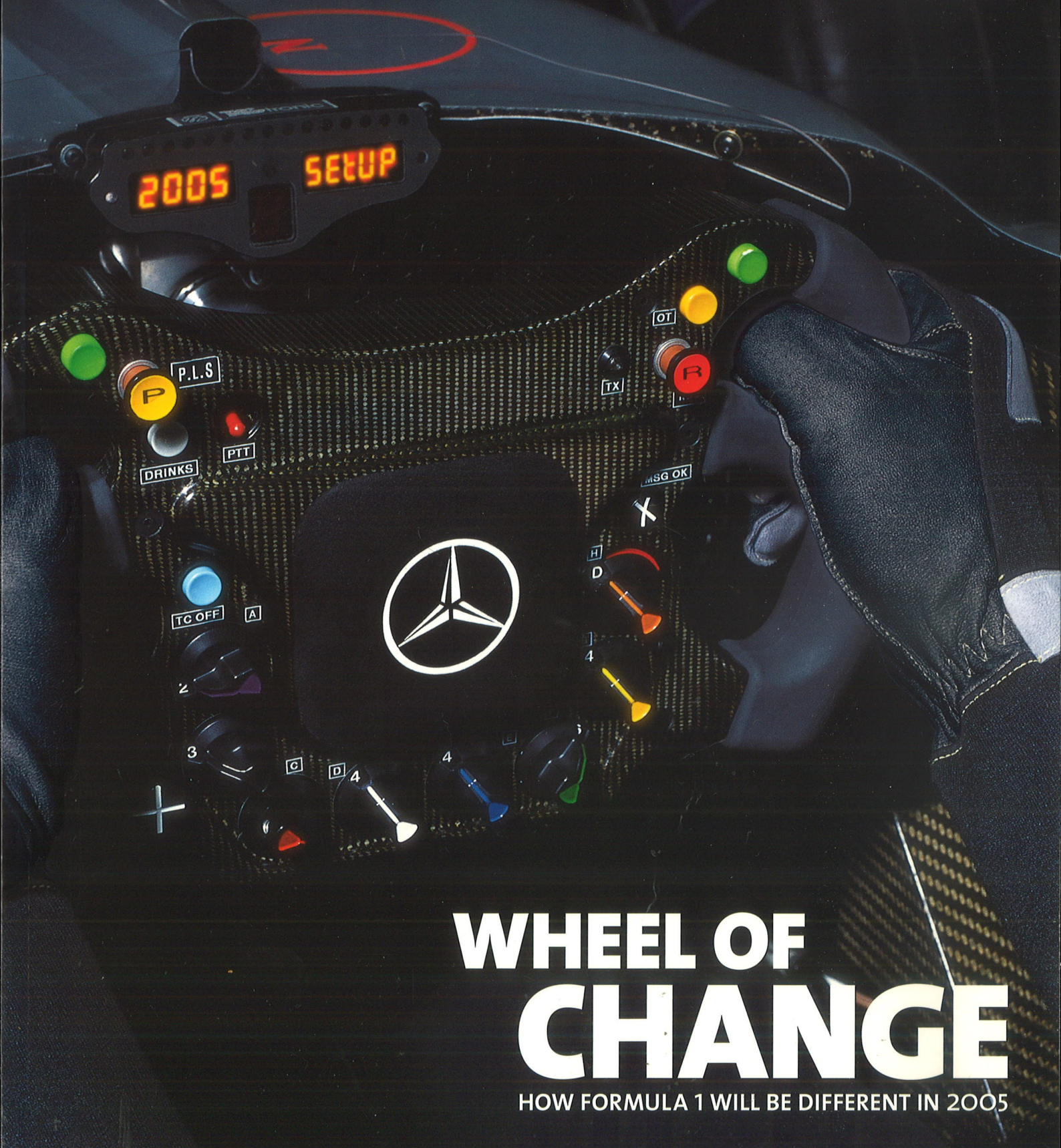


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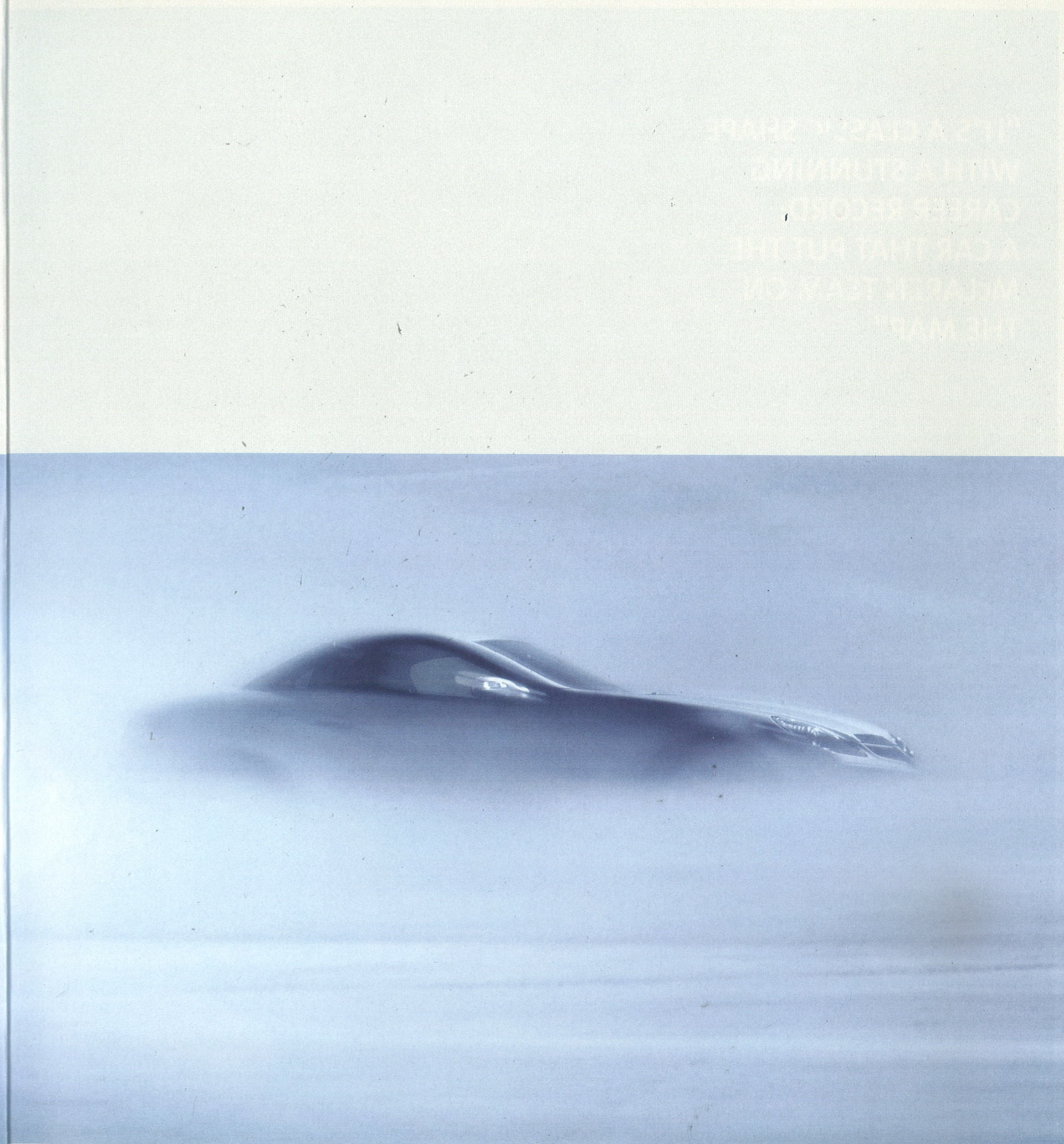
by **McLaren**



WHEEL OF CHANGE

HOW FORMULA 1 WILL BE DIFFERENT IN 2005

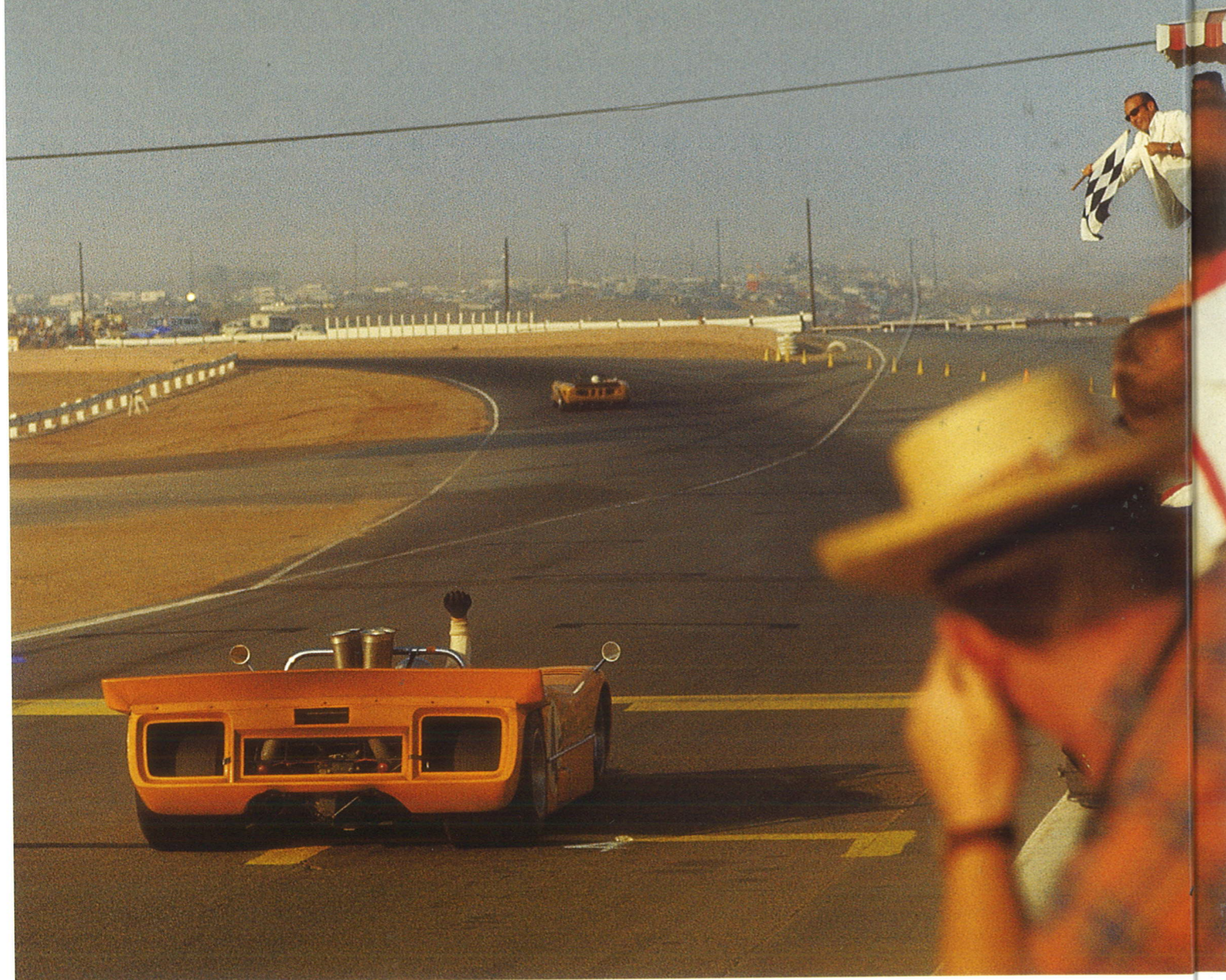
There is nothing like being at the wheel of a Mercedes-Benz SLK-Class with a long, straight road ahead of you. But all straight roads become curves eventually, so we came up with Direct Control Steering. The new SLK-Class has an improved, shorter steering ratio which means the car responds instantly, making even the sharpest corner a more comfortable experience. Please contact your nearest retailer to arrange a test drive, after all, this isn't a car that was meant to be cooped up in a showroom. Direct Control Steering means a quicker response. (As if a car like this would do anything slowly.)



