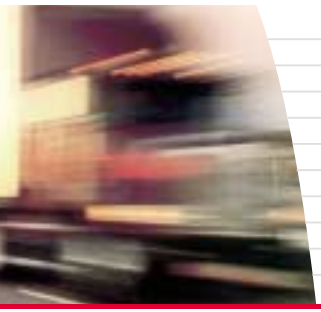
APRIL 2001



Real Answers

BRIDGESTONE

News and Information for Truck and Bus Fleets in Europe

EDITORIAL

The first ***Real Answers*** of the real new millennium features a new look and a more lively editorial style that we hope you will enjoy.

While retaining established features such as tyre performance reviews and Martin's technical tips, we offer a glimpse of Bridgestone activities in the wider world. Our correspondents have also been talking to fleet operators across Europe, to discover how national conditions affect the pattern of tyre usage.

On the front page we report on the enthusiastic reaction that experienced industry journalists gave our Greatec technology at its launch in Italy late last year.

And, following another Bridgestone /Ferrari Formula 1 success at the opening 2001 race in Australia, we give you the chance to win tickets for a privileged track-side view of the action at the Belgian Grand Prix in Spa-Francorchamps on September 2 2001.

For publication in future issues, we would welcome hearing from you with any experiences or observations that could be of interest to fellow readers. Please send your contributions to *Real Answers* via your local sales office, whose address appears on the back page.

Des Collins
Vice President
Sales and Marketing
Bridgestone/Firestone Europe

Is it possible to meet service demand in a country as big as Australia? 3

The R297 is put through the paces in Sweden and Switzerland. 4

FORMULA 1 COMPETITION
WIN 4X2 TICKETS FOR F1 RACE 8

Events

Media and industry applaud new Greatec Mega Drive tyre

Hands-on experience

"A unique approach to inform us about technology in this development stage," was how Arnold van Nierop, of Transport en Logistiek Nederland magazine, described the Greatec Mega Drive(GMD) tyre launch. He was one of 60 journalists and 16 bus OEM manufacturers from 14 countries who attended the event, which was held on 7-9 November 2000 at the Bridgestone Technical Centre Europe (TCE), near Rome, Italy.

▲ Journalists could test the GMD performance at the Bridgestone/Firestone Technical Centre, near Rome.

Three groups each enjoyed two action-packed days, beginning with a tour of Rome and dinner Italian-style. The second day opened with a presentation on the new tyre, followed by a tour of the TCE. "People were interested to see how we develop our tyres and were most impressed by the facilities," says Birgit Altrichter, Senior Analyst, Truck & Bus Tyre Sales and Marketing, who helped to organise the launch.

In the driver's seat

"The journalists really appreciated the event, especially the opportunity to try out the vehicles," adds Birgit. Two Heuliez buses and a Mercedes-Benz Actros truck fitted with GMD tyres were test-driven on the TCE's proving ground and skid pads to demonstrate grip, handling and noise characteristics. "People were very keen and couldn't wait to join the test driver, or even drive themselves, and did. It was a very positive atmosphere," says Birgit.

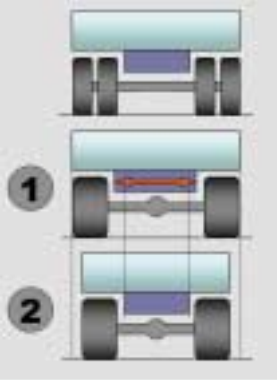
Positive response

An exhibition featuring the new GMD tyre and other Bridgestone truck tyres, as well as the Fleet Chief software, completed the event. The resulting Europe-wide media coverage was extensive and included Italian regional television. Bus manufacturer Den Oudsten's comment was typical of the enthusiastic response to the new tyre: "Excellent driveability, especially on grip limit." ●

BRIDGESTONE

GREATEC
DESIGNED TO OUTPERFORM

Dual Tyre - Single Tyre



Advantages of GMD:

- Wider chassis possible (1)
- More floor space for bus (1)
- Reduced width of midi-bus (2)
- Less rolling resistance
- Less weight
- Less disposable material

▲ One 495/45R22.5 can do the job of two 315/70R22.5 on trucks.

