

Market traction



Stellar offers the world's largest truck-mounted tyre manipulator available on the market, the TM20165

The tyre majors continue to invest in new products to provide mines with better performance and cost savings, while tyre management companies aim to offer smarter and safer repairs and service, reports Paul Moore

Looking at the general mining tyres market and the relationship to the sustained downturn in mining, Eric Matson, Global Field Engineering Manager, OTR, **Goodyear**, told **IM**: “Some commodity prices are doing better than others, but overall, the general decline in global commodity prices over the last few years has negatively impacted mining industry growth, slowing both new mine investments and mine expansion initiatives. Mining operations have hunkered down and are now focusing on operational efficiency and cost reduction instead of growth. We have found this to be the case regardless of region, types of tyres that are being used, or other factors.”

During down cycles, Goodyear says it encourages mining customers to place a renewed focus on doing everything they can to optimise their tyre investment, including following established tyre maintenance practices and making sure that mine site conditions are conducive to successful tyre operation. “Mine site conditions can have considerable impact on tyre longevity and performance. That's why it's important to conduct regular mine site audits, which can help identify and correct conditions that could damage tyres and create expensive vehicle downtime. We also strongly encourage mining operations to use data to make better decisions about their tyre assets, if they aren't doing so already.”

Goodyear's EMTrack is its take on tyre management systems. “Through EMTrack,

Small to mid-sized African mining operations are major users of tyre management and maintenance services from Kal Tire

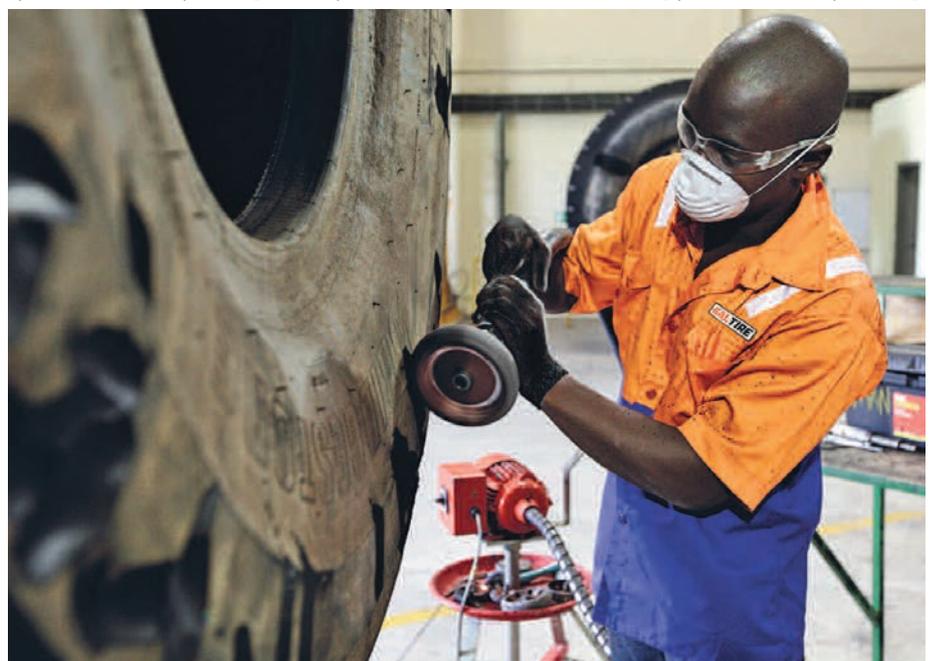
trained tyre technicians collect data about tyre inflation, tread depth and current hours-per-tyre, and then enter this information into the system on multiple occasions. Over time, the accumulation of this data allows mining operations to monitor and chart critical performance indicators like cost per hour, cost per tonne and hours per 32nd [of an inch] of rubber, as well as create accurate forecasts of their future tyre needs. This is a critical step in accomplishing their cost-cutting initiatives.”

