

A Message from the President



DeVaughn Pettit

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Dear Valued Customer:

We hope your 2022 is going well!

This year looks like another good one for construction. Industry economists and experts seem to agree that there will be growth overall, and the supply chain issues plaguing material acquisitions and driving up costs will ease in the latter half of 2022. They also believe that's when the impacts of the new infrastructure bill, which Congress passed in late 2021, will begin to take effect. We've highlighted some of the benefits of the bill, aka the Infrastructure Investment and Jobs Act, inside.

Historically, construction and working remotely have not gone hand in hand. After all, dirt work doesn't get done and structures can't be built without workers on-site, right? In some cases, that's evolving. Learn about how remote operations are changing the landscape in today's — and especially tomorrow's — construction industry.

Komatsu is already at the forefront of this change with solutions such as Smart Construction Remote and Smart Construction Dashboard. Inside, you will find more information about these products and how they help save time and reduce costs. Our Smart Construction experts can show you the advantages and help you implement these solutions into your operations.

There are several other interesting and informative articles to help your business, including tips on preparing your staff and equipment for the upcoming busy season.

As always, if there is anything we can do for you, please call one of our branch locations.

Sincerely,

DeVaughn Pettit President

2022 looks bright for construction



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JW Oliver Construction Inc. takes job sites from demolition to final grade throughout central and southern Georgia



JW Oliver, owner



Mack Oliver, general manager

As a teenager, John "JW" Oliver learned how to operate heavy equipment on his family's farm in Georgia. He quickly transferred that knowledge into operating a dozer and began clearing lots for local customers. In 2017, he established JW Oliver Construction Inc. out of Odum, Ga. The company completes a wide range of residential and municipal projects throughout central and southern Georgia.

"We're a turnkey operation focused on providing complete sitework," stated JW. "We typically move anywhere from 10,000 to 20,000 yards of dirt on-site and self-perform the clearing, grading, utility installation, erosion control, curbing and gutter, base, and concrete work. Our clients appreciate that it's one phone call to me, and we'll handle everything."

At 35 employees, JW relies on the team around him to help projects go smoothly.

"It doesn't matter who you are, you can't be successful in this industry without the right team in place," noted JW. "Our team in the field helps me manage and stay on top of everything. They're essential to our success."

Integral iMC

JW Oliver Construction recently completed work at one of its larger job sites — a new high school in Savannah. Ga.

"We worked with Savannah's school district to complete several phases of work on the new Herschel V. Jenkins High School," said Mack Oliver, general manager. "They brought us on-site to demo part of the old school so that another contractor could get to work on the new building. They were able to get the students into the new building for the start of the 2021 school year."

In 2022, the firm began work on a new recreational complex in Darien, Ga.

"The recreational complex is primarily a cut and fill job," explained JW. "We're moving 100,000 yards of dirt on-site to create softball and baseball fields, soccer fields, and football fields. We're also installing the sidewalks, parking lots and access roads for the complex."

To stay on schedule, JW Oliver Construction relies on its fleet of Komatsu equipment from Tractor & Equipment Company, which includes a PC290LC

In Savannah, Ga., a JW Oliver Construction operator cuts Herschel V. Jenkins High School's new baseball field to grade using a Komatsu D39PXi-24 intelligent Machine Control (iMC) dozer. "Once the information is in the system, the iMC technology on the dozers does a great job holding grade whether we're operating in forward or reverse," said Mack Oliver, general manager. "The slant-nose design on the dozer makes it easy to see where you're grading and avoid any obstacles like manholes."





At Herschel V. Jenkins High School in Savannah, Ga., operators use a Komatsu PC290LC excavator and a Komatsu D51PXi-24 iMC dozer to remove excess material and cut a new baseball field to grade. "We use the 290 to do a little bit of everything," said JW Oliver, owner of JW Oliver Construction. "It lays pipe, digs dirt and does whatever you need it to do. The GPS technology on the dozers make what would be three- or four-man jobs into one-person operations. That frees up our team to prep other parts of the job and work more efficiently."

excavator, a D39PXi-24 intelligent Machine Control (iMC) dozer and a D51PXi-24 iMC dozer.

When deciding which dozers to add to his fleet, JW and Mack tried out multiple brands, but several crucial differences made Komatsu stand out.

"The Komatsu dozers were the most user-friendly," explained JW. "I can send one of my operators a file on the computer or tablet, and they plug it into the system and go. It's a true plug-and-play setup."

"Once the information is in the system, the iMC technology on the dozers does a great job holding grade whether we're operating in forward or reverse," added Mack. "The slant-nose design on the dozer makes it easy to see where you're grading and avoid any obstacles like manholes. The seat in the cab is also more centered on the machine than competitive brands. That offers our operators a smoother ride, and they aren't exhausted after operating all day. That's a big deal when you're



An operator cuts a new baseball field to grade with a Komatsu D39PXi-24 iMC dozer. "The seat in the cab is also more centered on the machine than competitive brands," said Mack Oliver, general manager of JW Oliver Construction. "That offers our operators a smoother ride, and they aren't exhausted after operating all day."

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'It has the speed, power and reliability to keep us on schedule'

... continued

asking somebody to be on these things eight, 10 — sometimes 12 — hours a day, and then come right back the next day and do it again."

When it comes to the PC290LC excavator, JW Oliver Construction utilizes it like a Swiss Army knife.

"We use the 290 to do a little bit of everything," said JW. "It lays pipe, digs dirt and does whatever you need it to do. And, it has the speed, power and reliability to keep us on schedule."

Great machine reliability is one of the main reasons JW Oliver Construction continues to use Komatsu equipment.

