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SEPTEMBER 2014

SERVICE-FIRST Philosophy

COLUMBUS CONTRACTOR PUTS PRIORITY ON PEOPLE AND FOSTERS GROWTH BY PROVIDING CONVENIENCE AND QUALITY SERVICE **PAGE 34**

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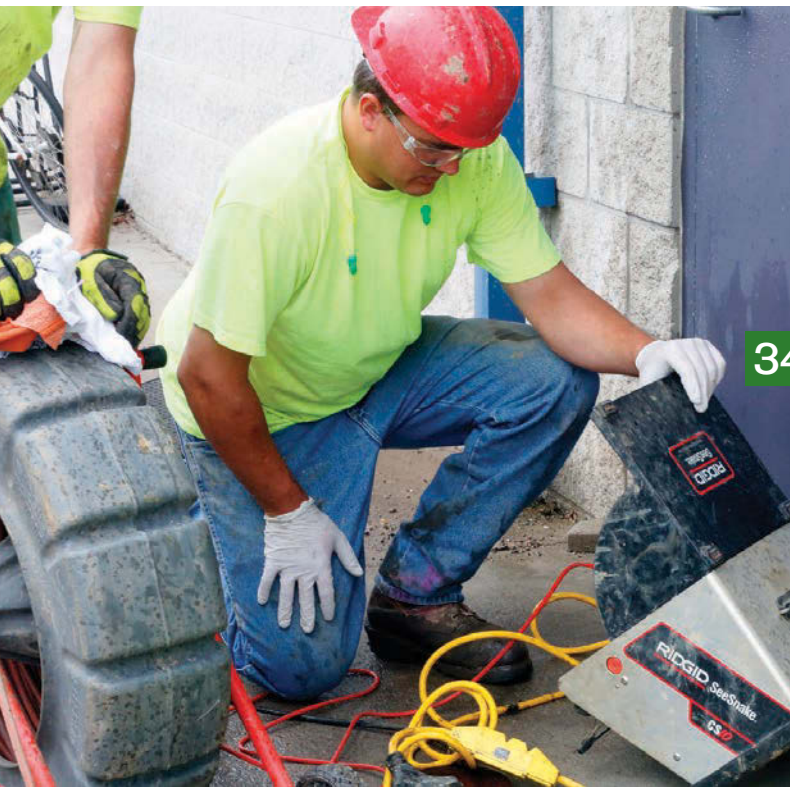
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- **PROFILE:** Mr. Rooter Plumbing of Greater Baltimore
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








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Luke Laggis
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Dedicated Service

The proper approach can go a long way toward building a loyal customer base and a strong business

By Luke Laggis

The customer is always right. It sounds so trite. Anyone who has ever been in any kind of business knows customers regularly have no idea what they're talking about. In a very direct sense, there couldn't be anything more wrong.

The fact that good contractors utter that axiom frequently in these pages speaks more to a philosophical approach to business than a literal truth. It's not that customers always understand the problem they're experiencing or how to fix it; if they did, they wouldn't be calling you. It's that the customer is always right in expecting to be treated fairly and dealt with honestly. Customers always want to be respected, to have their problems and their property respected, and in that way, they are always right.

Frankly, any contractor who doesn't show customers that level of respect is doing things the wrong way. I like to think of it this way: The customer always comes first. Their needs and concerns trump your own. That's what it means to be a service business.

The Waterworks, profiled in this month's issue of *Cleaner*, is a great example of how this philosophy leads to happy customers and a strong business. Customer service is at the core of every part of the company's operations, from small details to major initiatives. The results speak for themselves. Since emerging from the recession, the company has enjoyed double-digit growth for four straight years.

Customer loyalty has played a big role in that success, and treating customers right has fostered that loyalty. The Waterworks strives to create a strong sense of professionalism among its employees, beginning with the call center and including everything right up until the job is complete.

They try to offer every possible convenience, including online scheduling to make it easier for customers to make service appointments, and second-shift appointments for nonemergency work – from 4 to 7 p.m. Monday through Saturday – at no extra charge. That way, for instance, if a husband and wife both work, no one has to take time off to come home for a service call.

The Waterworks isn't the only company offering these types of conveniences, but the company is a great example of how treating customers right is good for business.

We've told you stories about contractors who do pro bono work for people in need, and who help rebuild their communities after disasters. We've told you about contractors who go above and beyond to help their customers, even when it's not in their best financial interest. That's what's great about this industry and the contractors I get to talk to. You can see beyond the flat-rate price for unclogging a drain. You can see that your work, and the manner in which you do it, can have an impact on people's lives. And there's great reward in that.

Don't look at yourselves just as drain cleaners. You are much more to the communities that depend on you.

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



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PROGRESS IN THE STREETS



H&R Plumbing owner Horacio Franco and his wife, Alejandra, and crew sit around a Mr. Manhole leveling system in El Sobrante, Calif. Left to right are: Jesus Uriarte, Carlos Chavez, Fabio Rustioni, the Francos, Amador Sosa and Rafael Escobar.

CALIFORNIA
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PROPELS A SMALL
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PLAYER IN MANHOLE
REHABILITATION



Carlos Chavez operates the Mr. Manhole leveling system in a residential street in El Sobrante.

H

oracio Franco was ready to control his own destiny. He'd worked six years in the plumbing industry and had earned his master plumber license when he decided to open H&R Plumbing & Drain Cleaning in 2004. Within a

few years it grew to eight service vans with a full staff serving a 50-mile radius around the metropolitan area of Oakland and Berkeley, Calif.

Even in those early years, Franco was eager to expand the business and set himself apart from the competition.

"Basically, I wanted to make it a company where I would be able to see the results of my own business decisions," he says. "I wanted to not only increase the services but go beyond the immediate region and secure the customer base."

Ironically it was the financial crisis in 2008-2009 that prompted Franco to look for new services that would keep the doors open. He began checking out the various trade shows, including the Pumper & Cleaner Environmental Expo International, where he had the opportunity to chart a new course for his company.

While the plumbing operation shrunk from eight service vans to just three during this period, trenchless line replacement became a strength. H&R had been hiring subcontractors to handle pipe bursting projects, but Franco eventually purchased his own system from TRIC Tools, and that segment of the business began to grow. His crews regularly replace 4- to 6-inch lateral lines with SDR 17.

Franco also recognized the growing interest among municipalities in manhole rehabilitation. These technologies, including relining, became the target of his interest.

VENTURING OUT

In 2009, while attending the Expo in Louisville, Ky., Franco purchased his 2002 Vactor, along with the equipment and materials for manhole rehabilitation from Madewell Products Corporation. His big break came when the nearby City of Richmond, with a population close to 110,000, gave him a chance to repair three manholes as a demonstration project. After an anxious six-month wait, the company secured a significant contract for a portion of the city's manhole rehab work. They tackled the work with a Madewell trailer specifically suited for the job.

"It was a small job for Richmond, but a big job for us," Franco says.

The quality of their work began to pay off, and in due course there were other municipal opportunities throughout the northern portion of the state. Franco says that 80 percent of the time they work as a subcontractor on these jobs and have had projects in Sacramento and Fresno, and other major cities up to 200 miles from El Sobrante. They've even ventured into Oregon. He estimates that 60 percent of his total business is now in manhole rehabilitation, and 65 percent of that is outside the local area.

"We are getting these jobs even though some of the cities have their own equipment, but they are

BY MARIAN BOND | PHOTOGRAPHY BY LEZLIE STERLING



Carlos Chavez (left) and Jesus Uriarte set up a Madewell Spin Caster that was modified by H&R Plumbing owner Horacio Franco, while on a manhole rehabilitation project.

profile

H&R PLUMBING & DRAIN CLEANING, EL SOBRANTE, CALIF.
SERVING NORTHERN CALIFORNIA AND INTO OREGON



- OWNER:** Horacio Franco
- ESTABLISHED:** 2004
- SERVICES:** Manhole rehabilitation, pipe bursting, relining, CCTV, point repair, jetting, plumbing
- CERTIFICATIONS:** PACP, LACP, MACP, ITCP (NASSCO)
- CUSTOMER BASE:** Residential, commercial, municipalities
- EMPLOYEES:** 13

recognition, which helps expand the customer base and add to the bottom line.

Working on the road also brings challenges. Equipment breakdowns are inevitable, so the crew needs to be prepared with the knowledge and necessary parts to take care of problems. “My guys can fix anything,” Franco says. “They have a sense of ownership. They own and love this equipment.”

CONTINUED GROWTH

Franco continues to create opportunities for the business through regular PowerPoint presentations he gives to municipal decision-makers. He notes that Madewell representative Steve Hallam will sometimes fly in to participate in these promotional efforts. As a very hands-on manager who spends a lot of time in the field, Franco says he might be giving a presentation one day and out repairing a manhole the next.

calling on us for this service,” he says, adding that they have preventive maintenance contracts with some municipalities.

H&R was a subcontractor in the City of San Rafael for the Sewer Main Rehabilitation 2013 project with the Las Gallinas Valley Sanitary District. They rehabbed 42 manholes ranging in depth from 5 to 20 feet, with I&I and H₂S deterioration problems. They also relined five laterals on that job.

These jobs often last as long as a month and require a crew of four to seven people. They stay in hotels and return home for the weekends. Franco says every time they go out and take on one of these jobs, they gain name

“My guys can fix anything. They have a sense of ownership. They own and love this equipment.”

Horacio Franco

“Our work with these municipalities also includes repair of lift stations, clarifiers, wet-well mounted pump stations, all using products from Madewell,” he says.

CERTIFIED FOR SUCCESS

Getting properly certified for his company's primary services was important to H&R Plumbing owner Horacio Franco. It helps establish the company's credibility.

The company is certified in NASSCO's Lateral Assessment & Certification Program, Pipeline Assessment & Certification Program and Manhole Assessment & Certification Program. Franco spent two days in class in Oakland for his Inspector Training & Certification Program. He is also a member of the California Water Environment Association, and regularly attends its conferences and exhibits in its trade show, which has provided additional exposure for the company.

"We have all been trained, including our plumbers, on confined-space entry,

pipe bursting, sewer lateral lining, manhole rehab, CCTV inspections, hydrojetting, pipe patch, trenching, traffic control," Franco says. "There are some procedures you may not use, but I like to give all our people the information and training so we can meet any challenge, be safe and serve our customer."

Instructors for many of the different programs have come to their location for training purposes.

"Important for us too is that we are certified by the State of California to be an MBE [Minority Business Enterprise], and SBE [Small Business Enterprise], and DBE [Disadvantaged Business Enterprise], all beneficial for us."

He says the most satisfying thing has been growing the business and seeing the results of their work. To him, it's almost like an art form.

"I'm very proud to accomplish something that is going to serve the community for years and years to come."

In 2011, Franco purchased Perma-Liner equipment and added relining to his menu of services. Today, the company relines pipes on a daily basis. In some situations, during the course of municipal mainline inspections, H&R will provide patch repairs, but they more typically work on laterals and manholes.

Projects often begin with CCTV inspection, another critical component of their rehabilitation services. They use Aries Industries camera equipment, and also have cameras from RIDGID and Vivax-Metrotech.

"This tells us the condition of the pipe and what repair is needed," Franco says. "Whether we suggest



Jesus Uriarte checks the gas monitor affixed to his confined-space entry gear while on a manhole rehabilitation job.

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LEFT: Jesus Uriarte lowers a modified Madewell Spin Caster into a manhole during a rehabilitation project.
BELOW TOP: The Spin Caster sprays an even coat of composite liner around the interior of the manhole.
BELOW BOTTOM: The rehabilitated manhole lined with Mainstay composite material.



pipe bursting, relining or spot repair depends on what we find. It may be the pipe is not a candidate for relining. Sometimes that is not an option, but pipe bursting would be a good solution. I educate the customer about the choices, and we also work in compliance with the cities – always searching for the best approach.

“The most common sewer lines we see in the state are clay – very often cracked or crushed and with root intrusion and I&I issues. With manholes, hydrogen sulfide has been eating away at the concrete, and if they are not repaired they will simply turn into a hole in the street. This is the same problem with lift stations and other installations we service.”

