

DAF in action

Magazine of DAF Trucks N.V.

number 2, 2008



**DAF Trucks at
IAA 2008 in Hanover:**

**'Evolution
never stops'**

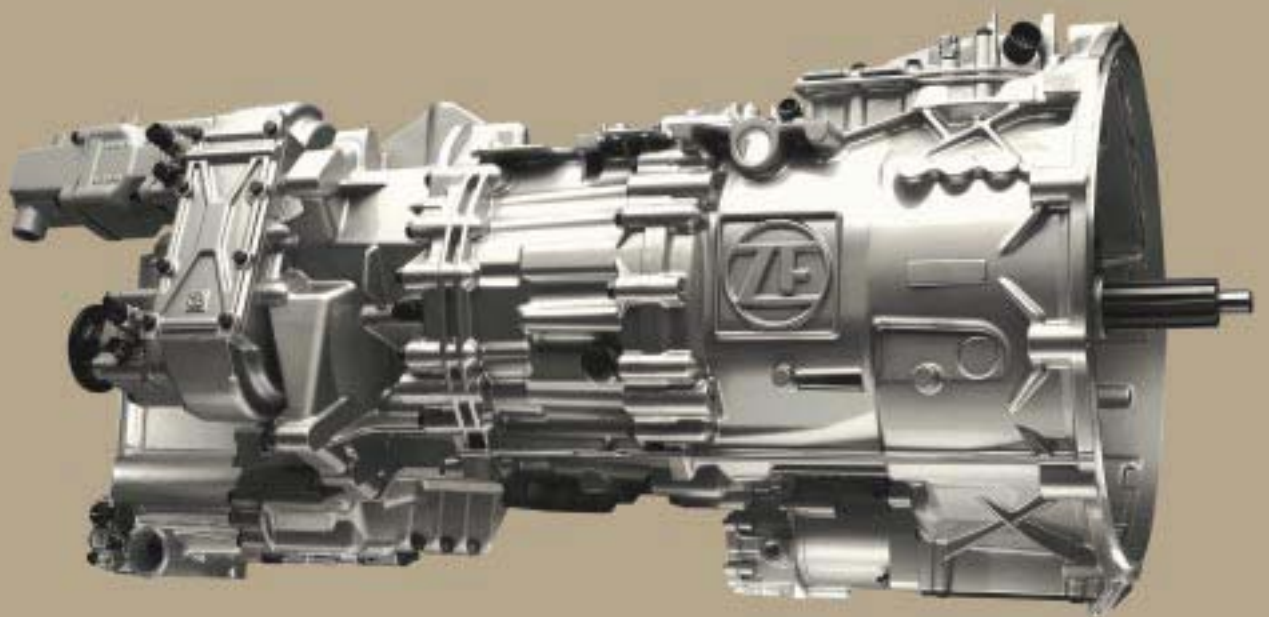
**Biodiesel:
an answer
with new questions**

DAF

A PACCAR COMPANY

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with the AS-Tronic.



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For heavy long-distance transport, distribution traffic, or special vehicles – work is easier for truckers with the N°1 automatic transmission. Relax on long drives, in city traffic, and when carefully manoeuvring – automatically!
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Driveline and Chassis Technology



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Evolution never stops

Whilst revolutionary new models are regularly introduced to the passenger car market, in the commercial vehicle industry, it is all about evolution. Transport operators do not sit and wait for yet another completely new model to come along and outdate their entire existing fleet in one fell swoop. And no one wants to take unnecessary risks with gimmicks and technology that offer little or no added value. That is why at DAF, we do not introduce ‘technology for the sake of technology’, just high-quality technology for the sake of transport efficiency, safety, driver comfort and the environment. That is the basis of all DAF’s development programmes.

Reliability, durability, the lowest possible costs and the highest transport efficiency are what counts. Due to the dramatic increase in fuel prices and rising toll costs, it is hard enough for transport companies to achieve healthy operating results, which is why our development activities remain focused on further improving efficiency. We are therefore continuing to look for ways of helping our customers attain better operating results.

The DAF Telematics System, which is now available following an extensive trial period, is a good example of this: it helps transport operators to work more efficiently through optimum communication between planning and the driver, tracking & tracing, instant messaging and navigation.

Another example is the further optimised driveline for the CF and XF105 – with economical PACCAR engines, a new, lighter 12-speed gearbox, which means fewer gear changes, and faster rear axle reductions, which offer even more efficiency. These innovations will all be on show at the IAA and available from June 2009 on the CF and XF105. And of course we have not forgotten about the driver in all these product enhancements.

For many years, the key principle at DAF has been that we have two customers: the transport operator and the driver. Both are given due consideration within our development programmes. For example, our 2009 CF and XF105 models, which are being previewed at the IAA, feature new safety options such as Adaptive Cruise Control and Front Collision Warning. Our design department has also updated the interior with stylish, warmer colours, new materials and even more comfortable seats. The best ever cab interior just got better, because here too ‘evolution never stops’.



Aad L. Goudriaan
President



Colophon

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DAF CF85 awarded British Fleet Truck of the Year

For the eighth time, DAF won the award for the Fleet Truck of the Year for its CF85 at the Motor Transport Awards in London. This annual event organized by the leading British magazine Motor Transport, included a judging panel comprised of 25 prominent U.K. fleet operators.

The judges said the DAF CF85 was the right truck with the right weight, right fuel, a major focus on efficiency, a mature back-up and best in class 24/7.

“We know the CF 85 is the truck of choice for many of Britain’s fleet operators – and it’s really great to have industry recognition of the truck’s outstanding attributes and indeed our entire dealer network,” said Stuart Hunt, managing director of DAF Trucks Ltd. “This year our Awards submission focused on the ‘green’ credentials of the truck, and indeed of the entire DAF range, which is now available at Euro 5, 18 months ahead of the legislative deadline.”



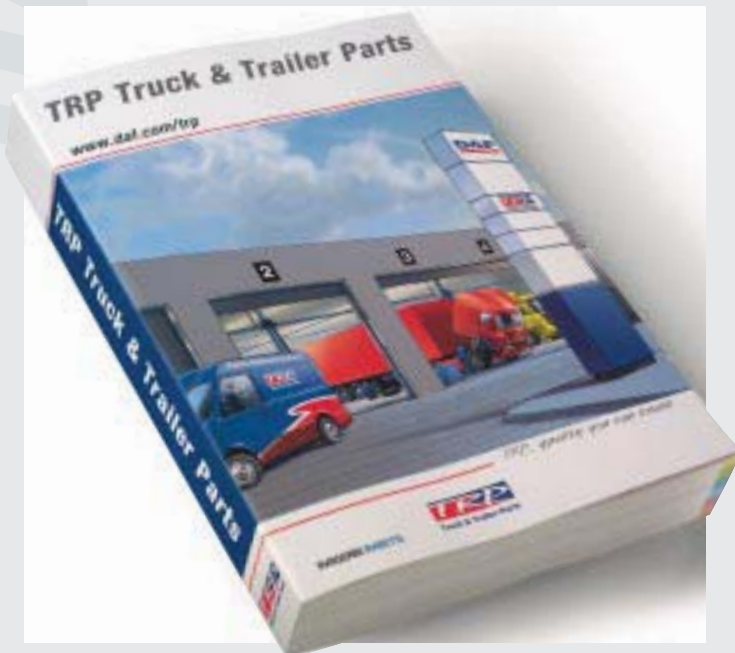
From left to right: Rory Bremner, host during the award ceremony, Stuart Hunt, Managing Director DAF Trucks Ltd.UK and Enrico Odorico, Managing Director of sponsor BRS Truck Rental.

DAF LF wins in Poland

For the second time in a row, the DAF LF series has been named “the best truck for small and medium-sized businesses” by Gazeta Finansowa, a leading financial weekly magazine in Poland. The DAF LF series has been awarded the prize because “it best fulfils the expectations of small and medium-sized businesses”. The magazine praises the LF series’ reliability, low fuel consumption, high load capacity, manoeuvrability and modern design.



