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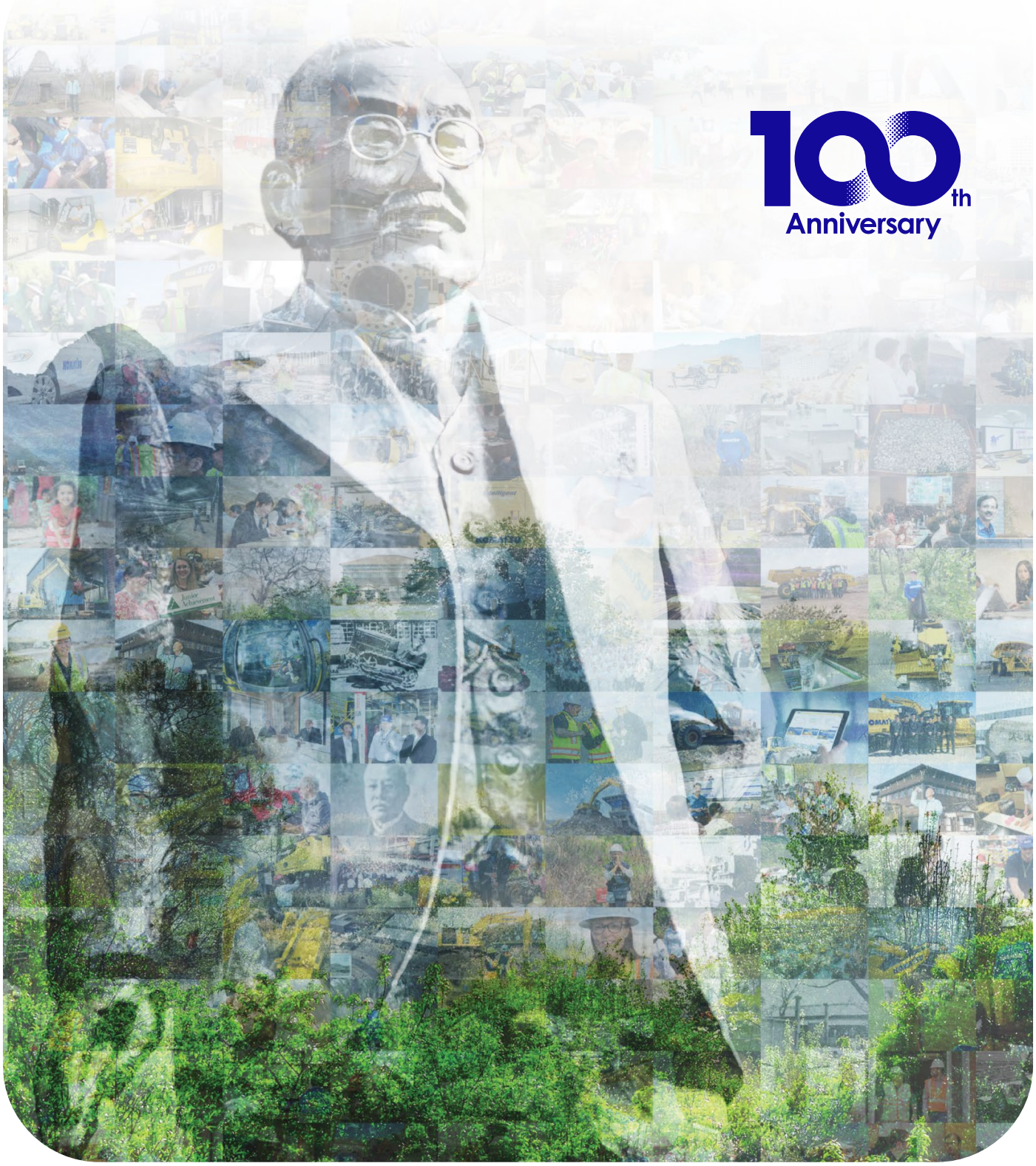
Komatsu Magazine

Downtoearth



Picture: Visionary Meitaro Takeuchi founded Komatsu in 1921

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Comments

Happy Birthday Komatsu! One hundred years ago on 13 May 1921 Meitaro Takeuchi founded Komatsu. It is of course a massive milestone when a business can endure for 100 years, it means we are doing something right.

Takeuchi was driven to form an engineering and manufacturing business because the copper mine he owned was coming to end of life and he wanted to ensure continuity for his employees. He also wanted technology to be a founding principle of the business so his community could be exposed to the fast moving world at the beginning of last century. Over 100 years Komatsu has developed many innovations and from small roots in Japan become a leading global supplier of earth moving equipment. Quality and reliability through excellence in manufacturing and aftermarket support has been the reason why customers have chosen Komatsu equipment.

Who knows what the next century will hold. One thing for sure is that moving and shaping the earth will always require heavy machinery and engineering. Komatsu machines and our customers will remain central to creating the world we all aspire to for the next generation. Komatsu will continue to innovate and find better ways of course. We will build on our success in the past, create even more reliable and productive machines and we will continue to strengthen our support when you need us the most. In addition, we will introduce new innovation and systems to ensure we are leading step changes in earth moving technology and connectivity of the entire construction and mining process. Innovations like automation, smart construction, digital connectivity and electrification. There is plenty to be excited about, please enjoy Down to Earth.

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Customer stories

Komatsu Kids

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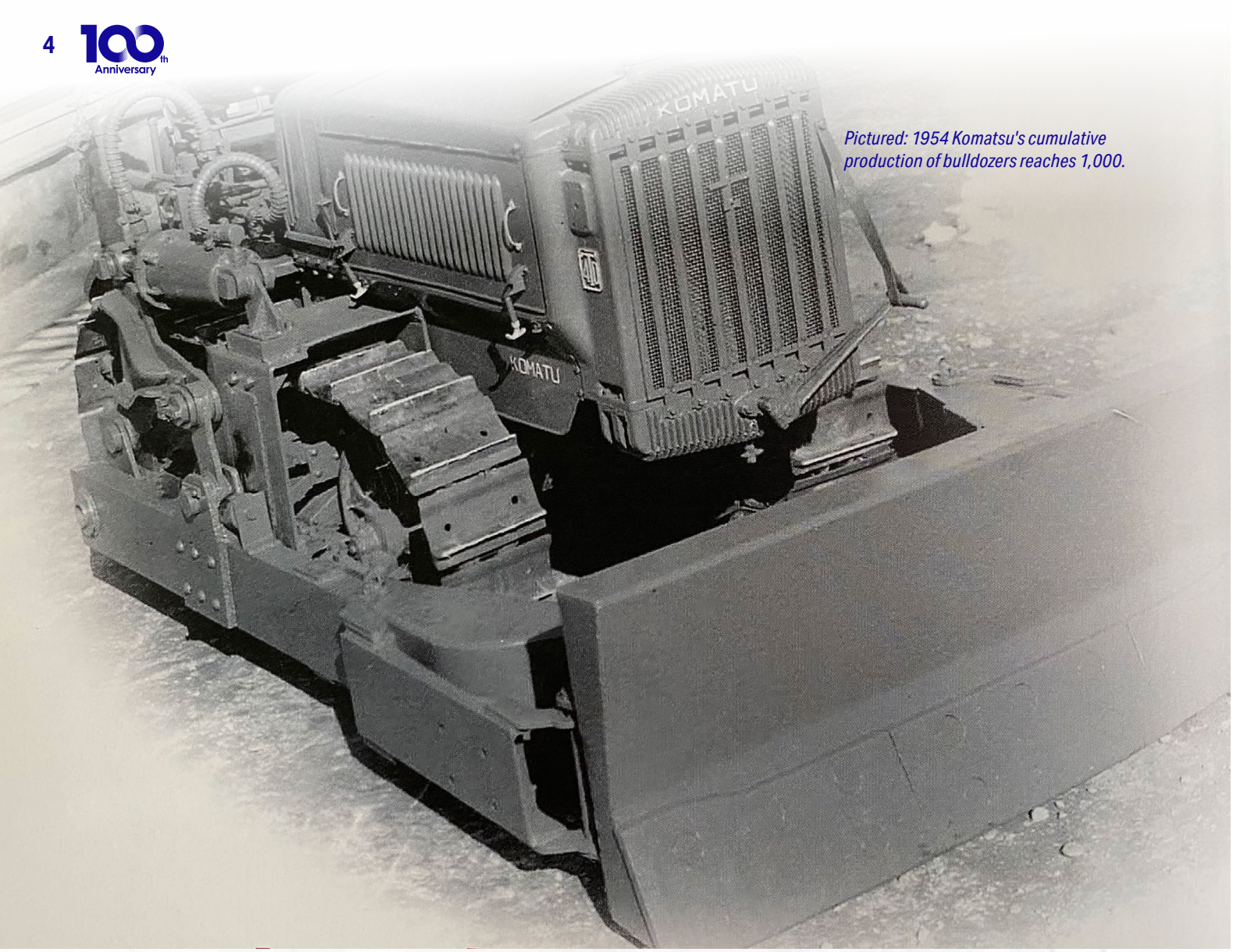
Front cover

In May this year, Komatsu celebrated its global centenary. It was founded in Komatsu City in 1921 by the visionary Meitaro Takeuchi with a set of guiding principles that still apply today.



Pictured: 1954 Komatsu's cumulative production of bulldozers reaches 1,000.

Pictured: First machine exported from Japan - motor grader to Argentina in 1955.

Inset: 1964 Komatsu receives Japan's prestigious Deming Application Prize for Total Quality Management.

Pictured: 1968 Komatsu establishes office in Sydney.

How Komatsu has developed over the past century – and looking to the next 100 years

Following Komatsu's celebration of its 100th anniversary on May 13, 2021, it is rolling out a series of activities over the next year centred around the company's commitment to its new brand promise of "creating value together."

Originally established in 1921 by the visionary Meitaro Takeuchi in Komatsu City, Japan, to sustain the surrounding community after the closure of a nearby copper mine, Komatsu has spent the past century dedicated to its founding principles of quality first, technology and manufacturing innovation, global reach and people development.

Over the past century, Komatsu's continued investment in core capabilities and strategic acquisitions have connected smart, diverse people and cutting-edge technologies with a shared belief that partnerships are the best way to solve challenges and meet society's needs.

The company's development since its establishment has closely mirrored the rise of the global earthmoving and mining equipment sectors.

The early years

Initially Komatsu responded to trends and developments, before moving to stake its reputation as an industry leader and innovator from the mid 1960s.

For its first 40 years, Komatsu almost exclusively focused on dozer manufacture and development.

During the 1930s, the company steadily developed its expertise in the manufacture of earthmoving equipment – producing a line of diesel and gasoline powered dozers known as the G40/T40 range for the Japanese Army.

The true industry "workhorse" from the 1920s into the 1960s, for many the bulldozer was the face of the earthmoving industry.

Post-war push and a focus on quality

Komatsu's push into full-scale earthmoving equipment production occurred following the war – continuing to primarily focus on dozers and selling significant numbers throughout Asia.

Those were still the days when Japan was best known for manufacturing poor quality, cheap earthmoving products. Komatsu set out to break this image.

It was during the 1960s that Komatsu committed itself to a strategy of designing and manufacturing a range of high-quality, high-durability equipment that would enable it to compete effectively with US and European-sourced machines.

This move towards developing high quality equipment paid off when the company won Japan's prestigious Deming Prize for quality twice – the only manufacturer ever to have done so.

In doing so, it developed a reputation for reliable, productive and durable products – the only Japanese manufacturer to achieve this, through its single-minded approach to quality.

During the 1940s and 1950s, demand for added versatility and productivity also saw Komatsu and other manufacturers move into crawler loaders, through the combining of dozer-type frames and chassis with loader buckets and arms.

Also during these decades, and into the 1960s, driven by the massive post-war highways program in the United States, scrapers became the machine of choice for moving vast amounts of dirt and material.

Pictured: 1980 Komatsu leading manufacture of Hydraulic Excavators

Becoming a full-line equipment supplier

From the late 1960s, Komatsu began to develop as a full-line earthmoving equipment manufacturer, adding scrapers and wheel loaders to its line up, then expanding and accelerating this program in the 1970s and 1980s.

By the late 1960s and early 1970s, scrapers were becoming increasingly large and complex – but their lack of versatility and high fuel consumption meant that when the mid-1970 fuel price crisis hit, the industry began looking for alternatives.

Advances in hydraulic technology meant that hydraulic excavators, which had been on the scene since the early 1960s, were able to offer a versatile and flexible alternative for a wide range of earthmoving applications, from housing developments up to large infrastructure projects.

Excavators, combined with dump trucks and tippers, offered the industry a way to move massive amounts of earth and materials quickly, effectively and cheaply – and in far more challenging conditions than scrapers were able to handle.

Having identified that hydraulic excavators would become a major seller in the global construction equipment market, Komatsu entered a licensing arrangement to produce excavators on a joint venture basis from the early 1960s to the early eighties.

Then in March 1981, Komatsu took the opportunity to transform its product line into the wholly Japanese designed and built PC Dash 1 range of hydraulic excavators – and marking its arrival on as a serious contender in supplying a full line of earthmoving equipment.

Komatsu excavators quickly established a reputation as economical, productive excavators, both in Australia and around the world.

The Dash 1 line was the forerunner of today's highly advanced, productive and fuel-efficient range of Komatsu excavators, incorporating both conventional and hybrid machines.

A few years later, Komatsu announced its intention of becoming the world's number one supplier of excavators – something it achieved during the 1990s when it outsold all other brands worldwide.

This performance was echoed in Australia, where Komatsu sold more than 2000 excavators to Australian contractors, plant hirers, forestry contractors, quarries and miners during that decade.

Success through innovation

Komatsu's success in the excavator market was in large part due to its innovative HydrauMind hydraulic systems introduced on the Dash 6 line of machines in the early 1990s.

This closed-centre hydraulic system set new standards of simplicity, reliability, economy and performance in excavators.

Komatsu's commitment to innovation did not stop with excavators.

Over recent decades, it has set new standards in ultra-class mining equipment, including the release of the D575A-3, at 130 tonnes the world's largest dozer, the WA1200-3, the largest wheel loader on the market, and the 980E, the world's largest dump truck.

These products have not only set standards in size and productivity, but have also delivered in terms of reliability and durability – with high levels of availability recorded on mines and construction sites around the world.

Pictured: 980E, the worlds largest dump truck.

Pictured: D85EXi-18 Dozer

Growing its business

As well as growing organically, Komatsu also went on the acquisition trail to develop its business.

A mid-1980s joint venture with Dresser in the US eventually saw Dresser Industries exit the construction and mining business, leaving it to Komatsu.

Legacies of the Dresser products include the current Komatsu truck range, including the 320-tonne capacity 930E.

Its purchase of the mining equipment manufacturing operations of Germany's Demag in the late 1990s resulted in Komatsu having a full line of hydraulic mining shovels, including the PC8000, again the world's largest.

At the smaller end of the scale, during the 1990s, Komatsu gradually increased its holdings in the Italian-based FAI – ultimately taking the company over a couple of years ago.

That purchase brought it into the backhoe and skidsteer loader market – and allowed Komatsu to introduce its innovative and highly productive excavator technology to the backhoe market with the release in 1999 of the WB backhoe series.

In May 2017, Komatsu completed its acquisition of the major US-based Joy Global mining equipment manufacturer, and rebranding it as Komatsu Mining Corporation. This development significantly expanded Komatsu's coverage of the mining equipment industry, including a full range of hard rock and soft rock underground mining products, and ultra-large surface mining loading tools.

Leading through technology and innovation

Today, Komatsu's commitment to innovative, productive, cost-effective and reliable equipment – along with the service and technical systems to ensure the industry's highest levels of product support – remains as strong as ever.

In the mining sector, it remains an industry pioneer with its FrontRunner™ autonomous hauler concept, with successful fleets running in north-western Australia.

In construction, it is now on its second generation of Hybrid excavators which are delivering industry-leading levels of fuel savings, while its growing intelligent Machine Control (iMC) range of dozers and excavators have been bringing new levels of productivity and machine control to the industry.

As it enters its second century, Komatsu continues to lead the way with integrating ICT (information communications technology) into the construction and mining industries – and helping achieve its aim of lowering machine operating costs, pro-actively managing machine health and delivering higher productivity.

One of its most recent developments – which is already transforming the way the industry operates – is Komatsu Smart Construction technology, which provides integrated product, service and support solutions across all phases of a project, from planning and design, through to construction, and ongoing asset management.

Pictured: New Wacol distribution centre and Innovation Hub will greatly improve customer satisfaction (artist's impression).

Komatsu's purpose: the next 100 years

Komatsu's purpose is a combination of its mission and vision, and honours the company's legacy while looking toward the future.

During its next 100 years, Komatsu will focus on supporting the mining, construction, forestry, industrial machinery and agriculture industries in their transformations to the digital workplace of the future: equipment and people, connected through smart technologies on an open platform, driving towards zero harm, zero waste and zero emissions.

By helping to digitise jobsites worldwide, Komatsu will empower its customers to optimise on-site operations towards a carbon-neutral environment.

Recent significant developments announced in just the past few months underscore its commitment to these principles. They include:

- The unveiling in June 2021 of a prototype fully electric mini excavator which the company plans to bring to market in the next few years
- The announcement of a collaborative customer alliance, the Komatsu Greenhouse Gas (GHG) Alliance to advance zero-emission equipment solutions. This alliance, which includes Rio Tinto and BHP, will initially focus on the development of zero emission mining trucks
- The forthcoming launch of the iSite visualisation solution for quarrying and large civil construction projects, covering site management, production, machine health, and safety.

Expanding Australia and New Zealand facilities

Komatsu is in the process of significantly expanding its infrastructure footprint across Australia and New Zealand.