IM also spoke with Dan Allan, Senior VP of **Kal Tire Mining Tire Group** about its experience of the downturn as a leading global provider of tyre management and services to mining. “When cycles head this way, mining service providers

suffer alongside our customers. What works best is to align our goals with those of the customer to better help them weather the down times, which also benefits us in the long run as we maintain the business. In the Ghanaian gold mines, for example, when the gold price started really dropping a few years ago, some of the mines were focussing on pure cost and asking us to cut our workforce of trained tyre engineers. We instead proposed a different system where they only paid for the service they were getting, such as for every tyre change or repair, rather than for the number of our staff. This means if some trucks are parked they are paying less as a result. We refer to this new approach as an activity based contract. It can also be tailored to the services they are using most of, meaning it is much more commercially efficient.”

He adds: “Some mining customers have balance sheet issues in these times; they don't like big investments but prefer service based contracts, another example being where we would hold and manage their inventory for them, and they would pay for it over the life or use of the tyres. This means more investment for us in the new tyres in the first place, and more risk, but it means the customers 'pay for use' and are therefore also able to manage their monthly costs more closely. It is also much more efficient as we source the tyres, they are not still gathering dust in the mine tyre inventory.” Aside from tyre management/service and the tyres themselves, Kal Tire also offers retreading and other options.

Kal Tire increasingly sees the industry as being



made up of two customer types in this market – those who sell the inventory to Kal Tire who manage it on their behalf; and others that manage to cut cash costs by using services from Kal Tire such as retreads to extend tyre life, including things like the Ultra Repair technology. The company also says it is also prepared to find ways to 'share the pain' with customers in the short term to help the mines keep running through down cycles; of course this will get taken into consideration when the industry improves.

Allan also commented on the increasing importance of small to mid-sized miners in the market for tyre management and service. "Some of our best relationships are with these mines. The really big operations often have their own staff and resources in place. In Africa and other developing regions with a lot of smaller operations the contracting value is much more obvious, whether in our case for contracted tyre management or indeed for other companies providing contract mining services. Smaller mines appreciate the services that a company like Kal Tire can bring in terms of services and repairs. That said Kal Tire's value offering does not appeal to or resonate with all mines. And when there mine ownership changes, sometimes a new relationship with the service provider needs to be established. The key is to make sure our value proposition resonates with the new owner and for us to have the ability to tailor our offering to different customer types and situations."

A big challenge for tyre management specialists like Kal Tire and others is to get Chinese and other Asian groups to understand the value of tyre services, as they increasingly own a lot of new mining projects and investments.

On the fact that there is no longer a tyre shortage and how that has influenced miner attitudes, Allan states: "In the tyre shortage period it was all about getting new tyres wherever they could be sourced. Today, customers want to look more closely at the competitive differences between different tyre manufacturers. While TKPH and overall mine performance are still important, even slight differences in performance of particular tyre types can make a big difference across sites. Allied to this of course is the importance of haul road conditions."

Goodyear completes scraper tyre line-up

On its product development, Matson states: "We know that the mining industry is cyclical. While conditions are challenging at the moment, the market will eventually improve and demand will rebound. We're using this time to ensure that we remain in a prime position to serve our



Goodyear 63 tyre in inspection at the factory

customers even more effectively and are investing for growth."

This includes both new products and enhancing the performance of existing tyres. In May 2016, the company rolled out three new tyres for scraper applications: the Goodyear RT-3A (E-3), RT-3A+ (E-3+) and RL-3J (E-3). The first two tyres are designed to offer enhanced traction in all underfoot conditions and feature cool-running radial construction; aggressive tread patterns; unique, geometric lug patterns for long tread life; even pressure distribution and enhanced mobility; and buttressed and self-cleaning lugs. The RL-3J (E-3) is for high speed use on moderate-to-severe underfoot conditions. It features a zig-zag, centreline groove to offer excellent lateral traction in high-torque situations; tapered, self-cleaning shoulder lugs for enhanced forward traction; and a high-tensile steel belt package for superior impact resistance.

"We're also continuing to develop our highly successful RM (Rock Mining) line and will have some exciting new product updates to announce later this year. We are also in the midst of a project that will enhance our underground mining tyres' casing strength even more.