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Mack Oliver, general manager of JW Oliver Construction (left), partners with TEC and sales representative Daniel Evans to find the right machines for its residential and municipal projects. "The team at TEC is easy to work with and talk to," noted Mack. "They're always helpful when you call with a question. My representative, Daniel Evans, is knowledgeable about the equipment and can talk me through a lot of stuff on the machine that I would normally have to ask a mechanic."

"Over the last 20 years, I've been able to compare Komatsu machines to several other brands and found that the Komatsu equipment lasts longer and holds up better," stated Mack. "You start comparing boring buckets, line boring arms, main pins and you can get 2,500 to 3,000 hours out of a Komatsu machine. We would only get about 1,500 hours out of our other brands. When you do the math, the extra hours you get out of the Komatsu machines add up quick. On top of that, Komatsu has the best motor compared to anybody else."

To keep its machines serviced and uptime maximized, JW Oliver Construction works closely with the TEC shop.

"The team at TEC is easy to work with and talk to," noted Mack. "They're always helpful when you call with a question. My sales representative, Daniel Evans, is knowledgeable about the equipment and can talk me through a lot of stuff on the machine that I would normally have to ask a mechanic about. TEC goes out of their way to support us, and we appreciate that."

Looking forward

JW plans to continue growing the business at a steady pace. He believes his company is well situated in the market to competitively price projects and complete work on schedule.

"We plan to continue working on similar projects while expanding our capabilities," stated JW. "We want to add more iMC machines to take on more complex jobs. The industry is in a good spot, and we're going to continue pushing and establishing ourselves as one of Georgia's premier turnkey sitework providers."

JW Oliver Construction utilizes a Komatsu PC290LC excavator at its Herschel V. Jenkins High School project in Savannah, Ga. The firm recently excavated 40,000 yards of material to make room for the new high school, baseball field, softball field, football field and parking lot.





TEC announces new president and CEO

Tractor and Equipment Company (TEC) promoted two longtime employees to new roles. DeVaughn Pettit took over the position of president from Chad Stracener, who is now the company's CEO. Both are excited for their new positions.

"My top priority as CEO is focusing on our customers' product support experience," stated Stracener. "We have a great responsibility to our customers to support the products we provide to them. We will continue to invest in our capabilities and search for new ways to partner with our customers."

Stracener began working for TEC during high school, spending summers in the parts and service departments. After graduating college, Stracener joined TEC full time in 2004. He spent the last 18 years working his way up through multiple departments before being promoted to CEO.

"I've built personal relationships with our customers and understand how each department directly affects their business," said Stracener. "Our new president, DeVaughn Pettit, has a similar background and understands our company from top to bottom. He is a high-character, high-integrity individual that positively impacts our day-to-day operations."

Pettit has spent 23 years with TEC, most recently as the senior vice president and general manager of Georgia.

"Our customers know that I'll get in the trenches with them because I'm a boots-on-the-ground type of guy," stated Pettit. "I put our customers' needs first. Whether it's a late-night phone call or driving them a part, I'll do what it takes to keep them running.

"TEC has a nearly 80-year history that is built on relationships," continued Pettit. "As president, I'm able to continue building relationships with current and new customers throughout TEC's entire footprint. My goal is to help our customers grow and overcome any changes, challenges or demands that come their way."

TEC's board of directors was responsible for promoting Stracener and Pettit. The board includes Ed Christian, Dan Stracener, Chad Stracener, Jeremy Tolbert, Brett Bussman, DeVaughn Pettit, and Jamie Steele. ■



Chad Stracener, CEO



DeVaughn Pettit, president

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Insider Tip: "With Smart Construction Field you can quickly see if you are ahead, on schedule or behind to give you the ability to make faster decisions that affect production," said Bryce Satterly, Komatsu Smart Construction solutions manager.

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You can:

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- Easily track and analyze daily spending
- Track job site daily activity
- Make better business decisions



Infrastructure Investment and Jobs Act brings historic investments

The recently passed \$1.2 trillion Infrastructure Investment and Jobs Act (IIJA), aka the Bipartisan Infrastructure Deal, will reauthorize surface transportation programs for five years and invest \$110 billion in additional funding to repair America's aging roads and bridges. With nearly \$40 billion dedicated to the latter, that is the single, biggest investment in bridges since the construction of the interstate highway system in the 1950s, according to the Biden administration.

Transportation safety programs will see \$11 billion in funding, including \$5 billion for the new Safe Streets and Roads for All program, established to help states and localities reduce crashes and fatalities in their communities. Another new program provides grants to community-owned utilities to replace leaky and obsolete cast iron and bare steel natural gas pipelines. In total, the infrastructure bill is projected to more than double funding directed to programs that improve the safety of people and vehicles.

Largest outlay for water systems

The spending package also includes the largest investments in other infrastructure

systems. To expand access to clean drinking water for households, businesses, schools and child care centers all across the country, \$55 billion will be dedicated to address water contamination and the replacement of lead pipes.

IIJA sets aside \$50 billion to protect against droughts, floods and wildfires, as well as weatherization, in an effort to increase the resilience of physical and natural systems from extreme weather events.

Modernizing for the 21st century

With major investments to connect rural areas, low-income families and tribal areas, \$65 billion will be dedicated to expanding broadband internet access. The bill includes provisions to make internet service more affordable and easier to compare prices.

An additional \$65 billion will modernize the nation's power grid and build thousands of miles of new, resilient transmission lines to facilitate the expansion of renewable energy.

Updates to the nation's power grid should allow more electric vehicles to be charged, and IIJA provides \$7.5 billion to build the





Roads and bridges receive the largest amount of funding in the Infrastructure Investment and Jobs Act at \$110 billion; nearly \$40 billion of which is dedicated to bridges. Transportation safety is to receive \$11 billion.

first-ever national network of electric vehicle (EV) chargers in the United States. This funding includes the deployment of EV chargers along highway corridors to facilitate long-distance travel, and within communities to provide convenient charging where people live, work and shop.