While outreach to the municipalities is ongoing, Franco hasn't neglected the immediate neighborhood and his residential and commercial customers, for whom he regularly works on lateral lines.

In most cases the property owner is responsible for the lateral line from the house to the main. Some cities don't allow lateral relining, while pipe bursting is acceptable. For H&R, having the ability to provide both services, and to dig and replace where necessary, means they can always offer a suitable solution.

CONTINUED >>

“Whether we suggest pipe bursting, relining or spot repair depends on what we find. It may be the pipe is not a candidate for relining. Sometimes that is not an option, but pipe bursting would be a good solution. I educate the customer about the choices, and we also work in compliance with the cities – always searching for the best approach.”

Horacio Franco

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H&R Plumbing's manhole rehabilitation trailer, shown here on a job site, is fully outfitted with equipment and materials from Madewell Products.

FULLY OUTFITTED

The company operates out of a half-acre site with 1,100 square feet of office and warehouse space, which provides plenty of room to park its equipment since plumbers take their service vans home at the end of each day.

The fleet also includes a 2002 Vactor on an International chassis, with a 2,500 psi/40 gpm pump, 500-gallon water tank, 3-yard debris tank and 500 feet of hose. Their pipe bursting vehicle is a 2002 Chevrolet box truck, with a 30-ton TRIC Tools system enclosed in an 8- by 10-foot Pace American trailer. Another Chevrolet box truck is loaded with Perma-Liner equipment for lining. The CCTV truck is a 2005 Dodge Sprinter outfitted with an Aries Pathfinder portable unit and software from Pipe Tech.

A 2003 Ford Super Duty truck, a 2002 Ford-650 dump truck, which hauls a Caterpillar mini-excavator, and a 1995 Ford dump truck round out the fleet.

“My plumbers, because they are exposed to everything we offer, are able to educate the customer and explain the options available to fix a sewer line.”

Horacio Franco

TEAM EFFORT

Franco has great faith in his crew, as many have been with him for six or seven years. His wife, Alejandra, is office manager and oversees the plumbing operation, and her brother, Juan Carlos Ramirez, is one of three master plumbers. There are seven technicians who handle most of the pipe bursting, relining, jetting and televising work, but the master plumbers are also cross trained in those duties.

“My plumbers, because they are exposed to everything we offer, are able to educate the customer and explain the options available to fix a sewer line,” Franco says. “Basically they become our on-the-road sales people. In their work they see the various conditions in lines, and they know the processes.

This is an important benefit for our company.”

As for himself, he says he begins each day with a laundry list of concerns on his agenda.

“It’s, ‘Who will I be calling today? For what jobs will I be preparing an estimate? Who do I need to call first?’ I am the job supervisor. I wear a lot of hats. When I talk to my guys in the field, I know what they are going through because I’ve done it myself. So yes, I am a hands-on kind of manager. There are a lot of things you deal with each day. I have to prioritize, but I can picture what my crew is doing.

“In the beginning, I was the guy out knocking on the doors, and I guess I’m still doing that in a way,” Franco says. “But I never imagined the growth we have experienced, or the importance we have seen in our local community and the other areas we have serviced. I’m very proud of the work we are equipped to do and what my employees accomplish.” **C**

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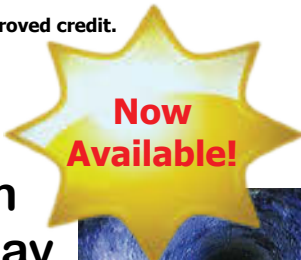
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Erik Gunn is a magazine writer and editor in Racine, Wis. Readers may direct inquiries to him by contacting this publication at 800/257-7222 or emailing editor@cleaner.com.

Know the Real Cost

Price is only one factor in determining how long it will take a new piece of equipment to return a profit

By Erik Gunn

So you're all ready to buy a new piece of equipment for your business – maybe a trailer jetter, a new truck or a sewer camera.

You've settled on your preferred model, figured out your financing and made room in your budget for payments. Now, hold on. There are two more questions you must always consider before making a major business purchase.

No. 1: How soon will that new gadget pay for itself? And No. 2: What is owning it going to cost you?

You really need to know the answer to the second question if you're going to accurately answer the first one.

The cost of owning something isn't just the purchase price or even the cost of the loan – it's all the additional expenses that come along with it.

If you have always ridden a bus to get anywhere and one day buy a car to save on bus fare, you'll take on other expenses: buying gas, paying auto insurance premiums, paying for repairs, or even for your state registration and license fees. Those will all be part of the cost of owning that car – not just the car's price and your finance charge.

Business equipment is no different. Everything your business owns incurs some cost of ownership, however small. Some are easy to figure out; others are more complicated. Some you can only guess at.

BUSINESS DECISION

"This is a business decision," says Paul Schwada, a Chicago-based business consultant. "The choice is essentially a decision to invest in the business in a specific area, and there are some bigger-picture considerations than just the obvious numbers."

Jamie Smith agrees. He's a certified public accountant who owns Mr. Rooter of Greater Baltimore. There's another side to ownership cost, he points out – the cost of not owning that new machine.

Maybe you're getting by with an existing device you've adapted to the task. If the new machine can allow you to do the work a lot more efficiently, it might allow you to bill more jobs in less time.

Or, says Smith, "If you don't own this piece of equipment and you're having to rent it, that's significant. If you own this equipment, would it help you sell the jobs more quickly? Do you lose jobs because you can't get to it for two days because you have to set up a rental?"

Against the cost of non-ownership, in rentals, lower efficiency or both, you'll also need to weigh the costs of ownership: debt payments, insurance, maintenance and more.

Armed with that information, you can begin to calculate how soon the machine will pay back – in revenue and profits – the costs you're taking on when you buy it.

SAMPLE COSTS OF OWNERSHIP

What additional expenses are associated with specific pieces of equipment?

I asked Bruce Hines of Brown Plumbing and Septic in Chesapeake, Va. He's well-positioned to advise both septic pumpers and drain and sewer cleaners. He gave his expert assessment on the hidden costs that come with ownership of common, but pricey, tools of the trade.

TRAILER JETTER: "Maintenance is always an issue," says Hines, as is the diesel fuel or gasoline to run the engine.

Also consider your water supply. And don't forget weather – freezing temperatures can do permanent damage to equipment that has water in it. Reduce weather-related costs by picking equipment that is easy to winterize.

SEWER CAMERA: As sewer cameras get more and more complex and sophisticated, they become especially costly to fix. "If they break, they've got to be repaired," Hines says. "They're not cheap." And good luck finding local service – you may need to add in the cost of shipping it back to the manufacturer.

Once you invest in a piece of equipment like this, you raise customers' expectations. They'll naturally think you should be able to provide the service,

even if the device is out for repair. A rental or loaner for when the camera is in the shop is part of the ownership cost too.

PUMPER TRUCK: Replacing a vacuum pump or blower that breaks down can cost \$5,000 or more, Hines notes. And don't forget the related tools you'll need – shovels, probing rods and the like.

You can keep repair and replacement costs down, but it will cost you in another way (although probably less than repairs): spending time and wages on routine maintenance, such as regularly cleaning components. "If you don't keep your secondary trap cleaned you can get water contaminants into the pump."

COMBINATION TRUCK: This is the pumper truck, on steroids. Repairs and maintenance costs are "on a much larger scale and a much more expensive scale," Hines says. Necessary upkeep can range from replacing damaged or worn hoses to fixing or replacing a broken blower or other component.

Making careful choices about how to use it – or any other expensive tool – is critical.

"If you're doing a lot of grease traps, and you're not cleaning the truck regularly, they're not going to last as long," Hines says.

QUESTIONS TO ASK

In making those calculations, it's reasonable to project what additional business you might gain by having the new tool in your possession – so long as you're realistic in your forecasts.

Schwada advises asking yourself several questions about your prospective purchase. These can point you to some deeply hidden potential ownership costs.

Does the new piece of equipment fit your operation? Or, instead, does it represent a big change in size or function from what you've used before?

If the purchase is a lot different from what you've used before, be prepared for it to be used less. Employees might not really "get" how to use this new device, or they may simply prefer old, familiar options.

In the best case scenario, maybe they'll just need extra training to get comfortable with using it. That's another cost of ownership but one that will ultimately pay off.

In the worst case, though, maybe its design makes it too difficult to use. If a new piece of equipment just sits idle because no one wants to use it, your projections about the revenue it will fetch will end up being way too rosy, Schwada warns.

You're the best judge of whether the new tool makes sense for your business, says Smith. "Don't be tricked by a salesperson telling you, 'Everyone else has one.' Maybe they're sorry they bought that piece of equipment; if it's sitting around, it's just a drain on your operation."

Does it overlap equipment you already have? "Almost every new piece of equipment – once in use – does some things that you used to do with other equipment," Schwada notes.

That could be good or bad. If your older equipment stays back at the shop all the time as a result, think about unloading it to recapture some dollars. But if you can still use both the old equipment and the new tool, maybe you've increased your capacity for certain kinds of jobs. If there's a real market, that can be great.

How realistic is your plan for the new equipment? You may hope to expand into some new specialty line of business. Be realistic about the actual opportunity.

"You won't want to invest in a significant piece of equipment for a new area of business without a good guess on the likelihood that it will pan out," Schwada says.

If you're already fulfilling customers' requests with existing equipment in place of specialty equipment you plan to buy or by renting specialty equipment – or if you are having to turn down lots

of requests for a particular service because you lack the needed tools – you can probably have some confidence in the future possibilities. But again, be realistic. Don't get caught up in overly optimistic scenarios.

Before you make any major capital investment in your business, take time to figure out its real return – how soon it will add to your bottom line instead of just eating away at your top line.

Then you'll know whether it's worth the money you plan to spend in the first place. **c**

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Make a Better Plan

Putting it all down on paper will help you define and achieve your business goals

By Ellen Rohr

It's September already! Pull out your business plan and take a look at your mission, your vision and your goals for 2014. How's it going?

What? No plan? No problem. Just consider how last year went and that's what will probably happen this year. Only a little worse. Or maybe a little better.

Dusty, old plan? Let's update it. If you want a quantum leap, or at least a major change of momentum, putting a plan together may help you think in dramatically different ways. Those thoughts of what you would rather have, what you really, really want, are what's required to revolutionize your business. Without a plan, you might be at the mercy of someone else's plan. And there may not be a starring role for you.

Writing down what you want, from your business and your life, is a business plan. Easy enough? It doesn't have to be a chore. Business planning can be fun,

creative and brilliant. It can be liberating and flexible and a powerful way to manifest your dreams.

One of the tricky things about a plan is launching your intentions in the uncharted waters of the future. Still, it is worth making a plan, and updating that plan, because it is a powerfully positive tool for reaching your goals.

Business planning can be fun, creative and brilliant. It can be liberating and flexible and a powerful way to manifest your dreams.

Also, does everyone have the same plan at your company? Written, unwritten ... people play games. There is a purpose, a point, to their behaviors. Are you playing the same game? It gets especially complicated when it's a family business.

So grab your plan and a pencil (or your iPad, or laptop) ... and start writing. Start with your mission. Answer this question, "Why are you in business?" in under 12 words. Work it over a few times until you really care about your mission. Get inspired!

Consider your target market. Who really cares about what you do? Who would be willing to pay you for it?

Next, review your goals. Write down your five juiciest goals. Include a financial goal and be specific in dollar and due date. Be specific. "More money" is not a goal. "Sales at \$100,000 per month for quarter four, 2014" is a goal.

Update your organizational chart. Take your pencil and cross through the name of the person who needs to go ... now. Next, look for someone who is not quite ready for a promotion but shows willingness and has "fizz." Promote him now. Take a risk.

Confront the money, Honey. A budget helps you set financial goals and create a sound selling price. Want to make it really easy? Double or triple your prices. Getting really profitable, collecting sales now, can fix your business.

Review your marketing plan and sales processes. How much are you willing to spend on marketing? Allocate the dollars and focus on just a few main marketing vehicles. Then incorporate the launch dates into your calendar.

