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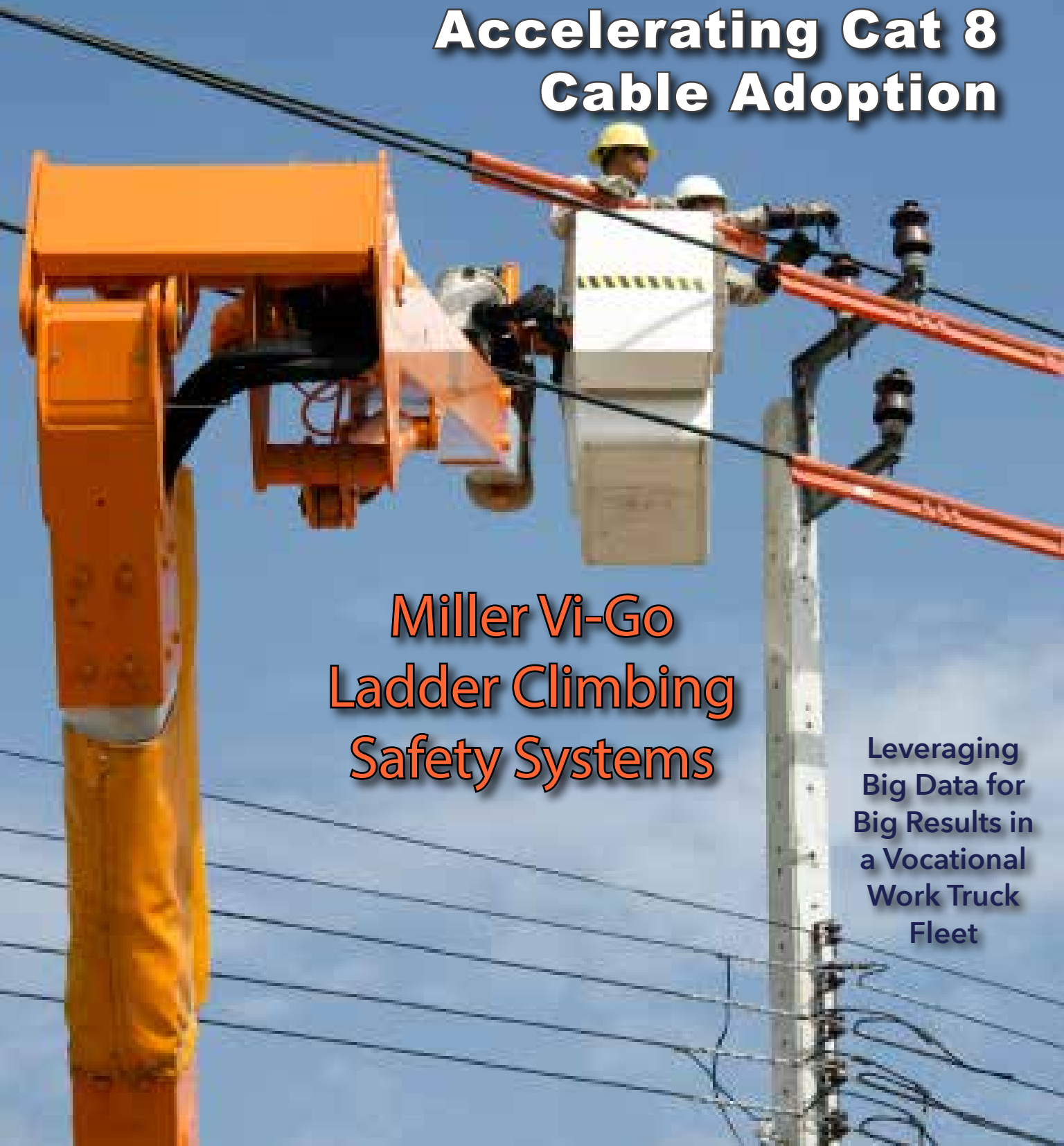
November 2016

