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A MESSAGE FROM THE PRESIDENT



Ronald Zagami

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Dear Valued Customer:

Construction's technological revolution is on a dizzying pace. The industry has embraced telematics for gathering data; increased usage of GPS, drone surveying, parts ordering via the web; and more. Komatsu continues to be at the forefront with *intelligent* Machine Control dozers and excavators that are proven to increase production and efficiency, while reducing costs.

Komatsu wants customers to realize the greatest benefit from its *intelligent* Machine Control equipment, so when it launched the machines, we worked together to add personnel to our staff who can provide high-level technical support. Komatsu has also introduced SMARTCONSTRUCTION, a suite of services designed to assist customers with drone surveying, jobsite setup, model building and much more. Read about the benefits of SMARTCONSTRUCTION in this issue of your Clairemont Pushing Ahead magazine, then contact us to see how our SMARTCONSTRUCTION team members can be of service to you.

Rear cameras are now a staple in the construction industry, allowing operators to use an in-cab monitor to see what's behind them. Komatsu has taken the concept a step further with KomVision, which places multiple video cameras around a machine to give operators an all-around view. Check out the article on KomVision inside to learn more.

We also have informative stories about a customer using *intelligent* Machine Control dozer as well as Komatsu corporate trainers who can help you maximize production.

We hope 2019's construction season is a busy and profitable one for you. If there's anything we can do to assist you, please call or stop by one of our branch locations.

Sincerely,
CLAIREMONT EQUIPMENT COMPANY



Ronald Zagami,
President



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NEW YEAR BRINGS EXPANSION

Construction industry experts project continued growth for nearly every sector in 2019

Forecasters seem to agree that 2019 will continue the ongoing trend of growth in the construction industry, albeit at a slower pace than in previous years. The Dodge Construction Outlook report predicts total starts will reach nearly \$808.3 billion, up from the \$806.8 billion it projected for 2018.

“The fundamentals continue to be sound, and I don’t think we’re going to be seeing a repeat of what took place in 2008 and 2009,” said Robert Murray, Chief Economist for Dodge Data and Analytics.

A decade ago, the overall economy went into turmoil, then began recovering from one of the worst downturns since the Great Depression. Construction was especially hard hit, causing hundreds of businesses to close or severely cut back on staffing. Millions of construction workers were let go and never returned to the profession.

The American Institute of Architects predicts 4 percent growth in 2019 for nonresidential construction, which includes several market sectors.

In 2018, industry unemployment fell to 3.9 percent, nearly the level recorded pre-recession. Construction employment numbers are expected to continue rising. A recent survey of construction executives by the Vistage Research Center found that 64 percent planned to increase hiring in 2019. Another study from Associated General Contractors of America (AGC) showed a large percentage of businesses wanting to hire, if they can overcome the challenge of finding workers. Eighty percent of construction firms reported having trouble hiring hourly craft workers and expect that task to remain difficult or become harder.

“Demand for construction remains strong and pay is rising faster than the overall economy,” said Ken Simonson, AGC’s Chief Economist. “However, contractors are having increasing difficulty finding qualified workers as industry unemployment slides to historic lows.”

Agree to disagree?

Despite agreement on overall growth, industry experts are not always on the same page with regard to individual markets. For instance, Dodge Data & Analytics sees nonresidential construction as basically flat in 2019. On the other hand, the American Institute of Architects (AIA) projects an increase of 4 percent, led by institutional building with a 4.5 percent expansion.

According to AIA, institutional building includes sectors such as public safety, healthcare facilities, education, amusement/recreation and religious. It projects a rise in each category, with the exception of religious, which it sees as flat.

“At the halfway point of 2018, this panel was even more optimistic,” said AIA Chief Economist





Dodge Data & Analytics and the American Road & Transportation Builders Association (ARTBA) forecast transportation infrastructure expenditures to rise in 2019. Dodge sees 3 percent growth in the market, while ARTBA eyes an increase of 4.2 percent.

Dr. Kermit Baker last fall. “Its forecasts were marked up to 4.7 percent growth in spending for 2018 and an additional 4.0 percent in 2019. If these projections materialize, by the end of the next year the industry will have seen nine years of consecutive growth, and total spending on nonresidential buildings will be 5 percent greater – ignoring inflationary adjustments – than the last market peak of 2008.”

AIA also foresees that the commercial/ industrial market will gain 3.4 percent, led by industrial at 4.9 percent. The organization projects office space to expand by 4.1 percent, hotels by 3.6 percent and retail by 2.7 percent.

Transportation to take off

Another bright spot, according to both Dodge Data & Analytics and the American Road & Transportation Builders Association (ARTBA), will be transportation infrastructure. Dodge forecasts 3 percent growth in the market, while ARTBA eyes an uptick of 4.2 percent, which is identical to 2018 when airport terminal and runway construction led transportation spending.

