrovac and other hydroexcavation teams were called into action following the devastating mudslides along U.S. Highway 101 near Montecito, California. [digdifferent.com/featured](#)

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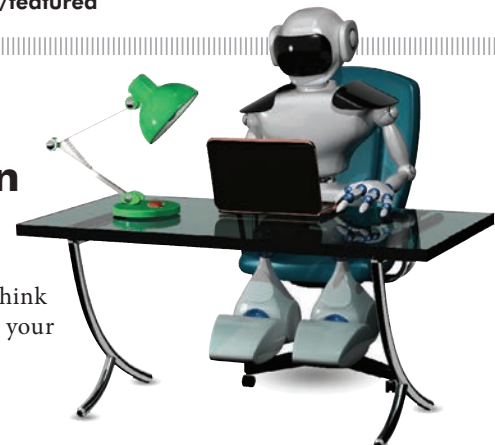
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## GOING AUTOMATED

### Automated Emails Can Boost Your Business

If you're using a blog on your website to promote your business, it might be time to think about automated emails as a way to keep your subscribers and attract new ones. [digdifferent.com/featured](#)





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**TRANSFER TRUCK**



Gary Lucik (left) and Kyle Dye, with King's Sanitary Service, use a Vactor 2110 combination truck on a hydroexcavation project.

# A DRASTIC CHANGE

**KING'S SANITARY SERVICE TRADED PORTABLE RESTROOMS FOR A COMBINATION TRUCK IN SEARCH OF PROFITABLE MUNICIPAL AND HYDROEXCAVATION WORK**

STORY: KEN WY SOCKY PHOTOS: AMY VOIGT

**I**n fall 2016, Rex King Jr. — majority owner of King's Sanitary Service in Bristolville, Ohio — made a game-changing move by selling the portable restroom arm of his septic pumping and drain cleaning company.

In doing so, the 26-year-old businessman dramatically altered the face of a company he'd acquired in 2012. By selling roughly 400 restrooms and a luxury restroom trailer to a competitor, he shed a seasonal business with lower profit margins. And by using the proceeds to increase marketing efforts, update aging equipment, and invest in a combination sewer vacuum truck with a hydroexcavating package, he posi-

tioned King's Sanitary Service for growth in market sectors that offered higher profits and greater business volume: cleaning sewer lines and exposing utility lines for neighboring municipalities.

"It definitely was a big move for us," says Rex Jr., who owns the business along with his father, Rex King Sr., and a silent partner. "There was money to be made in portable restrooms, but not year-round. ... And it required a lot of work for profit margins that weren't high enough. Now I feel like we're well-positioned for growth in municipal work."

To avoid going too far into debt, Rex Jr. bought a used vacuum truck for \$80,000 instead





of spending more than \$400,000 on a new unit. “When entering a new market, you don’t spend a lot of money as if it’s going to be a sure thing,” he says. “You’ve got to be financially prudent.”

The company makeover reflects key attributes that have enabled Rex Jr. to increase gross revenue by more than 100 percent since he acquired a local company and renamed it King’s Sanitary Service: a conservative fiscal approach; an eye for new, high-potential markets; a willingness to take calculated risks; understanding the importance of embracing and investing in newer technology; and strong support from family, both financial and otherwise.

#### TRULY A FAMILY BUSINESS

As a youngster, Rex Jr. worked for his father, the owner of King Bros., a 61-year-old company that became the family business when Russell and Kenneth King — Rex Jr.’s grandfather and great-uncle — bought a feed mill at a sheriff’s sale in 1956 and named it King Bros. Feed & Supply. During the next 30 years, the company expanded dramatically. Its services now include installation of residential and commercial septic systems and excavation work, and the company also owns a concrete business, a sand-and-gravel pit, a car wash and a hardware store.

## King’s Sanitary Service LLC



<b>LOCATION:</b>	Bristolville, Ohio
<b>FOUNDED:</b>	2012
<b>OWNER:</b>	Rex King Jr., Rex King Sr., and a silent partner
<b>EMPLOYEES:</b>	6
<b>SPECIALTIES:</b>	Septic service and drain cleaning, hydroexcavation
<b>SERVICE AREA:</b>	45-mile radius around Bristolville (40 miles east of Cleveland)
<b>WEBSITE:</b>	<a href="http://www.kingsanitaryservice.com">www.kingsanitaryservice.com</a>





Kyle Dye (left) and Rex King Jr. get ready to assemble the boom on a Vactor 2110 combination truck.

The addition of hydroexcavation capabilities has generated more municipal work and revenue for King's Sanitary Service.



Rex Jr. says he benefited greatly from his father's entrepreneurial spirit. "My father is a genius," he says. "He taught me so much, including how to treat customers, and showed me what a good work ethic is all about. I also can't say enough about my mother, Mary King, and my grandmother, Marlene Hillman. They're the backbone of our family."

From 2009 to 2012, Rex Jr. worked as a full-time employee for his father, who regularly hired the company that Rex Jr. now owns as a subcontractor to pump out tanks. When the owner decided to retire in 2012, he talked to Rex Sr. about buying the company, which would mesh well with King Bros.' septic installation services.

"My father came to me and said here's what the company does ... asked me if this was something I'd want to do," Rex Jr. explains. "I couldn't get financing because I was so young (21 years old), so my family helped me finance the purchase. It was a challenge I was willing to accept. ... I thought it was a great idea."

"Essentially, what I did in a nutshell was make King Bros. more of a full-service company," he continues. "King Bros. installs tanks and King's Sanitary Service pumps them out. There's a lot going on at King Bros., and the part I own is a small piece of this giant puzzle."

#### MAKING INVESTMENTS

As King's Sanitary Service grew, so did its roster of equipment. To clean sewer lines and do hydroexcavating work, the company relies on a Vactor 2110 combination truck built on a Sterling chassis. It features a 10-cubic-yard debris tank, a 1,000-gallon water tank, a dual-fan unit, and a water pump (80 gpm at 2,500 psi). The business also owns two skid-mounted water jetters, carried in Ford box trucks; the trucks' 14-foot insulated/heated box bodies were built by Morgan and Supreme.

One truck carries a US Jetting water jetter equipped with a 600-gallon water tank, Harben pump (15 gpm at 4,000 psi), and a Hatz diesel engine. The other vehicle carries a Mongoose Jetters by Sewer Equipment jetter; it features





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King's Sanitary Service invested in their combination truck after the demand arose for large-diameter pipe cleaning.



a Caterpillar diesel engine, a 600-gallon water tank, and a water pump that generates pressure and flow of 18 gpm at 4,000 psi.

King's Sanitary Service also owns two push pipeline inspection cameras for televising 4- to 6-inch sewer lines. One is made by Ratech Electronics, and the other is a Vyper model from Jack Doheny.

The company invested in the sewer vac truck after municipalities began to ask Rex Jr. about cleaning large-diameter pipes. "If there's one thing I hate, it's telling customers no," Rex Jr. says. He added the hydroexcavating package because he felt the relatively small additional expense would generate more business — and revenue. "Plus, they're safer and more cost-effective for excavating," he explains.

The truck has opened doors to new markets, too, such as a long-term contract to clean large lines at a local auto manufacturing plant. "We couldn't clean those kinds of lines before, but now we can," Rex Jr. points out.

**"THE BOTTOM LINE IS THAT WE'RE PROFESSIONALS. I TELL MY GUYS THAT MY NAME IS ON THE TRUCKS AND THIS IS HOW WE'RE GOING TO DO THINGS. I'M NOT ASKING THEM TO CHANGE THEIR LIVES, JUST BE NEAT, WELL-GROOMED AND WELL-MANICURED."**

Rex King Jr.

Of course, it takes good employees to work all the equipment and keep things running smoothly. Rex Jr. says he's lucky to have great employees like Kyle Dye, manager; Fred Bell, head septic service tech; Gary Lucik, service technician; Chrystal McCrimmon, office manager; and his mother, Mary, who handles the books. "You're only as good as your employees," Rex Jr. notes. "I can do a lot, but I'm only one person.

"We've got a great team," he adds. "We take the calls and get the job done. We often provide same-day service. Everything comes down to providing great customer service, and our employees do a great job. Our customers very rarely get an answering machine; emergency after-hours calls go right to my cell-phone. And if we ever make a mistake, we take care of it — make it right."



## Presenting a professional image is no joke

Potty humor is commonly used to market portable sanitation companies, but Rex King Jr. isn't a fan. From vacuum trucks painted yellow and labeled "The Stool Bus" to others with slogans like "Yesterday's Meals on Wheels" or "We Like to Potty," he figures he's seen them all — and he's not going down that road.

Instead, Rex Jr. — the co-owner of King's Sanitary Service in Bristolville, Ohio — settled on something decidedly less crude for his company's slogan: "Your No. 1 choice for reliable and qualified sanitary services." While it doesn't employ bad puns and elicit chuckles, it positions the company as a serious, professional outfit — something that's far more important to Rex Jr. than generating laughs.

"I hate those dumb slogans," Rex Jr. says. "It hurts the industry. How are people ever going to take you seriously? How are you ever going to raise your prices if people think you're a joke? This is a professional industry, and we need to treat it that way."

But professionalism at the company extends further than just a no-nonsense logo that clearly states what the company is all about. Route drivers are required to wear blue pants supplied by a uniform company and either a King's Sanitary Service T-shirt or baseball hat. They're also required to be polite and well-groomed.

"I believe that things like that make a difference," he explains. "I wouldn't want someone on my property who doesn't look nice, and I sure wouldn't want to write him a check. The bottom line is that we're professionals. I tell my guys that my name is on the trucks, and this is how we're going to do things. I'm not asking them to change their lives, just be neat, well-groomed and well-manicured."

Rex Jr. is also a firm believer in educating customers whenever possible. That portrays the company as knowledgeable and that it puts its customers' interests first. "If you educate your customers, it carries you further than any money you spend on advertising," he notes. "That's what keeps them calling the next time they need service."

## CONTINUING EDUCATION

While Rex Jr. learned a lot about the business from his father, he says the Water & Wastewater Equipment, Treatment & Transport (WWETT) Show has been a valuable tool in his professional development. The show enables him to see the newest technological advances in-person and offers a convenient way to fulfill Ohio's requirement for six continuing education credits a year.



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Owner Rex King Jr. is always looking for more profitable work, prompting him to swap portable restrooms for municipal work and hydroexcavation. He is shown with a 2017 Western Star vacuum truck built out by FlowMark Vacuum Trucks.