More than 60,000 TRP parts



In 1995, as part of the “One-Stop Shopping” strategy in which the transport operator can find everything for his fleet at one address, PACCAR Parts introduced its Truck and Trailer Parts programme, known as TRP. The new TRP catalogue, with parts for all makes of trucks and trailers and workshop supplies, is one of the most extensive in the trucking industry. The TRP programme consists of more than 60,000 items, now also including original SAF parts for trailer axles.

All 60,000 items in the TRP programme can be found in the new digital catalogue at HYPERLINK “<http://www.daf.com>” www.daf.com/trp where, thanks to an extensive search function, you can quickly search for the parts you need based on make and part category. In addition, there is also a new print version of the TRP catalogue available from DAF dealers.



Accolade for technology and innovation

DAF recently received the "Power Torque Magazine Technology and Innovation Award" for the CF85. This distinction is awarded by the Australian trade journal publisher, *Motoring Matters*, to truck and trailer manufacturers who have made an important contribution to the advancement of vehicle and driver safety and to the reduction of emissions and fuel consumption.

The DAF CF85 received the accolade on account of the ultra-modern PACCAR MX engine, which conforms to the strictest emissions requirements, and for the comfort and space in the cab. "It is truly one of the most comfortable trucks that we have ever driven", said editor-in-chief Chris Mullet during the presentation of the award. "We drove a 750 kilometre-long test drive from Melbourne to Sydney. When we arrived there, we immediately started a drive of another three hours, just because the truck drives so magnificently".



DAF Night Lock

To protect drivers from breaking and entering and robbery in the cab, DAF is the first truck manufacturer to supply a night lock for the cab doors. It can be easily and quickly installed on every DAF XF105.

DAF is known for being close to drivers and for listening to their wishes and needs. To that end, DAF conducts a lot of research among drivers. A topic that invariably comes up in conversations with drivers is the increasing amount of crime that they have to deal with. More and more often, drivers are attacked in their sleep. The attacker's goal: robbing the driver or stealing the freight. For DAF, that was a reason to develop a provision that protects the driver from these occurrences.

Unique night lock

DAF is the first truck manufacturer to introduce a unique night lock. This is a mechanical lock that is installed on the side wall of the cab in which a tempered-steel pin is pushed into the armrest of the door. The necessary reinforcements are fitted at the factory. When the DAF Night Lock is bolted, it is impossible to open the door of the truck, even with a crowbar.

DAF trucks as a business card

Flegg Transport based in Buckinghamshire, England specialises in the transportation and installation of heavy machinery. Driver comfort and appearance played a key role in the recent modernisation of the fleet.

The four new XF105s are fitted out to a luxury specification, meaning the driver and co-driver have everything they could possibly need. "Aesthetics play an important role in all aspects of our business operations", says Managing Director Jayson Flegg. "And that also applies to our vehicles. They must convey the professionalism and high standards of our company."

"We also want our employees to travel in comfort", adds Flegg. "The drivers are also specialists in the installation and removal of machinery. That's a difficult task and it's important that they arrive on site with the right equipment to get straight to work. In addition, the cab often serves as a resting place during (sometimes quite long) waiting periods. DAF trucks correspond perfectly to our requirements."



XF105 pedal car

Especially for the youngest drivers, DAF offers a pedal car version of the XF105, "International Truck of the Year 2007". The pedal car is made of high-quality plastic and is TÜV and GS approved. It is 90 centimetres long and is available in bright yellow. The pedal car weighs 11 kilograms and is intended for children aged between 3 and 6. The DAF XF105 pedal car costs EUR 125 and is delivered by the DAF dealer network with over a thousand sales and service points in Europe.

DAF Trucks at IAA 2008 in Hanover:

'Evolution never sto



Hanover. 25 September to 2 October. IAA 2008. One of the most important truck and transport exhibitions in Europe. DAF will give a preview of the enhancements to the popular CF and XF105 series that will be introduced to production in June 2009. Both model series are getting a new interior design, a further enhanced driveline and – as an option – Adaptive Cruise Control and Forward Collision Warning. DAF is naturally also focusing on the environment at the IAA 2008. DAF is the first truck manufacturer to already deliver all of its models in 'EEV' versions (Enhanced Environmentally friendly Vehicles). In addition, DAF is showing the LF hybrid truck, which goes into production next year, and an anniversary version of its top model – the XF105 80th Anniversary.

DAF, as always, has its stand in Hall 17 of the Hanover Messe complex. The stand has an area of almost 2,500 m². DAF is exhibiting its complete product range: the LF for distribution transport, the CF for a wide range of applications and the XF105, 'International Truck of the Year 2007' for long-distance transport.

Preview of the 2009 editions of the CF and XF105

As many transport operators plan the replacement of their fleet a long time in advance, DAF will preview at IAA 2008 of enhancements to the popular CF and XF105 series to be implemented from June 2009 onwards. The motto: 'Evolution never stops'.

The most eye-catching of these is the new interior design. This is now even more attractive due to the use of new materials and colour schemes. By opting for colours such as 'pastel yellow' (wall and roof upholstery, mattresses, curtains), 'roast black' and 'dark camel' (dashboard, door panels and seats), the much-praised interiors of both the CF and XF105 series models get

ops'



All CF and XF105 models also have new seats with luxurious 'embossed' upholstery. The headrest bears the DAF logo in relief.



an even more distinctive touch and the trend-setting interior space further emphasised. In the XF105 Super Space Cab the dashboard is in an exclusive 'two-tone' colour scheme, with a darker tone for the top section and lighter tone for the lower section. All CF and XF105 models also have new seats with luxurious 'embossed' upholstery. The headrest bears the DAF logo in relief.

The CF and XF105 are not only more appealing for drivers, but also for transport companies. The driveline – with the powerful and efficient 9.2 litre PACCAR PR engine for the CF75 and the 12.9 litre PACCAR MX engine for the CF85 and XF105 - has been further improved. Internal engine enhancements ensure even lower fuel consumption, in conjunction with the driveline improvements. First is the new 12-speed manual gearbox (ZF Ecosplit), for even greater gear-shift comfort and efficiency. The new transmission, which is fitted as standard, is also up to 30 kilograms lighter than the current 16-speed transmission. A new interarder also become available, which is more compact and responds even faster. In

order to be able to customise the driveline even better to the specific use and driving characteristics, the range of rear axle ratios has been further expanded. To supplement the fastest ratio of 2.53:1, a ratio of 2.80:1 is being added to the series.

Adaptive Cruise Control and Forward Collision Warning

From June 2009 onwards the CF and XF105 series vehicles will be optionally available with Adaptive Cruise Control and Forward Collision Warning.

By opting for colours such as 'pastel yellow', 'roast black' and 'dark camel', the much-praised interiors of both the CF and the XF105 series models get an even more distinctive touch.

DAF, as always, has its stand in Hall 17 of the Hanover Messe complex. The stand has an area of almost 2,500 m².





The DAF Telematics System has been available in six European countries since July.



EEV engines for LF, CF and XF105

By fitting a passive soot filter, a further 50% reduction of particulate emissions can be achieved. Consequently, even the emission requirements of the EEV standard are met. Until recently this was thought to be only achievable with gas engines.

Following the start last year of delivery of the 9,2 litre PACCAR PR EEV engines for use in public transport, these engines have in the meantime also become available for the DAF CF75 distribution vehicles (with power outputs from 250 to 360 hp). EEV versions of the 12.9 litre PACCAR MX engine (power outputs from 360 to 510 hp) are now available for the DAF CF85 and XF105 and are also equipped with a passive soot filter.

DAF Telematics

At IAA 2008 DAF is also focusing strongly on the DAF Telematics System, a data communication system that enables the transport operator further to optimise his fleet management and business processes. The system – that since July has been available in six European countries – allows message exchange between the truck and home base. It also has a navigation function and the home base can see exactly where the vehicle is. A feature of the DAF Telematics System is the simplicity of operation for both the home base and driver. The transport operator only requires the Internet to access the information. The full-colour control only has six menu buttons. Just a couple of button presses and the driver can access the functionality he desires.

