

# RacingLine

August 2004 £4.50  
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by **McLaren**



# KIMI UNCOVERED

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OUT HOW HE BECAME A FORMULA 1 SUPERSTAR

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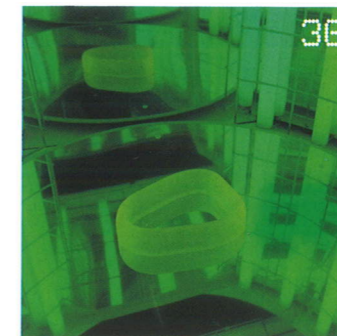


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"THE FIRST TIME I RACED OUTSIDE FINLAND WAS IN 1993. I WON THE SCANDINAVIAN CHAMPIONSHIP AND IT ALL STARTED FROM THERE"



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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

## RacingLine

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Portrait by Hugo Burnard



# InsideLine

Kimi Räikkönen's pole position and second place at the British Grand Prix provided proof to the outside world that Team McLaren Mercedes' Formula 1 challenge is back on track.

Kimi and David were consistently quick in the practice sessions at Silverstone, and Kimi's race pace in particular strengthened our belief that we have made a significant step forward.

The MP4-19B's performance not only reflects our positive progress in a technical sense, but also proves what a consistently good job the team has done in producing a car to what has been an understandably exacting deadline. Our progress also stands as a tribute to those who work back at base rather than in what might be described as the front line in the Formula 1 paddocks at every race across the world.

Kimi's performance was also the best way to demonstrate the true strength and depth of the company to our Partners who have invested in us and sustained their faith in our programme. They have been unwavering in the confidence they have displayed and we are all extremely appreciative of their loyalty.

Indeed, from the first test of MP4-19B we felt that the car had what it takes. We have been in the business long enough to discern quite accurately the emotional lift that is sparked by the first test of a new car, and whether or not it is taking you in the right direction. We did however take the conscious decision to downplay its potential rather than creating what might seem to be false optimism.

Of course, the British Grand Prix was only the starting point of what we hope will be a sustained trend which will eventually lead Team McLaren Mercedes back to the winners' rostrum. That process will be conducted very much on the basis of one step at a time, but by the Mobil 1 German Grand Prix we will have completed two simultaneous intensive testing sessions at Silverstone and Jerez and believe this will help to yield a little more pace. The signs though have definitely been positive so far, and we look forward to building on this for the remainder of the season.

**Ron Dennis CBE**  
McLaren Group Chairman and CEO

Kimi Räikkönen leads Siemens advertising push; Lewis Hamilton scores first Formula 3 victory

# KIMI SPEARHEADS SIEMENS CAMPAIGN

Team McLaren Mercedes racer Kimi Räikkönen recently took time out in his home town of Helsinki to visit Technology Partner Siemens.

The activity began with a short press conference in which Kimi spoke about the season so far and how he feels about being the centre of attention in a new Siemens Finland advertising campaign for the latest generation of Siemens mobile phones. The promotion has seen the young Finn's face splashed across Helsinki billboards. The tactical poster and print campaign features Kimi's thoughts before and after a grand prix.

After the conference, Kimi met with Siemens customers and VIPs for an event lasting well into the Finnish summer evening.



## DAVID VISITS HUGO BOSS IN TORONTO

David Coulthard visited Toronto on the Monday following the Canadian Grand Prix on behalf of Team McLaren Mercedes Corporate Partner HUGO BOSS.

HUGO BOSS gathered together a select number of customers, suppliers and media. Together with similar guests from event partners Mercedes-Benz and from Siemens, it made for a contingent of 200 guests waiting to greet David when he arrived at its main Canadian headquarters and showroom.

During an interview on stage, David explained how his Canadian Grand Prix weekend had developed and discussed the life of a Team McLaren Mercedes driver away from the racetrack. He also took time to answer questions from the guests.

He then picked the winning entry for a competition being held to win a Siemens phone. Mercedes-Benz supplied a Team McLaren Mercedes showcar for the event, shipped from Montreal the previous day.



PICTURE CREDITS  
MERCEDES-BENZ/LAT

## HENKEL GOES BIG IN US AND CANADA

Henkel, a Team McLaren Mercedes Official Supplier, made the most of the back-to-back grands prix in Canada and the US by hosting numerous customer events that offered great access to the behind-the-scenes action.

In Montreal, 30 customers attended a technical seminar on Henkel's on-going contribution to the team before getting a chance to explore the pit garage later in the afternoon. Henkel also hosted key customers in the Team McLaren Mercedes VIP Club hospitality as well as giving others the chance to view the race action from the grandstands at the exiting Casino hairpin. Further insights were offered on the eve of the race when a Team McLaren Mercedes representative spoke at a Henkel dinner.

The activity continued in Indianapolis, where 50 customers attended a three-day event in Henkel's VIP suite overlooking turn 1. Many stayed on for an exclusive 'ride & drive' event on the Monday after the race.



## LEWIS SCOOPS LANDMARK EURO FORMULA 3 VICTORY

McLaren and Mercedes-Benz-backed driver Lewis Hamilton continued his swift progress up the motorsport ladder when he won the ninth round of the Formula 3 Euro Series at Nuremberg's Norisring recently. It was the 19 year-old's first victory in the category.

Having started his Mercedes-Benz-engined Manor Motorsport Dallara from the front row of the grid, Lewis took the lead on lap 27 and held onto first spot for the final eight laps. He finished third in the next round, the following day, after being

hampered by problems with his brakes.

Lewis has blazed an impressive trail through the junior ranks before stepping up to Formula 3 this season. He modestly described his latest breakthrough as, "a great weekend for the team."

His drives drew praise from Norbert Haug, Vice-President Mercedes-Benz Motorsport, who said: "Our support programme for young talent is proving very successful. A driver who finishes on the podium at the Norisring will make his way in motor racing."

## CHILDREN'S CHARITY BOOSTED BY DRIVERS

Kimi Räikkönen, David Coulthard and Alex Wurz all made fundraising appearances for DaimlerChrysler in Montreal.

The Team McLaren Mercedes drivers took part in a charity event for the Starlight Children's Foundation, which helps seriously ill children and their parents.

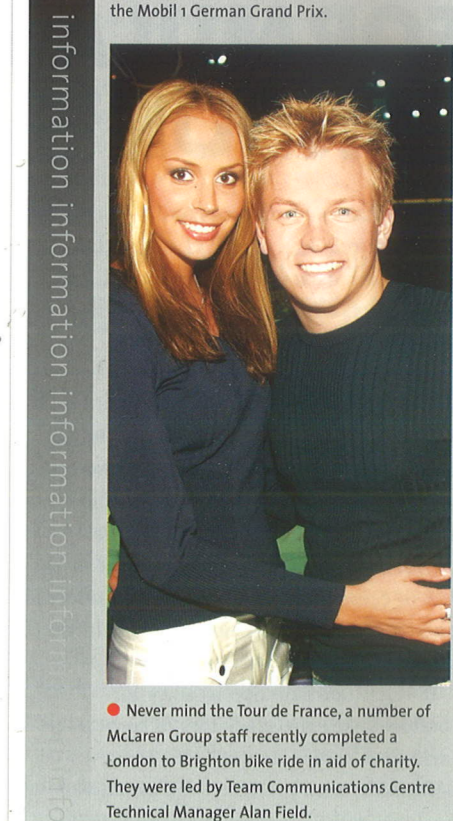
The function attracted over 1000 people to La Kermesse Place de Marie plaza on consecutive evenings.

The drivers took part in Question and



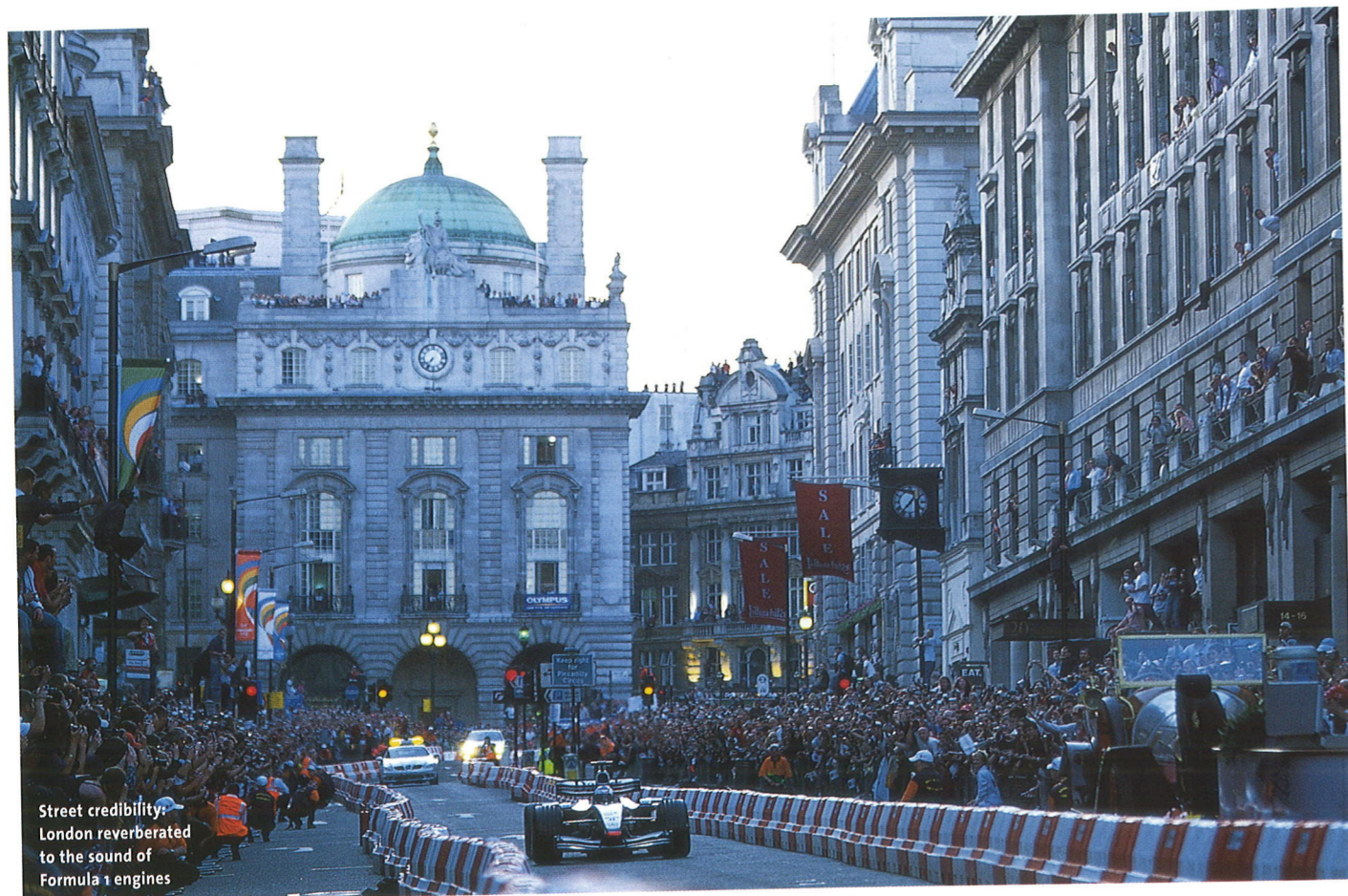
Answer sessions, as well as signing autographs for their many fans. The event featured a display of AMG cars, a boutique selling Team McLaren Mercedes merchandise, and auctions in which Kimi and David replica helmets raised in excess of 5000 Canadian dollars each.

• Kimi Räikkönen is to marry longtime girlfriend Jenni Dahlman in Finland once he returns from the Mobil 1 German Grand Prix.



• Never mind the Tour de France, a number of McLaren Group staff recently completed a London to Brighton bike ride in aid of charity. They were led by Team Communications Centre Technical Manager Alan Field.

Team McLaren Mercedes put on show in the UK's capital city; Kimi signs for Siemens in Montreal



Street credibility: London reverberated to the sound of Formula 1 engines

## FORMULA 1 COMES TO LONDON'S STREETS

Team McLaren Mercedes played a prominent role in a parade of cars as the glamour and excitement of Formula 1 came to the heart of London's West End in the build-up to the British Grand Prix.

An estimated 250,000-strong crowd watched an MP4-17D - a grand prix winner last season - as it was driven through Regent Street by David Coulthard. The distinctive sound of its Mercedes-IlmorV10 engine provided a huge contrast to the normal sounds shoppers would expect to hear in central London. No fewer than seven other Formula 1 teams also took part in the impressive high-powered parade.

"It was a fantastic opportunity for London to see the gladiators of sport - Formula 1 cars in action," said Harvey Goldsmith, who produced the ground-breaking event together with the Regent

Street Association and The Crown Estate.

"It was an attraction that drew attention worldwide. It will add to the case that the UK is capable of producing world-beating events such as the Olympic Games."

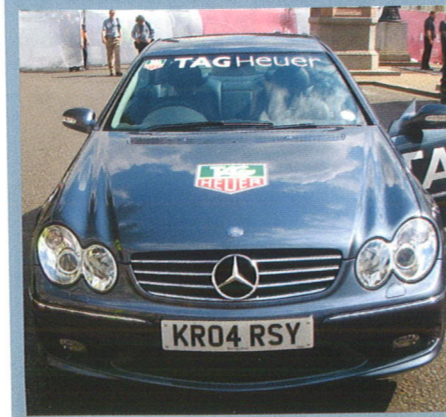
"This event has taken Formula One to the British people in the truest sense," said David. "It's a sport that can really attack your senses when you are experiencing it close-up. The spectators in London had a genuine experience of the sound and smells of the sport, heightened by the fact that we raced in such an enclosed environment with buildings on each side of the track. There was a fantastic atmosphere and it was great to put on a show for all the fans to enjoy."

The spectacular action was made possible by the closure of roads in Regent Street and the surrounding areas. All proceeds went towards promotion of the arts in Westminster.

## TAG HEUER KEEPS HIGH PROFILE IN THE CAPITAL

TAG Heuer enjoyed a high profile when Formula 1 came to London's Regent Street.

The Team McLaren Mercedes Official Timekeeper had planned an extensive promotion around the parade. It had 40 guests present for the event, in which it sponsored a Mercedes-Benz CLK 55 AMG official Safety Car. It was also represented on banners along the route through London.



## KIMI POPULAR WITH SIEMENS CUSTOMERS

Team McLaren Mercedes driver Kimi Räikkönen spent some time meeting staff and customers of one of Technology Partner Siemens' largest Canadian customers, Fido, on the Thursday prior to one of Formula 1's most popular races, the Canadian Grand Prix.

The Finn also found time to sign over 250 autographs for the many enthusiastic Formula 1 supporters who turned up and lined the trendy Rue St. Catherine in downtown Montreal.



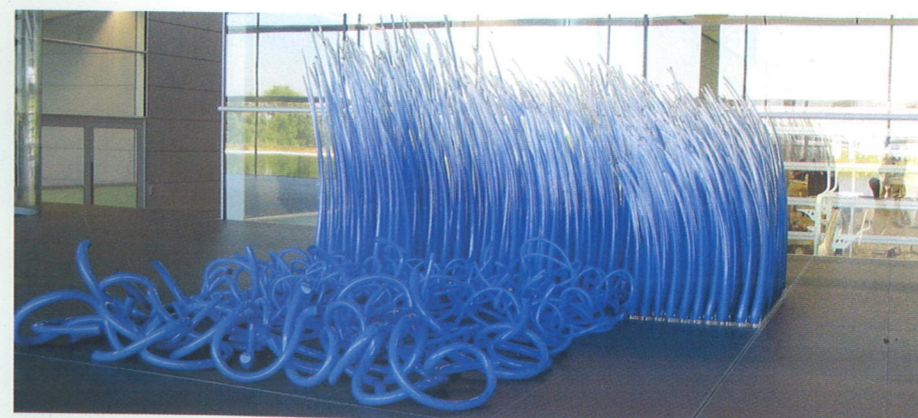
Kimi Räikkönen obliges autograph hunters during his trip to meet staff of Siemens' largest Canadian customer

## NEW COLLECTION SHOWN AT TECHNOLOGY CENTRE

An exciting new batch of Ioan Nemtoi's artwork is to be displayed in the McLaren Technology Centre. His distinctive glass sculptures are to be joined by items from his 'Blue' collection.

The artist joined McLaren Group

Chairman and CEO Ron Dennis, along with invited guests from the art world, at a special dinner at the McLaren Group's headquarters on July 7. The function offered the chance for a private viewing of Nemtoi's loaned work.



## WIN TOP PRIZES IN GRAND PRIX LEAGUE

Interest in the Team McLaren Mercedes Grand Prix League continues to snowball, with over 11,000 teams now entered.

In addition to the reward for the overall winner, who receives a TAG Heuer Formula 1 watch, excellent prizes are given away on a race-by-race basis. To date, prizes include a

Canon camera, Siemens SX1 phone, team shoes, signed pictures of the drivers, gloves, and a balaclava signed by Kimi Räikkönen.

There are still plenty of reasons to register your entry at [www.mclaren.com](http://www.mclaren.com). Future prizes include Grohe taps, a signed David Coulthard undershirt and a Siemens phone.

## ENKEI HOSTS ITS ANNUAL DINNER

Official Supplier Enkei held its annual team dinner at the famous Morton's steakhouse in Indianapolis on the Friday evening of the United States Grand Prix.

