

WAUKESHA-PEARGE INDUSTRIES, ING.

January 2017

A publication for and about Waukesha-Pearce Industries, Inc. customers • www.WPIUpdate.com



A MESSAGE FROM

THE VICE PRESIDENT



Bruce Truesdale



Dear Valued Customer:

Three years ago, Komatsu introduced its first *intelligent* Machine Control product, a D61i-23 dozer. Now, the second generation is available with the launch of the D61i-24 models, which you can read about in this issue of your WPI Update magazine.

Both of these machines use Komatsu's integrated *intelligent* Machine Control technology, a 3-D-based system with semi-automation, which eliminates masts and cables. The technology does more than keep a dozer's blade on grade. It adjusts loads on the fly and monitors track slippage to ensure that operators are moving as much dirt as possible and are working efficiently.

The same technology was added to three Komatsu excavators with amazing results. The integrated 3-D system takes excavator operation to another level compared to the 2-D aftermarket systems. Find an interesting article inside that highlights the differences between 2-D and 3-D, helping you make an informed choice on which is better for your business.

Many other new machines have sophisticated technology built-in as well, such as Komatsu's KOMTRAX telematics system, which lets you track hours, idle time, fuel usage and machine location. That capability recently came in handy for one contractor whose machine was stolen. Thanks to KOMTRAX and the assistance of his Komatsu dealer, it was recovered within 24 hours.

If you would like information on any of these products or others, please call or stop by one of our branch locations.

Sincerely,

WAUKESHA-PEARCE INDUSTRIES, INC.

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Bruce Truesdale

Vice President of CMD Operations

A second generation heads toward the future



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CENTEX MATERIALS LLC

Austin-area ready-mix, aggregate supplier continues growth pattern as region expands



Jake Seay, Vice President of Operations

Few cities in Texas have the diversity of Austin, particularly its economy. Like other cities, oil and gas are part of the economic mix, but in the past few years oil's portion has shrunk as an increasing number of technology and other types of businesses are now more prominent in the marketplace.

"That diversity has been very good for us," said Jake Seay, Vice President of Operations for Centex Materials. "Austin is also a tourist draw with festivals and other attractions, so the city continues to thrive and grow. As other places suffer during the oil and gas markets' recent decline, we seem to keep humming along."

Growth requires new buildings, parking lots, sidewalks, roads and more, which, in turn, bring a need for the products that Centex Materials supplies. The company has two

sides; ready-mix concrete plants throughout the Austin area and a quarry operation in Buda. Seay is part of a team of leaders at Centex Materials that includes President David Loftis, Vice President of Sales Doug Ferell and Vice President of Finance Beth Pieprzica. The company is a division of Dallas-based Eagle Materials, and currently employs about 170 people.

From homeowners to large general contractors

On the ready-mix side, Centex Materials runs eight plants that supply everyone from private homeowners to large general contractors. The company runs 85 trucks that deliver a variety of mixes throughout six counties including towns such as Georgetown, Kyle, Buda, Manor and Taylor.

A Centex Materials driver hauls rock with a Komatsu HD605 mechanical truck.





Centex Materials uses Komatsu equipment at its quarry to move limestone from the face to the crusher, including a 100-ton HD785 mechanical truck and its most recent addition, a WA800 wheel loader. "The Komatsus give us high production, and that's the name of the game for a quarry operation," explained Jake Seay, Vice President of Operations. "Downtime is a killer, and they limit that."

"We supply whatever our customers ask for," noted Seay. "We probably run 20 mix designs on a daily basis, a portion of which are fairly standard and make up approximately 80 percent of our business. The balance is highly specialized. For instance, it might be high-strength, such as 10,000 or 12,000 PSI for a new, high-rise building. Anything someone calls for, we can accommodate."

Centex Materials' services include everything from bringing a yard of concrete for a sidewalk patch to large batches of material for new construction. The company recently began supplying 70,000 cubic yards for a major tech project, and is also involved with several other large projects in downtown Austin.

"No one knows for sure if those are the largest amounts Centex Materials has ever supplied for a single project, but the tech project is the biggest in recent memory," explained Seay.

Supplying itself and others

One thing which is certain is that Centex Materials has solid raw materials at its quarry operation in Buda. The company uses them to supply its own aggregate products to make concrete mixes. It also sells a variety of sand and rock products to outside customers.

"In the beginning, the quarry was a traditional dig and screen pit," recalled Seay. "Since the early 1980s, it's been blast and crush. We mainly supply washed product for our business, as well as for a couple of large producers in town. In total, we produce nearly two million tons of material per year."

That's generally split between base materials and washed rock with varying sizes of each. Centex Materials does not offer delivery from the quarry, but customers can pick up products themselves.

"Each base may have multiple separate grades, and then we make several types of washed materials, too," said Seay. "As with ready-mix, we can supply large quantities of whatever sand and aggregate materials customers need. We make up to 300,000 tons per year for one customer. We recently supplied 170,000 tons of base to a company working on a new interchange in Austin."

Continued . . .

Komatsu trucks continue to be the 'right choice'

... continued

Komatsu trucks move materials efficiently

Like other quarries, Centex wants to move materials from pit to crusher as quickly and efficiently as possible. For many years it has used Komatsu 70-ton HD605 and 100-ton HD785 mechanical trucks to accomplish this, and it recently added a WA800 wheel loader to its fleet. Centex Materials purchased the machines from WPI's Austin branch with the help of Territory Manager Sean Casey.



WPI Territory Manager Sean Casey (left) calls on Centex Materials Vice President of Operations Jake Seay at Centex's office in Austin. "What stands out for me is the value an equipment dealer provides," Seay said. "Anyone can quote a price, but are they giving me what I'm looking for in terms of the machine fitting our specific needs? Are they responsive when we need service? Do they follow through? Sean and WPI have been outstanding in that regard."

Centex Materials recently added a 9,000-gallon-capacity Komatsu HD325 water truck to its fleet.



Before Centex acquired the trucks, Casey and other WPI personnel studied the quarry, including its haul roads, grades and distance from the face to crusher to ensure that the trucks were the right fit.

"The Komatsus give us high production, and that's the name of the game for a quarry operation," explained Seay. "Downtime is a killer, and they limit that. I've been with Centex for three years, so the trucks predate me. They were certainly the right choice when they were purchased, and they continue to be."

For Seay, service after the sale is equally – if not more – important than the equipment itself. Centex handles routine maintenance, calling on WPI as needed for additional help. The organization recently worked with Casey and WPI to purchase a Komatsu 9,000-gallon-capacity HD325 water truck.