Airport-related work grew nearly 40 percent in 2018, and ARTBA believes it will rise by 4.5 percent in 2019 compared to the previous year. It expects ports and waterways to experience 3 percent growth. Additional forecasts from ARTBA include an upsurge in bridge and tunnel

work this year and next, after a slowing in the sector for 2018. Public transit and rail construction will increase 5.7 percent, with subway and light rail investment expected to reach a record level.

Public highway and street construction were up in 2018 as well, and ARTBA Chief Economist Dr. Alison Premo Black said greater transportation investment by federal, state and local governments will help drive growth in 2019. ARTBA projects it to reach \$278.1 billion, up from \$266.9 billion.

ARTBA said highway construction is expected to increase in approximately 50 percent of states and in Washington, D.C., while slowing down or remaining steady in the other half. The real value of public highway, street and related work by state DOTs and local government should ramp up 5 percent to \$66.5 billion, according to ARTBA. It also anticipates private highways, bridges, parking lots and driveways to hit approximately \$69.1 billion, up from \$65.9 billion in 2018.

Black did caution that reauthorization of the current surface transportation law (FAST Act) in 2020 and Congress’ ability to find additional revenue sources may dampen the outlook. “If states start delaying transportation improvement projects in response to uncertainty over the future of the federal program, it will temper 2019 market growth,” shared Black. ■

NEW WATER LEGISLATION

America's Water Infrastructure Act provides billions for Corps of Engineers and drinking-water projects

America's Water Infrastructure Act allocates more than \$8 billion for a wide range of projects. It authorizes the Water Development Resources Act and reauthorizes the Drinking Water State Revolving Fund.

Congress recently passed and President Trump signed America's Water Infrastructure Act that authorizes more than \$8 billion for a wide range of undertakings. The measure divides the total dollars, with \$3.7 billion dedicated to Army Corps of Engineers work and \$4.4 billion for drinking-water projects.

The legislation includes authorization of the Water Development Resources Act (WDRA), giving the Army Corps of Engineers funds for work on items such as locks and dams on the nation's rivers, which are used to convey commodities, including aggregates and grain. "A WDRA bill establishes the priorities," said Mike Steenhoek, Executive Director of Soy Transportation Coalition in a harvestpublicmedia.org story.

Reauthorization of the Environmental Protection Agency's (EPA) Drinking Water State Revolving Fund for the first time since 2003 is included in the act. It doubles the loan program's authorized spending to \$1.95 billion by the third year.

Loan program included

Additionally, the legislation included the EPA's Water Infrastructure Finance and Innovation Act (WIFIA) loan program for two years at \$50 million annually. It also removed WIFIA's pilot designation. "The reauthorization of WIFIA at \$50 million – and the fact that it is no longer a 'pilot' – is a significant milestone and a great victory for the entire water sector," said American Water Works Association CEO David LaFrance.

Other organizations also hailed the bipartisan bill, which both the House of Representatives and the Senate overwhelmingly passed. "This legislation reinforces the critical role that municipal water infrastructure plays in communities all across the nation, as well as the need for robust federal funding to help support this infrastructure," said Adam Krantz, CEO of the National Association of Clean Water Agencies. "The association thanks Congress for its leadership on this issue and is committed to continued efforts to elevate water as a top national priority." ■



BRING THEM BACK

In tight labor market, hiring former employees is valid consideration for boosting employee payroll numbers

The largest complaint that I hear from most contractors is their inability to get good workers. That situation hasn't improved with the current low unemployment rate, combined with what is fast becoming a shortage of immigrant personnel.

One source you may not have considered are your former employees, often called "boomerang" workers. This is yet another reason to maintain a cordial relationship with employees when they leave for what they perceive as a better opportunity. Why not ask them if they want to come back, especially when they have shown they are diligent in their jobs?

Each of us makes decisions based on our personal needs at the moment. These may change through time, of course, and a previous work environment may look better with the visibility of hindsight. If you have created a great culture at your organization, this should lend confidence that if circumstances have changed for the employee, then coming back to work for you will appear attractive once again.

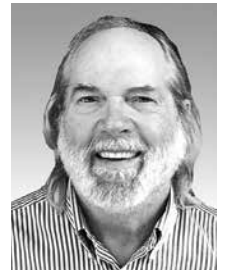
Highlight the benefits

Today, with the advent of social media, it has become possible to stay in touch with former employees via a professional site like LinkedIn. When previous staff members have new accomplishments, be sure to congratulate them. You may learn they have gained new skills that will make them even stronger employees than they were previously.

If you do try to entice former employees back to your firm, be ready to tell them why it will be good for them, not just a plus for

you. There is a natural tendency to feel that returning to a former employer is a step backward in a career. It will be up to you to show them why that is not the case. You may also want to consider if there are any benefits you might be able to provide to confirm that returning to work for you will be positive for them and their families. ■

Ranger Kidwell-Ross is a multi-award-winning author, who has provided advice to contractors in the power sweeping industry for more than 30 years. He is Editor of the largest website for that business sector, WorldSweeper.com, as well as Executive Director of the World Sweeping Association.



