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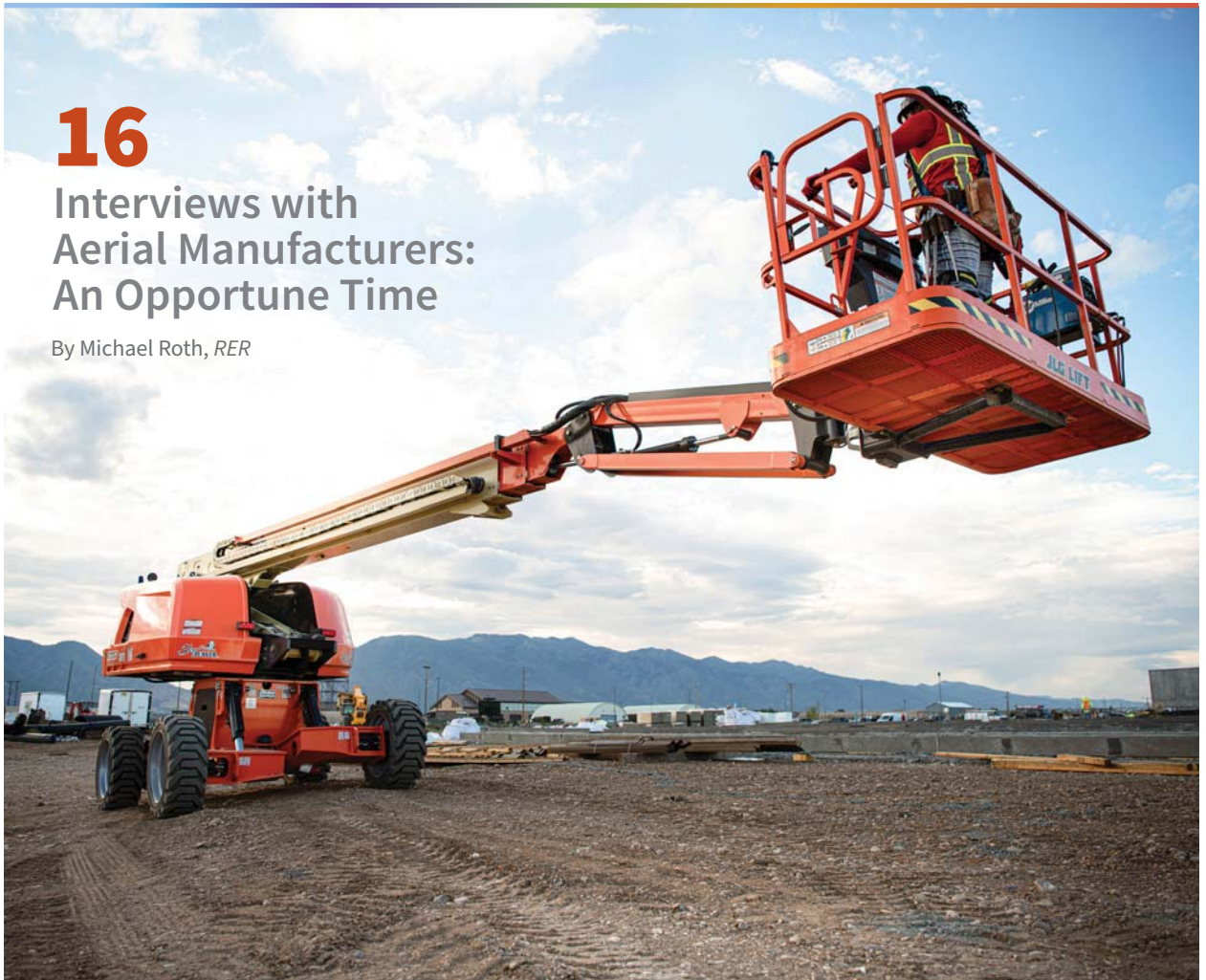
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By Michael Roth, *RER*



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energy



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More E-commerce and Changes in Labor Trends

I would expect that most of you in the rental business have a strong e-commerce capability for customers that shop and reserve equipment online. The trend towards online shopping exploded during the pandemic, for obvious reasons. But now that life has returned to a semblance of normalcy, the trend towards online shopping has only increased and become more important. This was not a temporary trend. Consequently, the ability of businesses to accommodate the needs of customers who want to transact business online needs to grow more sophisticated with improved quality and breadth of services.

Over the years, we have written about the e-commerce trend, beginning in the early 2000s and incrementally over the years. In 2002, for example, rental companies were just formulating strategies for initial steps. In 2002, you might have been just beginning to take orders online. Obviously if you didn't have an e-commerce capability and strategy in 2020, you must have had a very unique business model if you were still successful.

Statistics clearly show this trend is going to continue to grow and accelerate. In 2021, experts predicted that 19.5 percent of global retail sales would come from online purchases. By 2024, these same experts say that online shopping will be responsible for nearly 22 percent of all retail purchases in the world. These numbers will grow much larger in the coming years, and e-commerce will represent a growing percentage of all retail business. Although the character of a rental is more complex

than just buying a commodity, the same trend applies with its own unique variables.

And mobile sales are a growing part of it. More people are making these purchases from their mobile devices. Your business needs to make sure your e-commerce systems are mobile-friendly. It appears we're coming to another tipping point about how fast technology is accelerating, and we need to have a strategy to keep up.

Everyone has been talking about the shortage of labor, obviously a huge problem in the rental industry. Well, I've been covering this industry for more than 30 years and I can tell you that this is nothing new. The social dynamics and economic trends keep changing, and every few years there are different direct causes, but the fundamental difficulty of finding good people is still out there.

You can make the case that some people just don't want to work as hard as one does in the rental industry. You have to work hard – either embrace that or forget it. But many people say it's fun and it gets in your blood.

If you look at some of the current trends that keep people out of the job market, some are obvious. Many people were forced into what they call the gig economy. They might have one or two part-time jobs or, more accurately, gigs. The pandemic strongly influenced that trend as many businesses were forced to cut their work force. Some people embraced it and like the relative freedom of having a few part-time jobs or "gigs." But many part-time

workers would love to have a more steady, reliable job, especially if they could do it on a part-time basis. Some are single parents and might have a hard time working 10- or 12-hour shifts. But they might be able to work an excellent five or six.

Could the rental industry adapt to having part-time workers? You could have somebody 7 to noon and somebody else noon to 6 – or whatever hours you need. Yes, it's hard enough to train one, double the work to train two! But I wonder if it might work for clerical workers, IT people, sales staff, counter personnel, dispatchers. If a person can run a great counter from 6 a.m. to 6 p.m., might the shift not be split in two?

This might be impractical for the rental industry, but I'd like to hear your thoughts on it. I think people need to think outside the box on the labor issue. Maybe employers in general need to look at the eccentricities and needs of the modern worker and make some accommodations to make their industries attractive. This particular idea may not be the one that works, but it might be time to expand the industry to include people who have a good work ethic, but different needs and expectations compared to workers from previous generations.

The labor market and the needs of people who might potentially be good workers have changed. The rental industry is going to have to find a way to change along with it. **RER**

A handwritten signature of Michael Roth in black ink.

Michael Roth, mroth@rermag.com

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INDUSTRY

Milton Rents Adds Locations in Plymouth and Randolph, Mass.

PLYMOUTH, Mass. — Milton Rents, part of the Milton Cat dealership, has opened its eighth and ninth locations in Plymouth and Randolph, Mass. The strategically located facilities allow Milton Rents to support the demanding and competitive South Shore region of Massachusetts.

All Milton Rents locations offer a wide selection of high-quality Caterpillar machines, forklifts, aerial equipment, temperature control, power generation equipment, hand tools,

In 2021, Milton Rents acquired Shaughnessy Rentals in Plymouth and Abington, Mass. On January 1, 2022, the Plymouth location was converted to a Milton Rents facility. The Abington team was relocated to a facility in nearby Randolph that was better suited to be a Milton Rents location, a larger site in an industrial area of Randolph. The three-acre site allows Milton Rents to stock more equipment that caters to Boston area contractors. Its proximity to Boston makes renting equipment convenient for more customers, the company said. The existing facility was redone to meet Milton Rents' needs and style and a wash bay was added. The facility is home to nine employees and is managed by branch manager Ben Fey and assistant branch manager Chris King.

