

CUSTOMER CHRONICLES



NEWS YOU CAN USE FROM BARLOWORLD EQUIPMENT AND CAT 1ST EDITION 2010



RAISING THE BAR
PAGE 3

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Africa's largest feedlot runs on Cat

Building roads, loading feed and cleaning the cattle kraals are just some of the daily tasks performed by Karan Beef's Caterpillar fleet.

FACT BOX FACT BOX

Did you know that..?

- Caterpillar is the only OEM that manufactures its own hoses and couplings?
- Barloworld Equipment's Polokwane branch has mobile line boring capability?
- Cat's heavy duty tracks extend undercarriage system life by 20%?
- Cat's Mechanically Attached Wear Plate System (MAWPS) lowers your operating cost?

CONTACT US

If you'd like to comment or need more information on any of the articles in this edition, please send an e-mail to customerchronicles@barloworld-equipment.com

Home to around 120 000 cattle at any given point, Karan Beef's imposing feedlot facility is by far the largest of its kind in Africa, spread across 2 500 hectares of prime farmland in Gauteng's scenic Heidelberg region.

Originally a dairy farm, the operation switched to feedlot management back in 1974, subsequently expanding to become one of today's leading meat producers. It's a sharp jump from just 100 cattle back then to the current staggering number.

Set in symmetrical rows, Karan Beef's outdoor pens (or kraals) radiate outwards in all directions, with these animals placidly thriving in an environment that ensures their greatest comfort.

As Charles Brown, technical manager for Karan Beef explains, "The emphasis is on creating hygienic, stress free conditions for our cattle, with the farm's design developed after consultation with leading specialists in the field, including a US based expert on animal behaviour.

"Sustainability has equal priority and we employ an in-house environmental consultant to monitor aspects such

"OUR SKID STEERS STANDOUT AS PARTICULARLY INVALUABLE WORKHORSES, WITH THE LATEST GENERATION UNITS PROVIDING EXCELLENT FUEL SAVINGS AND EXCEPTIONAL AVAILABILITY..."

as dust control in the kraals, plus we ensure controlled run-off of waste to settling dams, which once purified, overflow to a grassland area bordering the nearby Suikerbosrand River."

Brown is responsible for Karan Beef's earthmoving fleet, which almost exclusively comprises Cat equipment, the latter supplied and supported by southern African Caterpillar dealer, Barloworld Equipment.

Caterpillar machines in the fleet comprise four Cat 938G and two Cat 950H wheel loaders; two Cat 320C excavators; a Cat 140H grader; two Cat 428E and two Cat 422E backhoe loaders; plus eleven Cat 236B skid steers. These machines work constantly, seven days a week, on a range of tasks to meet current and future expansion.

"We have approximately 40km of gravel road spread across the farm, both for main routes as well as for



Charles Brown, technical manager for Karan Beef with one of the company's Cat 236B units.

those interconnecting the pens. The latter make provision for access by specialist feed carts equipped with electronic load cells that distribute the exact amount of feed for each pen. Every two and half minutes a feed cart, carrying its 5t consignment, leaves the feedmill for a specific kraal section," Brown explains.

"Naturally, along with feeding comes the waste, with approximately 300 tonnes of manure produced daily, which needs to be removed and disposed of constantly, and this is a prime example of where we demand high availability from our Cat machines, both for day to day operations, as well as for new construction works."

▶ (To page 4)

WEATHER THE STORM WITH BARLOWORLD AND CATERPILLAR MACHINES.

360° SOLUTIONS FROM BARLOWORLD EQUIPMENT.

2 | POWER GENERATION

Construction begins on Namibia's Anixas power station

Won on international tender, Barloworld Namibia has secured the EPC contract for a 21,5 MW plant, with execution carried out by Barloworld Power.

Worldwide, economic expansion and foreign investment is increasingly being driven by the public and private sector's ability to access and manage energy solutions that provide a sustainable business model.

In this respect, Namibia is no exception, with the government recently responding to unprecedented growth from within its mining and allied industrial sectors by investing in a new 21,5 megawatt (MW) facility that will guarantee power on demand for users operating in the country's buoyant Erongo region.

This follows the awarding of a R250 million (N\$250 million) contract to Barloworld Namibia by state utility, NamPower, for the construction of the new Anixas power station at the port of Walvis Bay.

Won on an adjudicated international public tender process, the conditions of the contract are governed by the FIDIC EPC (engineer, procure and construct) turnkey framework for global consulting engineering best practice.

The project will be carried out by Barloworld Power, the southern African dealer for Caterpillar power products and Barloworld's specialist turnkey provider for engineered



From left to right are Helmut von Maltzahn (project manager, NamPower); Paulinus Shilamba (managing director, NamPower); Kenny Gaynor (executive director, Barloworld Power); John Quarmby (general manager, Barloworld Equipment Namibia); and Whitey Visser (project manager, Barloworld Power).

solutions in this area, with a core component of the construction materials sourced from Namibian suppliers.