Ranger Kidwell-Ross,
Executive Director,
World Sweeping
Association

In this tight labor market firms should consider rehiring former employees, suggests Ranger Kidwell-Ross, Executive Director, World Sweeping Association. "If you have created a great culture at your organization, this should lend confidence that if circumstances have changed for the employee, then coming back to work for you will appear attractive once again," said Kidwell-Ross.



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MODERN JOBSITE SOLUTIONS

SMARTCONSTRUCTION provides a full suite of offerings to help implement technology

Technology continues to evolve at a rapid pace in the construction industry, and those companies that embrace and fully utilize it are more likely to win future bids and finish jobs faster and more profitably. Komatsu is committed to helping customers optimize their jobsite productivity through its SMARTCONSTRUCTION suite of offerings, including *intelligent* Machine Control dozers and excavators.

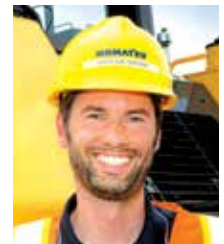
Available through Komatsu distributors, SMARTCONSTRUCTION provides aerial mapping, 3-D modeling, training and consultation, GPS hardware and jobsite setup. Komatsu-certified Technology Solutions Experts (TSEs) and SMARTCONSTRUCTION consultants can assist customers with technology implementation as well as optimization of the jobsite.

“We want every user to realize the full potential of their jobsite,” stated Jason Anetsberger, Komatsu Senior Product Manager. “Technology is changing every day, and our customers want to be on the cutting edge. With SMARTCONSTRUCTION, we can help them access the latest innovations. Our TSEs and consultants have the knowledge and skills to help with every aspect, whether it’s choosing the right intelligent machinery and implementing it into a fleet, training on base and rover usage or providing aerial mapping and other solutions that maximize production and efficiency.”

Komatsu sparked a revolutionary leap in machinery with the introduction of its GPS-integrated *intelligent* Machine Control dozers in 2013. Excavators followed soon after. Komatsu developed SMARTCONSTRUCTION as a one-stop

source for solutions that help *intelligent* Machine Control users maximize production and efficiency.

“For those new to *intelligent* Machine Control equipment, we offer initial instruction from our certified trainers on how to quickly and easily adopt the technology,” said Anetsberger. “From there, we focus on consulting with customers to deliver the targeted jobsite efficiency improvements.”

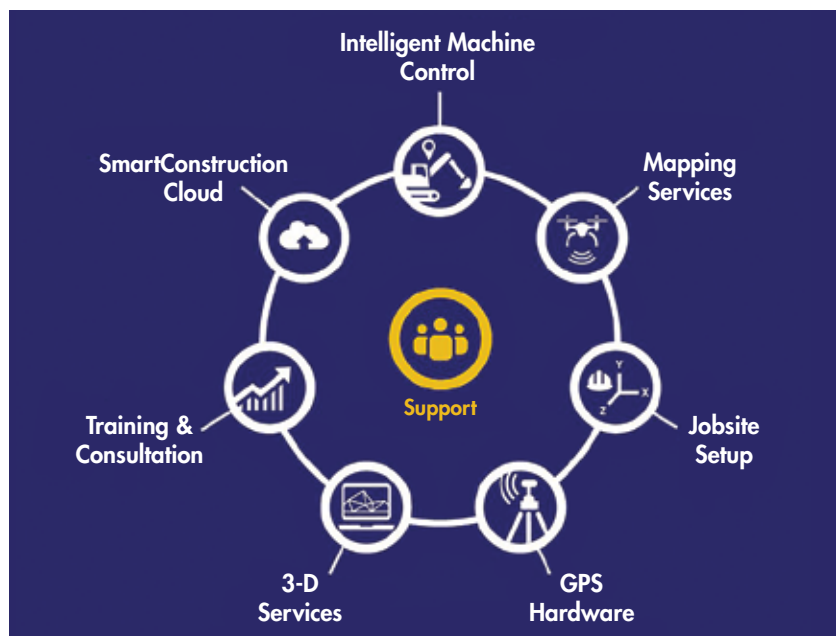


Jason Anetsberger, Komatsu Senior Product Manager

Improved accuracy with aerial mapping

One popular SMARTCONSTRUCTION service is aerial mapping, which gathers topographic

Continued ...



Komatsu’s SMARTCONSTRUCTION program provides one-stop solutions to help *intelligent* Machine Control users maximize the advantages of the technology throughout a project.

Increasing demand for aerial mapping

... continued

data from above. Surveys can be completed before, during and after a project to measure existing and ongoing volumetric changes, stockpile calculations, record amounts of material moved and gather final as-built data.



Komatsu Technology Solutions Experts and SMARTCONSTRUCTION consultants play a vital role delivering SMARTCONSTRUCTION services on the jobsite. Trained and certified by Komatsu, they are specialists at deploying technology to help operations run at peak efficiency.



