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ON THE COVER

Bradd and Sarah Conn, owners of American Rooter Plumbing, took a leap of faith and founded their Nebraskabased business in 2012. Today, the company has four service vans and provides a full range of drain and plumbing services. (Matt Ryerson/Ryerson Photography)

COMING IN JUNE

Location & Leak Detection, Drainline TV Inspection Equipment

MONEY MACHINES: First-aid for clogged drainlines
TECH PERSPECTIVE: Organized trucks save big bucks
SAFETY FIRST: 7 ways to commit to workplace safety

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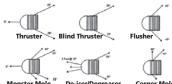




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Kayla Bisnette

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Answer the Door

Be ready to take advantage and build your business when opportunity knocks

really like both profiles in this month's issue. They both represent entrepreneurial spirit and a willingness to adapt to the market and carve out a profitable niche.

Mississippi-based B Clean is a full-service industrial cleaning company. It has grown to a multimillion-dollar-a-year company on the back of the local chicken-processing industry — a market most companies will never serve at all. About 60 percent of the company's annual revenue is generated by cleaning pipelines and tanks in roughly 15 poultry-processing plants.

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The company also does work for related industries, such as feed mills and chicken hatcheries.

The entrepreneurial spirit that fostered the company and led to its unique market position has been a key to its success. Owner Alex Hodge was a Mississippi Highway Patrol officer who drove feed trucks on his days off. He bought a pressure washer when someone from a local chicken-processing company approached him about getting into the truck-washing business. When that same company needed a contractor to clean stoppedup drains, he invested in a small vacuum truck. A combination truck followed soon after, and B Clean was on its way.

When opportunity presents itself, Hodge and his team take advantage. It's an approach that has served the company well, and it's a great example to other companies looking to make their mark.

This month's cover story shines a light on American Rooter Plumbing. Owners Bradd and Sarah Conn took a chance on their dream in 2012. After entering the drain cleaning and plumbing trade in his home area of Scottsbluff, Nebraska, Bradd Conn moved east to Omaha where the larger metro area offered greater opportunity. He worked for other companies, gaining skill and experience, and finally decided to take the entrepreneurial leap.

With only \$5,000 in his bank account, he traded his pickup for a service van and went to work, focusing solely on drains in the beginning. He soon learned there were customers ready to give his new company some business. Six years later, the company is cleaning up in the sewer and drain market, in addition to providing a full range of plumbing services.

Both stories are interesting in how the owners took advantage of opportunities and built businesses around them. It's the American dream, and it's alive and well in the sewer and drain industry. For Hodge, opportunity knocked. Conn chased down his opportunity. But both took advantage when they saw opportunity. I really like that about this industry.

If you have knowledge and the drive, and you do good work, you can make it in this industry. We cover small business, big companies, and some that started as one-man shops and grew into industry leaders. The opportunity is there. I hope you're taking advantage.

Enjoy this month's issue. **c**



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SEWER EDUCATION

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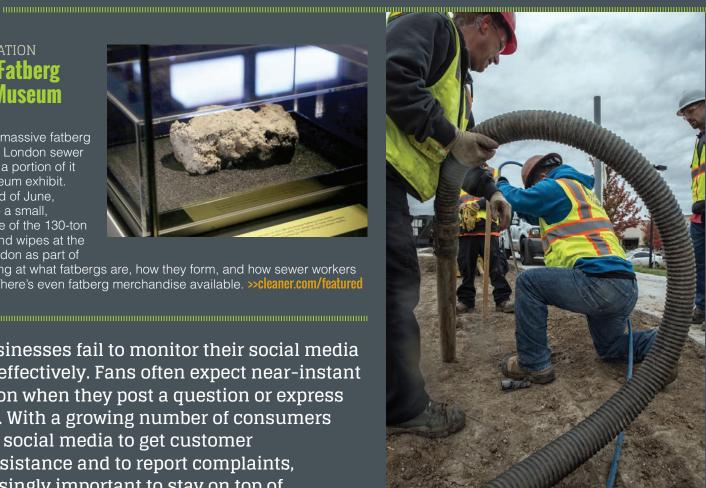
Remember the massive fatberg discovered in a London sewer last year? Well, a portion of it became a museum exhibit. Through the end of June, people can see a small, preserved piece of the 130-ton mass of FOG and wipes at the Museum of London as part of



an exhibit looking at what fatbergs are, how they form, and how sewer workers remove them. There's even fatberg merchandise available. >>cleaner.com/featured

"Many businesses fail to monitor their social media accounts effectively. Fans often expect near-instant gratification when they post a question or express a concern. With a growing number of consumers turning to social media to get customer service assistance and to report complaints, it's increasingly important to stay on top of comments, messages and mentions of your brand."

5 Big-Brand Social Media Tactics for Small Businesses



FINDING SKILLS

The Secret to Employee Retention

Diversified Underground of Aurora, Colorado, was featured in the March issue. In this online exclusive, learn more about how the company handles a common problem in the industry — attracting and retaining quality skilled laborers. »cleaner.com/featured



SMART SERVICE

This Strategy to Improve Customer Service

Good customer service might seem easy. It's just being nice, right? But if that were true, then so many companies wouldn't be getting it wrong, says regular contributor Anja Smith. Smith has a customer service strategy she calls SMART. It stands for specific, measureable, aligned, results oriented, and timely. Read more about it in this online exclusive. >>cleaner.com/featured



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Are You Better Under Pressure?

Inspection cameras are all designed to be waterproof, but you have a choice in how your camera keeps the water out

By Jared Raney

nspection equipment is fast becoming a necessity for cleaning operations, and not a cheap necessity either. So when it's time to invest, contractors need to know that they're getting the right gear for their operation.

Many factors come into play when purchasing a crawler — among the most important is whether to get a pressurized system. Pressurization provides a small amount of added protection and, most importantly, a warning system for when seals fail.

In the end, it comes down to the specific operation and what works best for each individual crew.

PRESSURIZED SYSTEMS DEFINED

It's not as simple as one versus the other: All crawler systems are sealed in some way, shape, or form and exist over a spectrum.

"Any kind of camera that you want to put into a sewer you need to make waterproof," says William Hunt, regional sales manager for Pearpoint/SPX.

Pressurization itself can add some increased resistance, but the main benefit, regardless of seal quality, is as an early warning system.

"People are wanting more and more bells and whistles in the industry, so the trend is to make things more — have more performance — and so obviously the cost increases, and it's even more im-

portant that we have this early warning system," says Mark Shires, mechanical design engineer with Aries Industries.

Of course, nothing is simple, and a pressurized system comes with its own challenges: namely, the possibility of moisture introduction via improper repressurization.

Nitrogen is the inert gas of choice for most across the industry, and as long as nitrogen is on hand, the process of bringing a system back up to pressure is simple. It's when operators find themselves without nitrogen that things become foggy.

Pressurized systems typically go into a low-power, retrieval-only mode when falling below the pressure threshold, making them more or less unusable until brought back to pressure.

Many operators when they are on site and find that their camera is low on



All inspection camera systems are sealed in some way to protect sensitive components from harsh environments. They can be protected from moisture and water through pressurization with an inert gas, or through design standards and are tight enough and strong enough that you don't need to worry about pressurizing the inside.

pressure, will do whatever they can with what is on hand — which is usually a standard air compressor.

You can repressurize with compressed air, but that introduces moisture, and moisture is the enemy of camera systems like these. In the short term, that moisture will cause problems by fogging the lens, and over time, it will corrode internal parts and circuitry, leading to system failure and subsequent repair.

Aries Industries sells repressurization kits with convenient miniature nitrogen canisters, but the burden is on operators to keep them on hand and to consistently monitor the pressure level of the camera system.

"We see that every now and then in our repair department, where someone's put air in it," Shires says. Aries Industries has also begun using a pressurizing port keyed to their nitrogen kits so that it won't accept a standard air compressor pump.

ALL ABOUT THE SEAL

The alternative to a pressurized system is a simple sealed system. But that doesn't necessarily equate to an inferior system.

While some sealed cameras are just that, sealed to the bare minimum of watertight, some are designed to withstand far greater stress, such as Pearpoint/SPX's model, boasting 150 psi pressure resistance.

"That is the base of it right there," Hunt says. "You have the ability

to keep the moisture and the water out by filling it with an inert gas or by designing it tight enough and strong enough that you don't need to worry about pressurizing the inside."

Pearpoint/SPX's system is based off the engineering in its explosion-proof product offerings.

The upside of these systems is less maintenance, and the increased attention to engineering and design provides a high degree of confidence in its seal.

"You have the ability to keep the moisture and the water out by filling it with an inert gas or by designing it tight enough and strong enough that you don't need to worry about pressurizing the inside."

William Hunt

Pressurized systems naturally lose pressure over time and must eventually be repressurized, even if the seals are holding. In part that's because the injection port itself is an added way for air to escape. The downside of unpressurized systems is that if a seal does fail, you won't know until it's too late.

Another aspect to keep in mind when researching systems is that most are compartmentalized, meaning that if a seal does fail, it won't compromise the entire system.

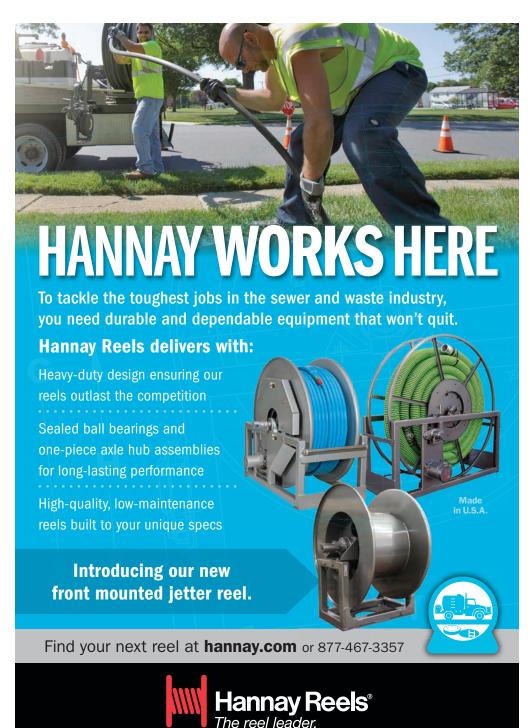
IT'S UP TO THE OPERATORS

The question of whether or not to get a pressurized system may lie with operators and their maintenance practices. Does your company have standard preventive maintenance exercises, or is it likely that a particular group of operators might forget to check the pressure before arriving on site without nitrogen canisters?

There are factors that must be determined before even getting into the pressurization debate, such as seal quality.

"We feel like the most important thing obviously is just to make sure the seals are good, reliable seals," Shires says. "We've been working hard the last couple years to improve our seals. ... We don't want customers to have to repressurize frequently."

Even if you decide the maintenance of a pressurized system isn't for you, asking about the seals and pressure ratings will ensure that operators don't end up with an inferior system, which can cost you time and money. **c**



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Don't Let Your Top People Leave

With the right strategy, a high level of employee turnover doesn't have to be inevitable

By Ken Wysocky

he average person will hold about 12 different jobs between the ages of 18 and 48, according to the U.S. Department of Labor. That's bad news for your sewer and drain business, and a big expense.

In fact, the Society of Human Resource Management estimates that organizations spend the equivalent of six to nine months of a departing employee's salary to find and train a replacement. Some estimates run even higher; a survey conducted by the Center for American Progress shows that the cost can range from 16 percent of an hourly, unsalaried employee's pay (that's \$6,400 out of a \$40,000 annual salary) all the way up to 213 percent for high-level personnel.

With those figures in mind, wouldn't it be great if your employees could scratch their job-hopping itch and hold most of those 12 different jobs within your organization, rather than leaving and becoming free

"If managers aren't helping employees evolve,

then they're not really managing those employees."

Jack Hill

agents every few years? While it may sound far-fetched, doing so doesn't require bending the time-space continuum or traveling to an alternative dimension. Instead, all it takes is building a culture of internal mobility, says Jack Hill, the director of talent acquisition solutions at People-Fluent, a talent-management consulting firm.

"There's a real shift occurring in employee-retention efforts

within organizations," says Hill, who has more than 20 years' experience in the employee-recruitment industry. "If employees are going to hop from job to job, companies need to find a way to let them do it internally — allow people to self-manage career paths. Think of it as a totally different spin on talent acquisition."

Businesses with turnover lose more than just productivity and the financial resources required to continually recruit and train new employees. They also lose a valuable base of institutional know-how. "There's no one around to make sure that knowledge trickles down to the next generation of employees," Hill notes. "And it takes time to get a new employee operating at the same level of productivity as the employee they replaced."

Moreover, businesses with high rates of employee turnover run the risk of developing a reputation as a bad place to work. And with the ever-burgeoning spread and impact of social media, it doesn't take long for you to find itself with image problems that likely will make recruiting new employees even more difficult, Hill explains.

So what's the solution to this expensive and resource-sucking problem? Create an organizational mindset in which both employees and managers accept — better yet, even embrace — internal job-hopping as a fact of life. And "both" is the operative word here, Hill points out. "It has to be accepted by both managers and employees — that's the big trick."

Managers in particular must walk the walk, not just talk the talk. If they don't, immediate obstacles arise to cultural change. For example, employees will be reluctant to express a desire to try a new job if they fear retribution from an unsupportive manager. Moreover, managers also can thwart the change initiative by consistently refusing to let great employees move on to other positions.

On the other hand, some employees may not deserve new opportunities. "Part of all this is evaluating whether an employee is worth saving," Hill explains. "If someone is not an upwardly mobile employee, is it a loss to the organization if they leave? It's up to organizations to develop successionplanning tools to make those assessments and decisions."

You also have to quickly and competently backfill positions as employees get promoted. Managers need to feel confident about the process — be certain that if they promote a rising star, the void will be filled. "If you build that confidence with managers, then they'll engage their direct reports a little more," Hill says.

It's also critical to establish what Hill calls a culture of internal mobility, which requires managers to keep it top of mind in the daily cadence of work. "They have to think every day like they're selling an idea," Hill says. He also recommends that internal mobility become a part of the annual job-review process; managers should talk about their career development within the organization. "If managers aren't helping employees evolve, then they're not really managing those employees," he says.

Organizations also need to more frequently discuss employees' aspirations for mobility. In other words, just because someone says they're not interested now doesn't mean they won't be in six months.

Another critical component is a solid feedback loop in which employees whose applications for new internal jobs are denied receive a thorough explanation and some coaching. "It's a simple idea, yet not often practiced," Hill points out. "You need to keep encouraging them to apply for other positions. If you're going to build up a culture of internal mobility, it all comes crashing down if you don't communicate with them. It's demoralizing."

Last but not least, you have to treat employees who take new internal positions just like new employees. Hill calls this "cross-boarding," a hybrid of onboarding. "It's basically re-socializing someone in their new role within an organization."