Work commenced in November 2009 for fast-tracked completion in December 2010 and, once commissioned, electricity generated by Anixas will be fed into the transmission network by connecting it with the existing high voltage substation at Walvis Bay.

Anixas is designed specifically to meet peak load demand in the Erongo region from Monday to Friday, ensuring that business operations experience no power interruptions.

"Whilst we have executed a number of similar power projects within the southern African region, examples of which include the 5 MW plant completed for Letšeng Diamonds in Lesotho, this represents our largest contract to date in terms of our turnkey capability," explains Kenny Gaynor, executive director at Barloworld Power. "To the best of our knowledge, this is also the largest contract of its kind yet built in southern Africa."

Cat engines modified for HFO

From a technical perspective, the contract will entail the supply of three 16CM32 units, which are being made



NamPower's 16CM32 units are being made to order at Caterpillar's Keil factory in Germany.

to order at Caterpillar's Keil factory in Germany.

"These units have been designed to run on Heavy Fuel Oil (or HFO), but can also be reconfigured to run on alternative hydrocarbon fuels at a latter date, as required," explains Rod Warnes, senior manager: Turnkey Power at Barloworld Power, highlighting the flexibility of the engineering design. "Environmental considerations are paramount, and the design complies with World Bank emission standards."

Adds Gaynor: "The Anixas contract is a major milestone in our capability strategy as Barloworld Power's Turnkey Division gears up its engineering, design and project management teams to meet Africa's electrical generation requirements.

"Our solutions are diverse and can range up to 90MW, so whether the need going forward is for dedicated prime power to run a town, or customised projects for mines and refineries, we're well equipped to meet these requirements."

Cat power on demand

Keeping production flowing at Letšeng Diamonds

When temperatures reach as low as minus 27 degrees Celsius in this snow-swept landscape many would assume that this is a location in some far flung region of the northern hemisphere, but for Lesotho's Letšeng Diamonds this is the norm during the most severe winter periods

Mining at this remote site, owned jointly by Gem Diamonds (70%) and the Kingdom of Lesotho (30%), is continuous, running 365 days a year, 24/7, making sustainable energy supply and management a critical issue. In this mountain Kingdom, this responsibility falls on the Lesotho Electricity Corporation (LEC).

Some three years ago, Letšeng Diamonds employed the services of Barloworld Power to install two



These 1 000 kVA Cat containerised gensets will supply prime power to run Plant 1 when a LEC shutdown occurs.

Cat generator sets to address emergency standby power requirements. However, these units were never intended to supply power to run the mine's two DMS plants and an additional solution was needed as a contingency plan. Each month around 450 000t of kimberlite ore is fed through these plants and even a power outage of just five minutes can create chaos when pumps shutdown and hoppers and conveyors need to be cleared.

Seeking a solution, the mine, via its electrical consulting engineers, Plantech, again appointed Barloworld Power to come up with a reliable and cost effective response.

Barloworld Power subsequently secured the order for the supply of five 1 000 kVA Cat containerised gensets, each powered by a 597kW Cat C32 ACERT engine, which will supply prime power to run Plant 1 during an LEC shutdown.

"In terms of the extreme weather conditions, altitude, logistics and the mine's remote location, this has been one of the most exciting and challenging turnkey projects we've undertaken," explains Barloworld Power's Whitey Visser, business manager: Design & Engineering Centre of Excellence.

Barloworld Power was responsible for all civil, electrical and mechanical designs, procurement, manufacturing, testing, installations, commissioning and management of the alternative power generation substation and control building.

Prior to commissioning, Barloworld Power carried out four independent simulation tests. Each time, the mine came off the grid and the five Cat engines started up instantly, simultaneously emitting a brief but distinctive streak of black diesel smoke from their external exhausts. And on each occasion a seamless transfer of power was achieved with zero interruption to production activities at Plant 1.

WEATHER THE STORM WITH BARLOWORLD AND CATERPILLAR MACHINES.

360° SOLUTIONS FROM BARLOWORLD EQUIPMENT.

Raising the bar on artisan training

Barloworld Equipment's world class centre for technical learning opens for business

On a global scale, Barloworld Equipment's new Technical Training Centre in Isando, Johannesburg, is a flagship development within the international Caterpillar dealer framework and represents a major vote of confidence in South Africa's and Africa's future.

Officially opened in October 2009 by Caterpillar Inc Chairman and CEO, Jim Owens, and Peter Bulterman, CEO of Barloworld Equipment southern Africa, the centre's construction ties in with the recent unveiling of Barloworld's Student Accommodation Centre, with both facilities representing a combined investment of some R130 million.

"SOME 80% OF BARLOWORLD EQUIPMENT'S TRAINING PROGRAMMES WILL FOCUS ON LABORATORY WORK TO MAXIMISE THE COMPETENCY OF GRADUATING ARTISANS..."

