NOVEMBER 2018 ISSUE 72

D2E

DOWN TO EARTH MAGAZINE

25 NEW MACHINES RELEASED!

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COMMENTS

Hello everyone,

It's no exaggeration to say that 2018 has been a very big year for Komatsu in this region.

Two key developments this year include our largest-ever new product release program and the highly successful integration of Komatsu and Komatsu Mining Corporation operations to form a completely new organisation.

Now operating as One Komatsu, this process has been outstandingly successful, with employees from both sides of the business quickly getting up to speed in new ways of working with each other, across very different product lines and support processes, skillsets and expertise.

Service and support for our customers is the key driver of One Komatsu, and it's been very gratifying to see how complementary the two sides of the business have proven to be from a service point of view – which can only work to the benefit of our customers.

It has allowed us to greatly expand the ranges of service and product support we can now offer our customers, including "insourcing" many projects that we previously outsourced to external suppliers.

In addition to these greatly enhanced service capabilities, One Komatsu brings a hugely expanded product line, not only for our mining customers, but also for our construction and quarrying customers.

This is a very exciting time for the new One Komatsu and our customers.

In May earlier this year, we held a very successful BOOTS ON event in the NSW Hunter Valley, where we launched 25 new Komatsu machines, across excavators, loaders, dump trucks and graders.

All these new machines feature Komatsu's new engine technology, which delivers even lower fuel consumption, more efficient matching of powertrain components, and emissions levels up to 90% lower than their predecessors – while maintaining the reliability and production performance our products are renowned for.

This was the biggest launch of new Komatsu products in our history.

I would like to take this opportunity to thank all of you for your business in 2018. I sincerely hope we have exceeded your expectations and look forward to being of service in the future.

All the best.

Sean Taylor

Managing Director & CEO

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FRONT COVER
BOOTS ON - Komatsu releases the industry's most comprehensive lineup of new technology engines.

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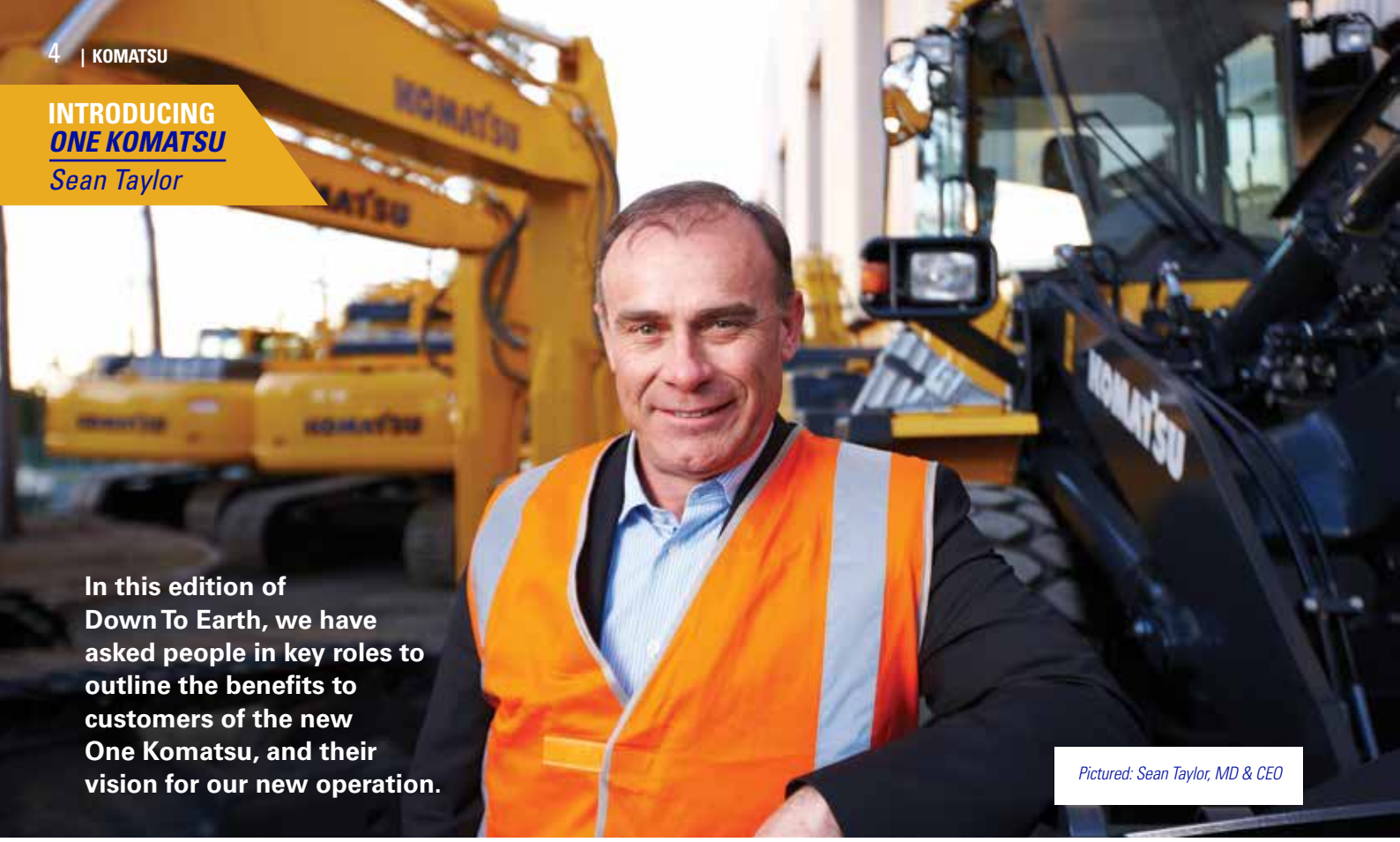
INTRODUCING
ONE KOMATSU
Sean Taylor



In this edition of Down To Earth, we have asked people in key roles to outline the benefits to customers of the new One Komatsu, and their vision for our new operation.

Pictured: Sean Taylor, MD & CEO

ONE KOMATSU – INTEGRATED AND HERE TO SERVE

By now, I'm sure all our customers will be aware that in April 2017, Komatsu Ltd finalised its acquisition of Joy Global, to form a completely new entity Komatsu Mining Corporation.

Our customers now have access to a highly complementary range of products, across mining (surface and underground), construction, quarrying, infrastructure and more from Komatsu.

Komatsu's "traditional" product lines offer new opportunities to Komatsu Mining Corporation customers, while existing offerings include products that can deliver real productivity solutions in construction and infrastructure development.

Now I'm very pleased to be able to announce that we have been working tirelessly to integrate our operations to form a new One Komatsu organisation.

Under One Komatsu, in April 2018 we formed a single organisation dedicated to supplying, servicing and supporting our customers throughout Australia, New Zealand, New Caledonia and Indonesia.

So what does this mean for our customers, both our traditional Komatsu customers, and those who have come to us through their engagement with Joy Global products and services?

Integration with Joy Australasia means that Komatsu Australia, including New Zealand and New Caledonia has gone from around 2,000 to 3,200 employees. This is a massive change for any organisation so careful planning is very important. A fundamental criteria for the integration has therefore been not to disturb our customers' operations during the change. Actually, this directive came from the global HQ and we really appreciate it, focus on cost synergies is probably more usual in these circumstances.

We are pretty much over the main change phase now and with no impact at all on customer service levels. Indeed, we have seen improvement in particular within our surface mining service teams to look after our combined fleets and customers. Over the coming years, we will use this strong foundation to further strengthen our value to you in a number of concrete ways.

> ***"As always our central focus will be delivering quality and reliability in every product line as well as leveraging technology to give you unique and industry leading products."***

By joining Komatsu and Joy technical development and global manufacturing capability, the combined company is in the process of creating a whole which is more than the sum of its parts. This is an area which is particularly exciting. As always our central focus will be delivering quality and reliability in every product line as well as leveraging technology to give you unique and industry leading products. Increased safety and productivity, lower life cycle costs and better sustainability are the value drivers we will focus our efforts on.

An important value driver right now is how we innovate and collaborate together with our customers, suppliers and other stakeholders like governments and local communities. So with this regard we will focus more and more on the value in use of our equipment and services. We will achieve this through bespoke application of digitisation both in mining and construction. We want to empower your teams with data that will enable them to make accurate and timely decisions and move the dial in your business. Both Komatsu and Joy bring to the table exceptional and complementary capabilities in terms of digital innovation.

In a more direct example of value in use, we will continue our market leading focus on autonomy and semi autonomy built into our machines. This also applies to both Mining and Construction applications, improved safety and productivity are at the heart of these innovations.

Finally, the local organisational structure we have decided to fulfil our commitment to you is very simple. Three customer orientated business divisions; Mining, Soft Rock Underground Mining and Construction. Each business will be very focused on customer solutions. Each division will work hand in hand with our vast global resources to ensure the best individual customer solutions are commissioned on your work sites. Each division will also work very closely with each other as One Komatsu to ensure we share best practice and deliver a seamless experience for all of our customers, large and small. We will look to drive cost saving synergies across your supply chains through combined business support administration and streamlined logistics.

We are all very excited here at Komatsu. The future is very bright because we know we will continue to move faster and with purpose to support you.

INTRODUCING
ONE KOMATSU
Chris Cassettari

Pictured: Chris Cassettari, Director Customer Support

> ***As well, these extra skills and resources coming into One Komatsu have allowed us to "insource" a lot of work that the previously separate businesses had to contract out to external suppliers.***

HOW ONE KOMATSU IS DELIVERING MAJOR SERVICE BENEFITS TO OUR CUSTOMERS

With One Komatsu, we have achieved a very successful integration of two service organisations into a single service business team, bringing together what were formerly two organisations that have highly complementary skills and resources for the benefit of our customers.

On the one side, we had our Komatsu Mining Corporation (KMC) business, which contained our Joy, P&H and LeTourneau products, and on the other side our Komatsu Australia business, with our "traditional" line of Komatsu products.

Certainly, we always knew that the Joy Global and Komatsu product lines were highly complementary, but what we have found in our service business is that our service skillsets and expertise have proven to be equally complementary.

In the former Joy Global business, there were very high levels of skill and expertise in servicing and supporting electrical components and in complex and large-scale fabrication works – reflecting the nature of the equipment and its applications. On the Komatsu Australia side, the high skill-levels and expertise were focused around diesel-powered equipment.

The Joy side of the business also has traditionally had very strong project management capabilities, due to the very large sizes of many of its product lines. And with the amount of rebuild work coming up in the next few years from customers across all sides of the business, we are very well placed to handle this work far more effectively.

As a result, due to the highly complementary focus that each organisation had, we now have a far broader base of skills, along with a much wider skillset resulting from the combining of these two companies.

This has meant that the integration of these two service businesses – which has been concentrated in the three major mining states of Queensland, New South Wales and Western Australia – has worked very well for us.

We were fortunate at the time of the integration that both companies had a lot of service-related work on, which meant we were quickly able to use people across what had been previously been two companies.

This has meant a great opportunity for cross-skilling early on, and for people to get used to working as a single team.

It also meant that employees from both sides of the business got a real appreciation of each others' skills, expertise and knowledge.

As well, these extra skills and resources coming into One Komatsu have allowed us to "insource" a lot of work that the previously separate businesses had to contract out to external suppliers.

That has meant that the integration has worked exceptionally well for us – and for our customers – as we very quickly have everyone feeling we are all working in one team.

We have also moved rapidly to have single points of contact for our customers, no matter what line of business they are in, or what is written on the side of the machine.