Products and Services for Today's Electric, Telecom, and CATV Utilities

Accelerating Cat 8 Cable Adoption

**Miller Vi-Go
Ladder Climbing
Safety Systems**

**Leveraging
Big Data for
Big Results in
a Vocational
Work Truck
Fleet**



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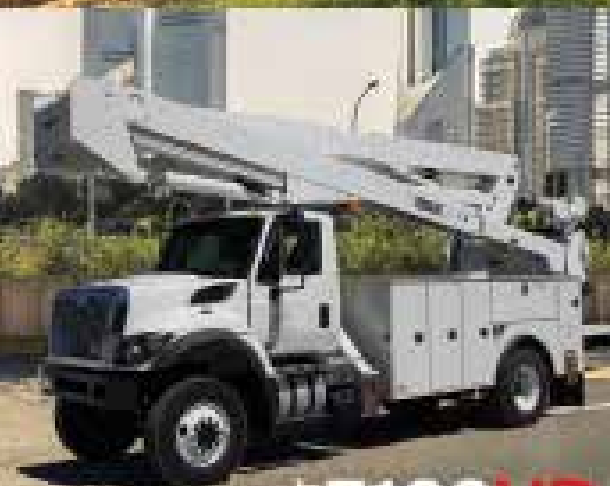
EUFMC SHOWCASE

The world leader in aerial lift production for over 30 years, Versalift is dedicated to developing innovative solutions that meet the ever-changing needs of aerial industries. Last year, we introduced the subing-edge Phoenix 180-1 and Skybird 215-1 transmission lifts to our already impressive fleet. The 907-7100-HD and Digger Derrick T & B series add to the diverse capabilities that Time Manufacturing has always been known for.

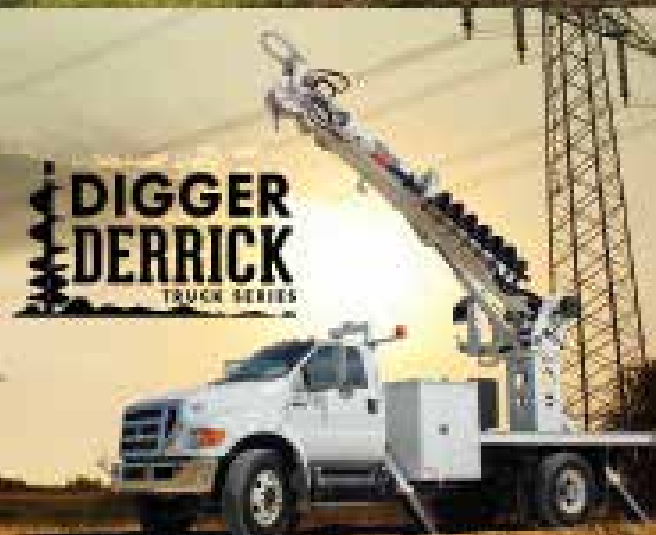
VERSALIFT
PHX



SKYBIRD



VERSALIFT
7100HD



**DIGGER
DERRICK**
TRUCK SERIES

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National Association of Regulatory Utility Conclude Series of Summer Meetings

The National Association of Regulatory Utility Commissioners concluded a successful series of summer meetings in Nashville, Tennessee, and adopted several important resolutions across utility sectors.

NARUC's meetings, held July 24-27, were well attended—with nearly 1,100 attendees. The event featured a range of sessions focused on matters relevant to state utility commissioners: electricity, telecommunications, gas, water and transportation issues.

A town hall on the much-anticipated draft Manual on Distributed Energy Resources (DER) Compensation was convened on Saturday, July 23, with more than 100 attendees. The town hall featured discussions of the draft manual and solicited questions and comments from the audience.

Monday's general session kicked off the formal start of the meetings with a Q&A with Exelon's President and CEO Chris Crane, moderated by NARUC President Travis Kavulla of Montana. Other general sessions featured issues of big data—cloud-based solutions and applications in the utility industry; ensuring a workforce for utility construction projects; and the role of states versus markets in procuring generation.

www.naruc.org

NTEA Returns to Indianapolis in 2017 & 2018

North America's largest work truck event returns to Indianapolis in 2017 and 2018. NTEA – The Association for the Work Truck Industry, announces dates for The Work Truck Show® 2017, The Work Truck Show 2018 and the Green Truck Summit. Anyone who works with commercial trucks, including public and private truck fleet operators, manufacturers, dealers and equipment distributors, can find solutions to their business challenges at the Show.

The Work Truck Show 2017

- March 14–17, 2017
- Indiana Convention Center, Indianapolis, Indiana
- Educational sessions, including the Green Truck Summit, begin March 14
- Exhibit hall open March 15-17

The Work Truck Show 2018

- March 6–9, 2018
- Indiana Convention Center, Indianapolis, Indiana
- Educational sessions, including the Green Truck Summit, begin March 6
- Exhibit hall open March 7-9

The Work Truck Show features the latest vocational trucks, vans, vehicle components and equipment on a trade show floor covering more than 500,000 square feet. The event includes a robust educational conference with more than 60 sessions designed to help attendees improve operations.

Registration for The Work Truck Show 2017 opens in October.