The beauty of all these strategies is that they're not high-cost propositions, either. So your business has little to lose financially and everything to gain if you develop a culture where employees are self-directed owners of their career development. c

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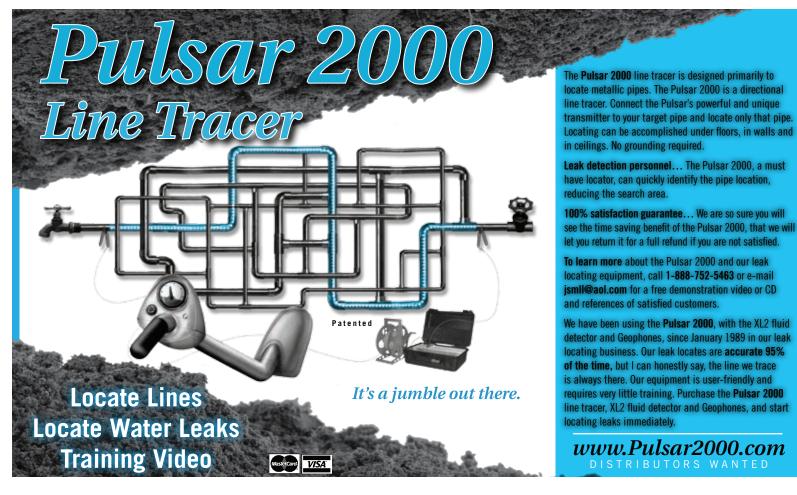
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THE SWEET SMELL of Success

Spirit and determination carry a young contractor across his home state to new opportunity **By Giles Lambertson // Photography by Matt Ryerson**

The logo of American Rooter Plumbing features an American flag. Trucks and employees are dressed up in red, white and blue. The company's core values are synonymous with mom and apple pie. What's more, the family-owned company is literally the result of an entrepreneurial American dream.

"I had a dream of owning my own company," says Bradd Conn, American Rooter Plumbing owner and president. "I woke up one morning after two or three weeks of the dream and that day told my girlfriend (now wife), Sarah, that I was going to start my own business. She was finishing school with a business degree and told me she could help."

So they did. Six years later, American Rooter Plumbing is expanding throughout the region surrounding Omaha, Nebraska. The company website shows a picture of the couple and their daughter Eliza. "Sarah is the brains of the operation," Bradd Conn says. "She runs it all behind the scenes."

While this sounds pretty homespun and idyllic, the fact is the company is a result of initiative, hard work and, yes, entrepreneurial spirit. Conn didn't inherit the company. He paid his dues, learned the

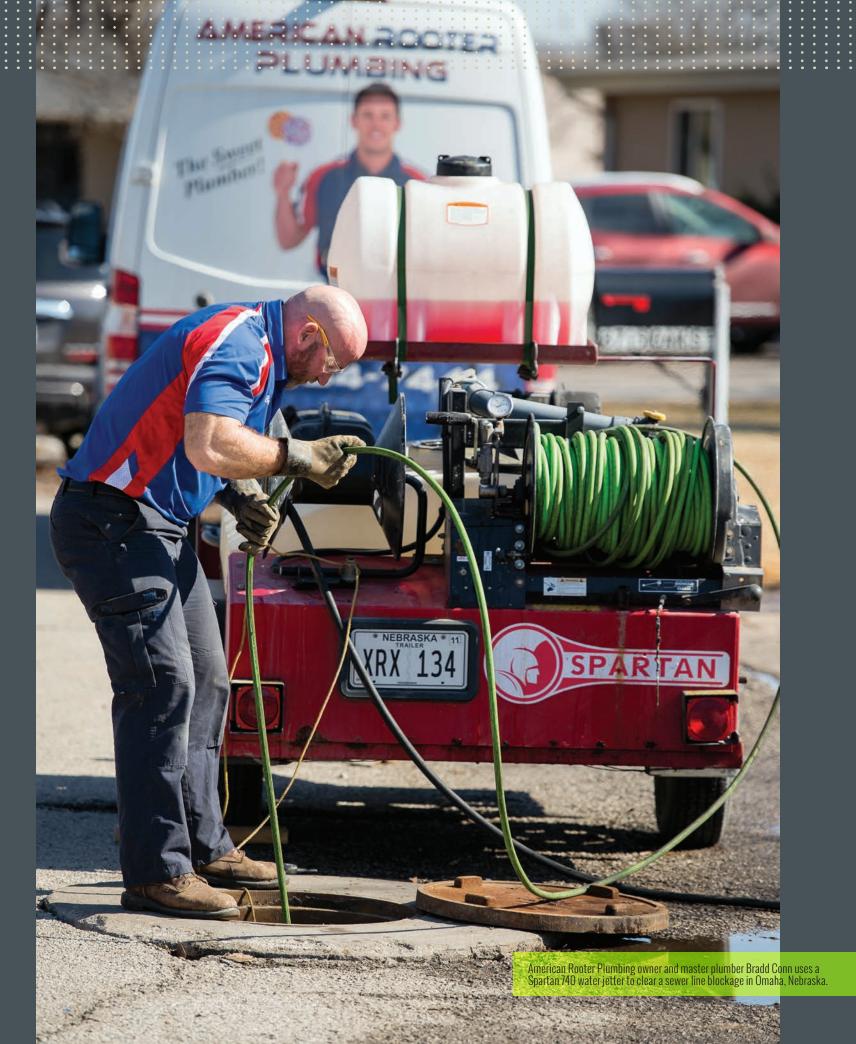
trade on the job, and was determined to make a success of it.

That determination first caused him to enter a plumbing apprenticeship program in Scottsbluff, his hometown of about 15,000 people in a far western county that abuts Wyoming. While an apprenticeship program in Scottsbluff introduced him to a potentially satisfying trade, the community was too small to offer him the full opportunity he sought.

So in 2002, he packed up and traveled 450 miles east to Omaha. Nebraska's largest city is perched on the banks of the Missouri River, with nearly a half million people in the city and 1.3 million in the greater Omaha region. It turned out to be exactly the opportunity he sought.

Nebraska has an unusual decentralized licensing system for plumbers. Each urban jurisdiction is its own licensing jurisdiction.









roots from a lateral line on a routine drain cleaning job.

Conn reacts to pulling a large ball of roots from a clean-out while cleaning a customer's lateral line.



Therefore, to offer his services to the general Omaha market, Conn acquired five master plumber licenses — plus a Nebraska Grade VI backflow license — so he can serve customers across the Omaha metro area, as well as across the river in Council Bluffs and other Iowa communities.

While this multiple-licensing requirement is a paperwork hassle, complying has afforded the company a larger market. Most of his customers are residential and have properties in Nebraska, but some are in Iowa.

GOING ALL IN

After completing his four-year apprenticeship, Conn worked for several plumbing companies before and after moving to Omaha. In early 2012, when he and Sarah elected to follow his dream, he kept his job as a plumbing employee and launched a drain cleaning business. He focused solely on drains in the beginning because he had not yet acquired a master plumbing license, which happened in October of that year. Soon he learned there were customers ready to give his new company some business.

"Right away, I got a couple calls from potential customers and snaked a drainline for the first time," he recalls. "After a couple more calls, I decided I was either all in or not in at all."

He decided to take the plunge and gave his boss notice of intent to leave. In a classic entrepreneurial gambit, with \$5,000 in his bank account as capital, he traded his Ford Ranger pickup for a service van, married his sweetheart and business partner, and American Rooter Plumbing was born. Six years later, the company is cleaning up in the sewer and drain market and also with a full range of plumbing services.

When Conn began his drain work, he quickly discovered he needed a water jetter to completely satisfy the demands of customers. So two months in, he bought a RIDGID KJ-3100 portable jetter with 3,000 psi working pressure. It effectively cleans lines from 2 to 10 inches in diameter. Conn kept the new cleaning tool on his truck so that if a clogged line needed jetting, he could immediately do the job. Such readiness helped him earn the loyalty of customers: 80 percent of his calls now are from repeat customers.

Business expansion has required him to add more tools and employees. As of February, the company has four employees, four trucks including two Mercedes-Benz Sprinter vans, and numerous pieces of equipment including a Spartan Tool 740 hybrid jetter that produces 4,000 psi, and five pipeline inspection cameras.

"We started using the cameras right off the



"Right away, I got a couple calls from potential customers and snaked a drainline for the first time.

After a couple more calls. I decided I was either all in or not in at all."

Bradd Conn

bat," Conn says. "Every sewer or drain cleaning job begins with camera work. Every time we go to a main drain, we want to be able to leave the property with the drain fully open. Also, we want to educate our customers about what's going on with their lines. With the cameras, we can show them."

Bradd Conn (left) talks to journeyman plumber Jim Tighe while cleaning a sewer line.

A portable RIDGID SeeSnake rM200 camera is assigned to each truck and operator. The company has a microunit for special situations.

Pipe bursting work is a growing segment of company business, according to Conn. "Each year, there is more and more of it. We get lots of referrals. One thing that makes us different from some other companies is that we give a 99-year warranty on the pipe we install." Most of the pipe in the area is clay, and the company's HammerHead Trenchless pipe bursting system makes short work of it.

PROGRESS AND VALUES

The bigger expansion news for American Rooter Plumbing is that it is moving into a new office. The Conns started their company at home with a lone service truck parked in the garage. Two years in, they purchased a couple of acres to serve as a home base where they could park company trucks. In mid-February, the company closed on a building in Omaha and began to renovate and move into it as a storefront location.



>>> Bradd Conn uses a Ridgid SeeSnake to show clients Adam and Sarah Shaver the condition of their sewer lateral after cleaning and removing roots from the line.





Some projects mean more

Every successful company looks back on one significant project or another with extra pride. Such experiences not only make money, they bring satisfaction to company owners because of how well a crew performed or how effectively a community was served. Of such are good memories made.

For American Rooter Plumbing, a particularly memorable success involved clearing clogged lines in a housing complex for American veterans. The facility is located in Norfolk, a retail community of 25,000 people in northeast Nebraska some 110 miles northwest of Omaha. One of four centers operated by the Nebraska Department of Veterans' Affairs, it is a nursing home and rehabilitation center for 150 vets.

In early 2017, the center experienced drain problems. In one area of the complex, lines were being snaked repeatedly every day. After American Rooter Plumbing was called, company owner Bradd Conn examined the drains with an inspection camera, found obstructions, and hydrojetted the clogged line. One year later, that line has not required additional cleaning.

However, in another wing of the housing complex, a more severe blockage was found. Residents in that wing were moved, and Conn subcontracted out hydroexcavation work to uncover a bad line. It was buried 7 feet below a hallway floor. Eventually, 20 feet of line was exposed and replaced. In yet another area of the facility, a second obstructed drainline was discovered. Once again, Conn brought in a hydroexcavation crew, this time removing 8 feet of soil so he could replace 6 feet of collapsed and clogged drain pipe.

"We stayed out there and worked endlessly," Conn recalls. Hallways were covered with plywood and kept as clean as possible. He was especially gratified that the work was completed without interrupting services in other wings of the facility. "That was my proudest moment on a job. We were proud because we had been able to help out our veterans."

Looking ahead, Conn expects to stay within his current service territory but hopes to add more employees, equipment and customers. He says he would be content with about 15 people and six or seven trucks in a smoothly functioning midsize operation.

us different from some other companies is that we give a 99-year warranty on the pipe we install."

Bradd Conn

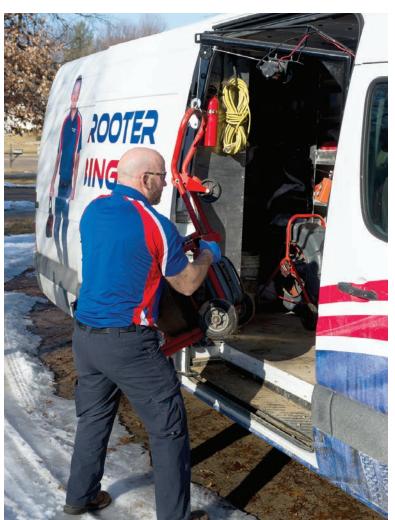
The progress is evident for a drain cleaning company that started in the midst of a weak recovery from a severe recession "You know, that's the thing. I didn't know any better. What I did was go around and talk to a lot of plumbers about doing their drain cleaning. They saw the values we had about how to treat people, about customer service. They really liked using us for cleaning work," Conn says.

Customer feedback seems to confirm that the values Conn voiced in soliciting work from plumbers continue to guide the company. "Customers talk about quality of work, about being trustworthy, about being efficient," Conn says, adding that he holds at least three training sessions per week for his technicians. "We teach them how to keep their trucks clean, keep things organized, pay attention to details. All the little things add up."

Sarah Conn created a slogan for American Rooter Plumbing. The company is where customers can find "The Sweet Plumber." The tie-in acronym SWEET means a commitment to Self-improvement, a Wow experience, Educating clients, Encouraging one another and Transforming lives. Hard-bitten big-city dwellers might dismiss such sentiment as too saccharine. Yet it accurately conveys the enterprise's allegiance to what Conn calls "Midwestern values."

"I would describe Midwestern values as being about your faith, your family, taking care of one another and treating people





We Bradd Conn lowers a cable machine from his van with an electric hoist.

like you want to be treated. It's about being hardworking and never giving up," Conn says. "SWEET is our guiding philosophy. It is. When I am training our techs, I ask them to tell me about their 'wow' experiences. And we encourage one another. When we are hiring, we make sure anyone we hire will fit our core values. If it takes longer to find someone because of that, so be it."

Conn picked up the values as a member of a large family in Scottsbluff. That's also where he caught the entrepreneurial bug. He was mowing lawns early and otherwise helping make his way. He grew up admiring his

mother's father, who had his own office-cleaning business, as well as a business-owning uncle on his mother's side. "I definitely got the entrepreneurial gene from my mother's side of the family."

He has nurtured that genetic impulse — with help from Sarah and turned it into an established, forward-looking plumbing and drain cleaning company.

