



# road ahead

3rd Issue 2014  
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Transport  
on the move



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## On the Cover



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The Chartered Institute of  
Logistics & Transport  
South Africa



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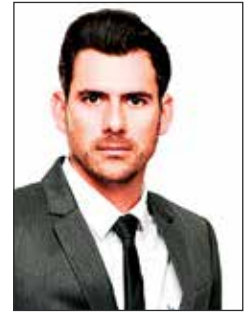
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# TRANSNET FREIGHT RAIL



Transnet Freight Rail is the largest division of Transnet SOC Ltd. It is a world class heavy haul freight rail company that specialises in the transportation of freight. The company maintains an extensive rail network across South Africa that connects with other rail networks in the sub-Saharan region, with its rail infrastructure representing about 80% of Africa's total. The company is proud of its reputation for technological leadership beyond Africa as well as with-in Africa.



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**Transport on the move**

## Foreword **Businesses should capitalise on Africa's rising opportunities**



*Sumesh Rahavendra*

**The rise of Africa has been well documented over the past decade, and the continent has now become one of the biggest frontiers for trade and investment.**

Overall economic growth forecasts have been surpassed by many of the African countries' prospects, especially low-income states such as Rwanda and Sierra Leone, which are projected to grow by 7.5% and 13.9% respectively.

As household expenditure has increased over the years, resulting in rising consumer demand, there is a definite opportunity for SMEs to fill the gaps not being serviced by large global companies.

We have over 25 000 SMEs working with us across Africa and every day we work on understanding their needs better to help them go global.

We are increasingly noticing retail and telecommunications customers expanding on the continent, and local entrepreneurs should be encouraged to also capitalise on the continent's growing markets, similar to the approach by international organisations.

We as DHL Express have increased our retail presence in sub-Saharan Africa to just over 2 600 outlets. Other sectors where we have seen growth include fast-moving consumer goods, healthcare products, retail, food, telecommunications and other consumer-related necessities.

With underdeveloped road and rail networks, and around 12% of cities served by just one flight per week, infrastructure and connectivity are among the most pressing challenges. Investments in infrastructure and our network remain a key focus area for us in 2014, as we understand that in order to achieve growth, we need to ensure we have the best in class facilities.

The ongoing upgrades to our network operations assist us in meeting these expectations while maintaining our excellent service standard.

Extensive infrastructure is critical for ensuring the effective functioning of an economy, and a well-developed network is vital for enabling local and global businesses to transport their goods and services to the market securely and timely.

As a logistics service provider, we remain committed to not only connecting others to one of the world's biggest frontiers, but to making the rest of the world the next frontier for Africa.

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Transport on the move

## Ed's letter

## Do the right thing



**With the new Euro regulations on the horizon, we're focusing on fuel in this edition – from dirty diesel to synthetic oil, we've got you covered.**

The whole diesel debate is an interesting one. On the one hand, we have ever more efficient engines entering the South African marketplace as our diesel catches up to international standards.

However, most large SA logistics companies do business north of the border, where fuel controls are less stringent.

So you may have the most fuel-efficient truck, with the latest fuel-saving engine, but as soon as you want to fill up in Zimbabwe or Mozambique, you may well find that the quality of the fuel jeopardises the integrity of the engine.

South Africa should really consider cross-border factors when insisting on the latest fuels. In terms of biofuel, the older direct-injection diesel engines run better. So instead of spending billions of rands upgrading engines, why not upgrade our biofuel production, with price controls?

In the United Kingdom, the McDonald's fast food chain reportedly uses 99% of its used cooking oil to power its fleet of trucks. I can see a time when you buy your hamburger at one till and then drive another five metres to a biofuel pump to fill up your car in an environmentally friendly way. It would certainly improve the public image of some of these fast food outlets that usually get more bad press than good.

It is positive to read of a mega biofuel plant being constructed in Durban, using sugar cane to produce the fuel. With the new laws coming in for a minimum of 2% of South Africa's energy to come from biofuel in 2015, there is a growing opportunity for cleaner fuel and job creation. The notion that we rely on the Middle East for fuel is a myth: we have the ability to do it ourselves in a much more responsible manner.

The notion that biofuel is somehow dirty and substandard needs to be addressed. The first car, the Ford Model T, was originally designed to run off hemp biofuel. Most of the time when engines get blocked after using biofuel, it is because the biofuel also acts as a cleaning agent, thus you may find clogging of dirt in your filters as muck comes out. If you're going to run on biofuel, it's best to clean the filters first. Many drivers have gone years without any trouble running on pure biofuel, and have the satisfaction of knowing they're not helping to choke up the planet in smog.

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# Getting to know the IRTE



**The Institute of Road Transport Engineers (IRTE) is a London, UK, based organisation which was inaugurated in 1944. Membership of the IRTE is on a personal basis with the UK organisation, with member grading determined by an individual's academic and career experience in the road transport industry, both freight and passenger operations.**

**Following the second world, a number of UK expat members of the IRTE settled in various areas of South Africa, and in May 1966 a group of these members living in the Johannesburg area were granted approval by the London head office to form a local centre in Johannesburg, under the name South African IRTE centre.**



In the early days of the South Africa centre, its area of accountability included South Africa, and surrounding states as far north as Malawi. Its mandate was, and still is, to provide local administrative facilities and to provide a link to the London for local and regional members

A few years after formation of the Johannesburg centre, and following a rapid growth of membership in the other areas of SA, new centres were established in Cape Town and Durban in 1969.

These centres operated independently from the Johannesburg office, and dealt directly with London on behalf of members in their local regions. Unfortunately, as member subscriptions are paid directly to London in pounds sterling, over the intervening years the strengthening of the UK currency against the SA Rand and the increasing cost of annual membership fees has impacted negatively on local membership numbers.

As a result the Cape Town and Durban centres are today no longer active, though the Johannesburg centre has continued its regular activities without a break since its inception, and in 2016 will see the 50th anniversary of the IRTE's formal presence in SA. The Johannesburg centre holds regular monthly meetings, with technical presentations and discussions, usually on the third Thursday of each month, and more details can be found on the its website shown below

## **SOE**

In the early 2000s, under umbrella of the Society of Operations Engineers (SOE), the IRTE with the Institute of Plant Engineers (IPlantE), and more recently the Bureau of Engineering Surveyors (BES). The SOE works to advance operations

engineering for the benefit of everyone through education, training, study and research.

The SOE also establishes and maintains standards of competence and conduct for those professionally engaged in Operations Engineering, with an emphasis on enhancing public safety. Through its professional sector of IRTE, SOE directly influences the road transport, engineering practices, developing best practice and improving compliance across the board, and the IRTE local membership supports these aims in the local road transport sectors.

## **Recognition of IRTE by local authorities**

Over the years, since the IRTE's local beginnings in the 1960's, many members have been employed and engaged in senior technical and engineering positions in the local road transport industry. Over the years, IRTE members have been involved on many SA Bureau of Standards (SABS) technical committees and working groups, and also special interest groups convened by the Department of Transport.

The current IRTE technical committee is the successor of the Road Transport Operator's Technical Committee (RTOTC) which was formed in the early 1980s by IRTE members, following the dissolution of the previous technical body that represented the interests of road freight transport operators. The mandate of the IRTE technical committee is to address technical and legal issues that impact the SA road freight industry, and to liaise with various governmental and private bodies engaged in road transport operations.



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# Synthetic lubricants enhance bottom line

When it comes to keeping your fleet working efficiently, protection across the driveline is crucial. High-performance lubricants – based on synthetic technology – offer a wide range of benefits over traditional mineral-based lubricants. Raymond Abraham investigates.

**Every fleet manager or maintenance engineer wants to be certain that when using an oil for their fleet, it provides the right level of protection to the engine. The lubricant must reduce friction and protect the engine against acids, deposits and wear in extreme temperatures and in a range of operating conditions.**

The introduction of synthetic and semi-synthetic oils represents a huge change for the heavy-duty transport industry. With advancements in engine technology, there is an increase in demand for high-performance lubricants that deliver the performance improvement aims of the engine manufacturers, especially regarding fuel economy.

By using advanced lubricants technology developed under laboratory conditions, these oils help mitigate the risk of breakdown and keep vehicles on the road for longer.

Traditionally, lubricants have been based on mineral oil, a component of whole crude oil used in thousands of everyday applications from engines to cosmetics. Thanks to modern refining technology, today's high-quality mineral oils provide adequate protection. But mineral base oils are complex mixtures of naturally occurring hydrocarbons and may contain impurities.

Synthetic lubricants contain synthetic base oils. These are made with chemicals from simpler hydrocarbon substances for excellent low-temperature flow properties, high resistance to thermal degradation and low oil consumption.

Increasingly, customers are appreciating the value that top-tier synthetic products can bring to their business, despite a higher initial cost: 1) Reduced oil change intervals 2) Lower maintenance costs 3) Less wear on parts. This means more value in the long run.

Advances in synthetic oil technology have delivered lubricants that offer many benefits over traditional mineral oil-based engine oils. An important function of lubrication, for example, is ensuring the engine continues to be protected under extreme temperatures, including cold starts, and at high operating temperatures.

High-quality synthetic base oils are engineered for excellent low-temperature flow properties, high resistance to thermal degradation and low oil consumption. When combined with advanced additive technology, this results in products that are well placed to deliver best-in-class engine protection. Compared to some mineral oils, this means synthetic products can help to extend equipment life.

The latest generation of synthetic lubricants also fulfils additional functions that can help improve cost efficiencies. Traditionally, delivering enhanced fuel economy meant lower viscosity (thinner) oils, which helped to reduce friction in the engine but with the perceived trade-off of reduced engine protection.

"A basic understanding between synthetic and mineral oils can give fleet managers the confidence to gladly accept an oil change, which will ultimately lead to a cleaner engine that operates more efficiently, delivers more power and consumes less fuel," says Abraham.

He adds that using synthetic oils can last up to three times longer than regular oils, as they are designed to flow more easily at startup temperatures. They are more resistant to oil degradation and protect against wear more readily.

With high-quality synthetic lubricants, this is no longer the case. Scientists at Shell have developed heavy-duty diesel engine lubricants





which combine high-quality, low-viscosity synthetic base oils, are combined with advanced additive technology to deliver robust fuel economy and wear protection performance. One example is semi-synthetic Shell Rimula R5 E, which has been shown to result in 30% longer engine oil life and 1% increase in fuel efficiency compared to standard SAE 15W-40 oils.

Fully synthetic Shell Rimula R6 LME contains high-quality synthetic base oils and advanced additive technology that instantly act when needed, helping keep equipment protected and clean. Developed in collaboration with Daimler, Shell Rimula R6 LME provides increased protection and piston cleanliness, exceeding Daimler's most demanding limits.

Axle, transmission and gear oils also have an important role to play.

Fully synthetic protection across the whole vehicle driveline can help contribute to fuel savings versus mineral gear and axle oils. Shell Spirax S6 AXME – axle oil – and Shell Spirax S6 GXME – gear oil – have special frictional properties and high fluidity that reduce power loss, lower the operating temperature and offer higher mechanical efficiency. These properties can help to cut fuel costs for businesses.

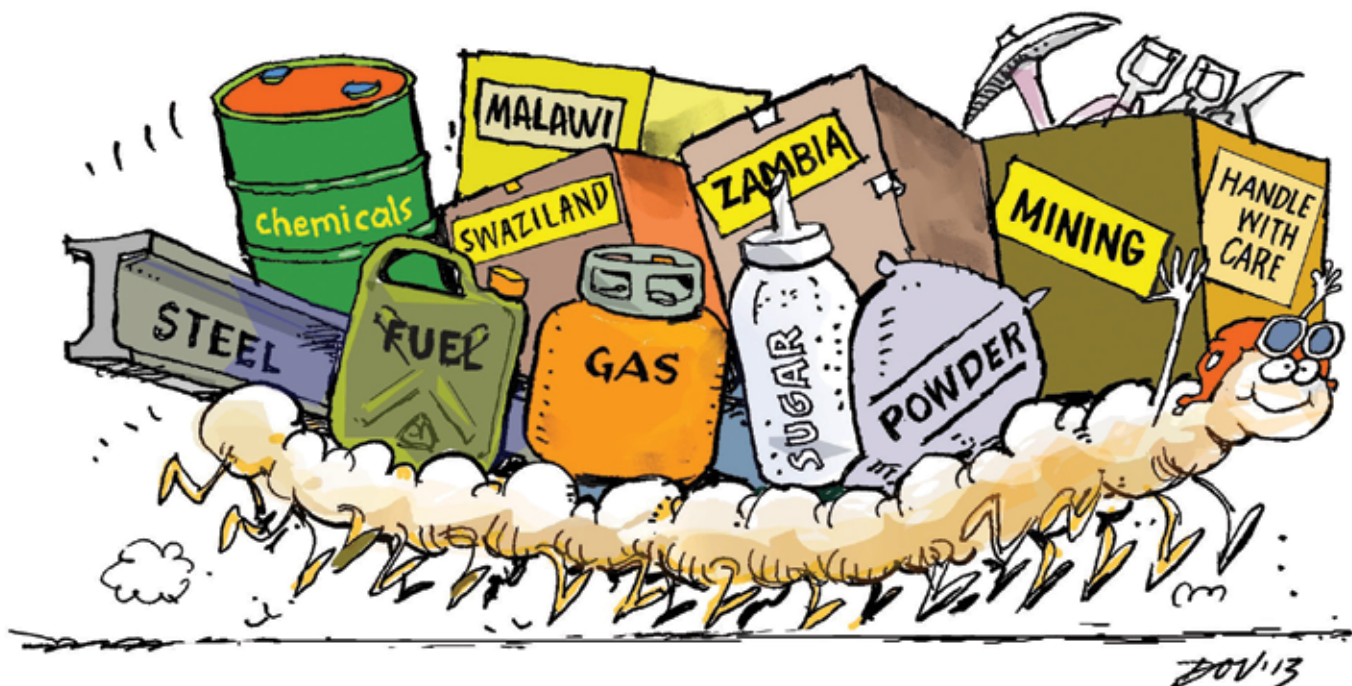
Selecting a high-quality lubricant is critical for businesses because providing the right level of protection helps to extend equipment life, protecting valuable assets. Under challenging conditions, high-quality synthetic base oils and advanced additive technology used in synthetic products are well placed to deliver the best all-round engine protection.

As CO<sub>2</sub> emission standards continue to be driven by regulators, this in turn drives engine technology – which places significant demand on oil manufacturers to produce more innovative and fuel-efficient lubricants.

Shell has spent many years developing and understanding the science behind energy-efficient lubricants and the Shell Synthetic range of lubricants is the outcome.