Performance advantage of 435/45R22.5 on City Bus

Tyre+RIM weight reduction	-80 kg/axle
Width reduction	-145 mm/side
Rolling resistance	-10%
Disposal material	-20%
Durability	EQUAL
Wear and irregular wear	EQUAL
Manoeuverability Dry/Wet	EQUAL

Product Focus — New tyres set to revolutionize bus design

City slickers

◀ R192, specially designed for city buses.

City bus fleets demand hard-wearing tyres, and Bridgestone's all-position R192 has already proved itself indispensable. Why then would we want Bridgestone's Greatec Mega Drive (GMD) tyre?

Take the example of the largest public transport organisation in Belgium, De Lijn; more than 50 per cent of its fleet's tyre needs are met by the R192, which offers an extra deep tread and excellent sidewall protection against kerb damage.

Technology breakthrough

Now there's a new option available. Bridgestone's Greatec Mega Drive (GMD) technology replaces conventional dual tyres on bus and truck drive axles with a single ultra-low aspect tyre. Launched in November 2000 to great acclaim (see p.1), the GMD tyre took two and a half years to develop, including 18 months of road testing. "Vehicle manufacturers were being pressured by the end users – the bus buyers. Heuliez, for example, wanted a bus that could get down narrow lanes," explains Neil Purves, Chief Co-ordinator, Product Planning and Field Engineering, Truck & Bus Tyres.

"We're the first company to get our product on to the market and get feedback on it," says Neil. "Bus manufacturers who attended the launch were able to see how they could base a design around this tyre concept." Production of the 435/45 (R173) bus-size tyre began in Japan in mid-February. GMD tyres for larger buses and trucks will be available next year. ●

Less is more

"Space-saving is the biggest concern for bus buyers and the new tyre allows a wider aisle or a different seating arrangement, or, as with Heuliez, a narrower bus while still maintaining minimum aisle width," says Neil. Another major advantage is the weight-saving – around 80kg per axle.

▲ Heuliez have designed a narrower bus thanks to GMD technology.

For city bus fleets this means a greater payload, 6–10 per cent lower rolling resistance, less fuel consumption and emissions, and a 25 per cent reduction in tyre disposal.

But, with a greater weight to be supported, the 'two-for-one' tyre posed unique design challenges, as Neil describes: "As it is a low, wide tyre, we had to really strengthen the tread section up, using a waved belt on multiple layers, which is patented Bridgestone technology. Also, since the sidewall is the only part that flexes, we had to design a bead that would spread stresses over the whole of the sidewall."

World focus — Bridgestone Australia: leading supplier to a Europe-sized territory

Australia:
Service in a Big Country

Australia is almost as large as Europe, but has fewer than 19 million people. Great distances between the often-small centres of population make service a key issue for the country's transport industry. Commercial Manager Scott Wood tells how Bridgestone Australia meets this need.

With customers spread thinly over a very large area, the commitment of local dealers is all-important for effective distribution and service provision," Scott Wood explains. "They have to be service-oriented and capable of providing on-the-spot solutions. For example, a truck needing a tyre replacement may be 100-200 km from the nearest town, but the owner will still expect a prompt reaction.

"We also have to ensure that our infrastructure enables us to support the dealers with a dependable, timely supply of tyres and any necessary technical back-up.

"They have to be service-oriented and capable of providing on-the-spot solutions."

Scott Wood

Major force

"In the first place, we have built up a large network of Bridgestone-owned truck tyre centres," Scott continues. "This is one of two such groupings in a country where independent dealers play a much smaller role. A manufacturing plant in Adelaide supplies around 70 per cent of our truck tyres. We also have distribution centres and major warehouses operating with a high degree of autonomy in the country's individual states.