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McLaren's Roll of Honour

Eight Constructors' Championships

1974 – M23-Ford, 73 points
1984 – MP4/2-TAG Porsche, 143.5 points
1985 – MP4/2B-TAG Porsche, 90 points
1988 – MP4/4-Honda, 199 points
1989 – MP4/5-Honda, 141 points
1990 – MP4/5B-Honda, 121 points
1991 – MP4/6-Honda, 139 points
1998 – MP4-13-Mercedes, 156 points

Eleven Drivers' Championships

1974 – Emerson Fittipaldi – M23-Ford, 55 points
1976 – James Hunt – M23-Ford, 69 points
1984 – Niki Lauda – MP4/2-TAG Porsche, 72 points
1985 – Alain Prost – MP4/2B-TAG Porsche, 73 points
1986 – Alain Prost – MP4/2C-TAG Porsche, 72 points
1988 – Ayrton Senna – MP4/4-Honda, 90 points
1989 – Alain Prost – MP4/5-Honda, 76 points
1990 – Ayrton Senna – MP4/5B-Honda, 78 points
1991 – Ayrton Senna – MP4/6-Honda, 96 points
1998 – Mika Häkkinen – MP4-13-Mercedes, 100 points
1999 – Mika Häkkinen – MP4-14-Mercedes, 76 points

2004 GP Results

Australian GP: David Coulthard 8th; Kimi Räikkönen DNF
Malaysian GP: David Coulthard 6th; Kimi Räikkönen DNF
Bahrain GP: David Coulthard DNF; Kimi Räikkönen DNF
San Marino GP: David Coulthard 12th; Kimi Räikkönen 8th
Spanish GP: David Coulthard 10th; Kimi Räikkönen 11th
Monaco GP: David Coulthard DNF; Kimi Räikkönen DNF
European GP: David Coulthard DNF; Kimi Räikkönen DNF
Canadian GP: David Coulthard 6th; Kimi Räikkönen 5th
United States GP: David Coulthard 7th; Kimi Räikkönen 6th
French GP: David Coulthard 6th; Kimi Räikkönen 5th
British GP: David Coulthard 7th; Kimi Räikkönen 2nd
German GP: David Coulthard 4th; Kimi Räikkönen DNF
Hungarian GP: David Coulthard 9th; Kimi Räikkönen DNF
Belgian GP: David Coulthard 7th; Kimi Räikkönen 1st
Italian GP: David Coulthard 6th; Kimi Räikkönen DNF
Chinese GP: David Coulthard 9th; Kimi Räikkönen 3rd
Japanese GP: David Coulthard DNF; Kimi Räikkönen 6th
Brazilian GP: David Coulthard 11th; Kimi Räikkönen 2nd



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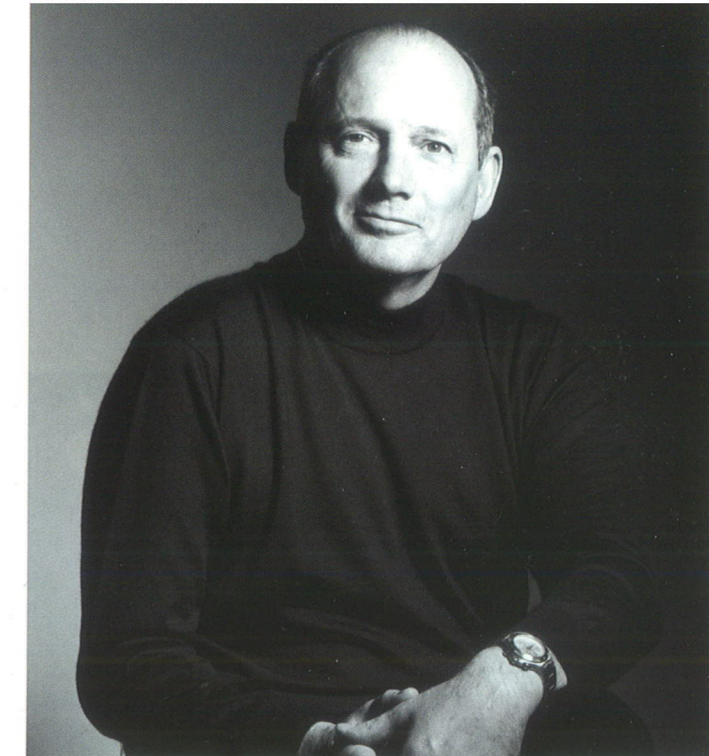
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Portrait by Hugo Burband



InsideLine

This period of the year is inevitably one of excitement and measured anticipation as we are now firmly locked into the countdown to the first round of the 2005 Formula 1 World Championship which takes place in Melbourne, Australia on 6 March.

The first of the new Team McLaren Mercedes MP4-2Os should have been completed by the time this issue of *Racing Line* is published, leaving Kimi and Juan Pablo – assisted by Alex and Pedro – almost a month of testing prior to the car demonstrating its potential in race action.

The relatively late timing of final decisions relating to the 2005 chassis and engine specifications have placed additional pressures on all the competing teams, with the result that most of the new cars have not been completed until much later than usual. The main changes to the chassis involve a substantial reduction in aerodynamic downforce, the most obvious element of which is the raised front wing. These changes have obviously stimulated the competitive spirit of our aerodynamicists who have been working hard in the wind tunnel in their bid to claw back as much of the performance deficit as possible prior to the first race of the year.

Our colleagues at Mercedes-Ilmor have also been expending every effort to meet the exacting challenge posed by the rules, which now require engines to last two race distances between rebuilds. This calls for optimising the delicate balance between maximum power and durability without overstepping the boundaries of mechanical endurance and incurring an unwelcome grid penalty as a result.

There are, of course, other new developments in 2005. We have to handle yet another change to the Formula 1 qualifying format which will mean grid positions are determined by aggregating the times recorded from two sessions, one on Saturday afternoon and one on the morning of the race. It is a topic of much debate within the sport as to whether this will improve the spectacle for the paying spectators but, as always, we will be seeking to gain as much benefit from this situation as possible as we consolidate what we intend will be a robust challenge for the world championship.

Ron Dennis CBE
McLaren Group Chairman and CEO

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Leading manufacturer of high quality lighting fittings.
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Leading manufacturer of high-quality Swiss sports watches, timing devices, sun and optical glasses. Official timekeeper of Team McLaren Mercedes.
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TECHNOGYM

The Wellness company. Leading fitness and biomedical equipment designers and producers.
www.technogym.com



NESCAFÉ Xpress launches promotion, CA holds USA conference

KIMI STARS FOR NESCAFÉ XPRESS

Kimi Räikkönen is featuring in the first promotion created by NESCAFÉ Xpress since it became an Official Supplier to Team McLaren Mercedes.

The point-of-sale promotion, which is currently running in retail stores and fuel stations throughout Germany, features photographs of Kimi and the MP4-19B and gives consumers the chance to win a weekend for two at the Italian Grand Prix.

This promotion is the first of many that will draw on the Partnership between NESCAFÉ Xpress and Team McLaren Mercedes. Indeed, as *Racing Line* went to press, NESCAFÉ Xpress were filming a television commercial featuring Kimi, which will be broadcast throughout Europe during 2005. You can find out more about this production in a future issue of *Racing Line*.



LEFT The NESCAFÉ Xpress promotion will run in German retail outlets, offering the chance to win a trip for two to the Italian GP



PICTURE CREDITS>
HOCH ZWEI/LAT

McLAREN RACING MD ADDRESSES CA EVENT

McLaren Racing Managing Director Jonathan Neale recently took part in a conference held in Washington DC and organised by Technology Partner Computer Associates.

The conference, which was tailored exclusively for CIOs (Chief Information Officers), included a presentation by Neale in which he spoke about CA's strategic partnership with the team and how it brings greater performance to both parties.

He discussed the business pressures faced by the team every day – including operational efficiency, data management and competitive differentiation – and how its world-class Partners help it to focus on winning.

"Computer Associates is a strategic partner to McLaren Racing," said Neale. "The industry moves fast and staying abreast of the technology in security, storage and network management is complex but essential. It was a privilege to talk about McLaren Racing and how we use the latest CA technology and products in an extreme environment."



Jonathan Neale in the USA, speaking about how the team's Partnership with Computer Associates delivers greater performance



Award winner Paul di Resta (seen here with his girlfriend) poses in front of a Team McLaren Mercedes Formula 1 car, which he will test as part of his prize

NEW McLAREN AUTOSPORT BRDC YOUNG DRIVER NAMED

Paul di Resta beat off stiff competition to be named as the 2004 McLaren Autosport BRDC Young Driver of the Year. The 18-year-old Scottish driver, who finished third in last season's Formula Renault UK championship, was presented with the honour by previous winner David Coulthard at the Autosport Awards ceremony.

He was among a group of six drivers who took part in a shoot-out for the accolade. As well as the financial support and media coverage, as winner of the award Di Resta will test a Team McLaren Mercedes Formula 1 car. "This is what every driver is working towards, so to get the chance to drive a Formula 1 car is unbelievable," he said.

Turn to page 34 for an account of previous award winners Jamie Green and Alex Lloyd claiming their test in MP4-19 at Silverstone.

Mobil 1 celebrates in France, Juan Pablo becomes TAG Heuer ambassador

i Mercedes-Ilmor has appointed Ola Källenius as its new Managing Director. The company designs, develops and produces the Mercedes-Benz Formula 1 engines which are used by Team McLaren Mercedes. Källenius' previous position was as Executive Director of Operations at McLaren Cars, with responsibility for the Mercedes-Benz SLR McLaren project, a role he had taken up in early 2003.

i Computer Associates, a Team McLaren Mercedes Technology Partner, recently held a Pan-European media day at the McLaren Technology Centre. The event, attended by a range of international journalists, included a presentation by McLaren Racing Managing Director, Jonathan Neale.

i A group of employees from McLaren Marketing ensured a charity donation to the White Lodge Centre – a Team McLaren Mercedes-supported charity – by winning a karting event held at Milton Keynes, in the UK. Competing in the race were Steve Wright, Robin Fenwick, Ryan Lewis and Dan Brockway. A cheque was accepted on behalf of the charity by McLaren Group Chairman and CEO Ron Dennis (below).

i Kimi Räikkönen and Juan Pablo Montoya tested together for the first time last month. To mark the occasion, we asked the two drivers to sign a Team McLaren Mercedes cap, which we are now offering as a prize. To be in with a chance of winning the cap, email your name and address to racingline@mclaren.com with 'Kimi and Juan Pablo cap' in the subject bar. A winner will be chosen at random.



Guests enjoyed passenger rides in the Mercedes-Benz SLR McLaren at Mobil 1's anniversary event

EXXONMOBIL HOLDS ANNIVERSARY EVENT FOR MOBIL 1 AT PAUL RICARD

Technology Partner ExxonMobil has celebrated the European 30th anniversary of its market-leading Mobil 1 brand with a unique event held at the Paul Ricard circuit in the south of France.

The international press conference was attended by key Team McLaren Mercedes figures, including McLaren Racing Managing Director Jonathan Neale, along with almost 50 journalists representing the European

automotive and business media.

In addition to enjoying a static display of the MP4-19 grand prix machine, guests had an opportunity to take taxi rides around the circuit in an AMG-Mercedes-DTM car and a Mercedes-Benz SLR McLaren.

ExxonMobil also used the press conference to unveil its new 'Emission System Protection' (ESP) technology. For exclusive pictures from the day, turn to page 44.

2005 SEASON CONFIRMED AS BUSIEST IN F1 HISTORY

The FIA, governing body of Formula 1, has confirmed the calendar for the 2005 season. This year the number of races grows to 19 and the championship will be adding to its list of new races with the inaugural Turkish Grand Prix at the Istanbul Racing Circuit.

There are six back-to-back race weekends and four grands prix will be run in the month of July alone, making 2005 the busiest single season in the sport's history.

2005 FORMULA 1 CALENDAR					
6 March	Australia	12 June	Canada	4 September	Italy
20 March	Malaysia	19 June	United States	11 September	Belgium
3 April	Bahrain	3 July	France	25 September	Brazil
24 April	San Marino	10 July	Great Britain	9 October	Japan
8 May	Spain	24 July	Germany	16 October	China
22 May	Monaco	31 July	Hungary		
29 May	Europe	21 August	Turkey		

PICTURE CREDITS>
STUART MCKENZIE/GRAHAM KUHN

JUAN PABLO BECOMES LATEST AMBASSADOR FOR TAG HEUER

Juan Pablo Montoya has been named as an official ambassador for Team McLaren Mercedes Corporate Partner TAG Heuer. His team-mate Kimi Räikkönen has been an ambassador for the company since joining the team in 2002.

The announcement was formally made at an exclusive breakfast press conference held at a hotel in central London and was attended by Jean-Christophe Babin, President and CEO of TAG Heuer, as well as Juan Pablo himself. Two leading Hollywood film stars were also announced as ambassadors.

Juan Pablo joins a list of young sports stars who have recently been made TAG Heuer

ambassadors, including Russian tennis champion Maria Sharapova.

To mark his new status as a TAG Heuer ambassador, Juan Pablo has also taken part in an exclusive photo shoot with top fashion photographer Patrick Demarchelier. The photos, which were shot at the McLaren Technology Centre, will be used for TAG Heuer's 2005 'What Are You Made Of?' advertising campaign. They feature Juan Pablo wearing the TAG Heuer Carrera timepiece, his official watch.

See a forthcoming issue of *Racing Line* for an account of the TAG Heuer ambassador launch event.



SAP KICKS OFF WITH TEAM

Team McLaren Mercedes Corporate Partner SAP recently held a filming day at the Silverstone circuit in Northamptonshire where the company created a mock pitstop with an MP4-19.

The footage was screened as a backdrop film for speakers at SAP's 'Field Kick Off' events. The annual meetings are used to set out its objectives for the year ahead and for 2005 they featured a Team McLaren Mercedes theme. The events took place in both Barcelona and Miami.

To see a range of exclusive pictures from the Silverstone filming day, turn to "Postcards From..." on page 58.



PICTURE PERFECT

Welcome to the second and final installment of 2005's *Picture Perfect*. For the chance to win an exclusive signed print of your favourite photo, turn to page 19

#5

Photographer:
Darren Heath
Canadian Grand Prix

The wind whistles through the trees at the Montreal circuit, but it isn't the only thing in a hurry...



**PICTURE
PERFECT**



#6

Photographer:
Jurgen Tapp/Hoch Zwei
European Grand Prix

Intense focus has become one of Kimi's hallmarks; the style is the same, whether on or off the circuit

**PICTURE
PERFECT**



#7

Photographer:
**Mark Sutton/
Sutton Images**
Japanese Grand Prix

The rain was bad and there was a typhoon on the way. Kimi, though, stormed through to take 2nd place

PICTURE PERFECT



#8

Photographer:
Picme/LAT
Mobil 1 French Grand Prix

The hot French sun beats down and bathes Kimi in its light. The race would bring another points finish

VOTE NOW AND WIN YOUR PERFECT PICTURE

It's time to vote for your favourite *Picture Perfect* from the eight that we have featured (see below). Entering the competition couldn't be simpler: just pick your favourite picture and send your choice to us using the form below. The image that attracts the most votes will be deemed the winner and one voter will be picked out at random to win a print of the most popular picture signed by Kimi Räikkönen himself.