At full capacity the Training Centre will be capable of developing approximately 2 000 learners annually, comprising aspiring Barloworld Equipment artisans plus those employed by customers and other Cat dealers on the African continent. In addition to the centre's laboratory area, this multi-faceted building makes provision for six workshop bays where students will have an opportunity to strip and assemble a mixed fleet of Cat machines that will be owned by the school.

The training centre's double volume internal layout houses 12 classrooms on the second floor, overlooking the ground level laboratory training area. The latter comprises 12 lab bays (each catering for four students) and served by their own dedicated jib crane for

the movement of mechanical items such as engines and transmissions.

Students will also have access to a multimedia centre, plus sophisticated simulators that will enable them to identify and trouble shoot critical machine functions, such as hydraulic and electrical faults.

Experiential training takes priority

Comments Rob Pullen, senior general manager: service at Barloworld Equipment: "Along with our new training centre will be a complete change in direction in terms of the way we educate our future artisans. In the past the traditional approach in South Africa has seen an 80% focus on theory, with a fairly unstructured 20% experiential phase.

"We're reversing this and some 80% of Barloworld Equipment's training programmes will focus on laboratory work to maximise the competency of



From left to right are Dumisa Ntsebeza, chairman, Barloworld Ltd; Membathisi Mdladlana, South African Minister of Labour; Jim Owens, chairman and chief executive officer of Caterpillar Inc; Paolo Fellin, vice president of Caterpillar's marketing division for Europe, Africa, the Middle East and CIS; and Peter Bulterman, CEO, Barloworld Equipment southern Africa.

graduating artisans. This will ensure that they can add value from their first day on the job.

"Courses offered and approved by MERSETA (Manufacturing, Engineering & Related Services SETA) start with the Learnership programme, which is split into three graded courses: the entry level Maintenance Mechanic (NQF Level II / equivalent to Cat Level I); General Mechanic (Cat Level II / NQF Level 3); and our new qualification, introduced in 2009, the Senior Mechanic (Cat Level III / NQF Level 4).

"In future, the plan is also to introduce a Level 5: Specialist Mechanic. These technicians will have a key focus on diagnostics and complex mechanical issues and those qualifying will be eligible for professional registration, putting us well ahead of the industry."

Ahead of the training centre's opening, Barloworld Equipment has selected its best instructors from around the Group, and has added to this complement following the recruitment of college lecturers from industry. This team will include French speaking instructors from Europe or alternatively sourced from other Cat dealers.

"Going forward, we hope to cater for Francophone Africa from across the sub-Saharan and Indian Ocean region (such as the islands of Madagascar and Reunion)," says Pullen.

Another valuable initiative is the introduction of the Accelerated Basic Classes programme. This innovative 12 week course serves as an ideal refresher or conversion. For example, a mechanic can go from servicing on-highway truck engines to earthmoving equipment and Pullen says this development is receiving a very favourable response from customers.



At full capacity the Training Centre will be capable of developing approximately 2 000 learners annually, with the student mix comprising aspiring Barloworld Equipment artisans plus those employed by customers and other Cat dealers on the African continent.

Masters Elite campus

Barloworld refines its after-sales capability



A group of Barloworld Equipment after-sales personnel celebrate the completion of their Masters Elite Caterpillar training programme.

Reinforcing its commitment to driving down machine ownership costs, Barloworld Equipment's national after-sales team recently underwent a comprehensive Cat Masters Elite training course.

"Run by specialised Cat trainers, the course will ensure that our after-sales personnel are well-placed to keep customers abreast of the latest technological developments and maintenance solutions from Caterpillar," explains Abigail Nel, marketing manager: after-sales, Barloworld Equipment.

Areas covered by the training programme included Power Train Management, Hydraulics, Undercarriage and GET.

"The Masters Elite programme is directly in line with Barloworld Equipment's mission statement, which is to consistently provide cost effective solutions, equipment management services and quality products to our customers," adds Nel. "To achieve this goal, we rely on people who are committed, passionate and proud of what they do."

4 | REBUILDS

Heavy haulage

in the Kalahari

Characterized by its distinctive desert terrain of low lying outcrops and reddish soil, South Africa's Kalahari Basin in the Northern Cape is renowned for its mineral rich manganese deposits, with a number of Blue Chip mining concerns running large-scale operations in the region.

It's a severe environment for both miners and their equipment where only the best can thrive, with the mercury dropping to as low as minus 3°C in winter, and climbing to plus 51°C during the summer months.

Irrespective, though, production continues around the clock and for one specific mine in the region, the ability to meet its throughput targets has been closely interlinked with the high availability of its Caterpillar off-highway truck fleet.