Total tyre management

"Companies are increasingly seeking to outsource their total tyre management on a nation-wide basis," Scott observes. "The integrated Bridgestone set-up makes it easy for us to offer such co-ordinated arrangements to large and small companies alike."

Today, Bridgestone is the market leader in all truck/bus categories, with an overall share of over 21 per cent. Since the acquisition early in 2000 of the Bandag business, it also provides 55 per cent of Australia's retreads. ●

A world apart

Low population density in Australia makes transport usage patterns significantly different from those in Europe. While average journey lengths are less than 100 km, inter-state deliveries account for 85 per cent of the total tyre consumption. With vast distances between major cities, it is not uncommon for inter-state linehaul trucks to cover 240,000 to 300,000 km in a year.

Typical fleets number 30-50 vehicles – but, as in Europe, rationalisation is leading to the emergence of more mega-fleets. One unique local sector is the 'road trains', which transport livestock through the remote northern areas. With tractors towing three trailers, these have a total of 62 tyres on the road.

Tyre choices are also quite different from those in Europe. Common sizes are 11R22.5 and 295/80R22.5 and 255/70R22.5. And for the road trains, heavy front axle loads of up to 7.5 tonne make it necessary employ unusually wide 385/65R22.5 steer tyres.

Road conditions vary greatly across Australia and although the country's roads are generally of good quality, steep cambers make shoulder wear on steer tyres a significant concern. Average Bridgestone lifetimes are nevertheless a creditable 100-120,000 km on steer and 220-240,000 km on drive axles.

BRIDGESTONE

Truck Point

Ask the experts

With truck fleet owners increasingly concentrating resources on their core business in order to stay competitive, many haven't the time or the means to check fleet tyres regularly.

As Emmanuel de Beughem, Assistant Manager, Truck & Bus Division at Bridgestone/Firestone, points out, monitoring is the only way to get the best mileage from a tyre: "It means you can compare tyre performance and detect in good time any defects, such as irregular wear due to an incorrect wheel alignment."

Added value

Professional tyre-monitoring is one of a comprehensive range of support services offered by Truck Point. The Europe-wide network of dealers also guarantees 24-hour pan-European breakdown cover and availability of the most popular Bridgestone and Firestone tyres. "The role of the Truck Point dealer is to make sure that the fleet gets the best value from each tyre purchased," explains Emmanuel.

Instant analysis

Truck Point's latest initiative is Fleet Chief, special software designed to monitor, record and report tyre performance in fleets. Consisting of a hand-held computer unit with a tread- and pressure-measuring probe, it is currently being installed throughout the network and has received a good response so far. "Its graph function, for instance, shows at-a-glance how a tyre is performing and how long it's expected to run," says Emmanuel.

Contact your Bridgestone/Firestone sales office for details.

Tried & Tested — Testing conditions show strengths of the R297 regional steer tyre

Short haul, long life

As users' experiences in Sweden and Switzerland confirm, the Bridgestone R297 regional steer tyre responds remarkably well to the heavy demands of short- and medium-haul delivery. Tyre lifetimes easily outstrip those of competitor brands, while drivers report unprecedented levels of comfort.

▲ Stig Josefsson, driver for Elia Express.

One Scania 144 truck owned by Swedish haulier EliaExpress covers 280,000 km per year, with a 60-tonne trailer delivering chemicals around the clock to a ceramics plant on the south-western coast. The vehicle constantly follows a route comprising 60 km of motorway and 20 km on smaller roads with indifferent surfacing and steep cambers. This made it an interesting test-bed for a pair of R297s.

Heading for 250,000 km

Bridgestone/Firestone Europe's Steningvar Wennerberg organised the trial. "After 181,000 km, both tyres retained 6-7 mm of tread, and the wear pattern was very even," he notes. "This indicates that they should last for at least 250,000 km, despite being mounted in May rather than during the preferred colder period of November-December."