Update your top projects list. Assemble a list of five to 10 projects that will move you in the direction of your goals. Assign someone to those projects and set due dates and interim meetings to check progress.

Business planning is simply clarifying what you want and committing to a written course of action that will move you in that general direction. **C**

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ABOUT THE AUTHOR

Ellen Rohr is president of Zoom Drain and Sewer LLC, a columnist for *Huffington Post* and *PHC News*, and a contributor to many business journals and trade magazines.

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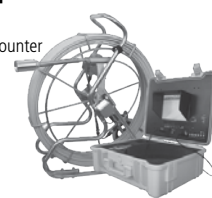
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- Heavy Duty Waterproof Case



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3/16"	\$26.12	\$33.17	\$41.35	\$55.25	\$69.95	\$84.68	\$99.38	\$128.82	\$158.25	\$187.69
1/4"	\$29.85	-	\$55.85	\$81.82	\$107.77	\$126.38	\$150.52	\$198.77	\$247.02	\$295.28
3/8"	\$62.08	\$91.28	\$105.54	\$151.12	\$215.06	\$259.57	\$304.05	\$382.09	\$469.43	\$556.77
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Mike Stropki of The Waterworks uses a RIDGID SeeSnake inspection system to check for blockages in a lateral line at a commercial facility in Columbus, Ohio.

SERVICE-FIRST Philosophy

COLUMBUS CONTRACTOR PUTS PRIORITY ON PEOPLE AND FOSTERS GROWTH BY PROVIDING CONVENIENCE AND QUALITY SERVICE

BY KEN WYSOCKY PHOTOGRAPHY BY AMY VOIGT

On the face of it, The Waterworks is one of central Ohio's largest commercial and residential plumbing and drain cleaning companies. But David Specht, the president of the Columbus-based firm, defines the well-diversified company from an entirely different perspective.

"We look at ourselves primarily as a service company," he says. "We strive to be the best service company around, not the best plumbing company or the best pipe relining company or the best drain cleaning company. This has been the philosophy ever since our founder, Tom Havens, established the company in 1986."

Providing great customer service informs virtually everything the company does, from how it trains employees and the uniforms they wear to the equipment and vehicles the company invests in – more than \$4.5 million worth and counting – and the growing array of services it provides. And it clearly is a key factor in the company's growth; since emerging from the recession, the multimillion-dollar-a-year firm (in terms of gross revenue) has experienced double-digit growth for the last four years, Specht says.

"We had our burps in 2009 and 2010 like everybody else, but we recovered by focusing on what we do best. We didn't compromise our quality or our pricing," Specht explains. "We stayed true to our core values and the way we operate our business. We let some customers [who wanted discounted pricing] walk. Dropping prices would result in dropping the level of service we provide, and we weren't willing to do that.

"It was a difficult and risky strategy," he says. "But after the recession, people were again willing to pay for value and dependable service."

PROFESSIONALISM COUNTS

The company was founded in 1986 when Havens bought a sewer cleaning business called ElectraBore Inc., established in 1935, and renamed it The Waterworks. At the time, the company owned just three service vehicles and one vacuum truck, and initially focused on industrial cleaning and hazardous and nonhazardous waste hauling, plus drain cleaning. In 1991, the company sold its environmental

"We had our burps in 2009 and 2010 like everybody else, but we recovered by focusing on what we do best. We didn't compromise our quality or our pricing."

David Specht

services division and concentrated on just commercial and residential plumbing services. Today, its business volume is split evenly between commercial and residential work, Specht says.

Waterworks builds customer loyalty by exceeding customer expectations, and that entails fostering a strong

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A crew member moves to position the Vac-Con combination truck's vacuum tube on a commercial cleaning job.

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**THE WATERWORKS,
COLUMBUS, OHIO**

OWNERS: 5 minority partners
FOUNDED: 1986 (original company established in 1935)
EMPLOYEES: 120
SPECIALTIES: Commercial and residential plumbing and drain cleaning; pipeline inspections; industrial services; flood restoration and mitigation; pipe lining/excavation
WEBSITE: www.thewaterworks.com



sense of professionalism among employees – a must in an industry marked by unflattering stereotypes. It all starts in the company’s call center, where separate staffs are dedicated to answering service calls and dispatching technicians. Customer service reps also touch base with customers every couple hours to apprise them of technicians’ progress; that includes calling about a half hour before the technician’s expected arrival.

“We always want to be empathetic and sympathetic to our customers’ needs,” Specht notes. “We’re starting to use texts and emails more often too. But we strive hard to respect customers’ time. Our challenge is that we have 50-plus service trucks out there and running. It’s a tough, tough task but a very important one [to stay in regular communication with customers].”

To combat negative stereotypes, show respect for customers and differentiate the company from competitors, Waterworks technicians wear uniforms and put on shoe covers when entering customers’ homes. The company also offers online scheduling to make it easier for customers to make service appointments.

“It’s all about convenience – people don’t want to make phone calls

anymore,” Specht says. “They’re using their smartphones for everything. It’s how people operate and I think our industry is behind on that. We’re trying to get more engaged in that process. But customers still get a telephone call back from us [to confirm appointments].”

The company also offers second-shift appointments for non-emergency work – from 4 to 7 p.m. Monday through Saturday – at no extra charge. That way, for instance, if a husband and wife both work, no one has to take time off to come home for a service call, Specht says.

“It’s all about convenience – people don’t want to make phone calls anymore. They’re using their smartphones for everything. It’s how people operate and I think our industry is behind on that.”

David Specht

STAYING ABREAST OF NEW TECHNOLOGY

To better serve customers, Waterworks minimizes the chances for breakdowns in its fleet by changing out about 20 percent of its trucks every five years. Moreover, it continually invests in new, technologically advanced equipment to increase productivity, Specht notes.

Here’s a breakdown of the company’s main vehicles and equipment: More than 70 service and support vehicles, mostly Chevrolets; three trailer-mounted water jetters made by US Jetting; one Juggler pump truck from Labrie



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Environmental Group (for cleaning grease traps), built on a 2005 International chassis with a 3,200-gallon debris tank, a 1,000-gallon water tank and a blower made by National Vacuum Equipment Inc.; nearly two dozen RIDGID pipeline inspection camera systems; and one tractor-powered color camera system made by RS Technical Services.

The fleet also includes two Vac-Con combination vacuum trucks, built on International trucks – one with a 12-cubic-yard debris tank and the other with a 15-cubic-yard debris tank – and both equipped with hydroexcavating systems and pumps made by Giant Industries (4,000 psi at 50 gpm and 2,500 psi at 80 gpm); a 1994 Freightliner 3000 pump truck with a 3,000-gallon Cosco steel tank (a Wastequip LLC brand) and a pump made by Wittig (a Gardner Denver brand); a pipe-lining system made by Perma-Liner Industries; a trackhoe made by Kubota Tractor Corp.; and a front loader and backhoe manufactured by New Holland (a CNH Industrial N.V. brand).



Isaiah Henry, right, director of customer relations, handles customer service calls in The Waterworks corporate headquarters with his team, from left, Sally Croce, Amy Lawson, Jessica Wilder, and Ursula Anderson.

“Most companies distribute profits to the owners. We never take money out of the company. We reinvest in the company – in technology and manpower and marketing.”

David Specht

Waterworks is also equipping field technicians with Samsung tablets to achieve efficiencies through paperless invoicing and filing, as well as take photos to document jobs.

“Again, we want to exceed expectations in the marketplace,” Specht says. “In the future, we’ll email homeowners a bill. In addition, the tablets maintain our flat-rate price book and update it in real time, as opposed to printing one every quarter or so. If the price of copper changes tomorrow, for example, that will quickly be reflected in the field without changing the entire price book, which avoids doing jobs at the old cost and losing margin.

“The tablets will also give our technicians access to the Internet, which will boost productivity by allowing them, for instance, to take a photo of an unfamiliar part and send it to our head purchasing agent or a vendor,” he continues. “We want to give our field technicians total access to email and the

CONTINUED >>

Apprenticeship program fosters built-in labor pool

One of the biggest challenges faced by plumbing and drain cleaning contractors such as The Waterworks in Columbus, Ohio, is a lack of qualified young workers. The bottom line: Young people are less and less interested in pursuing skilled trades as a career.

According to the U.S. Bureau of Labor Statistics, the U.S. currently needs 29 percent more HVACR and 21 percent more plumbing technicians – a total of more than 100,000 skilled workers. Among the estimated 500,000 plumbers in the United States alone, demand is expected to rise 10 percent by 2016. But at the same time, more than one-third of all plumbers – or approximately 167,000 workers – are expected to leave the labor pool.

The Waterworks is combating the problem by establishing an in-house apprenticeship program, where employees can follow a nationally accredited curriculum developed by the National Center for Construction Education and Research.

In-house training is unusual in the plumbing industry, says David Specht, the company’s president, noting that workers typically earn a license through a union trade school. But he believes that offering such a program under the company’s roof represents a deeper level of commitment that resonates with and engenders loyalty from employees who see a company that’s willing to invest in them.

“This will be one of our most important focus areas in the next several years – even more important than what services we choose to expand into,” Specht says. “Our goal is to grow our own employees ... recruit young men and women interested in the trades and then educate them.

“When they finish, they’ll have a nationally accredited journeyman’s plumbing license in their trade that’s valid nationwide,” he continues. “We believe it’s very important that these young people walk away with a degree in a blue-collar industry ... be able to stick a card in their wallets and feel good about it. We don’t want to bring in laborers just to hump buckets and carry tools. We want to help these kids earn a sense of accomplishment.”

Specht points out that the median income for plumbers at The Waterworks is around \$48,000, a solid wage that should be attractive to young people.

Waterworks plans to focus on hiring interns, then motivating them to take the roughly 600 hours of classroom education that’s a prerequisite for the journeyman’s plumbing license. “Then we can hire them [full-time] and catch them up on the 8,000 hours of actual work experience required to earn a license,” Specht says.

Waterworks will soon be publicizing the program through school districts and newspaper ads. And while he concedes that providing employees with a journeyman’s license carries a certain amount of risk, since it provides them with the means to leave and become independent plumbers, Specht says it’s a chance worth taking – especially given the acute labor shortage.

“We offer good benefits and compensation, good leadership and so forth to keep them around,” he notes. “Our company has single-digit attrition in an industry that probably pushes 50 percent [for employee turnover].

“The most important thing is growing talent,” he continues. “We need to grow and invest in young people to continue to keep our trade what it is. Not everyone is cut out for [college] schooling. We need to get the word out that people can make a good living in our industry and support a family. That’s our top priority right now.”

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The Waterworks' management includes (from left) Vice President of Industrial Operations Jim Mathews, President David Specht, Vice President of Commercial and Residential Operations John O'Connor and Restoration Division Director Jeff Foster, in front of several of their company vehicles in Columbus, Ohio.

Internet to do research ... give them access to the world, not just a couple of index books they might shove into their truck. This also creates a perception of value-driven service."

The company is also converting to a Global Edge software system from Davisware, which will "basically run our entire company, from dispatching and customer relations management to accounting and purchasing," Specht says. "We're looking at a six-figure expense over the next 24 months ... and we expect to save money in administration overhead and reduced accounts receivable [through quicker billing]."

The investments in everything from business systems software to in-the-field equipment underscores another differentiating factor at Waterworks: Profits get put back into the company.

"Most companies distribute profits to the owners," Specht explains. "We never take money out of the company. We reinvest in the company – in technology and manpower and marketing. We don't use lines of credit to reinvest. In fact, I can't remember the last time we used a line of credit to expand a new facility or buy new equipment.

"This approach gives us more financial flexibility and helps us through tough times," he adds. "It enables us to be bold and grow the business and be a leader in the industry."

FURTHER GROWTH EXPECTED

Specht expects Waterworks to maintain its growth pattern, through both adding services and geographical expansion. A good example of the former is the recent addition of water and flood restoration services and pipe relining services. Both offer a complementary service that allows the company to leverage relationships built with existing customers. Moreover, it's more convenient for customers because they deal with fewer contractors.

