

FOR RESIDENTIAL, MUNICIPAL AND INDUSTRIAL CLEANING CONTRACTORS

# Cleaner®

## From Sub to Prime

Jetting equipment and trained people make Chuck's Septic a local favorite

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### MONEY MANAGER

Business ratios you should know (and use)

### PRODUCT REVIEW

Trailer-mounted waterjetters

### TECH PERSPECTIVE

The NASSCO jetting manual

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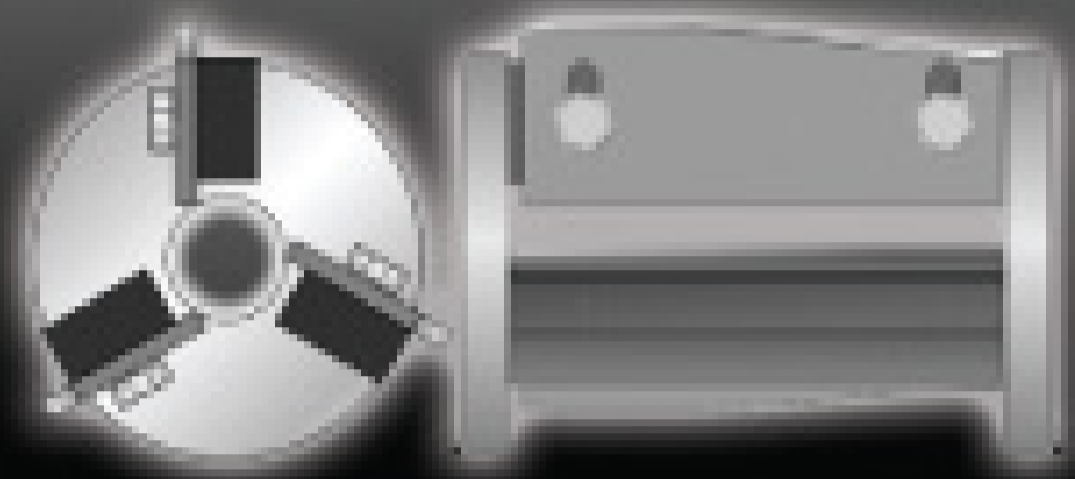


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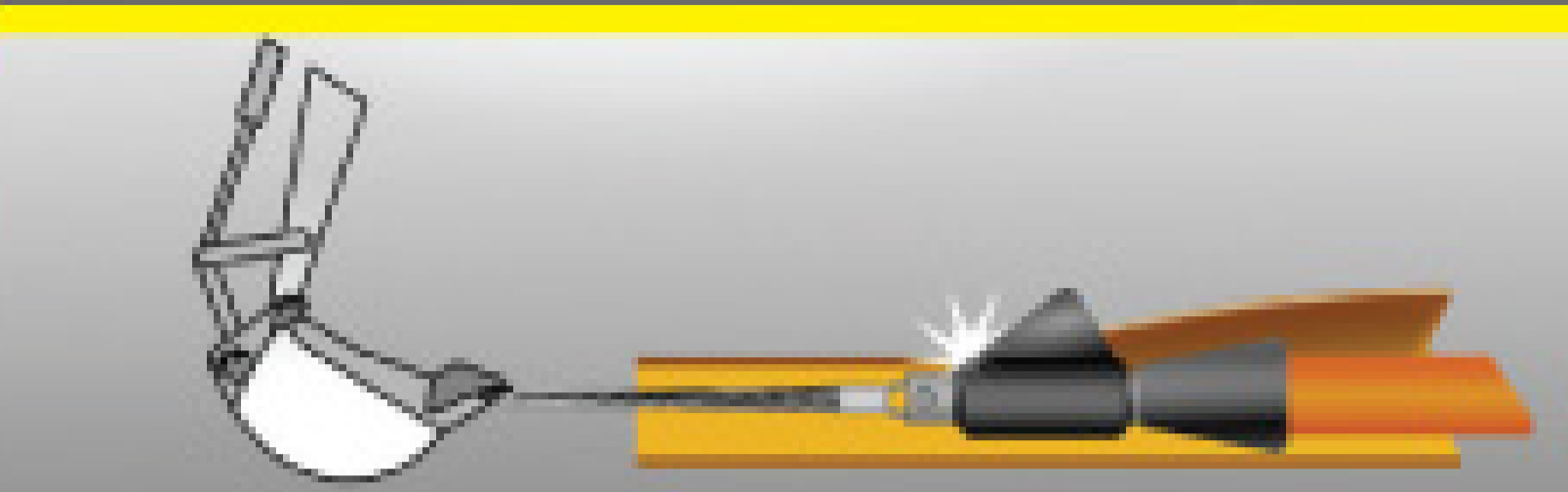
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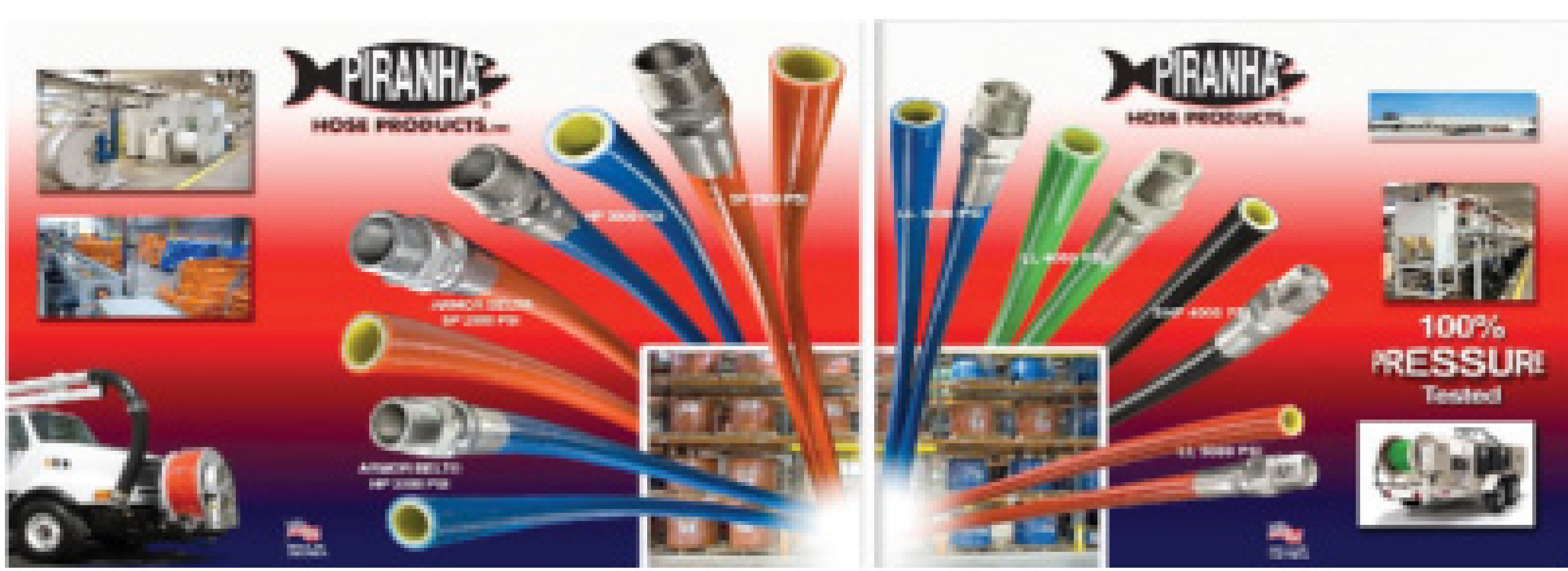
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**On the cover:** Chuck's Septic Tank Sewer & Drain Cleaning, Inc. works on a hydroexcavation job outside an apartment complex in Columbus, Ohio, using a Vactor hydroexcavator. From left are Nathan Means, Jim Dalessandri and Brandon Searles. Chuck's is equipped to handle everything from routine maintenance to full-blown emergencies. (Photo by Lisa Marie Miller)

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- Money Manager: Winning the cash flow game
- Tech Perspective: Understanding laser pipe profiling
- Better Business: Learning the true value of service

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[www.cleaner.com](http://www.cleaner.com)

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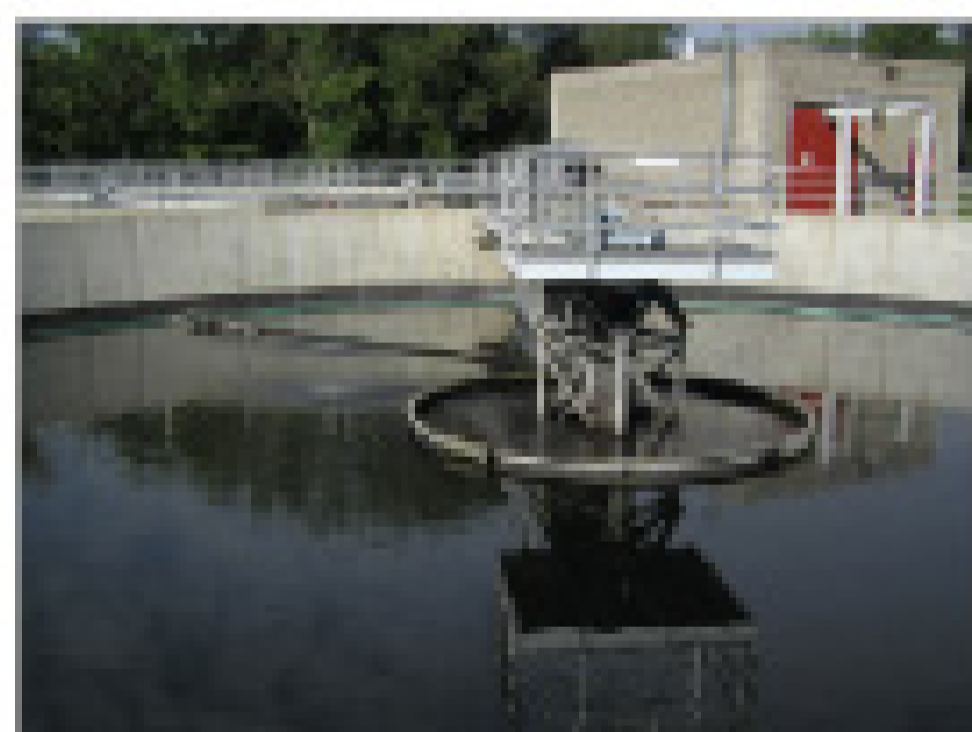
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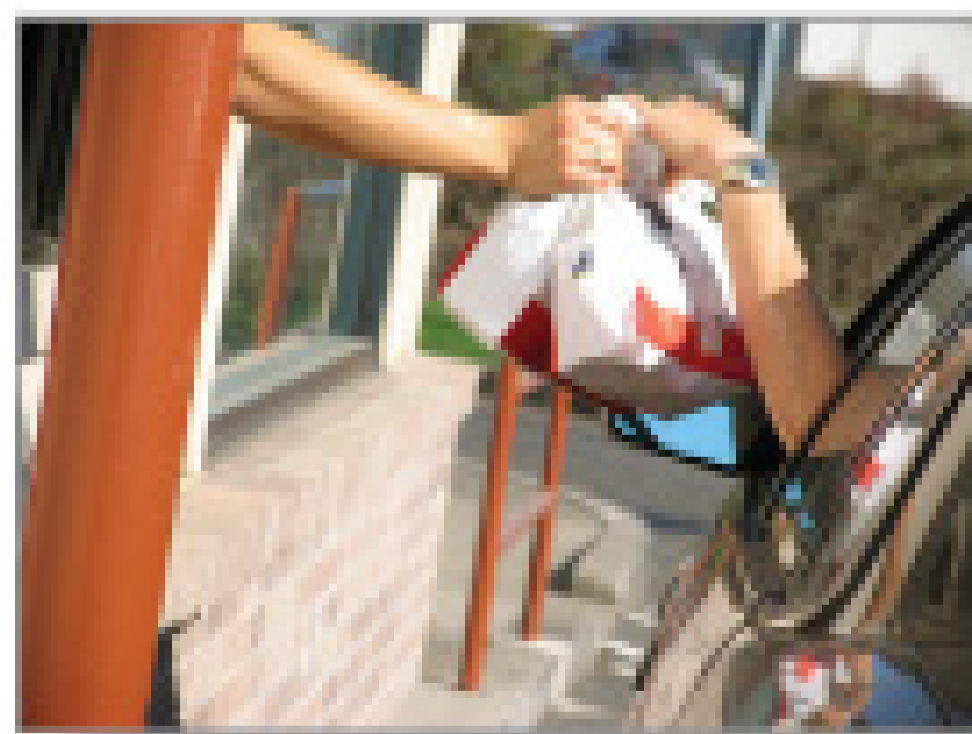
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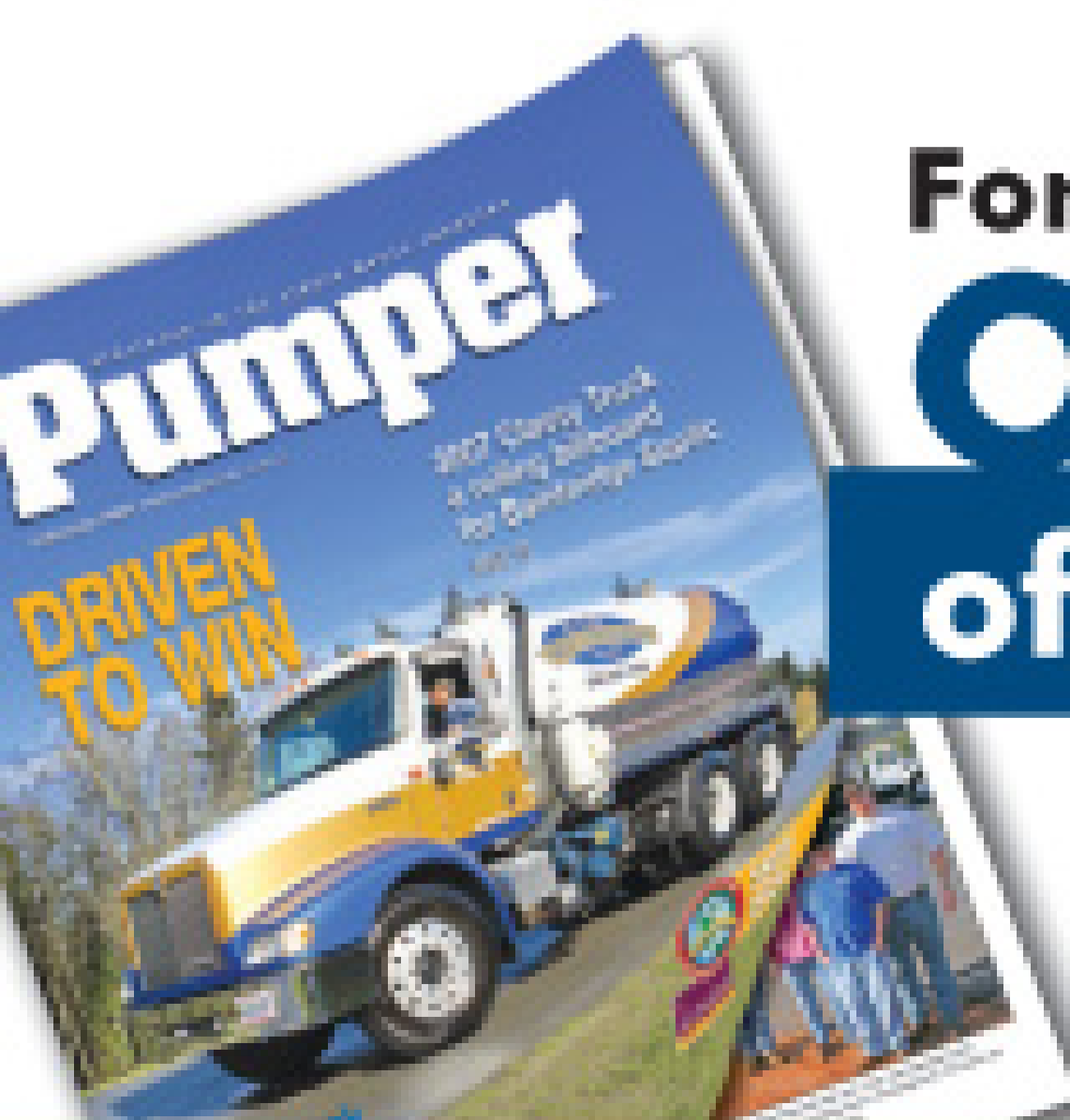
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## A Good Time to Buy?

The Economic Stimulus Act of 2008 may provide sound reasons for moving planned purchases of major equipment into 2008

Ted J. Rulseh



If you own a business, there's much more to the U.S. government's economic stimulus program than the check you received in the mail last spring or summer.

The Economic Stimulus Act of 2008 included two provisions that could make it wise to purchase major equipment before the year is up. More to the point, if you need to replace a vehicle or expand or upgrade your fleet, there may be substantial tax advantages to doing so in 2008.

That's because the Economic Stimulus Act includes special expensing and bonus depreciation provisions that let you write off more of the cost of the equipment for immediate tax savings against your 2008 tax liability.

to your accountant about all the specifics, and about your own situation, before moving any planned purchase into 2008. Still these special, limited-time benefits may well be worth exploring. The tax breaks in the Economic Stimulus Act are designed for smaller businesses. They were enacted to stimulate the economy by encouraging businesses to purchase equipment sooner, according to Ken Cloutier, a certified public accountant (CPA) in the office of Wipfli LLP in Rhinelander, Wis. Here is a look at the two basic provisions:

**Special expensing.** Under the Economic Stimulus Act, you can expense (within certain limits) qualified purchases of up to \$250,000 in equipment placed in service this year, provided

depreciation equal to 50 percent of amounts beyond the \$250,000 limit on special expensing, again for equipment purchased and placed in service in 2008. You can then claim regular depreciation on the remaining 50 percent of the cost.

### Why buy now?

The accompanying tables illustrate the tax advantages of buying new equipment in 2008. If you were to buy \$400,000 worth of new equipment this year, you could immediately deduct \$340,000 on your 2008 tax return. That's \$157,600 more than you could have deducted for the same purchase last year.

Your actual first-year benefit under these tax law changes will depend on the characteristics of your business. Factors such as taxable income, time of year when you bought the equipment, and your particular tax scenario may limit the benefit. Still, these provisions make it worth your while to consider buying equipment now, or soon — especially if you were already considering additions or replacements to your fleet.

When have the tax laws worked so heavily in your favor? When has there been a better time to buy? Contact your tax professional to discuss specifically how these special and temporary provisions can help your business. ■

**“The combination of these rules will generate a first-year tax deduction on new property ranging from 52 to 66 percent of the total cost of the equipment.”**

**Ken Cloutier**  
Wipfli CPAs and Consultants

### Bigger than before

The last time the government did something like this was under the Jobs and Growth Tax Relief Reconciliation Act of 2003. This time around, the immediate expensing and bonus depreciation components are even more attractive.

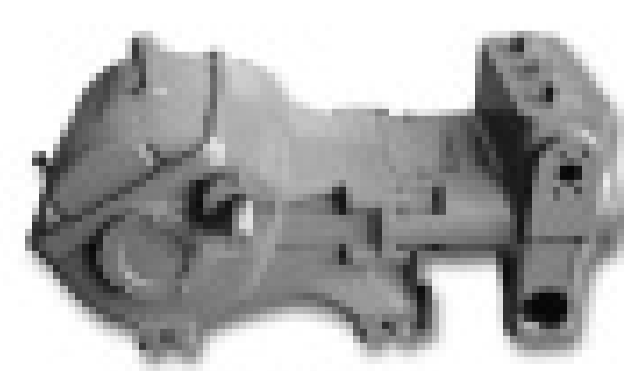
You won't want to jump in and buy equipment strictly for these tax breaks, and you'll want to talk

the total of such purchases for the year does not exceed \$800,000. (Purchases beyond \$800,000 reduce the amount you can expense on a dollar-for-dollar basis.) The new ceiling on expensing is nearly double the \$128,000 of purchases you could expense in previous years.

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### Example 1: \$400,000 New Equipment First-Year Benefit

	Before 2008 Act	After 2008 Act
First-year expensing	\$128,000	\$250,000
Bonus depreciation Not available $\$400,000 - 250,000 \times .50$	0	\$75,000
Regular depreciation – first year $\$400,000 - 128,000 \times .20$ $\$400,000 - 250,000 - 75,000 \times .20$	\$54,400	\$15,000
<b>TOTAL FIRST-YEAR BENEFIT</b>	<b>\$182,400</b>	<b>\$340,000</b>
<b>DIFFERENCE</b>		<b>\$157,600</b>



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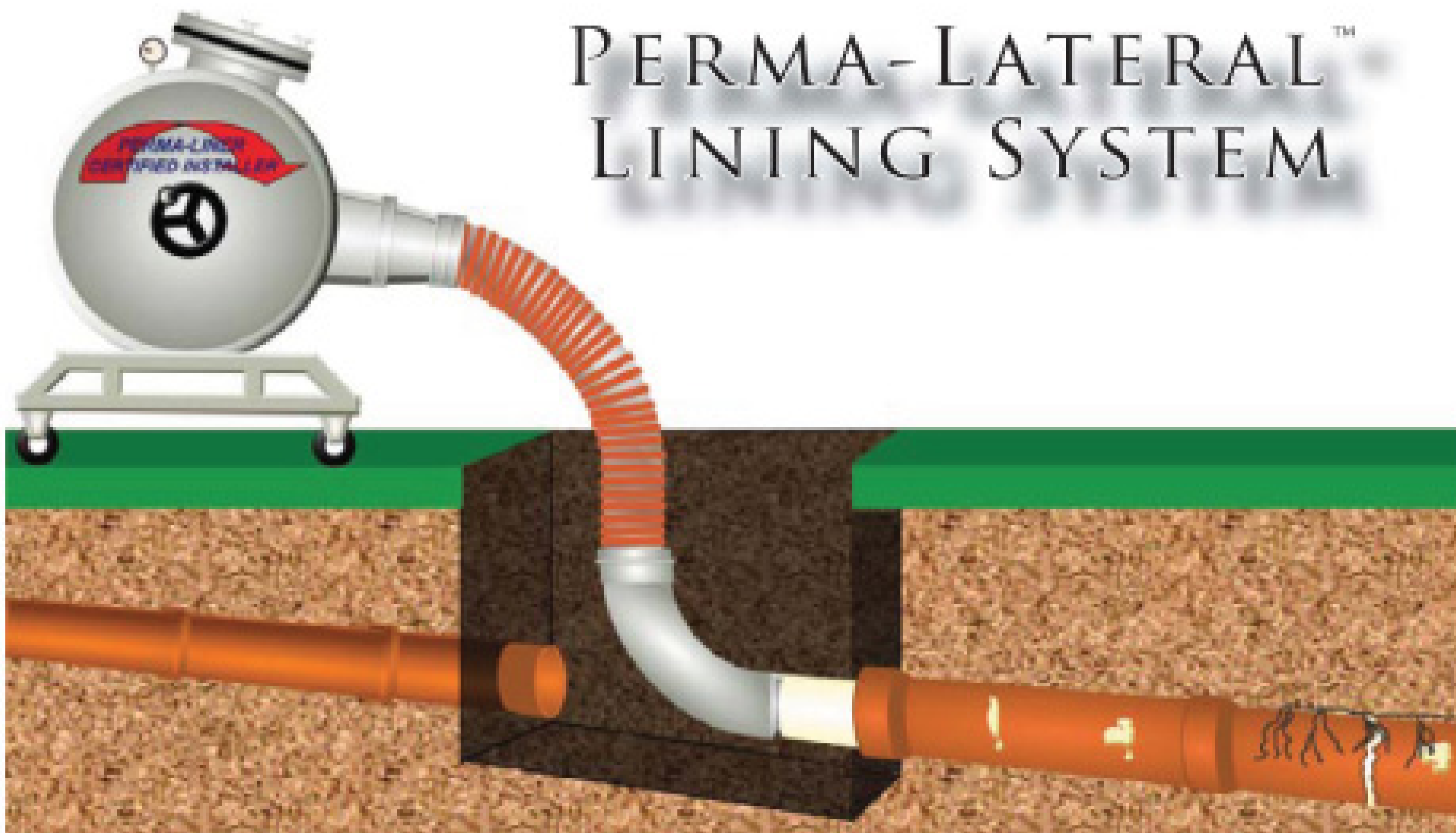


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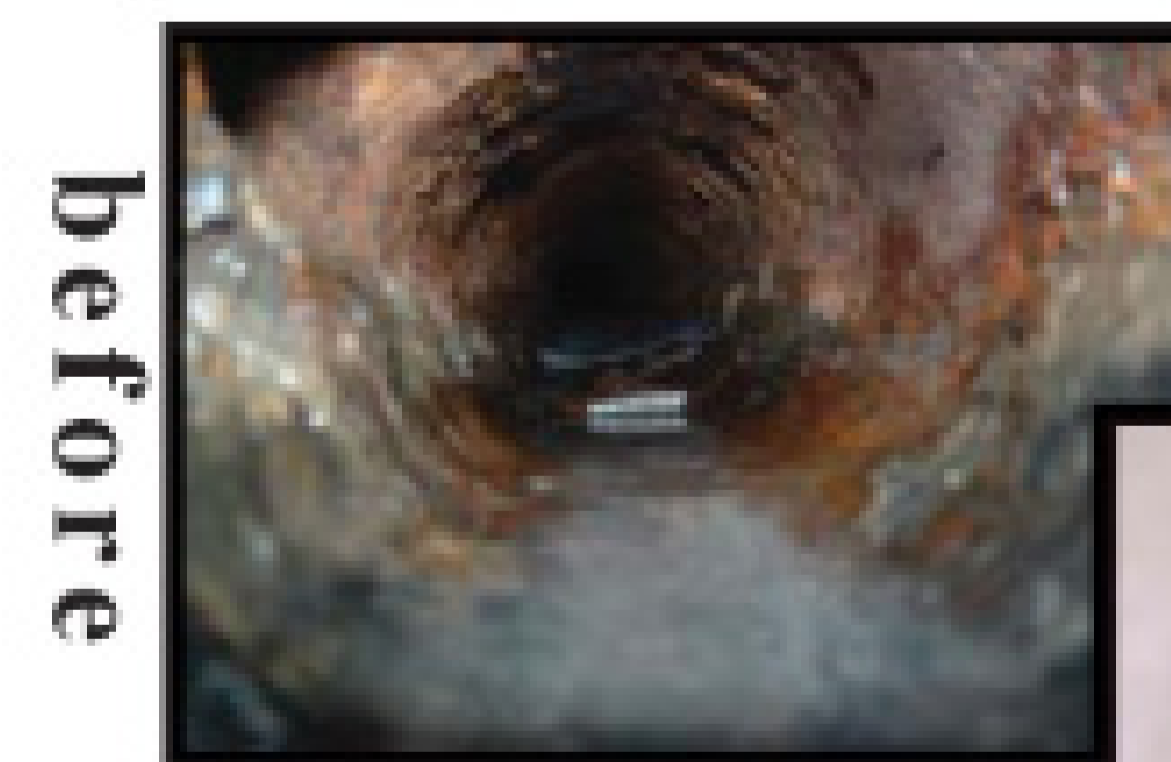
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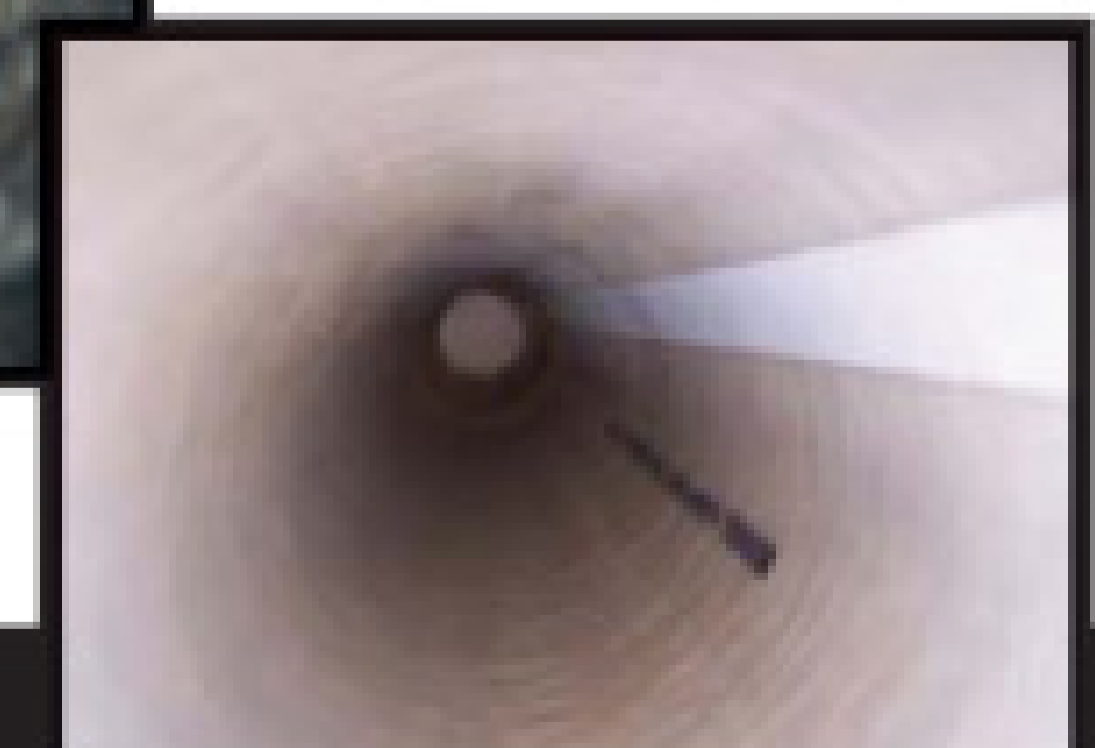
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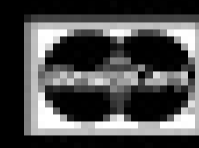
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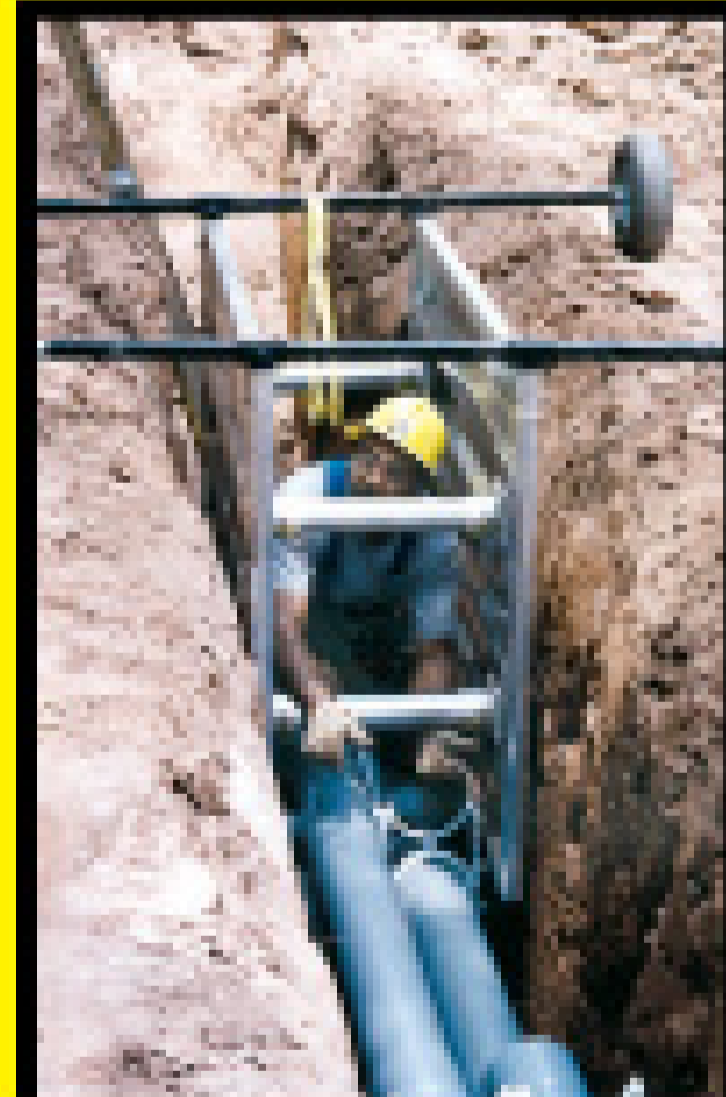
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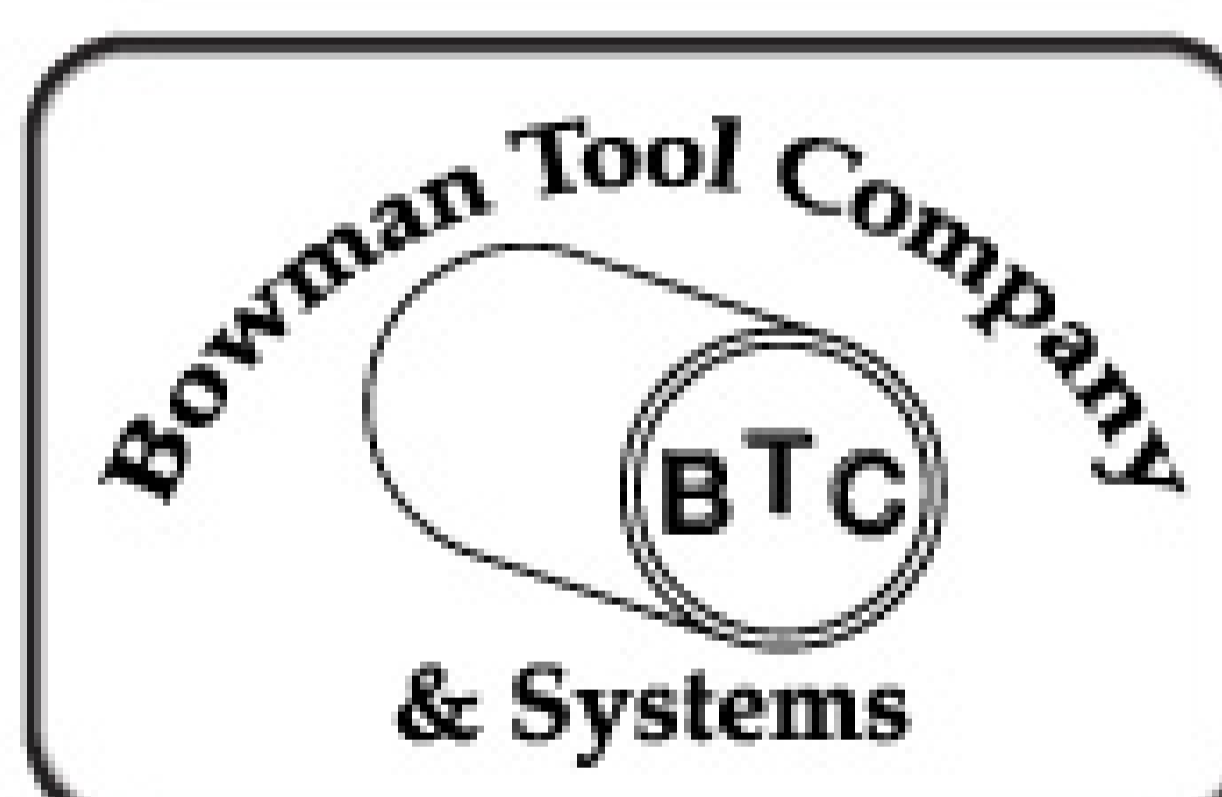
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# Keeping the Fleet Safe

A sound fleet safety program includes driver record checks and specific rules and responsibilities

By **Scottie Dayton**

Companies with just a few service vans or trucks may think a fleet safety program is unnecessary. However, it takes only a few customers seeing a vehicle driven irresponsibly to jeopardize your firm's reputation.

According to a series by John Bruce and published at [www.safetyxchange.org](http://www.safetyxchange.org), a comprehensive fleet safety program is easy to create, takes little time, and pays big dividends. The policies he recommends for company-owned vehicles work equally well for employees who use their personal vehicles while on company business.

## Where to start

Your company's insurance agent may have a model safety policy that you can adapt to your needs. If not,

it's simple to develop your own.

The most powerful tool you have to guarantee that the proper people are sitting behind the wheel of your company vehicles is the driving record. Check the record of every potential or active driver, then recheck the records annually. Most motor vehicle departments provide driver record checks for a fee. However, your insurance carrier may do them as part of your premium costs.



The fact that a candidate has moving violations doesn't automatically make him or her unacceptable.

It all depends on the nature of the violations and their frequency. Don't hire candidates as drivers if they have two incidents in the past 12 months of excessive speed, at-fault accidents, or accidents involving lane changes, following too close, or sign or signal violations. You should also reject applicants with any instance in the past 12 months of:

- Driving under the influence of alcohol or a controlled substance.
- Fleeing and eluding an officer.
- Hit and run/leaving the scene of an accident.
- At-fault accident with personal injury or fatality.
- Reckless driving.
- Driving without a license.

Driver age is also an important consideration. The 100-Car Naturalistic Driving Study conducted by the National Highway Traffic Safety Administration and Virginia Tech Transportation Institute found that the rates of inattention-related crashes and near-crashes were four times higher for 18- to 20-year-old drivers.

Insurance companies advise scrutinizing potential drivers under the age of 25 carefully and restricting this age group to no more than 10 percent of drivers.

## Training program

Your fleet safety program should include defensive driving lessons within six months for new drivers, or for all drivers. Numerous driving courses are available, including the National Safety Council Defensive Driving course. Sometimes insurance companies can provide the courses.

Treat your fleet safety program like other safety training programs and periodically remind people to drive defensively. Toolbox discussions work best, but also try memos, payroll stuffers, or newsletter articles. Don't forget to document your training and refresher activities.

Your vehicle orientation should cover unique features such as anti-lock brakes, remote-control mirrors, and seat belt and head restraint adjustments. Put vehicle safety

expectations in writing so that all your people clearly understand them. In particular, your people should be required to:

- Conduct regular vehicle safety inspections, keep the vehicle in good condition, and report mechanical or equipment problems to a supervisor.
- Practice defensive driving and courtesy.
- Use headlights (not parking lights) during times of reduced visibility.
- Allow only authorized persons to operate or ride in vehicles.
- Shut off the vehicle and take the keys before exiting.
- Lock the vehicle when it is unattended.
- Use seat belts at all times and ensure that passengers do, too.
- Immediately report any moving violations, accidents, or changes in license status to a supervisor.
- Ask a doctor or pharmacist if a prescription or over-the-counter medication will affect driving ability.
- Avoid using cell phones while driving.

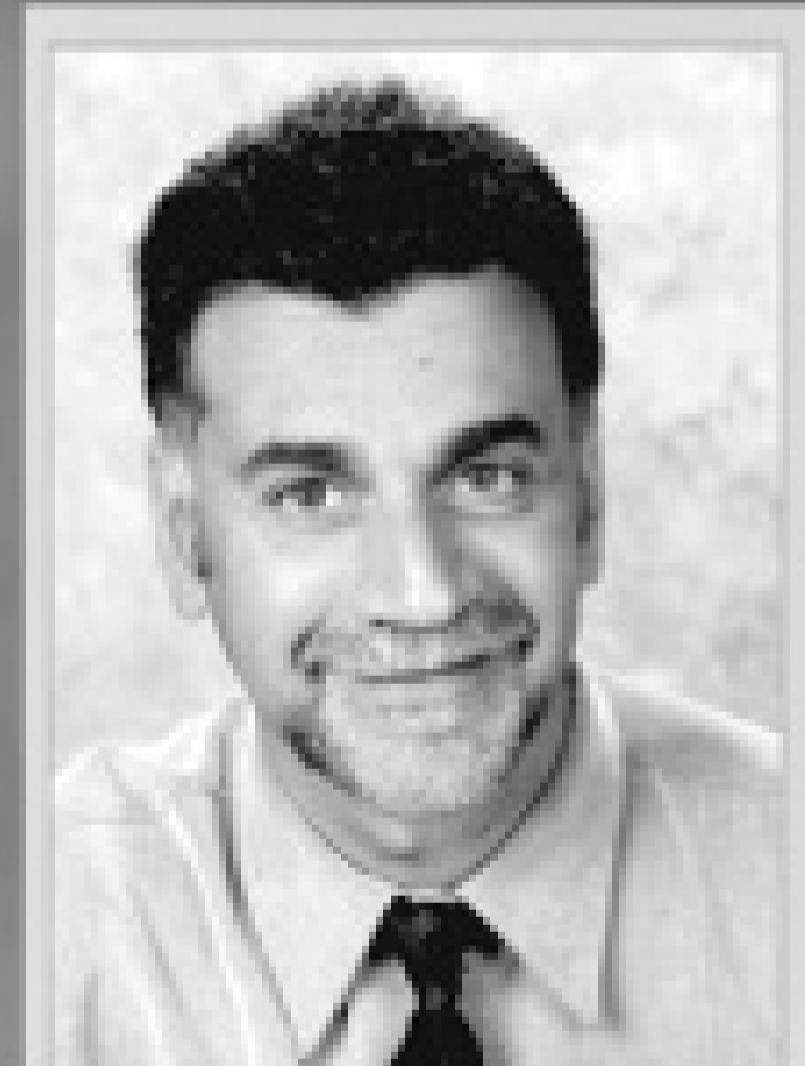
## Discipline policies

Your company should have someone assigned to investigate accidents involving the vehicles. Keep a list of current drivers and their license numbers. Your policies will determine what action to take against employees who violate fleet safety rules. Measures can include requiring an employee to take a course to improve driving skills.