Dan Shaughnessy, former owner of Shaughnessy Rentals and current Milton Rents eastern Massachusetts manager, has been involved with Caterpillar

nessy Rentals in 2010. Shaughnessy Rentals primarily served homeowners and smaller businesses, and had 18 employees, all of whom stayed on through the transition to Milton Rents.

Before the locations were opened, the Plymouth and Randolph teams were trained and set up on Texada, Milton Rents' rental management software. The former Shaughnessy Rentals team was in constant communication with the existing Milton Rents team throughout the transition process.

"Although transitioning was challenging, I am happy to be a part of the Milton Rents team and to be able to grow with them. Everyone has been welcoming to us," Shaughnessy said. "I am excited about all the opportunities that are ahead of us. We are continuing to support our existing customers while being able to connect with a whole new type of customer."

Prior to opening the Plymouth location as a Milton Rents facility, it received new exterior and interior signage and a fresh coat of paint, updates were made to its electrical and plumbing, and a wash bay was added. The centrally located and carefully maintained two-acre site is in a busy commercial area off MA-3. Plymouth is home to 13 employees. Chris Fey is the branch manager and Mark Rieder is the assistant branch manager.

Milton Rents has been warmly welcomed by its new communities and it has been a successful first few months. "We have been busy at both locations, and we are already in line with the company's growth goals," Ben Fey, Randolph branch manager, said. 

The new Randolph, Mass., facility in an industrial area, is close enough to Boston to do business with area contractors.

Photo by Milton Rents



The Milton Rents Plymouth showroom features a wide variety of contractor-oriented rental equipment.

Photo by Milton Rents

and safety equipment. All nine Milton Cat locations work closely together giving customers access to any of the equipment in Milton Rent's entire inventory.

equipment rentals for more than 22 years. Shaughnessy was a managing partner at Taylor Rental, a Milton Cat Rental Alliance company, until he began Shaugh-

NEWS

United Rentals Ships 2022 Ford F-150 All-Electric Trucks and Electric Vans to Formosa Plastics Corp.

POINT COMFORT, Texas — Formosa Plastics Corp. U.S.A. received a shipment of 2022 Ford F-150 Lightning All-Electric trucks and 2022 Ford E-Transit All-Electric vans from United Rentals as it converts its fleet of more than 400 vehicles to hybrid and electric units. The company, an early adopter of electric vehicles, is among the first in South Texas to receive these electric units, receiving a shipment in time for a celebratory event with media and community leaders at Formosa Plastics' facility in Point Comfort, Texas, August 25.

Formosa Plastics considers the event significant because there is high demand and short supply for these types of electric vehicles.

Formosa Plastics said it values its long-term partnership with United Rentals. The companies have worked together for 25 years. It said sharing their mutual commitment to reducing the environmental impact of their operations and reducing their carbon footprint has been at the forefront of their business planning.

"United Rentals understood Formosa Plastics' commitment to meeting our sustainability goals," said Mike Rivet, director of special projects in the general manager's office at Formosa Plastics. "We take these commitments very seriously, and this is just the first of many examples to demonstrate our desire to be a leader in implementing sustainable solutions."

"Both Formosa Plastics and United Rentals are committed to sustainability efforts that will have a tangible impact on the environment," said Joli Gross, senior vice president, general counsel and corporate secretary at United Rentals. "This partnership is an example of teams using innovative and eco-conscious ways to Work United and build a better, more sustainable future together."

Formosa Plastics is committed to converting its fleet of more than 400 internal combustion vehicles to electric and hybrid by 2026. Formosa Plastics will lease some of these vehicles and will purchase others.


Formosa installs charging stations

Formosa said it will install a sufficient number of charging stations at its facilities in Point Comfort, Texas, for use by associates and business partners. Electric vehicle charging stations are also available for use by associates at the headquarters in Livingston, N.J., and Baton Rouge, La. It added that it is ag-



gressively evaluating green power opportunities in South Texas. Formosa's Sustainability information reflects its commitment to doing its part both as a member of the global economy and as an engaged corporate citizen at the local level.

Founded in 1978, Formosa Plastics Corp. U.S.A. is a supplier of plastic resins and petrochemicals. With annual revenues of more than \$5 billion, the company employs more than 2,500 people who operate more than 20 production units in five business divisions – Olefins, Polyolefins, Vinyl, Specialty Polyvinyl Chloride, and Chlor-Alkali. It is certified to the ISO 9001 quality management system and the ISO 14001 environmental management system.

United Rentals, No. 1 on the RER 100, is headquartered in Stamford, Conn. It now has 1,331 rental locations in North America, 13 in Europe, 28 in Australia and 18 in New Zealand. In North America, the company operates in 49 states and every Canadian province. 

United Rentals is supplying Formosa Plastics Co. with all-electric Ford trucks and vans as it converts its 400-plus-unit fleet to electric vehicles.

Photo by United Rentals

Terex Invests in Acculon Energy to Accelerate Aerial Electrification

COLUMBUS, Ohio — Genie and Terex Corp. announced that Terex is making a Series A investment in Acculon Energy, a Columbus, Ohio-based engineering and connectivity company focused on developing the next generation of electrification solutions for non-automotive equipment applications.

Since its founding more than 55 years ago, Genie, which is owned by Terex, has been a leader in developing, growing and evolving the aerials industry. Acculon, through its founders, has 13 years of experience operating at the forefront of advanced battery technology solutions. By partnering with Acculon, Genie is committing itself to the electrification of the industry — now and into the future.

“For decades, Genie has been a leader in developing and refining industry-specific technologies to electrify aerial equipment,” said Simon Meester, Genie president. “Now, as the global construction industry gears up to get to the next level of emissions reduction, Genie is excited to be teaming with




Acculon. Together, we will continue leading the charge toward a greener and cleaner future, while maintaining the focus on the quality, reliability and performance for which Genie is known.”

Acculon’s team has significant experience not only in the research and development of advanced battery technologies, but in artificial intelligence and cloud-connected products as well. The company also has important capabilities in certifying battery-enabled systems. This partnership with Genie and Acculon will build on Genie’s position as an industry leader in the electrification of the aerials industry, accelerating the progress on current and future development projects.

“We are excited to partner with Genie and Terex, whose names are synonymous with quality and safety. Our partnership will accelerate the delivery of next-generation electrification solutions for Genie equipment and the people who count on that equipment every day,” said Acculon’s president Andrew Thomas.

For more information on Genie products and services, visit www.genielift.com.

Acculon Energy is a Columbus, Ohio, systems engineering firm specializing in energy storage and cloud-connected solutions. For more information, visit www.acculonenergy.com. 

Bottom Line Equipment Expands into Dallas-Fort Worth Metroplex

GREENVILLE, Texas — Bottom Line Equipment LLC, long known throughout the Gulf Coast region as a major heavy equipment and specialty attachment

been underway for years and will likely continue well into the future in the area. Economic expansion in the Dallas-Fort Worth area is driving the need for infrastructure, commercial and residential development, and sprawling urban complexes. All this growth has brought with it a high demand for heavy equipment and specialty attachments.

Since Bottom Line Equipment already has multiple other established service centers spread out across Louisiana and Texas, many of its customers do business in the Dallas-Fort Worth area. Construction contractors, builders, excavation and demolition companies, and other trades are currently working in or expanding into the area. Bottom Line is providing access to late model, low-hour machines and tools required to keep them up and running. The base of Bottom Line Equipment’s DFW footprint is a 19-acre service center located on Interstate 380 in Greenville, Texas.

This location plans to provide service to new and existing customers in the greater DFW metroplex as well as other locations in North Texas, Northeast Texas, and even into adjacent regions in Oklahoma and Arkansas.



Bottom Line Equipment, a major rental player along the Gulf Coast, is making a major move into the Dallas-Fort Worth metroplex.

Photo by Bottom Line Equipment

rental and sales resource for all types of construction, demolition, pipeline, and debris-removal equipment, recently broke ground on a major expansion into one of the country’s largest markets, the Dallas-Fort Worth metroplex.

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Company operations will include Bottom Line Pro-Fit Solutions. The new Bottom Line Pro-Fit Solutions team is comprised of specialists focused on delivering unique equipment and specialty attachment solutions to Bottom Line customers.

Kurt Degueyter, Bottom Line Equipment CEO, owner and founder said, “We’re very excited to expand our company footprint into the DFW Metroplex, a critical component of our company’s strategic growth strategy. Our new Greenville, Texas, service center will provide top-tier heavy equipment and specialty attachments, as well as the superior service and support we’re known for, to all our customers working in these areas.”