Updating public transit

In total, the new investments and reauthorization in IIJA guarantee \$89.9 billion in funding for public transit over the next five years — the largest federal investment in public transit in history. The legislation will improve accessibility to all users, bring transit services to new communities, and replace thousands of deficient transit vehicles with clean, zero-emission vehicles.

The legislation also invests \$66 billion in rail funding to eliminate the Amtrak

maintenance backlog, modernize the Northeast Corridor, and bring service to areas outside of the northeast and mid-Atlantic. Airports will get \$25 billion to address repairs, reduce congestion, and drive electrification and other low-carbon technologies.

Job openings

Additionally, the infrastructure bill will drive the creation of good-paying union jobs and grow the economy sustainably and equitably. Combined with the President's Build Back Better Framework, it is estimated that, on average, 1.5 million jobs per year will be added for the next 10 years.

Opportunities for construction workers, truck drivers, architects, mechanical engineers and cybersecurity analysts, among others, are likely to increase.

Your busiest time of the year is near. Make sure equipment and personnel are ready for maximum production

During the winter months, your machinery may have sat for a long period of time, or you may have kept working and just had routine services done during that time. Either way, it is vital to take steps to ensure your equipment is ready for the busy summer days that lie ahead.

Don't wait

If you have any outstanding work orders or operator repair tickets, finish them as soon as possible. Thoroughly inspect machines a few weeks before the schedule really heats up, and if you find any issues, address them right away. Remember, larger items such as undercarriages take more time to repair, so inspecting them well ahead of time is vital.

Buckets, blades, cutting edges and ground engaging tools such as teeth require attention, too. Make sure there are no cracks, chips or excessive wear that could affect safety and performance; replace if needed. Check that your attachment hoses and connectors are in good working order and ready for hydraulic fluids. Hook them up briefly, and run them to see if they are working properly.

Prepare staff members

Make sure employees are aware of schedules, procedures, emergency protocols, and

Thoroughly inspect your machinery before the busy construction season starts to ensure it is ready for maximum performance. Make sure everything is in working order and fluids are at their proper levels. Don't forget to check technology.



the dangers and signs of heat-related illnesses. Employees should also know how to report maintenance items, the functions of new machines, and how to use them to maximize production and efficiency. Plus, make sure they have all the necessary personal protective equipment and that it is in good condition.

Stock up on parts

You should have an easily accessible store of basic maintenance items on hand such as grease, fluids, filters and belts. Having these on hand will save you from making frequent trips to the store, and decrease your overall downtime.

Clean the machine

Have you heard the adage that a clean machine runs better? True or not, you should wash your equipment to remove any dust and/or dirt buildup from storage or from use during the winter months. Cleaning can help you spot potential issues. Remove any debris, including from the engine compartment. Look out for rodent and/or bird nests.

Don't overlook the inside of the cabs — clean the glass, and dust the consoles and dashes. Replace missing or damaged safety decals.

Charge batteries

If you stored batteries, be sure to check them. Before using them, ensure proper water acid levels and fill, if necessary. Batteries that were not charged during storage should be. Coating battery connections with an anti-corrosion spray can prolong system life. Replace batteries if you believe there is any doubt about their safety or reliability.

Check fluid levels

It is essential to keep fluids at proper levels. Make sure there is an operating and maintenance manual available in your machine year-round, and refer to it for guidance. Be sure to grease any points that require it.

As temperatures rise, you should switch to fluids that properly match the ambient temperatures. If the machine requires diesel exhaust fluid, draining it and refilling it with new fluids to maintain purity and concentration is highly recommended, regardless of if you used the machine during



During the busy season, your machinery and personnel work hard, so make sure both are ready ahead of time. Check your equipment's undercarriage, ground engaging tools, fluids, components and other critical items. Make sure staff members have all necessary personal protective equipment and that it is in good condition.

the cold winter months or not. Switch fuel to a summer blend such as No. 2 diesel, and drain the lines of any condensation.

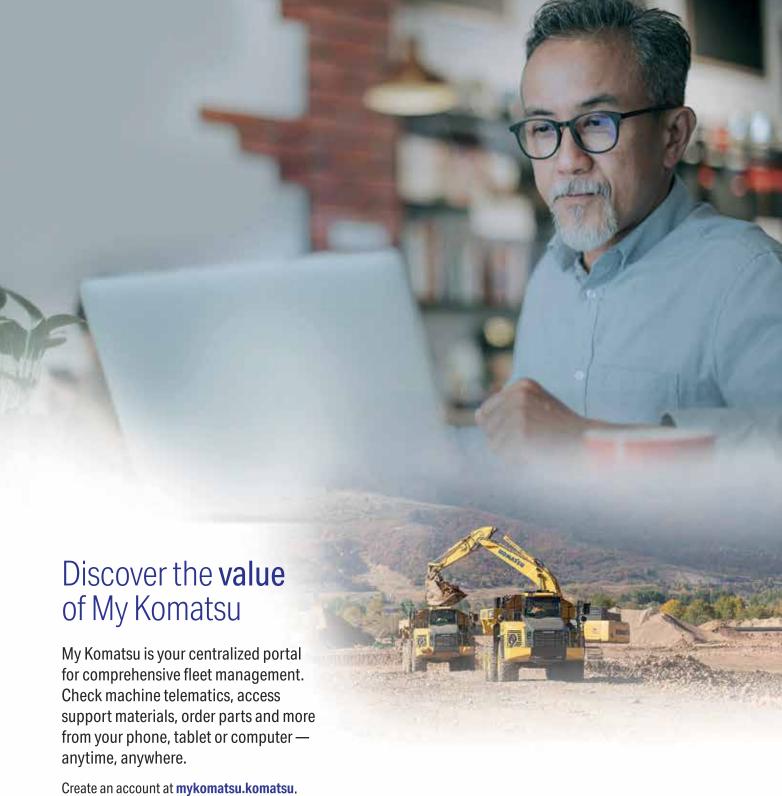
Pay attention to hoses and filters

If fluids are the lifeblood, hoses are the arteries that carry it. Check them for abrasions and leaks; replace immediately if any are found.