New: DAF Night Lock

To protect drivers against breaking and entering and robbery in the cab, DAF is the first truck manufacturer to introduce a night

Adaptive Cruise Control ensures that the truck automatically keeps at least a preset distance from a vehicle in front of it. This is comforting for drivers. When the distance to the passing vehicle becomes reduced, the system slows the truck – depending on the degree of braking that is required – by sequentially adapting the fuel feed, engine brake, retarder and regular brakes. A visual signal is given if the driver has to provide additional braking in order to achieve maximum deceleration. Adaptive Cruise Control is supplied in combination with Forward Collision Warning. This warns the driver that he must take action to avoid a collision. Both systems utilise a radar sensor fitted behind the front grille on the vehicles.

Care for the environment as a matter of course

At IAA 2008 it will be patently clear that DAF cares about the environment. DAF was one of the first truck manufacturers to supply all its vehicles in Euro 5 versions. This has been the case since 2006, even though Euro 5 specifications do not come legally into force until 2009. Compared with the Euro 1 standard of around 15 years ago, modern Euro 5 engines emit around 75% less nitrogen oxides and 94% less particulate matter. By using DAF SCR technology in combination with intelligent high-pressure injection systems, the PACCAR engines developed and produced by DAF achieve the Euro 5 emission values without a soot filter.

XF105 80th Anniversary

In order to celebrate the 80th anniversary of Hub van Doorne laying down the foundations of the present company, DAF is exhibiting a special anniversary version of the XF105, its top model, at IAA 2008. This XF105 80th Anniversary is striking because of its shiny black exterior with silver accents and its extensive features. It will only be made available in limited numbers.





The driveline of the CF and XF105 series has been further improved. Other internal engine enhancements ensure even lower fuel consumption and the new 12-speed manual gearbox provides even greater shifting comfort and efficiency.

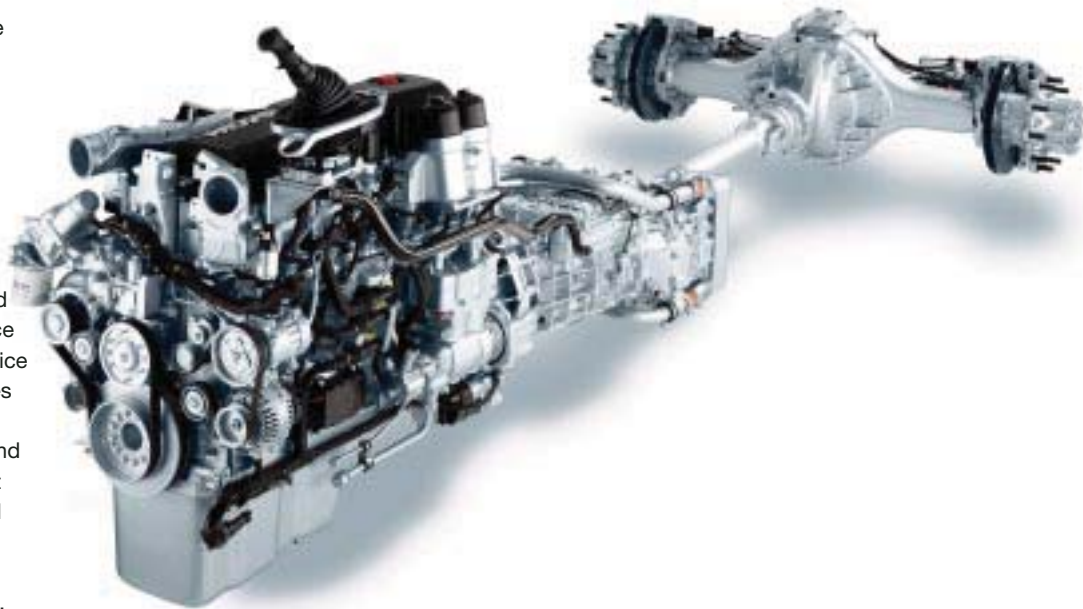
lock for the cab doors. It can be quickly and easily installed on every DAF XF105. To ensure that a driver can leave the cab quickly in the event of an emergency, one press of the red button is all it takes to immediately release the lock. When the DAF Night Lock is bolted, it is impossible to open the door of the truck, even with a crowbar.

Services around the product take centre stage

To underline the importance that DAF and its dealers (approx. 1000 sales and service dealers in Europe) place on excellent service to support their leading products, services such as PACCAR Financial (now also represented in Poland), PACCAR Parts and TRP are being given a prominent place at the DAF stand, as will DAF's International Truck Service (ITS), MultiSupport Repair and Maintenance Contracts and the new DAF Connect system. With DAF Connect, DAF is introducing a complete management system for optimising the maintenance of the vehicle fleet and the efficiency of the workshop at self-repair companies. DAF dealers apply the 'one-stop shopping' formula: all services and support under one roof, so that the customer can concentrate on his core business.

PacLease

With the acquisition of TCH, PacLease entered the German lease market in 2007. PacLease – like DAF a PACCAR company – distinguishes itself by its large and varied range of vehicles, opportunities for 'customised' leasing for the short and long term, and competitive rates. PacLease is represented at 12 locations in Germany and has a fleet of almost 4,000 vehicles. At IAA 2008 PacLease can be found on stand F31 in the 'outside area'. PacLease will show amongst other a number of vehicles new to its fleet including CF and XF105 rigid vehicles with container loading system and a XF105 6x4 tractor for heavy haulage applications. Its display underlines that PacLease can supply customised vehicles for any application.



Extensive field test LF Hybrid truck

The so-called 'field testing' of the LF hybrid truck, the last phase of the development process, started in January 2008. This involves a number of trucks being tested by customers in Great Britain and on the Continent.

The trucks use a parallel diesel/electric hybrid system. They are driven by the diesel engine, by the electric motor or by a combination of both. The vehicles are equipped with the 4.5 litre PACCAR FR (EEV) diesel engine with a maximum output of 118 kW/160 hp and this is linked to a computerised Eaton six-speed gearbox (Autoshift). An electric motor has been installed between the clutch and the gearbox; this can provide the drive and also functions as a generator. Energy released during braking is stored in the lithium-ion batteries for re-use during driving. DAF Hybrid Technology can, depending on the specific use, result in a significant reduction in fuel consumption and emissions in distribution applications. DAF expects to start production of the LF hybrid trucks in 2009.



Industry-leading financial services, completely tailored to the transport sector:

PACCAR Financial enters Polish market



PACCAR Financial – one of the world's largest financing companies dedicated to the transport industry – is offering its industry-leading financial services in Poland from September 2008. PACCAR Financial is represented in Poland through the authorised DAF dealer network.

PACCAR Financial is part of PACCAR Inc, one of the largest and most successful truck manufacturers in the world. PACCAR began providing financial products in the early sixties. Worldwide, PACCAR Financial has now more than 169,000 trucks and trailers in its portfolio, representing a

combined asset value of more than \$11.1 billion.

European business

PACCAR Financial started its European business in 2001 and now has over 42,000 trucks and trailers in its European

portfolio, representing an increase of around 20 % within the last 18 months. In Europe, PACCAR Financial is active with retail financing in the United Kingdom, the Netherlands, Belgium, Germany, France, Spain, Italy and, as from September, in Poland. As in other European markets, PACCAR Financial Polska operates via DAF dealers. This means, that at 13 locations in Poland, financing and insurance can be arranged at the same time as ordering a truck, providing 'one stop shopping'.

PACCAR Financial, with the Polish headquarters based near Warsaw, offers its customers a broad package of services, each of them entirely and exclusively tailored to the transport industry. Apart from the various forms of leasing, with or without residual value, the products offered to the customer include road tax and insurance services as well as repair and maintenance contracts.

In all countries where PACCAR Financial is represented, local staff is fully up-to-date on all specific national financing laws and regulations. Decisions are made locally, meaning that each customer receives the personal attention he deserves and can count on properly tailored solutions. In fact, PACCAR Financial provides the best of both worlds . A "can do" attitude of local staff, combined with the benefits of a global network, offering pan-European solutions where applicable and with the secure back-up of the AA- rating of PACCAR, provides the operator with a top class financial service partner.