Stig Josefsson, who has driven the run for 28 years, recalls that none of the previously used steer tyres had managed to exceed 150,000 km. "The Bridgestones are different from anything I have encountered before," he adds. "As well as long life, they give a smooth, comfortable ride – and are also good in snow."

Swiss savings

Rolf Galliker, Director of the Switzerland-based Galliker Transport, is equally positive. His long-established company employs around 80 trucks for national deliveries throughout the country's mountainous terrain. "The R297 is excellent for our short-haul stop-start operations, which involve much tight manoeuvring," Rolf affirms. "We regularly achieve service lifetimes of up to 130,000 km, leading to valuable cost savings. Our drivers also comment favourably on the comfort and safety." ●

Innovation — Integrated development ensures long-term performance and economy

Economy is a balancing act

Every transport operator is interested in cutting fuel bills. However, tyre designs that reduce rolling resistance while maintaining long service life are the real key to lower cost per kilometre. Jan-Willem Schoenmakers, Bridgestone/Firestone Europe's Manager Original Equipment Engineering, explains.

When a vehicle is equipped with tyres of lower rolling resistance, fuel consumption decreases. But pushing this aspect of a tyre's performance to the limits can adversely affect its wear life. At Bridgestone, the R&D strategy has therefore been to balance the various elements of construction, with lifetime lowest cost per kilometre as a prime criterion.

Carcass is crucial

It is the 'hysteresis' of a tyre – i.e. amount of energy dissipated – that determines rolling resistance. The higher the hysteresis, the greater the resistance. One important factor influencing the level of dissipation is the choice of tread compound. Another is the way that the walls of the carcass flex when rotating under load. Here, in particular, the proprietary C.T.D.M. (Comprehensive Tyre Design Method) has played a major role in improving running economy.

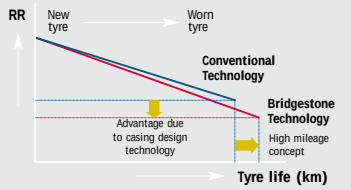
Every Bridgestone user benefits – because, since 1997, the whole truck and bus tyre range has combined purpose-formulated compounds with C.T.D.M.-optimised carcass shapes.

Rather than simply using a low-hysteresis tread compound that reduces rolling resistance when a tyre is new, Bridgestone provides better economy by optimizing the casing design to ensure fuel-efficient running over the whole lifetime. In this way, the tyres save fuel without any trade-off in wear performance, thus providing the lowest cost per kilometre on the market. And the benefit remains even after retreading. ●

You can find out more about Bridgestone truck and bus tyre technologies on our website, at:

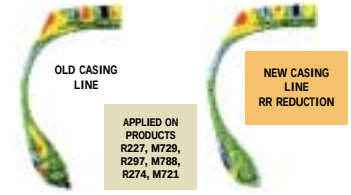
http://www.bridgestone-eu.com/bs/construction.htm

Bridgestone technology gives you long tyre life and low fuel bills therefore lowest cost per kilometre

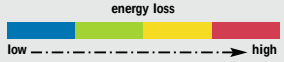


▲ Rolling resistance benefit due to casing design and higher mileage, calculated over total tyre life (not just when new).

C.T.D.M. Computer design methods optimize energy loss in the casing



▲ Computer analysis of strain distribution in the tyre, old and new design casing.



Factory Choice — DAF selects Bridgestone for new trucks

Seal of approval

DAF has adopted Bridgestone tyres as standard equipment for its current 45 and 55 trucks, as well as the new LF45 and LF55 models launched earlier this year.

This is the first time that Bridgestone has been selected as the default brand for medium trucks, and is part of a long-term partnership agreement with DAF's parent PACCAR group. "You can read this as a sign that we're fully accepted as a quality brand by the fleets who buy the trucks, and are not just pushed by demand from loyal customers. It also shows that we are in a position to be a reliable, regular supplier," says Gerard van der Veen, General Manager, TBR sales. The deal simplifies logistics for Bridgestone/Firestone Europe as well as for DAF.