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AEMC Instruments Appoints Mark Van Til- Western District Sales Engineer



AEMC® Instruments announces the appointment of Mark Van Til as its Western District Sales Engineer. He will be responsible for sales covering the western territory of (CA, NV, WA, OR, ID and AK). Mark will be based out of the Napa, California area and will report directly to Tim Cowgill, Western Regional Sales Manager.

Mark joins AEMC® with over 20 years' technical sales experience in the Industrial Automation sector. AEMC® is excited to have Mark join their growing company.

AEMC® Instruments manufactures professional electrical test and measurement instruments for the industrial, commercial and utility marketplace.

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Atlas Copco Construction Appoints Scott Carnell- President, U.S. Division

Atlas Copco Construction recently appointed Scott Carnell as president of its U.S. division. Carnell replaces Erik Sparby who has accepted the role of general manager, Customer Center CR Greater China. Carnell will lead the company in growing each of its product lines, including construction tools, portable energy and road construction equipment, within the contractor, dealer and rental industries across North America.

"Atlas Copco has always been committed to the success of this industry, which is also something I'm passionate about," Carnell said. "I look forward to driving that commitment and building our support network in North America even further."

Carnell brings more than 32 years of industry experience to his role, the last 10 of which have been with Atlas Copco. Carnell served as the business line manager for the Atlas Copco portable energy business area, where he led the market expansion of the air compressor and generator lines. Just prior to his new role, Carnell was the president of Atlas Copco Rental in North America, based in LaPorte, Texas.



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Accelerating Cat 8 Cable Adoption

Advanced circuit board technology enables patented RJ-45 plug helps to ensure Category 8 Ethernet cabling performance of up to 2,000 MHz.

Category 8 Ethernet cable will play a major role in meeting today's burgeoning needs for high-speed communications, whether in the data center, voice, video or other high bandwidth applications that run on copper cable for distances up to 30 meters.

To ensure that Category 8 adopters will effectively reach data speeds of up to 40 Gb/s – four times the speeds of many of today's users - OCC (Optical Cable Corporation) is introducing a new RJ-45 plug with integral circuit board technology that provides advanced control of crosstalk, return loss, and other impediments, ensuring consistent performance at higher frequencies up to 2000 MHz.

Prior to the introduction of this product cable engineers viewed the challenge of transmitting data at rates of up to four times faster over a standard RJ-45 connector as a major concern.

"Essentially, the new plug contains technology that provides advanced control of plug performance," says Derrick Stikeleather, OCC Copper Connectivity Manager and Member of the TIA Engineering Subcommittee TR-42.7. "In a conventional category style plug, the plug wires must be arranged in specific positions, leading to variations in performance. But when a circuit board is used, it basically eliminates the possibility of plug wire variations. It also means that electrical properties transition from a cable to a terminal in a more controlled fashion."

Stikeleather adds that the new, proprietary technology utilizes a higher performance type

