

CUSTOMER CHRONICLES



NEWS YOU CAN USE FROM BARLOWORLD EQUIPMENT AND CAT® 1ST EDITION 2015



HIGH PRODUCTION LOADING
PAGE 10

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PAVING TEMBISA



White Hazy's Cat CW34 pneumatic roller working on a gravel to paved road upgrade in Esselen Park, Tembisa.

Commencing from January 2014, the contract is valued at approximately R67 m and is split into designated work packages. White Hazy's project scope includes the installation of storm water services, arterial road upgrades, concrete block paved pedestrian sidewalks, and the conversion of internal roads from gravel to asphalt riding surfaces in various residential suburbs, especially in new low cost housing development zones.

These project activities follow a similar R85 m contract awarded to White Hazy by Ekurhuleni in the 2012/2013 financial year for infrastructure works in Tembisa, as well as neighbouring Kempton Park.

In Kempton Park, White Hazy was responsible for the construction of energy dissipation erosion protection systems, including gabions, on river sections and around bridges, the largest running for approximately 30 m and to a height of 2 m.

Projects completed in the current work packages for 2014/2015 include arterial roads in Hospital View, Tembisa, including a section for the new Rea Vaya bus rapid transit (BTR) route that will network throughout the township; and in March 2015 the completion of gravel to paved roadways in the suburb of Esselen Park.

Nelspruit based contractor, White Hazy, is forging ahead on major projects nationally, with Cat paving equipment forming part of the construction mix.

Home to more than 500 000 people, Tembisa is one of Gauteng's most populated townships and a growing commercial hub that is undergoing extensive urban renewal, evidenced by private sector funding for a series of new shopping centres, as well as public sector investment in upgraded infrastructure.

Playing a key role in transforming Tembisa's civil landscape is Nelspruit based contractor, White Hazy Building Construction (White Hazy), which was awarded a two year contract by Ekurhuleni Metropolitan Municipality for the 2014/2015 financial year.

CW34 acquisition

As on previous Tembisa projects, White Hazy deploys a mixed earthmoving and paving fleet that includes Cat motor graders, Cat soil and asphalt compaction rollers, and Cat hydraulic excavators, forming part of a full turnkey flexible pavement solution. The project in Esselen also saw the deployment of White Hazy's recently acquired Cat CW34 pneumatic tyre roller, one of the first units to see service in the southern African market.

► (To page 3)



Performing equally well on granular materials, as well as all types of asphalt mix designs, the Cat CW34 pneumatic roller can be deployed on every compaction phase due to its high contact pressures.

2 | POWER SYSTEMS

POWER RENTAL IN THE CAPE

Business has been growing steadily since Barloworld Power opened its rental operation in Cape Town during October 2014.

Barloworld Power Rental is well established in Gauteng, KwaZulu-Natal and Angola. The decision to extend to Cape Town was based on requests from customers wanting reliable, back-up power solutions, either due to load shedding, or to provide additional capacity during high demand periods.

The Power business rents and supports a wide range of Cat generator sets, as well as industrial lighting solutions from AllightSykes. All generators are housed in sound attenuated, weatherproof canopies with the smaller sets mounted on trailers for mobility. Generator sets can be synchronised to provide a range of solutions.

Focal points of the new Cape Town business, based at Barloworld's Bellville branch, are naval and marine rentals, the growing oil and gas sector, the film industry, tourism and entertainment, as well as agriculture.

"We currently have more than 8,5 MVA of rental power in operation in the Western Cape alone, 4 MVA in Namibia and 2 MVA in the Eastern Cape," says Brendon Hart,

rental and used sales consultant in the fledgling Cape Town business. Hart is responsible for the Western, Eastern and Northern Cape regions, as well as Namibia.

"Our rental fleet in the Cape is very new, which minimises downtime," he adds. "We also offer a 24/7 backup service to all our customers with an agreed response time of 24 hours."

In 2014 Barloworld Power became the first Cat Power rental dealer in Africa to be awarded 5-star certification from Caterpillar and only the sixth in the world.

Stephen Hayward, the 6 Sigma Black Belt at Caterpillar Global Rental Power who conducted the audit, described Barloworld Power Rental as "one of the most professional rental operations I have reviewed".



A Barloworld Power rental solution for Torga Optical in Maitland, Cape Town.

UNDERCARRIAGE

THE PPR2 ADVANTAGE

Resists pin walking and link cracking for reliable sealing and maximum track life.

FOR USE ON CAT 345/349, 365/374 AND 385/390 HYDRAULIC EXCAVATORS

An exclusive Caterpillar offering that mechanically locks the link to the pin, Positive Pin Retention 2 (PPR2) track is designed for high impact and high travel applications. These include mining, heavy construction, pipe laying, demolition, and scrap handling, operating environments where this undercarriage system is especially recommended.

"The design places key emphasis on extending track utilisation and component reuse," explains Barloworld Equipment group product specialist, Deon Delpont, "and has been proven on Cat machines worldwide."

PPR2 prevents outward movement of the link on the pin, keeps end play within the optimum range for sealing, and contains the grease and excludes the debris for as long as possible.

"Any application with high impact and/or travel rates will apply high loading and twisting forces into the track chain, and could benefit from PPR2," adds Delpont. "Machines equipped with wide or single grouser shoes should also consider PPR2."

Every Cat undercarriage system is designed by Caterpillar engineers and built to exacting specifications based on real-world customer experience. "So, when you choose a Cat undercarriage, you know

it's not just the right choice, it's the best choice."

Undercarriage management lowers costs

To help you get the most from your Cat undercarriage, Barloworld Equipment offers the Cat Custom Track Service (CTS), a comprehensive programme for managing your track system. We analyse your application to determine if Positive Pin Retention Track will improve undercarriage wear life and lower your cost per hour.

By monitoring and inspecting your track regularly and providing reports that list service options, we help you make informed decisions, so you can plan maintenance and avoid costly unscheduled downtime.

For further information, contact your Barloworld Equipment Parts Sales and Service representative.

Which undercarriage system works best?

To determine exactly which Cat Undercarriage is the right fit for your work and your machine, ask yourself the following questions:

- How long will I own this machine?
- How many hours a week will I be using this machine?
- What are my typical ground/soil conditions?
- What are my impact conditions?
- What are the grades/slopes on my job site?
- What level of packing do I expect?

The more precisely you can define these parameters, the more effective your undercarriage choice will be.



PPR2 track features specially machined links, and pins with a radial groove. During assembly, link material is pressed into the groove between the link and pin. This locks the joint with the correct amount of end play.

PAVING TEMBISA

(continued)

◀ (From page 1)

(The new CW34 replaces the previous generation Cat PF300 unit.)

Performing equally well on granular materials, as well as all types of asphalt mix designs, the Cat CW34 pneumatic roller can be deployed on every compaction phase due to its high contact pressures. On the move, the oscillating front and rear tyres deliver vertical and horizontal forces that reduce air voids, ensuring surface uniformity, whilst the machine's 'air on the run' feature allows the operator to automatically adjust tyre pressures to increase or decrease static loads for optimal surface quality. The vertical suspension further improves results on uneven surfaces by uncovering voids and enabling consistent, even compaction, so no unnecessary passes are required.

"As on other internal street conversions, the road prism in Esselen comprises an in-situ roadbed layer, followed by a G5 commercial layer, which is cement stabilised. The final G1 commercial layer is imported, and then processed with water and compacted to the specified densities, followed by a slushing on top. Following the five day curing period we then prime the G1 base. A day later we lay down a 30 mm asphalt surface layer," explains White Hazy director, Mavela Setunku. "The end result is a quality road that is meant to last, greatly improving the lives of surrounding communities."

An eight wheel roller with an operating range from 10 to 27 metric tonnes – depending on the shedded or added ballast configuration – the CW34 provides an overall compaction width of 2 090 mm with 42 mm overlap. Ballast choices include modular and non-modular steel, sand and water.

"For extra precision, the optional Cat Compaction Control system provides an easy to use interface that keeps the operator informed of mat temperatures and rolling patterns," explains Barloworld Equipment paving industry manager, Johan Hartman.

This intuitive system greatly enhances night-time performance, while also recording information for future data analysis and quality control documentation.