Increased front-axle load requires the right tyre choice

Higher payloads necessary

For various reasons, the loads on the front axles of trucks have in general increased over the years. And the expectation is that this trend will continue. Truck cabs become heavier due to the bigger demands for enhanced driver comfort and working conditions, which leads to more equipment and accessories than in previous generations. Another even more important cause of the extra front-axle loads is the increased weight of new engine generations and systems necessary to meet more stringent emission standards. Tyre manufacturers are responding to the need.



These increased loads on the front axle require tyres with a higher load capacity. Mike Beckers, Account Manager for PACCAR Europe at Goodyear Dunlop Europe, explains why Goodyear is not in favor of increasing the load capacity of the existing sizes: "First of all, it requires a higher inflation pressure. This makes the tire much stiffer, reducing driver's comfort. The footprint pressure on the road increases, causing the tire to perform worse in terms of fuel consumption and wear. Higher footprint pressure can also lead to more road damage, which is an increasing concern in Europe. Legislation in countries such as Italy and the Netherlands is already being drawn up to prevent increased road damage."

Less fuel

Don't wider tyres use more fuel? "On the contrary," says Beckers. "Our AirMax sizes 355/50R22.5 and 375/50R22.5 have a 5 to 6% lower rolling resistance than

the sizes they replace (295/60R22.5 and 315/60R22.5 respectively). That's because of the lower pressure they exert on the road. In addition, by having more rubber in the tread, Airmax tyres give a higher mileage. Measurements at fleets of various sizes showed that the AirMax tires can improve mileage by more than 20%. Thus the AirMax concept not only saves money, it also contributes to a cleaner environment."

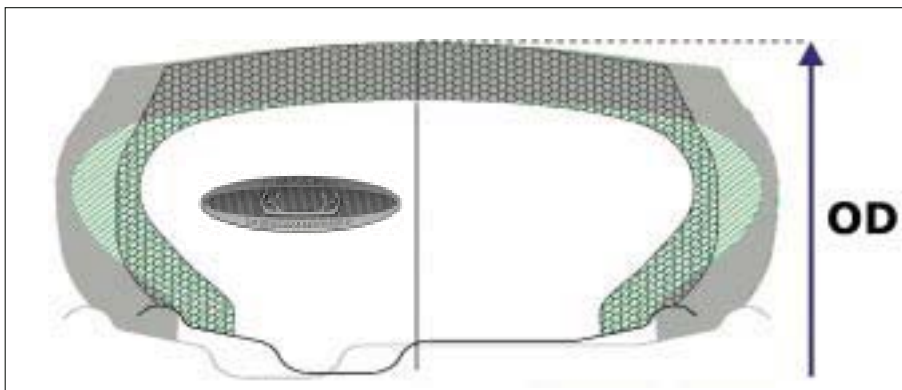
Availability

"Both the 355/50R22.5 and 375/50R22.5 are already available and approved by DAF," says Beckers. "More sizes are being developed, as we want to make sure that we meet the needs of the end-user in terms of efficiency, safety and ecology."

For various reasons, the load on the front axle of trucks has in general increased over the years. And this trend is expected to continue.



Mike Beckers, Account Manager Goodyear Dunlop Europe: "Achieving more load carrying capacity by adopting wider tyres in no way compromises driver comfort nor road wear."



At the same tyre height (OD: Overall Diameter) a higher load carrying capacity is achieved with a broader tyre than with a narrower tyre, without requiring a higher tyre pressure.

Hauliers praise quality trucks and services:

“Once DAF, always DAF”

DAF is one of the most successful truck manufacturers in Europe. More and more hauliers choose DAF, not only thanks to the quality of the modern range of products, but also for the services behind the product. A number of leading customers voice their opinions.



G. Bauer: “ITS is market leading”

Transport company G. Bauer is based in Austria to the south of Vienna. Founded in 1942, the family business is now managed by the third generation, Gerhard Bauer, together with his wife. The company specializes in transportation of dangerous substances. Of the 15 vehicles in the fleet, 13 are DAFs. “Our choice for DAF is always based on the excellent reliability and fuel efficiency of the vehicles. Moreover, DAF is also the favourite with our drivers,” says Gerhard Bauer. “Another plus point is ITS. When it comes to road assistance, DAF has no equal.”

Besico Trans: “Perfect service”

The Czech company Besico Trans is in the business of general haulage and transporting cars and trucks. The company has a fleet of almost sixty combinations, of which more than one third are car and truck transporters. The first DAFs were recently acquired for use as car transporters. “We have had very good experience with DAF,” says Karel Pařízek, Sales Manager. “The operational costs are low, they are reliable and have a low depreciation. And the service of the dealership company ‘DAF Praha’ is particularly appealing to us.”



Schotpoort Transport Group: ‘Price/quality caused the breakthrough’

The Schotpoort Transport Group has 120 vehicles of which almost half are DAFs. At Schotpoort Traffic Centre in Eerbeek (distribution) three DAF LF55/280’s deliver, among others, paper. 18 tonne vehicles with the ease of handling of a compact car combined with lots of loading capacity. “We consciously chose DAF because we find that the marque offers the best price/quality ratio,” says fleet manager Sandro Schippers. “Also the excellent contact with Cosmo trucks Apeldoorn influenced our choice. Thanks to the maintenance agreements, we hardly have any need for ITS!”

Björn Schade: “Once DAF, always DAF”

“Our fleet took delivery of its first DAF – a 95 – in 1991, at the time of the German reunification,” says Björn Schade of Schade Logistic GmbH of Jessen, Germany. “In 2008 our fleet stands at no fewer than 190 tractors based at our headquarters in Sachsen-Anhalt, as well as in Poland and Romania, all of which are DAFs. In Germany the majority are no older than two years. They are used for transporting glass, building materials and paper. They fully comply with our demands and we have never had a reason to change to another marque. Dependability, fuel efficiency, service intervals, maintenance costs; everything is what it should be.”





Autobar: 'High level of comfort'

Although Autobar Belgium has only been driving DAFs for two years, they already have nine LFs in use. The trucks – all 12-tonne LF55s – are used for the distribution of coffee, sugar and biscuits to the catering trade and other companies. "We especially chose the LF because of its excellent price/quality ratio," says Andy Smeyers of Autobar. "Another very important purchasing argument is the comfort of the cab. We have customers throughout Belgium and Luxemburg and our drivers put many kilometres behind them each day. So they appreciate extra comfort. The contact with Aerts' Garage is excellent. They are very dependable and the workshop is flexible so that maintenance is fitted in to suit us."

CM Downton: 'Parts always available'

CM Downton, operating 300 trucks and 520 trailers, source virtually all their parts through local DAF dealer, Watts of Gloucester, who has installed a dedicated parts man for CM Downton. Downton's Fleet Engineer says: "We have gradually moved towards DAF for the majority of our fleet, so approached the local dealer to manage parts for the entire fleet through the DAF all-makes parts programme, TRP. Advantages include a reduced burden of administration and discounts for volume. "With just one supplier, there is just one invoice to check and process, and an easy audit and warranty trail. Besides streamlining the admin side, the parts are always here, and we can access them 24/7."



K&V Ltd.: "The best decision"

In 1991, the Hungarian company K&V Ltd. Bought its first DAF. And still today it is firmly attached to the marque. It now has a fleet of 75 DAF tractors, of which thirty comply with the Euro 5 standard. "We decided to go for DAF at the time because it came with the most favourable financial offer," recalls József Varga. "DAF seemed the best choice based on operating costs and that is still the case. Naturally other marques have tried to get their foot in the door, but nobody can beat DAF on price and quality."

Photo: József Varga, owner and managing director of K&V with his son Viktor Varga on his left.