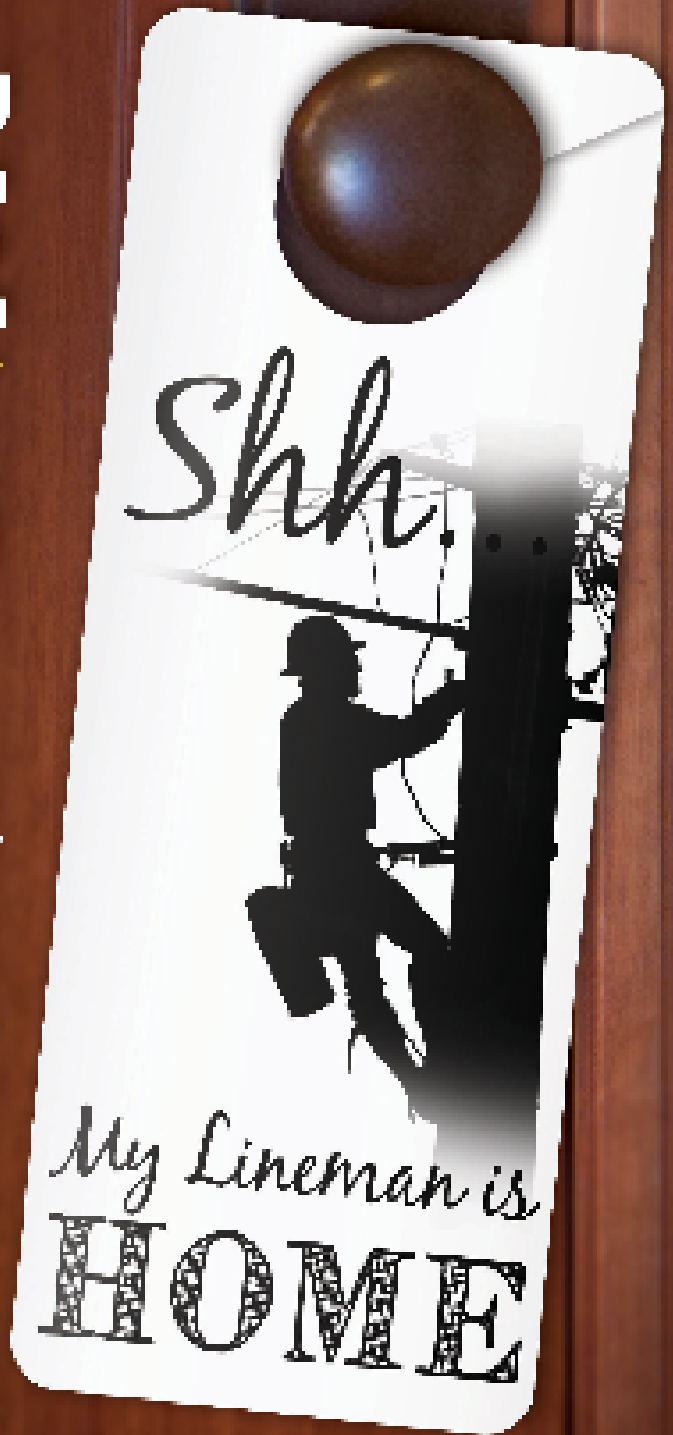


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of circuit board material than what is contained in a standard connector. "Without this, achieving quality data transmission rates of 40 Gb/s would not be possible," he explains.

The new plug, which was recently granted a patent for circuit board layout and the advanced materials used in its construction, is ideal for direct-attach, high-speed links and data center server connections.

Stikeleather also said the plug provides consistent and reliable terminations that are guaranteed to meet or exceed the recently approved Category 8 standard when paired with compliant Category 8 cable. The new RJ-45 plug model is fully backward compatible with existing RJ-45 infrastructure used by a majority of Ethernet connection ports, including Cat 6A, Cat 6 and Cat 5e cabling. It is field installable, and should be familiar to many cable installers.

The new RJ-45 plug is also compatible with OCC's family of ruggedized RJ-45 connectors, a family of receptacles, plugs, and back shells that enables users to extend their Ethernet platforms into harsh industrial and military operating environments.

For information contact: Optical Cable Corporation, 5290 Concourse Drive, Roanoke, Virginia, 24019; Phone: (800) 622-7711, Canada (800) 443-5262; FAX: 540-265-0724; Email: info@occfiber.com.

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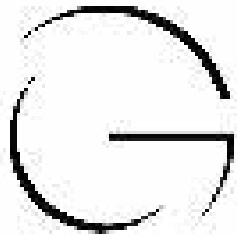


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Terex Customers and Dealers Receive Hands On Training at 38th Annual Event

More than 30 people from five countries attended Terex Utilities' 38th annual Hands On Training seminar, which included demonstrations of aerial lifts, digger derricks, and auger drills. Participants from Spain, Peru, Mexico, Canada and the United States included fleet managers, fleet technicians, purchasing managers, and other office personnel.

The Hands On Training, held August 22-24, 2016 at Terex Utilities' outdoor training grounds in Watertown, S.D., is designed to help customers and distributors gain a better understanding of typical applications and proper use of Terex equipment. Those attending represented utility companies, utility co-ops, rental companies, and dealers.



Over the course of three days participants rotated through 10 stations where they operated equipment and performed actual jobs under direct supervision of Terex trainers. Tasks included digging holes and setting poles with digger derricks, setting screw-anchors in four different directions, using remote controls to change out a transformer, and setting up and performing a three-phase lift. This year, participants were divided into three crews to set three poles with two spans, which included digging a hole, setting the pole, and tensioning the wires. In addition, trainers demonstrate other operations, such as pole removal techniques and multi-part winch line lifting.

“The Hands On Training is a chance to simulate a work day and learn about the typical tasks performed by utility crews in the field. Participants benefit in different ways, depending on their responsibilities and roles,” said Ken Vlasman, Customer Service Manager, Terex Utilities. “Purchasing managers learn about the added value of optional equipment, while technicians get insight into how the equipment is used, which aids in service diagnoses. Just for fun, participants used a digger derrick to maneuver a load through a timed obstacle course. The person with the fastest time received a certificate,” he said.