"We have not grown geographically yet, but that's in the near future," Specht adds. "We also need to grow our heating and air conditioning unit,

which is our weakest and lightest segment. We need to grow through acquisition there. We also may get into the electrical service business and do more work with the same customers ... leverage the loyalties we've built." **C**

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T. Meredith of Atlantic Heating & Cooling Service Inc. empties the debris tank of one of the company's street-sweeping machines made by Schwarze Industries. (Photos by JRH Photography)



Clean Streets

Fleet of sweepers provides contractor a lift in terms of efficiency and service diversification

By Ken Wysocky

The phrase “hurry up and wait” may have originated in the military, but it applies to contractors too. That explains why Atlantic Heating & Cooling Service Inc., a well-diversified company based in Virginia Beach, Va., owns a fleet of six street-sweeping machines.

At first glance, street sweepers and plumbing/drain cleaning services appear to be an odd combination. But to Aaron Lawyer, the company's president and owner, the purchase of six Schwarze M6 Avalanche mechanical sweepers within the past year made perfect sense, especially in the context of the other ancillary and complementary services the business offers, such as roll-off containers/dewatering, traffic control and right-of-way mowing. In short, they all represent logical extensions of the company's core services.

“The street sweepers go hand in hand with what we do,” Lawyer says. “We already were cleaning storm drain systems, and the sweeper guys who come in before us often held us up ... they need to go first so they don't sweep stuff down into the drainlines we just cleaned.

“We got to the point that we were subbing it out or our customers were hiring other companies ... and there aren't a lot of firms that provide street-

money machines

OWNER: Atlantic Heating & Cooling Service Inc., Virginia Beach, Va.

EQUIPMENT: Six M6 Avalanche mechanical street sweepers made by Schwarze Industries Inc.

FUNCTION: Street cleaning

FEATURES: Freightliner truck chassis; either 5- or 8-cubic-yard debris tanks; 300-gallon water tank; 58-inch main broom; 44- or 49-inch variable-speed gutter brooms; a Deutz diesel engine; scissor-lift dumping system that off-loads at heights ranging from 16 inches to 11 feet 6 inches

COST: About \$200,000 each

sweeping service,” he continues. “And if the sweeper guy gets backlogged, it pushes our work back.”

Providing bundled services also makes Atlantic, which serves customers throughout Virginia and in Atlanta, more attractive to customers who prefer to deal with as few contractors as possible. “It makes us a little more

competitive when we can do a whole project,” Lawyer points out. “It saves our customers a lot of time and paperwork if you can offer them one-stop shopping for services.”

Each unit features a Freightliner truck chassis; a 5- or 8-cubic-yard debris tank; a 300-gallon water tank; a 58-inch main broom; 44- or 49-inch variable-speed gutter brooms; a Deutz diesel engine; and a scissor-lift dumping system that off-loads debris from the side of the unit at heights ranging from 16 inches to 11 feet 6 inches.

“The sweepers are starting to generate a significant revenue stream. There’s definitely a risk in [investing in equipment for a new service], but you have to own the equipment before you can get the work.”

Aaron Lawyer



The scissor-lift dumping system off-loads debris from the side of the machine at heights ranging from 16 inches to 11 feet 6 inches.

“That feature saves us a lot of downtime and driving time back and forth to landfills,” Lawyer notes. “We can dump right into a dump truck and keep on working. On other street sweepers, you have to take them to a staging area or a landfill and empty it through a rear door. But with this one, when one dump truck fills up, another one pulls up and we just keep on sweeping. We can clean several more curb miles per day, being able to dump right on the job site.”

“Most of our contracts pay by the curb mile,” he adds. “So the faster we work, the more profitable the job is ... and we can complete more jobs per year.”

The units are fairly easy to operate, so it doesn’t take long to train operators. When properly

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maintained, the Schwarze sweepers are reliable too, Lawyer says.

Demand for stand-alone street-sweeping services is rising as road construction and other infrastructure upgrades increase. "There's a need to keep down all the silt and dust created by road and infrastructure projects," Lawyer says. "In addition, more and more laws restrict debris runoff into storm sewers ... so a lot of contractors are being proactive about removing the silt that collects in gutters."

The street sweepers also provide another opportunity for Atlantic to cross-promote its other services, which include pipe inspections and scanning, pipe relining, septic tank and grease trap cleaning, and HVAC and plumbing.

"The sweepers are starting to generate a significant revenue stream," Lawyer says. "There's definitely a risk in [investing in equipment for a new service], but you have to own the equipment before you can get the work."

"In this case, we're aggressively going after full-service infrastructure maintenance," he says. "There's definitely a service gap we can fill. The street sweepers give us another tool in our tool belt ... and provide our customers with the convenience of another in-house service." **C**

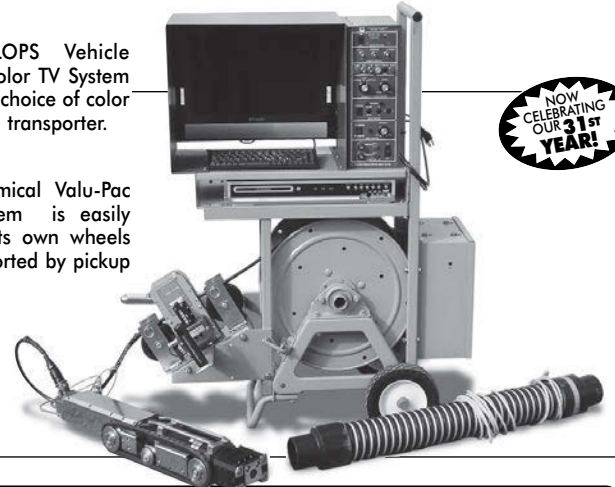
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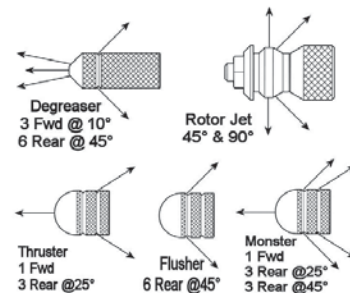


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No-DigTec workers use a McElroy TracStar 900 self-contained fusing machine to weld 20-foot-long sticks of 32-inch DR-17 high-density polyethylene pipe. A space heater keeps them warm. (Photo courtesy of John Newell)



Dual Assist

Pipe bursting helps a Texas contractor meet major challenges in upsizing a sanitary sewer interceptor

By **Scottie Dayton**

The Trinity River Authority of Texas wanted to upsize a 24-inch reinforced concrete sewer interceptor to accommodate projected development in the City of Fort Worth. The 43-year-old pipe, which ran through Stone Creek Park, also had root intrusion, bellies and offset joints.

Engineers specified pipe bursting to preserve a playground, a concrete trail and as many trees as possible. No-DigTec of Dallas won the bid to install 1,175 feet of 28-inch, 1,826 feet of 32-inch, and 260 feet of 34-inch DR-17 high-density polyethylene pipe. Shorter runs of the latter reduced turbulence where other lines connected to the 32-inch interceptor.

“The 34-inch bursts were a first for HammerHead Trenchless Equipment and us,” says No-DigTec owner John Newell. “Besides logistical and site challenges,

upsizing the bursting head five times and the weight of the pipe – 2 tons per 50-foot stick – stressed men and equipment. There was nothing we could move by hand.”

Newell’s 10-member crew battled massive tree roots, constricted work areas and a two-month delay to meet the April 30 deadline to vacate the park.

BY THE NUMBERS

Every phase required approval from the city’s Parks Department. Officials told No-DigTec to stake out the location of entry and pulling pits, but the dense underbrush was impassable. Workers hacked their way through it with machetes. “The area had 3-inch-long thorns that punctured rubber tires,” says Newell. “One even went through a guy’s shoe.” The injury was minor.



No-DigTec owner John Newell prepares to start the HammerHead lubrication system. The pipe pilot and 34-inch bursting head/full body expander are attached to the 32-inch DR-17 high-density polyethylene pipe. (Photo courtesy of John Boykin)



LEFT: Unable to dump to the side, the excavator operator swings another bucketful behind the machine in the constricted work area of Stone Creek Park in Fort Worth, Texas. (Photo courtesy of John Newell)

BELOW: No-DigTec workers separate the bursting assembly from the HDPE pipe in the 60-foot-long, 15-foot-deep pit. (Courtesy of John Boykin)



tough job

PROJECT: Upsize sewer interceptor in a park
CUSTOMER: Trinity River Authority of Texas, Arlington
CONTRACTOR: No-DigTec, Dallas
EQUIPMENT: HammerHead Mole pneumatic pipe bursting system
 HammerHead Trenchless Equipment
 800/331-6653
 www.hammerheadtrenchless.com
RESULTS: Pipe upsized with minimal damage to the park

Per instructions, senior project manager Jason Williford of Mountain Cascade Construction in Mansfield, Texas, hired an arborist to grub out 15-foot-wide paths and trim or cut down trees. Newell often found trees trimmed too low for the two Komatsu PC200 LC tracked excavators to pass without tearing off limbs, or paths not large enough to accommodate the machines' 30-foot turn radius.

"Damaging trees carried penalties of \$400 per inch of trunk circumference," says Newell. "To protect them, we laid timber matting over root zones, spread mulch on paths, wrapped wood armor around trunks and fenced off restricted areas." Clearing paths took two months.

THE RIGHT STUFF

The project's multiple upsizes required a pipe pilot to center the new pipe, a specially sized bursting head/full body expander and a rear-mounted assist hammer. Twin blades on the pilot broke the host pipe's 3-inch-thick wall and 5-inch-thick bells.

HammerHead engineer Mark Randa recommended a 38-inch expander head, a 26-inch pneumatic Mole rammer driving at 122 beats per minute and the lubrication system. "The larger rammer slips inside the head, while my 20-inch Mole rammer ran through casing and attached to the rear of the HDPE pipe to help push it and alleviate drag," says Newell.

The system was powered by three Sullair portable air compressors blowing instrument-quality air to help cool the rammers. Two 1600H (1,600 cfm/150 psi) compressors drove the larger rammer, while a 750H (750 cfm/150 psi) unit drove the smaller unit. "Heat causes expansion, which causes power loss because the rammers no longer fit tightly against the seals on the strikers," says Newell. "Cooling the rammers increased our chances of completing bursts without stalling."

The lubrication system mixed environmentally safe dishwashing liquid with water, then pumped it to a nozzle at the back of the bursting head. "The solution squirts out and runs down the HDPE pipe to reduce drag," says Newell. "It works as well as a polymer lubricant at a third of the cost."

PLANNING AHEAD

Four No-DigTec workers arrived on March 10 and began fusing pipe in a large open area 1,000 feet from the nearest entry pit (the farthest was 2,500 feet away). Each joint took an hour to complete. Meanwhile, a second crew built two bridges across a creek running through the park. They laid three 12-inch pipes lengthwise in the shallow water, then cut down the 10-foot-high banks with a Komatsu PC200 excavator, compacting the soil to form a road.

The PC200 excavators were almost as wide as the paths, requiring someone on foot to help guide the driver to entry or exit pit locations. Digging took three times as long as usual. The operator dumped each bucketful behind the excavator, then swung around for the next scoop. Another operator with a loader stockpiled the sandy soil in a designated area for use as backfill.

The 60-foot-long entry pits and 36-foot-long exit pits were 10- by 15-feet deep. The project required 10 pits, five at manhole locations. After some pulls, workers enlarged the exit pit to serve as the entry pit for the next burst.

The narrow paths necessitated moving equipment into position before dragging in the pipe. "It was impossible to inch anything past it," says Newell. "If we forgot something, we were in trouble."

SUCCESS AT HAND

To prevent the 8,780-pound HydroGuide HG20 20-ton winch from sinking in the sand, workers laid steel plates to distribute the weight. Other times, they positioned the trailer-like unit over a trench box, then lowered the

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The No-DigTec crew loads the rear 20-inch Mole pneumatic rammer into its casing and checks the air hoses before one of the runs. (Photo courtesy of John Boykin)

adjustable boom that guided the 7/8-inch swage cable.