"What stands out for me is the value an equipment dealer provides," Seay emphasized. "Anyone can quote a price, but are they giving me what I'm looking for in terms of the machine fitting our specific needs? Are they responsive when we need service? Do they follow through? Sean and WPI have been outstanding in that regard."

Growing with customer base

Seay and the management team at Centex Materials see future growth as a strong possibility. Any expansion will be done with four core values in mind: safety, quality, service and accountability.

"As always, we will grow as our customer base and the city do," said Seay. "We want to ensure that they have the ready-mix and aggregate materials they need for the next 50 years."

"The bottom line, though, is we can't produce quality products without quality people who are invested in what we do," he added. "They have to abide by those values, and if they do, Centex will remain successful. Our staff has and continues to play a huge role in what the company has become. We believe that we have built something great, and we want to continue that going forward."



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 - Komatsu traction control system
 - Selectable working modes



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INDUSTRY EXTRAVAGANZA

IMAGINE WHAT'S NEXT

CONEXPO 2017 showcases innovative new products that will shape the future of construction



North Hall, Booth N10902 Gold Lot, Booth G4183

It's often said that demolition is the first step to new construction. In May 2015, crews razed Las Vegas' famed Riviera Hotel and Casino, paving the way for an expanded CONEXPO-CON/AGG. Held every three years at the Las Vegas Convention Center right next door to where the Riviera stood the event is scheduled for March 7-11, 2017.

CONEXPO-CON/AGG will be the first trade show to use the new space, building on what is already the largest international gathering in the Western Hemisphere for the construction-related industries. It also earned the top spot on Trade Show Executive's prestigious Gold 100 trade-show rankings. The largest show in the U.S. of any industry in 2014 - the last time the event was held - it featured more than 2.35 million net square feet of exhibit space, 2,100-plus exhibitors and approximately 130,000 attendees.

Record attendance is possible at CONEXPO-CON/AGG, scheduled for March 7-11, 2017, at the Las Vegas Convention Center.



Nearly every time the triennial show is held it's bigger than the previous one. That's expected to continue with CONEXPO-CON/ AGG 2017. All major areas of the construction industry will be represented in the more than 2.5 million square feet of exhibit space that will house 2,500-plus exhibitors. Almost 700 of the exhibitors are new in 2017. Event organizers expect increased attendance as well.

Technology and more technology

Those visiting will notice a heavy emphasis on cutting-edge innovation. CONEXPO-CON/AGG continues to provide attendees with access to the newest products from every key construction-related sector, including asphalt, aggregates, concrete, earthmoving, lifting and utilities.

To showcase the focus on technology, the theme for the 2017 exhibition is "Imagine What's Next." This theme reflects the vision for the show as it fully embraces applied technologies that help construction companies reduce downtime, maximize efficiency at jobsites and minimize waste, while increasing bottom-line profits and enhancing safety.

"Technology is critical to the future of the construction industry and CONEXPO-CON/ AGG has always been a show that helps industry executives keep pace with the latest in new equipment and product innovations," said Rich Goldsbury, CONEXPO-CON/AGG 2017 show Chairman. "But, as the industry is being transformed by technology, our attendees understand the importance it has on the bottom line. It is our responsibility and privilege to connect them with the most cutting-edge innovations in safety, equipment and operations that are reshaping the future."



Komatsu will prominently display its *intelligent* Machine Control dozers and excavators, including the PC490LCi-11, in the outdoor Gold Lot (Booth G4183). There, it will also highlight its SMARTCONSTRUCTION program, which goes beyond *intelligent* Machine Control equipment with comprehensive jobsite solutions.

CONEXPO-CON/AGG brings the Imagine What's Next theme and technology focus to life with a new 75,000-square-foot Tech Experience pavilion dedicated entirely to presenting emerging construction innovations that are driving change and process improvements across the industry. Located in Silver Lot 3, it will feature items such as wearables for health, safety and productivity; the latest skills for careers; and new materials to enhance the nation's infrastructure, according to the Associated Equipment Manufacturers (AEM), the lead sponsor of the show.

"With the Tech Experience, CONEXPO-CON/AGG is advancing to a new level of thought leadership in our industry," said Sara Truesdale Mooney, Show Director and Vice President, Exhibitions and Business Development for AEM. "Attendees will explore three key zones: the worksite of the future, jobs of the future and the infrastructure of the future."

CONEXPO-CON/AGG is co-located with the International Fluid Power Expo (IFPE),

and the two shows are teaming up to unveil the world's first, fully functional 3-D printed excavator and the first large-scale use of steel in 3-D printing, known as additive manufacturing. In addition, attendees can watch as a second excavator is printed live on the show floor.

"We know our members look forward to seeing the industry's most innovative technologies at CONEXPO-CON/AGG and IFPE each show year, and 2017 will not disappoint," said John Rozum, IFPE Show Director. "We're thrilled to bring such a significant technological and first-of-its-kind achievement like the 3-D printed excavator to the show. It will serve as a platform to demonstrate how the latest innovations and applied technologies are changing the future of the construction industry."

Komatsu spotlights SMARTCONSTRUCTION

Komatsu introduced a significant leap in machine technology three years ago

Continued . . .

Learning sessions to focus on technology trends

. . . continued

with its *intelligent* Machine Control dozers. The Komatsu lineup now includes eight models, including a radio-controlled version of its D155AXi-8, as well as three excavators (PC210LCi-11, PC360LCi-11 and PC490LCi-11). Komatsu will display most of its *intelligent* Machine Control equipment at the company's outdoor exhibit space in the Gold Lot (Booth G4183), as well as a new machine featuring hybrid technology.

The outdoor area will also feature Komatsu's SMARTCONSTRUCTION program, which goes beyond *intelligent* Machine Control equipment with comprehensive jobsite solutions provided by Komatsu. In addition to training and support, offerings include surveying/inspection, 3-D modeling, jobsite-data solutions and setup, as well as optimized operation consultation.

Attendees flock to Komatsu's display at the 2014 CONEXPO. The company will have two exhibit areas at the 2017 show, with standard Tier 4 machines indoors in the North Hall (Booth N10902) and *intelligent* Machine Control equipment outdoors in the Gold Lot (Booth G4183).



Indoors in the North Hall (Booth N10902), Komatsu will prominently feature its standard Tier 4 machines. Among them will be excavators, ranging from utility to production-sized models; Dash-8 wheel loaders; multiple dozers and trucks; plus a motor grader. The 22,000-square-foot space will also have a presentation area; a company store with apparel, die-cast models and other logoed merchandise; as well as a photo opportunity spot.