Cold can affect filters, so consider replacing them with new ones, including air filtration and air conditioner filters, so operators have a cleaner, more comfortable environment. Dust and contaminants affect filter performance, so keep a close eye on them, and change them as often as necessary.

Don't overlook technology

Check the connections on your aftermarket GPS systems, as well as those that go with removable monitors. Turn the machine on, and test telematics systems to make sure you can monitor machines through your computer or smart devices. ■



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My Komatsu

Contractor reaches target elevation faster with new auto tilt bucket control that can follow unique design surfaces

Bobby and Allen Tripp spent countless hours running drag lines and operating dozers for their uncle while growing up on their family's farm. In 1997, the brothers transitioned from farm work when they established their own company, Tripp Bros Inc., which has steadily grown into a turnkey site development operation.

The firm's projects range from installing new construction infrastructure to resurfacing city and town streets. For maximum efficiency, the firm completes all aspects of a project in-house. To meet tightened grade tolerances and compensate for the declining number of experienced operators, the company has turned to GPS-equipped machines.

"The knowledge and skill lost from older operators leaving the industry — and with younger operators replacing them — GPS technology has become essential to our business," stated Bobby. "We rely on the technology to help our operators reach grade. Without our GPS-equipped machines, it would take us three times as long to complete the work."

At its residential jobs, which comprise 75% of the firm's current workload, creating as-built storm retention ponds is a challenge.

"The ponds are an environmentally conscious way to treat water before it's released from the site," noted Bobby. "Because each pond is unique, you can hardly dig them without diverting extra labor and equipment to keep it within tolerances."

Bobby continued, "We've found that with our Komatsu PC210LCi excavator with the new auto tilt bucket control, our operators can build the pond to grade more accurately than they could with a person shooting grade or checking them with a rover."

Maximum efficiency with iMC 2.0 with auto tilt bucket control

Bobby said that the new intelligent Machine Control (iMC) 2.0 technology on the PC210LCi-11, with the optional auto tilt IMU sensor, makes grading the ponds more efficient. By using Komatsu intelligent excavator auxiliary hydraulics, the auto tilt IMU sensor enables automatic control of the bucket/attachment angle to match the cutting edge of the surface.

Like all iMC excavators, the full bucket profile protects against over-excavation — even when the machine is not facing directly toward the target surface. With iMC 2.0 and the IMU sensor, the full bucket edge stays on the surface and automatically returns the bucket to a horizontal position for unloading.

"The machine is set up to tilt the bucket on its own and match a swale based on the design," explained Bobby. "We call it a 'one and done motion' because you don't have to go back and regrade the surface. The tilt bucket slopes, shapes and takes the pond to grade as you go."

"The auto tilt bucket control increases the machine's versatility and removes the need for an iMC dozer to check grade," added Alan Yoder, superintendent. "You're able to tilt the bucket instead of moving the machine to get the correct angle. Even our inexperienced operators find it easier to understand and control."

Bobby notes that the iMC 2.0 PC210LCi excavator improves Tripp Bros' efficiency contouring and crowning roads as well. "When we're undercutting a section of road, we can undercut the surface at a 2% fall and shape a crown in the road. The precision means we don't have



Bobby Tripp, president



Alan Yoder, superintendent



Watch the video





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Technology is changing the construction landscape

Have you ever been pulled over for speeding because a law enforcement officer "clocked" you over the limit? Did you know that the same technology used in the officer's scanner helps build today's construction sites?

"We use lidar (light detection and ranging) scanners on tripods or drones to shoot out about 1 million points of light per second. Whenever a laser touches something, its light bounces off the surface and back into the scanner," explained Ken Smerz, CEO of Zelus, a firm that specializes in building information modeling (BIM) and virtual design and construction (VDC). In the article "Here's how advances in technology are transforming construction industry," Smerz continues, "It's the same technology that police officers use to see if you're driving too fast, but it's just recently been used in the construction field."

Drones equipped with lidar can fly over a site and collect data that can be used to build 3D models. This fast and accurate way of surveying a site provides several benefits, according to Dustin Price, a licensed land surveyor and operations

manager at Landpoint LLC. In his blog post "Lidar Inspections Improve Construction Safety," Price points out lidar is beneficial because it:

- Delivers accurate surveys quickly at the beginning of a project
- Provides information for simulation and analysis when developing a project
- Identifies maintenance and repair requirements on the project as needed

Tech strategy adoption

Lidar is just one of many technologies trending today in construction. To gain efficiency and increase productivity, companies across the world are adopting technology as they look to lower owning and operating costs.

An analysis and outlook by construction software company InEight Inc. found that 96% of respondents believe technology Editor's Note: This article is excerpted from a longer piece. To read it in its entirety for additional information about technology trends and how they are playing a role in today's and tomorrow's construction industry, visit https://www.komatsu.com/blog/2022/technologies-changing-the-construction-landscape/



Continued . . .

To gain efficiencies and increase productivity, while lowering owning and operating costs, construction companies across the world are adopting technology. Drones equipped with lidar (light detection and ranging) can fly over a site and collect data



Technology improves productivity

... continued

can improve productivity, and 71% believe it's already improving the industry. Nearly 100% of contractors said they had a strategy that considered the adoption of technologies for data analytics, project management software, artificial intelligence and machine learning, among others.

According to a recent article, "Construction technology funding skyrockets to record levels" in ConstructionDive, U.S. construction technology investor funding reached a record \$2.1 billion in early October 2021 — more than a 100% increase from 2020.