In addition, we've worked to ensure there are excellent and ongoing career opportunities for everyone within One Komatsu, no matter which organisation they came from originally.

We have placed Joy people with the required skills into key leadership positions within One Komatsu, genuinely working to utilise the best-possible skills across this new integrated organisation.

One measure of the success we believe we've achieved is that our employee turnover levels in our service operations have actually dropped since the integration, compared with what they were previously across the two separate organisations.

We are proud of how this integration has proceeded and how it's worked out – and in fact, we would even encourage customers to talk to our employees about how they view the whole process.

We recognised it was absolutely essential to bring employees from both organisations along with us, because we understand that the key to ensuring our customers receive the highest levels of service is to have employees who are committed, enthusiastic, and who feel valued.

INTRODUCING
ONE KOMATSU
Simon Ridgway

> ***"Komatsu has a very strong offering with its KOMTRAX/KOMTRAX Plus remote monitoring systems – and now through the Joy acquisition has gained access to its Smart Solutions technology."***

MINING INDUSTRY SET FOR NEW OPPORTUNITIES FROM ONE KOMATSU

Pictured: Simon Ridgway, General Manager Mining Technology & Continuous Improvement.

With the formation of One Komatsu, resulting from the integration of the Komatsu and Joy Global operations, we have opened up new opportunities for both sides of the business.

The combined businesses are remarkably complementary, with only a couple of products overlapping, so there is enormous potential to combine the technology innovations developed by both organisations

For everyone at One Komatsu, our main business drivers are mining technology and continuous improvement.

Safety is a key element of this, removing employees from high-risk environment, and moving towards what we call the "Maintainer of the Future", based around autonomous and semi-autonomous equipment across both surface and underground operations.

In fact, for the mining industry in Australia, the next boom is here right now – but it's a technology boom as well as an equipment boom.

The technology driver is increased machine utilisation, production rates and reliability.

It's also allowing a significant step forward, moving away from incorporating equipment redundancy in a fleet purchase, and towards increased asset performance.

That translates from the conventional approach a mine needing a fleet of 10 trucks, would buy 12 machines, keeping two in reserve.

The new approach is to purchase nine machines for what was previously a 10-machine fleet requirement, and drive far more out of each unit through the application of this new technology.

One area where the technology innovations from Joy Global offer enormous potential for traditional Komatsu mining customers is in the field of analytics.

Komatsu has a very strong offering with its KOMTRAX/KOMTRAX Plus remote monitoring systems – and now through the Joy acquisition has gained access to its Smart Solutions technology.

This offers highly advanced analytics, including trends analysis, so we are getting data off our machines within seconds, rather than every few hours.

Then, by using big data, we can apply trends knowledge to that data, so that – rather than getting alarms and alerts – we are getting predictive information, ensuring we know about a failure or machine issue well in advance of it happening.

We've been working on this for the past five or six years, so we are well advanced here in Australia – making One Komatsu one of the most innovative companies in the industry with this technology.

In surface mining, One Komatsus' P&H loading tools also offer tremendous potential for building our business through highly complementary products – and further benefiting our customers.

From the Joy Global side, our focus in surface mining has always been on the loading tools – draglines, rope shovels and large wheel loaders – rather than the haulage side.

Having a truck leave a loading pad with a 400 tonne load and delivering it to a stockpile is a relatively simple task.

But how that 400 tonnes gets on that truck – that's where the biggest efficiencies can come from. This allows us to better manage our customers lowest cost per tonne business drivers.

We are well advanced with maximising the efficiencies of the loading tools from the Joy Global side; now we can focus on getting the Komatsu loading tools – such as the WA1200 loader and hydraulic excavators – to the same point we've achieved with electric shovels, rope shovels, draglines and electric wheel loaders.

For One Komatsu, the important thing to recognise is that the next boom is indeed here; it's not about buying large fleets of equipment at all costs, it's about using the advanced technologies available to our customers that allow them to get the best from their equipment, in the safest possible way.

INTRODUCING
ONE KOMATSU
Dean Gaedtke

Pictured: Dean Gaedtke, Executive General Manager, Construction.

HOW ONE KOMATSU WILL BRING MAJOR BENEFITS TO OUR CONSTRUCTION CUSTOMERS

The creation of One Komatsu following the acquisition of Joy Global by Komatsu Ltd will offer enormous benefits for our construction sector customers – something that may not have been immediately obvious to people.

The immediate assumptions were that the new products and solutions we gained through this acquisition were primarily applicable to mining.

However, it has quickly become evident that we now have a greatly enlarged line-up of products, systems and solutions with applications deep into civil construction and quarrying.

These include:

- Access to the world's leading brand of rock breakers, drill rigs and drifters through our Montabert and Komatsu Black Line ranges.
- Complete crushing and conveying solutions for quarrying and large-scale excavation projects
- A full line-up of underground hard rock mining products with immediate application in the major tunnelling projects underway or in planning around Australia.
- Increased support capabilities across Australia with approximately 1000 more staff, taking our total combined One Komatsu Australia team to more than 3,200 people.
- Increasing our support locations to now 59 locations around Australia, New Zealand, New Caledonia and Indonesia.

Montabert products, recognised as the best in the world in terms of quality and durability, open up many new opportunities for us in quarrying, tunnelling and rock excavation applications.

With One Komatsu's new line of crushing and conveying products, these have typically been seen as products for large port and mining operations.

However, we are beginning to see potential to introduce these products into quarrying and large infrastructure projects – including some unique products that have potential for a number of metropolitan-based deep excavation sites.

> ***"Products such as Joy's line of face shearers, Montabert's drifter products and related drilling and pinning systems, plus underground hard-rock loaders and haulers, open up new opportunities for our involvement in major underground projects."***

Products such as Joy's line of face shearers, Montabert's drifter products and related drilling and pinning systems, plus underground hard-rock loaders and haulers, open up new opportunities for our involvement in major underground projects.

Komatsu has been well advanced on automation and semi automation, through such offerings as autonomous mining trucks, and our iMC-equipped dozers and excavators.

Likewise the Joy product lines bring access to its own automated and semi-autonomous underground mining offerings, and the huge safety advantages in underground projects, taking people away from the work areas.

Komatsu will continue to increase our semi-autonomous and total site digital solutions into the civil construction and quarrying sectors.

And through our Joy Global products, we have gained access to very advanced Smart Solutions analytics technology.

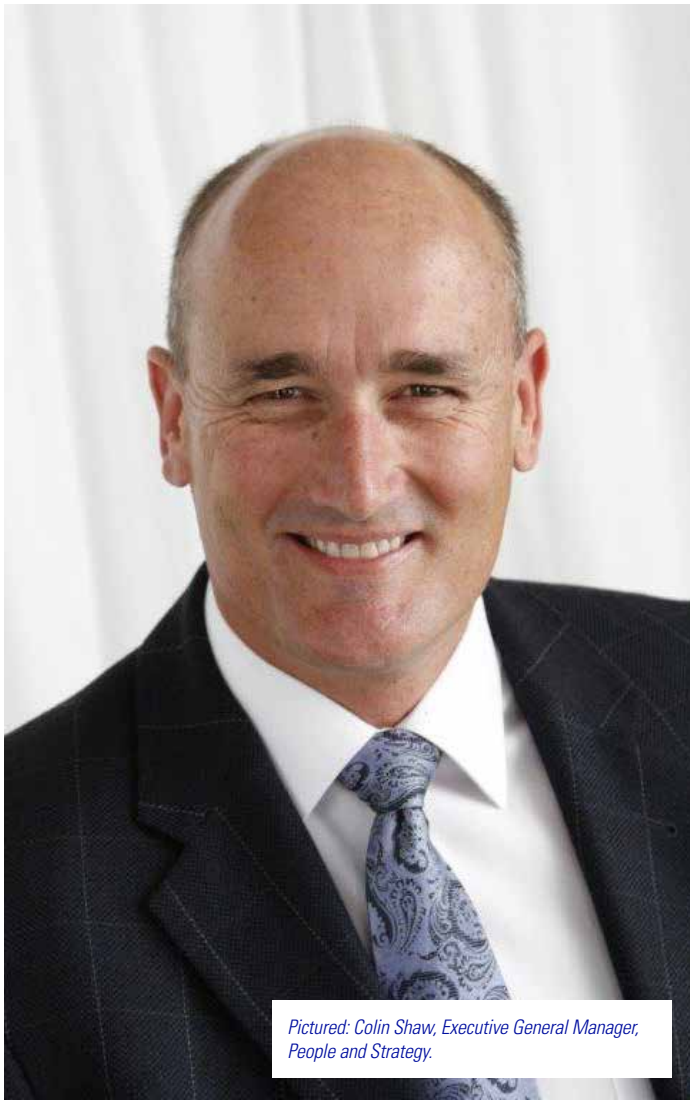
As we continue to move into the IoT (internet of things) space, we are seeing an increased demand for single platform offerings of this technology – and it's not too much of a stretch to see our combined Komatsu and Joy Global offerings moving to a common platform in the future.

For our customers across the various construction industry sectors, the creation of One Komatsu is opening up unique opportunities to take advantage of the most advanced technologies available.

INTRODUCING
ONE KOMATSU
Colin Shaw

> ***"We are very strongly of the view that, the more closely you engage your people and your managers, the better your customer satisfaction levels."***

SAFETY AND EMPLOYEE ENGAGEMENT: OUR KEY DRIVERS FOR CUSTOMER SATISFACTION



Pictured: Colin Shaw, Executive General Manager, People and Strategy.

Employee engagement and safety drive everything we do at One Komatsu – and this approach helps us achieve the highest levels of customer satisfaction in the industry.

Ensuring that our current and future employees are engaged, committed and enthusiastic about One Komatsu is key to ensuring that we continue to deliver high levels of customer satisfaction.

Both Komatsu and Joy Global in their previous incarnations were very strongly customer-focused organisations, and now with more than 3,200 employees across Australia, New Zealand, New Caledonia and Indonesia we are closer to more customers in more market segments than ever before.

This opens up far more opportunities for solutions that we can offer mining customers, both in coal and hard rock. We can now provide complete end-to-end solutions for any mining project, from the largest iron ore or coal mine, to the most challenging underground coal or hard rock mine.

Across all mining sectors, we have proven expertise in automated, semi-automated and remote control systems, ensuring we now offer the highest standards in safety, production and mine efficiency.

In addition, many of our mining products offer new opportunities for our civil construction and quarrying customers, whether Montabert rock breakers and drills, underground hard rock products in civil tunnelling projects, or crushing and conveying solutions for quarrying and large infrastructure projects.

And at One Komatsu, the critical factor in achieving our key goals of customer focus and industry-leading safety is a dedicated, committed and engaged workforce.

We are very strongly of the view that, the more closely you engage your people and your managers, the better your customer satisfaction levels – and I'm very happy to report that both our employee engagement and our customer satisfaction levels are at all time highs.

It's thanks to the commitment, enthusiasm and professionalism of our existing workforce and management that we are achieving these outstanding results – and our ongoing recruitment programs are designed to build on these and develop them even further.

Whenever we recruit for One Komatsu, we are recruiting for a good fit with Komatsu values, and also the Komatsu family – a relationship we recognise goes both ways: both the "family" of Komatsu people and fellow workers, and also the families of each of our employees.

An important development in achieving this family fit is through our diversity and inclusion (D&I) program, under which we are working towards 21% total female employment within One Komatsu by 2021.

We are on track towards achieving this, given we are currently at 14.8% female participation – a figure that has jumped significantly in the past year.

The advantages of a successful D&I approach include increased diversity of thought, higher productivity and improved employee engagement.