By the end of the Hands On Training, each person had operated 14 different pieces of Terex equipment, including Hi-Ranger™ TCX, HRX, TM 100, TCX 65/100 and LTM40 aerial devices; Commander 6060 and Commander 4047 digger derricks, and an A330 auger drill.

www.terex.com/utilities •





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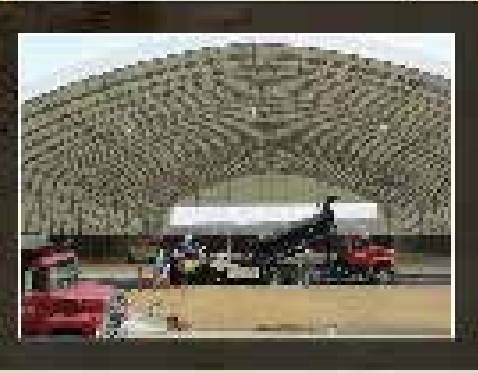
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"In addition, customers provided feedback that they were interested in flexible licensing options. "We listened, and now offer two levels of licensing—Basic and Enterprise," said Machut.

Providing a centralized monitoring point, HoistCam Director is more

than just a one-way camera system. A fully integrated system allows construction owners and general contractors to view and manage hundreds of job sites or equipment operations, improving productivity and safety.

Among the benefits for project

managers is the ability to align written assignments with current real-time visual comparisons of the job progression. They can also collaboratively manage work flow and share information within the organization or with various sub-contractors. Operations managers or CEOs can increase productivity and profits by deploying or re-deploying personnel or equipment assets based on real-time needs. Risk managers can quickly assess operations to reduce opportunities for accidents or retrieve archived data following an accident for efficient incident investigation. In addition, certain insurance carriers may provide premium discounts to contractors who use HoistCam Director to capture critical activity on the job site.

HoistCam Director transfers video and images to a mobile digital video recorder (MDVR), which captures and stores data from up to eight HoistCam cameras. The MDVR can be configured to automatically upload to the cloud for analysis or archive.

Components and Features

- HoistCam Director includes one mobile digital video recorder (MDVR) with 4 channel video input, a Video Receiver Box (VRB) with three video inputs and one wireless receiver for HoistCam, one SiteCam with 20 ft. extension cable, and 5 Amp

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- Among the customizable alarms and interfaces are geo-fencing, Shock/G-Sensor, temperature sensor, voltage output triggers, and RS485/RS232 monitoring.
- Other system considerations include choice of cellular, Wifi or Ethernet communication, site tracker services with custom safety or logistics reports, and storage on in-house servers or HoistCam hosted servers.
- HoistCam Director is currently supported for Microsoft Windows® 7 and 8. Coming soon is support for Mac, IOS® (iPhone® and iPad®) and Android.
- Two licensing options provide users with flexibility to customer according to the size and scope of their projects. A Basic License allows for one concurrent user and MDVR at no additional cost. An Enterprise License supports multiple concurrent users, MDVRs and remote access to recordings.

“Aside from actually witnessing a particular activity in progress, knowing when materials arrive from a supplier or when mission-critical tasks are being completed on site can greatly increase our management team’s ability to track construction progress on any

given project from any location,” said Geoff Bean, Virtual Construction Coordinator for W.M. Jordan Company, which participated in the beta testing of HoistCam Director. W.M. Jordan Company is a regional general contractor serving Virginia and the Carolinas; the company is regularly ranked on Engineering

News Record’s Top 400 Contractors list. While HoistCam Director is ideal for construction job sites, it also has application in heavy industry and manufacturing where overhead cranes are used or in maritime logistics operations.

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The advertisement features a background image of a power line tower. Several technical manuals are displayed, including 'Lineworker Rigging Practices', 'ELECTRICAL SAFETY', 'THERMISTOR', 'Thermography Principles', and 'Principles of Electrical Maintenance'. At the bottom, there is a sign for 'atp' and social media icons for Facebook and Twitter.

Miller Vi-Go™ Ladder Climbing Safety Systems (Cable)



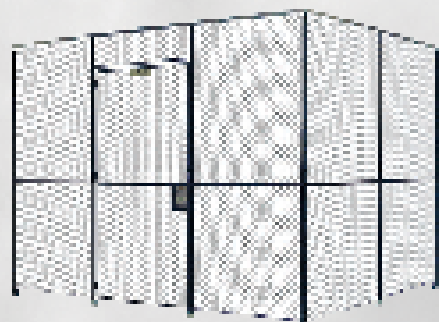
Miller Vi-Go™ Ladder Climbing Safety Systems from Honeywell provide the ultimate in safety with continuous fall protection when climbing fixed ladders. The systems are available in easy-to-install kits or as a build your own option.