Phumlani bus route

Meanwhile, as works progress in Tembisa, White Hazy remains active in the Mpumalanga region, a recent example

being the completion in March 2015 of an eight month project in Nelspruit. This is an 80 mm interlocking concrete block paved (CBP) road, together with a 60 mm CBP walkway for a dedicated bus lane (the Phumlani Bus Route) between Nelspruit and White River over an approximate distance of 2,6 km. The project scope for client, Mbombela Municipality, includes storm water drainage and box culverts, plus the construction of a rail bridge. Located in elevated terrain, the CBP option provides an excellent drainage solution in this high rainfall area.

An 8CE PE contractor in terms of the Construction Industry Development Board (CIDB) grading system, White Hazy is a growing force in the civil engineering sector, with a number of landmark projects completed since the company's establishment back in 1997 that underscore its capabilities.

"Earlier projects focused on water pipelines, bulk water supply, sewer lines, reservoirs and dams, subsequently branching out to include road construction and related services from 2003," says White Hazy company founder and managing director, Soul Siwele. Water and sewage related projects have been ongoing for various Mpumalanga municipalities.

Road project milestones include the construction of the Phiva Bus Route for the Ehlanzeni District Municipality, valued at approximately R10,5 m and completed in October 2009; and the R26 m Boschfontein to Magogeni gravel to tar upgrade for the Department of Public Works, Roads and Transport, completed in November 2011.

White Hazy's largest road contract to date was completed in December 2012 for the Mpumalanga Department of Roads and Transport. This entailed the upgrading from gravel to tar of the D1869 and D1870 in Tenbosch and Komatipoort over a total distance of 18,5 km for a contract value of R91 m.

"Our extensive project experience makes us well placed for continued expansion in Mpumalanga and Gauteng as a leading civil engineering contractor and our longer-term goal is to tender nationally, backed by our ongoing equipment acquisition and modernisation programmes," adds Siwele. "We are fully committed as a company to fast-tracking projects in meeting South Africa's transformation and infrastructure targets."



White Hazy director, Mavela Setunku (second from left) and Barloworld Equipment paving product manager, Johan Hartman (far right) together with two White Hazy engineering interns.

D&V BOUERS: A NICHE CONSTRUCTION & PLANT HIRE LEADER

A family business based in Pretoria, D&V Bouers (D&V) has been a growing force in the construction sector since its establishment back in 1980 with a multi-faceted focus that has seen the roll-out of building, civil contracting, property development and plant hire divisions.



From left to right are: Danie Viljoen (Junior) from D&V Bouers; Barloworld Equipment Cat sales professional, Bianca Herbst; and Danie Viljoen (Senior) from D&V Bouers.

Speculative ventures are ongoing. A recent one in Muckleneuk, Pretoria, is the completion by D&V of a three storey residential project in November 2014, comprising 12 units measuring 120 m² for an approximate individual market value of around R1,8 million at the time of listing. The property was completed in around six months on a rezoned site.

"Our ongoing strategy is to identify similar land opportunities in the Pretoria area," explains Danie Viljoen (Junior) from D&V Bouers, who works alongside his father, Danie Viljoen (Senior), both graduates in Construction Management from the University of Pretoria. D&V's foundation was originally laid by Danie Viljoen (Senior's) father who established his construction company, V&S, in 1965, a business which is now owned and run by one of his other sons.

This is a story about the durability of a sustainable business model, which since 1996 has been driven on the earthmoving front by a succession of Cat backhoe loader acquisitions following D&V's diversification strategy into plant hire. The first three were acquired in that year, and one is still active in the daily fleet, which now numbers around 40, comprising C, D and E-Series models. The plant division trades as D&V CAT Hire.

"We sold one of our 1996 machines in late 2014, a Cat 428C with around 18 168 hours recorded, and from a life cycle costing perspective broke even on our initial purchase price," says Danie Viljoen (Senior).

Long-term hire to key clients includes the municipal market for applications that encompass the installation of underground services, storm water maintenance, road construction and township development.

For the daily hire market, D&V's niche focus on supplying machines with 250 kg operating weight hydraulic hammers has established strong market penetration in the civil and building segments. All machines are hired with a dedicated D&V industry certified operator.

Running alongside its plant hire operations in 2015, construction is planned on a 17 unit sectional title industrial complex in Irene, Pretoria. Each unit has an approximate space of 300 m², with the development housed on a land area of 10 000 m². D&V, together with V&S, will be the developers, building contractors and project managers, with the construction programme estimated at between six to eight months.

THIS IS A STORY ABOUT THE DURABILITY OF A SUSTAINABLE BUSINESS MODEL, WHICH SINCE 1996 HAS BEEN DRIVEN ON THE EARTHMOVING FRONT BY A SUCCESSION OF CAT BACKHOE LOADER ACQUISITIONS FOLLOWING D&V'S DIVERSIFICATION STRATEGY INTO PLANT HIRE.

4 | BUCKETS & GROUND ENGAGING TOOLS

FILL FACTOR OPTIMISATION PERFECTED

Introducing the Performance Series bucket range for medium wheel loaders (Cat 950 to Cat 980)

Improving margins and boosting production gains, Caterpillar's new Performance Series bucket range features advanced designs that takes full advantage of machine power and linkages to boost payloads, with more efficient digging contributing to lower diesel burn rates.

Materials handling, general purpose and rock buckets are all available in heavy duty specification. A standard equipped spill guard prevents possible spillage over the linkage.

Additionally, Caterpillar also offers a wide range of special application Performance Series buckets. Examples included coal, slag, skeleton (for separating rocks from sand and for applications where medium breakout forces are required), woodchip, high dump, and serrated edge (for loading rocky material into stationary crushers).

Factors to consider in choosing the right bucket are the operational role (digging or re-handling), the material fragmentation type (bank, shot/broken, crushed/piled, or loose), the material (e.g. bank gravel, granite or sand), and the level of impact and abrasion (low to moderate, moderate to high, or low).

"To ensure optimum performance, always match the bucket to the machine based on material density and wheel loader size," explains Barloworld Equipment group product specialist, Deon Delport.

Materials Handling

Material handling buckets incorporate a flat floor design and are intended for loose material re-handling, making them well-suited for a variety of stockpile loading applications. These buckets provide maximum material retention and can be equipped with bolt-on adapters and segments, or bolt-on-cutting edges with corner guard for versatility and longer life.

General Purpose

General purpose buckets incorporate a wedge floor design and are built with a shell tine construction to increase strength and rigidity in their typical excavation and bank applications. Their structure efficiently transmits cutting edge loads back to the lift arms, shielding the bucket shell from distortion and keeping it up, out of the dirt.

These buckets are designed to accept the standard Cat bolt-on edge with corner guard or tooth group with bolt-on segments. For high abrasion aggregate applications, heavy duty general purpose buckets are the perfect choice.

Rock buckets

Specifically designed for quarry, aggregates and mining operations in high impact and/or high abrasion applications, these buckets are factory modified with additional protection.

"Each protection item and component was carefully chosen in response to customer requests for a bucket that delivers maximum strength, durability and wear life," expands Delport, adding that heavy duty rock buckets feature larger GET and additional wear material for the toughest tasks.



Materials handling and general purpose buckets feature curved sidebars for improved material retention.

Performance Series Buckets: Features & Benefits

Loads easier: Profile changes, over earlier buckets, improve loadability.

Fuel efficiency: Cat buckets have a longer floor, easily digging through the pile. The opened throat allows material to flow unrestricted into the bucket. Additionally, improved visibility to the load allows the operator to see when the bucket is full. Less time in the pile equals less fuel consumed.

More payload: The bucket shape, strike plane and angle of General Purpose, Materials Handling, and Rock buckets are designed for material retention and consistent load sizes.

More uptime: A spill guard diverts overflow away from hinge pins, lift arms, hydraulic cylinders and tilt sensors, helping to protect these areas. The spill guard protects the kick-out sensors and other linkage components for more machine uptime and less money spent on parts.

Made to last: Caterpillar buckets are designed and built to Caterpillar specifications, guaranteeing quality and durability. High-strength parts and components provide durability without requiring thick, heavy materials and lead to longer uptime and larger payloads, cycle after cycle.