Learning sessions

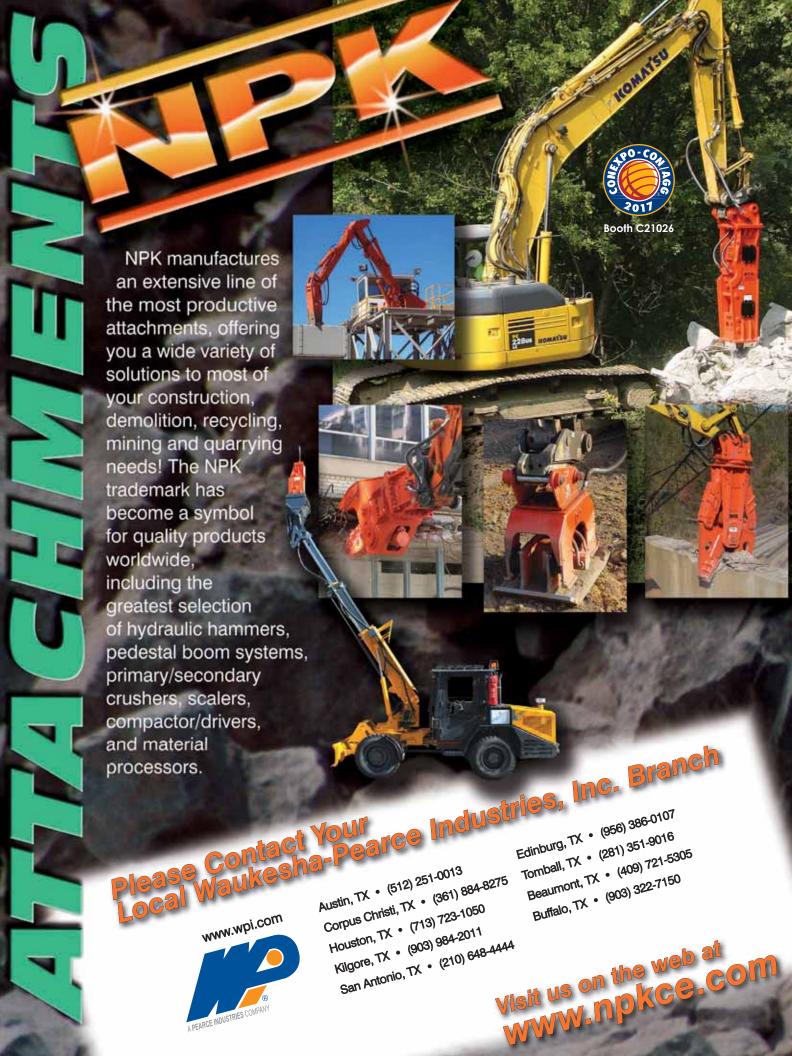
At this year's expo, educational opportunities abound with a record 143 sessions across 10 tracks. One specifically focuses on technology and will highlight industry innovations and future growth opportunities in the tech field – drones, autonomous machines, 3-D imaging, smart apps, gamification, big data and the Internet of Things (IoT).

Additional tracks will offer the latest trends and best practices for aggregates; asphalt; concrete; cranes; rigging and aerial lifts; earthmoving and site development; equipment management and maintenance; business practices; workforce skills; and safety.

"Education is a critical component of CONEXPO-CON/AGG, and we encourage attendees to take advantage of the convenience of so many learning opportunities available. They'll be able to work smarter because of the knowledge they gain," said Goldsbury.

Registration for sessions can be completed prior to the conference at the CONEXPO website (www.conexpoconagg.com). Single session, one-day passes and full-session passes are available.

"We're honored to be among the most trusted resources for industry professionals from around the world, and we feel tremendous pride as we take the exhibition to the next level of technological breakthroughs by delving into the future of the construction industry," said Truesdale Mooney.



HIGH-PAYING CAREERS

Construction affords a wealth of opportunities with substantial pay and benefits



Jennifer Wilkerson, Director of Marketing, Public Relations and Build Your Future at NCCER

There's no better time to work in the construction industry. With a growing shortage of skilled workers, salaries remain high and career opportunities are plentiful. In 2016, the National Center for Construction Education and Research (NCCER) released its annual Construction Craft Salary Survey, which lists the average annual salaries of craft professionals from industrial and commercial construction firms across the country. Average annual salaries ranged from \$47,100 to more than \$88,000.

This article is reprinted with permission from "Breaking Ground: The NCCER (The National Center for Construction Education and Research) Blog" at blog.nccer.org.

In 2016, the National Center for Construction Education and Research released its annual Construction Craft Salary Survey, which lists the average annual salaries of craft professionals from industrial and commercial construction firms across the country. Average base salaries ranged from \$47,100 to more than \$88,000.



As high as these salaries are, the reality is that what skilled craft professionals earn is typically far greater. The salaries listed in NCCER's survey are average, base salaries, not including overtime, per diem, bonuses or other incentives. Construction is known for having plenty of overtime and travel opportunities as well as bonuses. In addition, many contractors have incentives that pay for employee training, vacation time, retirement plans, cell phones, vehicle allowances and/or per diem or housing, depending on the length of a project.

Few industries offer the high salaries, incentives or growth opportunities found in the construction sector. While many craft professionals can earn well over six figures, it is important to remember that project location, company size, construction type, credentials, certifications and experience are some of the factors that determine a skilled professional's salary.

No limits on where craft professionals can go

These salaries show the earning potential that the construction industry offers individuals with or without a college degree. Construction is one of the few sectors where individuals can earn while they learn through industry training programs at local community or career colleges. Regardless of where a person starts, there's no limit to where he or she can go in this industry.

In construction, individuals can enter the workforce straight out of high school and start earning a salary. From there, they can develop their skills and take advantage of endless opportunities with huge earning potential. There's no better way to earn a living if you ask me!

ENHANCED FEATURES





D39EX-24

D39PX-24

ANOTHER SET OF VERSATILE DOZERS

Komatsu's D39-24s feature customizable settings for maximum efficiency

Customers have come to expect innovative quality coupled with industry-leading efficiency from Komatsu's dozers. The new D39EX-24 and D39PX-24 crawler dozers deliver on those expectations. The latest editions of the popular dozers continue to produce outstanding power while increasing fuel efficiency.

"If you're looking for nimble, powerful machines that are easy to transport and a breeze to operate, these are the dozers for you," said Komatsu Product Manager Jonathan Tolomeo. "Residential and commercial development, highways or golf courses – the D39-24s get it done in any of these light-to-medium dozing and fine-grading applications."