Komatsu and its distributors have partnered with leaders in aerial mapping technology so that customers can enjoy the benefits of highly accurate, yet quickly gathered topographic data.

Anetsberger said customers are amazed by the resolution and accuracy of the data collected. The highly detailed information gathered prior to the start of a project helps in preparing better estimates and bids, as well as in jobsite planning for greater production and efficiency.

During the construction phase, drones can finish numerous surveys per day without disrupting an active jobsite. That allows companies to get a more accurate picture of progress in less time compared to traditional methods.

“Aerial mapping with drones is something that customers request frequently,” said Anetsberger. “Time savings is one of the main reasons. We find that it takes one drone operator roughly 30 minutes to survey a 40-acre site. Compare that to the half-day it typically takes a manned topography crew, and it’s easy to see why there’s a demand for this service. Additionally, on many jobsites, manned topography may measure only every 20 or 50 feet on a grid, whereas a drone can map nearly every tenth of a foot. That offers greater resolution and improved accuracy.”

Allows excavation companies to concentrate on moving dirt

SMARTCONSTRUCTION personnel can not only help companies utilize the data collected from aerial mapping, but also with other data services such as takeoffs.

3-D data modeling services are offered to provide customers of all sizes and capabilities with information for their GPS equipment.

“We are providing quality 3-D data, and our TSEs and consultants know how to optimize it for the machine and the application,” said Anetsberger. “With SMARTCONSTRUCTION, we are able to take all of the knowledge and data we have compiled and use it as a total solution to help our customers operate their jobsites at maximum efficiency. That lets earthmoving and excavation companies concentrate on what they do best – move dirt.” ■

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Brian (left) and Thomas Cronin / Prosperity Construction / Jackson, MS

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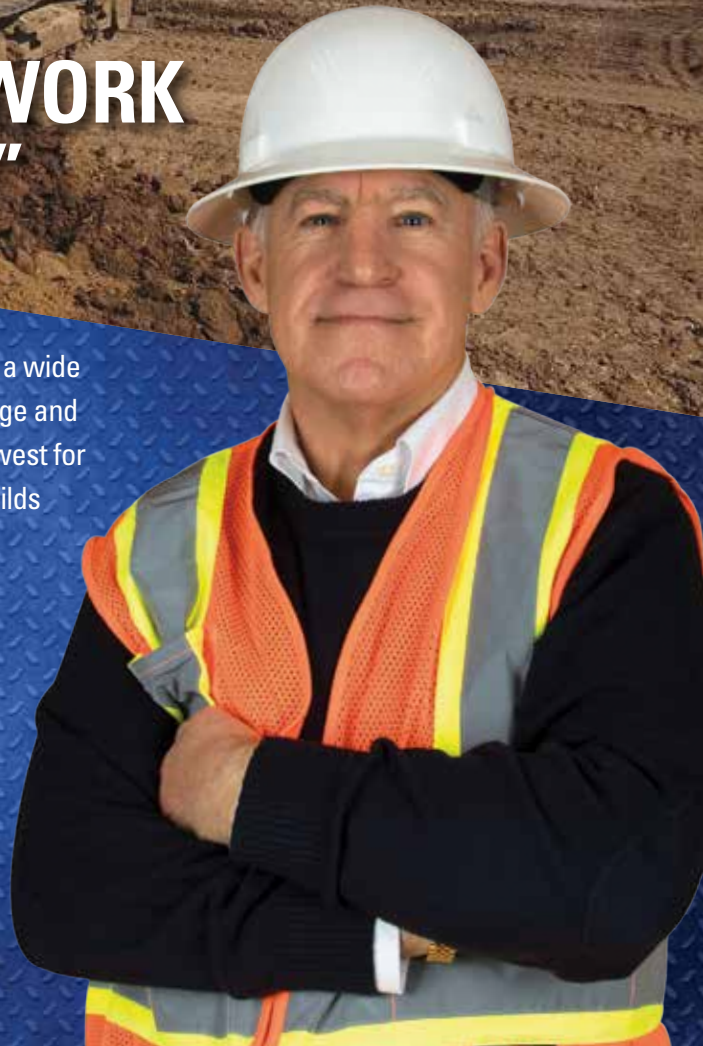
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'OUR BRAND OF CHOICE'

High production, costs savings with *intelligent Machine Control* dozer spur growing firm to build Komatsu fleet

Good decisions are often directly tied to profitability and prosperity. Justin Lott, Co-owner/Senior Vice President of Southern Transport & Equipment, LLC, learned that lesson after completing fire school.

"I had my sights set on being a firefighter, but I had to finish EMT training as well," recalled Lott. "The summer after I graduated, I took a job working for an oil-field company to make some money. I quickly realized that type of work paid much better than I was projected to make as a firefighter. I was given an opportunity to grow with the business that I worked for, so I took it."

Lott started his own land-clearing and earthwork firm to keep busy during breaks in the company's two-weeks-on, two-weeks-off schedule. Those side jobs eventually evolved into a full-time business, and after a few years, he combined forces with three other entrepreneurs to form Southern Transport & Equipment in 2017.