Bottom Line was founded in 2005 in Lafayette, La., with a mission of building better communities by raising the standards of quality and safety for all. The company said its success has been fueled by a “make it happen” attitude and partnering with customers to satisfy their specific needs. Over the years, Bottom Line Equipment has expanded business operations throughout Louisiana and Texas, opening service center locations in St. Rose, Baton Rouge, Broussard and Sulphur, La., and Beaumont, Baytown, Corpus Christi, and now Greenville, Texas.

Based in St. Rose, La., Bottom Line Equipment is No. 41 on the **RER** 100. **RER**

Texas First Rentals Acquires Class A Equipment Rentals

FREDERICKSBURG, Texas — Texas First Rentals, a division of Holt Cat, has acquired Class A



Equipment Rentals, a construction equipment rental company located in Fredericksburg, Texas.

Texas First Rentals is a construction equipment rental company, offering rental solutions through its full line of aerial lift, compaction, air compressor, earthmoving, and power generation equipment.

“We are continuously evaluating the needs of our customers and decided it’s the right time for Texas First Rentals to expand into the hill country,” said Texas First Rentals senior vice president and general manager Don Myrick. “Our search for a new location in Fredericksburg ultimately led us to solidifying an agreement with Class A Equipment Rentals.”

With this acquisition, current Class A Equipment Rentals employees will become employees of Texas First Rentals. The company will operate from the current Class A Equipment Rentals location until early 2023 when construction on Texas First Rentals’ Fredericksburg location is scheduled to be complete.

“As a previous customer of Holt Cat, we recognized the

value Class A Equipment Rentals and its employees bring to the community,” added Myrick. “We are confident the business and team built by Claudyne and Tracy Clark align well with our values and we look forward to expanding upon the success of Class A Equipment Rentals.”

Class A Event Rentals, which currently shares space with Class A Equipment Rentals, will not be impacted by the acquisition. Class A Event Rentals will retain its current ownership and remain in its current location.

Texas First Rentals has more than 20 equipment rental branches in the state of Texas. For more information about the products and services available through Texas First Rentals, visit www.texasfirstrentals.com. **RER**

Texada Acquires Mobile Software Supplier LogiMove

TORONTO — Texada Software, a software platform for the equipment dealer and rental industry, has acquired LogiMove CheckMobile Global. LogiMove is known for its next-generation mobile no-code/low-code applications for operations and field services in the equipment industry. With this acquisition, Texada adds a powerful new component to its platform, which integrates equipment dealers’ and rental companies’ back offices with their service and maintenance operations, and their sales and e-commerce.

LogiMove, based in Reno, Nev., and Hamburg, Germany, is a no-code/low-code application for digitizing and optimizing field operations for heavy equipment dealers and rental companies. LogiMove’s tools are used by industry-leading companies to create fully customizable process solutions that automate field tasks, like inspections, without the need for complex coding.

“This is an extremely exciting time for Texada,” said Matt Harris, Texada CEO. “The addition of the LogiMove solution to Texada’s platform enables us to provide an entirely new set of integrated field solutions helping our customers automate

Deere & Co.'s Net Sales Increases 22.3 Percent in Fiscal Third Quarter

MOLINE, ILL. — Deere & Co. posted \$14.102 billion in fiscal 2022 third quarter sales and revenue compared to \$11.527 billion fiscal 2021 sales and revenue, a 22.3-percent increase. Net income for the fiscal third quarter was \$1.884 billion compared to \$1.667 billion in the fiscal third quarter of 2021, a 13-percent increase.

For the first nine months of fiscal 2022, Deere reported \$37.041 billion compared to \$32.697 billion a year ago, a 13.3-percent hike. Net income for the first nine months of fiscal 2022 was \$4.885 billion, compared to \$4.680 billion a year ago, a 4.4-percent increase.

"We're proud of the extraordinary efforts by our employees to increase factory output and get products to customers under challenging circumstances," said John May, chairman and CEO. "At the same time, our results reflected higher costs and production inefficiencies driven by the difficult supply-chain situation."

Deere is forecasting net income in the range of \$7 billion to \$7.2 billion for fiscal 2022.

"Looking ahead, we believe favorable conditions will continue into 2023 based on the strong response we have experienced to early-order programs," said May. "We are working closely with our factories and suppliers to meet higher levels of customer demand next year. Additionally, we are confident the company's smart industrial strategy and leap ambitions will continue unlock-

ing new value for customers through Deere's advanced technologies and solutions."

The Construction & Forestry Division reported \$3.269 billion in fiscal third quarter net sales compared to \$3.016 billion a year ago, an 8.4-percent increase. Operating profit was \$514 million compared to \$463 in the previous year, an 11-percent jump.



The Production and Precision Agriculture Division jumped 43 percent year over year while the Small Agriculture & Turf Division increased its net sales 16 percent.

As a result of Russia's invasion of Ukraine, Deere has suspended shipments to Russia, reducing forecasted revenue for the region, and initiated a voluntary employee-separation program. As of July 31, 2022, the company's net exposure in Russia and Ukraine was approximately \$436 million. Net sales from the company's Russian operations represented 2 percent of consolidated annual net sales from 2017 to 2021. **RER**

Deere reports a 13.3-percent revenue hike for the first nine months of its fiscal year.

Photo by Deere & Co.

otherwise very time-consuming tasks. Importantly, LogiMove is a proven product being used innovatively by some of the world's largest rental companies. Adding LogiMove to Texada will be a game changer for our customers and for the equipment rental and dealer market in general."

"The heavy equipment rental and dealer markets are ripe for innovation since much of the software in use today dates back to the '80s and '90s, with cumbersome processes and poor customer experience," said Philipp Weirach, founder of LogiMove. "The Texada platform and broad customer base combined with LogiMove's

mobile-first customer-centric applications make this the most exciting offering in the industry. I am thrilled to have the opportunity to be part of creating this future."

The Texada platform provides customers with a complete solution for managing equipment rental businesses and equipment assets themselves. Texada solutions integrate an equipment rental company's back office with its field operations, customer acquisition, and payments, enabling rental companies



Texada acquires LogiMove, which includes AI-driven automated pre- and post-rental equipment inspections.


Graphic by Texada

to have end-to-end control and visibility into their business. LogiMove brings new integrated capabilities enabling powerful field applications such as AI-driven automated pre- and post-rental equipment inspections that demonstrably improve customers' inspection accuracy and recovery of damage charges.

"There is a large need in the equipment dealer and rental markets for easy-to-use, modern, cloud-based software and we're excited to acquire such a complementary platform as well as

the talented LogiMove team to build a market leader," said Hugh Kirkpatrick, vice president of Banneker Partners, a major investor in Texada Software. "We know an integrated low-code/no-code solution will add tremendous value for our customers, and we look forward to investing in a shared vision to digitize and transform the equipment industry."

The acquisition is effective immediately.

For more information about Texada, visit texadasoftware.com. 

Point of Rental Listed on Inc. 5000 for Fourth Consecutive Year

FORT WORTH, Texas — Point of Rental Software was named to the 2022 Inc. 5000, Inc. Magazine's list of the fastest-growing private

of 80 percent, Point of Rental continues to develop innovative software solutions that drive the global rental industry forward, the company said.

"We're thankful for all the people that have helped us continue to grow over the past year," said Point of Rental CEO

this kind of sustainable growth without people who are passionate about improving products and the lives of others."

The 2022 Inc. 5000's aggregate revenue is \$209.7 billion. Companies were ranked according to their percentage revenue growth over the past three


Point of Rental is named to the Inc. 5000 for the seventh time since 2014.
Graphic by
Point of Rental Software



companies in the United States, based on revenue. This is the fourth consecutive year on the list for the company and its seventh time on the list since 2014.

Ranked No. 4986 on the list with a three-year revenue growth

Wayne Harris. "It's Pointers worldwide who provide Epic software and service. It's our customers, working in their rental stores, using the software every day and helping push new innovations. We couldn't have

years. Complete results of the Inc. 5000, including company profiles and an interactive database that can be sorted by industry, region, and other criteria, can be found at www.inc.com. 

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Interviews with Aerial Manufacturers: An Opportune Time

Some of the aerial industry's leading manufacturers discuss new equipment evolution, new achievements in safety and accessories; the lead-time issue; the explosion of electric units; and more.

BY MICHAEL ROTH

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Haulotte.