Workers threaded the cable by pushing a BES FiberSnake duct rodder to the entry pit. "The rodder navigates root intrusion and has enough power to drag back a 3/8-inch cable," says Newell. "Then we attach the smaller cable to the larger one and pull it to the entry pit with an excavator." Each burst took a week of preparation.

**"There was no room for error.
 If we stalled out and had to excavate,
 I'd be hanging from the remaining tree."**

John Newell

Although Newell preferred pulls of 400 to 500 feet, something was always in the way. Of the 10 bursts, the longest was 325 feet of 34-inch pipe and the two shortest were 200 feet of 32-inch pipe. The latter also were the most critical, passing beneath mature trees with massive living roots encasing the host pipe.

Newell's greatest concern was if the roots stretched instead of tore during the burst. Then they would return to their original shapes, squeezing the replacement pipe and creating drag. "There was no room for error," he says. "If we stalled out and had to excavate, I'd be hanging from the remaining tree."

Beginning both pulls as close to a tree as possible enabled Newell to concentrate all the rammer's power on breaking through the root bundles. The winch is rated at 28 feet per minute, but the bursts were so difficult that pulls progressed at 12 inches per minute with the pressure holding at 15 tons of pulling force.

"It was a great relief to complete the project, and Mark's equipment recommendations and support were vital to our success," says Newell. "We have a new appreciation for his pipe bursting system." **C**

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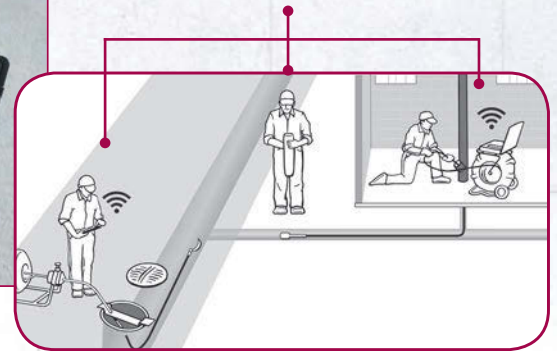


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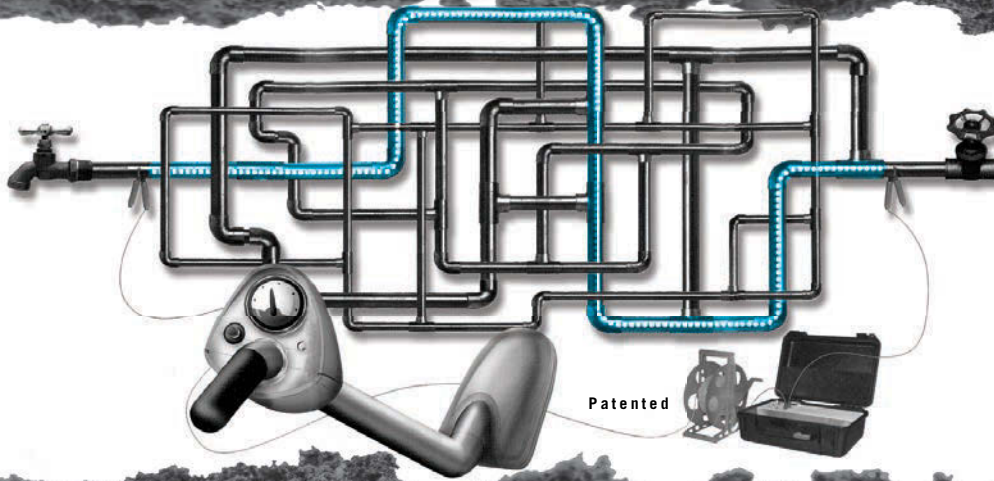
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See ad page 73	 Amazing Machinery, Inc. 3807 Old Tasso Rd., Cleveland, TN 37312 800-504-7435 • (f) 800-504-7436 techsupport@amazingmachinery.com www.amazingmachinery.com	Amazing Machinery, FLIR, Forbest, Wohler, Vu-Tech	2" - 24"	65' - 380'	Flash Drive/USB Thumb Drive, SD Card, DVR	✓	✓	✓		✓
See ad page 65	 Aries Industries, Inc. 550 Elizabeth St., Waukesha, WI 53186 800-234-7205 • 262-896-7205 • (f) 262-896-7099 sales@ariesindustries.com • www.ariesindustries.com	Aries	3"	100' - 2000'	Flash Drive/USB Thumb Drive, SD Card, DVR, DVD	✓	✓	✓	✓	✓
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	 Cobra Technologies 4806 Wright Dr., Bldg. C, Smyrna, GA 30082 800-443-3761 • 770-435-8991 • (f) 770-435-0402 sales@cobratec.com • www.cobratec.com	Cobra Technologies	2" - 200"	500' - 6000'	HDD, Flash Drive/USB Thumb Drive, SD Card, Compact Flash, DVR, CD, DVD	✓	✓	✓	✓	✓
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See ad page 29	 CUES 3600 Rio Vista Ave., Orlando, FL 32805 800-327-7791 • 407-849-0190 • (f) 407-425-1569 salesinfo@cuesinc.com • www.cuesinc.com	CUES	2" - 200"	100' - 4000'	HDD, Flash Drive/USB Thumb Drive, SD Card, Compact Flash, DVR, CD, DVD, VHS, any digital media	✓	✓	✓	✓	✓
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See ad page 81	Dynamic Repair 40 Arnot St., Unit 20, Lodi, NJ 07644 973-478-0893 • (f) 973-478-0895 dynamicablerepairs@yahoo.com www.dynamicrepairs.com	GWS, RIDGID®, Vision Technology, Vision Insight, Pearpoint, Gator Cam				✓				✓
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See ads pages 54, 86	The Cable Center, Inc. 8318 Olive Blvd., St. Louis, MO 63132 800-257-7209 • 314-993-3099 • (f) 314-432-8024 www.thecablecenterinc.com	RIDGID®, General Wire Spring	1" - 10"	65' - 400'	Flash Drive/USB Thumb Drive, SD Card, DVD, VHS		✓	✓	✓		✓
See ad page 42	Vivax-Metrotech Corp. 3251 Olcott St., Santa Clara, CA 95054 800-446-3392 • 408-734-1400 • (f) 408-734-1415 info@vxmt.com • www.vxmt.com	vCam Series	2" - 8"	100' - 400'	HDD, Flash Drive/USB Thumb Drive, SD Card		✓				✓
See ad page 24	VU-Rite Video Inspection Cameras 313 W Main Blvd., Church Hill, TN 37642 423-256-3063 • (f) 423-256-3064 angela@vu-rite.com • www.vu-rite.com	VU-Rite Video Inspection Cameras	2" - 8"	150' - 200'	Flash Drive/USB Thumb Drive, SD Card, DVD	✓	✓	✓	✓		✓

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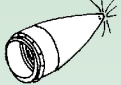
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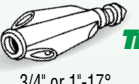
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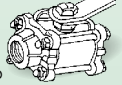


Swivel Joints

T-M® Style

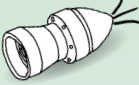
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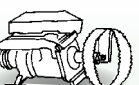


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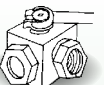
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Inspecting Every Inch

LAMP II pan-and-tilt camera option from CUES allows operators to inspect all areas of the pipe

By Craig Mandli

The self-propelled LAMP II inspection system from CUES has been on the market for several years, but a pan-and-tilt inspection system add-on, rolled out for the first time at the 2014 Pumper & Cleaner Environmental Expo International, has made the system even more versatile and effective, allowing an operator to perform simultaneous lateral and mainline inspections.

The full system includes a self-propelled lateral launcher, transportation platform and two cameras – a mini pan-tilt optical zoom mainline camera mounted on an articulating platform for easy invert entry, and a camera for lateral inspection. The mini pan-and-tilt camera system includes a detachable steering wand that provides the ability to navigate through multiple pipe junctions, giving operators even more latitude to inspect every inch of the pipe system.

“We basically took a product that we were already very proud of, and added usability and versatility. It is ideal for municipal lateral inspections, residential mainlines, and even in the oil and gas industry for inspecting cross bores.”

Kevin Jordan

“The operator can rotate and articulate the camera, and the wand allows them to get into different bends and areas of the pipe that weren’t previously accessible,” says Kevin Jordan, the southeast regional sales manager for CUES. “The feedback we received from those who were using systems in the field indicated that they needed to be able to steer the pan-and-tilt camera. This system accomplishes that.”

The LAMP II system is available with a stainless steel or fiberglass push cable that can inspect more than 150 feet into a lateral. It can pull 1,000 feet of video cable, reducing traffic control expenses while increasing production. It’s operated using a hand-held, wireless video game-like controller, including all lateral launcher, transport, camera and reel functions. Color video from the two cameras can be displayed in a picture-in-picture format or on separate monitors.

“The system now offers a lot of flexibility in the same footprint,” says Jordan. “The wand can actually be used to lever the pan-and-tilt camera around corners. It allows the operator to be able to see so much more.”

The LAMP II main camera is designed to inspect 6- to 30-inch mainlines, while the 360-degree pan-and-tilt can inspect 3- to 8-inch laterals with its 40:1 optical/digital zoom. It has automatic centering and built-in auto upright that keeps the image stabilized at all times. The system also has a built-in sonde for



CUES Equipment Manager Tim Wilson, right, explains the upgraded pan-and-tilt camera options on the company’s LAMP II inspection system to an Expo attendee. (Photo by Craig Mandli)

line locating and comes with four sets of single-point removable wheels with a combination of rubber tires for most conditions and semi-pneumatic tires to negotiate pipes with more debris. High-traction tires with a steel-abrasion base are available for greasy conditions and PVC pipe. Both cameras have built-in lens window wipers for in-pipe lens cleaning.

“We basically took a product that we were already very proud of, and added usability and versatility,” says Jordan. “It is ideal for municipal lateral inspections, residential mainlines, and even in the oil and gas industry for inspecting cross bores.”

Jordan says those operators who have tested the new pan-and-tilt option are enthused. “Obviously the demand was there, so the feedback has been great,” says Jordan. “We want our customers to know that the pan-and-tilt can be retrofitted on all existing LAMP II systems too.”

Jordan says that CUES regularly launches a new product at every Expo, now known as the Water & Wastewater Equipment, Treatment & Transport Show, or WWETT. That won’t change for 2015.

“The entire industry is looking at multi-sensor technology in pipe inspection products,” says Jordan. “We intend to keep building high-tech gear with a smaller footprint. The demand is there.” 800/327-7791; www.cuesinc.com. **C**



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Mainline Sewer Inspection

By Craig Mandli

The camera systems used to inspect mainlines need to be portable to access difficult-to-reach areas and versatile to offer quality inspection of various-sized drainlines. Here is an assortment of inspection cameras, along with mapping software, inspection vehicles and sonar profilers to go with them.