*Raymond Abraham*





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# Air1 takes flight

**Engen Petroleum has secured the exclusive distribution rights for the Air1 brand of AdBlue in sub-Saharan Africa from Yara, the world's largest manufacturer of AdBlue. Engen is the first petrol company in South Africa to do so, ahead of its multinational competitors**



**Air1 is the world's leading brand of AdBlue emission fluid used – in conjunction with selective catalytic reduction (SCR) units – to reduce nitrogen oxide (NOx) emissions in diesel engine exhaust gases.**

Euro 6 emission limits were promulgated in Europe in January this year. All the engine manufacturers have now conceded that the only way to achieve this emission level is to use SCR units. These units have use to AdBlue – also known as DEF (diesel emission fluid), or AUS 32 (aqueous urea solution 32%).

The system sprays the AdBlue into the exhaust gas going through a catalyst, converting it into harmless steam and nitrogen. It is used in conjunction with low-sulphur diesel and low-SAPS (sulphate ash, phosphorus and sulphur) lubricants.

Engen is the only company to provide all these products, making it the one-stop shop for transport companies.

Currently, legislation in South Africa only requires diesel vehicles to comply with Euro 2 emission standards; however, there are a small but growing number of Euro 4 and 5 configured trucks operating in SA which are already fitted with SCR units. The new SA emission regulations, when introduced, will require Euro IV or Euro V standards.

The availability of Air1 AdBlue gives original equipment

manufacturers the flexibility to introduce the latest technology vehicles into SA. Whether or not truck owners have heard of Air1 or AdBlue, chances are they may soon be driving vehicles that require it. While modern diesel vehicles fitted with SCR systems are an additional capital investment, fuel savings should cancel out this extra expense over time.

Consumption is approximately 3%-5% by volume of diesel consumption, differing according to the type of machine and the work it does, and the AdBlue tank normally requires filling when refuelling with diesel.

The Yara/Engen distributorship is another major step forward in Engen's ongoing environmental drive. Notably, its own bulk fuel transport fleet replacement programme focuses on models that run on cleaner diesel, which are in compliance with Euro IV and V standards.

Air1 will be available at Engen Truck Stop outlets. It is important that truck owners purchase product in sealed packaging. Contaminants from unsealed packaging will cause problems with SCR systems.

Air1 should be stored in a cool place indoors, kept out of direct sunlight and only approved dispensing equipment used, as it is not compatible with certain materials.

*Jimmy Hey*

# Clean oil saves money

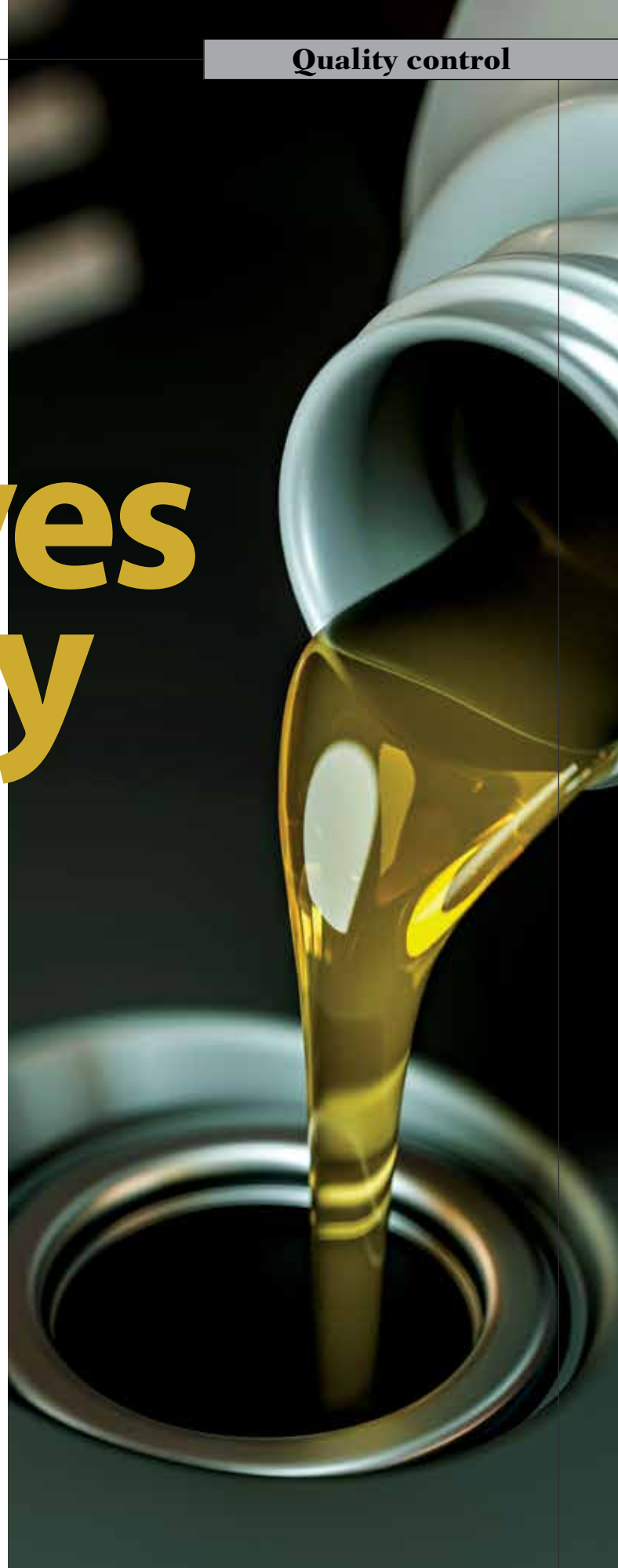
**In our current economic age, companies are forced to pursue every avenue for cost saving to ensure their chance of financial success is maximised. Lubricated mechanical equipment is a significant cost to many companies and, through careful management, significant savings can be achieved**

**While many techniques are successfully implemented in an oil analysis programme, there are few, if any, that give as clear an understanding of the total particle contamination of the oil as particle counting.**

One of the reasons for the effectiveness of this technique (optical particle counting) is that it is a direct technique whereby actual individual particles are counted and sized.

Seventy percent of all machine wear takes place through abrasion, adhesion and corrosion. A staggering 90% of this is attributed to abrasion. For abrasion to take place, hard particles must break down the oil film between two moving solid surfaces, leading to the grinding away of your machine's moving parts.

If the particle count of the bulk oil that makes up the film is monitored, one is able to determine the amount of material that is causing abrasive wear.





### Standards for particle counting

Standards are essential to ensure a result is worth anything. In an ideal world, every particle counter would give an identical result if the same sample were analysed on all of them. Standards move an imperfect world closer to this ideal. A standard for particle counting is a fluid whose particle sizes and counts are well characterised. For many years, Air Cleaner Fine Test Dust was the industry reference standard for particle counting relating to hydraulic and lubrication fluids. It was used in the primary calibration of liquid automatic particle counters. It was sold by a division of General Motors, but is no longer available.

Now, since abrasive particles can be measured and controlled through good housekeeping principles, one can actively decrease the rate of wear of components. It is proven to save money!

### Making it work for you

Before progress can genuinely be made, good sampling techniques must be followed:

- Store empty sample bottles in a clean place with the lids still on the bottles.
- Select the sampling point carefully to ensure the oil sampled is representative of the oil in the wearing components.
- Keep the sampling point as clean as possible and flush it before taking a sample.
- Flush the sample bottle with oil, discard the oil, and then take the sample.
- Do not sample cold equipment. The system being sampled should ideally be running at equilibrium.

Once you receive your sample report, check the ISO code of your hydraulic/transmission/compressor equipment.

### Implement good housekeeping

- Filter new oils before use. Just because they are new, does not mean they are clean.
- Control the headspace of lubricant chambers by using effective breathers.
- Fit transfer hoses with quick couplers to control contamination and reduce spills and wastage.

The component should be re-sampled periodically and the change in the ISO code tracked. As the ISO code decreases, your oil cleanliness is increasing – and so are your savings.

*Paul Swan*



### A brief history

Before the 1960s, particle counting was done manually by filtering a fluid through a membrane. This was then examined under a microscope with a graticule (microscopic ruler), where each particle was manually counted and sized (usually based on the longest dimension of the particle). This manual process continues in a limited scope today and is defined by ISO 4407. The main drawback of this process is that it is extremely labour-intensive and hence prohibitively expensive. During the late 1960s, the first automatic particle counters began replacing this manual process.

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# Roadside barriers – Are they just barriers?

**In another gripping *Road Ahead* exclusive from renowned forensics specialist Stan Bezuidenhout, we get the inside track on the underlying defects of certain roadside barriers – which can be fatal when things go wrong**

**On 23 August 2008, a lovely young lady – let’s call her Lisa (this is an actual case, but names are changed to protect the parties involved) – was travelling on the M3 near the University of Cape Town on a late Saturday afternoon on her way home.**

Lisa was alone in her little car, a white Renault Clio. There was a Land Rover on the road as well. It was driving just ahead of her, in the right-hand (fast) lane. Lisa was driving in the left-hand (slow) lane, furthest from the barrier that separated her roadway from traffic heading in the opposite direction.

The earlier rain had stopped, but the roads were still wet in places and the smell of the after-rain air, enriched by Newlands Forest, was discernible. On that same day, the Lions and the Bulls had clashed in a rugby match worth remembering.

Lisa might have had plans for later in the day, aspirations for her future or concerns about her life. We will never know, as those likely happy thoughts would be obliterated forever.

As the Land Rover driver testified during the trial that followed, a silver Ford Fiesta approached from the opposite side and crashed through the roadside barriers, back-side first, and rammed onto the roadway where Lisa and the witness were driving. The roadway for the Fiesta was only 540mm higher than that where Lisa and the Land Rover were driving, but the car landed on their side of the road and came to a standstill almost immediately.

The Land Rover witness testified that she had believed the Fiesta was going to collide with her, but fortunately she had been able to move over immediately to the left and to safety. The witness looked in her rear-view mirror as she was leaving the carnage behind, and saw Lisa’s Renault pass seemingly safely by the Fiesta, slow down and stop on the left side of the road a distance away.

The witness said a silent prayer of thanks for escaping the worst and thought nothing further of it. In her mind, Lisa was simply pulling over and stopping. Like many others, this witness had

carried on driving, believing a disaster had been averted. However, she had no idea of just how wrong she, and the others, would be. According to police reports, the Ford Fiesta had been speeding, lost control and crashed through the barrier, heading straight for Lisa and the Land Rover. Words such as “speeding”, “very fast”, “racing” and “flying through the air” were some of the graphic illustrations of the perception of witnesses. A colonel from the National Office of the South African Police Service came to testify that the Ford Fiesta had been travelling so fast that it had lost control, and that its speed had been so extreme it had had enough energy to crash right through the roadside barrier and onto the road below.

Another witness, driving a black Mercedes-Benz SLK, testified the Fiesta overtook her on the left at high speed, and that the Fiesta then lost control right in front of her as they were going through the slight right-hand bend. She further testified that the Fiesta then “flew through the air”, and that she saw flames from underneath the car as it did so, with debris from the terrible crash flying onto her car and causing damage.

The prosecution was content: They could argue that speed and tunnel vision had set in. They targeted a suspect and they believed he had been speeding. They were going to prove this – no matter what.

Fortunately, the other car landed on the same roadway where Lisa was travelling. Her luck was unbelievable, since the Fiesta never collided with her – but it was also short-lived, as the car’s crashing through the barriers caused something like a high rock to shatter her windshield and enter her vehicle, striking her in the head and fatally injuring her.

The assault had been so violent and so sudden that police reported her vehicle had rolled on for almost 400m before coming to a halt on the side of the road.

The first witnesses on the scene reported that, when they got to her, she was still drawing her last breath. Witnesses watched as all Lisa’s aspirations, thoughts, dreams and desires slowly dwindled as her heart slowed down and her breaths became ever shallower.

The paramedics declared her dead at the scene and the postmortem report confirmed she was killed by massive blunt-force trauma to the head. She was clutched from the caring hands of her family and friends in a way that no one could have predicted or planned for.

According to all witnesses, the state prosecution and the police reports, the driver of the Fiesta had been the cause of her death. According to the prosecution, with support of witness testimony, the driver had lost control when entering a bend at a high speed and that it was this speed that had caused him to lose control and crash through the barriers. In so doing, the enormous forces had shot up stones and debris, one piece of which had caused Lisa's fatal injury.

They had the Fiesta driver dead to rights. The prosecution was confident from the start. With a Gerrie Nel-style of aggression, the prosecutor attacked the case, the driver of the Fiesta's version as well as the expert witness for the defence: Stan Bezuidenhout from IBF Investigations. Those attacks included an assault on his qualification. "So what qualification do you actually have?"

He was also challenged on the number of cases he had attended to in his, then, 12-year career.

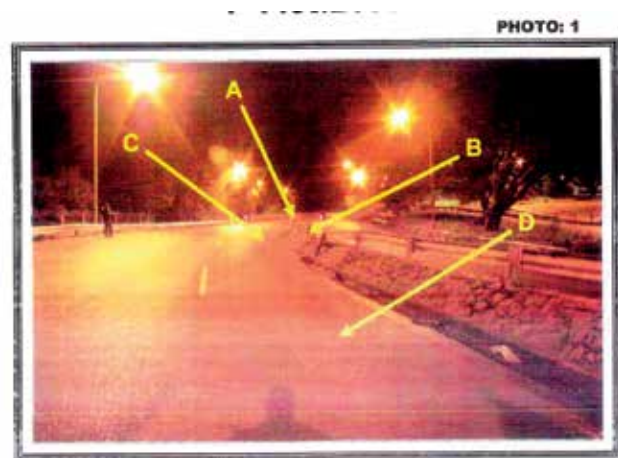
As Bezuidenhout testified, the cracks began to show in the state's case and their confidence started to dwindle along with it.

It was when he addressed the issues he had with the mistakes made in the SAPS investigation, that the case started becoming stranger than fiction. He was not allowed to continue with his testimony and asked to continue at a later point in his report, some 10 pages further. The court would hear nothing of errors made by the state.

But this article is not about the defence's strategies and efforts. As the trial dragged on, one witness testified he saw the Ford Fiesta and a black Mercedes SLK seemingly racing each other, swerving in and out of traffic as they changed lanes, until he lost sight of them some 5km from the scene of the collision. He saw them again at an intersection, still one behind the other, and not again until he passed the scene of the collision. He was left with the impression that the Ford had lost control and crashed through the barrier – another nail in the Fiesta driver's coffin.