"It comes down to being able in my life to make something bigger than me, something that can touch the lives of a lot of people," he says. "And to be able to build something and pass it down to my kids." c







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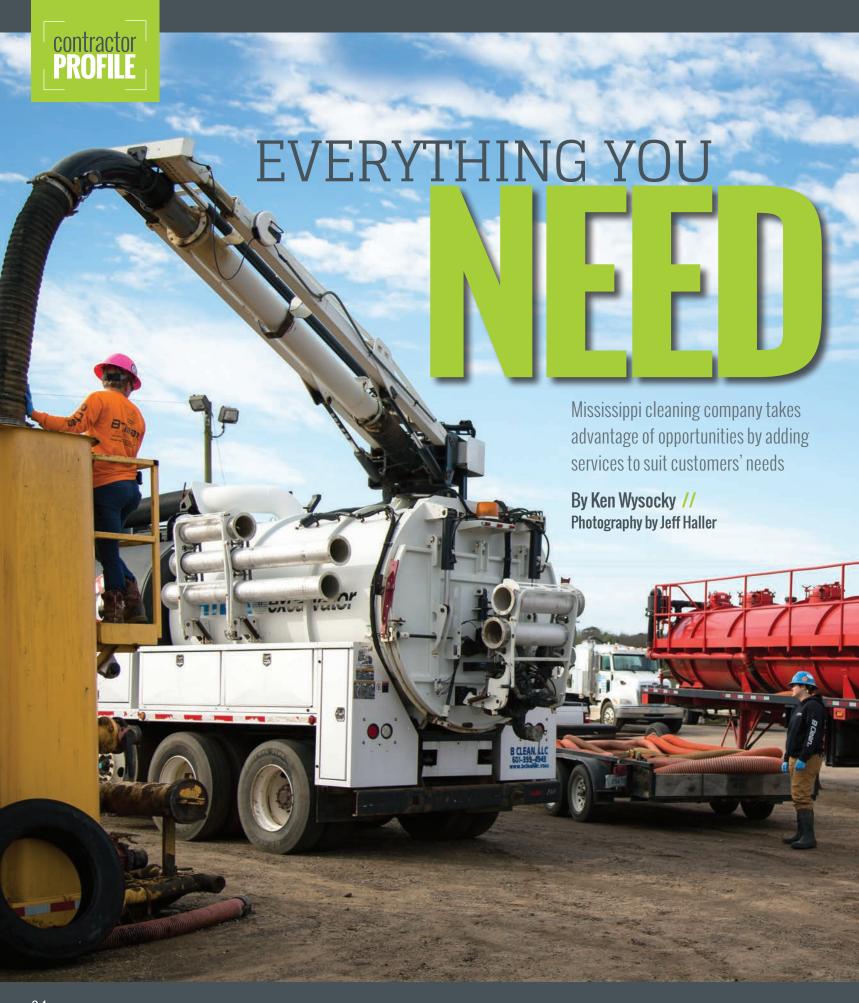
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s America's fifth-largest producer of broiler chickens,
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the scenes, B Clean — a full-service industrial cleaning

that multibillion-dollar industry running smoothly.

In one sense, B Clean has a lot of its business eggs in one basket since about 60 percent of its annual revenue is generated by cleaning pipelines and tanks in roughly 15 poultry-processing plants. That includes some of the largest companies in the industry. The company also does work for related industries, such as feed mills and chicken hatcheries, says Chris Hodge, the company's sales manager and a cousin of company owner Alex Hodge.

company in Laurel - plays an important role in keeping

But the multimillion-dollar-a-year company, based about 90 miles southeast of Jackson, also offers a full range of other services, including hydroexcavating and hydroblasting for oil and gas field customers in the southeastern U.S., commercial and residential sewer cleaning, grease trap and septic tank pumping, portable restroom rentals — even garbage collection.

"It's really amazing how something else grows off of almost everything we do," Chris Hodge says. "For example, nobody in their right mind would buy a garbage truck unless they're in the garbage business. But we saw an opportunity after a local garbage company got sold to an out-of-state

company. People around here like to use local companies. So guess what we did? Our customers determine the services we provide."

Nonetheless, B Clean still is a business built largely on the back of the region's chicken-processing industry, which generates more than \$2.7 billion in annual sales and an economic impact of more than \$18 billion statewide. Most of the services stem from a very simple fact: The plants process millions of chickens a week, which generates untold tons of byproducts, ranging from fat to feathers.

B Clean
LOCATION: Laurel, Mississippi
OWNER: Alex Hodge
ESTABLISHED: 2000
EMPLOYEES: Around 100
SPECIALTIES: Hydroblasting
and waterjetting drainlines and
pipelines, liquid and dry-waste
industrial vacuuming, video pipeline
inspections, hydroexcavating,
portable restroom rentals
SERVICE AREA: Southeastern U.S.
WEBSITE: www.bcleanllc.com

And if those byproducts clog the numerous pipelines that run throughout the plants, U.S. Department of Agriculture guidelines require production to cease. Such stoppages cost those plants thousands of dollars per minute in lost production, Hodge says; he also owns a large chicken farm himself (88,000 chickens) and worked in the industry for 25 years before joining B Clean.

"That's why we're 100 percent ready to go all the time," he notes. "We're on standby 24/7, just in case there's an event in a plant that might cause a shutdown. On most nights, we have crews working somewhere. ... We literally work around the clock."

The company's dependence on the chicken-processing industry doesn't bother Hodge. "We're committed to the chicken industry," he says. "As an economy gets worse, people eat more chicken. So even a bad economy doesn't hurt our business."







"We do work at a corn-dog plant, and let me tell you,

corn-dog sticks and cornmeal do not work out too good in a drainline."

THE HEAVY METAL

To clean chicken fat and other debris from pipelines, the company relies on a fleet of Vactor combination trucks — two 2100s and a pair of 2100 Plus models. They each feature a 3,000-gallon debris tank, a 3,000 psi/80 gpm Vactor water pump, a 6,000 cfm Roots Systems blower, 1,500-gallon water tank, 15-foot-long boom that rotates up to 180 degrees for maximum coverage, a hydraulically operated rear debris-tank door and 600 feet of 1-inch-diameter hose.

Chicken fat is surprisingly difficult to clear from pipelines. Hodge says it dries as hard as rock; the company typically uses StoneAge Warthog nozzles to cut through the clogs. "The fat forms what looks like stalagmites and stalactites you'd find in caves," he says. "They'll eventually turn, say, a 10-inch-diameter line into maybe a 3-inch line."

While it may seem counterintuitive, chicken feathers also create tough clogs. "There's thousands of pounds of feathers going into a 25-inch-diameter pipe every day, and when they dry up and get compressed, they're like concrete," he explains.

Cornmeal also wreaks havoc with pipelines at feed mills, he adds. "Have you ever seen cornmeal in a drain?" he asks. "It's just like chicken fat. We do work at a corn-dog plant, and let me tell you, corn-dog sticks and cornmeal do not work out too good in a drainline."







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Company strives to retain quality employees

Thanks to a low rate of unemployment, it's hard to find workers in the region around Jones County, Mississippi, the home base of B Clean, a diversified industrial cleaning outfit.

"We produce a lot of products around here, from computers and electrical substations to chickens, electrical transformers, and jet engines," explains Chris Hodge, the company's sales manager. "So it's harder to find workers here than in other places."

As such, the company does many things to attract and retain employees. When new employees come on board, they're continually receiving training that makes them more valuable to the company. That includes cross-training for various jobs, which keeps employees motivated and helps them avoid burnout, Hodge says.

"We encourage further education," he notes. "For example, we'll help employees get their commercial driver's license." The company also provides training so it can promote from within. For instance, it's not unusual for someone who starts out washing vacuum trucks to end up being a driver/operator. "We try to develop our better employees — people who are interested in bettering themselves."

In addition, employees who are on call get to drive a company truck home, and the company pays a portion of their cellphone bills.

The company also offers health insurance and paid vacation time and is developing a 401(k) retirement program. Moreover, B Clean strives to recognize employees for good work whenever possible. "People just want to be appreciated," Hodge says.

The company also periodically closes down for a day for company-wide retraining. Employees attend lectures and watch videos and even live demonstrations of things such as cleaning restrooms; washing trucks; and operating vacuum trucks, hydro blasters, and pipeline inspection cameras.

"We might have a 6-month employee who doesn't know the extent of all of our services," Hodge says. "This day of training allows them to become sales people out in the field. They need to be the experts on what we do. That way if they see customers that have, say, roll-off dumpsters, they can ask the customer if they're happy with their current provider. Having employees double as salesmen has helped us grow the business.

"This one-day focus on training also helps us establish standards for employee performance in all areas," he adds. "Companies need to tell employees what the standard is. Whenever we do these sessions, it's amazing how much difference we see in terms of employee morale."



CUSTOM JOINT TESTER

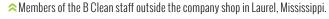
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« Ollie Pipkins checks over and sets up a new Jetstream water blaster in the company shop.

B Clean (the letter B stands for the initials of Alex Hodge's sons, Braydon and Bryson) encourages customers to sign up for maintenance programs that include regularly scheduled cleaning for production-floor drainlines. While Hodge concedes such plans are expensive, he says they're a value compared to the revenue lost when a plant can't process chickens. Moreover, pipelines that get cleaned on a quarterly basis, for instance, are far less likely to develop problems. "Companies on a program have very few problems with clogged pipes," he says.

"When a customer picks up the telephone, they know we can get the job done. If they need a sandwich made or a drain cleaned, we'll get the job done."

Chris Hodge

UNLIKELY START

It's hard to believe that a sprawling company like B Clean started with just a single pressure washer, used for cleaning feed trucks. But that's exactly how Alex Hodge started out in 2000. After a stint in the U.S. Air Force, he worked for the Mississippi Highway Patrol. To earn extra money, he drove feed trucks on his days off.

"One day someone from a local chicken-processing company approached him about buying a pressure washer and getting into the truck-washing business," Chris Hodge relates. "So he put in a bid to wash trucks, and when he landed the job, he bought a pressure washer."

CONTINUED>>>





Camera truck supervisor Derek Wagner takes care of some routine maintenance in a RapidView IBAK-equipped inspection van.



"When we drive up to a job site, we're ready to go to work — no messing around. We're not the cheapest people in the business.

But when customers make that telephone call, they get the best in the business - high-quality service every time."

Chris Hodge

A few months later, Alex Hodge heard the company was also looking for a contractor to clean stopped-up drains, so he invested in a small vacuum truck. Then another large chicken producer offered him more drain cleaning business, so he invested in a combination sewer truck — his first Vactor 2100 — in 2005.

"I came on board in 2008 and really started to push the chicken business," explains Chris Hodge, who earned a poultry science degree from Mississippi State University in 1989. "I knew a lot of people in the chicken business. We just grew the business, one job at a time, into a multimillion-dollar-a-year company."

Disposal of byproducts usually isn't an issue for B Clean because the processing plants take most of whatever debris the vacuum trucks

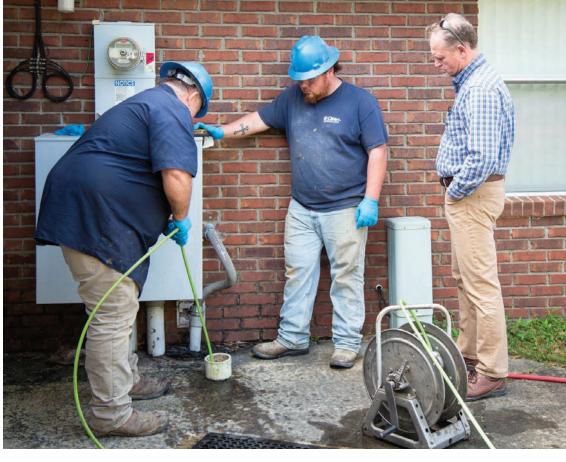
collect and put it back into their waste systems, which separate and clean the byproducts and sell them to rendering plants. "Virtually everything gets reused, from feathers to claws to the blood, which is a rich nutrient used to make blood meal," he explains. "If it can't be reused, we get a manifest for a landfill and take the material there for disposal."

LARGE FLEET

As the company's services expanded, so did its fleet of equipment. In addition to the four Vactor combination sewer trucks, the company owns a Guzzler Classic vacuum truck equipped with a Roots Systems blower. It's primarily used for dry-vacuuming spills at feed, saw and paper mills.

The company also owns two Guzzcavator hydroexcavating trucks equipped with water pumps made by Cat Pumps and a Roots Systems blower. The units are used primarily to expose underground pipelines at natural gas facilities and in oil and natural gas fields. "We like the Guzzcavator because it's so versatile — it can handle dry and wet material, like heavy slurries," Hodge says.

B Clean also owns a Vactor HXX hydroexcavator with a water pump from Cat Pumps and a Roots blower. Furthermore, the company has invested in two 130-barrel tanker trailers, used mostly for support in oilfield drilling operations. Dragon Products and Pac-Mac manufactured the tankers, and both are equipped with vacuum pumps made by Fruitland.



Chris Hodge (right) looks in on a job as Duane Simmons (left) and Dalton Cuthirds clean out a sewer lateral.

To clean grease traps and septic tanks, the company relies on a Vactor Predator vacuum truck with Fruitland vacuum and water pumps.

For cleaning sewer laterals and sewer mainlines, the company owns one US Jetting trailer jetter featuring a 300-gallon water tank and a water pump that generates 3,500 psi and 25 gpm and another built by O'Brien with a 300-gallon water tank and a 3,500 psi/20 gpm water pump.

When it's time to turn up the pressure for descaling industrial tanks and oilfield pipelines, B Clean turns to a Jetstream of Houston hydro blaster with a pump that produces from 10,000 to 40,000 psi at 30 to 60 gpm. To handle pipeline inspections, the company owns a Ford camera truck paired with an IBAK camera system from RapidView and PipeLogix inspection reporting software, plus several RIDGID SeeSnake cameras, used primarily for residential lateral inspections.

DIVERSE SERVICES

The ability to perform many services has been critical to the company's success because it boosts customer satisfaction. For example, the company deploys 10,000-gallon-capacity roll-off vacuum boxes. When hooked up to a vacuum truck (sometimes two or three at one time, in certain applications), the roll-off boxes collect the debris instead of the truck's debris tank. The upshot? Vac trucks spend more time working rather than transporting sludge and other materials.





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- 689 CC Honda 300' x 3/8"Hose



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"That way customers spend more of their money on vacuuming rather than on hauling," Hodge notes. "It keeps hoses on the job."

The bottom line: There's virtually nothing the company won't do if a customer asks for it. "When a customer picks up the telephone, they know we can get the job done," he says. "If they need a sandwich made or a drain cleaned, we'll get the job done. We might have to hire someone who knows a little more about what they need than we do, but if they're willing to pay for it, we'll get it done."

Hodge also attributes the company's growth to providing quality service, which in turn stems from high expectations and standards the company has for its employees' performance. "If you expect superior, you just might get excellence," Hodge says. "When we drive up to a job site, we're ready to go to work — no messing around. We're not the cheapest people in the business. But when customers make that telephone call, they get the best in the business — high-quality service every time."

FUTURE OUTLOOK

Looking ahead, Hodge anticipates further growth, some of it coming from garbage-collection revenue and some of it via geographic expansion. "Our vision is to reach wider into Texas and North Carolina ... find customers in those states and watch it spread from there," he says. "I'd also expect to invest in three or four more Vactors."