In July, it opened its new South Island Hub in Christchurch, New Zealand, marking a major step forward in its ability to service and support its customers throughout the southern half of the country.

In Wacol, Brisbane, Komatsu will shortly open a major new distribution centre that will significantly increase customer satisfaction by improving parts and components availability, further reduce order turnaround times and streamline ordering efficiency.

Its new distribution centre – which will also include elements of its Brisbane parts and components Reman operation, and Innovation Hub – will consolidate four existing distribution and storage centres into a single facility.

And in Perth, construction will soon start on a new $6 million state-of-the-art Komatsu apprentice and innovation training facility. It's scheduled to be completed in the first half of 2022, and open three months after that.

Global support for local communities

Remaining true to Komatsu's founding spirit, the company will continue to play an active role in supporting local communities with a specific emphasis on sustainability.

As part of that commitment, in 2020, Komatsu launched One World One Komatsu, a new online platform for Komatsu employees that challenges them to be a force for good at work, and at home.

One World is a place where employees can take part in sustainability-focused campaigns and competitions, share ideas and engage with colleagues.

Through One World, simple individual employee actions will amplify Komatsu's core business activities to create a collective global movement toward a more sustainable future together.

Pictured above and below: Earth Day activities, New Caledonia

Our employees around the world – and around Australia – engaged in Earth Day activities

June 9, 2021 — Komatsu Ltd. (President and CEO: Hiroyuki Ogawa) (hereafter "Komatsu") held its first Earth Day event to contribute to the Sustainable Development Goals (SDGs) in which approximately 62,000 employees around the world were provided the opportunity to participate on the International Mother Earth Day (April 22) designated by the United Nations. Komatsu employees around the world voluntarily took part in environmental actions, including tree planting and clean-up, and shared their activities online, thereby realising "connectivity" through online communication.

Komatsu's basic policy is to conduct CSR activities through its core business, and the company strives to achieve sustainable growth together with society through initiatives supporting our three focus themes of "Enhancing quality of life", "Developing people" and "Growing with society".

To mark the 100th anniversary of its founding in 2021, the Komatsu has launched "One World One Komatsu," a project for social contribution in which all employees can participate, the first global initiative of its kind.

Under the theme of environmental sustainability, we have set up a dedicated platform that enables the entire Komatsu to consolidate voluntary and simple activities taken by individual employees.

We are promoting activities for a sustainable Earth by connecting employees around the world and fostering a sense of unity toward a common goal, and will continue to promote these initiatives.

As part of these activities, on April 22 (International Mother Earth Day), Komatsu employees around the world participated in the first-ever global environmental activities, including tree planting and cleanup. In addition, we held an online event where employees from around the world shared videos of their activities to create a sense of unity and raise awareness of environmental activities.

Achievements through Actions taken on Komatsu Earth Day:

- Planting more than 14,000 trees and native species
- Picking up more than 3,500 bags of trash
- Volunteering more than 15,000 hours collectively

In the future, by uploading and sharing our actions taken on the One World One Komatsu platform, we will be able to measure the impacts of our environmental activities on carbon offsetting, energy saving, waste reduction, and water saving. The platform enables the company to understand our contribution to the United Nations Sustainable Development Goals (SDGs) 11 "Sustainable Cities" and 13 "Climate Change Action".

Looking into the next 100 years, Komatsu will continue to move forward together with its stakeholders as it creates value through manufacturing and technology innovation to empower a sustainable future where people, businesses and our planet thrive together.

Komatsu Earth Day Online Event:

https://www.youtube.com/watch?v=rrf7QzwtyZQ&list=PLI09JNAS3JIEgHkUWebDvJICWaJaQqm3L&index=1

Pictured below: Earth Day activities a Komatsu branches in Oceania

Adelaide branch

Cleanup in Fairfield, Australia

Planting at Townsville Branch, Australia

Participating in Earth Day activities, Gladstone Branch

Cleanup team from Fairfield , Australia

Earth Day activities, New Caledonia

Pictured: Endeavour Foundation supported employee Deborah Ham, with Komatsu's Russell Hodson, Executive General Manager - Supply Chain.

New recycling strategy reduces landfill

With Komatsu celebrating its global centenary this year, the company is doubling down on its commitment to building a more sustainable and environmentally friendly business.

While a key part of that commitment is in continuing to develop innovative technology solutions to ensure its products offer significant sustainability and environmental benefits, it has also taken steps to ensure other parts of the business build on its corporate social responsibility (CSR) principles.

As part of this, Komatsu in Australia has introduced new packaging initiatives that not only reduce volumes of material going to landfill for a major part of its business, but also provide employment for workers with disabilities.

According to Russell Hodson, Komatsu's Executive General Manager Supply Chain, the company recently moved to a more sustainable sourcing strategy for the plastic bottles and other packaging it provides to customers for collecting KOWA (Komatsu Oil Wear Analysis) samples.

"From July 2021 the yellow outer plastic bottles used for collecting KOWA oil samples from our Australian East Coast customers will be made from 100% recycled plastic," he said.

"As well, the sample registration card and delivery boxes will be of 100% recycled paper/cardboard.

"In addition, our new recycled plastic bottles can be cleaned and re-used up to six times, further reducing the unnecessary use of resources," said Russell.

"And once bottles can no longer be re-used, the plastic can be recycled again.

"With more than 30% of Komatsu's plastic packaging waste generated through our KOWA bottles, this program will significantly reduce the volume of plastic packaging waste that we are sending to landfill," he said.

To carry out cleaning of used sample bottles for re-use, Komatsu has partnered with Endeavour Foundation in Brisbane, which supports people with an intellectual disability, including providing employment opportunities.

"We are delighted to be able to partner with Endeavour Foundation, in a move which will provide its employees with meaningful and sustainable work," Russell said.

"This provides us with the opportunity to enhance our community engagement and CSR commitment by not only helping to benefit the environment but also supporting a local industry that gainfully employs workers with disabilities."

The move to recycled plastic bottles and packaging for KOWA samples represents around 100,000 sample kits a year that are used by Komatsu's East Coast customers – who account for around 60% of oil samples collected around Australia, New Zealand and New Caledonia each year.

"This new sourcing strategy for our oil sample bottles allows us to contribute to our strategic goal of zero harm by significantly reducing the environmental impact of our current method of procuring and managing KOWA bottles," said Russell.

As an organisation that generates large volumes of packaging waste a year,

Pictured above: Komatsu and Endeavour Foundation teams at the signing ceremony.

"From July 2021 the yellow outer plastic bottles used for collecting KOWA oil samples from our Australian East Coast customers will be made from 100% recycled plastic"

Pictured above: Komatsu Regional General Manager Kris Burford (left), Endeavour Foundation CEO Andrew Donne (right).

Komatsu is a member of the Australian Packaging Covenant Organisation (APCO) which has a long-term goal of reducing and eventually eliminating packaging going to landfill.

"We estimate this latest development will eliminate nearly 10 tonnes of packaging materials going to landfill each year, which contributes to us meeting our commitments under the APCO convention," Russell said.

By implementing this new sourcing strategy, Komatsu will also see a big reduction in transport and distribution costs.

"Previously, our sample bottles were supplied out of Western Australia, from where we will continue to source them for WA, and we will continue to supply our specialty oil sample bottles from there as well," he said.

"However, by moving to an East Coast supplier of bottles, our KOWA bottles transcontinental transport will be eliminated, contributing to a significant reduction in greenhouse gases.

"Our new recycled plastic sample bottles are also lighter, and allow for smaller dimension packaging, so more kits can be stacked on a pallet – further reducing our transport costs.

"Komatsu's KOWA oil sampling services are critical to our customers and our business.

"This new sourcing strategy allows us to reduce landfill and carbon emissions, without compromising quality or security of supply – and at no extra cost to customers," said Russell.

"Komatsu's products are designed to be as sustainable as possible, and our technology innovations such as autonomous haulage systems, intelligent Machine Control, Hybrid excavators and SmartConstruction are contributing to more productive and fuel efficient operations around the world.

"Initiatives such as our recycled, reusable KOWA bottles are another step on this journey," he said.

"And we hope our partnership with the Endeavour Foundation will provide further opportunities with them in future – and also that this initiative encourages other large businesses to also engage with them."

Pictured above: Komatsu's iMC 2.0 represents a significant advance in machine control capabilities.

Advanced new iMC 2.0 machine control ensures major productivity benefits for customers

Komatsu has released a significant update to its intelligent Machine Control (iMC) technology, known as iMC 2.0, that delivers major productivity, efficiency and cost saving advantages to its latest model "intelligent" dozers and excavators.

The new technology is available on the just-released D71EXi/PXi-24 and D61EXi/PXi-24 dozers and the PC210LCi-11, PC290LCi-11 and PC360LCi-11 excavators.

iMC 2.0 further advances the automation capabilities of these new machines, with factory integrated enhancements including two multi-constellation GNSS antennas.

These advances significantly enhance iMC dozer operations on slopes, while new-generation iMC excavator hydraulic cylinders incorporate the latest Komatsu stroke sensing technology with a new factory IMU (inertial measuring unit) sensor attached to the tilting attachment, automating the tilting function.

In addition, iMC 2.0 features all-new "intelligent" high resolution touchscreen monitors, purpose designed for each machine type, that provide accurate displays of machine operating conditions, and the jobsite design.

Operators can customise split-screen views to give themselves the optimum views of what they want to focus on, while an easy-to-use multi-touch navigation system provides realtime information on bulk earthmoving, grading, digging and finishing.

All these combine to ensure greater accuracy and increased response speeds, according to Aaron Marsh, Komatsu's National Product and Solution Manager with its Smart Construction and Integrated Machine Control Division.

"Our new iMC 2.0 products, services and digital solutions incorporate a host of advanced machine technologies – some exclusive to Komatsu – allowing users to integrate sophisticated productivity-enhancing automation and cutting-edge jobsite design into their operations," he said.

"By applying Komatsu dantotsu (unique and unrivalled) principles, this latest technology delivers distinct benefits with automated and semi-automated dozer and excavator operations."

iMC 2.0 dozer features

Available initially on Komatsu's new D71EXi/PXi-24 and D61EXi/PXi-24 dozers, iMC 2.0 automatically controls the blade so that it closely follows the target surface, controlling cut depth while avoiding track shoe-slip.

Exclusive features of iMC 2.0 on dozers include Lift Layer Control, and Tilt Steering Control.

With Lift Layer Control, the dozer automatically spreads fill material from existing areas of the worksite with just the press of a button, then measures the terrain it's tracking over – and using that data to plan the next pass.

"This feature allows the design surface to be created from as-built data, and can cover lift work," said Aaron.

"Compared with conventional dozing practices, production rates are doubled, plus – because it's 100% automatic while automatics are engaged – each layer is completely consistent and accurate."

The one-touch Tilt Steering Control feature frees the operator from having to steer the dozer to maintain a straight heading, by continuously and automatically tilting the blade as required to maintain straight-line travel.

"This results in greatly reduced operator fatigue and increased comfort, because operator input is reduced by up to 80% compared with a conventional dozer," Aaron said.

"And straight-line travel guarantees a cleaner cut, along with increased productivity."

Other features of iMC 2.0 on Komatsu's latest dozers includes:

Quick surface creation, letting the operator create a temporary design service at the press of a button, allowing the machine to begin spreading or stripping using automatic modes while awaiting finish-grade designs. The operator simply needs to set the elevation, fall and cross-fall, and get to work.

Proactive dozing control, allowing the dozer to perform dozing and carrying tasks by using the as-built data the machine has collected in previous passes – creating a target blade trajectory by offsetting its collected as-built data. This allows the machine to minimise undulations and under-cutting, with work carried out as smoothly and efficiently as if it were being done by a highly experienced operator.

Manual co-ordination control, enabling the operator to manually adjust blade tilt or lift in cases where the actual surface and the design surface don't match; automatic operations resume once the steering lever is set back to neutral. The system is designed to be flexible enough that the operator can adjust the work/blade positions as required by jobsite conditions.

Faster blade response on grade breaks, letting the operator temporarily increase blade reactivity in transitions between different grade angles, to avoid over or under digging, and maintain high levels of accuracy.

"In addition to these new features, our iMC 2.0 dozers include two integrated GNSS antennas, which are able to receive location signals from GPS, GLONASS, Galileo, BeiDoun and QZSS satellites," said Aaron.

"The renowned accuracy and automatic grading capabilities of our existing iMC machines has been enhanced with new features that increase ease of operation and finish quality, while significantly reducing cycle times"

Pictured above: Enhanced iMC 2.0 capabilities on Komatsu's new D71EXi/PXi-24 dozers set new standards in machine automation.

"They also include a new GNSS receiver control box, incorporating an LTE modem for remote access, and a digital transceiver for GNSS correction information.

"These all combine to ensure higher positioning accuracy due to greatly increased satellite availability, and the ability to work continuously and accurately regardless of how remote the site is, or where there's vegetation or in hilly or mountainous terrain.

"Through our automatic dozing capabilities, Komatsu machines equipped with iMC 2.0 technology help make every pass count, from bulk cutting out to final trim work.

"This assists customers to achieve superior production rates and lower construction costs compared with traditional aftermarket machine control systems," he said.

iMC 2.0 excavator features

Komatsu's new PC210LCi-11, PC290LCi-11 and PC360LCi-11 now include iMC 2.0 to ensure even greater productivity gains for end-users.

"The renowned accuracy and automatic grading capabilities of our existing iMC machines has been enhanced with new features that increase ease of operation and finish quality, while significantly reducing cycle times," said Aaron.

"New automatic features, such as Auto Grade Assist, and Auto Tilt Control let the operator relax and focus on productivity, without having to worry about overdigging.

"These two new features keep the bucket edge precisely on-grade, while increasing bucket fill factors," he said.

iMC 2.0's Auto Tilt automatically tilts the bucket to design, then returns it to horizontal to unload, so that achieving final grade is significantly quicker and easier.

"This greatly increases ease of operation on slope and ditch work, automatically limiting under-digging and increasing bucket fill – making delivering final grade quicker and easier," Aaron said.

"It's ideal to use with tilting buckets, particularly when working on slopes, ditches and complex designs."

The Auto Grade Assist function includes a bucket angle hold feature, which lets the operator select the desired bucket angle, then the system automatically holds this angle through the grading pass.

"This makes final grading and trimming work much much easier, while allowing the operator to manually intervene at any time just by operating the bucket lever function."

According to Aaron, this feature is ideal for final grading, trimming multi-plane surfaces and detailed sealing applications.

"Komatsu iMC 2.0 builds on our unique sensor technology, incorporating stroke-sensing hydraulic cylinders and IMU sensors, meaning operators no longer need to worry about over digging," he said.

"When the bucket hits the target surface, the control function automatically limits and maintains grade with real-time bucket edge positioning, ensuring precise and accurate surfaces that exactly match the design, first time, every time.

"This latest excavator dantotsu technology from Komatsu lets us deliver increased productivity, efficiency and finished quality across a wide range of earthmoving, construction and production applications," Aaron said.

Pictured above: Komatsu's new PC290LCi-11 excavator delivers greater productivity gains with its new iMC 2.0 capabilities.

Pictured above: Komatsu's new D71EXi/PXi-24 is its largest hydrostatic drive dozer, and features iMC 2.0 productivity benefits.

New class of hydrostatic dozer incorporates industry leading iMC technology

A new line of 22-tonne class dozers that feature hydrostatic drive for significantly increased manoeuvrability and greatly enhanced visibility to work areas – combined with an integrated intelligent Machine Control (iMC) automated system for industry-leading jobsite efficiency – has been released by Komatsu.

Komatsu's D71EXi/PXi-24 dozers – a new class of machine for the company – combine iMC 2.0 enhancements and Tier 4 Final emissions technology to deliver industry-leading levels of performance, versatility and low operating cost.

In the same class as its popular D65EX-18 dozer, the 23 tonne D71EXi-24 (also available in swamp dozer configuration as the D71PXi-24) is the largest hydrostatic drive dozer on the market to incorporate iMC capabilities.

It is also one of the first machines on the market to feature Komatsu's just-released iMC 2.0, a significant update that delivers major productivity, efficiency and cost saving advantages to its latest model "intelligent" dozers.

Power for the new dozer comes from a Komatsu SAA6D114E-6 Tier 4 Final-compliant engine rated at 179 kW, through a fully hydrostatic transmission.

According to Komatsu Dozers Product Manager Pat Munro, the move to hydrostatic drive has allowed for a significant redesign of the D71EXi/PXi-24, making it more versatile, productive, manoeuvrable, and with unmatched visibility to the blade edges.

"While it's in the same class of machine as our D65 series dozers, moving to hydrostatic has allowed us to adopt a cab-forward design. This, combined with our 'super-slant' nose design, gives incredible visibility to the work area," he said.