"Goodyear is always improving upon its tyre management solutions, from temperature and tonne-kilometre-per-hour (TKPH) studies to training, development engineering follow-up services, and more. Our regional managers and field engineers continue to provide industry-leading application and after-sale support, as

well. In addition, we continue to encourage our customers to consider retreading as a way to optimise their tyre investment. Retreading can be a viable option for many mining operations, depending on their specific needs and operating budgets."

As a company, Goodyear says it will continue to invest in its mining tyre capacity, "when and where it makes sense for both Goodyear and our customers. At the same time, we're also investing in our distribution network to ensure that end users have even greater access to our products, services and solutions."

Michelin adds above and below ground

The new 50/65 R 51 Michelin XMINE D2 Long Cycle L5** the company says has been launched specifically to meet the needs of surface mine operators who require higher speed capabilities from their loader tyres while still maintaining high levels of damage resistance and reliability.

"To operate at maximum efficiency, surface mine operators are demanding higher speed capabilities from the tyres they use in their 'load and carry' operations. This requires different tyre specifications that allow a higher distance-per-hour capability," and as a result, Michelin has designed the new Michelin XMINE D2 LC L5** tyre. This new tyre is able to cover a distance of up to 10 km/h compared to the current tyre's limit of 6 km/h with the Michelin XMINE D2 SR.

"This 66% increase in operating speed has been made possible due to a new tread compound that effectively limits heat build-up within the tyre. The new tread compound is also very resistant to damage, leading to an overall reduction in machine downtime, improved efficiency and therefore cost savings for the operator."

In addition to the new tread compound the XMINE D2 LC L5** features an "extremely robust" 116 mm-deep tread design which resists cuts, impact damage and wear. "This is coupled with a tough radial steel casing to resist punctures and together these components optimise tyre life." The new tyre "offers increased speed, exceptional levels of damage and wear resistance, and increased productivity – essential requirements for today's mining industry."

The latest underground OTR tyre from Michelin has been specifically designed "to cater to the needs of underground mine operators who seek higher speed capabilities from their loader tyres." The new 18.00R25 Michelin XSM D2+ LC (Long Cycle) is an L5S tyre capable of covering a distance of up to 6 km/h – a significant improvement on the 4 km/h limit attached to the existing Michelin product for this application, the XSM.

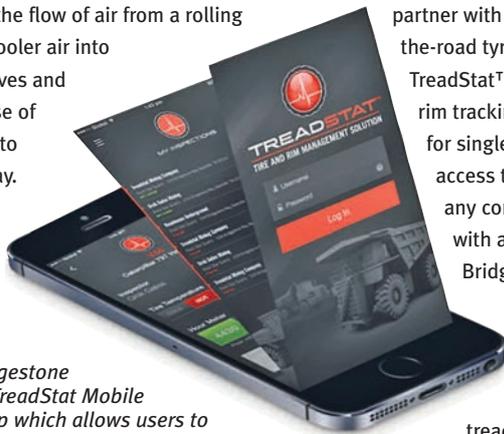
"The stimulus for developing the XSM D2+ LC came from some underground mine operators'

preference of maintaining high levels of productivity by using their loaders for all operations, including ‘load, haul and dump’, a practice that leads to longer than standard cycles. Vehicles used in this manner require different tyre specifications with a higher distance-per-hour capability.”

The 50% increase in operating speed achieved over the XSM is possible due to a new casing design and tread compound that allows the XSM D2+ LC to operate at a lower temperature. Michelin reports that the tread compound is also very resistant to cuts, leading to an overall reduction in machine downtime, improved efficiency and therefore cost savings for the operator. In addition, the tyre also features crown and sidewall protection; Michelin says this offers high levels of damage resistance, even under the most severely abrasive operating conditions.