Over-riding everything we do at One Komatsu is our focus on safety; our focus as a new organisation is always to be safe, and we aim to be an industry leader here.

We also recognise safety is not just about our employees, our contractors and our customers at work, but also extends to outside work, and at home.

We are also focusing on our employees' mental health. This not only recognises that as workloads increase, stress levels can increase, but also that one-in-five Australians have a mental health issue.

These approaches have all been helping us improve our safety figures year on year, a trend which has been continuing since the integration of Komatsu and Joy Global.

At One Komatsu, we believe that if we get these basics right: our focus on safety and employee engagement, then our customers will benefit strongly through dealing with committed and enthusiastic Komatsu employees best able to offer, deliver and support the industry's broadest range of products and services.

Pictured: Komatsu's Mt Isa branch has moved into modern new premises, giving a major boost to its service and support capabilities.

> ***"Komatsu has been supporting the Mt Isa region for over 20 years, backed by centralised technical support, and we are delighted to now be offering a significantly upgraded service and support facility for our customers here."***

KOMATSU BOOSTS GULF REGION CAPABILITIES WITH NEW MT ISA FACILITIES

In January this year, Komatsu moved into new premises in Mt Isa, Queensland, giving it significantly enhanced capabilities in servicing and supporting its mining – both surface and underground – and construction customers in the region. The branch is supervised by Jason O'Brien.

According to Jason, the new branch, which represents a significant improvement over its previous Mt Isa operation, includes a 600 sq m workshop incorporating two 50 sq m work-bays and a 10 tonne overhead crane, a 600 sq m parts warehouse with over 1500 line items in stock, as well as office and support facilities.

"Our service and support capabilities at Mt Isa now include machine midlife and full rebuilds, component repairs and rebuilds, field service and repairs, and onsite labour hire," said Jason.

In addition to parts holding for Komatsu's own products, stocks on hand include a range of aftermarket parts, including Exide batteries, Hella and Ionic lights, Fleetguard filters, undercarriage parts (both Komatsu OEM and aftermarket), ground engaging tools (OEM, KVX, Hensley and aftermarket) and hydraulic hoses and components (OEM and Pirtek).

"Our two fully equipped 50 sq m work bays include a 10 tonne overhead crane, allowing us to carry out all types of repairs and servicing of equipment, ranging in size from utility machines to 100 tonne trucks and 130 tonne excavators," he said.

"In addition, our onsite cylinder repair bench means we can carry out hydraulic cylinder repairs for any size machine."

Kris Burford, Komatsu's Regional General Manager – Northern, said Komatsu's Mt Isa branch, which currently employs four field service fitters, is looking to engage more as demand increases. The branch also has three site-compliant field service vehicles, a 4WD truck with HIAB crane and two 4WD Hilux utes.

"We have set up Mt Isa to be a fully self-sufficient operation, capable of all repairs from servicing, breakdowns and general repairs through to full machine rebuilds," said Kris. Komatsu's customer base in the Mt Isa region includes copper, lead, zinc and gold mining, construction and rural operations.

"As a result of Komatsu's formation of Komatsu Mining Corporation through our acquisition of Joy Global and its range of surface and underground mining equipment, we have significantly increased the range of products and applications that we now service and support," he said.

"This includes the ability to support and service Komatsu raiseboring drill systems and conveyor systems, and we will be further developing our support capabilities around additional hard rock underground mining equipment that we look forward to introducing in the region."

Address: Located at 3/23-25 Northridge Road, Kalkadoon QLD 4825

Above photos: Komatsu's new Mt Isa facility includes a much larger workshop area, two work-bays, a 10 tonne overhead crane, and upgraded warehousing, office and support facilities.

Pictured: With its market leading use of technology to drive customer support, Komatsu is offering exciting opportunities for those looking to careers as service and support technicians.

KOMATSU STARTS MASSIVE CAREER DRIVE

Mining, Construction, and Utilities giant Komatsu has begun its biggest ever recruiting drive to employ technicians across Australia, New Zealand and New Caledonia.

They will join more than 3,200 people already working for Komatsu.

The highly structured campaign, thought to be the most targeted ever in the industry, is intended to identify and provide opportunity for highly capable technicians who want to be part of the machinery sector and take advantage of global opportunities in the future.

It is being conducted in regional areas to overcome industry negatives of family dislocation and concerns about job longevity which are traditionally associated with FIFO operations.

Suitably qualified recruits are being offered careers close to their homes in a purposeful drive to achieve a satisfying work-life balance.

The campaign comes on the back of a rapid upturn in construction, utilities and mining after a period in which the industry had been left with a skills shortage, especially amongst the next generation of technicians.

Komatsu has identified related industries such as the military, marine and aeronautic sectors as well as the passenger vehicle, and light and heavy commercial vehicle markets as catchment areas for potential candidates.

We intend to create a truly inclusive and diverse workforce which will collectively work towards creating new and innovative ideas that sustains Komatsu into the future. We know our industry needs to be more receptive of this and in particular increasing our female workforce is a key part of our diversity and business growth strategy.

The company runs an in-house Komatsu Training Academy spanning a multitude of applications, including new high technology machinery and business programs.

Its GPS based KOMTRAX system, SMARTCONSTRUCTION programs and aspects of its Information Communications Technology (ICT) protocols have achieved industry leading standards in technology-based solutions.

"The days of a machinery technicians being reliant on a spanner and mechanical tools are passing us by for a more innovative technology future," Colin Shaw, Executive GM People and Strategy said.

"Mobile technology is the new tool of choice for trouble shooting diagnosis and improving the productivity of our intelligent machines."

> ***"Skills gained in the Komatsu system are valued in the open market and are transferable to other occupations, although it is our intention not to lose people we've trained."***

Part of the recruitment drive is based on providing applicants with upskilling opportunities which can turn jobs into life-long careers, Colin said.

"Skills gained in the Komatsu system are valued in the open market and are transferable to other occupations, although it is our intention not to lose people we've trained."

According to Komatsu internal polling the company tests highly as an employer of choice amongst its current employees and those seeking to join.

"Family values and a culture of inclusion have become a hallmark of Komatsu employment," Colin said.

Initial recruits have been both successful and unusual.

Alex Henley-Baker, 25, a qualified jeweler has made a complete career switch to become a first year Komatsu electrical apprentice.

"Electrical engineering has become the future of all industry, "she said.

"A Komatsu qualification allows me to go anywhere in the world, most likely with the same company."

KOMATSU RELEASES

25 NEW MACHINES!

In May this year, Komatsu Australia rolled out new-generation engines that use less fuel, deliver more power, and increase operating efficiency, a development that resulted in it launching an unprecedented 25 new machines across excavators, loaders, trucks and graders – the largest in its history.

All the new machines feature new electronic control systems that ensure engine power, hydraulic requirements and transmission output are all optimised – resulting in fuel consumption savings of between 5% and 15% – depending on models and applications, according to Dean Gaedtke, Komatsu's Executive General Manager, Construction.

"At the same time, Komatsu has introduced enhanced visibility and control over key operating parameters through significant upgrades to our telematics capabilities," said Dean.

> ***"With this new machine release program, Komatsu now offers the industry's most comprehensive lineup of construction machines."***

In addition, the new models incorporate Komatsu's unique Tier 4 Final engine technology to reduce emissions levels by 90% compared with their previous-generation Tier 3 equivalent machines, while also delivering industry-leading engine reliability and performance.

"With this new machine release program, Komatsu now offers the industry's most comprehensive line-up of new technology engine powered machines.

"As well, all our new machines take advantage of our latest developments in its KOMTRAX Step 5 telematics-based remote monitoring system to deliver owners and fleet managers even more data about key operating criteria," he said.

"And with government agencies, as well as leading contractors and builders, increasingly demanding that contractors and subcontractors use Tier 4 Final-compliant equipment on their projects, Komatsu customers can give themselves a real competitive advantage when they purchase our new technology machines."

The latest generation Komatsu machines launched at Komatsu's BOOTS ON industry and customer event in the Hunter Valley in May – and attended by customers throughout Australia, New Zealand and New Caledonia – included the following:

Short-tail Mini Excavators	PC30MR-5	PC35MR-5	PC45MR-5	PC55MR-5
Short-tail Midi Excavators	PC78UU-10	PC88MR-10		
Short-tail Construction Excavators	PC138US-11	PC228US-11		
Construction Excavators	PC240LC-11	PC290LC-11	PC360LC-11	
Heavy Construction / Quarrying Excavator	PC490LC-11			
intelligent Machine Control	PC360LCi-11			
Hydrostatic Drive Toolcarrier Loaders	WA270-8	WA320-8		
General Purpose Loaders	WA380-8	WA470-8		
Production Loaders	WA500-8	WA600-8		
Grader	GD655-6			
Articulated Dump Trucks	HM300-5	HM400-5		
Rigid Frame Dump Trucks	HD405-8	HD605-8		

Pictured: Our BOOTS ON releases included a complete new line of general purpose, sales and production loaders.

Pictured: BOOTS ON let our customers see the benefits of the latest Komatsu technology, including intelligent Machine Control, better fuel consumption, and improved productivity.

New engine technologies

According to Charles Wheeldon, Komatsu's General Manager Construction & Utility, the company's new technology engines include a number of innovations that help contribute to lower fuel consumption, increased power and operational efficiency, and markedly lower emissions.

"They incorporate Komatsu proprietary technologies developed over many years to reduce emissions levels," he said.

Technologies introduced in these new engines include:

- A heavy-duty after-treatment system
- An advanced Electronic Control System
- A heavy-duty cooled Exhaust Gas Recirculation (EGR) system
- A Komatsu Variable Geometry Turbocharger (KVGT) system
- Heavy-duty High-Pressure Common Rail (HPCR) fuel injection system

Heavy-duty after-treatment system: This new system combines a Komatsu Diesel Particulate Filter (KDPF) and Selective Catalytic Reduction (SCR), which injects the correct amount of Diesel Exhaust Fluid (DEF) at the required rate, thereby decomposing NOx into non-toxic water vapour (H2O) and nitrogen gas (N2).

Heavy-duty cooled exhaust gas recirculation (EGR) system: The EGR system in Komatsu's new technology engines recirculates a portion of exhaust gas into the air intake and lowers combustion temperatures, thereby reducing NOx emissions. EGR gas flow has also been decreased on these engines through the addition of SCR technology, dramatically reducing NOx, while helping cut fuel consumption below levels on previous-generation machines.

Advanced electronic control system: The electronic control system on Komatsu's latest engines performs high-speed processing of all signals from sensors installed in the machine, providing total control of all components.

Engine condition information is displayed on the monitor inside the cab, providing all necessary information to the operator, as well as being uploaded to KOMTRAX for ongoing monitoring by machine owners and fleet managers.

Komatsu variable geometry turbocharger (KVGT) system: The KVGT system incorporates proven Komatsu design hydraulic technology for variable control of airflow, supplying the optimum amount of air according to load conditions. This upgraded version also provides better exhaust temperature management.

Heavy-duty high-pressure common rail (HPCR) fuel injection system: Designed to achieve an optimal injection of high-pressure fuel digitally, this system ensures near complete combustion, significantly reducing PM emissions.

"In addition to these technologies, all our new engines incorporate mode selection systems that help best match engine, hydraulics and/or transmission output to different applications – further contributing to lower fuel consumption," Charles said.

KOMTRAX Step 5 technology

"The latest KOMTRAX Step 5 telematics-based remote monitoring system on our new generation machines gives owners and fleet managers unprecedented visibility and up-to-date operating data on their equipment," he said.