The uniquely-designed, patent-pending Vi-Go Cable Sleeve automatically bypasses intermediate cable guides, keeping both hands free for climbing; travels smoothly along cable and locks instantly in the event of a fall — to provide uninterrupted fall protection.



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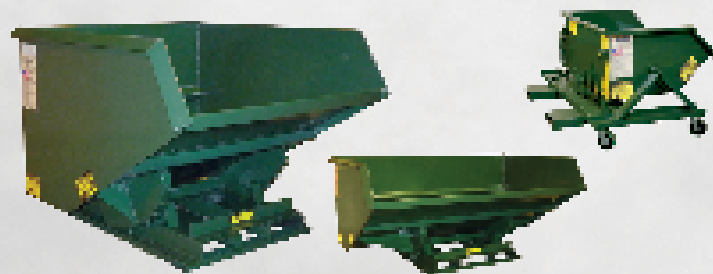
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In addition, no pins/chains or external parts to lose or damage means easy, one-hand operation.

Features

- Attachment mechanism engineered to prevent incorrect installation – Unit will not open if attached incorrectly
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- Accommodate up to four (4) workers at a time



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- Select Automatic or Manual Personal Fall Arrester Cable Sleeves - Both cable sleeves are designed to follow the user along the lifeline while ascending or descending, instantly locking in the event of a fall

Vi-Go System Kits with Automatic Pass-Through

- Uninterrupted fall protection– Uniquely-designed, patent-pending Vi-Go Cable Sleeve automatically bypasses intermediate cable guides, keeping both hands free for climbing; travels smoothly along cable and locks instantly in the event of a fall
- Easy, one-hand operation for attachment/detachment from the system. No pins/chains or external parts to lose or damage
- Automatic pass-through cable guides secure lifeline to prevent cable wear and enable the system to accommodate curves.
- Withstand harsh environments– The Vi-Go Cable Sleeve is constructed with durable, corrosion-resistant aluminum and stainless steel components
- Attachment mechanism engineered to prevent incorrect installation, ensuring greater safety. Unit will not

open if attached incorrectly

- Cable sleeve integrated shock-absorbing element
- Accommodate 5/16-in.(8 mm) or 3/8-in.(10 mm) cable

Vi-Go System Kits with Manual Pass-Through

- Require manual removal/insertion of cable with intermediate guides.
- Cable guides secure lifeline to prevent cable wear.
- Manual Vi-Go Cable Sleeve follows the worker while ascending and descending.
- Cable sleeve locks instantly in the event of a fall.
- Accommodate 3/8-in. (10 mm) cable.
- Cable sleeve must be purchased separately.



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By Christopher Lyon

Leveraging Big Data for Big Results in a Vocational Work Truck Fleet

One of the biggest challenges facing fleet managers is how to specify work trucks that will help their operations increase output and productivity in spite of declining budgets and reduced resources. Since most vocational trucks are not mass-produced, fleet managers often have just one opportunity to design an efficient vehicle for their fleets' specific needs, or be plagued with an inefficient truck for several years.

The days of figuring it out with Post-it® notes and Excel spreadsheets are over. Businesses are moving on from what has worked in the past and are coming to rely on big data to make strategic decisions. Accurate, well-analyzed data can enable fleet managers to make decisions based on real-world and real-time information.

Basic data

To begin, one must have a data source. For most fleet managers, this will be the operation's fleet information system, which stores vehicle maintenance, repair and fuel consumption data. At this basic level, the fleet manager can start looking at repair trends, component failures and overall asset usage. Based on

any trends identified in this data, the fleet manager can make some top-level design decisions for the fleet's next work truck.

Beyond traditional data

Fleet managers today have access to technology their predecessors could only dream of. Data loggers, telematics, onboard diagnostics and advanced vehicle locator (AVL) systems provide real-time operational information. These systems track vehicle speed, engine loads, engine RPMs, hard stops and rapid accelerations, fault codes, and much more. This technology has matured over the past several years, making it possible to access data almost seamlessly through a data link or radio integration system. With their vehicles' unique data, fleet managers can design work trucks specific to their operational requirements and environments. This data can also serve as a cost justification tool when matching the right technology to the right application.

Drive and duty cycles

Understanding the difference between drive cycle and duty cycle is the first step in measuring how a fleet's vehicles operate.

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PT-FX Series adapters are designed to terminate high-strand flex-cable (locomotive, mining, welding) to machinery, panels, and transformers. The pins fit mechanical set-screw type connectors and are sized for the current carrying capacity of the cable. These adapters feature the Greaves flared Shoo-in™ barrel-opening design for easy cable insertion. Insulating covers are provided.