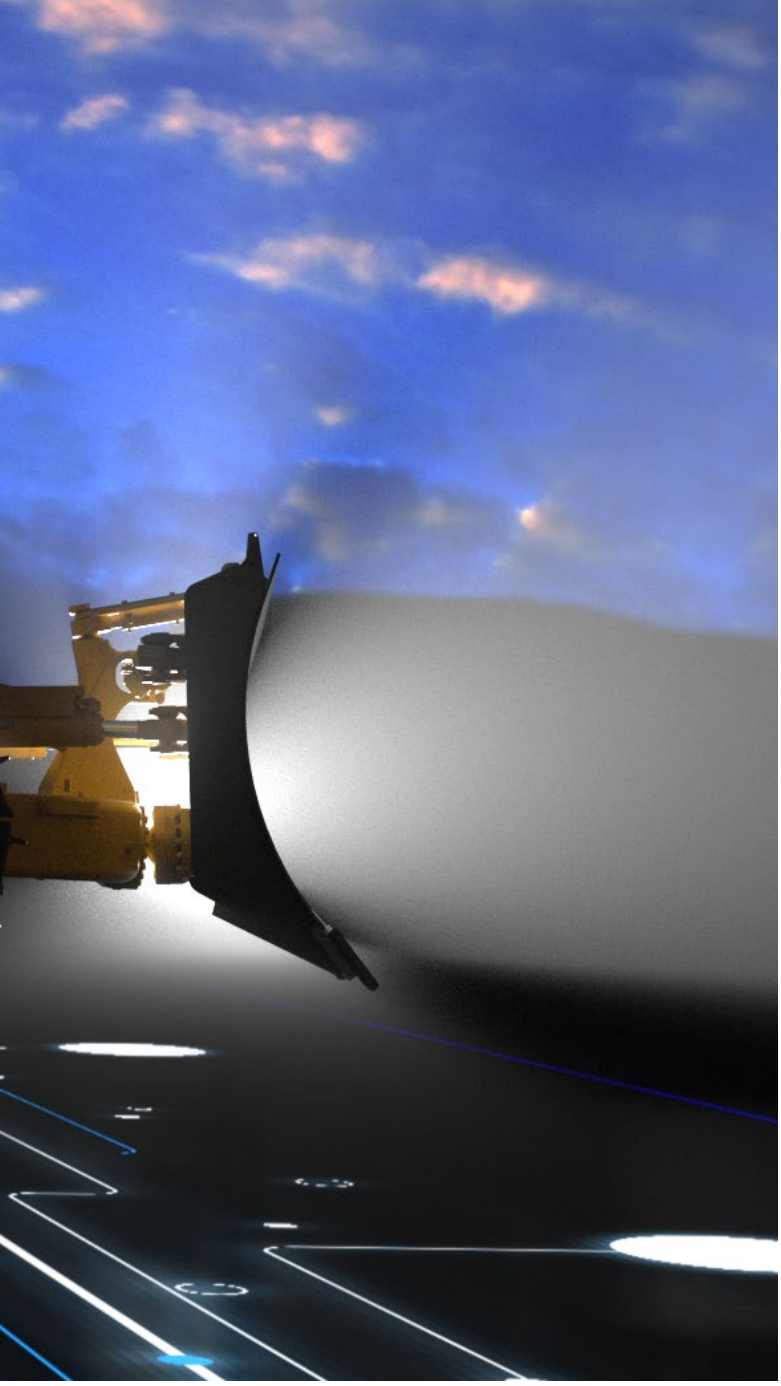
"This means the operator can see blade tips, can see everything around them. They get an excellent view forward, something that's not typically the case in dozers in this size class, which traditionally have had a very high hood and quite limited visibility out the front window to the work area."

Pat said the combination of hydrostatic drive and super slant nose, made the new dozer very nimble and versatile, allowing an operator to work efficiently and effectively in very tight areas.

"It's a very versatile one-in-all machine that can quickly go from bulk dozing through to fine detail work – particularly when you take advantage of its iMC 2.0 capabilities.

"This provides unmatched flexibility on any jobsite," he said.

"Hydrostatic drive makes it extremely manoeuvrable, particularly as it's matched with our Palm Command Control System (PCCS), giving the operator very fine control."



"Lift Layer Control, and Tilt Steering Control are both exclusive features of iMC 2.0, and represent a significant advance in automated dozing technology"

Its iMC 2.0 capabilities provide substantially improved automated dozing operations, in bulk earthworks through to finish grade work. Features of this include:

- Lift layer control
- Quick surface creation
- Proactive dozing control
- Tilt steering control
- Two antennas supporting multiple GNSS.

"Lift Layer Control, and Tilt Steering Control are both exclusive features of iMC 2.0, and represent a significant advance in automated dozing technology," said Pat.

"With Lift Layer Control, the dozer automatically spreads fill material from existing areas of the worksite with just the press of a button, then measures the terrain it's tracking over – and use that data to plan the next pass.

"The result is that production rates are doubled compared with conventional dozing operations, while 100% automatic operation means each layer is completely consistent and accurate."

iMC 2.0's one-touch Tilt Steering Control feature frees the operator from having to steer the dozer to maintain a straight heading, by continuously and automatically tilting the blade as required to maintain straight-line travel.

"This greatly reduces operator fatigue and increases comfort, because operator input is reduced by up to 80%, while straight-line travel guarantees a cleaner cut," he said.

The D71EXi/PXi-24 also features Komatsu's INPAT (intelligent Power/Angle/Tilt) blade with adjustable pitch that offers maximum dozing versatility across multiple applications, including blade capacity increased by 13% over D65-18 series dozers.

Work equipment speeds, to both blade and ripper, have also been increased, for greater responsiveness and accuracy of finish.

According to Pat, the new D71 class of dozers also offer best-in-class operator comfort and safety.

"It's got a very quiet and comfortable cab, including a redesigned fully adjustable air-suspension high-comfort seat, with in-cab noise levels of just 76 dBA.

"And our unique super-slant nose design gives the operator an excellent view over the entire worksite, including other machines, work vehicles and personnel that may be near by."

Pat said the new D71EXi/PXi-24 line of hydrostatic dozers set new standards in mid-size dozer performance and productivity.

"This size of dozer is being used more and more on job sites; the introduction of machine control systems has brought a new level of versatility to dozer operations.

"And now with our fully integrated iMC 2.0, combined with the efficiency, flexibility and power of hydrostatic drive, customers will see significant improvements in jobsite productivity and accuracy, while further lowering their costs of operation," he said.

D71EXi-24: Operating weight, 22.7 tonnes; engine, Komatsu SAA6D114E-6 Tier 4 Final-compliant engine rated at 179 kW; blade capacity, 4.42 cubic metres.

D71PXi-24: Operating weight, 23.2 tonnes; engine, Komatsu SAA6D114E-6 Tier 4 Final-compliant engine rated at 179 kW; blade capacity, 4.65 cubic metres.

D71PXi-24 Wide: Operating weight, 24 tonnes; engine, Komatsu SAA6D114E-6 Tier 4 Final-compliant engine rated at 179 kW; blade capacity, 5.02 cubic metres.

Stop press

Komatsu is delighted to announce that the first D71EXi-24 has been sold to Weir Group in Queensland.

Pictured above: This Komatsu 930E-5 haul truck is the first Tier 4 Final version of this unit in Australia.

Australia's first low-emission Tier 4 Final Ultraclass mining truck commissioned

In an Australian first, Komatsu has commissioned the first Tier 4 Final version of its 930E-5 ultra-class mining truck in Australia, as part of its commitment to designing and manufacturing mining equipment that advances its corporate social responsibility aims while embracing UN Sustainable Development Goals.

This latest factory-designed emission control technology solution, which meets the most stringent North American and EU emissions regulations, has been adopted by Komatsu Australia to meet a client's specific operational needs.

"Komatsu has a strong commitment to environmental best practice, with a continuous focus on reducing our environmental impacts and our carbon footprint," said Jason Arthur, Komatsu's National Product Manager - Mining.

"Our ongoing research and development efforts include developing new products that significantly reduce fuel consumption as well as greenhouse gas emissions," he said.

Komatsu's Tier 4 Final compliant 930E-5 incorporates on-board after-treatment system that significantly reduces the Scope 1 emissions produced during the haulage process at mines.

These emissions are an unavoidable by-product of the high temperature combustion process in the diesel engines that power most mining equipment, said Jason.

"This emission reduction technology is an option that now can be incorporated into Komatsu's class leading 930E-5 model.

"To achieve this, Komatsu worked with our large horsepower engine partner Cummins to provide a simple, low maintenance solution to meet Tier 4 Final emissions requirements," he said.

The Cummins-sourced engine treats particulate matter in the engine cylinders through an advanced high-pressure fuel injection control system to reduce PM 2.5 by 80% (compared with Tier 2 engine levels).

In turn, the nitrogen oxide (NOx) greenhouse gas emissions are treated out of cylinder through a selective catalytic reduction (SCR) after-treatment process.

This modular SCR system consists of an airless diesel exhaust fluid (DEF) dosing system and features an integrated decomposition chamber with a maintenance strategy that aligns with the life of the engine. These SCR units are contained within the truck's rear-exiting exhaust system.

Komatsu's use of the flow-through exhaust aftertreatment system delivers ultra-low emissions while increasing fuel efficiency without increasing backpressure.

Critical engine parameters are monitored by the integrated engine management system to ensure optimised DEF consumption, said Jason.

The Tier 4 emission technology is just a small portion of Komatsu's overall emission reduction strategy, with the company continuing to actively invest in research and development projects that focus on reducing customers' Scope 1 emissions and using alternate energy sources.

In addition to meeting the technology challenges in developing a Tier 4 Final compliant version of the 930E-5, the customer also requested Komatsu provide a truck with significantly lower noise emission levels.

"Our US-based Komatsu Engineering team became intimately involved and created a factory-engineered sound suppression solution that would meet our customer's requirements," Jason said.

"These factory-designed sound treatments more than halved the standard truck's emitted sound power levels, resulting in a target sound power level of less than 113 dBA.

"Successfully achieving these sound levels was a very challenging undertaking for a large mining truck powered by an engine with an output of 2700 hp (2014 kW)," Jason said.

Collaborative customer alliance advances zero-emission equipment solutions

Working together to rapidly innovate in support of carbon reduction targets, Komatsu and several of its customers have formed the Komatsu Greenhouse Gas (GHG) Alliance. The founding members of the alliance are Rio Tinto, BHP, Codelco and Boliden.

Through the alliance framework, Komatsu's GHG partners will work directly with Komatsu to actively collaborate on product planning, development, testing and deployment of the next generation of zero-emission mining equipment and infrastructure. The alliance's initial target is advancing Komatsu's power agnostic truck concept for a haulage vehicle that can run on a variety of power sources including diesel electric, electric, trolley (wired), battery power and even hydrogen fuel cells.

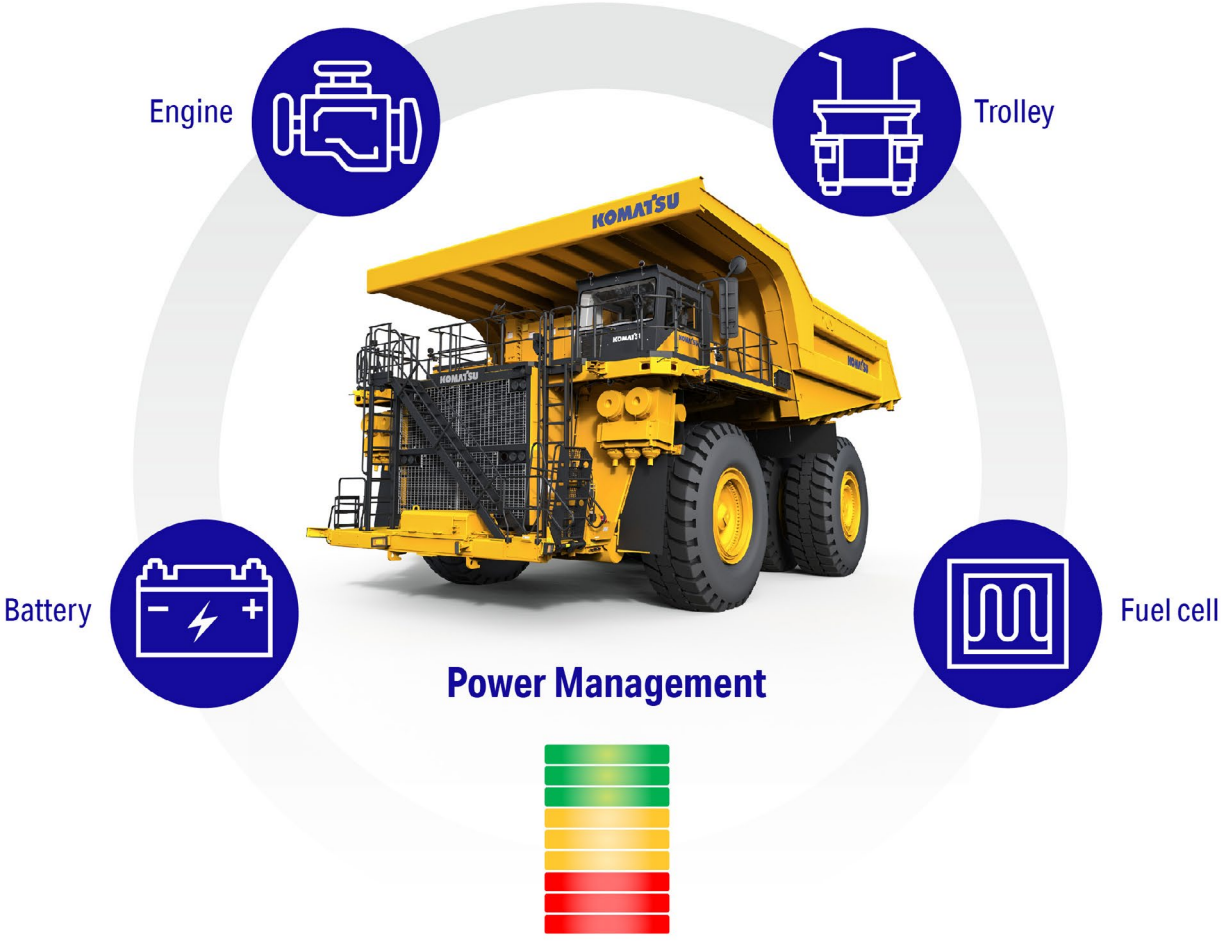
"We are honoured that our customers, several of the largest mining companies in the world, have agreed to participate in the Komatsu GHG Alliance and work in partnership with us to develop sustainable solutions for mining," said Masayuki Moriyama, president of Komatsu's Mining Business Division. "We look forward to close collaboration with these industry leaders to accelerate development and deployment of the next level of equipment designed to reduce greenhouse gases from mining operations and ultimately achieve the goal of zero-emission mining."

The formation of the alliance brings together mining leaders willing to share time, resources and information to deliver zero-emissions equipment solutions. Komatsu intends to expand the alliance to additional mining companies to enhance industry-wide collaboration on solutions to decarbonisation.

As a company, Komatsu is committed to minimising environmental impact through its business, targeting a 50% reduction in CO2 emissions from use of its products and production of its equipment by 2030 (compared to 2010 levels) and a challenge target of achieving carbon neutrality by 2050.

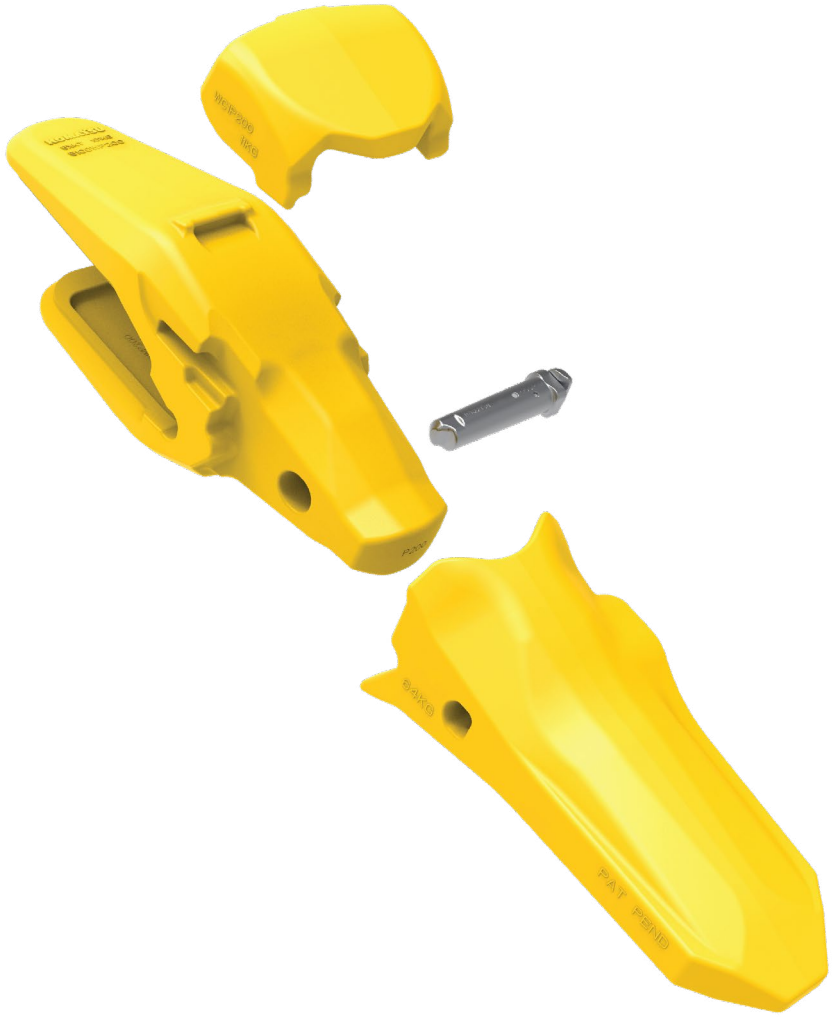
Komatsu has worked to reduce greenhouse gas emissions for customers through innovative product development for decades in many areas including electric diesel dump trucks, electric power shovels, regenerative energy storage capabilities and fuel saver programs.

The company's initial concept for a haulage vehicle that can run on a variety of power sources, part of the power agnostic development, is set to make its official debut at MINExpo 2021 on September 13 in Las Vegas.



Pictured above: The GHG alliance's initial target will advance a new Komatsu "power agnostic" truck concept for a haulage vehicle that can run on a variety of power sources, including diesel electric, electric, trolley (wired), battery power and even hydrogen fuel cells.