Customer care

A key factor in meeting PACCAR's demanding criteria for selecting preferred suppliers was Bridgestone's customer-oriented approach. The DAF dealer network will be supported by Bridgestone's Europe-wide sales organisation, and there will be application guides for sales-staff to help them select the right pattern. As Gerard says: "With after-sales we prove our quality at the fleet end – customers of DAF are our customers."

Long-term partnership

Bridgestone's reputation for technological innovation also helped to cement the deal. Recent developments such as the Greatec Mega Drive tyre gave PACCAR full confidence in Bridgestone's commitment to the future of the road haulage industry. Gerard concludes: "PACCAR is a worldwide group and with our technological vision and power of development we have a global partnership." ●

BRIDGESTONE

FACTS & FIGURES

- 96% of the world's natural rubber is produced from the Hevea brasiliensis tree.
- Artificial reefs have been successfully built from old tyres.
- In Powys, Wales, a tip containing more than 10 million tyres has been burning for a decade.
- The French were probably the first white people to take advantage of the elastic powers of rubber. They used it in ladies' garters and gents' suspenders and also to help keep up their trousers.

  The Mayans had been using rubber to make shoes clothing waterproof centuries earlier.
- The Scotsman Robert Thomson patented the pneumatic tyre in 1845. Thomson also invented ingenious machinery for sugar manufacturing.
- Plants that produce rubber grow best within 10 degrees of the equator. There the soil is rich and deep and the climate moist and hot. The area of about 1100 km on each side of the equator is known as the 'rubber belt.'

Fleet focus — Hungarian fleet covers 10 million km/year on Bridgestone

Tankers are tough on tyres

Hungary's largest fuel delivery tanker fleet is a confirmed Bridgestone user. With 100 trucks covering more than 10 million kilometres a year, much of which is in short journeys to filling stations sited along poorly surfaced local roads, MOLTRANS places a high priority on reliable, long-life tyre performance.

MOLTRANS is the transport contractor for several oil companies in Hungary. Its fleet comprises mainly DAF and Renault trucks, each covering around 80-100,000 km/year. The company's 80 vehicles run over routes often totalling less than 50 km from full loading to empty. As these are frequently on roads of indifferent quality, and involve much turning and manoeuvring, they are extremely hard on tyres.

Since 1997, MOLTRANS has opted for Bridgestone, citing low cost per kilometre and good service as the reasons for its choice. Despite the tough conditions, steer and drive tyres last for more than 150,000 km on 25-tonne tankers, while trailer tyres survive over 50,000 km before being changed or retreaded.

Quality allows retreading

Once-only retreading on drive and trailer positions was approved for the first time last year, in view of the high quality and durability of the Bridgestone carcasses. On trailers with lift-up axles that only contact the road when the vehicles are heavily loaded, fitment of previously used front tyres has also recently been authorised.

With an overall replacement programme of around 1,000 tyres a year, MOLTRANS has progressively moved from previous-generation Bridgestone models such as R294, R295and M716, to the new R227, M729 and R 164 series. MOLTRANS confirms its satisfaction with the ability of Bridgestone tyres to cope with the extreme demands of its operation. This view is endorsed by the company's drivers, who appreciate the benefits of the latest technology in terms of the comfort, low noise and all-round wet/dry handling stability it brings to their daily working lives. ●

Since 1997, MOLTRANS has opted for Bridgestone, citing low cost per kilometre and good service as reasons for its choice.

Fleet focus — Major Polish fleet opts for Bridgestone – from OEM to retread

Long-life Convert

Poland's Delta Trans is a relatively recent convert to Bridgestone. Its first experience of the benefits obtainable with the long-life truck tyre range came less than two years ago. Since that time, the company has adopted the brand as its replacement of choice, then as original equipment on new vehicles.