It was when the driver of the Mercedes SLK testified that the first conflicts in evidence began showing. She claimed she never raced against the Ford, that she never saw him until the collision and that she was driving in the area of the collision when this Ford overtook her at high speed, on her left-hand side, entered the bend, lost control and crashed through the barrier and onto the road on the opposite side. She even testified she saw the Fiesta "leap through the air, partially ablaze", before crashing onto the road below. She specifically testified that "the crash was so severe that debris was thrown backward and onto her vehicle, before she could pull over and stop on the left-hand side of the road."

While police investigators had been called to the scene, they failed to arrive in time. The first police officers arrived after the driver of the Ford Fiesta had been removed by an ambulance; the first photographs of the scene had only been taken after the Ford Fiesta had already been removed by tow-in services, with permission from the first arriving police officers.



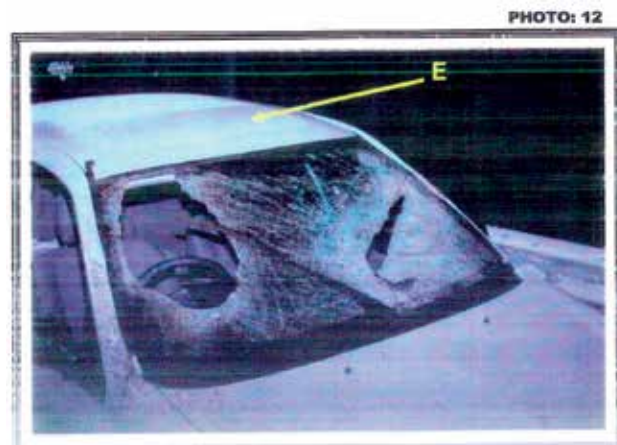
Scene at night – poor quality as original

In their statements, police investigators claimed they had taken the photographs between 17h30 and 20h20. According to sun position data sourced by Bezuidenhout, it would still have been light when this had been done – but the police photographs were clearly all taken in complete darkness. What had the officers then been doing during the daylight portion of their investigations, when they could have produced better images?

- 6.4 It is not possible to scientifically calculate the speed of any of these vehicles at the time of the incident with the available information.
- 6.5 These conclusions and findings were made based on the information that were given to this office. Should more photographs or additional information become available, we reserve the right to evaluate such information in order to give a supplementary statement with regards to the new information.

This was the first clue that something was amiss, and Bezuidenhout immediately noticed. The chain of evidence had been broken.

As a former specialist reservist in the South African Police, and with his private industry experience, Bezuidenhout knew something was wrong with the prosecution's evidence.



Damage to Lisa's car – poor as in original police photo



*Damage to Lisa's car – poor as in original police photo*

During trial, it became apparent that no one had examined the barriers or considered whether they had performed as they should have. Not even the forensics expert for the state, a metallurgical engineer, had examined the barriers, considered their function, determined if they performed properly or whether they had been installed properly. The state expert had also failed to examine the vehicles. During cross examination, he testified he was never asked to visit the scene, trace vehicles, examine them or examine the roadside barriers – so he did not do any of this. He wrote his report and formed an opinion solely on what he had received on paper.

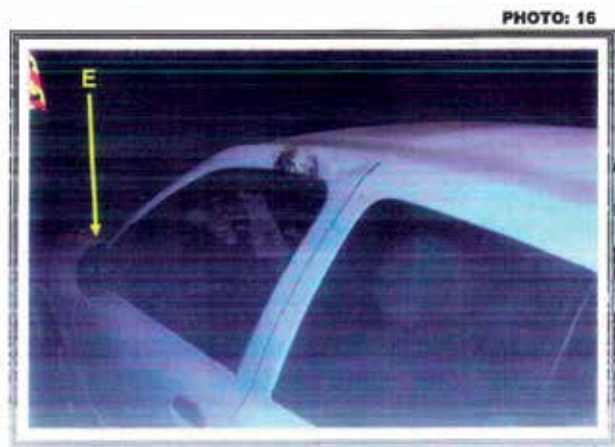
While some photographs had been taken of the unfortunate young lady's car at the scene, her vehicle had never been examined and photographed properly in daylight conditions. Even the damage to her vehicle – and there was more than just the hole in the windshield – had not been examined or recorded and photographed properly. There were only nine photographs of the scene, 13 of Lisa's car and 13 of the Ford Fiesta – taken some time later at a different location – in the police docket.



*Photo of scene, taken by Bezuidenhout*

Bezuidenhout took 168 photographs in total of the scene, 280 of the Ford Fiesta and also made several video recordings at, around, and of the scene.

The driver of the Fiesta was ultimately charged with culpable homicide, reckless and/or negligent driving and inconsiderate

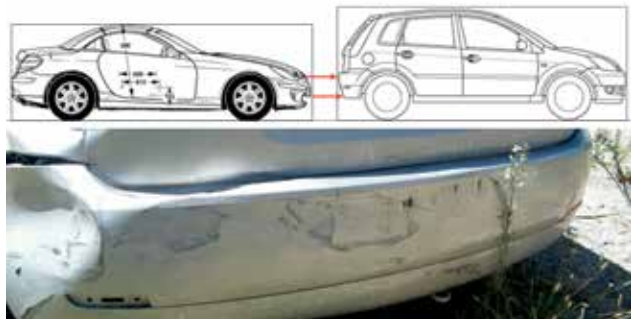


*Damage to LEFT of Lisa's car – poor quality as original*

driving. He faced a long and arduous trial, lasting from 2008 to late in 2011.

**But what does all this have to do with roadside barriers?** Bezuidenhout had been appointed in this matter by the accused and was immediately struck by the sheer absence of evidence. There was vital evidence that was missing and glaring evidence that had been completely ignored by the prosecution.

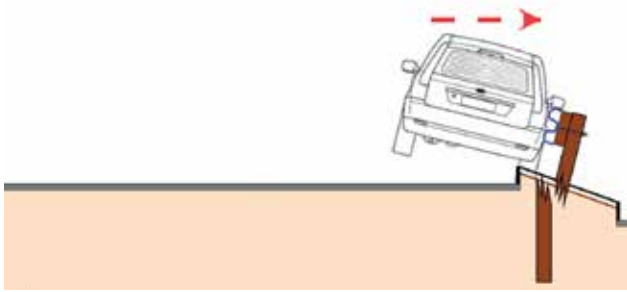
It was clear to him that the prosecution had tunnel vision. Only three elements had ever been explored by them: They considered the driver of the Fiesta their primary and only suspect in the cause of the collision; they considered the damage to the barriers proof of his speeding, since he “was going so fast that he crashed through the barriers”; and they concluded Lisa had been killed by something kicked up by the crash, since it had been “so severe” in any case.



*Comparison of marks*

In spite of this, his speed had not been determined by the state-appointed expert, who testified that “the speed of the vehicles could not be determined.” The prosecution had never even considered, explored or investigated the performance of the barriers.

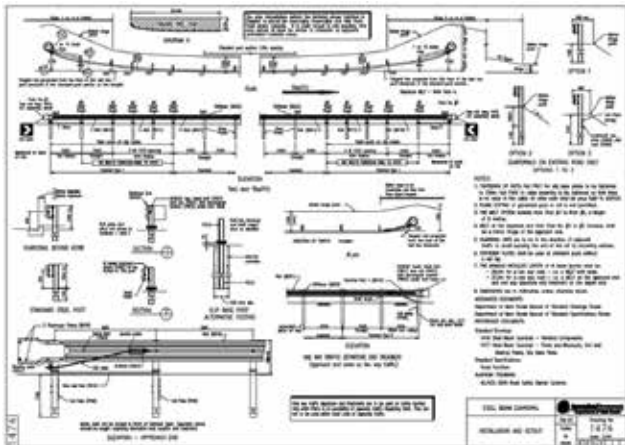
In trial, the state expert even testified that he had never examined the barriers and that – although he was a metallurgical engineer and although the barriers were made from metal – he was not “a barrier expert” and could thus make no comment on the barriers at the scene.



3D model

The prosecution and their police investigators had never found and actually proved, by causal link, that the source of Lisa's injury was actually something from this crash under consideration. The possibility that a stone or stones could have been thrown onto her vehicle as she passed under several bridges she might have encountered earlier, had never been considered.

The court had merely inferred this link from available evidence: a singular small pebble, possibly the size of a person's thumb, which had been found inside Lisa's car, on her dashboard. This pebble had never been examined for material and matched to the scene. There was simply no way to conclusively prove that this pebble was not the only item that had entered Lisa's car in the crash.



Barrier design specifications

There was damage to the left side of Lisa's car, in the shape of a long, narrow object that had never been explored or explained by the prosecution and their police investigators or their expert. This was on the side of her car that was furthest away from the side where the Fiesta's crash had occurred, so it could not have been caused during the events under consideration in this collision.

The driver of the sports car and the one who had allegedly seen the collision happen, admitted she liked to drive fast (using the car she drove then – a Maserati – in support of her boastful claim) and explained that debris from the Ford Fiesta and/or the barriers had flown onto her vehicle, causing damage to her bonnet and front windshield.

She could not explain why she had never photographed the damages she alleged had been caused to her vehicle; she could not explain why she had not stayed at the scene to give her details to police; and she denied seeing or being anywhere near the accused's vehicle at any time prior to the collision.

Other witnesses destroyed this version, since they testified consistently that they saw her vehicle some time earlier, behind and very close to the Ford Fiesta, seemingly "racing" against it.

Bezuidenhout found trace evidence, in the form of marks at exactly the correct height, which would imply the Mercedes SLK would have made contact with the rear of the Ford Fiesta and that this could have resulted in a loss of control, since they would both have been going through the same bend when this could have happened.

While everyone was focusing on the "speeding vehicle", Bezuidenhout started looking into the vehicle dynamics and the fact that the vehicle had been able to crash right through the barrier at all.

All versions had the accused driving at less than or around 100km/h in a car that weighed a mere 900-odd kilogrammes, yet his car had been able to crash "right through the barrier" at a very small angle – less than 5 degrees. This made no sense, since barriers are supposed to be designed to prevent exactly this.

There were a number of issues detected with regard to the installation of the barriers. But in order for you to grasp the full extent and seriousness of these issues, you need to understand and grasp what properly installed barriers are supposed to look like and what their design capabilities are supposed to be.

Barriers are (typically) steel and wood dividers that are designed to prevent vehicles from departing from the roadway when they lose control or are involved in collisions. In order for this to be achieved, there are a number of physical and design specification that must be adhered to.



Barrier on wooden blocks

Many, if not most, barriers in South Africa – also called guardrails, roadside barriers, Armco barriers or physical barriers – are designed and built by Armco. Armco, in turn, works according to international specifications and adheres to SABS standards. But it does not typically install all those barriers; the company often just specifies and supplies. Contractors, typically appointed by municipalities or local authorities, more often than



Jackie Smith measuring barrier height – orange triangle is at CORRECT height

not do the physical installation and maintenance. But this case has left Bezuidenhout with serious questions about the capacity and ability of some contractors to do so.

These are some of the design specifications that should be adhered to in order for an Armco barrier to perform properly:

### Section types

The Armco barriers used in most South African applications are of the W-type variety. If you look at them from the end, they form a W-shape. This shape is considered effective, since it provides sprung resistance, linear stiffness, adequate distortion (flattening and expansion) under stress and reduced friction (W-face contact) for optimal redirection, but not at the expense of overall strength.

In the case under consideration, the same type was installed. The sections were of the correct size, design and length. Unfortunately, this alone is not adequate for the guardrail to operate as intended. In many installations, this is the only feature ever considered adequate. The correct rail material is used – but without all the other specifications being adhered to, this system will simply not function effectively.

### Steel strength and type

One cannot simply bend any steel into a W-shape, attach it to some posts and consider it a proper guardrail. The thickness, hardness, steel type, physical characteristics and durability all feature in the design. Armco barriers are built from the required material of the correct specification: 1mm thick mild steel.

When examining the barrier at the scene where the collision occurred, Bezuidenhout found that the W-sections seemed to comply with all physical design requirements. This meant that, if there were any issue with performance, it would not relate to the physical W-sections supplied by Armco.

### Height

According to the Armco specification, the centre of the W-sections is supposed to be 720mm high (measured from the road surface). This height is chosen as a function of the most likely height of the centre of mass of vehicles that the system is supposed to restrain. In this case, it was found that the height of the centre of the W-sections ranged from 35cm to 1 metre from one side of the scene to the other, with vastly varying values for all posts in between. This was a clear indicator that the system had not been properly installed.

The heights would easily compromise the design intention if a force was applied at the design height. This means there would be a risk of a vehicle being able to 'ramp over' the barrier (where it is too low) or of the barrier intruding into the vehicle or the vehicle injecting underneath the barrier (if it was too high) – increasing injury and fatality risk to road users.



Post length

### Post spacing

The Armco specification further requires that the posts be installed 3.81m apart for this installation. The section length (post spacing) relates to the length of each W-section with its specified overlap, as required.

The spacing is specifically designed to ensure the system performs as designed. It has to be strong enough to resist impacts, elastic enough to cause relapse (forcing a vehicle back onto the road) and fragile enough not to present a dangerously stiff obstruction causing impact injury or fatality.

Further, the system is not designed for direct assault (at 90 degrees), but rather to 'deflect' vehicles back onto the roadway, preventing them from crossing over onto approaching traffic lanes or down embankments or drops.

In the case under consideration, Bezuidenhout found that the post spacing for most posts was correct. All the posts that were present were all 3.81m apart. Some posts were found to be missing completely, effectively increasing the gap between adjacent posts to over 7.6m – well beyond the specified gap.

At those (missing post) positions, it was found that the barrier was suspended on rocks or wooden spacers packed loosely on top of each other, on the kerb. This was coincidentally also found at the area where the Ford Fiesta “crashed through the barriers”. This would completely have compromised the design specification and operational capacity of the guardrail system.

Disturbingly – even some time after this fatal collision – photographs revealed that the same situation was still prevalent in many locations around Cape Town and the rest of South Africa.



*Armco bolt*

### Post types and installation

Even the type of post used is considered in the design specification. The wood needs to be of a specific thickness, length, hardness and environmental resistance, and needs to be installed to 1.8m in length. This means the posts need to be installed at a penetration depth of approximately 1.3m.

They also need to be installed into prepared earth. The soil density must be of a specific specification. This enables the posts to break at specific load values and not too early, while the ground must not be so hard as to cause them to break prematurely or so soft that they can simply wedge out or bend over completely.

In the case under consideration, the posts were found to have clearly been installed by laymen or by installers with no consideration for the specifications or with no training. Some posts were simply inserted into the old holes of previous posts, which were obviously damaged in the many collisions that had occurred before, at the exact location. In some cases, Bezuidenhout could fit almost his entire arm into the ground next to the posts.