**"EVERYTHING COMES DOWN TO PROVIDING GREAT CUSTOMER SERVICE, AND OUR EMPLOYEES DO A GREAT JOB. OUR CUSTOMERS VERY RARELY GET AN ANSWERING MACHINE. ... AND IF WE EVER MAKE A MISTAKE, WE TAKE CARE OF IT — MAKE IT RIGHT."**

Rex King Jr.

"It's nice because I can pick and choose classes that I'm particularly interested in," he explains. "If I want to learn about effluent pumps, I can go to this class. And if I want to learn the latest about drainfields and leachfields, I go to another class."

Rex Jr. says he also benefits greatly from networking with other operators. Because WWETT Show attendees aren't typically direct competitors, he says they're more willing to share information, tips and advice. In one instance, he mentioned to a colleague that he was having trouble getting the correct pH level in a customer's septic tank. "Then he asked me if someone in the house has cancer and is getting chemotherapy treatments," he says. "That turned out to be the problem. You don't always find out about things like that unless you talk to people."

Attending a recent WWETT Show also convinced Rex Jr. to enter a lucrative market for hydroexcavating. While talking about the possible purchase of a combination sewer truck, a representative from Vector mentioned that a hydroexcavating package would add value to the unit. "That's what pushed us toward hydroexcavating," he says.

#### **MORE GROWTH EXPECTED**

Rex Jr. says he's optimistic about further growth, especially in hydroexcavating work and cleaning larger municipal sewer lines. Because even used sewer/hydroexcavating trucks are expensive, most companies are reluctant to buy them, so there's an inherent barrier to market entry by competitors, he points out.

"We haven't even owned the (sewer) truck for a year yet, and we've already definitely seen an increase in hydroexcavating business," Rex Jr. says. "We've found work for it without even marketing its capabilities. Numerous municipalities have called to ask us to expose (utility) lines. I really see that part of the business taking off in the next year or two."

Rex Jr. also expects continued growth in septic service as well as cleaning municipal sewer lines. As such, he's considering investing in a crawler pipeline inspection camera capable of televising large-diameter lines. "Within about a 45-mile radius, there are probably 10 to 15 smaller municipalities that need help with sewer maintenance. I think we'll see more and more municipalities hiring out that work because they can't afford to buy an expensive combination sewer truck that might sit idle most of the time." ▼

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# DTE Energy Tackles Tough Terrains, Efficiently Powers Michigan

## RIDE-ON TRENCHERS BOOST PRODUCTIVITY AND PROVIDE SUPERIOR TRACTION IN SANDY MICHIGAN SOILS

BY STEVE SEABOLT

As the largest utility company in Michigan, DTE Energy is responsible for providing gas and electricity to homes and businesses across the state. Due to the state's range of landscapes, meeting tight completion deadlines for jobs in diverse ground conditions is familiar territory for DTE Energy. In the south, for example, clay is common. Up north, sand is often encountered.

When the utility won a project near Traverse City in northern Michigan with sprawling hills of loose, sandy soil, they knew an additional challenge would be thrown in the mix. This soil alone could tax machines on flat terrains, and the addition of hills risked turning the installation into a crawling endeavor.

"Some projects have been challenging in the past because our machines didn't have the power to efficiently work in diverse job site conditions," says Mike Kocis, construction supervisor at DTE Energy. "For the Traverse City project, we expected to plow between 700 to 800 feet on the best days. Not fast enough to complete the job by our deadline."

The project involved utility installation in a new, tiered housing development where each row of houses was set another layer up the hill. Before development could begin, 5,000 feet of pipe needed to be laid for the incoming houses. The tiered design also increased the difficulty of the job site by making certain portions hard to access.

### AN UPHILL BATTLE

Before the work had even begun, the DTE Energy Greater Michigan construction group was searching for new, potential solutions in case the complex conditions caused too much inefficiency with their current fleet of trenching, plowing and other installation equipment. But, committing to a new machine depended on the first day of the job.

"On day one, we took our equipment out to the easiest part of the job site, where it was flat and relatively accessible," Kocis says. "The sand alone slowed



DTE Energy crew members use a Ditch Witch RT125 Quad utility tractor to dig a trench to install pipe on a housing project in Traverse City, Michigan. Over a single day, it put 3,000 feet of 2-inch pipe in the ground.

**PROJECT:** Utility project in Traverse City, Michigan, where 5,000 feet of pipe needed to be laid for incoming houses. It was a tiered design up hills with sandy soil conditions.

**CUSTOMER:** Traverse City, Michigan

**CONTRACTOR:** DTE Energy

**EQUIPMENT:** Ditch Witch RT125 Quad utility tractor

**RESULTS:** The team from DTE Energy was able to install 700-800 feet of pipe a day to meet the deadline. The tracks on the quad utility tractor allowed the crews to climb the hill with ease and not have to bring in additional equipment and manpower.

DOWN  
& DIRTY

us enough to risk missing the deadline if we stuck with it. The tires sunk in, and the machine would hardly move. We needed to look beyond our traditional practices."

In the past, tough job sites led DTE Energy gas constructions crews to pull their trenching equipment with backhoes. The method was inefficient and increased costs due to an additional worker and machine on site. For the Traverse City project, the company knew that this was not an option. As part of the search for a potential fix, DTE Energy turned to the local Ditch Witch



Sales of Michigan dealership located in Howell, which shared the benefits of a Ditch Witch RT125 Quad utility tractor.

Powered by 121 hp turbocharged Tier 4 diesel engines for boosted performance, the RT125 Quad provides boosted power for a wide range of utility installation jobs. It also offers ground clearance and standard four-wheel-drive systems for enhanced maneuverability, traction and mobility for a variety of ground conditions.

To fully learn what the RT125 Quad was capable of, DTE Energy challenged the Ditch Witch dealer to demo the machine on one of the toughest

**"WE EXPECTED SOME EFFICIENCY IMPROVEMENT BECAUSE OF THE TRACKS, BUT WHAT WE EXPERIENCED WAS UNBELIEVABLE. THE RT125 QUAD MOVED UP THAT HILL FASTER THAN WE COULD WALK IT."**

Mike Kocis



The crew from DTE Energy installed 5,000 feet of pipe in a new housing development area up a hill with tiers.

sections of the project: a steep hill composed almost entirely of soft sand.

"We expected some efficiency improvement because of the tracks, but what we experienced was unbelievable," Kocis says. "The RT125 Quad moved up that hill faster than we could walk it. Over a single day, it put 3,000 feet of 2-inch pipe in the ground. The cost-per-foot efficiency gains were immediately apparent."

DTE Energy rented the RT125 Quad for the remainder of the project. The machine offered a huge boost to productivity and helped redistribute the extra employees who used to pull the old machine with a backhoe. The company also installed the gas pipe well before the project deadline.

#### AN EXPANDING FLEET

News of the cost-per-foot savings was shared across the company once the Traverse City project was complete. Employees heard about the rate pipe was going into the ground and realized new, available work. Crews were also working better, as they could make full use of a machine suited to their job.

"DTE Energy used to pass jobs onto contractors who had the capacity and equipment to do the work," Kocis says. "The efficiency gains from using the RT125 Quad have helped us take on more projects we wouldn't have in the past."

The newfound success received attention from the DTE Energy budget team, which was responsible for evaluating potential new equipment. Their evaluations took into consideration efficiency gains and the ROI from the Ditch Witch unit. In the end, the RT125 Quad was deemed a worthwhile investment.

After four months of renting the trencher, DTE Energy invested in a both a Ditch Witch RT125 Quad and a more compact, midsize RT80 Quad ride-on trencher.

#### GRAYLING AND BEYOND

Now with the RT125 Quad and RT80 Quad available for crews, DTE Energy continues to take on more jobs ideally suited for the machines. For example, the company has found the RT80 Quad especially beneficial in Grayling, a city east of Traverse City where more flat land with tough clay soil is found.

"The efficiency of the Ditch Witch trenchers has let us take on a Grayling job that was previously passed over," Kocis says. "The RT80 Quad is a perfect fit for the territory. We need something compact, yet powerful, that gives operators the confidence to tackle any project." ▼

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# BURSTING AHEAD

**KEN-WAY EXCAVATING FINDS MANY BENEFITS TO USING  
PIPE BURSTING TECHNOLOGY FOR SEPTIC SYSTEM REPAIRS**

STORY: **DAVID STEINKRAUS** PHOTOS: **MARK HIRSCH**

**T**he three partners who bought Ken-way Excavating were looking for a niche in the septic system installing market. They found their specialty in pipe bursting to replace existing septic service lines.

Getting the job done underground saves on fuel consumption over using traditional excavation, extending the work season in their frosty territory around Cedar Rapids, Iowa, and making customers happy by limiting the mess left behind by trench work.

Charlie Fisher, who owns Ken-way Excavating with brothers Dan and Pat Zamastil, saw the technology as popular in other parts of the country and wanted to bring its advantages to Iowa.

"I came home to Iowa from Denver, and there were sewer companies doing it there on a daily basis," he says. Although he had not seen the technique used for septic system installations, he realized that the pipe between a

home and a tank was no different than the lateral from a home to a sewer collection main. And the idea can be extended to include pipes that carry water or natural gas.

Two months into the partners' ownership of Ken-way Excavating in March 2010, they purchased pipe bursting equipment, and it is often employed in the up to 30 systems they install annually.

## **BURSTING OUT**

Currently Ken-way Excavating uses pipe bursting equipment from HammerHead Trenchless. For replacing 4-inch pipe, they have a PB30. Technicians join HDPE SDR17 replacement pipes using a system from Connetra Fusion Technologies. "We can burst plastic, cast-iron, ductile iron and transite pipe," Fisher says.

Not every job is perfect for bursting. Replacing pipe of one diameter with new pipe of the same diameter — in





the new pipe, just as it did in the old one. After the work is done, Ken-way Excavating televises the line again to ensure the job has been done properly.

#### **MANY ADVANTAGES**

Where it can be used, bursting is much better than digging a trench, Fisher says.

“Why would you have an open trench 60 feet long when you can have two pits? You can prep two pits safely, and you’re not dragging a trench box along. For a pipe replacement, bursting takes about the same amount of time, but it is much less dangerous for the men. Buying bursting equipment increases your costs, but that is offset by the reduced risk and by fuel cost because you don’t burn as much as you do when digging,” he says.

Customers are happier, too, because their property damage is less. In one situation, there was a run of several hundred feet from a house to its septic tank. The yard contained several trees, and the owners didn’t want the roots damaged by digging. Pipe bursting did the job and left only a couple of pits for restoration instead of a long trench.

Pipe bursting is also good in tight situations where an

other words, 4-inch with 4-inch — is typically less challenging. When the replacement is a larger diameter, the volume of soil displaced may become an issue, Fisher says.