"It's the most sophisticated version of KOMTRAX to date, designed to provide equipment managers with data that increases their peace of mind, knowing that the advanced technologies incorporated in today's equipment are working reliably to deliver operational efficiencies."

KOMTRAX Step 5 technology has been developed to ensure that key operational criteria of these engines are all working correctly, delivering data reporting on:

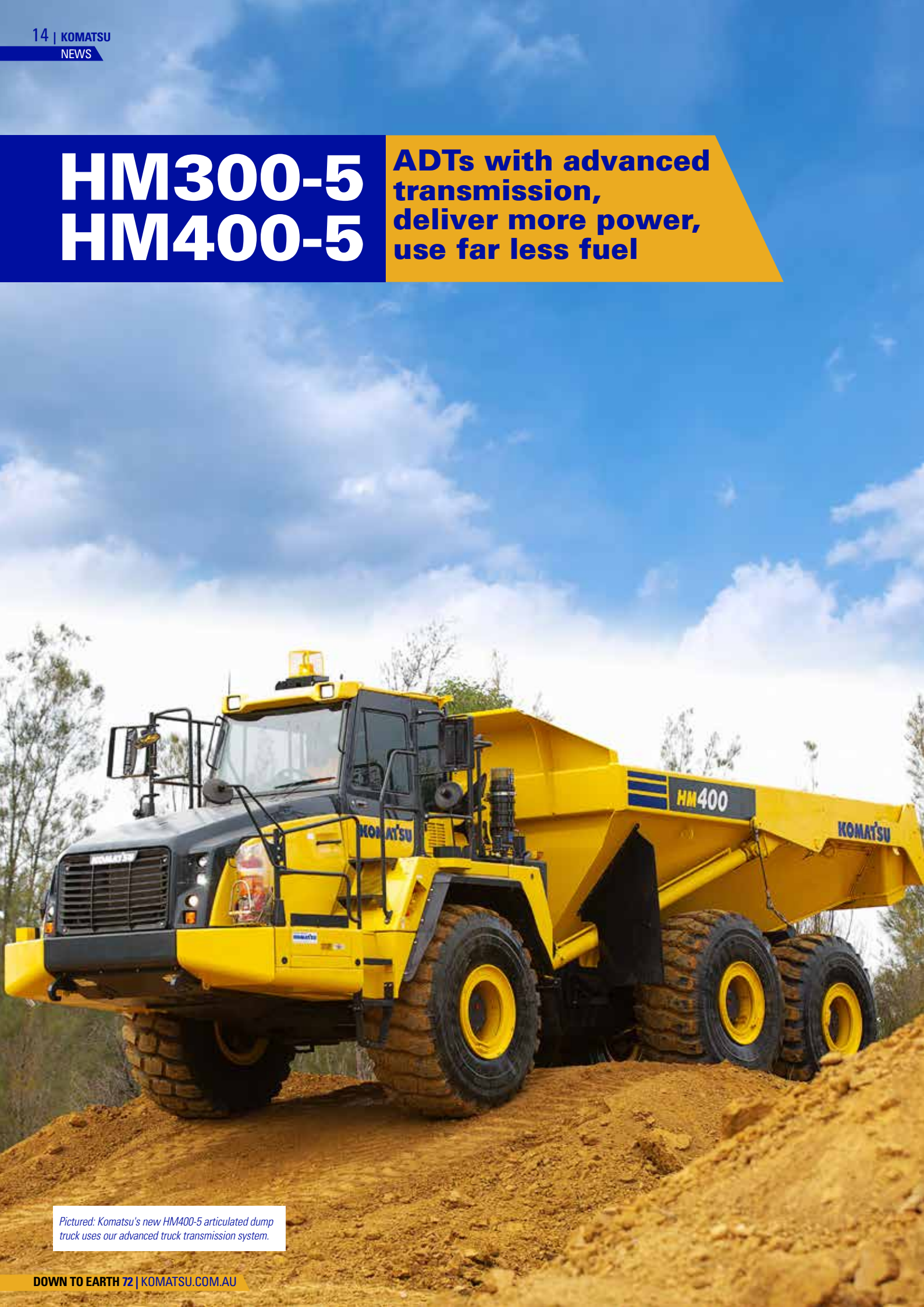
- Komatsu Diesel Particulates Filter (KDPF) soot count
- Active KDPF soot removal regeneration time and fuel used
- Any KDPF cautions
- Diesel Exhaust Fluid levels.

It also includes enhanced reporting abilities on:

- Machine travel hours and distances
- Working modes
- Cycle times
- Maximum speeds

HM300-5 HM400-5

ADTs with advanced transmission, deliver more power, use far less fuel



Pictured: Komatsu's new HM400-5 articulated dump truck uses our advanced truck transmission system.

Pictured: The new HM300-5 ADT has a capacity of 28 tonnes.

Komatsu has released two new articulated dump trucks, the 28-tonne capacity HM300-5 and 40-tonne capacity HM400-5, both powered by new technology engines and featuring Komatsu's advanced truck transmission system.

The 28 tonne capacity HM300-5 is powered by Komatsu's SAA6D125E-7 engine rated at 242 kW net, while the 40 tonne HM400-5 is powered by the SAA6D140E-7 rated at 348 kW net.

According to Richard Feehely, Komatsu Australia's National Business Manager, Quarries, Komatsu's latest engines monitor and transmit far more detailed data about engine conditions and operation, giving unmatched visibility into the health of equipment – and any potential issues.

"And through our in-house development and production of engines, electronics, and hydraulic components all designed to work with each other, Komatsu has achieved major advances in technology, providing high levels of performance and efficiency across all applications," he said.

In addition, both engines are US EPA Tier 4 Final emissions certified, cutting both nitrous oxide (NOx) and particulate matter (PM) emissions by 90% compared with their Tier 3 equivalents, while delivering up to 14% lower fuel consumption compared with previous models.

The two new trucks feature Komatsu's advanced truck transmission system, including its electronically controlled K-ATOMICS countershaft transmission which is also used on large mining trucks, and the Komatsu Traction Control System (KTCS).

"Both these features are unique to Komatsu articulated dump trucks and, combined with our hydraulically controlled wet multiple-disc brakes and retarder system, provide unrivalled traction, braking power and safety in all types of operation," Richard said.

The two trucks also incorporate Komatsu's exclusive hydraulic braking and retarder system, which ensures complete control even when doing downhill fully loaded.

"Large-capacity, continuously cooled, wet-multiple disc brakes, which have been proven on other Komatsu rigid dump trucks, also function as a highly responsive retarder, giving the operator full control when travelling downhill," said Richard.

For more information and technical details of these new machines, please visit www.komatsu.com.au

> ***"The two new trucks feature Komatsu's advanced truck transmission system, including its electronically controlled K-ATOMICS countershaft transmission which is also used on large mining trucks, and the Komatsu Traction Control System"***

Brief specs of Komatsu's new Dash 5 range of ADTs

ADT Range	Payload Capacity	Body Capacity (SAE heaped 2:1)	Engine Tier 4-compliant	Maximum Travel Speed	Tyres	Loading Height	Width	Overall length
HM300-5	28 tonnes	17.1m^3	SAA6D140E-7 engine rated 242 kW net at 2000 rpm	58.6km/h	23.5 R25	2,830mm	2,900mm	10,275mm
HM400-5	40 tonnes	24m^3	SAA6D125E-7 engine rated 348 kW net at 2000 rpm	55.9km/h	29.5 R25	3,164mm	3,450mm	11,105mm

SHOWING THE WAY TO EARTHMOVING'S FUTURE THROUGH TELEMATICS INNOVATIONS

Komatsu's release of 23 new technology engine-powered earthmoving machines not only highlights its engines, but also its accelerating use of telematics* to drive the future of this industry.

Komatsu's latest product releases incorporate its KOMTRAX Step 5 remote monitoring capabilities, giving machine owners and fleet managers unprecedented access to very detailed data about every aspect of a machine's operation – all available online via computer, smartphone or tablet 24/7, said Todd Connolly, Komatsu's General Manager – Construction Solutions.

Komatsu manages the data coming from KOMTRAX through its investment in a major ICT facility, the INSITE Fleet Management Centre at its Fairfield headquarters in Sydney.

"Our investment in ICT has significantly changed the way we interact with our customers throughout the region," said Todd.

"It allows us to harness the power of our KOMTRAX systems, working in conjunction with other analytical and communications tools, to help increase machine safety, productivity, uptime and availability – and reduce customers' costs per tonne, no matter where they operate.

"That data, combined with Komatsu's analytical and predictive capabilities based on millions of machine hours data, allows us to work with our customers to help ensure their Komatsu equipment is always working at its optimal best."

> ***"In the past 18 months, we've introduced our integrated 'intelligent Machine Control' concept, which allows machines such as excavators and bulldozers to excavate, bulk out and trim – in high-precision complex 3D designs."***

But remote monitoring is only one element in Komatsu's telematics capabilities, he said.

Komatsu is a pioneer in semi-automation – as a first step towards full automation – of complex earthmoving activities, such as digging, excavating, levelling and grading to high levels of precision.

"In the past 18 months, we've introduced our integrated 'intelligent Machine Control' concept, which allows machines such as excavators and bulldozers to excavate, bulk out and trim – in high-precision complex 3D designs," Todd said.

"Customers who've used this technology are seeing massive benefits from it, and we are already seeing multiple repeat orders from contractors and plant hirers throughout Australia and New Zealand."

More recently Komatsu has rolled out SMARTCONSTRUCTION, a completely new concept in construction technology with the potential to really change the face of the earthmoving industry – and the way it goes about its business.

"SMARTCONSTRUCTION improves site process and productivity, machine control management, machine interconnectivity and review of project progress during the construction phase, and culminating in development of detailed as-built information for future construction and infrastructure maintenance," he said.

"All these offerings mean that Komatsu today is unique in our ability to provide customers with a complete suite of fully integrated, end-to-end range of cutting edge telematics-based products, services and solutions across every aspect of a project, and the life of the machines working on those projects.

"It gives our customers a real edge in today's increasingly competitive and challenging construction and resources extraction environment," Todd said.

Pictured: Komatsu's INSITE Fleet Management Centre at its Fairfield headquarters manages and displays all KOMTRAX data generated by machines throughout Australia, New Zealand and New Caledonia.

**Telematics encompasses telecommunications; machine technologies; transportation and safety; sensors, instrumentation and wireless communications; information communications technology (ICT); and global positioning technology.*

"Operator assistance features include an automatic digging system, a remote bucket and boom positioning system for fast changeover of attachments or buckets, and automatic kickdown that downshifts to first gear on entering a pile."

Pictured: The new WA500-8 is designed for production applications, using less fuel than its predecessors while increasing productivity and operating efficiency.

WA500-8 WA600-8

Latest Komatsu production loaders cut operating costs, boost performance

Komatsu has released upgraded new technology engine-powered versions of its WA500 and WA600 production loaders, with enhancements that see them consuming less fuel while delivering increased productivity and operating efficiency.

The new WA500-8, powered by a Komatsu SAA6D140E-7 engine rated at 264 kW net, has operating weights of 36.9-38.2 tonnes (depending on configuration) and can handle buckets from 4.5-7.0 cu m.

The new WA600-8 is powered by a Komatsu SAA6D170E-7 engine rated at 395 kW net, is available with operating weights from 55.4-57.5 tonnes and takes buckets from 6.4-7.8 m.

Both machines deliver fuel savings of up to 15% compared with their predecessors, said Richard Feehely, Komatsu Australia's National Business Manager, Quarries.