Obviously, these posts would present almost no resistance to forces: as observed and expected, they would simply ‘fall over’ under assault. The lacklustre installation would also cause them to pivot and eject debris when forces are applied – one of the possible causes of the debris that might have killed Lisa on that lovely Saturday afternoon.

Other posts were installed, and concrete or cement then laid around their bases. This completely inhibits their ability to respond to applied forces before breaking under strain. Since they were now void of any ‘play’ or deformation leverage, these posts would break under much reduced forces than the design

specifications required. Coincidentally, a lot of loose rocks, debris and cement or concrete pieces could also be seen lying around the bases of the posts. During a collision, any of these would become a projectile if the system failed.

### Fixtures (bolts used)

The integrity of the whole guardrail system relies on the smallest yet one of the most important components used on the installation: the bolts that hold the W-section to the posts and those that join the sections together.

These bolts are not just any bolts. They are of a specific design. In order for you to know which system you are dealing with, the name of the manufacturer is typically displayed on top of the bolt head. But again, the manufacturer is often not the installer – especially in municipal areas.

The bolts need to be of specific size and strength specification and they need to be tightened to exactly 75Nm. This enables them to provide enough resistance to hold the system together in the event of an applied force, but at the same time they should allow the W-sections to expand along elongated mounting holes to just the correct amount and with enough friction to allow the system to effectively absorb energy and deform until it ultimately fails.

At each section joint, there must be six bolts – all of the same size and strength and all tightened to the same specification.

In the case under consideration, it was found that most of the bolts were seemingly hand-tightened while many mounting holes were found to have no mounting bolts at all. This would compromise the guardrail system at its core.

So what happened to the accused in the case? He was found guilty of culpable homicide. The court concluded he had been driving too fast, lost control and crashed through the barrier as a result of that speed.

While the metallurgical engineer appointed in the prosecution had never even bothered to look at the barrier, never examined any of the vehicles and never proved any of his conclusions, it causes concern that the court simply did not fully grasp the implications of the utterly poor quality of installation of the barriers at the scene. But the trial continues even now in 2014 and the case has gone on appeal.

Perhaps one day the court will grasp the true design goal of the guardrail systems on our highways: to save lives. Perhaps if installers are ultimately held accountable, there will be an improvement. Until then, this case is a classic illustration that there is much yet to be learnt about crash cause analysis and even more to be done before the carnage on our roads will be properly addressed.

Have a look at the guardrails around you. Are they properly installed? Now what if you lost control in the rain and ‘crashed through’ a guardrail and into oncoming traffic? If those rails are not properly installed and fail to perform as designed, would you also be found guilty of speeding and culpable homicide? Perhaps...

*Stan Bezuidenhout*

# VOLVO TRUCKS ANNOUNCES MOST FUEL EFFICIENT DRIVER

**The South African winner of the Volvo Trucks Drivers' Fuel Challenge 2014 has been announced. Reggie Naidoo, an owner-driver of Hark Logistics in KwaZulu-Natal, proved to be the most fuel efficient driver during the final round of this prestigious competition, and is off to Sweden in September to represent South Africa in the World Finals.**

**Second place went to Tshepo Leshope of Willowton Logistics, followed by Willem Briedenham of Leon van Vuuren Bulk Logistics.**

"I am really ecstatic by this win," said Naidoo. "Being part of this competition has really given me a lot of confidence in my abilities and it is wonderful to be recognised in this way. I truly appreciate everything Volvo Trucks has done, going all out to invest in truck drivers, their safety and their development. I am very proud and looking forward to representing South Africa in Sweden later on this year."

This is the first time that Volvo Trucks has hosted the competition in South Africa, and ten finalists were selected after three gruelling regional rounds. Truck drivers were evaluated using Volvo Trucks' innovative Dynafleet fleet management system, which not only tracked their actual fuel consumption but also other fuel-affecting driver behaviour such as anticipation, braking, as well as engine and gearbox utilisation.

The testing, done in new Volvo FH 440s with a load of 26 tonnes, was also conducted in realistic conditions in which the drivers had to maintain productivity and showed how they would utilise the truck in a safe and responsible way.

"Fuel cost is a heavy burden for most haulage companies. However, an improved driving style can result in considerable cost savings. With the Drivers' Fuel Challenge we wanted to highlight this fact



*Reggie Naidoo, an owner-driver of Hark Logistics in KwaZulu-Natal, proved to be the most fuel efficient driver during the finals of the Volvo Trucks SA Drivers' Fuel Challenge.*

and encourage truck drivers to adopt a more fuel-efficient way of driving," said Philip Phasha, project manager for the Drivers' Fuel Challenge 2014 in South Africa.

The potential benefits of driving in a fuel-efficient way are considerable. Volvo Trucks' own research shows that by using accredited services for individual follow-ups on fuel consumption, together with driver training, it is possible to reduce fuel consumption by around ten percent.

Globally, the Drivers' Fuel Challenge has been hosted in different forms annually since 2009. Its popularity has grown since its inception and the most recent global competition in 2011 attracted around 3 600 participants from 22 countries. This is the first time that a South African driver has a guaranteed spot in the World Final in Sweden.

The Drivers' Fuel Challenge World Final 2014, in which 25 of the world's most fuel-efficient drivers will participate, will take place in Volvo's hometown of Gothenburg, Sweden on 19 September, 2014.

## About Dynafleet

Dynafleet is a fleet-management system that helps drivers and transport companies utilise their fleets more efficiently. Dynafleet is currently available throughout Europe, Brazil, Australia and South Africa. At the time of writing, Dynafleet had more than 59 000 subscribers worldwide.

As part of its Dynafleet offering to FH truck owners, Volvo Trucks also recently introduced a new app for iPhone/ iPad and Android users, whereby drivers can see for themselves how efficiently they drive, compare their performance with that of their colleagues and improve their driving techniques still further.

One of the app's main functions – Fuel Efficiency Score – rates the driver's performance in four areas that in various ways impact the truck's fuel consumption, namely anticipation and braking, engine and gearbox utilisation, speed adaption, and standstill. The results are then collated to produce an overall score. The idea is to provide an incentive for a well-planned and safe driving style, one that gives low fuel consumption and low emissions and subjects the vehicle to less wear.



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# THE NEW VOLVO FH16

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# Quality comes first

**Dutch trucking stalwart, DAF, has been quietly making inroads into the upper end of the South African truck market of late, with the appointment of a new sales director and improved first quarter vehicle sales – a clear sign that DAF is in South Africa for the long haul**

**With 20 years in the trucking business under his belt, new DAF sales director Mark Gavin has a depth of experience in all operational aspects of the local industry, which he gained during time spent with other European truck distributors.**

Proving that DAF is here to stay in southern Africa, Babcock International Group – responsible for the marketing, sales and servicing of DAF trucks throughout the region – has appointed Cape Commercial Trucks (CCT) in Kraaifontein as the DAF agent for the Western Cape.

The new agency will offer the full range of DAF products currently available in South Africa, as well as parts and servicing. CCT is an additional dealer to extend DAF's broad dealer network throughout southern Africa.

The company's rock solid CF and XF ranges are without doubt some of the finest truck tractors in Europe. This is highlighted by the independent European surveys on trucks between six and 24 months old, which have revealed that truck defects experienced on DAF trucks are far lower than those for other truck brands.

*Road Ahead* editor Gregory Simpson recently sat down with likeable Mark Gavin to set out his long-term plans for the company's growth, sharing his rich ethos of trucking.

**With six months under your belt at DAF, what targets do you hope for in the next three to five years?**

First and foremost, we want to establish the DAF brand as one that is synonymous with quality. From there we aim to grow our business and share of the market via selected fleets that portray a similar image of quality in the marketplace. Ultimately, we're aiming at a reasonable share of the extra heavy market,

but with the intention of maintaining the level of support to our customer base which we are currently providing. At present, our range of products allows us to focus on specific segments of the market.

**Specifically, which segments would you be looking at?**

With our current product range, it would be focused on the long-distance, on-road, 6x4 application. When we expand the product range, we'll be able to broaden our horizons.

**So you must be identifying the mining industry?**

The mining industry is struggling at the moment, but will always require transport. We have products that are perfectly suited to various mining applications.

**What is the key differentiator between DAF and your competition?**

Today, European trucks are all very similar. The real differentiating factor is the service that comes with the product. We're flexible enough to provide our customers with service that is second to none, which is what they deserve. We want to grow gradually, keeping our focus on good customer relations and become associated with quality customers that are visible and reputable.

**So you are a kind of niche provider?**

Yes, we really do pride ourselves on our service. We don't want to grow too big, too quickly to the extent that we can't support our clients at the same level of service they enjoy now. We want to stay loyal to customers that have supported us through the tough times, as they say. Our differentiating factor is the service we provide and our flexibility to respond to customers' demands.



**What lessons did you bring from your time overseas – and can you rank the level of efficiency in trucking here in SA, compared to Europe?**

It's very different. For example, over there they run 45-tonne gross combination weights, while we're running 56 tonnes. Road gradients are different and ambient temperatures vary drastically. So in terms of efficiency, I believe we are more efficient because we extract better utilisation out of a truck.

**How is the relationship between DAF and American parent company, PACCAR, which also owns famed brands Kenworth and Peterbilt – there must be vast technological benefits?**

The benefit here is having the opportunity to put the two different technologies together and enjoy the best of both worlds.

**DAF is of Dutch origin, built for the European market; how does it fare in hot African conditions?**

You can't just take a European product, drop it in Africa and leave it. So there are certain adaptations that have to be made for a vehicle to have optimal performance in this country. We've looked at the cooling system and air intake systems to make sure no dust is getting in, as well as both air and fuel filtration.

**People talk about South Africa's roads, but if you go to Nigeria or Ghana you see roads...**

There are roads and there are 'roads'. We actually have very good roads – all those beautiful open highways with free-flowing traffic.



**Why are we lagging so far behind in getting decent diesel?**

It's coming. Most diesel is now at 50 ppm. We complained about the diesel, and the oil companies stepped up to the plate and said, "We'll get the cleaner diesel." So they gave us 50 ppm and then we said, "We want Euro 6." So we keep moving the goal posts.

**And the weak rand can't be helping, either?**

It is a huge challenge for all manufacturers now. The rand has been so unpredictable, but lately it looks to have settled down. I'd like to see it stronger for obvious reasons; price really only goes one way and you have to keep justifying that to your customer. The increase is related to the rate of exchange, which makes it very difficult for us. The unpredictable rand is going to have a huge impact on the growth of the market.

# all this talk of 'going green'

## just makes us see **RED!**



But don't get us wrong; actively promoting environmental protection is central to SAF-HOLLAND's success around the world as a leader in developing and supplying low tare-mass truck trailer components that boost payload efficiency while helping limit carbon emissions.

...So, if you're serious about 'going green', speak to 'the heavyweights' in lightweight trailer equipment and fit the SAF-HOLLAND red dot.



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More in depth extension of the above course.

### Trailer Airbrake Systems:

Covering fault finding, ABS and an introduction to basic diagnostics.

### Advanced Trailer Airbrakes:

Covering fault finding, EBS and laptop diagnostics.

### Fleet Training:

Aimed specifically at the fleet workshop technician, focusing on practical problem solving and trouble shooting.

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### Hands on Training:

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# WELLNESS FUND HEALTH PLAN

## KEEPING YOUR EMPLOYEES HEALTHY



*The **NBCRFLI** Wellness Fund Health Plan, which was launched three years ago, protects the well-being of employees within the road freight and logistics industry and is available to all active **NBCRFLI** members who are contributing to the Wellness Fund and meet the stipulated eligibility criteria.*

The Health Plan offers the following benefits to eligible principal members, together with one eligible spouse:

- **Five Universal Network GP/Doctor visits per person per year.**
- **In-hospital patient cover for up to R50 000 per incident if the injury you have is due to an accident.** In the event of an unavoidable private hospital stabilisation due to emergency before transfer to a public hospital, the benefit is limited to **R15 000**.
- **R10 000 accidental injury benefit for injuries caused by an accident.** This excludes medical emergencies.
- **Acute Medication, limited to R 500 per person per year.**
- **Unlimited Chronic Medication** for the following chronic conditions: blood pressure, asthma, epilepsy, diabetes or hyperlipidaemia (high cholesterol & fat in the blood stream).
- **Radiology (x-rays) and Pathology (blood tests)** that covers black and white x-rays, specifically for your **chest and limbs**.
- **One eye test per year at the optometrist** and one set of glasses every 2 years.
- **A R1000 dental visit once every two years.** The benefit includes approved dental procedures such as examinations, fillings and extractions.
- **24 hour ER24 access.** This benefit allows the member to access ambulance/helicopter transport in the case of an emergency and/or accident. It includes treatment and stabilisation at the scene of an accident, as well as transportation to the closest, most appropriate medical facility. The 24-hour medical advice line gives the member free medical information and crisis counselling. To use any of these services, phone 084 124.
- **Repatriation benefit (part of ER24 benefit).** If a member or his/her spouse is involved in a fatal accident away from home, their body will be transported back to their home free of charge.
- **HIV Management through the CareWorks programme.** If a member or his/her spouse are HIV positive, they should contact CareWorks on 0800 212 768 to enrol for treatment and medication.

For further information or assistance about our Health Plan, go to [www.nbcfli-health.co.za](http://www.nbcfli-health.co.za) or contact:

Universal Call Centre: 0861 872 333  
24-hour Emergency Contact: 084 124  
Hospital Benefits: 0861 227 282  
Accident Casualty Benefit: 0861 227 282  
Email: [nbcfli@universal.co.za](mailto:nbcfli@universal.co.za)  
Fax: 086 586 2161



## **TRANSLATION OF THE MAIN COLLECTIVE AGREEMENT**

We are proud to announce that the existing legal version of the Main Collective Agreement has been translated into 4 of the 11 official languages; namely Afrikaans, isiXhosa, isiZulu and seSotho. In the long term, we plan to translate the Main Collective Agreement into other official languages, which will go a long way to ensuring that all our members are aware of the conditions of employment set out in the Main Collective Agreement.

The Main Collective Agreement, which has up until this point only been available in English, regulates the terms and conditions of employment or any other matters of mutual interest concluded between employee and employer representatives in the road freight and logistics industry. The English version will remain the official version.

To view the Main Collective Agreement, and translations thereof, please go to the NBCRFLI website – [www.nbcfli.org.za](http://www.nbcfli.org.za) – or view them on the mobi app.