Engineered for demanding work

The D6R combines legendary Cat durability and reliability with proven technology designed to reduce emissions while improving your productivity and your bottom line. From rugged structures to fully integrated engine and power train systems, the D6R is a world-class tractor built to help you produce the highest quality work in a variety of applications.

BUILT FOR IT.

For more information contact our call centre on 0800 21 22 48 or visit www.barloworld-equipment.com



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CAT RIPPERS FOR MINI EXCAVATORS

A newly designed line of Cat rippers is now available for mini hydraulic excavators to meet diverse tasks such as picking, grabbing, sorting and digging in varied ground conditions. Applications include landscaping, demolition, site preparation and the installation of underground services.

These specialist work tools are purpose-built for fitment on a broad spectrum of Cat mini excavators, as well as on other original equipment manufacturer machines in the same class. Ripper operating weights extend from 45 to 107 kg, depending on the machine model match.

For added versatility, Cat rippers can be used with a pin grabber coupler, coupler and thumb, or as a pin-on attachment. The curved shape allows the ripper to work in conjunction with existing thumbs.

“When used with the Cat Dual Lock pin grabber coupler, rippers can easily be interchanged with Cat buckets for on-site rip and load multi-tasking,” explains Barloworld Equipment product specialist, Craig Christie.

Rippers are manufactured from highly durable materials to match arduous operating conditions. For example, the gussets on the top bracket are designed to withstand side load; whilst the high strength alloy shank further extends wear life.

Three ground engaging tool (GET) tip options are available: penetration, sharp centre, and heavy duty abrasion. “Choosing the right GET tip will be determined by the application,” Christie adds.



Cat rippers can be used with a pin grabber coupler, coupler and thumb (shown here), or as a pin-on attachment.



Ripper applications include landscaping, demolition and site preparation.

SMALL HAMMERS BIG ON PERFORMANCE

Four sizes, two mounting configurations and the option of silenced and side-plate models.

Launched globally from the first quarter of 2015, the new Cat E-Series small hydraulic hammer line-up is supplied in a four model range for fitment across a broad spectrum of machines, extending from mini hydraulic excavators to skid steers and backhoe loaders.

Developed specifically for construction and demolition projects, these hammers are well-suited for robust applications such as concrete, asphalt, rock and light trenching.

Replacing the previous generation D-Series, they are 100 percent designed, engineered and manufactured by Caterpillar at the OEM’s Waco factory in Texas, USA, and are a seamless match for Cat carriers. They join the extensive range of medium and large Cat E-Series hammers. The largest hammer currently is the H180Es, which has an approximately 3 990 kg operating weight and is a match for the 75 tonne class Cat 374F L excavator.

The new Cat E-Series H35E/Es, H45E/Es, H55E/Es and H65E/Es small hammer models are available as side-plate or ‘silenced’ versions. Silenced hammers, which bear the ‘Es’ nomenclature, use a fully enclosed housing to suppress noise. This is a valuable feature in sensitive work environments and when the hammer is in close proximity to the operator.

Machine owners have the option of pin-on or flat-top mounting configurations. Flat-top units can be installed on Caterpillar machines, as well as earthmoving equipment made by other manufacturers. Pin-on models are available for the H55E

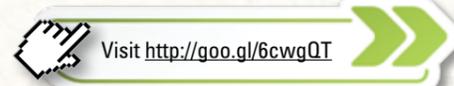
and H65E in applications that require a dedicated hammer equipped machine.

In terms of output, impact frequency on the H35E FT (Flat Top) is 600 – 1 800 blows per minute with the hammer designed for fitment on carrier weights from 1,1 to 2,4 tonnes. At the other end of the scale, this compares with the H65E FT, which delivers 720 – 1 740 blows per minute and is a match for machines with a carrier weight of three to nine tonnes.

In the field, Caterpillar’s propriety hammer designs ensure robust, long-life operation, and simplified maintenance. For example, a single grease point supplies hammer paste to the tool bushings; and the power chamber and accumulator pressures can be checked and charged while the hammer is mounted on the machine. The power cell is designed for efficiency with only two major components, namely the front head and valve body.

“Caterpillar’s tri-suspension system guides the power cell and reduces noise and vibration,” explains Barloworld Equipment product specialist, Craig Christie, expanding on technological features.

During operation, the automatic shut-off function eliminates blank firing and reduces internal wear, protecting the hammer from less experienced operators, whilst an integral accumulator protects the carrier pumps from hydraulic spiking, ensuring consistent performance.



A Cat H65Es fitted on a mini hydraulic excavator.



Did you know?

The year 2015 marks the 30th anniversary of the Cat backhoe loader. The machine was co-developed by Caterpillar teams based in Leicester, England, and Peoria, Illinois, and the first unit, a Cat 416A, rolled off the production line in September 1985.



6 | FUEL & OIL

PART FIVE IN A FIVE PART SERIES ON MANAGING FLUID SYSTEM HEALTH

HOW CLEAN IS YOUR FUEL?

The importance of effective bulk storage practices and filtration

Fuel represents the largest operating expense on any mine site, so its correct storage and cleanliness needs to be carefully managed to ensure that it remains free of contaminants caused, typically, by dirt or water ingress.

Dirty fuel, for example, causes accelerated wear and failure of fuel injectors, leading to unscheduled and costly downtime for their replacement. In contrast, injectors in engines using clean fuel typically last through the full engine life cycle to overhaul.

Distilled fuel leaves the refinery very clean. However, fuel picks up contaminants during shipment and storage between the refinery and the time it is consumed.

"Fuel quality can also be severely degraded after it is delivered to the user's storage tank if there is evidence of poor tank design or maintenance practices," explains Barloworld Equipment group product specialist, Reuben Phasha.

Coalescers: an essential quality gateway

In order to keep most of the contaminants out, fuel should be filtered as it goes into the storage tank.

Coalescer filtration systems are the ideal solution, and have been the standard method to clean large volumes of fuel in the airline and petroleum industry for more than 40 years.

Caterpillar offers a specially designed line of coalescers in four different capacities, namely 190, 379, 757 and 1135 litres per minute. Each unit is skid mounted, self-contained, and requires no electrical power.

They are designed to remove solid particles and water with single pass filtration, matching the flow requirements of the fuel delivery system.



Barrier type water separators shed water droplets from the element, which are collected in the bowl. Water must be drained before it rises to the level of the filter element.

Machine filtration

The second line of defence is the machine's onboard filtration system. The standard fuel filtration arrangement on machines is designed to act as a final cleaning step for moderately clean supply fuel of ISO 18/16/13 or cleaner, with water content of 0.05% (500 ppm) or less. The standard fuel filtration arrangement is not designed to clean very dirty or water-laden fuel.

If diesel is to be cleaned by the machine fuel system (in the absence of a coalescer) additional filtration capacity must be added. This includes a water separator and additional filters. The amount of additional filtration required depends on the level of fuel contamination and the risk of filter plugging between scheduled service intervals.

Standard filtration arrangements on machines vary. A typical standard arrangement on a 3500 series machine engine would contain the following:

- Two 10 micron(c) absolute primary filters in parallel; and
- Two 4 micron(c) absolute secondary filters in parallel

Additional filtration may include changing the primary filters to combination primary filter / water separators. However, these are barrier type separators that capture only large water droplets, which accumulate in the bottom of the filter housing. The filter must be periodically drained in order to prevent the water level from reaching the filter media.

"If this occurs, fuel flow will push the water through the media and cause fuel injector damage or failure," says Phasha. "The amount of water in the fuel determines how often the separators need to be drained or how many separators need to be added."

Either way, draining the machine's fuel tank of particulates and water routinely according to the Operation and Maintenance Manual is an important preventative maintenance practice.

"How often this needs to be done will depend on the cleanliness and handling of bulk fuel," he adds.



The Cat 1135 LPM coalescer filtration unit. This unit will handle the high volume flow rates required for the largest machines, such as the Cat 797F mining truck. This unit is also used in applications where faster filling of larger fuel trucks is required.

HYDRAULIC OIL

HYDO Advanced 20: The benefits

- Better wear protection, wider operating temperature range
- Longer drain intervals, lower owning and operating costs
- Reduced filter plugging: improves contamination control thanks to better filtration
- Reduces foaming
- Sludge control and water damage prevention
- Improved corrosion protection: protects metal surfaces from rust.