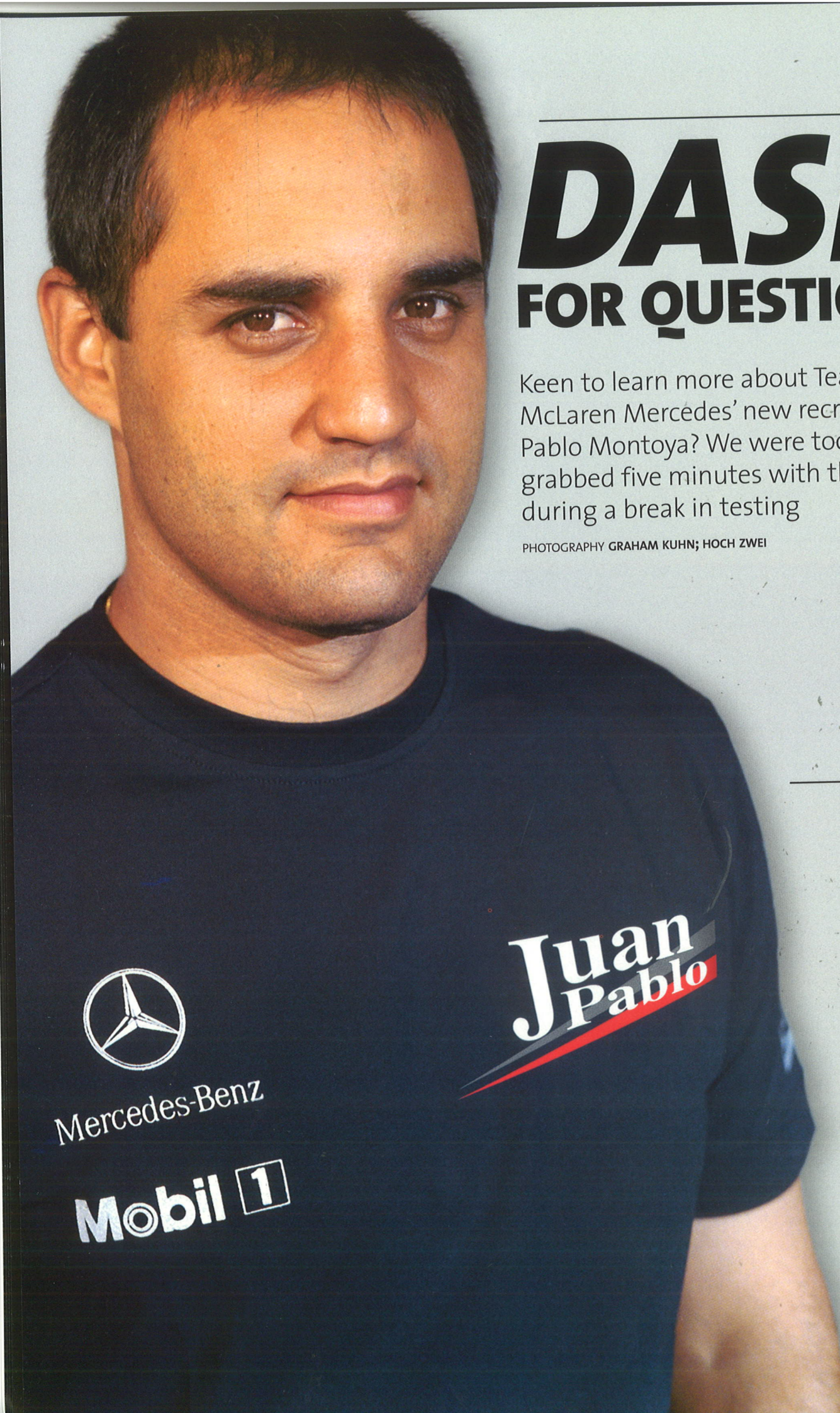
MY PERFECT PICTURE IS NUMBER: _____

NAME _____

ADDRESS _____

POSTCODE _____

To enter, send your answers to racingline@mclaren.com or Team McLaren, Admail 622, Woking, GU21 1WH by 1st March, 2005. The Editor's decision is final, and no correspondence will be entered into.



DASH FOR QUESTIONS

Keen to learn more about Team McLaren Mercedes' new recruit Juan Pablo Montoya? We were too, so we grabbed five minutes with the star during a break in testing

PHOTOGRAPHY GRAHAM KUHN; HOCH ZWEI

TALKING TO JPM



What are your ambitions?

Professionally my aim in life is to win grands prix and become Formula 1 world champion – becoming the best is all that interests me as far as the sport is concerned. As for my personal life, my goal is to create and maintain a great family life, and I'm very happy in that area.

How do you like to be known... as Juan or Juan Pablo?

Well, my full name is Juan Pablo – this is what you see on my race suit – but some people abbreviate this and call me Juan. I also have a nickname – Monty. That came about when I was working in the UK and competing in Formula 3000, which was around the time that the film "The Full Monty" was released. People picked up on the similarity with my name and it has stuck.

In terms of testing, what sort of work have you been doing with the team?

Since the beginning of the year I have been involved in an intensive testing programme. Initially we worked on getting me acclimatised with the car, which meant testing and developing various set-ups. I have also helped the team continue its tyre testing programme, which is crucial as the rule changes for next season mean we can only use a single set of tyres for the full race.

At the moment I am learning to adapt my driving style to optimise the performance of the car as not everything with it suits the way I have been driving for the last four years. But I've been really impressed by the car; there are many good things about it.

There are a lot of changes to the Formula 1 regulations for 2005, how do you feel about that as a driver?

For sure, the cars will be different in 2005, with changes to the engine, aerodynamics and tyres all making a difference. It's up to us as drivers, though, to do the best job we can with the equipment we have. It will be a learning experience for everyone, but I'm looking forward to the challenge.

You have an interesting helmet design, can you tell us about it?

My helmet features the colours of the Colombian flag – yellow, blue and red – which I have always tried to include in the design. It has been slightly refreshed for 2005, but apart from the colours, there is no particular significance in my helmet design.

How do you relax away from the circuit?

Obviously I enjoy spending time with my wife, Connie. I also like to play a round of golf or two when I get the time, which lately hasn't been that often. I'm one of those people who always has to be doing something – I don't enjoy sitting still! I enjoy windsurfing and snowboarding, as well as riding motocross bikes. Kimi rides bikes too so maybe we will do something together this year.

There are 19 races on the calendar this year, including a new race in Turkey, how do you feel about that?

I think it's great that Formula 1 is expanding its reach to incorporate new countries and cultures. I really enjoyed going to Bahrain and China last season, and I'm sure the fans in Turkey will be just as enthusiastic. It's also fun going to a new circuit for the first time, learning the lines, braking points and so on. I'm looking forward to it.

Mercedes-Benz

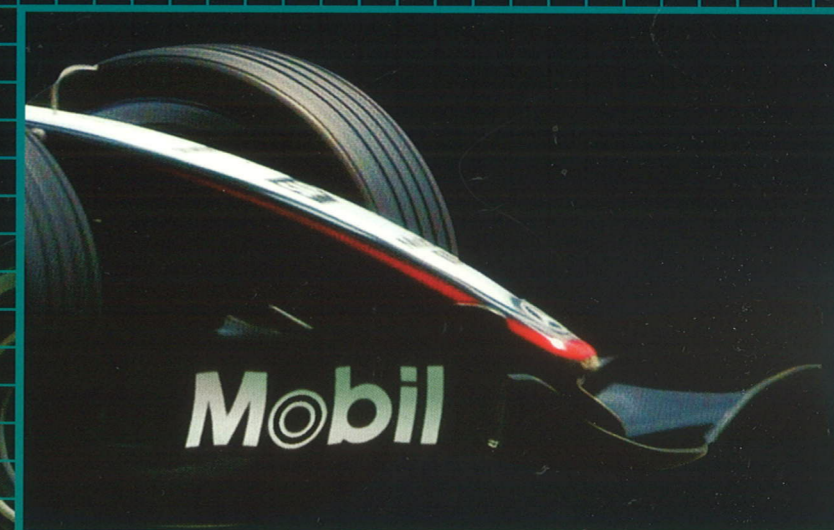
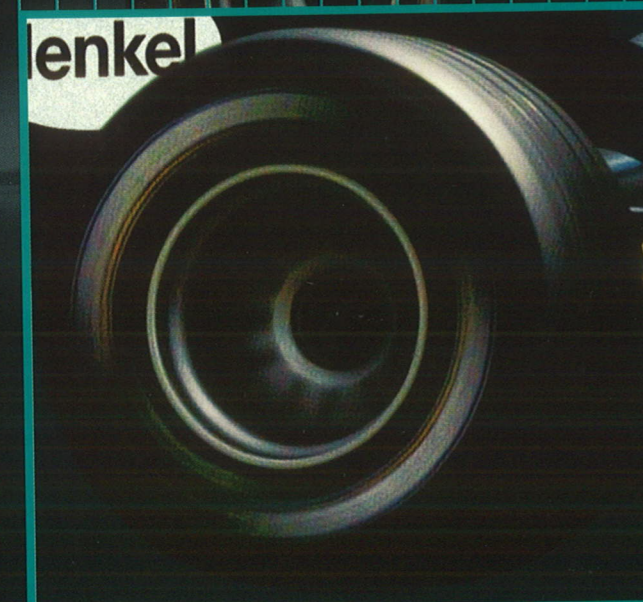
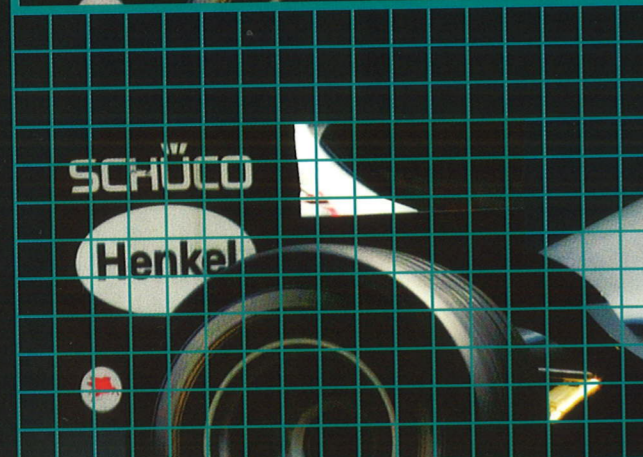
Mobil 1

Juan Pablo

ALL CHANGE PLEASE

Formula 1 has undergone a raft of changes ahead of the 2005 season. These will affect aerodynamics, engines and tyres, as well as the format of the grand prix weekend itself

WORDS ADAM COOPER PHOTOGRAPHY HOCH ZWEI; LAT; SUTTON IMAGES



During each winter period, Team McLaren Mercedes has to take into account rule changes for the following season as the new car is designed and built. The package for 2005 is perhaps the most significant

for many years, and the team's engineers have several challenges to face. There's much to think about, so we asked Martin Whitmarsh, CEO, Formula 1, Team McLaren Mercedes, to help guide us through the changes.

“THE CHALLENGE NOW FOR MICHELIN AND OURSELVES IS TO TAKE INTO ACCOUNT THE [TYRE] WEAR CHARACTERISTICS OF EVERY INDIVIDUAL CIRCUIT”

MARTIN WHITMARSH, CEO, FORMULA 1,
TEAM McLAREN MERCEDES

TYRES

UNTIL RECENTLY the only restriction on tyres for race day was that whatever set was used in the single qualifying run on Saturday afternoon was also used at the start. Once the race got underway tyres became an important element of pit stop strategy, and at the stops it was possible to switch to either brand new tyres or scrubbed sets that had been used in practice or first qualifying.

That has all changed. Now the set used in final qualifying has to last for the whole race distance. That means up to four times as long as previously – depending on the number of stops normally made at a particular circuit. It represents a huge change in philosophy in terms of how the tyres are developed.

“Traditionally tyres have been optimised in a number of ways,” explains Martin Whitmarsh. “While wear, durability and degradation have been important issues, the performance of the tyre on its first lap was very significant. Ordinarily that tyre then had to last typically for no more than one-third of a race distance.

“It is of course well within the capabilities of our Technology Partner Michelin to make a tyre that lasts far more than a race distance, but there is always trade-off between performance and longevity, and that’s something that we’ve got to address. If we’re too conservative in our tyre choice that will undoubtedly affect the performance of the tyre.

“The challenge now for Michelin and ourselves is to take into account the wear characteristics of every circuit. That varies from circuit to circuit, and it also varies from the start of the weekend to the end of it. We’ll have a relatively small opportunity on Fridays to choose between the two specifications of tyres that we’ll have available for the weekend.”

While it’s obvious that making a tyre last for a full race is not an easy task, there are specific challenges that have to be addressed as a tyre goes through its life cycle.

“We pre-heat the tyres before we use them,” continues Whitmarsh, “because the compounds are designed to operate at elevated temperatures. While the car is on the circuit that temperature is maintained by the work done within the compound. That phenomenon is fairly well understood, and it requires a certain mass of rubber in the tread band itself. Otherwise you don’t get either the movement of compound which generates heat, or the thermal mass to retain the heat, because you’ve got a tyre that’s rushing along at high speed being cooled all the time.

“Where that becomes significant is when the car comes into the last fuel stop. The tyres will cool down, and it is then difficult to re-heat tyres that don’t have sufficient tread mass. If we get it wrong, you could have tyres that have poor performance in the last stint because we’re unable to put heat into them.”

Whitmarsh is keen to point out that it’s not just a question of what Michelin delivers to the team. The team has a clear role to play in the complex equation.

“In reality things like camber settings and suspension geometry all have an influence on this, so it’s not a challenge that we can solely pass to Michelin. We have to work with them on all those aspects so we can understand how we can develop a tyre that is quick over one lap of qualifying, will last the duration of the race, and have good performance over the two or three sectors of the race. Until recently the work to develop suspension, car operating procedures and to optimise the tyres themselves has not been focused on that.” >>

ENGINES

JUST AS THE tyres have to last longer in 2005, so too do the engines. Last season they had a life of a race weekend. If a change was made as the result of a failure or accident damage, the driver had to take a 10-place grid slot penalty. Now engines have to last for two full race weekends.

"Most teams are now aiming for a life of around 1500kms, which is twice as much as previously. Of course rather like the tyres, you could design an engine that does the whole racing season! But what we now have to do is tread that fine line of performance trade-off for durability.

"The engine engineers will be able to give you a matrix that says, what would you rather have: x rpm and 1000kms, or y rpm and 1500kms? That's the trade-off that you are going to make."

Last year some teams ran fewer practice laps than they would have done in the past, at least in the early races. As they became more confident with reliability, the drivers were then able to increase the number of laps they drove.

Whitmarsh expects some teams to be more conservative than others, which will really put a premium on arriving at the grand prix with a near perfect set-up and having experienced drivers.

"Inevitably those teams whose durability or endurance development has gone better than others will be more bullish than those who are concerned. I suspect that if you've got a dirty track or inclement weather, teams will hold back. If they weren't so conscious of engine life, they would be out on the circuit."