Established in 1989, Delta Trans began by focusing on international distribution between Poland and the rest of Europe. Today, its 200-strong stable includes 150 24-tonne sets, most of which are employed on long-distance routes. The remainder, together with a mix of 3.5- to 7-tonne trucks, undertake national deliveries in a country where road quality is often less than ideal.

A two-month supervised trial in September 1999 was sufficient to demonstrate that the Polish Delta Trans fleet could achieve substantial cost savings as a result of Bridgestone's extended tyre lifetimes and resistance to irregular wear. "We recognised that the Bridgestones were first-class tyres," observes Managing Director Adam Rams. "...and our initial road-test indicated that they would reduce our cost per kilometre – especially for the heavier vehicles. We therefore began by fitting them to a few trucks, and progressively acquired more as needs arose," says Rams.

Promise confirmed

"Our experience to date confirms the initial promise," Rams continues. "Tyre life comfortably exceeds that of our former brands. They are less prone to rapid shoulder wear, and we have had no cases of premature failure."

The local dealer provides assured 12-hour delivery to the Delta Trans central workshop in Chorzóv, where tyre histories are carefully monitored with the aid of Bridgestone's Fleet Chief database software.

Specified for new vehicles

Last year, thirteen newly-ordered Volvo tractor heads were Bridgestone equipped, while Delta Trans specified low profile models as original equipment to gain extra volume for its Schmitz trailers. Since February this year, the company has also required long-time retreader partner, Eurogum, to fit Bridgestone pre-cured retreads. Eurogum will now become a Bridgestone federated retreader. ●

Martin's technical tips — Martin tells us why dynamic balancing extends tyre life

Iron out those peaks

Modern trucks are highly complex machines; they require almost as much fine-tuning as a sport car in order to get maximum benefit from all of their systems and components. And, of course, this certainly applies to their tyre and wheel assemblies.

Especially in long distance operations, it is becoming increasingly necessary to balance steering tyres – as well as maintaining correct pressures and wheel alignment – in order to achieve a smooth ride and avoid the occurrence of irregular wear. In short and regional operations, the scrubbing action from cornering usually removes any irregular wear before it becomes visible.

It is the way in which all of the radial and lateral weight- and centrifugal forces impact on the tyre that determines ride comfort and tyre wear pattern.

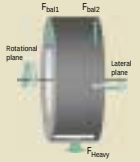
Martin Kalagin
Assistant Manager
Retread has 17 years experience in Tyre Engineering

Stay smooth

The main aim is to avoid 'peaks' of (weight)force distribution in both, the rotational and the lateral plane. These can disturb the 'smooth' rotation of the wheel in its ground contact patch, giving more contact-pressure at some points on the tread surface and less at others. Contact-pressure can translate directly into wear – which means increased or decreased wear in various locations around the circumference. The effect will alter the shape of the round tyre into something "not quite so round".

In order to counteract peaks in force distribution, it is necessary to compensate by placing counterweights in strategic positions on either side of the rim flange, as defined by the balancing machine. This "flattens" the peaks in both planes, providing a more uniform rotation with less vibration and even contact-wear distribution. The result: more comfortable driving conditions and longer tyre life. ●

Dynamic Balance in practice

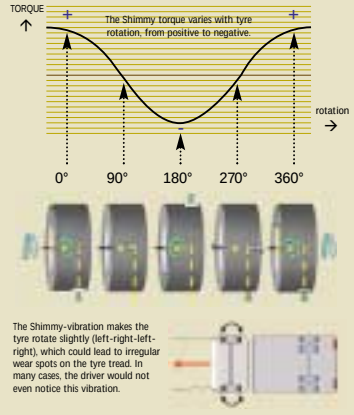


Balance weights (bal1 and bal2) are put on both sides at the optimum position. Their weight contributions compensate the heaviest spot in the tyre by equalizing the centrifugal forces.