The D39-24s still sport the award-winning, super-slant-nose design, but feature a host of enhancements. The improved Tier 4 Final-certified, 3.26-liter engine boasts 105 horsepower. Fuel efficiency was improved by nearly 5 percent with the addition of the Selective Catalytic Reduction system and diesel exhaust fluid. The Komatsu Diesel Oxidation Catalyst provides 98 percent passive regeneration, and the new auto-idle shutdown and economy modes help reduce idle time and save fuel.

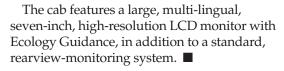
Customized working modes

The D39-24 dozers also include a variety of customizable performance settings to allow operators to match engine output to application. Operators can work in either a quick-shift, three-speed mode or a 20-speed transmission setting to suit personal preferences.

"Operators now have the ability to work in a mode that is best-suited for the jobs at hand," explained Tolomeo. "Working this way, in conjunction with the other upgrades, helps boost productivity and efficiency."

Monitoring efficiency

The working environment inside the D39-24s provide operators with all the tools necessary to make sure they are working as efficiently as possible. The dozers are equipped with a Level 5 KOMTRAX telematics system that tracks key machine metrics, such as diesel exhaust fluid consumption, fuel level, operating hours, location, cautions and maintenance alerts. The new Operator ID feature makes it possible to display those metrics by operator, application or job.





Jonathan Tolomeo, Komatsu Product Manager

Quick Specs on Komatsu D39-24 Models				
Model	Horsepower	Operating Weight	Blade Capacity	
D39EX-24	105 hp	21,891 lb	2.89 cu yd	
D39PX-24	105 hp	22,817 lb	3.14 cu yd	

The new Komatsu D39-24 crawler dozers feature a variety of customizable performance settings to allow operators to match work modes to application. "Anyone looking for nimble, powerful machines that are easy to transport and a breeze to operate, these are the dozers for you," said Komatsu Product Manager Jonathan Tolomeo.



INNOVATIVE PRODUCTS





D61PXi-24

D61EXi-24

SECOND GENERATION

See how Komatsu's new D61i-24 dozers ensure high production from first pass to last



Sebastian Witkowski, Komatsu Product Marketing Manager



Chuck Murawski, Komatsu Product Marketing Manager

During the past three years, Komatsu has launched several *intelligent* Machine Control dozers that provide greater productivity and efficiency from first rough cut to finish grade. Now, Komatsu introduces the second generation of the dozers that started it all, with the new D61EXi-24 and D61PXi-24, which feature more efficient Tier 4 Final engines.

Like their predecessors, the new D61i-24 models include factory-integrated GPS grade control that eliminates the need for blade-mounted cables and masts. Once engaged, the system automatically starts the cut and lowers the blade to grade in a typical dozing pass. If the load increases to maximum capacity, the blade automatically raises to minimize track slip, ensuring productive

Komatsu's new second-generation D61i-24 dozers feature factory-integrated GPS grade control that eliminates the need for blade-mounted cables and masts. They achieve up to 8 percent greater efficiency in moving materials, based on start-to-finish-grade testing against typical aftermarket machine-control systems.

Quick Specs on Komatsu D61i-24 Models				
Model	Horsepower	Operating Weight	Blade Capacity	
D61EXi-24	168 hp	41,094 lb	4.41 cu yd	
D61PXi-24	168 hp	43,167 lb	4.98 cu yd	



dozing. This allows the dozers to achieve up to 8 percent greater efficiency in moving materials, based on start-to-finish grade testing against typical aftermarket machine-control systems.

"From first pass to last – rough cut to finish grade – the machine senses blade load, minimizes track slip and ensures that operators get the most from every push," said Sebastian Witkowski, Komatsu Product Marketing Manager. "Also, eliminating the need to install or remove blade-mounted sensors each day not only reduces wear and tear and potential downtime, but it also saves the operator's valuable time that can be used to run the machine longer."

Operators can select from among four distinct machine-control operating modes (cut and carry, cutting, spreading and simple grading) to optimize performance to the application. They can also tailor blade loads to material conditions by choosing from light, normal or heavy-blade load settings.

Lower maintenance, repair costs

The new D61i-24 dozers feature Komatsu's Parallel Link Undercarriage System (PLUS) that provides up to double the wear life of traditional systems, lowering maintenance and repair costs. A new Triple Labyrinth final drive provides added protection for the final-drive floating seals.

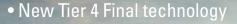
"Standard and *intelligent* Machine Control D61 dozers remain popular because their size makes them a great fit on a wide variety of jobsites and in a broad range of applications," said Chuck Murawski, Komatsu Product Marketing Manager. "D61i dozers combine all the benefits of a base machine with the greater efficiency of our integrated machine control. The new D61i-24 is a great choice for high production, low fuel consumption and decreased operating costs."

D61PXi-24



intelligent MACHINE CONTROL

- First to last pass grading technology
- Revolutionary track slip control
- External stroke sensing hydraulic cylinders



LAM KOMATSU

ANDY CHAPMAN / SALES REP / LINDER INDUSTRIAL MACHINERY / GREER, SC

"From financing to product quality to support and training after the sale, Komatsu delivers everything my customers demand. I've been selling their full line, including the PXi and EXi series dozers, for years. Innovation and the exclusive *intelligent* Machine Control set them apart from the others. And that's why I AM KOMATSU."

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MOMENTE 61PX

KOMATSU CUSTOMER CENTER

Facility provides acres of opportunities to help customers find the best machines for their jobs



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.

Tom Suess, Director of Training and Publications

Tom Suess joined Komatsu's Customer Center about a year ago after working most recently as a National Account Manager for the company. As the Director of Training and Publications, Suess oversees the Cartersville, Georgia, facility's operations related to demonstrations, training and publications.

"I view the Customer Center as a showcase that's dedicated to providing world-class services to Komatsu personnel, distributors, and most importantly, our customers," said Suess. "One of my goals is to increase the number of people who utilize the Customer Center and take advantage of all that it offers. For most of my tenure with Komatsu I have visited our customers; in my current role I am now lucky enough to have them come and visit me!"

Suess began his career with Komatsu in the finance division nearly 20 years ago after graduating from Illinois State University. He later went on to obtain a master's degree in Business Administration from the University of Phoenix. After working in finance, Suess transitioned into sales and served as a District Sales Manager, then as a Regional Sales Manager before earning a promotion to Director of Business Planning and Development. Suess later advanced to Director of the West Region and finally into national accounts. His diverse background allowed him to easily transition into his new role and provide a valuable customer perspective.

"I truly enjoy working with customers and helping them find the right pieces of equipment," Suess said. "I believe the Customer Center is a perfect complement to our machinery as it shows customers our commitment to providing more than a product."