## **NEW GAUTENG CALL CENTRE**

We are pleased to announce that the first phase of our Gauteng Region Call Centre system was implemented on Friday 14th of May 2014. The new call centre system is yet another way in which you can communicate with us directly at the NBCRFLI and receive immediate assistance. Our dedicated Call Centre staff will ensure that your queries and concerns in the Gauteng region are attended to efficiently.

We encourage all our Gauteng Region-based stakeholders to connect with us on 0861 777 996.

[www.nbcfli.org.za](http://www.nbcfli.org.za)

## **FRAUD HOTLINE**

Crime negatively impacts on the profits, salaries and infrastructure of the road freight and logistics industry and the country at large. As members of this industry, we need to work together to prevent this crime, which includes, but is not limited to, unlawful, dishonest and unethical behaviour such as fraud and non-compliance.

In an effort to fight against fraud and corruption in our industry, we as the NBCRFLI have established our “Be Heard” disclosure service which allows anyone to report any crime that they see or suspect in the workplace. You may also phone our hotline if there is any operator you know or suspect is NOT REGISTERED or is NOT COMPLIANT with the NBCRFLI requirements or is not doing what has been set out in the Collective Agreements:

Call us on 0800 000 904 (Toll Free)  
Or SMS us on 44666  
Or send us an email on [nbcfli@beheard.co.za](mailto:nbcfli@beheard.co.za)

Please note that our fraud hot-line is completely outsourced and anonymous, and we will not reveal your identity to anyone.

## **FINANCIAL SERVICES LAWS AMENDMENT ACT OF 2013**

As from January 2014, a new legislation was introduced that makes non-payment of retirement fund contributions by employers a criminal offence punishable by a fine of up to R10 million and/or imprisonment of up to 10 years. Moreover, company directors can also be held personally liable for non-payment.

In view of the above, it is imperative that employers ensure that deductions are made from the wages of employees in respect of retirement (provident/pension) funds and are paid over to the fund concerned.

We encourage all our employer members to ensure that they continue to make provident contributions on behalf of their employees.



# Companies grappling with lack of alignment

**One of the key findings of Barloworld Logistics' 2014 *supplychainforesight* survey is that SA companies are battling to achieve their business and supply chain objectives due to lack of alignment of internal and external functions, processes and systems**

**Lack of alignment within business functions is ranked by 48% of respondents as the second-topmost constraint that is inhibiting their progress toward achieving customer centricity. This issue is hindering companies from finding ways to set up their businesses differently so they can address different market segments with customised solutions, instead of the traditional 'one size fits all' approach.**

The need to do this is being driven by the rising power and increasing demands of the customer. Lack of alignment is making it difficult for companies to come up with more innovative products and services, and focus more on understanding what customers need.

This requires more complex and segmented business models, and companies are grappling with this because they are

not ideally aligned. The alignment of all functions to enable customer centricity is rated as important or extremely important by 97% of the survey respondents.

Yet, only 19% of respondents rate their measurement systems to deliver customer centricity as being very aligned; 57% rate them as quite aligned or they need improving; and 19% rate them as not being aligned. Focused alignment of departments and customer interfaces was seen as one of the top three actions that would be hardest to implement to improve customer centricity.

To achieve better alignment, companies must move away from a silo-based mentality toward functional activities and business models, which is so prevalent in many businesses. It is interesting to note the increasing awareness of the lack of alignment of internal functions among respondents this year, whereas in previous surveys the focus was more on the lack of alignment of



external functions and partners. Internal misalignment is often linked to a lack of understanding of the business strategy and how each function fits in with the overall business strategy and objectives. For example, in the past, customer service was seen as the domain of sales and marketing.

But if companies want to achieve true customer centricity, all functions of the business need to understand the impact they have on the customer and how they can better cater to customer needs.

Survey respondents rated procurement as one of the worst aligned internal functions in the business for delivering excellent customer experience. This is fascinating, seeing as this function is integral to the sourcing of raw materials and components and the products that customers need.

Misalignment is often linked to how procurement staff are measured and incentivised.

For example if they are measured on buying at the best price, it may mean buying in bulk to get the biggest discounts, which is often why procurement is centralised in the first place. But this is false economy if it results in being left with obsolete stock because of a lack of understanding of the customers' needs.

On the other hand, low-cost retailers may buy in bulk and discount the goods until they are gone. Whatever the case, the procurement strategy needs to be aligned with the business strategy.

The fact that alignment has moved up the list of respondents' priorities this year is an indication of the realisation of the inability to respond to the rapidly changing dynamics of the market to meet customer demands.

From an external alignment perspective, the supply chain executes the business strategy – and the closer the supply chain and the business are aligned to what the customer wants, the



easier it will be to deliver it to them. So companies need to ensure all elements of the supply chain, both internally and externally, are integrated to deliver what the customer wants.

This needs to be supported by the use of technology to gather information and convert it into business intelligence.

Seventy-five percent of respondents believe total alignment of all players in the supply chain is a critical element of delivering customer delight.

To achieve closer alignment, companies need to identify all the functions of the business and how they need to be connected, and encourage functional business units to work together to better serve the customer.

In the past, the focus was always about collaboration in relation to external entities, which still remains important. But in this year's *supplychainforesight* survey, respondents acknowledge they also need to look at internal collaboration.

Lack of alignment is hindering companies from responding effectively to changing market needs. So they are less able to take advantage of new opportunities than newcomers to the market who are not fettered by existing infrastructure and legacy systems.

Feedback from survey respondents is that they feel they are bogged down with baggage and entrenched cultural mindsets, and it is hindering them from changing the way they do business.

### **Customer centricity is key**

Meanwhile, it is interesting and positive to note that survey respondents recognise the need to understand their customers better, and 90% of them agree that customer centricity is integral to business success. They show a deep understanding of customer centricity and acknowledge the huge benefits that can be derived from it.

The majority of respondents (71%) agree that human relationships with the customer is far more important than processes and systems,



but only 11% feel that most SA companies are very customer-centric. These statistics show a disconnect between the desire to achieve customer centricity and the ability to do so.

Key factors driving customer centricity cited by respondents include greater customer expectations (63%), increased competition (59%), improved communication technologies and use of social media (52%), increase in technology and Internet usage (52%), speed of change and innovation (52%) and belief that customer centricity drives growth (48%).

Survey responses also reflect an awareness of the need to focus on issues on the ground which have a potential impact on customer centricity, including an internally focused culture.

Difficulties with finding the right skills are cited by respondents as the top constraint inhibiting their progress toward achieving customer centricity. This is followed by lack of alignment within business functions (48%), and no structure or plan to innovate or embrace continuous change (44%).

Sixty-six percent of respondents agree that customer centricity requires lengthy time and investment. The latter is linked to a generally strong focus on cost among respondents, which had dipped in our previous surveys over the past few years.

A key message that comes out of the survey is that doing business the way it has always been done is no longer viable due to the rapid pace of change.

There is a need to find new ways of working with partners and with different market segments and to come up with more innovative, customised products and services. This will require companies to align their internal and external functions across their businesses, and change their business processes. They will also need to harness technology to enable them to understand their markets and customers better through the ability to collect, collate and analyse data more effectively.

A major challenge highlighted in the survey is that only 23% of respondents are geared to capture customer information to improve service levels and be proactive in delivering what customers want. Survey responses indicate the supply chain is seen as being integral to servicing customers better and enabling companies to be agile enough to respond to the fast-changing dynamics of the market, which links back to improving efficiency.

Ninety-two percent of respondents say customer centricity cannot be achieved without a supply chain strategy focused on delivering customer value. Seventy-eight percent of survey respondents rank improving customer service as the top strategic supply chain objective, and 77% say supply chains are enhancing customer centricity.

This highlights the need to ensure all elements of the supply chain, both internally and externally, are integrated to deliver what customers want. This needs to be supported by the use of technology to gather information and convert it into business intelligence, and to anticipate and be proactive and agile in responding to customers' needs.

While this may cost money in the short term, it will create greater value for the customer which, in turn, will lead to business growth and longevity.

*Kate Stubbs*



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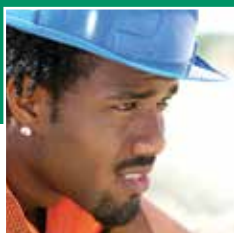
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DIVISION OF  
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GROUP

# Valvoline Heavy Duty Extended Life Coolant AF

**Today's heavy duty diesel engines are finely tuned instruments designed to go for thousands of kilometres, provided they are properly treated and maintained. Proper maintenance also applies to the cooling systems, which require coolants/antifreeze specially designed for heavy duty engines.**

**Coolant/antifreeze protects an engine from overheating and freezing while defending components against corrosion. They play a critical role in lowering operational costs and increasing drain intervals.**

The heat removed by the coolant provides a balance in the overall removal of the engine heat that is critical in ensuring that the engine operates properly. Overheating could result in accelerated deterioration of the oil and, subsequently, the engine itself.

Coolants play a vital role in preserving the overall engine heat balance and protecting engine components against corrosion. An estimated 60 percent of engine downtime in the commercial trucking sector is coolant related. Regardless of the market in which the coolant is used, it is safe to assume that coolant education relating to product chemistry, use and ongoing maintenance, plays a vital role in creating a productive and profitable environment.

By using Valvoline HD Extended Life Coolant AF and following careful preventive maintenance practices, one can help ensure the proper protection of an engine.

Valvoline HD Extended Life Coolant AF is an engine coolant designed for trucks, buses, and industrial equipment, and fulfils the requirements of most leading heavy duty engine manufacturers. The product is amines and phosphate free, which makes it friendlier to the environment.

Valvoline HD Extended Life Coolant AF protects cooling systems against frost, corrosion and overheating **for at least three years**, 7 000 hours or 500 000km as opposed to normal coolant which lasts on average, two years. It is suitable for open and closed cooling systems and aluminium engine blocks. The product is mixable with other coolants on basis of mono ethylene glycol, but that may shorten the long-life characteristics.

**The advantages of using Valvoline HD Extended Life Coolant AF:**

- **Lowers operational costs**
- **Suitable for modern and older heavy duty vehicles and equipment**
- **Prevents scaling and system deposits**
- **Prevents housing and system metals from corrosion**
- **Protects seals, gaskets and aluminium**



- **One product suitable for all cooling systems – (no misapplications)**

Valvoline HD Extended Life Coolant AF in your heavy-duty engines will provide maximum protection against heat and will prolong the lifespan of the engine, which means minimal downtime and maximum profitability.

Valvoline HD Extended Life Coolant AF is available from any of the 42 Diesel-Electric outlets country wide. For further information, contact your closest Diesel-Electric outlet. Alternatively, visit [www.diesel-electric.co.za](http://www.diesel-electric.co.za).

## Performance Levels/OEM Approvals

Afnor 15-601, 1991	Leyland
ASTM D-6210, D-4985, D3306 (D-4656)	MAN 324 type NF
BS 6580, 1992	MB 325.0,2,3
Caterpillar EC-1	MAN B&W
Cummins 14603 Approved, 3666286	MTU
Cuna NC956-16	NATO S-759
DAF	O-Norm V5123
Detroit Diesel 7SE 298	Renault RVI
Deutz MWM	Scania
Ford WSS M97 B44-D	SAE J814, J814C, J1034, J1941
Isuzu	Volvo VCS

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All-Fleet™ Extra 15W-40 (ACEA E7/E5)  
Additional specs available on request

## FLUIDS

SynPower™ Power Steering Fluid  
Brake & Clutch Fluid DOT 3/4

## COOLANTS

HD Extended Life  
Coolant AF 50/50 RTU

## GREASES

Multi Purpose Grease  
Moly Fortified MP Grease  
Semi Fluid Grease EP 00

## HD CHEMICAL

VPS HD Diesel System Complete

## REAR AXLE OILS

SynPower TDL 75W-90  
SynPower GL-5 75W-140  
HP Plus GL-5 80W-90  
HP GL-5 85W-140

## GEARBOX OILS

SynPower TDL 75W-90  
HP GL-4 80W-90  
MaxLife™ ATF  
ATF Type D  
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# Telematics Revolution begins to deliver

**The Telematics Revolution in commercial vehicle management has begun transforming large amounts of data into tangible results for both fleet owners and insurers**

**In the past year alone, we have seen not only significant improvements in claims experience, but also improving costs, driver performance and safety by partnering with fleet managers to make better use of the data available to them.**

In the process, it has been demonstrated yet again that an insurer cannot change behaviour purely by altering premiums, and that innovation and partnership with clients is essential.

We should be clear about what we understand by telematics, as the commercial vehicle industry has seen a great many products/services offering some form of telematics-based solution.

While tracking systems show the location of a vehicle, telematics is essentially the delivery of information about a variety of performance measures such as speed, braking, driving

hours, daylight versus nighttime driving, unauthorised stops and so on. The information is typically delivered to a telematics service provider (TSP) on the back of mobile technology.

However, in Regent's experience, telematics is mostly being used as a basic tracking system, and not being optimised to identify potential areas to reduce risk and costs or to improve productivity by changing driving behaviour.

## **Wealth of data**

What we've done over the past year or so is to tap into the wealth of data that tracking systems can provide and turn that into usable, and customised, steps that fleet managers can take to make improvements that are felt relatively quickly.

Regent Risk Solutions integrates with the telematics systems of commercial fleet operators to transform data into intelligence



that can be used to assist with route planning, scheduled stops, speed management and other vehicle management essentials.

We have found that many fleet managers are far too pressed to try to make sense of many screens or pages of data on their vehicles. Others have to log into their tracking and telematics systems and do all their own filtering and analysis.

One of the things we now do is to provide reports and recommendations in a format that can be acted on quickly. This provides fleet managers with additional confidence to take action to improve performance.

On the fleets that we are risk-managing, we have managed to help our clients control issues such as speeding and extended driving times without stopping.

When you control those issues, you also help to manage the running costs for the clients, with savings on fuel, for example.

### **Driver wellness partnership**

While data, information and recommendations are proving very valuable, we have found that the best results are achieved when we partner with the people at our commercial vehicle clients.

We have achieved this by incorporating driver assessments and training with the telematics, enabling its clients to improve the performances on a driver-by-driver basis.

Our trainer can use the information provided by the TSP to identify areas of improvement in driver behaviour – such as over-revving or harsh braking. In this way, we are able to tailor-make the driver training programmes for the insured. This training addresses both driving skills and road attitude.

In the past six months, more than 300 drivers have been assessed and Regent has held 43 defensive driving courses.

In a few cases, fleet managers were uncomfortable with more direct involvement from their insurance company. In those cases, Regent was prepared to part company with them in the interests of the broader pool of fleets we cover.

The impact of this overall approach is that the knowledge of the insurer is better integrated with fleet telematics systems to help reduce the 14 000 deaths on South African roads every year. According to the Department of Transport, 85% of these fatalities are caused by human error, often involving trucks.