For the southern African market, Cat HYDO Advance 20 is available in 20 and 208 litre containers.

HYDO™ ADVANCED 20: THE NEXT BENCHMARK

A new hydraulic oil formulation that provides longer lasting protection for large mining equipment.

Cat HYDO Advanced 20 represents a significant performance breakthrough in hydraulic fluids technology, featuring an ISO 68 (SAE 20) viscosity that combines premium additives, along with specially selected and controlled high quality base oil, to provide advanced protection. Improved oil stability is achieved due to a 250% increase in oxidation stability per ASTM D943.

"This oil has been developed with an optimised formulation that has been subjected to severe qualification testing in the field and laboratory for thousands of hours," explains Barloworld Equipment group product specialist, Reuben Phasha, adding that HYDO Advanced 20 is the preferred fill for Cat mining equipment.

Designed to reduce owning and operating costs and increase uptime, drain intervals can be extended to 6 000 hours (when routinely monitored by the Cat S•O•SSM Services oil analysis programme every 500 hours).

Specially developed additives form a protective layer. This reduces component wear in high-pressure piston, vane, and gear hydraulic pumps. Another key feature is that Cat HYDO Advanced 20 contains emulsifiers that are specially formulated to hold and disperse water. Caterpillar does not recommend oils that 'separate', 'shed', or 'release' water.

"Separated water drawn through the hydraulic system can damage pumps and other components," Phasha explains.

The end results and benefits are proven. A recent example involved approximately 2 000 hours of severe field testing in excavators. Here, Cat HYDO Advanced 20 showed clear performance improvements over Cat HYDO (the first formulation developed by Caterpillar): 80% of HYDO Advanced's antiwear/anti-oxidant additive remained compared to 40% for HYDO. At 4 000 hours, HYDO Advanced still showed more than 60% remaining, while HYDO's additive was completely depleted.



Did you know?

Caterpillar is the only original equipment manufacturer that designs and produces its own proprietary ground engaging tool systems.



ALL SYSTEMS GO WITH CAT GREASE

Purpose-designed formulations that deliver

Developed by Caterpillar, the unique calcium sulphonate complex thickener in Cat premium greases provides superior protection for the most severe environments on earth.

Lithium complex thickener

Cat Utility Grease

- NLGI Grade 2
- General purpose product, where solid additives are not required.
- Corrosion protection: resists oxidation and protects metal against rust.
- For low speed and low load applications where operating temperatures are between -20°C to +140°C.

Cat Prime Application Grease

Used as a standard factory fill for most Cat machines

- NLGI Grade 2
- Reduced component wear: resists softening and protects parts for optimal life.
- Extreme pressure: enhanced with 3% Moly for moderate loads.
- Long life: for applications where speed, loads and temperature are moderate.
- Performs and protects where operating temperatures are between -20°C to +140°C.

Cat Extreme Application Grease – Arctic

- NLGI Grade 0.5
- Extreme cold operation: pumps and protects where operating temperatures are between -50°C to +130°C.
- Extreme pressure: 5% Moly for exceptional heavy duty performance.
- Semi-synthetic base oil.

Calcium sulphonate thickener

Cat Extreme Application Grease 1

- NLGI Grade 1
- Extreme pressure: 5% Moly added for extreme impact and wear resistance.
- Moisture resistance: resists washout from fresh and salt water.
- Performs and protects where operating temperatures are between -20°C to +140°C.

Cat Extreme Application Grease 2

- NLGI Grade 2
- Extreme pressure: 5% Moly added for extreme impact and wear resistance.
- Moisture resistance: resists washout from fresh and salt water.
- Performs and protects where operating temperatures are between -15°C to +140°C.

Cat Extreme Application Grease – Desert

- NLGI Grade 2
- Extreme heat operation: performs and protects where operating temperatures are between -10°C to +140°C.
- Extreme pressure: 5% Moly for exceptional heavy duty performance.
- Mineral base oil.



Examples from the Cat grease range.



Did you know?

Ninety percent of diesel engine faults are due to dirt or water in the fuel.

GENUINE PARTS, NOT PART GENUINE

If you work with Cat machines, they deserve only the best. That's why you should protect them by using only genuine Cat parts. Anything less can put your machines and their components at serious risk. And genuine Cat parts can actually improve machine performance. Call us on **010 040 3889** or visit www.barloworld-equipment.com to learn more about why genuine is important. Making sure you have easy access to genuine Cat parts - that's the way we're built.

BUILT FOR IT.

DON'T TAKE A CHANCE USE CAT® ORIGINAL FLUIDS

- Cat Fuel Filters can increase injector life by 45%
- Cat Extended Life Coolant reduces coolant and additive costs by 500%
- Cat Oils can save as much as 15% in oil costs



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8 | CUSTOMER TOUR



The China Tour Group: Customers together with Barloworld Equipment and Caterpillar representatives on site at the Xuzhou factory.

CAT SUZHOU & XUZHOU FACTORY VISITS 16th to 23rd November 2014

Reading and viewing China's exponential growth in Gross Domestic Product output on varied media platforms doesn't prepare one fully for the first-hand experience gained by visiting the country to see how it all comes together. Wherever one looks it's 'construction in progress' with tower cranes breaking the skyline in every direction.

In November 2014 a group of southern African Barloworld Equipment (BWE) customers had the opportunity to experience China and came away with an impression that this is a disciplined nation driven 24/7 to meet its macro-economic objectives, supported by an extensive investment in public infrastructure for road, rail, harbour and airports.

Caterpillar's state-of-the-art manufacturing facilities in Suzhou and Xuzhou were the focal point for this BWE Customer Tour, which spent three nights in Shanghai and two in Beijing.

Numbering 24 in total, the bulk of these customers were from South Africa and the balance from Angola, Malawi, Namibia and Zambia, with a business focus on construction and / or mining, both catered for by Cat products produced at the Suzhou and Xuzhou facilities.

The purpose of the visit was to reinforce the 'Made in Caterpillar' theme and to dispel any misconceptions that Cat products manufactured in China are of a lower standard than those produced at facilities in other parts of the world. In fact, rigorous quality controls ensure that there is one consistent benchmark globally. For example, engines, transmissions, lower power trains and hydraulic and electrical components are identical to those used in every other Caterpillar manufacturing plant worldwide. The steel standards used are also universal for all Cat machines.

Caterpillar has been in China for more than 30 years and has an extensive footprint with 29 factories currently in operation to support key product lines that include earthmoving, component manufacturing and remanufacturing, paving, power systems, and marine.

Both Suzhou and Xuzhou impressed with their scale and level of technological innovation. World-class machining centres can drill a hole within 1/100th of a millimetre precision on large fabrications, assuring highly accurate assembly.

Caterpillar Xuzhou

Xuzhou is situated some 623 km north west from Shanghai and this facility is destined to become the largest manufacturing centre for hydraulic excavators worldwide, indicative of Caterpillar's confidence in China as a major export base.

Established as Caterpillar Xuzhou Ltd in 1994, this is the largest Cat factory globally in terms of capacity. This is also the only Caterpillar facility to manufacture both wheeled, as well as the complete small, medium and large tracked hydraulic excavator range, extending from 11 up to 90 tonnes operating weight. This includes the new Cat 374F L and Cat 390F L units.

As for the Suzhou factory, manufacturing at the main Xuzhou plant is supported by surrounding Caterpillar component fabrication and supply centres for most key items, the exception being Cat ACERT engines, which are imported from the USA.

This centralised approach lowers manufacturing costs and is geared towards the current JIT (Just in Time) process.

As it makes its way along the production line at Xuzhou, each excavator has to pass 10 checkpoints and three quality control gates. (A similar process applies at Suzhou). Then at the end of the process a further quality audit and pre-delivery inspection is completed before shipment, either for the Chinese or international markets.

The annual excavator market in China is around 160 000 units annually, with a corresponding number for the wheel loader segment.

Caterpillar Suzhou

Situated some 108 km west of Shanghai, the Suzhou plant is one of Caterpillar's newest production centres and since 2009 manufactures selected Cat motor graders and medium sized wheel loaders.