“In denser soils, there may be a problem bursting a 6-inch clay main to upsize it to a 10-inch,” Fisher says.

Sandy material is easier to displace than glacial tills, but hard-packed sand could also pose a challenge. Problems come from the usual arrangement on job sites where other utilities are often located near wastewater pipes. It’s those other pipes that may be affected by displaced soil. It doesn’t always happen, but it is a situation you have to think of and be prepared for, Fisher says.

Other preparation is required for bursting. Every line is televised before and after the job. A pipe with an offset joint or a pipe that is collapsed can be replaced. A pipe with a long sag or belly is not a candidate for replacement because the lack of proper bedding will create a belly in

Kyle Jacobson carries a 4-inch HammerHead Quick Grip Burst Head attached to SDR17 pipe in preparation for drawing it through a damaged pipe. Ken-way Excavating, based in Iowa, uses pipe bursting technology to replace failing pipe in onsite septic systems.





Kyle Jacobson (left) and Tucker Schroeder carry the PB30 pipe bursting machine (HammerHead Trenchless) to the job site pit.

excavator arm cannot swing, even a mini-excavator. In one case, a home had a large, second-story deck. Instead of removing the deck, Ken-way Excavating technicians set up the pipe bursting gear in the basement and replaced the pipe from there to the septic tank.

Using pipe bursting extends Ken-way Excavating's working year as well because there is less frozen soil to dig. The company's hydroexcavator helps, too.

"We had a project on a cold December day last winter. The work site was too tight for an excavator. We brought in the hydroexcavator and hydraulic shoring. In four hours, the crew cut a pit, and we were ready to set the pipe bursting equipment," Fisher says.

"Even without the hydroexcavator, we work through the winter every year. If it's 10 degrees F and rising, we're going to go out and work. On days when the high is in the single digits, we cannot justify sending the guys out. In that kind

of weather machines break and nothing goes right. Still, during the coldest January or February, we typically take only a few days off," he says.

## WE'RE CAT LOVERS

Except for a Yanmar excavator, all the equipment that Ken-way Excavating operates is from Caterpillar. Their largest excavator is a 330F, and the smallest is a 303.5. In addition, the company has six Mack dump trucks (most carrying Henderson Products dump bodies) and a hydroexcavator from GapVax on a Peterbilt chassis.

Choosing Cat was easy, and part of the decision depended on the local dealer, Fisher says.

"When we bought the company, we created relationships with our equipment suppliers. In the last six years, we made a lot of changes, and our Cat dealer took care of us. Whenever there's a problem we can't solve, all we have to do is pick up the phone, and it gets handled," he says.

Plus, the resale market for Cat equipment is always strong, he says.

Ken-way Excavating rotates equipment based on its records. Everything about each machine is tracked, whether it's routine maintenance or a major repair. Each machine carries a number, and the partners can call up the record of a specific machine and see how much money has been spent on it over time.

Given experience with machines and their needs, this has led to a practice of trading some machines in every few years and others hardly ever. For example, bulldozers are built tough, Fisher says. Maintenance costs are minimal, and they're expensive to buy, so Ken-way Excavating holds on to its dozers as long as possible. Skid loaders are a different story. They're traded out at 2,500 to 3,000 hours because the company's records show maintenance costs increase dramatically after that point.

"WE HAVE EXPANDED QUITE A BIT, BUT WE DON'T DEPEND ONLY ON GROWTH. OUR GOAL IS GROWTH AND STRENGTH — BEING STRONGER WITHIN THE NICHE WE HAVE DEVELOPED SO FAR."

Charlie Fisher

## TAKING CARE OF BUSINESS

Dan oversees the shop and the company's equipment. If something breaks, the company's workers know they need to call Dan. Much of the maintenance is done in-house, even a job like rebuilding a bulldozer. If a transmission goes out in one of the trucks, Dan makes the call to have an outside shop fix it. His brother, Pat, runs operations and scheduling. Fisher handles the administrative work, estimating and looking at contracts.

"What this does is take a load off everyone's shoulders," Fisher says. "You don't have one person trying to make decisions on everything. We can assign a job to the right person, and we trust one another. We look on one another as brothers rather than partners."

Building a good company also means building up a good workforce. Ken-way Excavating doesn't necessarily look for people with long experience in the





Owners (from left) Charlie Fisher, Dan Zamastil and Pat Zamastil are shown on the job with the company's GapVax MC1510 Series combination jet/vac unit mounted on a Peterbilt truck.

## Ken-way Excavating Cedar Rapids, Iowa



<b>OWNERS:</b>	Charlie Fisher, Dan and Pat Zamastil
<b>FOUNDED:</b>	1966
<b>EMPLOYEES:</b>	16
<b>SERVICE AREA:</b>	Eastern Iowa
<b>SERVICES:</b>	Site analysis, percolation testing, excavating, septic replacements, new septic installations, septic repairs, hydroexcavation, commercial development underground utilities, utility installations in industrial plants
<b>ASSOCIATIONS:</b>	Iowa Onsite Waste Water Association, Land Improvement Contractors Association, NASSCO, International Pipe Bursting Association
<b>WEBSITE:</b>	<a href="http://www.kenwayex.com">www.kenwayex.com</a>

industry. They seek a person who will mesh with the team and is willing to learn because the right person can be taught the skills he or she needs to do a job.

"When we bought the company and began expanding it, we had to replace much of the staff and add to it," Fisher says. "We now have a great group of guys. Many of them have been with us for a long time, and we have every intention of keeping them for a long time."

Obviously competitive pay is a factor in employee retention, he says. On top of that, the company offers a health insurance program, a retirement program with company matching, and the potential for annual bonuses. Every year, the company conducts performance reviews with each employee. Work-

## DIY technology focuses on the necessities

Charlie Fisher and his partners at Ken-way Excavating like to keep everything in-house for more control and efficiency. The same idea is in play when it comes to the company's use of technology. There is QuickBooks for general accounting and tracking costs, but beyond that, Fisher likes to create his own custom templates.

"We use a lot of Excel spreadsheets, from estimating to a lot of our different forms that we've created in-house," Fisher says. "When I'm creating a daily job sheet for our guys, I know what I want it to accomplish. They can easily take it and use it, and I get exactly the information I need."

The same goes for bid proposals. He can open his spreadsheet template and modify it as needed, perhaps with a different layout or with items specific to that job.

Technicians use paper copies of spreadsheets and fill in information by hand, whether it's a count of loads hauled or the amount of material used. Each sheet is coded by job.

"All the job sheets are customized. We have some only for guys driving dump trucks. Others are for guys doing hydroexcavating, jetting and cleaning. And there's another set for the technicians installing onsite systems," Fisher says.

At any time, he or his partners can bring up any job on his computer and see all the various costs for it. There are also separate codes for each type of service, such as commercial work or hydroexcavation.

"At any time, I can pull a cost report and see how much we're making or losing on septic work specifically. If I want to go further, I can break it down by job."

ers are complimented on their improvements, and they have a chance to look at where they stand in the company and where they want to go.

Going places can also bring company assistance. If a technician wants to become a licensed plumber, Ken-way Excavating will pick up the tuition cost for local classes. "We're only as good as our team is, so paying tuition is an investment to us," Fisher says.

Ken-way Excavating is already a recognized brand with a good reputation, Fisher says. The company's best marketing is its equipment, which is kept clean. Another factor is the company's relationships with local plumbers. They refer business, as do Ken-way Excavating's previous customers.

Education is something Ken-way Excavating also offers. Large real estate companies in eastern Iowa have invited Ken-way Excavating to give 15-minute presentations for employees. For example, a presentation may cover how septic tanks work or what real estate brokers should look for in an existing system — age, type of system, pipe materials and so on — that may positively or negatively affect a buyer or seller.

(continued)





The Ken-way Excavating crew includes, from left, Derek Vesely, Kyle Jacobson, Mitch Fountain and Tucker Schroeder.

In 2015, Ken-way Excavating booked a venue and invited representatives of area engineering firms and municipalities to learn the basics of pipe bursting. Aside from their own people, Ken-way Excavating brought in a representative from HammerHead Trenchless and from a pipe manufacturer. One of the engineering firms in attendance subsequently hired Ken-way Excavating for a large sewer replacement job, but the knowledge passed on at the workshop benefitted more than just Ken-way Excavating.

**“FOR A PIPE REPLACEMENT, BURSTING TAKES ABOUT THE SAME AMOUNT OF TIME, BUT IT IS MUCH LESS DANGEROUS FOR THE MEN. BUYING BURSTING EQUIPMENT INCREASES YOUR COSTS, BUT THAT IS OFFSET BY THE REDUCED RISK AND BY FUEL COST.”**

Charlie Fisher

## BUSINESS TRANSITION

The three partners grew up on the same street in the same town.

“We’ve been around the industry since we were kids, through family members, high school, college, and after college,” Fisher says.

The previous owner of Ken-way Excavating was a family friend, and when he was ready to leave the business, he approached Fisher and the Zamastils about buying it. They looked at the numbers, put together a plan, and settled the deal with a few phone calls. It was a good company in a niche market, and they decided they could build on that.

“It was a family septic, sewer and water business. We’ve just taken it to a much larger scale,” Fisher says.

They also brought many functions in-house. Rather than hiring trucks when needed, they bought the equipment so their schedules were not dependent on a subcontractor.

“We have expanded quite a bit, but we don’t depend only on growth. Our goal is growth and strength — being stronger within the niches we have devel-



Mitch Fountain uses a Connectra Fusion Technologies system to join HDPE SDR17 pipe.

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oped so far,” Fisher says. That means emphasizing services such as hydro-excavation or pipe bursting that most excavation companies don’t perform for themselves.

“We don’t desire to get more dozers and excavators. Right now, if we get a call of a main pipe break, we can handle the job with our existing excavators and camera truck. If we identified a need for three more hydro-excavators in our area, that’s where we would rather grow,” Fisher says.

That does not mean that’s where they will grow. Every year is different, and next year, the partners may take Ken-way Excavating in another direction.

“What it comes down to,” Fisher says, “is you have to be ready to evolve with the opportunities that come before you.” ▼



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### THE LATEST:

## News

### Felling Trailers adds new fabrication center

Felling Trailers added a new fabrication center, providing 15,000 square feet of space for new and existing technologies. The space connects the main warehouse to an existing building, allowing for an efficient flow of production parts from the fabrication area to the warehouse, then to the production floor. The key goals for the new center are to reduce non-value time inefficiencies, reduce the number of times material was being handled, and increase the safety and comfort of the work environment.