A representative of Team McLaren Mercedes was invited along to offer an insight into the Formula 1 squad's preparation for the race. He also fielded questions on Enkei's valuable contribution to the technical challenges faced in grand prix racing.

## MARTIN WHITMARSH GIVES KEY SPEECH

Martin Whitmarsh, Team McLaren Mercedes CEO, Formula 1, was the guest of Technology Partner Sun Microsystems at an official dinner over the Canadian Grand Prix weekend.

The evening was hosted by Sun Executive Vice President Network Storage Mark Canepa and by Sun Canada Vice President Stephane Boisvert. It was attended by key guests from across Canada.

Following a meal at The Crypt at the Notre Dame de Bon Secours, Martin gave a talk covering the team's on-track performance and the importance of its longstanding relationship with Sun Microsystems. He explained how the Partner's computer systems had helped to dramatically shorten the team's design cycles.

## BLOOMBERG HOLDS MONTREAL SEMINAR

Team Communications Centre Partner Bloomberg used the Canadian Grand Prix to showcase its new 'Bloomberg Anywhere' service.

A seminar held at the Sofitel hotel in downtown Montreal featured two presentations and a prize draw from which two lucky winners emerged with coveted grandstand tickets for the race weekend.

The event highlighted the business relationship between Bloomberg and Team McLaren Mercedes. A team representative gave a talk on the business side of Formula 1, drawing parallels between the need for fast, accurate data in the sport as in business.

LAP BY LAP

- 1 Kimi is sixth into the first corner; David is tapped from behind and spins to the back
- 2 David passes several cars to get back into 13th position
- 11 David pits for 8.3 seconds
- 12 Kimi pits for 7.8 seconds
- 17 Kimi is deemed to have crossed the line that divides the track and pit lane, and is handed a drive-through penalty
- 19 Kimi serves his penalty and drops to 10th
- 30 Kimi, running seventh, makes his second stop
- 32 David makes his second stop
- 45 An electrical problem obliges the crew to change Kimi's steering wheel at his final stop
- 53 David exits his third and final stop in ninth
- 60 Kimi has to stop for another steering wheel and loses sixth to Giancarlo Fisichella
- 70 Michael Schumacher takes the flag to win. The exclusion of Williams and Toyota elevates Kimi and David to fifth and sixth positions



The Canadian Grand Prix was certainly an eventful one for Team McLaren Mercedes, but the end product was the team's best result of the season so far.

The Ile Notre Dame Circuit is well known for being something of a car breaker, with its long straights and tight chicanes placing the emphasis heavily on power and braking ability.

In qualifying, Kimi and David both struggled to maximise their cars' potential, so eventual starting slots of eighth and ninth respectively represented a fair return.

Come the race, Kimi got away cleanly, passing the Ferrari of Rubens Barrichello. David, meanwhile, was tapped from behind while entering turn two and was immediately relegated to the back of the field. There followed some lively laps as David fought to make progress up the order.

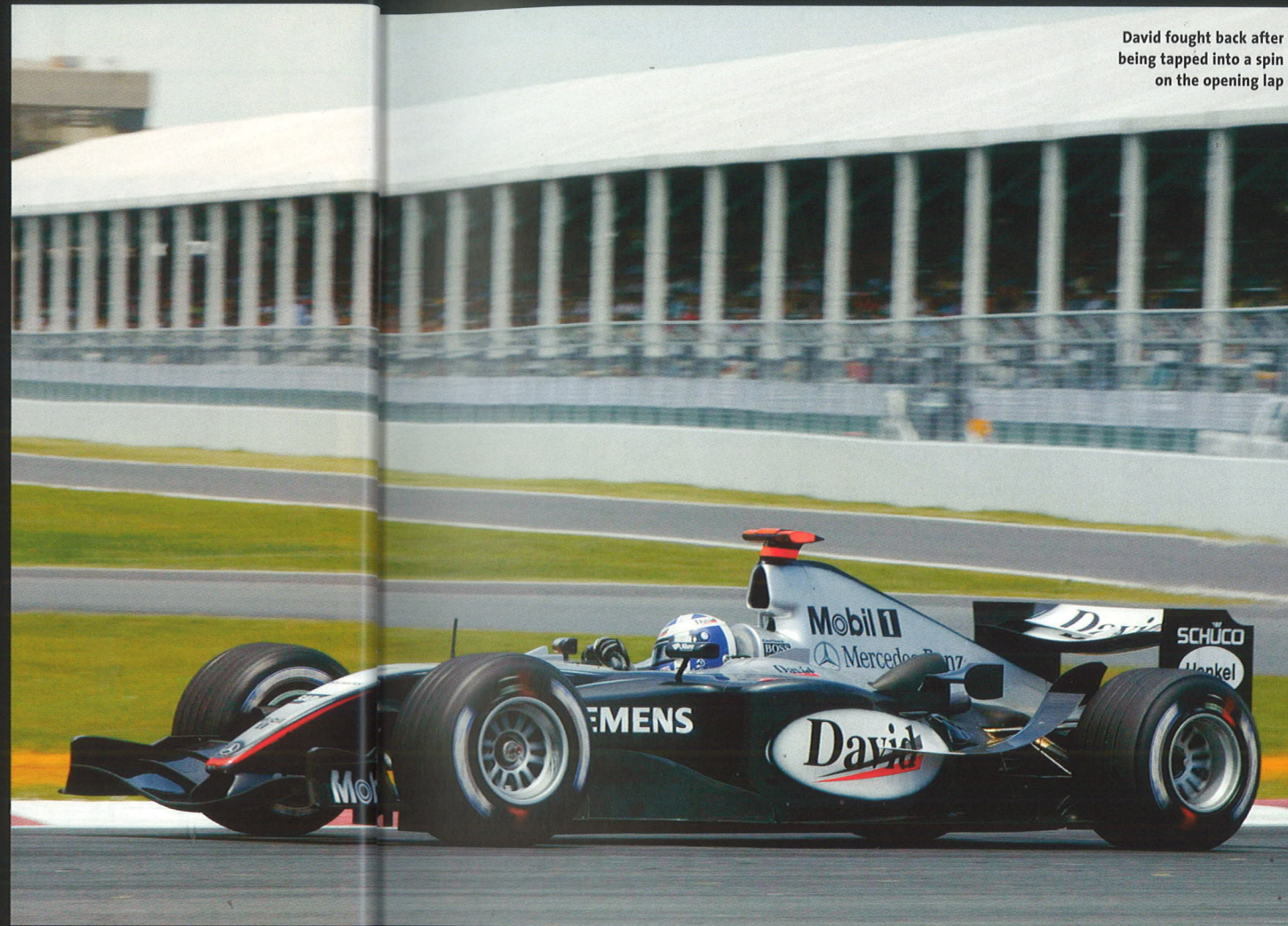
As the opening pitstop windows approached, David was the first Team McLaren Mercedes driver to come in on lap 11, rejoining in 16th place. Kimi was next in on lap 12. On his way back to the track, unfortunately, Kimi touched the white line that divides the pitlane from track – a drive-through penalty was the result. He did not lose any places, however, and was able to

rejoin in eighth position. By the time the next round of pitstops began on lap 30, Kimi was in seventh position; David was 12th. Kimi maintained his seventh place on track until his final scheduled stop on lap 45. He was, however, suffering from electrical problems which necessitated a change of steering wheel.

By David's third and final scheduled stop, he was up in ninth place, and a points finish was looking possible. After rejoining the track for the last time, both Kimi and David made a charge to the finish, ending the race in seventh and ninth places respectively. Later, however, both the Williams and Toyotas were excluded from the final classification. This promoted Kimi to fifth and David to sixth, bringing a valuable seven world championship points to the team.

"It was a difficult race, but I am pleased to score points," said Kimi before the post-race changes. "With five visits to the pits, seventh place is OK. We are going in the right direction."

Team Principal Ron Dennis commented: "The important aspect [of the race] is that both Team McLaren Mercedes cars finished, and now we can continue to increase our efforts to become more competitive."



David fought back after being tapped into a spin on the opening lap

"THE IMPORTANT THING IS THAT BOTH TEAM McLAREN MERCEDES CARS FINISHED THE RACE"

RON DENNIS, TEAM PRINCIPAL, TEAM McLAREN MERCEDES



Kimi overcame problems to salvage a points finish



PHOTOGRAPHY HOCH ZWEIF/LAT



TEAM ANALYSIS  
MARTIN WHITMARSH

"The Canadian Grand Prix is a very tough event on both cars and drivers, with brake-wear in particular a big issue. There are also very high-speed straights which place a lot of pressure on the engine, so we are reasonably happy to have got both cars to a points finish – albeit after other competitors had been excluded from the final race classification.

Kimi in particular had a very difficult grand prix, making several unscheduled pit stops to remedy an electrical problem. These problems resulted in a change of steering wheel, as many of the car's electrical systems are controlled using multi-position

rotary switches mounted on the wheel's central panel. So for him to come home in fifth place was a remarkable achievement. Regrettably, Kimi also received a drive-through penalty for touching the white line at the pit exit. Clearly, there is a lot of adrenaline and pressure on a driver to get back on to the circuit as quickly as possible, and on this occasion he just strayed off the correct line. Ultimately, a drive through penalty costs around 25 seconds on the road, but rules are rules and the team had to accept that.

Prior to the Canadian Grand Prix, Team McLaren Mercedes was clearly suffering from a performance and reliability deficit. This race appeared to represent something of a turning point as, despite a whole range of issues – some self-inflicted and some not – we were able to get both cars to the finish. To get two cars in points-finishes after the trials and tribulations of this particular event represents a small step in the right direction.

"BRAKE WEAR IN PARTICULAR IS A BIG ISSUE IN CANADA"

TALKING POINT

Montreal is renowned as one of the hardest tracks on the Formula 1 calendar in terms of brake wear. But why?

It is the extremes of flat-out straights yet slow corners and chicanes that cause the problems. Cars set their third highest maximum speeds all season at this venue, but they also record their third lowest engine speed of the year in the hairpins.

Like conventional brakes, the high-tech carbon-carbon matrix used in Formula 1 discs and pads wears down through the normal process of friction. But the brakes also wear through the process of oxidation, or the burning of the disc's surface, because they operate at temperatures in excess of 1000 degrees C! At Montreal teams use larger cooling ducts than normal to direct cool air onto the face of the discs and pads, but the ducts come with an aerodynamic penalty in terms of efficiency. And here, where cars require a low downforce configuration for the high speed blasts between chicanes, both braking performance and aero efficiency are of paramount importance.

Maximising brake efficiency in isolation is easy, as is optimising aero performance. To do both simultaneously creates a 'heads you win, tails you lose' dilemma.

RACE RESULTS MONTREAL

1	Michael Schumacher	1h28m24.803s
2	Rubens Barrichello	+5.108s
3	Jenson Button	+20.409s
4	Giancarlo Fisichella	+1 lap
5	Kimi Räikkönen	+1 lap
6	David Coulthard	+1 lap
7	Timo Glock	+2 laps
8	Nick Heidfeld	+2 laps

DRIVERS' STANDINGS

1	Michael Schumacher	70pts
2	Rubens Barrichello	54pts
3	Jenson Button	44pts
4	Jarno Trulli	36pts
5	Fernando Alonso	25pts
10	David Coulthard	7 pts
12	Kimi Räikkönen	5 pts

CONSTRUCTORS' STANDINGS

1	Ferrari	124pts
2	Renault	61pts
3	BAR	52pts
4	Williams	36pts
6	Team McLaren Mercedes	12 pts

LAP BY LAP

- 1 Kimi is fifth into the first turn. David runs 10th but the Safety Car is called out after an accident
- 6 The race is re-started and David grabs ninth by overtaking Mark Webber's Jaguar
- 9 Kimi is elevated to fourth by Fernando Alonso's puncture
- 10 The Safety Car is brought out again after Ralf Schumacher's crash
- 11 Both cars pit under the caution period
- 20 The race is re-started
- 29 Kimi pits again from third position
- 34 Kimi is delayed by an unscheduled stop to top up the engine's pneumatic air system
- 47 David pits and holds on to eighth position
- 51 Kimi passes David for eighth spot
- 54 David makes an unscheduled stop of 10.1 seconds to remove debris from his car's radiators. It drops him down to 10th
- 58 Kimi passes Webber for what Juan Montoya's exclusion has made into seventh place
- 61 Kimi pits for the final time but hangs on to sixth position
- 73 Michael Schumacher wins the race. Kimi finishes sixth, one spot ahead of David



Maximum attack: Kimi revelled in a well-handling car

The United States Grand Prix was an incident-packed, drama-filled spectacle that provided lots of talking points for both the teams and spectators, with overtaking, accidents, safety cars and penalties all adding to the rich mix. Kimi and David lined up on the starting grid in seventh and 12th positions respectively and both got away well to make up places. Due to an incident at the first corner, though, the Safety Car was called out as debris was cleared from the track.

After five laps, racing was resumed and Kimi maintained his fifth position while his team-mate moved up into ninth. On lap 10, a major accident involving Ralf Schumacher's Williams brought the Safety Car out yet again. Luckily, the German escaped serious injury. Team McLaren Mercedes took

advantage of the Safety Car period by bringing in both drivers for pitstops. After 18 laps the field was racing again, and Kimi held fifth while David had slipped down to 11th due to time lost in the pits. Kimi was soon in again, however, experiencing problems with his car's pneumatic air system. He rejoined in 11th place behind his team-mate. There followed some exciting wheel-to-wheel dicing with Mark Webber as Kimi battled to overtake the Jaguar. Having done so, he then passed his team-mate and was up to ninth.

The Finn then had to pit for another unscheduled stop on lap 34, this time rejoining 12th. David pitted for his second stop on lap 47, rejoining in eighth. The last scheduled stops beckoned, and David and Kimi came in on laps 54 and 59 respectively. Now it was a flat-out

sprint to the chequered flag in this race of attrition, and Kimi and David sat in seventh and eighth places.

Two more retirements, however, promoted Kimi to sixth and David to seventh at the flag. "I'm a bit disappointed as I believe I could have finished on the podium," said Kimi. "We had a strong race strategy, the car was handling well and I was able to really attack," he added.

His team-mate was similarly circumspect. "It was a difficult Sunday for me," he explained. "I picked up some debris which upset the balance of the car and made it difficult to handle."

"An eventful day for everybody at Indianapolis," said Team Principal Ron Dennis. "At least we managed to score five points, which is a small consolation in a race where we would have been truly competitive."

**"WE HAD A STRONG RACE STRATEGY, THE CAR WAS HANDLING WELL AND I WAS ABLE TO REALLY ATTACK"**

KIMI RÄIKKÖNEN, DRIVER, TEAM McLAREN MERCEDES



PHOTOGRAPHY LATA/HOCH ZWIL



David struggled as debris affected his car's handling



**TEAM ANALYSIS**  
MARTIN WHITMARSH

The United States Grand Prix was, in effect, dominated by Ralf Schumacher's accident in the Williams. This was a sharp reminder to everyone watching of the dangers inherent in Formula 1. Both Team McLaren Mercedes and the officials at the event were faced with the dilemma of wanting to continue with the race and compete, balanced with concerns – not about the safety of the Indianapolis circuit – but about the welfare of Ralf and the amount of debris that was strewn across the circuit. This debris, consisting mainly of sharp carbon fibre pieces from various cars, raised the possibility of damaging the car

or puncturing a tyre. Clearly, that caused some discussion within the team at the time. David's car was, in fact, damaged early on in the race by such debris. This affected its handling throughout the race, and David contended well with that around what is a challenging circuit. Indeed, during both drivers' scheduled pitstops there were significant lumps of debris that had to be removed. Kimi's car was also suffering with a pneumatic valve problem, and this meant the team had to make a series of unscheduled stops in order to keep him in the race.

Taking all these factors into account, getting to the end of the grand prix and scoring points was a reflection of the team's increased competitiveness. However, to strike a more cautionary note, we continue to work hard to ensure that problems such as those experienced by Kimi are eradicated. Nonetheless, we brought home both cars in the points for the second race in succession, and the team can take some satisfaction from that.

**TALKING POINT**

The first US Grand Prix, run at Sebring, was won by eponymous team founder Bruce McLaren in 1959. Since that date, Formula 1 has tried to establish a permanent home in the 'States, with varying degrees of success.

After being held at Sebring, Riverside and the sweeping Watkins Glen circuit, the race took on a nomadic existence as various venues jostled for the honour of a Formula 1 grand prix.

The Long Beach track, at which McLaren won twice in the 1980s, alternated for a time with Detroit, where McLarens also swept to a brace of victories. The race then moved to Phoenix, and McLaren continued its theme of 'Stateside success, winning all three grands prix that were held on the punishing street circuit.

After eight years away from the calendar, the US Grand Prix moved to its current base at Indianapolis, the self-styled "Home of International Motorsport", in 2000. Team McLaren Mercedes again proved that it likes to go racing in America: Mika Häkkinen took his final victory for the team in the 2001 event, shortly before he retired from the sport.

Indy hosted a race on the very first grand prix calendar, in 1950, and the signs are that the event has now 'come home' for good. "Indianapolis is," says F1 chief Bernie Ecclestone, "the Mecca of motorsport."