For the southern African market, Suzhou is the source for Cat 120K, 140K and 160K motor graders, and Cat 950H, 962H, 966H, 972H and 980H wheel loaders. Worldwide, fabrication of the Cat 160K is unique to Suzhou. Future plans at Suzhou include the adoption of Tier IV engines.



A section of the hydraulic excavator production line at Caterpillar Xuzhou.



A night-time view of Shanghai's bund district.

BUILDING *ENDURING* ROADS WITH KPMM

National infrastructure projects range from Pongola in KwaZulu-Natal to Giyani in Limpopo.

From the onset of trading in June 2001, KPMM Construction's (KPMM's) core specialisation has been in roads and bridges, followed by an evolution into asphalt pavement rehabilitation.



One of KPMM's new Cat 140K motor graders deployed on a section of the N12 dual carriageway upgrade starting outside Lenasia and extending towards Carletonville over an approximately 35 km distance.

A number of major projects in progress are for the South African National Roads Agency Limited (SANRAL) where KPMM is forging ahead on multi-faceted infrastructure upgrades. KPMM is a Construction Industry Development Board (CIDB) 9CE contractor and holds a Level 3 BBBEE certificate.

Historically, the initial focus was to the north of the country, working for what is now known as the Roads Agency Limpopo (RAL), which formed the springboard for further expansion. KPMM's first major SANRAL awards in this region were for upgrades along the Polokwane to Vivo, and the Mooketsi to Tzaneen routes.

KPMM then branched out into the Gauteng region, with a SANRAL contract awarded for an upgrade to the R23 from Standerton to Balfour. This laid the groundwork for future growth in the province. In the meantime, various jobs have been ongoing for provincial authorities in Gauteng and Mpumalanga.

Construction in the Northern Cape followed with three SANRAL contracts awarded for road upgrades on sections of the N14 from Bladgrond to Pofadder and Pofadder to Witputs, and the R27 from Kenhardt to Keimoes over the 2012 to 2014 period. Three projects were completed in this timeframe for an approximate contract value of R210 m.

Hibberdeen milestone, Giyani gravel to tar conversion

One of KPMM's largest awards to date entailed the construction of a north and south bound dual carriageway on the N2 route in KwaZulu-Natal from the Hibberdeen Interchange to Umzinto River. This 14 month project, valued at around R254 m, was completed in December 2014. The scope involved the milling out and replacing of the slow lane with 40% recycled asphalt, with a final layer of UTFC placed on top of the complete road surface.

Meanwhile a two year contract in Giyani, Limpopo is in progress. "We are now more than half way through this 23 km gravel to tar conversion, which includes a new bridge, as well as in-situ culverts," says KPMM's managing director, Kevin Twiddy. "The final riding surface will be chip and spray."

Rehabilitation on the N17 between Ermelo and Chrissimere is also nearing completion.

To support these and other contracts, KPMM has been progressively expanding and modernising its plant capabilities. Recent acquisitions include latest generation Cat 140K motor graders. As Twiddy points out, investing in the right equipment technologies, whether for paving or earthmoving, provides a critical competitive edge.



A Roads Agency Limpopo contract for the upgrade of road D3756 from gravel to tar and the construction of a new river bridge.

New projects

Moving forward, new KPMM projects include rehabilitation works in Pongola, KwaZulu-Natal, which commenced in November 2014; and an N12 dual carriage upgrade outside Lenasia and extending towards Carletonville over an approximately 35 km section for client, the Gauteng Provincial Administration, where two Cat 140K units form part of the construction mix.

KPMM has also mobilised on the N11 Middelburg to Loskop Dam contract, an approximately R353 m SANRAL award and the largest so far. The scope encompasses the rehabilitation and widening of the road, with mobile crushing and screening carried out on site.

"Our strategy for roads going forward into 2015 and 2016 is to continue targeting medium to large sized contracts on a national level," adds Twiddy, "working across five to six projects in any given year."



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10 | WHEEL LOADERS



GREATER FUEL EFFICIENCY
AND LOWER EMISSIONS
SIGNIFICANTLY REDUCE THE
CARBON FOOTPRINT.

Production efficiencies on the Cat 988K are enhanced by the patented Optimised Z-bar loader linkage, which replaces the mono-boom design on the previous generation Cat 988H series model.

CAT PRIMARY LOADING IN ECO MODE

The next generation Cat 988K builds on a 50 year plus legacy to set new standards for high production loading in its weight class.

From the onset of its initial launch in 1963, the Cat 988 model series has established itself as a leader in the large wheel loader class for primary applications in quarrying and mining, as well as for more specialist roles that include dimension stone block handling.

Each successive model has benefited from Caterpillar's intensive research and development programmes, designed in consultation with customer requirements worldwide. The end result has been a constant refinement in the 988 journey, with the latest Cat 988K being the most definitive model to date and also the seventh generation unit to see service.

In standard lift, the Cat 988K is a respective three and four pass match for the Cat 770 and Cat 772 off-highway truck. In high-lift configuration, the Cat 988K loads Cat 773 and 775 units in five and six passes, respectively.

The rated payload is 11,3 tonnes, with a selection of Performance Series buckets available, ranging in capacity from 6,4 to 7,6m³.

"As with any mining or related concern, lowest owning and operating cost management has become the overriding consideration," comments Barloworld Equipment group product and application manager, Johann Venter.

"In these respects, the Cat 988K delivers with up to a 20% improvement in fuel

consumption compared to the previous Cat 988H machine (depending on operator training), plus there are notable mechanical improvements that help to maximise availability and boost overall longevity, given Caterpillar's second and third life rebuild philosophy."

Powering the Cat 988K is a Tier 2/Stage II Cat C18 ACERT™ engine generating a 403 kW net power rating (SAE J1349), with the machine coming to market with an operating weight of around 51 062 kg.

Whilst in operation, electronic fuel control ensures optimum performance and throttle response. Additional fuel savings accrue with the 988K ECO (Economy) Mode (on-demand throttle), and engine-idle shutdown and engine-idle kickdown/auto-resume systems.

The exclusive Cat impeller clutch torque converter (ICTC) uses a lock-up clutch, providing direct drive to boost fuel economy, trim cycle times, and reduce heat, especially in load and carry applications. The system allows operators to balance rimpull and hydraulic power for optimum loading efficiency. On the move, a standard rearview camera system

provides crisp images via the in-cab monitor.

Meanwhile, the Cat 988K's Automatic Retarding Control (ARC) system utilises an optional compression brake to maintain desired downhill speeds and reduce service brake wear. Positive Flow Control implement hydraulics use a variable displacement, electronically controlled pump to precisely apportion oil flow based on control lever movement.

Onboard, fuel monitoring is provided by an all-new operator station, which features the Cat Next Generation Vital Information Management System (VIMS) display. This enables expanded capabilities, including real-time fuel consumption and fuel efficiency (material loaded per unit of fuel) data, through an interactive touch screen.

Optimised Z-bar

Production efficiencies are further enhanced by the patented Optimised Z-bar loader linkage, which replaces the 988H's mono-boom design. "The new design, using solid steel lift arms in either a standard or high-lift configuration, reduces machine height at maximum lift yet increases dump clearance," explains Venter. "The design also shortens machine length for greater manoeuvrability."

Options for the 988K include the Cat Payload Control System and Cat Detect Object Detection. The latter builds on the standard Cat camera system with radar coverage: in-cab software provides notification to the operator when an object is detected. Other options include an integrated axle cooling package, ride control, a fast-fill fuelling system, automatic lube system, three-spool valve, high-speed oil change system, LED lighting, and cold start package.

The Cat 988K is fitted standard with Caterpillar's Product Link™ telematics system. Product Link is the transmitting hardware for Caterpillar's internet portal, VisionLink™ which provides a host of services forming part of the Equipment



Machine access: left and right-hand stairs with 45 degree angle enhance safety for operators getting on and off the Cat 988K.

Management Solutions (EMS) condition monitoring suite. This includes near real-time monitoring of fuel burn rates, machine utilisation, operator performance data, and mechanical health.

As with machine design, the wheel loader configuration, operator technique, and job site layout form an essential component in downstream efficiencies that will impact fuel consumption, either positively or negatively.