"An electronic control system constantly carries out high-speed processing of all signals from sensors installed in the engine and the machine, providing total control of all components," he said.

"Engine condition data is displayed on the monitor inside the cab, and is also uploaded via our KOMTRAX telematics remote monitoring system."

In addition, these new Tier 4 Final certified engines reduce NOx and PM levels by up to 90% compared with their Tier 3 predecessors.

The WA600-8 also features Komatsu's KOMTRAX Plus, designed for production machines, enabling expanded monitoring of a fleet via satellite and wireless LAN.

Higher productivity and operating efficiency are achieved through the loaders' integrated drivetrain, hydraulics and redesigned bucket," said Richard.

"Operator assistance features include an automatic digging system, a remote bucket and boom positioning system for fast changeover of attachments or buckets, and automatic kickdown that downshifts to first gear on entering a pile."

Both loaders are supplied with joystick steering as standard, allowing all steering and forward/reverse travel to be controlled by wrist and finger control to further minimise operator fatigue. Previous models of the WA500 were equipped with steering wheel, which is now an option on the WA500-8.

For more information and technical details of these new machines, please visit www.komatsu.com.au

Brief specs of Komatsu's new Dash 8 range of Wheel Loaders:

Dash 8 Wheel Loader Range	Operating Weight (tonnes)	Engine Tier 4-compliant	Transmission	Large-capacity Torque Converter	Bucket Capacity Range	GP Bucket static Tipping Load	Bucket Digging Force	Dump Clearance
WA500-8	36.9 – 38.2	SAA6D140E-7 engine rated at 263kW	automatic full powershift with lockup torque converter	maximum speeds F/R, 37.3/38km/h	4.5 – 7.0m^3	40° full turn 25,365kg	24,600kgf	4,755mm
WA600-8	55.4 – 57.5	SAA6D170E-7 engine rated at 395kW	automatic full powershift with lockup torque converter	maximum speeds F/R, 37.7-41km/h	6.4 – 7.8m^3	40° full turn 32,675kg	39,500kgf	5,665mm

"Overall, with these two machines we are seeing up to 5% lower fuel consumption, combined with up to 3% higher productivity."

Pictured: Komatsu's new zero-swing mid-size excavators bring higher productivity while using less fuel.

PC78UU-10 PC88MR-10

New mid-sized Komatsu zero-swing excavators have more power, use less fuel

Komatsu has released two zero-swing mid-size excavators powered by its new engine technology: the 7.94 tonne PC78UU-10 and the 8.75 tonne PC88MR-10, that deliver higher productivity and power while consuming less fuel than their predecessors.

Both are powered by a Komatsu SAA4D95LE-6 engine, rated at 49 kW for each machine, and feature new engine and hydraulic system control technology to reduce fuel consumption and significantly increase worksite efficiency.

According to Carl Grundy, Komatsu's National Sales Manager – Utility, the two new excavators incorporate significant technology and performance advances over their Dash 8 predecessors.

"These two excavators have been renowned for being incredibly versatile and productive machines, ideally suited for excavation, rock work and services placement in confined urban areas; with these latest improvements, they are even more productive and efficient, while being less expensive to own and operate," he said.

"Both new units are built with tight access in mind, the PC88MR-10 – MR stands for 'minimum radius' – with its swing boom design has a tailswing protrusion of just 325 mm while the PC78UU-10 – UU is for 'ultra urban' – features an offset boom design ideal for the tightest worksite.

"Our environmentally friendly Komatsu SAA4D95LE-6 Tier 4 Final engine drastically reduces emissions compared with the previous machines' Tier 3 engine, while reducing fuel consumption by up to 5%."

To achieve their higher power and lower emissions, while also lowering fuel consumption, the engines include newly designed variable flow turbochargers, cooled exhaust gas recirculation, a Komatsu diesel oxidation catalyst, and an advanced engine control system.

"With this engine design there is no need for DEF (Adblue) or a diesel particulate filter (DPF), further reducing maintenance and running costs of these machines," said Carl.

This advanced electronic control system also incorporates enhanced reporting and diagnostic capabilities, with detailed engine condition information displayed via an on-board network to the monitor inside the cab, providing all necessary operating data to the operator.

Additionally, this data can be accessed and managed via the KOMTRAX telematics remote monitoring system (supplied as standard on all Komatsu construction and utility machines), ensuring owners and fleet managers stay well on top of all maintenance requirements.

Komatsu has also increased engine power 16% on the PC78UU-10, for higher site productivity.

Both machines incorporate new Komatsu technology to enhance the engine and hydraulic pump control.

"Our total control system matches the engine and hydraulics at the most efficient point under any load condition," Carl said.

"At the same time, there have been improvements in the main valve and hydraulic circuits to reduce hydraulic loss, resulting in higher efficiency and lower fuel consumption.

"Overall, with these two machines we are seeing up to 5% lower fuel consumption, combined with up to 3% higher productivity."

To further improve jobsite productivity and efficiency, both machines offer six working modes: power, economy, lifting, breaker, attachment power and attachment economy mode.

"Each mode is designed to match engine speed, pump flow, and system pressure to the application, so that the most efficient combination of engine and hydraulic power is used," he said.

"We've also included some operator aids to encourage fuel-efficient operation at all times.

"These include an ECO gauge to assist in reducing fuel consumption during operation, a idling caution if the engine idles for more than five minutes, and idle auto stop function that automatically stops the engine if it idles for more than a set period of time."

Both machines are fitted with integrated ROPS cabs with OPG2 protection offering ample operator space, and with wide doorways for easy access. An automatic air conditioning system is standard, as is a colour reversing camera.

For ease of maintenance, component access has been optimised with all major maintenance points accessible from ground level, while remote mounting of the engine oil filters, main fuel filters and fuel drain valves simplifies these tasks.

"Our two new mid-size zero-swing excavators have long set the industry standard in this class of machine; the improvements and advances with these Dash 10 models make them even more productive and efficient, while being significantly cheaper to own and operate," said Carl.

For more information and technical details of these new machines, please visit www.komatsu.com.au

Brief specs of Komatsu's new range of short-tail Midi excavators

Excavator Range	Operating weight	Engine Tier 4-compliant	Bucket Size Range	Maximum Dig Depth	Bucket Digging Force	Arm Crowd Force
PC78UU-10	7,940kg	SAA4D95LE-6 rated at 50kW	0.28 - 0.34 m^3	4,230mm	6,250kgf	4,230kgf
PC88MR-10	8,750kg	SAA4D95LE-6 rated at 50kW	0.28 – 0.34 m^3	4,110mm	6,250kgf	4,230kgf

Pictured from left: Dean Gaedtke (Komatsu Executive General Manager, Construction), John Salmon (Salmon Buckets + Attachments), Kye Floyd (Ontrax Excavations), Brad O'shannassy (Komatsu Utility Sales Account Manager) and Sabina Tagscherer (Salmon Buckets + Attachments).

NEW CUSTOMER KYE WINS PC18 AT BOOTS ON

One of Komatsu's newest customers was the proud winner of a PC18MR-3 mini excavator resulting from his attendance at BOOTS ON in May.

Kye Floyd, who owns and operates Ontrax Excavations on Queensland's Sunshine Coast, had ordered one of our new PC55MR-5 Tier 4 excavators, and was awaiting delivery.

Brad O'Shannassy, our Queensland Utility Sales Account Manager, invited Kye to attend BOOTS ON – where he won the PC18.

Kye, who's been in business around two years, carries out mainly detail excavation works for commercial and residential developments throughout the Sunshine Coast region.

He'd previously had another make of excavator, but decided to make the switch to Komatsu.

"I went for Komatsu for its quality, operator comfort and efficiency," he said.

"I've only had my new PC55 for a few weeks, but I love it. It's smooth, quiet and very nice to operate."

In addition to a full set of Komatsu buckets, the excavator also has a Komatsu Genuine Attachments (KGA) power-tilt hitch.

He's also been impressed with his prize PC18MR-3.

"Having that is a bit of a bonus," he said. "I might put an operator on it, but for now it's good to have as a backup. I've used it for a bit of landscaping work, and it's a powerful little machine, I can tell you!"

Pictured: Brad delivering Kye' his price – a brand new PC18MR-3.

Moranbah just broke their weekly and daily production records of 53K tonnes and 290k tonnes respectively.

Pictured: Delivery of a new Joy VSD Optidrive armoured face conveyor to Moranbah North Mine in Queensland.

MORANBAH NORTH MINE CHOOSES JOY VSD OPTIDRIVE™ IN MAJOR ACHIEVEMENT FOR KOMATSU

We are delighted to announce Komatsu has recently delivered the first Variable Speed Drive (VSD) Joy OptiDrive™ Armoured Face Conveyor (AFC) in Australia to Moranbah North Mine.

Until this delivery, all recent Australian AFCs have used fixed-speed electric motors. The VSD allows the speed of the AFC chain to vary, reduces shock loading on AFC startups, has the ability to improve productivity by smoothing out AFC coal output, while benefiting from reduced wear and power consumption.

Unlike other VSD systems, Joy's OptiDrive™ motor has the controller integral to the motor, making a more compact VSD package. The Joy OptiDriveTM system also provides enhanced maintenance functions including chain breakage protection and maintenance inspection speed.

Komatsu and Anglo's Moranbah North worked closely under the Komatsu/Anglo American partnership to address the many challenges of introducing this technology to the Australian market.

After extensive analysis, Moranbah North chose Joy OptiDrive™ as the best VSD solution for its AFC.

In conjunction with the existing partnership, major sub-contractor Ampcontrol was charged with developing a new electrical supply system that complied with regulations associated with Australian underground mining.

This ultimately lead to close cooperation between Komatsu, Ampcontrol, Moranbah North and the Queensland Mines Inspectorate.

Supported by Komatsu personnel from the UK and Australia, along with service engineers and technical experts from Germany, a Joy OptiDrive™ system was successfully integrated and commissioned onto the existing longwall system during overhaul and upgrade at Komatsu Parkhurst facility for Moranbah North Mine.

The overhauled longwall system for Moranbah North included the coal clearance system, shearer and a number of face-end and run-of-face roof supports.

The additional inclusion of three Joy OptiDrive™ VSD's onto the existing AFC system demanded structural changes to frames, equipment layout and cable management on the equipment.

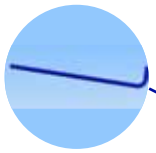
Other significant inclusions were the installation of a new set of increased-height down drives to the shearer, which have allowed increased coal flow under the shearer chassis during coal production, as well as the assembly and delivery of a complete new AFC pan line manufactured at our plant in China.

The OptiDrive™ system was delivered to Moranbah North Mine site and started production underground in July 2018. It assisted Moranbah North to produce close to 1 million tonnes of coal in the first month of operation.

Several other exciting features have also been introduced on this latest longwall installation and the team will report on those in a future issue.

A special thanks to all involved in making this introduction of OptiDrive™ to Australia a success and helping Komatsu moving mining **> FORWARD**.

KOMATSU TEAM DEVELOPS INNOVATIVE SOLUTION TO UNDERGROUND COAL MINING SHUTTLE CAR



Insertion tool

Staple

Staple installation with jack extended

Pictured: Jianjun Han conducting testing of the first completed service jack in the Parkhurst hydraulic shop.

Team members at Komatsu's Parkhurst facility in Central Queensland have developed an innovative solution to significantly improve the serviceability and maintenance of underground coal mining shuttle cars.

Shuttle cars have been used for the transportation of coal from the continuous miner to the conveyor system in the underground coal industry for well over 50 years. Prior to the installation of service jacks to shuttle cars becoming an industry standard many years ago, maintenance tasks were frequently undertaken using what were often precarious methods of supporting the shuttle car.