**RACE RESULTS INDIANAPOLIS**

1	Michael Schumacher	1h40m29.914s
2	Rubens Barrichello	+2.950s
3	Takuma Sato	+22.036s
4	Jarno Trulli	+34.544s
5	Olivier Panis	+37.534s
6	Kimi Räikkönen	+1 lap
7	David Coulthard	+1 lap
8	Zsolt Baumgartner	+3 laps

**DRIVERS' STANDINGS**

1	Michael Schumacher	80pts
2	Rubens Barrichello	62pts
3	Jenson Button	44pts
4	Jarno Trulli	41pts
5	Fernando Alonso	25pts
10	David Coulthard	9 pts
11	Kimi Räikkönen	8 pts

**CONSTRUCTORS' STANDINGS**

1	Ferrari	142pts
2	Renault	66pts
3	BAR	58pts
5	Team McLaren Mercedes	17 pts



LAP BY LAP

- 1 A problem drops David two places at the start, to fifth. Kimi makes up two slots, running in seventh place
- 11 Kimi's first pit stop takes 6.87 seconds. David makes the first of his three pit stops (7.78 seconds long)
- 12
- 28 Kimi in for his second pit stop (8.5 seconds). He resumes in seventh
- 29 David pits for a second time (8.8 seconds) but drops a position to sixth place
- 30 Kimi sets the third quickest lap of the race
- 47 Kimi's final pit stop is 9.3 seconds. He resumes right behind his team-mate
- 48 David's last stop (8.4 seconds) sees him continue in sixth
- 60 David leads Kimi by just 0.9 seconds
- Michael Schumacher wins the Mobil 1 French Grand Prix from Fernando Alonso. Rubens Barrichello dives past Jarno Trulli at the final corner to snatch third. David finishes sixth, Kimi seventh



The race result might not have highlighted the fact, but the Mobil 1 French Grand Prix marked an important step forward in Team McLaren Mercedes' season.

Running MP4-19B for the first time at a race weekend, David Coulthard and Kimi Räikkönen immediately felt at home in the car. It showed, too, as David qualified in third position on the grid.

While the media gave him the plaudits for a fine performance, David was quick to pay tribute to all the work that had made the position possible. "The hard work of the whole team is leading us in the right direction," he said.

"David's excellent grid position is a good reward for a lot of effort from the team," agreed Team Principal Ron Dennis. "Both our chassis and engine performance have taken a positive step forward."

David's team-mate could have been high up the order, too, but he made a mistake and pushed too hard at the first corner on his flying lap.

Though disappointed with ninth position, Kimi found some consolation in the pace of MP4-19B. "It is obvious to everybody that the car shows potential," he said. "I feel

very confident driving it." At the start of the race, David unfortunately experienced a problem that dropped him two positions to fifth. Kimi, by contrast, gained two places to run seventh.

Both cars were on a three-stop strategy, with every tenth of a second spent in the pits vital to a driver's position in the close battle that quickly developed.

Both drivers held station at the first round of pit stops, but Kimi moved onto the sister car's tail after the second scheduled stops, in which David lost a position to the Ferrari of Rubens Barrichello.

By the time the third stops were at an end, the pair were separated by under a second. With no direct pressure from behind, they finished nose-to-tail.

Sixth and seventh positions earned five points for Team McLaren Mercedes. More importantly, perhaps, the MP4-19B had demonstrated both pace and reliability.

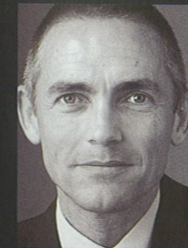
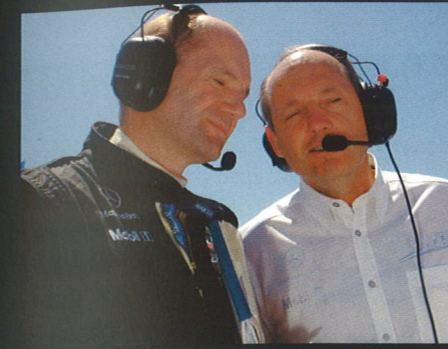
"We now know that the 'B' in the revised car's name means 'better,'" suggested Vice-President of Mercedes-Benz Motorsport Norbert Haug. "This is a good starting base for further improvement during the year."



CLOCKWISE FROM TOP: Adrian Newey and Ron Dennis discuss MP4-19B; David flat-out on the long straight; Kimi getting some air over the Magny-Cours kerbs



David's sterling qualifying performance made him the focus of much attention



## TEAM ANALYSIS

### MARTIN WHITMARSH

"The Mobil 1 French Grand Prix was the first in which Team McLaren Mercedes had run MP4-19B, and the car certainly looked to have provided a reasonable performance step over its predecessor. Both Kimi and David topped the timesheets at various parts of the weekend leading up to qualifying, so it was something of a disappointment to not have both cars at the sharp end of the grid for the start of the race.

Unquestionably, though, MP4-19B represents a step forward for the team, and we continued our recent run of both cars' finishing in the points. David's third place

in qualifying was very positive; it was unfortunate, however, that Kimi didn't string together the qualifying lap that he and the car had the potential to do.

In the race, David had a small technical problem at the start which inhibited his ability to get off the line and cost him two places. Kimi, meanwhile, had no problems and managed to gain two places. Thereafter, the pitstops and traffic didn't go quite as we would have hoped, but that's the nature of Formula 1. In the final analysis, Team McLaren Mercedes got a result which was solid, but, given what we believe to be the performance capability of the new car, it was somewhat disappointing.

We don't believe that the performance that MP4-19B indicated was a one-off, and we hope that we will be able to demonstrate that at the next race, the British Grand Prix – one of the team's home races. Formula 1 is demanding and I want to thank the team at McLaren and Mercedes-Ilmor as well as our Technical Partners for their efforts in realising MP4-19B.

**"UNQUESTIONABLY, MP4-19B REPRESENTS A STEP FORWARD FOR THE TEAM"**

## TALKING POINT

The Mobil 1 French Grand Prix marked the debut of the Team McLaren Mercedes MP4-19B, and the signs were that the car offered an immediate improvement in performance.

The car features a revised rear suspension and bodywork, different sidepods and many detailed changes compared to its predecessor.

The decision of when to commit any new components into the white hot heat of Formula 1 competition is always a difficult one. Team McLaren Mercedes opted to race the MP4-19B at Magny-Cours only after two demanding test sessions had demonstrated the machine's speed and reliability.

From the outset of qualifying in France, its improved performance was evident, too. David Coulthard's best starting position of the season, third on the grid, further underlined the car's potential.

So did the fact that team-mate Kimi Räikkönen set the third fastest lap of the race, in 15.791 seconds.

"It might not be apparent from our finishing positions," said Team Principal Ron Dennis after the grand prix, "but the MP4-19B is definitely a significant step in the right direction."

"The speed of the 19B is good," suggested David, "and I'm confident for the rest of the season, particularly as we have further developments coming."

### RACE RESULTS MAGNY-COURS

1	Michael Schumacher	1h30m18.133s
2	Fernando Alonso	+8.329s
3	Rubens Barrichello	+31.622s
4	Jarno Trulli	+32.082s
5	Jenson Button	+32.484s
6	David Coulthard	+35.520
7	Kimi Räikkönen	+36.230s
8	Juan Pablo Montoya	+43.419s

### DRIVERS' STANDINGS

1	Michael Schumacher	90pts
2	Rubens Barrichello	68pts
3	Jenson Button	48pts
4	Jarno Trulli	46pts
5	Fernando Alonso	33pts
9	David Coulthard	12 pts
11	Kimi Räikkönen	10 pts

### CONSTRUCTORS' STANDINGS


1	Ferrari	158pts
2	Renault	79pts
3	BAR	62pts
5	Team McLaren Mercedes	22 pts



# MADE TO MEASURE

The Mercedes-Benz SLR McLaren is no ordinary car. It is fitting, then, that it should be produced in an extraordinary way. *Racing Line* found out more

WORDS BRUCE JONES PHOTOGRAPHY DAIMLERCHRYSLER

 The Mercedes-Benz SLR McLaren has set new standards for road-going supercars, embracing race-bred technology with awesome build quality, and this affords McLaren Cars enormous pride as the cars emanate not from Stuttgart but from Woking. Indeed, they're assembled at the McLaren Technology Centre. The architecturally exquisite glass and steel edifice is certainly not a typical manufacturing plant. Then again, how many automotive manufacturers would not only

include their production line at their headquarters but encase it with glass walls so that everyone can look in? But then, the Mercedes-Benz SLR McLaren is no ordinary car...

A tour of the production facility, in which a car goes from an unpainted monocoque to a ready-to-go supercar in 15 days is an eye-opener, proving that a car can be put together in a facility in which the floors are clean enough to eat one's lunch from. >>



1

"The SLR's carbonfibre monocoque arrives by truck from McLaren Composites in Portsmouth," explains Dilys Wood, who runs the Paint Shop. "The boot lid is made from glassfibre so that the SatNav equipment in it can work. This, the side panels, bumpers and mirrors are delivered separately and a 'car set' is then assembled for each car."

These are taken to the Paint Shop where there are five preparation and spray booths along one wall of a glass-sided hall that overlooks the Build Hall. Tailor-made trolleys that carry all the body panels line up outside, with a separate trolley for the doors.

"Each car is taken into the multi-stage priming process," reveals Wood, "to eliminate surface defects. The second primer stage uses a flex primer to guard against stone chipping that is high gloss to help identify any further defects."

Applying the top (colour) coat is a two-stage procedure, using a water-based colour that must be allowed to dry to a matt finish and then a clear coat that gives the gloss ultra-violet protection so that it will hold its colours, not fade like cheap family saloons from the past.

"Finally, each car is given a full-flat polish," says Wood, "with three stages of 'flatting', in which the surface is rubbed with ultra-fine sand paper

to remove any texture before the car is polished back to a very high gloss. There's only Laurit silver and Galaxit black, colours unique to the SLR, and both designed to have a dramatic effect in bright sunlight. The silver is made so that it's a clean and crisp silver with a bright sparkle thanks to its large flake pigment. In the black, a coated pigment is used, with blues, reds, greens and golds in its metallic mix for a rainbow effect. Later this year, there'll be a choice of 12 colours and, ultimately, a customer will be allowed to choose any colour they like."

It takes five days from arrival at the Paint Shop to coming out at the other end, at a rate of two cars per day.



2

Production Manager John Hunt has been involved from when the McLaren Technology Centre was little more than a muddy field, so he's the ideal guide to the nine work stations that run through the Build Hall and the tasks that his staff of more than 60 have to undertake in the building of the SLR in his pristine facility.

"Station 10, the first one in the Build Hall, is where we mount the wire harness and front bulkhead heat-shielding plus the wiper motor linkage, ECUs and the electrics," he explains,

"with the wiring harness weighing in at 35kg and stretching 1.2 miles if laid end-to-end. At Station 20, we work on the interior, adding the fascia but not the stereo and some of the electrics, the rear cell [luggage] stowage, headlining and fuel cell carpets. Then, when all this is done, we mount the doors. Station 30 is where the front suspension is added, along with the front brake calipers and anything ahead of the front bulkhead, including the engine oil reservoir, some of the brake pipes and the frontal crash structure."

"The engine, weighing in at 250kg," says Hunt, "is fitted at Station 40, along with the brake pipes, rear differential and rear suspension." To facilitate this, this station is one of two fitted with a lift. Even this comes out of a simple floor hatch, emphasising how everything was considered when the McLaren Technology Centre was at planning stage, leaving nothing such as wires to run across the production area.

Hunt explains how the stations are staffed: "The staff operate to a strict structure, with four to six people in each team plus a relief technician who is the senior person on each station, training the others and covering for their holidays. We also have three team leaders who look after on average five relief technicians. Each team stays on their respective station but, eventually, the idea is to get every team member trained to the extent that they can do any job and thus work at any station along the line. For now, though, it's best to get them really skilled in their production area so that we can bring the standards up and iron out any glitches in this early stage of production."



"Station 50 is where we do the glazing and the plumbing," says Hunt. "That means front screen, rear screen and quarterlights, plus the exhaust, radiators, rear brakes and batteries."

At any stage on the line, the technicians might find themselves being watched. "It gives the team a buzz when famous clients come in to see how their SLR is coming along, like David [Coulthard] or Kimi [Räikkönen]," grins

Hunt. "Ron [Dennis] is a big influence and the team like it when he asks questions."

It's a very different environment to what all of us are used to, with the glass meaning that people can see us all of the time. You see a lot of smiles and everyone working on the line has a puffed-out chest as they're all so proud of the McLaren brand and of the vehicle that they're building."



"Moving on to Station 60," continues Hunt. "This is for fluid fill and fire up, as we check for leaks, with the exhaust gases from the engine being piped away through a vent in the floor. It's here that we do the first IS (information systems) check." As much of the interior is missing, it's easy to get at any faults that might need correcting.

Moving on to Station 70, Hunt explains: "This is where the interior trim is fitted, with a choice of four colours: berry red, 300SL red, grey and black. It's also where the seats, false floors (these go at the front of the driver and passenger footwells, and contain the electrics), steering wheel, centre stack and hi-fi system are mounted."

"Station 80 is where the external panel fit is carried out, including the bonnet, side panels, exterior lights and boot lid. This is the first point at which it really looks like a car. If at this stage it's noticed that there is a chip or a mark in any of these panels, we call through for Dilys from the Paint Shop and evaluate if we can do an on-the-spot repair on the vehicle or whether we have to find a booth slot and send it back to the Paint Shop. This touches on the point that there are no reprisals for making mistakes, but that there are reprisals for people who make mistakes but fail to admit to them, as the worse the trouble becomes the further the car travels down the production line before the mistake is identified."



6

"It's at Station 90, the last in the run down the Build Hall, that we add the underfloors, and this is crucial as the SLR is flat-bottomed. Also, this is the stage at which the wheels go on and where the second IS check is performed plus the end-of-the-line audit. This audit is only adjudged complete when it has stamps of completion from each of the team leaders at each of the nine stations. Once they've stamped the form,

they're responsible for that work done.

Actually, it's a two-pronged audit as it's done both on paper and by computer as every person on the production line has a swipe card and uses it to sign on to the computer at the station at which they're working so that we can tell at any time who is or was working on what, what quantity of fluids they have added or what parts they have been responsible for fitting before

signing off their work electronically.

The paperwork is merely to show that this electronic sign-off has been completed from each station. If there is a problem with a part that would delay the production line, it's possible to send that car on to the next station provided that the missing part is entered in the Build Exception log. However, no car will ever leave this final station, Station 90, until everything is signed off."

Next up is a visit to the Set-up Bay, with ride height, corner weights, castor, camber and toes being set and the car's weight being recorded. Each car is then taken to a booth and put on a four-post hydropulse simulator on which it's shaken about so that any squeaks or rattles can be identified and sorted.

Then each car is put through 40 minutes on a rolling road at up to 250kph to reaffirm all the mechanical and electronic systems, including the brakes as well as the temperature and levels of all of the fluids. Then it's sent to the Monsoon booth where it's sprayed by very high pressure jets to check seal integrity. Having been dried, each car is wheeled to the final finish area from which it currently gets taken for a shakedown at a proving ground, before being brought back for its final polish and having its decals added.



7



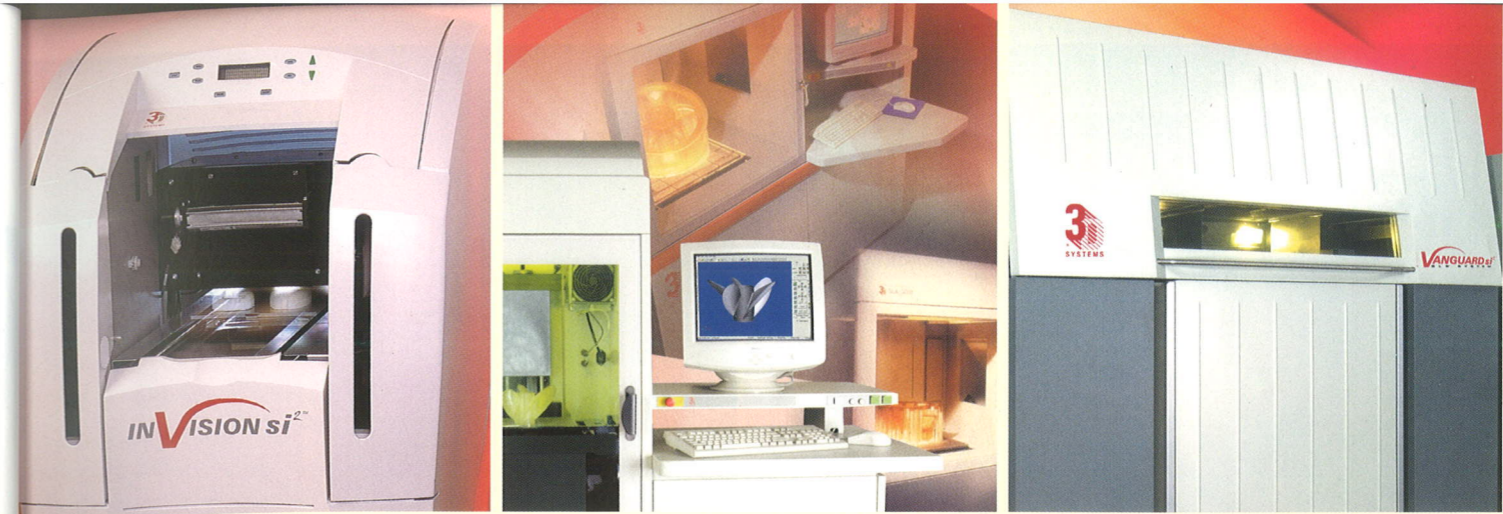
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The quality audit department carries out the final sign-off, making thousands of qualitative checks in addition to a full electronic audit. "At each station, there's a set criteria from the quality guys that they check other than the checks that we do," explains Hunt.