INSPECTION CAMERAS

HEAVY-DUTY INSPECTION CAMERA

The **Viztrac II AM240-200** pipe inspection camera from **Amazing Machinery** has 200 feet of durable 1/2-inch push cable with fiberglass rod inner core, a 20-inch cage reel and attached water-sealed case containing the controls, a high-resolution 7-inch LCD monitor and wheels to increase mobility. It also has a 1-inch powder-coated lay-flat frame with upright rolling stand; a 1 3/8-inch O.D. metal camera housing; nine dimmable high-output 5 mm LED lights; high-resolution color camera with a self-leveling head; scratch-resistant sapphire glass lens; high-grade 512 Hz sonde locator with an average range of 12 to 15 feet; and an integrated digital video recorder with remote control, compatible with most standard SD cards. **800/504-7435; www.amazingmachinery.com.**



Amazing Machinery

CUSTOM INSPECTION SYSTEM

Custom truck, van, ATV or trailer-mounted TV inspection systems from **CUES** are made to withstand severe conditions, and ergonomically designed for comfort and efficiency. They can include TV inspection equipment for sanitary and stormwater lines, laser and sonar pipe profiling systems, mainline joint and lateral sealing, and lateral reinstatement cutters for the relining industry. Equipment can be ergonomically mounted to inspect 6- through 200-inch mainlines and 3 through 8-inch lateral services. Truck interior, cabinets, equipment and mounting configuration can fit unique requirements. Truck and trailer mounted grout rehabilitation systems are available for mainline, manhole and lateral joint sealing, and can be equipped with CCTV equipment and decision support software for inspection with documented condition assessment. Granite XP software is available to integrate data seamlessly with enterprise asset-management systems. **800/327-7791; www.cuesinc.com.**



CUES

PIPE INSPECTION CAMERA

The **EasyCAM E3200** was designed from a plumber and drain cleaner's perspective, using easily replaceable modular components. When repairs are needed the owner can easily do them, as no special tools are needed. It includes a lightweight titanium color camera head, 200 feet of HYTREL abrasion-resistant pushrod with molded waterproof connectors, 512 Hz transmitter, onboard 8-inch daylight-readable monitor, powder-coated aircraft aluminum frame, RCA video jack for laptop or DVR use, safe 12-volt operation and heavy-duty wheels. **239/260-2056; www.easycamllc.com.**



EasyCam

PIPELINE INSPECTION CAMERA SYSTEM

The **Ecamm PRO 2** from **Electric Eel** is used to inspect 3- to 10-inch pipelines. It includes a stainless steel-housed 1.68-inch self-leveling color camera with sapphire lens, 20-LED light ring and a high-resolution CCD element. A flexible camera spring navigates 3-inch P-traps. The auto iris adjusts lighting automatically. It provides industry standard 512 Hz sonde and has a 10.4-inch daylight readable display with an on-screen footage counter. Up to 16 pages of text writing is available with memory saves. It features click-touch controls with one-touch recording. It records directly to a USB flash and allows for voiceover recording with audio/video out jacks. It has an 8x zoom function and adjustable light controls, with a two-hour battery with built-in charger. It comes standard with 200 feet of Kevlar-braided 1/2-inch pushrod, and powder-coated steel tube and bar construction with a secure-locking reel brake. It rolls on 8-inch wheels for easy maneuverability. **800/833-1212; www.electriceel.com.**



Electric Eel

PAN-TILT PIPE INSPECTION CAMERA SYSTEM

The **FB-PIC3688B** pipe inspection camera system from **Forbest Products Co.** allows users to have panorama pictures with remote directional control. It comes with 2 1/4-inch waterproof 360-/180-degree pan-and-tilt high-resolution color camera head with zooming and 400 feet of 9 mm fiberglass cable with a reel with meter counter. The 600 TVL camera head has high LED lights with 130-degree wide angle and 10-60 mm focus, and can work 30 meters underwater. The heavy duty waterproof control box includes a control panel for remote controlling camera head rotation for over 20,000 hours continuously and a 10" LCD color screen with USB and built-in SD card to record photos and videos. On-screen status indicators include footage of the cable pushed through the pipe. The built-in rechargeable battery lasts about three hours. **650/757-4786; www.forbestusa.net.**



Forbest Products Co.

APP-ENABLED VIDEO INSPECTION CAMERA

The **NGx10** video inspection system from **MyTana Mfg. Company** is suitable for 3- to 8-inch lines with up to a 200-foot range. It has a standard color self-leveling camera head, a built-in 512 Hz transmitter that allows location during inspection, a daylight-readable monitor, a removable camera head with foolproof connection to the pushrod, the MyTana Viewer app for connection to an iPhone, iPad and YouTube, built-in Wi-Fi that allows for multiple viewers on



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PAN-AND-TILT PUSH CAMERA

The **Pan n' Tilt Push Camera** from **Ratech Electronics** rotates horizontally 360 degrees and 210 degrees up and down, allowing technicians to view the pipe condition easily and in more detail. An optional steerable gooseneck assists the camera. Combining this camera with a control unit gives recording capability using SD/USB drives, and allows MPEG video capture and JPEG image capture of pipe inspections. Features include a 512 Hz sonde, an on-screen text display overlay system, electronic distance counter, time, date and eight pages of memory. Standard Gel-Rod cable length supplied is 200 to 400 feet. 800/461-9200; www.ratech-electronics.com.



Ratech Electronics

MODULAR PIPE INSPECTION CAMERA

The modular **M-Series** pipe inspection system from **Rausch Electronics USA** was designed around the four-wheel drive steerable crawler/tractor platform L135. Each camera and module is interchangeable via a quick-connect connector. The pan-and-tilt mainline TV camera mounts onto the electric lift of the crawler and can inspect pipe diameters from 5.5 up to 60 inches. To upgrade the system to perform lateral launch inspections, remove the camera module from the crawler and attach the lateral launch module with the pan-and-tilt lateral camera. Lateral launch systems can push the lateral camera up to 160 feet into the lateral and negotiate branched laterals with a steering pin. It takes less than two minutes to switch the modules from mainline to lateral inspection, or vice versa. 717/709-1005; www.rauschusa.com.



Rausch Electronics USA

MODULAR TV INSPECTION SYSTEM

The **CROSTOUCH** modular TV inspection system from **RICO GmbH** can be arranged individually to expand a vehicle. It can be expanded in different load-bearing carriages, and the mobile and light boom crane makes it possible to easily deposit and pick up the carriage. It can be converted into a mobile system in a few steps to use in almost impassable surroundings in the shaft. A plug-and-play wiring set expands the system, and the battery package supplies power independently from the mains grid. www.rico-gmbh.de.



RICO GmbH

CCTV PIPELINE INSPECTION SYSTEM

The **Mainline High Cube** CCTV pipeline inspection system from **RS Technical Services** has single-conductor technology with customizable high cube van installation. Plug-and-play components can be added onto existing systems without the need for additional system controllers or upgrades. Cameras, transporters, lateral launchers, cutters and laser profilers can all be easily and precisely operated on one single conductor. Longer inspection runs and smaller diameter cable come standard. It is available in a variety of sizes (usually 12- to 16-foot box lengths), providing ample storage room while allowing for customizable system installations. Extra workspace, countertops, toolboxes and onboard bathrooms are available. Power sources, safety lighting, air conditioning, heat, floor and wall coverings, and cab access is configured to the customer's requirements. 800/767-1974; www.rstechserv.com.



RS Technical Services

PORTABLE INSPECTION CAMERA

At 25 pounds, the **SparVision 200** pipe inspection camera from **Spartan Tool** is self-contained in a single unit for easy on-the-job maneuverability. Outfitted with iPad technology, it is intuitive to use and includes telestration to actively draw on the screen to indicate problems, simplified emailing of recordings to customers, and a full on-screen QWERTY keyboard. It has 200 feet of ultra-slick pushrod and a color self-leveling camera head. It can take instant snapshots at any time, and includes a 512 Hz locating beacon and pushrod distance counter. 800/435-3866; www.spartantool.com.



Spartan Tool

LONG-DISTANCE INSPECTION SYSTEM

The **vCam-5** inspection system from **Vivax-Metrotech Corp.** has the ability to locate the entire length of pushrod, in addition to having a locatable sonde. Simply connect the hot lead from a cable locator transmitter to the reel and the ground lead to ground. The Type-CP Systems reel comes with either 200 or 400 feet of 12 mm Kevlar-reinforced pushrod stiff enough for long distances and flexible enough for easy entry and turns. The control module has a daylight-readable display, volume control, wireless mouse support and RS232 support for MuniXS, POSM and WinCan software. 800/446-3392; www.vivax-metrotech.com.



Vivax-Metrotech Corp.

MINI CAMERA SYSTEM

The **Model C-150 T2M** mini camera from **Vu-Rite Video Inspection Systems** is ideal for inspecting sewer lines as small as 2 inches or larger lines with the use of a mini-lift adapter. The full-color camera has a heavy-duty stainless steel lens cover and body. The lightweight, versatile frame has removal/extendable wheels, legs and handle for operating in confined spaces. Interchangeable reels allow the use of different pushrod lengths and camera head sizes. 423/256-3063; www.vu-rite.com.



Vu-Rite Video Inspect.

VISUAL INSPECTION CAMERA

The **VIS 350 Plus** visual inspection camera system from **Wohler USA** comes with both a 1 1/2-inch, 360-degree pan and 180-degree tilt camera head, and a 1-inch, straight camera head. Both are waterproof and have LED lights with adjustable brightness levels for an all-encompassing view. Follow the camera's path on a color monitor and watch as it glides around 90-degree bends and up to 100 feet away. The digital-distance measurement feature pinpoints the exact location of trouble spots. It can take still photos and record video via SD card or USB port. It is packaged in a tough, self-contained carrying case and comes with two rechargeable batteries providing up to four hours of mobility. 978/750-9876; www.wohlerusa.com.



Wohler USA

VERSATILE CAMERA SYSTEM

The **Xcam** camera system uses a 1.38-inch stainless steel camera head and 1/2-inch-diameter pushrod to navigate 3-inch, 90-degree corners with ease. Recording is done onto a USB stick in MPEG file format that can be played



Xcam

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back on any computer. The unit comes with a self-leveling camera head with skid, 512 Hz sonde transmitter, adjustable lighting, internal microphone, 200 feet of push cable and a 10.4-inch monitor case. Options include a portable battery pack and a text writer. 855/863-9226; www.xcamcameras.com.

MAPPING SOFTWARE

CCTV GIS CONNECTION APPLICATION

A set of applications from **Cobra Technologies** makes the interaction between pipe CCTV inspection and Esri ArcMap easy to use, requiring minimum user interaction for data exchange with complete detail in GIS maps. Users export inspections from the Cobra Toolbar into ArcMap to create pre-populated projects and linked maps, and supplement GIS data with additional infrastructure detail. During review the user will have access to the inspection video to allow for comparison of the data against the video file. ArcMap tools allow for filtering on the map and color coding CCTV inspections using the inspection date, observation type (e.g. roots), inspection status (e.g. completed, abandon) and PACP ratings. The GIS module for the pipe inspection management software assists municipalities in managing sewer and stormwater infrastructure using GIS data. 800/443-3761; www.cobratec.com.



Cobra Technologies

PIPE INSPECTION AND ASSET MANAGEMENT SOFTWARE

WinCan VX pipe inspection and asset management software from **Pipeline Analytics** emphasizes a productivity-oriented, fully customizable user interface with cloud-based data access and enhanced reporting and analytical capabilities. It offers support for value-added processes like pipe cleaning, rehabilitation and leak detection. It augments existing functional areas like GIS, laser/sonar scanning, side scanning, image measurement and municipal database integration. Its companion software, WinCan Analyst, gives managers and engineers sophisticated tools for understanding the maintenance needs of a collection system using WinCan VX data. It generates maps highlighting pipe material, size, rating, maintenance status and damage classification, and produces statistical reports listing assets by similar criteria. It also contains tools for rehabilitation planning, inspection data validation and extended condition rating. 877/626-8386; www.pipelineanalytics.com.



Pipeline Analytics

INSPECTION VEHICLES

PIPELINE INSPECTION SYSTEM

The **Pathfinder** pipeline inspection system from **Aries Industries** operates over long distances through harsh pipe conditions. The transporter sets up quickly to match pipe contours and conditions. Adjustable camera lifts enable easy transitions from small to large pipes. A gear-driven drive train, powered by two continuous-duty motors, ensures navigation through deteriorating, debris-filled pipeline. A rear-facing camera provides complete visualization and quick retrieval. A high-resolution camera and high-intensity LED array provides picture clarity. An auxiliary high-power detachable light head provides clear images in larger pipes. It operates in 8-inch-diameter or larger pipes, and can be used in 6- to 24-inch sewer lines. 800/234-7205; www.ariesindustries.com.



Aries Industries

CRAWLER BODY

The **RX400** crawler body from **Envirosight** has a built-in remotely operated camera lift with 17.5 inches of vertical travel – enough to center viewing in a 60-inch line and suitable for inspecting pipe up to 10 feet in diameter. It integrates seamlessly with any ROVVERX system, so an owner can use existing controls, reel and camera. It has a selectable 412/640 Hz sonde; an illuminated rearview camera with an expansion port; a clutch; and sensors for tilt, roll, pressure, temperature, and lift height. In addition, it delivers the increased illumination large pipes demand with four aimable LED tri-lamps and twin LED path lamps. Opposing rangefinders at the camera head allow automatic view centering, as well as accurate measurement of pipe diameter. Two sizes of pneumatic tires come standard, the smaller of which allows inspection of lines down to 24 inches in diameter. 866/936-8476; www.envirosight.com.