Bridgestone outlines enhanced offering

Bridgestone’s latest VREV tyre is specifically designed for use in severe surface mining haulage applications. The company told *IM*: “This revolutionary tyre is designed to achieve higher wear resistance while delivering improved heat reduction. Innovative buttress fins in the shoulder use the flow of air from a rolling tyre to force cooler air into shoulder grooves and across the base of the tyre voids to draw heat away. Parallelogram blocks in the pattern change shape



Recently, Bridgestone released the TreadStat Mobile Inspection App which allows users to conduct vehicle inspections on or off-line, record tyre pressure and tread depth, note critical exception and upload inspections to the cloud-based TreadStat Tire and Rim Management program

with ground contact unlike any Bridgestone design before, minimising sliding for improved resistance to wear and tear.” The company says that the result of these technology enhancements is a 10% increase in TKPH over the previous generation product, ultimately resulting in increased speed and production capability. The VREV is currently offered in the 46/90R57 size.

In tyres for wheel loaders, the Firestone DuraLoad PT L5S bias tyre is designed specifically for severe loader service and features advanced sidewall rib protector technology to minimise sidewall damage and improve cut resistance. “The tyre also has a larger footprint

design that provides longer wear, making it perfect for use in the harshest of mining and quarry environments.” The tyre is offered in both nylon and nylon steel construction in size 45/65-45. “Nylon steel construction offers added protection from casing-damaging cuts and is good for severe operations. Nylon construction is ideal for loaders operating in environments requiring chains.”

Moving on to TPMS, the Bridgestone Intelligent Tag (B-TAG™) is its offering to the market and “delivers real-time measurements while delivering proven sensor life in excess of two years.” Barry Rexroad, Director of Sales and Engineering Support noted, “Current demand is being driven by the sustained trough in commodity prices which has operations continuing to focus on cost and operational efficiency opportunities. Mines see an opportunity to increase production using real-time tyre temperature information in lieu of TKPH ratings or systems while also using pressure data in real-time to avert possible tyre damage and manage their tyre program more efficiently.” B-TAG features standalone reporting and monitoring or can be integrated with a mine’s dispatch system providing IT installation flexibility.

Bridgestone says it also continues to partner with end-users and dealers for off-the-road tyre and rim management with TreadStat™. TreadStat provides tyre and rim tracking, management and reporting for single or global locations and allows access to up-to-date information from any computer, tablet or smartphone with an internet connection. Recently, Bridgestone released the TreadStat Mobile Inspection App which allows users to conduct vehicle inspections on or off-line, record tyre pressure and tread depth, note critical exception and upload inspections to the cloud-based TreadStat Tire and Rim Management program.

“The app was developed based on customer need to reduce paperwork, increase accuracy of inspection data and have immediate access to inspection data in TreadStat. Ultimately this reduces tyre management costs and enables timely decisions which can affect tyre performance or maintenance efficiency,” stated Grok Gates, Product Manager, Bridgestone Commercial Group.

New Titan loader tyre and reclamation facility

Titan International, Inc has added an 875/65R29 size to its proven STL2+ line, which will be available in the third quarter of 2016. This new addition is described as being specially suited to Cat 982M wheel loaders, and adds to the existing

list of sizes, which include a 23.5R25, 26.5R25 and 29.5R25. The dual-purpose E-3/L-3 tread can be selected with either cut-resistant or wear-resistant compounding for excellent performance in any operating conditions.

“What really sets this tyre apart is its tied-in lug pattern,” says Johni Francis, OTR Global Product Manager, Titan International. “The lugs are designed to work together as one unit, which provides excellent stability and even wear. Couple that with a radial construction and several compound options — and this tyre is an excellent-performing, long-lasting choice for any earthmoving, aggregate or mining application.”

The tied-in, bar lug design is open and non-directional for excellent self-cleaning, and the 130%-level tread depth “provides excellent traction and long life in rocky conditions.” In addition to the currently available sizes, Titan is also testing a Low Sidewall (LSW) version of the STL2+ for the Cat 982M, which is expected to be unveiled at MINExpo 2016.

On March 29, Titan International subsidiary Titan Tire Reclamation Corp officially opened its oil sands facility in Fort McMurray, Canada. Titan International estimates that the operation, when fully operational, will be able to convert 240,000 lbs (108.9 t) of scrap tyres to approximately 13,600 gal (61,800 litres) of oil; 52,800 lbs (23.9 t) of steel and 76,800 lbs (34.8 t) of carbon black each day.