No matter the vehicle, your drivers must never forget that they are company representatives. Driving courteously, maintaining alertness, and obeying all traffic laws will help them stay safe and enhance your company's image. ■

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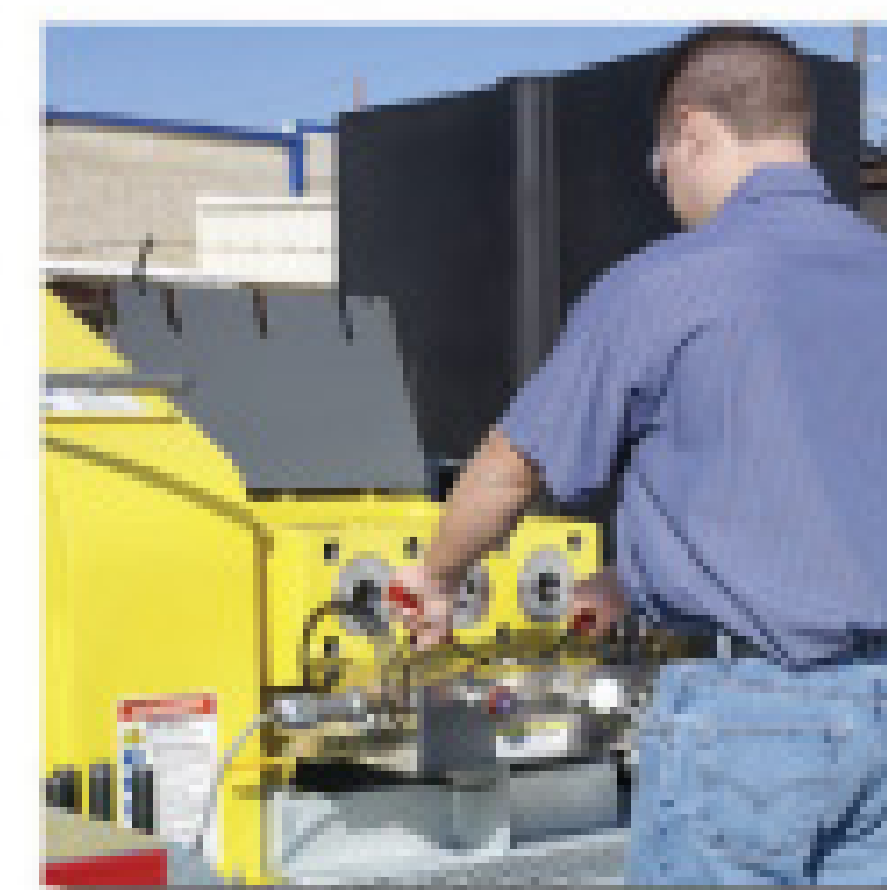
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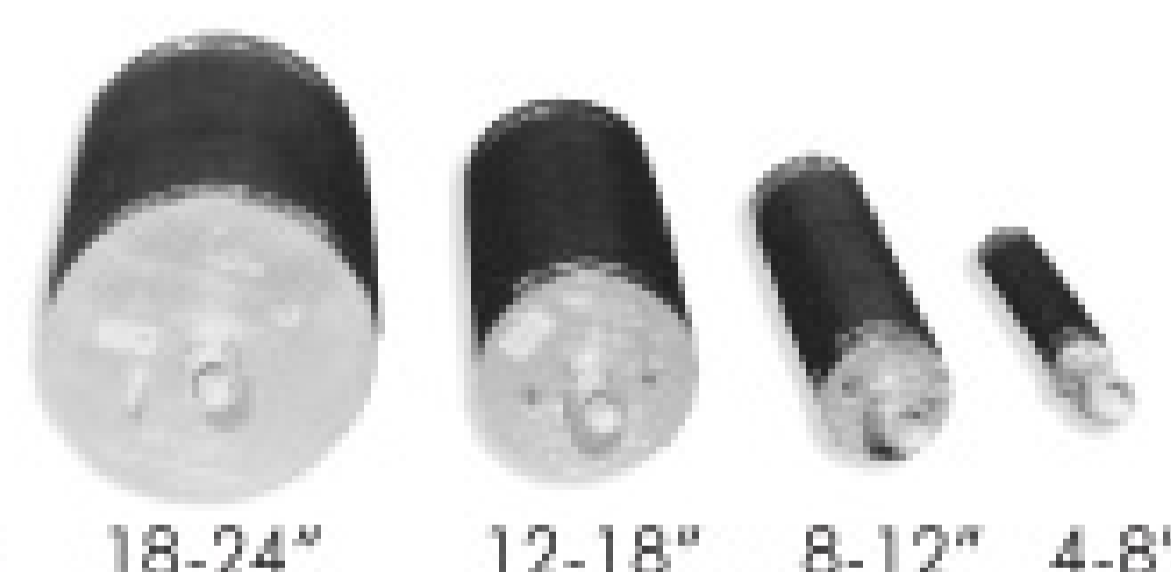
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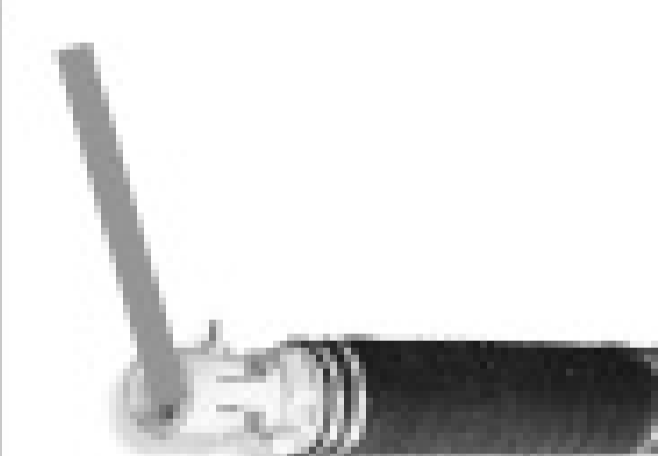
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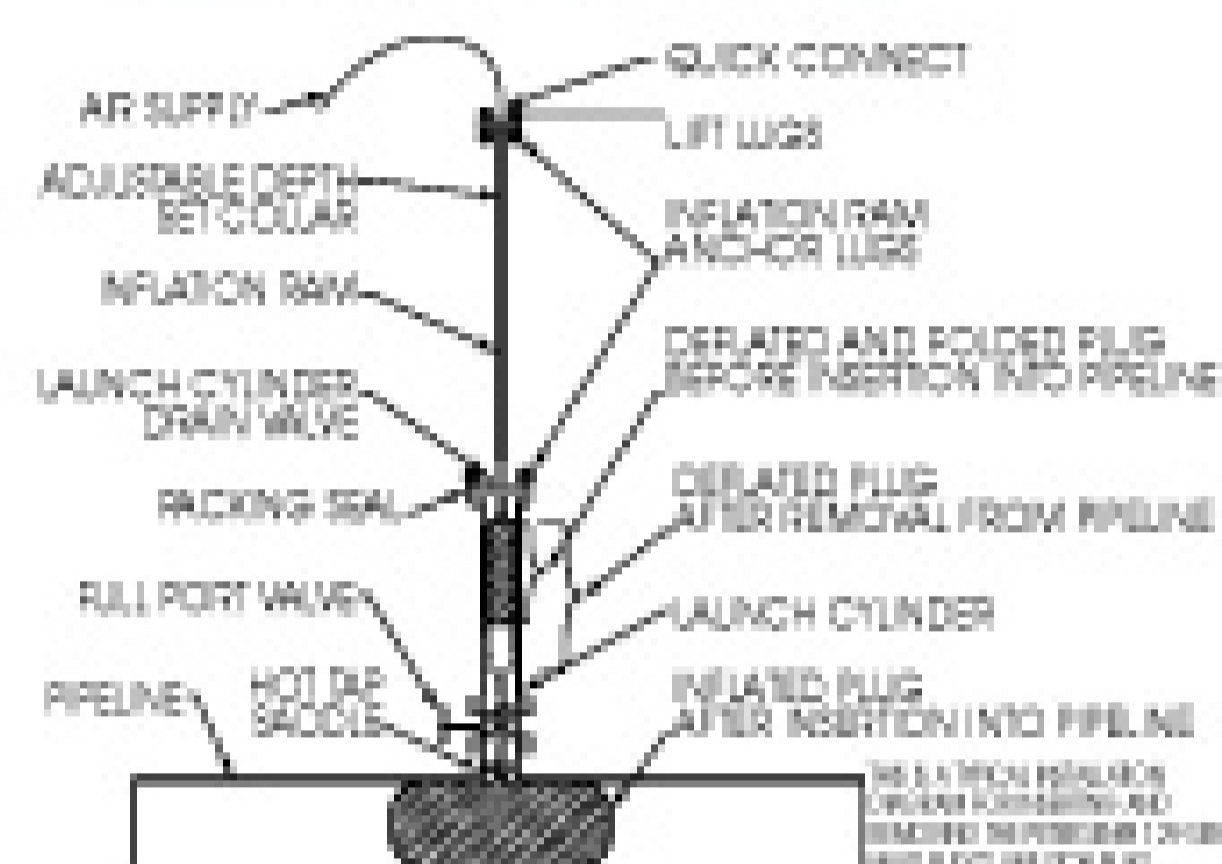


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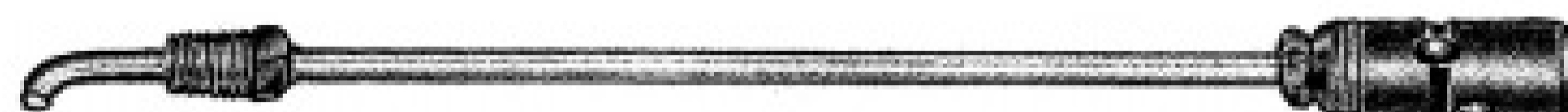
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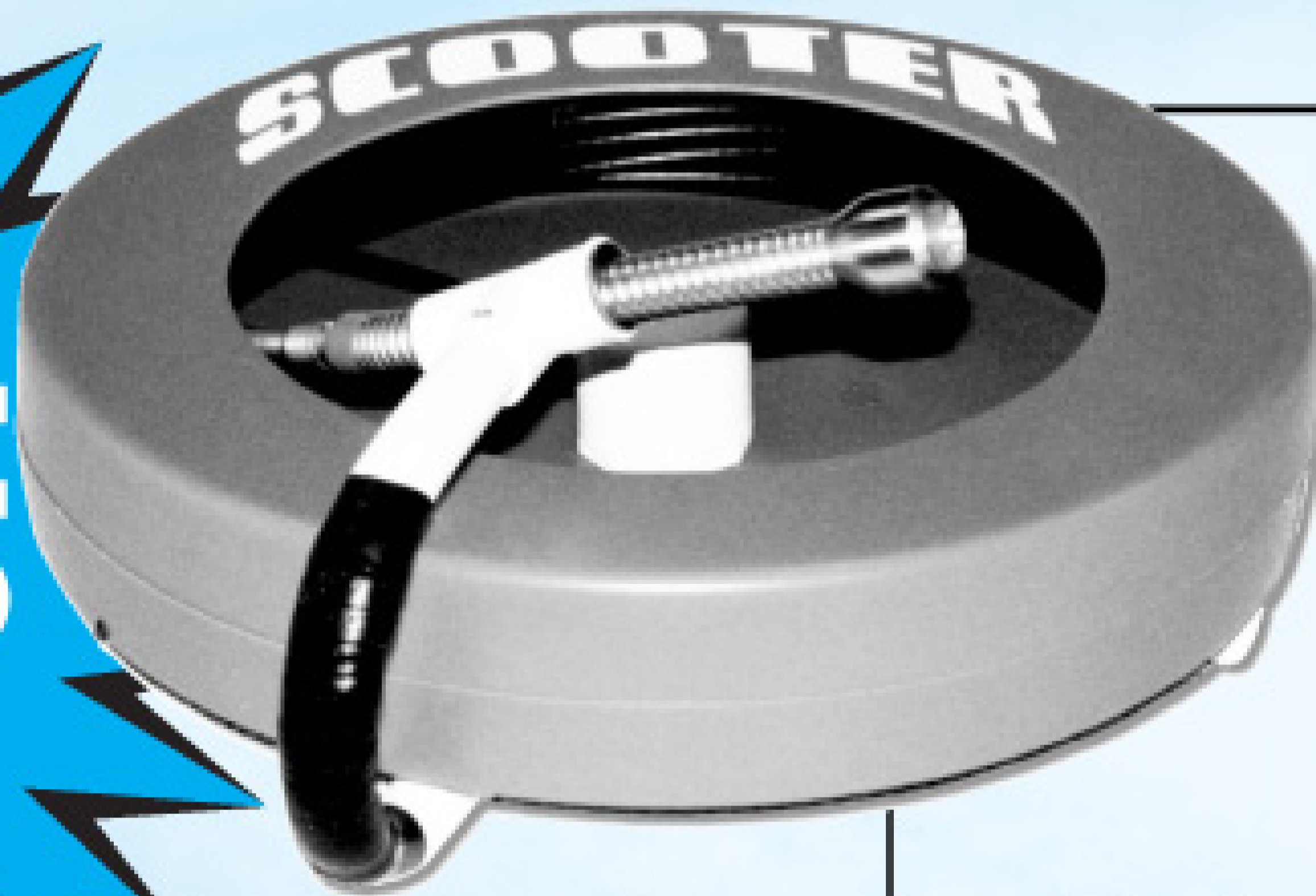
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# Crunching the Numbers

A few simple calculations can shine a light on your business and tell you if it's on the rise — or headed for the edge of a cliff

By Erik Gunn

If you've ever read an investment analyst's report on a stock, you've probably seen references to various calculations that the writer used to justify why the company is a good or bad investment.

What you may not realize is that those same calculations can tell you a lot about your own business. These numbers — a set of simple ratios — can give you a quick snapshot of the health of your business, just like the one your doctor gets by checking your weight, blood pressure, blood sugar and cholesterol.

Your guide to these numbers is Don Shultz, controller for Newcomb Marketing Solutions in Michigan City, Ind., and a member of the Leaders' Resource Network (LRN), which provides business advice to companies in the environmental service industry. Newcomb was a speaker during the daylong LRN seminar series at the 2008 Pumper & Cleaner Expo.

## Definitions

First a quick review of some terms.

**Net income** is what your business makes after taxes and expenses.

**Assets** are everything your business owns, including the value of your **receivables** (invoices sent but not yet paid). **Current assets** include cash; items you can turn into cash within a year including receivables and inventory; and items that are used up within a year, such as prepaid expenses. They don't include **fixed assets** like vehicles or office equipment.

**Liabilities** are everything your business owes: long-term and short-term debt and unpaid bills. **Current liabilities** are those that come due in the next 12 months.

**Capital stock** is the money you started with to buy or launch the business.

**Retained earnings** is what you have left at the end of the year after paying all bills, including your salary and distributions. This number accumulates from year to year.

**Shareholders equity** is the net worth of your company. It consists of your capital stock, added to your retained earnings, less any distributions to shareholders over time.

Every one of these numbers should be readily available if you keep your books up regularly. While the individual numbers may tell you certain things, it's far more revealing to put them together. A series of ratios can give you a powerful microscope to study your business and even see what might be around the corner.

Another way to think of shareholders' equity is: assets minus liabilities equals shareholders' equity.

Every one of these numbers should be readily available if you keep your books up regularly. While the individual numbers may tell you certain things, it's far more revealing to put them together. A series of ratios can give you a powerful microscope to study your business and even see what might be around the corner.

## Doing the math

The first of these is the **current ratio** — your current assets divided by your current liabilities. "At the very least, you want to have your current assets able to satisfy your current liabilities," says Shultz. That would be a ratio of 1 to 1 — but that by itself isn't very healthy. To put it simply, it would mean you could pay

all your current liabilities by cashing out your current assets, and you'd have nothing left over.

By comparison, if you had, say, a current ratio of 1.8 to 1, you could cover those liabilities and still have a healthy amount of cash. Then there's the downside. "If that ratio is less than 1 to 1, it says you're going to be in trouble meeting your obligations," says Shultz. "Either you're low on cash or you're low on receivables. You're going to be hurting for

cash to meet your liabilities."

More specifically, if the ratio gets too low, at the end of a month you could find yourself unable to pay bills on time or meet your payroll. This of course is called poor cash flow, and almost nothing is more damaging to a business.

A similar measure is the **quick ratio**, which looks at your cash on hand and your accounts receivable. It excludes anything you would have to sell (such as inventory) to produce cash. Those "quick assets" are divided by your current liabilities.

Again, a ratio of 1 means at least you won't owe anything if you cash out, but the greater the number, the better off you are, and a ratio of less than 1 is a danger sign.

## Other ratios

Unlike the current or quick ratios, the other ratios to study will

Erik Gunn is a magazine writer and editor in Racine, Wis., where he operates Great Lakes Editorial Services, consulting for businesses, non-profits and individuals. Readers may direct inquiries to him by contacting this publication at 800/257-7222 or e-mailing editor@cleaner.com.



almost certainly be less than 1, even for a healthy business.

The first of these is your **return on assets (ROA)** — your net income from whatever period is under study divided by your total assets. Suppose your assets total \$400,000 and your net income for a given month is \$10,000. Your ROA for the month will be 0.025. Assuming one month is like any other, your net income for the year is \$120,000, and your ROA for the year is 0.3. That may sound tiny, but for ROA that's a very respectable number.

ROA is a quick measure of how efficiently your business uses its assets. If you can bring that number up from month to month or year to year, it shows you're working smarter with what you've got. Of course, there are times when it will plunge, such as when you buy a new truck or machine. Ideally, though, you'll bring the ROA back up quickly as the new equipment helps you generate more income.

Closely related is **return on investment (ROI)**. This is your net income divided by your shareholder's equity. Unless you have absolutely no liabilities, your equity will be smaller than your assets, so the ROI will be larger than the ROA. Continuing with our previous example, let's suppose \$200,000 in liabilities, leaving a shareholder's equity of \$200,000. The ROA for the year is 0.6 — again, a very healthy number. Once again, this number should grow over time if you're operating efficiently. If it drops steadily, that's a sign your business is becoming less profitable, and if it hits zero or goes negative, you're in real trouble.

Finally, there's the **debt to equity ratio** — your total liabilities

divided by your shareholder's equity. The higher that number, the more you've relied on debt to finance the growth of your business. A lower number means you've been more cautious.

One rule of thumb used by many analysts is that this ratio should be below 30 percent. If it's higher than that, you could be in danger of carrying more debt than the business can support.

#### A monthly habit

Shultz recommends checking these numbers every month. ROI and ROA will change only slowly; debt to equity might not change at all for a long time, then take a sudden spike upward if you buy a new vehicle or finance new office space. If the quick and current ratios remain steady from month to month, that shows steady business; fluctuations can reveal seasonal ups and downs.

What you're ultimately looking

for is overall trends: Are you getting worse, or better? If you're getting better, great! If you're getting worse — for instance, if the quick and current ratios move closer to or even below 1 — maybe it's time to find ways to boost income and cut expenses.

Stay in touch with your creditors and renegotiate terms if you have to. "You probably have a credit line at the bank to help you get over a short-term crunch," Shultz notes. But longer-lasting troubles require more systematic fixes.

If you keep good books, it shouldn't take you long to get comfortable with these very simple numbers. And while it may sound like drudgery, just knowing that these are the same things those Wall Street analysts track should be an inspiration. After all, however large or small, your business is the most important investment you'll ever make. ■



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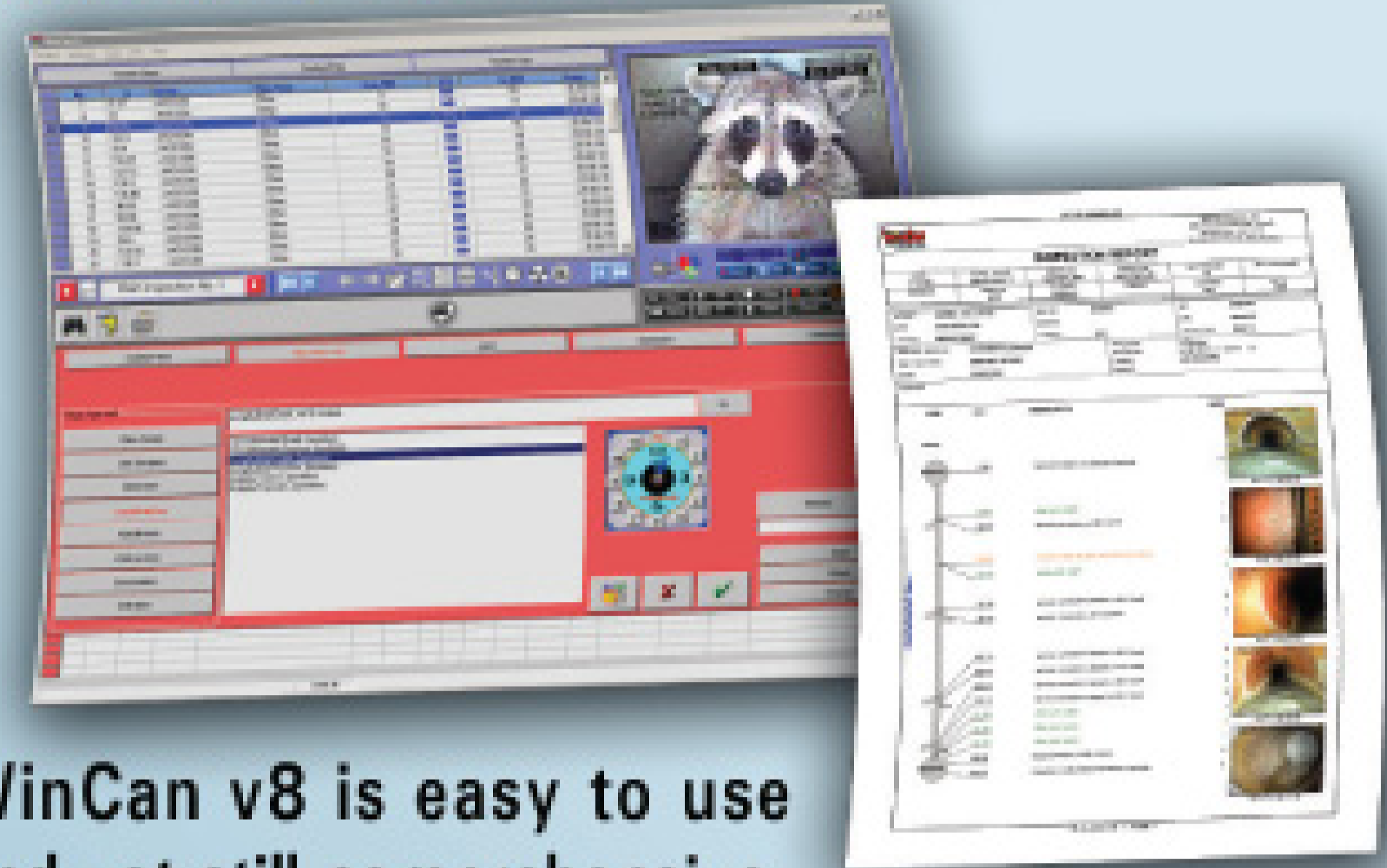
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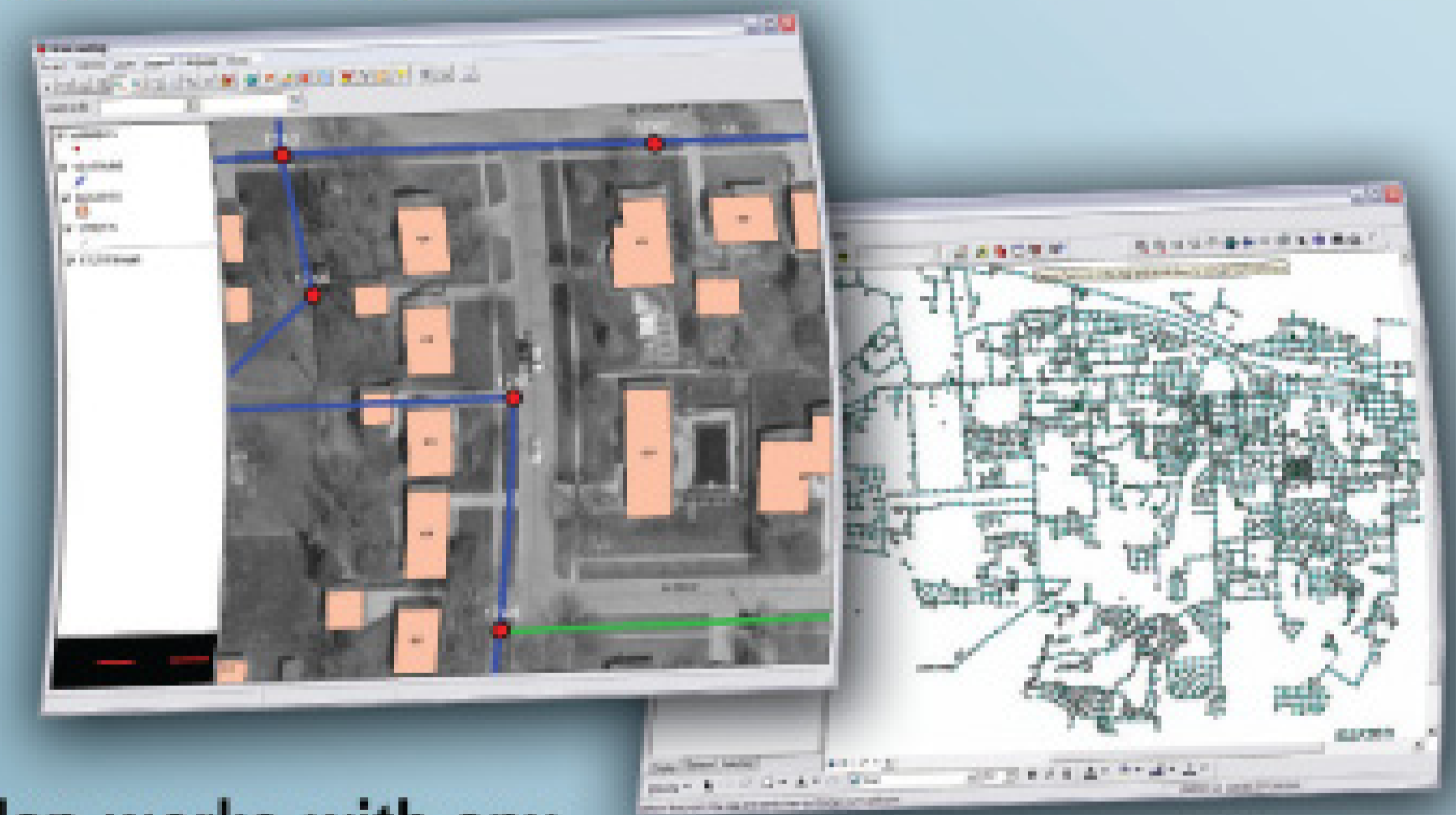
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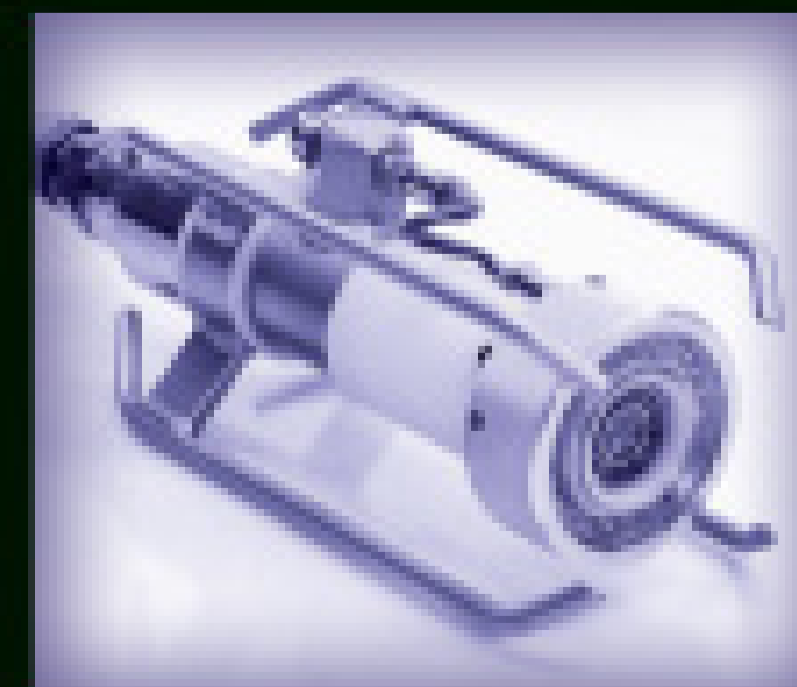
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# The Upside to the Downturn

Economic times may be hard, but here are six ways to strengthen your business as you look for the national picture to improve

By David Giannetto

If you own a business, some recent workdays may have gone like this: You bolt awake, grab the financial section of the paper, and turn on your TV to get the latest worrisome financial news. Once you make it to work, you lock yourself in your office to study your company's financial projections for the next few months, worrying over every worst-case scenario. Well, it's time for the hand-wringing to stop, and the smart thinking to begin.

Just the word "recession" can send business owners into a panic. Add in all of the economic postulating by the media, and you might think it's time to start counting down the days until your business's demise. But all of that worrying is counterproductive.

The business owners who make it through an economic downturn are those who use their time to improve the business and seize every opportunity. Play your cards right and you may even come out more prosperous than before.

Making it through this slowdown won't be a piece of cake for anyone, but if you know the best steps to take, you will be able to come out on the other side with a very sound business.

Here are a few tips for steering your way through.

## 1. In business, only the strong survive.

During a downturn, many business owners forget that their competitors are suffering too and that the playing field is still level. Therefore, your basic strategy for prospering should not change. Build the strongest business you can. That means having a strong value proposition, being fiscally responsible, and providing great service to get and keep customers. Don't let the hype about the slowdown distract you from those tenets.

## 2. Use the hype to focus your employees.

In the right hands, the fear-inducing hype can be a great motivator. The slowdown creates a momentary unifying factor — something that lets employees set aside their individual concerns and rally

around a common cause. Use the economy to stress that providing quality service and being more efficient are the best ways to help the business. The challenge is for you, as the leader, to resist being overcome by fear, and to present a vision of prosperity that everyone will embrace.

**3. Expand; don't contract.** Great companies expand during slowdowns; they don't pull back. Remember, competitors are dealing with the same challenges. The weakest will go out of business, losing funding, cutting operations, and letting go of assets and people. All of these things open up holes in the market that you can fill. You want to be there to snatch up the customers of your failed competitors. Be pre-

*David F. Giannetto is the director of Cohn Consulting Group's Enterprise Performance Management Practice, responsible for helping clients improve operation efficiency, management effectiveness, customer satisfaction, and systems integration. He is an author of the book, The Performance Power Grid: The Proven Method to Create and Sustain Superior Organizational Performance. He lives in Basking Ridge, N.J.*

pared to increase your sales, marketing, and advertising efforts to make sure newly available customers reach out to you first.

**4. Figure out what tough times mean for your customers.** Your customers are probably suffering, too. The faster you realize that, the quicker you can meet their needs. Look at your organization from the customers' perspective and make sure every part of the organization is treating customers right. Go the extra mile, even if that means spending extra money, to reach out to your biggest and best customers. Meet their expecta-

**Great companies expand during slowdowns; they don't pull back. Remember, competitors are dealing with the same challenges. The weakest will go out of business, losing funding, cutting operations, and letting go of assets and people. All of these things open up holes in the market that you can fill.**

tions and keep communication open. That way, if you find out they're planning to break off relations, you can do something about it before it's too late.

**5. Know the difference between profit and revenue.** In some organizations, it's hard to tell which customers, products, services, or geographic areas provide the most profit. Plain financial statements do nothing to help you identify unprofitable customers or segments that can be cut. During a slowdown, look at this more closely. At some point you may need to cut costs, and the first places to cut should be those areas where you are already losing money.

**6. Stay current and creative. A better tomorrow will come.** Too often during a slowdown, companies cut back on the new products or services that represent their future. When the slowdown ends, they can't catch back up to market demands and expectations. So they fail while the market is actually turning around. Avoid this trap. Keep your creative juices flowing. Always think about new ways to serve customers and what new products will enable you to better meet their needs.

The words "economic downturn" don't have to mean only bad news. If you manage correctly, taking care of your employees and customers, you can make it through stronger than ever before. ■

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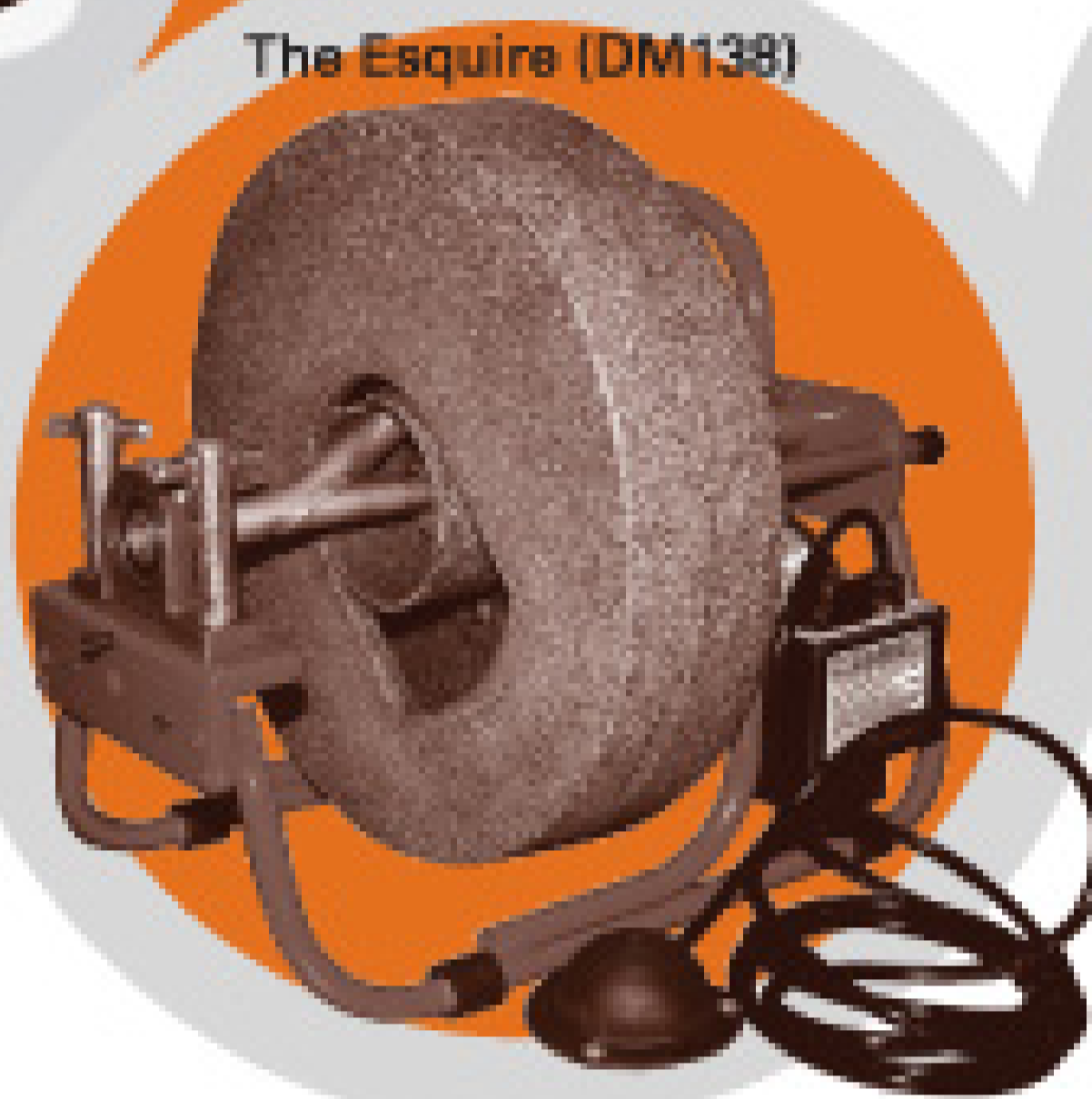
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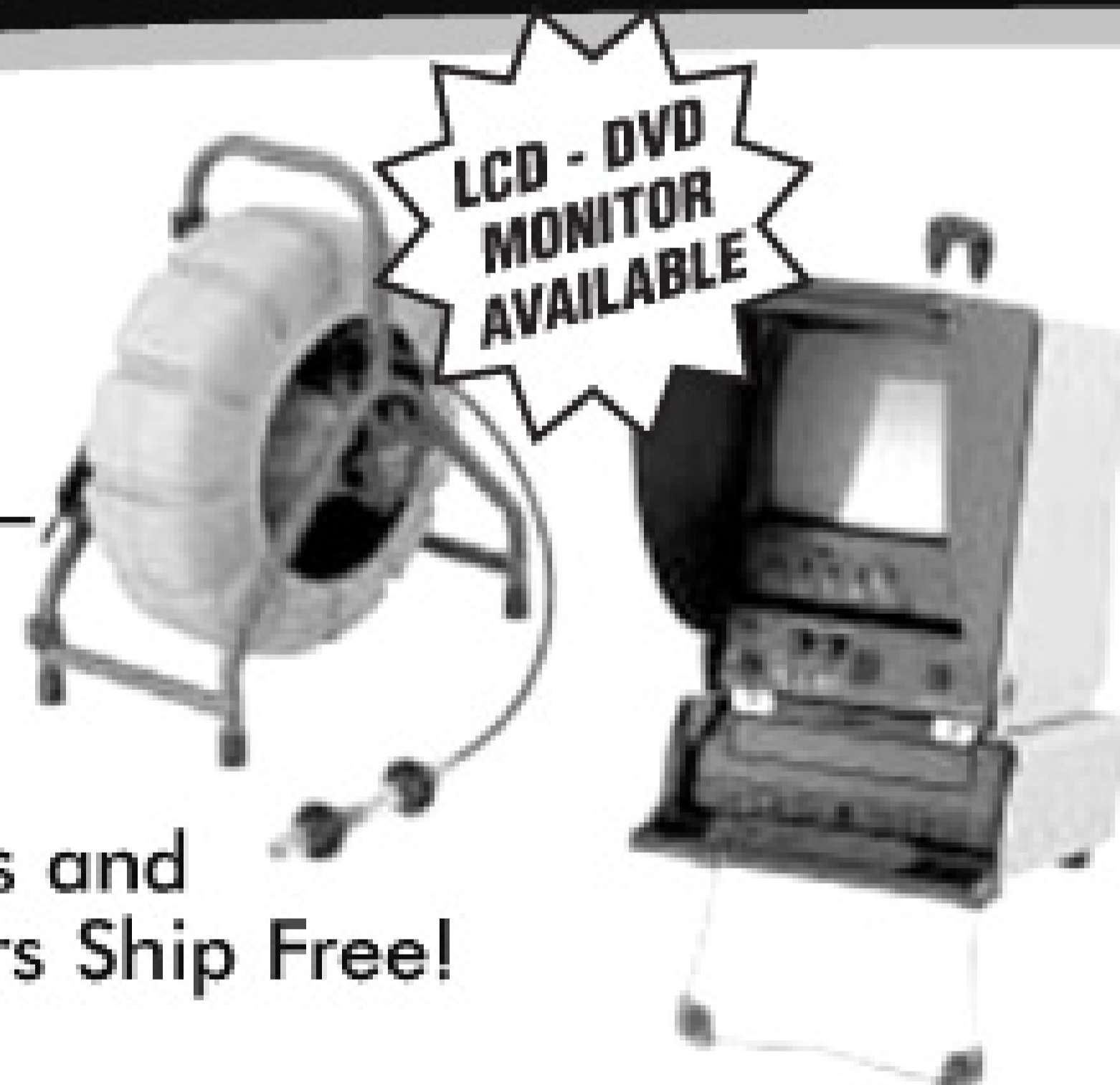