The mine owns four Cat 777B's and three Cat 777D's with these units responsible for ongoing overburden removal, a task they perform tirelessly in the heat and dust. More significantly though, the mine's Cat 777B's have worked with minimal interruption despite the fact that they've now recorded in the region of 60 000 hours.

The mine in question acquired its Cat 777B's back in 1991 and these units ran for 35 000 hours up until 2005. A decision then had to be

made on whether to replace or rebuild them. After consultation with Barloworld Equipment, which has a dedicated service centre on site, the mine opted to go for a Cat Certified Rebuild.

"The cost of a rebuild is around 65 to 70% of the price of a new machine and the expected life thereafter should be in the region of 80 to 90% of the original hours achieved," explains Wally Parsons, senior product manager: after-sales, "making this an outstanding investment that keeps on working at a lower upfront capital outlay. This is also a sustainable solution since a high percentage of the mechanical components are reconditioned."

The Cat Certified Rebuild programme includes any product and software improvements since the original machine was manufactured, which means that this mine's Cat 777B's have been re-equipped with the latest generation Caterpillar technology. Major components were overhauled at Barloworld Equipment's Isando and Boksburg Component Rebuild Centres (CRC's). (Isando's CRC specialises in engine overhauls, whilst Boksburg focuses on drive train and hydraulic re-fitment.)

Back at the mine, these "as new" Caterpillar 777B's were then returned to their haulage tasks. And since being rebuilt in 2005 they have now each done another 20 000 plus hours and still achieve mechanical availability in excess of 90%.



One of four Cat 777B's that have each recorded over 60 000 hours at a major manganese mine in the Northern Cape.

◀ (From page 1)

Africa's largest feedlot runs on Cat (continued)

Expansion at the farm is ongoing, and during the course of 2009 Karan Beef has been progressively increasing its 900 existing pens by adding around 140 new kraals to meet rising consumer demand.

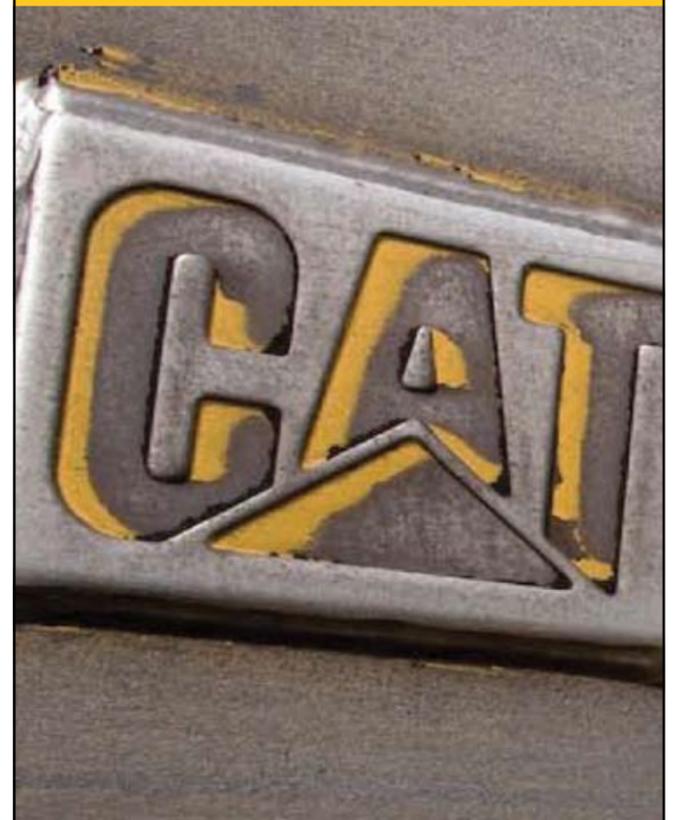
In addition to road building and maintenance, each new pen is laid with a gravel base, to avoid mud build up, with the stone sourced from Karan Beef's nearby quarry.

"Within our Cat fleet, our skid steers stand out as particularly invaluable workhorses, with the latest generation units providing excellent fuel savings and exceptional availability," says

Brown. "We use our Cat 236B's for loading the mixing bins at our feedmill, whilst others are tasked with manure removal in the pens, or, fitted with an auger attachment, for fence pole planting."

Adds Brown: "The feedmill is the heart of our operation, and every day we depend on our Cat skid steer and wheel loader fleet to transfer some 1 000 tonnes of feed from the bunkers to the bins in the plant. With thousands of cattle to feed, it's reassuring to know that we can always rely on Caterpillar to get the job done."

DIFFICULT TIMES, EASY DECISION.



NO BETTER TIME, NO BETTER REASON.

Recession. Recovery. Cat® equipment is an asset built to hold its value and outlast hard times and good times. And Barloworld Equipment are tough and trusted partners dedicated to solving business issues. And Barloworld Equipment provides the service and support that saves money and helps protect the value of your investment. There's never been a better time or reason to own a Cat. Firing up your own economic engine. Building your own recovery. That's progress.