While those are common to most in today's construction industry, there are other technologies gaining prominence that you might not currently be aware of, but will probably know in the future.

BIM for collaboration

Owners, architects and contractors use BIM to collaborate on design and construction at each phase of the project. According to Whole Building Design Guide (WBDG), which is managed by the National Institute of Building Sciences, BIM is a digital representation of physical and functional characteristics of a facility. It serves as a shared knowledge resource for information and provides a reliable basis for decisions during a project's life cycle.

Commonly listed advantages from experts who use BIM include improved communication and coordination, cost and resource savings, higher quality results, early identification of potential problems, and increased safety.

Don't be intimidated

Adopting technology may seem intimidating, but it doesn't have to be with the right approach, according to Damon Haber, co-founder and chief revenue officer at Record360, which helps businesses add the latest products to their operations.

"I was an operator before I became a tech guy, so I understand how it is affecting companies and individuals," Haber said. "Like equipment, devices and apps don't create outcomes; however, they can be valuable tools that help achieve them. Failures often happen when companies try to do too much or have no clear objectives as to why they want to implement certain solutions."

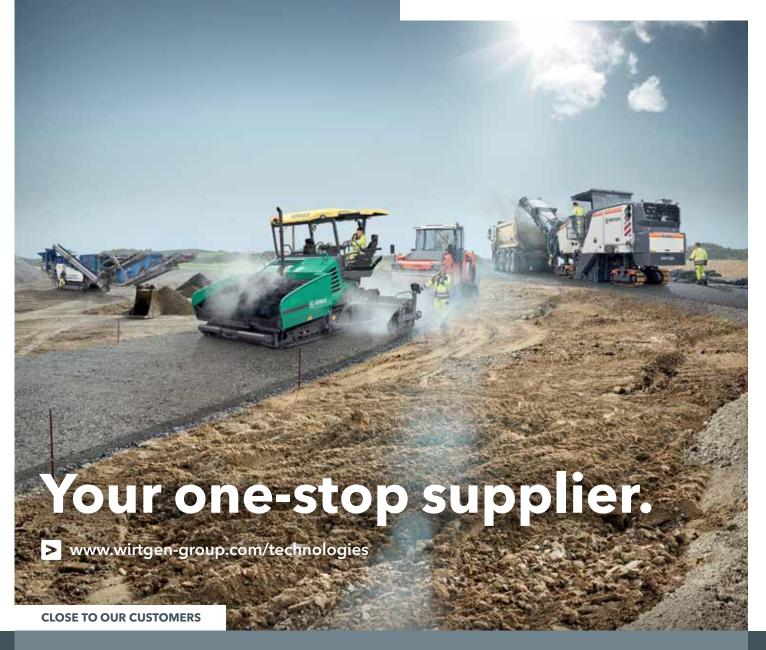
Haber said there are some best practices for introducing technology: start small, set measurable goals and outcomes, and secure commitments from end-users.

"You can always get bigger," Haber emphasized. "Before full implementation, it's wise to do a pilot study, and do it well. You should also look at today's modern solutions, and see how they can flex to match desired goals."

Virtual reality (VR) and augmented reality (AR) headsets are being used throughout the construction industry for operator training. Until they gain some proficiency, these high-tech devices allow a wearer to mimic the movement of construction equipment without having to be on an actual job site.







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KENNESAW MACON SAVANNAH

New V-series breakers are fully variable to help maximize productivity and lower per-ton costs

Versatility makes breakers some of the most essential tools in the construction and quarry industries. Designed and tested for compatibility with Komatsu PC210 to PC490 excavators, the new JMHB-V breaker series helps customers achieve excellent impact energy and performance on tough tasks such as rock breaking and concrete demolition.

"Komatsu fully variable breakers detect the hardness of the material and adjust stroke and impact force of the strike piston accordingly," said Aaron Scarfia, regional manager, Komatsu North America Attachment Division. "This reduces the amount of blank firing, leading to longer product life." Advantages of the new JMHB-V breaker series include:

High productivity and efficiency

With minimal wasted energy and subsequent higher operating efficiency, Komatsu's 100% hydraulic-fired V-series breakers modulate their impact force and frequency with up to 16 working positions to match most applications' requirements. Designed to help maximize productivity while helping lower per-ton costs, the breakers are fitted with an innovative energy-saving recovery valve that recuperates energy to drive efficiency.

Fully variable technology

Depending on the application's hardness, V-series breakers automatically select

Continued . . .



Aaron Scarfia, regional manager, Komatsu North America Attachment Division



'Fully variable breakers offer excellent efficiency'

... continued

the best piston stroke length and speed. By adjusting to either hard material, with long and powerful strokes, or to softer material, with shorter and faster strokes, the breakers can achieve high production output, with little wasted impact energy.

Valuable standard features

To help owners get more from their investment, Komatsu V-series breakers have several valuable standard features, including automatic greasing, advanced blank firing protection, swivel hose couplings and heavy-duty housing. The shock-dampening systems in the form of upper and lower suspensions help reduce the risk of cracking excavator booms and breaker housings, while the mounted standard automatic lubrication feature helps guard against contamination caused by dust and debris.