RER: What new equipment enhancements or developments has your company come up with in the past year?

Messina: JLG continues to focus on and invest in delivering equipment and technology solutions that help solve jobsite challenges. In the past year, we have worked to expand our product portfolio and offer modern enhancements to our existing lines. Many of these developments represent a significant change for the aerial equipment market, born from our commitment to understanding our customers' jobsite challenges and partnering with them to develop solutions that deliver tangible benefits to their businesses. Every day we strive to put this belief into action, and the

path to developing the 670SJ boom lift with self-leveling capability is an example of this.

This machine came as a result of our teams watching how boom lifts work on job sites and talking with operators that use this type of equipment every day. Many applications and working environments can be rather challenging for a traditional oscillating axle boom lift to work in because they are only rated to work on firm, level surfaces with five degrees or less of grade. And most job sites aren't flat — nor will every job site have an improved surface.

To alleviate these challenges, the 670SJ is engineered to automatically adapt to terrain on slopes up to 10 degrees in any direction while driving with full functionality. Essentially, the boom lift's chassis adjusts to the ground



JLG's 670SJ boom lift with self-leveling capability was developed from watching how boom lifts work on job sites and talking with operators.
Photo by JLG

conditions — rather than having to adjust the ground conditions to the machine.

These features have directly led to significant productivity gains throughout the workday. For example, as operators have used our self-leveling boom lifts, they've told us that some of the advantages this technology offered them were:

- Fewer chances for dropped tools
- Operators and occupants were steadier during travel due to reduced bouncing of the unit as it traversed uneven terrain for improved operation and reduced fatigue
- Improved productivity translated to more work getting done
- Platform occupants' fear of heights reduced because of a smoother ride
- Greater stability with operators reported feeling more secure while driving

The term innovation is thrown around so frequently in today's day and age. However, true, game-changing innovation that improves safety and productivity like our self-leveling boom lift are few and far between. This product represents thinking outside the box to solve actual customer pain points, combined with years of fine-tuning and discovery alongside customers to bring to market a solution that will improve the way people work at height.

Another introduction in our boom lift line was the new Quad Tracks system for JLG 600S and 660SJ models, which offers operators increased machine utilization and flexibility for working on a range of surfaces, including sand, mud, gravel, grass, paved streets with curbs, potholes and sharp transitions.

We also had some notable additions to our scissor lift line-up, including four new rough-terrain and electric rough-terrain (ERT) scissor lifts in 40-foot and 47-foot models. The new RT4769 and ERT4769 represent the tallest machines in their class and provide users with access to five-story heights — an industry first. The new electric-drive JLG ES2646 and the hydraulic-drive R2646 slab scissor lifts have a 20-percent increase in capacity compared to competitive models in the size class, which allows users to carry more materials, like pipes and panels, as well as tools such as welders, to work at height.

And, we can't forget the big announcement we made in our telehandler portfolio — the addition of the R1370, R1385 and R11100 rotating models. These three machines offer users capacities from 11,000- to 13,000-pounds and maximum reach heights of 67 to 97 feet. The R11100 model is JLG's highest-reaching telehandler to date.

Meester: The electrification of our industry is a hot topic right now. We have continued to bring new, exciting hybrid/electric products, which our customers have responded very favorably to.

In May, we announced the industry's first lightweight telescopic boom in the 60-foot height class. The S-60 DC all-electric boom and the S-60 FE hybrid boom are already available in Europe, the Middle East, Africa, and India, and will be available in North America in 2023. We're excited about these products because they offer the cleaner, greener performance that our customers and many jobsites are looking for and need. They also perform as well if not better than their diesel counterparts, and they are cost-effective to own and operate.

Then, in August, Terex and Genie announced a Series A investment in Columbus, Ohio-based Acculon Energy, which designs electrification solutions for non-automotive applications. Genie already has demonstrated decades of leadership in electric power in the aerial



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industry, and this investment in Acculon makes sure we will remain an industry leader in developing quality, next-generation solutions.

And, although I can't say anything more right now, you can expect more to come from Genie before the year is over.

Early: The last 12 months have been quite busy. While OEMs are continuing to face challenges in supply chain and logistics the rental market has remained positive, and demand is increasing. It has definitely been an opportune time to launch new products.

Skyjack launched the first of those new products with our next generation vertical mast lifts. Following the launch of the award-winning SJ20 E, the new SJ12 E and SJ16 E provide a quiet and versatile package with zero emissions. With a new mast design, direct AC electric drive, drivable at full height, and fewer hydraulic connection points, the SJ12 E, SJ16 E, and SJ20 E boast an increased duty cycle by up to 30 percent.

Secondly, we saw that it was an unfortunate and commonplace practice for operators to stand on railings to gain a little more height to access small areas. For



JLG is launching a new group of rotating model telehandlers offering users capacities from 11,000 to 13,000 pounds and reaching up to 97 feet. Photo by JLG

example, standing on the railings to obtain access through suspended ceiling tiles. Skyjack's XStep helps eliminate this dangerous practice and maximizes reach and productivity by providing operators with safe, increased access into and around tight, restricted spaces and avoids the elevated risk of falling from the platform.

The XStep consists of a swing down base with full height railings that, in turn, is securely mounted on the mid-rails of the scissor lift. Suitable for the current generation of SJ3215 and SJ3219 DC scissors, as well as retrofittable to previous Skyjack DC scissor models and

can easily be moved between units, further increasing fleet flexibility. The operator can step up (48cm) into the XStep, close the top rail and work safely gaining extra jobsite access. Important in the design has been the ability for one person to install the XStep in just five minutes without the requirement of special tools or lifting equipment.

To round out the year, we looked at our telehandler range. Initially launched in 2015, Skyjack offers six models within core classes of telehandlers throughout North America. The new changes are a direct result of customer and operator feedback.

While we have made one-off changes to our TH Series throughout the years, these are the first significant design changes that we have done since launching. In doing so, we feel we have increased the return on our customer's investment by improving reliability, and serviceability.

The core changes include:

- A significant change in the tilt compensation cylinder configuration to utilize a dual cylinder design, to better distribute the load and improve reliability.
- A new high-pressure filter has been added to the hydraulic system to complement the oil return filter and further reduce the risk of contamination.
- The main boom pivot bearings have been updated to greaseless bearings, removing the need for end users to grease and maintain on job sites; and,
- Highly durable steel cowlings have been introduced. These are highly durable for better onsite protection and are also easier to repair.

Kissinger: Our newest development is a heavy-duty pipe rack for our A92.20 Pro Series scissor lifts, which improves safety and productivity of operators. Without a manufacturer-certified pipe rack, operators didn't have a safe way to bring pipe up to their working location. While we have had various pipe racks for prior generations of our scissor lifts, which were designed for a specific need of the customer, we created a new design and tested it to current standards. The new design provides up to 300 pounds of capacity without reducing the total platform capacity, simplifies installation, doesn't require any counterweights, and is positioned so that it is not obtrusive to the operator.

Jensen: This year, Haulotte is upgrading its compact range of electric scissor lifts. The five new rugged models have been redesigned to ensure a maximum utilization rate, increased safety and simplified maintenance. They integrate the group's high-quality standards and meet all the requirements for working at heights from 20 to 39 feet on all types of stabilized ground. All models are equipped with the newly designed guardrails that feature thicker stock. The easily foldable guardrails come standard on all compact models.

QUIET endurance

The **Snorkel S2770RTE** takes charge with long-lasting lithium-ion batteries. Packed with electric power, this lift can endure all the challenges of a full workday. Its lightweight, compact design moves with quiet ease around every corner. Paired with robust 4-wheel drive, tough terrain is no match for this durable performer. The S2770RTE is built to handle any environment with a lift capacity up to 1,250 lbs. (580kg) and spacious roll-out deck extension to maximize efficiency.



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Scissor operators will love the way the new AC motors respond to control inputs. The proportional controls ensure smooth and precise movements even when working and maneuvering at full height. Compact scissors are equipped with Haulotte Activ'Energy Management. The intelligent Canbus charger constantly monitors battery parameters to ensure optimal charging. It also incorporates dedicated charging cycles for battery maintenance (desulfation, equalization, etc.). To reduce maintenance costs and efforts, the system can be fitted with centralized watering solutions, either manual or automatic.

RER: Any new achievements or developments in safety equipment or accessories?