Fleet owners do, indeed, realise the importance of constantly monitoring their assets and managing the risks within their control to stay competitive. Regent Risk Solutions thus offers practical support by taking over the hosting, management and maintenance of the client's database.

This allows us to monitor insured fleets live and to report in real time when violations occur. From critical events such as panics, impacts or battery disconnects, to off-road deviations and unauthorised stops, we are able to assist our clients prevent problems rather than react to them.

Regent's ability to monitor, analyse and provide feedback on driver performance, vehicle utilisation and violations assists improves the effectiveness of fleets' operations teams and risk, maintenance and marketing departments.

Our experience has shown that fleet managers can make dramatic improvements in terms of insured losses, vehicle performance and operational efficiency by addressing a few critical things. These include average speeds, sharp braking, driving times without taking a break, as well as unauthorised stops.

From an insurance perspective, our commercial vehicle claims experience of our managed risk pool of clients has improved by 30 percentage points in the first year. This makes a significant contribution to keeping premiums as manageable as possible.

We expect shortly to extend the company's involvement in supporting insured fleets with driver wellness through additional training and incentives. We believe that this will ensure we remain a partner that understands the fleet sector and which is continuously exploring new ways to help improve their operations.

*Wayne Rautenbach*



# REDISA IS REINVENTING THE WHEEL

The waste tyre problem in the country is growing with approximately an additional 10 million tyres added every year.

The gradual increase of waste generated in South Africa has brought to the fore the inadequate nature of existing waste management services – leading to an increasingly polluted environment in which South Africans are forced to live.

Through the Integrated Industry Waste Tyre Management Plan (IITWTMP) the Recycling and Economic Development Initiative of South Africa (REDISA) has found that there is worth in waste and is extracting value from dumped waste tyres.

REDISA, which has been operational since July 2013, is developing a new tyre recycling industry by providing support and the infrastructure required to collect waste tyres from across the country and deliver them to approved recyclers.

“What makes the REDISA plan especially unique is the economic development aspect. Through the initiative REDISA is creating 1 500 jobs by the end of 2014 and 10 000 jobs by 2017,” said REDISA director Stacey Davidson.

Developing the entrepreneurial spirit is an important economic driver and poverty eradicator for South Africa, and as such the REDISA plan is supporting small business owners interested in repurposing waste tyres. Through this activity, REDISA will include 40 small to medium enterprises by the end of 2014, with an additional 200 SMMEs incorporated into the plan by 2017.

Over the past 12 months of operation, the initiative has made significant headway towards ensuring that South Africa is clear of all tyre waste. To date, 26 388 tonnes of waste tyres have been remediated, and the initiative is well on its way to achieve a 30% abatement of tyres by the end of the year.

Seven REDISA depots across the country have been opened with one in Mpumalanga, two in Western Cape, one in Gauteng and one in East London. Further to that, there are two depots in Kwa-Zulu Natal and an additional three transfer sites in the province.

“We believe that the REDISA depots are a great microcosm of what are actioning in terms of the plan. They have become a source of empowerment and exemplify the work that REDISA has achieved thus far in the first year of operations,” said Davidson.

At the depots, REDISA employs individuals from previously disadvantaged backgrounds who are provided the necessary administration and operational business experience required to ultimately own and operate the depots independently. This is in addition to the job creation opportunities for transporters who are servicing 833 collection points comprising tyre dealers, municipal landfill sites and illegal dumps were being serviced by the end of May 2014.

So far, 683 jobs have been created by the recycling initiative and a number of stakeholders have also been registered as part of the plan to assist in the collection and the recycling of the waste tyres. In the past year, 749 transporters have been registered to the plan. Furthermore, 1641 tyre dealers have been registered.

“As the implementation of the REDISA plan continues to roll out nationally, we look forward to creating more opportunities and ensuring that South African’s live a better quality of life with less tyre pollution in the country,” concludes Davidson.

[WWW.REDISA.ORG.ZA](http://WWW.REDISA.ORG.ZA)

The Recycling and Economic Development Initiative of South Africa (REDISA) is a non-profit organisation whose aim it is to develop a sustainable South African tyre recycling industry through an Integrated Industry Waste Tyre Management Plan (IITWTMP).

**WE CAN DO SO MUCH  
WITH REPURPOSED  
WASTE TYRES**

**WASTE  
INTO  
WORTH**



**REDISA**<sup>NPC</sup>  
RECYCLING AND ECONOMIC DEVELOPMENT  
INITIATIVE OF SOUTH AFRICA



# Adding value through enterprise development

**B-BBEE is a controversial subject: Some see it as a necessary process in the normalisation of our country, while others believe it is a blunt tool which, until now, has benefited only a fortunate few. Almost no one is neutral on the subject**

**In a refreshing example, Cargo Carriers and Lafarge have concluded a deal that supports the real spirit of the concept of B-BBEE. And innovative thinking is at the heart of the solution. In a logistics industry where optimisation, high levels of SHEQ and critical mass are often required to manage productivity up and costs and risk down, these two organisations have found a way to create a safe and value-creating gap without sacrificing the holy grails identified above.**

Since 2003, Cargo Carriers has been introducing the concept of owner drivers to contracts where opportunities presented themselves to create enterprises that could flourish under the company's guidance.

And this guidance is by no mean paternalistic. Cargo Carriers sources the business opportunity, provides the benefits of management systems it uses in its own business, and then allows these businesses to flourish with mentorship and training to a point where they are self-sufficient.

Thus, the Lafarge owner drivers are not subject to the same risks and failure rates as stand-alone new businesses.

The most recent of these Owner Driver Schemes started discussions in 2012, when Lafarge saw an opportunity to develop an empowered enterprise to provide a transport service to it with respect to an increase in volume of its bagged cement products in the Free State, Northern Cape and North West.



As an existing customer of Cargo Carriers, Lafarge approached the company to help it set up an enterprise development initiative.

"This is a slightly different version of our Owner Driver Scheme because up until this contract with Lafarge, owner drivers were contracted directly to us with a service agreement: we assisted them with everything and we could then claim for preferential procurement and enterprise development. In this instance, the owner drivers are contracted directly to Lafarge, and Lafarge benefits from the B-BBEE benefits of the scheme," explains John Sprenger, Owner Driver Manager at Cargo Carriers.

Cargo Carriers appointed the owner drivers from within its own company to ensure the drivers had the right qualifications. The drivers also underwent intensive training covering contractual issues, operating parameters, accounting matters, budgeting principles, business management and communication.

One of the key conditions for participating in the scheme is the requirement to comply at all times with the rigorous Lafarge South Africa safety standards for driving and maintenance of the vehicles.

To further increase its B-BBEE rating, the owner drivers appointed black female partners. Because of this structuring,



Lafarge can now claim at three different B-BBEE levels – at the overall level, at the EME (Exempted Micro Enterprise)/QSE (Qualifying Small Enterprise) level, and at a black female shareholding level.

This example of co-operation between Lafarge, Cargo Carriers and the team of owner drivers has no losers. “We believe our Owner Driver Scheme is a win-win initiative. It is about a continuing partnership, where the drivers are empowered to determine their own success and future while at the same time leading to increased productivity and enhanced service levels,” says Tim Nelson, Lafarge Cement’s Supply Chain Manager.

With the Owner Driver Scheme and its evolution to suit the specific needs of Lafarge, Cargo Carriers proves that providing innovative supply chain solutions can go beyond the obvious areas of application such as performance and safety, to deliver value to its customers in other areas such as B-BBEE solutions within the transport and logistics industry.

This is what happens when innovation meets B-BBEE. The results are truly transformative.

*Dominique Masson*



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# SA must learn from Aussie implosion

**South Africa's automotive manufacturing industry believes it must learn from the dramatic collapse of the Australian auto sector**

**Robert Houdet, Executive Director of the National Association of Automotive Components and Allied Manufacturers of South Africa (NAACAM), says the Australian automotive industry's collapse – which could trigger the loss of more than 30 000 jobs – would provide valuable insight for South African auto companies.**

He adds that learning from the Australian and European Union crisis would be unpacked to industry at the South African Automotive Week, by global manufacturing doyen and adviser to Australia's shattered automotive industry, Göran Roos, whom Houdet says is "arguably the most capable of sharing these lessons."

Roos will be a keynote speaker at the two-day conference, which forms part of the South African Automotive Week Trade Show at Gallagher Convention Centre in Midrand, Johannesburg on 14 and 15 October.



"There are many learnings that the South African industry has to contemplate and implement to ensure the sustainability of our own industry," Houdet says.

The shock announcement, within months, confirming the closures of Ford, GM Holden and Toyota in Australia by 2017 – which is forcing manufacturers to reinvent themselves in order to stave off mass job losses – is one of the most talked about developments in recent manufacturing history.

Roos, a Swedish-born celebrated academic across the globe and the founder or co-founder of several companies in different countries, has worked as a consultant in more than 50 countries and has served in management positions in several European and United States-based corporations.

Most recently he has been supporting the Australian Prime Minister's Taskforce on Manufacturing.

"The Australian scenario and the EU crisis, which has virtually overnight decimated component manufacturers' traditional markets, hold telling messages and learnings for African manufacturers...relating to competitiveness, input costs, strategic positioning and the importance of diversification," says Houdet.

Roos, the author of over 100 books, was named one of the 13 most influential thinkers of the 21st century by the Spanish business journal, *Dirección y Progreso*, and last year was appointed "Manufacturing for the Future" Thinker in Residence by the South Australian Premier and member of the Australian Prime Minister's Manufacturing Leaders Group.

His speech, titled "The future of manufacturing in Australia: Innovation and productivity", was named among the top 10 most influential and interesting speeches by the Australian government.

Economic modelling by the Australian Government Productivity Commission has predicted that up to 39 000 jobs, mostly in Victoria and South Australia, would be lost after the end of production by Ford, GM Holden and Toyota in the period 2016-17. This estimate comprises 11 120 direct jobs being lost at the car manufacturers, plus another 28 100 jobs in the car component supply chain.



South African Automotive Week Director, Andrew Binning, describes the securing of Roos for South African Automotive Week – hosted every two years by the South African industry and government – as “a coup”.

“He has made numerous presentations on profitable manufacturing with reference to the EU crisis and Australia, is very eloquent and probably a vital, unobstructed and candid voice that South Africa must hear.”

Binning says the industry conference will feature other top speakers including the chief executives of Toyota SA, Nissan SA, NAACAM and the South African Chamber of Commerce and Industry, among others.

The decision to host the fourth edition of South African Automotive Week in Gauteng was facilitated by the Automotive Industry Development Centre (AIDC).

AIDC CEO Barlow Manilal says: “The Week will not only position the Gauteng province as the automotive investment destination of choice, but also showcase South Africa’s manufacturing capability globally. Gauteng’s automotive value proposition will be a key theme of the event.”

Houdet says the South African Automotive Week is remarkable in its “unparalleled ability to bring together and make accessible automotive stakeholders representing all levels of government, its agencies and industry.

“This is truly an event for industry by industry, and the role of the AIDC has strengthened the brand and its ability to maximise its objectives, which are to showcase South Africa’s manufacturing capability, facilitate trade and empower suppliers with access to cutting-edge information, networks and markets.

“Ultimately, as a South African collective, The Week is the gathering place and showcase of automotive role-players, including government departments and their products, services and contribution to the manufacturing sector,” he concludes.

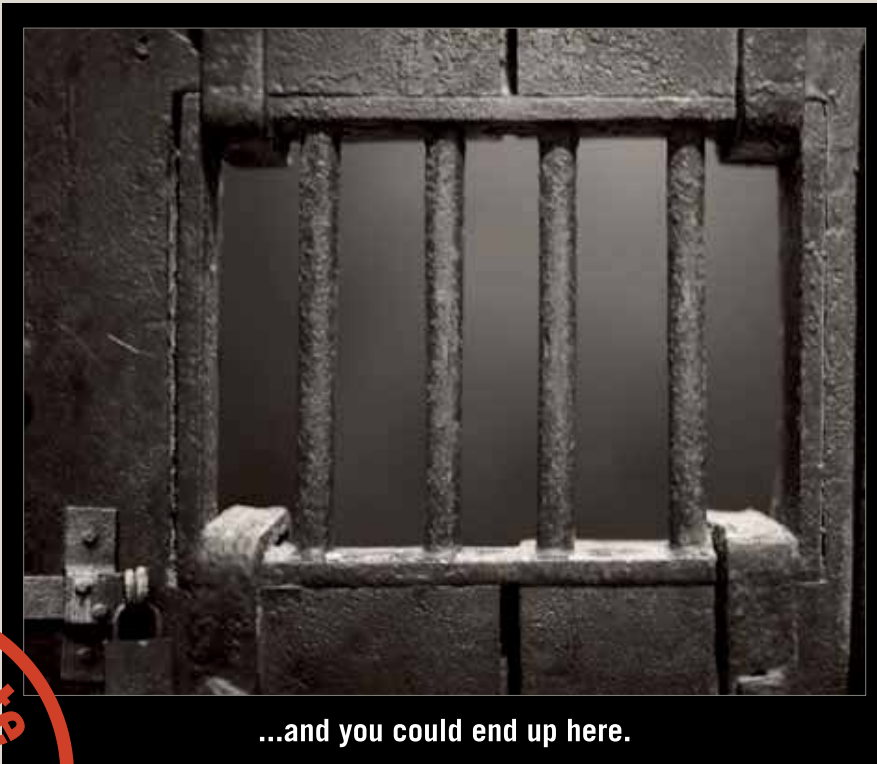


*Professor Göran Roos*

*Issued by Deon Engelke*



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# Pushing the Limits

**The Audi SQ5 TDI is sensational, to say the least, combining the legendary Audi three-litre twin-turbo diesel engine that easily rockets you back into your seat all the way up to 250km/h – governed, that is**

**First impressions of the car are favourable for an upmarket city SUV on steroids. It's a bit lower than the standard Q5, giving it fantastic handling on both gravel and tar at speed, aided by the now legendary Quattro AWD system.**

If I were ever going to take on the 'unofficial' speed record between Johannesburg and Cape Town in a road-going car, this would be the vehicle I'd choose. Unchipped, you could get to 270km/h easily – and with a slightly higher seating position as compared to a sports car, it would make it easier to pass traffic.

Being a diesel engine, you'd get better fuel consumption, meaning fewer stops. And it's not a red Ferrari, so it's more low-key. Sadly, with increased traffic, inherent dangers and penalties, I doubt we'll see the Porsche 911 time of nine and a half hours beaten any time soon (although Sarel van der Merwe once told me that story was rubbish – but it still makes for a good yarn).