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These terms are often used interchangeably; however, each is a different metric. A drive cycle measures and defines how a vehicle operates. It includes factors such as:

- Average speed
- Maximum speed
- Idle time
- Power export time
- Continuous running time per cycle

A duty cycle defines how much a vehicle is used, including:

- Hours of use per day
- Days of use per week
- Total miles driven per measurement cycle
- Percentage of on-road vs. off-road driving
- Loaded vs. empty usage

Understanding drive and duty cycle data will provide fleet managers the information they need to design appropriate work trucks. For example, an analysis might identify whether

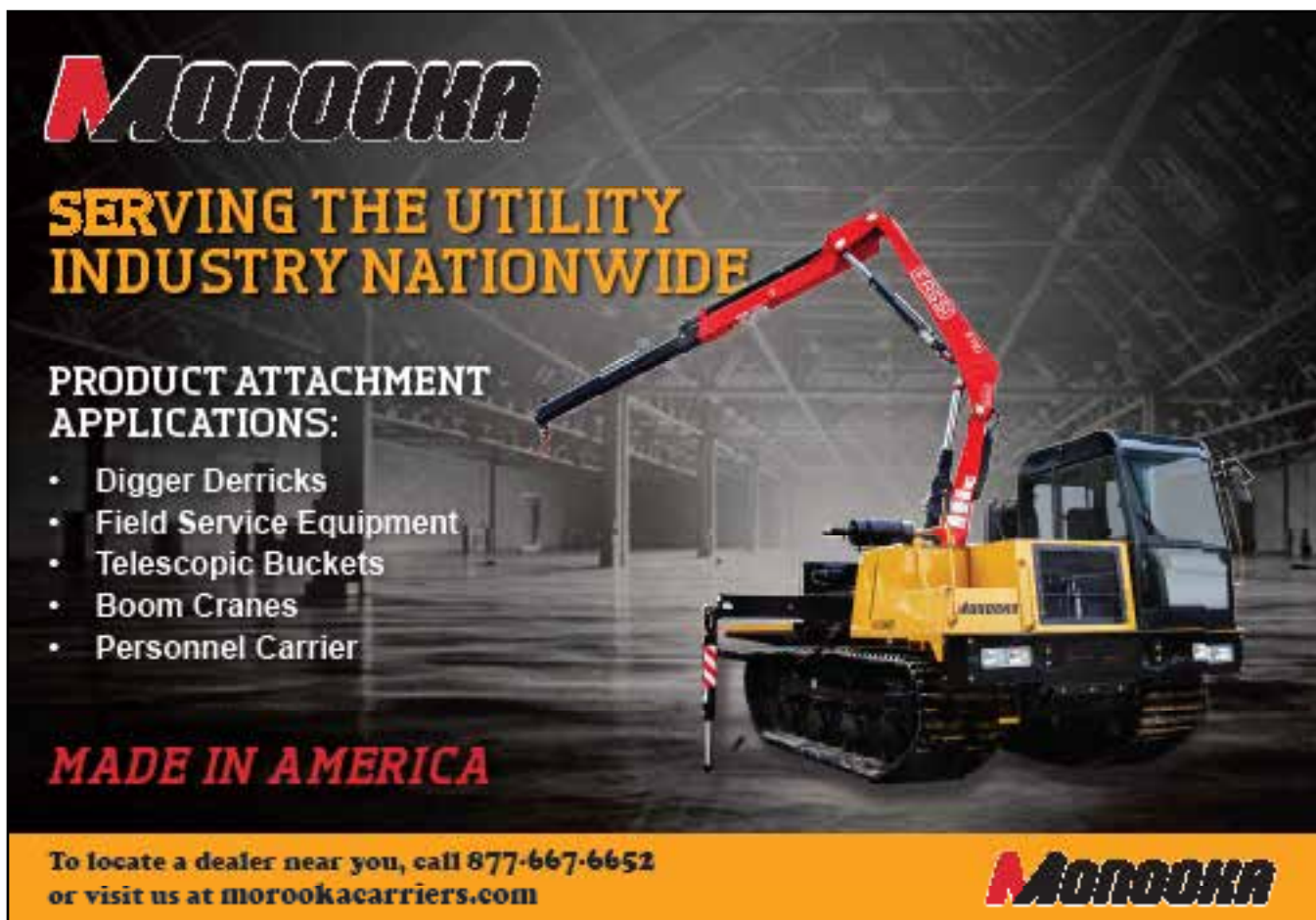
there would be sufficient return on investment for E-PTO worksite hybridization, or the use of other advanced/alternative technology. It's important to consider seasonal changes that may affect a fleet's drive and duty cycles, as well.