Today's shuttle car now incorporates as standard fitment four hydraulically operated service jacks, two at each end, designed to raise the car for maintenance, including changing of the wheels when required. A key requirement when the shuttle car is raised, is to ensure that the service jack cannot retract under load, which would result in the shuttle car lowering back to the ground. To prevent this happening, "safety collars" are installed to the extended cylinder rod to prevent inadvertent retraction of the cylinder.

There have been a number of designs of safety collars over the years, all with two main issues: weight, and accessibility for installation, particularly at the front end of the shuttle car. Safety collars can weigh up to 40 kg, which raises a major handling issue during the installation process. To reduce the handling issue, several shuttle car operators have sourced safety collars made from composite materials which are significantly lighter than traditional steel products. However, the downside to these composite safety collars is their cost and longevity. Typically, composite collars require replacement every 12 months due to the breakdown of the high-tech materials used and four per shuttle car become an expensive option.

Enter Komatsu's Parkhurst engineering team, based near Rockhampton, in Central Queensland, in developing an alternative, more user-friendly service jack design. Under direction from Francois Nortje (Senior Engineer), Jianjun Han (Continuous Mining Systems (CMS) Haulage Engineer) set out to develop a concept for a new service jack. The concept was reviewed by the CMS Haulage team and met with extremely positive reviews, along with the direction to proceed to complete the engineering design.

The design and development phase included the engineering calculations, Design Failure Mode and Effect Analysis (DFMEA) and material selection, with the main criteria being for the new service jack to be retrofittable, with minimal modifications required to existing shuttle cars. In conjunction with the design and development process a patent application has also been submitted to protect the design.

The new design consists of an inverted cylinder which operates inside an outer housing; the cylinder rod is fixed, and the cylinder body extends and retracts. When the cylinder is extended to raise the shuttle car,
a "staple" is inserted into a receiving block – an integral part of the outer housing – locking the cylinder in the extended position preventing inadvertent retraction of the cylinder and lowering of the shuttle car.

The "staple" is inserted and locked in the installed position with the insertion tool (similar in design to a car jack handle). This new system offers major handling benefits: the "staple" weighs just 2 kg, the insertion tool also weighs 2 kg and both can be easily stored on the shuttle car in specially designed storage devices.

The new service jack design has been widely presented to our customer base and the response has been very encouraging, with all extremely impressed with the design from both the maintenance and EHS perspectives.

The first new shuttle cars (three units) fitted with the new service jack design have now been delivered to a Central Queensland site and were very well received by both the management team and maintenance personnel.

A further three shuttle cars are now in production and have the new service jacks included in the machine specification.

The new design of service jacks will become the standard fitment on all new Komatsu shuttle cars sold into the Australian market.

The challenge ahead is to secure an increased market share in the shuttle car overhaul business, and further enhance the population of these service jacks by retrofitting to existing shuttle cars.

Congratulations to Jianjun and Francois for their outstanding achievement on the design and roll out of the new service jack.

"Komtrax has prevented one theft and provides valuable operating information"

Pictured: Ben Gleeson with his fast-growing fleet of Komatsu equipment.

BEN'S BOLD MOVE STRIKES PAYDIRT

When 29-year-old Ben Gleeson sold his house, gathered up his limited equity and set out to start his own drainage and earth moving business he found difficulty getting suppliers to take him seriously.

"I'd decided I was going to buy a new excavator for my start-up but most sales people didn't even get back to me with a quote," Ben, now 32, with several machines in his fast-growing company, said.

"But my local Komatsu manager treated me like a valued customer. "He went out of his way to understand what I wanted to achieve, helped me purpose build my first machine and provided finance and servicing solutions."

Ben's employer of seven years, Cooke and Dowsett, one of the country's largest plumbing solutions companies also helped, putting contract jobs his way around his home town of Ballarat, even though they were losing his skills in-house.

The pay back has been huge. In three years Ben and his wife and business partner Rachael have bought four machines - all of them Komatsu, employed six people full time and developed a close-held group of key customers with whom they have a strong working relationship.

Their business, BRG, an amalgam of their initials, now owns two Komatsu PC138s and a PC228 all of them bought new and a PC55 for intricate jobs, along with a Kenworth prime mover and a tri-axle float

Loyalty and trust have been a big part of their business learning curve.

It's a huge leap of faith when you're the parents of two pre-school daughters to leave your job and sell your house to raise working capital. "I was always going to back myself to have a go and you learn quickly when it's your own money involved," Ben said.

Their success story could fill a text book for young entrepreneurs. "I wanted to buy new machinery because I couldn't take the risk of owning something that could break down or lose value in those first few years," Ben said.

His first PC138US-8 ticked the boxes. "A thirteen tonner was the right machine for the variety of work I wanted and buying it new provided me with certainty, even free service for the first 2,000 hours," Ben said.

"I specified it with an offset boom so I could work up against the sides of buildings – increasing my ability to get jobs."

Now he has a small fleet of Komatsu's supported by the company's suite of customer aids including Komtrax which has already prevented one theft and which provides him with valuable operating information on his machines.

Ben hires people and buys his machines with equal caution. "I need to have more business than I can handle before I do either," he said.

"I buy the machine first, but I don't do that until I know the job is secure, and then I work doubly hard on it myself before I hire an operator.

Ben's philosophy is to employ top operators rather than use contractors, and to buy machines rather than rent them.

"Renting costs, your money and profit," he said. "It's hard to get good people when you start up but as you put together a fleet of good machines and a list of good clients you can build a team around you.

The synergy of well supported machines, good people and an enthusiastic hands-on boss has been the winning formula.

"I may not be able to work on every job, but I'm always there supporting and making sure the work has been done right," Ben said. "I don't want to grow so big that I can't do that."

About to celebrate their third business anniversary Ben and Rachael have bought a new home, out of Ballarat, which accesses land housing their depot, and their family has been joined by their first son, now six months.

How big do they want to grow? "My accountant introduced me to the concept of finders-minders-and-grinders," Ben said. "The finders bring in the work, the minders plan and supervise it, and the grinders do it.

"Between us, Rachael and I have been all of those in one, but as the business grows we can already see that we can handle somewhere between three or four times our current size and still stay true to our goal of always offering personal service."

TASMANIAN COUNCIL BUYS FIRST KOMATSU MACHINE IN 20 YEARS

In late January, Tasmania's Clarence City Council took delivery of a new Komatsu GD555-5 grader – its first purchase of a Komatsu machine in close to 20 years.

Clarence City Council is one of three councils comprising the greater Hobart area, and is located on the eastern shores of the River Derwent; more than one-third of the council area is untouched natural bushland.

According to Garry Oates, Clarence City's Fleet and Workshop Co-ordinator, the new Komatsu grader will be primarily used for the council's own road maintenance program, as well as carrying out some construction works.

Garry said there were a number of reasons the council opted for the Komatsu GD555-5 grader.

"After discussions with our operator Shane Bell, one of the main things in favour of the Komatsu grader was its visibility to the blade and work areas," said Garry.

"He also loves the automatic/direct drive transmission.

"And in terms of weight, the Komatsu grader falls midway between the operating weight of our previous machine, and that of the next size up in that range.

"Before making the decision, we went with Shane to a few other Tasmanian councils which already had Komatsu graders, and he was able to trial them, as well as talk to other operators – who were really happy with their machines.

"While we haven't bought Komatsu for many years, this product came out as the most suitable for our needs – and the price was right," said Garry.

"In arranging delivery of the machine, in late January, our local Komatsu rep Doug Fulton was really good; nothing has been too much trouble for him.

"He also brought over Komatsu's operator trainer Frank Allen to assist Shane in the first few hours.

"While we've only had it a few days, Shane has been very pleased with it so far," he said.

Pictured: Delivery day for Clarence City Council's new grader. From left: Shane Bell, council operator; Frank Allen, Komatsu operator trainer; Garry Oates, council fleet & workshop coordinator.

> *"All our technicians carried out the job with enthusiasm, and achieving completion within three weeks, with all aspects proceeding smoothly and safely, was excellent timing, in light of the on-site work conditions."*

Pictured: Komatsu's service team assembling two new HD1500-8 trucks for nickel mining operations in New Caledonia.

VALE TAKES OUR REGION'S FIRST TWO HD1500-8 TRUCKS FOR NEW CAL NICKEL OPERATIONS

Report by Antoinette Dubroeucq, Assistante Commerciale, Komatsu New Caledonia.

Global mining company Vale recently took delivery of two new 150 tonne capacity HD1500-8 haul trucks – the first of this recently released model in our territory – for its New Caledonian nickel mining operations at its Goro Mine.

This order followed Vale's purchase of a previous-generation HD1500-7 truck in 2017, and represents a real vote of confidence in the quality of these trucks and Komatsu New Caledonia's ability to service and support them.

Vale is one of the largest iron ore miners in the world, and the second-largest nickel producer. From Goro, it extracts nickel from laterite and saprolite deposits, which along with cobalt, is refined in Vale's Goro Nickel Plant.

The new Komatsu HD1500-8s were delivered directly to Vale's port facility in Prony.

After being transported to the mine site, Komatsu New Caledonia's team of technicians assembled the trucks over a record time of three weeks.

This team included Loïc Pouahili, Marcelino Pouye, Marco Sio, Corentin Bordage, Jean Damour, Yannick Bousser and Tony Willaume.

All our technicians carried out the job with enthusiasm, and achieving completion within three weeks, with all aspects proceeding smoothly and safely, was excellent timing, in light of the on-site work conditions.

There were also many other options to complete the work on the trucks, including fire protection systems, HEPA filtration, turbo timer systems and others. Following assembly, we scheduled a week's technical training for Komatsu technicians in New Caledonia.

There was also an additional week's driver training for Vale personnel, delivered by a factory-based trainer from Japan, ensuring the operators would know everything from A to Z with these new machines.

"This integrated system gives you far better control, none of the components are exposed to the elements, and it's additional features cut out any over-digging or under-digging – plus it's all automated."

Pictured: New Zealand customer Stephen McPherson has found major advantages in using Komatsu's intelligent Machine Control technology across his fleet.

THREE NEW KOMATSU "INTELLIGENT" MACHINES DELIVERING MAJOR ADVANTAGES FOR MATAMATA CONTRACTOR

Long-term Komatsu New Zealand customer Stephen McPherson has recently made a big investment in the company's new intelligent Machine Control (iMC) technology, buying three of the machines – and has found he's quickly getting a payback on his investment.

In November 2017, Stephen took delivery of two PC210LCi-10 iMC excavators, joined by a D51EXi-23 iMC dozer which Stephen imported in December.

His company McPherson Contractors is based at Matamata, and carries out civil engineering and bulk earthworks as well as rural development and maintenance works throughout the greater Waikato area, and out as far as Tauranga, Whakatane, Taupo, Rotorua and the Western Bays.

Stephen bought his first Komatsu machine – a PC150 swamp excavator – around 1990, and has been buying the brand ever since. Today, his Komatsu fleet, in addition to his new iMC machines, includes one D65-15 and two D85-15 dozers, plus a number of Komatsu excavators: a PC130-8, a PC200-7 and PC200LC-8 long reach, two PC200-8 conventional, a PC300-7 and an HB335LC-1 Hybrid.

So far, he's used his iMC machines on a variety of civil construction projects in residential and commercial building sites, primarily for the final trim works.

"We use the bigger gear such as scrapers for the bulk earthworks, then the iMC excavators or the dozer move in and do the final trim," said Stephen.