Boosted by two turbochargers, its 3.0 TDI produces a brawny 230kW and 650Nm of torque between 1 450 and 2 800 rpm. The powerful TDI, which displaces 2 967 cc, uses a twin-turbo design in which the two turbochargers are connected in series via a flap.



Cylinder head cooling, the timing and lift of the intake cam shafts, the pistons, their oil-jet cooling and the piston pins have been specially designed for the high-performance concept. The common rail system develops as much as 2 000 bar of pressure and injects as many as eight shots of fuel into the cylinders per cycle.

The Audi SQ5 TDI sprints from zero to 100 km/h in just 5.1 seconds, while fuel consumption is on average just 6.8 litres per 100km, with a CO<sub>2</sub> emissions figure of 179g/km – taking full advantage of the efficiency that a diesel engine provides.



Innovative thermal management, the start-stop system and the regulated oil pump all contribute to this top figure. A fast and smooth-shifting eight-speed tiptronic and quattro permanent all-wheel drive with torque vectoring transfers the power of the V6 diesel to the road.

Luggage capacity in the SQ5 is 1 560 litres, making it the ideal car for sporty and active customers. It is also an unusually powerful towing vehicle, with a rated towing capacity of up to 2.4 metric tonnes.

Visually, it combines all the assets of the Audi Q5 performance SUV with the unmistakable design characteristics of Audi S models, with restyled front and rear bumpers, a roof spoiler, and black brake callipers at the front with SQ5 badging.

Overall, it's one hell of a package and gets a solid 8/10, with pricing being its only major drawback against the Japanese competition.

*Gregory Simpson*



# Hijacking

## Business fights back

**Syndicates targeting transport and logistics companies have been on the receiving end of skilled sleuth work in the fight against hijacking and its negative effect on the supply chain**

**Trucking companies have lost up to R350 million in stolen fuel to a blue light syndicate operating between Durban and Gauteng, reveals Conrad van der Merwe, Regional Director for Gauteng at Justicia Investigations.**

“As fuel becomes increasingly expensive, the many petrol tankers that are plying the route between Durban and Johannesburg will become increasingly attractive targets. Already, between January and July this year, our investigators came to know of at least 35 different incidents. However, there have probably been more, given that between 40 and 50 fuel tankers are on the highway on any single day,” he says.

At present, Gauteng consumes 65% of the fuel in the country. The bulk of this is either imported or refined by Engen or Sapref, two of the country’s largest oil refineries. Most is transported by road. Unfortunately, the multibillion-rand New Multi-Product Pipeline, which is still under construction by Transnet and would be the safest means of transporting petrol and diesel, is not yet fully operational.



Although Justicia investigates a wide variety of different crimes and has come across tankers stolen in Durban, emptied and abandoned, Van der Merwe says the blue light syndicate that investigators exposed operating along the N3 in August was one of the more sophisticated. Most of these tanker hijackings took place within 150 kilometres of Johannesburg. Vehicles were carrying petrol, diesel and paraffin.

According to Van der Merwe, the syndicate used white unmarked vehicles with blue lights. After a truck was pulled over and a suspect wearing a South African Police Service uniform overpowered or took the driver hostage, accomplices wearing plain clothes appeared. They used cable ties to tie up the driver, who was then placed in the boot of their vehicle.

In other cases, drivers of fuel tankers were hijacked after they went to the toilet or shops at some of the Ultra City’s close to Johannesburg. “As the driver climbed into his truck, he would feel a gun in his back and would be forced to climb into the cab and lie on the sleep bunk. He was then tied up and robbed of his cellphone and wallet,” Van der Merwe says.

The tracker signal of the truck was blocked using an advanced jamming device and the truck was then driven to the off-load point which, in this case, was on a farm in the Springs area. Here, the diesel or petrol was pumped into large 30 000-litre containers.

The truck and trailer was then driven back to Johannesburg and dumped while the driver was dropped off in a rural area in the Leandra/Delmas area where he would be left to struggle for an hour or two before making his way to the nearest police station to report the incident.

Van der Merwe adds that horses and empty trailers were eventually discovered a few days after an incident at different locations in Johannesburg. He says the owners of the ensembles, of which the horse alone was worth around R1.5 million, were fortunate to recover their vehicles.

“In all cases, the drivers were robbed of their cellphones and wallets. Polygraph tests performed during this thorough



*Conrad van der Merwe,  
Regional Director Gauteng  
of Justicia Investigations*



investigation confirmed that they were not involved in the planning or execution of these hijacks in any way,” continues Van der Merwe.

Justicia, assisted by the tracking firm responsible for five trucks owned by a small trucking company, was able to locate the farm that was used to store the stolen petrol and diesel. Seals found on the premises indicated that numerous loads of stolen petrol and diesel had been off-loaded on this farm. The tenant, who was responsible for on-selling the stolen fuel to a wholesaler, was arrested.

Further investigations led to the arrest of the leader of the hijacking team. It was found that he was out on bail on numerous charges of hijacking and even murder.

He was positively identified by drivers during identification parades and has been charged with numerous fuel truck hijacks in Gauteng.

In addition, Justicia was able to identify the fuel wholesaler who purchased most of the stolen fuel from the suspect on the

farm and then sold this stolen fuel to apparently unsuspecting service stations. Van der Merwe says the fuel was sold by the farm operator to the wholesaler at a 50% discount.

The wholesaler is believed to have added a substantial markup before disposing of the fuel to a number of petrol garages at a 20% to 25% discount.

He says that, as yet, it is not clear how many filling stations were involved. However, investigations are ongoing and he expects further arrests.

Van der Merwe says that cases had been postponed, with the next appearance scheduled for the beginning of October in Johannesburg.

“Since these arrests have been made, fuel truck hijackings on the N3 have come to a complete standstill. Justicia and its investigators will do their best to ensure the suspects are found guilty and receive lengthy sentences,” he concluded.

*Dale Horne*

#### **Typical tools of the investigation trade:**

- Polygraph testing for pre-employment checks – to ensure a syndicate is not infiltrating the organisation.
- Routine periodic polygraph testing – to ensure an individual has not been approached by or joined a syndicate since employment.
- Specific polygraph testing – to identify individuals’ roles in specific incidents.
- Undercover agents – to infiltrate and gather intelligence toward a proactive solution.
- Whistle-blowing line – to open lines of communication with honest employees or third parties who would like to remain anonymous.
- Covert tracking and electronics i.e. use of cameras.



# Competition

makes a difference



## Kärcher high-pressure cleaner giveaway

**In the spirit of the World Cup in Brazil, we are running a soccer quiz this edition, with the winner walking away with a brand new high-pressure cleaner from Kärcher, ideal for your muddy truck and trailer or weekend run-around.**

Please email your answers, care of the editor to: [Gregory.simpson@capemedia.co.za](mailto:Gregory.simpson@capemedia.co.za).

- From which country do Kärcher high-pressure cleaners originate from?
- When was the last time Germany won the World Cup?
- Who is the top goal scorer in World Cup history?
- How many times has Brazil won the World Cup?
- When was the last time South Africa qualified for the World Cup?
- In what year did Maradona score the goal with the 'hand of God'?
- Which is highest paid team at the 2014 World Cup?
- What is the smallest nation (population) to ever win a World Cup?
- Which edition of the tournament boasts the highest average attendance?
- How did Finidi George celebrate after scoring against Greece in 1994?



# Pushing payload productivity

**Heavy-duty truck trailer manufacturers the world over have a singular vision, to constantly increase the carrying capacity of the vehicles they fabricate, without compromising on build-strength**

**South Africa has a proud history of innovation in the commercial trucking industry, with new trailer designs coming to market every year which significantly improve payload productivity.**

At the vanguard of our local trailer-building industry is Trailord SA, a company that prides itself on its out-the-box approach to trailer design using high-quality materials and cutting-edge design and fabrication technologies.

According to Howard van Loggerenberg, Trailord SA Marketing Manager, “Our 21st century approach leads not only to record-breaking load capacities and weight reductions, but also to increased lifespan and product durability. Our trailers are entirely electronically conceived using the latest CAD and 3D software and all Trailord SA trailers are manufactured entirely from high-strength Swedish steel such as Domex and Docol.”

The latest offering from the Bloemfontein-based manufacturer is an interlink side-tipper, sporting two 12.75 cubic metre load bins, capable of carrying an impressive 38.5 tonnes. Trailord is initially targeting the manganese and chrome transport sectors, but views the new trailer as suitable for other mining applications.

“This is our flagship model, based on a reinforced Domex chassis and premium-class running gear from SAF-Holland SA”, adds Van Loggerenberg. “Apart from its industry-leading load-carrying capacity, the interlink has been designed to outlast its competitor derivatives. The chassis boasts a unique ‘fishbone’ reinforcing technique to prevent the all-too-frequent cracked chassis phenomenon. The use of air suspension axles is also a new innovation to improve reliability, moving away from mechanical suspension systems that build up kinetic energy and increase the possibility of metal fatigue.”

With a tare mass of 8.8 tonnes, the new side-tipper has a host of low-weight components including aluminium rims and a greaseless George Fischer fifth-wheel from SAF-Holland SA, which cuts trailer tare mass by 40 kilogrammes. The four SAF-

Holland drum axles help reduce tare mass by another 312kg and are equipped with maintenance-free wheel bearings.

“The running gear from SAF-Holland SA has helped considerably in reducing the tare mass of the interlink. The smart design of the axles, fifth-wheel and Tirepilot – an automated tyre inflation system – all add to the trailer’s efficiency and durability. In commercial trucking, uptime is everything and it is through the use of top-flight technologies that we at Trailord SA can offer customers a unit that will significantly enhance their profitability.”

For Simon Dolphin, Technical Manager at SAF-Holland SA, “Additional cost-saving features on the Trailord SA side-tipper include a rear lift axle on both links, which helps reduce tyre wear. Valuable fuel savings through reduced rolling resistance are another benefit of the lift axles. Maintenance time is also kept to a minimum, with all axles enabling brake-shoe replacement in a matter of minutes and a built-in wheel-alignment technology allowing the driver to set the trailer wheel alignment in under 15 minutes.”

With its expertise covering the gamut of heavy-duty trailer design – from grain trailers, to flatdecks, to tautliners – Trailord SA prides itself on its unique approach to providing customised solutions to the trucking industry: “We manufacture a full range of premium-class trailers, as well as build custom trailers catering to specific mining, agricultural and bulk transport needs. We are constantly seeking better ways to make our trailers safer and more productive for our clients.

“The new tipper exceeds all mining safety requirements while its build-strength will bring much peace of mind to the operator. The fact that all SAF-Holland axles and suspension systems come with an unmatched 500 000km warranty also helps bring down overall trailer life-cycle costs. Without doubt, our flagship is bound to set new benchmarks in side-tipper applications,” concludes Van Loggerenberg.

*Paul Collings*



# LEEU TRANSPORT CC

## Customer is King

**Leeu Transport was established by Andries Ndlebe in Gauteng Province back in 2002. His business interest developed while he was a truck driver at Gider Naco Engineering, where he was employed for 27 Years.**

He drove a 2624 Mercedes Benz (Bull Nose), which he later bought at an Auction when Gider Naco was liquidated. The first clients Leeu Transport handled transportation for, where MacSteel Tube & S.M.E.I projects.

Within a short period, the company managed to accumulate a fleet of nine trucks. The trucks did not have enough parking spaces at S.M.E.I so Ndlebe bought a plot at 16 Northern Road Mapleton Boksburg South.

Leeu Transport is a wholly black owned emerging Road Transportation Company that firmly believes in continuous innovative solutions in all aspects of road transportation in achieving service excellence. Highest level of quality service is key to customer satisfaction and this underpins the philosophy of our company.

We constantly strive to understand the industry dynamics and specific circumstances of each company that we service in order to provide long lasting, meaningful and appropriate road freight solutions. We pride ourselves in strict adherence to the highest possible ethical, professional standards and integrity in all that we do.

### Vision

To become one of the leading road transportation companies in Southern Africa, providing an all round professional service, and empower up and coming fleet enterprises.

To offer innovative, efficient, flexible and highly professional and competitive road transportation solutions through:

- Ensuring that clients' needs are a priority to our company. (customer is king)
- Unrivalled cargo management
- Ensuring that goods reach their destination on time and in excellent condition
- Timeous deliveries and excellent cargo management
- High level of staff competence and commitment
- Strict compliance with professional standards



## References

Currently Leeu Transport is handling transportation for the following companies:

- SMEI Projects
- Jwaneg Cut 8
- Grootegeluk
- Marapule
- Ngezi
- Booyesdal
- Mareesburg
- Exxaro Backfill
- UG2 Bottle Necking (Lonmin)
- Namakwa Sands
- Lion Project
- Yard
- Workshop Insimbi
- Mortimer Concentrated
- Bakubung
- Murray and Roberts
- DMO Mine
- Dorsfontein
- Pilanesburg
- Booyesdal Mine
- Sasol Wax Expansion

The following companies are sub-contracting at Leeu Transport. They are all black empowerment establishments:

- Mirage Express Transport
- Mlimi Transport
- Mhlane Express Transport
- Umvuzo Energy; a black owned company supply Leeu Transport with diesel
- Kgiba Project Security provides safety at our company premises
- PTD Transport

## What sets us apart?

We provide a high quality, world class service based on specific needs and circumstances of our clients whilst being guided by principles of business ethics, integrity, transparency, innovation and continuous improvement. We strive at all times to exceed customers' expectations and ensure that each customer is satisfied with the services we offer. We provide reliable, innovative and flexible transportation logistics solutions to your needs.

As a Road Freight company, Leeu Transport offers the following flexible and customized services:

- We offer customized deliveries (short or long hauls) to and from any destination within the borders of South Africa as well as deliveries for the SADC region
- We also offer end-to-end supply chain management solutions, from the source or supplier to the end user destination
- Day to day loading and distribution of cargo as directed by the clients
- Our company is geared towards providing an individual answer to all distribution requirements

Projects can be handled either on an ad hoc basis or on contract. In the latter scenario, Leeu Transport will conduct a feasibility study and offer an appropriate solution, or manage only certain components of the plan, as directed by the client. The company subscribes to all statutory laws especially Empowerment Equity Act and other policies such as Black Economic Empowerment, Affirmative Action and Skills Development.