Of course, the key to expansion is avoiding lapses in quality control as the company gets bigger and bigger. That's not lost on Hodge, who points out that the company's sales team performs safety and quality inspections on every job. "We also follow up with customers to see what they thought about the job we did," he adds. "It's time-consuming and costs a lot of money. But in the end, it's all worth it. We've always got somewhere to go every day. The phone never quits ringing." **c**

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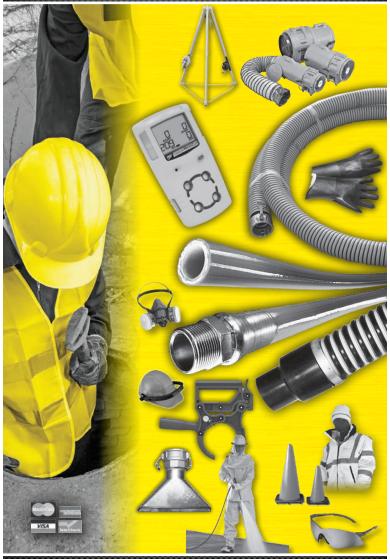
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BULLFROG INDUSTRIES LLC 2420 Astarita Way, Lexington, KY 40509 888-890-1555 www.flushafrog.com • sales@flushafrog.com See ad on page 82 BULLFROG INDUSTRIES	Classic Crapshooter Crapshooter 2 - The Deuce Classic Crapshooter HD Crapshooter 2 HD Pee shooter	3" 4" 3" 4"	1500 2000 1500 2000	1.65 1.76 1.65 1.76	1.2HP 2HP 1.2HP 2HP	X X X X						YES YES YES YES
CAM SPRAY 520 Brooks Rd., lowa Falls, IA 50126 800-648-5011 • 641-648-5011 • (f) 641-648-5013 www.camspray.com • sales@camspray.com See ad on page 42	RCJ4007H VM4007H VM2712H TM4012K CS4000QB.4	8" 8" 10" 10" 6"	4000 4000 2700 4000 4000	7 7 11.5 12 4	690cc Honda 690cc Honda 690cc Honda 999cc Kohler 16 HP 479cc Briggs Vanguard		X		X X X X	200' x 3/8" 400' x 3/8" 400' x 1/2" 400' x 1/2" 200' x 3/8"	YES YES YES YES YES	YES
CENTRAL OKLAHOMA WINNELSON 5037 NW 10th St., Oklahoma City, OK 73127 888-947-8761 • 405-947-8761 • (f) 405-947-1934 www.centralwinnelson.com krjones@winnelson.com See ads on pages 20, 62	KJ-1350 KJ-1750 KJ-2200 KJ-3100	4" 4" 6" 10"	1350 1750 2200 3000	1.4 1.4 2.4 5.5			X X X			300, 500, 500,		
EASY KLEEN PRESSURE SYSTEMS LTD. 41 Earnhardt Rd., Sussex Comers, NB E4E 6A1 CANADA 800-315-5533 • 506-433-3393 • (f) 506-433-2443 www.easykleen.com • sales@easykleen.com See ad on page 8	EZJ3512G (w/optional remote) EZO402G (High Pressure & Jetting Combo) EZ05005G (High Pressure & Jetting Combo) EZ03012G IS5005G (High Pressure & Jetting Combo)	8" 15" 8" 8" 8"	3500 3850 5000 3000 5000	12 20 5 12 5	35 HP Vanguard 2 x 38HP Kohler Gasoline Engine 25HP Kohler Gasoline Engine 38HP Kohler Gasoline Engine 25HP Kohler Gasoline Engine	X		X X X	X X X	300' x 3/8" 300' 500'	YES YES YES	YES YES YES
ELECTRIC EEL MF6., CO., INC. 501 W Leffel Ln., Springfield, OH 45506 800-833-1212 • 937-323-4644 • (f) 937-323-3767 www.electriceel.com msperanza@electriceel.com See ad on page 61 Electric Sel.	EJ-1500 EJ-3000	4" 8"	1500 3000	1.7 4.7	11/2HP Electric 13HP	X	X			150' 300'		YES
GENERAL PIPE CLEANERS 1101 Thompson Ave., Mc Kees Rocks, PA 15136-3818 800-245-6200 • 412-771-6300 www.drainbrain.com • info@drainbrain.com See ad on page 2 FIRE CLEANERS	JM-1000 JM-1450 JM-2900 JM-3055 JM-3080 JM-2512 Typhoon	3" 4" 8" 8" 8" 10"	1500 1500 3000 3000 3000 3000 2500	1.4 1.7 4 5.5 8 12	1.2HP 1.5HP 13HP 16HP 20HP 27HP	X	X X X			150' X 1/4" 200' X 3/8" 300' X 3/8" 300' X 3/8" 400' X 1/2"		

JETTER Manufacturers	MANUFACTURER MODEL	MAX PIPELINE CAPACITY	PRESSURE (PSI)	FLOW (GPM)	MOTOR/ ENGINE	CARRY	ORTA TINA/HSNA	MOL MOL	MOUNTED	HOSE REEL CAPACITY	WIRELESS REMOTE CAPABILITY	HOT WATER JETTING
GORLITZ SEWER & DRAIN, INC. 10132 Norwalk Blvd., Santa Fe Springs, CA 90670 877-460RLITZ • 562-944-3060 • (f) 562-944-7630 www.gorlitz.com • sales@gorlitz.com See ad on page 25	GO 400 GO 200 GO 1500 GO 1500A	8" 4" 3" 3"	4000 2000 1500 1500	8 3 2.1 2.1	Honda GX630 Honda GX200 Baldor 2HP Baldor 2HP	X	X X X X					
JETTERS NORTHWEST 2222 15th Ave. W, Seattle, WA 98119 877-901-1936 • 206-283-5252 www.jettersnorthwest.com info@jettersnorthwest.com See ad on page 61	Eagle 300 - 4018 Trailer Eagle 200 - 3012 Trailer Brute 150 - 4009 Trailer Brute 4009 or 3012 Portable Cart Brute 3012 or 4009 Mountable Skid		4000 3000 4000 3000 or 4000 3000 or 4000		Kawasaki Kawasaki Kohler Kohler Kohler			X X X	X	600' 400' 400' 400' 400'	YES YES YES YES YES	
MYTANA LLC 746 Selby Ave., St. Paul, MN 55104 800-328-8170 • 651-222-1738 • (f) 651-222-1739 www.mytana.com • mytana@mytana.com See ad on page 39	M20 M20T M30 MV80	11/2" to 4" 11/2" - 2" 11/2" to 6" 3" to 10"	1500 1500 3000 3000	2.1 2.1 4.5	2HP Electric 2HP Electric 39Occ Gas Honda 66Occ Gas Honda w/electric start	X	X		X	115' x 1/4" 50' x 1/8" 200' x 3/8" or 75' x 1/8" 250' x 3/8"		YES YES
SEWER EQUIPMENT 1590 Dutch Rd., Dixon, IL 61021 877-735-4640 www.sewerequipment.com sales@sewerequipment.com	Mongoose Jetters Model 123 Mongoose Jetters Model 184 Mongoose Jetters Model 254 Sewer Equipment Co. of America Model 800-HPR ECO Sewer Equipment Co. of America Model 747-FR2000 ECO	6" 18" 24" 48" 36"	3000 4000 4000 2000-3000 2000-3000		25HP Min 49HP Min 66HP Min PTO Drive 80HP Min			X X X	X X X X	250' x 3/8" 600' x 1/2" 500' x 5/8" 1000' x 1" 1000' x 3/4"	YES YES YES YES	YES YES YES
SPARTAN TOOL 1506 W Division St., Mendota, IL 61342 800-435-3866 www.spartantool.com • sales@spartantool.com See ad on page 88 SPARTAN	717 727	6" 6"	1500 3000	2.2 4	20HP Marathon Electric 13HP Honda Gas		X			115' 200'		
TROJAN WORLDWIDE INC. 3306 Ella Blvd Warehouse C, Houston, TX 77018 800-392-4902 • 713-692-1140 • (f) 713-692-1053 www.trojanworldwide.com info@trojanworldwide.com See ad on page 77	C1500 C4300 TWW2000 TWW3012 TWW3034	2" 4" 6" 8" 12"	1500 4000 3000 2200 2200	2 4 10 13 23	2HP Electric 13HP Honda w/ Electic Start 29HP Kawasaki Liquid Cooled 31HP Kawasaki Liquid Cooled 50HP Cat Diesel		X	X X X		150' 300' 400' 500' 800'		YES YES YES
VACTOR MANUFACTURING, LLC 1621 S Illinois St., Streator, IL 61364 800-627-3171 • 815-672-3171 www.vactor.com • sales@vactor.com See ad on page 73 VACTOR	Ramjet Trailer Series	15"	2000-4000	18-40	Hatz and Kubota			X		600' to 800'	YES	
WATER CANNON INC. 4300 Lake Mary Blvd., Units #1010-424, Lake Mary, FL 32746 800-333-9274 • (f) 888-928-9274 www.watercannon.com sales@watercannon.com See ad on page 86	15J84 15J51 15J41 17HJ45 16T47	3" 6" 6" 8" 10"	1500 4200 4200 4200 4000 3000	2 4 4 5.5 10			X X X	X				

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ALLAN J. COLEMAN 5725 N Ravenswood Ave., Chicago, IL 60660 773-728-2400 • (f) 773-728-2499 www.allanjcoleman.com • info@allanjcoleman.com See ads on pages 33, 67		General Pipe Cleaners, Jetters Northwest, RIDGID, Spartan Tool					
	AMAZING MACHINERY, LLC 3811 Old Tasso Rd. NE, Cleveland, TN 37312 800-504-7435 • 423-790-1600 • (f) 800-504-7436 www.amazingmachinery.com • info@amazingmachinery.com See ad on page 55	BossJet					
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DURACABLE. HAR UFACTURING	DURACABLE MANUFACTURING 300 Ashworth Rd., West Des Moines, IA 50265 877-244-0556 • (f) 515-223-6109 www.duracable.com • sales@duracable.com See ad on page 15	RIDGID, MyTana					
	THE CABLE CENTER, INC. 8318 Olive Blvd., Saint Louis, MO 63132 800-257-7209 • 314-993-3099 • (f) 314-432-8024 www.thecablecenterinc.com • thecablecenterinc@gmail.com See ads on pages 50, 71	General Wire Spring, RIDGID, Electric Eel, Spartan					

CABLE MACHINE Manufacturer/distributor	MANUFACTURER Model	DRUM CAPACITY	PIPE DIAMETER	DISTRIBUTOR OF
ALLAN J. COLEMAN CO. 5725 N Ravenswood Ave., Chicago, IL 60660 773-728-2400 • (f) 773-728-2499 www.allanjcoleman.com • info@allanjcoleman.com See ads on pages 33, 67				RIDGID, General, Electric Eel, Duracable, Milwaukee Tool, Spartan Tool
AMAZING MACHINERY, LLC 3811 Old Tasso Rd. NE, Cleveland, TN 37312 800-504-7435 • 423-790-1600 • (f) 800-504-7436 www.amazingmachinery.com info@amazingmachinery.com See ad on page 55	TM50 TM5800 ST-410 ST-4520 ST-650HD	120' 120' 50' 100' 100'	2" to 3" 2" to 8" 2" to 3" 3" to 4" 4" to 8"	TorquMaster, Cobra, Speedway
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DURACABLE MANUFACTURING 300 Ashworth Rd., West Des Moines, IA 50265 877-244-0556 • (f) 515-223-6109 www.duracable.com • sales@duracable.com See ad on page 15	DM175 DM162 DM55 DM30 DM10 J-Maxx DM150 DM140 DM138 DM125	11/16" x 100' 5/8" x 80' 11/16" x 150' 5/8" x 100' 3/8" x 75' 1/2" x 75' 1/2" x 75' 3/8" x 75' 3/8" x 90' 1/4" x 37'	3" to 10" 2" to 6" 2" to 10" 2" to 6" 11/4" to 4" 11/4" to 4" 11/4" to 4" 11/4" to 3" 11/4" to 3" 11/4" to 2"	

CABLE MACHINE MANUFACTURER/DISTRIBUTOR	MANUFACTURER MODEL	DRUM CAPACITY	PIPE DIAMETER	DISTRIBUTOR OF
ELECTRIC EEL MFG., CO., INC. 501 W Leffel Ln., Springfield, OH 45506 800-833-1212 • 937-323-4644 • (f) 937-323-3767 www.electriceel.com • msperanza@electriceel.com See ad on page 61 Slectric Sel.	Model C Sectional/No Drum D-5	3" - 10" 100'	up to 200' 3" to 10"	
GENERAL PIPE CLEANERS 1101 Thompson Ave., Mc Kees Rocks, PA 15136-3818 800-245-6200 • 412-771-6300 www.drainbrain.com • info@drainbrain.com See ad on page 2 GENERAL PIPE GLEANERS	Super-Vee Mini-Rooter XP The Metro Speedrooter92 Maxi-Rooter	50' x 3/8" or 5/16", 35' x 3/8" 75' x 3/8", 50' x 123" 75' x 5/8" 100' x 3/4" or 5/8" 125' x 3/4" or 150' x 5/8"	1 1/4" to 3" 1 1/4" to 4" 3" to 6" 3" to 10" 3" to 10"	
GORLITZ SEWER & DRAIN, INC. 10132 Norwalk Blvd., Santa Fe Springs, CA 90670 877-460RLITZ • 562-944-3060 • (f) 562-944-7630 www.gorlitz.com • sales@gorlitz.com See ad on page 25	GO 68HD - 11/16" x 150' GO 62A - 5/8' x 100' GO 50 - 1/2" x 100' GO 38O - 3/8' x 90' GO 15 - 1/4" x 35'	150' 100' 100' 90' 50'	8" 4" 3" 2" 11/2"	
KEN-WAY CORPORATION 930 Roberts Rd., Sparta, WI 54656 800-533-0551 • 608-269-3752 • (f) 608-269-8129 www.ken-way.com • info⊚ken-way.com See ad on page 58	Ken-Way Jr. Ken-way 400	1/4" up to 50' 5/16" up to 75' 3/8" & 13/32" up to 75' 11/16" up to 130' 3/4" up to 110"	11/2" to 2" 3" to 8"	
MYTANA MFG. CO. INC. 746 Selby Ave., St. Paul, MN 55104 800-328-8170 • 651-222-1738 • (f) 651-222-1739 www.mytana.com • mytana@mytana.com See ad on page 39	M888 Upright M81 Sled/M844 Sled M755 M661 M500	150' 150' 125' 100' 50'	3" to 10" 3" to 10" 3" to 4" 1 1/4" to 4" 1" to 2"	
NU FLOW TECHNOLOGIES 1313 Boundary Rd., Oshawa, ON CANADA L1J 6Z7 905-433-5510 www.nuflowtechnologies.com info@nuflowtechnologies.com See ad on page 11	Pneumatic Micro-Cutter Electric Micro-Cutter		2" and above 2" and above	
SPARTAN TOOL 1506 W Division St., Mendota, IL 61342 800-435-3866 www.spartantool.com • sales@spartantool.com See ad on page 88 SPARTAN	2001 1065 300 100 81 700	300' 250' 200' 50' 35'	3" to 10" 3" to 10" 3" to 6" 1 1/4" to 4" 1 1/4" to 3" 1 1/4" to 2"	
THE CABLE CENTER, INC. 8318 Olive Blvd., Saint Louis, MO 63132 800-257-7209 • 314-993-3099 • (f) 314-432-8024 www.thecablecenterinc.com • thecablecenterinc@gmail.com See ads on pages 50, 71	GO 68HD - 11/16" x 150' GO 62A - 5/8' x 100' GO 50 - 1/2" x 100' GO 38O - 3/8' x 90' GO 15 - 1/4" x 35'	150' 100' 100' 90' 50'	8" 4" 3" 2" 11/2"	General Wire Spring, RIDGID, Electric Eel, Spartan
TROJAN WORLDWIDE INC. 3306 Ella Blvd Warehouse C, Houston, TX 77018 800-392-4902 • 713-692-1140 • (f) 713-692-1053 www.trojanworldwide.com • info@trojanworldwide.com See ad on page 77	Trojan Stallion Trojan Pony Trojan Colt Trojan DC Colt DT188 Drill Machine	162' 110' 105' 105' 45'	3" to 10" 2" to 6" 1 1/2" to 4" 1 1/2" to 4" 1 1/2" to 2"	



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No More Trailering

Urban Warrior's compact size belies its large effect on Florida plumber's drain cleaning business

By Ken Wysocky

here was a time when Marc Carestia, the co-owner of MAC Plumbing in Naples, Florida, spent hours and hours a week driving from job sites to the company's shop to pick up a Spartan Tool 740 trailer-mounted water jetter, then drive back to the job site to unclog a drain.