### Deere and Co. completes acquisition of the Wirtgen Group

Deere and Co. completed the acquisition of the Wirtgen Group, an international, privately held manu-

facturer of road construction equipment. The Wirtgen Group has a global presence of approximately 8,200 employees and sells products in more than 100 countries through a network of dealers.

### VMAC appoints Hogan to CEO, Gilbert to president

VMAC announced changes to the organization of its senior management team, appointing Jim Hogan, former president, to CEO, and Tod Gilbert, former executive vice president, to president. As one of the company's founders, Hogan will again focus on developing innovative technology, research and development initiatives, and process improvements with the support of VMAC's engineering and design team. Gilbert has been with VMAC since 2006 and has held various positions, including vice

president of engineering and product development. He will provide leadership for day-to-day activities of the company.

### JCB North America's dealer network expands

Westcon JCB, headquartered in Regina, Saskatchewan, is the newest addition to JCB North America's growing North American dealer network. The new dealer will sell, rent and service JCB equipment from branches in Regina and Saskatoon, Saskatchewan, and in Winnipeg, Manitoba.

### Vortex acquires VacVision Environmental

Vortex has completed the acquisition of VacVision Environmental, a trenchless infrastructure and ser-

vice contractor. Located in South Carolina and Florida, VacVision Environmental will bolster Vortex's presence in the Southeast. The companies will begin to integrate services and personnel immediately. ▼

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# Why Your Drill Rod Has Such a Stressful Life

TAKE TIME TO USE THE DRILL RIG AND COMPONENTS CORRECTLY AND YOU WILL HAVE AN EASIER TIME DIRECTIONAL DRILLING

BY PETER MELSHEIMER

**A**s a series of moving parts under constant pressure, your drill rod undergoes continual wear and tear every time you put it to work. Horizontal directional drilling tooling is built to withstand extreme stress, but careless use can cause your drill string to malfunction prematurely.

Proper care and attention will ensure that you get the longest life possible out of your equipment.

## STEERING IS STRESSFUL

The biggest stress on your drill rod is the fact that it's frequently rotating at 100-300 rpm and often being forced through the ground at an angle. Constant rotation, plus the bending action applied during steering, increases the fatiguing stress on your drill string and strains the steel rods at their connection points.

As you push your HDD tooling to the max, you might make the drill shot, but you won't realize that you've damaged the rod until your next shot. Worse yet, your pipe could simply snap while down in the hole, costing you valuable time, money and manpower before you can continue.

**What You Can Do:** Don't push your drill rod through severe bends. If you need to make a compact curve or ease around a tight corner, it's better to drill halfway, extract your equipment from the hole, and then approach from the opposite angle. This lightens the burden on your directional drilling tools because you're tackling an angle that is only half as tight.

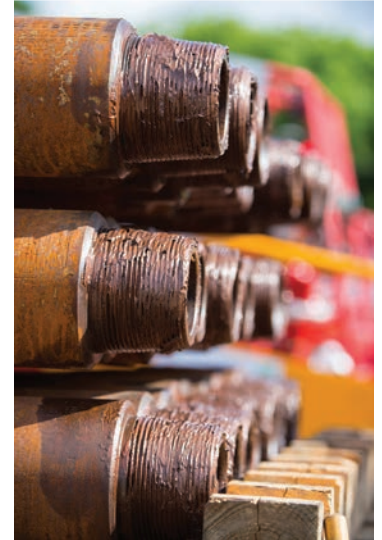
## GOING TOO FAST

Attempting to steer too quickly means that you'll likely apply too much thrust. This can easily overpower your directional drilling tools. Your drill rod is strong enough to withstand the thrust of your rig, but encountering an unexpected solid mass or harder material while drilling at full speed can cause you to damage your equipment and stall your job.

**What You Can Do:** Take your time, and do the job carefully. Don't simply try to muscle your way through by increasing fluid pressure or rotation speed. Pay attention to changes in resistance on your equipment and hydraulic pressure gauges. Ease through blockages slowly. Swap out drill bits if necessary.

## LOOSE PIPE ASSEMBLY

One common mistake seen is when the drill pipe is not torqued up correctly because it's assumed that the drill pipe can be torqued up downhole. In



Taking proper care of your directional drill rods and using them and the other equipment properly will extend the life of the equipment.



fact, the drill pipe might not tighten to the necessary specs at all, especially in soft ground. When your drill pipe isn't "made-up" the way it should be, the threads must absorb the torque. When properly tightened, the torque

will go through the shoulders of the connections, achieving maximum strength.

**What You Can Do:** Once again, take your time. Use your rig to correctly torque your drill pipe. Keep an eye on the process as you go, and never try to save time by assuming that everything will tighten up downhole.

## THREAD ISSUES

As drill pipe is assembled and disassembled, the threads on the pipe ends experience constant wear. This is especially problematic when two pipe ends are misaligned and the error isn't caught. Over time, this misalignment creates excessive wear, or even thread galling. This will cause not only a loss of torsional strength, but can potentially strip out the thread entirely.

It's also important to avoid mixing new drill pipe with old drill pipe. Intermixing worn pipes with perfectly-machined, fresh pipes can cause the new ones to prematurely wear down to match the misshapen threads. If threads are worn enough, the pipe won't tighten correctly at all and you'll lose a lot of strength straight out of the gate.

And let's not forget the saver-sub up at the drill carriage. This little guy touches each and every drill pipe. If this thread gets messed up or too worn, it will be reflected in all your drill string threads. Check it often, always grease it, and replace as needed.

**What You Can Do:** Take the time to use your rig to torque your drill pipe correctly. If you absolutely must mix old pipe with new pipe, keep old and new together as much as possible so fewer old and new threads are mated.

Also, be sure to rotate your "lead pipe" (the first pipe connected to the tooling). It's easy to continually reuse the bottom pipe in the basket as the first pipe connected, but this is the one that gets most stressed out. Swap out this pipe regularly with others in the drill string to prevent premature failure and a potentially expensive loss of tooling.

Your HDD tooling is powerful, but not indestructible. As with any heavy equipment, proper maintenance and refusal to cut corners will preserve the integrity of your directional drilling tools and ensure they achieve their maximum life span. To talk about how to better maintain and protect your equipment, contact your local HDD distributor.

## ABOUT THE AUTHOR

*Peter Melsheimer is the marketing director at Melfred Borzall. While the bulk of his time is spent creating marketing plans, Melsheimer fills in wherever needed. He has been in the HDD industry since 1989 and by 1991 was out demonstrating and educating the world about the advantages of HDD for utility instal-*

**AS WITH ANY HEAVY EQUIPMENT, PROPER MAINTENANCE AND REFUSAL TO CUT CORNERS WILL PRESERVE THE INTEGRITY OF YOUR DIRECTIONAL DRILLING TOOLS AND ENSURE THEY ACHIEVE THEIR MAXIMUM LIFE SPAN.**

*lation. His formal education is in mechanical engineering, but he has gained years of expertise in marketing learned on the job. ▼*

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# 7 Checks for Compact Track Loader Maintenance

**REGULAR MAINTENANCE WILL GO A LONG WAY IN ENSURING THE EQUIPMENT REMAINS PROFITABLE FOR YOUR COMPANY**

BY MARYBETH MATZEK

**S**imilar to trucks and other large pieces of equipment, delaying or ignoring regular maintenance on compact track loaders can lead to big headaches and large repair bills. When operators do not keep up with routine maintenance, it can lead to unplanned machine downtime, which can be costly and frustrating.

“Daily maintenance is cheaper than letting the system go,” says Buck Storlie, testing and reliability leader for ASV Holdings, a manufacturer of compact track loaders.

Without regular maintenance, problems with the engine and transmission can also develop and machine components receive excessive wear. “Stay on top of service intervals, and make sure that the operators are conducting a daily walk around to make sure the machine is in good shape,” says Kevin Scotese, a product manager with Volvo Construction Equipment.

Since proper maintenance is so important to compact track loaders, experts share their advice on how contractors can keep their equipment running:

1

## ESTABLISH AND FOLLOW A MAINTENANCE SCHEDULE

Like any service equipment, manufacturers include a suggested maintenance schedule that contractors are recommended to follow. “The machine’s operation and maintenance manual provides maintenance intervals for fluids, lubricants and filters,” says Christopher Girodat, a marketing manager with Bobcat.

Typical service guidelines recommend changing the oil on a compact loader after 500 hours of work and greasing after every 50 hours of use.

“The single biggest thing that contractors forget is greasing,” Scotese says. “People forget to grease pins and bushings, which creates big problems over time. After wearing out, they can bend components like hydraulic cylinders, causing a need for repair. This is something that could have easily been avoided in the first place simply by greasing.”

The maintenance schedule should also include checking other fluids along with the radiator and air filters.

“You need to make a habit of it, either at the end of a shift or at the start of one,” Storlie says. “We work in dirty conditions, and if you are not paying attention to the radiator, for example, the machine could overheat.”

2

## CHECK THE UNDERCARRIAGE

The undercarriage is the hardest working part of the loader, and a general inspection of the area is always a good idea. “Check track tension and the sprocket system, and always remember to clean it out,” Storlie says. “If it is not in top working order, the whole machine is affected.”

Cleaning out the undercarriage and related components can prevent debris from freezing in place if the temperature drops too low. “Shovels and pressure washers may be used to clean the undercarriage area to ensure the compact track loader is ready,” Girodat says.

**“PEOPLE FORGET TO GREASE PINS AND BUSHINGS, WHICH CREATES BIG PROBLEMS OVER TIME.”**

Kevin Scotese



PHOTO COURTESY OF VOLVO CONSTRUCTION EQUIPMENT

General maintenance should be regularly performed on compact excavators, like this Volvo MCT85C compact track loader.



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As part of the undercarriage inspection, contractors should routinely inspect the drive motor, drive sprockets, main idlers and rollers, rock guards, track bolts, track chains, and track shoes, Girodat adds.

3

### WATCH WHERE YOU DRIVE

Caring for the tracks is essential with compact track loaders. Scotese advises contractors to not turn on asphalt or concrete or go over curbs, which wears out the tracks more quickly.

The machines are best used primarily on softer ground like grass, dirt or mud.

4

### REMEMBER TO CHECK THE ATTACHMENTS

Many contractors overlook their compact track loaders' attachments and components, such as a bucket's cutting edges, shanks and hydraulic hoses. "Operators should replace any worn or damaged pins or teeth to help maintain productivity and minimize machine or attachment downtime," Girodat says.

Storlie says checking attachments daily will also help operators determine if wear is developing or any damage has occurred.

5

### STORE EQUIPMENT PROPERLY

Operators will also benefit from keeping their compact loaders inside to protect them from the weather, especially during the winter months. Keeping the machine inside will help it stay warmer and protect it from snow and ice.