Scrap tyres have accumulated in the oil sands as, until now, the size and density of mining tyres has prevented their recycling. The system Titan International has launched in Fort McMurray utilises a process originally developed by Green Carbon and is described as the product of “years of research and development.” The tyre maker partnered with ACDEN, Paul Newton, Green Carbon and Suncor to bring the facility to the oil sands. The materials gained through recycling will be used in new products, and Titan International claims that the system applies 85% of the gas it generates to heating the vessel containing the scrap tyres.

At the opening, Titan International Chairman and CEO Maurice Taylor shared the company’s plans to expand the Titan Tire Reclamation operations to Chile and Australia. “This system is not just the only one of its kind in the Canadian industry, it’s the first of its kind in the world,” stated Taylor. “This venture has taken over seven years to complete from the day Titan first met with Shell Oil, but it’s been two years to get it here today with Suncor. I want to thank everyone who has worked on this project and for what they have done to make this new chapter at Titan successful.”

All four of Canada’s major mines were represented at the opening, with several mine contractors also present. Chief Allen Adam of the

Athabasca Chipewyan First Nation was also in attendance, showing its support of the new technology and their partnership with Titan Tire Reclamation. Currently 15 people work at the Fort McMurray facility, however Titan states that the workforce may expand to as many as 40.

Yokohama adapts to market changes

There has also been a shift in demand in terms of tyre sizes in some mining regions. **Yokohama** Director of OTR Sales Tim Easter comments: "There's a major shift in mining regarding the size of mining equipment now being used, especially in the Eastern US mines. The equipment is getting smaller instead of bigger, because of the way coal is being mined today. There's less mountaintop removal and more contour-type mining. So in mining, we are now shifting away from some of the big tyres to more support sizes."

He says Yokohama is also looking toward other markets – like construction – to expand its OTR business and identify trends that will affect its business and the products Yokohama is selling. A good example is the market in Mexico, which continues to grow. Yokohama opened an office there in 2013 and is growing its business there significantly in mining and construction.

On new products Yokohama has just introduced a 15 in underground mine tyre to the market which will be featured at the company's display at MINExpo, along with new giant radial sizes.

"Yokohama is a supplier who plays well in niche markets and specialty operations, and we'll continue to do that. We are also expanding our radial product lines and feel we can be more aggressive in that market, as well as expand our business. Yokohama has built a reputation as the technology leader for the best bias products in the market. We want our customers to expect the same with our radial tyres. We're also continually expanding our sales force and technical group so we can have more time with our customers and find out how we can help grow their businesses via strong programs and products."

Kal Tire buys Klinge and expands in Australia

The big news in the mining tyre business just announced is that Kal Tire Mining Tyre Group has bought **Klinge & Co** in Australia, bringing together two of the most well known and respected names

in mining tyre management. Kal Tire has been operating in Western Australia for approximately six years and it has long been a goal of the organisation to expand to Eastern Australia where the majority of major mines operate.

"Even though our reputation is strong and recognised in many countries, it has been a challenge convincing customers of our credibility inside of Australia as our experience there has been limited," says Allan. "With Klinge, Kal Tire aligns with a well-respected, trusted company known to the Australian mining industry and secures our presence as a national tyre service provider."

Klinge & Co, co-owned by Tom and Dianne Klinge, is very similar to Kal Tire, which is also a family-owned organisation started by Tom Foord in 1953 in Western Canada. "Their cultural alignment is strong, both earning the respect of customers, and both regarding team members as part of the family."

Klinge will be a software company going forward focused on tyre management systems, training, and tools. They have a proven tyre management tool called

TotalTyreControl, which has become an industry standard for tyre management software. Klinge will continue to develop its software business in Australia and provide software training in other parts of the world.

"We are excited to welcome Klinge's 200 skilled personnel to the Kal Tire family," says Robert Foord, President, Kal Tire. "They bring invaluable experience with Australian miners. We've known Tom and Dianne Klinge for many years and we share the same commitment when it comes to how we think about our people and about our customers."