"Of course they can be used as conventional machines, but the iMC really comes into its own in final trim work, as it's just so fast and accurate.

"We get the design plan in the format we can use with the machines, we put that in, calibrate our work with no need for pegs, then we run it all off the network or total station, using our own rovers and total stations.

"We use the final trim capabilities on the excavators for our benching, terracing, driveways, road formation and shaping, and services dig out.

"The dozer has much the same capabilities, and we use it for the likes of larger areas, such as commercial sites or bigger housing developments, horse arenas and pond construction.

"It really excels, because it can pick up a couple of points, dial up the grade we want between the points, and then go ahead and shape to the design without any other input or information," he said.

Stephen has been using "bolt on" machine control systems for a number of years, but finds the integrated Komatsu iMC system a real step up.

"This integrated system gives you far better control, none of the components are exposed to the elements, and it's additional features cut out any over-digging or under-digging – plus it's all automated.

"When we heard about this technology, we approached Komatsu about buying these machines. We like to keep an eye out for new technology developments – I find if you walk around with your eyes and ears open, you get a good feel for the technology coming to your industry," he said.

"Now with iMC, when we go to a site, we are completely independent. We don't need to wait for surveyors; we can do everything ourselves, all from the cab with our operators. It makes us way better off.

"We do the work on a site, then as a contractual requirement, the work is as-builted independently by an outside survey; to this point, we haven't missed any design parameters – we are getting the accuracy we need, and our clients are benefiting from our efficiencies.

"While it's still a bit early to put numbers on the true benefits we are getting, because there's so many factors, including operator capabilities, our understanding of the machine capabilities, ground conditions and so on," Stephen said.

"Until we have a season or two under our belts, we can't quite say.

"But just in time alone, we are making significant savings with the iMC technology; it gets you through the job a lot faster."

Stephen also believes that this new technology has the potential to attract new operators to the industry.

"I think another thing the industry should take into consideration with all this new technology and nice gear that we have now is that it's a really exciting career option for someone to join and be a part of.

"It is a real attraction to some people who wouldn't otherwise think about coming into this industry, and that all adds to an environment which is conducive to getting good people.

"That's a real positive for us, in addition to the other advantages of this technology in how we can do our work more quickly and efficiently," he said.

GRADER 'PURPOSE BUILT' FOR HERITAGE AREA

Ken Grierson takes his job on Tasmania's Sorell Council very seriously.

He's the Works Programmer – Roads in charge with the upkeep of 152 kilometres of gravel roads and lanes that link the villages in the historic shire, just east of Hobart.

Ken and his brother Neville – plan operator, both now in their 60s, can lay claim to having been the principle carers for Sorell's roads for 45 years.

They started working on pick and shovels for the council where their great grandfather had been chief clerk another half century earlier.

It's a matter of some pride and perhaps even family responsibility, that the roads of Sorell, which link east and south Tasmania, form a gateway to the east coast and Port Arthur, and importantly keep the local rural population connected, remain in good shape.

Ken works on maintenance and these days is mainly desk bound. Neville still drives as part of the capital works team which concentrates on 245 km of sealed roads in the shire.

"Most of the gravel roads are on a 12-week maintenance cycle and all see a blade at least twice a year," Ken says.

Its an exacting task. Sorell is one of Australia's oldest communities, first formed in the early 1800s, and many of its rural arteries are narrow and tortuous.

"For the past ten years we've had a grader with a fourteen-foot blade and it's been difficult. It was too large for the roads," Ken said.

But this year there's a new blade in town. In accordance with its ten-year capex cycle, council bought a new grader – its first Komatsu, a GD555-5, and most importantly for Ken, it has a 12 foot blade.

"It allows far more precision and it offers a lot more visibility from the cab in every direction," Ken said.

Productivity is up, costs are down and most importantly a new policy to have the equipment serviced by Komatsu either remotely or at its nearby depot, has introduced new efficiency.

Sorell Council took the opportunity to hire two new operators under Ken's guidance at the time of the grader purchase.

"They're using the new Topcon machine control system, which calculates optimum run off from the crown of the road," Ken said.

Ken favours a four-to-six percent camber change on his roads, taking-into-account rainfall and drainage requirements in Tasmania's climate.

"There's still a need for seat-of-the-pants feel, but to have GPS plotting on board introduces a new accuracy that improves precision," he said.

Ken expects his new grader to clock up 800-1000 hours in its first year on a nine day a fortnight work cycle with the tenth day used for planned downtime and maintenance.

"We're doing as much work as we did previously, but we're doing it easier and with greater efficiency," he said.

Ken has not yet commissioned KOMTRAX, Komatsu's invaluable satellite-based monitoring system. It's an action item for the next service.

"When Neville and I were on the shovels we learned to be nice to the grader drivers because otherwise they'd make sure they heaped the roads with rocks and rubble which we had to clean up," he said.

"These days the machines are looking after us far better than the operators ever did." Ken's only regret – he's not yet driven the new grader.

"I've sat in it in the depot and its totally different to anything we've had before – especially the vision out of it which is really outstanding," he said.

"I've put my name down as relief driver – maybe someday."

> ***""They're using the new Topcon machine control system, which calculates optimum run off from the crown of the road."***

Pictured: Sorell Council's new Komatsu GD555-5 grader at delivery in January 2018. Council employees, from left: Ken Rierson (works programmer); Gavin Young (works supervisor); David Hawkins (operator); David Reardon (operator).

GROWING BUSINESS
ALL IN THE FAMILY

When Seth Irwin fired up the family's new Komatsu PC130 excavator and drove it across the work yard there were cheers from four generations of his family.

Seth is seven. "It's the easiest machine I've ever driven," Seth's dad Rhys, 32, beamed. "A child can drive it."

Geelong's Irwin family has been in the tree lopping and demolition business for 56 years.

Seth and his three-and-a-half-year old brother Levi are the succession hope for a business which is growing even faster than the family.

Irwin's Tree Removal does far more than its name claims.

They've become one of the most in-demand demolition operators in the greater Melbourne area, and contract broadly. They've just completed a delicate task, placing traffic lights along Melbourne's Hoddle Street, working with extreme care around underground services.

And they do it as a family. Of the seventeen people on the payroll, eight are Irwins.

Rhys's dad Wayne and Uncle Mark still actively drive along with Rhys. His grandfather Graeme,78, who started the business, is eagerly on call. Rhys's mother Janet and wife Trista run administration and his sister Sarah is the company's job estimator.

Grandmother Lynette, who was a hands-on tree lopper with Graeme half a century ago is still available for advice and, these days, lighter duties.

"People trust us because we're a family business but that doesn't mean you get the jobs," Rhys said. "Winning work comes down to how good you are and how efficiently you provide your service."

The Irwins anchor their business with three Komatsu excavators – two PC130s and a larger PC220, supported by a range of skid steer bobcats, trucks, smaller excavators, mulchers, stump grinders, cherry pickers and floats.

The latest PC130, just purchased, has been purpose built for the task – a longer dipper arm for extended reach, an all-round bang rail for protection and a front window cage and roof cover for safety.

A heavy-duty Embrey HDR100 grapple, fitted by Komatsu, provides additional strength for the unusual and difficult jobs which have become the Irwins' specialty.

Graeme was the first Irwin to use Komatsu equipment – a well-used PC120 which contributed to company profitability through its reliability – and the habit has stuck.

"It's all about relationships," Rhys said. "We rely on our key business partners not just for their equipment but for the service they offer."

It's a full-service arrangement. The Irwins buy their equipment through Komatsu Australia Corporate Finance, rely on Komatsu's service support throughout the warranty period and appreciate the KOMTRAX remote monitoring system which, so far, they've not had to use.

"We've never been so busy," Rhys said. Servicing Geelong and Melbourne's major development areas the Irwins average two house demolitions a week and work on multiple land clearing and improvement projects at a time.

"It's all about being skilled rather than formally trained," Rhys said. "You have to be very gentle, very confident and have a feel for your machinery.

"We think you can't train your operators – it's better to breed them." Levi who loves to 'drive' the trucks and Seth who now follows his great grandfather around the yard in the PC130, both agree.

> ***"Winning work comes down to how good you are and how efficiently you provide your service."***

Pictured: Irwin's Tree Removal has built a very successful demolition and contracting business around four generations of family.

Pictured: Komatsu PC210LCi-10 intelligent Machine Control (iMC) excavator working at this years BOOTS ON.

Pictured: Komatsu Rental's PC210LCi-10 intelligent Machine Control (iMC) excavator made a complex drainage project much easier for Bay of Plenty-based Tracks Concrete.

TRACKS CONCRETE SEES 500% PRODUCTIVITY INCREASE WITH RENTED KOMATSU IMC EXCAVATOR

Eastern Bay of Plenty-based contractor Tracks Concrete recently achieved a 500% increase in productivity on the construction of a stop bank after it switched from a conventional excavator to a rental Komatsu PC210LCi-10 iMC (intelligent Machine Control) unit.

Tracks Concrete (2002) Ltd, which is based in Whakatane in NZ's North Island, has been in business for over 30 years, carrying out a range of civil contracting projects, including site development, concrete works, site walls, formwork and building projects, stopbank construction and maintenance throughout the eastern Bay of Plenty.

Earlier this year, the company began construction of a stop bank near Whakatane using conventional excavation techniques, said Director Ken Young.

This job consisted of shifting 120,000 cu m on site and importing 70,000 cu m to construct a new stopbank and widen the existing channel.

The channel was cut in grade and lined with geotextile cloth and 11,000 tonnes of Rip Rap.

"Our initial work process included batter boards, stringlines, and lots of people on the ground measuring and checking," said Ken.

"With this set up, we were excavating the walls ready to lay the riprap, and struggling to do 11 m a day.

"We were worried the job could get behind time, so we purchased a couple of machines and 'bolted-on' GPS-based indicate systems.

"Then Reimerd Mostert, Komatsu's iMC specialist, mentioned that Komatsu Rental had an iMC excavator for hire, so we decided to bring that in to give us a hand," he said.

"Bringing in the iMC machine really rocketed our excavation rate, so we were achieving 55 m a day, every day.

"We found it was even superior to the bolt-on GPS indicate system."

Ken explains: "The difference is that the Komatsu iMC system doesn't let you overdig, you cut exactly to the grade as per the design, and you always know exactly where you are.

"The operator doesn't have to watch all the time, so they are just digging precisely to grade. That's the difference with the GPS indicate system as, because it's guide-only, you can overdig if you don't watch carefully, so that slows you down a bit," he said.

"As a result, we went from 11 m a day with the traditional system, to around 40-45 m a day with the GPS indicate system, and then to 55 m a day with the Komatsu iMC system.

"We just found that iMC system really good, because basically you can't make an error, you can't overdig; it just follows the design."

Ken said Tracks Concrete's introduction to machine had only been a short time earlier, when it had purchased a D61PX-23 dozer, to which it had fitted a 'plug and play' bolt-on GPS machine control system.

"We've had a few firsts this year: the first time we'd set up machine control systems, our first base stations and rovers, and the first time we'd rented a machine from Komatsu Rental," he said.

"I was talking to Rei when we were setting up our new Komatsu dozer with machine control, and he mentioned the iMC 21 tonne excavator for rent, just at a time when we knew we needed to speed things up.

"So we tried it for a month, and we never looked back. In the end, we had the machine on hire from February until July."

Setting up the PC210LCi-10 was very straightforward, said Ken.

"Rei came down and trained us up; he was brilliant. The first time, he was there the whole day, then he came back a second time just for two or three hours.