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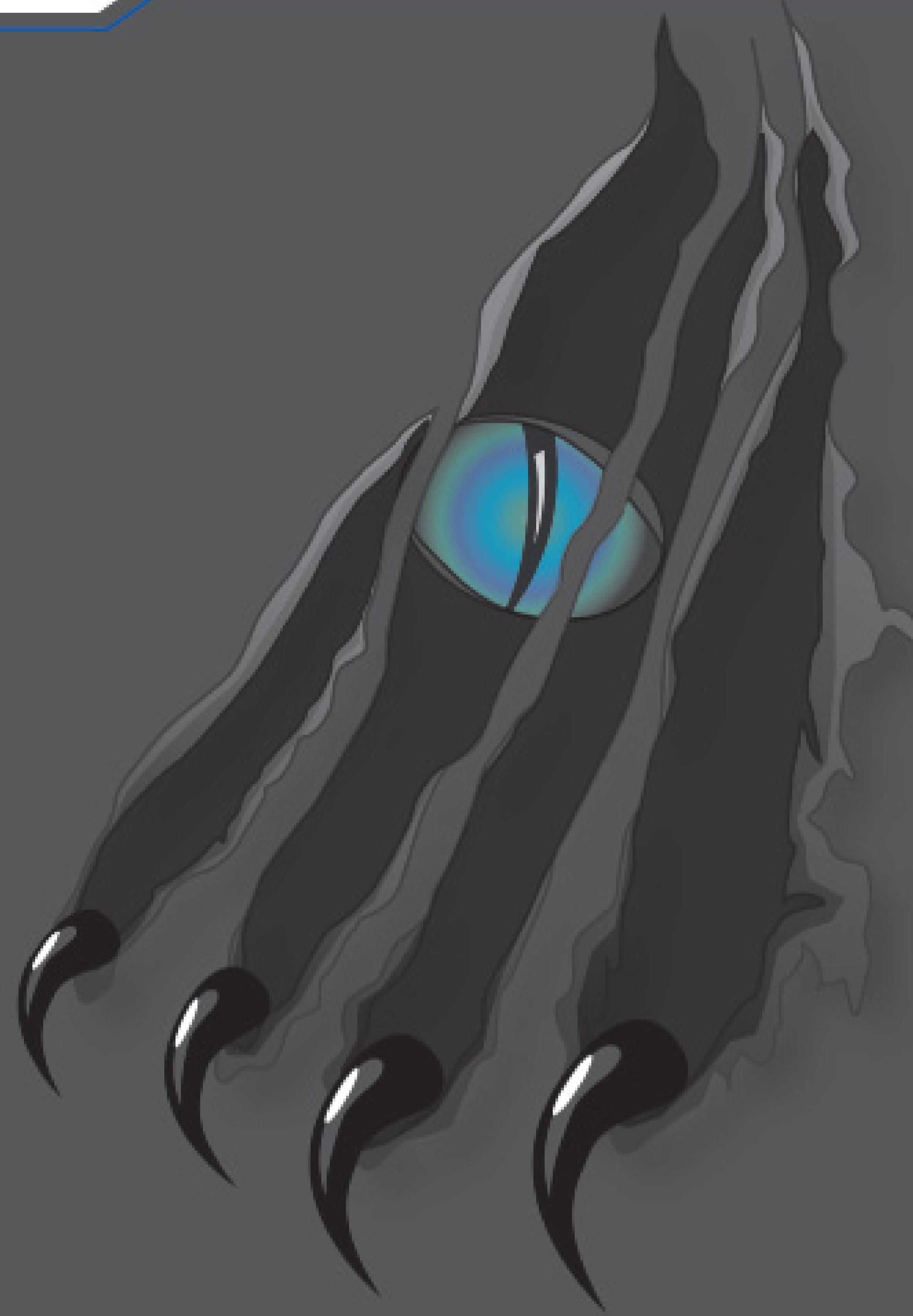
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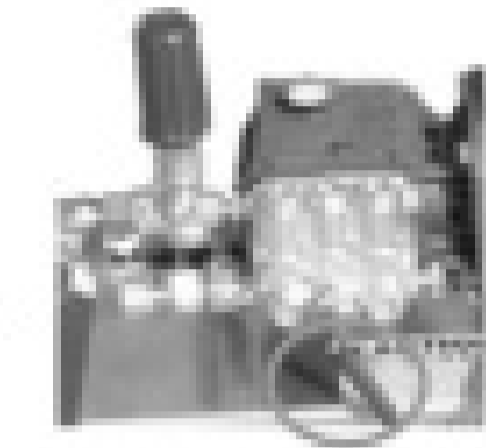
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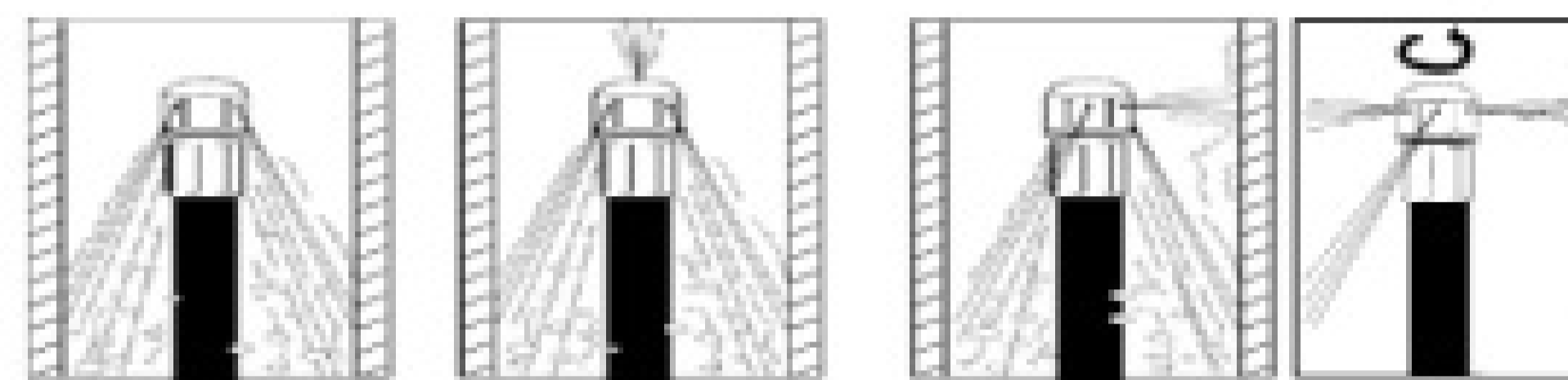
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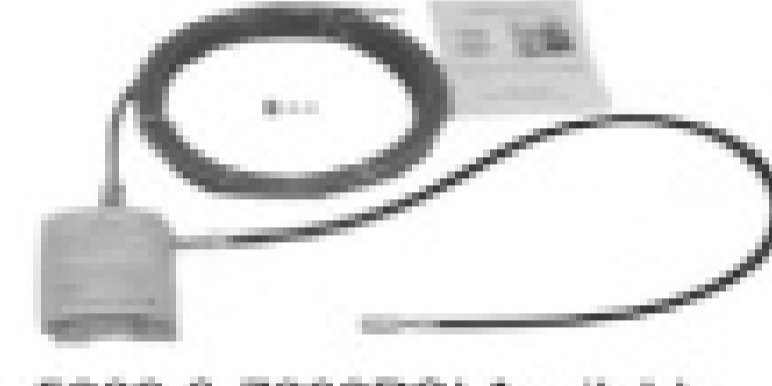
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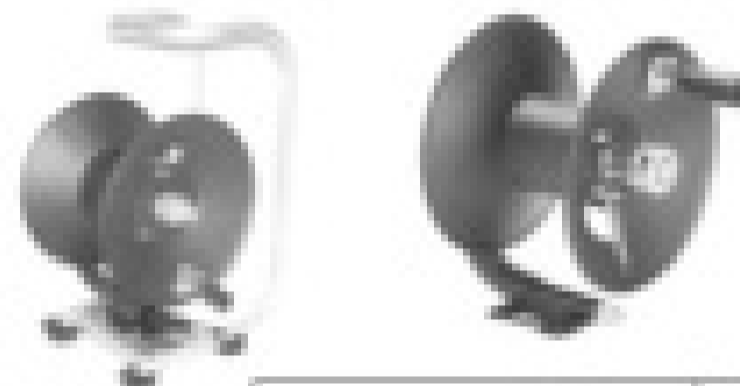
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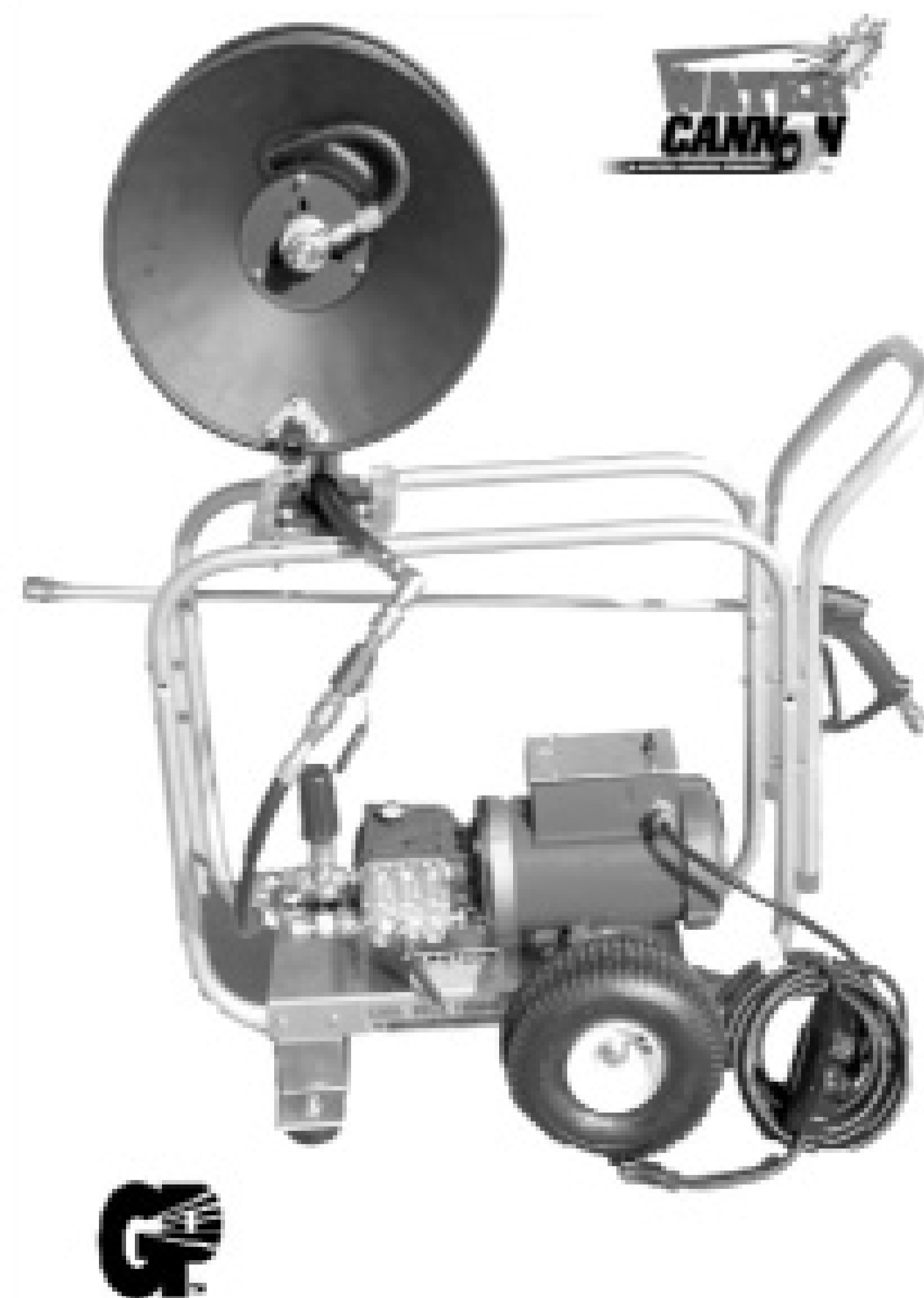


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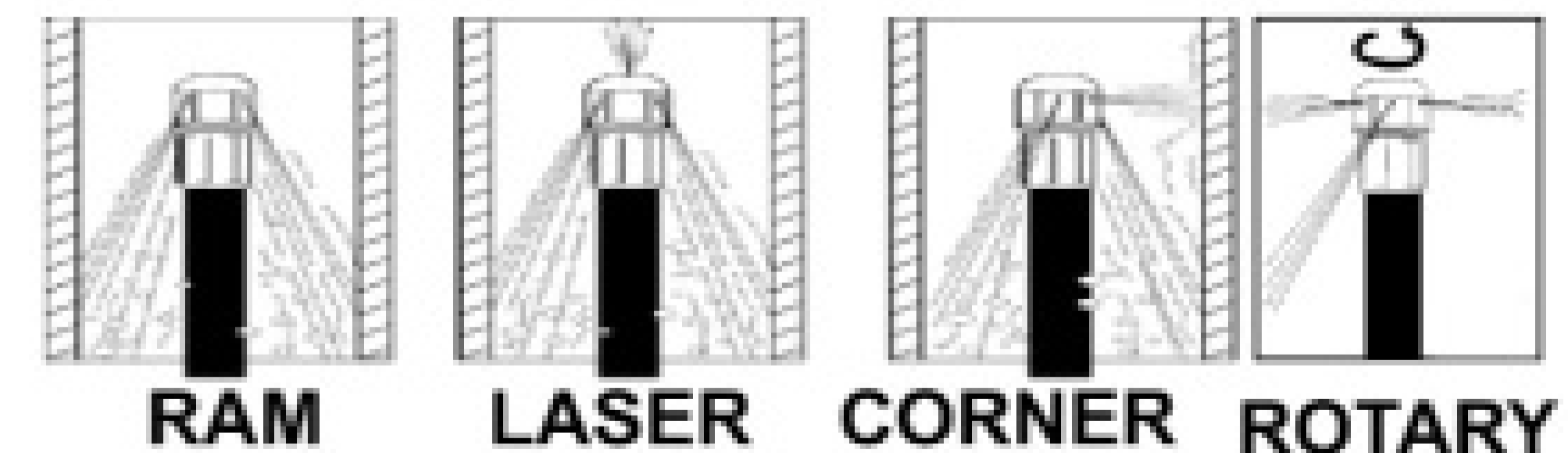
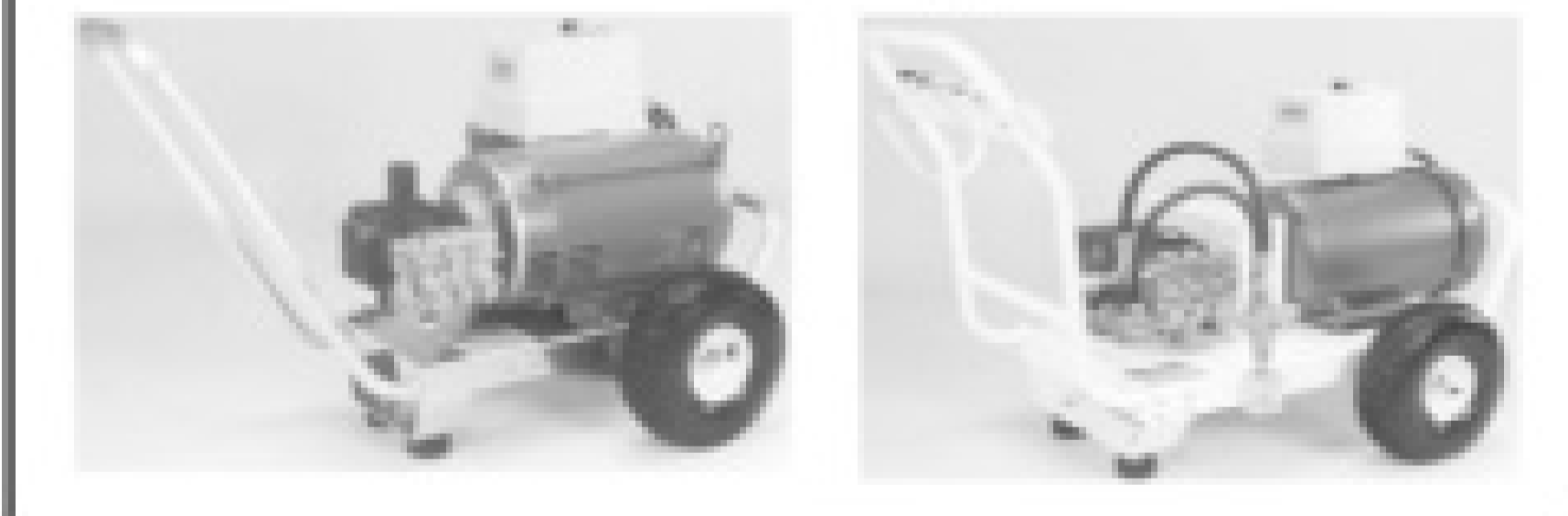
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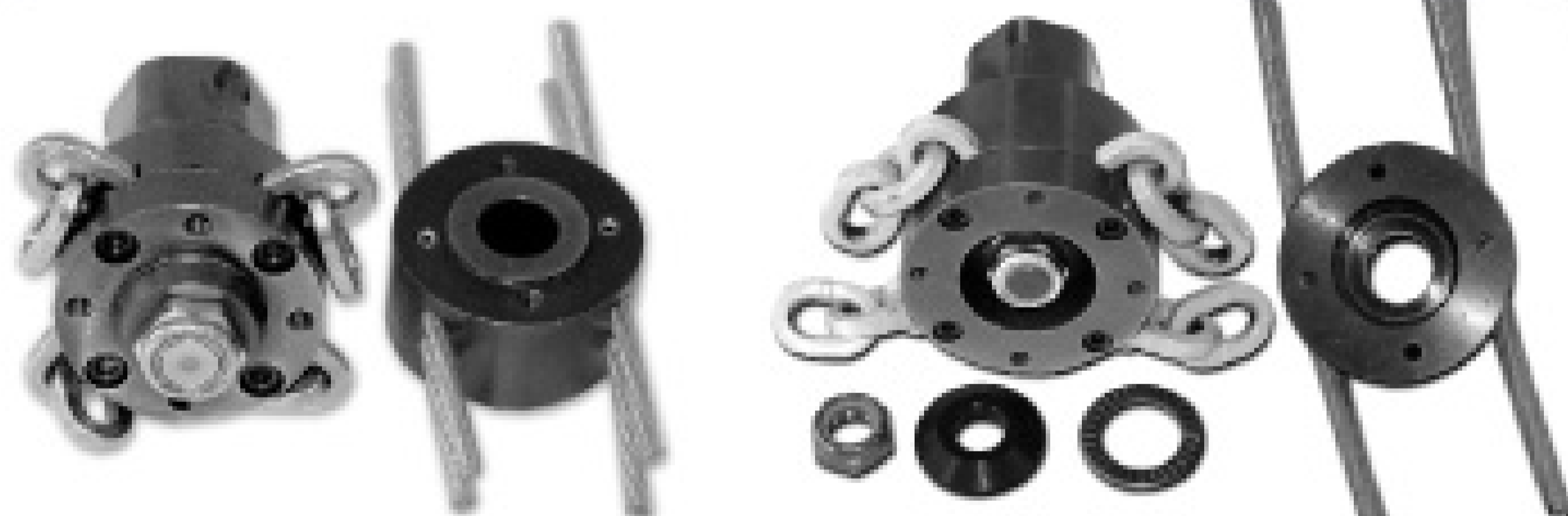
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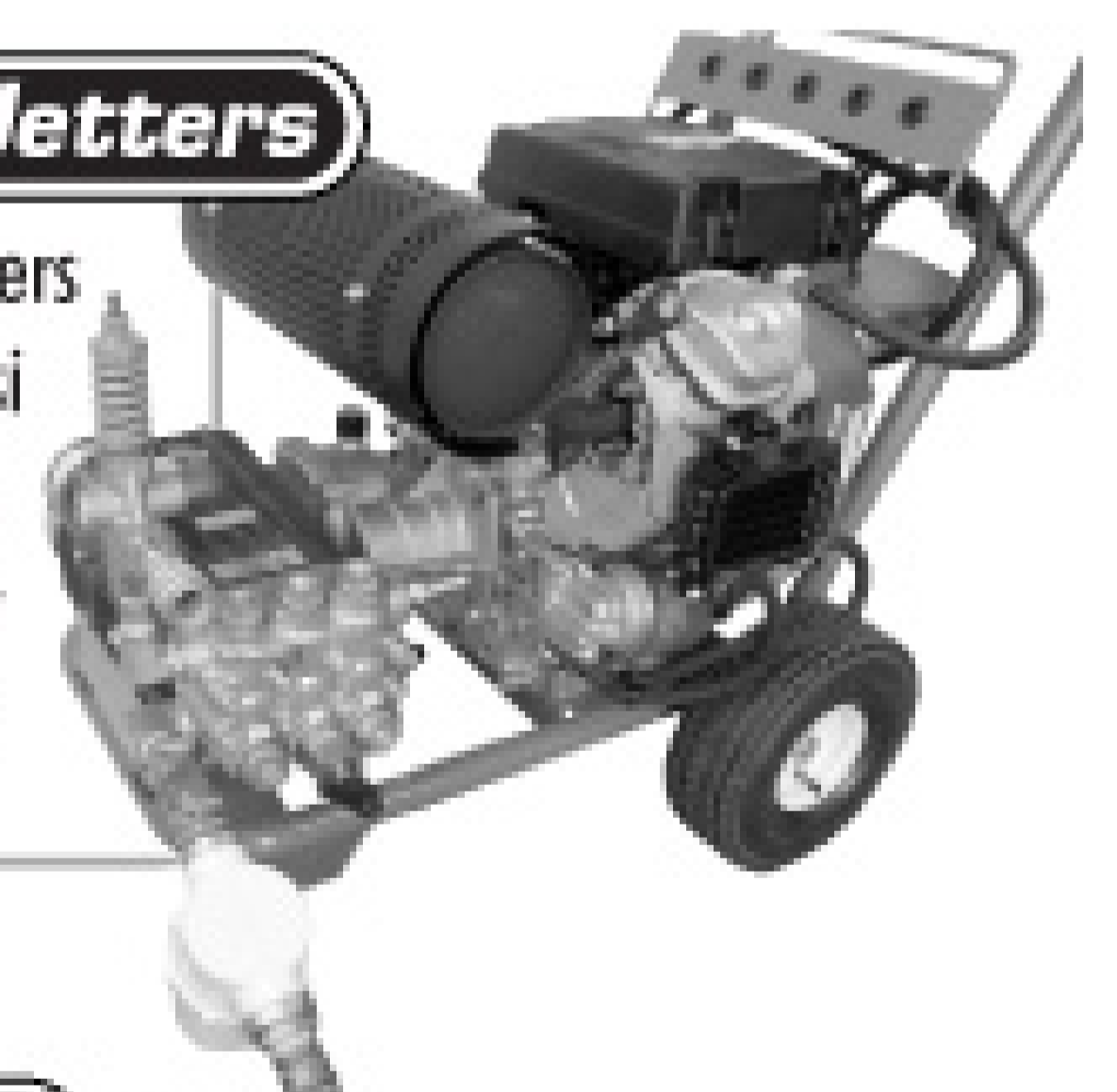
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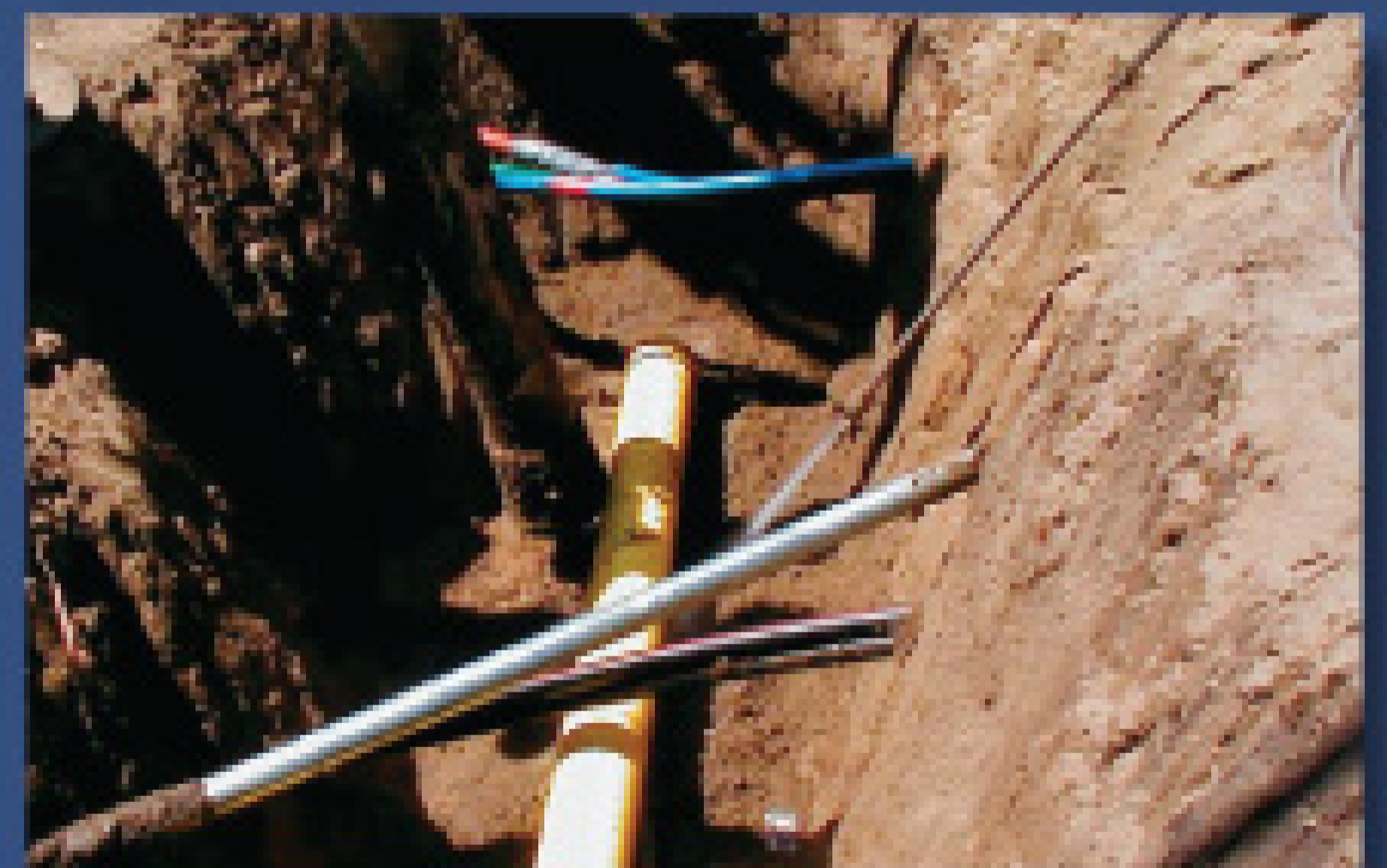
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Joshua Sheppard of Chuck's Septic Tank Sewer & Drain Cleaning, Inc. uses a jetter to clean a storm drain in downtown Columbus, Ohio. (Photos by Lisa Marie Miller)

COVER  
STORY

# From Sub to Prime

**Jetting equipment and trained personnel ensure that Chuck's Septic gets the first call for emergencies and routine service around Columbus, Ohio**

By Marian Bond

Waterjetters are more than just cleaning tools for Chuck's Septic Tank Sewer & Drain Cleaning Inc. They're also sales vehicles.

Customers often call Chuck's first because they know the waterjetters have a history of solving the problem on the spot.

"Our customers now call us even if they think the job might not require waterjetting, because they know we have the equipment and they can depend on us to get the job done," says Charles Lang Jr., who owns the company, based in Columbus, Ohio, with his father Charles Lang Sr. "We might not have to use waterjetting, but waterjetting gets us the job. It gives customers the assurance that we can handle the problem."

The company started in 1970

pumping septic tanks but soon expanded into waterjetting and related services and became a drain and pipe cleaning specialist. The firm added its first waterjetters 25 years ago, initially serving mainly residential customers.

Over time, the company expanded into commercial business and school districts, generally as a subcontractor to local plumbers. After about 15 years Chuck's evolved into the prime contractor. School districts in particular just

"fell like dominoes," mostly through word-of-mouth, as their equipment list grew and their reputation for good work spread.

## Sending the right stuff

If a school district, utility, or any customer calls, the first decision is what equipment to send. "Many times, the maintenance guy will call and describe what's happening," Lang says. "We pretty well know that if the drain is holding water, we will need a combination truck the majority of the time. If it's full of debris, you have to get that stuff out. Vacuum the catch basin before you waterjet to clean the line."

If there is any question what equipment to send, Lang sends a technician to do a diagnosis. "We can rely on our technicians because

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**"We can rely on our technicians because they are highly trained. We train every technician for at least a year before they go out on their own. Every one of them can handle the waterjetting equipment, assess the situation, and determine what we need."**

**Charles Lang Jr.**

they are highly trained," Lang says. "We train every technician for at least a year before they go out on their own. Every one of them can

handle the waterjetting equipment, assess the situation, and determine what we need.”

When hiring, Lang looks for honest, clean-cut people. He is willing to train even inexperienced people who fit the basic profile. Training includes not just waterjet operation but safety issues and confined-space entry.

### Equipped for the challenge

The company is experienced and equipped to handle everything from routine maintenance to major crises. The fleet includes

- A 2002 SafeJetVac from Vacall Industries Inc. with an 1,800-gallon water tank, 16-cubic-yard debris body and 2,000 psi/80 gpm jetter.
- A 1997 truck-mounted SRECO waterjetter with 1,500-gallon water tank and 2,500psi/65gpm pump.

- Two Harben trailer jettors delivering 4,000 psi/20 gpm.
- A 2007 Vactor HXX PD hydroexcavator with 2,500 psi/20 gpm water system.
- A UEMSI camera truck.
- Nozzles by StoneAge Inc. ENZ USA Inc., KEG Technologies Inc., and Cloverleaf Tool Co.
- Root cutters by KEG Technologies Inc.

With this equipment arsenal, Chuck’s Septic has gained a reputation for service to the major utilities in the Columbus area — often in emergencies. “In addition to hydroexcavation, we take care of their lines in the maintenance shops,” Lang says. “We clean their pits, and they have to be power washed at the inlet and outlet lines. Here we use the Harben trailer jettors.

“We have water-jetted 6- and 8-inch electric conduit lines in new

installations before they put the electric wire in. Sometimes we have to clear mud out of the conduits. If there is a lot of mud, we use the truck jetter, probably at 65 gpm/2,500 psi.”

### Help in a crisis

Lang sees little difference in serving business customers such as utilities, school districts, apartment complexes, and restaurants when

there’s a stoppage. But many calls involve a crisis of one kind or another.

In a recent job involving gravel in 300 feet of 6-inch line serving a bank, Chuck’s was called in as a sub-contractor. The 10-hour job required five pieces of equipment, including the Harben and SRECO waterjetters, and the hydroexcavator. “We had to jet the gravel to a cleanout inside the building,” Lang says. “We used the Harben jetter

## PROFILE

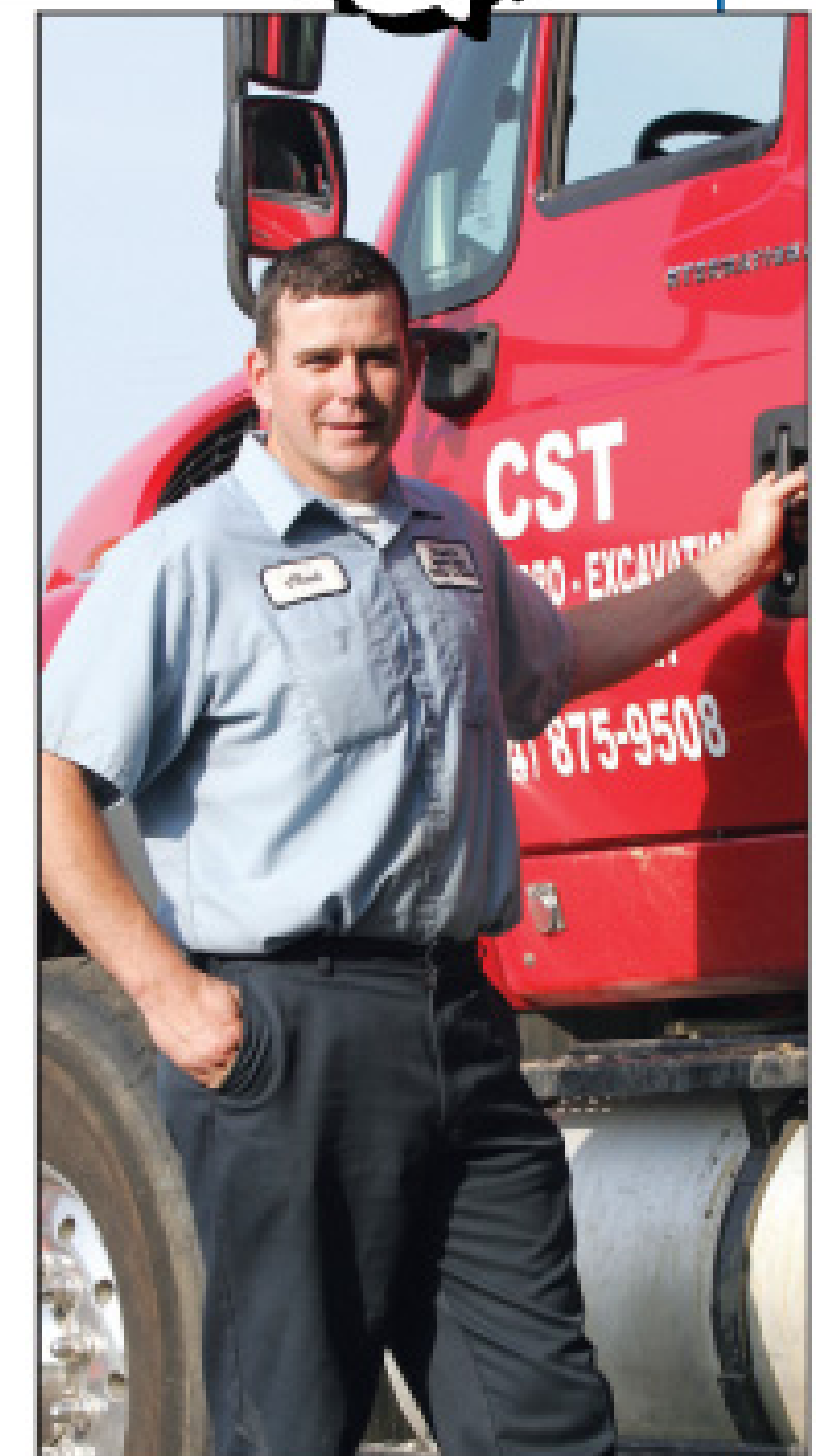
### CHUCK’S SEPTIC TANK SEWER & DRAIN CLEANING INC. COLUMBUS, OHIO

**OWNERS:** Charles Lang Sr., Charles Lang Jr.  
**YEARS IN BUSINESS:** 38  
**SERVICES:** Drain cleaning, hydroexcavation, septic tank pumping  
**EMPLOYEES:** 11  
**CUSTOMER BASE:** Commercial, residential,

school districts,  
utilities



Chuck Lang Jr. (in the truck cab) and his father, Chuck Lang Sr., (right of his son), owners of Chuck’s Septic Tank Sewer & Drain Cleaning, Inc. They are pictured outside their office and garage with several of their 14 employees. At right, Chuck Jr. is shown with a Vactor hydroexcavator.



## ROLLING IN DOUGH?

Working in confined spaces is not new or unusual for the employees and owner of Chuck’s Septic Tank & Drain Cleaning.

Recently, at a bakery, they cleaned an underground storage tank 20 feet deep with access by a 20-inch manhole. Four feet of fermented dough had to be removed, and the tank cleaned. The tank itself was 30 feet across and about 8 feet tall. All the “gunk” had caused an aerator to plug up, and it no longer worked.

The job, which took more than seven hours, called for three men (including owner Charles Lang Jr.) inside the tank, and men topside communicating with walkie-talkies. With all the proper equipment, including respirators, the men who worked inside in half-hour stints were shoveled up the mess and eventually removed it using Keith Huber trucks.

Next they used Harben trailer waterjetters to wash down the walls and clean the bottom of the tank. The dirty water was then extracted and hauled away. Lang says such difficult jobs are not uncommon. “We go down in tanks such as this all the time,” he says. “As long as the air is clean and the meters are working properly we’re fine. We calibrate the meters and check the oxygen sensors. All of our guys do confined-space training. We call in a company to give us training in this and all other safety courses as well.”



Chuck Lang Jr. uses a jetter to unclog drains at a middle school in Columbus.

most of the time, but also the truck jetter. We used a Keith Huber 3,300-gallon tank truck, and the hydroexcavator to suck up the gravel.

In serving seven school districts, Chuck's cleans the smaller drains inside the buildings using cables wherever possible. "Outside, we use the waterjetters or the combination truck because we're dealing with grease, solids and tree roots," Lang says.

When faced with backed up storm sewers, technicians use the camera truck to assess the situation. If roots are the problem they use root cutters along with the waterjetter. "For 1 1/2- to 8-inch lines, we use a Harben trailer jetter," Lang says. "For pipe larger than 8-inch, we use the truck jetter. You need a volume of water to move material out of those lines."



The company's Vactor hydroexcavator at work on a jobsite. A crew of three worked on exposing electric and petroleum lines outside an apartment complex.

**"The jettters sell the other business. Because we have that equipment the customers know they can depend on us to get the line unstopped. For them, it's cheaper and less trouble than first calling someone else and then having to call us in."**

**Charles Lang Jr.**

#### Enjoying the work

Lang enjoys all aspects of the business, but he admits finding commercial easier. "With residential, you never know what's going to happen," he says. "We'll do a residential line, and it can be stopped up to where a cable won't get it open. You have to use the portable waterjetter to bust up the sludge. When a line is stopped up for a long time, the solids build up in the pipe, and the water just runs off. Only high-pressure jettters will efficiently liquefy that sludge."

The company's advertising budget amounts to about \$30,000 a year, primarily for telephone directories. Lang believes most of the work comes through word-of-mouth. The company also has seen favorable comments posted on Angie's List, a subscription web site where consumers can find reputable contractors.

While traditional services will continue to drive the business, hydroexcavation is a growing segment. "We purchased the Vactor HXX for this work," Lang says. "It's a safer way to dig, as you don't disturb any

utilities as you would with a backhoe." The service is especially important to utility customers. "We can take care of problems if a line shorts out underneath the ground, and we can also dig to put in poles for them," Lang says.

As the business grows so must the accommodations. The company now has three heated garages in Columbus to store equipment. Total garage space is 13,700 square feet. Lang is proud that the company has sharp-looking equipment. The 11 service vans have red lettering, and the big trucks are all painted red.