Pictured below: Komatsu's new Kprime tooth system from Hensley offers advances in safety, ease of use and productivity.



New Kprime™ tooth system delivers higher productivity and increased safety

With excavator and wheel loader owners and operators always looking for more productive, reliable and safer tooth systems for their buckets, a new generation of ground engaging tools offers significant advances over previous systems.

Komatsu's new Kprime™ Tooth System from Hensley Industries – now available as standard on new Komatsu excavators and loaders – has been designed as a stronger and longer lasting product, offering additional safety and productivity enhancements.

Replacing Hensley's market leading XS Tooth Systems range of teeth and other ground engaging tools (GET), Kprime™ Tooth System is suitable for excavators with operating weights from 4 tonnes to 400 tonnes, and for loaders weighing from 10 tonnes to 200 tonnes.

According to Phillip Walker, Komatsu's National Business Manager – GET, Kprime™ Tooth System builds on Hensley's experience and expertise with its XS Tooth system, offering significant advances in safety, ease of use and extended periods between tooth changes.

"With Kprime™, we have built a truly unique product that delivers significantly more strength, productivity, reliability and is safer," he said.

"We did this by listening to our customers and developing the best solution to their issues.

"Kprime™ Tooth System sets new standards for what GET should do for a customer's business," said Phillip.

Safety enhancements to the Kprime™ Tooth System include an intuitive locking system, pry slots on the tooth and wear cap for easier removal of worn parts, a low-torque pin for easier tooth changes, and the weight of individual units marked on each part.

Reliability has been improved through a 10 per cent stronger adapter nose design, an improved pin design that reduces the potential for accidental unlocking even after extended use, and an optimised design to reduce wear on adapters.

Stability of the tooth on its adapter has also been improved through a tighter fit.

Productivity of Kprime™ Tooth System has been significantly improved through a number of design advances, including increased wear material – so teeth don't need to be changed so often – improved penetration, and a design that ensures the tooth stays sharp throughout its life.

"Kprime™ teeth are rotatable, to further extend life, while wear indicators on the wear cap and fastener let users know when those parts need to be changed," said Phillip.

"With Kprime™, we have built a truly unique product that delivers significantly more strength, productivity, reliability and is safer."

"And losing teeth into a crusher or conveyor is far less likely to occur with Kprime™ Tooth System due to a new locking system that means no torque loss after multiple cycles, ensuring the holding pin remains locked throughout the life of the tooth."

A range of tooth types is available for all machine sizes across both the excavator and wheel loader range, from light-duty applications, through to the toughest and most challenging rock and abrasive material conditions.

Buckets fitted with Kprime™ adaptors have the option of using different styles of teeth to meet individual digging and loading requirements.

"While Kprime™ teeth will be offered as standard on all Komatsu excavators and loaders, this system is also ideal for all other brands of earthmoving and mining equipment, from compact utility-class machines up to large mining machines," said Phillip.

Kprime, along with all Komatsu parts, can also be ordered via Komatsu's ecommerce platform, **my.komatsu.com.au.**

What lies beneath: Advanced equipment's key role in constructing Sydney's complex underground motorway interchange

Fifty-eight pieces of Komatsu equipment – including dump trucks, excavators and wheel loaders – are currently working as deep as 65 m beneath the inner Sydney suburbs of Rozelle and Lilyfield on an underground interchange that will serve Sydney's commuters for decades to come.

The Rozelle Interchange is the final stage of the 33 km WestConnex project, linking Sydney's western and inner southern suburbs with the heart of the city.

The $3.9 billion Rozelle Interchange is being constructed by the John Holland and CPB Contractors Joint Venture, and being managed by Transport for NSW.'

It includes 22.4 km of tunnels, including roadways, ventilation, access tunnels and cross passages – that are being excavated through Sydney sandstone within a 1 km by 2 km surface area from Blackwattle Bay to the Iron Cove Bridge.

Roadways make up approximately 15 km of the tunnels and underground works, with the remainder consisting of service tunnels, cross passages, emergency access tunnels, underground substations, and HVAC (heating, ventilation, and air conditioning) systems.

Komatsu equipment is playing a key role in the project, with the company supplying a total of 58 units to the joint venture. These consist of:

- Thirty HM300-5 30 tonne capacity articulated dump trucks, powered by low-emission Tier 4 Final engines
- Six 14 tonne PC138US-11 excavators, also with Tier 4 Final engines
- Eight 24 tonne PC228US-11 excavators – four with short booms for tunnelling applications – with Tier 4 Final engines
- Two 30 tonne PC290LC-11 excavators, with Tier 4 Final engines
- Three WA320-8 wheel loaders with quick connect fittings for attachments, with Tier 4 Final engines
- Three WA470-7 wheel loaders with 4.65 cu m buckets, used for underground applications with interim Tier 4 engines.
- Six WA480-6 wheel loaders with 5 cu m buckets, used for shed loading applications.

These machines will be responsible for removing a total of 2.65 million cubic metres of material from the site over its three-year construction period from late 2019 to 2023.

In addition, Komatsu's support includes a "pop up" workshop and parts store on site at Rozelle, including qualified Komatsu diesel technicians on call 24 hours a day. Delivery of the machines began in September 2019, with the last machines delivered in August 2020.

As well as the Komatsu equipment on site, the project has up to 22 road headers (carrying out the primary tunnel excavation), shotcrete rigs, rock bolters and face drills, as well as various other items.

John Bostock, Project Plant Manager for the Rozelle Interchange Project, said there were a number of reasons why Komatsu was chosen as the primary earthmoving equipment supplier for the project.

"To start with, their service, support and equipment package was pretty good," he said. "Another factor was the ability of Komatsu's people to be flexible during our early discussions, with short lines of communication.

"And certainly the learnings they'd applied from working on other Sydney tunnelling projects was an advantage," said Bostock.

Other Sydney road tunnelling projects where Komatsu equipment has been extensively used included the WestConnex 1b project (Homebush to Haberfield), WestConnex 3A (Haberfield to St Peters) and NorthConnex (Wahroonga to West Pennant Hills).

"The performance of the equipment since we started here in September last year has proven to be pretty good; there were a couple of accumulator issues, which they replaced, but overall reliability and availability have been very good, in line with what we expected."

Pictured above: One of the three Komatsu WA470-7 wheel loaders fitted with a 4.65 cu m bucket, used for underground applications.

Caring for the plant

John and his plant management team recognise that skilled and careful operators are critical to successful equipment operations, so the project team has put additional effort into ensuring that operators look after their equipment – and are recognised for doing so.

"Tunnelling is a very harsh environment, and here we've been running a 24-hour-per-day operation," he said.

"So if you add up the number of plant items on site, it's around 130-140, plus forklifts, underground vehicles, and so on, it is a challenge to get really good operators.

"For example, we need to be able to crew up to 22 road headers working three different shifts.

"And for us, it's important to find people who want to look after the gear. One of the campaigns we are driving really hard is that all of our operators keep the equipment respectable, ensure the cabins are clean and report any damage.

"That's important, because when they report damage – even if it's just a scratch or a dent – it gives us the information we need as a team to stop that happening again."

One of the ways John's team aims to achieve this is through a "Take Pride in your Plant" campaign, with posters throughout the site reminding operators of the importance of caring for their equipment and working safely.

"We want the cabins to be pleasant places in which to work, that are not filled up with dried mud and dust, so we ask the operators to clean their cabins at the end of their shift.

"And with COVID-19, in the pre-starts we communicate the importance of wiping down their cabins, steering wheels and controls, as an additional measure to sanitise the machines.

"We also tell operators that if they scratch a machine, it must be reported," he said. "We want to know about it, no matter how minor.

"So we have an incident, it gets reported, and we know how it happened, which means we can take steps to minimise incidental or minor damage – and that can really add up."

To encourage this, John's team has implemented a plant award, graded following a random inspection of four pieces of equipment per team.

"We mark against various criteria, including safety, cleanliness, if the machines are in good order, and so on.

"These are all initiatives to keep the plant nice and clean, and it's recognition for the teams and individuals who make the extra effort. The reward is a monthly barbecue for the winning site team and a trophy to keep at reception – at least until the next inspection.

"For us, the benefits are safety, cost control, fleet efficiency, and taking pride in their work and their fleet. And we are seeing some great results," he said.

Komtrax and tracking technology

Komtrax, Komatsu's remote machine monitoring technology, has proven to be an essential part of managing the Komatsu fleet at Rozelle, with an in-tunnel WIFI system connecting each machine to a surface transmitter, and from there to the company's remote monitoring satellites.

John has also been applying feedback from Komtrax to ensure that machines are being operated to their optimum.

"We've been in touch with Komatsu's service fleet manager Glen Marshall, and talked to him about some operational anomalies," he said.

"There are many features of the Komtrax system; an important one for us is how it allows us to intervene in eliminating poor operating habits, or indicate that a machine's being operated incorrectly or unsafely.

"We need to have all these things flagged as soon as possible, so we can properly maintain our fleet, and keep our people safe.

"And by having all of this information available to us quickly, we can talk to operators about any incorrect operating procedures," he said.

"This added technology from Komatsu is a good tool in helping us reach our goals of the safe and correct operation of equipment at all times, and ensuring maintenance is kept up."

The project's tunnel WIFI also includes a tracking system giving the location of each piece of equipment, vehicle and person, so the project team always knows the location of each machine and person in relation to each other.

Pictured above: The project is taking advantage of Komatsu's low emissions engines and Komtrax monitoring technology.

John is also using this tracking system to optimise the utilisation of equipment on site – particularly the trucks; a complex process across the three tunnelling sites.

"We have quite an advantage here in that all three tunnel access points are located on the one site, which allows us to maximise the utilisation of our fleet across the tunnels," he said.

"The rule of thumb is that you need two trucks per road header, so if you have 22 road headers in operation at any one time, you'd need 44 trucks. But we know our utilisation factor is about 60%, which means we actually only need 28 trucks on site full time.

"So we're running it here like an Uber operation, with the trucks all on call and using our tracking technology to put them where they are needed, when they are needed.

"That's quite a complex task underground. We have an intricate system of tunnels to manage," he said.

Tier 4 Final engines emissions technology

The bulk of the Komatsu equipment on site – all but 11 of the total 60 machines – are fitted with ultra-low emission Komatsu Tier 4 Final engines, which contributes to significantly cleaner air quality underground.

"The Tier 4 technology certainly helps," said John.

"We carry out emissions testing on all our underground equipment every month, using state of the art emission testing equipment to check for compliance and safety. In the past, with Tier 1, 2 or 3 engines, we needed to add catalytic converters in order to meet the requirements for underground use.

"But what we are finding with these Tier 4 engines, the emissions are much lower, conditions are much cleaner.

"In fact, the emissions levels are significantly better than putting a catalytic converter on a Tier 3 machine," he said.

Dean Gaedtke, Komatsu's Executive General Manager - Construction, said the company was extremely proud to be associated with such a large and iconic infrastructure construction project.

"The Rozelle Interchange will be recognised as a technically challenging project that showcases the best of Australia's construction capabilities, and we are delighted to be a part of it," he said.

"And it's an extremely rare occurrence to have nearly 60 items of Komatsu equipment working around the clock in a relatively confined space right in the heart of a major metropolis.

"Over the past few years, Komatsu has worked very hard to develop our capabilities and expertise in underground road tunnelling applications, having successfully supplied, serviced and supported well over 200 Komatsu machines across five major Sydney tunnelling projects.

"Our success in supplying these projects with significant equipment fleets is testament to our supply, service and support capabilities, along with our technical expertise in ensuring the equipment we supply is totally fit for purpose, and able to deliver the reliability, productivity, performance and environmental requirements of project management," said Dean.

"There are many features of the Komtrax system; an important one for us is how it allows us to intervene in eliminating poor operating habits, or indicate that a machine's being operated incorrectly or unsafely. "

Pictured above: While on stage presenting Creating Value Together: Leveraging the power of data for inclusion and safety: Lorraine Sabbouh Maintenance Manager, South Flank, West Australian Iron Ore BHP, Rob Telford Group Health, Safety and Environment Officer BHP, Melinda Court Senior Mining Engineer – Applications Komatsu, Todd Connolly General Manager – Business Transformation Komatsu.

Pictured above: Sean Taylor for Komatsu presenting the Austmine Miners Innovation Award we sponsored to winners BHP – for their Dash Maintainer Tool innovation. Left to Right: Alex Bertram Snr Product Manager - Dash (IoT & MR) BHP, Kim Horton Projects Superintendent Mobile Equipment Maintenance South Flank Project , Sean Taylor CEO and Managing Director Komatsu.

Pictured above: Komatsu's display at Austmine 2021 in Perth recently.

Collaborative approach pays off for mine site safety

At the recent Austmine 2021 conference in Perth, Komatsu co-presented with BHP to outline some recent safety innovations that the two companies have been partnering to enhance minesite safety and operations – particularly for maintenance personnel.

The Austmine 2021 Mining Innovation Conference and Exhibition was held in Perth from May 25-27, under the theme of "Harnessing Intelligence", and provided an opportunity for mining leaders to connect around the strategic priorities, key innovations and emerging technologies driving a sustainable industry future.

During the conference, Todd Connolly, Komatsu's General Manager – Business Transformation, led a session on Creating Value Together: Leveraging the Power of Data for Inclusion and Safety.

Co-presenting with Todd were Melinda Court, Komatsu Senior Mining Engineer – Applications; Lorraine Sabbouh, Maintenance Manager at South Flank, BHP's West Australian Iron Ore operation; and Rob Telford BHP's Group Health, Safety & Environment Officer.

Much of the presentation centred around two safety innovations aimed at service and maintenance personnel, Tune Safe – developed a few years ago resulting from an idea by a Komatsu employee, and Dash Maintainer, a safety innovation out of BHP, which is now working with Komatsu to scale up the technology for wider industry application.

Tune Safe came about when Ashley Spencer, a Komatsu employee working in the Pilbara, observed technicians were in "the line of fire" when live-testing while carrying out relief valve pressure adjustments on Komatsu mining and construction mobile plant.

This could have resulted in a fatality if there was a sudden release of stored energy.

Ashley and Komatsu's engineering team developed the Tune Safe device, which enables technicians to undertake hydraulic pressure testing and tune-ups remotely, from the cab or a light vehicle, rather than be in the potential line of fire.

Dash Maintainer was developed by BHP as part of its ongoing initiatives to mitigate the risks when maintainers are required to carry out maintenance tasks on "live" – that is, operating equipment.

The company set a goal of eliminating such "live work" from all mobile mining equipment – and not just at South Flank, or BHP globally, but the entire industry.

On a mining excavator, for example, there are more than 130 "live work" maintenance tasks that have to be carried out.

It uses technology to move the maintainer from within the footprint of the relevant machinery altogether during many of these tasks.

Dash Maintainer Tools, which enable maintainers to undertake many diagnostic tests without the need for them to be within the footprint of the machine, allow any maintainer to connect their phone, laptop or tablet to the mining vehicle or equipment and undertake diagnostics tests.

It requires a network of sensors (such as pressure, temperature and vibration) to be permanently fitted to the vehicle or equipment, an industrial computer and a BHP-developed sensor gateway.

BHP is now working closely with Komatsu (which has supplied several Komatsu WA1200 Front End Loaders and over 40 930E-5 ultra class haul trucks to South Flank) to scale up Dash Maintainer so it can be used across all mobile equipment at the mining operation, and BHP's operations globally.

BHP's global Chief Health & Safety Officer, Rob Telford told the conference that the company's key focus is to empower the women and men who work on the front line of our operations with modern tools to achieve its safety goals, then leverage these products and ideas for longer term improvement opportunities – not only at BHP but across the industry.

"There isn't an industry anywhere across the globe which has cracked fatality elimination... I'm thrilled to see the work we're doing with Komatsu Australia... sharing the benefits with the broader industry" he said.

"BHP accounts for a small portion of surface mobile equipment purchases globally," he said.

"Through collaborating with industry on safety improvement and technologies such as Dash and Tune Safe we can amplify the impact of our people over one hundred times."

Pictured right: MRL's Komatsu 1500-8 haul trucks incoporate a Collision Awareness System.

WA miner applies Formula One approach to precision to boost haulage efficiency

Time and motion, with Formula One-like precision, has become a determining factor in the purchase of new equipment for one of Australia's most progressive and innovative miners.

Time taken to haul ore from the pit floor to the crusher has been found to make a significant difference in the efficiency of the mine's operation, and in its environmental footprint.

Western Australian mining company Mining Resources Limited (MRL), has based its success to a degree on the minute detail it puts into every phase of its process.

Locally developed crushing technology has allowed MRL to add significant efficiencies to its operation.

The company's technological point of difference has helped solidify its position as a leading Mining Services company, with earnings from its Mining Services business at more than $300 million (EBIDTA) in the 2020 financial year.

In addition to its Mining Services business, Mineral Resources own its own operations, providing a great research and development platform. At the Iron Valley mine site, the 1.6km climb from the pit floor to the crushing facility and return was the test ground for some new equipment and MRL has gone about its determination with the precision of a Formula One team.

According to MRL, the cycle time with existing dump trucks was 23.84 minutes, but a new faster machine was capable of completing the journey in 21.63 minutes – increasing efficiency by 9.2 percent.

Significantly, the newly available vehicle also increased payload by 10 tonnes, enabling MRL to complete its entire process with the need for one fewer vehicle in its fleet.

"Following the success of the HD1500-8, MRL placed a milestone order for 10 of our machines," Mr. Lambert said.

The first of Komatsu's HD1500s went into service with MRL prior to Christmas 2020, and the remaining nine are scheduled to be road freighted from Perth in the first quarter of 2021.

"From a miner's perspective, cost is a major determinant – capital cost, life cycle cost and productivity," Mr Lambert said.