Messina: As with our product development efforts, JLG has continued to evolve its safety equipment and accessories offerings. One example of this was JLG announcing a developmental partnership with RE2 Robotics in early 2022. This collaboration of our two companies is to advance the integration of robotics with access equipment to deliver improved operator safety and enhanced productivity on job sites.

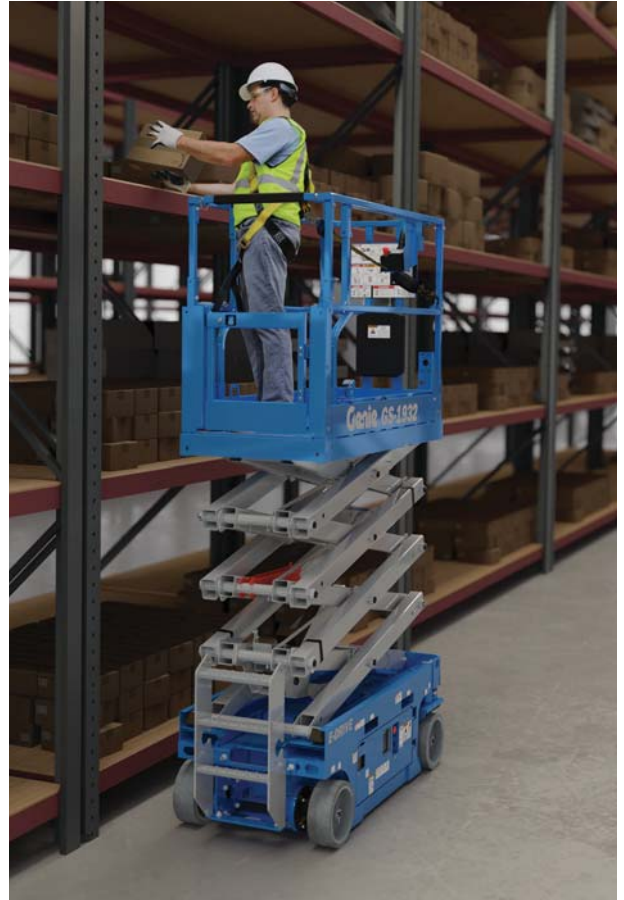
The initial project the companies are working on together is to produce a remote-controlled aerial lift, with no platform, to install solar panels, which represents the first real step toward autonomous aerial lifts. We're still in the early stages, although there's a tremendous interest in maturing this type of technology in the construction space because if we can be successful here, there's a clear case for a robot in this application.

Meester: One benefit of electrification is that electrifying equipment doesn't just reduce or eliminate emissions, it also helps reduce and eliminate hydraulic leaks, which can be a headache on jobsites, and costly to clean up. In fact, over the next few years, we expect to see more all-electric solutions that will eliminate leaks completely. We're not quite there yet, because the solutions aren't always cost-effective — it has to be the right solution at the right time. But that is the direction we are heading.

Our E-Drive scissor lifts already almost completely eliminate the risk of hydraulic leaks, but one of our other new innovations announced this year, the Lift Tools Spill Guard, is an economical, easy-to-maintain hydraulic containment system that offers additional protection to eliminate the risk of hydraulic leaks.

Early: Covered in question one, the XStep offers:

- All round fall protection.
 - Access to controls.
 - Simple installation.
 - Increased productivity.
- Suitable for the current generation of SJ3215 and



Genie is working to expand its supply base, and its engineering group has, in some cases, redesigned some elements to fit the components that have been available.

Photo by Genie

SJ3219 DC scissor, as well as previous Skyjack DC Scissor models, it can easily be moved between units, further increasing fleet flexibility.

Kissinger: We just released the heavy-duty pipe rack, which will allow operators to safely lift pipe to height. Additionally, we have several projects in the works to increase jobsite safety and productivity for the operators and will help improve dealers' ROI. These new projects will be released at The ARA Show in 2023.

Jensen: Haulotte has led the industry in secondary guarding technology for boom lifts with the innovative Activ'Shield bar. Now we are bringing a new secondary guarding device that is perfectly integrated into the upper control box and detects the driver's position and movements in real time using lidar technology. A warning light and audio announcements, available in 13 languages, inform the operator of the system's status. In dangerous situations, the machine stops immediately and restricts forward movements.

RER: Obviously longer lead times have been a major concern for rental companies with some saying they are waiting a year or even two years for some machines. What steps are you taking to try to reduce these long lead times?

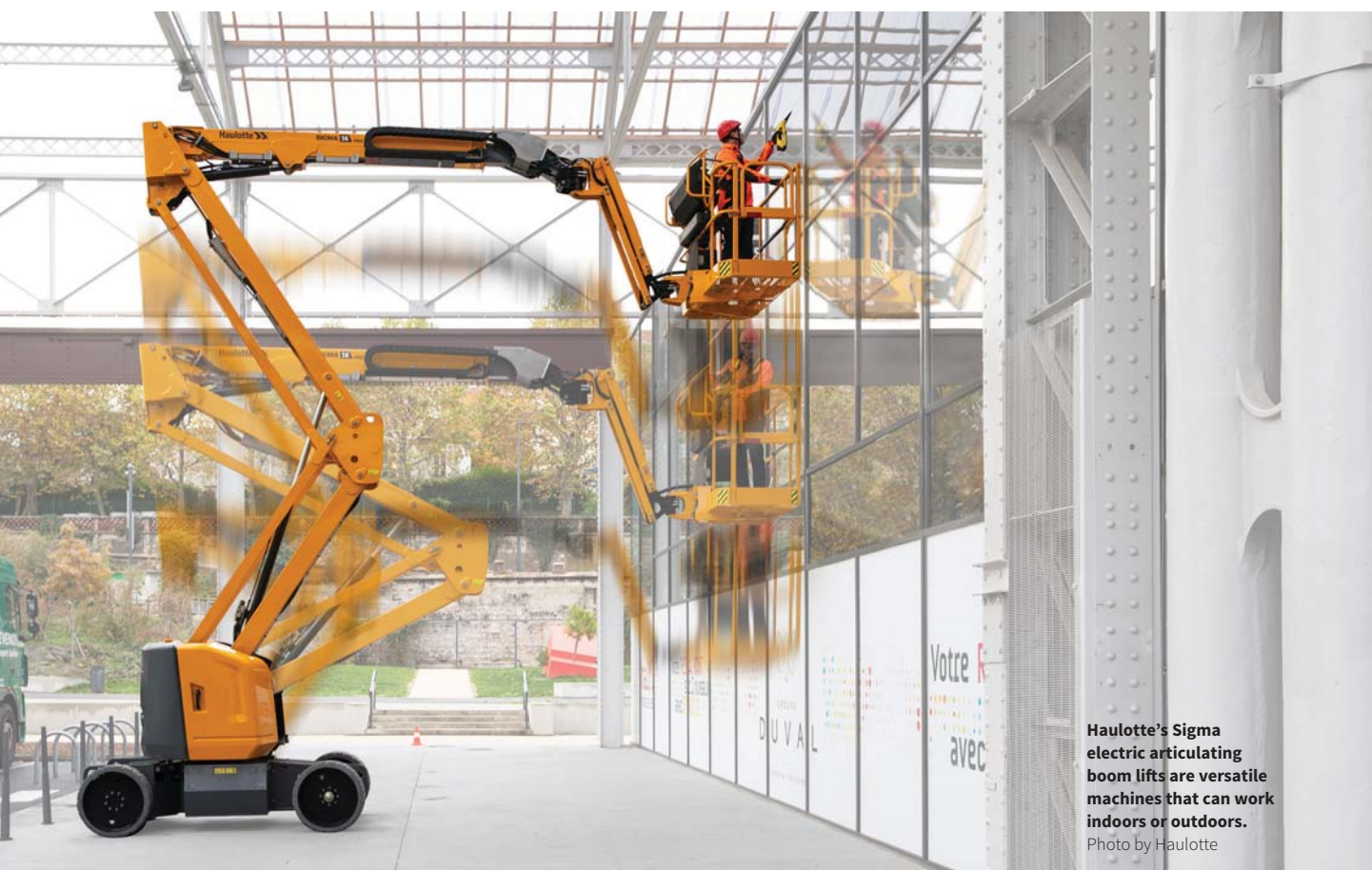
Messina: Right now, an ongoing challenge we face as a manufacturer is the constrained supply chain, and longer lead times for our customers are a result of this. We are beginning to see signs of stabilization in some categories and anticipate that the whole ecosystem will continue to normalize in the coming year. But right now, demand continues to outweigh supply in many categories, and it is a headwind the entire industry is still working through.