"After that, it was all fine. Rei kept in contact every month to ensure that everything was going well; if we needed him he was only a phone call away.

"Tracks will certainly be using this machine set up in our next project," said Ken.

> ***"We just found that iMC system really good, because basically you can't make an error, you can't overdig; it just follows the design."***

Pictured from left: 2018 Graduates Jacky Cai; Daren "Danger" Thanh; Laura Deaves; Tim Hollis; Megan Eom; Jason Alfeo (Business Skills Development Manager).

KOMATSU'S 2018 GRADUATES

In mid-April, Komatsu welcomed five new graduates, initially to our Fairfield headquarters, as our intake under our 2018 Graduate Development Program (GDP).

The five graduates under our 2018 intake are:

Megan Eom, a Business Graduate, who completed her Bachelor of Business studies at the University of Technology Sydney, where she majored in Management and Marketing.

Tim Hollis, also a Business Graduate, who completed a Bachelor of Business studies at the University of Technology Sydney, where he majored in Accounting and Marketing.

Laura Deaves, a Mechatronics Engineering undergraduate, who is completing her final year of study of a dual degree in Mechatronics and Science at the University of NSW.

Daren "Danger" Thanh, an Electrical Engineering graduate, who completed his degree in Electrical Engineering and Diploma of Engineering Practice at the University of Technology Sydney.

Jacky Cai, a Mechatronic Engineering graduate, who completed his Bachelor of Engineering – Mechatronics studies at the University of NSW.

Each of these graduates will be undertaking rotational assignments throughout the organisation in different departments and locations as part of their development over the next two years.

They will spend their first three months in Sydney completing inductions and orientations, then undertake their remaining rotations in other departments, branches or regions – with at least one outside of Fairfield where possible.

Komatsu began the GDP in 2012, and initially recruited seven graduates across a number of disciplines over two intakes in 2012 and 2013.

According to Business Skills Development Manager Jason Alfeo, the program was originally implemented to ensure a steady supply of specialist and management talent into the business.

"Graduates who successfully complete the program are offered on-going employment with Komatsu Australia, subject to them meeting our standards of behaviour, to their continuous participation throughout the Graduate engagement process and if positions being available during that time," he said.

"Under the GDP, our graduates are provided with training and experience on the job to build on their field of study.

"They will also be provided with technical, life and business skills to help them with their future roles within Komatsu," said Jason.

"With these things in mind, Komatsu graduates enjoy a well-balanced and structured program designed to give them an opportunity to develop technical skills and leadership capability in a range of business areas, preparing them for an ongoing successful career with Komatsu."

Jason said that of the seven initial recruits, three – who all began as engineering graduates – are still working with Komatsu.

"One is currently working in Key Accounts and two in roles in our Engineering teams.

"In 2018, we re-launched our graduate development program with a particular focus on recruiting and developing skills and talent for our future business requirements.

Engagement of the graduates at an individual level, along with a concentration on their career development with Komatsu are key elements of the program.

> ***"Under the GDP, our graduates are provided with training and experience on the job to build on their field of study. They will also be provided with technical, life and business skills to help them with their future roles within Komatsu."***

KOMATSU CELEBRATES 10 YEARS OF AWARD-WINNING APPRENTICE DEVELOPMENT SYSTEM

> *"Komatsu apprentices' completion rate through the program is 80%, well above the industry average for automotive-related industries of 50%."*

During 2018, Komatsu is celebrating the 10th anniversary of its award-winning Apprentice Development System, which over the past decade has achieved apprenticeship completion and retention rates significantly above industry averages.

Komatsu's Apprentice Development System (ADS) is designed to give entrants to the industry not only key trade skills, but also business, life and personal responsibility skills and awareness.

Following an initial pilot in 2009 (from an intake in 2008) – and which was runner-up in the federal Education Minister's 2009 Awards for Excellence program – the ADS was rolled out nationally by Komatsu.

Of 348 apprentices who have gone through the ADS since its inception, 189 have completed their apprenticeships with Komatsu, and 95 are still with the company. Of these 348, 116 apprentices are currently completing their trade qualifications in their first, second, third or fourth years.

In 2017, the ADS was extended to Komatsu NZ's operations, where they currently have six apprentices participating in the program.

According to Gavin Manning, Komatsu Australia's Central Region Capability manager – and one of the developers of the ADS – Komatsu apprentices' completion rate through the program is 80%, well above the industry average for automotive-related industries of 50%.

In addition to "traditional" on-the-job training and attendance at TAFE, the ADS aims to give apprentices important life skills, including Toastmasters (public speaking), road safety awareness, and drugs, alcohol and sexually transmitted infections (STIs) awareness.

Gavin said Komatsu's rigorous apprentice selection processes, plus the focus on life skills and supporting participants throughout their trade training had contributed to the ADS's high completion and retention rates.

"We are now seeing some of the longer-term benefits of the ADS, with those who completed their apprenticeships with us in the early years starting to take on supervisory and more senior roles," he said.

"They really represent the future of our service departments – and down the track other management roles; already some are service department supervisors and resident service technicians throughout the Komatsu Australia region."

An important element of the ADS from its inception has been its commitment to diversity, with a mix of male and female apprentices, school age to mature age, and those with indigenous or other cultural backgrounds represented among apprentices.

KIDS CORNER

DIY PINWHEELS

SUPPLIES:
RULER, SCISSORS, PUSH PIN, HOLE PUNCH, GLUE & PENCIL.

1. CUT AROUND THE EDGES OF THE TEMPLATES TO MAKE 2 SQUARES. PASTE THE SQUARES BACK TO BACK. USE THE DIAGONAL LINES TO CUT YOUR FLAPS.

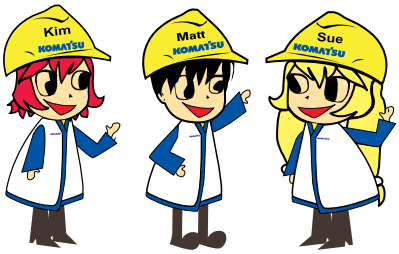
2. MAKE FIVE HOLES USING THE HOLE PUNCH (SEE TEMPLATE FOR PLACEMENT).

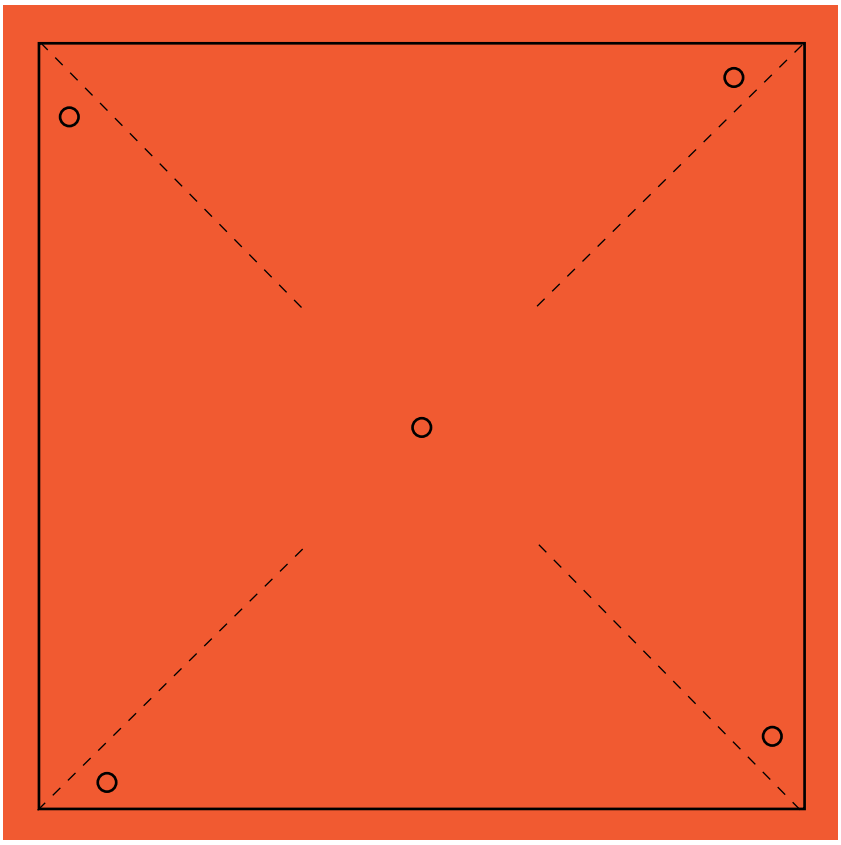
3. FOLD YOUR FLAPS PARALLEL WITH THE CUT. MAKE SURE THE END REACHES BEYOND THE MIDDLE OF THE PINWHEEL. HOLD THEM IN PLACE IN THE CENTRE.

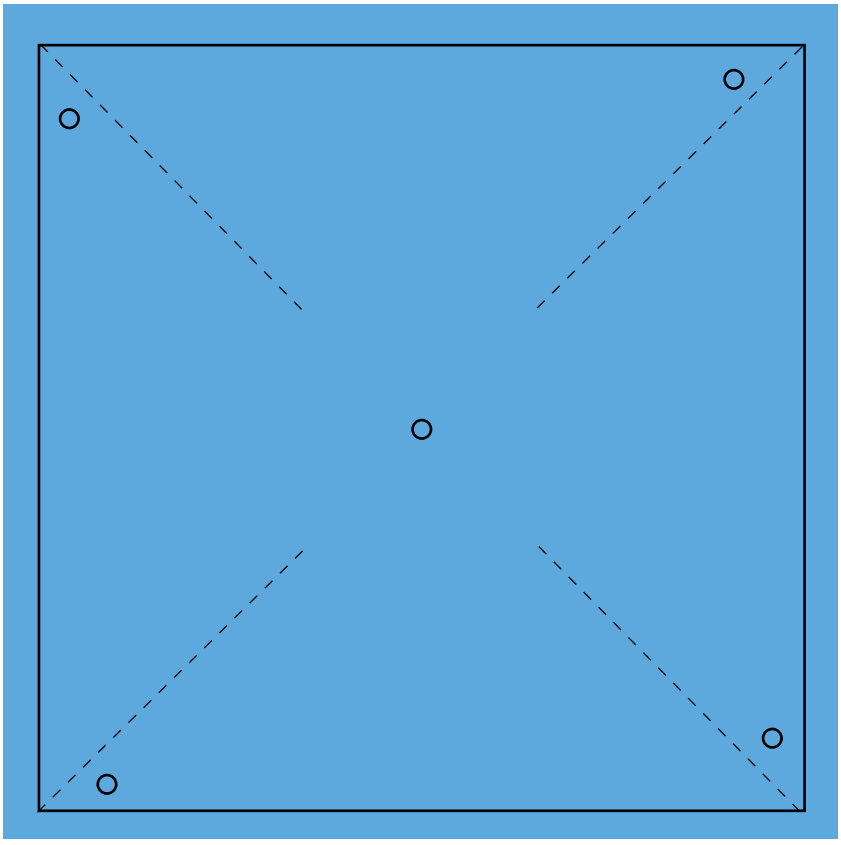
4. TAKE A PUSH PIN AND POKE THROUGH THE END OF EACH FLAP WHERE YOU MADE HOLE PUNCHES. ONCE THROUGH ALL FOUR FLAPS, PRESS THROUGH TO THE BACK OF YOUR PINWHEEL.

5. PUSH PIN THROUGH THE ERASER OF A PENCIL, MAKING THE END OF THE PUSH PIN FLUSH WITH THE ERASER.

*AN ADULT SHOULD ALWAYS SUPERVISE WHEN YOUNG CHILDREN ARE USING SCISSORS.





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