"In this instance, there was a consistent theme of 10 percent improvement – in purchase cost, payload and operating efficiency - an additional 10 tonnes, 10% faster and 10% cheaper.

"But increasingly, there's also the consideration of health and safety."

The Komatsu HD1500-8's Collision Awareness System incorporating eight on board radars and six cameras combined by one algorithm into a 360-degree overhead view of surrounding conditions, was a major boon to operators.

In-cabin ergonomics including specific cooling systems, low vibration operation and noise attenuation pegged at 72 decibels met contemporary operator expectations.

As with Formula One technology, the operator had the option of dialing down fuel use in a range from 90 litres per hour, to 80 litres per hour to achieve a full two shifts of operation between refueling.

A combined fuel stop, and driver change is standard motor racing practice to improve efficiency.

"The pit depth at Iron Valley is 160 metres, and it's a 10 percent gradient from the pit floor to the top of the pit with another 900 metres from the top of the pit to the crusher," Mr. Lambert said.

"In this instance, there was a consistent theme of 10 percent improvement – in purchase cost, payload and operating efficiency - an additional 10 tonnes, 10% faster and 10% cheaper."

"The HD1500-8 climbs at 13 km/h, achieves 60 km/h on the flat and descends at 22 km/h.

"The operator can alter the fuel use according to gradient and also the load for the return trip to the floor.

"It's as if the HD1500-8 has been purpose built for the mine and in many respects, that is the case.

"Increasingly we're capable of working with each specific operator to fine tune our machine to their exact requirements."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Furthering our customer engagement with integration of CMS into online customer parts portal

At Komatsu we've integrated our Condition Monitoring Services (CMS) suite of oil analysis and other laboratory-based analysis, testing and evaluation services into our myKomatsu (my.komatsu.com.au/cms) online customer portal.

Formerly, our online presence for Komatsu CMS was on a standalone website.

Stephen Clarke, Komatsu's National Manager - Condition Monitoring, said the integration of CMS into myKomatsu provides a more user-friendly and intuitive way of dealing with Komatsu.

"Importantly, it provides a single login that gives access not only to Komatsu CMS, but also ordering and managing the delivery of parts, consumables, components and other Komatsu products and services – a major step forward in customers' ease of doing business with us.

"The increased functionality available through the integration of Komatsu CMS within myKomatsu means the whole process of managing oil sampling will be faster, more efficient, less prone to human error and easier to use," said Stephen.

"And it lets customers see condition monitoring records for their entire fleet at a glance.

"It also allows them to generate custom reports that extract the data and information they need, to run their equipment more efficiently, productively, reliably and safely."

Another key benefit of Komatsu CMS's integration into myKomatsu, lets customers use barcoded sample cards to capture machine-specific data. This makes the actual process of filling out sample cards easier, quicker, more efficient and less prone to error.

"These barcoded sample cards mean that customers now just need to enter machine hours when submitting a sample; everything else has been pre-captured," he said.

"This offers significant customer benefits, including far less handling and form-filling, eliminates the need to keep providing duplicate information, reduces room for error when dealing with multiple machines, and means we are consistently recording all pre-existing machine data.

"If a sample report indicates there is a critical issue, or action is required, customers are always notified immediately, through their preferred method of contact. And now we can make the results immediately available on the myKomatsu portal so they can securely login and see their detailed results on desktop, mobile or tablet," said Stephen.

"This means that customers will be able to see their results, and any recommended actions almost instantaneously, allowing them to quickly deal with any issues that may be flagged or that they may be concerned about.

"In addition, a self-managed reports function, including customised views and scheduled report downloads, provides customers with what they need to know," he said.

Stephen said that Komatsu CMS is recognised in the industry as having one of the fastest turnaround times of processing samples once they had been received by the lab, as well as for the quality of its results and analysis.

"Our aim is to turn around an oil analysis sample within 24 hours of it being received in any of our labs, and we are consistently achieving this in over 98% of samples we process."

With the integration of Komatsu CMS results into myKomatsu, the company is also able to provide significantly more detailed information, reports and trends analysis.

"Previously, some of the data we've been collecting we haven't been able to share with customers, but now we're able to provide a lot more.

"This includes what we call 'filtergrams', which are similar to oil sample reports, but with images attached of what our technicians are seeing under the microscope," said Stephen.

"This really complements what we are providing in our standard reports, and helps our customers to gain a far more detailed understanding of what's happening in their machines."

And it's not just owners of Komatsu equipment who can benefit from this expanded myKomatsu functionality.

Stephen said that Komatsu CMS provided oil analysis and other services to owners of non-Komatsu earthmoving and mining equipment, as well as to industry sectors outside of construction and mining, including road transport, the marine industry, industrial machinery and many others.

"Komatsu CMS is widely used by owners of non-Komatsu plant and machinery because of the location of our laboratories, our fast turnaround times, and the quality of our analyses," he said.

According to Todd Connolly, Komatsu's General Manager - Business Transformation, the integration of Komatsu CMS into myKomatsu represents the latest development in the company's continuing drive to ensure it's easy to do business with.

"These barcoded sample cards mean that customers now just need to enter machine hours when submitting a sample; everything else has been pre-captured"

"This integration has been very much customer-driven, based on feedback from our customers who are asking us for additional features that allow them to conduct more of their day-to-day business with us online.

"It represents a significant expansion of our online interactions with customers, because it's giving them a single login point to transact with Komatsu, whether it's buying parts, seeing the progress of orders, and now being able to see in-depth condition reports on their entire fleet.

"It's all about ensuring we are easier to do business with. Our customers can come to a single website, using a single login and password, giving them more visibility of their fleet to ensure machine health and drive productivity," Todd said.

Komatsu CMS laboratories are located in Brisbane, Newcastle and Perth and provide condition monitoring services for Australia, New Zealand, Papua New Guinea and New Caledonia.

In addition to oil analysis, other analysis and testing services provided by Komatsu CMS cover fuel, wastewater, coolant, lubricants and greases, along with vibration analysis and metallurgical testing.

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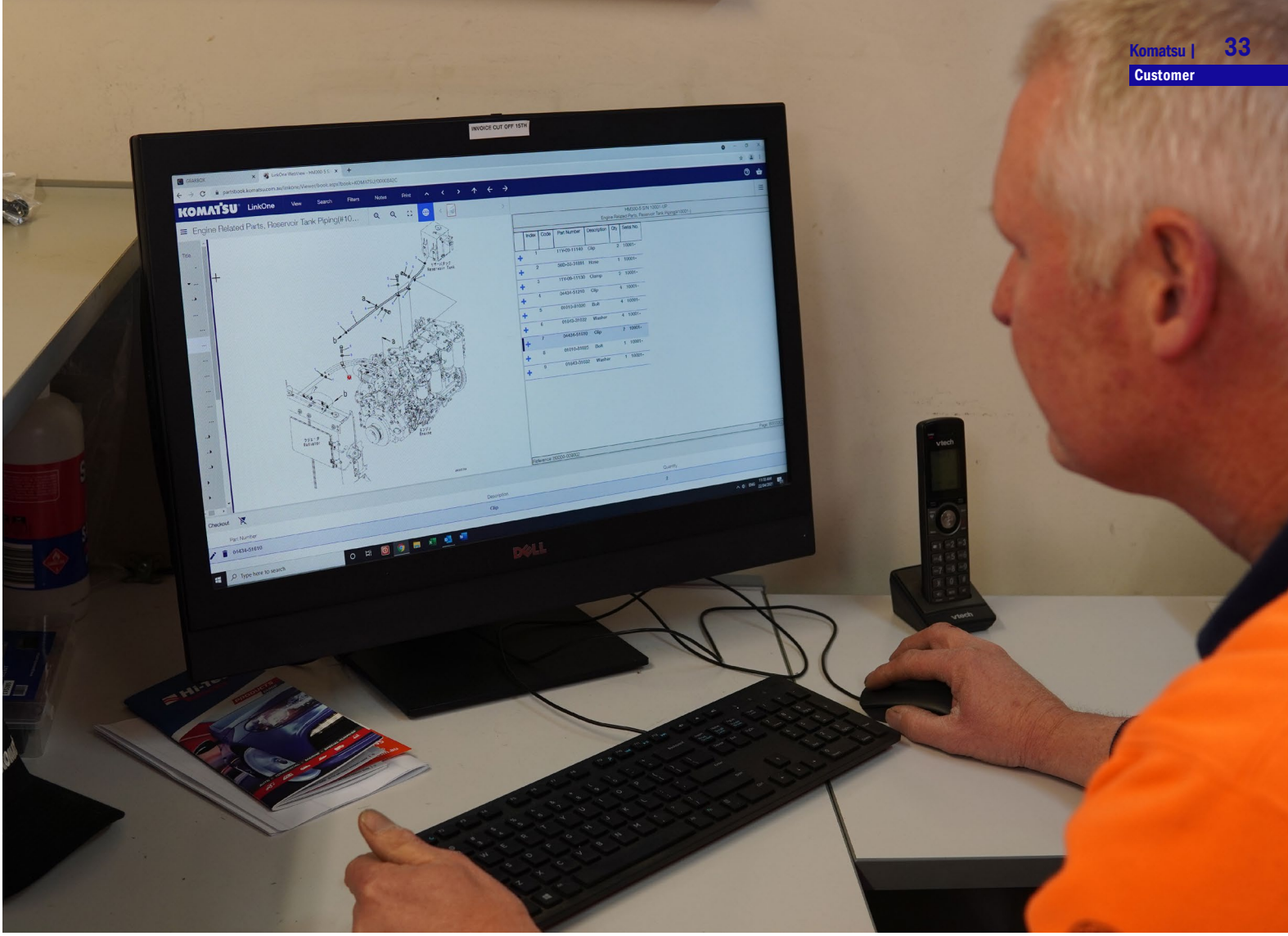


Why leading contractor Divall's relies on customer online parts portal

Pictured above: Paul Allport, Divall's Purchasing Co-ordinator, using myKomatsu to order parts online.

Leading NSW Southern Tablelands construction and haulage contractor Divall's Earthmoving and Bulk Haulage relies on the myKomatsu online customer portal, at my.komatsu.com.au, for the efficient and timely ordering of spare parts and components for its large fleet of Komatsu equipment.

Divall's is the premier supplier of earthmoving and bulk haulage products and services to the Goulburn/Southern Tablelands region of NSW, south-west of Sydney.

The company services customers across the Goulburn-Mulwaree and surrounding areas, with its work ranging from small scale residential landscaping to large public and private construction projects.

Established in 1991 by brothers Michael and Andrew Divall, the company has since grown to employ over 250 local people and is a major contributor to the local economy.

Its earthmoving fleet includes a large number of Komatsu machines – excavators from 3 to 125 tonnes, as well as articulated and rigid frame dump trucks – and to ensure maximum machine uptime, it's crucial for Divall's to have constant access to parts supply

> **"Being able to order parts online like this is critical to our operations"**

When Komatsu rolled out its myKomatsu customer parts portal – a new purpose-designed online system for ordering parts and services – Divall's was an enthusiastic early adopter, including participating in the initial trial program, according to Paul Allport, the company's Purchasing Coordinator.

"Being able to order parts online like this is critical to our operations," says Paul. "We can identify the correct parts we need for repairs, and we have pricing and availability on the spot.

"The online portal is head and shoulders over the previous Komatsu online system," he says. "It's much quicker and easier.

"And although we still contact our local Komatsu branch for the more challenging orders, the bulk of our orders are done online. Having that flexibility of ordering both online and through the branch works extremely well for us.

"We particularly appreciate such features as the search functions, including serial number isolations, and the parts breakdown facility, while the expand/reduce functions work well."

According to Paul, the company's close relationship with Peter King, Komatsu's Wollongong Customer Support Sales Representative, has been important in helping get the best from the myKomatsu portal.

"Peter's always available to answer questions and any concerns we have about the portal, and he's happy to supply information and advice to resolve any issues we may have."

Komatsu's Peter King says the myKomatsu online portal has quickly become a critical part of Komatsu's customer support offering,

"We are constantly working with customers to improve its functionality and ease of use, and ensure that it best meets their needs," he says.

"It's also easier for all our customers when I'm on the road or visiting other customers, because they always have access to parts supply and pricing without having to wait for me to be available.

"So, it's far more efficient for everyone," says Peter.

For more information on the myKomatsu online customer parts portal please visit **my.komatsu.com.au.**

Latest WA900-8R mining loader brings higher productivity, easier operation, lower costs

Komatsu has released an upgraded version of its 11-13 cu m class mining loader, the WA900-8R, incorporating innovative technology features that deliver increased productivity and ease of operation, while reducing operating costs.

This new loader incorporates Komatsu's innovative "SmartLoader Logic" technology to provide the engine with precisely the right amount of torque for each part of the duty cycle.

According to Mark Summerville, Komatsu's National Product Manager, this feature improves fuel economy by up to 10% compared with the previous model, while also increasing productivity.

Further productivity improvements including the addition of a modulation clutch for controlling speed and torque, along with faster boom raise speeds to give for faster cycle times.

"These features, combined with automatic dig and a semi-automatic approach and dump system means the WA900-8R can significantly improve an average operator's efficiency," he said.

The new loader also includes a Komvision obstacle detection system that uses radar and 360-degree cameras to alert and prompt the operator to react if a person, vehicle or obstacle is detected – greatly improving the safety of personnel in and around the machine.

Replacing the WA900-3E0, the WA900-8R is powered by a Komatsu SAA12V140E-7 engine rated at 671 kW, and has an operating weight of 116.4 tonnes.

It's matched for loading 90 tonne dump trucks (Komatsu HD785 size) in standard configuration, and up to 140 tonne trucks (Komatsu HD1500) in high-lift spec.

Productivity and economy features

Features that contribute to increased productivity, while reducing operating costs, include:

- Komatsu "SmartLoader Logic" system for improve fuel economy
- Large-capacity torque converter.
- Tyre slip control system
- Increased boom speed and breakout force

SmartLoader Logic optimises engine torque across all applications to minimise fuel consumption, while always ensuring the loader has the torque and digging power it needs.

"This system functions automatically and doesn't interfere with operation, saving fuel without decreasing production," Mark said.

The system is matched to the loader's automatic transmission, with an electronically controlled modulation (ECM) valve that automatically selects the correct gear speed based on travel speed, engine speed, and other travel conditions.

The WA900-8R's powertrain has a large capacity torque converter designed to ensure optimum efficiency.

"This ensures greater productivity in 'V-shape' loading applications because the torque converter's increased tractive effort means it doesn't require full throttle," said Mark.

"It also allows the loader to achieve higher gear ranges and maintain higher travel speeds when working in load-and-carry applications."

Another new feature is a tyre slip control system, which has been proven to be effective in extending tyre service life. When it senses tyre slip, it applies the modulated clutch to control the torque converter and minimise tyre slip.

"This system functions automatically and doesn't interfere with operation, saving fuel without decreasing production"

"All these features combine to reduce fuel consumption by up to 10% – while also increasing productivity – compared with the WA900-3E0," said Mark.

Operator environment

The new WA900-8R features Komatsu's latest generation of cab to improve operator comfort and safety.

Along with ergonomic improvements, it contributes to higher operator productivity, easier and safer operation, and reduced fatigue.
Cab features include:

- A new automatic digging system
- A semi-automatic approach and dump system
- A completely redesigned large operator cabin seat, incorporating low-effort control levers and an advanced joystick steering system
- An electronically controlled suspension system (ECSS).

Pictured: Komatsu's new WA900-8R mining loader incorporates its "SmartLoader Logic" technology for greater efficiency and productivity.

"Our new automatic digging system actuates the bucket tilt and lifting operations by detecting the sensing pressure applied to the work equipment," said Mark.

It's designed to significantly reduce operator fatigue and improve efficiency ensuring optimum bucket fill every time the machine enters the pile, whether in rock or in loose materials."

This system is designed to work in conjunction with a new semi-auto approach and dump system.

"This automates boom lift and bucket dumping when approaching a dump truck, particularly in 'V-shape' loading operations," he said.

"Combining this with our automatic digging system, loading operations from stockpile to dump truck is made much easier, and operator effort and fatigue greatly reduced."

And with WA900-8R loaders frequently used in load-and-carry applications, Komatsu has standardised on an electronically controlled suspension system (ECSS) to substantially reduce pitching and bouncing on uneven surfaces.

Maintainability

Maintenance and serviceability have been optimised through a high-resolution in-cab monitoring system, which works in conjunction with Komatsu's Komtrax Plus remote monitoring system.

Maintenance is simplified through side-opening engine doors, easily accessible engine compartment with dual-side engine bay access ladders, along with a swing-out cooling fan – with reverse – and wide-core radiator (with modular core).

"With our new WA900-8R loader, Komatsu has developed a best-in-class mining loader, while delivering significantly higher productivity and operating efficiency, combined with lower fuel consumption and reduced operating costs," said Mark.

Brief specs are:

WA900-8R standard boom: Operating weight, 116.4 tonnes; bucket capacity range, 11-13 cu m; engine, Komatsu SAA12V140E-7 (Tier 2 emissions compliant) rated at 671 kW at 2050 rpm; dump height, 4610 mm; static tipping load, 40 degree turn, 63,610 kg; bucket breakout, 71,900 kgf.

Gunne Civil takes advantage of latest technology on our new Brisbane site

When Queensland contractor Gunne Civil Constructions was engaged to carry out site preparation earthworks for Komatsu's forthcoming new Wacol distribution centre and technology hub, it was an opportunity for the company to take advantage of the latest technology in managing its side of the project.

Gunne Civil has a substantial fleet of Komatsu equipment, many of them fitted with "bolt-on" Topcon machine control systems.