Through this, we've learned that we need to become more geographically adaptive and agile. We are working to improve the supply chain resiliency of our products by finding and qualifying additional sources of supply in multiple regions across the globe.

For rental businesses concerned with longer lead times, one thing they can do to help OEMs shorten lead times is to forecast their product needs and secure build slots from manufacturers as soon as possible.

Meester: This, obviously, has been one of the biggest challenges this year, and last year. Not just for Genie, but for all equipment manufacturers. Unfortunately, there is not one silver bullet solution; it's a multitude of different kinds of material categories and often multiple supply tiers deep. Not to mention the logistics and freight challenges. We've been deeply engaged with our suppliers to constantly work on solutions and alternatives. We've also been working to expand our supply base. And our engineering teams have done a great job of being innovative and, where it's been possible and made sense, redesigning for the components that are available.

Early: The post-COVID-19 situation represents probably one of the most challenging business environments the access manufacturing business has known. During COVID we used to think we were in unprecedented times yet two years on we see daily challenges that just seem to keep on coming. The issue of availability is compounded by rising costs, global logistic issues, and labor availability. Then one adds another layer with geo-political events such those in Ukraine – energy surcharges, China's zero-COVID policy with associated lockdowns, and Sri Lanka, an important supplier of the industries' tires.



Haulotte's Sigma electric articulating boom lifts are versatile machines that can work indoors or outdoors.
Photo by Haulotte

Costs and prices have increased, and new issues arise daily. As a business we have seen our backlog for 2022 and 2023 continue to grow. We have daily conversations with customers on lead times, which unfortunately are increasing.

Ultimately, this means we are looking at our manufacturing footprint with a view to increasing capacity and having an in the market for the market approach with shorter and more flexible supply chains.

Jensen: Supply chain shortages have been a big challenge across nearly every industry for the past two years. Haulotte has been working very closely with our suppliers to keep a steady flow of equipment onto the production lines. Our engineering and R&D teams have been working hard to find alternate component solutions that meet Haulotte's high standards so we can minimize the delays as much as possible. Although we still have lead times that are longer than we would like, we have also seen record production volume numbers as we work hard to bring those lead times down.

RER: Costs of machines have increased significantly in the recent past? What has led to this cost increase and are you doing anything to try to reduce the cost of new units?

Messina: Insufficient supply, excessive demand, labor shortages, plus escalating raw material and logistics costs, are certainly all factors influencing market dynamics right now. Our focus at JLG continues to be delivering the best possible product to our customers, and to manage these complexities, we are working to improve the forecast of our demand signals and are collaborating with the supply base on these signals.

Meester: Like everyone else, we're facing strong inflationary pressures coming from material cost, freight/logistic constraints, energy cost, disruption in our operations, etc. We have aggressively tightened our own belts to give our customers as much cover as possible but inflation of this magnitude, which we haven't seen in 40 years, is simply too much to absorb through cost actions alone.

Early: Yes, every issue we face, whether it be availability or logistics or labour, comes with significant cost increases. We have always tried to limit "pass-on" but in today's environment it is just not practical. While we have increased prices, it far from covers the increased costs we are faced with.

On a day-to-day basis, we face changes down to a component level and are spending significant time and cost at looking for alternatives, testing alternatives, and issuing engineering changes. In the meantime, we are



Genie's S-60 FE hybrid boom, already available in Europe, Middle East, Africa and India, offers a cleaner and greener alternative while equaling diesel-powered units in performance, the company says.

Photo by Genie

looking at our manufacturing footprint and an "in the market for a market" approach.

Kissinger: There have been a lot of variables that have led to price increases, which is a result from supply chain disruptions to steel prices due to the Ukraine war to high inflation. We are always reviewing our suppliers, sourcing alternative parts, and redesigning our lifts to keep the cost of our lifts down.

Jensen: Pressures to increase prices seem to have come from every angle. Between inflation, supply chain shortages, and transportation challenges just to name a few, we've all seen prices grow. Although we have had to increase our pricing at Haulotte, we have as much as possible been able to honor the pricing that we agreed to when the purchase order was signed and accepted. That means that to date, we haven't applied any surprise surcharges or last-minute price increases no matter how long the lead time. We've rewarded our customers that stick with us through these challenges with the respect

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of sticking to our agreements and we hope to continue to do so. We also must strike the right balance so we can maintain the profitability required to provide effective technical and parts support to our customers and machines after the sale. We value our long-term relationship with customers and defend a win-win situation that benefits both parts.

RER: Have you made any improvements that make machines easier to maintain?

Messina: Our approach to making machines more efficient to maintain is a twofold solution.

First, we continue to incorporate new technologies that evolve and modernize our products, including the ability to service and maintain them. For example, when we introduced the AE1932 DaVinci lift in 2021, it was engineered as the first-of-a-kind all-electric lift — it has zero hydraulics to eliminate the potential for leaks and is powered by a single lithium-ion battery that recharges as the lift descends to lengthen the operational time between charges. These innovations offer our customers machines that require reduced maintenance, adding up to substantial cost-of-ownership savings.

Second, we have also introduced many new tools and accessories that enhance service technicians' experience with our products. For instance, the Inspection Assistant in JLG's next-generation Augmented Reality App increases efficiency by providing inspection details and in-depth information on-demand right on the technicians' mobile devices. The new DaVinciGO app provides intelligent diagnostics through their smartphones or tablets, allowing techs to view, diagnose and troubleshoot the DaVinci lift in real-time, from any location. And, our Handheld Analyzer gives technicians remote access to program, troubleshoot, calibrate or customize JLG equipment performance.

As technology continues to change the way service technicians work, JLG has gone further to offer on-demand access to our library of 3-D hydraulic schematics, available on our Online Express portal. These interactive renderings can help techs troubleshoot hydraulic issues by helping techs locate and trace a circuit to its functions on any JLG boom lift, scissor lift or telehandler model.



HyBrid Lifts' zero-turn 1630 scissorlift. The company recently introduced a heavy-duty pipe rack for its A92.20 Pro Series scissor lifts.

Photo by HyBrid Lifts

Meester: The short answer is: Yes, we have made improvements that make machines easier to maintain and will continue to look for ways to simplify maintenance without sacrificing performance or quality. And electrification itself helps as well, of course, because with fewer moving parts, you'll have less wear and tear.

The longer answer involves some recent examples of innovations in our boom, scissor lift and telehandler families that simplify maintenance, making it easier and less expensive both in terms of time and money. The design of our S-60 J and S-80 J boom lifts, for example, has been simplified and optimized so that they can deliver the performance and quality our customers expect from Genie with fewer parts that need serviced, maintained and replaced. Our AC electric drive motors, which you'll find in our E-Drive scissor lifts, and in many of our DC electric and FE hybrid boom lifts, are brushless and fully sealed, which means they are also maintenance-free. And finally, we didn't leave telehandlers out of this equation either. Our GTH-1056 telehandler can come equipped with a 74 hp, DEF-free engine option, which is a low-maintenance solution that also delivers better fuel efficiency than a higher horsepower engine, but with performance similar to a telehandler with a higher horsepower thanks to the transmission gearing.

Early: Skyjack became an industry leader by providing machine features that combine durability, quality, and serviceability, making our products world renowned for product reliability. Our team understands the importance of maximum uptime, so our equipment is designed to provide just that. All major service



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Operators can step up almost 19 inches into the XStep, close the top rail and safely gain extra jobsite access.

Photo by Skyjack

points are easily accessible, enabling straight-forward troubleshooting and repairs.

I mention above in Question 1 some of the changes we made to our telehandler range that epitomize this approach.

Our new vertical mast range now features a new mast design. The multi-stage hydraulic cylinder and inverted multi-section mast with overlaps helps increase rigidity. The new design is free from any chains, sheaves, or bushings to reduce maintenance burden. The larger section at the top of the design prevents debris ingress. Like previous Skyjack vertical masts, the Next Generation models keep the telescopic mast at the rear, which provides a totally unrestricted view from the front-facing control box. This layout also moves the steering wheels away from the mast, which offers excellent maneuverability with zero inside steering radius.