Kal Tire's Mining Tyre Group has also established itself in its own right in the area of Muswellbrook, New South Wales, with the opening of a new mining tyre repair facility. Conveniently located in Muswellbrook within the Hunter Valley coalfields, the Kal Tire facility will continue to repair mining tyres that were serviced there when it was formerly operated by Goodyear. The facility, which officially opened April 1, spans nearly 10,000 m²: 8,000 m² of hardstand, 1,500 m² of workshop space, and the remaining area for office space and a car park. Technicians can have up to eight tyre stands in operation at any time, with the capacity to handle

an extensive volume of mining tyres and the capability to repair all mining tyre sizes up to 63 in.

Kal Tire's Mining Tyre Group, which employs 1,600 team members and operates on more than 150 mine sites around the world, has spent the last 45 years investing in world-class repair and retread facilities, equipment and processes to maximise mining tyre investment and help improve mine site productivity.

To that end, Kal Tire's exclusive and award winning Ultra Repair™ technology for ultra-class tyres will be introduced into this facility towards the end of 2016. The Ultra Repair process involves replacing steel belts inside ultra-class tyres, offering an unrivalled ability to restore the original strength, integrity and performance of damaged ultra-class tyres at a fraction of the cost of new tyres.

At MINExpo 2016, a big focus area for Kal Tire will be highlighting new innovations such as its zero gravity rad gun, small bead breakers and rapid deflation tool, amongst others. All may seem small elements individually but can collectively provide huge cost savings and increased safety.

BKT widens line and introduces SPOTech

Mumbai, India-headquartered **BKT** manufactures off-highway tyres for mining trucks for various all terrain situations and offers specially designed and engineered radial and bias tyres for loaders, articulated dump trucks, graders, rigid body dump trucks, cranes and underground mine vehicles. The company told **IM** that it keeps on widening its ranges and models to meet market needs and recently introduced 100 t class haul truck all steel radial tyres in both traction and rock patterns.

In value added services BKT says it "conducts advanced and on-site tyre studies and analyses focused on recommending the most suitable tyre for the operation, by studying the mining site's current tyre maintenance practices, based on audits and on performance data and by organising on-site training programs and workshops for all operators. Last but not least BKT commits to reducing operating costs by further improving tyre management systems."

Recently BKT introduced the SPOTech study (Satellite Performance Optimisation Technology). "It is a revolutionary tool, which helps in providing the innovative solutions to enhance productivity by further improving the operating condition of the mine. For instance it allows for better fleet management for the trucks to operate at peak performance and increase productivity. Thanks to SPOTech, BKT can map mining customer haul roads measuring average/maximum speed, cycle times, lateral/vertical/



The new Yokohama Y67MS 15 in underground mining tyre

longitudinal forces and % grade and other useful data. This is an important value-added service that helps in optimising a customer's haul road construction, troubleshooting tyre operation-related issues such as irregular wear, belt edge separations and heat built up issues in the tyres. This critical data also helps customers in minimising premature tire discards. It also provides BKT with operation specific information, which is very important for performance analysis and tyre design. Every project is different and thus requires specific analysis and on-site studies to determine its operating needs to recommend the most suitable tyre for the job."

The BKT range for mining includes seven different tyre lines. Earthmax SR 25 is specially designed for motor graders and loaders operating in the most severe road construction or mining applications. For surface mining BKT offers four different lines: Earthmax SR 41 for articulated dump trucks, Earthmax SR 30 which is dual-purposed for loaders and articulated dump trucks, Earthmax SR 45 for rigid haul trucks and Earthmax SR 47 for rigid haul trucks operating in conditions requiring maximum rock cut resistance. Finally for underground mining there are two specific ranges: Earthmax SR 53 is designed for loaders or dozers operating in severe rocky conditions and Earthmax SR 55 for



loaders operating in the most severe quarry and mining operations. "The common feature of BKT's mining tyres is the all steel structure conferring major resistance to the casing and hence against impacts such as punctures and penetration of foreign matter."