But for the Wacol site's earthworks, Gunne Civil also hired in Komatsu intelligent Machine Control (iMC) dozers and excavators, while also using its Smart Construction offering for enhanced site surveying and management.

Construction on the 3.8 ha site began in March 2020 and is due for completion in early 2021.

Gunne Civil's fleet includes 11 Komatsu excavators, from a PC18MR-3 to a PC600LC-8EO, with a number fitted with Topcon GPS-based excavator indicate systems, plus a D65EX-17, fitted with a Topcon machine control system.

According to company co-owner Leon Gibb, Gunne Civil has been using machine control systems since 2008, switching to Topcon systems and its dealer Position Partners around 2012.

"We carry out a lot of major infrastructure works throughout south east Queensland: schools, defence works, local government services and with the major builders," said Leon.

"We do all the civil works from scratch up to final completion, and these days we find the machine control systems are essential for all our detail trimming, whether it's long batters and trenches with the excavators, or gravel spreading, bulk earthworks trimming or subgrade work with the dozer."

Pictured: Gunne Civil carrying out earthworks for Komatsu's new Wacol facility in Brisbane, using a mix of its own and Komatsu Rental equipment – including iMC machines.

When Gunne was awarded the contract for Wacol, it was an opportunity to see at first hand the capabilities of Komatsu's iMC technology, with the company hiring in a D61EXi-24 dozer and PC210LCi-10 excavator from Komatsu Rental.

"We were very impressed with the capabilities of these machines," said Leon.

"We had the dozer basically doing all our final trimming, with the iMC excavator doing a lot of the batter work, as well as detail and trimming in the tighter spots.

"The iMC dozer's capabilities, in particular its ability to carry out everything from the bulk earthworks right through to final trim, with a very high degree of accuracy, was very impressive."

In addition, Gunne Civil purchased a new PC138US-11 short-tail excavator, fitted with a Topcon GPS-based indicate system, to work on this project.

Gunne Civil's surveyor Shane Gregory worked in with Komatsu's Queensland Project Solutions Consultant Brent Parker, who introduced the company to the suite of Smart Construction solutions. .

"We have our own drone survey system, but for this project, Brent and Shane worked closely together, so that we were able to compare Brent's Smart Construction results with what we were getting," said Leon.

"Brent has been extremely helpful to us in learning about this technology, plus he can even assist us with our Topcon gear as he's ex Position Partners.

"Smart Construction is a very impressive tool, and it's excellent for the client, as they can see exactly what's going on. And because it's generating real-time data, there's no hiding; it's all right there on the table so you can see exactly what you've done each day, the volumes of material moved, and the accuracies you are achieving," he said.

Gunne Civil's history goes back to 1989, when Leon's dad Noel Gibb teamed up with Michael Dunne to form Gunne Constructions. In 2008, Leon teamed up with business partner and long-time mate Adam Stafford to buy out Michael Dunne, then in 2014 renamed the company Gunne Civil Constructions buying Noel out of the business in 2016.

Initially the company ran a lot of equipment from another supplier, as a result of a long-term relationship with Alec Harries who worked there. When Alec joined Komatsu in 2011 as Major Account Manager - Civil & Quarry in Queensland, Leon and Adam followed him.

"It's very much the relationship we both have with Alec that brought us to Komatsu," said Leon. "We've known and worked with him for many years; he was my and Adam's rugby union coach when we were kids from about 25 years ago, so we go back a long way.

"And we've found Komatsu's an excellent brand, and our definite preference when their products are within the range we are after," he said. "I'd have to say we are more than impressed, so we buy it whenever we can.

"We did recently purchase another company that primarily runs another product line, but we'll pretty much swap that over for Komatsu equipment when its time is up."

"The iMC dozer's capabilities, in particular its ability to carry out everything from the bulk earthworks right through to final trim, with a very high degree of accuracy, was very impressive."

Dubbo Regional Council finds customer parts online portal an integral part of its machine management

Pictured above: Dubbo Regional Council's Fleet Maintenance Co-ordinator Grant Everett, using the myKomatsu online parts portal

Dubbo Regional Council has used the myKomatsu online customer portal, at my.komatsu.com.au, for its machine management and parts ordering processes since early 2019.

Based around the Central Western NSW town of Dubbo, the council currently runs a Komatsu GD655-5 grader, a PC45MR-3 and PC55MR-3 excavator, and a WA470-8 wheel loader, which was delivered in mid-December 2020.

According to Grant Everett, Dubbo Regional Council's Fleet Maintenance Co-ordinator, the council has been using online parts ordering for the past six or seven years with the myKomatsu online portal being one of the online tools the organisation uses.

"We've been on the myKomatsu portal since its implementation. It's user-friendly, easy to drive, and it's now one of a number of online tools we use for our business," he said.

"Being online, we can see the availability of parts we need, and make our specialised purchasing and operational decisions right then and there.

"The advantage of online tools like this, is that we can carry out our parts ordering/quoting needs at any time that suits us. Having that live information assists us to process our requirements, and estimate our fleet usage and utilisation rates," said Grant.

"It saves us hours of time on the phone, just sitting there on hold, waiting for a reply."

The myKomatsu portal also assists council's workshop and equipment maintenance teams.

"Our mechanics can also get on line, see the parts they are looking for and make use of the system's visual aids so they know they are ordering the right part, specific to that model of equipment.

"Now we're even getting our mechanics to put parts orders into the shopping cart, generate an order number and place the order.

"And there's huge benefits in not having manuals on benches just to identity the parts they need; they can just jump onto the system and order what they need."

"The advantage of online tools like this, is that we can carry out our parts ordering/quoting needs at any time that suits us."

Grant says the new myKomatsu has been greatly improved on the previous system.

"The old system worked well for us, and offered similar benefits, but this new one is so much more refined."

He's also found the predicted delivery dates for parts orders have been very accurate.

"That's very important when you're planning work. Because you know exactly when the parts will arrive, whether it's in one, two or three days – something we use to assist us plan when the machine might be up and running again."

For more on the myKomatsu online customer parts portal please visit my.komatsu.com.au

Technology the key to continuous improvement at SA waste facility

Pictured above: The Komatsu WA200-8 with long-arm high-dump bucket at NAWMA's facility in South Australia.

A leading South Australian waste management authority has just received $8 million in grants from federal and state government agencies to implement new techniques in preparing paper and cardboard for efficient recycling.

It is the latest in a continuing series of technological improvements which have propelled the Northern Adelaide Waste Management Authority (NAWMA) to a benchmark position in the recycling industry.

NAWMA 's recent innovations include the commissioning of Australia's first power generation facility at its Renewable Energy Park combining solar capture and landfill gas to generate up to 11,000 MWh/yr. – enough to power 1,900 South Australian Homes.

The latest grant will enable NAWMA to introduce a paper polishing plant which will remove residual contamination from up to 26,000 tonnes of paper and cardboard collected from household recycling bins each year and make it more suitable for commercial recycling.

NAWMA is an independently managed facility established by the local government councils of the City of Salisbury, City of Playford and Town of Gawler, servicing more than 110,000 households and businesses.

Its best practice procedures include the ongoing adoption of new technologies which add substantially to its overall efficiency.

Its Waste Processing Facility will be assisted by the purchase of a purpose-equipped Komatsu WA150 wheel loader with a specially devised clamp to help bale up to 60,000 tonnes of household waste each year. The clamp-baling mechanism will increase both efficiency and productivity.

The new machine will bring the number of purpose-equipped Komatsu's on NAWMA's four sites to ten and makes Komatsu a significant operational partner to the Authority. NAWMA purchased its first Komatsu in 2009.

Komatsu's supply to NAWMA, now also includes forklifts, achieving economy of scale and operation by bringing all mechanical operations under one umbrella.

Incremental improvements and a policy of adopting fit for purpose technology are essentials in the development of services for NAWMA's constituent councils, the Authority's Processing and Disposal Supervisor Jason Moorhouse said.

NAWMA had assigned a Komatsu HB215 hybrid excavator to its Renewable Energy Park site at Uleybury, south of Gawler because of its ability to minimise energy use and optimise its carbon footprint.

The hybrid excavator recovers energy from the use of its slew function and uses that stored power to supplement its internal combustion engine. NAWMA estimates fuel and emissions savings at 30%.

Jason said NAWMA, and Komatsu had recently specified a long arm, high dump bucket WA200-8-wheel loader for its Waste Processing Facility to better comply with Work Health and Safety regulations.

The new machine enables waste and recycling material to be more efficiently loaded onto high sided walking floor trucks without the need for ramping to clear the height of the vehicles.

> **"NAWMA 's recent innovations include the commissioning of Australia's first power generation facility at its Renewable Energy Park combining solar capture and landfill gas to generate up to 11,000 MWh/yr. – enough to power 1,900 South Australian Homes."**

The WA200-8 utilised energy and emission efficient Tier 4 engine technology and spearheaded a replacement plan to progressively upgrade NAWMA's fleet.

On-site and flexi-hour service has become an essential part of the machine supply proposition to all NAWMA's Operations. Machines need to be serviced with minimal downtime at intervals between 250 and 500 hours depending on usage. Komatsu and NAWMA have worked in partnership and devised a plan for remote service to suit the Authority's needs.

Pictured above: Alistair Jones, owner of Environmental Vegetation Management, along with his father Robert Jones who founded the business, and their new addition, the Komatsu PC 270-8 excavator

EVM makes the best of old and new machines to meet customers' needs

Rock solid reliability is the key to getting and retaining delicate environmentally sensitive land preparation jobs, according to a young Victorian operator whose making it his specialty.

But, while Alistair Jones, owner of Environmental Vegetation Management, out of Ballarat is growing his business by buying new machinery that meets ever stringent requirements, he's also bucking the trend.

The star of his fleet is a 24-year-old, 20,000 hour Komatsu PC300-5 excavator equipped with a heavy-duty vertical mulching tool which he believes is unique in Australia.

"The only reason I keep using it is because I have absolute faith in its ability to keep working without lubricant or hydraulic oil spillage, which these days could disqualify me from any Tier One job," Alistair said proudly.

Alistair is one of a new-breed of civil contractors who has made it his quest to comply with the ever-increasing safety and environmental requirements of Australia's Big Six Tier-One construction companies.

Environment Effects Studies have required contractors like Alistair's EVM to become specialists in touching the ground lightly, working to tolerances which are effectively millimetre certain, and with a view to minimizing the use of resources and controlling emissions.

Alistair has recently taken delivery of a new Komatsu PC 270-8 excavator with fine touch hydraulic controls, to give his skilled operators the best opportunity to work in highly sensitive areas.

GPS guidance, applied in conjunction with specific tree maps produced for each job, ensure protection for environmentally and culturally sensitive sites.

Komatsu's exclusive back to base Komtrax telemetry on the PC270-8 allows EVM to provide its customers with detailed emission tracking and fuel use data to support the environmental credentials of each of their projects.

EVM's specialist skills have won it major contracts on sensitive assignments like the Ballarat Rail upgrade, and the $323 million Echuca-Moama bridge reconstruction, a project with especially stringent cultural and heritage preservation requirements.

EVM started when Alistair, a third-generation farmer on his family's specialist 850-hectare, sheep and wool property at Smeaton, north of Ballarat, the biggest Tukidale stud in the Southern Hemisphere, began sub-contracting with its machinery.

Tukidales are a hardy New Zealand sheep renowned for the use of their fleece in carpets and rugs.

Alistair's father and grandfather had created a labyrinth of pondage and dams on the property to drought proof it and simultaneously create an aqua farming opportunity, including a recreational trout farm which today embraces a 120-seat restaurant and four-star accommodation.

Both experiences equipped Alistair with an understanding of sensitive land management, and an ability to seek and implement out of the box solutions.

An opportunity to work on the nearby seven km Buangor Bypass, part of Victoria's $500million Western Highway upgrade, led him to a piece of equipment which had become partially redundant, a third hand Komatsu PC300-5 purpose-fitted with an American designed vertical mulching tool.

The 900kg head spinning metal teeth at 2000 rpm can progressively cut and mulch a tree from above down to a level 300mm below ground, in one single uninterrupted operation.

The mulcher is powered by a separate 300kW motor mounted to the rear of the PC300 in place of the machine's counterweight.

Alistair restored the PC300 with the assistance of Komatsu, and today it forms an integral part of EVM's fleet of 15 machines run by a roster of 20 skilled operators, all put together in the last six years.

Used sparingly and within contemporary guidelines the mulcher provides great efficiency both in terms of human resource and necessary operating hours.

"The key to its continued use is its absolute reliability," Alistair said.

"It's not possible to enter a Tier-One job without a careful inspection by the contractor of the mechanical condition of each machine. Even the hint of an oil leak can have the machine disqualified from the site. Komatsu, simply, makes the best excavator both in terms of reliability and strength."

Alistair and his team, in conjunction with Komatsu, continue to maintain the PC300-5 in order to meet those requirements.

"We tend to limit its use to 1,000 hours a year and we think we have another four to five years left in it," Alistair said. "After that, we'll consider our options."

His attention has turned to his latest acquisition – the PC270-8.

"It's a bit like when you get a new car," he said. "It's quiet and smooth". And in today's increasingly demanding world of corporate environmental requirements, it will also help EVM achieve its growth plans.

Pictured above: The Town of Port Hedland has acquired 2x purpose-built Komatsu WA270-8 loaders to work at its landfill site to make the entire waste disposal process more cost efficient and productive. Inset picture: Brad Young, a long term Komatsu Port Hedland customer with Komatsu BDM Dean Jones.

Purpose built wheel loader increases productivity

A bold move by a Western Australian Local Government has resulted in a threefold increase in the collection of waste metal from its landfill facility and contributed to the increased life span of the site.

The Town of Port Hedland (Town) devised a specification for a purpose-built wheel loader to work exclusively on its 45,000 tonne per year landfill site to make the entire waste disposal process more cost efficient and productive.

Results to date point to a new protocol which could be adopted by similar operations across Australia.

The Town determined a dedicated wheel loader would be fitted with puncture proof solid rubber tyres and would be equipped with a semi-enclosed grapple bucket to better dig and secure loose material like metal.

The results in the first six months of operation have been spectacular – the sale of recovered waste steel has increased to more $5,000 per month from a base of $1-2,000.

According to engineers, the ability of the lighter and more agile wheel loader to climb deep onto the landfill to assist in recovery and compacting has increased the life expectancy of the 22-year-old facility.

The Town had been using two machines, a wheel loader and an excavator to undertake general duties as well as working on landfill duties.

However, when both came up for renewal, having already surpassed council's machine replacement policy of 8-10,000 operational hours, the decision was taken to secure two-wheel loaders – one for use on landfill and the other on general duties.

All four machines – the original equipment and their replacement, were sourced from heavy machinery specialist Komatsu which six years ago invested $10million in a decentralised service facility in Port Hedland to provide direct response in the burgeoning mining and export port.

Mineral exports through Port Hedland from the resource rich Pilbara region approach $30billion a year and account for 1.9 percent of Australia's Gross Domestic Product.

"Local support was a critical component of the tender process," said Carl Askew, the Town's CEO

"Although the Town has in-house mechanical personnel, we value the machine induction by the manufacturer and it will take advantage of the 2,000-hour factory service program offered in the purchase,".Mr Askew said.

Operator comfort, in the airconditioned cabin, was a primary concern in an area where all day external temperatures can remain above 40 degrees Celsius.

The Town has placed one of Komatsu's new WA270-8 on general duties working on assignments as diverse as drainage maintenance and the area's restricted access programs.

The other was effectively purpose built and customized in a joint venture between council's maintenance and landfill departments and the manufacturer.

"We had already had some experience with the use of solid rubber tyres fitted to remove the risk of punctures in waste disposal operation," Dean Jones, Komatsu's Business Development manager with responsibility for the far north of Western Australia said.

"Each tyre weighs 750kgs - three times that of a standard fit pneumatic tyre, but experience has enabled Komatsu to warrant their use in defined operations."

Komatsu also approved the use of a semi-enclosed hydraulic bucket grapple with a hardened cutting edge to enable operators to better sort and pick resaleable materials from the waste, particularly steel recovery.

Operator comfort, in the airconditioned cabin, was a primary concern in an area where all day external temperatures can remain above 40 degrees Celsius.

Operators have positively reported on the combination of a comfortable airconditioned cabin and a single lever hydraulic control for the purpose-fitted bucket.

They are able to work far deeper into the landfill, with greater success, than with heavier, more powerful machines, although a machine with greater power is still necessary for overall site maintenance.

According to Rebecca Walter, Port Hedland's landfill manager, the customised machine, while successful, remains a work in progress – in the spirit of continual improvement.

Further strengthening improvements would be made to the grapple bucket's teeth as operators ambitiously sought to pick larger and heavier resaleable refuse.

Operator feedback indicated the solid tyres did reduce comfort in rough conditions, and a solution was being sought.

According to Dean Jones, Komatsu is monitoring progress closely to further refine the specification which could well become a blueprint for landfill operation across the country.

Pictured above: Dean Mullin the fitter for CONO Services and Phil Lister, Komatsu Senior Account Manager, onsite with the purpose-built Komatsu PC228USLC-11 BLADE, the 12th in the CONO Komatsu fleet

Making the most of low emissions engines and Komtrax monitoring

Colm Phibbs, a 22 year-old second generation excavation operator from Dublin in Ireland, couldn't believe what he saw when he took on his first holiday job in Sydney.

"We were digging into sold rock," he said. "I was thinking, this is just crazy, and, in my head, I was calculating – 'we could sell this anywhere'."

Colm and his dad, Seamus, mined mud – the grey-brown Irish soil which grows great potatoes but causes builders in Dublin to rely on brought in aggregate and concrete to form the solid foundations of the city's growth.

"Here I was in Elizabeth Street, Sydney, digging out and breaking up rock which we could sell at a huge premium back home," he said.