Kissinger: When we originally designed the Hy-Brid Lift product line our goal was to make the lifts quick and simple to maintain and 18 years later that is still our design philosophy. An example is instead of using hydraulics for driving and steering, we went electric, which significantly simplifies the hydraulic system. By only using hydraulics for lifting there isn't a need for an oil filter or a need to change the oil periodically. Another benefit of the simplified hydraulics was that it simplified our LeakGuard design for leak containment on jobsites. Our design only requires one tray, which can contain 100 percent of the hydraulic oil. Additionally, dealers can upgrade the wet cell batteries to maintenance free batteries to further reduce maintenance.

Jensen: The new compact scissor lifts have been designed to facilitate routine maintenance operations; components are easily accessible, electrical and hydraulic elements have been separated, and the routing of hoses has been carefully designed to avoid the risk of friction and leaks. Renowned for their performance and reliability, asynchronous motors require no routine maintenance. The scissors have been subjected to rigorous endurance tests to guarantee their ruggedness.

Compact scissors embed a number of diagnostic solutions to facilitate troubleshooting and reduce downtime. The Haulotte Activ'Screen on-board diagnostic tool gives access to machine parameters and provides key information about the machine's status in real time. These features are also available via the Haulotte Diag mobile application, which also offers advanced diagnostics with detailed resolution procedures.

The Sherpal telematics solution allows remote diagnosis of machines. It considerably reduces downtime by providing remote access to fault codes and recommending actions. The telematics data helps make sure technicians have the right parts on the truck so more repairs are completed on the first visit, reducing downtime.

The Activ'Energy Management tool allows complete control over battery maintenance, and thus can significantly reduce maintenance costs.

RER: Are electric machines and/or alternative fuel machines more in demand these days and what is your company doing to address that need in the marketplace?

Messina: Industrywide, interest in electric products is rapidly increasing due to continued pressure to find more non-fossil fuel-based solutions. We expect to see demand for these types of machines continue to gain popularity as battery technology advances and environmental considerations become more and more stringent.

To address this, JLG continues to work on projects that will add more electrified solutions and model options to our robust portfolio of electrified products.

Meester: More than 70 percent of Genie's product portfolio is already electrified, which has been a 20-year journey in the making. Genie is not new to this. Technologies that enable electrification, including batteries, are evolving rapidly. We can't sit still. We need to keep pushing ourselves. The venture with Acculon will help ensure we continue to deliver quality equipment with the right technology for our customers into the future.

continues on page 34

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Bobcat Co.

The WB700 commercial walk-behind mower comes in three width options: 36 inches, 48 inches, and 52 inches. The WB700 is designed with a commercial floating deck, which allows the operator to adjust the height without the need to unbolt any components. It also comes equipped with a tool-free oil drain and deck access, as well as an external oil filter location and battery access and a 5-gallon fuel tank. The unit also comes equipped with a hydraulic drive and Hydro-Gear ZT-2800 hydrostatic transaxles. The 20-inch drive tires provide ample ground clearance to minimize ground disturbance.



Diamond Mowers

The Excavator Drum Mulcher DC Pro X and Boom Drum Mulcher are designed for the landscaping industry. The excavator drum mulcher is offered in two widths – 30 inches and 50 inches – to accommodate excavator carriers from 4.5 to 10 metric tons. The excavator drum mulcher comes equipped with a Rexroth 63cc adjustable displacement hydraulic motor that provides torque to power through material up to eight inches in diameter. The boom drum mulcher can cut, process and eliminate wooden materials. The boom drum mulcher includes a hydraulic motor, optimized infeed system, and removeable bolt-on door.



Ditch Witch

The Ditch Witch SK3000 stand-on skid-steer loader is designed for construction workers, landscapers and golf industry professionals. The SK3000 is a stand-on skid-steer with a design that offers the convenience of not climbing in and out of a cab, 360-degree visibility and increased maneuverability. It has a lift capacity of 3,100 pounds. The unit can direct up to 51 horsepower to attachments and it delivers 5,500 pounds of break-out force. The SK3000 weighs 7,600 pounds. An open, 332-square-inch standing operator station provides



full 360-degree visibility. It comes with an 8-, 14- and 22-gallons-per-minute flow setting.

Fecon

The FMX28 Bull Hog Mulcher for compact excavators is designed for 3.5- to 8-ton compact excavators with hydraulic flows from 12-40 gpm, the FMX28 is optimized for those in the 3.5-to-5-ton range. This mulcher features 14 knife tools on a bite-limiting split ring rotor to achieve a 28-inch cutting width. The unit was designed for an entry level vegetation management tool. The rear throat design ensures that no unprocessed material is left behind. It is capable of mulching overgrowth, underbrush, and small trees to five inches in diameter. Weighing in at 750 pounds, the FMX28 features a compact body design, and a downward front discharge mitigates thrown debris.



Hitachi

With its reduced tail-swing design, the 4-foot, 11-inch wide (1.5m) ZX26U-5N excavator is designed for working in confined spaces such as landscaping, renovation, trenching, backfilling, drilling and demolition applications. An operating weight of 5,560 pounds (2,520 kg) makes it convenient to transport with convenient tie-down holes on the side frame and blade. It also offers an independent swing boom and 360-degree rotation. The ZX26U-5N offers a maximum reach of 15 feet, 2 inches (4.63m). It also provides a maximum dig depth of 8 feet, 6 inches (2.59m). The unit is powered by a Tier 4 Final compliant, direct-injected Yanmar engine that produces 20 net horsepower (14.9 kW)



John Deere

The Dump-from-Seat Material Collection collects grass clippings. The Dump-from-Seat is compatible with all John Deere gas-powered Z900 ZTrak zero-turn mowers. The design of the collector moves the fulcrum of the dump lever closer to



the operator for simpler operation. The system also features a heavy-duty steel blower, to reduce clogs while operating. The blower finely chops materials, enhancing the collection process, while the powerful suction requires less passes. Tool-free clips provide access to the chute if a clog occurs.

Polaris

The Polaris Commercial Pro XD UTV mid-size model is designed for lighter payloads and tighter spaces. It comes in two- and four-seat versions with a capable 500-pound capacity cargo bed. It's designed for all-terrain and all-weather utility or people movement for applications like construction, events set-up, landscaping and facilities and grounds maintenance. Safety components include adjustable speed calibration, operator warnings, back up horn and pedestrian alarms, visible lights, and sightlines for visibility. Features include heavy-duty driveline components, as well as puncture-resistant Kevlar-backed vinyl seats and 8-ply nondirectional tires. The unit includes a Polaris Pro-Star 570 DOHC engine that has a 200-hour oil change interval.



Toro

The Toro Dingo TX 1000 has a rated operating capacity exceeding 1,000 pounds. When the loader arms are fully extended, the hinge pin measures 81 inches from the ground to allow the TX 1000 to reach over the side of dumpsters and one-ton trucks. The Dingo TX 1000 also features a vertical lift loader arm design, which keeps the load closer to the machine to allow operators to lift more weight. The Kubota 1305 liquid-cooled, diesel engine offers 24 gross hp at 2,600 rpm with increased displacement and high torque gives the TX 1000 maximum power. The machine also is equipped with dual fuel tanks.



Vermeer

The AX17 brush chipper model is designed for tree care contractors. Features include an intelligent feed system that includes the Vermeer SmartFeed and SmartCrush

systems. The AX17 is convenient to transport in congested urban areas with its single axle and weighs less than 10,000 pounds (4,535.9 kg). It features a winch boom that can be raised out of the way when not in use and a bottom feed stop bar. The brush chipper is powered by a 130-hp (96.9-kW) Cummins T4F diesel engine and has a 26-inch (66.0-cm) drum with two knives. It is equipped with horizontal offset feed rollers and a fixed infeed table.



Wacker Neuson

The stand-on SM100 utility track loader is designed for landscaping projects, light site work, grading, auguring, and general material handling. The standard nine-inch-wide tracks provide low ground pressure, reducing turf disturbance and repair work and the overall machine width of 35.5 inches fits through doorways, gates and other tight spaces. The unit is powered by a 24.7 hp Yanmar turbo-charged diesel engine. It offers a 1,000-pound rated operating capacity at 35 percent with a tipping load of 2,857 pounds. The optimized radial lift path provides vertical lift performance with a hinge pin height of 85.7 inches. The undercarriage with triple flanged rollers reduces wear and de-tracking.



Worx

The Worx Nitro 80V Brushless Backpack Leaf Blower helps homeowners and commercial landscapers remove leaves and other yard debris. The blower features the Worx Base Camp portable/transferable power system, high-efficiency brushless motor and sonic turbine fan technology. Base Camp is a removable power pack that holds four 20V 5.0Ah Power Share PRO batteries. The backpack blower's sonic turbine fan technology delivers a maximum air volume of 800 CFM at speeds up to 150 mph. The blower's Newton rating is 22N on Turbo mode and 16N on High mode. The blower weighs 23.6 pounds including batteries.