6

### USE THE CORRECT FUEL

Manufacturers say operators should also pay attention to the quality of the diesel fuel they are placing in their compact track loaders. Newer machines require ultralow sulfur diesel fuel, which burns cleaner, hotter, and more efficiently. If contractors use the wrong fuel, the machine could be damaged or not run as effectively.

7

### CHECK TRACK TENSION

Regular track maintenance includes checking for proper tension, cleaning and inspecting the equipment. When the tension is incorrect, it leads to increased track wear, which shortens the life of the equipment, Storlie says.

If the tension is too loose, the tracks can fall off. And if the tension is too tight, the idlers and sprockets can be damaged. "A quick check will make sure levels are correct," Storlie says. ▼



## Seeing Red?

Do you have a question about maintenance on a piece of equipment? *Dig Different* can track down the answer for you in our **Machine Shop** feature. Send us your question and it could be a future column.

editor@digdifferent.com | 800-257-7222



BY CRAIG MANDLI

## Air Excavation

### VACMASTERS SYSTEM 6000

The VACMASTERS SYSTEM 6000 is the first air-vacuum excavation system with the power to trench as well as pothole. It is designed from the ground up to lower costs, reduce injuries and eliminate damage claims. The system uses supersonic air to penetrate, expand and explode the soil from within while keeping it dry for easy vacuuming and quick backfilling. In turn, this will also increase revenues and profitability by doing more work in less time.

800-466-7825; [www.vacmasters.com](http://www.vacmasters.com)



## Backhoe

### John Deere 310SL HL

The John Deere 310SL HL backhoe is designed for a variety of jobs, including loading trucks, placing pipe, digging trenches, moving materials or tearing up asphalt. It meets today's emission regulations through a 110 hp Final Tier 4 diesel engine. It also has a five-speed PowerShift transmission with speeds up to 25 mph. It can deliver up to 25 percent more backhoe-lift capacity



under normal conditions than comparable K-Series models. Using the sealed-switch module, operators can get an additional 10 to 15 percent boost through the Lift Mode feature. It delivers all the advantages of pressure-compensated load-sensing hydraulics in the 14- to 15-foot digging-depth category, enabling operator efficiency and productivity through improved multifunction control.

800-503-3373; [www.johndeere.com](http://www.johndeere.com)

## Excavator

### Hyundai Construction Equipment Americas R35Z-9AK

The R35Z-9AK compact excavator from Hyundai Construction Equipment Americas is a three-and-a-half-ton-class machine with a zero-tail swing design for maneuverability in confined workspaces. It includes thumb brackets, large dozer blades, hydraulic quick couplers for attachments and hydraulics-ready auxiliary piping to support a range of attachments. The machine's hydraulic system improvements add up to a more responsive, productive machine. Its boom swing capability allows the operator to offset the boom 75 degrees to the left and 50 degrees to the right, facilitating close work alongside foundations and other structures, especially in congested areas. It is powered by a 23.7 hp Yanmar engine. The maximum digging depth is 10 feet 3 inches, with a bucket breakout force of 6,900 foot pounds.

877-509-2254; [www.hceamericas.com](http://www.hceamericas.com)



## Hydroexcavation Equipment

### Easy Kleen Pressure Systems Wildcat Heaters

Wildcat Heaters high-pressure, oil-fired hot-water/steam heaters and

hydraulic pump systems from Easy Kleen Pressure Systems are reliable, efficient and install-ready for vacuum trucks and hydro-excavators. A full range of heater options are available, such as dry steam, redundancy packages, Schedule 80 and 160 stainless steel or A53 boiler pipe, fine-tuned temperature, and flow control systems. All coils are manufactured in-house, with CRN boiler-approved coils now available. Heaters can be designed for mounting in a cabinet or supplied as a completed cabinet unit that is ready to install. They are CSA- and ETL-approved.

800-315-5533; [www.easykleen.com](http://www.easykleen.com)



### GapVax HV33

Designed for city use, the GapVax HV33 is shorter, smaller and more compact than its predecessor. It is designed to safely transport water and debris in urban areas. It is 30 feet long overall on a medium-duty chassis and includes a 600-gallon water tank, 6-cubic-yard debris body, 6- or 8-inch boom adjustable from 14 feet to a 17 feet 6 inches, 4,000 cfm blower and inverted fully opening tailgate.

888-442-7829; [www.gapvax.com](http://www.gapvax.com)



### Hi-Vac X-Vac X-13

The X-Vac X-13 hydroexcavator from Hi-Vac has a 27-inch Hg, high-capacity vacuum system; a 10 gpm at 2,500 psi triplex water pump; a top-loading, 360-degree boom; polygraphite, rust-free water tanks; a power transfer with OMSI heavy-duty transfer case design; and a noise-deadening, heat-retaining enclosure that surrounds both the water system and the vacuum system. It can carry up to 23,000 pounds, and it can transport and dump debris on site.

800-752-2400; [www.hi-vac.com](http://www.hi-vac.com)



### Hydra-Flex Ripsaw

The Ripsaw rotating turbo nozzle from Hydra-Flex blasts a 0-degree water stream at up to 3,200 psi while rotating at a high speed to provide an 18-degree cone of coverage. Its cone-shaped flow pattern is ideal for potholing applications. The heavy-duty, high-impact nozzles are constructed with stainless steel housings and tungsten carbide wear surfaces to withstand harsh environments and provide long life. Repair kits are available for extended life and lower operating costs. Select from traditional coating (blue) or upgrade to the heavy-duty coating (green), a formulation designed for use in extreme environments. Greater impingement allows users to complete jobs faster or use a smaller nozzle size while getting the same impact as nozzles with higher flow rates.

952-808-3640; [www.hydraflexinc.com](http://www.hydraflexinc.com)



### LMT Smart-Dig HX-2100

The Smart-Dig HX-2100 hydroexcavator from LMT is powered by a 59 hp Kubota VT2403 diesel engine that drives a 1,300 cfm Tuthill blower and 2,200 psi Udor U.S.A. water blaster. The compact design includes a 700-gallon debris tank and 300 gallons of freshwater. The trailer has a fully automatic rear-open door with wireless remote control. Filtration is provided by the Smart-Dig dropbox and washable PTFE filters. An antifreeze winterization system is standard, and an optional diesel-powered water heater is available for colder climates and improved digging performance.

309-932-3311; [www.vaxteel.com](http://www.vaxteel.com)





## NozzTeq MONRO-JET

The MONRO-JET hydroexcavation nozzle from NozzTeq combines the power of a solid-stream pencil jet with the large coverage of a fan jet. Its circular water jet motion generates tremendous power at modest gallons per minute rates, allowing the operator to move faster whether hydroexcavating, surface cleaning or cleaning sewer lines. It can be used for other types of surface cleaning such as concrete, steel, castings and large surface areas including line removal from runways. It can be modified for internal pipe cleaning of sewers and pipes of all types. An orbital design increases performance at a lower gallons per minute rate and pressures as high as 36,250 psi.

866-620-5915; [www.nozzteq.com](http://www.nozzteq.com)



## Presvac Systems Hydrovac

The versatile Presvac Systems Hydrovac is designed for cold weather operation with optional full compliance with DOT specifications for collection or transportation of hazardous materials. The high-vacuum blower allows extraction of all types of soils, gravel, rock, clay, water and silt material, with knockout features in the debris tank minimizing carryover. Modular filtration configured to blower size provides blower protection and minimal maintenance. It comes with a heavy-duty, 8-inch boom that extends up to 25 feet, with six-way hydraulic power and wireless controls for all boom functions, soft-start water pump, vacuum breaker and truck engine speed.

800-387-7763; [www.presvac.com](http://www.presvac.com)



## Ramvac by Sewer Equipment HX-12

The HX-12 hydroexcavator from Ramvac by Sewer Equipment has a 12-yard debris tank and a temperature-controlled environmental chamber that contains the entire water system, including water tanks. A directional discharge system allows the operator to off-load debris back into the excavation site when finished, without the mess of dumping the tank. This system also allows operators to blow any obstructions out of the dig hose. It includes a long-range wireless remote, NEMA 4 electrical system, a 900,000 Btu water boiler and a three-stage cyclonic filtration system. The standard 4,400 cfm blower delivers fuel economy. It is available with a RamAir air excavation system touting a 185 cfm at 150 psi air compressor for when the operator can't risk adding water to the problem area.

877-735-4640; [www.ram-vac.com](http://www.ram-vac.com)



## Rival Hydrovac T7

The T7 from Rival Hydrovac is a road-legal, cost-effective unit, engineered to work primarily in urban settings. It offers a 7-cubic-yard debris body, 800 gallons of freshwater storage, and hoist and "pressure off" off-loading capabilities, allowing it to pressure loads into other vessels, vehicles, or tanks in minutes. Its RAPTORLOCK dump door system allows the door to hold a seal under vacuum or pressure without the use of manual wing nuts. It includes a Robuschi USA Robox enclosed blower system with quiet operation and 2,650 cfm at full vacuum. It comes with a 12-volt boiler system, 14 gpm water system and full winterization features. Its 6-inch boom offers full rotation and is extendable to 20 feet. An Aarcomm Systems remote system controls the boom, water and vacuum, and it displays real-time truck weight.



A full safety package includes safety railing atop the truck, engineered D-ring tie-offs, and boom cradle sensors to prevent driving with boom deployed.

403-550-7997; [www.rivalhydrovac.com](http://www.rivalhydrovac.com)

## Soil Surgeon hydroexcavating tool

The Soil Surgeon hydroexcavating tool fits any sewer combination truck equipped with a telescoping 6- or 8-inch boom. The tool has a 1-inch water connection. The operator controls water pressure and power-through truck controls. It has a 6-foot Tuff Tube with handles to guide the unit down for potholing or side to side for trenching. Six jets boring inward cut the soil, while six boring outward bring the tube down.

949-363-1401; [www.soilurgeoninc.com](http://www.soilurgeoninc.com)



## StoneAge HXR-300 Rotary Hydro-X

The HXR-300 Rotary Hydro-X nozzle from StoneAge uses an angled rotating jet pattern that's designed to decrease jet dwell time and reduce undercutting for effective work around utilities. Users can save labor hours and heavy-equipment costs, all while avoiding the risk of damage to buried utilities. It is fully rebuildable, allowing the operator to reduce cost of ownership by extending the life of the tool with minimal, low-cost maintenance. There are three jetting options available for a variety of applications: higher flow for harder surfaces, intermediate flow for general use, and lower flow for water savings. It handles pressures up to 5,000 psi and flow rates from 3.5 to 10 gpm.