"It's difficult to park when you're towing a trailer jetter all the time," says Carestia, who founded his company in 2011 and co-owns it with his brother, Ryan. "So if we needed to jet out a line, we had to tell the customer to hold on, then drive back to our shop, hitch up the jetter, and trailer it back to the job. We do a lot of work downtown, and the traffic can be nuts — especially during tourist season. So it could easily be a two-hour round trip."

But Carestia and his brother started dramatically reducing windshield time about a year ago when the company purchased an Urban Warrior waterjetting unit made by Spartan Tool. The unit measures about 4 cubic feet and is skidmounted in the back of Carestia's 2016 Ford Transit.

The unit's impact on MAC Plumbing (MAC stands for Carestia's initials) has been significant. The Carestia brothers now spend less time driving and more time working. They also write more job tickets, enjoy better cash flow and kicked up customer satisfaction a notch.

"Now our jetter is with us all the time — immediately available," Carestia explains. "We can take care of problems right then and there. It's been a game-changer."

The Urban Warrior features a 50 hp Kubota gasoline engine; a Speck/Giant pump that delivers flow of up to 19 gpm and pressure of up to 3,000 psi; two

➤ Marc Carestia, the co-owner of MAC Plumbing in Naples, Florida, prepares to clean a lateral line with the company's Urban Warrior, a compact, skid-mounted jetter from Spartan Tool that fits in the back of his 2016 Ford Transit.



80-gallon water tanks; a hydraulically operated reel that pivots 180 degrees and holds 460 feet of 1/2-inch-diameter hose; 155 feet of filling hose; automatic run-dry shut-off; and a steel, powder-coated frame. Its dimensions are roughly 52 1/2 by 49 by 47 inches, and it weighs approximately 1,200 pounds. Carestia opted to pay extra for an optional remote control and a footage counter.

The hydraulic rewind and remote control functions are among Carestia's favorite features. "I don't have to muscle it or fight it when I'm bringing it back in," he says. "If you're pulling back the hose under pressure to bring back debris, you get a nice, consistent pullback. It's so much easier. Sometimes it even feels like cheating, compared to what we had to do before."

The remote control features engine on/off, water on/off and engine revolutions per minute capabilities. In addition, the Urban Warrior doesn't have an actuated water valve, so when the operator shuts down the machine, water flow stops immediately. "If there's water coming up through a floor drain, for example, you want to be able to turn the water off as fast as possible," he notes. "It's very comforting to know that when you press the button, the water turns off immediately. And if I take the remote past its range, the machine shuts down automatically. It's a great safety feature."

"You can't operate with an instant-gratification mentality.

When you make good investments in good equipment, you're going to see a return – reap the benefits of that investment."

Marc Carestia

The machine's compact design is valuable because it still leaves about half of the Transit's cargo space available for other equipment. In addition to the Urban Warrior, MAC Plumbing relies on a Spartan 300 drum machine, a RIDGID K-60 sectional machine, and a RIDGID K-45 hand-held sink machine. In addition, the Carestias have invested in a four SeeSnake pipeline inspection systems from RIDGID: one standard SeeSnake, one microReel and two microDrain models. In addition, MAC Plumbing — which mainly performs service and repair work, as well as drain cleaning and pipe rehabilitation also owns a PipePatch pipe repair system made by Source One Environmental.

"A lot of guys want to take every ounce of profit out of their business," Carestia says, explaining his philosophy about investing in new technology. "But if you take some of it and reinvest it in equipment, that enables you to either do more work or do the work you have more efficiently, you'll either make more money or get more time off. You can't operate with an instant-gratification mentality. When you make good investments in good equipment, you're going to see a return — reap the benefits of that investment."

Carestia says the Urban Warrior, which cost north of \$33,000, paid for itself in about nine months. Moreover, he says the company gets more and more business from other plumbers who either don't do drain cleaning or don't have the equipment. "So we get a lot of referrals," he says. In addition, the machine has proved to be very durable, with no major repairs required. "That's important because equipment breakdowns make you look like a hack," Carestia points out.

Just as importantly as revenue generation, however, the Urban Warrior has boosted the company's reputation as a top drain cleaning outfit that gets jobs done right. Carestia says the unit never fails to impress the heads of maintenance departments at kitchens and other businesses, especially those who are familiar with contractors that use only smaller cart-mounted jetters.

"When you couple the Urban Warrior with our pipe patching capability, it's opened a lot of doors for us for jobs," he explains. "It brings customers to us that otherwise wouldn't have called us. Essentially, the Urban Warrior is another tool for us to use, but it also helps us build a reputation as the go-to experts for drain issues here in the area." **c**

Money Machines, a feature in *Cleaner*, reports on innovative work vehicles that help contractors operate more efficiently, satisfy customers and earn more profit. We'd like to know about your Money Machine – be it a service van, camera truck, jetting rig, vacuum unit or any vehicle that really helps drive your business. To nominate your vehicle for a feature in this column, send an email to editor@cleaner.com. Tell us briefly but specifically what features make it a great producer. And send a picture – because appearance counts. We look forward to seeing your Money Machine.





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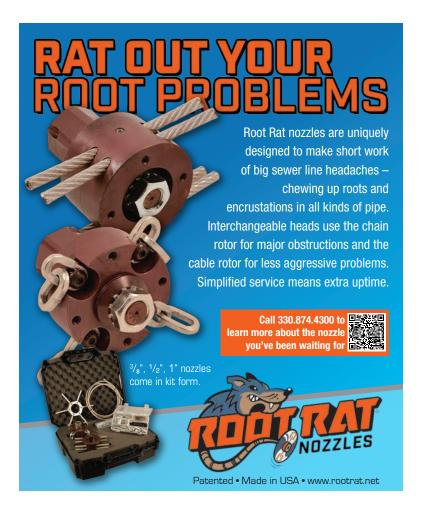




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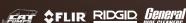














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Not Worth the Risk

Basic protective equipment is simple, inexpensive, and often the difference between going home and taking a trip to the hospital

By Jared Raney

isease, blindness, trauma, death — these are the risks for service industry workers when they fail to use basic personal protective equipment. Some of the simplest protective gear costs mere dollars, yet are frequently discarded or treated with disdain by operators who see them as an unnecessary hassle.

A COSTLY PROSPECT

Take the simplest PPE of all: safety glasses. They are a perfect demonstration of unnecessary risk.

Each year, more than 20,000 eye injuries occur in service industries, adding up to a cumulative cost of \$300 million. On the flip side, ANSI-rated safety glasses can be purchased for around \$1.

Here's something else to consider: According to an article by Inverse, the cost of emergency eye care is on the rise, with emergency ocular surgery costing upward of \$20,000 — in 2015.

The potential for eye injuries is vast in service industries, with blunt trauma, penetrative injury from grinding or cutting debris, as well as contact with hazardous substances or chemicals all common risks.

CHEAP DOESN'T EOUAL UNIMPORTANT

Other safety gear, like disposable gloves and earplugs, literally cost cents, and while the danger isn't quite as significant, lack of both can cause big problems.

Service workers of all stripes have to deal with loud sounds. Without proper ear protection, some level of hearing loss is all but inevitable, and while this may not result in lost time or emergency care, it certainly decreases quality of life for workers.

There are many levels of hand protection, but the basic disposable glove is often the most overlooked. That's probably because it doesn't generally protect against visible threats — trauma or impact danger.

However, protecting against pathogens and bacteria is incredibly important, especially in the water and wastewater industries. A hand injury can result in a lot of time off, but how many days might you lose from repeated illnesses over time, when the solution could be as simple as taking an extra minute to don a pair of rubber gloves?

That's the best case: Not all pathogen-related illness is as benign as stomach flu. Failing to protect against this most fundamental danger can result in significant risk to worker health: There are reports of wastewater workers in Ohio, Alaska, and Canada contracting hepatitis A, according to Cornell University's Health Hazard Manual: Wastewater Treatment Plant and Sewer Workers

SAFETY IS TOP TO BOTTOM

The danger of not wearing a hard hat seems to go without saying, yet many workers still manage to find trouble in this regard. Though they have been in use since 1931 (ORR Safety) and are required in many situations by OSHA, every year there are fines and accidents to show that workers don't always wear them when they should.

Though not the cheapest item on this list, basic hard hats can cost less than \$10 and are perhaps the most essential. Unlike eye injury, hearing loss or even pathogen-borne illness in most cases, head trauma can have lifealtering effects; the biggest risk, of course, is death.

Incidence of workers in water and wastewater work may not be as common as, say, construction industries, but they are not unheard of. Take for example the case sited by a University of Iowa health report, where a 29-year-old public works employee was killed after being struck in the head by a 1-inch jetting nozzle.

If that's not convincing enough, consider that there were 65,000 head injury cases in 2012 involving days away from work, according to Safety and Health magazine. They also reported that in 2015, over 1,000 workers died from head injuries sustained on the job.

GAS MONITORS

Speaking of bigger dangers, this last item — possibly the most underutilized safety item — is the only one whose specific goal is to prevent loss of life: gas monitors.

A portable gas monitor isn't a throwaway expense, running anywhere from around \$100 into the thousands, but compared to the alternative, it's a bargain.

Stories abound of workers who went into a sewer or tank without a monitor — or worse, had a monitor and failed to use it — and quickly met

Case in point: OSHA recently finished an investigation into the death of a father and son in Mississippi who were killed while working in a lift station last June. The 20-year-old son lost consciousness due to hydrogen sulfide gas, and the father died trying to pull him out.

Though worker safety is obviously the biggest concern, situations like this bring home the cost-effectiveness of providing workers with the proper safety equipment. The company that hired the father and son were charged with nine serious violations and over \$27,000 in fines.

CONSIDER ALL THE COSTS

All these dangers are costly: Between medical costs, lost work time and workers' comp, companies collectively lose hundreds of millions per year. When the solution is often a simple piece of plastic, why take the risk? **c**

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Don't Let a Tax Lien Take You Down

The government doesn't mess around when you owe it money, so do what you can to get out in front of your tax debt

By Erik Gunn

t's right up there on the list of questions no business owner wants to have to deal with: What happens if my business gets slapped with a tax lien?

A tax lien is just what it sounds like — a claim upon your assets as a consequence of unpaid taxes. At the federal level, the IRS filed just over 470,000 tax liens in 2016. (You can learn a lot more about the IRS's practices and policies on liens and levies at www.irs.gov.)

But the power to file a tax lien doesn't stop there. "You can assume that any taxing authority has a right to place a lien on your property if you have any unpaid taxes," says Patricia Hintz, a tax lawyer for the business law firm Quarles & Brady in Milwaukee.

Taxing bodies also can levy or seize property, giving them access to, among other things, your bank account and business assets (both real and personal property). Most use liens and levies in a two-pronged strategy.

In the case of cash property, the taxing body sends a levy notice to the bank where the taxpayer in arrears has an account. The typical levy is only good for a designated day, Hintz explains, so bank officials "have to turn over all the funds they are holding for that person on a particular day." Taxing bodies employing the levy mechanism typically watch closely and submit the levy when they have good reason to believe there's cash on hand.

An exception to the "one day at a time" practice is when the levy is attached to a person's wages. That enables the government to pull what it's owed out of your paycheck in regular installments until the outstanding debt, including interest and penalties, is satisfied.

Taxing authorities can also seize other types of property, but the procedures vary depending upon the type of property involved, Hintz says.

HIRE A LAWYER

If you wind up with a tax lien on your business, you're pretty close to stuck. "It's going to be a huge deal that any tax lawyer is going to have to go through a lot of trouble to get you out of," Hintz says.

At that point, you have no right to appeal on the substance of the issue — for example, that the tax was wrongly calculated. You can only appeal on procedure — for instance, that your due process rights were ignored.

A lien on property you plan to sell will have to be satisfied and lifted before you can sell it, or else the lien holder gets the first cut of the sales proceeds. If you think a lien is coming, you'll need to move quickly to sell before it's actually filed.

Hintz's advice on what to do if you actually get hit with a lien is short and not so sweet:

First: Get a good lawyer. "You need to find a lawyer who deals with this stuff routinely," she says. That attorney will have contacts with the taxing entity and the practical insight to know what kind of deal is actually

"They charge very high interest rates and high penalties for failure to pay. It might take over a year after the tax is due before the lien or levy pops up."

possible. By then, an accountant alone won't likely be able to help you out of the jam you're in.

Second: Make sure you're current on all other tax years. "If you're going to work out a deal with any taxing authority, you'd better be clean as a choirboy with your current liabilities," Hintz says. Pay any other outstanding tax debt as fast as you possibly can.

WORKING YOUR WAY OUT

Some of what happens next depends on your long-term business prospects: Are you about to go out of business? Or are you fighting to remain a going concern?

"If your business has just gone down the tubes, most taxing authorities may have offers in compromise," she says. That's the formal name for an agreement to settle your tax debt for some percentage on the dollar.

If you plan to keep operating, you can still set up an installment plan to pay off the debt plus interest, plus penalties. But don't expect to get a discount then. And do figure you'll get either a two-year or four-year window to get it paid off.

Your creditor will look at your financial records to see how much you're generating in receipts, then set your installments accordingly. And, by the way, as part of the procedure, you can expect to be told what your permitted living expenses budget will be during that period.

PREVENTIVE MEASURES

It's always best to level with yourself and ensure a major problem like a tax lien doesn't happen in the first place. "Most of the time liens and levies do not pop up by surprise," Hintz says. "You generally know when you haven't been paying your taxes."

Also, keep in mind there's a big difference between taxing authorities and most private-sector creditors.

An unpaid credit card company or vendor will nag you repeatedly. They're likely at some point to turn your outstanding bill over to a collection agency. Not to mention your workforce: "If you're short of cash and don't pay your employees, they're going to quit," she observes.

Taxing authorities might seem mild mannered by comparison. They won't be breathing down your neck as the interest and penalties add up. "They're quiet creditors for a fairly long time," Hintz says. "But they are very draconian creditors on the back end because they charge very high interest rates and high



penalties for failure to pay. It might take over a year after the tax is due before the lien or levy pops up."

Failing to file a federal return carries a 25 percent penalty. Some state and local taxing bodies follow that benchmark, while rates vary widely elsewhere.

Yet if you pay attention, there really shouldn't be any surprise. "Liens and levies are pretty extreme measures," Hintz points out. "They are considered a taking of property, so they can't be done without due process."