Bad Dürrheimer Mineralbrunnen GmbH: "Perfect driver comfort"

The German spring water producer, Bad Dürrheimer Mineralbrunnen GmbH, recently acquired five XF105.460 6x2 tractors. The trucks have Space Cabs and are equipped with, among others, AS-Tronic, luxury seats, air-conditioning, refrigerator and a night heater. "We place high demands on our drivers, who are in fact our representatives on the road," says director Ulrich Lössl. "And that requires the best we can give them." Also in the area of safety the XF105s are completely state-of-the-art: they have an airbag, rear-view cameras and lane departure warning assistance. Moreover, the trucks are equipped with the DAF Telematics system with integrated navigation.



Altuna: 'PACCAR Financial is a specialist'

Transportes Manuel Altuna SL is led by the brothers José Manuel, Txuma and Juan María. The company currently has 32 combinations and is in the business of transporting deep-frozen products. The main destinations, which are served from the headquarters in Imarcoáin, Navarra, are France, Belgium and Italy. José Manuel Altuna: "30 of my 32 trucks are DAFs. I prefer to leave leasing matters to a specialist in the transport area, such as PACCAR Financial. Capital investment would put too great a strain on my financial resources and in this way my credit at the bank is not limited and I can use it for other investments."



José Luís Iglesias: "The XF105 is a wonder"

José Luís Iglesias, an independent haulier from Spain's Extremadura, studied economics at university before choosing to return to the family concern to sit behind the wheel of his imposing DAF XF105.510 Super Space Cab. The company has a long record of driving DAFs. "My father took delivery of his first DAF Space Cab 3600 in 1988. When he decided to teach me to drive trucks, I didn't hesitate for a moment. This XF105 is a wonder: despite the particularly high equipment specification the operating costs are very low. And thanks to the amazing engine torque, fuel consumption is only 33.5 litres per 100 km, which is especially good considering the mountainous area I drive over."

Regesta: "High reliability, low costs"

The Polish company Regesta is in the business of transporting building materials and automotive parts, among others. In addition, the company sells fuel and performs logistical services. Regesta has 140 combinations, including 90 DAFs. "DAF is an ideal partner," says Rafał Kwiecień, Vice President. "The XF105 and its forerunners are extraordinarily reliable, robust and economical. Only with those things can you deliver on time and at competitive charges. Also ecological aspects play a role in the choice of DAF: the trucks are already available to Euro 5 standard. And thanks to the service of our dealer Wanicki, we sleep well at night."



A. Jansen BV: 'Long DAF-history'



A. Jansen BV, based in the Dutch town of Son, comprises a number of divisions whereby transport material falls under Jansen Transport & Hire BV and Brekelmans Transport BV. The yellow-painted trucks are kept busy in the earth moving, concrete and recycling businesses. Brekelmans is an international transport company. "Of our 200 trucks, 95 percent are DAFs," says Jan Busser (Director Recycling, Transport and Hire) not without a hint of pride. And quite rightly because Jansen has been operating DAFs for 30 years. "We have a long history and a very good relationship with the factory. But the main reason is the quality. We maintain our fleet ourselves and our DAFs are in the workshop for servicing for a significantly shorter time than other marques that we have. That says enough."



Kenworth T370s transport high-value fruit

Every day, for several months out of the year, Wawona Packing Company's trucks move nearly a million dollars worth of fresh fruit from company orchards in the San Joaquin Valley to its packing facility. "We move a delicate, high-value commodity over fields and rutted rural roads," said Ken Peters, director of transportation and senior field supervisor for Wawona Packing in Cutler, Calif. "We need trucks that offer the power and capacity to haul heavy loads, and provide a smooth ride that helps prevent damaging the fruit during the trip to our packing facility. The Kenworth T370 really fit those needs perfectly."

Wawona, a family farm in business since 1948, packs nearly 3 million boxes of fruit each year. According to Brent Smittcamp, co-owner and president of Wawona Packing, his family's farm succeeds where others have failed because of vertical integration – it grows its own fruit, packs it in boxes, and then distributes it to produce and food store distribution centers.

Wawona Packing currently uses three Kenworth T370 Class 7 tractors. The new vehicles are equipped with tandem axles, 10-speed manual transmission and PACCAR PX-8 engine rated at 330 hp. "We only use our trucks six or seven months out of the year," noted Peters. "The Kenworth T370 with the PACCAR PX-8 engine is affordable and durable with the power and torque we need to get the job done."

Peterbilt forerunner in green technologies

Peterbilt is at the forefront in the development of green technologies that help the environment by providing greater fuel savings and reducing emissions. Good examples are – amongst others – the medium duty hybrid trucks that entered full production in August and the recently held, successful demonstration of a Delphi solid oxide fuel cell (SOFC) auxiliary power unit in a Peterbilt Model 386.

Peterbilt is a forerunner when it comes to offering the market a choice of hybrid trucks for distribution applications. Next to a significant reduction of fuel consumption and emissions in urban applications, the Model 335 Hybrid Electric even achieves an up to 80 percent reduction in engine idling through electric operation of the Power Take-Off (PTO) using the on-board lithium-ion batteries.



The Peterbilt Model 386 was chosen as the test bed for the SOFC due to its aerodynamic and fuel-efficient performance. The SOFC provided power to the trucks' electrical system and air conditioning and maintained the truck's batteries, while the diesel engine was turned off. The system proved to have the potential to set new benchmarks for performance and ease of operation, without compromising the environment.

Executive Promotions

The PACCAR Board of Directors elected **Tom Plimpton** to the position of vice chairman, effective September 1, 2008. Tom has 31 years with PACCAR and has been president since 2003.

The PACCAR Board of Directors elected **Jim Cardillo** to the position of president, effective September 1, 2008. Jim joined the company in 1990 and has had senior management roles with Peterbilt, DAF and PACCAR's technical centers.

Mike Tembreull will be retiring as PACCAR vice chairman and director in January 2009. Mike has made a wonderful contribution to PACCAR's success for over 38 years.

The PACCAR Board of Directors elected **Dan Sobic** to the position of executive vice president, effective October 1, 2008. Dan has 18 years with PACCAR and has been senior vice president since 2007.

The PACCAR Board of Directors elected **Bob Christensen** to the position of senior vice president, effective October 1, 2008. Bob joined the company in 1983 and has had senior management roles with Kenworth and PACCAR Parts.

New PACCAR Parts distribution centre in Hungary

The most modern of its



The profitability of a truck depends on its usability. The availability of parts for maintenance and repair plays an essential role in this. From its ultramodern distribution centres in Eindhoven, Madrid and Leyland, PACCAR Parts Europe annually dispatches about 400,000 shipments throughout the whole of Europe and beyond. This summer in Hungary, a completely new, state-of-the-art PACCAR Parts distribution centre has been opened near Budapest. The most modern of its kind.

In September last year, the first stone was laid and now, one year later, it is operational. The new PACCAR Parts distribution centre in Hungary plays an important role in the further extension of DAF's success in Central and Eastern Europe (see also box). The distribution centre is very strategically situated and guarantees an excellent service and parts availability, not in the least because eventually more than 15,000 different parts will be in stock.

World-class technology

The parts distribution centre near Budapest has an area of 24,000 square metres. Everything in the distribution centre focuses

on speed and above all, quality. Because there is just one goal: to ensure that the right parts are in the right place at the right time. Articles that are ordered today, are in principle at their destinations the next day. And urgent orders are delivered even faster. In order to guarantee the highest quality and speed, use is made of world-class technology, such as the most advanced logistical systems, automatic conveyors, automatic pallet-strapping machines, radio-frequency computer terminals and voice-controlled order picking.

Efficiency

Next to quality, efficiency naturally plays an

essential role in the parts distribution centre. And that starts with an efficient goods stream: parts arrive via one of five 'goods-inward' docks and leave the building at another side of the building via one of eight 'goods-outward' docks. The 400 most ordered parts (that make up around 25% of orders) are stored in a 'fast-picking lane'. This guarantees that the 'fast movers' are closest to the dispatch department. In the past it was customary to store all parts belonging to the same category, like engine parts, together in one location. Now they are spread over the whole distribution centre, whereby the location is determined by the order frequency. In total, the distribution centre has over 38,000 storage positions.