*Andries*



*Nomvula*



*Daphne*



*Sibongile*



*Senzi*

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P.O. Box 12113, Elspark 1418



# Understanding low-emission engines

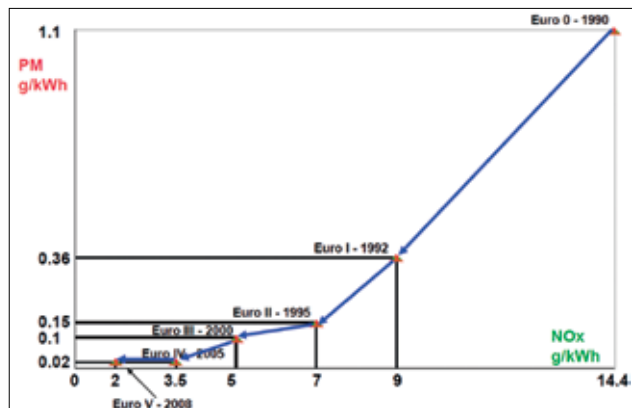
**First-world government legislation makes it mandatory that original equipment manufacturers' engines meet increasingly stringent emission requirements – and these are the OEMs that supply the majority of engines to South Africa**

**Due to globalisation, all future engines will have to comply with these emission standards. In order to remain competitive, OEMs have been increasing service and oil drain intervals, while improving performance levels and durability.**

The above criteria tend to be in conflict with each other, and differing innovative technical solutions have been developed to meet these requirements. Lubricant manufacturers are required to meet more demanding and more stringent technical standards in order to be able to market OEM-approved lubricants.

In the early days, addressing the legislated emission criteria was relatively easy through technology, but nowadays more stringent rules have made this difficult, especially for emissions such as particulates and nitric oxides (NO<sub>x</sub>), which are of concern to the OEMs.

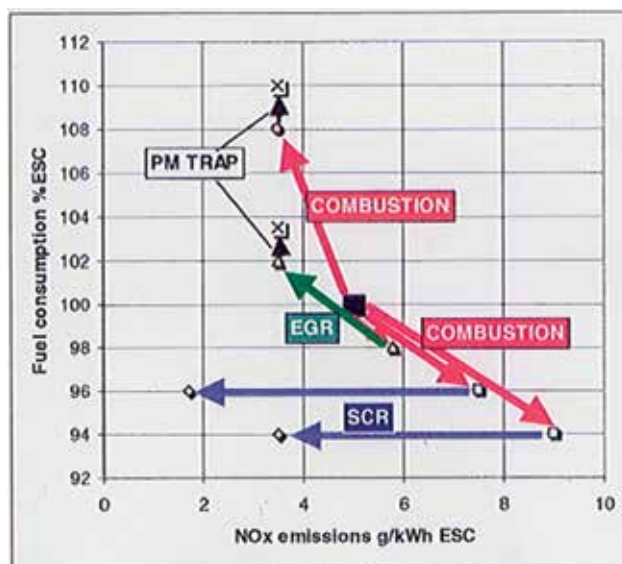
One can see by the graph below how legislated emission levels have decreased since 1990. Euro 6 was introduced in January this year and is effectively less than half the amount allowed in 2008 (NO<sub>x</sub> = 0.4 and PM = 0.01) – a scale too small to be used on this graph.



Various different technologies are available to be used by OEMs to meet these required emission levels. The main ones are:

- Combustion control;
- Exhaust gas recirculation (EGR);
- Particulate traps;
- Selective catalytic reduction (SCR); and
- Oxidation catalyst

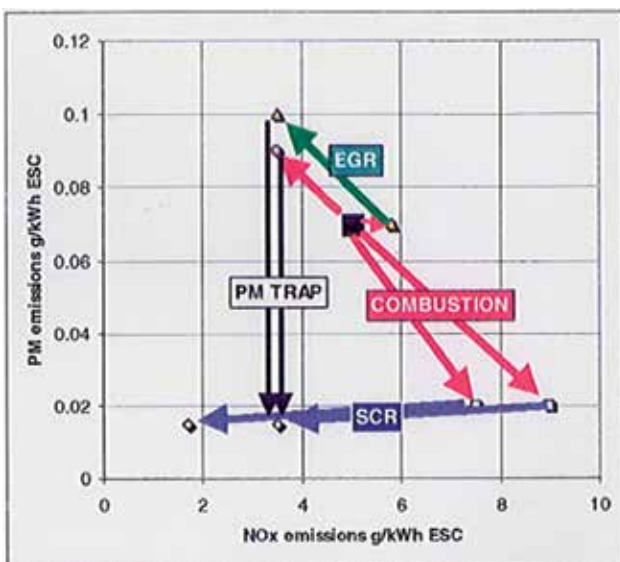
The above technologies are used in various combinations with each other to achieve the desired result, depending on the design philosophy favoured by the OEM. They all place a differing emphasis on the various properties of a lubricant. The bottom line is: they all put more stress on the lubricants in one way or another and have differing technical concerns.



**Fuel consumption vs NO<sub>x</sub> emissions**



As can be seen from the graph opposite, EGR, retarded injection timing, and suppressed ignition technologies used to reduce NOx have the effect of increasing fuel consumption. The only system that satisfies both requirements appears to be SCR.



**Particulate emissions vs NOx emissions**

From the second graph (left) it can be seen there is a conflict between particulate emissions and NOx emissions when no after-treatment devices are fitted. The only systems that satisfy both requirements are particulate traps and SCR. All OEMs have now conceded that to meet Euro 6 emission levels (and the United States equivalent thereof), SCR will have to be used.

SCR units require AdBlue or diesel exhaust fluid, which is injected into the exhaust stream before it enters the SCR unit. Typically, the consumption rate is between 3% and 5% of the amount of diesel consumed. Using SCR technology allows the OEM to 'tune' the engine to maximum fuel efficiency, without worrying about the emissions – leaving the SCR unit to reduce emissions to the prescribed level. The fuel saving normally offsets the added cost of the AdBlue.

#### **Effect on lubricants**

Previously, most of the various OEMs required performance levels could be met and combined in one lubricant (similar requirements – one lube for all). The modern trend, however, is toward differing requirements to meet very specific criteria – dedicated lubes formally approved as service fluids.

With regard to the lubricant, there is a conflict of requirement from various OEMs, depending on their design criteria and philosophy on how they can assist in addressing emission requirements.



For example, EGR type technology needs to be used in conjunction with high dispersancy lubricants to handle high soot content.

Most OEMs have now indicated their requirements for what is known as 'low-SAPS' lubricants by virtue of the technologies preferred and used by them. SAPS stands for the sulphated ash, phosphorous and sulphur content of the lubricant.

#### **Why the OEM requirement for low-SAPS lubricants?**

Low-SAPS oils are required to achieve the OEM's desired degree of performance and durability of the engine management and

emission control devices.

Combustion compounds tend to foul control devices in a similar way to which lead in petrol fouls catalytic converters and reduces their efficiency.

Previously, OEMs required high-performance lubricants that were typically high-ash and high-TBN (total base number). The high-SAPS components in the lubricant were the main contributor to their high performance. To satisfy the new low-SAPS requirements, radical new technology is required to achieve the same performance and service life of the lubricant.

Unfortunately, lubricants are now no longer a commodity purchased on price! They are a complex and critical component designed to meet very specific performance criteria. Modern engines will not achieve their designed durability and performance if the specified lubricants are not used.

The lubricants' contribution to the total operating cost of truck is less than 0.8%. The potential cost saving of a 'cheap' lubricant versus the price of downtime, spare parts, labour etc. would be very difficult to calculate.

*Jimmy Hey*



Hyva Southern Africa (Pty) Ltd

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# MAHLE Aftermarket opens new sales branch in South Africa

## MAHLE—the international premium brand

Throughout the world, the MAHLE brand name stands for expertise in and on combustion engines. Founded in 1920 in the southern German town of Stuttgart, MAHLE quickly established a good name for itself—initially as an innovative piston forge, and subsequently as the driving force behind engine components such as aluminium engine blocks and assembled camshafts or environmentally friendly oil filter solutions.

With its three business units Engine Systems and Components, Filtration and Engine Peripherals, as well as Thermal Management, MAHLE now ranks among the top three systems suppliers worldwide—and still cultivates the tradition of innovation: over 4,500 engineers and technicians work at the group's ten major research and development centres—in close consultation with the automotive industry. MAHLE products are in demand internationally and manufactured globally: some 64,000 employees develop, manufacture, and distribute the premium automotive products at more than 140 locations.

## MAHLE Aftermarket: new sales office in South Africa for optimal supply

MAHLE Aftermarket, the MAHLE business unit specialising in spare parts, offers trade and repair shops on all continents access to the product range in original equipment quality. In order to supply the South African market more efficiently, intensify customer proximity, and strengthen contacts in the surrounding countries such as Namibia, Zimbabwe, Zambia, Mozambique, and Angola, MAHLE Aftermarket has now expanded its local commitment by opening a sales office in March this year directly at the production location of the MAHLE Behr plant in Port Elizabeth.

Chris Stanbridge, head of the new MAHLE Aftermarket sales office in South Africa, has a clear understanding of the specific regional needs of his customers: "The brand diversity in South Africa is extremely high and our customers are very demanding in terms

of service and flexibility." The team is set up to meet this challenge, since MAHLE Aftermarket unites its OE competence with a broad and deep product range and a highly efficient sales organisation that provides trade and repair shops with quick access to MAHLE Original engine components, filters, and turbochargers, as well as MAHLE Original and Behr thermostats.

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Image of the MAHLE Original engine components, filters, and turbochargers, as well as MAHLE Original and Behr thermostats product range



The new sales branch in Port Elizabeth supplies the South African market with the MAHLE Aftermarket product range.



Brothers Hermann and Ernst Mahle in the early years of the company.



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**BEHR**

**KNECHT  
FILTER**<sup>®</sup>

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# Trucking 2025

**Just over 30km of autobahn, with interspersed open stretches, slow-moving traffic and a broken-down passenger car. So, nothing special? On the contrary: there is a truck driver at the wheel of the Mercedes-Benz Future Truck 2025, but something else exercises control in this situation.**

**The ‘Highway Pilot’ drives the truck autonomously. The driver attends to other matters during the journey, and only intervenes when required. Tomorrow’s technology in a truck of today – driving on the autobahn in the Mercedes-Benz Future Truck 2025.**

The all-important message lights up immediately after starting off: “Highway Pilot available,” reads the display in the instrument cluster. Using the installed map and the markings on the 3.5-metre wide motorway lane, the technology of the Mercedes-Benz Future Truck 2025 has identified the vehicle’s position on the A14 autobahn near Magdeburg.

The driver switches on the system, then takes his hands off the wheel – the display confirms with “Highway Pilot active”. Nothing exciting happens as the revolutionary mode change takes place. The semitrailer combination continues to travel at exactly the set speed, in the centre of the right-hand lane. Using the truck’s intelligent sensors and computing power, the steering carries out slight corrections by itself. The first impression: autonomous driving is amazingly unspectacular.

The driver wants to relax in comfort, so he presses a button on the seat armrest: the driver’s seat immediately moves backward, and pivots to the right by 45 degrees for a comfortable seating position. The driver is able to stretch his legs in comfort, as if sitting in an armchair at home. He is able to reach the steering wheel, but the brake pedal only by an artistic foot contortion. No matter, the Future Truck 2025 is not driverless – the ‘Highway Pilot’ is now doing the driving.

**Safely on the road with radar sensors, camera and V2V/V2I communication**

The ‘Highway Pilot’ is a combination of radar sensors at the front and sides, a stereo camera behind the windscreen, precise three-dimensional maps and V2V/V2I communication – which stands for vehicle-to-vehicle and vehicle-to-infrastructure, and which is the exchange of information between the truck and other vehicles, and with the world outside the motorway.

Tomorrow has already come in the Future Truck 2025, as the instruments already show: Instead of a conventional instrument cluster, it has a high-resolution, graphic colour display. On the left, the display shows the fuel and AdBlue levels, as well as the engine speed, and on the right the driving time and social data. In the centre it shows the vehicle speed in precise digital form, and also in analogue form using a stylised dial instrument.

When the ‘Highway Pilot’ is activated, the information in the display is reduced to a minimum and all the data now appears on the screen of the tablet computer in the centre console. This is now the truck’s central control and communication instrument. The developers now no longer refer to the interface between the





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driver and truck as ‘instruments’, but as the Human Machine Interface or Human Machine Interaction – HMI for short. This is the centrepiece of the Mercedes-Benz Future Truck 2025, and is presently still a disguised, near-series study.

### **Acknowledging assignments and reserving a parking space while on the move**

The semitrailer combination of the future is now moving smoothly with the traffic at a cruising speed of 85km/h, always keeping the correct safety distance of 60m from the vehicle ahead and staying precisely on course.

The initial apprehension in the cockpit has now been allayed. Likewise the temptation to keep a constant eye on the traffic situation, so as to intervene at any time. This is not necessary. Even gusting crosswinds do not bring the truck off-track; the technology corrects its course more rapidly and safely than any human driver. The driver may now decide to compose an email or listen to music.

Or attend to more important matters. For example, use the tablet to acknowledge an assignment that has just come in by V2I communication, or take a look at the proposed route in navigation mode and choose a suitable service station for the next break. The menu for the day promptly appears on the screen. The driver can take the opportunity to pre-order the meal of his choice and reserve a parking space. Are there any friends or colleagues logged in on the same route? Easy to find out; perhaps they can arrange to meet up for the next rest break.

### **The Future Truck 2025 pays attention and makes room**

The traffic of tomorrow will likewise have its share of unforeseen

incidents and breakdowns, occasionally slow down and come to a stop, but the Future Truck 2025 smoothly adapts to the conditions. A message appears in the display: “Emergency vehicle approaching”. The information comes from a police car, by V2V communication. The communication between vehicles works perfectly, the truck automatically moves over to the right until it reaches the lane marking, clears the way for the fast-moving police car and then returns to the centre of its lane.

Meanwhile, the driver remains in his working position and merely observes the scene. And uses *Skype* to answer an enquiry from a colleague travelling well behind about the cause of the delay. Because the ‘Highway Pilot’ is able to announce a broken-down vehicle ahead in advance.

It is stationary on the emergency lane, so the truck automatically moves left to the centreline and passes the broken-down vehicle while keeping a safety distance, as it also has its eye on the traffic in the left lane. After passing the obstacle, the truck returns to the right-hand lane and accelerates back to its cruising speed.

### **Overtaking is manual, the driver retains control**

Minutes later, the display reports a slow-moving vehicle ahead. In autonomous mode, the Future Truck 2025 would patiently follow the slow-mover, as it never leaves its lane. But in this case, overtaking is worthwhile, owing to the large difference in speed. So the driver pivots the seat into the driving position, takes over manual control, indicates and changes lanes to overtake. Returning to his lane, he can then hand control back to the ‘Highway Pilot’.

Important note: The driver of the autonomous truck is always in full control, and can always override the technology by steering, braking or accelerating as required.



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