So right there, you should get warning signs about what's coming — and each of those is an opportunity to prevent the worst possible outcome.

PAYING ATTENTION

That points to the real long-term prevention strategy: If you're strapped for cash, don't just pay attention to the squeakiest wheels that will nag you incessantly. Just because the IRS or your county treasurer isn't bugging you about that unpaid tax bill doesn't mean you can simply put them off without consequence. And don't fool yourself into thinking you'll simply quietly catch up on those old tax bills later. "You might have the best of intentions, but that doesn't help with tax authorities," Hintz says.

Call your accountant "and face a reality check," she says. You'll get more options for an installment plan that you initiate before you're hit with a lien or a levv.

Sometimes a business on the verge of being hit with that lien may file an offer in compromise. That will typically suspend the collection process, although the business filing will generally have to make a down payment on the debt.

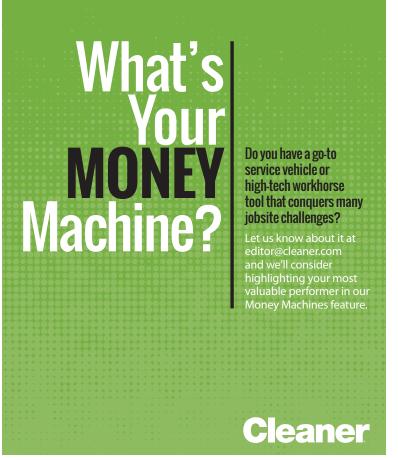
In short, like so many other challenges in business, the best way to stop a bad outcome is to head it off at the earliest sign of trouble.

After all, foresight in tough times may be uncomfortable. But isn't it a lot better than a hindsight full of regret? **c**











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Residential and Commercial Sewer and Pipe Maintenance

By Craig Mandli









CABLE MACHINES

1 / DURACABLE DM30

The DM30 from Duracable has a double-tube frame that's constructed of an aluminum alloy for added stability. The electrical wiring runs through the top of the frame so normal wear will not expose it. The machine can run 19-or 21-inch reels with options for open-spoke metal or enclosed polyethylene drums. Packages come with 21-inch reels and 100 feet of 5/8-inch drain cable. Its 1/2 hp motor makes it ideal for residential jobs, floor drains, roof vents and light commercial work. 877-244-0556; www.duracable.com.

2 / ELECTRIC EEL MODEL N

An enlarged drum on the **Model N** drain cleaning machine from **Electric Eel** holds 75 feet of Dualmatic or 100 feet of continuous cable. Cable is available in convenient 5-foot Dualmatic sections with self-feeding action for maximum flexibility and lower maintenance, or 1/2-inch-diameter certified music wire with genuine galvanized aircraft-wire inner core for longer life. It has a built-in slip clutch consisting of dual-fiber discs, providing overload protection for cable and cleaning tools. A cast aluminum inner drum and cable guide eliminates tangling in the drum. Its heavy-duty frame permits it to operate from either a 45-degree or horizontal position. A 1/3 hp motor delivers plenty of speed cleaning power. It is available with an optional two-wheel cart for easy transport, 10-inch-diameter wheels and an adjustable handle. It can be used to clean household drains, industrial waste lines, vents and downspouts from 1 1/4 to 3 inches in diameter. **800-833-1212; www.electriceel.com**.

3 / GENERAL PIPE CLEANERS SPEEDROOTER XL

Using easily interchangeable drums, the **Speedrooter XL** from **General Pipe Cleaners** clears tough clogs in 3- to 10-inch lines. It has a 3/4 hp motor and 100-foot-capacity drums for Flexicore cable. Change the drums to add cable lengths or swap cable sizes easily. Loosen three knobs and remove the drum to switch between 3/4- or 5/8-inch cables in the large drum design. With a see-through inner cage, quickly gauge how much cable remains — or substitute the small drum with 100 feet of 1/2-inch cable for smaller lines. A variable-speed cable feed offers driving and pulling power for long, tough jobs, feeding and retrieving 3/4-, 5/8- and 1/2-inch cables. Turning a knob on top of the feed adjusts 3/4- or 5/8-inch cables. **800-245-6200**; **www.drainbrain.com**.

4 / GI INDUSTRIES TCM 5000

The high-speed TCM 5000 pipe cleaning machine from GI Industries combines high-flow air/water flushing with brushing at variable speeds to provide the operator more control in various applications, creating a jetter and cable machine in one package. The variable-speed (0 to 1,750 rpms) control allows customers to use cleaning/drill heads or devices from other manufacturers. It provides contractors greater flexibility in deciding which tools are correct for their application. These systems can clean 1/2- to 24-inch lines at over 150 feet on a single unit. 800-724-1944; www.giind.com.

5 / GORLITZ SEWER & DRAIN MODEL GO 68HD

The Gorlitz Sewer & Drain Model GO 68HD heavy-duty electric drain cleaning machine is available in two different versions — either with an open steel reel or enclosed polyethylene drum — and can be outfitted with an









optional power feeder. It comes with a standard configuration of 150 feet of 11/16-inch hollow-core cable, which should reach most blockages with a single reel. It weighs 185 pounds, and adding a loading ramp and electric winch to any vehicle makes transportation quick and simple. It is designed to clean pipes from 3 to 8 inches in diameter. 877-446-7548; www.gorlitz.com.

6 / MYTANA MFG. M661 COMPLETE PACKAGE

The M661 Complete Package from MyTana Mfg. contains the reels, attachments and tools needed to clear blockages in 1- to 4-inch lines. The quiet M661 cable machine is driven by a 1/3 hp motor at 144 rpm, and it comes standard with 80 feet of 3/8-inch cable. The package also includes a reel with 100 feet of 1/2-inch cable and another with 40 feet of 1/4-inch cable. Its easy reel change design means the user can swap them out quickly. Additional items include a mini autofeed, transport cart and end tools for the different sizes of cable. Safety features include an air-actuated foot pedal and built-in GFCI circuit with watertight electrical switches and boxes. 866-948-7576; www.mytana.com.

7 / PIPE LINING SUPPLY ULTRA HIGH SPEED

The Ultra High Speed, or UHS, drain cleaning machine from Pipe Lining Supply makes the challenge of removing roots from sewer drains fast and easy. There are four models available to attack all of the pipe sizes encountered as a drain cleaning professional. The cables operate at over 3,000 rpm and are sheathed inside a sleeve that remains stationary. Various cutting heads are available to remove roots, and the units can be used with a camera, allowing the user to see what they're doing as the cable moves down the line destroying roots. By the time the technician reaches the end of the line being cabled, the withdrawal of the cable can be videoed for final inspection. By cleaning and seeing what they are doing, technicians can eliminate wasting time running cutter heads where there is nothing to remove. 888-354-6464; www.pipeliningsupply.com.

8 / RIDGID K-6200 DRUM MACHINE

The RIDGID K-6200 Drum Machine cleans 3- to 6-inch drainlines up to 200 feet and offers a compact design for easy access to tight work areas. It comes with either inner-core cable for greater flexibility or integral-wound cable for enhanced durability, as well as a cable control system that causes the drum to slow down when the blade becomes lodged in a blockage. This limits the potential for cable flip over in the drum. It incorporates direct-drive design with a powerful 2/5 hp universal motor and gearbox that bears down as torque builds, providing the necessary strength to cut through roots, hardened grease and other tough blockages. In addition, an audible warning signals when a blockage has been encountered. The drum stays aligned without the need to make adjustments, limiting work interruptions. 800-769-7743; www.ridgid.com.

9 / SPARTAN TOOL MODEL 1065

The Model 1065 cable machine from Spartan Tool offers a 250foot range to clean pipe from 3 to 10 inches. The Dial-A-Cable power feed allows for quick cable changes and feeds cable in and out easily, while the blockage-sensing smart motor senses the need for more power when encountering a difficult blockage. A fully enclosed drum helps keep customer's living areas clean, while the rugged design means it can tackle tough jobs. 800-435-3866; www.spartantool.com.

10 / HAMMELMANN PIPEMASTER

The Hammelmann Pipemaster is a pneumatically operated, highpressure hose rotating system. It is used to remove both soft and hard deposits from the insides of pipes and pipelines, including those with bends and vertical sections. A high-pressure supply hose is fixed between the pump and the rotary joint on the hose-rotating unit. A second hose is connected to the rotary joint and runs via the deployment unit into a protective hose leading to the positioning device at the work piece. The rotation of the second highpressure hose around its longitudinal axis is affected by a chain drive from a pneumatic motor to the rotary joint. The rotation speed can be smoothly adjusted with throttle check valves. Actuating the control lever of the unit causes the hose to start rotating, which in turn produces the forward motion. The hose deployment unit is mounted on a sturdy base plate and includes the height-adjustable control lever to deploy or retract the hose. 800-783-4935; www.hammelmann.com.



11 / NOZZTEO MANTA BOTTOM CLEANER

The MANTA Bottom Cleaner from NozzTeq is recycled-water-friendly with interior surfaces and interchangeable rear jetting plates made of stainless steel and ceramic parts to stand up to hard water and grit. It is very heavy at more than 50 pounds, and it slides on wide runners that are replaceable, keeping it on the bottom of large-diameter pipes where it will do the most good. The nozzle's bottom surface will never wear out. Its jetting plate is interchangeable and replaceable, and the plates come in 8-, 10- and 12-jet configurations. 866-620-5915; www.nozzteq.com.

12 / WESTMOOR CONDE PROVAC

The Conde ProVac preassembled industrial liquid waste pumping system from Westmoor is designed to promote efficient pumping of grease traps. The unit is quiet and lightweight and pumps at 120 gpm. Flip a switch to start the unit in vacuum mode for pumping. The built-in exhaust deodorizer keeps odor at a minimum. Flip the switch to pressure mode for off-loading. It can be used to service locations not suitable for large vacuum truck hoses, including indoor or remote difficult-to-access jobs. 800-367-0972; www.westmoorltd.com.

13 / ALL JETTING TECHNOLOGIES PARKER HANNIFIN TOUGHJACKET

Parker Hannifin high-pressure TOUGHJACKET waterblast hoses, distributed by All Jetting Technologies, are designed to eliminate the need for an additional PVC sleeve and reduce the hose weight by up to 16 percent. This allows for ease of handling, improved productivity and reduced operator fatigue. They have polyurethane jackets, are tested to DIN EN 1829-2 standards, and exceed the abrasion resistance and durability of standard PVC-covered assemblies by more than 100 percent. ColorGard technology means the primary hose jacket is a different color than the abrasion-resistant WJTA-compliant colored outer jacket to provide easy visualization identification of abrasion issues, allowing for efficient inspections and reduced unscheduled downtime. If the hose is experiencing abrasion issues, the operator can visually see the contrasting underlying primary hose color from that of the WJTAcompliant outer jacket. 772-286-1218; www.alljetting.com.

14 / PIRANHA HOSE PRODUCTS ARMOR BELT

Armor Belt jetter hose from Piranha Hose Products is lightweight, durable and highly abrasion-resistant. It is available in Series SAOR orange covered, 2,500 psi, I.D. sizes 5/8 to 1 1/4 inches; Series HABU blue covered, 3,000 psi, I.D. sizes 3/4 to 1 inch; and Series LAGR green covered, 4,000 psi, I.D. size 1/2 inch. 800-250-5132; www.piranhahose.com.

HOSE REELS

15 / HANNAY REELS H16-14-16 SERIES

The all-steel H16-14-16 Series portable hose reel from Hannay Reels is ideal for pipe cleaning, drain cleaning, and high-pressure applications in both residential and light commercial applications. Designed with a quality swivel joint and a tension brake, the series can accommodate pressures up to 5,000 psi. It includes manual rewind and a Velcro hose strap. It is built to unique customer specs. 518-797-3791; www.hannay.com.

16 / KEI CARTS STEALTH

The Stealth jetting cart from Kei Carts offers a one-handle design, making it easy to maneuver in and out of difficult areas. The pull assist handle provides the ability to go up and down stairs with ease. The crank handle is positioned for comfortable reel action. The cart is available in black powder-coating or stainless steel 12- and 22-inch reels. 618-231-4984; www.keicarts.com.

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17 / REELCRAFT INDUSTRIES LARGE-FRAME JETTER REELS

Reelcraft Industries' large-frame jetter reels are designed for various high-pressure applications that require the added strength and stability of a heavy-duty frame and spool assembly. The reels can handle pressure ratings up to 10,000 psi and temperatures from 22 to 225 degrees F. The bolted frame design is constructed of industrial-grade tubular steel and adds extra strength and durability for heavy-duty applications. Motor mounting options include right/left, front/back or direct-drive. Choose from hydraulic, pneumatic, or a 12- or 24-volt DC electric motor. A direct-drive option effectively eliminates the need for a chain/sprocket and the maintenance associated with them. Other drive types are available upon request. All components are individually powder coated for corrosion resistance. 800-444-3134; www.reelcraft.com.

PUSH TV CAMERA SYSTEMS

18 / ARIES INDUSTRIES SEEKER 2.0

The portable Seeker 2.0 from Aries Industries provides quality video with integral recording and a large keyboard. The easy-to-use, contractor-grade system operates in pipes of 3 inches or larger. The stand-alone system requires no external wiring. The reel contains 200 feet of small-diameter, lightweight cable for inspecting long pipe runs. Self-leveling straight view or pan-and-tilt cameras are available. The control unit, housed in a rugged case, provides integral recording. A large touchpad keyboard allows easy titling and fault annotation. Visibility of the 6.40-inch LCD screen is enhanced with the light-shielding cover. A hard-shell storage case accommodates optional accessories, including a sonde for line location, skids and a pressurization kit for the camera. The unit can also be used in an inspection truck or trailer with video transmitted through the vehicle's mainline cable. 800-234-7205; www.ariesindustries.com.

19 / CPI PRODUCTS UNIVERSAL ROLLER SKIDS

Universal Roller Skids from **CPI Products** protect push cameras and enable them to go farther down the pipe and return with less strain on the cable. They provide a durable plastic enclosure around the camera body, with

wheels to move smoothly down the pipe, around corners and over seams. They have movable arms that expand and contract to center the camera and jump over debris, seams and move around corners. A light kit is available to improve the camera image, and a large wheel kit enables it to be centered in pipes up to 16 inches in diameter. The TrapMaster is designed to enable cameras to navigate traps and seams in pipes 4 to 6 inches in diameter. The PoleCat converts a push camera to a pole camera to enable easy control of the camera. 413-443-0925; www.cplasproducts.com.

20 / CUES MPLUS+ XL

The CUES MPlus+ XL push system is designed for easy operation with an all-in-one setup and flexibility by quick removal of the control unit to be used separately. It includes a coiler configuration and pan-and-tilt camera for mainline and larger pipeline applications up to 500 feet. It integrates video observation coding, observation coding interface and digital recording into an easy-to-use package. The lightweight system includes large, durable wheels for portability and a balanced footprint for stability. It is manufactured to handle rigorous field use. 800-327-7791; www.cuesinc.com.