"So, the team on our electronics systems have a full set of checks that they do to sign off. Audit will do a random check to make sure that it's OK. They also check for marks and the flushness of panels. It's a massive part of the build programme, with about eight people in the department. The aim, though, as the process becomes more streamlined,

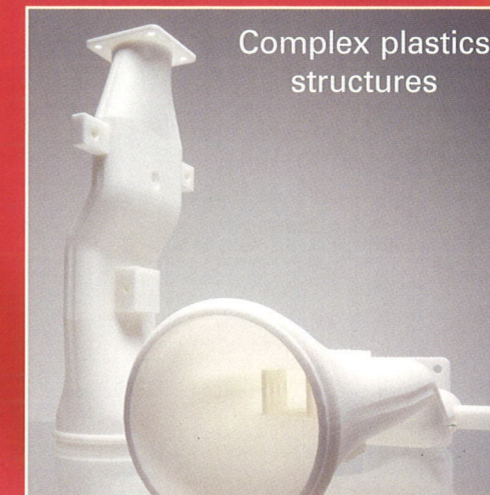
is for the quality audit department to be redundant as they'll be finding nothing wrong with any of the cars that reach them." From entering the Build Hall to sign off takes 10 days.

As always, the question has to be asked about whether the process could be done more efficiently and with his lengthy experience of automotive production, Hunt reckons that a large volume manufacturer would have less work done at each station, but more of them. For boosting the rate of output, there's also the option of stepping up from the one eight-hour shift that is run currently. ■



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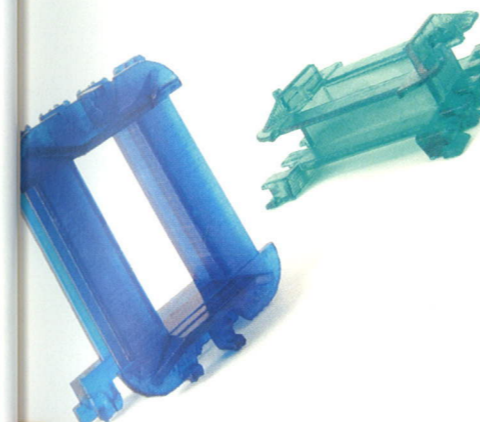
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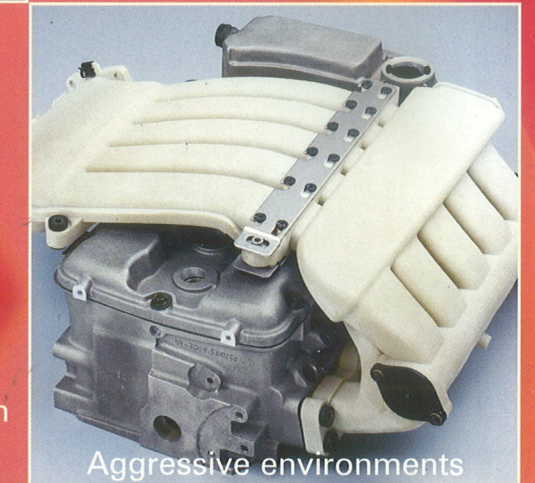
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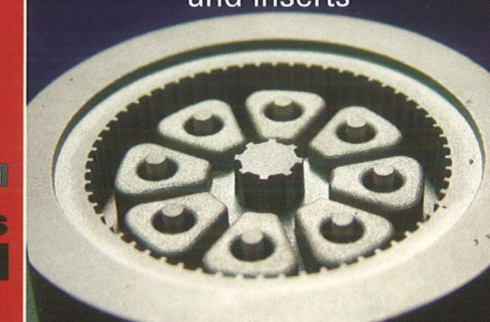


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Former McLaren Formula 1 driver **Martin Brundle** has turned his hand to commentating on grands prix for British broadcaster ITV. He talks to *Racing Line* about his time with McLaren, the buzz of live broadcasts and Formula 1's continuing expansion

WORDS MARK SKEWIS PHOTOGRAPH CHARLES COATES/LAT

**You drove in the Formula 1 parade in London's Regent Street. What were your feelings about the concept?**

I think it was great to take Formula 1 to the people. It was amazing to be cruising up Regent Street in a Formula 1 car and to see all the regular street signs, traffic islands and things you are used to seeing from the back of a cab! I couldn't believe the crowd, either – it was just huge.

**Why is it so important to be able to take the show to the people?**

It's important because although you want Formula 1 to have an element of the untouchable, that bit of mystery that adds to its appeal, we don't want the sport to become too remote from the fans. It's difficult for the drivers because at a grand prix they have so much to achieve and any distractions make that job harder. At the same time, it's important that they remember the people who give up time and money to support them. Events like the one in Regent Street redress that balance.

**It's now 10 years since you raced for McLaren. What stands out for you when you recall your time with the team?**

That's an easy one: second place in the Monaco Grand Prix. I remember standing on the podium as if it were yesterday. Moments like that never fade. I can recall being pretty frustrated because the winner, Michael Schumacher, had nearly gone off on oil towards the end of the race. It was miraculous that our car had got to the end of the race, though, because we had lost nearly all of our oil and water. I breathed a huge sigh of relief at the finish.

**You were a very experienced Formula 1 pilot who had driven for many teams. How did you find McLaren?**

It was a difficult year because we were struggling with the reliability of the Peugeot engine, and in that respect I was in the right place at the wrong time. But it was still clear to see the way that a team of McLaren's calibre operates. There is no one magic ingredient in Formula 1. Instead, it is all about a vast number of small details and the mindset of going to a race, with the intention of winning it, rather than just scoring points. The might and depth of the team was immediately evident, and with that comes a rise in the pressure on a driver. When you shut the latch of your front door and head off to a race, you do so with a different mindset that sets the tone for the weekend. The mindset at McLaren has never changed – it is all about winning.

**You were reunited with old friends recently for the opening of the McLaren Technology Centre. What did you make of the new facility?**

It's a super-impressive workplace. It's a showpiece to the outside world but also for the people within who are building the team's future. It is bound to make a big contribution to the Formula 1 team and the McLaren Group as a whole.

**Tell us about your commentary role for ITV. You used to insist that it wasn't a 'proper job' – have you changed your mind about that yet?**

Yes I have. It is a serious job and I have a serious role to play. I am informing a lot of people who actually

give up their time to watch one of their favourite sports. It's a big responsibility to keep them up to speed, to inform them and, hopefully, add to their understanding and enjoyment of the sport.

**You took to the role easily. Why do you think that was?**

As a driver, I always had a good understanding of what I was doing technically. I was also told that I was a good interviewee. I guess there has always been a bit of car dealer in me as well, so I am used to a bit of banter!

**Do you get nervous before going on-air for a broadcast?**

I don't get nervous commentating but I do admit to getting a little bit nervous on the 'grid walks' that I do before a race. It is insanely difficult to do because it is live and unrehearsed in front of what can be as many as nine million people! Live television gets my adrenaline running to such an extent that now I don't like doing recorded television. I think that's because I'm hooked on adrenaline. I reckon live television gives me 30 per cent of the buzz I used to get from racing a Formula 1 car.

**What do you make of the new racetracks on the Formula 1 calendar?**

I enjoyed Bahrain and I'm looking forward to Shanghai. A mix of modern racetracks and some traditional stuff, like a bumpy Monaco, is great. Although the new circuits are incredible, you cannot underestimate the tradition and heritage of a track like Monaco, Monza or Silverstone. To me, that quality is irreplaceable.



# RUNNING



# UP THAT HILL

Each year, thousands of people make a pilgrimage to Goodwood in England for a truly unique motorsport event. Racing Line joined Team McLaren Mercedes for the occasion

WORDS LUKE HAYTER PHOTOGRAPHY ANTHONY CULLEN



Have you ever seen a Formula 1 car in your back garden? Chances are you haven't, but it is possible to catch a glimpse in one particular English plot – that of Lord March at Goodwood house. The annual Goodwood Festival of Speed, now in its 11th year, offers motorsport enthusiasts the opportunity to get up close and personal with some of the world's greatest motorsport machinery. From Formula 1 to Le Mans, rallying to drag racing, the Festival is a bona fide motorsport nirvana.

Run over three consecutive days, the event attracts some of the top names in the sport, including, of course, Team McLaren Mercedes. The team has two drivers in action this weekend: Test Driver Pedro de la Rosa and Darren Turner. Both will take a turn in 2003's race-winning MP4-17D to entertain and enthral the vast crowds.

The purpose of the event is to allow competitors from all classes to take a run up the Goodwood hillclimb course, which snakes through the grounds of the estate. The strip is very narrow, and lined with straw bales on either side. Indeed, the set-up is reminiscent of an earlier, bygone era of racing. During the course of the weekend, there will be hundreds of different machines taking on the challenge. The highlight for many of the spectators, though, is the plethora of Formula 1 cars – both past and present – that will be demonstrated.

"The hill seems to get narrower every year," jokes Darren. "The straw bales are very close to the track, especially at the top of the hill. The reason that we do demonstration runs – as opposed to pushing hard – is that if you go past the crowd really quickly, no-one really gets to see anything except a blur! So, instead, we drive fairly slowly then stop, rev the engine, spin the rear wheels and put on a bit of a

show. This makes life safer for the drivers as it means we're not having to hang the car out on the ragged edge."

Fast-forward to 09:00am on the third and final day of the Festival, and the grounds of Goodwood House are alive with people. There are a range of entertainments on offer during the course of the event, including fly-pasts from such diverse aircraft as a World War II Hurricane fighter plane and a Boeing 747 jet. While the latter arcs gracefully overhead, the grounded blip-blip of a throaty engine being throttled pierces the air. It's the kind of noise that makes people stop and turn their heads to see where it's coming from – the racing cars or the jumbo jet: where to look?

The cars that Team McLaren Mercedes have here today are the responsibility of the McLaren Group's own Heritage Department. There are few Formula 1 outfits that can boast such a prestigious and historic line-up of cars, and they prove a popular draw for spectators over the course of the weekend.

Among the stellar fare on display are: MP4/2C, the car in which Alain Prost won his second Drivers' World Championship; the iconic M23, piloted to the title by James Hunt in 1976; the all-conquering MP4/4, which won 15 of 1988's 16 grands prix; MP4/5B, another world championship winner in the hands of Ayrton Senna; MP4/6, in which the

**"THE FESTIVAL OFFERS THE CHANCE TO GET CLOSE TO SOME OF THE WORLD'S GREATEST MACHINERY"**



LEFT Darren Turner flies between the narrow hay bales.

ABOVE What Goodwood is all about: getting close to your heroes

RIGHT Drivers and fans alike enjoy the day, with Gil de Ferran particularly relishing getting to grips with Ayrton Senna's MP4/8



great Brazilian was champion again; and finally, MP4/8, the car in which Senna won his last race for McLaren.

"The choice of which car we will be bringing to Goodwood is made early in the year," explains Ian Gosling, Head of McLaren's Heritage Department. "Depending on which car it is, we can plan what work is required for it.

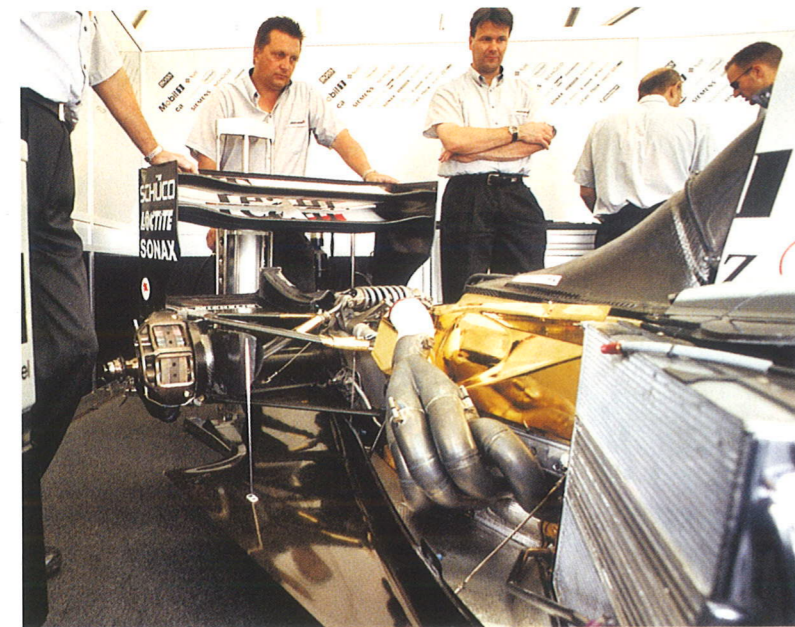
"MP4/8, for example, underwent a full restoration prior to the 2003 Festival, so it didn't need much work to be ready for this year, save for a short shakedown run on the Stowe circuit at Silverstone a few weeks ago."

Before any cars turn a wheel, the several members of the Heritage Department who are working here today have to run through a checklist. This ensures that all essential systems on the car are in perfect working order. It is also commonplace to fire up the engine for a final check before the car leaves the paddock area. This incredibly loud display draws crowds towards it, and the people stand close by, as if letting the noise of the powerplant soak right through their skins.

The sun is shining brightly by now, and it brings with it a burst of warmth that permeates the entire paddock. It also adorns the cars with a jewel-like quality, inviting their lines to twinkle and dance among the greenery. The relaxed and informal air of the Festival is palpable, adding to the uniqueness associated with the event. However, there are other reasons to be cheerful. Not the least of >>







**“EVEN AS A FORMULA 1 DRIVER MYSELF, I LOVE TO MEET MY HEROES”**  
**PEDRO DE LA ROSA, TEST DRIVER**

which is the chance for the spectators to really rub shoulders with their racing heroes.

Darren is effusive about the place that the Festival occupies in the motorsport calendar. “There’s nothing else like this in the world,” he admits. “There’s such a relaxed atmosphere. Because of that, the spectators are really easy-going and patient. It’s not like a grand prix, where the fans have little chance to get access to the cars and drivers. It’s a great opportunity for everyone to just enjoy their motorsport without the spectre of competition looming over proceedings.”

A special Formula 1 paddock has been constructed, and the majority of the cars that will be running – and some that will not – sit, becalmed, while a thousand pairs of eyes study each aspect of their curvature. There are some spine-tingling machines here, from the monstrous early grand prix racers through sleek, cigar-shaped 1960s machines right up to the wide, muscular cars of the 1970s and ’80s.

“I’ve found lots of cars that are of interest to me, and it’s great that there are so many fantastic machines and drivers together in one place,” continues Darren. “I drove the MP4/8 at this event last year and that was really special. It was a great privilege to be given the opportunity to drive a car with such history and prestige. When I started to follow Formula 1, the MP4/8 was, in my opinion, one of the most



beautiful racing cars ever. It’s actually surprising how good the car is considering its age and the pace of development in Formula 1. It was ahead of its time. Having said that, though, it’s amazing how different it is to a modern car. The driver is much more exposed, and there’s surprisingly little room in the cockpit. Even though I’m quite small, it was a bit of a tight squeeze!”

This year, Darren will share driving duties in 2003’s MP4-17D with Pedro de la Rosa, who is attending the event as a Team McLaren Mercedes driver for the first time. “It’s a fantastic event,” he admits. “There’s nothing like it in the whole world.”

Pedro, like so many of the star drivers who attend the Festival, is somewhat overawed by the sheer number of historically important racing cars that make their way to the event. “This event provides an opportunity to see some great historic cars,” he explains. “Even as a Formula 1 driver myself, I like to walk around, look at the cars and meet some of my driving heroes. I was talking with John Surtees earlier on today, and Big John, as he’s known, was one of my heroes when I was a child. I also met the Superbike racer Carl Fogarty, whom I admire a great deal. A lot of the people here are people who I’ve only ever seen in photographs, so to meet them in the flesh for the first time is special.”

Talking of special drivers: the 2004 Festival of Speed is celebrating the life and times of a man who could be said to define the world ‘special’ – Ayrton Senna. There are a number of the three-time Drivers’ World Champion’s cars on display, from the Toleman-Hart TG184 in which he made his grand prix debut, to the red and white McLarens that he piloted to dominance on so many occasions.

MP4/8, the machine with which he finished his McLaren career, is being driven by Gil de Ferran, and the Brazilian is full of praise for his compatriot. “It’s truly an honour for me to drive one of Ayrton’s cars,” he admits. “There was only an eight-year age gap between Ayrton and myself, so I was interested in the sport before he hit the limelight, but he was still an inspiration, a very special guy.”

The crowd seems to agree with Gil, as the appearance of MP4/8 brings both whoops of delight and gasps of admiration in equal measure. The 11 years since this car raced in Formula 1 have clearly not robbed it of any appeal, and the purposeful lines look as beautiful now as they did back in 1993.