Colm and his partner Noelle Keogh had planned to stay a month.

Fourteen years later their business CONO Services (for COlm and NOelle) owns $13million of plant and equipment and is regarded as Sydney's – and perhaps soon to be Australia's – pre-eminent expert in rock excavation.

Every excavator in their fleet is ultra-short tailed, without a traditional counterweight rear end, built to work with great accuracy in confined spaces like the tunnels which have become a major part of the infrastructure development of Sydney.

And most of their operators – many of them Irish – are well trained to get the most from the specialist machines, requiring a level of skill and finesse different to that of conventional work.

"I shouldn't say this, but once you know how, they're easier to drive than a counterweight machine because you don't have a rear end to worry about," Colm said.

Colm spent six years learning his rock breaking and saw cutting craft with some of Sydney's biggest civil contractors before he bought his own machine – a second-hand Komatsu PC 130, with $10,000 he and Noelle had saved and $80,000 borrowed from a financier prepared to take a risk on him.

"I bought it on a Friday and went on a job on Monday and made $20,000 in the first month," he said.

His latest acquisition, a purpose-built Komatsu PC228USLC-11 blade, has become the twelfth from Komatsu in his fleet and forms the basis of a specialist offering he intends taking to the market as he expands beyond New South Wales.

The key is the Dash 11's Tier 4 low emission engine which delivers a reduction in NOx and particulate matter of up to 90 percent compared to an equivalent Tier 3 configuration, and which is part of many underground contractual requirements.

The additional advantage to the operator is an increase in power with up to eleven percent better fuel economy.

Colm specified his new machine with a blade and bucket combination capable of delivering millimeter precision in the hands of one of his skilled operators.

The blade can become a defacto counterweight, helping to stabilize and level off the machine.

Colm has been deliberate in his choice of business partners and development of operational procedures- some of them born from his experience in Ireland.

"Working underground is like going into the mines," he said.

"You know you're risking getting your machines wrecked and you have to take serious precautions to ensure you get maximum value from them."

Maintenance requirements are better than 30 percent greater than working above ground and special application of rust proofing is essential.

The key is the Dash 11's Tier 4 low emission engine which delivers a reduction in NOx and particulate matter of up to 90 percent compared to an equivalent Tier 3 configuration, and which is part of many underground contractual requirements.

"I rely very much on Komtrax (Komatsu's satellite-telemetry which provides around the clock monitoring of essential machine service and operational procedures), to make sure that we're getting the best from the equipment," he said.

CONO Service's growth plans depend on partnership with major suppliers, both for reliability of operation and for the economies on offer.

The company's in-house maintenance team is increasingly working side-by-side with Komatsu, taking advantage of Komatsu's 2000-hour free service and maintenance schedule.

The relationship is part of Colm and Noelle's serious intent to become not only one of the best, but one of the biggest, operators in their field.

His broad Irish brogue, delivered with good humour and bit of blarney, may disguise it to a degree, but Colm has 'a fire burning' to succeed.

And he and Noelle are here for the long haul.

They've just moved into their dream home in Sydney's south east, with their daughter Darby Rose and twin sons Devin and Rogan.

The home is built on good Sydney coastal rock.

Pictured above: Derek Bastow with the original Komatsu D65E-8 bought over 35 years ago, still going strong. Inset picture: The Bastow range of Komatsu D65EX bulldozers from the oldest to the newest addition, the Komatsu D65EX.

You don't define your brand - your customers do

Derek Bastow, a second-generation excavation and earth-moving contractor from Pakenham in Victoria, had just taken the controls of his brand-new Komatsu D65-16 for the first time when it suffered a major malfunction.

Derek was on a big farming job which couldn't afford a hiccough, and worse, both his sons Tim and Colin – the third generation of Bastow Construction – had already driven the new bulldozer.

But Derek was in the seat when it stopped, a source of family mirth and personal embarrassment.

"Derek rang me looking for an instant solution," Andrew Fowkes, Komatsu's major account manager, quarries said, understating the tone of the call.

The timing couldn't have been more poor - Andrew was in hospital recovering from surgery, but Derek didn't know that.

By the following morning a loan machine had been delivered to Derek's job, and some-time later a brand-new bulldozer had replaced the one that had malfunctioned.

"It was completely unexpected," Derek said.

"I'd anticipated they might try to repair the engine or even replace it, and I was bracing for a battle over warranty provisions."

Instead, Komatsu had acted promptly to resolve an issue which was obviously a one-off and they had in the process created a customer for life.

"It doesn't matter what company you are, at some time you're going to run into a problem – and it's how you handle it that makes the difference," Andrew said.

"I'd been with Komatsu for 15 years and never experienced a difficulty like this before.

"I just knew if we didn't act promptly, he was going to be in trouble."

The Bastow-response could very easily become a case-study in customer service, alongside the launch of luxury car maker Lexus back in 1989, when a voluntary recall of 8000 of the very first cars launched could have sunk the brand.

Instead, the company's quick action gave Lexus its reputation for customer care.

A&KA Bastow and Son, now entering its fourth generation with the birth of Derek's grandsons Beau, two, and Bailey, one, is typical of the family owned contractors serving their local farming communities and who rely strongly on their relationships with their machinery suppliers.

"It doesn't matter what company you are, at some time you're going to run into a problem – and it's how you handle it that makes the difference,"

"We've recently taken delivery of our first Komatsu PC350LC-8 excavator and it's fair to say that we bought it as a result of the bulldozer experience," Derek said.

Bastow is by no means a Komatsu-exclusive operation.

The brand makes up less than half of Bastow's 25 strong machinery fleet but, where there is an appropriate choice at the time of replacement, Derek will call on Komatsu.

The proof is in the business's oldest surviving piece of machinery, a Komatsu D65-8 bulldozer, bought by Derek's father Austin in 1985.

"I came into the business at 15, just like my sons," Derek said, "and that bulldozer became mine."

Derek's boys call it the Old Girl, and while it is now coming up to 20,000 hours and on light duties, it still plays an active role.

Along with the company's three other Komatsu bulldozers, it is currently completing the construction of what is claimed to be the area's biggest dam, a 25-acre 380 megalitre excavation for Schreuers and Sons, one of the country's largest celery growers.

The Bastows and the Schreuers are long-standing families of the West Gippsland area of Victoria and typify the relationship between the farming community and their contractors.

"My father and I have worked with Theo and Tom Schreurs, and both our boys are now working together," Derek said.

Derek collaborated with the Schreurs family to design their dam at Tarwin Lower, built 100 km further east within Gippsland as the Melbourne urban sprawl continues to claim increasingly valuable farming land around Pakenham.

For the Bastows, the housing explosion has provided dual opportunity.

They continue to service their traditional farming clients while also providing machinery to quarry operators like Holcim at Pakenham, an opportunity for the family to continue to expand its business in the region.

"Beau and Bailey are already sitting on my knee on the D65-8- the Old Girl - not when its working of course," Derek said.

It's likely to be part of their legacy.

Remote monitoring technology gives Atom the edge

Atom Heavy Hire relies on the latest on-board data gathering systems in its bulldozer & excavator fleet to give the heavy machinery company an edge in the highly competitive hire market.

Stu Cowdell started Atom in 2017 to service Auckland's fast expanding sub-division construction sector.

The on-board telemetry with 24/7 satellite monitoring by his machinery supplier, Komatsu, has given him 'invaluable' insight to run his fleet with maximum efficiency, and to keep his customers fully informed of machine condition.

While his new machinery acquisitions have the technology built in, his company's policy of also sourcing quality used machinery internationally has resulted in the unique retrofit program using Komatsu OEM Komtrax tracking equipment.

With two partners, he had just sold his business-to-business communications company, Digital Island after together developing it over 15 years into one of New Zealand's most successful privately owned telco providers. Stu was keen to start a new venture which involved a complete change, 'working outdoors' and not in an office.

His brother Richard, a successful earth moving contractor, suggested he examine the opportunities available in the Auckland Civil Construction industry where the need to hire good machines on a job-by-job basis was growing exponentially.

"With my background in IT, frankly I was a little shocked when I discovered some of the technologically advanced systems, I was used to working with on a daily basis just weren't on offer in the heavy machinery industry," he said.

Mr. Cowdell decided to turn that to his advantage, introducing cloud-based accounting and CRM

(Customer Relations Management) software to provide his clients with regular reporting systems equal to his previous business experience.

One breakthrough occurred when he discovered Komtrax, Komatsu's OEM machine monitoring service which provides a broad range of around the clock reporting opportunities.

This is a key factor leading to more than 50 percent of Atom Heavy Hire's fleet being Komatsu and the development of a close working relationship which has had direct benefit for Atom's customers.

Atom uses Komtrax daily, to monitor machine hours, machine location, fuel-burn and power figures, and importantly to test for the potential for faults.

It has enabled the company to better manage its customers' use of its machines, many of which are on long-term hire.

Two D51PX-22 bulldozers, one recently acquired in the USA, the other from Japan, on arrival were fully serviced, NZ specification safety accessories added, and repainted by Komatsu New Zealand for use on Atom's fleet, with the final step being the installation of Komtrax monitoring.

Pictured above: Atom Hire Founder Stu Cowdell with the PC138US-8 Komatsu excavator, standard with Komtrax remote monitoring and location system - one of many within the fleet of the growing business.

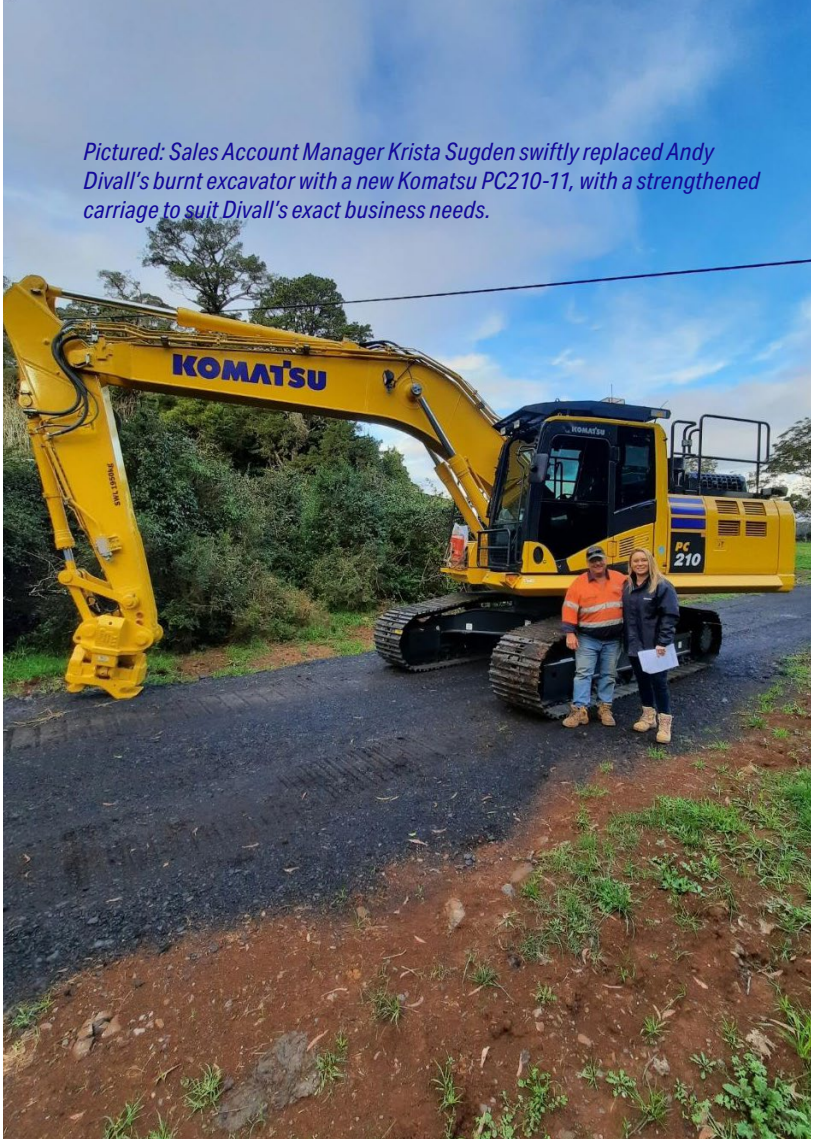
This retrofit, exclusively using OEM equipment, was performed locally with direct reference to Komatsu in Japan to ensure complete compatibility with the global system while being in-line with local operating requirements.

The procedure is the first to have been undertaken in New Zealand.

"I rely heavily on the monitoring service, for my own peace of mind as well as that of my customers, and it gives me an opportunity to form a true partnership with those customers," Mr. Cowdell said.

Atom Heavy Machinery Hire is expanding exponentially, largely Mr. Cowdell said as a result the quality of the machines and our customer service approach. He is anticipating an up to 30 percent growth in inventory in the next 12 months.

Atom uses Komtrax daily, to monitor machine hours, machine location, fuel-burn and power figures, and importantly to test for the potential for faults.



Pictured: Sales Account Manager Krista Sugden swiftly replaced Andy Divall's burnt excavator with a new Komatsu PC210-11, with a strengthened carriage to suit Divall's exact business needs.

Pictured above: The fire which engulfed the Komatsu PC210, soon replaced thanks to Komatsu Australia.

Divall's plays its part in keeping Goulburn firegrounds safe

Landholders in the Goulburn region of New South Wales can rely on Andy Divall and his earthmoving company to keep them fire safe.

Each autumn Divall's excavators can do more than 200 controlled burns of fallen timber and ground rubbish, working in a narrow window of around 20 weeks in which they can secure the area before the following summer's bush fire period.

Sometimes three or four excavator crews work simultaneously to keep up with the demand. The Divall's know bushfires.

In 2019, Andy and his then 19- year- old son Jack spent Christmas Day precariously cutting firebreaks from Bundanoon to Marulan when devastating fires swept through. That horrible time across Australia will forever be known as our Black Christmas.

Andy's was surprised in April this year when he received a phone call from one of his long-time operators Mark Mason who was watching one of the company's excavators burn to the ground.

Embers from a fire Mark had lit and was controlling had fallen into a build-up of leaves at the base of the excavator's arm and although Mark quickly got an extinguisher to the fire, he was just too late.

The fire had burnt through a hydraulic oil hose and it swiftly spread.

Andy's safety team had a water tanker there within half an hour and secured the area, and less than an hour later he was on the phone to heavy machinery supplier Komatsu seeking a replacement machine.

It wasn't a normal call for help – "It's our absolutely busiest period and work we don't do in autumn may pose a serious threat later in the year," Andy said.

It was the Divall's first machine fire in 50 years of running a family-owned company which started as a rural holding by Andy's dad John, and which has grown to a massive undertaking.

It employs over 250 people, operates 300 trucks and heavy machinery, and has become a fixture in the Southern Tablelands, contributing to community life and causes, and offering employment opportunities for young people in addition to its earthmoving, haulage and agricultural interests.

The earthmoving division works on some of the region's largest jobs, including wind farms, council road works and quarries.

"We'd had pretty strong protocols in place to ensure OH&S certainty on all our jobs – now we're looking at even more stringent methods," Andy said.

Divall's run an exclusively Komatsu fleet of 40 excavators, taking each up to around 18,000 hours of operational life, about nine years. But it was the urgent need for a replacement excavator, more so than even the close relationship with one of its larger customers in the region, that set Komatsu's new Sales Account Manager Krista Sugden on an Australia-wide search.

Immediate supply has been difficult to maintain during the pandemic. But she found a new Komatsu PC210-11, with a strengthened carriage to suit Divall's exact needs less than 200 km from Goulburn. "It was meant to happen," Krista said.

Komatsu worked with Andy to enact a rescue operation, removing a purpose built tilting quick hitch from the burnout machine, rushing it to Tasmania for repair then getting it back to Komatsu's Fairfield, Sydney, workshop for fitment.

The new excavator, complete with Komtrax, Komatsu's on-board back to base machine telemetry, was delivered on site to Divall within the week.

Komtrax will form part of Andy Divall's new fire-safe protocols as the company ramps-up its efforts over the coming months.

"We use the downtime off the beach to thoroughly washdown our machinery with fresh water and a biodegradable lubricant to minimize corrosion"

Leading emergency work at Wamberal beach

Pictured above: Adam Lowe Earthmoving used Komatsu excavators to dig trenches, footings and use rocks to rescue the beachfront houses at Wamberal beach, which were affected by severe storms during winter.

Central Coast earthworks specialist Adam Lowe helped with emergency remediation work at Wamberal beach with a fleet of strategically positioned Komatsu machines, guided by experience going back 20 years.

A massive storm on July 16 swept the beach away from under 40 clifftop homes causing them to be evacuated and sparked a reclamation program overseen by the NSW state government.

Adam Lowe Earthmoving was called in to help execute a program of emergency restoration which involved laying several tens of thousands of tonnes of rock reinforcements – and building a new beach-road each day to get to the site.

Adam, modestly, said he just happened to have machinery available when the Central Coast Council needed his urgent help.

But he has spent several years undertaking private projects for residents along the foreshore, so he knows the beach well, and 35 years ago he was involved in a remediation project on the Great Barrier Reef's Dunk Island that gave him specialist knowledge of delicate environmentally sensitive beach work.

Lowe Earthmoving placed three Komatsu excavators on the beach fitted with grabs and buckets which dug trenches and footings and placed two forms of rock reinforcement between the sea and the cliff face.

Tidal movements meant that the excavators had to be removed at each high tide.

Adam's newly purchased Komatsu D65 PXi-18 bulldozer, fitted with a Power Angle Tilt (PAT) blade, it built a road above the tidal mark after each high tide which enabled excavators and dump trucks to come and go.