21 / ENVIROSIGHT VERISIGHT PRO

The VeriSight Pro from Envirosight has a stainless self-leveling camera with shadowless, variable LED illumination that captures crisp video footage regardless of pipe material. With supplied centering devices, it inspects lines 2 to 9 inches and snakes through multiple bends for maximum range. An integral tri-band sonde (33 kHz, 512 Hz, 640 Hz) works with almost any locator. Its welded steel coiler comes with 130, 200 or 330 feet of pushrod. The entire system runs continuously for six hours off internal rechargeable lithium-ion batteries or off main or vehicle power. Its multilanguage controller displays footage on an 8-inch TFT LCD and captures up to 90 hours of MPEG 4 video on an SD/SDHC card or USB stick. It lets the user zoom 3X, captures images in JPEG format from both live and recorded video, and offers a 16-page text writer with full QWERTY keyboard. 866-936-8476; www.envirosight.com.

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22 / FORBEST PRODUCTS FB-PIC3688M

The FB-PIC3688M long-range pipe inspection camera from Forbest Products has a dock for a digital monitor and optional 360-/180-degree camera. It comes with 400 feet of 9-mm fiberglass cable on a reel with a meter counter. The stainless steel frame carries a dock for placing the 10-inch LCD monitor for convenient operation and transportation. Camera head options include a 1 1/2-inch, self-leveling color camera head or 2 1/4-inch, waterproof, 360-/180-degree pan-and-tilt, high-resolution color camera head with zoom for panoramic pictures. The heavy-duty multifunction waterproof control box includes a 10-inch LCD color screen with USB and built-in SD card to record photos and videos. Users can type and edit on the screen with the installed keyboard. Control buttons on the front panel are designed for remote camera head rotation for over 20,000 hours continuously. 877-369-1199; www.forbestusa.net.

23 / HATHORN MAGNUM M7

The Magnum M7 from Hathorn is packed with multiple features and is extremely lightweight at only 29 pounds. The unit can easily be carried down a flight of stairs or rolled on its 6-inch wheels. The 7.4-inch monitor delivers a clear, bright picture and is covered by an acrylic shield for durability. It offers USB recording, 2-hour lithium battery, on-screen footage counter, 512 Hz sonde transmitter, adjustable lighting and text writer. A Wi-Fi transmitter can be added for recording to a mobile device. It comes with a variety of pushrod lengths and camera sizes to fit every job type. 905-604-7040; www.hathorncorp.com.

24 / PEARPOINT/SPX P342

The P342 from Pearpoint/SPX has a compact and robust design that allows the user to extend its use to smaller pipes down to 2 inches. The rod offers a balance between bendability and stiffness, allowing both maneuverability and push performance. A built-in flexi-sonde allows the user to pinpoint its location and depth without compromising bend performance. This can be located using a suitable pipe or cable locator, such as the RD7100DL+. It is offered in 200- or 400-foot lengths. 800-688-8094; www.pearpoint.com.

25 / PERMA-LINER INDUSTRIES PERMA-CAM

The Perma-CAM from Perma-Liner Industries comes complete with a self-leveling color camera head with a sapphire lens and centering skid and a 200-foot heavy-duty push cable with a standard 512 MHz transmitter, all mounted on a heavy-duty, powder-coated aluminum frame. The 7-inch monitor comes with a weatherproof hand-held holder, complete with a custom sunshade. The HD monitor records to an SD media card and also has voice-over capability. The standard, Wi-Fi-compatible unit comes with a complimentary Samsung tablet. 866-336-2568; www.perma-liner.com.

26 / PIPELINE RENEWAL TECHNOLOGIES CLEANSTEER 40

The Cleansteer 40 from Pipeline Renewal Technologies uses high-pressure water for propulsion, steering and cleaning as it captures live inspection video from inside lateral lines. It can traverse multiple bends in pipe, steer through branches, and levitate above debris, helping municipal contractors and commercial plumbers locate failed pipes, cross bores and blockages, as well as perform cleaning. Six propulsion nozzles generate the power needed to pull its own flexible hose through multiple bends, and a side nozzle on the camera can be aimed to steer through diverging pipes and hover past obstacles. An optional forward-facing nozzle can be pulsed to clear debris and other obstructions. The system works with any high-pressure water source, including pressure washers and combination trucks. Its 1/2-inch hose comes in lengths from 115 to 190 feet. 866-936-8476; www.envirosight.com.

27 / R.S. TECHNICAL SERVICES INC. (RST) QUICK PEEK

The **Quick Peek** all-in-one, fully portable video inspection system from **RST** is a compact, lightweight solution for drainline condition assessment in lines 2 to 10 inches in diameter up to 300 feet in length. The unit includes a 7-inch, bright, LCD, handle-mounted monitor equipped with a sun shield/screen protector that can be positioned for a comfortable viewing angle. Easily accessible monitor controls include power mode; aspect ratio (screen size); menu; and set buttons for color, brightness, contrast, tint and volume. The side-mounted AC/DC power source houses controls for all camera functions and provides a camera test terminal, AC/DC input, video/audio

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- Line direction compass Tells you the lay of the pipe.
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- Superior Battery Life Batteries lasts twice as long as other brands.
- Expanded Frequencies Locates two sonde frequencies, two power frequencies and four line
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output, keyboard input and a condenser microphone with an on/off switch. It has a high-resolution, low-lux color camera; AC/DC input; keyboard for annotation; video/audio output; microphone; and is fully locatable with 512 Hz in-line transmitter. 800-767-1974; www.rstechserv.com.

28 / RAPIDVIEW IBAK NORTH AMERICA MINILITE PUSHROD SYSTEM

The MiniLite Pushrod System from RapidView IBAK North America is a compact and versatile platform for inspection of small-diameter pipelines. The system works with HYDRUS, JUNO, NANO, NANO-L, ORION Zoom, ORION-L and POLARIS cameras. It has a bright, 10-inch touch screen and a built-in Windows PC with power supplied by an 18-volt rechargeable battery. The multifunction joystick allows precise control of the pan-and-tilt camera. 800-656-4225; www.rapidview.com.

29 / RATECH ELECTRONICS ELITE USB WITH WI-FI

The Elite USB with Wi-Fi from Ratech Electronics lets users record pipe inspections directly to a USB flash drive and wirelessly via an app to an iOS or Android device while taking live video and digital still photos, which can be immediately uploaded to YouTube. The Wi-Fi interface is available on any current or existing Ratech Electronics systems in the field. It's available with a sun-readable, 10-inch LCD monitor and a self-leveling camera, ultramicro camera or pan-and-tilt push camera. Systems come in cable lengths of 100 to 400 feet. 800-461-9200; www.ratech-electronics.com.

30 / RAUSCHUSA MINCAM360

The 2-inch minCam360 remote-controlled, pan-and-tilt push camera from RauschUSA has digital zoom and a tri-band sonde with selectable frequencies. The Bluetooth remote includes a joystick for camera control. The cable reel is equipped with a 200-foot cable (with up to 300 feet available), and the removable batteries run for four hours. Its RID steering skid enables it to push into 45-degree Y and 90-degree T branches in the pipe. The 8.4-inch, sunlight-readable monitor enables recording video, voice and photo directly to an SD card. This system is designed as a capable stand-alone inspection system, including a text generator for detailed reporting capabilities and an on-screen distance counter. Applications range from 3- to 20-inch pipe diameters with all centering accessories. 717-709-1005; www.rauschusa.com.

31 / TROJAN WORLDWIDE C100-512SL

The C100-512SL self-leveling color camera system from Trojan Worldwide is a lightweight, easy-to-operate system designed for 1 1/2- to 4-inch lines. It has a 1-inch, self-leveling waterproof color camera head with adjustable LED lights. The 512 Hz sonde transmitter is built into the spring of the camera, which allows more flexibility when maneuvering around sharp turns, and also creates a stronger signal for locating. The system has a 115-foot durable pushrod and a built-in foot counter. The display screen is a 7-inch LCD with DVR, with SD card recording and a built-in microphone for voice recording. The built-in battery offers 7 hours of runtime and has an AC adapter for charging or direct power. Also included is the SD card, USB adapter for the SD card, protective visor, two skids and a waterproof case for the entire system to fit in for easy transportation. 800-392-4902; www.trojanworldwide.com.

32 / VIVAX-METROTECH TYPE-CP

The Type-CP inspection system from Vivax-Metrotech has a reel available in 200-, 300- or 400-foot lengths of stiff pushrod that's flexible enough for easy entry and turns. The 1.6-inch D34-CP self-leveling camera provides 700 pixels of resolution to inspect up to 6-inch pipes. It includes the vCam-5 control module with an 8-inch color LCD; transmitting sonde; full-function keyboard; internal microphone; AC/DC power; rechargeable batteries; distance counter; camera LED brightness control; and digital recording to the USB thumb drives, SD cards or internal hard drive. The control module ships ready to use with LACP software such as POSM, WinCan or MuniXS. 800-446-3392; www.vivax-metrotech.com.

CONTINUED >>

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Discover how we made the best even better.

Visit 2100i.vactor.com

















33 / WOHLER USA VIS 700

The VIS 700 high-definition inspection system from Wohler USA provides flexible features needed for a variety of inspection applications. It offers razorsharp, high-definition images; zoom; a focus function via joystick for precise inspection; and the ability to stream live images and video via wireless LAN. It comes with a removable touch-screen monitor with adjustable handgrip; automatic screen rotation; on-screen keyboard for notes; a voice-over recording option; an easy-to-clean, removable pushrod; and variable pan-and-tilt speed via joystick. 978-750-9876; www.wohlerusa.com.

TRUCK/TRAILER JETTERS

34 / AMAZING MACHINERY BOSSJET PRO BOX JETTER

The BossJet Pro Box Jetter from Amazing Machinery can be mounted in many configurations. It comes with a Honda or Kohler engine, a triplex plunger pump and a Hannay Reels electric hose reel. All units are encased in a high-density aluminum box frame with an access panel on the side for exhaust release and ease of service. It comes with 200 feet of 1/4-inch I.D. jetter hose and laser and spin jet nozzles. It is designed to clean and clear 2- to 6-inch pipes. Options include a foot pedal, trap kit, remote reel and portapotty head attachment for the smaller lines. All units include a washdown gun and wand, four pressure washer tips, and a chemical injector for easy cleanup. 800-504-7435; www.amazingmachinery.com.

35 / AMERICAN JETTER 51 SERIES HOT JETTER

The **51** Series Hot Jetter from American Jetter offers increased cleaning power for grease cutting and de-icing by heating the water up to 190 degrees F. Consistent power is provided by Kohler gasoline engines up to 74 hp, with flows of 8.5 to more than 20 gpm and pressure to 4,000 psi. The rear reel provides precise cleaning speeds and easy access to the jet hose with the included hose guide. Low-water shut-off prevents pump damage if the 330- to 600-gallon tank runs low. The optional 1-mile open range wireless remote option allows for water on/off, engine shutdown, and hose reel control. The heavy-duty square tubing trailer offers a 2 5/16-inch ball coupler and standard electric brakes. **866-944-3569**; www.americanjetter.com.

36 / CAM SPRAY TT4025HZ-350

The model TT4025HZ-350 trailer jetter from Cam Spray produces 25 gpm at 4,000 psi using an EPA Tier 4 Final Hatz Diesel 74 hp turbo intercooled, liquid-cooled engine. It comes with an over-center clutch, control panel with hour meter, low-fuel gauge, low-fuel shutdown, over-pressure shutdown and digital pressure readout. The reel is hydraulic powered with variable speed and comes mounted on a slide-out with angle adjustment fitted with 500 feet of 5/8-inch hose, manual shut-off valve and analog pressure gauge. RCM wireless remote control modes include valve open, valve close, engine idle down with a 15-second time delay shutdown, emergency shut-off, two-speed engine revolutions per minute control and auxiliary 10-amp circuit with on/ off control. 800-648-5011; www.camspray.com.

37 / EASY KLEEN PRESSURE SYSTEMS GROUNDHOG JETTER

The Groundhog Jetter from Easy Kleen Pressure Systems is designed to blast through clogged pipes. It is compact and easily transported in a pickup truck or van, with trailer options available. It includes a fully welded, powder-coated 2-inch steel tube frame, drilled and tapped, which houses the 200-gallon water tank constructed with 1/2-inch poly complete with level sights and 16-inch cover. It has a gasoline-driven engine with accessible breather and 10-gallon fuel tank, General Pump with gearbox drive, 12-volt hose reel complete with hose guides, and swivel and foot pedal control. It comes with a 300-foot 3/8-inch jetter hose, an emergency shut-off valve and hour meter. An optional remote includes hose reel-in, motor off/speed control and pressure on/off. 800-315-5533; www.easykleen.com.

38 / GAPVAX GJET

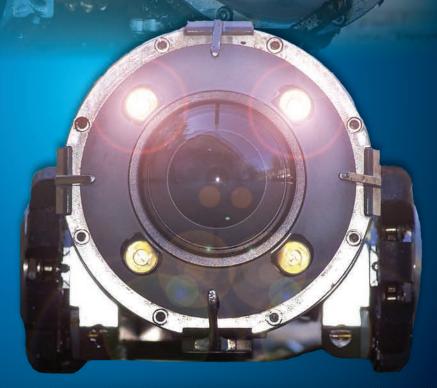
The **GJet** truck jetter from **GapVax** offers 500- to 3,000-gallon stainless steel water tank options and 40 to 100 gpm water pump options along with a front-mounted hose reel, various toolbox options, room for a vice or crane, and 10-foot tube trays. **888-442-7829**; www.gapvax.com.

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39 / HOT JET USA HOTJET II

The HotJet II sewer and drainline jetter from Hot Jet USA is a dual-purpose machine that cleans drains and serves as a high-powered, hot-water pressure washer. It can be used to clean drains up to 300 feet long and 12 inches in diameter. It has a 35 hp Vanguard engine by Toyota, delivering 10 gpm at 4,000 psi using hot or cold water, mounted on a diamond plate tandem-axle trailer, powder-coated for durability. 800-624-8186; www.hotjetusa.com.

40 / MONGOOSE JETTERS BY SEWER EQUIPMENT MODEL 184

The Model 184 jetter from Mongoose Jetters by Sewer Equipment has a tubular steel frame, corrosion-resistant prepainted subassemblies, stateof-the-art controls, a strong hose reel, high-quality diesel engine and the Mongoose Run Dry Pump. 877-735-4640; www.mongoosejetters.com.

41 / NLB 335 DHW

The 335 DHW hot-water jetting unit from NLB has a dependable triplex pump capable of 15 gpm at 3,500 psi; a Kubota v3600 66 hp engine provides the power in a direct-drive configuration that eliminates the PTO and PTO maintenance. Its 700,000 Btu burner unit addresses the demands of the many cycles, long hours, and transportation requirements in the life of a typical hot-water unit. An overhead-mounted water tank is easy to winterize and has integrated water lubrication lines and a 75-micron inlet strainer that can be rinsed or cleaned, eliminating the traditional filter. A rupture disk has also been eliminated from the unit's design and replaced with a self-resetting pop-off valve, saving time and money for the operator. 800-227-7652; www.nlbcorp.com.