First impressions

The new venture needed a dozer to make aggressive pushes in tough material. A colleague suggested a standard Komatsu D155. A visit with the local Komatsu distributor convinced Lott to demo an *intelligent Machine Control* D155AXi-8.

"The material at the test site was a very coarse aggregate, and the dozer handled it with ease," Lott recalled. "The grade control is phenomenal, and the fact that we can use a machine of its size from first pass to last on large-scale projects is incredible."

After purchasing the initial D155AXi-8 and then a second, Southern Transport & Equipment also added two *intelligent Machine*

Control D65PXi-18s, a D61PXi-24 and a D85PXi-18. "No matter the size of the dozer, the integrated GPS system works flawlessly," reported Lott. "The costs savings are apparent. Fuel usage is down, while production and efficiency are up. We love that there are no masts or cables to install or remove every day. That increases time spent moving material."

The company has invested in standard Komatsu machinery as well, including a WA500 wheel loader it uses to fill trucks at a gravel pit. On some projects, Southern Transport & Equipment utilizes PC360LC-11 excavators and HM400 articulated trucks to move mass amounts of material.

"Once we tried the intelligent dozers, Komatsu equipment became our brand of choice," declared Lott. ■

Southern Transport & Equipment relies heavily on Komatsu *intelligent Machine Control* dozers. "No matter the size, the integrated system works flawlessly," said Justin Lott, Co-owner/Senior Vice President. "The cost savings are apparent. Fuel usage is down, while production and efficiency are up."



Justin Lott,
Co-owner/Senior
Vice President,
Southern Transport &
Equipment

▶ VIDEO



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Hunter and Clint Shackelford
Shackelford Construction / Yazoo City, MS

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PASSING THE TEST

Attention to detail is the key for Komatsu's Arizona Proving Grounds General Manager Neil Johnson

QUESTION: What is the Komatsu Arizona Proving Grounds?

ANSWER: It's a 660-acre facility in Sahuarita, Ariz., where up to 40 employees conduct research and development primarily for Komatsu mining haul trucks. However, with the formation of Komatsu Mining, we are expanding our reach to test other mining products. We currently have a PC7000 excavator and P&H 77XR drill here.

QUESTION: What kind of testing takes place at the facility?

ANSWER: We focus on three types of testing: performance, structural and durability. Typically, we address the first two on our site. We have a mine operation set up here, and we spend hours running the equipment through various exercises. Once we complete performance and structural testing, we closely monitor the durability of the machine at a customers' site for approximately 2,500 hours.

QUESTION: What role does the Arizona Proving Grounds play in the development and testing of Komatsu's Autonomous Haulage System (AHS)?

ANSWER: We are the only Komatsu site that engages in AHS development and benchmarking. We have the same testing process for AHS as we do for the trucks. The group in Peoria, Ill., handles the design and integration, and we put it to work in the field to validate performance. We ensure that the sensors in all structures meet life expectancy and measure stress as well as vibration on those components.

Here in Arizona, we also analyze software updates before they are integrated into Komatsu

Continued . . .



Neil Johnson, General Manager, Komatsu's Arizona Proving Grounds

This is one of a series of articles based on interviews with key people at Komatsu discussing the company's commitment to its customers in the construction and mining industries – and their visions for the future.

Neil Johnson has spent his entire career with Komatsu. After graduating with a degree in mechanical engineering in Newcastle, England, he began conducting research and development on excavators for Komatsu UK Limited.

"For nine years, I worked with wheeled, crawler, high-reach, road-rail, super-long-front and utility excavators," recalled Johnson.

In 2009, he moved stateside to Komatsu's U.S. Test Group (USTG) in Cartersville, Ga.

"When I came to the States, I visited customer sites and conducted many field tests," shared Johnson. "Then, I got involved with the *intelligent* Machine Control machines, which used a D51-22 dozer that was converted to the prototype for the D61PXi dozer."

Two years after arriving in Georgia, he moved to the Arizona Proving Grounds, where he served as Chief Engineer and was eventually promoted to his current role of General Manager. His tenure at the facility has included several exciting projects.

"One of the major events was moving to this current facility in 2015," noted Johnson. "We put a lot of thought into the building design, test courses and the mining site, in addition to installing permanent infrastructure for the Autonomous Haulage System."

In his free time, Johnson enjoys traveling with his wife, Angela, and riding motorcycles, in addition to mechanical projects.

Working to meet customers' high standards

... continued

equipment. Our group performs a stability test, which is a 150-hour exercise that searches for any failures in the system. If issues are detected, they are addressed and testing begins again. We pride ourselves on delivering products and technology that perform to our customers' high standards from the very beginning.

Equipment goes through rigorous testing at the Arizona Proving Grounds. "We focus on three types of testing: performance, structural and durability," said General Manager Neil Johnson. "We have a mine operation set up here, and we spend hours running the equipment through various exercises."