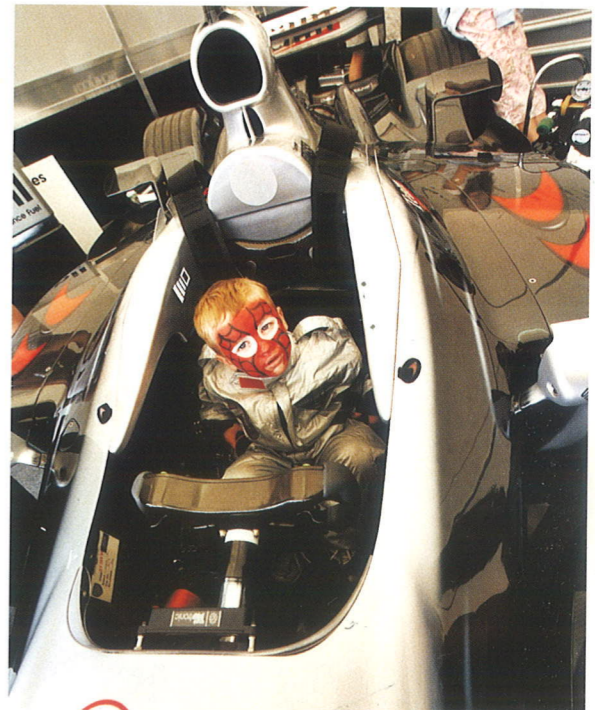
Once Gil has driven the car for the final time on Sunday, there is just one more Team McLaren Mercedes run to look forward to: Darren takes MP4-17D for the day’s final Formula 1 blast up the sinuous hill.

When it is time for the final display of modern Formula 1 cars, the crowds line the banking and pack the grandstands, eager for a glimpse. Each driver takes the time to spin the rear wheels of his car, producing an intense plume of white tyre smoke.

The event has been an unqualified success. As the sun begins its slow, downward trajectory, the chattering crowds start to file home. It’s time to get the Formula 1 cars out of the back garden and back to the racetrack. Until next year, that is. ■



OPPOSITE PAGE  
 Members of the McLaren Heritage Department are on hand to tend the precious machinery



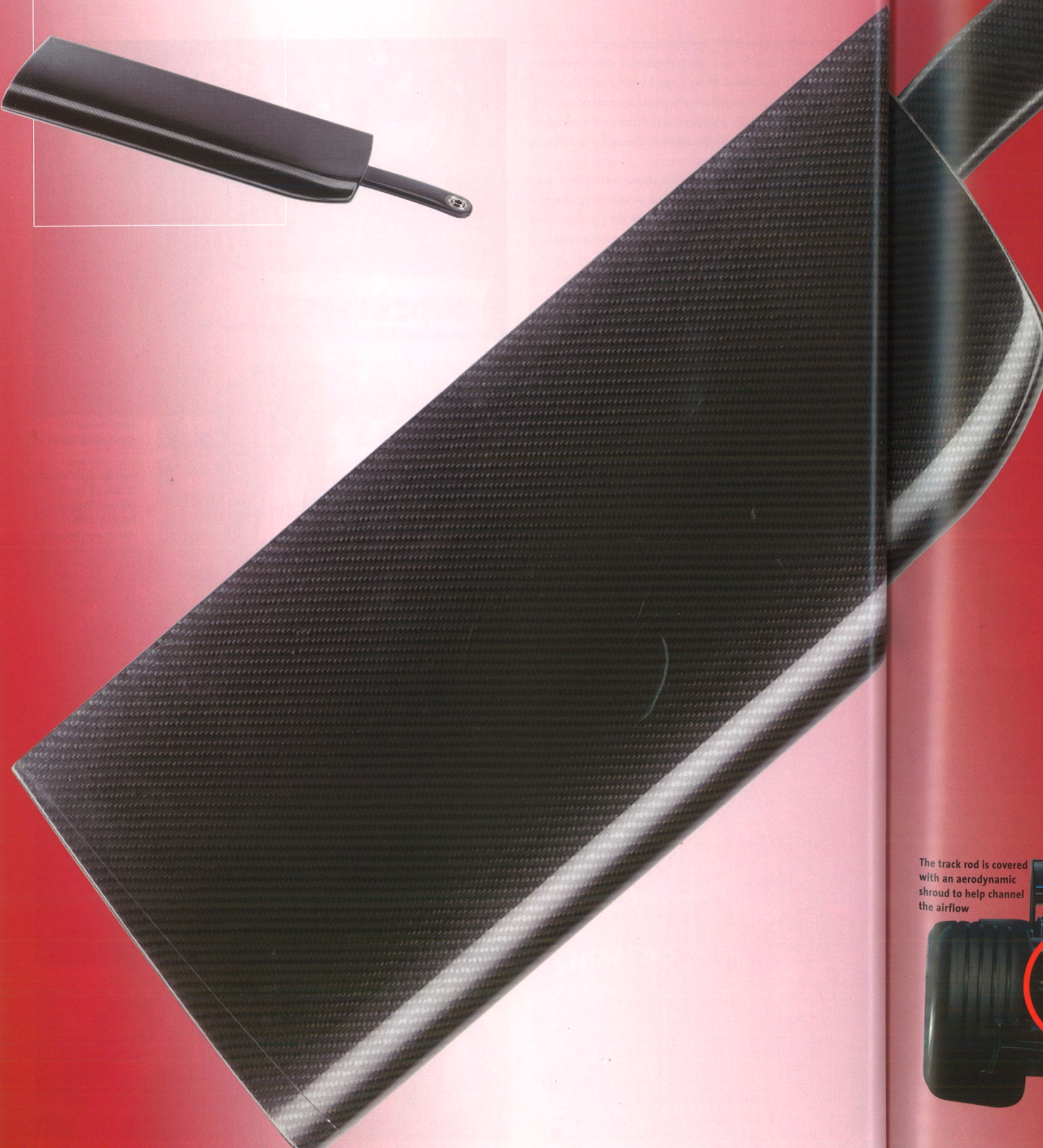
THIS PAGE Any vantage point will do as fans try to get a look at the spine-tingling array of machinery. Only the lucky few (left) get to enjoy the best seat in the house!




## TEAM McLAREN MERCEDES FORMULA 1

## THE TRACK ROD

WORDS MARK SKEWIS PHOTOGRAPHY TED HUMBLE-SMITH/HOCH ZWEI



 The track rod is one of the more everyday components found on a Formula 1 car. But it is also one that illustrates just how incredibly high the stakes are in every single aspect of a car's construction.

Put simply, a track rod is a carbon fibre rod that links the car's steering rack with the front wheels. There is nothing 'simple', though, in the challenge of building a component that weighs just a few grams yet can withstand loadings of a ton as the car flies around the racetrack.

Lighter and stronger than the same item on a standard road car, a Formula 1 track rod also features greater adjustment. The angle of a car's wheels – set to 'toe-in' or 'toe-out' by the race engineers – is vital to the temperature of the tyres and to a car's handling. This is, after all, the link through which a driver gets a direct 'feel' for how his car is handling.

"There are many components on a car that don't have a direct impact on the racing driver," says design engineer Gareth Robinson, "but if a track rod were to fail, a driver would be left with no steering. When you build a component that is so massively safety critical, there is no margin for error – you just have to get it right."

The component is manufactured from carbon fibre for extra stiffness and strength. To appreciate why, you need look no further than the slow-motion replays of the cars' wheels banging over the kerbs in a grand prix.

"If you look at a telemetry trace of the loadings on a track rod, you can clearly see the peak loads as it

hits the kerb," reveals Robinson. "It has a very severe fatigue cycle because the loadings switch from compression to tension very quickly."

Heat is also a factor. Where a standard track rod will operate at ambient temperature, in a Formula 1 car the component is positioned close to the brake discs and can reach temperatures of around 100 degrees C. To legislate for that, the carbon is cured at 150 degrees earlier in the manufacturing process.

In a structural engineer's ideal world, a carbon component is as straight as possible because that is how the material transmits the loadings on it most efficiently. A complete Formula 1 track rod, though, is shaped something like a hockey stick.

"The car has to be a team effort, and there are a lot of aerodynamic constraints that have to be satisfied," explains Robinson. "The packaging of a Formula 1 car is so tight in this area. The shape of the track rod has to be compromised to accommodate the steering lock and also to make as much room as possible for the brake ducts."

Aerodynamics are critical in Formula 1. So vital to performance is the airflow over and around the car that the rod features a blunt trailing edge that enables it to be incorporated within the front suspension's aerodynamic shroud.

To these constraints you can add the quest to eliminate friction from all joints in the suspension, which will further improve a driver's feel for his car.

The track rod may be "simple", but the manufacture of each individual component still involves 25 different design drawings and at least 40 man-hours. It's enough to make you wonder what a complex component is like.

The track rod is covered with an aerodynamic shroud to help channel the airflow

 TECHNICAL SPEC

LENGTH 340 mm

HEIGHT 15 mm

WIDTH 30 mm

MATERIAL Carbon fibre

MAKING A

# DIFFERENCE

The cutting edge technology shaping modern Formula 1 cars, like rapid prototyping, could one day change people's lives. To find out how, *Racing Line* visited the newest company in the McLaren Group

WORDS MARK SKEWIS PHOTOGRAPHY GLENN DUNBAR/LAT

“THE McLAREN BRAND IS INCREDIBLY STRONG. IT IS ALSO A PRECIOUS THING”

MIKE PHILLIPS, MANAGING DIRECTOR  
McLAREN APPLIED TECHNOLOGIES



ABOVE McLaren Applied Technologies Managing Director Mike Phillips relishes the challenge ahead

The sun glints off the ripples on the lake. It's a beautiful scene. Together, water, sky and rolling fields cast their reflection into the elevated reception areas of the McLaren Technology Centre. If the British weather today is uncharacteristic, the name etched in the glass against which this idyllic scene is reflected is equally unfamiliar: McLaren Applied Technologies.

The seeds of the newest company in the McLaren Group were sown not in any boardroom but on the racetrack, where the pace of development has been phenomenal. So much so, that Formula 1 has outstripped the technological progress made by many of the industries that once supplied it.

That turnaround was best illustrated

by the involvement of McLaren Composites in a number of space projects before it focused its efforts on pioneering other frontiers with the sleek Mercedes-Benz SLR McLaren. The clamour for the McLaren Group's expertise has existed for some time, but each division of the Group has been too focused on its core business to exploit those opportunities.

So what has changed? You need look no further than a flagship headquarters so advanced that Her Majesty The Queen was prompted to officially open an industrial facility for the first time in more than 15 years.

“Without the McLaren Technology Centre, there would be no McLaren Applied Technologies,” says Mike Phillips, Managing Director of the new

company. “It was always the vision to get everyone on the same site and to start sharing the technology and thinking across the Group, rather than each company operating in isolation.”

“McLaren Applied Technologies exists to take any of the innovations or ideas that come out of our other organisations within the Group which are not appropriate to pursue in respect of their own core businesses,” explains Ron Dennis, McLaren Group Chairman and CEO. “Inevitably, when you have such a huge percentage of your budget going into research, not all of the thoughts, ideas and developments are solely and exclusively applicable to the core business. We have seen quite a few opportunities present themselves to take a technology or a

concept or an invention and actually exploit it to the commercial benefit of the company and that is what McLaren Applied Technologies is all about.”

The company's remit is to work on two fronts. Initially, its main thrust will be to maximise the availability and use of existing technologies within the McLaren Group. Ultimately, the goal is to look further afield. It will exploit technologies that have been used to perfect the Group's road and race cars by seeking commercial opportunities in alternative applications. By setting it up as a separate business, Phillips and his team operate without distracting the engineers in Formula 1.

McLaren Applied Technologies has access to state-of-the-art facilities, talented staff, a unique brand name and equipment of which most companies could only dream. In spite of that huge potential, though, the initial strategy is a cautious one. “The McLaren brand is a double-edged sword in some ways,” explains Phillips, who was previously head of McLaren Composites. “Although the brand is incredibly strong, it is also a very precious thing,

That is why we will be careful about the type of projects we get involved with to ensure that they sit comfortably with our core business and brand values.”

The most obvious manifestation of McLaren Applied Technologies' influence within the McLaren Group is its rapid prototyping and rapid manufacturing capability. These solid imaging technologies enable a CAD design to be translated from the computer into a physical object in hours and days rather than the weeks and months involved in conventional manufacturing techniques.

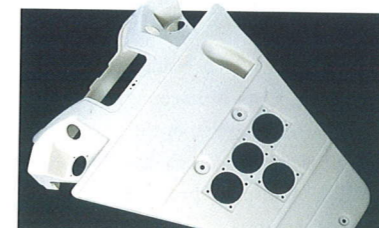
Both the McLaren Racing and McLaren Cars divisions have utilised this process before, but have done so independently and often through sub-contractors. Now, the Group has an in-house capability based in McLaren Applied Technologies and boasts a resource that can be used across all divisions.

3D Systems, the pioneering company that first invented the solid imaging industry, has become an Official Supplier. The alliance goes far

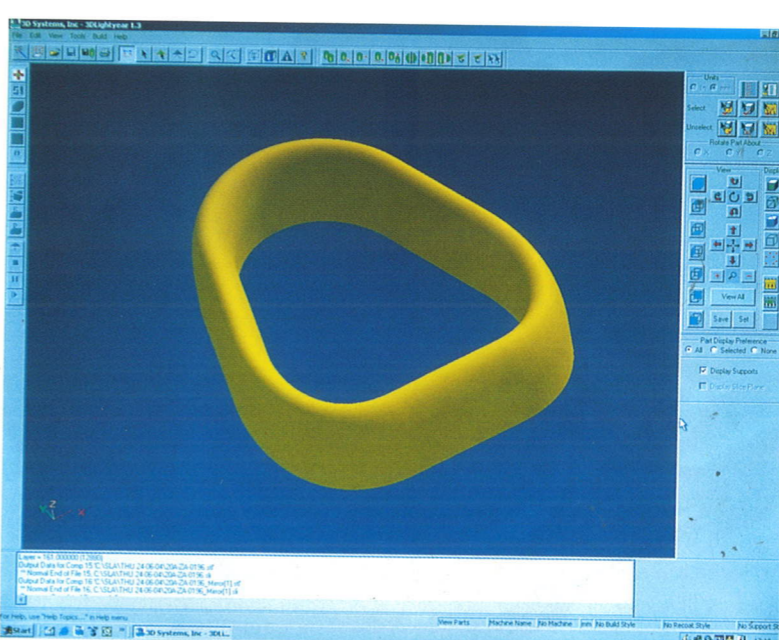
beyond a normal customer-supplier relationship, for it has accelerated progress in an area that pushes back the technical boundaries almost by the day.

“There is no industry in the world more aggressive in its hunger for accelerating product development than Formula 1,” admits Mike Kelly, 3D Systems' Director of European Motorsports Development. “We also work in the aerospace industry where product development cycles can be measured in decades. In Formula 1, the feedback is instant. Our technology allowed McLaren to do something in days that previously took weeks and months. They responded by changing their whole development programme to incorporate those advances and then wanted us to turn it around even quicker – now we are looking to change days into minutes!”

The McLaren Group utilises the SLA 7000 stereolithography system, where parts are grown from liquid resin by focusing a laser and curing the resin layer by layer in accordance with the CAD geometry. It also capitalises



LEFT TO RIGHT Part of the Formula 1 car's airbox is created by a stereolithography machine before being cured (previous spread). The complex carbon fibre lid of the ECU was produced as a prototype for 'fit and function' tests. This hinge is destined to aid the smooth operation of a knee brace being developed



upon selective laser sintering (SLS), a process which uses powder rather than resin. These machines are so accurate that they enable components to be built up in layers just 0.1 millimetre thick!

The technology has predominantly been used to produce aerodynamic parts for Formula 1 windtunnel models, or for 'form and fit' testing. The components used in the interior of the prototype Mercedes-Benz SLR McLaren, for instance, were produced in this manner. The process enables complex items such as the lid of the Formula 1 car's ECU (above) to be produced and tested before engineers commit to a time-consuming production run in carbon fibre.

In an arena like Formula 1, where >>

every second counts almost as much back at base as it does at the racetrack, the process offers very real benefits. "If you are using that type of technology before the next guy is, and can reduce design life cycles on a car component or piece of electronic systems equipment, it is going to give you an advantage," stresses Phillips.

Rapid advances in machinery, software and materials have recently opened up the exciting possibility of producing complex parts that could be used directly on a Formula 1 car. The development has the potential to revolutionise not only the production cycle of components in grand prix racing, but in other industries.

"If you can build a part that will live on the car, then in theory you can build a part that can fly on an aeroplane," suggests Kelly. "The work we do with people like McLaren will have a big impact on other industries we are working in."

The use of optical scanning is similarly unlocking new doors. The technique is based on a system of digital cameras and smart software, and was used in the production of the Mercedes-Benz SLR McLaren. The car was the first series production vehicle in the world to feature a fully composite carbon fibre bodyshell, and one of the primary challenges was to get these materials to appear as good as conventional steel panels. That quality

flush fit was finally achieved through the unique application of optical scanning tools, and the same technique is now being employed elsewhere within the McLaren Group.

"Imaging is a good example of what we are trying to do with McLaren Applied Technologies, which is to spot interesting things happening around the Group but which are being applied in a limited way," says Phillips.

Optical scanning also offers a solution to Team McLaren Mercedes' search for a faster, more efficient method of ensuring that the dimensions of its Formula 1 cars conform to the FIA's stringent rules. Designers need to get as close to the limits as possible, particularly those governing aerodynamic surfaces, without straying half a millimetre the wrong side of the legislation. McLaren Applied Technologies is now working on a method of effectively scanning the whole car, quickly processing the results, and operating a 'traffic light' system: a red light shines if there is a problem; green if the car is good to be shipped to the track.

The McLaren Group's technology can also benefit external projects, something of which Phillips has experience from overseeing McLaren Composites' involvement in the Beagle 2 and Solar B space projects. The latter is a NASA-inspired probe destined to provide scientists with a better

understanding of how the sun will influence life on earth in the future. It is due for lift-off next year and will showcase McLaren's expertise in an area to which the company may well return.

"Space is very complementary to McLaren's brand values because it's a high-profile, high-technology business," Phillips acknowledges. "It's a good example of where we've taken McLaren technology, in terms of lightweight composite structures, and applied it to a sphere outside of our core business."