Stellar mining tyre handling

Stellar Industries, Inc located in Garner, Iowa, offers a full range of tyre service cranes and service trucks "to accommodate all sizes of tyres

BKT EARTHMAX SR 30 tyres on a Kawasaki wheel loader

and to fit the needs of OTR tyre service technicians who need something that can handle it all." The full line of OTR tyre service trucks feature crane capacities ranging from 2,000 lbs up to 28,000 lbs (12,700 kg) and are operated by proportional radio remote control. The hexagonal shaped secondary and extension booms fully enclose the boom cylinders for added protection

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when working in tough conditions. Each model of the large OTR service cranes is capable of being equipped with a Tire Manipulator that will allow the tyre technician to safely and precisely manipulate the tyre when mounting and dismounting. The line of Stellar® Tire Manipulators accommodates all tyre sizes with various clamping spans and continuous rotating pads.

“Each truck is equipped with hydraulically operated stabilisers that offer the best support for the service truck when performing a service. The larger models have stabilisers that fold out and down for a wide spread of support and that offer easy maintenance and serviceability to the hydraulic cylinders.”

The OTR tyre service body line has a full spectrum of options. Heavy-duty steel construction is the base. Each body is undercoated for added protection against the elements. “Plenty of tool storage is built right into a various arrangement of cabinets that feature doors that slide up and in and close with secure slam latches.” Recessed, skirt-mounted halogen floodlights provide bright light for night service calls. D-ring tie-downs are well spaced around the body to accommodate various sized loads.

Stellar also offers the world’s largest truck-mounted tyre manipulator available on the market, the TM20165.

AM Bromley updates on TPMS

Since 2006, the Tire Monitor System (TMS) which is owned, developed and supplied by the UK’s **AM Bromley Ltd** has been dedicated to the OTR TPMS market offering tools and technology to facilitate tyre service and maintenance operations with accurate reliable tyre pressure and temperature data.

Mandy Bromley, AM Bromley Sales Director, told *IM*: “TMS is delivered and supported on site via our global network of partners who are supplying tyres, service and maintenance. There has been enough press in recent months and years informing mine and fleet operators of the benefits of monitoring tyre pressures and maintaining the correct tyre inflation. Needless to say those that have adopted TPMS technology have seen the benefits in both cost savings and operational performance. There are several great OTR TPMS systems available nowadays and the choice is down to availability, cost, on-site support and integration options to name a few. We are involved with some sites that have adopted different TPMS systems depending on the application, the important aspect for the mine operator is that the data can be collected centrally. Over the last 10 years we have seen the hostile and brutal environments that TPMS sensors have to operate in and from an electronic



A TMS internal sensor on a mining vehicle tyre engineering point of view it is quite a challenge. We remain true to our belief that you do what you do and you do it well. We have never promoted TMS for use in an application where it would not be suitable and we would suggest an alternative TPMS that may be better in say that application or environment.”

AM Bromley states that TMS is one of the few TPMS systems that offers both internally and externally mounted sensors. Internal sensors are preferred when tyre temperature is important and the added benefit of the sensor being secure inside the tyre. External sensors are mounted to the large bore valve and are quick to install and change. Using a T-piece also means the sensors do not have to be removed when a manual pressure check is carried out. External sensors are also a good option when the mine operator wants to see first hand the tyre pressure data and AM Bromley says its partners can quickly

Repairer “A” (competitor)		Repairer “B” (REMA TIP TOP system user)	
Tyre size:	40.00R57	Tyre size:	40.00R57
Cost of repair:	\$900	Cost of repair:	\$1,600
Duration:	750 hours	Duration:	2,455 hours
Cost per h:	\$1.20	Cost per hour:	\$0.65
Cost per km:	\$0.07	Cost per km:	\$0.04

demonstrate this without tyre removal being necessary. “The last decade has clearly shown us that the best OTR tyre performance is achieved when the whole tyre life cycle is monitored, tyre pressure monitoring should be part of that tyre life cycle and the data used to maintain optimum tyre pressure. Of course we want everyone to use TMS but the most important thing is that they use some form of TPMS.”