Mercedes-Benz has been working flat out on the key areas that always have an impact on reliability.

"Typically you look at major castings and make sure that you're not getting cracks. You look at bearings, at piston life, at conrod life, and those sorts of highly stressed parts. You look at strengthening things and enhancing cooling capabilities to extend the life of critical components. Ultimately you may also back off slightly on rpm to extend life. However, in all probability the engines will have broadly the same performance as previously, certainly during qualifying." >>

**"IN ALL PROBABILITY
THE ENGINES WILL HAVE
BROADLY THE SAME
PERFORMANCE AS THEY
DID PREVIOUSLY"**

CHASSIS

THE KEY technical changes for 2005 concern aerodynamics. The one whose results will be most obvious when the new cars are unveiled is the raising of the front wing, although the diffuser and rear wing have also been subject to changes designed to reduced ground effect. The wind tunnel at the McLaren Technology Centre has been very busy in recent months as the aerodynamics team try to claw back the lost efficiency.

"The changes to the aero regulations were made very late, and inevitably the teams then had to weigh up how much they could optimise in that limited amount of time," says Whitmarsh. "No team has had the amount of time that they would have wanted in order to properly evaluate the opportunities that were afforded by the changes.

"It's commonly accepted that there's an initial loss of 20-25% in aero efficiency, and everyone is working hard to erode that. The teams who do the best job will get a lot of it back. I'm sure before the start of the season there will be all sorts of speculation in that regard. I'd be sceptical about anyone saying they've restored the efficiency that they had before. If they do it suggests that their previous cars could not have been particularly well optimised! If you had an efficient 2004 car it will be more difficult."

Just moving the front wing to its new height on an existing car is of limited use in terms of research, and while some teams chose to do that in testing, Team McLaren Mercedes did not.

"Front wings are less efficient if you take them away from the ground. But that endplate and front wing has been designed for the previous ground proximity. When you then optimise them for their new 'flying altitude' you might not get back to the same level of efficiency, but you'll certainly improve on the starting point."

Whitmarsh is confident that the team's aerodynamics department has got to grips with the challenge of restoring the lost downforce: "MP4-20 does look quite a lot different from last year's car. We have made good progress, and there's quite a good feeling about it within the company. But we have got to be measured, because every single team has improved from the deficit that they originally applied to the aerodynamics of the car."

Aero is a key issue, but there are also changes to the chassis dictated by ongoing improvements in crash testing: "Elsewhere on the MP4-20 we've got increased side penetration requirements which will make the cars safer and more robust. It's quite a lot of work, but it's very positive."

Of course the technical rules cannot be taken in isolation. Along with the need to make the tyres last, they mean that every area of the car has to be addressed.

"The reality is that because of the tyre changes and the aero changes you have to rethink the whole package – weight distribution, suspension geometry and so on. Formula 1 cars are so integrated and the performance margins we're chasing are so small that if you change anything it has consequences. For example changing the front wing affects the flow field and thus engine cooling and brake cooling." >>

"IT'S COMMONLY ACCEPTED THAT THERE'S AN INITIAL LOSS OF 20-25% IN AERO EFFICIENCY AND EVERYONE IS WORKING HARD TO ERODE THAT"

“NOW YOU HAVE TWO SESSIONS WHERE PEOPLE HAVE TO BE CAUTIOUS AND TWO SESSIONS WHERE YOU HAVE A COMPLETELY DIFFERENT FUEL LOAD”



HOW WILL THE WEEKEND CHANGE?

FOR THE FOURTH time in as many years grands prix weekends will run to a different timetable in 2005. Following the unplanned experiment in Suzuka last year [when the threat of a typhoon meant that Saturday's qualifying was cancelled], there will be a one-lap qualifying session on Sunday morning following the more familiar Saturday afternoon session. For the first time the grid will be formed by aggregating the times from both runs.

The key issue is that while on Sunday cars will run with race fuel, and cannot be topped-up, on Saturday fuel load is free. And that means that everyone will run in 'flat out' mode with enough for one flying lap, just like in the past.

"The only thing you can say is that it's the same for everybody," says Whitmarsh. "Now you've got two sessions where people have got to be cautious, and two sessions where they've got a completely different fuel load. You had a choice in 2004: unless it was vitally important to secure track position, you could do the first run with the fuel load you planned to use in final qualifying. We've all experienced cars that

respond better to taking fuel out or to having fuller tanks. More recently the latter was the more important criteria, but now both are."

For Team McLaren Mercedes there will be another change in 2005. The rules allow all teams finishing outside the top four the previous year to field a third entry in Friday testing. There are obvious benefits to be gained as the third driver can do tyre comparison and chassis set-up work without worrying about engine miles. In theory that means that the other drivers don't have to run as many miles as those in other leading teams.

"A third car will help us," Whitmarsh admits. "Normally there will be a conflict in people's minds. The chassis engineers will want to pile miles on, those working on the engine will want to conserve its life, and the tyre engineers have a limited number of tyres to use.

"If you've got a third car that falls outside those limitations of mileage and number of tyres, it's a nice thing to have. We'll have an experienced driver piloting the car. You've got to have someone who's an integral part of your development programme." ■

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BOSS
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Michael Johnson is one of the greatest athletes of all time: five Olympic and nine world championship medals – each one gold – see to that. He talked to *Racing Line* about his glittering career

WORDS LUKE HAYTER PHOTOGRAPH GETTY IMAGES

I understand that you've attended grands prix in the past, are you a fan?

I've always been a fan of Formula 1, and try to catch the races on television whenever I can. I've been to a few races in Europe, with the most recent being the Monaco Grand Prix last season. I had a great time. Every time I see the cars I'm impressed, and I really appreciate what those guys do.

Your career was all about the quest for speed; do you think you would have made a good racing driver?

I've never really tried to find out. Though I have had some racing lessons which I really enjoyed. I've never really pushed in that area, so I can't honestly say whether it's something I would have excelled at.

Do you drive a fast car yourself?

I'm anxiously awaiting the arrival of my new Mercedes-Benz SLR McLaren. I think it's an incredible car. To combine the best of Mercedes-Benz with the Formula 1 know-how of McLaren was an inspired idea and one that has produced a very fast and beautiful car. The technology that's gone into the car makes it unique in my view. I can't wait to get mine.

You collected five Olympic and nine world championship gold medals, with no silver or bronze. How did you sustain such a high level of performance?

Natural, God-given ability is a must, but you also need a lot of hard work and dedication to achieve that kind of consistency and longevity. If you want to achieve this as an athlete you have to be in top condition both mentally and physically. You also need to understand what it takes to go out there and

compete: that ranges from being able to handle the pressure of being the favourite to understanding how you have to approach your training and translate that into the arena.

There's really no textbook formula: you have to just go out there and find out exactly how you approach your training. You have to develop your own blueprint for success as opposed to just relying on the ability you have. Even relying on hard work is not enough, as you can find yourself working very hard and still getting nowhere.

Did you have a fear of losing – did that drive you on?

A silver medal *would* have been considered a failure by me, but I had no fear of losing. I think that when you have a fear of losing you probably end up losing more because it makes you afraid. During my career I hated to lose but I wasn't afraid to lose. In order to compete at that level and go out and achieve what you need to you have to want to be the best, but you cannot afford to be afraid of anything.

Do you ever miss the thrill of competing in front of huge audiences?

No not at all. I was fortunate during my long career to have achieved everything that I wanted to so I have no regrets. I look back upon my time with fondness as it was a great period of my life. I have always been driven by achieving my goals, and once you run out of goals to achieve it's time to move on. It's that simple.

What is your favourite memory from your time on track?

There are lots of moments that are special to me, of course, but I had a

10 year professional career and throughout those years I was fortunate enough to have a lot of special moments so it's difficult to pick one in particular. They are all special in their own way.

How will you feel if someone breaks your world records?

I won't feel anything. The thing about world records is that you strive to accomplish them; that is where the reward is. It's not really about keeping hold of them. I broke two world records [in the 200 and 400 metres] but now I'm retired so it's out of my control.

I understand that you run your own business now, "Ultimate Performance". How did that come about?

Ultimate Performance is a sports consulting company that I started nearly two years ago. We work with different athletes and sporting organisations and help them to develop specific training programmes for their athletes. We specialise in speed conditioning and mental conditioning programmes. Put simply, we help athletes learn more about how to focus, train and compete. We also perform a similar service on a corporate level.

How satisfying is it to be able to help other athletes?

I don't do it for any satisfaction other than it's what I enjoy doing. I really love teaching people how to reach their personal goals and achieve success. I want people to reach their own personal best, whatever that may be. It's something that I've always enjoyed doing and it's a great opportunity that I have to be able to help people reach their goals in life. ■

FORMULA FIRST

Driving a Formula 1 car is every racing driver's dream and Team McLaren Mercedes has given three talented pilots exactly that opportunity. *Racing Line* went to Silverstone to watch the action

WORDS GEMMA BRIGGS PHOTOGRAPHY GLENN DUNBAR/LAT

There are certain moments in a racing driver's career that he will always revere – first points, first podium, first victory. Now, three young winners have added a new milestone to the list: first test in a Formula 1 car.

Jamie Green and Alex Lloyd are both winners of the McLaren *Autosport* BRDC Young Driver of the Year Award – Jamie in 2002 and Alex in 2003 – and are claiming today's test as part of their prize. The promising trio is completed by rising single-seater star, Lewis Hamilton.

Their steed is the MP4-19; their track, Silverstone's national circuit. It is a massive step up from their usual machines, which range from Formula 3 Euro-Series to Euro 3000. Each driver will be completing 21 laps, made up of one installation lap and two runs of 10 laps.

"Driving a Formula 1 car is a big milestone in my life so it's a day I'll always remember," Jamie tells *Racing Line* before heading out on track. "I've been waiting for this for some time and it was the first thing that struck me when I won the award. I knew I'd benefit financially, but it was the test in the Formula 1 car that really excited me. I've always admired Team McLaren Mercedes, having watched

Formula 1 since I was a young boy. The team's professional image really appeals to me – it's how I've tried to model myself as a racing driver."

The first task of the day is a private meeting between the test team and the drivers. "The most important message to get across is that the day is not competitive," says Ian Gosling, who is overseeing the day's running. "There is not meant to be a winner today, it's about giving them their first run in a Formula 1 car. It's an experience more than anything."

An experience it will certainly be. But before the young drivers can settle into the cockpit, the car's range of controls must be explained to them. Jamie, Alex and Lewis listen carefully as Head of Race Engineering Steve Hallam runs through the workings of the paddle shift system, traction control and so on. The trio is intent and inquisitive, keen to learn more from experienced racer and tester Darren Turner – the 1996 winner of



the McLaren *Autosport* BRDC Young Driver of the Year Award.

First out of the garage is Lewis Hamilton, who chats with Darren before climbing into the car for the first time, his eagerness masked by concentration as he runs through the start-up procedure.

After a clean get-away he disappears down the pit lane and the empty circuit is filled with the roar of the V10 engine opening up >>

ABOVE AND RIGHT The day begins with a close look at MP4-19; the talented young trio (left to right) Alex Lloyd, Lewis Hamilton and Jamie Green

"TEAM McLAREN MERCEDES' PROFESSIONAL IMAGE REALLY APPEALS TO ME – IT'S HOW I'VE TRIED TO MODEL MYSELF AS A RACING DRIVER"
JAMIE GREEN, McLAREN AUTOSPORT BRDC YOUNG DRIVER WINNER





as he speeds away.

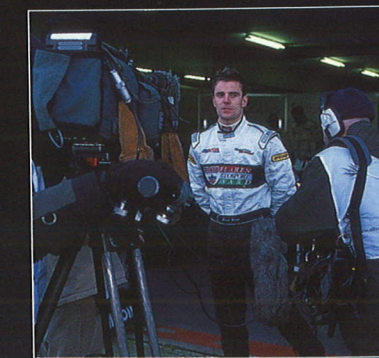
His approach to the test is carefully calculated and praised by the engineers. Starting slowly, with each fresh lap he edges closer to finding the MP4-19's limit. By the end of the run, he is well into his stride and understandably hungry for more.



"It was a dream come true," he says. "Really amazing. Everything from the phenomenal speed to the note of the revs. It was a lot easier to change gears – in Formula 3 you have to take your hand off the wheel but in MP4-19 you use the paddle shift system."



Jamie Green is next to prepare, with the 30 team personnel moving around the garage as the car is checked and set up. Having quickly and expertly mastered the controls – finishing the requisite number of laps in what feels like a matter of seconds – he retires to the garage for a thorough de-brief. His body language speaks of enthusiasm, as



TOP TO BOTTOM
The drivers are briefed on MP4-19; scrutinising the data; the day ends with a group photograph as the trio pose with (clockwise from top left) Dave Redding, Steve Hallam and Ian Gosling of Team McLaren Mercedes

he articulates the car's extraordinary handling and power. "The amount of confidence you get from the car is unbelievable," he enthuses. "I was able to get on the power in the middle of a corner and it just felt right."

As in any test session, this feedback is important, as the team uses it to check and prepare the car for the final run of the day. Having watched his two contemporaries closely, it is now Alex Lloyd's turn to take the helm, his red and yellow helmet a striking blur of colour in the black cockpit. Negotiating the sharp Abbey and Priory corners, his run is a skillful finale to the day, his confidence in the car visibly increasing with each lap.

"As I put my helmet on ready to go, I was pretty relaxed, but there are no words to describe the feeling I got as I came out of the pitlane," he says upon returning the garage.

As they share their thoughts, the



ABOVE AND BELOW
Jamie Green is all smiles as he recalls his successful laps around the circuit; the MP4-19 was faster than anything the trio had driven before

biggest differences the trio talk of are the car's power – over three times that which they are used to – and improved deceleration. They eagerly add that the MP4-19 was lighter, easier to steer, better under acceleration... the list is extensive.

"Having spoken to the engineers who were at the track, all three drivers adapted to the MP4-19 well and put in good performances," concluded Martin Whitmarsh, CEO, Formula 1, Team McLaren Mercedes.