He and his wife, Erin, recently celebrated their 14th anniversary. The couple has three children, and they enjoy spending time together as a family. Suess also likes to play basketball, read, golf and fish.

QUESTION: What is the Cartersville Customer Center?

ANSWER: Komatsu opened this facility in Cartersville, Georgia, in 2002 as a place to take customers so that they can see and operate Komatsu equipment first hand. It's been known by different names throughout the years, but we recently changed it to the Customer Center as a way to better reflect what it represents. As they say, only the name has changed. The focus and intent remain the same.

QUESTION: What does the Customer Center provide?

ANSWER: The center offers three main things: a demonstration site, training and publications, all of which benefit Komatsu customers. We have 600 acres of property and a wide assortment of equipment available, so that customers can visit our world-class facilities and run machines through their paces before making purchase decisions. One way we do that is by hosting customer-focused events such as Demonstration Days, which are typically in the fall and spring. The added benefit is that customers can talk with other industry professionals and compare notes. Komatsu has product managers and other personnel on hand to answer questions and ensure that customers are operating in a safe environment. In addition to large events, we also host individual customers and their respective distributors. We encourage our dealers to schedule these events through our website: www.komatsuamerica.com/service-and-support/ training-and-publications.

Whether a customer or distributor, our center provides complete training and unmatched educational support services. We offer classes for our customers and dealers at our state-of-the-art center, or we can conduct either operator or technical training at a company's facility or dealer site. Customers can set up this training through their distributors. We have in-house operator



trainers who work closely with clients from the moment they arrive on site, both in our classrooms and during machine operation, to ensure that operators have a full understanding of how to get the most out of a machine. For example, they can learn which operating mode to use for the best match to an application and soil conditions.

Finally, the publications team is responsible for printing and distributing all technical documents, including shop, operating and maintenance manuals as well as field assembly guides. All of these are critical to the success of both customers and distributors as they support Komatsu products in the field. These materials provide a wealth of knowledge about Komatsu machines, so again, our customers can get the most out of their equipment. Our focus is on providing comprehensive, accurate information.

QUESTION: Does the Customer Center offer more from a training standpoint?

ANSWER: Yes. Not only does this facility conduct training for Komatsu distributors and our customers, but we also focus on providing our Komatsu customer-facing employees with routine training from the Customer Center. For instance, we held a cross-functional training course this year that provided the opportunity for our sales, service, and parts teams to collaborate in a classroom setting by working together on case studies. In addition, we also offer specialized, technical training for Komatsu's large, electric-drive trucks that are used in mining operations.

Additionally, we design online classes through our learning management system. These classes are a good way to obtain background knowledge that



Komatsu's Customer Center offers a variety of machines available for demonstration, including wheel loaders, dozers, excavators, trucks and motor graders.

Komatsu personnel are available to help with demonstrations and provide hands-on training.



The Customer Center provides classroom training to customers as well as to Komatsu distributor technicians so that they can properly diagnose and resolve issues quickly to minimize downtime.

can then be applied in the more hands-on setting provided in the Customer Center.

QUESTION: How does that benefit customers?

ANSWER: Our goal is to maximize productivity and minimize downtime. Komatsu makes world-class machinery, but even the best can experience an occasional issue or breakdown. Technicians with comprehensive knowledge of Komatsu machinery know how to resolve issues quickly to reduce downtime. If an issue or error code pops up, they know the proper procedures to diagnose and repair a machine quickly so that customers are up and running again as soon as possible.





Discover more

THE NEXT DIMENSION

Learn how 3-D GPS-technology from Komatsu provides full picture for excavator operators



Mike Salyers, Senior Product Manager

Komatsu's line of 3-D intelligent Machine
Control excavators
with semi-automation,
including the PC360LCi-11,
recognize the full
dimensions of the bucket
and how it works with
the boom and arm to curl
when excavating dirt. This
ensures that operators
maintain grade and
limit overexcavating.

Aftermarket grade-control systems revolutionized the construction industry by slashing project times, wasted material and labor costs in the late 1990s. When Komatsu's integrated *intelligent* Machine Control with semi-automation hit the market in 2013, it took the industry to another dimension, literally.

"Komatsu's *intelligent* Machine Control technology works in 3-D, so the machine knows where its reference points are in all directions, at all times," said Komatsu Senior Product Manager Mike Salyers. "With a 2-D only system, the machine simply knows where target grade is relative to a known elevation and only in the posture that the known point was measured."

When Komatsu introduced *intelligent* Machine Control on the PC210LCi-10 excavator in 2014, the improvement was dramatic. Grading efficiency increased by as much as 66 percent compared to conventional grading on a sloped surface.

The excavator's integrated, 3-D GPS technology was a massive upgrade over 2-D aftermarket machine control systems as well. The 3-D system doesn't require operators to re-establish elevation after moving the machine.

"With 2-D, every time operators move their machines – either to a new spot or to dump a load – they have to re-establish their positions using the bucket to define certain elevations," explained Salyers. "With the GPS system, the machine's position is updated in real time providing information so the operator can focus on digging.

"The *intelligent* Machine Control equipment can have the project plans uploaded to its computer, providing all of the information the operator needs to cut and grade even the most complex designs accurately," he continued.

For example, many house pads today have unique designs that present challenges to even the most experienced field personnel. Carving detailed bump outs can be easily and accurately performed because the machine's position is continually updated without the need to re-establish its position.

The *intelligent* Machine Control excavators are pre-programmed with the bucket's full dimensions. In combination with the semi-automatic function of the boom, the operator is ensured not to undercut the target surface no matter the position of the bucket, giving full control of cutting and grading applications.

"In conventional 2-D systems, the bucket can only be referenced from a single point – usually the bucket teeth. This can be an issue if the body of the machine is sitting on a slope; one edge of the bucket may be below the target surface and one edge above," Salyers explained. "A 3-D bucket allows the system to determine the closest point to target surface to prevent any undercut."

Komatsu is the only manufacturer to offer excavators with integrated 3-D *intelligent* Machine Control with semi-automation – the PC210LCi-10, PC360LCi-11 and PC490LCi-11. ■





BUYING WITH CONFIDENCE



Discover more

CERTIFIED EQUIPMENT DELIVERS

Komatsu's Tier 4 machines offer peace of mind for buyers of used equipment



Josh Alters, Senior Manager, Komatsu ReMarketing

When Komatsu introduced its Tier 4 machines in 2011, it also launched Komatsu CARE, a complimentary program that provides factory-scheduled maintenance for the first three years or 2,000 hours of the machine's life. "Today's buyers understand that the better a machine is maintained, the longer it will last and, in the long run, lower their owning and operating costs," explained Senior Manager, Komatsu ReMarketing Josh Alters.