For more information contact Barloworld Equipment on 011 929 0000 or our call centre on 0800 21 22 48 or visit www.barloworld-equipment.com



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A RANGE OF COMPETITIVE FINANCIAL OPTIONS.

HASSLE FREE RENTAL.

Trucking up Lesotho's mountain passes

How do you get three new Cat 773F rigid trucks up tight winding passes in the Maloti mountain range, with an endless series of hairpins to negotiate? Well, since a standard lowbed vehicle can't get through these tight bends, the simple answer is to get behind the wheel and drive them up, climbing steadily to over 3 300m above sea level to reach the final destination, Lesotho's Letšeng Diamonds.

On 15th September 2009, Sam Matekane, managing director of Matekane Mining Investment Company (MMIC), the mining contractor at Letšeng, was on the ground at the "base camp"

in Marakabe, Lesotho, to witness this historic event in the company's history. (The trucks had crossed the Lesotho / South African border the previous night using heavy haulage transporters and then been offloaded and readied for their road trip.)

Firing up the engines just after dawn, the Lesotho police and Letšeng Diamonds' safety team were there to manage the generally light traffic along the approximately 100km route as the Cat 773F's set off along the undulating valley floor before gearing down for the long hill climb.

Given the size of these trucks, with their overall tyre width of 4,4m and overall length of 10,2m, they take

up virtually the entire span of this standard secondary road so there's no room for anything else. Herded cattle, taxis, and passenger vehicles all have to give right of way.

"Under standard operating conditions these trucks can achieve a top speed of 67,5km fully loaded, carrying a target payload of 55 tonnes," says Tom Ferreira from Barloworld Equipment Bloemfontein and with sales responsibility for the Lesotho territory. "MMIC's trucks were only carrying spare tyres in the bowls, so the operators had to rein in the responsive Cat C27 engines as they powered the 773F's through the steep gradients with ease."

Keeping the speed under 50km an hour, and taking regular rest stops, the 773F's reached Letšeng, the world's highest diamond mine, safely and on time, joining MMIC's dedicated Caterpillar fleet, which currently includes eighteen Cat 740 articulated trucks. As production grows, other Cat 773F's could soon follow.

"MMIC'S TRUCKS WERE ONLY CARRYING SPARE TYRES IN THE BOWLS, SO THE OPERATORS HAD TO REIN IN THE RESPONSIVE CAT C27 ENGINES AS THEY POWERED THE 773F'S THROUGH THE STEEP GRADIENTS WITH EASE."



GET lifetime guarantees

Protect your equipment with Cat's ARM solution

Ground engaging tools (GET) protect the expensive parts of your blade, bucket and ripper shanks, extending component life and reducing your machine's maintenance costs. And did you know that GET also plays a big part in determining how well your machine performs in specific applications?

"Barloworld Equipment offers many ground engaging tool options, because every machine and application has special needs," explains Deon Delpont, group product support specialist, "areas where our trained Customer Service Representatives (CSR's) can assist in matching the right tools to your application and needs."

But the benefits don't end there. Caterpillar also provides warranties for most ground engaging tools against breakage during normal operation at any time during their lifetime.

Designed to last, Caterpillar has further enhanced its GET capability with a number of state-of-the-art technologies.



"COMPARED WITH NON-ARM COMPONENTS, ARM-PROTECTED GET CAN LAST BETWEEN THREE AND FIVE TIMES LONGER IN HIGH-ABRASION/LOW-TO-MODERATE IMPACT CONDITIONS."

Abrasion resistant material

"For example, Caterpillar's Abrasion Resistant Material (ARM) protects Cat GET components from wear in critical areas," Delpont explains. "Compared with non-ARM components, ARM-protected GET can last between three and five times longer in high-abrasion/low-to-moderate impact conditions." So how does it work? ARM is a coating made of extremely hard tungsten carbide particles. Bonded to selected Cat DH-2 or DH-3 products,

ARM forms a protective shield over key wearing surfaces.

Available on a variety of off-the-shelf Cat GET products, this solution is recommended for applications where sand, gravel and other abrasive materials severely diminish GET wear life.

"Additionally, ARM is also used to create optimum wear patterns," Delpont continues. "On bucket and ripper tips, for example, a centre strip of ARM on the top of each tip creates a self-sharpening wear pattern. This pattern actually improves tool penetration as the parent steel wears away."

Hard benefits

Not surprisingly, ARM protected GET costs more than similar standard tools. However, the higher initial cost of going the ARM route is more than offset by three key advantages:

- **More wear life:** Because ARM lasts three to five times longer than standard through-hardened GET, it delivers dramatically lower costs per hour in appropriate applications;

- **Higher production:** ARM-enhanced wear patterns improve penetration and help your machines do more work each hour, which increases your productivity, and therefore your profitability.
- **Increased machine availability:** Long wear life means you'll spend less time replacing ARM GET, which helps reduce total operating costs.