866-795-1586; [www.stoneagetools.com](http://www.stoneagetools.com)



## Super Products Mud Dog 1200

The Mud Dog 1200 12-yard-debris-capacity hydroexcavator from Super Products has a rear-mounted boom capable of a 19- to 27-foot reach, 335-degree rotation, 45-degree upward and 25-degree downward pivot. This range of boom motion allows crews to achieve greater work area access and deeper digging without halting production to reposition the trunk. Easy-to-use ejector plate unloading technology provides fast, thorough and safe debris removal. A tilt-unloading feature ensures liquids in the debris tank are cleared quickly and efficiently, even when unloading in an up-slope/nose-down position. Options include the Acculevel load-sensor system for precise debris tank level measurement.

800-837-9711; [www.superproductsllc.com](http://www.superproductsllc.com)



## Supervac Atlas

At 31 1/2 feet, the Atlas hydroexcavation trailer from Supervac offers the compact versatility of a regular vacuum truck, with a high payload capacity of 49,400 pounds. It is easy to maneuver with its tight turning radius and solves road weight limit issues. It comes equipped with a flashing arrow and LED working light, full-opening rear door, protection arm and LED light, a hydraulic door lock, 3,600-gallon carbon-steel debris tank and baffle, and a catwalk access ladder and handrail. Its six side-mounted and evenly distributed plastic water tanks (three on each side) have a total capacity of 1,500 gallons. It runs off the chassis engine of the tractor being used to haul the trailer. The unit's top-loading boom offers 320-degree rotation, extension of 25 feet, an 8-inch flex hose, top access door and protection elbow.

866-839-5702; [www.supervac.co](http://www.supervac.co)



(continued)



## Tornado Global Hydrovacs F4 ECO LITE

The F4 ECO LITE from Tornado Global Hydrovacs has a 12-cubic-yard mud tank and holds 1,400 gallons of freshwater. This unit is over 7,000 pounds lighter than the company's older models and offers nearly triple the payload. The boom has a 342-degree rotation and a 26-foot reach. The F3 ECO LITE is a 10-cubic-yard, 1,200-gallon water tandem-axle unit that also more than doubles older payload capacities. With an 8-inch boom and a 3,800 cfm blower, although smaller, it's still robust and powerful. **877-340-8141; [www.tornadotrucks.com](http://www.tornadotrucks.com)**



## Transway Systems Terra-Vex HV38

The Transway Systems Terra-Vex HV38 has a 12-yard debris tank with onboard scales, which allows a driver to load the tank worry-free. It includes a large debris tank for those light loads, saving time and money, complete with a 26-foot-by-8-inch telescopic boom. It has a simple one-touch-operated hydraulic half-door with a 3,800 cfm at 27-inches Hg hydraulically driven blower. Water pressure is achieved with a hydraulically driven triplex pump, delivering 10 gpm at 3,600 psi from a 1,000-gallon HDPE baffled water tank. The water is heated with a 420,000 Btu diesel-fired burner for cold weather operation. **800-263-4508; [www.transwaysystems.com](http://www.transwaysystems.com)**



## Vac-Con X-Cavator

The X-Cavator from Vac-Con is powerful, durable and easy to operate. It comes fully loaded and features a hydrostatic drive that uses the chassis engine for the vacuum, creating a more efficient system that eliminates the need for PTO, clutch and gearbox operation. It is available with water systems up to 4,000 psi and a mobile, wireless remote-control system that enables the operator to work the chassis engine revolutions per minute, boom, automatic vacuum breaker, dump controls and hydraulic door locks from remote areas up to a 1/2 mile. The boom rotates up to 270 degrees. **904-284-4200; [www.vac-con.com](http://www.vac-con.com)**



## Vacall - Gradall Industries AllExcavate cold weather package

With the approach of winter weather, Vacall - Gradall Industries offers a step-in compartment on its AllExcavate hydroexcavators to provide operators with warmth and protection from inclement weather. The standard heated compartment is roomy, with enough space for an operator to change out of wet and muddy boots and clothing. The compartment has floor drainage, racks to hang dry clothing and another rack to store the high-pressure hand gun and extensions. Even larger compartments with extra room are available. Along with new LED lighting, the cold weather package includes extra insulation, heated cabinets for the hose reel and water pumps, and boilers that can heat water for more effective hydroexcavation in frozen ground. **330-339-2211; [www.vacall.com](http://www.vacall.com)**



## Vactor ParaDIGm

The ParaDIGm vacuum excavator from Vactor is designed for utility, municipal and contractor customers involved in the installation, maintenance and repair of underground water, sewer, gas, electric and telecommunications lines. This compact, multiuse truck can dig holes with water or air; vacuum, contain and dispose of drill mud; power pneumatic, hydraulic or electrical tools; and provide transport and storage of replacement parts, equipment and tools. The truck's Park-n-Dig design minimizes the time between arriving on the job site and excavation, including the ability to dig up to 6 feet in depth without additional pipe and hose. Its air compressor powers utility tools such as jackhammers and tampers that may be used on the job. The truck offers substantial storage space for these tools, including a long-handle toolbox. It can also tow up to 20,000 pounds. **800-627-3171; [www.vactor.com](http://www.vactor.com)**



## Vector Technologies Mudslinger

The Mudslinger line of powerful, compact trailer-mounted hydroexcavation vacuums from Vac-Con, in cooperation with Vector Technologies, uses a 66.8 hp Kubota diesel engine with a 1,200 cfm at 16 inches Hg positive displacement blower and comes with a 535- or 845-gallon debris tank with 55-degree hydraulic dump hoist and a hydraulic door. The water system is 4 gpm at 4,000 psi with 50 inches of 3/8-inch hose and comes with a 225- or 325-gallon HDPE water tank. A 9-foot boom with 24 inches of hydraulic extension, hydraulic up/down and 270 degrees of manual rotation is also available. It is mounted on a heavy-duty welded tube steel trailer. **800-832-4010; [www.vector-vacuums.com](http://www.vector-vacuums.com)**



## Westech Vac Systems Wolf

The Wolf noncode hydrovac truck from Westech Vac Systems is ideal for oil and gas customers working in extreme conditions. The debris body is positioned on the optimal spot of the chassis to ensure the payload is proportionately distributed across all axles simultaneously, maximizing legal payload for customers and improving operational efficiency. The side-mounted water tanks reduce the weight by more than 40 percent, lowering the overall cost of the truck. The 1,500-gallon capacity ensures ample water storage capacity for large or remote jobs. A top-mounted, no-touch water fill system is easily accessible from the passenger side of the vehicle. The debris body is lifted using a telescoping, dual-acting hydraulic cylinder capable of 36,000 pounds of force. When fully extended, the debris body exceeds a 45-degree dump angle for fast and efficient off-loading. To help the off-loading process, a heavy-duty, hydraulically powered tank vibrator is mounted to the belly of the debris body. **780-955-3030; [www.westechvac.com](http://www.westechvac.com)**



## Loader

### JCB North America 215T

The 215T compact track loader from JCB North America offers the power and performance of large-platform compact track loaders in a small-platform, easily towable machine weighing less than 10,000 pounds. It is powered by a 74 hp JCB Diesel by Kohler engine, requiring no diesel particulate filter and



no diesel exhaust fluid. The vertical-lift model has a rated operating capacity of 2,100 pounds at 35 percent tipping load and 3,000 pounds at 50 percent tipping load. The rated operating capacity can be increased with an optional bolt-on chassis counterweight package, and it is capable of operating high-flow attachments up to 30 gpm. Its single boom design helps provide operators with 60 percent better visibility than conventional twin-arm skid steer designs for safer operation and easier changing of attachments and placing or loading material. Entry to the large cab is simplified and made safer by a wide-opening side door.

912-447-2000; [www.jcb.com](http://www.jcb.com)



## Safety Equipment

### RKI Instruments GX-6000

The GX-6000 from RKI Instruments simultaneously monitors up to six gases, including combustibles, oxygen, carbon monoxide and hydrogen sulfide. Two additional smart channels accept PID, IR or other toxic gas sensors. It includes an internal sample pump, man-down and panic alarm, LED flashlight and large auto-rotating LCD display. It operates as a single-gas PID unit or a multifunctional tool utilizing all six channels. The PID sensor comes equipped with a library of over 600 VOC gases and can personalize a favorites list of 30 commonly used VOCs as well as a list of eight of the most recently used VOCs.

800-754-5165; [www.rkiinstruments.com](http://www.rkiinstruments.com)



### Sonetics portable wireless communication system

Connect and protect your crew while they get the job done with a Sonetics portable wireless communication system. Wireless headsets combine hands-free intercom with advanced hearing protection and Listen-Through Technology that lets the user mix in outside sound to maintain safety and awareness. Noise-cancelling microphones shut out dangerous background noise for a calm, clear work environment. They are Bluetooth and two-way radio compatible. The system is fully portable and battery-operated, with up to 24 hours of talk time on a 4-hour charge.

800-833-4558; [www.soneticscorp.com](http://www.soneticscorp.com)



### Ultra Shore Trench Boxes

Lightweight Ultra Shore Trench Boxes are constructed from corrugated lightweight aluminum that is easy to transport, set up, and use, making them a time- and money-saving option for plumbers, municipalities and utility contractors. All panels can be used horizontally or vertically and are stackable up to 12 feet in Class C soils. The boxes can easily be transformed into a three- or four-sided application with the use of quick-release end closure panels. Other accessories include our 2-foot leg kits and wheel kits to help take full advantage of OSHA regulations.

800-746-7464; [www.shoring.com](http://www.shoring.com)



## Skid Steers/Attachments

### Ditch Witch SK1550

The SK1550 mini skid-steer loader from Ditch Witch is powered by a 44 hp Tier 4 Yanmar diesel engine and directs 34.5 hp to the attachment, allowing the machine to complete tasks including tree handling and sod transfer that are typically suited for traditional loaders. It offers a 1,558-pound-rated operating capacity to lift heavier loads and is equipped with a 94-inch hinge-pin height, providing flexibility for loading and unloading material on a wide range of dump sites. The 4.7 mph ground drive speed, in forward and reverse, increases job cycle times. Optional dual-auxiliary connections can use attachments for better productivity for heavier loads, such as logs, trees and sod.

800-654-6481; [www.ditchwitch.com](http://www.ditchwitch.com)



### Vermeer S925TX

The Vermeer S925TX mini skid-steer is designed to provide lifting performance and the power to conquer demanding applications. With a tip capacity of 2,643 pounds, a rated operating capacity of 925 pounds, and maximum hinge pin height reach of 84.5 inches, the radial lift path makes easy work of lifting and dumping heavy loads. It offers a dual-auxiliary system, which allows the operator to switch between high flow for ground-engaging attachments and low flow for maximum control. It comes with a universal mounting plate that fits a broad range of Vermeer-approved attachments. It is built with a chariot-style platform for optimum operator comfort, and pilot-operated ground drive to help the user maintain smooth control on the job site, as well as in tight areas.