Key factors to consider here include the correct work tool and tyres (plus correct inflation pressures) based on machine application.

"Also spot load targets in the right position and avoid travelling more than 1,5 tyre revolutions during truck loading cycles," adds Venter. "Operators should also load in first gear, avoid lift lever detent and use impeller clutch, and throughout, we recommend using the ECO mode setting for maximum efficiency."



The Cat 988K's rated payload is 11,3 tonnes, with a selection of Performance Series buckets available, ranging in capacity from 6,4 to 7,6m³.



EXTRACTING

THE TONNAGE VALUE WITH LIVIERO

The Liviero Group is on track to meet its medium term goal of becoming a mid-tier mining contractor at around 50 million BCM's per annum.

Since entering the opencast contracting sector in early 2012, Liviero Mining has continued to invest in people and technology to deliver on major projects, the first being for Keaton Energy Holdings Limited's Vanggatfontein Colliery, a brown field development situated some 15 km east of Delmas in Mpumalanga. Liviero was awarded a five year contract.

Liviero Mining forms part of the Liviero Group, South Africa's largest privately owned multi-disciplinary contractor, which has a long established track-record that has grown organically from its initial core building focus into civil engineering, and then mining. More recently, this latter capability has been extended to include a drill and blast in-house service, with the downstream intention of rolling out the offering to the open market. A 9CE Construction Industry Development Board (CIDB) rated contractor, Liviero currently has a R800 million plus construction order book.

Present road construction works include various South African National Roads Agency Limited (SANRAL) contracts, an example being the N8 Botshabelo Interchange in the Free State.

"Going forward, the intention is to expand our civil engineering niche in South Africa across the surface mining segment, as well as in key cross-border territories, where we are also actively researching contract mining opportunities in countries that include Mozambique, Zambia, the DRC and Namibia," comments Liviero Group CEO, Neil Cloete.

Well established in coal, Liviero is now seeking opportunities in hard rock segments that include copper, chrome, iron ore, and gold.

The Liviero Plant Division supplies all Liviero business units, as well as the external hire market, depending on project capacity constraints. Mainstay Cat products on the mining front include Cat D9T, D10T and D11T track-type tractors, with the backbone of the haulage operation provided by 90,5 tonne nominal payload Cat 777D off-highway trucks. Haul road maintenance, in turn, is performed by a series of Cat 14H and 16H motor graders.



A section of the Vanggatfontein Colliery.

At Vanggatfontein, Liviero's current scope of works entails the movement of around four million tonnes of run of mine (ROM) per annum, which equates to approximately 14 million BCM's for the same period. Mining the 2, 4 and 5 seams, the top bench is between 12 to 15 m; the middle bench is 20 to 25 m; and the bottom bench around 6 to 10 m. The drilling depth is down to around 70 m.

This project runs in parallel with other mining ventures. These include long-term Liviero plant hire solutions at Usutu West Colliery for client Vunene Mining, an older underground mine where the remaining in-situ coal is now being extracted from surface. Vunene subsequently outsourced the turnkey contract mining solution to Liviero in September 2014. Currently, Liviero moves around 1,5 million BCM's per month. This mine provides a dedicated supply to Eskom's Camden power station in Ermelo.

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12 | LANDFILL MANAGEMENT

BURMA PLANT HIRE EXPANDS ITS NATIONAL FOOTPRINT

Diversification has been a major success factor for Burma Plant Hire (Burma), a Cape Town based company that celebrates 12 years in business in 2015. Today Burma is one of the largest in its field within the Western Cape, and a growing force nationally and internationally, which since its establishment back in 2003 has seen progressive roll-outs with branches established in the Eastern Cape, the Northern Cape, Gauteng, and more recently Namibia in September 2014.

"From the onset, our focus has been on supplying specialist plant hire solutions to the industrial, mining and construction sectors," says Theuns MA Burger, company founder, CEO and executive chairman, "combined with a strict adherence to health and safety practices. Safety is Burma's number one priority in all areas of our business and more specifically in terms of plant utilisation, as well as operator proficiency training and certification." In July 2011 Burma joined Raubex Group Limited, a company listed on the JSE.

There are now more than 600 units in Burma's mixed hire fleet, a core component comprising Cat earthmoving machines.

In more recent years, the Northern Cape mining segment has been a new growth market for Burma, which already has a long established presence in this and the neighbouring Western Cape region for dedicated plant hire solutions supplied to contractors working on upgrades and extensions to the Sishen to Saldanha rail line. Burma continues to supply plant for this ongoing project.

Since 2010, plant hire to construction companies operating in this Northern Cape region have run in parallel with a progressive extension of allied services to the mining sector following Burma's opening of a branch and parts distribution centre in Postmasburg. Plant hire solutions in mining include the supply of earthmoving equipment for the loading and hauling of waste materials, as well as the maintenance and construction of haul roads.

The first two machines purchased by Burma were acquired in 2003: namely a Cat 320C hydraulic excavator and a Cat 938G wheel loader. The Cat 938G, which has now recorded more than 23 000 hours, is still on daily hire. Since then, Burma's mixed earthmoving fleet has seen a progressive expansion in its Cat units to meet diverse market needs in general industry. This includes the acquisition of four latest generation Cat 938K wheel loaders during 2014 and the delivery in January 2015 of a Cat 826K landfill compactor, the first unit to see operation within southern Africa.

"We are actively expanding our landfill business nationwide," explains Burger, "to meet rising demand from both the private and municipal markets for class-leading mechanised solutions, our latest Cat 826K acquisition being a prime example."

This machine is now deployed at the Vissershok hazardous waste site, a privately owned landfill bordering the N7 in Cape Town. The Cat 826K joins an older Cat 816H compactor on a site where Burma has been operational since inception in 2003.

WE ARE ACTIVELY EXPANDING OUR LANDFILL BUSINESS NATIONWIDE TO MEET RISING DEMAND FROM BOTH THE PRIVATE AND MUNICIPAL MARKETS FOR CLASS-LEADING MECHANISED SOLUTIONS, OUR LATEST CAT 826K ACQUISITION BEING A PRIME EXAMPLE.



From left to right are Clinton Carelse, Cat certified sales professional (Barloworld Equipment Bellville); Theuns MA Burger, CEO and executive chairman, Burma Plant Hire; Theuns J Burger, managing director, Burma Plant Hire; Thomas Arendse, branch manager – Western Cape, Burma Plant Hire; and Stuart Larkin, plant manager, Burma Plant Hire.

TELEHANDLERS



From left to right are: Northlands contracts manager, Graham Bower; Barloworld Equipment Cat sales professional, Jane Shaw; and Darin D'Oliveira, head of Northlands.

NORTHLANDS RAMPS UP MIXED-USE ROLLOUT

Over the past 20 odd years, the built environment within Gauteng has experienced construction on a scale that is unprecedented, with extensive tracts of land progressively transformed into vibrant residential, commercial, and industrial space in key growth nodes.

Northlands in North Riding, Randburg, is a classic example. Development first began in 1999 and construction continues to this day on a precinct that houses interconnecting industrial and commercial parks. Northlands Industrial Park, Deco Park, and Northlands Business Park form part of the Northlands precinct. So far more than 700 000 m² of building under roof has been completed.

"From the onset, our strategy at Northlands Business Park has been to offer the market something distinctive: an upmarket development enclosed within secured perimeter boundaries featuring high-level security throughout," explains Darin D'Oliveira, head of Northlands.

At Deco Park, Northlands is currently busy with a 40 000 m² extension, which commenced in 2013 for scheduled completion in August 2015. Industrial units in this phase range in size from 500 m² up to 1200 m², with one 5 000 m² building designed to meet the expansion requirements of an existing tenant.

As on other developments, Northlands is the main contractor and deploys its own dedicated Cat earthmoving and allied equipment fleet, which was recently expanded with the addition of a Cat TH414C telehandler.

"We needed a machine with excellent lift and reach capabilities for tasks ranging from water pipeline installation to delivering building materials to second and third storey structures. After

extensive market research, the Cat TH414C, with its maximum lift height of 13,7 m and maximum forward reach of 9,2 m, proved to be the optimum choice and is now an indispensable part of our building team," says Northlands contracts manager, Graham Bower.