Recommended applications

ARM cutting edges work best in high abrasion/low-to-moderate impact applications. With the introduction of ARM ripper tips, bucket tips and bucket adapters, the specific placement and application of ARM has allowed ARM products to be used in higher impact applications. However, Delpont cautions against using ARM GET in impact applications that exceed recommended levels for a specific product: "This can result in the ARM chipping off the part, affecting cost per hour performance." For more information, please ask your CSR to evaluate your specific application.

INTEGRAL NEW, USED AND RENTAL SOLUTIONS.

IDEAL MACHINE AND APPLICATION MATCH.

6 | FINANCE

Prime opportunities with Cat Finance

Over the past 12 months, Barloworld Equipment's asset financing arm, Cat Financial Services SA (Cat Financial) has been making major inroads locally, in the process creating a whole new generation of Caterpillar machine owners.

"We've concluded more than 200 agreements with a combined value of more than R250 million for a broad range of South African construction and mining customers to meet their fleet expansion requirements," says Wayne Morris, head of Cat Financial. Deals have ranged from conventional hire purchase agreements to standby facilities (prearranged credit lines) for general and AAA rated clients.

Underwritten by FirstRand Limited entity WesBank, Cat Financial was formed following a strategic agreement with Caterpillar Inc. subsidiary, Caterpillar Financial. As Morris explains, this unique structure has enabled Cat Financial Services SA to come to the market

with the most competitive lending rates and structures (e.g. quarterly and biannual repayment options) available in the South Africa earthmoving equipment sector.

"What also sets us apart from other financial institutions is that our personnel all have in-depth product knowledge on the Caterpillar machine line-up, enabling them to work with confidence alongside Barloworld Equipment's sales teams to structure the best financing options," explains Morris, expanding on the service offering. "And as our customers' businesses grow, we're well placed to provide downstream advice on upgrade and fleet expansion options."

As an added benefit, Cat Financial is also offering Barloworld Equipment's 360° Solutions package on each machine sold. The latter includes machine costs, financial services, extended warranties and product support, all in one payment. In addition, highly competitive insurance services are provided.

Adds Morris: "For both small and large enterprises, customers are increasingly basing their buying decisions on the best value proposition: durability, reliability and longer term resale values.

Caterpillar, as a leading global brand, delivers in all these areas and Cat Financial is in the best position to meet your equipment funding needs."

Rail Plant Hire's D6 expansion

Moving the earth with Cat since 1980, Gauteng based rental company, Rail Plant Hire, is rapidly becoming South Africa's leading specialist in the dozer segment, expanding its footprint both locally and cross-border, with an allied penetration into the civil engineering contracting market.

Expansion of the rental fleet has been significant, rising from sixteen units in 2003 to 41 machines currently. The more recent additions follow the acquisition of six latest generation D6T units, supplied and supported by Barloworld Equipment and financed through Cat Financial.

The bulk of Rail Plant Hire's machines are low hour D6 units,



One of Rail Plant Hire's Cat D6R dozers working on a site in Gauteng.

either D6Rs or D6Ts, which are popular with clients across a broad industry spectrum, from road building to golf course developments, dam construction and landfills (waste handling).

Work your system hard

Seven reasons why you should use Caterpillar undercarriage

Caterpillar undercarriage parts work as a powerful system to propel your machine over all types of terrain. Since introducing its first track-type tractor in 1925, Caterpillar has continued to innovate and improve undercarriage performance. High-quality materials and carefully controlled manufacturing processes ensure that Cat undercarriage parts are reliable, durable, and wear at a balanced rate. Longer life and predictable, manageable wear mean you get maximum undercarriage performance at the lowest possible operating cost.

1. Undercarriage links

Hardened for long life and excellent salability

Special heat treat processes give Cat links consistent surface hardness, superior hardening depth, and strong core hardness. This results in excellent wear resistance, strength, and durability for unmatched salability and long life.

2. Undercarriage rollers

Manufactured for increased life and low costs

Cat rollers are through hardened for long wear life, unmatched structural support, and resistance to deformation. Cat's Duo-Cone seals help ensure lifetime lubrication to extend life, permit roller reselling, and lower your costs.

3. Undercarriage segments

Hardened for improved wear resistance

High surface hardness and excellent hardened depth and core hardness mean Cat segments provide long wear life, resistance to bending and breakage, and maximum hardware retention. The bolt-on design further reduces replacement time.

4. Undercarriage pins and bushings

Matched to links for strength and salability

Cat pins and bushings are dimensionally matched to the links and manufactured to provide excellent track joint integrity. This design helps ensure maximum salability. High surface and core hardness translate into increased strength and wear resistance.

5. Undercarriage seals

Designed for long life and low costs

To keep abrasives out and oil in, the Caterpillar rigid seal design combines high wear resistance and load protection. The result is a "wet" joint at turn time, which extends bushing life and lowers your cost.