Consideration for the environment

PACCAR continues its leading position in the field of the environment by applying technology in Budapest that further reduces CO₂ emissions. Use is made of electric internal transport, recycled packaging materials and a digitally controlled and very efficient environmental management and lighting system. For instance, the environmental system in the distribution centre does not make use of energy-consuming air-conditioning systems, but uses a fully

kind

To guarantee the highest quality and speed, use is made of world-class technology, such as the most advanced logistical systems, automatic conveyors, automatic pallet-tying machines, radio-frequency computer terminals and voice-controlled order picking.



automatic, natural ventilation system instead: in the coolest part of day, warm air is drawn out of the roof and cool air drawn in through the side of the building. The PACCAR Parts distribution centre in Hungary is leading in the areas of quality and efficiency and consideration for the environment, and represents a next step towards a further raising of the customer service level.

The new parts distribution centre plays a crucial role in the success of DAF in Central and Eastern Europe. In the fast-growing markets of the twelfth youngest member states of the European Community, DAF's presence is increasing and the dealer network is also expanding further. The expectation is that the Central and Eastern European truck market will increase to 100,000 vehicles over the next five years. DAF is fully prepared for these developments, thanks to investments such as the new parts distribution centre near Budapest.

PACCAR Distribution Centers

Parts distribution is one of PACCAR's key competencies and therefore also one of DAF's. And that is logical: the customer wants maximum availability from his trucks. Maintenance must be planned as efficiently as possible and breakdowns repaired as quickly as possible. Optimal availability of parts in combination with short delivery times plays an essential role in this.

The stocking of parts among European DAF dealers takes place from four ultra-modern PACCAR parts distribution centres. The largest is situated on DAF's site in Eindhoven and has an area of 46,500 square metres. Moreover, in Europe there are PACCAR Parts distribution centres in Leyland (UK), Madrid and Budapest. Annually these centres handle about 400,000 consignments. PACCAR Parts Europe achieves a delivery reliability of 98%, which in the distribution branch is world-class.

Worldwide

PACCAR Parts has a total of 13 parts distribution centres at strategic locations around the world for the daily supply of parts to a growing number of PACCAR dealers and customers. PACCAR Parts has more than tripled its turnover since 1996 and realized a turnover of \$2.3 billion in 2007.

Torrestir Group, market leader in distribution in Portugal

“Service as deciding factor”



Brothers Fernando Manuel and Luís Torres (both with a degree in business management) were received the 2007 'Bizz Award' for their inspirational leadership of the company.

ceutical companies. One of our most important specialisms is the distribution of pharmaceutical products.”

Murderous competition

Just as in other countries, transport companies in Portugal have to operate in an extremely competitive market and they face ever increasing costs. What is the key to Torrestir's success? Luís Torres: “The quality of service must be unequalled. That is the deciding factor. This is why we can compete on price on the one hand and attract the most demanding customers on the other. In order to be successful in the distribution sector and to compete with multinationals, you have to be better than them.” At Torrestir, striving for unequalled quality lets them operate in a way that rarely occurs in many other companies in this sector: the fleet of 400 vehicles is completely owned by the company and it always works with employees who are on the payroll of the company.. “This construction makes it possible for us to control the quality level in every phase of the logistical process.”

The role of DAF

The most recent additions to the Torrestir fleet are 12 DAF XF105 trucks and 35 LF45 220, 12-ton trucks. Torrestir's LFs are used for door-to-door distribution. Fernando Manuel doesn't mince his words over the LF: “It is a fantastic truck! Our distribution vehicles cover around 5,000 kilometres each month, in both towns and industrial areas, with a lot of stops on the way. Nevertheless, our LFs are very economical: they only use 20 litres of fuel per 100 km and under the current economic conditions that plays an important role. Moreover, our excellent relations with the dealer, Evicar, was another important purchasing factor.”

The Portugese Torrestir Group was founded in 1962 by the grandfather of the brothers Fernando Manuel and Luís Torres. He started with one truck. In the meantime that has become 400 and the company has 750 employees.

Today, the Torrestir Group, based in Braga, Northern Portugal, comprises nine companies, which are in the business of national haulage, logistics services, hire, removals and international transport, among others. The most prominent activity is door-to-door distribution, explains Fernando Manuel

Torres: “We are the market leader in Portugal in the area of goods distribution. We have distribution centres throughout the country and offer a 24-hour service. Our customer base is very diverse and varies from private customers – for whom we make house-to-house deliveries – to pharma-

Torrestir is Portugal's market leader in the goods distribution sector. The transportation and distribution of pharmaceutical products is the company's most important specialism.

www.checkyourmirror.com:

Legislation demands attention for mirrors on existing trucks

In the European Union, all commercial vehicles above 3.5 tonnes GVW must be equipped with wide-angle mirrors and a near-side mirror with an increased field of vision before April 2009. These mirrors have already been required for years in new vehicles, but the legislation also states that all vehicles above 3.5 tonnes registered since January 2000 must be equipped with these mirrors. On the new Internet site, HYPERLINK "<http://www.checkyourmirror.com>" www.checkyourmirror.com, transport operators can see straight away what the new regulation means in concrete terms for their fleet.



Starting from 2006/2007, main mirrors, wide-angle mirrors and a near-side mirror with extra-large fields of vision are mandatory for new trucks. These have been factory-installed for some time now. On 1 April 2009, however, the wide-angle mirror and the near-side mirror with increased field of vision will become mandatory on the passenger side of all commercial vehicles that have been registered since January 2000. This means that a large number of vehicles must be adapted to the new regulations.

Anticipating the regulations

Many transport operators do not want to wait to adapt the mirror configuration until the moment that the new regulations are in effect, but are already anticipating the new regulations. One of the reasons for this is that transport operators do not want to make compromises in the area of safety, and they also want to be sure that they are able to comply with the legal specifications by the specified dates. After all, it is conceivable that there will be an increased demand for mirrors immediately before the legislation takes effect, and if they cannot be delivered on time, a vehicle may not be officially roadworthy.

Handy tool

The new website HYPERLINK "<http://www.checkyourmirror.com>" www.checkyourmirror.com is a handy tool for transport operators and drivers to look up what adaptations must be made to the mirror configuration in order to comply with the future legislation. In some cases, replacement of the mirror glass is enough, and in other cases, it may be necessary to install new mirrors. HYPERLINK "<http://www.checkyourmirror.com>" www.checkyourmirror.com tells you in

principle what must be adapted for all makes of truck, by vehicle type. With a special search function and a choice of twelve languages, each user can easily ascertain which adaptations are necessary.

Images and photos on the website demonstrate how the new mirrors improve the field of vision. In the future, the site will be further expanded with information about how the safety of drivers and others on the road can be improved even more.

On 1 April 2009, the wide-angle mirror and the near-side mirror with increased field of vision will become mandatory on the passenger side of all commercial vehicles that have been registered since January 2000.





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Available at all DAF dealers

The number of filling stations along the road continues to rise

AdBlue available at 8,000 locations

In order to comply with Euro 4 and Euro 5 emission standards, nearly all European truck manufacturers have chosen the SCR-system ('Selective Catalytic Reduction'), whereby AdBlue is injected into the exhaust gases to reduce the emission of nitrogen oxides. The big question is how available is AdBlue?

The production of AdBlue is increasing, the distribution has improved and also the number of roadside points at which drivers can tank is increasing. One supplier alone, GreenChem, now has seventeen AdBlue production sites operational in Europe. And by the end of this year this figure will have increased to twenty-five. According to the websites www.AdBlue4you.com and www.findadblue.com and HYPERLINK "<http://www.findadblue.com>" the urea solution in European Community countries plus Norway and Switzerland is now available at around 8,000 independent locations.

Further expansion of the independent network in Western Europe has the highest priority for AdBlue-producer, because many hauliers now have AdBlue-installations on their own premises. They are not dependent on third parties and even more important, it is more economical for them.