In addition to equipment and technology testing, the Arizona Proving Grounds evaluates mining site plans to help customers layout their operations in the most efficient manner.



QUESTION: In addition to addressing equipment and technology, are there other ways you help customers increase productivity?

ANSWER: While equipment and technology are major components to efficient operation, we also look at site design. Sometimes removing three stop signs from an operation or changing an incline can result in significant fuel savings, so we work with customers to address those as well.

QUESTION: What does the future look like for the Arizona Proving Grounds?

ANSWER: We have several new things coming up, including larger customer events. In the past, we primarily hosted individual customer demos, but, for the first time, we recently held an AHS event for a group of customers, and we have others planned. It's exciting to open the doors to the facility so that people can see it and experience the equipment, because both are really impressive.

We will continue to work with AHS, including testing the Innovative Autonomous Haul Vehicle. It is the world's first cabless, driverless haul truck. Komatsu debuted the prototype at MINExpo in 2016. After the show, it came straight here for testing. It's been a very good research platform. ■

Komatsu's Arizona Proving Grounds is a 660-acre facility north of Tucson in Sahuarita, Ariz. It primarily handles research and development for mining haul trucks and recently began testing other Komatsu Mining equipment and alternative technology.





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COMPLETE LINEUP

Customers test wide range of Komatsu equipment using a variety of materials at Demo Days

Construction equipment owners and operators from across the United States met at the Cartersville Customer Center in Georgia for the three-day fall Komatsu Demo Days event. To provide realistic working conditions, sand, gravel and rocks of various sizes were available so that customers could test machines to their fullest capabilities using materials consistent with their usual jobsites.

Each day began with a tour of the Chattanooga Manufacturing Operation in Tennessee, where many Komatsu excavator models are assembled. After a catered lunch and an informational session about KOMTRAX and Komatsu CARE, attendees made their way to the 45-acre demonstration site to test the latest equipment Komatsu offers.

“Demo Days featured more than 40 Komatsu machines for attendees to operate,” explained Komatsu Director of Training and Publications Bill Chimley. “Customers could try out our full range of equipment, with Komatsu experts ready to answer any questions.”

New competition

The newest addition to the event was a timed competition where participants used a Komatsu PC55MR-5 compact excavator to pick up and drop three rubber balls into a tub as quickly as possible. Daily winners earned a Komatsu jacket and all who finished in 30 seconds or less received a Komatsu hat.

“We work in a very competitive industry and wanted to introduce some of that spirit into the event,” said Rich Smith, Vice President, Product and Services Division, Komatsu America. “Our goal is to give the customers a new experience every time they visit the Cartersville Customer Center.” ■



The newest addition to Demo Days was a timed event where attendees operated a Komatsu PC55MR-5 compact excavator and competed to place three rubber balls into a bucket as quickly as possible.

Online Exclusive



Scan to watch a video of one customer's experience at Demo Days.

▶ VIDEO



The recent, three-day Demo Days event included more than 40 machines for guests to operate at the 45-acre Cartersville Customer Center demonstration site.



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MAKING MORE TOP OPERATORS

Komatsu helps build combination of skilled operators and well-designed machines for maximum production

Ask any group of construction equipment owners about the importance of their operators, and chances are you will hear very positive comments about the people in their cabs. That's because, according to Kurt Wilson, it takes a combination of well-designed machines and proficient operators to achieve top production.

Wilson is one of three corporate trainers certified and qualified by Komatsu to offer expert-level instruction. They work with equipment owners and their staff members to help them get the most from Komatsu machines. With years of experience running equipment – as well as delivering training – all Komatsu corporate trainers have the skills and knowledge to help companies increase job efficiencies and operators enhance their skills.

They offer training at Komatsu's Cartersville Customer Center in Georgia or at a customer's requested location.

"As we work with operators, we are learning too," said Wilson. "We have techniques, tips and information about the machines that we

can share based on our experiences. At the same time, they often provide us with valuable insight that we can incorporate into our training and pass along to others. It's a two-way street."

Focusing on safety

Safety is of utmost importance, so Komatsu corporate trainers emphasize it in every session. "Once we have established that safety comes first, then we typically begin with classroom activities," explained Todd Bresemann, another Komatsu trainer. "During these meetings, we present information about the machines, and, at the same time, participants help us better understand their particular circumstances and needs."

When a group moves from the classroom to a site, they begin with a complete walkaround of the machine. "We go over pre-operation inspections thoroughly, then move to systems, functions and actual operation," said Jason Gillard, the third training team member.

"We help operators familiarize themselves with the latest machine features as well as proven operational techniques," noted Gillard. "Our aim is to assist those who run equipment to boost operational effectiveness, and to do so in ways that reduce maintenance issues. That leads to increased machine availability, which, in turn, provides even greater output and lower per-ton and per-yard costs."