Bridgestone Americas

The VSWAS 23.5R25 V-Steel Snow Wedge All Season tire is designed for grader and loader applications. The VSWAS 23.5R25 provides performance in deep snow with a tread pattern that reduces stone holdings without the need for studs or chains. Design features include deep siping design for year-round use and advanced capability in snow, gravel, and soft sandy conditions. The tires have special tread designs with wide grooves and angled walls to help minimize stone retention, stone throw, or the need for chains, while contributing to a comfortable ride. Cut-resistant compound for reduced cutting, chipping, and puncturing, are designed to extend the life of the tire.



JLG

The quad tracks for JLG 600S and 660SJ boom lifts are made up of four triangular rubber-track systems, each measuring 34 inches high by 54 inches long by 18 inches wide. The tracks bolt directly to the boom lift's standard wheel hubs, offering increased machine utilization and flexibility for working on a range of surfaces, including sand, mud, gravel, grass, paved streets with curbs, potholes and sharp transitions. The Quad Track's design is low-profile and developed to minimize



impact on ride height, track width and maximum drive speed. When the work is done, the Quad Tracks can be swapped out for regular tires or for use on other applicable models.

Mitas

Mitas GRIP'N'RIDE construction tire range is a larger size tire for wheeled and backhoe loaders. The 21L - 24 IND tire is designed for improved performance even on softer terrain and features strengthened sidewalls for greater durability when handling increased load capacity, a special tread pattern that delivers increased



grip, and self-cleaning properties. The tire delivers almost 1,000 kilograms greater load capacity when stationary, and 400 kilograms greater load capacity at a speed of 40 kilometers per hour. The entire GRIP'N'RIDE range is designed specifically for the rear axles of construction machines.

TireSocks Inc.

TireSocks provide full coverage for over the tread wheels of traditional and non-marking tires to prevent tracks and residue on concrete or other finished sur-



faces. They won't slip off tires, and self-center as users drive, making them effective for indoor construction projects. Heavy-duty TireSocks include an extra layer of reinforced fabric and a patch over the seam for additional durability.

General Equipment Co.

The VelociMax axial-flow confined space ventilation blowers are designed for use in non-hazardous locations. Available in 8-, 12- and 16-inch diameters, the blowers provide free air flow ratings from 501 to 4,450 CFM. The blower models operate from a standard 115-volt electrical outlet.

For increased worker safety, they have the ability to exhaust air from a confined space area or introduce fresh air in, simply by changing the ventilation duct location on the blower's inlet or outlet. This versatility makes them effective in confined space applications, as well as in nonhazardous type locations, such as drying damp areas, cooling personnel or general air circulation.



Mi-T-M

The Kerosene Forced Air Portable Heaters range from 75,000 to 600,000 BTUs and are designed for working on a jobsite, workshop or garage when outside temperatures begin to drop. Mi-T-M's 75,000-600,000 BTU

KFA heaters feature built-in temperature control, digital readout and error indicators. They are designed with cast aluminum enclosed electric motors and sure start ignition for cold temperature starts. These portable heaters are designed for heating large areas for long periods of time.



Wacker Neuson

Hydronic surface heaters are designed to thaw frozen ground, cure concrete, prevent frost and provide temporary heat quickly and economically during cold weather conditions.

Wacker Neuson's E3000 is engineered for trouble-free starts and ensures consistent heat delivery for thawing and curing applications. The E3000 thaws or cures up to 6,000 square feet and with accessories that can manage up to 18,000 square feet or provide 535,000 cubic feet of dry heat at 83-percent efficiency.



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Early: Yes, the subject of electrification is a hot topic. Although I am tempted to say we ought to remember that as an industry, zero-emission DC scissors have led the way for many more years than the duration of the recent debate. At Skyjack the DC scissor and vertical mast are also undergoing change. In our case we introduced our vertical mast with electric drive, and we will see that feature, and its benefits, flow through our other DC-based product ranges.

Returning to internal combustion machines and alternatives such as hybrid and electric, we have teams working on these areas.

Looking more broadly, and more from the viewpoint of sustainability, rental companies and major contractors face increasing demands for sustainability information. This, in part, stems from government initiatives (and budgets) that see sustainability at the core of construction projects, including the use of sustainable machines. Skyjack has introduced its Eco mark to support our customers by providing products that deliver benefits in environmental performance and long-term sustainability

Kissinger: Hy-Brid Lifts have always done electric machines as they are more power efficient, quieter, and require less maintenance.

Jensen: In 2018 Haulotte introduced the electric Pulseo range of machines with the first all-electric 60-foot articulating boom to the worldwide market and committed to providing an electric alternative for all of our internal combustion engine-powered machines. Last year we released 43- and 53-foot electric rough terrain scissor lifts that featured a removable range-extending generator. Haulotte has new announcements on the horizon as we continue to demonstrate our commitment to our 2018 promise.

The marketplace has received our electric product solutions very well. The Pulseo range has been successful not only in global regions with environmental mandates banning the use of combustion engines. Haulotte electric machines are also finding success on indoor projects by solving worker safety and productivity challenges while providing large platforms and weight capacities on which to perform the work.

RER: Are there any other trends you're expecting to see in MEWPS in the near future?

Messina: Electrification is a major trend that we expect to see grow in the future as urban environments with stringent regulatory requirements target carbon footprints. Not only have we seen urbanization resulting in less open space on and between job sites, which has driven greater demand for high-reach equipment with a compact footprint, but we also see

it creating a socio-economic impact. As younger and younger generations enter the system, they demand more social responsibility from an environmental standpoint. As urbanization has increased people's awareness of environmental issues, there are now more emission-free zones and a call for more fossil fuel independence from a geopolitical standpoint, driving greater demand for electrification.

New tools and solutions are being used to create "moments of autonomy" with aerial equipment, continuing to advance the connected job sites of today and build the smart cities of the future. In some cases, this is happening through practical and digestible features and applications like AR and mobile control apps, and in other instances, we are now seeing the integration of robotics with MEWPs. While these innovations won't replace humans, they might be used to complete repetitive tasks and particularly hazardous environments where we don't want to put people.

As we look to the future of MEWPs and the aerial industry, JLG is focused on delivering solutions to what our customers need to grow their business and what they want to solve real-world job site challenges. Our customer-centric approach drives our development efforts ensuring that we are offering products that provide real value. We do this by paying attention to what others are trying, keeping an open mind when we are evaluating opportunities and investing the time and resources needed to bring innovative solutions to the market.

Meester: Digitization is certainly another trend in the industry right now. It is certainly playing a key role in helping equipment owners maintain and manage their fleets more efficiently, and it's also helping take jobsite productivity to the next level. And we're still just at the surface of what will be possible once we have fully digitized job sites' value streams.

Early: Sustainability will continue to develop. Geographically we see it more in Europe than North America, but as we see more government initiatives and frankly money coming with a sustainability character, we would expect to see that need grow. As this happens, I think there is a discussion to be had on infrastructure. Not unlike the evolution in electric vehicles. It is all very well having an electric machine, but on a site without a substantial electric supply would the current solution be a conventional fuel-based generator? The rental industry (and OEMs) has some thinking to do. We are used to charging DC scissors. How will facilities need to change to charge booms? It takes 10 minutes to pour diesel into a boom; how will longer charging times be accommodated? I think the conversation will move more away from electrification of the machine and more to the electrification of our industry. **RER**



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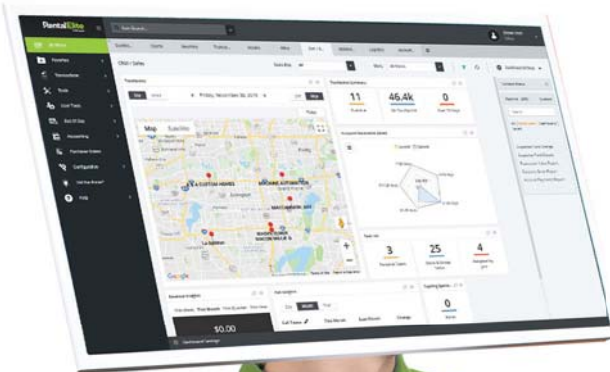
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