Tyre repair excellence

With the market prices for commodities having dropped, operational cost is a focal point for mining companies worldwide. Even with the need for new consumables, new spending is being avoided at all costs. Quality repairs of tyres instead of buying new tyres can be a part of the solution to getting back to profitability.

OTR tyres represent a huge share of mining assets and accordingly, repairs of such tyres are quite common. However, not all repairs are the same. Quality plays an important part. “Quality differences can result in a difference of several thousand hours of tyre life”, says Ludwig Ketzer, Product Group Manager OTR at **REMA TIP TOP**. The company says it positions itself “as a system provider with one source for all high-quality repair materials and services, instead of combining materials of varying sources and qualities.”

REMA TIP TOP gave a working example of how in the end, higher quality pays off. “If one assumes the attached parameters and compares two fictional repairers, possible differences in the long run become quite obvious. Let’s assume the tyre fails at 35,000 km. The remaining tyre

Parameters	
Tyre Size	40.00R57
Tyre cost	\$20,000
Service hours average	4,400
Speed average	18 km/h
Kilometres average	79,200 km
Cost per hour	\$4.54
Cost per km	\$0.25

life would then be 44,200 km, the remaining value \$11,161. If we subtract the repair cost of



REMA TIP TOP says that quality differences can result in a difference of several thousand hours of tyre life

\$1,600, the real savings come to \$9,561. Assuming there are 120 repairable tyres per year, the savings for this fictional customer would be as high as \$1,147,393.94 or 5,737 brand new tyres.”

In addition to high quality products, REMA TIP TOP says it also attaches great importance to having highly skilled repair staff worldwide, and service that can always be relied on. “Since 1997 the company has established a program for qualified OTR Tyre repair shops. Along the way a network of very highly skilled and experienced specialists has been created and continuously works on certified and recertified OTR Tyre Repair shops to keep them at a high level of performance.”

ERLAU on tyre chains

The use (or not) of tyre chains is always an emotive subject. Global supplier **ERLAU** points out that this decision is of course dependant on a number of variables. “Thankfully these variables are fixed and firm and not subject to too much drama. Essentially the tyre chain is similar to a gardening glove – it protects your dextrous asset, the pneumatic tyre wheeled loader, to work in damaging environments without costing the earth. With ERLAU tyre protection chains the wheeled loader with all its manoeuvrability can now work in hostile hot steel slag, metal recycling, trackless underground mining, blasted rock open cast mining and many other applications. Tyre chains

A wheel loader at a mine in the Philippines with ERLAU tyre chains installed



can put an end to unpredictable bottom line tyre costs and put sanity back into mining budgets.”

ERLAU tyre protection chains are suitable to fit tyres from the smallest 7.5 x 16 skid steer to one of the largest 70/70-57 Joy Global P&H L-2350 wheel loader.

ERLAU gives the example of a gold mine working in the Philippines. This customer uses a number of CAT 988s to work the ROM pad in a high mileage, 24 hour operation with unpredictable tyre damage. The machines operate an average of 18 hours per day, 550 hours per month, 6,600 hours per year. This equates to a mileage of 2,605 per year. The mine has two materials – a transitional substrata of clay and a dense hard rock. Chains help for traction in the clay and protection from the hard rock. “With the use of ERLAU’s FELS GIGANT PLUS X19 chain and a worked plan of recentering every 5,000 hours, tyre loss is prevented and costs limited. Because the rock is very abrasive the tyre chain is like a ground

engaging tool and no different from a heavy duty bucket or a profiled bucket tooth – a certain specification needs to be worked out in order to achieve the performance required.”

Within the ERLAU range of tyre chains there are a number of different types of high alloyed case hardened link ring profile chain meshes that can be employed to give extended life of the chain in protecting the tread path and sidewall of the tyre. “That’s where the chain specialists come in; there isn’t an application that we haven’t seen. Whether it’s using a loader to locate diamonds in small kimberlite pipes in South Africa or high volume copper mining high in the Chilean Andes we are there to help.” **IM**

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