"Observing people in action is always part of the process, with the goal of pointing out strategies to use the machinery most effectively," added Wilson. "We want to see companies achieve the greatest returns on their equipment investment as possible, and we know that skilled employees are one of the keys to doing that." ■

(L-R) Komatsu Corporate Trainers Kurt Wilson, Todd Bresemann and Jason Gillard assist companies in improving return on investment through hands-on and classroom learning. Training can be arranged through your Komatsu distributor.

▶ VIDEO



2 BILLION TONS HAULED

FrontRunner autonomous haulage system sets record with latest milestone

The numbers doubled quickly. In 2016, Komatsu's FrontRunner Autonomous Haulage System (AHS) marked 1 billion tons hauled since its first commercial deployment in 2008. Then, in 2018, AHS hit the 2-billion-ton mark, which is higher than all other commercial systems combined.

The feat was accomplished with more than 130 driverless trucks in operation in mines across the world. The number of tons hauled will keep rising significantly, with an additional 150 trucks slated for deployment in the Canadian oil sands throughout the next seven years.

"AHS continues to play an increasingly crucial role in effective mine management as more and more operations transition from manned to unmanned fleets," said Dan Funcannon, Vice President/General Manager, Large Mining Truck Division, Komatsu America. "As the demand for AHS grows, Komatsu will continue raising the bar in an effort to help mines provide safer environments, maximize production and reduce operating costs."

Future focused

Komatsu has accelerated the pace of AHS deployment by working closely with customers and educating them about the system's 10-year, zero-harm and productivity record as well as unmatched ability to accommodate an array of mining environments. Today's FrontRunner system operates around the clock to haul copper, iron and oil sands at seven sites across three continents.

"The ongoing investment in technology and equipment by major mining companies underscores their belief in the value of

autonomous haulage," said Anthony Cook, Vice President Autonomous and Communications Solutions at Modular Mining Systems, a subsidiary of Komatsu.

Komatsu's best-in-class approach for FrontRunner AHS brings the world's best-selling, ultra-class dump trucks together with Modular Mining Systems' industry-leading DISPATCH Fleet Management System, the preferred management system in nine of the 10 largest mining operations in the world. The system enables 100-percent compliance with proven optimization methodology, delivering unrivaled performance.

Komatsu plans to enhance AHS' mixed-operations functions. In an effort to enhance safety and efficiency, Komatsu is working with industry stakeholders to standardize interoperability between Komatsu and non-Komatsu autonomous vehicles. ■



Dan Funcannon,
Vice President/
General Manager,
Large Mining Truck
Division, Komatsu
America

Komatsu's FrontRunner Autonomous Haulage System passed the 2-billion-ton mark recently. Commercial deployment of the driverless trucks began in 2008, and today there are more than 130 of them in operation around the world.





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BIRD'S-EYE VIEW

New camera system gives operators unparalleled look at work area from excavator cab



Kurt Moncini,
Komatsu Senior
Product Marketing
Manager, Tracked
Products

Jobsites are often described as choreographed chaos – multiple machines and workers completing tasks in tight spaces and under extreme deadline pressure. That is why Komatsu developed KomVision, a multi-camera system that helps operators better track activity around their machines.

“Rearview cameras are already standard on our machines today; this was the next logical step,” said Komatsu Senior Product Marketing Manager, Tracked Products Kurt Moncini. “Inside an excavator, the counterweight as well as the engine and pump compartments create unavoidable blind spots for the operator. KomVision helps eliminate them and improve situational awareness for everyone on a jobsite.”

KomVision uses software to stitch together video from mounted cameras and then displays it on the in-cab monitor in real-time as one image that looks as if it were filmed from above the machine.

KomVision uses multiple cameras mounted on the exterior of an excavator to compile video from the machine's blind spot and then uses software to stitch it all together and display a real-time, bird's-eye view on the in-cab monitor.



“It gives the operator a bird's-eye view of everything surrounding the excavator,” Moncini added. “This is a great feature, especially for those who work in confined spaces. The operator has a complete view of the area to locate poles, equipment or crew members near the machine. It significantly improves situational awareness.”

KomVision is currently available on six Komatsu excavators – PC170LC, PC238USLC, HB365LC, PC650LC, PC1250 and PC1250LC – and Moncini expects that number to increase in the near future.

Customized views

On standard excavators, the four-camera system captures a 300-degree view, while short-tail models use three cameras to monitor 240 degrees, with the remaining area in clear, first-person view of the operator. KomVision's view reaches beyond a fully extended arm and bucket to cover the entire work zone. Additionally, the counterweight swing radius is marked with a red line while a yellow one denotes a “caution area” with a radius that is two meters wider.

“You get an optimal view of your surroundings to easily identify any potential hazards within those zones,” noted Moncini. “Increasing an operator's situational awareness is the primary objective.”

Operators can use the default, split-screen mode, which displays the bird's-eye view on the left and a selectable camera view on the right, or they can switch to full-screen mode to display the feed from all cameras simultaneously.