6. Undercarriage idlers

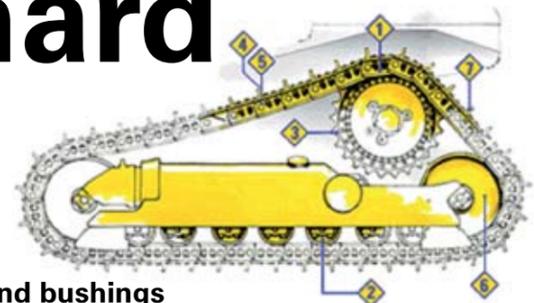
Manufactured for more wear resistance and less downtime

Whether cast, forged, or fabricated, Cat idlers provide superior structural support and rebuild capabilities. Special heat treat processes help ensure proper hardness levels, providing wear resistance. Duo-Cone seals help ensure lifetime lubrication, eliminating idler maintenance and lowering operating costs.

7. Undercarriage track shoes

Hardened and tempered for better wear resistance.

Caterpillar track shoes are furnace hardened and tempered for strength and resistance to bending and breakage. We offer a variety of track shoe options to meet the requirements of your work environment.



Ortia ready for A380 touchdown

Two Cat excavators fitted with specialist attachments have set a new global benchmark for rapid impact compaction.

Ahead of the FIFA 2010 World Cup, Africa's largest air hub, Johannesburg's OR Tambo International Airport (ORTIA) is a hive of construction activity as the Airports Company of South Africa presses ahead with a series of projects to meet rising traffic volumes.

One of the most interesting of these is the construction of a new apron designed to accommodate the imminent arrival of the world's largest passenger aircraft, the Airbus A380, as soccer fans head for South Africa in June. The main contractor was WBHO, with the geotechnical phase carried out by RIC Africa.

Covering an area of some 88 000m², the apron's construction overlies an existing wetland in complex ground conditions. During the initial engineering investigation, this scenario ultimately meant that the stone column approach was selected as the only viable route since the latter serve both as bearing structures, as well as acting as a filter, or vertical drain. The design required the installation of 7 200 stone columns to support the concrete

apron slab which followed, and these columns needed to be installed in the fastest possible time to meet tight project timelines.

This need for speed meant that a unique solution had to be devised, using a combination of rapid impact compaction (RIC) and dynamic compaction (DC) to install the stone columns.

Key to the project's success were two Cat excavators, a Cat 345B LME and a Cat 385C (the latter acquired specifically for this contract), both fitted with custom-built RIC compactors designed by UK based company, BSP International. Each machine has a specific role to play, with the Cat 345B fitted with a 9t RIC compactor, and the Caterpillar 385C equipped with a 12t RIC unit.

As opposed to the DC approach, where a weight is lifted and dropped repeatedly by a crane, the RIC method (originally developed for the UK military to rapidly repair runway bomb craters) entails the dropping of a specified weight onto a special foot assembly, which remains in contact with the ground at all times.



RIC Africa's Cat 385C establishing the stone columns for the construction of OR Tambo International's new Airbus A380 apron.

The foot assembly strikes the ground at a phenomenal 40 to 60 blows per minute.

"This project is particularly significant as this is only the fourth 12t RIC unit to be deployed worldwide – all of which have been fitted to Cat machines – with the other three units recently used during the construction of the Qatar Gas Terminal project in the Middle East," explains RIC Africa's Braam Compion.

By utilising the Cat 345 fitted with the 9t RIC, working alongside conventional DC cranes, for 60% of

the columns, and the Cat 385 fitted with the RIC 12t for the remaining 40%, RIC Africa was able to finish the job within seven months.

Adds Compion: "It took two minutes per position for the 9 tonner and just one minute for the 12 tonner. On a 9t machine we covered around 1 000m² per day – assuming normal compaction. By comparison, the 12t achieved between 1 800 and 2 000m² per day for a stone column depth of 4,5 to 6m. An exceptional result."

Enhance your hydraulic cylinder capability at the CRC

Caterpillar builds its components to last, but as with any mechanical item, the time comes when parts need to be refurbished or replaced, and in this respect hydraulic cylinder maintenance is one of the most important areas to manage in optimising machine performance.

Within Barloworld Equipment's southern African region, hydraulic repairs and refurbishment are carried out at the Component Rebuild Centre (CRC) in Boksburg by a specially trained team of artisans. All parts sent to the CRC are either repaired or replaced by genuine Cat products for the entire Caterpillar machine range.

Hydraulic components sent to the CRC are disassembled and inspected externally and internally. Thereafter a quote is provided.

Minor repairs may only require a light hone or reseal, whilst major work could entail a re-rod or re-tube (cutting



During the final refurbishment phase, the HVOF process applies a coating to a hydraulic rod section in place of chroming within six to eight hours.

and replacing worn sections of the original cylinder).