Envirosight

INSPECTION AND CLEANING SYSTEM

The **Kleen Sight** inspection and cleaning system from **KEG Technologies** incorporates upright image video with fluid mechanics for mainline inspection and cleaning. Only a jetter hose connection is required, no cables or wires connected to the truck. The system is designed for mainline sewer inspection/cleaning and pipes down to 8 inches. It is sealed with a magnetic on/off switch. The video camera is powered by a long-life, quick-change and rechargeable lithium-ion battery. Rugged stainless steel construction protects internal components and onboard memory. Its 80 LEDs provide illumination and video quality. A red LED change battery indicator eliminates changeover guesswork. Video files are automatically date and time stamped for downloading to an included laptop or tablet. 866/595-0515; www.kegtechnologies.net.



KEG Technologies

PUSHROD CRAWLER SYSTEM

The **P350 flexitrac** from **Pearpoint/SPX** has the simplicity and transportability of a pushrod system while delivering the functionality and performance of a crawler system. Its modular structure allows all its main components to be fully interchangeable. Modules available include a manual or powered drum, three interchangeable cameras, a range of wheels and tires, and multiple cable lengths and crawler sizes. The command module is also fully compatible with the P340 flexiprobe, giving users access to a range of pushrod reels, cameras and accessories. A built-in digital recording and reporting system are standard. It can be van- or truck-mounted or can be wheeled on site using the transportable ergonomic barrow design. Once on site, the system is quick and easy to set up, deploy and use. 800/688-8094; www.radiodetection.com.



Pearpoint/SPX

HIGH-DEFINITION CAMERA SYSTEM

The **PEGASUS HD** camera system from **RapidView IBAK** provides visual clarity in full 1920x1080 high definition. It has full pan, tilt and zoom capabilities, and includes built-in laser measurement for measuring defects inside the pipe. A 10x optical zoom and one-push, intelligent autofocus provides crisp, clear images of larger dimension pipes. 800/656-4225; www.rapidview.com.



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SONAR PROFILING

SEWER DEFECT LOCATOR

The **ES-620** from **Electro Scan** locates and measures sewer defects not typically seen by CCTV. Available as a stand-alone van or add-on to existing CCTV trucks, it finds and measures defect start and end points, size, and estimated gpm of defect flow, in accordance with ASTM 2550-13. Since most pipes are made of nonconductive materials, no electrical current should be able to escape through the wall of a pipe, unless there is a crack or opening. The greater the electric current that flows through a defect, the larger the size of a leak. It is designed for 6- to 24-inch pipe diameters, traveling at the rate of 45 to 60 feet per minute, and able to measure defect flows for pre- and post-CIPP lines, with no operator observations required. 916/779-0660; www.electroscan.com.



Electro Scan

PIPE LOCATOR

The **Gen-Eye Hot Spot** pipe locator from **General Pipe Cleaners** has an easy-to-see auto backlit LCD display, with a Null icon that indicates the pipe location and Camera icon that confirms you're over the target. Rated at IP65, it's dust- and dirt-proof and water resistant. It has passed the 1-meter drop test while the screen passed the 18-inch steel ball drop test. Its total field antenna array allows operators to locate from any direction. Its line direction compass indicates the lay of the pipe. It features superior battery life and locates two sonde frequencies, two power frequencies and four line frequencies. Operators can use the USB port to upgrade software in the field. 800/245-6200; www.drainbrain.com. c



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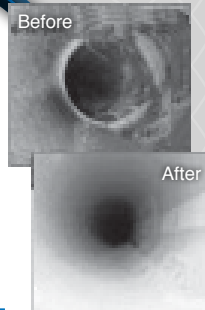


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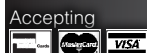
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Mainline Sewer Inspection

By Craig Mandli

LINE ASSESSMENT TOOL HELPS CITY FIND BLOCKAGES IN SEWER

PROBLEM

The City of Starkville, Miss., needed to quickly get a handle on blockage conditions within its 171 miles of gravity-fed sewer as part of an EPA Agreed Order on Consent (AOC) to reduce SSOs.

SOLUTION

The City chose the Sewer Line Rapid Assessment Tool, or SL-RAT, from InfoSense, to help focus cleaning efforts around hot spot areas that had experienced SSOs or slow sewers. The unit is composed of a transmitter and a receiver. The transmitter is placed



in an open manhole and transmits a sequence of tones through the air gap within the pipe. The receiver is placed in an adjacent manhole and listens for degradation in the tones it hears compared to the tones it should hear in a clean pipe. It exploits the fact that sound and water flow similarly through the free space within a pipe. The algorithms are able to quickly analyze the result and present the operator with a simple blockage assessment in real time on a scale of zero to 10. Measurements can be conducted in three minutes or less, with no flow contact, no confined-space entry and a low cost.

RESULT

The SL-RAT's speed in narrowing down the segments in need of CCTV inspection made the city's three-year AOC completion date possible. It has inspected over 200,000 feet of pipe with the unit. 877/747-3245; www.infosenseinc.com.

ADVANCED PIPE CONDITION ASSESSMENT LEADS TO QUICKER DECISIONS

PROBLEM

The Clark Regional Wastewater District in Vancouver, Wash., experienced H₂S corrosion in its large-diameter concrete sewer pipes. Visual CCTV inspections revealed concrete spalling and a deteriorated inner cement layer. The district was unsure if these pipes had reinforcement, while it found that CCTV provided inadequate information, and age was one of the worst criteria to use in judging the condition or assumed condition of the pipes.







SOLUTION

The district used Pipe Penetrating Radar (PPR) from SewerVUE Technology Corp. to determine the condition of two pipes ranging from 21 to 36 inches by mapping their wall thickness and rebar cover. The PPR antennas were mounted on a rubber tracked, robotic, multi-sensor inspection platform. The inspection of 4,000 feet of pipe was completed in two days while the pipes remained in service.


RESULT

The use of PPR and visual data provided the necessary information for the district to understand the condition of these critical trunk lines. For the 36-inch trunk, the lack of rebar signal and the concrete material scraped off during the inspections indicated poor structural condition. For the Salmon Creek Interceptor, follow-up visual observation of defects confirmed that the pipe was in poor to fair condition. 888/973-9378; www.sewervue.com.

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PRODUCT SPOTLIGHT

Dust collector removes cleaning debris prior to epoxy barrier coating

By Ed Wodalski

The Commercial Cyclone & Dust Collector from Nu Flow removes scale and debris sandblasted from pipes prior to epoxy barrier coating and/or lining in pressurized systems. Applications include hot and cold potable water, hot-water recirculation, compressed air, gas, fire suppression, HVAC and hydronic heating.

Made of reinforced steel, the dust collector features two portable units that can be locked together or separated for easy transportation.

The 30- by 41- by 70-inch cyclone and 30- by 42- by 70-inch dust collector have a combined weight of 600 pounds and filter particles down to 2.5 microns.

“The key for any good lining is to properly clean the piping system,” says Tom Bowman, licensee manager for Nu Flow. “For pressurized systems, we induce an aggregate into the air stream to essentially sandblast off all the debris and corrosion.”

Heavy solids drop off in the cyclone while fine particles are trapped by a series of air filters in the dust collector, eliminating 99 percent of all debris in the air, Bowman says.



The cyclone has a 5.5-cubic-foot capacity flowing into a 16-cubic-foot chamber inside the dust collector. Filters can be accessed through 32- by 36-inch doors.

Large debris can be removed through the 2.5-cubic-foot hopper at the bottom of the cyclone. The bottom tray also can be accessed from the back side if heavy debris needs to be cleaned from the collector side.

The dust collector has two 2-inch connections and one 3-inch inlet connection. Designed to handle 1,000 cfm – the equivalent of a 3-inch piping system – the dust collector features a filtration purge system for cleaning the primary and secondary filters between applications. 800/834-9597; www.nuflowtech.com.



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4

1 STONEAGE ROTARY SHOTGUN TOOL

The Barracuda BC-H9-XXLF-TI rotary shotgun tool from StoneAge has a maximum pressure of 40,000 psi and flow range from 1.68 to 3.12 gpm. Designed for hand-held shotgun waterblast cleaning, the 3.2-pound tool is 8.88 inches long, has a 2.45-inch head diameter and a 9/16 HP inlet connection. 866/795-1586; www.stoneagetools.com.

2 STEAM JENNY DIRECT-DRIVE COLD PRESSURE WASHERS

Steam Jenny direct-drive cold pressure washers from Jenny Products are available in four models. Powered by 9 or 13 hp Honda GX Series engines, all models feature a triplex ceramic plunger pump. Pressure ratings range from 3,000 to 4,000 psi with flow rates from 3 to 4 gpm. Features include thermal pump protection, unloader valve and high-pressure relief valve. The unit automatically shuts down if low oil levels are detected. 814/445-3400; www.steamjenny.com.

3 HAMMERHEAD SEAM-FREE LINER

The Brawoliner seam-free textile liner from HammerHead Trenchless Equipment features a loop design for flexibility. The liner can adjust to bends up to 90 degrees and to single changes in pipe dimensions without creating wrinkles or folds. Available for pipe from 2 to 10 inches in diameter, the liner consists of a lengthwise and transversal elastic polyethylene terephthalate textile tube coated with polyurethane foil. Wall thickness uncured is 0.16 inches. Nominal wall thickness impregnated and cured is 0.12 inches (3 mm). 800/331-6653; www.hammerheadtrenchless.com.

4 MAKITA INTERACTIVE CONTENT APP

The interactive mobile content app from Makita U.S.A. features product information, dealer locator, warranty information, promotions, new technologies, savings calculator and QR scanner. The app is available at the Apple App Store and Google Play Store. 800/462-5482; www.makitausa.com.

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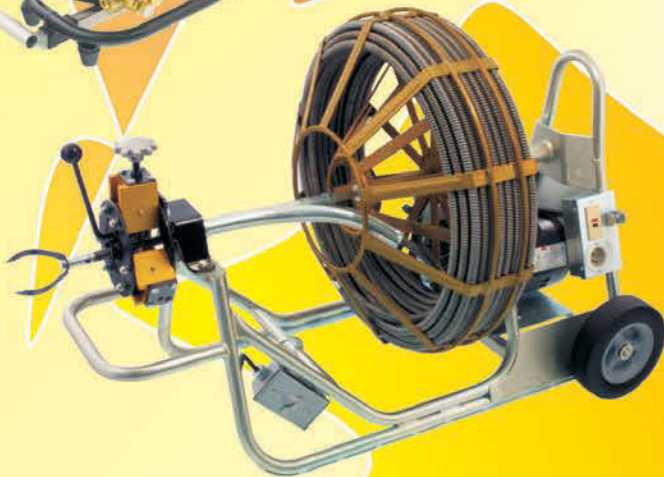
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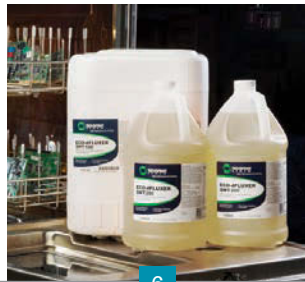
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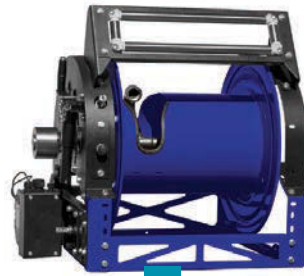
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5 GUARDAIR AIR-SPADE 2000 EXCAVATION TOOL

The Air-Spade 2000 excavation tool from Guardair Corp. is designed for the safe excavation of objects underground. The tool is available in size models ranging from 25 to 225 cfm at 90 psi, as well as 3- and 4-foot barrel lengths. Features include dead-man trigger, fiberglass barrel with adjustable dirt shield, adjustable, thermoplastic spray shield, stainless steel supersonic nozzle, 3/4-inch FNPT air inlet and Chicago-style swivel connector. **800/482-7324; www.guardaircorp.com.**