As Jamie, Alex and Lewis readily admit, the day has surpassed their expectations and added yet another level to their depth of experience. For the gathered crowd – a mixture of fans, family and officials – seeing the excitement of a young pilot stepping out of a Formula 1 car after his first test was special. To witness it three times over, however, was simply electric. ■

SUPPORTING ROLE

The McLaren *Autosport* BRDC Young Driver of the Year Award was created in 1989 to recognise the talent of the country's top young drivers. Six shortlisted drivers are put through their paces in a range of single seater and production-based racing cars and judged on their driving and feedback abilities.

The overall winner is named at the annual *Autosport* Awards ceremony and receives a cash prize to help fund their racing programme, along with the chance to develop their skills by testing a Formula 1 car.

The inaugural award was presented in 1989 to David Coulthard and in the subsequent 15 years, the honour has been given to a range of international drivers including Formula 1 driver Jenson Button and IRL driver Dario Franchitti.

"We are proud of the support that we have provided

Alex Lloyd, 2003 winner, receives his award from (left to right) Martin Brundle and Martin Whitmarsh



to young drivers over the years," says Martin Whitmarsh, CEO, Formula 1, Team McLaren Mercedes. "In addition to the technical and fiscal side, activities such as the McLaren *Autosport* BRDC Young Driver of the Year Award also help to provide media coverage, which to an upcoming driver is invaluable."

"THERE ARE NO WORDS TO DESCRIBE THE FEELING I GOT AS I CAME OUT OF THE PIT LANE"
ALEX LLOYD, MCLAREN AUTOSPORT BRDC YOUNG DRIVER WINNER



ORANGE SUNRISE

McLAREN M8A

One of McLaren's greatest cars – the 1968 Can-Am title-winning M8A – is being brought back to life in New Zealand. *Racing Line* checks on the project's progress

WORDS BRUCE JONES PHOTOGRAPHY BRUCE McLAREN TRUST, LAT

It's usually quiet in Whitford, but there's currently a great deal of excitement focused on a garage building in this Auckland suburb. For inside its doors there's fevered activity at all times of day and night, and even at weekends. At a glance, you may not recognise the aluminium tub up on stands. However, consider its size – it's wide enough for two to sit side-by-side – and combine this with the huge sections of orange bodywork hanging above and it's clear that one of the mighty works Can-Am racers of the late 1960s is being brought back to life.

After considerable work and fund-raising by the Bruce McLaren Trust, this massive restoration project is nearing completion, transforming a mouldy wreck back into one of the most epochal racers of all time. It's a classic shape with a stunning career record, a car that put McLaren on the map.

The racing car in question is an M8A, M8A-2 to be precise, and the only surviving one of its kind, which is fitting as it's the one with which Denny Hulme stormed to the Can-Am title in 1968, following on from team leader Bruce McLaren's title success with an M6A in 1967. Now, after being saved from oblivion (see sidebar), it's on the verge of being ready for action again and is due to be finished in time for the events in June 2005 commemorating the 35th anniversary of Bruce McLaren's death.

The restoration has taken close on eight years, led by McLaren trustee and sportscar expert Duncan Fox on a voluntary basis. It has been a labour of love in which nothing has been able to be taken for granted and the sourcing of rare parts has been as much of a problem as raising the necessary funds.

Jan McLaren – Bruce's younger sister – takes up the story: "Although we inherited it as a complete looking car, we discovered that its bodywork was from an M8D. So, endless hours of research followed and a challenge that had plagued us from the beginning: where in the world would we find any parts of the original body?"

Their diligence was rewarded and the buck for the bodywork, made up from 18 sections, is nearly complete. >>

Bruce McLaren leads team-mate Denny Hulme at Riverside in 1968, the year in which the M8A won the Can-Am title



McLAREN M8A

Work remaining includes the making of the moulds and production of the panels. The fitting of the bodywork to the tub will follow, plus making the mould for the windscreen. Then the assembly of the engine and gearbox will bring the project to its conclusion.

Any way one looks at it, the restoration has followed a convoluted trail. "We had a 1968 chassis with 1970 bodywork made out to look like one from 1971," explains Fox. "I studied all the existing bodywork so I could reverse engineer a modified piece of 1970 bodywork back to that from an M8A. From original moulds, I started with an M8C front end and an M8E rear end. We made a panel out of each, then started modification. Looking at the front of the buck alone, the front upper section is M8C, the next section off an M8D and the third section from an M8E."

"We didn't expect to find any M8A bodywork in the USA as both M8As returned to England. But, on one of my trips to the USA, someone told me that a piece of M8A had been sold there when he worked for privateer racer and agent Lothar Motschenbacher in 1973. He couldn't remember to whom it had been sold, save that he lived in the San Francisco bay area... I tracked down one car, but didn't recognise the piece of bodywork I needed. It niggled me for a year and on my second trip back I tracked it down and, sure enough, it was that very piece of bodywork."

If getting the correct parts to build a buck for the bodywork was a labour of love, it wasn't speedy to get the rear wing right either. "The rear wings were unlike anything

else on any other car," continues Fox. "We knew what they looked like from photos, but didn't know how to make them. Amazingly, we managed to track down a guy in Los Angeles who'd dug the blackened wings out of the dumpster when they were clearing up Motschenbacher's workshop after its fire in 1973... By a bit of 'carceology' I deduced that they came off another body panel as no panel that we had had holes to match. We believe that they came from Bruce's car rather than Denny's as the two pieces meant that they could be carried from the UK as hand luggage."

What became clear was that Fox had to be on top of his alphabet as he worked out which M8 model begat which part. There were so many changes that he was delighted that at least one part, the front of the dash, was a constant. Well, at least between the M8A, B and E... So, there was no substitute for knowing your McLaren history, as Fox outlines: "We made the moulds off the M8B body and then cut all that stuff off, put the D mounted pieces in, then made the A fenders by cutting, fiddling around and adding bits." They certainly don't make their cars like that today.

Enthusiasm and application has helped keep the costs of the restoration within the target of NZ\$300,000 (just over £110,000), with the NZ\$200,000 raised by the "Sponsor a Part" scheme being key to this. There has also been welcome backing from members of the Bruce McLaren Trust plus grants from the NZ Lottery Commission and the Sky City Community Trust. Car clubs proud of this car that carried the McLaren kiwi on its orange nose also played a part, with



LEFT Led by the Bruce McLaren Trust, a dedicated group of engineers has set about the task of rebuilding the M8A-2, tracking down original bodywork and reverse-engineering parts

New Zealand's Thoroughbred and Classic Car Club at the forefront, sponsoring the big block Chevrolet V8, brakes and wheels. Contributions also poured in from around the globe. For example, one of the fuel filler caps was paid for from the UK, the steering column from Dubai, the seat harnesses from Australia and the roll hoop from America.

Former McLaren mechanics and engineers have also revealed their soft spot for the M8A, with Hulme's former mechanic Cary Taylor sponsoring the tub and Alan McCall dismantling the original, while Dave Saunders welded and fixed the block and Ian Griffiths is rebuilding the gearbox. Their help is invaluable, but more backing is needed and a list of parts available for adopting can be found by contacting the Bruce McLaren Trust (brucemclarentrust@clear.net.nz).

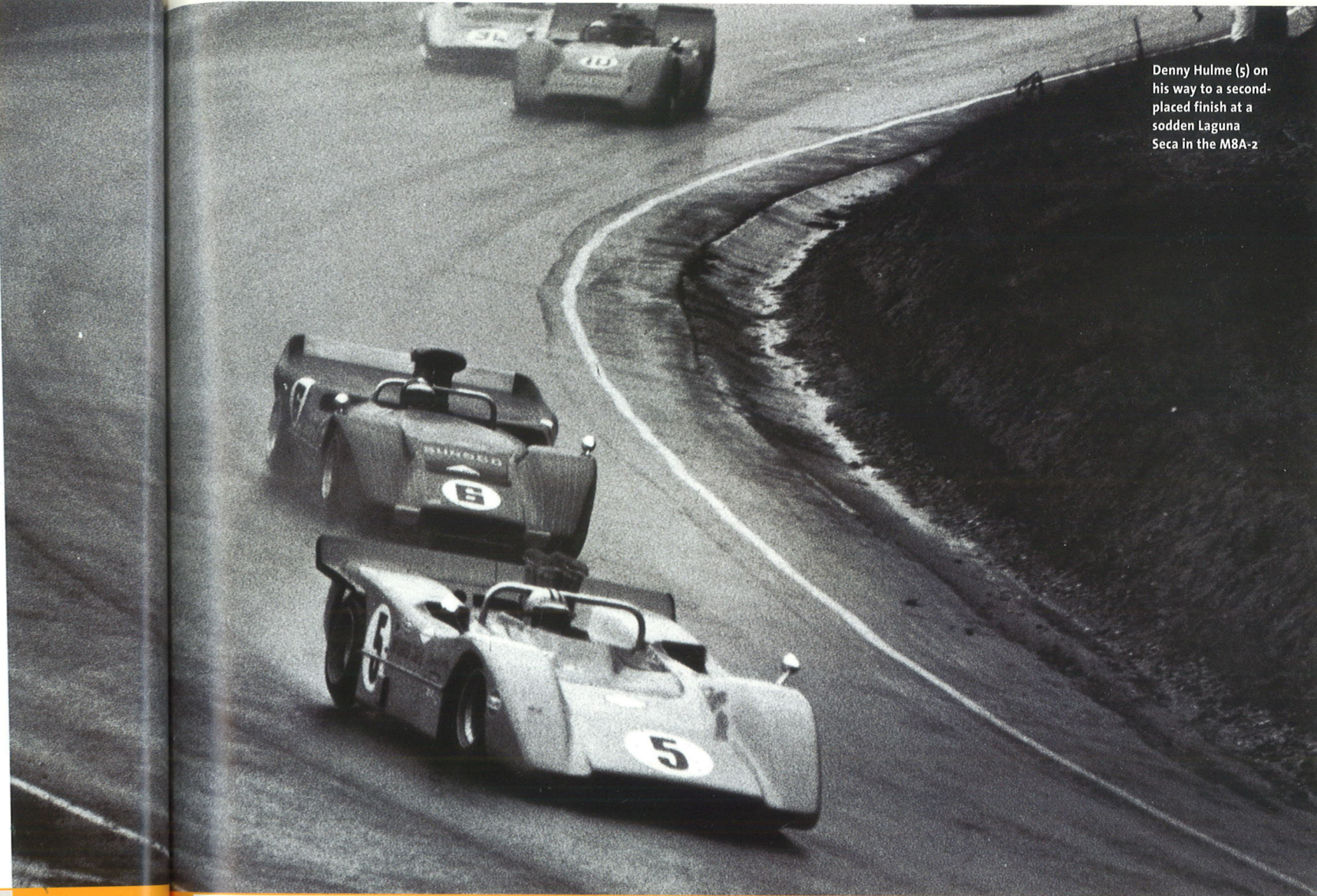
The car's completion won't be the end of the project, as the M8A will go on a Promotional and Educational Roadshow around New Zealand. It will also star at historic meetings, with former Formula 1 star Chris Amon eager to take the wheel, although there's no intention for it to race. One meeting it will almost certainly attend is the 40th Can-Am Reunion Meeting at Road America in 2006.

Sportscar racing fans in Europe needn't feel left out; though, as the M8A is tipped to come to the Goodwood Festival of Speed or Revival, with passenger rides part of its fund-raising role. Bringing the car back to Goodwood, where it would have undertaken much of its testing before heading to North America is fitting, as this will very much be a case of completing the circle. ■



"A CHALLENGE HAS PLAGUED US FROM THE BEGINNING: WHERE IN THE WORLD TO FIND ORIGINAL PARTS?"

JAN MCLAREN, SISTER OF BRUCE MCLAREN



Denny Hulme (5) on his way to a second-placed finish at a sodden Laguna Seca in the M8A-2

FROM BIRTH TO REBIRTH

M8A-2 was built at McLaren's Colnbrook base near Heathrow in the UK. Once shaken down, it was flown out to the USA where it blazed a trail in the 1968 Can-Am series, dominating in Denny Hulme's hands. It was modified to M8B spec in 1969 and continued in Can-Am until its destruction in a crash in 1970 when driven by privateer Lothar Motschenbacher. It then entered a very different chapter of its life, being rebuilt to go on display at Auckland's Museum of Transport & Technology in 1978.

However, the car was passed from volunteer to volunteer for further restoration until it dropped from public view as planned work proved too difficult. It was nearly lost forever as it ended up parked under a row of trees and the farmer on whose land it was discovered in a sorry state was about to bury it... Luckily, the Northern Sports Car Club found it just in time. A battle over ownership was settled when Jan McLaren became involved in the formation of the Bruce McLaren Trust, with the car passing into its custody in late 1997. And then the real work started...