System for tanking-up at home base

For hauliers who want their own AdBlue supply, there are various possibilities. "The choice is governed by the size of the truck fleet," says Paul Jonkers, sales manager of GreenChem Benelux. "For hauliers with 2 or 3 trucks the 1,000-litre IBC's (Intermediate Bulk Containers, red) are mostly the best option. For fleets with 5 or 6 a professional installation of, e.g. 2,900 or 6,200 litres, can already be attractive. This offers greater convenience, while the costs are about the same as for IBC's. In this respect our GreenStar Smart is the most successful on the market."

Independent filling stations

Since the beginning of this year Greenchem has installed more than 200 new independent filling stations in Western Europe and is working – the same as various oil companies – on further expansion of the network. But

also outside countries of the European Community, the distribution network is expanding at great speed, such as in Slovenia, Romania, Greece and countries of the former Yugoslavia.

Price increase

The recent price increase of AdBlue is a point for attention. This is a direct result of the urea price increase, which has more than doubled in the past few months. Small comfort: compared with the rise in diesel price it is only a small increase. "In fact, SCR-AdBlue technology is becoming more interesting as the price of diesel increases," says Jonkers. "From several tests it appears that EGR technology can lead to higher diesel consumption, unlike SCR-AdBlue technology. With this technology, the increase in the price of AdBlue, however regrettable, is relatively of secondary importance."



Paul Jonkers, sales manager GreenChem Benelux:
"In fact, SCR-AdBlue technology is becoming more interesting as the price of diesel increases."

For fleets from 5 or 6 vehicles, it becomes attractive for owners to have their own 2,900 of 6,200 litre AdBlue filling system. This offers greater convenience while the costs are about the same as IBC's.



Budapest to Prague for just €15

OrangeWays – a bright new serv



If you visit YouTube and type in OrangeWays first up will be a 4.45 minute video diary of a trip from Budapest to Prague with the sublime soundtrack from Roger Miller, 'King of the Road'.

It is perhaps early to be making such regal proclamations but the strikingly-liveried coaches from this exciting new company has certainly proved a big hit in Hungary with business people and young travellers looking for a good deal.

It was in November 2007 that OrangeWays Incorporated of Budapest launched a new concept for coach operations in Eastern Europe based on the services of low-cost airlines. It has already proved to be an increasingly popular alternative to such flights.

OrangeWays began with eight VDL BOVA Magiq coaches with PACCAR MX engines (Euro 4) deployed on routes from Budapest to various cities in Europe. The number of international destinations expanded this spring and 12 more Magiqs of the same specification - 14.8 metres long and with 63 luxury leather passenger seats fitted

with a personal 4-channel audio system – have been added to support additional service routes to cities such as Amsterdam and Frankfurt.

It is estimated that the coaches will average some 160,000 kilometres a year.

Comfortable, cheap and fast travel

For additional comfort there is a hostess on board every coach to provide hot and cold drinks and there are free newspapers for the passengers. Similar to low-cost flights, seats can be reserved online with early bookings getting the biggest discounts. A single journey from Budapest to Prague, for

example, can be booked for as little as €15. Every aspect of the service is focused on travel that is economical, but also as pleasant, comfortable and fast as possible. In fact, agreements have even been made with toll road organisations and the authorities to reduce waiting times at the border.

OrangeWays, which began on international routes but will subsequently also become a national competitor for the state-owned bus group Volán, is the brainchild of Ferenc Kedves, one of Hungary's leading entrepreneurs.

"I have investments in other business sectors, such as pet food production, cultural events, media, leasing and real estate but in this case I saw the opportunity of a network of coaches based in Budapest" explains Kedves.

"What we saw was a tremendous market need for a low-priced coach network that delivers excellent services on board. "Of course, the name OrangeWays comes from the colour orange. In order to be visible on the roads, and to raise people's attention, you need a vivid colour. I do think that our new VDL BOVA coaches are

Service in Hungary



noticed by people wherever they go, and I also feel proud whenever I see them.

No hidden costs

“The original intention was to establish a good quality service that is available at a low price and the comparison to an airplane is correct. However, our prices are favourable at every level of our services,” continues Kedves.

“For example we serve hot drinks for free, with soft drinks and sandwiches also available at reasonable prices. Currently there is no extra charge for luggage and, what is more important, there are no hidden costs like airport taxes when traveling by plane.

“The initial objective was to set up a regional transport centre in Budapest, from where people can travel to frequently visited cities on the continent. In the first phase we plan to reach every major city that is within one day of travel from Budapest.

“We are targeting those people who would like to get the services of a high-class airplane but prefer to travel overland at a better price. For example, businessmen can travel cheaper and faster than by car or railway, and they have the opportunity to work

along the way. Another target segment is young people who wish to travel a lot, but cannot afford other means of transport.

Quality of service

“The strength of OrangeWays is the quality of service. With the newest fleet of coaches in Hungary – and probably the whole of Eastern Europe – we are offering a level of luxury of travel hardly ever seen before,” comments Kedves. “Our coaches offer almost every on-board service available and we selected the top model from VDL BOVA with strong and economical PAC-CAR engines from DAF for a fast service at a low cost.

OrangeWays started as a financially streamlined company, and is striving to improve further on all aspects of the business. Kedves’ objectives are clear: “We started with eight VDL BOVA coaches and have added 12 more this year. And there will definitely be more next year, the way is always forward. If you cease for a moment, your competitors can take over.

“We are planning to extend the business with more and more destinations in Europe, and within Hungary, all of which means more coaches. We have strict expectations from the business this year and very

aggressive plans for the coming years. We aim to become the central network of passenger transport in the region, and this requires fast, but reliable expansion. By now the model is ready and working, and it will not be long before we start the real development.”

Ter Linden Transport delivers windmills 'just-in-time':

“Total weights up to mo

For the transport of windmill mast parts, sails and generators, the company from Doetinchem 'goes' up to combinations with a length of 49 metres and a total weight of just above 150 tons.



Ter Linden Transport in Doetinchem, the Netherlands, is a classic example of a company that has grown with its customers. And that in the literal sense. When one of the regular customers started producing windmills, Ter Linden Transport was automatically asked to provide the transport. The transportation of more than 40 metre long sails and up to 90 ton generators throughout the whole of Europe has become a daily routine. At least it appears that way.

'Because routine', according to the owner, Roland ter Linden, 'is never the case during any of the weekly transport jobs.' And he refers to the logistics puzzle that occurs with each trip, especially when the extremely long or heavy load must cross one or more borders. "We are – especially for heavy transport – still far from being a single Europe," he says. "In Germany, you have to drive at night with extreme loads; in France it has to be by day. In one country a police escort is compulsory and in another not. And then you have the big difference in maximum permissible heights and axle configurations. It is regularly the case that we have to change the composition of the combination to comply with the regulations

of the country we are entering. And this frequently means that we drive there with an empty combination because you need another type of tractor for example."

Seldom return freight

The majority of the transport jobs that Ter Linden carries out depart from North and East Germany and Denmark, where some of the leading producers of windmills are based. And France is often the destination. "That is the largest windmill market in Western Europe," says Nico Koster, managing director of Ter Linden. "Here are the newest locations for windmills; in the Netherlands and Germany, for example, there is more talk of a replacement market."