Komatsu CARE Certified Equipment gives customers a chance to purchase used equipment that has been maintained by certified Komatsu CARE technicians for the first 2,000 hours or three years of operation, providing a much clearer picture of the machine's history.



Under the Komatsu CARE program, machines receive Komatsu Genuine fluids, filters and coolants. They also undergo a 50-point inspection at each interval, and certified technicians log the information from the services. "We are now seeing owners trading in machines that were covered under the program," said Alters. "This careful monitoring paints a very clear picture about the machine, providing a detailed history compared to other used equipment."

Just as Komatsu CARE assures that late-model Komatsu equipment receives proper maintenance, Komatsu CARE Certified Equipment offers peace of mind for buyers in the secondary market.

"Only machines with less than 6,000 hours of operation on them and that have been maintained for by certified technicians at regular service intervals are selected for our rigorous certification process," noted Alters.

The program covers all eligible Tier 4 machines, which includes Komatsu's intelligent Machine Control line.

"Those who purchase CARE Certified Equipment will also receive a CARE Report that shows the machine's service history and complete records, eliminating many of the unknowns that are associated with purchasing used machines. This way customers know exactly what they are buying," shared Alters. "Additionally, if a machine has any Komatsu CARE coverage remaining, the balance will transfer with the machine to the new owner. That's a lot of added value, which provides peace of mind for customers looking to purchase a used machine."

KOMTRAX LOCATES MACHINE

Telematics system helps Ates Construction recover stolen PC55MR excavator

Emergencies come in many different forms. Sometimes it's a water line break. Or, it could be finding out that the machine you need to help fix the water line has gone missing. Such was the case for Alan Ates when he went to pick up his Komatsu PC55MR excavator.

"We were doing a job and had parked the machine for the night at a designated yard," explained Ates, Owner of Ates Construction. "I got an emergency call to repair a ruptured water line the next morning and sent my guys to pick up the machine and take it to the new job. When they told me the excavator and the trailer it was on were missing, I called the police and then my Komatsu Sales Rep."

Using Komatsu's KOMTRAX telematics system, within minutes the distributor was able to pinpoint the PC55MR's location in another state about three hours away.

By simply entering the serial number of the machine, KOMTRAX showed the exact location of the stolen excavator. The police department in the city where the excavator was taken quickly confirmed the PC55MR's location and secured the machine.

Will use it more

Using information from KOMTRAX, as well as surveillance and other video, police were able to trace the time line of the machine's theft to its recovery, helping them build a case against the thieves.

"I knew the PC55MR had KOMTRAX, but I never really used it," said Ates. "That will change after this experience. I don't think I would have seen the excavator again if it weren't for KOMTRAX. I appreciate everything my Komatsu distributor and the police did to ensure the machine was recovered."



Ates Construction Owner Alan Ates (second from right) is pictured with his crew and the company's PC55MR excavator, which had been stolen. Ates recovered it with the help of Komatsu's KOMTRAX telematics system. "I knew the PC55MR had KOMTRAX, but I never really used it," said Ates. "That will change after this experience. I don't think I would have seen the excavator again if it weren't for KOMTRAX."



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SPECIAL RECOGNITION



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CELEBRATING 30 YEARS

Chattanooga Manufacturing Operation builds the future as it reflects on the past

As it celebrates its 30th anniversary, Komatsu's Chattanooga Manufacturing Operation (CMO) is firmly planted in the present and looking ahead to the future. This forward focus is evident as the Chattanooga, Tennessee, facility recently began mass production of the *intelligent* Machine Control PC490LCi-11, the world's largest excavator with a fully factory-integrated machine-control system.

"The future of construction is already here thanks to innovative machines like the PC490LCi-11," said General Manager Bruce Nelson. "We couldn't be prouder to assemble this revolutionary excavator at CMO. This plant continues to be a production leader, and having the PC490LCi-11 as one of the many products in our lineup highlights our staff's exceptional capabilities and the trust Komatsu puts in CMO to produce quality products."

The Tier 4 Final, 359-horsepower PC490LCi-11 handles a wide variety of jobsite tasks, including mass excavation, trenching and fine grading. It boosts production and efficiency while removing

 $Continued \dots$





Bruce Nelson, General Manager, Chattanooga Manufacturing Operation

Komatsu demonstrated its first PC490LCi-11 at a Jobsite of the Future event late last year. It recently began mass production of the *intelligent* Machine Control excavator at its Chattanooga Manufacturing Operation.



Komatsu personnel assemble an *intelligent* Machine Control PC490LCi-11 at the company's Chattanooga Manufacturing Operation. The PC490LCi-11 is the newest model built at one of Komatsu's premier excavator plants.

Innovation goes into building every machine

.. continued

the worry of overexcavation. The excavator's exclusive control function lets operators focus on moving materials efficiently without digging too deep or damaging the target surface.

Like other *intelligent* Machine Control excavators, the PC490LCi-11 uses 3-D design data loaded into the touchscreen display to show machine position relative to target grade. When the bucket reaches the target surface, automation kicks in to limit overexcavation. Once the target elevation is reached, no matter how hard the operator tries to move the joystick control to lower the boom, the excavator won't allow it.

Standard bearer in excavator production

CMO opened in 1986 and originally assembled WA600 wheel loaders. It has also produced dozers, articulated and rigid-frame dump trucks as well as motor graders during the past three decades, but it eventually became a premier excavator plant. In addition to the PC490LCi-11, CMO produces six standard Tier 4 Final models that range in size from the PC210LC-11 to the PC490LC-11.

"We offer additional options, such as pipeline-spec excavators and modifications to base machines," noted Nelson. "Throughout the years we have developed ways to reduce lead times for most distributor orders, from about two months in 2009 to now, less than

New state-of-the art robotic welders perform more than 90 percent of the welds on excavator track frames. Each robotic unit can hold an entire track frame and rotate it, maneuvering in more sophisticated ways than older robotic welders.



a week. That's due to a constant focus on efficiency, as well as the dedication and hard work of the 360 CMO employees."

Additionally, this facility is the only Komatsu plant in the world that builds specialized forestry tracked machines. It produces four sizes of forestry excavators along with tracked harvesters and feller bunchers.

State-of-the-art robotic welding

Innovation goes into building every machine, and recently CMO upped the ante with the installation of new Komatsu-designed robotic welding units, technology that's not yet used in any other Komatsu plant in the world.

The robotic units make a large number of the welds on excavator track frames, while skilled, experienced welders apply the final touches manually. Each unit can hold an entire track frame and rotate it.