RIGHT Denny Hulme – or 'The Bear' as he was known – was already an F1 world champion by 1968

BELOW In the same year, Bruce McLaren took victory with the sister M8A at Riverside



McLAREN M8A-2 RACE HISTORY

1968

Elkhart Lake	1st	Denny Hulme
Bridgehampton	Rtd	Denny Hulme – engine failure
Edmonton	1st	Denny Hulme
Laguna Seca	2nd	Denny Hulme
Riverside	5th	Denny Hulme
Las Vegas	1st	Denny Hulme

1969

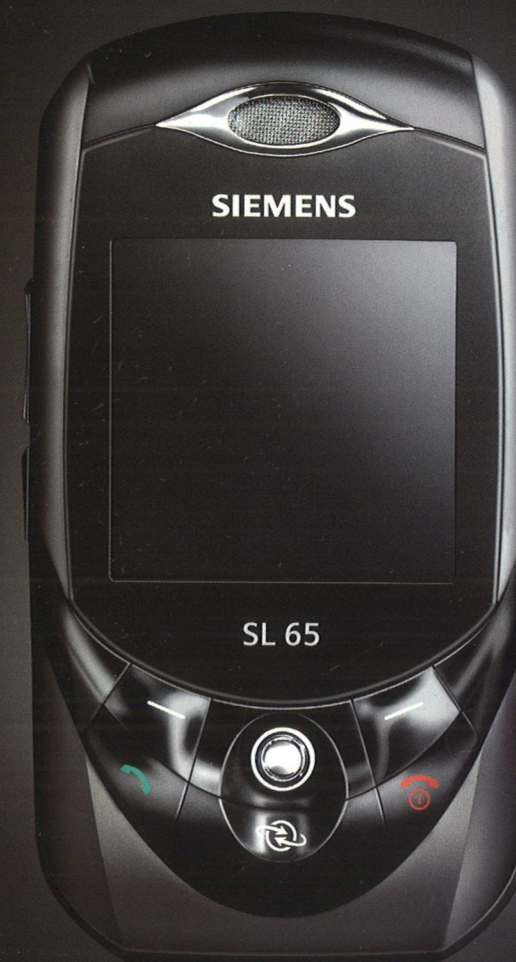
Michigan	3rd	Dan Gurney – qualified by Jack Brabham
Laguna Seca	Rtd	Chris Amon – broken differential
Texas	1st	Bruce McLaren

“THE M8A BLAZED A TRAIL IN THE 1968 CAN-AM SERIES, DOMINATING IN DENNY HULME’S HANDS”



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SIEMENS

FUN IN THE SUN

Mobil 1, the market-leading synthetic engine oil from ExxonMobil, recently celebrated its 30th anniversary. As part of the celebrations, a group of European journalists were invited to experience a day's driving-related fun at the Paul Ricard circuit in France

PHOTOGRAPHY EXXONMOBIL



The Mercedes-Benz SLR McLaren is a stunning sight in any setting, but, poised in the pitlane, it takes on an even more menacing aspect



Mercedes-Benz AMG, which uses Mobil 1 engine oil in all its vehicles, was well represented at the event, with a host of different models on display in the pitlane



While much of Europe braved the chills of winter, the temperate Ricard circuit provided more than a degree of warmth



The highlight for many were the taxi rides around the track. Gary Paffett (on the right), the Mercedes-Benz DTM racer, was certainly a rapid chauffeur

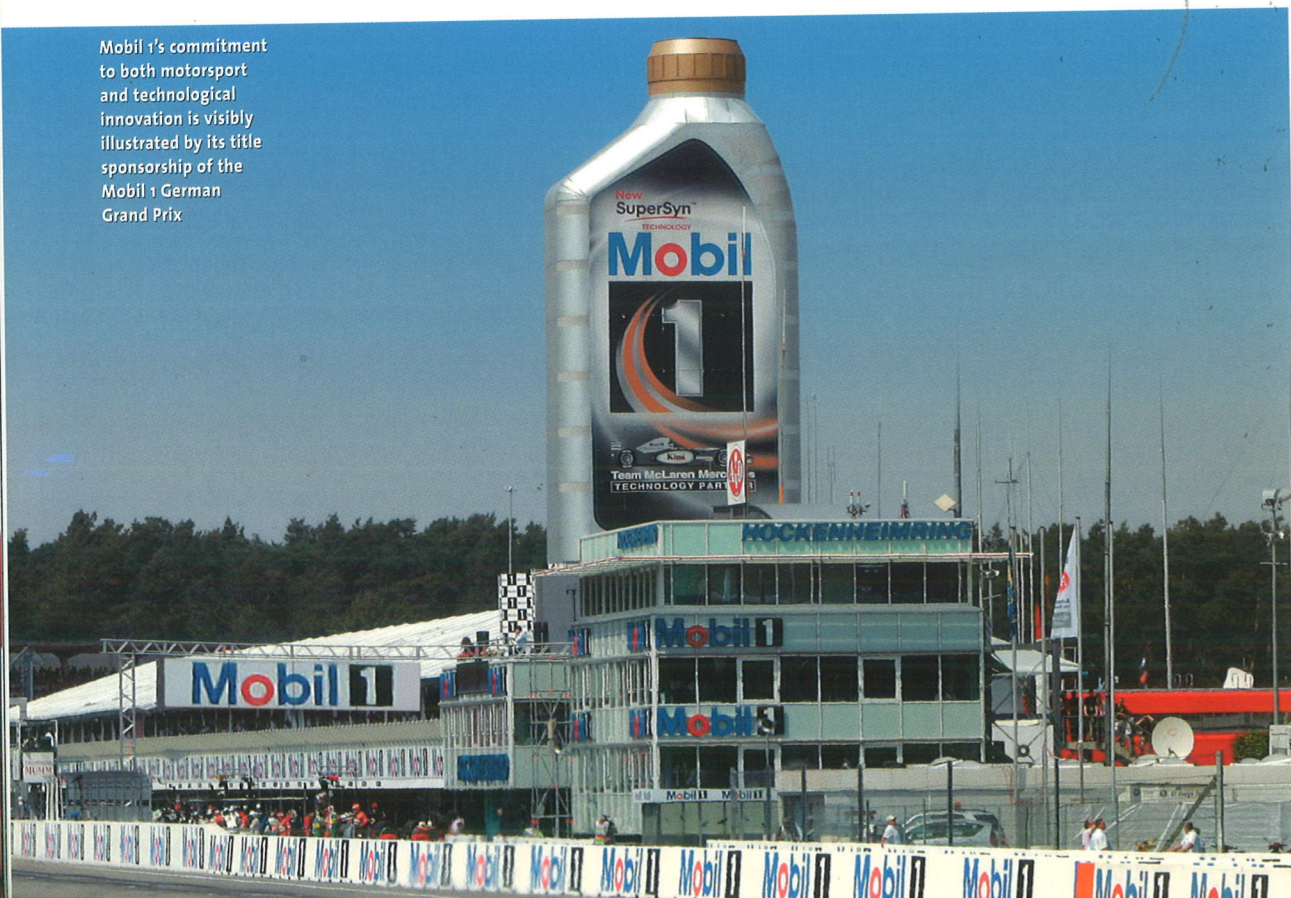


Safety Car pilot Bernd Mayländer (right) prepares to gun the SLK55 AMG around the Paul Ricard circuit



The second of the two SLRs on hand provided not only rapid lap times, but also a point of interest among drivers and guests

Mobil 1's commitment to both motorsport and technological innovation is visibly illustrated by its title sponsorship of the Mobil 1 German Grand Prix



TEAM McLAREN MERCEDES FORMULA 1

OIL COOLER

WORDS GEMMA BRIGGS PHOTOGRAPHY TED HUMBLE-SMITH, LAT

When a Formula 1 car is pushed to the limit, the oil which keeps its engine and gearbox functioning at the optimum level can reach temperatures of approximately 140 degrees C. Cooling this hot liquid is a crucial task for the design engineers at Team McLaren Mercedes, as without it, the car could be heading for retirement.

Similar to an everyday road car, the MP4-19B used an oil cooler for this function, albeit with some subtle differences. Firstly it used two such components and secondly, they were designed and built to be as small and light as possible, all the while giving the oil the greatest opportunity to reduce in temperature.

"The oil cooler is there to maintain a specific temperature of the engine and gearbox oil," explains Paul Turvey, Design Engineer, Systems Group. "The oil coming in to the cooler is around 140 degrees C and the process reduces it to approximately 100 degrees C. Keeping the temperature of the oil below a certain level ensures performance of the engine and gearbox at the required level and also prevents wear or failure of critical components."

Each of the car's side pods holds an oil cooler, the components being situated where the air inlets are found, on each side of the radiator ducts. Looking at the car head-on, they are located under the bodywork and to the rear of the driver.

One of the coolers serves both engine and gearbox, while the other is solely for the engine. The coolers themselves are relatively simple in design, being formed of an aluminium core and a set of tanks for the oil to flow in and out of. However, the core itself is a complex and delicate construction.

"The core is a complex piece of equipment that

we commission a specialist company to do for us," explains Turvey. "It is made of a series of corrugated aluminium channels that the oil flows through. In-house we make aluminium inlet and outlet tanks, which are welded on to the core to make the oil cooler assembly."

The Systems Group is given a space envelope within which the oil coolers must fit, this being largely determined by the aerodynamic package. However, as Turvey explains, the goal is for the core to have as large a surface area as possible. "It's a constant struggle between having a small space to fit the oil cooler in to and wanting the biggest surface area," he says. "That's why the surface is corrugated, both in between each channel and inside the channels themselves. A greater surface area maximises the temperature reduction of the oil."

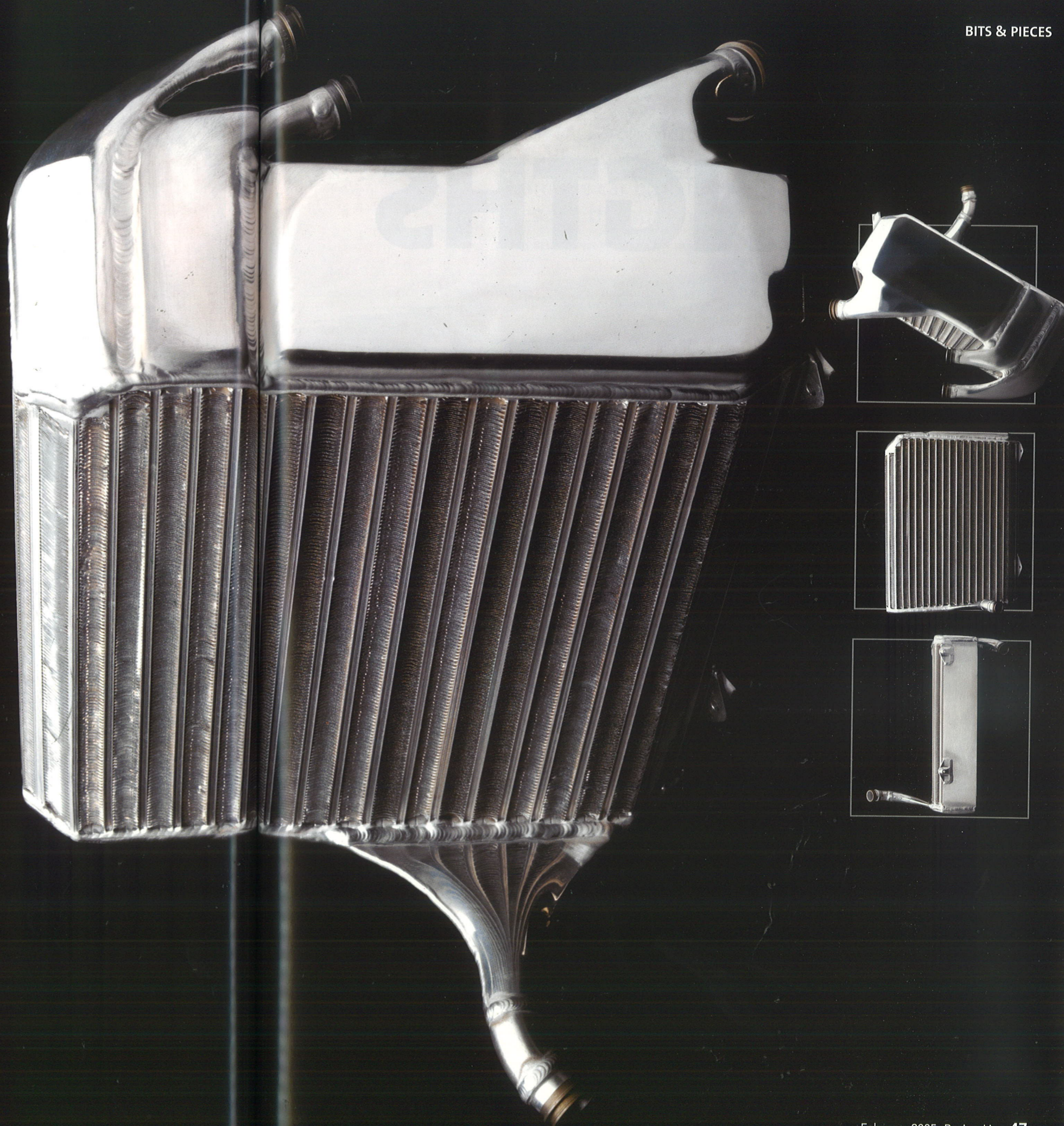
The standard shape of the oil cooler rarely alters during the year, though the internal core specification can change for improved performance. Major modifications are only made during the season if a new bodywork package is introduced. New coolers are fitted for each grand prix, with used oil coolers passed to the test team.

"It's one of those components that is easily taken for granted," says Turvey. "Working with ExxonMobil on fuels and lubrication advanced research projects is essential to the car's performance." Oil temperature is both a lap time and reliability issue for the car. It's all about attention to detail in every aspect.

i TECHNICAL SPEC

LENGTH	300mm
HEIGHT	230mm
THICKNESS	80mm
MATERIAL	Aluminium

Situated in the side pods, the oil coolers in the MP4-19B helped keep the engine and gearbox running at the optimum level



HIDDEN STRENGTHS

Team McLaren Mercedes Official Supplier, Henkel, provides the adhesives and sealants that help make the Formula 1 car both light and strong. It's also pushing ahead in the automotive manufacturing world

WORDS BRUCE JONES PHOTOGRAPHY HENKEL, LAT



The MP4-19B, piloted here by Kimi at a wet Suzuka, utilises Henkel adhesives and associated products in nearly 100 separate areas

HENKEL'S INNOVATIONS

Look at Team McLaren Mercedes' comprehensive list of Partners and there's not one company involved that isn't blue chip nor forging forwards thanks to cutting-edge ideas. They're the sort of companies with a similar mindset, out to succeed and to do so with innovation and style.

Among this world-class portfolio is Henkel, a name that appeared on the cars' rear wing for 2004. This wasn't a new Partnership, rather a change of emphasis in Formula 1 since the Loctite brand has been associated with McLaren since 1995. This has opened up a host of new technological possibilities for the team, with access to new products and solutions. Indeed its adhesives and associated products will be used in close to 100 different applications on the MP4-20.