"The jettters sell the other business," concludes Lang. "Because we have that equipment the customers know they can depend on us to get the line unstopped. For them, it's cheaper and less trouble than first calling someone else and then having to call us in." ■

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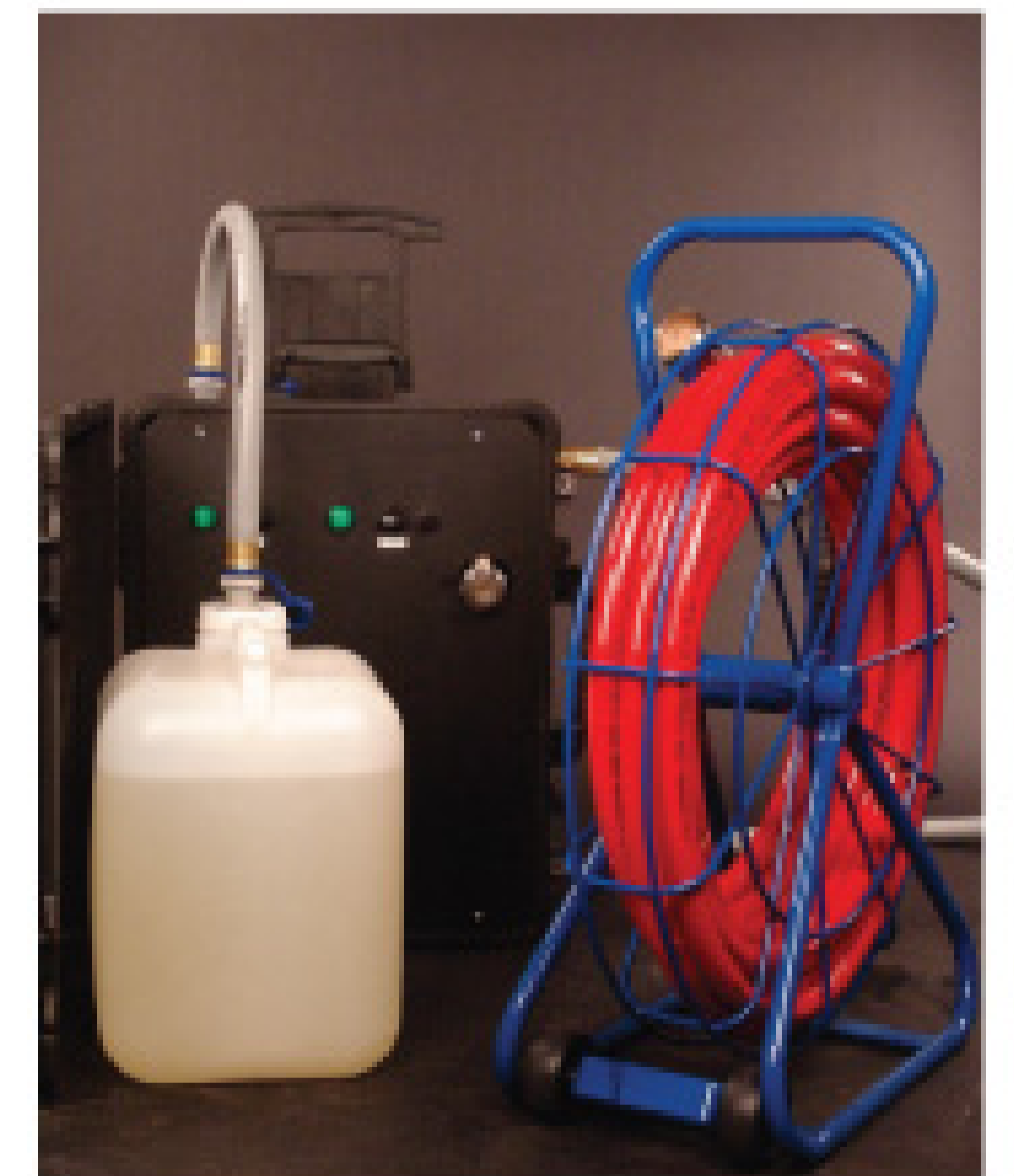
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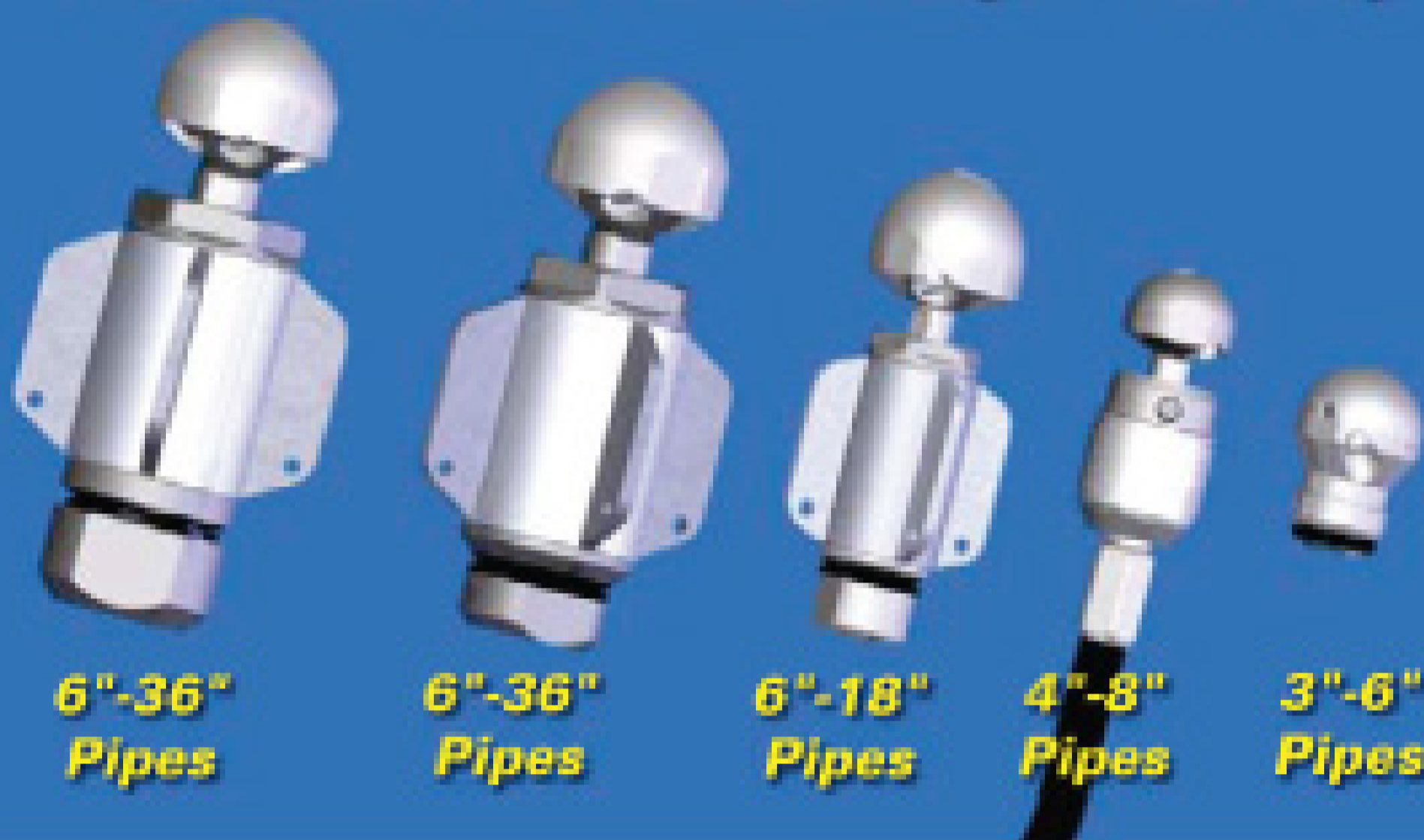
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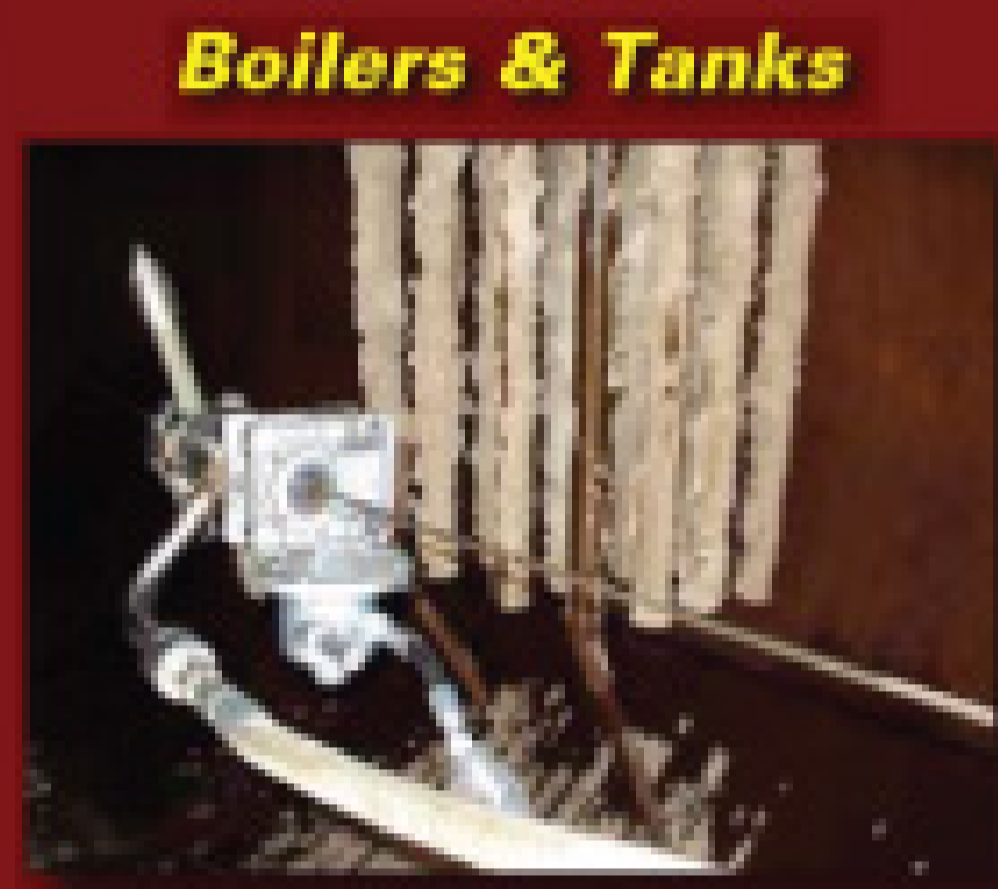
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Jesse Martin (left), Mike Chastain (center) and Nelson Rivera, employees of Roto-Rooter Plumbing & Drain Service in Cape Coral, Fla., clean a 4-inch lateral with a jetter from US Jetting. (Photos by Marc Beaudin)

# Line of Defense

**Roto-Rooter of Lee County helps rescue sewer and drain systems routinely clogged through abuses by retirees and seasonal visitors**

By Rosalie E. Leposky

Visitors to the Sun Coast along the Gulf of Mexico, south of Tampa, Fla., don't respect the plumbing as much as they likely do in their permanent homes.

The result is that grease, sand and other materials often clog the drain and sewer lines. Roto-Rooter of Lee County Inc., owned by John Ford and headquartered in Cape Coral, makes a business out of clearing those blockages and keeping the drain systems working.

"Visitors don't always respect our local plumbing," Ford says. "They pour or flush anything they want down the drains. Stuff poured or flushed on upper floors blocks lower-floor drainage, requiring regular sanitary sewer pipe cleaning."

Ford's company handles the challenges with a staff of 14, including 10 field technicians. They are well equipped with 10 service vans outfitted with push camera systems and drain machines, and with four trailer-mounted waterjetters ready for service anywhere in the three-county service area.

## A diverse region

Farmers and fishermen were the first settlers of quaint towns on the region's pine and palmetto scrub land along the Gulf. Today, those communities are among the fastest growing in the nation, popular with tourists and retirees.

Roto-Rooter of Lee County serves a narrow and increasingly crowded sliver coastal land. To the west are the Gulf and its beaches; to the east the swamps and sawgrass prairies of the Big Cypress National Preserve and Everglades National Park, plus several Indian reservations and wildlife refuges.

The three counties rise only a few feet above sea level and have practically no natural gravity flow in their sanitary and storm sewer pipes. Flooding from hurricanes and other storms regularly clogs these pipes with debris, and so does the carelessness of tourists and winter residents from the north.

The company's service area takes in several wealthy enclaves, including Boca Grande Island; Sanibel and Captiva islands, accommodating 15,500 visitors during an average winter week; and Naples, of the nation's wealthiest cities. Residents of more modest means dwell elsewhere on the coast. The

three counties had a total population of 833,892 in 2000.

## Growing fast

Ford came to the Gulf Coast in 1990 to escape New York's brutal winters. "Right out of trade school, for 10 years I belonged to New York Plumbers Local #1, serving Brooklyn and Queens," he says. "I earned my

**"Visitors don't always respect our local plumbing. They pour or flush anything they want down the drains. Stuff poured or flushed on upper floors blocks lower-floor drainage, requiring regular sanitary sewer pipe cleaning."**

**John Ford**

master plumber license in Florida and founded my company here on July 1, 1993."

In its first year, the company generated \$250,000 in revenue. "Last year we did \$1.8 million with 10 trucks and 10 technicians," says Ford. "We regularly have three of our technicians in Roto-Rooter's 25 top national technicians. We're accustomed to resolving difficult situations with inventive solutions. Locally, we have a very high water table. Often we have to adapt tools to get the job done. For anything really unusual, I assist my technicians."

One storm drain job in Fort Myers required cleaning and video inspection of a 36-inch pipe half filled with water. "Jesse Martin, one of our award-winning technicians, wrapped a camera in his 5-year-old son Jeremiah's water wings and floated it down the pipe," Ford recalls.

Ford and his technicians often work in properties on sand dunes



Jeff Caponi watches while Mike Chastain operates the Vactor 2100.



Jeff Caponi, a service manager for Roto-Rooter Plumbing & Drain Service in Cape Coral (Fla.) walks by the Vactor 2100 while employee Mike Chastain operates the truck during uploading.

where people should not have been allowed to build. "There is very little pitch, and pipes clog after a bad rain," he says. "Over 60 years ago, when construction began here, old pipes of clay, cast iron, and Orangeburg were used in our swampy terrain. Roots easily penetrate these pipes."

### Training for safety

Ford puts all new hires through a standard 8-week training program. They ride with different technicians to get accustomed to the area and learn work procedures and safe use of equipment. A mandatory monthly meeting is held on a variety of issues, including use of personal protective equipment and dealing with mosquitoes and fire ants.

"The average residential sewer is 75 to 100 feet long, with multiple blockages per job," Ford says. "We constantly train for confined-space working conditions. Most manholes here are below sea level, and we have many lift stations. With our new Vactor combination truck, we are exploring alternate ways to maintain manholes and sanitary sewer lines."

Ford believes he has the only privately owned Vactor in the area. He does most of the work involving that truck, handles other big and difficult jobs, and spends the rest of his time training his staff in his methods

## PROFILE

### ROTO-ROOTER OF LEE COUNTY INC. CAPE CORAL, FLA.

OWNER:	John Ford
FOUNDED:	1993
SPECIALTIES:	Full-service sewer and drain cleaning, sewer replacement
MARKET AREA:	Lee, Collier and Charlotte counties
EMPLOYEES:	14
FLEET:	10 service vehicles



and techniques.

The trainees experience a variety of unforeseen scenarios. "Many of the condominiums we service have garbage disposals," Ford says. "People put everything imaginable down them, including orange and grapefruit pulp, which smells nice but stuffs up the drains. To protect my employees, they often wear rubber surgical gloves under heavy canvas work gloves. All of our trucks carry surgical gloves, and each man has his own safety shoes and hard hat.

"To our largely senior citizen client base, we compare stuffed lateral pipes to hardening of the arteries. When we jet out lines, anything

including cooking grease does not stand a chance. Everything runs out. Grease-clogged sanitary sewer lines are especially common during major holidays when seniors get together with their families and cook. When they are done cooking and start to clean up, they pour everything down the kitchen pipes. We are constantly amazed at what we find stuck in pipes and what we have to do to inspect and repair them."

### Capable staff

Ford gives abundant credit to his four-member office staff. "They stay in touch with multi-family housing projects, resort condominiums, and

“The average residential sewer is 75 to 100 feet long, with multiple blockages per job. We constantly train for confined-space working conditions. Most manholes here are below sea level, and we have many lift stations. With our new Vactor combination truck, we are exploring alternate ways to maintain manholes and sanitary sewer lines.”

**John Ford**

timeshare properties, and keep key decision-makers informed about what needs to be done to keep their sanitary sewer pipes open and flowing,” Ford says. “We have hundreds of maintenance contracts with tourist accommodations and senior-living centers where there is a tendency to abuse the plumbing.”

Besides grease, sand is a major source of blocked pipes in tourist and beach areas. Sanibel Island has one of the world’s best shelling beaches. Even though beachfront

sinks are available, visitors wash shells in their hotel bathrooms or timeshare kitchens, sending sand and bits of shell down the drains. Instead of using outdoor showers to remove sand from their bodies, people shower indoors.

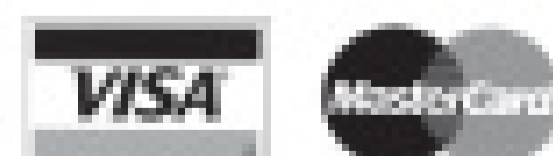
In addition to its private-sector work, Roto-Rooter of Lee County Inc. provides emergency drain-cleaning services for municipalities, school systems, hospitals, and utilities. “The Charlotte County school system had a broken cable caught in



John Ford (left) with his office staff, from left: Debbie Ford, Angela Thompson and Nicole Vazquez. They're shown in front of the company's awards wall.

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John Ford, owner of Roto-Rooter Plumbing & Drain Service.

## DIVERSE FLEET

Roto-Rooter of Lee County has been the Roto-Rooter contractor on Florida's South Sun Coast for 15 years. “The business is mine; we are not a franchisee,” says owner John Ford. For 2006, the business was one of three nominated for Roto-Rooter Contractor of the Year. Equipment available to Roto-Rooter of Lee County technicians includes:

- 1998 International truck that tows a backhoe and is painted white with blue flames.
- Ten Ford and Chevrolet service vehicles.
- 2004 Vactor 2100 Series combination truck with 1,500-gallon water tank, 10-cubic-yard debris tank, 3,000 psi/85 gpm water system from Vactor Manufacturing.
- Four trailer-mounted jetters from US Jetting (one Model 4014, three Model 4018).
- Trailer jetter from Harben Inc. with 600-gallon tank and 4,000 psi/30 gpm pump.

Each truck carries at least one camera. The company has four color SeeSnake cameras, five black-and-white SeeSnake cameras, and two mini-cameras, all from RIDGID. The firm also has seven RIDGID NaviTrack locators.

their sanitary sewer line,” says Ford. “They tried to unstuck the line, and ended up losing their cable.

“They were afraid they were going to have to dig up the line. We were able to hook onto their cable with a cable retriever, which raps around a cable and binds to it so the technician can pull both lines out. We retrieved the cable without any cosmetic damage, and then we cleared the line.” Ford personally handled the job, which took about two hours.

Ford says the continuing success of his business depends on growth in local communities and on its corporate affiliation. “We benefit from the Roto-Rooter name and quality,” he notes. “It’s familiar to residents who are new to our area and need the service we provide.” ■

### MORE INFO:

**Harben Inc.**  
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www.harben.com

**RIDGID**  
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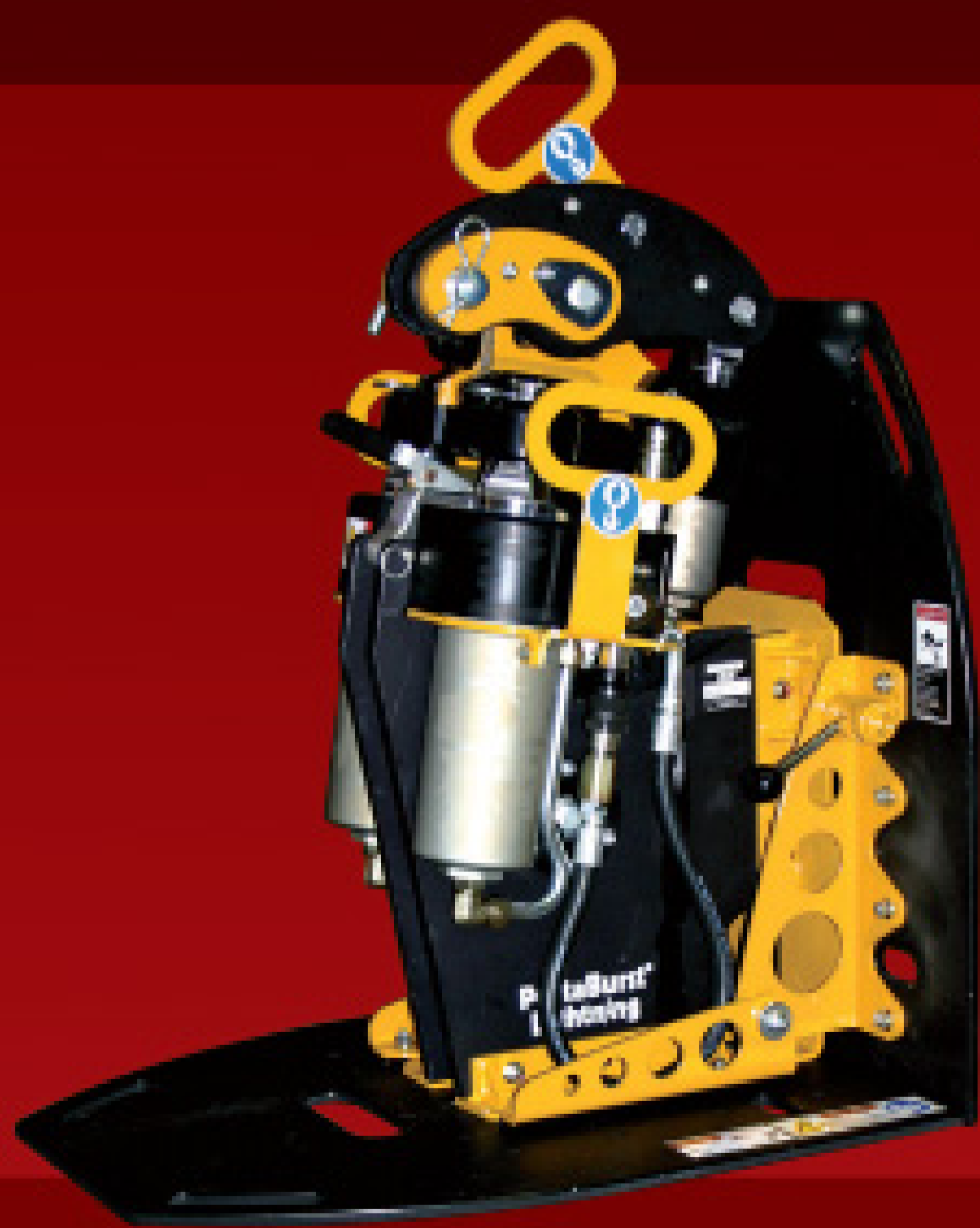
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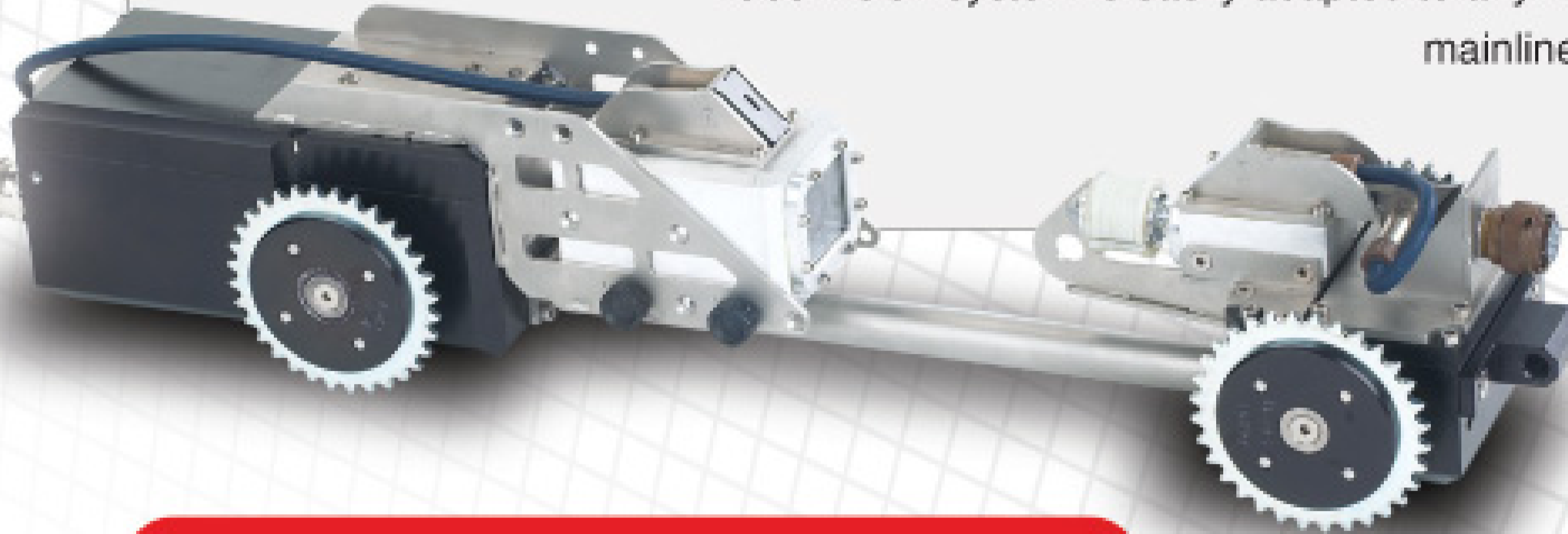
The image is a composite. The background is a scenic landscape of a mountain range with snow-capped peaks, a dense forest of evergreen trees, and a clear, blue lake that reflects the surrounding scenery. In the bottom right foreground, a portion of a robotic crawler is visible, featuring two large, treaded black wheels with red hubs and a silver metal frame. The overall composition suggests a focus on advanced technology in a natural, environmentally sensitive setting.



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CoolVision system is easily adapted to any new or existing Aries mainline inspection system.



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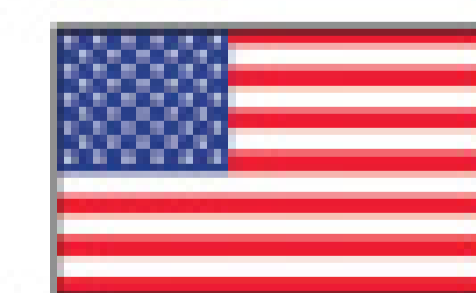
Aries high resolution camera module used in conjunction with the 432:1 zoom ratio and High intensity detachable LED lighthead, allows you see details that other cameras miss. The wireless operation makes the system extremely versatile and allows you to take it anywhere and transmit the video anywhere. When this system is used with the optional media case with 10" day light readable screen, it allows the user to inspect any pipe anywhere you can get to. For more versatility virtually any reporting software can be added to greater enhance the systems capabilities.



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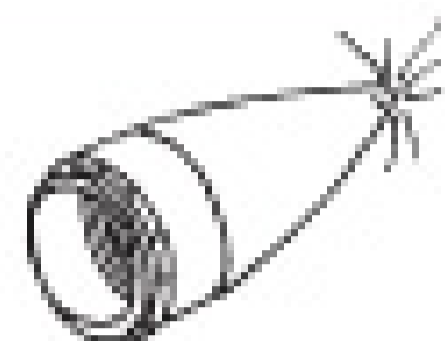
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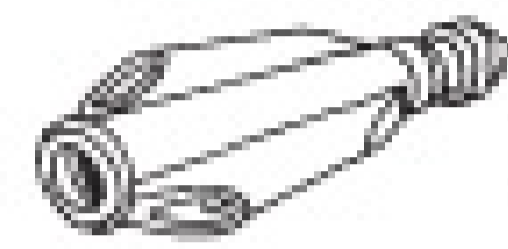
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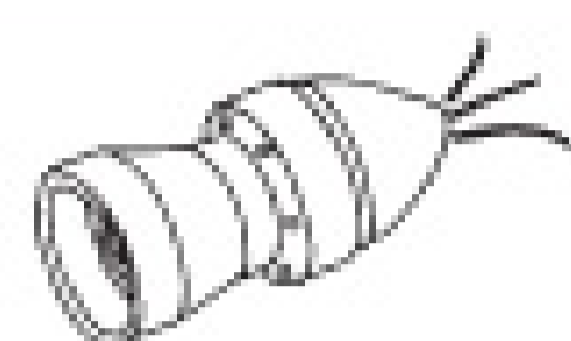
### Truder

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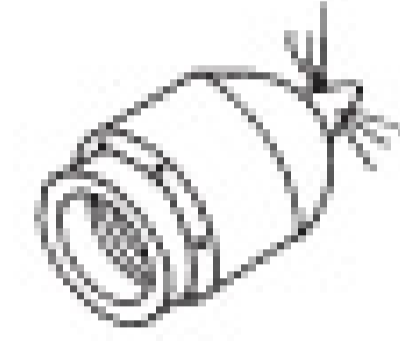


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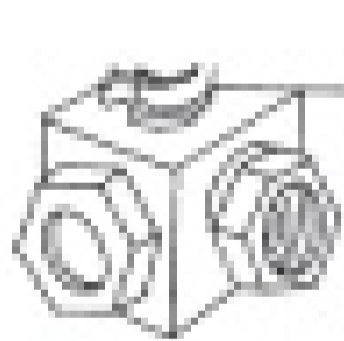
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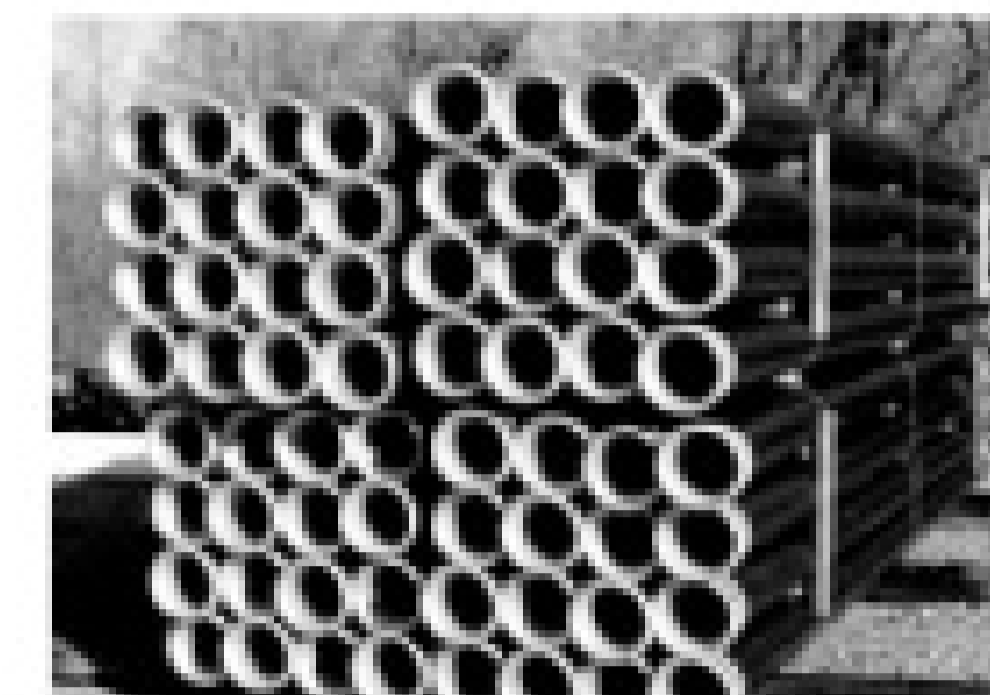
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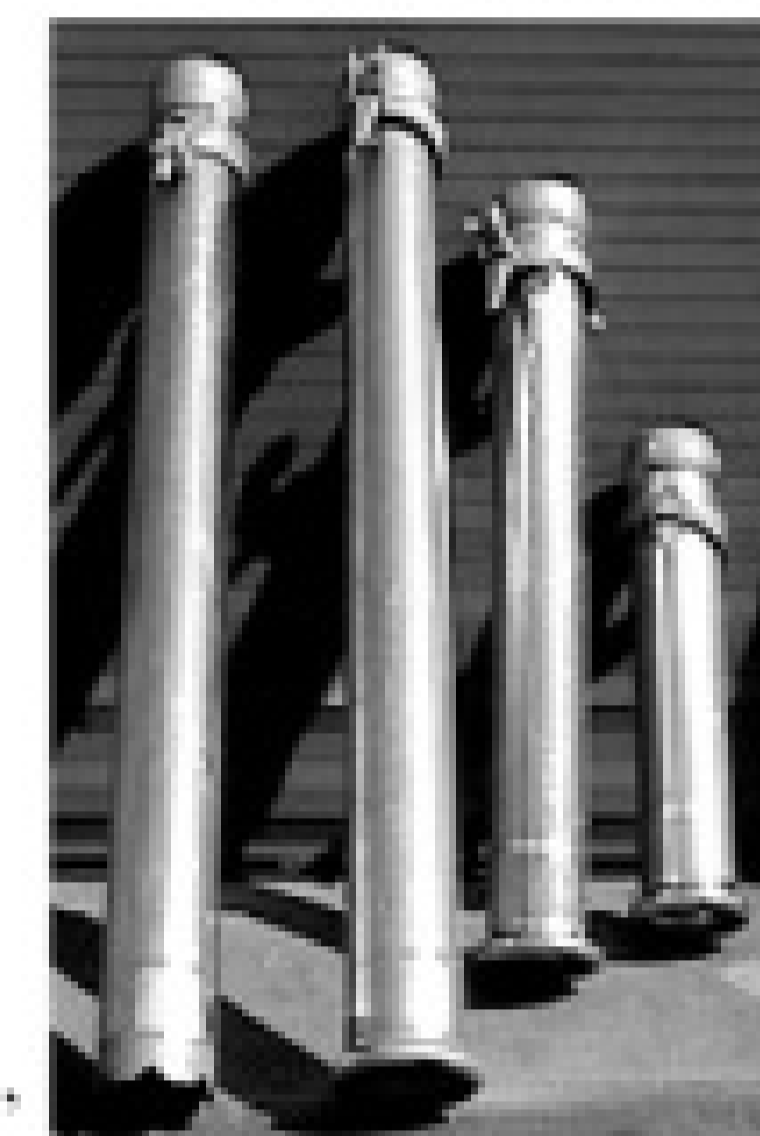
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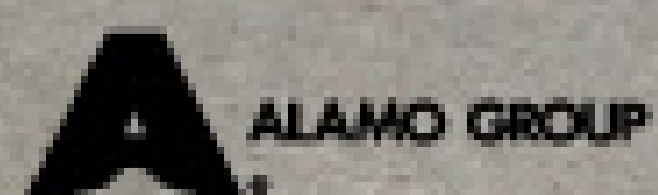
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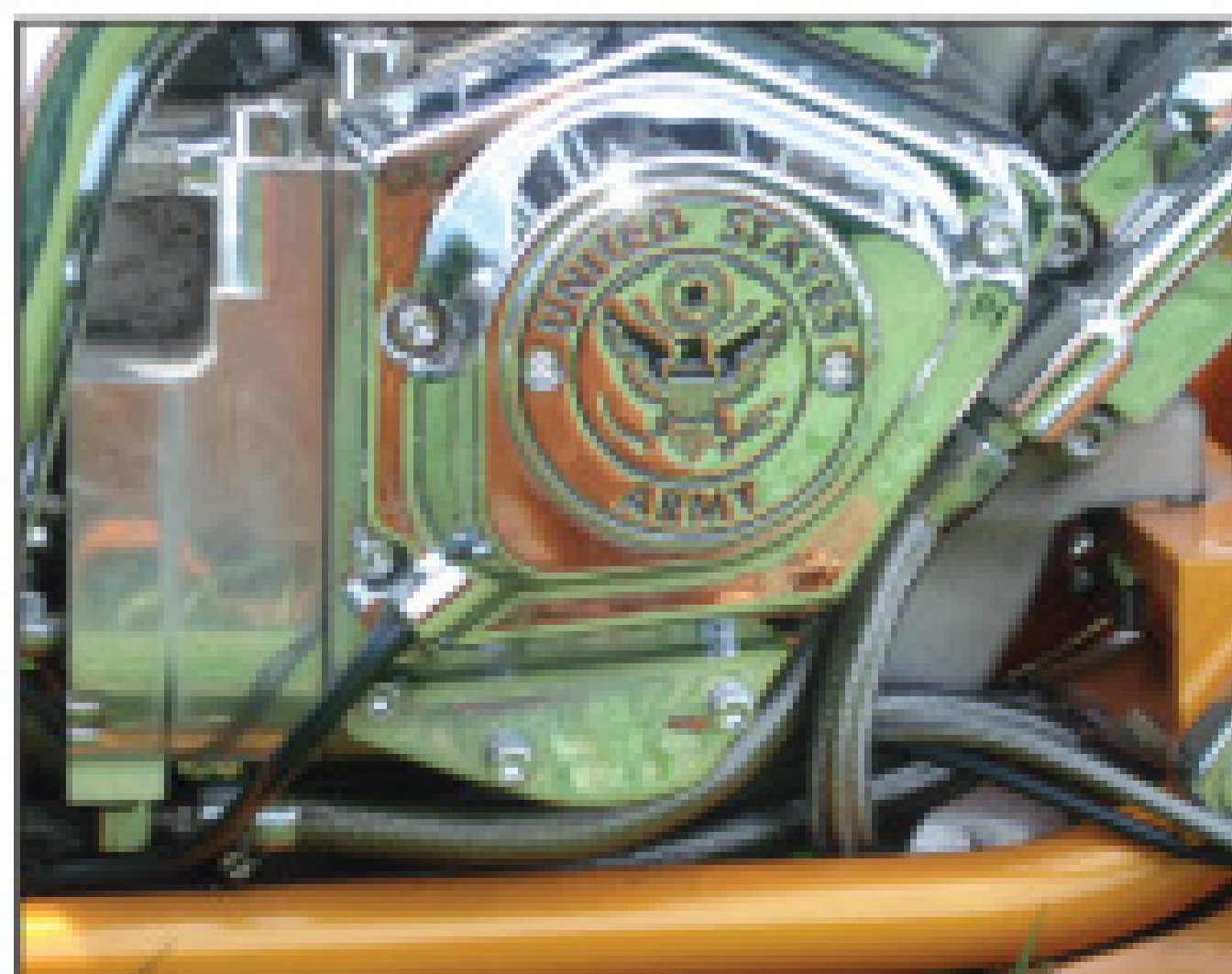
**Cleaning contractor Mark Kuta builds and rides custom motorcycles for his own enjoyment — and to drum up business**

By Christa Kolster

**M**ark Kuta is passionate about anything with wheels — as long as they roll. These days, after nearly half a century and millions of miles watching the road fly by underneath, Kuta's passion finds him tucked in his garage workshop designing and building custom motorcycles.

The arrangement is quite amicable to Kuta who, after 15 years of driving a semi rig, lost his job when his employer closed his trucking business. Kuta concluded that his 18-wheeling career was over. Finally he could find more time for his cycle creations.

Already invested in a power-wash side business, Kuta knew the



Kuta's two sons share his love for speed. Kuta's latest creation pays tribute to Kyle, 26, who just returned from his third tour with the U.S. Army in Iraq.



Mark Kuta has a passion for anything with wheels. As a partner in Rooter-Man of Michiana in Rolling Prairie, Ind., Kuta's first love is designing and building custom motorcycles. (Photos courtesy of Mark Kuta)

operating mechanics essential for servicing sewers. So he expanded his business and in 2000 partnered in a Rooter-Man franchise.

Rooter-Man of Michiana services sewers in Rolling Prairie, Ind., and that means helping clientele from rural neighborhoods where people occasionally find themselves in a "situation."

Kuta observes, "Calling the sewer man is not something you wake up thinking you're going to put on your day's to-do list. Usually, by the time someone calls me, they're already on the verge of an emergency."

## Bending metal

When not rescuing a clogged sewer, Kuta can be found where he's most content: in the garage fashioning old metal into new. He may claim an hour here and there during the day to revisit a project, but sometimes he can't find time for a week or longer.

"Eventually though, time finds me," he says. Kuta admits not much can keep him from recycling junk motorcycles or fashioning originals from virgin metal. And not just

**"People might say, 'What is this crazy orange thing? They've never seen anything like it! Maybe I'll still be wearing my work shirt with the Rooter-Man of Michiana logo on it. So I'll stop and chat and talk with people. The next time they have a sewer problem, they remember my name.'"**

**Mark Kuta**

motorcycles: Kuta can build or improve just about anything on wheels. One recent creation is a completely hydraulic truck that can be lowered to sit flush to the ground.

At age 55, Kuta isn't ready to stop riding on the seat of his pants. As collector of a garage-warehouse full of many "varied things that roll," including his first creation, a bicycle he built at age 12, Kuta is still most comfortable on the seat of a motorcycle.

A favorite ride is his newest custom-built bike with a rear tire bigger than a car's. The bike's bright orange paint reminds Kuta of the factory-orange snowmobiles he raced in his younger years.

Kuta likes to envision something new each time he builds a motorcy-

cle. Often, he melds the old and the new. He's supported by long-rooted values and lessons learned from growing up in a Midwest family as one of nine siblings. As second oldest, Kuta learned survival basics early. "Back then you couldn't afford to buy new every time something broke, so I just learned to fix things out of necessity," he says.

"If you didn't have the right things to make it work, you cobbled around until you found something that would work." Over the decades, Kuta has learned almost everything there is to know about the art of cobbling motorcycles.

## Best of two worlds

Kuta's varied skills, work ethic, persistence and an enviable collection of tools are assets to him as an

owner and operator of a business where "things like to go wrong." Maintaining sewer cleaning equipment and keeping it in good repair is crucial in keeping customers' sewers and drains working. Kuta considers himself fortunate to be able to use his diverse skills and know-how.

He claims combining business with pleasure can make for the best advertising there is. He is his own best example: On the custom cycle, he skims through the countryside of rural northern Indiana. When Kuta parks his bike along any street in any nearby town, he draws curious onlookers like moths to light.