That existing windmills are replaced by new ones is for Ter Linden possibly a solution for the fact that in this sector there is hardly a return load. "That is not it," answers Ter Linden. "The dismantling of existing windmills occurs mostly half a year before the new ones arrive. Now it is a given in this sector that return freight only occurs sporadically. And also a regular load is not an option because the empty weight of a 4-axled tractor with a 7-axled trailer approaches the 40 tons mark. In many countries we could officially only carry a few hundred kilos,"

Wind leads to delays

When transporting windmill mast parts, sails and generators the company from Doetinchem 'goes' with combinations with a length of 49 metres and a total weight of just above 150 tons. "Naturally, we also strive to increase efficiency," continues Ter Linden. "Together with our trailer supplier, Nooteboom, we have developed a trailer with a demountable midsection with which we can independently load and unload the generators, which weigh around 70 to 90 tons. This way we don't have to wait at the destination for the arrival of a heavy 160 to 180 tons crane, which you need for this

re than 150 tons”



Company director Nico Koster (left) and owner Roland ter Linden: "At least for heavy transport we are a long way from a single Europe." (photo Schwertransportmagazin)

More than 510 hp unnecessary

The Ter Linden fleet comprises almost 100 per cent DAFs, whereby the majority are from XF series. Ter Linden has them in a large number of axle configurations: 4x2, 6x2, 6x4 and 8x4. "Our heaviest are fitted with the 12.9 litre PACCAR MX engine with 510 hp," says Koster. "They deliver such a high torque that they easily compare with other makes of vehicle with more than 600 hp. Moreover, the others often struggle to keep up with the DAFs."

kind of work. That takes nothing away from the fact that delays on windmill erection sites are the most common thing in the world. The most important reason: the wind. Not strange because windmills are logically sited in areas where statistically the most wind exists. At the same time this is frequently the problem when erecting the up to 100 metre high constructions and the most important reason – also for us – why regularly things must be changed at the very last moment. And that requires us to have maximum flexibility; we deliver the windmill components literally 'just-in-time'."

Four-axled tractors

The Ter Linden truck park comprises around sixty trailers and forty tractors, almost all DAFs. "A deliberate choice," explains Koster. "First of all we are quite chauvinistic and find that we as a Dutch company must choose Dutch products. But also for pure business reasons DAF is the best for us, not in the least because the supply of parts in Europe is extremely important. Whenever a technical hitch arises it is always the case of having a regular 4x2 tractor pulling the trailer. And such a heavy four-axle FTM tractor is not found on every street corner. In other

The majority of the transport jobs that Ter Linden carries out depart from North and East Germany and Denmark, where some of the leading producers of windmills are based. And France is frequently the destination.



words: in the event of a defect it has to be repaired on the spot. Ignoring the fact that the DAFs do their work without any kind of problem, there is no other truck builder in the whole of Europe that has such a good parts service as DAF."

"Ignoring the fact that the DAFs do their work without any kind of problem, there is no other truck builder in the whole of Europe that has such a good parts service as DAF."

From peanuts to algae

Biodiesel: an answer with new questions

Peanut oil is what Rudolf Diesel's first engine ran on. A century later, rapeseed oil is an important raw material for diesel produced from vegetable oils, or biodiesel. One hundred years of domination of mineral oil based diesel is about to end as biodiesel begins its ascendancy. But that's not entirely without problems – there are awkward questions regarding the technological, economic, ecological, social and political conditions. Because putting human food in a tank is a sensitive point. The solution exists, but the second generation of biodiesel won't be available in abundant quantities until 2015.

At the beginning of 2008, panic broke out in the biofuel industry: scientists had calculated that the crops necessary to make a tank of bio-ethanol (95 litres) was equivalent to a year's food for one person. Instead of a solution, biofuel had become a new problem. Rising tortilla prices, higher milk prices? All the result of – among others – growing demand for biofuels. Is the world with its 900 million cars and trucks ready for biologically made fuels?

Explosive

The concerns about these side effects were quickly drowned. The price of raw oil has exploded. Merchant Bankers Goldman Sachs expects the price rise will reach 200 dollars per barrel in 2009. This is accompanied by a growing shortage as Shell top man, Jeroen van der Veer, writes in a memo at the beginning of 2008: 'Shell expects that after 2015 the stocks of easily extractable oil and gas will lag behind demand.'

Moreover, there is increasing concern about the emission of CO₂ (carbon dioxide). The

Less oil, more demand

Worldwide more than 85 million barrels of oil are won each day, around one thousand per second. Since 2005 oil production has flattened out while the demand has risen. The International Energy Agency (IEA) reckons that oil production will peak in 2030. Oil industry insiders think that it can be as early as 2010, the year also arrived at by the Swedish University of Uppsala. Geologists writing in the magazine New Scientist estimate oil stocks to be eighty per cent lower than thought.

The demand for oil and gas will increase by around 40% until 2020 due to the increasing demand from China and India.

gas traps the incoming warmth of the sun in the atmosphere. Increasing temperatures can lead to climatic chaos. The world climate summit in Bali at the end of 2007 boosted new European targets to lower CO₂ emissions. The use of biofuels, including biodiesel, is one of the pillars. In 2010, 5.75 percent of fuels for transportation must be from renewable sources and in 2020 that percentage must rise to ten.

The CO₂ released by burning traditional diesel originates from hydrocarbons that are millions of years old and which plants during their growth obtained earlier from the atmosphere. The old carbon dioxide is added to the atmosphere. Whenever biodiesel is burnt CO₂ is released as well, but precisely the amount that the processed biomass absorbed during their growth shortly before. This means that no more CO₂ is added to the atmosphere while driving on biodiesel. On the other hand the growing and processing of biomass accounts for extra CO₂ emissions, so CO₂ reduction is not one hundred percent.

Rapeseed oil

At the moment, biodiesel is mostly made from vegetable and animal oils and fats, for example, rapeseed oil and soya oil. These are all edible: large-scale processing has a direct influence on world food production. This first-generation biodiesel is relatively easy to produce thanks to the oil basis of the raw material. The use of first-generation biodiesel leads to CO₂ savings of around 30%, depending on the production method. The use of biodiesel requires, the injection system must be made suitable for the fuel, especially the gaskets and the rubber parts. And for the fuel, the engine manufacturers use a European standard (ISO EN14214) for the technical specifications. The soot particulates released during combustion,



At the moment, biodiesel is mostly made from vegetable and animal oils and fats, for example, rapeseed oil and soya oil. These are both edible: large-scale processing has a direct influence on world food production.

although fewer in quantity, behave differently which means that possible modifications to the exhaust treatment system are necessary. There are more disadvantages, such as the higher emissions of nitrogen oxides, which contribute to acid rain, depletion of the ozone layer and also to the greenhouse effect. With second-generation biodiesel, the majority of these disadvantages will be overcome, because the basic material will be non-edible biomass and residue. It concerns the very tough parts of plants, from wood residue to straw and grass from roadside verges, actually everything that grows. During production the tough structure is broken down so the whole plant can be used as raw material. The usable yield per hectare is thereby higher (ten to fifteen times more harvested weight compared with rapeseed oil) and the costs are lower. The CO₂ reduction with this second-generation biodiesel can be as high as ninety per cent.

Algae diesel

First-generation biodiesel is already available on a large scale and is mixed with normal diesel oil. From 2010, second-generation biodiesel will be commercially produced and become available on a large scale from 2015. The expectation is that around that year the first algae diesel will be available: diesel produced from very fast growing algae (daily growth of one hundred per cent) that absorbs huge amounts of CO₂. The European target of 5.75 per cent renewable fuels (2010) approximates to nine million tonnes of biodiesel (plus six million tonnes of bio-ethanol). The production by roughly 240 factories in Europe is quickly growing and equalled 5.7 million tonnes in 2007. The production capacity in 2008 has been estimated at sixteen million tonnes.

DAF and biodiesel

When biodiesel conforms with the ISO

EN14214 standard, up to five per cent can be mixed with regular fuel for today's DAF trucks without any problems. The Euro 4 and Euro 5 PACCAR PR- and MX engines even permit the use of one hundred per cent biodiesel to ISO EN14214 standards on the condition that a number of hoses are replaced and the service intervals are halved.

Comparison of CO₂ emissions (source to wheel)

<i>Biodiesel</i>	<i>79 g/km</i>
<i>Diesel oil</i>	<i>206 g/km</i>
<i>Bio-ethanol</i>	<i>136 g/km</i>
<i>CNG/natural gas</i>	<i>181 g/km</i>
<i>LPG</i>	<i>214 g/km</i>
<i>Petrol</i>	<i>249 g/km</i>

The Euro 4 and Euro 5 PACCAR PR- and MX engines even permit the use of one hundred per cent biodiesel to ISO EN14214 standards on the condition that a number of hoses are replaced and the service intervals are halved.

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