“When backing up, for example, the operator can use the split-screen mode to see the rearview camera on one side and the overhead view on the other,” noted Moncini. “It's customizable and easy to toggle between cameras.” ■

AEM podcast explores disruptive trends in equipment industry

Thinking Forward, an Association of Equipment Manufacturers (AEM) podcast, is now available for listeners and subscribers on many popular podcast apps, including iTunes, Stitcher, Google Play and TuneIn. Episodes will also be posted on the organization's website (aem.org/think).

Podcasts are part of AEM's expanding scope of efforts to keep members apprised of potentially disruptive trends in the construction and agriculture equipment industries. It explores different cutting-edge topics every month.

"Podcasts are a great way for busy professionals to catch up on industry news that they need to stay competitive," said AEM Strategic Communications Manager Dusty Weis, who serves as host and producer of the Thinking Forward podcast. "I'm really excited...to take these cool subjects that we present at our regional Thinking Forward summits and on our website and package them in a format that you can absorb while you're in the car, out for a run or on the jobsite." ■

Study reports mobile technology improves projects

Mobile technology enhances contractors' ability to collect and distribute timely and accurate jobsite data, according to a new Dodge Data & Analytics and B2W Software study. Respondents said better access to project data trends was the

top benefit to mobile connectivity. Significant numbers said it improves communication; helps with budget and scheduling, fleet management, maintenance, efficiency and uptime; and increases productivity. ■

New video highlights optimal use of backup alarms

Canadian scientific research organization, IRSST, recently released a video intended to ensure the optimal use of backup alarms under realistic working conditions. Among the recommendations in the video are placing the backup alarm at the vehicle's rear, at a height of 3 to 6.5 feet above the ground and where it can easily be seen and heard by workers.

Other suggestions include setting the volume just above the level of ambient noise; limiting reversing speed to a maximum of 7.5 mph, allowing workers in the vicinity of the vehicle at least two seconds of reaction time; and using broadband alarms if several vehicles will be reversing at the same time, minimizing the

risks associated with poor ability to locate sound sources.

"The best way to prevent accidents involving reversing vehicles is still to limit reversing as much as possible and to control the number of pedestrians in the vehicle-reversing areas by implementing effective traffic plans," said Hugues Nélisse, Lead Study Author and IRSST Researcher. "Given that backup alarms are still a widely used means of warning people near vehicles that there's a hazard, we have to use them as effectively as possible to ensure safety." ■

Scan the QR code or go to <http://www.irsst.qc.ca/en/publications-tools/video/i/100389/n/backup-alarms-an-optimum-safety> to watch the video.



Discover more

New council tasked with developing training for future workers

An executive order signed last year established the National Council for the American Worker, which aims to provide a forum for the development of a national strategy to address urgent work force issues. It will be comprised of government officials, as well as an American Advisory Board made up of industry leaders, who will develop recommendations on how to improve education and training.

According to a fact sheet from the White House, the council's agenda includes several

items. Among them are: developing a national campaign to raise awareness of needs such as the urgency of resolving the skills crises and the importance of STEM education. It is also creating a plan for recognizing companies that demonstrate excellence in workplace through education, training, retraining policies and work force investment; helping expand the number of apprenticeships; and encouraging increased investment in training and re-training American workers. ■

CONEXPO-CON/AGG named top U.S. exhibition; ICUEE tabbed as third

CONEXPO-CON/AGG was named as the number-one exhibition in any industry in the United States, and ICUEE-The Demo Expo took the number-three spot in the annual Gold 100 list of top U.S. trade shows. Trade Show Executive (TSE) magazine compiles the rankings based on exhibit space size and also presents awards in several exhibition categories.

As owner and producer of the shows, Association of Equipment Manufacturers (AEM) earned three

best-in-class Grand Awards, including Best Use of Data Analysis and Marketing Genius for CONEXPO-CON/AGG and Knowledge is Power for ICUEE. In announcing the awards, TSE cited CONEXPO-CON/AGG's new tech experience for bringing "high-tech construction innovators to the show floor," and ICUEE's "ample opportunities for test drives as well as interactive product demonstrations."

ICUEE returns October 1-3, 2019, to Louisville, Ky.; CONEXPO-CON/AGG is next slated for March 10-14, 2020, in Las Vegas. ■

Cool advertising: Komatsu teams up with Chicago Blackhawks

Komatsu is partnering with the Chicago Blackhawks National Hockey League team for the 2018-19 season, and its logo will appear on the ice during regular-season home games. It is the company's first agreement with any Chicago pro-sports franchise and will expose Komatsu to more mainstream, national and international TV audiences.

"In 2018, Komatsu announced plans to move into the City of Chicago in 2020," said Rich Smith, Vice President, Products and Services, Komatsu America. "As part of a broader goal to invest more in local communities where we live and do business, we thought this would be an impactful way to increase our brand awareness, while supporting a storied, hometown sports franchise." ■



Scan to reveal answers

Can you spot what is different?

There are 10 differences between these two pictures. Test your power of observation, then scan the QR code to check your answers.



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