"People might say, 'What is this crazy orange thing?' he says. 'They've never seen anything like it! Maybe I'll still be wearing my work shirt with the Rooter-Man of Michiana logo on it. So I'll stop and chat and talk with people. The next time they have a sewer problem, they remember my name.'"

#### Still riding

Kuta and his wife, Bev, have been married for 37 years. He jokingly credits the success of this "long and happy union" to one attribute: the garage. "Seriously," he says, "I'm

very fortunate my wife and I share the same interests."

The Kutas have been active in motorcycle clubs and organizations and still take part often in charity events and tours, taking to the road in their Honda Gold Wing motorcycle. "Bev and I have ridden together many, many miles across the whole country," Kuta observes.

The Kutas have two adult sons. Kevin, 36, lives in California, and Kyle, 26, just returned from his third tour with the U.S. Army in Iraq. Both sons inherited their father's passion for building, driving and racing. "Motorcycles, cars, trucks, go-carts, snowmobiles, skateboards — you name it," Kuta says. "As long as it has wheels!" ■

*After Hours is an occasional feature that describes how business owners reconcile work life with family, leisure time, charitable pursuits, and personal interests and passions. Cleaner welcomes story ideas. If you take part in something interesting outside work, or if you know someone in the cleaning business who does, please send a note to editor@cleaner.com.*

## BACK FROM A NIGHTMARE

Mark Kuta can claim more than a million miles of cross-country travel in everything from an 18-wheel semi-truck to a unicycle. An avid motorcycle hobbyist, he has a driving and safety record as immaculate as they come. He claims he hasn't had a citation or caused an accident for 40 years.

But in a metallic twist of fate, and in spite of his meticulous driving, Kuta found himself at the tragic end of an accident in 2005. Riding alone on his Honda Gold Wing motorcycle, he was hit by a motorist who missed a stop sign. His injuries left him in a wheelchair.

For more than a year, Kuta lived a motorcyclist's nightmare: unable to walk unassisted, painful rehabilitation therapy, sleepless nights and, worst of all, uncertainty if he would ever ride again.

The real therapy after the accident took place during the countless hours spent in the garage. His injuries had made it difficult to focus on anything except to keep his hands busy. He did that by building custom parts for his Pro Street model cycle.

The wheelchair couldn't disable Kuta from visualizing the design that would bring his bike to life. As his motorcycle began to take shape, he visualized himself riding it out the door and into the orange morning sun. In mid-2006, Kuta's custom-designed motorcycle was complete, and he decided that his rehabilitation was too: He stepped out of the wheelchair and rode out on his bike.

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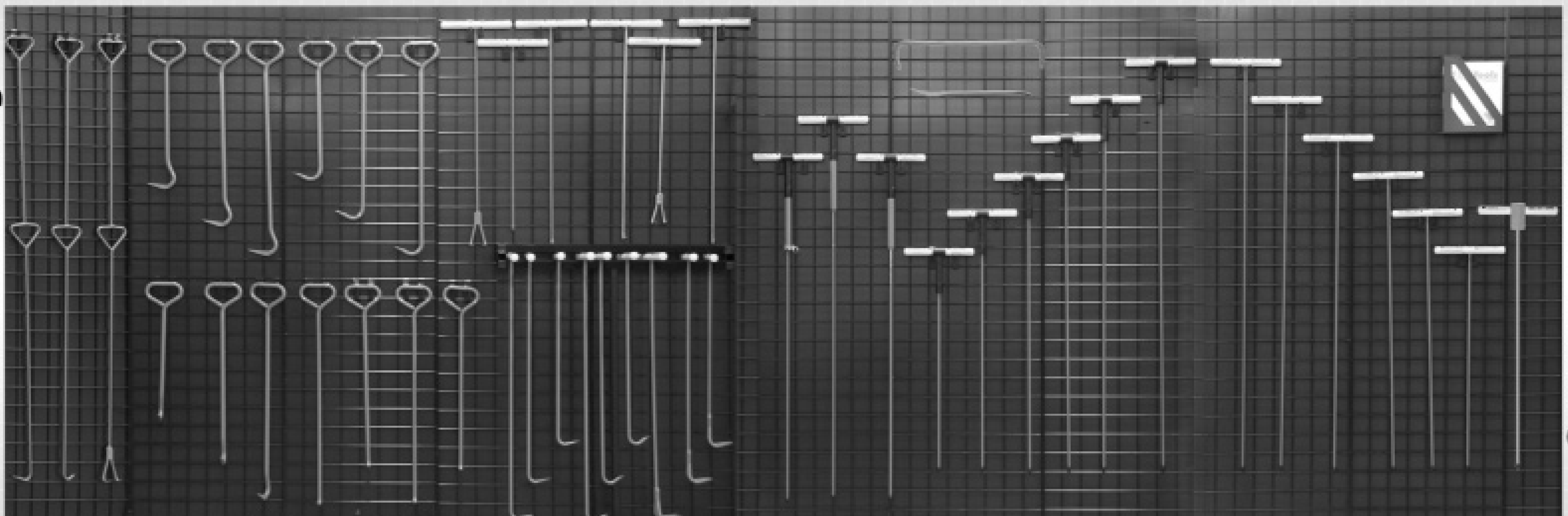
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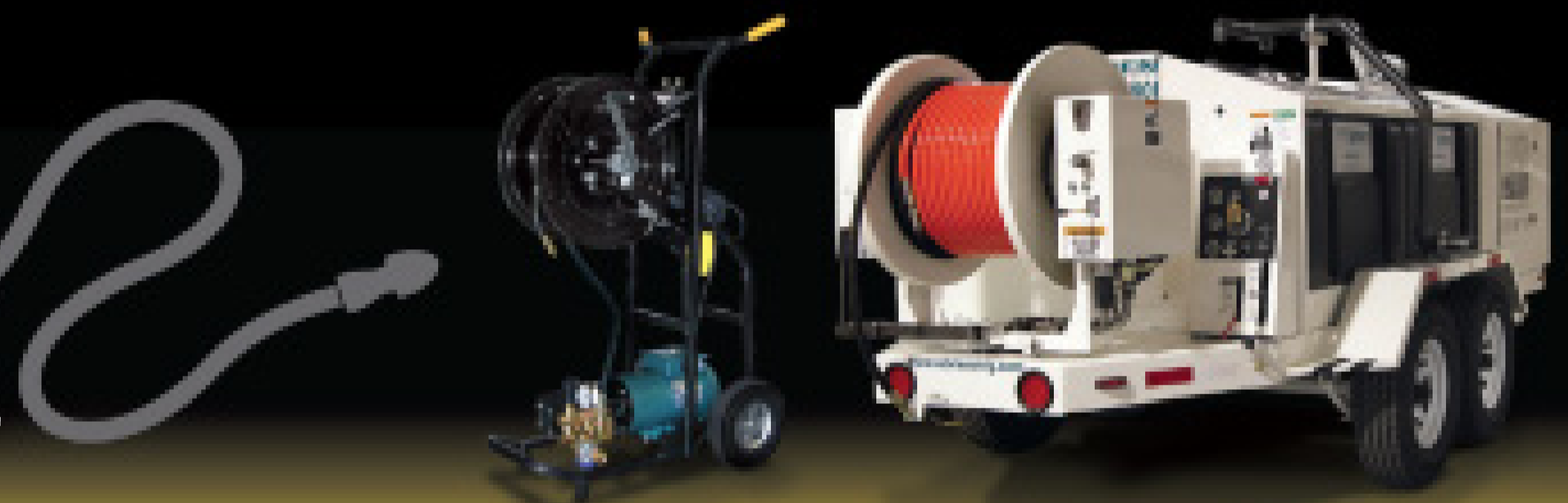
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## Cats and Carats

**Roto-Rooter franchisees report two high-value rescues in one week**

In a single week in April, Roto-Rooter outlets made two unusual and much appreciated rescues, according to Paul Abrams, public relations manager.

On April 22, Roto-Rooter plumber Gary Morford was called to the home of Margaret Clark of Anderson Township near Cincinnati, Ohio. After cleaning her 4-carat diamond ring, a 20th anniversary gift from her husband, she left the ring on the sink wrapped in tissue to dry.

When she returned later, she grabbed the tissue, ring and all, threw it into the toilet, and flushed it down. She instantly realized her mistake and panicked, thinking the ring was gone for good. Then she called Roto-Rooter.

Morford used a line camera to inspect her mainline. Within minutes, Clark spotted her ring on the video monitor, deep inside the pipe. Morford pinpointed the location of the ring. He had to break concrete in the basement floor to reach it, but

he was able to recover it.

On April 26, a family called Roto-Rooter in Harrisburg, Pa., to help find their lost cat, Bud. The cat had gone missing four days earlier and was thought to be gone for good, until the family heard faint meows coming from a downspout vent on the side of the house.

Neighbors and a fire and rescue crew tried to locate the cat, to no avail. When Roto-Rooter Dave Jones arrived, he found that the home's downspouts were routed underground and that the pipe extended about 200 feet into nearby woods. Jones fed a line camera into the pipe and found Bud stuck at a junction about 120 feet in.

With a little digging, Jones set Bud free. After four days in the pipe, he had lost some weight and was a little dehydrated, but he was soon doing well. An hour after the rescue, a thunderstorm dropped so much rain on the area that Bud surely would have drowned. ■



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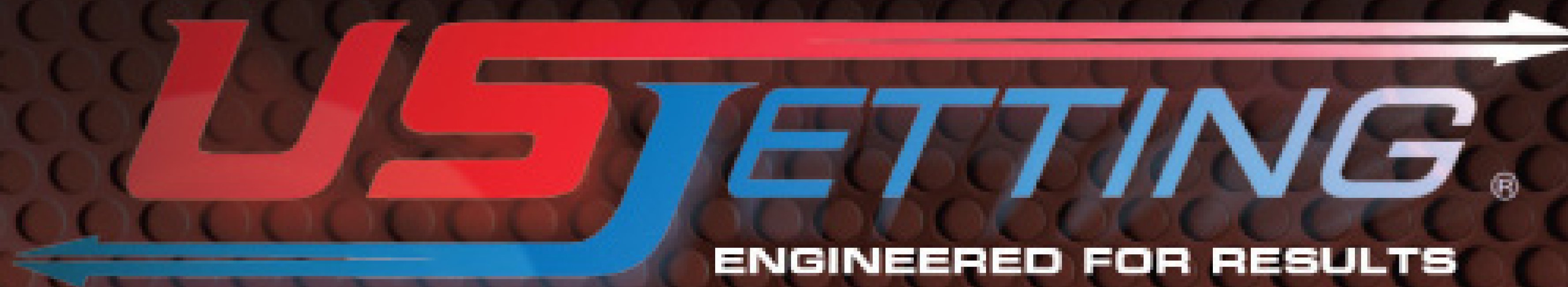


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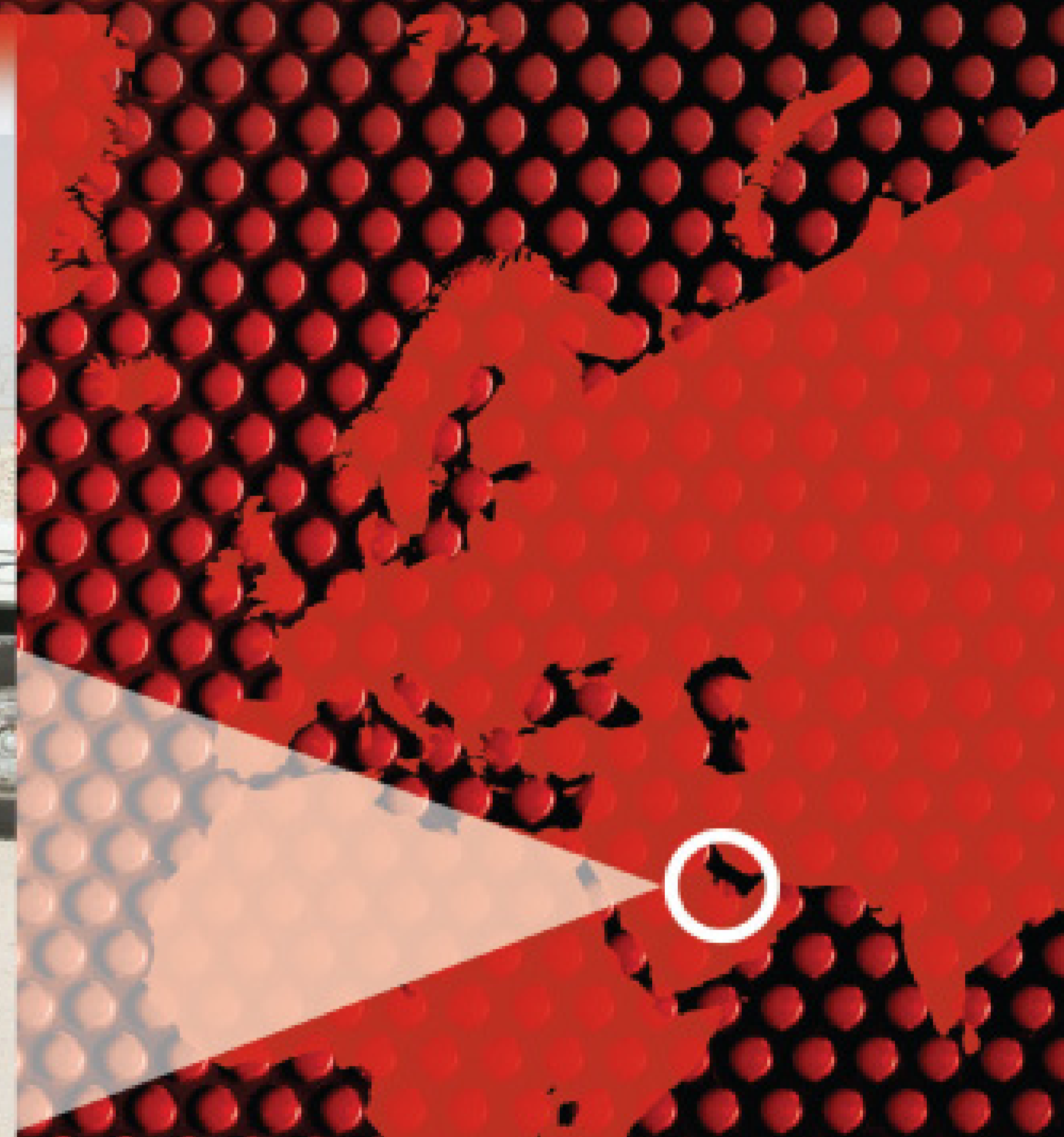


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# It All Adds Up

**Cube-body trucks stand out with bright yellow highlights, complete equipment, a large spare-parts inventory, and a technician-friendly design and layout**

By Ken Wysocky

**W**hen the time came for Alan O'Neill and his partner to name their drain cleaning and plumbing company in Houston, Texas, in 2003, they were at a loss for words. So O'Neill reached for a dictionary.

## MONEY Machines

"I was looking for an alphabet-friendly name, which is still an advantage in many ways," says O'Neill, now sole owner. "The word 'abacus' was the first I came to that made any sense. And right away, the slogan came to me, too: You can count on us."

The name and slogan for Abacus Plumbing Co. were serendipitous, but the comprehensive marketing campaign they spawned, centered on sleek Isuzu NPR trucks with fiberglass cube bodies from Morgan Corp. USA, is entirely calculated.

The eight trucks (2003 to 2006 models) demonstrate the power of branding. First, there's the Abacus logo, the name in bright yellow, and yellow abacus beads on a wire below it. The yellow in the name is reflective, so it stands out, especially at night.

"The colors are so different and the name is so unusual that people remember seeing them," O'Neill says. "We track calls to see where the business comes from, so we know the trucks generate about \$10,000 a month."

The trucks' eye-catching appearance also makes it seem as though

Abacus has more trucks than it actually does. "If people recall seeing the trucks three or four times a day, they think we must have a lot of trucks," O'Neill says. "It's an advantage if people think you're a bigger company, because they'll call you, figuring they'll get faster service from a company with a lot of trucks on the road."

Abacus advertises on radio, TV and the Internet, as well as by direct mail. And the trucks play an important role.

"On our television ads, for instance, we show one of our trucks pulling up to a house," O'Neill says. "We like to push that image."

Abacus chose fiberglass bodies because they're seamless, with no

extrusions — a perfect canvas for the company logo.

"We're very fussy about the trucks' appearance," O'Neill says. "We want them to look as nice as possible. Our technicians are required to wash their trucks a couple of times a week."

The trucks also serve as ware-

houses on wheels for the company's mainly residential drain cleaning and plumbing services. Each truck carries about \$6,000 worth of plumbing repair parts, reducing back-and-forth trips to a supply warehouse. Parts are organized in a custom storage system with small, medium and large bins.

## MONEY MACHINES

<b>OWNER:</b>	<b>Abacus Plumbing Co., Houston, Texas</b>
<b>FUNCTION:</b>	Drain-cleaning service vehicle
<b>VEHICLE TYPE:</b>	Isuzu MPR chassis with Morgan Corp. USA fiberglass cube body
<b>PRIMARY EQUIPMENT:</b>	Two drain-cleaning machines from Spartan Tool LLC, RIDGID handheld drain cleaner, \$6,000 in parts
<b>COST:</b>	\$50,000 fully equipped
<b>WEB SITE:</b>	<a href="http://www.abacusplumbing.net">www.abacusplumbing.net</a>



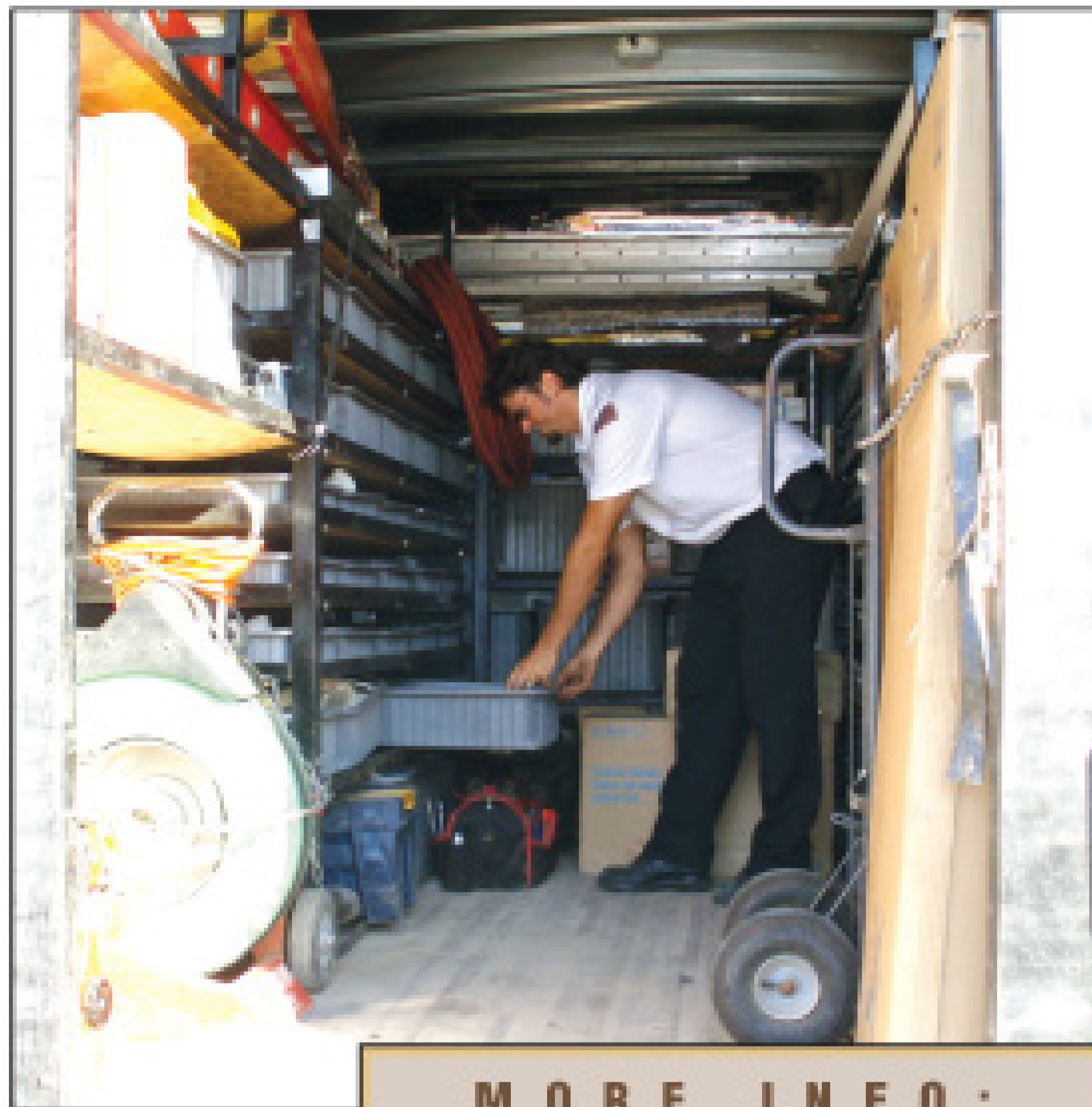
Each Isuzu NPR truck features a fiberglass cube body from Morgan Corp. USA that clearly displays the Abacus name in bright yellow along with attention-grabbing yellow abacus beads on a wire below. The yellow in the name is reflective, so it stands out, especially at night. (Photos courtesy Abacus Plumbing Co.)

Each service vehicle is set up identically so if one is in for repair, a technician can find everything in the same spot.

Each truck is set up identically. "That way, if we have to flip-flop technicians because, say, a truck is in for repairs, any technician can go and find everything in the same spot," O'Neill says.

Each truck carries Model 1065 and Model 100 drain-cleaning machines from Spartan Tool LLC and a RIDGID K-39 handheld drain cleaner. The company also owns three Spartan video-inspection systems that rotate among the trucks as needed.

"Our technicians love the trucks," O'Neill says. "The cube body gives them enough headroom to walk through the box while standing up straight. And a slide-out ramp allows them to easily wheel the drain machines in and out." The trucks require minimal maintenance while racking up about 30,000 miles a year.



**MORE INFO:**

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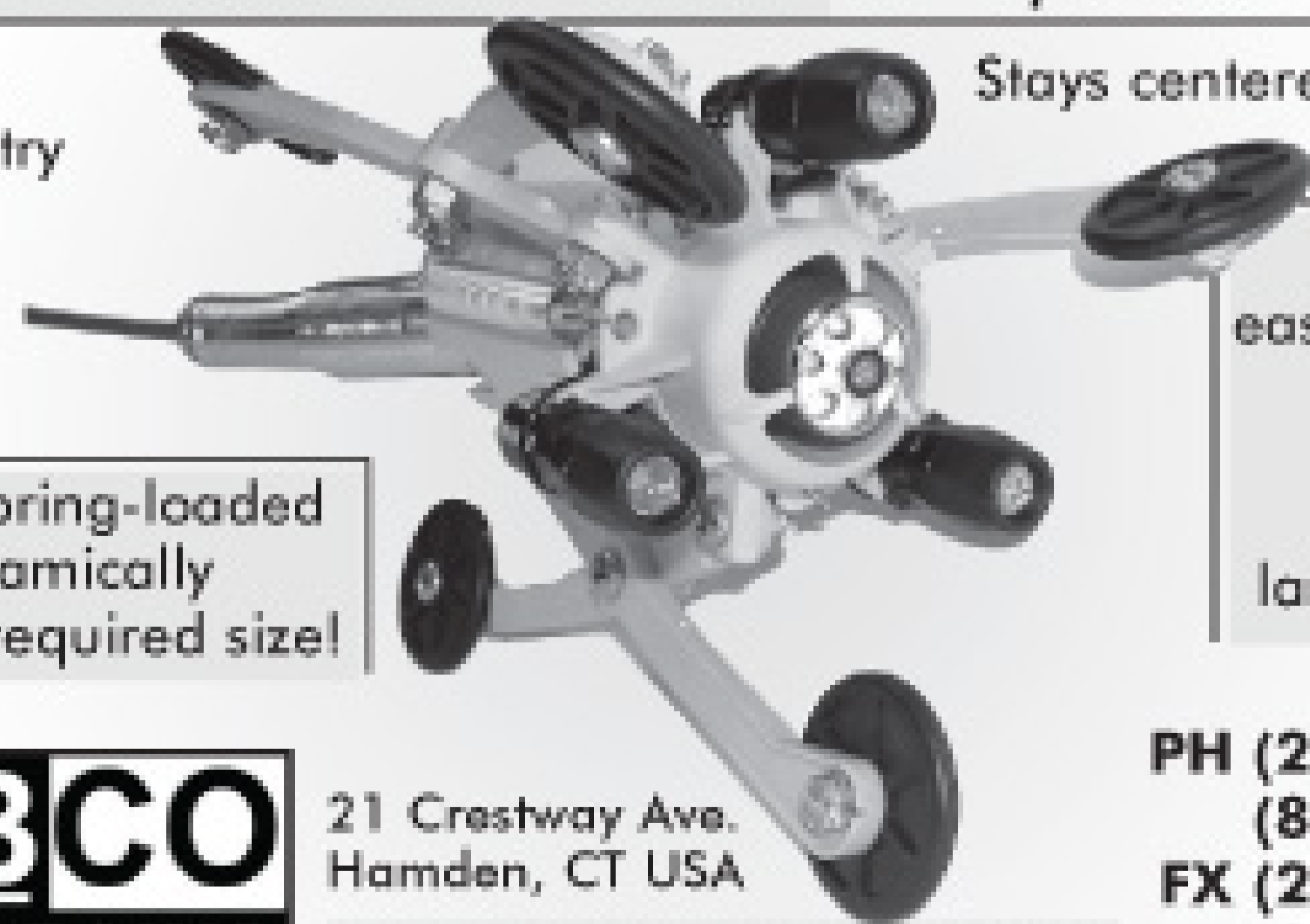
Convenience, productivity and powerful branding — it all adds up for Abacus. ■

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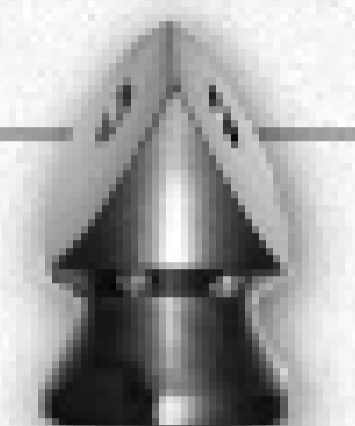
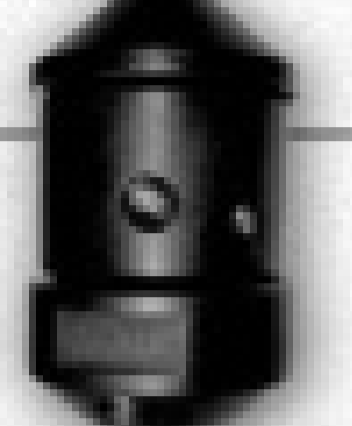
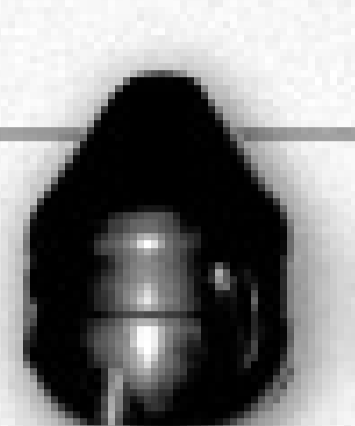
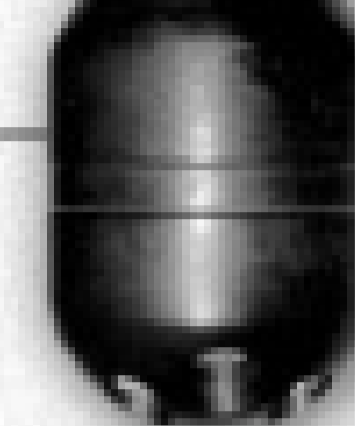
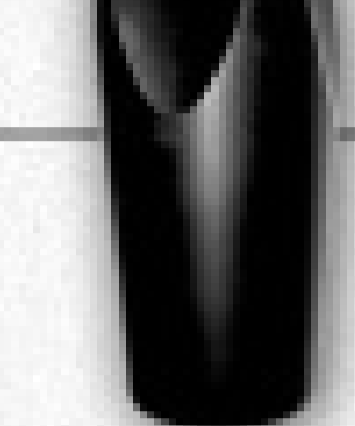
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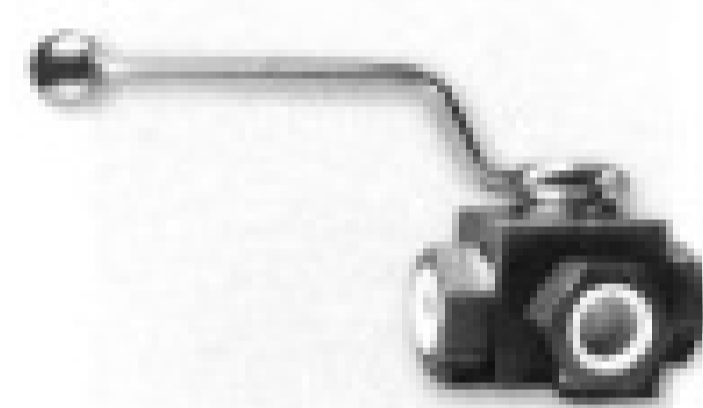
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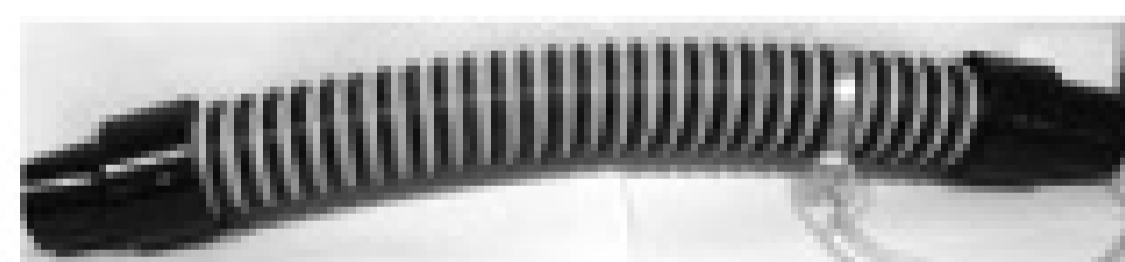
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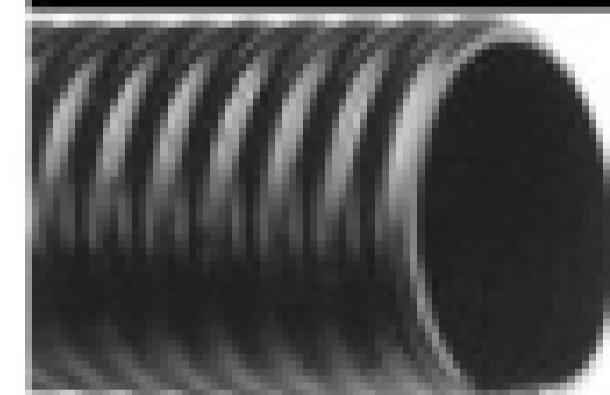


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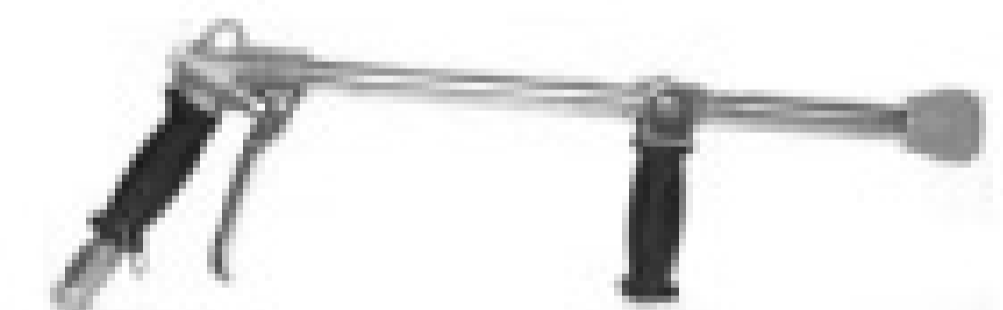
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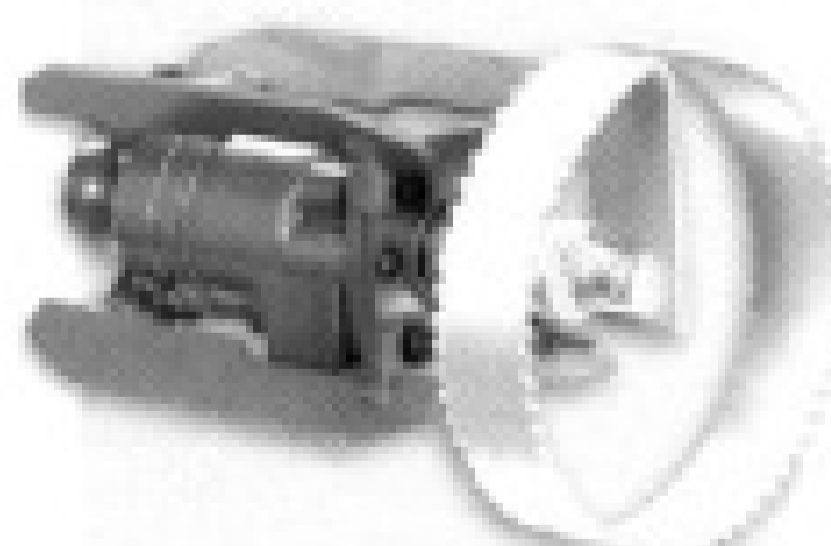
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# Successful Jetting

The NASSCO *Jetter Code of Practice* manual helps pipe cleaners choose the right equipment for the job and operate it safely and efficiently

By Michele Brier

Anyone in the trenchless industry knows that cleaning a sewer pipe requires significant knowledge and expert safety skills. Without these ingredients, serious accidents can occur.

That's why in 2006, the National Association of Sewer Service Companies (NASSCO) published the *Jetter Code of Practice* manual, a guideline for the safe and efficient use of sewer cleaning and jetting equipment. Now in its second edition, the manual helps users understand cleaning techniques, equipment selection, and general sewer and storm water operational practices.

The 58-page manual is designed for those who operate jetters and trains or supervises people who do. Authors include Barry Howell, vice president and general manager of KEG Technologies, Brad Dutruch of

factors and from in-house training. Crew members learned from supervisors, and information passed by word-of-mouth. While this approach to training is effective, NASSCO saw a need to augment it with written documentation beyond the operating manuals supplied by jetter manufacturers.

The manual is the first formal document for jetting and cleaning that standardizes terms and helps correct common misconceptions. It adds to the industry knowledge base and gives operators a quick guide to safe and efficient jetter operation.

"I have guys tell me all the time how valuable the *Jetter Code of Practice* has been for their job," says Irvin Gemora, NASSCO executive director. "From what I hear, this manual has led to many success stories and probably saved some lives, too."

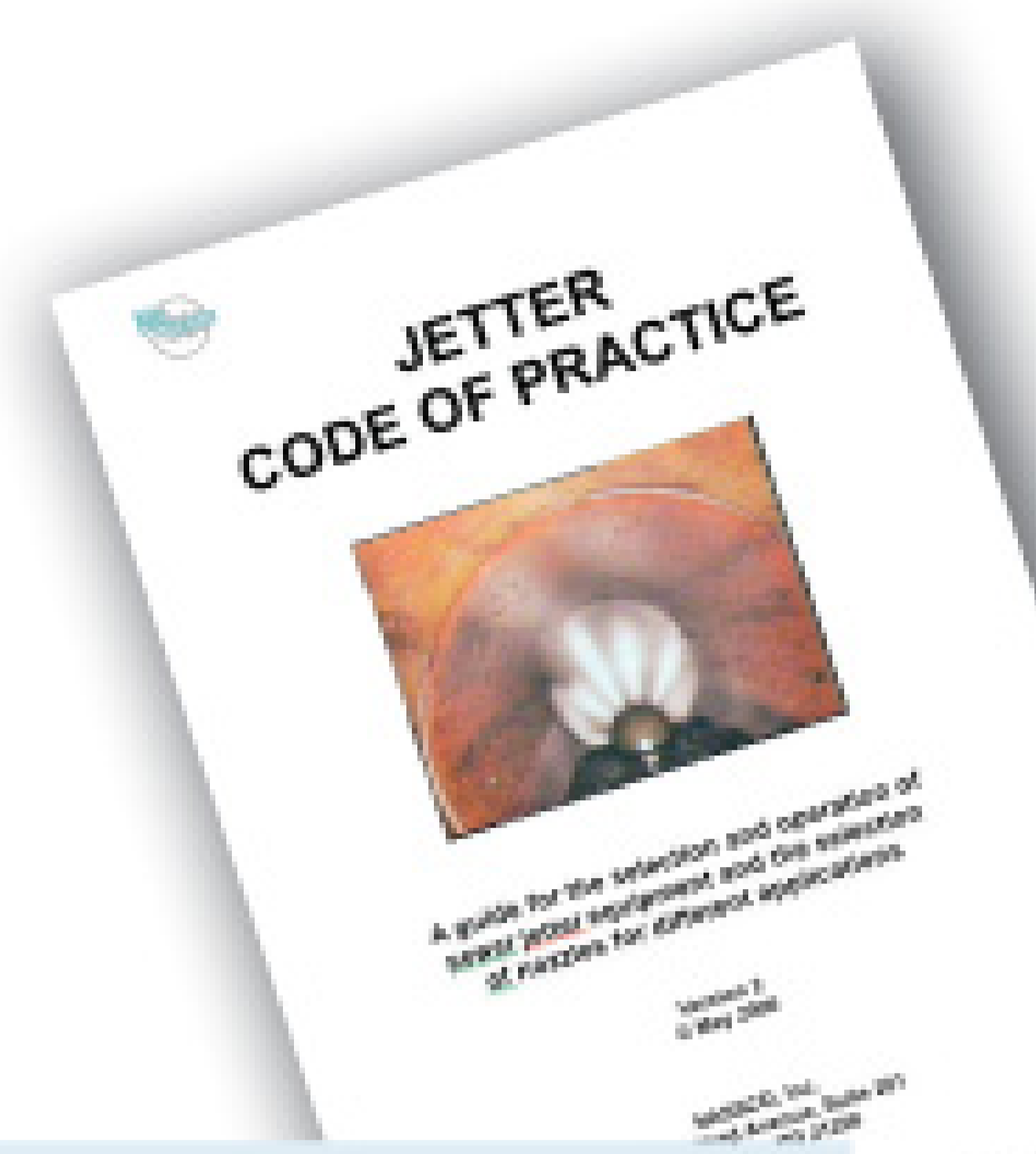
Divided into ten sections, the manual begins with an introduction and definitions of the jetting machines, nozzles, hoses, cutters and other equipment used in jetting. The other sections include:

**Pipelines and conduits.** This section describes the various types of collection systems, combined sewers, detention facilities and highway drains used in North America, and the types of piping material, including corrugated steel, high density polyethylene, and vitrified clay.

**Guidance on pipeline installation and repair.** Many internal and external conditions can cause a pipe to malfunction and need repair. Examples include pipe material defects, soil conditions, installation problems, joint failures, and materials flowing in the pipes. This section identifies some common causes and effects and possible solutions for remediating these problems. Sewer equipment operators must be aware of the problems before cleaning so as to avoid making problems worse

or losing or damaging cleaning tools, cameras, or other equipment. These techniques are also useful when a project requires point repairs or pipe replacement.