6 TECHSPRAY DEFLUXER AND BATCH CLEANER

Eco-dFluxer SMT200 and Eco-dFluxer SMT300 batch and in-line cleaners from Techspray are fully compliant with California CARB requirements and European REACH and WEEE initiatives. They do not contain RoHS restricted substances, SVHC listed substances or halides. Safe on sensitive metals found in semicon wire-bonding, SMT200 prevents oxidation and leaves shiny solder joints. The SMT300 defluxer is effective on no-clean, R, RMA, OA fluxes and new halide-free fluxes. **800/858-4043; www.techspray.com.**

7 COXREELS 1600 SERIES REELS

The 1600 Series of hand-crank and motorized reels from Coxreels are available in 1- and 1 1/2-inch NPT, BSP or NST nickel-plated swivel inlets. Options include a universal bracket kit to accommodate the bevel gear rewind system, hose guide rollers at various angles and three gear ratio idler gears to reduce speed and increase torque on motorized versions. **800/269-7335; www.coxreels.com.**

8 GENERAL PIPE CLEANERS METRO ROOT CUTTER

The Metro power drain cleaner from General Pipe Cleaners is designed for roots and other stoppages in 3- through 6-inch lines. The drain cleaner can handle up to 75 feet of 5/8-inch Flexicore wire rope center cable or 100 feet of 9/16-inch cable. Features include fold-down handle, stair climbers, truck loading wheel and 10-inch wheels. The variable-speed auto feed moves and retracts cable at up to 20 feet per minute. **800/245-6200; www.drainbrain.com.**

9 VACALL VACUUM BOOM TUBE, HOSE OPTIONS

Vacuum boom tube and hose design options for Vacall AllExcavate hydroexcavation models from Gradall Industries generate up to 27 inches Hg and 5,800 cfm. A full-length rubber hose with gum-rubber lining runs from the turret mounted on the debris tank to the pickup point. A steel tube-in-tube boom and intake connects to an identical rubber hose elbow that leads to the pickup point and allows for wear rotation and replacement at the 90-degree elbow. **800/382-8302; www.vacallindustries.com.**

10 GATEWAY SAFETY LENS CLEANER

Kleen View lens cleaning products from Gateway Safety feature a fast-drying, silicone-free formula that includes an anti-fog, antistatic ingredient that helps extend the life of safety glasses. The cleaner is available as a spray packaged with nonabrasive tissues or as single-use towelettes. **800/822-5347; www.gatewayssafety.com.**

11 NLB TUBE BUNDLE CLEANING SYSTEM

The Saflex 2001 tube bundle cleaning system from NLB Corp. enables the operator to clean two tubes at the same time without exposure to the waterjets. The system blasts out hard deposits at up to 20,000 psi. Hands-free options include an X-Y positioner that indexes the lances in and out of the tubes and wireless remote controls that let the operator stand clear of the cleaning operation. **800/441-5059; www.nlbcorp.com. c**



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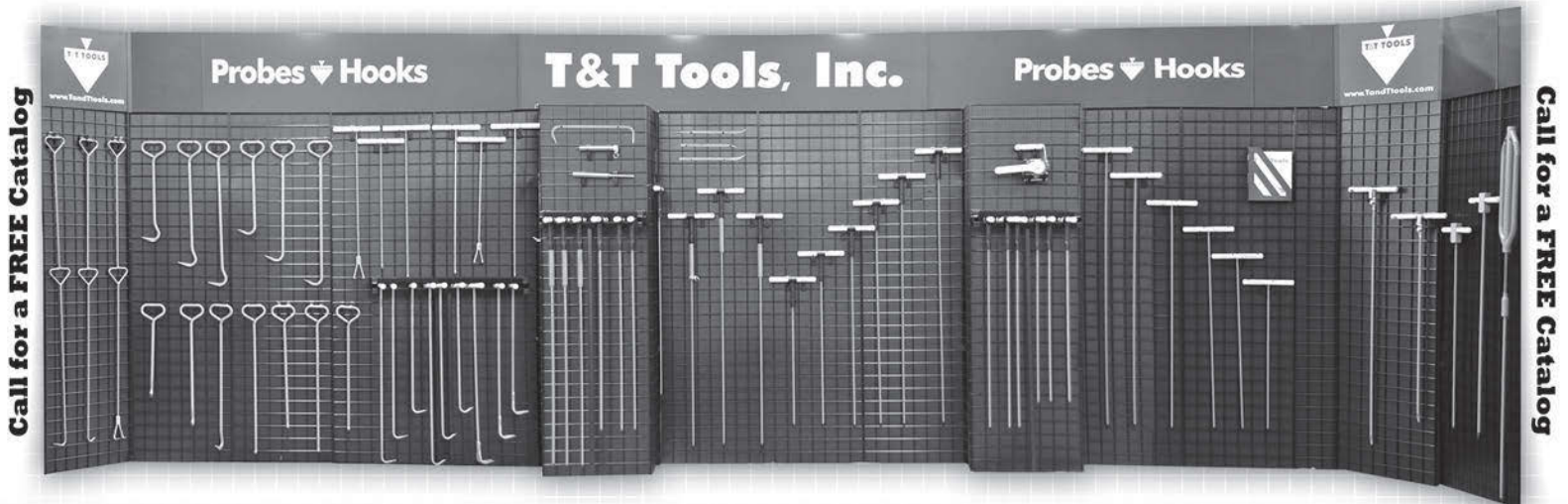
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Members of the Ditch Witch of Oklahoma & Arkansas team include (from left) Chris Jones, Dru Bridwell, Grant Golay, Tiffany Sewell-Howard, Gary Bridwell, Mark Whiteman, Mark Taylor and John Truett.



Ditch Witch recognizes top electronics dealer

Ditch Witch recognized Ditch Witch of Oklahoma & Arkansas with its Top Electronics Dealer Excellence Award. The award recognizes dealers for sales volume and customer service.

Super Products names vice president

Super Products promoted Dan Koziczkowski to vice president of sales and marketing. He will oversee internal and field sales staff, manage and support the company's municipal distributor network, and identify growth opportunities.

Grundfos launches newsletter

Grundfos launched its new customer newsletter, Grundfos NEWS. The pump manufacturer newsletter includes case stories, technical know-how, market trends and product news.

Aquatherm releases product catalog

The 2014 Aquatherm North American Product Catalog is available in print from sales reps and wholesale partners and online at www.aquatherm.com/product-catalog. The catalog includes sustainable piping products, technical information and photos.

NexTraq named American Business Awards finalist

NexTraq, a GPS fleet and asset tracking company, was named a finalist for the 2014 American Business Awards in the Most Innovative Tech Company of the Year category.



F.W. Webb expands into Pennsylvania

F.W. Webb Co., wholesale supplier of plumbing, heating, HVAC, refrigeration and industrial pipe, valves and fittings, opened a branch in Allentown, Pa. The company now has locations in nine states.



Pictured from left are Vince Tiano, vice president of Miller Industries; winner Aaron Farron, Sprint Towing; Will Miller, president and CEO of Miller Industries; and Gary Mickiewicz, vice president, Eastern Region, Hino Trucks.

Hino presents tow operator with truck

Hino Trucks, in partnership with Miller Industries, presented Aaron Farron with a 2014 Hino model 258ALP and Century 12 Series LCG Carrier as part of a giveaway that benefits the Professional Wrecker Operators of Florida education and legislation programs. Farron is co-owner of Sprint Towing in Jacksonville, Fla.

Flowtite adds sales managers

Flowtite Pipe, manufactured by Thompson Pipe Group, named Andrew Boer sales manager for the Midwest and Joe Pettet sales manager for the Gulf States Region.

Aclara Technologies names CEO, president

Aclara Technologies named Allan Connolly chief executive officer and president. He will be responsible for growing the advanced metering infrastructure and smart grid brand.

Home Brands Group adds bluefrog Plumbing + Drain

Home Brands Group added bluefrog Plumbing + Drain to its franchise family. Launched in January, the 18 franchise partners consist of Re-Bath franchisees looking to expand their service offerings, as well as independent plumbers. The plumbing and drain franchise plans to add 60 units to its territories in Omaha, Neb., and Pittsburgh by the end of the year.

Hyundai Construction Equipment names Kentucky dealer

Hyundai Construction Equipment named Team Boone to its dealer network, providing sales and service in Bardstown, Ky.

Dewberry hires project manager

Dewberry named Warren McKinnie, PE., CFM, project manager. He will be based in the firm's Orlando, Fla., office. **C**

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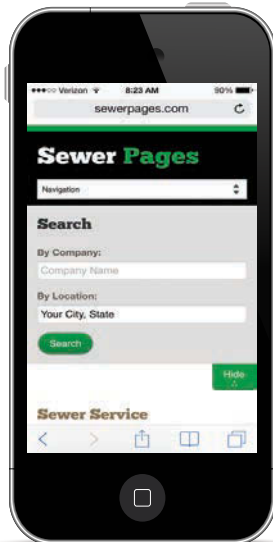
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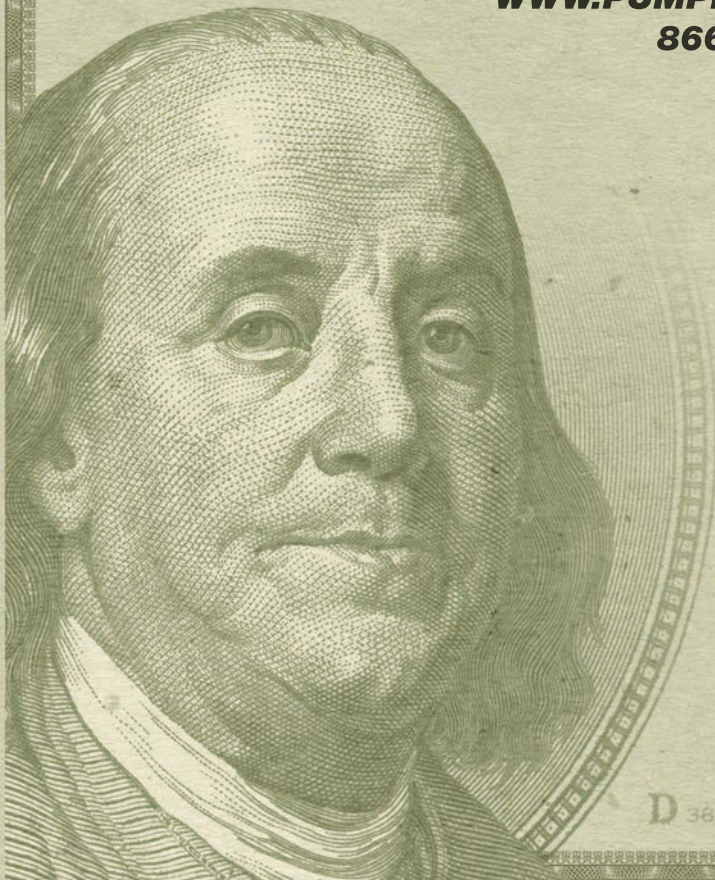
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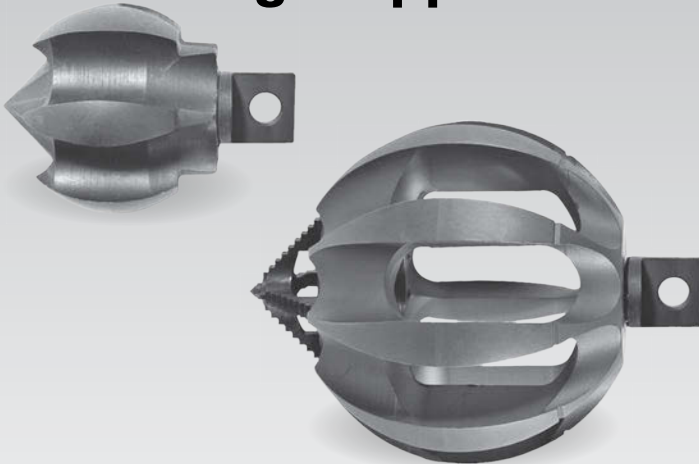
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