641-628-3141; [www.vermeer.com](http://www.vermeer.com)



### Worksaver SSGB-8B Skid Steer Grader Blade

The SSGB-8B Skid Steer Grader Blade from Worksaver can help turn a skid-steer into a high-performance grading machine for subgrading and surface preparation. The 8-foot, six-way hydraulically controlled moldboard with 25-degree rotation/tilt and in-cab remote for precise control is controlled by a proportional current valve. The moldboard is shear-pin protected to help prevent damage. Its laser control system is compatible for precision grading. It has a reversible beveled cutting edge for long life and 1/2-inch connect-under-pressure, flat-faced hydraulic couplers. An end plate kit and laser pole kit, both offered in pairs, are also available.

217-324-5973; [www.worksaver.com](http://www.worksaver.com)



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# One Strike and You May Be Out

## CONTROLLING AND MITIGATING THE RISKS OF UNDERGROUND UTILITY STRIKES

BY SEAN MAINWARING

Increased density of development has created an unforeseen result — a growing number of accidental underground utility strikes. The Common Ground Alliance's 2015 *Damage Information Reporting Tool* report identified 278,861 utility damage events in the U.S. and Canada, resulting in \$1.7 billion in property damage as well as 1,906 injuries and 421 deaths.

Based on these numbers, it's clear that this is an issue that should be at the forefront of the minds of contractors who are responsible for underground excavation. We've developed a quick Q&A to guide you through the process.

### **Q: What's causing these strikes?**

According to the Common Ground Alliance, there appears to be consensus that there are three basic causes: inadequate excavation practices, notification not made and insufficient locating practices. We would add that an increase in the amount of underground strikes also comes from unmarked private property, mismarking and inadequate marking, and improper bidding on jobs that leaves out necessary costs. These necessary costs allow for the extra time needed to locate unmarked lines and pipes underground as well as costs associated with excavating these unforeseen utilities properly.

Based on our research, another common cause of underground strikes is using improper equipment during the dig, which usually stems from running behind schedule. Once behind schedule, a contractor must find a way to make up that time. Unfortunately, this can sometimes lead to cutting corners, rushing the job and leaving proper safety measures by the wayside.

### **Q: What are the implications for underground contractors?**

The impact for underground contractors breaks down into safety, profitability, insurability and future business prospects. Foremost, the underground contractor must be concerned about safety on the job. From an operational and profitability standpoint, issues include staff downtime and increased costs caused by claims and delays on the site. Insurance costs might also increase or, worse yet, insurers may decline to renew policies. The most important impact for the contractor may be a loss of current or future contracts due to a bad reputation.

### **Q: What should underground contractors do immediately in the event of a strike?**

The most obvious steps are to halt excavation and turn off equipment to prevent sparks and fire. Leave equipment in place to avoid additional damage. An underground contractor should always contact the utility owner, even if there is no visible damage. If the contractor suspects the presence of danger-

**DON'T ASSUME THE DEPTH OF UTILITIES. DIGGING AT A DEEPER DEPTH THAN MARKED UTILITIES DOES NOT ALWAYS SOLVE THE PROBLEM.**



Sean Mainwaring

ous gas or liquid, they should call 911 immediately. In all cases, it's important to safeguard the lives of employees and bystanders, reroute traffic, and inform nearby residents and/or businesses. The final call should be to the risk adviser they are working with or insurance carrier directly to make them aware of a possible claim situation.

### **Q: What are best practices contractors should adopt to mitigate damage and avoid strikes?**

- **Start at the very beginning:** Employees should be trained properly on locating underground utilities and the correct use of equipment and digging techniques, including when to use radar to detect the presence of underground lines and hand-digging and soft-digging techniques. They should also emphasize the correct type of equipment to use for every situation during the excavation. Contractors should follow job site checklists, and provide adequate on-site supervision as well as ongoing safety awareness and training.
- **Estimate jobs properly:** Job estimates should include costs for allowing the time to locate underground utilities and verify marking, document 811 marking, dig around lines, use radar and have downtime in the event of a strike.
- Review the site plans and call 811 at least 48 hours before digging. Review their flags and markings prior to starting the job to determine the proper equipment for the job.
- Identify, if at all possible, whether there may be additional lines that are not on site plans and/or are not marked.
- Document the job site with photographs prior to commencement of digging, taking photos of flags and markings and showing the scale of where you're digging.
- Don't assume the depth of utilities. Digging at a deeper depth than marked utilities does not always solve the problem. If you aren't sure, dig slower and use smaller tools if necessary.
- Most important, use your industry knowledge, common sense and always keep a focus on safety!



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An increase in the amount of underground strikes comes from unmarked private property, mismarking and inadequate marking, and improper bidding on jobs that leave out necessary costs.

### Q: What about claims management in the event of a strike?

Prevention is always the best risk management strategy. Work with a risk adviser who has experience managing insurance for underground contractors and who understands the industry and has access to insurance carriers that are competitive for underground contractors. The adviser should also understand the safety and operational processes needed to avoid claims with underground strikes. Be sure that your risk adviser and carrier have an efficient claims management process, will work with you to develop safety training programs, can provide ongoing training including loss control, are responsive, and communicate well — and not just when it's time for a policy renewal.

### ABOUT THE AUTHOR

Sean Mainwaring is a risk adviser in the Tampa office of Lykes Insurance, a Florida-based commercial insurance firm. He can be reached at [smainwaring@lykesinsurance.com](mailto:smainwaring@lykesinsurance.com). ▼

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# 7 Keys to Small-Business Longevity

**YOU BUILT A SUCCESSFUL COMPANY AND YOU'D LIKE TO HAND IT DOWN TO THE KIDS SOMEDAY? LEARN THESE BUSINESS PRACTICES, AND MAKE IT TO THE NEXT GENERATION.**

BY JILL JOHNSON

Everyone who starts or leads a business dreams of passing it along to the next generation. But few are successful in making it happen. Every year, countless businesses and organizations fail. Long-term success takes more than hard work and a little luck. Leaders and entrepreneurs who achieve exceptional business longevity share seven business practices that move them to long-term success. They think differently. They operate differently. And they lead differently.

## **1. ENGAGE IN ONGOING PLANNING WITH A REALISTIC VISION**

Successful executives and entrepreneurs are prepared to perform beyond the startup mode. They continually rewrite their initial business plan to explore new opportunities and seek ideas to enhance operations and profitability. They are disciplined in writing down their plans, reviewing them, and sharing with their key employees and advisors. They know ongoing planning keeps them focused and helps to formally evaluate what is working and what needs changing.

## **2. ESTABLISH A REALISTIC VISION FOR THE FUTURE**

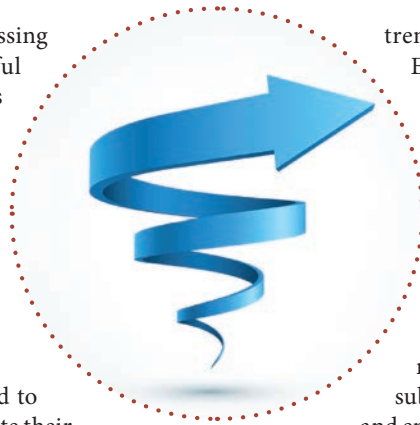
Lasting business leaders also match their vision to their abilities. They leverage one success into another rather than rapidly making huge leaps beyond their capabilities. Those who don't have a realistic vision risk everything because they reach too high before their cash, talent or operational capability is prepared for it. Enduring leaders actively and effectively manage their transitions and hire talent to match their future needs. Their success is sustainable because they build it on a viable foundation based in reality, not on wishful thinking.

## **3. IMPLEMENT SOUND FISCAL MANAGEMENT**

Fiscal discipline is fundamental to long-term business success. Yet few leaders have the self-discipline to manage their cash flow for the inevitable peaks and valleys. They respond to immediate pressures and spend money they don't have. Too many leaders spend money on the flash and glitz, trying to impress people. They never prepare for the future because they're focused on living in the moment. Some make ill-advised decisions that create financial crises rather than making prudent commitments they can realistically handle. Successful leaders of enduring enterprises focus on building real net worth by being masters at financial discipline and tightly controlling what they spend.

## **4. ADAPT TO CHANGING CIRCUMSTANCES**

Markets change, and technology advances. Those who are successful over the long-term understand and adapt to change. They invest in people and technology to enhance productivity. They stay on top of competitors and respond as necessary. By continually adapting, they are able to recognize



trends that may fundamentally transform their industries. Enduring leaders create enterprises that last well beyond their tenure, always looking ahead to identify tools, resources, ideas and technology that can enhance their organization.

## **5. BUILD SUBSTANCE INTO THE ENTERPRISE**

Businesses have come and gone over the decades. Some succeeded brilliantly, but most failed to meet the expectations hyped by their founders and owners. The primary reason is lack of substance; most of what was promoted was smoke and mirrors. Sustainable enterprises have substance. They deliver on their promises. Clients, vendors and employees can count on them. These enterprises demonstrate a consistency of product and service quality that can be trusted over time. A reputation for dependability is often a real predictor of long-term enterprise success.

## **6. CONTROL GROWTH**

Those who survive over the long haul carefully and deliberately manage the size and growth of their business. Those who focus on growth ensure they have adequate finances, equipment and staff to meet their evolving needs. Those who maintain a smaller size often find they can better manage overhead and fixed costs. Maintenance-oriented enterprises may even make more money and have less stress than their growth-oriented peers. In either case, the most successful business owners effectively manage their appetite for risk and keep business scope within their comfort zone.

## **7. MAINTAIN MOTIVATION**

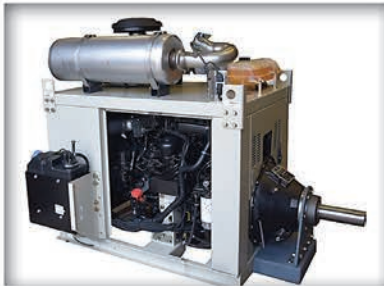
Staying motivated is tough in any business. Once the day-to-day activities begin to become routine, most people lose their enthusiasm. Even harder is dealing with the real stress of leadership. Leaders of enduring enterprises motivate themselves and their employees by continuing to look for new opportunities to better meet customer needs. This provides an atmosphere of innovation and success measured in revenue, customer satisfaction and employee retention.