42 / SUPER PRODUCTS SUPERJET

The SuperJet truck-mounted jetter from Super Products has a doubleacting, single-piston hydraulically powered water pump that offers a 1-1 oilto-water ratio and rated design capacity of 100 gpm and 3,000 psi continuous duty. Its modular water tank setup easily accommodates capacities from 1,000 to 3,200 gallons. It has a single-engine design that emits lower sound levels, reducing fuel use by 40 percent compared to dual-engine units. Its rear compartment is heated with an 80,000 Btu/h heater that enables yearround operation in freezing environments. An easy-to-use control panel performs a number of functions including adjustable engine throttle with water pressure speed dial, on/off water pump PTO, water pressure and gallons per minute, and hose reel joystick, as well as pay-in/pay-out with speed control. 262-796-5939; www.superproductsllc.com.

43 / VAC-CON HOT SHOT

The Hot Shot high-pressure water jet machine from Vac-Con is designed for removing stones, bottles, cans, grease, sludge, and other debris from sanitary sewer and storm lines. Engineered for one-person operation, all high-pressure water and hose reel controls are located at the front of the machine for ease of operation and increased safety. Models are available with 1,000- and 1,600-gallon water tanks. Options include variable flow, articulating hose reel, polyethylene water tanks, 30 gpm at 3,000 psi water pump system, auxiliary engine or hydrostatic drive, cold-weather recirculation system, side-mounted toolboxes, air purge system, hose footage counter, arrow board, strobe lights, inspector cam, high-pressure spray bar, hose rewind guide, 600 psi hand-gun system with 25 feet of hose, and a selection of nozzles. 855-336-2962; www.vac-con.com.

44 / VACTOR RAMJET 850 SERIES

The RamJet 850 Series truck jetter from Vactor has a choice of frontor rear-hose reel locations and productivity-enhancing options such as an aluminum rear shroud and an optional Jet Rodder water pump-heated cabinet. An integral aluminum rear shroud with heavy-duty, see-through Lexan windows is available. Large service access doors on both sides of the shroud enable easy greasing, maintenance and service. The rear shroud keeps the hose and components warm and protected, which is a big advantage for operators who need to quickly set up and clean while working in extremely cold conditions. It comes standard with a certified flow of 0 to 80 gpm at a variable pressure up to 2,500 psi at the hose reel for the flexibility to clean any size line. The Jet Rodder water pump-heated cabinet keeps the pump and plumbing covered and protected at all times. 815-672-3171; www.vactor.com. c





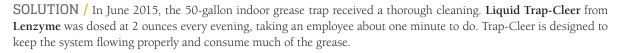


Residential and Commercial **Sewer and Pipe Maintenance**

By Craig Mandli

ADDITIVE HELPS KEEP BUSINESS DRAINLINE CLEAR

PROBLEM / In May 2015, the manager of Bode Central healthy shake bar in Howard, Wisconsin, sought a solution for a drain that was backing up into a quick wash sink. Customers complained that the restaurant had a smell. The drainline would plug up, and the restaurant would have to close early to clean the mess, resulting in a loss of business and compromised sanitary conditions.

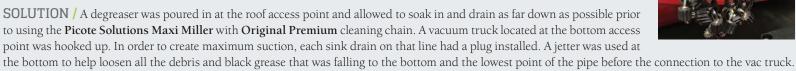


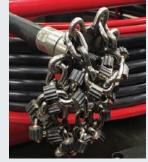


RESULT / A follow-up appointment in August 2015 indicated that the system went 10 weeks without backing up, with only a small amount of grease buildup in the trap. The smell was completely gone. In January 2018, after treating for a two and a half years, the manager says the system is operating perfectly. There is no smell, and the lines stay clean. 800-223-3083; www.lenzyme.com.

CHAIN AND CABLE MACHINE CLEAN DRAINS IN HIGH-RISE APARTMENT COMPLEX

PROBLEM / An early 1960s-era, 32-story high-rise apartment building in Philadelphia had slow-moving drains, and many were backing up. Building management had been searching for a fast and efficient process to clean the drains, with an emphasis on minimal disruption to tenants. The 5-inch, vertical cast-iron stack carries kitchen sink waste from kitchen lines only. With only three access points to work from — the second floor mezzanine level located in a crawl space, an empty unit located near the center of the building and a mechanical room located on the roof — it was going to be a challenging task.





RESULT / In the end, the pipe was cleaned and restored with maximum flow to each of the tenant's apartments. 219-440-1404; www.picotesolutions.com.

JETTING TOOL HANDLES LONG DISTANCES AND INCLINES ON MUNICIPAL JOB

PROBLEM / Mike Martin of Plumbers Depot in Hawthorne, California, had a difficult municipal sewer cleaning job in which much of the long uphill run was calcified, necessitating the removal of hard deposits up to 1 inch thick without damaging the pipe.



SOLUTION / The Warthog WHR Hybrid Switcher sewer jetting tool from StoneAge allowed operators to switch between two sets of jets while the tool is in the pipe: powerful pulling (or thrusting) jets in the rear propel the tool

down the pipe, and cleaning (or descaling) side jets cut roots and remove buildup on the walls. It is specialized for users with 3,000 psi/50 gpm pumps using 1-inch hose to clean 6- to 18-inch pipes in hilly terrain.





RESULT / Martin attributes his success to the built-in interchangeability of the nozzle head. "I was able to cut roots, remove calcium, and climb distances that we have never been able to in the past — we traveled up to 800 feet," Martin says. "With the Warthog, you don't have to worry about doing any damage to the pipe due to the fact that you're cleaning all the material, removing all the calcium from the walls of the pipe, utilizing water." 970-259-2869; www.stoneagetools.com.

COMBO AND EASEMENT MACHINES END ROOT ISSUE

PROBLEM / The city of Statesville, North Carolina, needed equipment capable of removing heavy root growth to keep sewer lines flowing.

SOLUTION / To tackle its root problem, Clyde Fox, general supervisor, combined the advantages of the city's Vacall - Gradall Industries AllJetVac combination sewer cleaner along with an easement machine and chain cutter. The easement machine with a rubber track undercarriage effectively extends the Vacall's power to remote off-road locations that are not readily accessible by the truck. "With an easement machine, the jetting hose can reach beyond 600 feet, giving you another 600," says Pat Barrett, salesman for Rodders and Jets Supply, which provided the city with the Vacall.



RESULT / "I had a big root clean-out problem, and I found out the Vacall delivered a higher level of performance to power the chain cutter down in the 24-inch mainline," Fox says. "The Vacall delivers 87 gpm at 2,000 psi, so it does a good job chopping up heavy root networks and washing them away." 330-339-2211; www.vacall.com. c

product NEWS

SPOTLIGHT

A suitcase jetter built for tough travel conditions

By Craig Mandli

No one can deny that plumbers and drain cleaners are hard on equipment. They typically get done with one job, toss their tools back in the van and then jet off to their next client. That means the tools they use need to be durable. The Crap Shooter 2 "The Deuce" HD sewer jetter from BullFrog Industries fits the bill.

The Crap Shooter 2 HD weighs less than 30 pounds and features a full 2,000 psi, 1.76 gpm running off a 15-amp circuit without losing any water pressure or any time searching for an adequate power outlet. It offers similar specifications to the company's previous model, but it comes encased in a "nearly indestructible" polyethylene case, according to company founder Jason Coleman.



"We've had our suitcase jetters on the market for several years now, and the only complaint we've gotten is broken cases," he says. "Well, now we have a new case that these guys won't be able to break."

While Coleman cautions "nothing is indestructible when it comes to cleaners and plumbers," he has tested

the case in several different destructive scenarios. "I've jumped on it and ran it over with the truck, and it came out just fine," he says. "The case also protects the unit's inlet and outlet from damage, and we've replaced many of the connections with stronger materials."

The unit comes with 75 feet of high-pressure hose with an upgraded quick connect that attaches to the unit, as well as two heavy-duty nozzles (the Flusher and Thruster). It is designed to handle up to 4-inch pipes. Two different faucet adapters allow the user to hook the unit up just about anywhere. All included fixtures and hoses can handle up to 120 degree F water temperatures. It has a 25-foot power cord with two-prong GFCI plug, along with a 25-foot expanding feed hose. The company has had the unit out for beta tests over the last year, and Coleman is enthused with the feedback.

"The new case is only about 2 inches taller and has the same footprint as our previous model," he says. "It is just a bit heavier, but no one has noticed much of a difference there. We are very happy with the results." **888-890-1555**; www.flushafrog.com.







ENVIROSIGHT QUICKVIEW AIRHD+ SEWER ASSESSMENT CAMERA

The Quickview airHD+ zoom assessment camera from Envirosight has wireless tablet-based control, HD video, remote height and tilt adjustment, and hands-free operation. It also offers enhanced Wi-Fi, cloud connectivity and a laser range finder accessory that measures the exact distance to observations. Measurement of approximate distances can also be done with focus-based measurement. Current Quickview owners can upgrade software for free to obtain the cloud connectivity and focus-based measurement capabilities. 866-936-8476; www.envirosight.com.

VAC-CON TITAN CLASS COMBINATION MACHINE

The Titan Class truck-mounted, dual-engine combination machine from Vac-Con features enhanced twin cyclonic separators, one located on each side of the truck, for optimal efficiency and filtration. The Aeroboost three-stage fan balances airflow, resulting in less turbulence and more power. The water system features 1 1/4-inch plumbing and ball valves. Upgraded hydrostatic and auxiliary drive systems that operate the vacuum and water functions lower noise emissions and reduce overall fuel consumption without sacrificing power. 904-284-4200; www.vac-con.com.

HAMMERHEAD TRENCHLESS XPR PNEUMATIC HAMMERS

HammerHead Trenchless' XPR series of high-performance pneumatic hammers for pipe ramming and pipe bursting applications features a high-flow valve system that produces a more powerful impact. The XPR technology allows for the reverse function to be controlled above ground, simplifying tool removal from pushing collets and burst heads. The 26XPR is capable of installing casing 24 to 84 inches in diameter and is suitable for use in drainage culverts, pipeline work, and horizontal directional drilling assist methods, such as wash over casing installations, pipe assist or pipe extraction, and guided pilot bore ramming. It is also effective in pneumatic pipe bursting applications of pipes ranging from 15 to 36 inches in diameter. 800-331-6653; www.hammerheadtrenchless.com.







RIDGID PRESS BOOSTER PIPE PRESS TOOL

The Press Booster from RIDGID is used with the Viega MegaPress XL and allows for pressing of black steel pipe between 2 1/2 and 4 inches. The tool can press connections in under 25 seconds, weighs less than 22 pounds and comes with a built-in carrying handle and strap. The actuator rotates 180 degrees on the press rings for hard-to-reach angles. The primary kit includes the XL Booster; 2.5-, 3- and 4-inch rings; and a carrying case. 800-769-7743; www.ridgid.com.

WATER CANNON INC. - MWBE PRESSURE WASHERS Pressure washers from Water Cannon Inc. - MWBE feature a recirculation module that cools the water while the trigger gun is closed. The triplex ceramic plunger pump is designed for both commercial and professional daily use. To protect wear parts, it includes an overheat safety valve that will open and close automatically to allow the recirculating higher-temperature water to be released, allowing cool water to replace it. 800-333-9274; www.watercannon.com.

VACTOR 2100I COMBINATION SEWER CLEANER

Vactor Manufacturing's 2100i is a new combination sewer cleaner, and a successor to the 2100 Plus. It has the IntuiTouch one-touch control system that maximizes operator efficiency. Inside the cab is a 7-inch screen with backlit tactile buttons and one-touch control for quick startup and engagement. Outside the cab, there's a single control panel with a 7-inch touch screen featuring at-a-glance data and glove-friendly buttons. The new articulating controls adjust to the desired location for optimal placement. The RDB1015 Rapid Deployment Boom telescopes to 10 feet and extends the debris hose down 15 feet. 800-627-3171; www.vactor.com. c

Draincables Direct adds truck route

Draincables Direct announced it added a truck route that will service areas including metro Chicago, southern Wisconsin and northwest Indiana. The new route will be operated by sales representative Vince Tripoli. He has been in the drain, sewer and plumbing industry for more than 16 years.



Vince Tripoli

Ditch Witch announces updated Parts Lookup online tool

The Ditch Witch has released an advanced version of its Parts Lookup tool. It provides easy access to detailed parts information and a direct line of communication to dealerships for part verification and pick-list creation. Parts Lookup can find service parts by serial number, part name, equipment model or keywords. All equipment in a company's fleet can be added by serial number for easy reference to manuals, parts diagrams and future service parts needs.

Trelleborg Pipe Seals hires new sales director

Trelleborg Pipe Seals announced it hired Frans Roukens as sales director EMEA and APAC. He has worked for the company for five years in operational and senior sales management positions.



Frans Roukens

Trimble partners with Aquarius Spectrum

Trimble announced it has entered into a relationship with Aquarius Spectrum to distribute a branded version of Aquarius Spectrum's wireless leak detection and monitoring solutions for water utilities throughout the U.S. The collaboration will extend Trimble's portfolio of smart water management sensors and software solutions to address the growing challenges associated with aging water infrastructure, leakage and nonrevenue water loss.

Geophysical Survey Systems Inc. (GSSI) announces launch of new website

GSSI announced it launched its newly redesigned website. It features a helpful and easy-to-use product configurator, quick access to the training class calendar, and all the latest news and updates, including the most recent case studies and videos. **c**

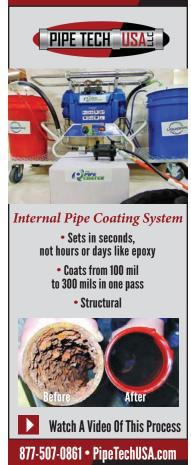


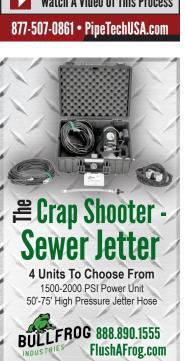














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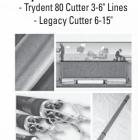






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C05

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Dave 530-682-0804, CA

JET VACS

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.empireeguip.com. Contact Craig at 714-639-8352. (CBM)

Recycle Jet Vac for Sale: 2015 Kenworth T880 w/Cummins ISX15 engine, 32,900 miles. 1,500-gallon stainless steel water tank, 10-yard stainless steel debris tank. 590 ft. 1-1/4 hose on rotating reel; 325 ft. 1/2 lateral hose. Uraca P3-45-70 Tri-plex water pump, 125gpm/2,175psi. Email MHughs@ gapvax.com or call 888-442-7829. (C07)

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2006 Harben 4018 trailer jetter in excellent condition. 4,000psi @ 18gpm. Jetter hose length 1,000 ft. combined. 300 gallons, 9 heads, 4 different reels. 100 hours. \$26,700. Phone calls only, no texts!

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Bosch Brute hammer drill with cart irons. The Cable Center: 800-257-7209. (CBM)

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Systems in all sizes: Used machines in all sizes. We want your trade! The Cable Center: 800-257-7209. (CBM)

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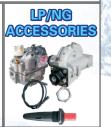


















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