In the meantime as work progresses at Deco Park, planning is under way on the roll-out of the Northlands Retail Park, a new commercial property that will be constructed on a 60 000 m² site bordering Malibongwe Drive, a strategic economic corridor that interconnects the Northern Suburbs and Randburg with Lanseria International Airport and the N14 highway. Construction is expected to start during 2016.

As these and other projects unfold, D'Oliveira's most ambitious venture so far is already taking shape at their existing Avianto Estate in Muldersdrift, Gauteng, which is situated within the Kroomdraai Valley and adjoins the Cradle of Humankind World Heritage site.

The current site at Avianto features a four star hotel, a conference centre and wedding facility, and an interconnecting lifestyle estate featuring upmarket residential homes.

"We have now secured an additional 3 000 000 m² of land surrounding the existing Avianto Estate, which is zoned for development. This new venture, with an anticipated project roll-out of around 10 years, will be a mixed-use precinct on a majestic scale," D'Oliveira explains, "and is expected to unlock some R3,5 billion of future construction."

MINING THE VILLAGE PIT

Expanding its iron ore output, Beeshoek is establishing a new opencast operation on what for decades has been a mine residential zone: the Village pit. In the meantime, full-scale mining continues at Beeshoek's North and South operations.

Jointly owned by African Rainbow Minerals (ARM) and Assore, Assmang has been mining at Beeshoek since 1935 on a rich deposit near Postmasburg. Iron ore exports commenced in 1964, and at peak the mine was producing over six million tonnes.

Over the years intensive mining has been ongoing, with approximately 40% of current iron ore sales destined for the export market, although this figure changes annually based on domestic and international demand.

Three products are produced at Beeshoek: a DR (Direct Reduction) with a 64% Fe content; a lumpy Fe 64.5% product; and a 62.25% Fe fines product.

Beeshoek's resources (measured and indicated) as at 30th June 2014 were 110,33 million tonnes (64,02% iron); whilst reserves (proved and probable) were 46,13 million tonnes (64,31% iron), plus the existing dumps at 7,5 million tonnes (55,17% iron). As an indication of recent activity, Beeshoek's production was recorded at 3,1 million tonnes for the July 2013 to 30th June 2014 trading period.



Load and haul: As the Village pit gains momentum, Beeshoek's new 300 tonne Cat 6030 FS shovel will play a key role in the waste stripping programme. The Cat 6030 FS has an approximate bucket payload capacity of 30 tonnes.

Mining at Beeshoek is focused on the existing North and South pits, running alongside the development of the Village pit, a new project which has major downstream potential.

The Village pit is situated on the site of the previous Beeshoek mine residence constructed from the late 1930's, most of which has now been cleared for mining development. The Village pit deposit was first identified in the 1970's, but was not considered financially viable at the time.

At peak, the final anticipated depth for the Village pit will be 160m with an

approximate life of mine of nine years for this section at current production levels.

Driving the mining programme will be a predominately Cat earthmoving fleet, supplied and supported by Caterpillar's southern African dealer, Barloworld Equipment. This includes a latest generation Cat 6030 FS hydraulic mining shovel, together with Cat 992K and 994H wheel loaders, and Cat 777D and 789D off-highway trucks, with their respective nominal payloads of 90,4 and 181 tonnes.

These machine acquisitions form part of Beeshoek's ongoing equipment

modernisation programme to ensure continued high availability across its mining fleet.

"Overburden stripping commenced in November 2014 and initial ore for plant production will be reached in mid-2016," comments Beeshoek mining manager, Maryke Burger, adding that Village pit will reach peak production in 2017. "Village pit is scheduled, along with the other remaining Beeshoek pits, to ensure that quality is maintained and that the correct north/south feed is sustained to the two primary crushers."

HYDRAULICS

REFINING HOSE AND COUPLING INTEGRATION

Passing on safety, cost and performance gains

XT no-skive couplings: no-skive couplings utilise a universal coupling for faster, more reliable and accurate hose builds. This design eliminates variations in skiving, which can affect coupling retention.

ES hose covers: the wear resistant cover on Cat XT ES hose is up to 20 times more abrasion resistant than the industry's best rubber covered hose. This exclusive cover is designed and manufactured by Caterpillar to provide a longer lasting hose capable of withstanding demanding applications.

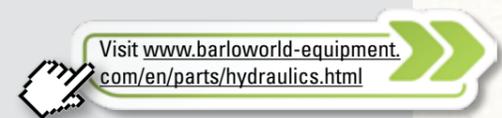
Superior bending radius: Cat hose can work at half the SAE standard bend radius without sacrificing cold flex capability. This enables tighter routing and easier installation.



Hose and coupling system design: both mating components are designed and tested together to achieve a more reliable hose/coupling connection. Along with Cat assembly tooling and training, this yields safe and maximum performance in a wide range of applications.

Hose assembly identification: hose assembly identification tags carry specific Cat part numbers to ensure correct component matching.

ToughGuard™ covers: offered for extreme applications where hose abrasion resistance is critical. This special exterior has surpassed two million abrasion test cycles without failure. Its long life and performance eliminates the need for additional investment in nylon, plastic or other forms of hose guarding and protection.



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BARLOWORLD EQUIPMENT



14 | ROTARY MIXERS

ROTARY MIXING

IN KZN, AND BEYOND

KwaZulu-Natal based contractor, **Sinothando Construction**, is expanding its niche with the recent acquisition of a Cat RM500 rotary mixer that supports the company's plans to tender on larger road projects nationally.

Gravel road maintenance has been at the heart of Sinothando Construction's business focus since the company's establishment back in 2001, predominately for KwaZulu-Natal Department of Transport (DOT) contracts.

This remains a key business area, allied to which are medium to longer-term plans to expand into the turnkey flexible pavement market, extending from initial roadbed preparation through to final premix black-top surfacing; an all-in-one strategy that has been strengthened by Sinothando Construction's acquisition of a Cat RM500 rotary mixer. The RM500 joins a Cat earthmoving fleet that includes compaction equipment and motor grader units.

"We were previously using graders for the stabilisation phases," explains Nhlakanipho Shandu, head of Sinothando Construction. "However, a side-by-side comparison with the Cat RM500 clearly shows that this rotary mixer is purpose-built for the application, delivering far more superior results, with greater speed and precise accuracy." Sinothando Construction is currently a 6 CE PE contractor according to the Construction Industry Development Board (CIDB) grading system.

"Ultimately, our medium to longer term goal is to expand nationally, with the potential to joint venture on SANRAL (South African National Roads Agency Limited) projects where our RM500 investment positions us well for future growth," says Shandu.

"We are also targeting the private sector for the construction of internal roads and the establishment of services for residential and mixed-use commercial developments. Plus the mining sector holds further opportunities for haul road design and maintenance."



From left to right are: *Namelani Shandu, operations manager, Sinothando Construction; Brendan Moore, Cat sales professional, Barloworld Equipment Durban; and Nhlakanipho Shandu, head of Sinothando Construction.*

Maximum power and efficiency.

The K Series Motor Grader is the machine you can count on when you need to get work done. Cat motor graders help you make the most of your investment by delivering maximum productivity and durability. The Cat C7 engine, direct-drive power shift transmission and load sensing hydraulics work together to ensure the power and precision you need to work in demanding conditions. And Cat motor graders are backed by Barloworld Equipment to keep you up and running.

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GROWING THE EMS PLATFORM

Virtual monitoring for near real-time machine health, utilisation and location

In January 2014, Barloworld rolled out the Cat® Equipment Management Solutions (EMS) telematic suite across its southern African dealer footprint. Now, over a year later, there are more than 4 000 machines reporting to the Cat VisionLink™ internet portal via Product Link™, the onboard transmitting hardware, either through GSM cellular connection, or satellite. (GSM technology coverage is available throughout southern Africa, with satellite catering for remote connections outside the cellular grid.)

Most new Cat machines leave the factory with Product Link fitted as standard. "Retrofit kits are available for older machines," explains Barloworld Equipment senior product manager, Wally Parsons. Automatically set for international roaming, Product Link provides seamless cross-border coverage.