Another example lies on the table in front of Phillips when *Racing Line* visits McLaren Applied Technologies. To us, it's a knee brace. To patients suffering from conditions like Osteoarthritis, it's a glimpse of an item that could one day revolutionise their lives.

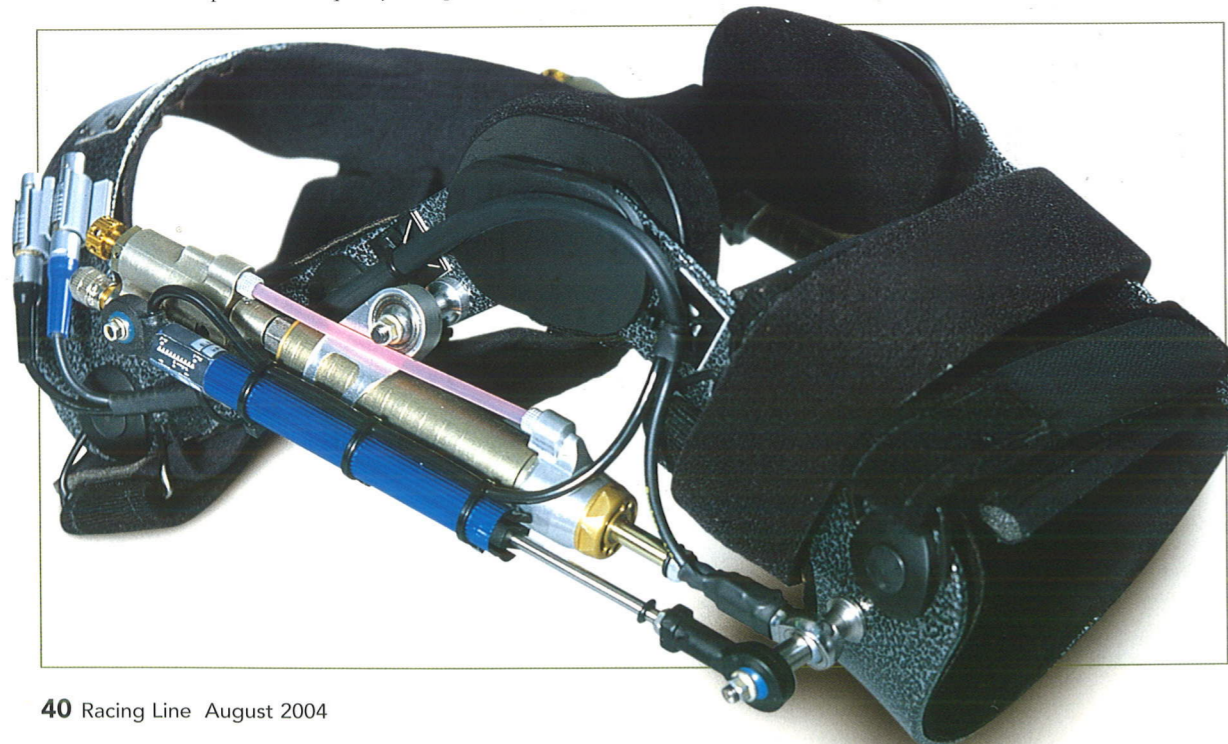
The concept was born when Jeff Ryan, Vice President of Penske Racing Shocks, was undergoing a six-month rehabilitation after a bad motocross accident. With time on his hands, he put his engineering background to good use in order to improve the knee brace he had been given for his injured leg.

The result of his labour was a brace fitted with a hydraulic damper each side. He used a position transducer from an Indycar to feed input to a data logger worn on his belt. That information could then be downloaded onto a



"RACECAR TECHNOLOGY IS FURTHER AHEAD NOW THAN SOME SECTORS OF THE MEDICAL INDUSTRY"

MIKE PHILLIPS, MANAGING DIRECTOR, MCLAREN APPLIED TECHNOLOGIES



LEFT This knee brace, featuring hydraulic damping technology, could one day be power-assisted to help people with Osteoarthritis

computer by his surgeon, who could check that the leg was being extended sufficiently enough to mend, without being subject to any damaging loadings.

Although very much a prototype, the brace attracted so much interest in the medical world that Ryan approached the McLaren Group to develop a more consumer-viable item. McLaren's expertise in lightweight structures, ergonomics, integrated electronics and rapid product development will bring Ryan's ideas to reality faster than he could have imagined.

"Jeff is involved in a lot of other industries through his work, but he came to McLaren and said that he didn't think there was anyone else in the world who could do what he was asking," recalls Phillips. "It's a very good

example of where racecar technology is further ahead now than some sectors of the medical industry."

To date, 18 separate applications for the device have been identified, including both sports injury prevention and rehabilitation. One of the most fascinating possibilities concerns its use to help patients with diseases like Osteoarthritis, Multiple Sclerosis or Cerebral Palsy.

"At the moment it is a passive system, that just damps," says Phillips. "The next stage is to power assist it. One of the biggest problems people with joint trouble have is to get out of bed or a chair. If this device was power-assisted, it could give their limbs a boost." Considerable interest has already been shown by American health companies.

They calculate that thousands of debilitated people would be able to return to work with even as little as 15 per cent power assistance provided by the brace.

This intriguing possibility serves to highlight one vitally important spin-off from McLaren Applied Technologies that can't be found on any balance sheets: the human factor.

"Beyond any commercial gain or brand awareness, these projects get our engineers involved with something completely different, even if just for a short time, and they love it," reveals Phillips. "If they go back to designing cars after having been exposed to the medical, space or sports industries, they will go back refreshed and as better engineers." ■

ABOVE Formula 1 components, like this airbox part, are just a fraction of the McLaren Applied Technologies area of expertise



# Kimi RÄIKKÖNEN

In the third part of our series of Team McLaren Mercedes driver biographies, we focus on Kimi Räikkönen, who in just three full seasons of Formula 1, has become a genuine front-runner

WORDS ADAM COOPER PHOTOGRAPHY HOCH ZWEI, LAT



Kimi Räikkönen was acknowledged as a future great as soon as he burst onto the Formula 1 scene in 2001. The following year he reached the big time, stepping into countryman Mika Häkkinen's shoes at Team McLaren Mercedes. Last year he showed his true potential as he challenged for the Drivers' World Championship all the way to the final round.

Kimi's rise to the top should serve as an inspiration to any aspiring driver. He made it despite not coming from a wealthy family or landing support from a major backer early in his career. He has progressed purely on talent, and by being in the right place when his results generated opportunities.

Despite his new found fame, Kimi's feet remain firmly on the ground. He's still close to his parents and the friends from back home that he made before he was a star. His home is in Switzerland, but he goes back to Finland whenever he can, and has a

house not far from where he grew up. Kimi inherited his love of speed from his family. However, his first exploits were actually on two wheels, rather than four.

"My brother started in motocross when he was three and a half or something, when he couldn't even ride a normal bike!," Kimi recalls. "They put those stabilisers on the motorbike. Then when I was five, I started. They got him a bigger bike, and we were racing together on land around the house.

"My dad was a mechanic. He used to work for a guy whose son was doing go-karts, so we went to look one day. We bought one kart for me and my brother – I was seven or eight then. I started in local races, not really licensed, but just hobby racing. I was maybe 12 when I started proper racing, which was quite late. My brother raced karts until he stopped at 17 or something, and started to do more car racing.

"He wanted to go on because he was more interested in big cars and rally stuff. He's also taller than me, so he was a bit too big for karts. I was always more interested in racing, while he was just doing it for fun."

Kimi's dad put everything he had into supporting his boys, and made huge sacrifices.

"He used to do three jobs at the same time. He used to drive a taxi, and he worked for the government, driving a big machine that made the roads more smooth. And sometimes he used work on the door of a bar, throwing people out!"

At one stage he diverted funds from a planned refit of the bathroom into karting. That meant the family had to still make do with their old outside lavatory, although Kimi says it was no great hardship: "It's true, but that's normal for us in Finland..."

Soon Kimi was travelling all over Europe, enjoying considerable success.

"The first time I raced outside >>

LEFT TO RIGHT Kimi enjoys a fruitful working relationship with Team Principal Ron Dennis; dominating Formula Renault in 2000 on his way to the series title; Kimi has settled well at Team McLaren Mercedes, delivering accurate technical feedback and, of course, plenty of raw speed behind the wheel



## “THERE WERE 12 FORMULA RENAULT RACES BUT I ONLY DID 10 BECAUSE I HAD ALREADY WON THE TITLE”

Finland was 1993. I won the Scandinavian Championship, and it all started from there. One of my cousins was helping me to do the European Championship. The first year wasn't very good. I had some races where I went fast, but I usually ended up somewhere outside of the circuit! But at least some people noticed. Then I started to get tyres for free, and all these things that start to help.”

His big break came when he was offered a drive by a man who had not only raced against the great Ayrton Senna in karts, but actually beat the Brazilian to the 1980 world title.

“I won a championship in Finland in 1997, and in 1998 a guy called Peter de Bruijn from Holland was planning to build up his own team, and he needed drivers. He said he would like me to drive for him – I was 17 or 18. I stopped school and moved to Holland to do racing.

“I was still paying my hotels and flights and things like that, but he paid most of the stuff. It was good, because otherwise I couldn't really do karts, because we didn't have money. We always struggled. Anyway that year I won two Finnish Championships, the Scandinavian championship, and

I came second in Europe, so it was a good year for us.”

His success earned him a lot of attention. One man who saw the potential was former Formula 1 team boss Peter Collins, who had an eye for young talent. Through him Kimi met father and son team David and Steve Robertson. They had already helped Jenson Button up the ladder, and now they gave Kimi their management support as he made the move into cars.

“The first couple of tests I did were in Formula Ford, and then I went to race in Formula Renault. It was more fun because they didn't slide so much and were quicker. But I only did a few races in 1999. In the first one I came third, the car broke down in one race, and I had an accident in another. The car wasn't very good, so we stopped it.”

Aware that he wasn't in a competitive situation, Kimi and the Robertsons decided to stop the programme and await another opportunity at the end of the year.

“I came back and did some go-kart racing – I did the Finnish Championship because I didn't have anything else to do. I came second in that and in the Nordic Championship. I was just hanging around in Finland.

People were giving me a hard time because so many drivers go to England and come back. It was hard doing nothing! Dave and Steve had promised that I was going back to race in the Winter Series in a good team, so I went there and won all the races.”

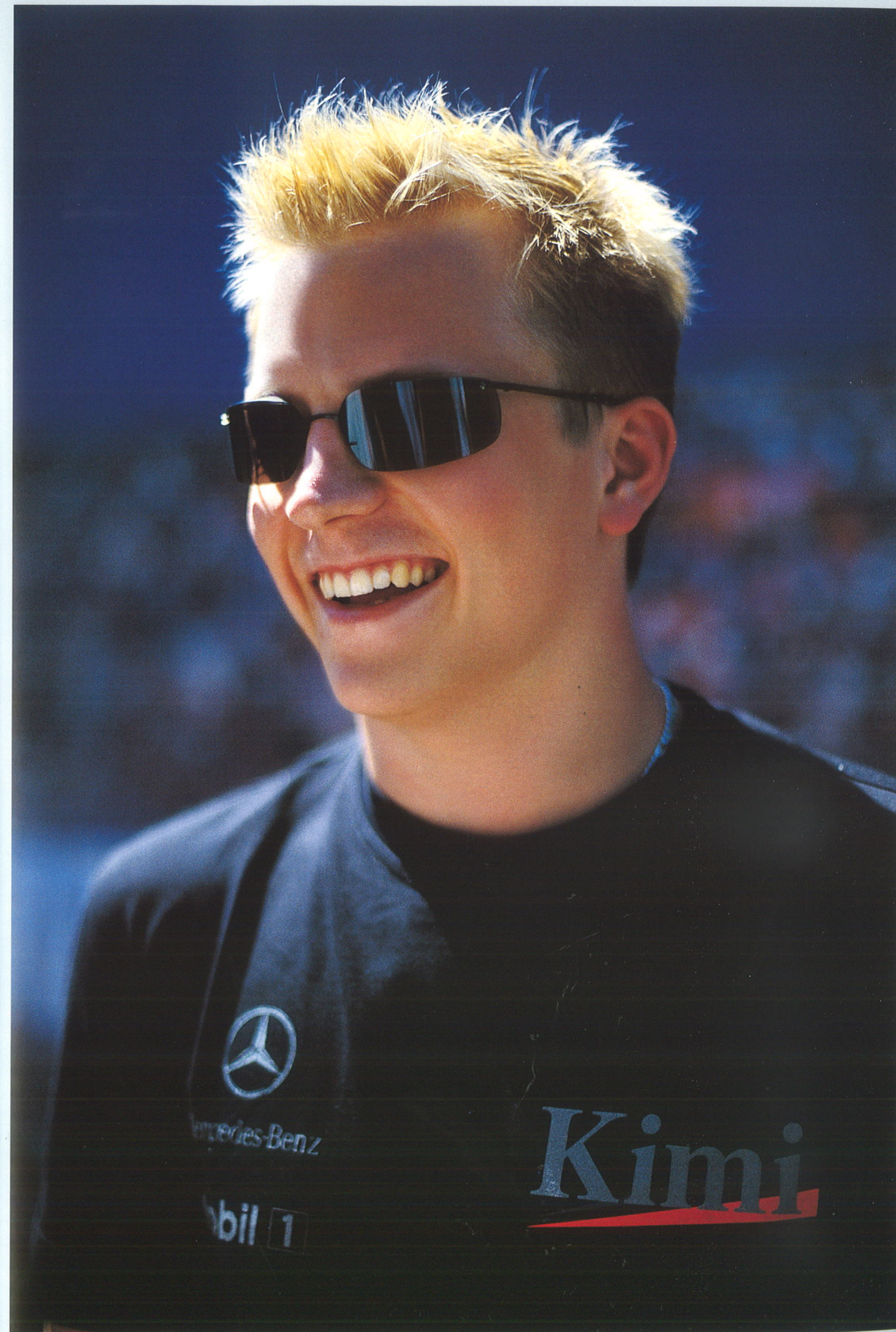
Kimi found the Manor team much more to his liking. He stayed for 2000, and duly dominated the championship.

“In 2000 the Formula Renault rules changed, and everybody had the same car. It was a much better championship, with brand new cars for everyone, and it was much more straightforward. There were 12 races, but I did only 10 because I won the championship before then. I won seven races and had seven pole positions, one second and two thirds.”

He makes it sound easy, but it was an awesome performance that really got him noticed. It was achieved despite the distraction of National Service, which is compulsory for young Finns.

“It was a little bit difficult, because I was in the army. I went in October 1999, and left in October 2000. I was flying backwards and forwards to Finland all the time. It was a pain! There was all this marching in the forest and camping and the normal stuff. They're always shouting at you, so it's not nice to be there.

“There was a special place if you were at a high level in some sport, so you got it more easy. I think for 70 days you could be at your races, and >>



LEFT TO RIGHT  
The first grand prix win is always the hardest, and Kimi certainly enjoyed taking the podium's top step at Malaysia in 2003; he has an honest and open relationship with his experienced teammate David Coulthard; Kimi's legendary powers of focus are always in evidence



if you did well you got some extra days – maybe one day for a race win. I was away for 100 days, so I needed to stay two or three weeks longer or something. But because the new guys were coming in they didn't care what we did, so we just played computer games and did nothing!

Even before his army career was over Kimi got his first taste of Formula 1. Despite his limited experience, he landed a test with Sauber. At first nobody expected it to lead to a full time drive, but Kimi immediately impressed the Swiss team.

"Basically I had only one full season in cars, and it went quite quickly. I guess I had people behind me helping, and sometimes you just need to be in the right place at the right time. I had a good test. I guess it helped because Dave and Steve made sure I didn't just have 20 laps. I got three days on my first test, so at least I got used to it.

"Then I got the second test at Jerez in Spain, and they said they were interested to do the contract. Everybody was just waiting to see if I'd get the Formula 1 superlicence or not. It changed a lot, because suddenly everyone was interested."

The world was watching Kimi when he made his debut in Melbourne in March 2001. How could this kid straight out of Formula Renault step into a Formula 1 car? He showed that Peter Sauber's judgement was sound by finishing an astonishing sixth. In fact he barely put

## "I ALWAYS THOUGHT IT WOULD BE NICE TO DRIVE FOR TEAM MCLAREN MERCEDES SOME DAY"

a foot wrong the whole season, finishing as high as fourth in Austria and Canada, and fifth at Silverstone. His total of nine points earned him 10th in the World Championship.

"The car was good, and I had some good races. The start of the year was a little bit difficult, and then I had quite a few retirements, engine, gearbox, and one time the steering wheel came off at San Marino! But then I had a few good results, which was nice. I didn't really have any accidents, so it was a good year, and I had a close battle with [team-mate] Nick Heidfeld, which was good also for the team."

Even before the end of the season Kimi had made the next step. He landed a fulltime Team McLaren Mercedes seat for 2002, effectively replacing his friend Mika Häkkinen, who was considering his future. Kimi had met McLaren Group Chairman and CEO Ron Dennis at a party as early as June, but discussions did not become serious until later on.

"First we thought it was for testing, but we were not interested in that, but then [Ron] said he would like to have me as a race driver. It all depended on what happened with the contract with Sauber and all those things. In the end

everybody was happy, and everybody got something. When I was younger, McLaren was always winning and I was thinking it would be nice to drive for the team one day, because they're doing so well."