"The PAT blade was ideal for the job because it enabled the operator to cut the road and gave more substance to the surface," Adam said. "Wamberal Beach had its own problems because its sand particles were the same size, and didn't bind together, which made the base extremely loose and soft."

The Komatsu D65 also acted as a tow vehicle with a soft sling which was hooked up to the dump trucks when they became bogged. Two rock formations were used in the emergency remediation. One end of the beach was reinforced with 1-1.2metre rocks, each weighed around three tonnes and the other end with a smaller Gabion retained wall rock placed into 4 tonne bags.

Adam supplied a Komatsu PC 138 excavator in the Wamberal Surf Club car park which received the rock, filled the bags and then a crane loaded them onto council trucks which transfered

220 tonne to the crane in the street which lowers rock filled bags over the affected houses and onto the beach where a team of two Komatsu's, a PC 240LC and PC 300LC, positioned them into footings and trenches.

The PC300 was borrowed from another local company, John Borg of Borg Manufacturing, who Adam said was also a resident of one of the houses above and had a keen interest in seeing the job completed.

It was a slow and painstaking task – made more so by the extreme weather conditions in which the team had to work.

"We used the downtime off the beach which thoroughly washed down our machinery with fresh water and a biodegradable lubricant which minimized corrosion," Adam Lowe said. "Even though we didn't drive in the surf, there was still a degree of salt in the sand which was removed."

It was a familiar technique for Adam. He began his business 20 years ago when his father disbanded the family's hardwood sawmilling operation and at the same time cut short Adam's own ambitions to become a charter boat operator.

"I'd done a fair bit of sailing and machinery driving around Far North Queensland and that's where I got my first experience at tidal sand remediation when we rebuilt the Spit at Dunk Island", he said. "I'd hoped to buy a charter boat to take advantage of tourism around the 2000 Sydney Olympics and the America's Cup in New Zealand, but a combination of factors led me to this earthmoving business instead."

Adam and his wife Margo have carved a major place in the development of the Central Coast with a largely Komatsu machinery fleet undertaking a variety of commercial, industrial, rural, domestic and government work.

They have reinforced their belief in the future of the region with a just completed $2.3million investment in a new state of the art 720 square metre machinery workshop at Somersby, more than doubling their capacity. They have purchased a Komatsu CX 50 series IC forklift for the workshop.

"We decided several years ago to rationalize our fleet to one major manufacturer," Adam said. The pair now have 14 Komatsu's in active service and continue to upgrade as each machine reaches their self-imposed critical 6,500 - 7,000-hour operational ceiling.

The new D65-PXi-18 bulldozer, delivered in the first quarter of 2020, was the first fitted with Komatsu's exclusive Intelligent Machine Control, although its specific task on Wamberal Beach made no call on the technology.

The COVID-19 pandemic has not slowed them. "In fact, we couldn't meet all the demand if it came our way," Adam said.

Pictured above: Mulgoa Excavation has recently acquired the Komatsu WA500-8 wheel-loader, the new addition to the already strong Komatsu fleet of dozers, excavators and wheel loaders.

Local heroics get a leg up

Daniel Buttigieg has built a substantial contracting business with more than 50 pieces of machinery and another 50 trucks, all within 20 km of the strawberry farm on which he grew up.

By keeping his business model simple, he's made himself a valuable resource of tier- one construction contracting companies without, he claims, ever putting himself at risk.

"I didn't mean for any of it to happen," the 44-year-old said. "All I wanted as a young bloke was to have one excavator, a truck and a float."

It helped that Daniel grew up in the Mulgoa growth corridor in far western Sydney, surrounded by fast expanding industrial and residential developments and now the construction of Sydney's third airport at Badgery's Creek on which he is one of four principal machine suppliers.

His business, Mulgoa Excavations, has grown exponentially with the region – each time with more machinery and trucks bought to meet the demand of new contracts he's taken on.

Daniel claims there's no science to it: his 90 strong work force does not include one accountant or business manager, and its only recently that he's started to use fact gathering telemetry built into his machines to get a better picture of how they can contribute to his success.

Daniel's work ethic matched by his wife Tracey's skills in the office, have been at the core of their business's growth since Daniel bought his initial second-hand machine at age 21 with money he'd saved and an equal loan from his parents.

Before that, he'd worked in the local tip at Penrith Lakes, the only job he could get when he quit school as soon as he could, at 14, in year nine, and then with other local plant hire companies.

It was in the tip that 'old blokes, real professionals,' recognized his enthusiastic interest in what was going on around him and gave him a chance to learn not only on the floor but in the machines.

"I'd been driving tractors on the family farm since I was a kid, so they let me climb up in an old Komatsu PC 300-3 during their lunch breaks, just to get the feel of moving stuff around," Daniel said.

Within a year of buying his first machine ('old and tired when I bought it'), he'd saved enough money from local contracting jobs that he was able to walk into Komatsu to purchase a brand new PC120 excavator.

"They didn't make it easy for me," he said. "They wanted to be certain I was serious about what I was doing, and they weren't about to sell it to me without being convinced - even though I had the money."

It's a policy he now applies in his own tendering processes- both when he's applying for new jobs and when he's buying new machinery.

"There's no rule that says all the footy players for the Panthers have to come from Penrith," he said, a very local insight into his business logic which recognizes the best deal, not necessarily the lowest price, wins.

"When I win a tender and sign a contract, that's when I rely on my suppliers, especially Komatsu, to help me source the gear I need really quickly," he said.

Komatsu comprises the majority of his fleet - 15 excavators alone - and the more recent purchases, fitted with the company's on-board Komtrax telemetry, have given Daniel for the first time an insight into operating economy and fuel use.

"I've always gone with my gut, but Komtrax has given me the opportunity to understand the varying costs of my machines which mean I can build a rate card far more suited to every different job," Daniel said.

"As winning business gets even more competitive, it's a big help."

Daniel's latest purchase, a Komatsu WA500-8 wheel-loader, is the first he's bought using Komatsu finance, a sure-fire indication that self-made Mulgoa Excavations is gearing up for business expansion.

"I'll only ever do plant hire," he said. "I'll never be a contractor - I'm not smart enough to take that risk."

But, he has looked around his beloved and fast changing hometown where farms, like the one on which he grew up, are succumbing to urban sprawl and he's realized that there are services that will soon be required.

His first diversification project will be a recycling centre, close by Badgery's Creek; five acres under one roof to accept general and building waste. For Daniel, it's almost back to the future.

To be fair, Mulgoa Excavations has worked all over Sydney, mainly on the large infrastructure road and rail projects which are changing the face of the Sydney basin.

But of late the work has come to Daniel – his depot at Orchard Hills has by good fortune become the epicentre of a development blitz which in both area and expenditure is outstripping the rest of Sydney threefold.

It's made him a local hero, strategically placed and locally savvy.

He's tried to give back to the community – employing young blokes like he once was and upskilling them so that several have already gone on to buy their own machinery and start their own businesses.

For Daniel it's bitter-sweet.

His parents Jess and Lily still have their strawberry farm on Chain O' Ponds Road, but he knows it won't be long before housing development takes precedence. And he's watching the sense of community rapidly change.

That's why he's invested a bit – not a lot- in starting up a local cricket team, the Mulgoa Swans. "I'm hopeless at cricket, but I love it and as the place gets more populated, we're going to need clubs like the Swans," he said.

Pictured above: On site, part of the Mulgoa Komatsu PC138US excavators range.

Komatsu and bucket manufacturer Contatore Engineering were only too happy to support this, with each donating $5000 – matched by Axis Minerals – to Breast Cancer Care Western Australia.

Pictured above from left: Mark Thompson Operations Director; Steve Alman Director; Joel Northover Site Manager, all from Axis Minerals, with the company's recently delivered WA500-7 and its pink bucket.

Pretty in pink: Pink bucket loader and Axis Mineral Services raise funds for breast cancer support

In late February, Kalgoorlie-based crushing and milling specialist Axis Mineral Services took delivery of a Komatsu WA500-7 wheel loader, fitted with a specially made pink bucket to raise funds and awareness for breast cancer, which has affected a family member of one of the company's directors and owners.

Seven years ago, Kylie Birkin, sister-in-law of Axis Minerals' director Mark Thompson and sister of Site Administrator Leanne Thompson, was diagnosed with breast cancer at the age of 43. Her treatment included a double mastectomy.

Kylie is now in her fifth year of remission, and to celebrate this – and raise funds for breast cancer care – Leanne and Mark decided they'd like to dedicate the company's fifth Komatsu WA500 to Kylie.

Komatsu and bucket manufacturer Contatore Engineering were only too happy to support this, with each donating $5000 – matched by Axis Minerals – to Breast Cancer Care Western Australia. Additional in-kind support was provided by local signwriting company Sign-Here signs.

Leanne Thompson said that with Kylie celebrating her fifth year of being in remission, and the company's fifth WA500-7 being delivered, it was an opportunity to do something different, and to support others with breast cancer.

"We were delighted that Komatsu and Contatore threw their support behind our proposal, and we've all been able to work together to provide more funds to Breast Cancer Care WA," she said.

The day it was delivered, the new loader went straight out to Axis Minerals customer Golden Mile Milling, where it's feeding Axis Mineral Services' onsite crusher, and then feeding the crushed material to the milling plant.

"It certainly turned some heads at the customer's; it was the conversation of the morning when it rolled up," said Leanne.

Axis Minerals was formed in October 2016 by Mark Thompson and fellow partners/directors Joel Alman, Steve Alman and Steve Sutton, to provide rock and ore crushing services for mining operations throughout the Eastern Goldfields.

Its pink bucket WA500-7 is the seventh Komatsu loader in the company's fleet, with another on the way. Other Komatsu machines owned by Axis Minerals are a WA470-8, four other WA500-7s, a WA500-8 and a PC300LC-8MO.

"Axis Minerals has had a relationship with Komatsu since they started the company," said Leanne. "And Mark's had a long association with Lindsay Nelligan (Komatsu Business Development Manager in Perth) for some years before that."

Pictured above: Crystal Prendergast's backyard as it was; Crystal and her boys watching the work in progress; Oliver, Crystal and Xavier with Komatsu's Russell Hodson.

Community and companies provide support for Defence Force widow and her boys

Thanks to the generosity and efforts of the local community and a number of private companies, Defence Force widow Crystal Prendergast has had her new home – which had a barren patch of red-dirt out the back – turned into a perfect backyard play area and family haven for Crystal and her two young sons.

Crystal was widowed in December 2019, when her husband Glenn, who was in the Royal Australian Air Force, tragically died of cancer – leaving her to bring up their two sons, Xavier (4) and Oliver (2).

With Glenn's passing as an active member of the RAAF, Crystal was left with a considerable lump sum, including life insurance, which allowed her to purchase a house in Sydney's south-western suburbs.

However, the property's back yard was considerably run down, full of weeds, and large patches of red dirt, so Crystal was constantly attempting to clean stains out of the boys' shoes and clothes.

As a Defence Force widow, Crystal was eligible for support from Legacy, which has a commitment to help support dependents and children of service personnel who pass away while in service.

Because of this, Legacy has been able to assist Crystal with starting a TAFE course to become an enrolled nurse, paying the boys' daycare fees, helping with swimming lessons, transport costs, and so on.

Legacy has also been able to help Crystal have a makeover of her back yard, through the efforts of Russell Hodson, who was in the Australian Army for 27 years, achieving the rank of Colonel. He left the Army in 2010 to join Rio Tinto, before joining Komatsu in late 2018.

Around the same time as he joined Komatsu, Russell also became involved in Legacy, and when he and his mentor, Legatee Eric Easterbrook, became aware of Crystal's home situation, they realised there was an opportunity to help her and her sons.

"Looking at the property as it was, we could see she needed a new fence, a retaining wall, a complete new lawn, and the services of an arborist to remove some trees," Russell says.

With considerable excavation work required to prepare and install the retaining wall and fence, Russell was able to arrange for the loan of a Komatsu PC18MR-3 mini excavator through Komatsu Rental's Seven Hills branch.

He was also able to involve a number of other organisations, including ADF Welfare Association, RAAF Welfare Association and transport specialists Freight Movement to provide free transport of the machine between Seven Hills and Crystal's place.

Crystal also had a lot of help from her next-door neighbour, Paul Hembrow and his dad, whose company St George Pest Control provided the labour and expertise to build the retaining wall and fence between their two properties.

Work on the project began in late February, and was originally expected to take three or four weeks, working on weekends, when plenty of additional volunteer labour was available.

However, periods of intense rainfall, often occurring over weekends, then a one-in-100-year-flood event just before Easter, meant that the project wasn't completed until the first week in May.

Crystal and her boys are delighted with the end result.

"We all love it, the kids love it," she says. "As soon as it was finished, they went out there running around in it. Now we've got a brand new fence, a proper retaining wall, and green grass, not dirt.

"Without that, we'd still have the red dirt, and I'd still be pulling it out of my kids' shoes and clothes. And it doesn't really come out of clothes. That was something we had to deal with for all of last winter.

"We are incredibly grateful for what everyone has done. The boys now have a safe playing area, and they wouldn't have that without Russell and the excavator along with everyone else coming in to do all that work," says Crystal.

Russell has provided details of the people and organisations who helped with Crystal's backyard blitz

- Brendan Jeffries, sales representative with Komatsu Rental, who provided a PC18 excavator free of charge on site for the duration of the project, including co-ordinating the transportation and on-site service support.
- Paul Hembrow, whose company St George Pest Control provided the labour and expertise to build the retaining wall and fence between his property and Crystal's.
- Bill Farha of Landscaping and Tree Wizards, who provided discounted labour and machinery to remove numerous trees and stumps on the property.
- Jack Budge of Freight Movement, who donated transportation of Komatsu equipment to and from the site at no charge
- Graeme Collins, of Dad and Dave's Turf who donated turf for the lawn.
- Chris Toogood, who provided expertise and manpower to lay the turf at no charge.
- Dominic Teakle, CEO of Police Citizens Youth Club NSW, who provided the labour and expertise to build the retaining wall at the rear of the garden, along with the drainage system for the lawn area.
- Tara Goldsworthy, who provided much-needed assistance with rubbish removal along with laying of the topsoil.
- Eric Easterbrook, who secured additional financial support for the project, as well as coordinated rubbish removal and on site labour.

"And of course we are especially grateful for the financial support provided by the ADF Welfare Association and the RAAF Welfare Association," says Russell.

Legacy needs your help to support families of our veterans. Click on the QR code to donate to ensure no child is disadvantaged as a result of their parent's service.

LEGACY

Pictured right: : Max Barrass, a mobile plant apprentice from Komatsu's Emerald branch, and Clontarf Foundation alumnus, talking with boys at the Foundation's recent employment forum in Toowoomba, Queensland.

Pictured left: Clontarf Foundation participants trying out a VR simulator for a Komatsu PC300 excavator at the Toowoomba employment forum.

Partnering with Clontarf Foundation to build opportunities for young Indigenous men

In late July, Komatsu Queensland representatives participated in an employment forum in Toowoomba, west of Brisbane, organised and hosted by the Clontarf Foundation.

Komatsu Queensland is proud to support and partner with the Clontarf Foundation, whose mission is to help build the education, discipline, life skills, self-esteem and employment prospects of young Aboriginal and Torres Strait Islander men.

The event, which included a dinner on Thursday July 29, followed by an employment forum on the morning of Friday July 30, was attended by Komatsu's Technical Capability Manager Daniel Stegman, Talent Acquisition Consultant Nickie Keating, and Max Barrass, Mobile Plant apprentice from Komatsu's Emerald branch.

Max, who completed Year 12 in 2020, is now a Komatsu first-year Mobile Plant apprentice – which meant he related really well to the boys and was able to field many of their questions.

Students attending the forum rotated through different tables, which included mock interviews as well as the opportunity to meet with representatives from Clontarf Foundation partners.

In addition to Komatsu, other Clontarf Foundation partners attending the Toowoomba forum included the Australian Defence Force, Bank of Queensland, Bunnings and Boeing.

Daniel and Komatsu Queensland have been involved with Clontarf in that state since an employment forum in Cairns in 2019.

Two more forums are scheduled for later this year in Townsville and Cairns.

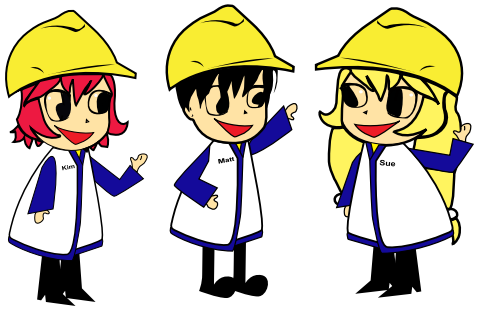
Komatsu in Western Australia has also been involved in supporting and partnering with the Clontarf Foundation since 2019.

In March this year, it was involved in a leadership and networking camp for fifty Year 12 students.

This event included presentations by Clontarf alumni about the importance of these young men staying focused on their education during Year 12 and how there are opportunities to build successful careers since graduating.

The Clontarf Foundation was established in Perth in 2000, to improve the education, discipline, life skills, self-esteem and employment prospects of young Aboriginal and Torres Strait Islander men, and by doing so equip them to participate more meaningfully in society.

Today, the Foundation operates 136 academies in Western Australia, the Northern Territory, Queensland, NSW, Victoria and South Australia. Since its establishment, it has supported more than 9700 participants and employs over 520 dedicated staff members.



Hi Komatsu Kids

Kim, Matt and Sue need your help to reflect on our commitment to a sustainable future by colouring in this fantastic Earth day picture. Can you spot Australia?

100th Anniversary

For a century

creating value together

1921–2021

To power modern society and develop the world's infrastructure you need partners you can count on to be by your side. As the world evolves, we're here, creating value together.

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