Offered in five levels, Cat EMS meets every operational scope requirement, from plant hire and construction fleets to full-scale mine sites.

Key EMS features include near real-time fuel level information; machine filtering by job site / geographical location; multiple machine tracking; payload displays on medium and large wheel loaders; and geo-fencing capabilities.

Machine tracking and reporting is the responsibility of the Equipment Monitoring Bureau. This is a control room based at the Barloworld Condition Monitoring Centre in Boksburg, Johannesburg.

At the Bureau, a dedicated Barloworld Equipment team tracks individual machine data feeds downloaded via their onboard ECM (Electronic Control Module) units. ECM alerts sent via VisionLink notify fleet owners when standard protocols have been exceeded. Examples of typical alerts are 'engine over speed', 'high torque converter oil temperature', 'machine abuse', and

'implement hydraulic oil temperature high'.

The five Cat EMS packaged options are Level 1 Access; Level 2 Inform; Level 3 Advise; Level 4 Support; and Level 5 Manage.

In terms of summary overview, **Level 1 Access** enables users to enter the VisionLink portal to know where their equipment is and what it's doing with remote, near real-time information.

Level 2 Inform enables users to manage equipment health and utilisation trends compared to benchmarks via automated reporting. These reports show a range of parameters such as fuel burn trends by machine and site application; fault codes that indicate a need for operator training or repairs; the amount of time units spend idling as opposed to earning; and confirmation on individual machine hours recorded in order to schedule prescribed maintenance. The Equipment Monitoring Bureau generates a monthly fleet summary report for the customer, highlighting areas for potential improvement.

With **Level 3 Advise**, the package moves beyond pure reporting to include expert dealer recommendations. A Barloworld Equipment condition monitoring adviser provides valuable advice about maintenance, utilisation and repair, drawing from the data trend analysis

Register your machine on EMS

Reasons why you should:

- Peace of mind
- Cost reductions
- Better resale
- Safety
- Higher mechanical availability
- Improved utilisation



generated. These recommendations work hand-in-hand with a conditioning monitoring programme that can include in-field machine inspections, and fluid analysis via the Cat S•O•SSM Services programme.

Level 4 Support builds on Level 3 and caters for larger fleet owners, entailing the outsourcing of fleet maintenance, parts or repairs to a dedicated Barloworld Equipment technical services team, backed by the full EMS and S•O•S suite, plus a dedicated conditioning monitoring adviser.

For mining customers, **Level 5 Manage** is in turn a negotiated maintenance and repair contract option where Barloworld Equipment has sole responsibility within predetermined maintenance pricing structures for agreed machine rolling availability targets.

Cat S•O•S Services fuel and oil analysis programmes are either optional or inclusive depending on the EMS level selected. The Cat S•O•S Services laboratory for the southern African region is housed at the Barloworld Conditioning Monitoring Centre. "Cat S•O•S Services are an essential component in machine life cycle costing, predictive and

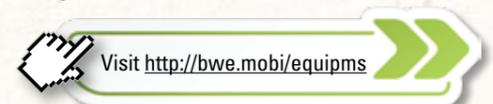
preventative maintenance strategies," Parsons stresses, adding that VisionLink enables users to view machine health data and Cat S•O•S sample results through the same portal.

"Level 1 has been well supported, with Level 2 proving popular as customers appreciate the bottom line benefits. Remote fuel burn monitoring has been one of the more popular areas, as customers seek to reduce consumption. VisionLink, for example, highlights idle time and unnecessary diesel wastage."

For further information on the EMS suite, please contact your Barloworld Equipment Parts Sales and Services representative. Alternatively, e-mail vlsupport@barloworld-equipment.com for information and assistance in registering machines onto one of the EMS programmes.

Support programmes are available for customers who own older Cat machines that are not currently equipped with Product Link.

So far, over 2 000 Cat machines are EMS registered.



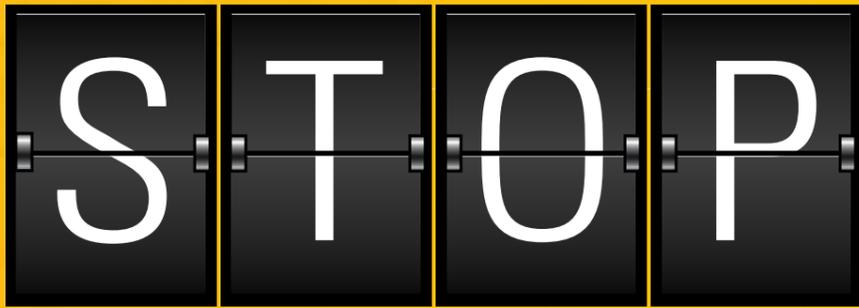
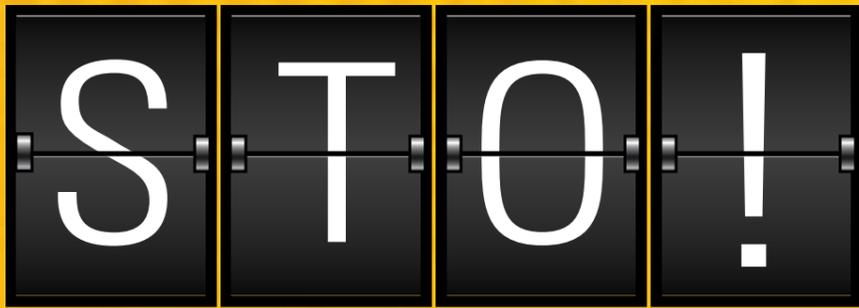
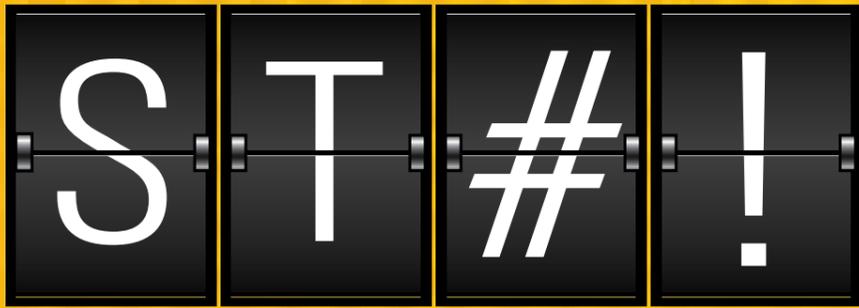
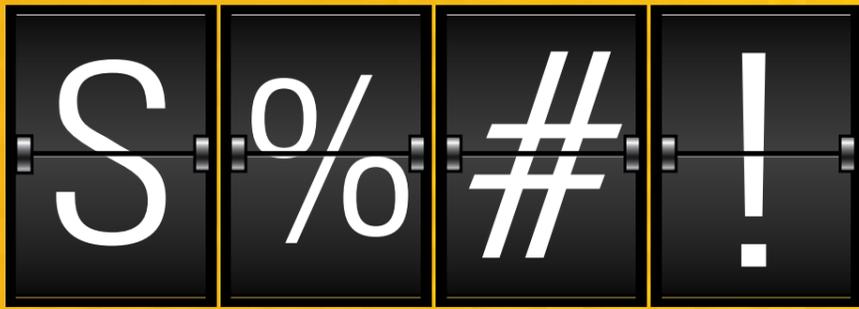
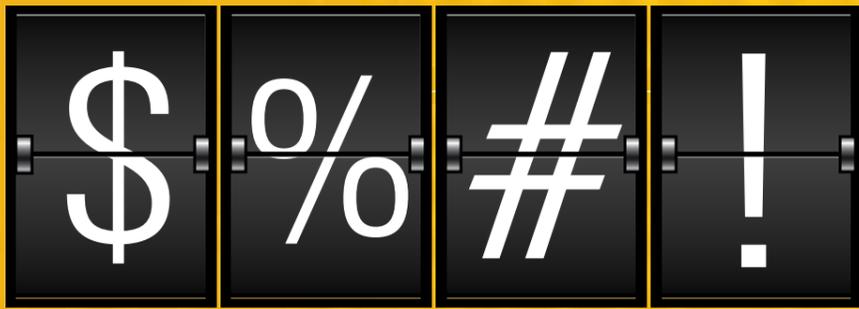
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