Telematics

Telematics is often thought of as a GPS tracking system; however, when properly leveraged, it can be so much more. Information provided from telematics can give fleet managers the tools to streamline many operations, including routine maintenance scheduling, real-time vehicle utilization and improved routing.

Telematics can be used to increase the efficiency of fleet operations through route optimization. Driving fewer miles burns less fuel, a savings that directly impacts the bottom line. In a delivery fleet application, inventory and weight management can be as simple as scanning a barcode while loading vehicles to avoid overloading trucks.

In addition to these basic benefits, telematics also can provide information for long-term planning. By leveraging specific drive- and duty-cycle data, fleet managers can design vehicles that match their operational environment. For example, vehicle speed data can be used in determining whether increasing



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aerodynamic efficiency will provide sufficient return on investment. Improved aerodynamic designs can be an effective option for vehicles operating primarily at highway speeds, but if a fleet's data shows new vehicles will be operated at low speed a majority of the time, investing in aerodynamic designs for those applications may not provide sufficient benefit to justify the cost.

Process improvement

Data also can be used as a process improvement tool. From the moment vehicles leave at the beginning of the day, they are almost entirely in the hands of the operator. It is commonly accepted the way a driver operates a vehicle can impact overall costs. Drive cycle data gives fleet managers the ability to tailor custom training programs and engage in driver behavior modification where needed. Sometimes just making drivers aware of the cause and effect of how they operate vehicles can be incentive enough for them to change bad habits. Other situations may require a more hands-on approach, such as real-time feedback or incentive programs. Driver behavior modification can produce viable benefits, including:

- Reduced crash incidents
- Improved fuel economy
- Extended brake life
- Reduced engine and transmission wear

Pairing these strategies with a data-driven vehicle design can compound a fleet's savings in acquisition and operating costs.


One of the greatest benefits of data is that it does not lie. However, it's important to be aware of bad data. Incomplete or unreliable data can be the basis of undesirable and costly results. With all technology, the results can only be as good as the input data. Additionally, if data is not used, it becomes useless.

Want to learn more?

For additional information on these issues and others facing fleet managers, attend The Work Truck Show® 2017 and Green Truck Summit, March 14–17, at the Indiana Convention Center in Indianapolis, Indiana. Sessions begin March 14, and the exhibit hall is open March 15–17. Educational sessions will include guidance on how to efficiently specify vehicles, leverage telematics solutions to maximize benefits, and identify and mitigate vehicle risks for vocational truck fleets.

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TT Technologies Introduces New Cutterhead Configuration



TT Technologies recently introduced a new cutterhead configuration for its Grundoburst static pipe bursting system. The new configuration consists of three specially designed bladed, roller cutterheads in succession. The bladed roller cutting head configuration allows contractors to burst/split large diameter steel and ductile iron pipes when used with larger Grundoburst static bursting systems. The new special cutterhead design allows for a smoother host pipe cut and greater protection for the new pipe.

Pulled by a hydraulic bursting unit, the cutterhead's special cutting wheels split the host pipe. An attached expander spreads and displaces the split pipe into the surrounding soil while simultaneously pulling in the new pipe. The Grundoburst system features Patented QuickLock bursting rods that are linked together not threaded. This saves time, prevents twisting and extends the life of the cutterhead over threaded bursting rods.

www.tttechnologies.com •

Gear Keeper's New RT3-5605 Heavy-Tool Retractable Tether

Gear Keeper's new RT3-5605 heavy-tool retractable tether's ultra low profile keeps tools close to the body when stored while still allowing complete accessibility when in use. The retractor employs a very low 7 oz force to avoid arm strain when extended, but strong enough to keep the line taut to avoid snagging or interference with the work being performed. The retractor mechanism's force is designed to retract the lanyard, not the tool. When the tool is retracted, lanyard exposure is minimized to avoid snagging, especially when the tool is also placed in a tool bag/pouch.

Using a retractable tether for heavy hand tools is particularly important when working in close quarters or climbing. Gear Keeper's new RT3-5605 heavy-tool retractable tether's ultra low profile keeps tools close to the body when stored while still allowing complete accessibility when in use. Like other retractables in the Gear Keeper line, the RT3-5605 is engineered so that the tool, application and recoil/retraction force are in balance. Designed to avoid worker fatigue in order to maintain productivity, only minimal force is necessary to extend the RT3-5605 tether for use.



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