Kimi finished third first time out with the team in Australia, and never looked back. He was also third at the Nürburgring and Suzuka, but his best performance was undoubtedly at Magny-Cours in the Mobil 1 French Grand Prix. He was on course for victory when a late mistake on oil dropped him to second place.

The first win finally came in Malaysia last year, and but for an engine problem he should also have won at the Nürburgring. His consistent podium finishes – he had seven second places – demonstrated that he can mount a title challenge.

"For sure Team McLaren Mercedes is always going to be one of the top teams," he says. "They know how to win and how to develop a good car. I should maybe have had a few more wins, but I've certainly been unlucky in some places."

Kimi is still only 24, and has plenty of time on his side. Will his chance come in 2005? ■



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KIMI IN FOCUS

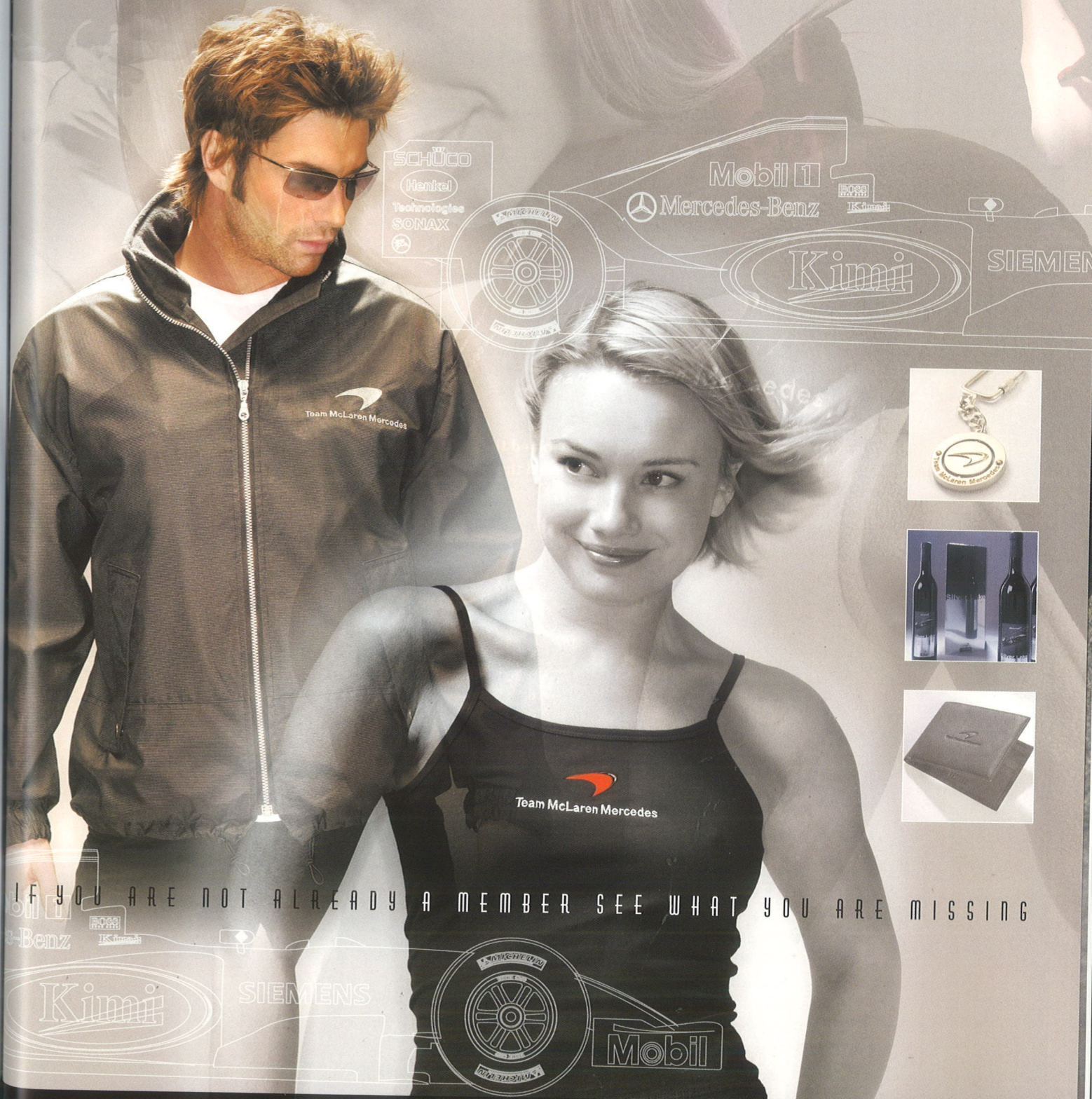
LEFT TO RIGHT Kimi came close to winning the title in 2003, only to miss out at the last round in Japan; the Finn knows how to lead from the front, and has become one of the sports hottest rising talents; out of the car, he is often thoughtful, but in the car he is concentrated only on the business of winning races



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## PAUL COX

VEHICLE TECHNOLOGY TECHNICIAN  
MCLAREN RACING

WORDS MARK SKEWIS PHOTOGRAPH PETER SPINNEY/LAT



### What does your job entail?

I can turn my attention to any of the roles within the department, the primary function of which is to act as a proving ground for components and materials. That mainly involves Formula 1, although Vehicle Technology did play a role both in the development of the McLaren F1 prototype and quality control work for the Mercedes-Benz SLR McLaren.

We test components by using hydraulic actuators that replicate on-track conditions in a laboratory-controlled environment. We also provide full failure analysis: if a component breaks at a grand prix or test, that part will be back with us by the following morning. It's our role to determine why it failed, so that we can ensure it won't happen again.

### What aspects of your job do you enjoy most?

I love the fact that you never know what challenge you are going to be faced with each day. Some of our work is reactive, such as investigating failures, and that carries the buzz of real detective work. We use the microscope to scan through the material looking for any evidence of fatigue. It's actually the proactive work, though, where we try our best to pull things apart – under controlled conditions – that I enjoy most. We are

trying to catch things before they occur on the track and that can make a real difference to Formula 1 safety.

### You joined the company in 1990. How did that move come about?

I worked at the Royal Aircraft Establishment at Farnborough and was promoted to Scientific Officer while I was there. McLaren wanted to perform a test on a specification of nosecone for its Formula 1 car and was tapping into the knowledge base within the area. I was put in charge of liaison with the team.

Speed is of the essence in every area of Formula 1, though, and a quick turnaround time was needed, so McLaren wanted to set up its own facility. I was approached and I've now been here 14 years.

### How have you seen things change in that time?

The Vehicle Technology department was originally set up as a materials testing laboratory, primarily for Formula 1. If you are working on materials, then inevitably you want to build components from some of those materials, so the scope of the work has changed.

The array of high tech equipment at our disposal has changed beyond recognition, too. When I first came here we had just a single Instron test

frame in a corner that we would use to test components. Now we, like many other teams, have a range of dynamic test rigs featuring state-of-the-art technology which can take components or an entire car. We also have two laboratory bays, where we do sample preparation and thermal analysis, and a microscope room. That room alone covers the entire area of the department we had when I first arrived in the McLaren Group!

### Which moments stand out for you personally during your time here?

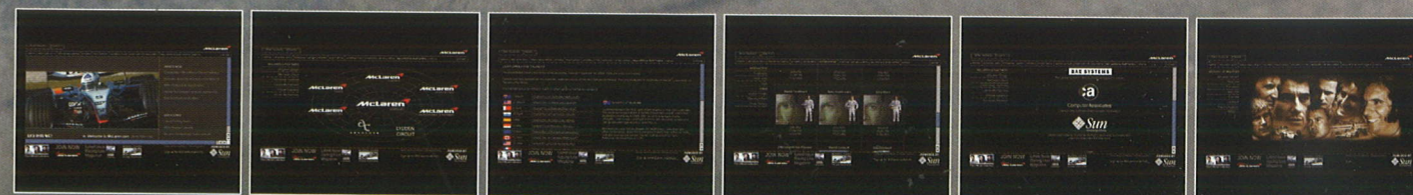
Some of the innovative work the department has done stands out in my mind. For instance, we pioneered a chemical etching technique for bonding titanium to carbon fibre, and we were getting significant improvements in bond strength pretty much overnight!

Ultimately, I guess it is the drivers you remember most. 'DC' [David Coulthard] is one of the nicest drivers I've dealt with. On one occasion I was doing a calibration run with the chassis dynamics rig and the car had not only been removed, but had been returned to the race team. I had my head buried in the computer when he walked into the room and saw the rig bouncing up and down without a car in sight. I got a tap on the shoulder. 'Someone's stolen your car!' he said with a big grin. ■

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# GERMAN GRAND PRIX

HOCKENHEIM, JULY 23-25



The triumphs and tragedies of the German Grand Prix have left an indelible mark on Formula 1's history books.

The race's original venue, the 'old' Nürburgring has not been used for a grand prix since 1976 – when it was the scene of Niki Lauda's horrific accident – but still it remains the most famous circuit in the sport's history.

This giant of a track was built in the Eifel mountains in 1926 as part of a government employment programme. Consisting of 174 corners and a shorter separate south loop, its torturous 22.8 kilometres represented the ultimate challenge.

As such, it has been the scene of some of the greatest drives of all-time. Juan-Manuel Fangio's comeback drive in 1957 was, he said, the finest of his illustrious career. Jackie Stewart's victory in 1968 was another memorable drive, for the Scot mastered the torrential rain and a flooded track to win by over four minutes.

Even today, modern drivers delight in tackling the 'Ring in their road cars but they, more than anyone, appreciate that the circuit was a

dangerous throwback to a past generation and had no place in modern motorsport.

Since 1977 the German Grand Prix has – with the exception of one event at the 'new' Nürburgring – been run at Hockenheim. Built by Mercedes-Benz as a test track, Hockenheim used to consist of two demanding blasts through the forest that put incredible strain on a car's engine. Its current layout, introduced in 2002, was designed to increase the spectacle for fans and TV audiences and is a much shorter circuit centred around the 'Motordrom' stadium section.

"What Hockenheim offers now is much better," suggests Norbert Haug, Vice President of Mercedes-Benz Motorsport. "Now spectators get to see the cars go by 67 times rather than 45."

McLaren's first success in the German Grand Prix was in 1976, the last time the old 'Ring was used. James Hunt dominated a race that was re-started in the wake of Lauda's accident. Ten seconds ahead at the end of the opening lap, Hunt went on to win by nearly half a minute.

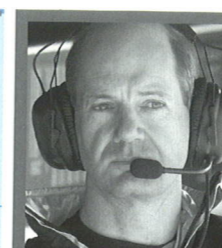
The team won again in 1984, this

time at Hockenheim. This was the era in which McLaren was the class of the field with its TAG Turbo engine and pairing of Niki Lauda and Alain Prost. Together, the drivers boasted more wins at this time than the rest of the entire grid put together. Not even an enforced last-minute switch to the spare car, after a change of fuel pump had failed to clear a morning misfire, could prevent Prost leading home his team-mate for a dominant one-two finish.

In both 1988 and '89, Prost would have to settle for second place behind McLaren team-mate Ayrton Senna. At Hockenheim, as at so many circuits, the Brazilian's yellow helmet seemed to weave a spell over the opposition. Nobody was surprised when he completed a hat-trick of German Grand Prix triumphs in 1990.

Mercedes-Benz has won this race in its own right, in 1954 with Fangio, but the first success on home ground since its return to the sport – in partnership with McLaren – was particularly sweet. Mika Häkkinen's victory at Hockenheim in 1998 proved a turning point in a title race that the Finn went on to win.

## LOCATOR



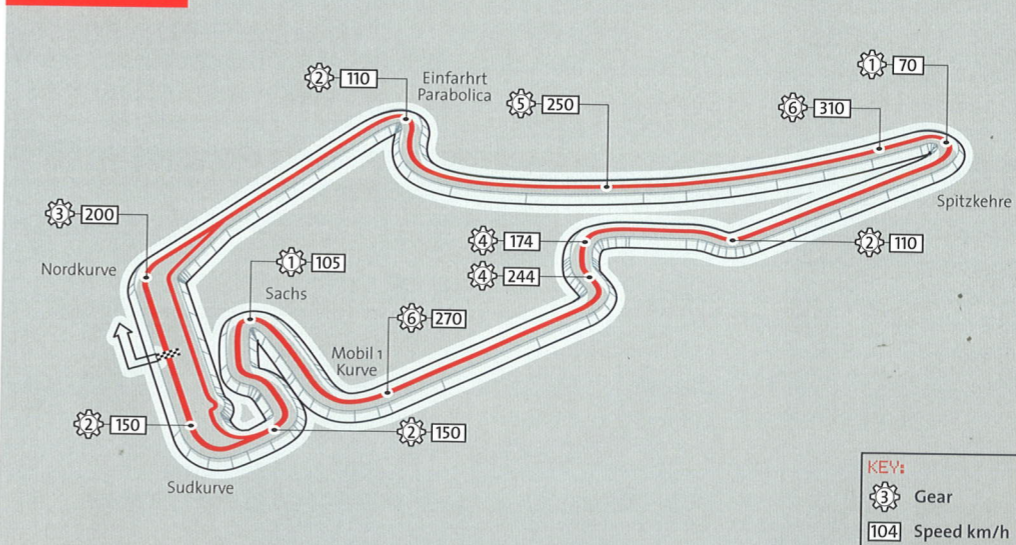
# NEWWEY'S VIEW

Hockenheim used to be very much a power and low drag circuit, and very heavy on the brakes. Now it's a slightly bland modern circuit, and there's nothing that distinguishes it from any other track, to be honest, other than the surroundings and the atmosphere created by the campfires that still burn in the evening!

There is still a good feeling in the stadium, especially when all the fireworks go up before the start of the grand prix. In that sense, it is a bit like Indianapolis used to be in the old days, with everybody getting quite noisy and enthusiastic. I do enjoy that, and the fact that people are camping out in the woods and drinking beer all adds to the atmosphere that surrounds this race.

I didn't actually go to Hockenheim last year, but I have to say that nothing really stands out as being memorable about the new circuit. It's now at the high end of the downforce spectrum. The last part of the circuit, the infield section, is quite tricky. There are no longer any chicanes as such to deal with in terms of set-up, but there are lots of awkward camber changes and dips, and they can cause a few balance problems.

## TRACK MAP



## CLASSIC RACE HOCKENHEIM 1998



Mika celebrates the second one-two finish within a week for Team McLaren Mercedes

Within seven days, the whole face of the 1998 Formula 1 Drivers' World Championship changed fundamentally.

On the ropes after three Ferrari victories, Team McLaren Mercedes fought back with a one-two finish in Austria. One week later, heading to Michael Schumacher's home territory at Hockenheim, the pressure was still on Mika Häkkinen: had the previous week's race result been a fluke?

The answer was provided in emphatic fashion. Mika didn't just beat the rest of the field in qualifying, he blew them away. The Finn qualified on pole position over one and a half seconds clear of his title rival's Ferrari.

Both cars made a perfect getaway to lead at the start and, 45 laps later, they would finish in the same formation. But the simple statistic of a lights-to-flag victory for Mika in no way did justice to the story of the race.

Having held the sister car of David Coulthard at bay by just fractions of a second at the first of his two pit stops, Mika hit trouble after his final stop. Back at the pits, there were worries that his car, which had clearly begun to ail, would not have enough fuel left to last the race. He was told over the radio to lean-off the mixture, which he did, but the reduced fuel consumption was achieved at the expense of horsepower. David, meanwhile, was in trouble himself: his visor was covered in lubricant from the back of the leader's car.

With seven laps to run, Jacques Villeneuve filled the mirrors of both Team McLaren Mercedes cars. Everyone prepared for the inevitable attack – only for the Williams to slow with a problem. The team's title bid was back on track.

1	Mika Häkkinen	1h20m47.984s
2	David Coulthard	+0.426s
3	Jacques Villeneuve	+2.577s
4	Damon Hill	+7.185s
5	Michael Schumacher	+12.613s
6	Ralf Schumacher	+29.738s

David Coulthard sweeps through on his way to second place last season



## TRACK INFORMATION

LAP LENGTH	4.574km
RACE DISTANCE	306.458km
NUMBER OF LAPS	67
2003 POLE POSITION	1m15.167s (219.064km/h)
2003 RACE LAP RECORD	1m14.917s (219.795km/h)

## PREVIOUS McLAREN WINS

- 1976 James Hunt M23 (Nürburgring)
- 1984 Alain Prost MP4/2 (Hockenheim)
- 1988 Ayrton Senna MP4/4 (Hockenheim)
- 1989 Ayrton Senna MP4/5 (Hockenheim)
- 1990 Ayrton Senna MP4/5B (Hockenheim)
- 1998 Mika Häkkinen MP4-13 (Hockenheim)

## RACE TIMETABLE

FRIDAY JULY 23	
11.00-12.00	Practice session one
14.00-15.00	Practice session two
SATURDAY JULY 24	
10.00-10.45	Practice session three
11.15-12.00	Practice session four
14.00	Qualifying session
SUNDAY JULY 25	
14.00	German Grand Prix

\*Schedule may be subject to change under new F1 rules

## FURTHER INFORMATION

**NEARBY CITIES (AIRPORTS)**  
Frankfurt (Frankfurt International) – 85km

**TICKET INFORMATION**  
+49 6205 950222

**WEBSITE** www.hockenheimring.de

PHOTOS: LAF/HOCKENHEIM CIRCUIT ILLUSTRATION: PETER LIDDARD

# HUNGARIAN GRAND PRIX

HUNGARORING, AUGUST 13-15



The Hungarian Grand Prix is testimony to the global pulling power of Formula 1. When the sport first blazed a trail behind the Iron Curtain in 1986, it achieved a feat that was beyond even world statesmen at the time, for this was still the era of the Cold War.