"Where time is an issue and a replacement part is needed immediately customers also have the option of ordering a new one or going the Cat Renam (Re-manufactured) route," explains Paul Verwey, group

product specialist: hydraulics at Barloworld Equipment. "This would typically either be for a tube or rod replacement, or both." Reman products come with a 100% Cat guarantee.

Speed and cost savings are also achieved by innovative processes. Examples include the CRC's HVOF

(High Velocity Oxygen Fuelling) bay in Boksburg.

"During the final refurbishment phase, the HVOF process applies a coating to a hydraulic rod section in place of chroming within six to eight hours," says Verwey, "which is considerably shorter than the three days required for a chrome finish. Additionally, the finish achieved by HVOF is more durable than chrome."

Once this final stage is completed, new Cat seals are fitted on re-assembly and the component is ready for shipment back to the client – ready for many hours of productive use.

"The CRC is a high-tech facility and we encourage customers to come and experience the range of services on offer," says Verwey.

To set up a visit, please contact your Customer Service Representative.

8 | DRIVE TRAIN

Drive train management

Better ways to extend component life

This is the last in a four part series on ways to optimise machine condition monitoring and performance.

Part 4

Seven elements that will keep your drive train systems in great shape.



REPAIR MANAGEMENT Respond to repair indicators quickly

The Site Operations and Maintenance Advisor (SOMA) can significantly reduce your owning and operating costs. When used with other drive train management techniques, SOMA helps us identify estimated life to before-failure overhaul for your drive train components. It also:

- Indicates how you can extend the time for drive train overhaul by changing operating and maintenance factors;
- Provides increased opportunities for repair before failure; and
- Allows for more accurate budgeting and scheduling of repairs.



PREVENTIVE MAINTENANCE

Fluid filters work in unison with your drive train oil to control contamination inside your drive train system. By changing filters regularly and properly and by selecting the right filters, you maintain drive train system cleanliness, reduce component wear, and lower costs.

Select the right fluid filters

Quality fluid filters feature media that remove harmful particles that can cause component wear. They are resistant to leaks and structural failures and are constructed to ensure every bit of oil passes through the media.

Cat fluid filters feature:

- Resin-impregnated media to meet Caterpillar's rigid capacity and efficiency specs;
- A self-lubricating, free-rotating seal design to prevent bunching, improve sealing, and eliminate leaks;
- A non-metallic core, which is stronger than metal and eliminates metal contamination;
- A one-piece "auto-spun" canister design to increase structural strength and prevent possible ruptures;
- An unique fibreglass spiral roving design to eliminate pleat flexing; and
- One-piece, molded methane end caps to eliminate leaks and metal contamination.



TRAINING

A properly trained staff can perform regular drive train maintenance and recognise repair indicators. We work with you to customise a training programme for your personnel by:

- Making sure they know proper start-up and shut-down procedures;
- Reviewing maintenance procedures to ensure they follow recommended lube and maintenance guidelines;
- Teaching them to recognise and react to repair indicators.



S•O•S FLUID ANALYSIS Understand your S•O•S analyst's requests

Occasionally, your S•O•S analyst may ask for more information or a second oil sample. It's important to fulfill this request because:

- Your S•O•S analyst may want a shorter-term sample (perhaps half the oil change interval) to verify a trend;
- Your analyst may require repeat samples from two adjacent compartments to check for possible oil transfer;
- Your analyst may ask you to change the oil and filter, run the machine for a short period, then sample again. This determines debris carryover and establishes a baseline for future samples;
- The original sample may be suspect because it might have been accidentally contaminated when drawn or taken "cold"; and
- The volume of the original sample may have been too small to perform the necessary tests.



SCHEDULING

Our scheduling program keeps your machines up and running

Use Maintenance Control System (MCS) software to schedule your maintenance and record machine operating costs and time usage. This Windows based system is specially designed for users of Caterpillar equipment and it can also be used in many other applications.



INSPECTIONS

Locate potential problems with thorough inspections

Utilise our inspection services: Technical Analysis Inspection (TA) requires advanced diagnostic inspection equipment and consists of a comprehensive visual inspection, plus a repair indicator review and evaluation. After a thorough analysis, we'll issue a recommendation based on our TA findings.

Repair Determination Inspection (RDI) requires a thorough internal inspection and is performed when TA results suggest further inspection is necessary. This requires component disassembly and evaluation. After the evaluation, we will give you a specific repair option recommendation.



RECORD KEEPING

Keeping track of maintenance is an important task, one that is easy to put off until skipped maintenance causes a problem. We can help you manage your drive train system by training your staff, developing an effective scheduling programme and setting up manual or computerised record keeping systems. With proper system management, you can lower your repair costs and reduce your unscheduled downtime.

A RANGE OF COMPETITIVE FINANCIAL OPTIONS.

HASSLE FREE RENTAL.