"We have used robotic welding units for many years, and they are good, but these state-of-the-art welders really take efficiency to another level," said Nelson. "They can maneuver in more sophisticated ways than older machines."

Adding more intelligent machines

The mix of robotic welding units and human assemblers have produced tens of thousands of machines since CMO opened 30 years ago. In addition to the current excavator lineup, the plant will begin mass producing *intelligent* Machine Control PC360LCi-11s relatively soon. Like the PC490LCi-11, it will have more components than a standard machine due to the built-in technology.

"Because we only make Tier 4 Final products at CMO, we have not yet taken on the PC210LCi-10, which was the first *intelligent* Machine Control excavator and is an Interim machine," explained Nelson. "It's anticipated that when the second generation of that machine comes around, we will likely produce it, too. As with previous products, we will refine the process of building the PC490LCi-11 and apply that to make the assembly of other *intelligent* Machine Control excavators more efficient. "■

PLANTING SEEDS

New 'Build America Bureau' aims to increase efficiency for federal funding of infrastructure projects

The U.S. Department of Transportation recently announced the opening of its Build America Bureau, which is designed to help speed up repairs of roads and other infrastructure projects. The new bureau aims to streamline the application process for federal funding and assist public and private investors in obtaining loans, support and expertise.

One of the bureau's initiatives is to make government more efficient and help private donors contribute to large projects. It brings together officials from a variety of agencies to offer a one-stop shop for loans and streamlined access to existing funding sources.

"By opening the Build America Bureau, we're planting seeds for future projects across the nation," said Transportation Secretary Anthony Foxx at a press conference announcing the bureau.

Report shows funding gap

The announcement of the bureau's opening coincides with a new report from the American Society of Civil Engineers (ASCE) that showed U.S. infrastructure needs will outpace projected spending by \$1.4 trillion during the next decade. ASCE's study says that if current spending levels continue, the gap will grow to more than \$5 trillion by 2040.

"Our nation's infrastructure bill is overdue," said ASCE Past President Greg DiLoreto. "Poor infrastructure is inefficient, and it puts a drag on America's economy."

Surface transportation accounts for \$1.1 trillion of the \$1.4 trillion shortfall. The 10-year deficit for electricity is \$212 billion,

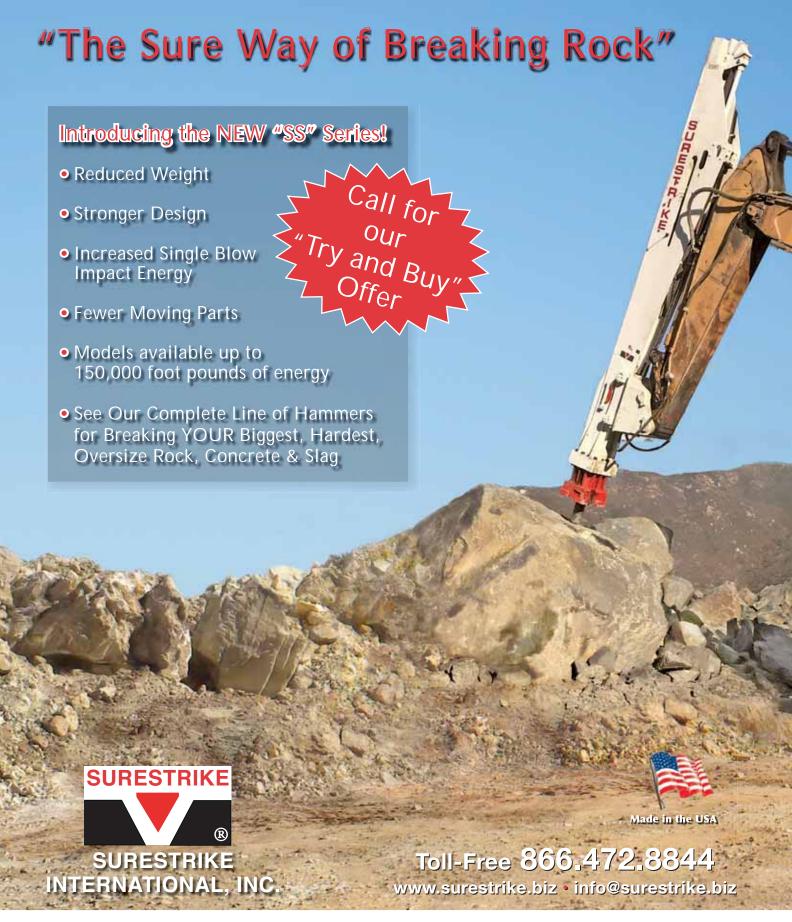
followed by \$113 billion for water and wastewater, \$46 billion for aviation and \$18 billion for ports and waterways.

DiLoreto said all means of new funding should be on the table, including increasing the gas tax, introducing fees on vehicle miles traveled, continuing efficiencies in the expenditures that utilities make and hiking utility rates. Foxx also says more infrastructure funding is necessary.

"We still have a chronic problem in this country of underinvesting, and that remains part of our challenge," Foxx told reporters during a briefing on Senate transportation appropriations in 2016. ■

The U.S. Department of Transportation aims to accelerate road repairs and other infrastructure projects with its Build America Bureau. A new report from the American Society of Civil Engineers showed U.S. infrastructure needs will exceed projected spending by \$1.4 trillion during the next decade with surface transportation accounting for \$1.1 trillion of the shortfall.







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MASTER YOUR FUTURE

Komatsu showcases innovative new products at MINExpo 2016

Companies often talk about the future at shows like MINExpo 2016, but Komatsu literally gave attendees a sneak peek at what's ahead with its display at the Las Vegas Convention Center. Komatsu's theme was "Master Your Future," and among the highlighted products that drew heavy attention was the cabless Innovative Autonomous Haulage Vehicle (IAHV) with a 254-ton (230-metric-tonne) payload.

"MINExpo is a wonderful event that showcases technology and solutions for the mining industry," said Rich Smith, Komatsu Vice President, Product and Services Division. "For Komatsu, it is a premium opportunity to engage with customers and share our latest technologies in equipment. It also allows us to work closely with customers to develop real-world solutions that provide actual value today. We deliver products, solutions and services that meet today's needs and open a window to the possibilities of the future."

Komatsu developed the concept 2,700-horsepower IAHV to maximize the advantages of unmanned operation and eliminate K-turns at loading and unloading sites. It distributes equal load to all four tires when loaded or unloaded, and by adopting four-wheel drive, retarder and steering, it aims



Rich Smith, Vice President, Product and Services Division

Continued . . .