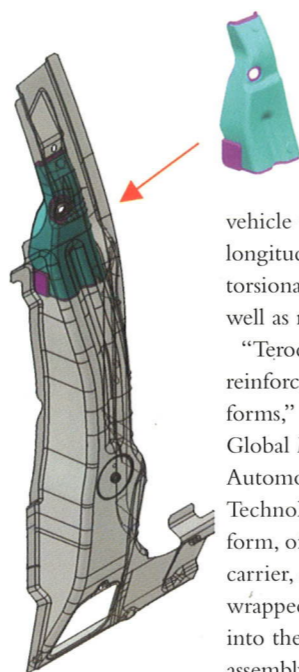
"With our innovative technologies, we're in demand as a supplier of original equipment from numerous industrial sectors," says Heinrich Gruen, Senior Vice President, Henkel Technologies. "Formula 1 is an ideal

platform, providing a quantum leap forward in conveying this message to external audiences."

The Henkel products used by Team McLaren Mercedes are part of a broader offering to the automotive industry and used in the production of road cars. Two such products, Terocore and Terophon, are market leaders in their fields of structural reinforcement and acoustic solutions. Not only do they enhance safety, they also improve driving comfort in today's cars.

Launched almost 10 years ago, Terocore represents a big step forward for the automotive industry. The structural foam, based on epoxy resins, is designed to improve dynamic failure in critical areas of the vehicle body by absorbing impact energy. In fact, it can improve the resistance of conventional structures by up to 500%.

Today, such structural foams are state-of-the-art in the design departments of the majority of car manufacturers and can be found in vehicles such as the Mercedes-Benz Sprinter van. Weighing 6.5 tons, this



ABOVE Terocore is widely used in the production of road car chassis as a structural reinforcement

vehicle uses Terocore in its longitudinal members to improve torsional stability and load capacity, as well as reducing vibration.

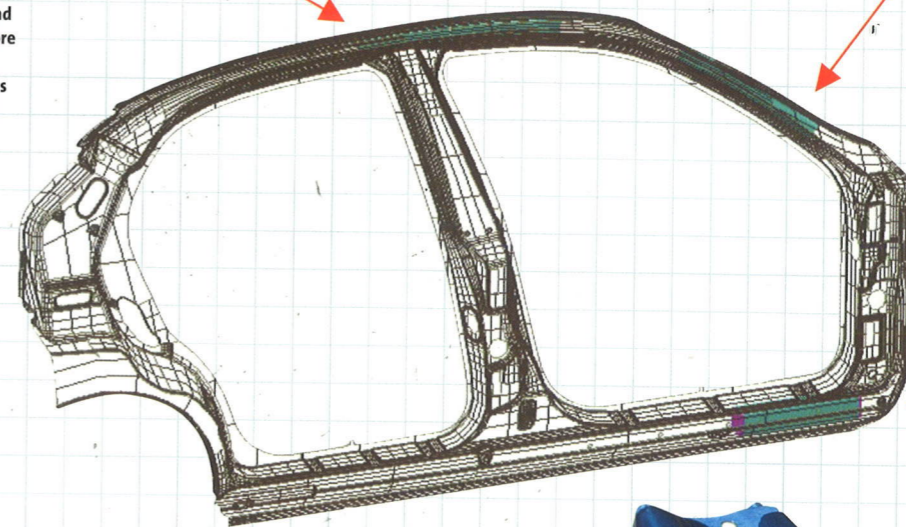
"Terocore is a chemical structural reinforcement that comes in two forms," explains Dr Frank Rodgers, Global Marketing Director, Automotive Structures, Henkel Technologies. "The first is a solid form, often with a metallic or plastic carrier, around which the Terocore is wrapped. This part is then dropped into the cavity during the vehicle assembly process.

"When the car is heated to approximately 160 degrees C during the paint curing process, the Terocore then expands to fill the cavity, imparting superior structural integrity to that section of the car by reducing its crumpling in the case of a dynamic failure. Terocore is also a pumpable product using a two-part chemical system that expands as it is injected into the cavity of a vehicle and the two parts react."

But Terocore is not the only >>

HENKEL'S INNOVATIONS

BELOW Supplied as a foam which is inserted into cavities in a road car structure, Terocore increases structural stiffness and absorbs energy during dynamic failure



BELOW Terocore can be wrapped around a metal carrier, such as this example of a rear rail assembly



"HENKEL IS IN DEMAND AS A SUPPLIER OF ORIGINAL EQUIPMENT"

HEINRICH GRUEN, SENIOR VICE PRESIDENT, HENKEL TECHNOLOGIES

Every Team McLaren Mercedes car since 1995 has relied heavily on the technologies developed by Henkel



"TEROPHON DAMPENS NOISE SO THAT PASSENGERS ENJOY A QUIET RIDE"

DR FRANK RODGERS, GLOBAL MARKETING DIRECTOR, AUTOMOTIVE STRUCTURES, HENKEL TECHNOLOGIES

advanced technology conceived and developed by Henkel that has captured the automotive marketplace. Rodgers explains that Henkel was traditionally known as a supplier of liquid chemical products. That was until the mid to late 1990s when it launched Terophon, a solid part applied during assembly to reduce road noise.

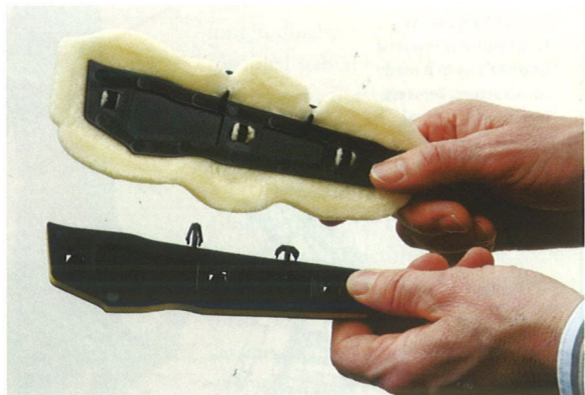
This has been such an important development for the industry that it is now a feature of all production cars, whether they are compact, mid-range or high-end.

"Terophon is what we call a '3D pillar filler' and it dampens road noise, preventing it from bouncing along the cavities, usually the sills and pillars, and reaching the passengers' ears," explains Rodgers. So successful has this

advanced technology proved, that over a million pillar fillers leave Henkel production plants each year.

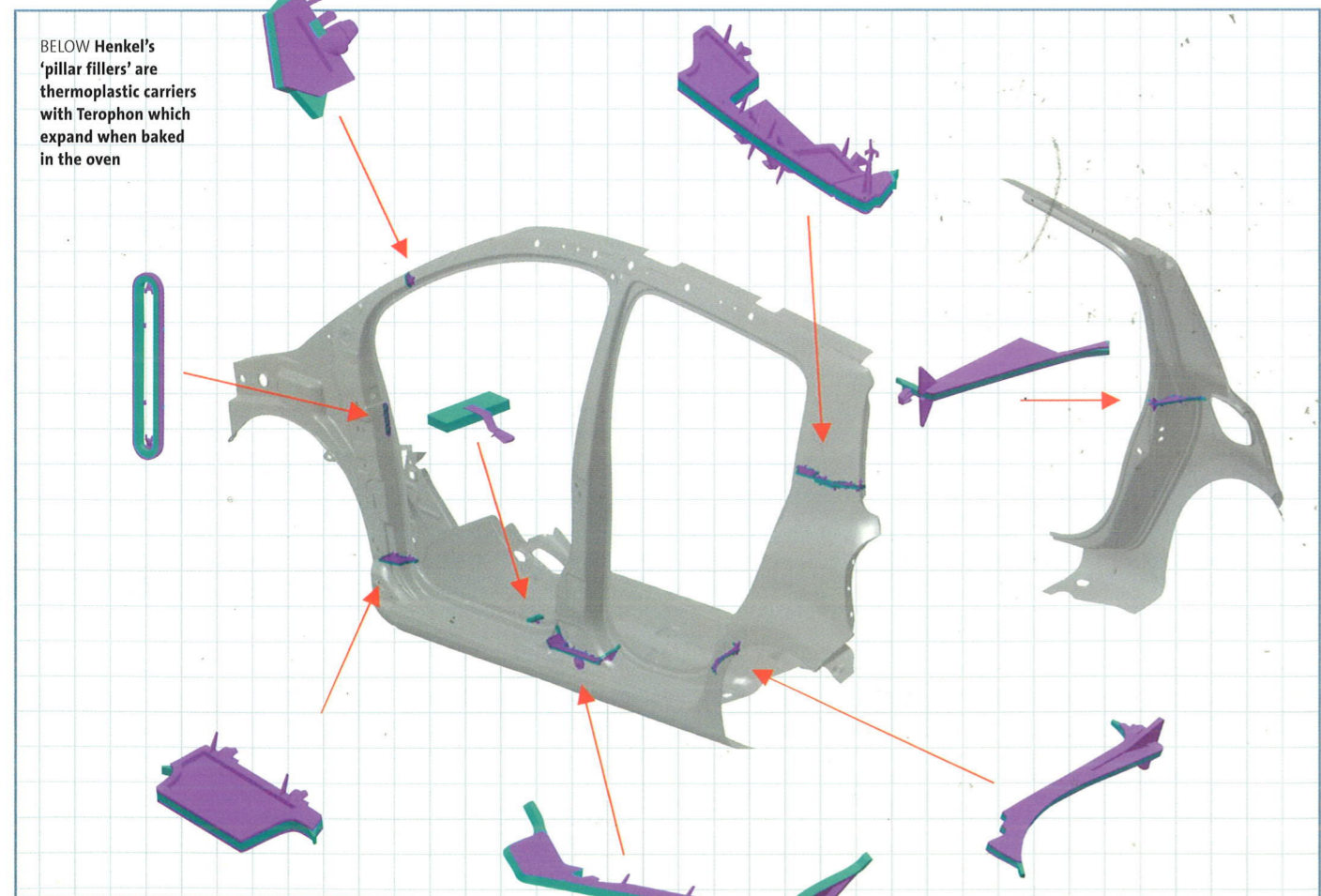
"Typically, Terophon is applied as a nylon carrier surrounded on the periphery with 3-5mm of Terophon that expands approximately 1000 per cent when heated in the paint oven, filling the cavity," he says. "Terophon can also be supplied as a heat curing spray-on product which can be applied to the underside of a vehicle to make it more resistant to stone chips and as a sound deadener."

Furthermore, according to Rodgers, one of the growth areas for the use of Terophon is its application on the inside of a vehicle's floorplan. This is to replace bitumen mats, which had been the standard sound damping



ABOVE Terophon is used to seal cavities, this example showing a plastic carrier before (bottom) and after the curing process

material for many years. As part of Henkel's close working relationship with Team McLaren Mercedes – including the transfer of technology – it is looking at how to incorporate road car technology into Formula 1. Since technology transfer in the sport usually means developments filter down from Formula 1 into more general automotive applications, this unusual twist adds a further dimension to the unique partnership between Henkel and the team. ■



BELOW Henkel's 'pillar fillers' are thermoplastic carriers with Terophon which expand when baked in the oven

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STEPHEN GILES

CHIEF MECHANIC TEAM McLAREN MERCEDES

WORDS GEMMA BRIGGS PHOTOGRAPH STEVE ORINO



When did you join the team?

I joined at the beginning of 1996, moving from Prodrive, where I had worked on the Alfa Romeo touring cars. I originally came to England from New Zealand in 1992 as a qualified automotive engineer.

When I joined McLaren, I started as number two mechanic on the test team. In 1997 and 1998 I was the number two mechanic on David Coulthard's car and for 1999 and 2000 was number one on Mika Häkkinen's car. I was made chief mechanic in 2001.

What does your role involve?

My primary responsibilities are to make sure the cars are built to the correct specification that the engineers and designers determine race-to-race. Also to oversee the work of all the mechanics and the race team – around 30 people – on the car.

Another part of the role is organising equipment that we'll need for next season's car. We begin planning very early as with a new car coming out and a change in the equipment needed to run it, everything has to be underway as soon as possible. I would

"THE JOB REALLY DOES TAKE UP A LARGE PART OF YOUR LIFE, CERTAINLY WITH ALL THE TRAVELLING TO RACES, BUT I ENJOY IT"

say, in real terms, my job is approximately 25% hands-on and 75% administration. I do not have an average day. For example, I have just spent many hours with our team and travel department and team manager, working out the flights and travel arrangements for this year's races.

How have things changed since you've been in the job?

Since I've been chief mechanic I seem to be busier year to year, but that is just the nature of Formula 1. The technology moves on and although some things are being simplified, the team's engineers are always developing new solutions and innovations. There are certainly no dull moments, even in the off-season.

How will 2005's new qualifying format – single lap sessions on Saturday and Sunday morning – affect your job?

Sunday will be a little busier for us as a result of the rule changes. The introduction of parc ferme regulations altered the working patterns for a weekend, but tensions always run high on race day! In practice it means that

everyone has a chance to recover from a very busy Friday and Saturday.

Previously, when there were no restrictions we were potentially working all Friday and Saturday night then going straight into warm-up and the race on Sunday, which was exhausting. But while the race weekend schedule is less frenetic now than a few years ago, the increase in the number of races on the calendar means the year is busier overall.