**Maintenance and line cleaning.** This section identifies debris found in pipelines, how it gets there, and techniques for removing it. Roots and vegetation are found in pipes where a joint has separated or



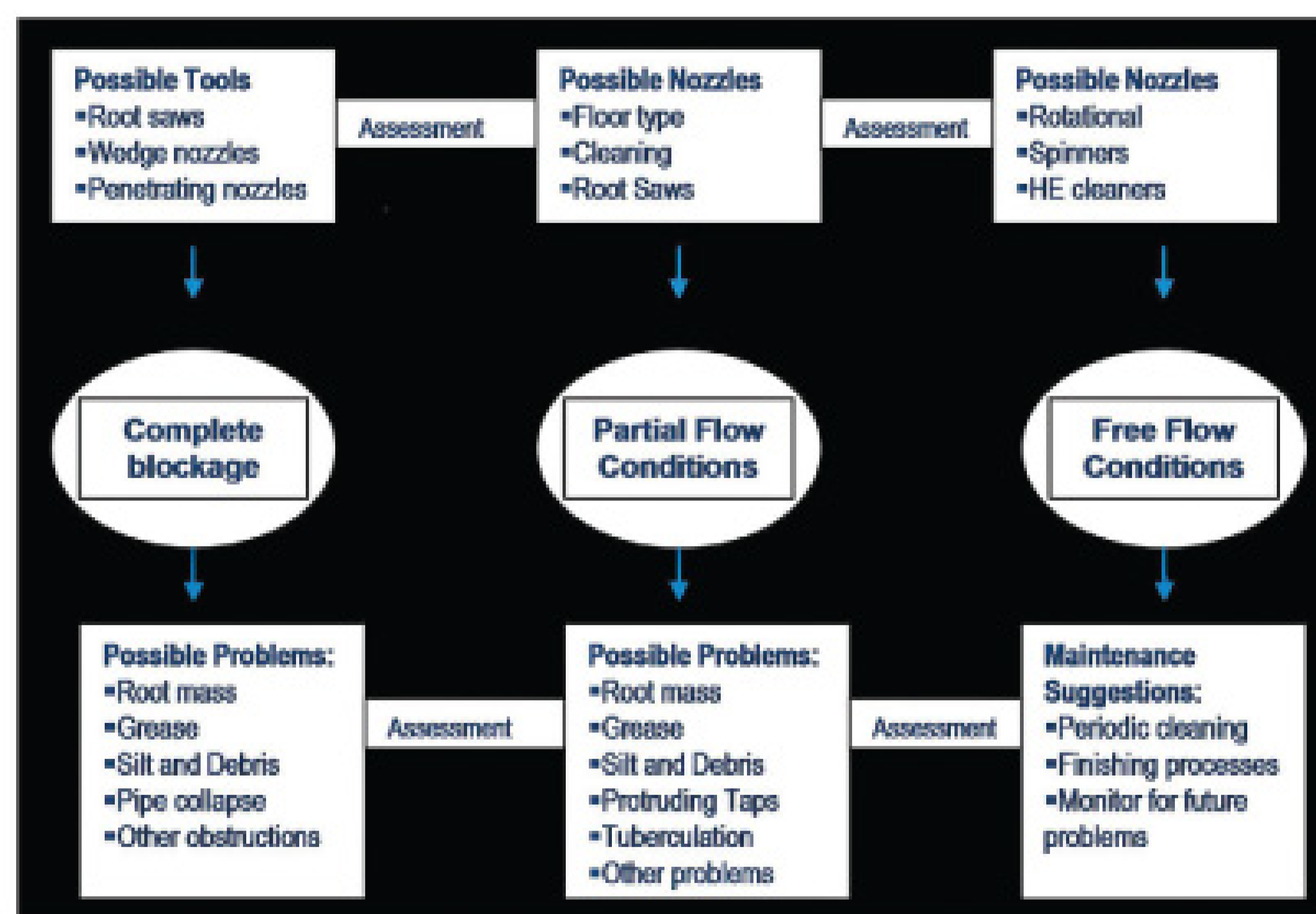
Tech Perspective looks at technology-related issues and provides information and advice that cleaning professionals can apply to equipment selection and to their daily work in the field. Industry members are welcome to offer ideas for this column. Please direct them to editor Ted J. Rulseh, editor@cleaner.com.

**"I have guys tell me all the time how valuable the *Jetter Code of Practice* has been for their job. From what I hear, this manual has led to many success stories and probably saved some lives, too."**

**Irvin Gemora**

Compliance EnviroSystems, and Gerry Muenchmeyer, PE., NASSCO technical director. A peer group of industry professionals reviewed it before publication.

Before NASSCO published the manual, jetter operators and cleaning crews learned about the equipment and cleaning techniques from truck, trailer and nozzle manu-



This flow diagram from the NASSCO *Jetter Code of Practice* is an example of the advice found in this manual, published in 2006.

a crack appears in an access point or other opening. Grease, sand and debris are common in pipes. Operators must carefully monitor and manage the amount of debris removed from a pipeline. Large amounts of backfill material or pipe fragments can indicate a looming pipe failure and could mean the cleaning process should be stopped and a video inspection performed.

**Operating procedures for jetter trucks.** This section outlines practical issues to consider before and after blockage removal and during sewer cleaning. Jetter operators must understand the maximum

working pressures to use to avoid damaging the pipe. The pressure should be based on the pipe's structural condition, material and diameter, and the jetting equipment being used. Whenever possible, operators should ask the customer for complete information about the pipe location, size, material, condition and repair history before starting work on the line.

Topics in this section include jetting machine selection, types of nozzles, blockage removal, working from the downstream manhole, working from the upstream manhole, sewer cleaning, recommended

pressures, hold time, operation of jetting equipment, recording and reporting, jetter water usage, and disposal of debris.

**Explanations on various types of jetting equipment.** Just as a carpenter can't build a house with one tool, pipe cleaners need different tools for various functions. Jetting operators must look at the relationships of flows and pressures to the diameter of the pipe. These issues help determine what equipment to use for the project. This section addresses the efficiencies of various nozzle configurations, and differences in various nozzle applications (such as cleaning and penetrating). It also includes a matrix for selecting equipment appropriate to a specific job.

**Cleaning and blockage removal.** This section discusses cleaning and maintenance of sewer and storm lines as a process and offers guidelines to identify the best tools and techniques for each job (see the accompanying process diagram).

**Information on flows, pressures and jet angles.** This section

explains the least understood area of sewer jetting: the relationship between flow (gpm) and pressure (psi) and how they affect sewer jetting. Areas covered include hose size and selection, jet angles and the selection of cleaning tools.

**Equipment maintenance.** Operators are strongly advised to maintain recommended intervals for the maintenance, inspection, repair and replacement of key components. For example, high-pressure hose should be carefully monitored for nicks, cuts, and abrasions. Failure to inspect can lead to hose failure and serious injury or death.

**General safety.** This section outlines safety recommendations for equipment and personnel.

The *Jetter Code of Practice* can be purchased from NASSCO online at [www.nassco.org](http://www.nassco.org) or by contacting NASSCO operations manager Heather Myers at [heather@nassco.org](mailto:heather@nassco.org) or calling 410/486-3500. The price is \$50 for NASSCO members and \$100 for non-members.

*Michele Brier is public relations representative for NASSCO. ■*

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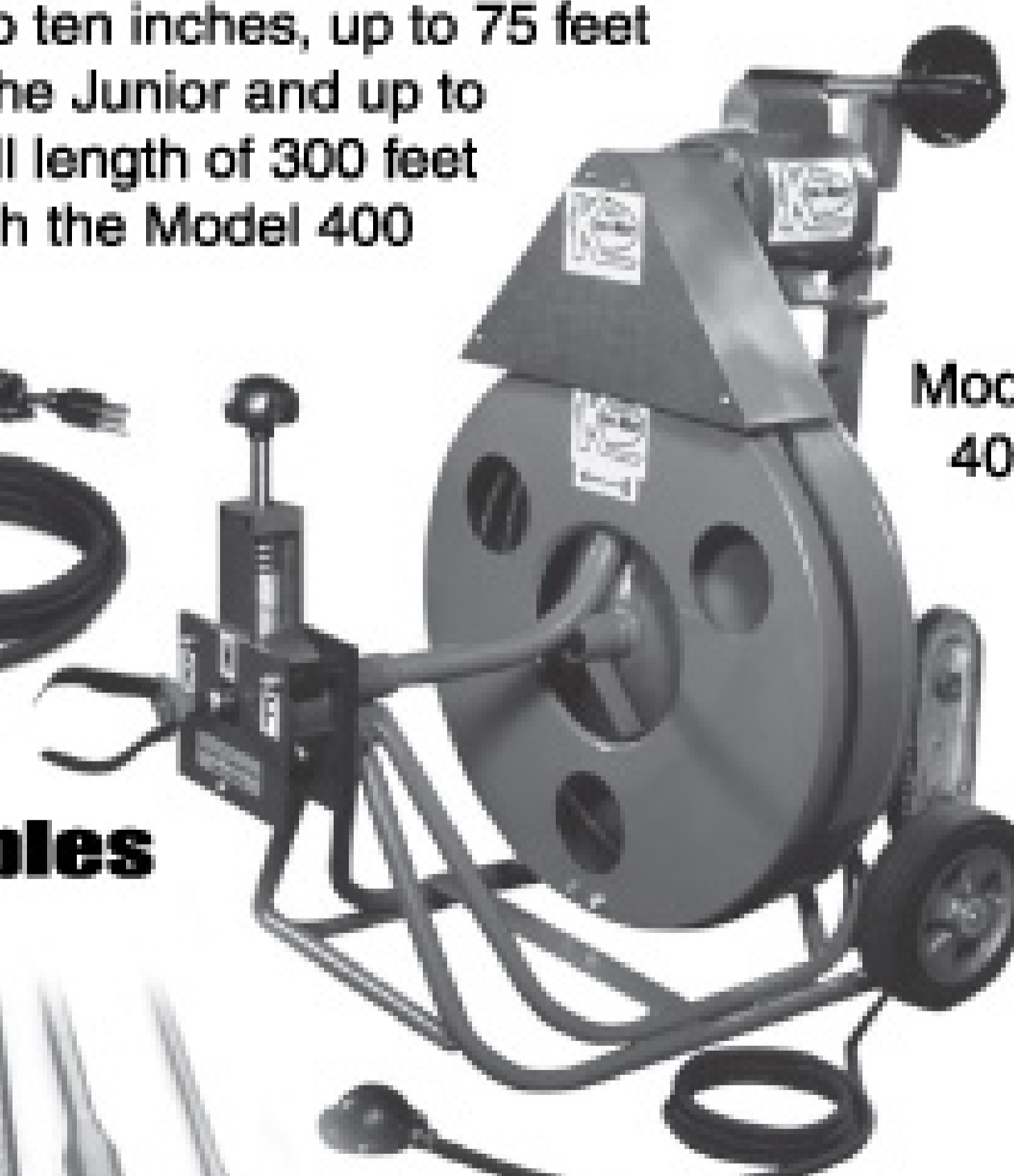
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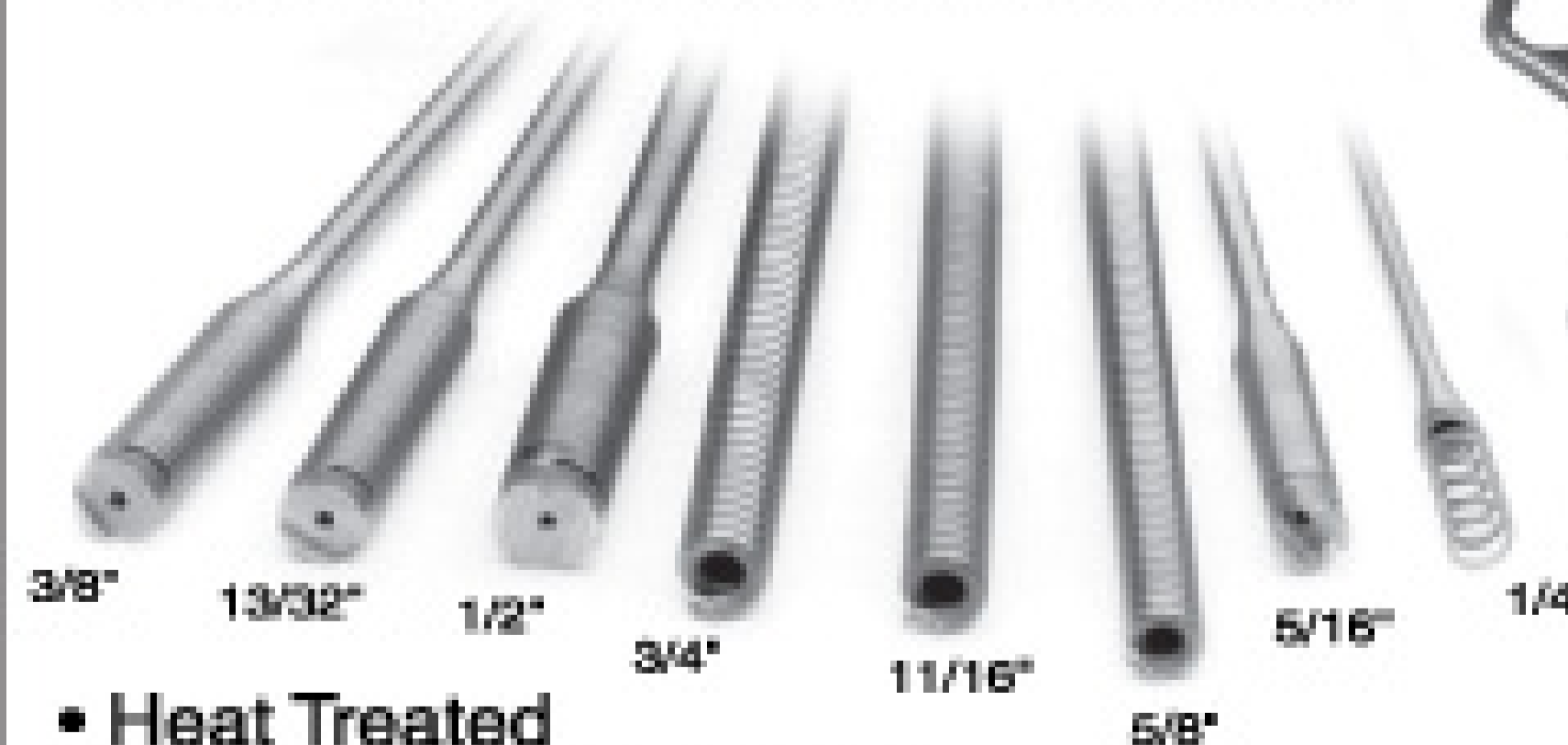


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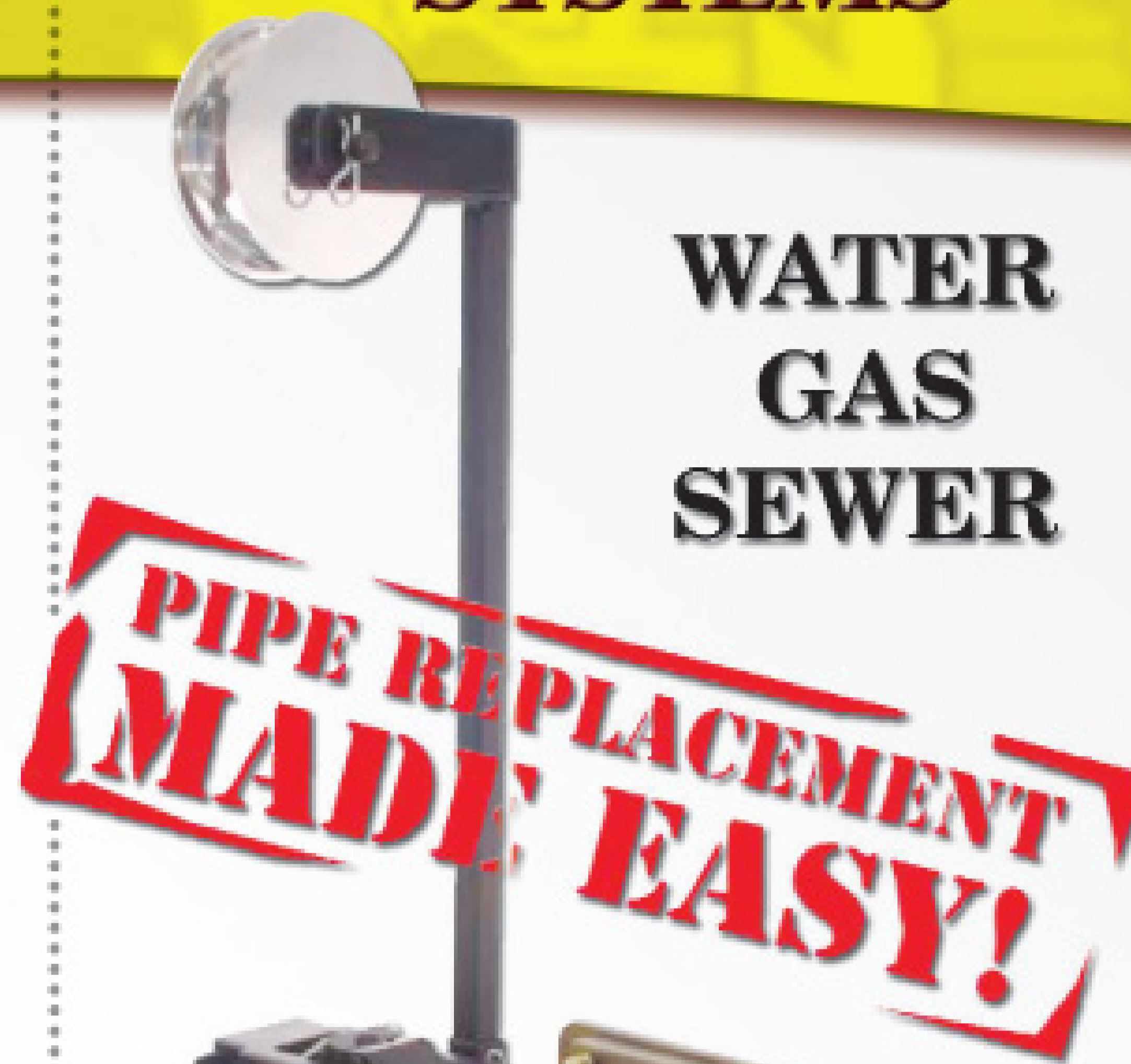
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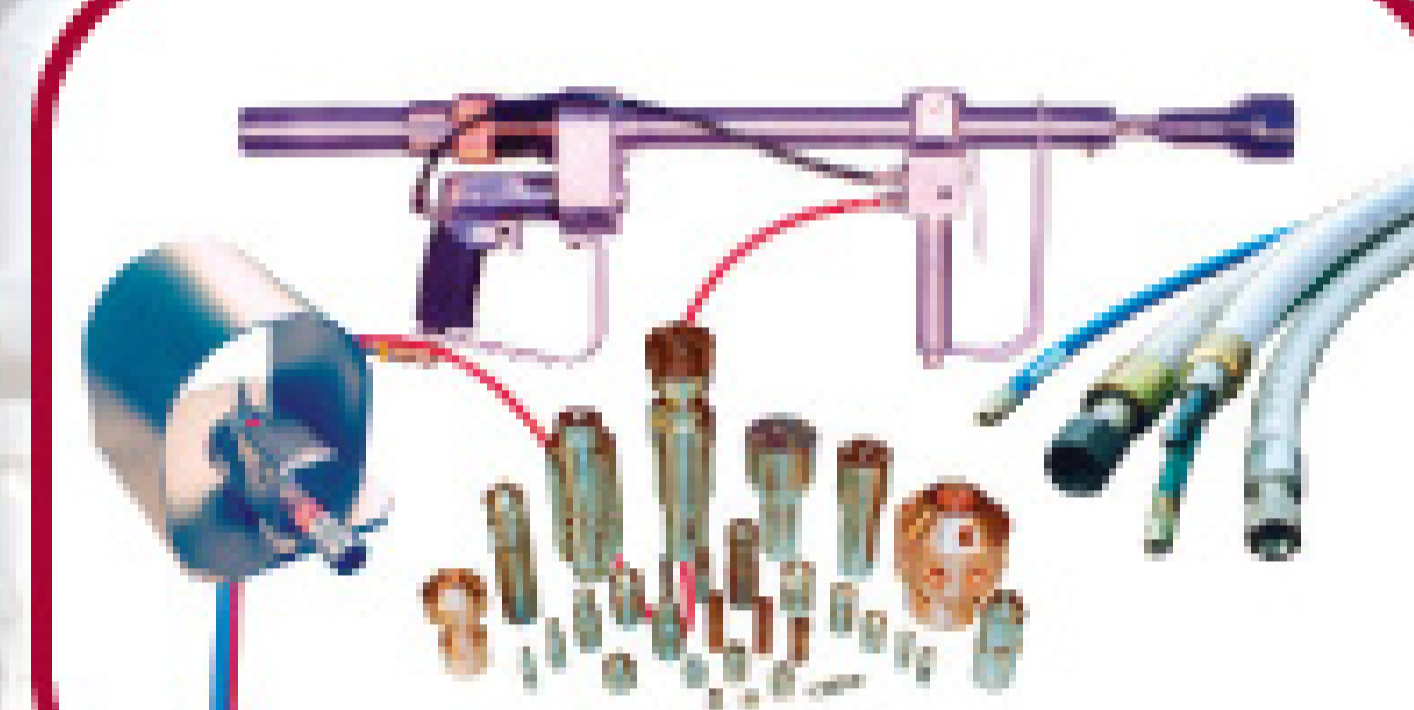
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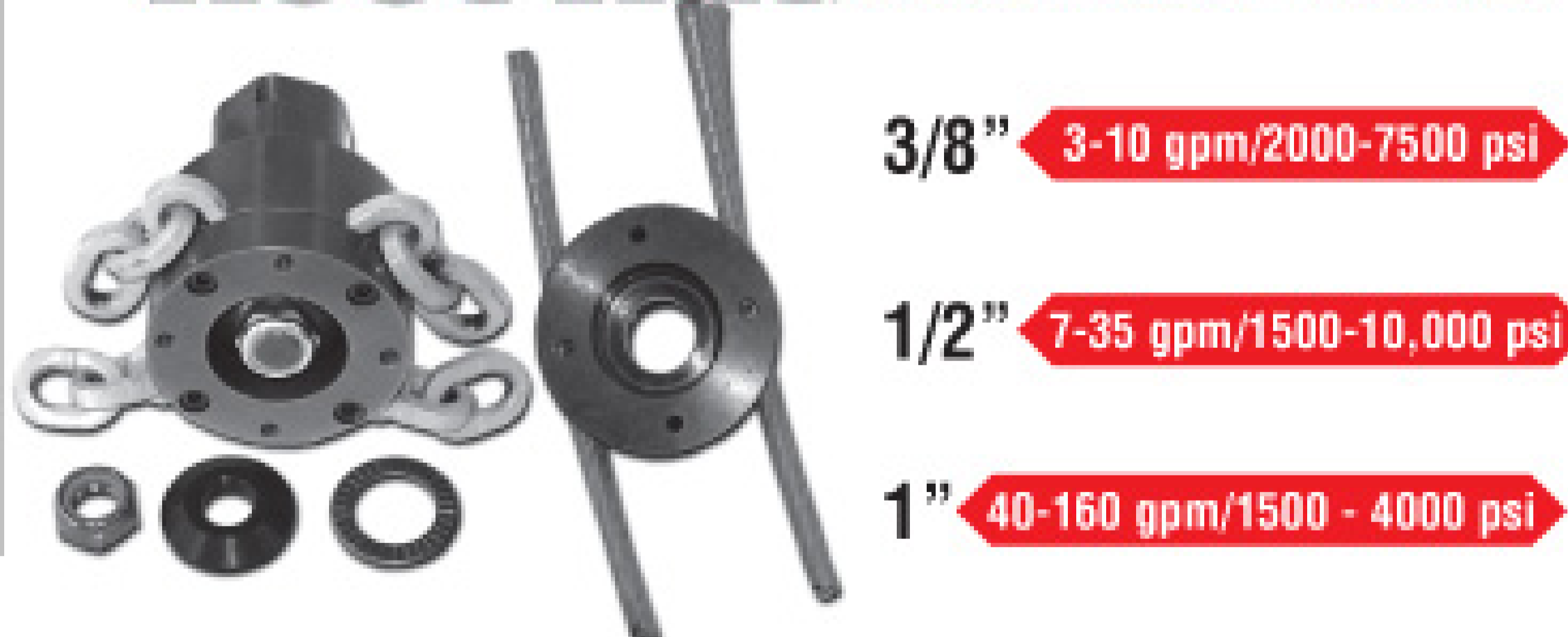
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# Water on Wheels

Manufacturers offer advances in trailer waterjetters that let contractors bring big cleaning power to the jobsite

By Ted J. Rulseh



When the job is too big for a portable jetter and not big enough for a high-powered truck-mounted unit, trailer jetters perform admirably. Today's trailered units provide ample cleaning power, often in compact and maneuverable packages for working in close spaces. Here is a rundown of some of the latest innovations in waterjet power on two wheels.



Model 184 from Mongoose Jetters

## Heavy-duty output

The **Model 184** waterjetter from **Mongoose Jetters** delivers 18 gpm at 4,000 psi and carries a 300-gallon water tank. Power comes from a 50-hp

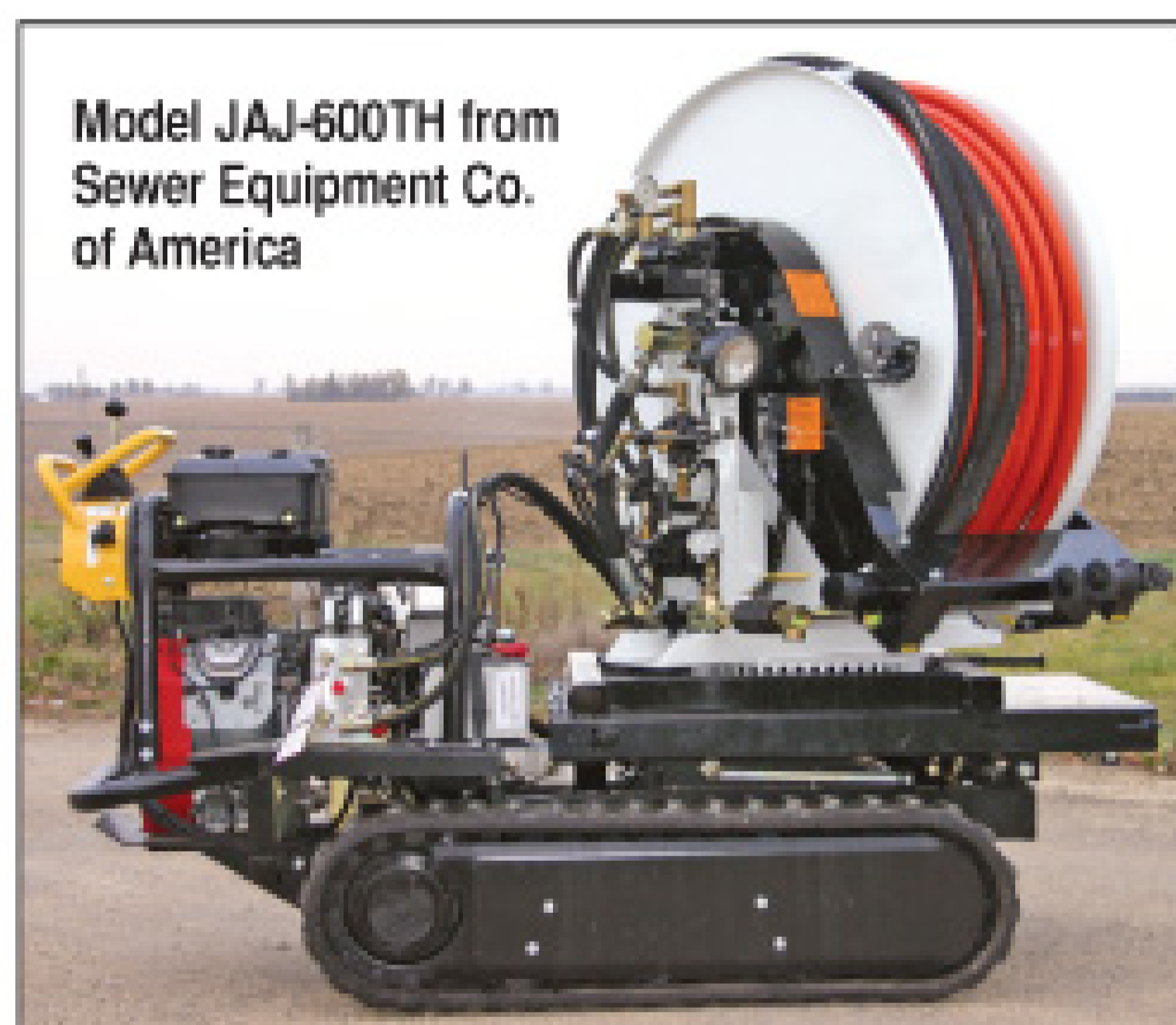
diesel engine. The hose reel is built with 1/4-inch-thick steel to withstand maximum working pressures. An industrial rotation bearing provides smooth rotation. The reel holds 600 feet of 1/2-inch cleaning hose.

Controls are contained in a weatherproof NEMA 4 control box. An optional Smart Counter footage counter delivers accuracy within one percent. Wireless remote control is available for one-man operation. The frame is built with tubular steel and a 6,000 pound rated axle for durability. **Call 841/729-3316 or visit [www.mongoosejetters.com](http://www.mongoosejetters.com).**

## Easement jetter

The **Model JAJ-600TH** easement machine from **Sewer Equipment Co. of America** is equipped with a track system for travel into adverse conditions. A standard auxiliary tool circuit lets users add a variety of hydraulic work tools. The unit is compact enough to fit through a 36-inch gate.

The unit is available with a gasoline or diesel engine. It has a 4-wheel-drive system with 360-degree turning. The rotating and articulating hose reel is removable. The hose reel controls operate in forward, neutral and reverse. Options include a hydraulic dump box, dual wheels and rims, hydraulic root cutter, electric hoist, and transport trailer. **Call 847/729-3316 or visit [www.sewerequipment.com](http://www.sewerequipment.com).**



Model JAJ-600TH from Sewer Equipment Co. of America

## Right-of-way machine

The **Prowler** waterjetting system from **3T Equipment Co.** is a vehicle for cleaning pipes in hard-to-reach off-road locations. It has a 4-wheel hydraulic direct-drive system, a 180-degree rotating reel, with capacity for 600



Prowler from 3T Equipment Co.

feet of 1-inch hose, and variable hose reel speed control. The unit is powered by a 20-hp Honda engine with built-in 5-gallon fuel tank. Tires are standard; a track system is available as an option. **Call 800/969-3001 or visit [www.3tequipco.com](http://www.3tequipco.com).**

## Made for large lines

The **J-2512 Typhoon** trailer jet from **General Pipe Cleaners** is designed for clearing large lines with high water flow and for remote jobs far from a water source. The unit delivers 12 gpm at 2,500 psi to clear lines of grease, sediment, and debris. The 200-gallon tank carries enough water to handle applications where access to water is limited.

A 24-hp Honda engine with electric start powers the pump, which has a Vibrapulse system by way of a 2-to-1 V-belt reducer. Two hose reels — a jet hose reel with 400 feet of 1/2-inch hose featuring electric rewind, and a supply hose reel carrying 150 feet of 3/4-inch hose — are mounted at the rear of the unit next to the pressure gauge and output valve. Engine controls, including an hour meter, are mounted within easy reach in the lockable toolbox with sliding doors just below the reels. **Call 800/245-6200 or visit [www.drainbrain.com](http://www.drainbrain.com).**

## Big and versatile

The **7040-SC** hydrojetter from **O'Brien Mfg.**, a product of Hi-Vac Corp., is designed for professional day-to-day cleaning with versatility to work in a wide range of pipe sizes. It carries a plate-mounted 700-gallon polyethylene water tank with sump and side baffles, crowned top and side stabilizers for strength, and a



7040-SC from O'Brien Mfg.



190-degree-pivot Swinger reel that makes it easy to access the manhole no matter how the unit is parked.

The triplex pump delivers 40 gpm at 2,000 psi. A 65-hp Cummins diesel engine is standard, as are Murphy safety gauges with auto-shutdown and a variable electronic control throttle. The reel holds 750 feet of 3/4-inch high-impact thermoplastic sewer hose. The tandem-axle trailer has a 6-inch channel frame and two 6,000-pound DOT-rated axles. Penetrator and flusher nozzles are included. **Call 800/638-1901 or visit [www.obrienmfg.com](http://www.obrienmfg.com).**



2000TR from SRECO-FLEXIBLE Inc.

### High horsepower

The **2000TR** jetter from **SRECO-FLEXIBLE Inc.** has a 124-hp Ford 6-cylinder gasoline engine, driving an FMC pump that delivers 65 gpm at 2,000 psi. It carries a 300- or 600-gallon steel or poly water tank and a reel with capacity for 1,000 feet of 1-inch jetting hose.

The trailer has dual 6,000-pound axles and hydraulic brakes. Standard equipment includes an emergency reel crank, washdown gun with 25 feet of hose, choice of two radial nozzles, low-water warning light, water-level sight tube, flush control panel, key ignition, and engine temperature, oil pressure, water pressure and hydraulic pressure gauges. **Call 800/421-6536 or visit [www.sreco.com](http://www.sreco.com).**

### Quiet power

The **Warrior** waterjetter from **Spartan Tool LLC** is designed for cleaning pipes from 3 to 24 inches, delivering 18 gpm at 4,000 psi. Standard hoses include 500 feet of 1/2-inch high-pressure cleaning hose, 100 feet of 5/8-inch rubber supply hose, and 75 feet of 1/4-inch trap cleaning hose.



Warrior from Spartan Tool LLC

The jetter weighs 3,450 pounds empty and 5,940 pounds with its 300-gallon water tank full. It is powered by a 27-hp twin-cylinder water-cooled electric-start engine. The package includes one open and one closed stainless steel nozzle. Other features include electrically controlled pump pulsation to maximize cleaning distance, 180-degree pivoting hose reel with variable-speed power rewind, soundproofing system that exceeds OSHA noise standards, torsion single-axle suspension with electric brakes, power hose rewind, rear-mounted operator controls, wash-down gun, and locking toolbox. **Call 800/435-3866 or visit [www.spartantool.com](http://www.spartantool.com).**



Single Axle Jet from PipeHunter

### Large cleaning capacity

The **Single Axle Jet** from **PipeHunter** has an 18/15 gpm/4,000 psi water system driven by a Giant water pump and 83-hp Isuzu engine. The hose reel carries up 800 feet of 1-inch jetting hose. The 300-gallon HDPE water tank rides on a custom rolled 6-inch frame with continuous welds.

Features include an enclosed toolbox, safety lanyard, 15- and 30-degree nozzles with skid, tigertail hose protector, and 10-inch leader hose. Options

include a full engine, pump, hose and reel enclosure, articulating hose reel, Jet Eye camera system, and electric throttle. **Call 800/373-1318 or visit [www.pipehunter.com](http://www.pipehunter.com).**

### Hot-water cleaning

The **SK2511B** hot-water jetter from **Cam Spray** delivers 11 gpm at 2,500 psi. It includes a triplex plunger pump with ceramic plungers and stainless steel valves. For cold-water jetting, the unit carries 400 feet of 1/2-inch hose on variable-speed electric reel with remote forward and reverse foot switch. For hot-water jetting, it has 250 feet of 3/8-inch hose on a manual reel.



SK2511B from Cam Spray

The unit has a 300-gallon water tank with run-dry shutdown switch and a 2-inch hydrant fill. The burner for hot water runs on kerosene or diesel fuel. Other features include a 23-hp Briggs & Stratton engine, 2.5 kW onboard generator, power pulse valve, remote throttle control, lockable toolboxes front and rear, and two nozzle sets with box and tip cleaner. **Call 641/648-5011 or visit [www.camspray.com](http://www.camspray.com).**



Eliminator from Harben Inc.

### Compact unit

The **Eliminator** jetter from **Harben Inc.** is designed for high power in a compact package. The pump delivers 12 gpm at 3,000 psi and is powered by a 35-hp gasoline engine. The water tank carries 200 gallons. The electric hose reel with hose feed guide carries up to 250 feet of 1/2-inch high-pressure hose. The trailer has a single/torsion axle and electric brakes. A 6.7-cubic-foot poly toolbox provides storage space. **Call 800/327-5387 or visit [www.harben.com](http://www.harben.com).**



Sewerjet 700 from John Bean Sprayers

### Easy towing

The **Sewerjet 700** waterjetter from **John Bean Sprayers** require only one operator and is designed

for easy towing behind most pickup trucks. It includes a 700-gallon corrosion-resistant black polyethylene tank and a curbside fill-up with a standard 2.5-inch fire hydrant fitting. One operator can guide the hose, control the reel, operate the engine, and observe progress from a workstation at the rear of the unit.

The jetter carries 600 feet of 3/4-inch or 800 feet of 1/2-inch hose. Power comes from a 4-cylinder, 93-hp Ford water-cooled gasoline engine or a 4-cylinder John Deere water-cooled 80-hp diesel engine. The 3-piston pump delivers 40 gpm at 2,000 psi. **Call 800/241-2308 or visit [www.johnbeansprayers.com](http://www.johnbeansprayers.com).**

(continued)

Model 4008-110-200  
from US Jetting



### Customer options

The **Model 4008-110-200** trailer-mounted high-pressure waterjetter from **US Jetting** cleans sewers, drains and pipelines from 2 to 8 inches. The unit is a modular-component concept of heavy-duty, single-axle trailers for the mounting of selected pump sets. This allows customers to take part in designing and selecting a unit to match their performance and job requirements.

The jetter has a single 200-gallon water storage tank with additional structural capacity for selected engine, pump and hose reel systems. The frame is made of welded tubular steel with a powder-coated baked-on finish for durability. A single 6,000-pound-rated Torque-Flex axle with LT-235/75-16 tires with an electric brake system enables towing behind mid-sized service vehicles. Call 770/740-9917 or visit [www.usjetting.com](http://www.usjetting.com).

### Fully equipped

The **Model 2512** cold-water jetter from **Triple R Specialty** rides on a custom-built trailer with 15-inch tires and a 3,500-pound axle. A 27-hp Kohler Command Pro engine with electric start provides power. A triplex pump with thermal protection delivers 12 gpm at 2,500 psi from a 200-gallon water tank.



Model 2512 from Triple R Specialty

The unit carries 400 feet of 1/2-inch sewer hose on an electric auto-rewind reel and 100 feet of 5/8-inch supply hose on a manual reel. The nozzle kit includes stainless steel penetrator, flusher and rotating nozzles. Other equipment includes a flashing safety light, large locking toolbox, two traffic warning cones, and personal protective gear including gloves, safety glasses, safety vest and ear plugs for two workers. The unit is available in an enclosed trailer. Call 904/786-1826 or visit [www.triplerspecialty.com](http://www.triplerspecialty.com).

### High-powered

The **Dyna-Jet 20-4000J** trailer jetter from **Dyna-Vac Equipment** has a 66-hp John Deere diesel engine that powers a pump delivering 20 gpm/4,000 psi. It carries a 325-gallon polyethylene water tank and a hydraulic-powered, 180-degree swivel reel holding 500 feet of 1/2-inch cleaning hose.

The trailer has a 7,000-pound GVW and includes torsion axles and electric brakes.