The centerpiece for Komatsu's MINExpo 2016 display was its new cabless Innovative Autonomous Haulage Vehicle (IAHV), a 2,700-horsepower mining truck with a 254-ton (230-metric-tonne) payload, four-wheel drive and four-wheel turning.

New machines lower owners' operating costs

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for high performance in both forward and reverse travel. Komatsu expects the IAHV to significantly improve productivity at mines where existing unmanned haulage vehicles face challenging conditions, such as slippery ground as well as confined spaces for loading. No date is set for its formal release.

"The IAHV is going to change the mining industry," said Smith. "It's a completely radical design – no cab, four-wheel drive, four-wheel

Attendees check out the new Komatsu PC4000-11 at MINExpo 2016. It features a Tier 4 Final 1,875-horsepower engine and can be configured as a shovel or backhoe.

Komatsu's D375Ai-8 dozer is the first mining-class dozer equipped with *intelligent* Machine Control. It was featured at MINExpo 2016 and will be available in 2017.



steering, and it's autonomous. The IAHV, along with the other Komatsu equipment on display, really shows what the future of mining will look like."

Attendees also saw the present with the North American introduction of the PC4000-11, which is powered by a Tier 4 Final 1,875-horsepower, 16-cylinder engine and features a timesaving engine-oil management system. Best suited to pair with 150- to 240-ton trucks, it can be configured as a shovel or backhoe. Various buckets and wear packages are available to suit multiple material densities and properties.

New dozer, truck coming soon

Back to the future, Komatsu previewed its new 930E-5 mining truck and D375Ai-8 dozer, both of which will be available in 2017. The 636-horsepower D375Ai-8 is the first mining-class dozer with *intelligent* Machine Control, and it has structural enhancements for increased durability of the mainframe and track frame. It increases production and cycle times and delivers 20 percent greater horsepower in reverse.

The 930E-5 will join a 930 line that is the world's most popular for ultra-class mining trucks. It has a 2,700-horsepower Tier 4 Final engine that reduces fuel consumption up to 5 percent and delivers a 320-ton payload. It's a good match in large-scale mining applications with big bucket shovels of 49 to 55 cubic yards, such as the Komatsu PC7000 and PC8000.

Additional features of Komatsu's display booth included the recently released WA600-8 wheel loader and information on maximizing production and efficiency. More than 43,000 people attended the event, which had more than 2,000 exhibitors, and 840,000 square feet of exhibit space.

"We were very excited to debut our newest mining machines at MINExpo," proclaimed Smith. "We have a commitment to the mining industry. These new machines were designed to lower the total operating costs for customers. We want to help them work as productively and as efficiently as possible."

MORE INDUSTRY NEWS

Report: private investment in water systems may increase

A Bluefield Research Report says it's likely that private investment in public water systems will increase. Currently, 15 percent of the systems in the United States are privately owned.

The Congressional Budget Office estimates federal spending on water

(ES

utilities fell by 75 percent since 1977, leading to an investment need of more than \$532 billion in the next decade to meet the nation's water-infrastructure needs. States and municipalities have increasingly assumed a larger portion of water systems funding as a result.

Green building materials could hit \$255 billion in three years

The global green building materials market is on pace to hit \$255 billion by 2020, according to Zion Research and reported by Construction Dive. Public facilities, education, commercial and industrial sectors lead demand for green

materials, which was valued at more than \$127 billion two years ago. The report points out that North America accounted for more than 40 percent of the total green building materials market.

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SIDE TRACKS

On the light side



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"It's very important for every organization to have someone to be able to bounce ideas off of, Benson."

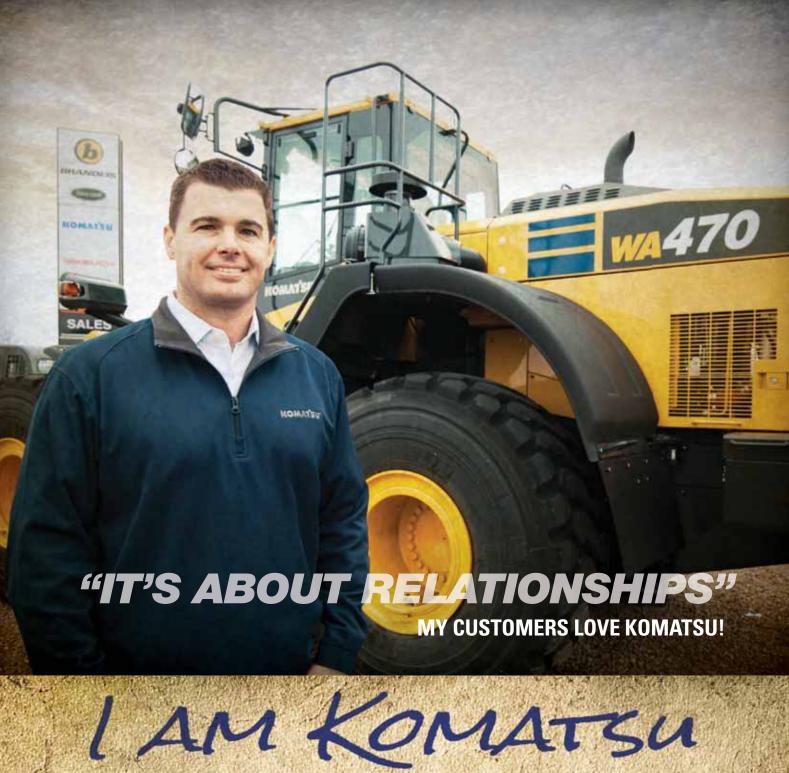
Brain Teasers

Unscramble the letters to reveal some common construction-related words. Answers can be found in the online edition of the magazine at www.WPIUpdate.com

- 1. TGNELEITLNI____<u>L</u>_____
- 2. N R O T I O M __ _ _ _ <u>T</u> __ _
- 3. A M U N L A __ _ _ _ _ _ _ _
- 4. SSMESIONI __ __ <u>S</u> __ __ _
- 5. A Z E R ___ __ __

Did you know?

- Bubble wrap was originally intended for use as wallpaper.
- Tears caused by sadness, happiness and onions look different under the microscope.
- Any month that starts on a Sunday will include a Friday the 13th.
- Caterpillars have approximately 4,000 muscles.
- A pumpkin is a fruit. Most people think of it as a vegetable.
- Auburn is the only school where John Heisman coached and has produced a Heisman Trophy-winning player.
- A day on Venus lasts nearly a year; it is 243 Earth days.
- The highest waterfall in the world, Angel Falls in Venezuela, has a total drop of 3,212 feet.



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