$F_{bal1} + F_{bal2} = F_{Heavy}$

This example shows a statically and dynamically correctly balanced tyre.

Dynamic Unbalance: Shimmy



The Shimmy-vibration makes the tyre rotate slightly (left-right-left-right), which could lead to irregular wear spots on the tyre tread. In many cases, the driver would not even notice this vibration.

Dynamic balancing is a service your Bridgestone supplier will be pleased to provide, and one that quickly repays its cost.

COMPETITION

Ever dreamt of being part of the action at a Formula 1 event? Now is your chance. *Real Answers* is offering two tickets to each of four lucky winners to attend the Formula 1 Grand Prix to be held at Spa-Francorchamps race track in Belgium on September 2 2001 (hotel accommodation and flights from major City Airport included).

If you would like a chance of winning, just answer the two questions on the attached pre-paid reply card and send it to us to us before June 15 2001. The successful winners will be informed before the end of July 2001.

Good Luck and see you there.

Bridgestone/Firestone Europe S.A.
Truck & Bus Tyre Division
Belgicastraat 9
1930 Zaventem
BELGIUM
Tel.: 32 2 714 67 00
Fax: 32 2 714 68 89

www.bridgestone-eu.com

Publishing Editor: E. de Beughem, Bridgestone/Firestone Europe • Creation and Production: Propaganda N.V. - Hoogstraat 19 - B-1930 Zaventem - Belgium • Picture Copyrights: Photodisc, Bridgestone/Firestone.

Tyre issue hots up in racing

When screaming engines marked the start of this year's Formula 1 World Championship in Melbourne, Australia, on 4 March, Bridgestone had already completed its own race to provide the most competitive tyres possible.

The entry of Michelin in 2001 as a rival tyre-supplier has shifted the competition up a gear, presenting Bridgestone with a fresh set of challenges. Since Goodyear withdrew from Formula 1 in 1998, Bridgestone has enjoyed a two-year monopoly in the competition. Gert Meylemans, Senior Manager, Corporate Public Relations, reflects on the experience: "Of course, as sole supplier you 'win' every time. The R&D testing budget goes down, the different tyre specs remain stable, and we've been able to gain experience developing and using grooved tyres on all the circuits. On the negative side, tyres are no longer a hot issue and Bridgestone has had less exposure – the tyres are no longer 'Bridgestone tyres', just 'tyres'. With Michelin as a competitor there are new challenges for the engineers. Also, the logistics of suddenly having to supply all 11 teams [when Goodyear withdrew] put a lot of pressure on our production facilities. However, we have learned a lot."

"Testing has gone very well, and in Barcelona, Michael Schumacher recently said he noticed a clear difference in the new tyres."

Gert Meylemans

Faster lap times

Flying the flag for Bridgestone this year are: Ferrari, McLaren, BAR, Jordan, Sauber and Arrows. Although new FIA aerodynamic regulations have been introduced to decrease downforce, Gert believes lap times will be at least the same, if not faster than last year: "We started developing and testing the 2001 spec tyre last year with McLaren, Ferrari, Arrows and Jordan. We've been developing new compounds, constructions and tread patterns for dry and wet conditions. Testing has gone very well, and in Barcelona, Michael Schumacher recently said he noticed a clear difference in the new tyres. Depending on the track, lap times could be 1 to 2 seconds faster this year."

On paper, Michelin has attracted strong teams such as Jaguar and BMW, but Gert believes that new engines and drivers in these teams could hinder their performance at the beginning of the season. "Edouard Michelin has announced that he is not expecting the title immediately, perhaps a podium place. We don't underestimate Michelin. It's a very strong company with good technical knowledge. Every race has to be raced, but we have done a good job and we still have the top two teams." ●

For the latest Formula 1 news:

www.formula1.com
www.info-F1.com