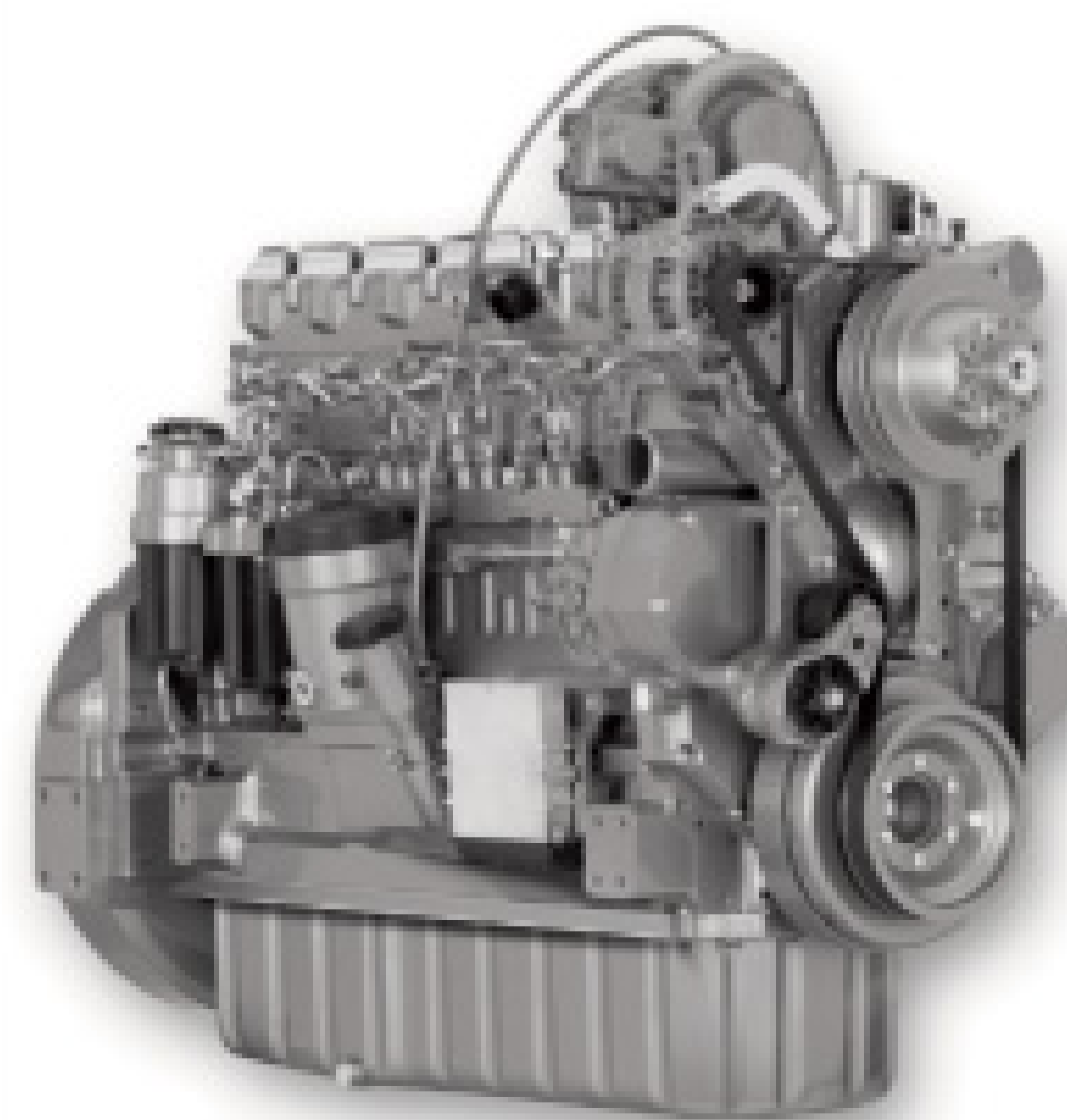
Accessories include a large rear-mounted storage compartment, overhead work lights, remote reel control, 16-gallon stainless steel fuel tank, recirculating system, and amber strobe. Call 315/865-8084 or visit [www.dynavac.com](http://www.dynavac.com). ■



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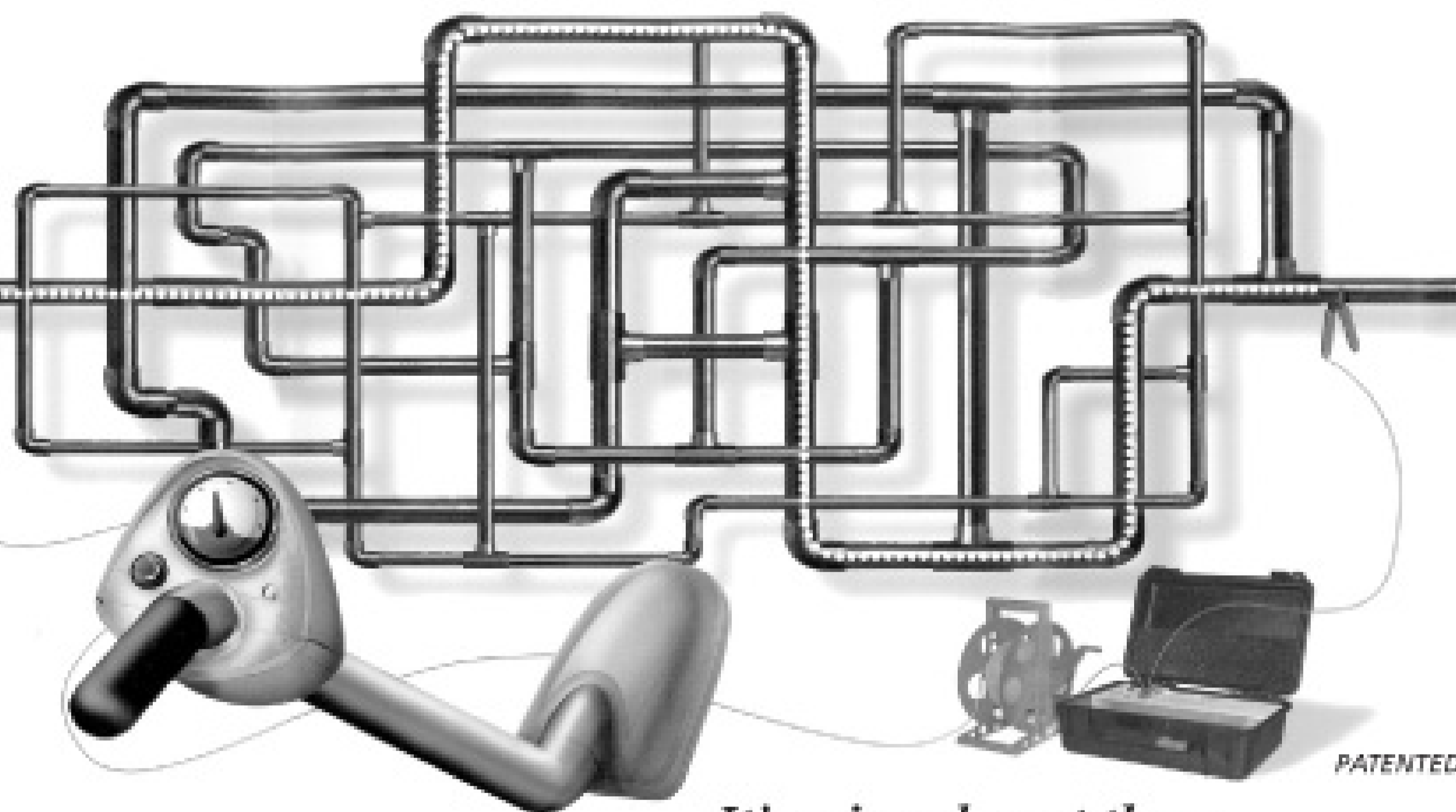
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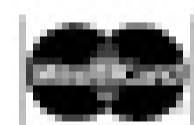


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### RIDGID Announces Press for Success Winner

Gregg Hall, Columbus, Ohio, was the grand prize winner of the RIDGID 2008 Press for Success contest that promoted the launch of the RP 330 B pressing tool. Hall was chosen from among 15,000 online entrants, Jan. 1 through March 31, and received a \$2,500 gift card to Dick's Sporting Goods. The top three monthly winners also received \$250, \$100 and \$50 gift cards.

### Stellar Names Regional Sales Manager

Ray Hacker has joined Stellar Industries as regional sales manager for demountable equipment in the north-east United States and eastern Canada. He brings previous sales management experience to his new position.



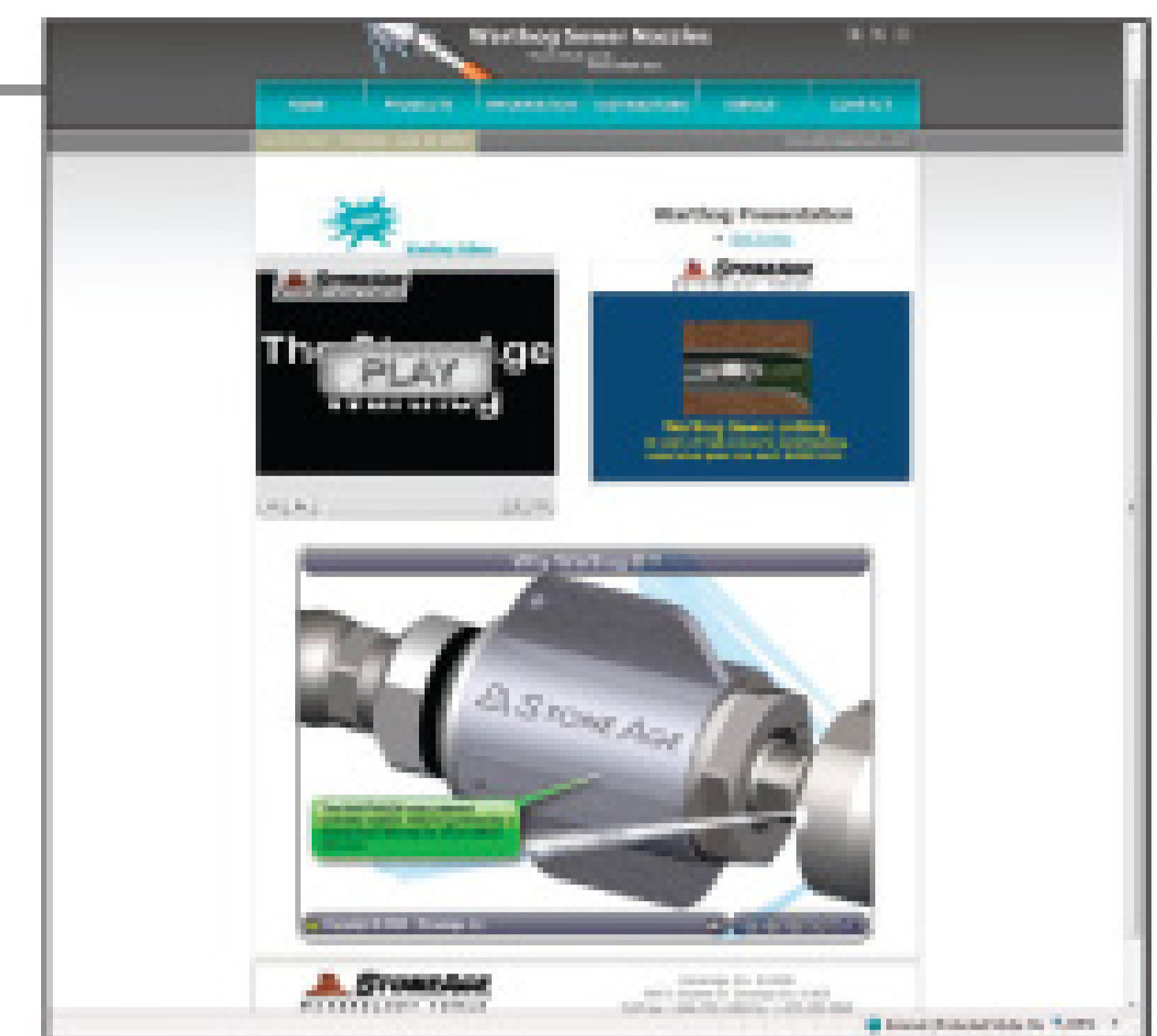
Ray Hacker

### NSF Participates in NEHA Conference

NSF International participated in the four-day 72nd Annual Educational Conference and Exhibition in Tucson, Ariz. The June conference attracted more than 1,500 attendees and featured more than 160 speakers and 130 educational sessions on environmental health, onsite wastewater systems, terrorism and all-hazards preparedness, injury protection/occupational health and more.

### StoneAge Tools Launches SewerNozzles Web Site

StoneAge Tools has launched [www.sewernozzles.com](http://www.sewernozzles.com), featuring video demonstrations, maintenance and repair animations as well as other waterblasting solutions.



### SPIR STAR Names Sales Manager

Jerry Carter has been promoted to sales manager for SPIR STAR. Carter joined the company in 1997 and has held a number of sales and manufacturing positions. In his new job, Carter will be responsible for overseeing the sales staff as well as developing and implementing new service and quality standards. ■

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Municipal teams take a variety of steps to inform workers about the presence of pathogens in the sewer and protect them from exposure

By Mary Shafer

In mid-March of 2007, a Minneapolis city employee was cleaning a sewer line in the northeast part of town. He was working over a manhole, when suddenly a geyser of human and animal blood began spraying into his face and mouth from below.

It turns out a medical laboratory was routinely dumping blood into the sewer, an act allowed in the city. The city's Metropolitan Council maintains that blood in sewers is "no more harmful than most other wastes in there." The U.S. Centers for Disease Control stance is equivocal: "While any item that has had contact with blood, exudates or secretions may be potentially infective, it is not usually considered practical or necessary to treat all such waste as infective."

Meanwhile, the worker worries that he may have contracted a pathogen through any blood he might have ingested. His superiors didn't know that the lab has a permit to discharge blood, so they didn't warn workers or provide protective gear.

Since then, the Metropolitan Council requires workers above the manhole to wear goggles or a face mask, or both. In the future, the city will warn the lab when it is coming to clean the sewer, so the lab can stop all blood discharges until the job is done.

This is just one incident of a cleaning technician exposed to a potential biohazard. Here's what some readers are doing to protect their technicians.

"Fortunately, we haven't had anything like that happen, but we do have lines that run through hospitals," says **Tom Birdsall**, assistant senior collection supervisor with the **Monroe County (N.Y.) Department of Environmental Services**.



**Tom Birdsall**  
Assistant Senior  
Collection Supervisor  
Monroe County (N.Y.) Dept.  
of Environmental Services  
Employees: 11

The city provides safety gear for its sewer workers. "Our employees have all the personal protective equipment they need, whether it be masks, goggles, things of that nature," Birdsall says. "Full face protection is provided for some tasks, though it's available to anyone who requests it, or if I instruct them to use it. We also advise them to get their Hepatitis C shots and any others they might need." Some vaccinations are mandatory for Rochester workers, while others are optional.

Twice a year, the department brings in public safety experts to do presentations about avoiding

contact with pathogens and other on-the-job safety issues.

"Normally, while we're jetting a line, we'll have on a white suit, safety glasses, hardhat with visor and safety gloves to protect us while we're jetting a line," explains **Hubert Bardell** of **Veolia Water North America**, which performs wastewater man-



**Hubert Bardell**  
Collection Systems Manager  
Veolia Water North America  
Kenner, La.  
Employees: 32

agement for the City of Kenner, on the Gulf Coast of Louisiana.

The company also provides new employee safety orientation on wearing their personal protective equipment and on any hazards specific to the job they're hired for. This is followed up by regular monthly training that usually addresses some safety issue.

"We give our workers Hepatitis A and B shots and provide rubber gloves, boots, padding and anything



**Travis Pearson**  
Water and Sewer Supervisor  
City of Powder Springs, Ga.  
Employees: 8

else they feel they need," reports **Travis Pearson**, water and sewer supervisor for the **City of Powder Springs, Ga.**

"We get them everything they need. We also have monthly safety meetings. The safety mask and glasses are important for water and sewer, but our guys aren't down in the sewers all the time. So we cover such things as watching out for each other, being aware of your surroundings, and wearing seat belts, too."

Pearson says actual in-sewer work occurs roughly once a week. If a specific safety issue arises, it is addressed in an unscheduled safety meeting outside the regular monthly session. When a new sewer project comes up, he gathers his crew together beforehand to discuss potential hazards, so no one is surprised.

Pearson's counterpart in the Sanitation Department, **Rick Gravitt**, holds similar pre-work safety meetings as well as monthly post-project critiques.

Hearing about the Minneapolis incident, Gravitt

Comments may be directed to Mary Shafer in care of Cleaner. You may also e-mail pipelines@cleaner.com.



says, "I don't doubt that a bit.

Every month, we do research through articles about this kind of thing, and we give our guys the opportunity to address any issues they're concerned about or request any safety equipment they think they need.

"We're very proud that our city — the mayor and council — is supportive of providing anything we need when it comes to protecting our workers."

Since another Iowa municipality lost a jetter technician in a fatal accident resulting from a jetter head that came loose, all sewer workers in **West Des Moines** get extensive safety training. A senior operator will take a new hire out for 500 hours on the combination truck, jetters and other equipment.



**Rick Gravitt**  
Sanitation Supervisor  
City of Powder Springs, Ga.  
Employees: 8

Once they have their hours in, they take a written test, then have to pass peer approval.

"Occasionally, you'll get someone who needs more training, because their peers don't feel they're ready to be out in the field on the equipment yet," explains **Mike Coughlon**, operations supervisor. He believes the peer approval process is important not only for the new hire, but also for the people he or she will be working with to express a sense of confidence in his or her skills.

"We actually have Vactor Manufacturing come in once or twice a year to give hands-on presentations on equipment operation, and the issue of



**Mike Coughlon**  
Operations Supervisor  
City of West Des Moines,  
Iowa  
Employees: 11

avoiding blood-borne pathogens is included in that training," Coughlon says.

Workers wear protective clothing and gear, and all city trucks carry safety kits with immediate cleansing solutions and first aid in case of skin contact or the need for eye flushing. The city also has a contract health provider, and anyone exposed to a serious hazard is immediately sent downtown to the provider's office for treatment. ■

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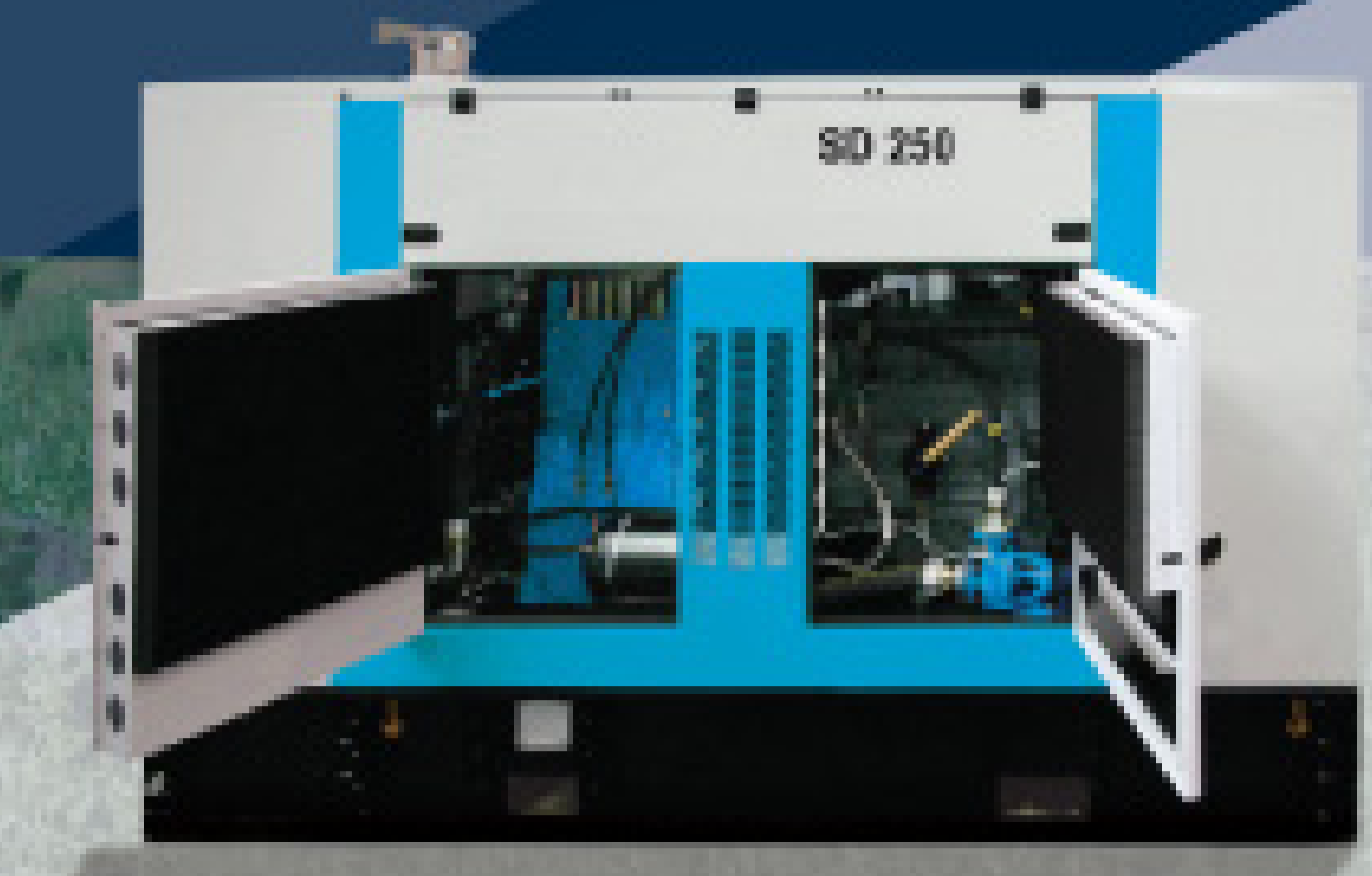
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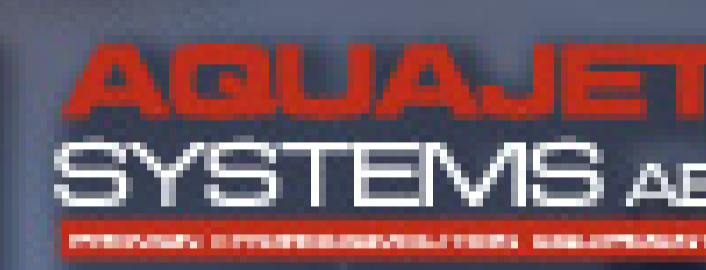


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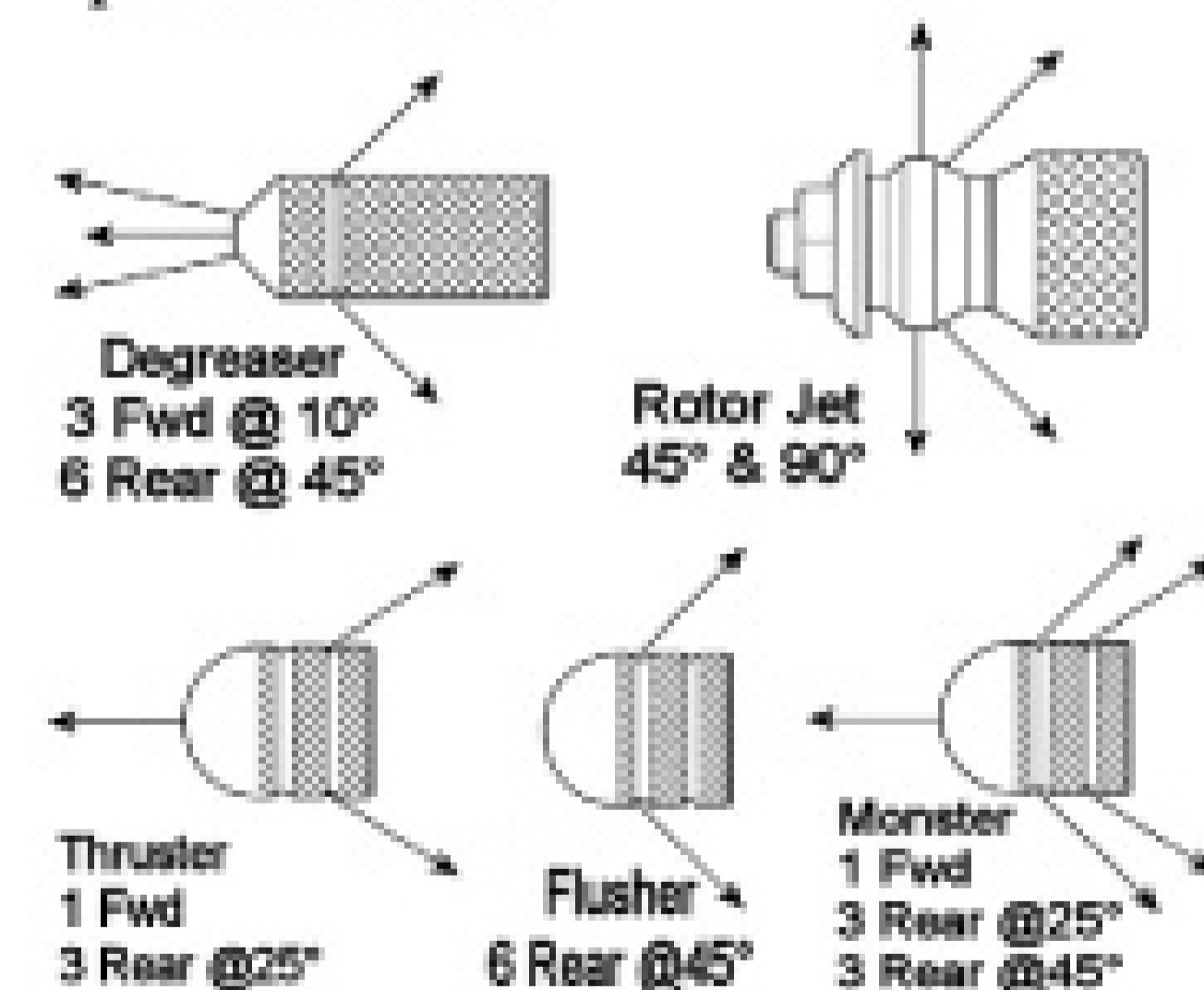
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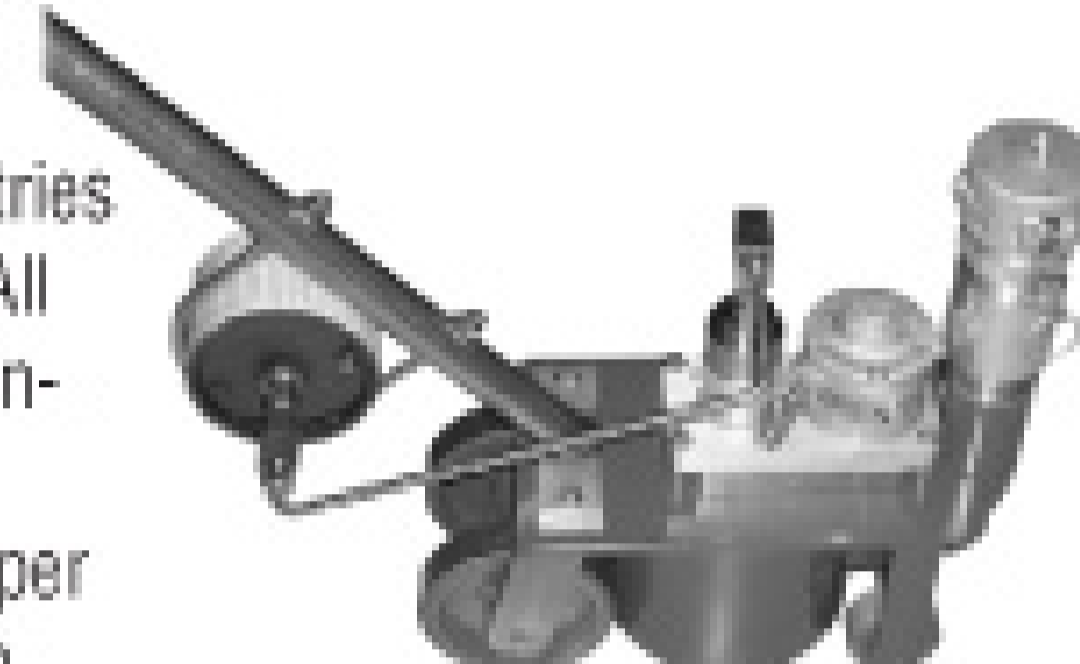


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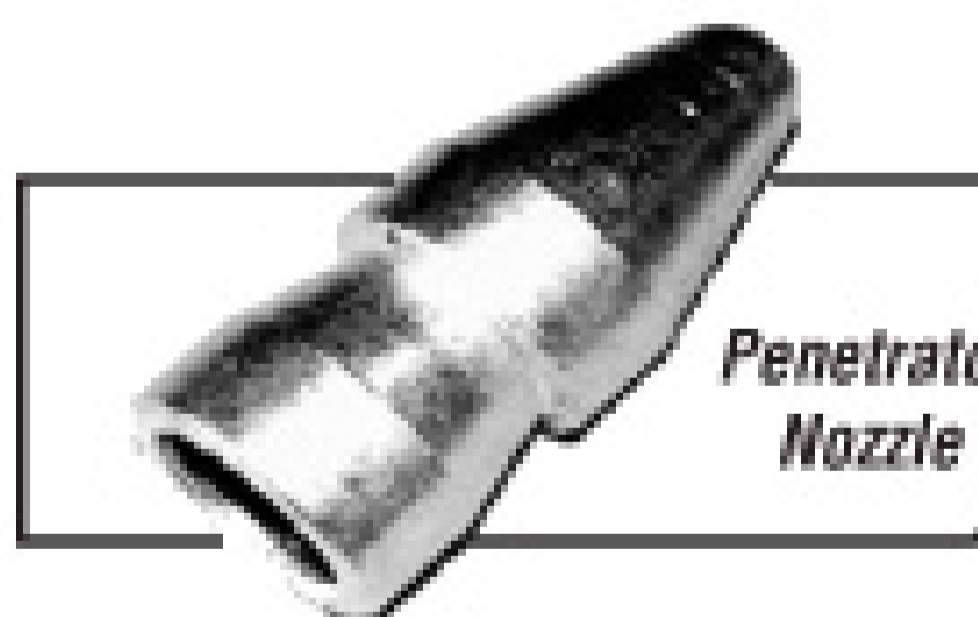
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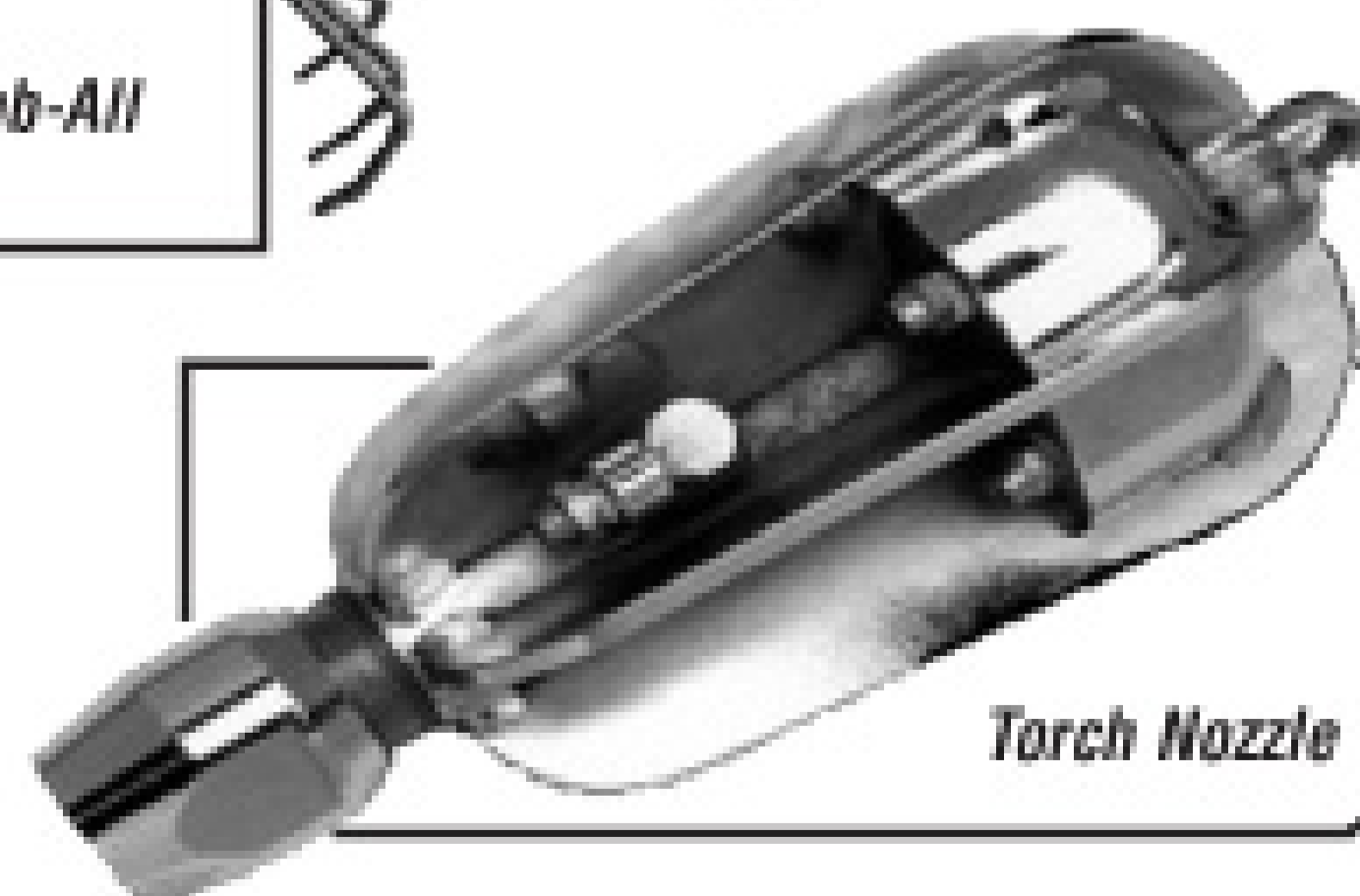
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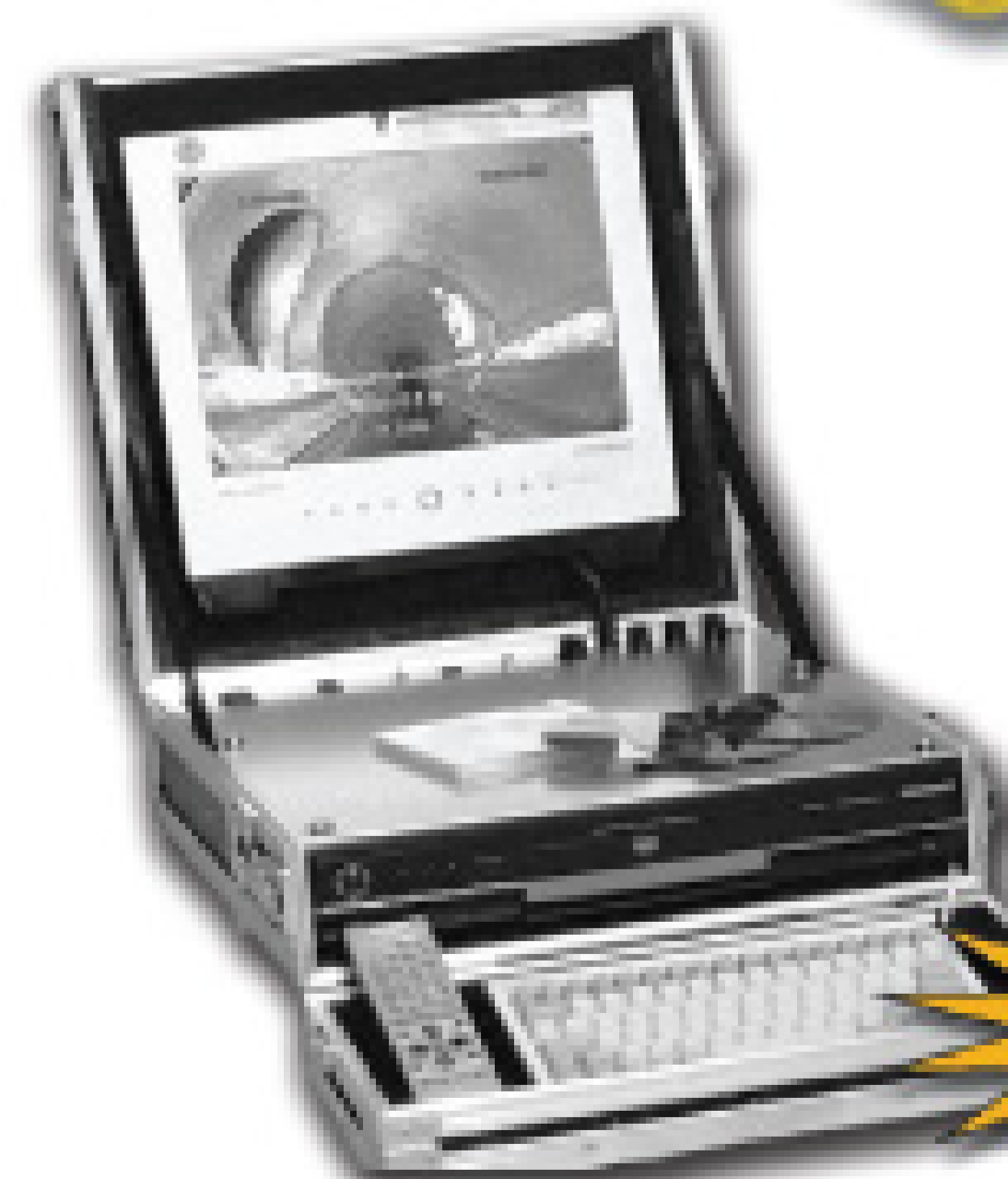
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1989 International Camel with 7248 hours, 12-yd. debris tank, extendable boom, 1500 gallon water capacity, Meyers pump, 80 gpm, 2000 psi, ex-municipality. Price \$39,000. Call 503-969-9557 or 503-682-2723. (C9)

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**Restroom Trailer - Gold Series:** 32', new and used. Women's - 5 stalls, 2 sinks; Men's - 2 stalls, 2 urinals, 2 sinks. CCI/Brian Touey 805-896-3777. (CBM)

## PORTABLE RESTROOM TRAILERS

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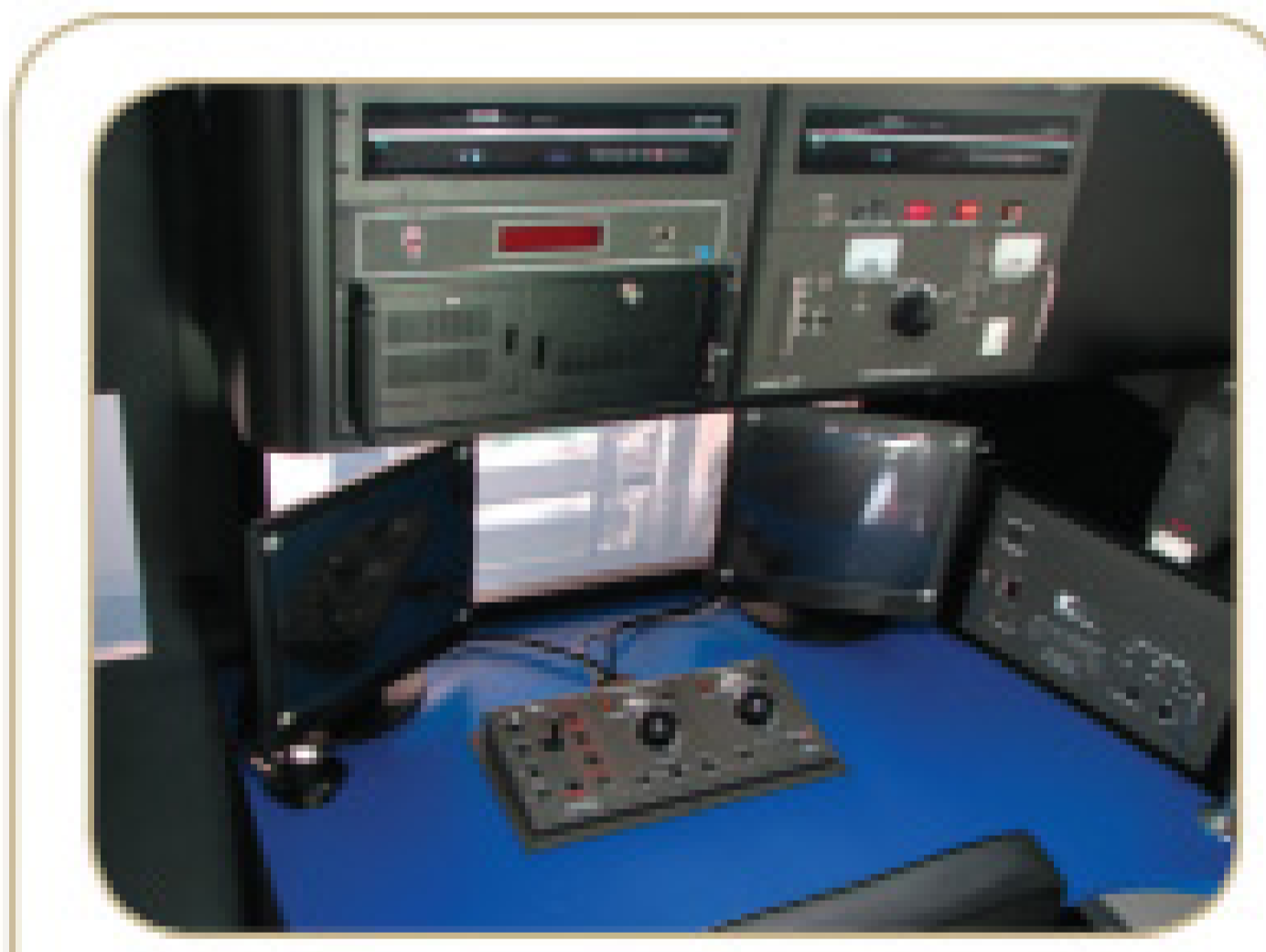
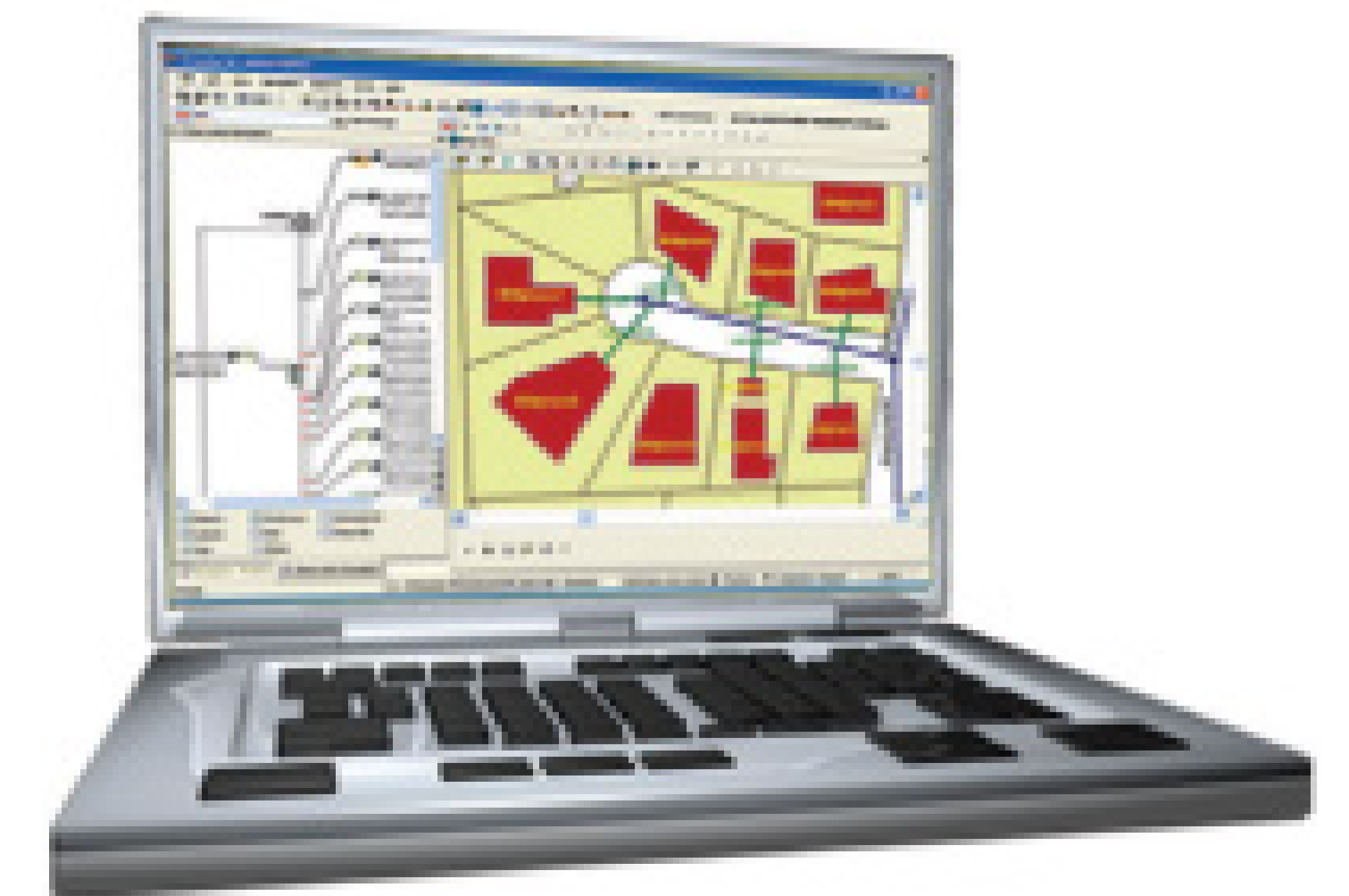
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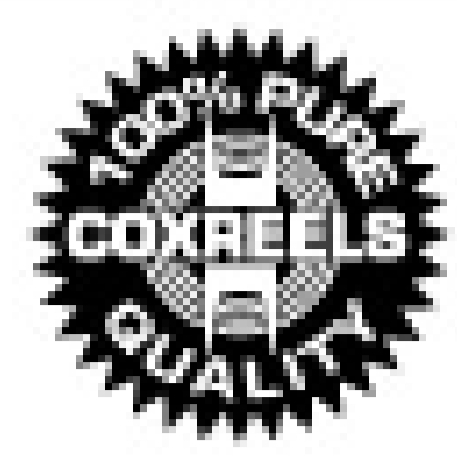