Leaders who enjoy enduring business success have learned to constantly adapt. They respond to competitive pressures by finding ways to meet evolving customer needs. The secret to long-term success is doing things with discipline and excellence. Are you ready to become a leader of an enduring enterprise? If so, what is the first strategy you need to implement?

### **ABOUT THE AUTHOR**

Jill Johnson is a speaker, author and president and founder of Johnson Consulting Services. Reach her at [www.jcs-usa.com](http://www.jcs-usa.com). ▼





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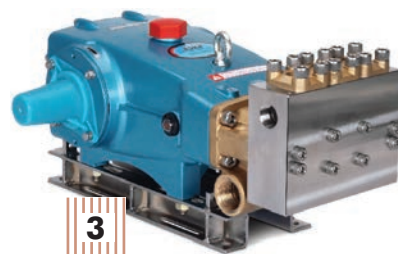
# THE LATEST: Products



1



2



3

## 1. Water Cannon Inc. - MWBE 12-volt fluid transfer pump

The EF4000 Everflo 12-volt diaphragm pump from Water Cannon Inc. - MWBE is ideal for fluid transfer applications, agricultural sprayers and spot sprayers. The lightweight and versatile pump comes equipped with a polypropylene housing and valve plate, Viton valves, and a Santoprene diaphragm. It also features a low-demand switch that automatically turns the pump on and off as flow is required. This feature eliminates the need for a pressure regulator or bypass valve, making it more efficient. Power is only used when the pump flow is in demand. It is self-priming up to 8 feet and has a maximum fluid temperature of 140 degrees F. **800-333-9274; [www.watercannon.com](http://www.watercannon.com)**

## 2. Petersen Products Multi-Flex Annular Seals

Petersen Products' Multi-Flex Annular Seals slip over the end of a pipe, creating a seal between the inner bypass pipe and the outer main pipeline. Annular Seals are possible for almost any size, pressure, chemical or temperature requirement. The seals are very flexible, easy to install, and offer many inflation connection options. They are ideal for bypassing a pipeline during repairs on a variety of small to large temporary pipeline connections. **800-926-1926; [www.petersenproducts.com](http://www.petersenproducts.com)**

## 3. Cat Pumps Model 3560 water pump

The Cat Pumps Model 3560 is a high-pressure water pump with two performance ratings: 25 gpm at 3,000 psi and 20 gpm at 4,000 psi. The pump is ideal for equipment operating in high-duty cycle/remote applications, such as hydroexcavating and jetting. It can be direct-driven hydraulically or pulley-driven from motor or engine. Other features include V-packings and low-pressure seals completely lubricated and cooled, which greatly increase pump life. No external oilers are required. The discharge manifold is constructed from 316SS for high strength and long life in demanding applications. The manifold is easily serviced without entering the crankcase. It is available from stock for immediate shipment. **763-780-5440; [www.catpumps.com](http://www.catpumps.com)**

## This Issue's Feature:

### The next level of fluid cleaning

BY CRAIG MANDLI

The right fluid-cleaning system can be a huge part of a drilling operation. These portable systems are designed to clean and recycle drilling mud by removing rocks and sand, thus reducing wear and tear on pumps, tooling and other parts. In addition, fluid-cleaning systems eliminate the need for settling pits and mud pans and reduce the amount of water needed to drill, thus helping to maintain clean and safe job sites.

The M-300D horizontal directional drilling fluid-cleaning system from American Augers provides those benefits and more. Based on American Augers' successful, highly portable M-200 platform, the M-300 system's small trailer size lowers registration and excise tax requirements while supporting any make of 60- to 100-ton drill unit with a true 300 gpm fluid-cleaning capability. Its small size makes it ideal for today's low-space job sites.

The system's 300 gpm flow rate is achieved through "next level" cleaning system technology, according to Richard Levings, American Augers director of product management.

"The technology other systems have utilized for years just can't manage this rate of flow," Levings says. "The M-300 is based on a state-of-the-art, single Derrick FLC-504 Linear Motion Shaker design and four screens using patented Pyramid Plus screen technology."



The small footprint and ultraquiet operation make the M-300 fluid-cleaning system ideal for use in urban and suburban locations, yet its robust design ensures long-life reliability in daily off-road use towed behind heavy equipment. It comes standard with a 90 kW generator, with the option of upgrading to a larger, 135 kW generator for offboard drill cabins. It offers a total tank capacity of 3,100 gallons, broken into a 1,800-gallon capacity for screenings and a 1,300-gallon capacity for cleaning and mixing fluid. It comes in at a compact length of 27 feet 3 inches when mounted on a trailer, with a weight of 28,600 pounds.

Other unique M-300 features include a tank agitation system that keeps all solids suspended in the tank and three function-dedicated pumps that ensure consistent high-level fluid-cleaning performance throughout drilling operations.

"The result is that the M-300 not only provides a true, first-cut 300 gpm capacity, but maintains one-half percent sand or less in fluid returned to the hole — that's exceptionally clean," Levings says.

**419-869-7107; [www.americanaugers.com](http://www.americanaugers.com)**





4

#### 4. McElroy Acrobat 315 fusion machine

The Acrobat 315 from McElroy meets the demand for polypropylene pipe fusion capability up to 12 inches while offering low- and high-force options for pipe. The compact, lightweight machine functions indoors in tight workspaces and outdoors in the smallest trenches. The machine can be paired with two different hydraulic power units to meet the maximum system pressure desired. There are also two options for carriage pressure configurations: low force, for fusing in low-drag situations or with thinner-walled pipe, and high force, for fusing in high-drag and vertical applications. The facer has a motor and gear reduction, which creates a lightweight, compact assembly that is balanced, and it also has a trigger-released lock to secure it in the carriage during use. 918-836-8611; [www.mcelroy.com](http://www.mcelroy.com) ▼

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Mike Morehouse, Owner  
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## Screening attachment solves soil, bark and wet clay problem

### PROBLEM

For Timberline Tree Service in Burlingame, California, a powerscreen could not effectively break down wet clay at its facility. Initially, company officials were looking for a machine to screen soil and bark. Once Tyler Willett, president of Timberline Tree Service, discovered MB Crusher America's screening attachment at World of Concrete 2016, he set out to ask questions about this product and how it could help him manage his material. Speaking with MB Crusher America area manager, Chris Ballengee, about his current dilemma with soil and bark, Willett also mentioned a common problem at his company: working with wet clay chunks created by rain.

### SOLUTION

Ballengee explained a process that could help break down the clay chunks by placing large rocks into an **MB Crusher America screening attachment**. The large rocks would allow the wet clay to be screened through the screening panels. This was enough for Willett to purchase the MB-S18 screening model with 2-inch screening panels. The unit is a large trommel screening attachment designed for excavators weighing between 44,000 and 77,200 pounds. It is built to manage on-site processing and recycling without the need to transport material to a third-party processing facility.

### RESULT

A year after Timberline Tree Service's initial purchase, the company has added another MB Crusher America screening attachment to its lineup to further increase its production. 855-622-7874; [www.mbamerica.com](http://www.mbamerica.com) ▼

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1984 Mack R686ST with a 1999 Keith Huber Dominator 3,000-gallon carbon-steel, dump type, DOT, vacuum tank unit. (Stock# 1165C) [www.VacuumSalesInc.com](http://www.VacuumSalesInc.com) (888) VAC-UNIT (822-8648) (PBM)

2007 Sterling Vactor 2100PD tandem-axle combination cleaning truck. Ex-city owned, well maintained, and equipped with California Carb Compliant DPF System. See details of this unit and other cleaning and CCTV inspection units at [www.empireequip.com](http://www.empireequip.com). Contact Craig at 714-639-8352. (CBM)

2004 International Vac-Con: 12-yd., 3-stage fan, 80gpm @ 2,000psi, Allison automatic. Ex-city unit, low hours, low miles. Work-ready unit. \$68,900. 800-627-0778 (C03)

2003 Vactor Model 2115 on Kenworth T800 chassis with 475hp CAT engine. Road Ranger transmission, suspension 20K front 50K rear, Roots 1024 blower 5,500cfm, 110gpm rodger pump with 1 1/4" hose. Production unit loaded with options. Located in NY. \$95,000. 914-739-3300; [bcook@fredcook.com](mailto:bcook@fredcook.com) (C03)

Two (2) 2010 Freightliner Vactor 2100s: Roots PD blower 27", 10-yard debris tank, pump-off system. Vactor 80gpm @ 2,500psi jetter, 600' 1" jet hose. 972-938-1905, TX (P03)

Wanted to Buy: Vactor 2100s and late model Guzzlers. Cash. Phone 800-336-4369. (PBM)



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☐ 0 ☐ 1-3 ☐ 4-5 ☐ 6-7 ☐ 8-9 ☐ 10+

What is your annual equipment budget?

☐ 0-50K ☐ 51K-75K ☐ 76K-150K ☐ 151K-250K ☐ 251K-350K ☐ 350K+

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# Happenings

## CALENDAR

**March 6-8**

**Common Ground Alliance (CGA) Excavation Safety Conference & Expo**, Phoenix Convention Center, Phoenix. Visit [www.cgaconference.com](http://www.cgaconference.com)

**March 6-9**

**National Utility Contractors Association (NUCA) Annual Convention**, Wyndham San Antonio Riverwalk, San Antonio. Visit [www.nuca.com/convention](http://www.nuca.com/convention)

**March 20-23**

**Association of Equipment Management Professionals (AEMP) 36th Annual Conference**, Rosen Plaza Hotel, Orlando, Florida. Visit [www.aemp.org](http://www.aemp.org)

**March 22-24**

**Mid-America Trucking Show**, Kentucky Exposition Center, Louisville, Kentucky. Visit [www.truckingshow.com](http://www.truckingshow.com)

**March 25-29**

**North American Society for Trenchless Technology No-Dig Show**, Palm Springs Convention Center, Palm Springs, California. Visit [www.nastt.org](http://www.nastt.org)

**April 21-26**

**World Tunnel Congress (WTC)**, Dubai World Trade Centre, Dubai, United Arab Emirates. Visit [www.wtc2018.ae](http://www.wtc2018.ae)

**May 22-24**

**National Utility Contractors Association (NUCA) Washington Summit**, Holiday Inn Capitol, Washington, D.C. Visit [www.nuca.com/summit](http://www.nuca.com/summit)

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## What's Your Story?

**Dig Different** welcomes news about a tough excavation, pipe bursting, trenching, boring or tunneling job you just completed for the Down & Dirty column.

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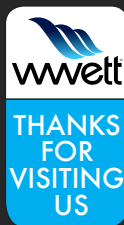




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