Control vibration and noise

For greater operator comfort, suspensions with rubber/poly components help absorb

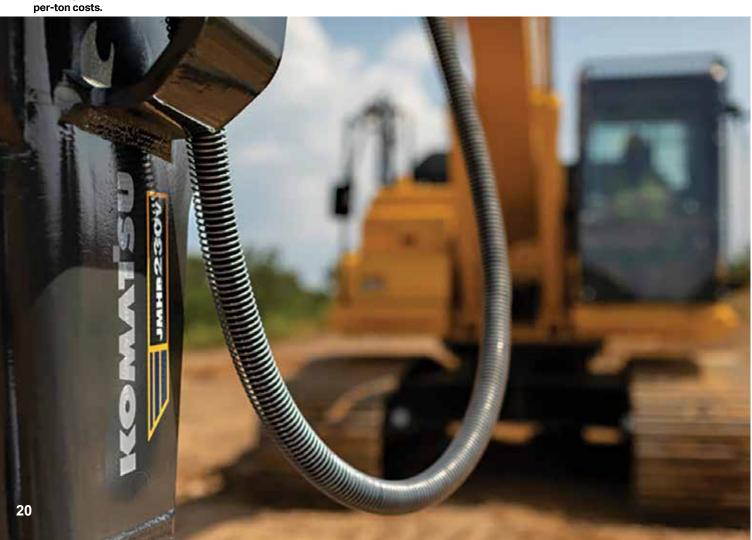
impact and reduce vibrations through the boom. The completely enclosed sound-dampening housings reduce the amount of noise generated when compared to open-style breakers, to offer customers a solution to addressing noise ordinances in urban applications.

Equipped for dependability

To support regular maintenance of breakers, inspection kits are included with gauges to measure wear on all critical components. Additionally, these breakers are backed by the Komatsu North America Attachment Division, a dedicated hydraulic attachments sales and service team that supports Komatsu distributors. These specialists are factory-trained and experienced with installation, operation, service and rebuilds.

"Fully variable breakers offer excellent efficiency," said Scarfia. "We encourage anyone looking for greater production across a wide variety of demolition applications to contact their dealer representative for more information."

Komatsu's new hydraulic V-series breakers have several valuable standard features, including automatic greasing, advanced blank firing protection, swivel hose couplings and heavy-duty housing — designed to optimize breaking and lower per-ton costs.





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Remote job site management and operation are changing the construction industry landscape

Could one person control all the earthmoving on a job site from a remote location? While the idea may seem far-fetched, it's closer to reality than you think.

"The market sees this possibility evolving and coming to fruition at some point down the road," said Komatsu's Jason Anetsberger, director of customer solutions. "Mining has had autonomous trucks hauling billions of tons of materials for quite some time, which gives us an indication of what's possible."

Anetsberger added that remote operation, or teleoperation as it's often called, and autonomy on construction sites are "assets that customers continue to express interest in, especially considering the shortage of workers in the construction industry. Having one or a few people controlling large numbers of machines from an off-site location has the potential to lower costs and increase safety."

To a degree, the construction industry has already been using remote

operation. Several manufacturers offer remote-controlled equipment that allows operators to run machines from outside the cab. These have generally been used in highly sensitive and/or dangerous areas — such as cleaning up land mines or moving contaminated soils — but require operators to be on the site, albeit at a safe distance.

Simulators as a prep tool

There are already tools that can help prepare operators for remote operation. Sophisticated training simulators use virtual reality to bring the look and feel of a job site task to operators and potential operators — all without stepping a foot on-site.

During an educational session (Virtual Reality, Augmented Reality, and the Future of Work: Are You Ready for the New Realities?) at CONEXPO-CON/AGG in 2020, Jim Colvin, president and CEO of Serious Labs Inc. — which offers virtual reality training solutions — said simulators continue to gain popularity in construction. He said they are more effective than on-the-job training and a good way to build skills faster, and more safely.

Continued . . .

Remote control machines have been available for several years. Typically deployed in highly sensitive or dangerous environments, they are gaining prominence as production machines in construction applications.



Technology lets project managers see productivity remotely

... continued

"There are ways of training nowadays using VR (virtual reality) and AR (augmented reality) that are more engaging, immersive, interesting and effective than traditional training methods," Colvin said.

Seeing projects from a distance right now

While the construction industry takes initial steps toward fully automating and teleoperating machines, projects can be managed remotely. In the past, project managers often had to drive from one location to the next, but now they can check on multiple sites from their office, vehicle or job site trailer.

Cell phones and computers ushered in the ability to communicate faster between the office and field personnel, and smartphones are making it even easier with applications designed for timecard management, productivity tracking, job site management and planning, and more.

"There are a multitude of apps available that let project managers view the job site in real or near real time right now," said Bryce Satterly, Komatsu Smart Construction solutions manager. "With digital plans and satellites, they can view an intelligent machine's monitor and see exactly where it is on a site and its relation to the final elevations. It lets project managers see productivity remotely and make adjustments faster. That can save time and money, and increase productivity."

According to Anetsberger and Satterly, virtually managing operations is a gateway to machine teleoperation and ultimately the autonomy of construction equipment.

"Virtual, or remote, machine management is a step in the right direction toward one day having fully remote or autonomous job sites," said Satterly. "Understanding how to use that information and apply it to equipment operation and overall job site management is invaluable. It could be a key factor in full autonomy and remote operation."

Simulators can help trainees understand how to operate machinery before they get in the actual cab and may also be a way to prepare for remote machine operation.