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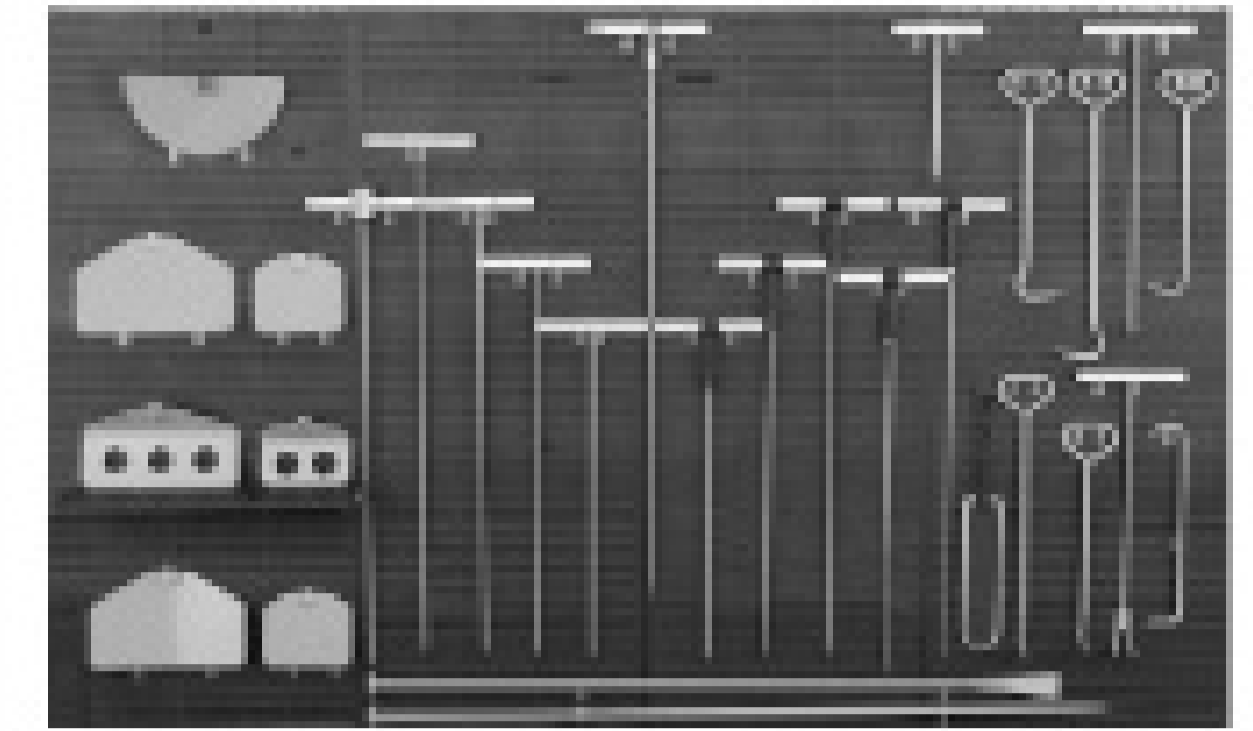
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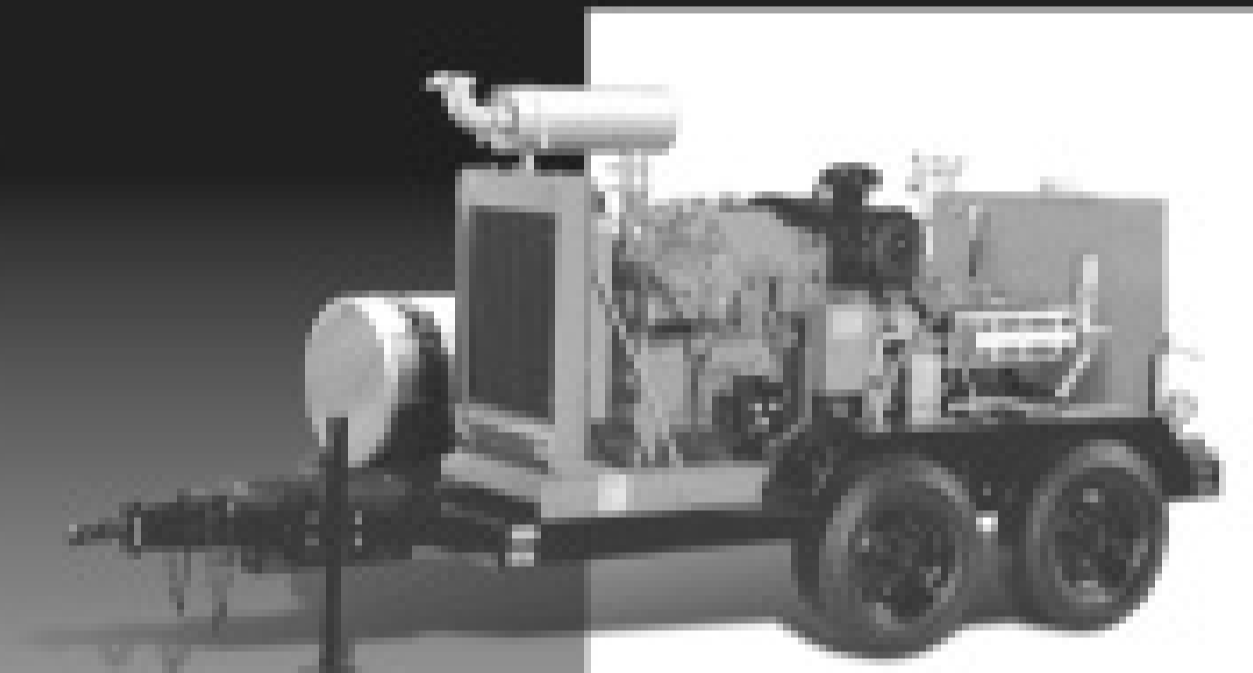
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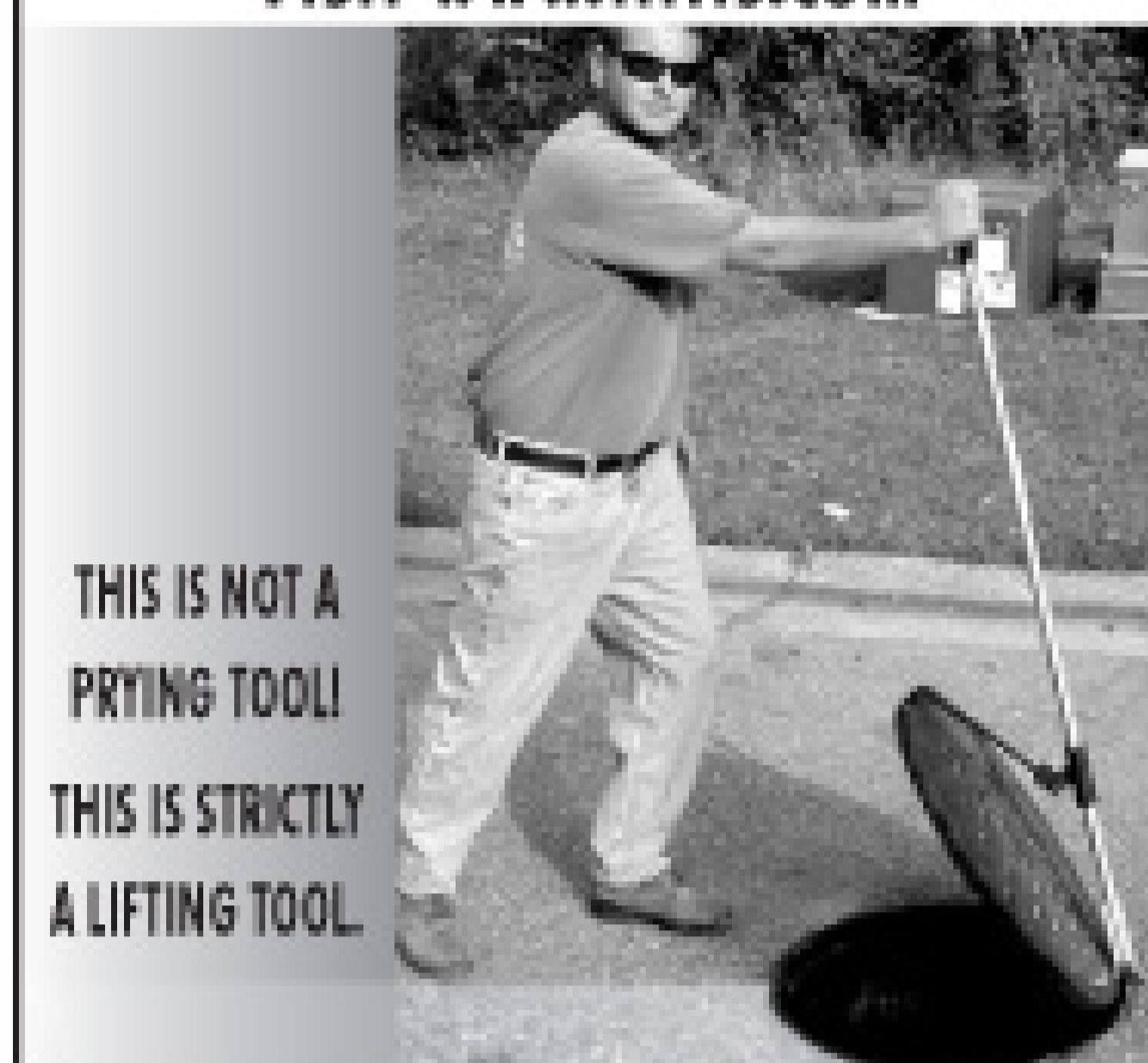
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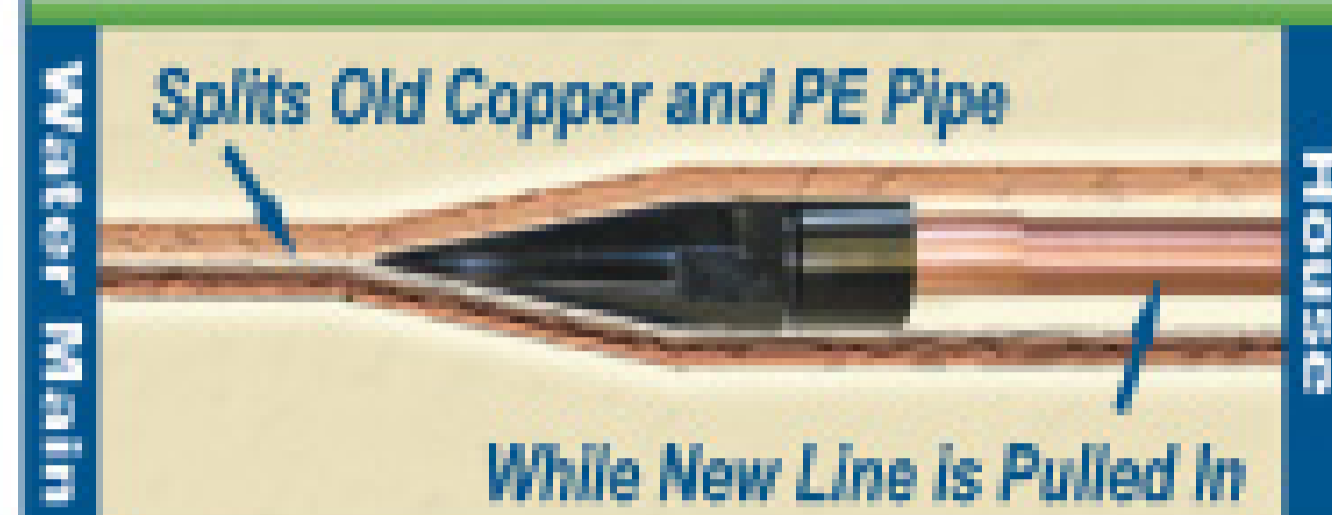
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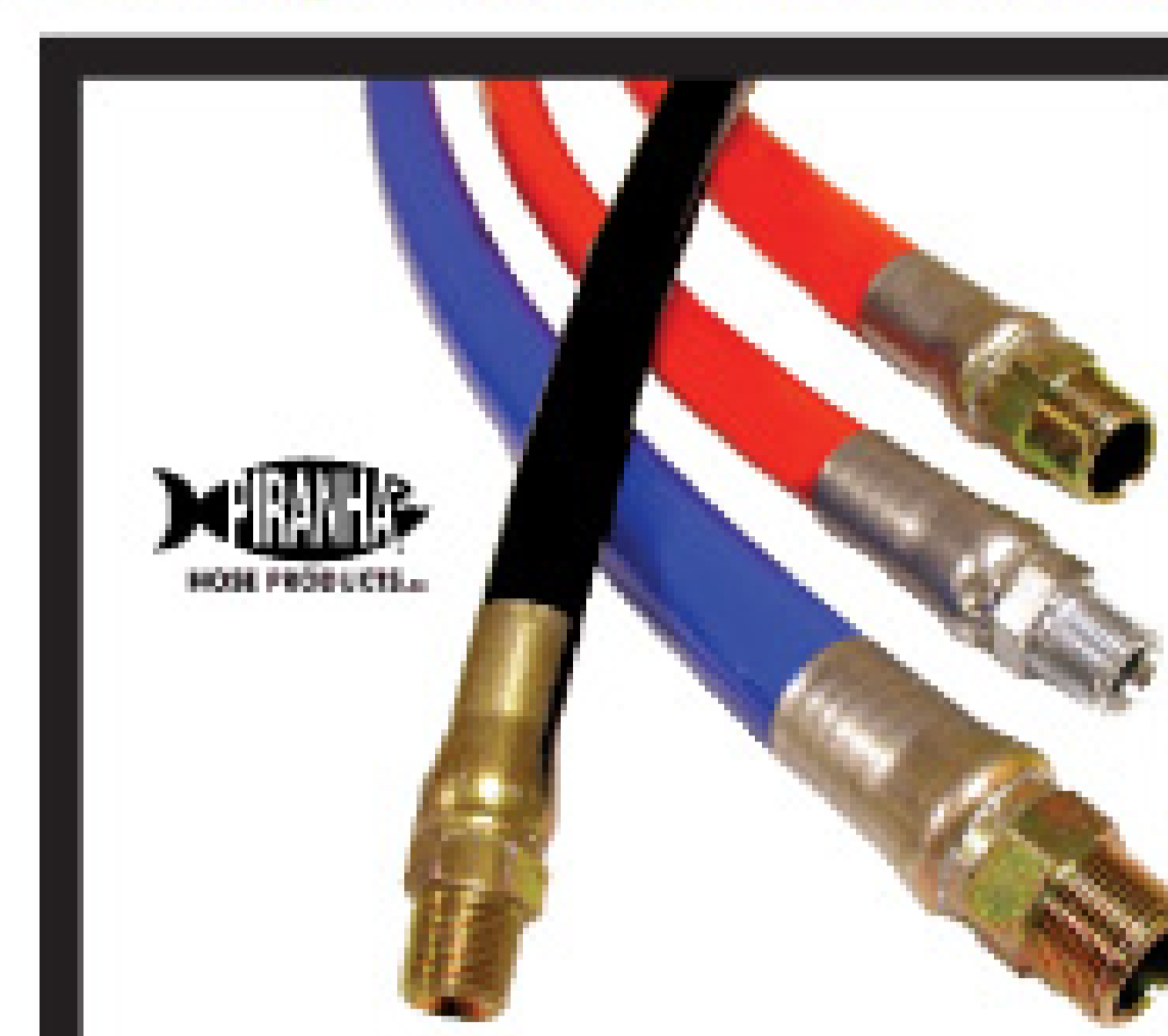
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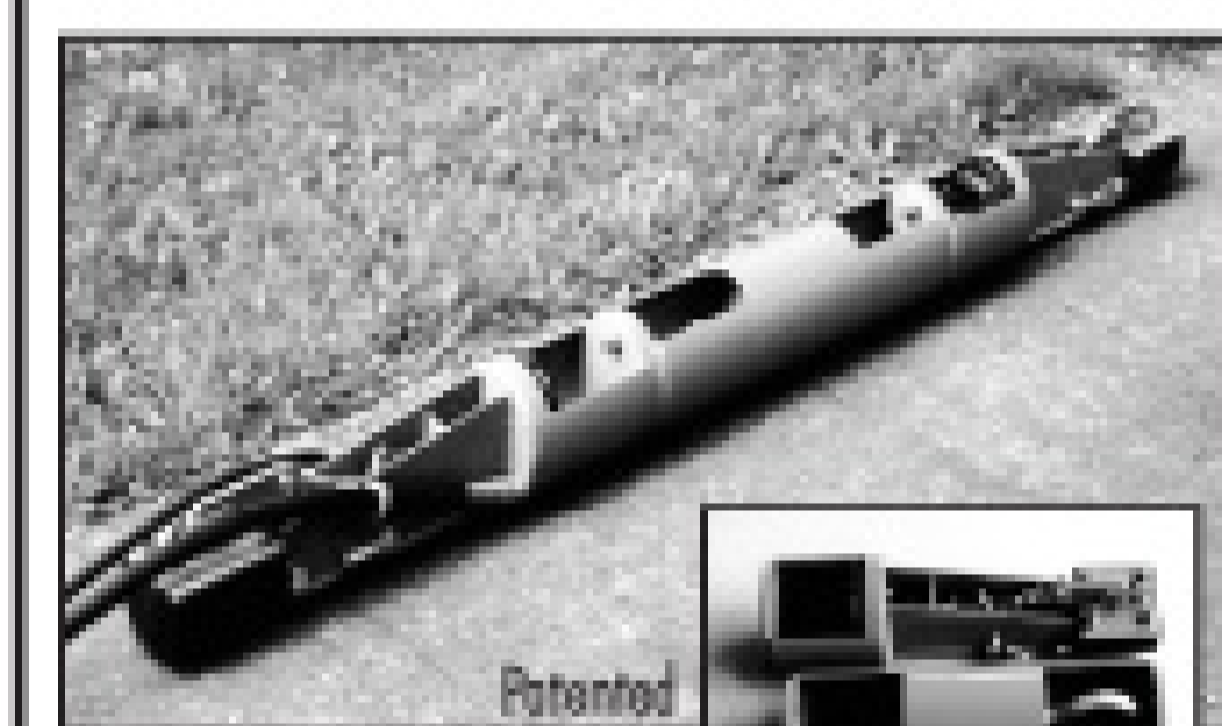
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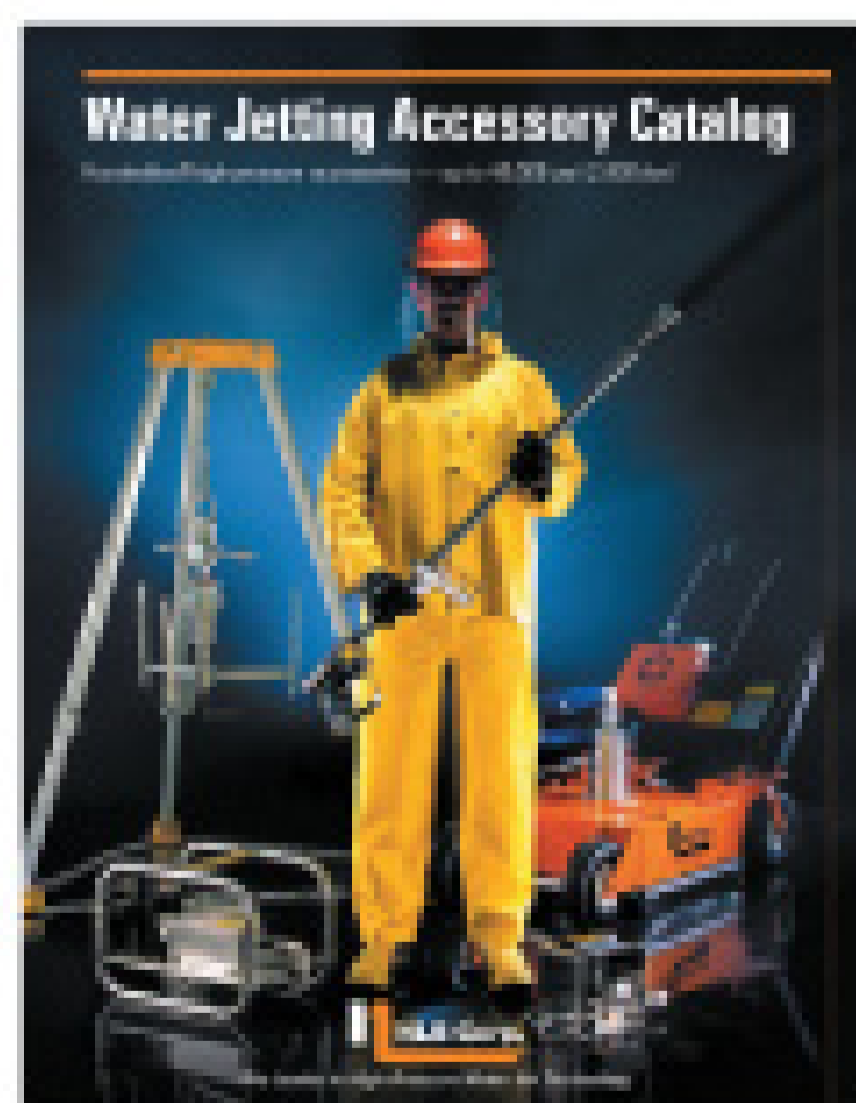


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# All Hands on Dock

**A sliplining project enables a marina to repair a seawall leak in short order with minimal disruption to property or business operations**

By **Scottie Dayton**

**A** maintenance crew at a large California marina was reinforcing the concrete seawall between the boardwalk and parking lot when they became aware of a 2-inch pressurized waterline leak. Excavating to locate the source, they exposed an 18-inch fabricated steel stormwater pipe buried 4 feet deep.

The flattened pipe had no visible outlet in the seawall, yet apparently was connected to a catch basin in the middle of the three-quarter-acre parking lot. The marina's building superintendent researched solutions on the Internet, then called John Rafferty of TRIC Tools Inc. and asked

if sliplining would work.

"A 10-inch fused polyethylene pipe would handle twice as much water as that old line," says Rafferty. "The mess, inconvenience to boaters, and expense of ripping up the parking lot and boardwalk to replace it would be huge."

The superintendent agreed to the project if Rafferty could complete it by Friday night. Although the pull was only 175 feet, the pipe had to traverse open water, snake across docks, surmount an increasing elevation as the Pacific Ocean tide went out, and navigate through a 45-degree bend. Despite an unexpected delay, Rafferty met his deadline, enabling weekend boaters to arrive unaware that anything had happened.

## Making the pipe

The maintenance crew excavated 3.5-foot-deep pits at the 45-degree bend and behind the 3-foot-square catch basin, then bored through the basin wall opposite the stormwater pipe. Rafferty and civil engineer Ian Hom televised the line using a Mini-SeeSnake camera from RIDGID taped to a fiberglass duct rodder.

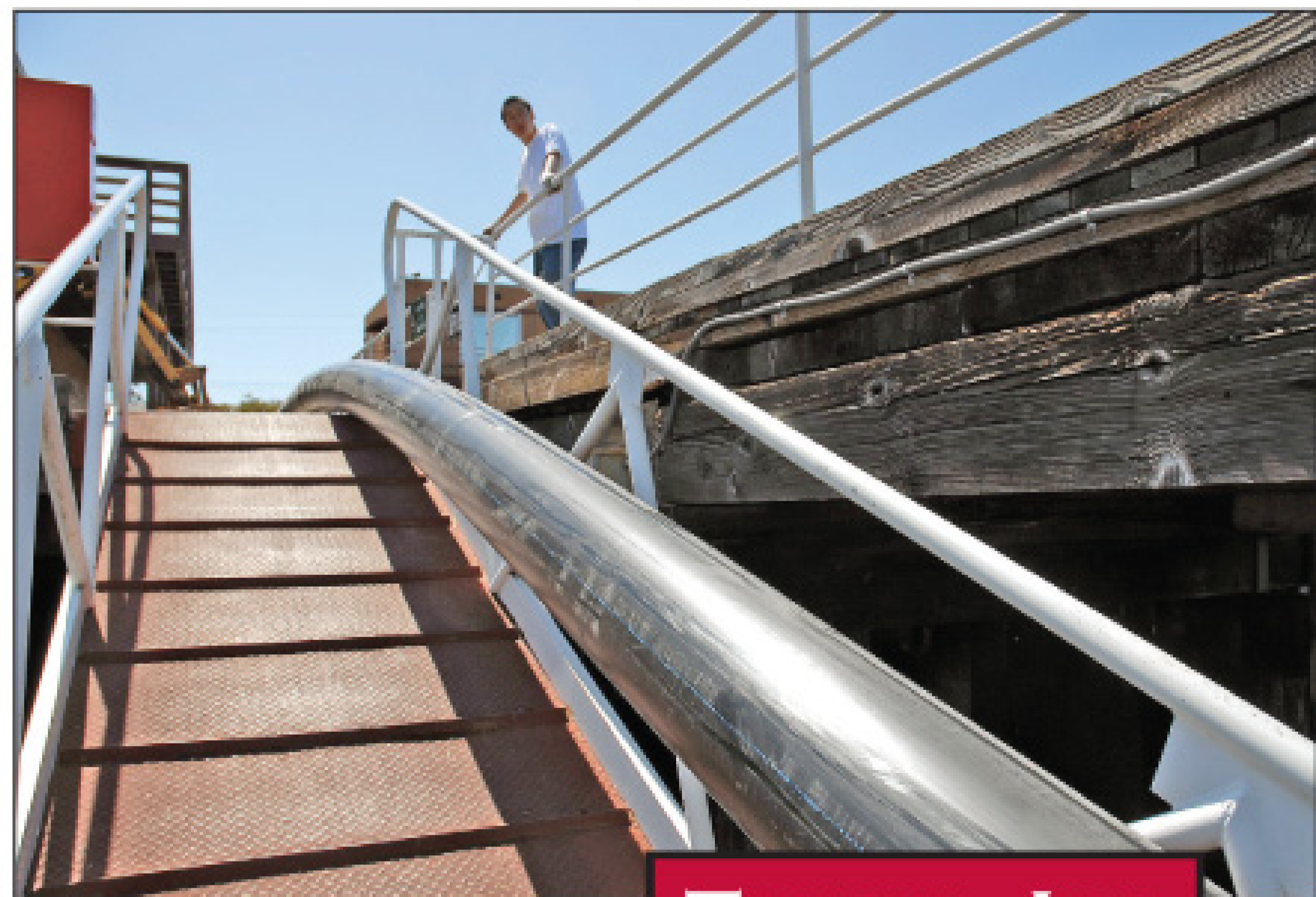


The 10-inch PE pipe negotiates a fabricated bend in the larger steel pipe.



The last portion of the 175-foot length of 10-inch PE pipe is coaxed down the gangplank.

The 10-inch PE pipe angles down the gangplank from street level to the docks below. (Photos courtesy TRIC Tools Inc.)



## TOUGH JOB

### PROJECT:

**Replace stormwater line without ripping up parking lot or disrupting marina operations**

### CUSTOMER:

Marina

### CONTRACTOR:

TRIC Tools Inc., Alameda, Calif.

### EQUIPMENT:

WC40 pipe-bursting system, TRIC Tools

### RESULTS:

**Pipe replaced before weekend boaters arrived**

The pipe, partially collapsed at points, was full of sediment and appeared to have no tie-ins except the 8-inch line at the 45-degree bend. The invert was paper thin, but the top of the pipe was 1/4-inch thick steel.

Although the distance from the catch basin to the seawall was 160 feet, a 15-foot planned extension under the boardwalk would enable the marina crew to align the pipe while reinforcing the seawall and pouring concrete. The crew's main challenges were where to fuse the pipe and how to set it up.

Using a McElroy 314 fusing machine, Rafferty and Hom worked with the entire marina crew to fuse five sections of 40-foot pipe in the parking lot on Thursday. The marina's forklift assisted with fusion, and a backhoe was used to tug the pipe along and ease it down the gangway. Setting up and fusing a joint took 30 minutes; cooling it in the jig took another half hour. "Done correctly, the joints can be flattened by a tank and won't separate," says Rafferty.

Because moving the 1,500-pound fused length of pipe could damage the marina buildings, wood boardwalk and docks, the men put 2-foot

lengths of 2-inch galvanized pipe under it at 20- to 30-foot intervals.

To prevent the semi-flexible pipe from slapping or scraping against the boats, the marina crew attached ropes and guided it from the parking lot, across the 50-foot-wide boardwalk, down the gangway, and along the 6-foot-wide dock beside the boat berths. Once the pipe was on the dock, they lifted the head end of it onto a hand cart. "Moving the pipe was the most manually intensive portion of the job, since we couldn't

have any heavy equipment on the dock," says Rafferty.

### Long, black snake

On Friday morning, everyone returned to position the pipe for the pull. "From the dock, our line of sight to the entry pit was straight across the slips to the seawall under the boardwalk," says Rafferty. "The excavation was at the seawall where

the asphalt met the boardwalk."

The marina crew moved two boats from their slips to create a path for the pipe. They detached a section of dock from the first and second berths and used them as rafts.

Rafferty strung the cable from the exit pit so he could pull the bursting head most of the way

Robert Ding made hurried modifications to the 8-inch Unified Force bursting head so that it could pull the 10-inch expander statically without its pneumatic core. Ninety minutes later, the cable, head, and skirt were attached. As the pull began, the marina crew manned the ropes and the lengths of galvanized pipe,

The ram dragged the head off the dock and over the water in a 45-degree arch toward the boardwalk. The rafts, positioned at the halfway point, supported the pipe and kept it in line with the 14-inch entry hole in the plywood form for the seawall repair. The uneventful pull took half an hour, and all signs of it were gone by Friday night.

The marina then hired TRIC to sipline the 60-foot, disintegrating 8-inch tie-in. The job involved core-drilling of the new stormwater line at the 45-degree bend, pulling in 6-inch polyethylene pipe, and connecting the two with a mechanical saddle. ■



**"Moving the pipe was the most manually intensive portion of the job, since we couldn't have any heavy equipment on the dock."**

**John Rafferty**

through the back wall of the catch basin, leaving a foot of pipe inside the catch basin for inlet reconstruction. The cable was ferried on a raft from the seawall across 60 feet of water to the dock.

After the puller was set up in the parking lot, and as the tide subsided, TRIC mechanical engineer

shepherding the new pipe on its journey to the seawall.

The job required only a few tons of pull, but Rafferty selected a 1-inch compact swaged cable rated at 74 tons, the TRIC WC40 ram rated at 100 tons, and a two-stage pump with a flow of 20 gpm at 0 to 2,000 psi, and 10 gpm from 2,000 to 4,000 psi. "I didn't know how collapsed the line was and wanted additional horsepower to expand the earth if we hit an obstruction," he says.

At left, the bursting head enters the catch basin at the end of the pull. Below, feeding the 1-inch pulling cable under the pier to the dock.



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## Patch System Repairs Laterals Without Digging

By Ken Wysocky

**T**he Perma-Patch system from Perma-Liner Industries Inc. can repair sewer laterals with small cracks, holes or joint separations without excavation.

Through an open cleanout, a technician inserts a push cable and a reusable, inflatable bladder used to affix an epoxy-coated fiberglass mat over the damaged area. Once inflated, the bladder remains in place for three hours.

When it is removed, the repaired area is a structurally sound new pipe, says Morgan Trouard, director of marketing for Perma-Liner. "This system is much quicker and cost effective than digging out a pipe and replacing it, and the patch has a minimum lifespan of 50 years," Trouard says.

The patch, designed for 4- and 6-inch pipes, is affixed with 100 percent solids epoxy resins that work even on wet surfaces. The resins come

pre-measured. Low odor makes them easy to use indoors. Once the resin is mixed, the technician has 20 minutes to apply it and install the patch.

"The resins are ambient cured, so the installer doesn't need an external heat source," Trouard notes. "One technician can install several patches in one day."

The bladder can be inflated with a conventional air compressor, aided by a regulator valve that keeps the pressure at about 10 psi. The technician can then disconnect the compressor, attach a portable air tank to maintain the required pressure, and move on to another job while the patch cures.

A Perma-Patch kit includes a 4- or 6-inch fiberglass patch, the epoxy resins, a trowel used to impregnate the mat, a 4- or 6-inch bladder,



and four pairs of disposable gloves. **For more information: 866/336-2568; www.perma-liner.com.**

Perma-Patch system from Perma-Liner Industries Inc.



### RIDGID Designs Full-Range Utility Locator

RIDGID's SeekTech SR-60 underground utility locator is able to receive a full range of locatable frequencies, enabling it to be used with any preset frequency transmitter. Users can locate within a frequency range of 10 Hz to 490 Hz, tune 1 Hz at a time, and search all broadband passive frequencies at once. It also has 30 field-programmable, user-designed frequencies and uses multi-directional antennas. **For more information: 800/769-7743; www.ridgid.com.**

### Vacall Introduces AllJetVac Sewer Cleaner

The AllJetVac sewer cleaner from Vacall is designed for optimum cleaning versatility with vacuum pumps from 16-inch to 27-inch Hg and a full range of water pump sizes and options. The unit features a three-stage filtration system for less noise and maintenance, front- and rear-mounted hose reels with a high-torque, direct-drive planetary gearbox and hydraulic cushion valve, as well as a telescoping boom — 26 feet from the centerline of the chassis with an 8-foot, 6-inch boom extension option. **For more information: 800/382-8302; www.vacallindustries.com.**



### General Introduces Spectra Inspection/Location System



The Gen-Eye Spectra video inspection system from General Pipe Cleaners features a 160-GB hard drive, DVD recorder and 15-inch LCD monitor and self-leveling camera. The unit can record up to 290 hours of inspection video directly onto the 160-GB hard drive, then copy sections onto the built-in DVD recorder. The 1.4-inch diameter camera features a stainless steel housing and 16 ultra-bright LEDs that can illuminate lines up to 10 inches in diameter. Designed to troubleshoot 2-inch through 10-inch lines, the unit includes a built-in AC/DC converter, onscreen distance counter, titler, built-in voice-over unit and trap skip. Standard reels hold 200-, 300- or 400-foot rods. Mini reels can hold 100- or 200-foot rods. **For more information: 800/245-6200; www.drainbrain.com.**

### NLB Adds Long-Life Seal to UHP Lance

The NCG84550A-3 rotating waterjet lance from NLB Corp. has an ultra-high pressure seal that lasts an average of 40 hours. The field-repairable lance delivers UHP water (up to 40,000 psi) with a rotating action, widening the spray pattern for more productive product removal. The lance comes with a 36-inch barrel and can be used with any of NLB's multi-orifice heads. Rotation speed is variable up to 3,000 rpm and is provided by an air-driven swivel. **For more information: 248/624-5555; www.nlbcorp.com.**



## Polylok Introduces New-Design Catch Basins

The new catch basin from Polylok Inc. features adjustable inlets and outlets and a patent-pending seal and nut assembly that instantly adapts to accept 2-, 3-, 4-inch and corrugated pipes. Available in 9-inch and 12-inch-square models, the basins allow up to four inlets or outlets. Made of high-impact plastic, the unit is suitable for landscape and hardscape applications, as well as light vehicle traffic. Cast iron grates are available. **For more information: 888/765-9565; www.polylok.com.**

## Almetek Creates E-Z Hit Marker Kit

The compact E-Z Hit Marker Kit from Almetek Industries Inc. is designed to make it easy to mark damage to underground facilities at excavation sites, and save costly legal fees and court costs. The kit conforms to Common Ground Alliance Best Practice Documentation standards and comes in a 19- by 4-inch crush-proof storage case. It includes a 6-foot, HDPE measure ruler with large number graphics that can be unrolled to lay flat or stand on edge with two anchoring spikes, along with a user's guide. The two fiberglass markers can be placed in the ground to show and mark damaged areas. **For more information: 800/248-2080; www.almetek.com.**



## TT Technologies Offers Iron, Steel Pipe Bursting Head



The Grundoburst static pipe bursting system from TT Technologies features a specially designed bladed cutter head for iron and steel pipe. Cutter heads also are available for splitting VCP, PVC, ACP, cast iron and more. The system can pull a variety of replacement pipe, including PVC, DIP, ASB, cast iron no hub soil pipe, cast iron bell and spigot soil pipe, fusion welded HDPE and VCP jacking pipe. Models range in pullback force from 60,000 pounds to 650,000 pounds and are designed for bursting 4-inch through 48-inch diameter pipe and larger. **For more information: 800/533-2078; www.tttechnologies.com.**

## COXREELS Launches 12-Inch Welding Cable Reel

The 112WCL series welding cable reel from COXREELS is equipped with an integrated drag brake/reel stop to avoid free-wheeling and cable uncoiling during storage and transport. The reel handles up to 100 feet of 2/0 gage welding cable and features a Cable Keeper to prevent the pigtail from whipping or twisting. The bronze, self-lubricated spherical bearings at each end of the drum are designed for rough, heavy-duty applications. **For more information: 800/269-7335; www.coxreels.com. ■**



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