It wasn't the first time that racing had broken down barriers in the Eastern Bloc. Hungary has a surprisingly good racing pedigree: the first ever grand prix was won by a Hungarian, Ferenc Szisz, in 1906, and racing in Budapest, the nearest city to the Hungaroring, dates back to 1926. In more recent times, the European touring car series raced on an island in the middle of the Danube river in the 1960s.

A record crowd attended when the city of Budapest provided the magnificent backdrop to the first grand prix at the Hungaroring in 1986. Such was the enthusiasm for Formula 1 that more than a few teams found their transporters

stopped by the police for alleged 'speeding' offences. The fine imposed? Team T-shirts and cans of Coca-Cola!

By European standards, Hungary was somewhat backward in 1986. Within just a handful of years, though, the landscape had been transformed. By 1990, the shabby local Trabant taxis had given way to fleets of luxury Mercedes-Benz. The price of hotel rooms had similarly escalated...

Set in a natural amphitheatre, the purpose-built track is like Monaco without the yachts and the walls. Narrow, twisty and dirty, it requires high downforce settings. It is also renowned for being a difficult circuit at which to overtake, and places more emphasis than usual on a good qualifying position.

There have been few better qualifiers in the sport than Ayrton Senna, who excelled at this track. He triumphed here on three occasions. But for an encounter with a backmarker in 1989, and obdurate resistance from Thierry

Boutsen's Williams the following season, Ayrton would have won the event for McLaren for an unprecedented five seasons in succession between 1988-92.

It would be a further seven years before the team triumphed again at the track. When it did, it was a massive win that marked a watershed in Mika Häkkinen's challenge for the 1999 title. Trailing Eddie Irvine by eight points entering the race, the Finn conceded that defeat would effectively have ended his hopes of securing the crown.

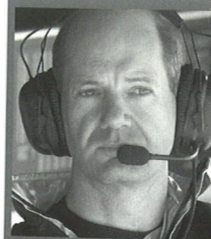
Mika led from the start. He also responded magnificently when the team urged him to 'Push' in order to generate a margin that would cover any possible pit stop strategy his rival could play. To compound his delight, a charge from Team McLaren Mercedes colleague David Coulthard pressured Irvine into a mistake that cost him second place.

Häkkinen repeated his win at the Hungaroring in 2000.

Kimi Räikkönen battled to second place at the 2003 Hungarian race



## LOCATOR



## NEWKEY'S VIEW

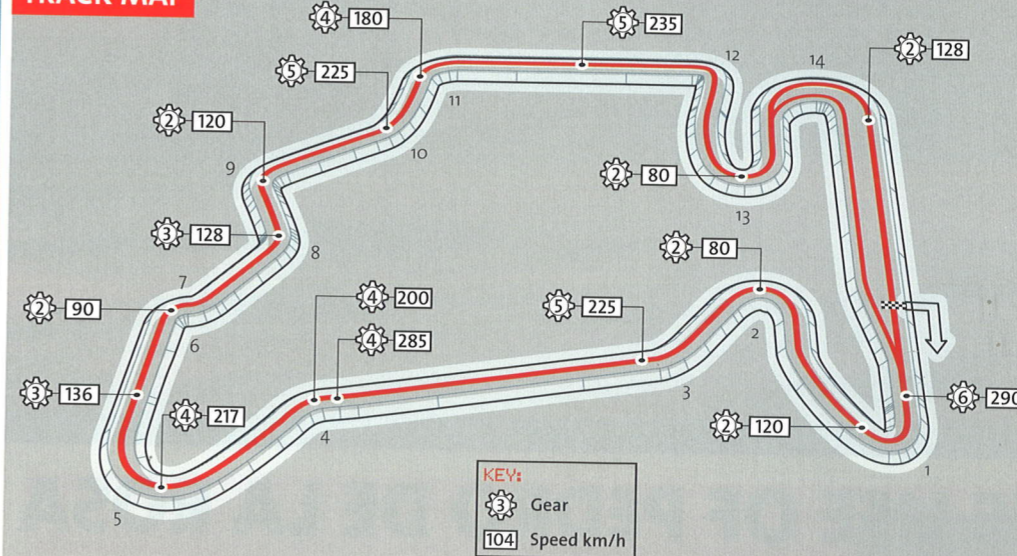
Budapest itself is quite a buzzy, cosmopolitan city nowadays. There's a great atmosphere, and a lot of fans from all around Europe come to watch the race.

The Hungaroring itself is very much a maximum downforce circuit, along with Monaco, where drag almost doesn't matter. It's a case of how much wing you can pile on the car. It's usually very hot, so there are high track temperatures and that means cooling can be challenging there. In the past Michelin seems to have had an advantage when the temperature rises.

For the drivers, it's a very technical circuit. There are a lot of tricky sequences where the positioning of the car has to be right for the whole sequence of corners. There are also quite a few long 180-degree corners which makes the car's balance pretty important. If you have a car that goes to mid-corner understeer then in that type of corner you're in trouble.

There were a few changes to the circuit last year, notably to the first corner, but it didn't really make a difference to the overall character of the place. It didn't make overtaking any easier, either!

## TRACK MAP



## CLASSIC RACE HUNGARORING 2000



A vital win for Mika, but he admitted later that it was one of his toughest ever races

Mika Häkkinen raced in 131 Formula 1 grands prix and won the Drivers' World Championship twice. Of all those races, he recalls the Hungaroring in 2000 as one of the toughest.

"I feel like I have been in a boxing fight for two hours, and I was the one taking all the punches!" said Mika after a race that was run in gruelling 32-degree heat. "It was a race that totally sapped my strength."

The Finn had cramp in his legs and arms after the grand prix and was clearly exhausted when he spoke to journalists. So dehydrated was he, in fact, that he could manage only a couple of sentences at a time.

Although the race took an hour and three-quarters, it was effectively won within the first 10 seconds. The Hungaroring is a twisty track that favours the polesitter - which was not good news for a man whose Team McLaren Mercedes MP4-15 was sitting in third place on the grid. As the lights went out, though, Mika catapulted off the line and dived to the right of Michael Schumacher's Ferrari as the two cars headed into the first right-hander. Once alongside, he simply sat it out with the German. It was very brave, very clean - Mika at his best.

The Hungaroring is a demanding track which, like Monaco, offers a driver no respite. Though he built a commanding lead - the gap to title rival Schumacher was 27 seconds at its peak - Mika could never afford to lose concentration. It was, reflected Mercedes-Benz Vice President of Motorsport Norbert Haug, one of the finest drives of Mika's career.

1	Mika Häkkinen	1h45m33.869s
2	Michael Schumacher	+7.916s
3	David Coulthard	+8.454s
4	Rubens Barrichello	+44.157s
5	Ralf Schumacher	+50.437s
6	Heinz-Harald Frentzen	+1m08.099s



## TRACK INFORMATION

LAP LENGTH	4.381km
RACE DISTANCE	306.670km
NUMBER OF LAPS	70
2003 POLE POSITION	1m21.688s (163.941km/h)
2003 RACE LAP RECORD	1m22.095s (163.128km/h)

## PREVIOUS McLAREN WINS

1988	Ayrton Senna MP4/4
1991	Ayrton Senna MP4/6
1992	Ayrton Senna MP4/7A
1999	Mika Häkkinen MP4-14
2000	Mika Häkkinen MP4-15

## RACE TIMETABLE

### FRIDAY AUGUST 13

- 11.00-12.00 Practice session one
- 14.00-15.00 Practice session two

### SATURDAY AUGUST 14

- 10.00-10.45 Practice session three
- 11.15-12.00 Practice session four

### SUNDAY AUGUST 15

- 14.00 Hungarian Grand Prix
- \*schedule may be subject to change under new F1 rules

## FURTHER INFORMATION

### NEARBY CITIES (AIRPORTS)

Budapest (Ferihegy) - 20km

### TICKET INFORMATION

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## DAYS IN THE LIFE OF PEDRO DE LA ROSA

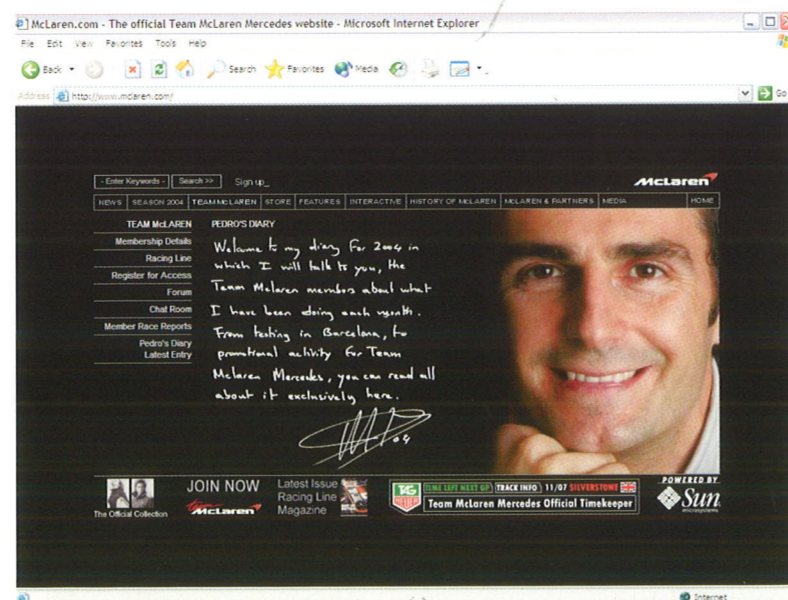
We are pleased to announce a new feature for Team McLaren members on the team's ever-popular website [www.mclaren.com](http://www.mclaren.com)

Each month, Pedro de la Rosa will be reporting exclusively to Team McLaren members about his day to day activities with the team, including news of his test responsibilities and promotional events.

The first instalment of this new feature is now available on the website and includes Pedro's account of his first test in the MP4-19B. The Team McLaren Mercedes Test Driver also chats about his love of the Goodwood Festival of Speed and his experiences at the Mobil 1 French Grand Prix.

Pedro's Diary can be found in the "Team McLaren" section of the website, exclusive to members.

If you have not already registered for access, you will need to complete the "Register for access" form (please ensure you have your membership number and e-mail address to hand). This will allow you to choose your username and password for future visits.



WIN! .. WIN! .. WIN! .. WIN! .. WIN! .. WIN! .. WIN!

## SIGNED PEDRO RACE GLOVES

This month, we are offering you, the Team McLaren members, the chance to win an exclusive prize: a pair of racing gloves used and signed by Pedro de la Rosa. To win, you just have to give us the answer to the following question:

**How many grands prix has Pedro competed in?**

Send your answer, along with your name, address and membership number, to Team McLaren, Admail 622, Woking, GU21 1WH by August 31st. Good luck!



[www.mclaren.com](http://www.mclaren.com) [www.mclaren.com](http://www.mclaren.com) [www.mclaren.com](http://www.mclaren.com)

# POSTCARDS FROM GOODWOOD

IN ASSOCIATION WITH CANON

Since 1993, the annual Goodwood Festival of Speed has enthralled participants and spectators alike with its unique atmosphere and attractions. Test Driver Darren Turner, who drove an MP4-17D at the event, shares his snaps with *Racing Line*



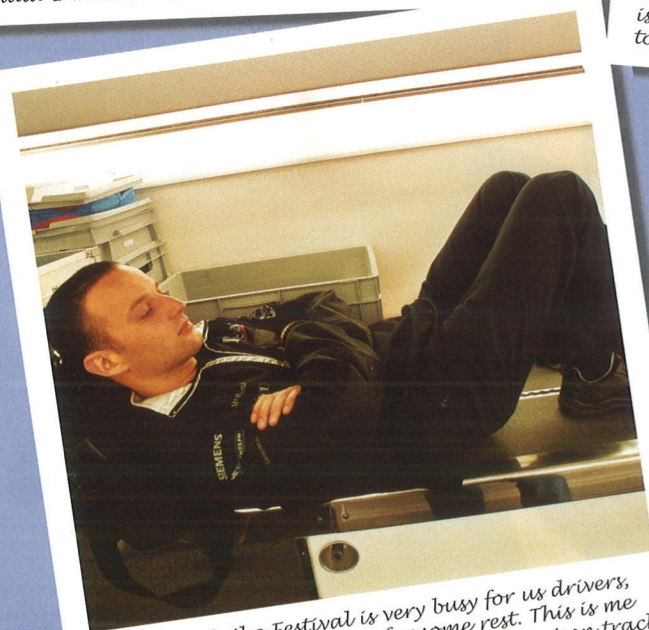
*In the grounds of Goodwood House there is a unique hill climb course. Over the course of the weekend, all manner of exotic machinery will take the challenge*



*One of the unique aspects of the event is the chance to get up close and personal with some classic Formula 1 machines, like these historic McLarens*



*Unlike at a grand prix or test, where access to drivers is strictly controlled, at Goodwood the fans can get close to their heroes, such as my friend Pedro de la Rosa*



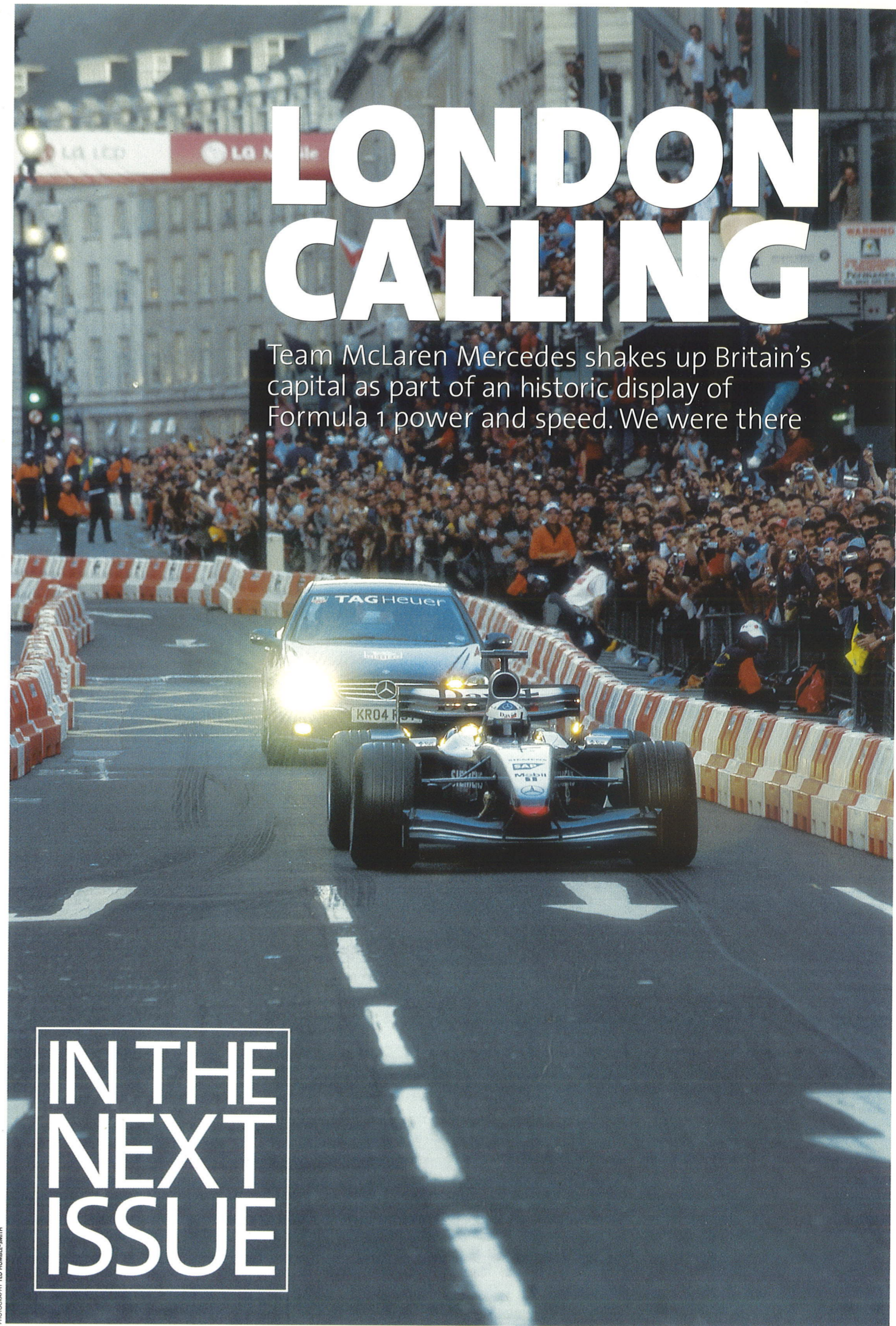
*Even though the Festival is very busy for us drivers, there's always a little time for some rest. This is me relaxing in the race truck before going out on track*



*At the Festival of Speed, the emphasis is always on fun, and these Laurel and Hardy lookalikes certainly raised some laughter among the packed grandstands*

# LONDON CALLING

Team McLaren Mercedes shakes up Britain's capital as part of an historic display of Formula 1 power and speed. We were there



## 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.



THE MORE YOU KNOW ABOUT MOBIL 1, THE BETTER IT IS FOR YOUR CAR.

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**Mobil** Command Performance