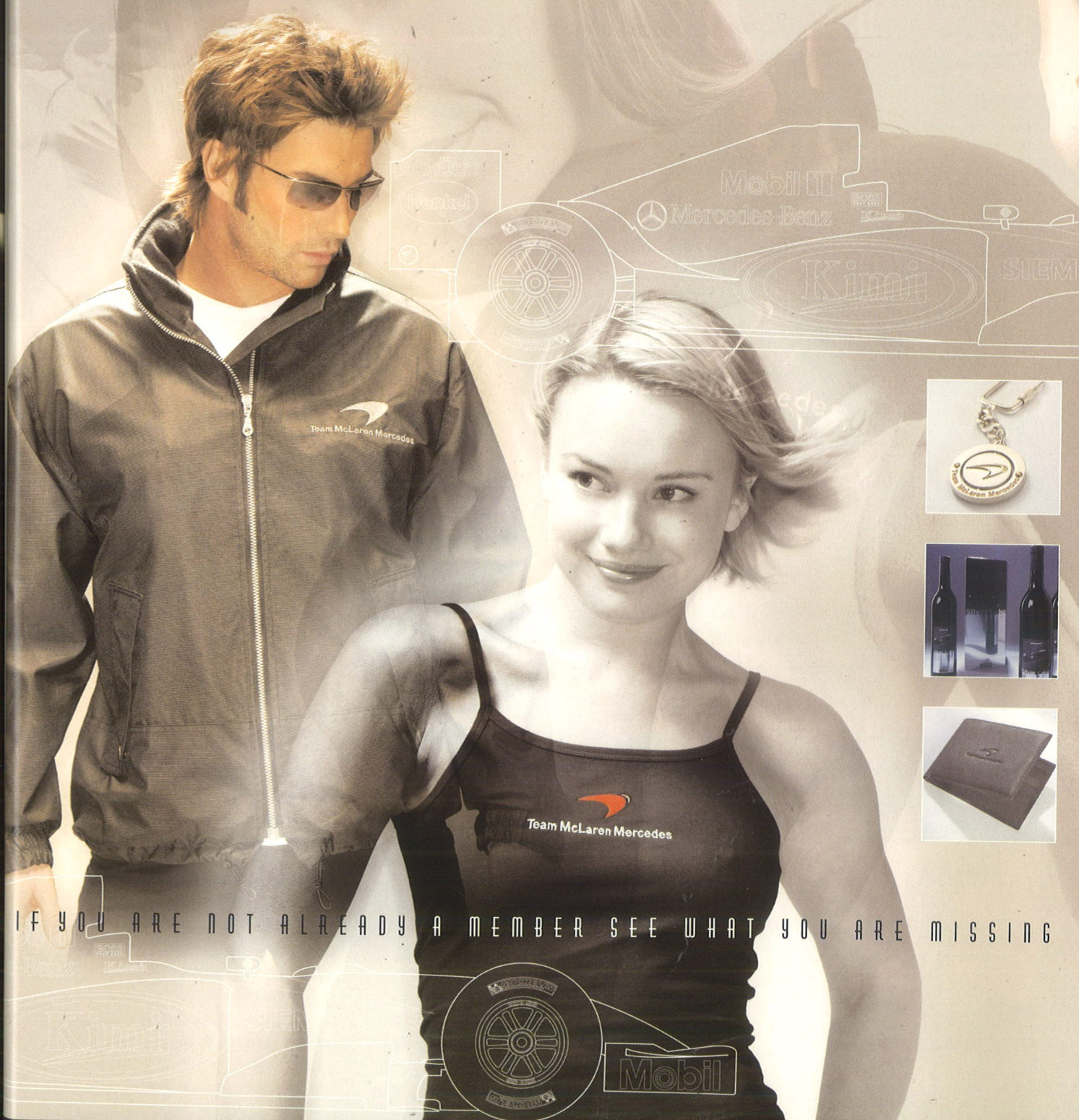
What is your greatest achievement while working for the team?

It has to be winning the Drivers' World Championship in 1999 with Mika Häkkinen when I was the number one mechanic on his car. It was a tough season and probably the hardest year I've had working here. This made it all the more rewarding when Mika won the championship.

Which aspects of your job do you enjoy the most?

Primarily the challenge it presents. It really does take up a large part of your life, certainly with all the travelling to races, but I really enjoy the job. Obviously winning races is enjoyable. I cannot think of many jobs where you could get as much satisfaction, although you have to work hard for it. There is no other series like Formula 1; it really is the pinnacle. ■

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GRAND PRIX LEAGUE 2005



If you have ever harboured dreams of managing a Formula 1 team, now is your chance to have a go. Following a fantastic response last year – with over 12,500 entries received – Team McLaren Mercedes is once again running its online fantasy Grand Prix League at www.mclaren.com



WIN!
A VIP visit and lunch at the McLaren Technology Centre is the star prize on offer in the 2005 Grand Prix League.

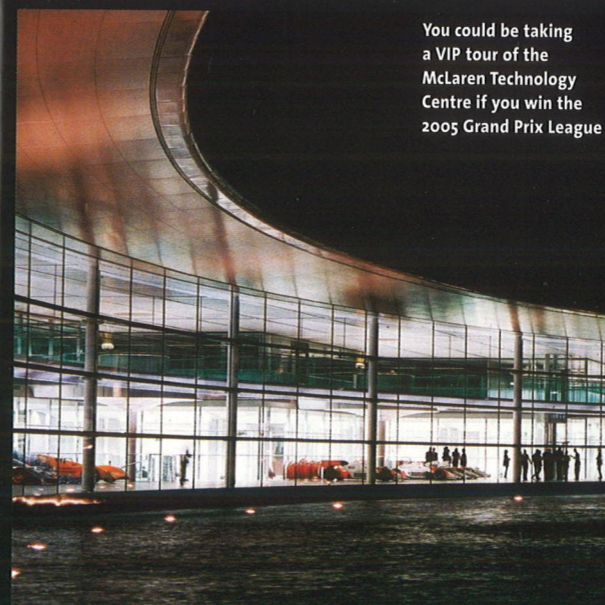
This year, two separate leagues are being run, one for the general public and one exclusively for Team McLaren members, giving you a greater chance of winning.

The rules will follow the same format as in 2004, with a fictional budget allowing entered teams to buy drivers and cars, with points awarded after each grand prix of the season. New teams can enter at any time during the year, but the earlier you join the league, the greater your chance of winning.

This year, not only will the highest placed

entrant win a TAG Heuer Formula 1 timepiece in signed presentation case, they will also receive an exclusive VIP tour of the McLaren Technology Centre. In addition to seeing how Team McLaren Mercedes works from the inside, they and a friend will also dine in the facility's VIP dining room and take home a goodie bag packed with Team McLaren merchandise and prints signed by Kimi and Juan Pablo.

The second-placed finisher will win a Team McLaren fleece and model car, while the third-placed finisher will win a model car. Bonus prizes will also be on offer during the year. Log on to www.mclaren.com now to find out how to register your team. Have fun and good luck!



You could be taking a VIP tour of the McLaren Technology Centre if you win the 2005 Grand Prix League

VICTORY SALUTE

MEMBER: Patrick Slabbekoorn
FROM: Rotterdam, the Netherlands
YEARS AS A TEAM McLAREN MEMBER: 7
FAVOURITE TEAM VICTORY: Mika Häkkinen, Belgian Grand Prix, 2000



If there's one race win of Mika Häkkinen's that will always stay in my memory, it has to be the 2000 Belgian Grand Prix. The Sunday morning was rainy – almost traditional for the Spa circuit – and Mika kept his lead from pole position at the rolling start.

As the track was drying, everyone opted for slicks from lap five onwards and Mika maintained a five second advantage over Michael Schumacher. That was until he drove one wheel over a painted white line and spun. Although he quickly continued, his lead over Schumacher was lost and a big chase began, lasting until after the second series of pitstops when Mika found himself right behind Michael.

On lap 40, at the long straight after Eau Rouge, Mika was getting ready to overtake out of the slipstream when Michael blocked and forced him on to the grass. Only Mika's lightning-quick reactions

avoided a high-speed accident.

One lap later – on the same piece of track – Mika repeated the move. This time, however, Mika and Michael found BAR's Ricardo Zonta ahead of them. As he was being lapped, Zonta stayed in the middle of the track and lifted off the throttle. Michael went round the left of the BAR driver, but Mika stayed in Zonta's slipstream fractionally longer and went round the right. It was very close, but all three cars somehow fitted on the same stretch of track and Mika shot past both of them to dive down the inside of the corner into the lead. It was the most fantastic overtaking manoeuvre for over a decade!

Mika won the race by only 1.1 seconds from Michael and led him in the World Championship standings by six points. Sadly Mika lost the Championship in Japan later that same year, but not without a fight, to say the least.

COMPETITION WINNER

Last year, we offered Team McLaren members the chance to win a wheel rim used by the team. We asked you to tell us which Partner supplies Team McLaren Mercedes with its wheel rims. Christian Ries Borchert of Denmark correctly identified Enkei as the supplier. Well done Christian, your prize is on its way.

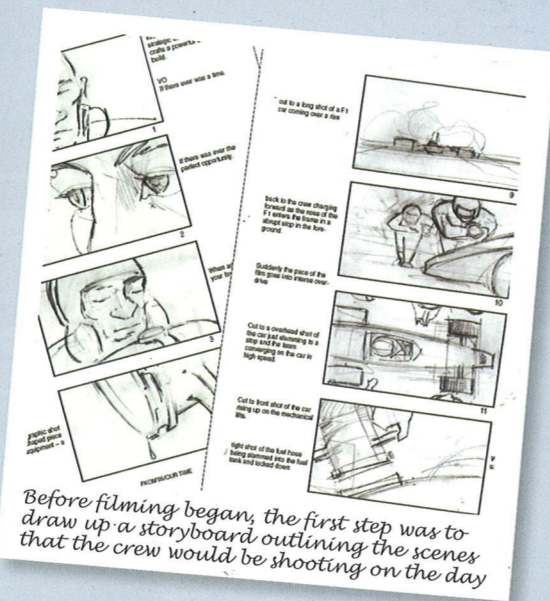
DON'T MISS IT!

If you went along to visit the Team McLaren stand at the Autosport International Show last month, then don't miss the next issue of *Racing Line*. These pages will be featuring a report and photographs from the show, which was held at the Birmingham NEC, so make sure you check it out for a unique account of the event.

POSTCARDS FROM SILVERSTONE

IN ASSOCIATION WITH CANON

Team McLaren Mercedes Corporate Partner SAP recently spent a day filming at the UK's Silverstone circuit and MP4-19 was the star of the show. *Racing Line* went along to take some snapshots of the day and find out how a mock pitstop was put onto film



Braving the cold weather, the film crew assembled to take a good look at MP4-19, which was the focal point of the day's filming



Lights, camera, action! In the Silverstone pit lane, the stage has been carefully set to make sure that the car is looking its best



The cameramen do everything to ensure they get the shots they need - you wouldn't see this sight during a grand prix weekend!



Just like a test session or race, there are monitors inside the garage. These, however, are to make sure the footage looks spot-on



Take one! The wheels become the focus for a frame as the filming pieces together an F1 pitstop



The cameras keep rolling as the final shots of the cockpit are captured and the hard day's work comes to a close - it's a wrap

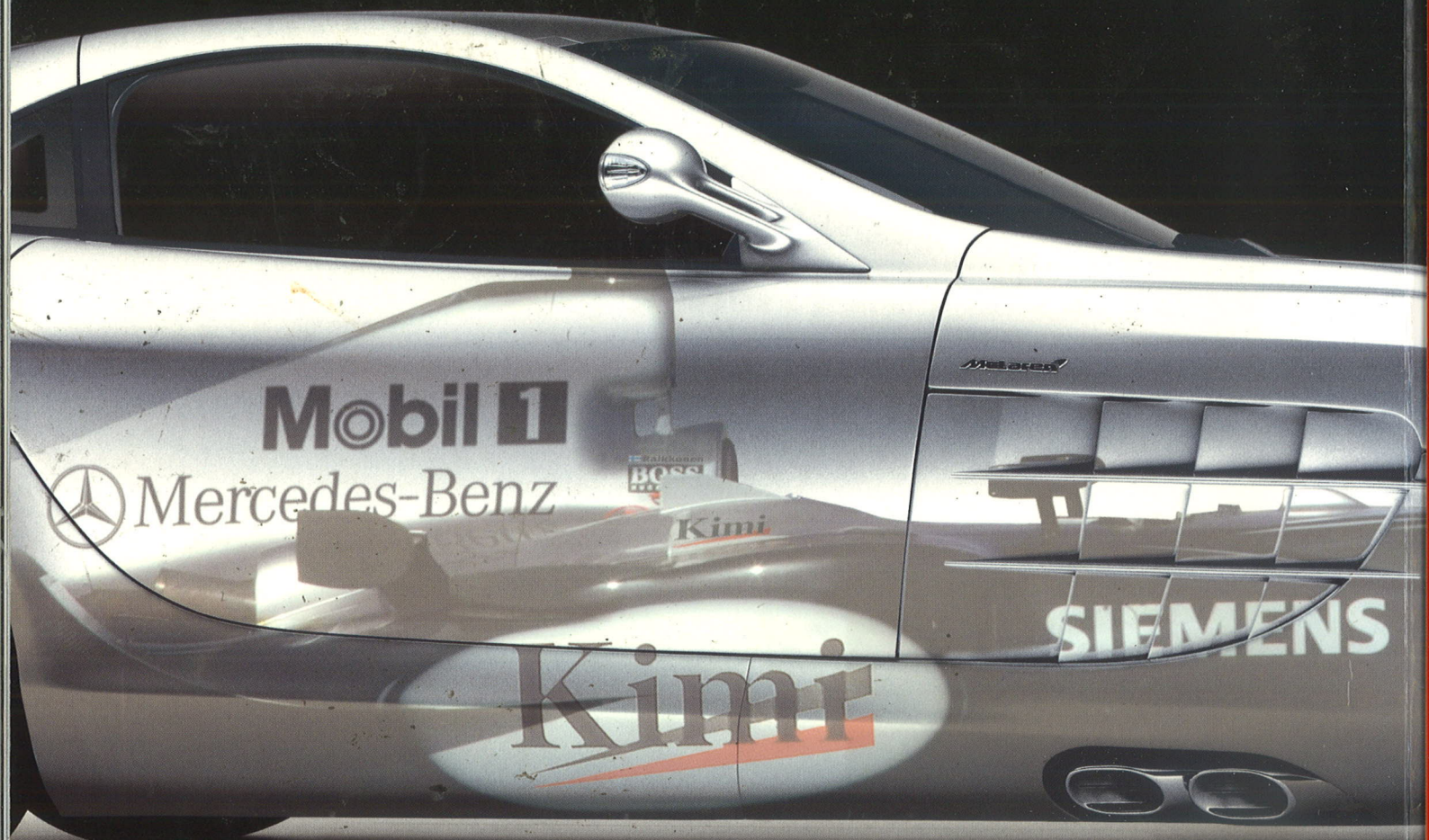
THE FUTURE IS HERE

Kick off the new season with the special season preview edition of *Racing Line*

IN THE NEXT ISSUE



A REFLECTION OF PERFECTION



What do the Team McLaren Mercedes MP4-19 and the Mercedes-Benz SLR McLaren have in common? Both rely on Mobil 1 with SuperSyn technology for advanced wear protection and enhanced performance. Mobil 1. Let it perform for you.



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