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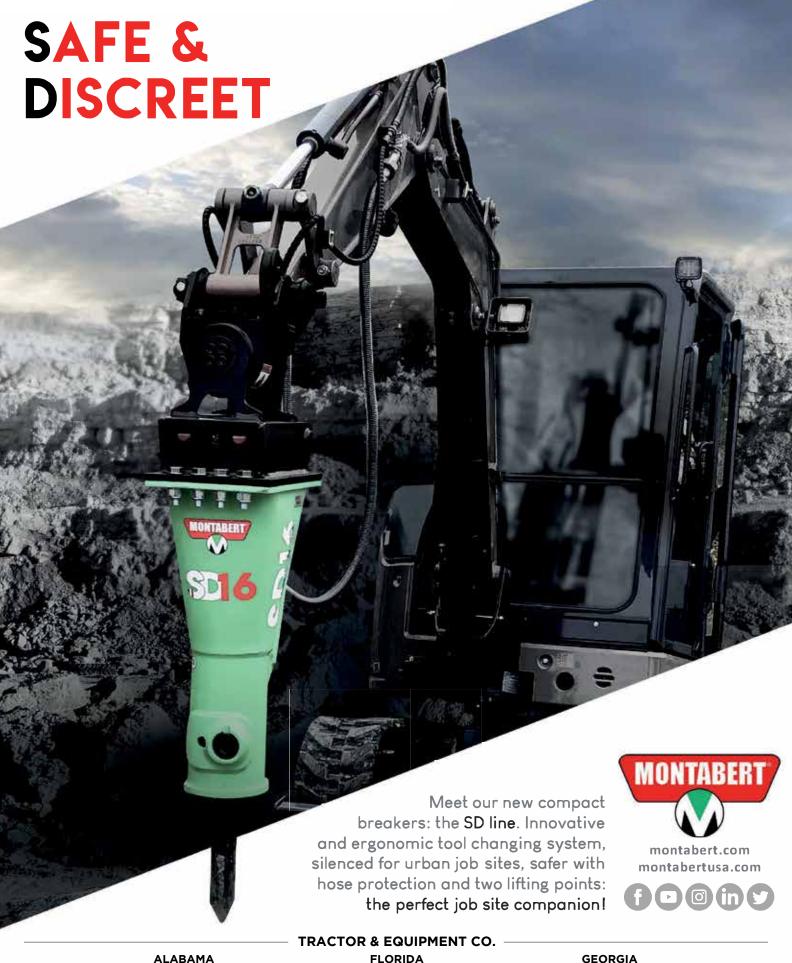
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Smart Construction Remote helps you support your machines from anywhere, saving you time and expense

Do you need to get data to your machines? Want to help your operators troubleshoot? If you have connectivity and Komatsu's Smart Construction Remote solution, you can do both from anywhere, optimizing your time and making workflows more efficient.

With Smart Construction Remote, construction site managers can help operators troubleshoot issues in real time by viewing the same data they do. Managers can add new files without the time commitment of traditional methods, and transfer design files to multiple machines on-site with one click.

"In today's world, we live by emails, text messages and live chats to get things done quickly, and visualize what needs to be accomplished," said Mike Salyers, senior product manager, Komatsu Smart Construction solutions. "Smart Construction Remote gives you similar capabilities. It's like a live support system for the machine and its operator, allowing you and the operator to make necessary adjustments while making sure the machine has the current information needed to complete a job — without allocating valuable resources and hours to get the machine up and running."

Salyers added that Smart Construction Remote has the capabilities to connect to all types of machines, including Komatsu intelligent Machine Control (iMC) equipment, machines equipped with select Topcon aftermarket systems, and select Topcon data collectors utilizing Pocket 3D field software.

Easy to get started

To get started using Smart Construction Remote:

- Visit Komatsu's My Komatsu webpage and login, or set up an account
- Navigate to the Smart Construction Marketplace (https://smartconstruction.mykomatsu. komatsu/products)
- Click on 'Smart Construction Remote' and add it to your shopping cart

 Input payment information when you're ready to check out

Once activated, click 'My Subscription.' When you open the application, the Smart Construction Remote screen will appear after logging in. Begin the activation process to add the machines you want connected to Smart Construction Remote. A red bell will appear on screen, and you can simply follow the prompts from there.

Once a machine has been activated, it can receive files and information remotely. Multiple files can be sent at one time and downloaded from the machine. If necessary, files can be deleted from the machine's control box.

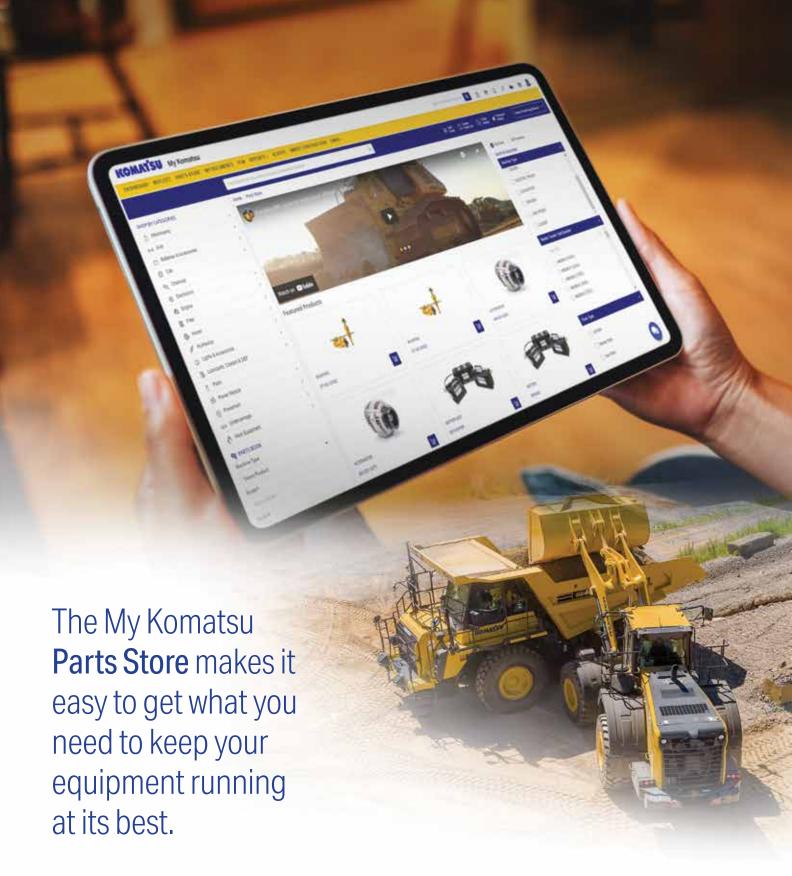
If the operator needs assistance understanding if they are in the correct file or on the correct surface, or if there are issues that prevent them from working properly, Smart Construction Remote can be deployed, and managers can access the monitor and remotely correct machine settings or resolve issues.

"Smart Construction Remote's remote-control function is just like sitting in the cab of the machine, but in the comfort of your office, home or location," said Salyers. "A remote user can navigate the on-screen menus and make the necessary adjustment to the blade control's point of emphasis, surface offsets, dozing modes and many more. Smart Construction Remote can also be used as a training tool to show operators how they can perform desired operation by executing functions in front of them, so they can actually see what they need to do."



Mike Salyers, senior product manager, Komatsu Smart Construction solutions

With Smart Construction Remote, construction site managers can help operators troubleshoot issues in real time by viewing the same data they do. New files can be added and design files can be transferred to multiple machines on-site with one click - without allocating valuable resources and hours to get the machine up and running, according to Mike Salyers, senior product manager for **Smart Construction** solutions.



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Visualize what's happening on your job sites in near real time

Gaining insight into your job site's progress at any time and from anywhere reduces guesswork and enables faster decision making. Designed for daily use, Komatsu's Smart Construction Dashboard combines data from multiple sources to give you one comprehensive picture.

With Smart Construction Dashboard, contractors have a 3D graphic visualization of all design, drone and machine data to measure cut/fill, quantities and productivity. Site progress can be viewed with the timeline function (including playback) in terms of whole-site visual, cross-sections and individual measurements. You can confirm if a pre-bid topographical map is correct, track job site progress in near real time, document site conditions as evidence for change orders, and quickly and easily measure stockpile quantities.

"The 'data layers' option allows you to upload any design and drone files," said Yoetzin Diaz, Komatsu Smart Construction solutions manager. "The measurement tab lets you create different measurements such as cut/fill, stockpile measurement and line measurements, including 2D cross sections to investigate specific areas of the site.

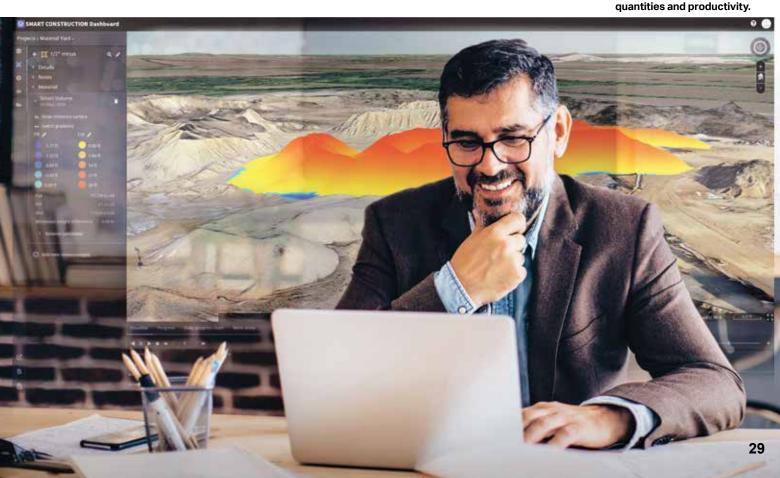
"There is so much more you can do with Smart Construction Dashboard to manage job sites," she added. "We highly suggest setting up an account and contacting your distributor's sales or Smart Construction representative to help guide you so that you get the most from this solution."

To get started, you'll need a My Komatsu account; set it up online (https://smartconstruction.mykomatsu.komatsu/products) or through your distributor. Once you have a verified account, sign in, find Smart Construction Dashboard, purchase it and click 'My Subscriptions' to begin. ■



Yoetzin Diaz, Komatsu Smart Construction solutions manager

Smart Construction
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any time, from anywhere.
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Tractor & Equipment Company

2022 construction industry outlook is positive, according to contractors and industry forecasters' surveys

Contractors are generally optimistic about 2022, according to a recent survey from the Associated General Contractors of America (AGC) and construction technology company Sage. Respondents said that they expect a boost in work from the Infrastructure Investment and Jobs Act (IIJA) that was signed into law in November, as well as "broad-based private-sector demand," according to AGC.

The outlook survey of more than 1,000 AGC members showed that contractors expect an increase in the dollar value of projects. They were most optimistic about roads, bridges and other transportation work such as transit, rail and airports, much of which is tied to IIJA. They expect most building segments to rise, except for retail and office-space projects.

"While contractors face challenges this year, most of those will be centered on the need to keep pace with growing demand for construction projects," said AGC CEO Stephen E. Sandherr.

During a recent Dodge Construction Network (Dodge) OUTLOOK conference, Chief Economist Richard Branch said the dollar values of construction starts could increase by as much as 6% in 2022. He emphasized that while residential construction will continue to play a large role in the growth, a more balanced recovery in the nonresidential sector will begin — particularly as funding from the infrastructure package begins to enter the market.

"We expect starts to be above 2019 levels in 2022, mainly due to the residential sector," said Branch. "Quarterly growth rates will be slow over the course of the year; however, it represents an economy that is getting off a sugar high and getting into a more sustainable growth pattern."

Cautiously optimistic

Wells Fargo's Optimism Quotient, which is based on surveys of contractors, showed that nonresidential contractors are positive about increasing profits. Wells Fargo said a number above 100 on its U.S. National Optimism Quotient indicates strong optimism, and the most recent report showed a score of 112.

However, all did caution that while the outlook is favorable, there is still concern about supply chain issues and a lack of skilled labor, which could temper overall growth. ■

The construction industry's outlook for 2022 is mostly positive, thanks in part to the passage of an infrastructure package late last year with major funding for roads and bridges.



Presorted

